Teck Coal
Environment Office
Bag Service 2000, 421 Pine Avenue
Sparwood, B.C. Canada V0B 2G0

+1 250 425 3352 Tel
www.teck.com

Technical Report Overview

Report: 2020 Annual Report: Elk Valley Regional and Site-Specific Groundwater Monitoring Programs

Overview: This report presents the 2020 results of the regional groundwater monitoring program and the site-specific programs at Fording River Operations, Greenhills Operations, Line Creek Operations, Elkview Operations, and Coal Mountain mine required under Sections 8.2 and 9.4 of Permit 107517. This report summarizes the results of groundwater quality and quantity in 2020 and compares them to relevant screening values and historical data. It also compares groundwater chemistry to nearby surface water chemistry to understand groundwater transport pathways and groundwater/surface water interaction.

This report was prepared for Teck by SNC-Lavalin Inc.

For More Information

If you have questions regarding this report, please:
- Phone toll-free to 1.855.806.6854
- Email **feedbackteckcoal@teck.com**

Future studies will be made available at **teck.com/elkvalley**

SNC·LAVALIN

2020 Annual Report: Elk Valley Regional and Site-Specific Groundwater Monitoring Programs

Fording River Operations
Greenhills Operations
Line Creek Operations
Elkview Operations
Coal Mountain Mine
Regional Groundwater Monitoring Program

VOLUME II OF III

Prepared for:

Teck Coal Limited

March 31, 2021

Internal Ref: 635544 › Final

Volume II – Appendix I

Permit 107517 (amended October 22, 2020)

October 22, 2020

Tracking Number: 386513
Authorization Number: 107517

REGISTERED MAIL

Teck Coal Limited
3300-550 Burrard ST
Vancouver, BC V6C 0B3

Dear Permittee:

Enclosed is Amended Permit 107517 issued under the provisions of the *Environmental Management Act*. Your attention is respectfully directed to the terms and conditions outlined in the permit. An annual fee will be determined according to the Permit Fees Regulation.

This permit does not authorize entry upon, crossing over, or use for any purpose of private or Crown lands or works, unless and except as authorized by the owner of such lands or works. The responsibility for obtaining such authority rests with the permittee. This permit is issued pursuant to the provisions of the *Environmental Management Act* to ensure compliance with Section 120(3) of that statute, which makes it an offence to discharge waste, from a prescribed industry or activity, without proper authorization. It is also the responsibility of the permittee to ensure that all activities conducted under this authorization are carried out with regard to the rights of third parties and comply with other applicable legislation that may be in force.

When a spill occurs, or there is an imminent risk of one occurring, the responsible person must ensure that it is reported in accordance with the Spill Reporting Regulation. Additional information on spill reporting requirements is available at gov.bc.ca/reportaspill

This decision may be appealed to the Environmental Appeal Board in accordance with Part 8 of the *Environmental Management Act*. An appeal must be delivered within 30 days from the date that notice of this decision is given. For further information, please contact the Environmental Appeal Board at (250) 387-3464.

Administration of this permit will be carried out by staff from the Environmental Protection Division's Regional Operations Branch. Plans, data and reports pertinent to the permit are to be submitted by email or electronic transfer to the director, designated officer, or as further instructed.

Please be reminded that the director may require the permittee to do one or more of the following at any time:

- repair, alter, remove, improve or add to existing works, or to construct new works, and to submit plans and specifications for works specified in this authorization.
- conduct monitoring, and may specify procedures for monitoring and analysis, and procedures or requirements respecting the handling, treatment, transportation, discharge or storage of waste.
- provide security in the amount and form, and subject to the conditions, specified by the director.
- conduct studies and to report information in accordance with the specifications of the director.
- recycle certain wastes and recover certain reusable resources, including energy potential from wastes, in accordance with the specifications of the director.

For more information about how the Ministry will assess compliance with your permit please refer to gov.bc.ca/environmentalcompliance.

For more information about how to make changes to your permit and to access waste discharge amendment forms and guidance, please refer to gov.bc.ca/wastedischarge-authorizations.

Yours truly,

A.J. Downie, M.Sc., P.Ag.
for Director, *Environmental Management Act*
Mining Authorizations

MINISTRY OF ENVIRONMENT
AND CLIMATE CHANGE
STRATEGY

PERMIT

107517

Under the Provisions of the Environmental Management Act

Teck Coal Limited

3300-550 Burrard ST
Vancouver, BC V6C 0B3

is authorized to discharge effluent to the land and water from five coal mine sites located within the Elk Valley near Elkford and Sparwood, British Columbia, subject to the terms and conditions listed below. Contravention of any of these conditions is a violation of the *Environmental Management Act* and may lead to prosecution.

The terms and conditions included in this permit are intended to supplement the commitments and processes contained in the Elk Valley Area Based Management Plan approved November 18, 2014. Should any conflict exist between this permit and the Elk Valley Area Based Management Plan, the permit requirements take precedence.

Date issued:	November 19, 2014
Date amended: (most recent)	October 22, 2020

A.J. Downie, M.Sc., P.Ag.
for Director, *Environmental Management Act*
Mining Authorizations

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1. DEFINITIONS AND GLOSSARY

Unless otherwise defined, all terms used in this permit are defined as in the Area Based Management Plan titled "The Elk Valley Water Quality Plan", approved November 18, 2014.

ABMP: Area Based Management Plan titled "The Elk Valley Water Quality Plan".

AMP: Adaptive Management Plan

AWTF: Active Water Treatment Facility

BCWQG FWAL: British Columbia Water Quality Guideline for Fresh Water Aquatic Life

CMO: Coal Mountain Operations as described in the latest approved *Mines Act* Permit C-84

Compliance Point: an effluent monitoring location specified in the permit at which discharge limits apply

Designated Area: a portion of southeastern British Columbia that contains the Elk Valley Watershed and the portion of Koocanusa Reservoir within Canada, and is geographically defined by Ministerial Order M113 (references to the Elk Valley are references to the Designated Area)

EVWQP: The Area Based Management Plan titled 'The Elk Valley Water Quality Plan"

EMC: Environmental Monitoring Committee

EMS: Environmental Monitoring System (provincial environmental quality data base)

EVO: Elkview Operations as described in the latest approved *Mines Act* Permit C-2

FRO: Fording River Operations as described in the latest approved *Mines Act* Permit C-3

GHO: Greenhills Operations as described in the latest approved *Mines Act* Permit C-137

KNC: Ktunaxa Nation Council

LAEMP: Local Aquatic Effects Monitoring Program

LCO: Line Creek Operations as described in the latest approved *Mines Act* Permit C-129

Order (the): Ministerial Order number M113, which was the directive issued by the B.C. Minister of Environment in April 2013 requiring Teck Coal Limited to develop an Area Based Management Plan for the Designated Area in the Elk Valley.

Order Constituents: Identified in Ministerial Order M113: selenium, cadmium, nitrate, and sulphate.

Order station: a monitoring location specified by the Order to monitor water quality in the Designated Area, at which site performance objectives apply

Parameter of Concern: any physical, chemical, or biological substance in air, soil or water at a concentration, or predicted to be at a concentration that exceeds regulatory thresholds, or may have an adverse effect on environmental or human health receptors

RAEMP: Regional Aquatic Effects Monitoring Program

Regulatory Document: means any document that the permittee is required to provide to the director or the Province pursuant to:

i. This authorization;
ii. Any regulation made under the *Environmental Management Act* that regulates the facilities described in this authorization or the discharge of waste from those facilities; or
iii. Any order issued under the *Environmental Management Act* directed against the permittee that is related to the facilities described in this authorization or the discharge of waste from those facilities.

SPO: Site Performance Objective

SRF: Saturated Rock Fill Water Treatment Facility

WLC: West Line Creek

2. AUTHORIZED DISCHARGES

Sections 2.1 to 2.7 refer to compliance points that correspond to locations where all or most of the point and non-point discharges from a mine site or specified portions of a mine site are expected to accumulate. These accumulated discharges are subject to the concentration limits (the “limits”) at the compliance points.

For Sections 2.1 to 2.7, the limits are expressed as monthly average concentrations and/or specified daily maximums. The monthly average concentration is defined as the average value of measured concentrations for all samples collected in a calendar month at the sample location. For months where only one result is collected, that result shall be compared to both the monthly average and daily maximum limits. Daily maximums are defined as any single grab sample.

2.1 FORDING RIVER OPERATIONS - FORDING RIVER COMPLIANCE POINT (FR_FRCP1)

This section applies to effluent from Teck Coal Limited mine operations (Fording River Operations and the Greenhills Operations into the Fording River watershed) upstream of FRO Compliance Point (EMS E300071). The FRO Compliance Point (EMS E300071) is located approximately 525 m downstream of Cataract Creek as shown in Appendix 1.

2.1.1 The characteristics of the effluent at the compliance point must not exceed the following monthly average limits:

MONTHLY AVERAGE	EFFECTIVE DATE		
PARAMTERS	Nov. 19, 2014	Dec. 31, 2019	Dec. 31, 2023
Total selenium (µg/L)	130	90	61
Nitrate as N (mg/L)	27	19	13
Sulphate (mg/L)	580	620	650

Date issued: November 19, 2014
Date amended: October 22, 2020
(most recent)

A.J. Downie, M.Sc., P.Ag.
for Director, *Environmental Management Act*
Mining Authorizations

2.1.2 The characteristic of the effluent at the compliance point must not exceed the following daily maximums:

DAILY MAXIMUM	EFFECTIVE DATE		
PARAMETERS	Nov. 19, 2014	By Dec. 31, 2019	By Dec. 31, 2023
Total selenium (µg/L)	155	106	71
Nitrate as N (mg/L)	32.5	23	15

2.1.3 The authorized works associated with this compliance point are tailings impoundments, sedimentation and infiltration ponds, diversions, ditches, pipelines and pumping, sewage treatment plants, and related appurtenances.

2.2 **GREENHILLS OPERATIONS – FORDING RIVER COMPLIANCE POINT (GH_FR1)**

This section applies to effluent from Teck Coal Limited mine operations (Fording River Operations, Greenhill Operations and Line Creek Operations) upstream of GHO Fording River Compliance Point (EMS 0200378). The GHO Fording River Compliance Point (EMS 0200378) is located 205 m downstream of Greenhills Creek as shown in Appendix 1.

2.2.1 The characteristics of the effluent at the compliance point must not exceed the following monthly average limits:

MONTHLY AVERAGE	EFFECTIVE DATE		
PARAMETERS	Nov. 19, 2014	By Dec. 31, 2019	By Dec. 31, 2023
Total selenium (µg/L)	80	63	57
Nitrate as N (mg/L)	20	14	11

2.2.2 The characteristics of the effluent at the compliance point must not exceed the following daily maximums:

DAILY MAXIMUM	EFFECTIVE DATE		
PARAMETERS	Nov. 19, 2014	By Dec. 31, 2019	By Dec. 31, 2023
Total selenium (µg/L)	100	78	62
Nitrate as N (mg/L)	29	17	15

2.2.3 The authorized works associated with this compliance point are tailings impoundments, sedimentation and infiltration ponds, diversions, sewage treatment plants, and related appurtenances.

2.3 <u>GREENHILLS OPERATIONS – ELK RIVER COMPLIANCE POINT (GH_ERC)</u>

This section applies to effluent from Teck Coal Limited mine operations (Greenhills Operations into the Elk River watershed) upstream of GHO Elk River Compliance Point (EMS 300090). The GHO Elk River Compliance Point (EMS 300090) is located 220 m downstream of Thompson Creek as shown in Appendix 1.

2.3.1 The characteristics of the effluent at the compliance point must not exceed the following monthly average limits:

MONTHLY AVERAGE	EFFECTIVE DATE	
PARAMETERS	Immediately	By Dec. 31, 2027
Total selenium (µg/L)	15	8
Nitrate as N (mg/L)	3	3

2.3.2 The authorized works associated with this compliance point are tailings impoundments, sedimentation and infiltration ponds, diversions, sewage treatment plants and related appurtenances.

2.4 LINE CREEK OPERATIONS – LINE CREEK COMPLIANCE POINT (LC_LCDSSLCC)

This section applies to effluent from Teck Coal Limited mine operations (Line Creek Operations into the Line Creek Watershed) above LCO Compliance Point (EMS E297110). The LCO Compliance Point (EMS E297110) is located approximately 1500 m downstream of the West Line Creek Active Water Treatment Facility (WLC AWTF) outfall as shown in Appendix 1.

2.4.1 The characteristics of the effluent at the compliance point must not exceed the following monthly average limits:

MONTHLY AVERAGE	EFFECTIVE DATE		
PARAMETERS	Nov. 19, 2014	By Dec. 31, 2015	By Dec. 31, 2033
Total selenium (µg/L)	80	50	29
Nitrate as N (mg/L)	14	7	3

2.4.2 The characteristics of the effluent at the compliance point must not exceed the following daily maximums:

DAILY MAXIMUM	EFFECTIVE DATE		
PARAMETERS	Nov. 19, 2014	By Dec. 31, 2015	By Dec. 31, 2033
Total selenium (µg/L)	95	58	33
Nitrate as N (mg/L)	20	9	4

2.4.3 The authorized works associated with this compliance point are tailings impoundments, sedimentation and infiltration ponds, diversions, sewage treatment plants, and related appurtenances.

2.5 ELKVIEW OPERATIONS – HARMER CREEK COMPLIANCE POINT (EV_HC1)

This section applies to effluent from Teck Coal Limited mine operations (Elkview Operations into the Harmer Creek watershed) above EVO Harmer Compliance Point (EMS E102682). The EVO Harmer Compliance Point (EMS E102682) is located at the Harmer Spillway as shown in Appendix 1.

2.5.1 The characteristics of the effluent at the compliance point must not exceed the following monthly average limits:

MONTHLY AVERAGE	EFFECTIVE DATE		
PARAMETERS	Nov. 19, 2014	By Dec. 31, 2017	By Dec. 31, 2021
Total selenium (µg/L)	45	57	57
Nitrate as N (mg/L)	4	16	8
Sulphate (mg/L)	300	380	450

2.5.2 The authorized works associated with this compliance point are sedimentation and infiltration ponds, tailings impoundments, diversions, sewage treatment plants, and related appurtenances.

2.6 ELKVIEW OPERATIONS – MICHEL CREEK COMPLIANCE POINT (EV_MC2)

This section applies to effluent from Teck Coal mine operations (Elkview Operations into the Michel Creek watershed) above EVO Michel Creek Compliance Point (EMS E300091). The EVO Michel Creek Compliance Point (EMS E300091) is located at the Highway 3 bridge over Michel Creek as shown in Appendix 1.

2.6.1 The characteristics of the effluent at the compliance point must not exceed the following monthly average limits:

MONTHLY AVERAGE	EFFECTIVE DATE		
PARAMETERS	Immediately	By Dec. 31, 2021	By Dec. 31, 2025
Total selenium (µg/L)	28	20	19
Nitrate as N (mg/L)	6	6	6

2.6.2 The authorized works associated with this compliance point are sedimentation and infiltration ponds, tailings impoundments, diversions, sewage treatment plants, and related appurtenances.

2.7 COAL MOUNTAIN OPERATIONS (CMO) – MICHEL CREEK COMPLIANCE POINT (CM_MC2)

This section applies to effluent from Teck Coal Limited mine operations (Coal Mountain Operations) above CMO Compliance Point (EMS E258937). The CMO Compliance Point (EMS E258937) is located 50 m upstream of Andy Goode Creek as shown in Appendix 1.

2.7.1 The characteristics of the effluent at the compliance point must not exceed the following monthly average limits:

MONTHLY AVERAGE	EFFECTIVE
PARAMETERS	Immediately
Total selenium (µg/L)	19
Nitrate as N (mg/L)	5
Sulphate (mg/L)	500

2.7.2 The authorized works associated with this compliance point are sedimentation and infiltration ponds, diversions, sewage treatment plant, and related appurtenances.

3. SITE PERFORMANCE OBJECTIVES

3.1 SITE PERFORMANCE OBJECTIVES FOR ORDER STATIONS

The following Site Performance Objectives (SPO) are established at the Order Stations. It is expected that SPOs will be maintained during all timeframes shown in the tables or immediately maintained if no date is indicated. Site performance objectives are expressed as monthly average concentrations. The monthly average concentration is defined as the average of all samples collected in a calendar month.

ORDER STATION {Teck ID} (EMS number)	ORDER DESCRIPTION (Teck location description)	PARAMETER	UNIT	EFFECTIVE DATE				
				Nov. 19, 2014	Dec. 31, 2019	Dec. 31, 2023	Dec. 31, 2025	Dec. 31, 2028
FR4 {GH_FR1} (0200378)	Fording River Downstream of Greenhills Creek	Total Selenium	µg/L	-	63	57	57	57
		Nitrate as N^2	mg/L	20	14	11	11	11
		Sulphate	mg/L	429	429	429	429	429
		Dissolved Cadmium^1	µg/L	0.39	0.39	0.39	0.39	0.39
FR5 {LC_LC5} (200028)	Fording River at the Mouth (Fording River downstream of Line Creek)	Total Selenium	µg/L	-	51	40	40	40
		Nitrate as N^2	mg/L	18	10	10	10	10
		Sulphate	mg/L	429	429	429	429	429
		Dissolved Cadmium^1	µg/L	0.39	0.39	0.39	0.39	0.39
ER1 {GH_ER1} (206661)	Elk River downstream of Greenhills Operations (Upstream of Boivin Creek)	Total Selenium	µg/L	19	19	19	19	19
		Nitrate as N	mg/L	3	3	3	3	3
		Sulphate	mg/L	309	309	309	309	309
		Dissolved Cadmium^1	µg/L	0.24	0.24	0.24	0.24	0.24
ER2 {EV_ER4} (200027)	Elk River from Fording River to Michel Creek (upstream of Grave Creek)	Total Selenium	µg/L	23	23	19	19	19
		Nitrate as N	mg/L	-	4	4	3.5	3
		Sulphate	mg/L	429	429	429	429	429
		Dissolved Cadmium^1	µg/L	0.24	0.24	0.24	0.24	0.24
ER3 {EV_ER1} (200393)	Elk River downstream of Michel Creek	Total Selenium	µg/L	19	19	19	19	19
		Nitrate as N	mg/L	-	3	3	3	3
		Sulphate	mg/L	429	429	429	429	429
		Dissolved Cadmium^1	µg/L	0.24	0.24	0.24	0.24	0.24

ER4 {RG_ELKORES} (E294312) (E294312)	Elk River at Elko Reservoir	Total Selenium	µg/L	19	19	19	19	19
		Nitrate as N	mg/L	-	3	3	3	3
		Sulphate	mg/L	429	429	429	429	429
		Dissolved Cadmium[1]	µg/L	0.24	0.24	0.24	0.24	0.24
LK2 {RG_DSELK} (E300230)	Koocanusa Reservoir south of the Elk River	Total Selenium	µg/L	2	2	2	2	2
		Nitrate as N	mg/L	3	3	3	3	3
		Sulphate	mg/L	308	308	308	308	308
		Dissolved Cadmium[1]	µg/L	0.19	0.19	0.19	0.19	0.19

[1] Cadmium SPOs are hardness dependent based on the following formula:
Cd (in µg/L) = $10^{0.83\log10(\text{hardness})-2.53}$ where hardness is in mg/L of $CaCO_3$

[2] Nitrate SPOs for FR4 {GH_FR1} as of 2023 and FR5 {LC_LC5} as of 2019 are hardness dependent based on the following formula:

Level 1 benchmark for the Fording River N as mg/L = $10^{1.0003\log 10(\text{hardness})-1.52}$ where hardness is in mg/L of $CaCO_3$

For the purposes of calculating the targets above, hardness is based on the following concentrations:

FR4{GH_FR1}, FR5{LC_LC5}, and ER1{GH_ER1} – 360 mg/L
ER2{EV_ER4}, ER3{EV_ER1}, and ER4{RG_ELKORES} – 200 mg/L
LK2{RG_DSELK} – 150 mg/L

3.2 TRIGGERS FOR REASSESSMENT OF LIMITS

In the event that a site performance objective listed in Section 3.1 is exceeded without an exceedance of limits in Section 2, the permittee must:

1) Immediately notify the director and KNC of the exceedance;
2) Re-sample within 7 days of receiving data to confirm results;
3) If the results continue to exceed an SPO, the permittee must re-assess discharge sources and determine appropriate limits for the compliance points detailed in Section 2, or new compliance points based on the re-assessment of discharge sources; and
4) Provide to the director and KNC an explanation of the temporary exceedance or an application for an amendment of this permit with new or revised Section 2 limits within 3 months.

The director may specify additional monitoring in the event of a continued exceedance.

3.3 SITE PERFORMANCE OBJECTIVES FOR COMPLIANCE POINTS

The following Site Performance Objectives (SPOs) are established at the Compliance Points for sites where permit limits have not been specified in Section 2. It is expected that the SPOs will be maintained during all time frames.

COMPLIANCE POINT	SITE PERFORMANCE OBJECTIVE	
GHO Fording River, GHO Elk River, LCO, EVO Michel Creek	Sulphate: BCWQG FWAL[1] (hardness dependent)	
	WATER HARDNESS[2] (mg/L)	**SULPHATE GUIDELINE (mg/L)**
	Very Soft (0-30)	128
	Soft to moderately soft (31-75)	218
	Moderately soft/hard to hard (76-180)	309
	Very hard (181-250)	429
	In addition, the following water quality benchmark as developed for the ABMP will be applied:	
	Very hard (>250)	429
All Compliance Points	Cadmium: Cd (in µg/L) = $10^{\{0.83(\log[\text{hardness}])-2.53\}}$ where hardness is in mg/L of CaCO3	

[1] BC Water Quality Guideline for Freshwater Aquatic Life

[2] Hardness is in mg/L $CaCO_3$

Site performance objectives are expressed as monthly average concentrations. The monthly average concentration is defined as the average of the samples collected in a month.

3.4 SITE PERFORMANCE OBJECTIVES – CALCITE

The permittee must manage calcite levels in streams in Management Units 1, 2, 3, and 4 for streams that are fish bearing, provide fish habitat or flow directly into fish bearing streams and are not scheduled by an Environmental Assessment Certificate or *Mines Act* Permit to be buried. These streams must meet the following Site Performance Objectives:

1) By December 31, 2024 CIConc ≤ 0.50
2) By December 31, 2029 CItotal ≤ 0.50

Where:

CItotal: Calcite Index (total) = CIConc + CIPres

CIConc: Calcite Concretion $= \dfrac{\text{Sum of pebble concretion scores}}{\text{Number of pebbles counted}}$

CIPres: Calcite Presence $= \dfrac{\text{Number of pebbles with calcite}}{\text{Number of pebbles counted}}$

4. TRIBUTARY EVALUATION AND MANAGEMENT

The permittee must develop and implement a phased study design for a Tributary Evaluation Program and develop and implement a Tributary Management Plan. The Tributary Evaluation Program and the Tributary Management Plan must include all tributaries affected or potentially influenced by the permittee's current operations and future development plans in Management Units 1, 2, 3, and 4, as defined in the Elk Valley Water Quality Plan.

The Tributary Evaluation Program is intended to evaluate the ecological value of tributaries to the Elk and Fording Rivers to support identification of tributaries that play a significant role in supporting the health of the ecosystem as a whole. The Tributary Evaluation Program must include the following elements:

- Inventory of tributaries to the Elk and Fording Rivers that are located in Management Units 1, 2, 3, and 4 that are affected or potentially influenced by the permittee's current and future development plans;
- Maps of Management Units 1, 2, 3, and 4 showing the locations of the tributaries of the Elk and Fording Rivers, and identifying the tributaries that are affected or potentially influenced by the permittee's current and future development plans;
- Collation of existing and readily available data and information on each tributary, including surface-water chemistry, surface-water toxicity, sediment chemistry, sediment-toxicity, calcification, flow, habitat value ranking, benthic invertebrate community structure, and habitat use by fish and/or sensitive aquatic dependent wildlife (i.e., water birds);
- Evaluation of historical (i.e. conditions relevant to the 1980 timeframe, where available) and current habitat value, based on surface-water quality, sediment quality, extent of calcification, flow, amount of habitat available, habitat types, physical features, connectivity to fish habitat, status of riparian habitat, and habitat use by fish and sensitive aquatic dependent wildlife species;
- Evaluation of the potential for rehabilitation of aquatic and riparian habitat and potential for improvement of water quality conditions; and
- Prioritization of each tributary for ongoing protection and/or restoration based on the evaluation of current ecological value, potential for rehabilitation, and potential to contribute to the objectives of the EVWQP.

The purpose of this evaluation is to provide context for the development of specific management objectives for tributaries included in the Tributary Management Plan. As the Tributary Evaluation Program will also provide essential information for assessing the potential effects of planned mine expansions and new projects, the components of the program that relate to the upper Fording River and the Michel Creek watershed should be completed on a priority basis as part of the phased study design.

Following the evaluation of the tributaries, the permittee must develop and implement a Tributary Management Plan. The Tributary Management Plan is intended to incorporate protection and rehabilitation goals for tributaries that will support achieving the area-based objectives of the Elk Valley Water Quality Plan. In development of the Tributary Management Plan, those tributaries that are not impacted by mining activities, that provide relatively high habitat value, and/or support ongoing habitat use by fish and sensitive aquatic dependent wildlife (i.e. directly or indirectly through food production) shall be identified as the highest priority tributaries for permanent protection. Those tributaries that have been impacted by mining, provide or have the potential to provide relatively high habitat value, and/or support or could support habitat use by fish and sensitive aquatic dependent wildlife shall be identified as the highest priority tributaries for restoration/rehabilitation. The Tributary Management Plan will consider the permittee’s future mine development plans. The scope of the Tributary Management Plan excludes tributaries that have been permanently removed or severely altered (e.g., covered by waste spoils or other mine infrastructure or dewatered) by mining activities within the permittee’s current mine permit boundaries. Loss of habitat for such tributaries is governed by requirements under the Federal *Fisheries Act* and the provincial mitigation policy.

The Tributary Evaluation Program and Tributary Management Plan will complement the Elk Valley Water Quality Plan and clearly detail any proposed management of water quality conditions, flows and ecological values within the tributaries affected or influenced by the permittee’s current operations and planned developments in Management Units 1, 2, 3, and 4, as defined in the Elk Valley Water Quality Plan.

The following development and implementation timelines apply:

1) A Phased Study Design for the Tributary Evaluation Program, including a listing of all tributaries to be evaluated, must be submitted to the EMC by May 1, 2015.
2) The Phased Study Design for the Tributary Evaluation Program must be submitted for acceptance to the director by May 31, 2015.
3) The Terms of Reference for the Tributary Management Plan must be submitted to the EMC by March 31, 2016.
4) Data collected during the Tributary Evaluation Program for current ecological value of tributaries within Management Units 1, 2, 3 and 4 must be compiled into a written report and submitted to the EMC by March 31, 2016.
5) Analysis and interpretation of Tributary Evaluation Program data, assessment of potential for rehabilitation and/or mitigation, and prioritization of tributaries for potential future habitat rehabilitation must be compiled into a written interim report and submitted to the EMC by August 31, 2016.
6) Interim Tributary Management Plan report must be submitted to the EMC by July 31, 2017. The Tributary Management Plan must be submitted for acceptance to the director by December 31, 2017. The Tributary Management Plan must be implemented by March 1, 2018.
7) An updated Tributary Management Plan must be submitted for acceptance to the director by July 31, 2020. Thereafter, the Plan must be updated and submitted for acceptance to the director by July 31st every three years. Updated Tributary Management Plans must be prepared in consultation with the EMC. The updates shall, at a minimum, incorporate any changes to the permittee's current and future development plans.
8) The accepted Tributary Management Plan must be implemented, and an annual implementation report must be submitted to the director and to the EMC by January 31st of each year. The annual report must describe implementation activities undertaken in tributaries in the Designated Area including those under the Tributary Management Plan itself, other legal requirements and other supporting programs, in the previous 12 months to rehabilitate impacted tributaries and protect high value, unimpacted tributaries.

5. CONTAMINANT MANAGEMENT PLANS

5.1 CALCITE MANAGEMENT PLAN

The permittee must update and submit the Calcite Management Plan to the satisfaction of the director, as outlined in Chapter 7 of the Elk Valley Water Quality Plan, by July 31, 2016 and every three years thereafter. The Calcite Management Plan must include a list of streams that according to Section 3.4 must meet the Calcite Site Performance Objectives and provide a schedule for implementation of mitigation measures. Mitigation measures must be implemented according to the schedule.

Refer to Appendix 5 for calcite treatment facility operational requirements.

5.2 NICKEL MANAGEMENT

5.2.1 Development of Nickel Benchmark

The permittee must develop a nickel benchmark derivation workplan and submit it to the director for approval by August 31, 2021. The workplan must incorporate feedback from the EMC and include proposed methodologies and timelines for the derivation of a nickel benchmark that could be applied in the receiving environment of the Elk Valley.

Once the final nickel benchmark is derived, the director may require additional mitigation to be implemented.

5.2.2 ELKVIEW OPERATIONS

5.2.2.1 Trigger Response Plan for Nickel

The permittee must develop and implement a Trigger Response Plan (TRP) for nickel. The TRP must be submitted to the director for approval 30 days prior to the end of the commissioning period for the EVO SRF, and the permittee must notify the director at least 15 days prior to implementing any proposed changes to the approved TRP. The TRP must describe the actions to be taken if total nickel concentrations in the effluent exceed an initial trigger value of 36 ug/L, calculated as a quarterly (13-week) rolling average at the Effluent Retention Pond Outlet (F2_BPO, E321812), when the SRF is discharging to Erickson Creek.

The purpose of the TRP is to ensure that procedures to manage nickel concentrations in the effluent are implemented in a timely manner to minimize risks associated with elevated nickel concentrations in the receiving environment of Erickson Creek. The TRP procedures must include, but not be limited to, an increase in effluent and/ or receiving environment monitoring to confirm exceedances of triggers, specific management actions to be implemented where trigger exceedances are confirmed, and a schedule for implementation of the management actions.

The permittee must review and update the TRP within 9 months of the submission of the final nickel benchmark to the director. The updated TRP must be submitted to the director and must include consideration of:

a) The final nickel benchmark as per Section 5.2.1,

b) Results from the Elkview Operations Local Aquatic Effects Monitoring Program as per Section 8.3.5, and

c) any other relevant plans, data or information.

6. GENERAL REQUIREMENTS

6.1 MAINTENANCE OF WORKS AND EMERGENCY PROCEDURES

The permittee must inspect the authorized works regularly and maintain them in good working order. In the event of a condition or emergency which prevents effective operation of the authorized works, leads to unauthorized discharge, or results in a permit exceedance, the permittee must:

1) Comply with all applicable statutory requirements, including the Spill Reporting Regulation;
2) Immediately contact the director or an officer designated by the director by e-mail and/or telephone;
3) Take immediate appropriate remedial action for the prevention or mitigation of pollution; and
4) Submit written documentation of any malfunction or emergency condition. The report must include all the corrective and preventative actions that will be taken, a schedule of implementation of actions and the date the findings as to the cause of the incident will be reported to the director and KNC.

This information must be submitted with the next quarterly report required in Section 9 unless otherwise required by the director.

During an emergency event, the director may suspend conditions under this permit where the emergency event will prevent compliance with a requirement of this permit.

During and/or after the emergency event or condition, the permittee must conduct appropriate sampling and analysis of discharges, which may be more stringent than the monitoring requirements of this permit and/or applicable statutory requirements. As the results of such sampling become available, the permittee must provide the results to the director or a designated officer. The director may require additional monitoring or reporting at any time by specifying such in writing to the permittee.

The director may specify contingency actions to be implemented to protect human health and the environment while authorized works and/or standard operating procedures are being restored.

6.2 EFFLUENT NON-TOXICITY

Effluent is not acutely toxic if it does not cause greater than 50% mortality in 96 hr Rainbow Trout (*Oncorhynchus mykiss)* single concentration toxicity tests (EPS 1/RM/13 2nd edition, December 2000) or greater than 50% mortality in 48 hr *Daphnia magna* single concentration toxicity tests (EPS 1/RM/14 2nd edition, December 2000).

6.3 CONTROLLED BYPASSES

Bypass of the authorized works, except for the calcite treatment facilities as per Appendix Sections 5B1.6 and 5C1.5, is prohibited unless the prior approval of the director is obtained and confirmed in writing. The director may specify conditions to address the bypass.

6.4 PROCESS MODIFICATIONS

The permittee must notify the director in writing, prior to implementing changes to any process that may adversely affect the quality and/or quantity of the discharge. Notwithstanding notification under this Section, permitted levels must not be exceeded.

6.5 NEW WORKS

The director may require upgrading of the treatment works and disposal facilities based on monitoring results, and/or any other pertinent information. Plans and specifications for new pollution treatment works and upgrades to existing works must be submitted to the director as an amendment application. All new works must be approved before a discharge from the works commences.

6.6 QUALIFIED PROFESSIONAL

A qualified professional is defined as follows:

"Qualified Professional" means an applied scientist or technologist specializing in an applied science or technology applicable to the duty or function, including, but not limited to agrology, biology, chemistry, engineering, geology or hydrogeology and who:

i. is registered with the appropriate professional organization, is acting under that organization's code of ethics and is subject to disciplinary action by that organization, and

ii. through suitable education, experience, accreditation and/or knowledge, may be reasonably relied on to provide advice within their area of expertise.

All documents submitted to the director by a Qualified Professional must be signed by the author(s).

6.7 ENVIRONMENTAL EMERGENCY RESPONSE PLAN

The permittee must maintain an Environmental Emergency Response Plan which includes effective procedures for responding to all probable environmental emergencies associated with the Teck Coal operations and mine site areas, including the suspension of discharge of effluent(s) where appropriate, if required. The permittee must keep this plan up to date and provide the director with any updates to this plan within 30 days of adoption of the plan update.

The director may require periodic review of the response plan, and/or a report on any emergency event associated with the mine operation or occurring at the mine site.

6.7.1 The Emergency Response Plan shall at a minimum include:

d) Identification of Environmental Aspects as defined by the ISO 14001 Environmental Management System Standards that pose a risk to the environment or public safety;

e) An evaluation of the identified environmental aspects including a fate and effects assessment where applicable;

f) Maps identifying areas of high environmental sensitivity around the mine sites including along the transportation corridors, and areas downstream of water-crossings where spilled materials can reasonably be anticipated to impact;

g) Site specific spill response tactics, including the required training and resources to implement those tactics for each of the identified materials or risks during an emergency event;

h) Requirements and procedures for spill reporting and/or emergency notification to various levels of government, including the KNC; and

i) Procedure for establishing formal interagency communication for the duration of the emergency and clean-up as necessary.

6.7.2 The permittee must maintain an Environmental Emergency Response Plan and ensure:

a) Adequate equipment caches are available at each operation, at a minimum, to enable timely and effective response to the identified highly sensitive areas and implementation of the plan;

b) Identify, train and have available a sufficient number of emergency responders to effectively and efficiently respond and implement the identified emergency response tactics;

c) Conduct regularly scheduled emergency response drills and exercises to test and refine the plan; and

d) Participate in efforts to harmonize spill response kits and plans with other industrial operators and municipalities.

6.8 PUBLIC NOTIFICATION REGARDING POTABLE WATER USE IN ELK VALLEY

The permittee must provide annual notification to all current water users (specifically surface and shallow groundwater users along the Fording and Elk Rivers) downstream of the Teck Operations, where impacts from mining are causing exceedances of the British Columbia Drinking Water Quality Guidelines. The notification must:

a) Advise current water users in the Elk Valley of the risks for drinking water sources to exceed drinking water guidelines

b) Remind all water users to have their source water sources tested to identify if treatment is required prior to drinking;

c) Have the same information accessible and maintained on the Internet; and

d) Annually by March 31, submit a written report to the director describing compliance with the requirements of this section for the previous year.

A draft of the notification shall be submitted to Interior Health (email: hbe@interiorhealth.ca) and to the director 30 days prior to distribution. This notification requirement shall continue until such time as water quality in the affected areas improves such that BC Drinking Water Quality Guidelines are achieved for all contaminants of interest.

7. ABMP COMMITMENTS

The following section identifies specific commitments made by the permittee in the Elk Valley Area Based Management Plan.

The permittee must aggressively pursue all viable approaches for reducing contaminant loadings to the environment and implement in a timely manner. Treatment approaches include passive and active water treatment.

7.1 TREATMENT

7.1.1 ACTIVE WATER TREATMENT FACILITIES

The permittee must design, construct and operate the following active water treatment facilities (AWTF) or alternative water treatment technology as approved by the director, by the date shown. The permittee must employ best achievable technology in the development of these treatment facilities. Phosphorus treatment must be included if necessary, to ensure BC Water Quality Guidelines for chlorophyll -a for freshwater aquatic life in streams is met.

TREATMENT FACILITY	TREATMENT SCOPE	APPROXIMATE CAPACITY OF AWTF	OPERATIONAL DATE
Fording River South	Cataract, Swift, Kilmarnock Creeks	20,000 m^3/day	December 31, 2018
Elkview Phase I*	Bodie, Gate, Erickson Creeks	30,000 m^3/day	December 31, 2020
Fording River North	Clode Creek, North Spoil, Swift Pit	15,000 m^3/day	December 31, 2022
Elkview Phase II	Erickson	20,000 m^3/day	December 31, 2024
Greenhills	GHO West Spoil (Thompson, Leask, Wolfram), Greenhills Creek	7,500 m^3/day	December 31, 2026
Fording River North Phase II	Swift Pit Discharge	15,000 m^3/day	December 31, 2030

*Elkview Operations SRF Phase 2 replaces Elkview Phase I

Notwithstanding the above requirements to construct and operate active water treatment facilities, the permittee must ensure that all necessary active water treatment works or alternative water quality mitigation works are designed, constructed and operated in sufficient time and at sufficient capacity to meet targets and timeframes for water quality consistent with the ABMP.

7.2 RESEARCH AND TECHNOLOGY DEVELOPMENT

7.2.1 RESEARCH ACTIVITIES

i. The permittee shall conduct a research and technology development program aimed at:

    a) Identifying, evaluating, and verifying measures to minimize the release of selenium, nitrate, sulphate, cadmium, calcite, and any other Parameters of Concern designated by the director; and

    b) Developing mitigation strategies to improve the management of water quality and calcite within the Designated Area.

ii. Research and technology development activities shall specifically include research to identify, evaluate, and validate measures to reduce the reliance on long term active water treatment.

iii. Research areas shall include, but not be limited to, the following topics:

    a) geochemical release mechanisms, release rates and relationships between factors that influence contaminant release;

    b) saturated and unsaturated flow mechanisms in waste piles;

    c) mine waste rock management and dump design alternatives;

    d) cover systems including soil and vegetative covers, complex soil covers and geomembranes;

    e) water capture, diversion and conveyance systems;

    f) active and semi-passive water treatment, including partially saturated waste rock fills;

    g) water treatment residuals management;

    h) treatment strategies for phosphorus reduction;

  - i) treatment strategies for sulphate and cadmium reduction, if needed in the future;
  - j) nitrate reduction through treatment and improved blasting practices; and,
  - k) predictive tools and treatment/management technologies for calcite formation.

iv. All on-site field trials for mitigation strategies and on-site piloting work for water treatment shall be discussed with the director to determine whether they will require permit amendments before proceeding.

7.2.2 REPORTING

The permittee must submit an annual Research and Technology Development Progress Report by March 31st of each year that contains:

i. A detailed rationalization of the overall research program including reasons why specific research areas are/are not being investigated in a given year;

ii. Detailed information on research objectives, study designs, data collected, results and interpretation, and plans for future research and technology development;

iii. An evaluation of the technologies relative to their potential for implementation at specific locations within the Designated Area;

iv. A timeframe for implementation of technologies at pilot and at full-scales and for integration into the Adaptive Management Plan; and,

v. Portions of the report that contain proprietary information must be marked “Confidential – Proprietary.” Release of information is subject to the Freedom and Information Privacy Act.

8. MONITORING REQUIREMENTS

The director may alter the monitoring and reporting requirements in this permit as needed. The need for changes to the programs will be based on results submitted as well as any other information obtained by the director in connection with the discharges.

8.1 DISCHARGE AND RECEIVING ENVIRONMENT MONITORING PROGRAMS

The permittee must sample the parameters at the sampling sites at the specific frequencies as defined in Appendix 2 Tables 9 through 23. The permittee must sample flow at the sites listed and at the frequency recommended in Appendix B in the approved Regional Surface Flow Monitoring Plan. The discharge and receiving environment water sampling sites are located approximately as shown in Appendix 1.

8.1.1 SAMPLING SITES

Discharge and receiving environment sample collection locations are described and numerically identified in Tables 1 through 8.

TABLE 1: COMPLIANCE POINTS SAMPLING LOCATIONS (APPENDIX 1C)

EMS #	*TECK IDENTIFIER*	*SITE*	*SITE DESCRIPTION*
E300071	FR_FRCP1	FRO	Fording River, approximately 525 m downstream of Cataract Creek
0200378	GH_FR1	GHO	Fording River, approximately 205 m downstream of Greenhills Creek
E300090	GH_ERC	GHO	Elk River, approximately 220 m downstream of Thompson Creek
E297110	LC_LCDSSLCC	LCO	Line Creek immediately downstream of South Line Creek Confluence (approximately 1500 m downstream of the WLC WTP outfall)
E102682	EV_HC1	EVO	Harmer Spillway
E300091	EV_MC2	EVO	Michel Creek at Highway 3 Bridge
E258937	CM_MC2	CMO	Michel Creek, approximately 50m upstream of Andy Goode Creek
E291569	WL_BFWB_OUT_SP21	LCO (Effluent)	WLC WTP Outfall (Effluent)

Date issued: November 19, 2014
Date amended: October 22, 2020
(most recent)

A.J. Downie, M.Sc., P.Ag.
for Director, *Environmental Management Act*
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TABLE 2: ORDER STATIONS SAMPLING LOCATIONS (APPENDIX 1D AND 1E)

EMS #	*ORDER STATION (TECK IDENTIFIER)*	*SITE DESCRIPTION*
0200378	FR4 (GH_FR1)	Fording River Downstream of Greenhills Creek
0200028	FR5 (LC_LC5)	Fording River downstream of Line Creek
E206661	ER1 (GH_ER1)	Elk River upstream of Boivin Creek
0200027	ER2 (EV_ER4)	Elk River upstream of Grave Creek (from Fording River to Michel Creek)
0200393	ER3 (EV_ER1)	Elk River Downstream of Michel Creek
E294312	ER4 (RG_ELKORES)	Elk River at Elko Reservoir
E300230	LK2 (RG_DSELK)	Koocanusa Reservoir south of the Elk River

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(most recent)

A.J. Downie, M.Sc., P.Ag.
for Director, *Environmental Management Act*
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TABLE 3: FORDING RIVER OPERATION DISCHARGE, RECEIVING ENVIRONMENT, AND OTHER SAMPLE LOCATIONS (APPENDIX 1F)

EMS #	*TECK IDENTIFIER*	*SITE DESCRIPTION*
E102475	FR_TP1	Tailings Slurry to North Tailings Pond
E206660	FR_TP3	Tailings Slurry to South Tailings Pond
E102476	FR_NL1	North Loop Settling Pond Decant to the Fording River
E102478	FR_MS1	Maintenance and Services Settling Pond Decant
E102480	FR_EC1	Eagle Settling Pond Decant
E102481	FR_CC1	Clode Settling Pond Decant
E208394	FR_SKP1	South Kilmarnock Settling Pond Decant - Phase 1
E208395	FR_SKP2	South Kilmarnock Settling Pond Decant- Phase 2
E216781	FR_HP1	Henretta Pit Effluent into diversion culvert
E217403	FR_3PIT	Swift Pit Effluent to Fording River
E261897	FR_SP1	Smith Ponds Decant
E304835	FR_LP1	Liverpool Sed. Pond Decant
E304750	FR_PP1	Post Sed. Pond Decant
0200252	FR_KC1	Kilmarnock Cr. D/S of Rock Drain
E306924	FR_LMP1	Lake Mountain Sediment Pond Decant
0200201	FR_FR2	Fording river upstream of Kilmarnock Creek
0200251	FR_FR1	Fording River downstream of Henretta
E216777	FR_UFR1	Fording River upstream of Henretta
E216778	FR_HC1	Henretta Cr. upstream of Fording River
E300096	FR_HC3	Henretta Creek upstream of McQuarrie Creek
E300097	FR_FRRD	Fording River near Fording River Road
E320693	FR_FR3	Fording River upstream of FRO AWTF-S Outfall Structure
E320694	FR_SCOUT	Discharge from the pipeline conveying the combined, untreated mine-influenced flow from Swift-Cataract dosed with antiscalant, and Swift Clean Water Diversion at the FRO AWTF-S Outfall Structure
E320695	FR_SCOUTDS	Fording River downstream (approx. 100 m) of FRO AWTF-S Outfall Structure
E319331	FR_SCCAT	Swift Creek Sediment Ponds Decant to Fording River

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A.J. Downie, M.Sc., P.Ag.
for Director, *Environmental Management Act*
Mining Authorizations

TABLE 4: GREENHILLS OPERATION DISCHARGE AND RECEIVING ENVIRONMENT SAMPLE LOCATIONS (APPENDIX 1G)

EMS #	*TECK IDENTIFIER*	*SITE DESCRIPTION*
E287438	GH_TPS	Tailings Pond Water
E102709	GH_GH1	Greenhills Creek Sed. Pond Decant
E309911	GH_GH2	Greenhills Creek downstream of Sed. Pond Decant
E207436	GH_TC2	Thompson Creek Sed. Pond Decant
0200385	GH_PC1	Porter Creek Sed. Pond Decant
E257795	GH_WC1	Wolfram Creek Sed. Pond Decant
E257796	GH_LC1	Leask Creek Sed. Pond Decant
E207437	GH_RLP	Rail Loop Sed. Pond Decant
0200388	GH_MC1	Mickelson Creek at LRP Road
E287433	GH_WADE	Wade Creek at LRP Road
E305855	GH_WOLF_SP1	Wolf Creek Sed. Pond Decant
E305854	GH_WILLOW_SP1	Willow Creek Sed. Pond Decant
0200389	GH_ER2	Elk River upstream of Greenhills Operation
E102714	GH_TC1	Thompson Creek at LRP Road
E287432	GH_COUGAR	Cougar Creek at LRP Road
E287437	GH_BR_F	Branch F at LRP Road
E305875	GH_NNC	No Name Creek
E305876	GH_ER1A	Elk River Side Channel D/S Wolfram Creek
E305877	GH_ERSC2	Elk River D/S of Thompson Creek
E305878	GH_ERSC4	Elk River Side Channel U/S Wolfram Creek
E309912	GH_CAM1EFF	Discharge from Antiscalant Module to Lower Greenhills Creek
E321331	GH_CA04	Greenhills Creek ~80 m downstream of Antiscalant Module

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TABLE 5: LINE CREEK OPERATION DISCHARGE AND RECEIVING ENVIRONMENT SAMPLE LOCATIONS (APPENDIX 1H)

EMS #	*TECK IDENTIFIER*	*SITE DESCRIPTION*
E221268	LC_LC9	No Name Cr. Pond Decant
E216144	LC_LC7	MSA North Ponds Effluent to Line Creek
E304613	LC_LC7DSTF	MSA North Ponds Effluent to Line Creek Alternate
E219411	LC_LC8	Contingency Treatment System Effluent to Line Creek
E293371	WL_WLCI_SP01	WLC WTP West Line Creek (Influent)
E293370	WL_LCI_SP02	WLC WTP Line Creek (Influent)
200044	LC_LC4	Line Creek u/s of Process Plant (~5,550 m d/s of WLC WTP outfall)
200337	LC_LC3	Line Creek d/s of West Line Creek (~200 m d/s of WLC WTP Outfall)
200335	LC_LC2	Line Creek upstream of Rock Drain
E293369	LC_LCUSWLC	Line Creek u/s of West Line Creek, below rock drain (~ 140 m u/s of WLC WTP outfall)
E216142	LC_LC1	Line Creek upstream MSA North Pit
E282149	LC_SLC	South Line Creek West Side of Main Rock Drain
E261958	LC_WLC	West Line Creek
E223240	LC_LC12	North Horseshoe Creek Near Mouth

TABLE 6: ELKVIEW OPERATION DISCHARGE, RECEIVING ENVIRONMENT AND OTHER SAMPLE LOCATIONS (APPENDIX 1I)

EMS #	*TECK IDENTIFIER*	*SITE DESCRIPTION*
E296310	EV_GH1	GEHO Line Valve at Plant (West Fork Tailings Effluent)
0200097	EV_EC1	Erickson Creek at Mouth
E296311	EV_SP1	South Pit Creek Sed. Pond Decant
E208057	EV_MG1	Milligan Creek Sed. Pond Decant
E206231	EV_GT1	Gate Creek Sed. Pond Decant
E102685	EV_BC1	Bodie Creek Sed. Pond Decant
E102679	EV_OC1	Otto Creek 70 m upstream of the Elk River
E208043	EV_GC2	Goddard Creek Sed. Pond Decant
E258135	EV_LC1	Lindsay Creek Infiltration Pond
E298590	EV_DC1	Dry Creek Sed. Pond Decant
E102681	EV_SM1	6 Mile Creek Sed. Pond Decant
E302170	EV_AQ6	Aqueduct Control Structure to Aqueduct Creek
0200203	EV_MC3	Michel Creek upstream of Erickson Creek
0200111	EV_ER2	Elk River upstream of Michel Creek
E298592	EV_BLM2	Balmer Creek at CFI Road
E298591	EV_FC1	Fennelon Creek at CFI Road
E298594	EV_SPR2	Spring Creek at Mouth
E298593	EV_TC1	Thresher Creek at Milligan Road

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A.J. Downie, M.Sc., P.Ag.
for Director, *Environmental Management Act*
Mining Authorizations

TABLE 7: COAL MOUNTAIN OPERATION DISCHARGE AND RECEIVING ENVIRONMENT SAMPLE LOCATIONS (APPENDIX 1J)

EMS #	*TECK IDENTIFIER*	*SITE DESCRIPTION*
E102488	CM_SPD	Decant Discharge from Main Interceptor Sedimentation Ponds to Corbin Creek
E206438	CM_CCPD	Decant Discharge from Corbin Sedimentation Pond to Corbin Creek
E298733	CM_PC2	Pengelly Channel to Corbin Creek
E298734	CM_SOW	Sowchuck Sump
E258175	CM_MC1	Michel Creek upstream of Operations
E200209	CM_CC1	Corbin Creek near Confluence with Michel Creek

TABLE 8: KOOCANUSA RESERVOIR RECEIVING ENVIRONMENT SAMPLE LOCATIONS (APPENDIX 1E)

EMS #	*TECK IDENTIFIER*	*SITE DESCRIPTION*
E300095	RG_KERRRD	Koocanusa Reservoir downstream of Kikkoman Creek
E300092	RG_GRASMERE	Koocanusa Reservoir west of Grasmere
E300093	RG_USGOLD	Koocanusa Reservoir upstream of Gold Creek
E300094	RG_BORDER	Koocanusa Reservoir upstream of the Canada/US border

8.1.2 SAMPLING AND ANALYTICAL PROCEDURES

The following sections apply to the monitoring required as per Section 8 of this permit.

8.1.2.1 SAMPLING PROCEDURES & LAB ANALYSES

Sampling is to be carried out in accordance with the procedures described in the most recent edition of the "British Columbia Field Sampling Manual for Continuous Monitoring Plus the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples," or by suitable alternative procedures as authorized by the director.

A copy of the manual may be viewed online at:
http://www.env.gov.bc.ca/epd/wamr/labsys/field_man_03.html

Analyses are to be carried out in accordance with procedures described in the most recent edition of the "British Columbia Laboratory Methods Manual for the Analysis of Water, Wastewater, Sediment, Biological

Materials and Discrete Ambient Air," or by suitable alternative procedures as authorized by the director.

A copy of the manual may be viewed online at:
http://www.env.gov.bc.ca/epd/wamr/labsys/lab_meth_manual.html

Copies of the above manual(s) may be purchased from the Queen's Printer Publications Centre, P. O. Box 9452, Stn. Prov. Gov't. Victoria, British Columbia, V8W 9V7 (1-800-663-6105 or (250) 387-6409).

Copies of the manuals are also available at all Environmental Protection offices.

8.1.2.1.1 *Minimum Detection Limit*

Minimum analytical detection limits for each parameter required by this permit must be suitable for comparison with the applicable standards listed in the most recent Approved and Working Water Quality Guidelines prepared by the ministry or other applicable limits acceptable to the director.

8.1.2.1.2 *Quality Assurance/Quality Control (QA/QC) Program*

The permittee must implement a Quality Assurance and Quality Control plan in accordance with the Environmental Data Quality Assurance Regulation and guidance provided in the "British Columbia Field Sampling Manual for Continuous Monitoring and the Collection of Air, Air-Emissions, Water, Wastewater, Soil, Sediment, and Biological Samples", and "British Columbia Laboratory Methods Manual for the Analysis of Water, Wastewater, Sediment, Biological Materials and Discrete Ambient Air." All data analyses required to be submitted by this permit must be conducted by an analytical laboratory(ies) registered under the inter-laboratory comparison program as identified in the Environmental Data Quality Assurance Regulation unless otherwise instructed by the director.

8.1.2.2 FLOW MONITORING

8.1.2.2.1 *Flow Calculation*

Flow calculation methods for receiving streams or creeks where flow measurements are not taken must be based on a regional hydrological evaluation and recommendations made by a qualified professional. Appropriate current and historical stream gauging data should be utilized. Methods must be updated at a frequency and in a manner recommended by a qualified professional and acceptable to the director.

For the purposes of permit fee calculation, mean annual flows for the previous calendar year will be used.

8.1.2.2.2 *Flow Measurement*

Flow monitoring programs must be designed and implemented, and flow measurements conducted, with the intent of achieving acceptable data quality standards as defined in the approved Regional Surface Flow Monitoring Plan.

In order to appropriately determine data quality, flow measurement must be conducted in accordance with the Manual of British Columbia Hydrometric Standards (RISC, 2018), or by suitable alternative procedures as authorized by the director. The "British Columbia Field Sampling Manual for Continuous Monitoring Plus the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples” may also be used in conjunction with the Hydrometric Standards to provide more detailed guidance on monitoring of flow using rated structures, or as a reference for alternative monitoring methods.

8.1.2.2.3 *Metadata Summary*

The permittee must compile flow monitoring station metadata for all mine sites and Elk Valley monitoring locations, including:

a. Station lat/long, elevation, basin area and median basin elevation;

b. Measurement method;

c. Measurement frequency;
d. Rating curve established, and stability of rating curve;
e. Identify where benchmarks and staff gauge are installed;
f. Identify where flow is measured and where it is calculated (by summing/subtracting/scaling other gauged flows);
g. Identify where data is collected to meet a permit condition;
h. Identify qualitatively where station information is considered representative of “mine affected” or “natural” catchments;
i. Targeted RISC data grade as defined in the approved Regional Surface Flow Monitoring Plan;
j. identify the percent contribution of mean annual flow to nearest downstream order station listed;
k. identify qualitatively where station information likely representative of total watershed yield, and if not, list the known issues affecting the ability of the station to represent total watershed yield;
l. a general site description of each hydrometric monitoring station including a photo(s) of the station; and,
m. The permittee must submit an updated Metadata Summary every three years, beginning February 28, 2021.

8.1.2.2.4 *Regional Surface Flow Monitoring Plan*

The permittee must develop a Regional Surface Flow Monitoring Plan. The intent of the Regional Surface Flow Monitoring Plan is to review the permittee’s flow monitoring network in the Elk Valley (including receiving environment and discharge locations) to define the appropriate temporal and spatial frequency of flow monitoring locations. The plan should include:

a. Definition of the assessment criteria and associated data requirements for the different types of flow monitoring locations
b. An assessment of each existing flow monitoring location, identification of stations not meeting the assessment criteria; and identification of locations where additional flow monitoring is needed; and,

c. A plan with timelines to implement or modify flow monitoring locations based on results of the assessment, including definition of the appropriate measurement methods and acceptable data quality standard for each type of flow monitoring location.

d. The permittee must submit an updated version of the Regional Surface Flow Monitoring Plan for approval by the director every three years, beginning December 31, 2020. Updates must include, when appropriate, changes to the location, frequency and grading of monitoring stations and to data needs and grading criteria. In the interim if changes to the monitoring program are recommended that result in a reduction in monitoring requirements these changes must be approved by the director prior to adoption.

8.1.2.3 TEMPORARY MODIFIED SAMPLING SCHEDULE FOR THE LCO MSX SHORT DUMP PROJECT

i. Site E304613 shall be temporarily used to collect water samples only when access to E216144 is restricted due to safety concerns with the progression of the MSX Short Dump.

ii. At least twice per year during the duration of the MSX Short Dump Project, paired samples shall be taken from the site E304613 and E216144 when safe access is available to E216144. The results should be compared in the Annual Report.

iii. During the duration of the MSX Short Dump Project, water samples do not have to be collected when access to 0200335 is restricted due to safety concerns with the progression of the MSX Short Dump. In the event regular scheduled sampling times cannot be met every effort must be made to obtain the number of samples normally required for a 6-month period. Missed samples and non-routine sampling times shall be itemized in the Quarterly Report.

8.2 GROUNDWATER MONITORING PROGRAM

8.2.1 ELK VALLEY GROUNDWATER MONITORING

The permittee must develop and implement a comprehensive groundwater monitoring program for Management Units 1, 2, 3 and 4, as defined in the Elk Valley Water Quality Plan, prepared by a Qualified Professional and incorporating data from the site-specific groundwater monitoring programs at each mine site described in Section 8.2.2.

Groundwater and groundwater systems include water within bedrock as well as the surficial materials overlying bedrock. This program must be conducted to the satisfaction of the director and must include the following:

i. Evaluate the regional effects of the permittee's operations on groundwater in management units 1, 2, 3 and 4, and assess potential surface water to groundwater interaction effects related to the permittee's operations in all management units compared to all applicable standards.

ii. Complete a regional groundwater synthesis report that must integrate all available groundwater information collected by the permittee. The report must include information collected as part of operational investigations carried out for diverse purposes (e.g. as part of permitting applications, water supply assessments, geotechnical investigations, etc).

iii. Establish and maintain a groundwater monitoring network as part of the ongoing monitoring and reporting of groundwater in the Elk Valley with multi-level wells, and sentry wells.

iv. Identify limitations and data gaps and conduct additional studies necessary to refine the hydrogeological conceptual model, determine the location and extent of mine-affected groundwater discharge to surface waters and to evaluate management and mitigation options.

v. Clearly summarize findings and recommendations in an Executive Summary

vi. Conduct ongoing monitoring, evaluation, and reporting of groundwater in the Elk Valley. Monitoring and assessment must include relevant aquifer characteristics (e.g. hydraulic conductivity, storage properties, transmissivity, etc.), and a description of regional groundwater flow patterns (directions and velocities) and recharge areas, fate, groundwater interactions with surface waters, the effects of groundwater withdrawals on the SW/GW interactions, and the mobility of mine related Parameters of Concern. Sampling is to occur at a frequency determined in the approved groundwater monitoring plan. Monitoring data to be provided with maps and tables.

vii. A schedule for updating the conceptual site model for on-going investigations and reporting for each source area operation, for installation or closure of monitoring wells, and for ongoing groundwater monitoring and reporting.

1) The Terms of Reference for the monitoring program must be submitted for review to the EMC and the director by January 31, 2015.
2) The regional groundwater synthesis report, data gaps assessment and recommendations for monitoring and/or additional supporting studies must be submitted for review to the EMC and the director by April 30, 2015.
3) Based on the recommendations from the regional groundwater assessment, monitoring and/or supporting study programs must be submitted to the director for approval by July 31, 2015.
4) Monitoring activities must commence in 2015.
5) The permittee may be required to develop and implement a Groundwater Management Plan to manage impacts from the mine sites to groundwater should the groundwater monitoring programs identify groundwater quality issues.

8.2.2 SITE SPECIFIC GROUNDWATER MONITORING

The permittee must develop and implement a comprehensive groundwater monitoring program at each mine site, prepared by a Qualified Professional. This program must include the following:

i. Characterization of the groundwater system, aquifer characteristics (e.g., hydraulic conductivity and storativity), water quality and connectivity to the surface water system;

ii. Characterization of seasonal variability in the groundwater system (quality and quantity); and

iii. Provision of a site-specific conceptual model and the information necessary to support the development and verification of water quality predictions for the mine site. The site-specific conceptual model shall be provided with the groundwater monitoring plan update on October 31, 2018 and updated with subsequent revisions to the monitoring plan.

iv. Site specific, numerical groundwater models may be required to support permitting activities. Numerical models, where required, must consider all available, relevant monitoring data (e.g. groundwater and surface water monitoring, stream flow, and precipitation data) and be developed by a Qualified Professional to meet the intended modelling purpose.

8.2.2.1 FORDING RIVER OPERATIONS

Groundwater monitoring must be conducted in accordance with a plan approved by the director. The permittee must respond within 30 days to comments/requests made by the director on the submission until the director is satisfied with the submission.

A revised plan must be submitted to the director for approval October 31, 2018 and every 3 years subsequently.

8.2.2.2 GREENHILLS OPERATIONS

Groundwater monitoring must be conducted in accordance with a plan approved by the director. The Greenhills Operations Site Wide Groundwater Monitoring program has been submitted to the director. The permittee must respond within 30 days to comments/requests made by the director on the submission until the director is satisfied with the submission.

A revised plan must be submitted to the director October 31, 2018 and every 3 years subsequently.

8.2.2.3 LINE CREEK OPERATIONS

Groundwater monitoring must be conducted in accordance with a plan approved by the director. The Line Creek Operations Site Wide Groundwater Monitoring program has been submitted to the director. The permittee must respond within 30 days to comments/requests made by the director on the submission until the director is satisfied with the submission.

A revised plan must be submitted to the director October 31, 2018 and every 3 years subsequently.

8.2.2.4 ELKVIEW OPERATIONS

i. The Terms of Reference for the monitoring program must be submitted to the director by December 31, 2014.
ii. The monitoring program must be submitted to the director for approval by March 31, 2015. The permittee must respond within 30 days to comments/requests made by the director on the submission until the director is satisfied with the submission.
iii. Monitoring activities must commence in 2015.
iv. A revised plan must be submitted to the director October 31, 2018 and every 3 years subsequently.

8.2.2.5 COAL MOUNTAIN OPERATIONS

i. The Terms of Reference for the monitoring program has been submitted to the director.

ii. The Gap Analysis and Recommendations Report for the monitoring program has been submitted to the director.

iii. Implement drilling requirements identified in the qualified 3rd party Gap Analysis and Recommendations Report by July 31, 2015.

iv. Implement the full monitoring program by September 15, 2015.

v. A revised plan must be submitted to the director October 31, 2018 and every 3 years subsequently.

8.2.3 SPARWOOD AREA GROUNDWATER SUPPORTING STUDY

For the purpose of this section, the “Sparwood Area” is defined as the following areas within the District of Sparwood:

- The main downtown area of Sparwood; and
- The area northeast of the confluence of the Elk River and Michel Creek, bordered by:
    - Elk River to the west,
    - Lagoon D to the north,
    - Michel Creek to the south,
    - Michel Creek Highway 3 bridge to the east.

The boundaries of the “Sparwood Area” are preliminary and may decrease or expand to include other areas if/as required to investigate permittee-sourced Parameters of Concern.

The permittee must develop a Terms of Reference for a groundwater supporting study for the “Sparwood Area”. The Terms of Reference will include:

1) Purpose and objectives.
2) A review, summary and gap analysis of existing information in the “Sparwood Area”.

3) Description of a conceptual site model outlining current knowledge of the site setting, hydrogeologic properties and groundwater flow regime, Permitee-related potential sources of Parameters of Concern to groundwater and pathways to known or potential receptors.
4) Based on the results from items 1-3 above, provide a description of the approach for an evaluation of the permittee's impact to groundwater in the "Sparwood Area". Components of the evaluation may include:
   a. Assessment of the adequacy of the permittee's monitoring well network, and monitoring program for continued monitoring to meet proposed purpose and objectives.
   b. Assessment of groundwater quality thresholds that would trigger potential management/mitigation strategies to reduce the permittee's impact to groundwater in the "Sparwood Area".
   c. A review of management/mitigation strategies to reduce the permittee's impacts to groundwater in the "Sparwood Area".
5) A schedule for reporting to the director.
   a. This program must be prepared by a Qualified Professional and must be conducted to the satisfaction of the director.

The Terms of Reference for the groundwater supporting study must be submitted by April 30, 2017 for approval by the director.

8.3 **LOCAL AQUATIC EFFECTS MONITORING PROGRAM (LAEMP)**

The permittee may be required to develop, with input from the EMC, and implement a Local Aquatic Effects Monitoring program (LAEMP) to determine the effects of a mining effluent discharge(s) on the receiving environment.

8.3.1 LINE CREEK OPERATIONS

The permittee must develop and implement a Local Aquatic Effects Monitoring program to determine the effects of the Line Creek discharge on the receiving environment. An annual study design for the program must be prepared in consultation with the EMC and submitted to the director for approval by May 1 each year. Any changes to the approved study design must be reported in the annual LAEMP report.

8.3.2 FORDING RIVER OPERATIONS

The permittee must complete to the satisfaction of the director a study design for a LAEMP which will focus on the upper Fording River for 2016-2018 by June 1, 2016. The study design must be reviewed by the EMC and be designed to an appropriate temporal scale to capture short term, local effects to the immediate receiving environment. Any changes to the approved study design must be reported in the annual LAEMP report.

8.3.3 COAL MOUNTAIN OPERATIONS

The permittee must complete to the satisfaction of the director, a study design for a LAEMP by February 28, 2019. The study design must be reviewed by the EMC and be designed to assess the magnitude and extent of influence from CMO on water quality, calcite and benthic invertebrate communities downstream of CMO and to assess what factors are contributing to the observed effects. Any changes to the approved study design must be reported in the annual LAEMP report.

8.3.4 GREENHILLS OPERATIONS

The permittee must complete to the satisfaction of the director a study design for a LAEMP which will focus on the upper Elk River and the Elk River side channel and tributaries located on the west side of Greenhills Operation between EMS sites 0200389 and E3000090 for 2017-2020 by June 1, 2017. The study design must be reviewed by the EMC and be designed to an appropriate temporal scale to capture short term, local effects to the immediate receiving environment. Any changes to the approved study design must be reported in the annual LAEMP report.

8.3.5 ELKVIEW OPERATIONS

The permittee must develop and implement a LAEMP to determine the magnitude and extent of influence from EVO SRF discharge on water quality (including temperature), calcite and benthic invertebrate communities to assess what factors are contributing to the observed effects. The study design must be reviewed by the EMC and submitted to the director for approval by June 30, 2021. The LAEMP must be designed to an appropriate temporal scale to capture short term, local effects to the immediate receiving environment, and must consider the possibility of impacts resulting from potential selenium speciation. The LAEMP must focus on Erickson Creek from EV_ECOUT (E321814) to EV_EC1 (0200097) and Michel Creek between EV_MC3 (0200203) and EV_MC2 (E300091) for 2021-2023.

Until the 2021-2023 LAEMP study design is approved and implemented, the permittee must continue the pre-operational aquatic effects monitoring program as outlined in Section 8.2.2 the EVO SRF Phase 2 Operations application.

The permittee must notify the director at least 15 days prior to implementing any proposed changes to the approved LAEMP. Any changes to the approved study design must be reported in the annual LAEMP report.

8.4 REGIONAL AQUATIC EFFECTS MONITORING PROGRAM (RAEMP)

The permittee must implement the Regional Aquatic Effect Monitoring Program as per the November 14, 2014 approval or the latest director approved program. A final Study Design for each subsequent three-year cycle must be submitted to the director by February 28 in the first year of each three-year cycle.

8.5 CALCITE MONITORING

8.5.1 CALCITE MONITORING PROGRAM

i. The permittee shall continue to conduct annual calcite monitoring following the methods in the approved monitoring program.
ii. The permittee shall submit, for director’s approval, changes to the monitoring program by April 15 of the data collection year.

8.5.2 SEASONAL CALCITE SUPPORTING STUDY – 2015/2016

The permittee must have a Qualified Professional develop a monitoring program to assess seasonality of calcite formation and potential dissolution. The program must, at minimum, include multiple locations and assess seasonal variation in the rate of calcite formation or dissolution, water quality, and presence and density of algae, and the presence and density of benthic invertebrates.

i. An Initial Study Design for the program must be submitted to the Environmental Monitoring Committee for input prior to submission to the director for acceptance by March 1, 2015.

ii. Monitoring results and interpretation for the 2015 program must be compiled into a written report with a study design for the 2016 program and submitted to the satisfaction of the director by March 31, 2016.

iii. Monitoring results and interpretation of the 2016 program must be compiled into a written report and submitted to the satisfaction of the director by March 31, 2017.

8.6 <u>KOOCANUSA RESERVOIR WORKING GROUP</u>

A Koocanusa Reservoir Monitoring and Research Working Group will be established under the BC & Montana government to government Memorandum of Understanding. The permittee must participate fully in the Koocanusa Reservoir Monitoring and Research Working Group.

The permittee is required to contribute to the costs of the Koocanusa Reservoir Monitoring and Research Program as operated by the Koocanusa Reservoir Monitoring and Research Working Group

8.7 <u>KOOCANUSA RESERVOIR BURBOT BASELINE STUDY 2015</u>

The permittee shall undertake a sampling program in Koocanusa Reservoir to evaluate the potential for selenium related effects in Burbot. The permittee shall make reasonable efforts to collaborate with Ktunaxa Nation representatives to identify suitable fishing locations in Koocanusa Reservoir, to develop a sampling plan, and to implement the program.

The sampling must be initiated in February 2015 and include the following:

1) Sampling will occur at representative locations within Koocanusa Reservoir and should consider areas upstream of Elk River, near the mouth of the Elk River, and near of the mouth of Gold Creek.

2) All fish captured during the sampling program will be identified and enumerated with results captured on field sheets and sexually mature burbot measured and sampled in the field as follows:
    1. Field examination of condition of each fish for external deformities, erosions, lesions, or tumors with condition recorded on field sheets
    2. Muscle tissue will be sampled from each fish
    3. Collection of eggs from up to 10 ripe female burbot from the three sampling locations where available.
3) Tissue and eggs will be analysed for metals using a high-resolution inductively coupled plasma mass spectrometry.
4) Results will be reported on a dry weight basis along with the moisture content.

Results of the sampling program shall be submitted to the director by July 31, 2015.

The permittee will evaluate the human health risk with respect to Ktunaxa consumers specific to the burbot tissue data.

8.8 CHRONIC TOXICITY TESTING PROGRAM

The permittee must develop and implement a toxicity testing program for receiving environments affected by coal mining operations. The purpose of the program is to evaluate chronic toxicity at the compliance points and other locations throughout the Elk Valley.

The toxicity testing program must include, at a minimum, the following elements:

i. Once every three years beginning in 2015, bioassays must be conducted to evaluate the survival and development (incidence of deformities) of targeted aquatic species using gametes obtained from species using habitats in the Elk River, the Fording River, their tributaries, and associated lentic habitats, and the Koocanusa Reservoir. The concentrations of selenium in the eggs of each female spawned must be measured;

ii. For the purposes of the following requirements the listed mine-influenced stations must include:

  - Upper Fording River compliance point (currently FR_FRCP1 [EMS E300071]),
  - GH_FR1 (EMS 0200378),
  - LC_LC5 (EMS E200028),
  - GH_ERC (E300090),
  - CM_MC2 (EMS E258937),
  - EV_MC2 (EMS E300091),
  - EV_HC1 (EMSE102682),
  - LC_LCDSSLCC (EMS E297110),
  - LC_LC3 (EMS 200337), and
  - LC_DCDS (EMS E295210).

  Appropriate reference stations must be determined in consultation with the Environmental Monitoring Committee.

The following toxicity test must be conducted during each semi-annual (spring and fall) sampling event at all listed mine-influenced stations plus multiple reference stations:

- 30-day early life-stage test with the rainbow trout (*Oncorhynchus mykiss*; EPS1/RM/28) using <24-hour post-fertilization eggs; endpoints: survival, viability, length, wet weight (plus documentation of observed deformities or behavioral changes);
- 28-day water-only test with amphipod, *Hyalella azteca* (adapted from USEPA 2000, with appropriate supplementation of halides); endpoints: survival, growth.

The following toxicity tests must be conducted during each semi-annual (summer and winter) sampling event at all listed mine-influenced stations plus multiple reference stations:

- 30-day early life-stage test with the fathead minnow, *Pimephales promelas* (USEPA 1996) using <24-hour post-fertilization eggs; endpoints: survival, normal development, length, biomass (plus documentation of observed deformities or behavioral changes).

The following toxicity tests must be conducted during each quarterly sampling event at all listed mine-influenced stations plus multiple reference stations:

- 7-day water-only test with the cladoceran, *Ceriodaphnia dubia* (EPS1/RM/21); endpoints: survival, reproduction;
- 72-hour test with the alga, *Pseudokirchneriella subcapitata* (EPS1/RM/25); endpoints: growth inhibition.

iii. Toxicity testing methods must be consistent with Environment Canada’s, U.S. Environmental Protection Agency’s, or ASTM’s approved biological test methods. Waters used for fathead minnow (*Pimephales promelas*) and rainbow trout (*Oncorhynchus mykiss*) 30-day early life-stage tests may be augmented with up to, and not exceeding, 20 ug/L copper to control for fungi and microbial pathogens. Ameliorating factors that influence copper toxicity (e.g., water hardness, dissolved organic carbon, and major ions) must be considered when determining the lowest and most effective dose below this limit.

iv. A Quality Assurance/Quality Control component; and

v. A proposed schedule of dates that coincide with water quality sampling and that target predicted worst-case times such as low flow, during flocculant use, or when discharge quality is expected to be reduced.

The suite of toxicity tests will be reviewed on an annual basis by the EMC and recommendations provided to the director for consideration.

8.8.1 SULPHATE TOXICITY AT HIGH HARDNESS CONCENTRATIONS

The permittee must develop with input from the EMC and implement a toxicity testing program specifically to assess sulphate toxicity at high hardness concentrations. Results will be used to support finalization of long-term sulphate site performance objectives.

The following toxicity test shall be conducted as a component of the Sulphate toxicity testing program.

- 30-day early life-stage test with the fathead minnow, *Pimephales promelas* (USEPA 1996) using <24-hour post-fertilization eggs; endpoints: survival, hatching, growth, deformity.
- Other sensitive species (amphibian, trout, water flea, etc.) shall be included.

Monitoring results and interpretation must be compiled into a written report and submitted to the satisfaction of the director by December 31, 2017.

8.8.2 SUBLETHAL TOXICITY STUDY

The permittee must develop with input from the EMC and implement a sublethal toxicity study to confirm that surface waters meeting the Site Performance Objectives for the order stations are not toxic to sensitive aquatic receptors. The permittee must submit the study design to the director by April 30, 2015.

8.9 HUMAN HEALTH RISK ASSESSMENT

The permittee must conduct a Human Health Risk Assessment (HHRA), in consultation with the EMC to examine the potential effects of mine-related parameters of concern including selenium, mercury cadmium, chromium, copper, manganese, nickel, vanadium and zinc for the Designated Area. The permittee is responsible for developing the HHRA design and addressing any concerns raised by the Interior Health Authority.

A draft terms of reference and a work plan for the HHRA must be discussed at the EMC. A final terms of reference and work plan for the HHRA shall be submitted by May 31, 2015 and be of a quality acceptable to the director.

The Human Health Risk Assessment must follow the BC Contaminated Sites Regulation approved methodologies and levels of acceptable risk for Human Health Risk Assessment.

The permittee must provide the results of the HHRA by March 31, 2016 to the EMC. The permittee must provide the results of the HHRA to the director by March 31, 2016. The risk assessment must be to the satisfaction of the director.

The assessment must determine the exposure pathways and potential human health risks from selenium and other mine-related parameters of concern which may be present in vegetation, fish and wildlife that are potentially used for food or medicinal sources, or present in currently known potable water sources. The assessment must take into consideration First Nations consumption patterns and risk sensitivities.

The study must incorporate information available from a variety of sources such as: traditional use studies, consultation records, consumption surveys, and baseline and monitoring data for mine-related parameters of concern.

Wherever possible, the assessment must incorporate data obtained from established monitoring programs. If required for the assessment, additional sampling programs must be implemented to ensure data gaps are addressed.

The conclusions and findings of the Human Health Risk Assessment shall be risk ranked and prioritized and include recommended risk management controls and other mitigation actions to address human health risks identified in the human health risk assessment for inclusion in the adaptive management plan for the area.

8.10 SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT

The permittee shall re-evaluate the Screening Level Ecological Risk Assessment. The Screening Level Ecological Risk Assessment re-evaluation must address the following points:

- some contaminants of potential concern exceeded the criteria for negligible risk,
- there was an incorrect use of tissue concentrations as indicators of toxicity, and
- multiple food type dietary exposure was not incorporated.

The re-evaluation must be conducted by an approved Contaminated Sites Approved Professional (CSAP) or follow the BC Contaminated Sites Regulation approved methodologies. If the re-evaluation is not conducted by an approved CSAP, the re-evaluation must be submitted to the director for review and acceptance. The re-evaluation shall be submitted by July 31, 2015.

In the event that this re-evaluation determines changes to the monitoring requirements, this information shall be shared with the EMC and a report with recommendations provided to the director regarding the outcome of the re-evaluation.

8.11 DETAILED ECOLOGICAL RISK ASSESSMENT

A Detailed Ecological Risk Assessment may be required.

9. REPORTING REQUIREMENTS

9.1 SUBMISSION RESULTS

The permittee must submit the results of the discharge and receiving environment water sampling program directly into the EMS database using the appropriate EMS site identification numbers within 30 days of the end of the quarter in which the samples were collected. Flow data is to be submitted annually.

For instructions on the electronic submission process or for more information visit the Ministry website:
https://www2.gov.bc.ca/gov/content/environment/waste-management/waste-discharge-authorization/data-and-report-submissions/ems-data-uploads

All data and calculations required in this permit but not uploaded to EMS must be managed by the permittee and provided to the director or member of the EMC upon request in a format specified by the director or member of the EMC. The permittee must provide all requested data within 10 business days of the original request or within the timeline agreed upon by both the permittee and the requestor.

All data lab sheets are to be kept on site and are to be provided in an electronic format to the director or member of the EMC upon request.

All deliverables required by Section 9 must not exceed manageable file sizes or must be divided into smaller files prior to submittal.

9.2 DISCHARGE AND RECEIVING ENVIRONMENT MONITORING DATA

9.2.1 NON-COMPLIANCE NOTIFICATION

The permittee must immediately notify the director or designate by e-mail (ENVSECoal@gov.bc.ca) of any non-compliance with the requirements of this permit, including requirements within the appendices, by the permittee and take appropriate remedial action to remedy any effects of such non-compliance.

The permittee must provide the director and KNC with written confirmation of all such non-compliance events, including available test results within 24 hours of the original notification unless otherwise directed by the director.

9.2.2 NON-COMPLIANCE REPORTING

If the permittee fails to comply with any of the requirements of this authorization, the permittee must, within 30 days of such non-compliance, submit to the director and KNC, a written report that is satisfactory to the director and includes, but is not necessarily limited to, the following:

a) all relevant test results obtained by the permittee related to the noncompliance,

b) an explanation of the most probable cause(s) of the noncompliance, and

c) a description of remedial action planned and/or taken by the permittee to prevent similar noncompliance(s) in the future.

The permittee must submit all non-compliance reporting required to be submitted under this section by email to (ENVSECoal@gov.bc.ca).

9.2.3 MONITORING AND REPORTING FOLLOWING TOXICITY NON-COMPLIANCE

In addition to Section 9.2.1, for any acute toxicity test failure in the effluent, the permittee must:

i. Immediately conduct a confirmatory test on the effluent using multiple concentrations (i.e. 96 hr LC50 for Rainbow Trout or 48 hr LC50 for *Daphnia magna*, as appropriate). The director may require a Toxicity Identification Evaluation (TIE) to be initiated to determine the cause of the effluent toxicity,

ii. Immediately take corrective action, and

iii. Forward all test results including raw laboratory data sheets to the director as soon as they are available. As soon as possible, submit a full report indicating the cause and effects of the incident, which identifies all actions taken by the permittee to correct, restore and prevent a similar event from occurring in the future. This report must be submitted with the next quarterly report or as otherwise instructed by the director.

9.2.4 QUARTERLY REPORTING

The permittee must submit a written quarterly report to the director or designate, due within 30 days of the end of the quarter in which the samples were taken. The quarterly report must include:

i. Effluent water quality results used to calculate monthly averages for the limits in Section 2, if applicable;
ii. Effluent water quality results exceeding limits and targets or other criteria, such as daily maximums or as specified by the director;
iii. Identification of all missing data and all QA/QC issues;
iv. All toxicity test results and raw laboratory data sheets for all mortality results;
v. All reportable spills or other incidents related to water quality, occurring in the quarter;
vi. Explanation of the most probable cause(s) of any non-compliances;
vii. All measures taken to reduce or eliminate non-compliances;
viii. All other reports or documentation as specified by this permit to be submitted quarterly; and
ix. Any additional sampling results for the compliance points identified in Section 2 obtained for any reason, whether compliance, maintenance, or operational purposes. All test data must be reported within 30 days of the end of the quarter in which sampling occurred. These additional results may be reported in summary form. Further information on the testing event may be requested in writing by the director.
    - Any data collected at the compliance points in Section 2 for research-oriented activities that do not meet the analytical requirements in Section 8.1.2.1 of the Permit must be submitted separate from Quarterly Reports in a project report at the completion of the applicable study.

9.2.5 ANNUAL REPORTING

The permittee must prepare on an annual basis a report or series of reports summarizing activities, incidents, and discharge/receiving environment monitoring results. The report(s) must include but is not limited to:

i. A map of monitoring locations with EMS and permittee descriptors;

ii. A summary of non-compliances with the permit conditions for the previous calendar year and all emergency conditions identified under Section 6.1. This must include interpretation of significance, and the status of corrective actions and/or ongoing investigations;

iii. A summary of measured parameters including all collected monitoring data for the reporting year suitably tabulated (i.e., excel spreadsheets), appropriate graphs and comparison of results to limits, Approved and Working Water Quality Guidelines, Site Performance Objectives, or other criteria and benchmarks as specified by the director;

iv. A discussion of Parameters of Concern, including Order Constituents, at significant source sites and key receiving environment sites, including an analysis of dormant versus active waste rock dumps; and

v. All acute toxicity test-specific reports from the laboratory and an interpreted summary and discussion of results, including recommendations and all subsequent actions;

vi. All acute toxicity test lab reports must include data and/or observations for hardness, alkalinity, pH, temperature, and formation of precipitate either in the vessel or on the organism.

vii. A summary of all QA/QC issues during the year.

viii. The following hydrology information:

  a. A description of measurement methods, field procedures or data calculation that deviate from the information provided in the Metadata Summary.

  b. A summary table of the discharge measurements recorded during the year. The summary must include staff gauge measurements, calculated flow values from a stage-discharge rating curve, and manual flow measurements.

c. A hydrograph(s) at a scale appropriate for visually comparing flow values between stations.

d. A data quality grade for each monitoring station using the Manual of British Columbia Hydrometric Standards (RISC, 2018) methodology, and comparison of the grade to target grades as listed in the Regional Surface Flow Monitoring Program.

e. In conjunction with the submission of the annual report, final non-continuous flow data will be uploaded to the EMS database while final continuous flow data records and associated rating curves will be provided in Excel format.

The Annual Report must be submitted to the director by March 31 of each year following the data collection calendar year.

9.3 TOXICITY REPORTING

All acute toxicity test lab reports must include data and/or observations for pH, temperature, and formation of precipitate either in the vessel or on the organism. Lab reports for the 48-hour *Daphnia magna* single concentration toxicity test must also include data and/or observations for hardness and alkalinity.

The permittee must prepare on an annual basis a report summarizing all acute and chronic toxicity data from the laboratory and an interpreted summary and discussion of results, including recommendations and subsequent actions. The report is to be submitted to the director by April 30 of each year following the data collection calendar year.

9.4 GROUNDWATER

The permittee must prepare on an annual basis a report or series of reports summarizing groundwater activities and monitoring results for the Site-Specific Groundwater Monitoring Programs by March 31.

Regional groundwater monitoring results and interpretation must be compiled into a written report and submitted on an annual basis for each calendar year to the director by May 16 of the following year. The Annual Report must include summaries of the site-specific groundwater reports.

The report(s) must include, but is not limited to:

i. A map of monitoring locations with EMS and permittee descriptors;

ii. Cross sections showing well installation details, stratigraphy, groundwater elevations, and flow. Cross sections should be in the direction of groundwater flow and perpendicular to groundwater flow.

iii. Drawings showing locations and water quality data of groundwater sampling points.

iv. A summary of background information on that year's program, including discussion of program modifications relative to previous years;

v. A summary of measured parameters, including appropriate graphs and comparison of results to, Approved and Working Water Quality Guidelines, or other criteria and benchmarks as specified by the director;

vi. If applicable, a summary of exceedances of screening benchmarks;

vii. Evaluation and discussion of spatial patterns and temporal trends;

viii. A summary of all QA/QC issues during the year; and

ix. Recommendations for further study or measures to be taken.

9.5 LAEMP

The LAEMP Annual Reports must be reported on in accordance with generally accepted standards of good scientific practice in a written report and submitted to the director of each year following the data collection calendar year on the following dates:

- LCO LAEMP: April 30
- GHO LAEMP: May 31
- FRO LAEMP: May 31
- CMO LAEMP: June 30 (The first report is due June 30, 2020)

9.6 RAEMP

The RAEMP report for the first approved cycle under the ABMP must be submitted to the director by September 30, 2017 and by November 30 of the final year of each subsequent three-year monitoring cycle.

The permittee shall submit a report that contains a detailed rationalization of the overall RAEMP including reasons why specific monitoring areas are/are not being monitored in a given year. The report may include a discussion and analysis of the results of the previous cycle of monitoring of the following components:

1) Water quality
2) Sediment quality and calcite
3) Water and sediment toxicity testing
4) Periphyton productivity and community structure
5) Benthic invertebrate community structure and tissue contaminants
6) Fish population metrics and tissue contaminants
7) Amphibian and bird egg tissue contaminants
8) QA/QC

Each report will also discuss cumulative effects by providing an integrated interpretation of conditions in the Elk River Watershed.

Each report will, on a three-year cycle, verify and calibrate the selenium bioaccumulation model using the most recent three years of water quality, aquatic effects and other data from any special studies undertaken.

9.7 CALCITE

A Calcite Monitoring Annual Report must to be submitted to the director by April 15 of each year following the data collection calendar year. The report must include the following, at minimum:

1) A map of monitoring locations;
2) A summary of background information on that year's program, including discussion of program modifications relative to previous years;
3) Results of stream selection reassessment – highlight streams added/removed;
4) Summary of where sampling followed the methodology in the monitoring plan document, and details where sampling deviated from the approved methodology;
5) Statement of results for the period over which sampling was conducted;
6) Reference to the raw data, provided as appendices;
7) General discussion of observations, including summary tables of sites with increasing and decreasing deposition indices;
8) Interpretation of location, extent, and any other observations;
9) A summary of any QA/QC issues during the year; and
10) Recommendations for sites to add, sites to remove, modifications to methodology, monitoring frequency adjustments.

In addition, for the 2015 and 2016 reports (2014 and 2015 sampling years), the permittee must provide a document investigating the statistical power of the calcite monitoring program when reviewing monitoring results.

9.8 KOOCANUSA RESERVOIR

The permittee must prepare on an annual basis a report summarizing activities and monitoring results. The report must be submitted to the Koocanusa Reservoir Monitoring and Research Working Group (Koocanusa Reservoir Working Group) and the EMC by June 30 of each year.

9.9 WATER QUALITY MODELLING

The permittee must update the regional water quality model and complete a water quality prediction report for each mine site and the Designated Area as a whole to be submitted to the director.

This report must be updated every 3 years starting October 31, 2017, or more frequently as required, based on changes to the mine plan, when observed water quality and water quantity are regularly and significantly different from predicted values, or as otherwise required by the director in writing. The report must include data collected from the monitoring programs described in Section 8 as well as any other special studies undertaken to investigate water quality in the Designated Area.

On a three-year cycle, verify and, failing verification, calibrate the Elk Valley Regional Water Quality Model using the most recent three years of water quality data and regional flow data from appropriate (e.g. Environment Canada regional) hydrometric data stations.

The report must provide:

1) Current and projected (through the next twenty years) bank cubic meters of waste rock at the mine, detailed by affected drainage.
2) Hydrology modelling information, detailed by affected drainage.
3) Identify the specific hydrology information used in the modeling work
4) An evaluation of the relative data accuracy/precision and overall confidence in the data used. The evaluation should consider any relative bias that a station may introduce (e.g. a stations' ability to represent total watershed yield). Documentation must clearly provide a rational for why specific data was selected for use in the model.
5) Current and predicted concentrations of Parameters of Concern as required, in the surface water of affected drainages through the life of the mine based on current model, which incorporates waste rock volumes and local hydrology, compared to BC Water Quality Guidelines or water quality targets for selenium, nitrate, sulphate and cadmium.
6) A description of the calibration and validation of the flow model and water quality.

7) A sensitivity analysis for variation in flows and potential errors in measured input data.
8) Water quality and water quantity model output in electronic format.
9) A monitoring plan for continued evaluation of ii), iii) and iv) as the mine progresses.
10) Refined hydrology, hydrogeology and geochemical source term information (including refinements for cadmium source terms), together with any site-specific water balance models and hydrogeology studies;
11) Changes to the mine plan; and
12) Information and outcomes from research and technology development studies that have been incorporated into the model.

9.9.1 EVALUATION OF WATER QUALITY MODELLING FOR TRIBUTARIES (LCO)

a) The permittee shall assess the conservatism and uncertainty associated with the scaling approach used to predict tributary concentrations in the EVWQP by independent comparison with predictions obtained from project specific model outputs and provide recommendation for evaluating future water quality in tributaries in the Elk River watershed.

b) A report presenting the comparison and analysis of water quality modelling methods, as well as a list of tributaries where the scaling method was/or was not applied in the EVWQP shall be provided to the director by February 28, 2015.

9.10 ENVIRONMENTAL IMPACT ASSESSMENT - CHANGES TO MINE PLANS

Where changes to a mine plan requires amendment of the *Mines Act* Permit for a site, the permittee shall provide the director and KNC with a project description detailing the changes and results of water quality modelling that assesses the effects on water quality at the applicable order stations/compliance points. The director may require an environmental impact assessment to be completed to evaluate the effects of the changes on the environment.

9.10.1 FRO MINE PLAN

If FRO's mine plan changes such that FRO's total waste rock volume exceeds the maximum volume assessed in the Swift Environmental Assessment Certificate application and the North Spoil Re-handle screening-level assessment an environmental effects assessment be conducted.

10. ADAPTIVE MANAGEMENT

The permittee must develop and implement a detailed adaptive management plan (AMP) to support implementation of the ABMP, to achieve water quality targets including calcite targets, ensure that human health and the environment are protected, and where necessary, restored, and to achieve continuous improvement of water quality in the Elk Valley. The adaptive management cycle consists of six stages, as summarized below. Elements of the AMP required for this permit have been included in the ABMP, but other key components remain outstanding, as described below. The permittee must prepare and implement an AMP to the satisfaction of the director. The AMP must fulfill the following requirements at a minimum:

1) Stage one – Assess and Define the Scope
    a) Section 1.2 of the Elk Valley Area Based Management Plan identifies the following environmental management objectives that apply to the AMP: protection of aquatic ecosystem health; management of bioaccumulation of Parameters of Concern in the receiving environment (including fish tissue); protection of human health; and protection of groundwater.
    b) The AMP should support continuous improvement of water quality conditions in the Elk Valley such that human health and ecosystem health are protected in the long-term, without restrictions or limitations on the use of water resources or associated biological resources.
    c) Identify areas of uncertainty for further analysis and development of hypotheses to support adaptive management. Uncertainties may include effects on aquatic health, actual water quality conditions in space and time, treatment capability and results, R&D project success and implementation, efficacy of passive and semi-passive mitigation methods, etc.

  d) The conceptual water quality model in Annex D of the ABMP should link management activities to effects to water quality and other components of the aquatic environment.

  e) Select measurement end points for monitoring and determining what activities and/or actions could be adjusted to influence the measurement endpoints to improve water quality and the aquatic environment to meet the environmental management objectives of the ABMP.

2) Stage two – Design of Adaptive Management Plan

  a) Review of existing monitoring programs in relation to uncertainties and alternative hypotheses developed above in 1.b and ensure that the monitoring will provide sufficient information to evaluate which hypothesis is most supported. Clear linkages between the AMP and the RAEMP, supporting studies, other monitoring and water quality modelling must be included.

  b) Establish early-warning triggers for management action. If not already in place, identify the locations where the indicators will be monitored and develop a monitoring program to assess the status of these indicators.

  c) An assessment framework for evaluating whether an outcome is acceptable or not must be provided. Monitoring and operational outcomes or indicators must be detailed and what responses will be taken as a result of exceedances of each indicator, as well as the order and timeframe in which the responses will be implemented.

  d) Develop and test hypotheses associated with alternative mitigation strategies. The intention is to evaluate applying active adaptive management to research and development activities related to non-active water treatment plant technologies and calcite management.

3) Stage three – Implement the Adaptive Management Plan

  a) Implement the AMP as designed.

  b) Document all deviations to the AMP including rationale and information considered in the decision to deviate.

4) Stage four - Conduct Monitoring
    a) Implement and follow the various monitoring programs and supporting studies in this permit and within the ABMP. Additional monitoring may be required as per 2.b above.
    b) Identify how collected information/data will be managed to facilitate evaluation of hypotheses and status of indicators.

5) Stage five – Evaluate the results of monitoring activities
    a) Describe how the information/data from the monitoring programs and supporting studies will be analyzed/evaluated for the AMP.
    b) Document exceedances of the indicators and the management responses that were undertaken.
    c) Identify whether the results were expected, where results deviated from those expected, why the deviations occurred, and what lessons were learned.
    d) Communicate results to the EMC (Section 11.2).

6) Stage six – Adjust and Revise the Hypotheses and Management Strategies
    a) Adjust the ABMP implementation plans and actions as required, including knowledge gained from Section 7.2 – Research and Development.
    b) Communicate changes to ABMP implementation plans and activities to the EMC.
    c) Reassess expected outcomes, potential impacts, and responses to these outcomes for an adjusted plan. Where plan components are related to impacts on Human Health, the permittee shall make reasonable efforts to consult with Interior Health (hbe@interiorhealth.ca).
    d) Adjust the AMP as required in consultation with the EMC.

The permittee must develop and implement an Adaptive Management Plan to ensure that the management goals in the approved ABMP are met. The permittee shall deliver the following:

i. The permittee must prepare a draft Terms of Reference (TOR) for the Adaptive Management Plan for discussion at the EMC by February 15, 2015.

ii. The permittee must submit a final TOR by March 15, 2015 to the director for review and approval.

iii. The permittee must prepare a draft AMP for discussion at the EMC by September 30, 2015.

iv. The permittee must submit the final AMP by February 29, 2016 to the director for review and acceptance.

v. The permittee must prepare and submit an annual report documenting the activities undertaken in each stage of the Adaptive Management Plan. The AMP report must be submitted to the director annually by July 31. The first AMP report is due July 31, 2016.

vi. The permittee must update and revise the AMP every three years. The next update report is due December 15, 2021.

vii. The permittee shall implement the AMP to the satisfaction of the director.

viii. The permittee shall notify the director immediately regarding significant deviations from or adjustments to the accepted AMP (e.g., changes in triggers, responses, timeframes and/or study designs).

11. DATA ANALYSIS ACCOUNTABILITY AND TRANSPARENCY

11.1 FIRST NATIONS REPORTING REQUIREMENT

Unless otherwise agreed to by the KNC and the permittee, the permittee shall provide the KNC with information related to any material changes to the Initial Implementation Plan, Adaptive Management Plan, the Calcite Management Plan and the Research and Technology Development Plan. In addition, the permittee shall provide the KNC with all data, information and/or reports generated during the implementation of these plans in accordance with this permit.

11.2 ENVIRONMENTAL MONITORING COMMITTEE (EMC)

The permittee must establish an Environmental Monitoring Committee (EMC), consisting of representatives from the Ministry of Environment and Climate Change Strategy, the Ministry of Energy and Mines, Environment Canada, the Ktunaxa Nation, Interior Health Authority, and the permittee. The Committee will review submissions and provide technical advice to the permittee and director regarding monitoring submissions in Sections:

8.2.1 Groundwater Monitoring Program
8.3 Local Aquatic Effects Monitoring
8.4 Regional Aquatic Effects Monitoring
8.5 Calcite Monitoring
8.8 Chronic Toxicity Testing Program
8.9 Human Health Risk Assessment
10. Adaptive Management
11.3 Third-Party Audit

The committee will also provide input to the permittee regarding reports which are required under Sections:

4 Tributary Evaluation and Management

8.7 Koocanusa Reservoir Burbot Baseline Study 2015

9.2.5 Annual Reporting

9.3 Toxicity Reporting

9.4 Groundwater

9.5 LAEMP

9.6 RAEMP

9.7 Calcite

9.8 Koocanusa Reservoir

9.9 Water Quality Modelling

10 Adaptive Management

11.3 Third-Party Audit

The EMC will convene a public meeting once per calendar year for the purpose of informing the public of information reviewed by the committee and any audit results as per Section 11.3.

The EMC will confirm the scope of third-party audit in Section 11.3 a minimum of 9 months prior to the audit submission deadline.

11.3 THIRD-PARTY AUDIT

Monitoring data for this permit and its analysis is subject to the review and audit by a third-party qualified professional on a three-year cycle. The audit must include a review of monitoring data and data analysis for reports submitted under this permit relevant to at least three components (monitoring endpoints) of Teck's environmental monitoring programs undertaken as requirements of this permit for the previous three years and must address at least the following:

i. Data quality and completeness;

ii. Protocols and procedures from the QA/QC plan for the monitoring program; and,

iii. Standard operating procedures and data handling protocols in place for Teck Coal Limited.

The audit objectives scope, components, and criteria must be selected in consultation with the EMC. Each Third-Party Audit Report must be submitted to the EMC and to the director, by October 31 of each audit year. The next Third-Party Audit Report must be submitted to the director by October 31, 2020. The Third-Party Audit Report must report on actions taken to address findings of previous reports.

12. SECURITY

Although financial security under the *Environmental Management Act* is not required at this time, the director may require security in the amount and form subject to the conditions the director specifies.

13. PUBLICATION OF DOCUMENTS

The Ministry publishes Regulatory Documents on its website for the purpose of research, public education, and to provide transparency in the administration of environmental laws. The permittee acknowledges that the Province may publish any Regulatory Document submitted by the permittee, excluding information that would be excepted from disclosure if the document was disclosed pursuant to a request under section 5 of the *Freedom of Information and Protection of Privacy Act*, and the permittee consents to such publication by the Province.

APPENDICES 1A-1J: TECK COAL LIMITED OPERATIONS MAPS

APPENDIX 1A – Teck Coal Limited Location Map

APPENDIX 1B – Teck Coal Limited Sampling Locations Overview Map

APPENDIX 1C – Teck Coal Limited Sampling Locations Map – Compliance Points

APPENDIX 1D – Teck Coal Limited Sampling Locations Map – Order Stations

APPENDIX 1E – Teck Coal Limited Sampling Locations Map – Koocanusa Reservoir

APPENDIX 1F – Teck Coal Limited Sampling Locations Map – Fording River Operations

APPENDIX 1G – Teck Coal Limited Sampling Locations Map – Greenhills Operations

APPENDIX 1H – Teck Coal Limited Sampling Locations Map – Line Creek Operations

APPENDIX 1I – Teck Coal Limited Sampling Locations Map – Elkview Operations

APPENDIX 1J – Teck Coal Limited Sampling Locations Map – Coal Mountain Operations

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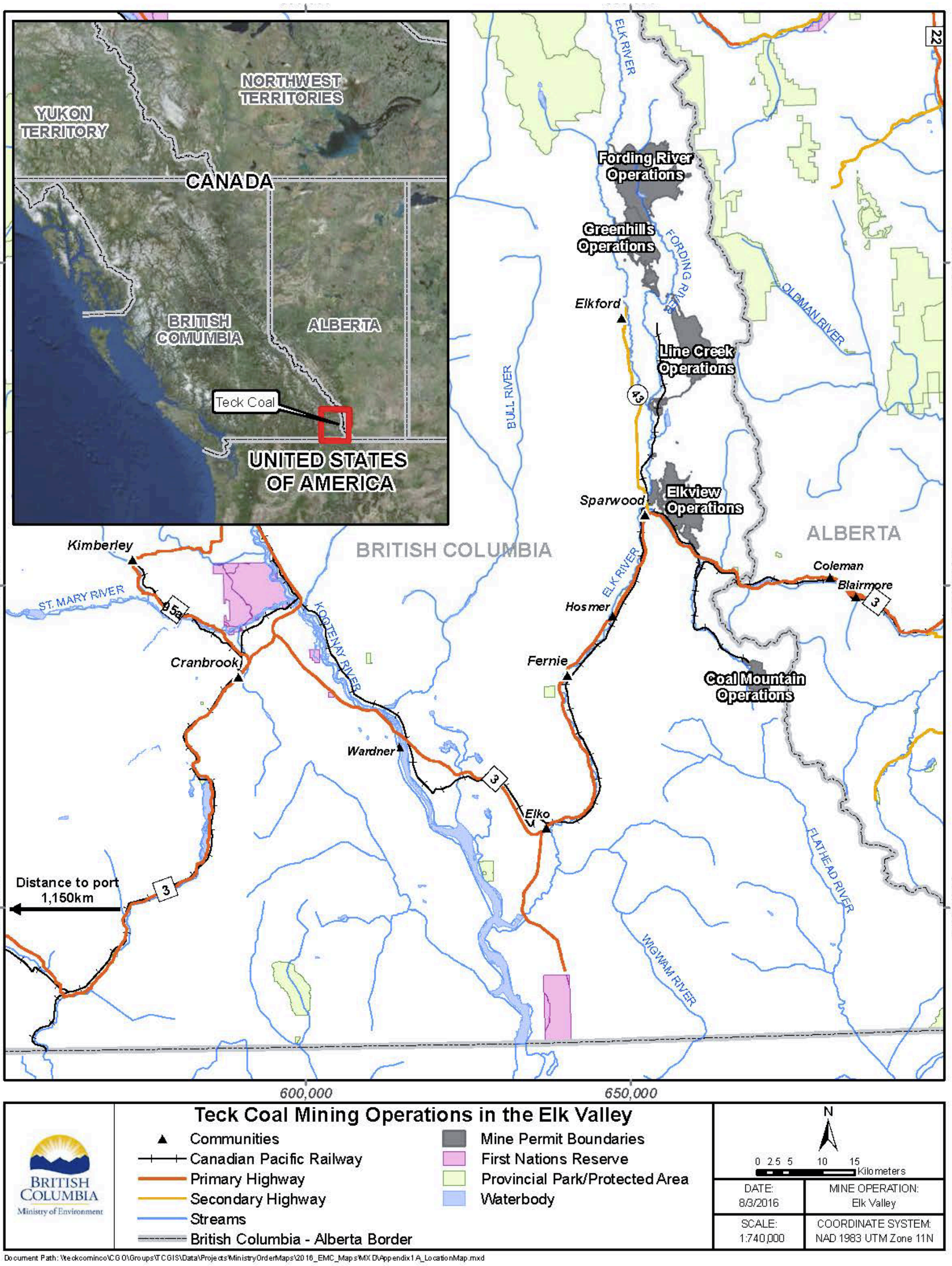
for Director, *Environmental Management Act*
Mining Authorizations

APPENDIX 1A – Teck Coal Limited Location Map



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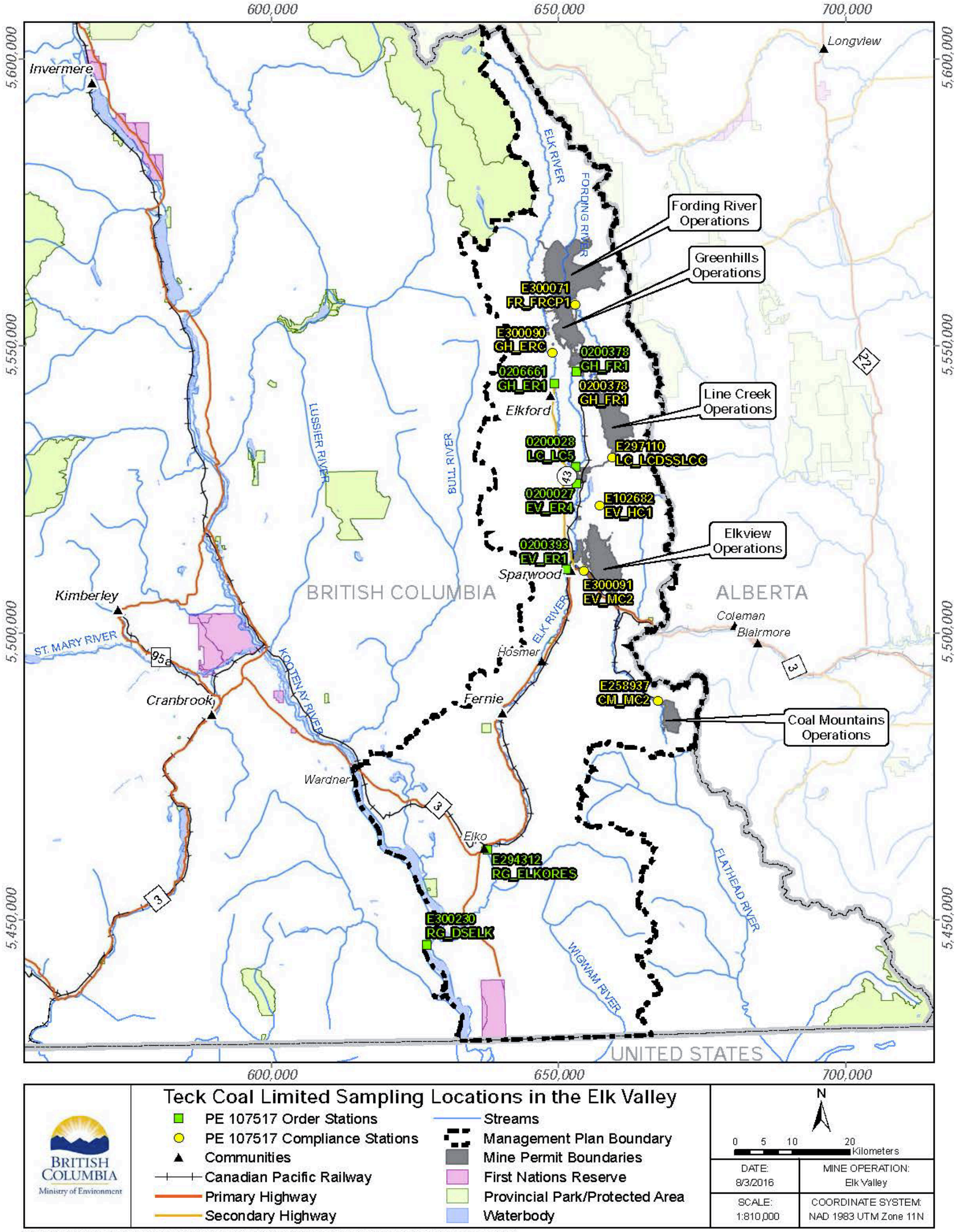
APPENDIX 1B – Teck Coal Limited Sampling Locations Overview Map



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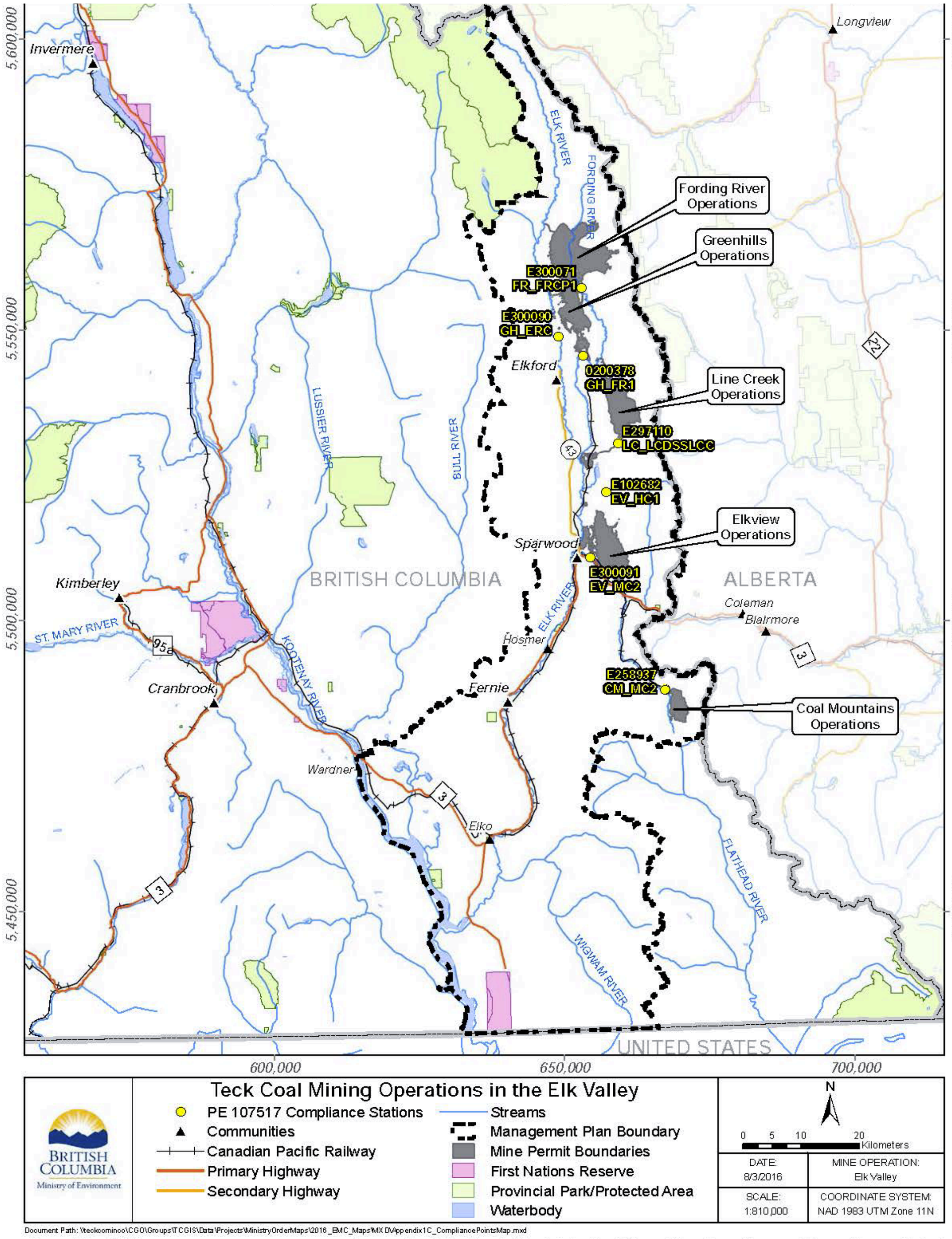
APPENDIX 1C – Teck Coal Limited Sampling Locations Map – Compliance Points



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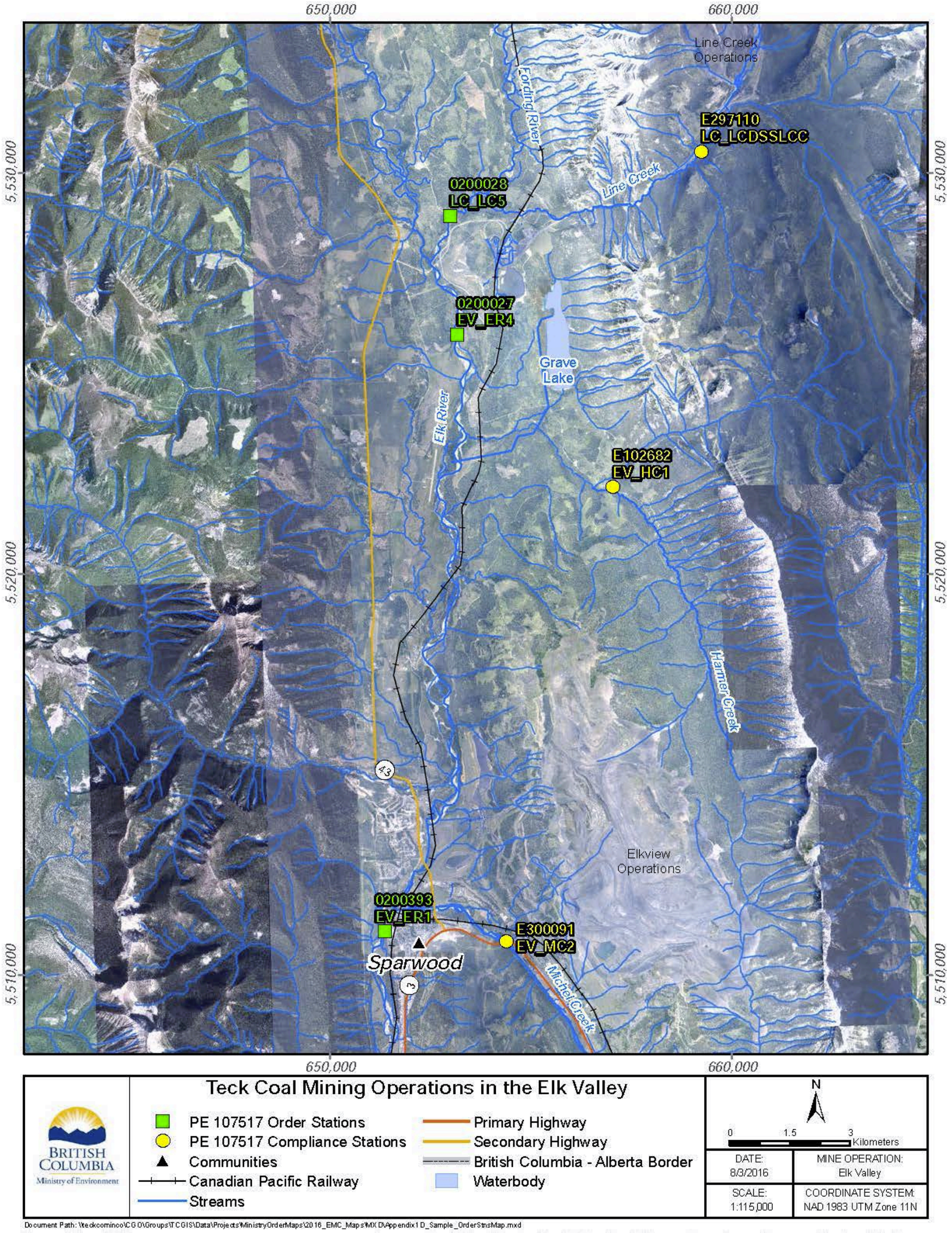
APPENDIX 1D – Teck Coal Limited Sampling Locations Map – Order Stations



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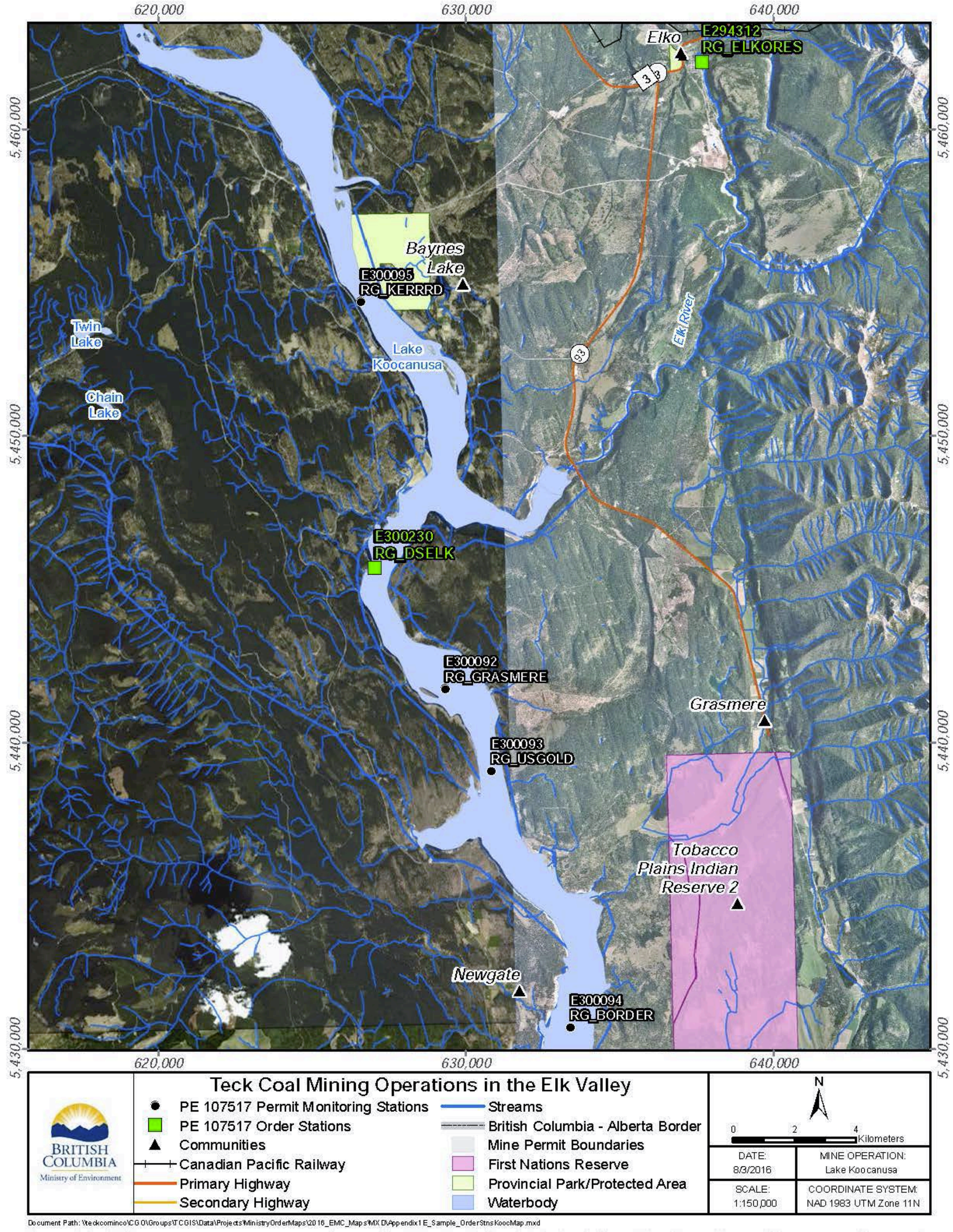
APPENDIX 1E – Teck Coal Limited Sampling Locations Map – Koocanusa Reservoir



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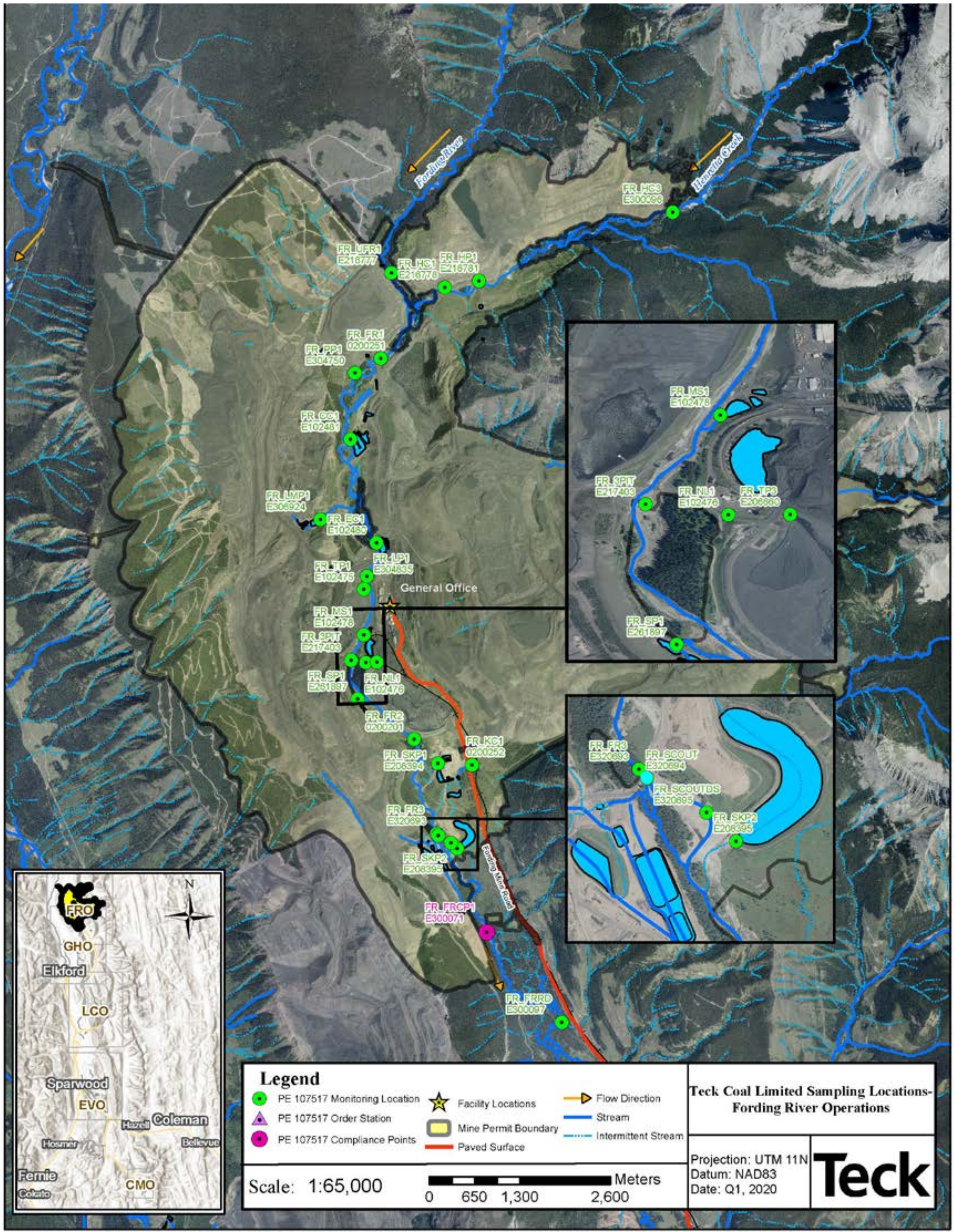
APPENDIX 1F – Teck Coal Limited Sampling Locations Map – Fording River Operations



Document Path: \\teckcominco\CGO\Groups\TCGIS\Data\Projects\AnnualWaterReporting\AnnualReporting2019\SurfaceWaterAnnual_Rpt\Regional\RG_107517 Permit Figures\MXD\RG_

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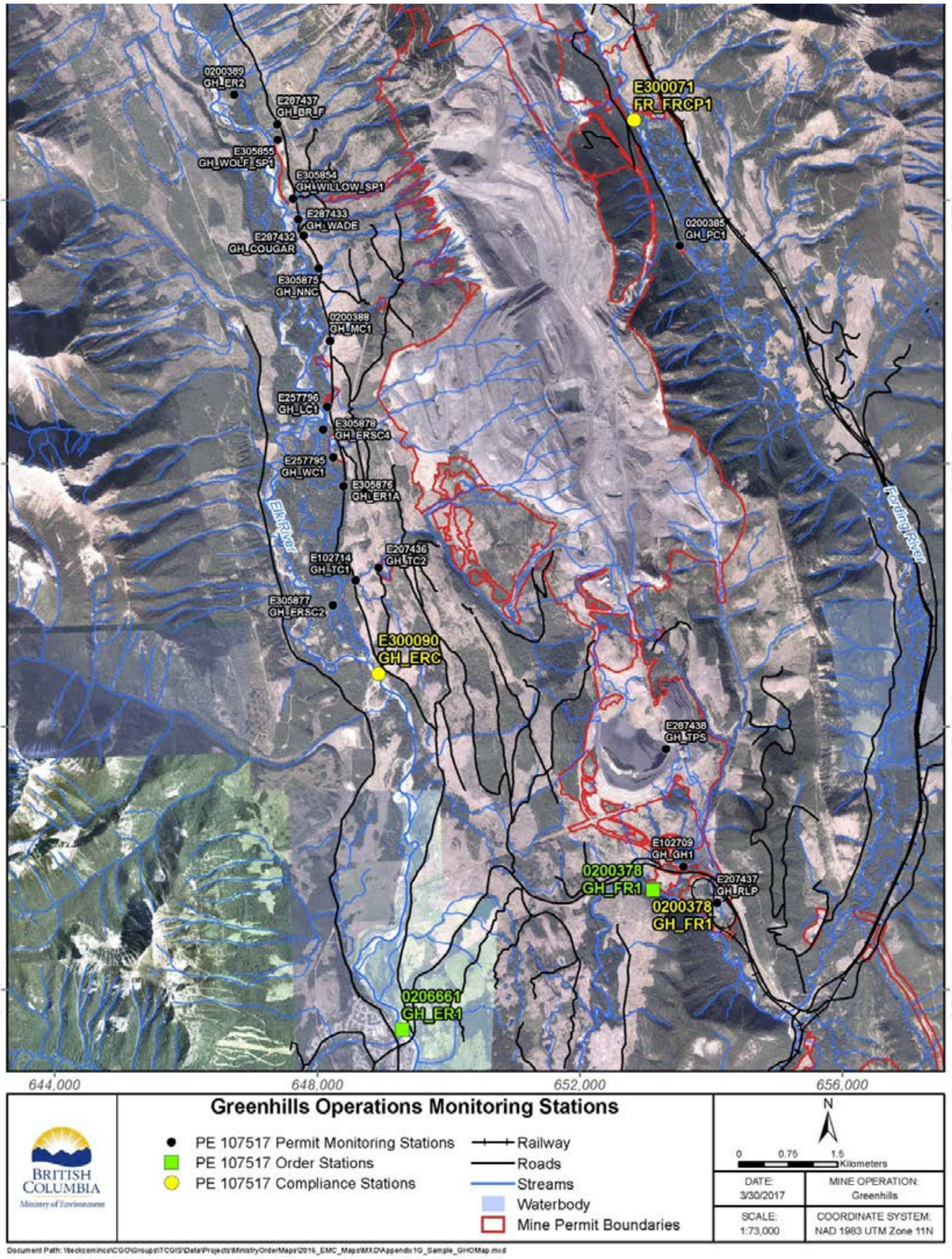
APPENDIX 1G – Teck Coal Limited Sampling Locations Map – Greenhills Operations



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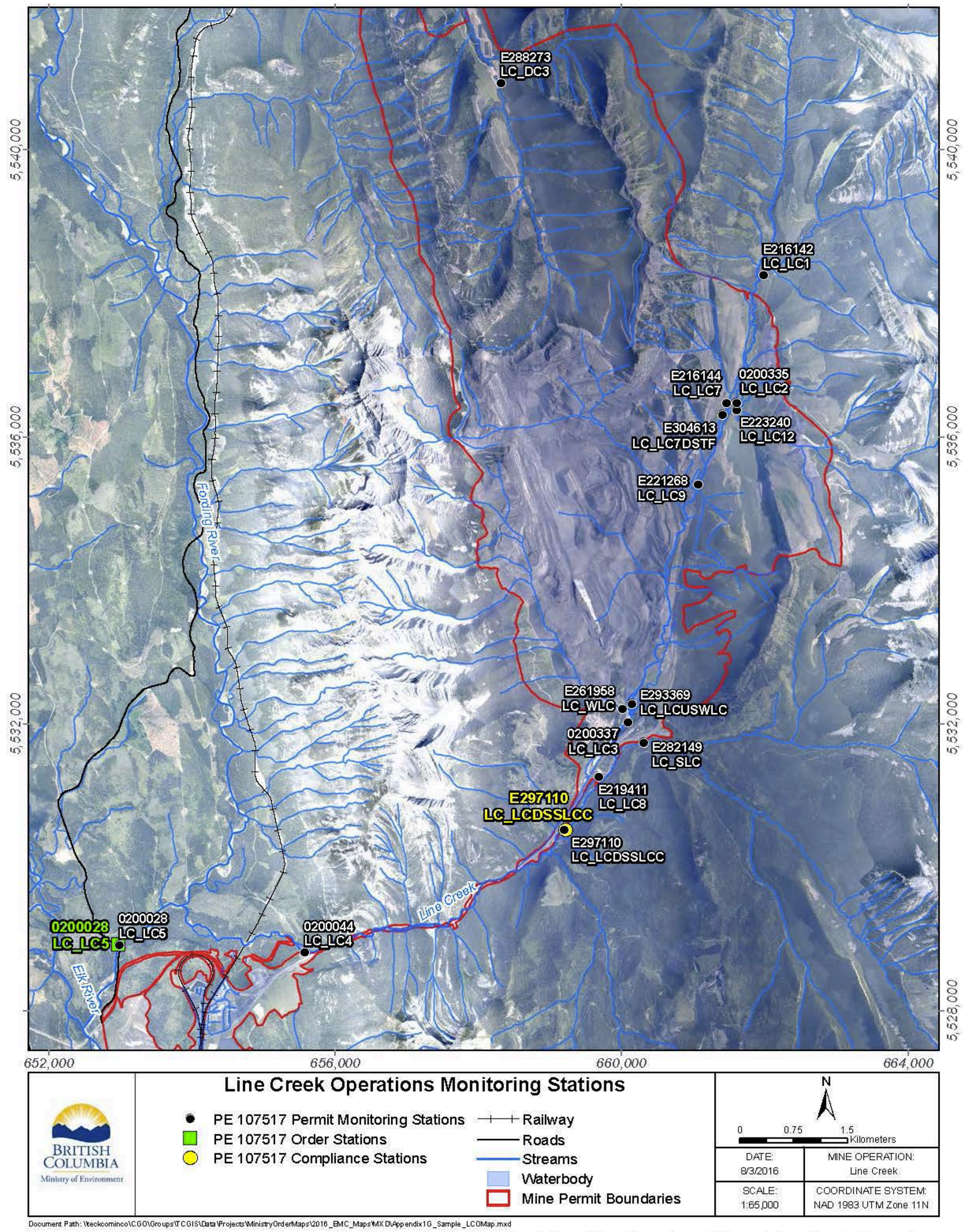
APPENDIX 1H – Teck Coal Limited Sampling Locations Map – Line Creek Operations



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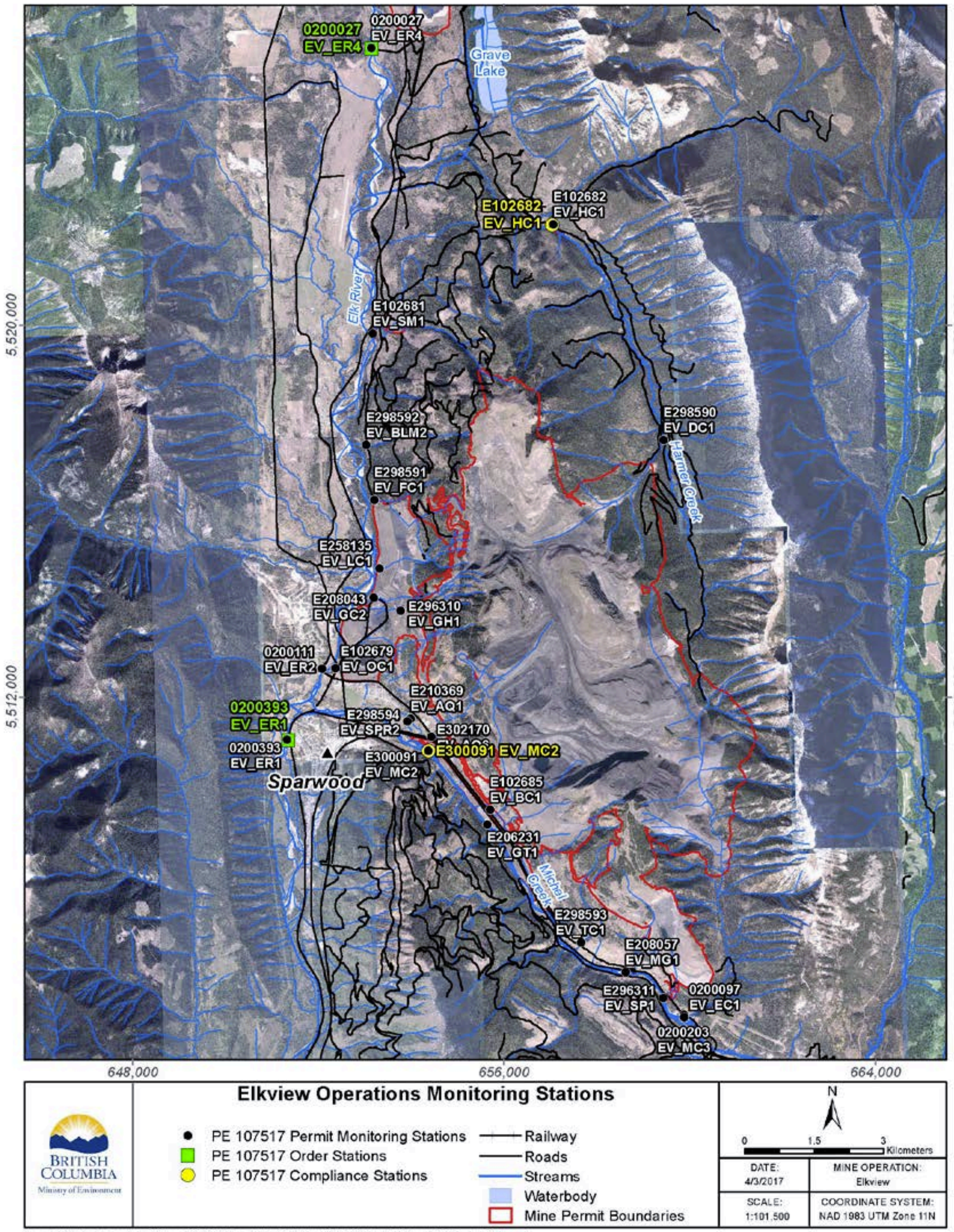
APPENDIX 1I – Teck Coal Limited Sampling Locations Map – Elkview Operations



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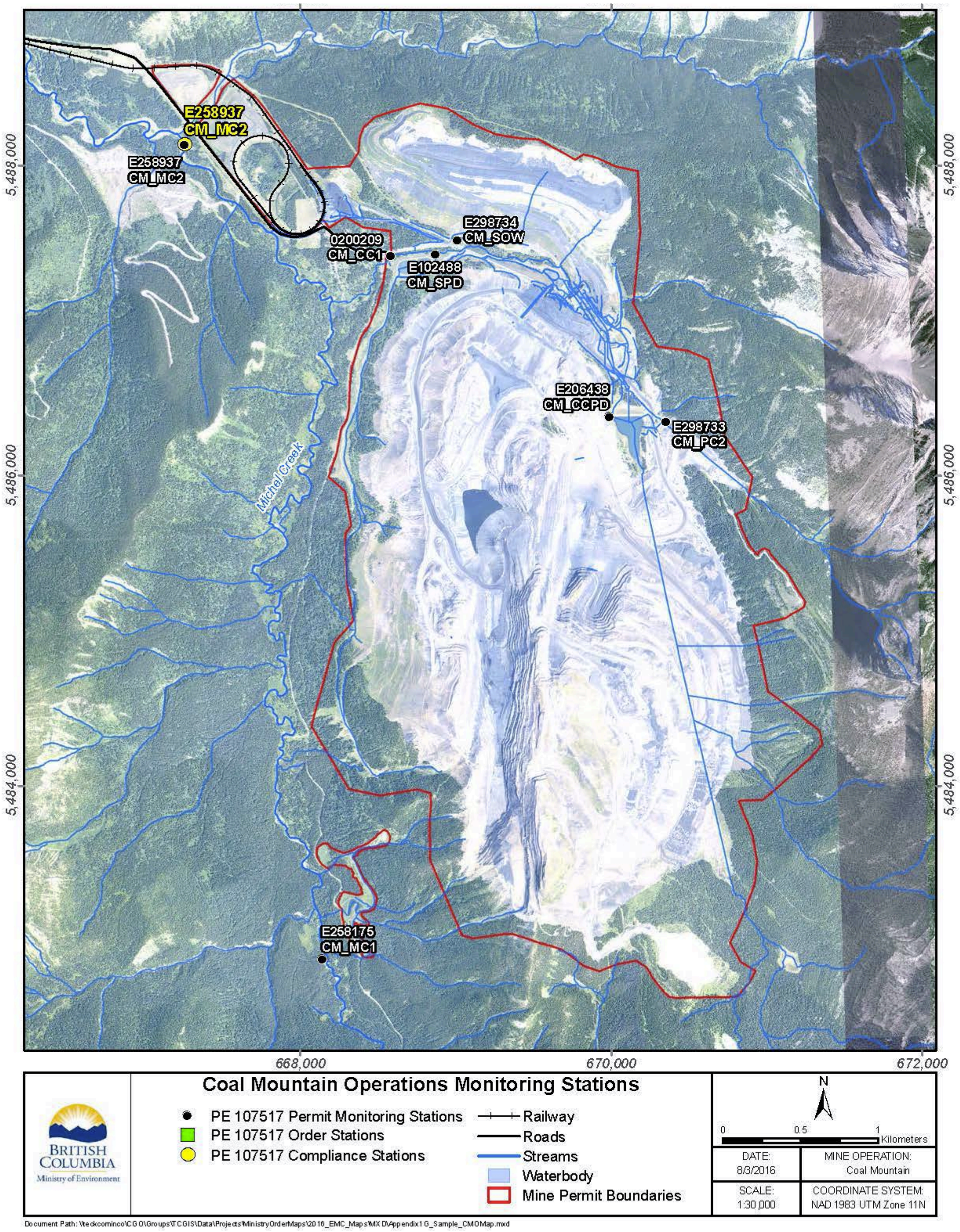
APPENDIX 1J – Teck Coal Limited Sampling Locations Map – Coal Mountain Operations



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APPENDIX 2: SURFACE WATER DISCHARGE AND RECEIVING ENVIRONMENT MONITORING PROGRAM

TABLE 9 - DESIGNATED AREA MONITORING PROGRAM – COMPLIANCE POINTS

	FRO – FORDING RIVER ~525m DOWNSTREAM OF CATARACT CREEK	GHO – FORDING RIVER ~205m DOWNSTREAM OF GREENHILLS CREEK	GHO – ELK RIVER ~220m DOWNSTREAM OF THOMPSON CREEK	LCO – LINE CREEK IMMEDIATELY DOWNSTREAM OF SOUTH LINE CREEK CONFLUENCE	EVO – HARMER SPILLWAY	EVO – MICHEL CREEK AT HWY 3 BRIDGE	CMO – MICHEL CREEK 50m UPSTREAM OF ANDY GOODE CREEK
EMS NUMBER	*E300071*	*0200378*	*E300090*	*E297110*	*E102682*	*E300091*	*E258937*
PARAMETER							
Field Parameters(a)	W/M	W/M	W/M	W/M	W/M	W/M	W/M
Conventional Parameters (b)	W/M	W/M	W/M	W/M	W/M	W/M	W/M
Major Ions (c)	W/M	W/M	W/M	W/M	W/M	W/M	W/M
Nutrients (d)	W/M	W/M	W/M	W/M	W/M	W/M	W/M
Total and Dissolved Metals Scans (e)	W/M	W/M	W/M	W/M	W/M	W/M	W/M
BOD	-	-	-	M	-	-	-
Chlorophyll-*a*	-	-	-	Three times annually, between July 15 & Sept 30 annually	-	-	-
Total Phosphorus	-	-	-	Every two weeks beginning Jun 15 through Sept 30, annually	-	-	-
Bromate	-	-	-	W/M	-	-	-
Hydrogen Peroxide	-	-	-	W/M	-	-	-
7 day *Ceriodaphnia dubia* chronic toxicity (EPSI/RM/21) water-only endpoints: survival, reproduction	Q	Q	Q	Q	Q	Q	Q
72 Hr *Pseudokichneriella subcapitata (EPS1/RM/25)* endpoints: growth, inhibition	Q	Q	Q	Q	Q	Q	Q
30-day early life-stage test -rainbow trout (*Oncorhynchus mykiss;* EPS1/RM/28) using <24-hour post-fertilization eggs; endpoints: survival, hatching, growth, deformity, behaviour	2 times per year – once in Spring and once in Fall	2 times per year – once in Spring and once in Fall	2 times per year – once in Spring and once in Fall	2 times per year – once in Spring and once in Fall	2 times per year – once in Spring and once in Fall	2 times per year – once in Spring and once in Fall	2 times per year – once in Spring and once in Fall
30-day early life-stage test with the fathead minnow (*Pimephales promelas*; USEPA 1996) using <24-hour post-fertilization eggs; endpoints: survival, hatching, growth, deformity	Q	Q	-	-	-	-	Q
28-day water-only test with amphipod, *Hyalella Azteca* (adapted from USEPA 2000)endpoints: survival, growth	Q	Q	-	-	-	-	Q

1) Refer to Table 23, Appendix 3, for abbreviation description.
2) Refer to Table 24, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.

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(most recent)

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for Director, *Environmental Management Act*
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TABLE 10 – DESIGNATED AREA MONITORING PROGRAM – ORDER STATIONS

	FR4 GH_FR1 UPPER FORDING RIVER (DOWNSTREAM OF GREENHILLS CREEK)	FR5 LC_LC5 LOWER FORDING RIVER (FORDING RIVER DOWNSTREAM OF LINE CREEK)	ER1 GH_ER1 ELK RIVER UPSTREAM OF BOIVEN CREEK	ER2 EV_ER4 ELK RIVER UPSTREAM OF GRAVE CREEK (FROM FORDING RIVER TO MICHEL CREEK)	ER3 EV_ER1 ELK RIVER DOWNSTREAM MICHEL CREEK	ER4 RG_ELKORES ELK RIVER AT ELKO RESERVOIR	LK2 RG_DSELK LAKE KOOCANUSA SOUTH OF THE ELK RIVER
EMS Number	*0200378*	*0200028*	*E206661*	*0200027*	*0200393*	*E294912*	*E300230*
PARAMETER							
Field Parameters(a)	W/M	W/M	W/M	W/M	W/M	W/M	M
Conventional Parameters (b)	W/M	W/M	W/M	W/M	W/M	W/M	M/EH
Major Ions (c)	W/M	W/M	W/M	W/M	W/M	W/M	M/EH
Nutrients (d)	W/M	W/M	W/M	W/M	W/M	W/M	M/EH
Total and Dissolved Metals Scan (e)	W/M	W/M	W/M	W/M	W/M	W/M	M/EH
Secchi depth and chlorophyll-a	-	-	-	-	-	-	M

1) Refer to Table 23, Appendix 3, for abbreviation description.
2) Refer to Table 24, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.

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(most recent)

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Mining Authorizations

TABLE 11 - DESIGNATED AREA MONITORING PROGRAM – KOOCANUSA RESERVOIR RECEIVING ENVIRONMENT STATIONS

	KOOCANUSA RESERVOIR DOWNSTREAM OF KIKKOMAN CREEK	KOOCANUSA RESERVOIR WEST OF GRASMERE	KOOCANUSA RESERVOIR UPSTREAM OF GOLD CREEK	KOOCANUSA RESERVOIR UPSTREAM OF CANADA/US BORDER
EMS Number	*E300095*	*E300092*	*E300093*	*E300094*
PARAMETER				
Field Parameters$_{(a)}$	M	M	M	M
Conventional Parameters $_{(b)}$	M/EH	M/EH	M/EH	M
Major Ions $_{(c)}$	M/EH	M/EH	M/EH	M
Nutrients $_{(d)}$	M/EH	M/EH	M/EH	M
Total and Dissolved Metals Scan $_{(e)}$	M/EH	M/EH	M/EH	M
Secchi depth and chlorophyll-a	M	M	M	M

Note: sample collection is based upon access; ice on the reservoir may prevent sample collection, if this is the case, the monitoring report must include a reason in the report

1) Refer to Table 23, Appendix 3, for abbreviation description.
2) Refer to Table 24, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.

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TABLE 12 - FORDING RIVER OPERATIONS DISCHARGE MONITORING PROGRAM

	TAILINGS SLURRY TO NORTH TAILINGS POND	TAILINGS SLURRY TO SOURTH TAILINGS POND	NORTH LOOP POND (h)	MAINTENANCE AND SERVICES SED POND	EAGLE POND DECANT (h)	CLODE POND (h)	SOUTH KILMARNOCK SED. POND – PHASE I (h)	SOUTH KILMARNOCK SED. POND – PHASE II (h)	HENRETTA PIT EFFLUENT INTO DIVERSION CULVERTS (j)	SMITH PONDS (h)	SWIFT PIT EFFLUENT TO FORDING RIVER	SWIFT-CATARACT SED. POND DOSED WITH ANTISCALANT TO FORDING RIVER (4;5)	LIVERPOOL SED PONDS TO FORDING RIVER (h)	POST SED PONDS TO FORDING RIVER (h)	LAKE MOUNTAIN SEDIMENT PONDS TO LAKE MOUNTAIN CREEK
EMS NUMBER	*E102475*	*E206660*	*E102476*	*E102478*	*E102480*	*E102481*	*E208394*	*E208395*	*E216781*	*E261897*	*E217403*	*E320694*	*E304835*	*E304750*	*E306924*
PARAMETER															
Field Parameters (a)	-	-	M	M	M	M	M	M	M	M	M	M	M	M	M
Conventional Parameters (b)	SA	SA	M	M	M	M	M	M	M	M	M	M	M	M	M
Major Ions (c)	SA	SA	M	M	M	M	M	M	M	M	M	M	M	M	M
Nutrients (d)	SA	SA	M	M	M	M	M	M	M	M	M	M	M	M	M
Total and Dissolved Metals Scan (e)	SA	SA	M	M	M	M	M	M	M	M	M	M	M	M	M
96 hour Rainbow Trout single concentration toxicity test (g)	-	-	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	-	Q
48 hour *Daphnia magna* single concentration toxicity test (g)	-	-	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	-	Q

1) Refer to Table 23, Appendix 3, for abbreviation description.
2) Refer to Table 24, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.
4) Monitoring location appears in two monitoring tables in this permit; therefore, monitoring data must be reported according to the requisite reporting requirements in both Section 9 and Appendix 5.
5) Samples are to be collected only when there is discharge via overflow from the FRO AWTF-S Swift Creek Intake.

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TABLE 13 – FORDING RIVER OPERATIONS RECEIVING ENVIRONMENT AND OTHER MONITORING PROGRAM

	FORDING RIVER U/S OF KILMARNOCK CREEK	FORDING RIVER D/S OF FRO AWTF-S OUTFALL STRUCTURE (4)	FORDING RIVER D/S OF HENRETTA	FORDING RIVER U/S OF HENRETTA	HENRETTA CREEK AT MOUTH	HENRETTA CREEK UPSTREAM OF MCQUARRIE CREEK	FORDING RIVER NEAR FORDING ROAD	KILMARNOCK AT MOUTH
EMS Number	*0200201*	*E320695*	*0200251*	*E216777*	*E216778*	*E300096*	*E300097*	*0200252*
PARAMETER								
Field Parameters (a)	W/M	M	M	M	W/M	M	M	M
Conventional Parameters (b)	W/M	M	M	M	W/M	M	M	M
Major Ions (c)	W/M	M	M	M	W/M	M	M	M
Nutrients (d)	W/M	M	M	M	W/M	M	M	M
Total and Dissolved Metals Scan (e)	W/M	M	M	M	W/M	M	M	M

1) Refer to Table 23, Appendix 3, for abbreviation description.
2) Refer to Table 24, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.
4) Monitoring location appears in two monitoring tables in this permit, therefore monitoring data must be reported according to the requisite reporting requirements in both Section 9 and Appendix 5.

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TABLE 14 – GREENHILLS OPERATIONS DISCHARGE MONITORING PROGRAM

	TAILINGS POND WATER	GREENHILLS CREEK SED. POND DECANT (4)	THOMPSON CREEK SED. POND DECANT	PORTER CREEK SED. POND DECANT	WOLFRAM CREEK SED. POND DECANT	LEASK CREEK SED. POND DECANT	RAIL LOOP SED. POND DECANT	MICKELSON CREEK AT LRP ROAD	WADE CREEK AT LRP ROAD	WOLF CREEK SED. POND DECANT	WILLOW CREEK SED. POND DECANT
EMS Number	*E287438*	*E102709*	*E207436*	*0200385*	*E257795*	*E257796*	*E207437*	*0200388*	*E287433*	*E305855*	*E305854*
PARAMETER											
Field Parameters (a)	-	M	M	M	M	M	M	M	M	M	M
Conventional Parameters (b)	SA	M	M	M	M	M	M	M	M	M	M
Major Ions (c)	SA	M	M	M	M	M	M	M	M	M	M
Nutrients (d)	SA	M	M	M	M	M	M	M	M	M	M
Total and Dissolved Metals Scan (e)	SA	M	M	M	M	M	M	M	M	M	M
96 hour Rainbow Trout single concentration toxicity test (g)	-	Q	Q	Q	Q	Q	-	-	Q	Q	Q
48 hour *Daphnia magna* single concentration toxicity test (g)	-	Q	Q	Q	Q	Q	-	-	Q	Q	Q

1) Refer to Table 23, Appendix 3, for abbreviation description.
2) Refer to Table 24, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.
4) Monitoring location appears in two monitoring tables in this permit; therefore, monitoring data must be reported according to the requisite reporting requirements in both Section 9 and Appendix 5.

TABLE 15 – GREENHILLS OPERATIONS RECEIVING ENVIRONMENT MONITORING PROGRAM

	ELK RIVER UPSTREAM OF GREENHILLS OPERATIONS	THOMPSON CREEK AT LRP ROAD [3]	COUGAR CREEK AT LRP ROAD	BRANCH F AT LRP ROAD	NO NAME CREEK (GH_NNC)	ELK RIVER SIDE CHANNEL D/S WOLFRAM CREEK (GH_ER1A)	ELK RIVER D/S OF THOMPSON CREEK	ELK RIVER SIDE CHANNEL U/S WOLFRAM CREEK
EMS Number	0200389	*E102714*	*E287432*	*E287437*	*E305875*	*E305876*	*E305877*	*E305878*
PARAMETER								
Field Parameters$_{(a)}$	M	M	M	M	M	M	M	M
Conventional Parameters $_{(b)}$	M	M	M	M	M	M	M	M
Major Ions $_{(c)}$	M	M	M	M	M	M	M	M
Nutrients $_{(d)}$	M	M	M	M	M	M	M	M
Total and Dissolved Metals Scan $_{(e)}$	M	M	M	M	M	M	M	M
96 hour Rainbow Trout single concentration toxicity test $_{(g)}$	-	Q	-	-	-	-	-	-
48 hour *Daphnia magna* single concentration toxicity test $_{(g)}$	-	Q	-	-	-	-	-	-

1) Refer to Table 23, Appendix 3, for abbreviation description.
2) Refer to Table 24, Appendix 3, for explanatory notes.
3) The requirement for monitoring at this site will be re-evaluated upon acceptance of the GHO LAEMP study design.
4) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.

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TABLE 16 - LINE CREEK OPERATIONS DISCHARGE MONITORING PROGRAM

	NO NAME CREEK POND EFFLUENT TO LINE CREEK	MSA NORTH PONDS EFFLUENT TO LINE CREEK	MSA NORTH PONDS EFFLUENT TO LINE CREEK ALTERNATE (4)	CONTINGENCY TREATMENT SYSTEM EFFLUENT TO LINE CREEK (r)
EMS Number	*E221268*	*E216144*	*E304613*	*E219411*
PARAMETERS				
Field Parameters (a)	M	M	M	M
Conventional Parameters (b)	M	M	M	M
Major Ions (c)	M	M	M	M
Nutrients (d)	M	M	M	M
Total and Dissolved Metals Scan (e)	M	M	M	M
96 hour Rainbow Trout single concentration toxicity test (g)	Q	Q	Q	-
48 hour *Daphnia magna* single concentration toxicity test (g)	Q	Q	Q	-

1) Refer to Table 23, Appendix 3, for abbreviation description.
2) Refer to Table 24, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.
4) Monitoring location E304613 to be used as an alternate for E216144, as required.

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TABLE 17 – LINE CREEK OPERATIONS RECEIVING ENVIRONMENT MONITORING PROGRAM

	LINE CREEK UPSTREAM OF PROCESS PLANT	LINE CREEK DOWNSTREAM OF WEST LINE CREEK	LINE CREEK UPSTREAM OF ROCK DRAIN	LINE CREEK UPSTREAM OF WLC BELOW ROCK DRAIN	LINE CREEK UPSTREAM MSA NORTH PIT	SOUTH LINE CREEK	WEST LINE CREEK	NORTH HORSESHOE CREEK NEAR MOUTH
EMS Number	*0200044*	*0200337*	*0200335*	*E293369*	*E216142*	*E282149*	*E261958*	*E223240*
PARAMETER								
Field Parameters(a)	W/M	W/M	M	M	M	M	M	M
Conventional Parameters (b)	W/M	W/M	M	M	M	M	M	M
Major Ions (c)	W/M	W/M	M	M	M	M	M	M
Nutrients (d)	W/M	W/M	M	M	M	M	M	M
Nitrate	-	-	-	W	-	-	W	-
Total and Dissolved Metals Scan (e)	W/M	W/M	M	M	M	M	M	M
BOD	-	W/M	M	M	-	M	-	-
Sulphide	-	W/M	-	-	-	-	-	-
Bromate	W/M	W/M	-	-	-	-	-	-
Hydrogen peroxide (Teck Internal Lab Results)	W/M	W/M	-	-	-	-	-	-

1) Refer to Table 23, Appendix 3, for abbreviation description.
2) Refer to Table 24, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.

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TABLE 18 - ELKVIEW OPERATIONS DISCHARGE MONITORING PROGRAM

	WESTFORK TAILINGS IMPOUNDMENT DISCHARGE TO GROUND	ERICKSON CREEK (@MOUTH) DISCHARGE TO MICHEL CREEK	SOUTH PIT CREEK SEDIMENTATON POND DISCHARGE TO MICHEL CREEK	MILLIGAN CREEK SEDIMENTATION POND DISCHARGE TO MICHEL CREEK	GATE CREEK SEDIMENTATION POND DISCHARGE TO MICHEL CREEK	BODIE CREEK SEDIMENTATION POND DISCHARGE TO MICHEL CREEK	AQUEDUCT CREEK CONTROL STRUCTURE TO AQUEDUCT CREEK
EMS Number	*E296310*	*0200097*	*E296311*	*E208057*	*E206231*	*E102685*	*E302170*
PARAMETER							
Field Parameters (a)	SA	M	M	M	M	M	M
Conventional Parameters (b)	SA	M	M	M	M	M	M
Major Ions (c)	SA	M	M	M	M	M	M
Nutrients (d)	SA	M	M	M	M	M	M
Total and Dissolved Metals Scan (e)	SA	M	M	M	M	M	M
96 hour Rainbow Trout single concentration toxicity test (g)	-	Q	Q	Q	Q	Q	Q
48 hour *Daphnia magna* single concentration toxicity test	-	Q	Q	Q	Q	Q	Q

1) Refer to Table 23, Appendix 3, for abbreviation description.
2) Refer to Table 24, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.

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TABLE 19 - ELKVIEW OPERATIONS DISCHARGE MONITORING PROGRAM (CONTINUED)

	OTTO CREEK (@MOUTH) DISCHARGE TO ELK RIVER	GODDARD CREEK SEDIMENTATION POND DECANT DISCHARGE TO GODDARD MARSH VIA ELK RIVER	LINDSAY CREEK INFILTRATION BASIN DISCHARGE TO GROUND	DRY CREEK SEDIMENTATION POND DECANT TO HARMER CREEK	6 MILE CREEK SEDIMENTATION POND DECANT DISCHARGE TO ELK RIVER
EMS Number	*E102679*	*E208043*	*E258135*	*E298590*	*E102681*
PARAMETER					
Field Parameters $_{(a)}$	M	M	M	M	M
Conventional Parameters $_{(b)}$	M	M	M	M	M
Major Ions $_{(c)}$	M	M	M	M	M
Nutrients $_{(d)}$	M	M	M	M	M
Total and Dissolved Metals Scan $_{(e)}$	M	M	M	M	M
96 hour Rainbow Trout single concentration toxicity test $_{(g)}$	Q	Q	Q	Q	Q
48 hour *Daphnia magna* single concentration toxicity test $_{(g)}$	Q	Q	Q	Q	Q

1) Refer to Table 23, Appendix 3, for abbreviation description.
2) Refer to Table 24, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.

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TABLE 20 – ELKVIEW OPERATIONS RECEIVING ENVIRONMENT AND OTHER MONITORING PROGRAM

	MICHEL CREEK UPSTREAM OF ERICKSON CREEK	ELK RIVER UPSTREAM OF MICHEL CREEK	BALMER CREEK @ CFI ROAD	FENNELON CREEK @ CFI ROAD	SPRING CREEK @ MOUTH WITH AQUADUCT CREEK	THRESHER CREEK @ MILLIGAN ROAD
EMS Number	***0200203***	***0200111***	*E298592*	*E298591*	*E298594*	*E298593*
PARAMETER						
Field Parameters(a)	W/M	M	M	M	M	M
Conventional Parameters (b)	W/M	M	M	M	M	M
Major Ions (c)	W/M	M	M	M	M	M
Nutrients (d)	W/M	M	M	M	M	M
Total and Dissolved Metals Scan (e)	W/M	M	M	M	M	M

1) Refer to Table 23, Appendix 3, for abbreviation description.
2) Refer to Table 24, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.

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TABLE 21– COAL MOUNTAIN OPERATIONS DISCHARGE MONITORING PROGRAM

	DECANT DISCHARGE FROM MAIN INTERCEPTOR SEDIMENTATION PONDS (h)	DECANT DISCHARGE FROM CORBIN SEDIMENTATION POND (h)	PENGELLY CHANNEL DECANT (h)	SOWCHUCK SUMP
EMS Number	*E102488*	*E206438*	*E298733*	*E298734*
PARAMTER				
Field Parameters (a)	M	M	M	M
Conventional Parameters (b)	M	M	M	M
Major Ions (c)	M	M	M	M
Nutrients (d)	M	M	M	M
Total Metals Scan (e)	M	M	M	M
96 hour Rainbow Trout single concentration toxicity test (g)	Q	Q	Q	-
48 hour LT_{50} *Daphnia magna* single concentration toxicity test (g)	Q	Q	Q	-

1) Refer to Table 23, Appendix 3, for abbreviation description.
2) Refer to Table 24, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.

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Table 22 – COAL MOUNTAIN OPERATIONS RECEIVING ENVIRONMENT MONITORING PROGRAM

	MICHEL CREEK UPSTREAM OF OPERATIONS	CORBIN CREEK NEAR CONFLUENCE WITH MICHEL CREEK
EMS Number	***E258175***	***0200209***
PARAMETER		
Field Parameters(a)	M	W/M
Conventional Parameters (b)	M	W/M
Major Ions (c)	M	W/M
Nutrients (d)	M	W/M
Total Metals Scan (e)	M	W/M

1) Refer to Table 23, Appendix 3, for abbreviation description.
2) Refer to Table 24, Appendix 3, for explanatory notes.
3) Refer to Section 8.1.2.2 and the Regional Surface Flow Monitoring Plan for flow monitoring requirements.

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APPENDIX 3: MONITORING PROGRAM NOTES AND EXPLANATIONS

Table 23 - Abbreviations for Surface Water Monitoring Program

A	Annual frequency
3X/W	Sampling three times per week
1X/2W	Sampling once every two weeks
1X/6W	Six week in-stream cycle
C	Continuous Monitoring refer to (f) Table 24
D	Daily frequency
M	Monthly frequency
M/EH	Monthly frequency of one epilimnetic composite of water sampled from three depths (e.g. 1m, 5m,10m) and another hypolimnetic composite of water sampled from three depths (e.g. 20m,32m,45m) Stratification into an epilimnion and hypolimnion will be confirmed wherever a thermocline (defined as a 1°C change over 1 meter depth) is recorded. This temperature differential must be sustained in order to constitute stratification. Where stratified, one composite sample will be formed from three evenly spaced grab samples in the epilimnion and one composite sample similarly from the hypolimnion. Where unstratified, samples will be collected 3 m from the surface, 3 m from the substrate and at the mid-point of the water column. These samples will be averaged to comprise a composite sample.
Q	Quarterly frequency
Q*	Toxicity testing done weekly until one year after commissioning is completed, at which time testing must be done quarterly.
SA	Semi-Annual frequency (twice per year), SA sampling schedules must coincide with the monthly sampling schedule for sampling locations where both sampling frequencies are required.
W/M	Weekly frequency March 15 – July 15, monthly during the rest of the year.
BOD	5-day Biochemical Oxygen Demand
EPH	Extractable Petroleum Hydrocarbons, a combination of HEPH (C19-32) & LEPH (C10-19)
TSS	Total Suspended Solids

Table 24- Surface Water Monitoring Program: Explanatory Notes

a	**Field Parameters** must include water temperature, specific conductance, dissolved oxygen, pH; for Koocanusa Reservoir locations this includes vertical profiles of dissolved oxygen and temperature
b	**Conventional Parameters** must include specific conductance, total dissolved solids, total suspended solids, hardness, alkalinity, dissolved organic carbon, total organic carbon, and turbidity.
c	**Major Ions** must include bromide, fluoride, calcium, chloride, magnesium, potassium, sodium, sulphate.
d	**Nutrients** must include ammonia, nitrate, nitrite, TKN, orthophosphate, total phosphorus.
e	**Dissolved Metals Scan** must include aluminum, antimony, arsenic, barium, beryllium, bismuth, boron, cadmium, chromium, cobalt, copper, iron, lead, lithium, manganese, mercury, molybdenum, nickel, selenium, silver, strontium, thallium, tin, titanium, uranium, vanadium, and zinc. **Total Metals Scan** must include aluminum, antimony, arsenic, barium, beryllium, bismuth, boron, cadmium, chromium, cobalt, copper, iron, lead, lithium, manganese, mercury, molybdenum, nickel, selenium, silver, strontium, thallium, tin, titanium, uranium, vanadium, and zinc.
f	**Flow monitoring locations may be changed through approved flow monitoring plan and must follow latest approved plan. Flow measurements** must be taken in accordance with Section 8.1.2.2 or in accordance with an approved Flow Monitoring Plan.
g	Acute and chronic toxicity tests must coincide with water quality sampling and-must be implemented in accordance with the toxicity testing program approved by the director. Teck shall collect samples when ponds are decanting within the permitted sampling frequency
h	If the discharge point is not decanting to the receiving environment, water quality samples must be taken just inside the decant point for all parameters, with the exception of toxicity.
o (LCO)	Water temperature, dissolved oxygen, pH must be continuously monitored.
r (LCO)	To be sampled only when in use.

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APPENDIX 4: SELENIUM AND NITRATE TREATMENT FACILITIES

APPENDIX 4A – Selenium and Nitrate Treatment Facility General Operational Requirements

APPENDIX 4B – West Line Creek Active Water Treatment Facility (AWTF)

APPENDIX 4C – Elkview Operations Saturated Rock Fill (EVO SRF)

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APPENDIX 4A – Selenium and Nitrate Treatment Facility General Operational Requirements

This section includes requirements that apply to all selenium and nitrate treatment facilities. Subsequent sections include facility-specific requirements.

4A1 COMMISSIONING

For the purpose of this permit, commissioning means bringing selenium and nitrate treatment facility works into operation, including chemical commissioning, media loading and testing, hydraulic wet testing, and biological commissioning while gradually increasing process flow rates to target rates, and until performance targets are met. The commissioning phase includes reasonable time for undertaking operational refinement or adjustment of works to optimize efficiency and/or effluent quality. In this regard, a maximum of 120 days is considered a reasonable time to commission the facility. The permittee must stipulate the start date of the commissioning period in the Commissioning Plan as per Section 4A2. Alternative commissioning periods must be approved by the director.

During commissioning of a treatment facility, the authorized discharge limits for each specific facility included in the subsequent sections do not apply, but the discharge is required to be non-acutely toxic as per Section 6.2. During the time that commissioning is underway, periodic reporting on the status of commissioning must be provided to the satisfaction of the director.

4A2 COMMISSIONING PLAN

A Commissioning Plan for each selenium and nitrate treatment facility must be prepared by a Qualified Professional, submitted to the director and implemented prior to commencement of the discharge from the treatment facility. The Commissioning Plan must include but is not necessarily limited to operational procedures required to commission and to start-up following a shut-down of the water treatment facility, including any additional monitoring and reporting required to demonstrate that no adverse environmental impacts result from commissioning.

4A3 OPERATIONS PLAN

An Operations Plan for each selenium and nitrate treatment facility and the associated authorized works in Appendix 4 must be prepared by a Qualified

Professional, submitted to the director and implemented prior to commencement of the discharge from the treatment facility. The Operations Plan must include but is not necessarily limited to:

- The facility operator's manual, with provision for its continual improvement;
- An overview of the planned maintenance program which includes an inventory of facility components and authorized replacement parts, and a detailed description of inspection, repair and replacement frequency for facility components;
- Documentation to verify that the facility is operated at all times within specifications and in a manner to ensure compliance with this authorization and other applicable legislation;
- Procedures for safely shutting down the treatment facility; and
- Actions to be taken if effluent quality fails to meet the requirements of this permit;
- Contingency planning which describes built-in redundancy of the facility and outlines measures to prevent emergency conditions from occurring; and
- Key metrics to be used to demonstrate the performance of the treatment facility relative to the intended performance.

The Operations Plan must be reviewed and updated following the first year of facility operations and as needed thereafter to assess its appropriateness for the authorized works, discharges and conditions. Results of the initial review must be provided to the director in the commissioning report prepared under Section 4A6 of this permit. Changes in procedures may be required by the director on the basis of this or later assessments, the operational records for the treatment facility and/or the results of discharge and receiving environment monitoring under Section 8. Any significant update to the plan must be submitted to the director within 30 days of adoption. Minor updates must be summarized in the quarterly report for the time period when the minor update was made.

4A4 SITE SPECIFIC ENVIRONMENTAL EMERGENCY RESPONSE PLAN

A Site-Specific Environmental Emergency Response Plan must be prepared for all selenium and nitrate treatment facilities. The plan must be submitted to the director prior to commencement of the discharge from the selenium and nitrate treatment facilities.

The plan must include, but is not limited to:

- A description of measures to mitigate any health or environmental impacts, if emergencies occur;
- Specific reference to the Spill Reporting Regulation; and
- Instructions for staff in the event of an emergency, including contact information for local authorities (fire, police, public health), Emergency Management BC, and the director.

Any significant update to the plan must be submitted to the director within 30 days of adoption. Minor updates must be summarized in the quarterly report for the time period when the minor update was made.

4A5 DISCHARGE MONITORING

The permittee must sample the parameters at the sampling sites at the specific frequencies as defined in subsequent sections in Appendix 4. The influent and discharge water sampling sites are located approximately as shown in subsequent sections in Appendix 4. Sampling and analytical procedures in Section 8.1.2 apply to the monitoring required per Appendix 4 of this permit.

4A6 COMMISSIONING REPORT

Within 12 months of finalizing the commissioning phase of the selenium and nitrate treatment facility, the permittee must submit a commissioning report, prepared by a Qualified Professional to the director. The report must document the results of performance monitoring and system optimization over the first year of operations at the facility and recommend any necessary system improvements.

4A7 QUARTERLY TREATMENT PERFORMANCE REPORT

The permittee must submit a quarterly treatment performance report to the director within 30 days of the end of the quarter in which the samples were collected. The quarterly treatment performance report must include the following for each water treatment facility:

i. Effluent water quality results used to calculate monthly averages for the limits in Section 2 and Appendix 4, if applicable;

ii. Effluent water quality results exceeding limits and targets or other criteria, such as daily maximums or as specified by the director;

iii. Facility throughput and availability;

iv. Selenium and nitrate load removal;

v. A summary of selenium speciation data;

vi. Identification of all missing data and all QA/QC issues;

vii. All toxicity test results and raw laboratory data sheets for all mortality results;

viii. All reportable spills or other incidents related to water quality, occurring in the quarter;

ix. A summary of operational and/or performance highlights and trends from the quarter;

x. Explanation of the most probable cause(s) of any non-compliances;

xi. All measures taken to reduce or eliminate non-compliances; and

xii. Any additional sampling results for the compliance points identified in Section 2 obtained for any reason, whether compliance, maintenance, or operational purposes. All test data must be reported within 30 days of the end of the quarter in which sampling occurred. These additional results may be reported in summary form. Further information on the testing event may be requested in writing by the director.

Results from samples collected in the last month of the quarter that are not available must be included in the following quarterly report. Any deviation from the information listed in this section must be communicated in the quarterly report and include rationale for the changes.

4A8 <u>ANNUAL TREATMENT PERFORMANCE REPORT</u>

The permittee must submit an annual treatment performance report to the director by March 31 of each year following the data collection calendar year. The report may include all facilities, though discussion for each facility must be distinct. Alternatively, the permittee may submit a series of reports. Each deliverable should not exceed manageable file sizes.

The report must include the following for each water treatment facility:

i. A summary of facility performance compared to the key performance metrics listed in the Operations Plan;

ii. Influent sources and flow rates, including alternate sources;

iii. Selenium and nitrate load removal;

iv. Quantities of reagents used and residuals generated;

v. Details on continuous improvement initiatives;

vi. A description of any incidents including process upsets, spills, issues with and bypasses of the Authorized Works, including recirculation events;

vii. A summary of all non-compliances with the requirements of Appendix 4, submitted in an Annual Status Form;

viii. A map of monitoring locations with EMS and permittee descriptors;

ix. A summary and evaluation of key operational and receiving environment monitoring data associated with the selenium and nitrate treatment facilities and all analytical results from the monitoring plans in Appendix 4 for the reporting year. Data must be suitably tabulated (i.e., excel spreadsheets), with appropriate graphs and comparison of results to limits, Approved and Working Water Quality Guidelines, Site Performance Objectives, or other criteria and benchmarks as specified by the director;

x. If Site Performance Objectives in Appendix 4 are exceeded the permittee must provide an interpretation of significance, and the status of corrective actions and/or ongoing investigations;

xi. All acute toxicity test-specific reports from the laboratory and an interpreted summary and discussion of results, including recommendations and all subsequent actions;

xii. All acute toxicity test lab reports must include data and/or observations for hardness, alkalinity, pH, temperature, and formation of precipitate either in the vessel or on the organism.

xiii. A summary of all QA/QC issues during the year.

APPENDIX 4B – West Line Creek (WLC) AWTF

Additional requirements are detailed in Appendix 4A.

4B1 AUTHORIZED DISCHARGES

This section applies to the discharge of effluent from the West Line Creek Active Water Treatment Facility (WLC AWTF) Phase 1 to Line Creek. The WLC AWTF influent is comprised of contact water from waste rock piles and non-hazardous leachate from the WLC AWTF residual waste landfill. The site reference number for this discharge is E291569 (WL_BFWB_OUT_SP21) as shown in Appendix 4B4.

4B1.1 The maximum authorized rate of discharge is 8,300 cubic meters per day.

4B1.2 The treated effluent discharged to Line Creek must not be acutely toxic as per Section 6.2. The characteristics of the discharge at the Buffer Pond Outfall (E291569) must not exceed:

PARAMTER	Daily Maximum Concentration
Ammonia	1.0 mg/L
Biological Oxygen Demand	25 mg/L
pH Range	6.5-8.5 pH units
Nitrate	3.0 mg/L
Total Phosphorus	0.3 mg/L
Total Selenium	20 µg/L, Monthly Average
Total Suspended Solids	10.0 mg/L
Antiscalant	5 mg/L, two-minute time weighted

4B1.3 This discharge is authorized from Authorized Works which are the West Line Creek intake structure and pipeline, active water treatment plant, the advanced oxidation process facility, combined Line Creek intake and outfall structure and pipeline, infrastructure associated with transferring leachate influent from the biosolids residual management facility, buffer pond, buffer pond overflow spillway and wet pond, and groundwater diversion, and related appurtenances.

4B1.4 The location of the facilities from which the discharge originates and the location of the point of discharge is District Lot 6772, District Lot 4588, Kootenay Land District.

4B2 SITE PERFORMANCE OBJECTIVES

Additional requirements for WLC AWTF are detailed in Appendix 4A.

4B2.1 The following Site Performance Objectives are established for Line Creek immediately downstream of the confluence with South Line Creek. The site reference number where the Site Performance objectives apply is E297110 as shown in Appendix 1.

PARAMETER	OBJECTIVE	METHOD/NOTES
Total Phosphorus	≤ 20µg/L	Growing season average calculated from measurements collected every two weeks between June 15 and September 30 annually.

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for Director, *Environmental Management Act*
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4B3 WLC AWTF MONITORING PROGRAM

	WLC AWTF WEST LINE CREEK (Influent)	WLC AWTF LINE CREEK (Influent)	BUFFER POND OUTFALL (Effluent)
EMS NUMBER	*E293371*	*E293370*	*E291569*
PARAMETER			
TSS & Turbidity (field parameters) [3]	D	D	D
BOD	-	-	3X/W
Total Selenium	-	-	3X/W
Selenium Speciation (selenate and selenite)	-	-	M
Field Parameters $_{(a)}$	D	D	D
Conventional Parameters $_{(b)}$	M	M	M
Major Ions $_{(c)}$	M	M	M
Nutrients $_{(d)}$	M	M	M
Nitrate (Teck Internal Lab Results)	W	W	W
Sulphide	-	-	M
Total and Dissolved Metals Scan $_{(e)}$	M	M	M
Bromate	-	-	M
Hydrogen Peroxide (Teck Internal Lab Results)	-	-	M
Ozone (Teck Internal Lab Results)	-	-	M
Flow $_{(f)}$	C	C	C
96 hour Rainbow Trout single concentration toxicity test $_{(g)}$	-	-	Q*
48 hour *Daphnia magna* single concentration toxicity test $_{(g)}$	-	-	Q*

1) Refer to Table 23, Appendix 3, for abbreviation description.
2) Refer to Table 24, Appendix 3, for explanatory notes.
3) TSS may be determined as per Permit 5353, Section 2.3.
4) Teck must notify the director within 24 hours if an LCO laboratory result for TSS is greater than 10 mg/L at the WLC AWTF Buffer Pond outlet (E291569).
5) Teck must notify the director immediately if a third-party laboratory result is greater than 10 mg/L TSS at the WLC AWTF Buffer Pond outlet (E291569).

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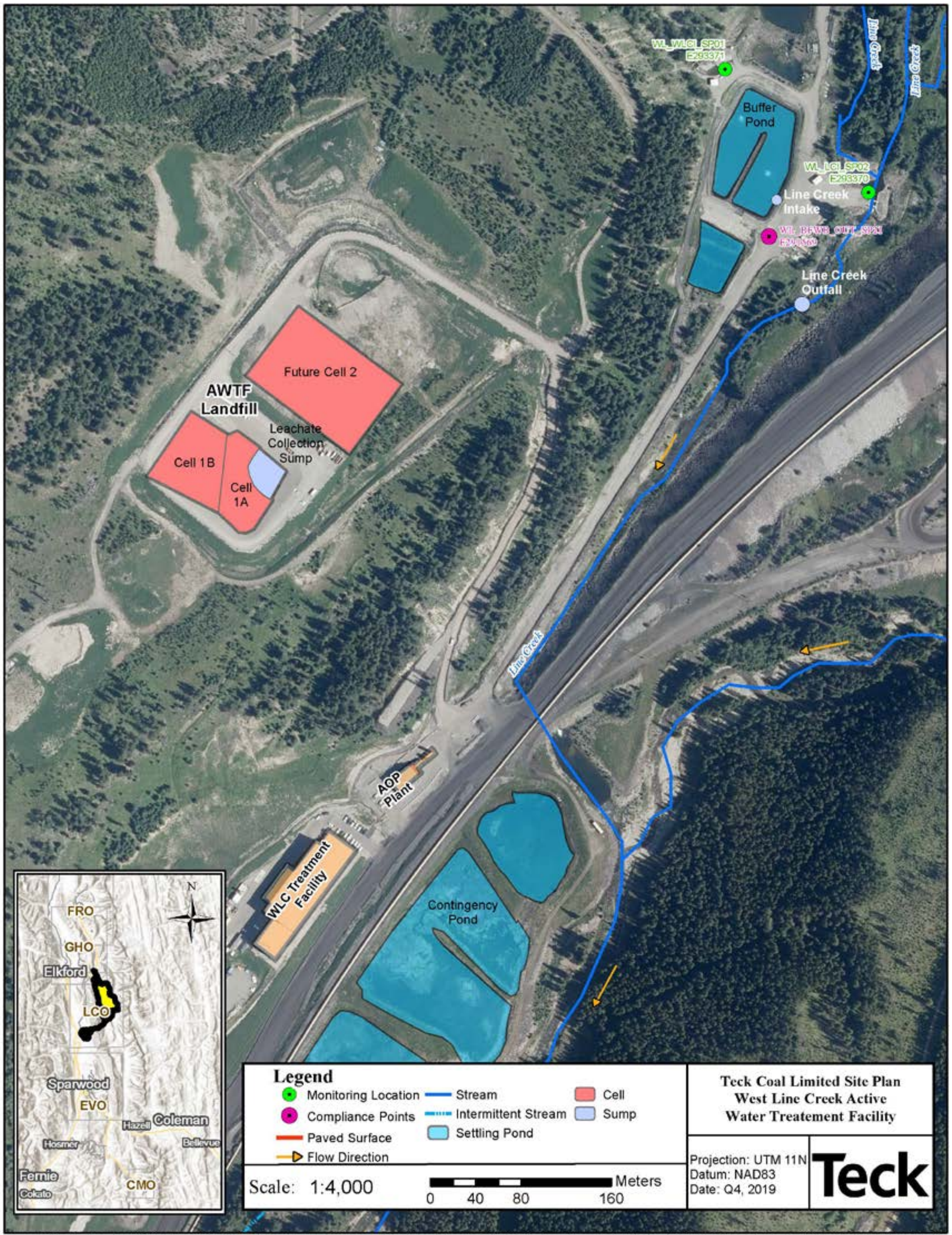
4B4 <u>WLC AWTF SITE PLAN</u>



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Mining Authorizations

APPENDIX 4C – Elkview Operations Saturated Rock Fill (EVO SRF)

Additional requirements are detailed in Appendix 4A.

4C1 AUTHORIZED DISCHARGES

This section applies to the discharge of effluent from the Elkview Operations Saturated Rock Fill (EVO SRF) to Erickson Creek and Bodie Rock Drain. The EVO SRF influent is comprised of contact water from Erickson Creek and Natal Pit. The site reference number for this discharge is the Effluent Retention Pond Outlet (F2_BPO, E321812) as shown in Appendix 4C5.

4C1.1 The typical flow is to be used to calculate permit fees for effluent discharges. The typical flow through the EVO SRF is 20,000 cubic meters per day (i.e., 95% of the design capacity of 21,053 m3/day). The typical flow refers to the discharge rate expected during normal operations and should not be interpreted as a compliance limit or requirement.

4C1.2 The treated effluent discharged to Erickson Creek must not be acutely toxic as per Section 6.2. The characteristics of the discharge at the Effluent Retention Pond Outlet (F2_BPO, E321812) must be equivalent to or better than:

PARAMETER	LIMIT[(a)]
Nitrate	Included in Elkview Operations Compliance Limit at the Elkview Operations Michel Creek Compliance Point (EV_MC2) (Section 2.6)
Total Selenium	
Effluent Toxicity (96 hr rainbow trout single concentration, and 48 hr *Daphnia magna* single concentration)	< 50% mortality
Antiscalant	10 mg/L, based on a two-minute time weighted average
Ammonia	1.2 mg/L

Biochemical Oxygen Demand (BOD)	25 mg/L
Nitrite (as N)	0.4 mg/L
Sulfide	0.01 mg/L
Total Phosphorus	0.10 mg/L (monthly average)
pH	Minimum: 6.5 Maximum: 9.0
Dissolved Oxygen	5.0 mg/L

(a) Compliance with the limits above must determined by third party CALA certified laboratory results except for Antiscalant which will be determined by dosing rates and pH which will be via field analysis.

4C1.3 The discharge is authorized from Authorized Works which are the Erickson Creek intake, influent pipeline from Erickson Creek, influent piping from Natal Pit, reagent dosing facilities, conveyance pipelines, injection wells, monitoring wells, extraction wells, Effluent retention pond, Erickson Creek effluent pipeline, Erickson Creek outfall, Bodie Rock Drain and related appurtenances approximately located as shown on the Site Plan in Appendix 4C5.

4C1.4 The location of the facilities from which the discharge originates and the location of the points of discharge are Lot 1, District Lot 4588 4589 Kootenay District, Plan 7590 9330, except parts included in Plans 9591 9262 10218 10797 11205 12980 14030 14643 15615 15081 17773 18084 18351 12403 NEP59847 NEP22563 NEP60990 NEP61045 NEP61240 NEP61298 NEP62835 NEP66365 NEP68373 NEP73532 NEP89674 PID: 010-681-043.

4C2 SITE PERFORMANCE OBJECTIVES

4C2.1 Water Temperature

Water temperature measured at Erickson Creek at mouth (EV_EC1) must be managed to not exceed the upper temperature thresholds based on the following Site Performance Objectives.

The site reference number where the Site Performance Objectives apply is EV_EC1 (0200097) as shown in Appendix 4C5.

PARAMETER		OBJECTIVE
Temperature	January 1 to April 30 and November 1 to December 31	<7°C
	May 1 to August 31	<13°C
	September 1 to October 31	<10°C

Based on the results of the LAEMP, the director may adjust these Site Performance Objectives, and the permittee may be required to implement mitigation measures if needed to achieve the updated Site Performance Objectives.

4C3 <u>OPERATIONAL REQUIREMENTS</u>

4C3.1 SRF Operational Contingency Plan

The permittee must develop and implement an operational contingency plan (alarm strategy) to manage the parameters listed in Section 4C1.2 related to operation of the EVO SRF that pose a risk of impacts to receptors in the receiving environment. The plan must be submitted to the director 30 days prior to the end of the commissioning period for the EVO SRF, and the permittee must notify the director at least 15 days prior to implementing any proposed changes to the plan. The plan must include an operational monitoring program and thresholds that trigger management actions that will be implemented to mitigate the risk of impacts.

If the onsite laboratory sample results are in exceedance of the limits specified in Section 4C1.2, the permittee must immediately collect samples for analysis at a CALA certified laboratory. These results must be included in the routine reports per Section 4A of Appendix 4.

4C3.2 EVO SRF Performance Metrics

The permittee must develop and track key metrics demonstrating the performance of the EVO SRF, including but not limited to removal of nitrate and selenium load. The performance metrics to be tracked must be submitted to the director 30 days prior to the end of the commissioning period for the EVO SRF, and the permittee must notify the director at least 15 days prior to implementing any proposed changes to the metrics. The performance metrics must align with the EVWQP goals and environmental management objectives. The permittee must present the performance metrics results at routine regulator updates and in routine reports per Section 4A of Appendix 4.

4C3.3 Erickson Creek Discharge Management Plan

The permittee must develop and implement a discharge management plan to manage discharge from the EVO SRF to Erickson Creek. The plan must be submitted to the director 30 days prior to the end of the commissioning period for the EVO SRF, and the permittee must notify the director at least 15 days prior to implementing any proposed changes to the plan. The plan must describe the actions and monitoring Teck will implement to minimize change in streamflow between upstream and downstream of the Erickson Creek intake/outfall structure and follow the Federal Department of Fisheries and Oceans Canada (DFO) guidance on allowable rates of change in streamflow to avoid adverse effects to fish habitat. The permittee must report the monitoring results from the plan in the routine reports per Section 4A of Appendix 4.

4C3.4 Adaptive Management Plan Studies

The permittee must develop and implement the following studies under the Adaptive Management Plan (AMP) to resolve uncertainties regarding the water balance in Erickson Creek and potential unidentified mine contact water discharge pathways. The study designs must incorporate feedback from the Elk Valley Groundwater Working Group and be submitted to the director for approval by March 31, 2021.

a) Uncertainty: Erickson Creek water balance study. The study must resolve uncertainty related to the magnitude of total precipitation, evapotranspiration, surface flow and groundwater flow in the watershed.

In completing the study, the permittee must demonstrate closure of the Erickson Creek water balance to the satisfaction of the director.

b) Uncertainty: Michel Creek contaminant load balance study. The study must resolve uncertainty related to the potential existence of an unaccounted mine contact water discharge pathway from EVO to Michel Creek. The study must utilize measured water quality data from mine contact surface water and groundwater sources. If the mass balance for contaminant loadings cannot be adequately closed to the satisfaction of the director, then Teck must develop and implement an additional study to locate and characterize the missing contaminant load pathway(s).

Progress updates and study findings must be reported in the annual AMP report per Section 10.

4C4 EVO SRF MONITORING PROGRAM

Table 1: Surface Water Quality(g)

	Natal Pit Intake (Influent)	Erickson Creek Intake (Influent)	Effluent Retention Pond Outlet (Effluent)	Erickson Creek outfall (Effluent)	Bodie Rock Drain (Effluent)	Erickson Creek immediately downstream of Outfall	Erickson Creek at Mouth	EVO Michel Creek Compliance Point	Michel Creek upstream of Bodie and Gate Creek	Michel Creek upstream of Erickson Creek	Gate Creek Discharge Monitoring Location	Bodie Creek Discharge Monitoring Location	Elk River Downstream of Michel Creek
Teck Station ID	F2_NWPI	F2_ECIN	F2_BPO	F2_ECF	F2_BRDF	EV_ECOUT	EV_EC1	EV_MC2	EV_MC2a	EV_MC3	EV_GT1	EV_BC1	EV_ER1
EMS Number	*E321791*	*E321811*	*E321812*	*E321813*	*E321815*	*E321814*	*0200097*	*E300091*	*310168*	*0200203*	*E206231*	*E102685*	*200393*
PARAMETER													
Field parameters(a)	D	D	D	-	-	M/W	M/W	M/W	M/W	M/W	M/W	M/W	M/W
Conventional Parameters(b)	W	W	W	-	-	M/W	M/W	M/W	M/W	M/W	M/W	M/W	M/W
Major Ions and Nutrients(c)	W	W	W	-	-	M/W	M/W	M/W	M/W	M/W	M/W	M/W	M/W
Dissolved Metals Scan(d)	W	W	W	-	-	M/W	M/W	M/W	M/W	M/W	M/W	M/W	M/W
Total Metals Scan(d)	M	M	M	-	-	M	M	M/W	M	M/W	M	M	M/W
Total Selenium	-	-	3xW	-	-	-	-	-	-	-	-	-	-
Flow	C	C	C	C	C	C	C	C	-	-	C	C	-
Temperature	C	C	-	C	-	-	C	-	-	-	-	-	-
96-hour Rainbow Trout single concentration toxicity test(e)	-	-	Q	-	-	Q	Q	-	-	-	Q	Q	-
48-hour Daphnia magna single concentration toxicity	-	-	Q	-	-	Q	Q	-	-	-	Q	Q	-
72 Hr Pseudokichneriella subcapitata (EPS1/RM/25) endpoints: growth, inhibition And 7-day Ceriodaphnia dubia toxicity (EPSI/RM/21) water-only endpoints: survival, reproduction	-	-	-	-	-	-	-	Q	-	-	-	-	-
30-day early life-stage test – rainbow trout (Oncorhynchus mykiss: EPS1/RM/28) using <24-hour post-fertilization eggs; endpoints: survival, hatching, growth, deformity, behaviour	-	-	-	-	-	-	-	TY	-	-	-	-	-
Calcite	-	-	-	-	-	Y	Y	Y	-	-	Y	Y	-
Selenium Speciation Monitoring Selenium(f)	W	W	W	-	-	-	-	M	M	M	-	-	-

a) Field Parameters include pH, conductivity, DO, oxidation-reduction potential, temperature, turbidity.
b) Conventional Parameters include pH, conductivity, total suspended solids, biological oxygen demand and chemical oxygen demand.
c) Major Ions and Nutrients include alkalinity and acidity, nitrogen forms (ammonium, nitrite, and nitrate), sulphate, bromide, chloride, fluoride, DOC, total phosphate, and dissolved sulphide
d) Dissolved Metals Scan include aluminum, antimony, arsenic, barium, beryllium, bismuth, boron, cadmium, chromium, cobalt, copper, iron, lead, lithium, manganese, mercury, molybdenum, nickel, selenium, silver, strontium, thallium, tin, titanium, uranium, vanadium, and zinc. Total Metals Scan include aluminum, antimony, arsenic, barium, beryllium, bismuth, boron, cadmium, chromium, cobalt, copper, iron, lead, lithium, manganese, mercury, molybdenum, nickel, selenium, silver, strontium, thallium, tin, titanium, uranium, vanadium, and zinc.
e) If toxicity testing or water quality results indicate a potential for discharge toxicity to be greater than was predicted, the frequency of the testing will be increased to weekly until water quality results return to predicted range.
f) Laboratory analysis will include total selenium, dissolved selenium, selenate (Se (VI)), selenite (Se (IV)), methylseleninic acid (MeSe (IV)), selenocyanate (SeCN), selenomethionine (SeMe), selenosulfate, and unknown selenium species.)
g) Monitoring locations may appear in two monitoring tables in this permit; therefore, monitoring data must be reported according to the requisite reporting requirements in both Section 9 and Appendix 4A.

M/W = monthly (weekly during freshet [March 15 to July 31]); D = daily; W = weekly; BW = bi-weekly; M = monthly; Q = quarterly; Y = yearly; TY = twice yearly; C = continuous; - = not applicable.

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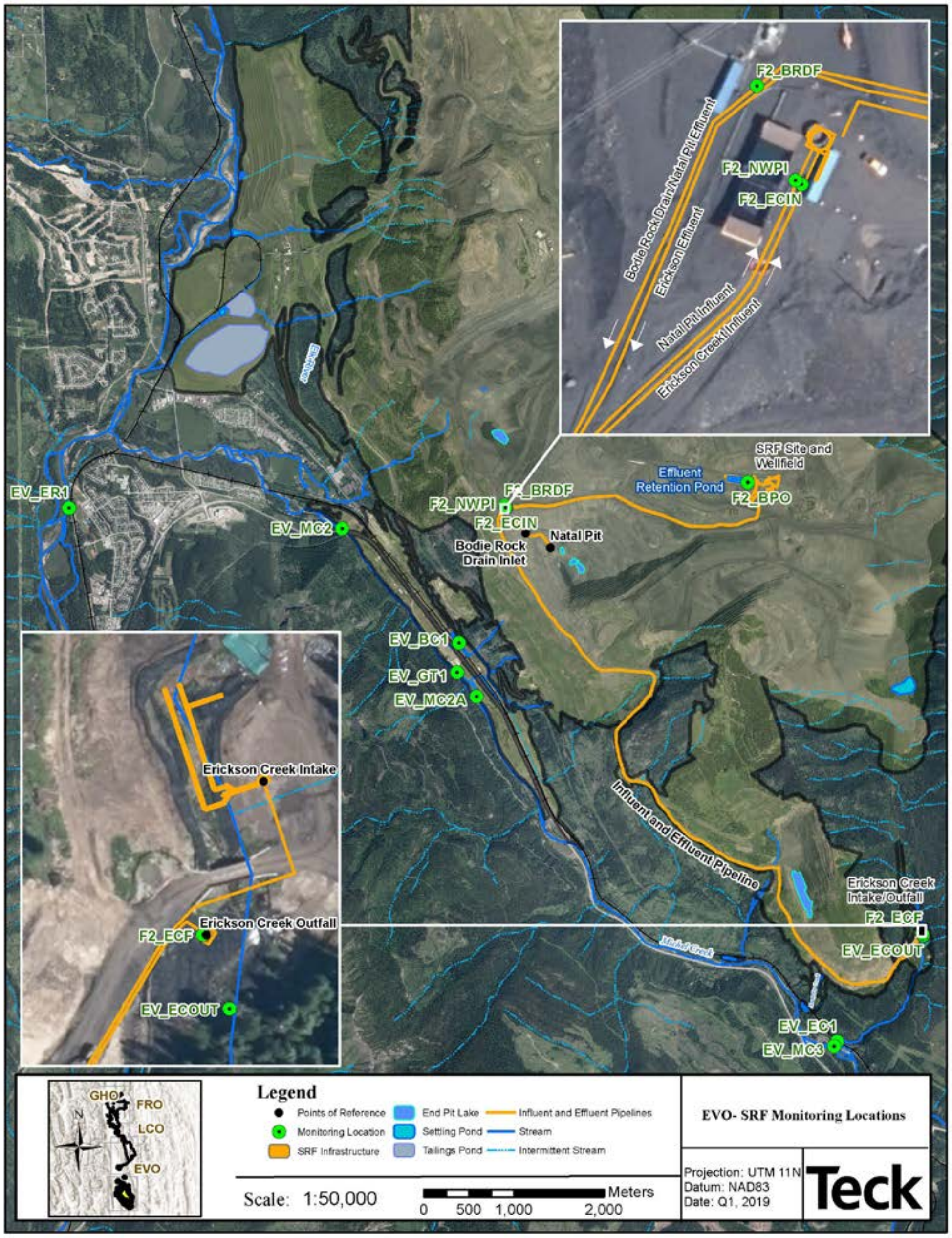
for Director, *Environmental Management Act*
Mining Authorizations

4C5 EVO SRF SITE PLAN



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APPENDIX 5: CALCITE TREATMENT FACILITIES

APPENDIX 5A – Calcite Treatment Facility General Operational Requirements

APPENDIX 5B – Lower Greenhills Creek Antiscalant Addition System

APPENDIX 5C – Swift-Cataract Antiscalant Addition System

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APPENDIX 5A – Calcite Treatment Facility General Operational Requirements

This section includes requirements that apply to all calcite treatment facilities. Subsequent sections include facility-specific requirements.

5A1 COMMISSIONING PLAN

A Commissioning Plan for calcite treatment facilities must be prepared by a Qualified Professional, submitted to the director and implemented prior to commencement of discharge from the calcite treatment facility. The Commissioning Plan may include all facilities, though discussion for each facility must be distinct. Alternatively, the permittee may submit a Commissioning Plan for each facility. The Commissioning Plan must include but is not necessarily limited to operational procedures required to commission the calcite treatment facilities, including any additional monitoring and reporting required to demonstrate that no adverse environmental impacts result from commissioning.

5A2 OPERATIONS PLAN

An Operations Plan for calcite treatment facilities must be prepared by a Qualified Professional, submitted to the director and implemented prior to commencement of the discharge from the calcite treatment facilities. The Operations Plan may include all facilities, though discussion for each facility must be distinct. Alternatively, the permittee may submit an Operations Plan for each facility. The Operations Plan must include all stand-alone calcite treatment systems. Calcite treatment associated with any treatment facility (e.g., WLC AWTF) must be captured in the Operations Plan for that treatment facility.

The Operations Plan must include but is not necessarily limited to:

- The facility operator’s manual, with provision for its continual improvement;
- An overview of the planned maintenance program which includes an inventory of facility components and authorized replacement parts, and a detailed description of inspection, repair and replacement frequency for facility components;
- Information on reagent usage and storage;

- Documentation to verify that the facility is operated at all times within specifications and in a manner to ensure compliance with this authorization and other applicable legislation;
- Actions to be taken if effluent quality fails to meet the requirements of the permit;
- Contingency planning which describes built-in redundancy of the facility and outlines measures to prevent emergency conditions from occurring.

Any significant update to the plan must be submitted to the director within 30 days of adoption. Minor updates must be summarized in the quarterly report for the time period when the minor update was made.

5A3 SITE SPECIFIC ENVIRONMENTAL EMERGENCY RESPONSE PLAN

A Site-Specific Environmental Emergency Response Plan must be prepared for all stand-alone calcite treatment systems. The plan must be submitted to the director prior to commencement of the discharge from the calcite treatment facilities. Calcite treatment associated with any treatment facility (e.g., WLC AWTF) must be captured in the Emergency Response Plan for that treatment facility.

The plan must include, but is not limited to:

- A description of measures to mitigate any health or environmental impacts, if emergencies occur;
- Specific reference to the Spill Reporting Regulation; and
- Instructions for staff in the event of an emergency, including contact information for local authorities (fire, police, public health), Emergency Management BC, and the director.

Any significant update to the plan must be submitted to the director within 30 days of adoption. Minor updates must be summarized in the quarterly report for the time period when the minor update was made.

5A4 MONITORING

The permittee must conduct monitoring associated with the calcite treatment facilities as defined in subsequent sections in Appendix 5. The discharge and receiving environment water sampling sites are located approximately as shown in subsequent sections in Appendix 5.

The permittee must implement the monitoring program as described in the approved monitoring program "Greenhills Creek Aquatic Effects Assessment and Monitoring Program". The permittee must submit to the director any changes to the aquatic effects monitoring program prior to implementation. The director may make or request changes to the aquatic effects monitoring program at any time by specifying such in writing to the permittee.

5A5 COMMISSIONING REPORT

A commissioning report must be submitted to the director within 60 days of completing commissioning of any new calcite treatment facility. If the commissioning report deadline corresponds with the annual report deadline, one report may be submitted to meet both requirements.

The commissioning report must include, but is not limited to:

i. operating times;
ii. influent flow rates or treated water volume;
iii. antiscalant dosing rates;
iv. calculated in-pipe antiscalant concentrations (where applicable); and
v. monitoring data.

5A6 ANNUAL PERFORMANCE REPORT

An annual performance report must be submitted to the director by March 31 for each year following the data collection calendar year. The report must include, but is not limited to:

i. operating availability of the Authorized Works;
ii. influent flow rates or treated water volume;
iii. quantity of antiscalant used and dosing rates;
iv. calculated in-pipe antiscalant concentrations (where applicable);
i. a description of any incidents including process upsets, spills, issues with and bypasses of the Authorized Works;
ii. monitoring data;
iii. interpretation and analysis of monitoring data;
iv. discussion of results and recommendations for changes to management and/or regulatory controls to improve protection of the environment, as appropriate; and
v. summary of all non-compliances with the requirements of Appendix 5, submitted in an Annual Status Form.

5A7 AQUATIC EFFECTS MONITORING PROGRAM ANNUAL REPORT

The Greenhills Creek Aquatic Effects Assessment and Monitoring Program annual report must be reported on in accordance with generally accepted standards of good scientific practice in a written report and submitted to the director of each year following the data collection calendar year by June 30.

APPENDIX 5B – Lower Greenhills Creek Antiscalant Addition System

Additional requirements are detailed in Appendix 5A.

5B1 AUTHORIZED DISCHARGES

This section applies to the discharge of effluent from the Lower Greenhills Creek Antiscalant Addition System to Greenhills Creek. The Lower Greenhills Creek Antiscalant Addition System influent is Greenhills Creek sedimentation pond effluent. The site reference number for this discharge is E309912 as shown in Appendix 5B3.

5B1.1 Treated effluent discharged to Greenhills Creek at E309912 (GH_CAM1EFF) must not be acutely toxic as per Section 6.2.

5B1.2 Treated effluent discharged to Greenhills Creek at E309912 must not exceed an antiscalant concentration of 150 mg/L based on a 2-minute time-weighted average, according to the sampling and calculation procedure in the Operations Plan.

5B1.3 Antiscalant concentrations in Greenhills Creek at E309911 (GH_GH2) must not exceed 5 mg/L based on a 2-minute time-weighted average, according to the sampling and calculation procedure in the Operations Plan.

5B1.4 Notification of deviation from the identified antiscalant in the Teck application “Greenhills Operations Lower Greenhills Creek Calcite Management Project” dated June 15, 2017 must be provided to the director and KNC prior to implementation.

5B1.5 The discharge is authorized from Authorized Works which are: antiscalant addition module and related appurtenances approximately located as shown in Appendix 5B3.

5B1.6 The Lower Greenhills Creek Antiscalant Addition System may operate intermittently, in accordance with the Operations Plan, as required to meet the Site Performance Objectives for Calcite per Section 3.4 and prevent acute toxicity failures per Section 6.2.

5B2 LOWER GREENHILLS CREEK ANTISCALANT ADDITION SYSTEM MONITORING PROGRAM

	GREENHILLS CREEK SED. POND DECANT (Influent) (5)	LOWER GREENHILLS CREEK ANTISCALANT MODULE (Effluent)	GREENHILLS CREEK D/S OF ANTISCALANT MODULE (~80 m Downstream)	GREENHILLS CREEK D/S OF SED. POND DECANT (~600 m Downstream)
EMS Number	*E102709*	*E309912*	*E321331*	*E309911*
TECK ID	*GH_GH1*	*GH_CAM1EFF*	*GH_CA04*	*GH_GH2*
PARAMETER				
Field Parameters (a)	M	M	-	M
Conventional Parameters (b)	M	M	-	M
Major Ions (c)	M	M	-	M
Nutrients (d)	M	M	-	M
Total and Dissolved Metals Scan (e)	M	M	-	M
96 hour Rainbow Trout single concentration toxicity test (g)	Q	Q	-	Q
48 hour *Daphnia magna* single concentration toxicity test (g)	Q	Q	-	Q
Flow(f)	C	-	-	-
Calcite Precipitation Propensity Monitoring	1X/2W	-	1X/2W	-
Rock Mass Monitoring	1X/6W	-	1X/6W	-

1) Refer to Table 23, Appendix 3, for abbreviation description.
2) Refer to Table 24, Appendix 3, for explanatory notes.
3) Calcite monitoring data are not required to be uploaded to EMS.
4) Refer to Section 8.5.1 and the approved annual calcite monitoring program for Calcite Index Monitoring requirements.
5) Monitoring location appears in two monitoring tables in this permit; therefore, monitoring data must be reported according to the requisite reporting requirements in both Section 9 and Appendix 5.

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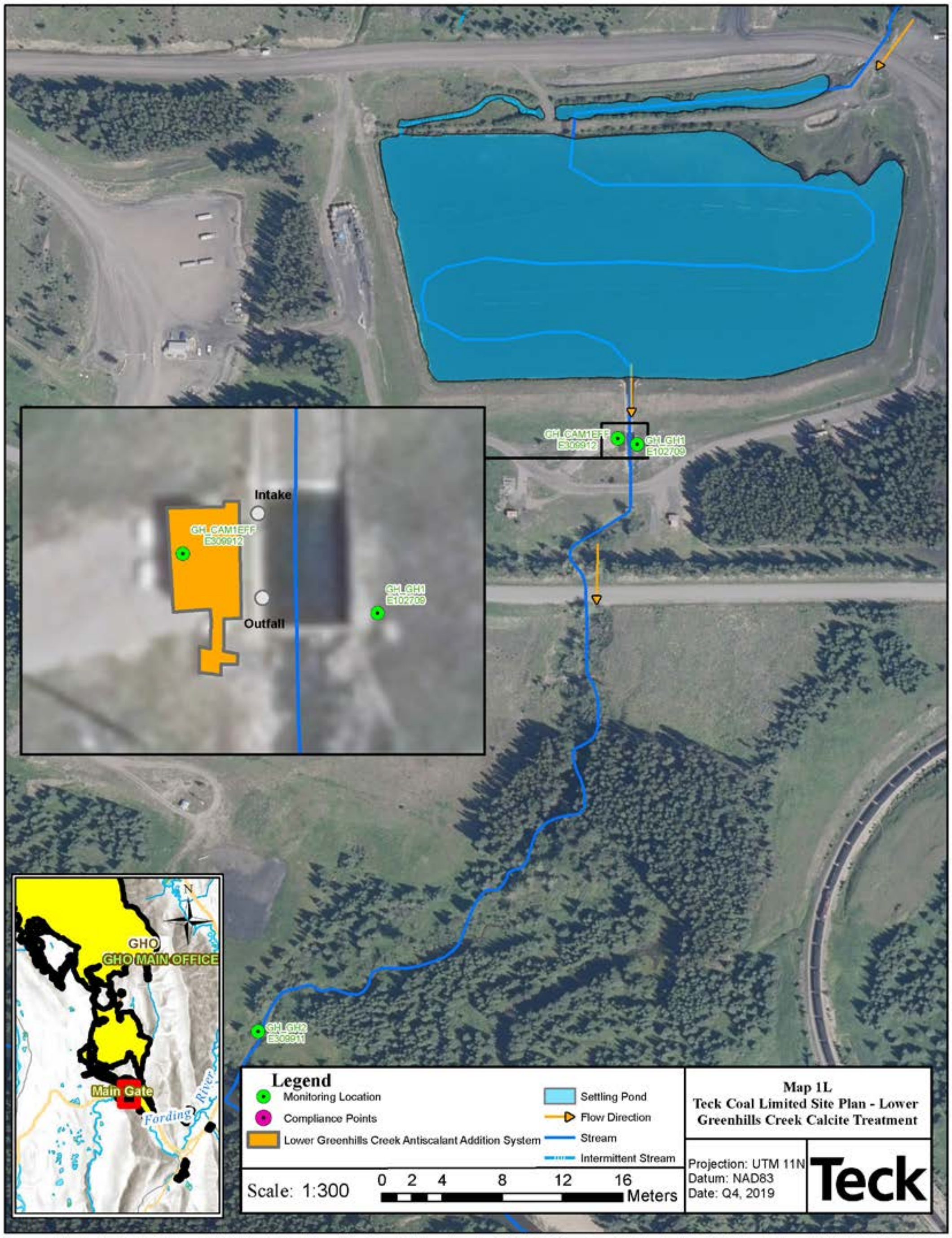
A.J. Downie, M.Sc., P.Ag.
for Director, *Environmental Management Act*
Mining Authorizations

5B3 LOWER GREENHILLS CREEK ANTISCALANT ADDITION SYSTEM SITE PLAN



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Mining Authorizations

APPENDIX 5C – Swift-Cataract Antiscalant Addition System

Additional requirements are detailed in Appendix 5A

5C1 AUTHORIZED DISCHARGES

This section applies to the discharge of effluent from the Swift-Cataract Antiscalant Addition System to the Fording River via the Swift Creek Intake structure, FRO AWTF-S bypass pipeline and the Fording River Outfall (i.e., saw-tooth weir on the Fording River Road crossing). The Swift-Cataract Antiscalant Addition System influent is Swift Creek Sediment Ponds effluent comprised of combined flow of Swift Creek and Cataract Creek. The site reference number for this discharge is E320694 (FR_SCOUT) as shown in Appendix 5C3.

5C1.1 Treated effluent discharged at E320694 must not be acutely toxic as per Section 6.2.

5C1.2 Treated effluent at E320694 must not exceed an antiscalant concentration of 10 mg/L based on a two-minute time-weighted average, according to the sampling and calculation procedure in the Operations Plan.

5C1.3 Notification of deviation from the identified antiscalant in the Teck application “Swift Cataract Antiscalant Addition Project” dated August 30, 2019 must be provided to the director and KNC prior to implementation.

5C1.4 The discharge is authorized from Authorized Works which are: antiscalant addition module and related appurtenances approximately located as shown in Appendix 5C3.

5C1.5 The Swift-Cataract Antiscalant Addition System may operate intermittently, in accordance with the Operations Plan, as required to meet the Site Performance Objectives for Calcite per Section 3.4 and prevent acute toxicity failures per Section 6.2.

5C2 SWIFT-CATARACT ANTISCALANT ADDITION SYSTEM MONITORING PROGRAM

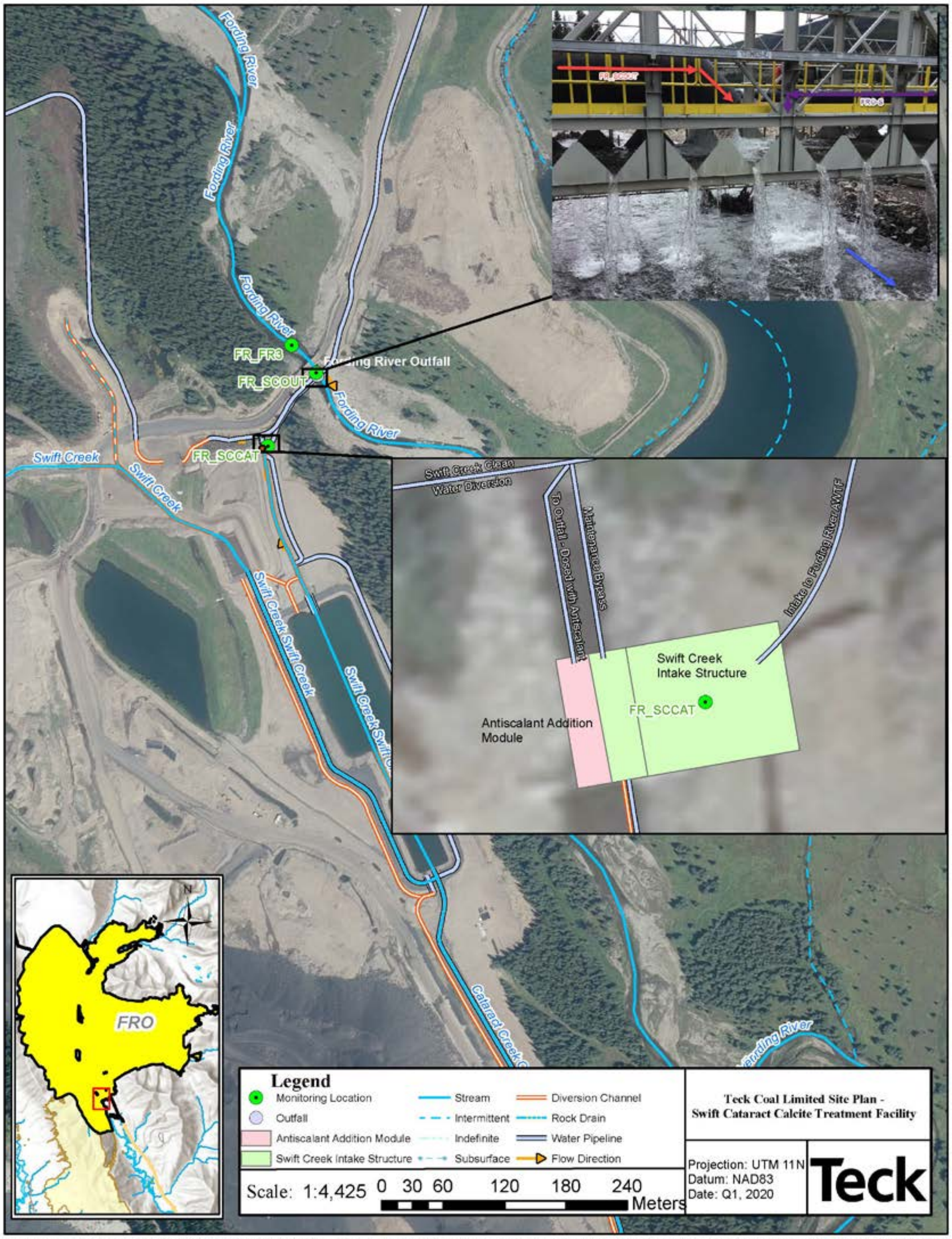
	SWIFT-CATARACT SED. POND DOSED WITH ANTISCALANT TO FORDING RIVER (3;4) (Effluent)	FORDING RIVER U/S OF FRO AWTF-S OUTFALL STRUCTURE (Upstream in receiving environment)	FORDING RIVER D/S OF FRO AWTF-S OUTFALL STRUCTURE (Downstream in receiving environment) (4)	SWIFT CREEK SEDIMENT PONDS TO FORDING RIVER
EMS Number	*E320694*	*E320693*	*E320695*	*E319331*
TECK ID	*FR_SCOUT*	*FR_FR3*	*FR_SCOUTDS*	*FR_SCCAT*
PARAMETER				
Field Parameters (a)	M	-	M	-
Conventional Parameters (b)	M	-	M	-
Major Ions (c)	M	-	M	-
Nutrients (d)	M	-	M	-
Total and Dissolved Metals Scan (e)	M	-	M	-
96 hour Rainbow Trout single concentration toxicity test (g)	Q	-	-	-
48 hour *Daphnia magna* single concentration toxicity test (g)	Q	-	-	-
Flow(f)	-	-	-	C
Calcite Precipitation Propensity Monitoring	1X/2W	1X/2W	1X/2W	-
Rock Mass Monitoring (5)		1X/6W, as needed	1X/6W, as needed	-

1) Refer to Table 23, Appendix 3, for abbreviation description.
2) Refer to Table 24, Appendix 3, for explanatory notes.
3) Samples are to be collected only when there is discharge via overflow from the FRO AWTF-S Swift Creek Intake.
4) Monitoring location appears in two monitoring tables in this permit; therefore, monitoring data must be reported according to the requisite reporting requirements in both Section 9 and Appendix 5.
5) Rock mass monitoring to be conducted on an as-needed basis as a confirmatory measure of the more frequent calcite monitoring methods.

Date issued: November 19, 2014
Date amended: October 22, 2020
(most recent)

A.J. Downie, M.Sc., P.Ag.
for Director, *Environmental Management Act*
Mining Authorizations

5C3 SWIFT-CATARACT ANTISCALANT ADDITION SYSTEM SITE PLAN



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Date issued:	November 19, 2014
Date amended: (most recent)	October 22, 2020

A.J. Downie, M.Sc., P.Ag.
for Director, *Environmental Management Act*
Mining Authorizations

Volume II – Appendix II

Government Approval Letters and Report Recommendations

ENV Approval Conditions and Previous Recommendations

The Ministry of Environment & Climate Change Strategy (ENV) approval letters for the 2017 Regional Groundwater Monitoring Program (RGMP) and the 2018 Site-specific Groundwater Monitoring Program (SSGMP) updates for the Fording River Operations (FRO), Greenhills Operations (GHO), Line Creek Operations (LCO), Elkview Operations (EVO), and Coal Mountain Mine (CMm) are also included in this Appendix. CMm is no longer operational In addition, report recommendations from the Environmental Monitoring Committee (EMC) related to the 2019 Annual reports as well as recommendations from the annual reports for each mine site are outlined below.

EMC Report Recommendations

2019 Combined Annual Report for the Elk Valley

Report recommendations provided by EMC regarding the 2019 Combined Annual Report for the Elk Valley are summarized in Table II-A along with the location where comments were addressed.

Table II-A: 2019 Combined Annual Report EMC Recommendations

Operation	ENV Recommendation	Where Addressed and/or Comment
All	Clarify description of secondary screening criteria.	Section 2.1.2
	For all SSGMP and RGMP monitoring wells that have been installed to monitor potential seepage from settling ponds or have the potential to be hydraulically connected to ponds, groundwater levels and pond level should be compared to improve the understanding of the hydraulic connection between the pond and the groundwater system.	Sections 7.4, 7.5.1, 7.6.1, 10.4, 10.4.1
	Figures of selenium, sulphate and nitrate concentrations should be provided for all monitoring wells in the SSGMPs and RGMP.	Update in Figures.
	Se:SO4(S) ratio plots should be provided for all SSGMP and RGMP well data discussed as potentially demonstrating Se and N attenuation in reducing environments.	Updated in Figures.
	A Schoeller Plot for monitoring well GH_GA-MW-2 and for all wells where is it suggested that the relative included of various recharge sources changes seasonally or progressively over time.	Figures FR-14; GH-21, -23, -24, -30, -31
	Provided better quality logs for wells EV_MW_EC1, EV_MW_EC2, and EV_MW_CT2.	These specific wells are no longer part of the program and have not been included. Borehole logs included in Appendix VIII.
	The RGMP and SSGMPs need to use a consistent definition of attenuation.	Updated throughout the report.
FRO	**SSGMP**	
	Clarification of the hydrogeological setting of the Henretta Creek wells is required.	Section 6.4 and cross-sections FA-FA' and FB-FB' reflect these changes and identify FR_HMW1S/D and FR_HMW3 in the backfilled pits (Drawings 22 and 23).
	Clarification of the hydrogeological setting for well FR_TBSSMW-2, is required.	Cross-section FC-FC' (Drawing 24) has been updated to reflect changes.
	Clarification of the changes to Cl loading observed at well FR_GCMW-1B.	Section 6.5.1 and Figure FR-07
	Clarification suggested for the interpretation of the Cl loading observed at well FR_MW-SK1A/B.	Section 6.5.1
	Split the data into two graphs for better clarity (referencing Figure FR-11).	Figure FR-07 and FR-09

Table II-A (Cont'd): 2019 Combined Annual Report EMC Recommendations

Operation	ENV Recommendation	Where Addressed and/or Comment
GHO	**SSGMP and Study Area 1**	
	Cross-sections of the Porter Creek catchment need to be provided to meet the requirements of the permit, which stipulates a cross-section both perpendicular and parallel to the primary groundwater flow direction.	Cross-sections GA-GA' and GB-GB' (Drawings 33 and 34)
	SSGMP	
	Please provide the (SRK 2018a and b) reference to clarify possible inconsistenies in how the Se:SO4 (S) ratio analysis has been applied in this and previous RGMP/SSGMP reporting.	Section 7.6.1 and References
	The Elk River and subcatchment hydrographs should be added to this figure (referencing Figure GH-13).	The Elk River flow station is situated approximately 20 km downstream, after the confluence with the Fording River; as such, the station is not appropriate for inclusion on this figure. Monitoring stations have been installed on the tributary drainages as part of the Mass Balance Investigation (MBI) and hydrographs can be presented, as appropriate, in future monitoring reports.
	Well GH_MW_RLP_1D should not be included in the discussion of the potential for preferential attenuation of Se and N since it likely does not represent mine affected groundwater.	This well is no longer included in the SSGMP (Section 7.5.1).
	The monitoring data show an increasing trend in Se concentrations in well GH_GA-MW-2 and a decreasing trend in wells GH_GA-MW-3 and GH_GA-Mw-4. How do these trends relate to the waste rock deposition in these catchments?	Section 7.6.1
	SSGMP and Study Area 4	
	Additional cross-section of the GHO Elk Valley wells need to be provided to meet the requirements of the Permit which stipulates a cross-section both perpendicular and parallel to the primary groundwater flow direction.	Cross-sections GE-GE', GF-GF', GG-GG' (Drawings 37, 38, 39).
	Provide additional information regarding naturally occurring Se concentration in groundwater in the Elk Valley to support the conclusion that the Se concentrations that exceeded the secondary screening criteria at well GH_MW-MC-2D are naturally occurring.	Isotope samples are proposed for 2021 to further investigate the source of Se and the groundwater flowpath to this well. Section 7.6.1

Table II-A (Cont'd): 2019 Combined Annual Report EMC Recommendations

Operation	ENV Recommendation	Where Addressed and/or Comment
GHO (Cont'd)	The potential for a bedrock groundwater flow path for Se to the Elk River valley fluvial/glacio fluvial aquifer should be considered in the GHO SSGMP and RGMP Conceptual Site Model (CSM). Information request: Bedrock cross-section, showing the geological formations, cut perpendicular to the Elk River flow as close to GH_MW-MC-2D as possible.	Isotope samples are proposed for 2021 to further investigate the source of Se and the groundwater flowpath to this well. Cross-section GG-GG' (Drawing 39) is perpendicular to the Elk River and shows the bedrock formations approximately 5 km south of GH_MW-MC-2D.
	The water quality data for GH_MW-ERSC-1 should be compared to the data for Thompson Pond, Elk River Side Channel and GH_GA_MW-3 (referencing Figure GH-29).	Figures 22, 26, 27, 28, 29, 31
	The 2019 data and Thompson Pond water quality data should be added to this plot (referencing Figure GH-32).	Figure 31
LCO	**SSGMP**	
	KNCs comment regarding the LCO 2018 SSGMP Update do not appear to have been considered when preparing this section of the report [*KNCs letter report dated March 16 2019 regarding Hydrogeological Review, Line Creek Operations Site-Specific Groundwater Monitoring Plan 2018 Update is not listed with the KNC comments considered when preparing this report. The only KNC letter noted was one date November 20, 2017*].	KNCs letter will be considered in the 2021 SSGMP Update.
EVO	**SSGMP**	
	Groundwater levels in EV_OCgw should be compared to the water levels in Lagoon D to investigate the potential for a hydraulic connection.	Figure EV-06
	Provide groundwater level hydrograph for all wells discussed.	Figures EV-01, -06, -11, -17, -22, -27, -32, -33, -38
	Where possible groundwater and surface water elevations should be plotted at the same scale.	Figures EV-01, -06, -11, -17, -22, -27, -32, -33, -38
	The colour coding should be corrected for wells RG_02-20 and EV_BALgw [*Drawing 46: Spatial Distribution of Dissolved Selenium in Groundwater – Elkview Operations*].	Drawing 67

Table II-A (Cont'd): 2019 Combined Annual Report EMC Recommendations

Operation	ENV Recommendation	Where Addressed and/or Comment
EVO (Cont'd)	**SSGMP and Study Area 7**	
	Cross-sections parallel and perpendicular to groundwater flow should be included to clarify the hydrogeological setting along Harmer Creek and in the Grave Creek alluvial fan.	Drawing 55 and 56
	The statement regarding seasonal fluctuations in SO4 concentratoins in EV_GV3gw does not reflect the data presented on Figure EV-4 and should be revised.	Section 9.4.1
	Please add the locations of the accretion surveys conducted to date and summarize the results (gaining or losing reaches and seasonal changes).	Section 9.4.1 Drawing 15
	Study Area 8	
	A monitoring well in Aquifer 1074 should be included in the RGMP to insure that the Se concentration in that aquifer are protective of human health (i.e., below the BC drinking water quality guideline [DWQG] of 10 mg/L).	Section 9.5
	SSGMP Study Area 9	
	The discussion and conclusions of attenuation p.112 and Spatial Delineation p.113 of Cl in the Michel Creek river valley-bottom aquifer do not adequately consider the observed hydraulic connection between Michel Creek and Sparwood Town Well 3 (RG_DW_03-04) under pumping conditions. Groundwater monitoring in Study Area 12 should be considered when evaluating groundwater conditions in Study Area 9.	RG_DW-03-04 is no longer under pumping conditions.
	Study Area 9	
	Monitoring well EV_MW_MC3 should be included in the RGMP. There is some inconsistency in the discussion of this well in this section and the recommendations in Table OOO [*Summary of Recommendations from SSGMP and RGMP*] that should be clarified.	Monitoring well EV_MW_MC3 has been removed from the SSGMP per the 2019 Annual Report recommendations, but has been retained as part of the RGMP. Results are discussed in Section 8.6.1.4.
	SSGMP and Study Area 10	
	Information request: groundwater quality information from recently drilled artesian well, if available	Documented in 2020 RGMP Update.
CMO	**SSGMP**	
	Clarify which non-order constituents are elevated in the background wells.	Secton 5.4

2019 Annual Report Recommendations by Program

Recommendations were developed in the 2019 Annual Report and are provided below for each operation (SNC-Lavalin, 2020a). These recommendations were incorporated or assessed in this year's annual report.

FRO SSGMP

Table II-B: FRO SSGMP – 2019 Annual Report Recommendations

Recommendation	Where Addressed and/or Comment
Install a nested well in the Henretta Creek Valley upgradient of the confluence of the Fording River and Henretta Creek. This location is proposed to monitor a possible groundwater pathway from the backfilled pits in the Henretta Creek Valley to the Fording River Valley. Once a nested well is installed, monitoring at HMW1S/D may be reduced or even eliminated.	Retained as a recommendation in Section 14.
Install a nested well in the Henretta Creek Valley upgradient of mining operations to replace FR_HMW5 and cease monitoring FR_HMW5.	Sections 5.3 and 6.4.1
Install dataloggers in FR_POTWELLS, FR_MW-1B, FR_09-04-A/B, FR_09-01-A/B, FR_09-02-A/B, and FR_GH_WELL4.	Dataloggers have been installed in all wells listed, except for FR_09-02-B, FR_09-04B, and FR_POTWELLS. Section 14 outlines further recommendations for these wells as well as surveying FR_GH_WELL4 in order to process available continuous water level data.
Install a flow meter to monitor pumping rate in FR_GH_WELL4.	Retained as a recommendation in Section 14.

GHO SSGMP

Table II-C: GHO SSGMP – 2019 Annual Report Recommendations

Recommendation	Where Addressed and/or Comment
Replace the data loggers in supply wells GH_POTW09 and GH_POTW17 and set to process continuous water level data and survey to the groundwater datum.	Section 7.5
Discontinue monitoring of groundwater well GH_MW-RLP-1D as part of the SSGMP based on recommendations in the 2018 SSGMP Update.	Monitoring well is being removed from the program.
Discontinue monitoring of groundwater well GH_GA-MW-1 as part of the SSGMP.	Monitoring well was removed from the program.
Reduce monitoring frequency at GH_MW-UTC-A/B to bi-annual (Q2 and Q4 only).	GH_MW-UTC-A is damaged and will require replacing. Monitoring frequency of GH_MW-UTC-B and the new well will be re-assessed as part of the 2021 SSMGP Update.

Table II-C (Cont'd): GHO SSGMP – 2019 Annual Report Recommendations

Recommendation	Where Addressed and/or Comment
Investigate the significance and representativeness of higher dissolved selenium relative to total selenium concentrations at select wells.	Assessment is currently on-going.
Review results from select wells installed in support of GHO Cougar Pit Extension Phase 2 (CPX2), GHO Tailings Storage Facility (TSF) Permitting and MBI programs for possible inclusion in the 2020 SSGMP annual report.	Insufficient data was available to determine whether the new wells could be added to the 2020 SSGMP annual report. Data from these wells will be evaluated at the end of 2021 to determine whether any wells should be added to the SSGMP and whether they should be included in the 2020 annual report.

LCO SSGMP

Table II-D: LCO SSGMP – 2019 Annual Report Recommendations

Recommendation	Where Addressed and/or Comment
The current monitoring program should continue in coordination with the RGMP and West Line Creek Active Water Treatment Facility (AWTF) program. The recommended frequency and type of monitoring for 2020 is consistent with that of 2019, although adjustments to the program may be considered based on review of suggestions made in the 2018 SSGMP Update.	The monitoring and sampling frequency will be re-visited as part of the 2021 SSGMP Update.
A reduction in sampling frequency from quarterly to bi-annual should be considered as seasonal trends become characterized, with sampling occurring during freshet (between March and June) when water levels are highest and during winter (November to February) when water levels are lowest. Newly installed wells should be sampled quarterly for at least two years to evaluate seasonality and establish baseline conditions.	The monitoring and sampling frequency will be re-visited as part of the 2021 SSGMP Update.

EVO SSGMP

Table II-E: EVO SSGMP – 2019 Annual Report Recommendations

Recommendation	Where Addressed and/or Comment
Survey elevations of surface water monitoring stations at Harmer Creek (EV_HC1), Lindsay Creek (EV_LC1), Goddard Creek (EV_GC2), Erickson Creek (EV_EC1) Gate Creek (EV_GT1) and Bodie Creek (EV_BC1) so level data can be corrected to masl and compared to groundwater elevations.	Retained as a recommendation in Section 14.
Install instrumentation in supply wells EV_HW1, EV_MR2, EV_RCgw, EV_WH50gw and EV_BRgw. This is planned for 2020, pending the ability to instrument these wells around existing infrastructure.	Section 9.6.1.1
Install a pressure transducer at EV_MW_MC1B.	Table MM and Table 6b

Table II-E (Cont'd): EVO SSGMP – 2019 Annual Report Recommendations

Recommendation	Where Addressed and/or Comment
Remove EV_MW_MC3 from the EVO SSGMP as one year of monitoring indicates no mine-influence from EVO. Data from EV_MW_MC3 will be reviewed as part of the 2020 RGMP Update.	Monitoring well EV_MW_MC3 has been removed from the SSGMP per the 2019 Annual Report recommendations, but has been retained as part of the RGMP. Results are discussed in Section 8.6.1.4.
Future reports should explore whether upgradient water treatment (including the Saturated Rock Fill) have resulted in a reduction in the levels of Cl in groundwater at EV_BCgw.	Continued monitoring is recommended to be included in the 2021 SSGMP Update.

CMO SSGMP

Table II-F: CMO SSGMP – 2019 Annual Report Recommendations

Recommendation	Where Addressed and/or Comment
Complete well development for CM_MW9 once water column length is sufficient and commence quarterly sampling once development is complete.	Section 10.3
As specified in the 2018 CMO SSGMP Update Ministry Assessment Report, complete a flow/load accretion analysis for Michel Creek adjacent to CMO (4 monitoring events now completed), identify new monitoring well locations if required, and complete the installations.	Section 10.6
Pressure transducers should be installed at monitoring wells CM_MW1-OB and CM_MW1-SH in 2020. Two new pressure transducer deployments are necessary because the water levels in wells with existing pressure transducers (CM_MW5-SH and DP) may be influenced by pumping at the nearby light vehicle wash station supply well. These additional deployments would also serve to refine characterization of groundwater-surface water interaction in the Michel Creek Valley in the central flow path convergence area downgradient of CMO (RGMP Study Area 11).	Sections 10.5 and 10.6
The pressure transducers installed at CM_MW5-SH and CM_MW5-DP are approaching the end of their service lives and should be replaced by the end of 2020. Pressure transducer water level data should continue to be collected at these locations for continuity of the dataset.	Section 10.6
Incorporate new monitoring wells CM_MW9 and CM_MW10 into the CSM for the 2021 SSGMP Update.	Sections 10.4 and 10.6

RGMP

Table II-G: RGMP – 2019 Annual Report Recommendations

Recommendation	Where Addressed and/or Comment
Background	
The background well network will be re-assessed in the 2020 RGMP Update. New background wells are planned for installation in 2020 as part of the RGMP and wells installed as part of other programs such as the Castle and CPX2 Expansion Projects (Castle and CPX2 Baseline Programs, respectively) and the MBI will be assessed for inclusion into the background network. Some of the existing wells that may be candidates for inclusion from Castle and CPX2 Baseline Programs are wells installed in Study Areas 1 and 4 (Drawings 6 and 7; SNC-Lavalin, 2019k). › Wells drilled in support of the Castle Program, FR_MW_FRRD1, FR_MW_CASW6-A/B, and FR_MW_CH1-A/B, installed on the eastern side of the Fording River Valley adjacent to Castle Mountain (SNC-Lavalin, 2019k). › Three nested wells, GH_MW-Willow-1S/D, GH_MW-Willow-2S/D, and GH_MW-Willow-3S/D, near Willow Creek drilled in support of the CPX2 Project (SNC-Lavalin, 2019k). › Two nested wells, GH_MW-Wolf-1S/D and GH_MW-Wolf-2S/D, near Wolf Creek drilled in support of the CPX2 Project (SNC-Lavalin, 2019k).	Background well network was re-assessed as part of the 2020 RGMP Update. Select wells have been chosen for continued monitoring and sampling.
Once an adequate groundwater data set (two years of quarterly sampling) from these wells is available, these wells will be further assessed for suitability.	In progress.
Study Area 1	
Develop an updated conceptual model of Study Area 1, that includes studies completed in the Swift, Cataract, and Kilmarnock drainages.	Updated as part of the 2020 RGMP Update and will be further assessed as part of the MBI.
Results of the ongoing MBI should be included in subsequent reporting to improve the understanding of groundwater quality downgradient of Study Area 1.	Results will be assessed for potential inclusion once one year of data is available for review.
Monitoring wells scheduled to be installed as part of the MBI and select wells should be incorporated as appropriate in the RGMP.	Results will be assessed for potential inclusion once one year of data is available for review.
Preliminary results suggest that the Study Area boundary should extend north to encompass FR_09-01-A/B (which is currently part of the Study Area, but not within the boundary) and south to the confluence of the Fording River with Chauncey Creek.	Study Area boundary updated as part of the 2020 RGMP Update.
Study Area 2	
There are no recommendations at this time.	n/a

Table II-G (Cont'd): RGMP – 2019 Annual Report Recommendations

Recommendation	Where Addressed and/or Comment
Study Area 3	
Replace the data loggers in supply wells GH_POTW10 and GH_POTW15 and set to process continuous water level data and survey to the groundwater datum.	Table R
Study Area 4	
Results of the ongoing CPX2 and MBI should be reviewed for possible inclusion in subsequent reporting to improve the understanding of groundwater quality downgradient of Study Area 4.	Results will be assessed for potential inclusion once one year of data is available for review.
Monitoring wells scheduled to be installed as part of the MBI and select wells should be incorporated as appropriate in the RGMP.	Results will be assessed for potential inclusion once one year of data is available for review.
A monitoring well is scheduled to be installed in 2020 within the aquifer providing drinking water supply to multiple users within the Study Area to support the development and implementation of groundwater triggers.	Section 7.6
Study Area 5/6	
A nested monitoring well is scheduled to be installed in 2020 adjacent to surface water station EV_ER4 to provide groundwater data in the Elk River valley-bottom aquifer downgradient of LCO.	Section 8.5.1
Study Area 7	
A flow and load accretion study is scheduled to be conducted over the Grave Creek alluvial fan at the confluence with the Elk River.	Section 9.4.1.1
Study Area 8	
A monitoring well is scheduled to be installed in 2020 in the drinking water aquifer between Study Areas 7 and 8 to support the development and implementation of groundwater triggers.	Section 9.4.1.2.
Add District of Sparwood Well #4 to the RDW program.	Section 9.5.1
A monitoring well is scheduled to be installed in 2020 to replace EV_TW-1 and EV_TW-2. The nested monitoring well will be downgradient of the Goddard Creek Sedimentation Pond adjacent to EV_GC2.	9.5.1. Due to heaving sands during installation, monitoring well EV_MW_GC1A was decommissioned and will be replaced in 2021.
Study Area 9	
Survey the top of casing elevation at EV_BRgw.	Retained as a recommendation in Section 14.
Install instrumentation in supply wells EV_HW1, EV_MR2, EV_RCgw and EV_WH50gw. This is planned for 2020, pending the ability to instrument these wells around existing infrastructure.	Section 9.6.1.1
Remove RG_DW-03-01 from the RGMP and RDW program as it is no longer being used for drinking water.	This well has been removed from the program.
A nested monitoring well is scheduled for installation in 2020 to replace EV_MCgwS/D that are not representative of the aquifer.	Section 9.6.1.5

Table II-G (Cont'd): RGMP – 2019 Annual Report Recommendations

Recommendation	Where Addressed and/or Comment
Study Area 10	
A nested monitoring well is scheduled for installation in 2020 in the Michel Creek Valley-bottom aquifer downgradient of Erickson Creek and the South Pit decant Pond to monitor groundwater quality.	Section 9.7.1.2
Study Area 11	
Data collected from new monitoring wells CM_MW9 and CM_MW10 should be included in the 2020 RGMP Update to assess whether these wells provide new information to close the previously identified gap for RGMP Study Area 11 (potentially mine affected groundwater bypassing CM_MW1 via the Rail Loop). An additional new monitoring well is planned for installation in 2020 to address this data gap.	Sections 10.4, 10.5 and 10.6
Deployment of pressure transducers at monitoring wells CM_MW1-OB and SH has been recommended under the CMO SSGMP, and these deployments would also serve to refine characterization of groundwater-surface water interaction in Study Area 11.	Section 10.6
Study Area 12	
Survey elevation of water level measurement at Environment Canada hydrometric station 08NK016.	Retained as a recommendation in Section 14.
A monitoring well is scheduled to be installed in 2020 in the drinking water aquifer in this Study Area to support the development and implementation of groundwater triggers.	Section 9.8.1goo

Notes:
n/a denotes Not applicable.

2020 Regional Groundwater Monitoring Program Update Recommendations

Recommendations were developed in the 2020 RGMP Update and are provided below for each operation (SNC-Lavalin, 2020b). These recommendations were incorporated or assessed in this year's annual report.

Background

- Install one background well in 2021. Evaluate monitoring data in background monitoring wells drilled in 2020 and 2021 and after one year of monitoring assess the need for additional background wells and location.

Study Area 1

- Review results from MBI once a year of data is obtained and evaluate identified gaps on the western side of the Fording River Valley. Based on the results, a subset of MBI monitoring wells should be incorporated into the RGMP. Additional monitoring wells will also be installed as part of MBI based on the preliminary assessments. The location and number of wells will be refined in early 2021.
- Consider installing a nested monitoring well in the southern portion of Study Area 1 near or upgradient of FR_FRABCH.

Study Area 2

- Install a nested groundwater monitoring well in the Dry Creek alluvial fan near the confluence of Dry Creek and the Fording River.

Study Area 3

- Install nested monitoring wells near western boundary of Study Area 3 along potential groundwater flow path to Elk River watershed prior to Josephine Falls.
- Where possible, install pressure transducers for continuous water level measurements in existing production wells in the Fording River valley-bottom monitored under the RGMP.

Study Area 4

- Once at least one year of data is available at the new wells drilled in the vicinity of Leask and Wolfram Creek Sedimentation Ponds as Part of CPX2, compile and assess the need for replacement of existing monitoring wells and/or inclusion of new monitoring wells in RGMP. Review data from newly installed hydrometric stations as part of the MBI.
- Once one year of data has been collected from the MBI wells, determine if gap at GH_MW-ERSC-1 has been filled and select monitoring wells for inclusion in RGMP. Additional monitoring wells will be installed as part of MBI based on the preliminary assessments. The location and number of wells will be refined in early 2021.
- Add new groundwater monitoring wells GH_MW_EF1A/B to the RGMP and review one year of data to evaluate if gap at RG_DW-01-03 is filled.

Study Area 5/6

- Add new groundwater monitoring wells LC_MW_ER4A/B to the RGMP and review one year of data for potential long-term inclusion.
- Install a nested well pair between LC_LC4 and the Fording River to facilitate an understanding of geology and groundwater flow along Line Creek.
- It may be possible that one or some of the existing Teck water supply wells near LC_LC4 can provide supplemental information on the groundwater quality in the alluvial fan to address this objective. Develop understanding of pumping rates, capture zones, water quality and water levels to improve understanding of groundwater-surface water interaction and load balance.
- Remove PIZP1101 as part of the Study Area 5/6 assessment but retain sampling as part of the Background Groundwater Assessment.

Study Area 7

- Add new groundwater monitoring well RG_MW_WW to the RGMP and review one year of data for potential long-term inclusion.
- Install a nested well pair in the Grave Creek alluvial fan at confluence with Elk River. Monitor and sample the monitoring wells for one year to determine whether the gap has been filled.

Study Area 8

- New monitoring wells EV_MW_GC1A/1B were installed to provide monitoring near the Goddard Creek in the valley-bottom. The shallow well EV_MC_GC1B should be included in the RGMP and the deeper well EV_MW_GC1A should be monitored for a minimum of one year then evaluated for inclusion in the RGMP.

Study Area 9

- Include monitoring and sampling at EV_MW_MC2-A/B, EV_MW_GT1-A/B, EV_MW_BC1-A/B, and EV_MW_SPR1-C to the RGMP to better define Cl sources and downward migration.
- Install pressure transducers for continuous water level measurements in existing supply wells. Monitor and analyze the pressure transducer as part of the RGMP.
- Include monitoring and sampling at EV_MW_BC2, EV_MW_BC3, EV_MW_SGC1, and EV_MW_SGC2 to the Elkview Operations (EVO) SSGMP to further investigate dissolved selenium in bedrock.
- New monitoring wells EV_MW_MCgwA/B were installed in 2020. The wells should be monitored for a minimum of one year then evaluated for inclusion in the RGMP.
- Remove RG_DW-03-01 from RGMP.
- Remove EV_MCgwS/D from RGMP and decommission both wells.
- Survey surface water monitoring datum at EV_GT1 and EV_BC1 relative to geodetic elevations, install transducers at both stations to continuously monitor surface water.
- A flow and load accretion study should be completed along Michel Creek extending to an area upstream of Study Area 10.

Study Area 10

- New monitoring wells EV_MW_SP1A/B/C were installed to assess groundwater quality near Michel Creek. The wells should be monitored for a minimum of one year then evaluated for inclusion in the RGMP.
- A flow accretion study for Michel Creek extending beyond the karst potential blocks is recommended to assess the potential influx. The study should extend to Study Area 9 to assess additional potential surface or groundwater monitoring locations.

Study Area 11

- Evaluate water level and water quality data from CM_MW_AG1A/B evaluate whether it suitably monitors groundwater quality downgradient of all mining-related sources in Study Area 11.
- To aid in evaluation, collect water quality samples at the Andy Good Creek station (CM_AG2) timed with the groundwater sampling at CM_MW_AG1A/B.
- Install pressure transducers for continuous water level measurements in CM_MW1-OB/SH/DP.

Study Area 12

- Collect concurrent samples from RG_MW-03-04 and RG_DW-03-04 to develop a correlation. Survey and monitor groundwater levels at RG_DW-03-04 to refine groundwater flow direction. Data from should be reviewed in 2021 Annual Report and assess for potential removal of RG_DW-03-04 from the RGMP.

ENV Approval Letters

The 2017 RGMP and 2018 SSGMP updates were accepted with conditions listed in associated approval letters included in this Appendix. The 2020 RGMP Update is pending approval.

References

SNC-Lavalin Inc. 2020a. 2019 Annual Report Elk Valley Regional and Site-Specific Groundwater Monitoring Programs. Prepared for Teck Coal Limited. Dated March 31, 2020.

SNC-Lavalin Inc. 2020b. 2020 Regional Groundwater Monitoring Program Update. Prepared for Teck Coal Limited. Dated December 4, 2020.

File: PE107517

July 9, 2020

Mariah Arnold
Sr. Lead Environmental Sciences
Cam Jaeger
Coordinator Environment
Nathaniel Barnes
Lead Water

Teck Coal Limited
124B Aspen Drive
Sparwood, BC V0B 2G0

RE: Elk Valley Regional Groundwater Monitoring Program (RGMP) - 2017 Update

[**Rev. 1 – Amendment of Condition 2.6.** This document is an update of the Approval Letter issued on February 19, 2020, whereby Condition 2.6 is modified as follows:
From:
"An update on how the RGMP addresses the changes introduced in the 2018 Adaptive Management Plan (AMP), with reference to Question 4 (effects of groundwater discharge to streams on calcite development) and Question 6 (groundwater triggers)."
To:
"An update on how the RGMP addresses the changes introduced in the 2018 Adaptive Management Plan (AMP)".]

The 2017 update of the Elk Valley Regional Groundwater Monitoring Program (2017 RGMP) dated September 2017 has been received and reviewed by ministry staff, along with the 2017 and 2018 Regional Groundwater Monitoring Program Annual Reports dated March 2018 and March 2019.

Pursuant to Section 9.2.1 of Permit PE107517, I hereby accept the 2017 update of the Elk Valley Regional Groundwater Monitoring Program (2017 RGMP), subject to the following conditions:

1. The Groundwater Work Plan will be carried out as written. The Groundwater Work Plan and the accompanying Table of Proposed Drilling Locations (Proposed Drilling Locations), which were discussed during the Groundwater Working Group (GWG) meeting of November 26-27, 2019 and submitted to ENV on January 7, 2020, are included as appendices to this Letter. Specifically, the monitoring wells proposed as part of the ongoing Mass Balance Investigation studies in support of the Regional Water Quality Model will be installed as soon as possible, subject to access and permitting constraints, and added to the Regional Groundwater Monitoring Network. Updates on the implementation of the Work Plan will be provided to the GWG during the Group's meetings and

conference calls. All proposed changes to the Work Plan and Proposed Drilling Locations will need to be justified and will require review by the GWG and approval prior to being implemented.

2. An update of the RGMP must be submitted to the Director for approval **by September 30, 2020** and will meet in full, all the requirements detailed in point *i* to *vii* Of Section 9.2.1 of Permit PE107517.

   Specifically, the 2020 RGMP update will contain the following:

   2.1 Based on the data acquired from the monitoring between 2017 and December 31, 2019, a "updated description of relevant aquifer characteristics (e.g. hydraulic conductivity, storage properties, transmissivity, etc.), and a description of regional groundwater flow patterns (directions and velocities) and recharge areas, fate, groundwater interactions with surface waters, the effects of groundwater withdrawals on the SW/GW interactions, and the mobility of mine related constituents of interest." (point *vi* of Section 9.2.1).

   2.2 An updated Conceptual Site Model (CSM), and on a closer integration with the Site-Specific groundwater programs, the Mass Balance Investigation and the Sparwood Area Groundwater Study.

   2.3 A list of all the hydrogeological studies conducted between 2017 and 2019, in support of other programs included in the Elk Valley Area-Based Management Plan (e.g. Regional Aquatic Effects Assessment, Regional Water Quality Model) or permit applications (e.g. Fording River South water treatment plant intake, Elkview and Fording River North Saturated Rock Fill), with an overview of each study and indication of whether and what information resulting from these studies is relevant to inform the CSM.

   2.4 In addition to the maps included in the 2017 update, include the following maps:
      i. Updated maps of the location of the existing groundwater monitoring wells included in the RGMP and proposed new RGMP wells (if applicable). The location of surface water monitoring stations should also be added as a reference.
      ii. Updated maps allowing the visualization of the main aspects of the Conceptual Site Model (e.g. surface and groundwater pathways, indicative gaining and losing stream reaches, receptors associated with monitoring wells).
      iii. Maps showing all the locations of the hydrogeological studies referred to in point 2.3 (two maps showing the study locations located in the northern and southern portion of the Elk Valley, respectively).

   2.5 Updated hydrogeological cross-sections to reflect the information acquired from new wells (and updated locations in plan view, where cross-sections have been extended to include new wells). Additional cross-sections will be developed for all the wells included in the updated regional groundwater monitoring network, in directions parallel and perpendicular to the main direction of flow. The cross-sections should show all the wells (including wells drilled for purposes other than monitoring, e.g. geotechnical wells) used to define them, with the following details:

topographic profile, bedrock contact elevation (where this is available or can be inferred), well screens location, average groundwater elevation and elevation of nearby surface water bodies. The stratigraphic logs of all the wells used to define the cross-sections will also be provided.

2.6 An update on how the RGMP addresses the changes introduced in the 2018 Adaptive Management Plan (AMP).

3. Provide a proposed Work Plan for 2020-2023 with proposed well drilling locations to fill in any remaining gaps identified during the update, with a tentative schedule for its implementation, as per condition *iv* of PE107517, Section 9.2.1 "Identify limitations and data gaps and conduct additional studies necessary to refine the hydrogeological conceptual model, determine the location and extent of mine-affected groundwater discharge to surface waters and to evaluate management and mitigation options."

Further, the Director expects the following:

- The GWG established in October 2016 will continue to provide guidance for groundwater programs. The GWG will consist of members from Teck Coal Limited (Teck), the Ktunaxa Nation Council (KNC), Ministry of Environment (ENV), Interior Health Authority (IHA) and may expand to include participants from Ministry of Energy and Mines (MEM), Ministry of Forest, Lands and Natural Resource Operations and Rural Development (FLNRORD).

- A minimum of two (2) in-person meetings and two (2) conference calls of the GWG will be held in 2020. The GWG will meet approximately every three months, to maintain continuity in the communication and activities related to the groundwater programs. This will ensure that these programs achieve the objectives of the Elk Valley Area-Based Management Plan (ABMP) to protect groundwater, human health and aquatic ecosystems.

If you have any questions, please contact Sarah Alloisio, Hydrogeologist, at Sarah.Alloisio@gov.bc.ca or at 236-468-2286.

Yours truly,

E. Freyman

Liz Freyman, Head, Environmental Impact Assessment Section - Mining
for Director, *Environmental Management Act*
Mining Operations

cc: Heather McMahon, Ktunaxa Nation Council (HMcMahon@ktunaxa.org)

Accompanying Table of Numbered Proposed Drilling Locations

Possible Location ID[1]	Location[2]	Summary of Gap[3]	Proposed Studies[4]	Proposed Timing[5]
1	SA1/background	There is no background well upgradient of mine operations in the Fording River Valley	Drill a well location in the Upper Fording River Valley, north of Henretta Creek and influence from spoils.	2020
2	SA1/background	Concentrations of Cl in monitoring well FR_HMW5 are increasing and this well is no longer suitable as a background well.	Drill a well location in the Henretta Creek valley bottom upstream of FR_HMW5 to replace FR_HMW5 as a background well.	2020
3	SA4/background	Background monitoring well network sufficiency.	Further evaluate background monitoring network through trigger development. If greater spatial coverage is required, drill a well location near surface water sampling station GH_ER2.	post 2020
4	SA4	Well GH_MW-ERSC-1 may not be a suitable downgradient sentry well for monitoring.	Monitoring well network, flow accretion and geophysical studies to be completed as part of the Mass Balance Investigation in late 2019/2020. Once complete, assess the need for and location of additional wells near the southern boundary of Study Area 4 and north of Elkford	post 2020
5	SA2	Groundwater quality in the Fording River valley bottom downgradient of the confluence with Dry Creek is not currently monitored.	As above, Mass Balance Investigation to perform studies in this area. If results suggest a gap remains, consider adding a well location in the Dry Creek alluvial fan	post 2020
6	SA4/background	Background monitoring well network sufficiency.	Further evaluate background monitoring network through trigger development. If greater spatial coverage is required, evaluate the need for a well location in the Boivin Creek alluvial fan north of Elkford.	post 2020
7	SA3	Possibility of deep groundwater flow to the west and surface water infiltration from the Fording River before Josephine Falls.	Flow and load accretion studies to be completed in Fording River to Josephine Falls as part of Mass Balance Investigation. Pending results, consider adding a well location in the glaciofluvial sediment upgradient of Josephine Falls	post 2020
10	SA6	There are limited data for the Elk River valley-bottom aquifer downgradient of LCO to monitor possible effects from the LCO process plant site and CCR pile.	Drill a nested well pair downgradient of CCR Pile and adjacent to Order Station EV_ER4.	2020
11	SA7	Grave Creek potentially loses to ground over an alluvial fan. There are currently no monitoring wells in the valley bottom in this area.	Flow and load accretion studies over the Grave Creek alluvial fan at confluence with Elk River will be completed in 2020, with the last study to be completed in fall 2020. Results will inform the need for and location of a well in the alluvial fan.	post 2020
12	SA8/Background	Background monitoring well network sufficiency	Further evaluate background monitoring network through trigger development. If greater spatial coverage is required, evaluate the need for a well location in Cummings Creek alluvial fan.	post 2020
13	SA9	Uncertain whether EV_MCgwS/D is suitable for monitoring based on the materials they are screened in. These wells do not intersect deep pathway, but newly-installed monitoring wells do.	Hydraulic conductivity testing to be completed in 2019 at EV_MCgwS/D. Collect a year of baseline data from the newly-installed monitoring well network and review data to assess deep flow pathway. Based on a review of these data, a well location may be drilled west of RG_DW-03-01.	2020
15	SA10	There are no groundwater monitoring data for the Michel Creek valley-bottom aquifer downgradient of Erickson Creek and the South Pit Decant Pond and local groundwater conditions are unknown.	Load and flow accretions studies have been completed on Erickson Creek. Drill a nested well pair after a review of the flow accretion studies from Erickson Creek.	2020
16	SA11/background	Background monitoring well network sufficiency.	Further evaluate background monitoring network through trigger development, including suitability of review of data from CH_MW3-SH and CM_MW3-DP as background monitoring wells. If greater spatial coverage is required, evaluate the need for adding a well location upstream of the confluence of Leach Creek with Michel Creek	post 2020
17	SA11	Only one monitoring well (CM-MW1-OB) is in gravel in the valley bottom in Michel Creek downgradient of CMO.	Drill a well location in the Michel Creek valley-bottom aquifer downgradient of CM_MW1-OB/SH/DP and RG_DW-07-01 (and downgradient boundary of SA11).	2020
18	SA10/background	Background monitoring well network sufficiency.	Further evaluate background monitoring network through trigger development. If greater spatial coverage is required, evaluate the possibility of adding a well location in Alexander Creek valley bottom sediment at the confluence with Lower Alexander Creek.	post 2020
21	SA7/background	Background monitoring well network sufficiency.	Further evaluate background monitoring network through trigger development. If greater spatial coverage is required, evaluate the need for a nested well pair in Grave Creek valley-bottom sediment upstream of the confluence with Harmer Creek.	post 2020
22	SA8	Groundwater quality is unknown in shallow and deep valley-bottom aquifers near Goddard Creek Sedimentation Pond.	Drill a well location near the Goddard Creek Sedimentation Pond by EV_GC2.	2020
-	SA4	Additional data required in targeted areas where groundwater is used for drinking water supply to support the development and implementation of groundwater triggers.	Monitoring well will be drilled where groundwater is used for drinking water supply to support the groundwater trigger development (location TBD).	2020
-	SA7	Additional data required in targeted areas where groundwater is used for drinking water supply to support the development and implementation of groundwater triggers.	Monitoring well will be drilled where groundwater is used for drinking water supply to support the groundwater trigger development (location TBD).	2020
-	SA12	Additional data required in targeted areas where groundwater is used for drinking water supply to support the development and implementation of groundwater triggers.	Monitoring well will be drilled where groundwater is used for drinking water supply to support the groundwater trigger development (location TBD).	2020

Notes: 1) Refers to the assigned possible well location number outlined on the wall map as 'Proposed RGMP Monitoring Well to drill in 2020' or 'Proposed RGMP Monitoring Well to drill post 2020'; 2) Refers to associated Study Area (SA) or closest Study Area and whether or not the possible well location is related to background monitoring well network; 3) Brief summary of gap as outlined in previous 2019 GWG meetings; 4) Proposed studies to fill the gap, as outlined in previous 2019 GWG meetings and ENV correspondence, as well as November 26/29 GWG meeting; 5) 2020 refers to work to be completed pre-2020 RGMP Update (shown in green highlight) and post 2020 refers to work to be completed afterwards.

File: PE107517

March 11, 2020

Mariah Arnold
Sr. Lead Environmental Sciences
Cam Jaeger
Coordinator Environment

Teck Coal Limited
124B Aspen Drive
Sparwood, BC V0B 2G0

Dear Mariah and Cam:

RE: Elk Valley Site-Specific Groundwater Monitoring Programs (SSGMP) - 2018 Update

The 2018 update of the Site-Specific Groundwater Monitoring Plans (2018 SSGMPs) for Teck's operations in the Elk Valley (Fording River, FRO; Greenhills, GHO; Line Creek, LCO; Elkview, EVO; Coal Mountain, CMO) dated October 31, 2018 were received and reviewed by staff of the Ministry of Environment and Climate Change Strategy (ENV). Ministry Assessments for the 2018 SSGMPs were submitted by ENV to Teck in April 2019, which indicated that four of the five plans (FRO, GHO, LCO and EVO) did not meet the requirements described in Permit 107517. ENV requested a revised version of these plans to be submitted by September 30, 2019. ENV has received and completed the review of the revised submissions.

Pursuant to Section 9.2.2 of Permit PE107517, the 2018 update of the Elk Valley Site-Specific Groundwater Monitoring Plans (2018 SSGMP) for the following operations: Fording River Operations (FRO); Greenhills Operations (GHO); Line Creek Operations (LCO); Elkview Operations (EVO) and Coal Mountain Operations (CMO), are accepted with the following conditions:

1. Updated Site-Specific Groundwater Monitoring Plans for FRO, GHO, LCO, EVO and CMO will be submitted to the Director for approval **by October 31, 2021.**

2. The 2021 SSGMP updates will include the following:

a. Expand the site-specific monitoring well network as follows:
    i. FRO - Swift Creek valley bottom. Add a well to the FRO network, to investigate the presence of a potential mine-affected groundwater transport pathway in overburden and/or shallow weathered bedrock in the area downgradient of the Swift Creek sediment management system towards the Fording River valley bottom aquifer.
    ii. GHO – Porter Creek valley bottom. Replace GH_MW-PC with a well pair installed in unconsolidated sediments and bedrock, to monitor a potential mine-affected groundwater transport pathway and investigate the surface water – groundwater interaction upgradient of the confluence with Fording River.
    iii. LCO – Dry Creek. Add to the LCO well network the new well that is planned to be installed in Study Area #2 and added to the RGMP network, as per the Work Plan included in the ENV Acceptance Letter for the 2017 RGMP Update.
    iv. LCO – Confluence of West Line Creek and Line Creek. Add to the LCO well network well AWTF-MW-15-02B and AWTF-Seep, if suitable, and/or a new well pair installed in the area downstream of the confluence of West Line Creek with Line Creek, where the surficial geology mapping indicates the presence of fluvial deposits. The objective of monitoring this well(s) and seep is to investigate the presence of a potential mine-affected groundwater transport pathway by-passing the AWTF intake location.
    v. LCO – Background. Install a well pair (overburden / bedrock) upstream of the LCO mine-affected areas in the area within the Tornado Creek watershed where surficial geology mapping indicates the presence of fluvial deposits. Use this well to characterize background conditions for LCO. If no unconsolidated deposits are found in the area indicated by mapping, install a well in weathered bedrock to characterize background bedrock conditions in LCO.
    vi. EVO – Grave Creek. Install a well in unconsolidated sediments in the Grave Creek valley fill aquifer, at a shallower depth than EV_GV3gw, to investigate a potential shallow groundwater pathway and the interaction between surface and shallow groundwater.

b. Update the Conceptual Site Model for each operation, based on the integration of the updated groundwater monitoring data set and relevant information obtained from other groundwater studies supporting site-specific permit applications or regional programs (e.g. Kilmarnock alluvial fan groundwater study conducted in support of the FRO-S Active Wastewater Treatment Plant, groundwater investigations in the Clode Creek watershed, updated modelling and flow accretion survey in Dry Creek as part of the LCO Dry Creek Structured Decision Making process (SDM)).

c. Update maps for the same themes and in the same format as those included in the revised 2018 SSGMPs. Update the maps for LCO and CMO using the same format and notation of the maps included in FRO, GHO and EVO.

d. Update hydrogeological cross-sections to reflect the information acquired from new wells (and updated locations in plan view, where cross-sections have been extended to include new wells). Additional cross-sections will be developed for all wells, in directions parallel and perpendicular to the main direction of flow. The cross-sections should show all the wells (including wells drilled for purposes other than monitoring, e.g. geotechnical wells) used to define them, with the following details: well screens location, average groundwater elevation and elevation of nearby surface water bodies. The stratigraphic logs of all the wells used to define the cross-sections will also be provided.
e. Update the structure of the documents describing the plans for LCO and CMO to be consistent with those prepared for FRO, GHO and EVO.
f. Update the characterization of the effect of dewatering of the pits that intercept groundwater on the groundwater head, flow pattern and on interaction of groundwater with surface water.

If you have any questions, please contact Sarah Alloisio, Hydrogeologist, at Sarah.Alloisio@gov.bc.ca or at 236-468-2286.

Yours truly,

E. Freyman

Liz Freyman
for Director, *Environmental Management Act*
Mining Operations

Cc: Jeanien Carmody-Fallows, Section Head, Mining Authorizations, ENV
Heather McMahon, Ktunaxa Nation Council

d. Update hydrogeological cross-sections to reflect the information acquired from new wells (and updated locations in plan view, where cross-sections have been extended to include new wells). Additional cross-sections will be developed for all wells, in directions parallel and perpendicular to the main direction of flow. The cross-sections should show all the wells (including wells drilled for purposes other than monitoring, e.g. geotechnical wells) used to define them, with the following details: well screens location, average groundwater elevation and elevation of nearby surface water bodies. The stratigraphic logs of all the wells used to define the cross-sections will also be provided.
e. Update the structure of the documents describing the plans for LCO and CMO to be consistent with those prepared for FRO, GHO and EVO.
f. Update the characterization of the effect of dewatering of the pits that intercept groundwater on the groundwater head, flow pattern and on interaction of groundwater with surface water.

If you have any questions, please contact Sarah Alloisio, Hydrogeologist, at Sarah.Alloisio@gov.bc.ca or at 236-468-2286.

Yours truly,

E. Freyman

Liz Freyman
for Director, *Environmental Management Act*
Mining Operations

Cc: Jeanien Carmody-Fallows, Section Head, Mining Authorizations, ENV
Heather McMahon, Ktunaxa Nation Council

Volume II – Appendix III

2020 Seep Monitoring Program (SRK, 2021)

Report

Elk Valley Regional Seep Monitoring Program: 2020 Annual Report

Teck Coal Limited

SRK Consulting (Canada) Inc. ▪ 1CT2017.312 ▪ March 2021

Report

Elk Valley Regional Seep Monitoring Program: 2020 Annual Report

Prepared for:
Teck Coal Limited
Suite 3300, Bentall 5
Vancouver, BC, V6C 0B3
Canada

+1 604 699 4000
www.teck.com

Prepared by:

1066 West Hastings Street, Suite 2200
Vancouver, BC V6E 3X2
Canada

+1 604 681 4196
www.srk.com

Lead Author: Anne Day, MLWS, GIT **Initials:** AMD
Reviewer: Stephen Day, MSc, PGeo **Initials:** SJD

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Revision History

Revision	Purpose	Date	Initials
00 to 02	Draft for internal review	February 22, 2021	AMD, SJL
02	Draft senior review	February 22, 2021	SJD
03	Draft for addressing senior review comments	February 23, 2021	AMD, SJL
04	2nd Draft 1 senior review	February 26, 2021	SJD
05	Draft for addressing Draft 2 senior review comments	March 1, 2021	AMD
03012020	Draft sent to Teck for review	March 1, 2021	Lead reviewers: Cam Jaeger and Nathaniel Barnes
07 to 08	Draft 2 addressing Teck review	March 18, 2021	AMD
09	Draft 2 senior review	March 18, 2021	SJD
10	Draft for addressing Draft 2 senior review		AMD
03222020	Draft 2 sent to Teck for review	March 22, 2021	Lead reviewers: Cam Jaeger and Nathaniel Barnes
FINAL	Final copy submitted to Teck	March 31, 2021	AMD

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The opinions expressed in this document have been based on the information available to SRK at the time of preparation. SRK has exercised all due care in reviewing information supplied by others for use on this project. While SRK has compared key supplied data with expected values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. SRK does not accept responsibility for any errors or omissions in the supplied information, except to the extent that SRK was hired to verify the data.

Contents

Tables

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Useful Definitions

This list contains definitions of symbols, units, abbreviations, and terminology that may be unfamiliar to the reader.

BCWQG FWAL	British Columbia Water Quality Guideline for Freshwater Aquatic Life (approved and working)
CCR	Coarse coal reject
CV	Coefficients of Variation
DL	Detection limit
DO	Dissolved oxygen (mg/l)
DOC	Dissolved organic carbon (mg/l)
DQO	Data quality objective
EC	Electrical conductivity (micro siemens per centimeter, µS/cm)
ELMI	Ministry of Energy, Mines, and Low Carbon Innovation
EMPR	BC Ministry of Energy and Petroleum Resources
High Flow	March 15th to July 15th
MF	Morrissey Formation
ORP	Oxidation reduction potential (millivolts, mV)
PAG	Potentially acid-generating
The Plan	Regional Seep Monitoring Plan – Phase 3
QA/QC	Quality assurance/quality control
RPD	Relative percent difference
RSMP	Regional Seep Monitoring Program
SI	Saturation indices
Teck	Teck Coal Limited
TDS	Total dissolved solids (mg/l)
TOC	Total organic carbon (mg/l)
TSS	Total suspended solids (mg/l)
WR	Waste rock

Executive Summary

This report presents the 2020 results of the Elk Valley Regional Seep Monitoring Program (RSMP). Seep monitoring occurs across Teck Coal Limited's (Teck) five Elk Valley operations: Fording River Operations (FRO), Greenhills Operations (GHO), Line Creek Operations (LCO), Elkview Operations (EVO), and Coal Mountain Mine (CMm) (previously called Coal Mountain Operations (CMO) and currently in Care and Maintenance). Seeps were previously sampled by Teck during 2018 and 2019. This is the third year of the RSMP. Seeps were visited at least twice during 2020; during high flows (between March 15, 2020 and July 15, 2020) and during low flow (outside high flow window, generally between September and November). In 2020, 80 seeps were sampled during high flow and 63 were sampled during low flow.

A conformity review of the 2020 RSMP to commitments in previous reports and letters was conducted. A QA/QC review found that the data quality of the 2020 dataset is acceptable for the purposes of annual reporting. Samples collected in 2020 were screened against the BC Water Quality Guidelines (BGWQG) for Freshwater Aquatic Life (FWAL).

Coefficients of variation (CVs) were tested as a tool to identify seeps with high water quality variability. However, several limitations were identified, therefore results from the CV analysis will not be reported at this time. Statistical trend analyses such as Mann-Kendall or other non-parametric tests may be utilized as more seepage samples are collected.

During the initial seep prioritization by SRK in 2019, seeps were categorized based on the ratio of Zn/Cd and sulfate concentration to estimate source conditions related to the Morrissey Formation (MF). Parts of the MF are known to be potentially acid-generating (PAG) and seeps showing possible MF influences may indicate areas where future changes in water quality might be expected. Seeps were also categorized based on the ratio of Se/SO_4 and sulfate concentration to evaluate the influence of low-oxygen conditions on seeps originating from waste materials.

Samples collected in 2020 were compared to the results of the 2018 and 2019 categorizations conducted by SRK and the results are as follows:

- No seeps at FRO have been consistently categorized as suboxic or possibly MF influenced and do not seasonally change categorization.
- Three GHO seeps have been consistently classified as suboxic: GH_E1, GH_SEEP_21 (GH_CCR group) and GH_SEEP_15 (GH_UPSTREAM_CCR group), indicating possible suboxic zones within the GHO CCR storage facility. GH_SEEP_16 and GH_E1 in the GH_CCR group have also been consistently categorized as possibly MF influenced. Most seeps at GHO do not change oxidation or MF influence categorization seasonally.
- No LCO seeps have been consistently categorized as suboxic or possibly MF influenced and do not seasonally change categorization.
- All seeps at EVO have been categorized as oxic. EV_SEEP_ERICKSON1 and EV_SEEP_PLANT23 have been consistently categorized as possibly MF influenced. Most seeps do not seasonally change categorization.

- Two CMm seeps, CM_37PIT-SEEP-E and CM_MM-SEEP3, have been consistently categorized as suboxic. CM_PLANT-SEEP1 has been consistently categorized as possibly MF influenced. Most seeps do not seasonally change categorization.

A geochemical review was conducted to develop interpretations based on the three years of accumulated data. While a visual qualitative review was conducted to identify seasonality or year-on-year trends, statistical evaluations such as Mann-Kendall trend analysis were not possible given that only a maximum of three years of data is available. PHREEQC was used to evaluate solubility controls by interpretation of saturation indices and calcite controls. Cross plots of metal concentrations with pH were used to evaluate pH as a solubility control. Cross plots of metal concentrations with dissolved oxygen (DO) were used to evaluate the solubility of redox sensitive parameters. Seeps were compared to their closest permitted surface water monitoring locations using sulfate as a conservative tracer and suboxic indicator ratios.

Qualitative seasonality and year-on-year trends for several parameters were identified at individual seeps but do not show consistent patterns across the Elk Valley. pH across the Elk Valley ranges from 6.5 to 9.5 and acts as a solubility control on several parameters. DO does not appear to be a strong solubility control, however, across the Elk Valley both manganese and iron show a negative correlation with field DO. Suboxic categorization shows a weak relationship with field DO at elevated Se/SO_4 ratios and DO. Most seeps in the Elk Valley have $pCO_2 > 10^{-3.4}$, indicating CO_2 over-pressurization. Over-pressurized seeps will equilibrate with atmospheric pressure, pH will increase because of decreasing pCO_2 and calcite may become supersaturated and precipitate. Gypsum is considered due to its potential to control sulphate concentrations. Calcite is important in evaluating the potential for calcite concretions to form, and ferrihydrite can help with understanding disequilibrium with oxygen and the potential for sequestration of metals. No seeps in the region had a gypsum saturation index (SI) above zero and therefore not likely to be precipitating gypsum and most seeps (98%) are in equilibrium or precipitating (supersaturated) ferrihydrite.

One new seep (CM_MM-SEEP5) was identified at CMm during 2020, and one new seeps (GH_SEEP_98) was identified at GHO during 2020. The new seep identified at GHO was too late for review and will be included in the RSMP 2021 sampling and annual reporting. No new seeps were identified at FRO, LCO, or EVO.

During subsequent RSMP sampling and reporting, SRK recommends that:

1. Additional field blank and duplicate samples are collected to reach the 10% DQO target.
2. Field readings for DO in mg/L and in % saturation should be collected at the same time to QA/QC.
3. When seeps are found to be covered by mined out material or consistently dry, seeps can be removed from the RSMP through the seep retirement framework.
4. CM_MM-SEEP5 should be added to the RSMP.

1 Introduction

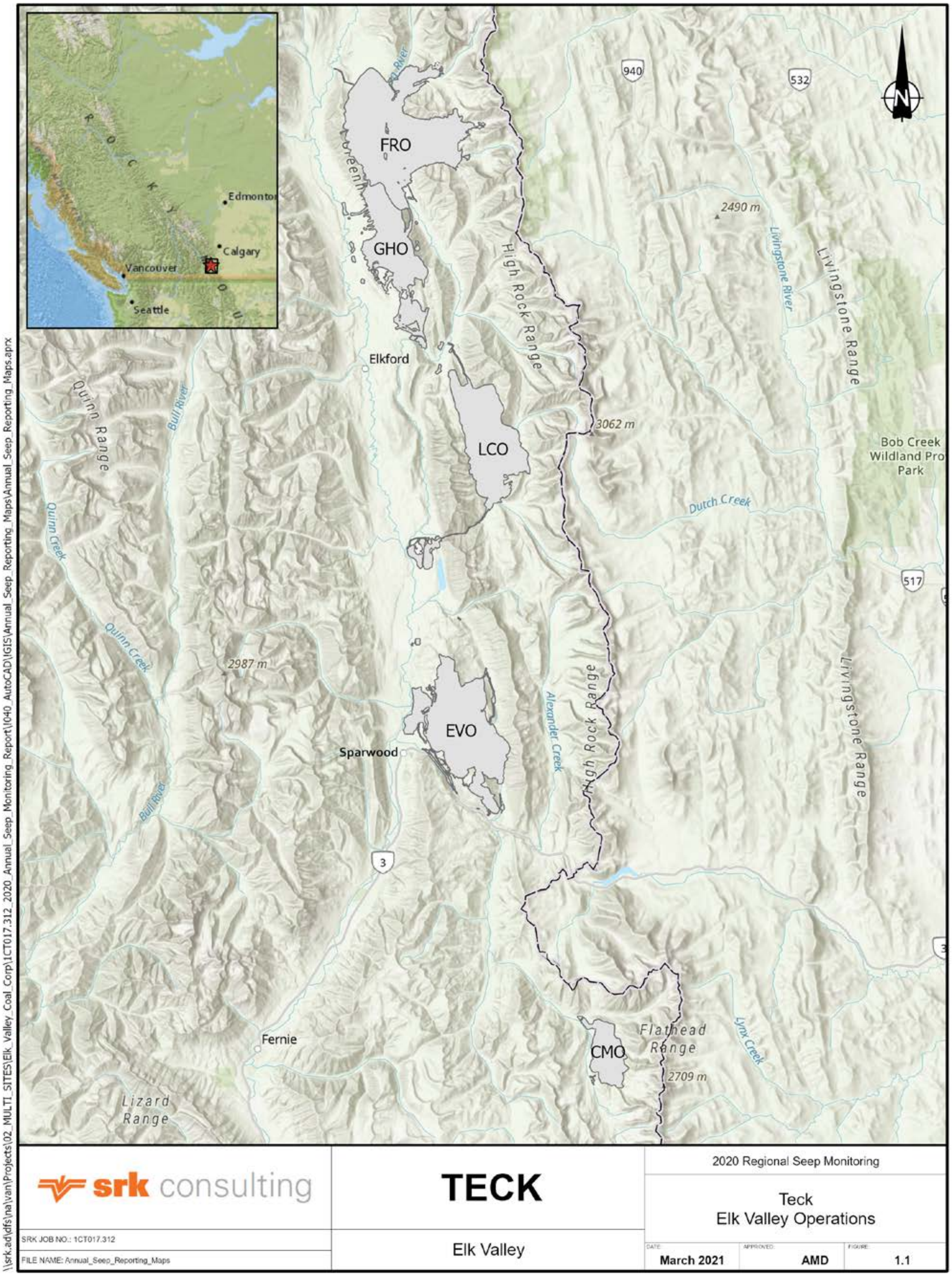
Teck Coal Limited (Teck) carried out monitoring under the Regional Seep Monitoring Program (RSMP) within the Elk Valley (Figure 1.1) during high flows (March 15th to July 15th) and low flows (September to November). This report summarizes the results collected under the RSMP in 2020 and provides an initial geochemical interpretation of all the data collected under the RSMP thus far. It was prepared using information and data provided by Teck.

This report has been structured as follows:

Section 2	**Background:** The context and background for the initiation of the RSMP.
Section 3	**Conformity Review**: The implementation of the RSMP in 2020 was assessed for conformity with recommendations and commitments made in the SRK 2018 seep assessment (SRK 2019) and 2019 annual RSMP report (SRK 2020), EMPR's (now The Ministry of Energy, Mines and Low Carbon Innovation [EMLI)) review letter, and Teck's response to EMLI.
Section 4	**Quality Assurance/Quality Control (QAQC):** Summary of QA/QC of all seep samples collected in 2020.
Section 5	**Review Methods:** Summary of methods applied to review the water chemistry of seeps.
Section 6	**Regional Seepage Geochemical Interpretation:** The geochemical review builds on interpretations from previous years and summarizes key geochemical controls that affect water chemistry both at the seeps monitoring within the RSMP and at downstream permitted surface water locations. This section will summarize controls and trends that apply in a regional context to the Elk Valley.
Section 7	**Seepage Monitoring Results by Operation:** The water chemistry review consisted of a comparison of seep water quality results against the BC Approved and Working Water Quality Guidelines (BCWQGs) and water chemistry criteria described in SRK (2019). In addition, site specific seepage geochemical interpretations are provided. The below tables summarize the main characteristics of each seep during high flows and low flows that have been identified thus far. Table 7.5 - Fording River Operations (FRO), Table 7.9 - Greenhills Operations (GHO), Table 7.13 - Line Creek Operations (LCO), Table 7.17 - Elkview Operations (EVO), Table 7.21 - Coal Mountain Mine (CMm)
Section 8	**New Seeps Review:** Summary of new seeps identified during 2020 and review for inclusion in the ongoing RSMP.

Section 9	**Seep Retirement Framework:** Framework to determine if seeps that have been covered by mined out materials or dry over consecutive years can be retired from the RSMP.
Section 10	**Summary:** Summary of the results of the 2020 review.
Section 11	**Recommendations:** Recommendations for monitoring and annual reporting in 2021.

Figure 1.1: Teck Operations Map



2 Background

Teck operates five steelmaking coal mines in the Elk Valley: Fording River Operations (FRO), Greenhills Operations (GHO), Line Creek Operations (LCO), Elkview Operations (EVO), and Coal Mountain mine (formerly Coal Mountain Operations [CMO], currently in Care and Maintenance). These are referred to collectively herein as the Elk Valley Operations. Teck monitors seepage at mine site facilities at these operations; however, based on an inspection in 2017, EMLI ordered Teck to develop a Regional Seep Monitoring Plan for Elk Valley Operations. In response, Teck (2018) proposed to implement the Plan in three phases:

- Phase 1: Identification of seepage locations, development of sampling procedures and collection of samples.
- Phase 2: Technical evaluation of seep water quality and quantity data collected during Phase 1. The assessment completed in Phase 2 aided in determining the sampling locations and frequency for seeps in Phase 3 (SRK 2019). Future monitoring requirements based on the assessment will also consider the following:
  - Risk to aquatic health (i.e., concentrations above or below relevant BCWQGs)
  - The classification of seep and the potentially associated discharge point to the receiving environment (via ground infiltration, surface water sediment pond, directly to receiving environment, etc.)
  - Mining related constituent concentrations relative to discharge water in the case where the seep flows into existing mine infrastructure
  - Unexpected changes in water quality in seeps, associated discharges, and/or the receiving environment
- Phase 3: A longer-term Regional Seep Monitoring Program was developed and implemented, which includes reducing redundant seepage sampling and collection of seeps collected by existing site infrastructure (Teck 2019b). Phase 3 described any changes to the water quality analyses for seep monitoring and the locations and frequencies for ongoing seep monitoring.

In its June 21, 2018 letter, EMLI stated the 2018 Regional Seep Monitoring Plan only partially satisfied the requirement for regional seep monitoring because it only included Phase 1. EMLI required Teck to submit Phase 2 of the Plan with the 2018 Annual Reclamation Report on March 31, 2019 (EMLI 2018).

As part of Phase 2 of the plan, Teck retained SRK Consulting (Canada) Inc. (SRK) to review the 2018 seep water quantity and quality dataset to recommend seeps that should continue to be monitored as part of the longer-term Regional Seep Monitoring Plan (i.e., Phase 3). The 2018 Regional Seep Monitoring Plan (SRK 2019) was submitted with the 2018 Annual Reclamation Report (ARR). This report provided the approach used as part of Phase 2 of the Plan to prioritize seeps for sampling and listed the proposed locations where seep monitoring was recommended to be continued.

EMLI provided comments to Teck in a letter dated April 30, 2019. In response, Teck submitted a revised Regional Seep Monitoring Plan – Phase 3 (referred to herein as “the Plan”) to EMLI on May 28, 2019 (Teck 2019b), which incorporated the EMLI review comments.

In March 2020, the Elk Valley Seep Monitoring 2019 Annual Report was submitted with the 2019 ARR. The 2020 Elk Valley Regional Seep Monitoring Program Report will be submitted with the 2020 ARR in March 2021. In addition, data from the 2018, 2019, and 2020 Elk Valley Regional Seep Monitoring Reports may be included for context in other studies such as the Regional Groundwater Monitoring Program (RGMP), the Site-Specific Groundwater Monitoring Program (SSGMPs), the Mine Water Management Plans (MWP) at each operation as other monitoring programs, as appropriate.

3 Conformity Review

Table 3.1 summarizes commitments from previous reports or letters and reviews, and whether the 2020 RSMP met these commitments. The Elk Valley Seep Monitoring 2019 Annual Report did not include any new recommendations in addition to those previously stated.

Table 3.1: Commitment Review

Category	Commitment	Source	Implementation Review	Additional Recommendations
Sampling Procedure	Samples will be collected (or attempted to be collected) for all seeps identified in the Plan two times per year, once during high flows (freshet) and once during low flows (late summer/fall).	Regional Seep Monitoring Plan – Phase 3 SRK (2019)	Commitment met.	Collect samples between March 15 – July 15 and then again in October.
	A standardized field form will be used for the collection of field information to ensure appropriate and consistent information is collected across all operations.	Regional Seep Monitoring Plan – Phase 3 SRK (2019)	Commitment met.	-
	Blanks and duplicates will account for 10% of the sampling.	Regional Seep Monitoring Plan – Phase 3 SRK (2019)	Blanks accounted for 11% and duplicates for 7% of all samples. Increase number of field blanks and duplicate samples to reach 10% of overall dataset of samples collected each year for the seep monitoring program.	-
	Field parameters will be consistently measured at the time of seep sampling.	Regional Seep Monitoring Plan – Phase 3 SRK (2019)	Commitment met.	-
	Field filtering and preservation of samples will occur at the point of collection for determination of element concentrations.	Regional Seep Monitoring Plan – Phase 3 SRK (2019)	Commitment met.	In addition to chain of custody, field notes should record where sample was filtered (i.e., in field).
	Seep samples collected will be analyzed for water quality parameters outlined in Section 3.8 of the Plan.	Regional Seep Monitoring Plan – Phase 3	Commitment met.	-
	When possible, flow measurements will be taken at each location at time of sample, when safe to do so, at each seep sites following the Teck Coal Flow Monitoring Protocol.	Regional Seep Monitoring Plan – Phase 3	Commitment met.	-
	Direction of flow of the seeps will be noted in the field sheets, to help with mapping and track possible changes to seep water quality.	Regional Seep Monitoring Plan – Phase 3 SRK (2019)	Commitment met.	-

Category	Commitment	Source	Implementation Review	Additional Recommendations
		EMLI Review (April 2019)		
	Observations of calcite presence will be noted in the field sheets, if observed at seep locations.	Regional Seep Monitoring Plan – Phase 3 EMLI Review (April 2019)	Commitment met.	-
New Seep Identification	General site surveys will be conducted annually to identify any new seeps.	Regional Seep Monitoring Plan – Phase 3 EMLI Review (April 2019)	Commitment met.	In addition, targeted site surveys should be conducted in areas where seeps have been covered by mined out material, or dry for two consecutive years, or where new areas have been covered by mined out material of where water management practices have significantly changed.
	Newly identified seeps will be sampled (or attempted to be sampled) two times in the first year, once during high flow (freshet) and once during low flows (October).	Regional Seep Monitoring Plan – Phase 3	Commitment met.	-
QAQC	Data will be reviewed immediately upon receipt from the laboratory to rectify any discrepancies to initiate resampling is required.	Regional Seep Monitoring Plan – Phase 3	Commitment met.	-
	Teck’s data quality objectives (DQOs) are implemented.		Commitment met.	-

Sources: Compiled in text

4 Quality Assurance/Quality Control

Teck provided quality control data to SRK which were reviewed with reference to the QA/QC program in the Plan and using SRK's internal chemical analysis quality control systems.

4.1 Teck Data Quality Objectives

The Plan includes the following data quality objectives (DQOs) for screening duplicate samples:

- Category 1 – relative percent difference (RPD) less than 20% or RPD greater than 20% and results less than five times the detection limit. Samples pass screening with no further action required.
- Category 2 – RPD greater than 20% and less than 50% with results greater than five times the detection limit. Samples pass screening after follow-up with the lab to investigate should variance continue to be between 20% and 50%.
- Category 3 – RPD greater than 50% with results greater than five times the detection limit. Sample fails screening and is not suitable for quantitative use. If variance greater than 50% continues, follow-up with lab is required to investigate.

An RPD of 50% for concentrations greater than five times the detection limit (i.e., Category 2) was used to evaluate data validity. Since only three years of data are available, variance to warrant laboratory follow-up was not evaluated.

4.2 SRK QA/QC Procedures

In addition to the QA/QC procedures established in the Plan, SRK applied the following QA/QC procedures, which were used to evaluate data quality:

- Differences between field and lab pH – corresponding values should be within one pH unit.
- Difference between field and lab conductivity – samples should have an RPD less than 30%.
- Difference between total and dissolved metals – for parameters greater than 10 times the detection limit, RPD should be ±30%.
- Ion balances – for electrical conductivity (EC) greater than 100 micro siemens per centimeter (μS/cm), percent difference should be ±10%.

4.3 QA/QC Review Results

Findings of the QA/QC review are provided in Table 4.1 and Table 4.2 below.

Table 4.1: Summary of Blanks and Duplications QA/QC review

QC Test	QC Criteria	Parameters	Results
Trip Blank (n=8), (n=1) for Organics[4]	<2XDL		Nitrogen, Ammonia (as N) failed as it's >2X DL. pH, Lab also failed as it is outside of the pH range >6 pH units.
Field Blanks (n=7), (n=1) for Organics4, BOD	<5X DL		All passed. Data accepted
Paired Field Duplicates (n=10), (n=3) for Organics[4], (n=1) for BOD, (n=0) for pH	<20% RPD, <5X DL= Pass Cat 1[5]; >20% RPD and <50% RPD, >5X DL=Pass Cat 2[6]; >50% RPD and >5X DL= Fail[7]. For pH within +/-1 pH unit.	Physical Test[1], Anions and Nutrients[2], Carbon[3], Organics[4], Metals	Failed (in pairs): 1 for Alkalinity, Bicarbonate (as CaCO3), 1 for Alkalinity, Carbonate (as CaCO3), 1 for Alkalinity, Hydroxide (as CaCO3), 1 for Mn-T and 2 for Turbidity, Lab. For Pass Cat 2 (in pairs): 1 for acidity to pH 8.3 (as CaCO3), 1 for Cd-T, 1 for Mn-T, 4 for Oxidation-Reduction Potential, Lab, 1 for Se-D and 1 for Turbidity, Lab. The rest are Pass Cat 1.

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task100 Ongoing QA Review\QAQC_2020_Seep_WQ_mlt_rtc_amd_rev01.xlsx

[1] pH, ORP, Conductivity, TDS, TSS, Turbidity

[2] Acidity 8.3, Total Alkalinity, Bromide, Chloride, Fluoride, Nitrate, Nitrite, Ammonia, Ortho-Phosphate, Phosphorus, Sulfate, TKN, BOD

[3] DOC, TOC

[4] 2-MethylNaphthalene, Acenaphthene, Acenaphthylene, Anthracene, Acridine, Benzo(A)Anthracene, Benzo(A)Pyrene, Benzo(B&J)Fluoranthene, Benzo(G,H,I)Perylene, Benzo(K)Fluoranthene, Chrysene, Dibenz(A,H)Anthracene

[5] No action required. Data point is considered validated. For samples <5X DL, no action required. Measurement is not considered quantitively meaningful.

[6] Data point is validated but does have reasonable variance.

[7] Data point is not validated and is not suitable for quantitative use.

Table 4.2: Summary of Sample Results QA/QC review

QC Test	QC Criteria	Parameters	Results	Data Accepted
Lab vs. Field pH	Difference should not be greater than 1 pH unit	pH	11 of 150 samples failed. Field pH is generally lower than lab pH. 93% overall pass.	Yes
Lab vs. Field	% RPD within+/-30%	Conductivity	3 of 150 samples failed. Field EC is generally lower. 98% overall pass.	Yes
Total vs. Dissolved Metals	>10X DL should be +/-30% RPD	Elemental scan	1 of 197 samples failed for Cd, Pb, Li, Mn, Hg and Zn. 2 of 197 samples failed for Mo. 8 of 202 samples failed for Se. 96%-99.5% overall pass.	Yes
Ion Balance	EC>100 µS/cm, % difference should be within +/-10%	Cations and Anions	All 197 samples passed.	Yes

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task100 Ongoing QA Review\QAQC_2020_Seep_WQ_mlt_rtc_amd_rev01.xlsx

4.3.1 Duplicates and Blanks

There were ten paired field duplicates, representing 7% of all samples collected compared to a target of 10%. There were 15 field blank samples (approximately 11% of the total samples collected compared to a target of 10%) where a full suite of parameters was available for QA/QC. A summary of QA/QC samples collected during for the 2020 RSMP are in Table 4.3.

Table 4.3: QA/QC sample summary by operation

Operation	Field Blanks		Field Duplicates		Total Samples	
	High Flow	Low Flow	High Flow	Low Flow	High Flow	Low Flow
FRO	1	1	3	3	23	16
GHO	0	1	0	1	12	9
LCO	1	1	1	1	11	7
EVO	2	0	2	0	18	16
CMm	2	2	2	2	16	15
TOTAL	**6**	**5**	**8**	**7**	**80**	**63**

Sources: compiled in text.

4.3.2 Field Parameters

Field pH

Review of the 2018 – 2020 seepage dataset identified three samples with field pH measurements below 6:

- EV_SEEP_10MILE9 during 2018 high flow: 5.92 field, 8.23 lab.
- EV_SEEP_10MILE9 during 2020 high flow: 5.94 field, 7.66 lab.
- FR_STPWSEEP during 2020 high flow: 4.74 field, 8.43 lab.

None of the three samples showed other indicators of acidity and did not coincide with high metal concentrations (e.g., aluminum, iron, cadmium, cobalt, nickel, zinc). Sulfate readings at EV_SEEP_10MILE9 were dilute (less than 13 mg/L). Sulfate concentrations at FR_STPWSEEP also did not increase with the low field pH measurement and remained within the historical range (250 mg/L – 360 mg/L).

Field pH at EV_SEEP_10MILE9 may be decreasing over time in Figure 4.1, therefore all field pH readings at EV_SEEP_10MILE9 were included in any subsequent analysis. The low field pH reading taken at FR_STPWSEEP during 2020 high flow sampling is considered to be erroneous, as all other readings at this seep have been between 7 and 8. Field pH at the two above-mentioned seeps is shown in Figure 4.1.

Dissolved Oxygen

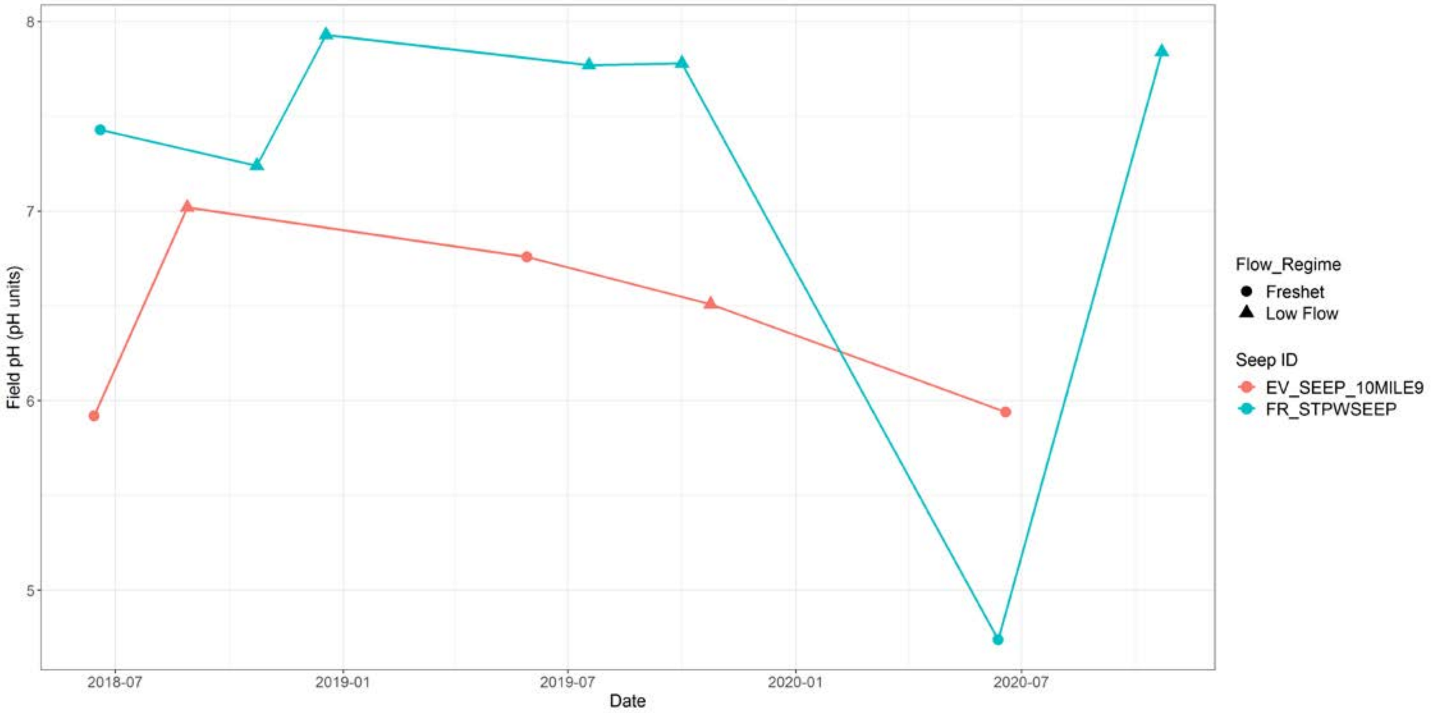
Oxygen solubility is dependent on several factors, including temperature, barometric pressure, salinity, and biological activity (e.g., photosynthesis, decomposition). For reference, the amount of dissolved oxygen at 100% saturation at sea level (i.e., 1 atm) varies between 8.0 mg/L (at 26°C) to 14.6 mg/L (at 0°C), which is the temperature range measured in the 2018 – 2020 seepage dataset. A threshold of 14.6 mg/L for field DO was applied to the 2018 – 2020 seepage dataset to identify any seeps with above expected field DO readings.

In Figure 4.2, most seeps with a field DO above 14.6 mg/L were reported at CMm and there is a general indication that DO readings at CMm are atypically higher than at the other sites even when below 14.6 mg/L. One field DO above 14.6 mg/L was reported at FRO in 2020. Field DO readings above 14.6 mg/L may indicate that field meters are not working correctly, require re-calibration, or require more time to reach a steady reading while being used in the field to measure DO. Both fields DO in mg/L and % saturation should be measured when sampling a seep to further improve QA/QC of this field parameter.

4.3.3 QA/QC Conclusion

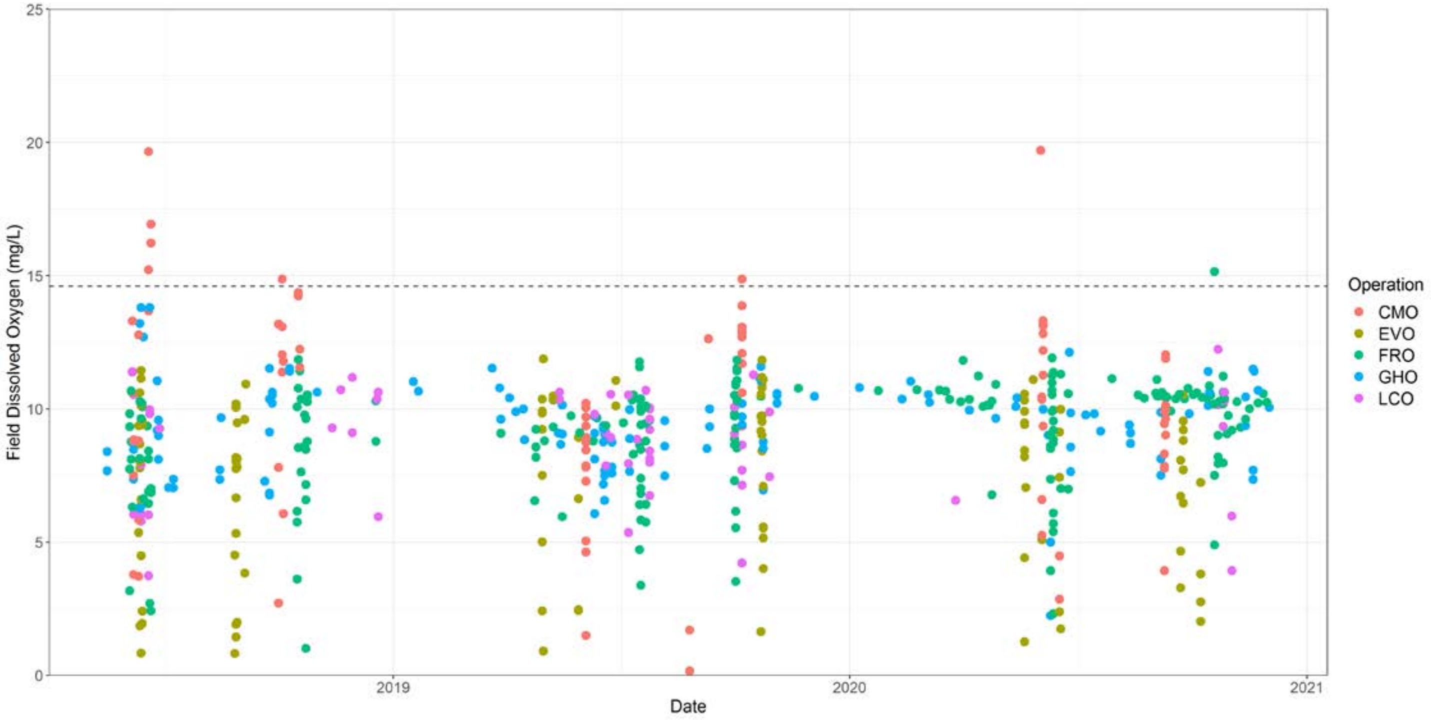
It is SRK’s opinion that data quality is acceptable for the purpose of 2020 annual reporting. Field duplications did not the reach the DQO target of 10%, field blanks did reach the DQO target of 10%.

Figure 4.1: Measured field pH timeseries at EV_SEEP_10MILE9 and FR_STPWSEEP



Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\WQ Graphs\WQ_Timeseries_Graphs.Rmd

Figure 4.2: Field dissolved oxygen for QA/QC review



Sources: "\\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\WQ Graphs\WQ_Timeseries_Graphs.Rmd"

Notes: The horizontal dashed line at 14.6 mg/L represents the upper limit for expected field DO measurements.

5 Review Methods

The purpose of review in this report was to establish consistency with the selection criteria used in SRK 2019 and 2020 and stability in results. This was achieved by comparing the samples collected in 2020 against the same seeps sampled in 2018 and 2019. Factors such as year to year precipitation should be considered in terms of impact to flow and constituent load from seeps when looking at results to establish stability in results. Within a small dataset comprised of two samples each year over three years, natural variability can exaggerate the scale of small changes. Continued sampling for the RSMP will allow the characterization of baseline conditions and for the detection of any potential trends in the the data.

Now that three years of samples have been collected for the RSMP at select locations, an initial geochemical review was conducted to understand the controls on solubility, effects of low-oxygen conditions, and downstream attenuation on seepage and downstream water quality.

In the 2019 RSMP annual report, results were reported for field pH, sulfate, dissolved selenium, nitrate as nitrogen (nitrate-N), dissolved cadmium, dissolved cobalt, and dissolved nickel. The review for stability of results for the 2020 RSMP annual report was completed for same abovementioned parameters and in addition for nitrite as nitrogen (nitrite-N), total dissolved solids (TDS), dissolved antimony, dissolved molybdenum, and dissolved uranium.

5.1 Comparison to Previous Years

5.1.1 BCWQGs Comparison

Seep water quality results were screened against the British Columbia Water Quality Guidelines (BCWQG) for Freshwater Aquatic Life (FWAL) (ENV 2019, 2021). The purpose of screening seep water quality results against the FWAL BCWQG is to identify seeps with changing water quality that may impact the downstream receiving environment. Seeps with changing BCWQG categorization may indicate where further monitoring or water management may need to be considered.

Seeps were highlighted if the BCWQG screening categorization for pH, sulfate, nitrate-N, nitrite-N, dissolved cadmium, total Co, total molybdenum, total nickel, total selenium, or total uranium changed. The BCWQG screening guidelines are presented in Table 5.1.

Table 5.1: BC Water Quality Guidelines for Freshwater Aquatic Life

Parameter	Unit	BCWQG FWAL		Notes
Field pH	pH units	Minimum Maximum	6.9 9	- -
Sulfate	mg/L	Chronic	Hardness dependent	-
Nitrate-N	mg-N/L	Chronic Acute	3 32.8	- -
Nitrite-N	Mg-N/L	Chronic Acute	Varies by chloride concentration	- -
Dissolved Cadmium	mg/L	Chronic Acute	Hardness dependent	- -
Total Cobalt	mg/L	Chronic Acute	0.004 0.11	- -
Total Molybdenum	mg/L	Chronic Acute	1 2	- -
Total Nickel	mg/L	Chronic	Hardness dependent	Working Guideline
Total Selenium	mg/L	Chronic:	0.002	-
Total Uranium	mg/L	Chronic:	0.0085	Working Guideline

Sources: ENV 2019 and ENV 2021

Appendix B shows water quality for each seep compared to the current Approved and Working FWAL BCWQGs. Appendix C summarizes any year-to-year and seasonal FWAL BCWQG categorization changes.

5.1.2 Water Chemistry Criteria Comparison

During seep prioritization in SRK (2019), seeps were categorized based on the ratio of Zn/Cd and sulfate concentration to estimate source conditions related to the Morrissey Formation (MF). Parts of the MF are known to be potentially acid-generating (PAG) and seeps showing possible MF influences may indicate areas where future changes in water quality might be expected. Seeps with a Zn/Cd above 200 mg/mg and sulfate concentration greater than 100 mg/L are considered to have possible MF influences.

During the 2019 seep prioritization, seeps were also classified as suboxic or oxic based on the sulfate concentration and ratio of Se/SO_4. The ratio Se/SO_4 was used to evaluate the influence of low-oxygen conditions on seeps originating from waste materials. Based on experience primarily with evaluating waters in saturated backfills, Se/SO_4 of about $1x10^{-4}$ mol/mol represents dominantly oxidizing conditions and is consistent with the typical characteristics of unsaturated oxidizing waste rock. In comparison, ratios below $1x10^{-5}$ mol/mol are considered to show selenium attenuation under oxygen-deficient conditions which can include backfills, reject spoils, suboxic zones in waste rock or along groundwater flow pathways.

Seeps with a sulfate concentration greater than 500 mg/L and a Se/SO_4 less than $1x10^{-5}$ mol/mol are considered suboxic. Seeps where the oxidation or MF influence classification has changed between

2019 and 2020 were highlighted in the results section for each operation (Section 7). Changes in classification may be an early semi-quantitative indication of trending; however, several more years of data collection will be necessary to assess if these are indications of seasonal or long-term trends.

5.1.3 Water Quality Comparison

The Coefficients of Variation (CV) for each seep's concentrations and loadings were calculated to evaluate stability of results. The CV, also known as the relative standard deviation (RSD), is a standardized measure of dispersion of a probability distribution. Because the seep database consists of a maximum of 6 samples per seep, CVs were chosen as a means to rank seeps within an operation based on the relative variability of concentrations and loadings. More traditional statistical trending analysis such as Mann-Kendall trend analysis requires more years of data and more frequent sampling.

CV is the ratio of the sample standard deviation ($\boldsymbol{s}$) to the mean ($\bar{\mathbf{x}}$). CVs are calculated from:

$$\mathbf{CV} = \frac{\mathbf{s}}{\bar{\mathbf{x}}}$$

When comparing CVs between parameters of the same unit, variability is represented as relatively large CV values when compared to the average CV of a database. Therefore, when comparing CVs between seeps, CVs are a standardized method to rank seeps based on relative variability and to potentially identify seeps for further evaluation. In addition, relatively large CV values may indicate increasing or decreasing trending or seasonality.

CVs were calculated for nitrate-N, nitrite-N, sulfate (as SO_4), TDS, dissolved antimony, dissolved cobalt, dissolved cadmium, dissolved molybdenum, dissolved nickel, dissolved uranium, and dissolved selenium. CVs were calculated based on the water quality results and the estimated loadings for each seep.

5.1.4 Loading Comparison

To calculate loads and subsequently loading CVs, both concentrations and flow estimates are required. Loading results are presented to identify if differences in loadings from individual seeps have changed from year to year resulting from changes in flow or water chemistry.

Flow estimates were taken during the field surveys following the Teck Coal Flow Monitoring Protocol. However, due to the often-diffuse nature of seeps, flow measurements are inherently imprecise. In many cases, it is not possible to capture flow from the whole seep in one measurement. In addition, because seep flows are only measured during seepage surveys, it is difficult to determine if the measured flow is representative of "low" or "high" flow conditions in the annual hydrological cycle at each location. Therefore, loadings calculated here should be regarded as semi-quantitative.

5.2 Year to Year and Seasonal Trends

After the 2020 sampling RSMP, the 2018 – 2020 dataset will consist of ideally up to three samples collected in each of the low and high flow periods allowing for an initial review of seasonality and trending. A visual qualitative review of time trends in concentrations and a qualitative comparison of high and low flow sample sets was conducted. A statistical evaluation such as Mann-Kendall trend analysis was not possible due to the temporal limit on the dataset, however, this approach will be considered in future reports when more samples have been collected.

Summaries of parameters of interest with year to year and seasonal patterns are discussed by operation in Sections 7.1 through 7.5.

5.3 Geochemical Review Metrics

As the RSMP dataset has expanded, it is now possible to investigate geochemical controls on water chemistry and the potential sources of loadings. These interpretations may inform the regional water quality model, operation specific water and load balance models, and research and development for management of water quality.

For the cumulative dataset through 2020, the following methods were used to evaluate the data:

- Understanding of solubility controls:
  - Cross plots of metal concentrations with pH to evaluate pH as a solubility control. Metal concentrations are generally correlated with pH. Metals are more mobile in lower pH environments (pH < 6) and metal concentrations decrease as pH increases.
  - PHREEQC (Parkhurst and Appelo 1999) to evaluate solubility controls by interpretation of saturation indices and calcite controls. Metals such as cadmium, cobalt, manganese, zinc, and nickel to a lesser extent may be attenuated through co-precipitation with calcite. PHREEQC modelling methods are described in more detail in subsection 5.3.1.
- Effect of Low Oxygen Conditions
  - Cross plots of metal concentrations with DO to evaluate the solubility of redox sensitive species that may correlate with measured DO concentrations. Reduction of iron and manganese is expected in reducing environments, which may release iron and manganese through reductive dissolution of oxyhydroxides. Other metals (e.g., cobalt, nickel, and zinc) that are adsorbed or co-precipitated with iron and manganese minerals may also be released.
  - Cross plots of Se/SO_4 with DO to evaluate the linkage between the development of suboxic conditions and DO. The expectation is that Se/SO_4 will be lower when DO is lower as a result of reductive processes that remove oxygen and convert selenium to less mobile forms. As previously described in Section 5.1.2, the ratio Se/SO_4 can be used to determine if a seep originates in low oxygen conditions.
  - Comparison between seeps and downstream locations might give an indication if there are suboxic conditions that are subsequently lost to dilution and mixing from other sources further

  downstream. Box and whisker plots of suboxic indicator ratios for seeps were compared to permitted surface water downstream monitoring locations.

- Downstream Attenuation
  - Cross plots of metal concentrations with sulfate for seeps in comparison to downstream permitted surface water monitoring locations. Sulfate is assumed to be a conservative tracer because it is unlikely to be attenuated along the flow path from the source (i.e., seep) to the downstream monitoring location. Metal concentrations as a function of sulfate concentrations for seeps were compared to the corresponding permitted surface water downstream monitoring locations. This comparison may indicate whether dissolved metals from the seep are attenuated along the flow path (e.g., sequestration through calcite precipitation).

Discussion of overarching controls or trends across all operations are provided in Section 5.3.1. Discussions of controls and trends pertaining to individual sites, seep groups, and seeps are provided in Sections 7.1 through 7.5, divided by operation.

5.3.1 PHREEQC Modelling Methods

Saturation indices (SI) for gypsum ($CaSO_4 \cdot 2H_2O$), calcite ($CaCO_3$), and ferrihydrite ($Fe(OH)_3$) were modeled using PHREEQC with the minteq.v4 database. Gypsum is considered due to its potential to control sulphate concentrations. Calcite is important in evaluating the potential for calcite concretions to form, and ferrihydrite can help with understanding disequilibrium with oxygen and potential for sequestration of metals. Modelling inputs included field pH, oxidation reduction potential (ORP) (corrected to Eh), and temperature. Seeps that did not include a field ORP measurement were not modelled. All remaining seeps had field pH and field temperature measurements. Concentrations that were below the detection limit were modelled using the detection limit concentration.

An SI value of zero conventionally indicates the mineral is at equilibrium (neither forming or dissolving), however, this might change due to dilution, dissolution of other minerals and changes in the gas phases. An evaluation of calcite precipitates and water chemistry in the Elk Valley shows that calcite has a practical SI reference value of 0.6 (i.e., an SI of 0.6 is needed before calcite will precipitate). This is thought to be due to the slow kinetics of calcite nucleation resulting from dissolved magnesium in the waters. Therefore, waters with modelled calcite SIs of 0.6 were considered at equilibrium and any seeps below or above the reference value were considered to be undersaturated or supersaturated, respectively. If supersaturated, the seep has the potential to precipitate calcite.

No gypsum or ferrihydrite SI reference values have been established for the Elk Valley. It was assumed that seeps with gypsum or ferrihydrite SIs below -0.5 indicated undersaturation, values between -0.5 and 0.5 indicated near equilibrium, and values above 0.5 indicated supersaturation.

6 Regional Seepage Geochemical Interpretation

6.1 Seasonality and Year-on-Year Trends

Based on a qualitative visual review of water quality timeseries, no consistent seasonality or year-on-year trends were identified across all seeps at any one operation or across the Elk Valley as a whole. From the qualitative visual review, some individual seeps were identified to be showing potential seasonality or year-on-year trends and are summarized in the operation-specific sections below (Section 7). Water quality timeseries will be re-examined for potential seasonality and year-on-year trends as more samples are collected. Water quality timeseries for field pH, nitrate-N, nitrite-N, sulfate, TDS, antimony, cobalt, cadmium, molybdenum, nickel, uranium, and selenium are in Appendix A.

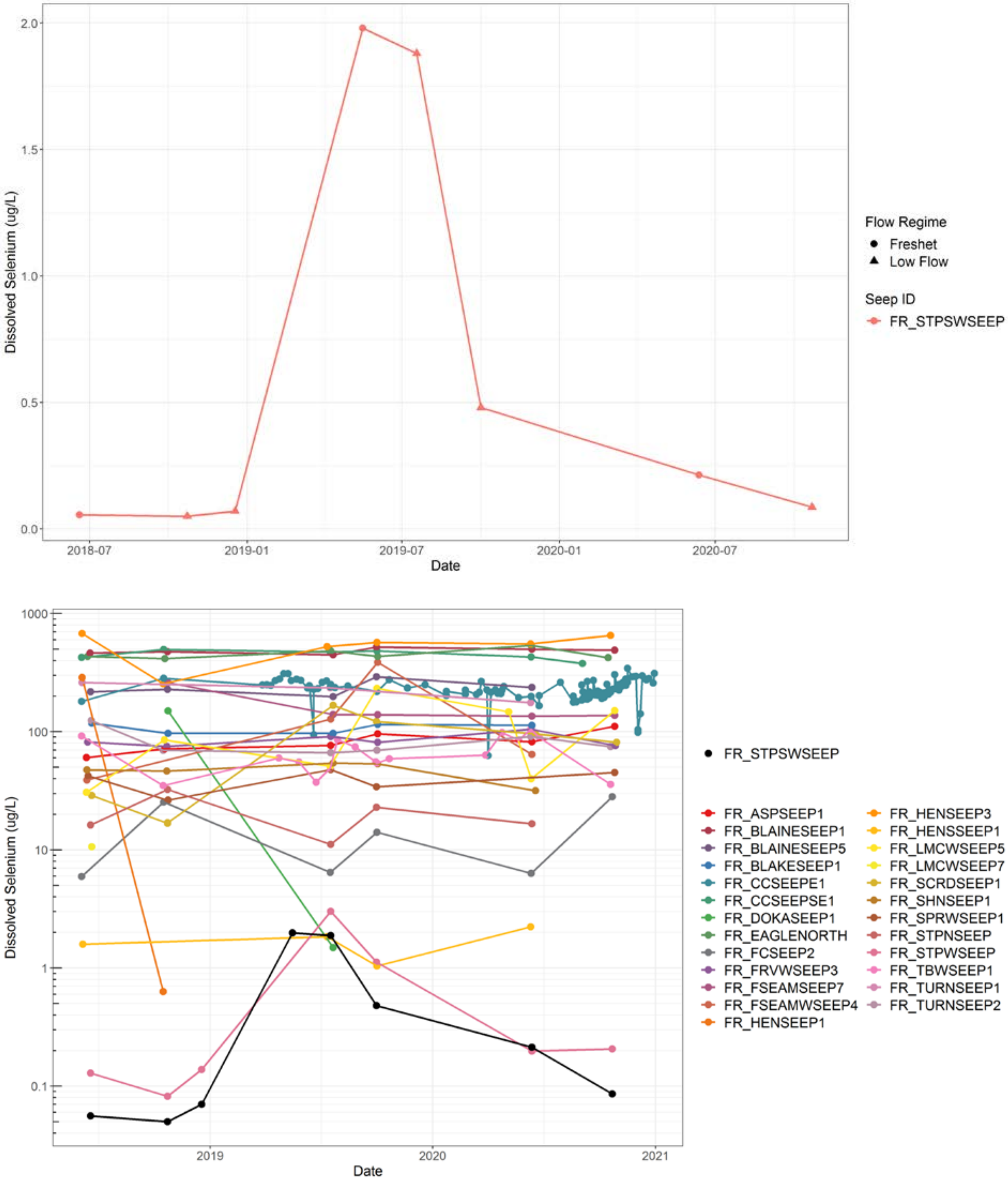
Coefficients of variation were tested as a tool to potentially identify seeps with relatively high variability in concentrations and loadings and to establish stability in results. However, some limitations of CV analysis have been identified, including:

- CV analysis was found to be skewed by small concentrations close to zero for parameters such as selenium.
- CV results were not a reliable identifier of seasonality or year-on-year trends.

In addition, some seeps are missing one or more samples from the past six sampling events. These seeps were excluded from CV analysis because missing samples resulted in skewed CV results. Removing seeps with less than six samples resulted in a reduced sample set over which to compare CVs for each site.

The following figures provide examples of the above-mentioned limitations of CV analysis. The dissolved selenium concentrations at FR_STPSWSEEP ranged between 0.05 and 2.0 µg/L around an average of 0.55 µg/L in Figure 6.1. Because the average dissolved selenium at FR_STPSWSEEP is close to the detection limit, small concentration changes result in a large CV value at this seep. FR_ STPSWSEEP has a selenium CV of 135 while the average selenium CV across FRO is 48.

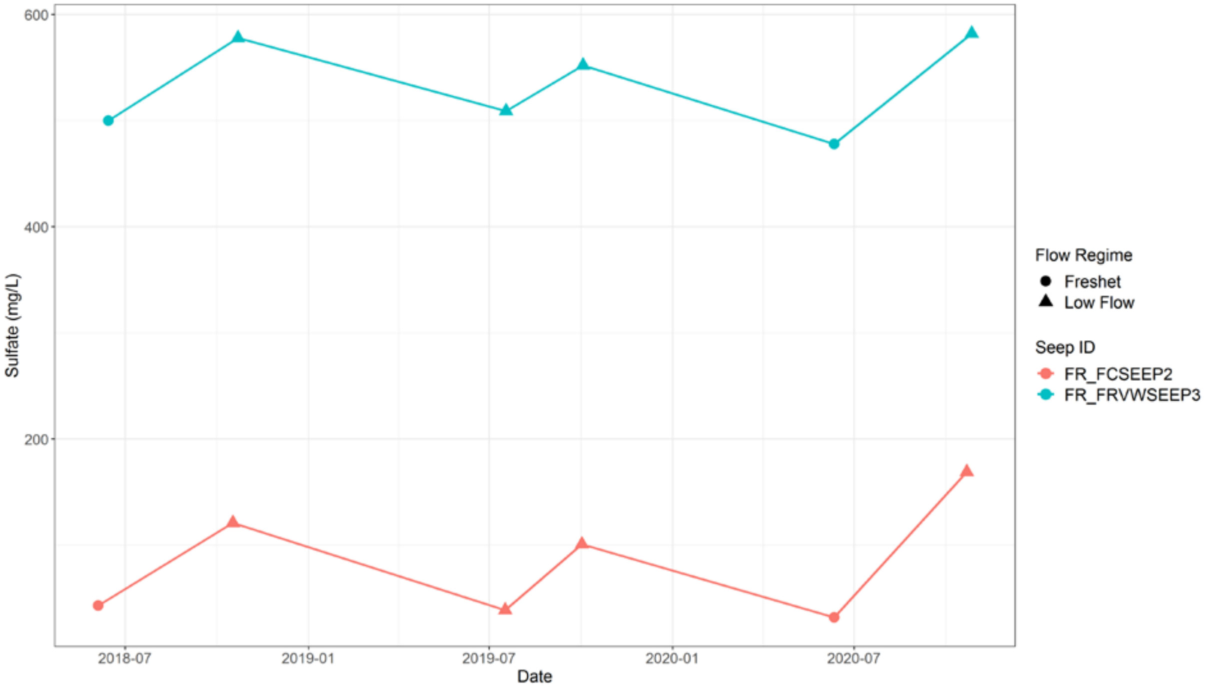
Figure 6.1: FRO seep FR_STPSWSEEP dissolved selenium timeseries compared to dissolved selenium across FRO seeps



Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\WQ Graphs\WQ_Timeseries_Graphs.Rmd

FR_FRVWSEEP3 has a sulfate CV of 9, whereas FR_FCSEEP2 has a sulfate CV of 66. The average sulfate CV across FRO is 27. Sulfate ranges between 478 and 582 mg/L at FR_FRVWSEEP3 (a range of 95 mg/L) and between 32 and 169 mg/L at FR_FCSEEP2 (a range of 137 mg/L). When comparing these two seeps based on sulfate concentrations in Figure 6.2, both seeps appear to show similar seasonality for sulfate. However, based on CV analysis, these two seeps have comparatively different sulfate variabilities which only reflects that FR_FSEEP2 shows a relatively greater seasonal range than FR_FRVWSEEP3 but not a difference in the general seasonal pattern.

Figure 6.2: FRO seeps FR_FRVWSEEP3 and FR_FCSEEP2 sulfate timeseries



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Based on the above-mentioned limitations of the CV analysis, CV analysis results will not be reported at this time. Statistical trend analyses such as Mann-Kendall or other non-parametric tests may be utilized as more seepage samples are collected.

6.2 Solubility Controls

6.2.1 pH

Across the Elk Valley, pH greater than 7 dominates in seepages due to the strong control exerted by dissolution of carbonate minerals. However, local influences of PAG materials can depress pH to below 6. pH measured in the seeps ranged from 6.5 to 9.5 except for two seeps (EV_SEEP_10MILE9 and FR_STPWSEEP; see discussion in Section 4.3.1). The low pH measurements reported at EV_SEEP_10MILE9 showed no other indicators of acidity such as relatively elevated metal or sulfate concentrations. Therefore, these low pH measurements are likely not influenced by local PAG materials.

The dominant circumneutral to alkaline pH measured in the seepages across the Elk Valley operations acts as a solubility control on several parameters. For example, uranium shows a qualitative positive correlation with pH in Figure 6.3. As pH increases, uranium is expected to increase (i.e., become more mobile). Selenium shows no qualitative correlation with pH in Figure 6.4. Therefore, changes to pH in the range observed across the Elk Valley are not expected to impact selenium mobility. Cobalt shows a qualitative negative correlation with pH in Figure 6.5. As pH increases, cobalt is expected to decrease (i.e., become less mobile). The graphs for uranium, selenium, and cobalt are examples of metals for which pH acts as a solubility control, detailed account of parameters impacted by pH are summarized by operation in Table 7.5, Table 7.8, Table 7.13, Table 7.17, and Table 7.21.

Seeps or seep groups that showed some correlation with pH as a solubility control are identified and described in the following sections split by operations (Section 7). Cross plots of metal concentrations with pH are in Appendix G.

Figure 6.3: Uranium versus pH across Elk Valley

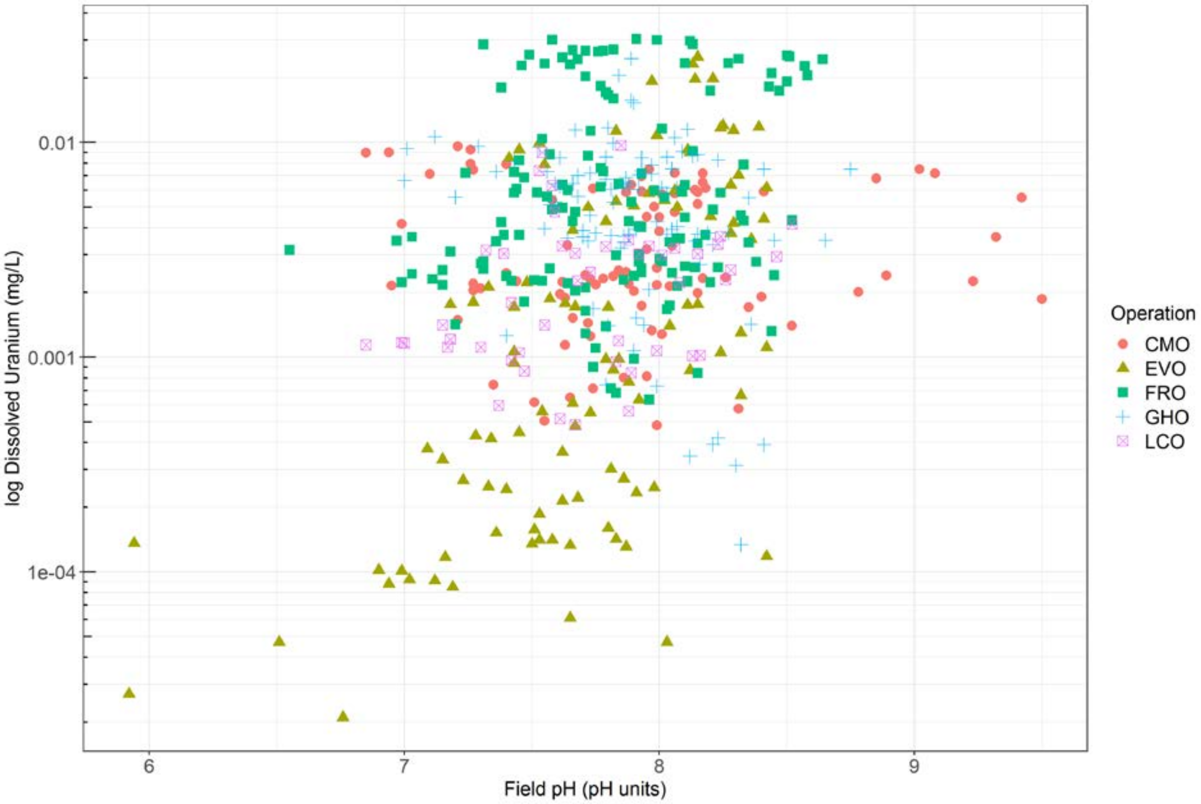

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Figure 6.4: Selenium versus pH across Elk Valley

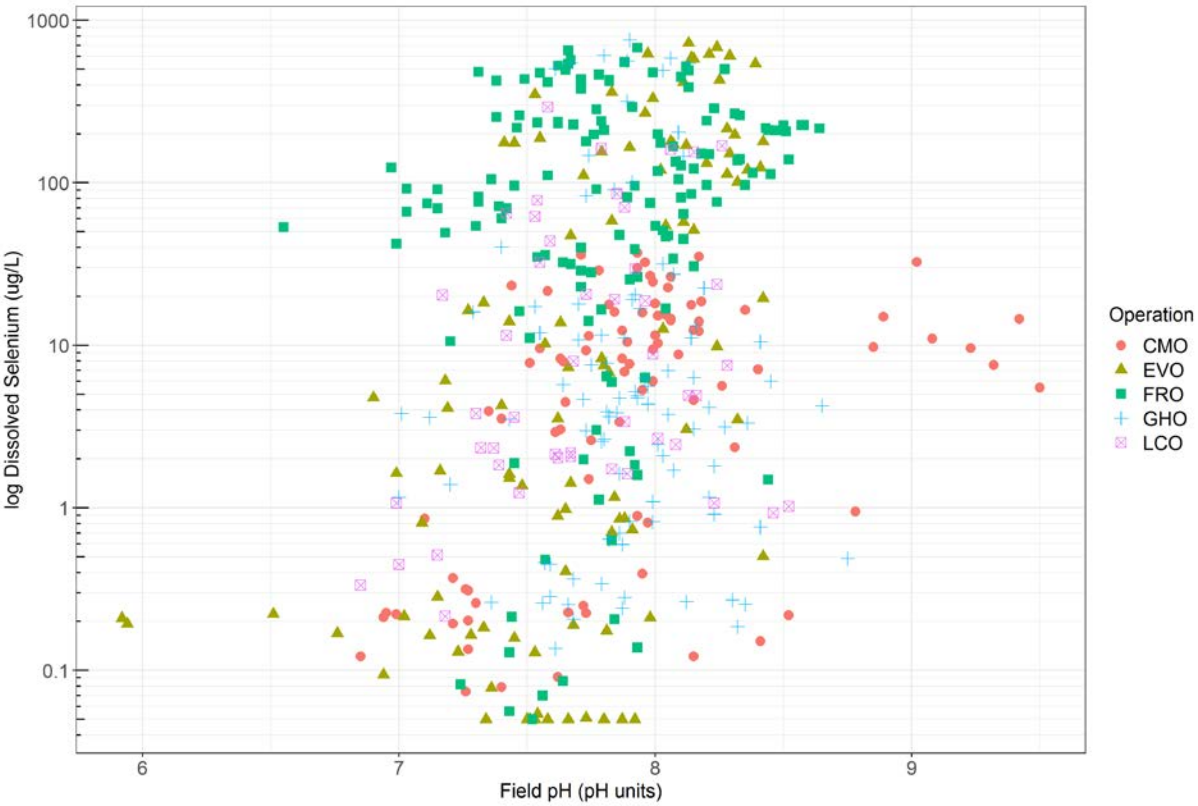

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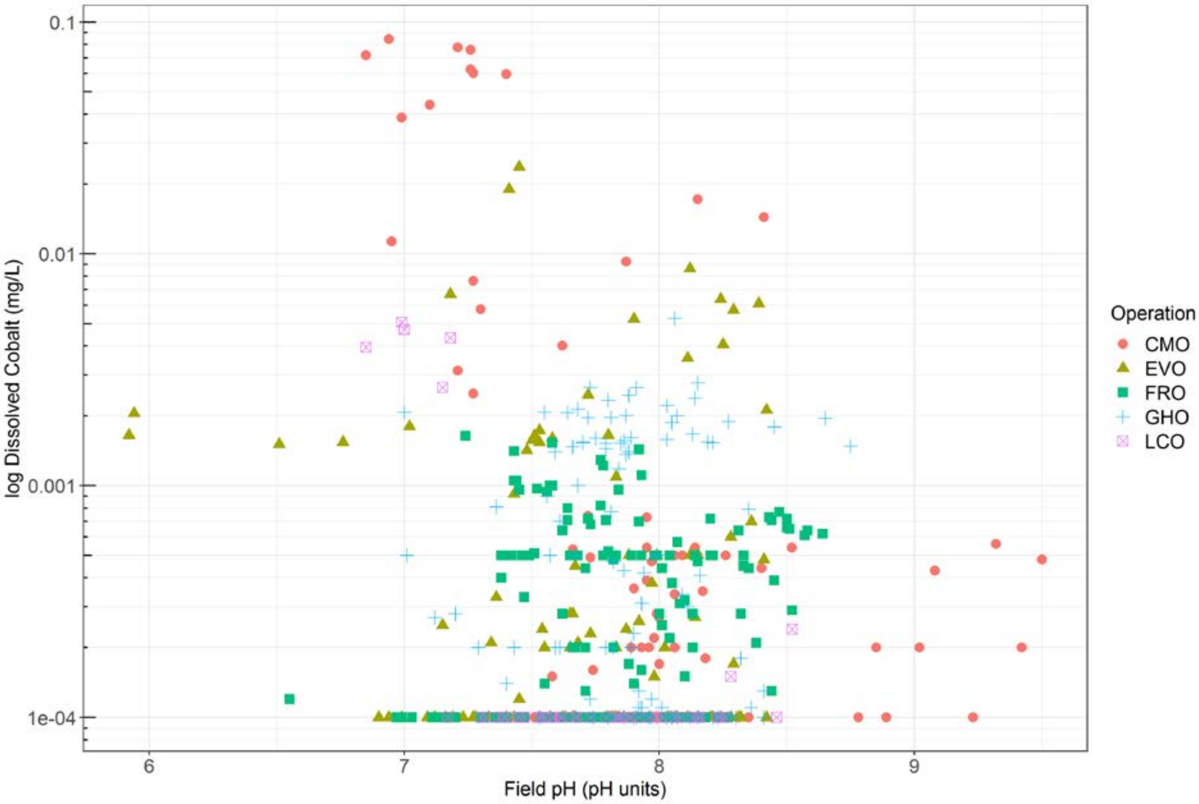
Figure 6.5: Cobalt versus pH across Elk Valley



Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\WQ Graphs\WQ_CrossPlots_Graphs_amd_rev0.Rmd

6.2.2 Mineral Saturation Indices

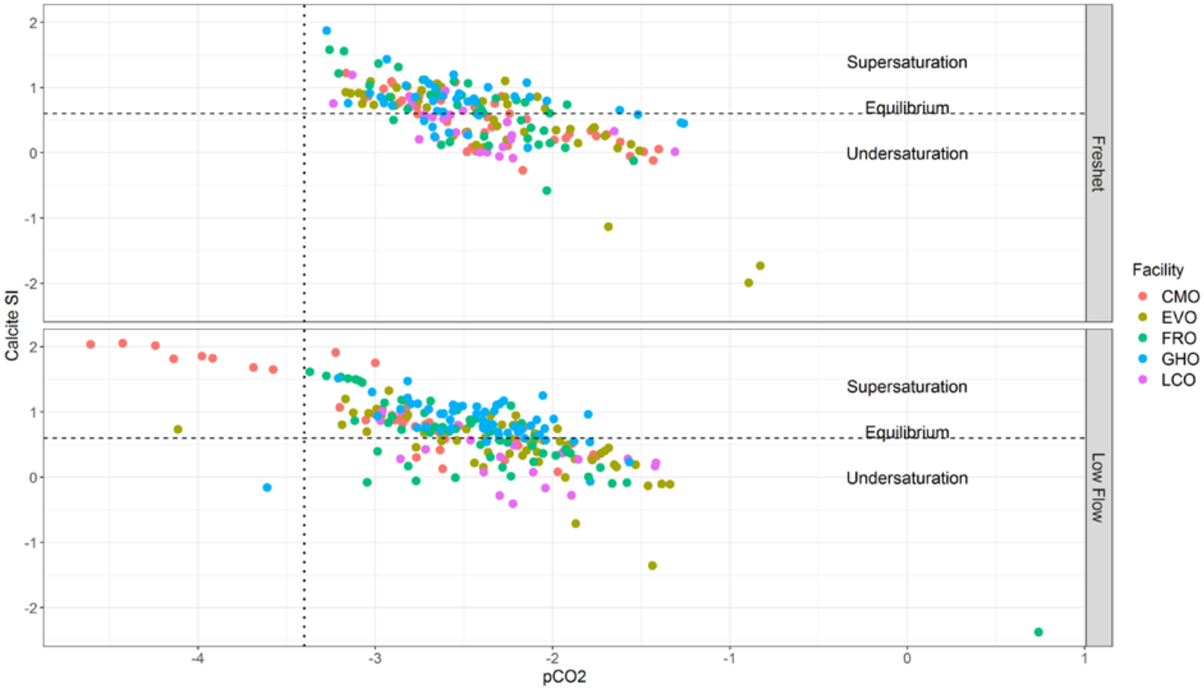
Across the Elk Valley, 76% of seeps had modelled calcite saturation above 0.6, indicating supersaturation (precipitation may be occurring), for one or both flow regimes. Calcite SIs during low flow were generally higher than in high flows reflecting the more dilute conditions resulting from snowmelt. Across all operations, calcite saturation for 15% of seeps changed seasonally in 2020. Seasonal calcite saturation changes do not appear to coincide with other category changes (e.g., oxidation, MF influence). Just over half of seeps that had a seasonal change in calcite saturation changed from undersaturation during high flows to supersaturation during low flow (9% of all Elk Valley seeps). The remaining seeps seasonally changed calcite saturation in the opposite direction (7% of all Elk Valley seeps).

Figure 6.6 shows modelled calcite SI compared to modelled partial pressure of carbon dioxide (pCO_2). pCO_2 above $10^{-3.4}$ atm indicates CO_2 is over-pressurized (dashed vertical line in Figure 6.6). As seeps equilibrate with atmospheric pressure, pCO_2 will decrease along the flow path. pH will increase as a result and calcite may become supersaturated and precipitate.

Most seeps in the Elk Valley have $pCO_2 > 10^{-3.4}$. This is especially evident during high flows when all seeps have a pCO_2 above the $10^{-3.4}$ dashed line, indicating over-pressurization (top graph in Figure 6.6). Seeps at CMm appear to have the most dramatic change between high flows and low flows in Figure 6.6, these seeps have the largest difference in flow between the two sampling periods.

No seeps in the Elk Valley had a gypsum SI above zero, hence are not likely to precipitate gypsum. The majority of seeps (98%) are in equilibrium or supersaturated with ferrihydrite, which is a common finding for water with alkaline pH under dominantly oxidizing conditions. Plots generated from PHREEQC modelling are in Appendix I.

Figure 6.6: Modelled calcite SI compared to partial pressure of carbon dioxide across all operations in the Elk Valley



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Notes: The vertical dashed line indicates pCO_2 at atmospheric pressure ($10^{-3.4}$ atm). The horizontal dashed line indicates calcite equilibrium.

6.3 Effect of Low Oxygen Conditions

6.3.1 Dissolved Oxygen

Lower manganese concentrations tended to be associated with higher DO concentrations in Figure 6.7, whereas higher manganese concentrations were spread across the DO range measured during the seep sampling events. Qualitatively, a similar relationship between iron and DO was observed, but to a lesser extent because iron was not detected in many samples (Figure 6.8). This may indicate that manganese is acting as a redox buffer limiting iron reduction. Seeps did not show a correlation of concentrations of other metals with DO. Cross plots of metal concentrations with DO are in Appendix H.

Figure 6.9 shows the suboxic indicator ratio Se/SO_4 compared to DO measurements. There is a cluster of data points for which DO and Se/SO_4 are relatively elevated and scatter across the range of Se/SO_4 at lower DO. The scatter is generally consistent with expectations, it is conceivable that low Se/SO_4 can be present under a wide range of DO because water can reoxygenate after being reduced but it is less likely that higher Se/SO_4 can be present in suboxic waters. The criterium previously set by SRK (2019) for identifying suboxic conditions, where Se/SO_4 is less than $1x10^{-5}$ mol/mol, appears to continue to provide a useful indication of waters affected by suboxic conditions.

Figure 6.7: Manganese concentrations versus dissolved oxygen measurements across all operations in the Elk Valley

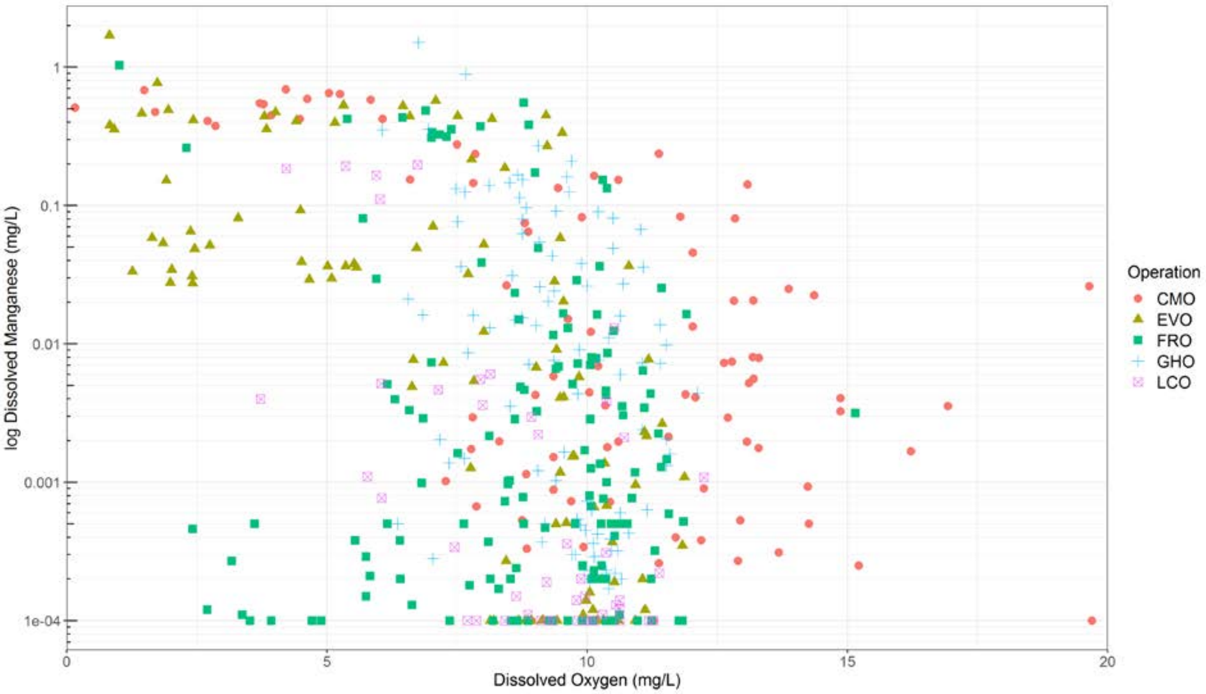

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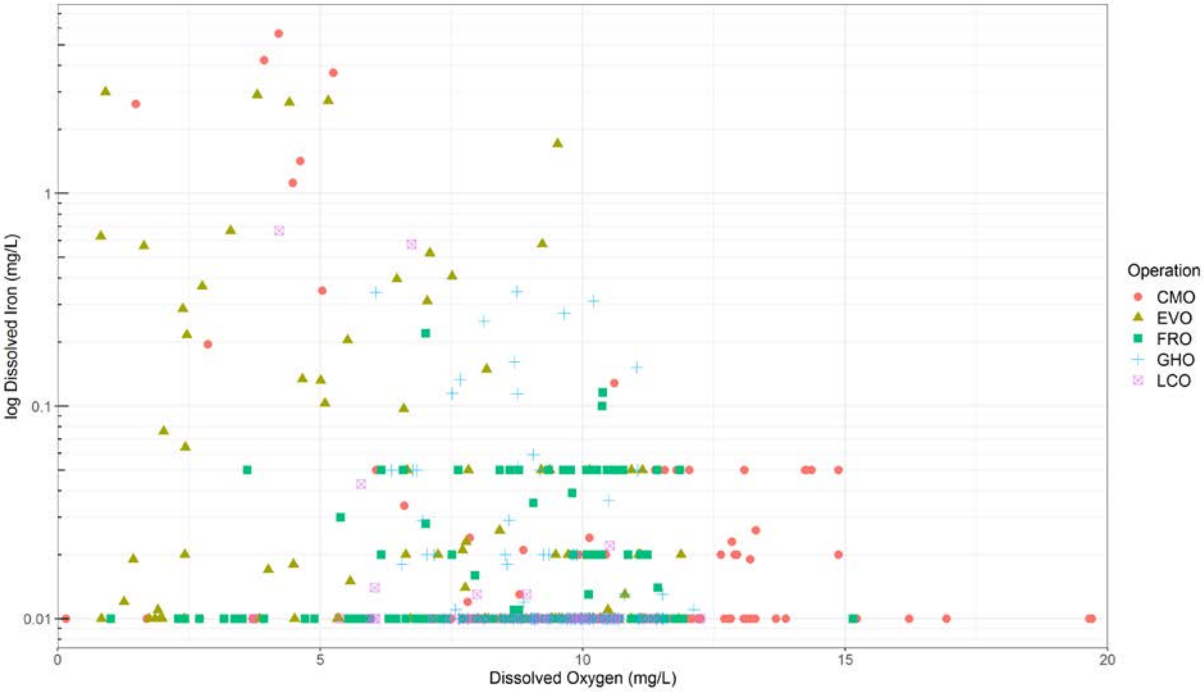
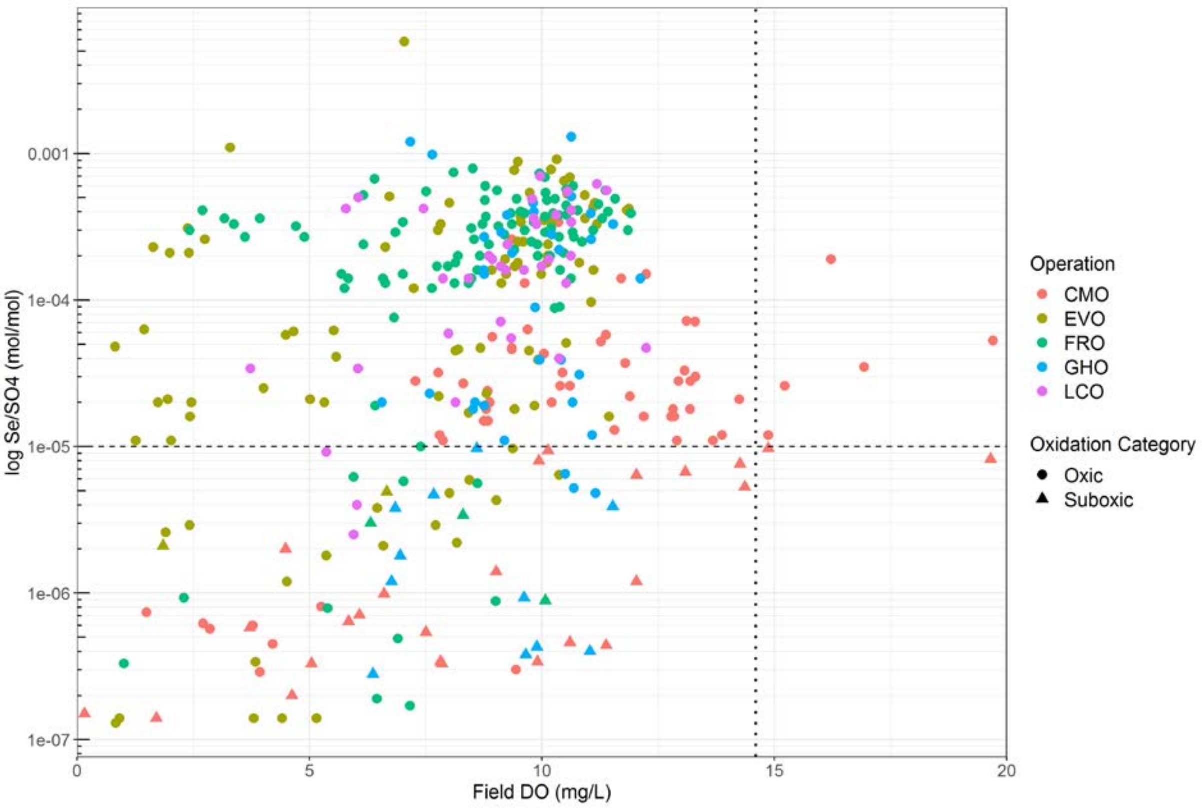
Figure 6.8: Iron concentrations versus dissolved oxygen measurements across all operations in the Elk Valley



Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\WQ Graphs\WQ_CrossPlots_Graphs_amd_rev0.Rmd

Figure 6.9: Se/SO_4 versus dissolved oxygen measurements across all operations in the Elk Valley



Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\WQ Graphs\WQ_CrossPlots_Graphs_amd_rev0.Rmd

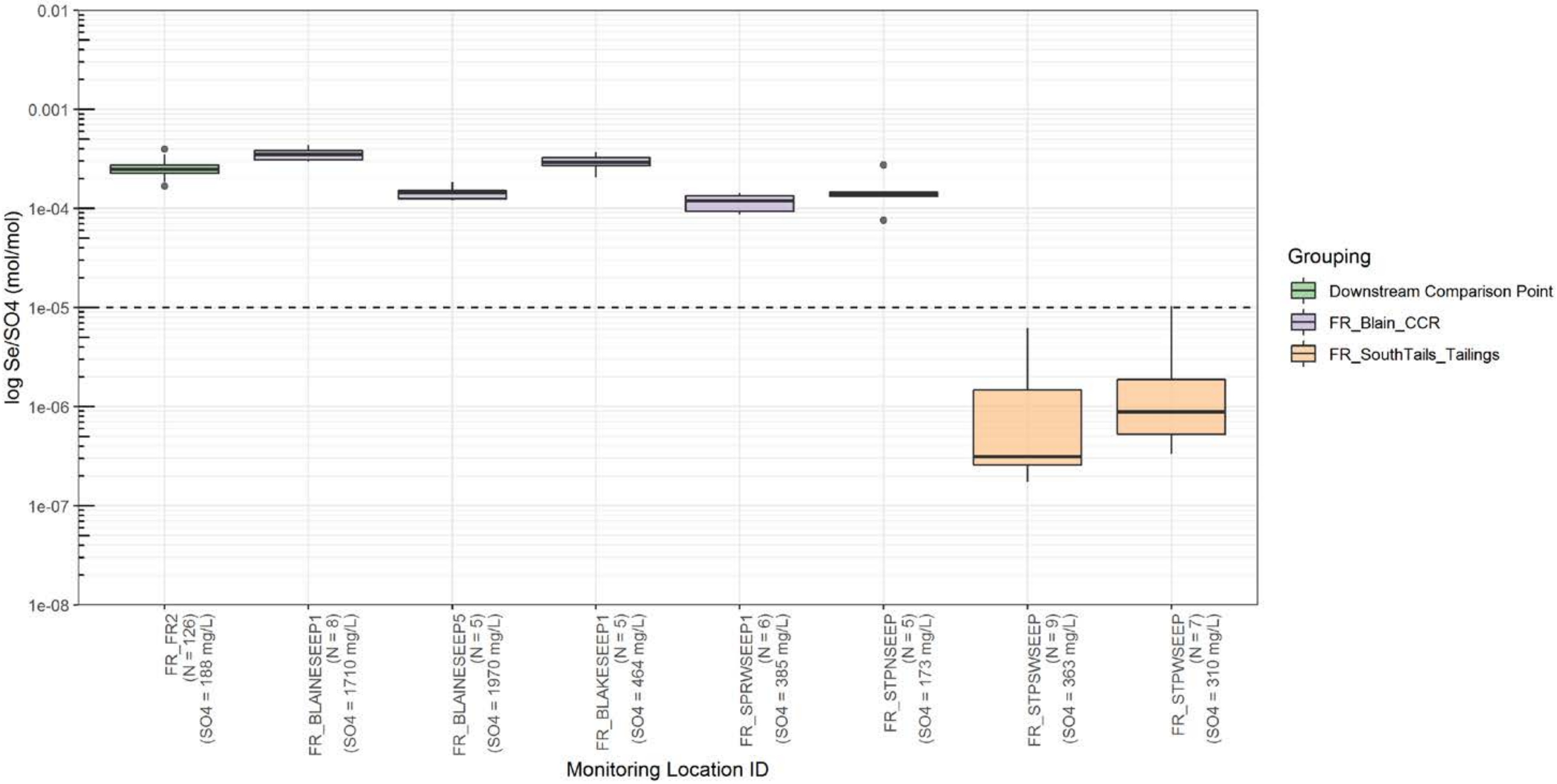
Notes: The horizontal dashed line delineates the Se/SO_4 criterium that is applied to categorize seeps as suboxic/oxic. The vertical dashed line delimits the 14.6 mg/L limit for acceptable field DO readings.

6.3.2 Comparison of Suboxic Indicator Ratios to Downstream Monitoring Locations

Box and whisker plots of the suboxic indicator ratios for seeps and their nearest downstream permitted surface water monitoring points are in Appendix K. Figures are grouped by seeps with the same permitted surface monitoring location. For example, Figure 6.10 below shows the log ratio for Se/SO_4 (mol/mol) for permitted surface water monitoring location FR_FR2 and any nearby upstream seeps (see Table 7.2 for list of seeps associated with FR_FR2).

Each box in the figure below shows the range of Se/SO_4 for each seep and FR_FR2. The permitted surface water monitoring location is the leftmost green shaded box. Each box is labeled with its ID on the x-axis along with labels for the number of samples and average sulfate concentration. Seep boxes are color coded based on their upstream material grouping in the legend. The $1x10^{-5}$ Se/SO_4 line has been added to each figure for reference. Any location with a box below the $1x10^{-5}$ Se/SO_4 line that also has an average sulfate concentration above 500 mg/L should be considered as generally suboxic. Any seeps with a box below the $1x10^{-5}$ Se/SO_4 line with average sulfate concentration below 500 mg/L and any seeps with boxes above the $1x10^{-5}$ Se/SO_4 line, regardless of average sulfate concentration, are considered oxic. In the example figure below, FR_STPSWSEEP and FR_STPWSEEP are generally suboxic and are assumed to feed into FR_FR2. However, by the time any suboxic waters from the two suboxic seeps in this group reach FR_FR2, the water has been diluted by oxic water from other seeps and runoff sources.

Figure 6.10: Se/SO4 boxplot for permitted surface water monitoring location FR_FR2 and corresponding FRO seeps



Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\WQ Graphs\WQ_Boxplots_amd_rev0.Rmd

Notes: The horizontal dashed line indicates the Se/SO4 = 1×10^{-5} mol/mol cutoff between the suboxic and oxic water categorization.

7 Seepage Monitoring Results by Operation

The analysis and review detailed below were conducted on the seeps recommended by SRK for carryover from 2018 and 2019. Table 7.1 summarizes the number of seeps identified and sampled during 2020. Apart from three seeps at EVO that were unsafe to access due to mining operations, all seeps previously recommended for further monitoring were successfully visited. Some RSMP seeps were found to be dry or covered by mined out material (spoiled over) and as such were not sampled in 2020.

The number of seeps recommended by SRK (2018) in Table 7.1 refers to the number of seeps that were originally identified for inclusion in the RSMP. The number of seeps identified and sampled during low flows in Table 7.1 refers to all the seeps revisited and sampled between September 2020 and November 2020. The number of seeps identified and sampled during high flows in Table 7.1 refers to all seeps revisited and sampled between March 15 and July 15, 2020 following Teck's formal definition of the high flows monitoring period. Moving forwards the number of seeps recommended for continued monitoring for the RSMP may change as seeps are added or retired (see Section 8 for new seeps review and Section 9 for the seep retirement framework).

Results of the review are discussed below by operation.

Table 7.1: Summary of Seepage Samples Collected by Operation

Operation	Number of seeps recommended for continued sampling in RSMP (SRK 2018)	Seeps Revisited in 2020		Seeps Sampled in 2020	
		High Flow[1]	Low Flow[2]	High Flow[1]	Low Flow[2]
FRO	26	25[3]	24[4]	23	16
GHO	18	18	18	12	9
LCO	10	12[5]	12[5]	11	7
EVO	21	19[6]	16[7]	18	16
CMm	15	15	15	16[8]	15
All	90	89	85	80	63

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.259_2019_Seep_Monitoring_Report\2020 Data\2020_WQ_Database_amd_rev02.xlsx

Notes:

[1] High flow includes samples collected between March 15, 2020 and July 15, 2020.

[2] Low flow includes samples collected outside of the high flows window.

[3] One seep at FRO had been covered with mined out material prior to 2020 high flow sampling.

[4] Two seeps at FRO had been covered with mined out material prior to 2020 low flow sampling.

[5] Two seeps were added to the RSMP in 2019 (LC_UDHP and LC_UDP1)

[6] Two seeps at EVO had been covered with mined out material prior to 2020 high flow sampling.

[7] In addition to the two seeps covered with mine out material, three seeps at EVO were unsafe to access during 2020 low flow sampling.

[8] One new seep was identified and sampled at CMm, CM_MM-SEEP5.

7.1 Fording River Operation (FRO)

Seepage monitoring locations at the FRO mine site facilities are presented in Figure 7.1, seeps are color coded by nearest permitted surface water sampling location. Table 7.2 summarizes the seeps visited during the 2020 RSMP.

The group name associated with each seep ID in the seep tables for each of the operations is a product of the seep grouping conducted by SRK (2019). Seeps were assigned a sub-area/material type on an operation-by-operation basis to help identify each seep based on the general area and upstream material type related to each seep. The groupings were used for graphing purposes to evaluate geochemical influence of different material types. In addition, each group of seeps was assigned a downstream comparison point, either a surface water monitoring location or authorized discharge location. Grouping seeps to a downstream comparison point was used to evaluate loading contributions, to make concentration comparisons to evaluate the overall significance of a given seep to a group, and to evaluate seepage water for possible attenuation.

Seeps in groupings ending with the WR suffix have been assigned to a sub-area that is assumed to be downstream of a waste rock dump. Seep in groupings ending with the CCR suffix have been assigned to a sub-area that is assumed to be downstream of a coarse coal reject (CCR) pile. Seeps in groupings ending with the PIT suffix have been assigned to a sub-area that is assumed to be downstream of a pit. Seeps in groupings ending with the TAILINGS suffix have been assigned to a sub-area downstream of a tailings storage facility. Seeps in groupings ending with the PLANT suffix have been assigned to a sub-area downstream of a plant facility.

FR_HENSEEP1 has been visited consistently between 2018 and 2020. It was dry for both 2019 and 2020 sampling surveys. Two seeps at FRO, FR_FSEAMWSEEP4 and FR_LMCWSEEP7, have been covered by mined over material.

Table 7.2: 2020 FRO Seeps

Seep ID	Group Name	Nearest Permitted Surface Water Sampling Location or Comparison Point	Permitted Surface Water Sampling Location Type[1]	Notes
FR_HENSEEP3	FR_HEN_WR	FR_FR1	SW	-
FR_TURNSEEP1	FR_TurnbullWREast_WR	FR_FR1	SW	-
FR_HENSSEEP1	FR_HEN_WR	FR_FR1	SW	-
FR_HENSEEP1	FR_HEN_WR	FR_FR1	SW	Dry in July and October 2019 & 2020
FR_TBWSEEP1	FR_TurnbullWRWest_WR	FR_PP1	DL	-
FR_TURNSEEP2	FR_TurnbullWRWest_WR	FR_PP1	DL	-
FR_FCSEEP2	FR_TurnbullWREast_WR	FR_CC1	DL	-

Seep ID	Group Name	Nearest Permitted Surface Water Sampling Location or Comparison Point	Permitted Surface Water Sampling Location Type[1]	Notes
FR_CCSEEPE1	FR_ClodeCr_WR	FR_CC1	DL	-
FR_CCSEEPSE1	FR_ClodeCr_WR	FR_CC1	DL	-
FR_LMCWSEEP7	FR_LakeMtn_WR_PITS	FR_LMP1	DL	-
FR_LMCWSEEP5	FR_LakeMtn_WR_PITS	FR_LMP1	DL	-
FR_FSEAMWSEEP4	FR_Fseam_WR	FR_LP1	DL	Covered by mined out material Q3 2020
FR_SHNSEEP1	FR_Shandley_WR	FR_LP1	DL	-
FR_ASPSEEP1	FR_A_CCR	FR_LP1	DL	-
FR_EAGLENORTH	FR_Eagle_WR	FR_EC1	DL	-
FR_DOKASEEP1	FR_DOKA_WR	FR_EC1	DL	-
FR_FSEAMSEEP7	FR_DOKA_WR	FR_EC1	DL	Covered by mined out material October 2019
FR_SPRWSEEP1	FR_Blain_CCR	FR_EC1	DL	-
FR_FRVWSEEP3	FR_Smith_WR	FR_SP1	DL	-
FR_BLAKESEEP1	FR_Blain_CCR	FR_FR2	SW	-
FR_BLAINESEEP1	FR_Blain_CCR	FR_FR2	SW	-
FR_BLAINESEEP5	FR_Blain_CCR	FR_FR2	SW	-
FR_STPNSEEP	FR_SouthTails_Tailings	FR_FR2	SW	-
FR_STPWSEEP	FR_SouthTails_Tailings	FR_FR2	SW	-
FR_STPSWSEEP	FR_SouthTails_Tailings	FR_FR2	SW	-
FR_SCRDSEEP1	FR_SwiftWR_RockDrain_WR	GH_SC1[2]	DL	-

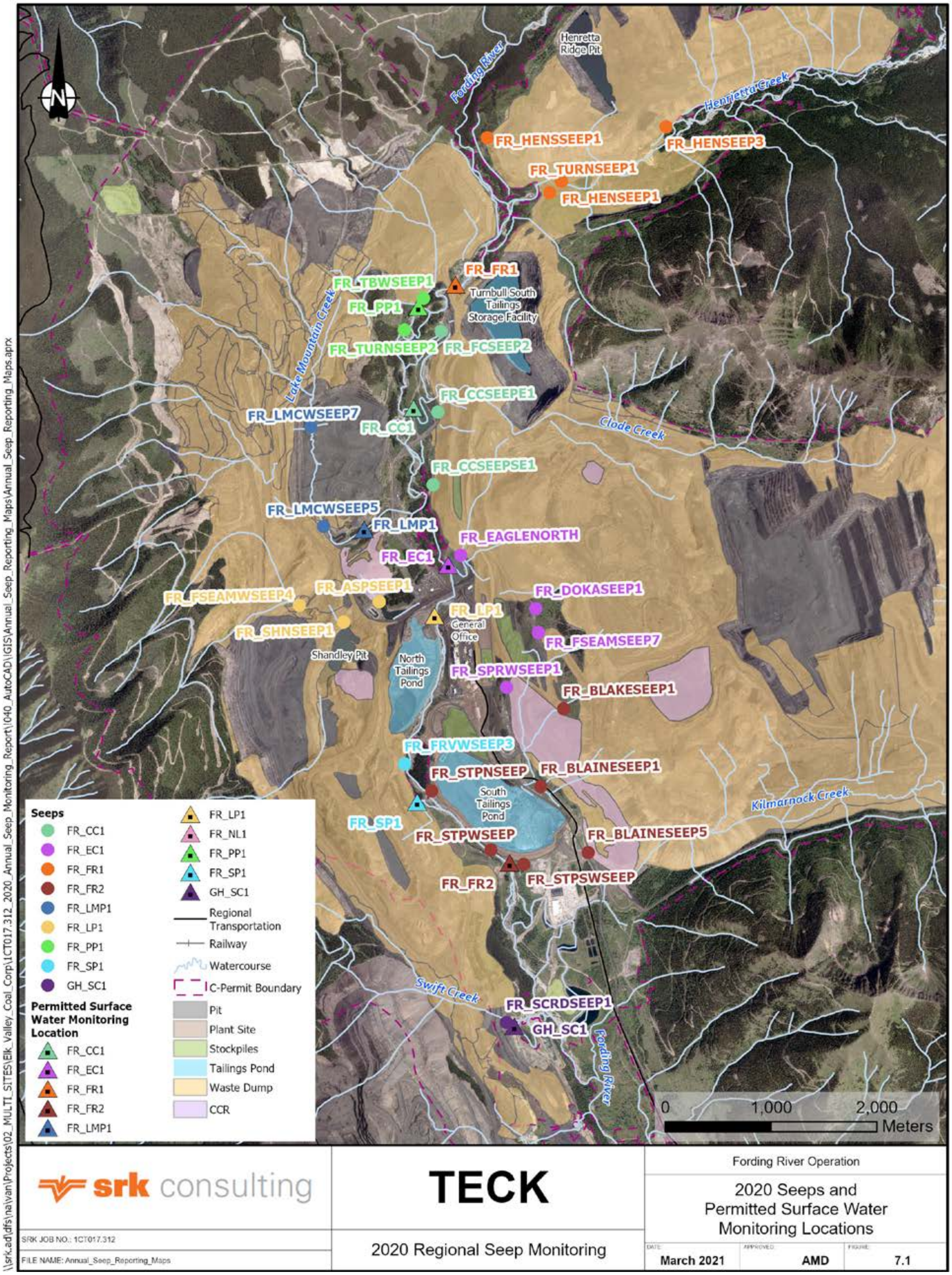
Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\2020_WQ_Database_amd_rev02.xlsx

Notes:

[1] Permitted Surface Water Sampling Location Types are surface water (SW) or discharge location (DL).

[2] GH_SC1 becomes FR_SCCAT for 424 in April 2020 and FR_SCOUT for 107517 in September 2020. The comparison point ID GH_SC1 refers to data under any three of these names.

Figure 7.1: 2020 Seeps and Selected Permitted Surface Water Monitoring Locations - FRO



Notes: The location of GH_SC1 also shows the location of the permitted monitoring location GH_SCCAT and GH_SCOUT.

7.1.1 Morrissey Formation and Oxidation Category

The only FRO seep where the oxidation category has changed between 2018 and 2020 are listed in Table 7.3. FR_HENSSEEP1 changed oxidation categories between 2019 and 2020. No seeps at FRO changed MF influence categories between 2019 and 2020.

Table 7.3: FRO seeps with changed oxidation category

Seep ID	Seep Group	Change	2018		2019		2020	
			High Flow	Low Flow	High Flow	Low Flow	High Flow	Low Flow
FR_HENSSEEP1	FR_HEN_WR	Oxidation	*Suboxic*	No Sample[1]	*Suboxic*	*Suboxic*	Oxic	No Sample (Dry)

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.259_2019_Seep_Monitoring_Report\2020 Data\Data Analysis\2020_REPORTING_Seep_Selection_Criteria_rev02_amd.xlsx

Notes:

[1] No field notes are available for FR_HENSSEEP1 during 2018 low flow to determine the reason for missing water quality results.

During 2020 high flow sampling, FR_HENSSEEP1 has been categorized as oxic. The oxic categorization coincides with a dip in sulfate below 500 mg/L. Prior to the 2020 sampling event, FR_HENSSEEP1 has been categorized as suboxic for the three samples previously collected. Sulfate concentrations before the 2020 high flow sample range from 638 to 762 mg/L, Se/SO_4 is consistently below $1x10^{-5}$ mol/mol (between $1.7x10^{-6}$ and $5.6x10^{-6}$ mol/mol). No sample was collected at this seep during 2020 low flows because the seep was dry. An insufficient number of samples have been collected to determine if there is a year-to-year trend for sulfate or Se/SO_4.

7.1.2 Site Specific Seepage Geochemical Interpretation

The oxidation and MF influence categories and modelled calcite saturation for seeps at FRO are summarized in Table 7.5. Most seeps at FRO are categorized as oxic and not MF influenced and did not seasonally change oxidation or MF influence categorization. No seeps at FRO have been consistently categorized as MF influenced. FR_HENSEEP1 is categorized as suboxic based on one sample collected during 2019 low flow sampling. Most seeps at FRO did not visually show seasonality in parameter concentrations. Some seeps displayed seasonality of sulfate concentrations, which was higher during low flows. Seasonality and year-on-year trends identified in Table 7.5 are based on a qualitative visual review of water quality timeseries.

Three seeps (FR_SPRWSEEP1, FR_SHNSEEP1, and FR_FRVWSEEP3) seasonally changed modelled calcite saturation showing undersaturation during high flows and supersaturation during low flow. Three seeps (FR_LMCWSEEP5, FR_STPNSEEP, and FR_FCSEEP2) demonstrated inverse seasonal calcite saturation, with supersaturation during high flows and under saturation during low flow. PHREEQC modelling of seeps that have high sulfate concentrations (> 1,000 mg/L) indicate mineral equilibrium with gypsum, where the remainder were undersaturated. All seeps except one were modeled as supersaturated for ferrihydrite. The undersaturated seep, FR_STPWSEEP (FR_SouthTails_Tailings group), had a low ORP measurement (< 100 mV) compared to the other FRO seeps.

Sulfate concentrations at FRO seeps compared to corresponding permitted surface water monitoring locations in Table 7.4 and Appendix J show that average sulfate concentrations at the permitted surface water monitoring stations are often less than or equal to the average sulfate concentrations of their corresponding upstream seeps. If sulfate is assumed to be a conservative tracer, this would indicate that the permitted surface water sampling locations at FRO are primarily influenced by dilution.

All the FRO permitted surface water monitoring locations are classified as oxic, suggesting that any suboxic waters contributed by upstream seeps are diluted and/or mixed with other oxic waters before reaching a permitted surface water monitoring location. The oxidation and MF influence categorization for permitted surface water monitoring locations is in Appendix L.

Table 7.4: FRO seep and permitted sampling location sulfate concentrations and loadings comparison

Comparison Permitted Surface Water Sampling Location	Permitted Surface Water Sampling Location Type[1]	Average SO_4 Concentration - Comparison Permitted Surface Water Sampling Location (mg/L)	Seep ID	Average SO_4 Concentration - Seep (mg/L)
FR_FR1	SW	115	FR_HENSEEP3	1,290
			FR_TURNSEEP1	375
			FR_HENSSEEP1	634
			FR_HENSEEP1	794
FR_PP1	DL	218	FR_TBWSEEP1	246
			FR_TURNSEEP2	303
FR_CC1	DL	576	FR_FCSEEP2	86.4
			FR_CCSEEPE1	791
			FR_CCSEEPSE1	1,630
FR_LMP1	DL	194	FR_LMCWSEEP7	42.8
			FR_LMCWSEEP5	302
FR_LP1	DL	503	FR_FSEAMWSEEP4	351
			FR_SHNSEEP1	159
			FR_ASPSEEP1	583
FR_EC1	DL	984	FR_EAGLENORTH	1,880
			FR_DOKASEEP1	199
			FR_FSEAMSEEP7	378
			FR_SPRWSEEP1	385
FR_SP1	DL	267	FR_FRVWSEEP3	533

Comparison Permitted Surface Water Sampling Location	Permitted Surface Water Sampling Location Type[1]	Average SO_4 Concentration - Comparison Permitted Surface Water Sampling Location (mg/L)	Seep ID	Average SO_4 Concentration - Seep (mg/L)
FR_FR2	SW	194	FR_BLAKESEEP1	464
			FR_BLAINESEEP1	1,710
			FR_BLAINESEEP5	1,970
			FR_STPNSEEP	173
			FR_STPWSEEP	310
			FR_STPSWSEEP	363
GH_SC1[2]	DL	1,130	FR_SCRDSEEP1	307

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\2020_Seep_Loadings_rev0_AD.xlsx

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Notes:

[1] Permitted Surface Water Sampling Location Types are surface water (SW) or discharge location (DL).

[2] GH_SC1 becomes FR_SCCAT for 424 in April 2020 and FR_SCOUT for 107517 in September 2020. The comparison point ID GH_SC1 refers to data under any three of these names.

Table 7.5: Summary of Trends and Controls on Water Quality for Seeps at FRO

Seep ID	Material Group	Flow Period	Oxidation Category	MF Influence	Calcite	Calcite in Field (2020)	Ferrihydrite	Year-on-Year	Seasonality	Geochemical Indicators	Parameters Exceeding FWAL BCWQGs
FR_HENSEEP3	FR_HEN_WR	High Flow	Oxic	Not MF Influenced[1]	Not determined	No	Supersaturated	Possible increasing NO3	-	▪ Poor correlation of metal concentrations with pH, highest Cd of group. ▪ Highest Se of group. ▪ Indication that calcite is supersaturated during low flow (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)). ▪ High SO4 (> 1,200 mg/L), mineral SI indicates in equilibrium with gypsum.	SO4, Se-T, NO3-N, NO2-N
		Low Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated				
FR_TURNSEEP1	FR_TurnbullWREast_WR	High Flow	Oxic	Not MF Influenced	Undersaturated	No	Supersaturated	-	-	▪ Poor correlation of metal concentrations with pH, high Cd, Ni, and Zn. ▪ High Se.	Se-T, NO3-N
		Low Flow	Oxic	Not MF Influenced	Undersaturated	No	Supersaturated				
FR_HENSSEEP1	FR_HEN_WR	High Flow	Suboxic[1]	Possible MF Influence	Supersaturated	No	Supersaturated	-	-	▪ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)). ▪ Insufficient samples collected to understand trends (n=2).	SO4, Se-T
		Low Flow	Suboxic	Not MF Influenced	Samples Unattainable						
FR_HENSEEP1	FR_HEN_WR	High Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated	-	-	▪ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)). ▪ Insufficient samples collected to understand trends (n=2).	-
		Low Flow	Suboxic	Not MF Influenced	Supersaturated	No	Supersaturated				
FR_TBWSEEP1	FR_TurnbullWRWest_WR	High Flow	Oxic	Not MF Influenced[1]	Not determined	No	Supersaturated	-	-	▪ Poor correlation of metal concentrations with pH.	Se-T, NO3-N
		Low Flow	Oxic	Not MF Influenced	Undersaturated	No	Supersaturated				
FR_TURNSEEP2	FR_TurnbullWRWest_WR	High Flow	Oxic	Not determined	Undersaturated	No	Supersaturated	Possible decreasing NO3, Ni, Sb, TDS	-	▪ Poor correlation of metal concentrations with pH.	Se-T, NO3-N
		Low Flow	Oxic	Not MF Influenced	Undersaturated	Yes	Supersaturated				
FR_FCSEEP2	FR_TurnbullWREast_WR	High Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated	-	-	▪ Poor correlation of metal concentrations with pH. ▪ Indication that calcite is supersaturated during high flow, undersaturated during low flow (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	Se-T, NO3-N
		Low Flow	Oxic	Not MF Influenced	Undersaturated	Yes	Supersaturated				
FR_CCSEEPE1	FR_ClodeCr_WR	High Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated	-	-	▪ Poor correlation of most metal concentrations with pH (exception Cd, Zn), high Co, Ni. ▪ Majority of U as U(VI), complexed with carbonate, good positive correlation of U concentration with total alkalinity. ▪ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	SO4, Se-T, NO3-N, NO2-N, U-T
		Low Flow	Oxic	Not MF Influenced	Supersaturated	Yes	Supersaturated				

Seep ID	Material Group	Flow Period	Oxidation Category	MF Influence	Calcite	Calcite in Field (2020)	Ferrihydrite	Year-on-Year	Seasonality	Geochemical Indicators	Parameters Exceeding FWAL BCWQGs
FR_CCSEEPSE1	FR_ClodeCr_WR	High Flow	Oxic	Not MF Influenced	Not determined	No	Supersaturated	-	-	■ Poor correlation of most metal concentrations with pH, high Cd, Mn, Ni, Zn. ■ Majority of U as U(VI), complexed with carbonate, good positive correlation of U concentration with total alkalinity. ■ High SO4 (> 1,300 mg/L), mineral SI indicates in equilibrium with gypsum.	SO4, Se-T, NO3-N, U-T
		Low Flow	Oxic	Not MF Influenced	Not determined	Yes	Supersaturated		Higher SO4		
FR_LMCWSEEP7	FR_LakeMtn_WR_PITS	High Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated	-	-	■ Insufficient samples collected to understand trends (n=1).	-
		Low Flow	Samples Unattainable								
FR_LMCWSEEP5	FR_LakeMtn_WR_PITS	High Flow	Oxic	Not determined	Supersaturated	No	Supersaturated	-	-	■ Poor correlation of metal concentrations with pH. ■ High Se. ■ Indication that calcite is supersaturated during high flow, undersaturated during low flow (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	Se-T, NO3-N, NO2-N
		Low Flow	Oxic	Not MF Influenced	Undersaturated[1]	No	Supersaturated				
FR_FSEAMWSEEP4	FR_Fseam_WR	High Flow	Oxic	Not MF Influenced	Not determined	No	Supersaturated	Possible decreasing Co, Sb, NO2, Mo	-	■ Poor correlation of metal concentrations with pH, high Cd, Ni, and Zn. High Se.	Se-T, NO3-N
		Low Flow	Oxic	Not MF Influenced	Samples Unattainable						
FR_SHNSEEP1	FR_Shandley_WR	High Flow	Oxic	Not MF Influenced	Undersaturated	No	Supersaturated	Possible decreasing SO4, Co	-	■ Poor correlation of metal concentrations with pH. ■ Indication that calcite is undersaturated during high flow, supersaturated during low flow (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	Se-T, NO3-N
		Low Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated		Higher SO4		
FR_ASPSEEP1	FR_A_CCR	High Flow	Oxic	Not determined	Undersaturated	No	Supersaturated	Possible increasing Se, NO3, TDS, U	-	■ Poor correlation of metal concentrations with pH. ■ Majority of U as U(VI), complexed with carbonate. ■ Increasing calcite SI towards supersaturation (> 0.6) during low flow.	SO4, Se-T, NO3-N, NO2-N
		Low Flow	Oxic	Not MF Influenced	Not determined	No	Supersaturated		Higher SO4		
FR_EAGLENORTH	FR_Eagle_WR	High Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated	Possible increase pH, SO4	-	■ Poor correlation of metal concentrations with pH, high Cd, Ni, and Zn. ■ High Se. ■ Majority of U as U(VI), complexed with carbonate. ■ Indication that calcite is supersaturated during high flow (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)). ■ High SO4 (> 1700 mg/L), mineral SI indicates in equilibrium with gypsum.	SO4, Se-T, NO3-N, U-T
		Low Flow	Oxic	Not MF Influenced	Not determined	No	Supersaturated				
FR_DOKASEEP1	FR_DOKA_WR	High Flow	Samples Unattainable								
		Low Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated	-	-	■ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)). ■ Insufficient samples collected to infer trends (n=2).	-

Seep ID	Material Group	Flow Period	Oxidation Category	MF Influence	Calcite	Calcite in Field (2020)	Ferrihydrite	Year-on-Year	Seasonality	Geochemical Indicators	Parameters Exceeding FWAL BCWQGs
FR_FSEAMSEEP7	FR_DOKA_WR	High Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated	Possible increase Ni Possible decreasing Co, NO2, U	-	■ Poor correlation of metal concentrations with pH. ■ Highest Se of group. ■ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	Se-T, NO3-N, Co-T, Ni-T, U-T
		Low Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated				
FR_SPRWSEEP1	FR_Blain_CCR	High Flow	Oxic	Possible MF Influence	Undersaturated	No	Supersaturated	Possible increase pH, NO3	-	■ Indication that calcite is undersaturated during high flow, supersaturated during low flow (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)). ■ Poor correlation of metal concentrations with pH, highest Cd, Zn of group, low Ni.	Se-T, NO3-N
		Low Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated				
FR_FRVWSEEP3	FR_Smith_WR	High Flow	Oxic	Not determined	Undersaturated	No	Supersaturated	Possible increase pH Possible decrease Ni	-	■ Poor correlation of metal concentrations with pH. ■ High Se. ■ Indication that calcite is undersaturated during high flow, supersaturated during low flow (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	SO4, Se-T
		Low Flow	Oxic	Possible MF Influence	Supersaturated	Yes	Supersaturated		Higher SO4		
FR_BLAKESEEP1	FR_Blain_CCR	High Flow	Oxic	Not determined	Supersaturated	No	Supersaturated	Possible increase pH	-	■ Poor correlation of metal concentrations with pH, high Co, Ni, Zn. ■ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	Se-T, NO3-N
		Low Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated		Higher SO4		
FR_BLAINESEEP1	FR_Blain_CCR	High Flow	Oxic	Possible MF Influence	Supersaturated	No	Supersaturated	Possible increase pH	Higher Cd	■ Poor correlation of metal concentrations with pH, high Cd, Mn. ■ Highest Se and Ni of group. ■ Majority of U as U(VI), complexed with carbonate, good positive correlation of U concentration with total alkalinity. ■ High SO4 (> 1500 mg/L), mineral SI indicates in equilibrium with gypsum. ■ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	SO4, Se-T, NO3-N, U-T
		Low Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated		Higher SO4		
FR_BLAINESEEP5	FR_Blain_CCR	High Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated	Possible decreasing NO3	-	■ Poor correlation of metal concentrations with pH, high Cd, Co, and Zn, low Ni. ■ Majority of U as U(VI), complexed with carbonate, good positive correlation of U concentration with total alkalinity. ■ High SO4 (> 1900 mg/L), mineral SI indicates in equilibrium with gypsum. ■ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	SO4, Se-T, NO3-N, NO2-N, U-T
		Low Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated				
FR_STPNSEEP	FR_SouthTails_Tailings	High Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated	-	-	■ Poor correlation of metal concentrations with pH. ■ Highest Se of group. ■ Indication that calcite is supersaturated during high flow, undersaturated during low flow (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	Se-T, NO3-N
		Low Flow	Oxic	Not MF Influenced	Undersaturated	No	Supersaturated				

Seep ID	Material Group	Flow Period	Oxidation Category	MF Influence	Calcite	Calcite in Field (2020)	Ferrihydrite	Year-on-Year	Seasonality	Geochemical Indicators	Parameters Exceeding FWAL BCWQGs
FR_STPWSEEP	FR_SouthTails_Tailings	High Flow	Oxic	Not determined	Undersaturated	No	Supersaturated	Possible decreasing SO4, Co	-	▪ Poor correlation of metal concentrations with pH, high Cd, Mn, highest Co of group. ▪ Majority of U as U(VI), complexed with carbonate, good positive correlation of U concentration with total alkalinity (whole group).	U-T
		Low Flow	Oxic	Not MF Influenced	Undersaturated[1]	Yes	Supersaturated[1]				
FR_STPSWSEEP	FR_SouthTails_Tailings	High Flow	Oxic	Not MF Influenced	Undersaturated	No	Supersaturated	-	-	▪ Poor correlation of metal concentrations with pH, high Cd, Co, Mn ▪ Majority of U as U(VI), complexed with carbonate, good positive correlation of U concentration with total alkalinity (whole group).	-
		Low Flow	Oxic	Not MF Influenced	Undersaturated	Yes	Supersaturated				
FR_SCRDSEEP1	FR_SwiftWR_RockDrain_WR	High Flow	Oxic	Not determined	Supersaturated	No	Supersaturated	Possible increasing Sb, TDS	-	▪ Poor correlation of metal concentrations with pH, high Co. ▪ Indication that calcite is supersaturated during low flow (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	Se-T, NO3-N, NO2-N
		Low Flow	Oxic	Not MF Influenced	Supersaturated[1]	No	Supersaturated				

Sources: \\VAN-SVR0\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\2020_REPORTING_Seep_Selection_Criteria_rev01_amd_sjl.xlsx

Notes: Categorizations labelled as “Not determined” indicates seep where an equal number of instances occurred for each category, so classification could not be determined.

[1] Indicates instances where categorizations or mineral saturation changed from year to year (in the case of Oxidation and MF Influence categories) or were different for discrete samples (in the case for mineral SIs). The condition for most measured years/samples is shown.

7.2 Greenhills Operation (GHO)

Seepage monitoring locations at the GHO mine site are presented in Figure 7.2, seeps are color coded by nearest permitted surface water sampling location. Table 7.6 summarizes the seeps visited during the 2020 RSMP.

GH_SEEP_15 has been visited consistently between 2018 and 2020. It was dry during both 2019 and 2020 sampling events. One new seep, GH_SEEP_98, was identified in 2020 in the rail loop at GHO, however, was too late for inclusion into this report. This seep will be incorporated into the 2021 sampling program.

Table 7.6: 2020 GHO Seeps

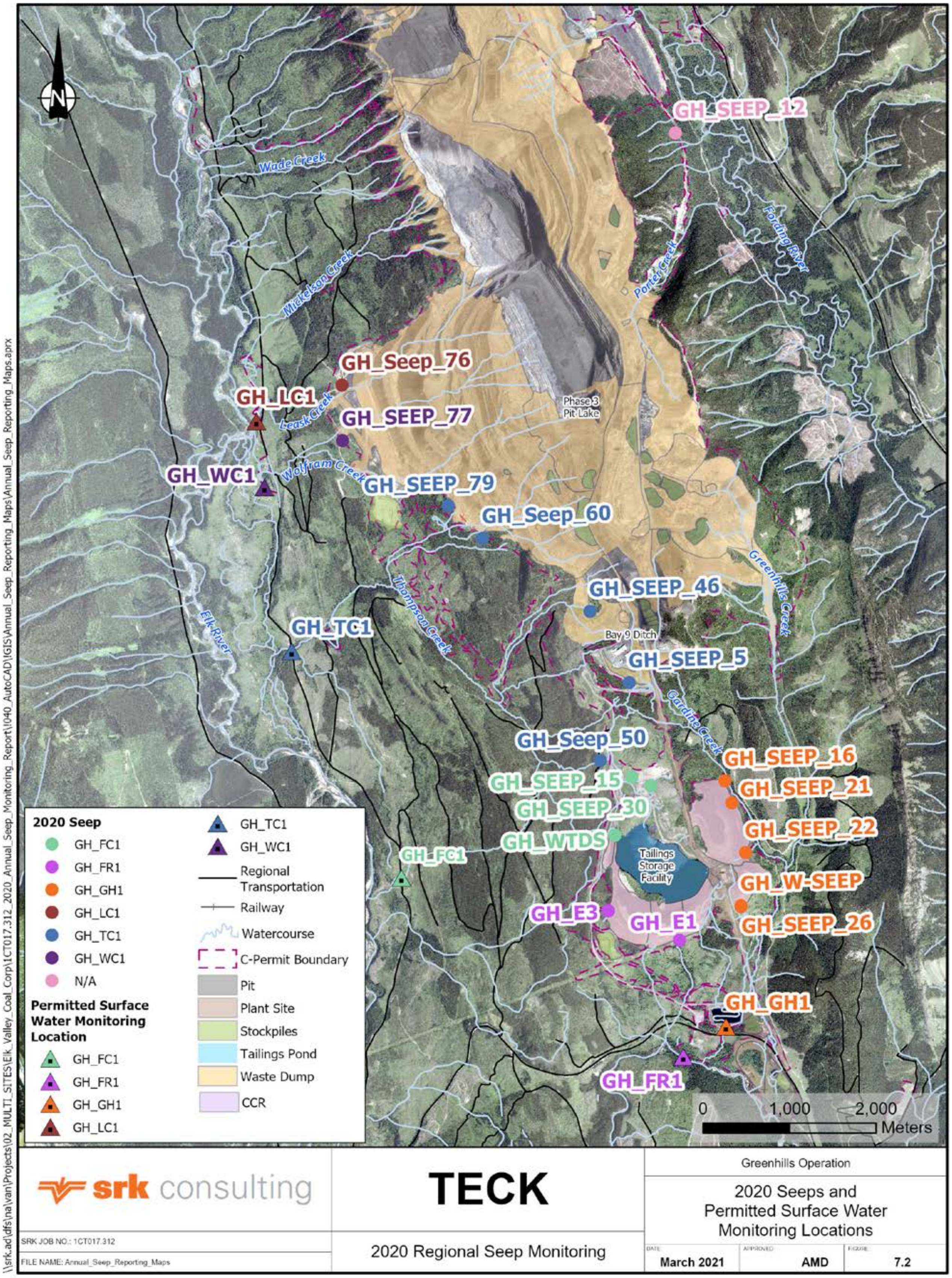
Seep ID	Group Name	Nearest Comparison Permitted Surface Water Sampling Location	Permitted Surface Water Sampling Location Type[1]	Notes
GH_SEEP_12	GH_PORTER_CREEK	N/A	DL	-
GH_SEEP_76	GH_LEASK_WR	GH_LC1	DL	-
GH_SEEP_77	GH_WOLFRAM_WR	GH_WC1	DL	-
GH_SEEP_50	GH_UPSTREAM_CCR	GH_TC1	DL	Dry June & September 2020
GH_SEEP_5	GH_THOMPSON_WR	GH_TC1	DL	-
GH_SEEP_46	GH_THOMPSON_WR	GH_TC1	DL	-
GH_SEEP_60	GH_THOMPSON_WR	GH_TC1	DL	-
GH_SEEP_79	GH_WOLFRAM_WR	GH_TC1	DL	-
GH_SEEP_15	GH_UPSTREAM_CCR	GH_FC1	DL	Dry June & September 2019 & 2020
GH_SEEP_30	GH_UPSTREAM_CCR	GH_FC1	DL	Dry June & September 2020
GH_WTDS	GH_CCR	GH_FC1	DL	-
GH_SEEP_16	GH_CCR	GH_GH1	DL	-
GH_SEEP_21	GH_CCR	GH_GH1	DL	-
GH_SEEP_22	GH_CCR	GH_GH1	DL	-
GH_E3	GH_CCR	GH_FR1	DL	-
GH_W-SEEP	GH_CCR	GH_GH1	DL	Dry June & September 2020
GH_SEEP_26	GH_CCR	GH_GH1	DL	Dry June & September 2020
GH_E1	GH_CCR	GH_FR1	DL	-

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\2020_WQ_Database_amd_rev02.xlsx

Notes:

[1] Permitted Surface Water Sampling Location Types are surface water (SW) or discharge location (DL).

Figure 7.2: 2020 Seeps and Selected Permitted Surface Water Monitoring Locations – GHO



7.2.1 Morrissey Formation and Oxidation Categorization

GHO seeps where the oxidation or MF influence category has changed between 2019 and 2020 are listed in Table 7.7. Two seeps changed oxidation categories between 2019 and 2020, no seeps at GHO changed MF influence categories between 2019 and 2020.

Table 7.7: GHO seeps with changed oxidation category

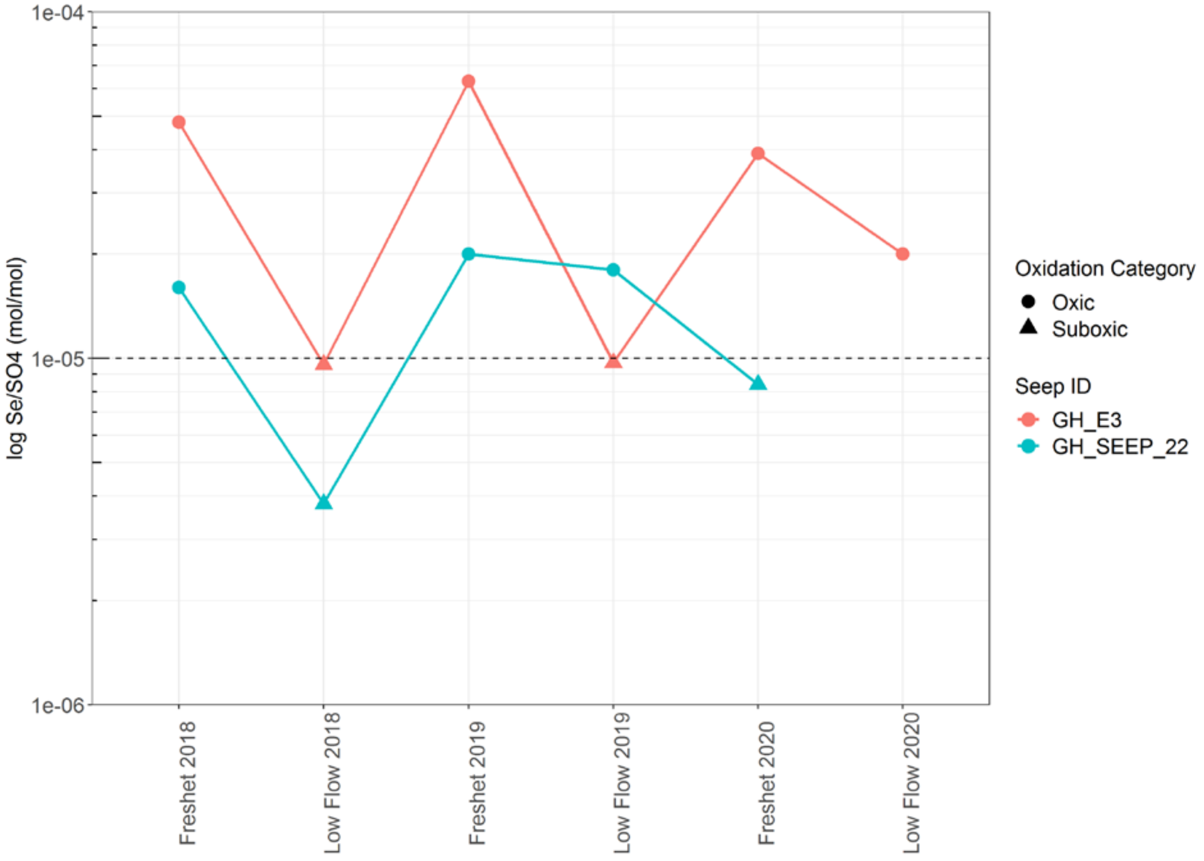
Seep ID	**Seep Group**	**Change**	**2018**		**2019**		**2020**	
			High Flow	Low Flow	High Flow	Low Flow	High Flow	Low Flow
GH_E3	GH_CCR	Oxidation	Oxic	*Suboxic*	Oxic	*Suboxic*	Oxic	Oxic
GH_SEEP_22	GH_CCR	Oxidation	Oxic	*Suboxic*	Oxic	Oxic	*Suboxic*	No Sample (Branching)

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.259_2019_Seep_Monitoring_Report\2020 Data\Data Analysis\2020_REPORTING_Seep_Selection_Criteria_rev02_amd.xlsx

GH_E3 was categorized as suboxic during the 2018 and 2019 low flow sampling surveys. It has been categorized as oxic during the 2019 high flow and both 2020 sampling surveys. The change in oxidation categorization is related to fluctuations in Se/SO_4. During both sampling events when GH_E3 was categorized as suboxic, Se/SO_4 dipped below the $1x10^{-5}$ mol/mol criterion. Se/SO_4 for GH_E3 is presented in Figure 7.3. Based on six samples, sulfate at GH_E3 ranges from 440 to 852 mg/L.

GH_SEEP_22 has been categorized as suboxic during the 2018 low flow survey and 2020 high flow survey, and oxic during the 2018 high flow survey and both 2019 sampling surveys. Sulfate has been consistently above 500 mg/L at this seep (range between 1,050 and 1,430 mg/L). Variability in selenium concentrations is impacting the fluctuating oxidation category of this seep. Se/SO_4 for GH_SEEP_22 is presented in Figure 7.3.

Figure 7.3: GHO seep GH_E3 and GH_SEEP_22 water quality timeseries for Se/SO$_4$



Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\WQ Graphs\Timeplots - Zn_Cd and Se_SO4.Rmd

Notes: Dashed line shows the Se/SO$_4$ criterion that is applied to categorize seeps as suboxic/oxic.

7.2.2 Site Specific Seepage Geochemical Interpretation

The oxidation and MF influence categories of seeps and modelled calcite saturation at GHO are summarized in Table 7.9. Most seeps at GHO are categorized as oxic and not MF influenced. Three GHO seeps have been consistently categorized as suboxic: GH_E1, GH_SEEP_21 (GH_CCR group) and GH_SEEP_15 (GH_UPSTREAM_CCR group). Based on these categorizations, there may be some suboxic zones within the CCR storage facility at GHO. This will be evaluated further as more data becomes available. Two GHO seeps in the GH_CCR group have also been consistently categorized as possibly MF influenced: GH_SEEP_16 and GH_E1. Most seeps at GHO did not change oxidation or MF influence categorization seasonally. Most seeps also did not show parameter concentration seasonality. Seasonality and year-on-year trends identified in Table 7.9 are based on a qualitative visual review of water quality timeseries.

Two seeps (GH_SEEP_16 and GH_SEEP_21 in the GH_CCR group) seasonally changed modelled calcite saturation showing undersaturation during high flow and supersaturation during low flow. One seep (GH_SEEP_50, in the GH_UPSTREAM_CCR group) indicated the opposite trend, with calcite supersaturated in high flows and undersaturated during low flows.

PHREEQC modelling of seeps that have high sulfate concentrations (> 1,000 mg/L) indicate mineral equilibrium with gypsum, whereas the remainder were undersaturated. All GHO seeps have been classified as supersaturated for ferrihydrite.

Sulfate concentrations at GHO seeps compared to corresponding permitted surface water monitoring locations in Table 7.8 and Appendix J shows that average sulfate concentrations at permitted surface water monitoring stations are often less than or equal to average sulfate concentrations of their corresponding seeps.

GH_SEEP_79 (GH_WOLFRAM_WR group), upstream of GH_TC1, has lower sulfate concentrations and higher metal concentrations for certain metals (B, Li, and Mn), indicating possible metal attenuation. Figure 7.4 shows the relative change in manganese to sulfate GH_TC1 and its upstream seeps, including GH_SEEP_79.

All the GHO permitted surface water monitoring locations are classified as oxic, indicating that any suboxic waters contributed by suboxic upstream seeps are diluted and/or mixed with other oxic waters before reaching a permitted surface water monitoring location. The oxidation and MF influence categorization for permitted surface water monitoring locations is in Appendix L.

Table 7.8: GHO seep and permitted sampling location sulfate concentrations and loadings comparison

Comparison Permitted Surface Water Sampling Location	Permitted Surface Sampling Location Type[1]	Average SO_4 Concentration - Comparison Permitted Surface Water Sampling Location (mg/L)	Seep ID	Average SO_4 Concentration - Seep (mg/L)
N/A[2]	-	-	GH_SEEP_12	28.6
GH_LC1	DL	672	GH_SEEP_76	554
GH_WC1	DL	955	GH_SEEP_77	1,170
GH_TC1	DL	622	GH_SEEP_50	99.7
			GH_SEEP_5	112
			GH_SEEP_46	377
			GH_SEEP_60	1,700
			GH_SEEP_79	64.2
GH_FC1	DL	35.2	GH_SEEP_15	647
			GH_SEEP_30	32.3

Comparison Permitted Surface Water Sampling Location	Permitted Surface Sampling Location Type[1]	Average SO_4 Concentration - Comparison Permitted Surface Water Sampling Location (mg/L)	Seep ID	Average SO_4 Concentration - Seep (mg/L)
			GH_WTDS	197
GH_FR1	SW	115	GH_E3	317
			GH_E1	1,020
GH_GH1	DL	571	GH_SEEP_16	1,200
			GH_SEEP_21	665
			GH_SEEP_22	1,920
			GH_SEEP_26	2,200
			GH_W-SEEP	1,000

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\2020_Seep_Loadings_rev0_AD.xlsx

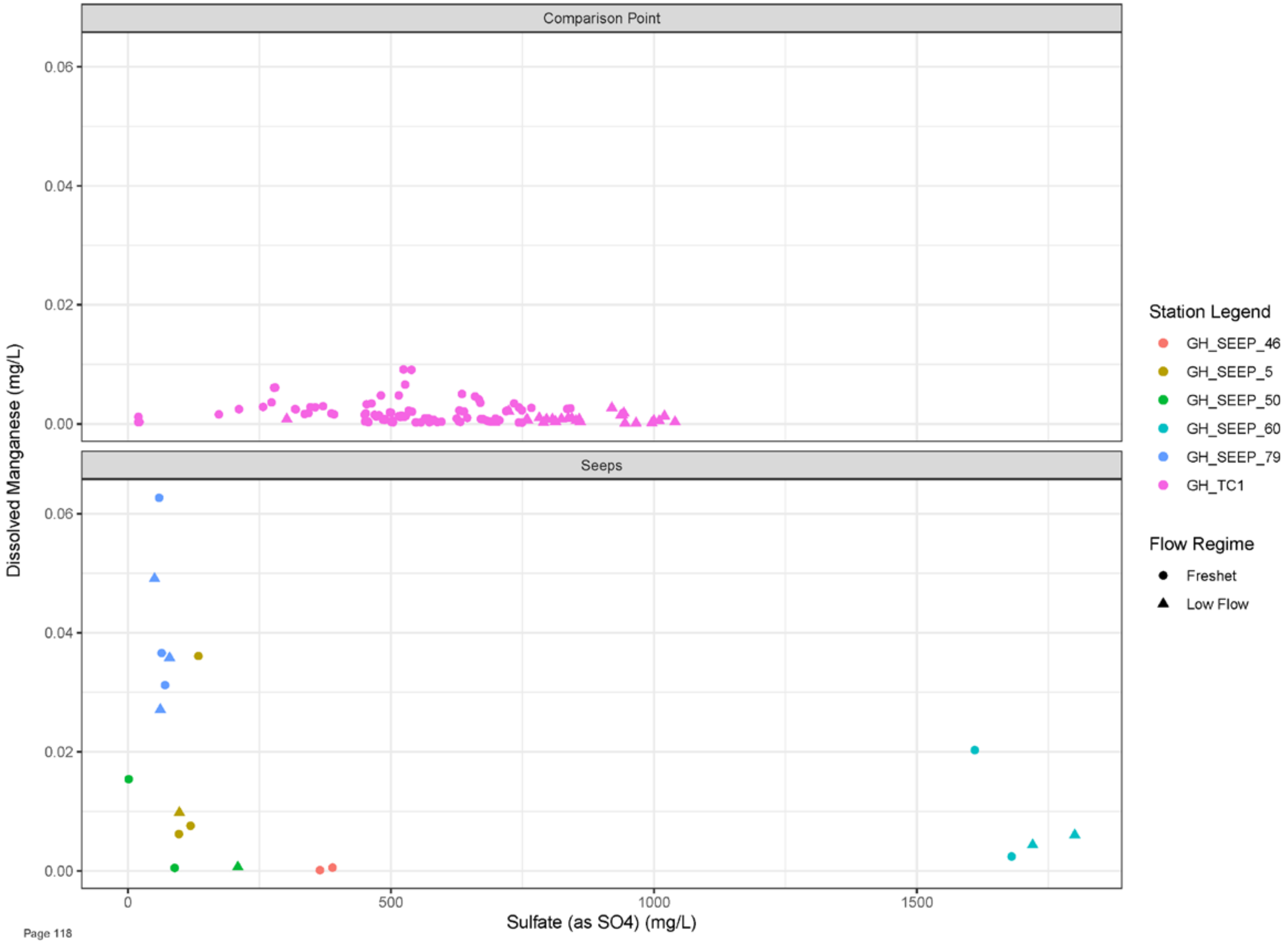
\\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\2020_ComparisonPt_Loadings_rev0_AD.xlsx

Notes:

[1] Permitted Surface Water Sampling Location Types are surface water (SW) or discharge location (DL).

[2] There is no nearby permitted surface water sampling location for GH_SEEP_12

Figure 7.4: GHO - Manganese to sulfate at permitted surface water monitoring point GH_TC1 and nearby seeps



Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\WQ Graphs\WQ_SO4_Comparison_Graphs_amd_rev0.Rmd

Notes: Figure can also be found in Appendix J.

Table 7.9: Summary of Trends and Controls on Water Quality for Seeps at GHO

Seep ID	Material Group	Flow Period	Oxidation Category	MF Influence	Calcite	Calcite in Field (2020)	Ferrihydrite	Year-on-Year	Seasonality	Geochemical Indicators	Parameters Exceeding FWAL BCWQGs
GH_SEEP_12	GH_PORTER_CREEK	High Flow	Oxic	Not MF Influenced	Not determined	No	Supersaturated	Possible decreasing pH	-	▪ Poor correlation of metal concentrations with pH (possible exception of Zn). ▪ Low SO4 (< 40 mg/L)	Se-T
		Low Flow	Oxic	Not MF Influenced	Samples Unattainable						
GH_SEEP_76	GH_LEASK_WR	High Flow	Oxic	Not MF Influenced[1]	Supersaturated	No	Supersaturated	Possible decreasing pH, NO3, Co, Ni, Sb, NO2, TDS, Mo Possible increasing SO4, Cd	-	▪ Poor correlation of metal concentrations with pH, High Co, Ni. ▪ High Se. ▪ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)). ▪ Gypsum SI increasing towards equilibrium.	SO4, Se-T, NO3-N, U-T
		Low Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated				
GH_SEEP_77	GH_WOLFRAM_WR	High Flow	Oxic	Not MF Influenced[1]	Supersaturated	No	Supersaturated	Possible decreasing NO3, Cd, NO2, Mo	-	▪ Poor correlation of metal concentrations with pH, highest Cd, Co, and Ni of group. ▪ Highest Se of group. SO4 range from 800 - 1500 mg/L. ▪ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	SO4, Se-T, NO3-N, U-T, Ni-T
		Low Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated				
GH_SEEP_50	GH_UPSTREAM_CCR	High Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated	-	-	▪ Indication that calcite is supersaturated during high flow (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)), undersaturated during low flow.	-
		Low Flow	Oxic	Not MF Influenced	Undersaturated	No	Supersaturated				
GH_SEEP_5	GH_THOMPSON_WR	High Flow	Oxic	Possible MF Influence[1]	Undersaturated	No	Supersaturated	-	-	▪ Poor correlation of metal concentrations with pH, high Cd, Co.	Se-T
		Low Flow	Samples Unattainable								
GH_SEEP_46	GH_THOMPSON_WR	High Flow	Oxic	Not MF Influenced	Undersaturated	No	Supersaturated	-	-	▪ Insufficient samples collected to understand trends (n=1).	Se-T, NO3-N
		Low Flow	Samples Unattainable								
GH_SEEP_60	GH_THOMPSON_WR	High Flow	Oxic	Possible MF Influence	Not determined	No	Supersaturated	-	-	▪ Poor correlation of metal concentrations with pH. ▪ High SO4 (> 1600 mg/L), mineral SI indicates in equilibrium with gypsum. ▪ High Se.	SO4, Se-T, NO3-N, U-T
		Low Flow	Oxic	Not MF Influenced	Undersaturated	No	Supersaturated				
GH_SEEP_79	GH_WOLFRAM_WR	High Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated	-	-	▪ Poor correlation of metal concentrations with pH. ▪ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)). ▪ SO4 < 100 mg/L.	-
		Low Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated				

Seep ID	Material Group	Flow Period	Oxidation Category	MF Influence	Calcite	Calcite in Field (2020)	Ferrihydrite	Year-on-Year	Seasonality	Geochemical Indicators	Parameters Exceeding FWAL BCWQGs
GH_SEEP_15	GH_UPSTREAM_CCR	High Flow	Suboxic	Possible MF Influence	Supersaturated	No	Supersaturated	-	-	▪ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)). ▪ Insufficient samples collected to understand trends (n=2).	-
		Low Flow	Suboxic	Not MF Influenced	Supersaturated	No	Supersaturated				
GH_SEEP_30	GH_UPSTREAM_CCR	High Flow	Oxic	Not MF Influenced	Samples Unattainable	No	Samples Unattainable	-	-	▪ Insufficient samples collected to understand trends (n=2).	-
		Low Flow	Samples Unattainable								
GH_WTDS	GH_CCR	High Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated	Possible decreasing Co, Ni	-	▪ Poor correlation of metal concentrations with pH, highest Cd, Co, Ni, and Zn of group. ▪ High Se. ▪ Strong negative correlation of Mn concentration with DO (whole seep group), low Mn. ▪ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	Se-T
		Low Flow	Oxic	Not MF Influenced	Supersaturated[1]	No	Supersaturated				
GH_E3	GH_CCR	High Flow	Oxic	Not MF Influenced[1]	Supersaturated	No	Supersaturated	-	-	▪ Poor correlation of metal concentrations with pH. ▪ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)). ▪ Mineral SI indicates gypsum undersaturated.	SO4, Se-T
		Low Flow	Suboxic[1]	Not MF Influenced[1]	Supersaturated[1]	No	Supersaturated				
GH_E1	GH_CCR	High Flow	Suboxic	Possible MF Influence	Supersaturated	No	Supersaturated	-	-	▪ Poor correlation of metal concentrations with pH, high Co, Ni, Zn. ▪ Lowest Se of group. ▪ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)). ▪ Mineral SI indicates close to or in equilibrium with gypsum.	SO4, Se-T
		Low Flow	Suboxic	Possible MF Influence	Supersaturated[1]	No	Supersaturated				
GH_SEEP_16	GH_CCR	High Flow	Oxic	Possible MF Influence	Undersaturated	No	Supersaturated	Possible decreasing Se	-	▪ Poor correlation of metal concentrations with pH. ▪ Indication that calcite is undersaturated during high flow, supersaturated during low flow (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	-
		Low Flow	Oxic	Possible MF Influence	Supersaturated	No	Supersaturated		Higher Zn		
GH_SEEP_21	GH_CCR	High Flow	Suboxic	Not MF Influenced	Undersaturated	Yes	Supersaturated	-	-	▪ Poor correlation of metal concentrations with pH, possible exception Cd. ▪ High Mn concentrations of group, lowest DO (good negative correlation of Mn concentrations with DO of whole seep group). ▪ Indication that calcite is undersaturated during high flow, supersaturated during low flow (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	-
		Low Flow	Suboxic	Not MF Influenced	Supersaturated	No	Supersaturated				
GH_SEEP_22	GH_CCR	High Flow	Oxic[1]	Not MF Influenced	Not determined	Yes	Supersaturated	-	-	▪ Poor correlation of metal concentrations with pH.	-
		Low Flow	Not determined	Not MF Influenced	Supersaturated	No	Supersaturated				

Seep ID	Material Group	Flow Period	Oxidation Category	MF Influence	Calcite	Calcite in Field (2020)	Ferrihydrite	Year-on-Year	Seasonality	Geochemical Indicators	Parameters Exceeding FWAL BCWQGs
GH_SEEP_26	GH_CCR	High Flow	Suboxic	Not MF Influenced	Supersaturated	No	Supersaturated	-	-	■ Poor correlation of metal concentrations with pH.	-
		Low Flow	Samples Unattainable								
GH_W-SEEP	GH_CCR	High Flow	Suboxic	Possible MF Influence	Supersaturated	No	Supersaturated	-	-	■ Poor correlation of metal concentrations with pH. ■ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	-
		Low Flow	Samples Unattainable		Supersaturated	No	Supersaturated				

Sources: \\VAN-SVR0\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\2020_REPORTING_Seep_Selection_Criteria_rev01_amd_sjl.xlsx

Notes: Categorizations labelled as "Not determined" indicates seep where an equal number of instances occurred for each category, so classification could not be determined.

[1] Indicates instances where categorizations or mineral saturation changed from year to year (in the case of Oxidation and MF Influence categories) or were different for discrete samples (in the case for mineral SIs). The condition for most measured years/samples is shown.

7.3 Line Creek Operation (LCO)

Seepage monitoring locations at the LCO mine site are presented in Figure 7.5, seeps are color coded by nearest permitted surface water sampling location. Table 7.10 summarizes the seeps visited in 2020 RSMP.

Table 7.10: 2020 LCO Seeps

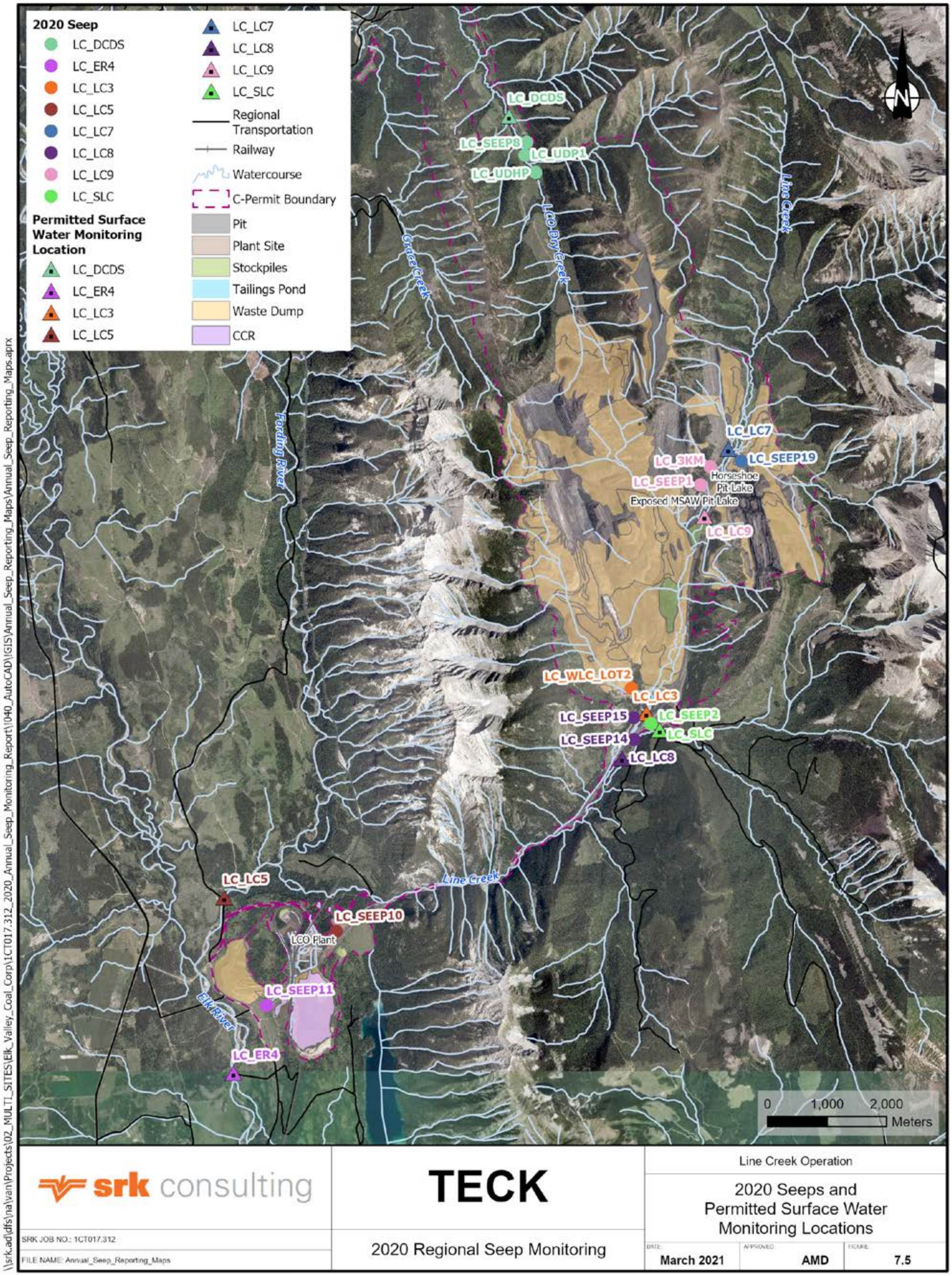
Seep ID	Group Name	Comparison Permitted Surface Water Sampling Location	Permitted Surface Water Sampling Location Type[1]	Notes
LC_UDHP	LC_DC_WR	LC_DCDS	SW	New seep identified and added to RSMP in 2019
LC_UDP1	LC_DC_WR	LC_DCDS	SW	New seep identified and added to RSMP in 2019
LC_SEEP8	LC_DC_WR	LC_DCDS	SW	-
LC_SEEP19	LC_HSP_WR	LC_LC7	DL	-
LC_3KM	LC_MSA_WR	LC_LC9	DL	-
LC_SEEP1	LC_MSA_WR	LC_LC9	DL	-
LC_WLC_LOT2	LC_WLC_WR	LC_LC3	SW	-
LC_SEEP2	LC_MAXAM	LC_SLC	SW	-
LC_SEEP15	LC_DisturbedWSlope	LC_LC8	DL	-
LC_SEEP14	LC_DC_WR	LC_LC8	DL	-
LC_SEEP10	LC_PLANT	LC_LC5	SW	-
LC_SEEP11	LC_PLANT	LC_ER4	SW	-

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\2020_WQ_Database_amd_rev02.xlsx

Notes:

[1] Permitted Surface Water Sampling Location Types are surface water (SW) or discharge location (DL).

Figure 7.5: 2020 Seeps and Selected Permitted Surface Water Monitoring Locations - LCO



7.3.1 Morrissey Formation and Oxidation Categorization

LCO seeps where the oxidation category or MF influence category has changed between 2019 and 2020 are listed in Table 7.11. One seep, LC_SEEP1, changed MF influence categories between 2019 and 2020. No seeps at LCO seeps changed oxidation categories between 2019 and 2020.

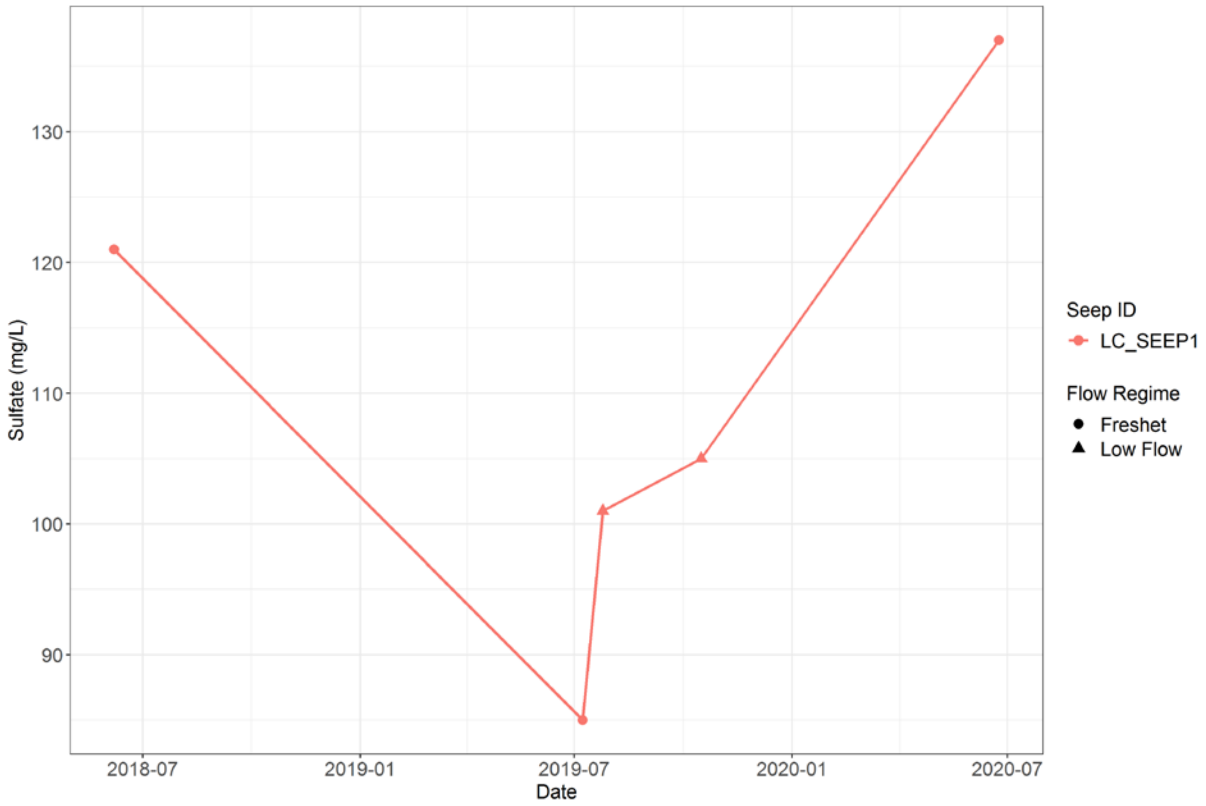
Table 7.11: LCO seeps with changed MF influence category

Seep ID	Seep Group	Change	2018		2019		2020	
			High Flow	Low Flow	High Flow	Low Flow	High Flow	Low Flow
LC_SEEP1	LC_MSA_WR	MF Influence	*Possible MF Influence*	No Sample (Frozen)	Not MF Influenced	*Possible MF Influence*	*Possible MF Influence*	No Sample (Frozen)

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.259_2019_Seep_Monitoring_Report\2020 Data\Data Analysis\2020_REPORTING_Seep_Selection_Criteria_rev02_amd.xlsx

LC_SEEP1 has been categorized as possibly MF influenced during the 2018 and 2020 high flow sampling surveys and the 2019 low flow sampling survey. It was categorized as not MF influenced during the 2019 high flow survey. The change in MF influence categorization at this seep is related to sulfate concentrations decreasing below 100 mg/L during 2019 high flow. The ratio of Zn/Cd at LC_SEEP1 has been consistently above 200 mg/mg since sampling began in 2018. Sulfate concentrations at LC_SEEP1 are shown in Figure 7.6. No increasing or decreasing sulfate trend is visually evident. These relationships will continue to be evaluated as more data is collected.

Figure 7.6: LCO seep LC_SEEP1 water quality timeseries for sulfate



Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\WQ Graphs\WQ_Timeseries_Graphs.Rmd

7.3.2 Site Specific Seepage Geochemical Interpretation

Table 7.13 summarizes the oxidation and MF influence categories of seeps and modelled calcite saturation at LCO. All seeps at LCO were categorized as oxic and no seeps were consistently categorized as possibly MF influenced. No seeps changed oxidation or MF influence categorization seasonally. Many seeps displayed parameter concentration seasonality. Seasonality and year-on-year trends identified in Table 7.13 are based on a qualitative visual review of water quality timeseries.

PHREEQC modelling of seeps that have high sulfate concentrations (> 1,000 mg/L) indicate mineral equilibrium with gypsum, where the remainder were undersaturated. Ferrihydrite was modelled and classified as supersaturated for all seeps at LCO.

A comparison of sulfate concentrations between LCO seeps and their corresponding permitted surface water monitoring locations in Table 7.12 and Appendix J shows that average sulfate concentrations at permitted surface water monitoring stations are mostly comparable to or only slightly higher than their upstream seeps. This may indicate that the permitted sampling surface water locations at LCO are mostly influenced by dilution.

All the LCO permitted monitoring surface water locations are classified as oxic, indicating that any suboxic waters contributed by upstream seeps categorized as suboxic are sufficiently diluted and/or mixed with other oxic waters before reaching a permitted surface water monitoring location. The oxidation and MF influence categorization for permitted surface water monitoring locations is in Appendix L.

Table 7.12: LCO seep and permitted sampling location sulfate concentrations and loadings comparison

Comparison Permitted Surface Water Sampling Location	Permitted Surface Water Sampling Location Type[1]	Average SO_4 Concentration – Comparison Permitted Surface Water Sampling Location (mg/L)	Seep ID	Average SO_4 Concentration - Seep (mg/L)
LC_DCDS	SW	101	LC_UDHP	72.9
			LC_UDP1	7.06
			LC_SEEP8	1.85
LC_LC7	DL	55.9	LC_SEEP19	294
LC_LC9	DL	121	LC_3KM	63.6
			LC_SEEP1	110
LC_LC3	SW	340	LC_WLC_LOT2	542
LC_SLC	SW	52.1	LC_SEEP2	29.9
LC_LC8	DL	-	LC_SEEP15	334
			LC_SEEP14	181
LC_LC5	SW	175	LC_SEEP10	145
LC_ER4	SW	-	LC_SEEP11	100

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\2020_Seep_Loadings_rev0_AD.xlsx

\\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\2020_ComparisonPt_Loadings_rev0_AD.xlsx

Notes: “-“ indicates that no sulfate concentrations have been reported at this location.

[1] Permitted Surface Water Sampling Location Types are surface water (SW) or discharge location (DL).

Table 7.13: Summary of Trends and Controls on Water Quality for Seeps at LCO

Seep ID	Material Group	Flow Period	Oxidation Category	MF Influence	Calcite	Calcite in Field (2020)	Ferrihydrite	Year-on-Year	Seasonality	Geochemical Indicators	Parameters Exceeding FWAL BCWQGs
LC_UDHP	LC_DC_WR	High Flow	Oxic	Not MF Influenced	Undersaturated	No	Supersaturated	Possible increasing SO4, Se, Cd, TDS	Higher Sb	▪ Poor correlation of metal concentrations with pH. ▪ High Se. ▪ Low SO4 (majority < 100 mg/L).	Se-T, NO3-N
		Low Flow	Oxic	Not MF Influenced	Undersaturated	No	Supersaturated[1]		Higher pH, SO4, NO3, TDS, U		
LC_UDP1	LC_DC_WR	High Flow	Oxic	Not MF Influenced	Undersaturated	No	Supersaturated	-	Higher Sb, U	▪ Poor correlation of metal concentrations with pH. ▪ Low SO4 (<10 mg/L).	Se-T
		Low Flow	Oxic	Not MF Influenced	Undersaturated	No	Not determined		Higher pH		
LC_SEEP8	LC_DC_WR	High Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated	Possible decreasing Sb	-	▪ Indication that calcite is supersaturated during high flow (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)). ▪ Low SO4 (< 3 mg/L). ▪ Highest pH of group (> 8.4).	-
		Low Flow	Samples Unattainable – consistently dry during low flows								
LC_SEEP19	LC_HSP_WR	High Flow	Oxic	Not MF Influenced	Undersaturated	No	Not determined	-	-	▪ Poor correlation of metal concentrations with pH. High Cd, Ni, Zn. ▪ High Se. ▪ Majority of U as U(VI), complexed with carbonate, good positive correlation of U concentration with total alkalinity.	SO4, Se-T, NO3-N, U-T
		Low Flow	Oxic	Not MF Influenced	Undersaturated[1]	No	Not determined		Higher SO4, Se, NO3, Cd, Ni, Sb, NO2, TDS, U, Mo		
LC_3KM	LC_MSA_WR	High Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated	Possible decreasing SO4, Se, NO3, Sb, TDS Possible increasing Cd, U	Higher Sb, U	▪ Indication that calcite are supersaturated during high flow (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)), undersaturated during low flow. ▪ Majority of U as U(VI), complexed with carbonate, good positive correlation of U concentration with total alkalinity.	Se-T
		Low Flow	Oxic	Not MF Influenced	Undersaturated[1]	No	Supersaturated				
LC_SEEP1	LC_MSA_WR	High Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated	-	-	▪ Most Co and Ni low or < DL. ▪ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	Se-T
		Low Flow	Oxic	Possible MF Influence	Supersaturated	No	Supersaturated				
LC_WLC_LOT2	LC_WLC_WR	High Flow	Oxic	Not MF Influenced	Undersaturated	No	Not determined	-	-	▪ Insufficient samples collected to understand trends (n=2).	-
		Low Flow	Oxic	Not MF Influenced	Samples Unattainable						
LC_SEEP2	LC_MAXAM	High Flow	Oxic	Not MF Influenced	Undersaturated	No	Supersaturated	-	Higher SO4, Se, NO3, TDS	▪ Most Co, Ni, Zn low or < DL. ▪ Low SO4 (< 40 mg/L).	Se-T, NO3-N
		Low Flow	Oxic	Not MF Influenced	Undersaturated	No	Supersaturated[1]				

Seep ID	Material Group	Flow Period	Oxidation Category	MF Influence	Calcite	Calcite in Field (2020)	Ferrihydrite	Year-on-Year	Seasonality	Geochemical Indicators	Parameters Exceeding FWAL BCWQGs
LC_SEEP15	LC_DisturbedWSlope	High Flow	Oxic	Possible MF Influence[1]	Not determined	Yes	Supersaturated	Possible decreasing Se, NO3	-	■ Indication that calcite is supersaturated during low flow (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)). ■ Most Cd, Co, Ni, and Zn concentrations low or < DL. ■ High Se.	Se-T, NO3-N
		Low Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated				
LC_SEEP14	LC_DC_WR	High Flow	Oxic	Not MF Influenced	Undersaturated	No	Supersaturated	Possible decreasing Cd, TDS	-	■ Poor correlation of metal concentrations with pH, high Cd, Ni, Zn.	Se-T, NO3-N
		Low Flow	Oxic	Not MF Influenced	Undersaturated	No	Supersaturated				
LC_SEEP10	LC_PLANT	High Flow	Oxic	Not MF Influenced[1]	Undersaturated	Yes	Not determined	-	-	■ Seep group shows weak negative correlation for Cd, Co, Ni, Zn with pH.	-
		Low Flow	Oxic	Not MF Influenced	Undersaturated	Yes	Undersaturated[1]				
LC_SEEP11	LC_PLANT	High Flow	Oxic	Not MF Influenced[1]	Undersaturated	No	Equilibrium	-	-	■ Seep group shows weak negative correlation for Cd, Co, Ni, Zn with pH.	Se-T
		Low Flow	Oxic	Not MF Influenced	Undersaturated[1]	No	Supersaturated[1]				

Sources: \\VAN-SVR0\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\2020_REPORTING_Seep_Selection_Criteria_rev01_amd_sjl.xlsx

Notes: Categorizations labelled as “Not determined” indicates seep where an equal number of instances occurred for each category, so classification could not be determined.

[1] Indicates instances where categorizations or mineral saturation changed from year to year (in the case of Oxidation and MF Influence categories) or were different for discrete samples (in the case for mineral SIs). The condition for most measured years/samples is shown.

7.4 Elkview Operation (EVO)

Seepage monitoring locations at the EVO mine site are presented in Figure 7.7, seeps are color coded by nearest permitted surface water sampling location. Table 7.14 summarizes the seeps visited during 2020 seep monitoring.

EV_SEEP_CFI3 has been visited consistently between 2018 and 2020. It was dry for both 2019 and 2020 sampling events.

Table 7.14: 2020 EVO Seeps

Seep ID	Group Name	Comparison Permitted Surface Water Sampling Location	Permitted Surface Water Sampling Location Type[1]	Notes
EV_SEEP_ERICKSON1	EV_Erickson_WR	EV_EC1	DL	-
EV_SEEP_ERICKSON2	EV_Erickson_WR	EV_EC1	DL	-
EV_SEEP_SOUTHPIT6	EV_SouthPit_Pit	EV_SP1	DL	-
EV_SEEP_SOUTHPIT3	EV_SOUTHSLOPE	EV_TC1	SW	-
EV_SEEP_SOUTHPIT4	EV_SOUTHSLOPE	EV_TC1	SW	-
EV_SEEP_HOPPER2	EV_BALDYRIDGEWR	EV_BC1	DL	-
EV_SEEP_NATALPIT2	EV_BALDYRIDGEWR	EV_BC1	DL	Unsafe to access in October 2020
EV_SEEP-4	EV_BALDYRIDGEWR	EV_AQ6	DL	Covered by mined out material 2019
EV_SEEP_BR2_1	EV_BALDYRIDGEWR	EV_AQ6	DL	Covered by mined out material 2019
EV_SEEP_TURCON1	EV_BALDYRIDGEWR	EV_AQ6	DL	-
EV_SEEP_PLANT10	EV_PLANT	EV_OC1	DL	-
EV_SEEP_PLANT1	EV_PLANT	EV_OC1	DL	-
EV_SEEP_PLANT11	EV_PLANT	EV_OC1	DL	-
EV_SEEP_BREAKERLAKE	EV_BALDYRIDGEWR	EV_GC2	DL	-
EV_SEEP_PLANT23	EV_PLANT	EV_GC2	DL	-
EV_WLAGC	EV_CCR/TP	EV_GC2	DL	-
EV_CN1	EV_CEDARWR	EV_LC1	DL	-
EV_SEEP_10MILE5	EV_CEDARWR	EV_LC1	DL	Unsafe to access in October 2020
EV_SEEP_10MILE9	EV_CEDARWR	EV_LC1	DL	Unsafe to access in October 2020
EV_SEEP_CFI1	EV_CCR	EV_LC1	DL	-

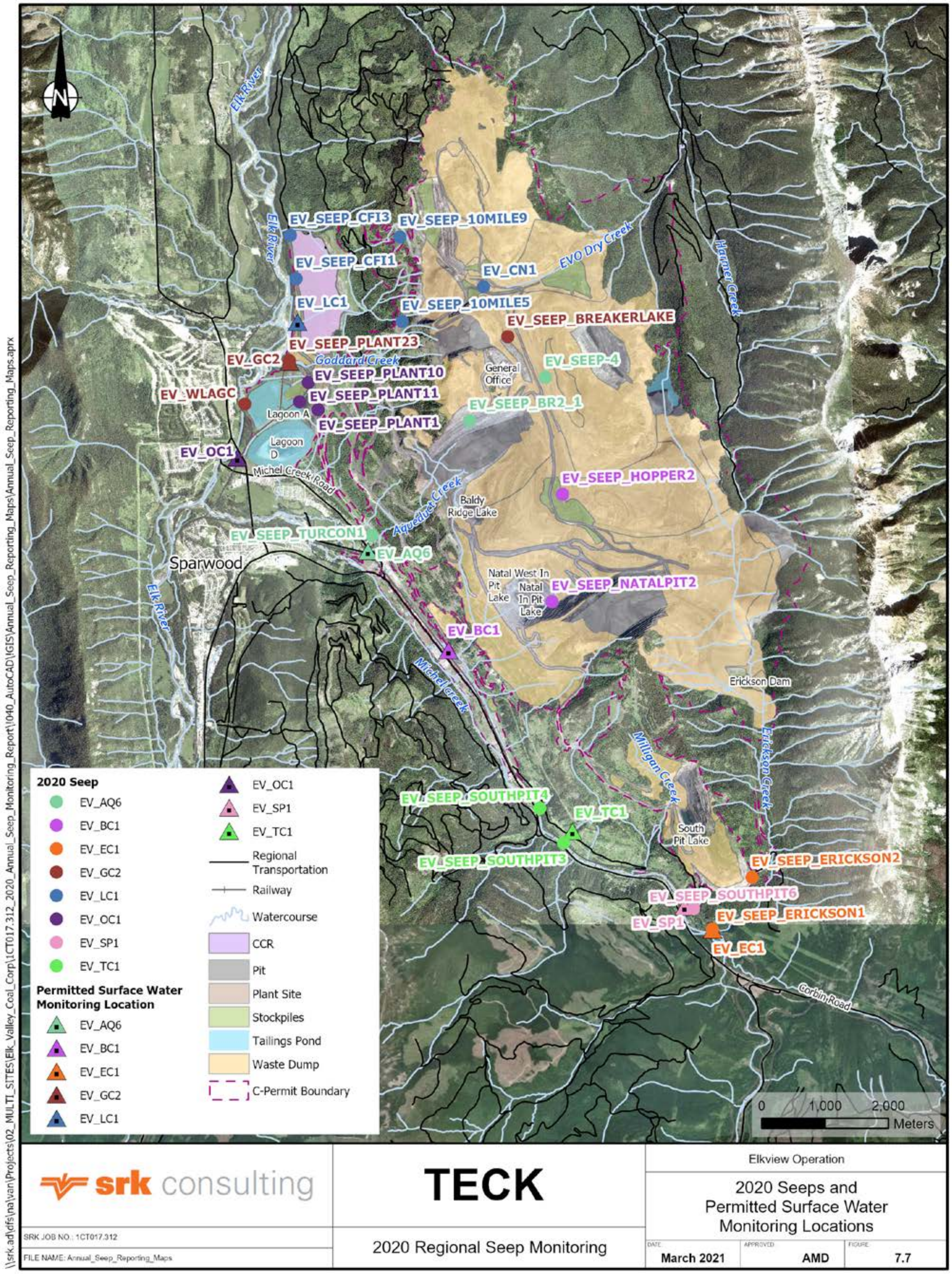
Seep ID	Group Name	Comparison Permitted Surface Water Sampling Location	Permitted Surface Water Sampling Location Type[1]	Notes
EV_SEEP_CFI3	EV_CCR	EV_LC1	DL	Dry in June and September 2019 & 2020

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\2020_WQ_Database_amd_rev02.xlsx

Notes:

[1] Permitted Surface Water Sampling Location Types are surface water (SW) or discharge location (DL).

Figure 7.7: 2020 Seeps and Selected Permitted Surface Water Monitoring Locations - EVO



7.4.1 Morrissey Formation and Oxidation Categorization

EVO seeps where the oxidation category or MF influence category has changed between 2019 and 2020 are listed in Table 7.15. Two seeps changed MF influence categories between 2019 and 2020. No seeps at EVO changed oxidation categories between 2019 and 2020.

Table 7.15: EVO seeps with changed MF influence category

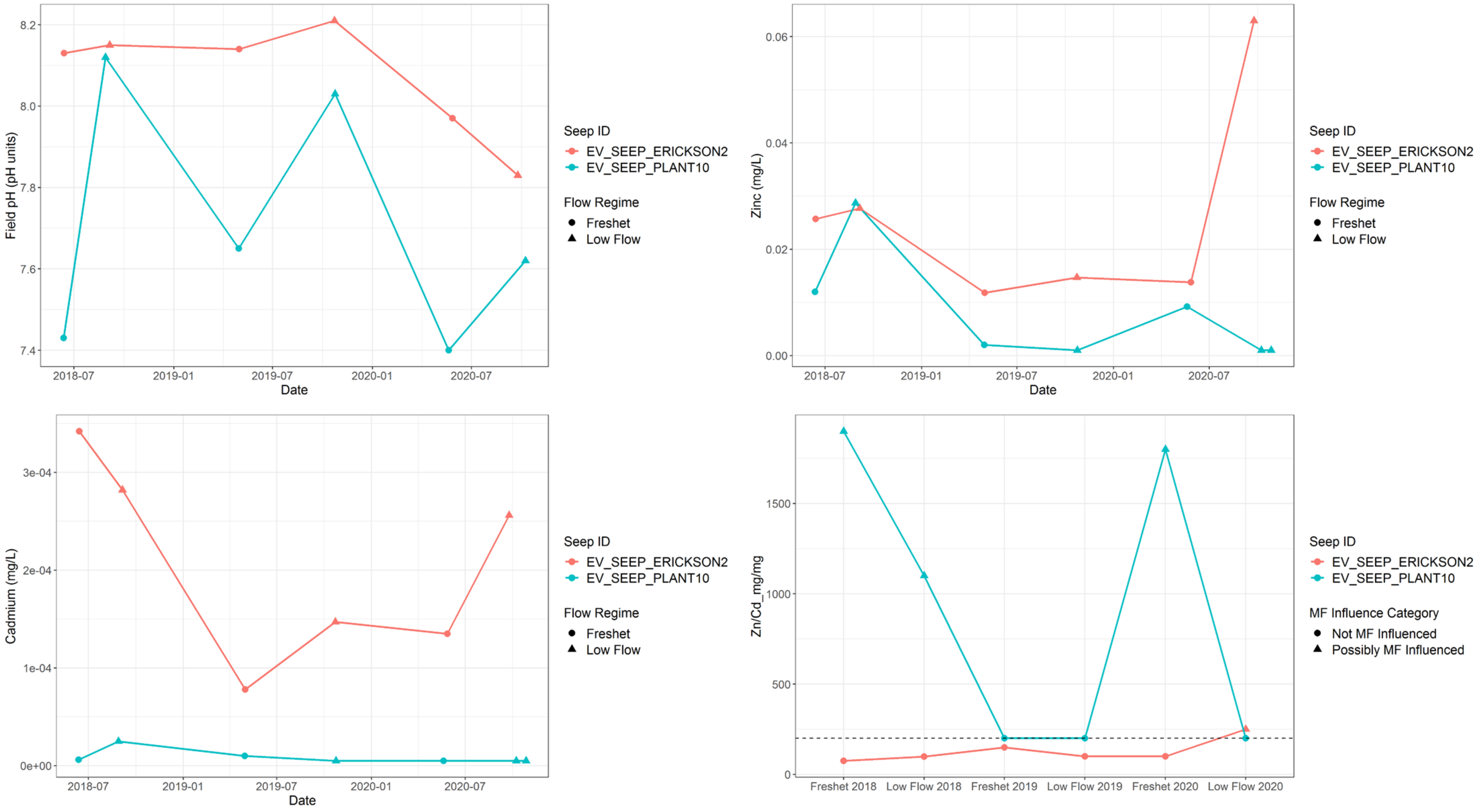
Seep ID	**Seep Group**	**Change**	**2018**		**2019**		**2020**	
			High Flow	Low Flow	High Flow	Low Flow	High Flow	Low Flow
EV_SEEP_ERICKSON2	EV_Erickson_WR	MF Influence	Not MF Influenced	Not MF Influenced	Not MF Influenced	Not MF Influenced	Not MF Influenced	*Possible MF Influence*
EV_SEEP_PLANT10	EV_PLANT	MF Influence	*Possible MF Influence*	*Possible MF Influence*	Not MF Influenced	Not MF Influenced	*Possible MF Influence*	Not MF Influenced

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.259_2019_Seep_Monitoring_Report\2020 Data\Data Analysis\2020_REPORTING_Seep_Selection_Criteria_rev0_amd.xlsx

EV_SEEP_ERICKSON2 was categorized as not MF influenced from the 2018 high flow sampling event up to the 2020 high flow sampling survey. During 2020 low flow sampling this seep was categorized as possibly MF influenced. Sulfate concentrations at this seep are consistently above 1,000 mg/L. Zinc and Zn/Cd show a possible increasing trend while field pH shows a possible decreasing trend in Figure 7.8.

EV_SEEP_PLANT10 has also been categorized as possibly MF influenced during both 2018 sampling surveys in addition to the 2020 high flow sampling event. During both 2019 sampling events and the 2020 low flow sampling the seep was categorized as not MF influenced. pH at EV_SEEP_PLANT10 shows a possible seasonality in Figure 7.8.

Figure 7.8: EVO water quality timeseries for field pH, zinc, cobalt, and Zn/Cd at EV_SEEP_PLANT10 and EV_SEEP_ERICKSON2



Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\WQ Graphs\WQ_Timeseries_Graphs.Rmd

Notes: Dashed line shows the Zn/Cd criterion that is applied to categorize seeps as possibly MF influenced.

7.4.2 Site Specific Seepage Geochemical Interpretation

Table 7.17 summarizes the oxidation and MF influence categories of seeps and modelled calcite saturation at EVO. All seeps at EVO that could be categorized and permitted surface water monitoring locations are oxic and two seeps were consistently categorized as possibly MF influenced: EV_SEEP_ERICKSON1, and EV_SEEP_PLANT23. Most seeps did not seasonally change oxidation or MF influence categorization. Many seeps displayed seasonality in some parameter concentrations. Seasonality and year-on-year trends identified in Table 7.17 are based on a qualitative visual review of water quality timeseries.

Three seeps seasonally changed modelled calcite saturation. Two seeps (EV_SEEP_BREAKERLAKE, in the EV_BALDYRIDGEWR group, and EV_SEEP_PLANT1, in the EV_PLANT group) indicated calcite was supersaturated in high flows and undersaturated during low flows. At EV_SEEP_BREAKERLAKE, cadmium and uranium were seasonally higher during low flow, when calcite was undersaturated. EV_SEEP_SOUTHPIT3 (EV_SOUTHSLOPE group) showed the opposite, with calcite undersaturation during high flows and supersaturation during low flow. Higher selenium was noted in high flows when calcite was undersaturated.

PHREEQC modelling of seeps that have high sulfate concentrations (> 1,000 mg/L) indicate mineral equilibrium with gypsum, where the remainder were undersaturated. Ferrihydrite was modelled and classified as undersaturated for seeps which had low ORP compared to other seeps at EVO (< 100 mV). Many had detectable iron concentrations.

A comparison of sulfate concentrations at the EVO seeps compared to their corresponding permitted surface water monitoring locations in Table 7.16 and Appendix J shows that, in general, average sulfate concentrations at permitted surface water monitoring stations are often less than or equal to the average sulfate concentrations of their corresponding upstream seeps.

The following seeps have average sulfate concentrations less than their permitted surface water monitoring location counterparts and higher metal concentrations for certain metals, indicating possible metal attenuation:

- EV_SEEP_ERICKSON1 (EV_Erickson_WR group) for Co, Fe, Mn, and Sr.
- EV_SEEP_SOUTHPIT4 (EV_SOUTHSLOPE group) for Ba, B, Fe, Li, Mn, K, Na, and Sr.
- EV_WLAGC (EV_CCR/TP) for As, Ba, Fe, Mn, and Ti.
- EV_SEEP_10MILE9 (EV_CEDARWR group) for Cd, Co, and Mn.
- EV_CFI1 (EV_CCR) for Ba, Fe, and Mn.

Table 7.16: EVO seep and permitted surface water sampling location sulfate concentrations and loadings comparison

Comparison Permitted Surface Water Sampling Location	Permitted Surface Water Sampling Location Type[1]	Average SO_4 Concentration – Comparison Permitted Surface Water Sampling Location (mg/L)	Seep ID	Average SO_4 Concentration - Seep (mg/L)
EV_EC1	DL	750	EV_SEEP_ERICKSON1	445
			EV_SEEP_ERICKSON2	1720
EV_SP1	DL	707	EV_SEEP_SOUTHPIT6	1620
EV_TC1	SW	59.8	EV_SEEP_SOUTHPIT3	70.5
			EV_SEEP_SOUTHPIT4	3.23
EV_BC1	DL	931	EV_SEEP_HOPPER2	2210
			EV_SEEP_NATALPIT2	1020
EV_AQ6	DL	-	EV_SEEP_BR2_1	-
			EV_SEEP_TURCON1	94.7
EV_OC1	DL	48.3	EV_SEEP_PLANT10	542
			EV_SEEP_PLANT1	110
			EV_SEEP_PLANT11	187
EV_GC2	DL	300	EV_SEEP_BREAKERLAKE	245
			EV_SEEP_PLANT23	433
			EV_WLAGC	23.6
EV_LC1	DL	74	EV_CN1	334
			EV_SEEP_10MILE5	380
			EV_SEEP_10MILE9	12.2
			EV_SEEP_CFI1	2.42
			EV_SEEP_CFI3	561

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\2020_Seep_Loadings_rev0_AD.xlsx

\\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\2020_ComparisonPt_Loadings_rev0_AD.xlsx

Notes: “-“ indicates that no sulfate concentrations have been reported at this location.

[1] Permitted Surface Water Sampling Location Types are surface water (SW) or discharge location (DL).

Table 7.17: Summary of Trends and Controls on Water Quality for Seeps at EVO

Seep ID	Material Group	Flow Period	Oxidation Category	MF Influence	Calcite	Calcite in Field (2020)	Ferrihydrite	Year-on-Year	Seasonality	Geochemical Indicators	Parameters Exceeding FWAL BCWQGs
EV_SEEP_ERICKSON1	EV_Erickson_WR	High Flow	Oxic	Possible MF Influence[1]	Undersaturated	No	Supersaturated	Possible increasing pH	-	▪ Poor correlation of metal concentration with pH, lowest Cd, Ni, and Zn of group, highest Co, and Mn of group. ▪ Lowest Se and SO4 of group.	Se-T
		Low Flow	Oxic	Possible MF Influence	Undersaturated	No	Not determined				
EV_SEEP_ERICKSON2	EV_Erickson_WR	High Flow	Oxic	Not MF Influenced	Supersaturated[1]	No	Supersaturated	Possible decreasing pH, SO4, Se, Ni, U, Mo	-	▪ Poor correlation of metal concentration with pH, highest Cd, Ni, and Zn of group, lowest Co, and Mn of group. ▪ Highest Se and SO4 of group. SO4 > 1700 mg/L. ▪ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	Se-T
		Low Flow	Oxic	Not MF Influenced[1]	Supersaturated[1]	Yes	Supersaturated				
EV_SEEP_SOUTHPIT6	EV_SouthPit_Pit	High Flow	Oxic	Not MF Influenced	Supersaturated	Yes	Supersaturated	Possible decreasing TDS	-	▪ Poor correlation of metal concentration with pH, except Cd (good negative correlation). ▪ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)). ▪ High SO4 (> 1500 mg/L), mineral SI indicates in equilibrium with gypsum.	Se-T
		Low Flow	Oxic	Not MF Influenced	Supersaturated[1]	Yes	Supersaturated		Higher SO4, Cd		
EV_SEEP_SOUTHPIT3	EV_SOUTHSLOPE	High Flow	Oxic	Not MF Influenced	Undersaturated[1]	Yes	Supersaturated	Possible decreasing Cd	Higher Se	▪ Poor correlation of metal concentration with pH, highest Cd, Ni, Se of group. ▪ Indication that calcite is undersaturated during high flow, supersaturated during low flow (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)). ▪ Highest SO4 in group (> 60 mg/L).	Se-T
		Low Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated		-		
EV_SEEP_SOUTHPIT4	EV_SOUTHSLOPE	High Flow	Oxic	Not MF Influenced	Undersaturated	Yes	Supersaturated	Possible decreasing Mo	Higher U	▪ Fe, Mn, Zn highest in group ▪ Low SO4 (< 10 mg/L).	Se-T
		Low Flow	Oxic	Not MF Influenced	Undersaturated[1]	Yes	Supersaturated				
EV_SEEP_HOPPER2	EV_BALDYRIDGEWR	High Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated	-	-	▪ Poor correlation of metal concentrations with pH, high Cd, Co, Ni. ▪ Positive correlation of Se with pH across group, Se highest compared to other seeps in group. ▪ Highest SO4 of group (> 2000 mg/L), mineral SI indicates in equilibrium with gypsum. ▪ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	Se-T
		Low Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated		Higher NO3, Co		
EV_SEEP_NATALPIT2	EV_BALDYRIDGEWR	High Flow	Oxic	Not MF Influenced	Undersaturated	No	Supersaturated	Possible decreasing Co, Ni, U	Higher NO3, U	▪ Poor correlation of metal concentrations with pH, high Cd, Co, Ni, and Zn. ▪ High SO4, mineral SI indicates in equilibrium with gypsum.	Se-T
		Low Flow	Oxic	Not MF Influenced	Not determined	No	Supersaturated		-		
EV_SEEP-4	EV_BALDYRIDGEWR	High Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated	-	-	▪ Insufficient samples collected to understand trends (n=1).	Se-T
		Low Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated				

Seep ID	Material Group	Flow Period	Oxidation Category	MF Influence	Calcite	Calcite in Field (2020)	Ferrihydrite	Year-on-Year	Seasonality	Geochemical Indicators	Parameters Exceeding FWAL BCWQGs
EV_SEEP_BR2_1	EV_BALDYRIDGEWR	High Flow						Samples Unattainable			
		Low Flow						Samples Unattainable			
EV_SEEP_TURCON1	EV_BALDYRIDGEWR	High Flow	Oxic	Not MF Influenced	Undersaturated	No	Not determined	-	-	▪ Poor correlation of metal concentration with pH, lowest pH of group, lowest Cd, Co, Ni, and Zn. ▪ Highest Fe, Mn of group. ▪ Field ORP measurements indicate reducing conditions (< -50 mV).	Se-T
		Low Flow	Oxic	Not MF Influenced	Undersaturated	No	Not determined				
EV_SEEP_PLANT10	EV_PLANT	High Flow	Oxic[1]	Possible MF Influence	Undersaturated	No	Not determined	-	-	▪ Poor correlation of metal concentration with pH, low Cd, Co, Ni, and Zn.	Se-T
		Low Flow	Oxic[1]	Not MF Influenced[1]	Not determined	No	Supersaturated[1]		Higher pH		
EV_SEEP_PLANT1	EV_PLANT	High Flow	Oxic	Not determined	Supersaturated	No	Supersaturated	Possible increasing pH	-	▪ Weak negative correlation of metal concentration with pH (Cd, Co, Ni, Zn). ▪ Indication that calcite is supersaturated during high flow (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)), undersaturated during low flow. ▪ Low SO4 (90 - 150 mg/L).	Se-T
		Low Flow	Oxic	Not MF Influenced[1]	Undersaturated[1]	Yes	Supersaturated		Higher Co, U, Mo		
EV_SEEP_PLANT11	EV_PLANT	High Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated	-	-	▪ Poor correlation of metal concentration with pH. ▪ Indication that calcite is supersaturated during high flow (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	Se-T
		Low Flow	Oxic	Not MF Influenced[1]	Not determined	No	Supersaturated				
EV_SEEP_BREAKERLAKE	EV_BALDYRIDGEWR	High Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated	-	Higher pH	▪ Indication that calcite is supersaturated during high flow (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)), undersaturated during low flow. ▪ Poor correlation of metal concentrations with pH, high Cd, Co. ▪ pCO2 negatively correlated with calcite SI.	Se-T
		Low Flow	Oxic	Not MF Influenced	Undersaturated[1]	No	Supersaturated		Higher Cd, U		
EV_SEEP_PLANT23	EV_PLANT	High Flow	Oxic	Possible MF Influence	Undersaturated	Yes	Not determined	Possible decreasing Se	-	▪ Poor correlation of metal concentration with pH.	Se-T
		Low Flow	Oxic	Possible MF Influence	Undersaturated[1]	Yes	Supersaturated				
EV_WLAGC	EV_CCR/TP	High Flow	Oxic	Not MF Influenced	Undersaturated	Yes	Supersaturated	-	-	▪ Poor correlation of metal concentration with pH. ▪ Low SO4 (< 30 mg/L). ▪ Majority of U as U(VI), complexed with carbonate.	Se-T
		Low Flow	Oxic	Not MF Influenced	Undersaturated	Yes	Supersaturated		Higher U		
EV_CN1	EV_CEDARWR	High Flow	Oxic	Not MF Influenced	Supersaturated[1]	-	Supersaturated	Possible increasing NO3	-	▪ Poor correlation of metal concentration with pH. ▪ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	Se-T, NO3-N
		Low Flow	Oxic	Not MF Influenced	Supersaturated	Yes	Supersaturated		Higher SO4, Se, NO3, Cd, Ni, Sb, NO2, TDS, U		
EV_SEEP_10MILE5	EV_CEDARWR	High Flow	Oxic	Not MF Influenced	Supersaturated[1]	No	Supersaturated	-	-	▪ Poor correlation of metal concentration with pH, lowest Cd, Co, Ni, and Zn of group.	Se-T
		Low Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated				

Seep ID	Material Group	Flow Period	Oxidation Category	MF Influence	Calcite	Calcite in Field (2020)	Ferrihydrite	Year-on-Year	Seasonality	Geochemical Indicators	Parameters Exceeding FWAL BCWQGs
										▪ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	
EV_SEEP_10MILE9	EV_CEDARWR	High Flow	Oxic	Not MF Influenced	Undersaturated	No	Not determined	-	-	▪ Low field pH (5.9 < pH < 7.2), but do not contain highest metal (e.g., Co, Ni, Zn) concentrations (similar concentrations to EV_CN1), high Cd and Mn. ▪ Low SO4 (< 14 mg/L). ▪ Highest pCO2 of group (> 10^-2 atm), lowest calcite SI.	Se-T
		Low Flow	Oxic	Not MF Influenced	Undersaturated	No	Not determined				
EV_SEEP_CFI1	EV_CCR	High Flow	Oxic	Not MF Influenced	Supersaturated	Yes	Supersaturated	Possible increasing Co, Ni, U Possible decreasing NO2	-	▪ Poor correlation of metal concentration with pH. ▪ Very low SO4 (< 12 mg/L). ▪ Majority of U as U(VI), complexed with carbonate. ▪ Indication that calcite is supersaturated during high flow (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	Se-T
		Low Flow	Oxic	Not MF Influenced	Not determined	Yes	Supersaturated[1]				
EV_SEEP_CFI3	EV_CCR	High Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated	-	-	▪ Insufficient samples collected to understand trends (n=1).	-
		Low Flow	Samples Unattainable								

Sources: \\VAN-SVR0\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\2020_REPORTING_Seep_Selection_Criteria_rev01_amd_sjl.xlsx

Notes: Categorizations labelled as “Not determined” indicates seep where an equal number of instances occurred for each category, so classification could not be determined.

[1] Indicates instances where categorizations or mineral saturation changed from year to year (in the case of Oxidation and MF Influence categories) or were different for discrete samples (in the case for mineral SIs). The condition for most measured years/samples is shown.

7.5 Coal Mountain Mine (CMm)

Seepage monitoring locations at the CMm mine site facilities are presented in Figure 7.9, seeps are color coded by nearest permitted surface water sampling location. Table 7.18 summarizes the seeps visited during the 2020 RSMP.

Table 7.18: 2020 CMm Seeps

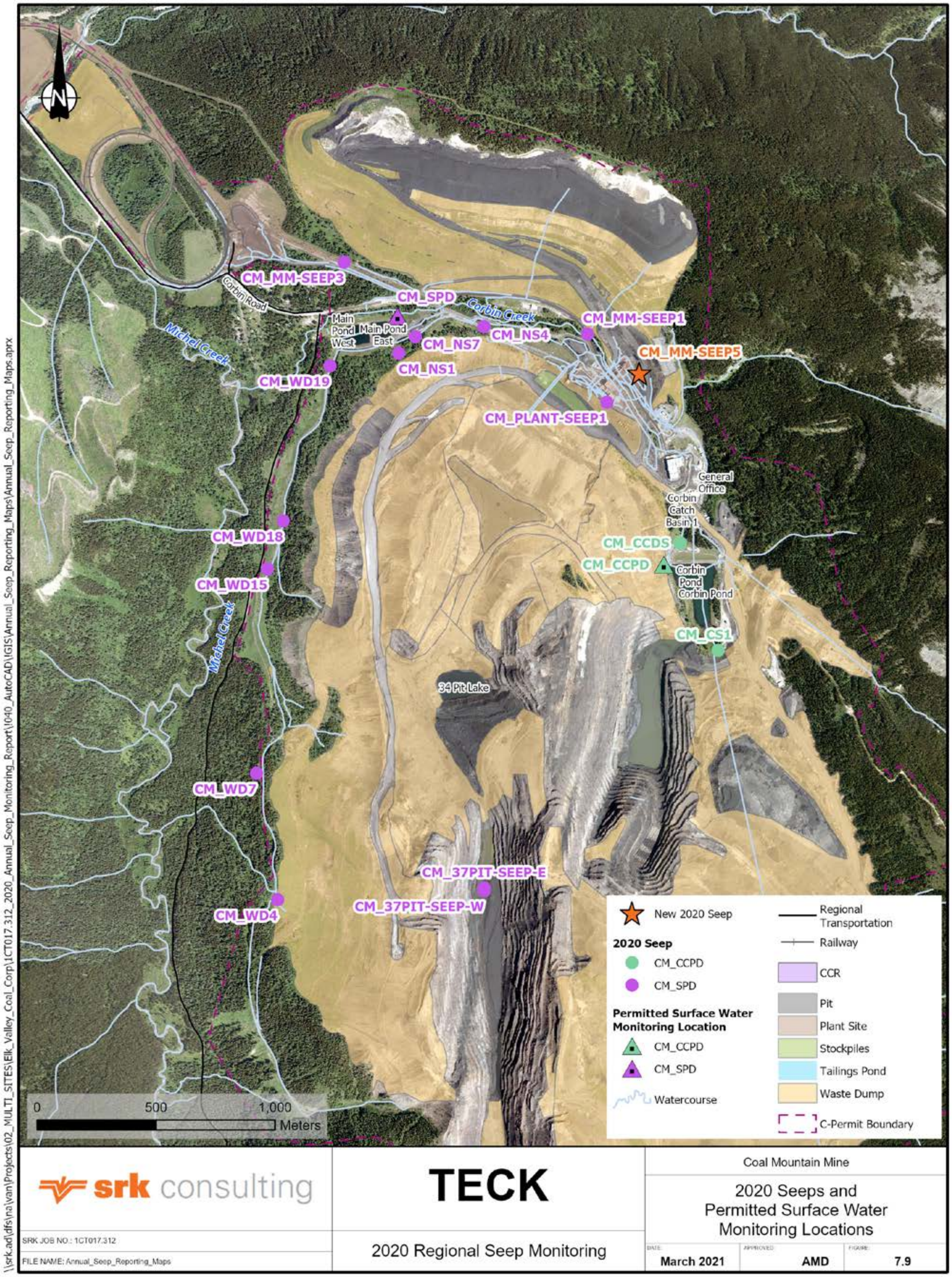
Seep ID	Group Name	Comparison Permitted Surface Water Sampling Location s	Permitted Surface Water Sampling Location Type[1]	Notes
CM_CS1	CM_EASTWR	CM_CCPD	DL	-
CM_CCDS	CM_EASTWR	CM_CCPD	DL	-
CM_37PIT-SEEP-E	CM_37PIT	CM_SPD	DL	-
CM_37PIT-SEEP-W	CM_37PIT	CM_SPD	DL	-
CM_WD4	CM_WESTWR	CM_SPD	DL	-
CM_WD7	CM_WESTWR	CM_SPD	DL	-
CM_WD15	CM_WESTWR	CM_SPD	DL	-
CM_WD18	CM_WESTWR	CM_SPD	DL	-
CM_WD19	CM_WESTWR	CM_SPD	DL	-
CM_PLANT-SEEP1	CM_EASTWR	CM_SPD	DL	-
CM_MM-SEEP1	CM_MMCCR	CM_SPD	DL	-
CM_NS4	CM_MMCCR	CM_SPD	DL	-
CM_NS7	CM_MMCCR	CM_SPD	DL	-
CM_NS1	CM_EASTWR	CM_SPD	DL	-
CM_MM-SEEP3	CM_MMCCR	CM_SPD	DL	-

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\2020_WQ_Database_amd_rev02.xlsx

Notes:

[1] Permitted Surface Water Sampling Location Types are surface water (SW) or discharge location (DL).

Figure 7.9: 2020 Seeps and Selected Permitted Surface Water Monitoring Locations - CMm



7.5.1 Morrissey Formation and Oxidation Categorization

CMm seeps where the oxidation category or MF influence category has changed between 2019 and 2020 are listed in Table 7.19. Three CMm seeps changed MF influence categories between 2019 and 2020 and five CMm seeps changed oxidation categories between 2019 and 2020.

Table 7.19: CMm seeps with changed oxidation or MF influence category

Seep ID	Seep Group	Change	2018		2019		2020	
			High Flow	Low Flow	High Flow	Low Flow	High Flow	Low Flow
CM_37PIT-SEEP-E	CM_37PIT	MF Influence	No MF Influence	*Possible MF Influence*	*Possible MF Influence*	*Possible MF Influence*	No MF Influence	*Possible MF Influence*
CM_37PIT-SEEP-W	CM_37PIT	Oxidation	*Suboxic*	Oxic	*Suboxic*	*Suboxic*	Oxic	Oxic
CM_37PIT-SEEP-W	CM_37PIT	MF Influence	No MF Influence	No MF Influence	*Possible MF Influence*	*Possible MF Influence*	No MF Influence	No MF Influence
CM_NS4	CM_MMCCR	Oxidation	Oxic	*Suboxic*	Oxic	Oxic	Oxic	*Suboxic*
CM_NS7	CM_MMCCR	Oxidation	Oxic	*Suboxic*	Oxic	Oxic	Oxic	*Suboxic*
CM_WD15	CM_WESTWR	Oxidation	Oxic	*Suboxic*	Oxic	Oxic	Oxic	*Suboxic*
CM_WD19	CM_WESTWR	Oxidation	*Suboxic*	*Suboxic*	*Suboxic*	Oxic	Oxic	*Suboxic*
CM_WD19	CM_WESTWR	MF Influence	No MF Influence	No MF Influence	No MF Influence	*Possible MF Influence*	No MF Influence	*Possible MF Influence*

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.259_2019_Seep_Monitoring_Report\2020 Data\Data Analysis\2020_REPORTING_Seep_Selection_Criteria_rev02_amd.xlsx

CM_37PIT-SEEP-E was categorized as not MF influenced during 2018 and 2020 high flow sampling and possibly MF influenced during the four other sampling surveys. Sulfate concentrations at this seep are consistently above 500 mg/L, therefore, changes to the MF influence classification of this seep are related to Zn/Cd. Figure 7.10 shows that cadmium concentrations are variable while zinc concentrations show a possible decreasing trend.

CM_37PIT-SEEP-W has been categorized as possibly MF influenced during both 2019 sampling events and not MF influenced during all 2018 and 2020 sampling events. The change in MF influence categorization of this seep is related to Zn/Cd which increased significantly during both 2019 surveys. Zn/Cd changes are shown in Figure 7.10. CM_37PIT-SEEP-W has been categorized as suboxic during the 2018 high flow sampling event and the two 2019 sampling surveys. It has been categorized as oxic during the 2018 low flow sampling and both 2020 sampling events. The oxidation category of CM_37PIT-SEEP-W is influenced by sulfate concentrations which fluctuate around 500 mg/L (471 to 748 mg/L range).

CM_NS4 has been categorized as suboxic during the 2018 low flow and 2020 low flow events and oxic during all other sampling events. Sulfate concentrations are consistently above 500 mg/L (600 mg/L to 878 mg/L range), therefore the oxidation category at CM_NS4 is related to Se/ SO_4 variability, shown in Figure 7.11.

CM_NS7 has been categorized as suboxic during the 2018 and 2020 low flow surveys and oxic during all other sampling events. Sulfate concentrations at this seep are also consistently above 500 mg/L (796 to 974 mg/L), therefore, the changing oxidation category at CM_NS7 is related to the Se/SO_4 variability.

CM_WD15 has been categorized as suboxic during the 2018 and 2020 low sampling events and oxic during all other sampling events. CM_WD19 has been categorized as suboxic during all sampling events except 2019 low flow sampling and 2020 high flow sampling. Sulfate concentrations both CM_WD15 and CMWD19 is consistently above 500 mg/L, therefore, the change to the oxidation category at both seeps is related to changes in Se/SO_4, shown in Figure 7.12. No seasonal or year-on-year trends are visually apparent for selenium, SO_4 or Se/SO_4 at either seep.

CM_WD19 has been categorized twice as possibly MF influenced during the 2019 and 2020 low flow sampling surveys. Because sulfate concentrations are consistently above 500 mg/L (935 to 1,050 mg/L range), the change in MF influence categorization is related to Zn/Cd fluctuations around 200 mg/mg. Zn/Cd at CM_WD19 may be increasing over time in Figure 7.12.

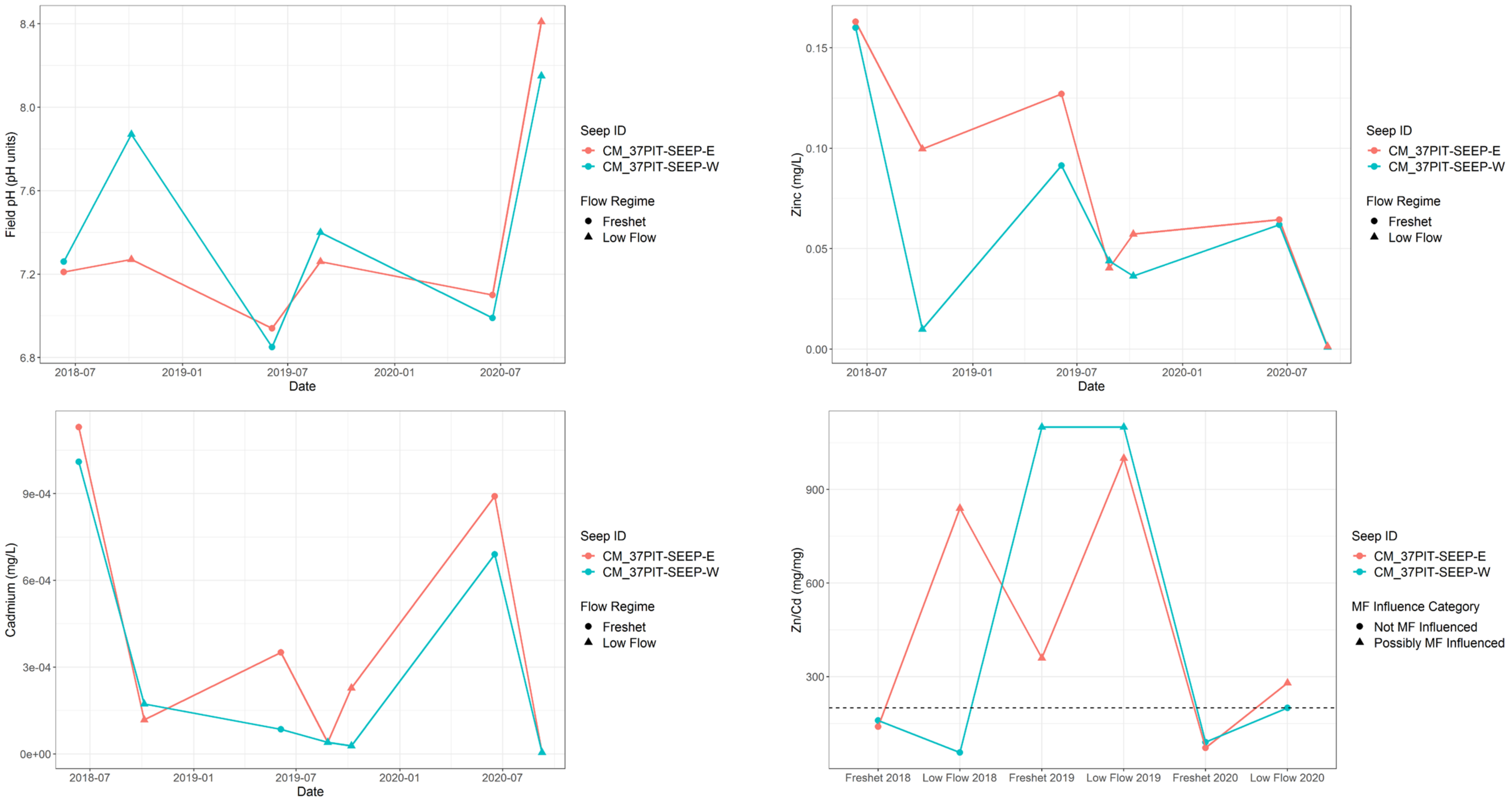
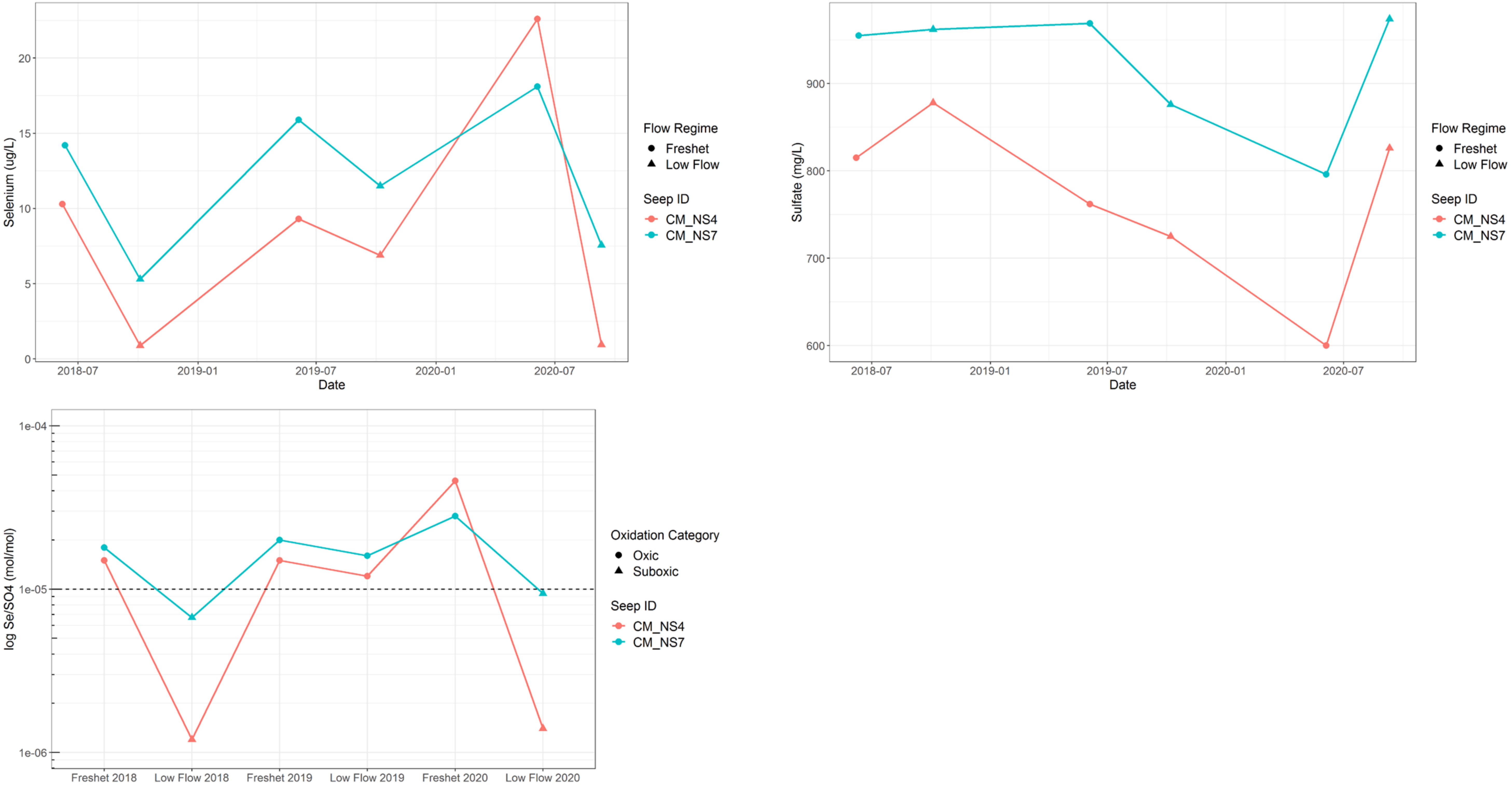


Figure 7.10: CMm water quality timeseries for field pH, zinc, cobalt , and Zn/Cd at CM_37PIT-SEEP-E and CM_37PIT-SEEP-W

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\WQ Graphs\WQ_Timeseries_Graphs.Rmd

Notes: Dashed line shows the Zn/Cd criterion that is applied to categorize seeps as possibly MF influenced.

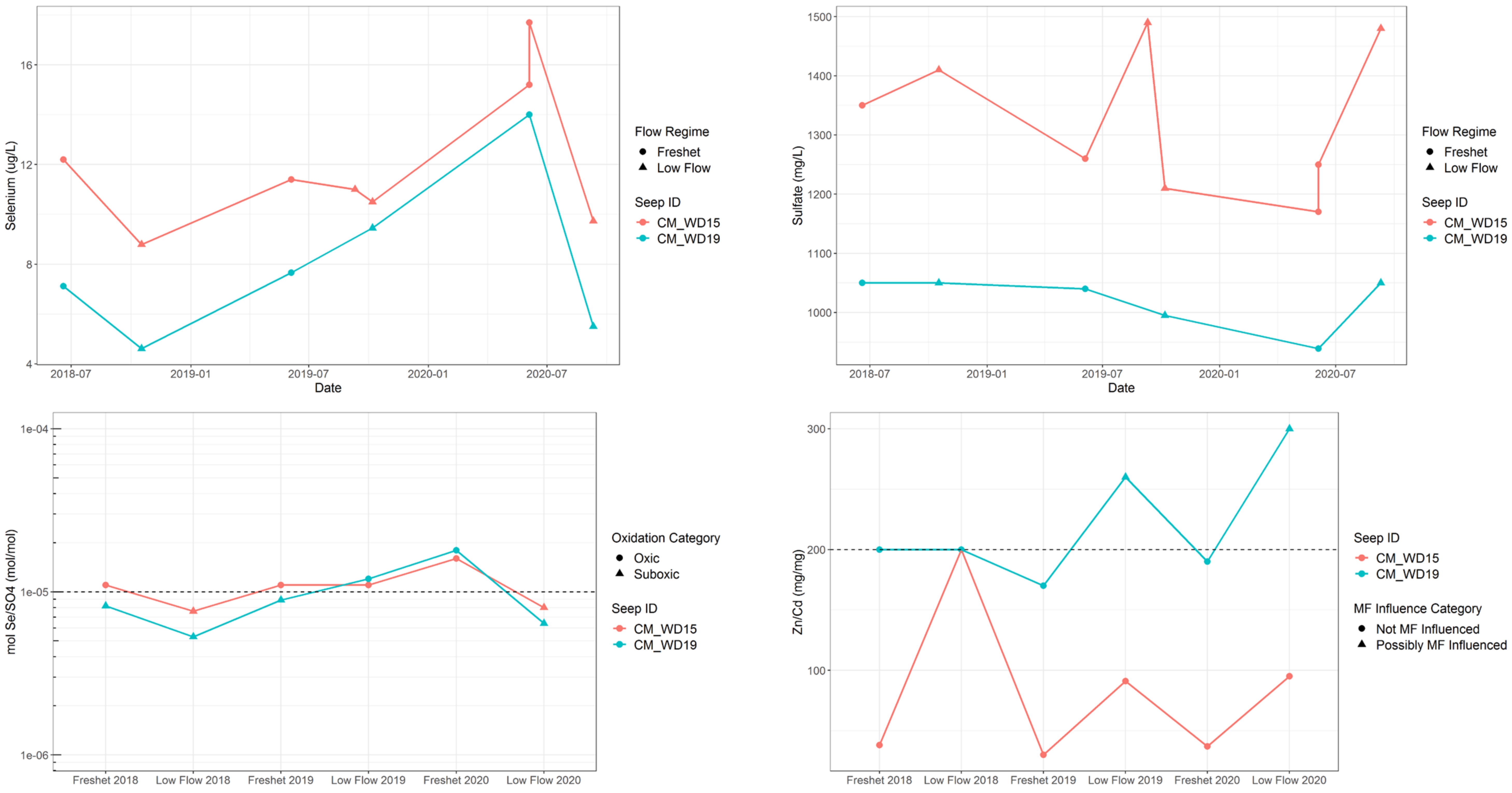
Figure 7.11: CMm water quality timeseries for selenium, sulfate, and Se/SO₄ at CM_NS4 and CM_NS7



Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\WQ Graphs\WQ_Timeseries_Graphs.Rmd

Notes: Dashed line shows the Se/SO₄ criterion that is applied to categorize seeps as oxic/suboxic.

Figure 7.12: CMm water quality timeseries for selenium, sulfate, Se/SO₄, and Zn/Cd at CM_WD15 and CM_WD19



Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\WQ Graphs\WQ_Timeseries_Graphs.Rmd

Notes: Dashed line shows the Se/SO₄ and Zn/Cd criteria that is applied to categorize seeps as suboxic or oxic and possibly MF influenced, respectively.

7.5.2 Site Specific Seepage Geochemical Interpretation

Table 7.21 summarizes the oxidation and MF influence categories of seeps and modelled calcite saturation at CMm. Most seeps at CMm are categorized as oxic and not MF influenced. Two CMm seeps, CM_37PIT-SEEP-E, and CM_MM-SEEP3, have been consistently suboxic. One CMm seep, CM_PLANT-SEEP1 has been consistently categorized as possibly MF influenced.

An increase in field pH was observed at all CMm seeps during the 2020 low flow sampling event. Many seeps at CMm displayed seasonality in parameter concentrations. Seasonality and year-on-year trends identified in Table 7.21 are based on a qualitative visual review of water quality timeseries.

Two seeps (CM_WD4 and CM_WD7, both in the CM_WESTWR group) indicated modelled calcite saturation changed seasonally: undersaturation during high flows and supersaturation during low flow. During the high flows sampling events when calcite is undersaturated, higher selenium, nickel, antimony, and Zn were noted at CM_WD4, and higher selenium, nickel, antimony, and Zn were observed at CM_WD7. At CM_WD7, lower pH during high flows was also noted at CM_WD7.

PHREEQC modelling of seeps that have high sulfate concentrations (> 1,000 mg/L) indicate mineral equilibrium with gypsum, where the remainder were undersaturated. Ferrihydrite was modelled and classified as undersaturated for three seeps (CM_37PIT-SEEP-E and CM_37PIT-SEEP-W in the CM_37PIT group, and CM_PLANT-SEEP1 in the CM_EASTWR group). These three seeps have low ORP compared to other seeps at CMm (most < 100 mV). Many ferrihydrite supersaturated seeps had detectable iron concentrations.

A comparison of sulfate concentrations between CMm seeps and their corresponding permitted surface water monitoring locations in Table 7.20 and Appendix J shows that average sulfate concentrations at the permitted surface water monitoring location CM_SPD are often less than or equal to the average sulfate concentrations of its corresponding upstream seeps. If sulfate is assumed to be a conservative tracer, this would indicate that CM_SPD is primarily influenced by dilution. In addition, metal concentrations are generally smaller at the CMm seeps associated with CM_SPD. Both seeps upstream of permitted surface water monitoring location CM_CCPD have lower sulfate and metal concentrations compared to their permitted surface water monitoring location.

All the CMm permitted monitoring surface water locations are classified as oxic, indicating that any suboxic waters contributed by upstream seeps categorized as suboxic are sufficiently diluted and/or mixed with other oxic waters before reaching a permitted surface water monitoring location. The oxidation and MF influence categorization for permitted surface water monitoring locations is in Appendix L.

Table 7.20: CMm seep and permitted surface water sampling location sulfate concentrations and loadings comparison

Comparison Permitted Surface Water Sampling Location	Permitted Surface Water Sampling Location Type[1]	Average SO_4 Concentration – Comparison Permitted Surface Water Sampling Location (mg/L)	Seep ID	Average SO_4 Concentration – Seep (mg/L)
CM_CCPD	DL	818	CM_CS1	145
			CM_CCDS	124
CM_SPD	DL	805	CM_37PIT-SEEP-E	598
			CM_37PIT-SEEP-W	551
			CM_WD4	513
			CM_WD7	137
			CM_WD15	1,330
			CM_WD18	1,510
			CM_WD19	1,010
			CM_PLANT-SEEP1	382
			CM_MM-SEEP1	177
			CM_NS4	759
			CM_NS7	922
			CM_NS1	1,390
			CM_MM-SEEP3	795

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\2020_Seep_Loadings_rev0_AD.xlsx

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Notes:

[1] Permitted Surface Water Sampling Location Types are surface water (SW) or discharge location (DL).

Table 7.21: Summary of Trends and Controls on Water Quality for Seeps at CMm

Seep ID	Material Group	Flow Period	Oxidation Category	MF Influence	Calcite	Calcite in Field (2020)	Ferrihydrite	Year-on-Year	Seasonality	Geochemical Indicators	Parameters Exceeding FWAL BCWQGs
CM_CS1	CM_EASTWR	High Flow	Oxic	Not MF Influenced	Undersaturated	No	Supersaturated	Possible increase NO3	Higher Se	▪ Poor correlation of metal concentrations with pH (field pH > 7.5, low concentrations of Cd, Co, Ni, Zn compared to CM_NS1 and CM_PLANT-SEEP1)	Se-T, NO3-N
		Low Flow	Oxic	Not MF Influenced	Undersaturated[1]	No	Supersaturated		Higher Sb		
CM_CCDS	CM_EASTWR	High Flow	Oxic	Not MF Influenced	Undersaturated	No	Supersaturated	-	-	▪ Low Co, Mn, Ni, Zn concentrations compared to others in group, no correlation with pH. ▪ Positive correlation of Se and SO4 concentrations	Se-T
		Low Flow	Samples Unattainable								
CM_37PIT-SEEP-E	CM_37PIT	High Flow	Suboxic	Not MF Influenced[1]	Undersaturated	No	Supersaturated	Possible decrease Ni, TDS, U	Higher Cd	▪ Negative correlation with pH (Cd, Co, Mn, Ni, Zn). ▪ Negative correlation with DO (Mn). ▪ Majority of U as U(VI), complexed with carbonate.	SO4, Co-T
		Low Flow	Suboxic	Possible MF Influence	Undersaturated[1]	No	Supersaturated[1]		-		
CM_37PIT-SEEP-W	CM_37PIT	High Flow	Suboxic[1]	Not MF Influenced[1]	Undersaturated	No	Supersaturated	Possible decrease U	Lower field pH	▪ Negative correlation with pH (Cd, Co, Co, Mn, Ni, Zn). ▪ Negative correlation with DO (Mn).	SO4, Co-T
		Low Flow	Oxic[1]	Not MF Influenced[1]	Undersaturated[1]	No	Supersaturated[1]		-		
CM_WD4	CM_WESTWR	High Flow	Oxic	Not MF Influenced	Undersaturated	No	Supersaturated	-	Higher Se, NO3, Ni, Mo	▪ Indication that calcite is undersaturated during high flow, supersaturated during low flow (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)). ▪ Poor correlation of metal concentrations with pH, high Cd, Zn, low Ni, lowest Co compared to other seeps in group (except CM_WD7).	Maximum pH, SO4, Se-T
		Low Flow	Oxic	Not MF Influenced	Supersaturated[1]	No	Supersaturated		-		
CM_WD7	CM_WESTWR	High Flow	Oxic	Not MF Influenced	Undersaturated	Yes	Supersaturated	-	Low pH, high Se, NO3, Ni, Sb, Zn	▪ Indication that calcite is undersaturated during high flow, supersaturated during low flow (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)). ▪ Poor correlation of metal concentrations with pH, high Cd, Zn, low Ni, lowest Co compared to other seeps in group (except CM_WD7). ▪ Lowest gypsum SIs (undersaturated).	Se-T
		Low Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated		-		
CM_WD15	CM_WESTWR	High Flow	Oxic	Not MF Influenced	Supersaturated	Yes	Supersaturated	-	Higher Mo	▪ Poor correlation of metal concentrations with pH, low Cd and Zn, high Ni. ▪ Highest U of group along with CM_WD18. Majority of U as U(VI), complexed with carbonate. ▪ High SO4 (1150 - 1500 mg/L), mineral SI indicates in equilibrium with gypsum. ▪ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	SO4, Se-T
		Low Flow	Suboxic[1]	Not MF Influenced	Supersaturated	Yes	Supersaturated		-		
CM_WD18	CM_WESTWR	High Flow	Oxic	Not MF Influenced	Supersaturated	Yes	Supersaturated	-	Higher NO3	▪ Poor correlation of metal concentrations with pH, higher Cd compared to CM_WD15 and CM_WD19. ▪ Highest Se in group along with CM_WD7. ▪ Highest U of group along with CM_WD15. Majority of U as U(VI), complexed with carbonate. ▪ High SO4 (1400 - 1700 mg/L), mineral SI indicates in equilibrium with gypsum. ▪ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	Maximum pH, SO4, Se-T
		Low Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated		-		

Seep ID	Material Group	Flow Period	Oxidation Category	MF Influence	Calcite	Calcite in Field (2020)	Ferrihydrite	Year-on-Year	Seasonality	Geochemical Indicators	Parameters Exceeding FWAL BCWQGs
CM_WD19	CM_WESTWR	High Flow	Suboxic[1]	Not MF Influenced	Supersaturated	Yes	Supersaturated	-	-	■ Poor correlation of metal concentrations with pH, low Cd, only seep in group classified as suboxic, highest Mn of group. ■ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	Maximum pH, SO4, Se-T
		Low Flow	Suboxic[1]	Possible MF Influence[1]	Supersaturated	No	Supersaturated				
CM_PLANT-SEEP1	CM_EASTWR	High Flow	Oxic	Possible MF Influence	Undersaturated	No	Supersaturated[1]	-	-	■ Negative correlation with pH (Co, Co, Mn, Ni, Zn), has comparatively low pH (6.9 - 7.6). Lowest Cd of group. ■ Highest Fe (> 1 mg/L), Mn (> 0.4 mg/L) of group ■ Lowest DO of group ■ Lowest Se of group (< 1 ug/L)	Co-T
		Low Flow	Oxic	Possible MF Influence	Undersaturated	No	Supersaturated[1]				
CM_MM-SEEP1	CM_MMCCR	High Flow	Oxic	Not MF Influenced	Undersaturated[1]	Yes	Supersaturated	-	-	■ Poor correlation of metal concentrations with pH (lower pH and lower Co, Ni, and Zn concentrations compared to CM_NS4 and CM_NS7)	Se-T
		Low Flow	Oxic	Not MF Influenced	Undersaturated[1]	Yes	Supersaturated				
CM_NS4	CM_MMCCR	High Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated	-	Higher Se, NO3, Mo	■ Poor correlation of metal concentrations with pH, highest Cd and lowest Co of group, and high Ni and Zn compared to other seeps in group. ■ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	SO4, Se-T
		Low Flow	Suboxic[1]	Not MF Influenced	Supersaturated	Yes	Supersaturated		Higher TDS		
CM_NS7	CM_MMCCR	High Flow	Oxic	Not MF Influenced	Supersaturated	No	Supersaturated	-	Higher Se, NO3, U, Mo	■ Poor correlation of metal concentrations with pH, high Co, Ni, and Zn compared to other seeps in group. ■ Highest U of group. Majority of U as U(VI), complexed with carbonate. ■ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	Maximum pH, SO4, Se-T
		Low Flow	Suboxic[1]	Not MF Influenced[1]	Supersaturated	No	Supersaturated		-		
CM_NS1	CM_EASTWR	High Flow	Oxic	Not MF Influenced	Supersaturated[1]	No	Supersaturated	Possible decreasing Cd	Higher Se	■ Poor correlation of metal concentrations with pH, but higher Cd, Ni, and Zn of group. ■ Majority of U as U(VI), complexed with carbonate (highest U of group). ■ Highest SO4 of group, mineral SI indicates in equilibrium with gypsum. ■ Indication calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	Maximum pH, SO4, Se-T
		Low Flow	Oxic[1]	Not MF Influenced	Supersaturated	No	Supersaturated		Higher SO4, TDS		
CM_MM-SEEP3	CM_MMCCR	High Flow	Suboxic	Not MF Influenced	Supersaturated	Yes	Supersaturated	-	Higher SO4	■ Poor correlation of metal concentrations with pH, lowest Cd, Ni, Zn of group ■ Highest Co of group ■ Lowest Se of group ■ Indication that calcite is supersaturated (possible calcite coprecipitation of metals (Cd, Co, Mn, Zn, and Ni to a less extent)).	SO4
		Low Flow	Suboxic	Not MF Influenced	Supersaturated	Yes	Supersaturated		-		

Sources: \\VAN-SVR0\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\2020_REPORTING_Seep_Selection_Criteria_rev01_amd_sjl.xlsx

Notes: Categorizations labelled as “Not determined” indicates seep where an equal number of instances occurred for each category, so classification could not be determined.

[1] Indicates instances where categorizations or mineral saturation changed from year to year (in the case of Oxidation and MF Influence categories) or were different for discrete samples (in the case for mineral SIs). The condition for most measured years/samples is shown.

8 New Seeps Review

This section describes the methodology used to evaluate new seep(s) identified in 2020. Teck sampled one new seep in 2020 at CMm. One new seep, GH_SEEP_98, was identified in 2020 in the rail loop at GHO, however, was too late for inclusion into this report. This seep will be incorporated into the 2021 sampling program and reviewed in the 2021 annual RSMP report. No new seeps were identified at FRO, LCO or EVO in 2020. Based on the coordinates of the new seep identified at CMm, it was determined that this seep is new and not a case of re-sampling a historical seep eliminated in the SRK (2019) seep prioritization.

The newly identified seep was compared to the nearest seep sampled in 2020 based on the seep groupings developed by SRK (2019). Seeps were compared on the basis of loading, oxidation and MF influence categorization, and BCWQG exceedances for sulfate, selenium, and nitrate-N.

The new seep was considered to be different from the closest historical seep if loadings were greater than ±1000%, the categorization of oxidation or MF influence were different, or the new seep had more or different BCWQG exceedances for sulfate, selenium, or nitrate-N than the comparison seep's water quality results. The new seep listed in Table 8.1 has been labeled as CM_MM-SEEP5 by CMm personnel and will be compared to the previously identified and sampled CM_MM-SEEP1.

Table 8.1: New seep identified in 2020 in relation to historical seep location

Operation	Seep Group	Seep ID	Sampling Dates	Nearest Historical Seep Sampled in 2020 in Same Group	Distance to 2020 Seep (m)
CMm	CM_MMCCR	CM_MM-SEEP5	5/6/2020 6/3/2020 9/9/2020	CM_MM-SEEP1	250

Sources: Compiled in text

Table 8.2 summarizes the oxidation and MF categorization, and BCWQG exceedance of CM_MM-SEEP5 compared to the historical CM_MM-SEEP1 sampled in 2020.

Table 8.2: New CMm seep MF and oxidation comparison

Type	Seep ID	High Flows		Low Flows		BCWQG Exceedances of SO_4, Se, and NO_3
		Oxidation	MF	Oxidation	MF	
New	CM_MM-SEEP5	Suboxic	Not MF Influenced	Suboxic	Not MF Influenced	3 Exceedances for SO_4 for 3 samples
Existing	*CM_MM-SEEP1*	*Oxic*	*Not MF Influenced*	*Oxic*	*Not MF Influenced*	*2 Exceedances for Se for 2 samples*

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\2020_Seep_Selection_Criteria_rev0_amd.xlsx

Notes: *Italicized* rows indicate historical seeps.

When comparing loads between CM_MM-SEEP5 and CM_MM-SEEP1, CM_MM-SEEP5 loads are higher during high flows and lower during low flows in comparison to CM_MM-SEEP1. CM_MM-SEEP5 loads are approximately 150% different compared to those estimated at CM_MM-SEEP1.

Based on the comparison between CM_MM-SEEP5 and CM_MM-SEEP1, CM_MM-SEEP5 should be added to the current set of seeps to be monitored during 2021 due to exceedances in sulfate and possible suboxic conditions. CM_MM-SEEP5 will be added to the CM_MMCCR material group. CM_MM-SEEP1 should also continue to be sampled in 2021. Figure 7.9 shows the location of the new seep, CM_MM-SEEP5, to be added to the RSMP.

9 Seep Retirement Framework

Several seeps within the RSMP have been visited over the past three years and found to be covered over with mined out material or dry for several consecutive sampling events. To determine whether seeps should be retired from the RSMP and thus excluded from further visitation and sampling during subsequent seep sampling surveys for the RSMP, a framework for seep retirement from the RSMP has been describe below along with a flowchart in Figure 9.1.

Seeps Covered by Mined Out Materials

When a seep has been identified as covered over by mined out materials, a targeted survey of the surrounding area should be conducted to determine whether the seep has re-emerged nearby. Seep pathways and/or points of emergence may change when covered by mined out materials. When it is safe to do so, targeted seep surveys should be conducted as required during general seep site surveys to identify seeps that are part of the RSMP commitments (Section 3). By using topographic data and material dumping information, likely areas where seeps may re-emerge should be identified and surveyed.

If a seep has been covered over by material and a targeted survey of the surrounding area has been completed and no new seeps have been identified, the covered over seep in question may be retired from the RSMP. Field notes should document when seeps are covered over and if/when a targeted seep survey was conducted. A covered over seep can not be retired from the RSMP until a targeted survey has been completed to verify that the seep has not re-emerged nearby.

Dry Seeps

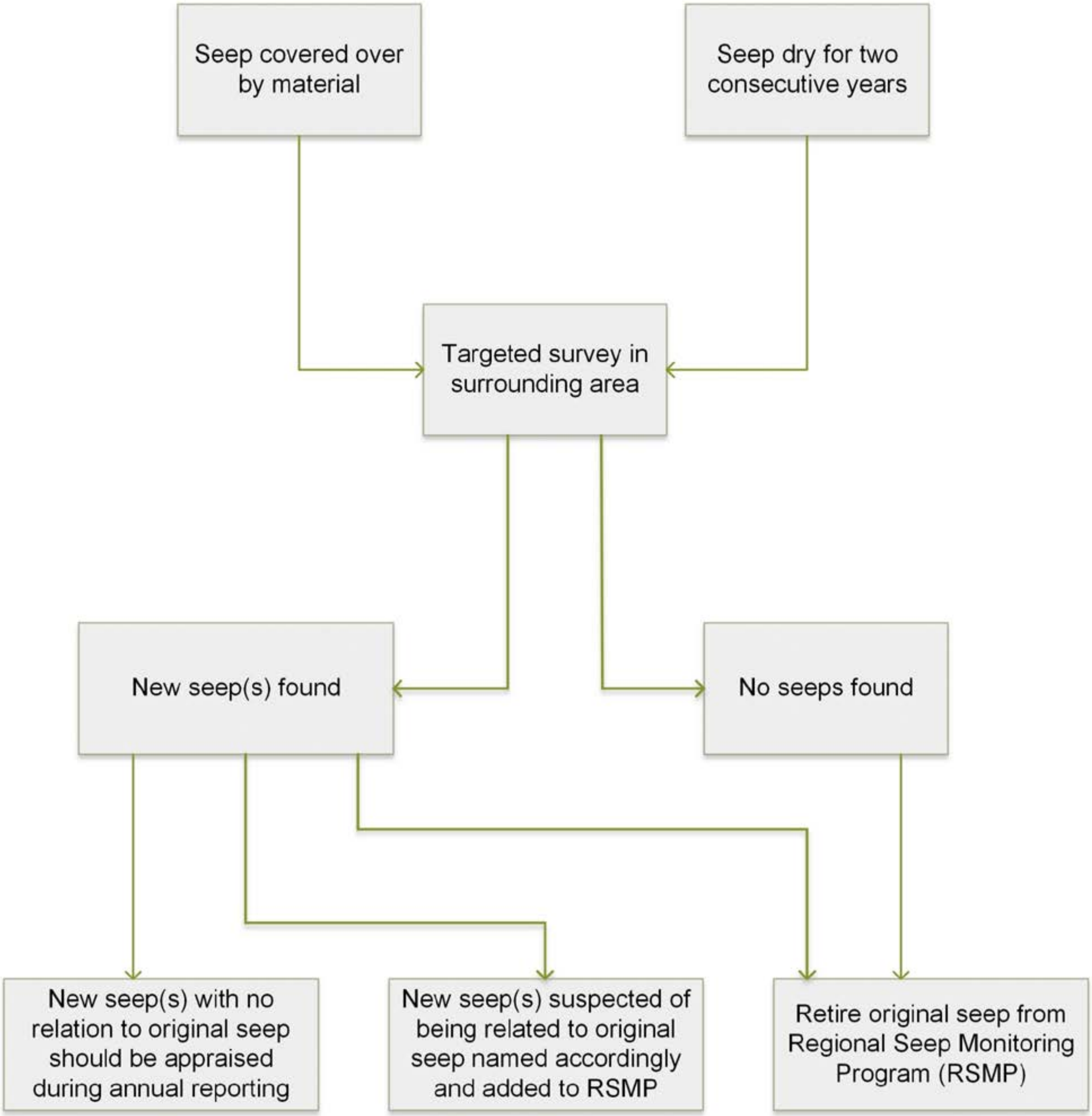
When a seep has been visited for two years in a row and found to be dry for four consecutive sampling surveys, a targeted survey should be completed to determine if the seep has re-emerged nearby. A minimum of two dry years will allow for a sufficient number of visits to occur to verify that the seep is dry, and a targeted survey will verify that the seep has not re-emerged nearby.

If a seep has been found to be dry for two consecutive years and a targeted survey of the surrounding area has been completed and no new seeps have been identified, the dry seep in question may be retired from the RSMP. Field notes should document when seeps are covered over and if/when a targeted seep survey was conducted. A dry seep should not be retired from the RSMP until a targeted survey has been completed to verify that the seep has not re-emerged nearby.

Naming Conventions for Related Seeps

Seeps found during a targeted survey that are suspected to be related to previously covered over or dry seeps should be named accordingly to retain information regarding the relationship between seeps. For example, FR_FSEAMWSEEP4 at FRO was spoiled over in 2020. If a new seep suspected of being related to the same source as FR_FSEAMWSEEP4 is identified during a targeted survey, the new seep should be named FR_FSEAMWSEEP4a. New seeps identified during a targeted survey that are suspected to be new seeps not previously identified should be sampled and appraised during annual reporting.

Figure 9.1: Flowchart of RSMP seep retirement process



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10 Summary

The results of the 2020 annual review of the Elk Valley RSMP show the following:

- The RSMP has largely been implemented consistent with the RGMP itself, follow-up requirements from EMLI, and previous recommendations made by SRK.
- No material quality assurance or quality control concerns were identified. Collection of blanks and duplicate samples needs to be increased to reach the target of 10%.
- Seasonality and year-on-year trends for several parameters were identified based on a qualitative visual review of water quality timeseries. No seasonality or year-on-year trends showed consistent patterns across the Elk Valley region.
- The following geochemical controls were noted:
  - pH across the Elk Valley operations ranges from 6.5 to 9.5 and may act as a solubility control on select parameters.
  - Dissolved oxygen shows weak controls on manganese and iron concentrations, and Se/SO_4 ratios which are consistent with higher solubility of the metals, and selenium reduction under suboxic conditions.
  - Most seeps in the Elk Valley have $pCO_2 > 10^{-3.4}$, indicating they are over-pressurized relative to atmospheric CO2 and are likely to off-gas.
  - No seeps in the Elk Valley had a gypsum SI above zero and unlikely to precipitate gypsum. The majority of seeps (98%) are in equilibrium or supersaturated with ferrihydrite and likely to precipitate ferrihydrite.
  - All permitted surface water monitoring locations analyzed are oxic, indicating that any suboxic seepage water is being sufficiently diluted before reaching a permitted monitoring point.
- One new seep, CM_MM-SEEP5, was identified at CMm during 2020.

It is SRK’s opinion that the database being accumulated is providing valuable information on source water chemistry upstream of monitoring points including seasonality and geochemical controls. The data may inform the development of regional and site-specific geochemical source terms, and other R&D initiatives.

11 Recommendations

1. Collection of additional field blank samples and duplicate samples to help reach the 10% DQO target. Each site should aim to collect two field blanks and two field duplicates during each seep sampling survey.
2. Field readings for DO in mg/L and in % saturation should be collected at the same time when sampling seeps to improve field DO QA/QC.
3. When seeps are found to be dry or covered by mined out material, the seep retirement framework described in Section 9 can be used to determine if a seep can be retired from the RSMP.

Closure

This report, Elk Valley Regional Seep Monitoring Program: 2020 Annual Report, was prepared by

Anne Day, GIT, MLWS
Consultant

and

Shauna Litke, P.Eng, MASC
Consultant

and

and reviewed by

Stephen Day, MSc, PGeo
Corporate Consultant

All data used as source material plus the text, tables, figures, and attachments of this document have been reviewed and prepared in accordance with generally accepted professional engineering and environmental practices.

12 References

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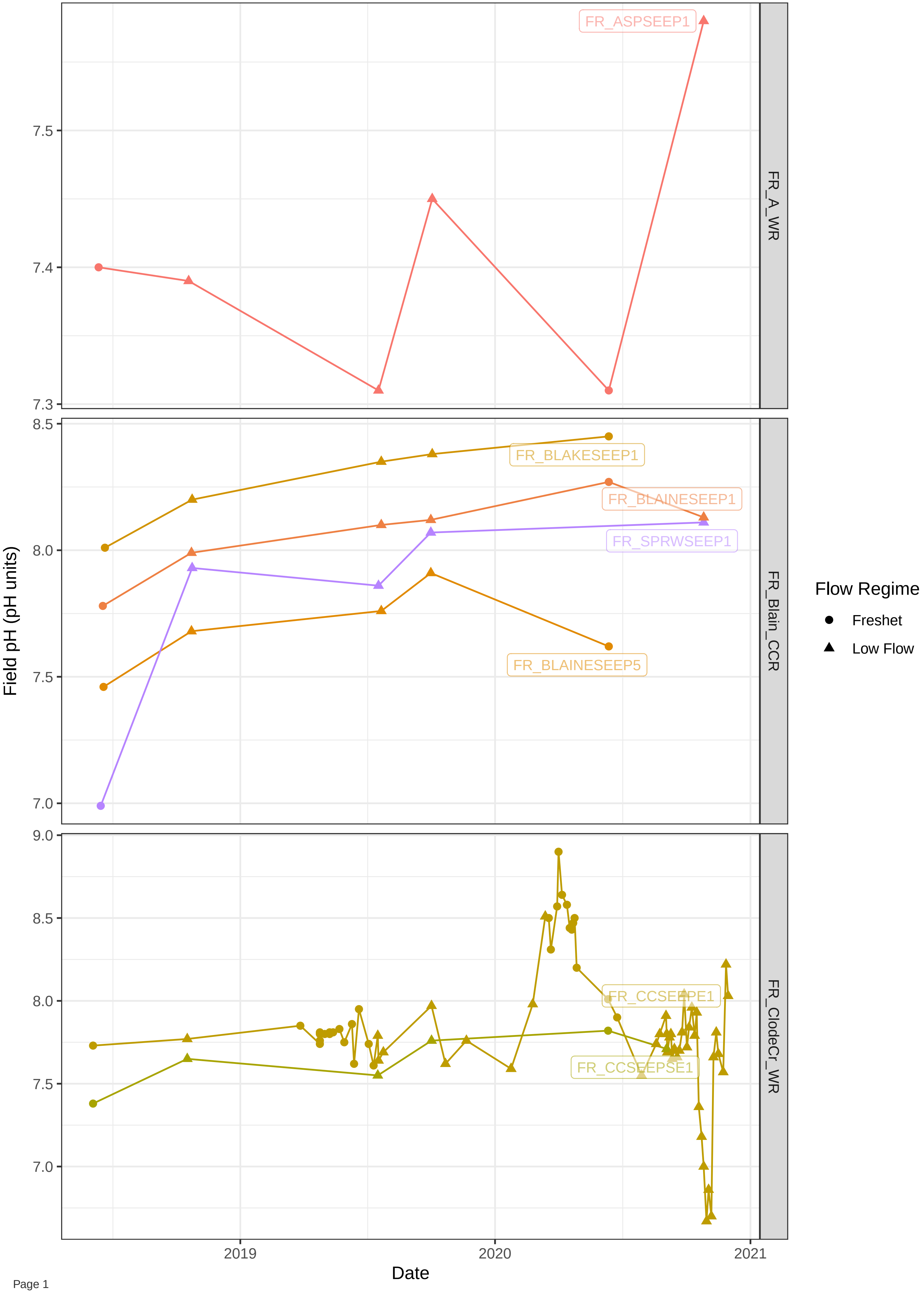
Teck Coal [Teck]. 2019b. Regional Seep Monitoring Plan – Phase 3. May 2019.

Teck Coal [Teck]. 2019c. 2018 Annual Reclamation Report. March 2019.

Appendix A Water Quality Timeseries Plots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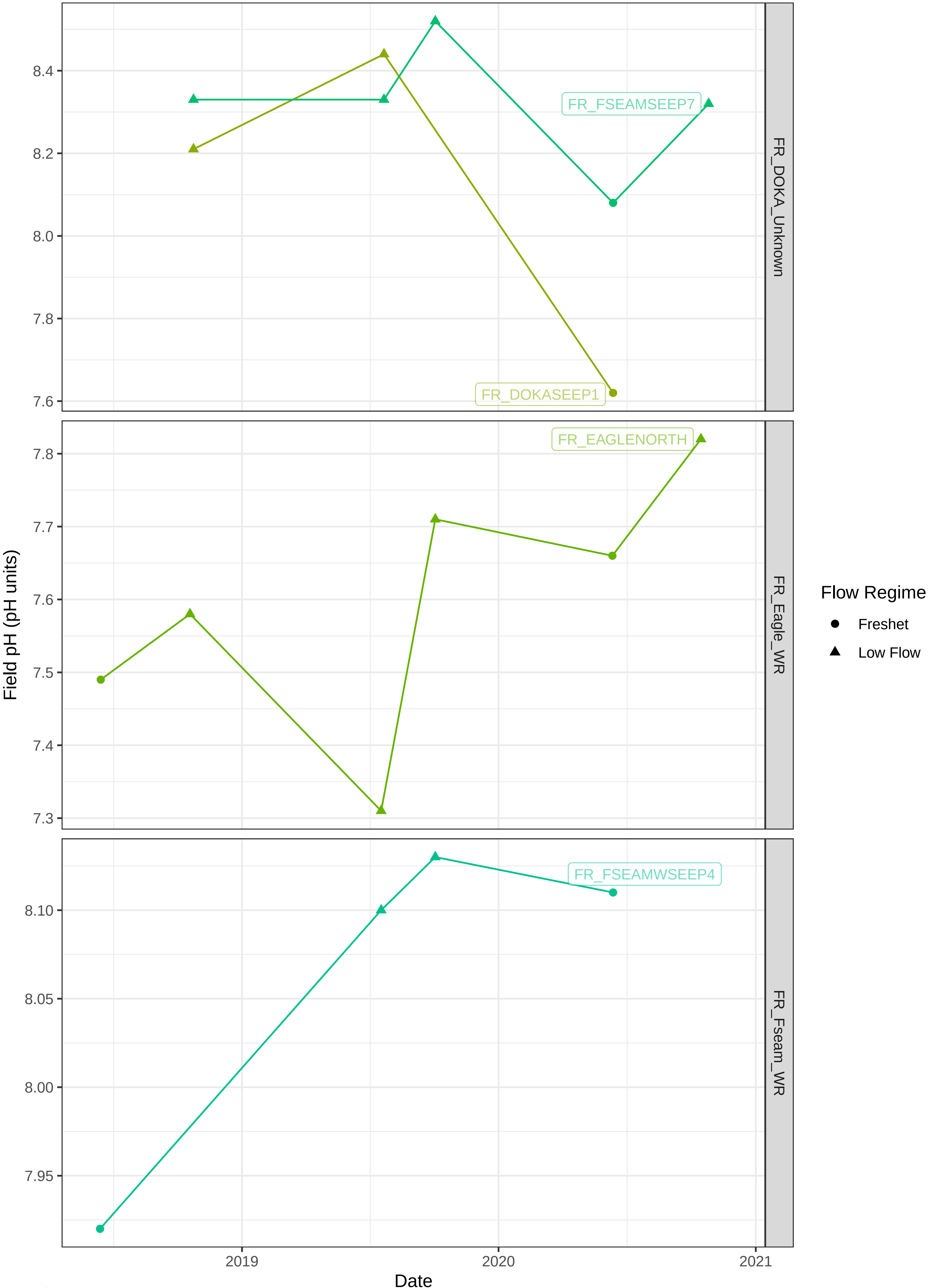
7.5
7.4
7.3
FR_BLAKESEEP1
FR_BLAINESEEP1
FR_SPRWSEEP1
FR_BLAINESEEP5
FR_Blain_CCR
8.5
8.0
7.5
7.0
FR_CCSEEPE1
FR_CCSEEPSE1
FR_ClodeCr_WR
9.0
8.5
8.0
7.5
7.0
Field pH (pH units)
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow



Field pH (pH units)
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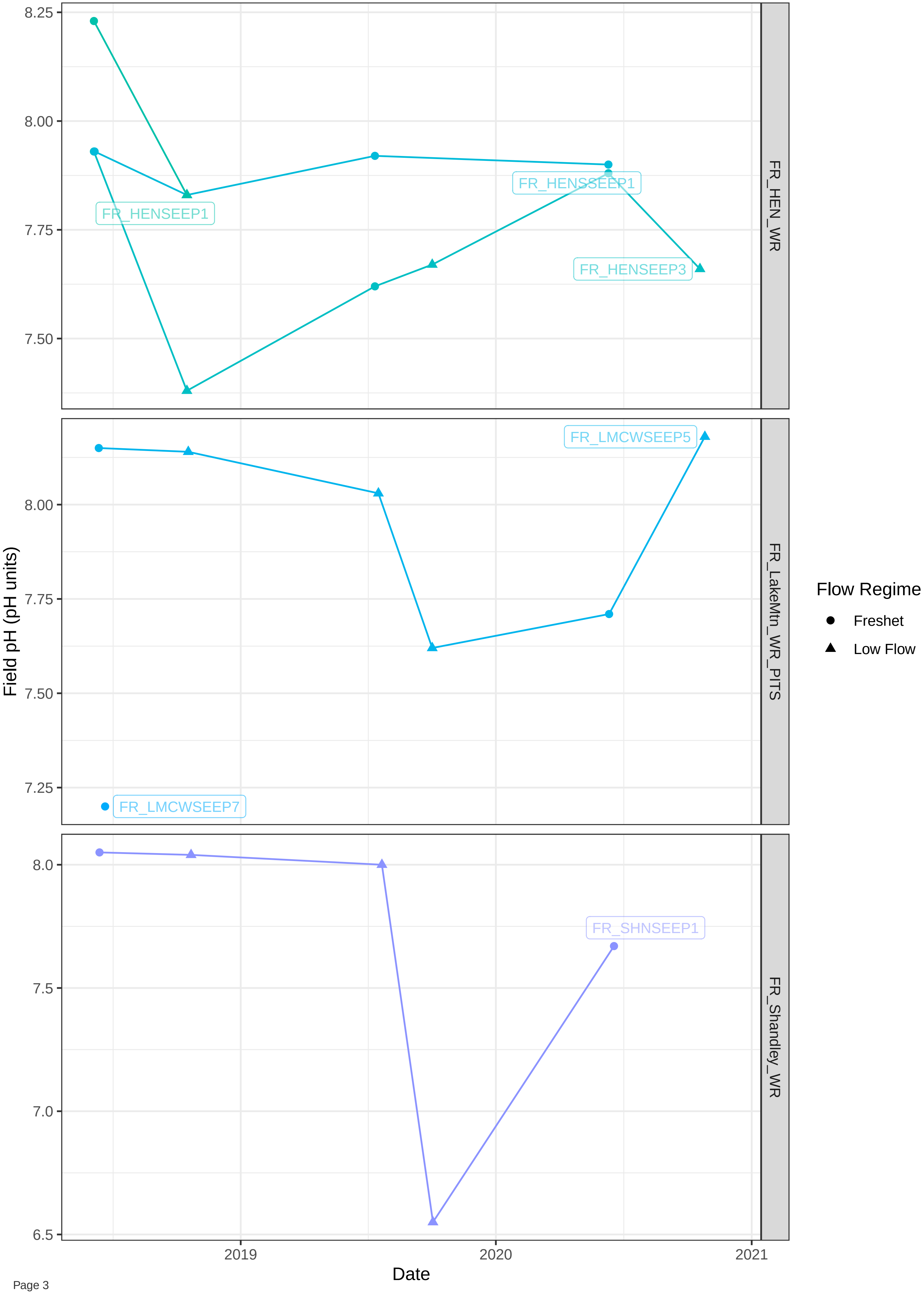
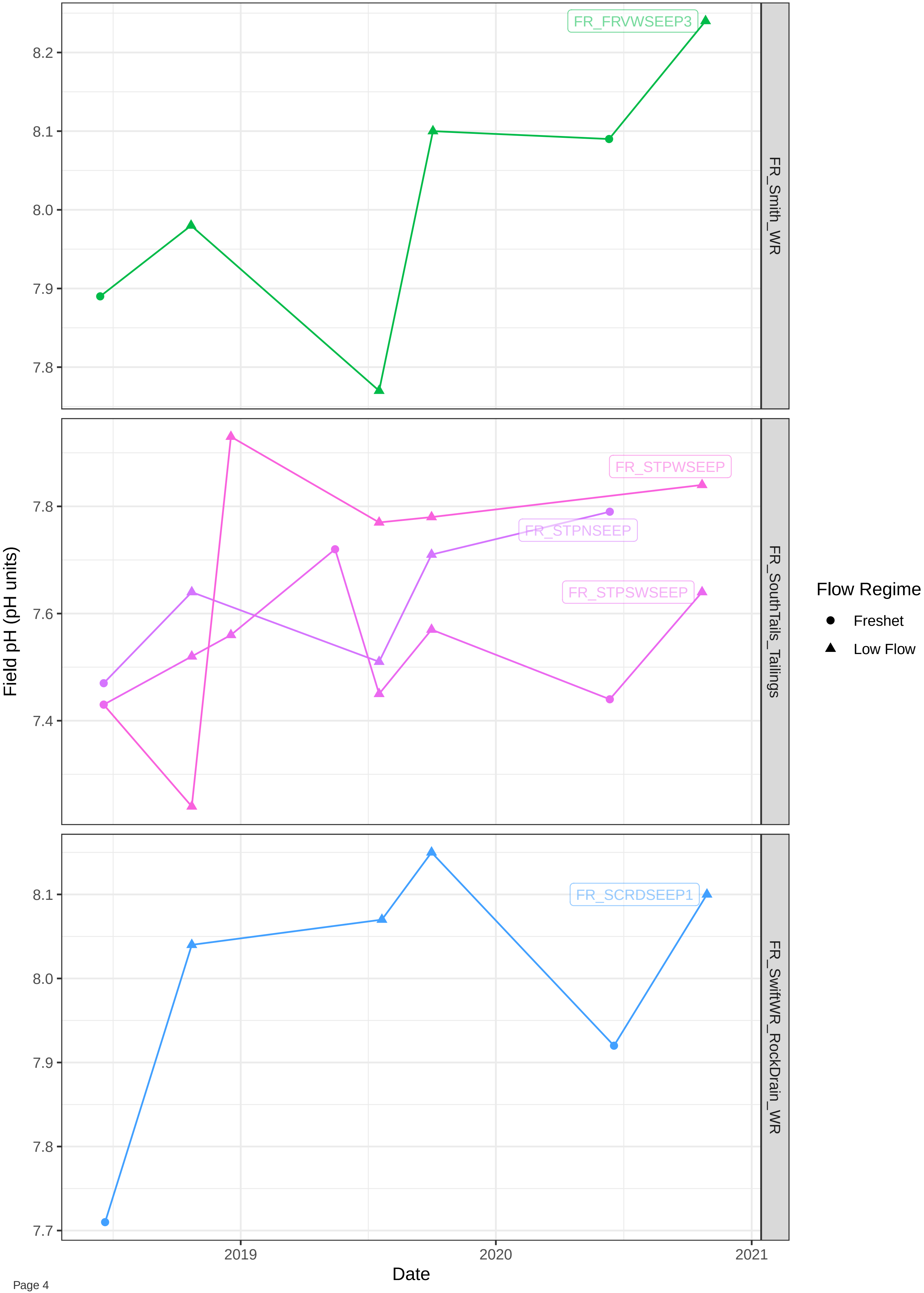
8.2
8.0
7.8
7.6
FR_FSEAMSEEP7
FR_DOKASEEP1
FR_DOKA_Unknown
7.8
7.7
7.6
7.5
7.4
7.3
FR_EAGLENORTH
FR_Eagle_WR
8.10
8.05
8.00
7.95
FR_FSEAMWSEEP4
FR_Fseam_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow



8.25
8.00
7.75
7.50
FR_HENSEEP1
FR_HENSSEEP1
FR_HENSEEP3
FR_HEN_WR
8.00
7.75
7.50
7.25
FR_LMCWSEEP5
FR_LMCWSEEP7
FR_LakeMtn_WR_PITS
8.0
7.5
7.0
6.5
FR_SHNSEEP1
FR_Shandley_WR
Field pH (pH units)
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow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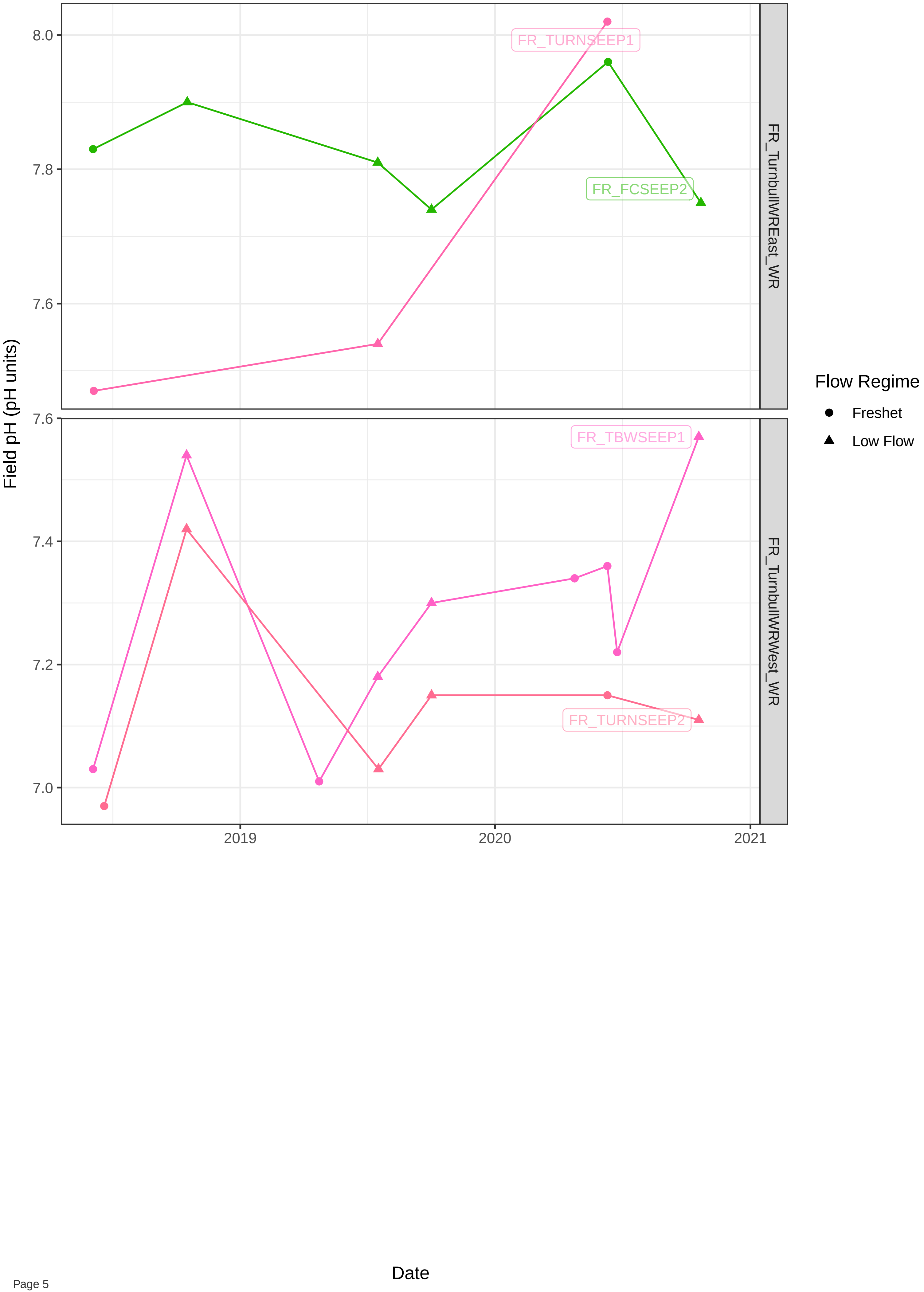
8.2
8.1
8.0
7.9
7.8
FR_Smith_WR
FR_STPWSEEP
FR_STPNSEEP
FR_STPSWSEEP
7.8
7.6
7.4
FR_SouthTails_Tailings
Field pH (pH units)
Flow Regime
● Freshet
▲ Low Flow
FR_SCRDSEEP1
8.1
8.0
7.9
7.8
7.7
FR_SwiftWR_RockDrain_WR
2019
2020
2021
Date


Field pH (pH units)
8.0
7.8
7.6
7.6
7.4
7.2
7.0
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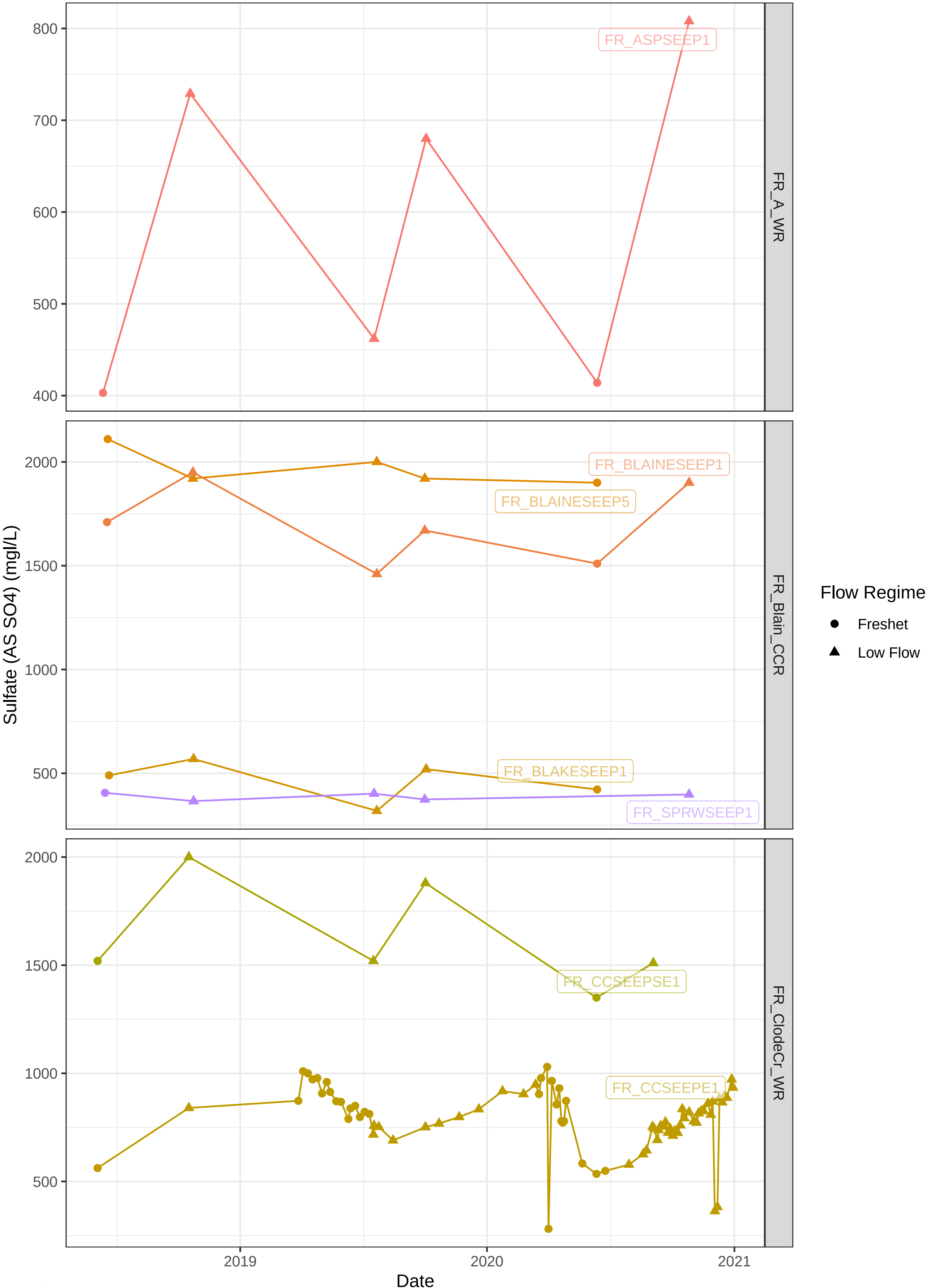
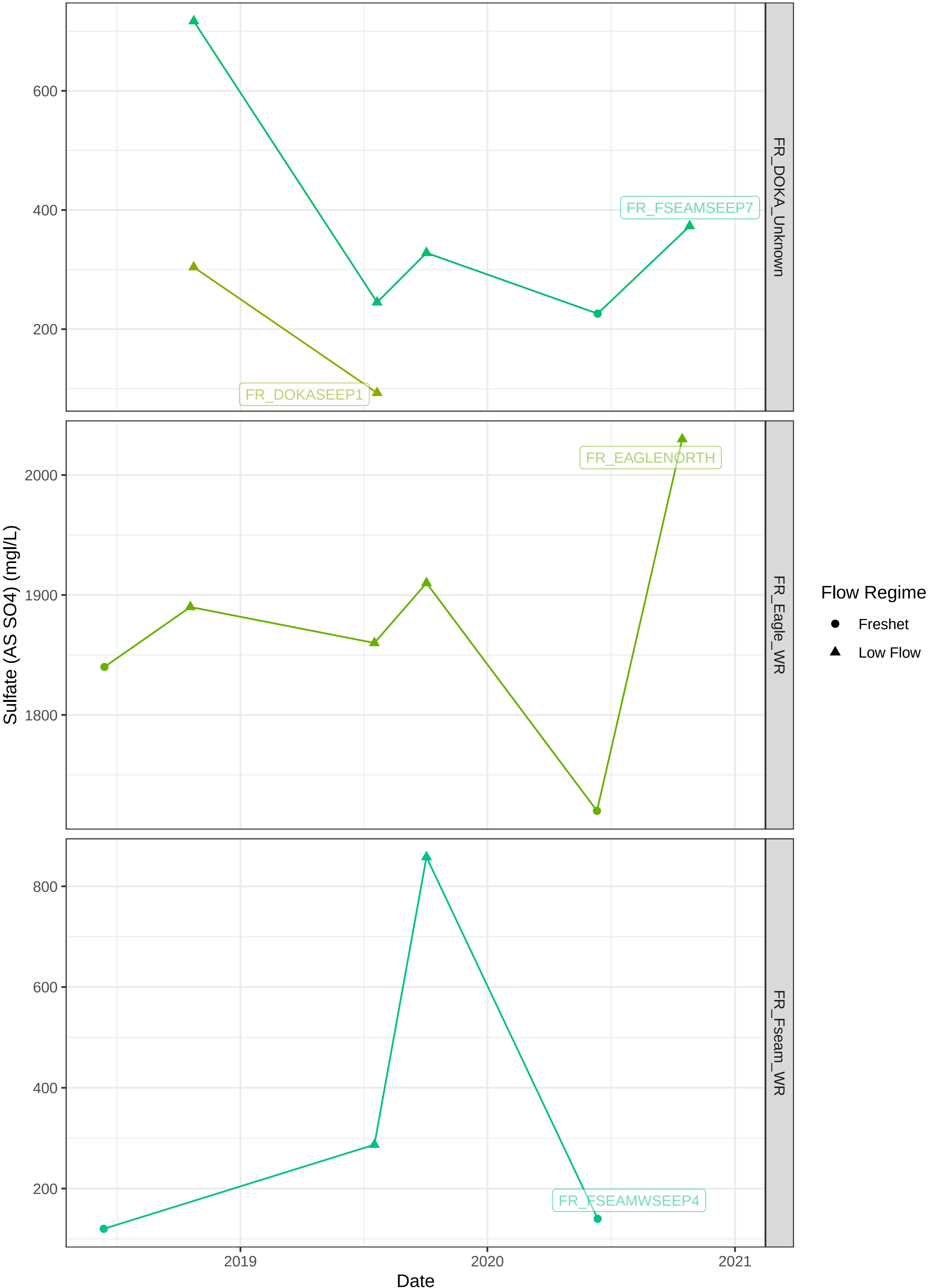
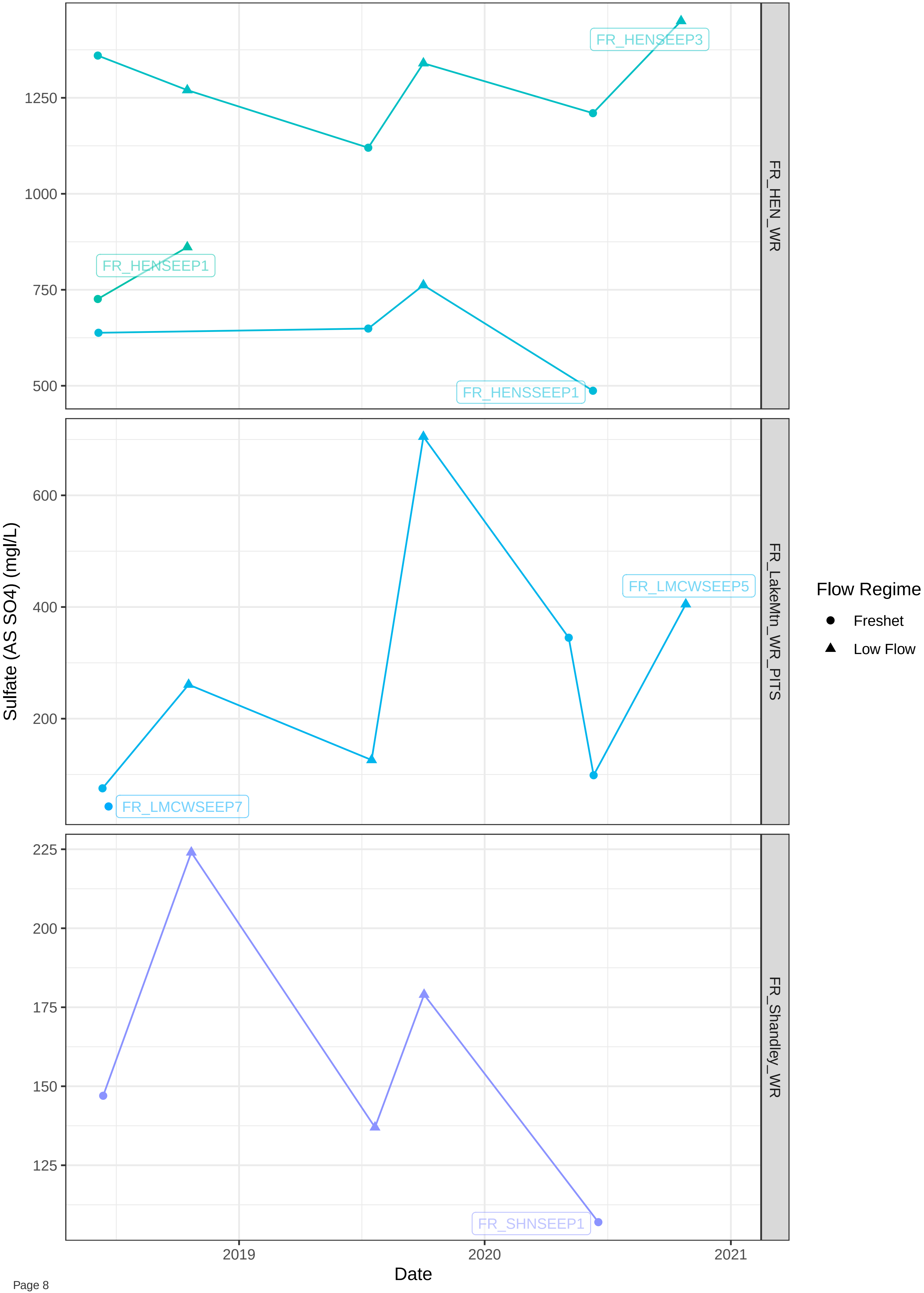
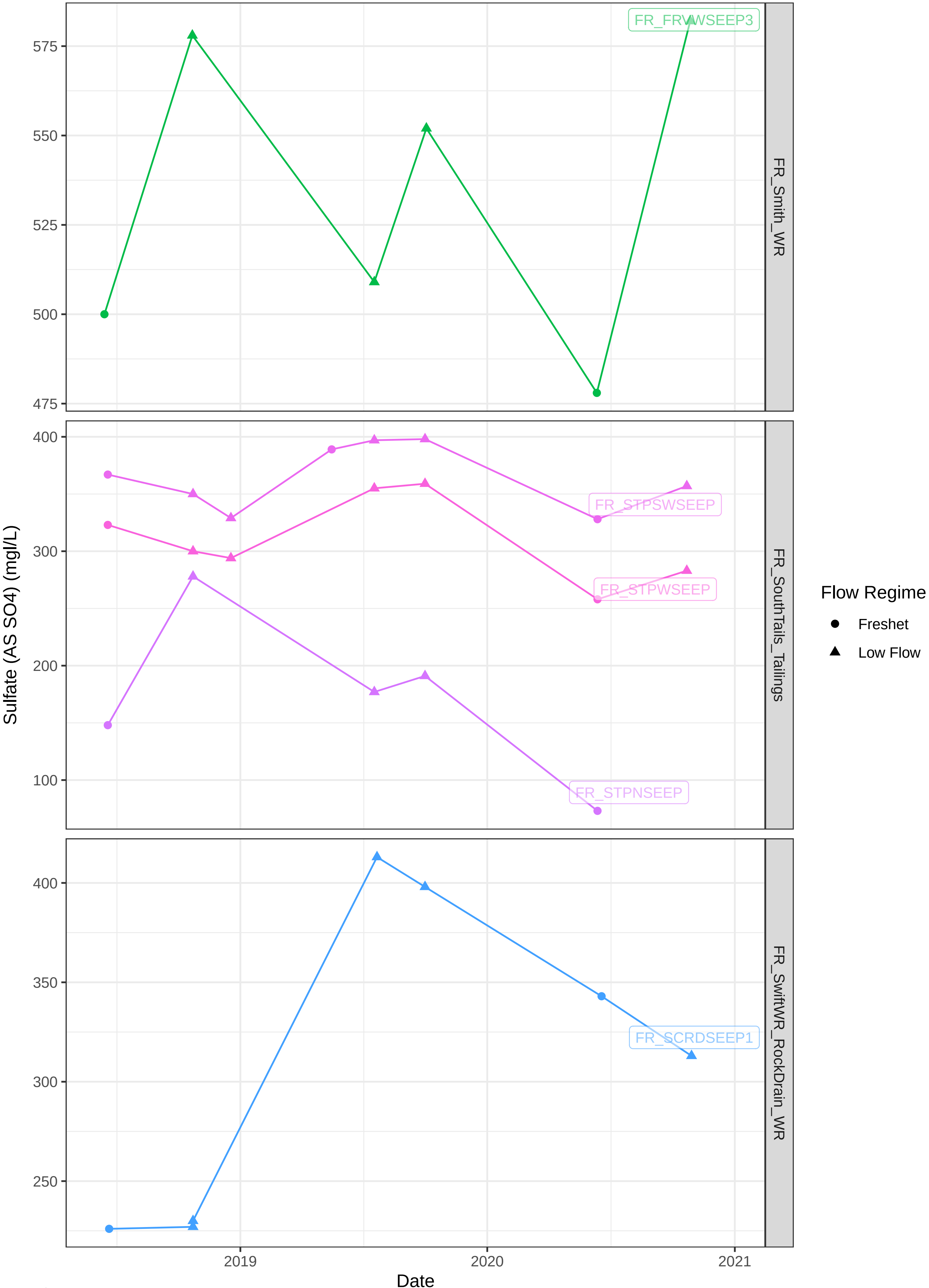
FR_FCSEEP2
FR_TurnbullWREast_WR
FR_TBWSEEP1
FR_TURNSEEP2
FR_TurnbullWRWest_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

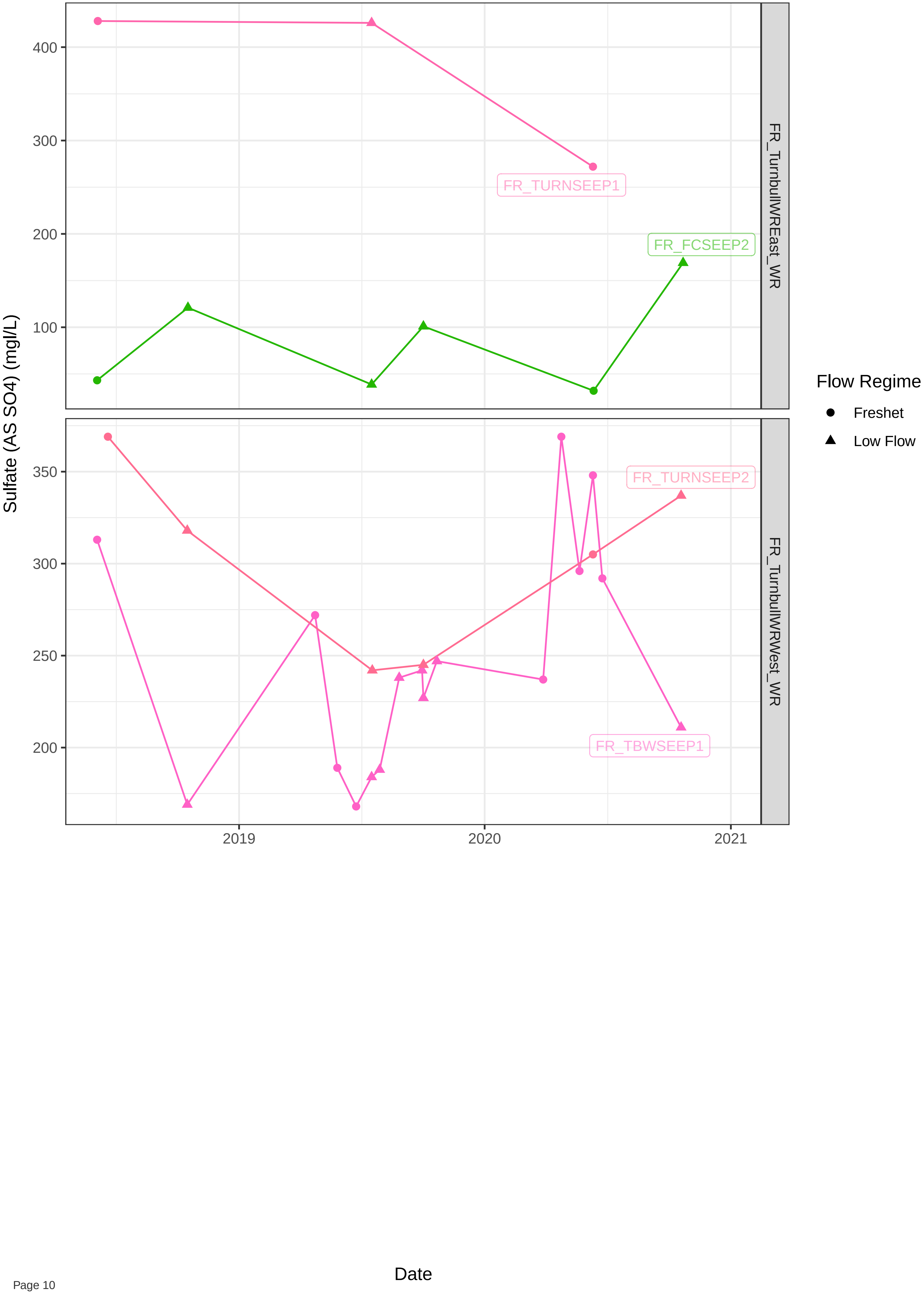

FR_ASPSEEP1
FR_A_WR
800
700
600
500
400
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
FR_Blain_CCR
2000
1500
1000
500
FR_CCSEEPSE1
FR_CCSEEPE1
FR_ClodeCr_WR
Sulfate (AS SO4) (mg/L)
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

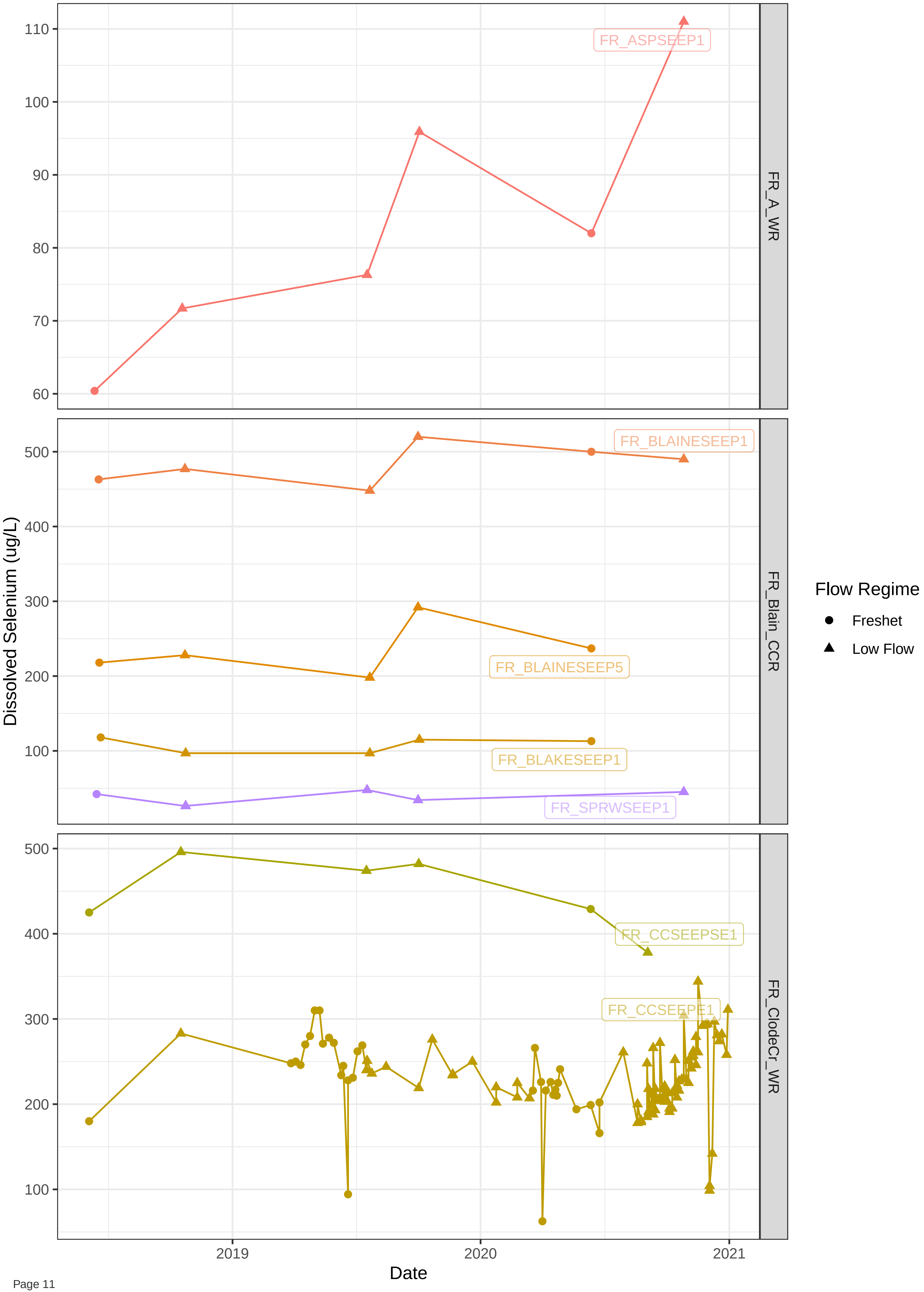

Sulfate (AS SO4) (mg/L)
600
400
200
FR_FSEAMSEEP7
FR_DOKASEEP1
FR_DOKA_Unknown
2000
1900
1800
FR_EAGLENORTH
FR_Eagle_WR
800
600
400
200
FR_FSEAMWSEEP4
FR_Fseam_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

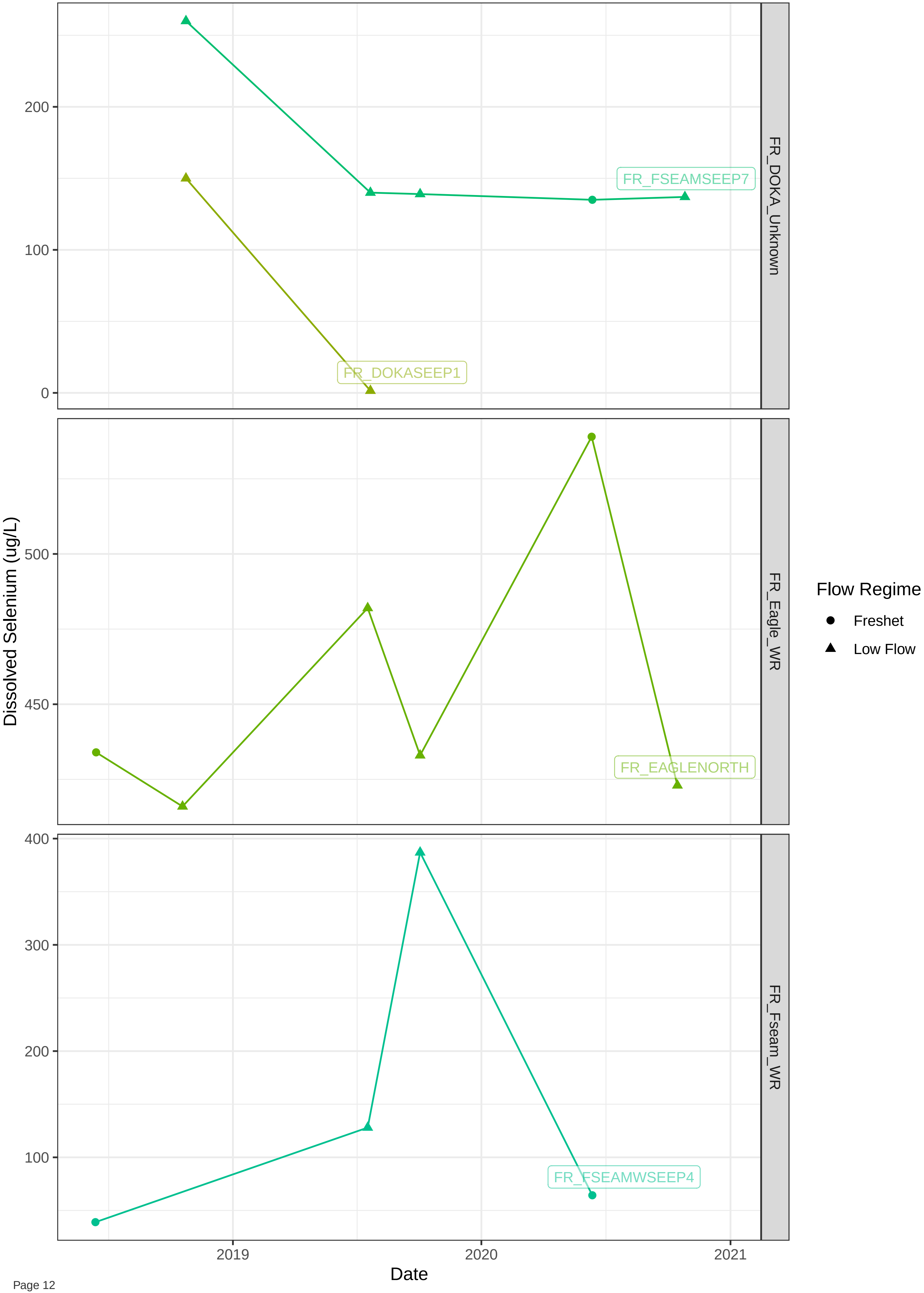


Sulfate (AS SO4) (mgl/L)
1250
1000
750
500
FR_HENSEEP3
FR_HENSEEP1
FR_HENSSEEP1
FR_HEN_WR
600
400
200
FR_LMCWSEEP5
FR_LMCWSEEP7
FR_LakeMtn_WR_PITS
225
200
175
150
125
FR_SHNSEEP1
FR_Shandley_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow


FR_FRVWSEEP3
575
550
525
500
475
FR_Smith_WR
400
300
200
100
FR_STPSWSEEP
FR_STPWSEEP
FR_STPNSEEP
FR_SouthTails_Tailings
400
350
300
250
FR_SCRDSEEP1
FR_SwiftWR_RockDrain_WR
2019
2020
2021
Date
Sulfate (AS SO4) (mgl/L)
Flow Regime
● Freshet
▲ Low Flow


Sulfate (AS SO4) (mg/L)
400
300
200
100
FR_TURNSEEP1
FR_FCSEEP2
FR_TurnbullWREast_WR
350
300
250
200
FR_TURNSEEP2
FR_TBWSEEP1
FR_TurnbullWRWest_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow


Dissolved Selenium (ug/L)
Date
110
100
90
80
70
60
FR_ASPSEEP1
FR_A_WR
500
400
300
200
100
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
FR_Blain_CCR
500
400
300
200
100
FR_CCSEEPSE1
FR_CCSEEPE1
FR_ClodeCr_WR
2019
2020
2021
Flow Regime
● Freshet
▲ Low Flow



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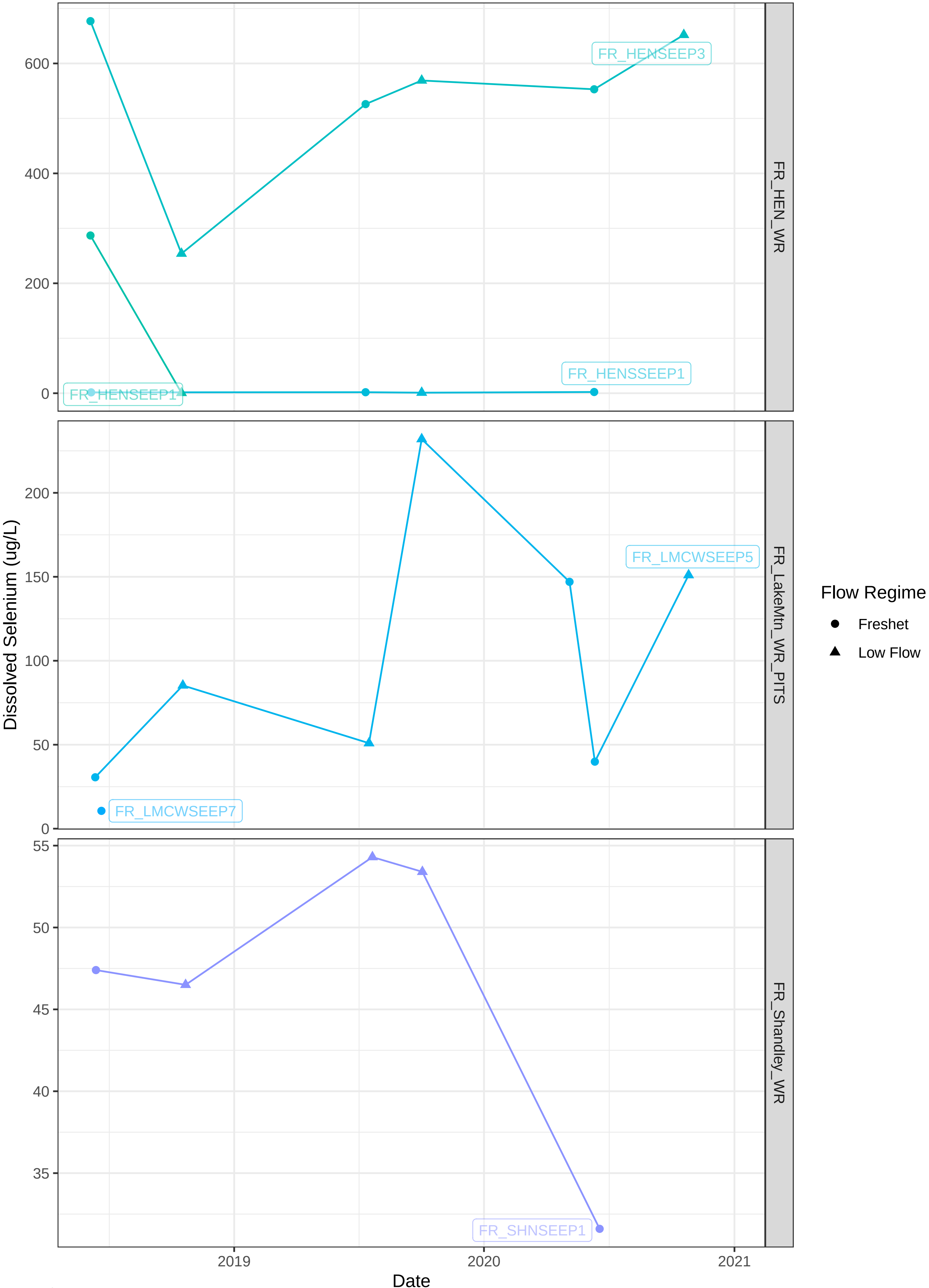
FR_Eagle_WR
FR_Fseam_WR
FR_FSEAMSEEP7
FR_DOKASEEP1
FR_EAGLENORTH
FR_FSEAMWSEEP4
Dissolved Selenium (ug/L)
200
100
0
500
450
400
300
200
100
Date
2019
2020
2021
Flow Regime
● Freshet
▲ Low Flow



FR_HENSEEP3
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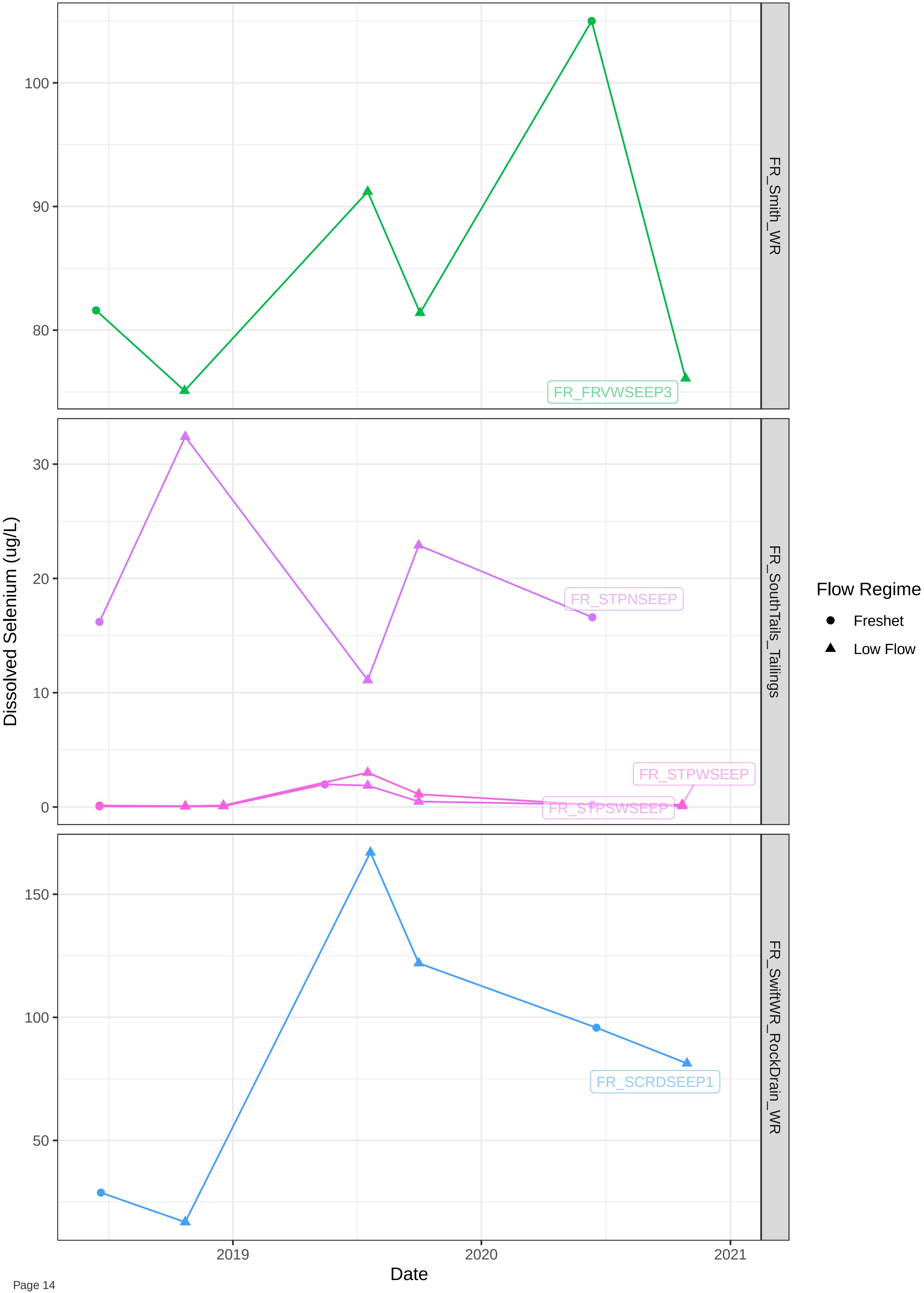
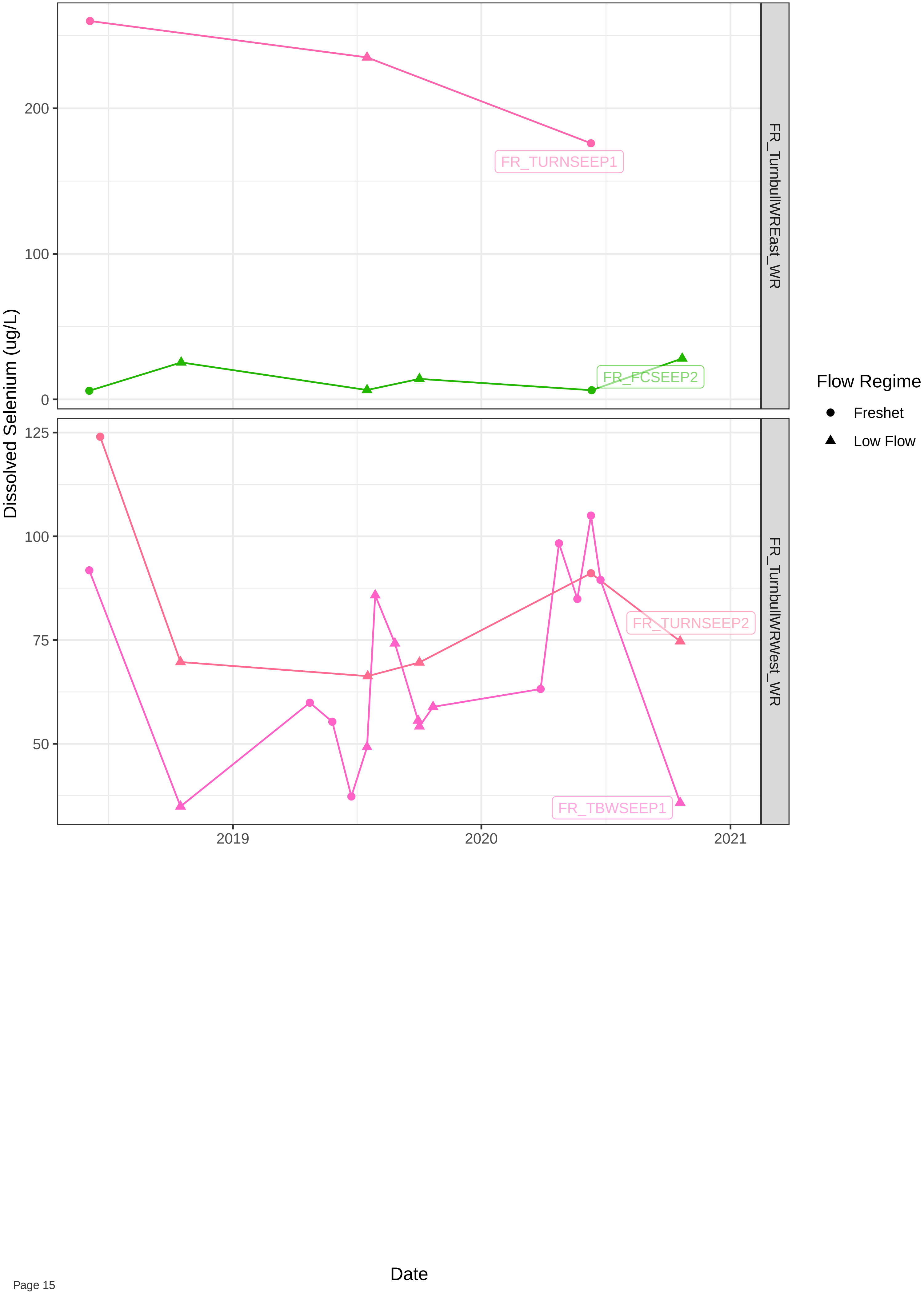
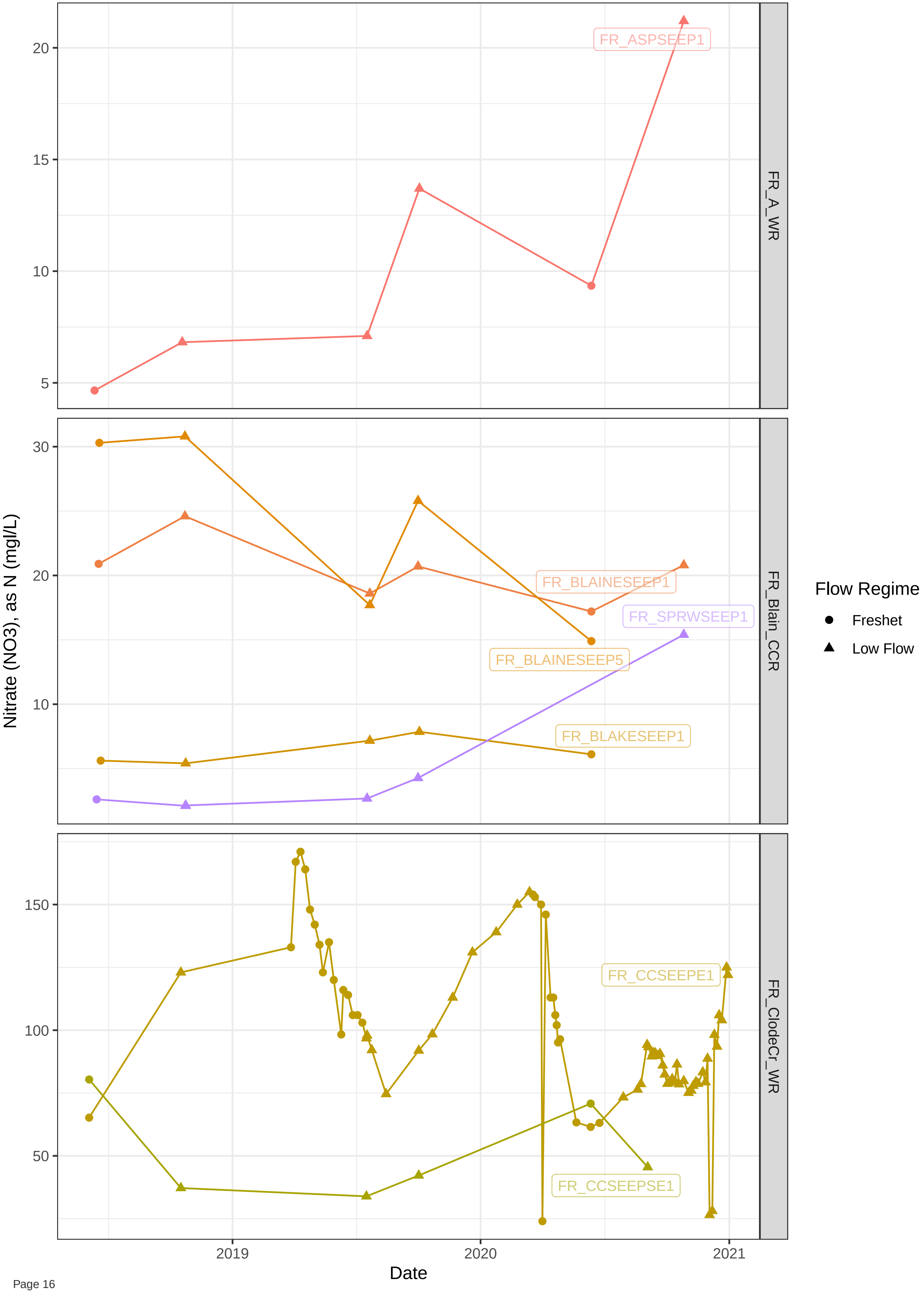
FR_HENSEEP1
FR_HEN_WR
600
400
200
0
FR_LMCWSEEP5
FR_LMCWSEEP7
FR_LakeMtn_WR_PITS
200
150
100
50
0
FR_SHNSEEP1
FR_Shandley_WR
55
50
45
40
35
Dissolved Selenium (ug/L)
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

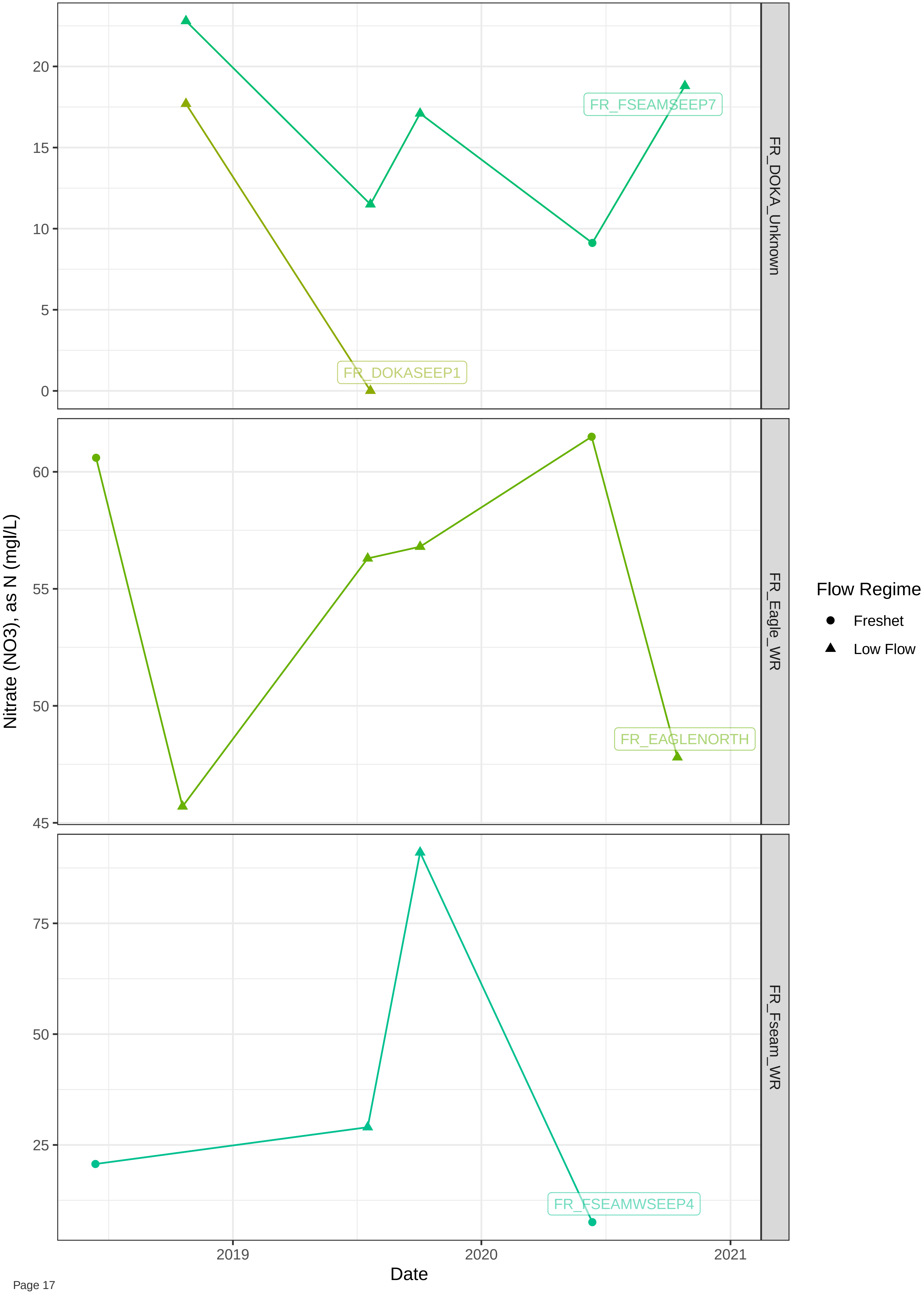


FR_Smith_WR
FR_SouthTails_Tailings
FR_SwiftWR_RockDrain_WR
FR_FRVWSEEP3
FR_STPNSEEP
FR_STPWSEEP
FR_STPSWSEEP
FR_SCRDSEEP1
100
90
80
30
20
10
0
150
100
50
2019
2020
2021
Date
Dissolved Selenium (ug/L)
Flow Regime
● Freshet
▲ Low Flow

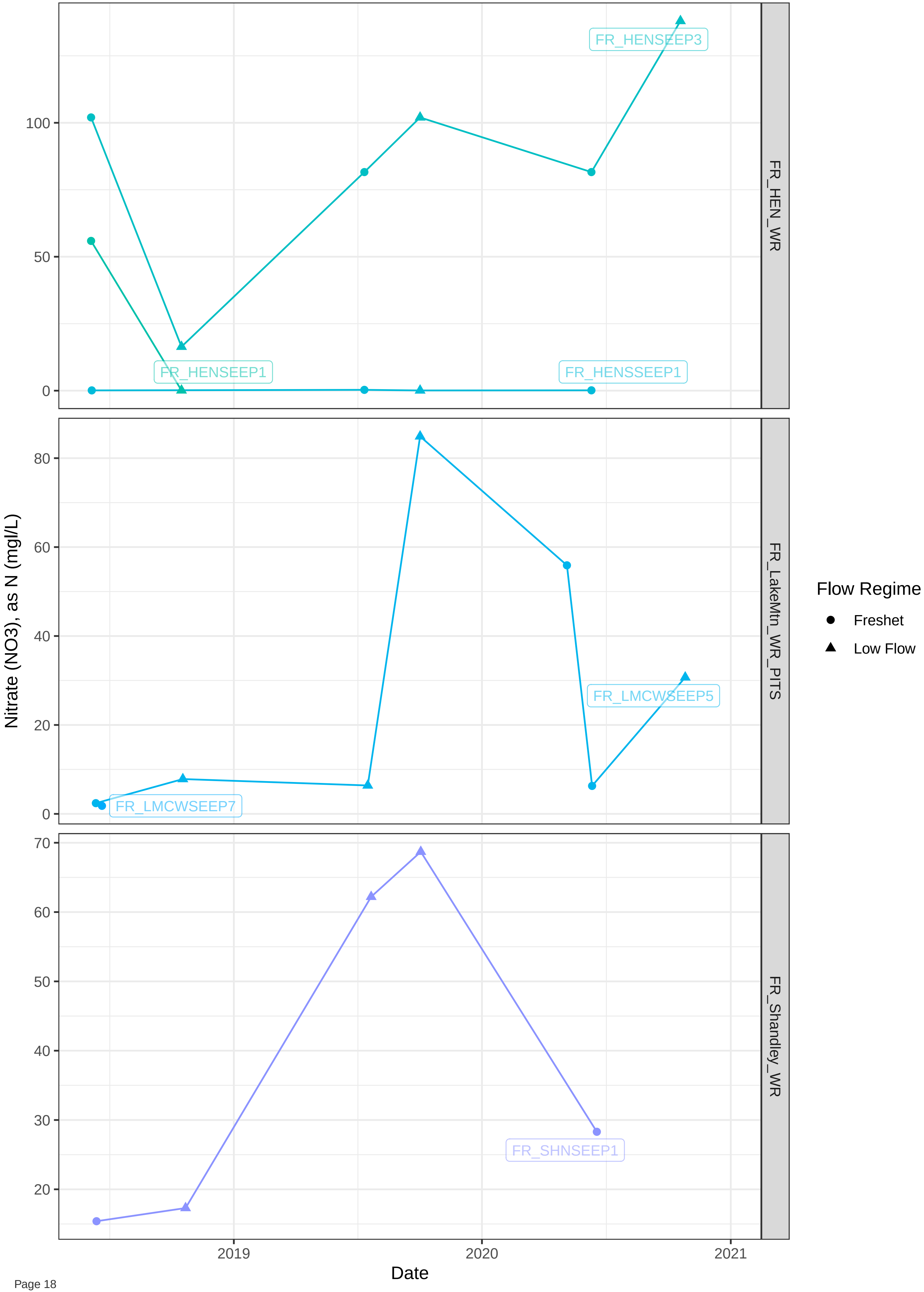

Dissolved Selenium (ug/L)
200
100
0
125
100
75
50
FR_TURNSEEP1
FR_FCSEEP2
FR_TURNSEEP2
FR_TBWSEEP1
FR_TurnbullWREast_WR
FR_TurnbullWRWest_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

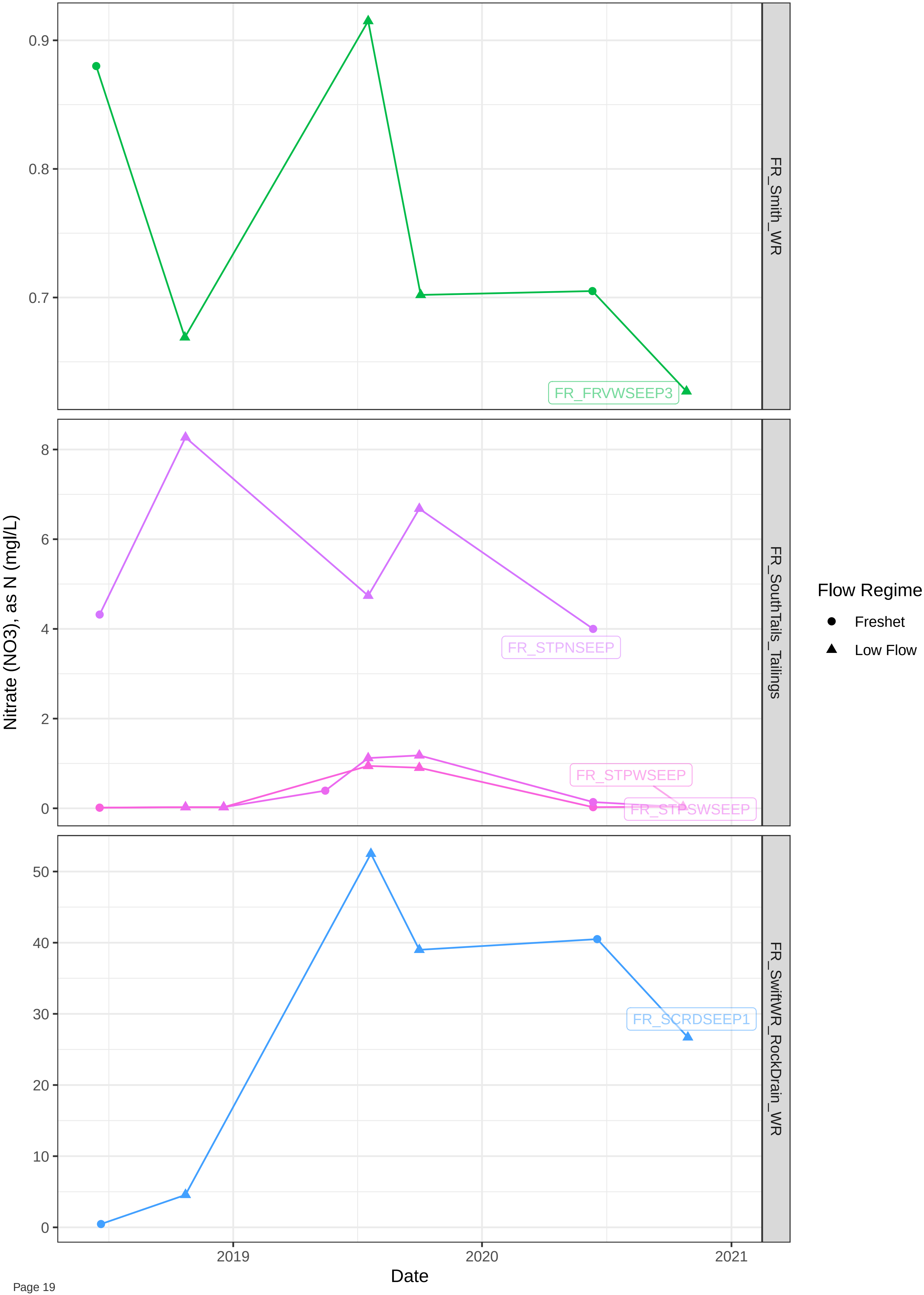


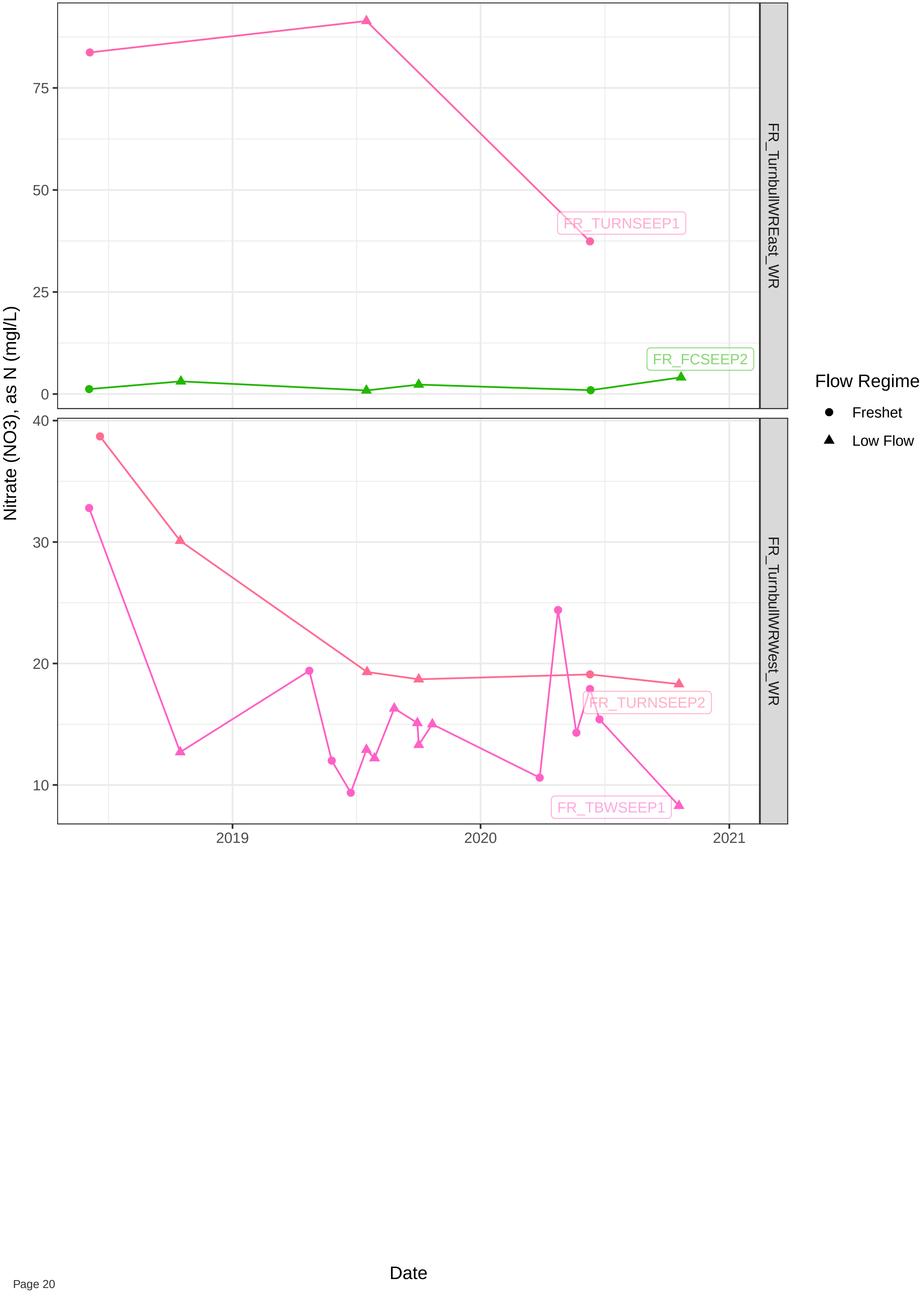
Nitrate (NO3), as N (mgl/L)
Date
2019
2020
2021
20
15
10
5
FR_ASPSEEP1
FR_A_WR
30
20
10
FR_BLAINESEEP1
FR_SPRWSEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_Blain_CCR
150
100
50
FR_CCSEEPE1
FR_CCSEEPSE1
FR_ClodeCr_WR
Flow Regime
● Freshet
▲ Low Flow

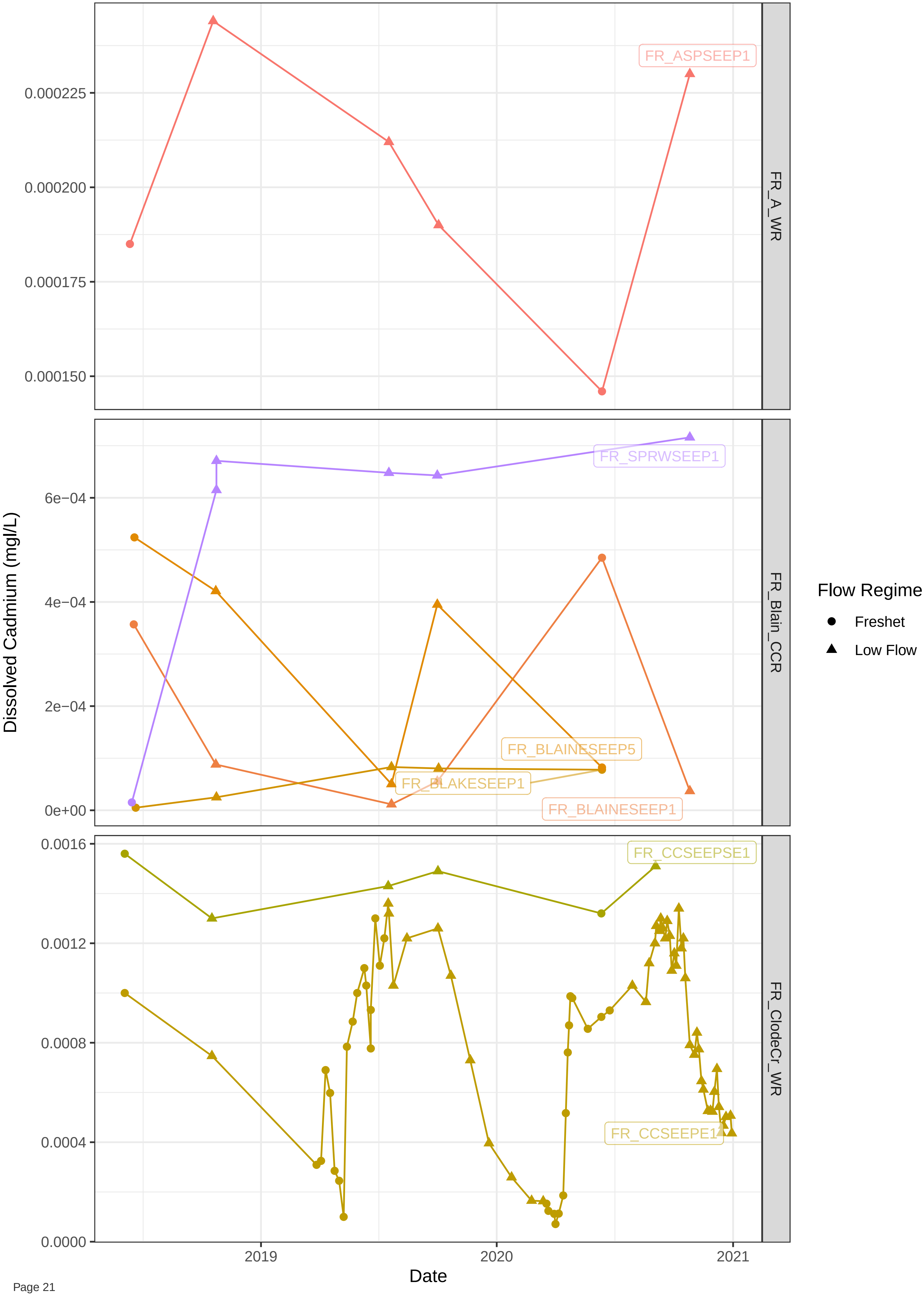


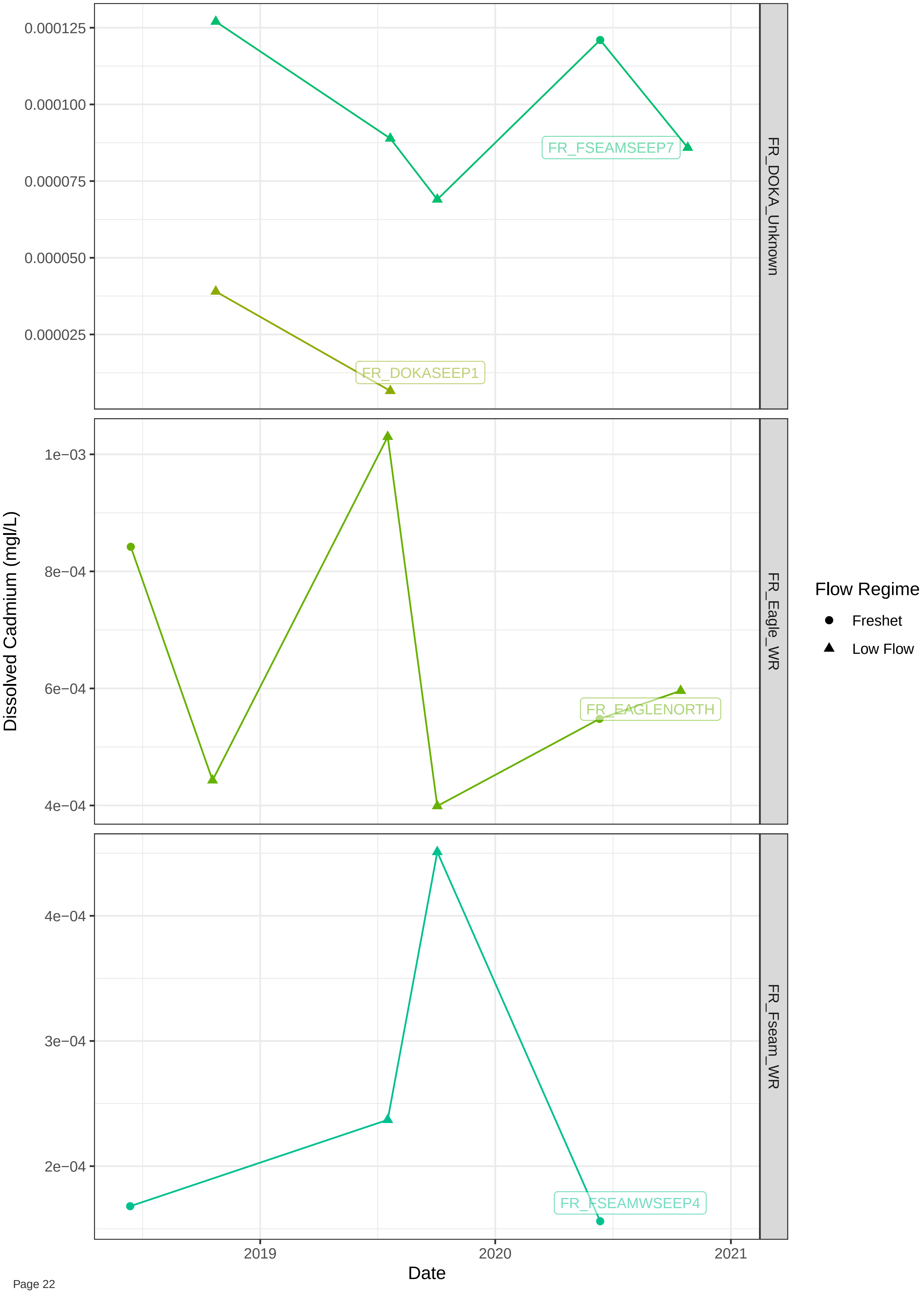
Nitrate (NO3), as N (mgl/L)
20
15
10
5
0
FR_FSEAMSEEP7
FR_DOKASEEP1
FR_DOKA_Unknown
60
55
50
45
FR_EAGLENORTH
FR_Eagle_WR
75
50
25
FR_FSEAMWSEEP4
FR_Fseam_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

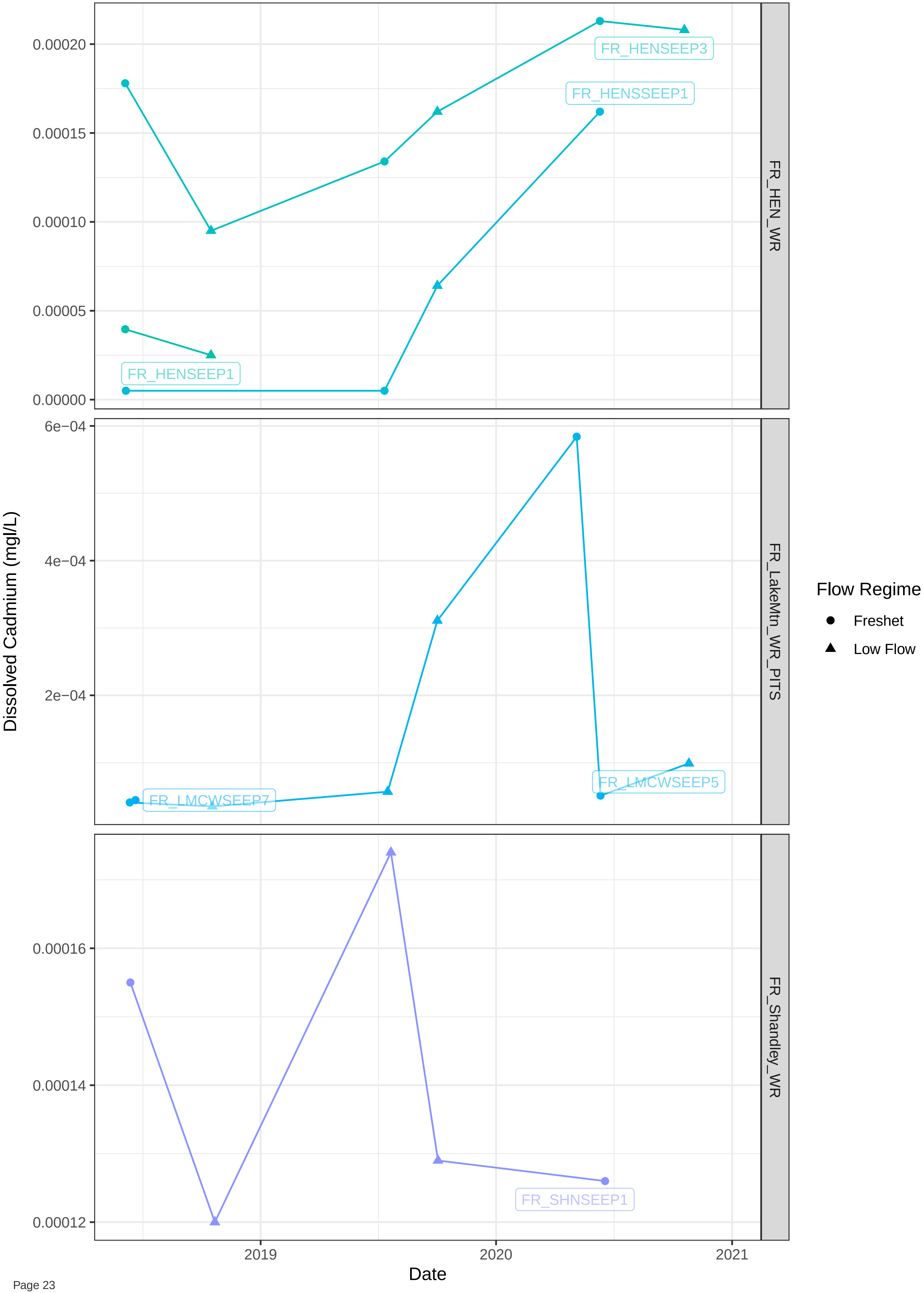

FR_HENSEEP3
FR_HENSEEP1
FR_HENSSEEP1
100
50
0
FR_HEN_WR
80
60
40
20
0
FR_LMCWSEEP5
FR_LMCWSEEP7
FR_LakeMtn_WR_PITS
70
60
50
40
30
20
FR_SHNSEEP1
FR_Shandley_WR
Nitrate (NO3), as N (mg/L)
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

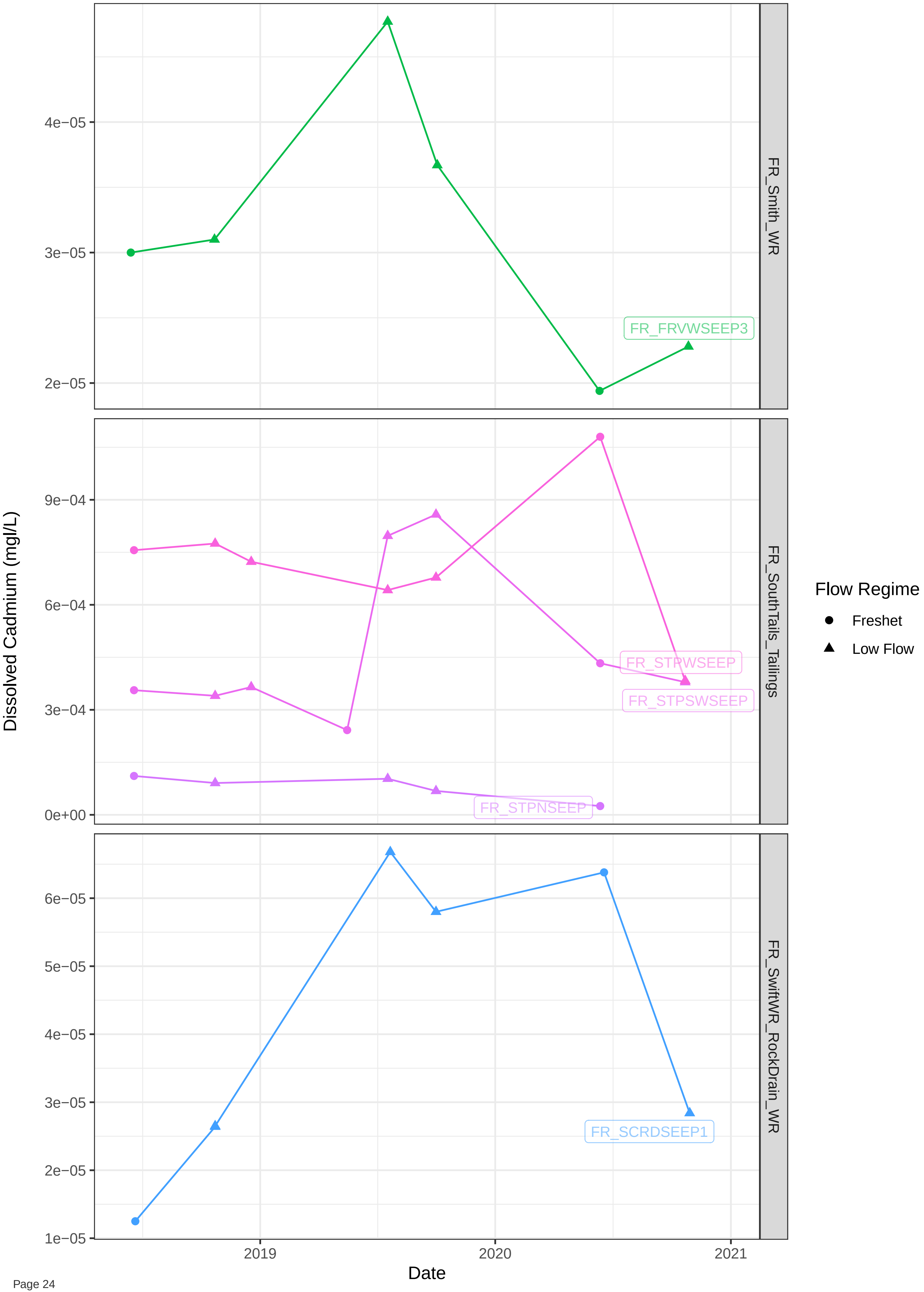

0.9
0.8
0.7
FR_FRVWSEEP3
FR_Smith_WR
8
6
4
2
0
FR_STPNSEEP
FR_STPWSEEP
FR_STPSWSEEP
FR_SouthTails_Tailings
50
40
30
20
10
0
FR_SCRDSEEP1
FR_SwiftWR_RockDrain_WR
Nitrate (NO3), as N (mgl/L)
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow


Nitrate (NO3), as N (mgl/L)
75
50
25
0
40
30
20
10
FR_TURNSEEP1
FR_FCSEEP2
FR_TURNSEEP2
FR_TBWSEEP1
FR_TurnbullWREast_WR
FR_TurnbullWRWest_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

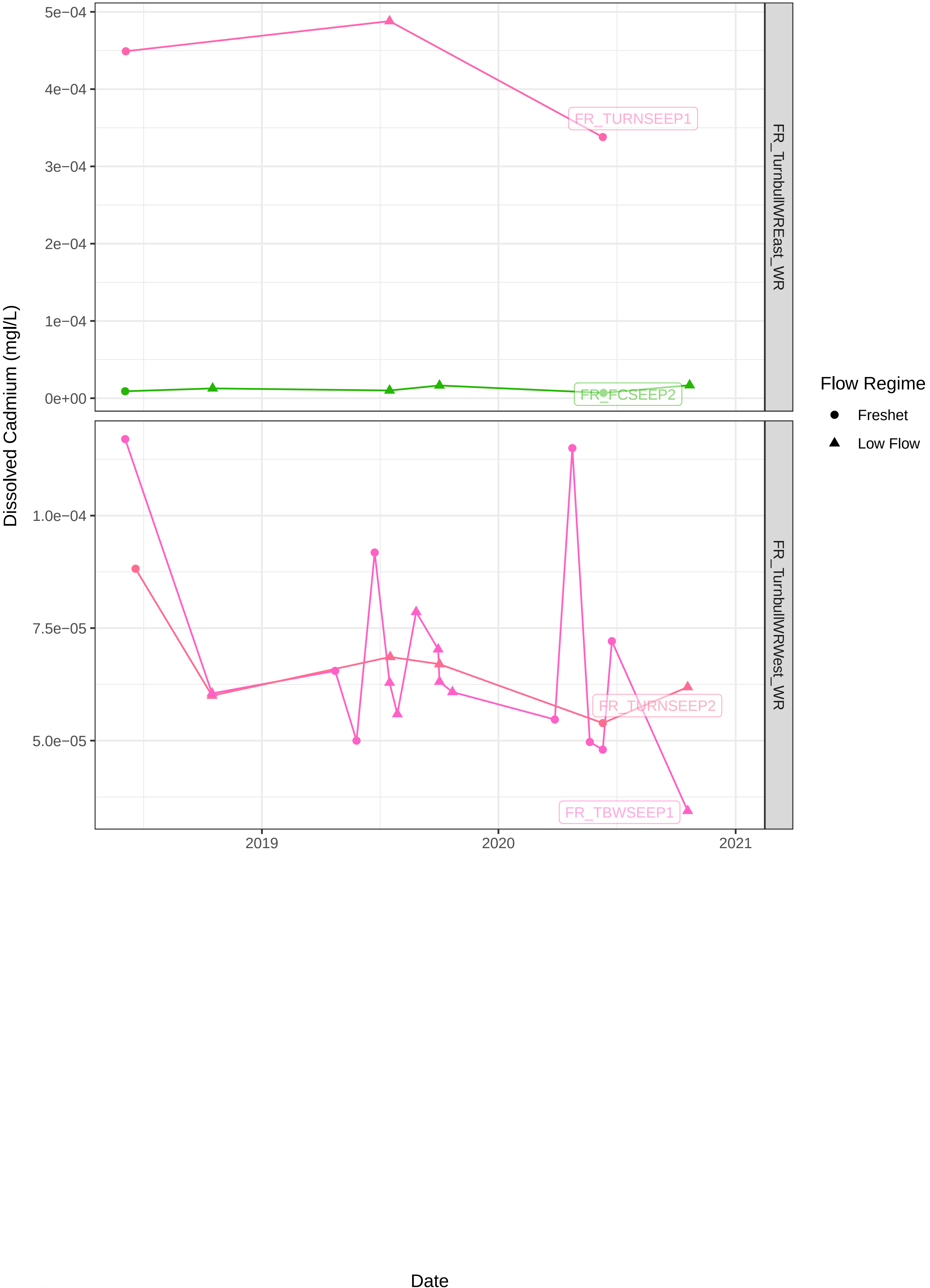

Dissolved Cadmium (mgl/L)
Date
2019
2020
2021
0.000150
0.000175
0.000200
0.000225
FR_A_WR
FR_ASPSEEP1
0e+00
2e−04
4e−04
6e−04
FR_Blain_CCR
FR_SPRWSEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_BLAINESEEP1
0.0000
0.0004
0.0008
0.0012
0.0016
FR_ClodeCr_WR
FR_CCSEEPSE1
FR_CCSEEPE1
Flow Regime
● Freshet
▲ Low Flow


0.000125
0.000100
0.000075
0.000050
0.000025
FR_FSEAMSEEP7
FR_DOKASEEP1
FR_DOKA_Unknown
1e−03
8e−04
6e−04
4e−04
FR_EAGLENORTH
FR_Eagle_WR
4e−04
3e−04
2e−04
FR_FSEAMWSEEP4
FR_Fseam_WR
Dissolved Cadmium (mg/L)
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

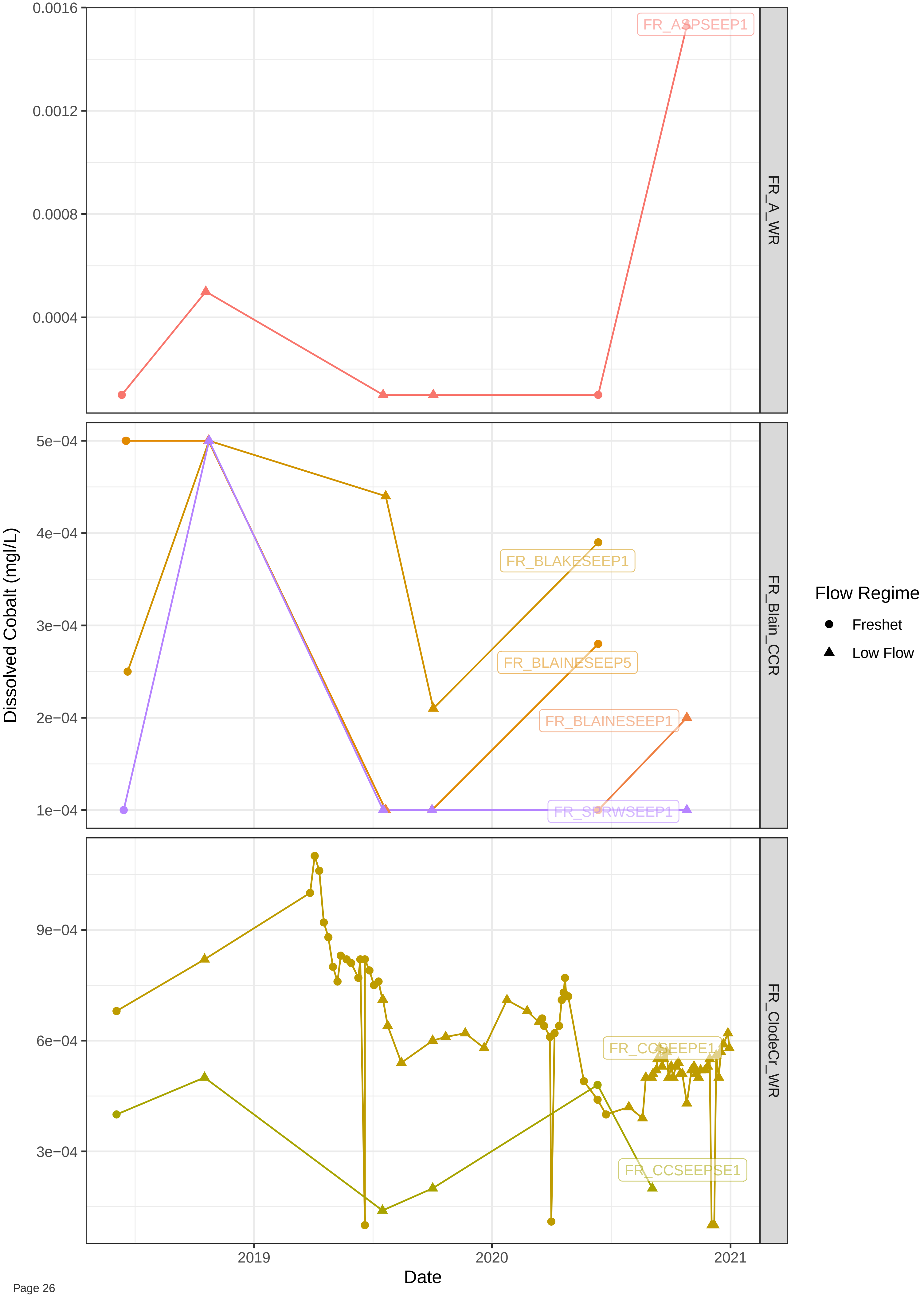

Dissolved Cadmium (mgl/L)
Date
2019
2020
2021
FR_HEN_WR
0.00000
0.00005
0.00010
0.00015
0.00020
FR_HENSEEP3
FR_HENSSEEP1
FR_HENSEEP1
FR_LakeMtn_WR_PITS
2e−04
4e−04
6e−04
FR_LMCWSEEP7
FR_LMCWSEEP5
FR_Shandley_WR
0.00012
0.00014
0.00016
FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

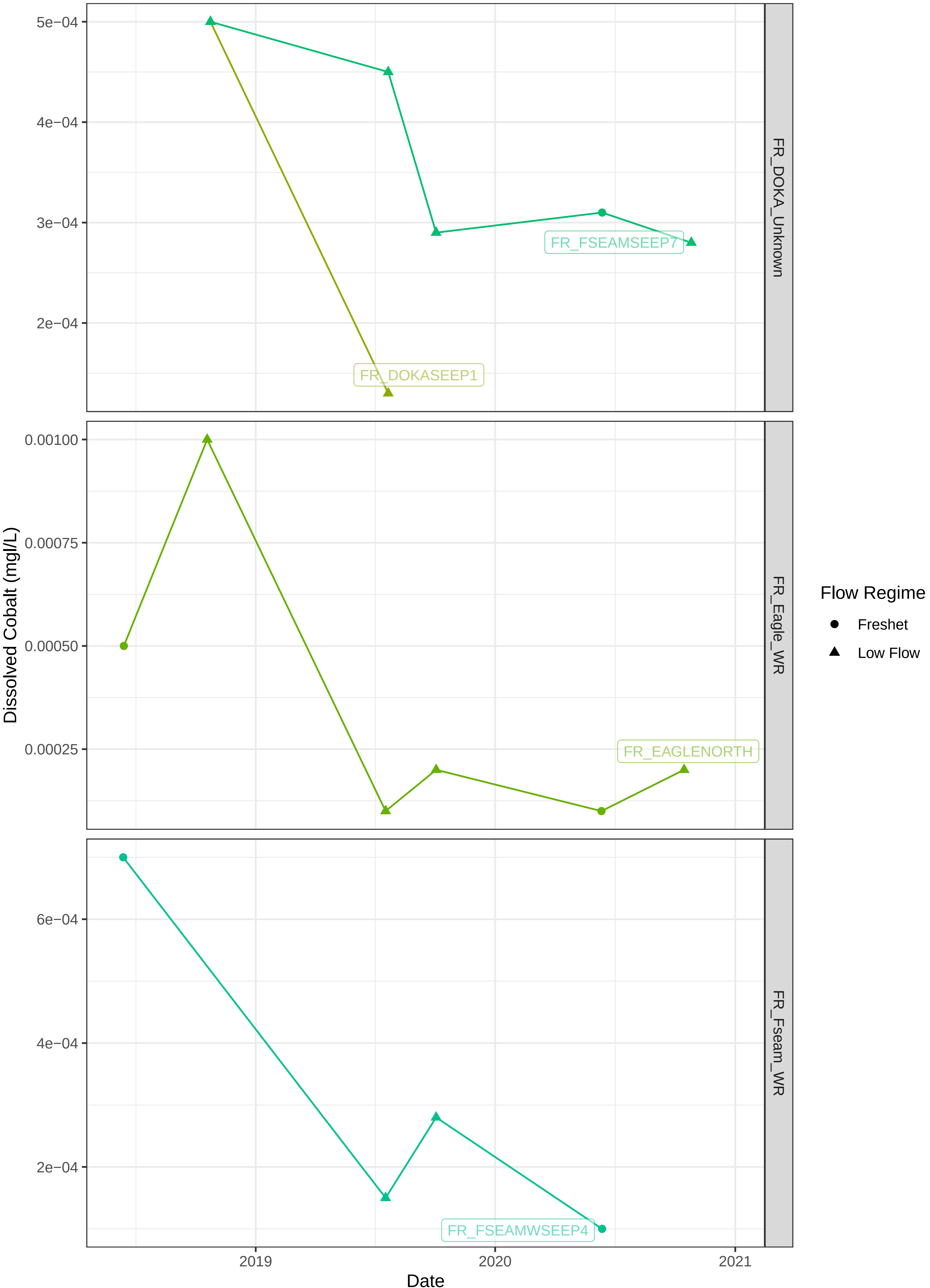


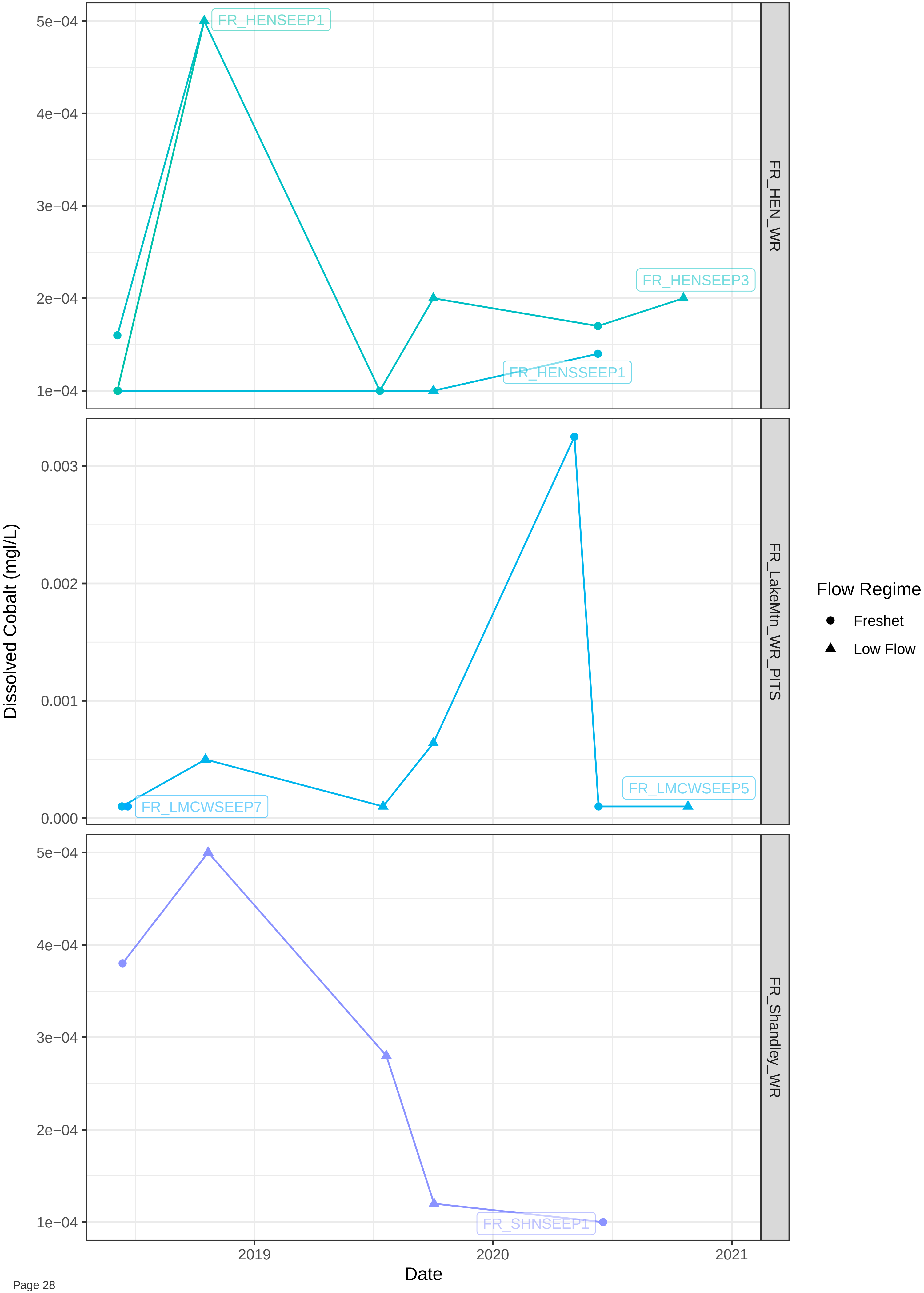
Dissolved Cadmium (mgl/L)
Date
4e−05
3e−05
2e−05
FR_FRVWSEEP3
FR_Smith_WR
9e−04
6e−04
3e−04
0e+00
FR_STPWSEEP
FR_STPSWSEEP
FR_STPNSEEP
FR_SouthTails_Tailings
6e−05
5e−05
4e−05
3e−05
2e−05
1e−05
FR_SCRDSEEP1
FR_SwiftWR_RockDrain_WR
2019
2020
2021
Flow Regime
● Freshet
▲ Low Flow

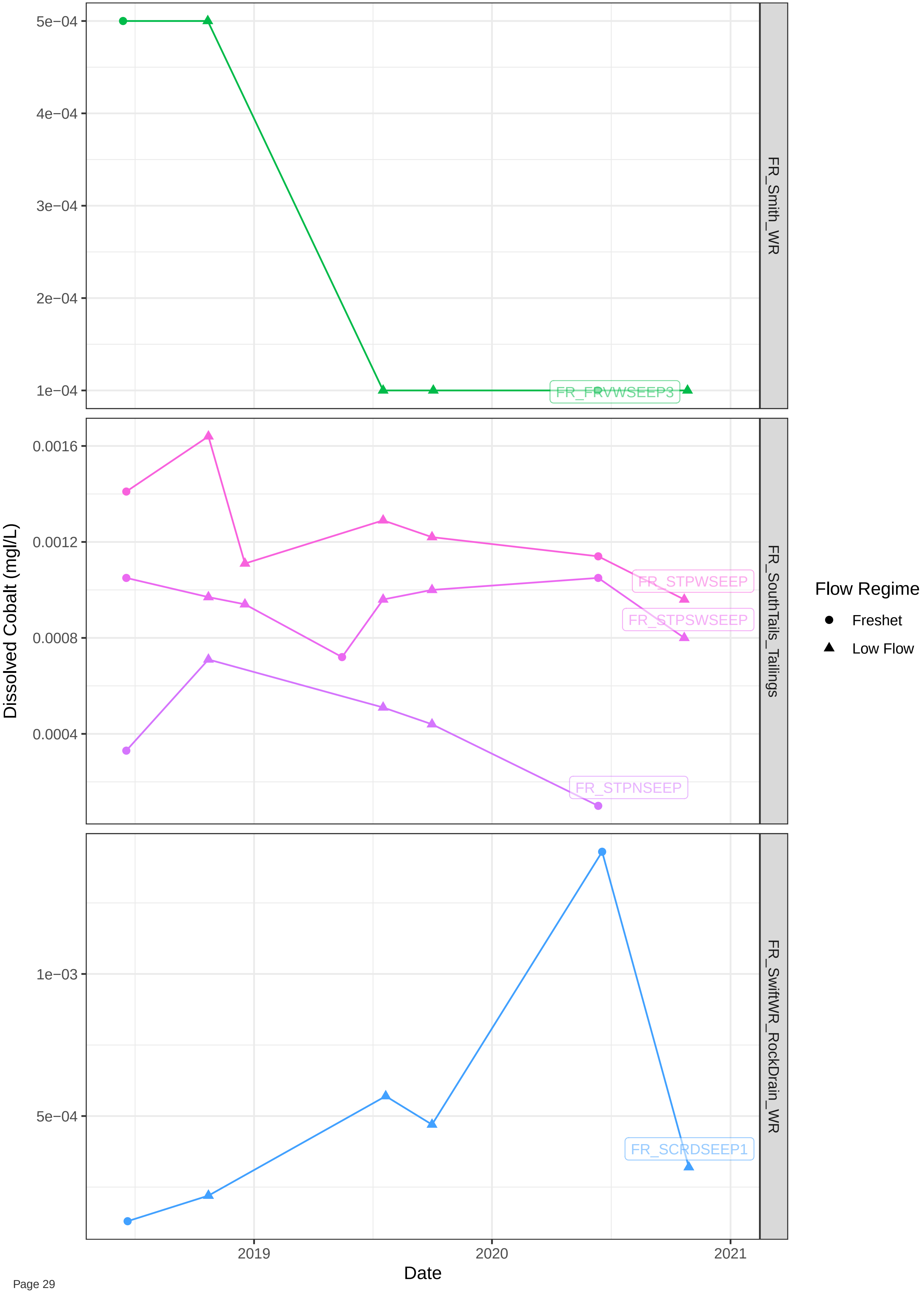


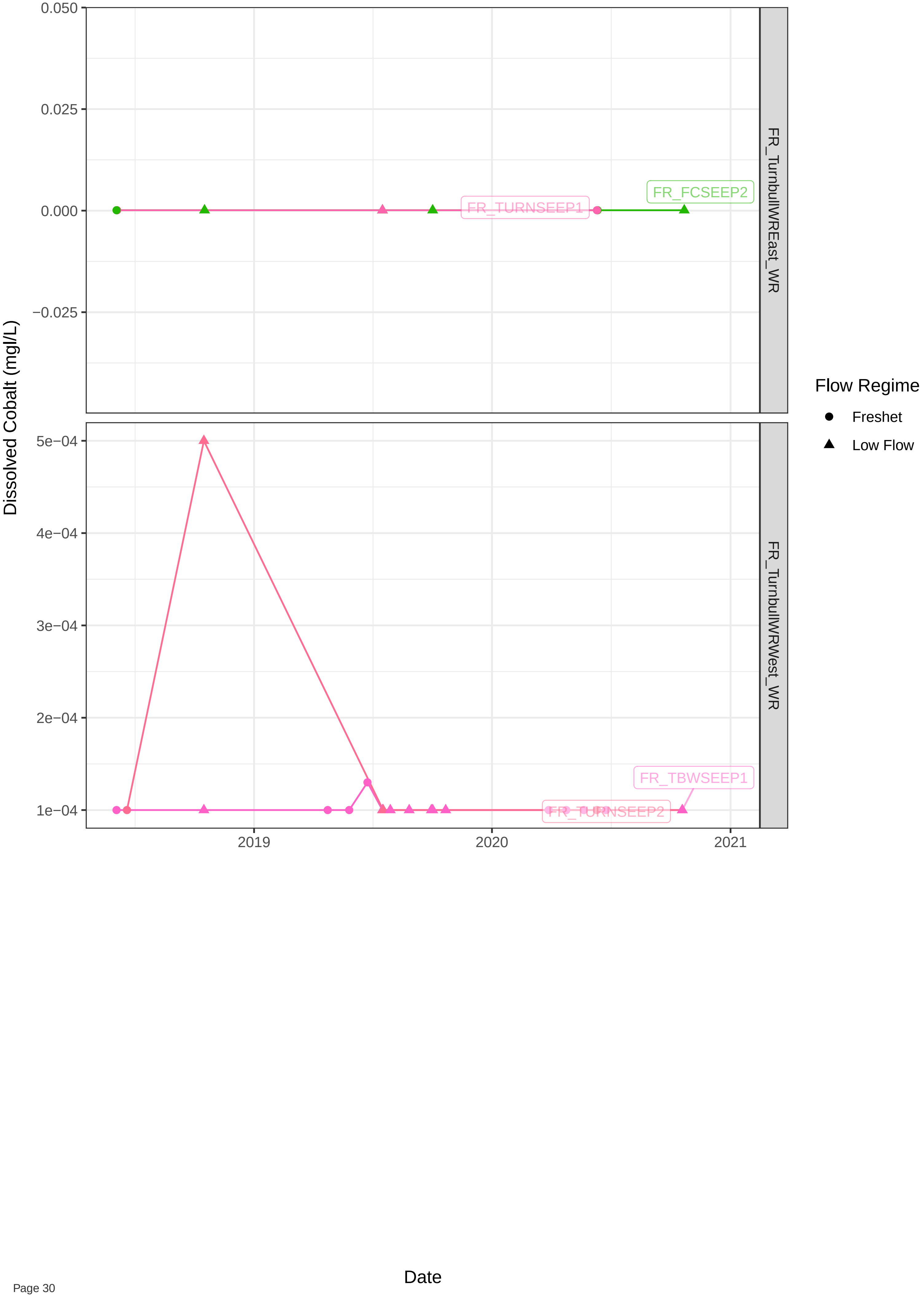
Dissolved Cadmium (mgl/L)
5e−04
4e−04
3e−04
2e−04
1e−04
0e+00
FR_TURNSEEP1
FR_FCSEEP2
FR_TurnbullWREast_WR
1.0e−04
7.5e−05
5.0e−05
FR_TURNSEEP2
FR_TBWSEEP1
FR_TurnbullWRWest_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

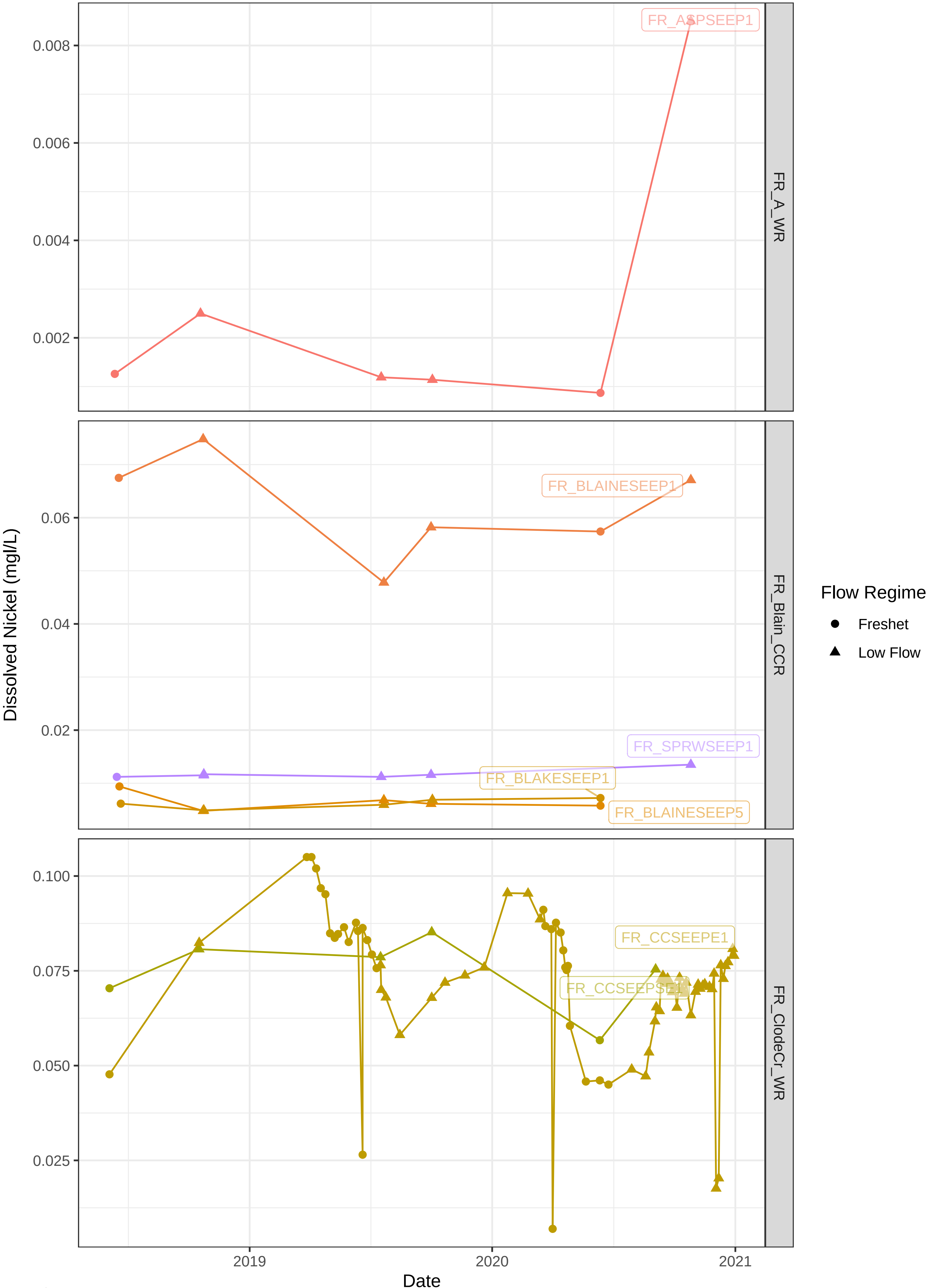

0.0016
0.0012
0.0008
0.0004
FR_ASPSEEP1
FR_A_WR
5e−04
4e−04
3e−04
2e−04
1e−04
FR_BLAKESEEP1
FR_BLAINESEEP5
FR_BLAINESEEP1
FR_SPRWSEEP1
FR_Blain_CCR
9e−04
6e−04
3e−04
FR_CCSEEPE1
FR_CCSEEPSE1
FR_ClodeCr_WR
Dissolved Cobalt (mg/L)
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

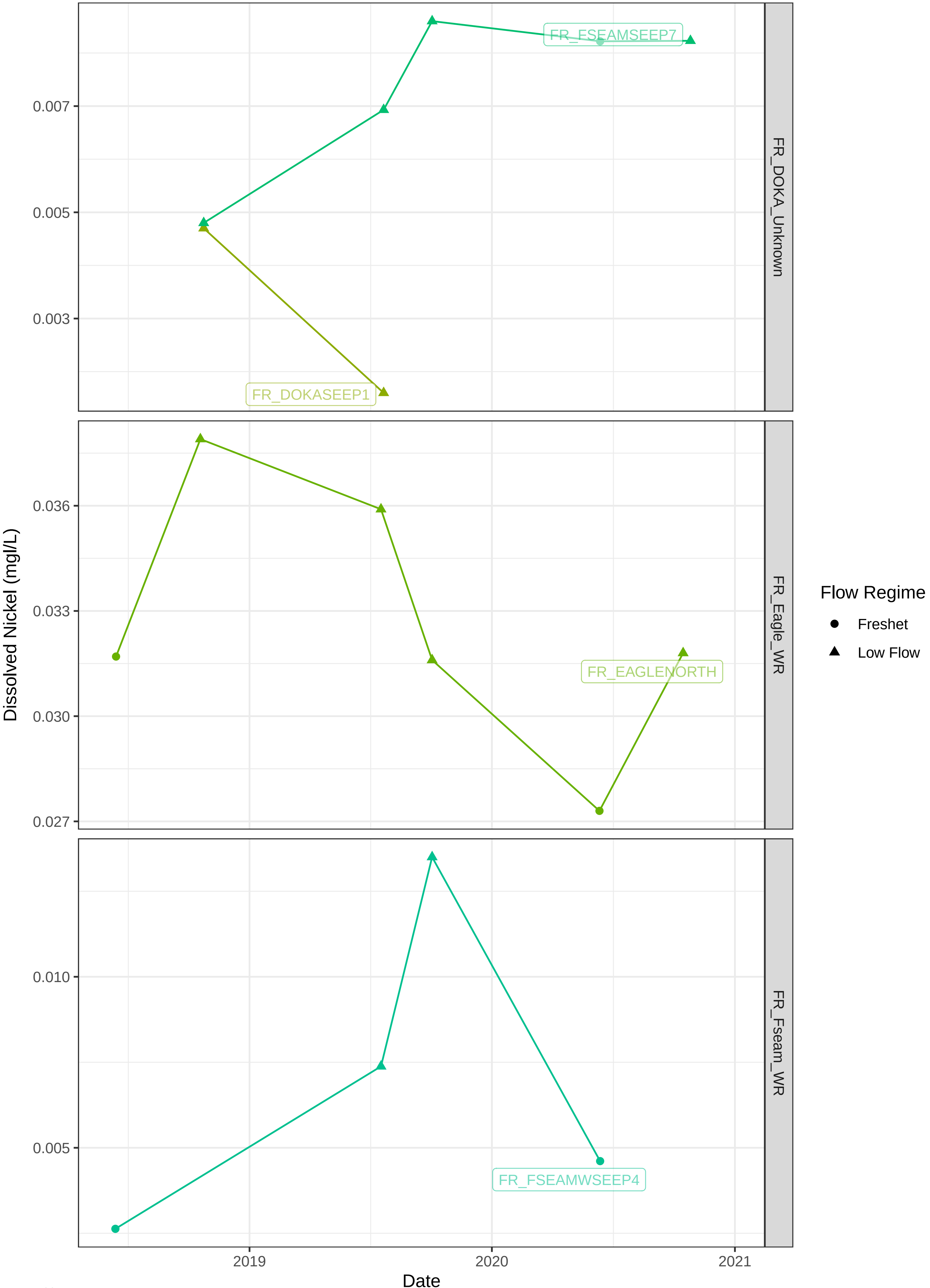

5e−04
4e−04
3e−04
2e−04
FR_FSEAMSEEP7
FR_DOKASEEP1
FR_DOKA_Unknown
0.00100
0.00075
0.00050
0.00025
FR_EAGLENORTH
FR_Eagle_WR
6e−04
4e−04
2e−04
FR_FSEAMWSEEP4
FR_Fseam_WR
Dissolved Cobalt (mg/L)
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow


5e−04
4e−04
3e−04
2e−04
1e−04
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
FR_HEN_WR
0.003
0.002
0.001
0.000
FR_LMCWSEEP7
FR_LMCWSEEP5
FR_LakeMtn_WR_PITS
5e−04
4e−04
3e−04
2e−04
1e−04
FR_SHNSEEP1
FR_Shandley_WR
Dissolved Cobalt (mgl/L)
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

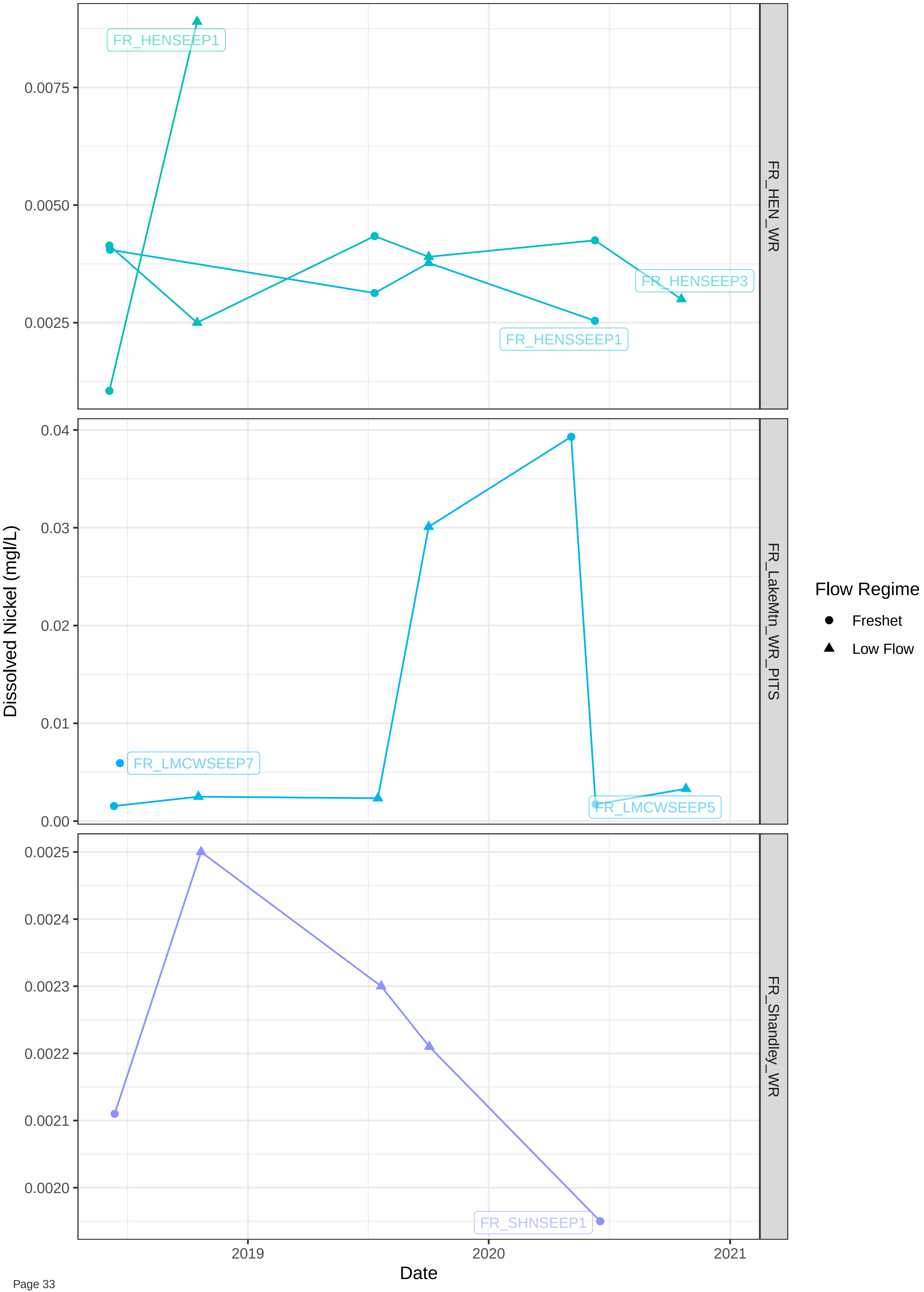

5e−04
4e−04
3e−04
2e−04
1e−04
FR_FRVWSEEP3
FR_Smith_WR
0.0016
0.0012
0.0008
0.0004
FR_STPWSEEP
FR_STPSWSEEP
FR_STPNSEEP
FR_SouthTails_Tailings
1e−03
5e−04
FR_SCRDSEEP1
FR_SwiftWR_RockDrain_WR
Dissolved Cobalt (mg/L)
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

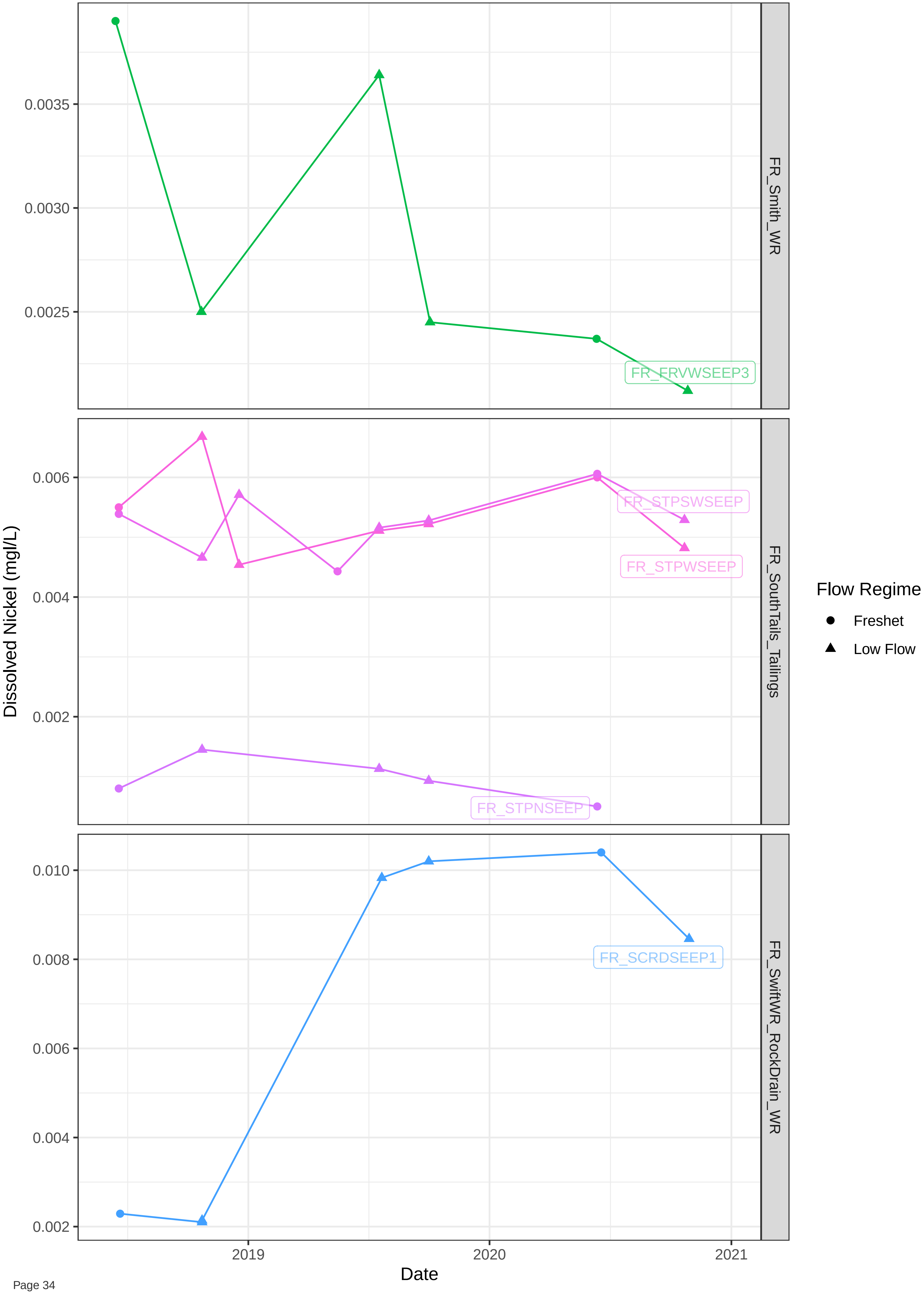

0.050
0.025
0.000
−0.025
FR_TURNSEEP1
FR_FCSEEP2
FR_TurnbullWREast_WR
5e−04
4e−04
3e−04
2e−04
1e−04
FR_TBWSEEP1
FR_TURNSEEP2
FR_TurnbullWRWest_WR
2019
2020
2021
Dissolved Cobalt (mg/L)
Date
Flow Regime
● Freshet
▲ Low Flow


Dissolved Nickel (mgl/L)
0.008
0.006
0.004
0.002
FR_ASPSEEP1
FR_A_WR
0.06
0.04
0.02
FR_BLAINESEEP1
FR_SPRWSEEP1
FR_BLAKESEEP1
FR_BLAINESEEP5
FR_Blain_CCR
0.100
0.075
0.050
0.025
FR_CCSEEPE1
FR_CCSEEPSE1
FR_ClodeCr_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

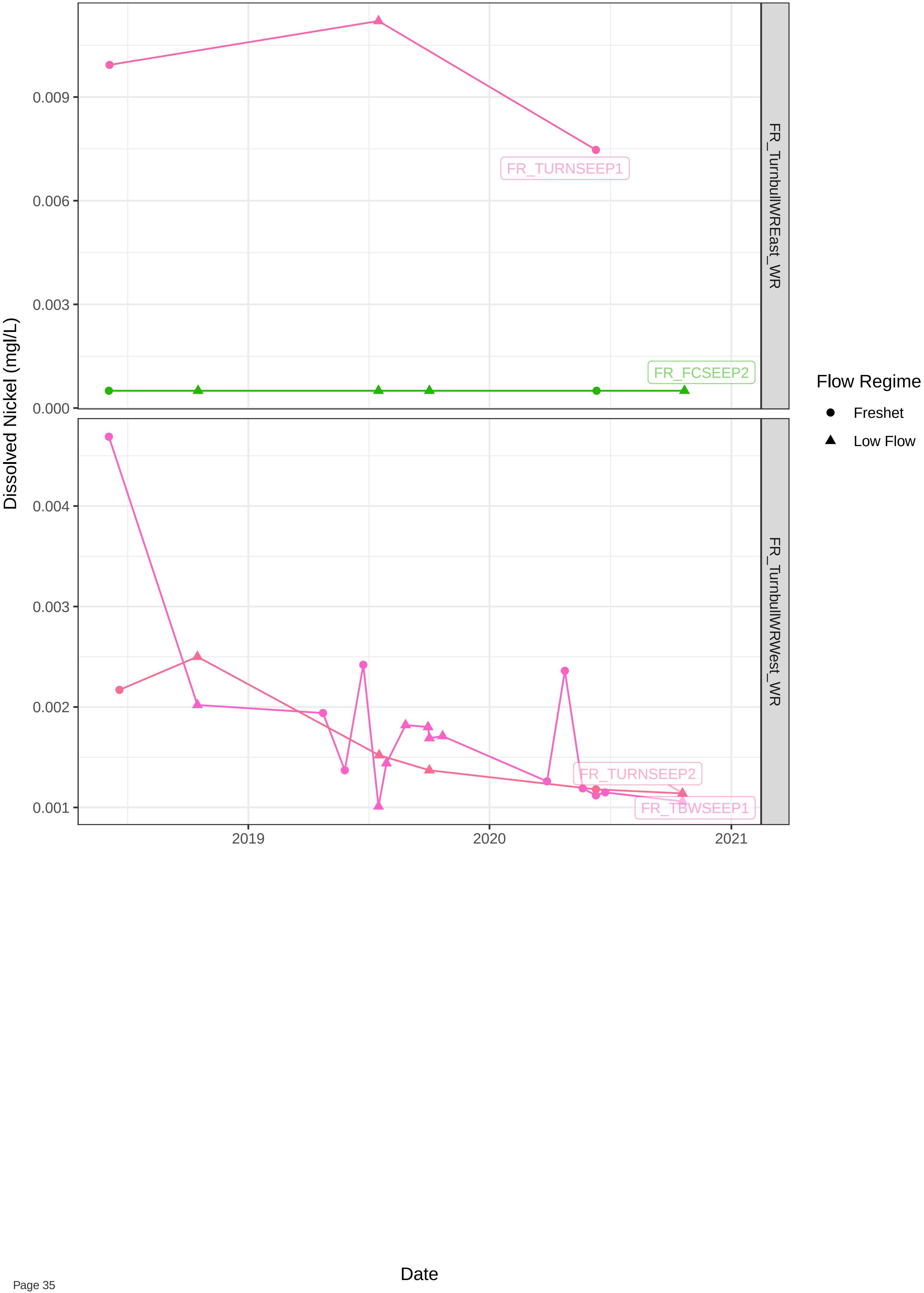


FR_FSEAMSEEP7
FR_DOKASEEP1
FR_DOKA_Unknown
0.007
0.005
0.003
0.036
0.033
0.030
0.027
FR_EAGLENORTH
FR_Eagle_WR
0.010
0.005
FR_FSEAMWSEEP4
FR_Fseam_WR
Dissolved Nickel (mgl/L)
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

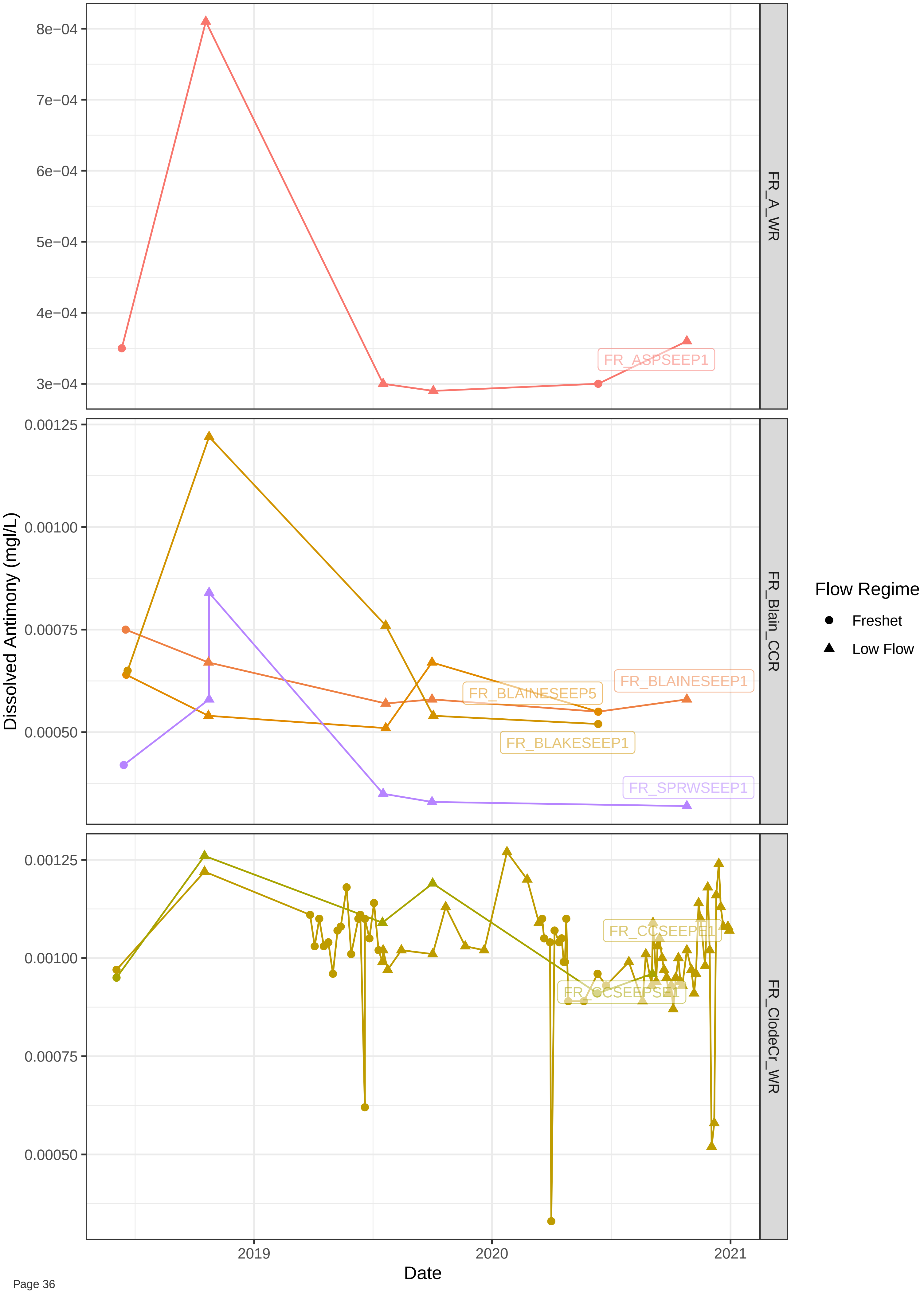

FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
FR_HEN_WR
0.0075
0.0050
0.0025
0.04
0.03
0.02
0.01
0.00
FR_LMCWSEEP7
FR_LMCWSEEP5
FR_LakeMtn_WR_PITS
0.0025
0.0024
0.0023
0.0022
0.0021
0.0020
FR_SHNSEEP1
FR_Shandley_WR
2019
2020
2021
Date
Dissolved Nickel (mgl/L)
Flow Regime
● Freshet
▲ Low Flow

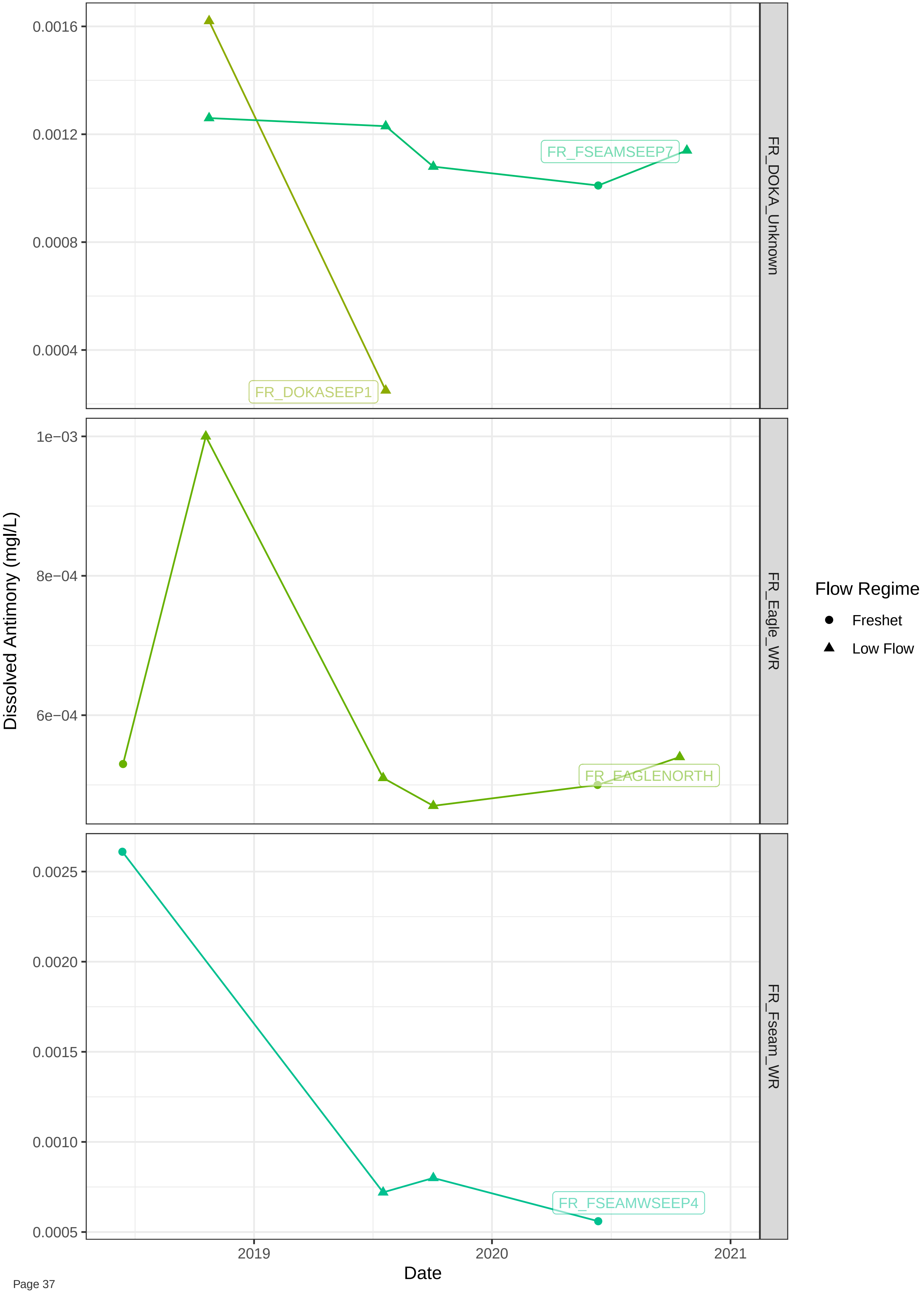


0.0035
0.0030
0.0025
FR_FRVWSEEP3
FR_Smith_WR
0.006
0.004
0.002
FR_STPSWSEEP
FR_STPWSEEP
FR_STPNSEEP
FR_SouthTails_Tailings
0.010
0.008
0.006
0.004
0.002
FR_SCRDSEEP1
FR_SwiftWR_RockDrain_WR
Dissolved Nickel (mgl/L)
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

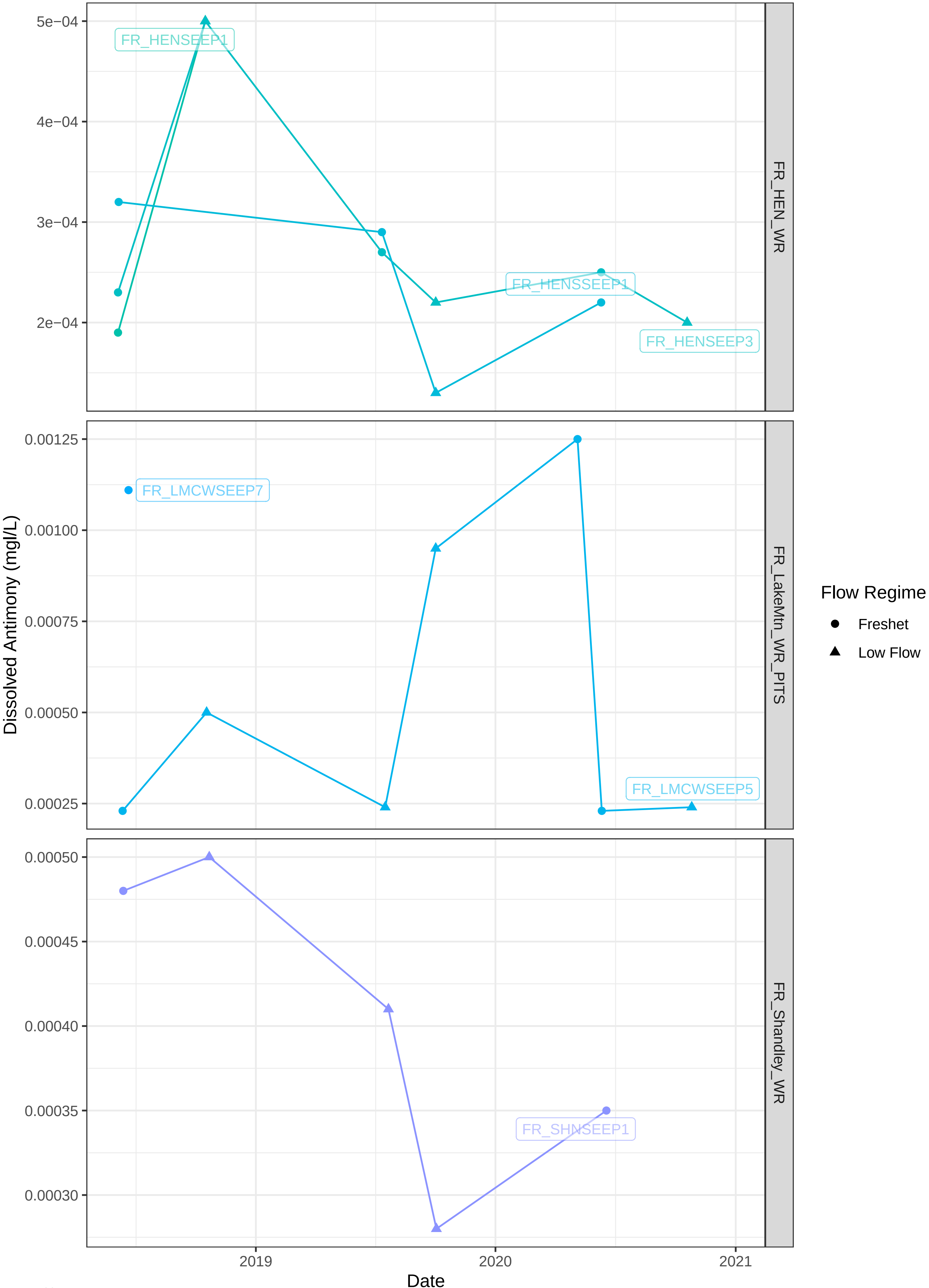


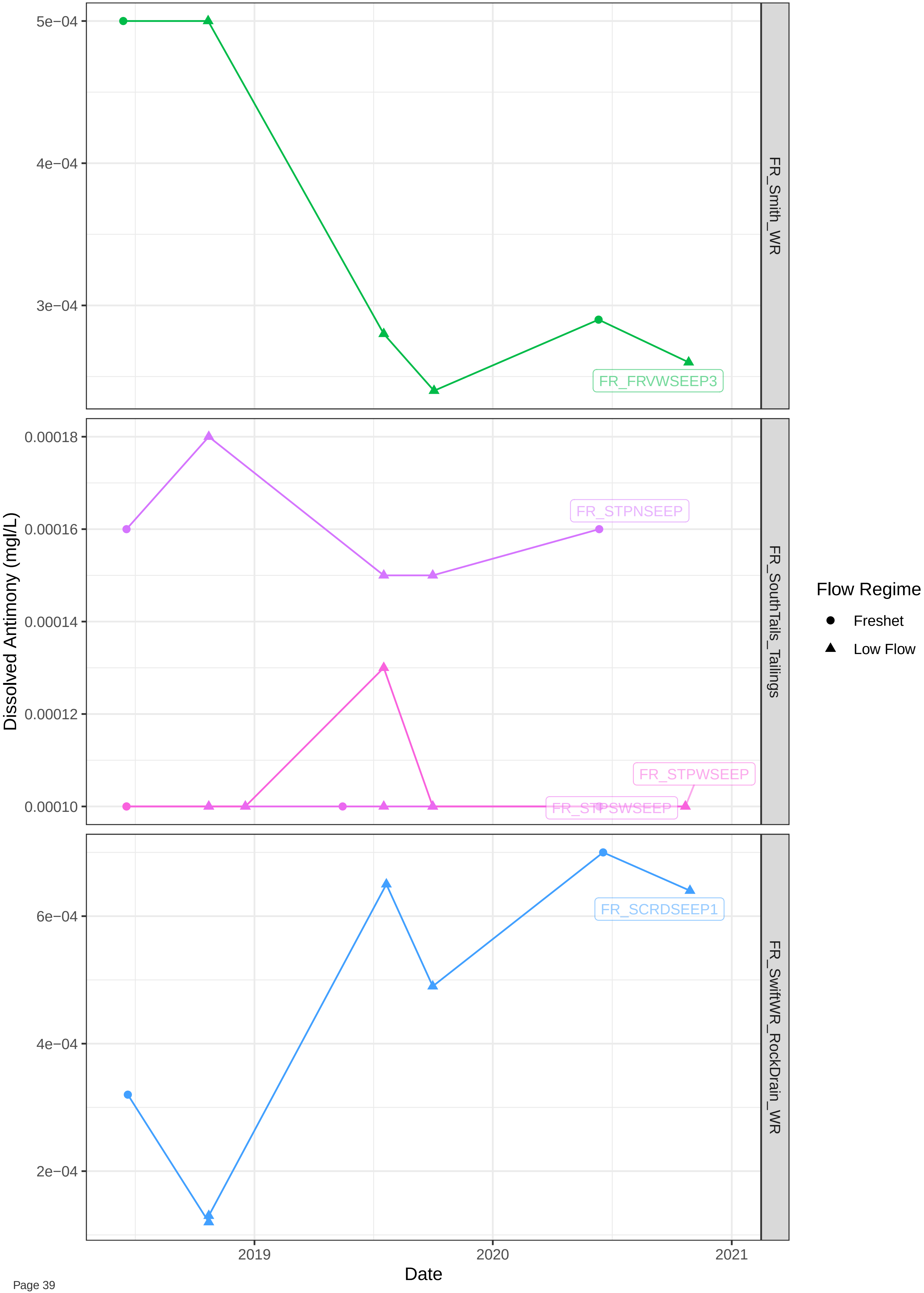
Dissolved Nickel (mgl/L)
0.009
0.006
0.003
0.000
0.004
0.003
0.002
0.001
FR_TURNSEEP1
FR_FCSEEP2
FR_TURNSEEP2
FR_TBWSEEP1
FR_TurnbullWREast_WR
FR_TurnbullWRWest_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow


8e−04
7e−04
6e−04
5e−04
4e−04
3e−04
FR_ASPSEEP1
FR_A_WR
0.00125
0.00100
0.00075
0.00050
FR_BLAINESEEP5
FR_BLAINESEEP1
FR_BLAKESEEP1
FR_SPRWSEEP1
FR_Blain_CCR
0.00125
0.00100
0.00075
0.00050
FR_CCSEEPE1
FR_CCSEEPSE1
FR_ClodeCr_WR
Dissolved Antimony (mgl/L)
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

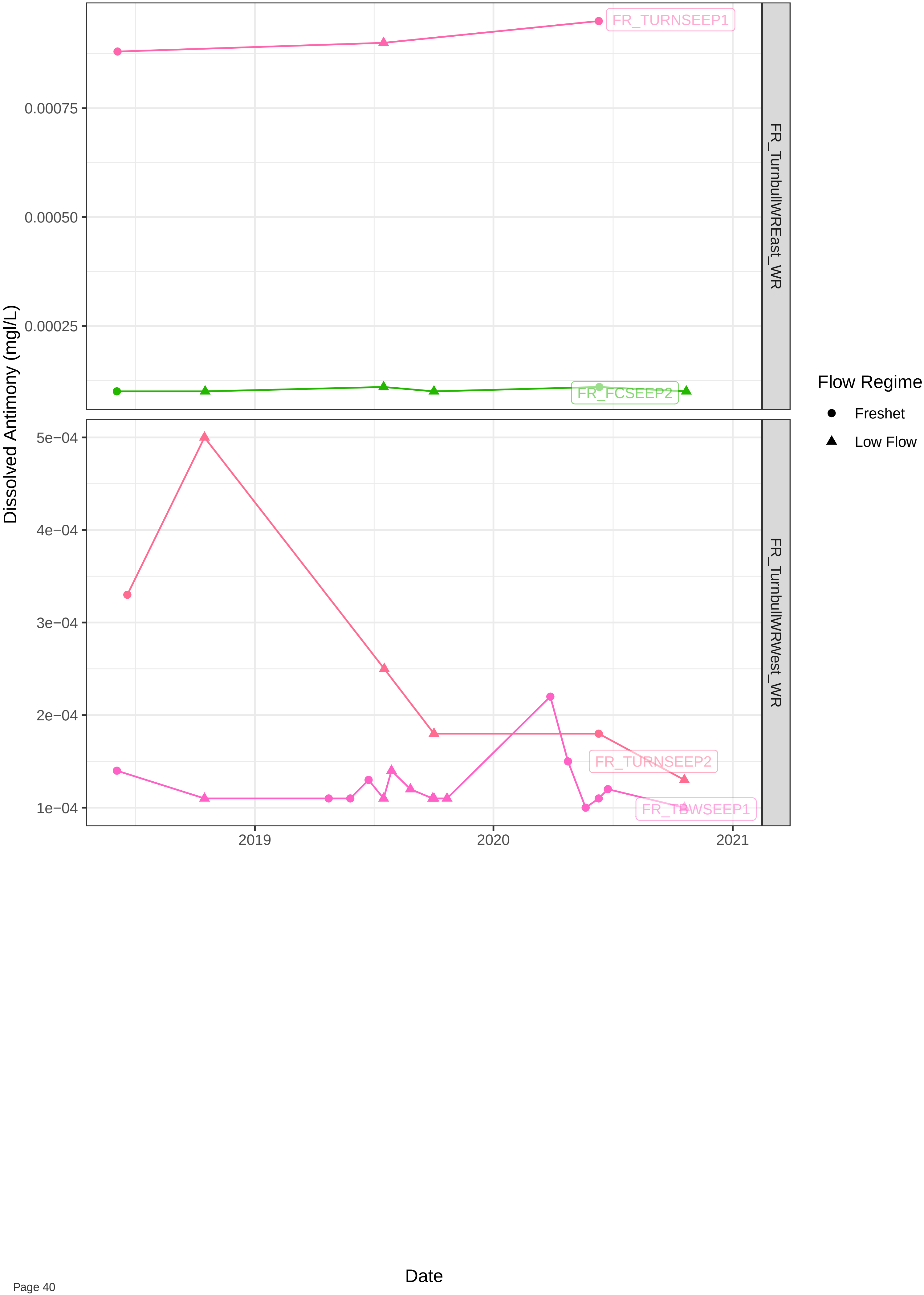


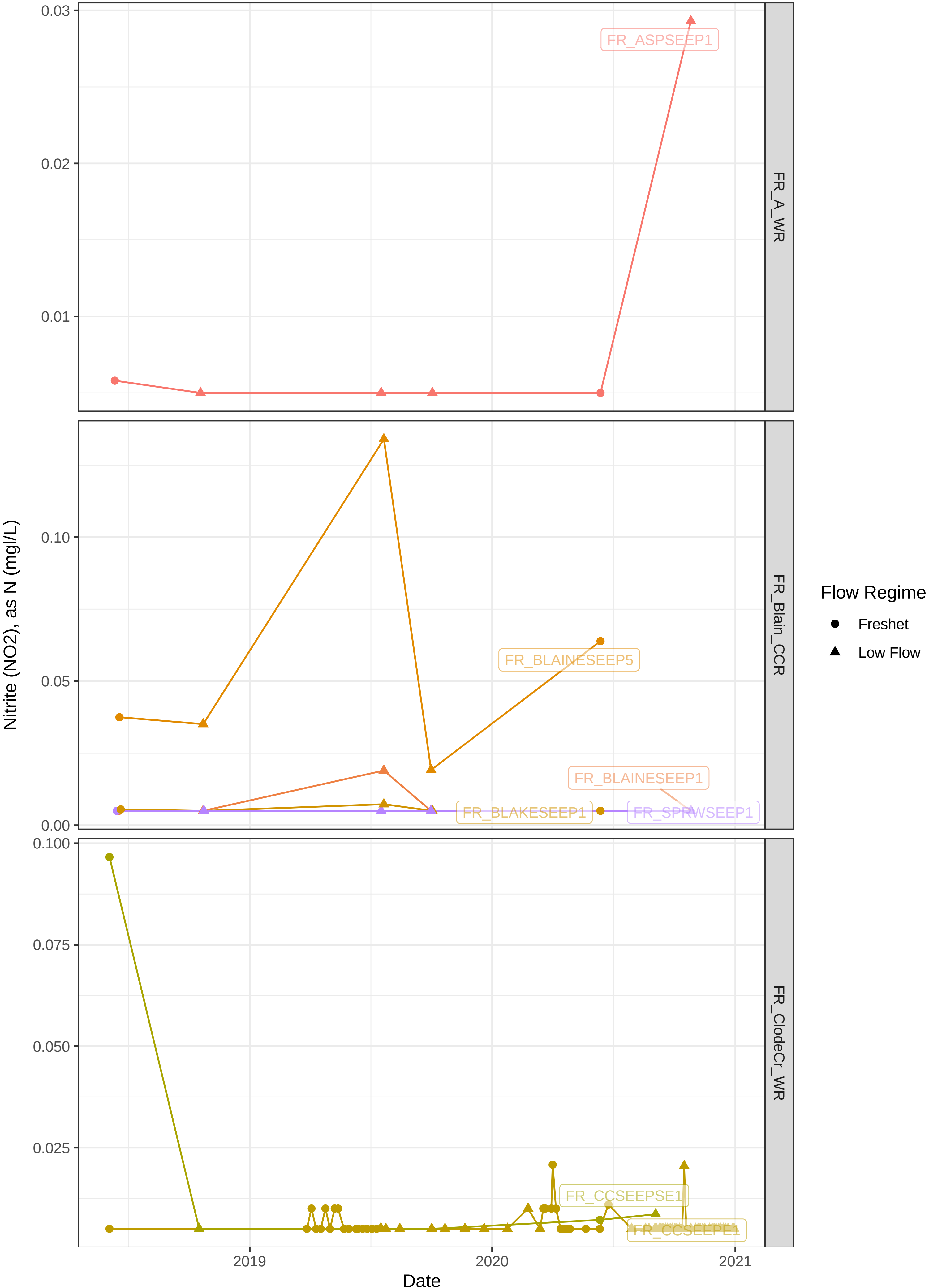
Dissolved Antimony (mgl/L)
0.0016
0.0012
0.0008
0.0004
FR_FSEAMSEEP7
FR_DOKASEEP1
FR_DOKA_Unknown
1e−03
8e−04
6e−04
FR_EAGLENORTH
FR_Eagle_WR
0.0025
0.0020
0.0015
0.0010
0.0005
FR_FSEAMWSEEP4
FR_Fseam_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

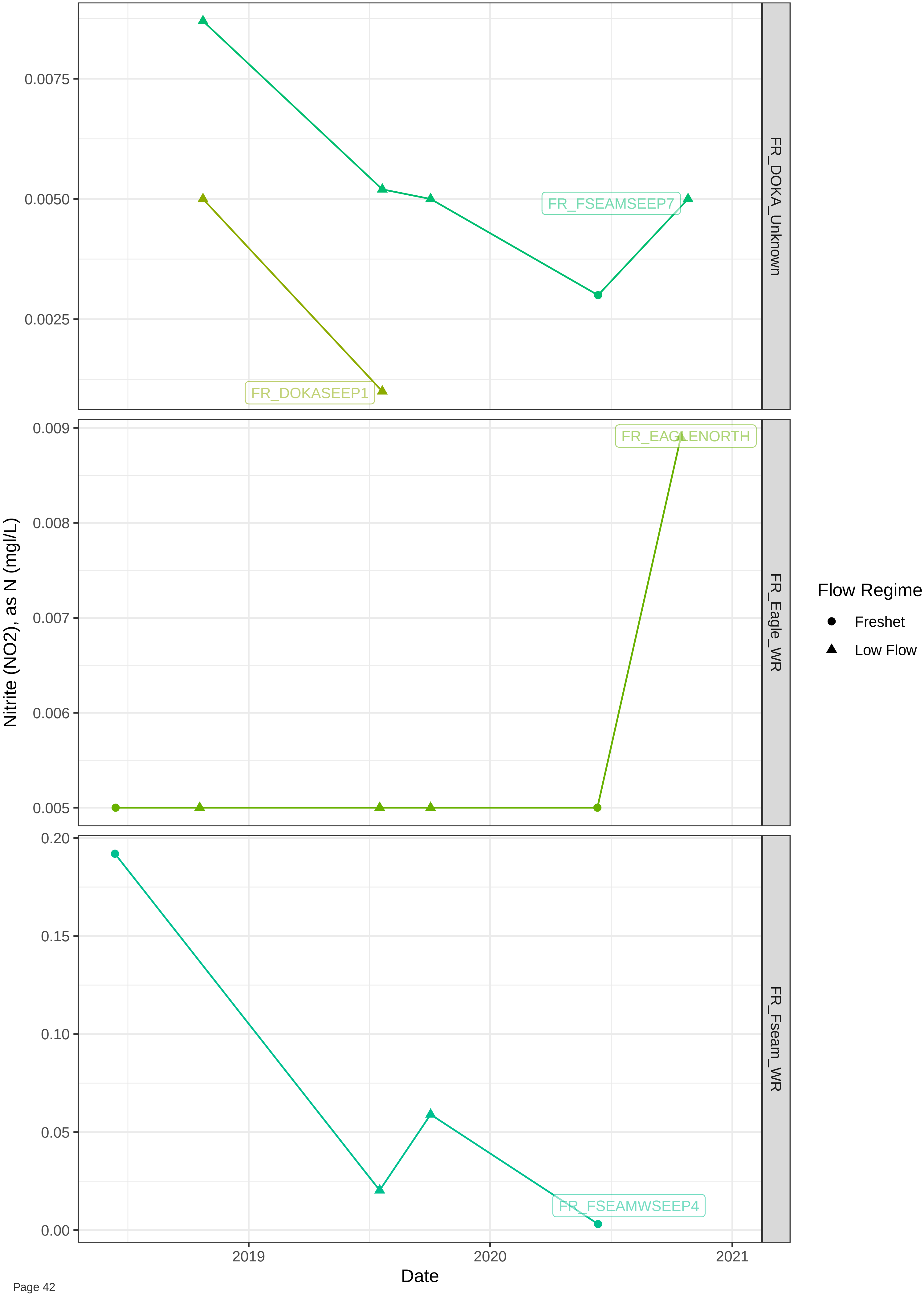

5e−04
4e−04
3e−04
2e−04
FR_HENSEEP1
FR_HENSSEEP1
FR_HENSEEP3
FR_HEN_WR
0.00125
0.00100
0.00075
0.00050
0.00025
FR_LMCWSEEP7
FR_LMCWSEEP5
FR_LakeMtn_WR_PITS
0.00050
0.00045
0.00040
0.00035
0.00030
FR_SHNSEEP1
FR_Shandley_WR
Dissolved Antimony (mgl/L)
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow



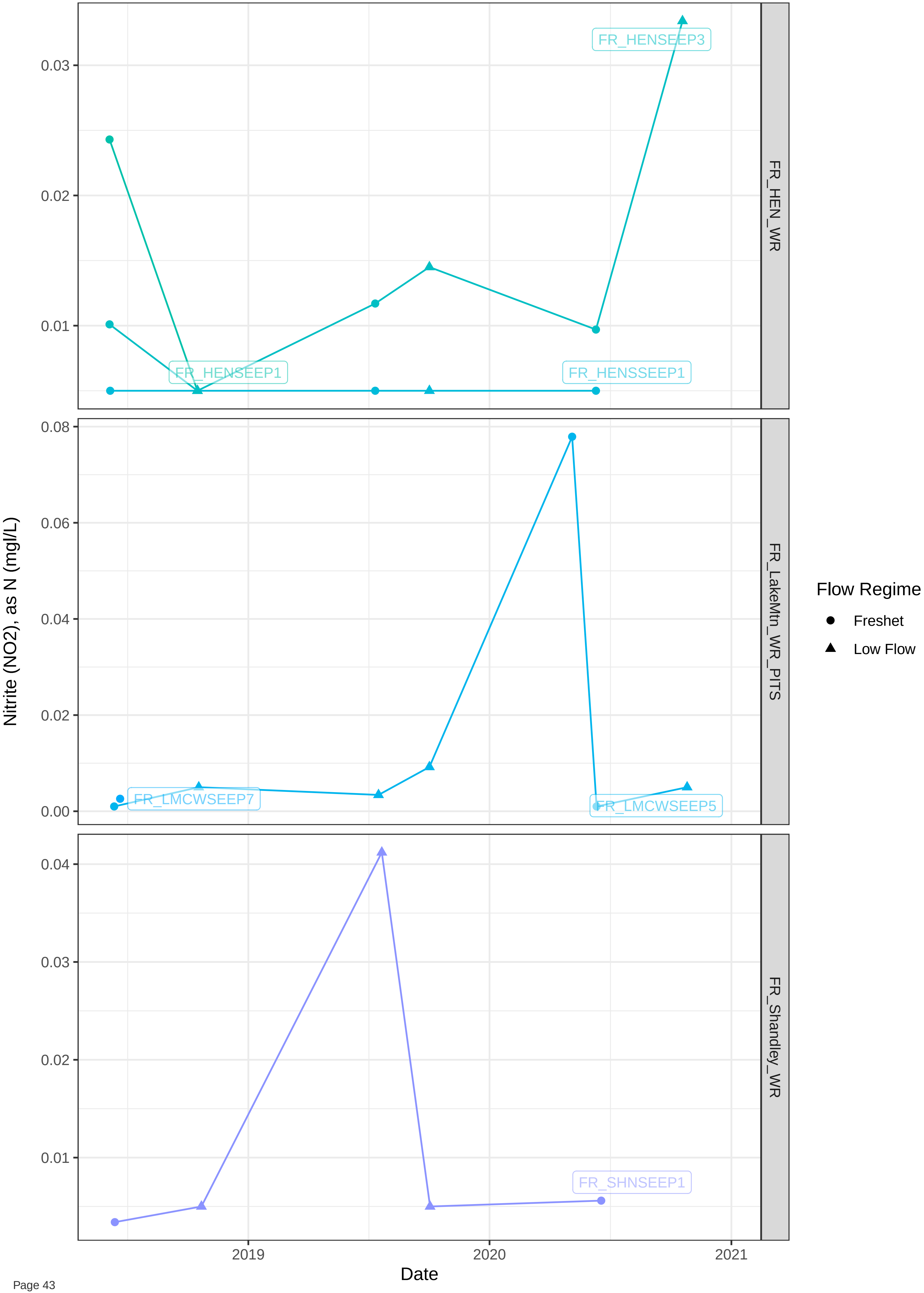
5e−04
4e−04
3e−04
FR_FRVWSEEP3
FR_Smith_WR
0.00018
0.00016
0.00014
0.00012
0.00010
FR_STPNSEEP
FR_STPWSEEP
FR_STPSWSEEP
FR_SouthTails_Tailings
6e−04
4e−04
2e−04
FR_SCRDSEEP1
FR_SwiftWR_RockDrain_WR
2019
2020
2021
Date
Dissolved Antimony (mgl/L)
Flow Regime
Freshet
Low Flow


FR_TURNSEEP1
FR_FCSEEP2
FR_TURNSEEP2
FR_TBWSEEP1
0.00075
0.00050
0.00025
5e−04
4e−04
3e−04
2e−04
1e−04
2019
2020
2021
Dissolved Antimony (mgl/L)
Date
FR_TurnbullWREast_WR
FR_TurnbullWRWest_WR
Flow Regime
● Freshet
▲ Low Flow

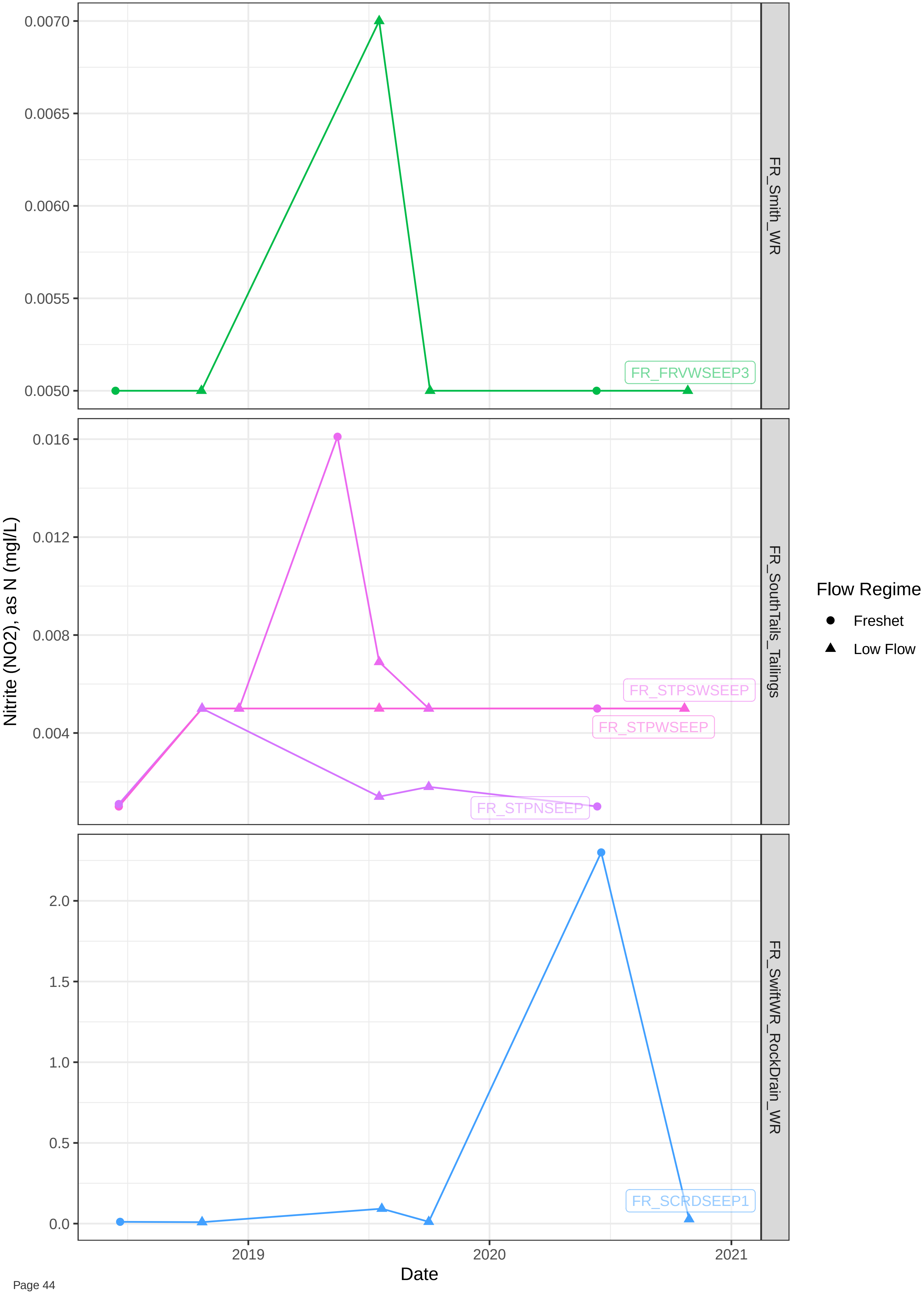

0.03
0.02
0.01
FR_ASPSEEP1
FR_A_WR
0.10
0.05
0.00
FR_BLAINESEEP5
FR_BLAINESEEP1
FR_BLAKESEEP1
FR_SPRWSEEP1
FR_Blain_CCR
0.100
0.075
0.050
0.025
FR_CCSEEPSE1
FR_CCSEEPE1
FR_ClodeCr_WR
2019
2020
2021
Date
Nitrite (NO2), as N (mgl/L)
Flow Regime
● Freshet
▲ Low Flow



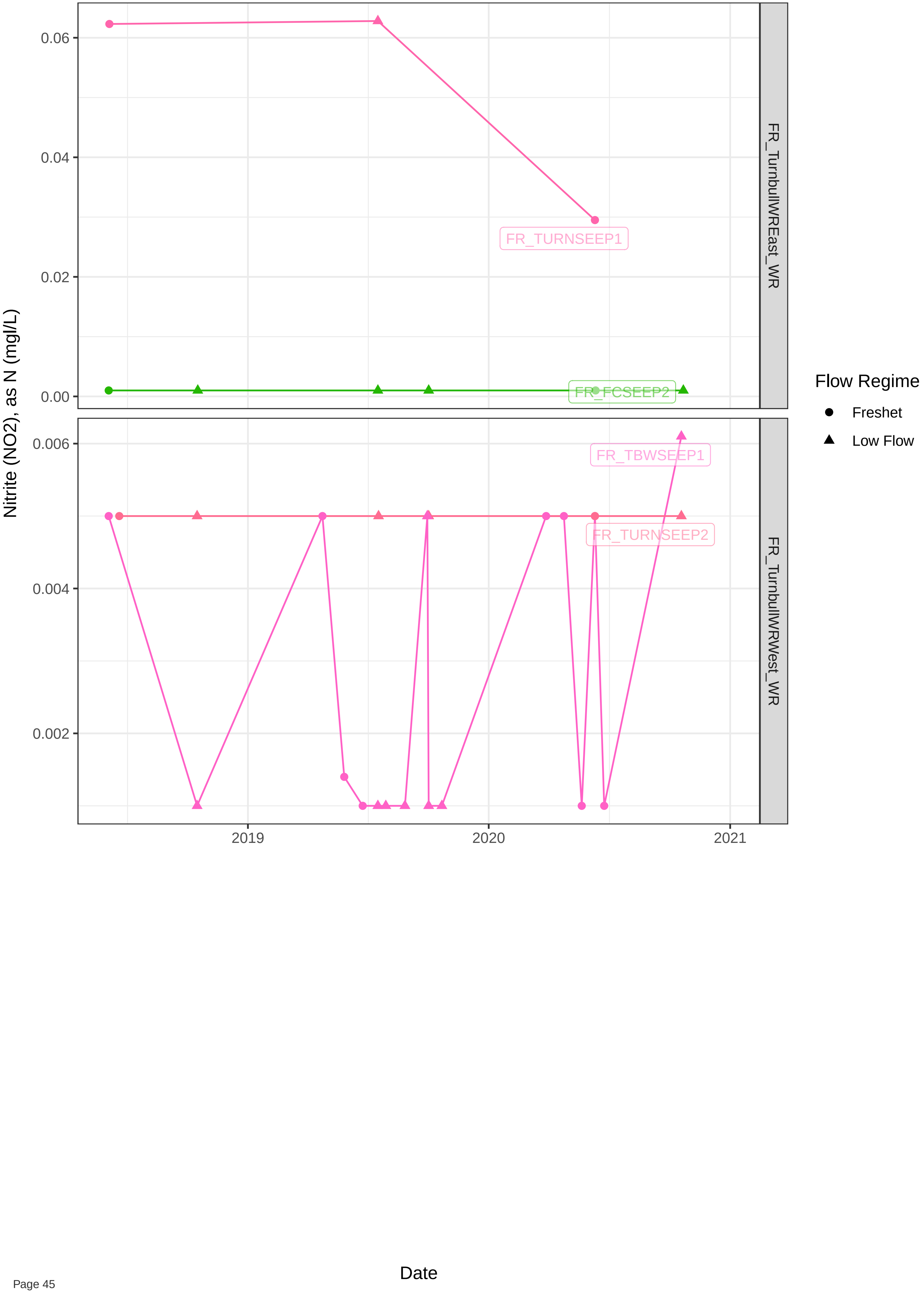
0.0075
0.0050
0.0025
FR_FSEAMSEEP7
FR_DOKASEEP1
FR_DOKA_Unknown
0.009
0.008
0.007
0.006
0.005
FR_EAGLENORTH
FR_Eagle_WR
0.20
0.15
0.10
0.05
0.00
FR_FSEAMWSEEP4
FR_Fseam_WR
2019
2020
2021
Date
Nitrite (NO2), as N (mgl/L)
Flow Regime
● Freshet
▲ Low Flow

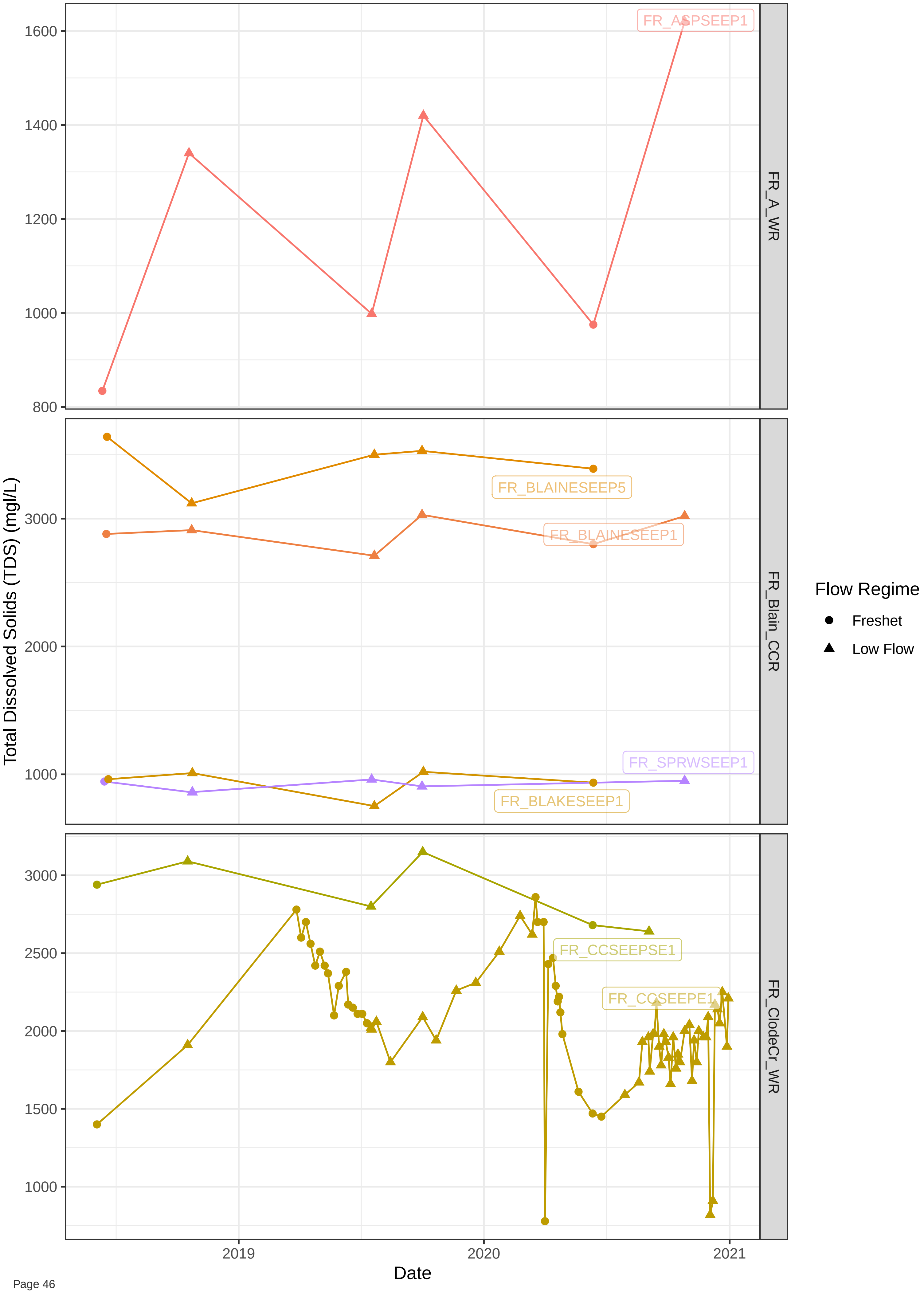


0.03
0.02
0.01
FR_HENSEEP3
FR_HENSEEP1
FR_HENSSEEP1
FR_HEN_WR
0.08
0.06
0.04
0.02
0.00
FR_LMCWSEEP7
FR_LMCWSEEP5
FR_LakeMtn_WR_PITS
0.04
0.03
0.02
0.01
FR_SHNSEEP1
FR_Shandley_WR
Nitrite (NO2), as N (mg/L)
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

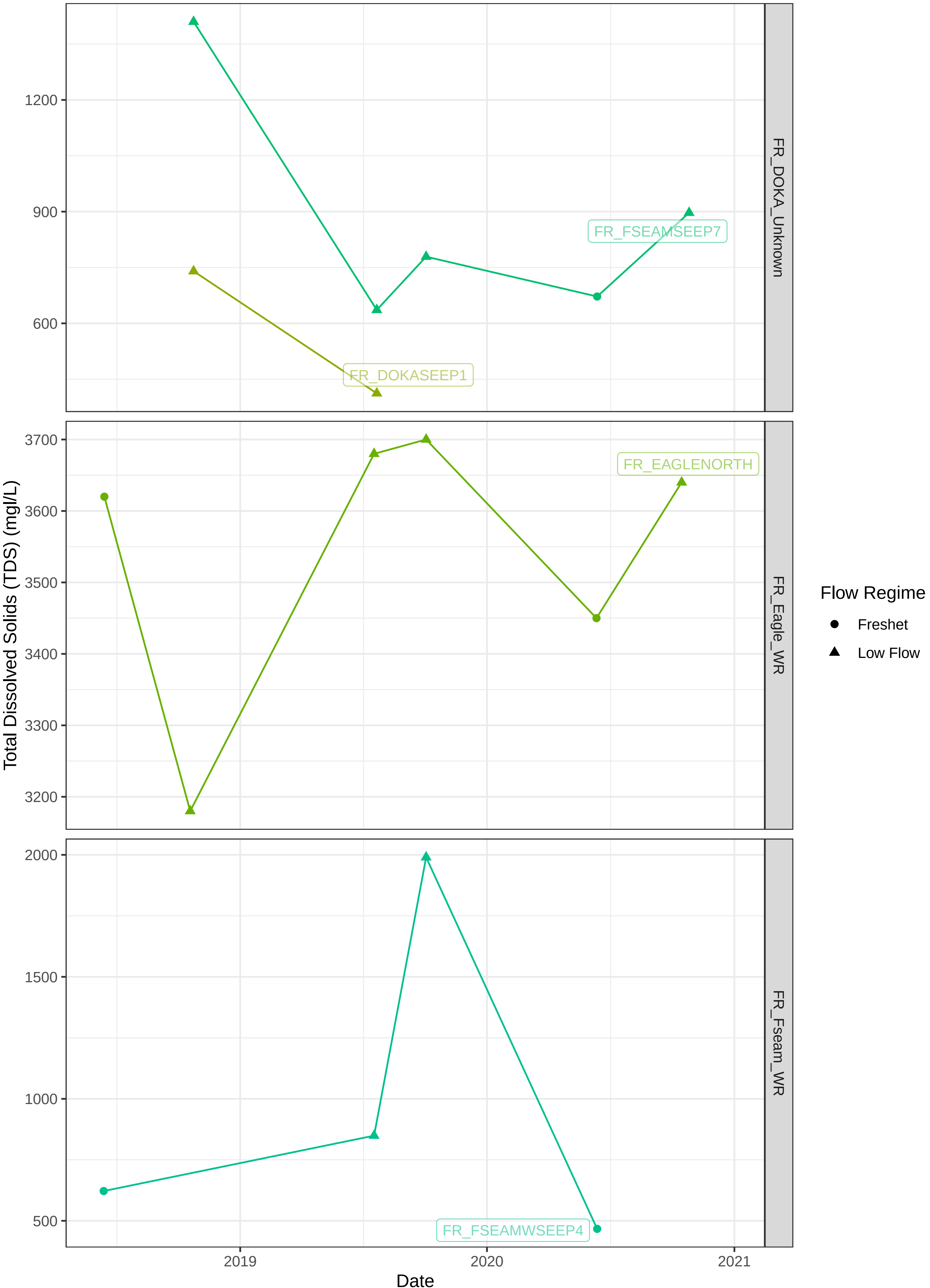


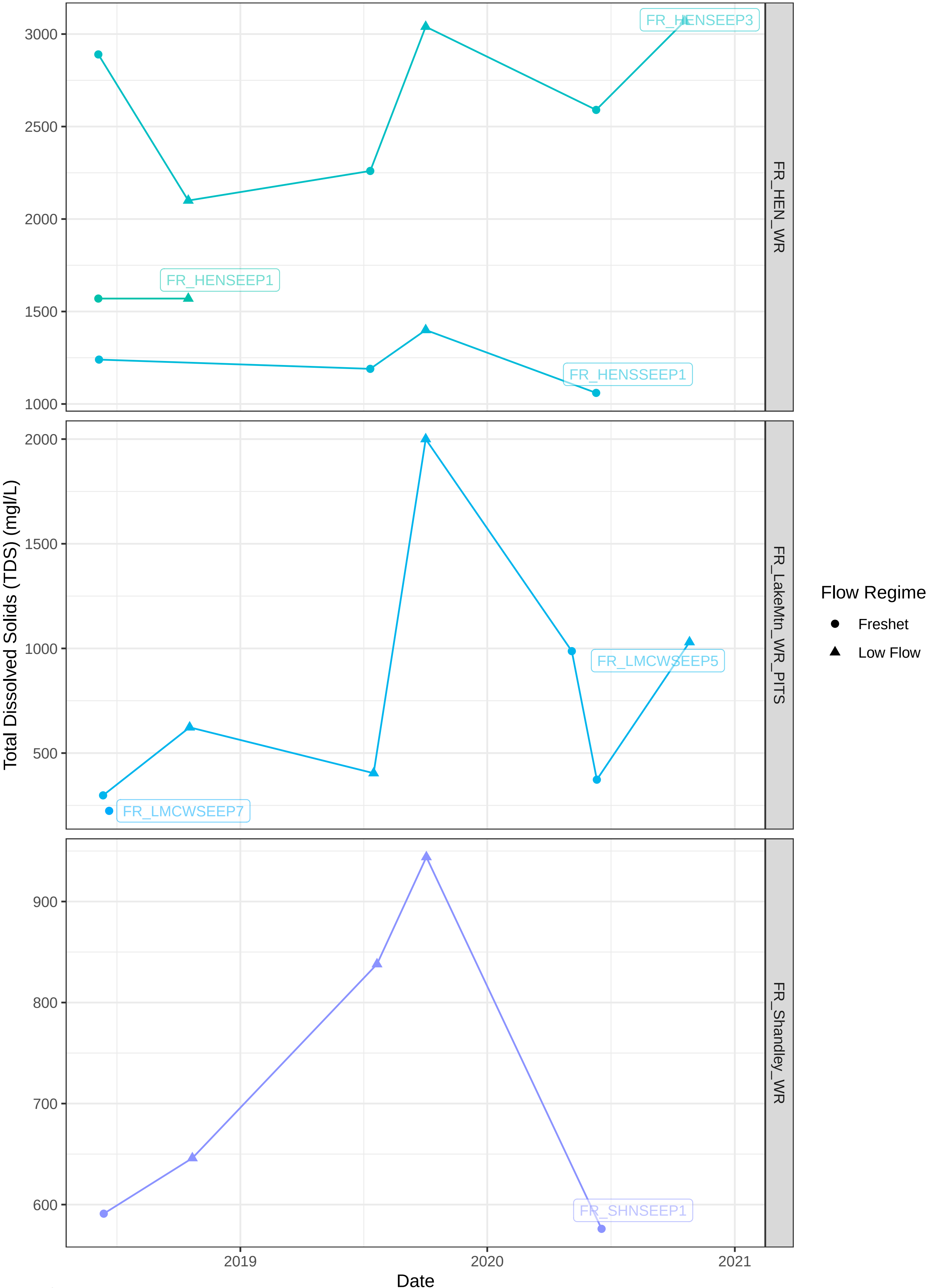
0.0070
0.0065
0.0060
0.0055
0.0050
FR_FRVWSEEP3
FR_Smith_WR
0.016
0.012
0.008
0.004
FR_STPSWSEEP
FR_STPWSEEP
FR_STPNSEEP
FR_SouthTails_Tailings
2.0
1.5
1.0
0.5
0.0
FR_SCRDSEEP1
FR_SwiftWR_RockDrain_WR
2019
2020
2021
Date
Nitrite (NO2), as N (mg/L)
Flow Regime
● Freshet
▲ Low Flow


Nitrite (NO2), as N (mgl/L)
0.06
0.04
0.02
0.00
0.006
0.004
0.002
FR_TURNSEEP1
FR_FCSEEP2
FR_TBWSEEP1
FR_TURNSEEP2
FR_TurnbullWREast_WR
FR_TurnbullWRWest_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

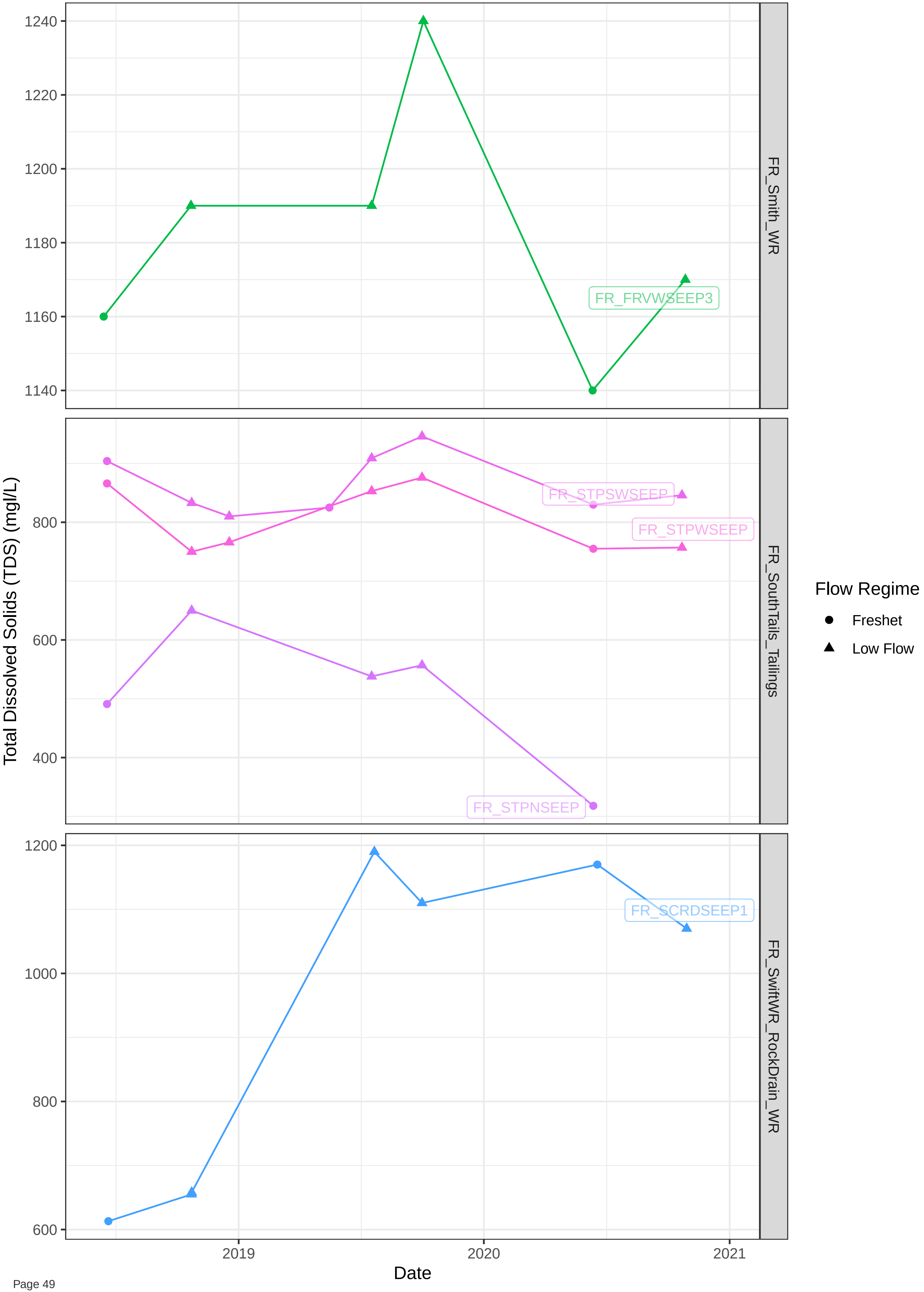


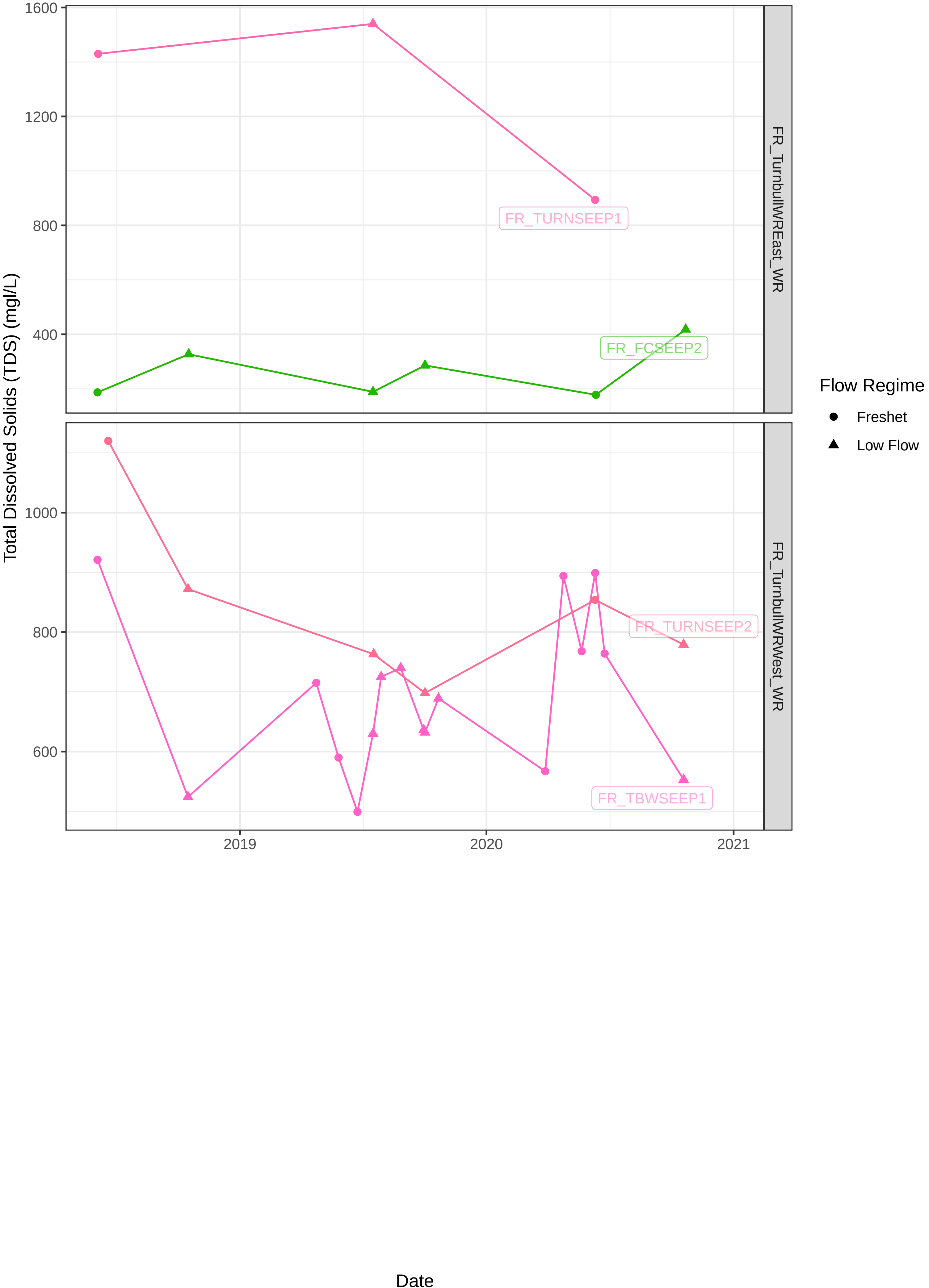
FR_ASPSEEP1
1600
1400
1200
1000
800
FR_A_WR
FR_BLAINESEEP5
FR_BLAINESEEP1
FR_SPRWSEEP1
FR_BLAKESEEP1
3000
2000
1000
FR_Blain_CCR
FR_CCSEEPSE1
FR_CCSEEPE1
3000
2500
2000
1500
1000
FR_ClodeCr_WR
2019
2020
2021
Date
Total Dissolved Solids (TDS) (mgl/L)
Flow Regime
● Freshet
▲ Low Flow

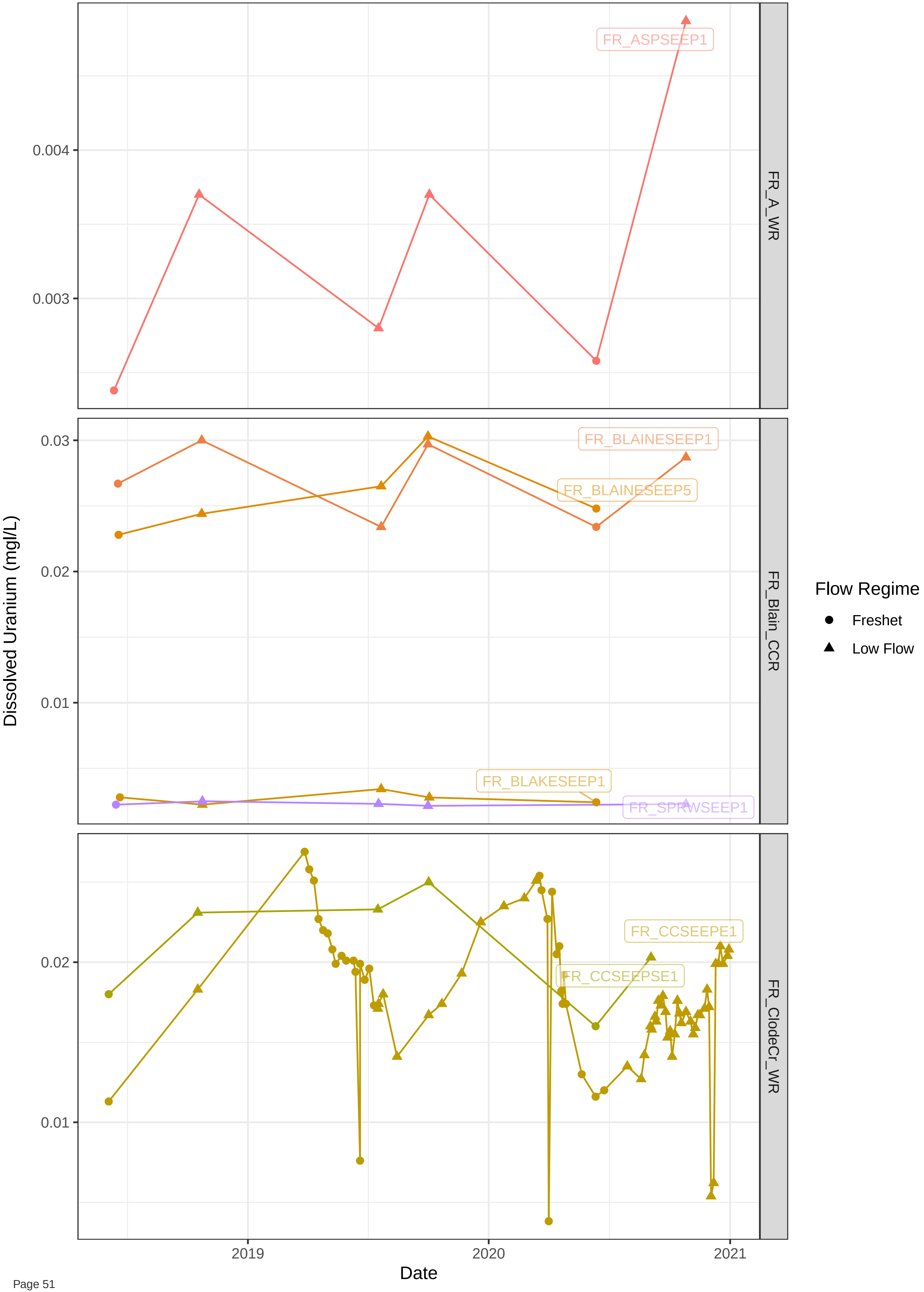

Total Dissolved Solids (TDS) (mgl/L)
1200
900
600
FR_FSEAMSEEP7
FR_DOKASEEP1
FR_DOKA_Unknown
3700
3600
3500
3400
3300
3200
FR_EAGLENORTH
FR_Eagle_WR
2000
1500
1000
500
FR_FSEAMWSEEP4
FR_Fseam_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

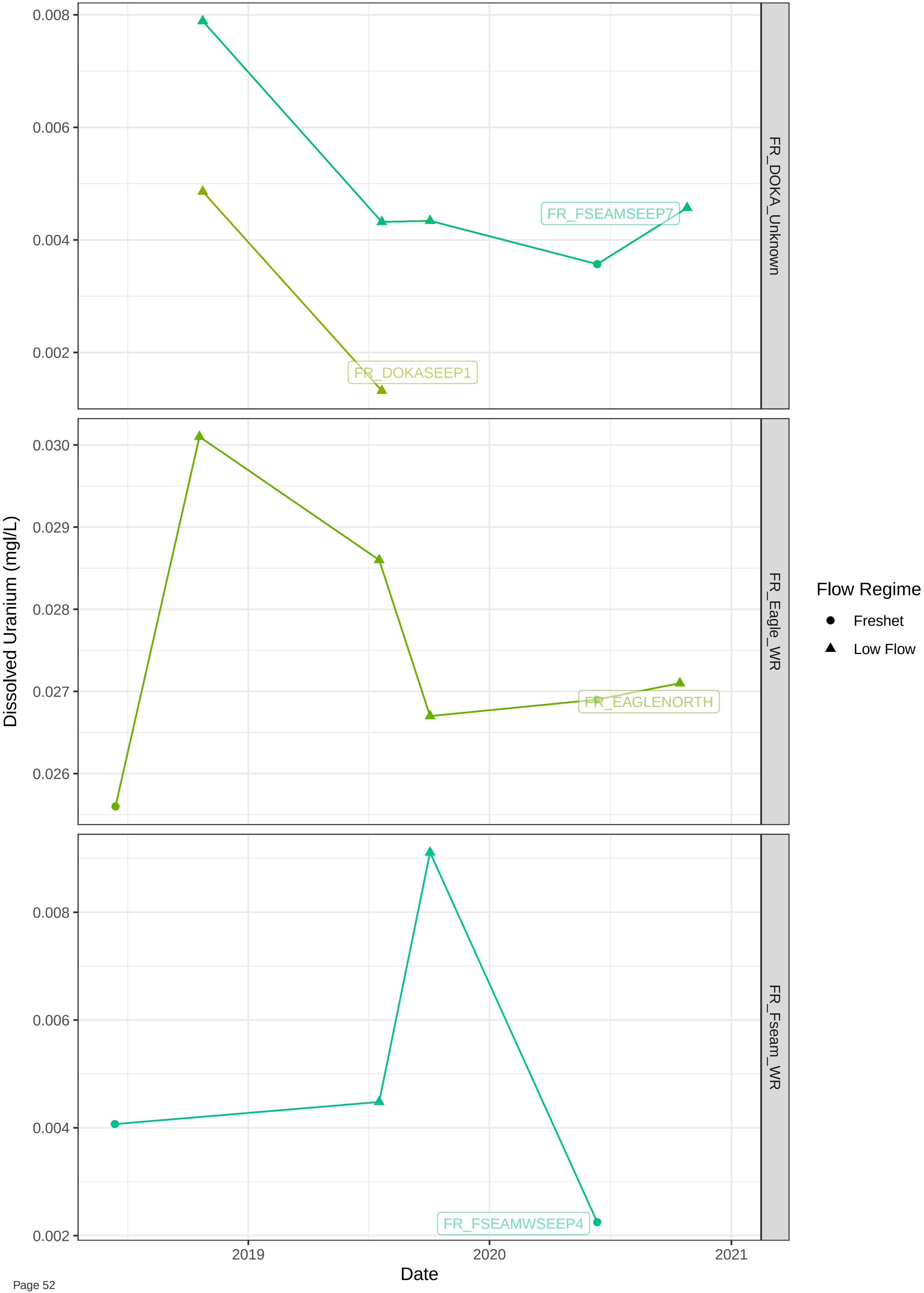


Total Dissolved Solids (TDS) (mgl/L)
3000
2500
2000
1500
1000
FR_HENSEEP3
FR_HENSEEP1
FR_HENSSEEP1
FR_HEN_WR
2000
1500
1000
500
FR_LMCWSEEP5
FR_LMCWSEEP7
FR_LakeMtn_WR_PITS
900
800
700
600
FR_SHNSEEP1
FR_Shandley_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

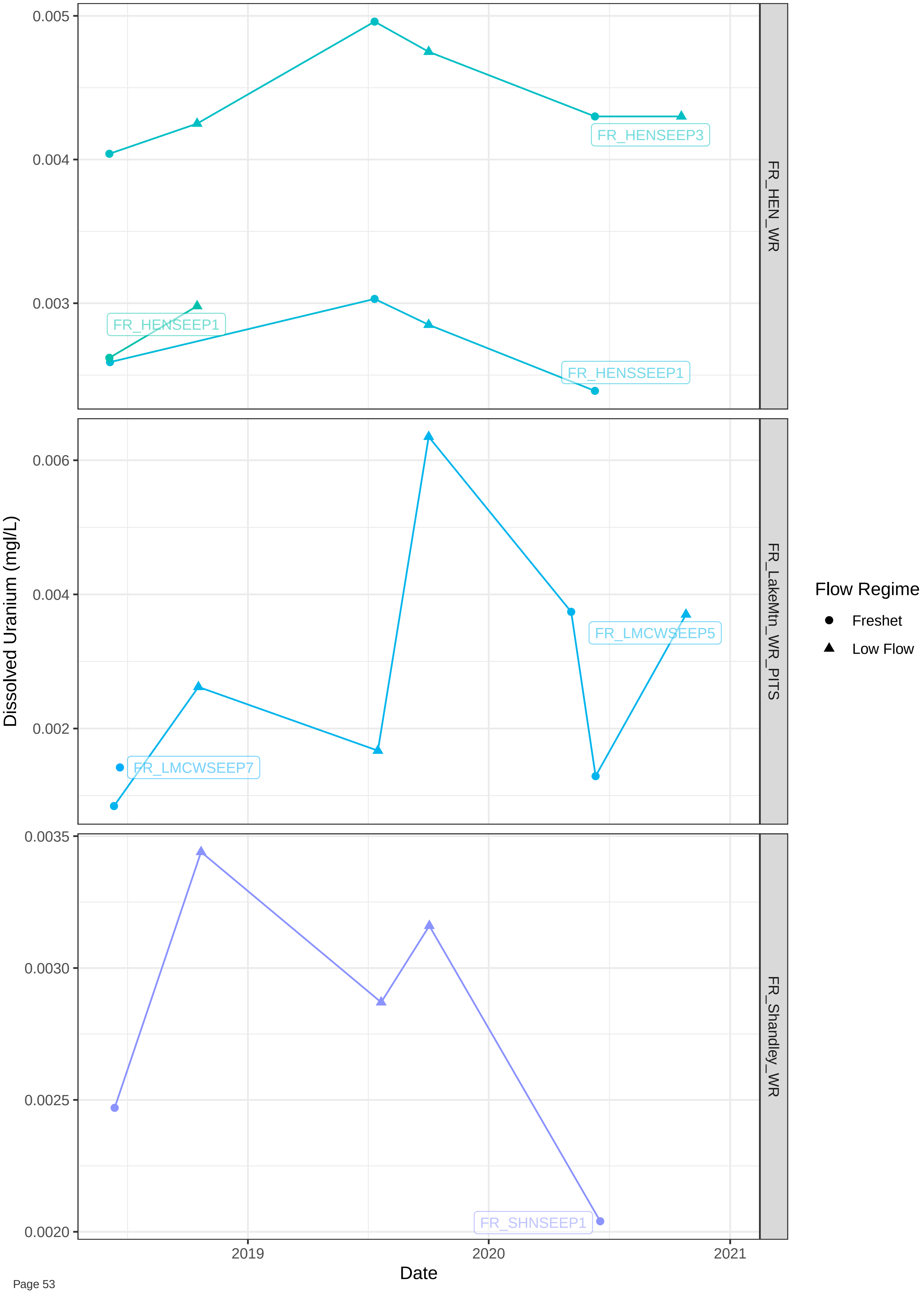

FR_Smith_WR
FR_FRVWSEEP3
FR_SouthTails_Tailings
FR_STPSWSEEP
FR_STPWSEEP
FR_STPNSEEP
FR_SwiftWR_RockDrain_WR
FR_SCRDSEEP1
1240
1220
1200
1180
1160
1140
800
600
400
1200
1000
800
600
2019
2020
2021
Date
Total Dissolved Solids (TDS) (mgl/L)
Flow Regime
● Freshet
▲ Low Flow


1600
1200
800
400
1000
800
600
2019
2020
2021
Total Dissolved Solids (TDS) (mgl/L)
Date
FR_TURNSEEP1
FR_FCSEEP2
FR_TURNSEEP2
FR_TBWSEEP1
FR_TurnbullWREast_WR
FR_TurnbullWRWest_WR
Flow Regime
● Freshet
▲ Low Flow

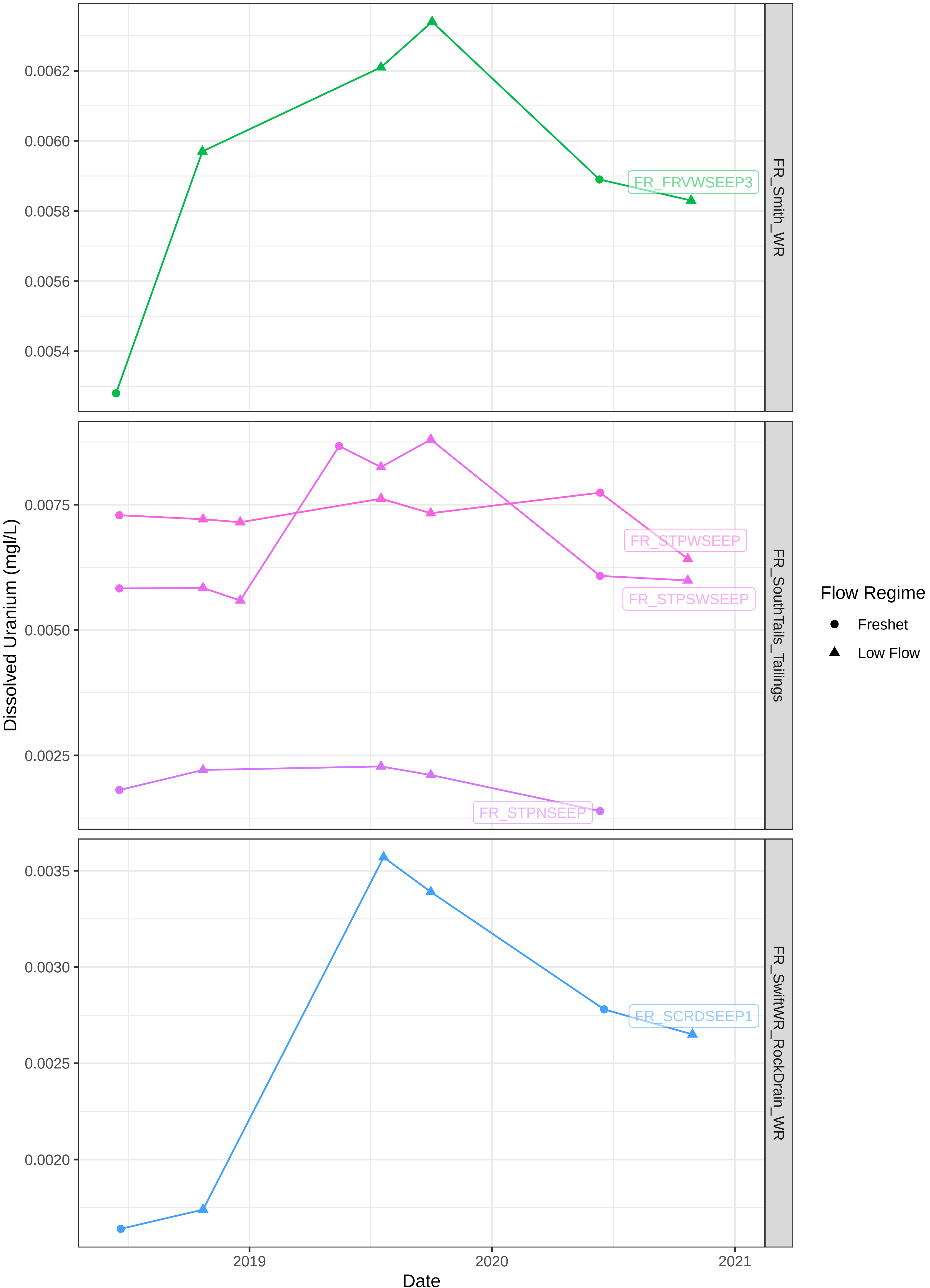

FR_ASPSEEP1
FR_A_WR
0.004
0.003
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
FR_Blain_CCR
0.03
0.02
0.01
FR_CCSEEPE1
FR_CCSEEPSE1
FR_ClodeCr_WR
0.02
0.01
Dissolved Uranium (mgl/L)
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

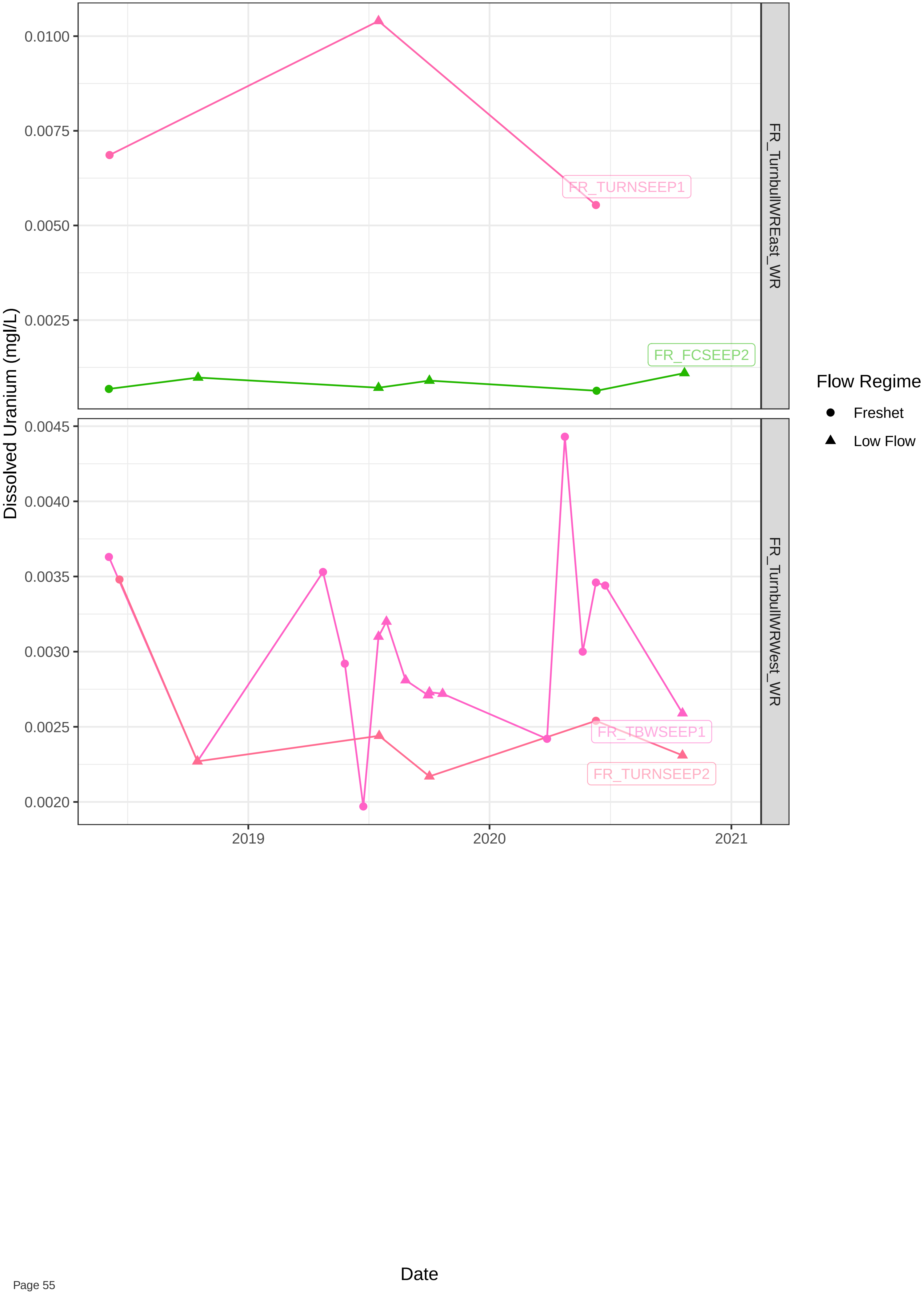


0.008
0.006
0.004
0.002
FR_FSEAMSEEP7
FR_DOKASEEP1
FR_DOKA_Unknown
0.030
0.029
0.028
0.027
0.026
FR_EAGLENORTH
FR_Eagle_WR
0.008
0.006
0.004
0.002
FR_FSEAMWSEEP4
FR_Fseam_WR
2019
2020
2021
Date
Dissolved Uranium (mg/L)
Flow Regime
● Freshet
▲ Low Flow

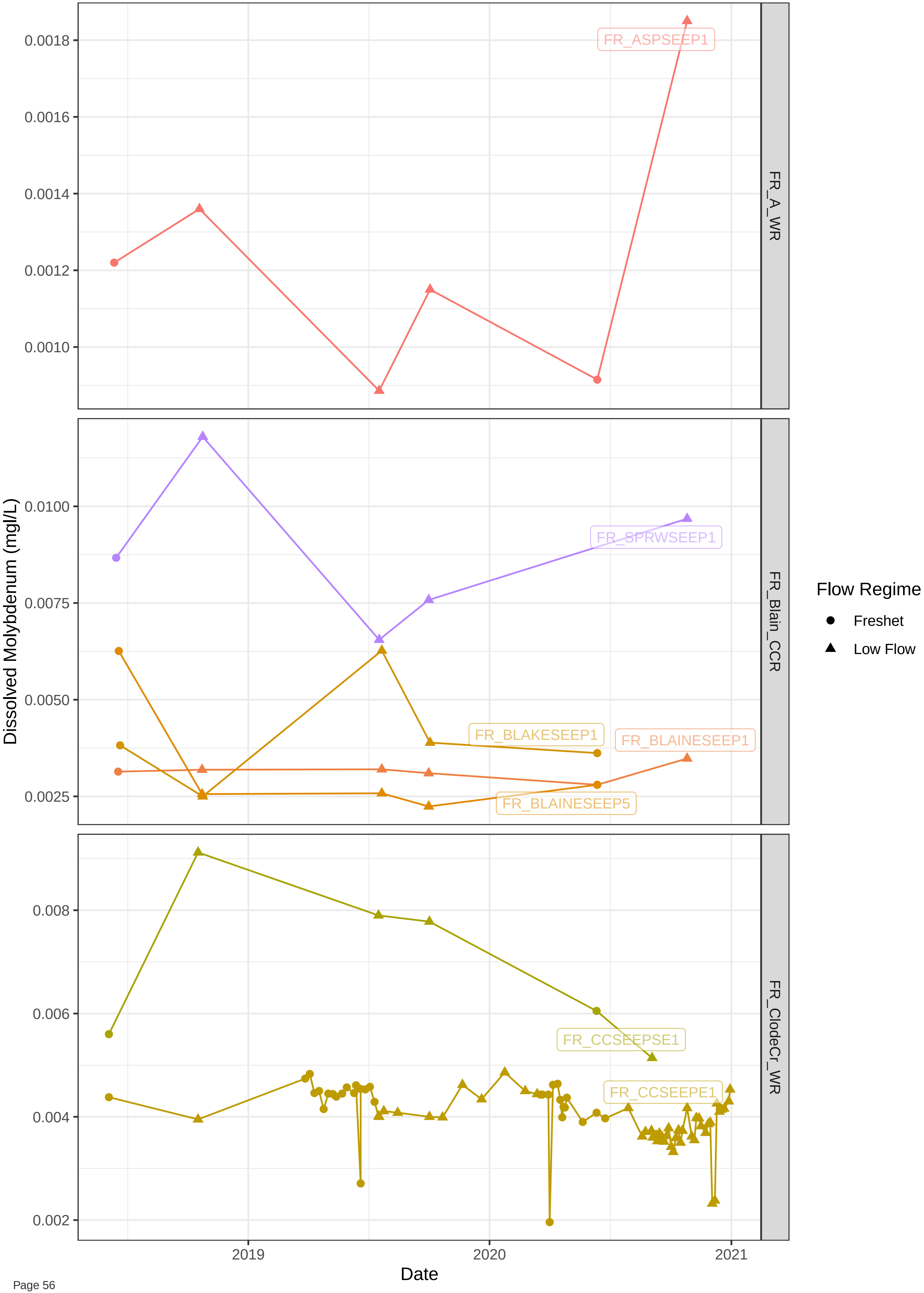


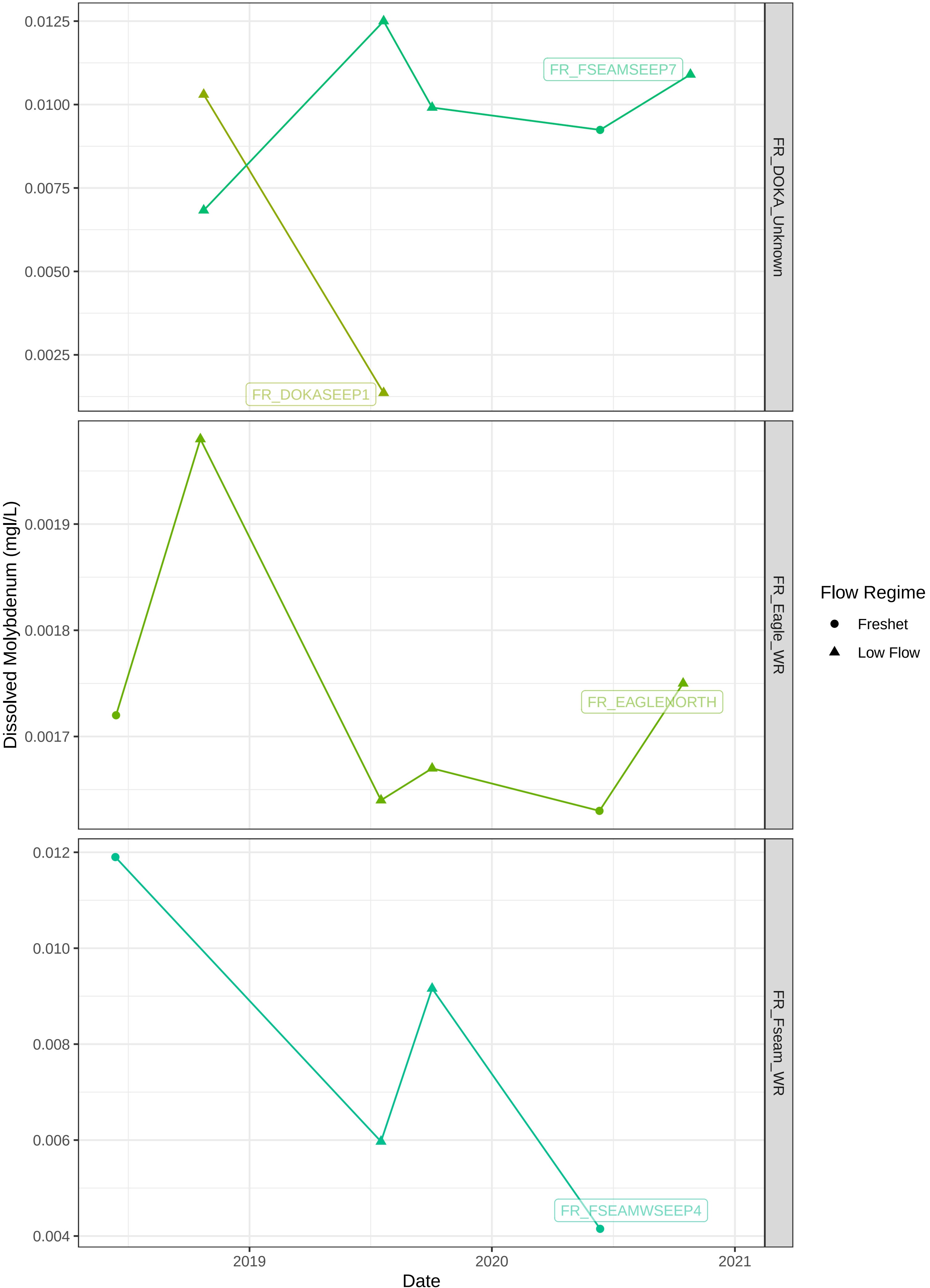
0.005
0.004
0.003
FR_HENSEEP3
FR_HENSEEP1
FR_HENSSEEP1
FR_HEN_WR
0.006
0.004
0.002
FR_LMCWSEEP5
FR_LMCWSEEP7
FR_LakeMtn_WR_PITS
0.0035
0.0030
0.0025
0.0020
FR_SHNSEEP1
FR_Shandley_WR
2019
2020
2021
Date
Dissolved Uranium (mg/L)
Flow Regime
● Freshet
▲ Low Flow


Dissolved Uranium (mg/L)
0.0062
0.0060
0.0058
0.0056
0.0054
FR_FRVWSEEP3
FR_Smith_WR
0.0075
0.0050
0.0025
FR_STPWSEEP
FR_STPSWSEEP
FR_STPNSEEP
FR_SouthTails_Tailings
0.0035
0.0030
0.0025
0.0020
FR_SCRDSEEP1
FR_SwiftWR_RockDrain_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

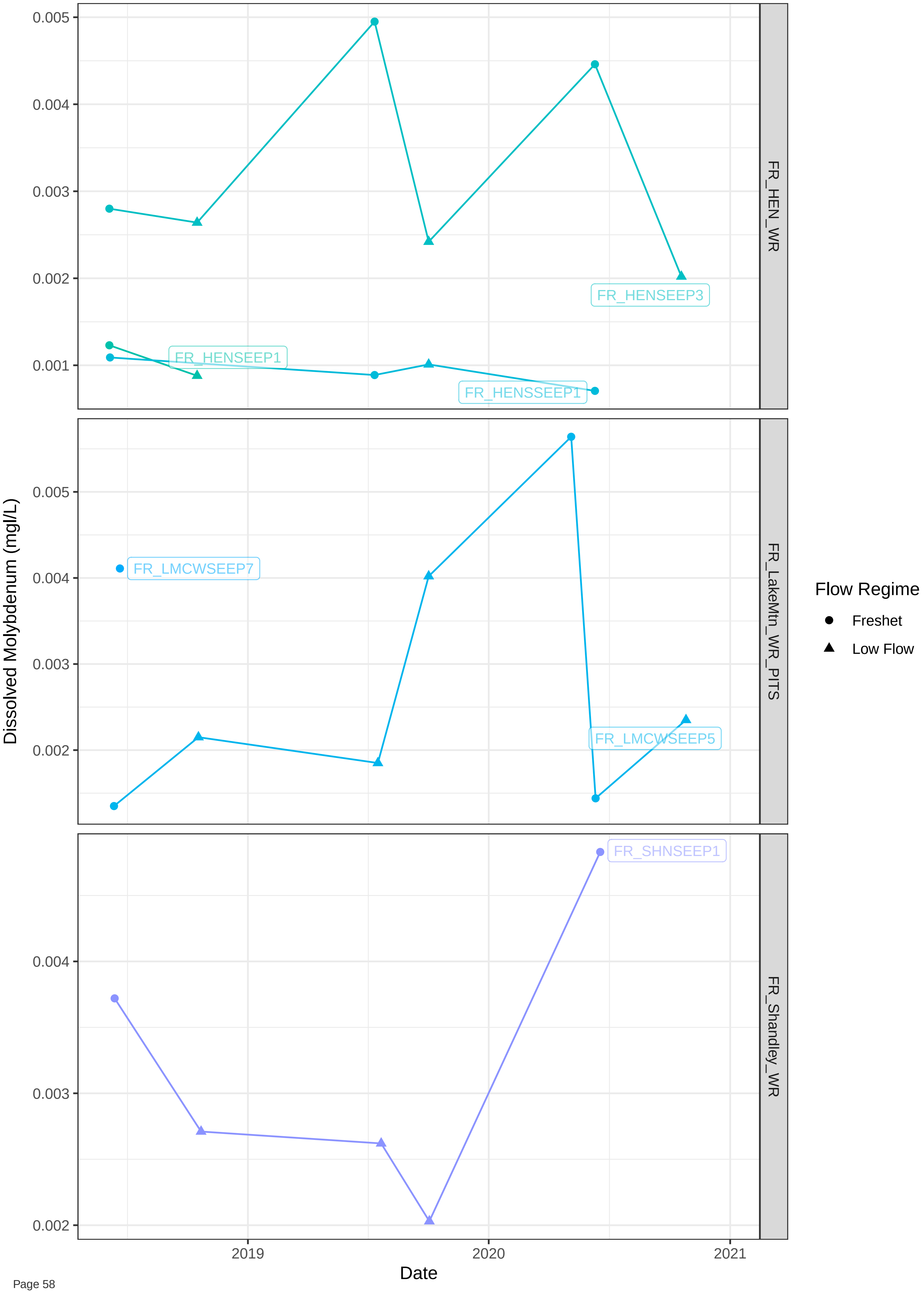


Dissolved Uranium (mg/L)
0.0100
0.0075
0.0050
0.0025
0.0045
0.0040
0.0035
0.0030
0.0025
0.0020
FR_TURNSEEP1
FR_FCSEEP2
FR_TurnbullWREast_WR
FR_TBWSEEP1
FR_TURNSEEP2
FR_TurnbullWRWest_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

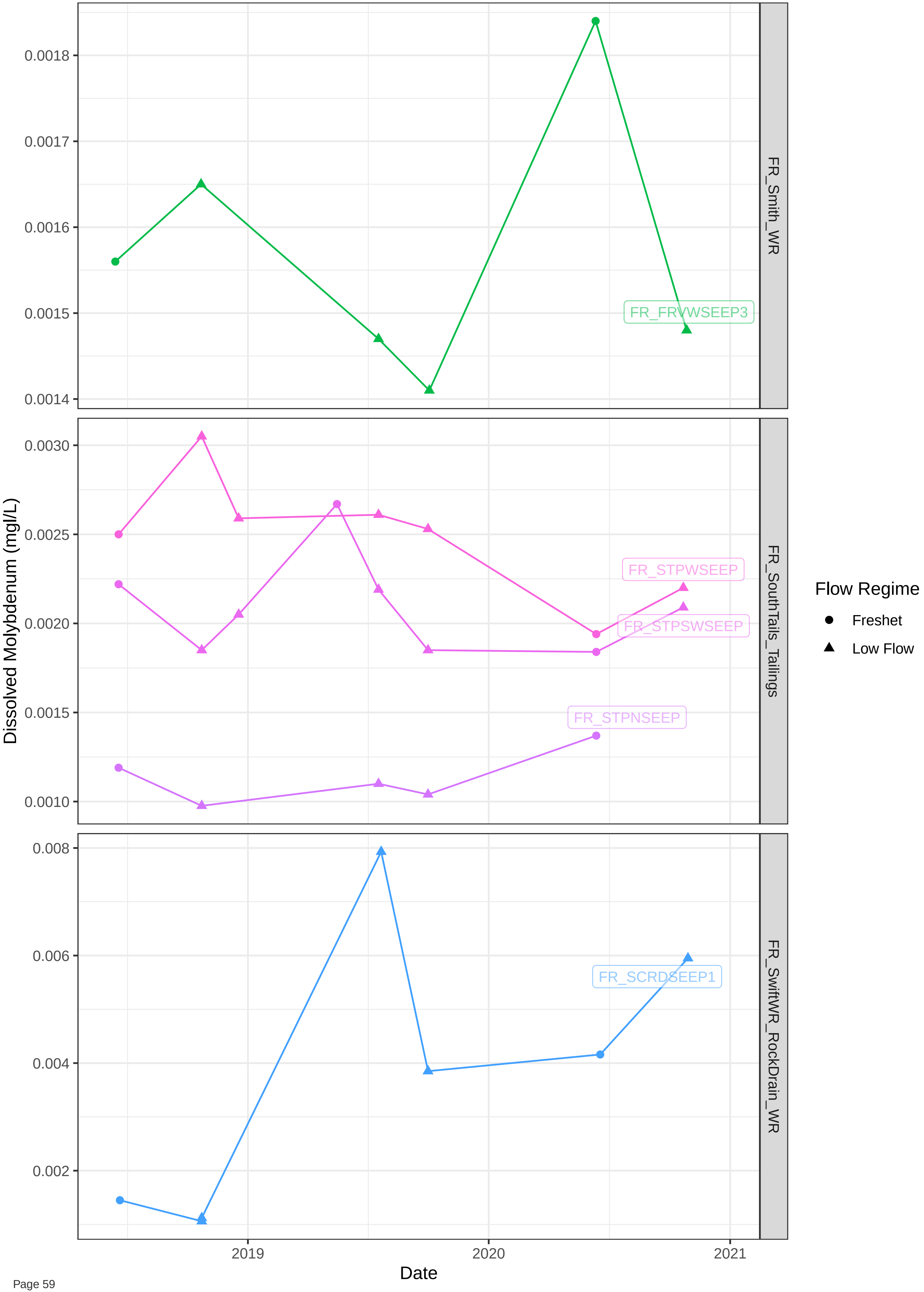

FR_ASPSEEP1
FR_A_WR
0.0018
0.0016
0.0014
0.0012
0.0010
FR_SPRWSEEP1
FR_BLAKESEEP1
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_Blain_CCR
0.0100
0.0075
0.0050
0.0025
FR_CCSEEPSE1
FR_CCSEEPE1
FR_ClodeCr_WR
0.008
0.006
0.004
0.002
2019
2020
2021
Date
Dissolved Molybdenum (mg/L)
Flow Regime
● Freshet
▲ Low Flow

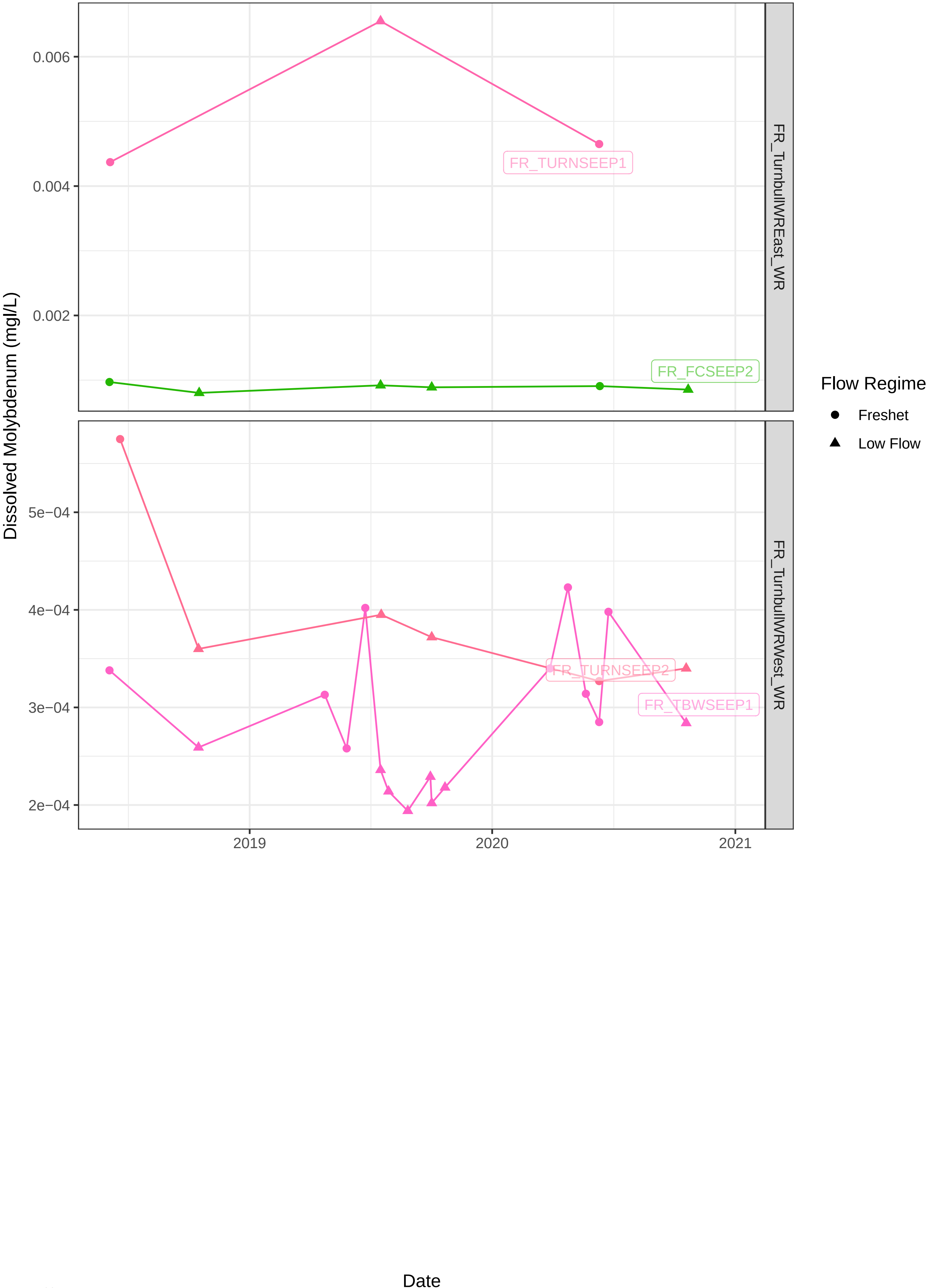


0.0125
0.0100
0.0075
0.0050
0.0025
FR_FSEAMSEEP7
FR_DOKASEEP1
FR_DOKA_Unknown
0.0019
0.0018
0.0017
FR_EAGLENORTH
FR_Eagle_WR
0.012
0.010
0.008
0.006
0.004
FR_FSEAMWSEEP4
FR_Fseam_WR
Dissolved Molybdenum (mg/L)
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow



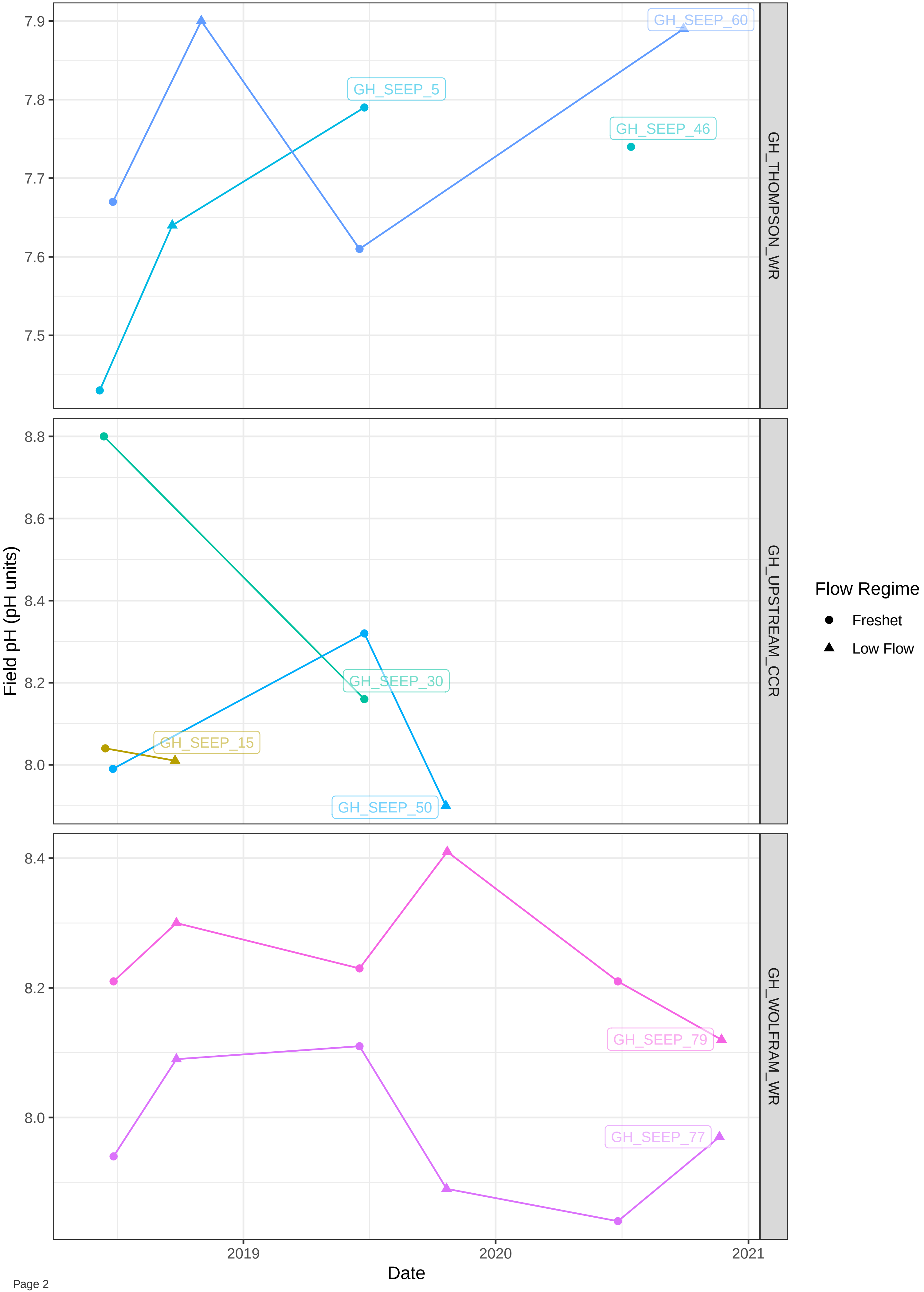
Dissolved Molybdenum (mgl/L)
0.005
0.004
0.003
0.002
0.001
FR_HENSEEP3
FR_HENSEEP1
FR_HENSSEEP1
FR_HEN_WR
0.005
0.004
0.003
0.002
FR_LMCWSEEP7
FR_LMCWSEEP5
FR_LakeMtn_WR_PITS
0.004
0.003
0.002
FR_SHNSEEP1
FR_Shandley_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

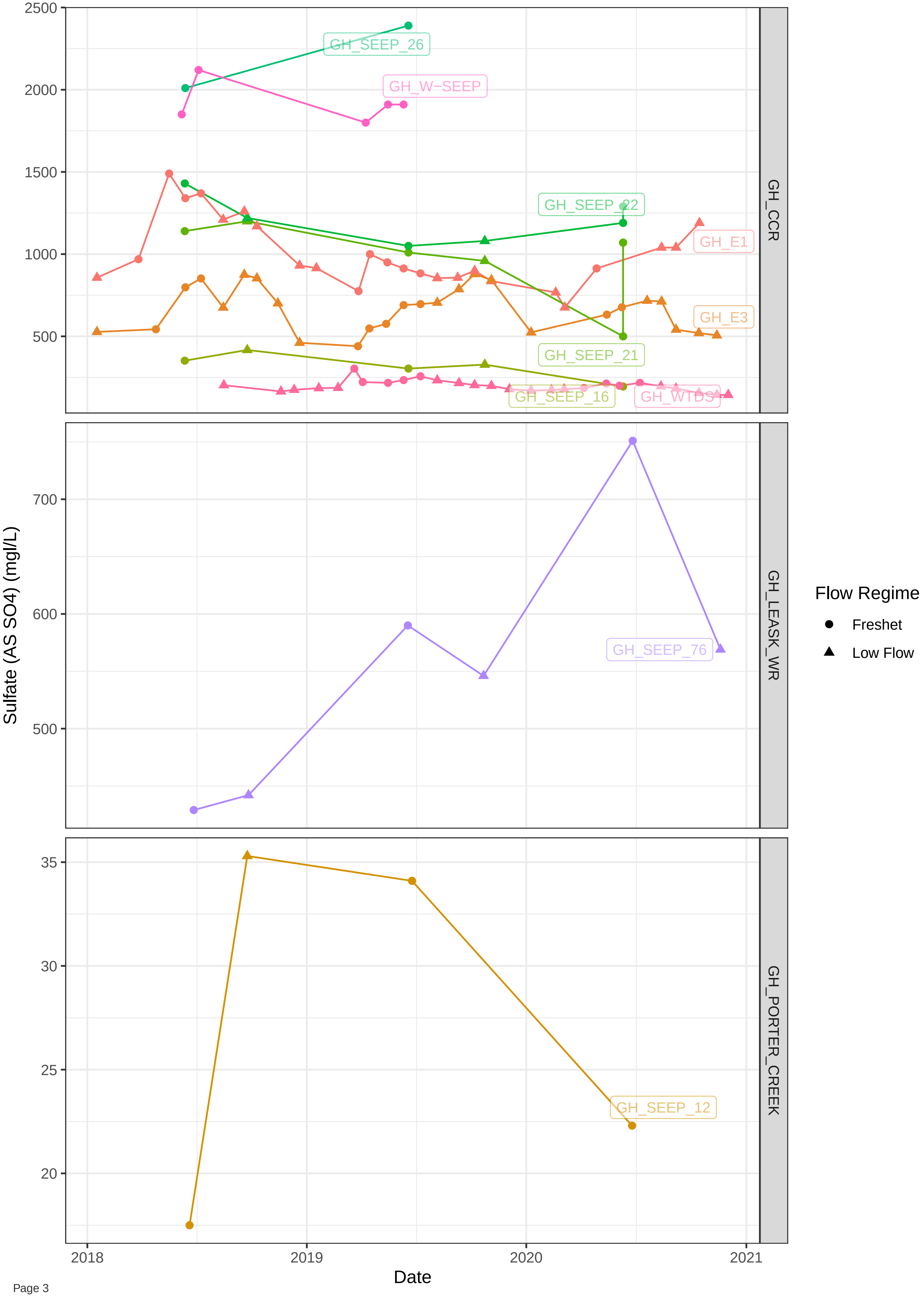

0.0018
0.0017
0.0016
0.0015
0.0014
FR_FRVWSEEP3
FR_Smith_WR
0.0030
0.0025
0.0020
0.0015
0.0010
FR_STPWSEEP
FR_STPSWSEEP
FR_STPNSEEP
FR_SouthTails_Tailings
0.008
0.006
0.004
0.002
FR_SCRDSEEP1
FR_SwiftWR_RockDrain_WR
2019
2020
2021
Date
Dissolved Molybdenum (mgl/L)
Flow Regime
● Freshet
▲ Low Flow

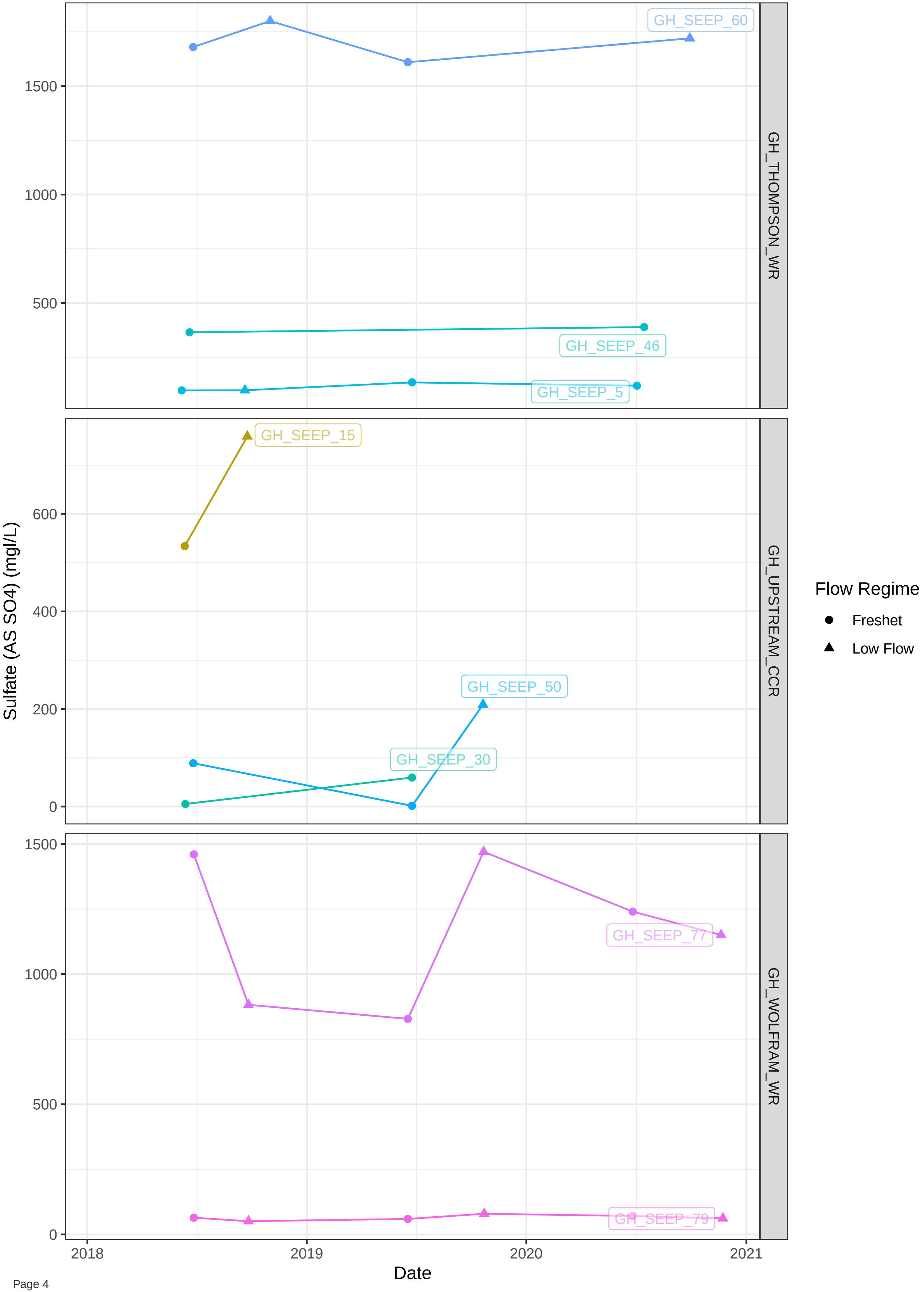


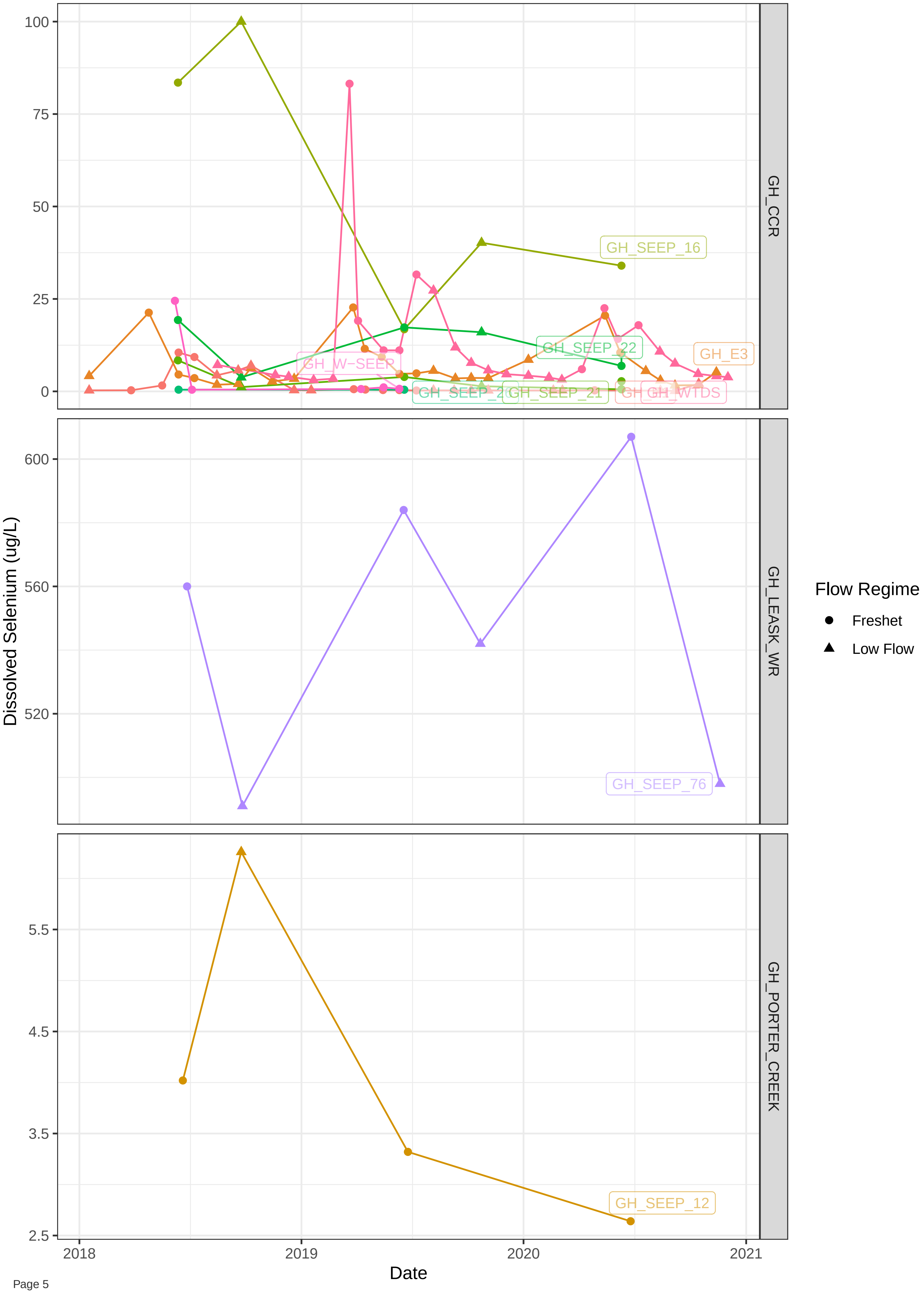
Dissolved Molybdenum (mgl/L)
0.006
0.004
0.002
FR_TURNSEEP1
FR_FCSEEP2
FR_TurnbullWREast_WR
5e−04
4e−04
3e−04
2e−04
FR_TURNSEEP2
FR_TBWSEEP1
FR_TurnbullWRWest_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

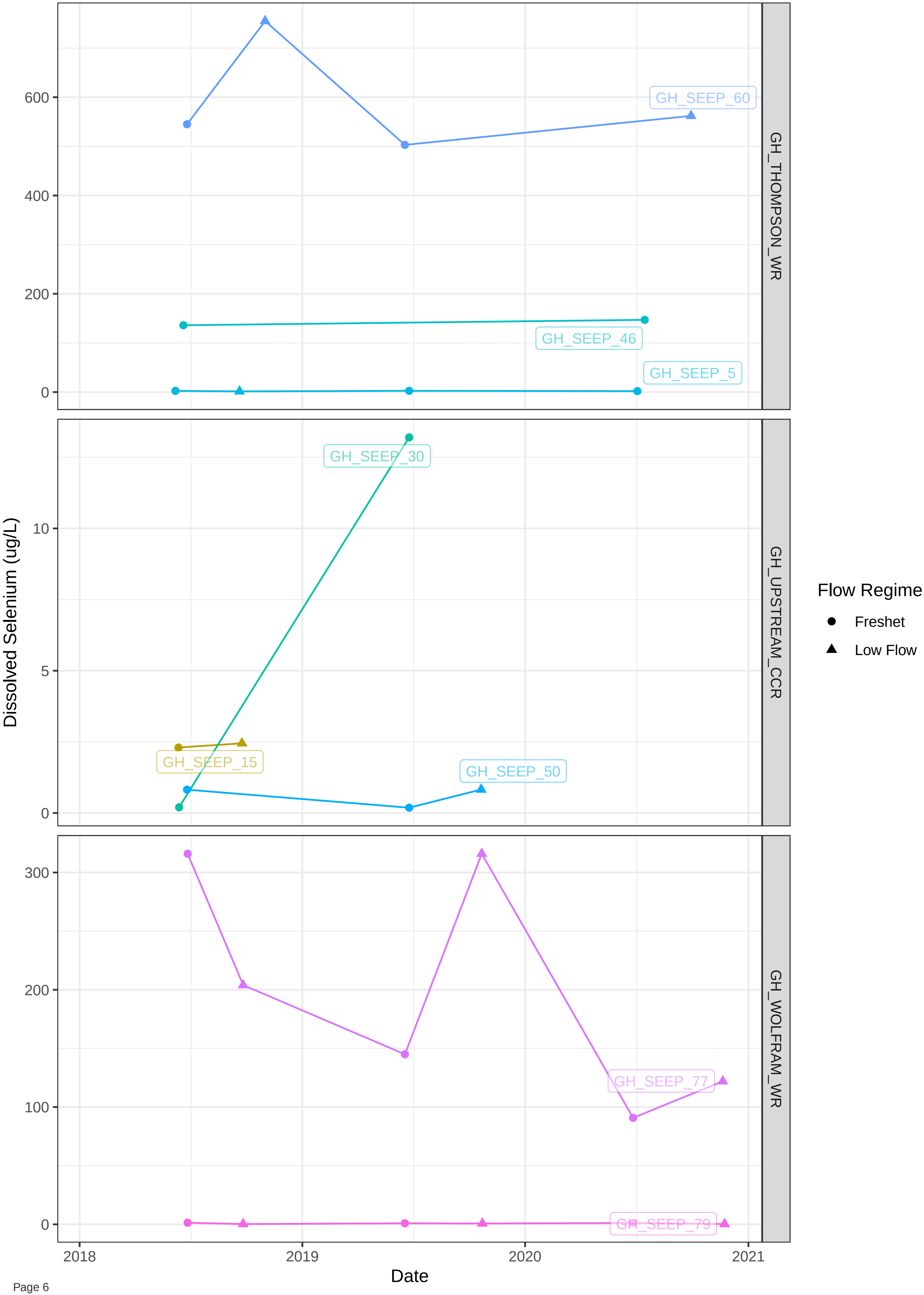

GH_CCR
GH_SEEP_16
GH_E1
GH_SEEP_26
GH_E3
GH_W-SEEP
GH_WTDS
GH_SEEP_21
GH_SEEP_22
8.5
8.0
7.5
7.0
GH_LEASK_WR
GH_SEEP_76
8.1
8.0
7.9
7.8
GH_PORTER_CREEK
GH_SEEP_12
8.6
8.4
8.2
8.0
7.8
Field pH (pH units)
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

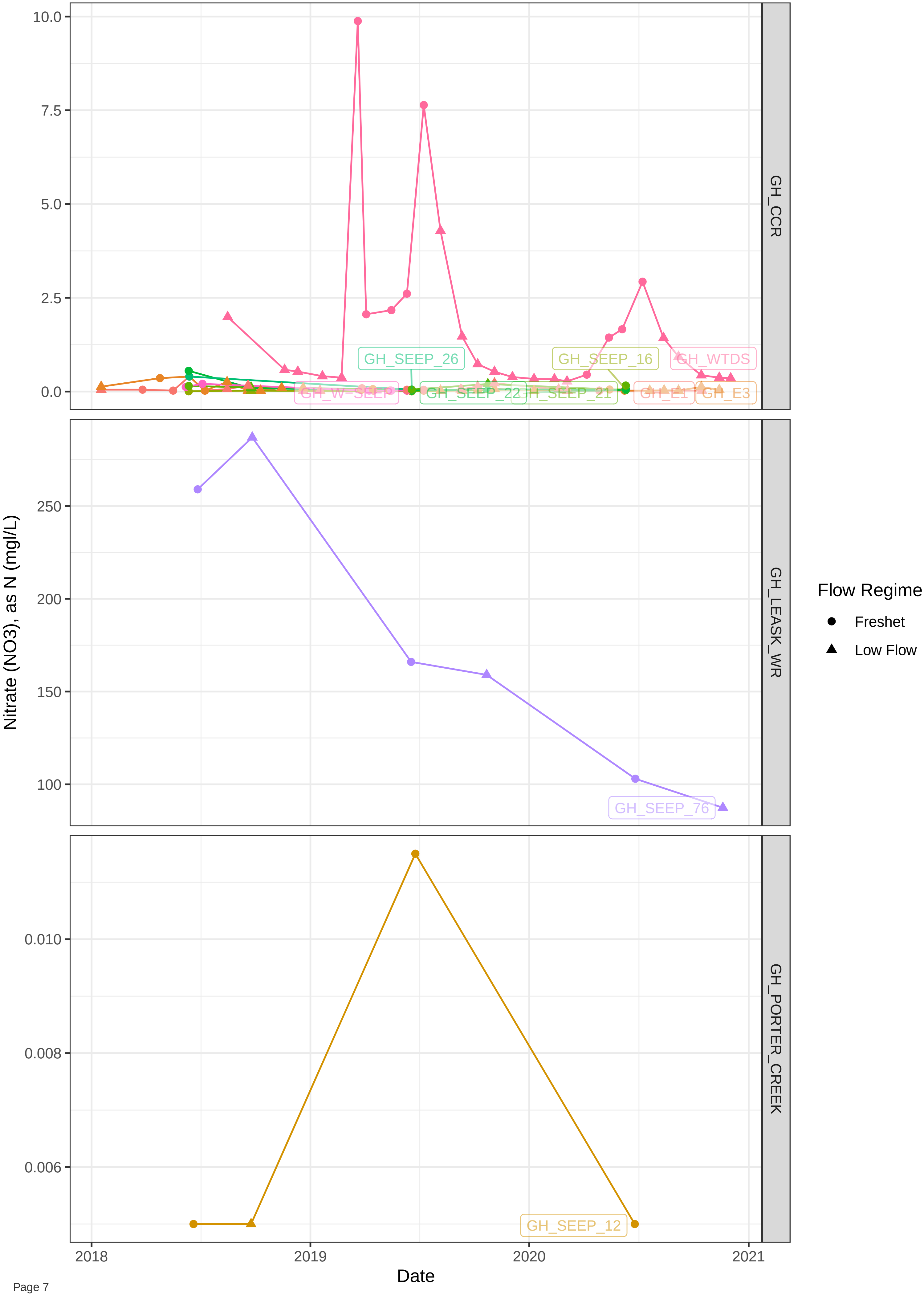

Field pH (pH units)
7.9
7.8
7.7
7.6
7.5
GH_SEEP_60
GH_SEEP_5
GH_SEEP_46
GH_THOMPSON_WR
8.8
8.6
8.4
8.2
8.0
GH_SEEP_30
GH_SEEP_15
GH_SEEP_50
GH_UPSTREAM_CCR
8.4
8.2
8.0
GH_SEEP_79
GH_SEEP_77
GH_WOLFRAM_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow


2500
2000
1500
1000
500
GH_SEEP_26
GH_W−SEEP
GH_SEEP_22
GH_E1
GH_E3
GH_SEEP_21
GH_SEEP_16
GH_WTDS
GH_CCR
700
600
500
GH_SEEP_76
GH_LEASK_WR
35
30
25
20
GH_SEEP_12
GH_PORTER_CREEK
2018
2019
2020
2021
Date
Sulfate (AS SO4) (mg/L)
Flow Regime
● Freshet
▲ Low Flow

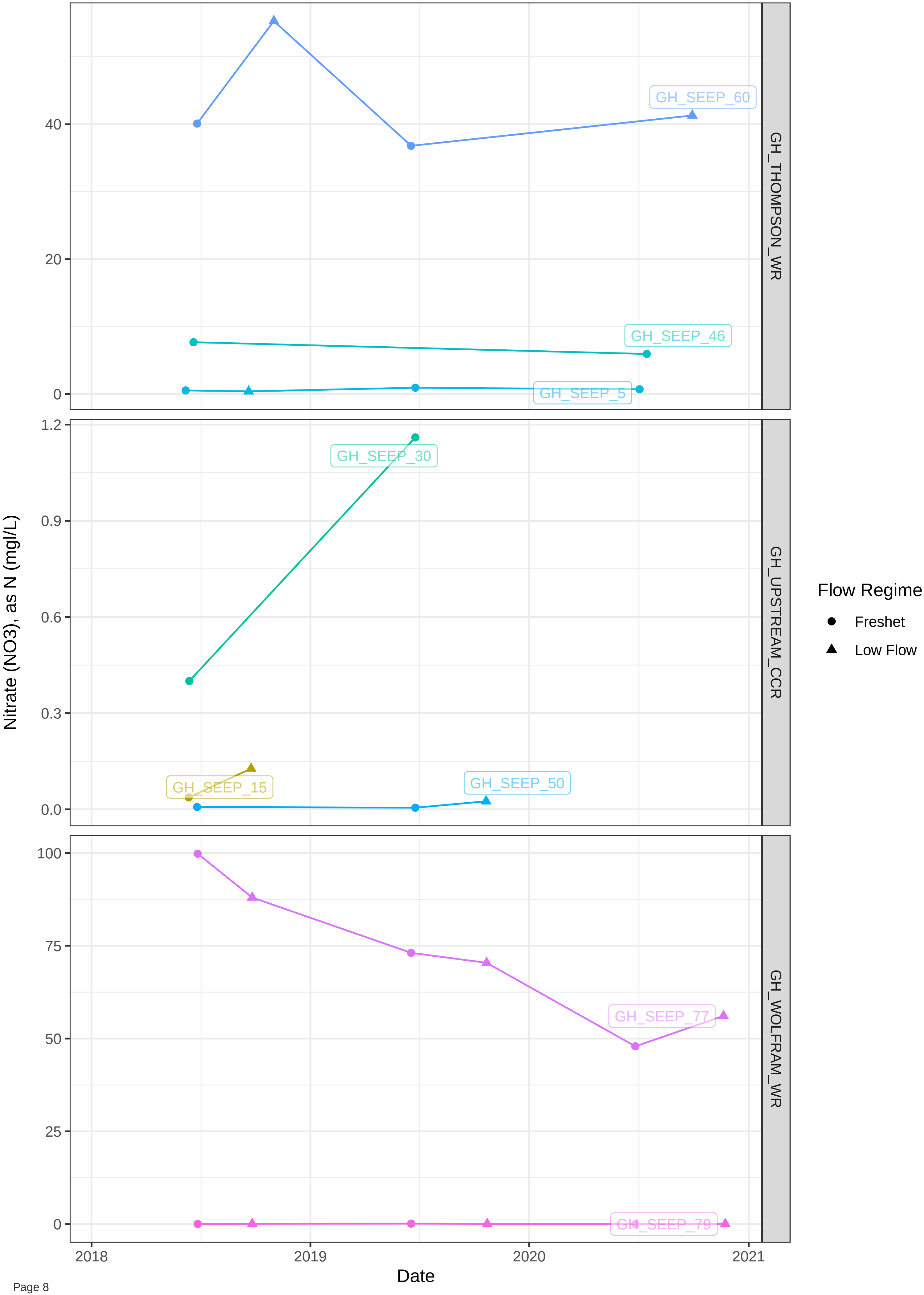

GH_SEEP_60
GH_SEEP_46
GH_SEEP_5
GH_THOMPSON_WR
GH_SEEP_15
GH_SEEP_50
GH_SEEP_30
GH_UPSTREAM_CCR
GH_SEEP_77
GH_SEEP_79
GH_WOLFRAM_WR
Sulfate (AS SO4) (mg/L)
1500
1000
500
600
400
200
0
1500
1000
500
0
2018
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

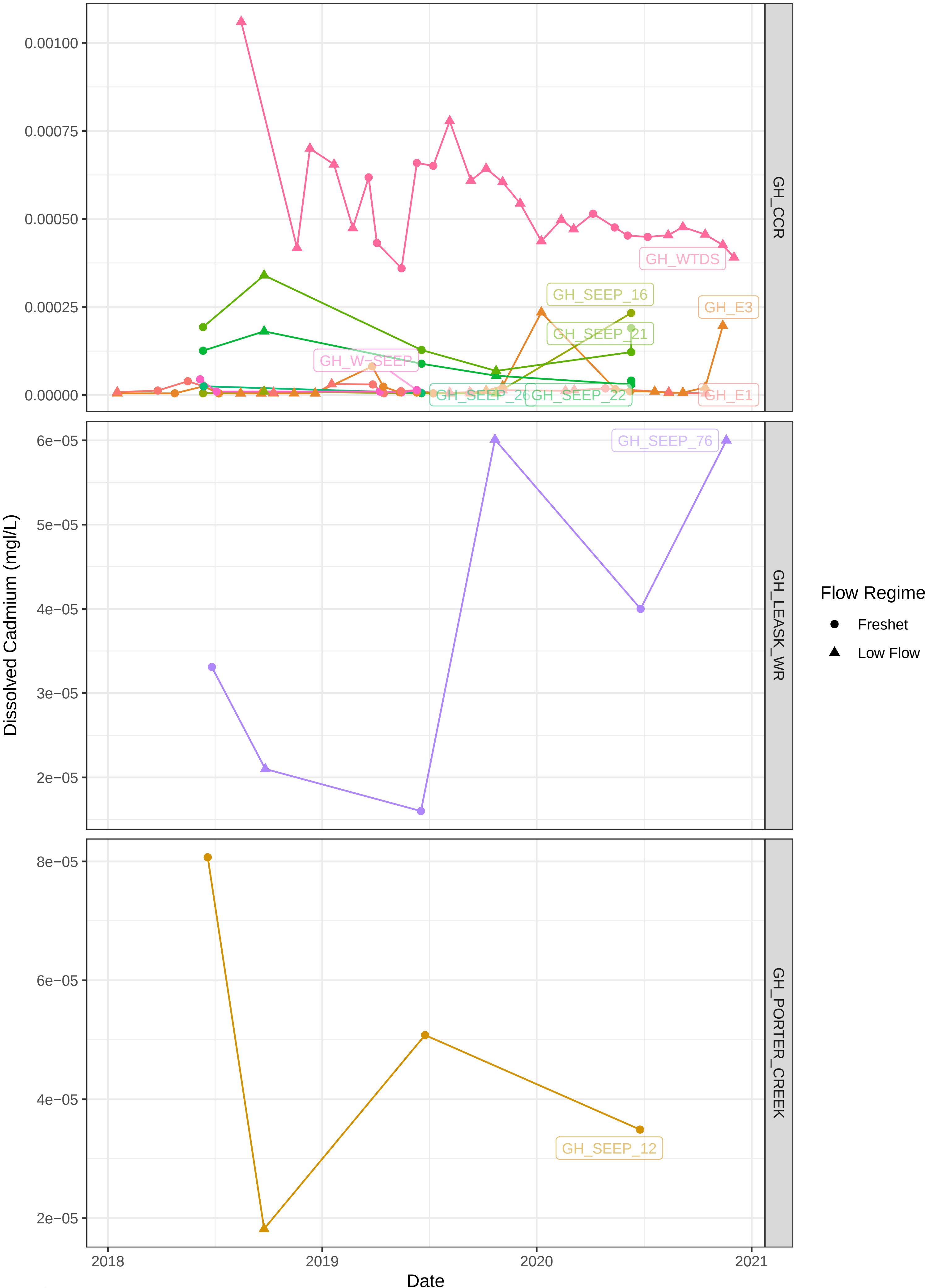

Dissolved Selenium (ug/L)
100
75
50
25
0
GH_SEEP_16
GH_SEEP_22
GH_E3
GH_W−SEEP
GH_SEEP_2
GH_SEEP_21
GH_
GH_WTDS
GH_CCR
600
560
520
GH_SEEP_76
GH_LEASK_WR
5.5
4.5
3.5
2.5
GH_SEEP_12
GH_PORTER_CREEK
2018
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

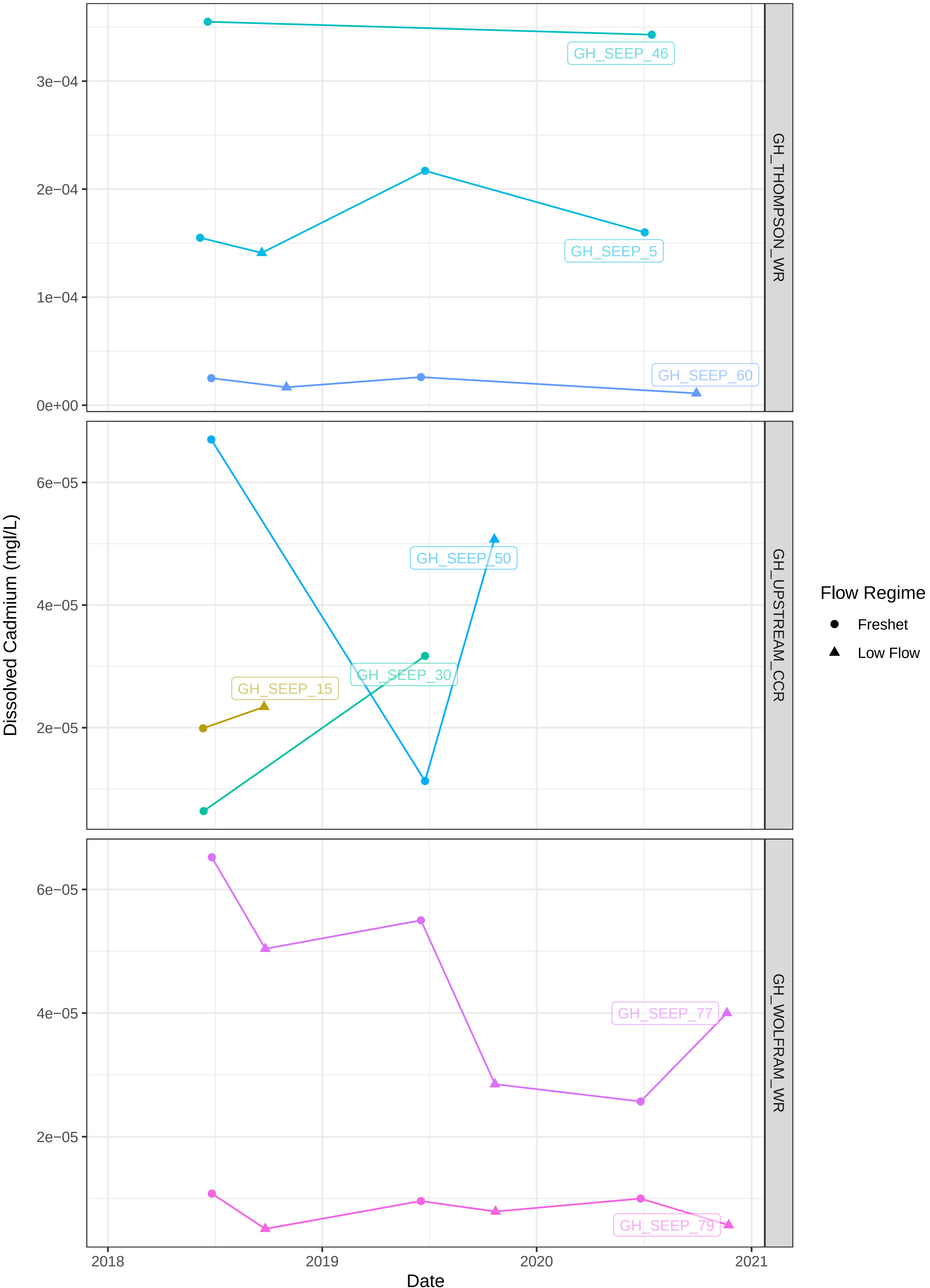

GH_SEEP_60
GH_SEEP_46
GH_SEEP_5
GH_THOMPSON_WR
600
400
200
0
GH_SEEP_30
GH_SEEP_15
GH_SEEP_50
GH_UPSTREAM_CCR
10
5
0
GH_SEEP_77
GH_SEEP_79
GH_WOLFRAM_WR
300
200
100
0
Dissolved Selenium (ug/L)
2018
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

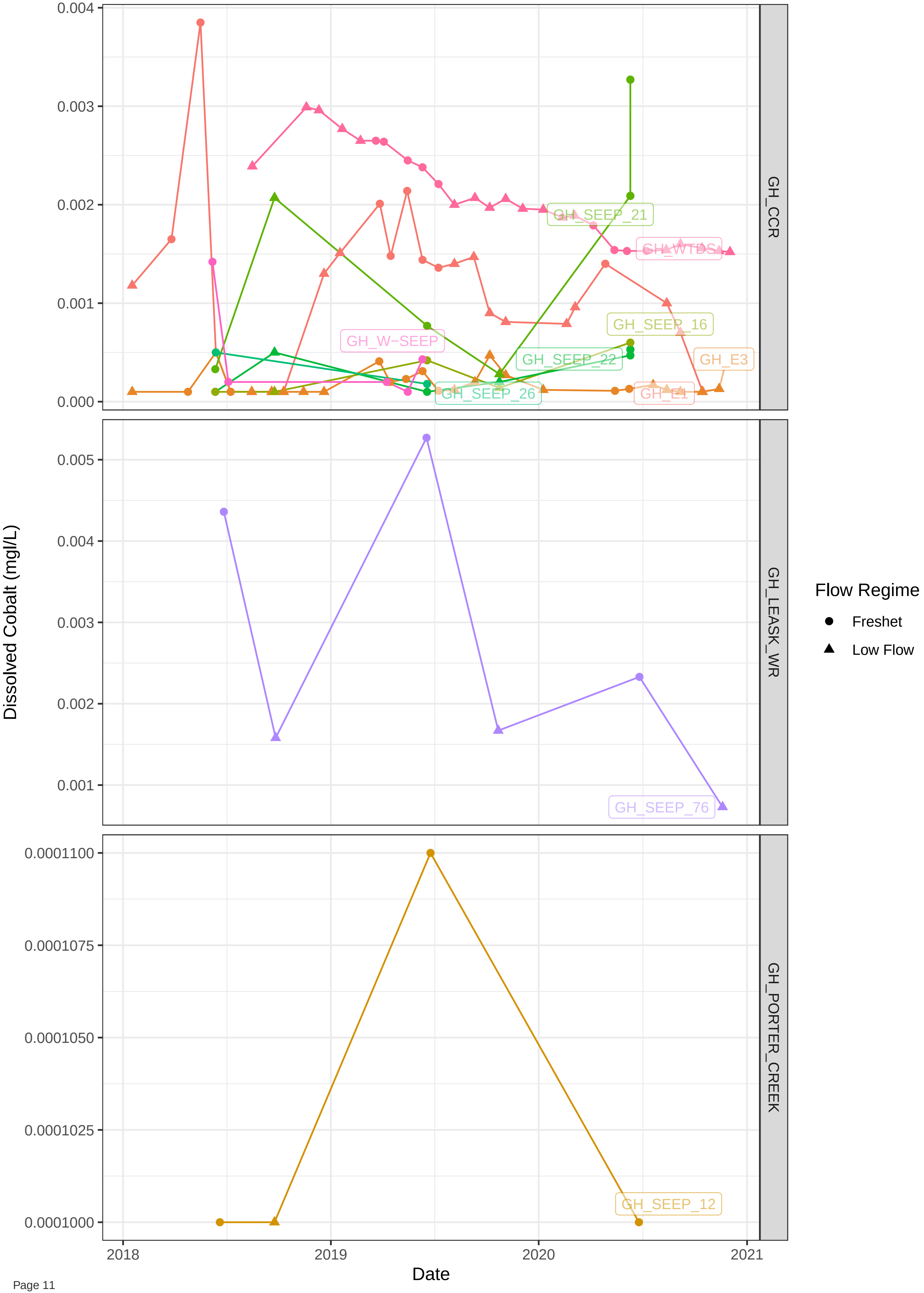


GH_CCR
GH_LEASK_WR
GH_PORTER_CREEK
Nitrate (NO3), as N (mg/L)
Date
2018
2019
2020
2021
10.0
7.5
5.0
2.5
0.0
250
200
150
100
0.010
0.008
0.006
GH_SEEP_26
GH_SEEP_16
GH_WTDS
GH_W_SEEP
GH_SEEP_22
GH_SEEP_21
GH_E1
GH_E3
GH_SEEP_76
GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

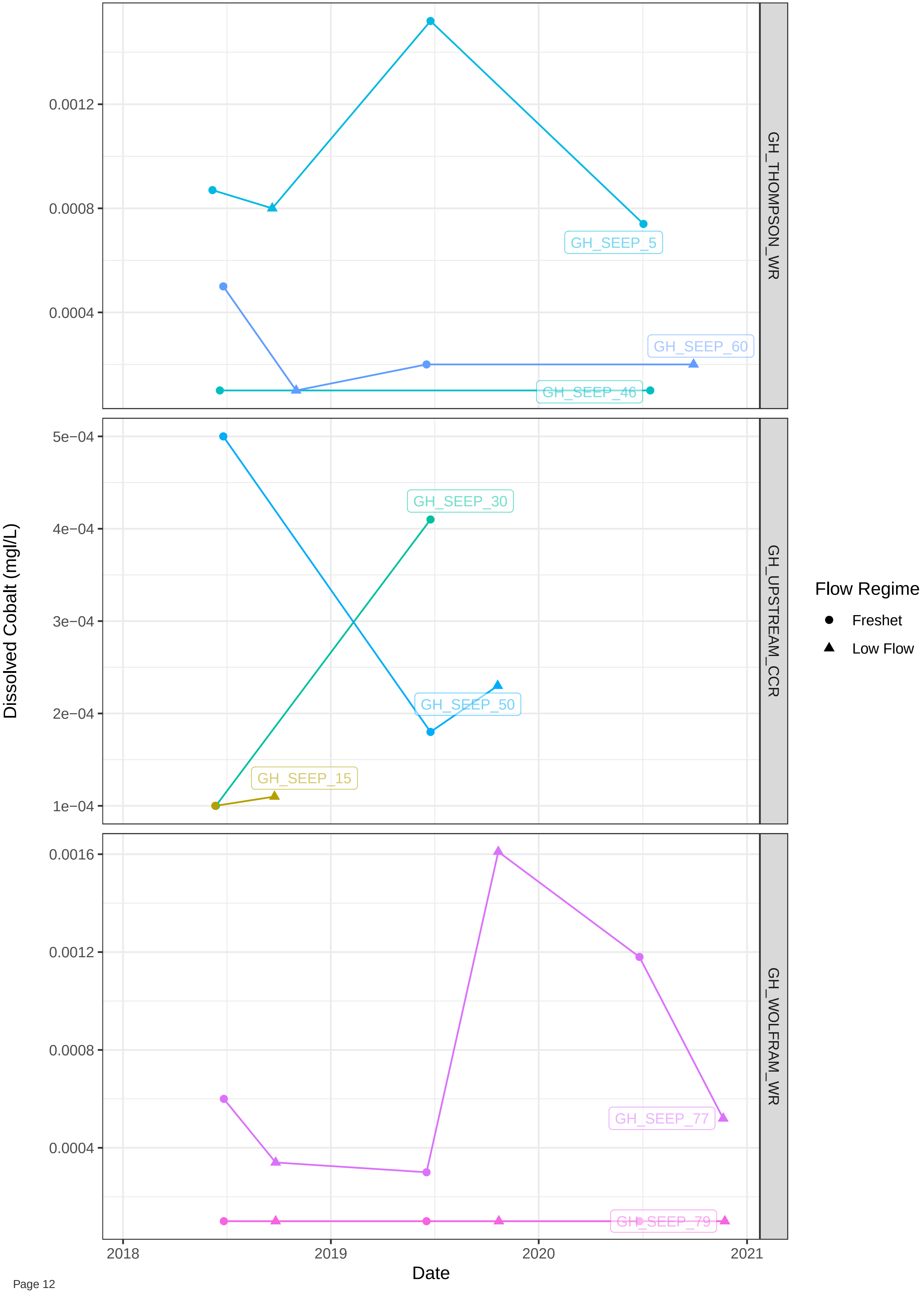

GH_SEEP_60
GH_SEEP_46
GH_SEEP_5
GH_THOMPSON_WR
40
20
0
GH_SEEP_30
GH_SEEP_15
GH_SEEP_50
GH_UPSTREAM_CCR
1.2
0.9
0.6
0.3
0.0
GH_SEEP_77
GH_SEEP_79
GH_WOLFRAM_WR
100
75
50
25
0
2018
2019
2020
2021
Date
Nitrate (NO3), as N (mg/L)
Flow Regime
● Freshet
▲ Low Flow

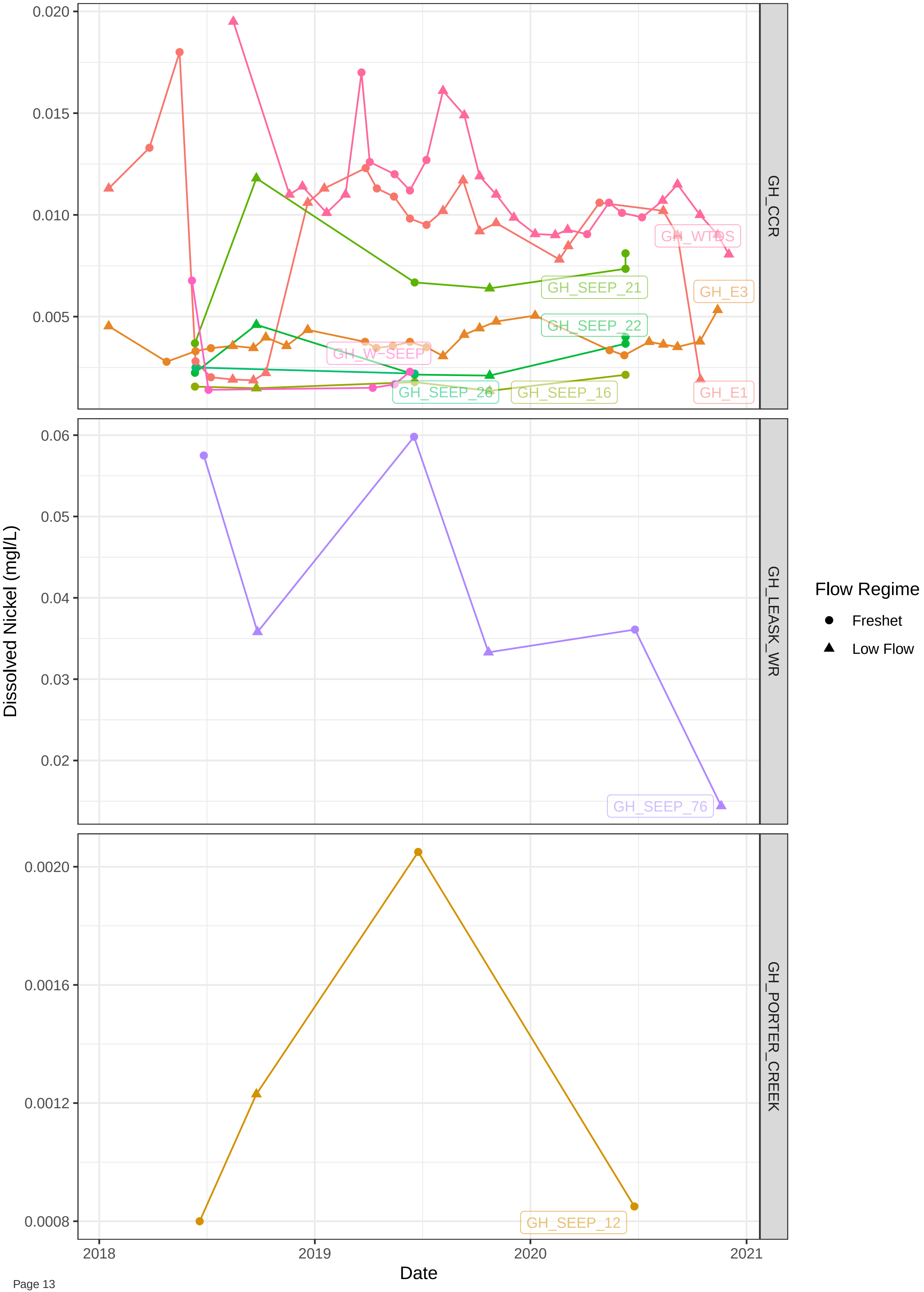

0.00100
0.00075
0.00050
0.00025
0.00000
GH_CCR
GH_WTDS
GH_SEEP_16
GH_E3
GH_SEEP_21
GH_W-SEEP
GH_SEEP_26
GH_SEEP_22
GH_E1
6e−05
5e−05
4e−05
3e−05
2e−05
GH_LEASK_WR
GH_SEEP_76
8e−05
6e−05
4e−05
2e−05
GH_PORTER_CREEK
GH_SEEP_12
2018
2019
2020
2021
Date
Dissolved Cadmium (mg/L)
Flow Regime
● Freshet
▲ Low Flow

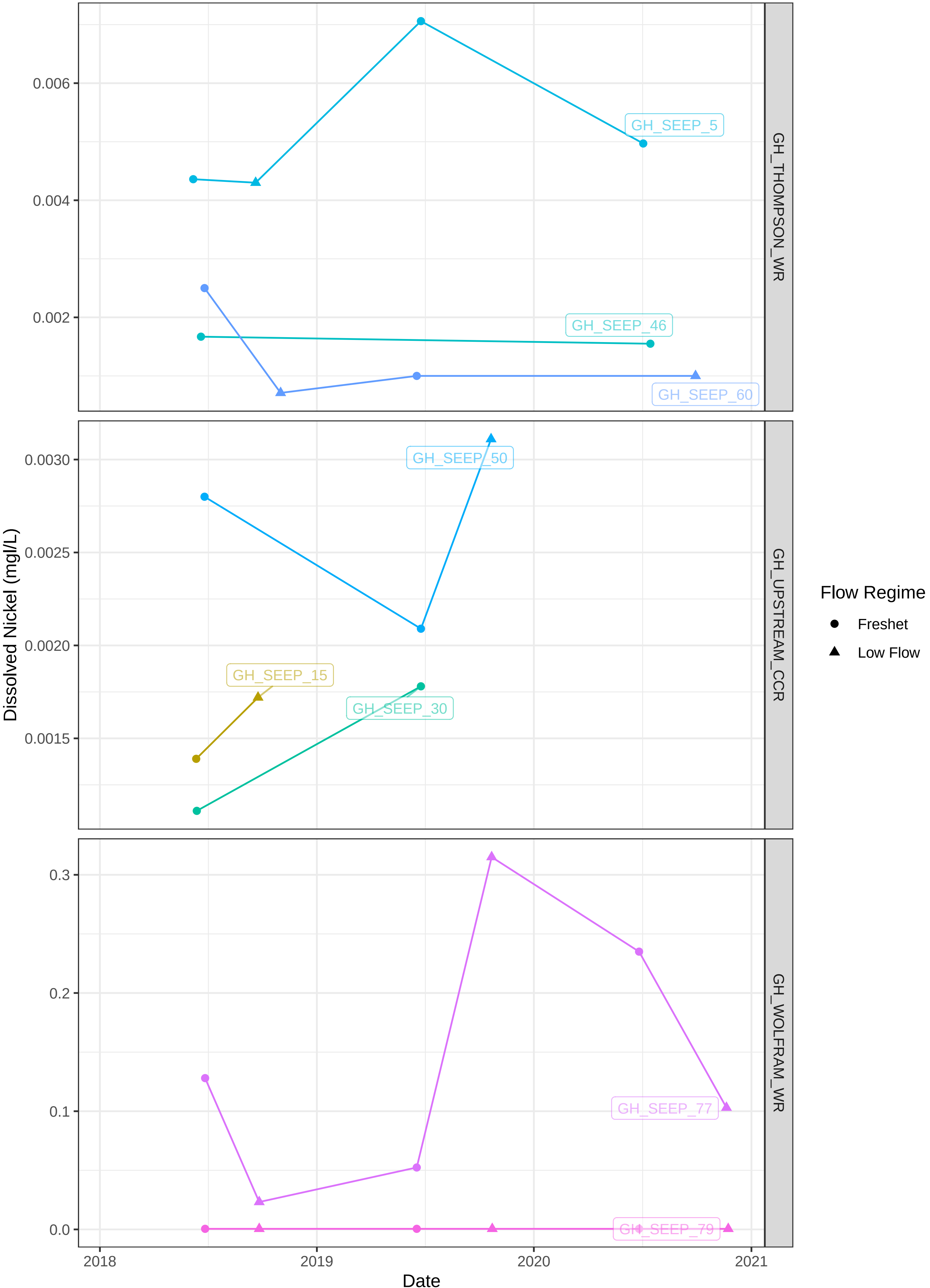

GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
GH_THOMPSON_WR
GH_SEEP_50
GH_SEEP_30
GH_SEEP_15
GH_UPSTREAM_CCR
GH_SEEP_77
GH_SEEP_79
GH_WOLFRAM_WR
3e−04
2e−04
1e−04
0e+00
6e−05
4e−05
2e−05
6e−05
4e−05
2e−05
Dissolved Cadmium (mg/L)
2018
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow



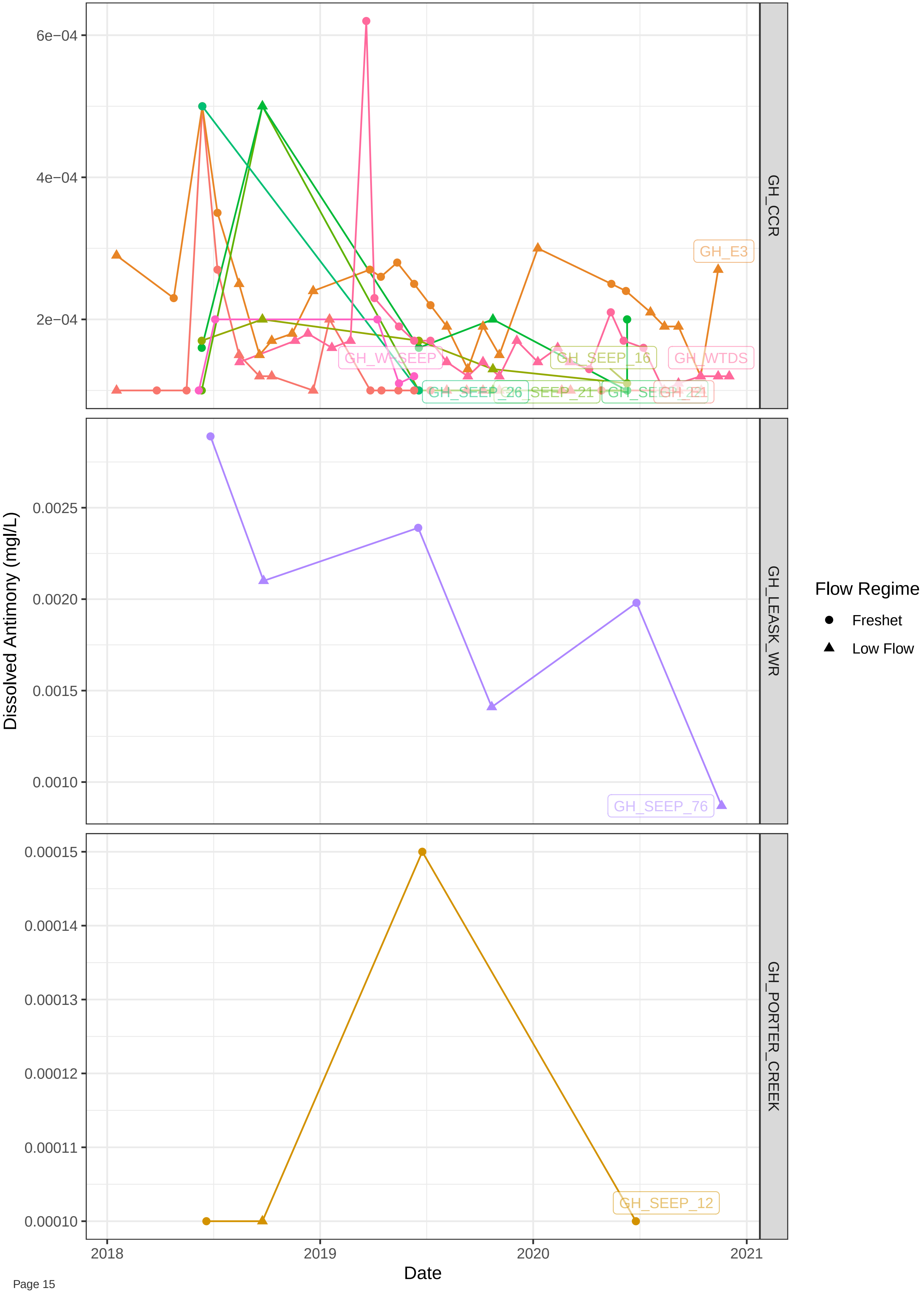
0.004
0.003
0.002
0.001
0.000
GH_CCR
GH_SEEP_21
GH_WTDS
GH_SEEP_16
GH_W−SEEP
GH_SEEP_22
GH_E3
GH_SEEP_26
GH_E1
0.005
0.004
0.003
0.002
0.001
GH_LEASK_WR
GH_SEEP_76
0.0001100
0.0001075
0.0001050
0.0001025
0.0001000
GH_PORTER_CREEK
GH_SEEP_12
2018
2019
2020
2021
Date
Dissolved Cobalt (mgl/L)
Flow Regime
● Freshet
▲ Low Flow


Dissolved Cobalt (mg/L)
Date
0.0012
0.0008
0.0004
GH_SEEP_5
GH_SEEP_60
GH_SEEP_46
GH_THOMPSON_WR
5e−04
4e−04
3e−04
2e−04
1e−04
GH_SEEP_30
GH_SEEP_50
GH_SEEP_15
GH_UPSTREAM_CCR
0.0016
0.0012
0.0008
0.0004
GH_SEEP_77
GH_SEEP_79
GH_WOLFRAM_WR
2018
2019
2020
2021
Flow Regime
● Freshet
▲ Low Flow

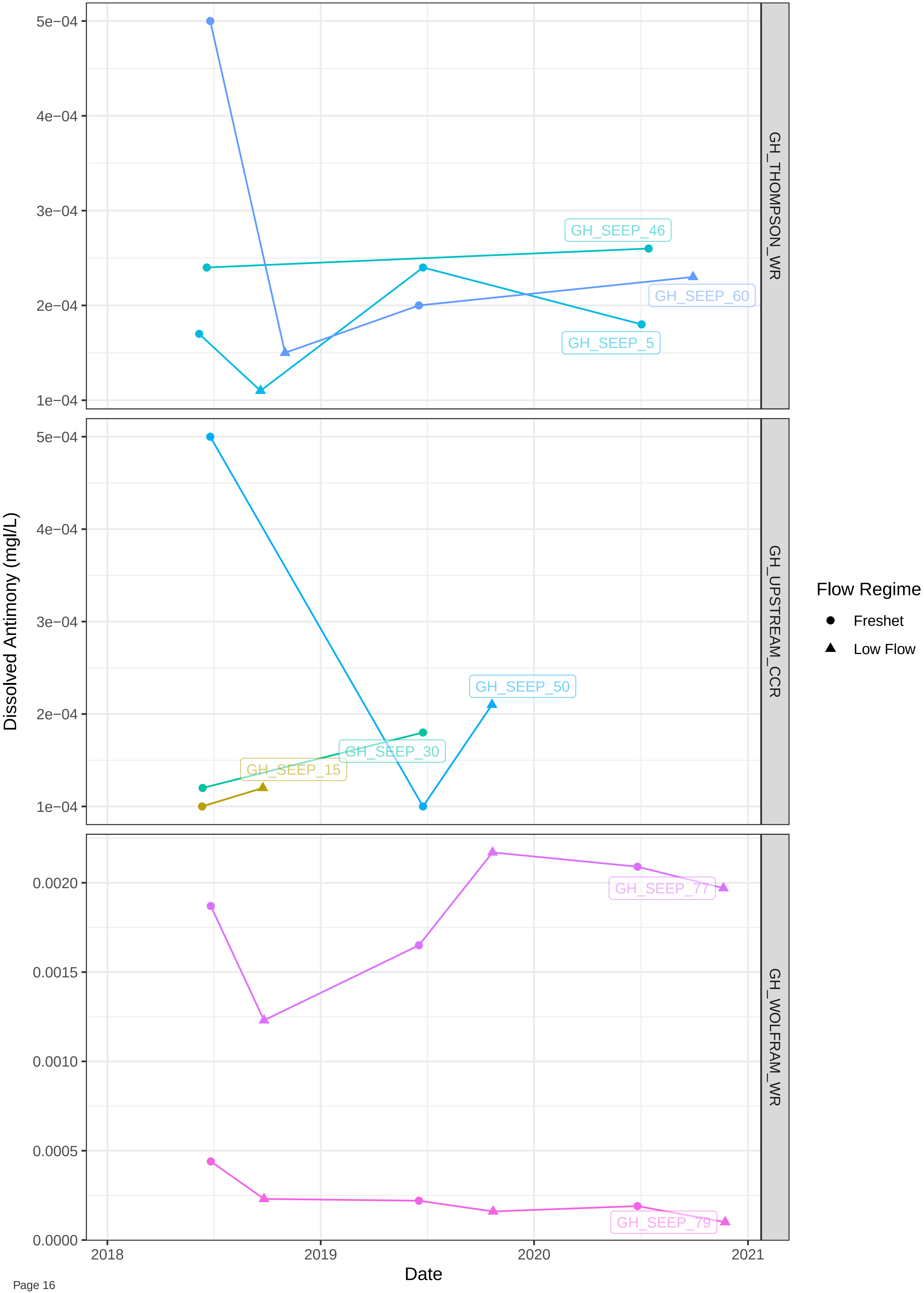

Dissolved Nickel (mg/L)
Date
GH_CCR
GH_LEASK_WR
GH_PORTER_CREEK
0.020
0.015
0.010
0.005
0.06
0.05
0.04
0.03
0.02
0.0020
0.0016
0.0012
0.0008
2018
2019
2020
2021
GH_WTDS
GH_SEEP_21
GH_E3
GH_SEEP_22
GH_W-SEEP
GH_SEEP_26
GH_SEEP_16
GH_E1
GH_SEEP_76
GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

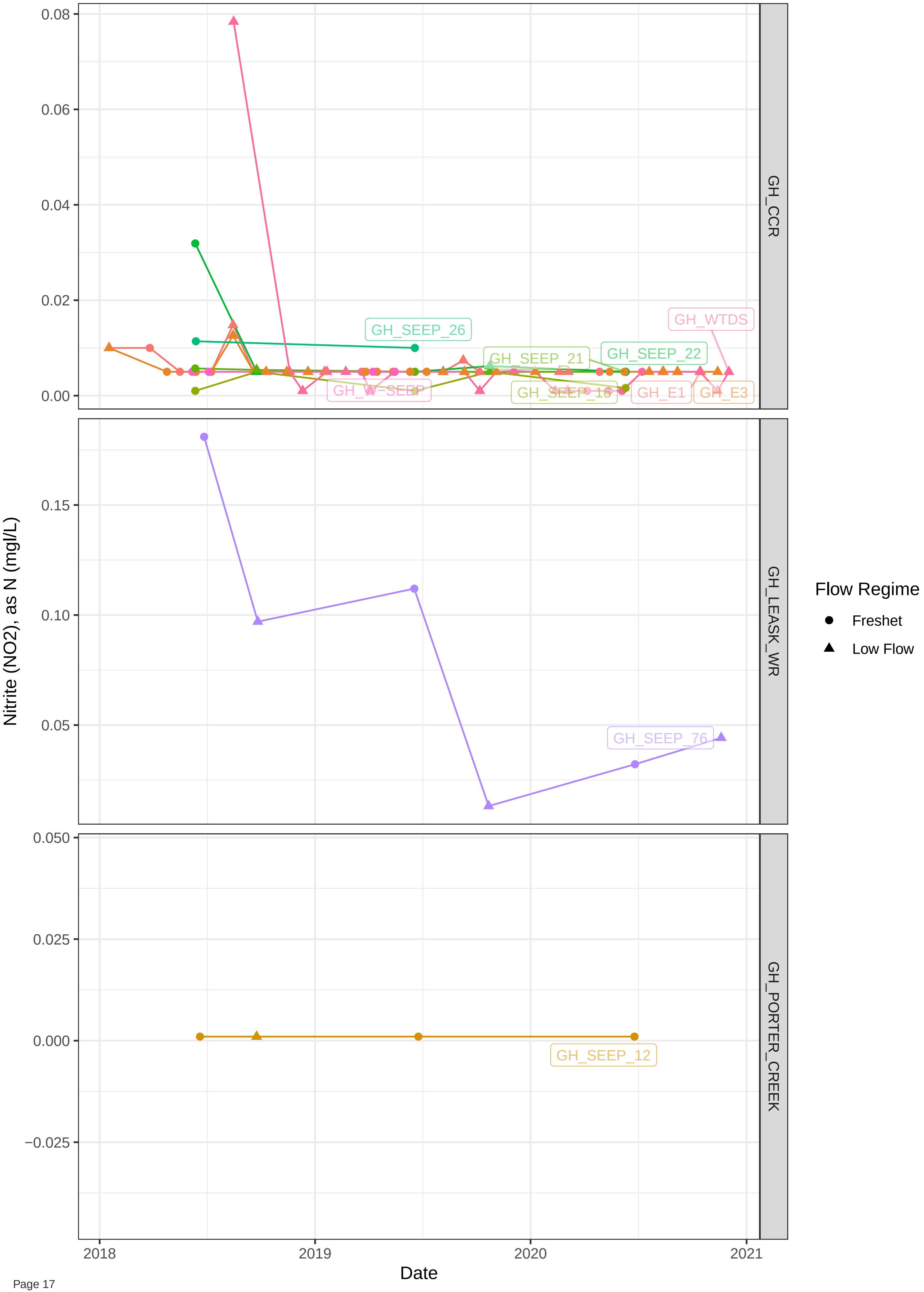


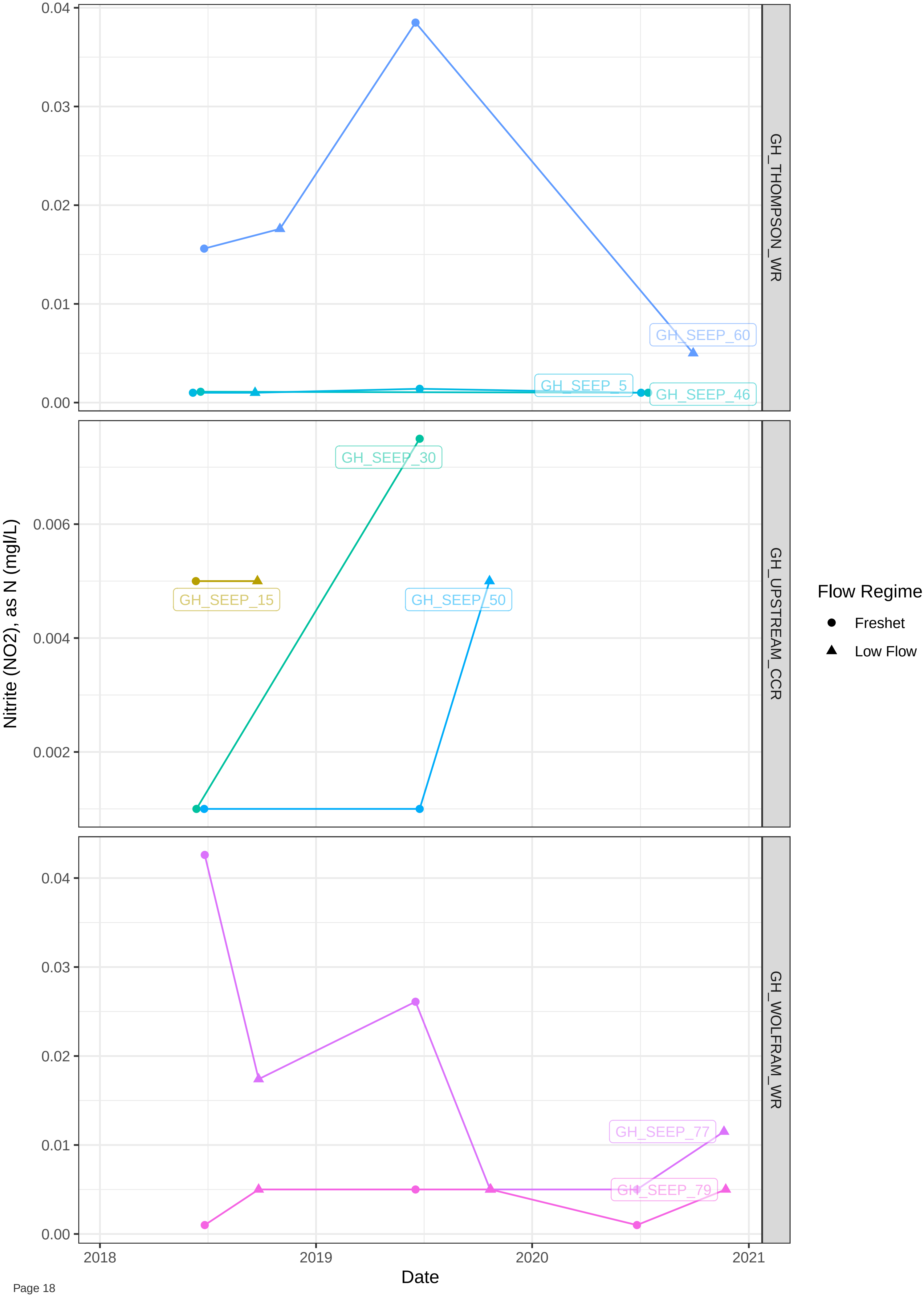
Dissolved Nickel (mg/L)
Date
GH_THOMPSON_WR
GH_UPSTREAM_CCR
GH_WOLFRAM_WR
0.006
0.004
0.002
0.0030
0.0025
0.0020
0.0015
0.3
0.2
0.1
0.0
2018
2019
2020
2021
GH_SEEP_5
GH_SEEP_46
GH_SEEP_60
GH_SEEP_50
GH_SEEP_15
GH_SEEP_30
GH_SEEP_77
GH_SEEP_79
Flow Regime
● Freshet
▲ Low Flow

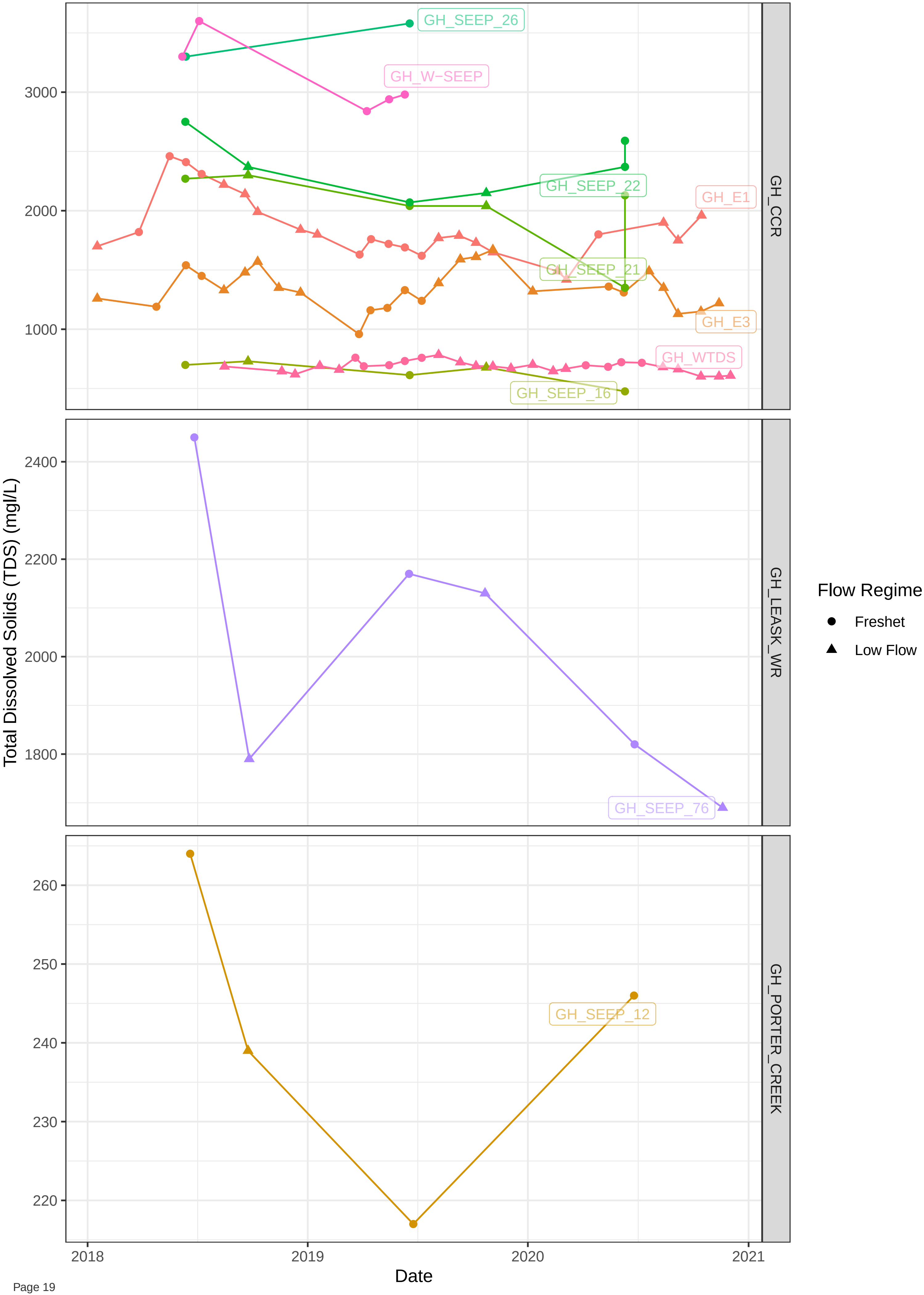


Dissolved Antimony (mgl/L)
Date
6e−04
4e−04
2e−04
0.0025
0.0020
0.0015
0.0010
0.00015
0.00014
0.00013
0.00012
0.00011
0.00010
2018
2019
2020
2021
GH_CCR
GH_LEASK_WR
GH_PORTER_CREEK
GH_E3
GH_W_SEEP
GH_SEEP_16
GH_WTDS
GH_SEEP_26
SEEP_21
GH_SE
GH_E1
GH_SEEP_76
GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

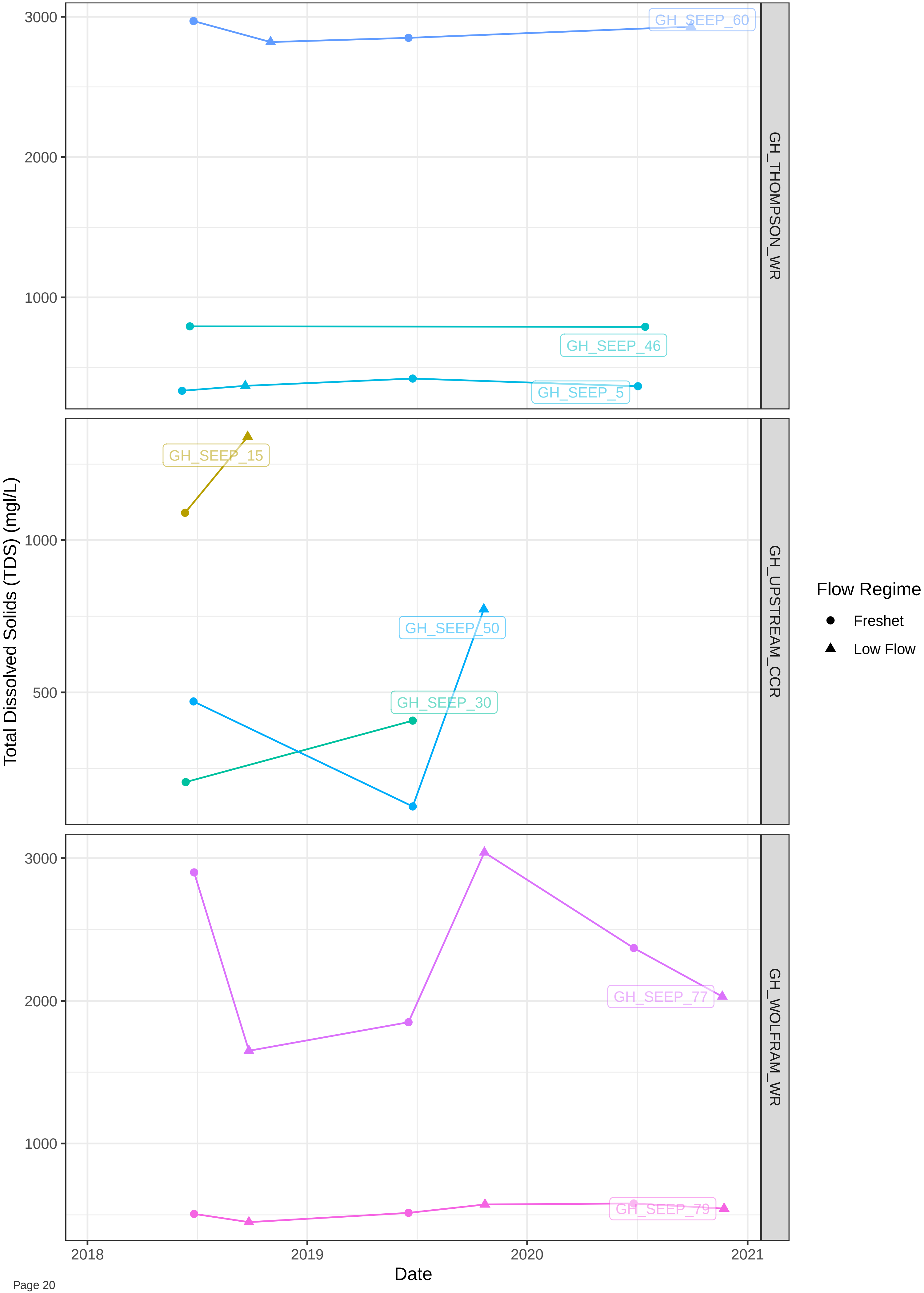

Dissolved Antimony (mgl/L)
Date
2018
2019
2020
2021
5e−04
4e−04
3e−04
2e−04
1e−04
GH_THOMPSON_WR
GH_SEEP_46
GH_SEEP_60
GH_SEEP_5
GH_UPSTREAM_CCR
GH_SEEP_50
GH_SEEP_30
GH_SEEP_15
GH_WOLFRAM_WR
0.0020
0.0015
0.0010
0.0005
0.0000
GH_SEEP_77
GH_SEEP_79
Flow Regime
● Freshet
▲ Low Flow


Nitrite (NO2), as N (mgl/L)
Date
0.08
0.06
0.04
0.02
0.00
0.15
0.10
0.05
0.050
0.025
0.000
−0.025
2018
2019
2020
2021
GH_CCR
GH_LEASK_WR
GH_PORTER_CREEK
GH_SEEP_26
GH_WTDS
GH_SEEP_21
GH_SEEP_22
GH_W-SEEP
GH_SEEP_16
GH_E1
GH_E3
GH_SEEP_76
GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

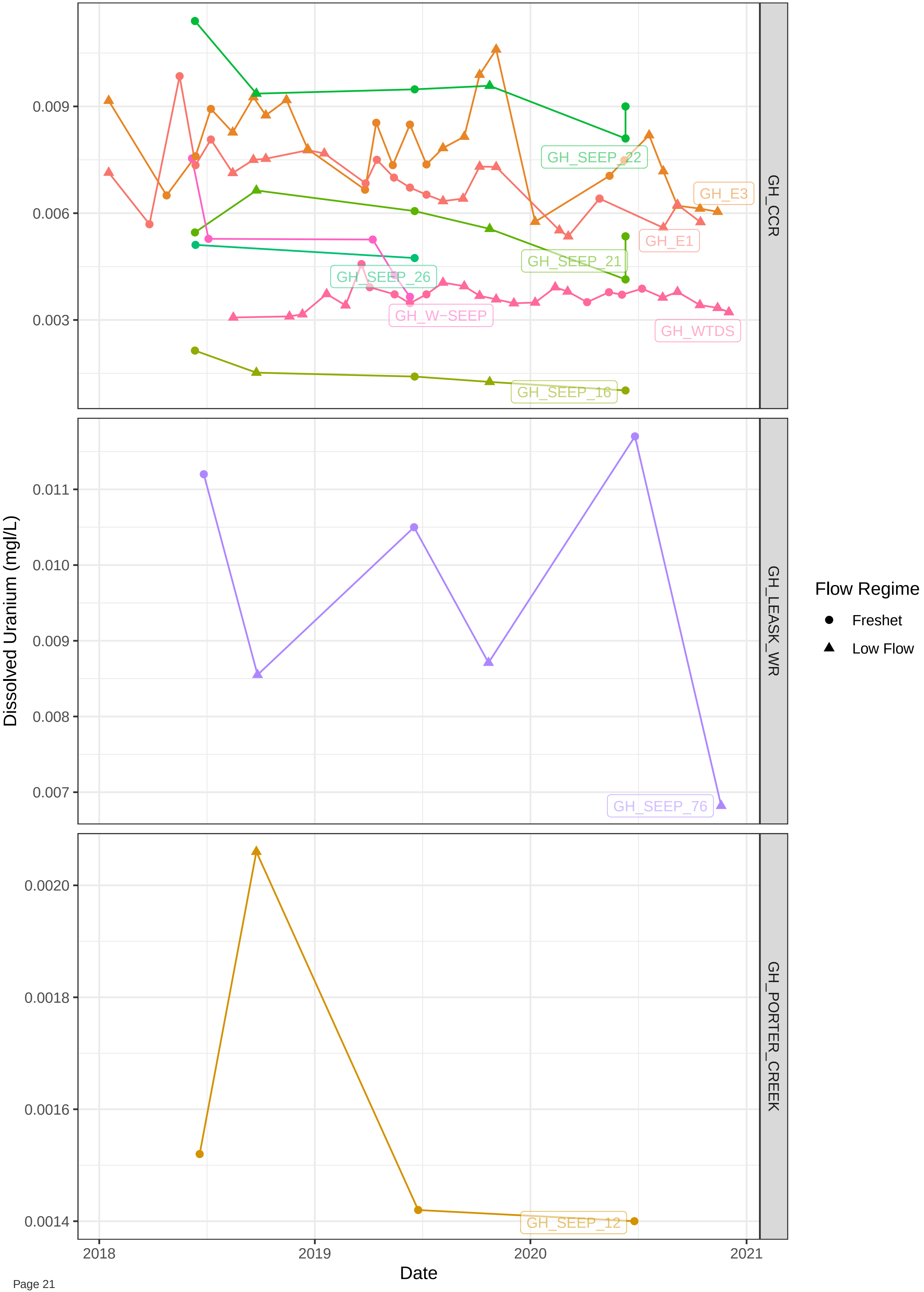

0.04
0.03
0.02
0.01
0.00
GH_SEEP_60
GH_SEEP_5
GH_SEEP_46
GH_THOMPSON_WR
GH_SEEP_30
0.006
0.004
0.002
GH_SEEP_15
GH_SEEP_50
GH_UPSTREAM_CCR
0.04
0.03
0.02
0.01
0.00
GH_SEEP_77
GH_SEEP_79
GH_WOLFRAM_WR
2018
2019
2020
2021
Date
Nitrite (NO2), as N (mg/L)
Flow Regime
● Freshet
▲ Low Flow

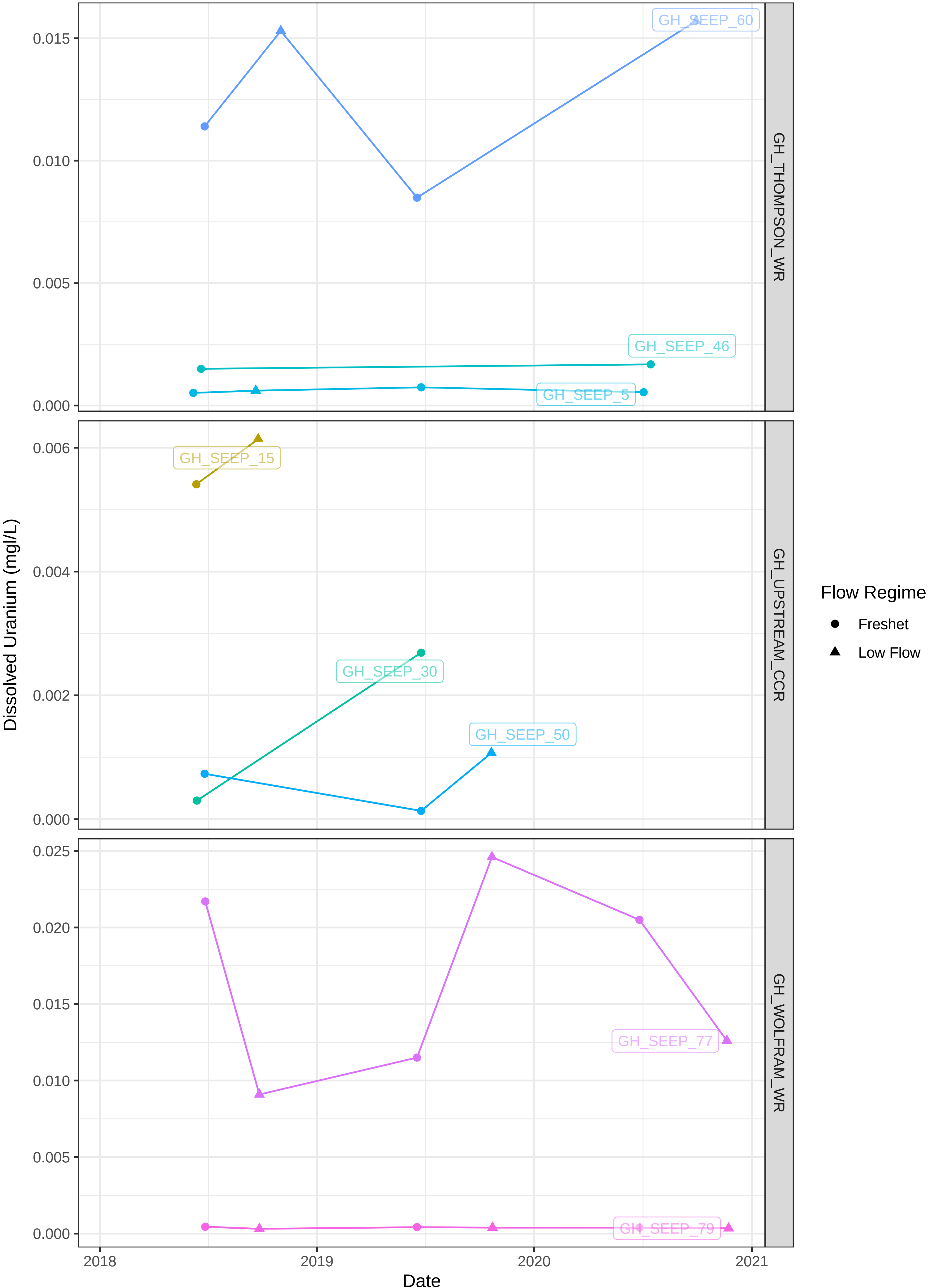


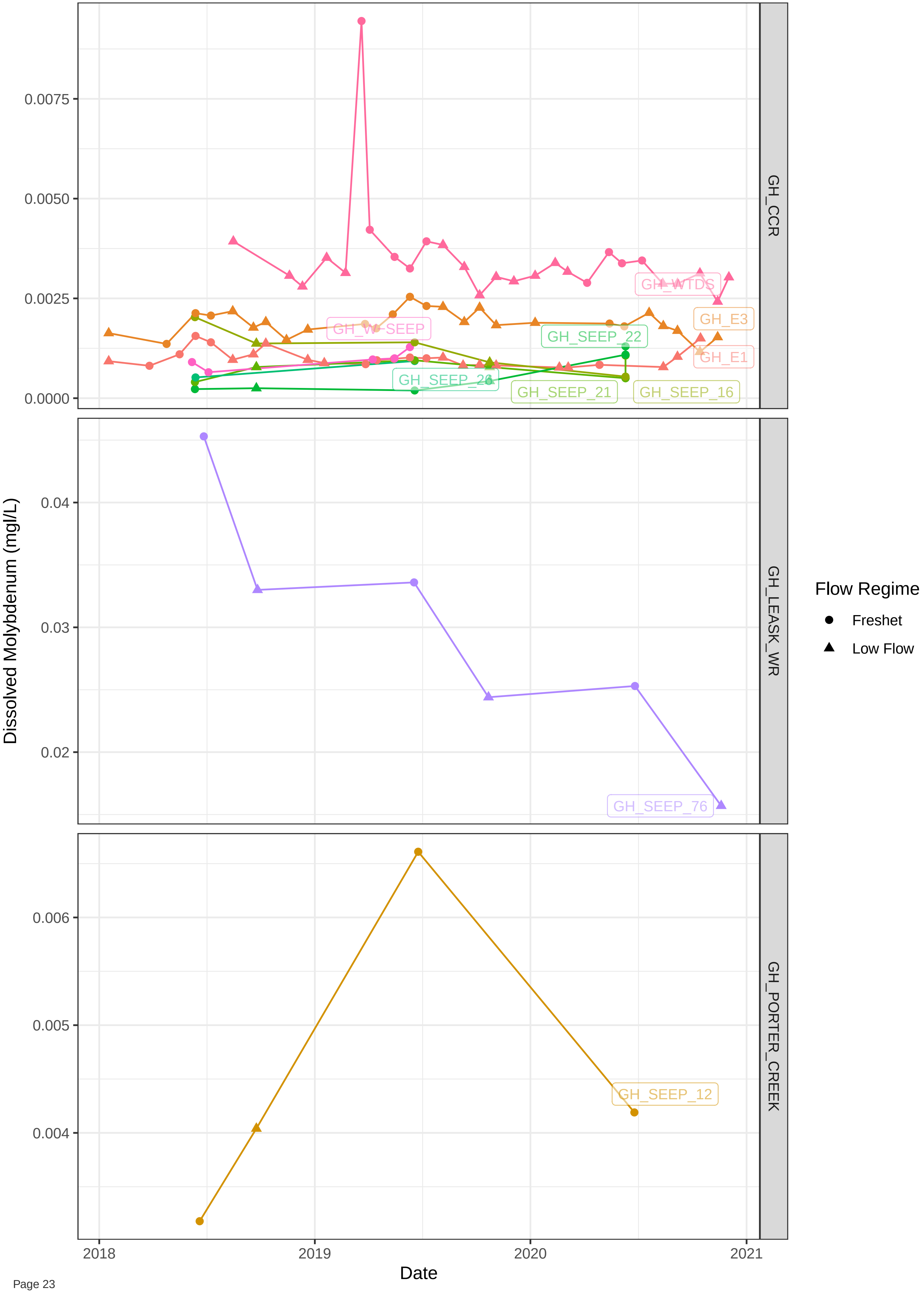
GH_SEEP_26
GH_W−SEEP
GH_SEEP_22
GH_E1
GH_SEEP_21
GH_E3
GH_WTDS
GH_SEEP_16
GH_CCR
3000
2000
1000
2400
2200
2000
1800
GH_SEEP_76
GH_LEASK_WR
260
250
240
230
220
GH_SEEP_12
GH_PORTER_CREEK
Total Dissolved Solids (TDS) (mg/L)
2018
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow



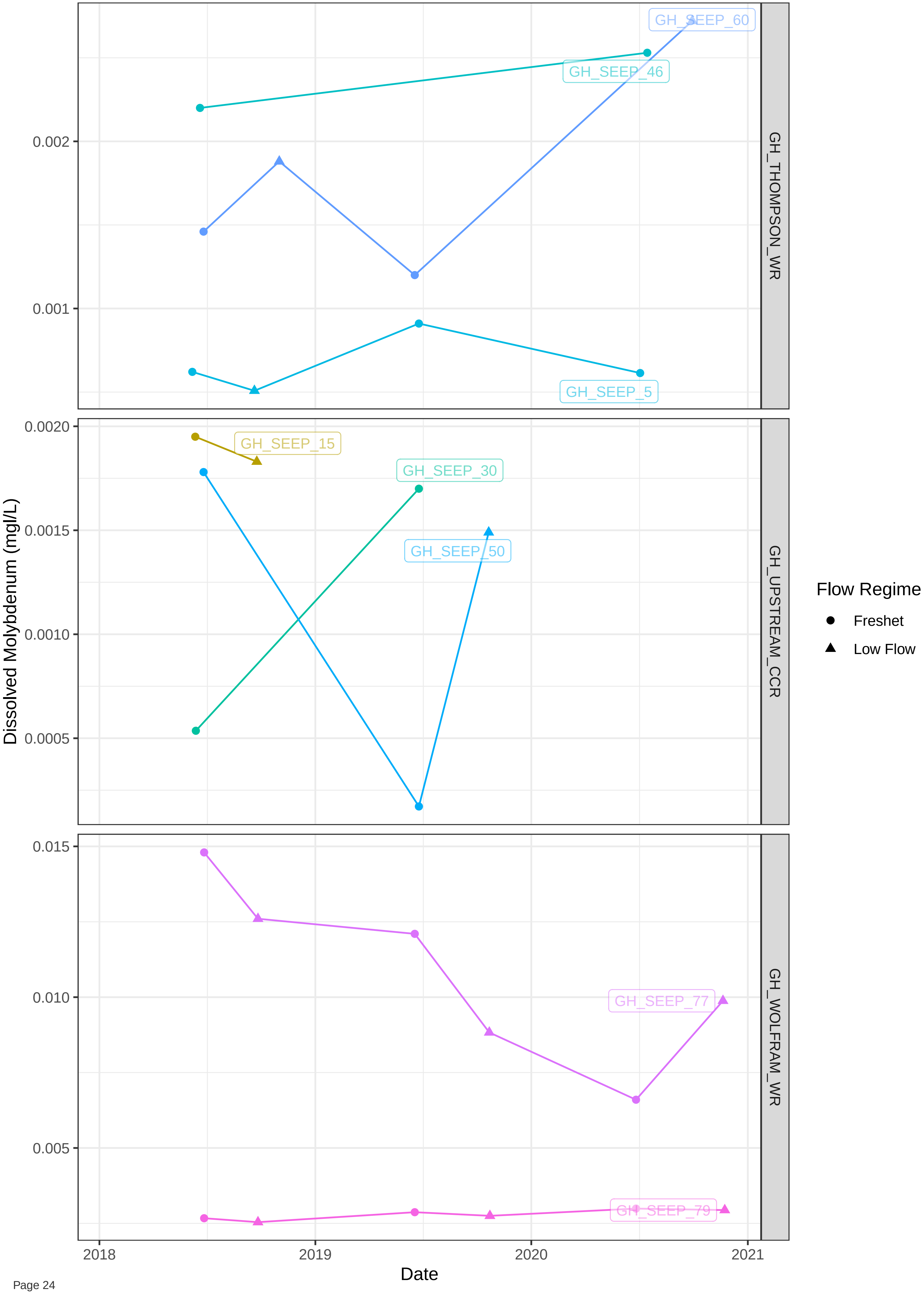
3000
2000
1000
GH_SEEP_60
GH_SEEP_46
GH_SEEP_5
GH_THOMPSON_WR
GH_SEEP_15
1000
500
GH_SEEP_50
GH_SEEP_30
GH_UPSTREAM_CCR
3000
2000
1000
GH_SEEP_77
GH_SEEP_79
GH_WOLFRAM_WR
2018
2019
2020
2021
Date
Total Dissolved Solids (TDS) (mgl/L)
Flow Regime
● Freshet
▲ Low Flow


GH_CCR
GH_LEASK_WR
GH_PORTER_CREEK
GH_SEEP_22
GH_E3
GH_E1
GH_SEEP_21
GH_SEEP_26
GH_W−SEEP
GH_WTDS
GH_SEEP_16
GH_SEEP_76
GH_SEEP_12
0.009
0.006
0.003
0.011
0.010
0.009
0.008
0.007
0.0020
0.0018
0.0016
0.0014
2018
2019
2020
2021
Date
Dissolved Uranium (mg/L)
Flow Regime
● Freshet
▲ Low Flow

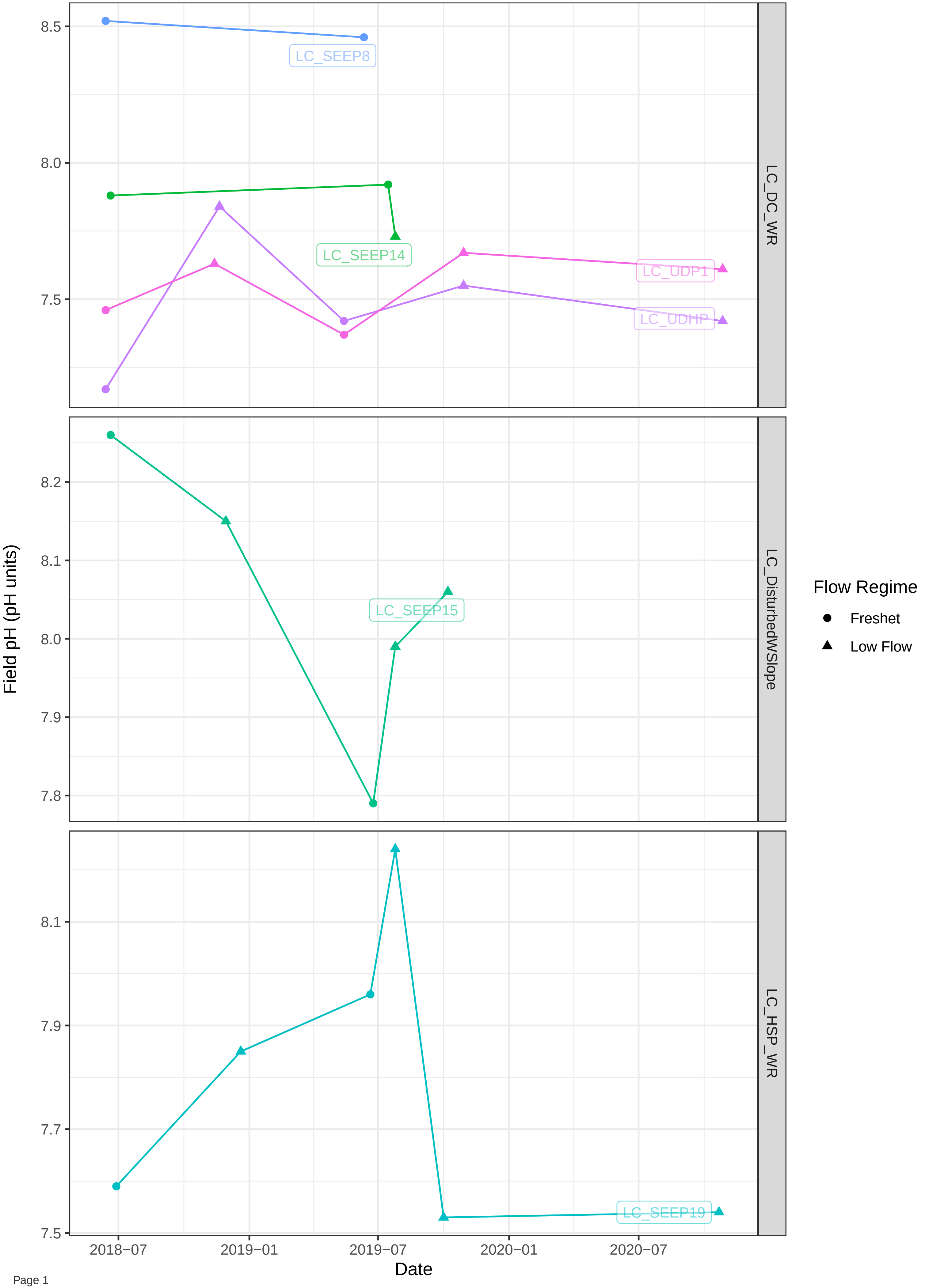

0.015
0.010
0.005
0.000
GH_SEEP_60
GH_SEEP_46
GH_SEEP_5
GH_THOMPSON_WR
0.006
0.004
0.002
0.000
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
GH_UPSTREAM_CCR
0.025
0.020
0.015
0.010
0.005
0.000
GH_SEEP_77
GH_SEEP_79
GH_WOLFRAM_WR
Dissolved Uranium (mgl/L)
2018
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow

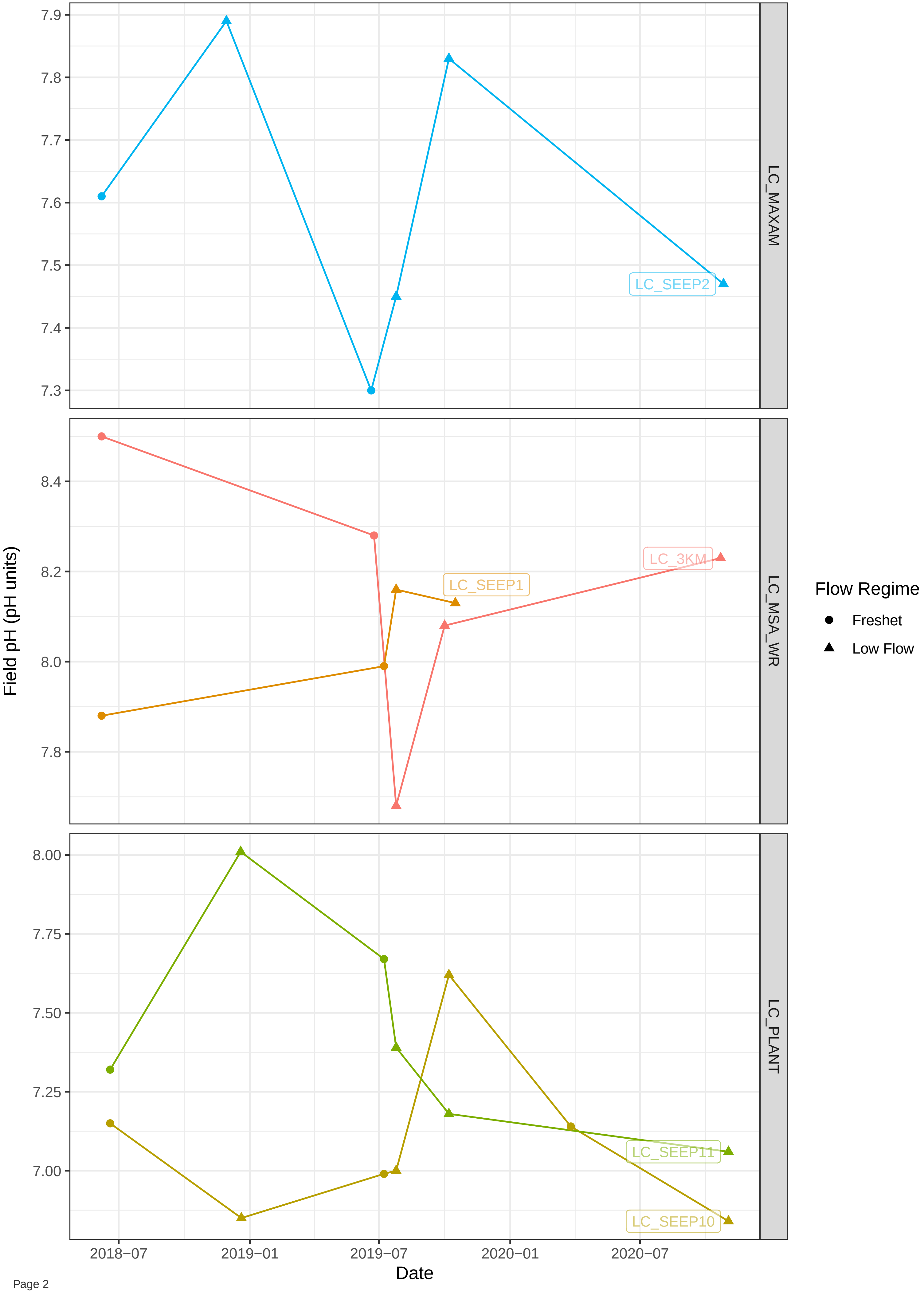


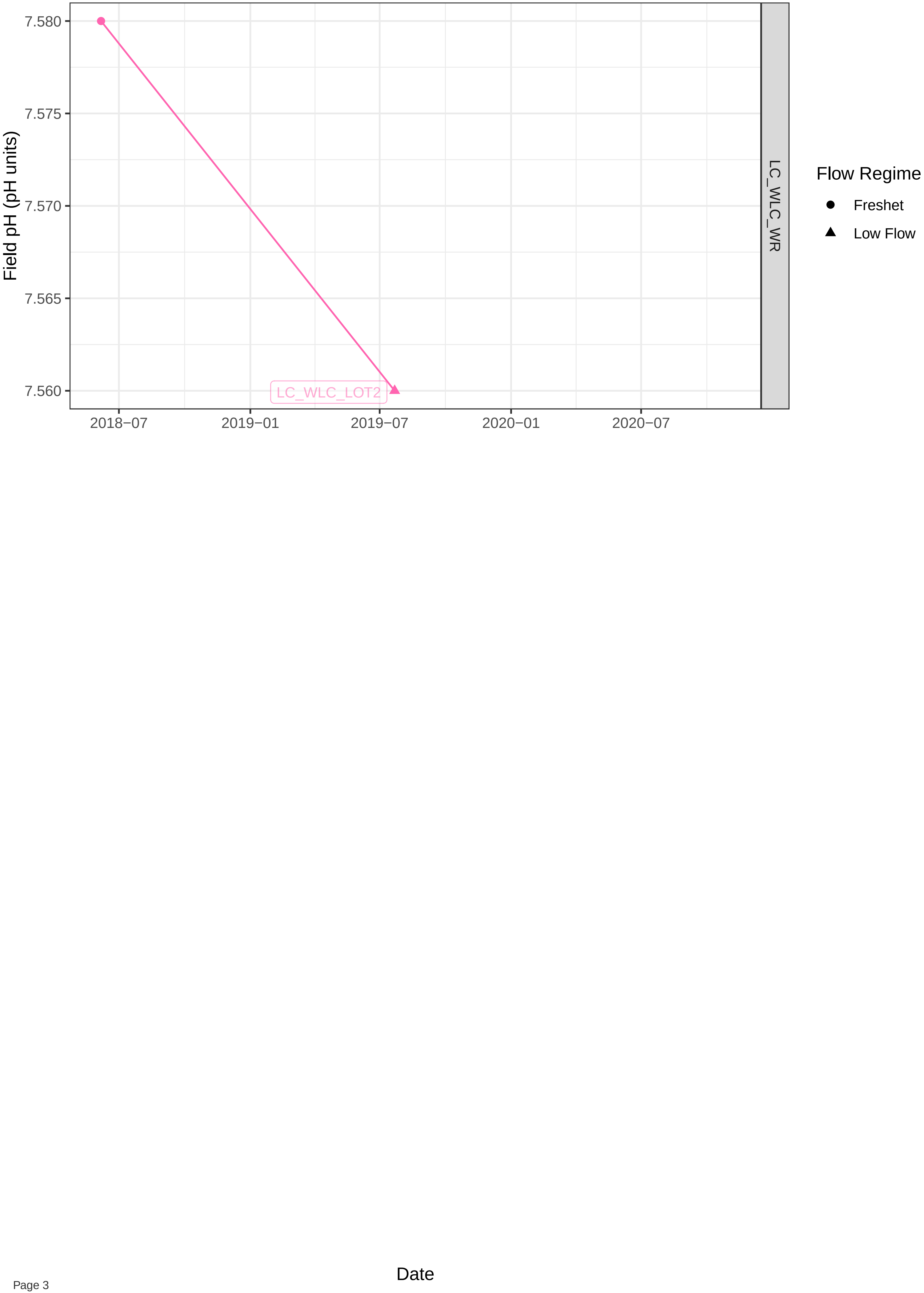
Dissolved Molybdenum (mg/L)
0.0075
0.0050
0.0025
0.0000
GH_CCR
GH_WTDS
GH_E3
GH_W-SEEP
GH_SEEP_22
GH_E1
GH_SEEP_26
GH_SEEP_21
GH_SEEP_16
0.04
0.03
0.02
GH_LEASK_WR
GH_SEEP_76
0.006
0.005
0.004
GH_PORTER_CREEK
GH_SEEP_12
2018
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow



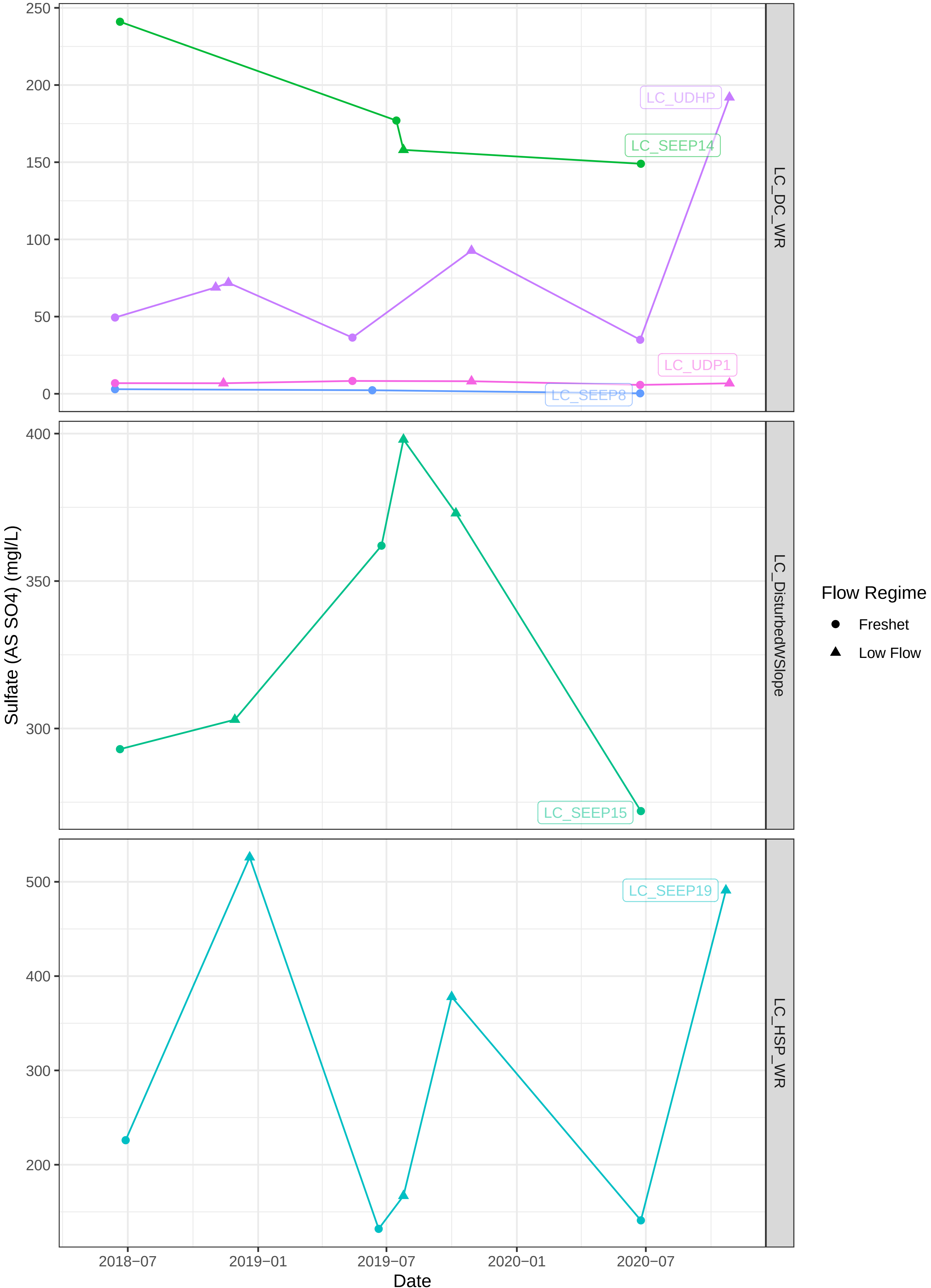
GH_SEEP_60
GH_SEEP_46
GH_SEEP_5
0.002
0.001
GH_THOMPSON_WR
0.0020
0.0015
0.0010
0.0005
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
GH_UPSTREAM_CCR
0.015
0.010
0.005
GH_SEEP_77
GH_SEEP_79
GH_WOLFRAM_WR
Dissolved Molybdenum (mg/L)
2018
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow


LC_SEEP8
LC_SEEP14
LC_UDP1
LC_UDHP
LC_DC_WR
8.5
8.0
7.5
LC_SEEP15
LC_DisturbedWSlope
8.2
8.1
8.0
7.9
7.8
LC_SEEP19
LC_HSP_WR
8.1
7.9
7.7
7.5
Field pH (pH units)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

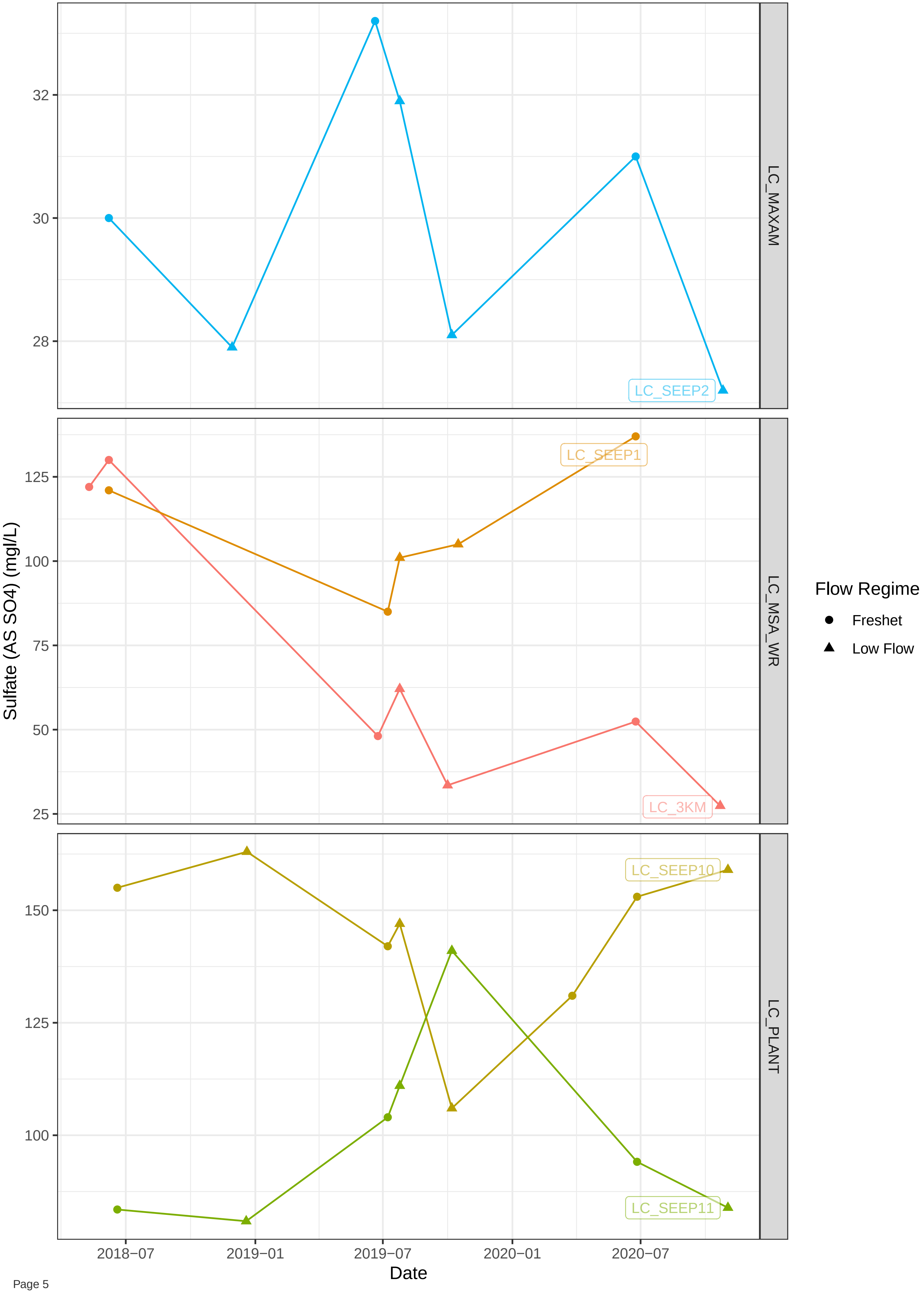

LC_MAXAM
7.9
7.8
7.7
7.6
7.5
7.4
7.3
LC_SEEP2
LC_MSA_WR
8.4
8.2
8.0
7.8
LC_3KM
LC_SEEP1
LC_PLANT
8.00
7.75
7.50
7.25
7.00
LC_SEEP11
LC_SEEP10
Field pH (pH units)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow



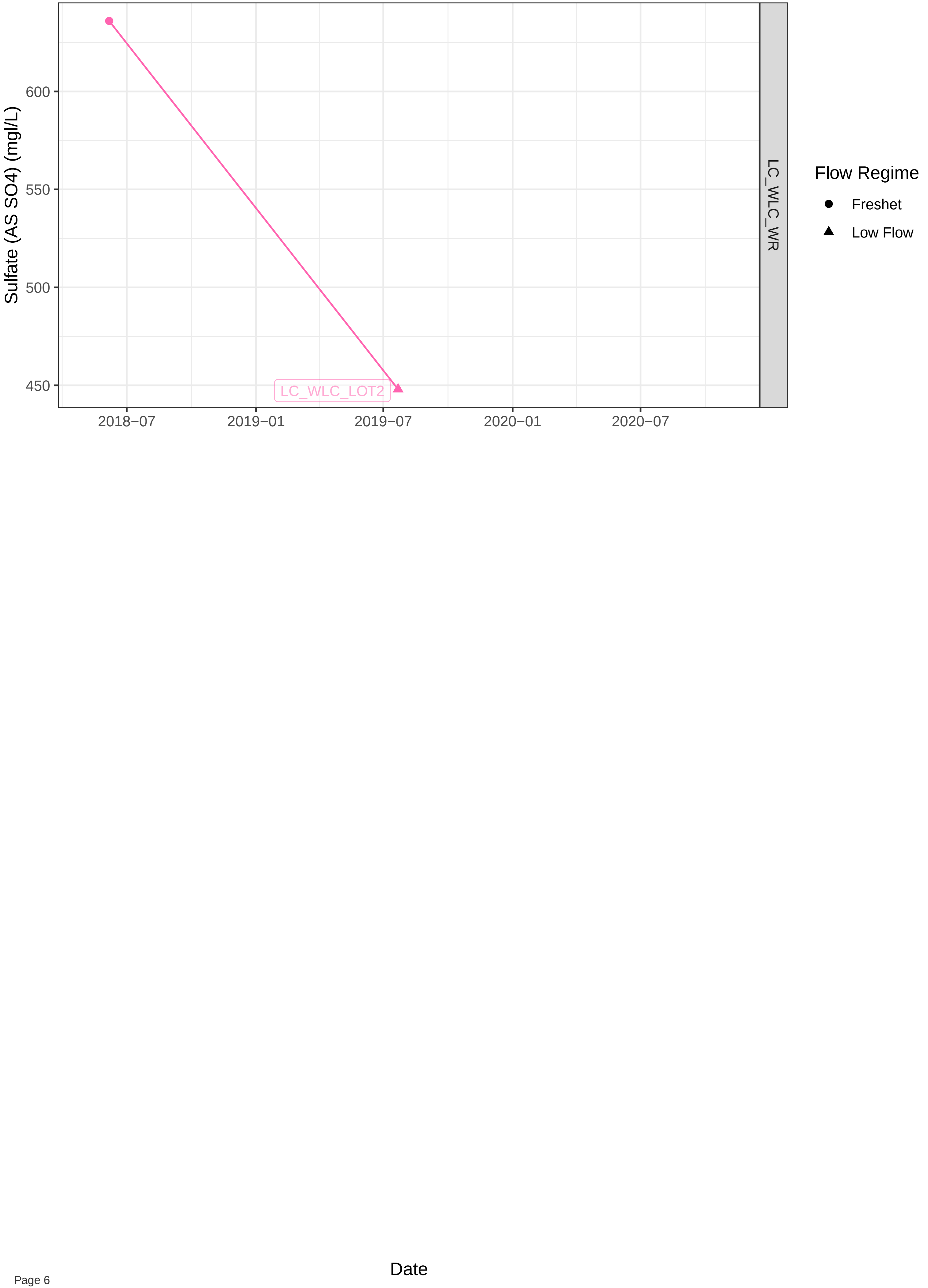
Field pH (pH units)
7.580
7.575
7.570
7.565
7.560
LC_WLC_LOT2
2018−07
2019−01
2019−07
2020−01
2020−07
LC_WLC_WR
Flow Regime
● Freshet
▲ Low Flow
Date

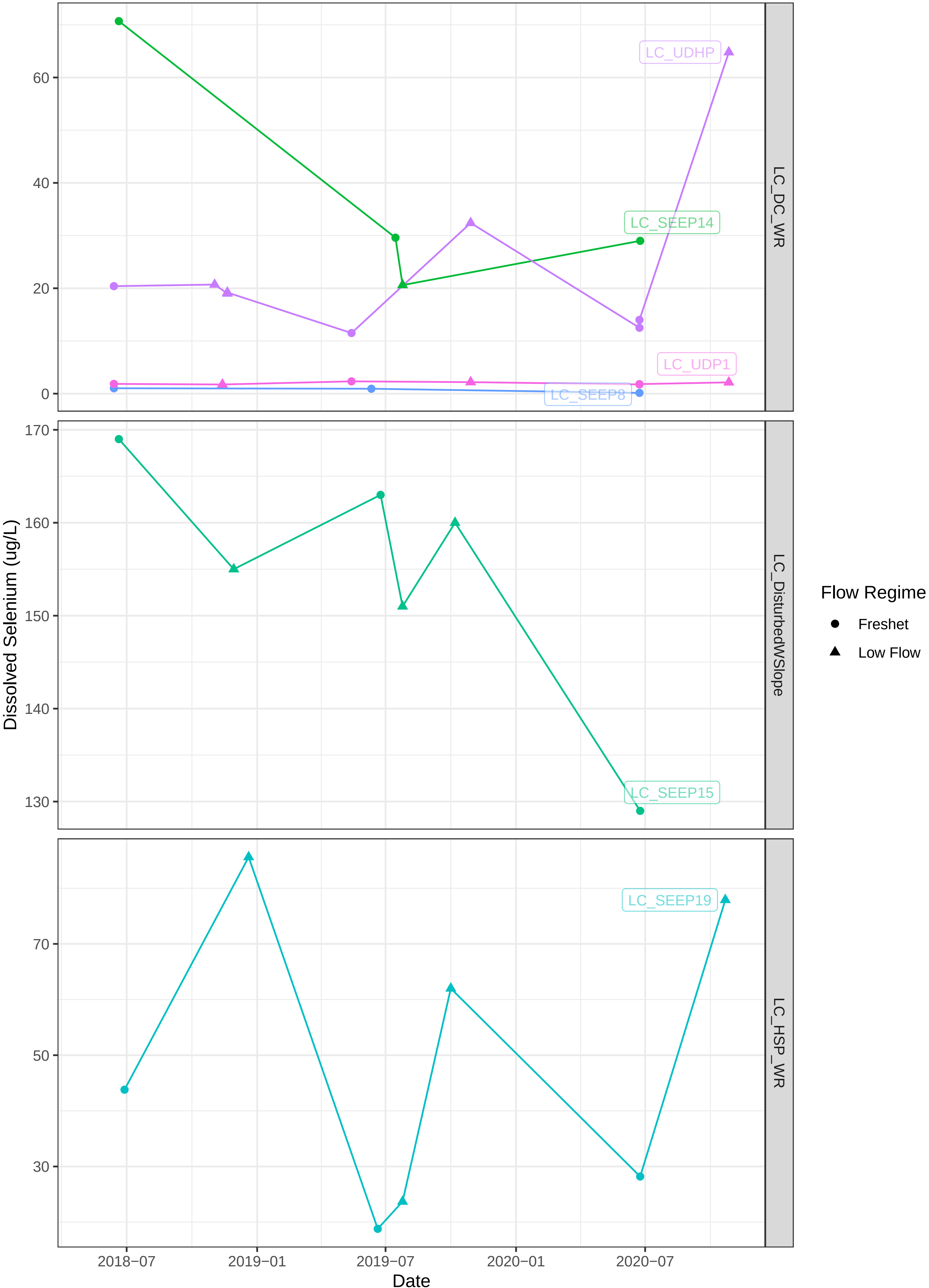


Sulfate (AS SO4) (mg/L)
250
200
150
100
50
0
LC_UDHP
LC_SEEP14
LC_UDP1
LC_SEEP8
LC_DC_WR
400
350
300
LC_SEEP15
LC_DisturbedWSlope
500
400
300
200
LC_SEEP19
LC_HSP_WR
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

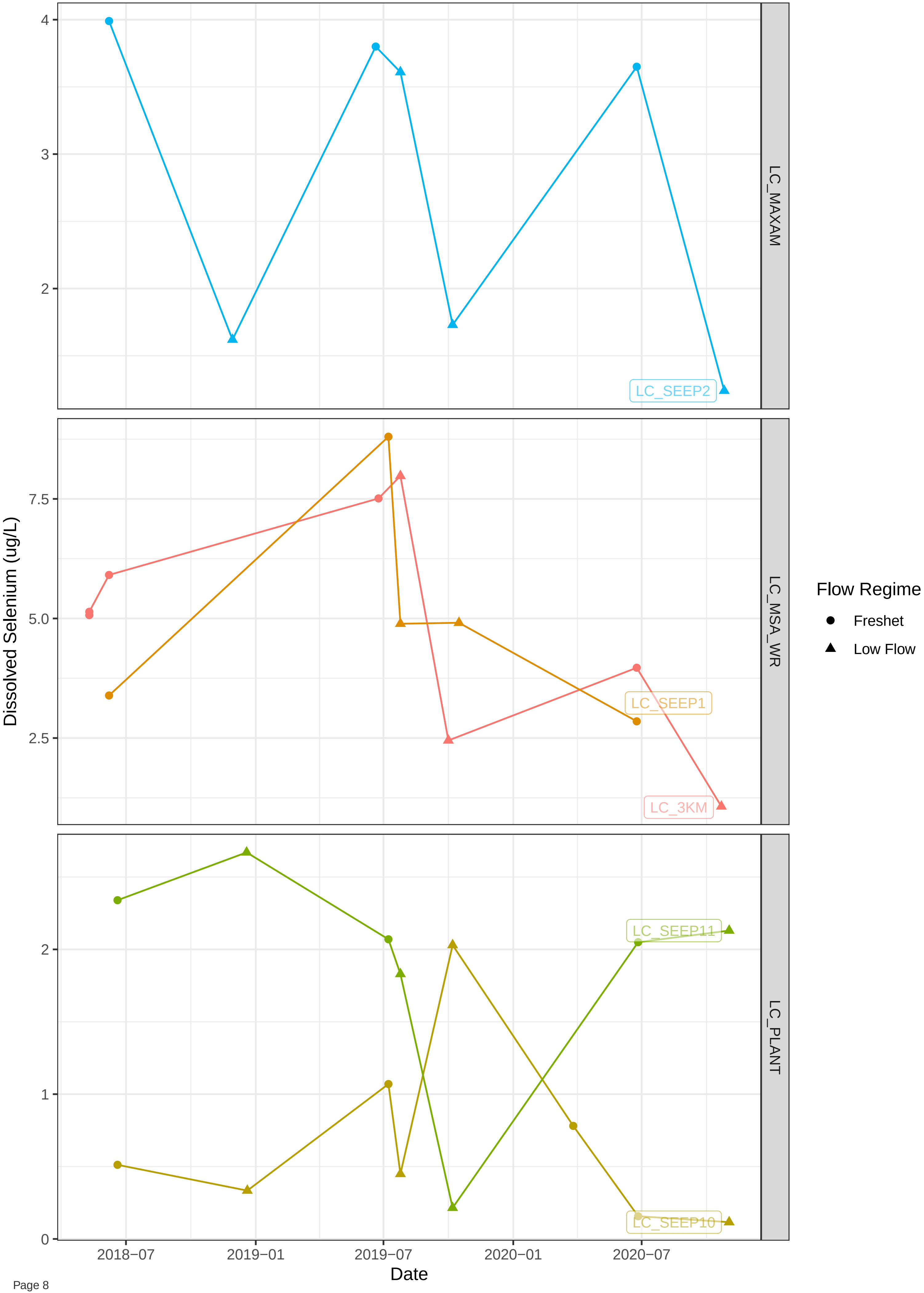


32
30
28
LC_SEEP2
LC_MAXAM
125
100
75
50
25
LC_SEEP1
LC_3KM
LC_MSA_WR
150
125
100
LC_SEEP10
LC_SEEP11
LC_PLANT
Sulfate (AS SO4) (mg/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

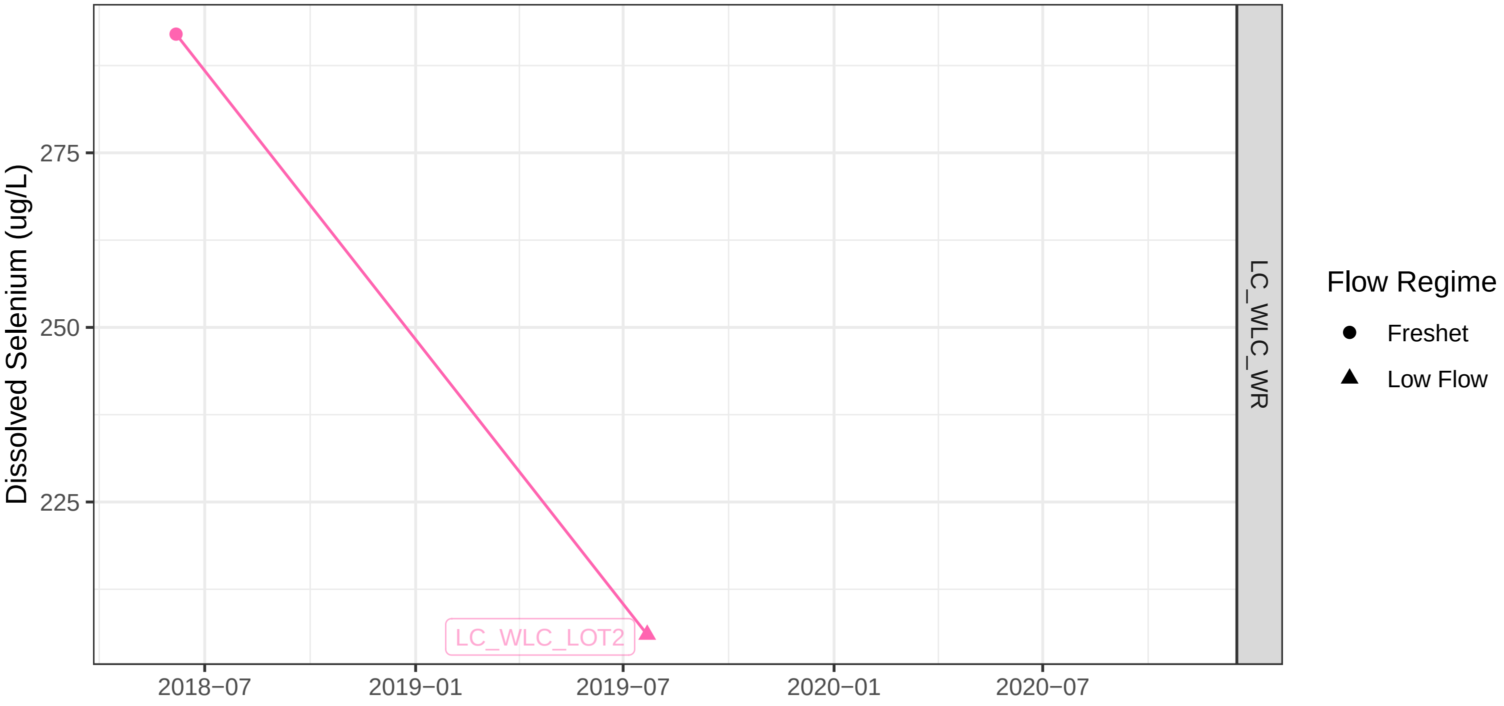

Sulfate (AS SO4) (mg/L)
600
550
500
450
2018−07
2019−01
2019−07
2020−01
2020−07
LC_WLC_LOT2
LC_WLC_WR
Flow Regime
● Freshet
▲ Low Flow
Date



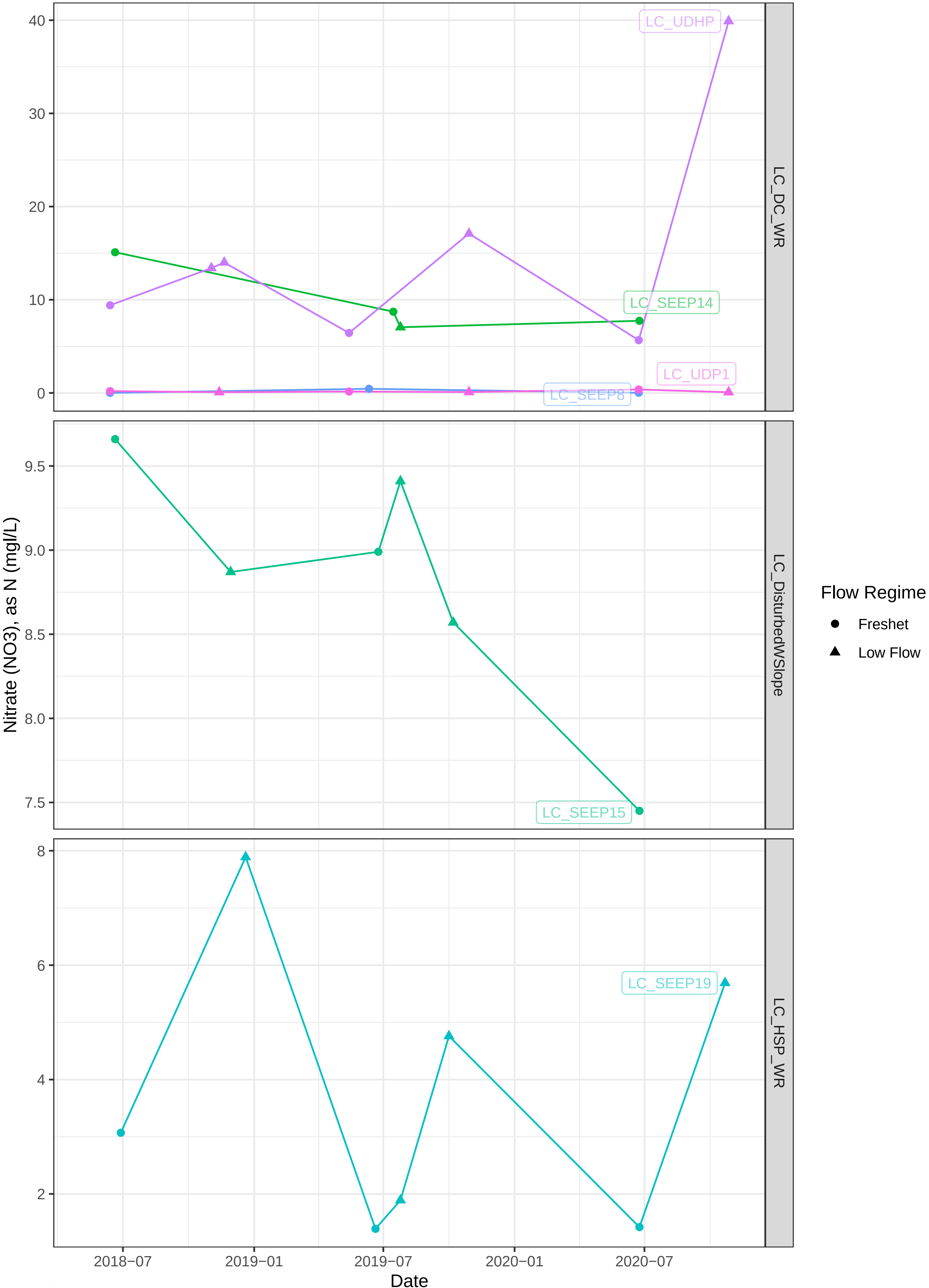
60
40
20
0
LC_UDHP
LC_SEEP14
LC_UDP1
LC_SEEP8
LC_DC_WR
170
160
150
140
130
LC_SEEP15
LC_DisturbedWSlope
70
50
30
LC_SEEP19
LC_HSP_WR
Dissolved Selenium (ug/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow



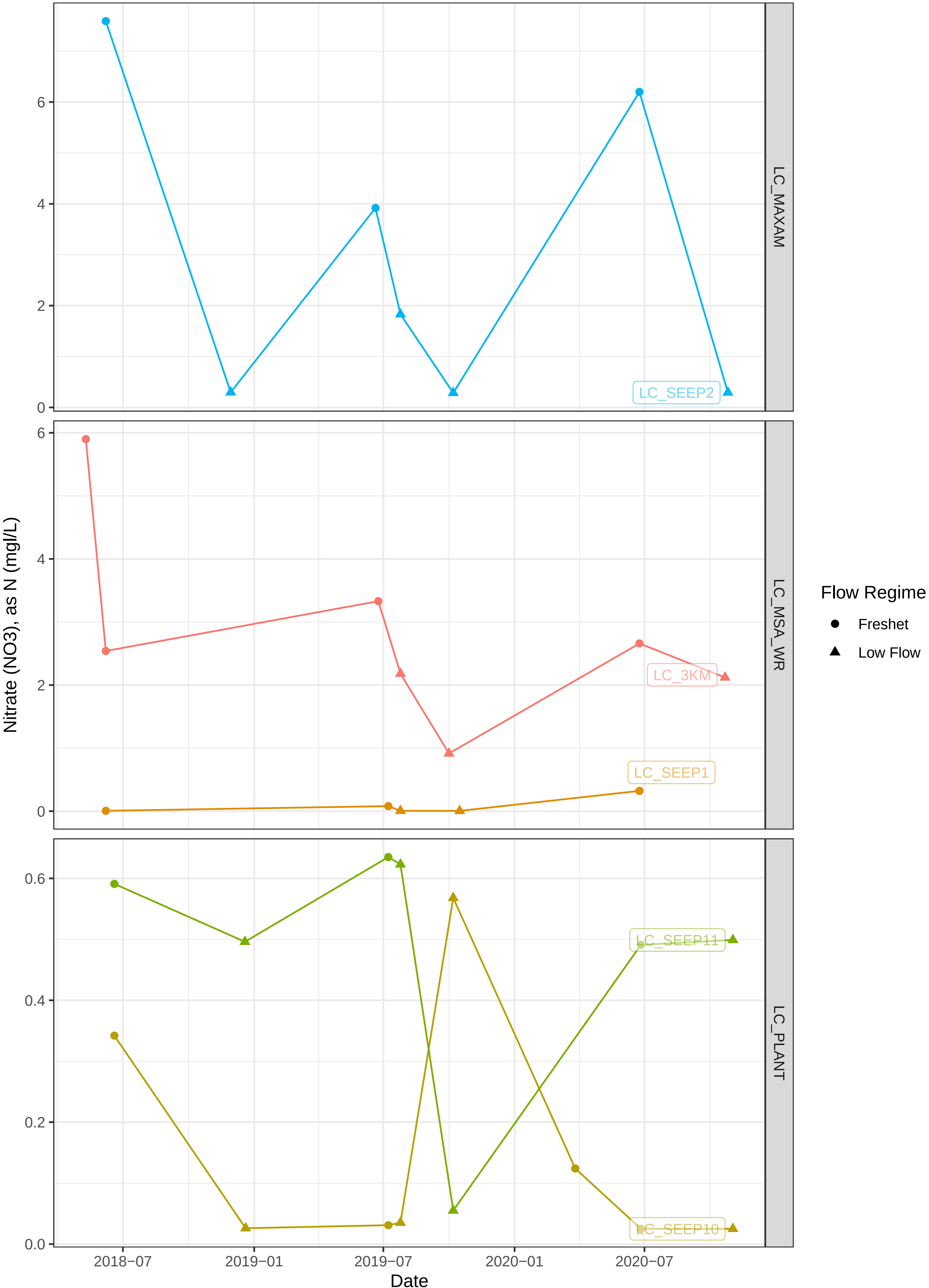
4
3
2
LC_SEEP2
LC_MAXAM
7.5
5.0
2.5
LC_SEEP1
LC_3KM
LC_MSA_WR
2
1
0
LC_SEEP11
LC_SEEP10
LC_PLANT
Dissolved Selenium (ug/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow


Dissolved Selenium (ug/L)
275
250
225
LC_WLC_LOT2
2018−07
2019−01
2019−07
2020−01
2020−07
LC_WLC_WR
Flow Regime
● Freshet
▲ Low Flow

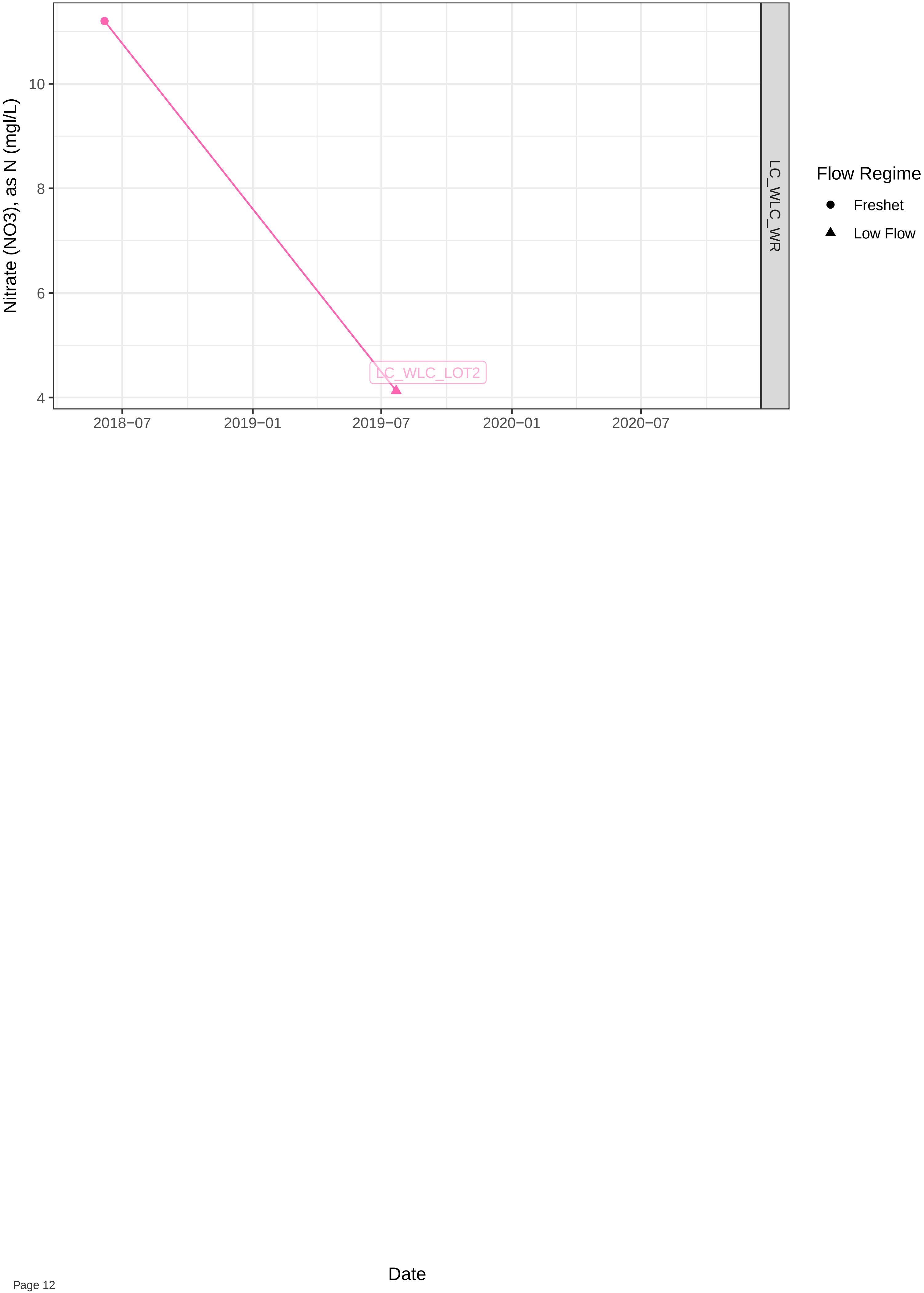
Date

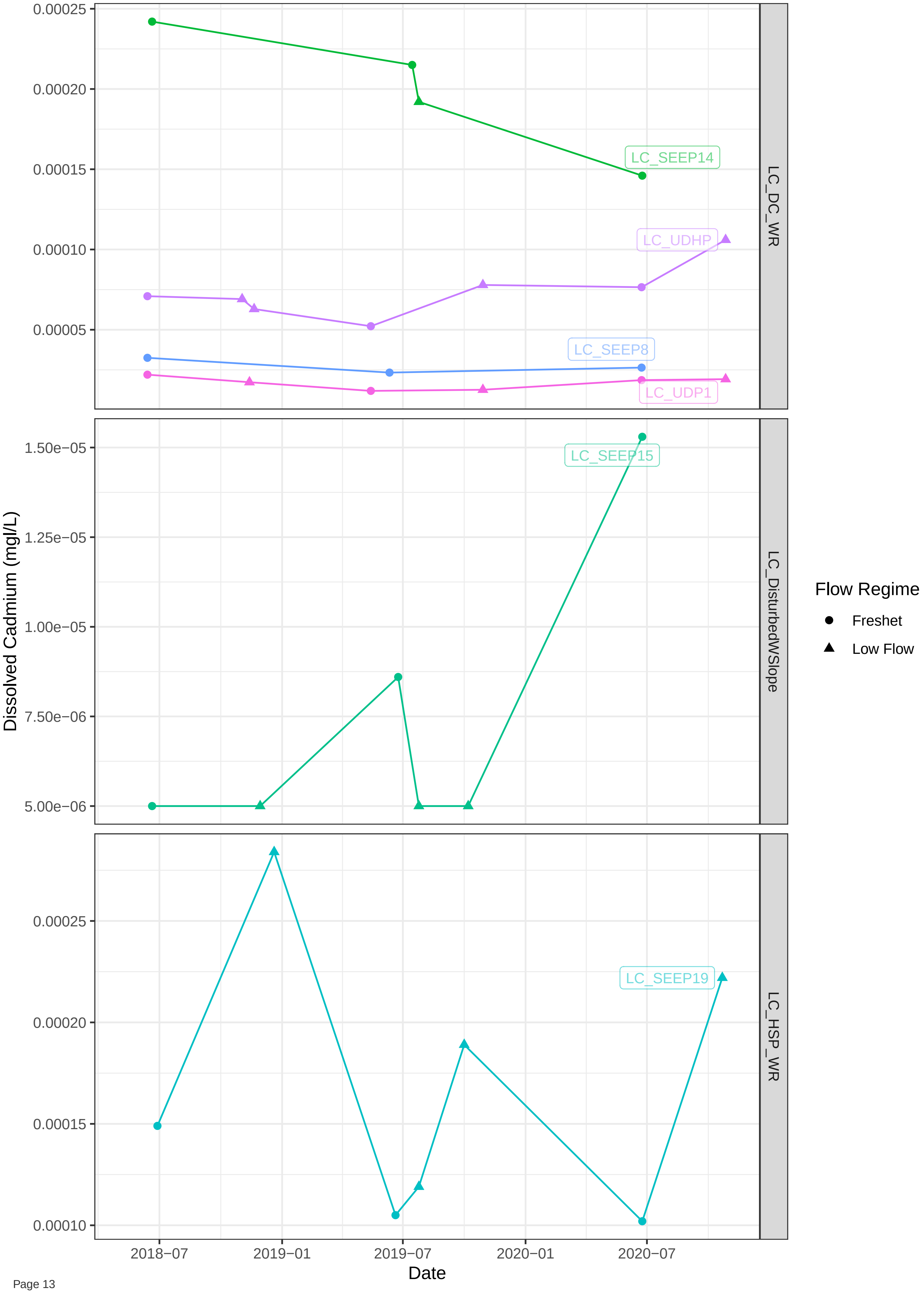


40
30
20
10
0
LC_UDHP
LC_SEEP14
LC_UDP1
LC_SEEP8
LC_DC_WR
9.5
9.0
8.5
8.0
7.5
LC_SEEP15
LC_DisturbedWSlope
8
6
4
2
LC_SEEP19
LC_HSP_WR
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Nitrate (NO3), as N (mgl/L)
Flow Regime
● Freshet
▲ Low Flow

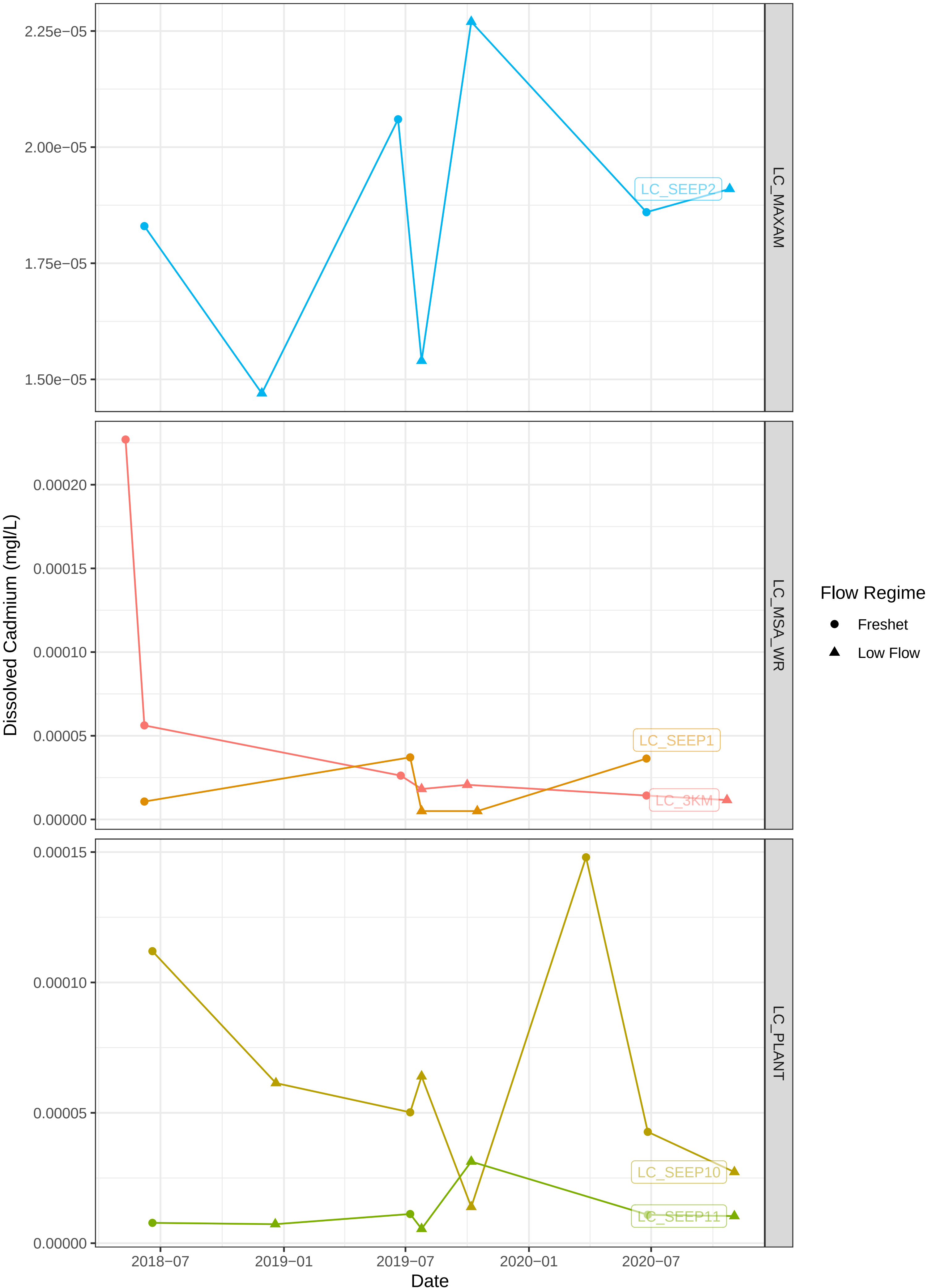


6
4
2
0
LC_SEEP2
LC_MAXAM
6
4
2
0
LC_3KM
LC_SEEP1
LC_MSA_WR
0.6
0.4
0.2
0.0
LC_SEEP11
LC_SEEP10
LC_PLANT
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Nitrate (NO3), as N (mgl/L)
Flow Regime
● Freshet
▲ Low Flow

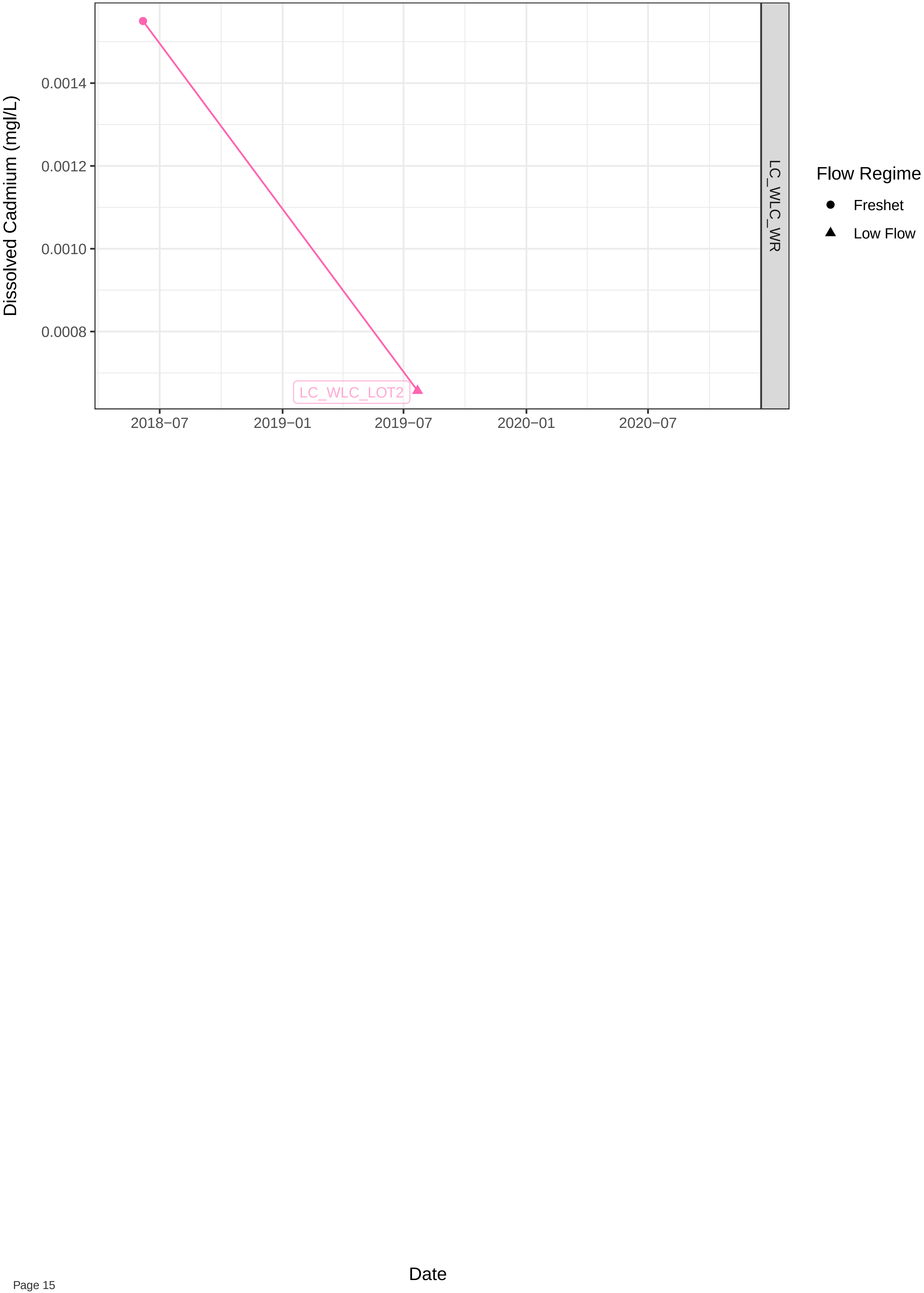

Nitrate (NO3), as N (mgl/L)
10
8
6
4
LC_WLC_LOT2
2018−07
2019−01
2019−07
2020−01
2020−07
LC_WLC_WR
Flow Regime
● Freshet
▲ Low Flow
Date

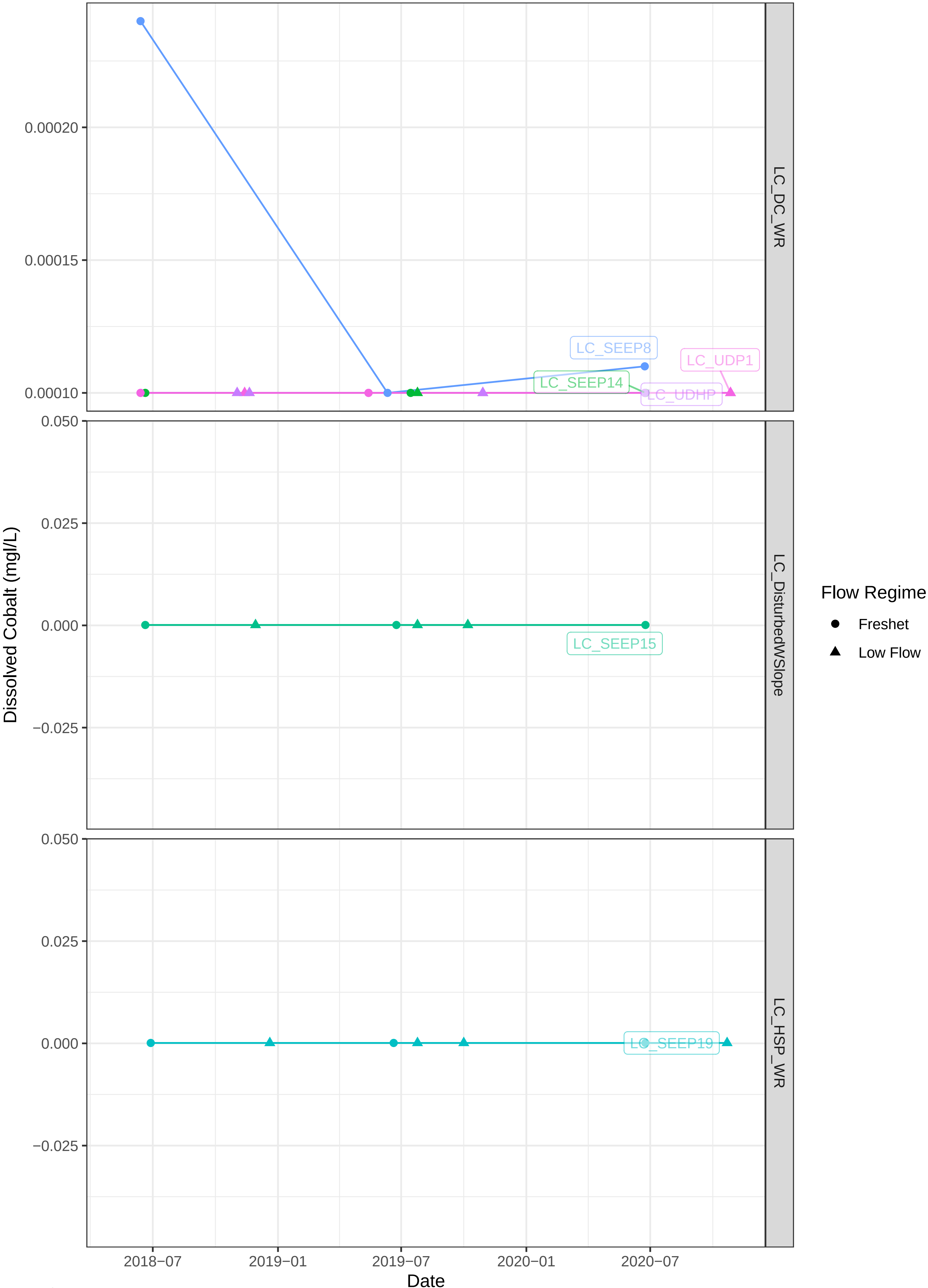


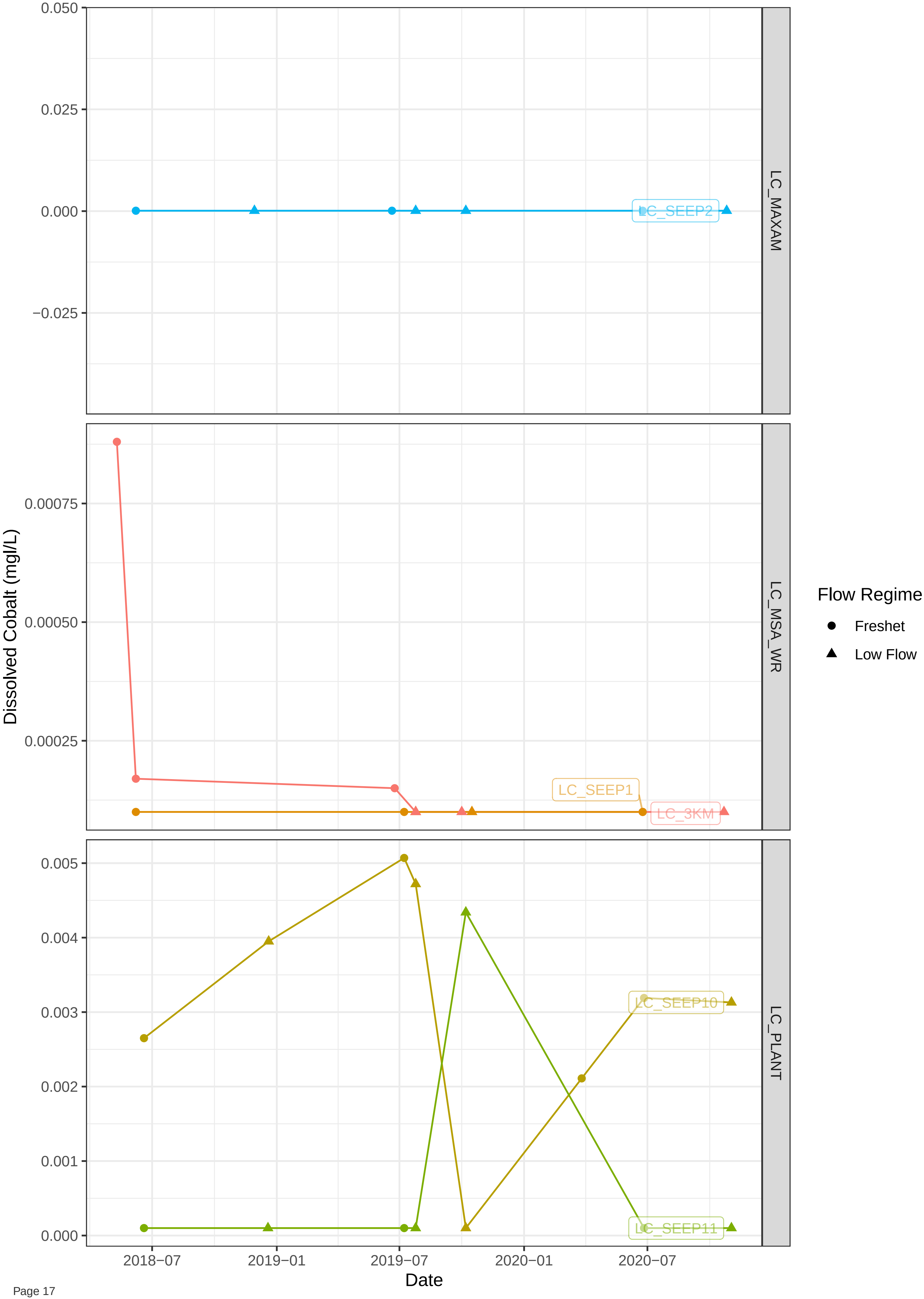
0.00025
0.00020
0.00015
0.00010
0.00005
LC_SEEP14
LC_UDHP
LC_SEEP8
LC_UDP1
LC_DC_WR
1.50e−05
1.25e−05
1.00e−05
7.50e−06
5.00e−06
LC_SEEP15
LC_DisturbedWSlope
0.00025
0.00020
0.00015
0.00010
LC_SEEP19
LC_HSP_WR
Dissolved Cadmium (mgl/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

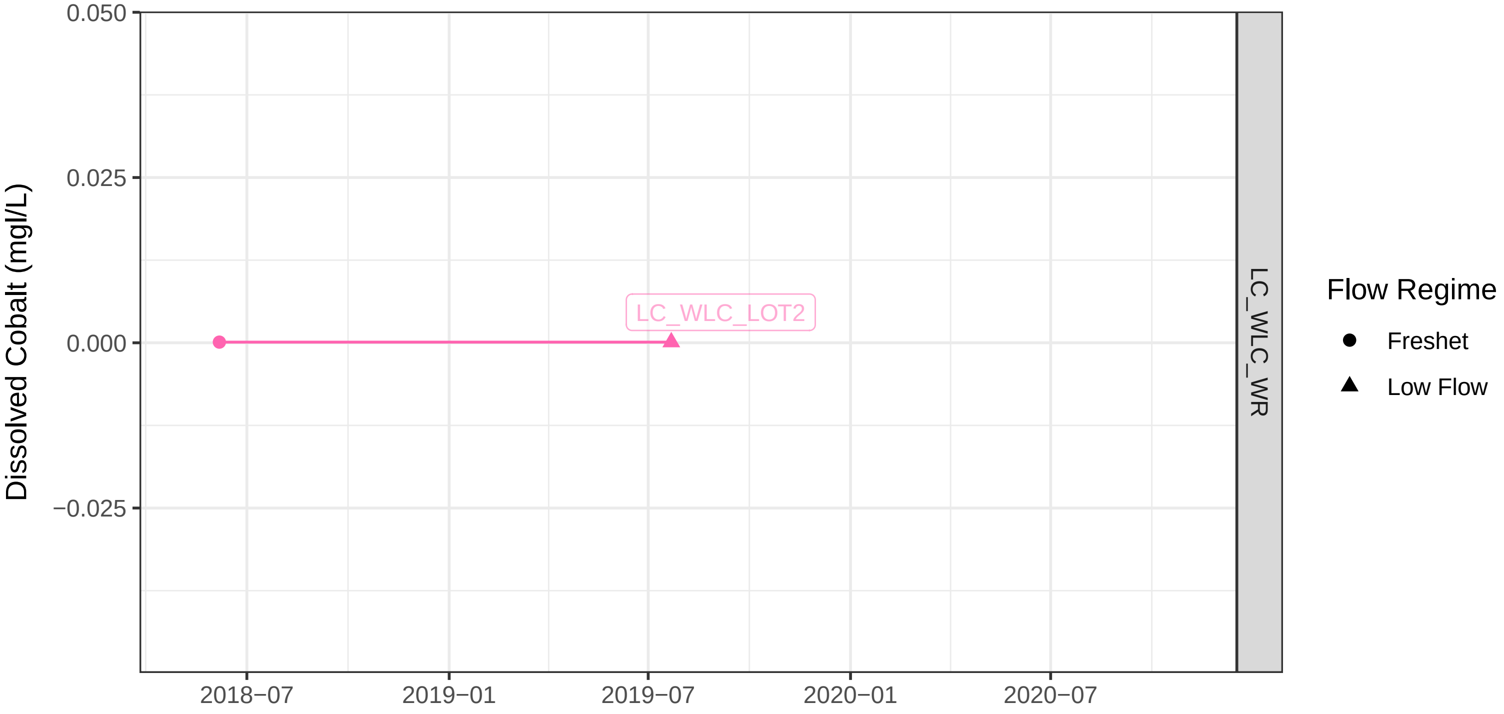


2.25e−05
2.00e−05
1.75e−05
1.50e−05
LC_SEEP2
LC_MAXAM
0.00020
0.00015
0.00010
0.00005
0.00000
LC_SEEP1
LC_3KM
LC_MSA_WR
0.00015
0.00010
0.00005
0.00000
LC_SEEP10
LC_SEEP11
LC_PLANT
Dissolved Cadmium (mg/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow


Dissolved Cadmium (mg/L)
0.0014
0.0012
0.0010
0.0008
LC_WLC_LOT2
2018−07
2019−01
2019−07
2020−01
2020−07
LC_WLC_WR
Flow Regime
● Freshet
▲ Low Flow
Date

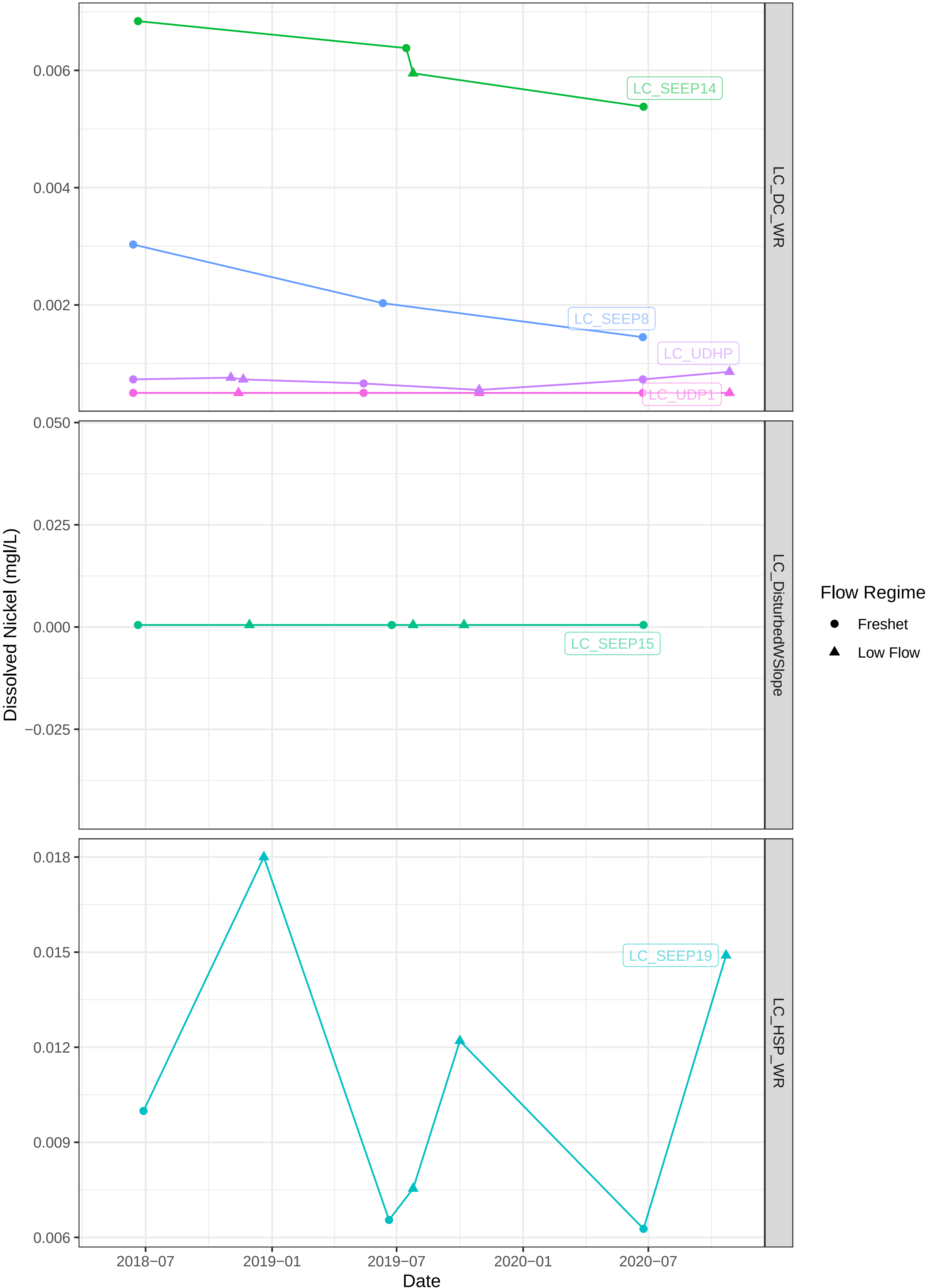

0.00020
0.00015
0.00010
LC_SEEP8
LC_UDP1
LC_SEEP14
LC_UDHP
LC_DC_WR
0.050
0.025
0.000
−0.025
LC_SEEP15
LC_DisturbedWSlope
0.050
0.025
0.000
−0.025
LC_SEEP19
LC_HSP_WR
Dissolved Cobalt (mg/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow


0.050
0.025
0.000
−0.025
LC_SEEP2
LC_MAXAM
0.00075
0.00050
0.00025
LC_SEEP1
LC_3KM
LC_MSA_WR
0.005
0.004
0.003
0.002
0.001
0.000
LC_SEEP10
LC_SEEP11
LC_PLANT
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Dissolved Cobalt (mgl/L)
Flow Regime
● Freshet
▲ Low Flow

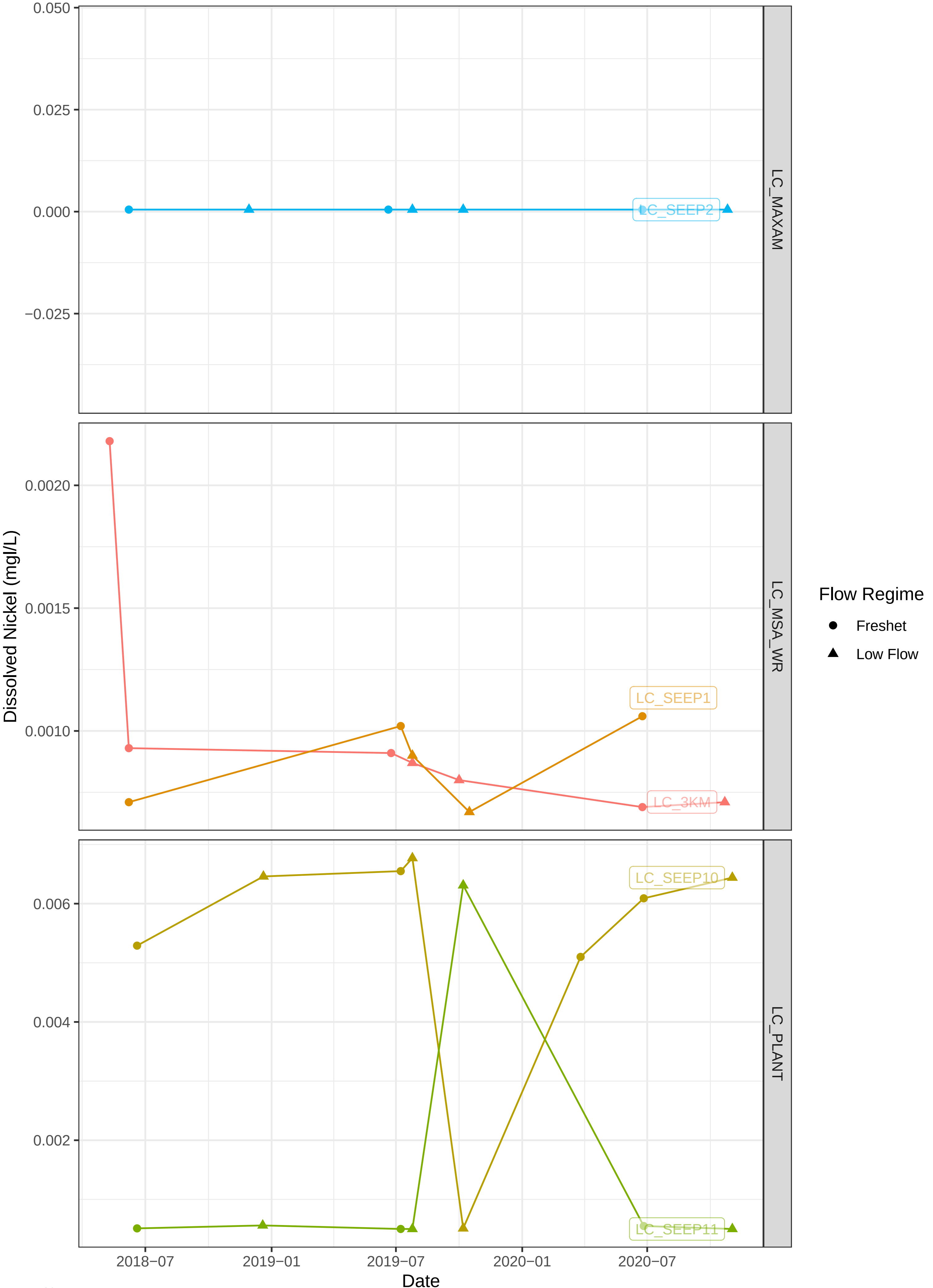


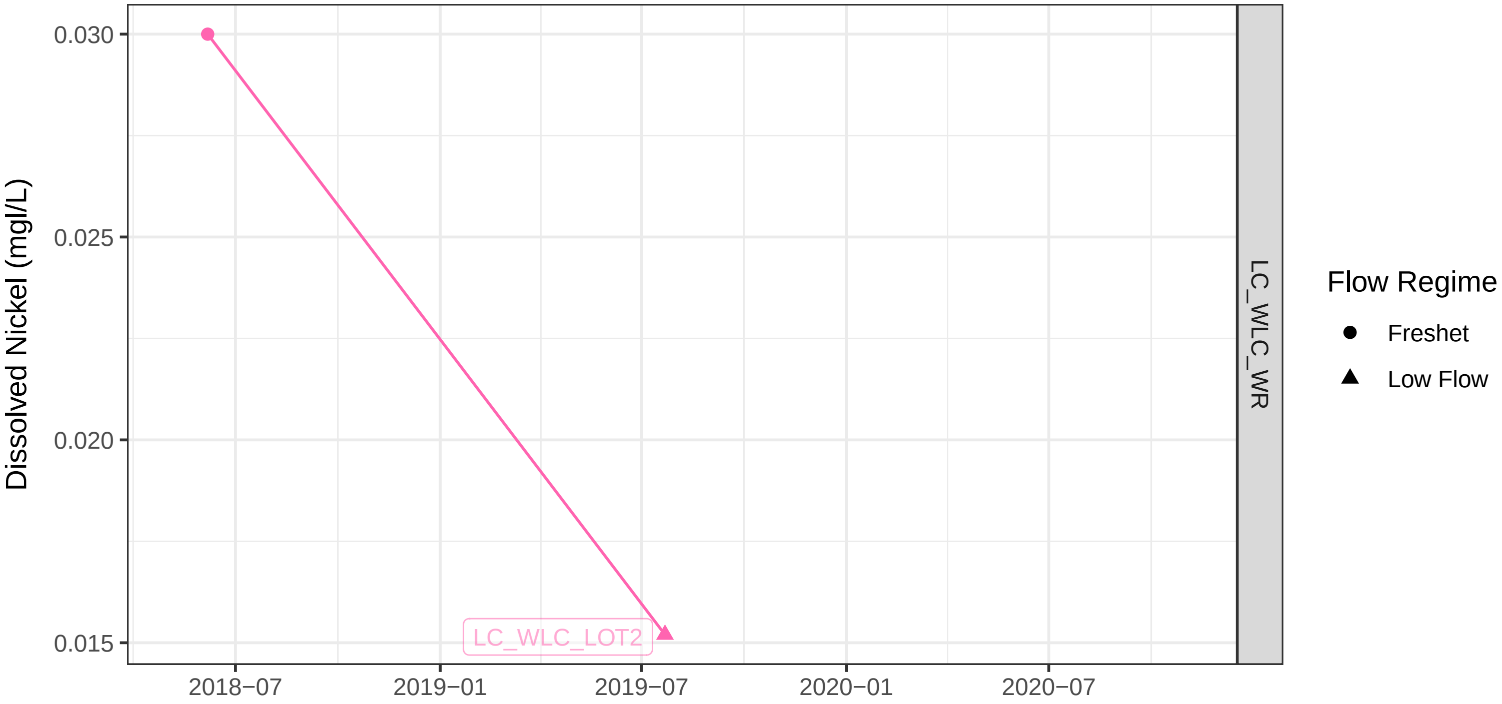
Dissolved Cobalt (mgl/L)
0.050
0.025
0.000
−0.025
2018−07
2019−01
2019−07
2020−01
2020−07
LC_WLC_LOT2
LC_WLC_WR
Flow Regime
● Freshet
▲ Low Flow

Date

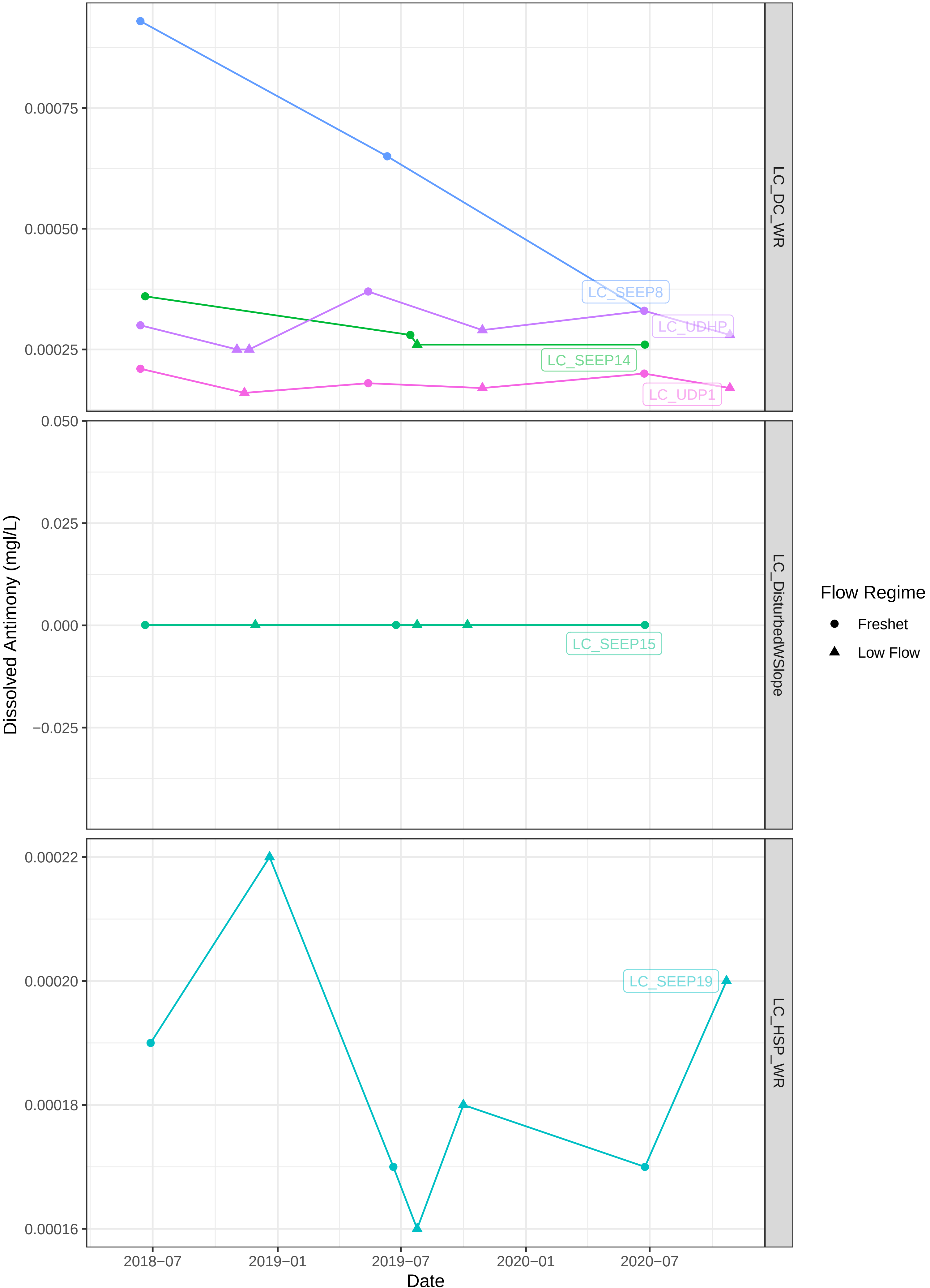


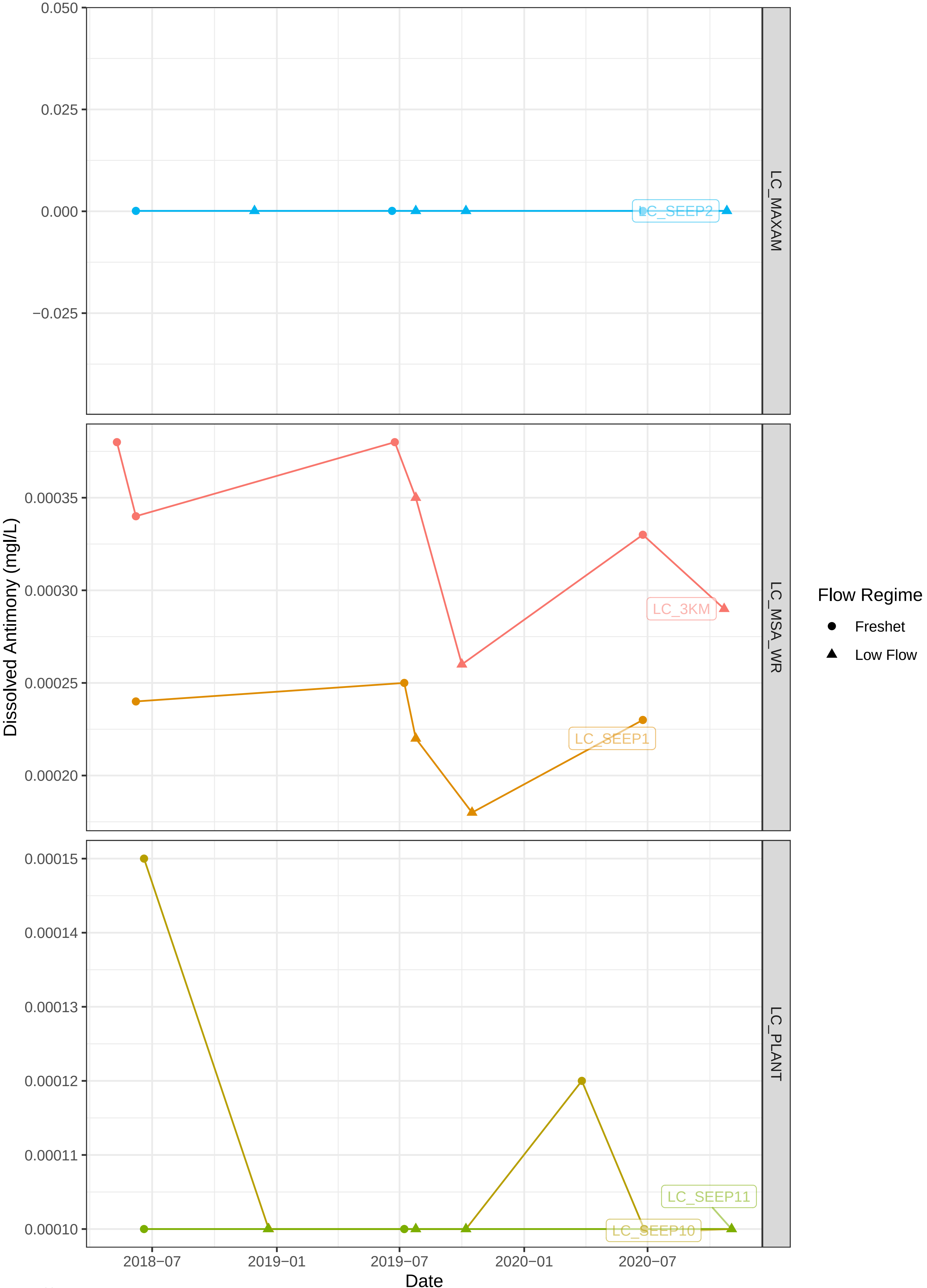
0.006
0.004
0.002
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
LC_DC_WR
0.050
0.025
0.000
−0.025
LC_SEEP15
LC_DisturbedWSlope
0.018
0.015
0.012
0.009
0.006
LC_SEEP19
LC_HSP_WR
Dissolved Nickel (mgl/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

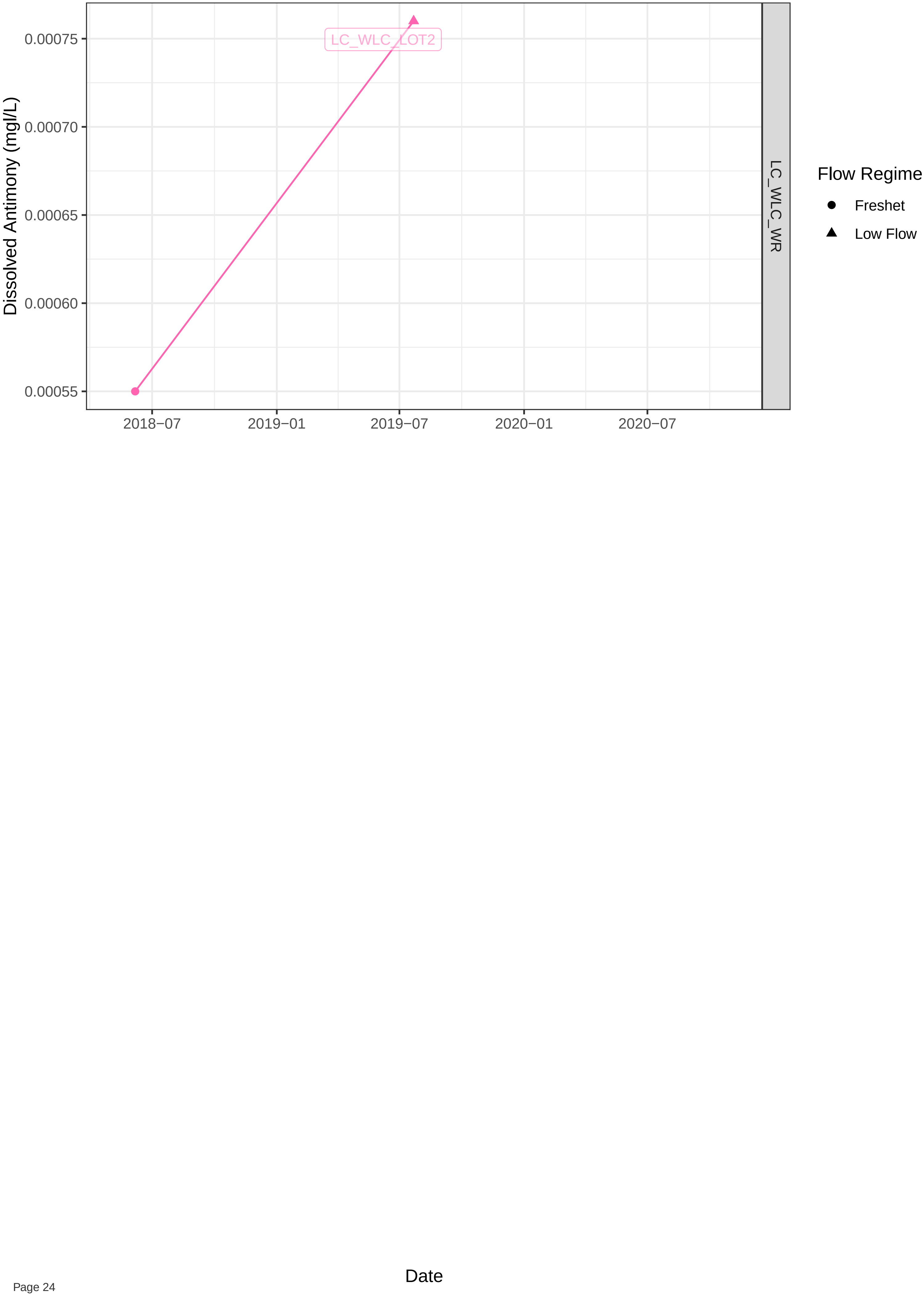

0.050
0.025
0.000
−0.025
LC_SEEP2
LC_MAXAM
0.0020
0.0015
0.0010
LC_SEEP1
LC_3KM
LC_MSA_WR
0.006
0.004
0.002
LC_SEEP10
LC_SEEP11
LC_PLANT
Dissolved Nickel (mgl/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

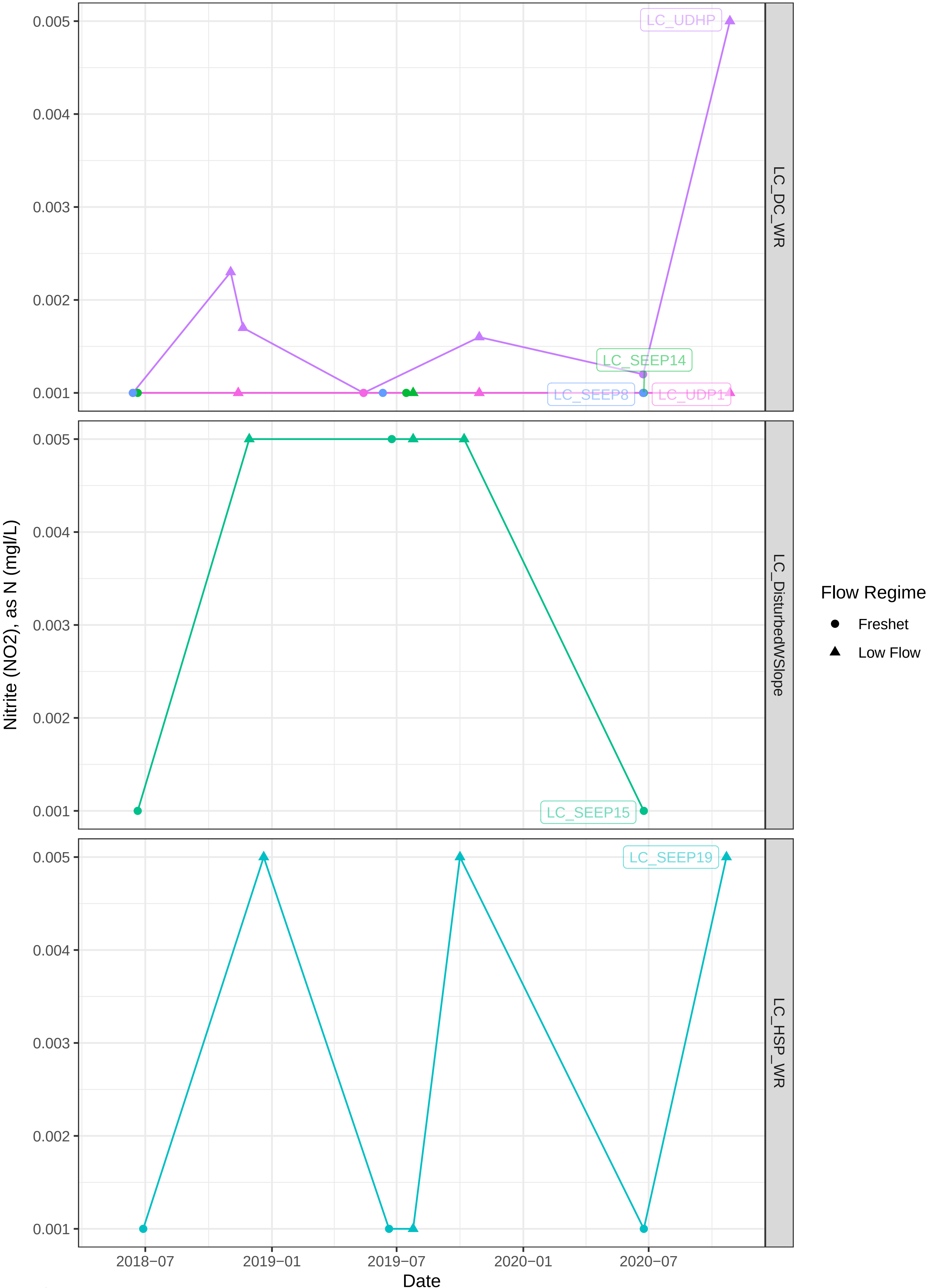

Dissolved Nickel (mgl/L)
0.030
0.025
0.020
0.015
LC_WLC_LOT2
2018−07
2019−01
2019−07
2020−01
2020−07
LC_WLC_WR
Flow Regime
● Freshet
▲ Low Flow

Date

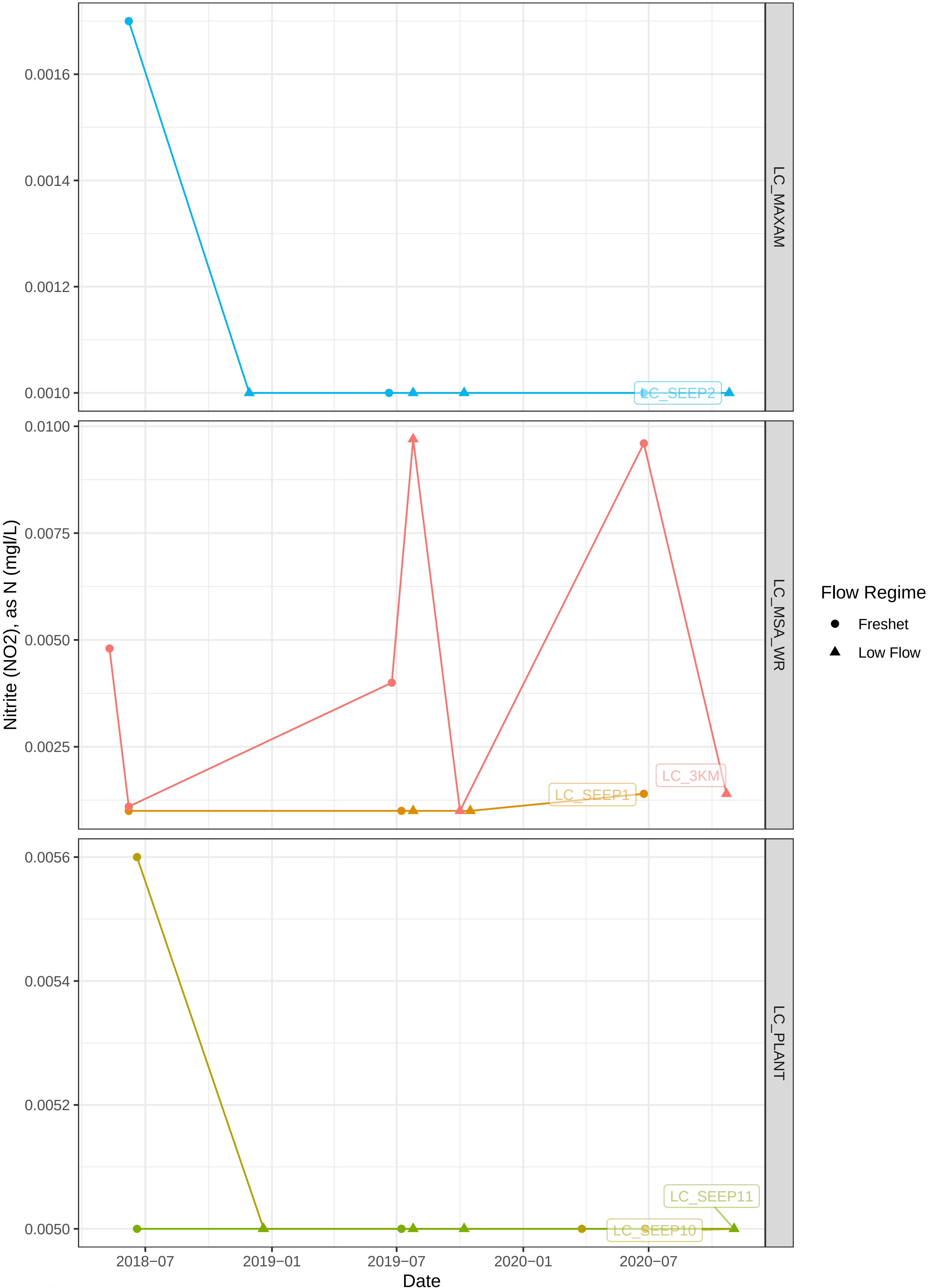

0.00075
0.00050
0.00025
LC_SEEP8
LC_UDHP
LC_SEEP14
LC_UDP1
LC_DC_WR
0.050
0.025
0.000
−0.025
LC_SEEP15
LC_DisturbedWSlope
0.00022
0.00020
0.00018
0.00016
LC_SEEP19
LC_HSP_WR
Dissolved Antimony (mgl/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow


0.050
0.025
0.000
−0.025
LC_SEEP2
LC_MAXAM
0.00035
0.00030
0.00025
0.00020
LC_3KM
LC_SEEP1
LC_MSA_WR
0.00015
0.00014
0.00013
0.00012
0.00011
0.00010
LC_SEEP11
LC_SEEP10
LC_PLANT
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Dissolved Antimony (mgl/L)
Flow Regime
● Freshet
▲ Low Flow

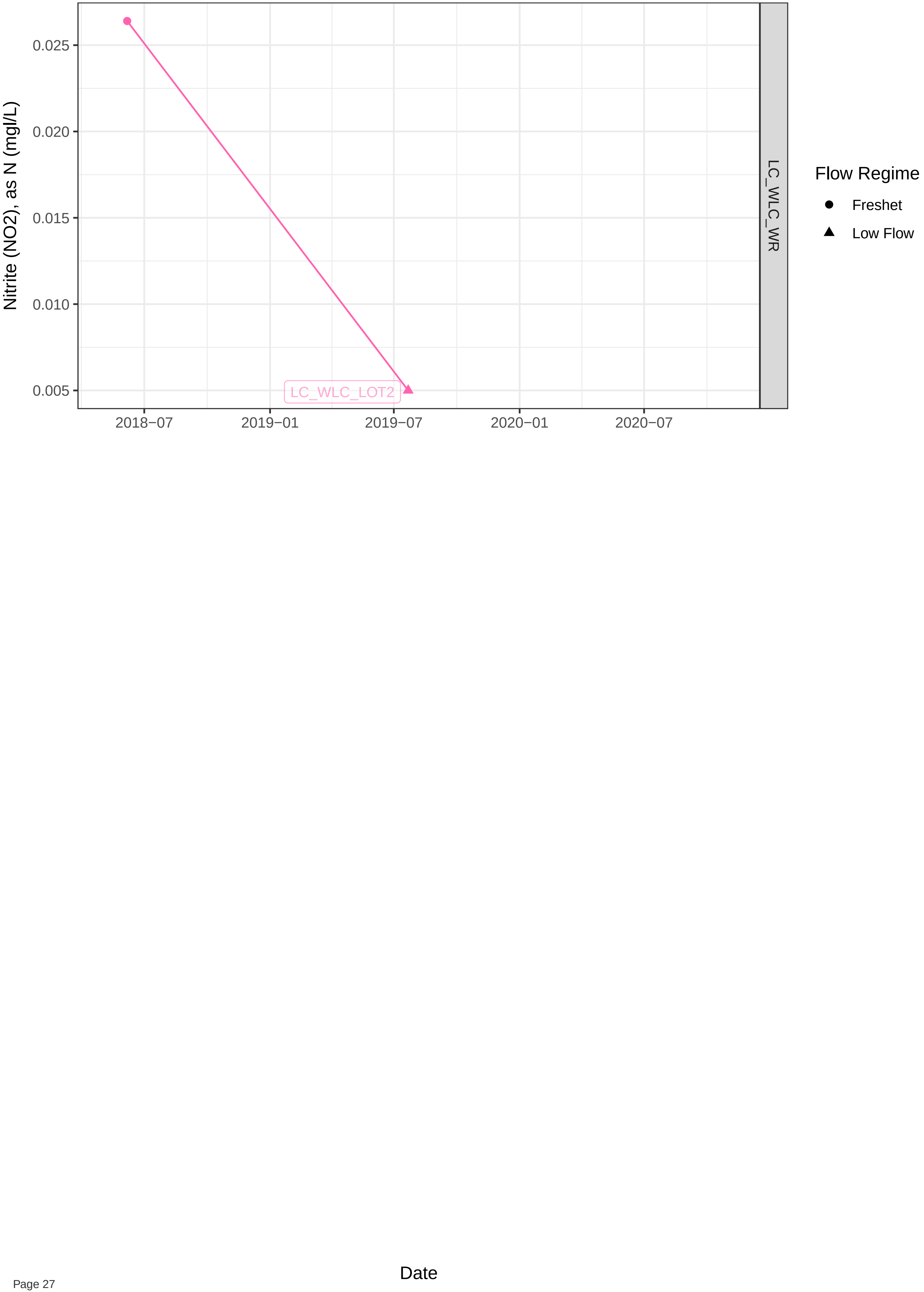

0.00075
0.00070
0.00065
0.00060
0.00055
Dissolved Antimony (mgl/L)
LC_WLC_LOT2
2018−07
2019−01
2019−07
2020−01
2020−07
LC_WLC_WR
Flow Regime
● Freshet
▲ Low Flow
Date

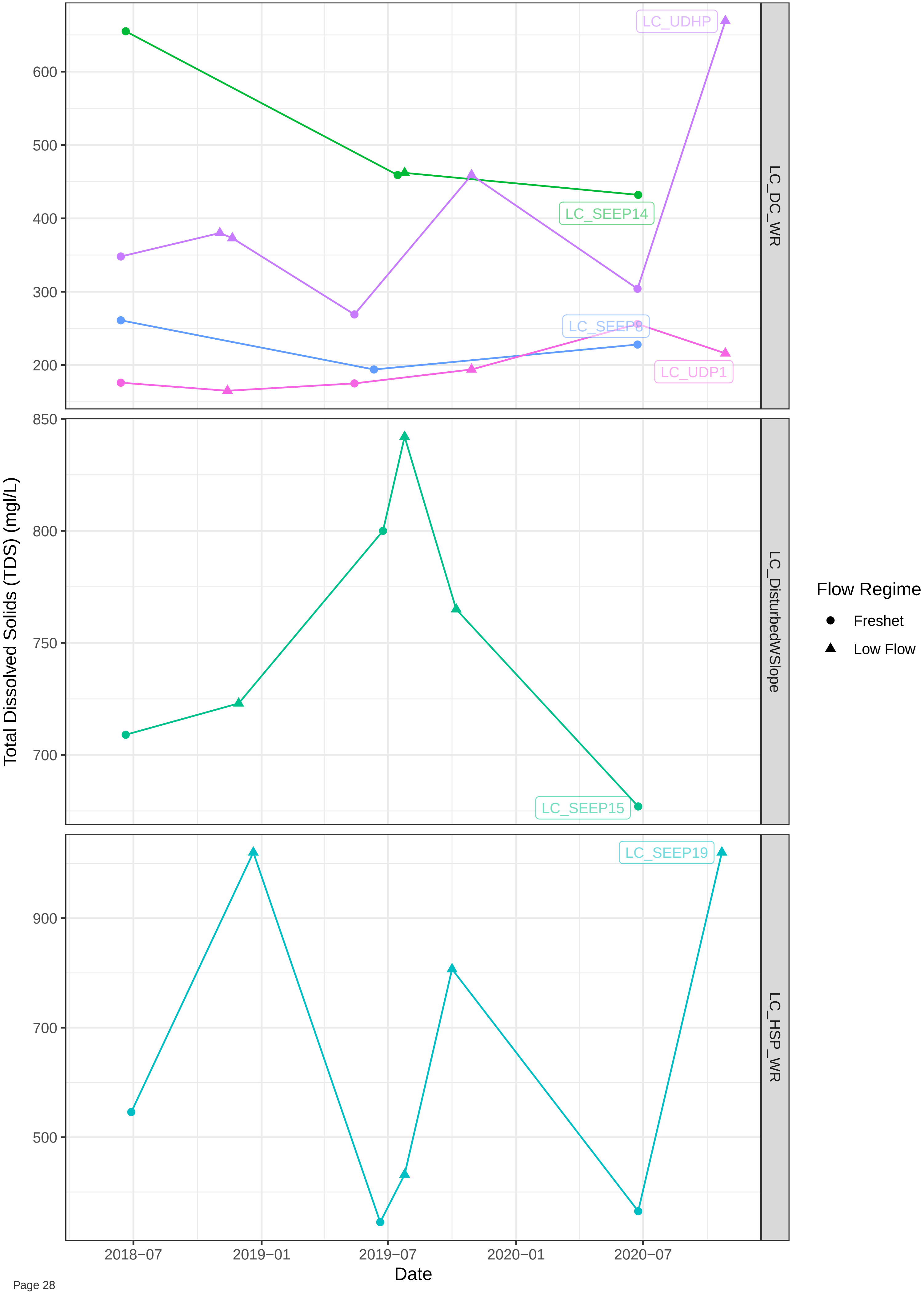


0.005
0.004
0.003
0.002
0.001
LC_UDHP
LC_SEEP14
LC_SEEP8
LC_UDP14
LC_DC_WR
LC_SEEP15
LC_DisturbedWSlope
LC_SEEP19
LC_HSP_WR
Nitrite (NO2), as N (mgl/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

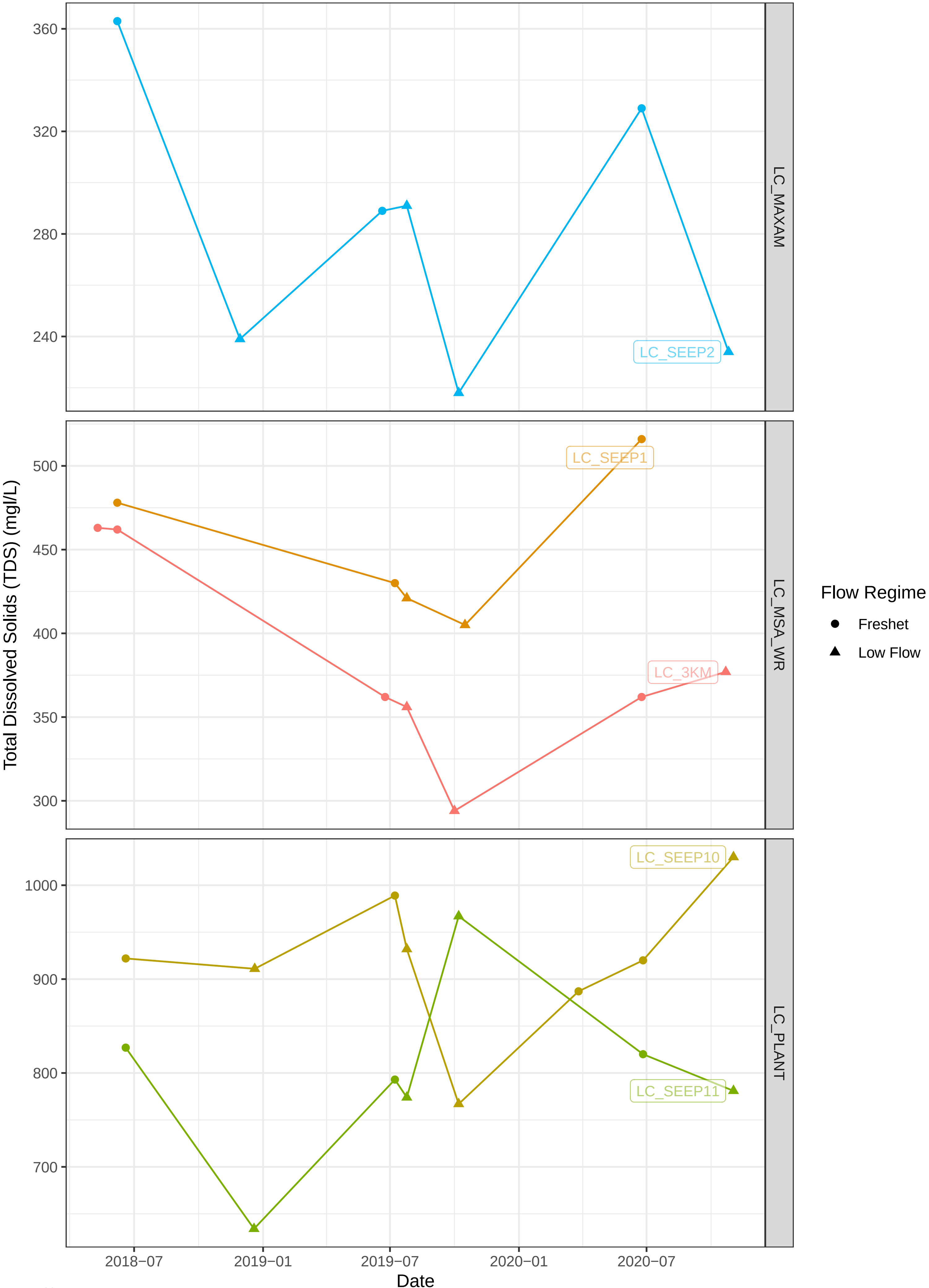


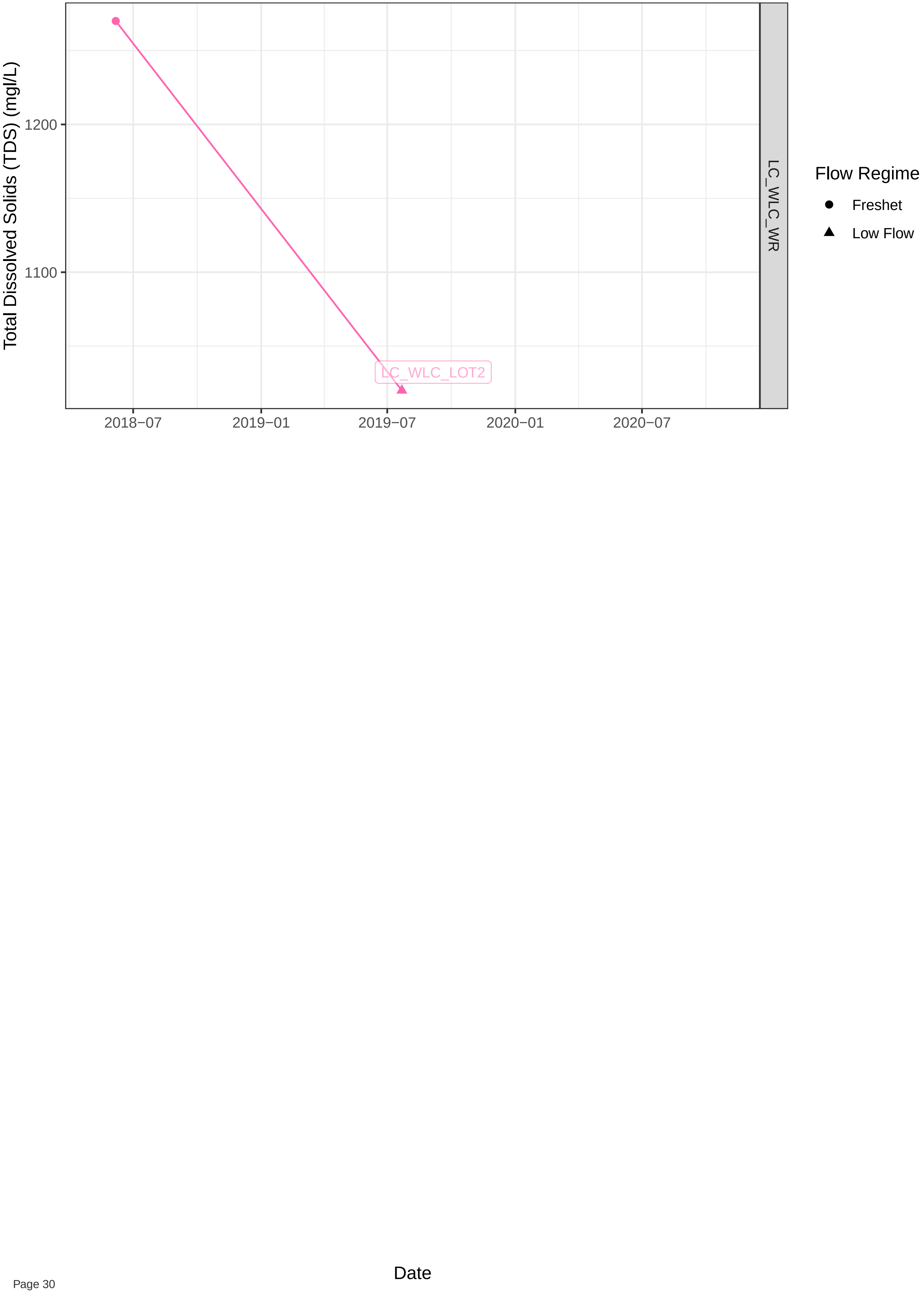
0.0016
0.0014
0.0012
0.0010
LC_SEEP2
LC_MAXAM
0.0100
0.0075
0.0050
0.0025
LC_3KM
LC_SEEP1
LC_MSA_WR
0.0056
0.0054
0.0052
0.0050
LC_SEEP11
LC_SEEP10
LC_PLANT
Nitrite (NO2), as N (mgl/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

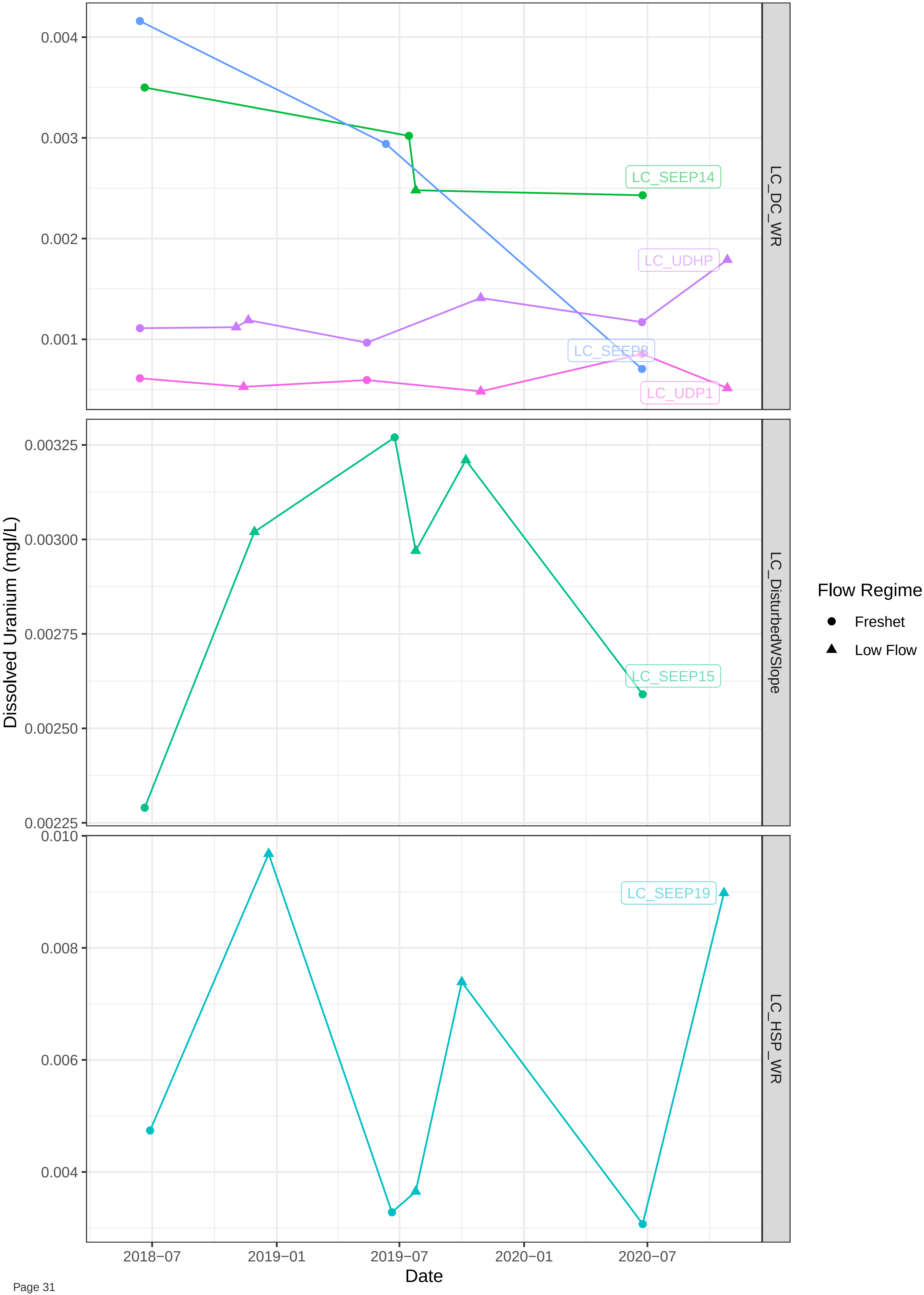

Nitrite (NO2), as N (mgl/L)
0.025
0.020
0.015
0.010
0.005
LC_WLC_LOT2
2018−07
2019−01
2019−07
2020−01
2020−07
LC_WLC_WR
Flow Regime
● Freshet
▲ Low Flow
Date

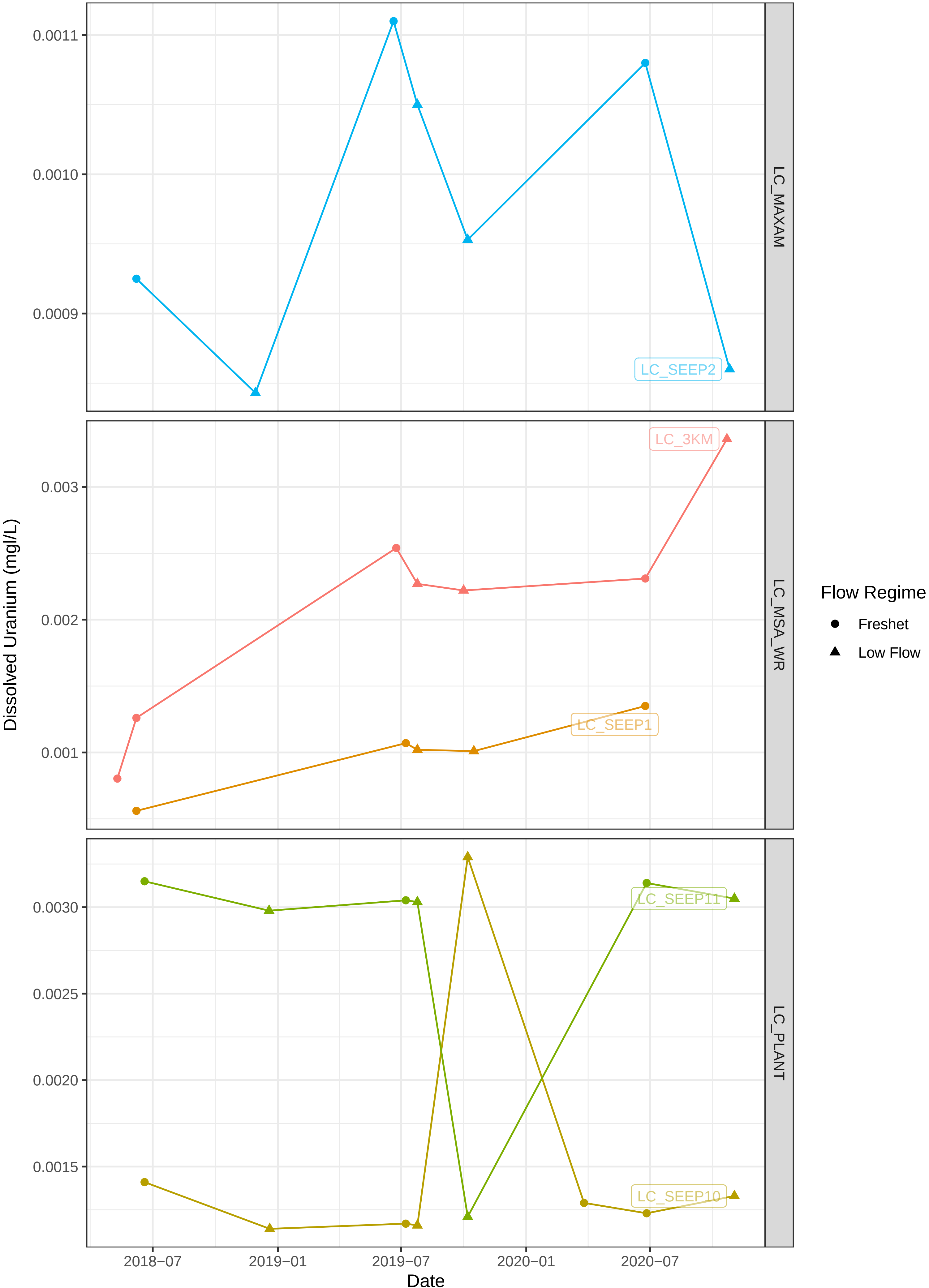


LC_UDHP
LC_SEEP14
LC_SEEP8
LC_UDP1
LC_SEEP15
LC_SEEP19
LC_DC_WR
LC_DisturbedWSlope
LC_HSP_WR
600
500
400
300
200
850
800
750
700
900
700
500
Total Dissolved Solids (TDS) (mgl/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

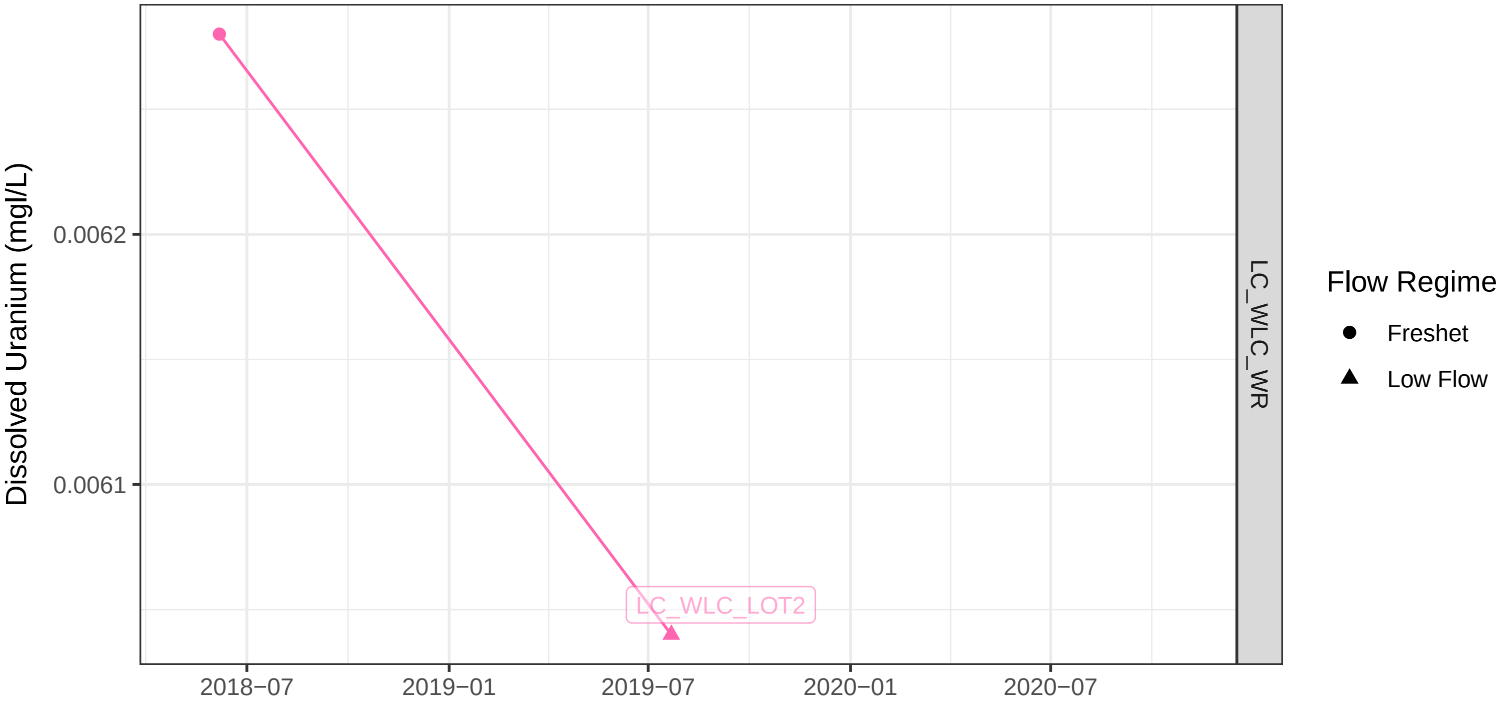

360
320
280
240
LC_SEEP2
LC_MAXAM
500
450
400
350
300
LC_SEEP1
LC_3KM
LC_MSA_WR
1000
900
800
700
LC_SEEP10
LC_SEEP11
LC_PLANT
Total Dissolved Solids (TDS) (mgl/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

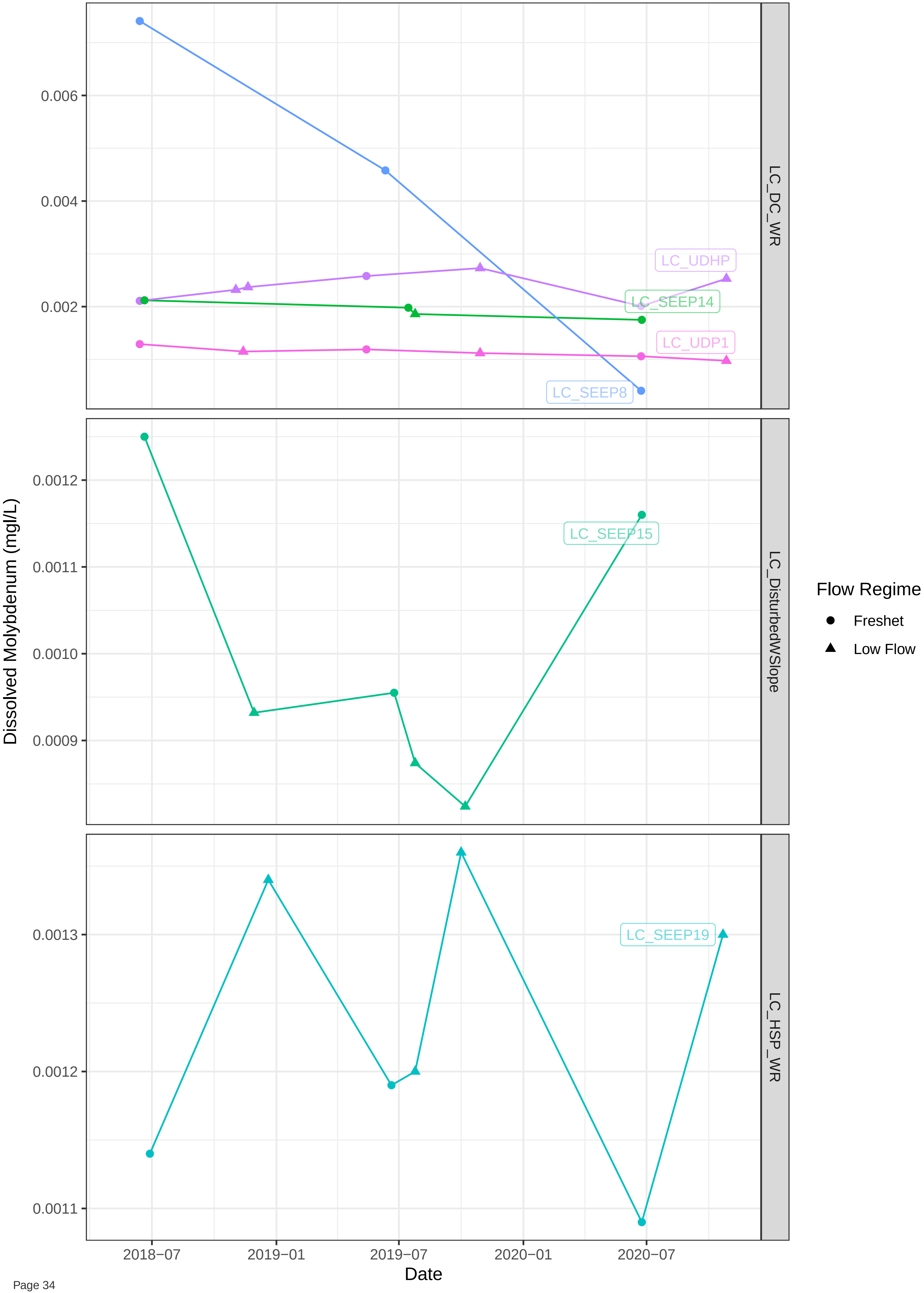

Total Dissolved Solids (TDS) (mgl/L)
1200
1100
LC_WLC_LOT2
LC_WLC_WR
2018−07
2019−01
2019−07
2020−01
2020−07
Flow Regime
● Freshet
▲ Low Flow
Date


0.004
0.003
0.002
0.001
LC_SEEP14
LC_UDHP
LC_SEEP8
LC_UDP1
LC_DC_WR
0.00325
0.00300
0.00275
0.00250
0.00225
LC_SEEP15
LC_DisturbedWSlope
0.010
0.008
0.006
0.004
LC_SEEP19
LC_HSP_WR
Dissolved Uranium (mg/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

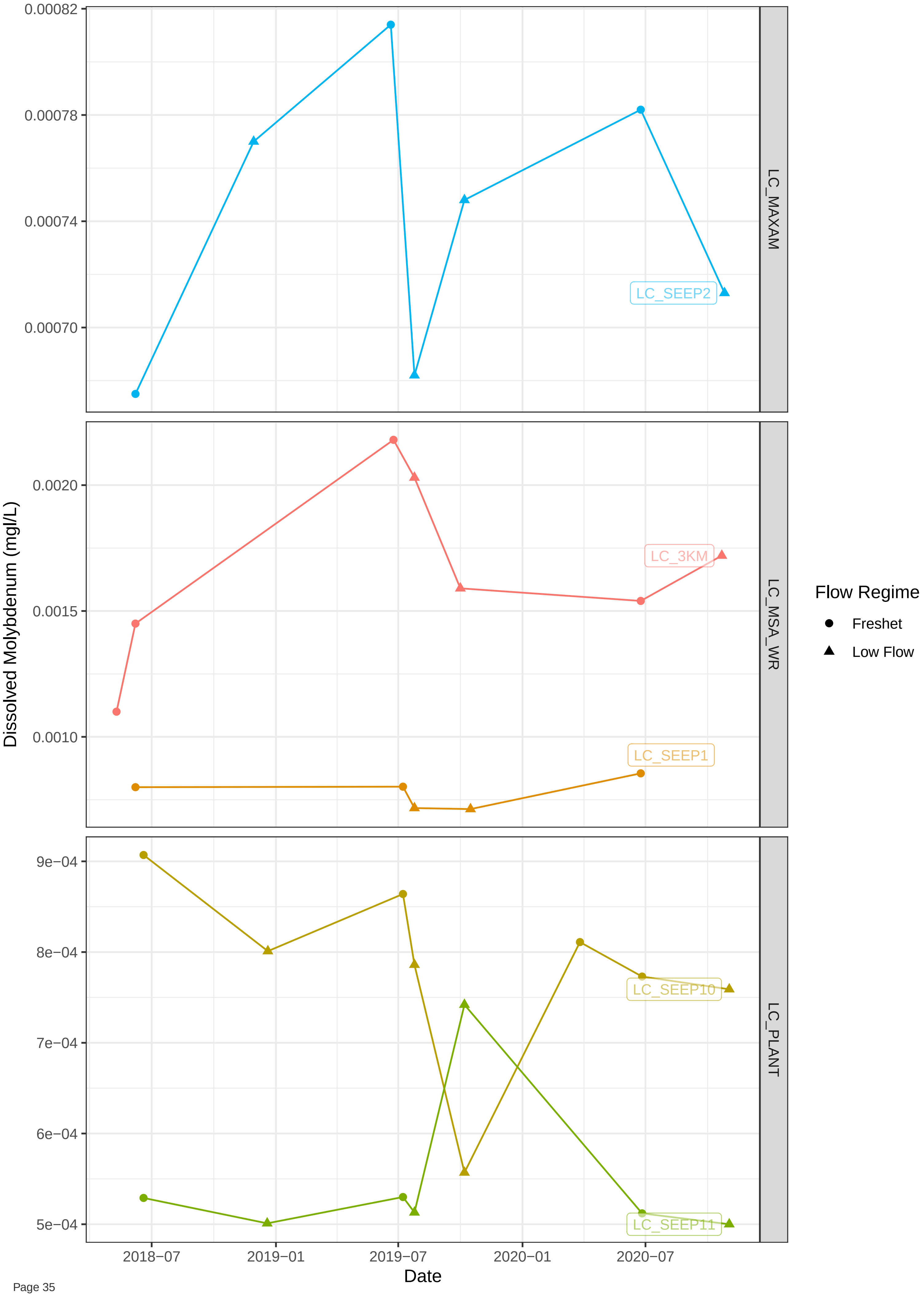


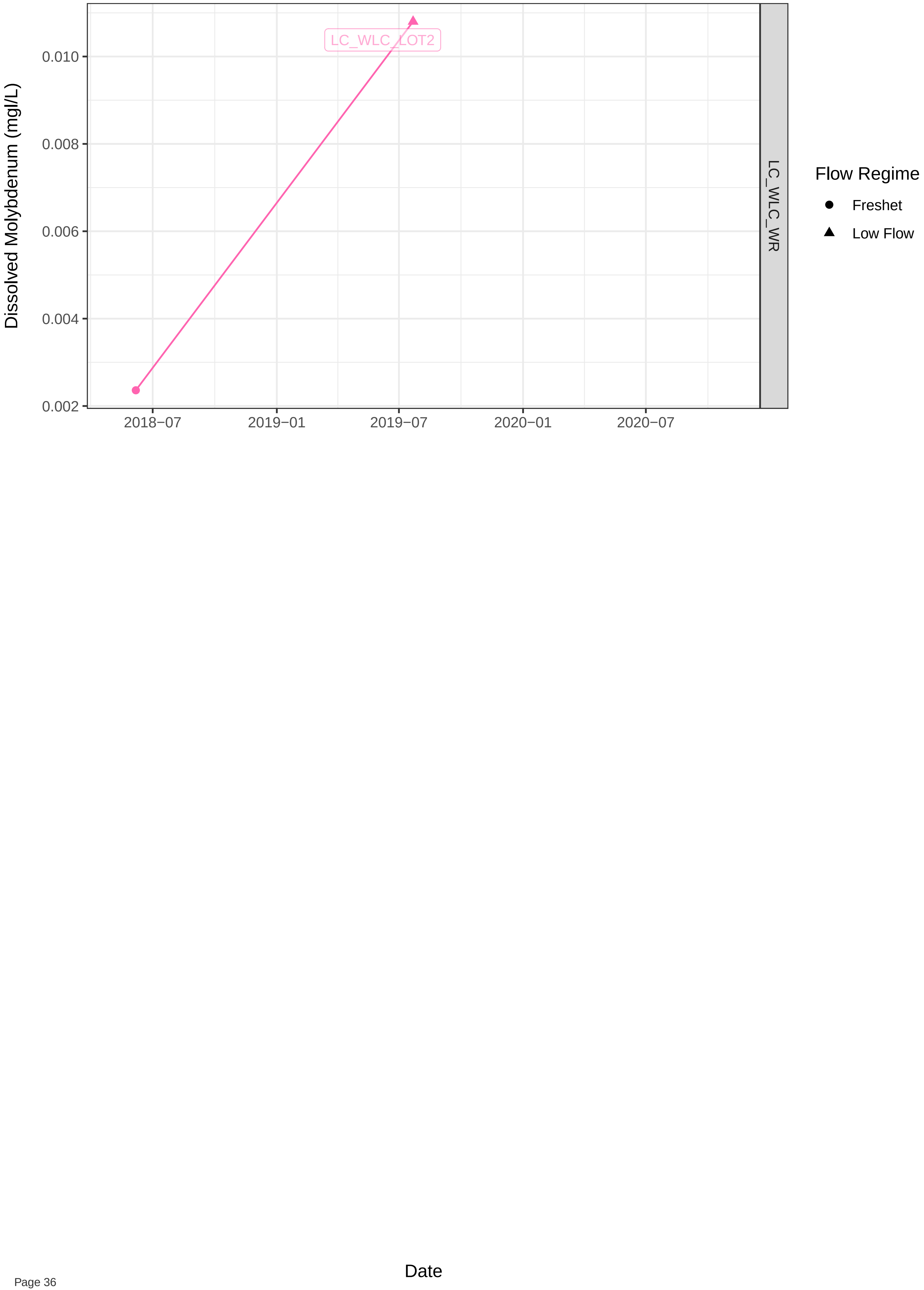
Dissolved Uranium (mgl/L)
0.0011
0.0010
0.0009
LC_SEEP2
LC_MAXAM
0.003
0.002
0.001
LC_3KM
LC_SEEP1
LC_MSA_WR
0.0030
0.0025
0.0020
0.0015
LC_SEEP11
LC_SEEP10
LC_PLANT
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

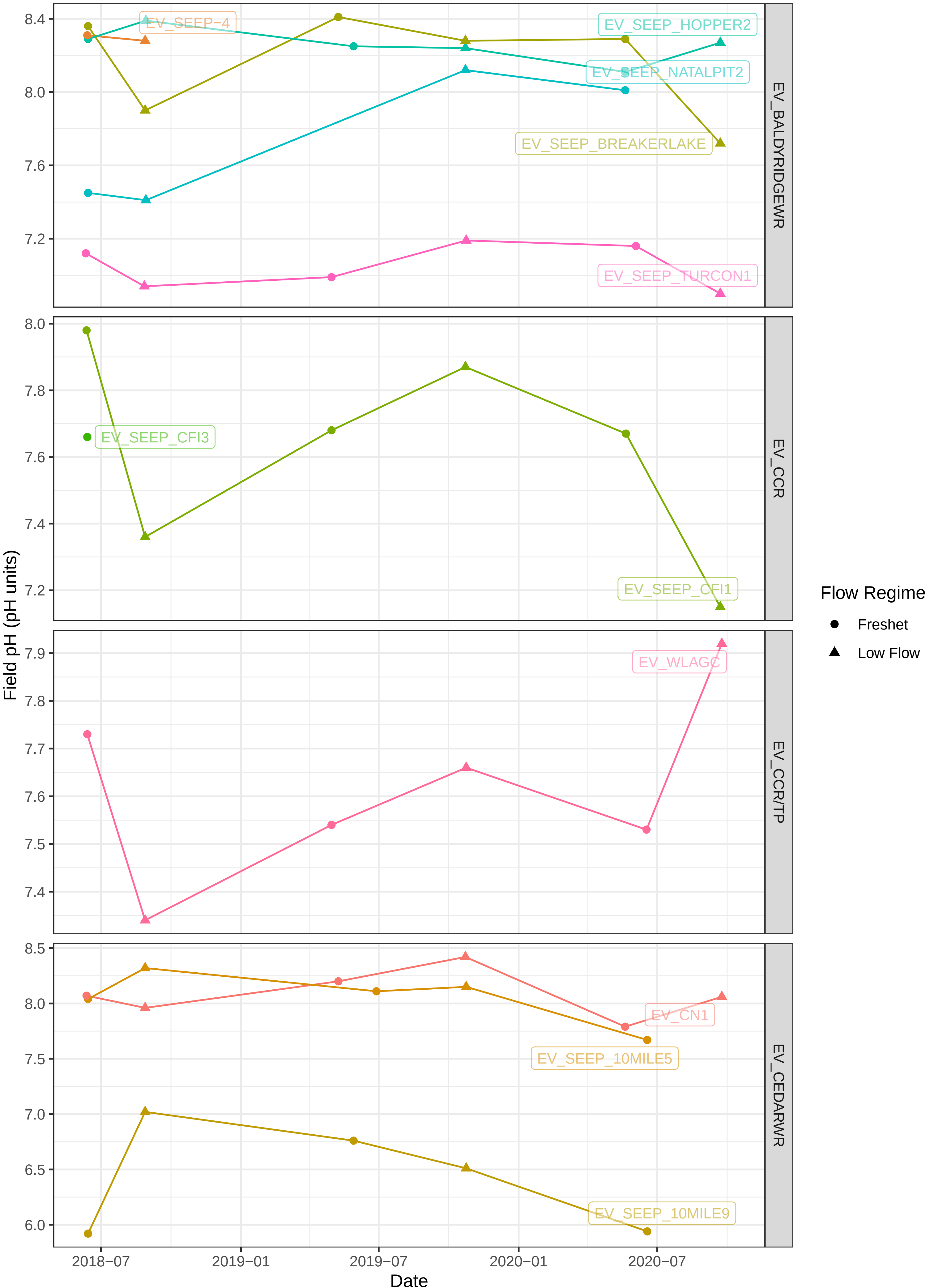

Dissolved Uranium (mgl/L)
0.0062
0.0061
2018−07
2019−01
2019−07
2020−01
2020−07
LC_WLC_LOT2
LC_WLC_WR
Flow Regime
● Freshet
▲ Low Flow
Date

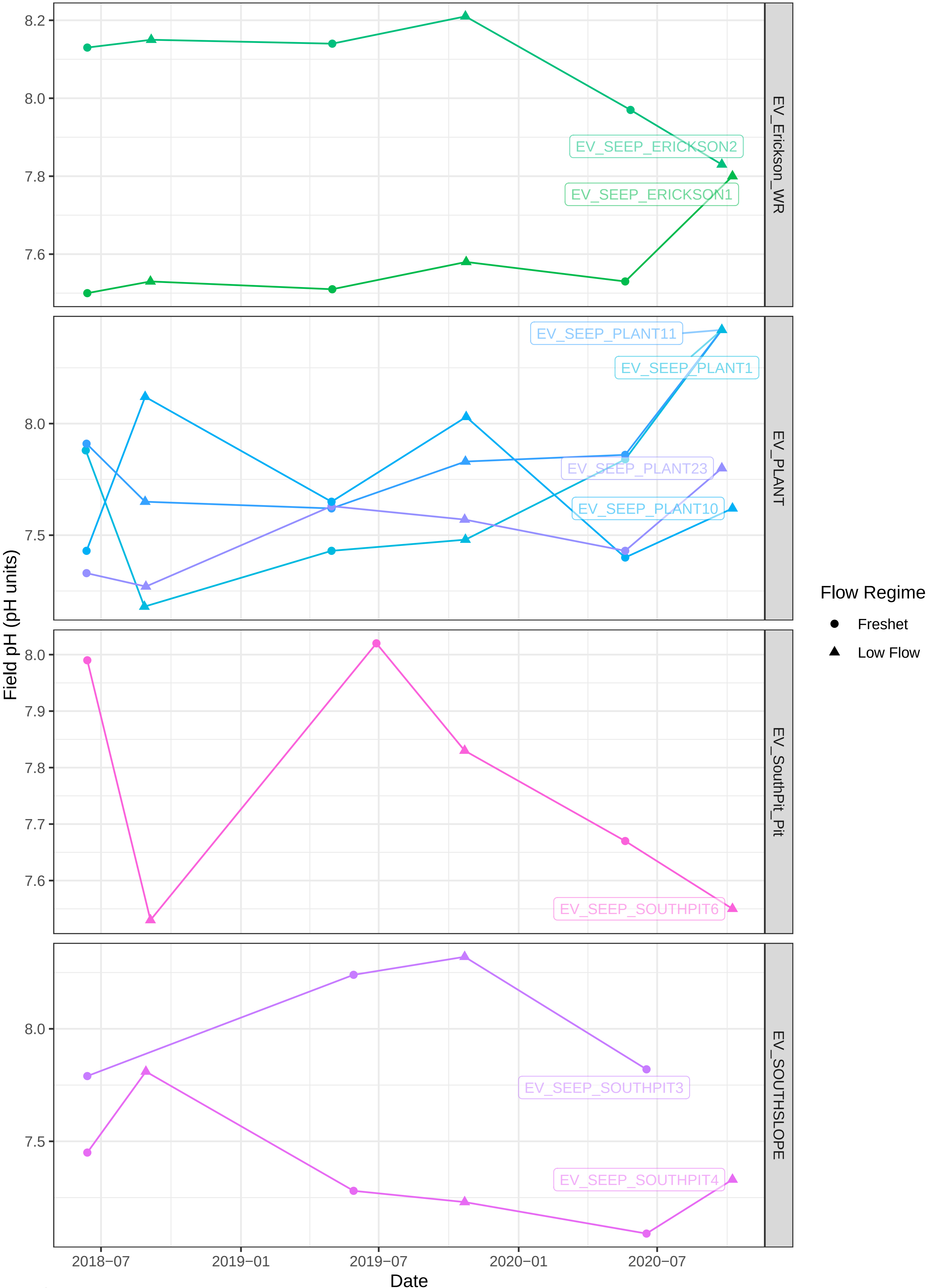


0.006
0.004
0.002
LC_UDHP
LC_SEEP14
LC_UDP1
LC_SEEP8
LC_DC_WR
0.0012
0.0011
0.0010
0.0009
LC_SEEP15
LC_DisturbedWSlope
0.0013
0.0012
0.0011
LC_SEEP19
LC_HSP_WR
Dissolved Molybdenum (mg/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

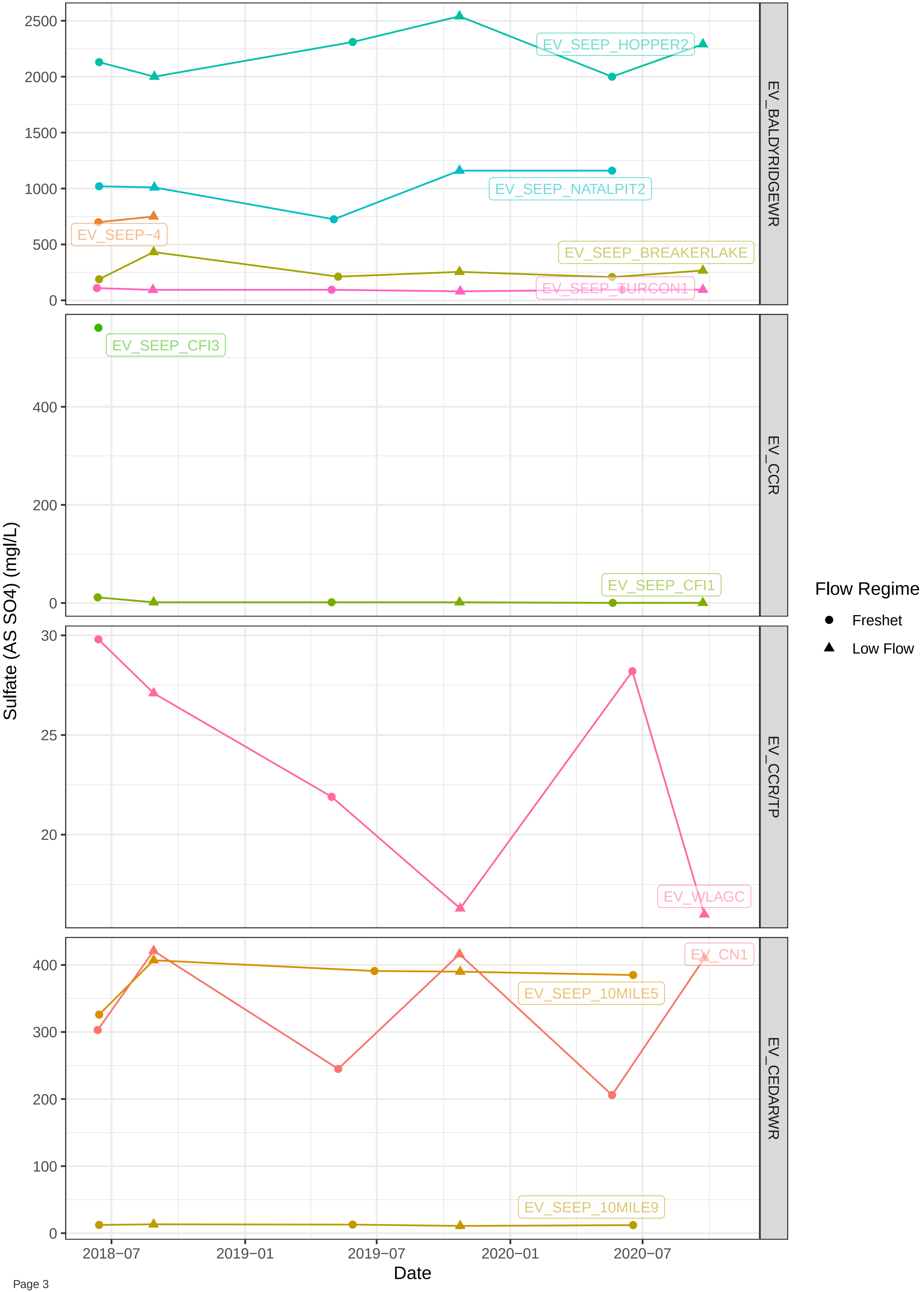

0.00082
0.00078
0.00074
0.00070
LC_SEEP2
LC_MAXAM
0.0020
0.0015
0.0010
LC_3KM
LC_SEEP1
LC_MSA_WR
9e−04
8e−04
7e−04
6e−04
5e−04
LC_SEEP10
LC_SEEP11
LC_PLANT
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Dissolved Molybdenum (mgl/L)
Flow Regime
● Freshet
▲ Low Flow

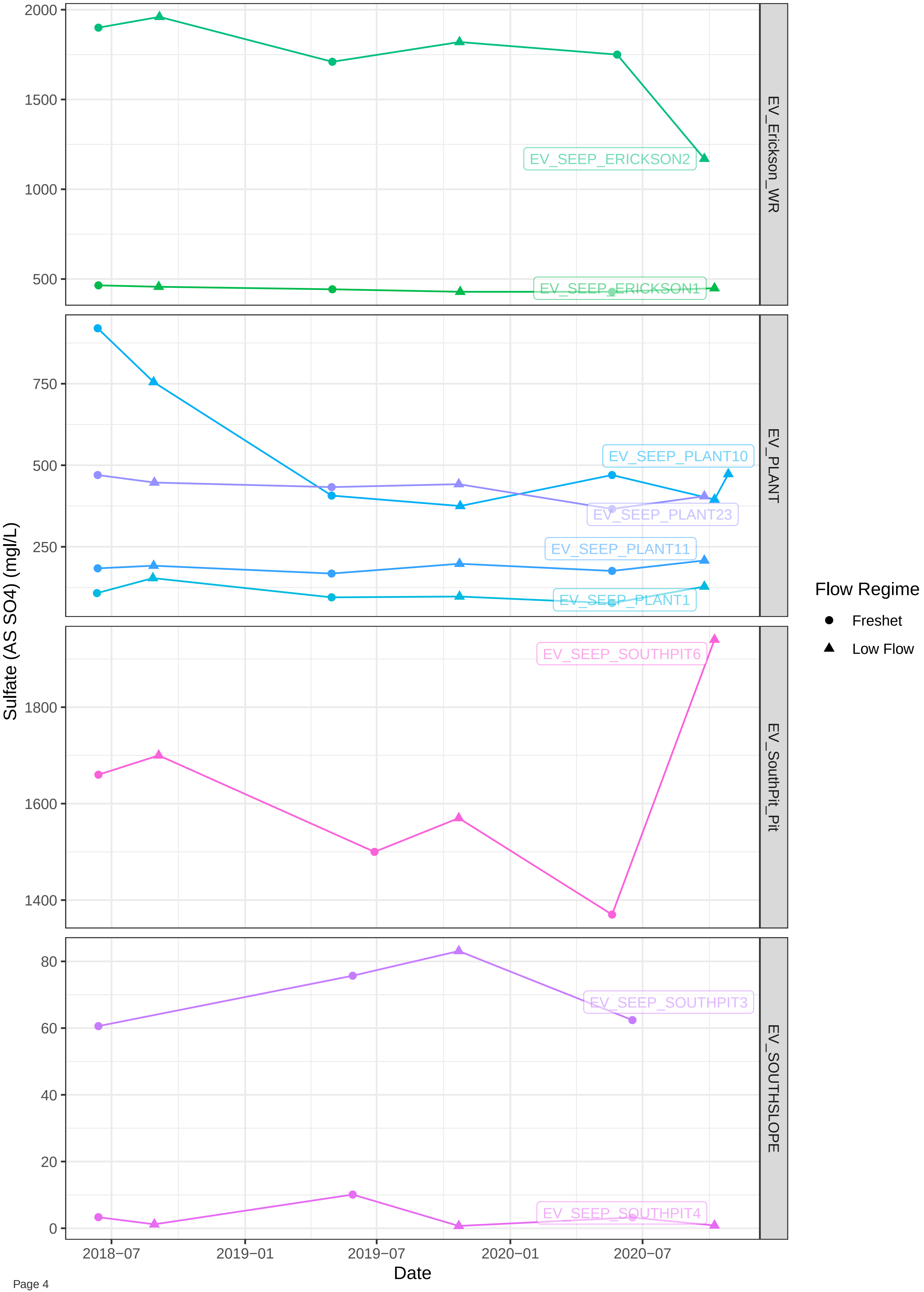

Dissolved Molybdenum (mgl/L)
0.010
0.008
0.006
0.004
0.002
2018−07
2019−01
2019−07
2020−01
2020−07
Date
LC_WLC_LOT2
LC_WLC_WR
Flow Regime
● Freshet
▲ Low Flow


EV_BALDYRIDGEWR
EV_SEEP−4
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_BREAKERLAKE
EV_SEEP_TURCON1
8.4
8.0
7.6
7.2
EV_CCR
EV_SEEP_CFI3
EV_SEEP_CFI1
8.0
7.8
7.6
7.4
7.2
EV_CCR/TP
EV_WLAGC
7.9
7.8
7.7
7.6
7.5
7.4
EV_CEDARWR
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
8.5
8.0
7.5
7.0
6.5
6.0
Field pH (pH units)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

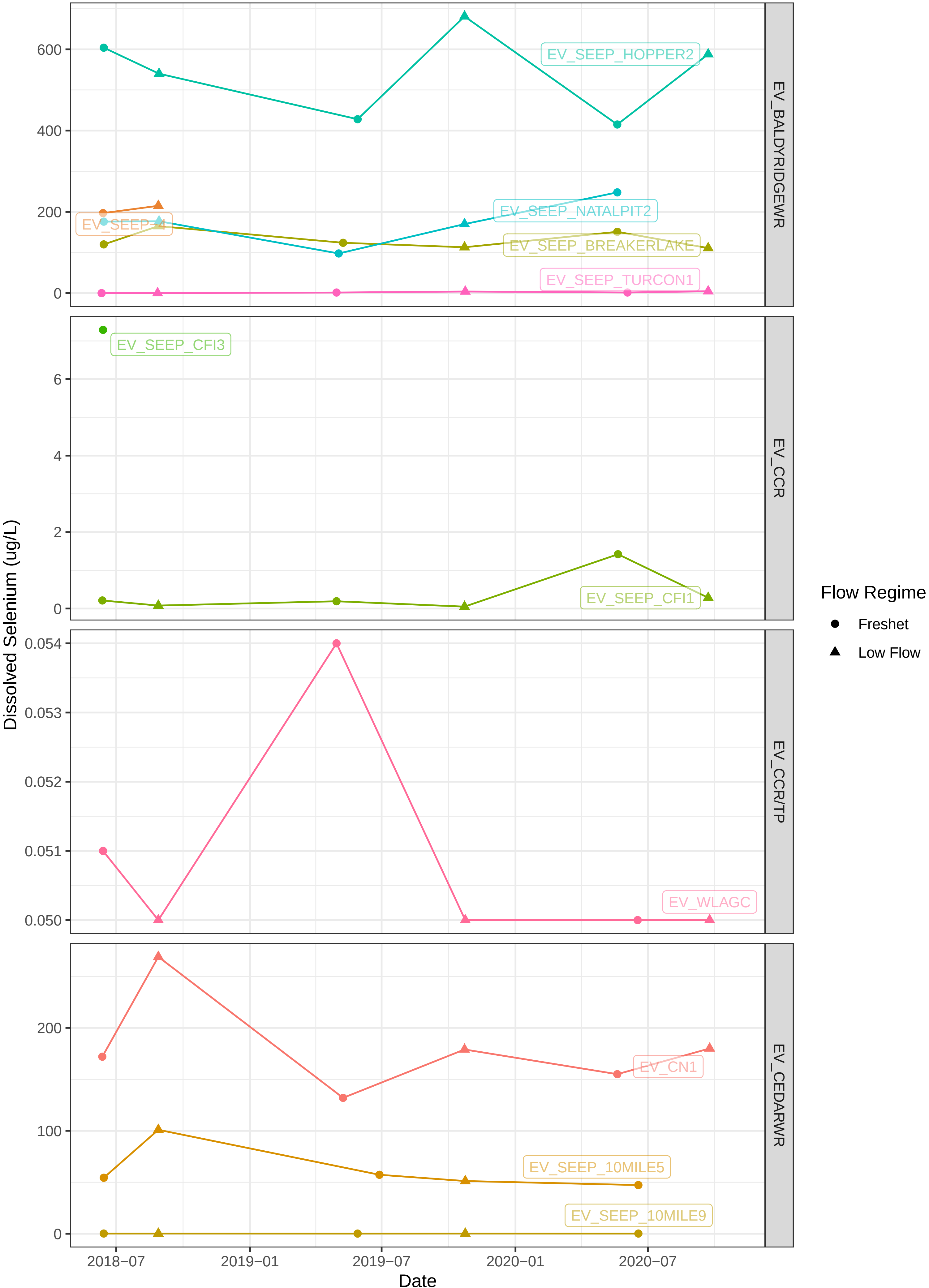


Field pH (pH units)
8.2
8.0
7.8
7.6
EV_SEEP_ERICKSON2
EV_SEEP_ERICKSON1
EV_Erickson_WR
8.0
7.5
EV_SEEP_PLANT11
EV_SEEP_PLANT1
EV_SEEP_PLANT23
EV_SEEP_PLANT10
EV_PLANT
8.0
7.9
7.8
7.7
7.6
EV_SEEP_SOUTHPIT6
EV_SouthPit_Pit
8.0
7.5
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_SOUTHSLOPE
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

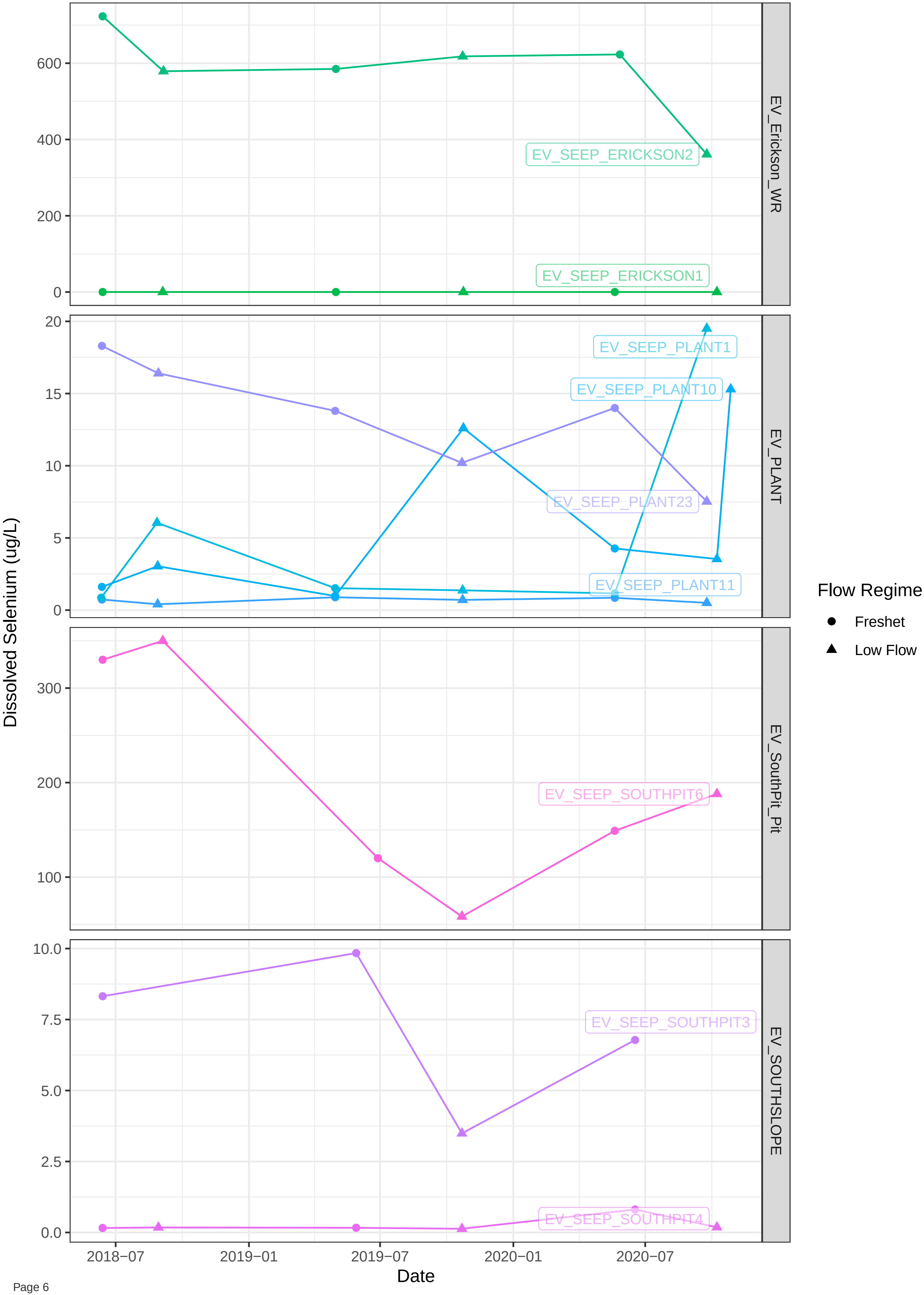

2500
2000
1500
1000
500
0
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_TURCON1
EV_BALDYRIDGEWR
400
200
0
EV_SEEP_CFI3
EV_SEEP_CFI1
EV_CCR
30
25
20
EV_WLAGC
EV_CCR/TP
400
300
200
100
0
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_CEDARWR
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Sulfate (AS SO4) (mgl/L)
Flow Regime
● Freshet
▲ Low Flow

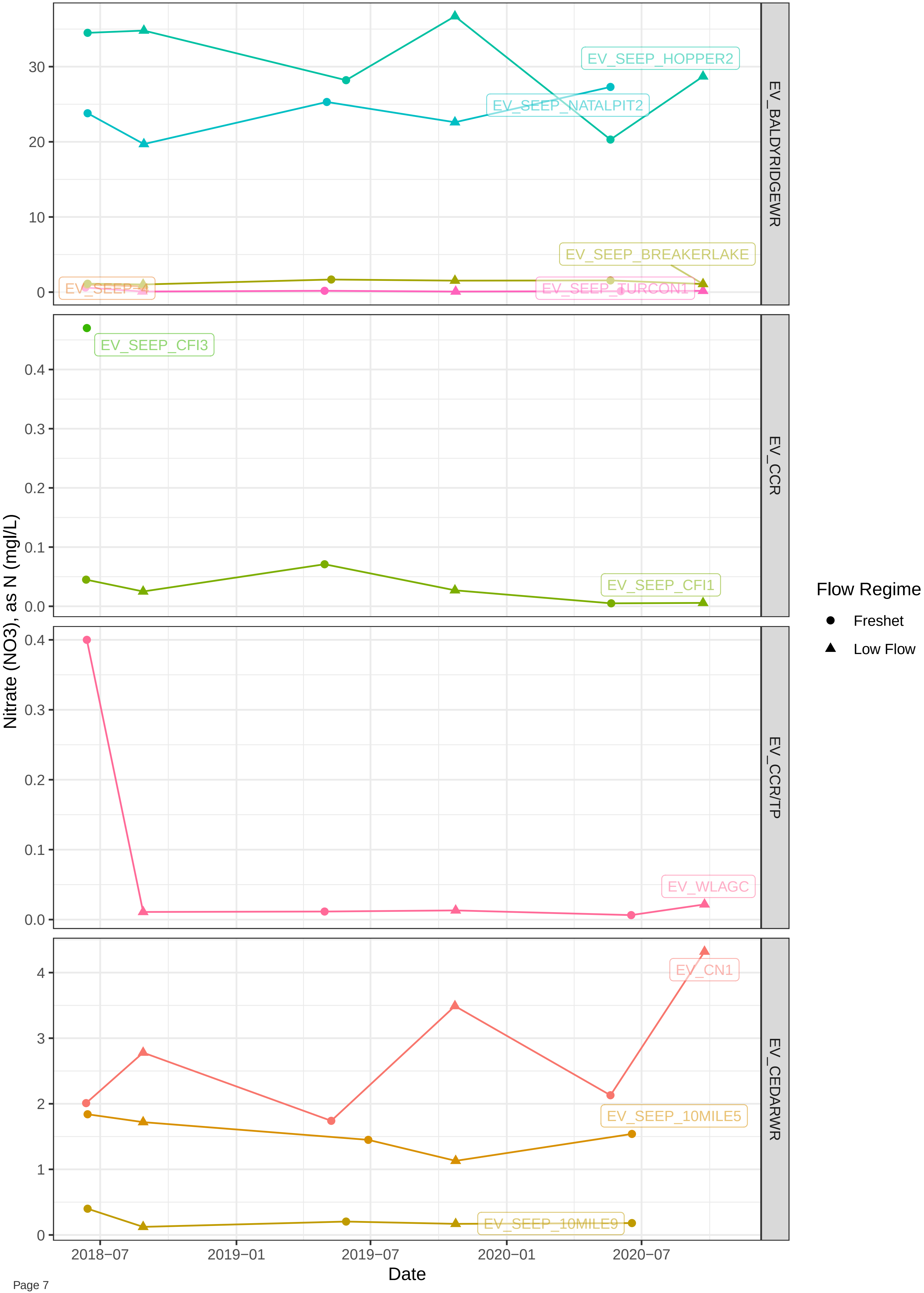


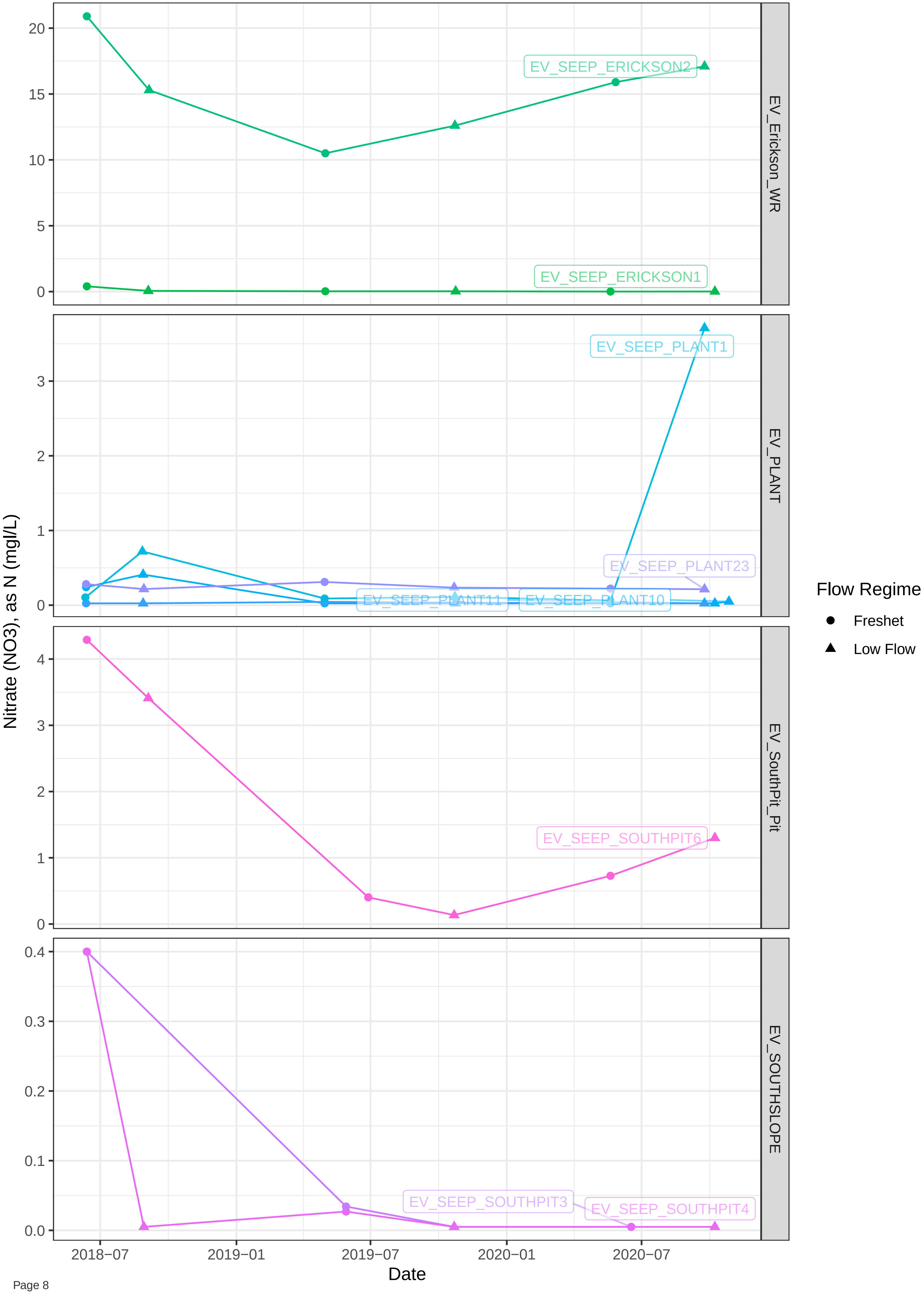
Sulfate (AS SO4) (mg/L)
Date
2018−07
2019−01
2019−07
2020−01
2020−07
EV_Erickson_WR
EV_PLANT
EV_SouthPit_Pit
EV_SOUTHSLOPE
EV_SEEP_ERICKSON2
EV_SEEP_ERICKSON1
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_SEEP_PLANT11
EV_SEEP_PLANT1
EV_SEEP_SOUTHPIT6
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
2000
1500
1000
500
750
500
250
1800
1600
1400
80
60
40
20
0
Flow Regime
● Freshet
▲ Low Flow



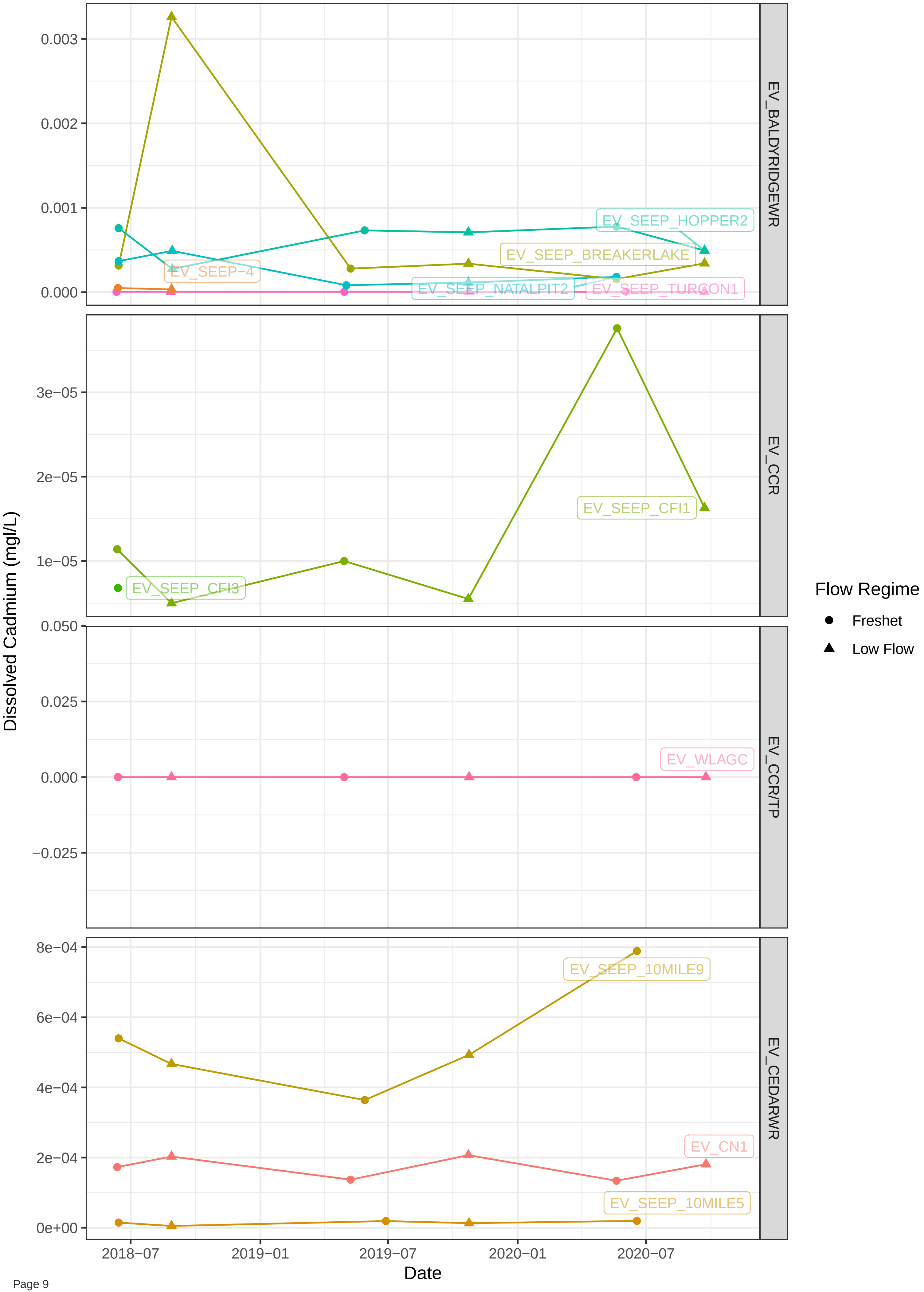
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_4
EV_SEEP_BREAKERLAKE
EV_SEEP_TURCON1
EV_BALDYRIDGEWR
EV_SEEP_CFI3
EV_SEEP_CFI1
EV_CCR
EV_WLAGC
EV_CCR/TP
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_CEDARWR
600
400
200
0
6
4
2
0
0.054
0.053
0.052
0.051
0.050
200
100
0
Dissolved Selenium (ug/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

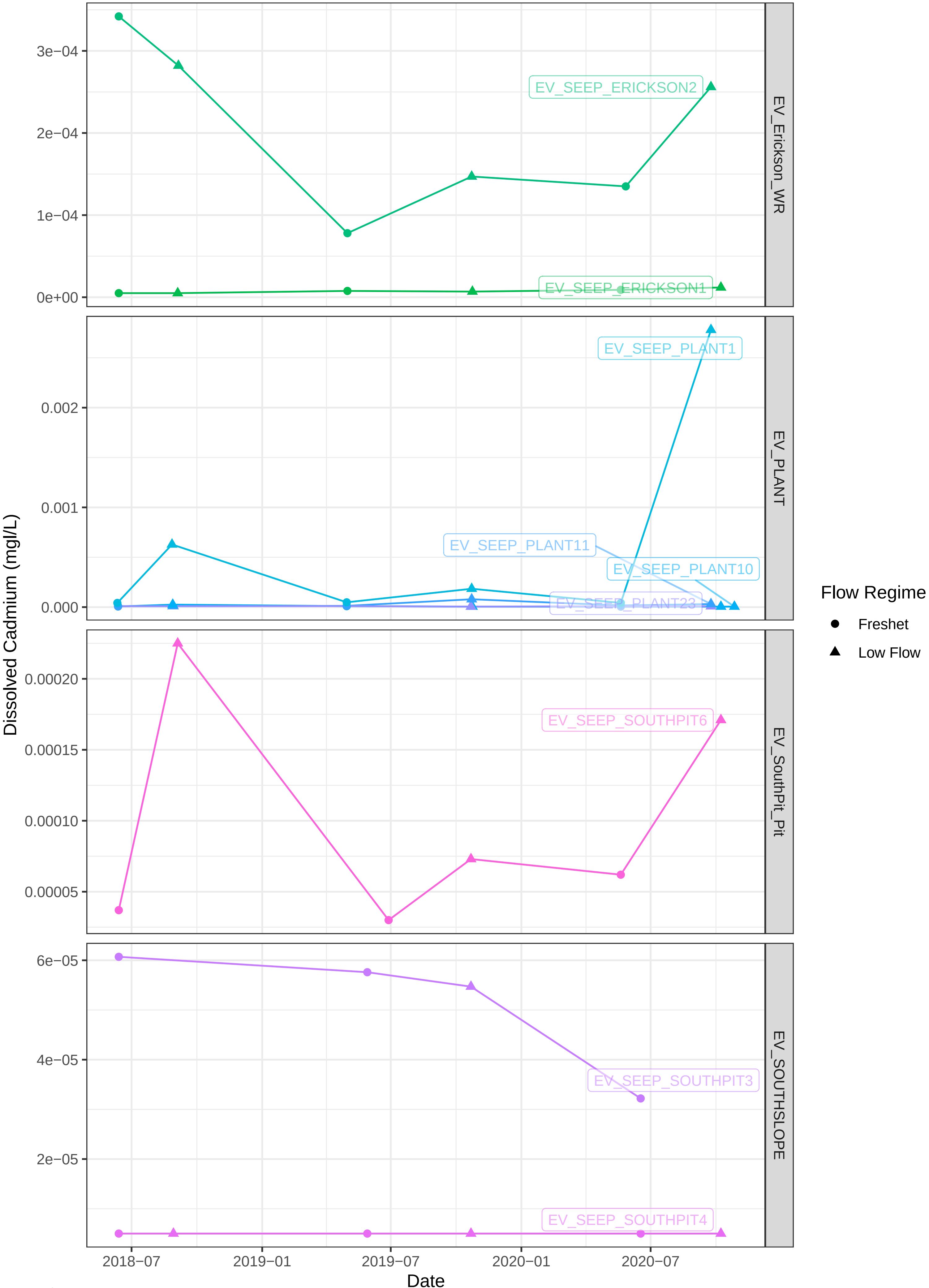

EV_Erickson_WR
600
400
200
0
EV_SEEP_ERICKSON2
EV_SEEP_ERICKSON1
EV_PLANT
20
15
10
5
0
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_SEEP_PLANT11
EV_SouthPit_Pit
300
200
100
EV_SEEP_SOUTHPIT6
EV_SOUTHSLOPE
10.0
7.5
5.0
2.5
0.0
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Dissolved Selenium (ug/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

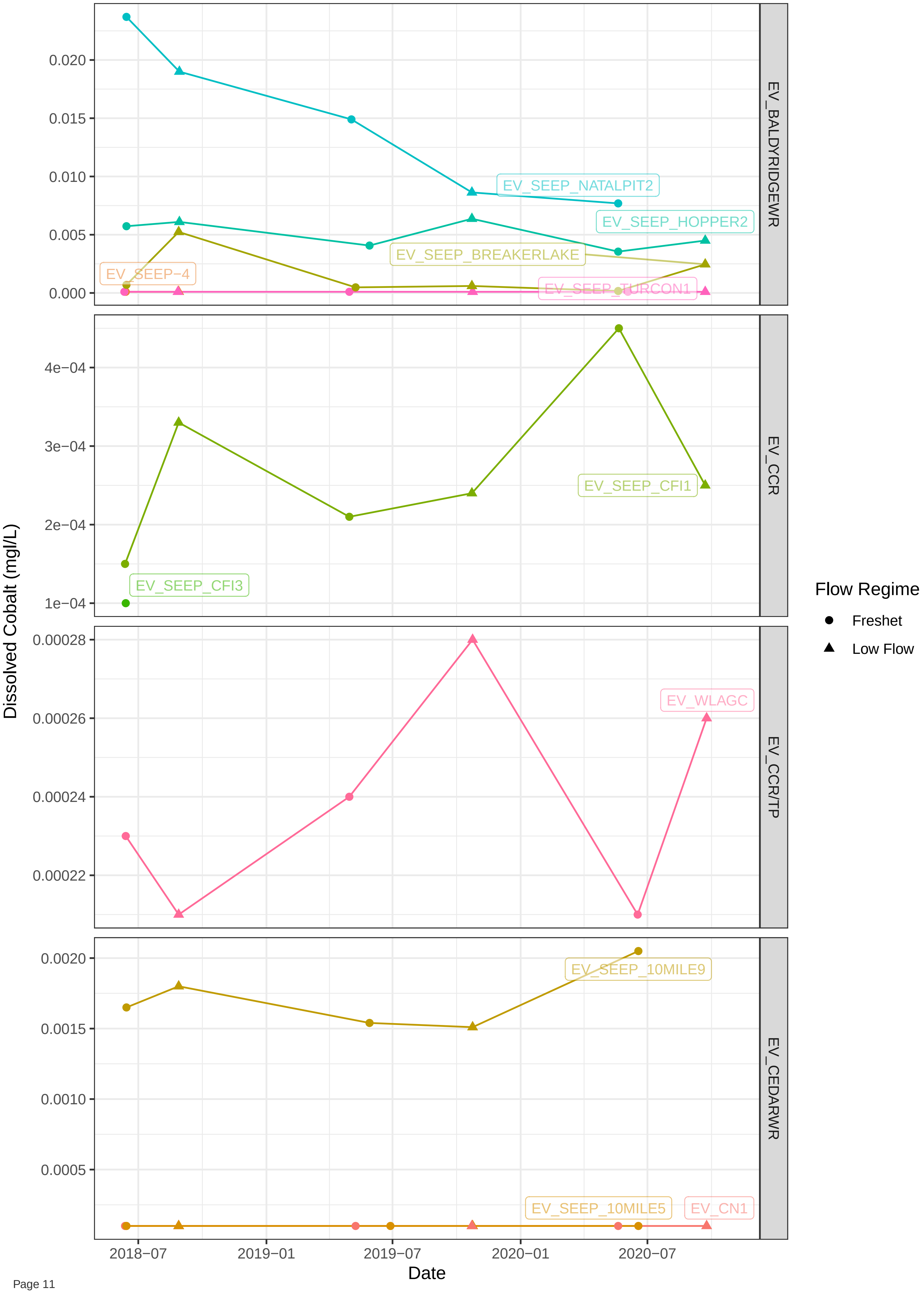

EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_BREAKERLAKE
EV_SEEP_4
EV_SEEP_TURCON1
EV_BALDYRIDGEWR
EV_SEEP_CFI3
EV_SEEP_CFI1
EV_CCR
EV_WLAGC
EV_CCR/TP
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_CEDARWR
30
20
10
0
0.4
0.3
0.2
0.1
0.0
4
3
2
1
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Nitrate (NO3), as N (mg/L)
Flow Regime
● Freshet
▲ Low Flow



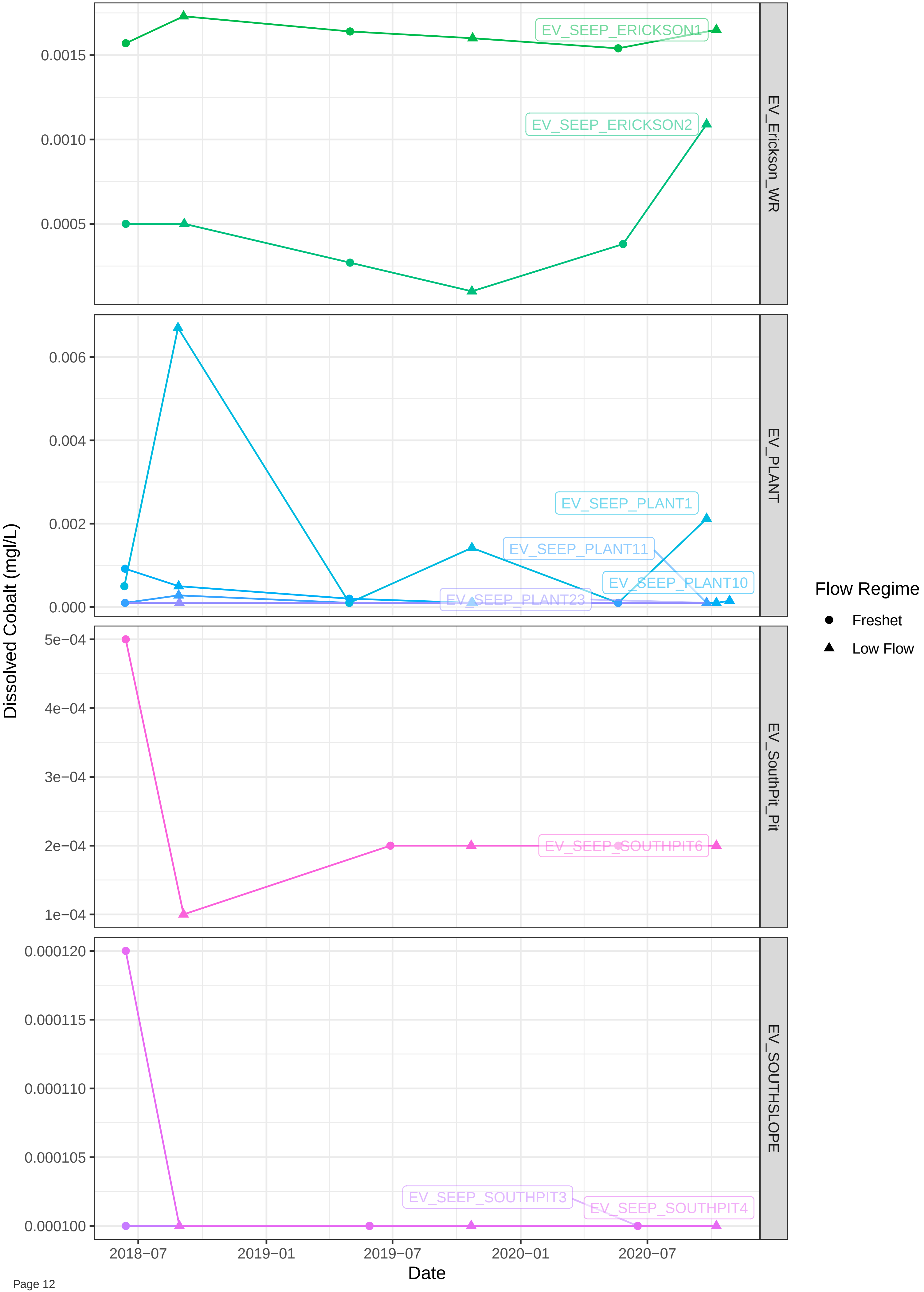
20
15
10
5
0
EV_SEEP_ERICKSON2
EV_SEEP_ERICKSON1
EV_Erickson_WR
3
2
1
0
EV_SEEP_PLANT1
EV_SEEP_PLANT23
EV_SEEP_PLANT11
EV_SEEP_PLANT10
EV_PLANT
4
3
2
1
0
EV_SEEP_SOUTHPIT6
EV_SouthPit_Pit
0.4
0.3
0.2
0.1
0.0
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_SOUTHSLOPE
Nitrate (NO3), as N (mg/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

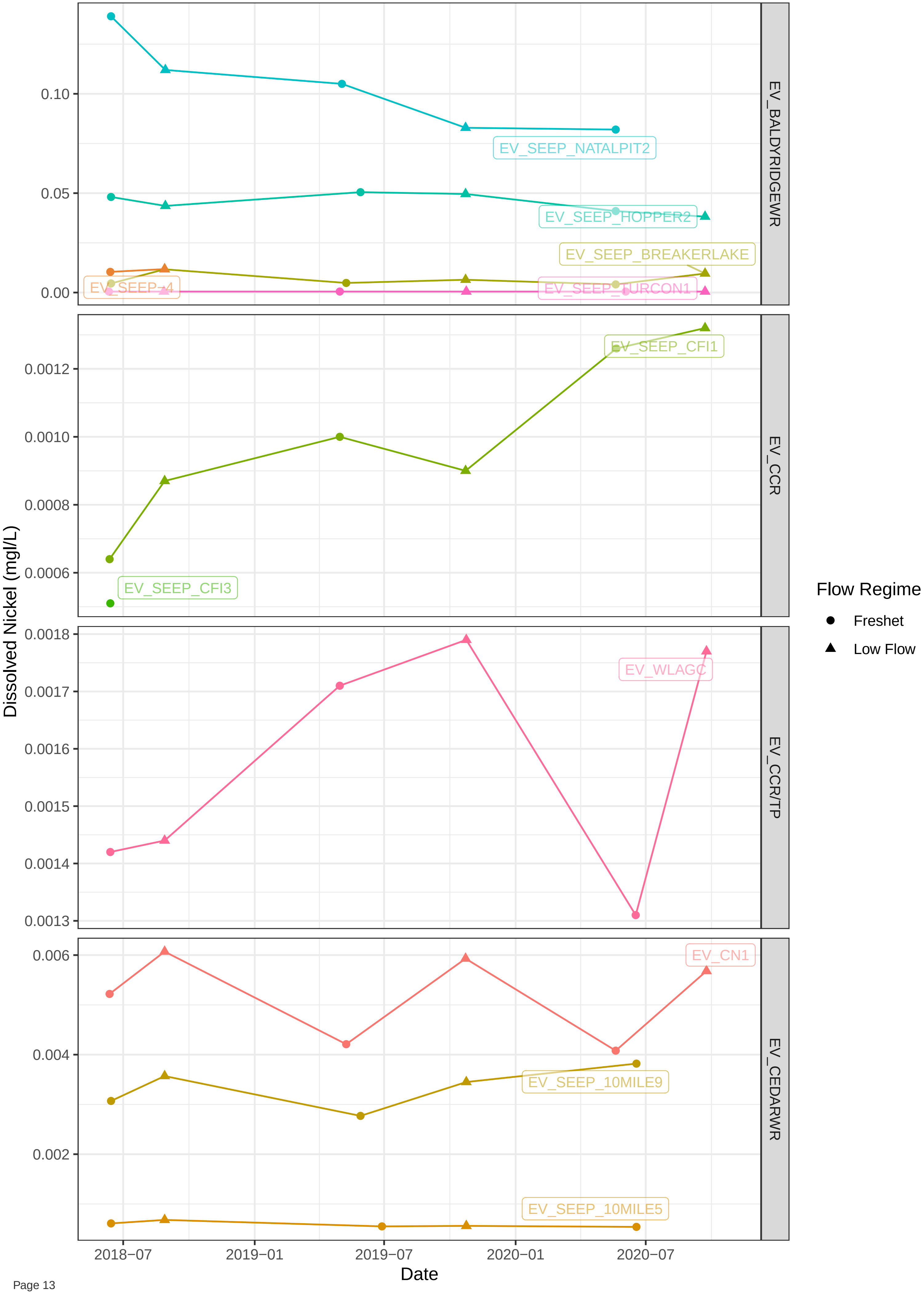

EV_BALDYRIDGEWR
EV_CCR
EV_CCR/TP
EV_CEDARWR
0.003
0.002
0.001
0.000
3e−05
2e−05
1e−05
0.050
0.025
0.000
−0.025
8e−04
6e−04
4e−04
2e−04
0e+00
EV_SEEP_HOPPER2
EV_SEEP_BREAKERLAKE
EV_SEEP−4
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
EV_SEEP_CFI1
EV_SEEP_CFI3
EV_WLAGC
EV_SEEP_10MILE9
EV_CN1
EV_SEEP_10MILE5
Dissolved Cadmium (mgl/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

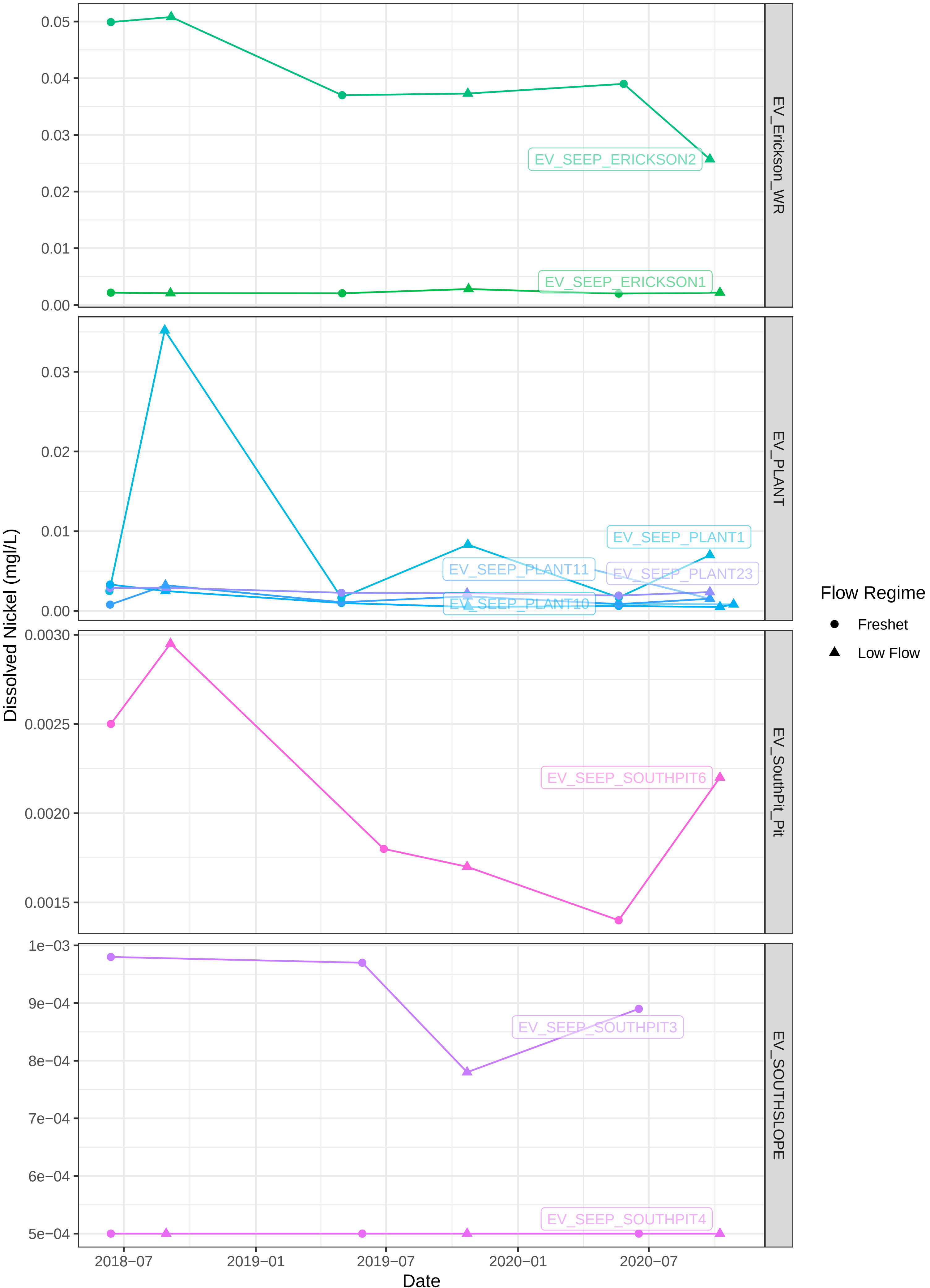

EV_SEEP_ERICKSON2
EV_SEEP_ERICKSON1
EV_Erickson_WR
3e−04
2e−04
1e−04
0e+00
EV_SEEP_PLANT1
EV_SEEP_PLANT11
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_PLANT
0.002
0.001
0.000
EV_SEEP_SOUTHPIT6
EV_SouthPit_Pit
0.00020
0.00015
0.00010
0.00005
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_SOUTHSLOPE
6e−05
4e−05
2e−05
Dissolved Cadmium (mgl/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow



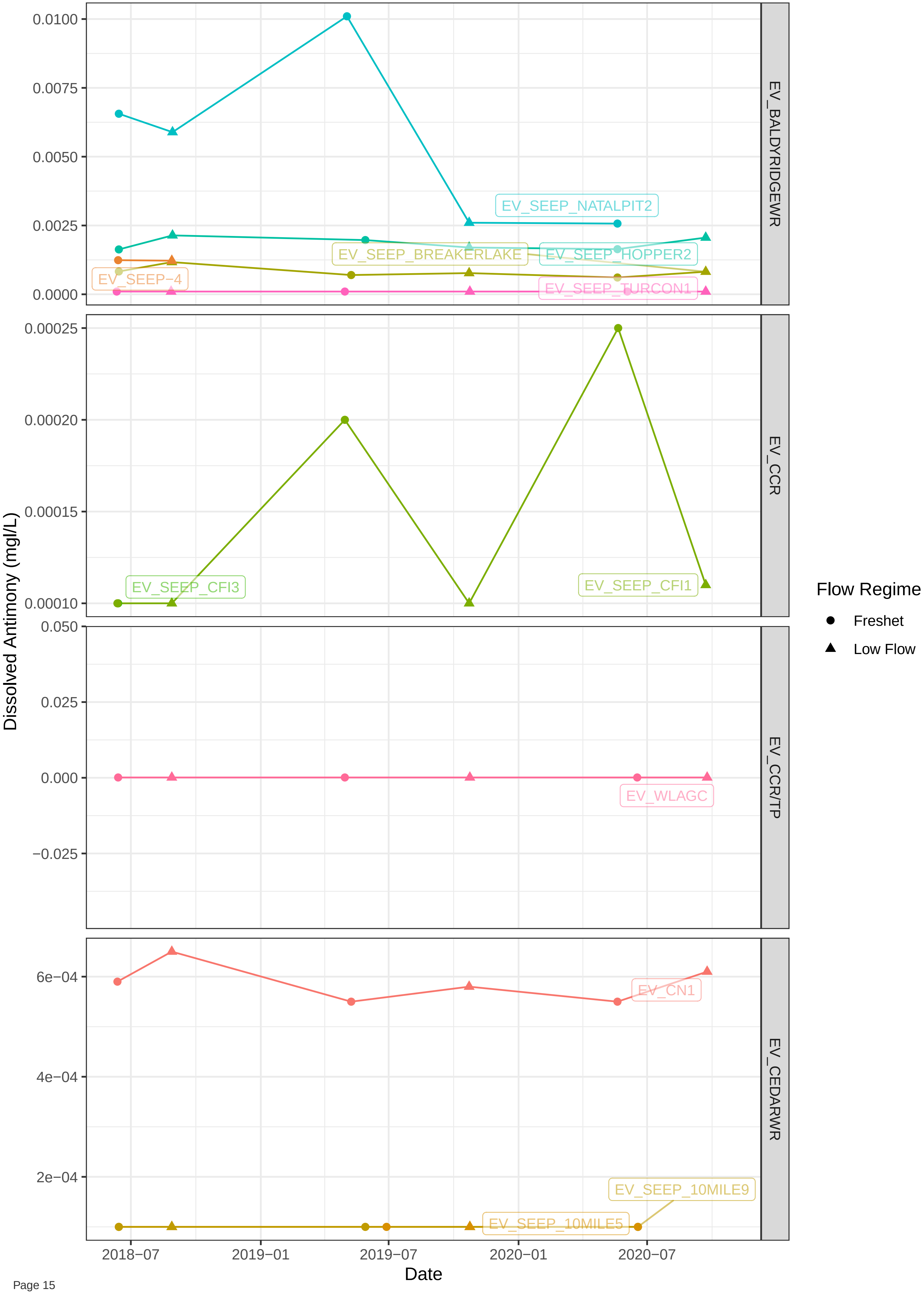
0.020
0.015
0.010
0.005
0.000
EV_SEEP_NATALPIT2
EV_SEEP_HOPPER2
EV_SEEP_BREAKERLAKE
EV_SEEP−4
EV_SEEP_TURCON1
EV_BALDYRIDGEWR
4e−04
3e−04
2e−04
1e−04
EV_SEEP_CFI1
EV_SEEP_CFI3
EV_CCR
0.00028
0.00026
0.00024
0.00022
EV_WLAGC
EV_CCR/TP
0.0020
0.0015
0.0010
0.0005
EV_SEEP_10MILE9
EV_SEEP_10MILE5
EV_CN1
EV_CEDARWR
Dissolved Cobalt (mg/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

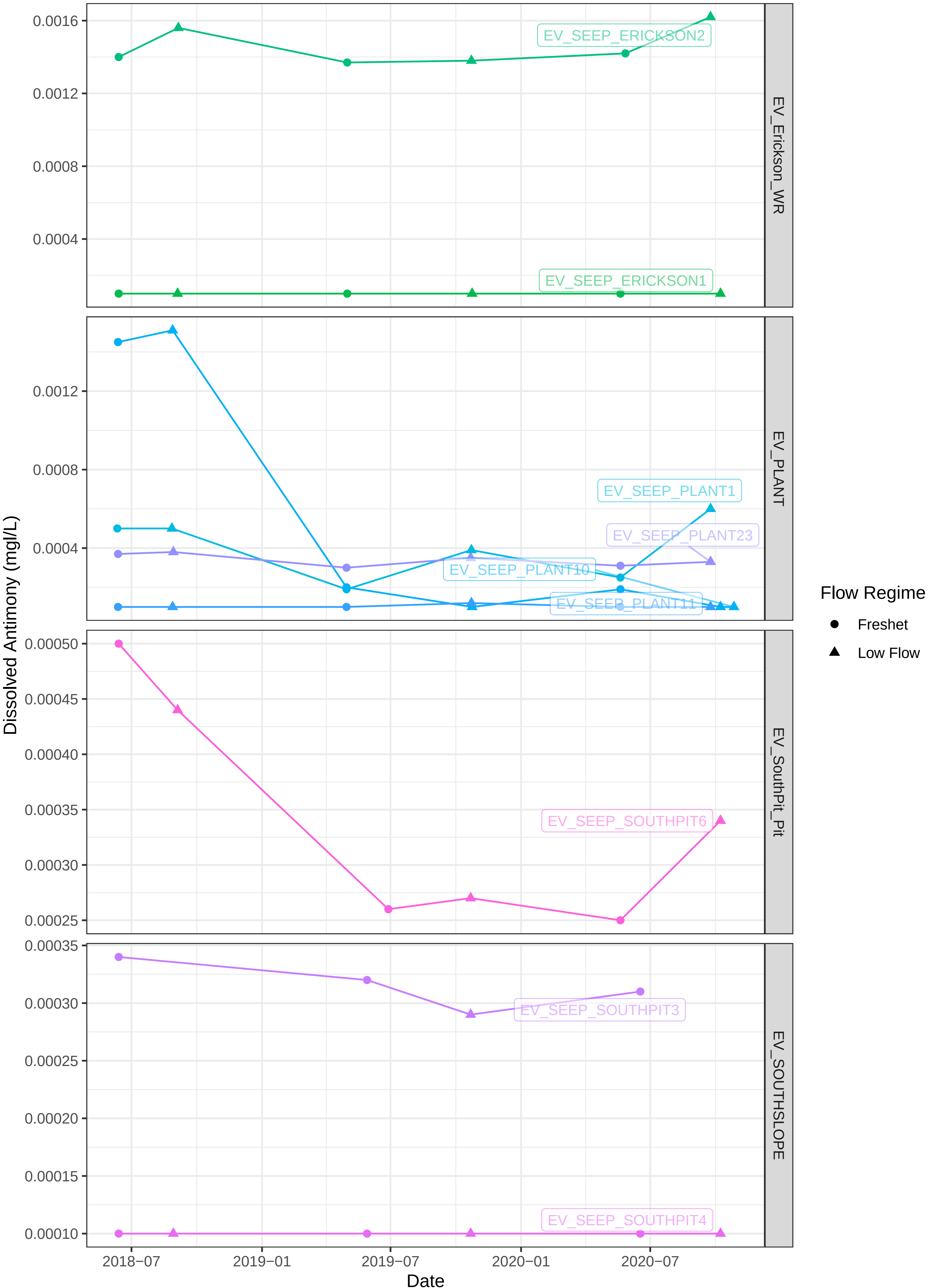

EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
EV_Erickson_WR
0.0015
0.0010
0.0005
EV_SEEP_PLANT1
EV_SEEP_PLANT11
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_PLANT
0.006
0.004
0.002
0.000
EV_SEEP_SOUTHPIT6
EV_SouthPit_Pit
5e−04
4e−04
3e−04
2e−04
1e−04
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_SOUTHSLOPE
0.000120
0.000115
0.000110
0.000105
0.000100
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Dissolved Cobalt (mg/L)
Flow Regime
● Freshet
▲ Low Flow


EV_BALDYRIDGEWR
EV_SEEP_NATALPIT2
EV_SEEP_HOPPER2
EV_SEEP_BREAKERLAKE
EV_SEEP_4
EV_SEEP_TURCON1
0.10
0.05
0.00
EV_CCR
EV_SEEP_CFI1
EV_SEEP_CFI3
0.0012
0.0010
0.0008
0.0006
EV_CCR/TP
EV_WLAGC
0.0018
0.0017
0.0016
0.0015
0.0014
0.0013
EV_CEDARWR
EV_CN1
EV_SEEP_10MILE9
EV_SEEP_10MILE5
0.006
0.004
0.002
Dissolved Nickel (mgl/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

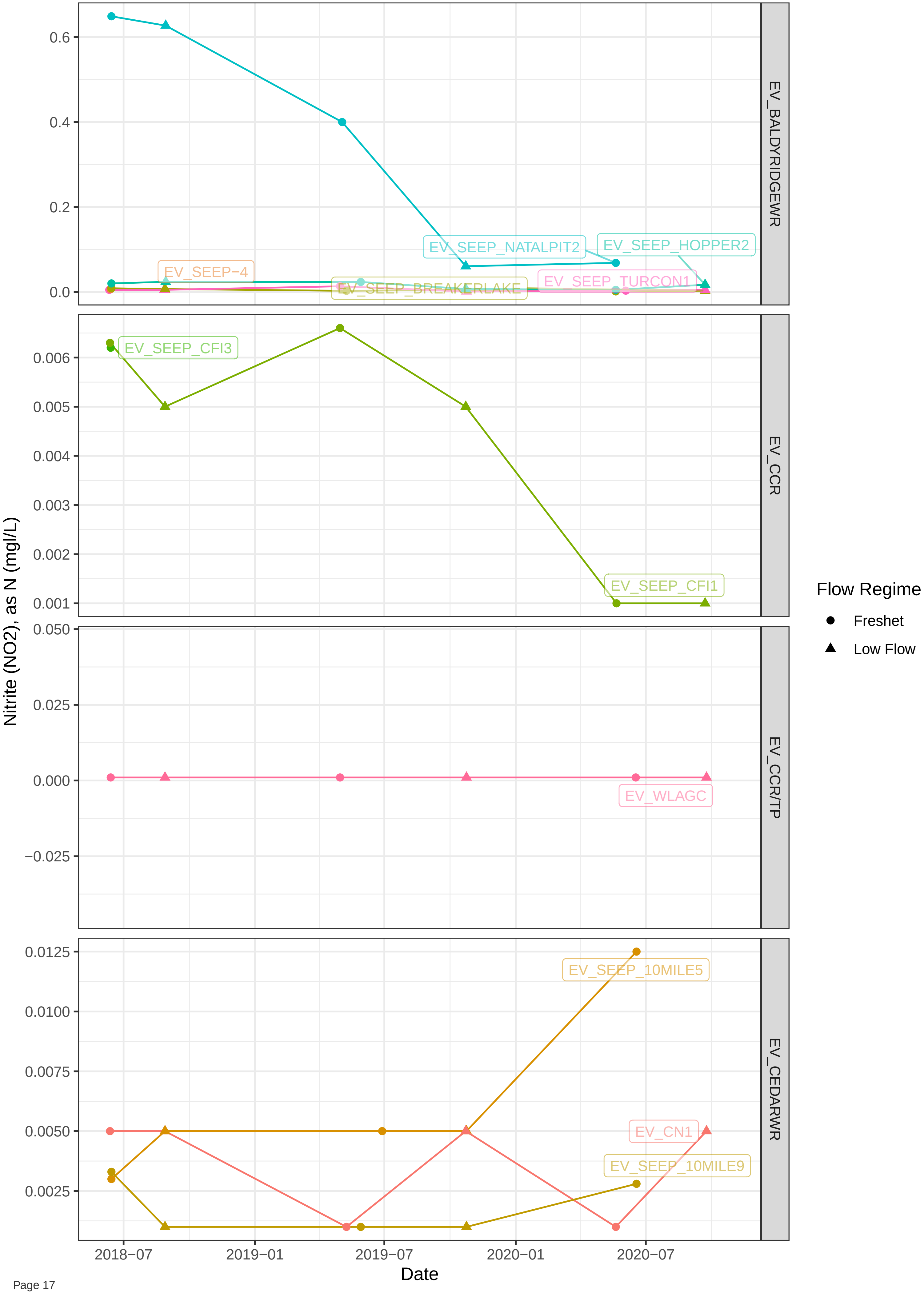


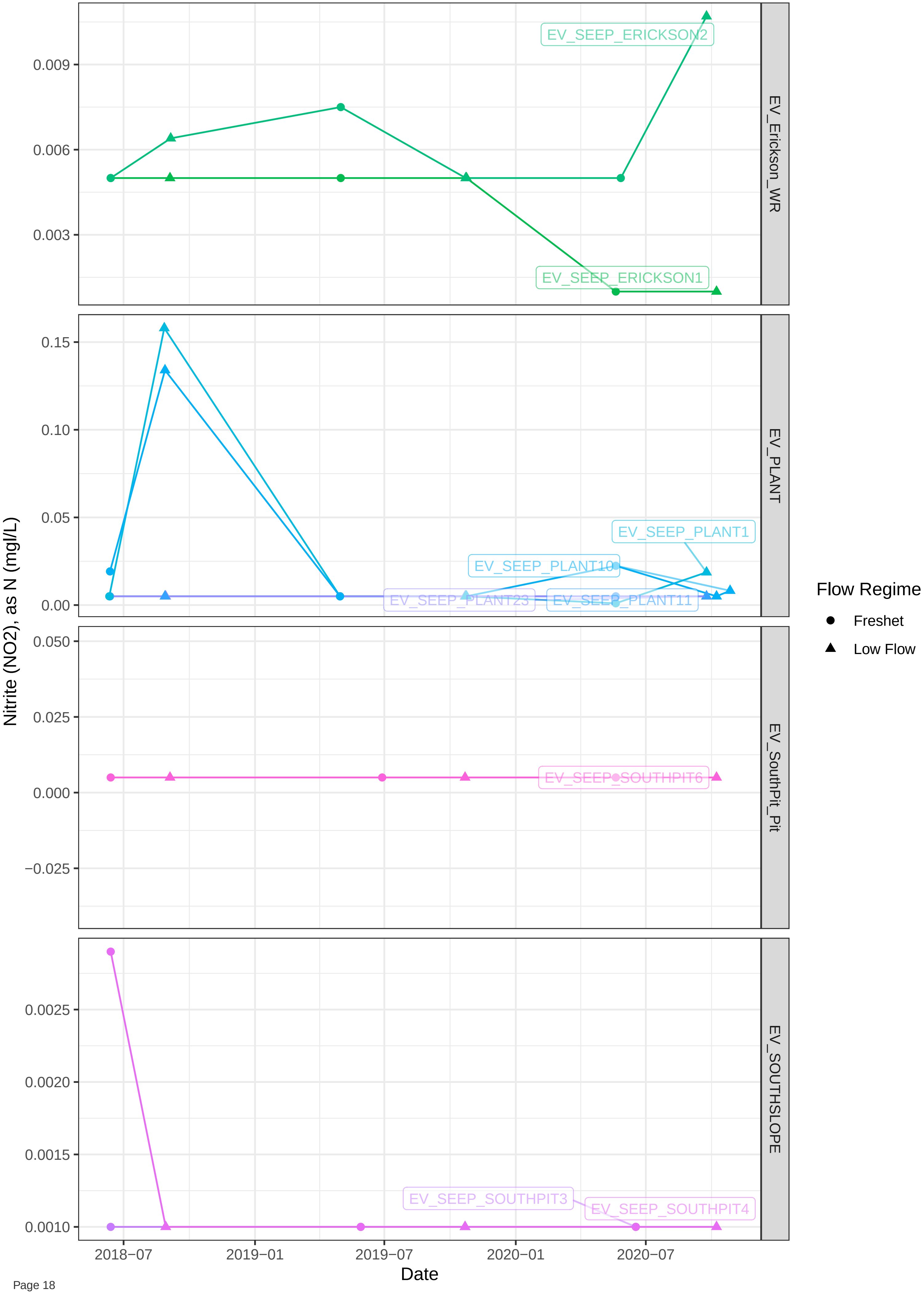
0.05
0.04
0.03
0.02
0.01
0.00
EV_SEEP_ERICKSON2
EV_SEEP_ERICKSON1
EV_Erickson_WR
0.03
0.02
0.01
0.00
EV_SEEP_PLANT1
EV_SEEP_PLANT11
EV_SEEP_PLANT23
EV_SEEP_PLANT10
EV_PLANT
0.0030
0.0025
0.0020
0.0015
EV_SEEP_SOUTHPIT6
EV_SouthPit_Pit
1e−03
9e−04
8e−04
7e−04
6e−04
5e−04
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_SOUTHSLOPE
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Dissolved Nickel (mgl/L)
Flow Regime
● Freshet
▲ Low Flow

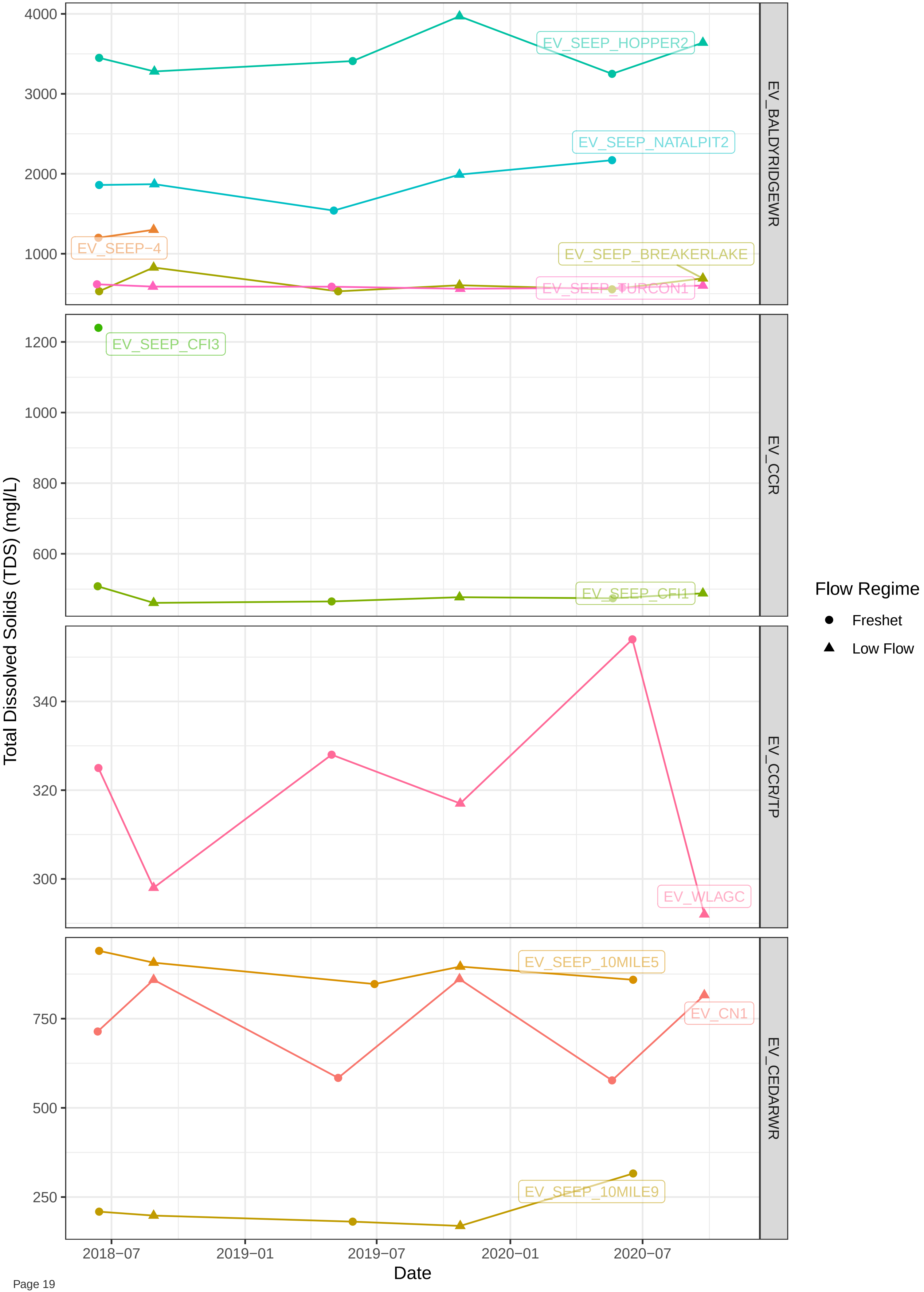

Dissolved Antimony (mgl/L)
Date
0.0100
0.0075
0.0050
0.0025
0.0000
EV_SEEP_NATALPIT2
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP−4
EV_SEEP_TURCON1
EV_BALDYRIDGEWR
0.00025
0.00020
0.00015
0.00010
EV_SEEP_CFI3
EV_SEEP_CFI1
EV_CCR
0.050
0.025
0.000
−0.025
EV_WLAGC
EV_CCR/TP
6e−04
4e−04
2e−04
EV_CN1
EV_SEEP_10MILE9
EV_SEEP_10MILE5
EV_CEDARWR
2018−07
2019−01
2019−07
2020−01
2020−07
Flow Regime
● Freshet
▲ Low Flow



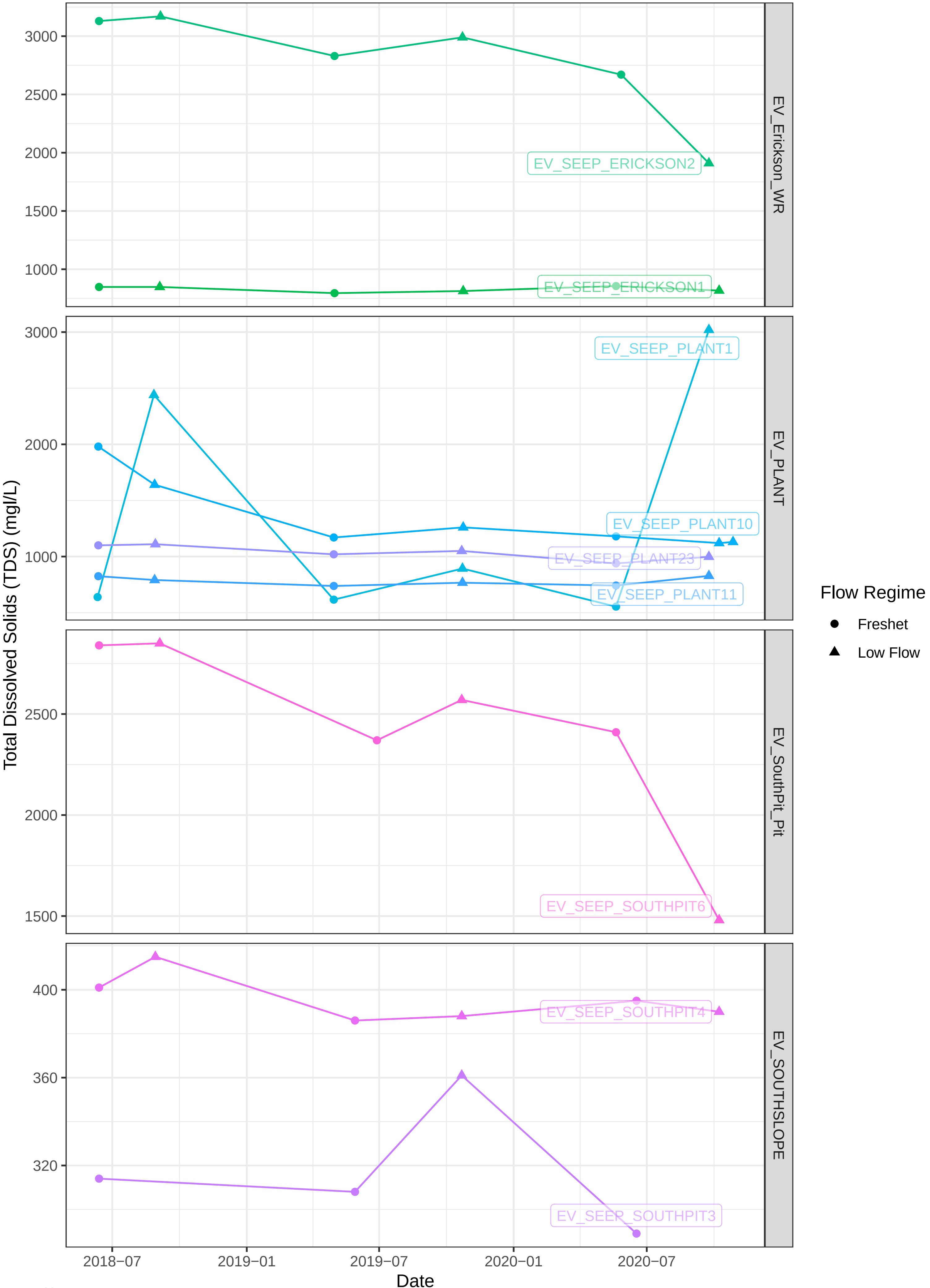
0.0016
0.0012
0.0008
0.0004
EV_SEEP_ERICKSON2
EV_SEEP_ERICKSON1
EV_Erickson_WR
0.0012
0.0008
0.0004
EV_SEEP_PLANT1
EV_SEEP_PLANT23
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_PLANT
0.00050
0.00045
0.00040
0.00035
0.00030
0.00025
EV_SEEP_SOUTHPIT6
EV_SouthPit_Pit
0.00035
0.00030
0.00025
0.00020
0.00015
0.00010
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_SOUTHSLOPE
Dissolved Antimony (mgl/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

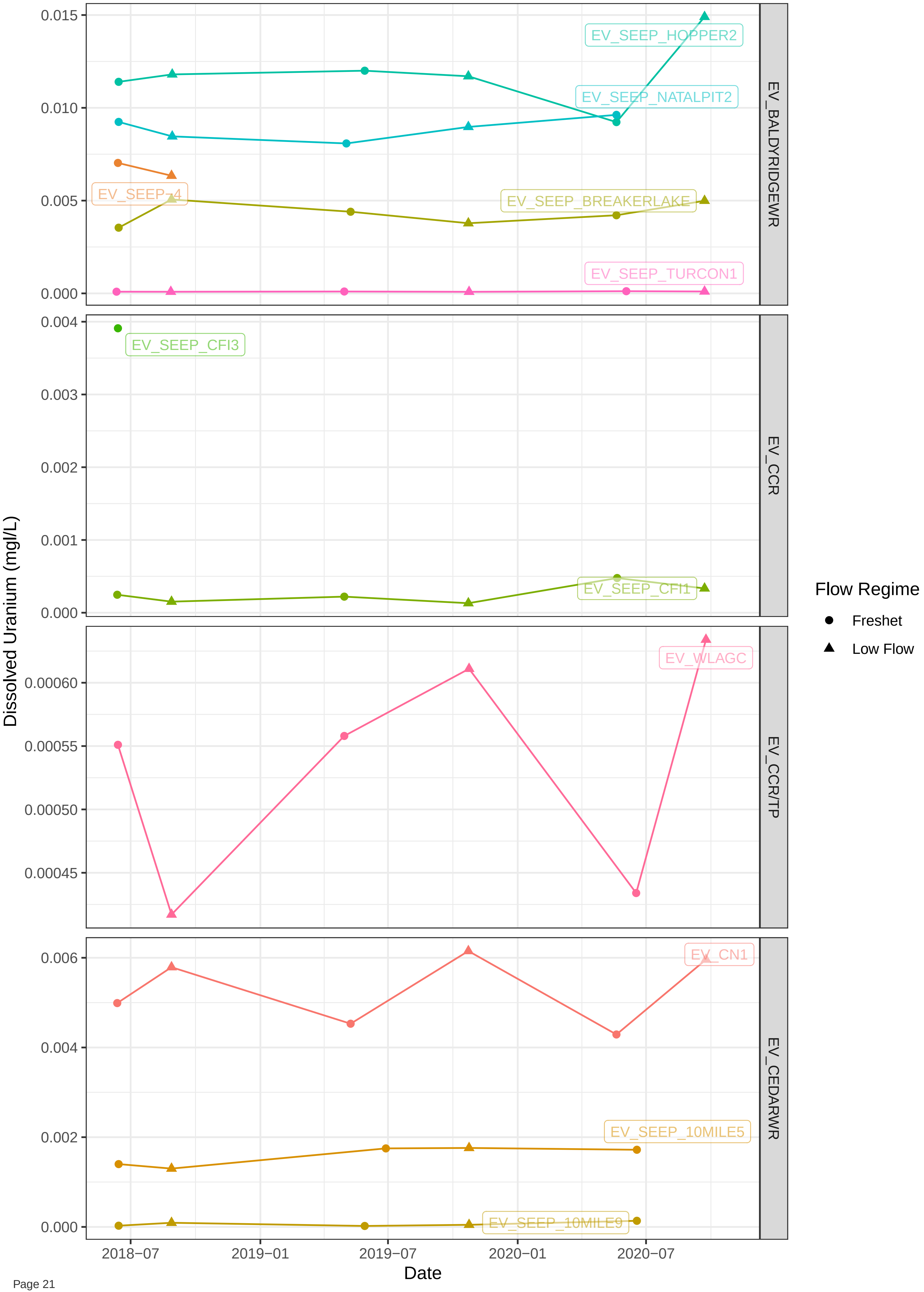

Nitrite (NO2), as N (mg/L)
Date
Flow Regime
● Freshet
▲ Low Flow
EV_BALDYRIDGEWR
EV_CCR
EV_CCR/TP
EV_CEDARWR
EV_SEEP_NATALPIT2
EV_SEEP_HOPPER2
EV_SEEP−4
EV_SEEP_TURCON1
EV_SEEP_BREAKERLAKE
EV_SEEP_CFI3
EV_SEEP_CFI1
EV_WLAGC
EV_SEEP_10MILE5
EV_CN1
EV_SEEP_10MILE9
0.6
0.4
0.2
0.0
0.006
0.005
0.004
0.003
0.002
0.001
0.050
0.025
0.000
−0.025
0.0125
0.0100
0.0075
0.0050
0.0025
2018−07
2019−01
2019−07
2020−01
2020−07

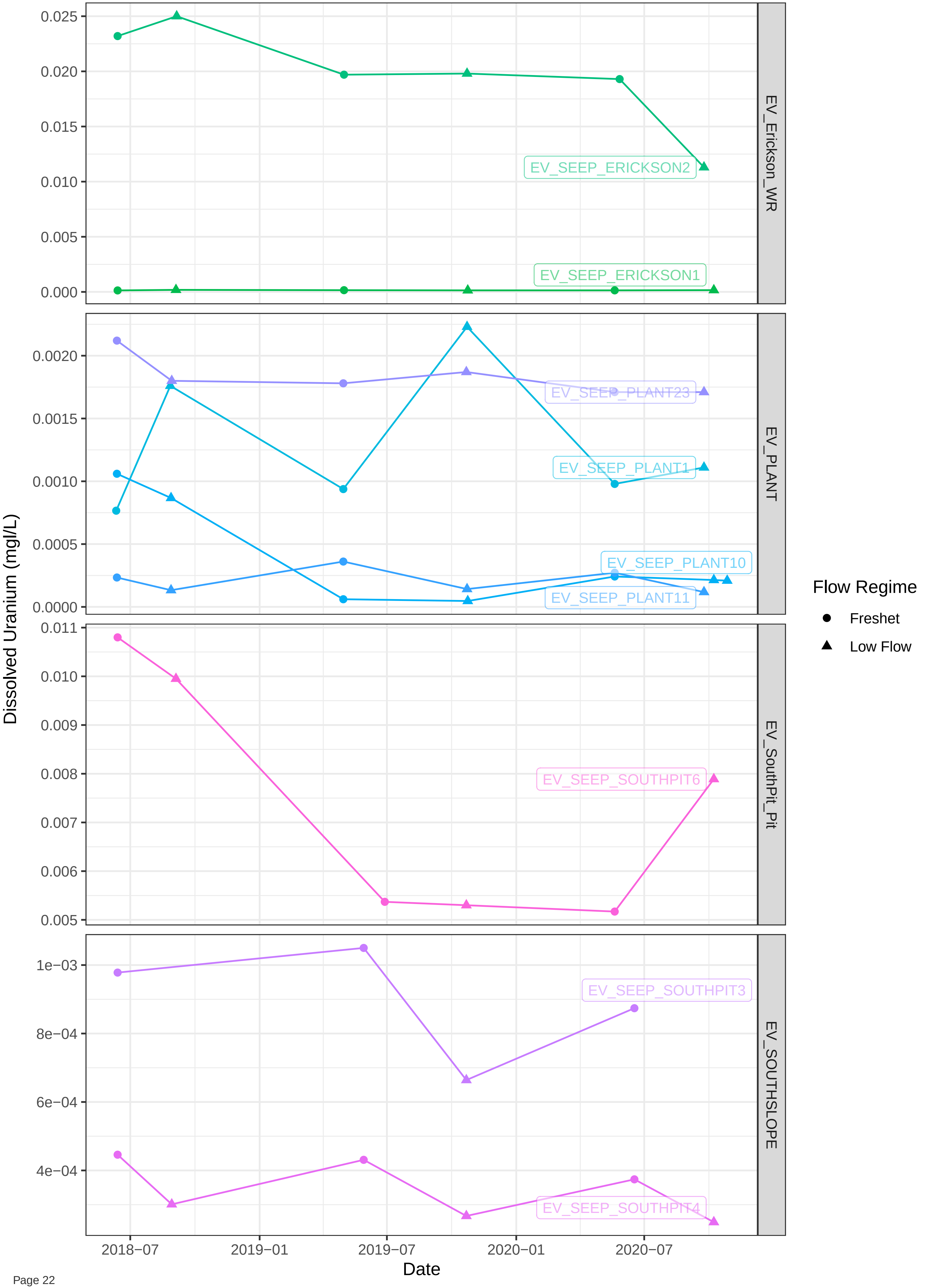

EV_SEEP_ERICKSON2
EV_SEEP_ERICKSON1
EV_Erickson_WR
0.009
0.006
0.003
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_SEEP_PLANT11
EV_PLANT
0.15
0.10
0.05
0.00
EV_SEEP_SOUTHPIT6
EV_SouthPit_Pit
0.050
0.025
0.000
−0.025
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_SOUTHSLOPE
0.0025
0.0020
0.0015
0.0010
Nitrite (NO2), as N (mg/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

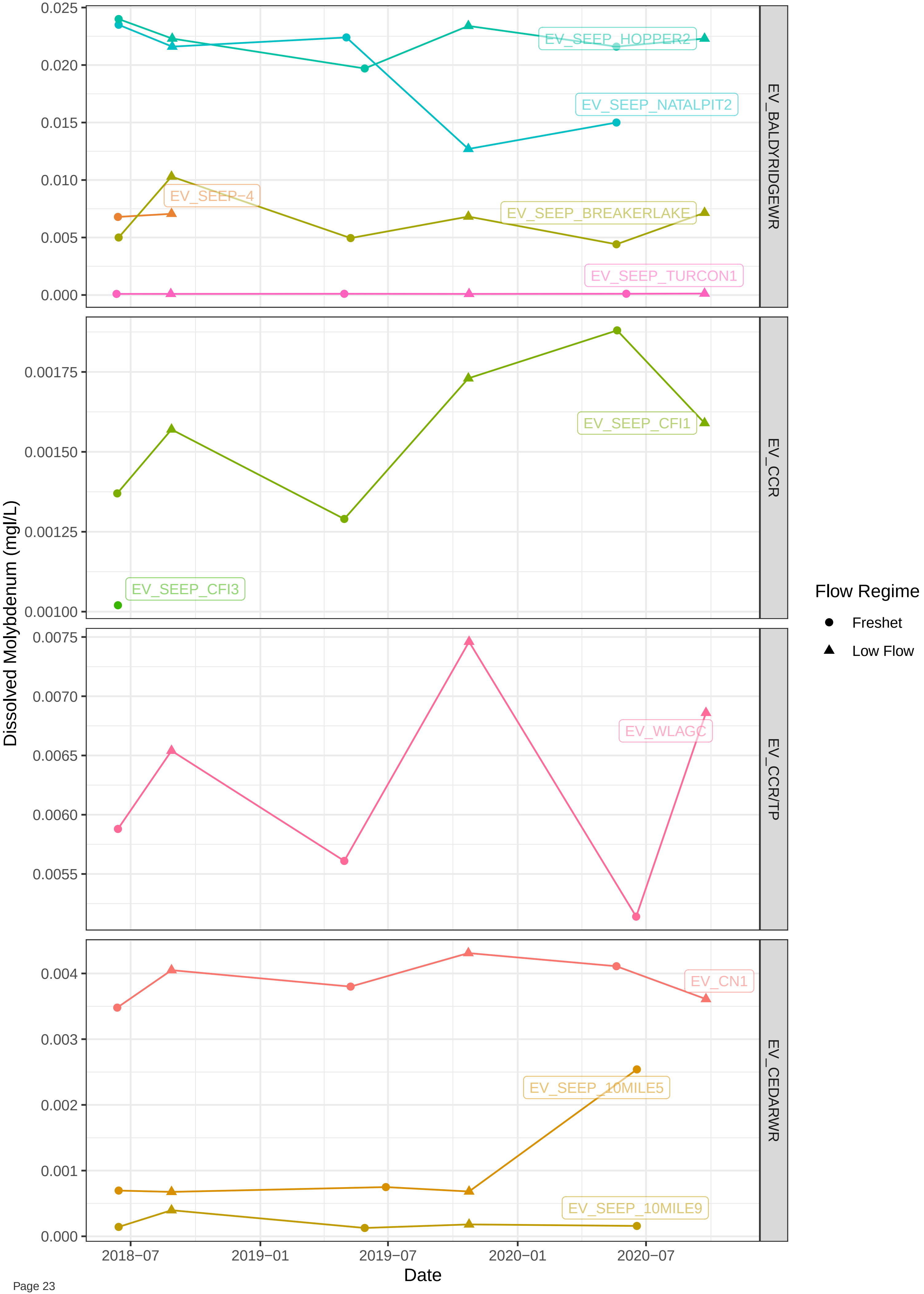


Total Dissolved Solids (TDS) (mgl/L)
Date
4000
3000
2000
1000
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_TURCON1
EV_BALDYRIDGEWR
1200
1000
800
600
EV_SEEP_CFI3
EV_SEEP_CFI1
EV_CCR
340
320
300
EV_WLAGC
EV_CCR/TP
750
500
250
EV_SEEP_10MILE5
EV_CN1
EV_SEEP_10MILE9
EV_CEDARWR
2018−07
2019−01
2019−07
2020−01
2020−07
Flow Regime
● Freshet
▲ Low Flow

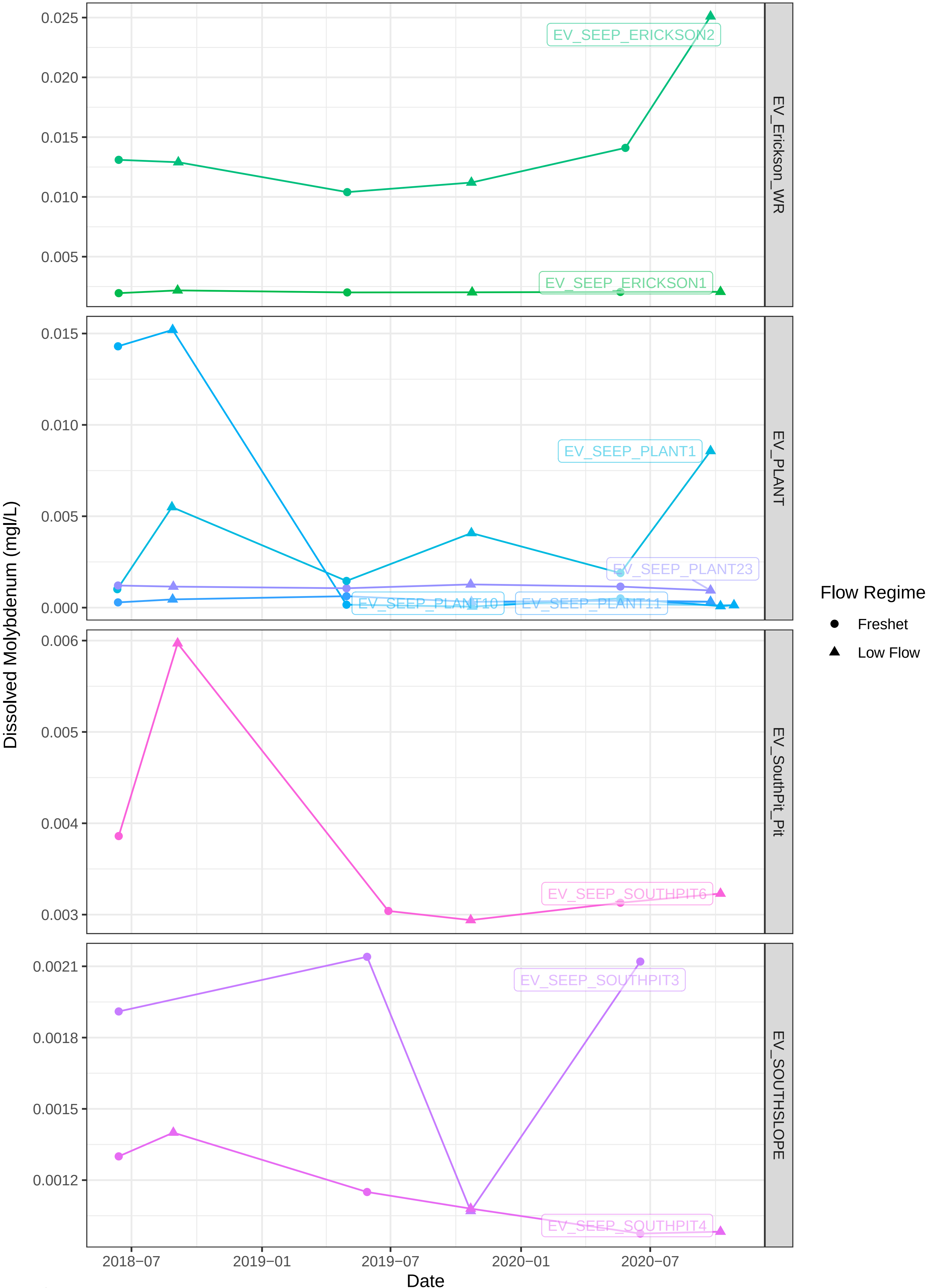

Total Dissolved Solids (TDS) (mgl/L)
3000
2500
2000
1500
1000
EV_SEEP_ERICKSON2
EV_SEEP_ERICKSON1
EV_Erickson_WR
3000
2000
1000
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_SEEP_PLANT11
EV_PLANT
2500
2000
1500
EV_SEEP_SOUTHPIT6
EV_SouthPit_Pit
400
360
320
EV_SEEP_SOUTHPIT4
EV_SEEP_SOUTHPIT3
EV_SOUTHSLOPE
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow


Dissolved Uranium (mg/L)
0.015
0.010
0.005
0.000
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_4
EV_SEEP_BREAKERLAKE
EV_SEEP_TURCON1
EV_BALDYRIDGEWR
0.004
0.003
0.002
0.001
0.000
EV_SEEP_CFI3
EV_SEEP_CFI1
EV_CCR
0.00060
0.00055
0.00050
0.00045
EV_WLAGC
EV_CCR/TP
0.006
0.004
0.002
0.000
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_CEDARWR
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

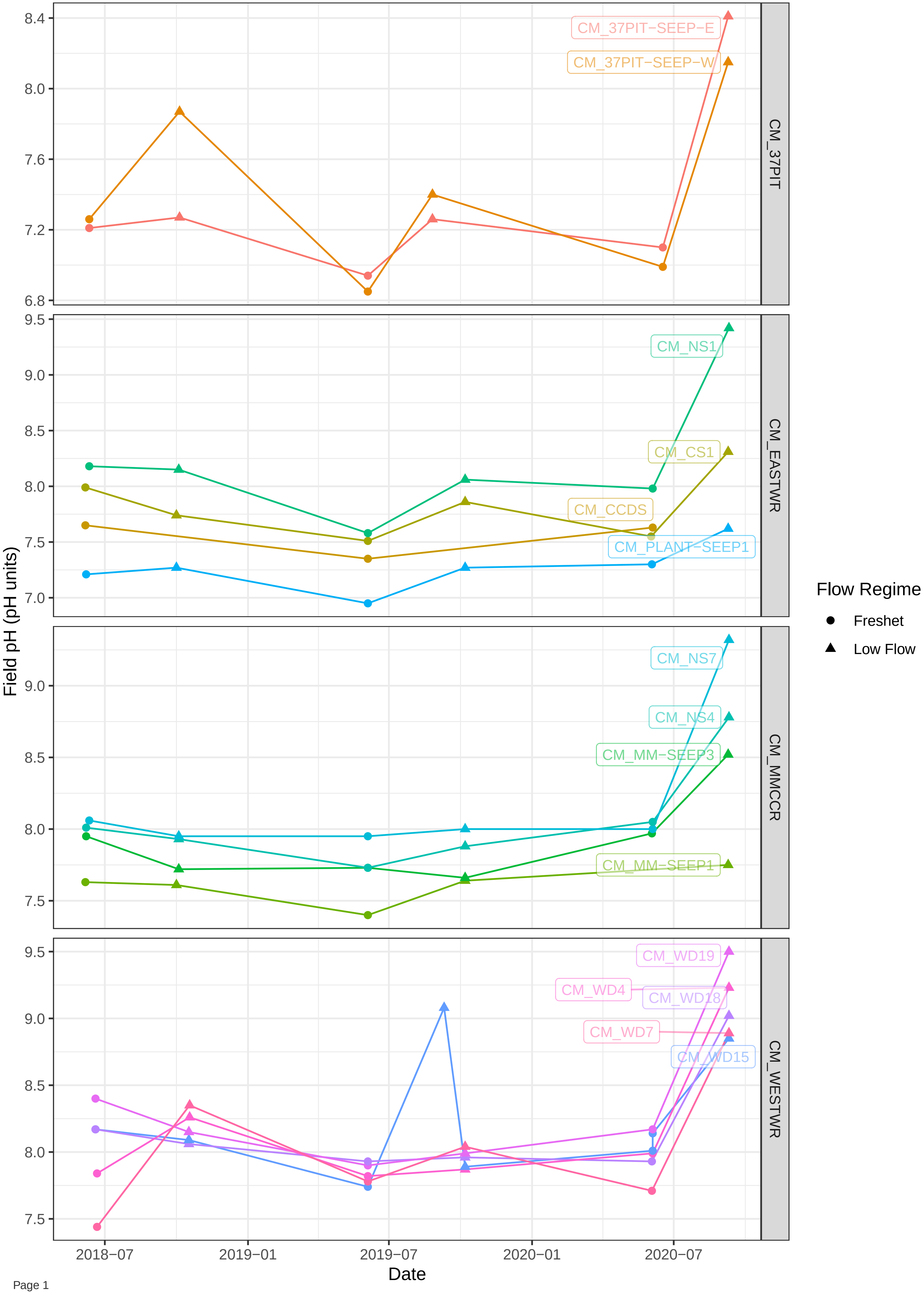

EV_Erickson_WR
EV_SEEP_ERICKSON2
EV_SEEP_ERICKSON1
0.025
0.020
0.015
0.010
0.005
0.000
EV_PLANT
EV_SEEP_PLANT23
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
0.0020
0.0015
0.0010
0.0005
0.0000
EV_SouthPit_Pit
EV_SEEP_SOUTHPIT6
0.011
0.010
0.009
0.008
0.007
0.006
0.005
EV_SOUTHSLOPE
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
1e−03
8e−04
6e−04
4e−04
Dissolved Uranium (mgl/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow



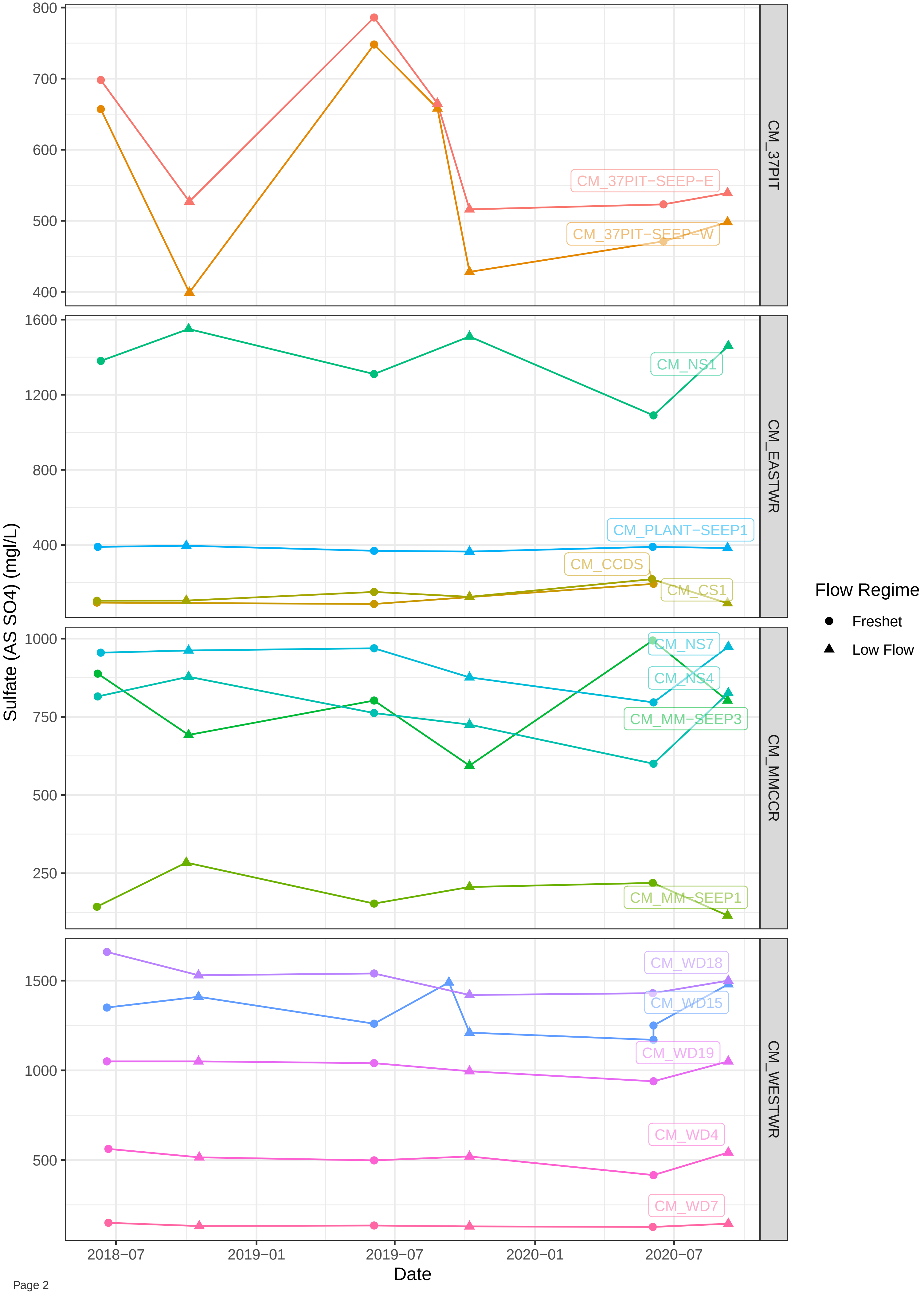
0.025
0.020
0.015
0.010
0.005
0.000
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_TURCON1
EV_BALDYRIDGEWR
0.00175
0.00150
0.00125
0.00100
EV_SEEP_CFI1
EV_SEEP_CFI3
EV_CCR
0.0075
0.0070
0.0065
0.0060
0.0055
EV_WLAGC
EV_CCR/TP
0.004
0.003
0.002
0.001
0.000
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_CEDARWR
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Dissolved Molybdenum (mgl/L)
Flow Regime
● Freshet
▲ Low Flow

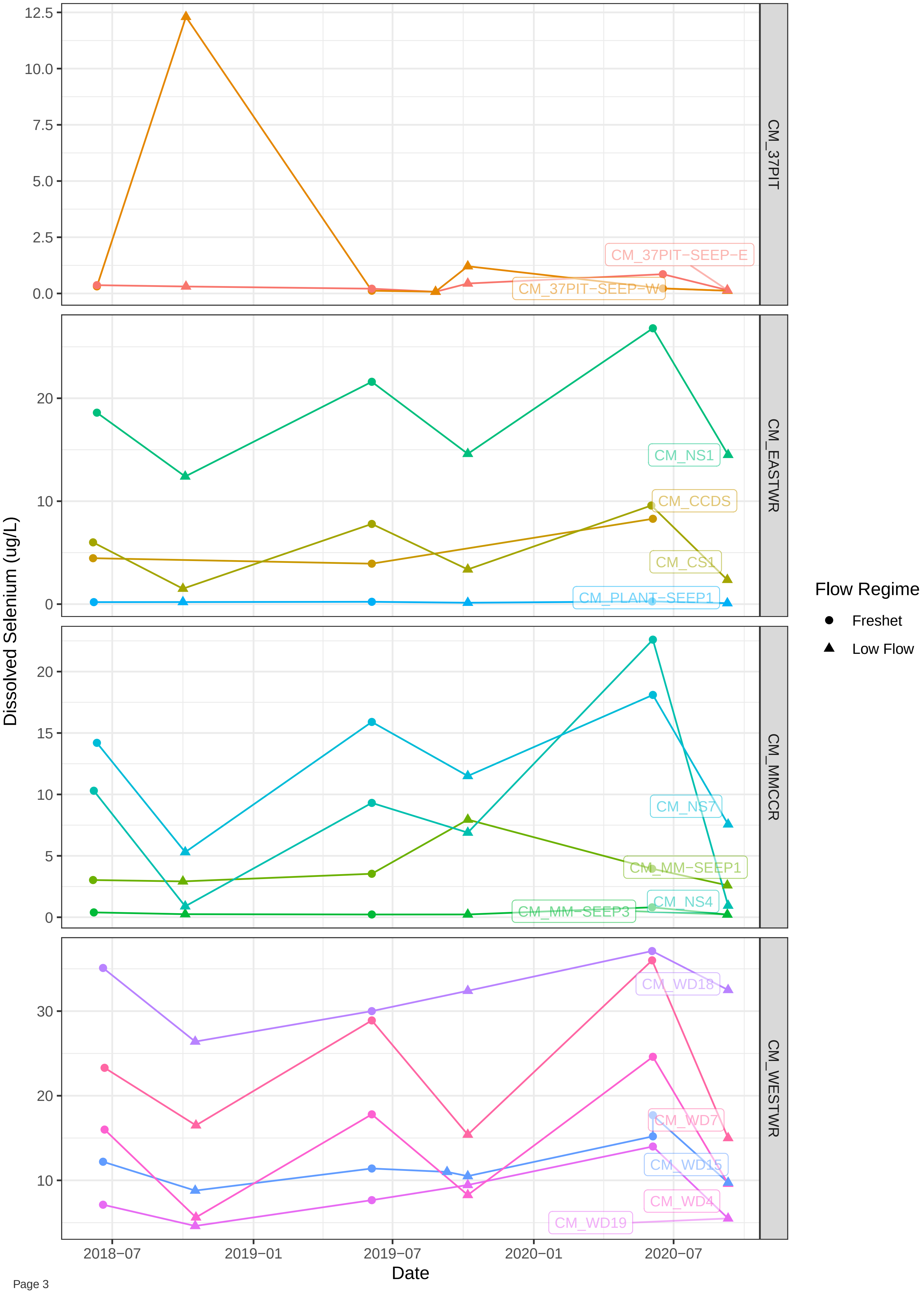


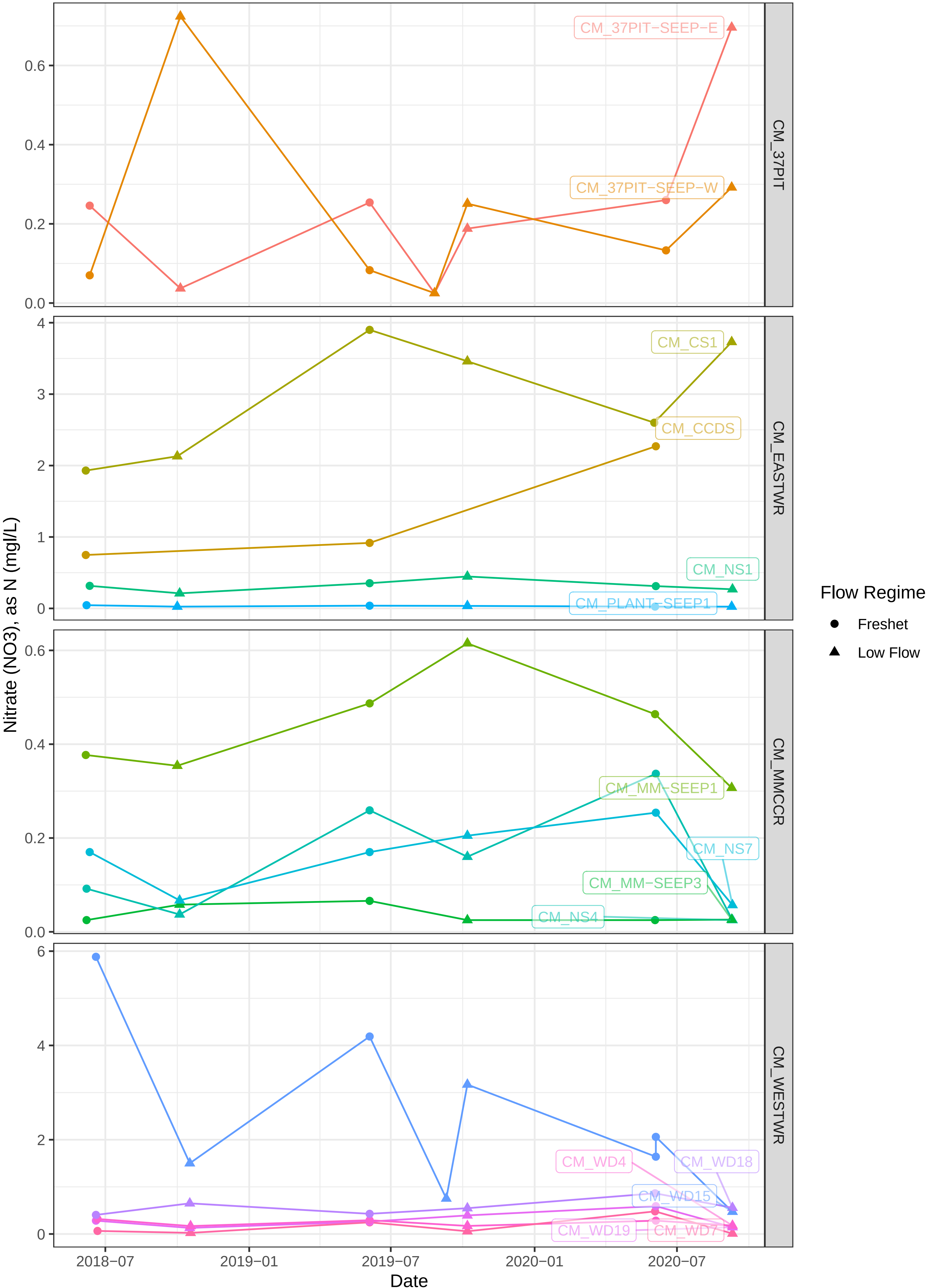
0.025
0.020
0.015
0.010
0.005
EV_SEEP_ERICKSON2
EV_SEEP_ERICKSON1
EV_Erickson_WR
0.015
0.010
0.005
0.000
EV_SEEP_PLANT1
EV_SEEP_PLANT23
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_PLANT
0.006
0.005
0.004
0.003
EV_SEEP_SOUTHPIT6
EV_SouthPit_Pit
0.0021
0.0018
0.0015
0.0012
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_SOUTHSLOPE
Dissolved Molybdenum (mgl/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

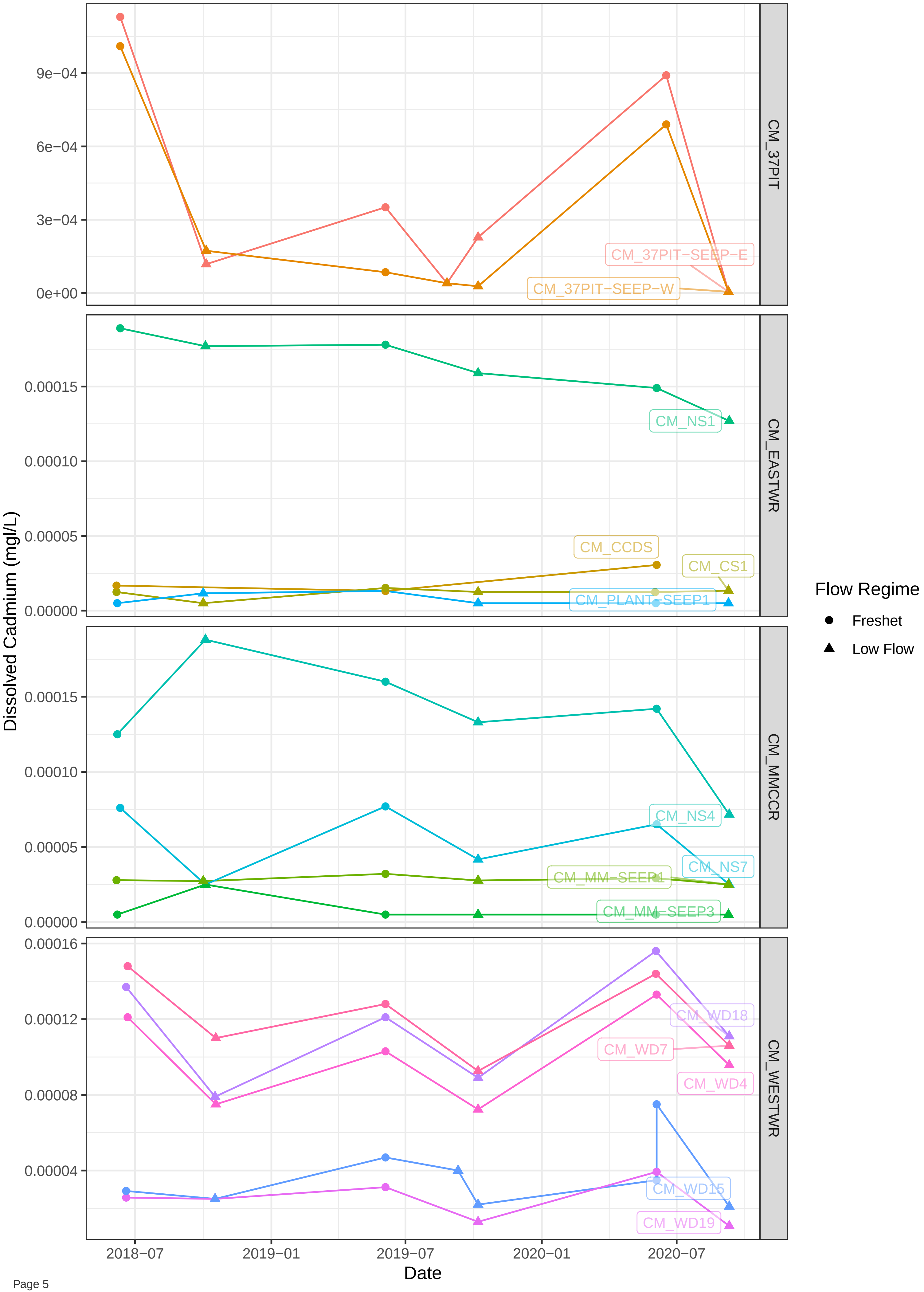


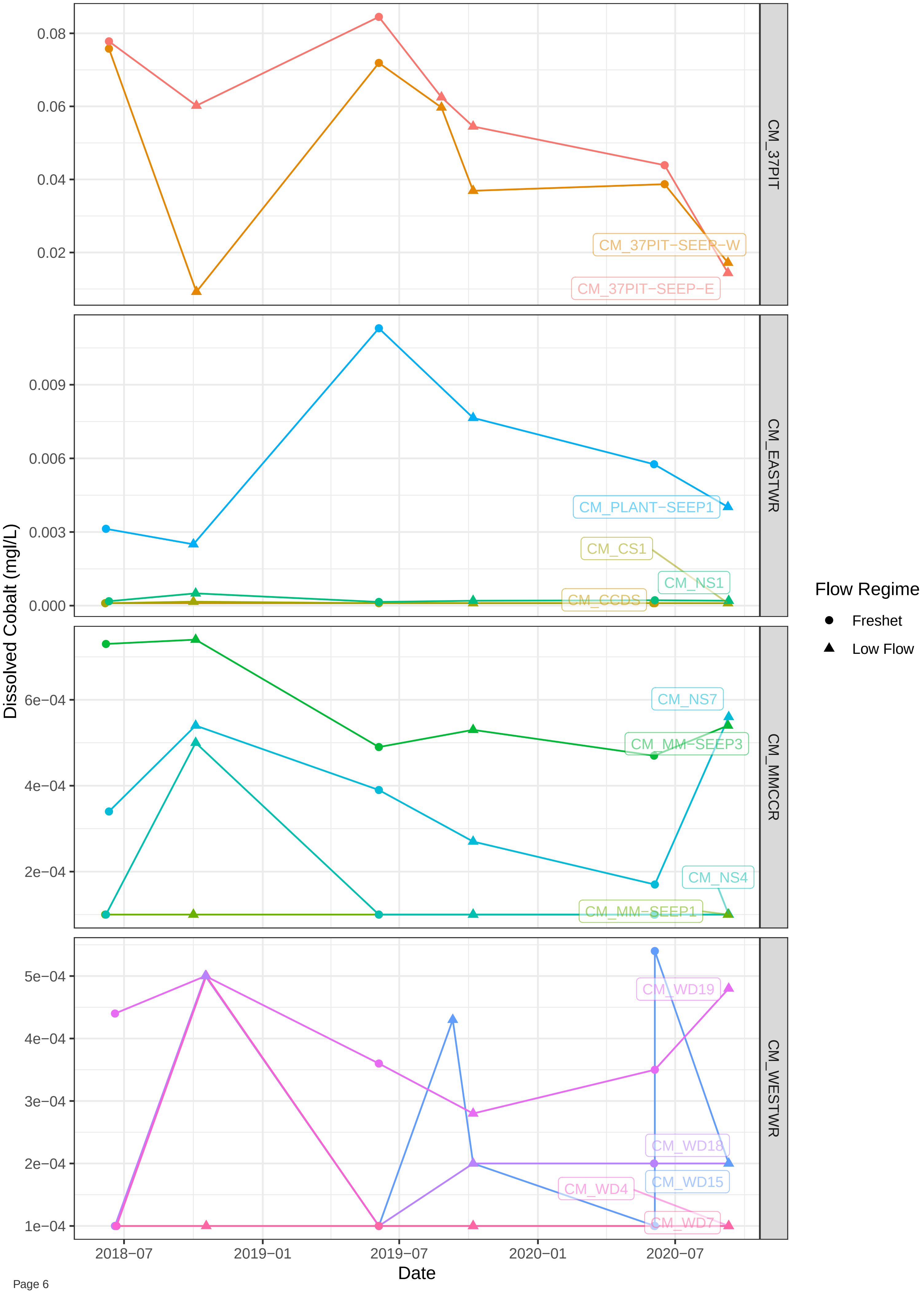
Field pH (pH units)
Date
2018−07
2019−01
2019−07
2020−01
2020−07
CM_37PIT
CM_EASTWR
CM_MMCCR
CM_WESTWR
6.8
7.2
7.6
8.0
8.4
7.0
7.5
8.0
8.5
9.0
9.5
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_NS1
CM_CS1
CM_CCDS
CM_PLANT−SEEP1
CM_NS7
CM_NS4
CM_MM−SEEP3
CM_MM−SEEP1
CM_WD19
CM_WD4
CM_WD18
CM_WD7
CM_WD15
Flow Regime
● Freshet
▲ Low Flow


800
700
600
500
400
CM_37PIT
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
1600
1200
800
400
CM_EASTWR
CM_NS1
CM_PLANT−SEEP1
CM_CCDS
CM_CS1
1000
750
500
250
CM_MMCCR
CM_NS7
CM_NS4
CM_MM−SEEP3
CM_MM−SEEP1
1500
1000
500
CM_WESTWR
CM_WD18
CM_WD15
CM_WD19
CM_WD4
CM_WD7
Sulfate (AS SO4) (mg/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

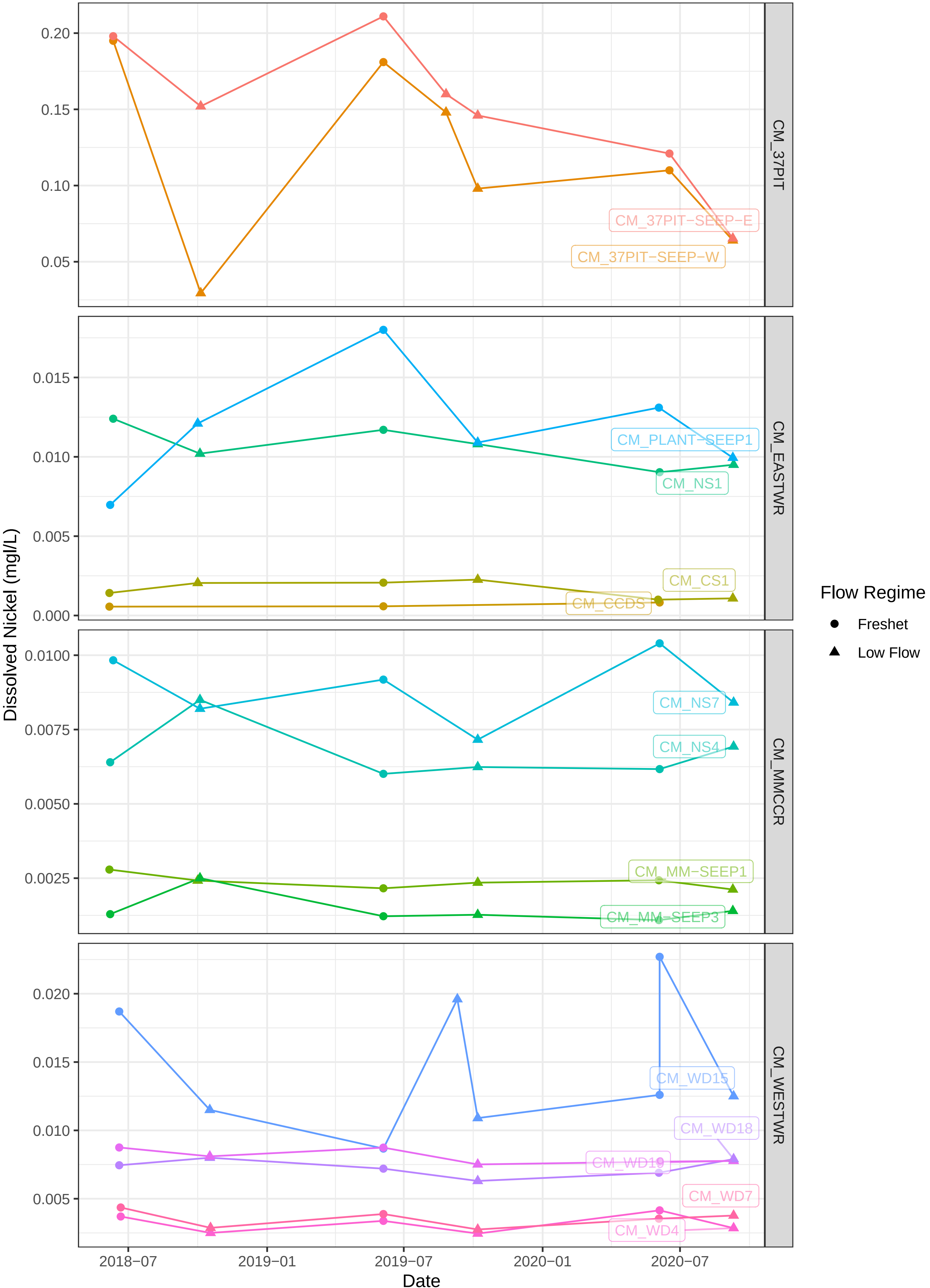

Dissolved Selenium (ug/L)
Date
2018−07
2019−01
2019−07
2020−01
2020−07
12.5
10.0
7.5
5.0
2.5
0.0
CM_37PIT
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
20
10
0
CM_EASTWR
CM_NS1
CM_CCDS
CM_CS1
CM_PLANT−SEEP1
20
15
10
5
0
CM_MMCCR
CM_NS7
CM_MM−SEEP1
CM_NS4
CM_MM−SEEP3
30
20
10
CM_WESTWR
CM_WD18
CM_WD7
CM_WD15
CM_WD4
CM_WD19
Flow Regime
● Freshet
▲ Low Flow

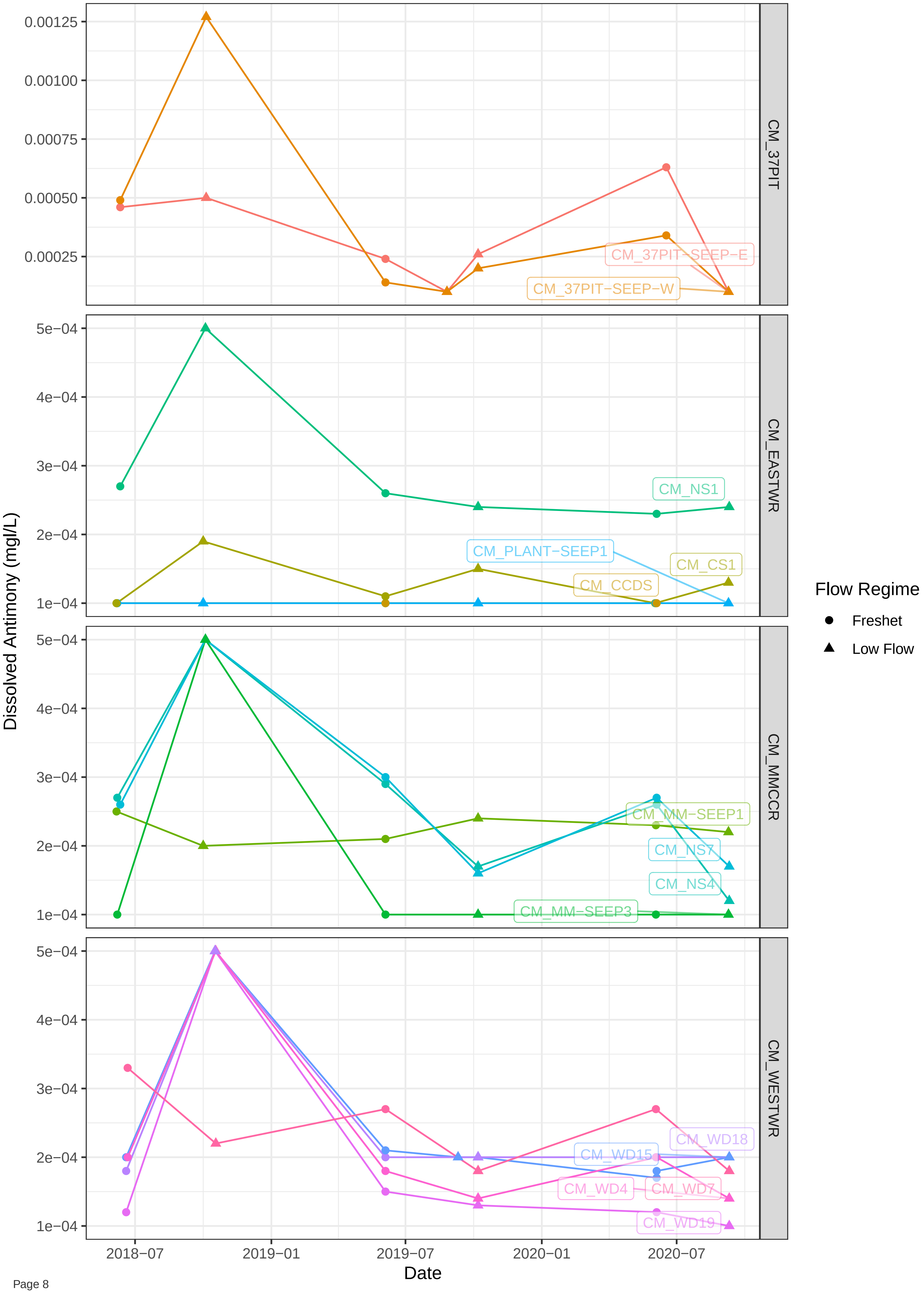

CM_37PIT-SEEP-E
CM_37PIT-SEEP-W
CM_37PIT
0.0
0.2
0.4
0.6
CM_CS1
CM_CCDS
CM_NS1
CM_PLANT-SEEP1
CM_EASTWR
0
1
2
3
4
CM_MM-SEEP1
CM_NS7
CM_MM-SEEP3
CM_NS4
CM_MMCCR
0.0
0.2
0.4
0.6
CM_WD4
CM_WD18
CM_WD15
CM_WD19
CM_WD7
CM_WESTWR
0
2
4
6
Nitrate (NO3), as N (mg/L)
2018-07
2019-01
2019-07
2020-01
2020-07
Date
Flow Regime
● Freshet
▲ Low Flow

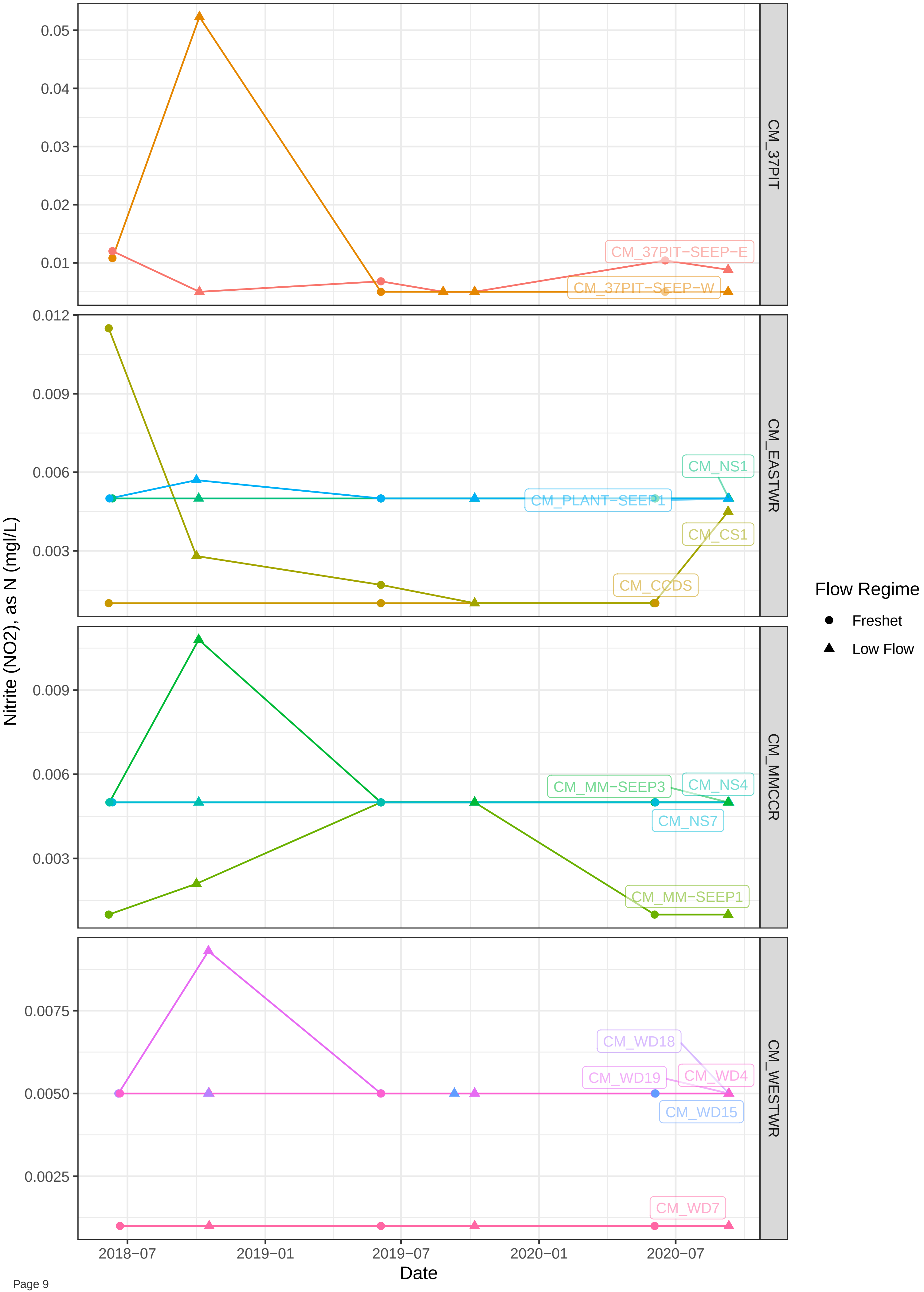

Dissolved Cadmium (mg/L)
9e−04
6e−04
3e−04
0e+00
CM_37PIT
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
0.00015
0.00010
0.00005
0.00000
CM_EASTWR
CM_NS1
CM_CCDS
CM_CS1
CM_PLANT−SEEP1
0.00015
0.00010
0.00005
0.00000
CM_MMCCR
CM_NS4
CM_NS7
CM_MM−SEEP1
CM_MM−SEEP3
0.00016
0.00012
0.00008
0.00004
CM_WESTWR
CM_WD18
CM_WD7
CM_WD4
CM_WD15
CM_WD19
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

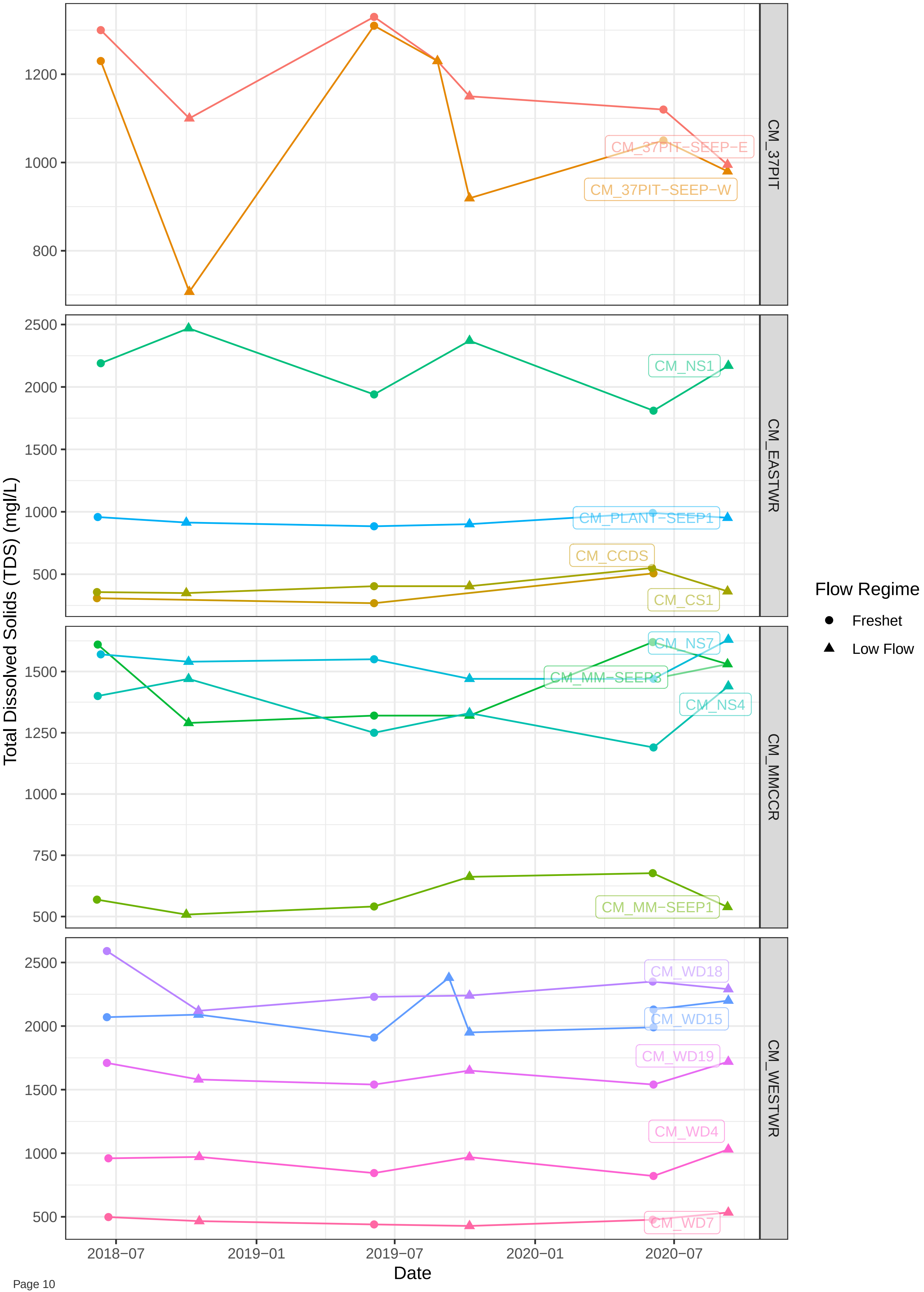


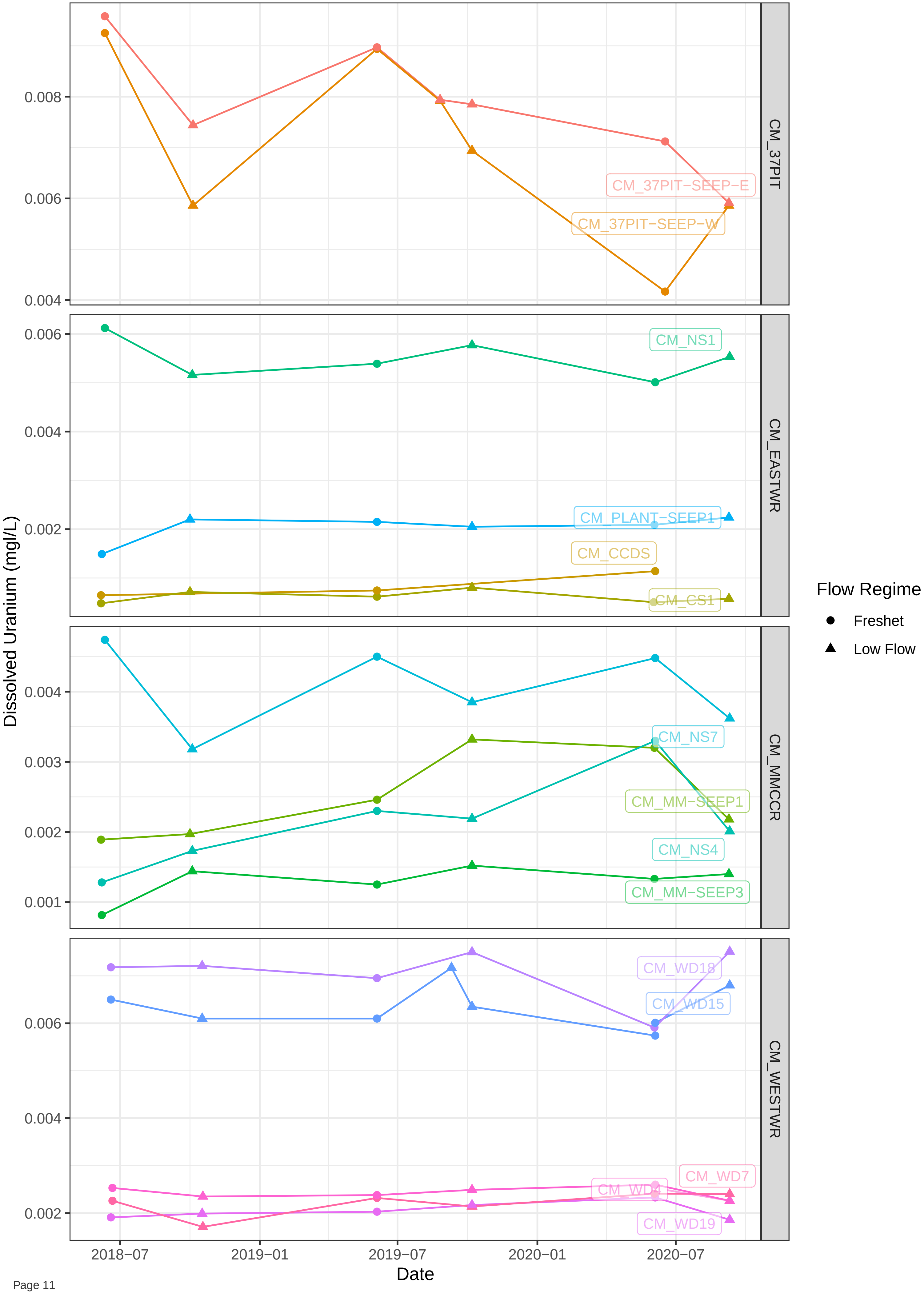
CM_37PIT
CM_EASTWR
CM_MMCCR
CM_WESTWR
0.08
0.06
0.04
0.02
0.009
0.006
0.003
0.000
6e−04
4e−04
2e−04
5e−04
4e−04
3e−04
2e−04
1e−04
CM_37PIT−SEEP−W
CM_37PIT−SEEP−E
CM_PLANT−SEEP1
CM_CS1
CM_NS1
CM_CCDS
CM_NS7
CM_MM−SEEP3
CM_NS4
CM_MM−SEEP1
CM_WD19
CM_WD18
CM_WD4
CM_WD15
CM_WD7
Dissolved Cobalt (mg/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow


CM_37PIT
0.20
0.15
0.10
0.05
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_EASTWR
0.015
0.010
0.005
0.000
CM_PLANT−SEEP1
CM_NS1
CM_CS1
CM_CCDS
CM_MMCCR
0.0100
0.0075
0.0050
0.0025
CM_NS7
CM_NS4
CM_MM−SEEP1
CM_MM−SEEP3
CM_WESTWR
0.020
0.015
0.010
0.005
CM_WD15
CM_WD18
CM_WD19
CM_WD7
CM_WD4
Dissolved Nickel (mg/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow

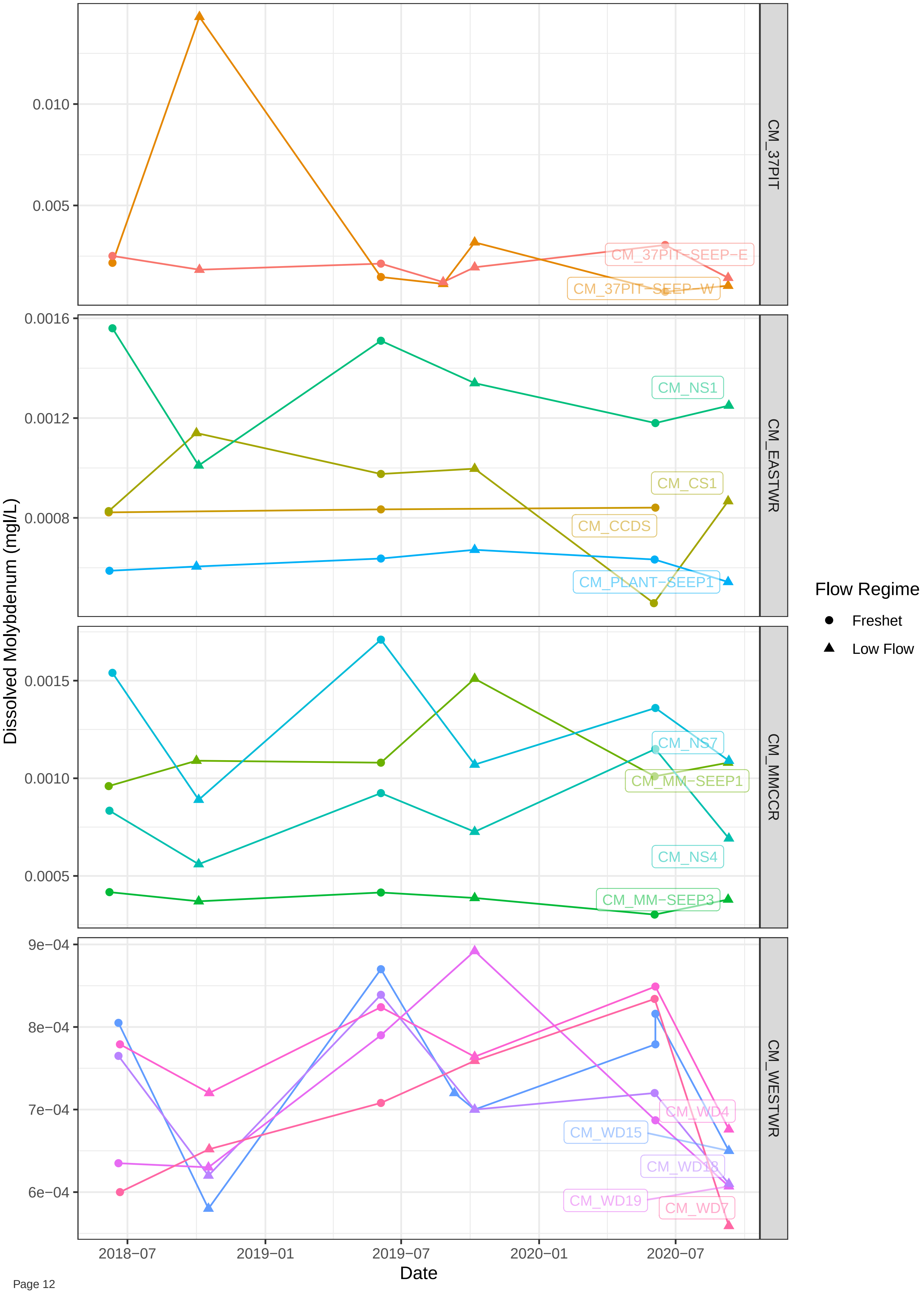

Dissolved Antimony (mg/L)
0.00125
0.00100
0.00075
0.00050
0.00025
CM_37PIT
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
5e−04
4e−04
3e−04
2e−04
1e−04
CM_EASTWR
CM_NS1
CM_PLANT−SEEP1
CM_CS1
CM_CCDS
CM_MMCCR
CM_MM−SEEP1
CM_NS7
CM_NS4
CM_MM−SEEP3
CM_WESTWR
CM_WD18
CM_WD15
CM_WD4
CM_WD7
CM_WD19
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow


0.05
0.04
0.03
0.02
0.01
CM_37PIT-SEEP-E
CM_37PIT-SEEP-W
CM_37PIT
0.012
0.009
0.006
0.003
CM_NS1
CM_PLANT-SEEP1
CM_CS1
CM_CCDS
CM_EASTWR
0.009
0.006
0.003
CM_MM-SEEP3
CM_NS4
CM_NS7
CM_MM-SEEP1
CM_MMCCR
0.0075
0.0050
0.0025
CM_WD18
CM_WD19
CM_WD4
CM_WD15
CM_WD7
CM_WESTWR
Nitrite (NO2), as N (mgl/L)
2018-07
2019-01
2019-07
2020-01
2020-07
Date
Flow Regime
● Freshet
▲ Low Flow

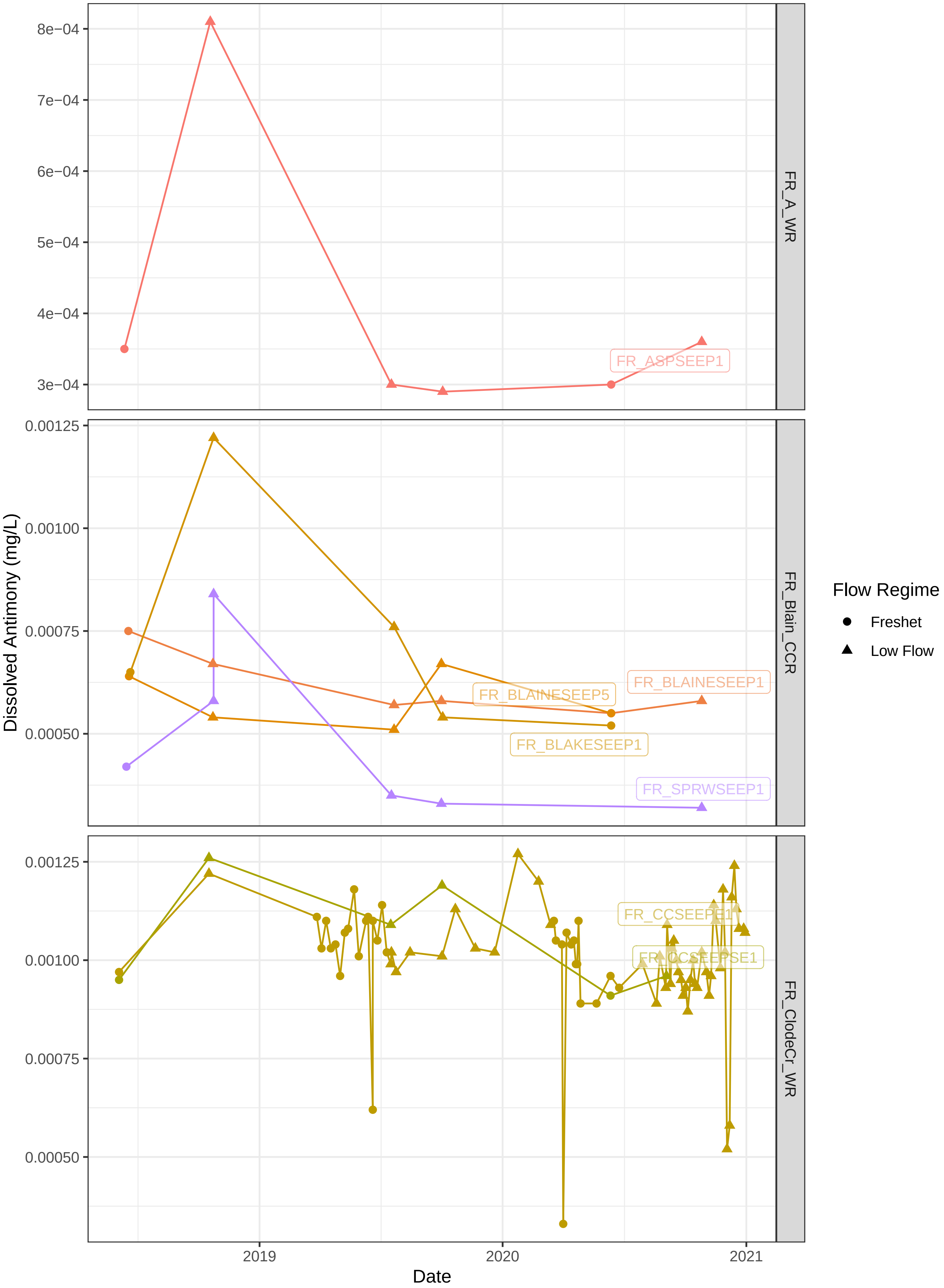

Total Dissolved Solids (TDS) (mgl/L)
Date
CM_37PIT
800
1000
1200
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_EASTWR
500
1000
1500
2000
2500
CM_NS1
CM_PLANT−SEEP1
CM_CCDS
CM_CS1
CM_MMCCR
500
750
1000
1250
1500
CM_NS7
CM_MM−SEEP3
CM_NS4
CM_MM−SEEP1
CM_WESTWR
500
1000
1500
2000
2500
CM_WD18
CM_WD15
CM_WD19
CM_WD4
CM_WD7
2018−07
2019−01
2019−07
2020−01
2020−07
Flow Regime
● Freshet
▲ Low Flow



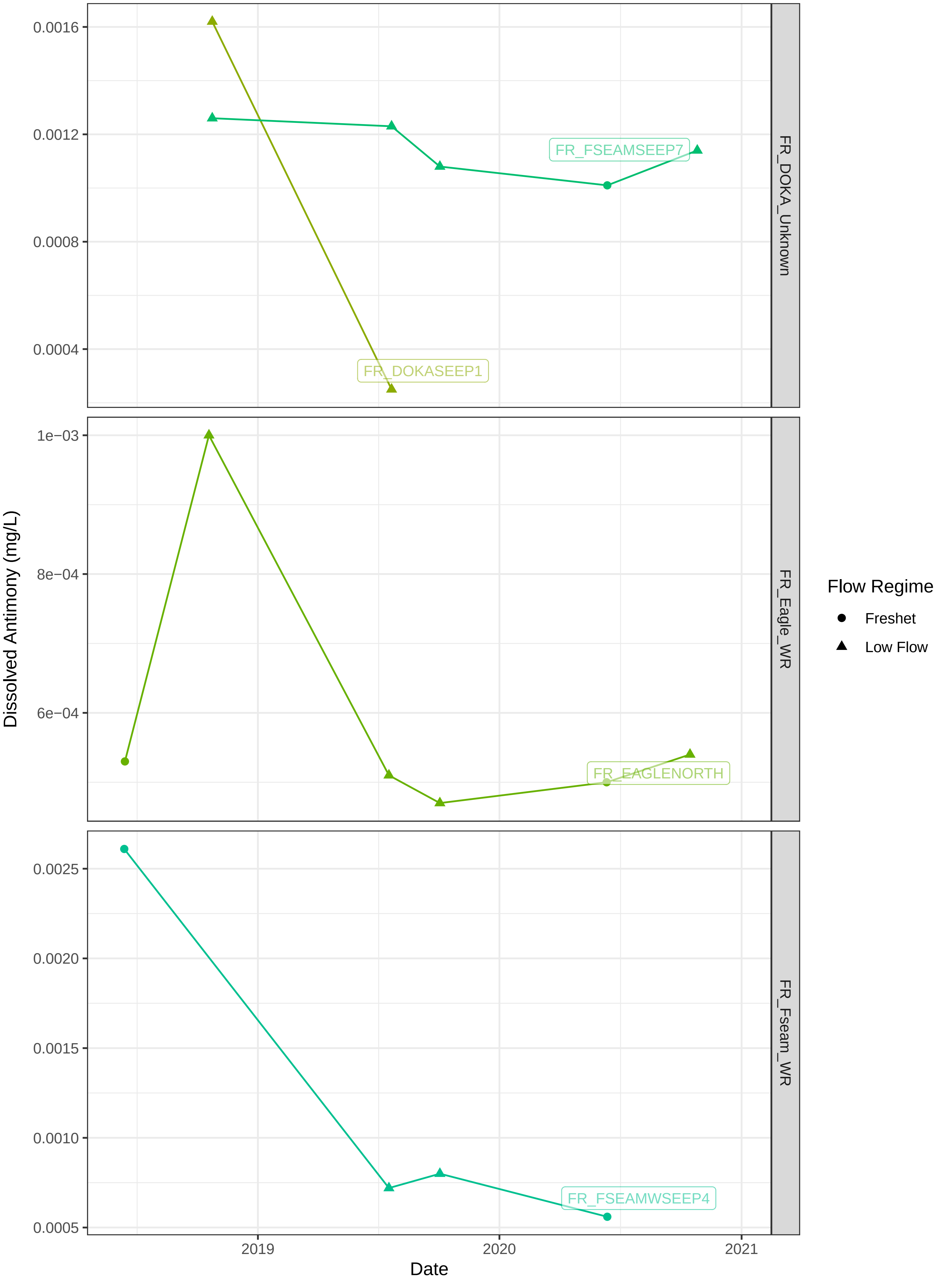
CM_37PIT
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
0.008
0.006
0.004
CM_EASTWR
CM_NS1
CM_PLANT−SEEP1
CM_CCDS
CM_CS1
0.006
0.004
0.002
CM_MMCCR
CM_NS7
CM_MM−SEEP1
CM_NS4
CM_MM−SEEP3
0.004
0.003
0.002
0.001
CM_WESTWR
CM_WD18
CM_WD15
CM_WD7
CM_WD4
CM_WD19
0.006
0.004
0.002
Dissolved Uranium (mgl/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow


Dissolved Molybdenum (mg/L)
Date
0.010
0.005
0.0016
0.0012
0.0008
0.0015
0.0010
0.0005
9e−04
8e−04
7e−04
6e−04
2018−07
2019−01
2019−07
2020−01
2020−07
CM_37PIT
CM_EASTWR
CM_MMCCR
CM_WESTWR
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_NS1
CM_CS1
CM_CCDS
CM_PLANT−SEEP1
CM_NS7
CM_MM−SEEP1
CM_NS4
CM_MM−SEEP3
CM_WD4
CM_WD15
CM_WD18
CM_WD19
CM_WD7
Flow Regime
● Freshet
▲ Low Flow

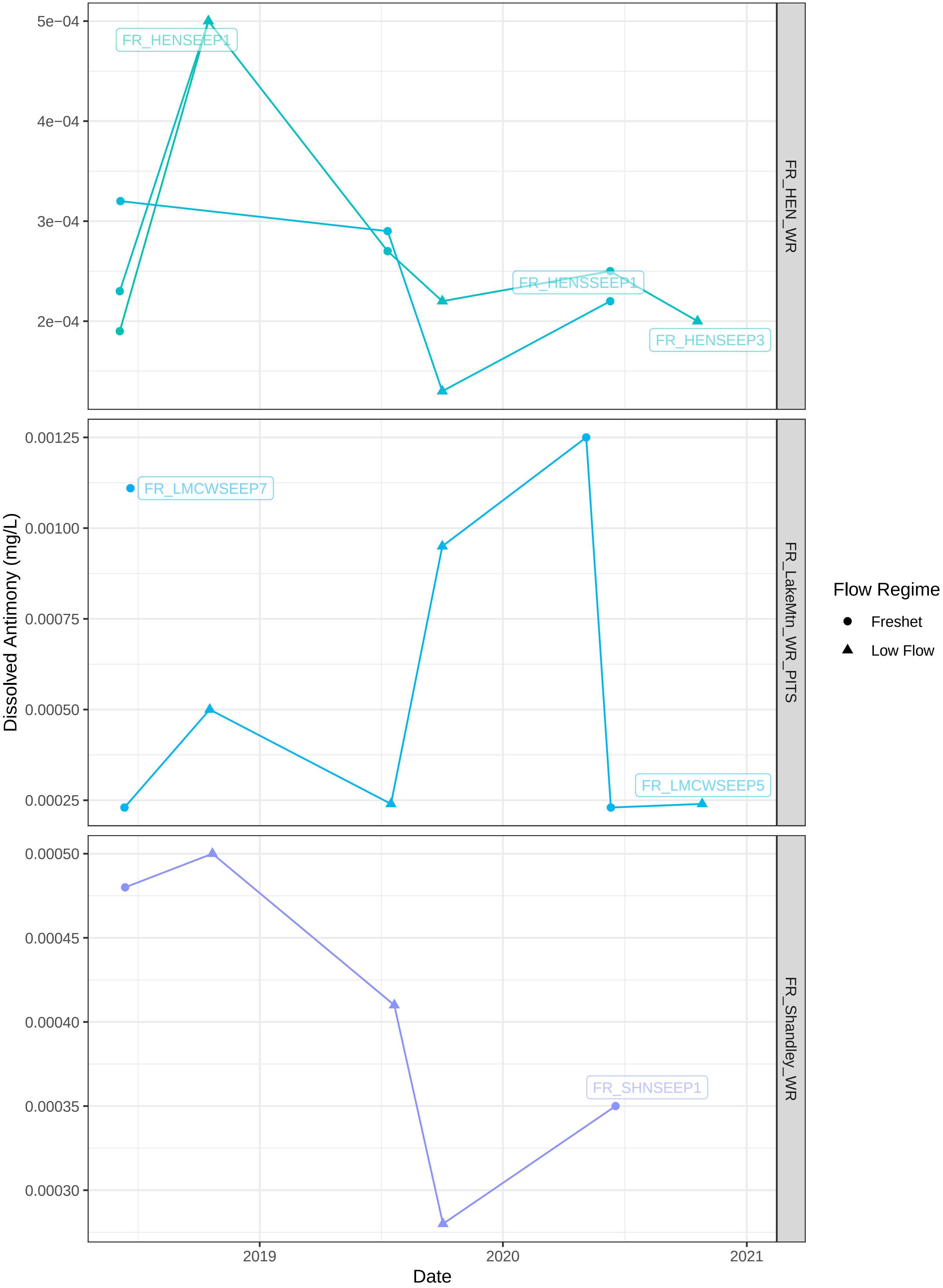
Appendix B Water Quality Timeseries, BCWQG FWAL Screening



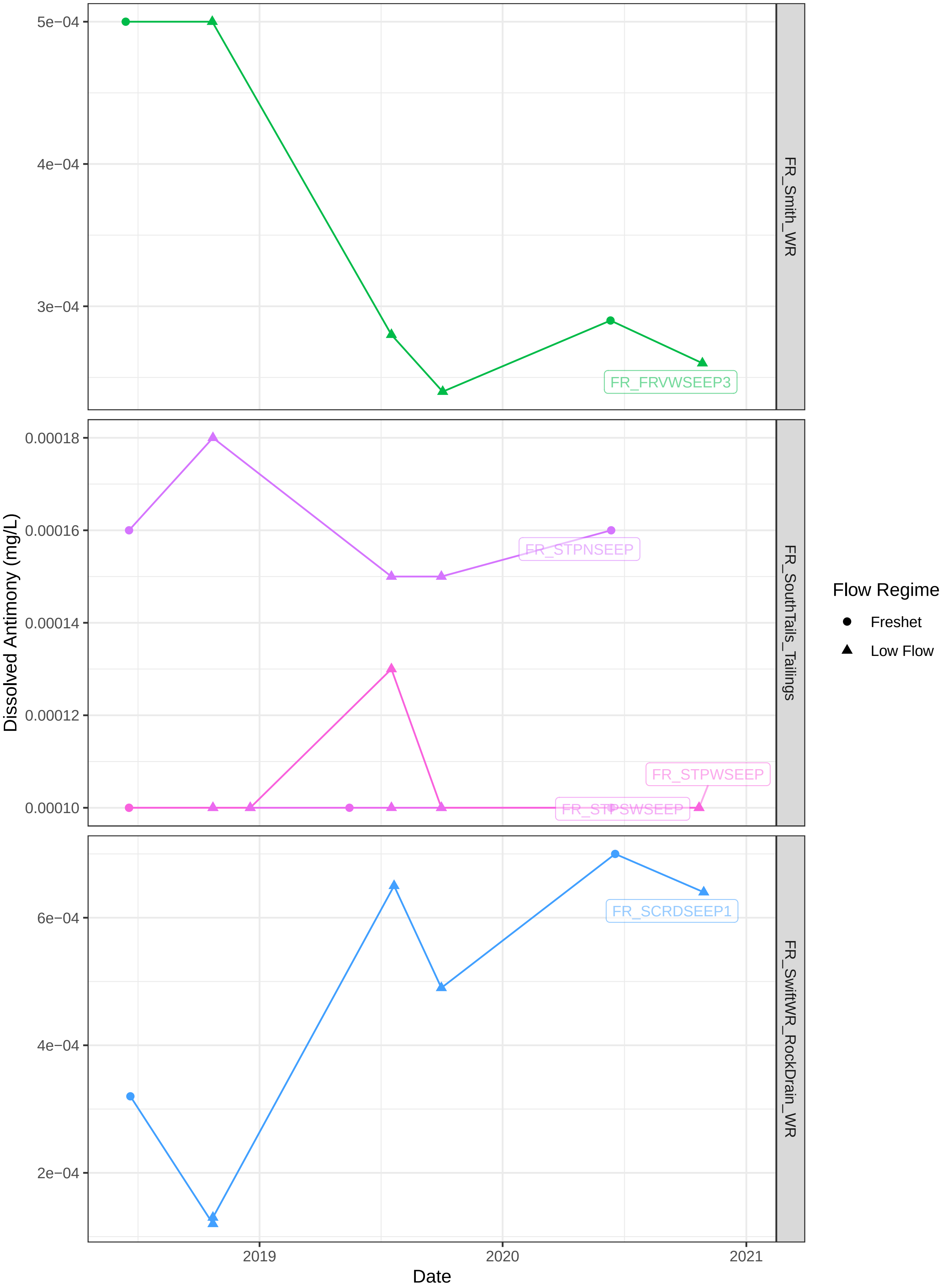
Note: there is no FWAL BCWQG for Dissolved Antimony



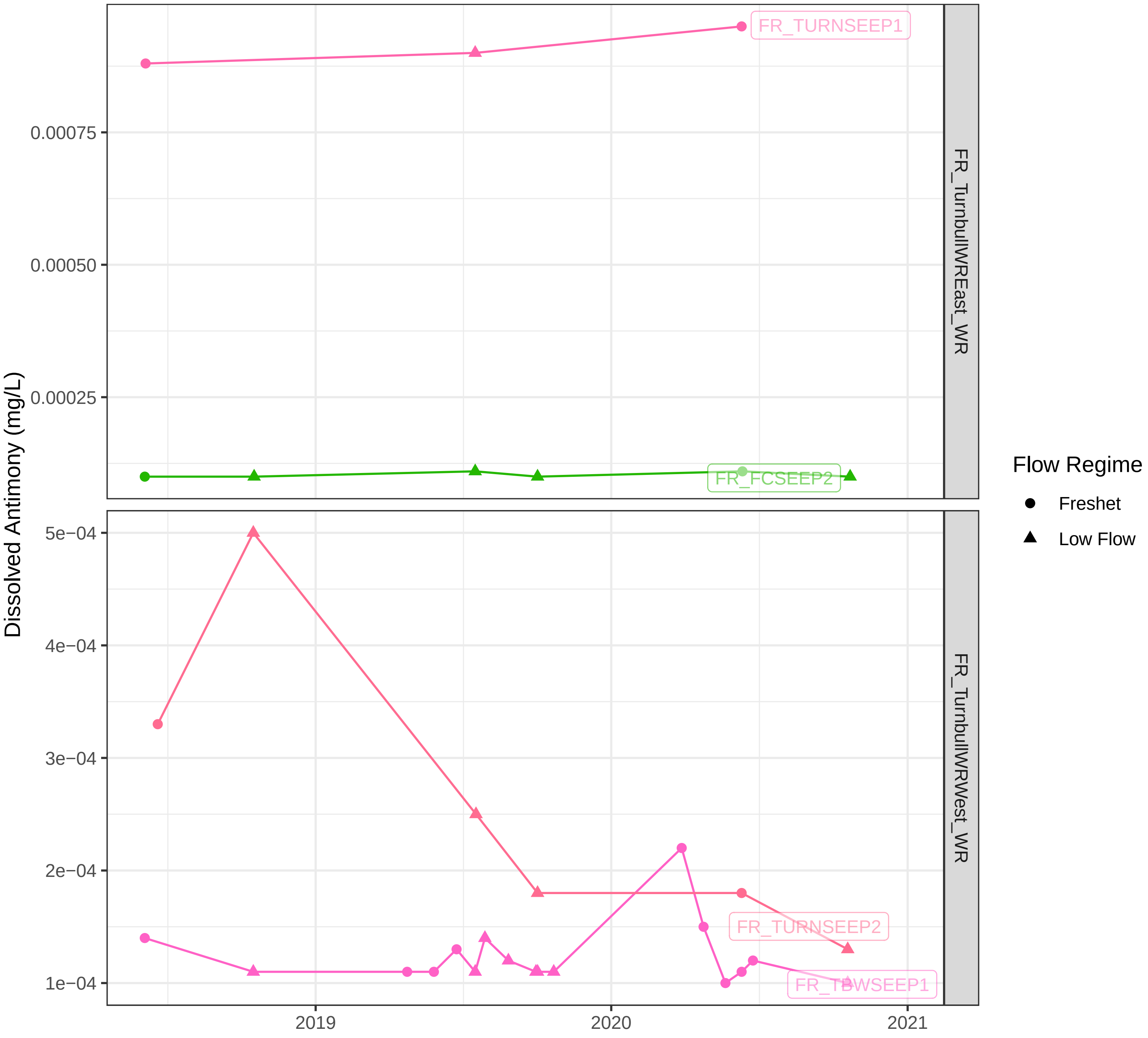
Note: there is no FWAL BCWQG for Dissolved Antimony



Note: there is no FWAL BCWQG for Dissolved Antimony

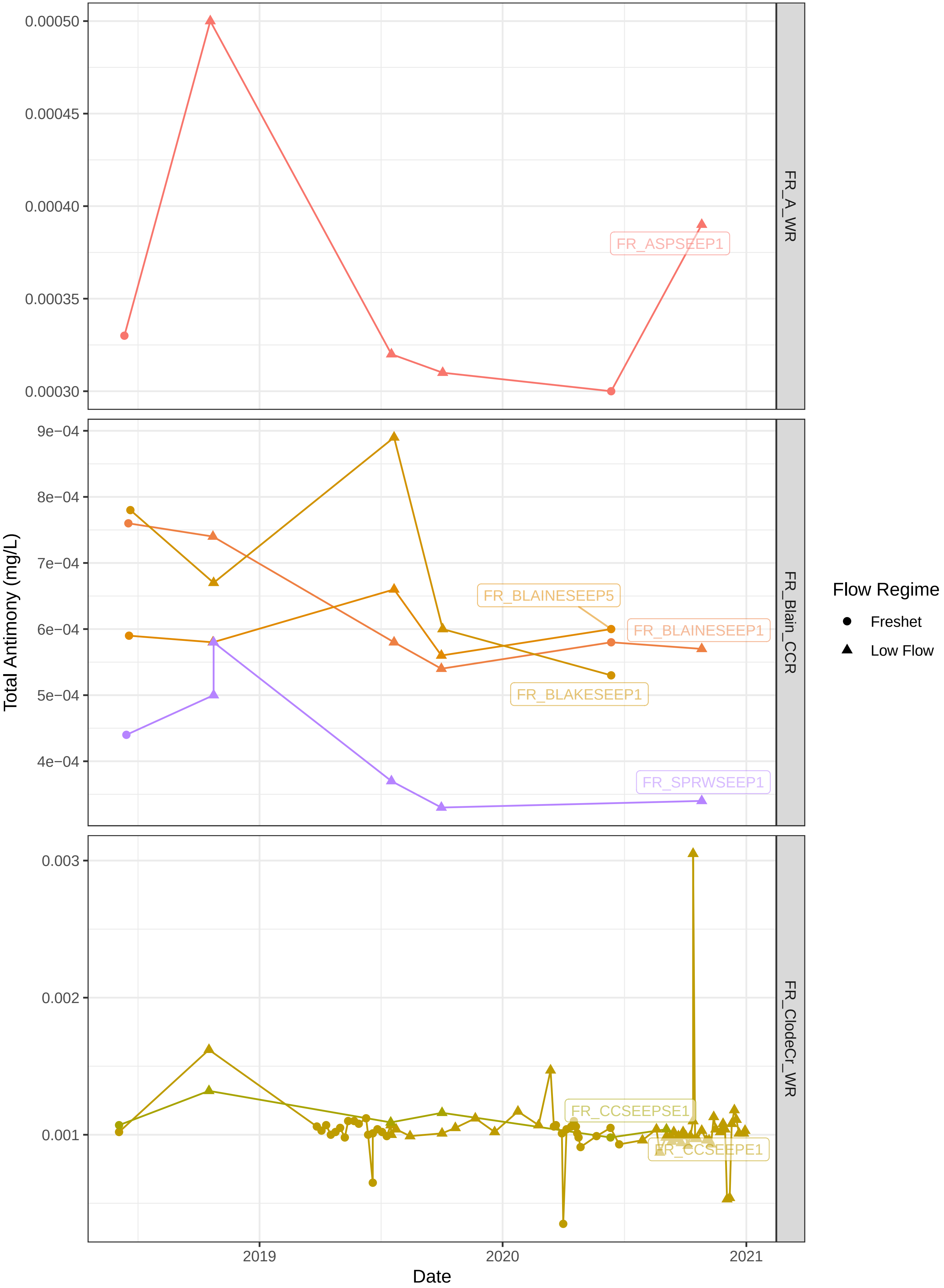


Note: there is no FWAL BCWQG for Dissolved Antimony

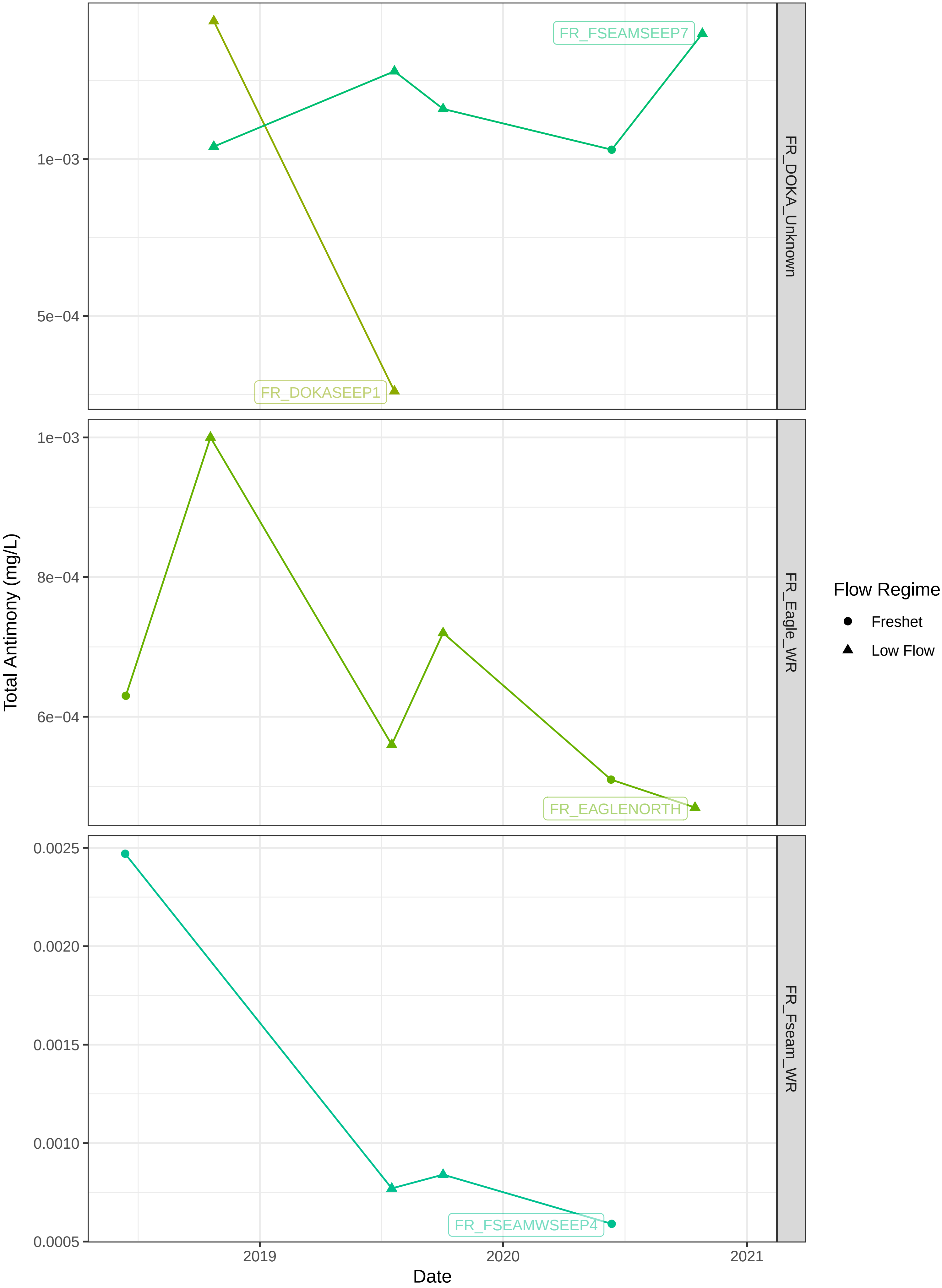


Date

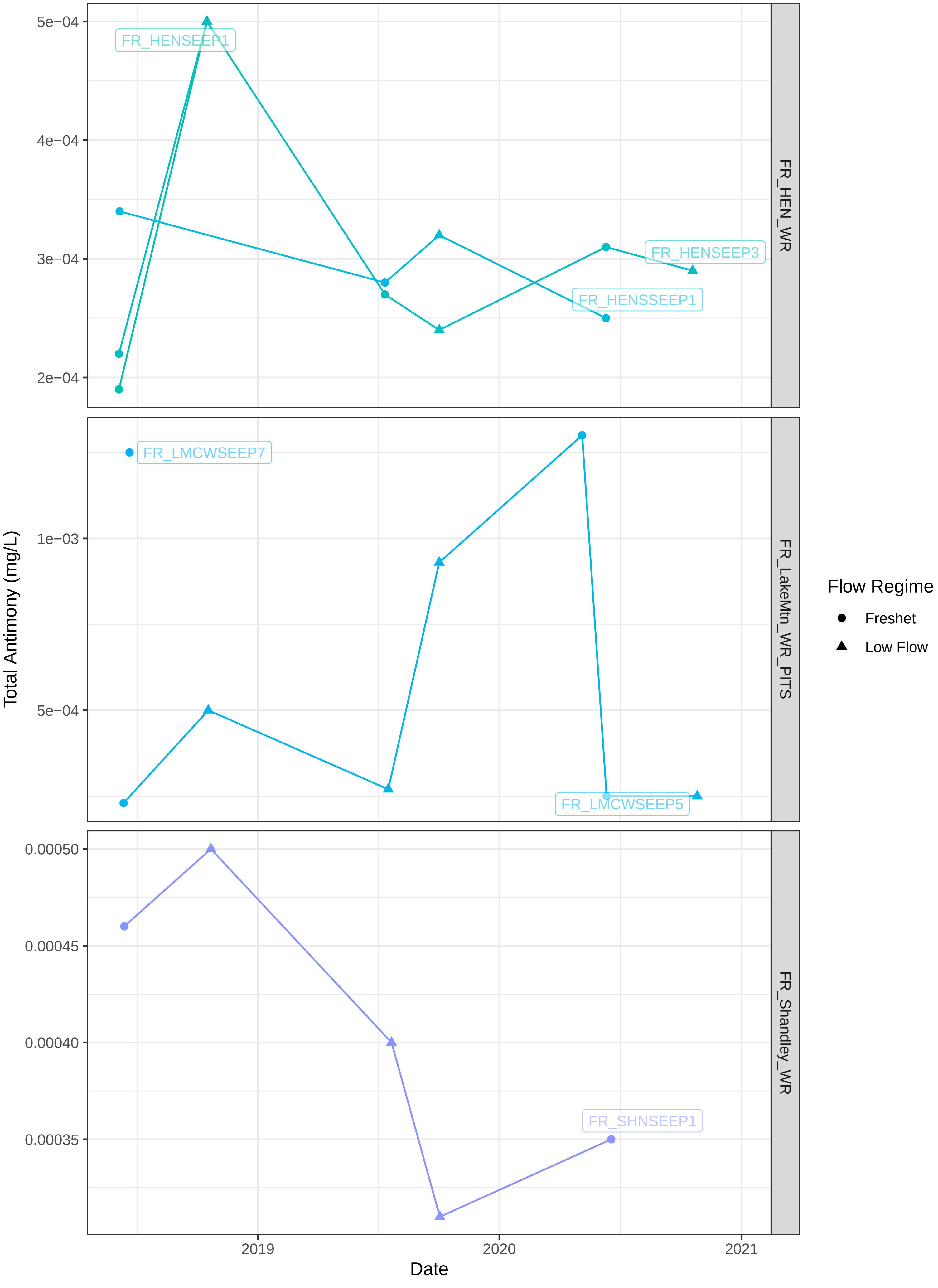
Note: there is no FWAL BCWQG for Dissolved Antimony



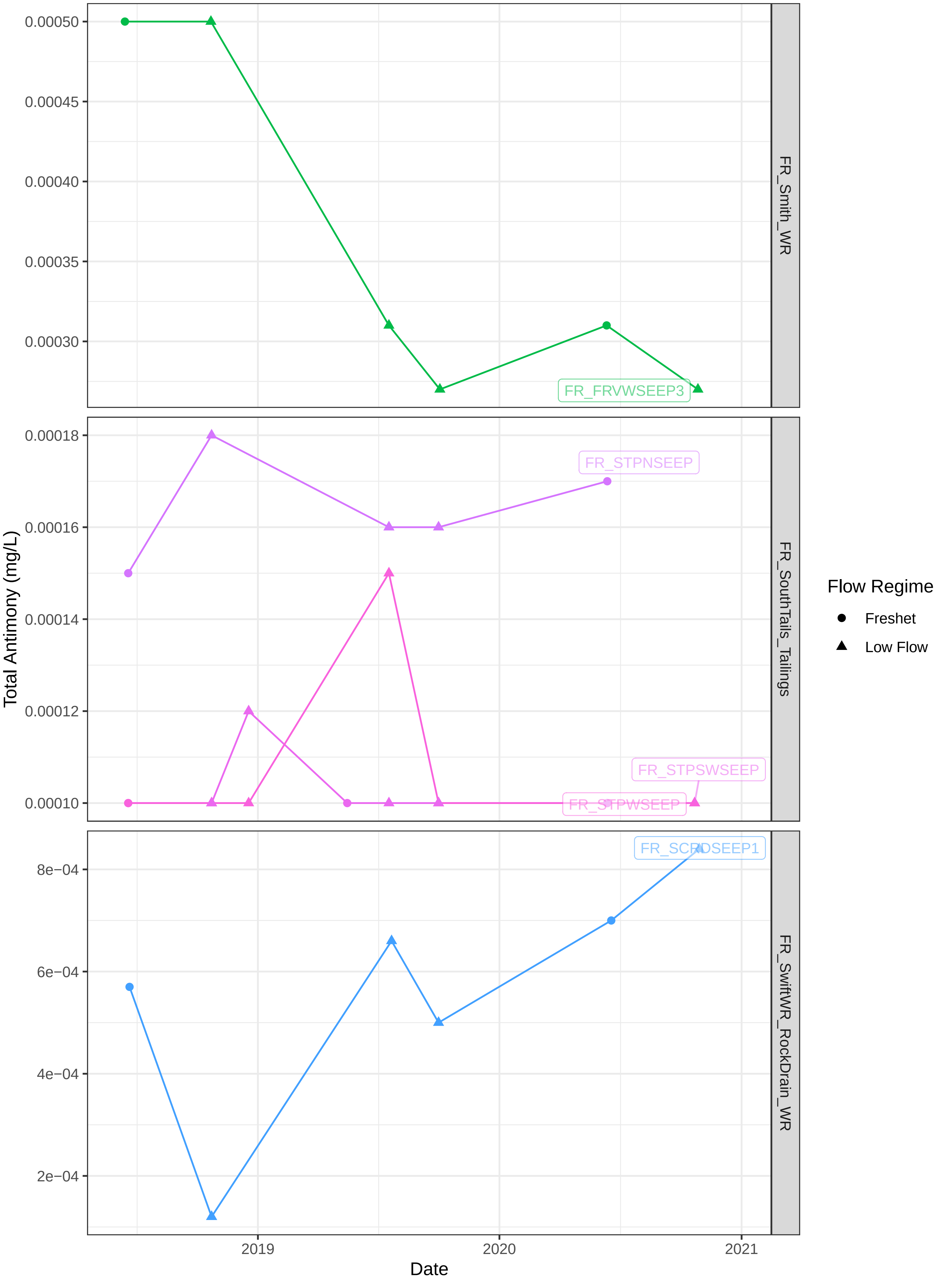
Note: there is no FWAL BCWQG for Total Antimony



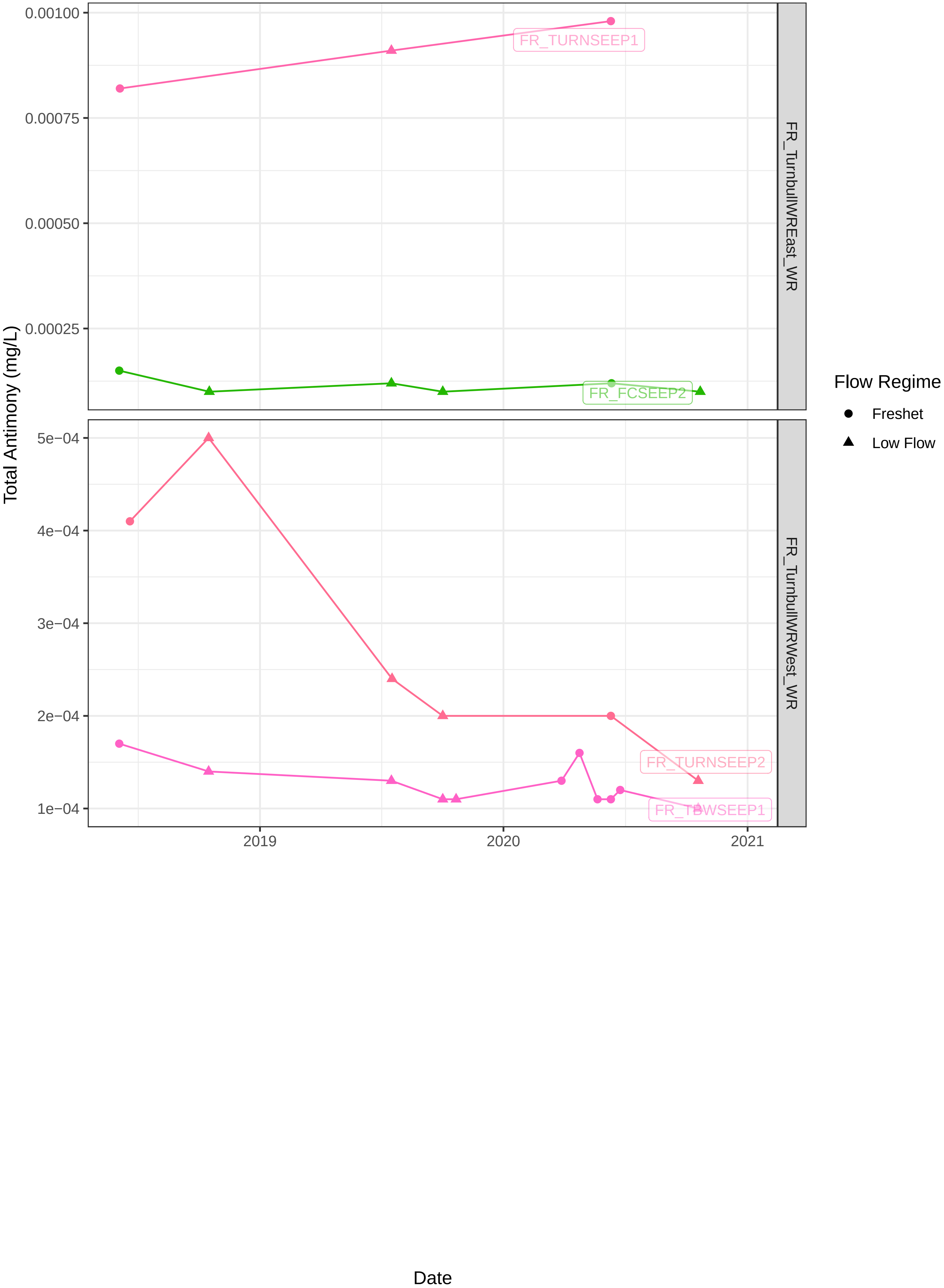
Note: there is no FWAL BCWQG for Total Antimony



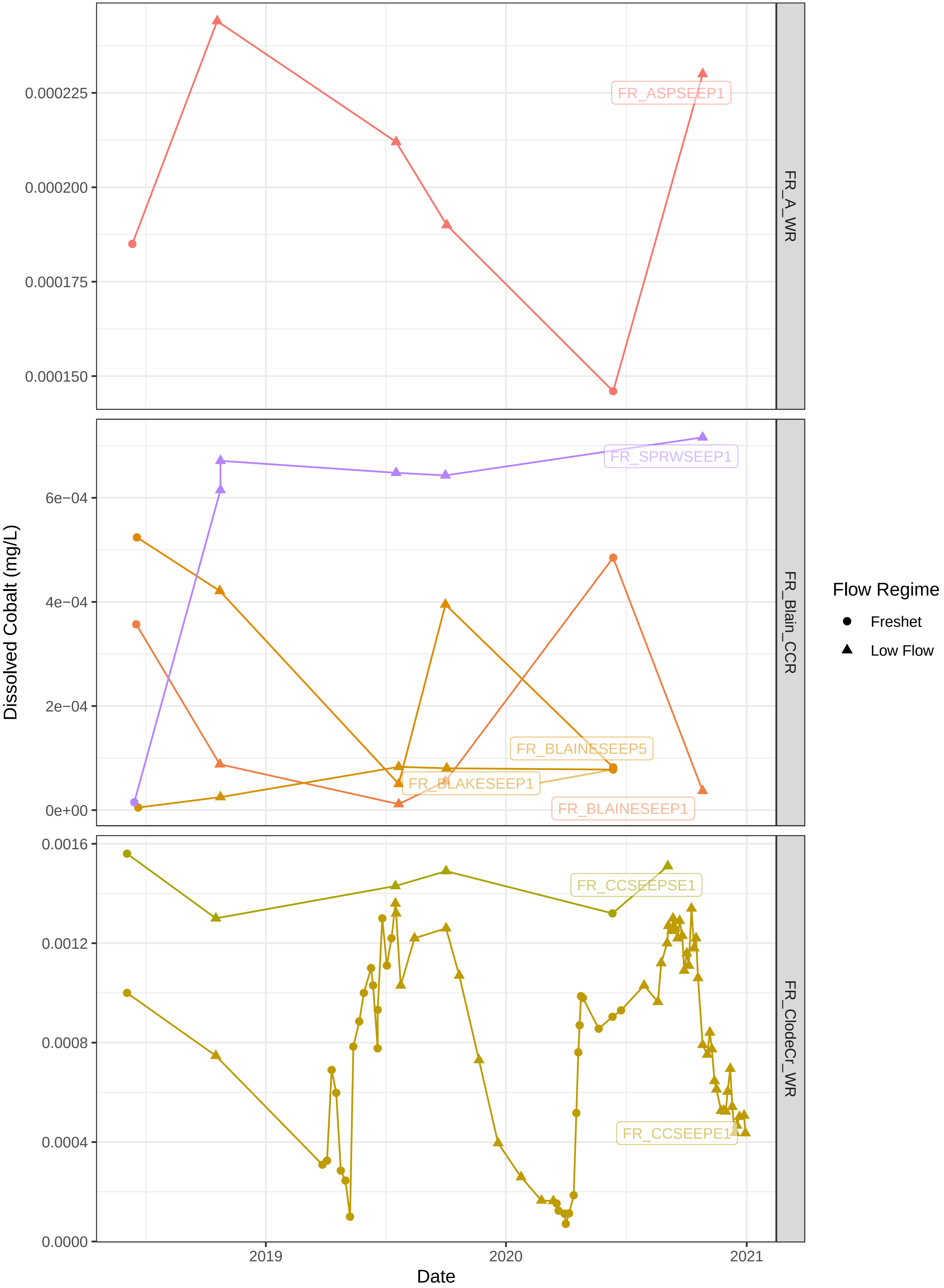
Note: there is no FWAL BCWQG for Total Antimony



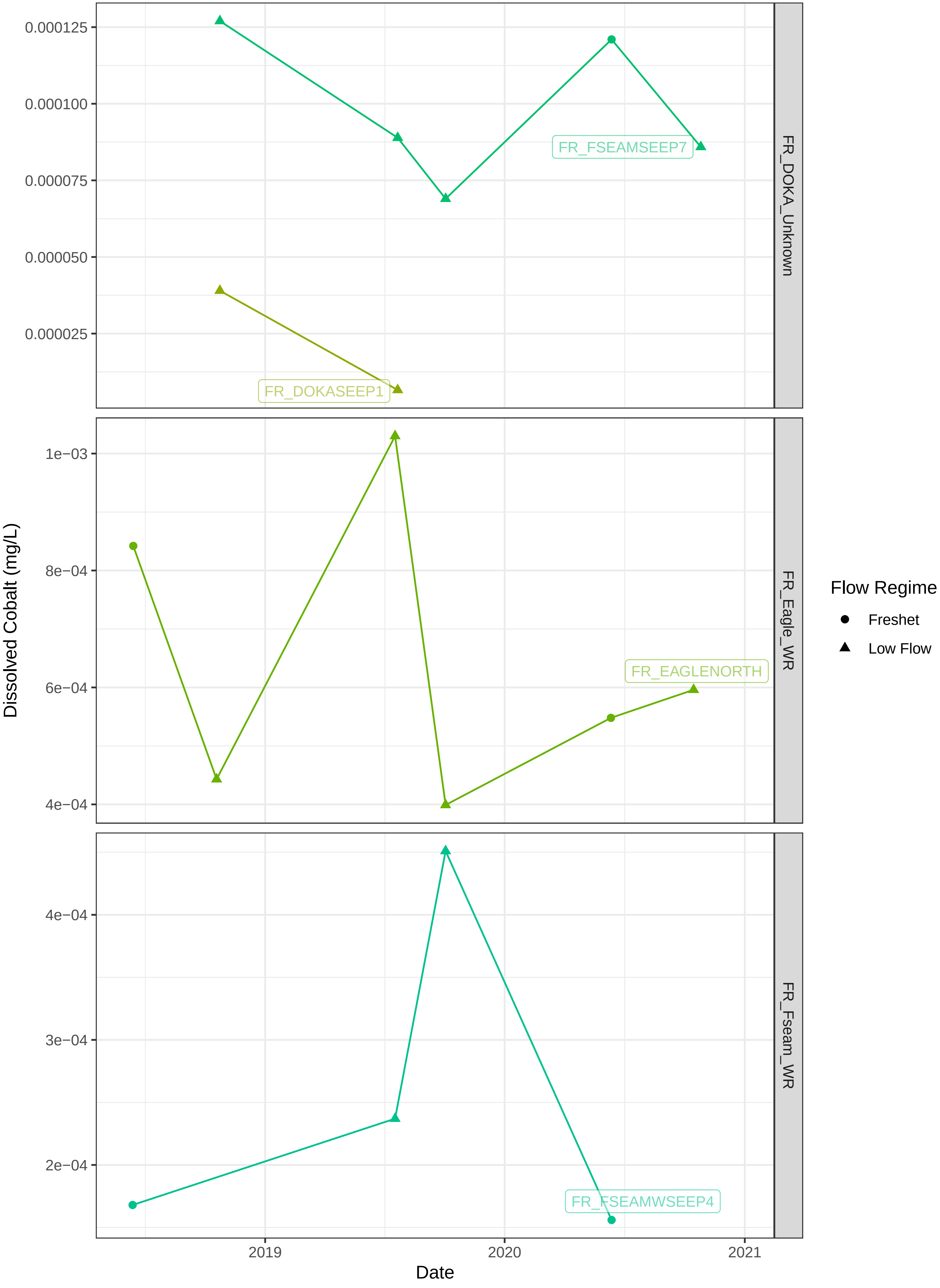
Note: there is no FWAL BCWQG for Total Antimony



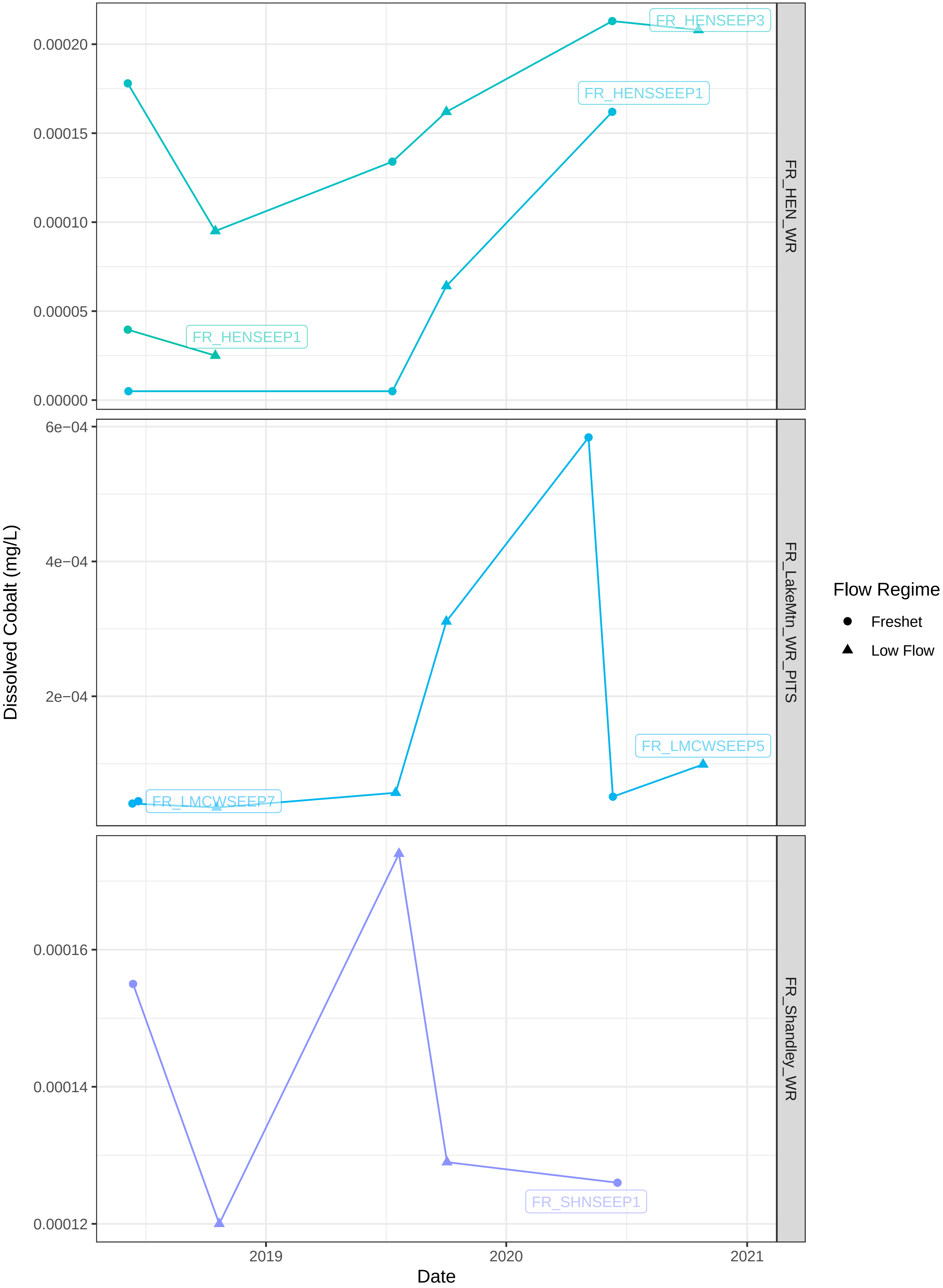
Note: there is no FWAL BCWQG for Total Antimony



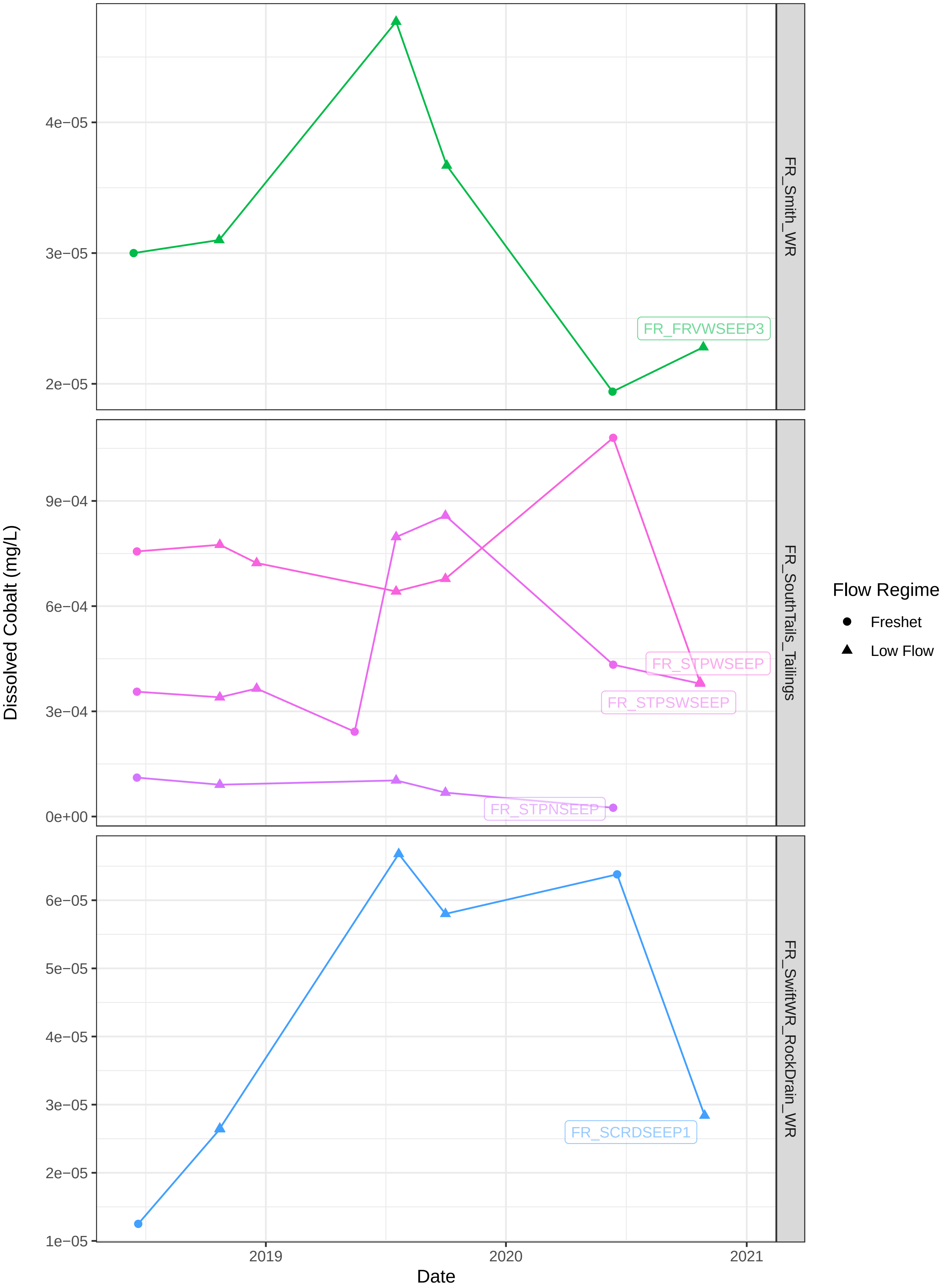
Note: The FWAL BCWQG for Dissolved Cobalt is dependent on Hardness



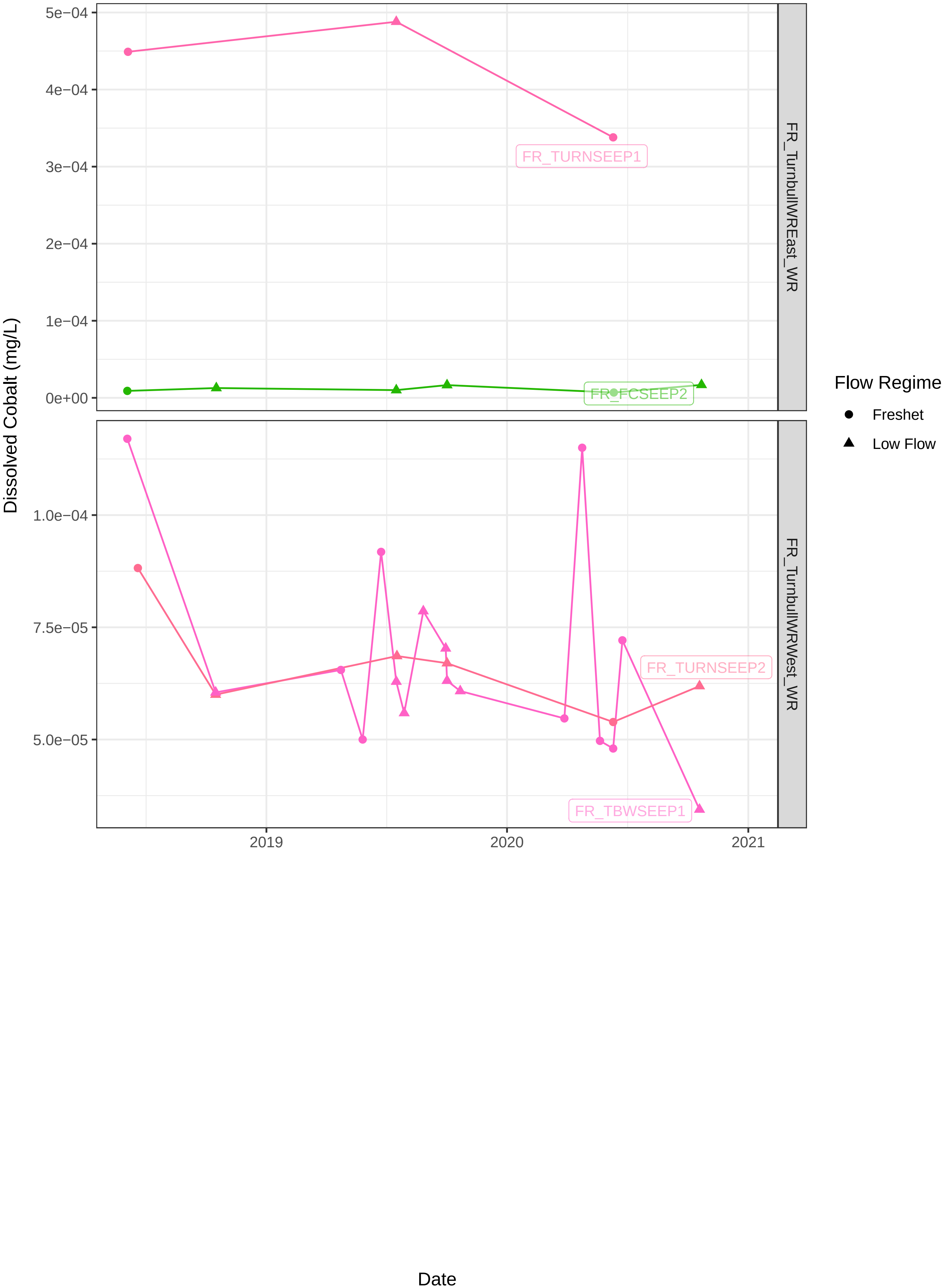
Note: The FWAL BCWQG for Dissolved Cobalt is dependent on Hardness



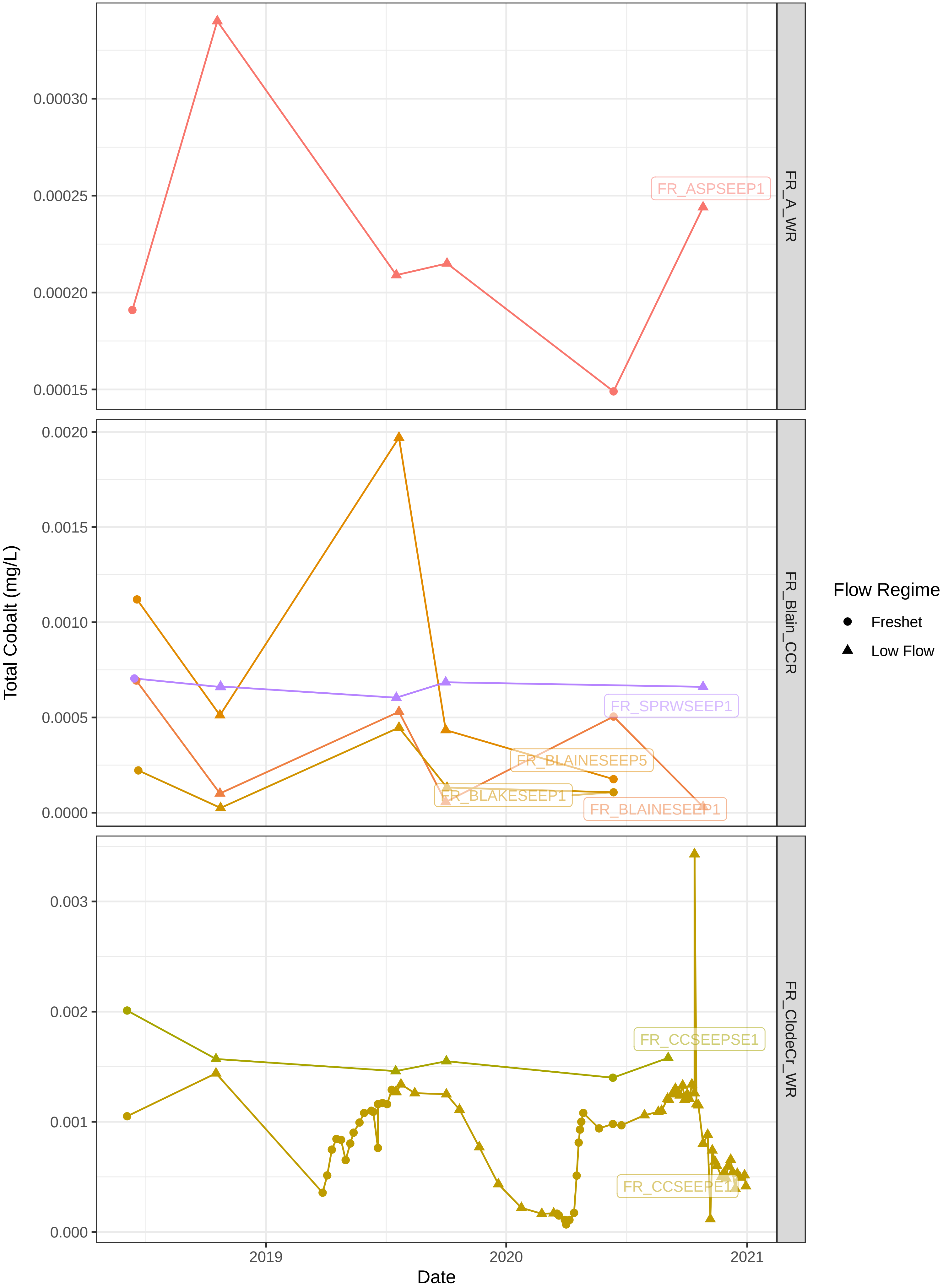
Note: The FWAL BCWQG for Dissolved Cobalt is dependent on Hardness



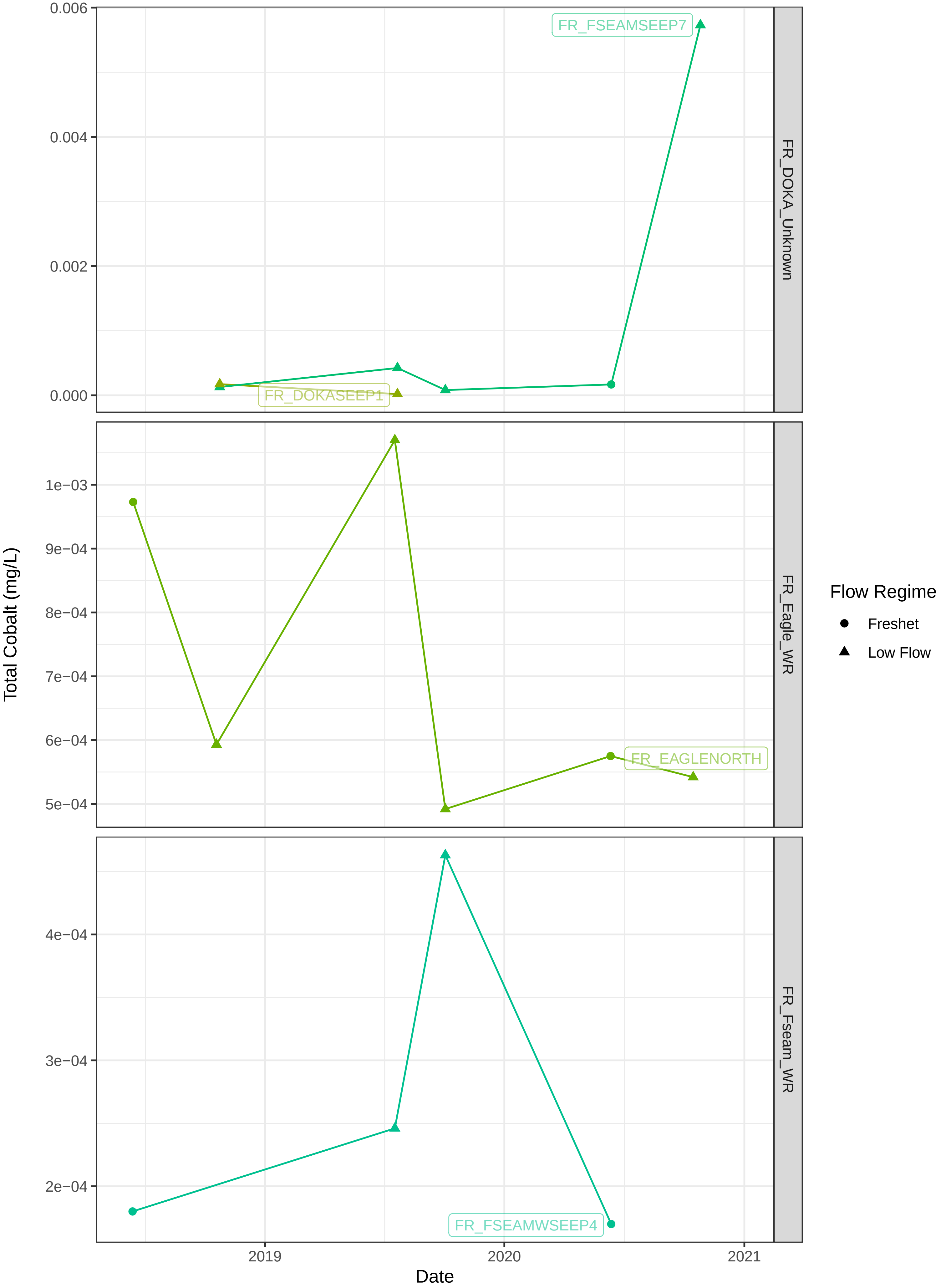
Note: The FWAL BCWQG for Dissolved Cobalt is dependent on Hardness



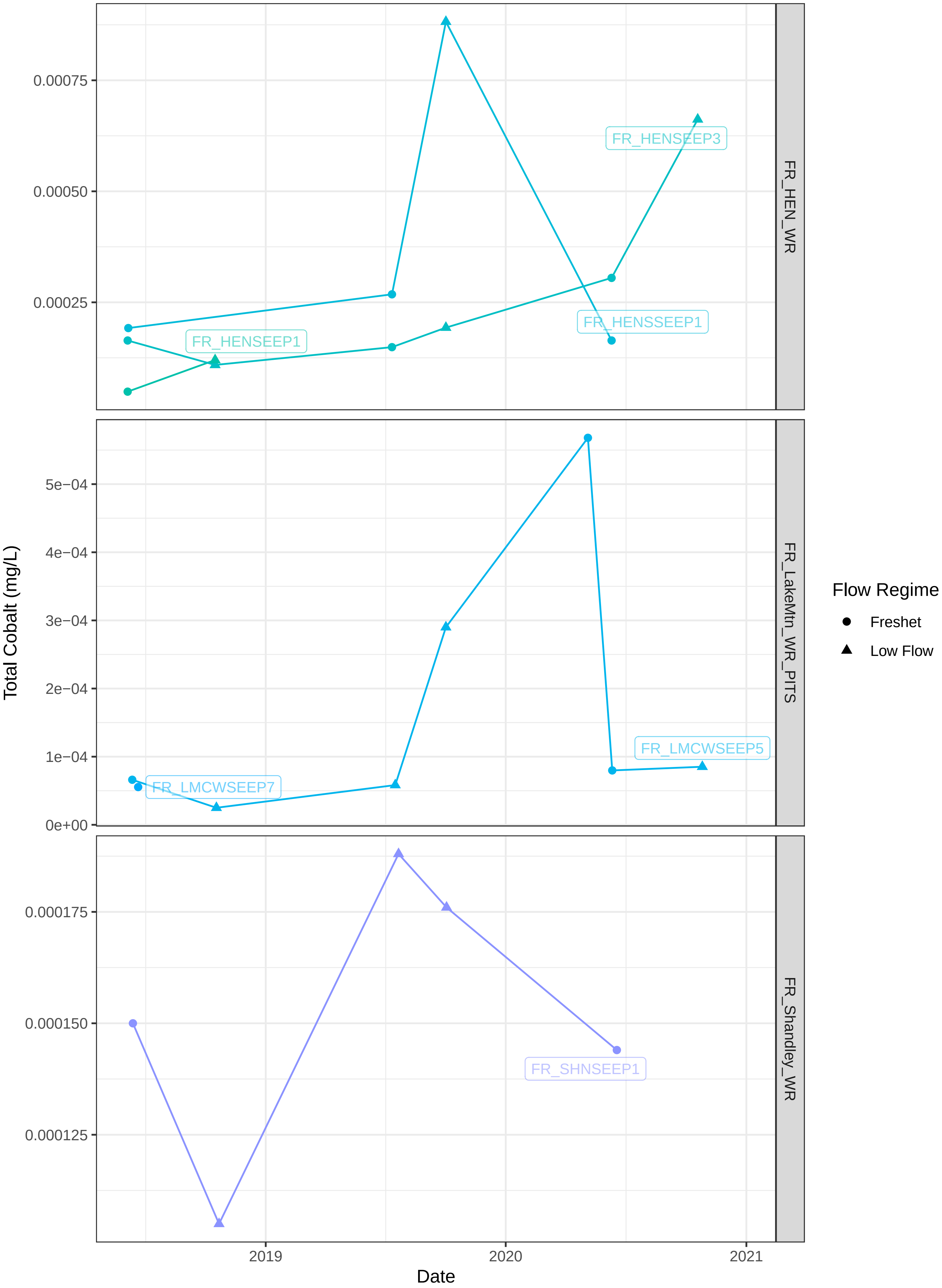
Note: The FWAL BCWQG for Dissolved Cobalt is dependent on Hardness



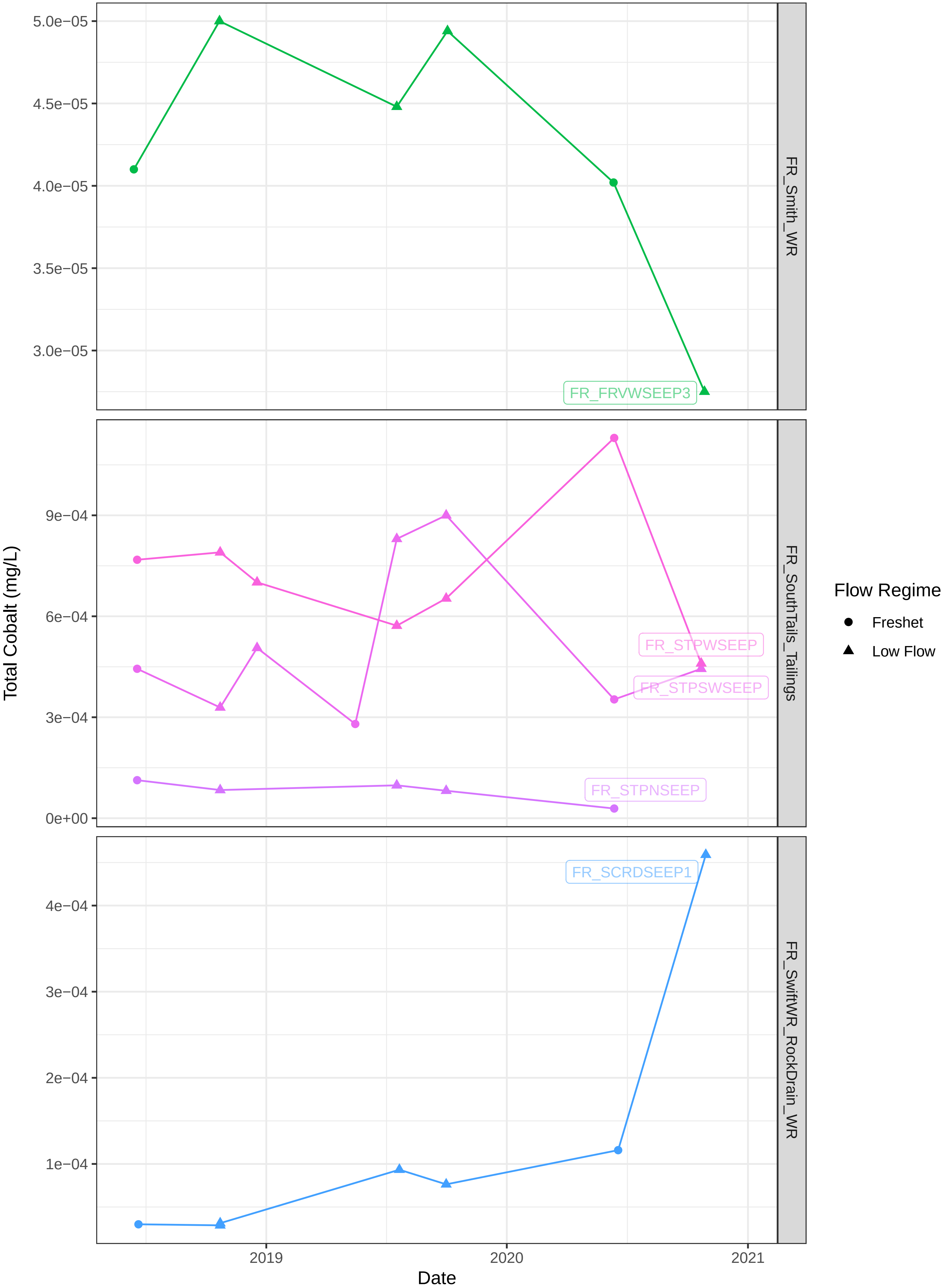
Note: there is no FWAL BCWQG for Total Cobalt



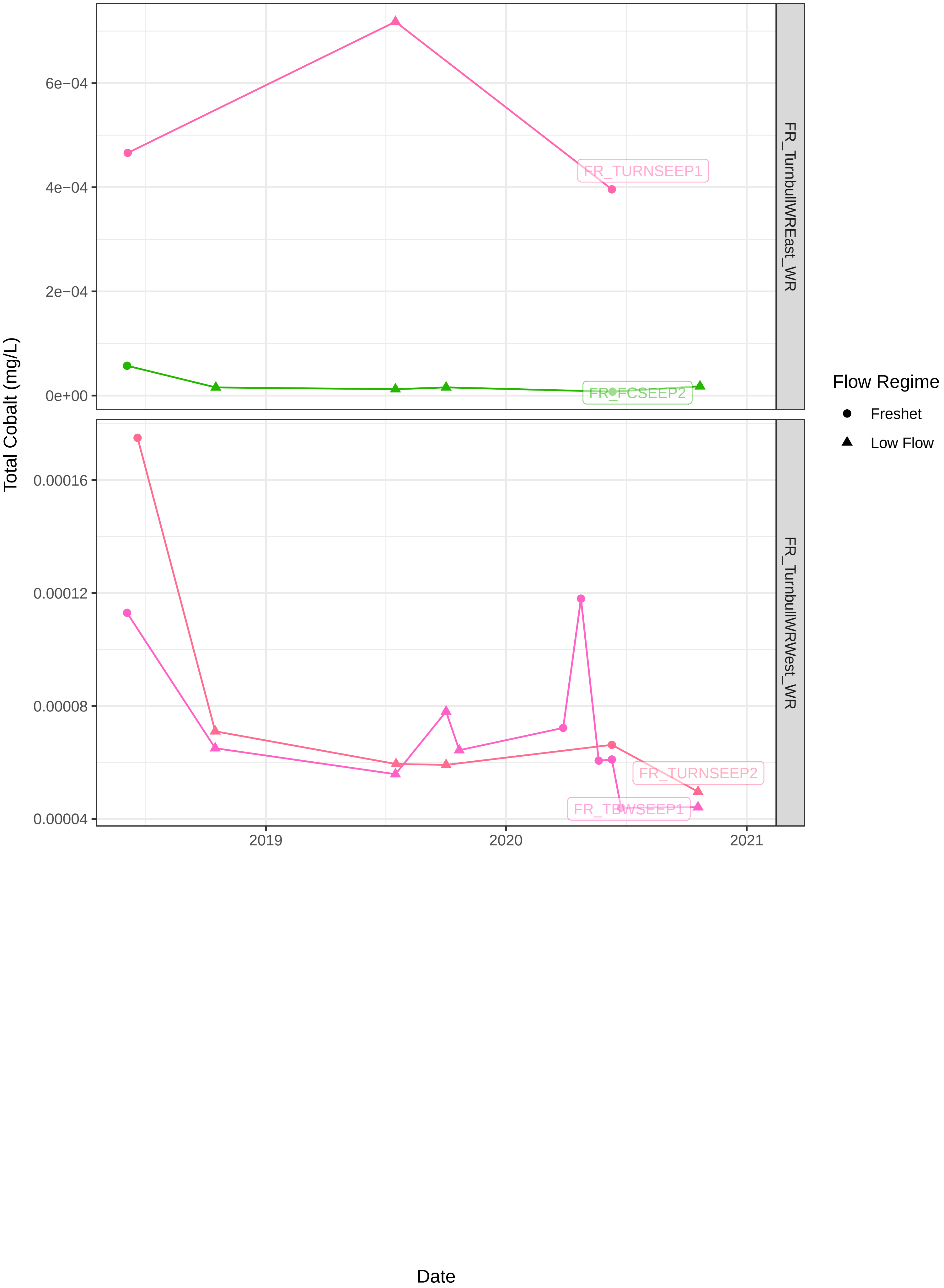
Note: there is no FWAL BCWQG for Total Cobalt



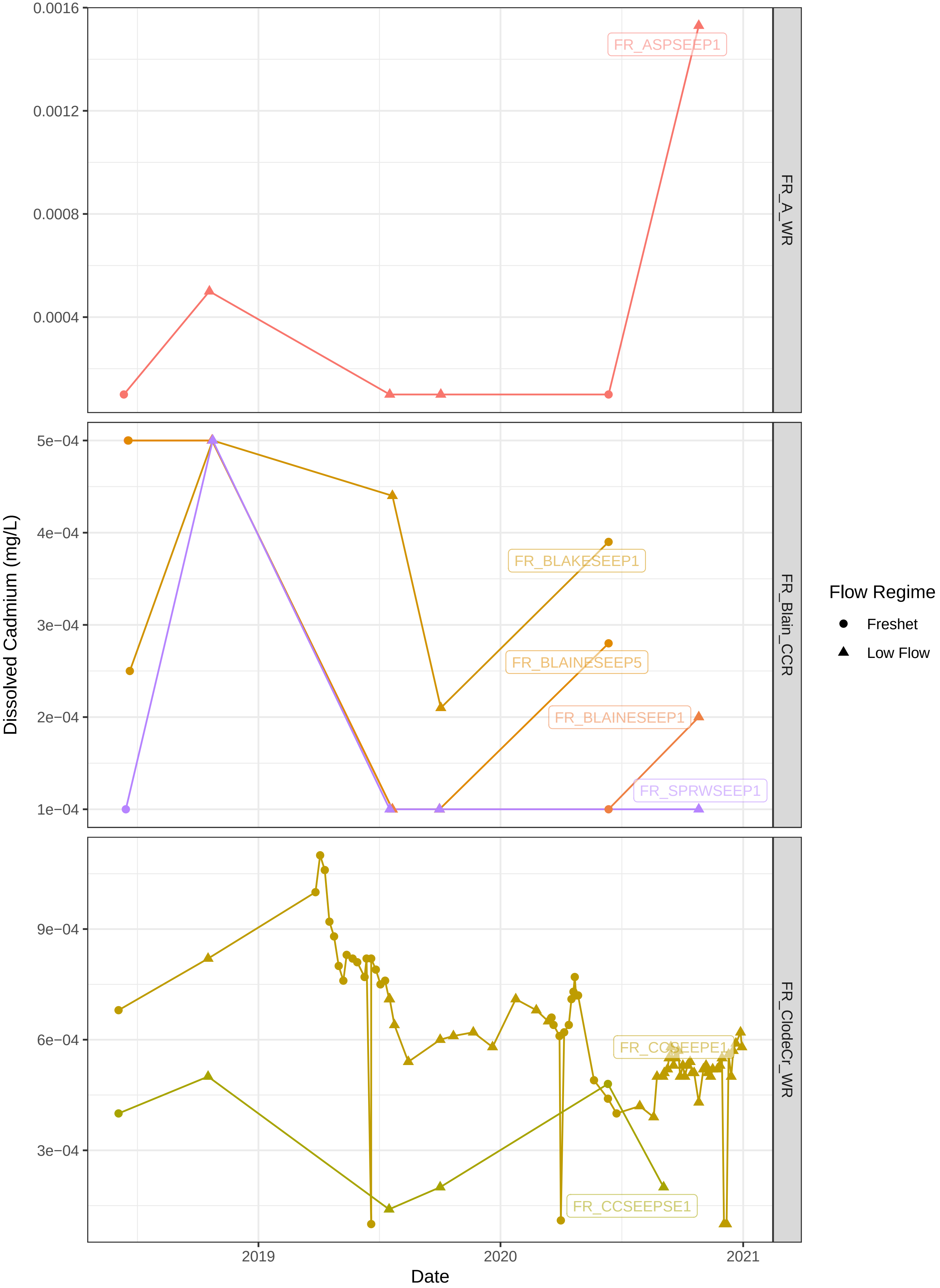
Note: there is no FWAL BCWQG for Total Cobalt



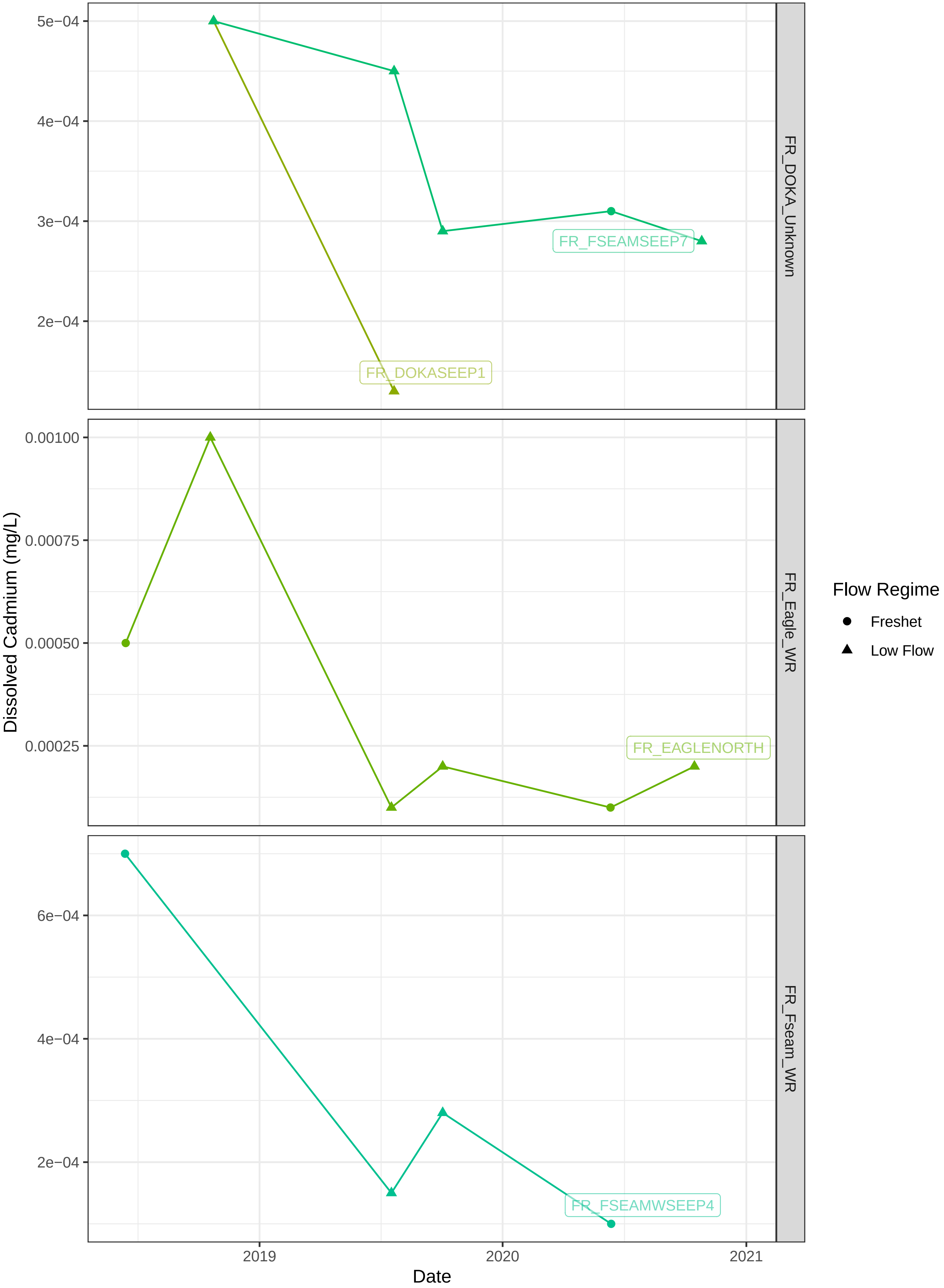
Note: there is no FWAL BCWQG for Total Cobalt



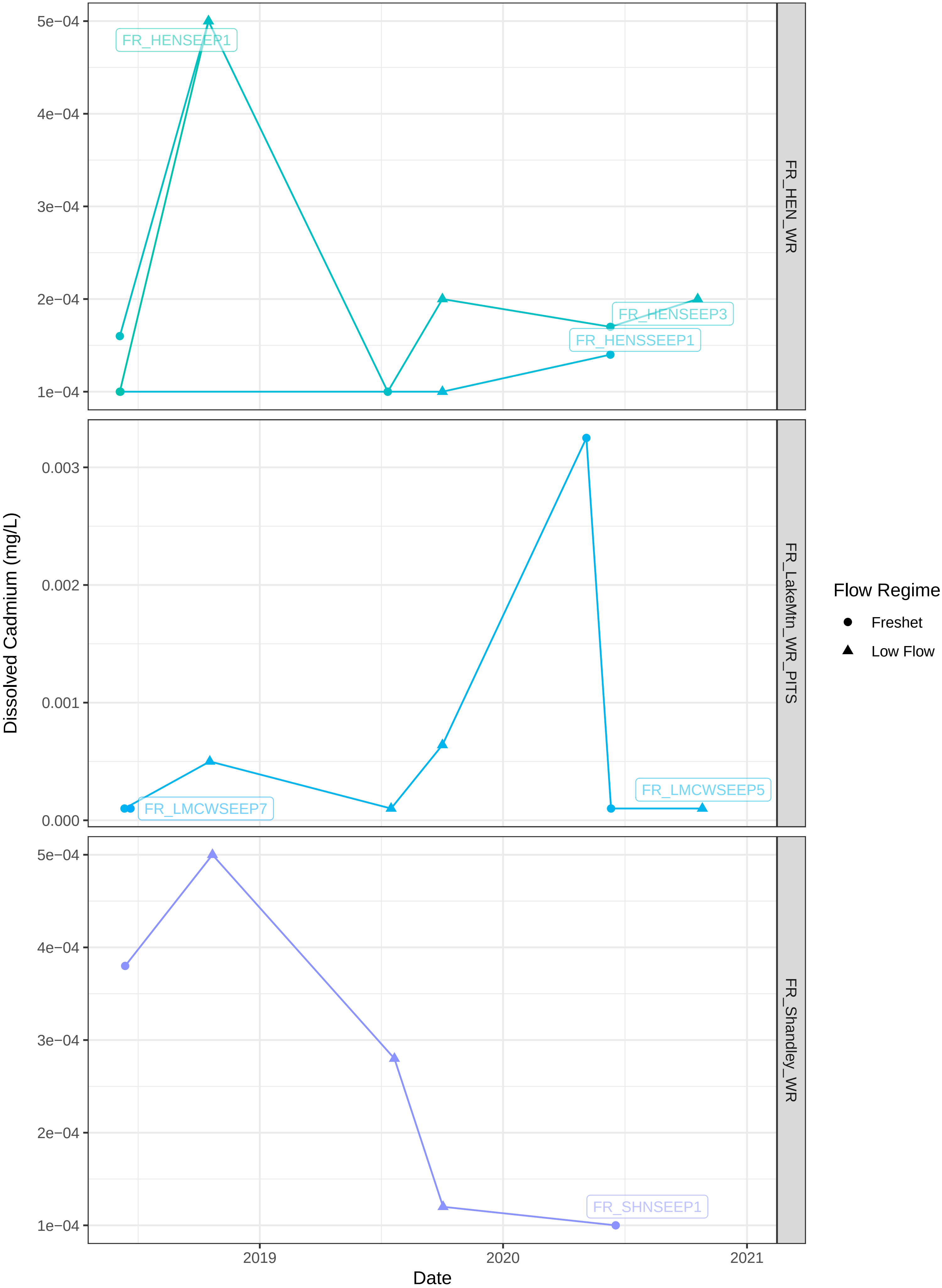
Note: there is no FWAL BCWQG for Total Cobalt



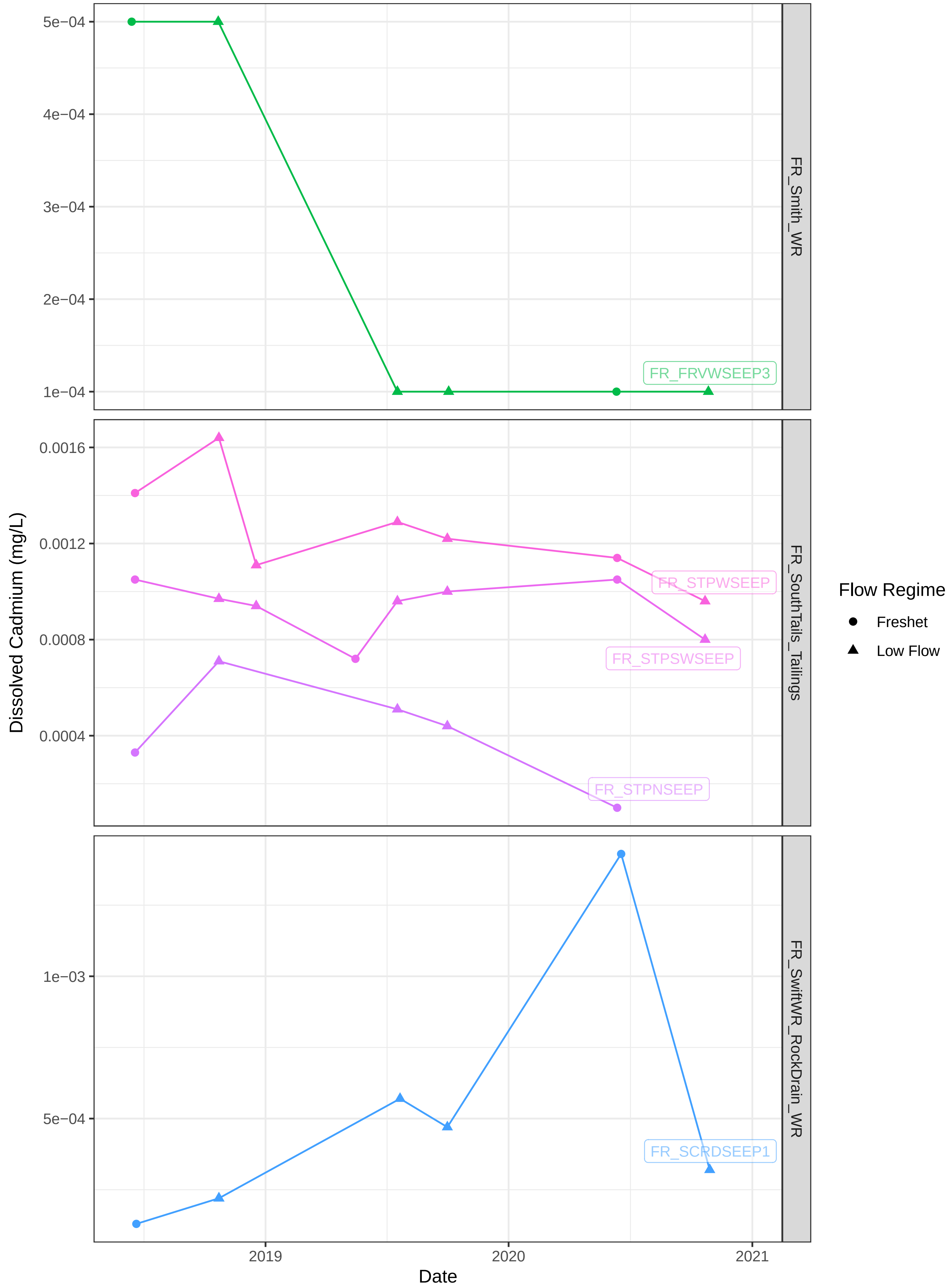
Note: there is no FWAL BCWQG for Dissolved Cadmium



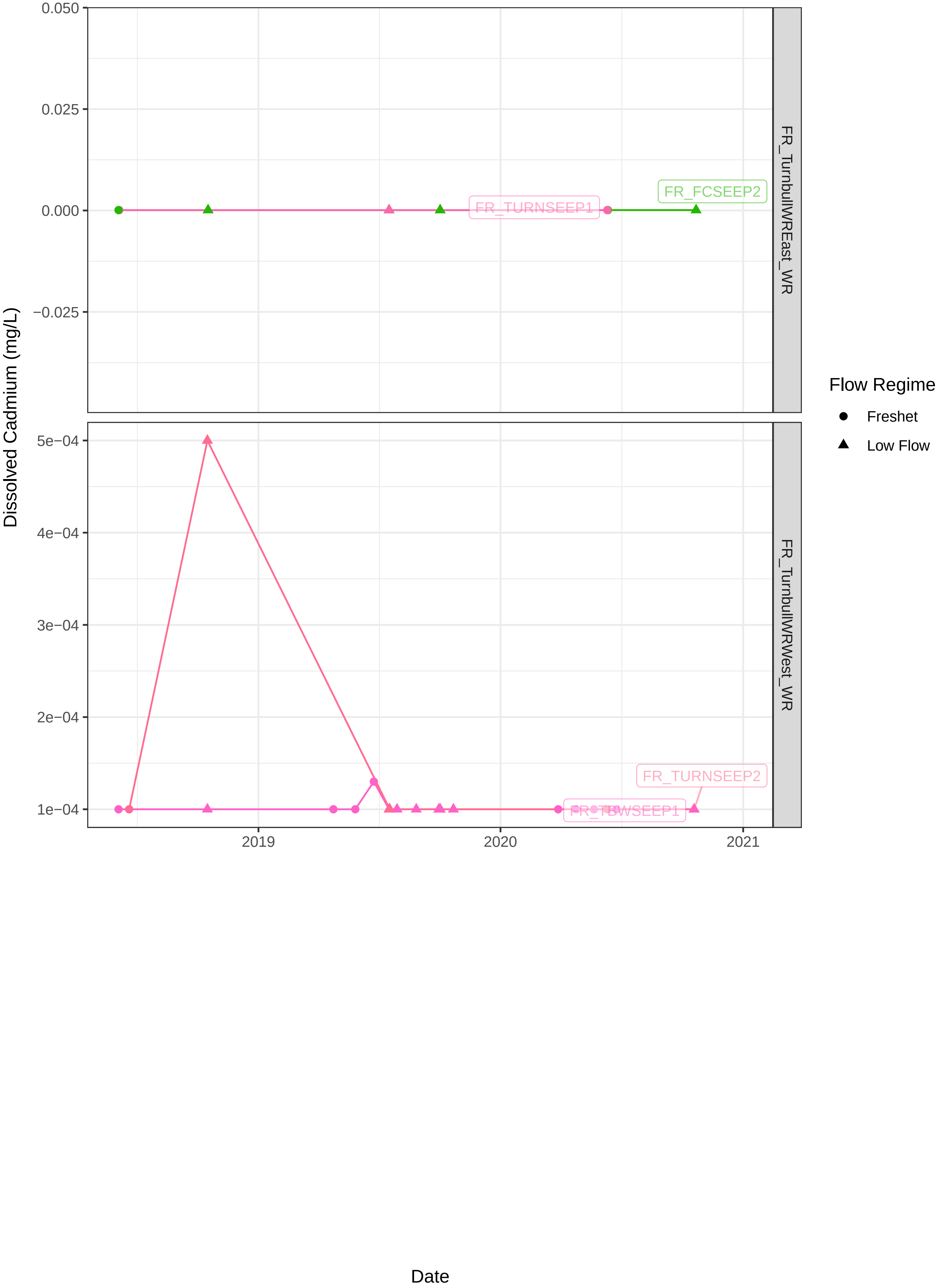
Note: there is no FWAL BCWQG for Dissolved Cadmium



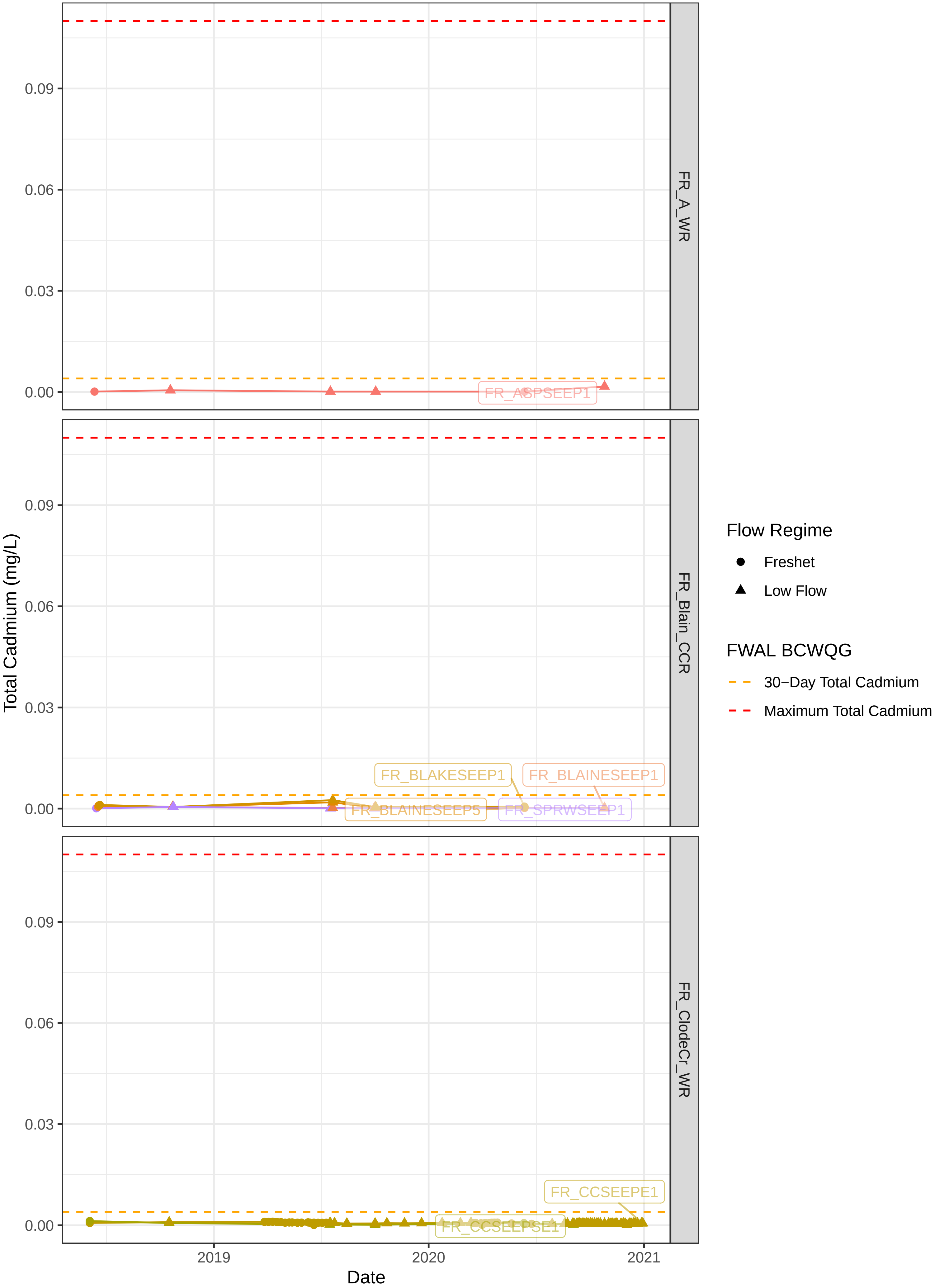
Note: there is no FWAL BCWQG for Dissolved Cadmium



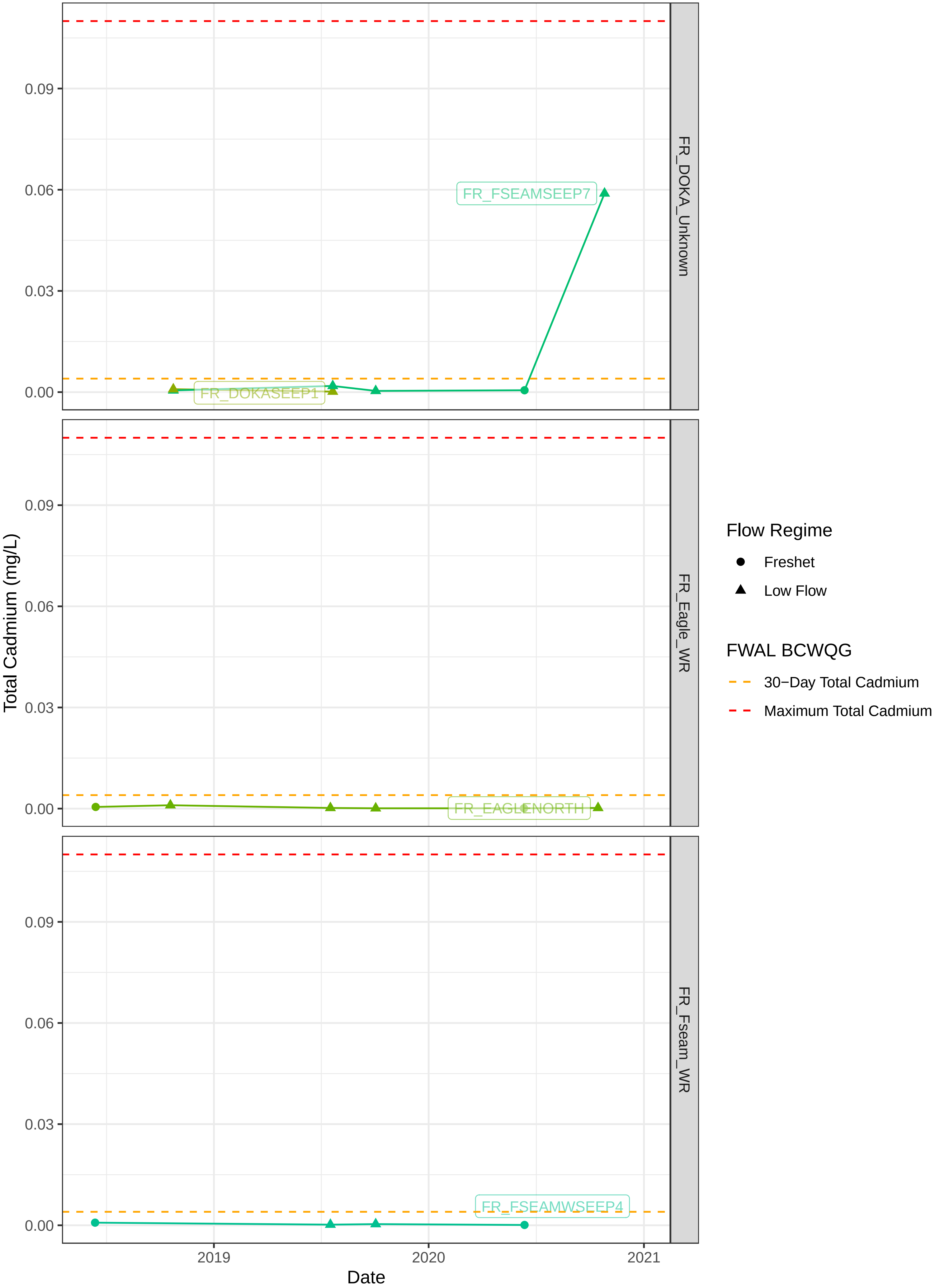
Note: there is no FWAL BCWQG for Dissolved Cadmium

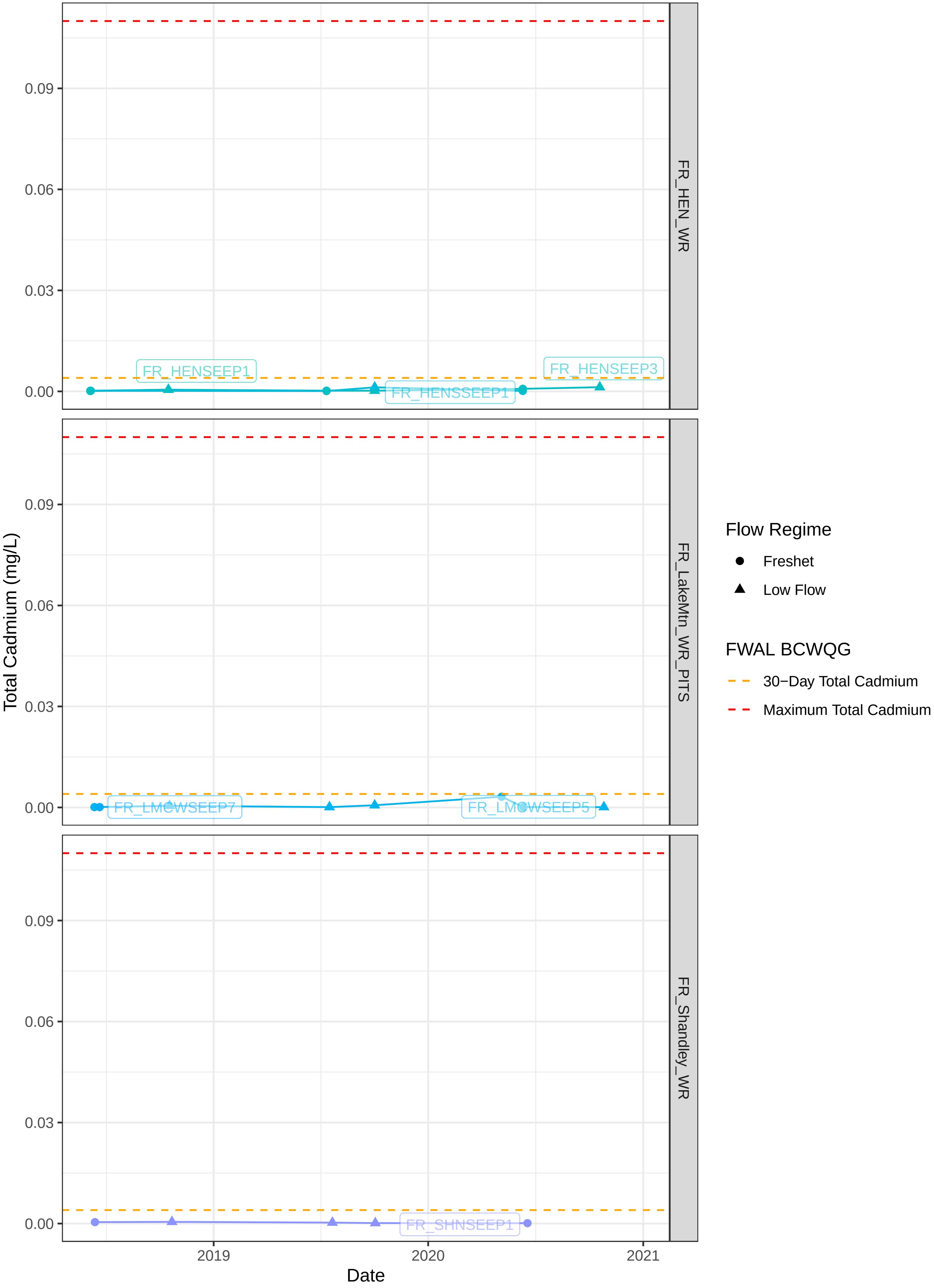


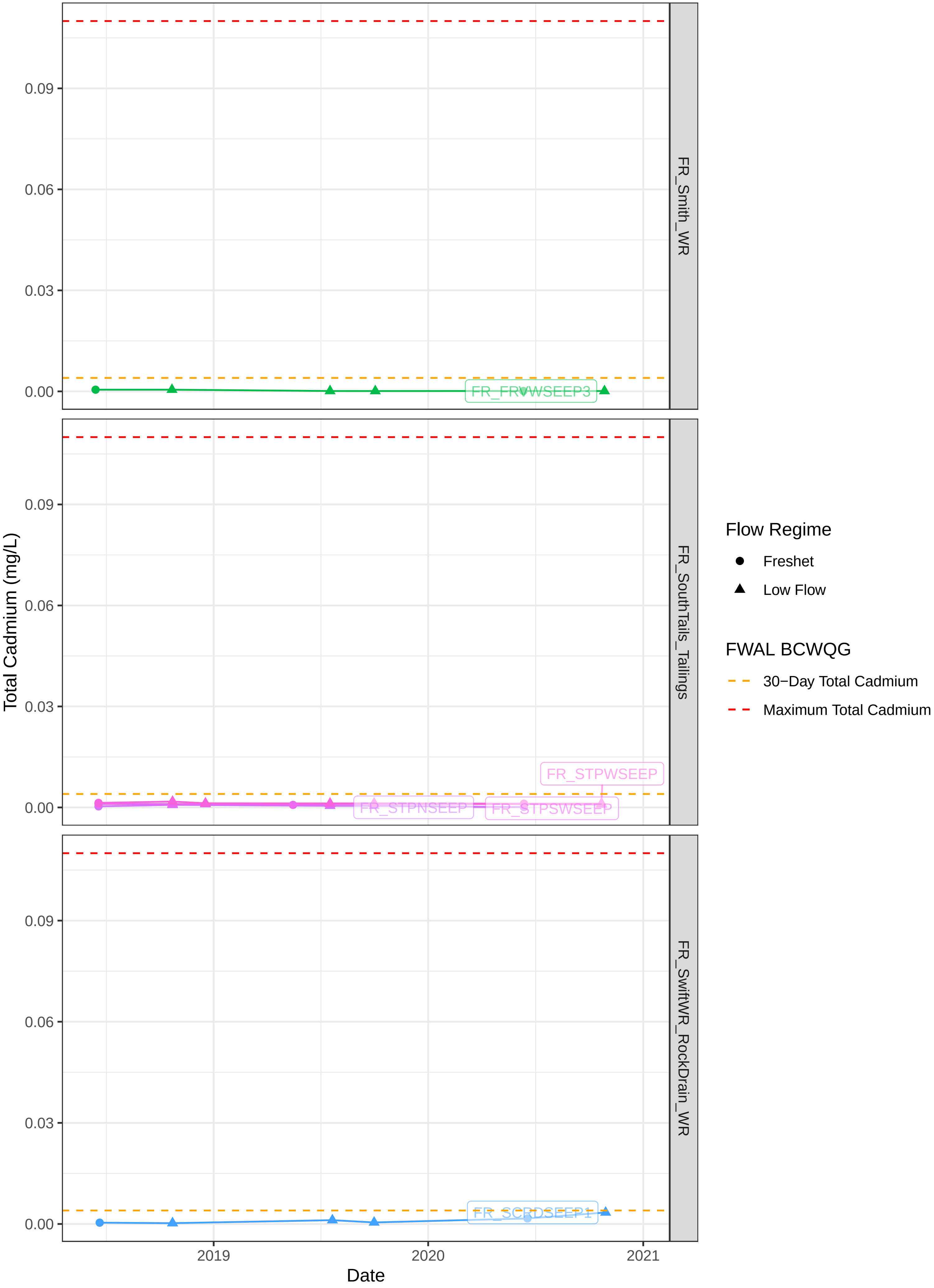
Note: there is no FWAL BCWQG for Dissolved Cadmium



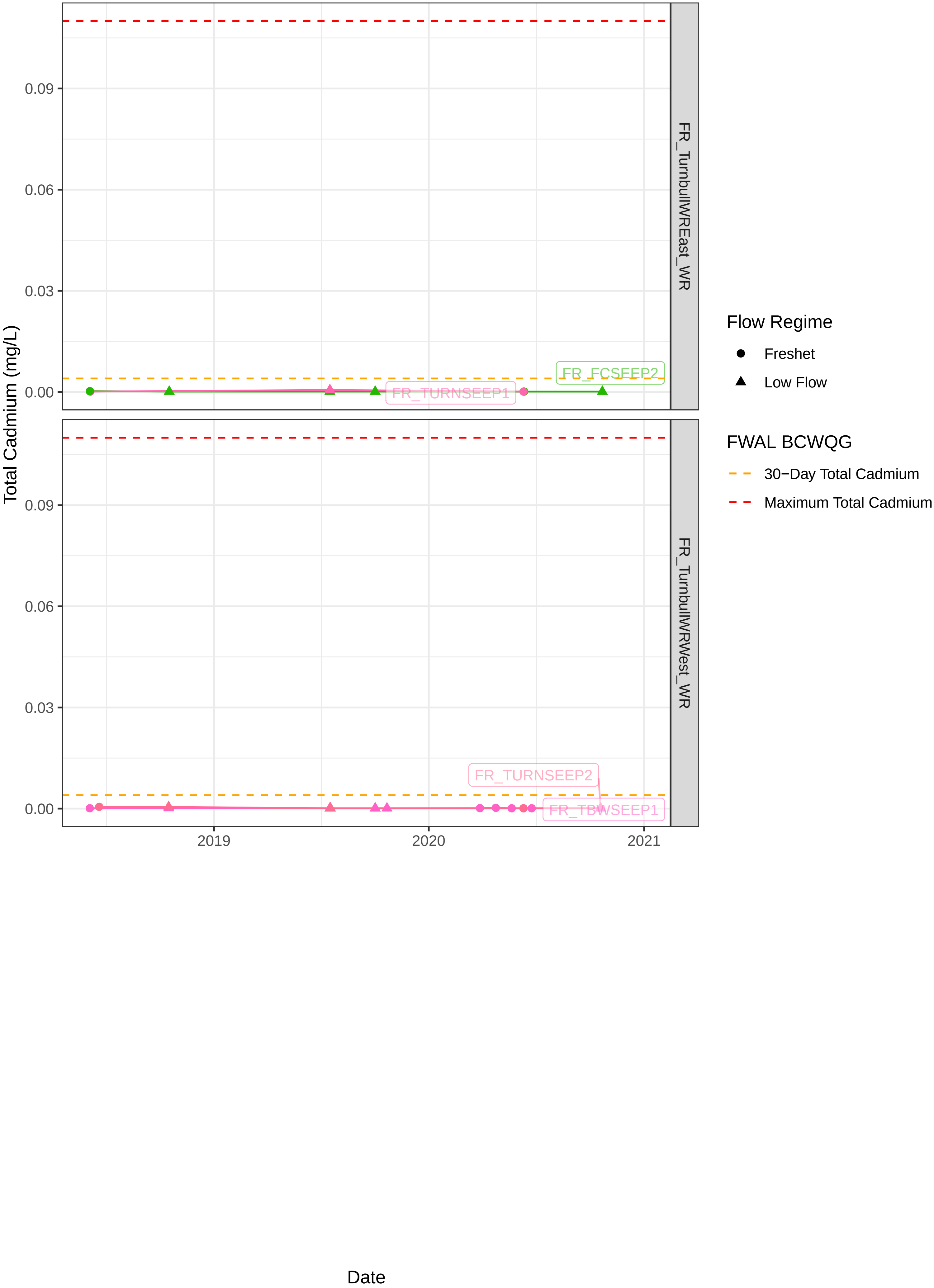
0.09
0.06
0.03
0.00
FR_ASPSEEP1
FR_A_WR
FR_BLAKESEEP1
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_SPRWSEEP1
FR_Blain_CCR
FR_CCSEEPE1
FR_CCSEEPSE1
FR_ClodeCr_WR
Total Cadmium (mg/L)
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Cadmium
Maximum Total Cadmium

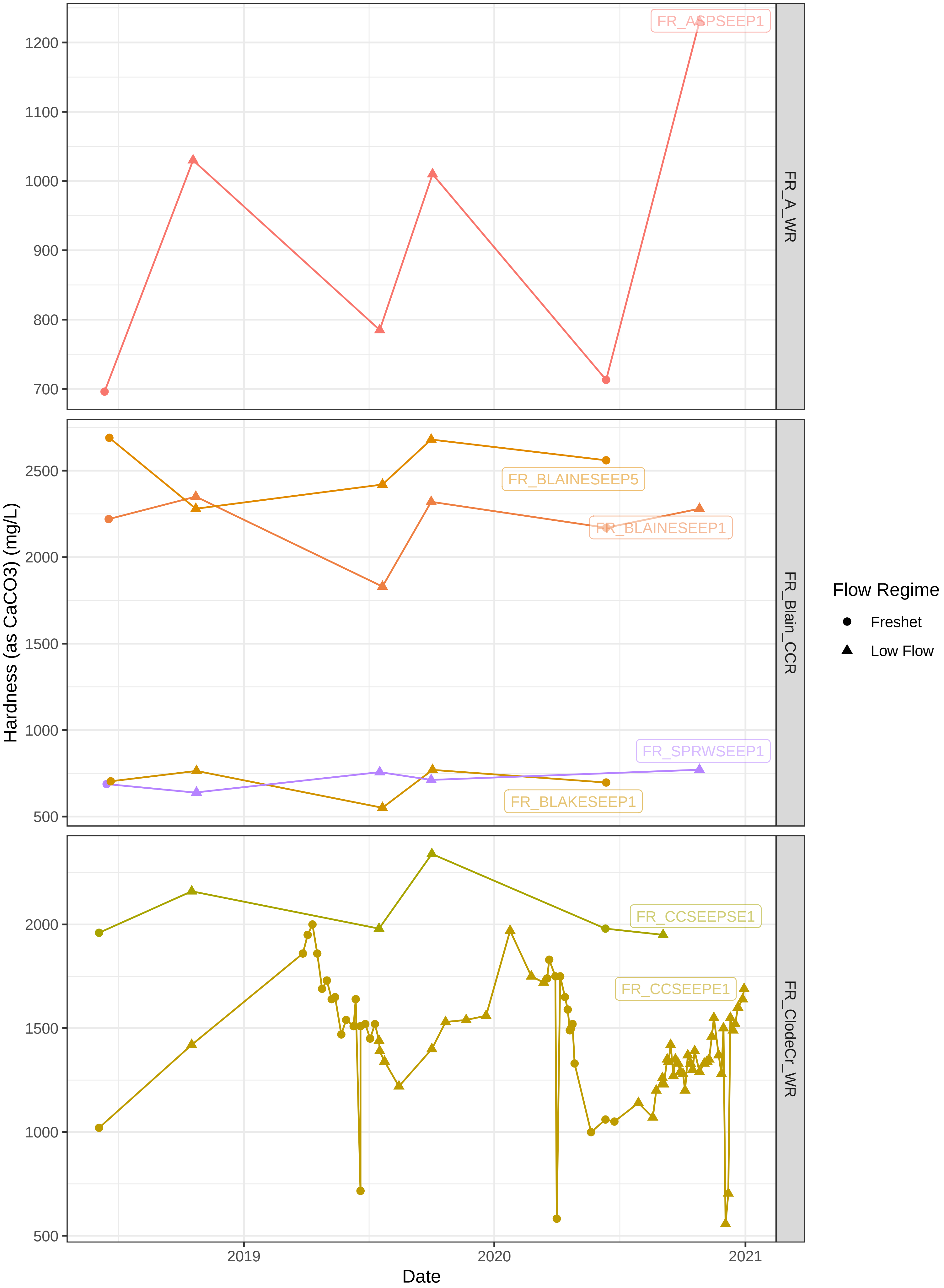

Total Cadmium (mg/L)
0.09
0.06
0.03
0.00
FR_FSEAMSEEP7
FR_DOKASEEP1
FR_DOKA_Unknown
FR_EAGLENORTH
FR_Eagle_WR
FR_FSEAMWSEEP4
FR_Fseam_WR
2019
2020
2021
Date
Flow Regime
Freshet
Low Flow
FWAL BCWQG
30−Day Total Cadmium
Maximum Total Cadmium


0.09
0.06
0.03
0.00
FR_HENSEEP1
FR_HENSSEEP1
FR_HENSEEP3
FR_HEN_WR
FR_LMCWSEEP7
FR_LMCWSEEP5
FR_LakeMtn_WR_PITS
FR_SHNSEEP1
FR_Shandley_WR
Total Cadmium (mg/L)
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Cadmium
Maximum Total Cadmium

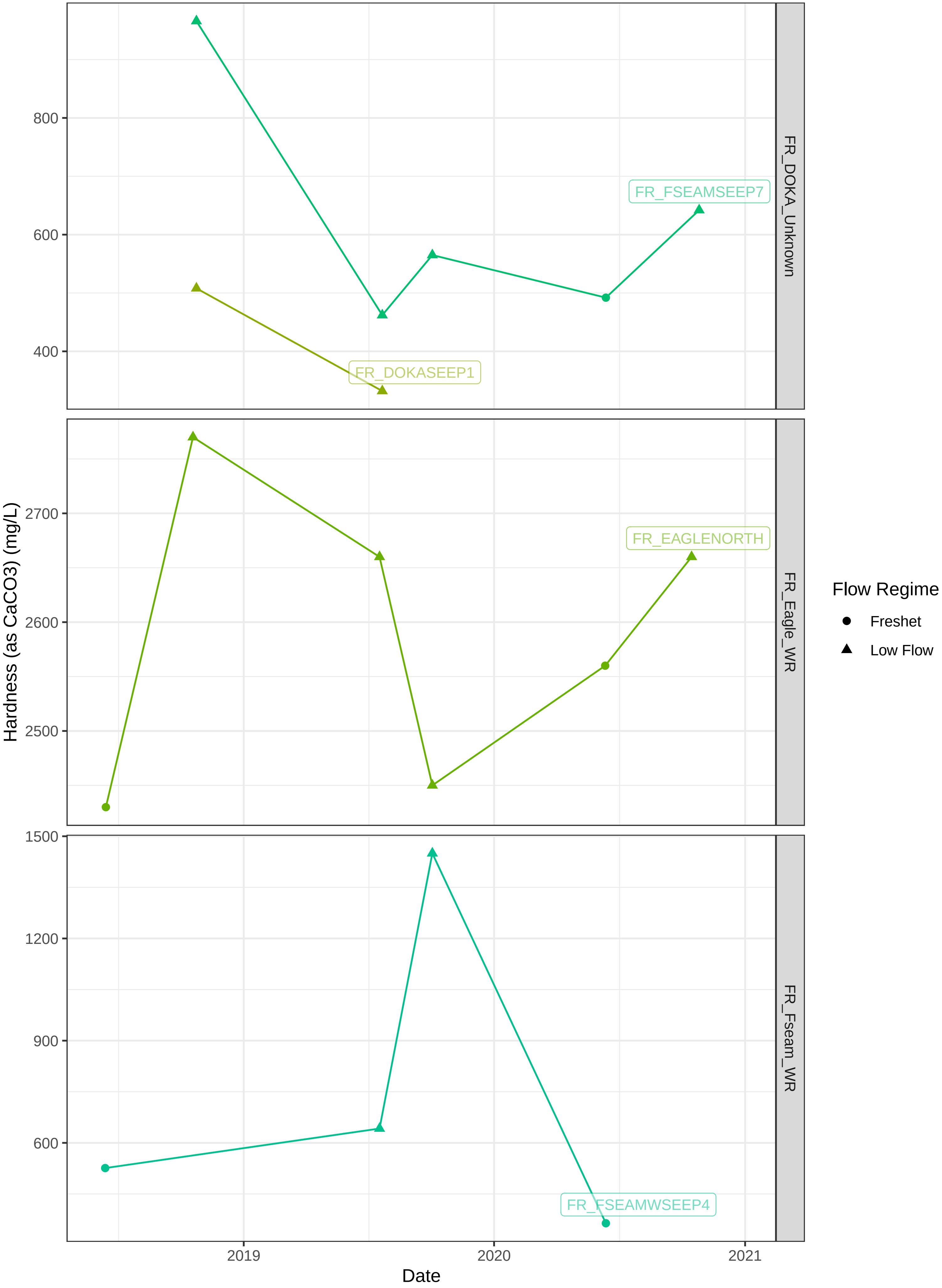


Total Cadmium (mg/L)
0.09
0.06
0.03
0.00
FR_FRWSEEP3
FR_Smith_WR
FR_STPWSEEP
FR_STPNSEEP
FR_STPSWSEEP
FR_SouthTails_Tailings
FR_SCRDSEEP1
FR_SwiftWR_RockDrain_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Cadmium
Maximum Total Cadmium

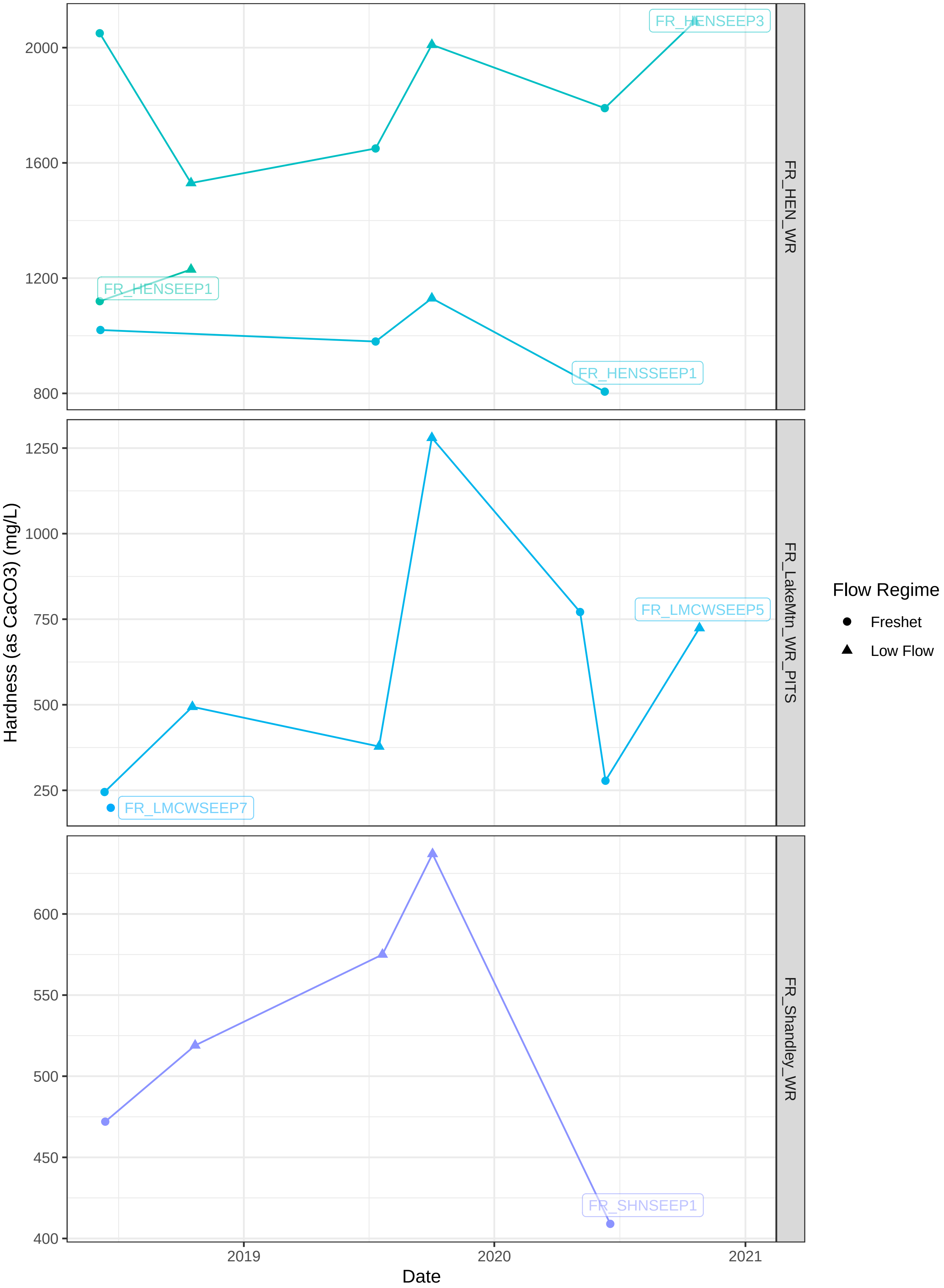

Total Cadmium (mg/L)
0.09
0.06
0.03
0.00
FR_FCSEEP2
FR_TURNSEEP1
FR_TurnbullWREast_WR
FR_TURNSEEP2
FR_TBWSEEP1
FR_TurnbullWRWest_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Cadmium
Maximum Total Cadmium



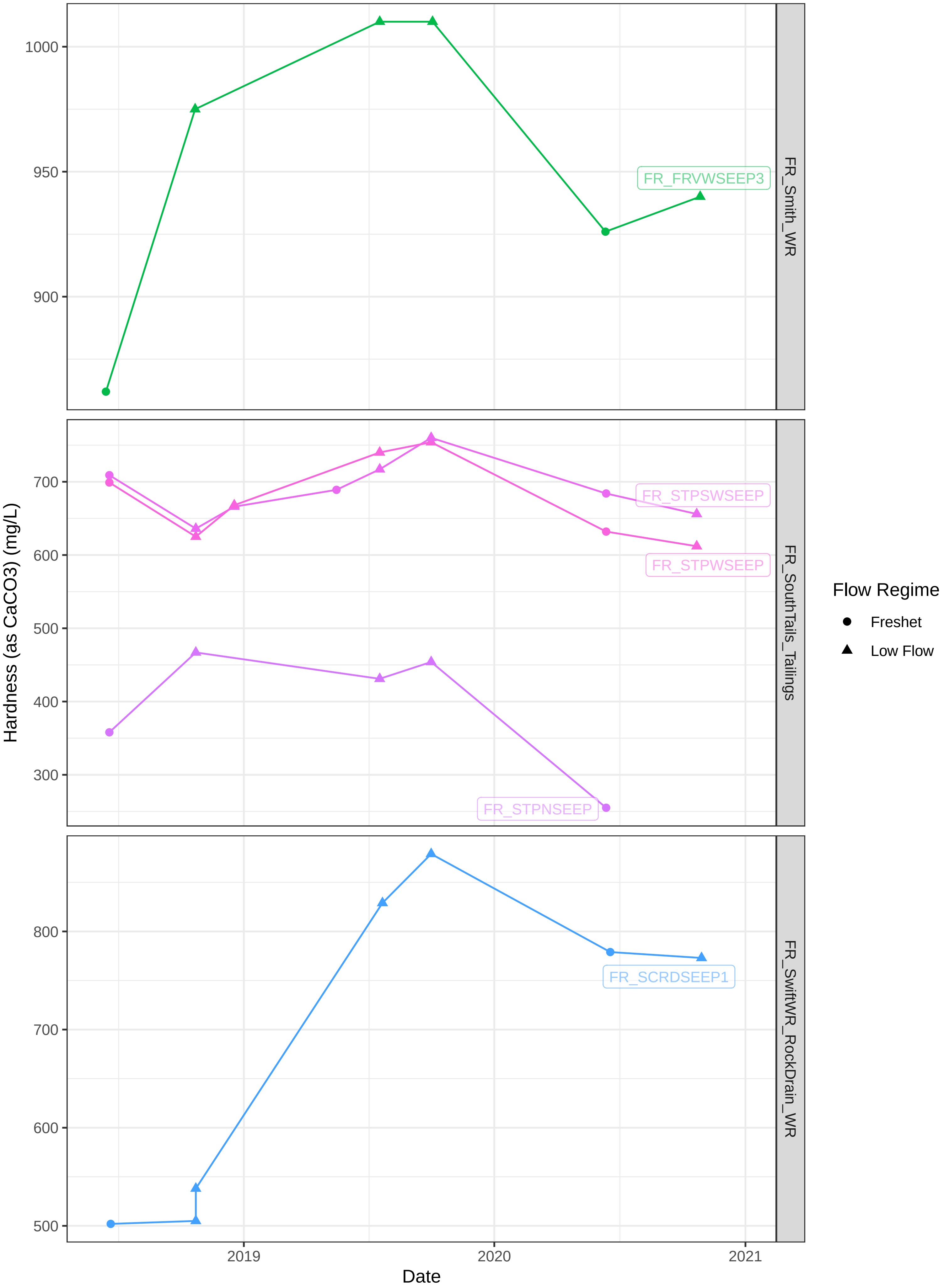
Note: there is no FWAL BCWQG for Hardness (as CaCO3)



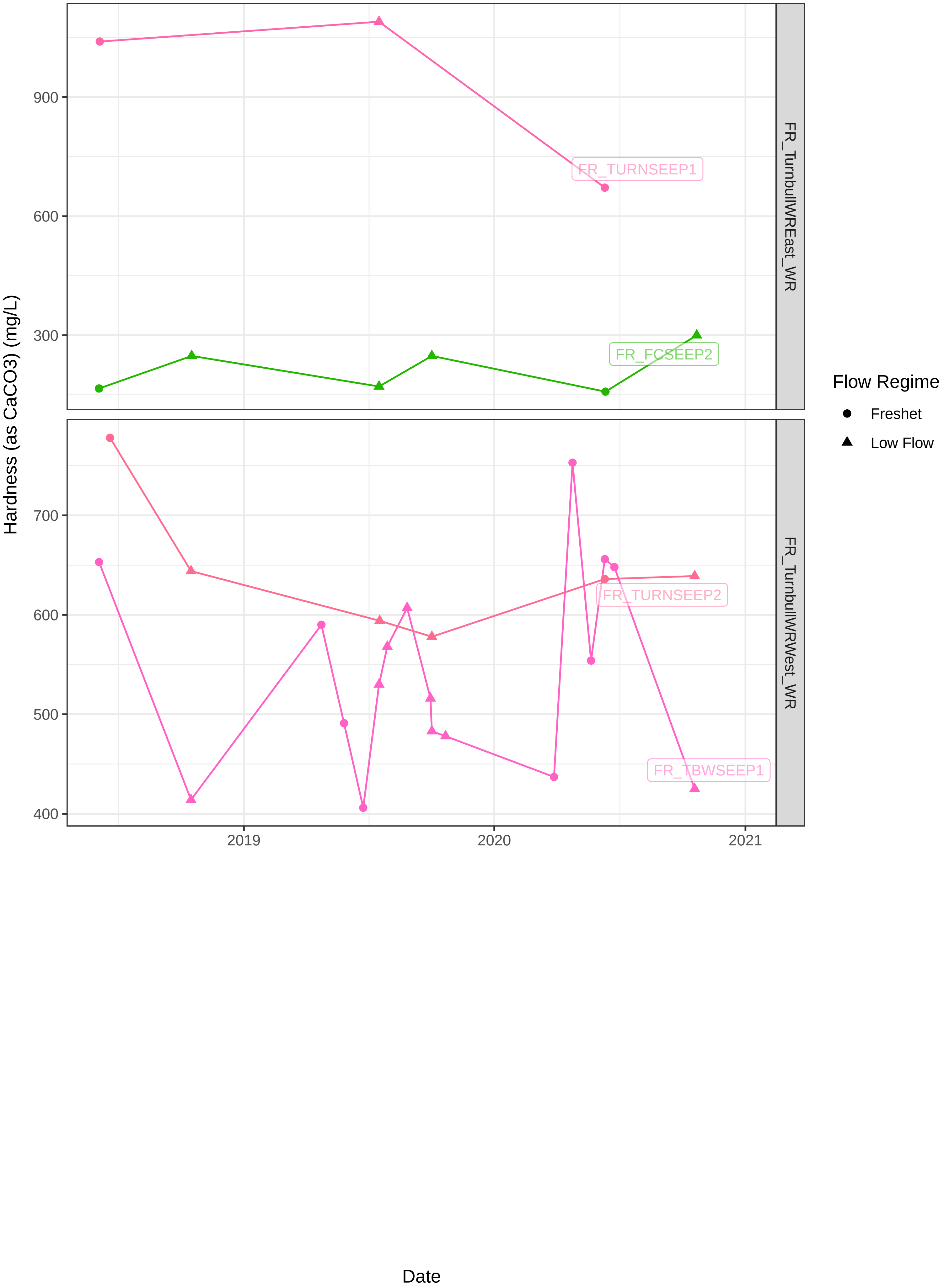
Note: there is no FWAL BCWQG for Hardness (as CaCO3)



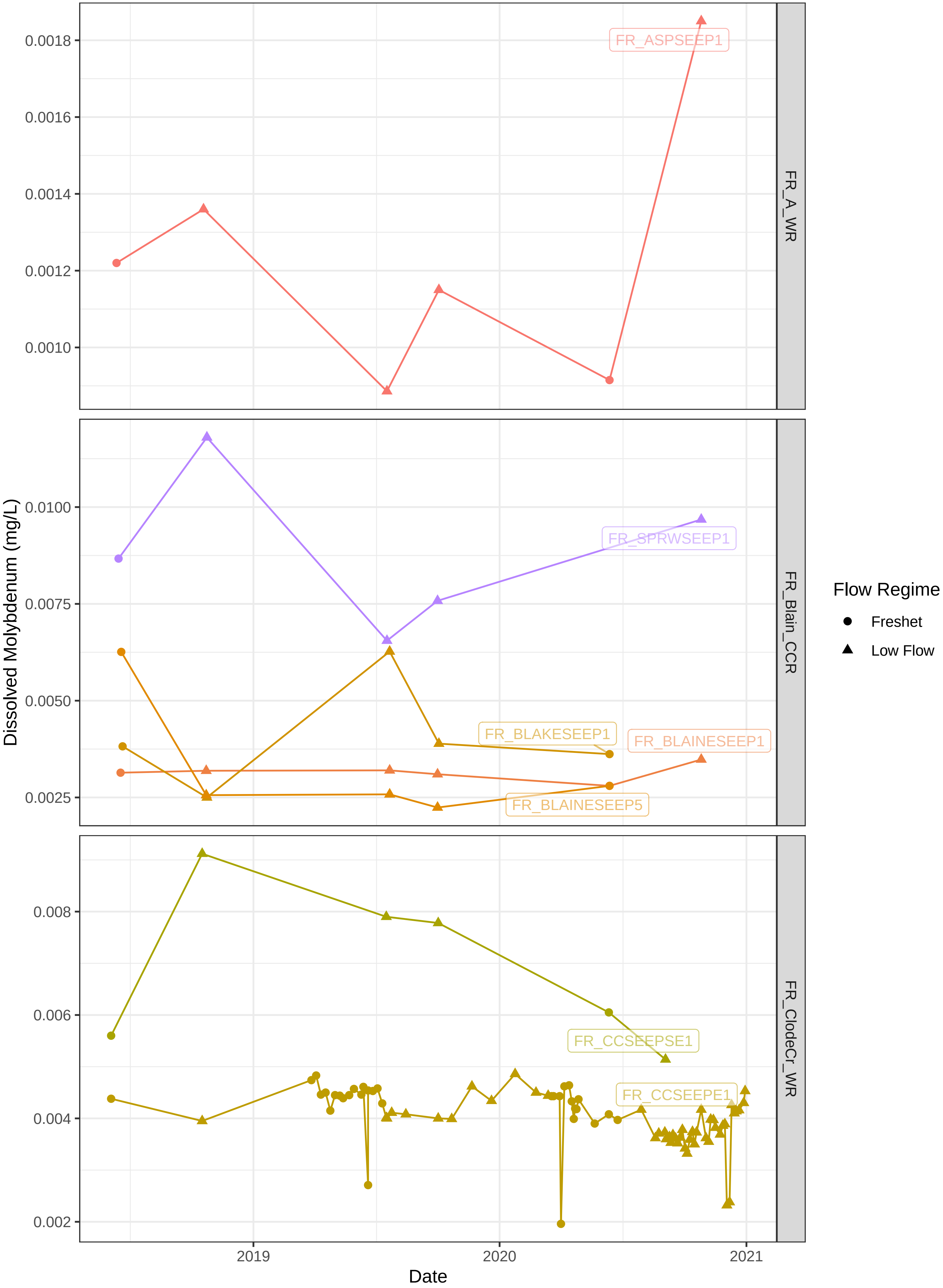
Note: there is no FWAL BCWQG for Hardness (as CaCO3)



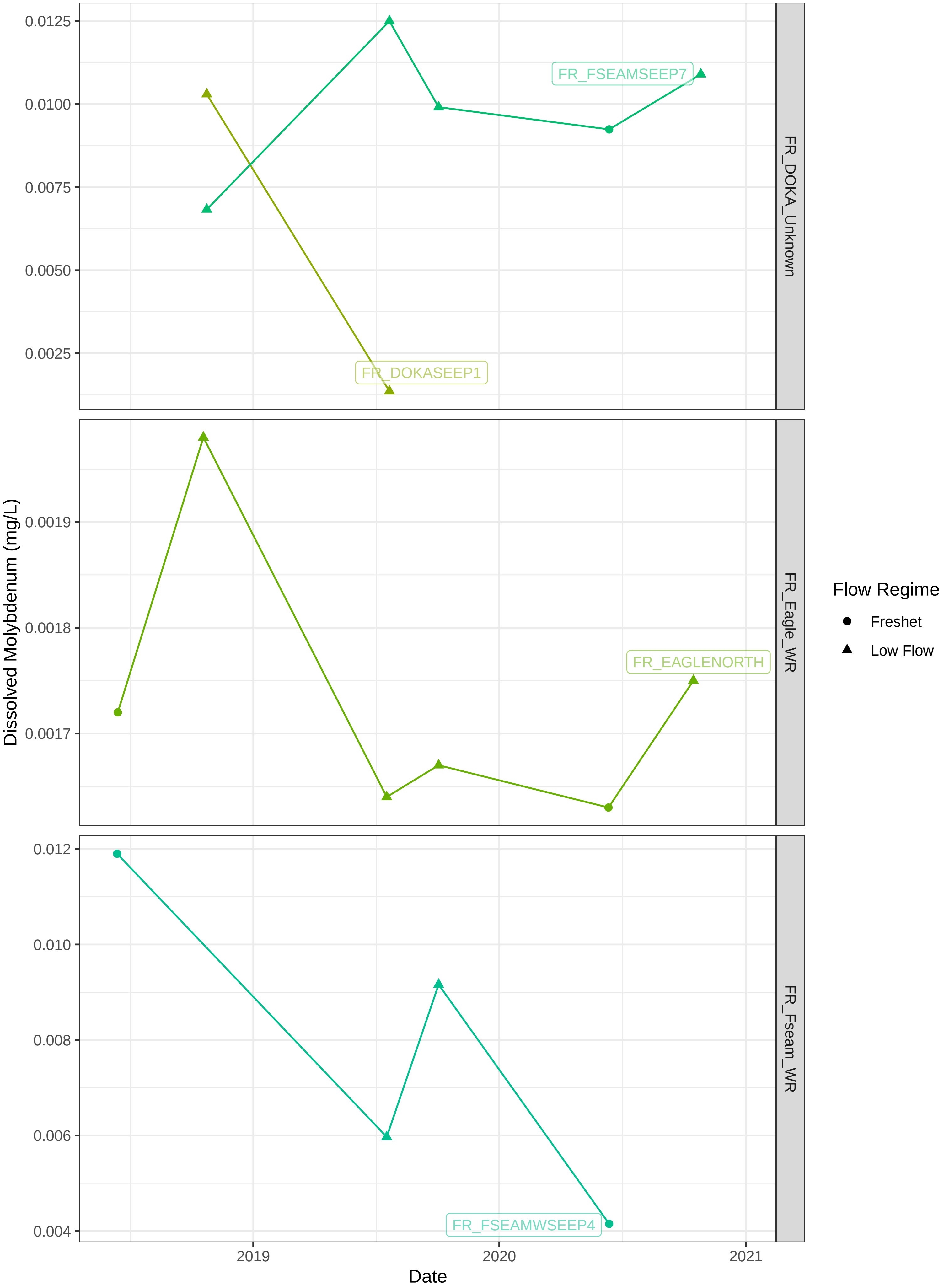
Note: there is no FWAL BCWQG for Hardness (as CaCO3)



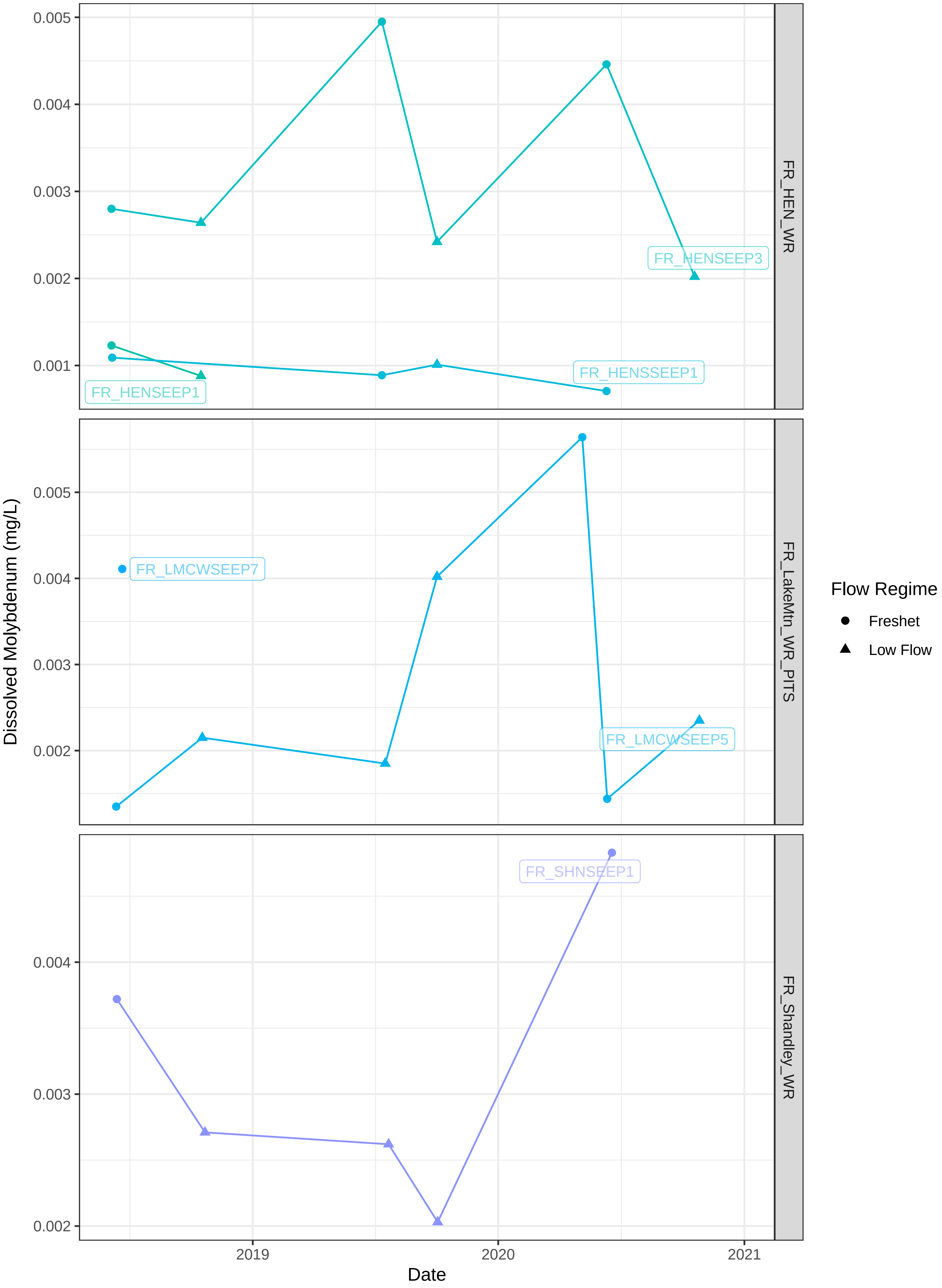
Note: there is no FWAL BCWQG for Hardness (as CaCO3)



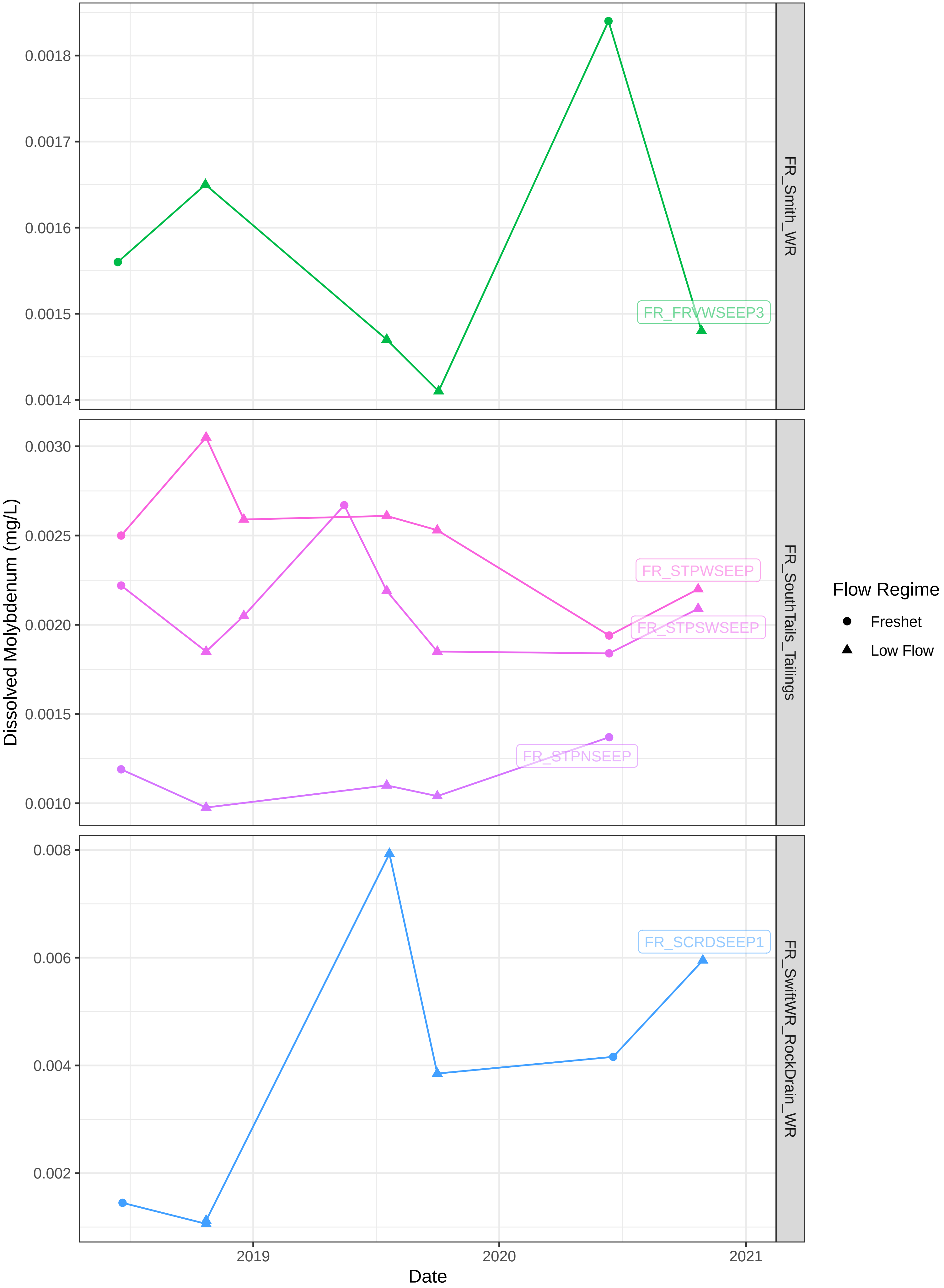
Note: there is no FWAL BCWQG for Dissolved Molybdenum



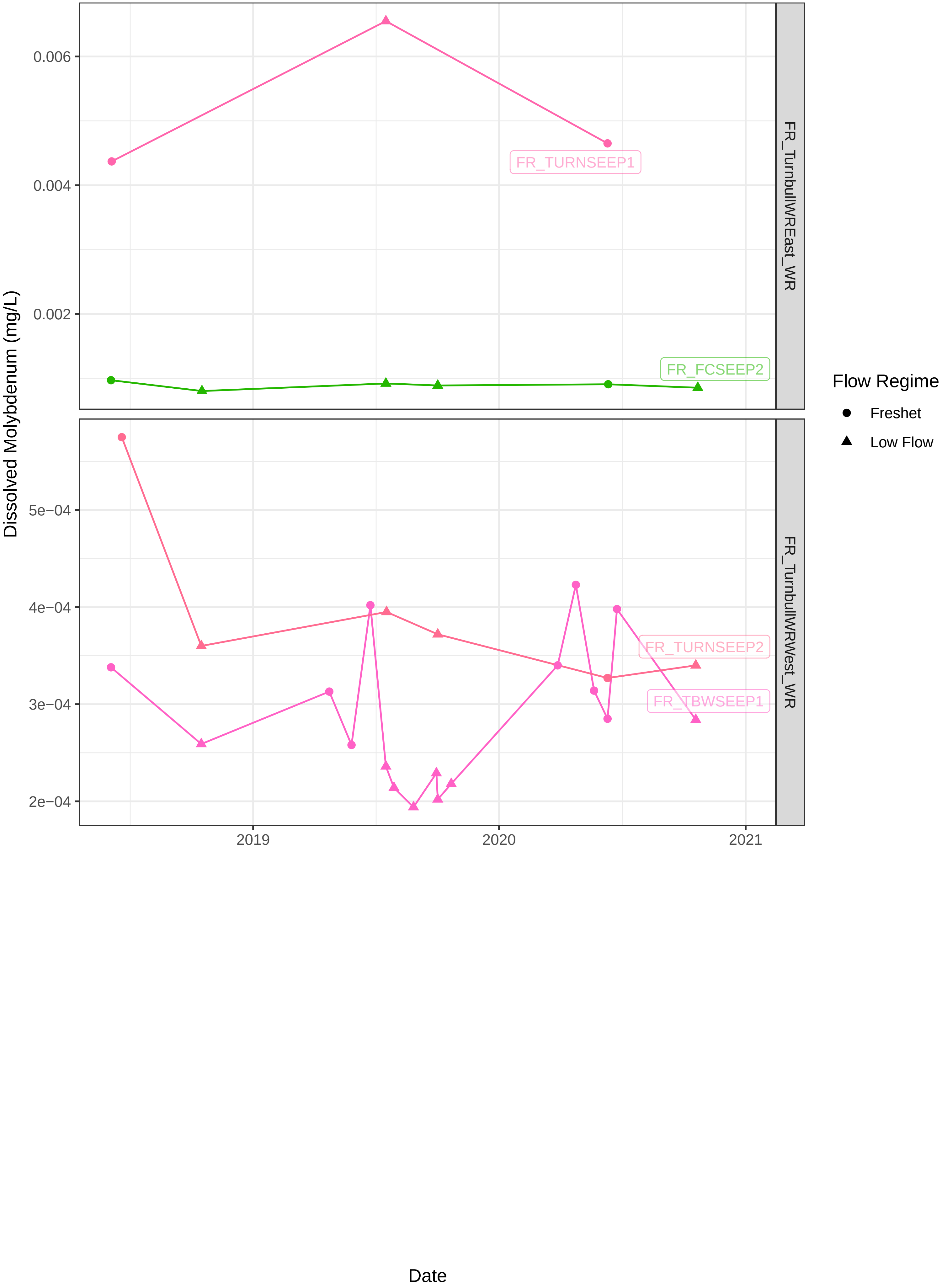
Note: there is no FWAL BCWQG for Dissolved Molybdenum



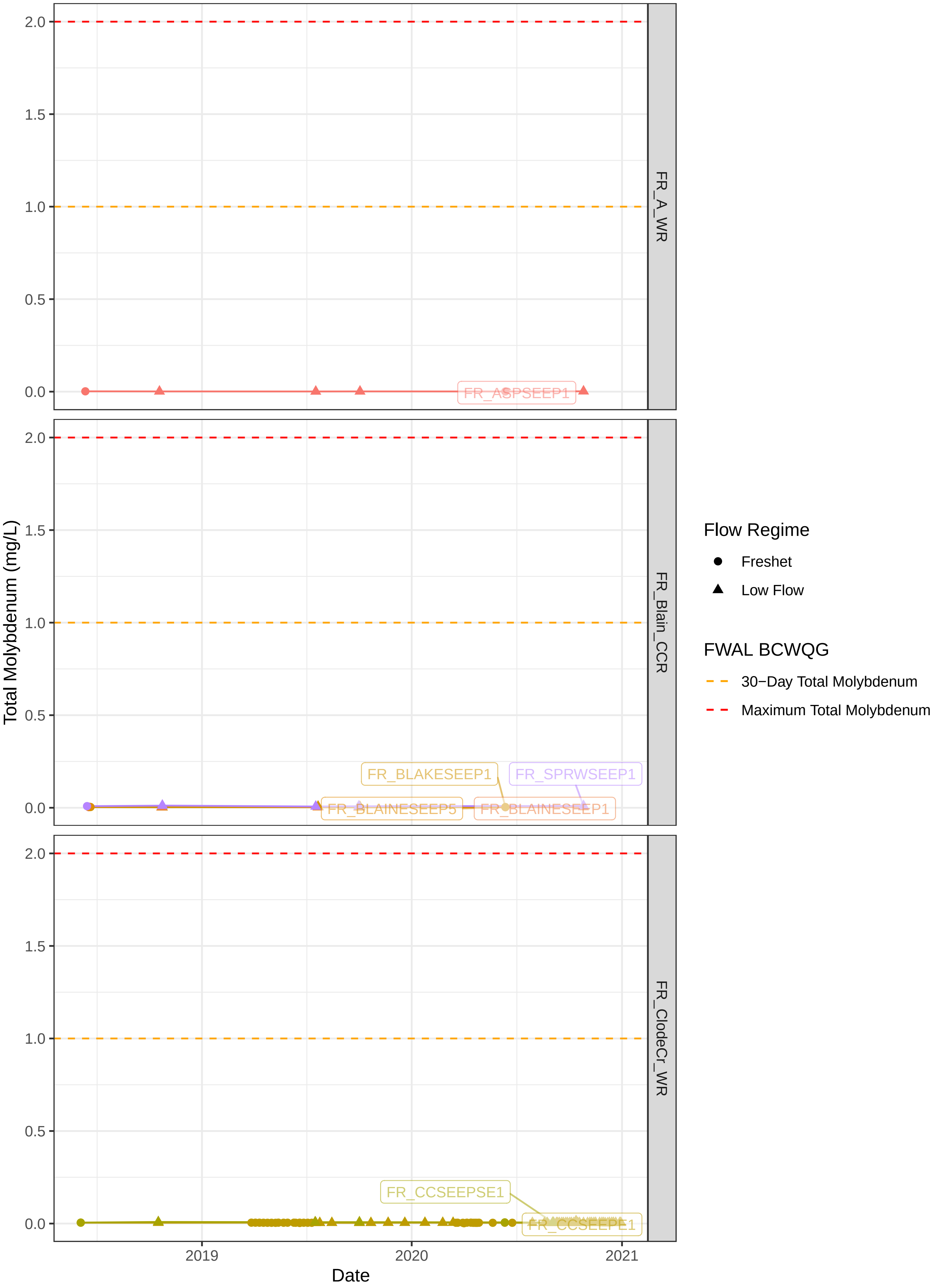
Note: there is no FWAL BCWQG for Dissolved Molybdenum



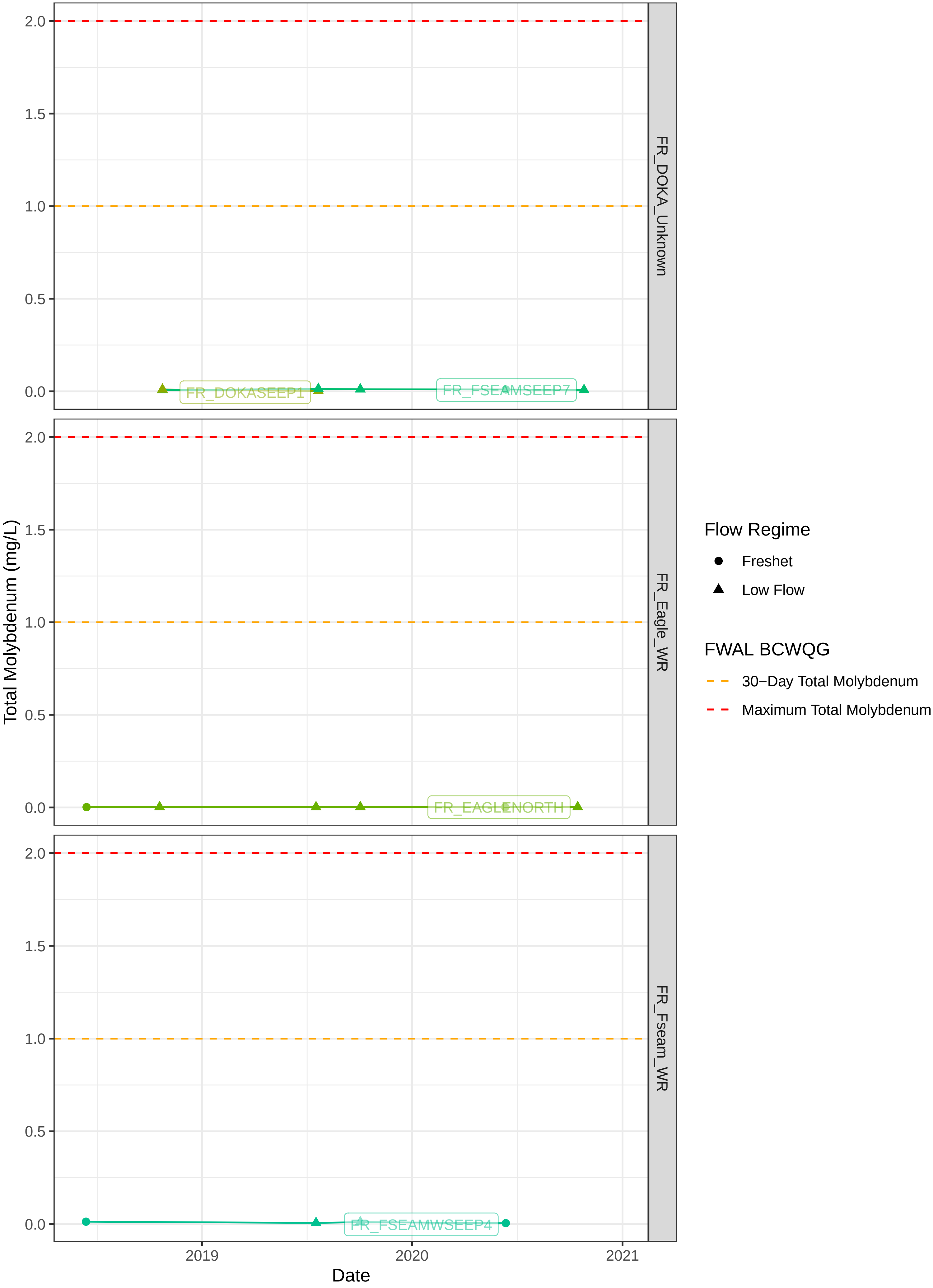
Note: there is no FWAL BCWQG for Dissolved Molybdenum



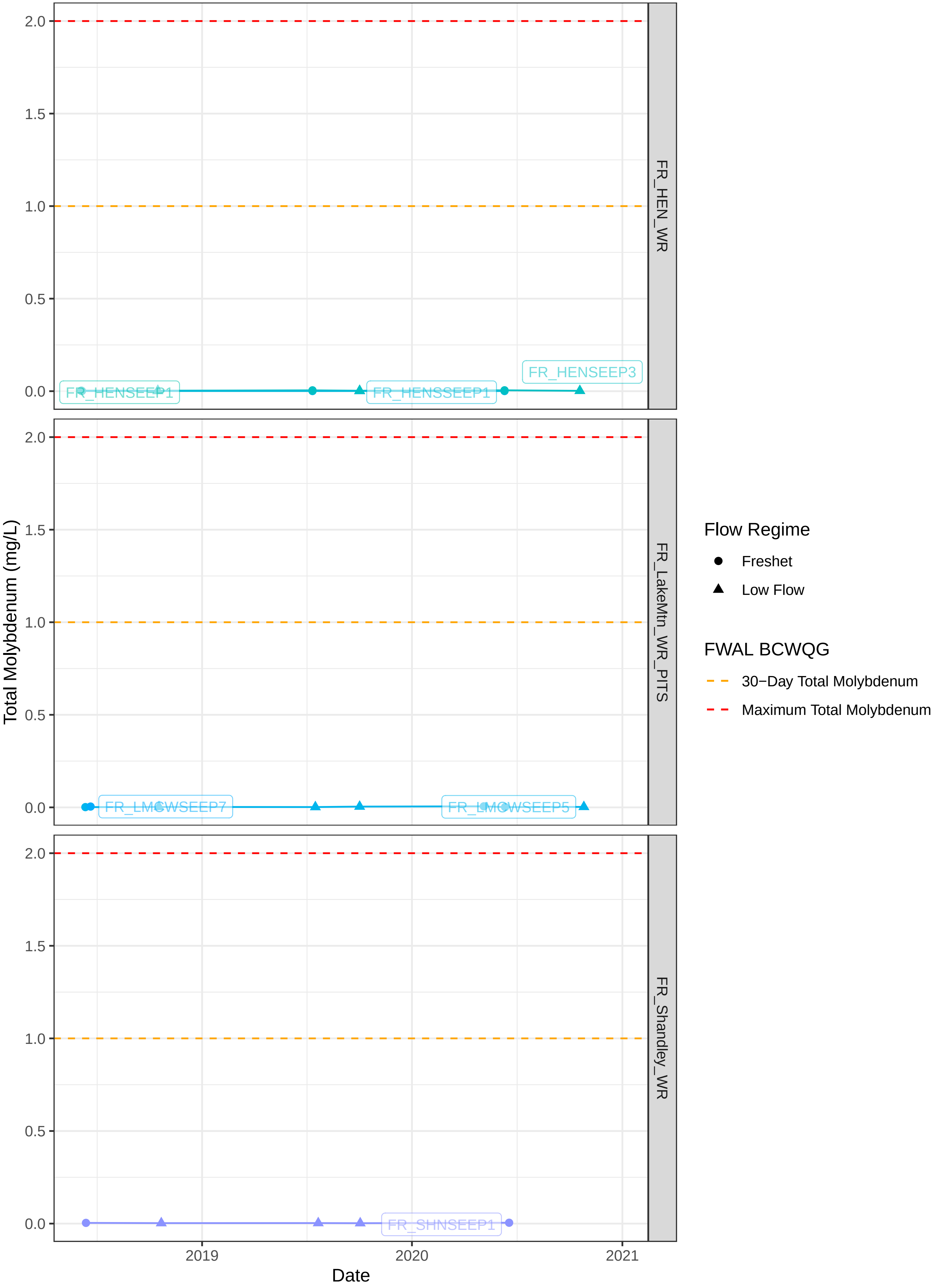
Note: there is no FWAL BCWQG for Dissolved Molybdenum

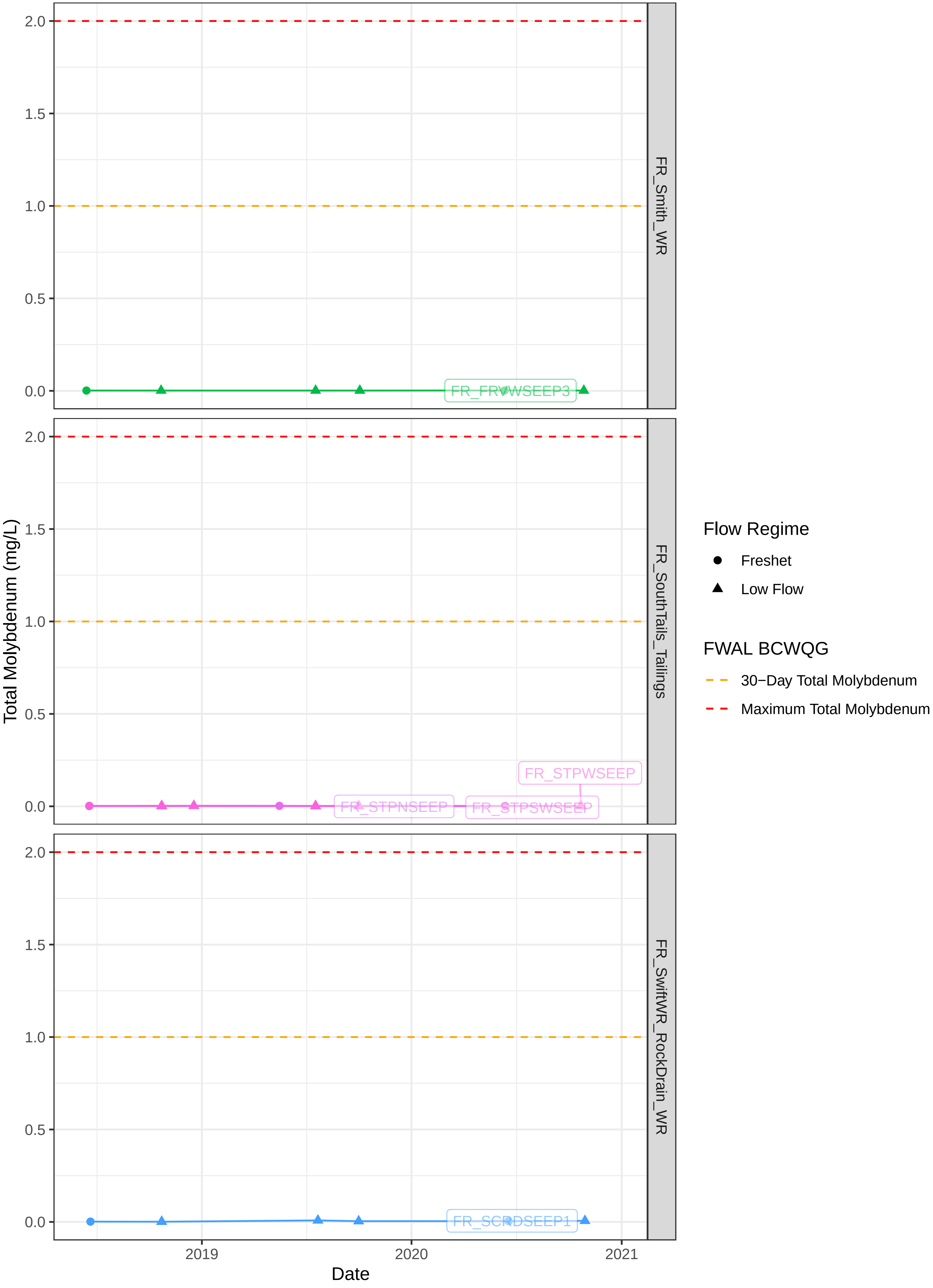


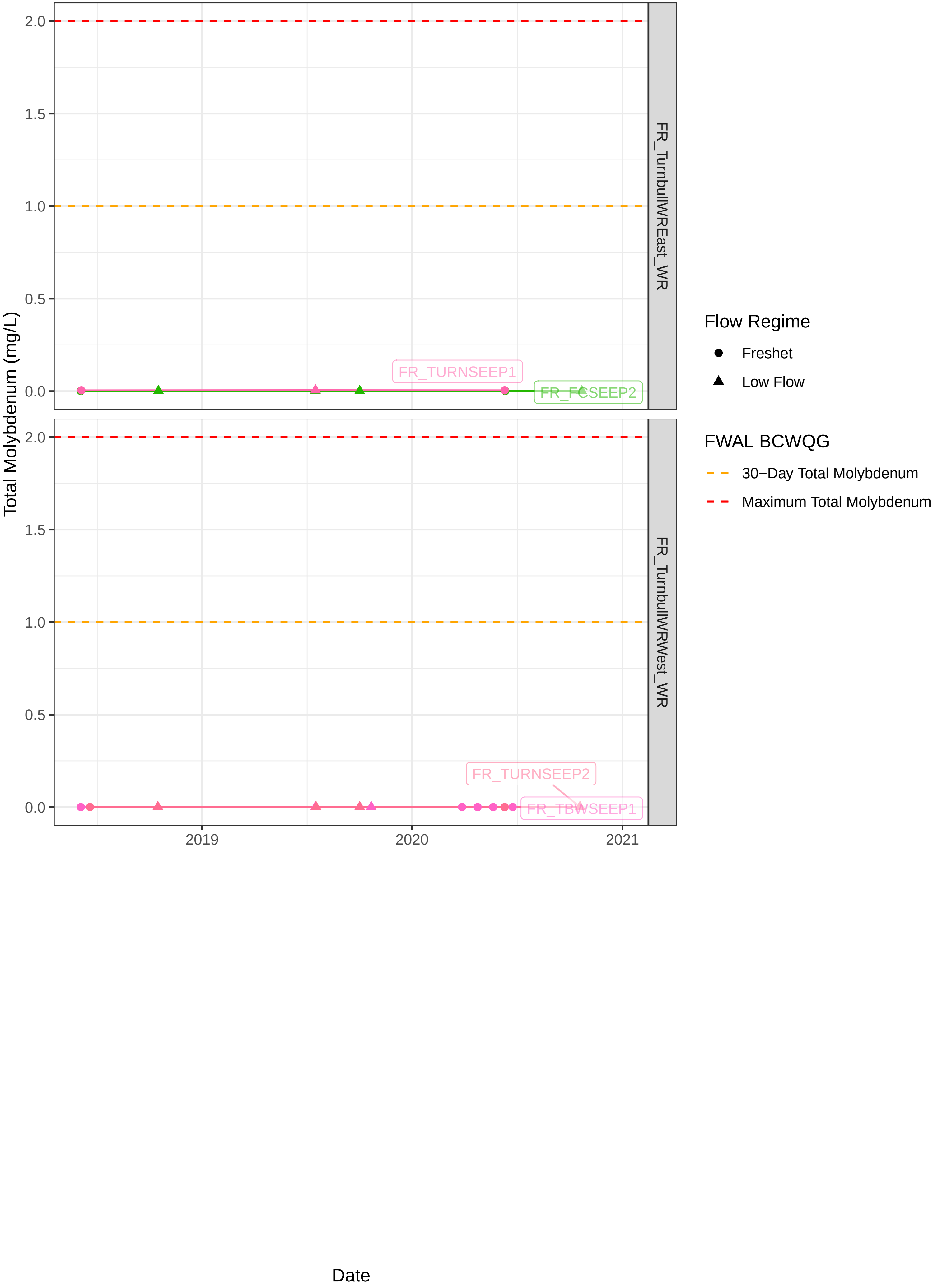
Total Molybdenum (mg/L)
Date
2.0
1.5
1.0
0.5
0.0
2019
2020
2021
FR_A_WR
FR_Blain_CCR
FR_ClodeCr_WR
FR_ASPSEEP1
FR_BLAKESEEP1
FR_SPRWSEEP1
FR_BLAINESEEP5
FR_BLAINESEEP1
FR_CCSEEPSE1
FR_CCSEEPE1
Flow Regime
Freshet
Low Flow
FWAL BCWQG
30−Day Total Molybdenum
Maximum Total Molybdenum



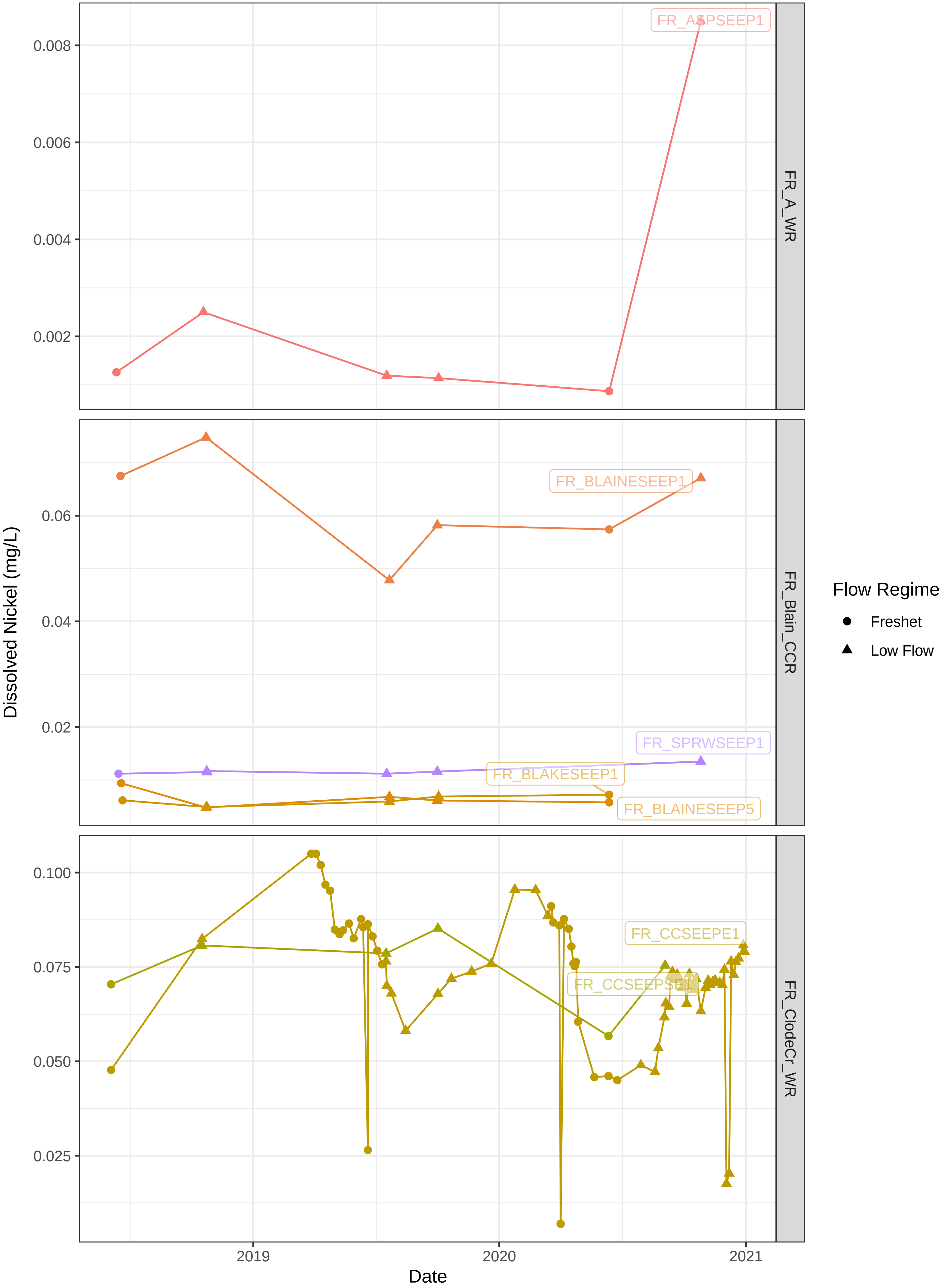
Total Molybdenum (mg/L)
2.0
1.5
1.0
0.5
0.0
FR_DOKASEEP1
FR_FSEAMSEEP7
FR_DOKA_Unknown
FR_EAGLENORTH
FR_Eagle_WR
FR_FSEAMWSEEP4
FR_Fseam_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Molybdenum
Maximum Total Molybdenum

Total Molybdenum (mg/L)
2.0
1.5
1.0
0.5
0.0
FR_HENSEEP1
FR_HENSSEEP1
FR_HENSEEP3
FR_HEN_WR
FR_LMCWSEEP7
FR_LMCWSEEP5
FR_LakeMtn_WR_PITS
FR_SHNSEEP1
FR_Shandley_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Molybdenum
Maximum Total Molybdenum

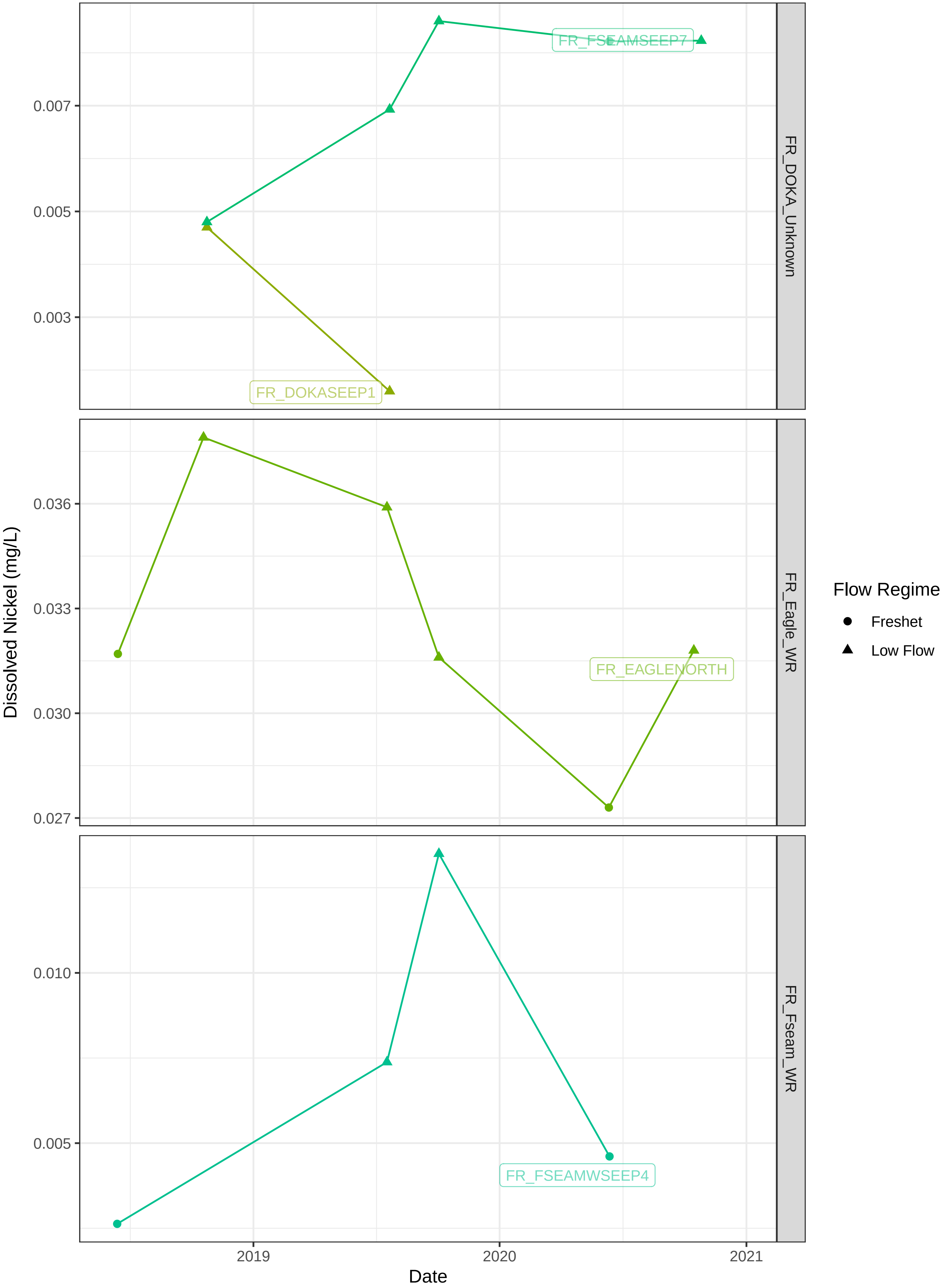

FR_Smith_WR
FR_SouthTails_Tailings
FR_SwiftWR_RockDrain_WR
FR_FRWWSEEP3
FR_STPWSEEP
FR_STPNSEEP
FR_STPSWSEEP
FR_SCRDSEEP1
Total Molybdenum (mg/L)
Date
2.0
1.5
1.0
0.5
0.0
2019
2020
2021
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Molybdenum
Maximum Total Molybdenum



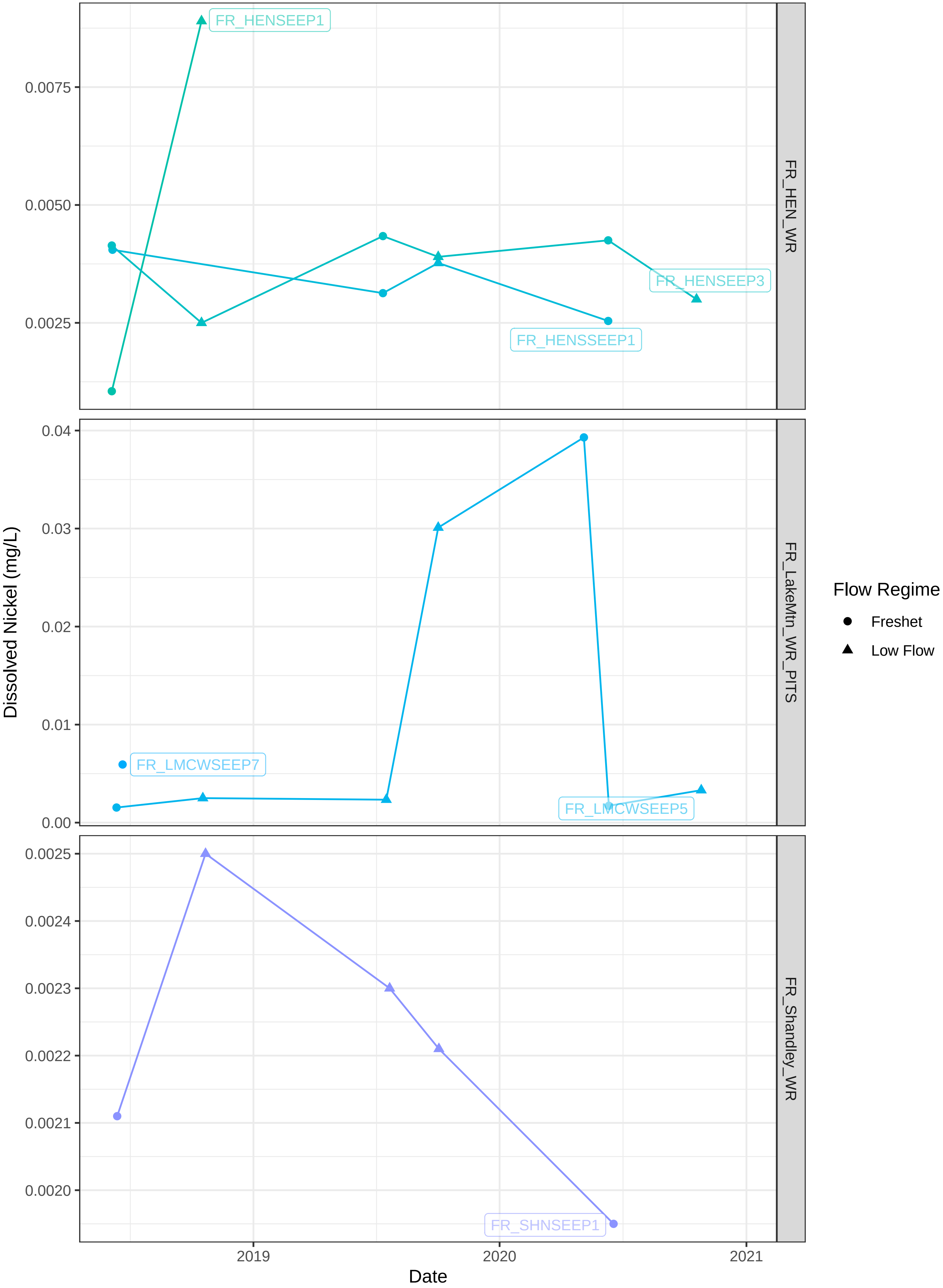
Total Molybdenum (mg/L)
2.0
1.5
1.0
0.5
0.0
FR_TURNSEEP1
FR_FCSEEP2
FR_TurnbullWREast_WR
FR_TURNSEEP2
FR_TBWSEEP1
FR_TurnbullWRWest_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Molybdenum
Maximum Total Molybdenum



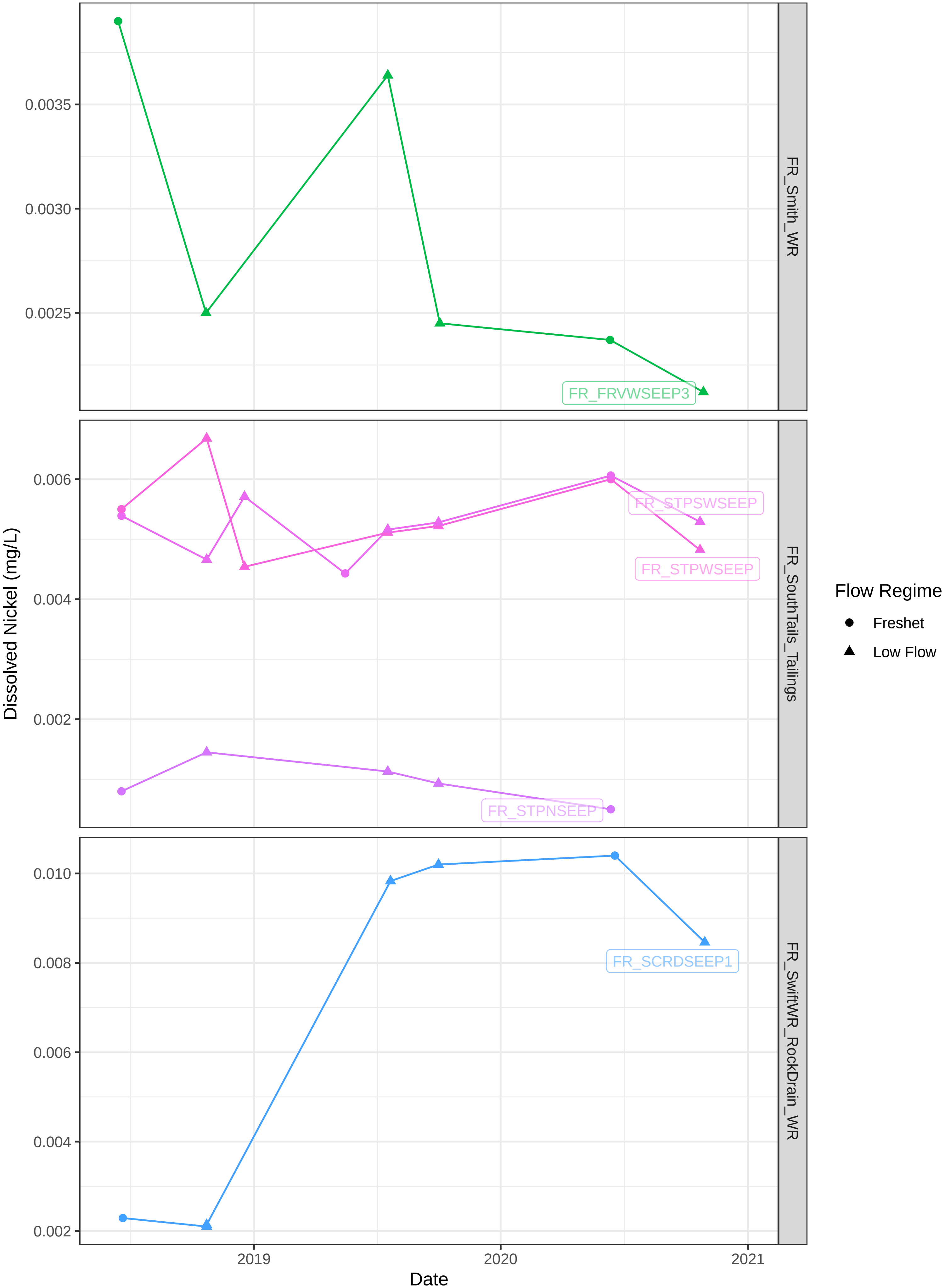
Note: there is no FWAL BCWQG for Dissolved Nickel



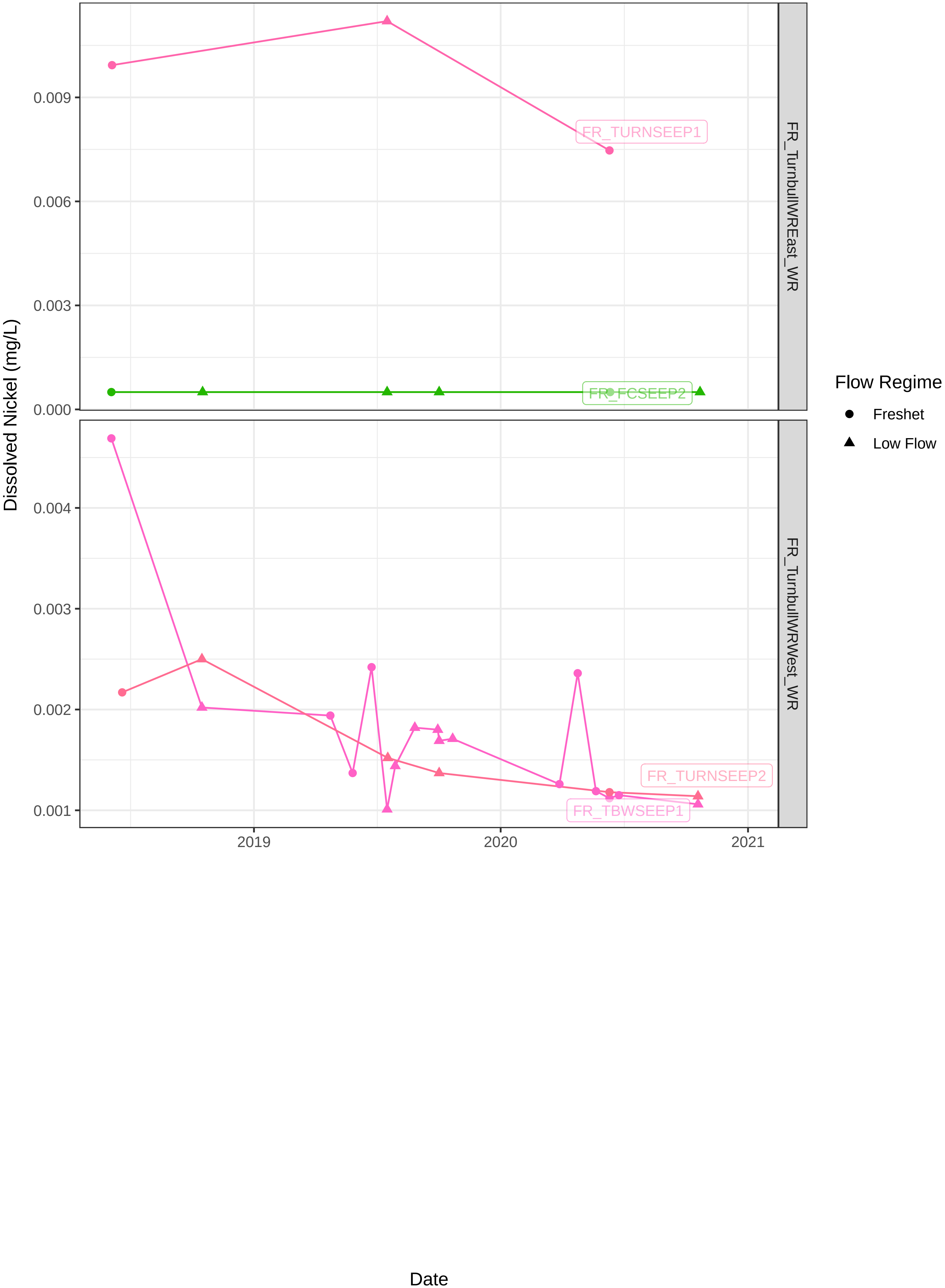
Note: there is no FWAL BCWQG for Dissolved Nickel



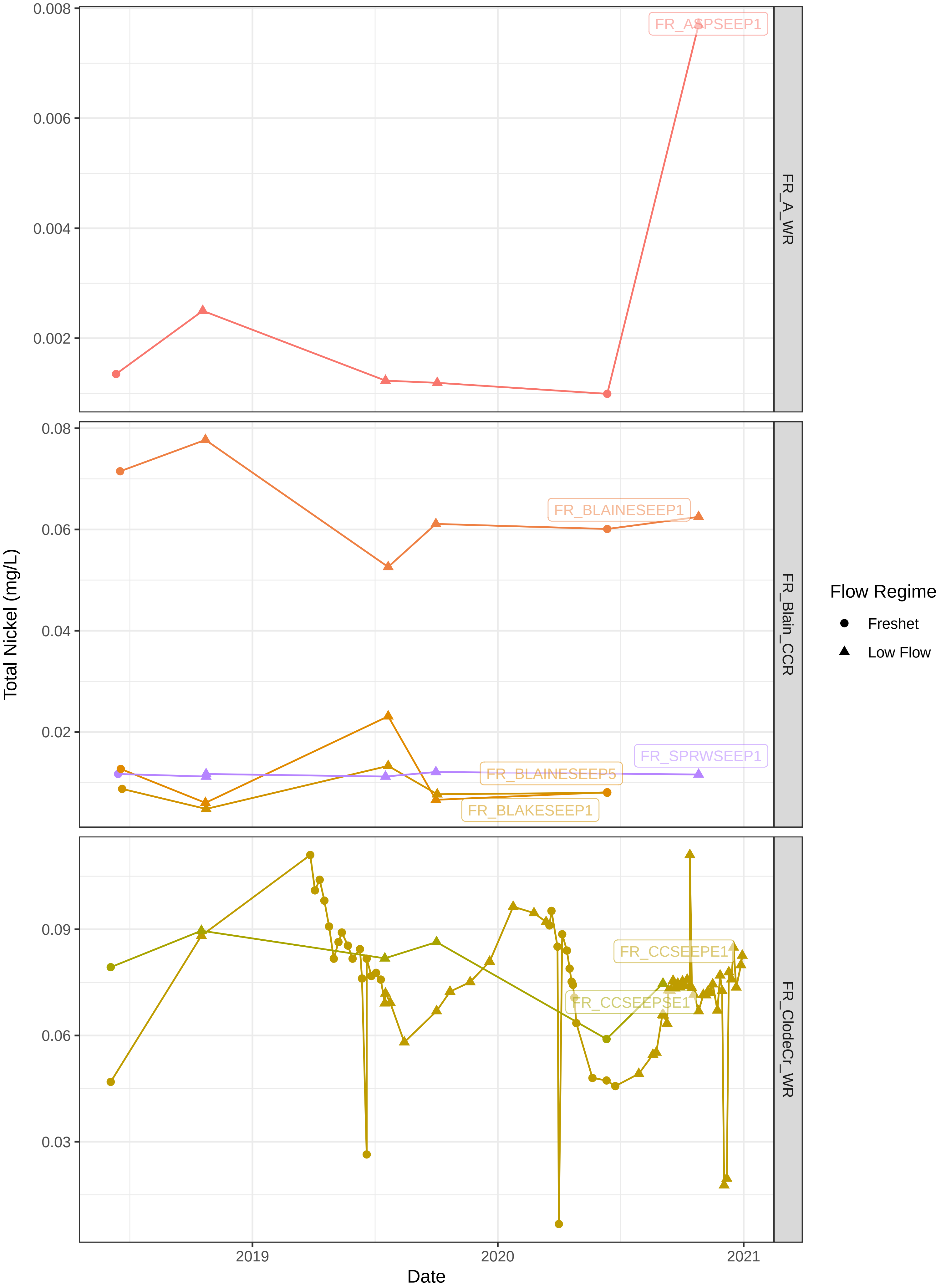
Note: there is no FWAL BCWQG for Dissolved Nickel



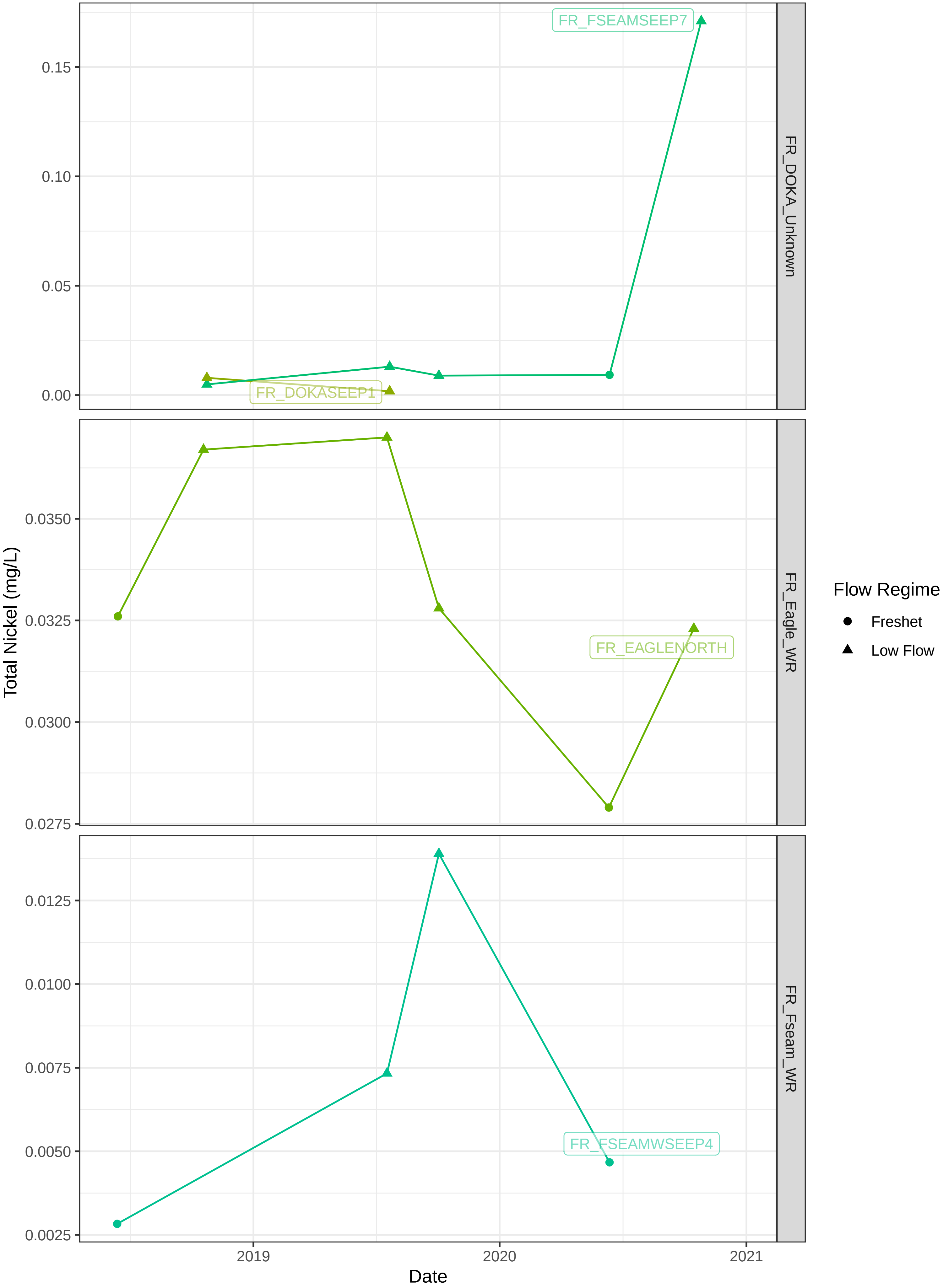
Note: there is no FWAL BCWQG for Dissolved Nickel



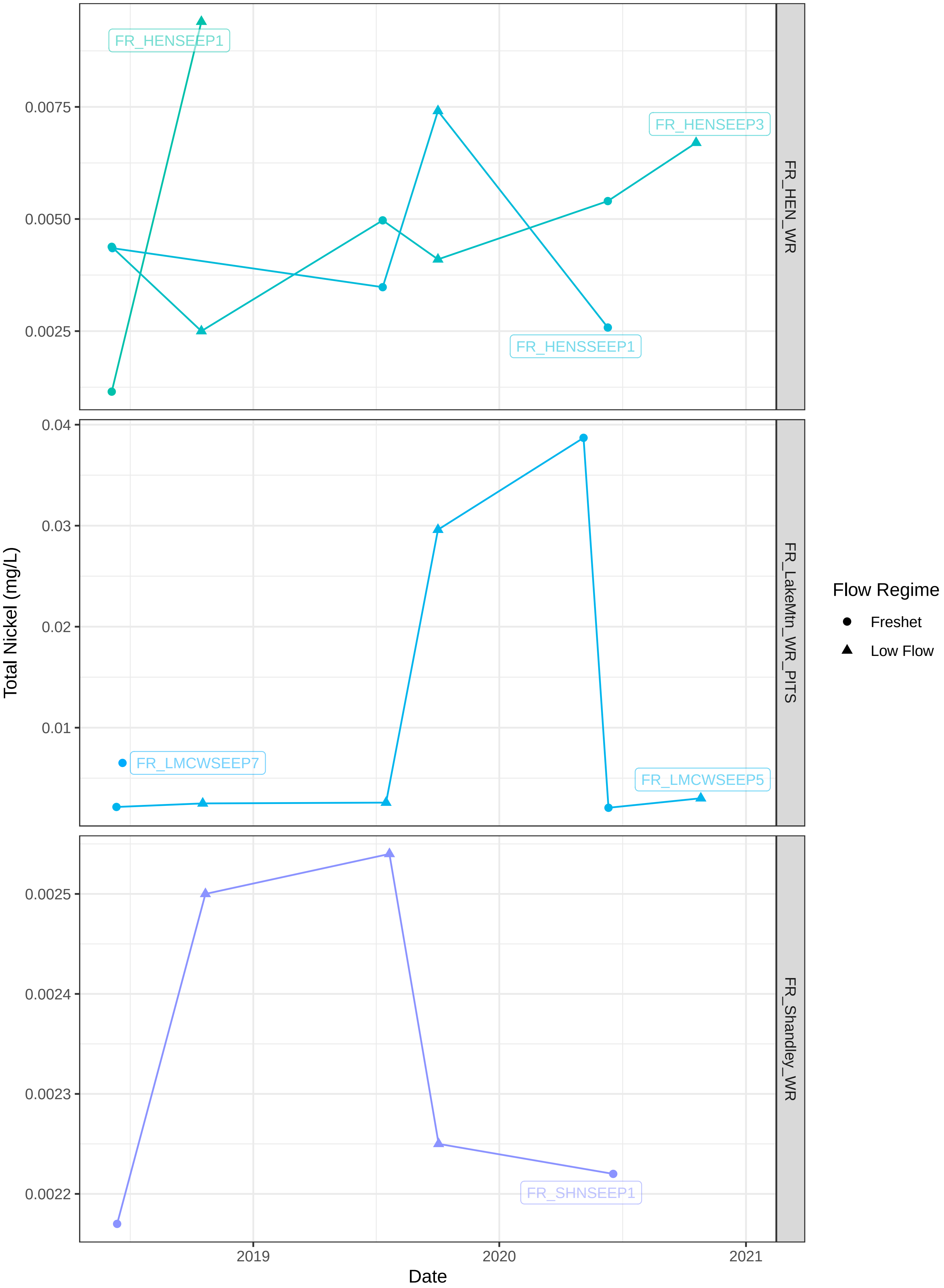
Note: there is no FWAL BCWQG for Dissolved Nickel



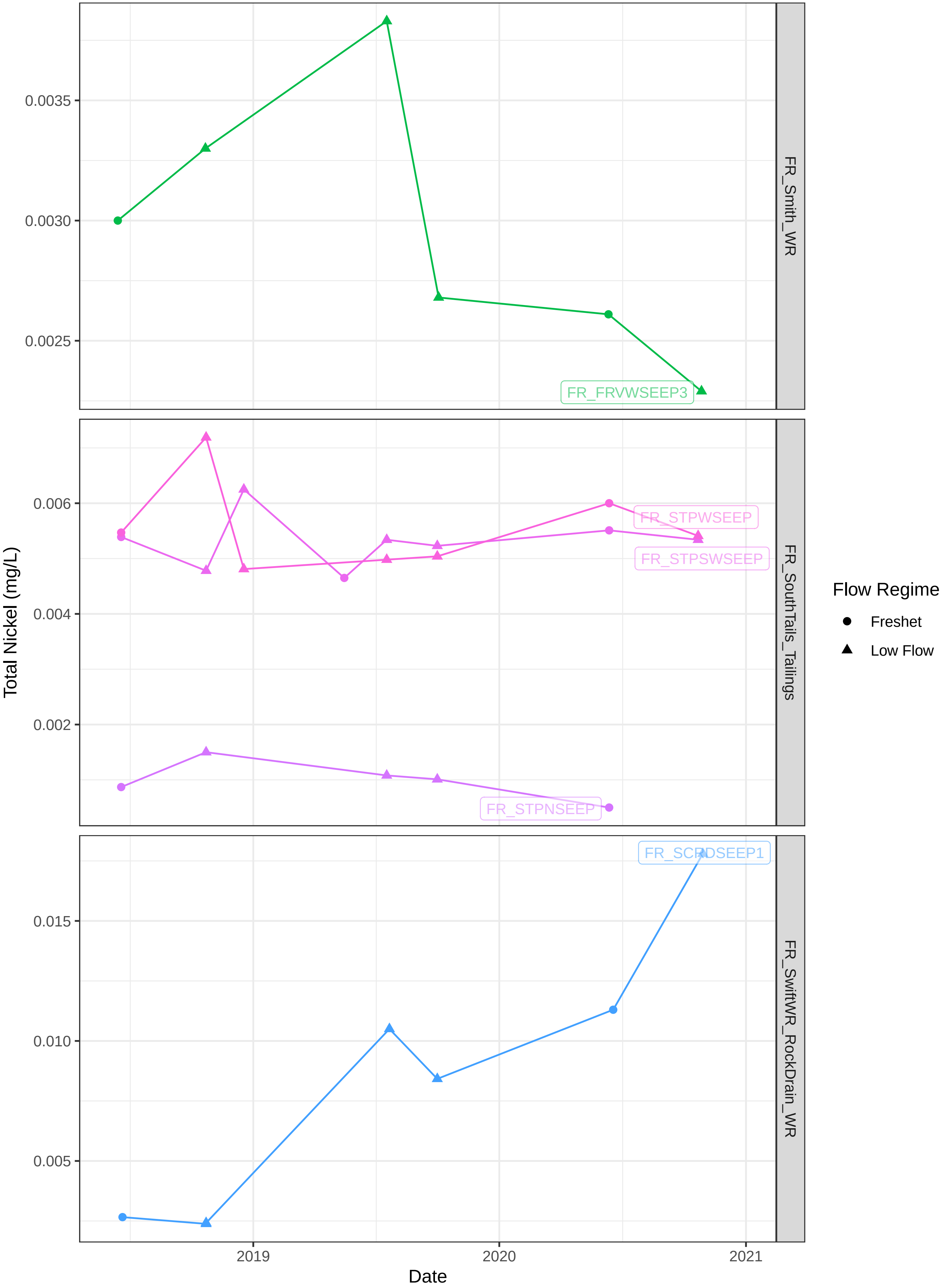
Note: The FWAL BCWQG for Total Nickel is dependent on Hardness



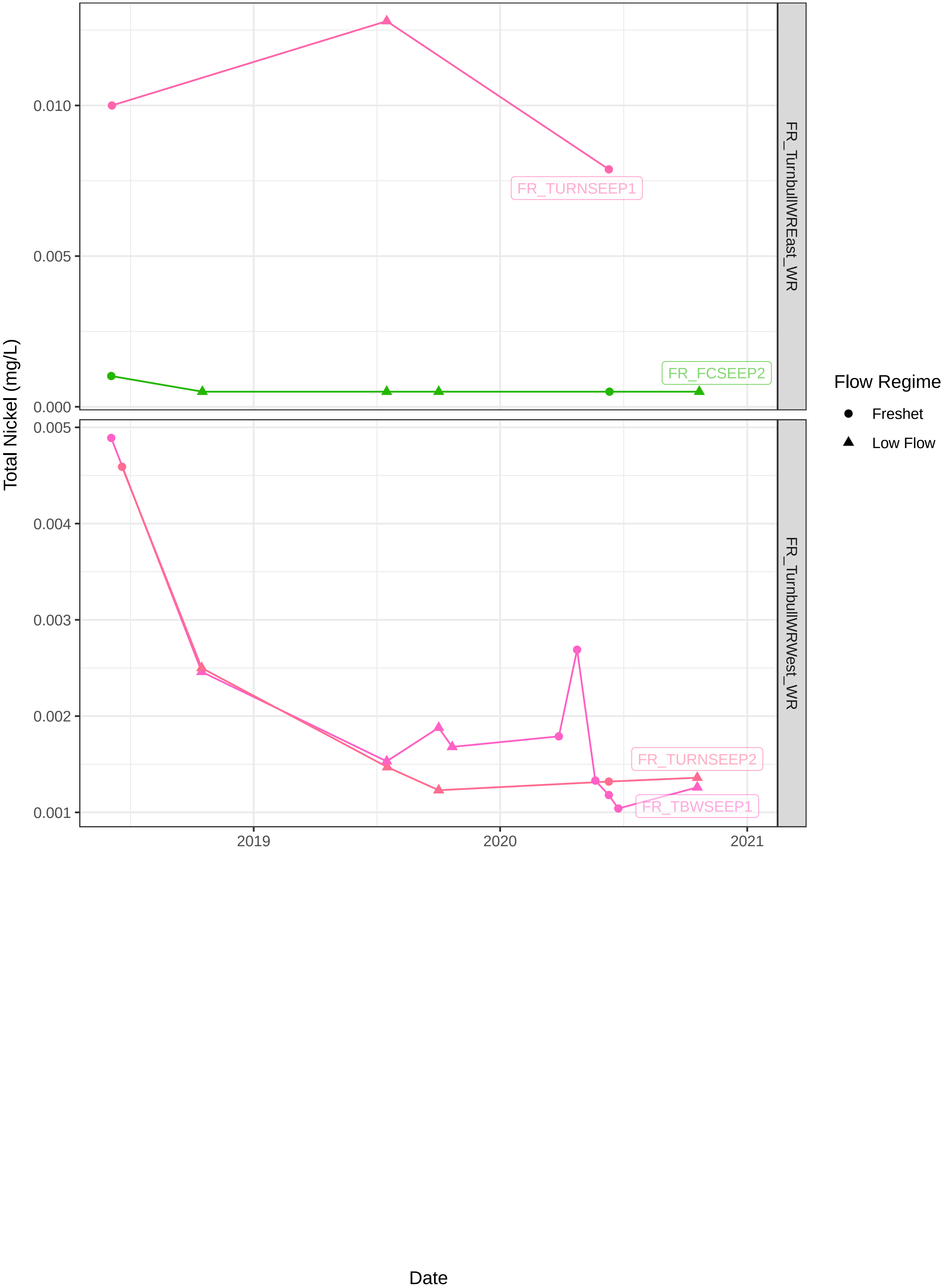
Note: The FWAL BCWQG for Total Nickel is dependent on Hardness



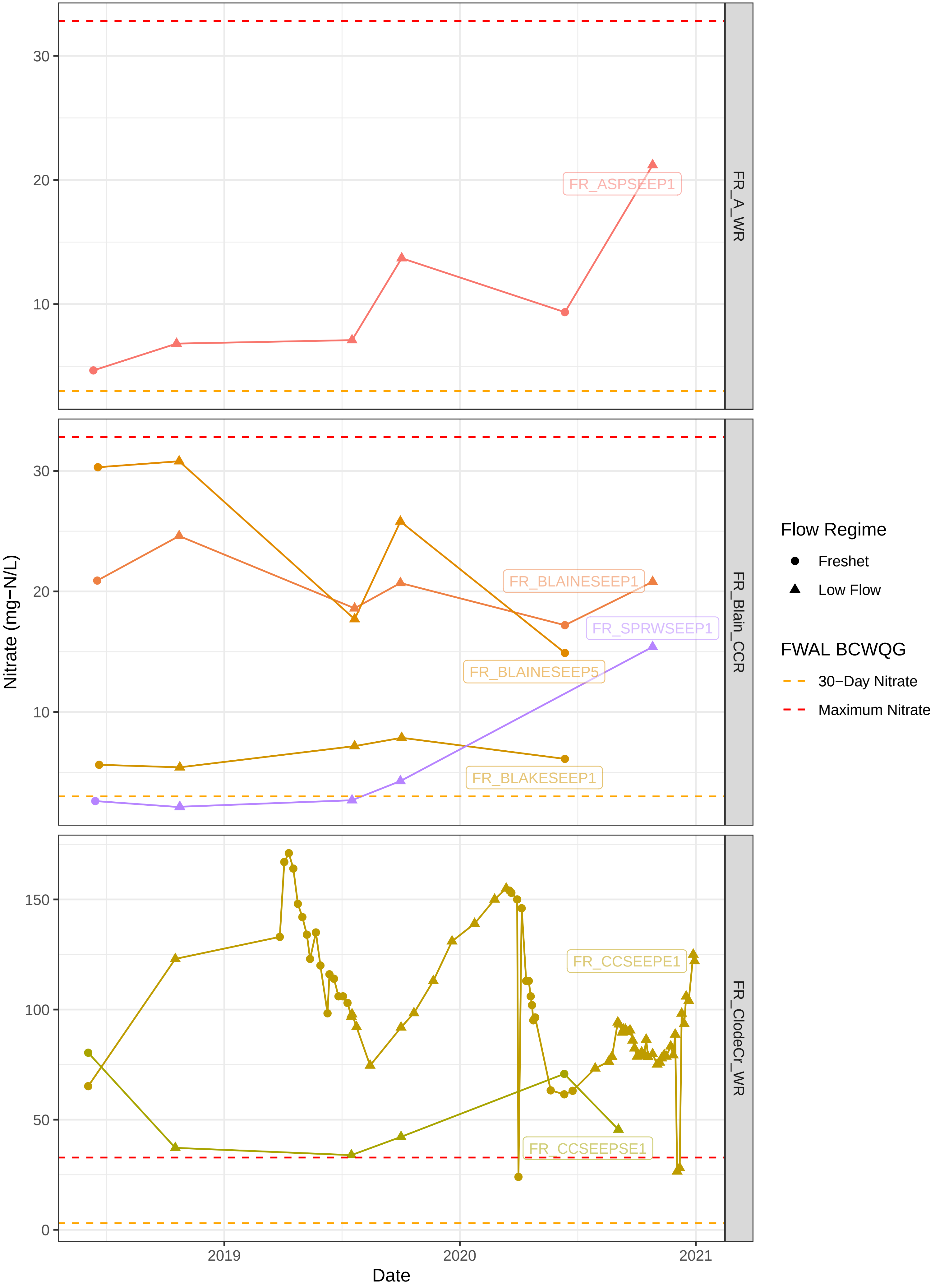
Note: The FWAL BCWQG for Total Nickel is dependent on Hardness

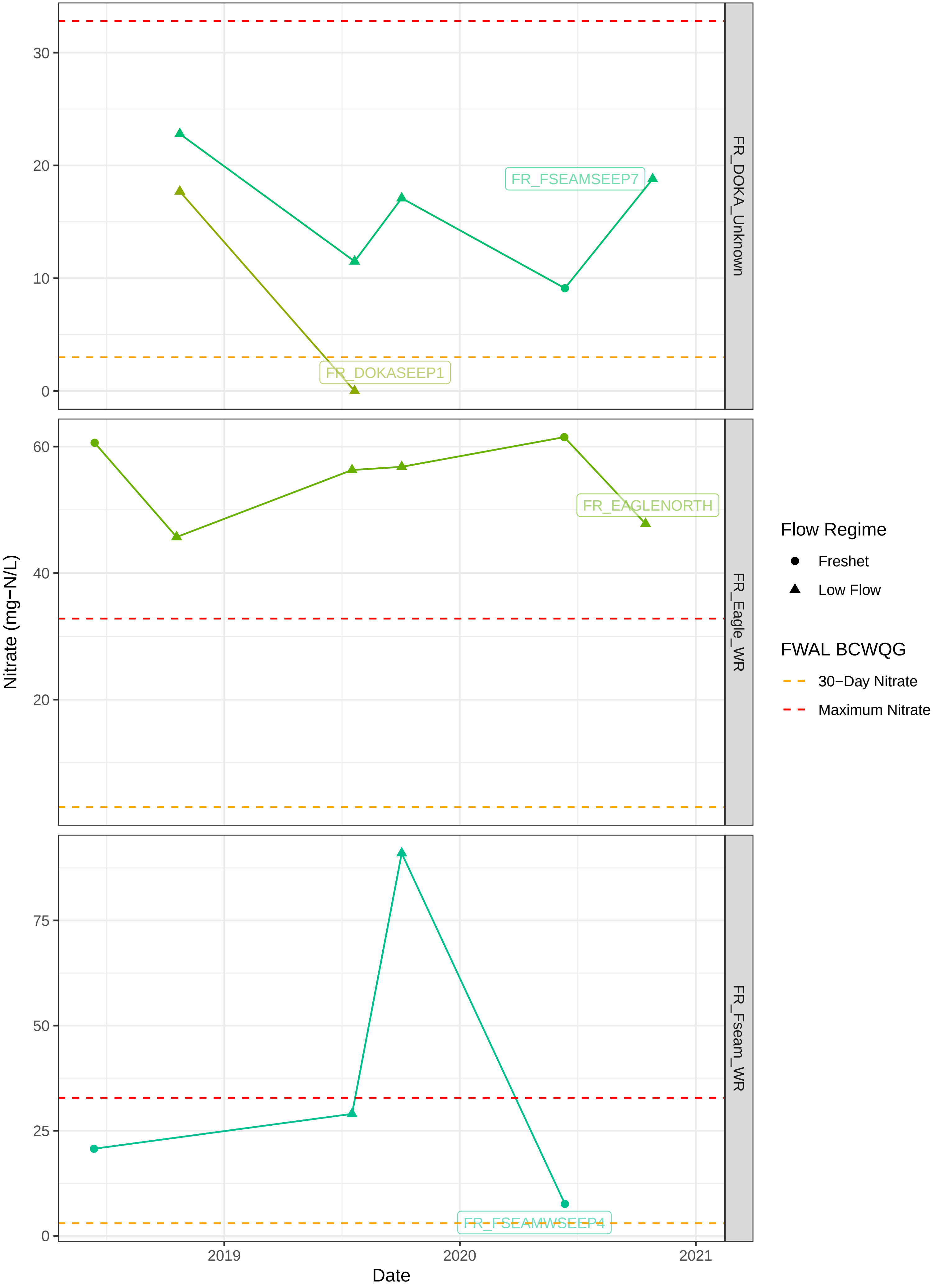


Note: The FWAL BCWQG for Total Nickel is dependent on Hardness

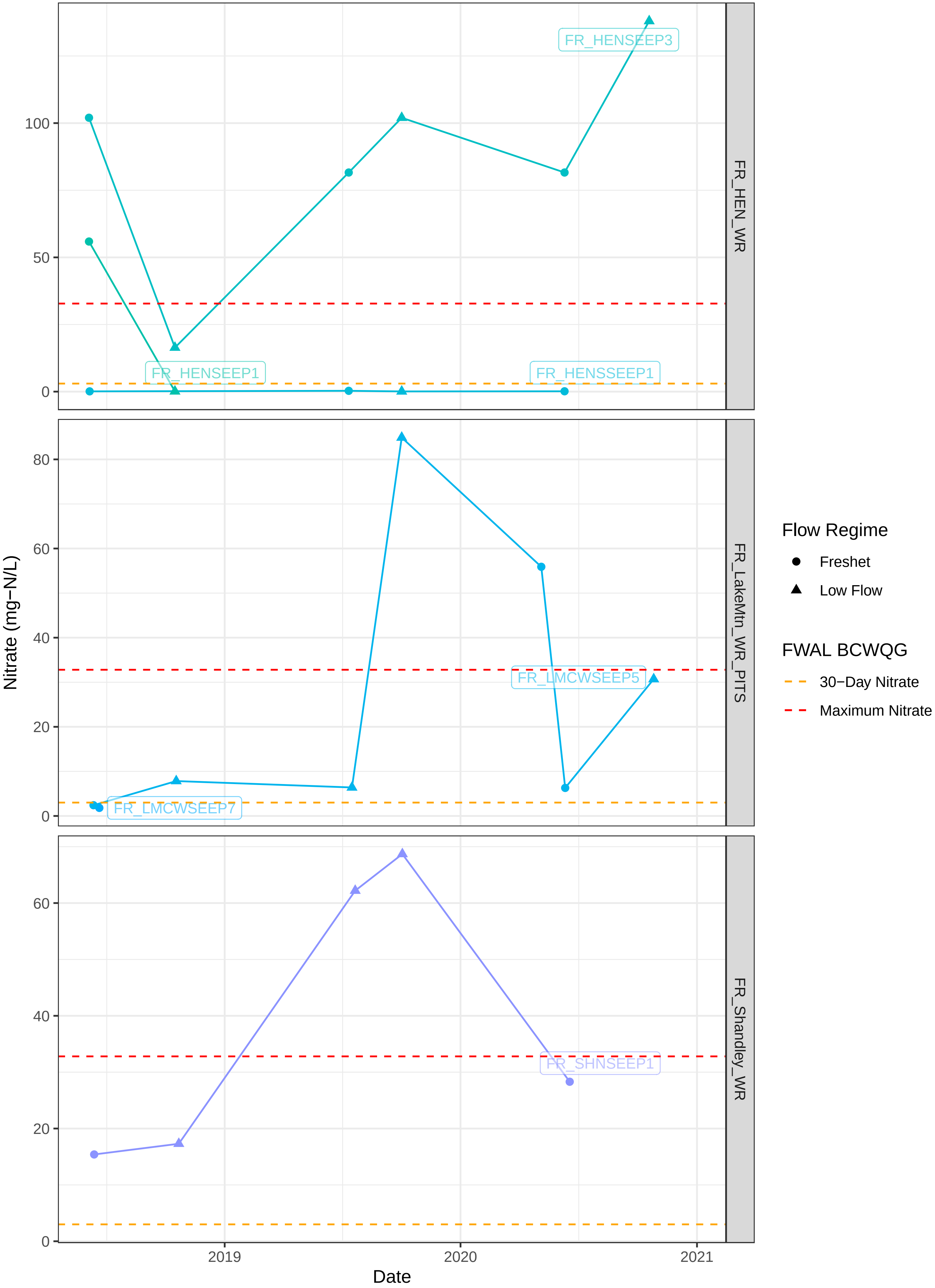


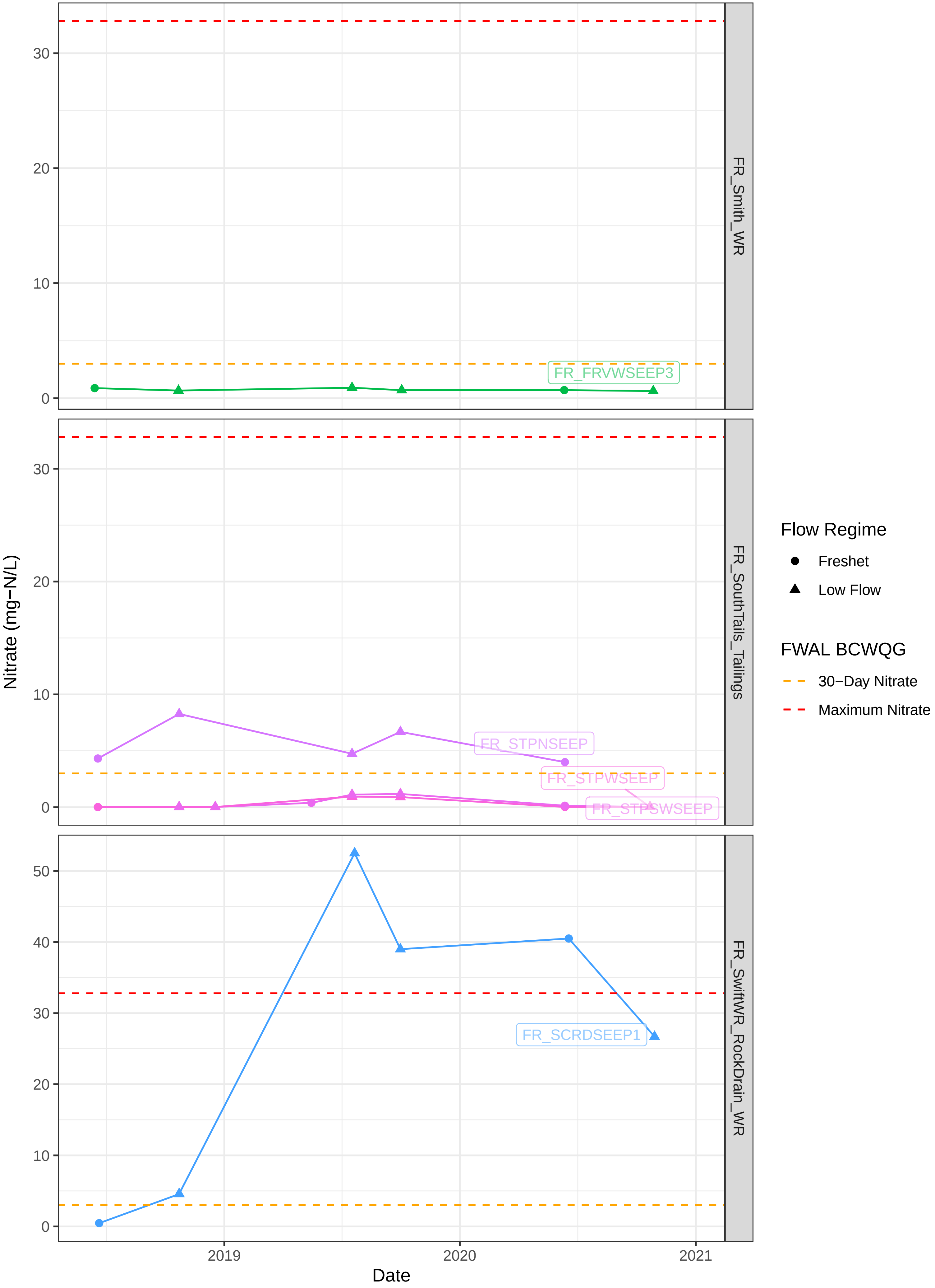
Note: The FWAL BCWQG for Total Nickel is dependent on Hardness


Nitrate (mg−N/L)
30
20
10
FR_ASPSEEP1
FR_A_WR
30
20
10
FR_BLAINESEEP1
FR_SPRWSEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_Blain_CCR
150
100
50
0
FR_CCSEEPE1
FR_CCSEEPSE1
FR_ClodeCr_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Nitrate
Maximum Nitrate

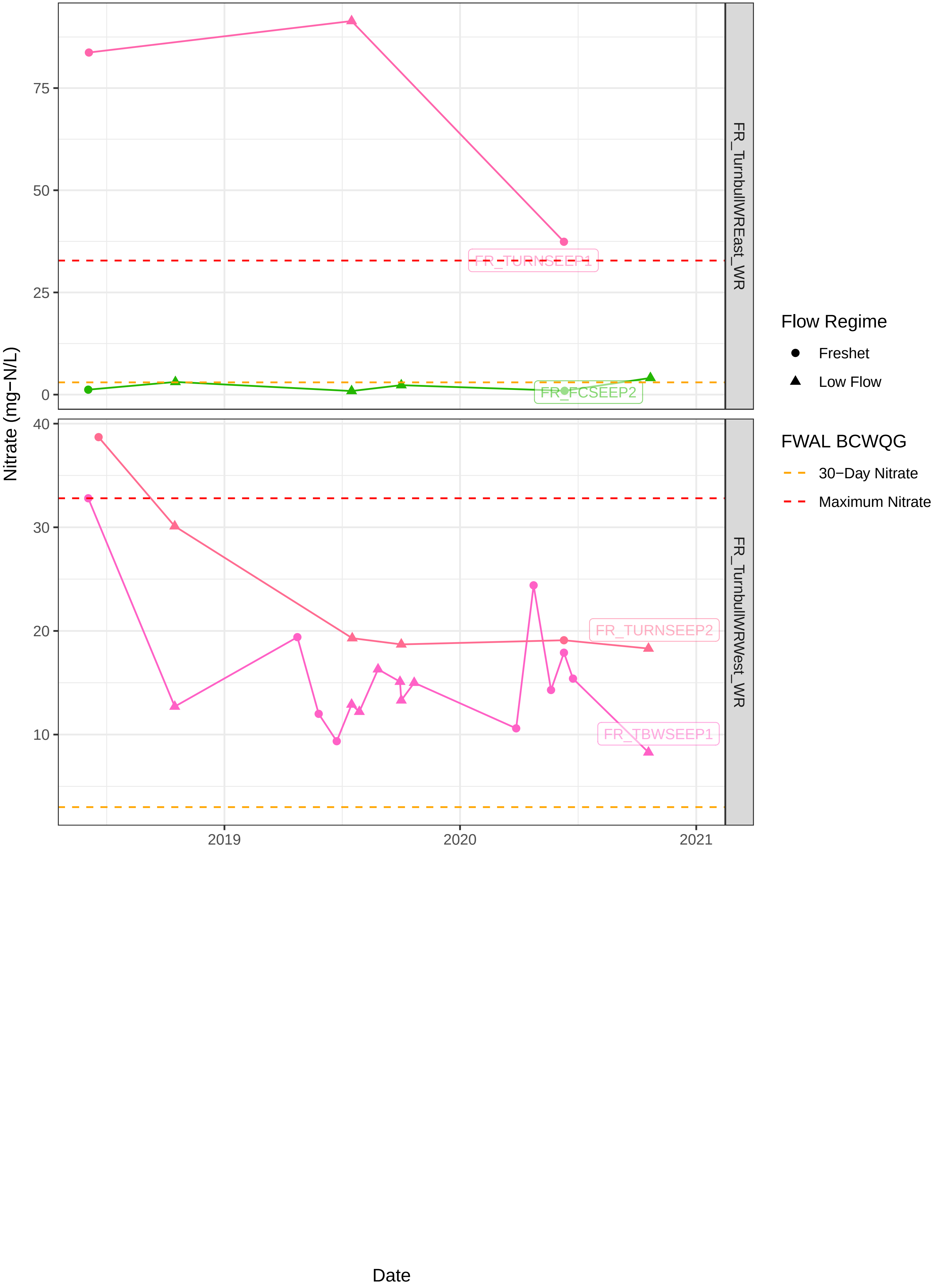


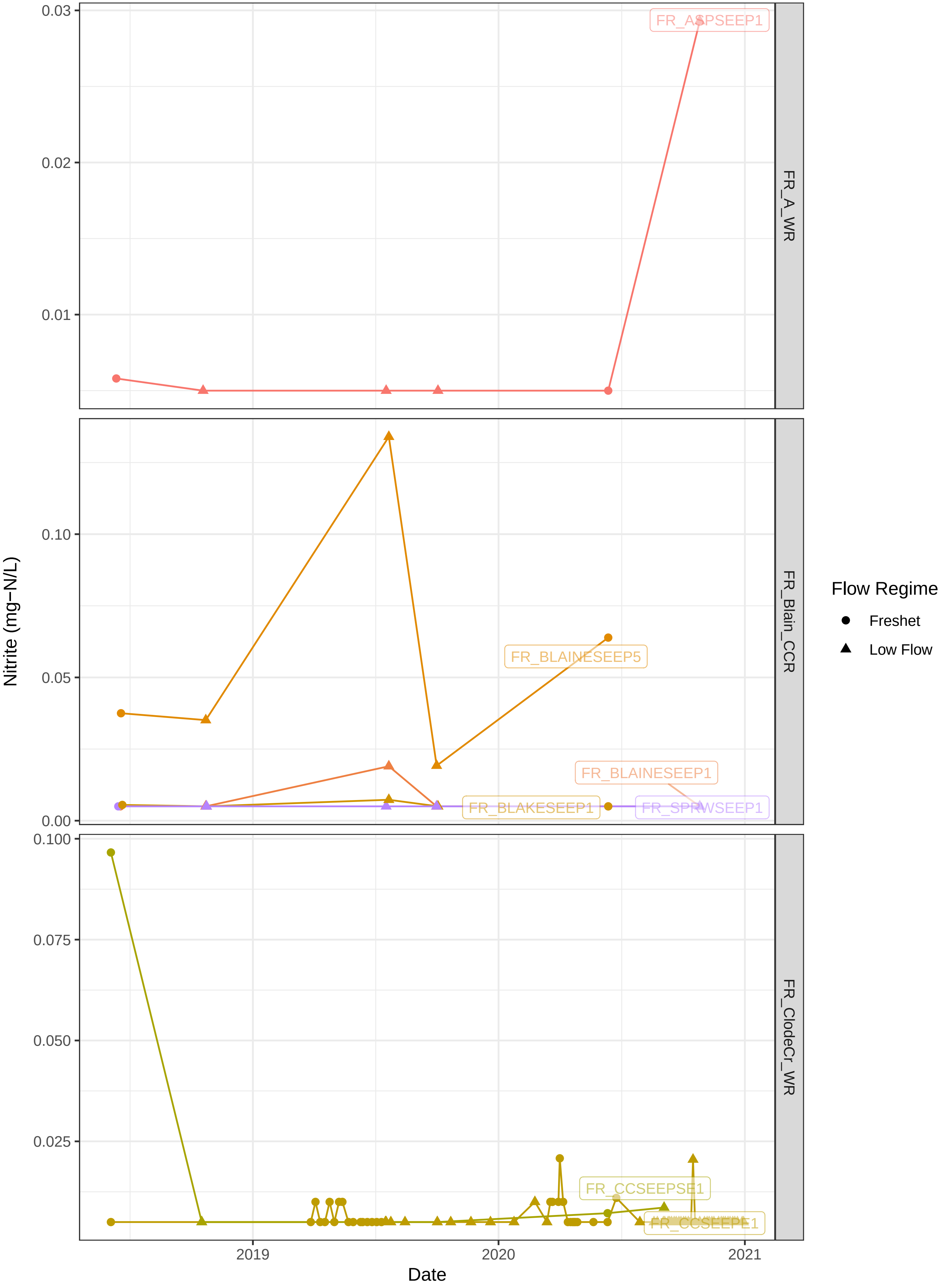
FR_DOKA_Unknown
FR_FSEAMSEEP7
FR_DOKASEEP1
FR_Eagle_WR
FR_EAGLENORTH
FR_Fseam_WR
FR_FSEAMWSEEP4
30
20
10
0
60
40
20
75
50
25
0
2019
2020
2021
Date
Nitrate (mg−N/L)
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Nitrate
Maximum Nitrate


FR_HENSEEP3
FR_HENSEEP1
FR_HENSSEEP1
FR_HEN_WR
100
50
0
80
60
40
20
0
FR_LMCWSEEP5
FR_LMCWSEEP7
FR_LakeMtn_WR_PITS
Nitrate (mg−N/L)
60
40
20
0
FR_SHNSEEP1
FR_Shandley_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Nitrate
Maximum Nitrate

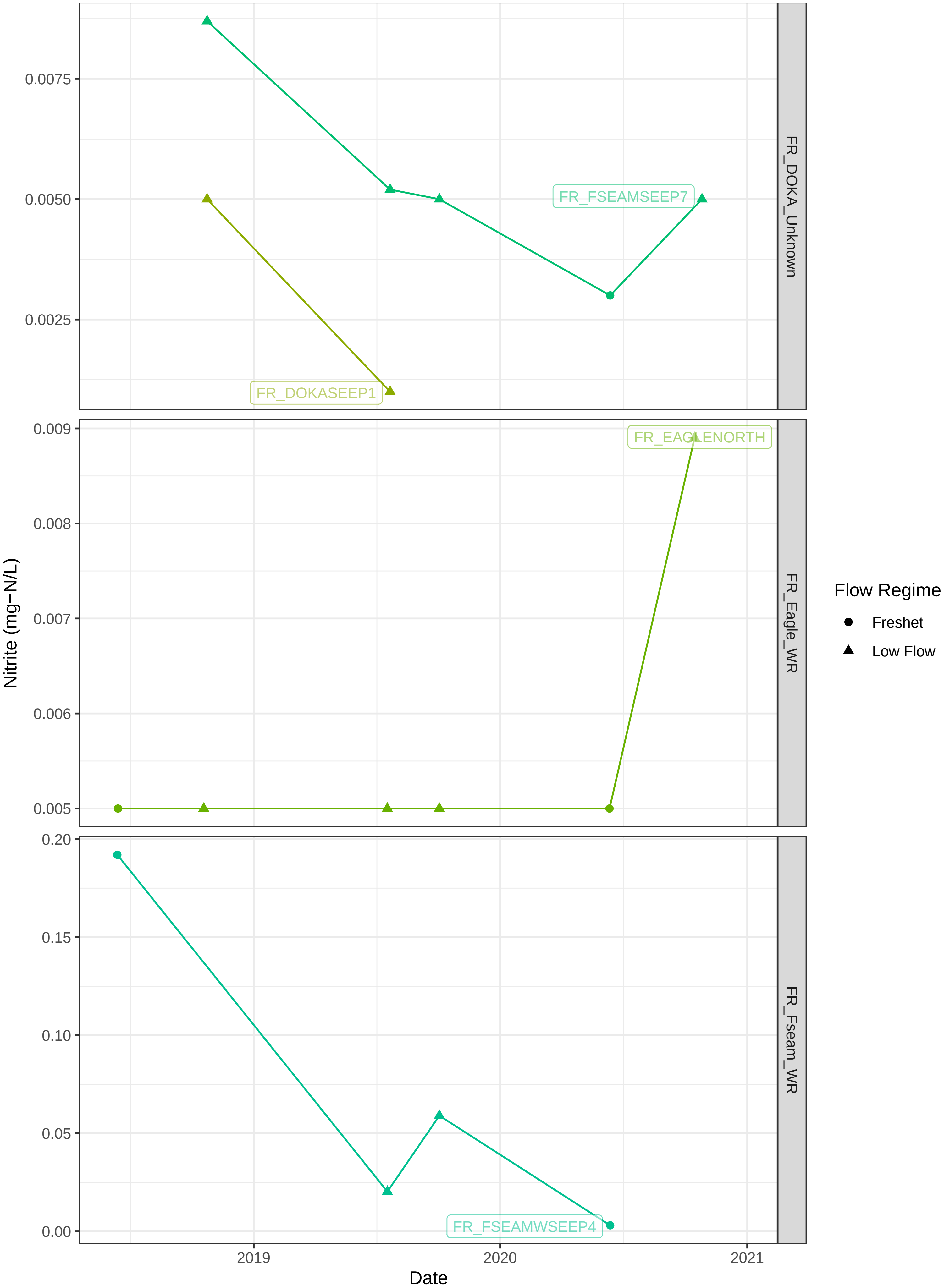


Nitrate (mg−N/L)
30
20
10
0
FR_FRVWSEEP3
FR_Smith_WR
30
20
10
0
FR_STPNSEEP
FR_STPWSEEP
FR_STPSWSEEP
FR_SouthTails_Tailings
50
40
30
20
10
0
FR_SCRDSEEP1
FR_SwiftWR_RockDrain_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Nitrate
Maximum Nitrate

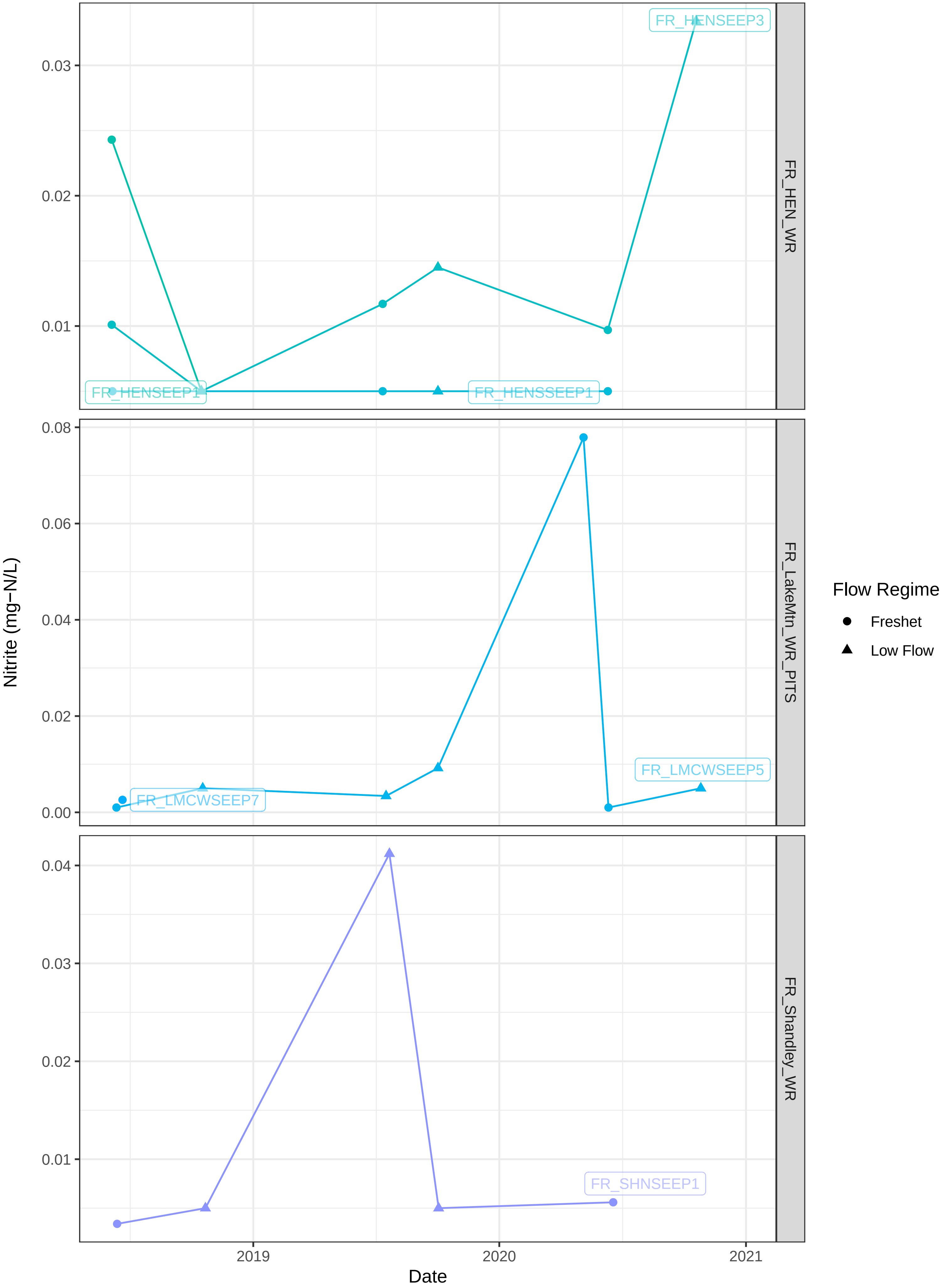

Nitrate (mg−N/L)
75
50
25
0
40
30
20
10
2019
2020
2021
Date
FR_TurnbullWREast_WR
FR_TurnbullWRWest_WR
FR_TURNSEEP1
FR_FCSEEP2
FR_TURNSEEP2
FR_TBWSEEP1
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Nitrate
Maximum Nitrate



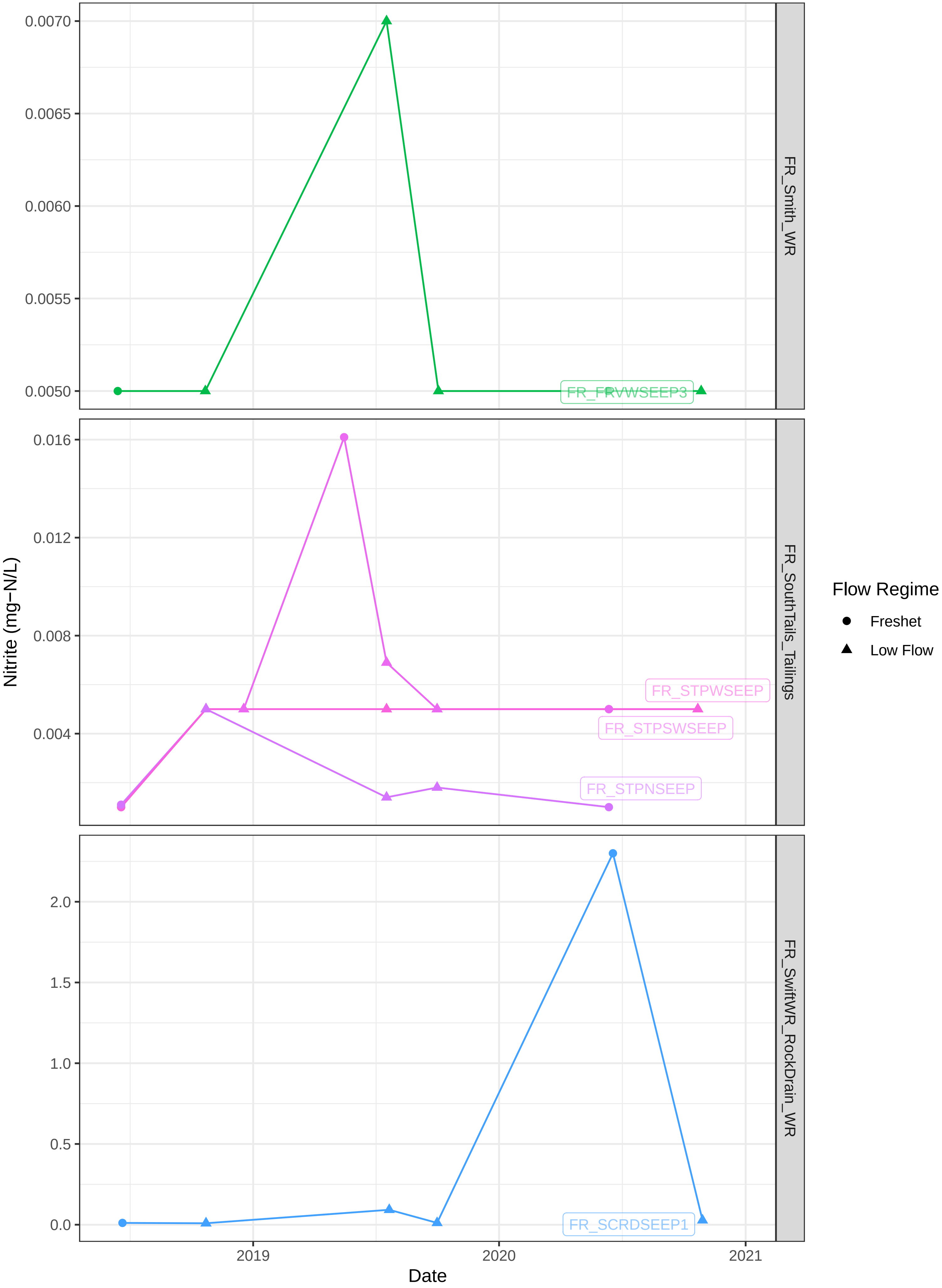
Note: The FWAL BCWQG for Nitrite is dependent on Hardness



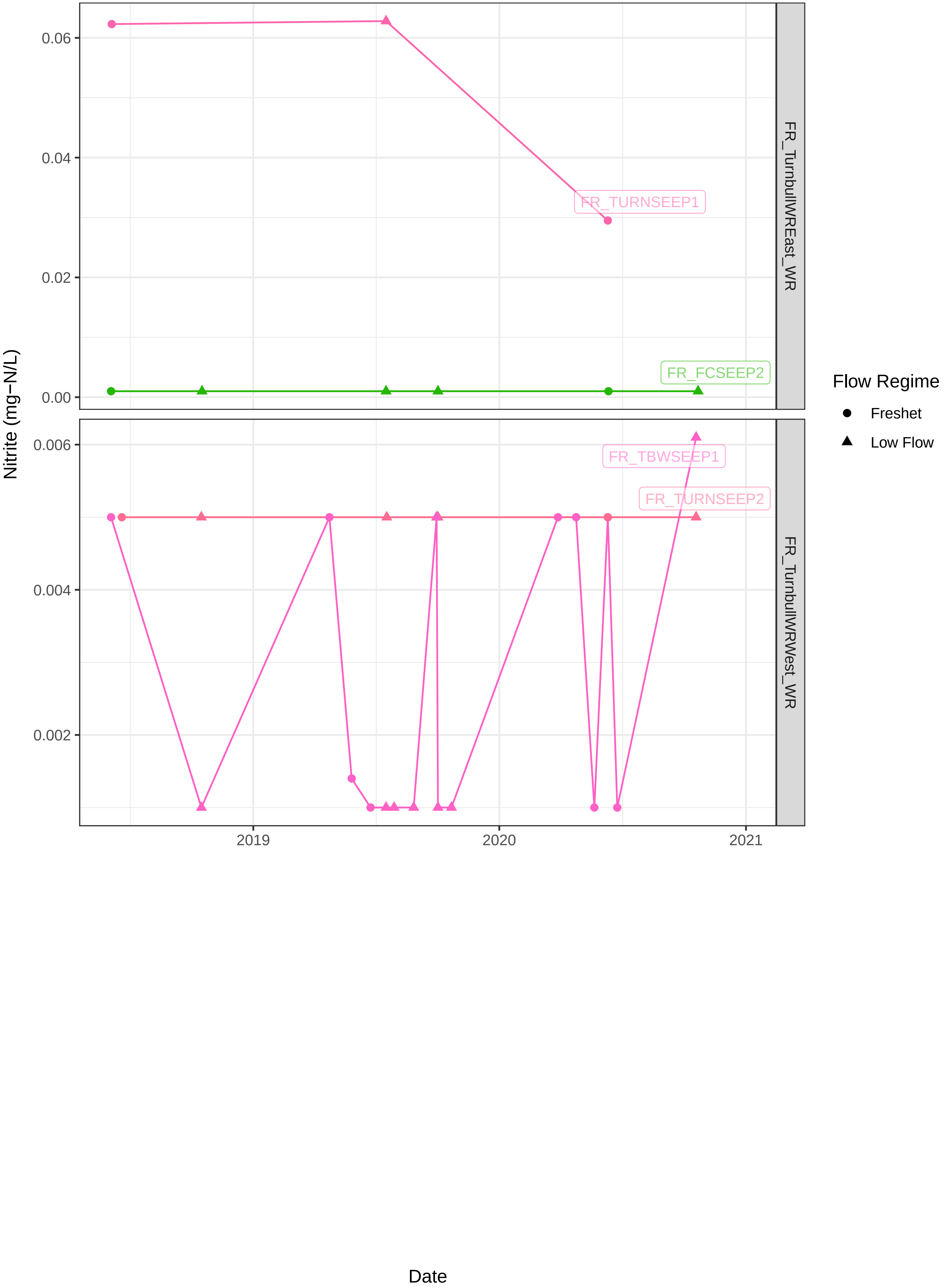
Note: The FWAL BCWQG for Nitrite is dependent on Hardness



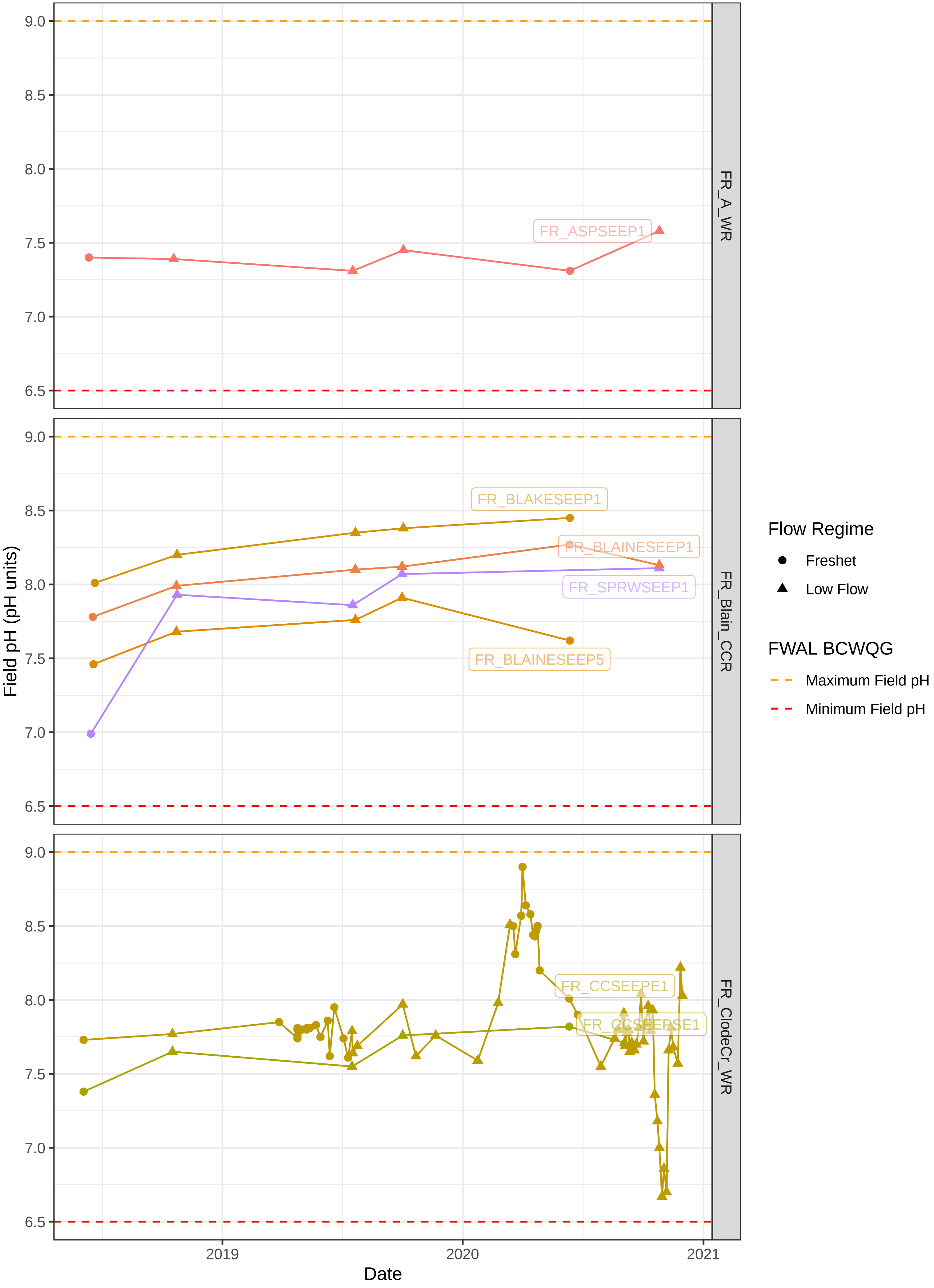
Note: The FWAL BCWQG for Nitrite is dependent on Hardness



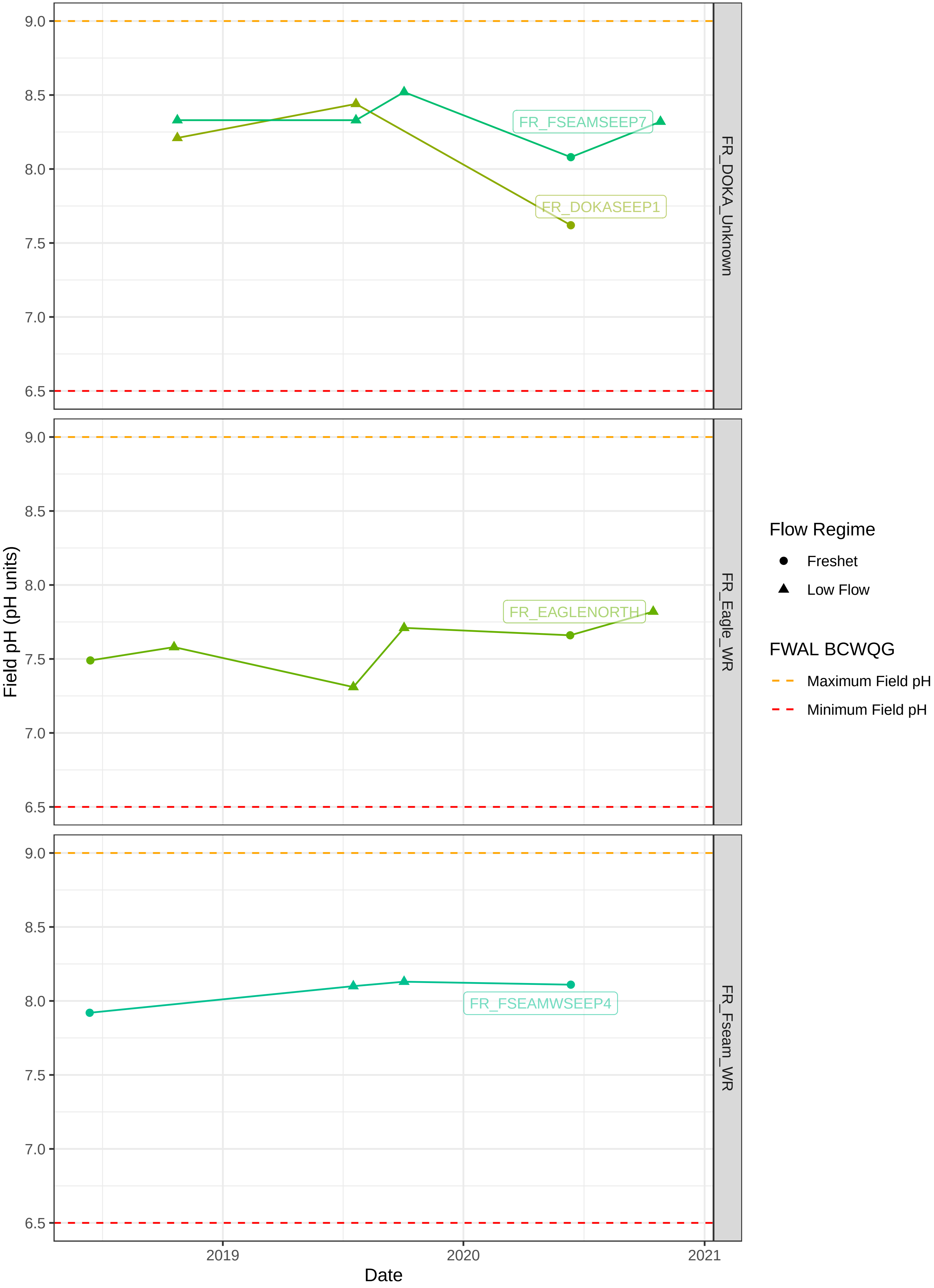
Note: The FWAL BCWQG for Nitrite is dependent on Hardness

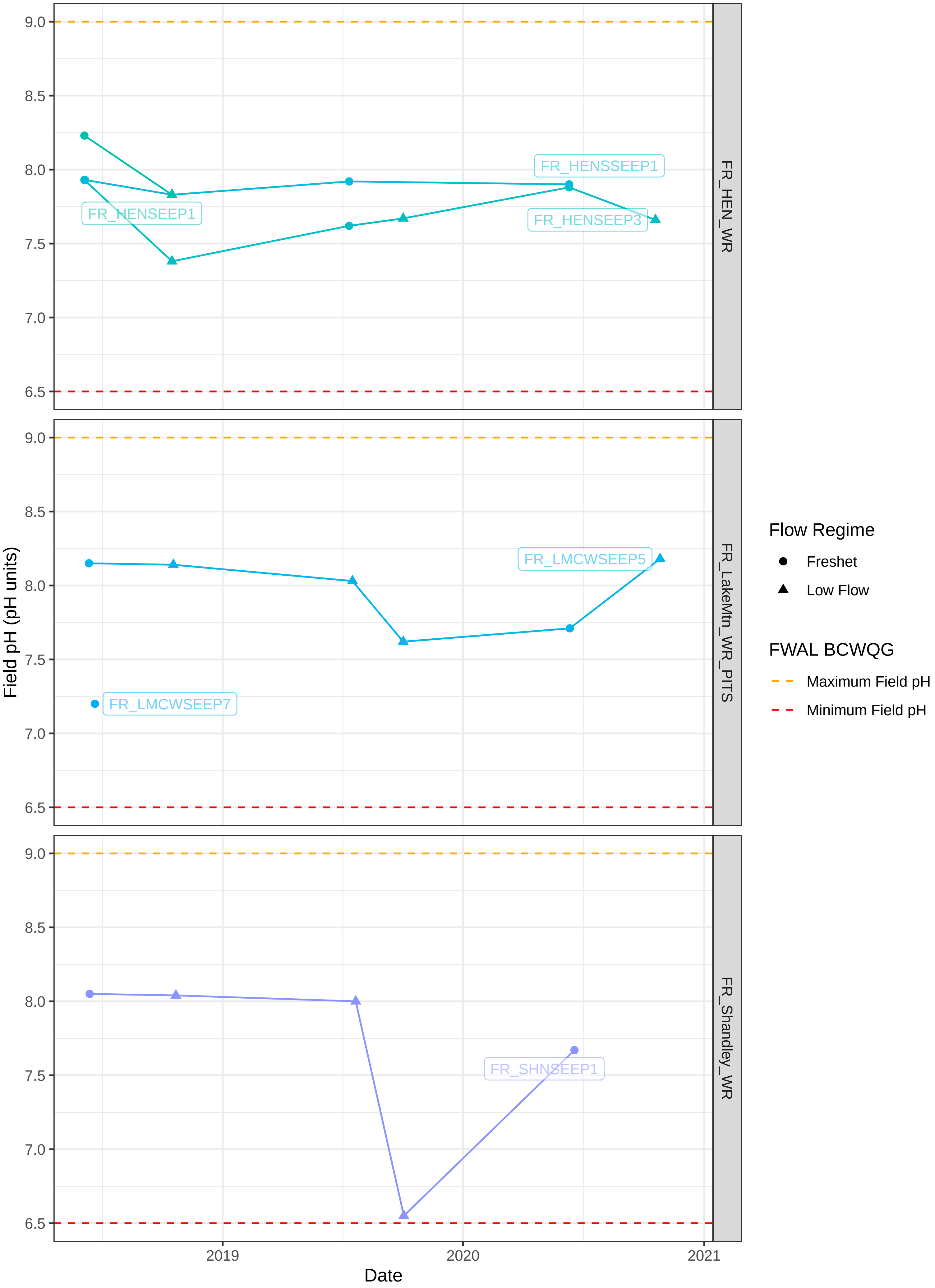


Note: The FWAL BCWQG for Nitrite is dependent on Hardness

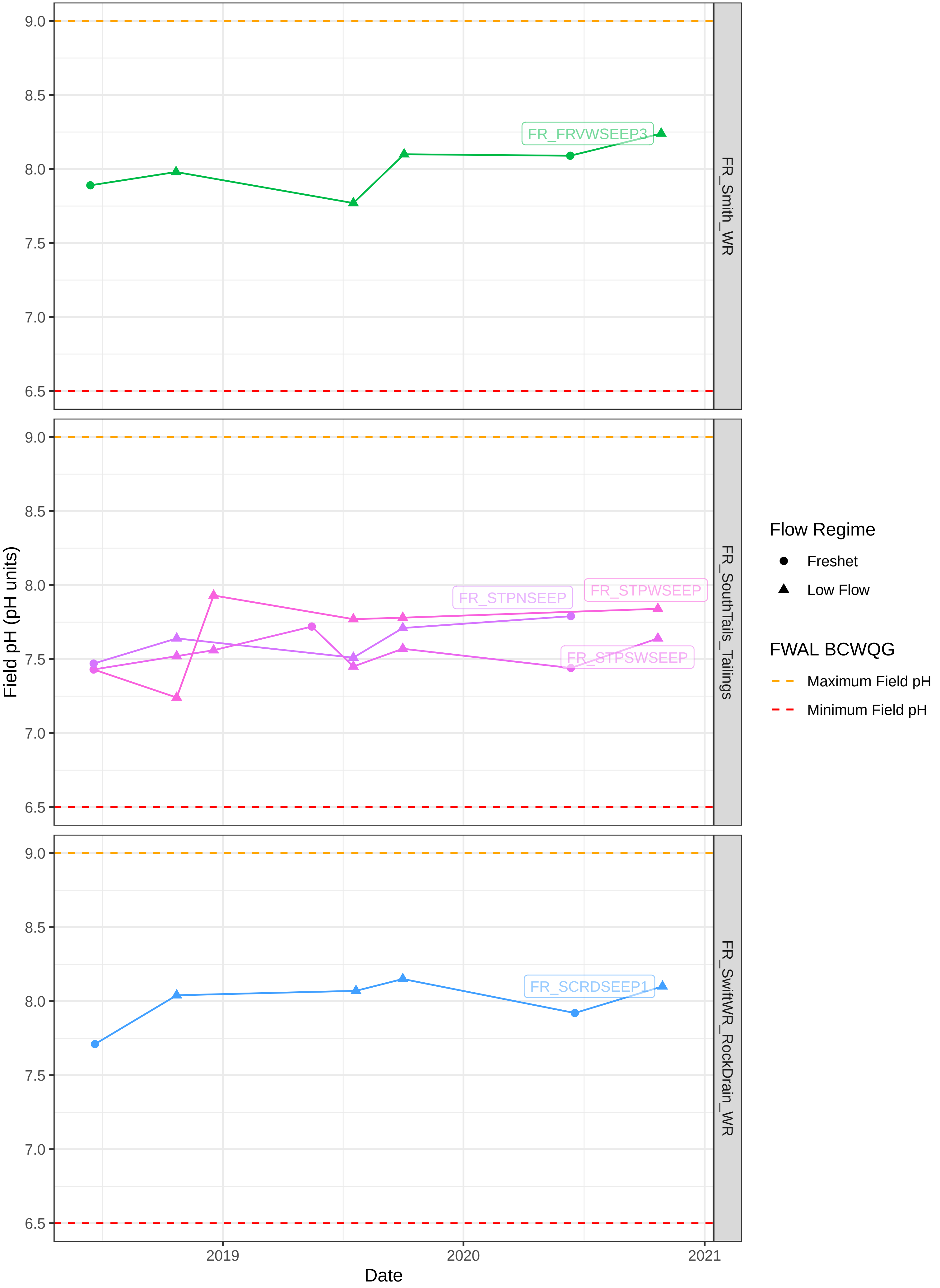


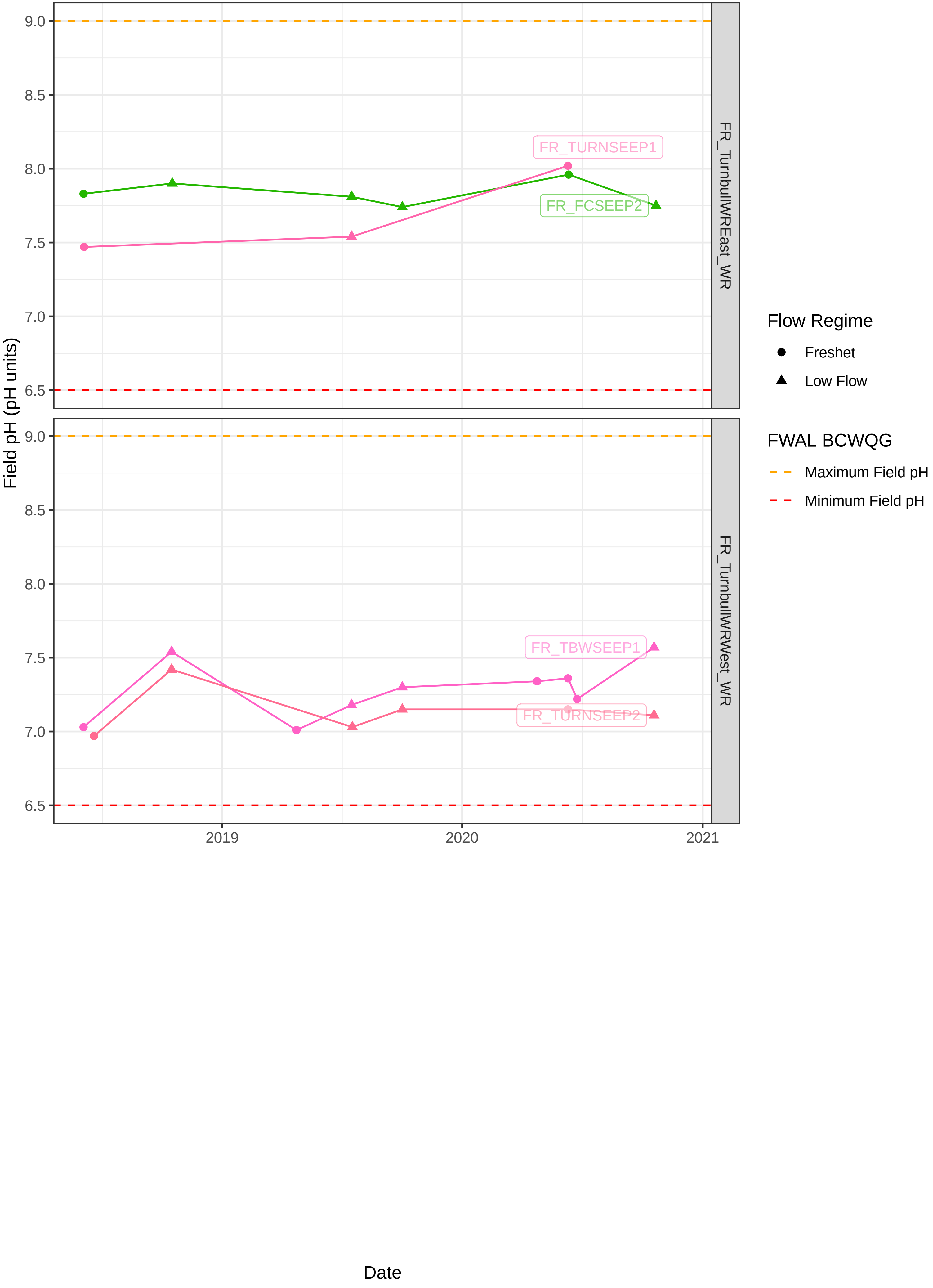
9.0
8.5
8.0
7.5
7.0
6.5
FR_ASPSEEP1
FR_A_WR
FR_BLAKESEEP1
FR_BLAINESEEP1
FR_SPRWSEEP1
FR_BLAINESEEP5
FR_Blain_CCR
FR_CCSEEPE1
FR_CCSEEPSE1
FR_ClodeCr_WR
Field pH (pH units)
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
Maximum Field pH
Minimum Field pH

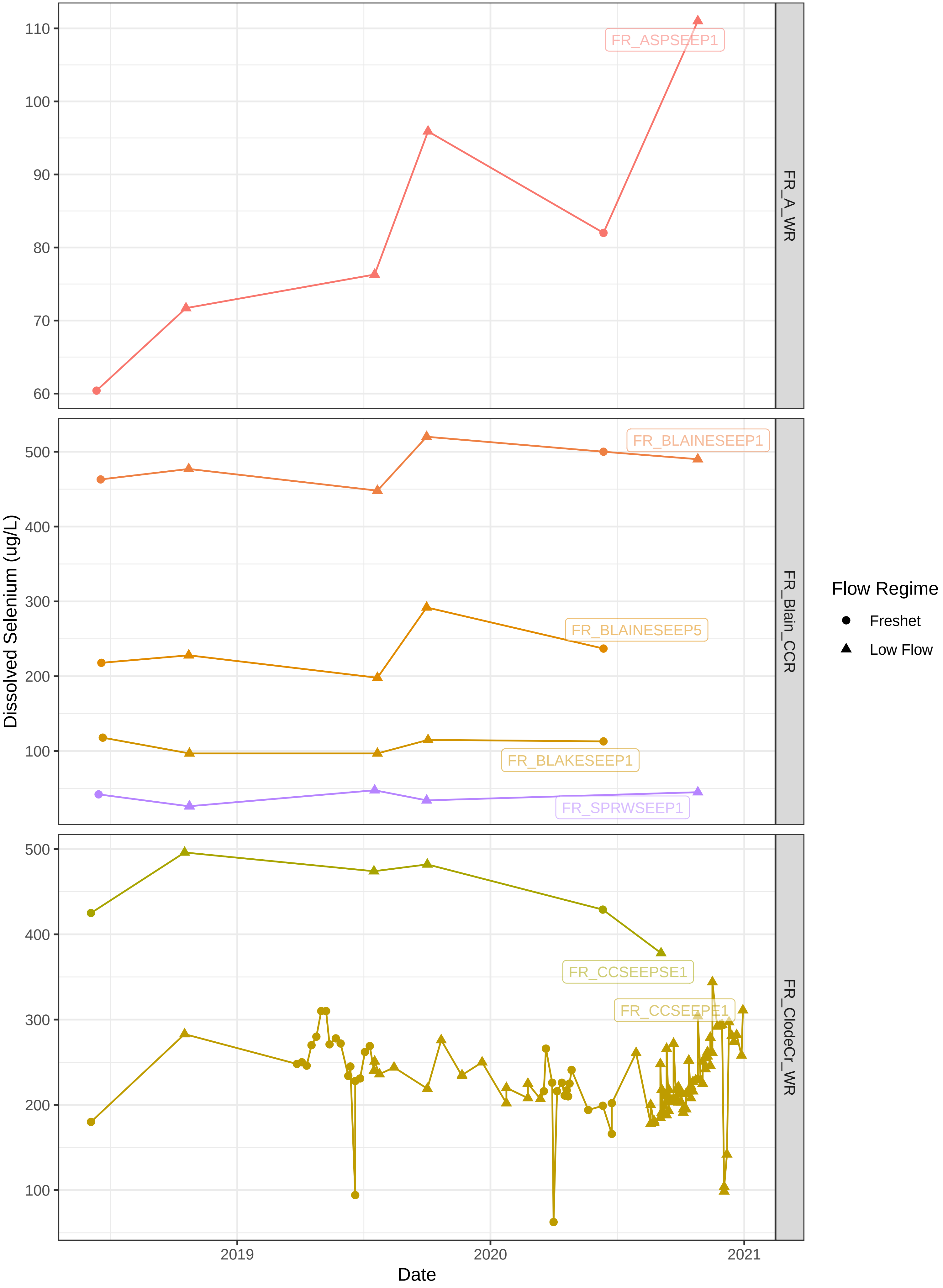

9.0
8.5
8.0
7.5
7.0
6.5
FR_FSEAMSEEP7
FR_DOKASEEP1
FR_DOKA_Unknown
FR_EAGLENORTH
FR_Eagle_WR
FR_FSEAMWSEEP4
FR_Fseam_WR
Field pH (pH units)
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
Maximum Field pH
Minimum Field pH



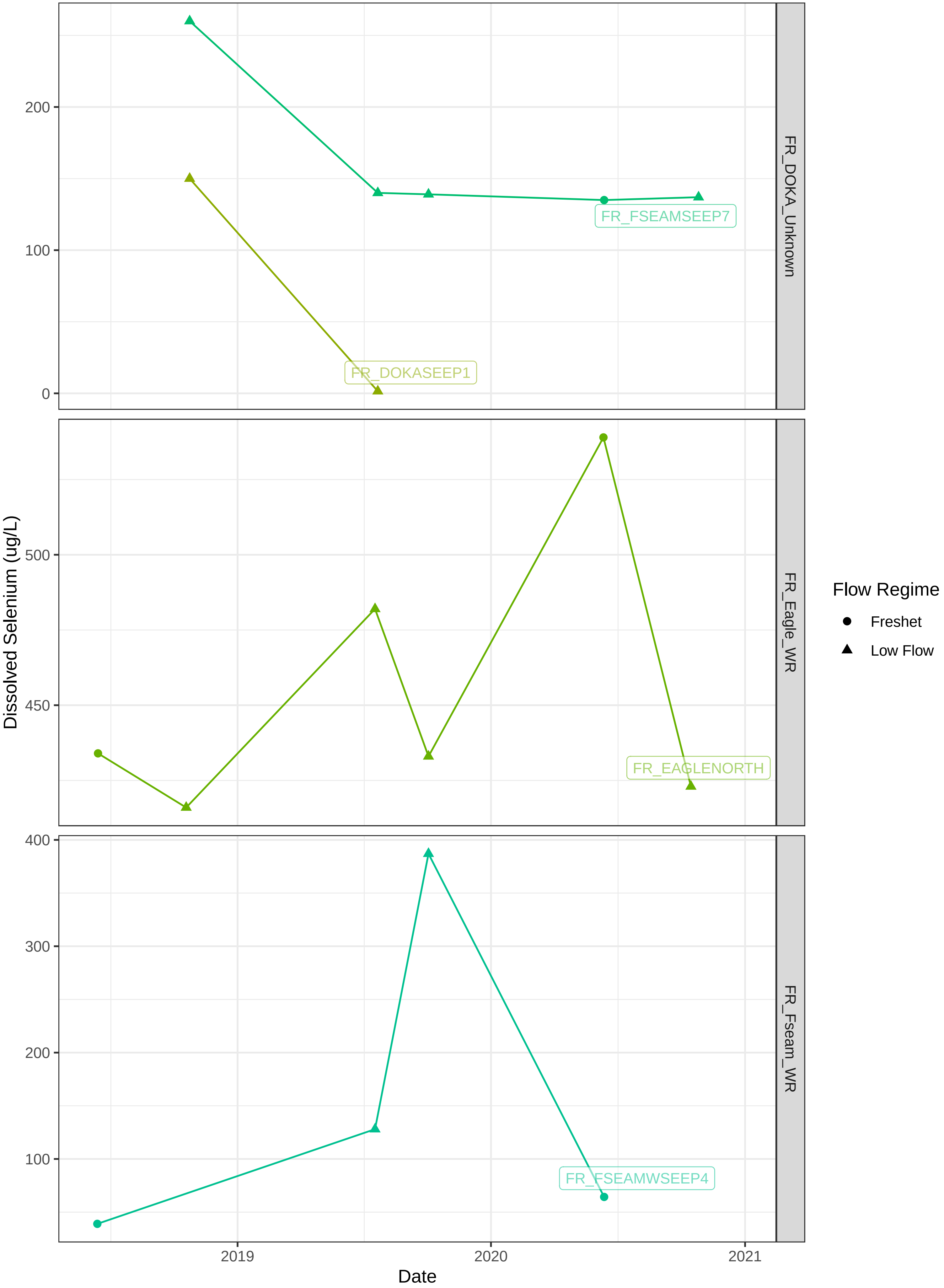
9.0
8.5
8.0
7.5
7.0
6.5
Field pH (pH units)
FR_HENSSEEP1
FR_HENSEEP1
FR_HENSEEP3
FR_HEN_WR
FR_LMCWSEEP5
FR_LMCWSEEP7
FR_LakeMtn_WR_PITS
FR_SHNSEEP1
FR_Shandley_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
Maximum Field pH
Minimum Field pH


Field pH (pH units)
9.0
8.5
8.0
7.5
7.0
6.5
FR_FRVWSEEP3
FR_Smith_WR
FR_STPNSEEP
FR_STPWSEEP
FR_STPSWSEEP
FR_SouthTails_Tailings
FR_SCRDSEEP1
FR_SwiftWR_RockDrain_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
Maximum Field pH
Minimum Field pH

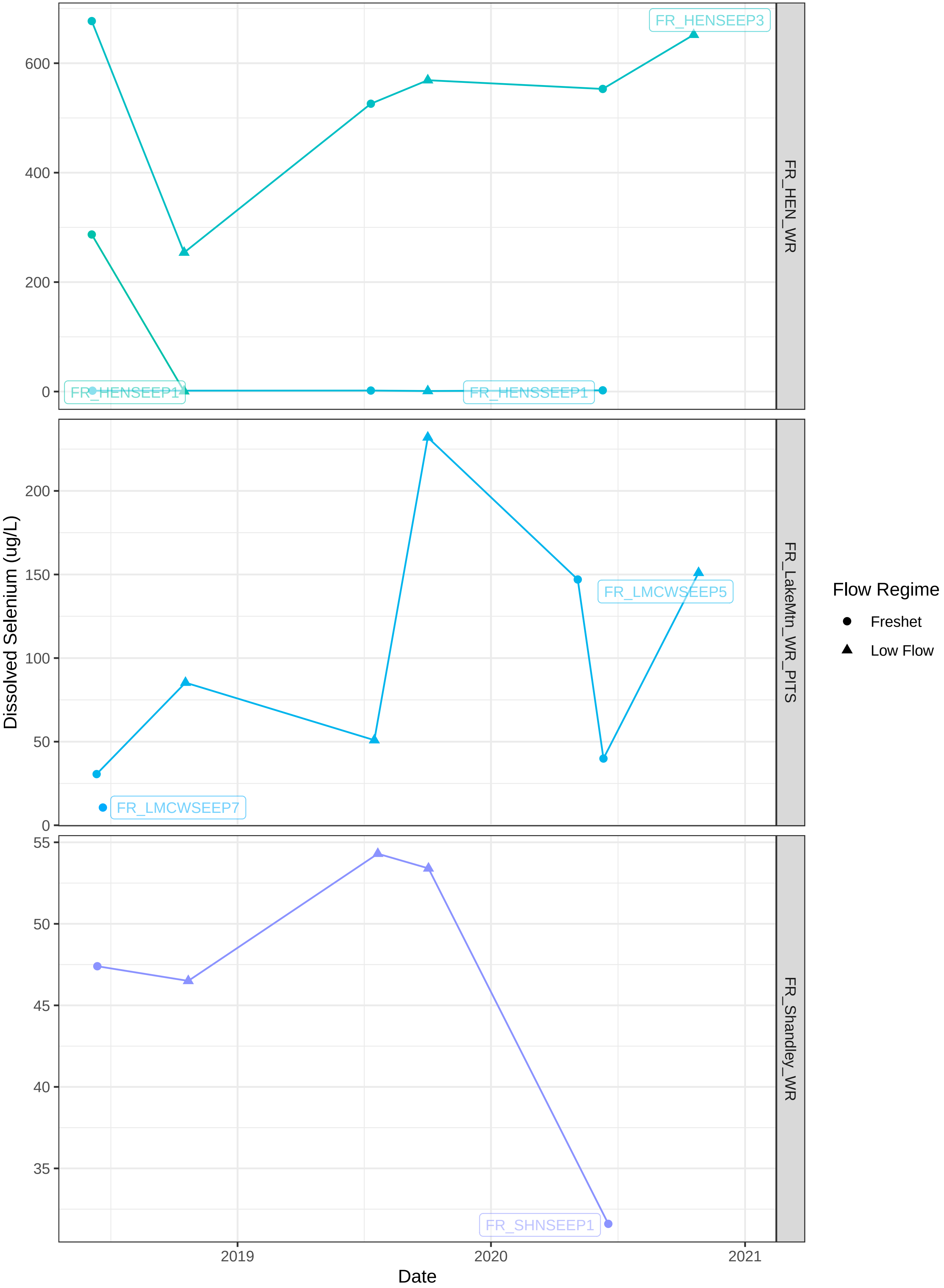

Field pH (pH units)
9.0
8.5
8.0
7.5
7.0
6.5
FR_TURNSEEP1
FR_FCSEEP2
FR_TurnbullWREast_WR
FR_TBWSEEP1
FR_TURNSEEP2
FR_TurnbullWRWest_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
Maximum Field pH
Minimum Field pH



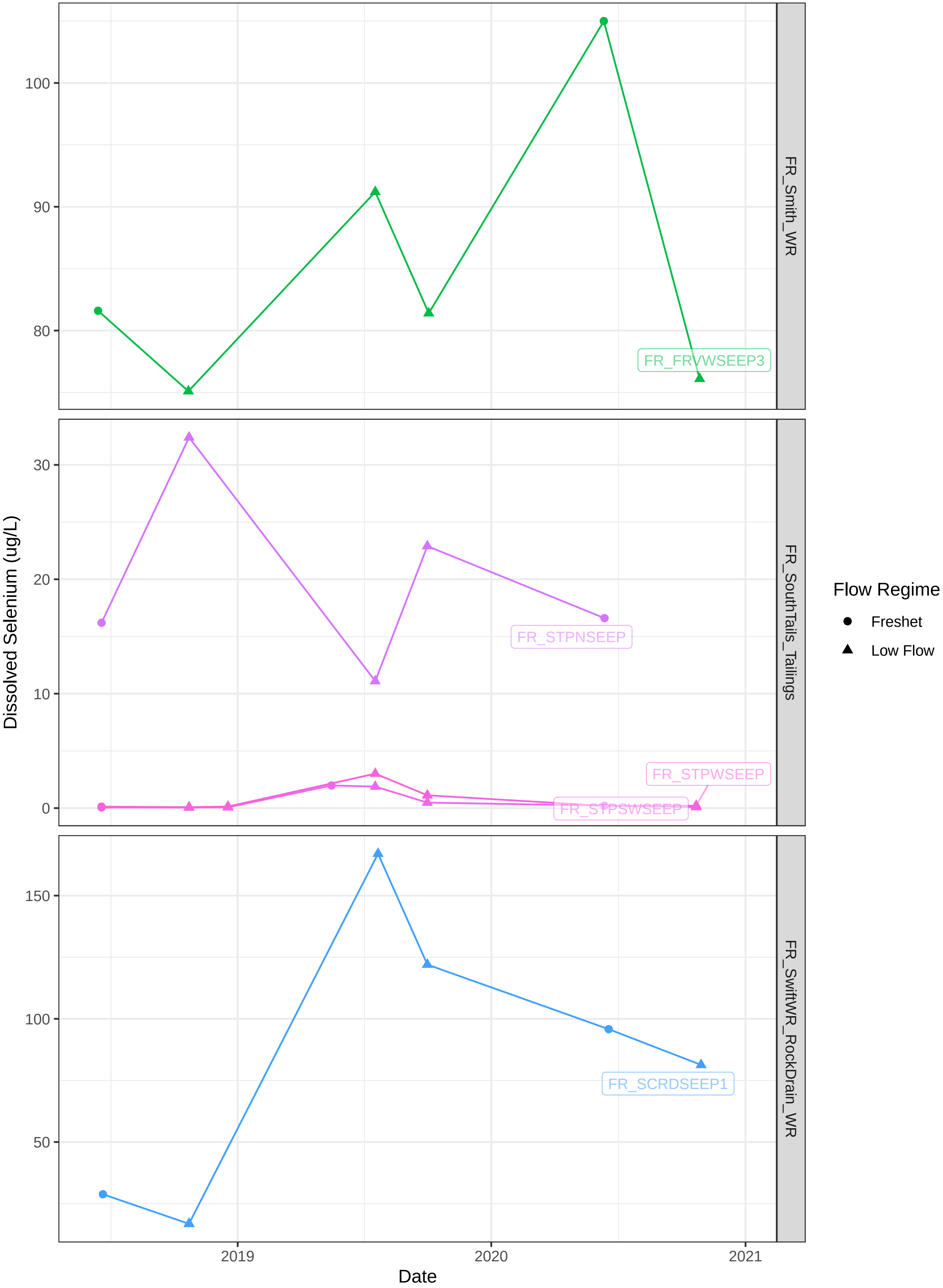
Note: there is no FWAL BCWQG for Dissolved Selenium



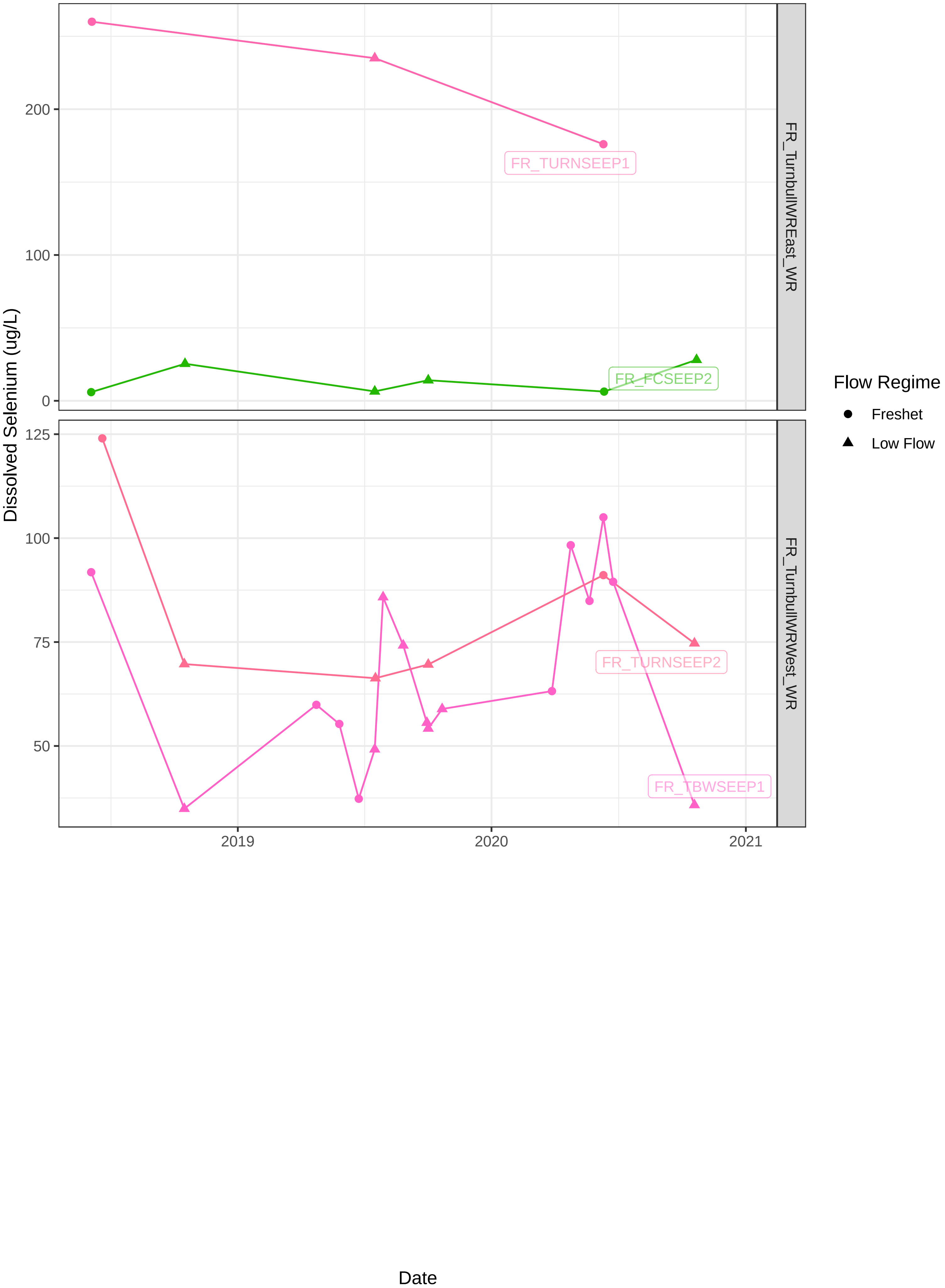
Note: there is no FWAL BCWQG for Dissolved Selenium



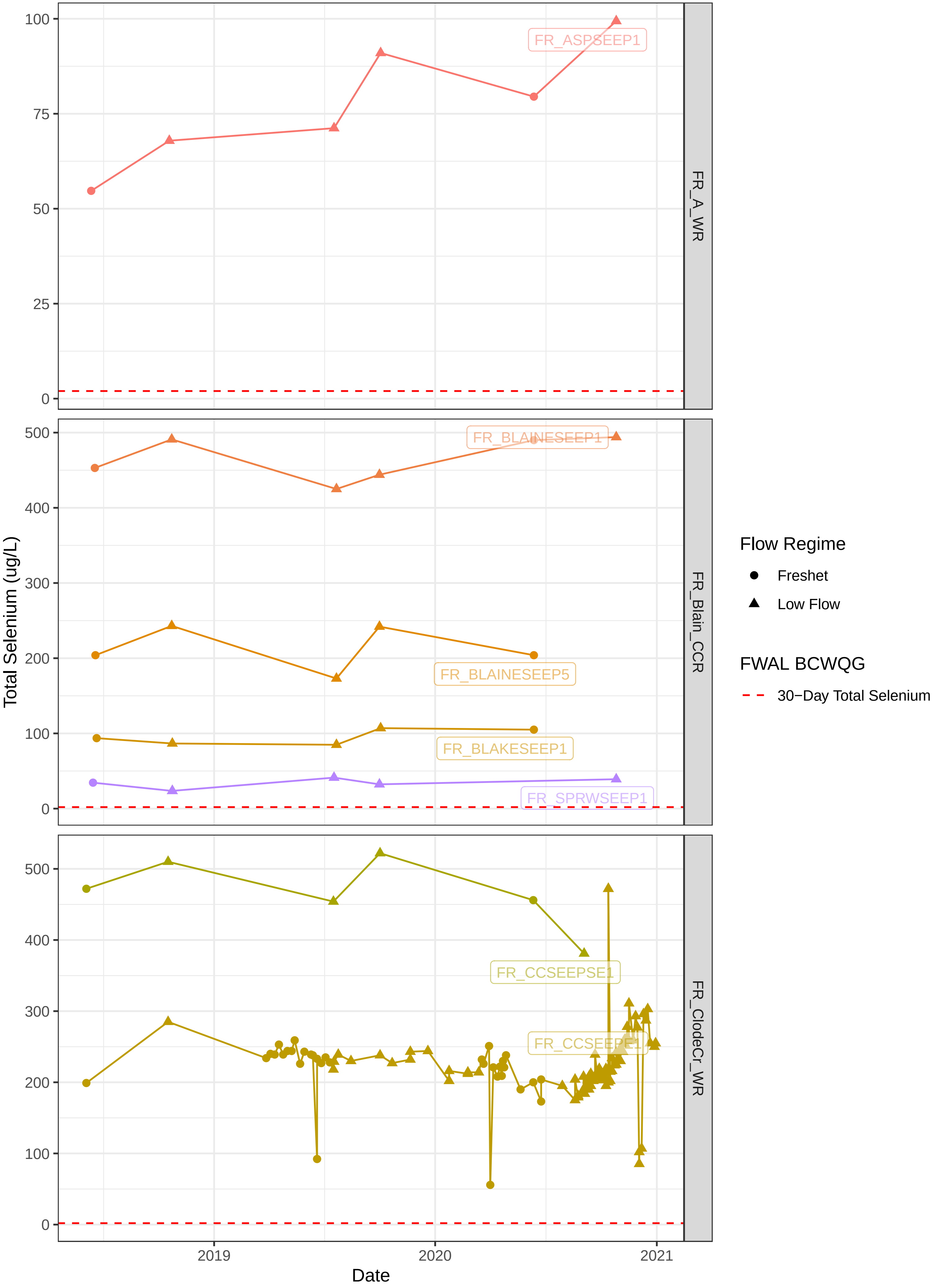
Note: there is no FWAL BCWQG for Dissolved Selenium

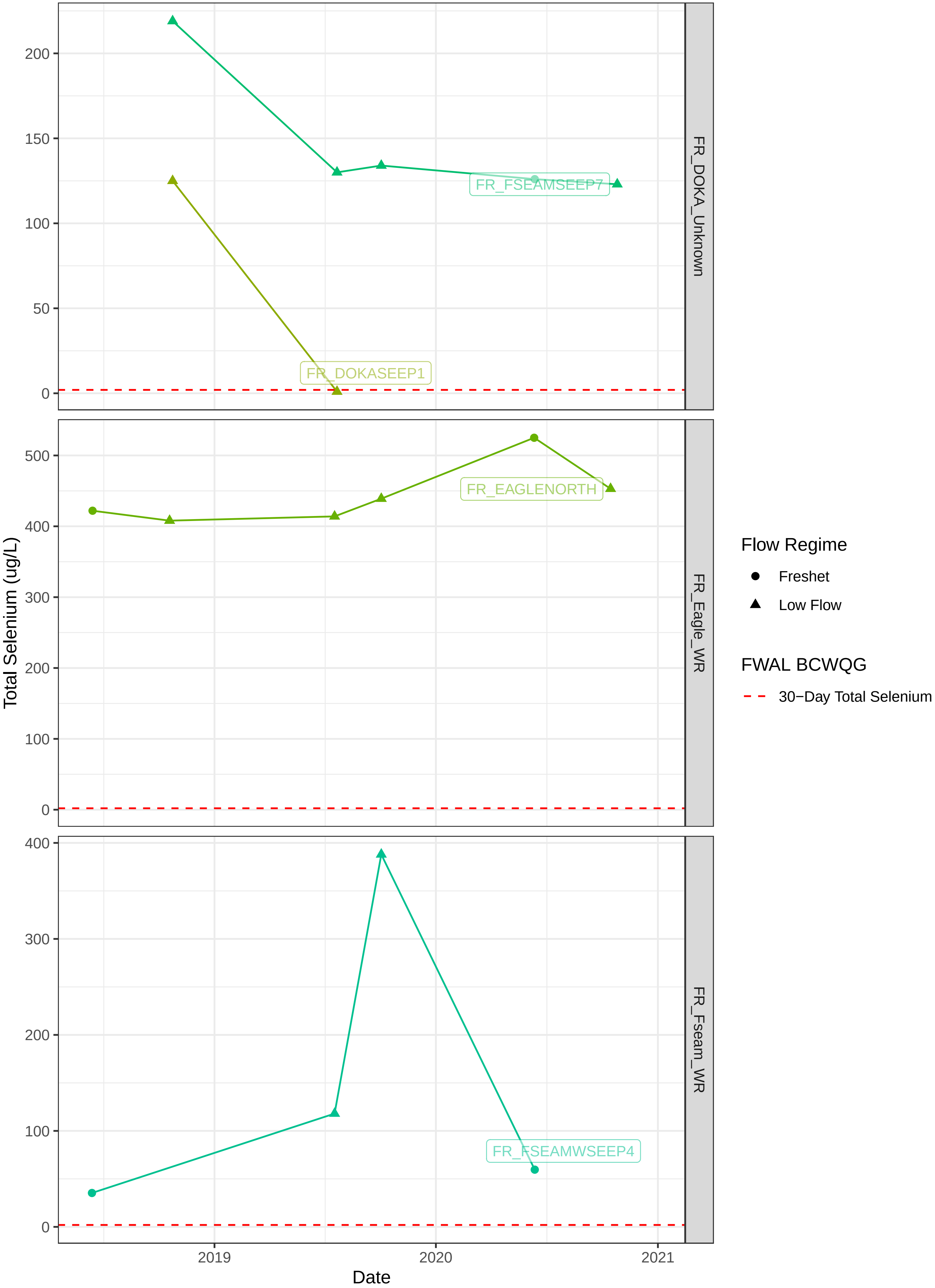


Note: there is no FWAL BCWQG for Dissolved Selenium

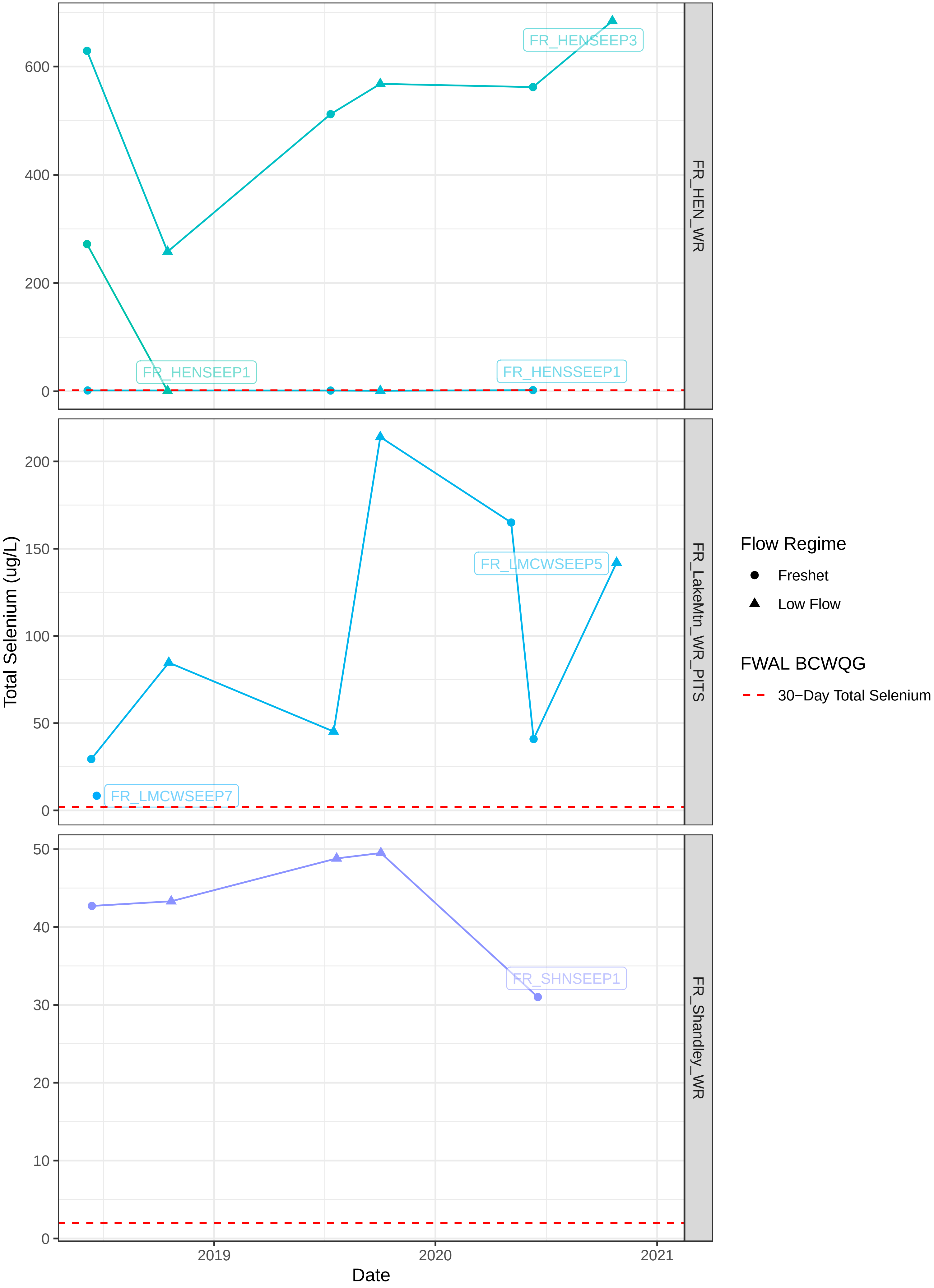


Note: there is no FWAL BCWQG for Dissolved Selenium

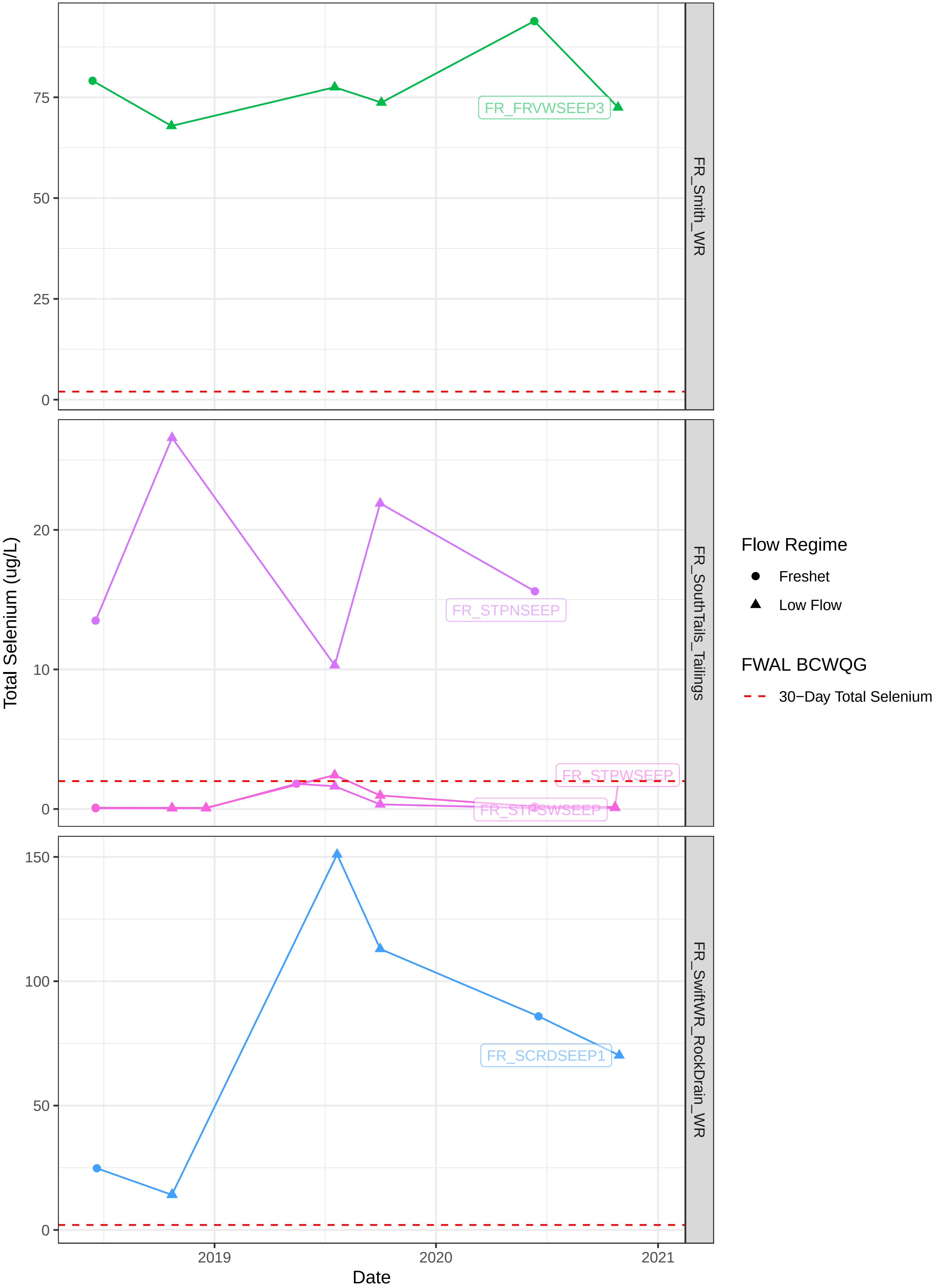

100
75
50
25
0
FR_ASPSEEP1
FR_A_WR
500
400
300
200
100
0
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
FR_Blain_CCR
500
400
300
200
100
0
FR_CCSEEPSE1
FR_CCSEEPE1
FR_ClodeCr_WR
2019
2020
2021
Date
Total Selenium (ug/L)
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Selenium

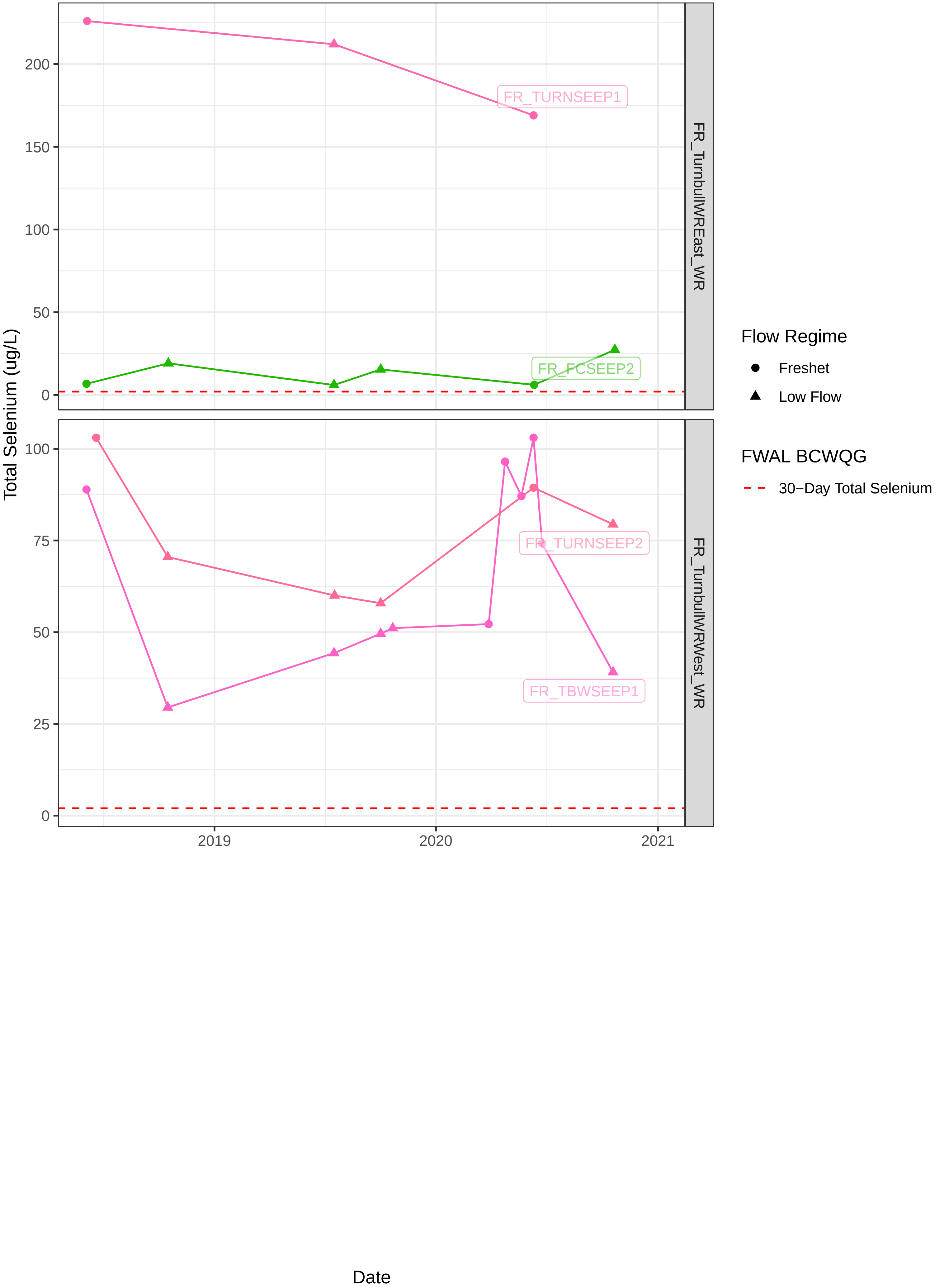


Total Selenium (ug/L)
Date
2019
2020
2021
FR_DOKA_Unknown
200
150
100
50
0
FR_FSEAMSEEP7
FR_DOKASEEP1
FR_Eagle_WR
500
400
300
200
100
0
FR_EAGLENORTH
FR_Fseam_WR
400
300
200
100
0
FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Selenium

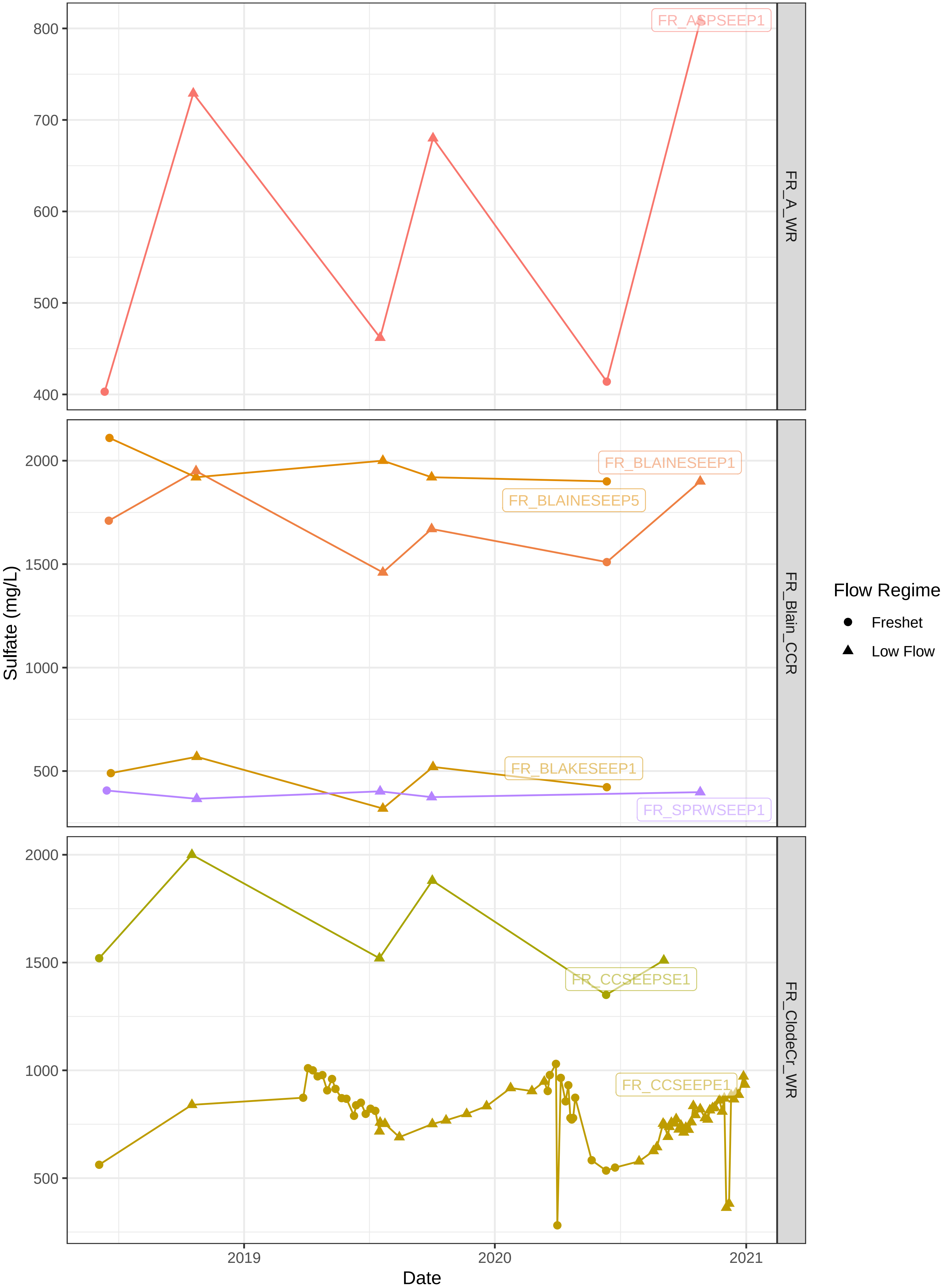


Total Selenium (ug/L)
Date
600
400
200
0
FR_HENSEEP3
FR_HENSEEP1
FR_HENSSEEP1
FR_HEN_WR
200
150
100
50
0
FR_LMCWSEEP5
FR_LMCWSEEP7
FR_LakeMtn_WR_PITS
50
40
30
20
10
0
FR_SHNSEEP1
FR_Shandley_WR
2019
2020
2021
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Selenium

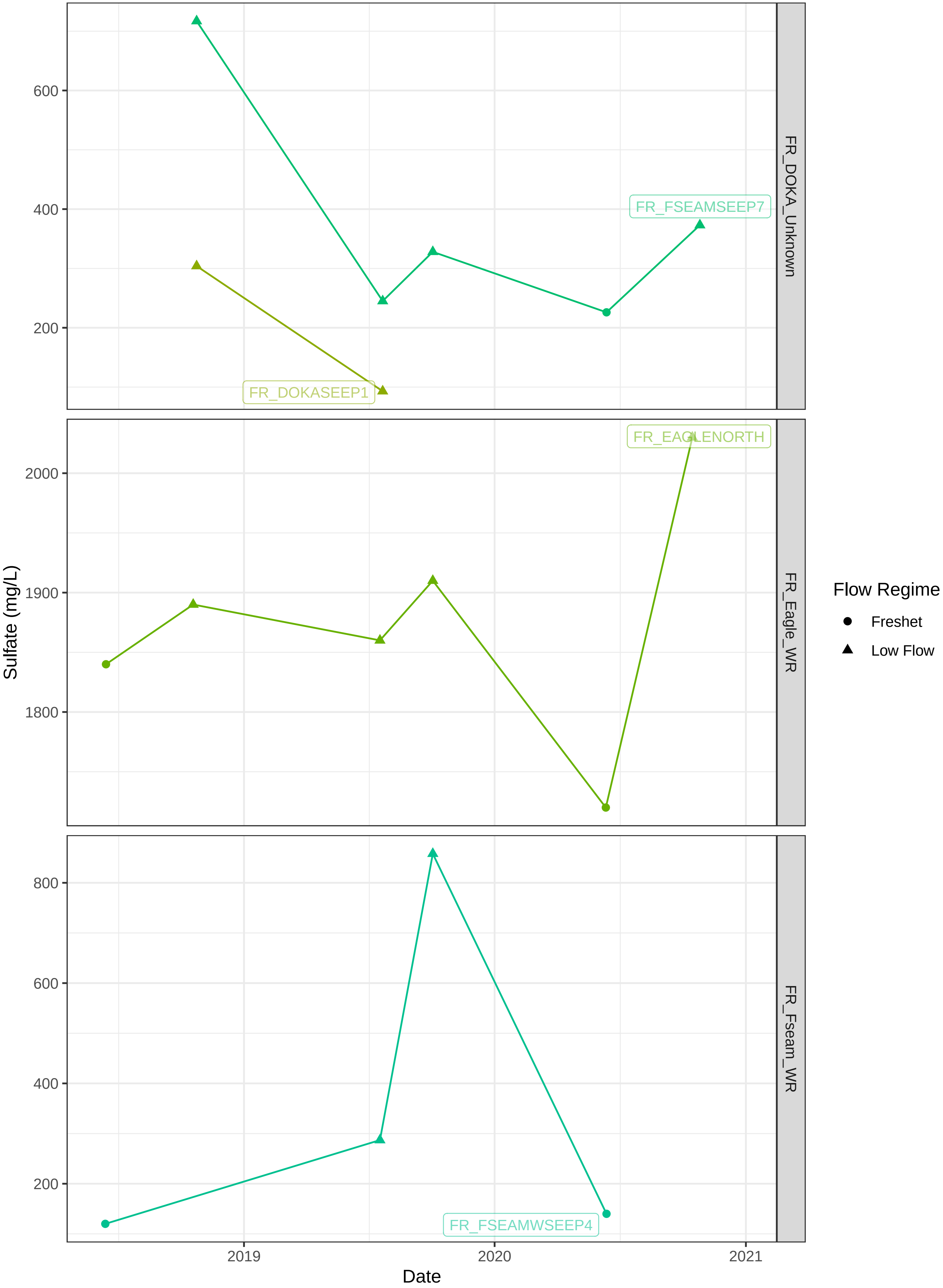

FR_FRVWSEEP3
FR_Smith_WR
FR_STPNSEEP
FR_STPWSEEP
FR_STPSWSEEP
FR_SouthTails_Tailings
FR_SCRDSEEP1
FR_SwiftWR_RockDrain_WR
Total Selenium (ug/L)
Date
2019
2020
2021
0
25
50
75
0
10
20
0
50
100
150
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Selenium



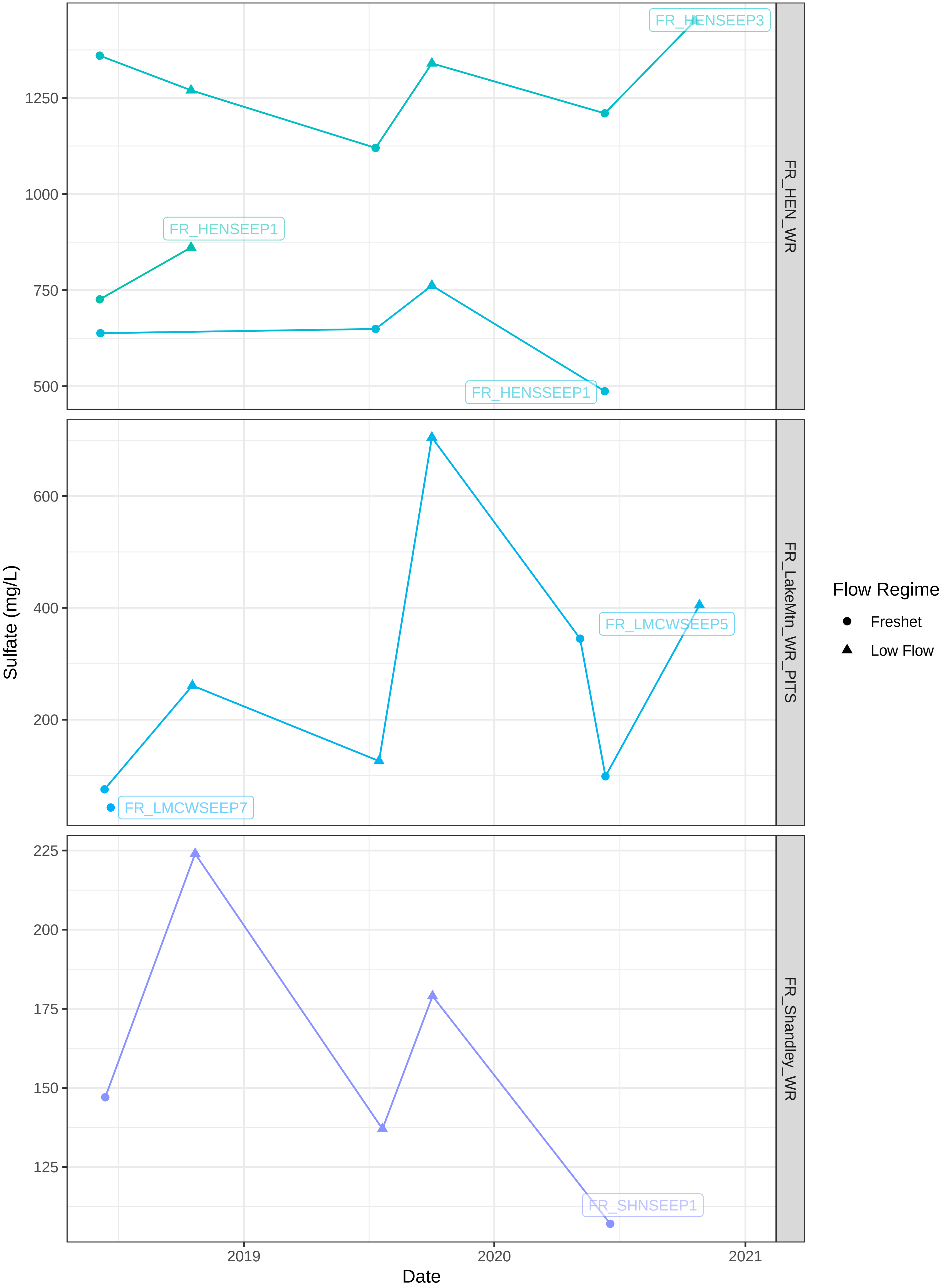
FR_TurnbullWREast_WR
FR_TURNSEEP1
FR_FCSEEP2
FR_TurnbullWRWest_WR
FR_TURNSEEP2
FR_TBWSEEP1
Total Selenium (ug/L)
200
150
100
50
0
100
75
50
25
0
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Selenium



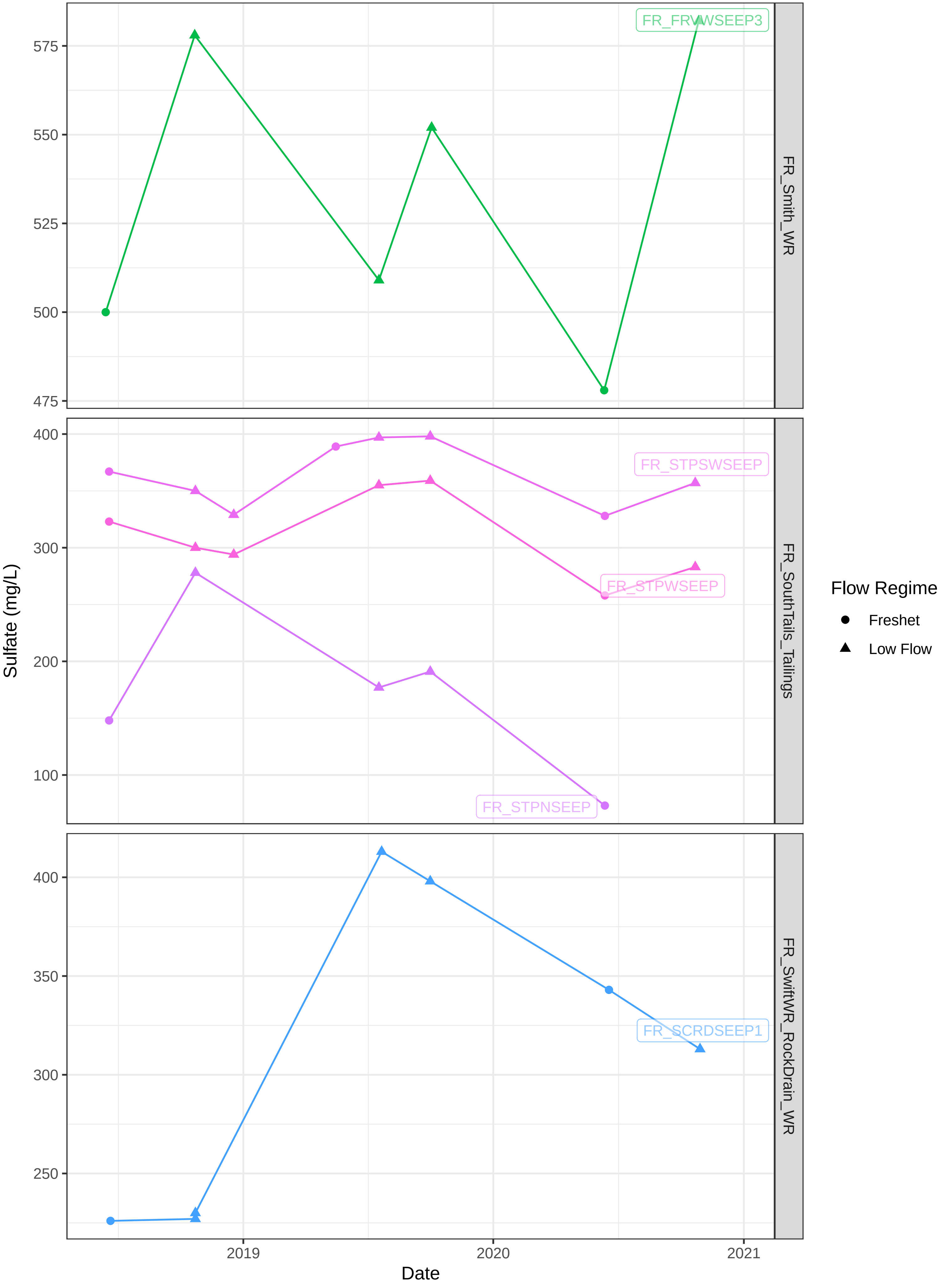
Note: The FWAL BCWQG for Sulfate is dependent on Hardness



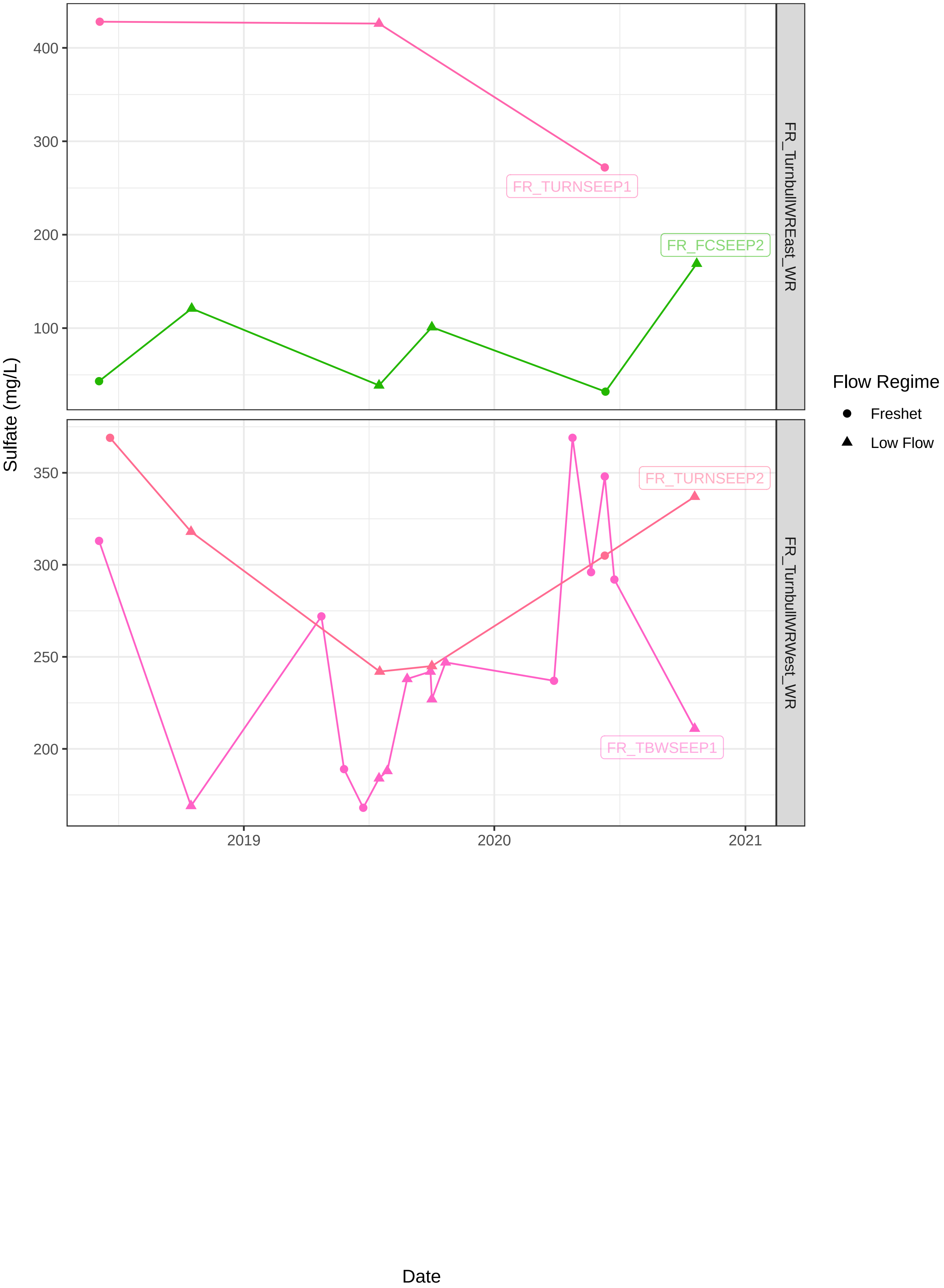
Note: The FWAL BCWQG for Sulfate is dependent on Hardness



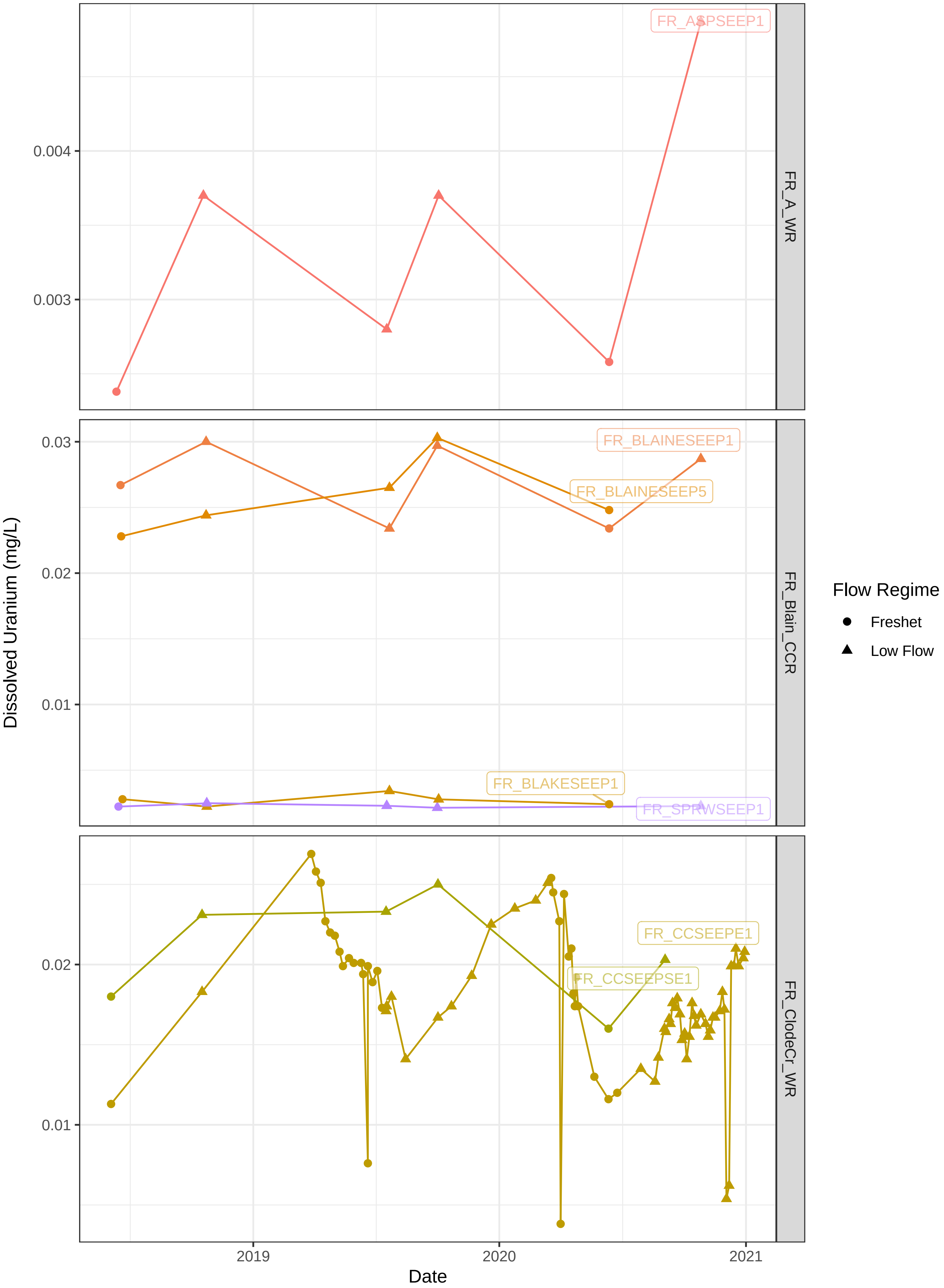
Note: The FWAL BCWQG for Sulfate is dependent on Hardness



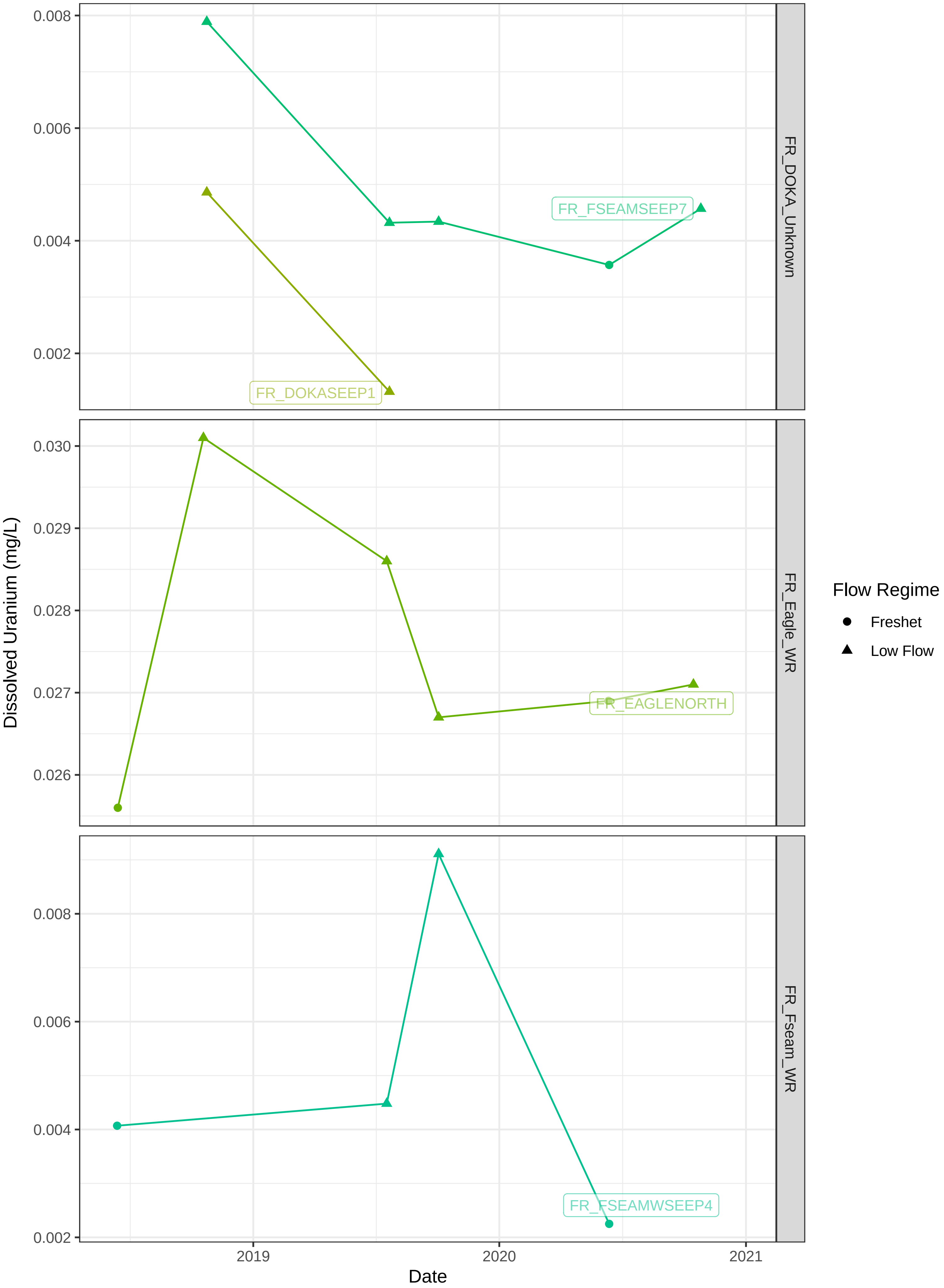
Note: The FWAL BCWQG for Sulfate is dependent on Hardness



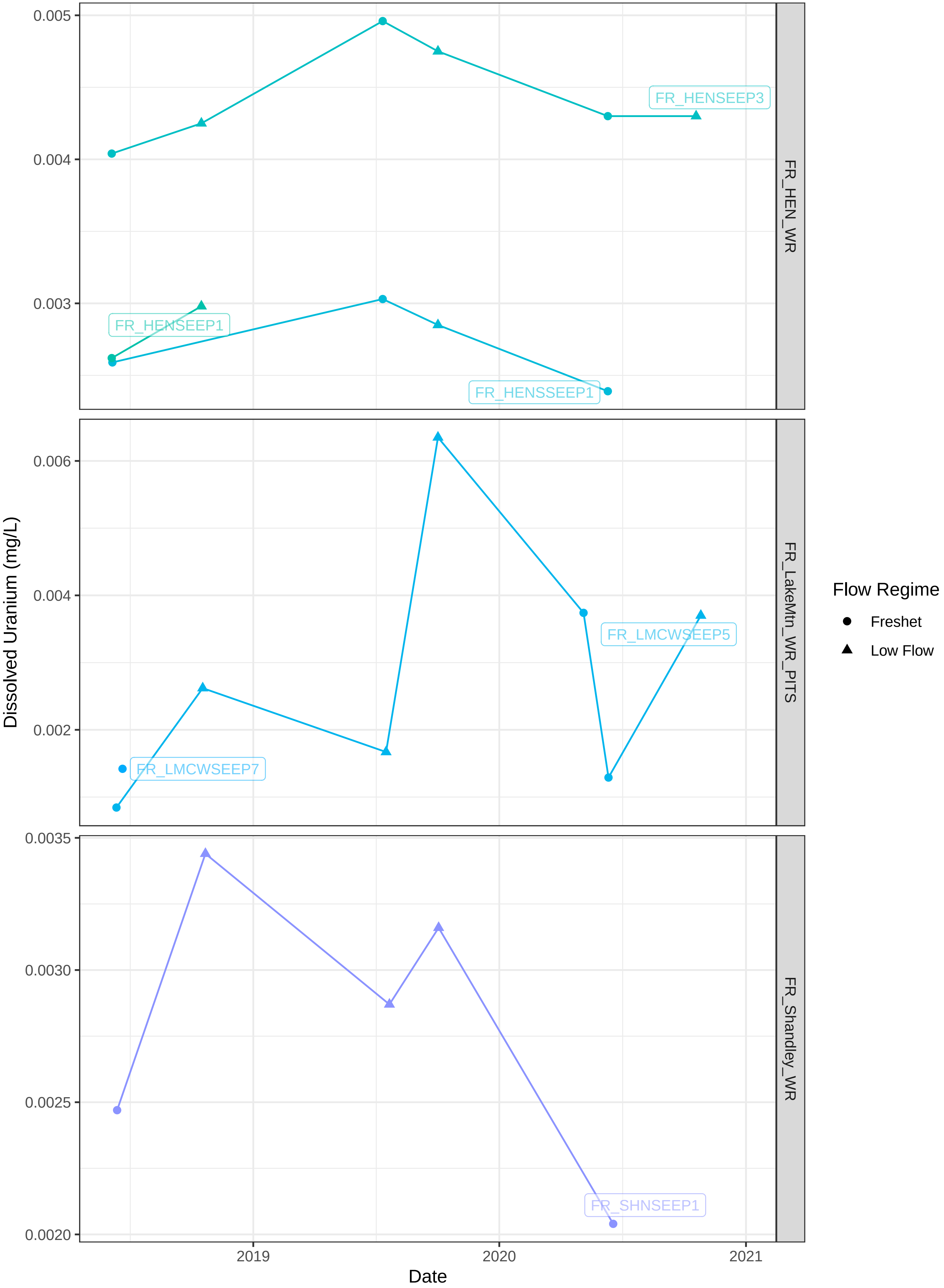
Note: The FWAL BCWQG for Sulfate is dependent on Hardness



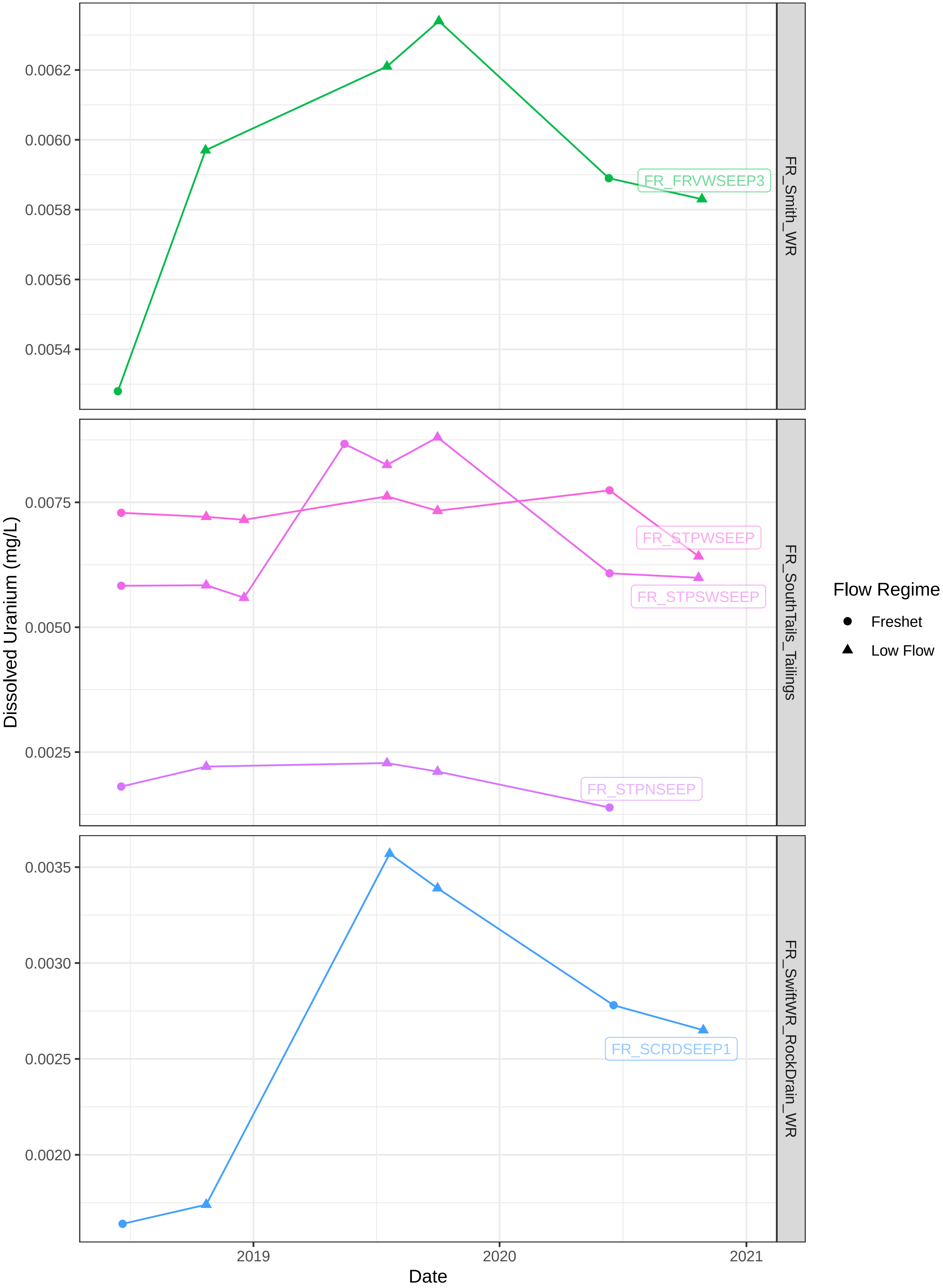
Note: there is no FWAL BCWQG for Dissolved Uranium



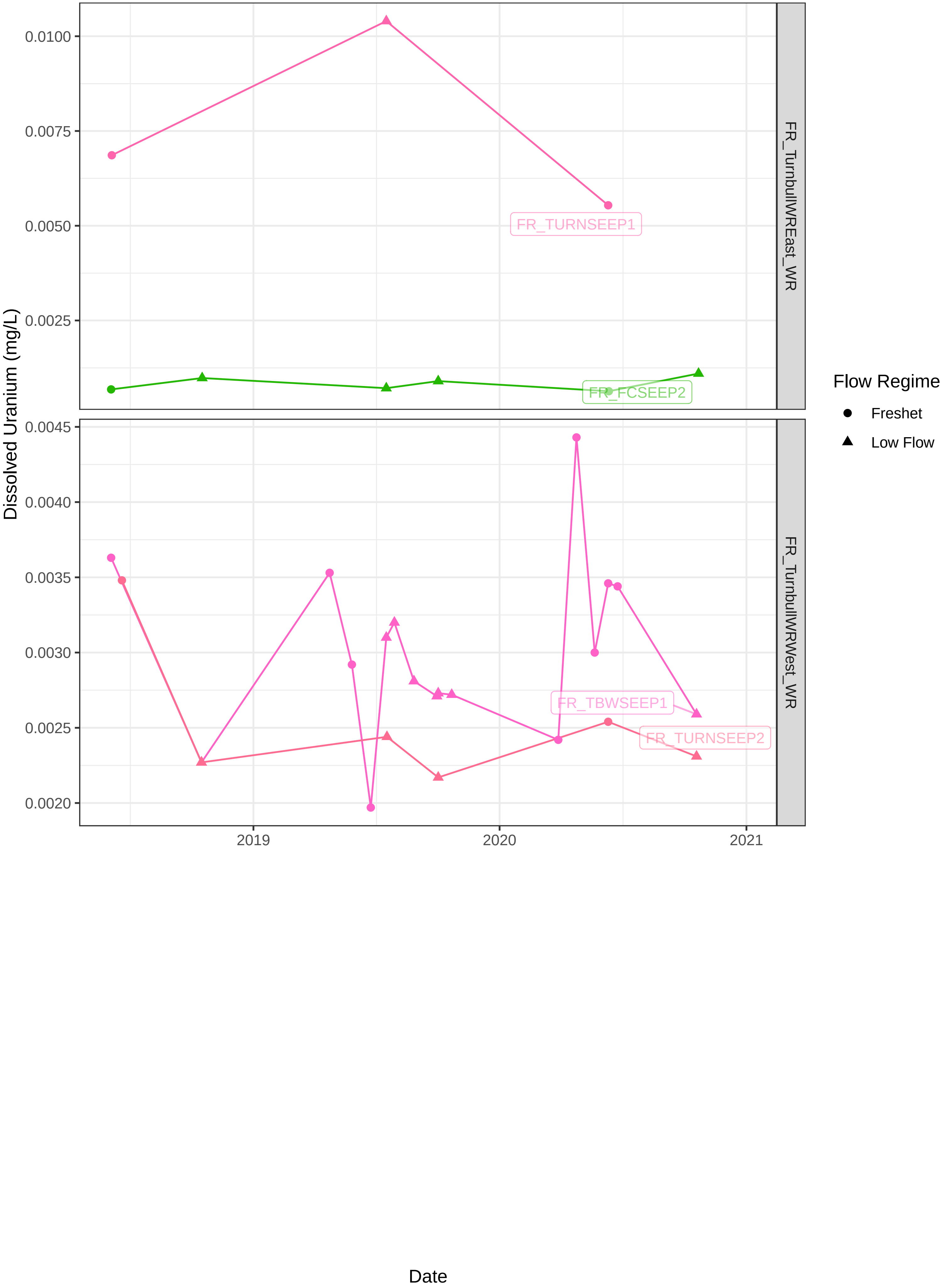
Note: there is no FWAL BCWQG for Dissolved Uranium



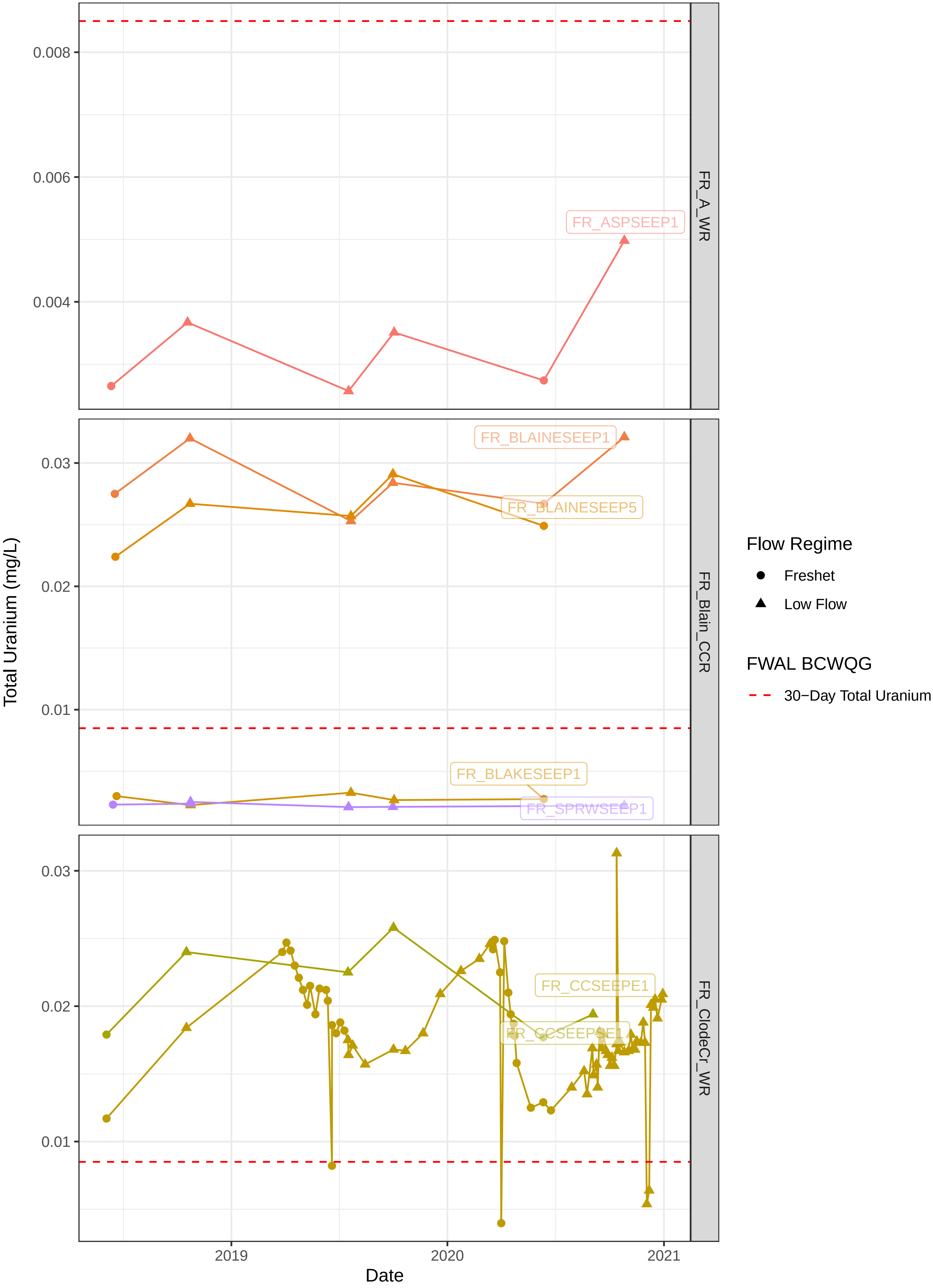
Note: there is no FWAL BCWQG for Dissolved Uranium



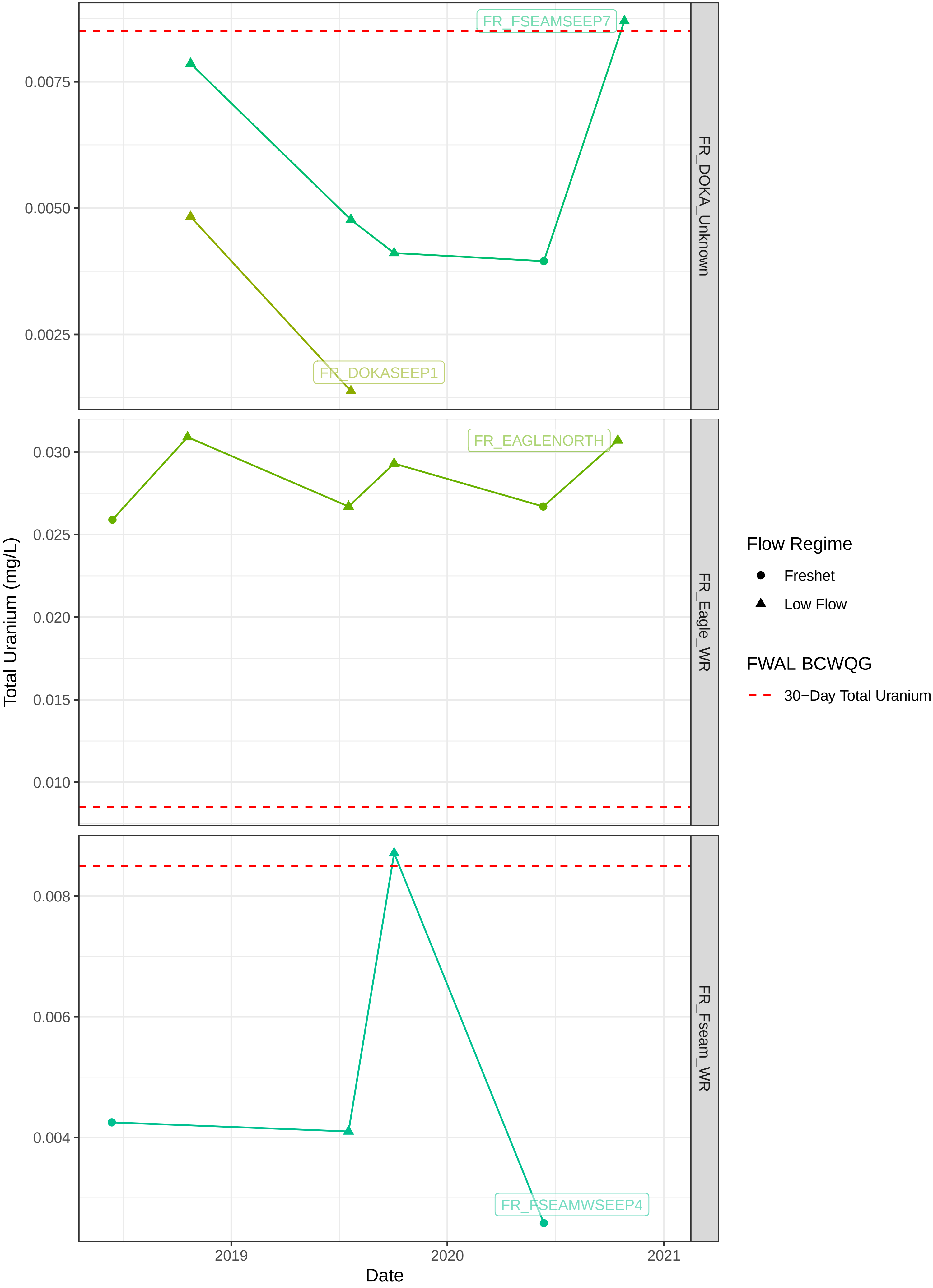
Note: there is no FWAL BCWQG for Dissolved Uranium



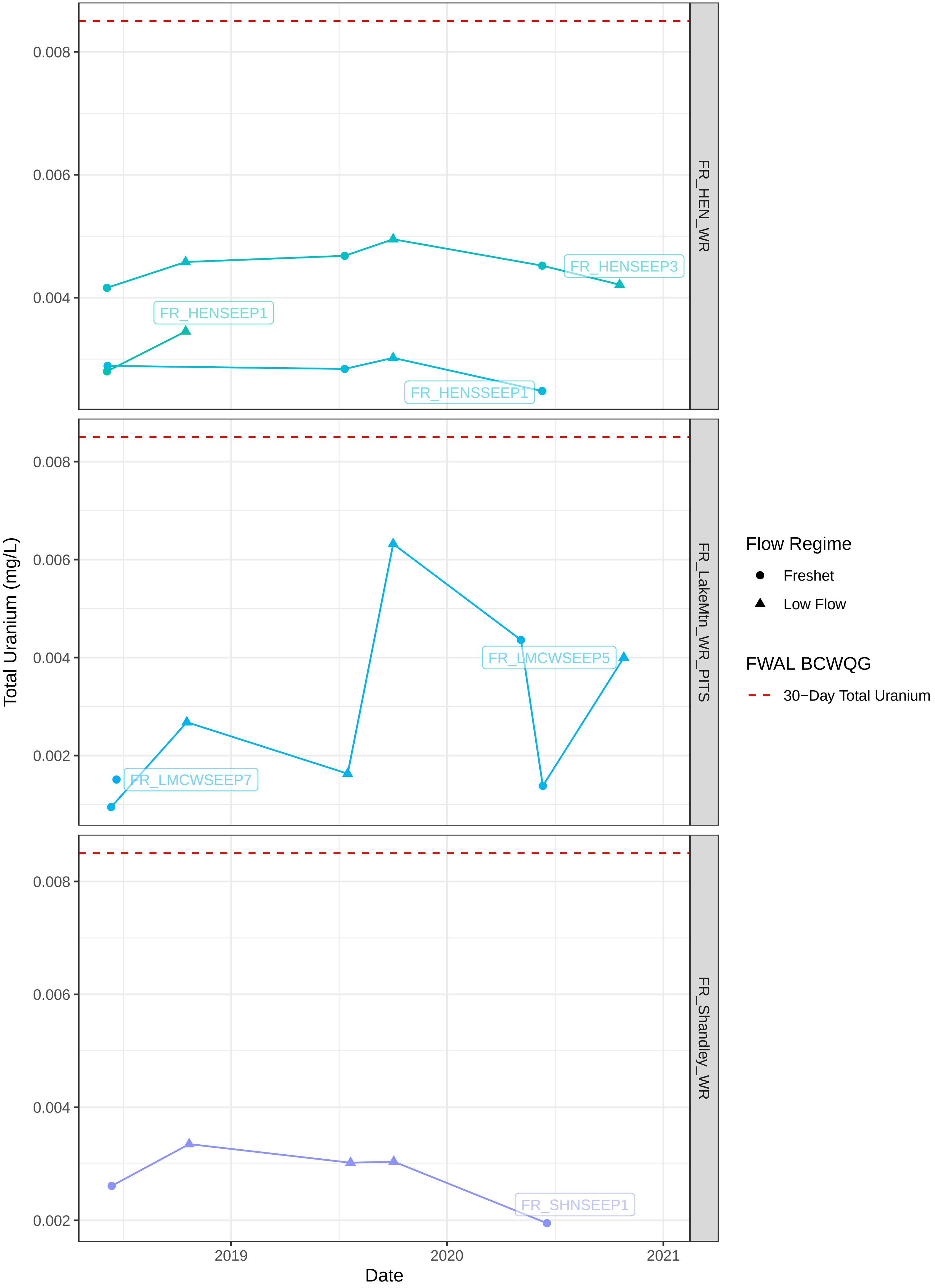
Note: there is no FWAL BCWQG for Dissolved Uranium

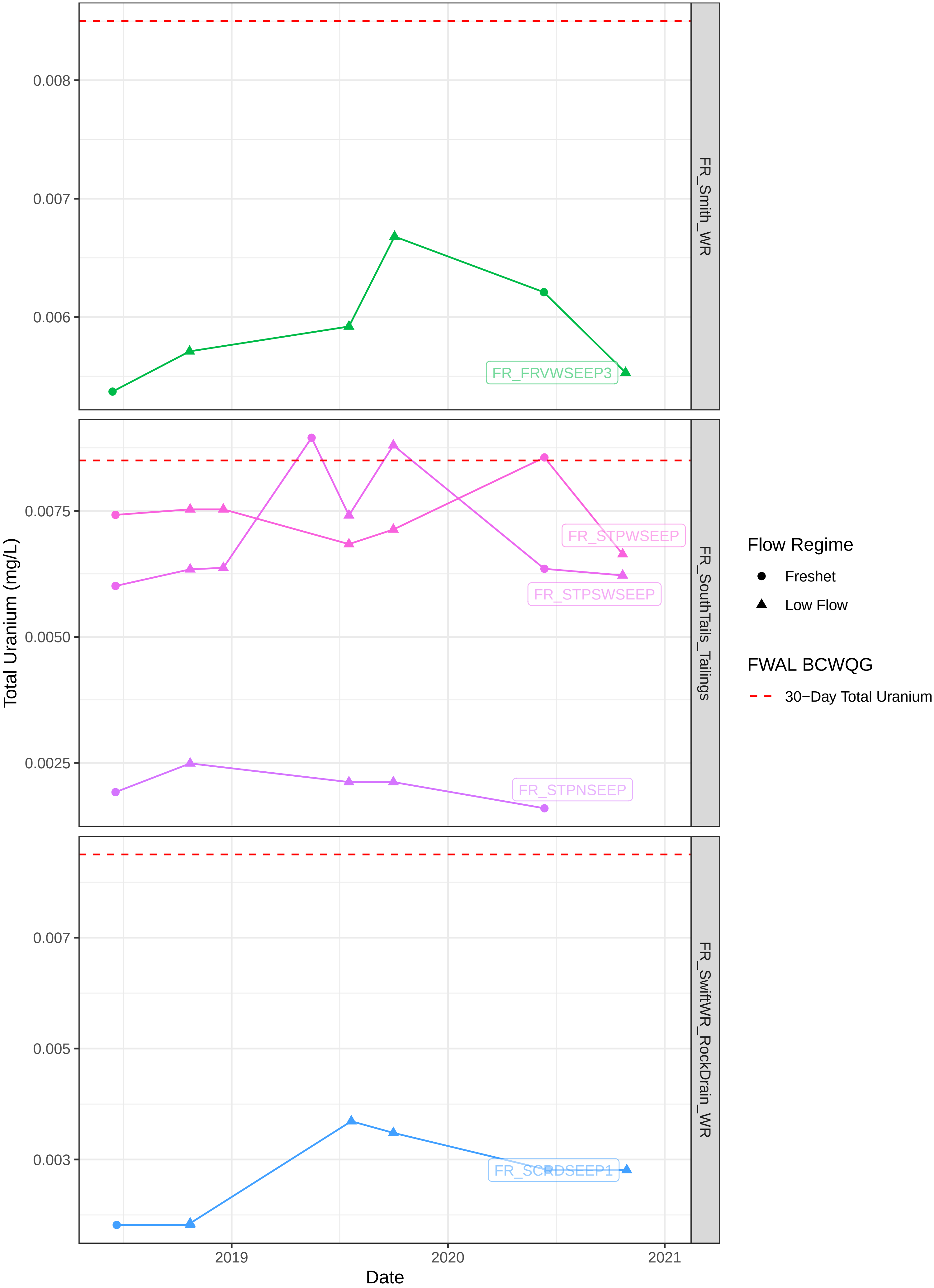


0.008
0.006
0.004
FR_ASPSEEP1
FR_A_WR
0.03
0.02
0.01
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
FR_Blain_CCR
0.03
0.02
0.01
FR_CCSEEPE1
FR_CCSEEPSE1
FR_ClodeCr_WR
2019
2020
2021
Date
Total Uranium (mg/L)
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Uranium

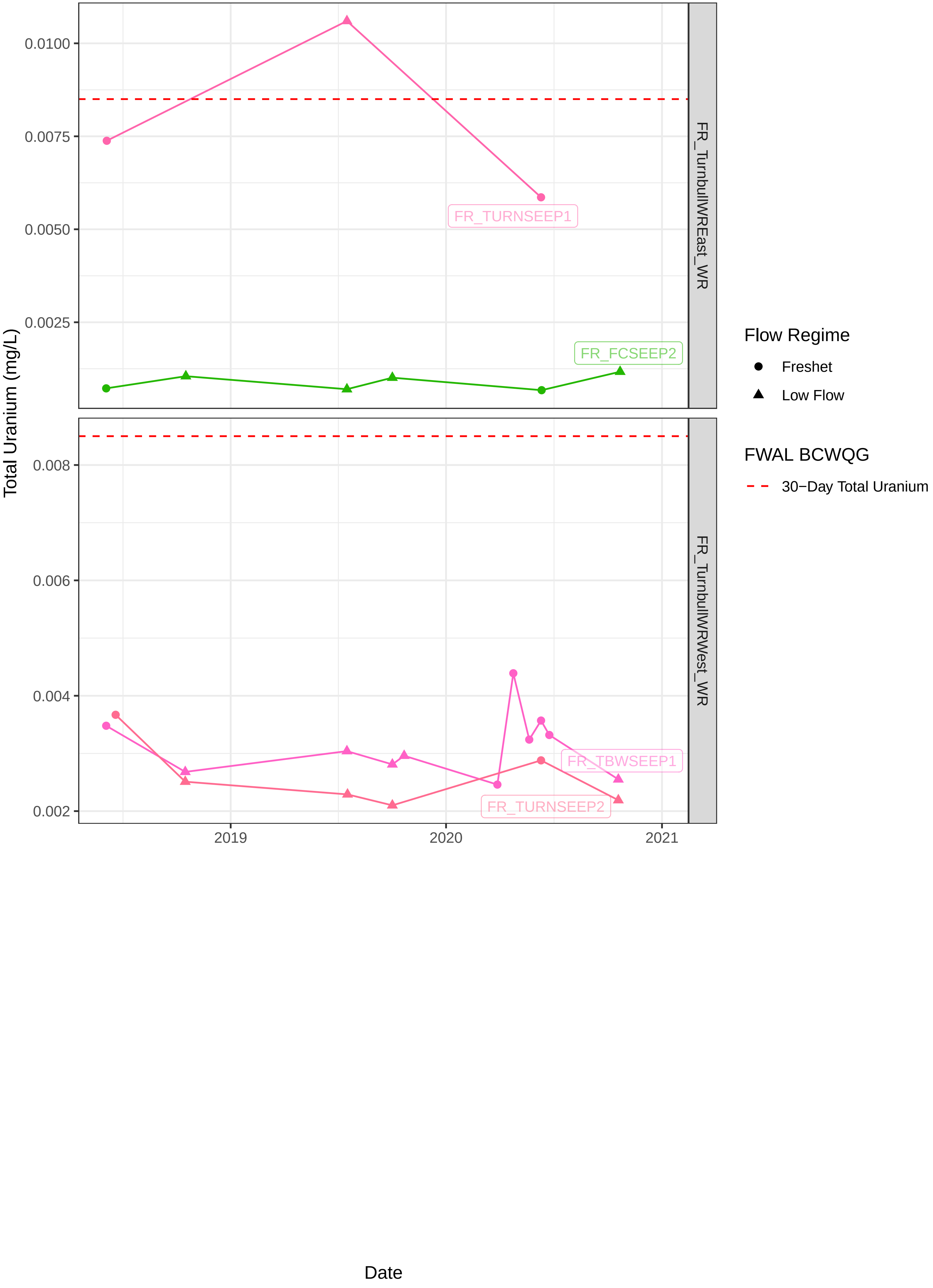


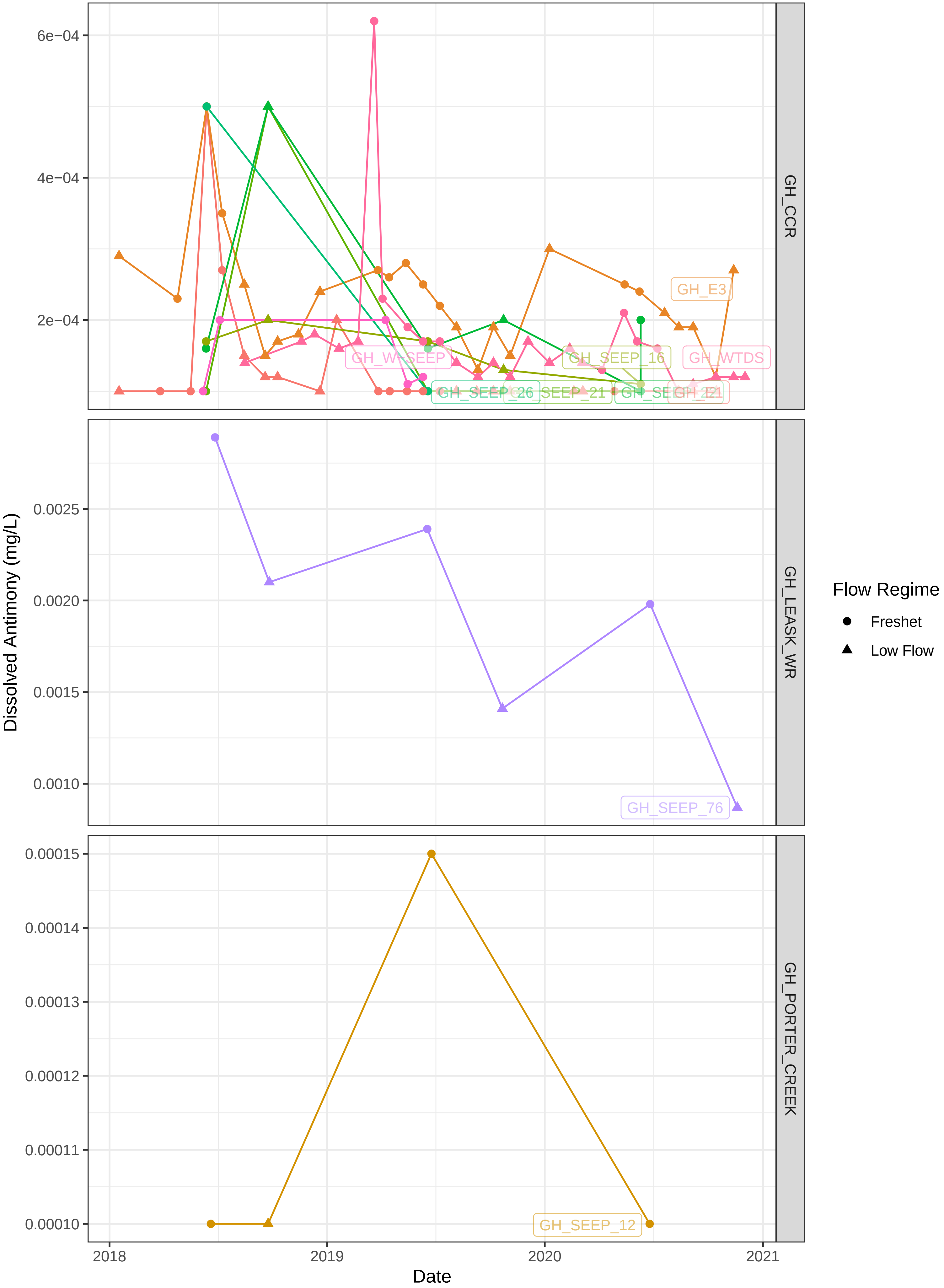
Total Uranium (mg/L)
0.0075
0.0050
0.0025
FR_FSEAMSEEP7
FR_DOKASEEP1
FR_DOKA_Unknown
0.030
0.025
0.020
0.015
0.010
FR_EAGLENORTH
FR_Eagle_WR
0.008
0.006
0.004
FR_FSEAMWSEEP4
FR_Fseam_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Uranium


Total Uranium (mg/L)
0.008
0.006
0.004
0.002
FR_HENSEEP3
FR_HENSEEP1
FR_HENSSEEP1
FR_HEN_WR
FR_LMCWSEEP5
FR_LMCWSEEP7
FR_LakeMtn_WR_PITS
FR_SHNSEEP1
FR_Shandley_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Uranium

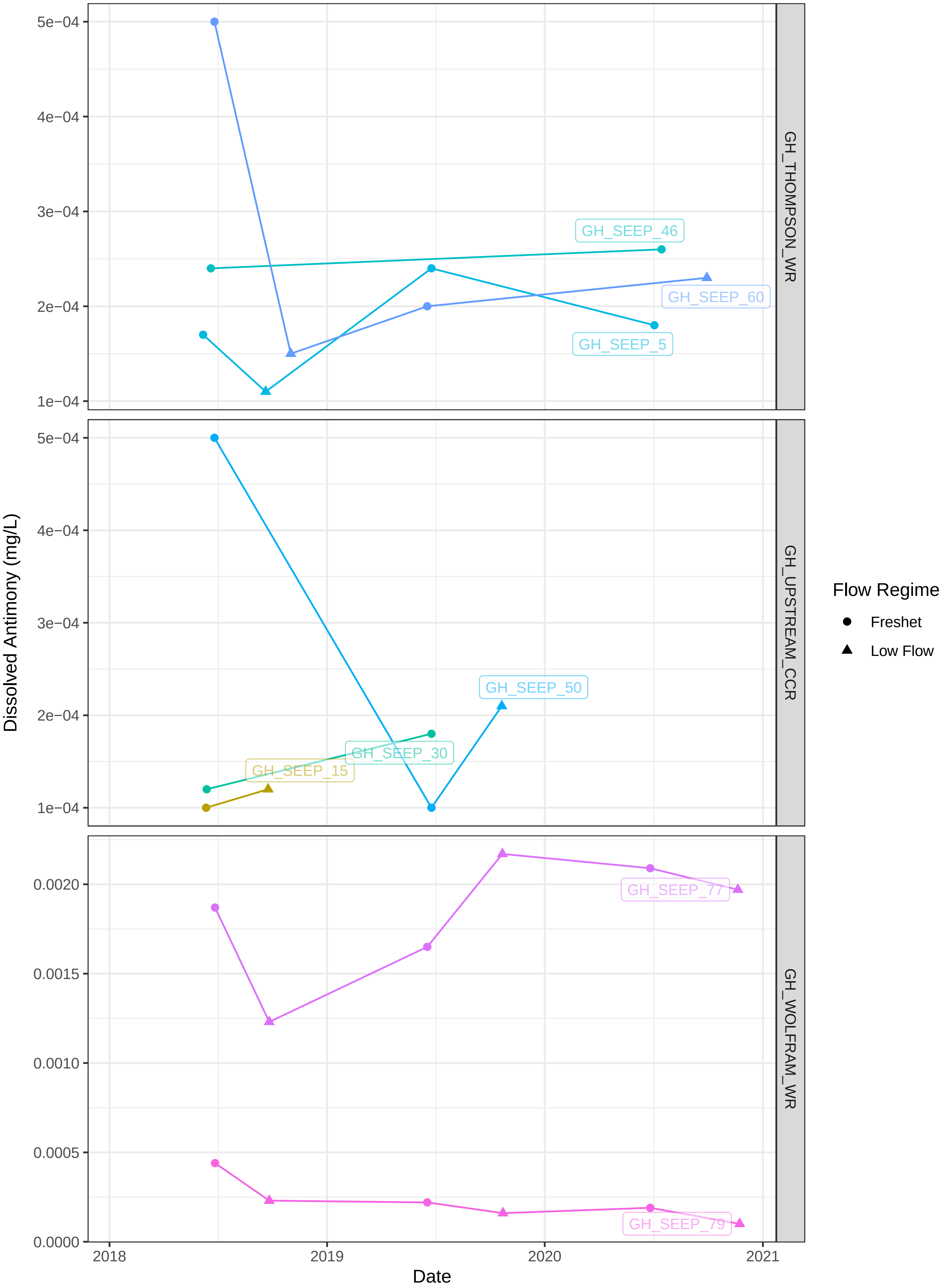


FR_Smith_WR
FR_FRVWSEEP3
FR_SouthTails_Tailings
FR_STPWSEEP
FR_STPSWSEEP
FR_STPNSEEP
FR_SwiftWR_RockDrain_WR
FR_SCRDSEEP1
0.008
0.007
0.006
0.0075
0.0050
0.0025
0.007
0.005
0.003
Total Uranium (mg/L)
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Uranium

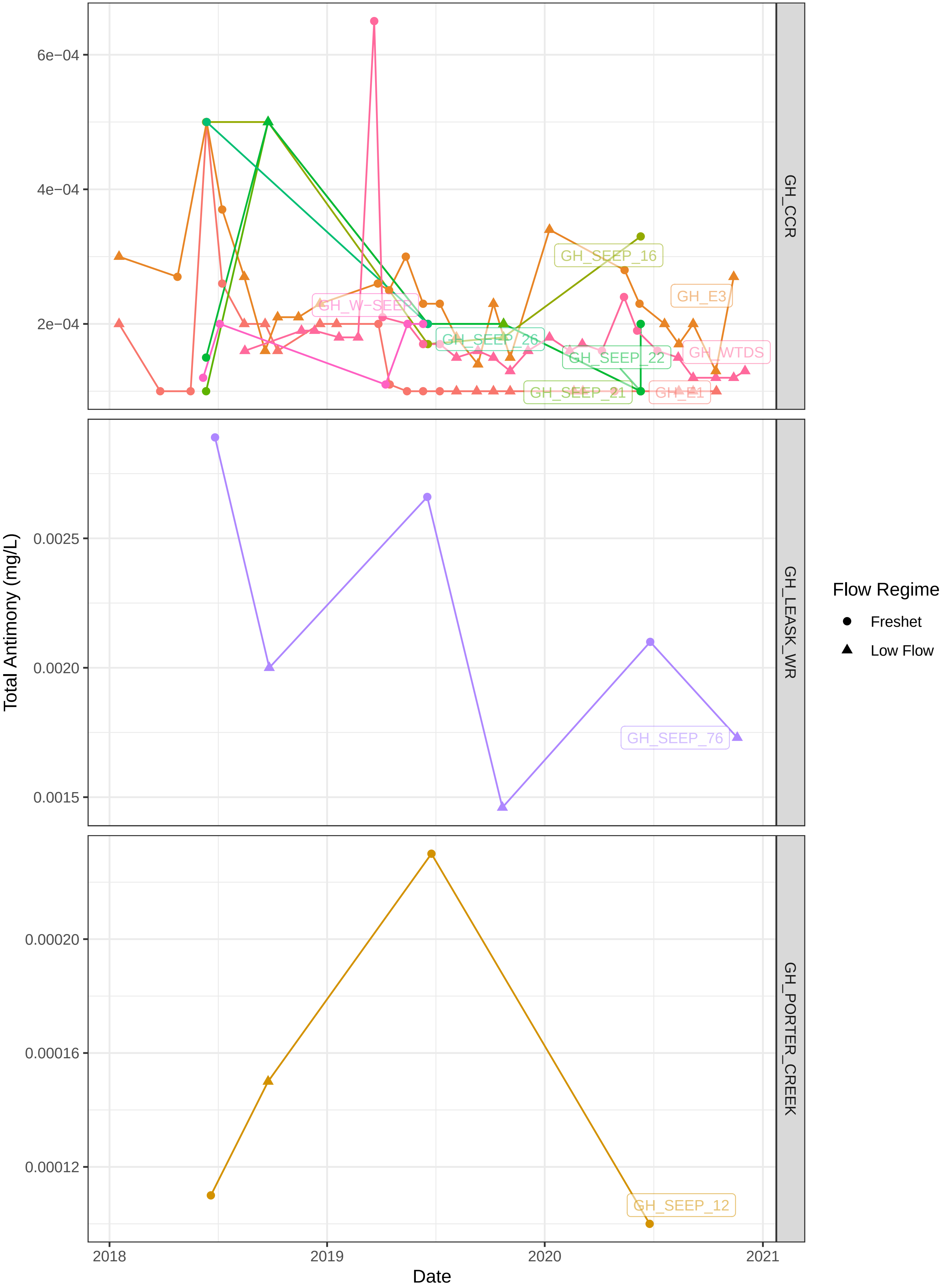

Total Uranium (mg/L)
0.0100
0.0075
0.0050
0.0025
FR_TURNSEEP1
FR_FCSEEP2
FR_TurnbullWREast_WR
0.008
0.006
0.004
0.002
FR_TBWSEEP1
FR_TURNSEEP2
FR_TurnbullWRWest_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Uranium



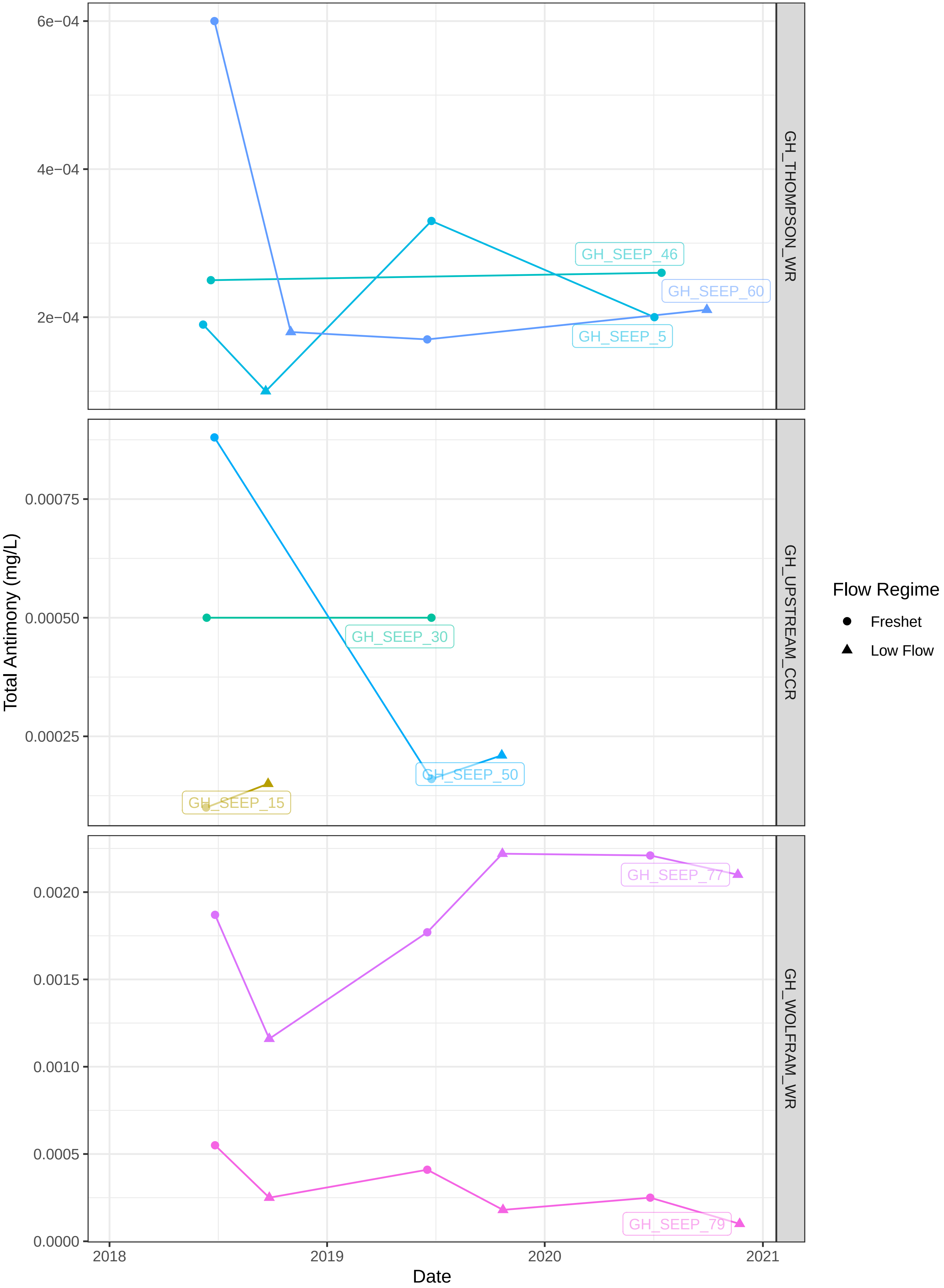
Note: there is no FWAL BCWQG for Dissolved Antimony



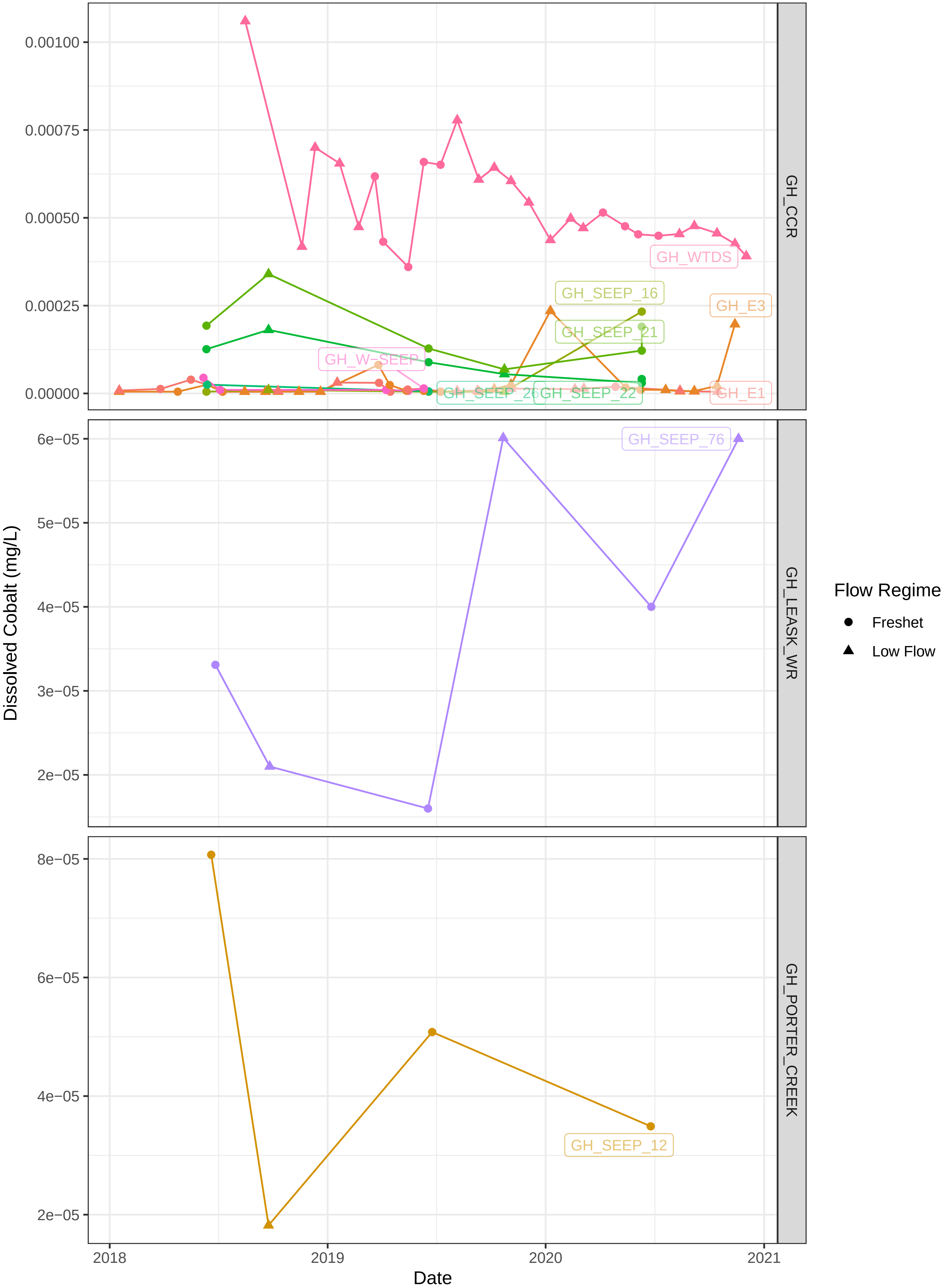
Note: there is no FWAL BCWQG for Dissolved Antimony



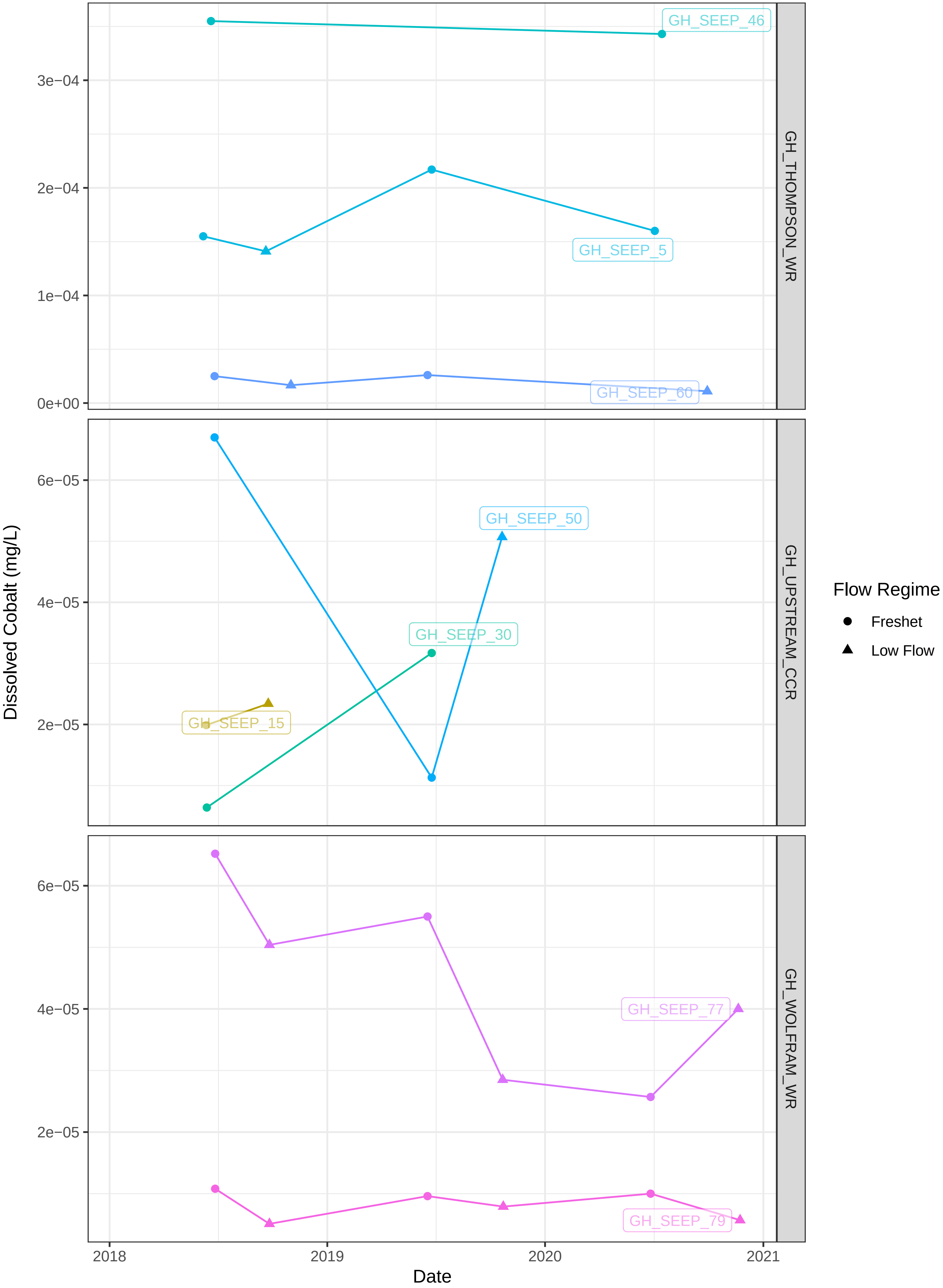
Note: there is no FWAL BCWQG for Total Antimony



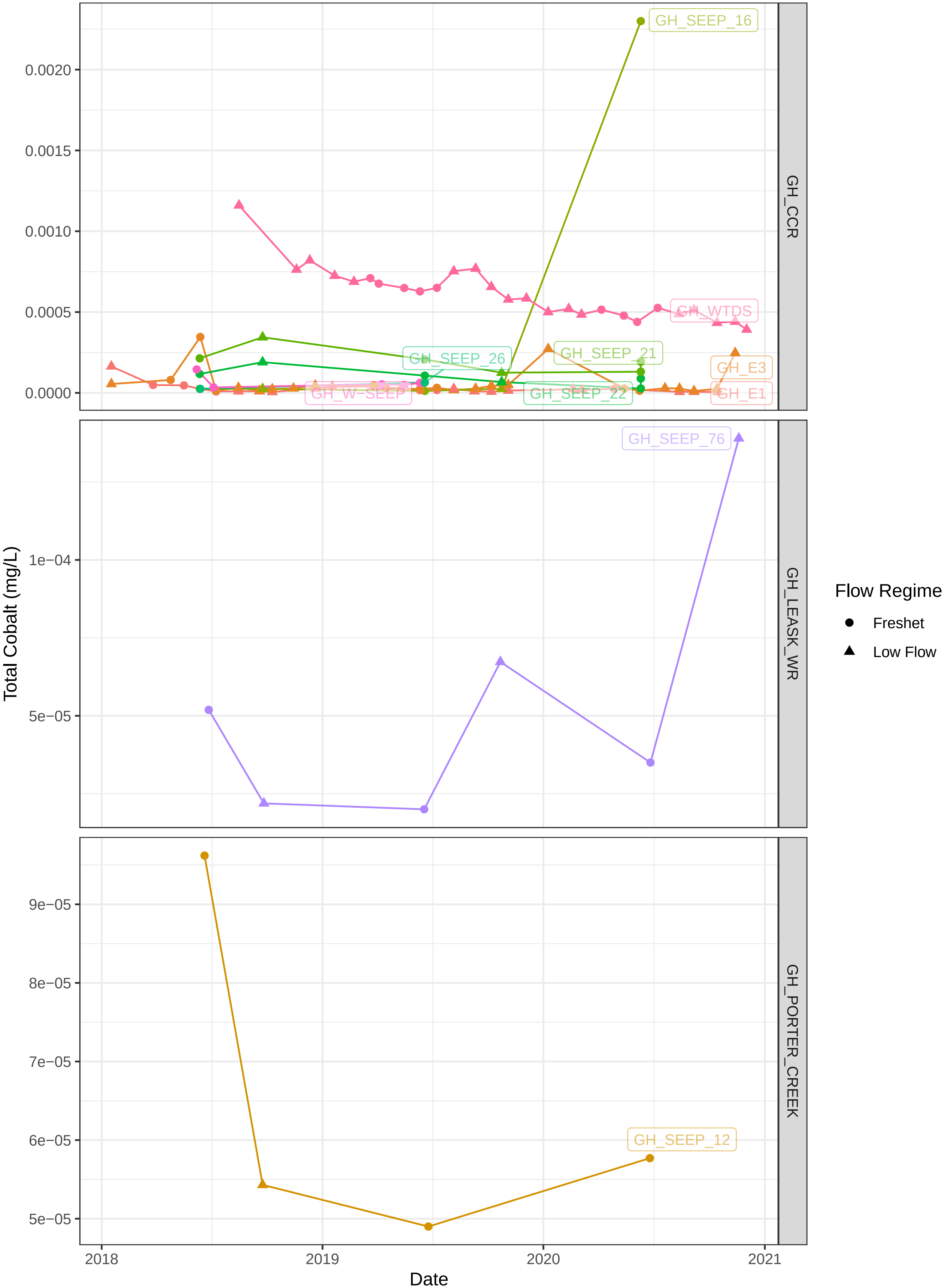
Note: there is no FWAL BCWQG for Total Antimony



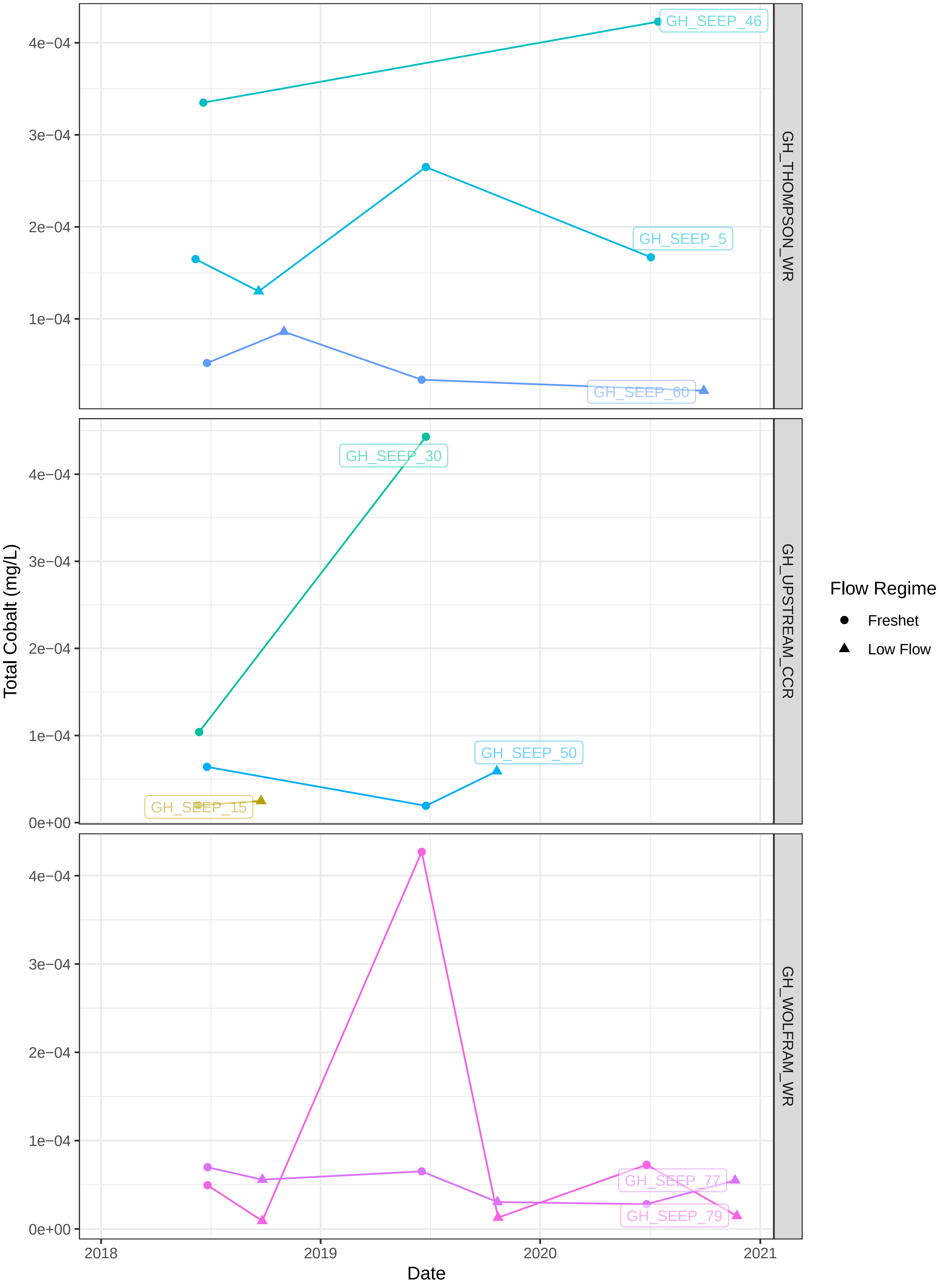
Note: The FWAL BCWQG for Dissolved Cobalt is dependent on Hardness



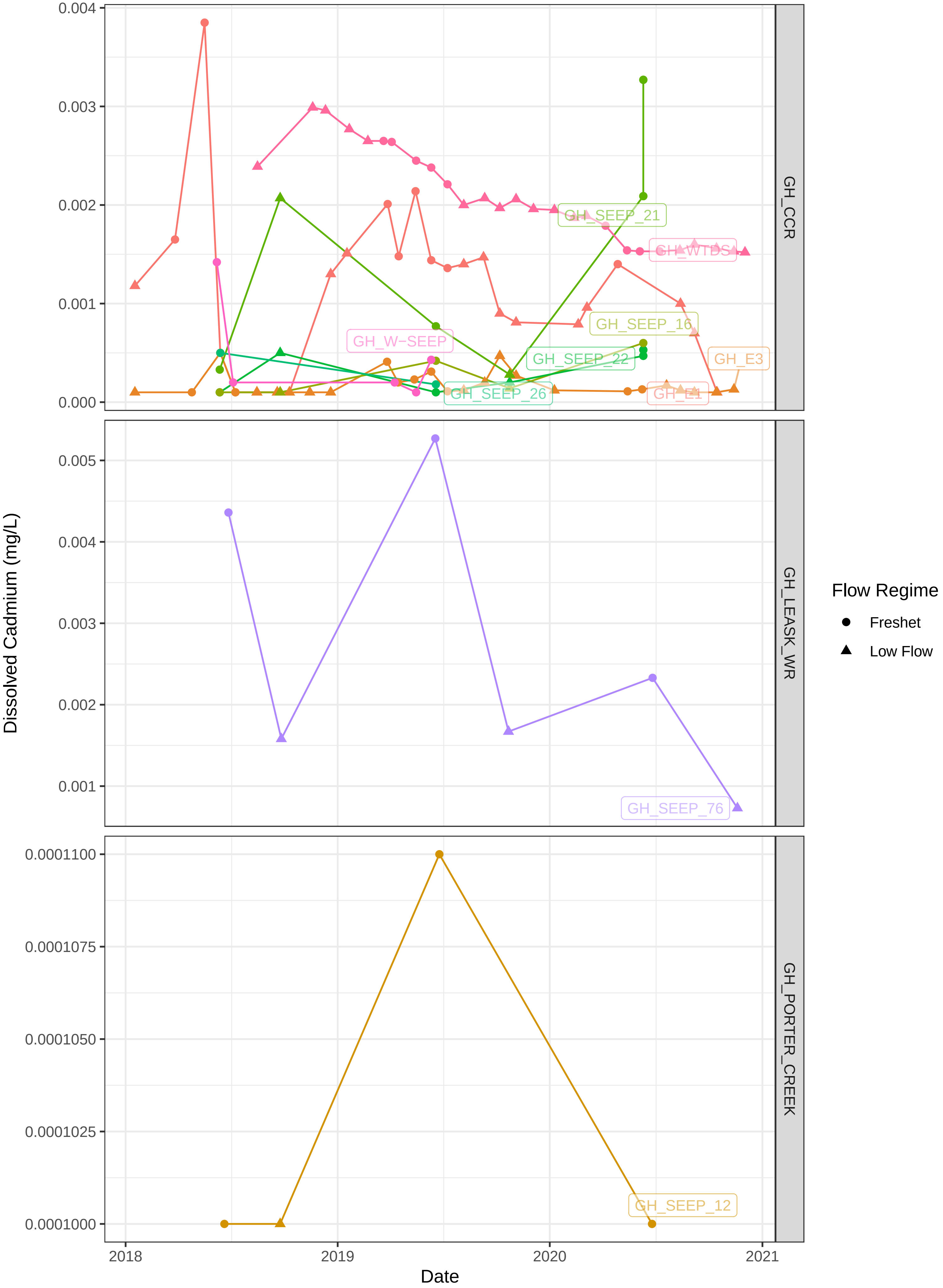
Note: The FWAL BCWQG for Dissolved Cobalt is dependent on Hardness



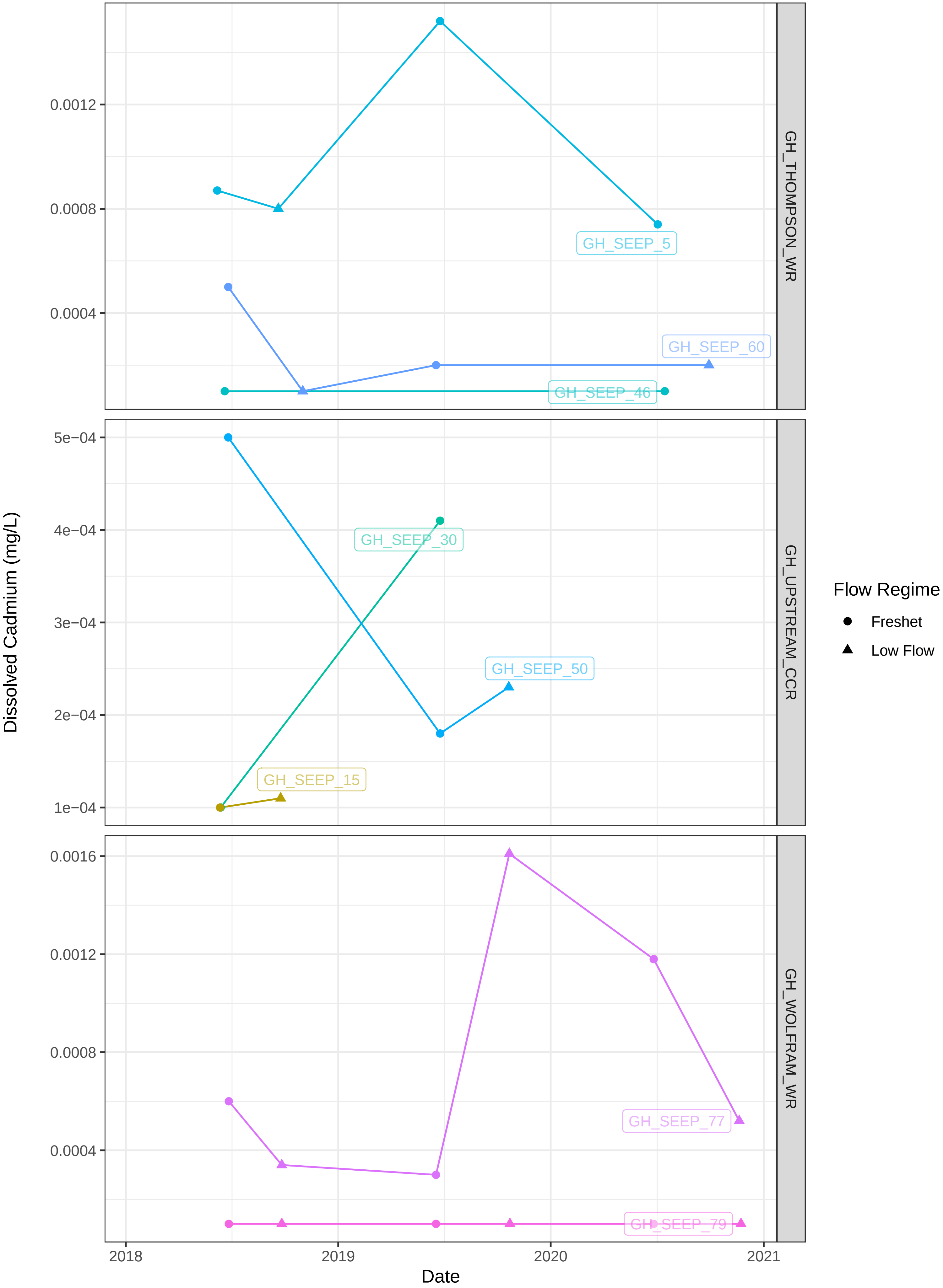
Note: there is no FWAL BCWQG for Total Cobalt



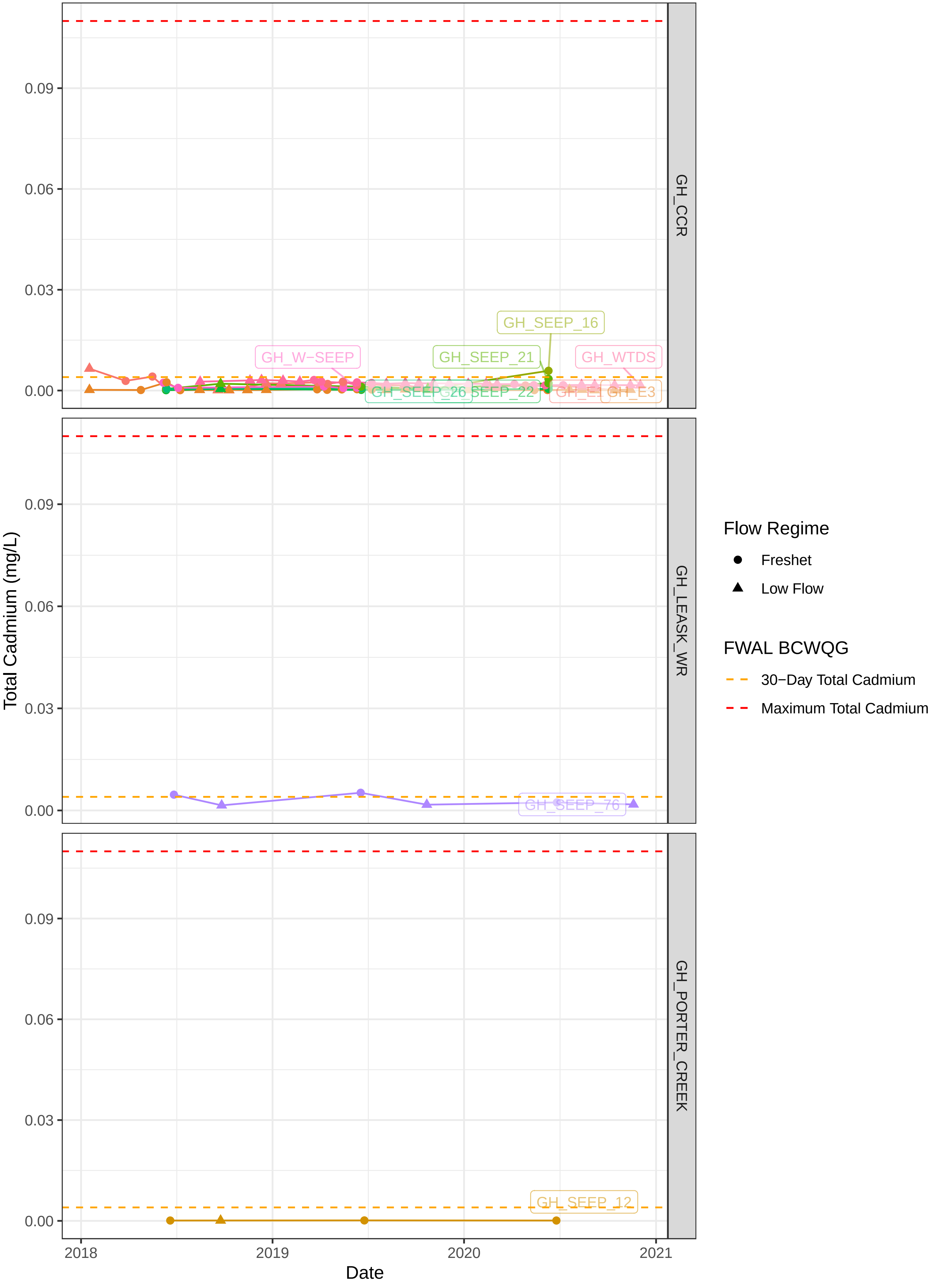
Note: there is no FWAL BCWQG for Total Cobalt



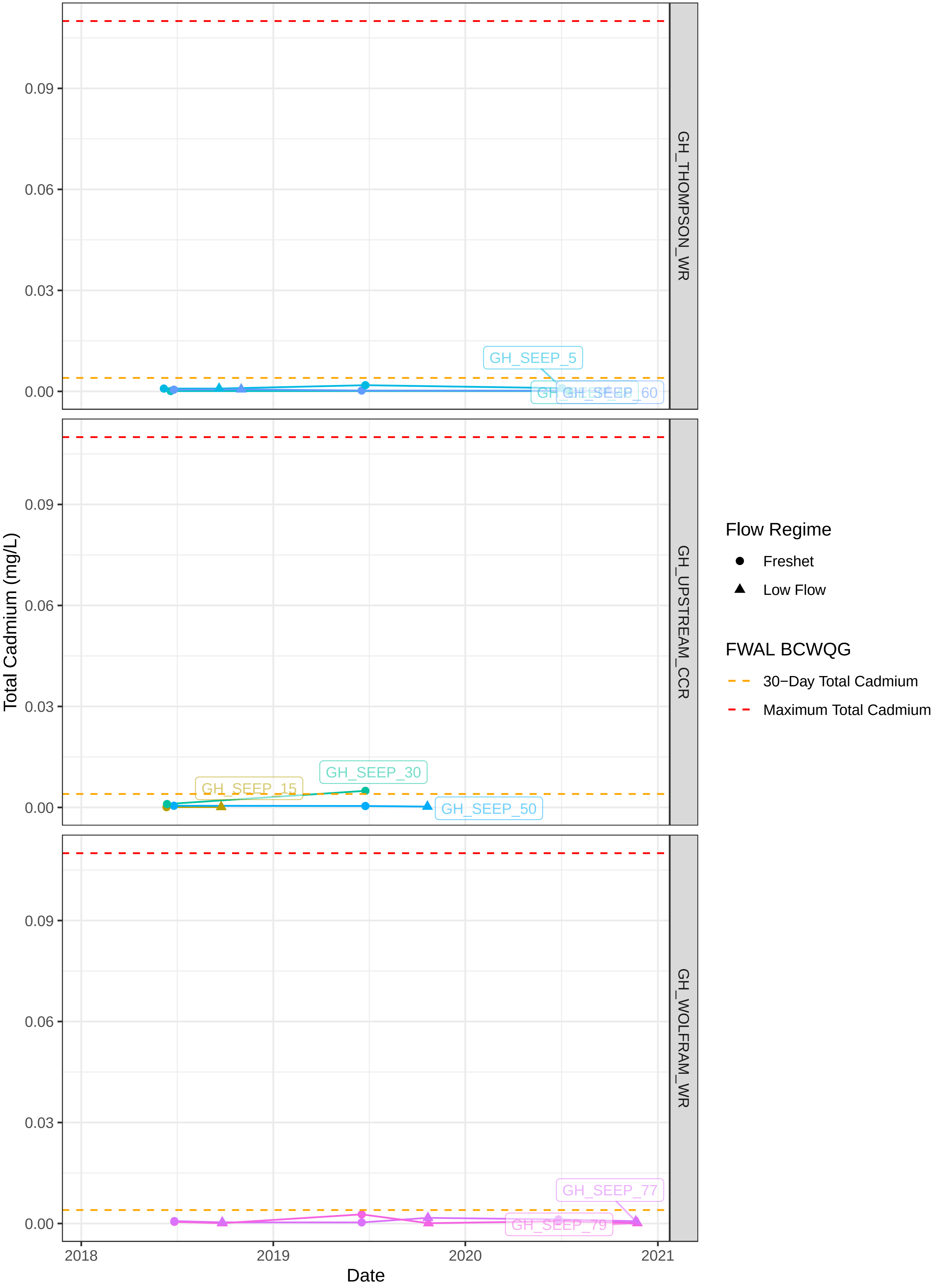
Note: there is no FWAL BCWQG for Dissolved Cadmium



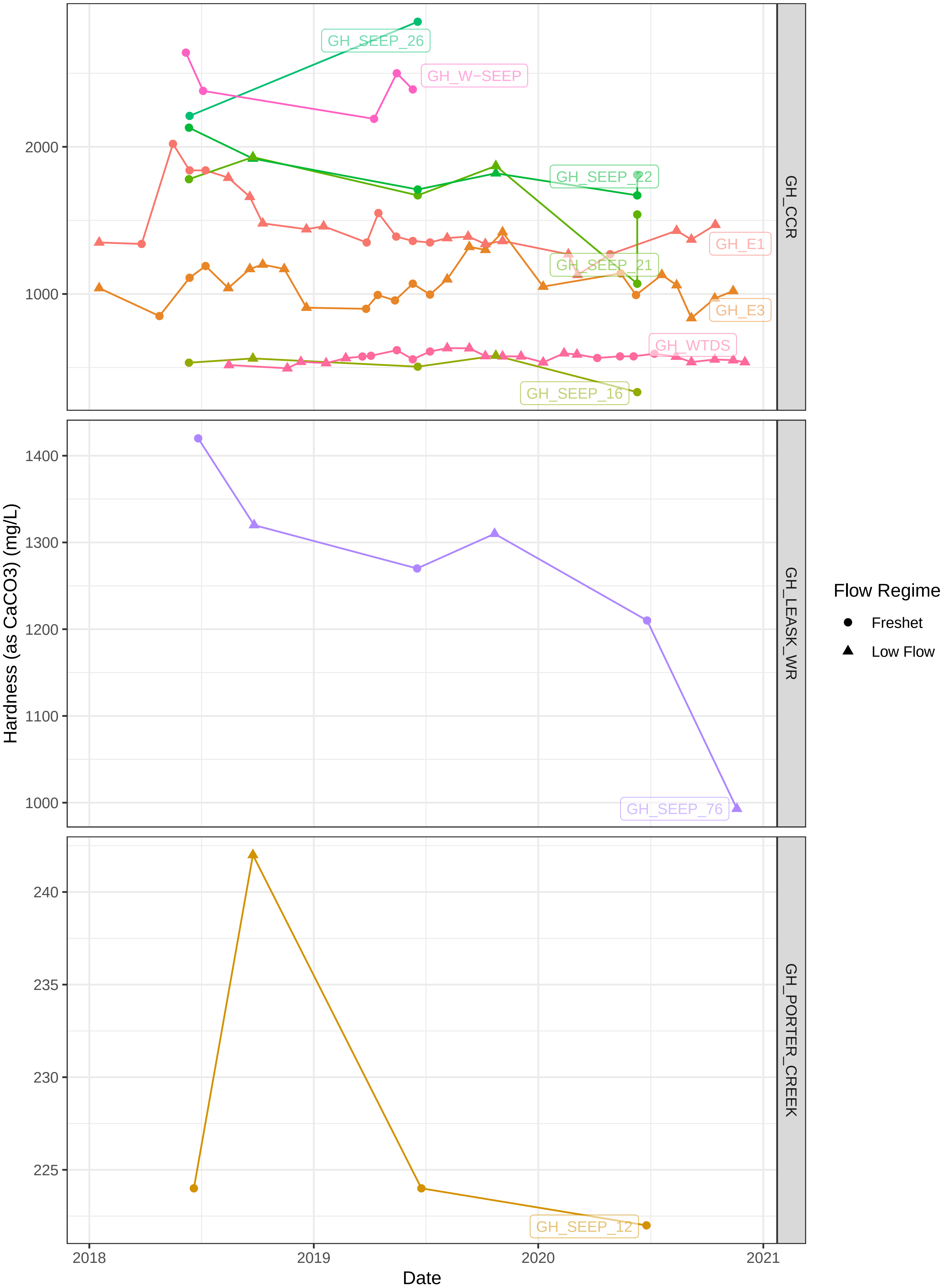
Note: there is no FWAL BCWQG for Dissolved Cadmium



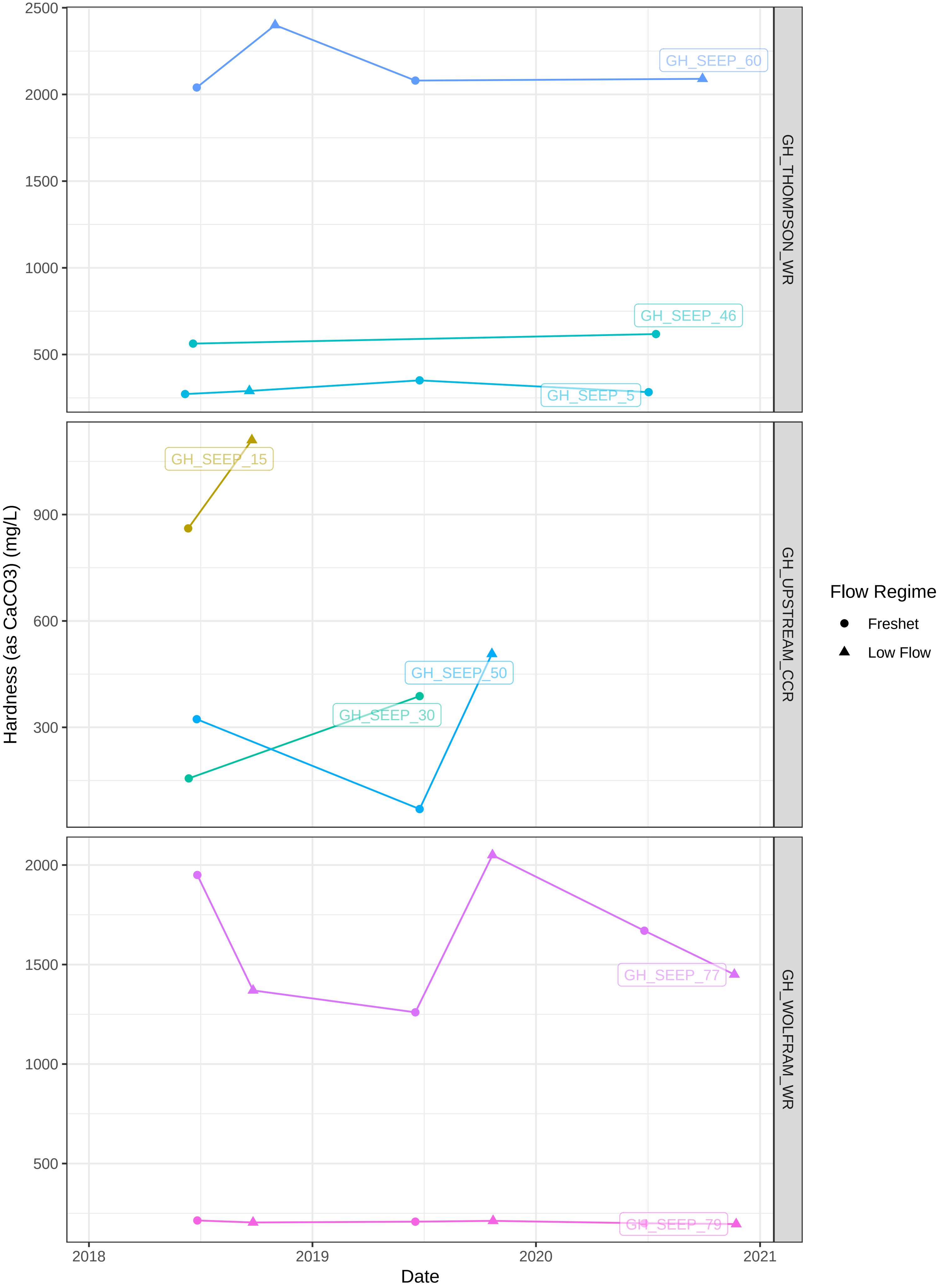
GH_CCR
GH_LEASK_WR
GH_PORTER_CREEK
Total Cadmium (mg/L)
0.00
0.03
0.06
0.09
Date
2018
2019
2020
2021
GH_SEEP_16
GH_W−SEEP
GH_SEEP_21
GH_WTDS
GH_SEEP_26
GH_SEEP_22
GH_E1
GH_E3
GH_SEEP_76
GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Cadmium
Maximum Total Cadmium



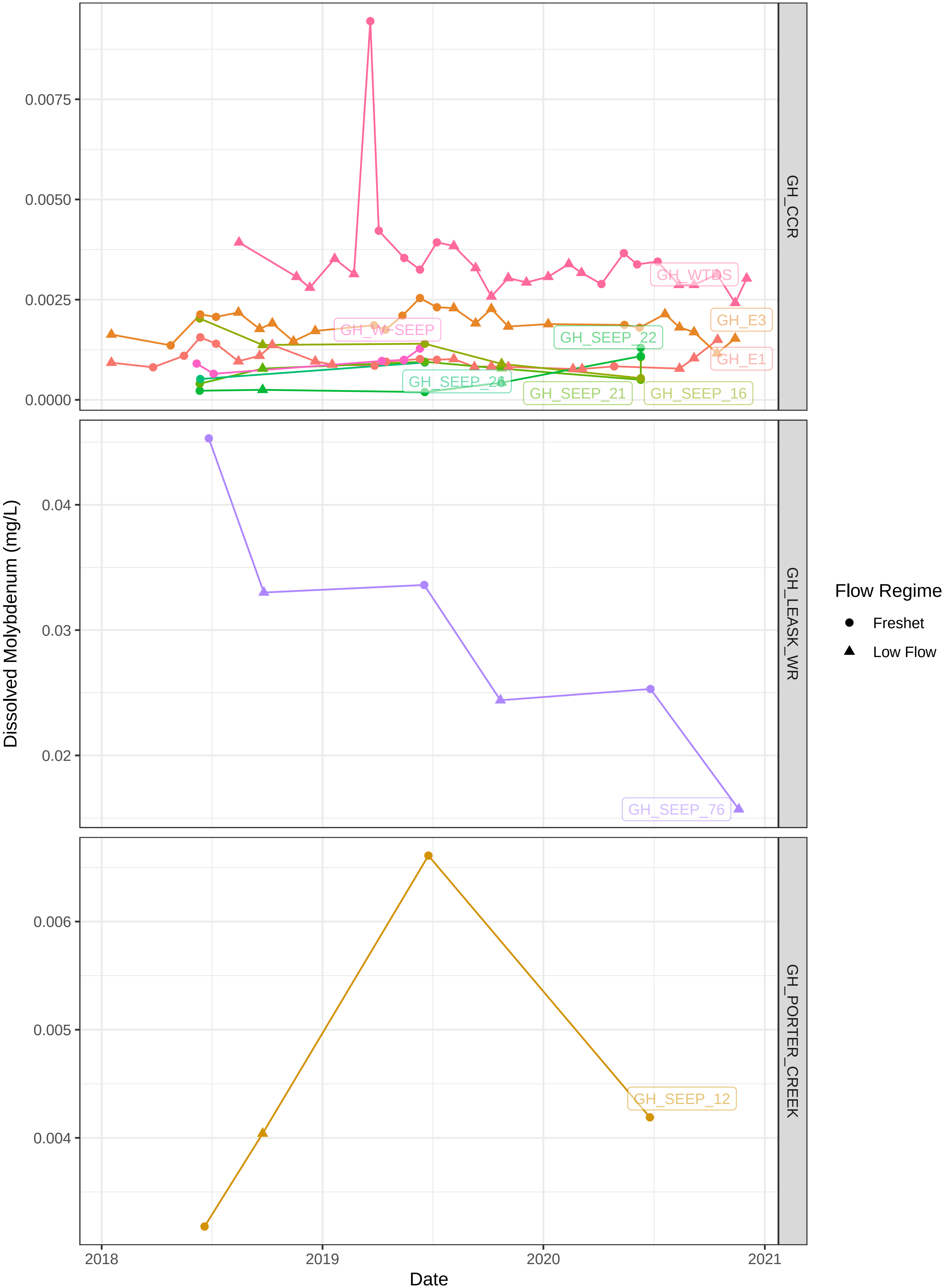
Total Cadmium (mg/L)
0.09
0.06
0.03
0.00
GH_SEEP_5
GH_SEEP_60
GH_THOMPSON_WR
GH_SEEP_30
GH_SEEP_15
GH_SEEP_50
GH_UPSTREAM_CCR
GH_SEEP_77
GH_SEEP_79
GH_WOLFRAM_WR
2018
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Cadmium
Maximum Total Cadmium



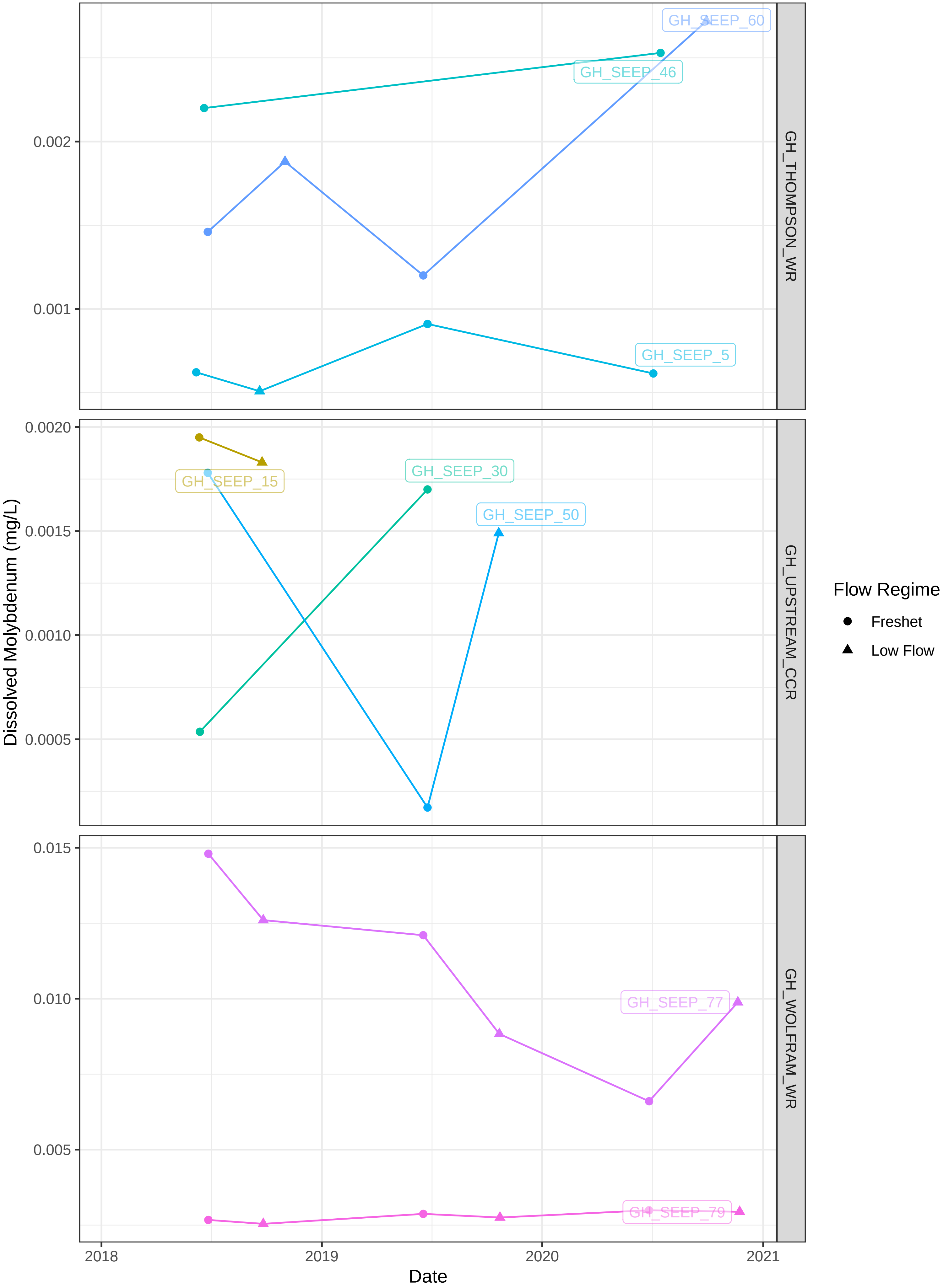
Note: there is no FWAL BCWQG for Hardness (as CaCO3)



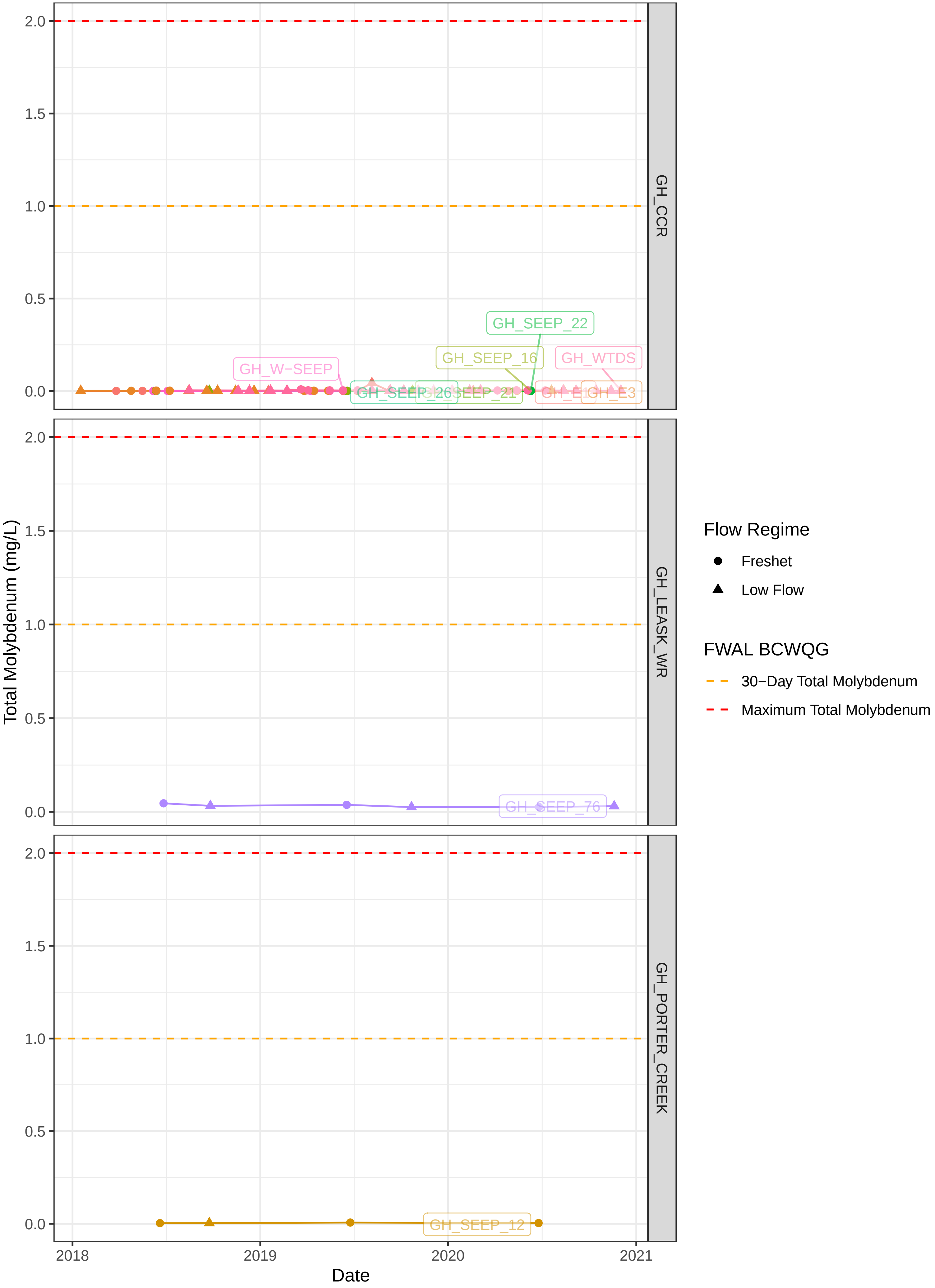
Note: there is no FWAL BCWQG for Hardness (as CaCO3)

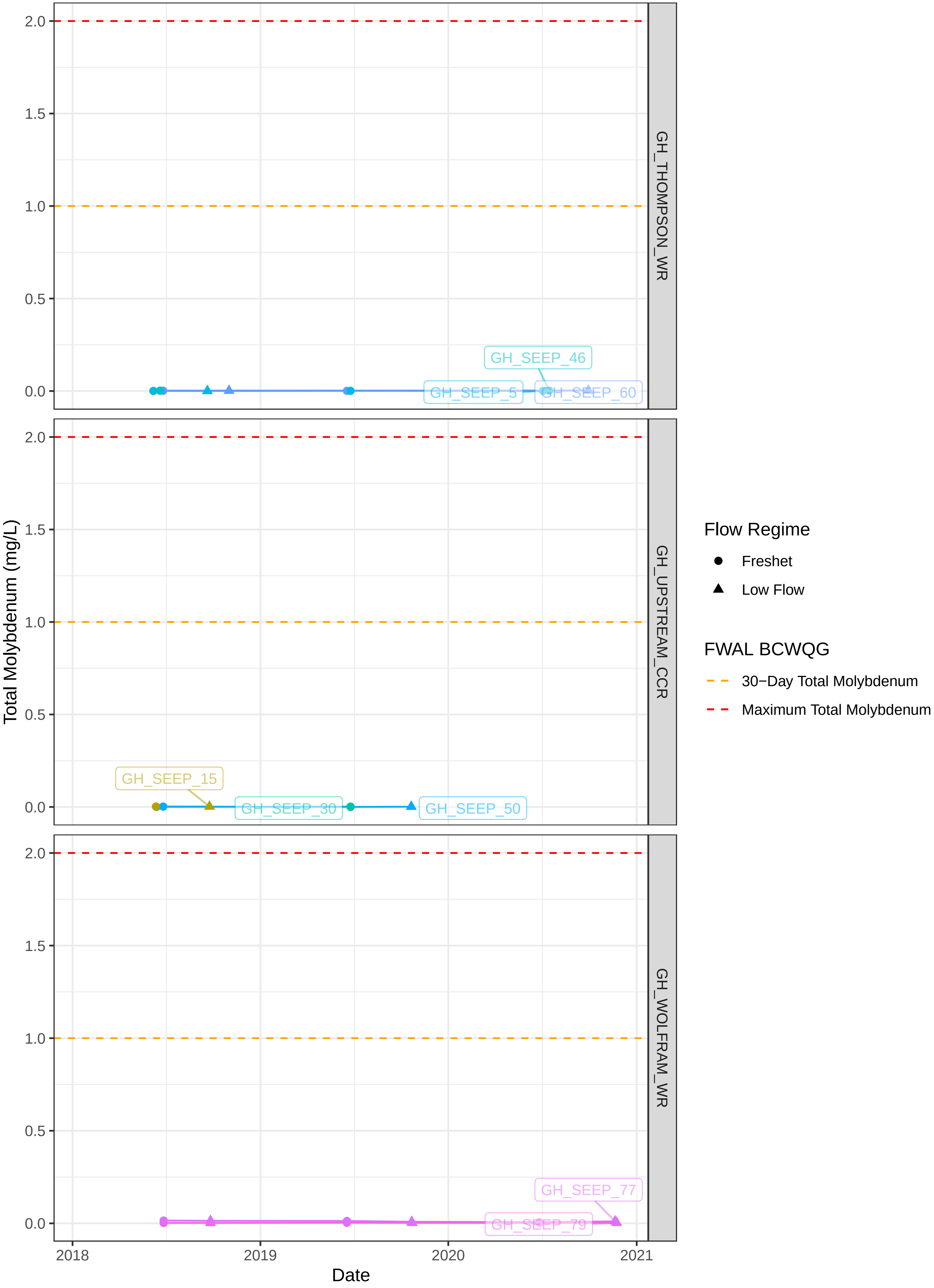


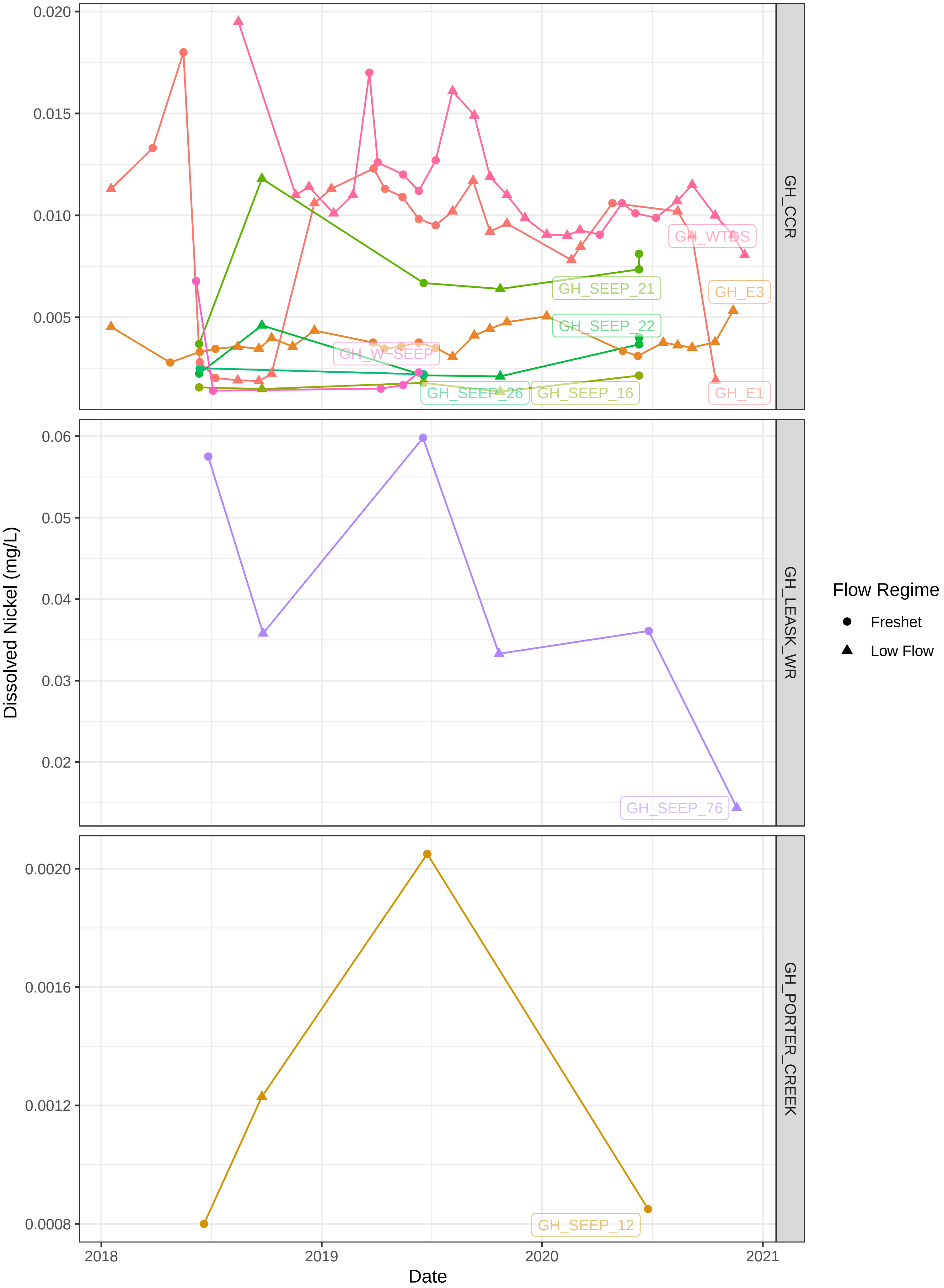
Note: there is no FWAL BCWQG for Dissolved Molybdenum



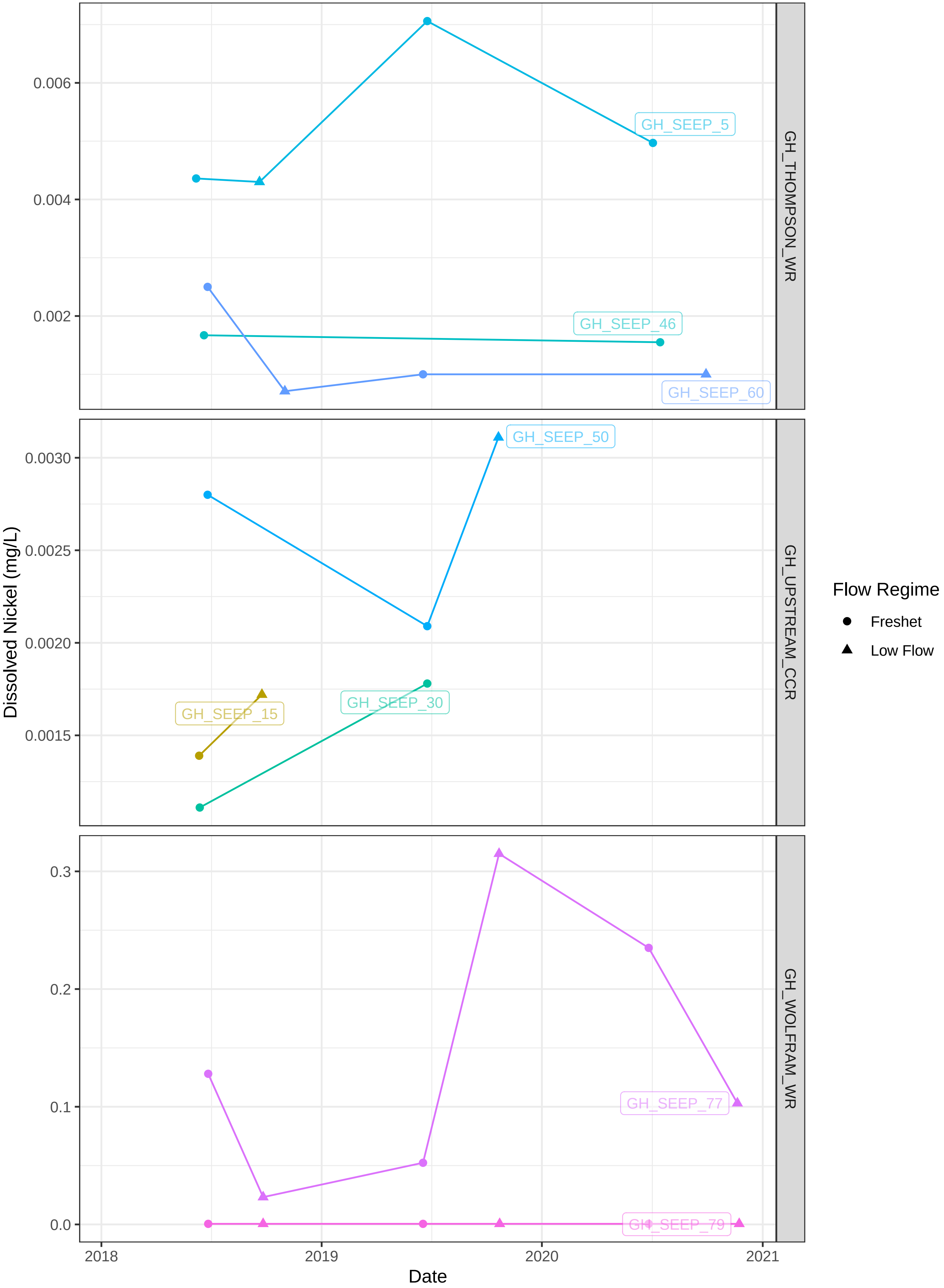
Note: there is no FWAL BCWQG for Dissolved Molybdenum


Total Molybdenum (mg/L)
2.0
1.5
1.0
0.5
0.0
GH_CCR
GH_W−SEEP
GH_SEEP_22
GH_SEEP_16
GH_WTDS
GH_SEEP_26
GH_SEEP_21
GH_E1
GH_E3
GH_LEASK_WR
GH_SEEP_76
GH_PORTER_CREEK
GH_SEEP_12
2018
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Molybdenum
Maximum Total Molybdenum

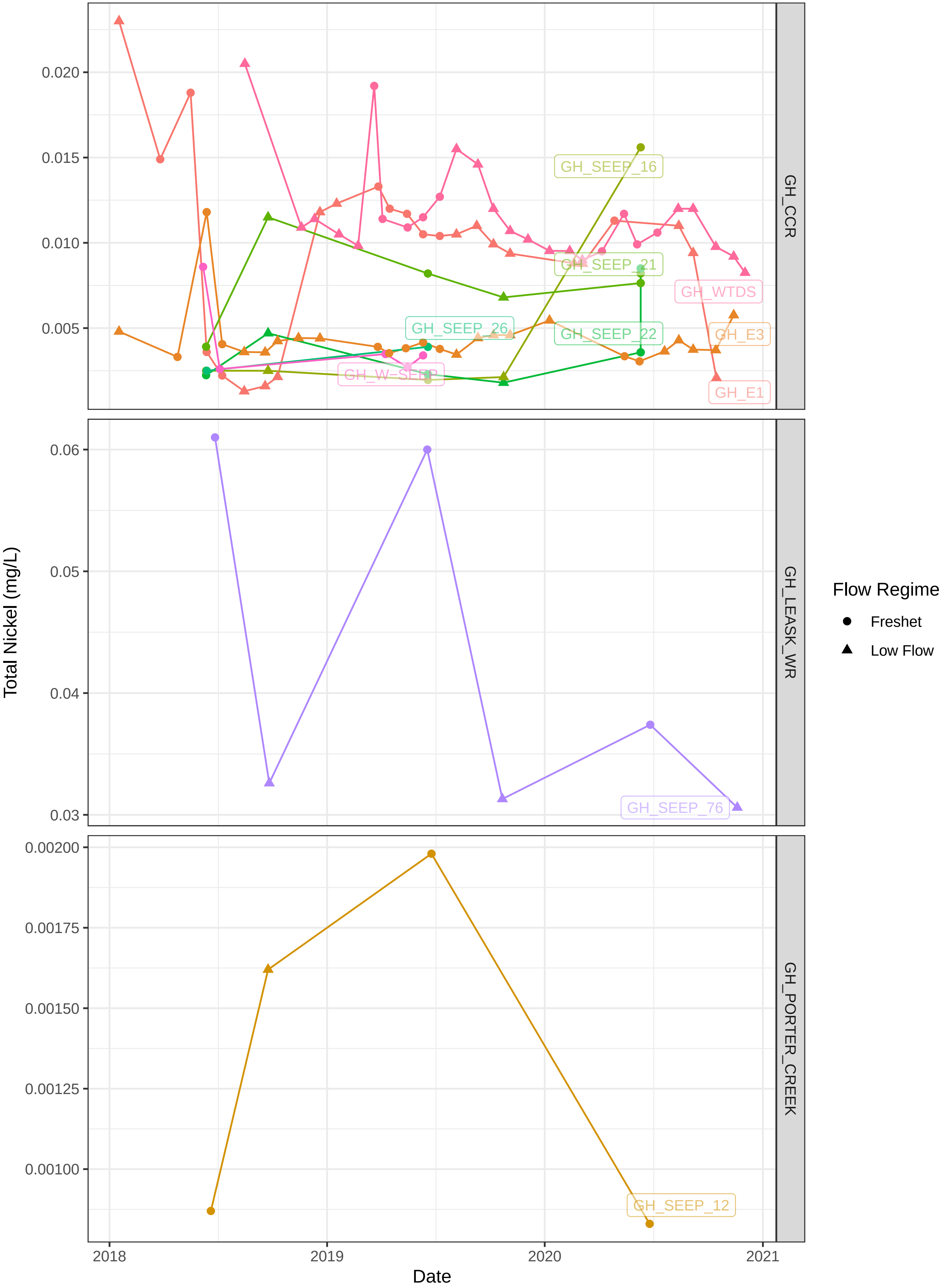

Total Molybdenum (mg/L)
0.0
0.5
1.0
1.5
2.0
GH_THOMPSON_WR
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
GH_UPSTREAM_CCR
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
GH_WOLFRAM_WR
GH_SEEP_77
GH_SEEP_79
2018
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Molybdenum
Maximum Total Molybdenum



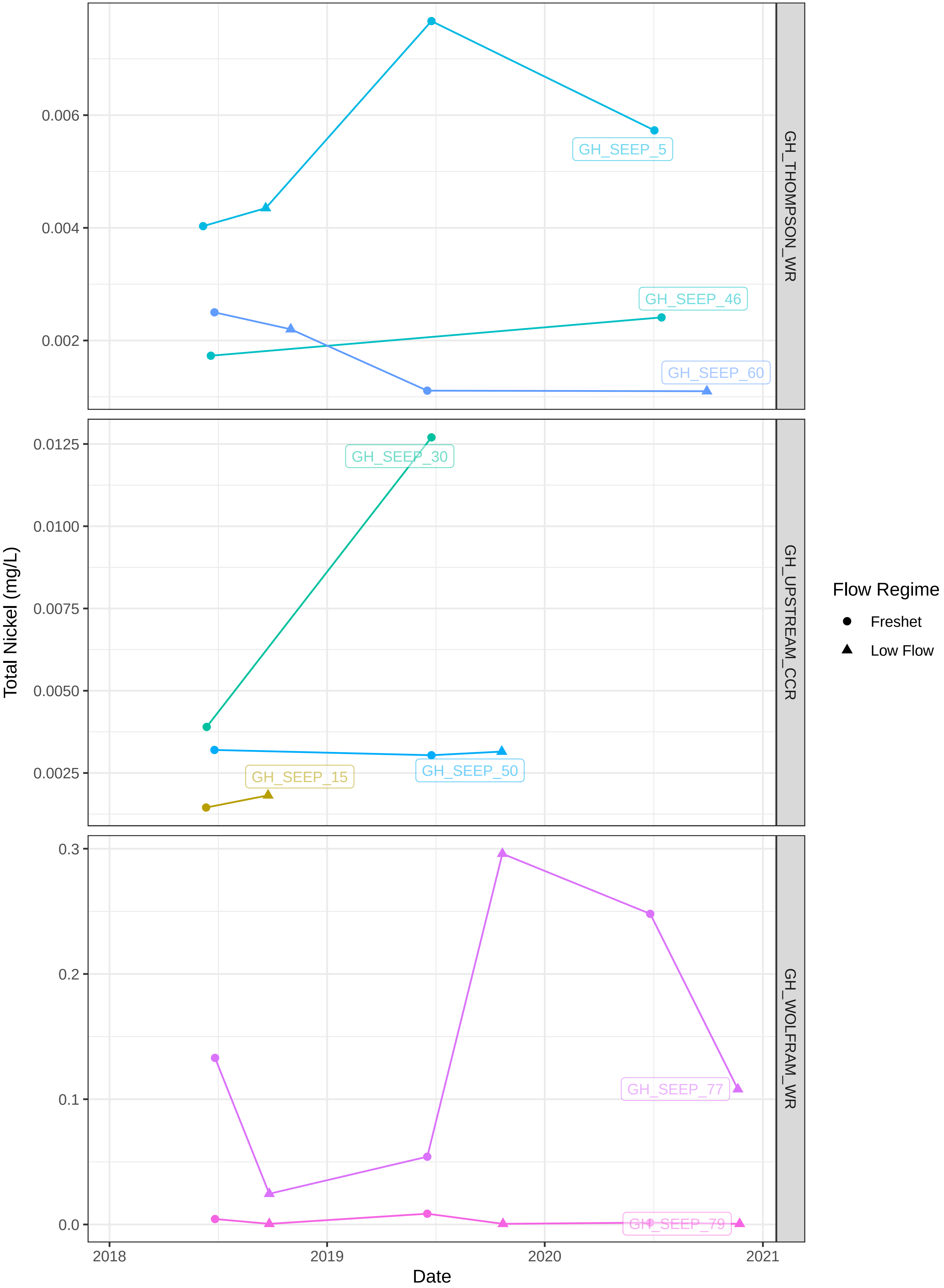
Note: there is no FWAL BCWQG for Dissolved Nickel



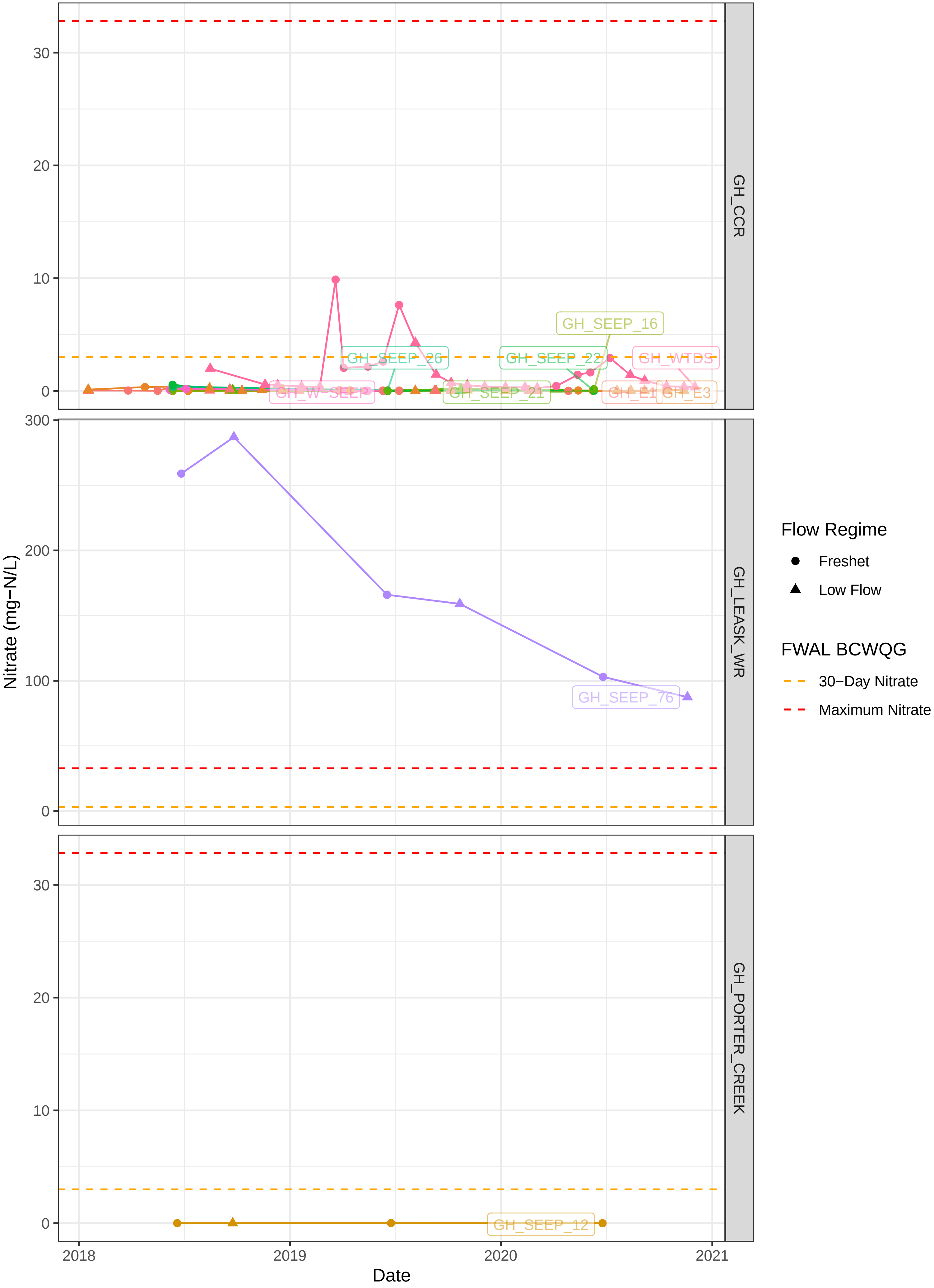
Note: there is no FWAL BCWQG for Dissolved Nickel

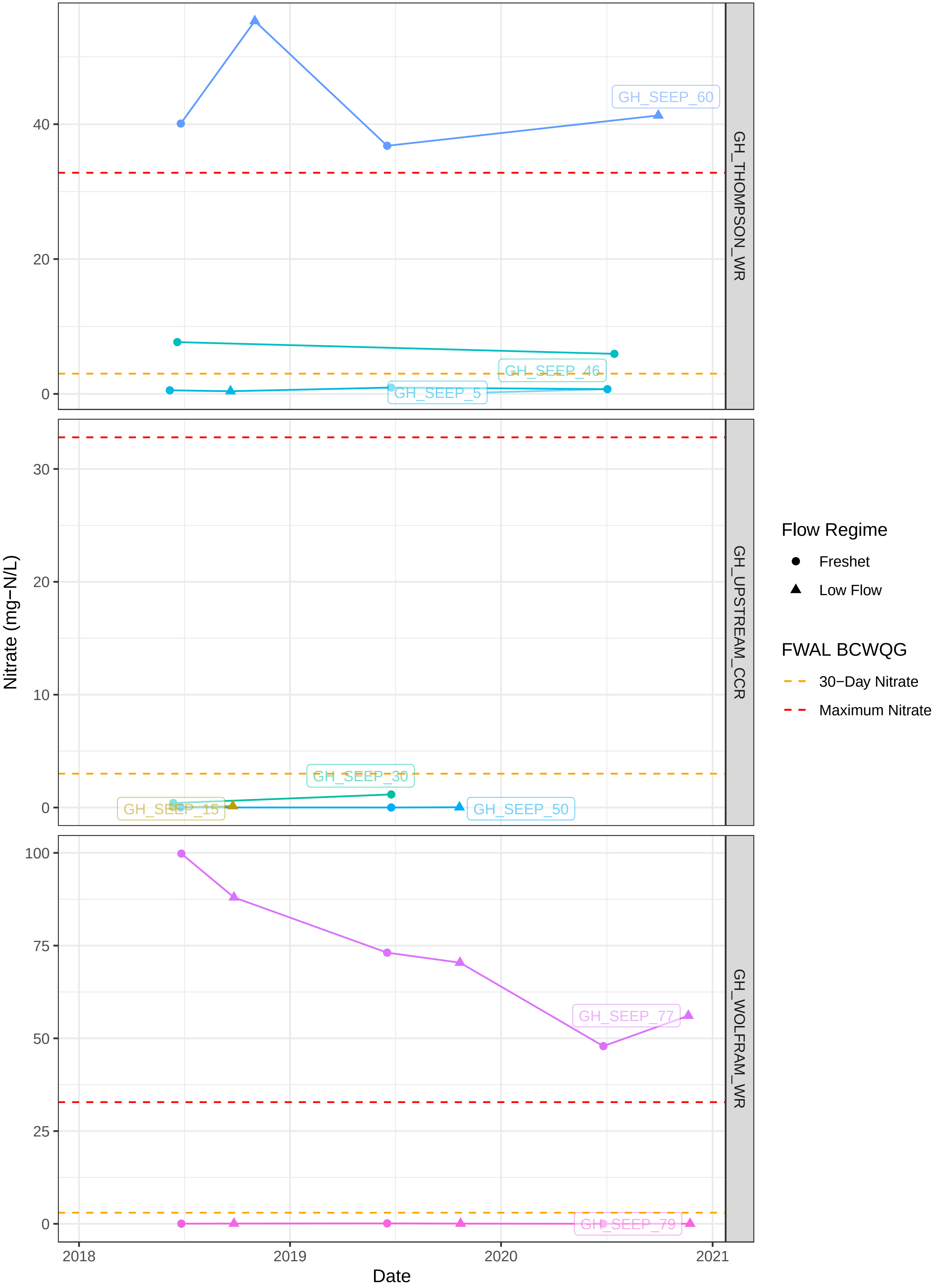


Note: The FWAL BCWQG for Total Nickel is dependent on Hardness

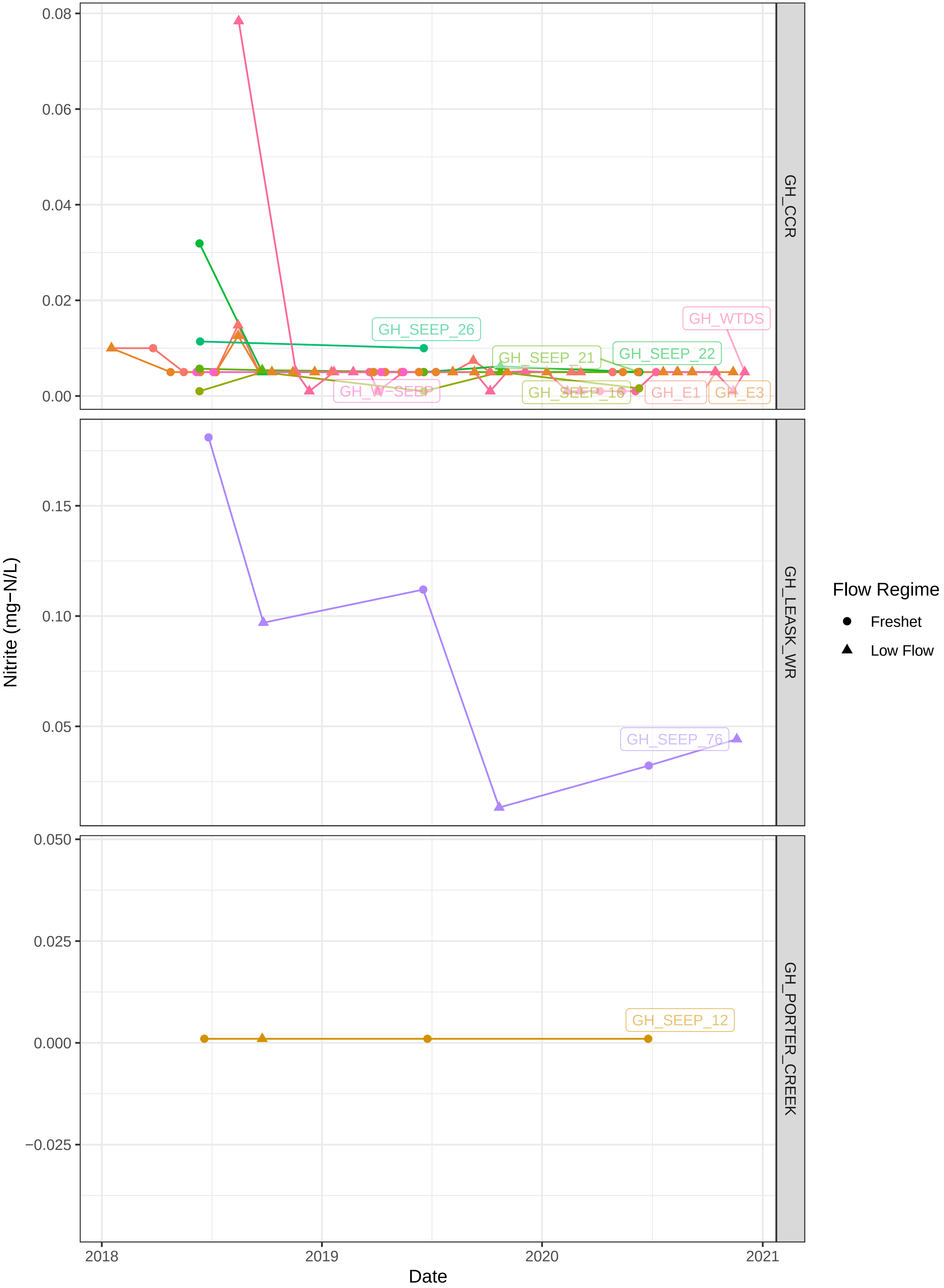


Note: The FWAL BCWQG for Total Nickel is dependent on Hardness

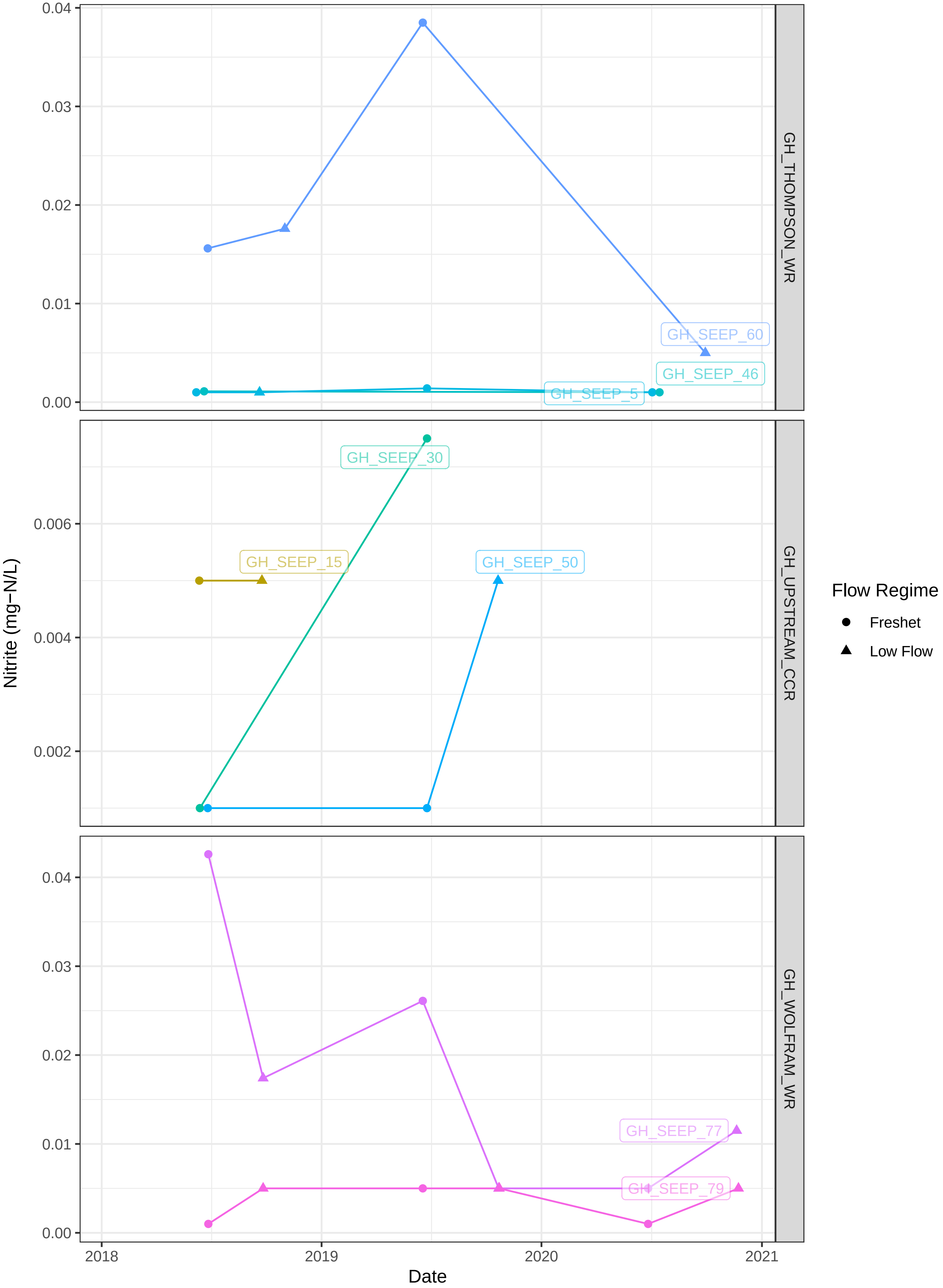

GH_CCR
GH_LEASK_WR
GH_PORTER_CREEK
Nitrate (mg−N/L)
Date
2018
2019
2020
2021
0
10
20
30
0
100
200
300
GH_SEEP_16
GH_SEEP_26
GH_SEEP_22
GH_WTDS
GH_W_SEEP
GH_SEEP_21
GH_E1
GH_E3
GH_SEEP_76
GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Nitrate
Maximum Nitrate



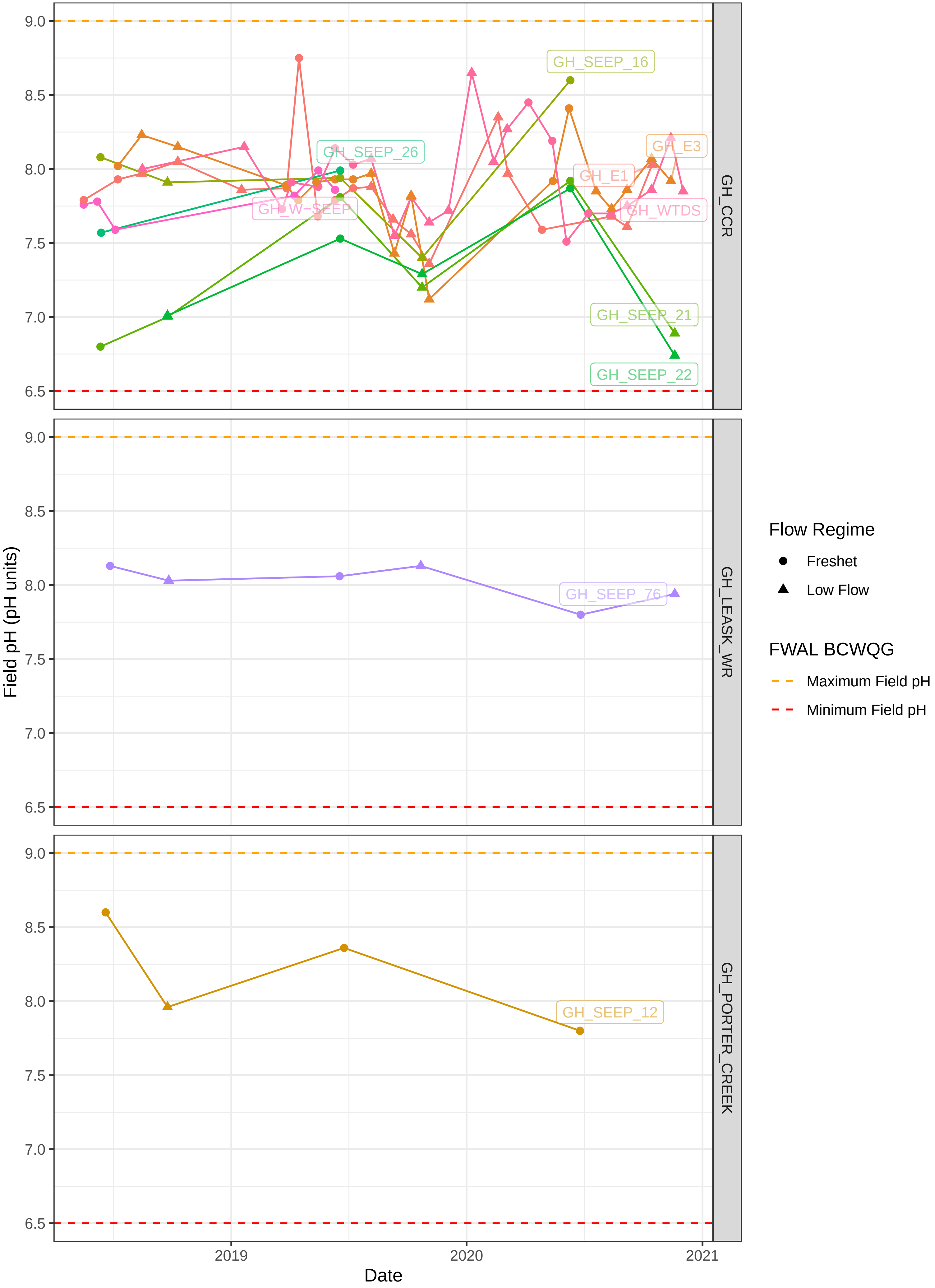
Nitrate (mg−N/L)
Date
2018
2019
2020
2021
40
20
0
30
20
10
0
100
75
50
25
0
GH_THOMPSON_WR
GH_UPSTREAM_CCR
GH_WOLFRAM_WR
GH_SEEP_60
GH_SEEP_46
GH_SEEP_5
GH_SEEP_30
GH_SEEP_15
GH_SEEP_50
GH_SEEP_77
GH_SEEP_79
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Nitrate
Maximum Nitrate

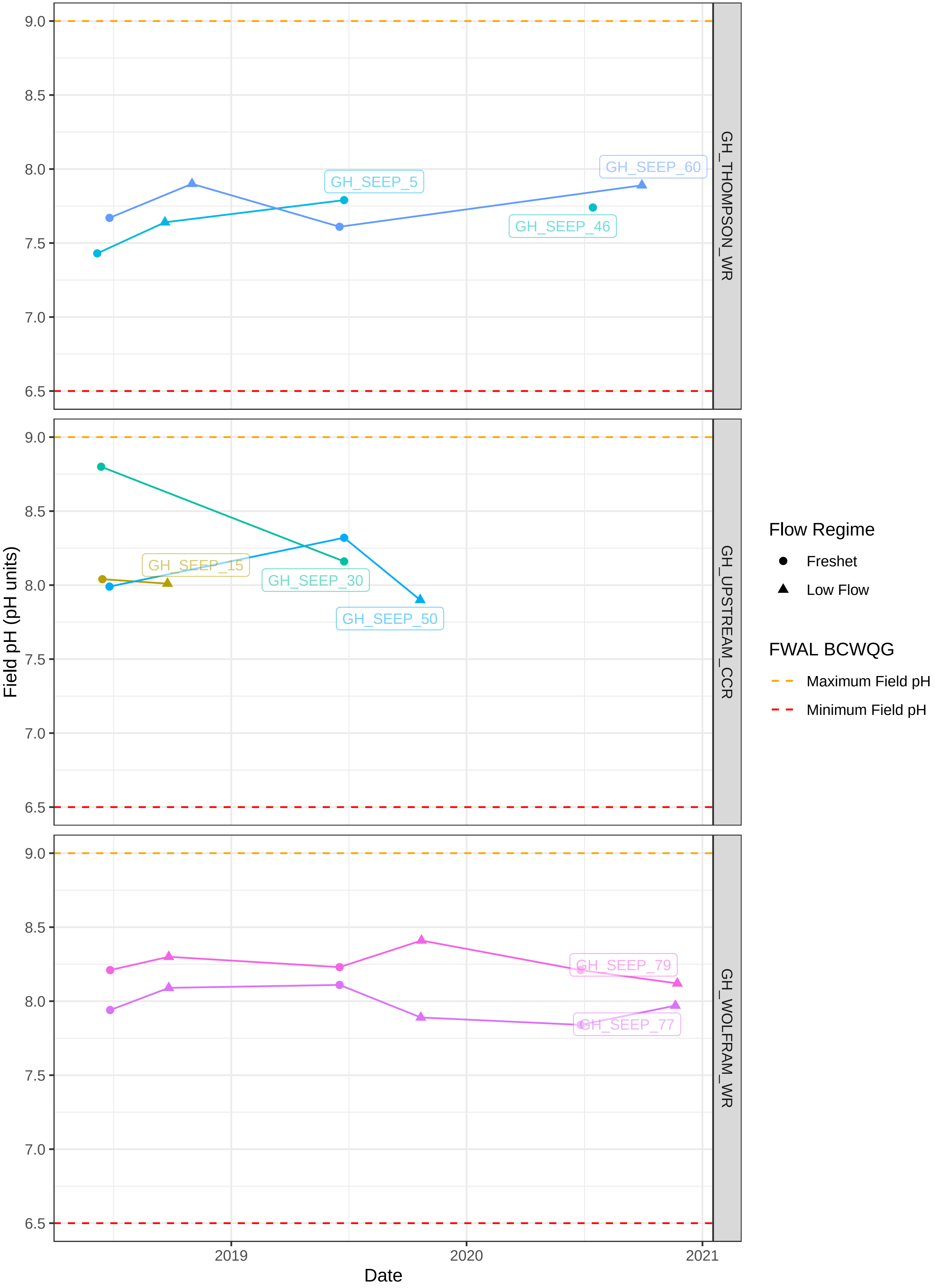


Note: The FWAL BCWQG for Nitrite is dependent on Hardness

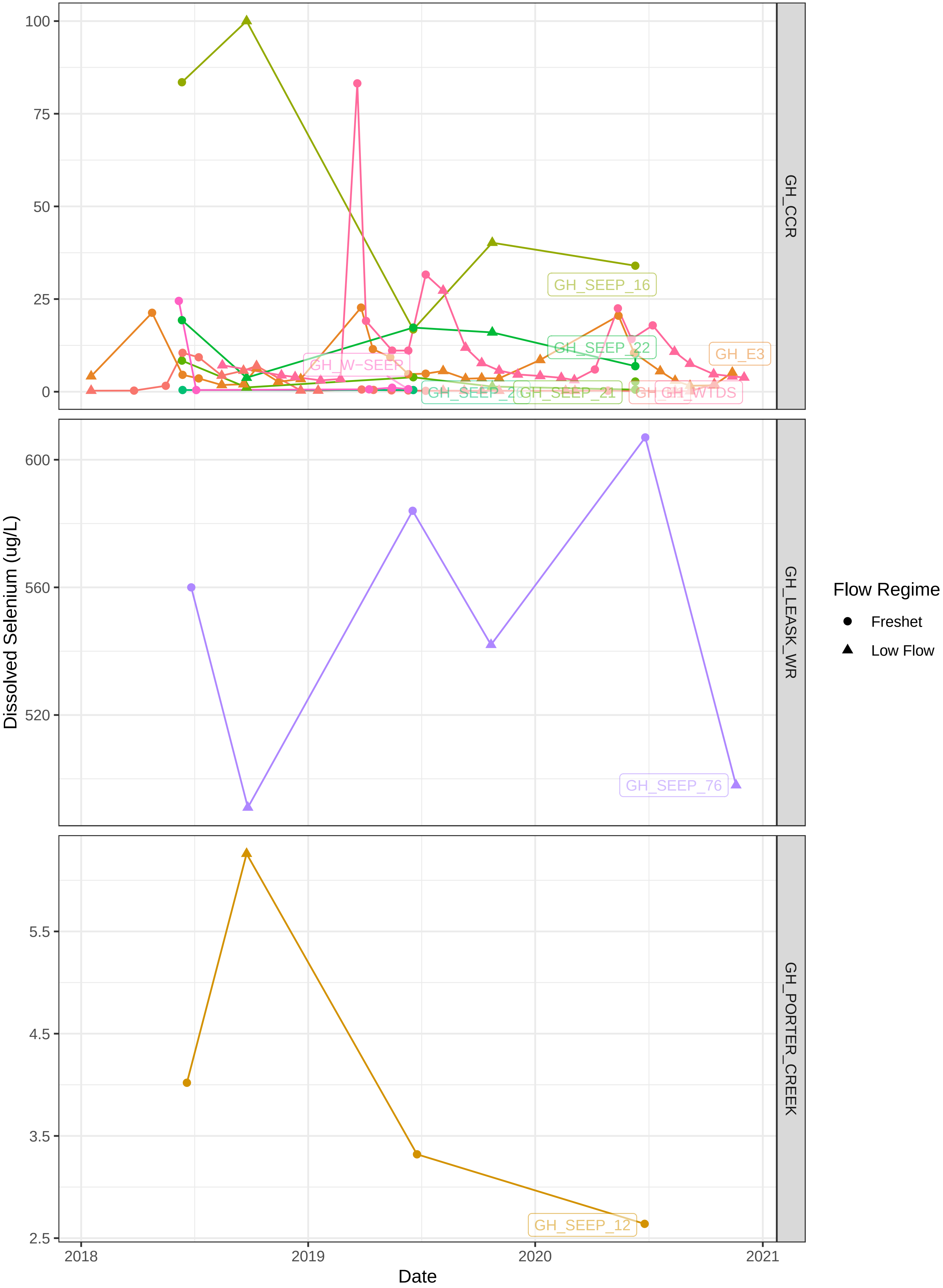


Note: The FWAL BCWQG for Nitrite is dependent on Hardness

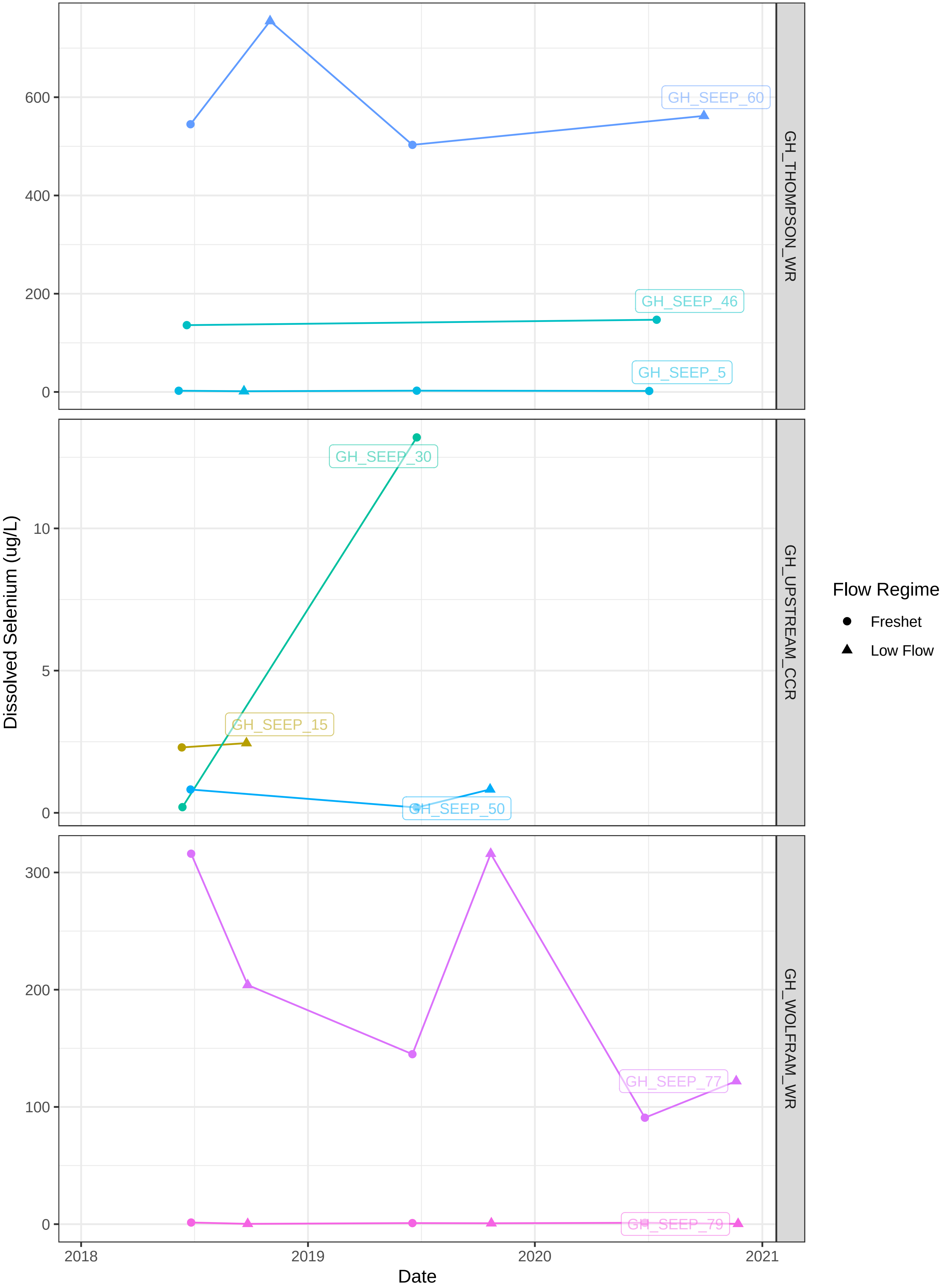

Field pH (pH units)
Date
9.0
8.5
8.0
7.5
7.0
6.5
2019
2020
2021
GH_CCR
GH_LEASK_WR
GH_PORTER_CREEK
GH_SEEP_16
GH_SEEP_26
GH_E3
GH_E1
GH_W-SEEP
GH_WTDS
GH_SEEP_21
GH_SEEP_22
GH_SEEP_76
GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
Maximum Field pH
Minimum Field pH



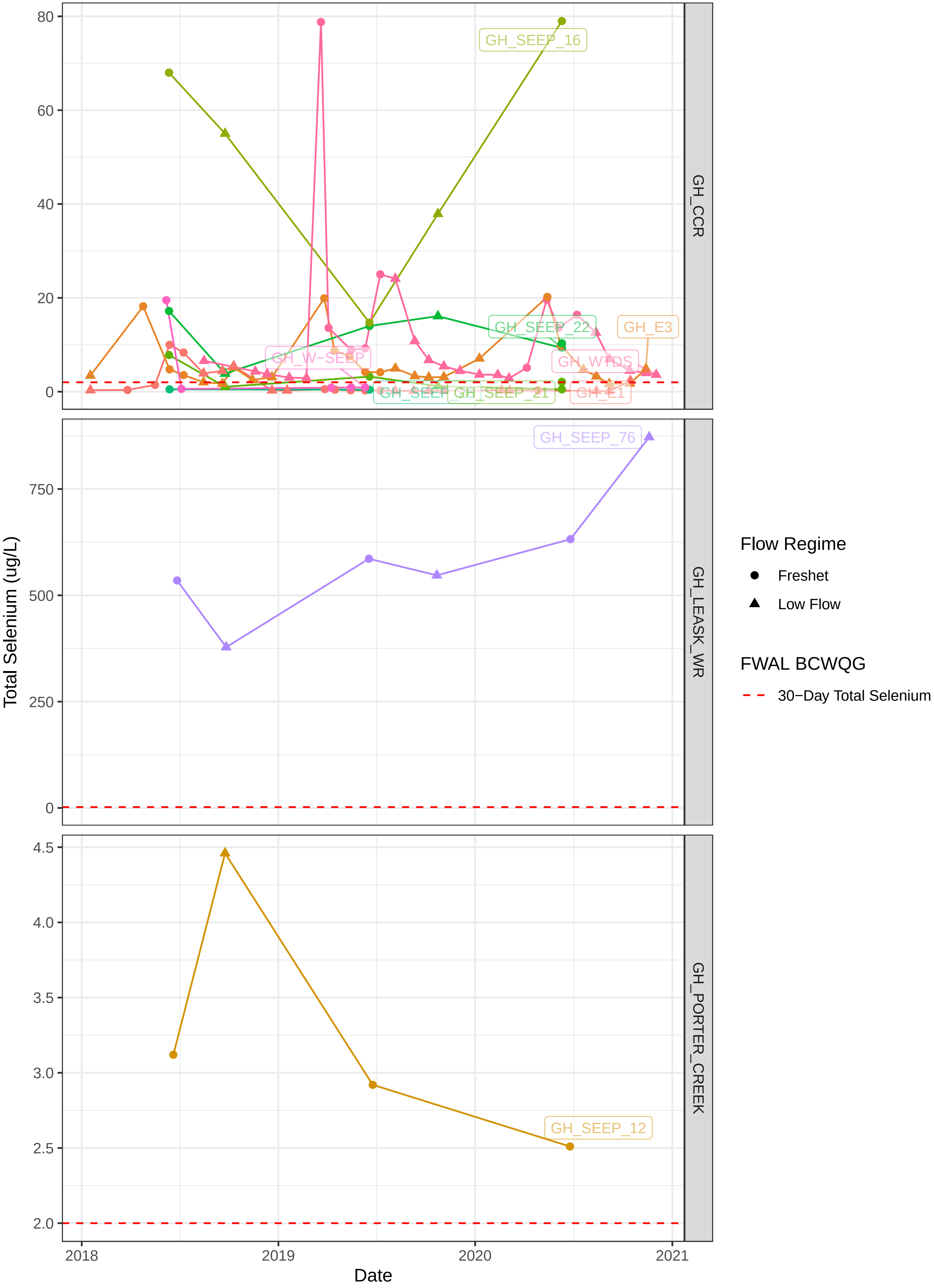
Field pH (pH units)
9.0
8.5
8.0
7.5
7.0
6.5
GH_SEEP_5
GH_SEEP_60
GH_SEEP_46
GH_THOMPSON_WR
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
GH_UPSTREAM_CCR
GH_SEEP_79
GH_SEEP_77
GH_WOLFRAM_WR
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
Maximum Field pH
Minimum Field pH

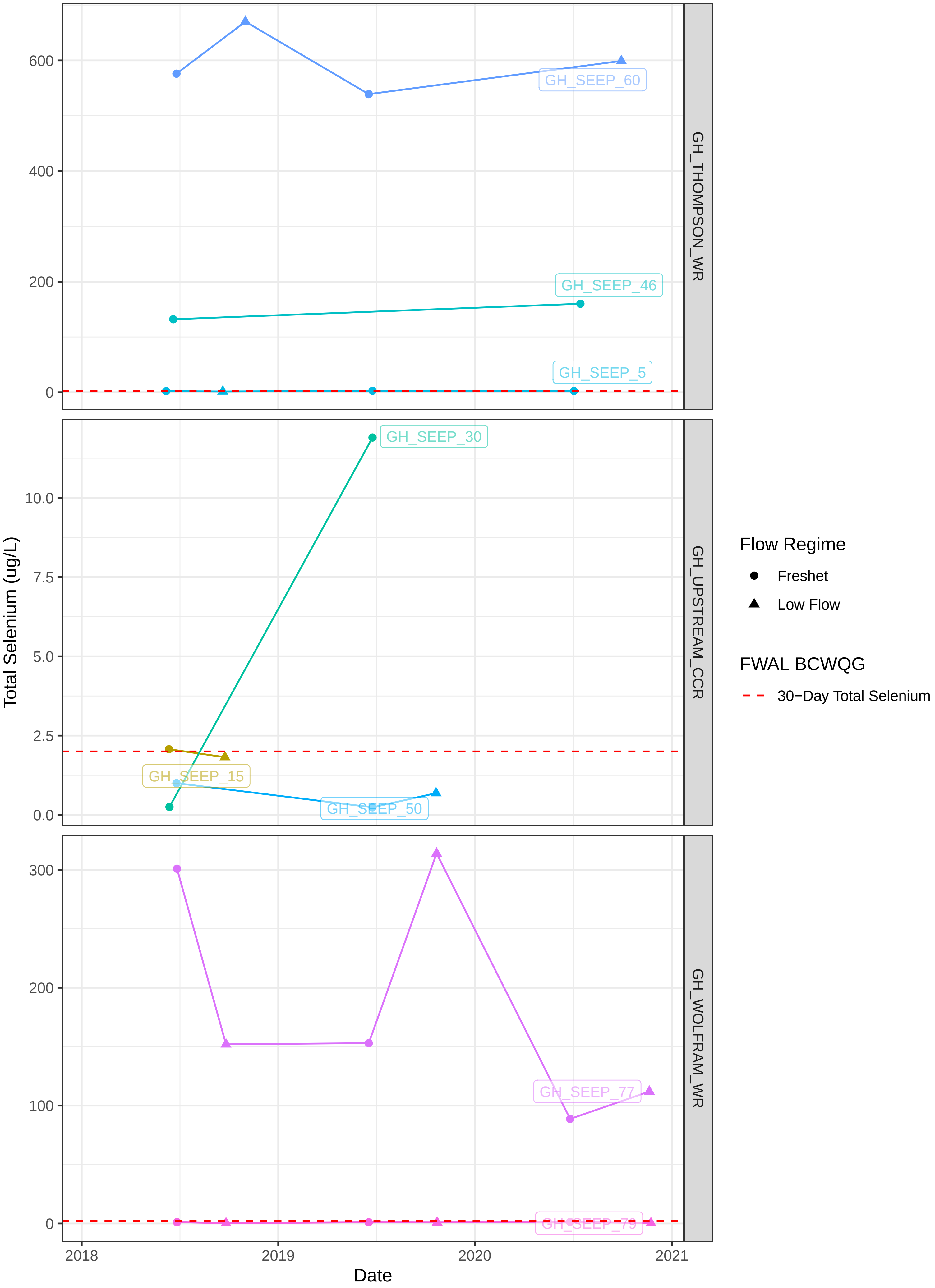


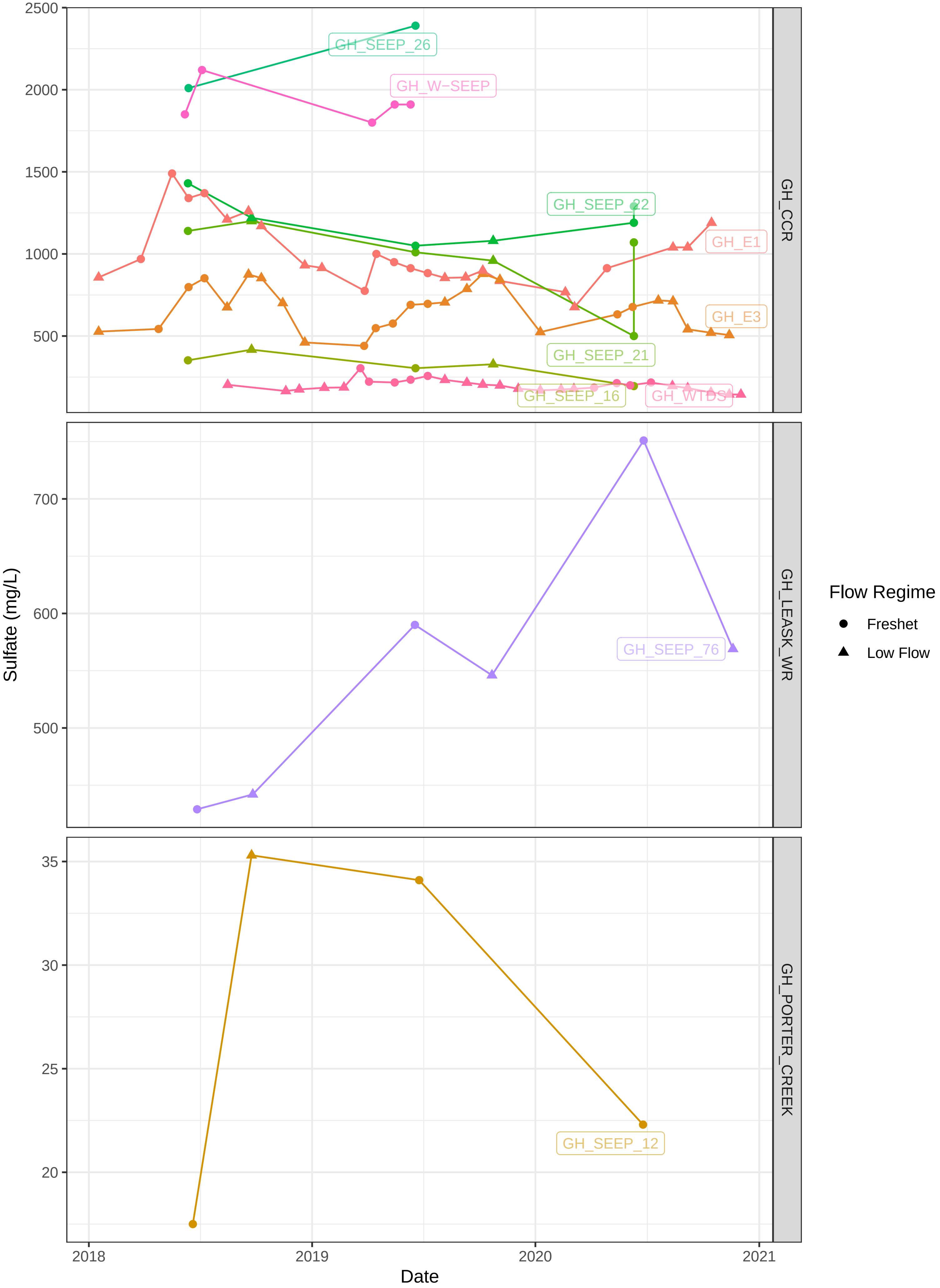
Note: there is no FWAL BCWQG for Dissolved Selenium



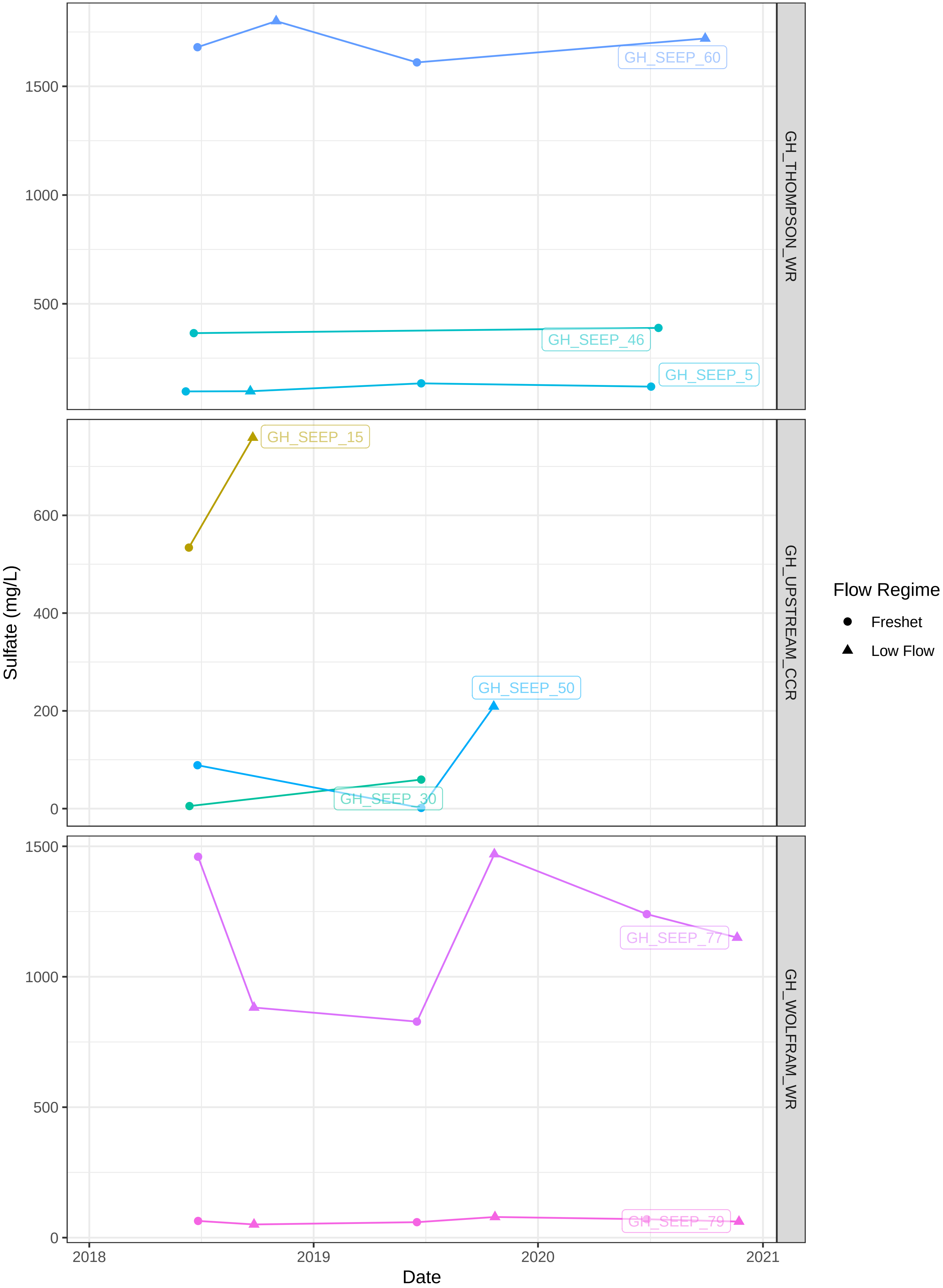
Note: there is no FWAL BCWQG for Dissolved Selenium


Total Selenium (ug/L)
80
60
40
20
0
GH_SEEP_16
GH_SEEP_22
GH_E3
GH_W-SEEP
GH_WTDS
GH_SEEP
GH_SEEP_21
GH_E1
GH_CCR
750
500
250
0
GH_SEEP_76
GH_LEASK_WR
4.5
4.0
3.5
3.0
2.5
2.0
GH_SEEP_12
GH_PORTER_CREEK
2018
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
- - 30-Day Total Selenium

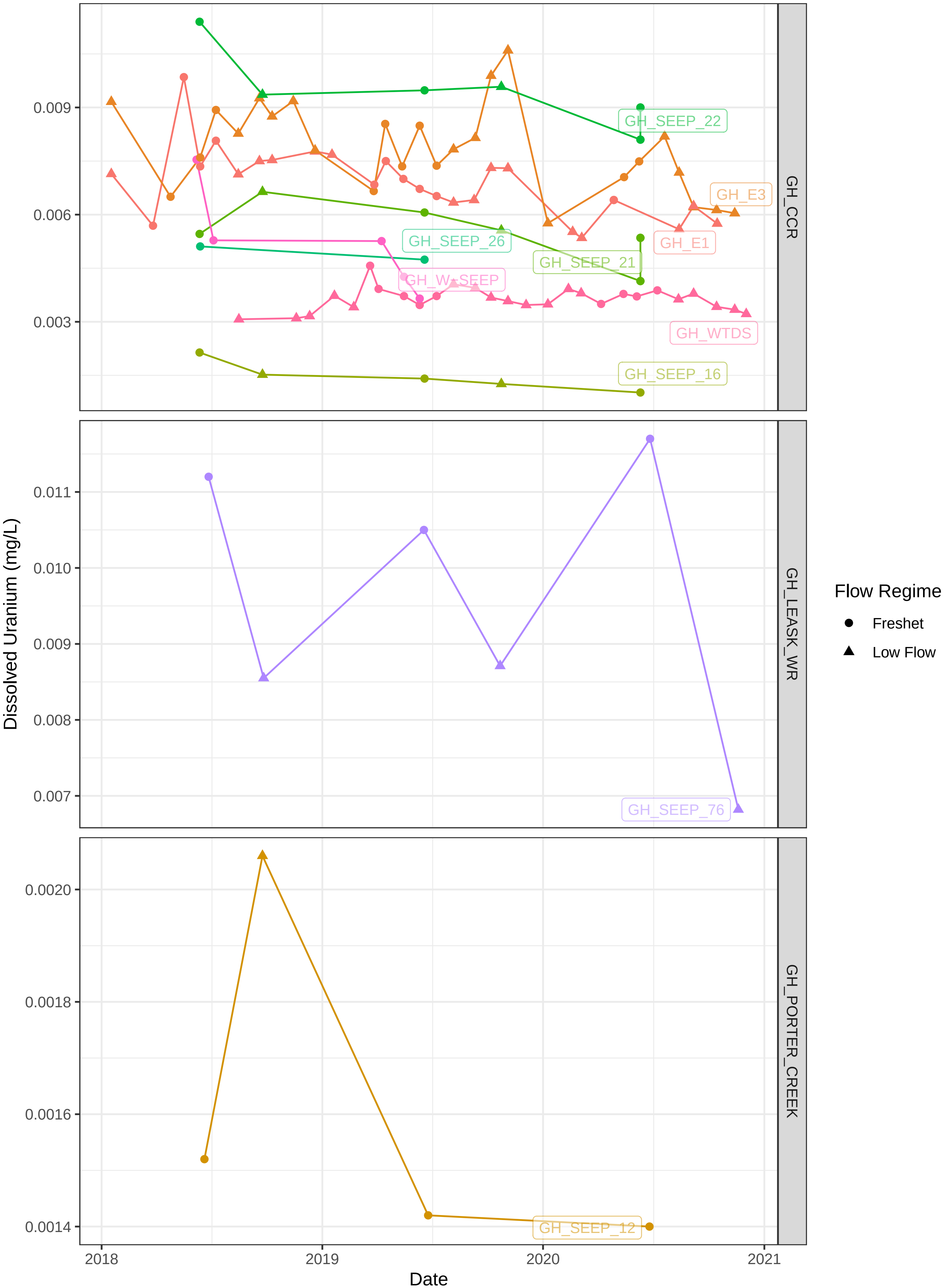

GH_SEEP_60
GH_SEEP_46
GH_SEEP_5
GH_THOMPSON_WR
GH_SEEP_30
GH_SEEP_15
GH_SEEP_50
GH_UPSTREAM_CCR
GH_SEEP_77
GH_SEEP_79
GH_WOLFRAM_WR
600
400
200
0
10.0
7.5
5.0
2.5
0.0
300
200
100
0
2018
2019
2020
2021
Date
Total Selenium (ug/L)
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Selenium



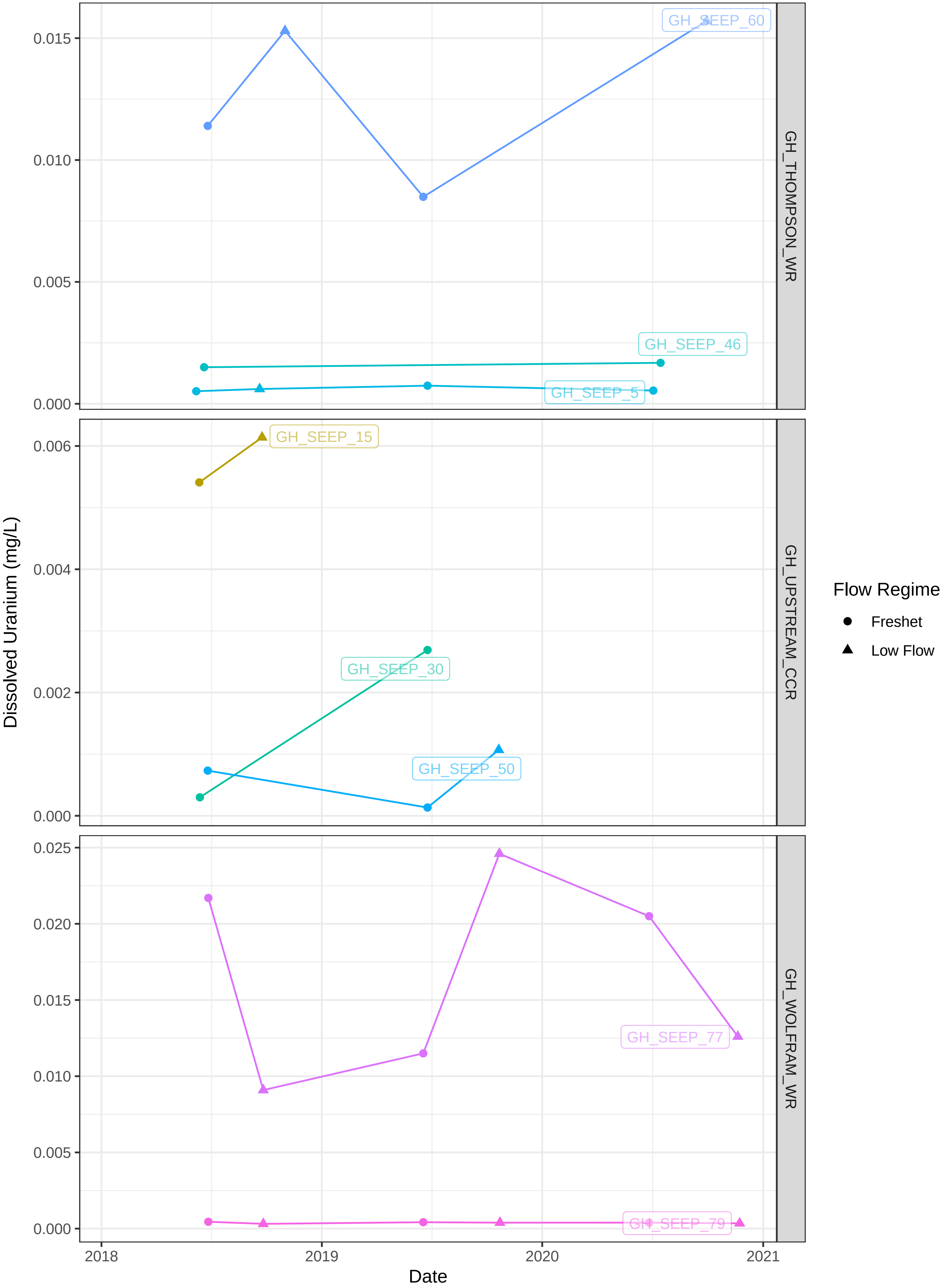
Note: The FWAL BCWQG for Sulfate is dependent on Hardness



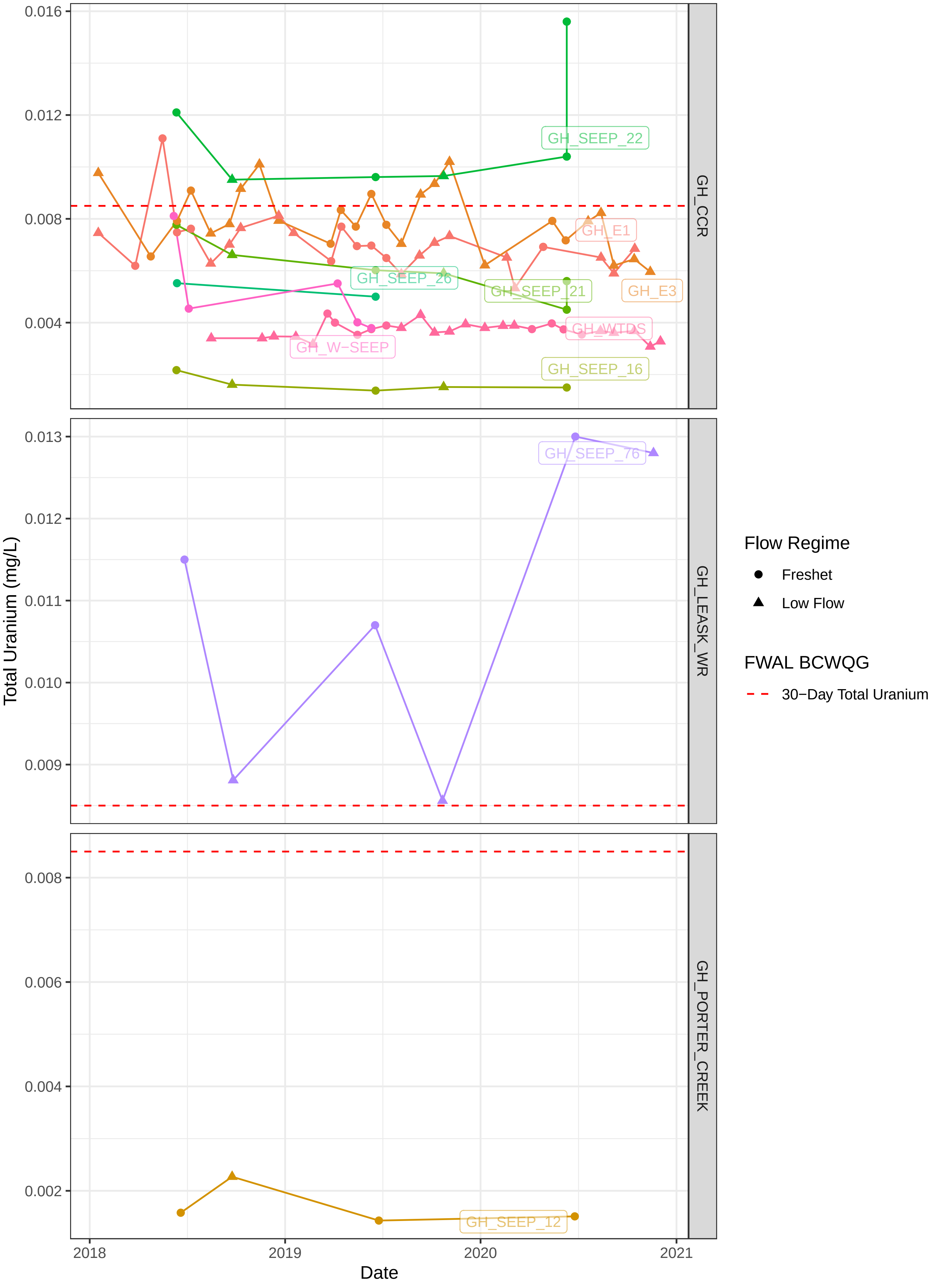
Note: The FWAL BCWQG for Sulfate is dependent on Hardness

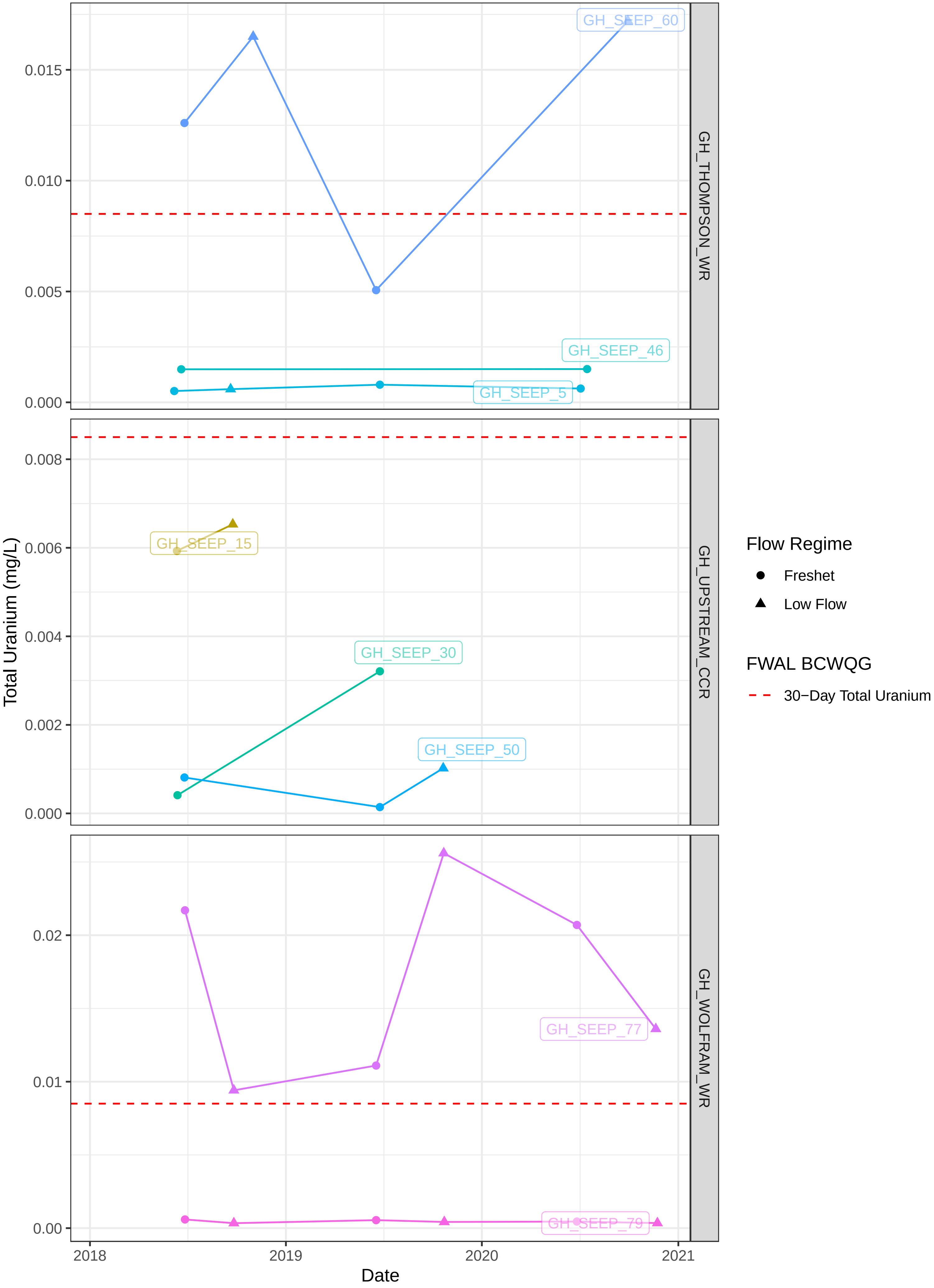


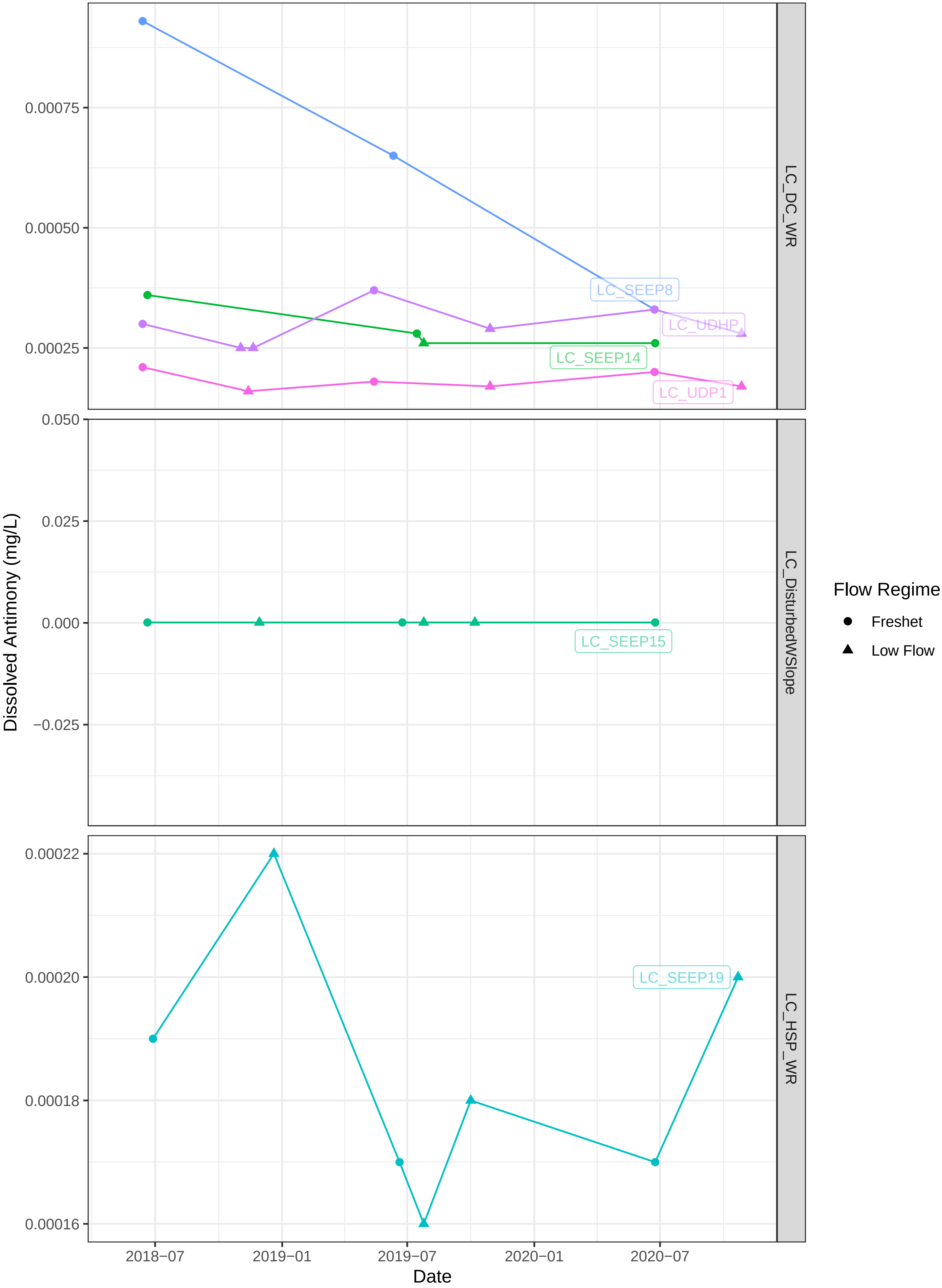
Note: there is no FWAL BCWQG for Dissolved Uranium



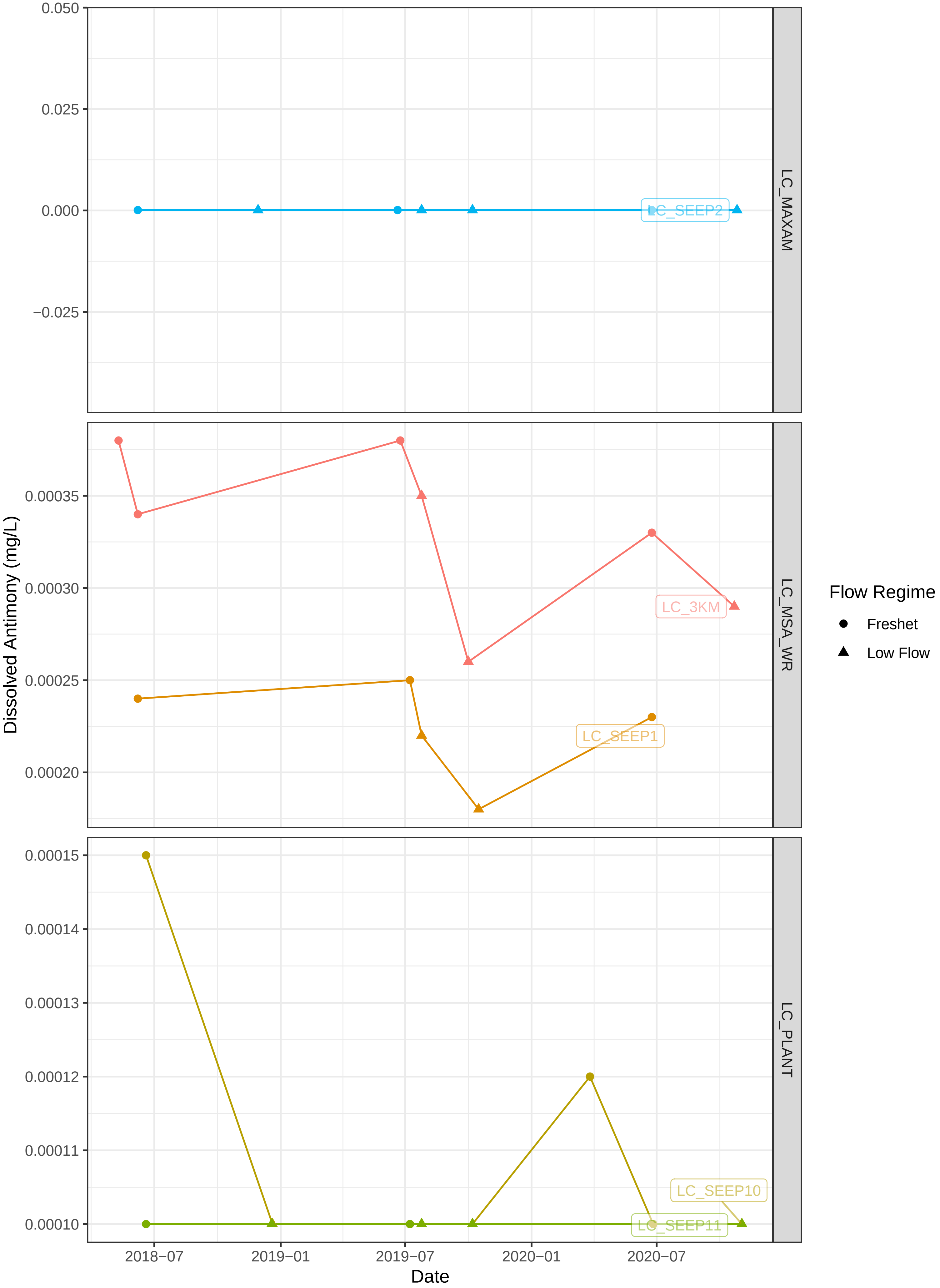
Note: there is no FWAL BCWQG for Dissolved Uranium


0.016
0.012
0.008
0.004
GH_SEEP_22
GH_E1
GH_SEEP_26
GH_SEEP_21
GH_E3
GH_WTDS
GH_W−SEEP
GH_SEEP_16
GH_CCR
0.013
0.012
0.011
0.010
0.009
GH_SEEP_76
GH_LEASK_WR
0.008
0.006
0.004
0.002
GH_SEEP_12
GH_PORTER_CREEK
Total Uranium (mg/L)
2018
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Uranium

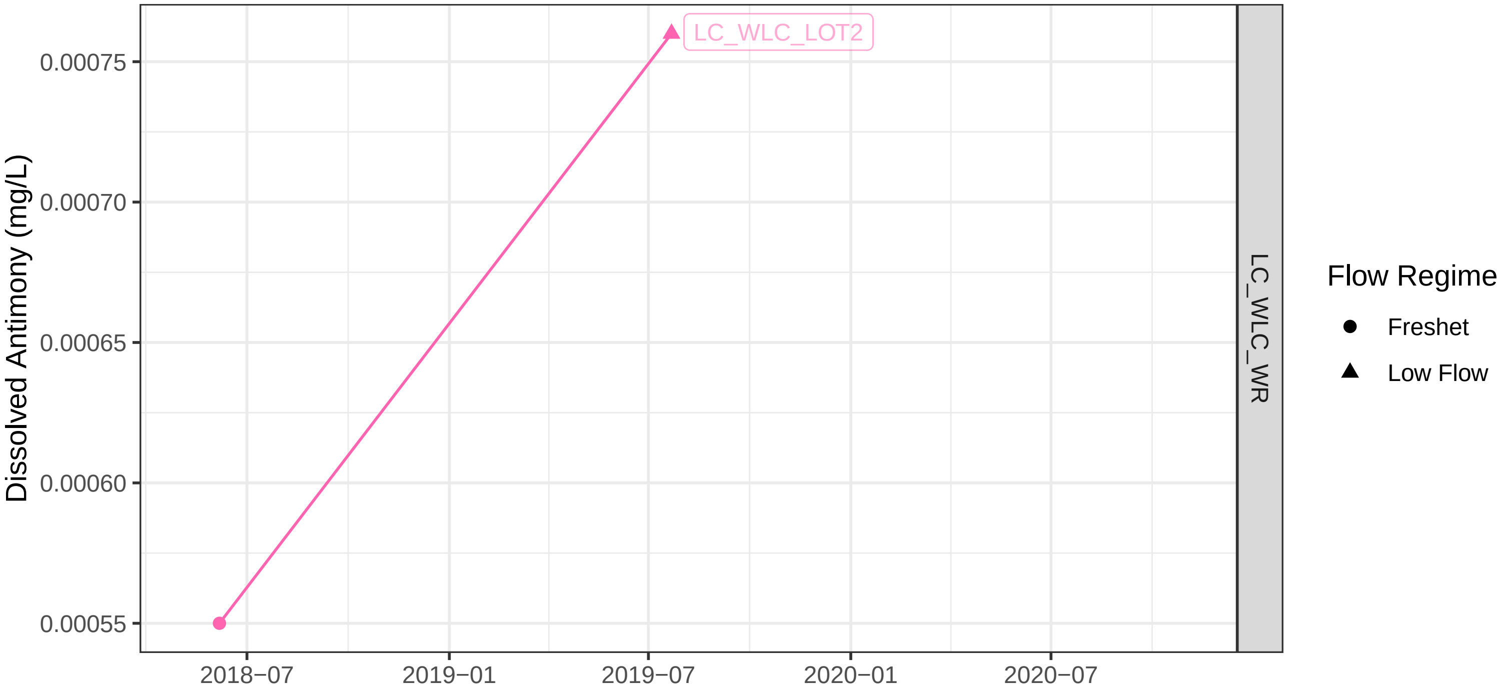

GH_SEEP_60
GH_SEEP_46
GH_SEEP_5
GH_THOMPSON_WR
0.015
0.010
0.005
0.000
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
GH_UPSTREAM_CCR
0.008
0.006
0.004
0.002
0.000
GH_SEEP_77
GH_SEEP_79
GH_WOLFRAM_WR
0.02
0.01
0.00
Total Uranium (mg/L)
2018
2019
2020
2021
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Uranium



Note: there is no FWAL BCWQG for Dissolved Antimony

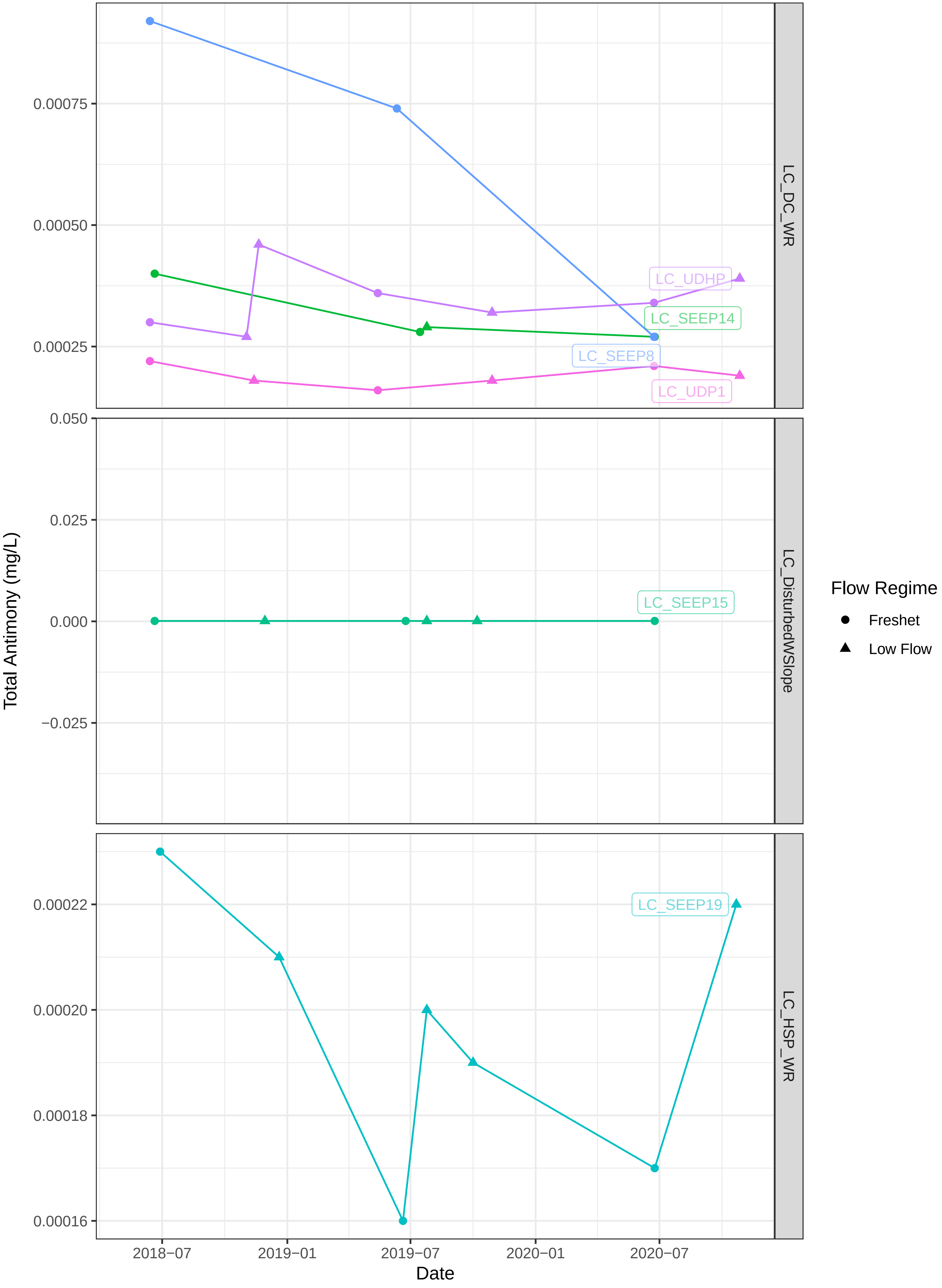


Note: there is no FWAL BCWQG for Dissolved Antimony

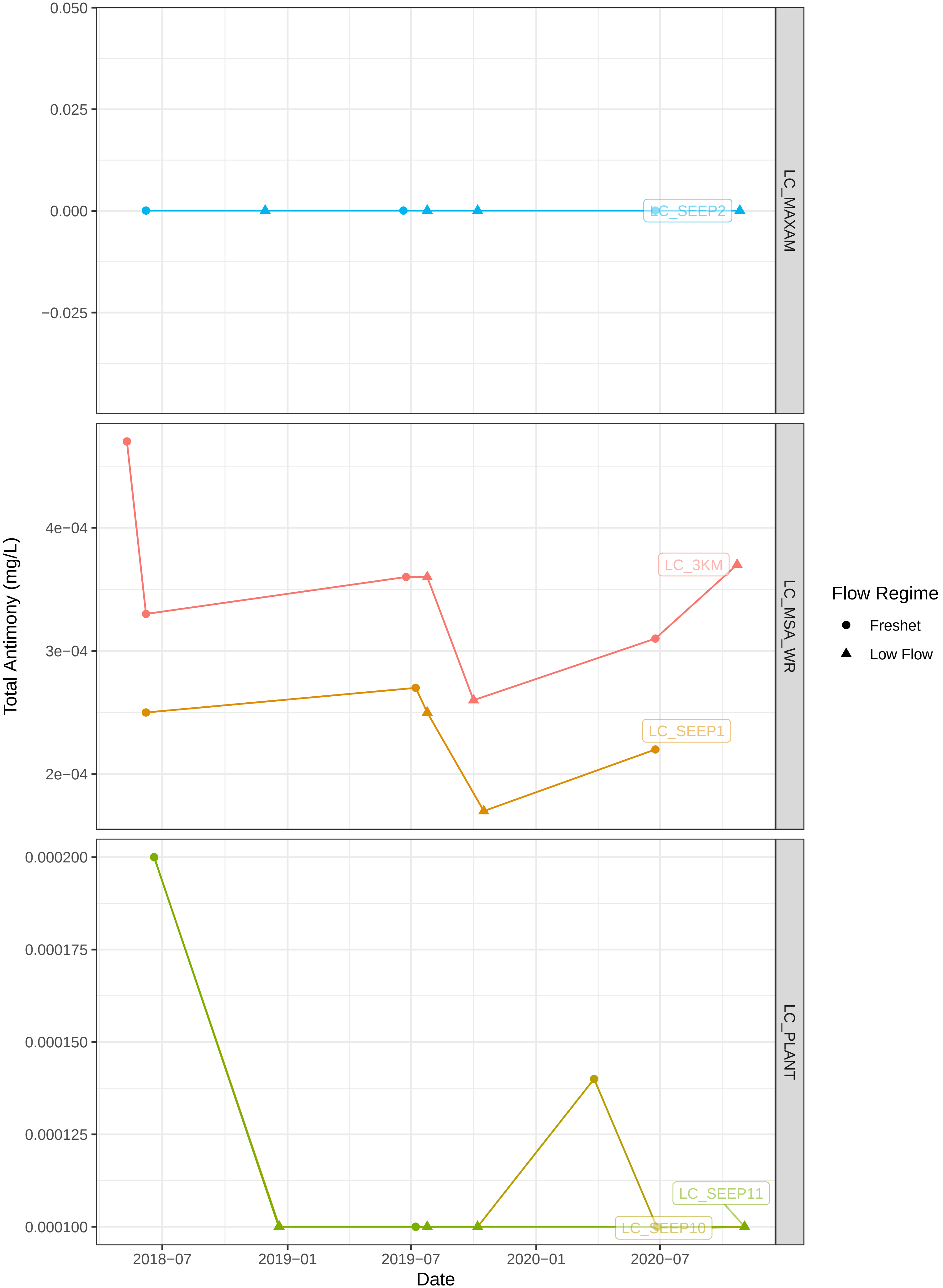


Date

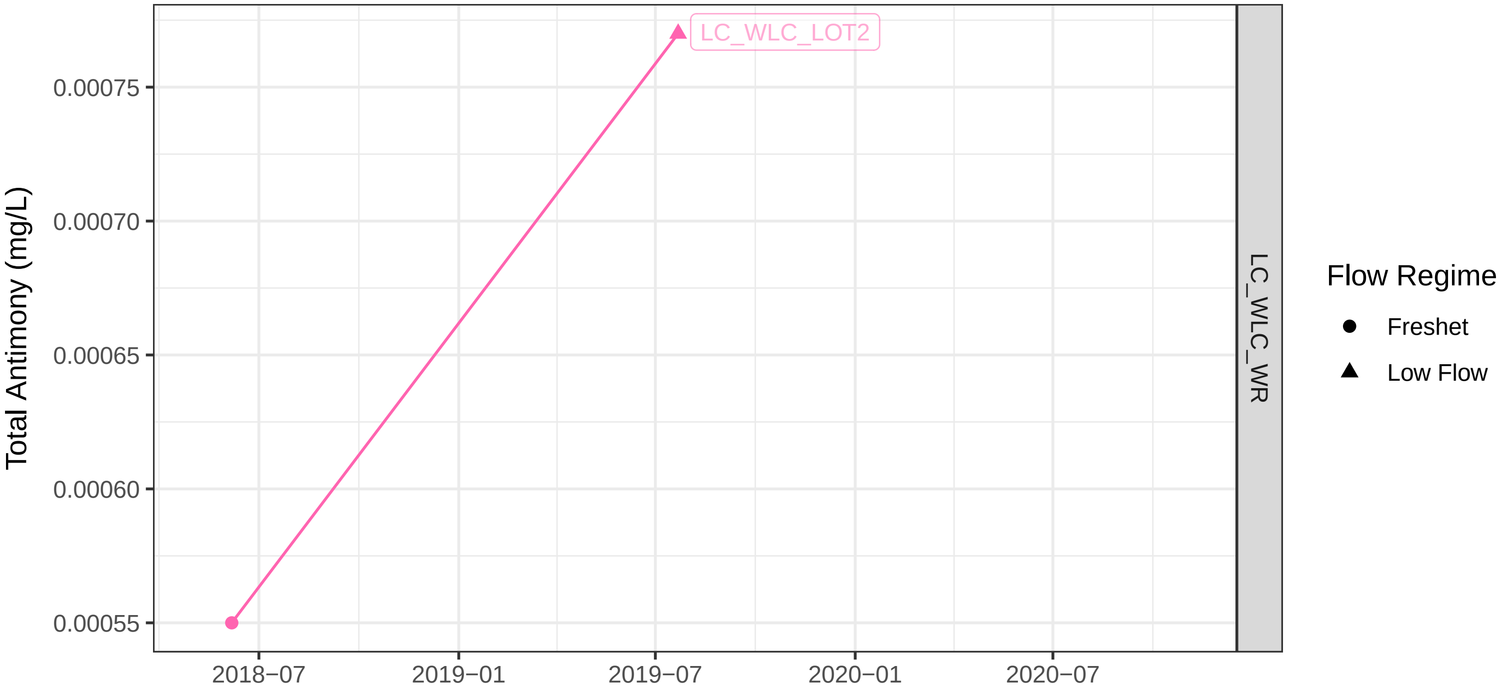
Note: there is no FWAL BCWQG for Dissolved Antimony



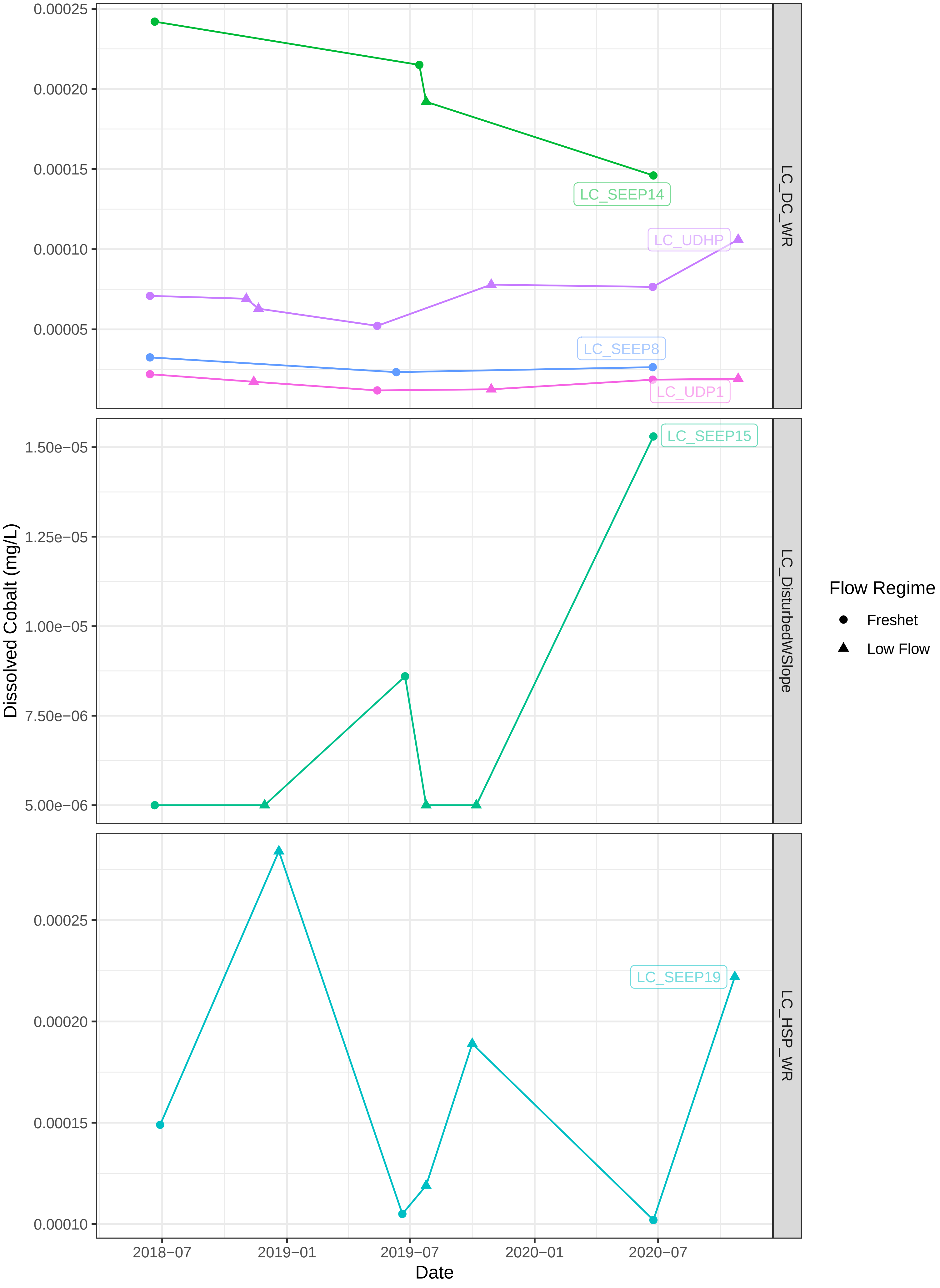
Note: there is no FWAL BCWQG for Total Antimony



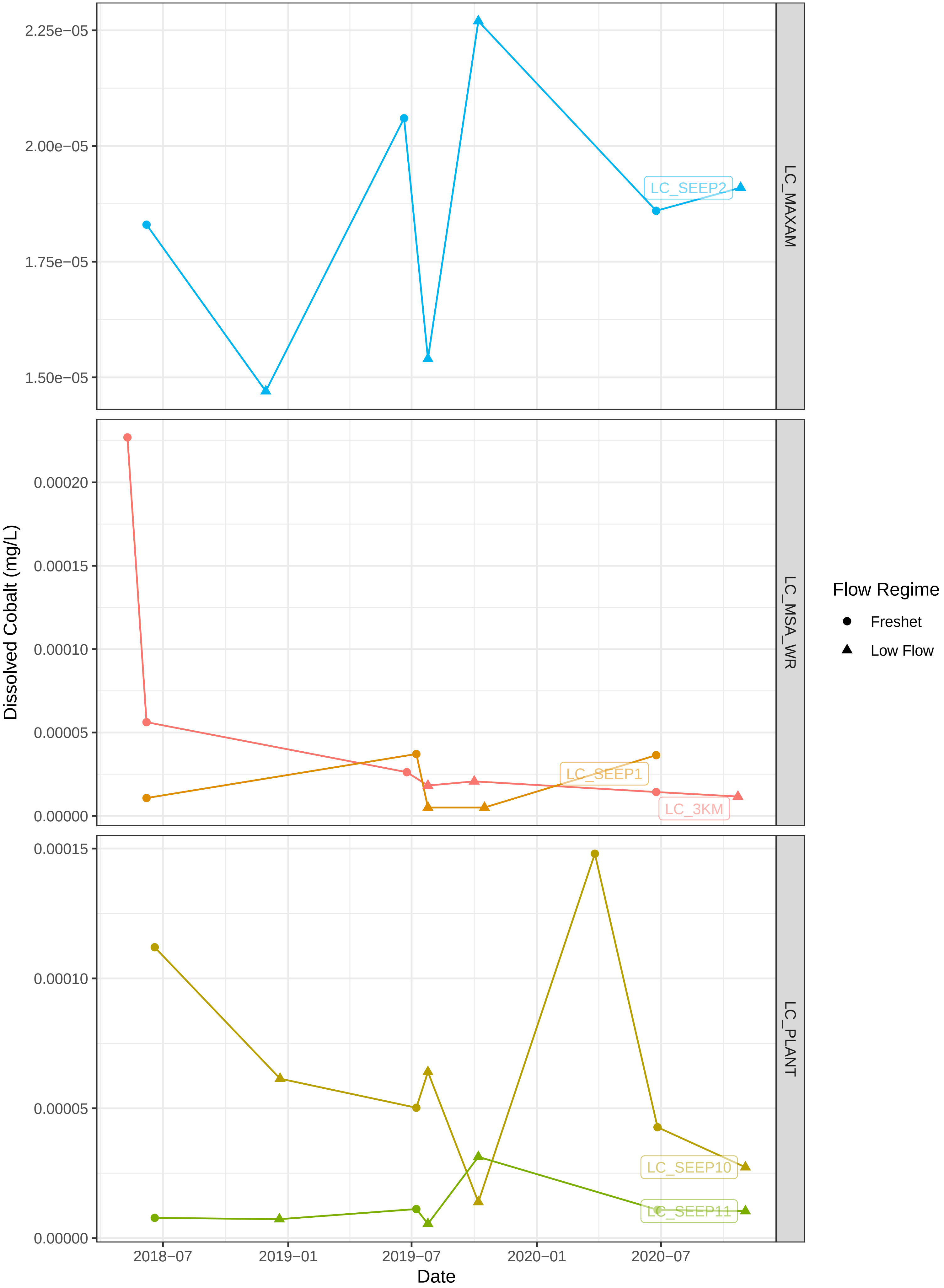
Note: there is no FWAL BCWQG for Total Antimony



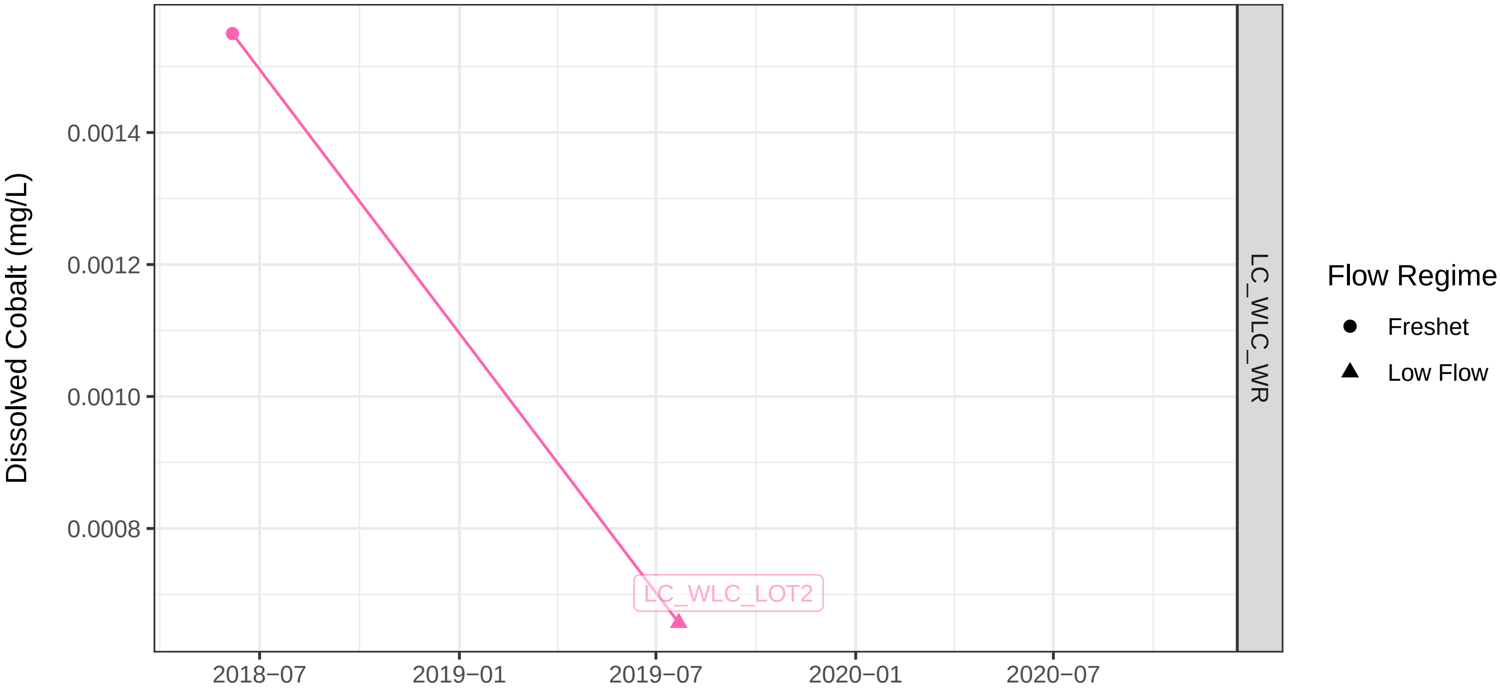
Note: there is no FWAL BCWQG for Total Antimony



Note: The FWAL BCWQG for Dissolved Cobalt is dependent on Hardness

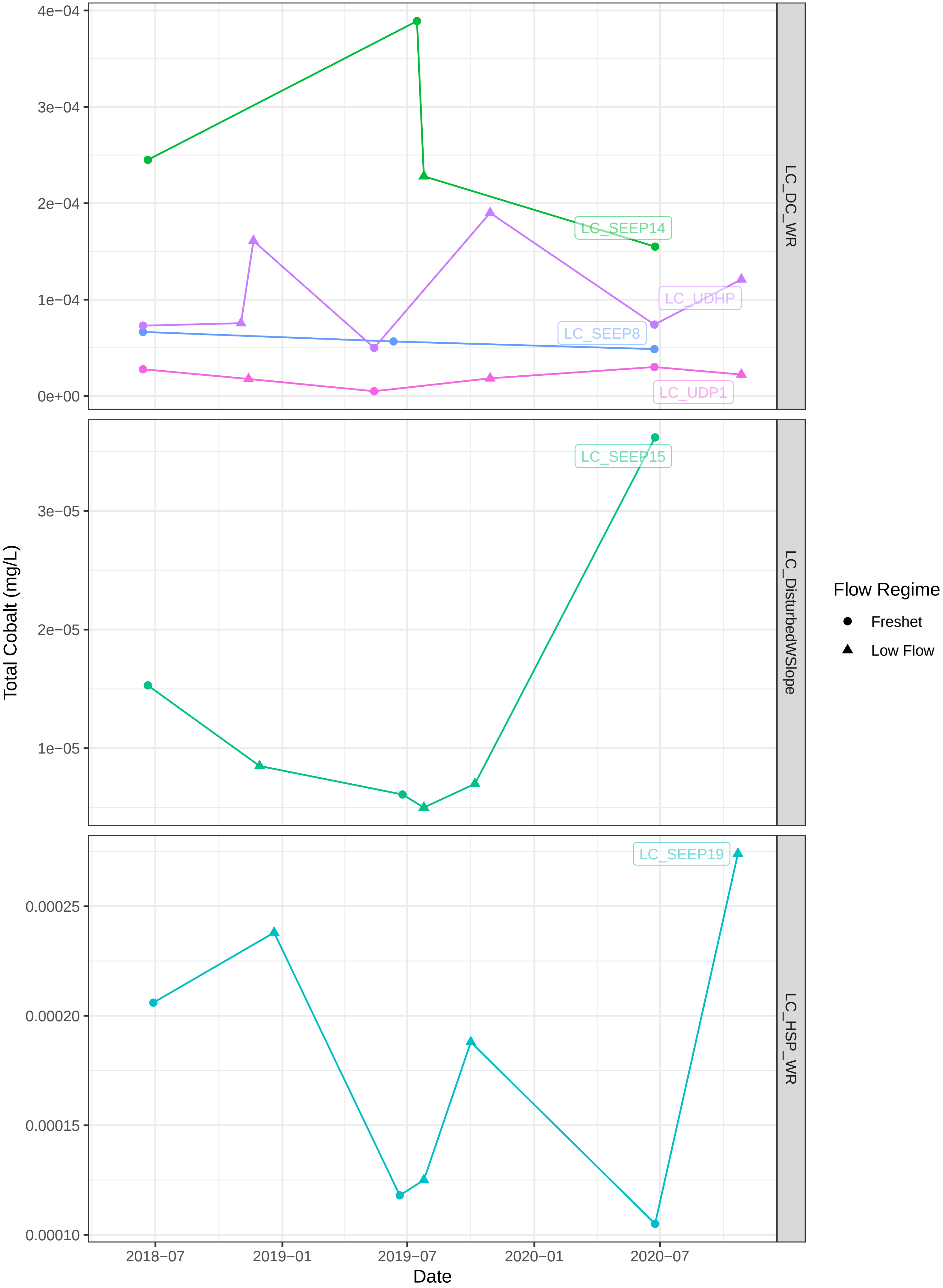


Note: The FWAL BCWQG for Dissolved Cobalt is dependent on Hardness

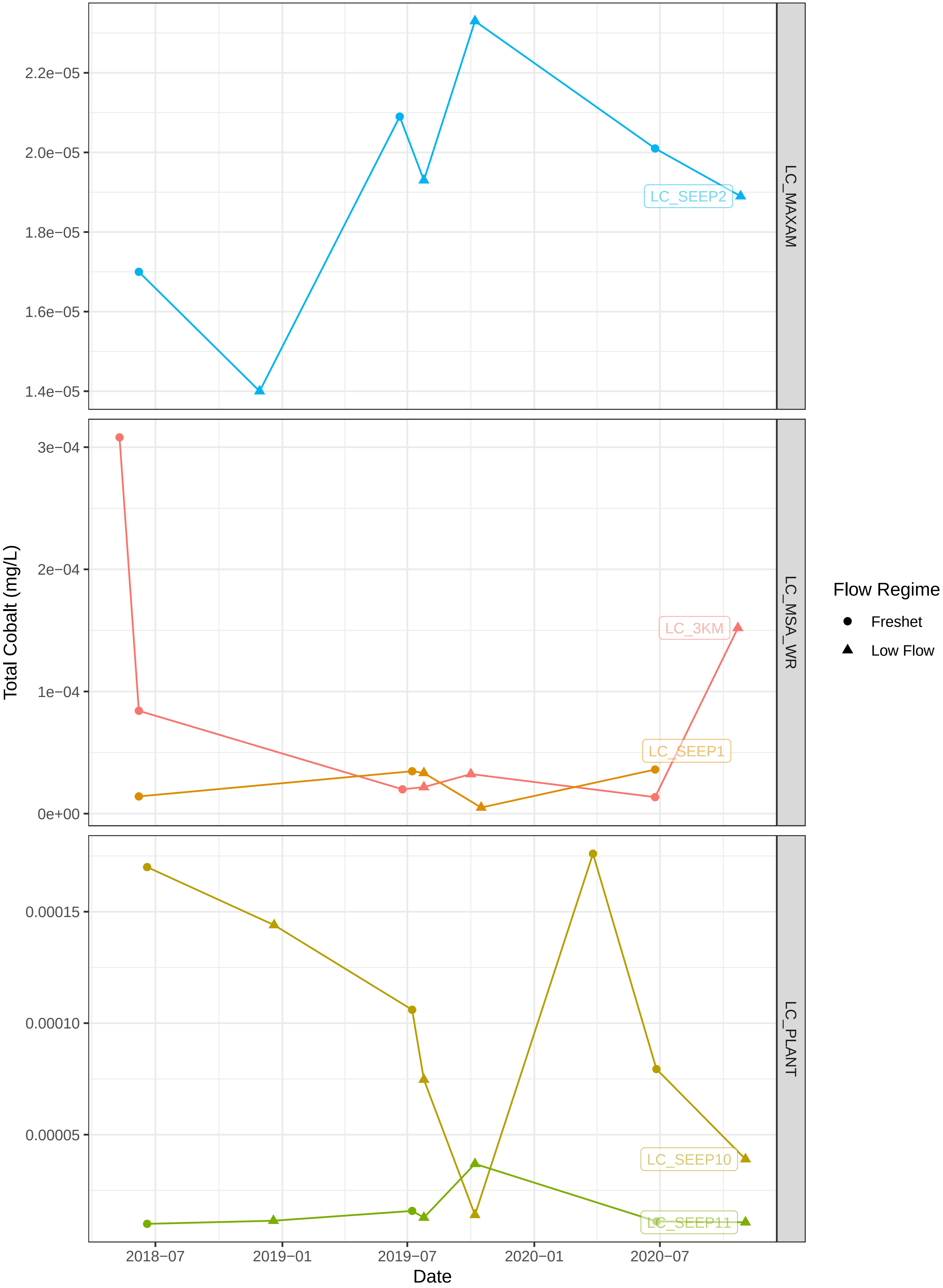


Date

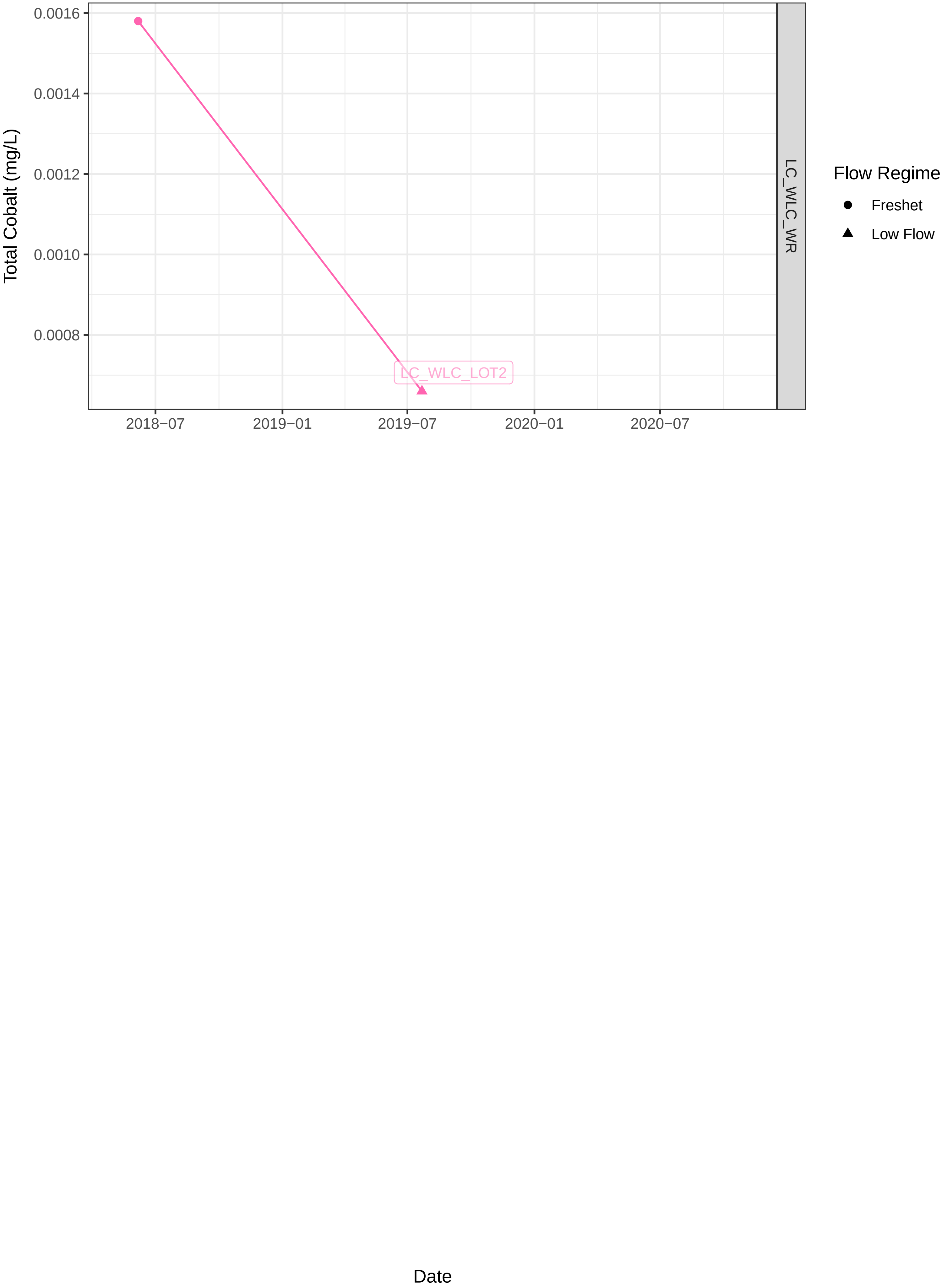
Note: The FWAL BCWQG for Dissolved Cobalt is dependent on Hardness



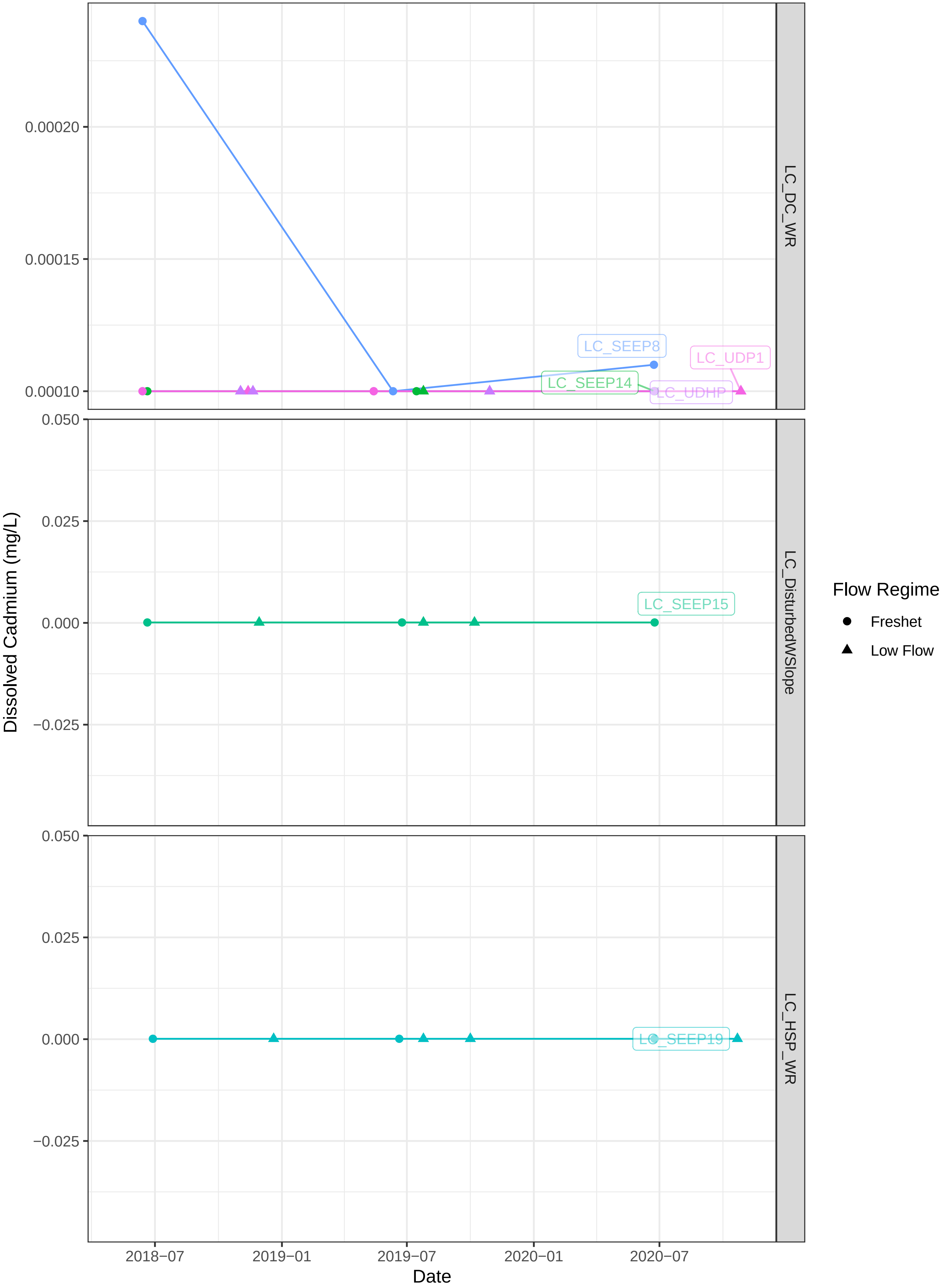
Note: there is no FWAL BCWQG for Total Cobalt



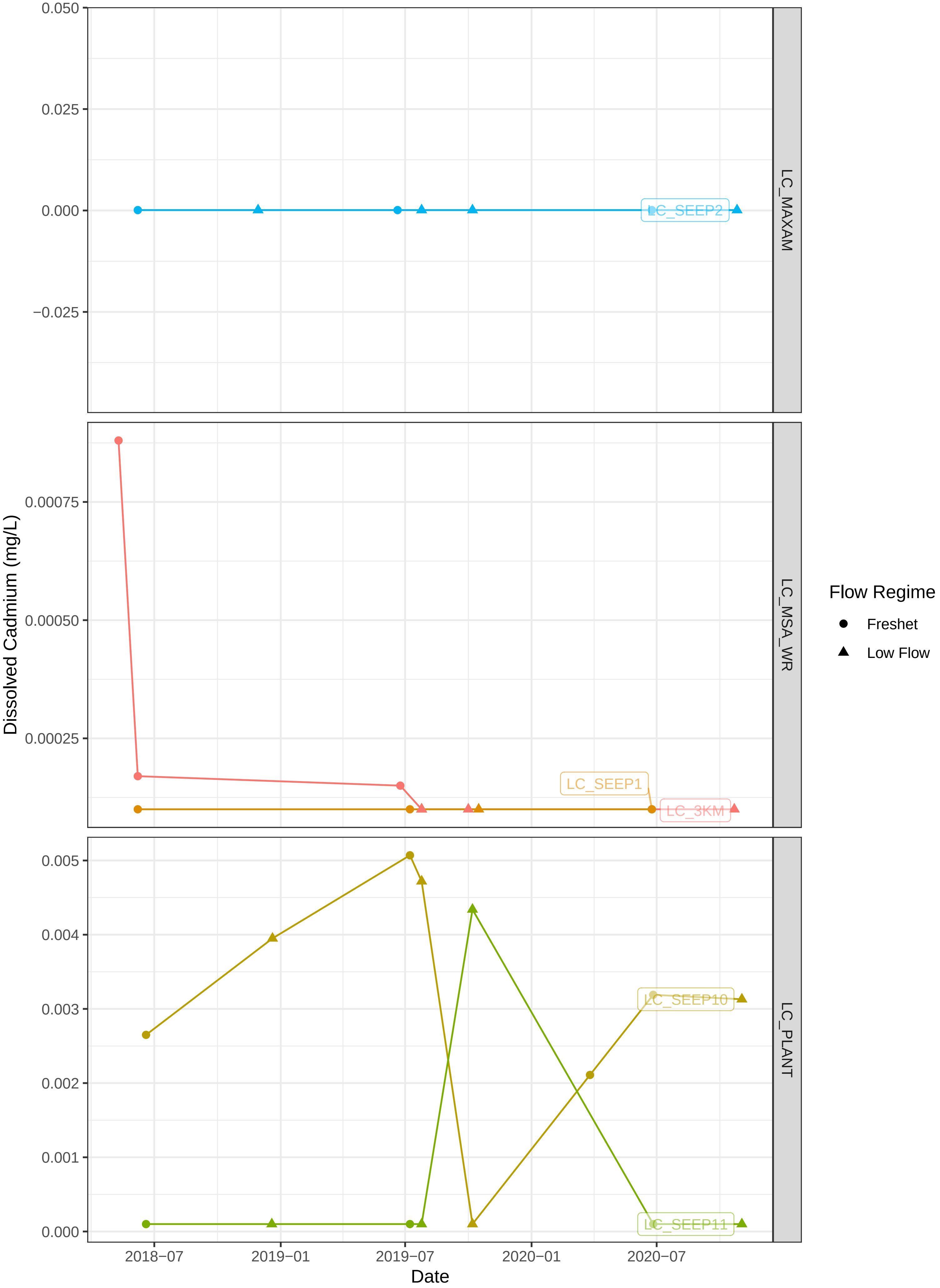
Note: there is no FWAL BCWQG for Total Cobalt



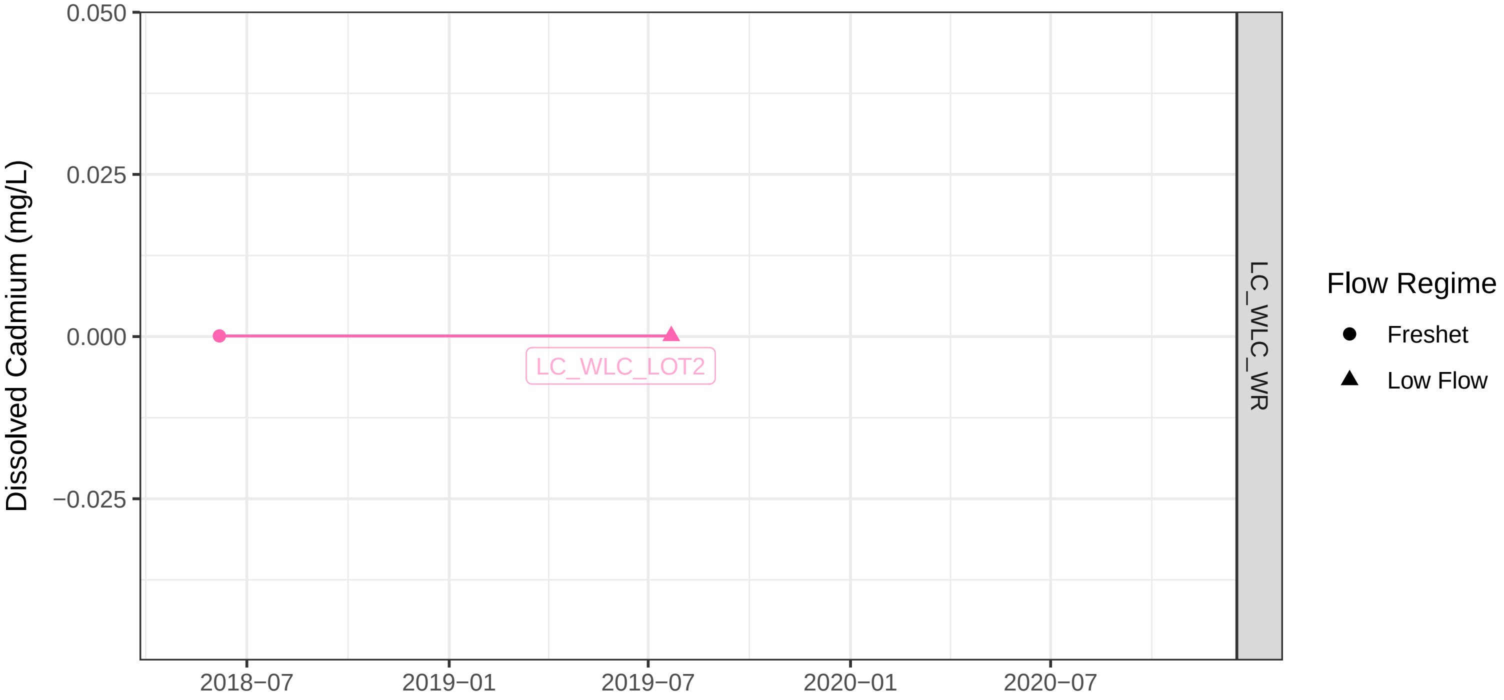
Note: there is no FWAL BCWQG for Total Cobalt



Note: there is no FWAL BCWQG for Dissolved Cadmium

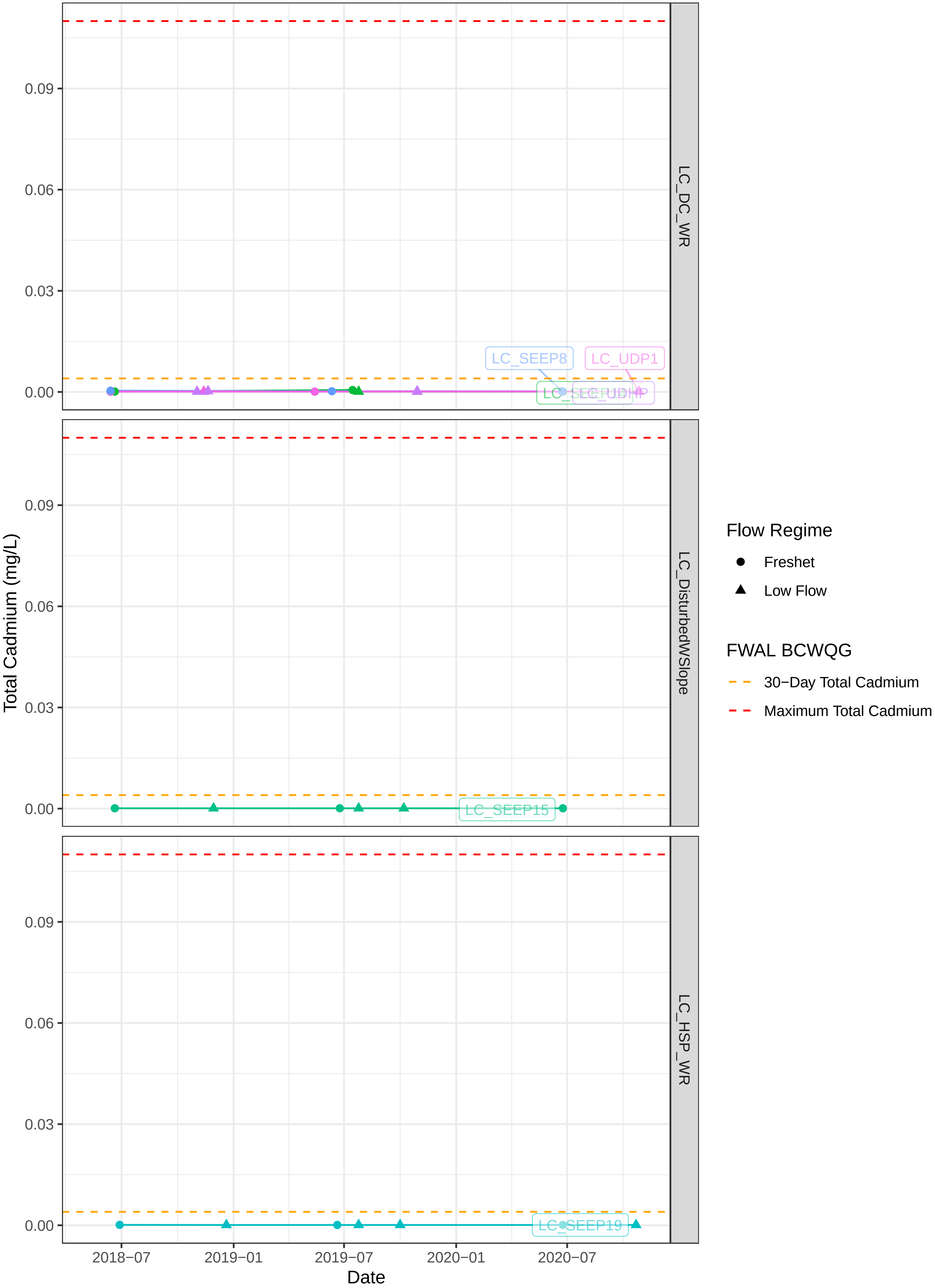


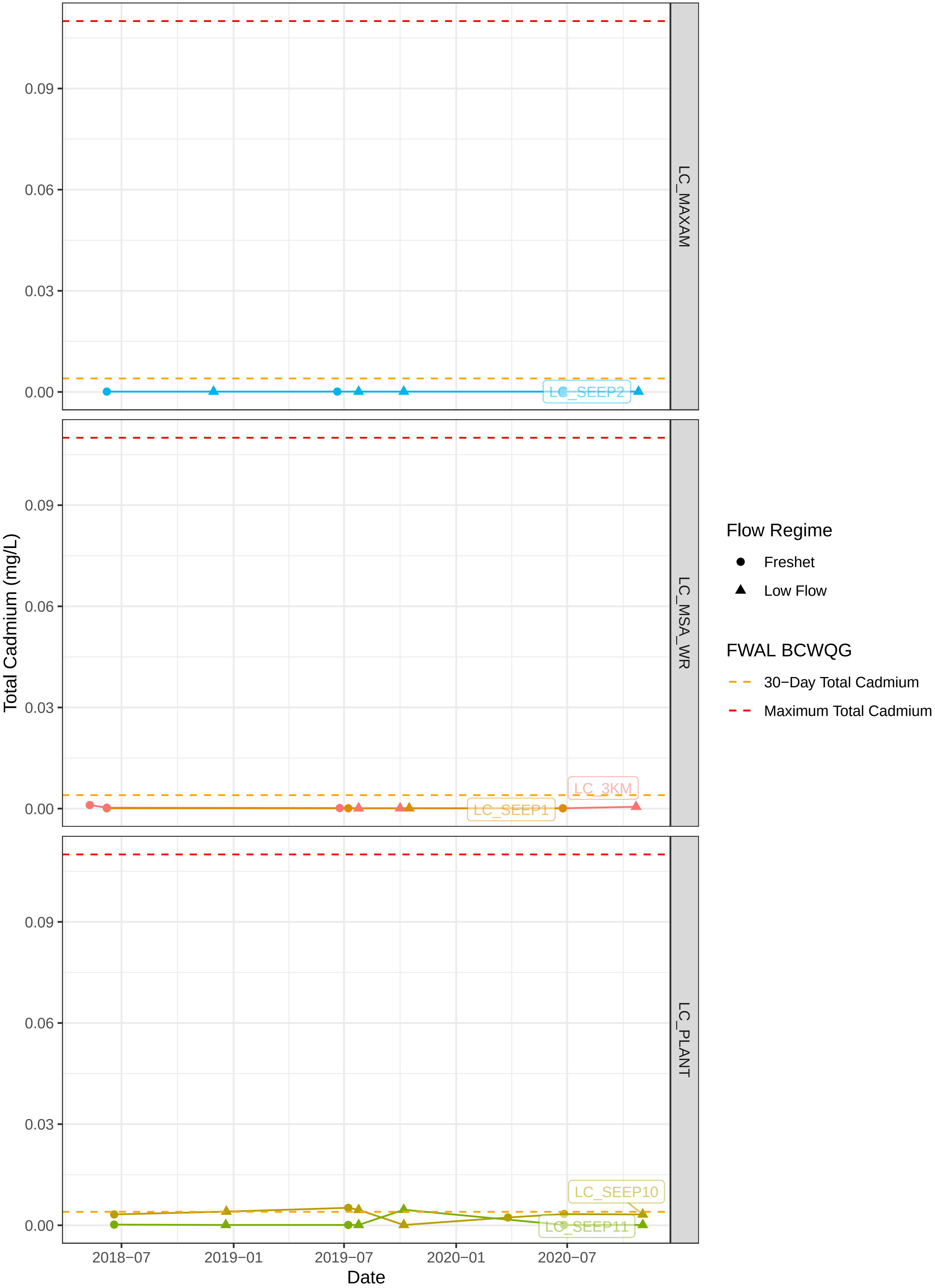
Note: there is no FWAL BCWQG for Dissolved Cadmium

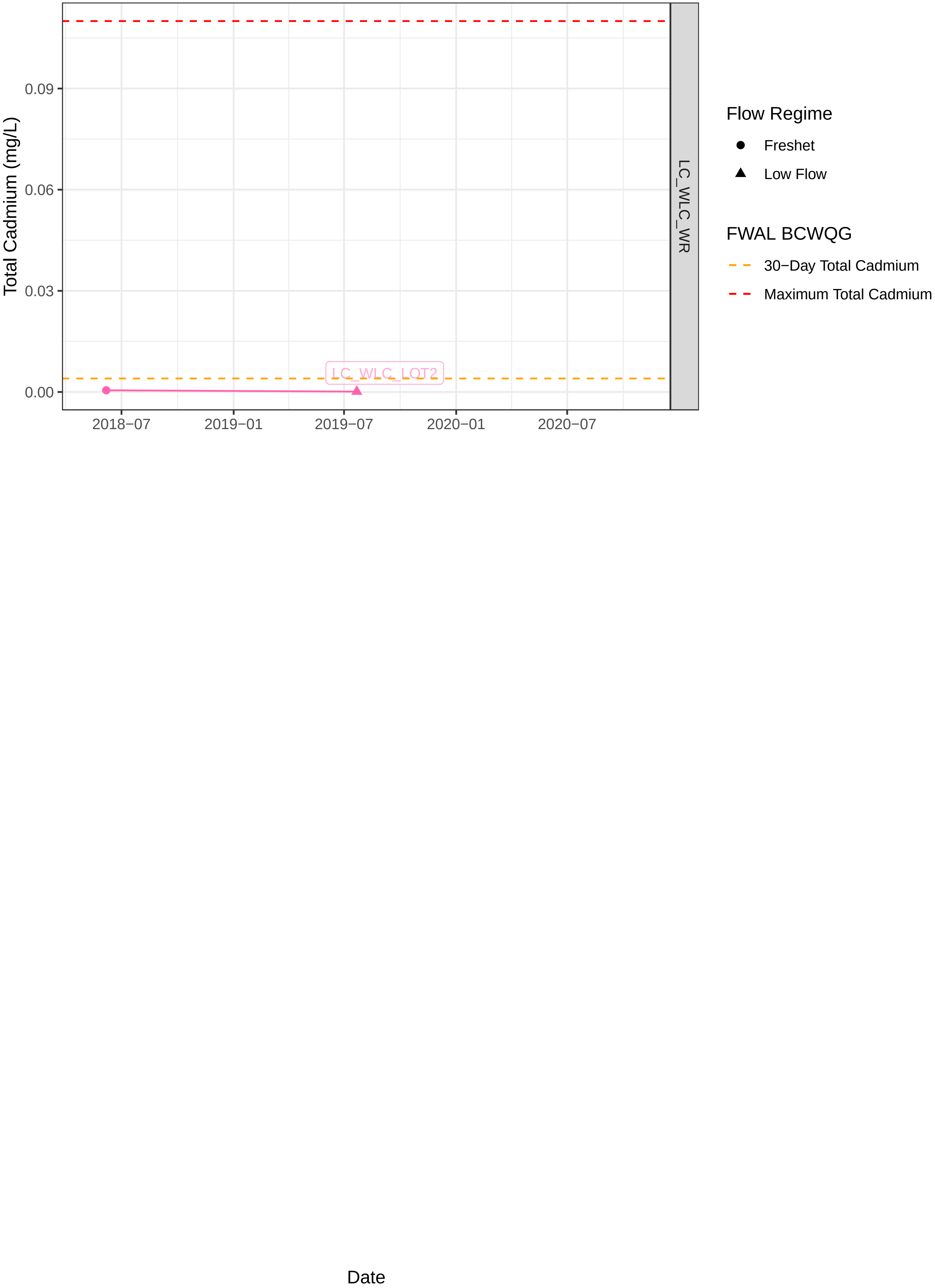


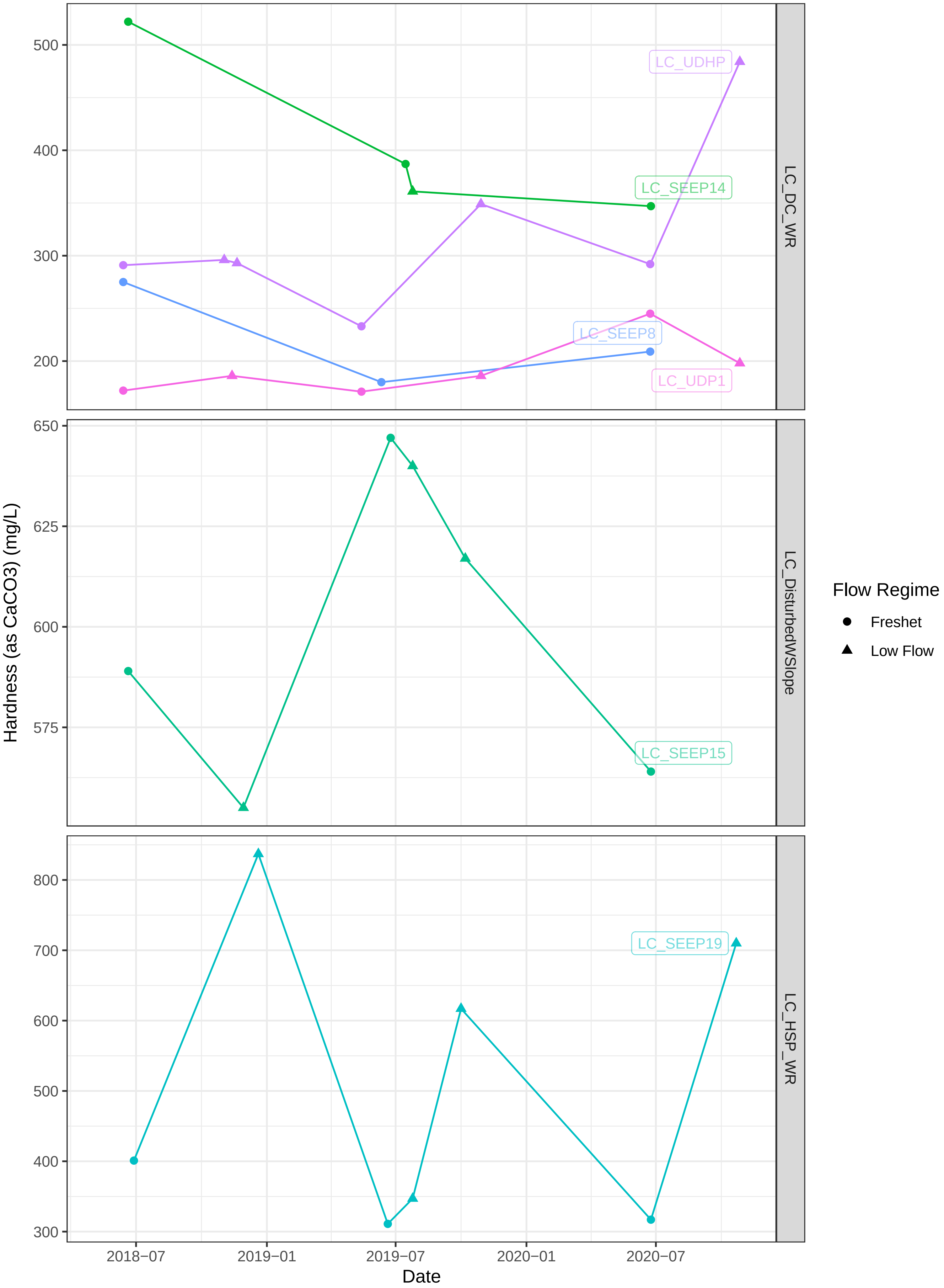
Date

Note: there is no FWAL BCWQG for Dissolved Cadmium

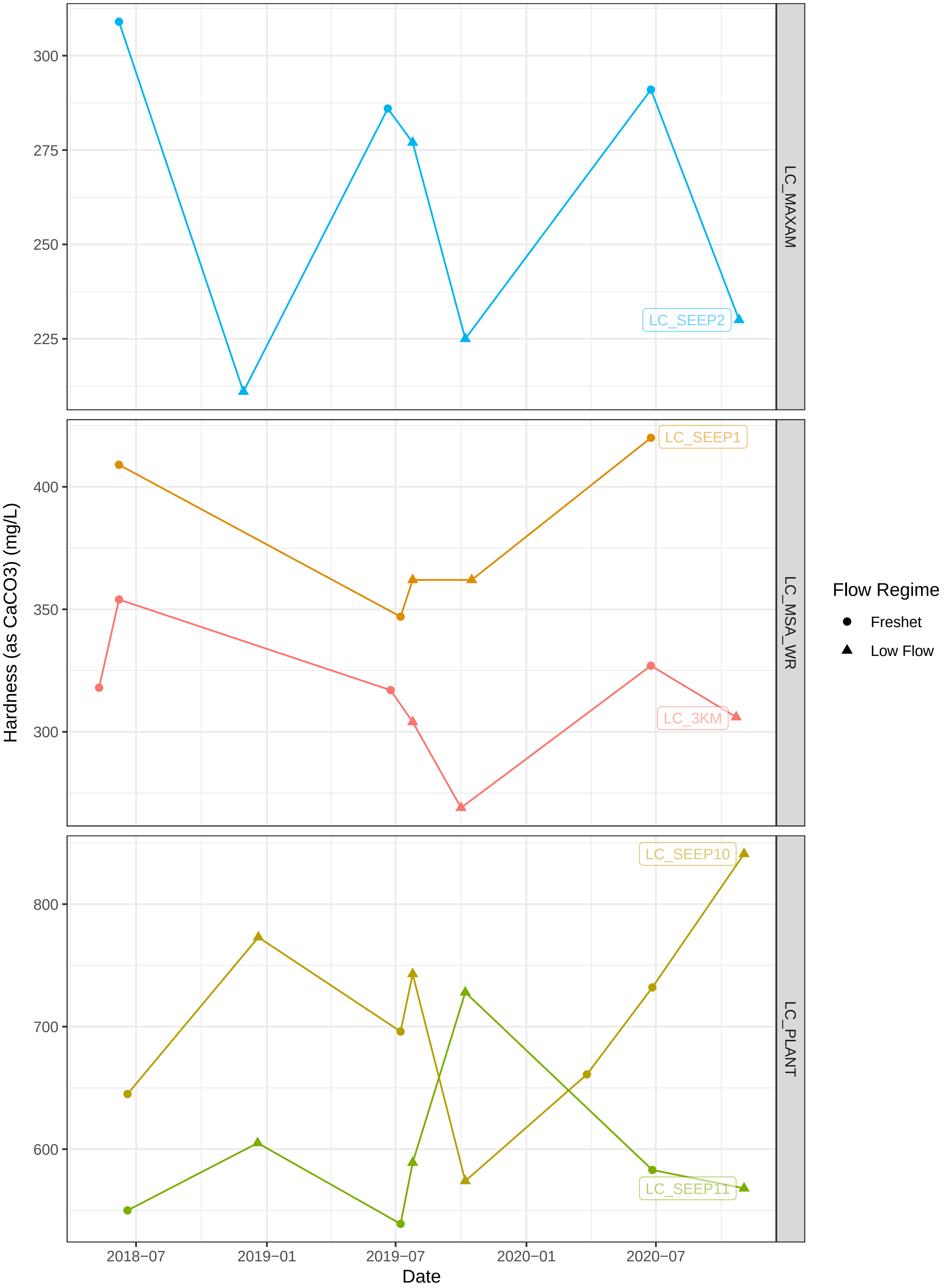

Total Cadmium (mg/L)
0.09
0.06
0.03
0.00
LC_DC_WR
LC_SEEP8
LC_UDP1
LC_SEEP14
LC_UDHP
LC_DisturbedWSlope
LC_SEEP15
LC_HSP_WR
LC_SEEP19
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Cadmium
Maximum Total Cadmium


0.09
0.06
0.03
0.00
LC_MAXAM
LC_SEEP2
LC_MSA_WR
LC_3KM
LC_SEEP1
LC_PLANT
LC_SEEP10
LC_SEEP11
Total Cadmium (mg/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Cadmium
Maximum Total Cadmium

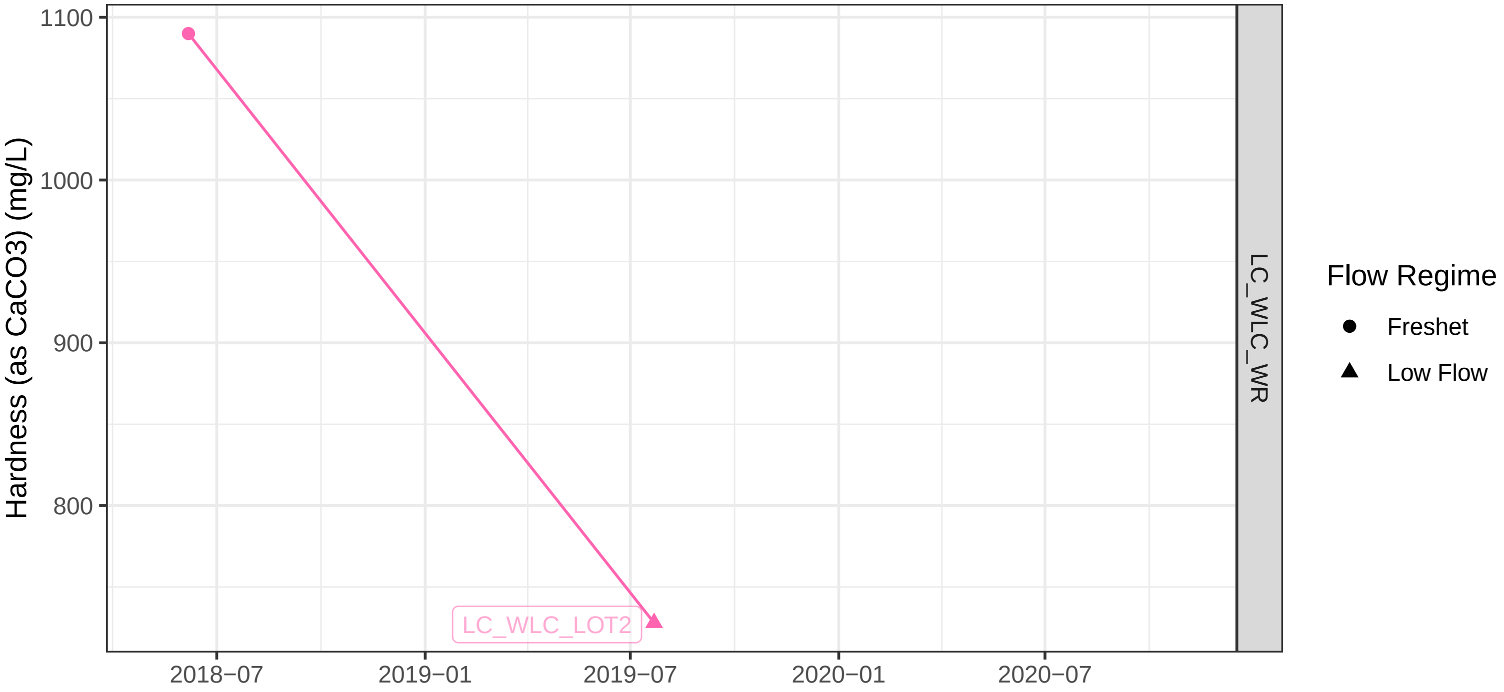

Total Cadmium (mg/L)
0.09
0.06
0.03
0.00
LC_WLC_LOT2
LC_WLC_WR
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Cadmium
Maximum Total Cadmium



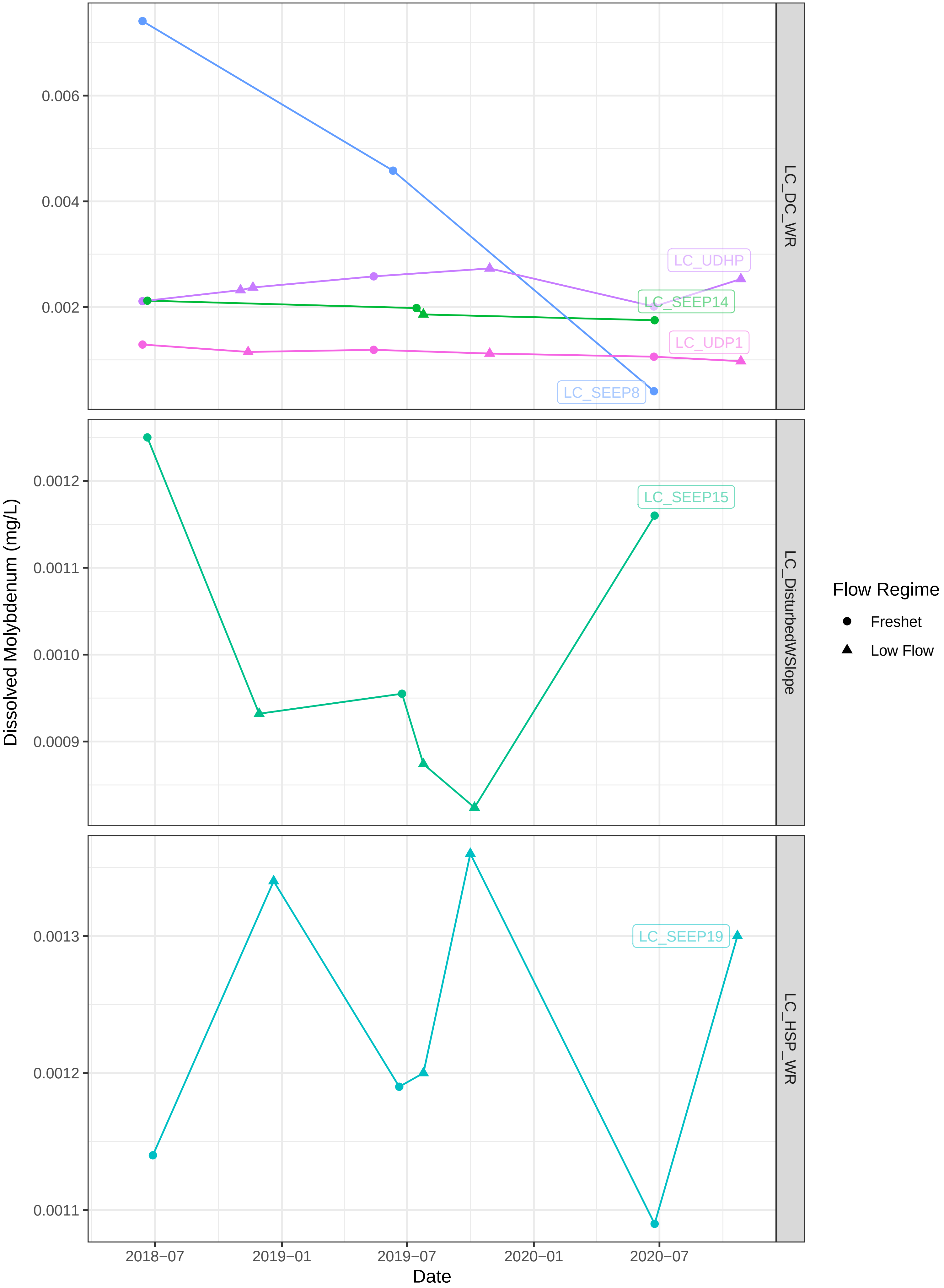
Note: there is no FWAL BCWQG for Hardness (as CaCO3)



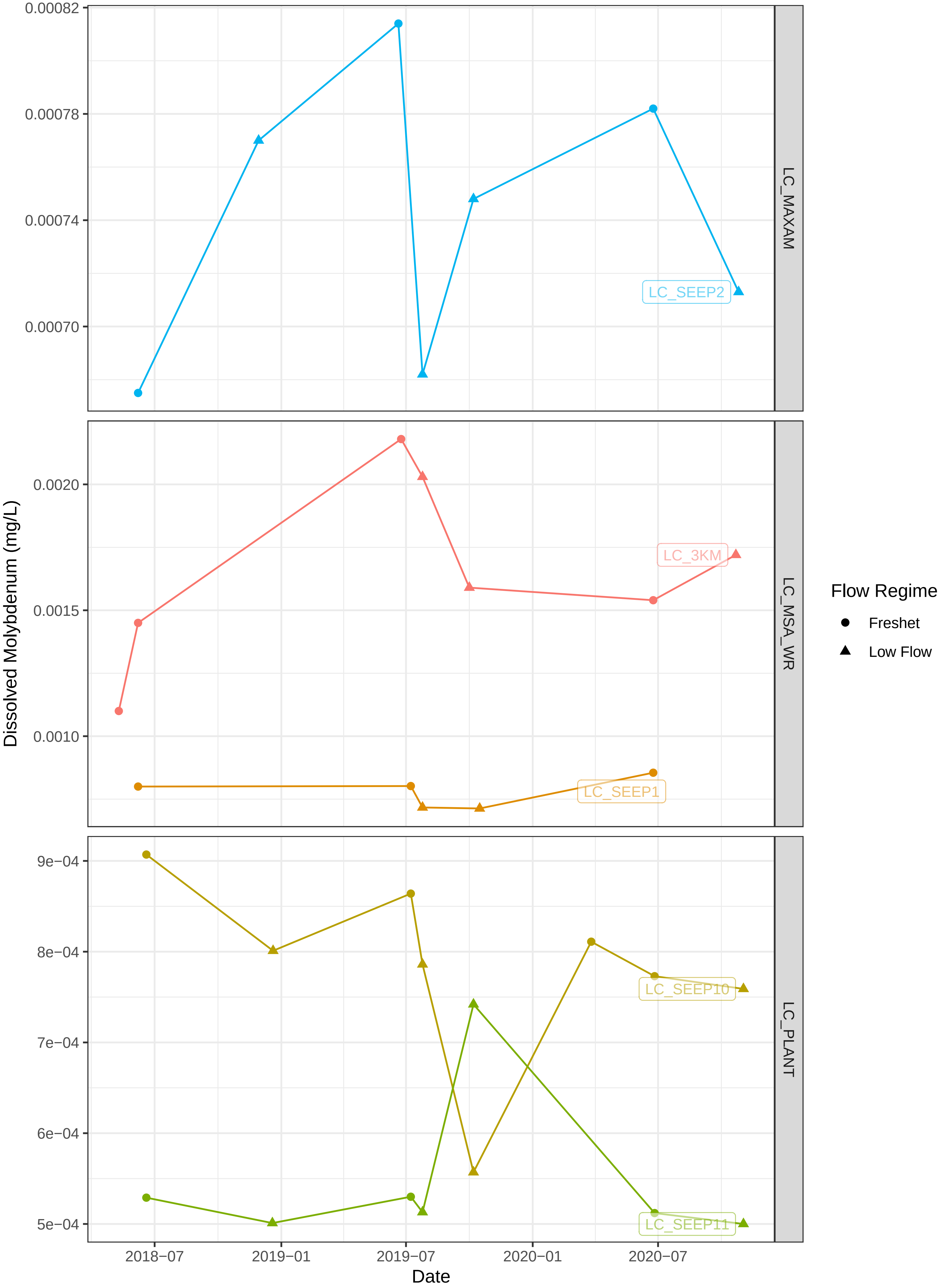
Note: there is no FWAL BCWQG for Hardness (as CaCO3)



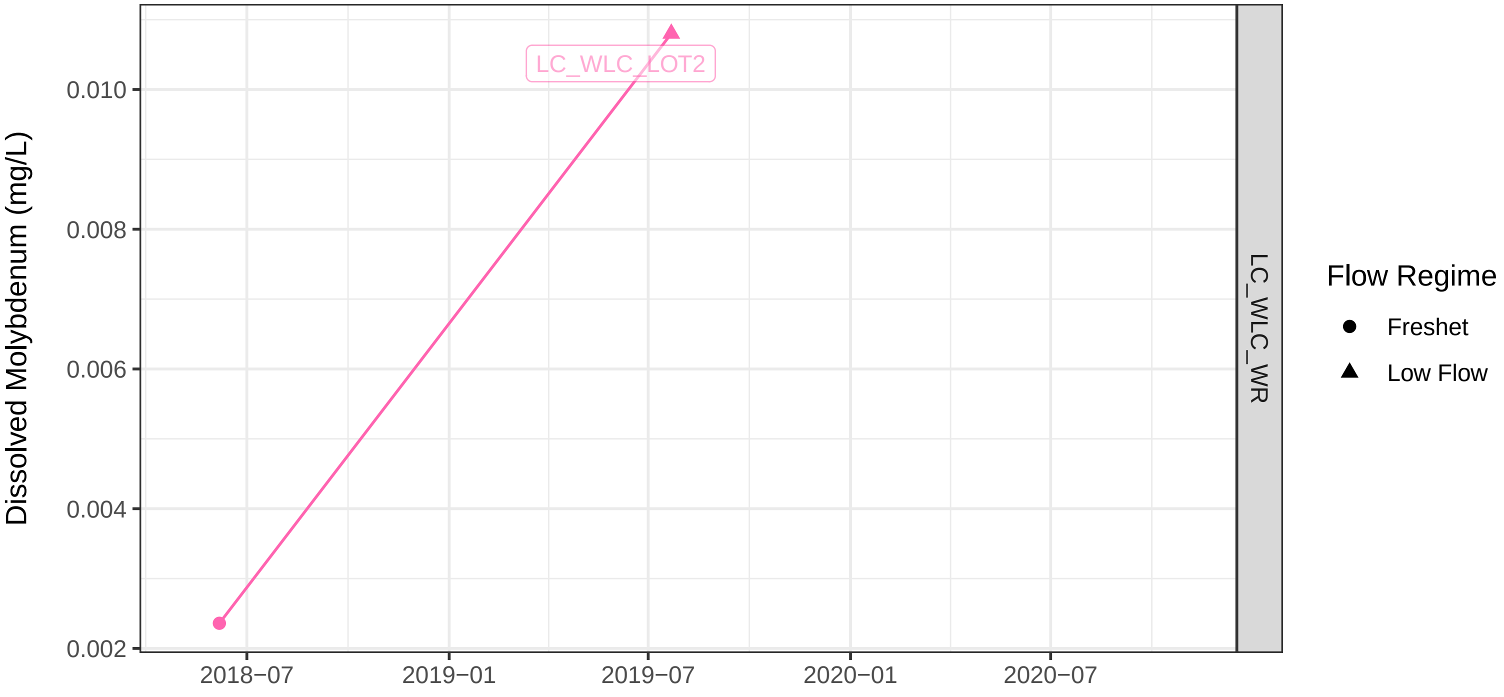
Note: there is no FWAL BCWQG for Hardness (as CaCO3)



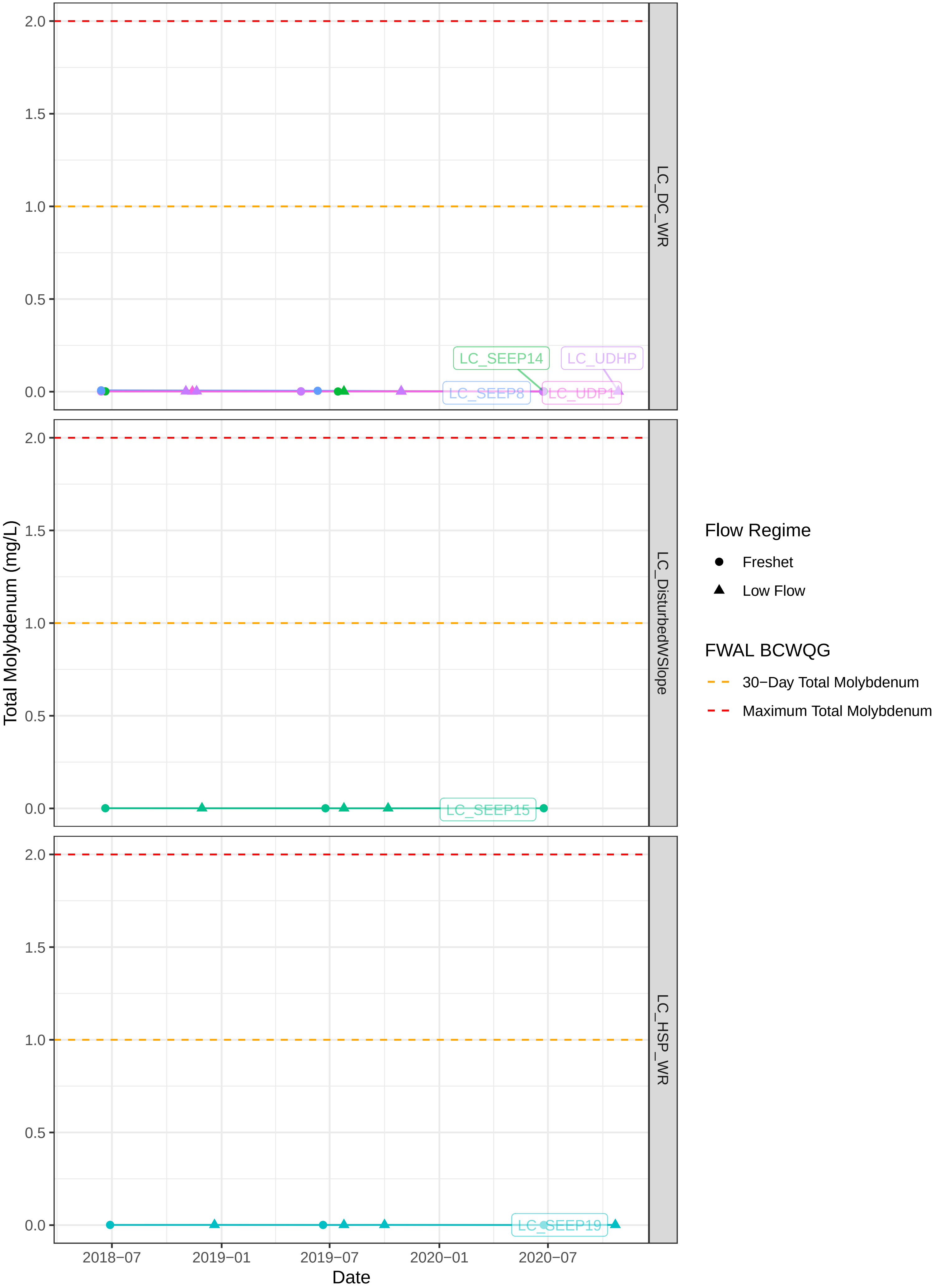
Note: there is no FWAL BCWQG for Dissolved Molybdenum



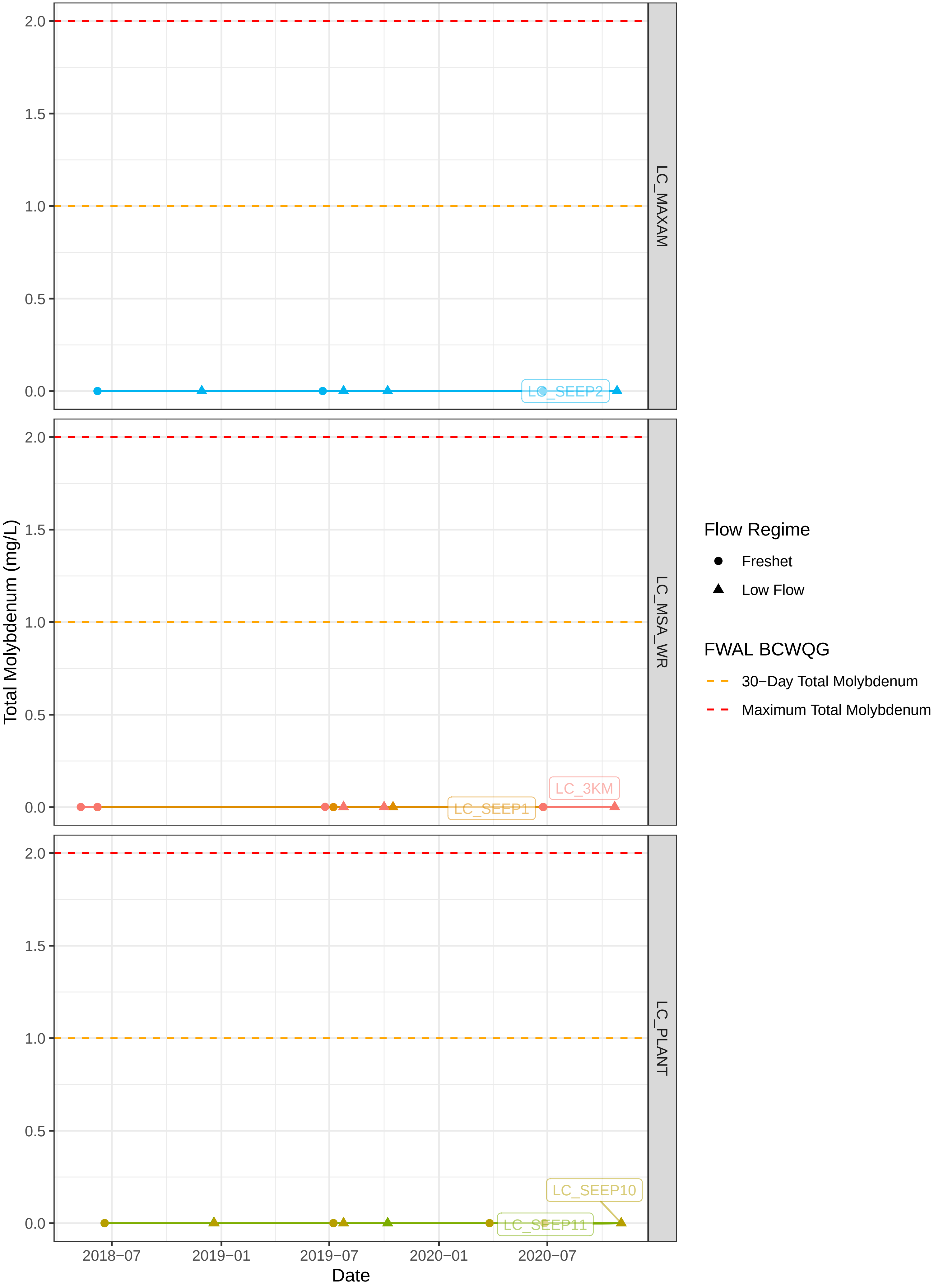
Note: there is no FWAL BCWQG for Dissolved Molybdenum

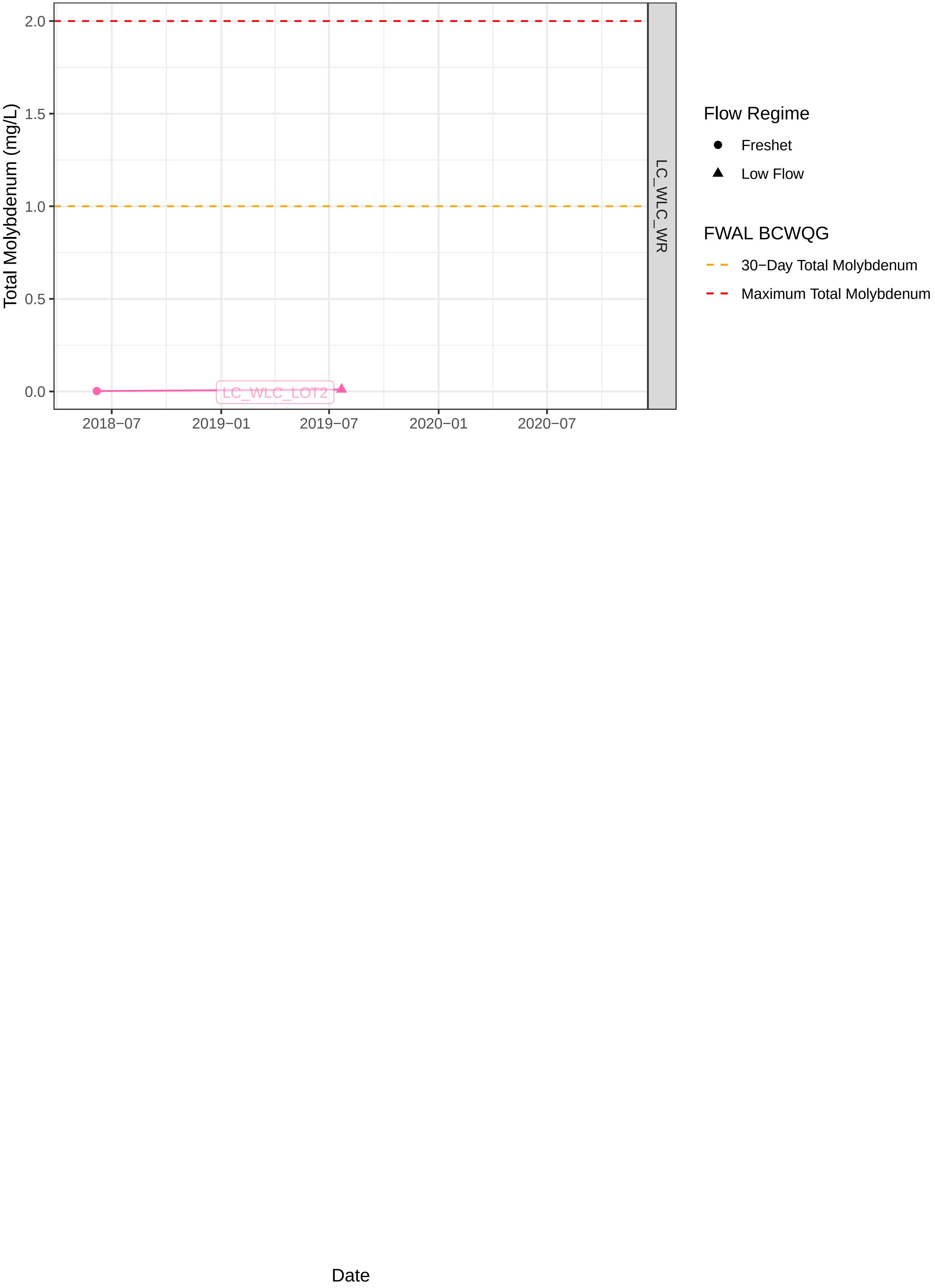


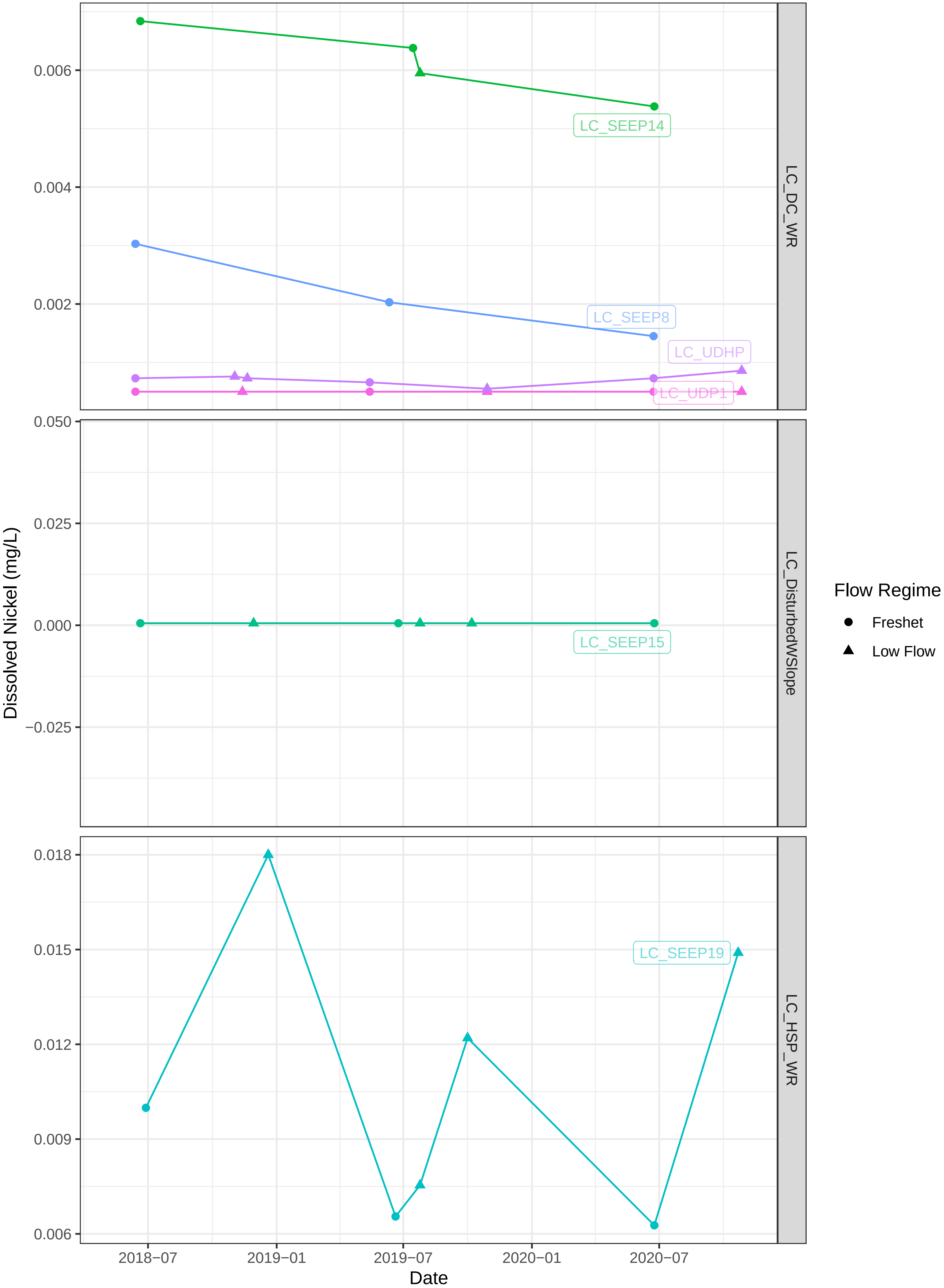
Note: there is no FWAL BCWQG for Dissolved Molybdenum



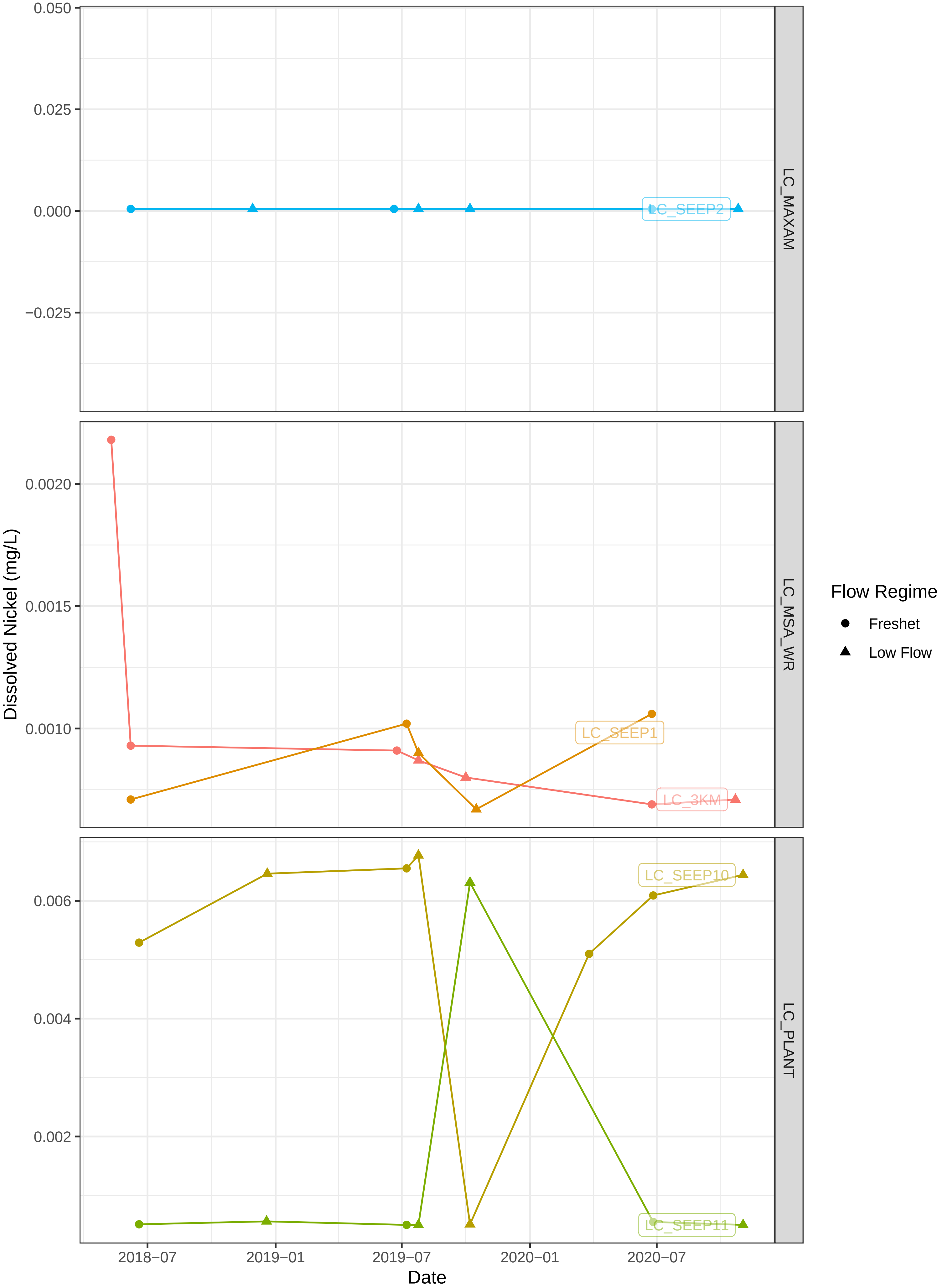
Total Molybdenum (mg/L)
Date
2.0
1.5
1.0
0.5
0.0
2018−07
2019−01
2019−07
2020−01
2020−07
LC_DC_WR
LC_DisturbedWSlope
LC_HSP_WR
LC_SEEP14
LC_UDHP
LC_SEEP8
LC_UDP1
LC_SEEP15
LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Molybdenum
Maximum Total Molybdenum


2.0
1.5
1.0
0.5
0.0
LC_SEEP2
LC_MAXAM
LC_3KM
LC_SEEP1
LC_MSA_WR
LC_SEEP10
LC_SEEP11
LC_PLANT
Total Molybdenum (mg/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Molybdenum
Maximum Total Molybdenum

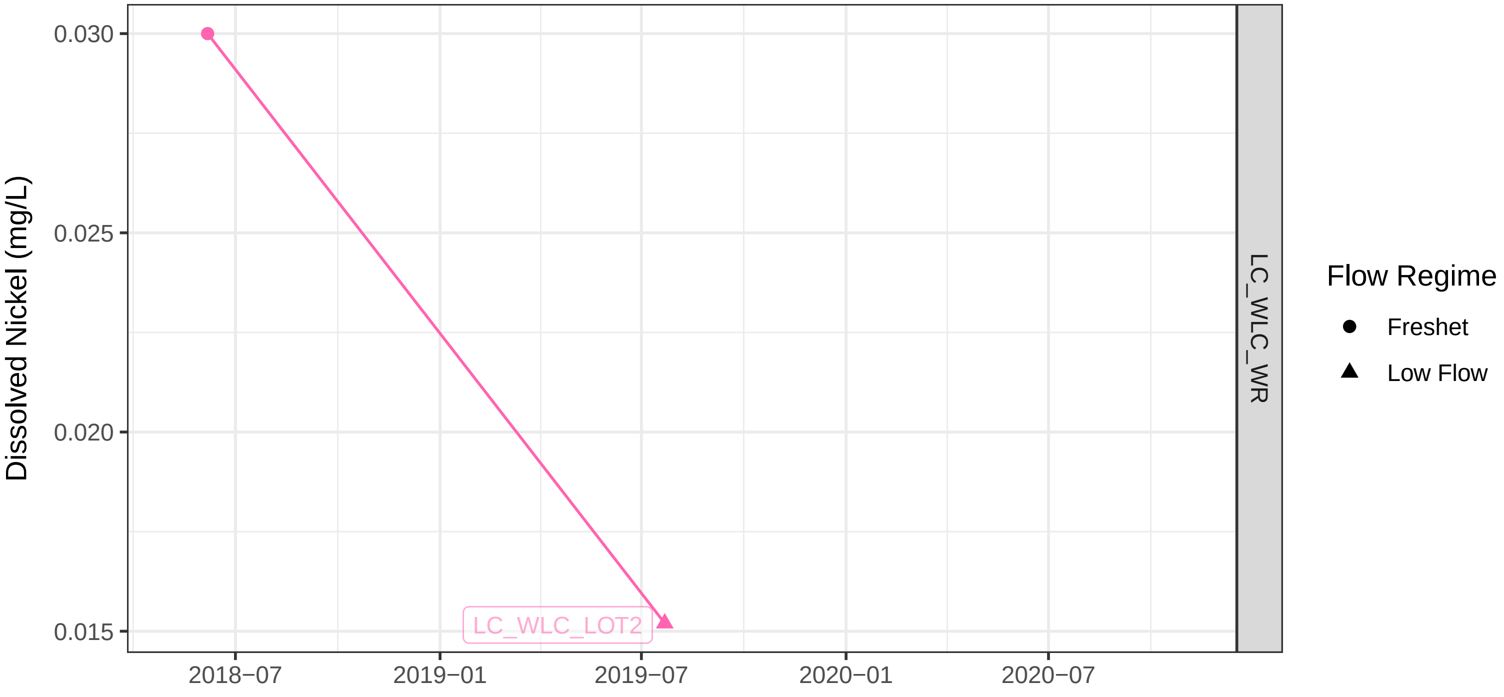

Total Molybdenum (mg/L)
2.0
1.5
1.0
0.5
0.0
LC_WLC_LOT2
LC_WLC_WR
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Molybdenum
Maximum Total Molybdenum



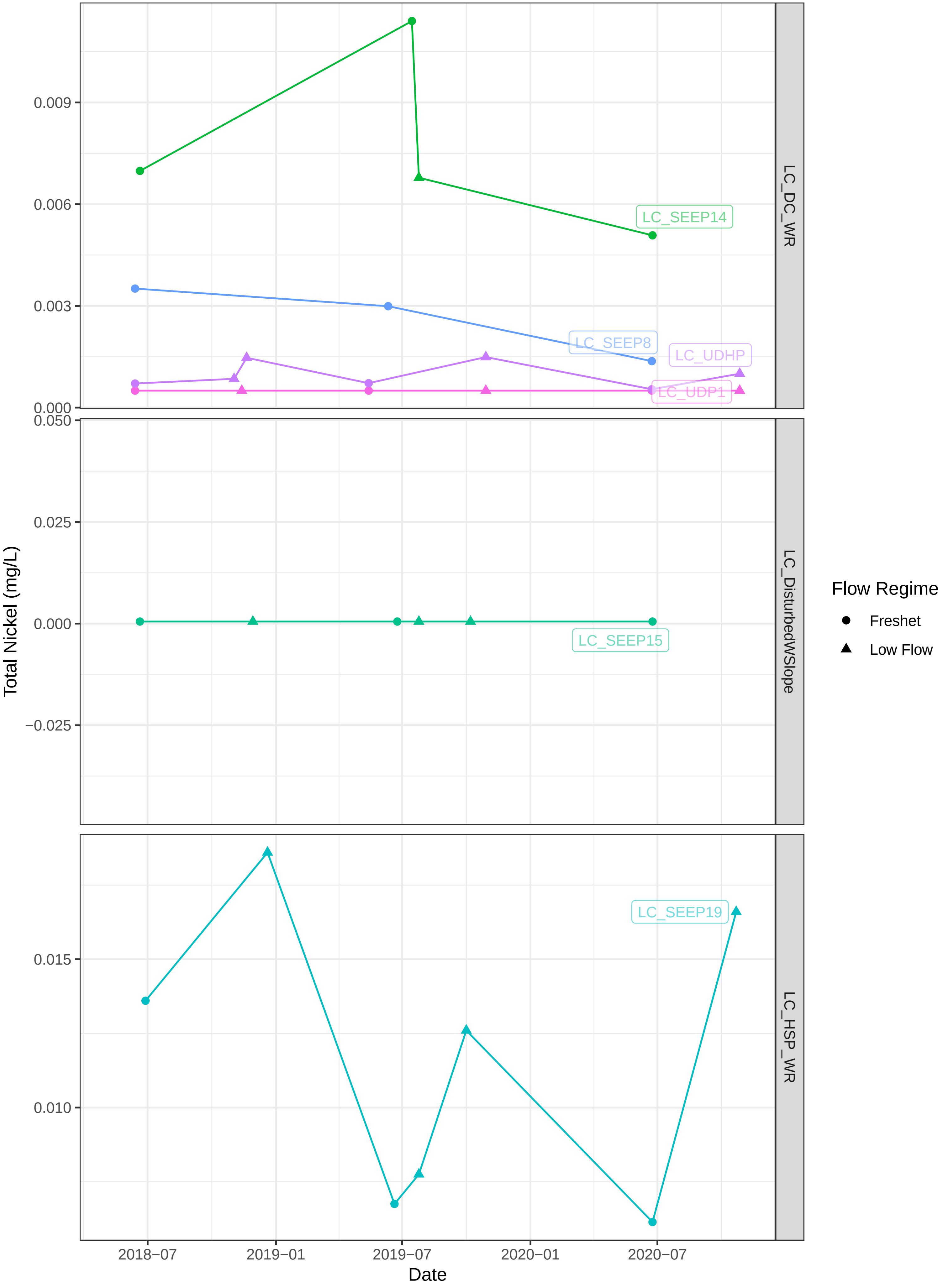
Note: there is no FWAL BCWQG for Dissolved Nickel



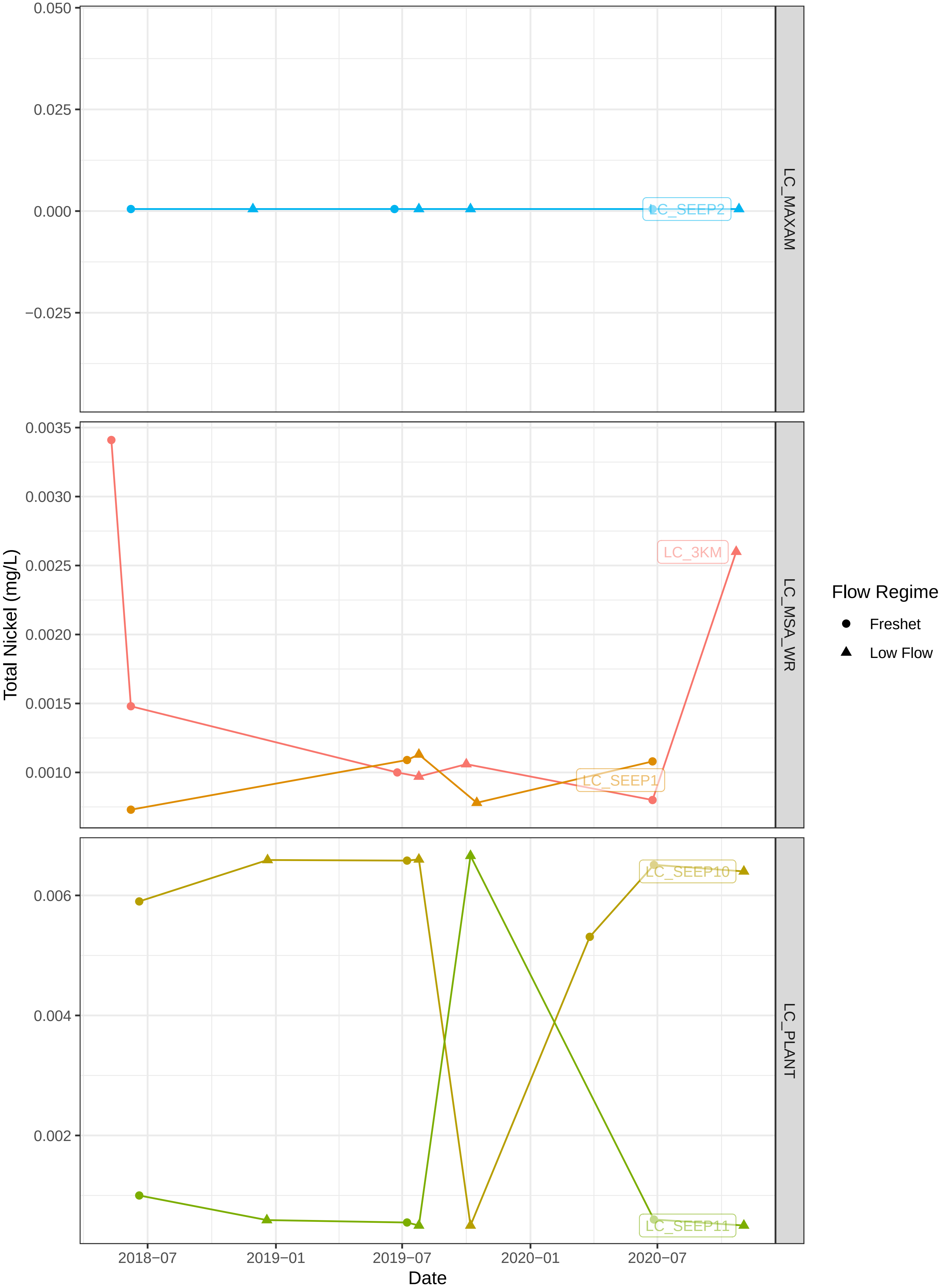
Note: there is no FWAL BCWQG for Dissolved Nickel



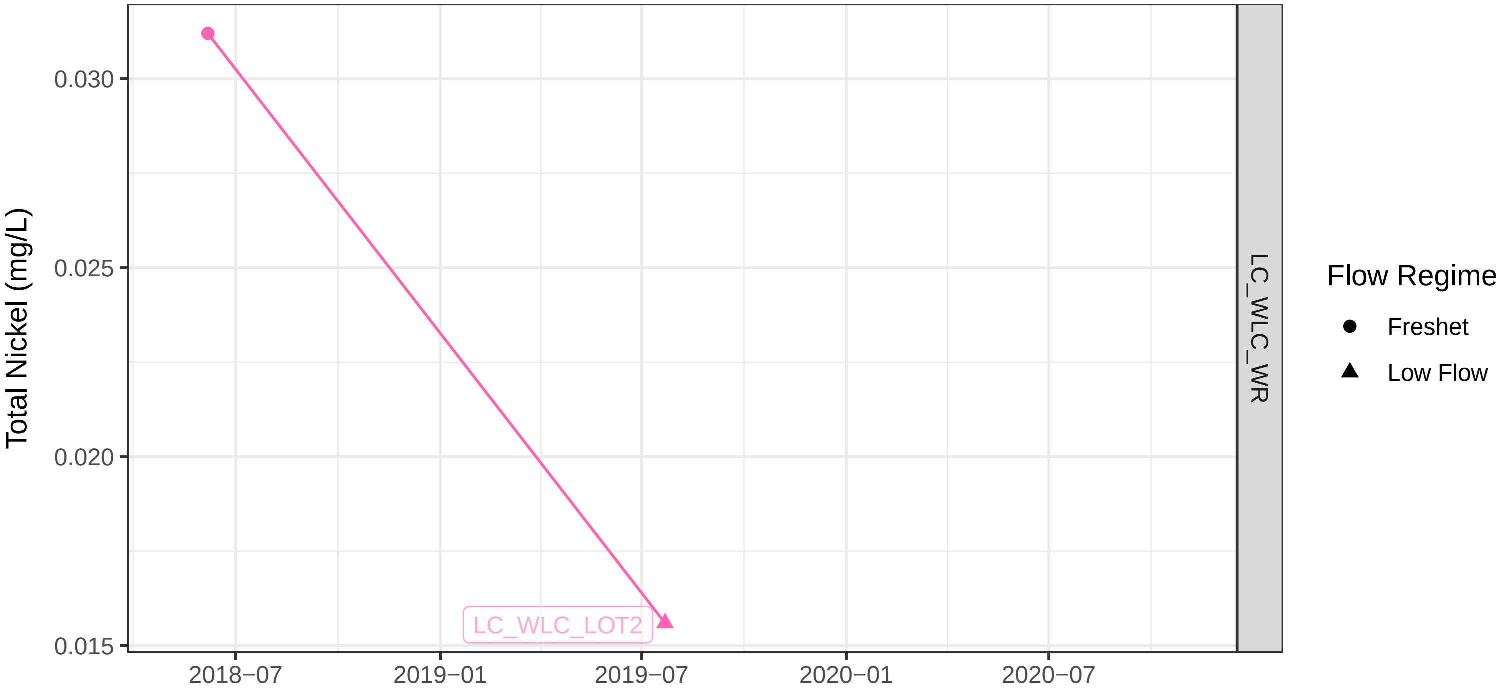
Note: there is no FWAL BCWQG for Dissolved Nickel



Note: The FWAL BCWQG for Total Nickel is dependent on Hardness

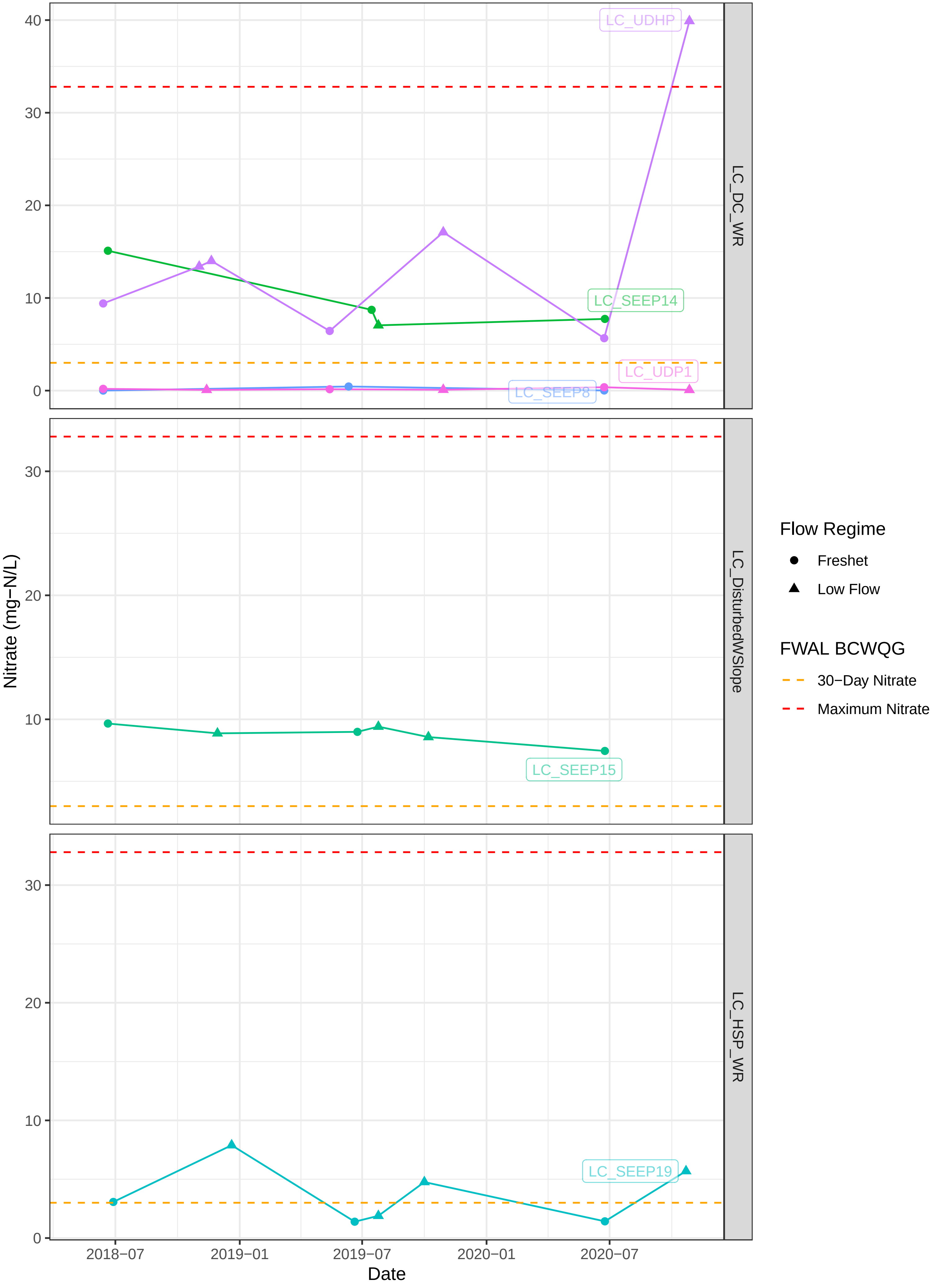


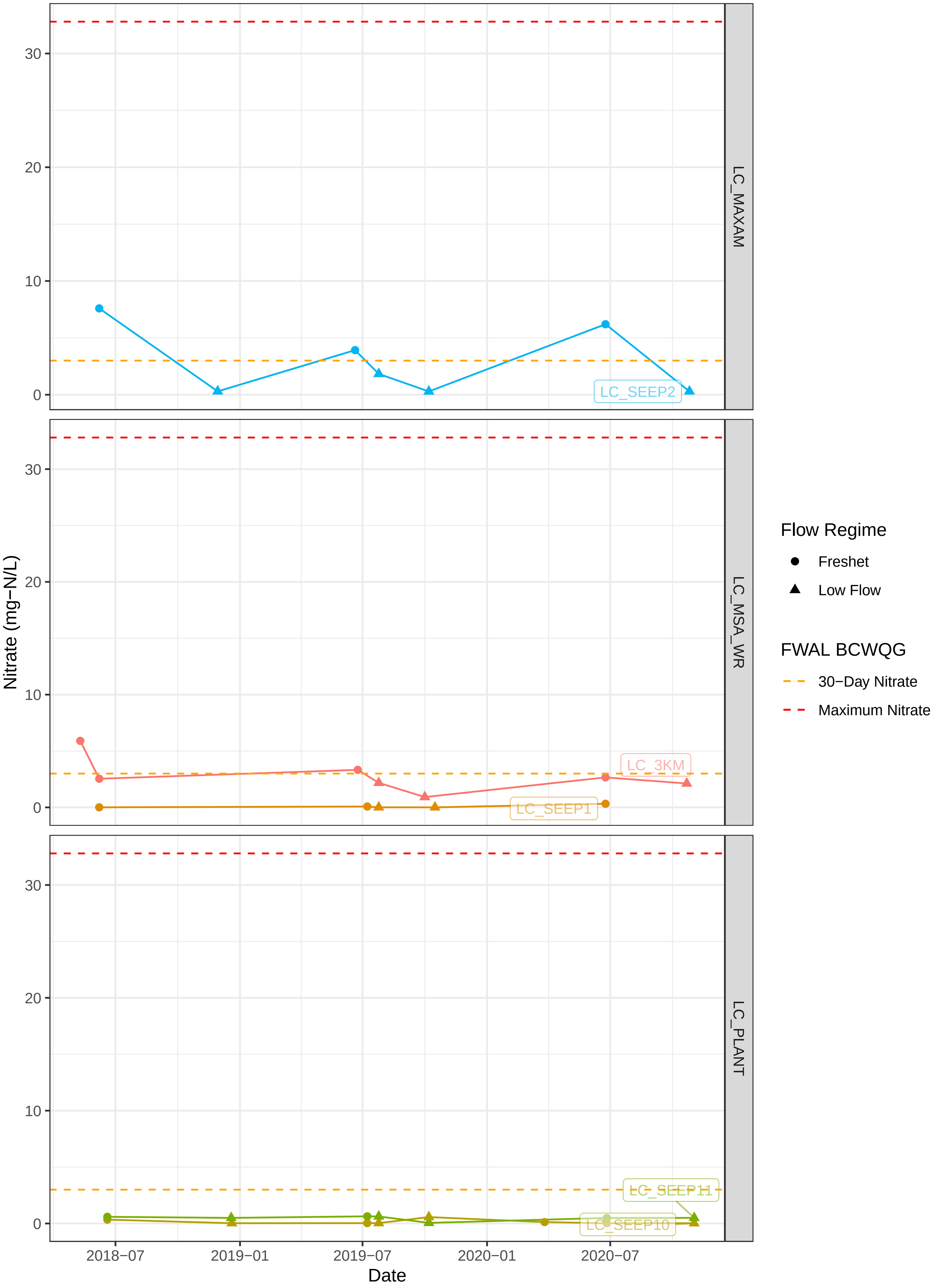
Note: The FWAL BCWQG for Total Nickel is dependent on Hardness



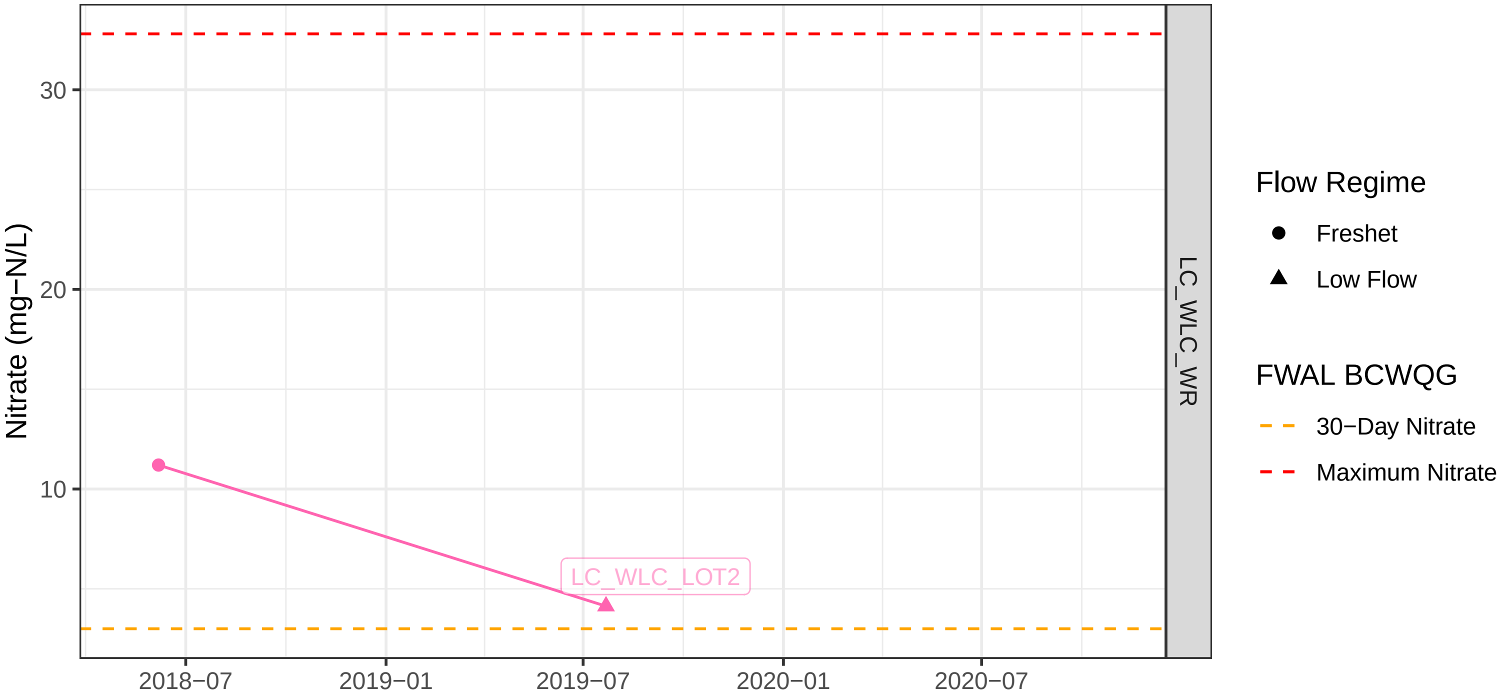
Date

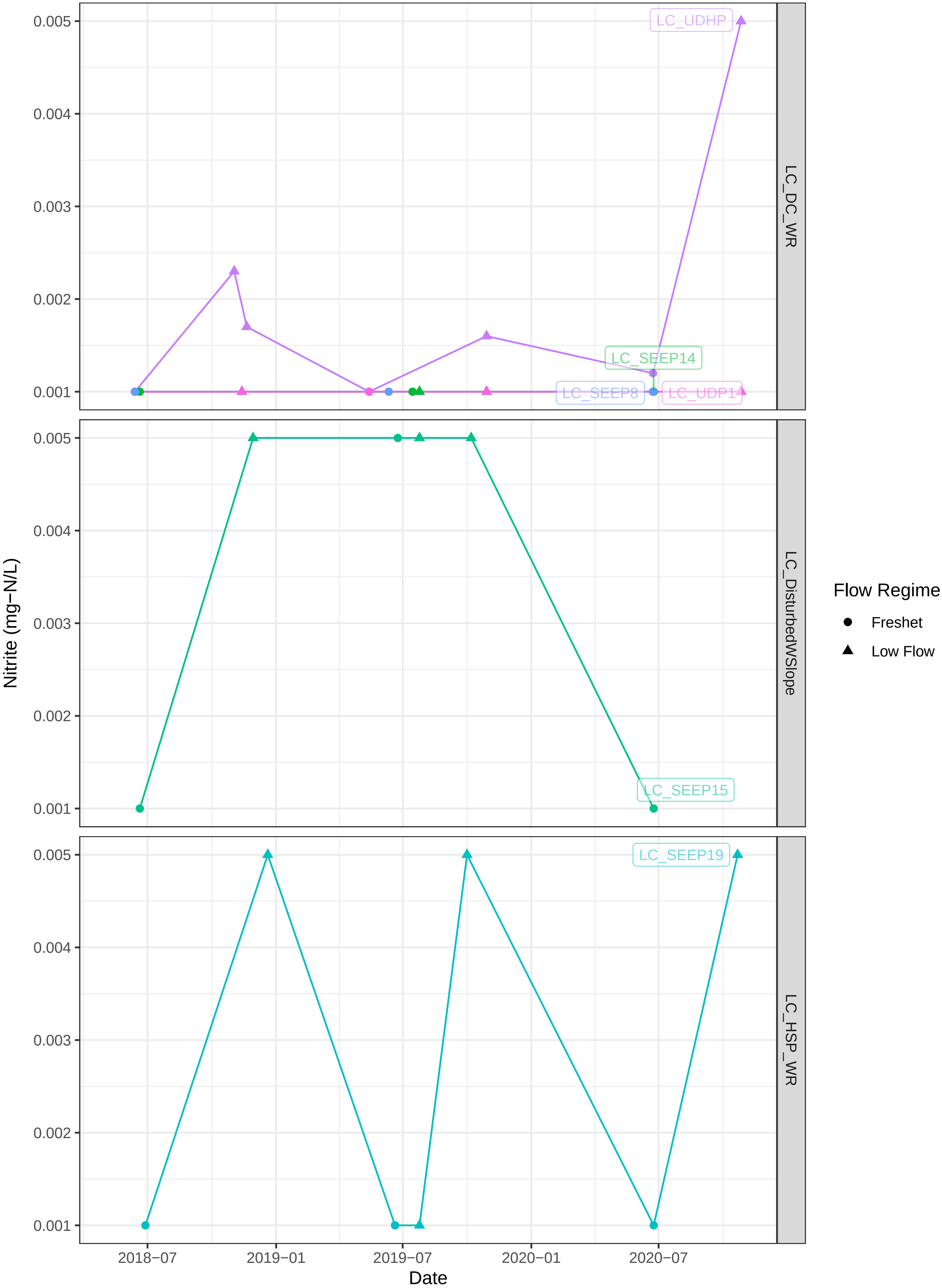
Note: The FWAL BCWQG for Total Nickel is dependent on Hardness


LC_UDHP
LC_SEEP14
LC_UDP1
LC_SEEP8
LC_DC_WR
LC_SEEP15
LC_DisturbedWSlope
LC_SEEP19
LC_HSP_WR
40
30
20
10
0
Nitrate (mg−N/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Nitrate
Maximum Nitrate

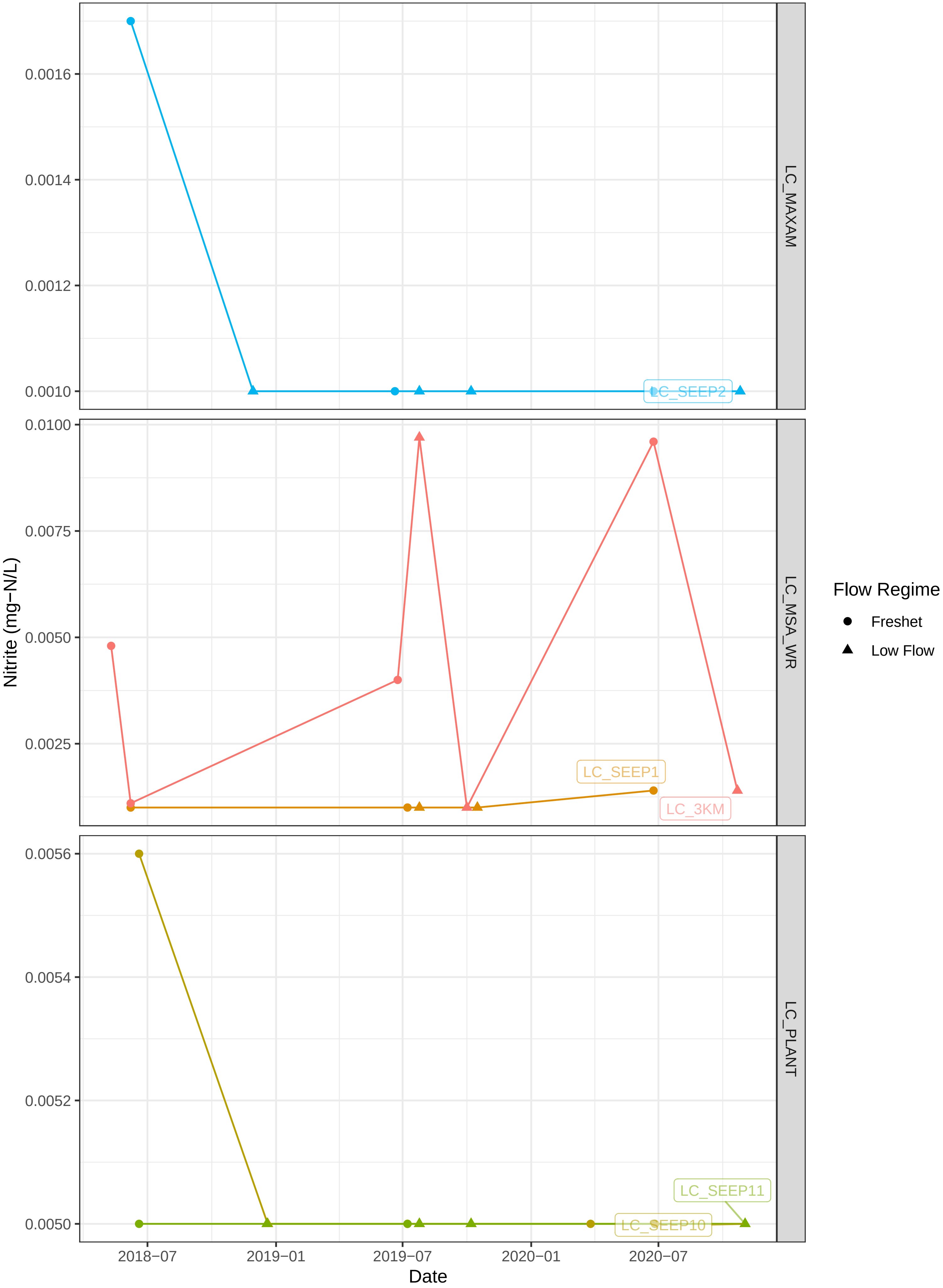


Nitrate (mg−N/L)
0
10
20
30
LC_MAXAM
LC_SEEP2
LC_MSA_WR
LC_3KM
LC_SEEP1
LC_PLANT
LC_SEEP11
LC_SEEP10
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Nitrate
Maximum Nitrate

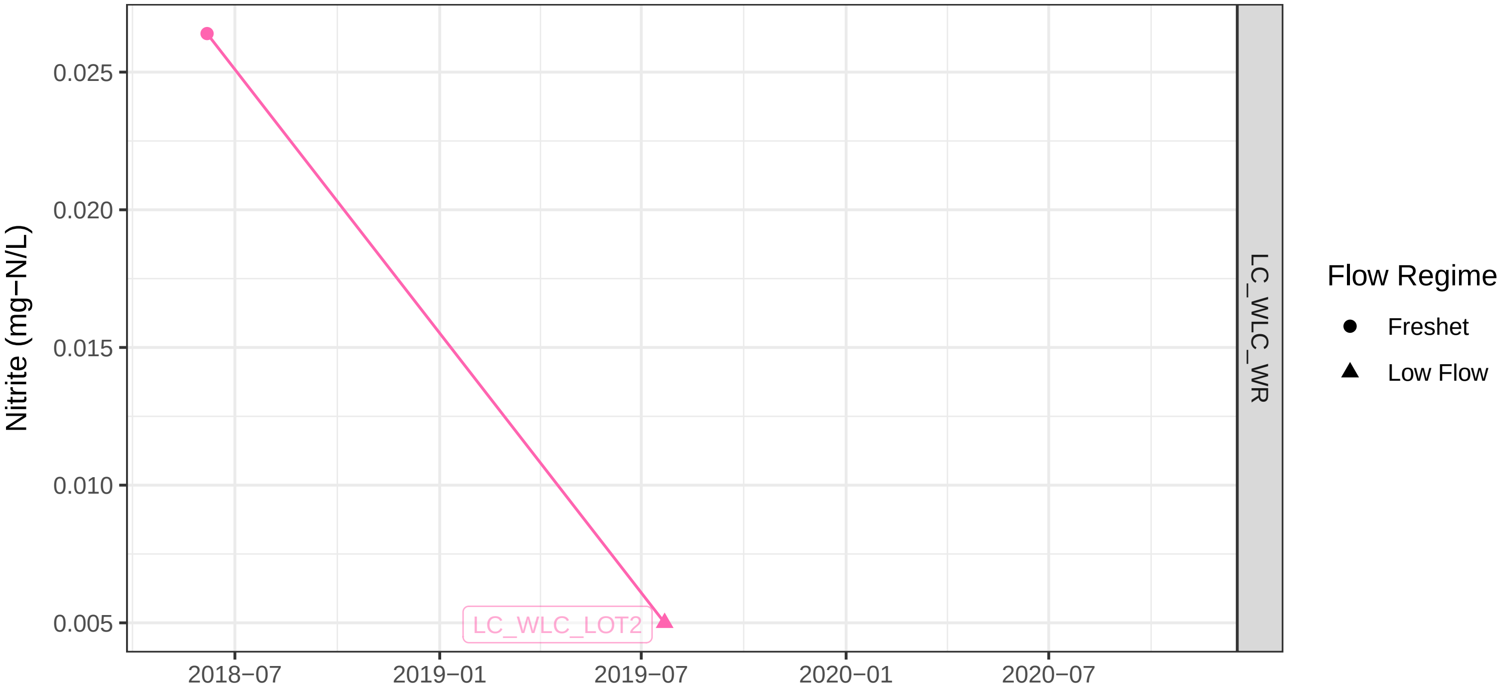

Nitrate (mg−N/L)
30
20
10
2018−07
2019−01
2019−07
2020−01
2020−07
LC_WLC_LOT2
LC_WLC_WR
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Nitrate
Maximum Nitrate
Date



Note: The FWAL BCWQG for Nitrite is dependent on Hardness

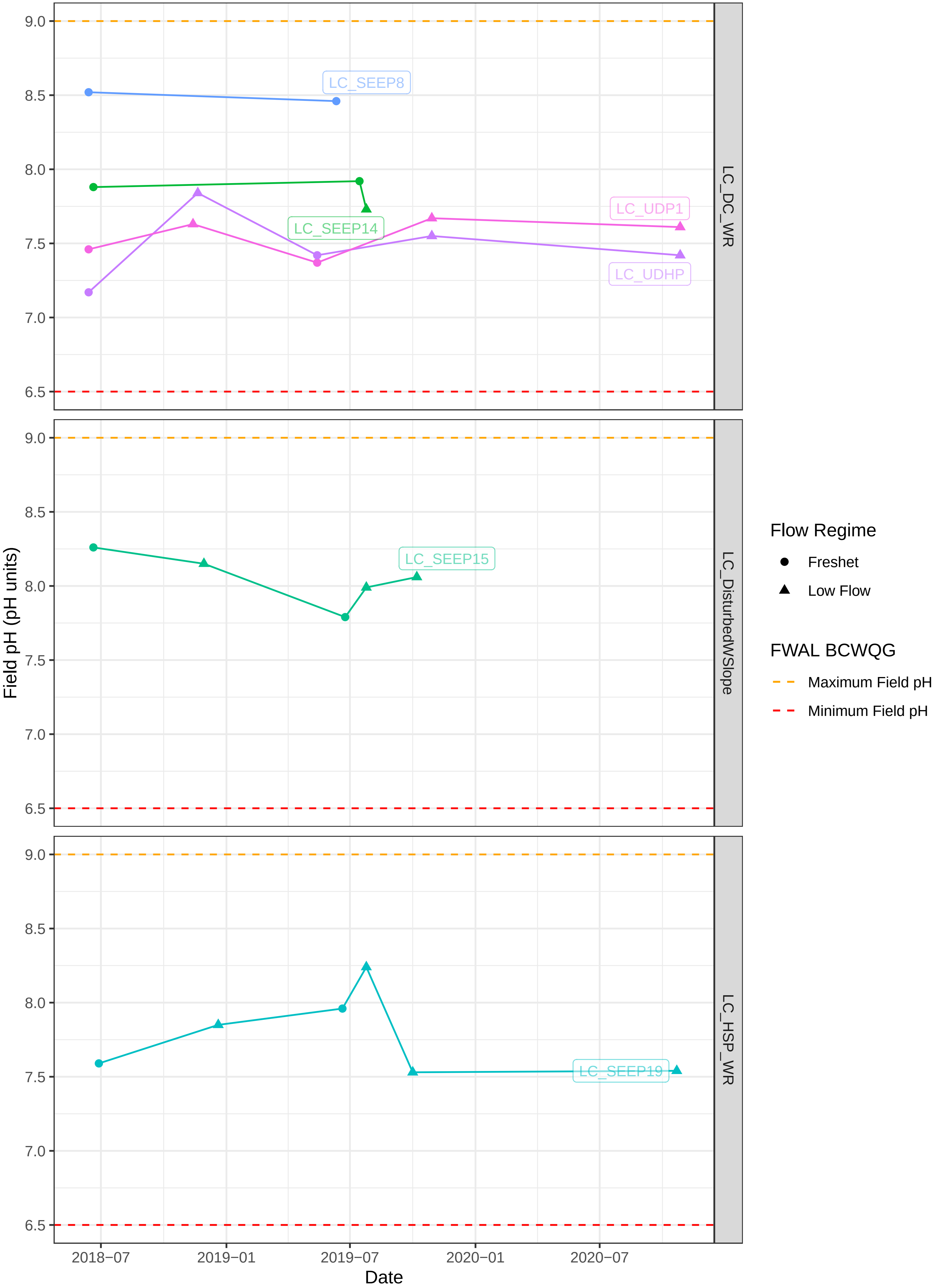


Note: The FWAL BCWQG for Nitrite is dependent on Hardness

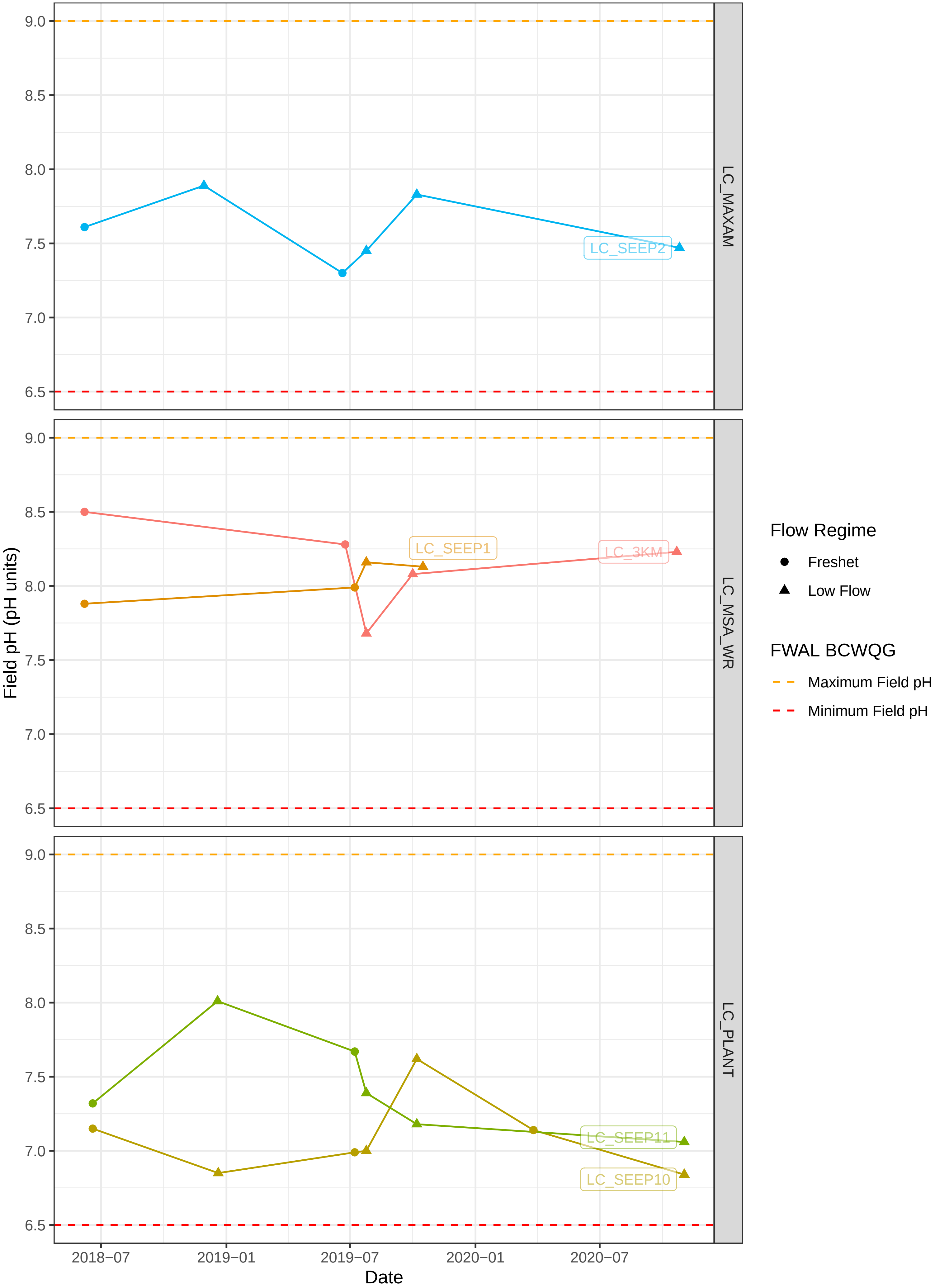


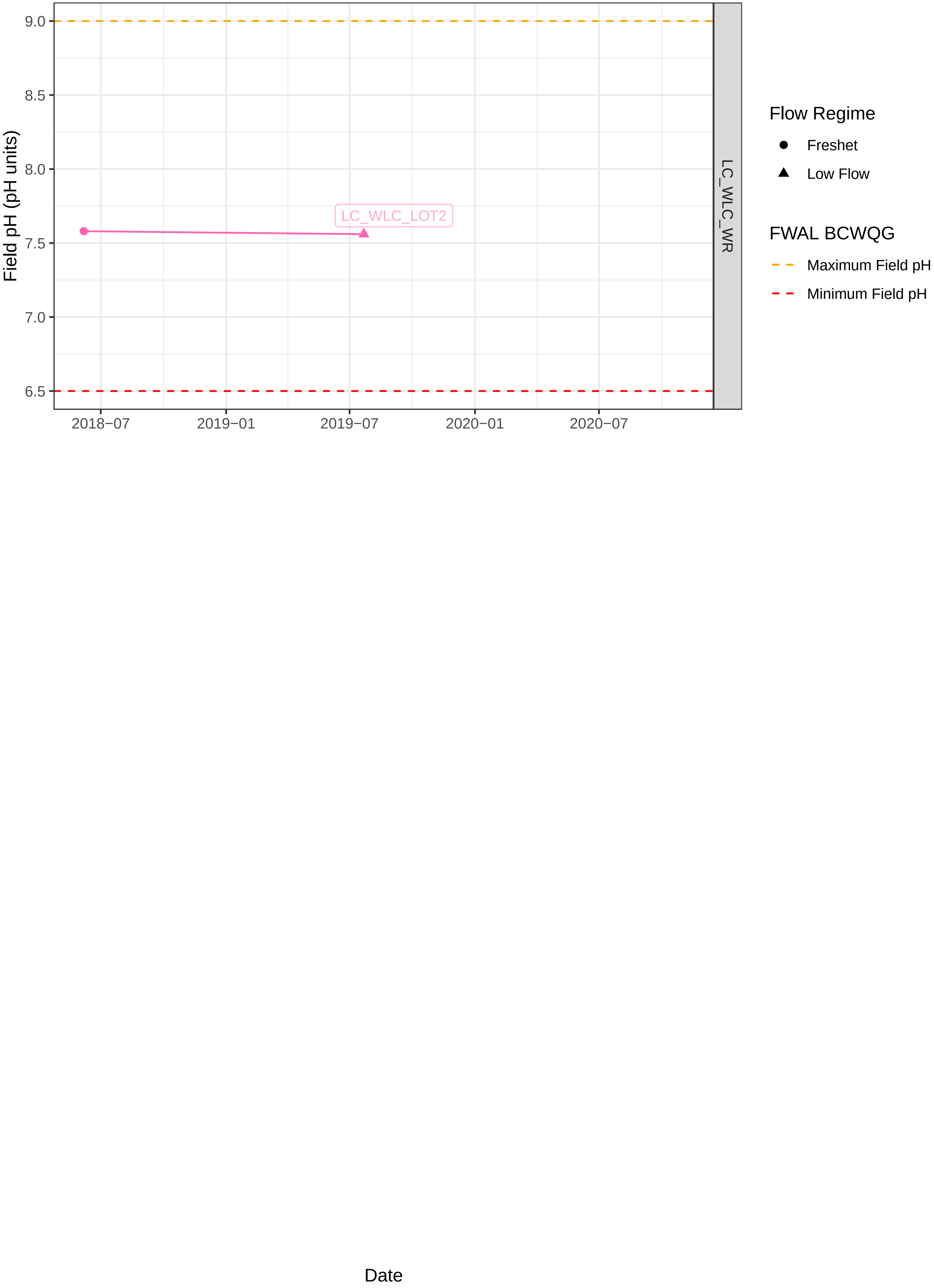
Date

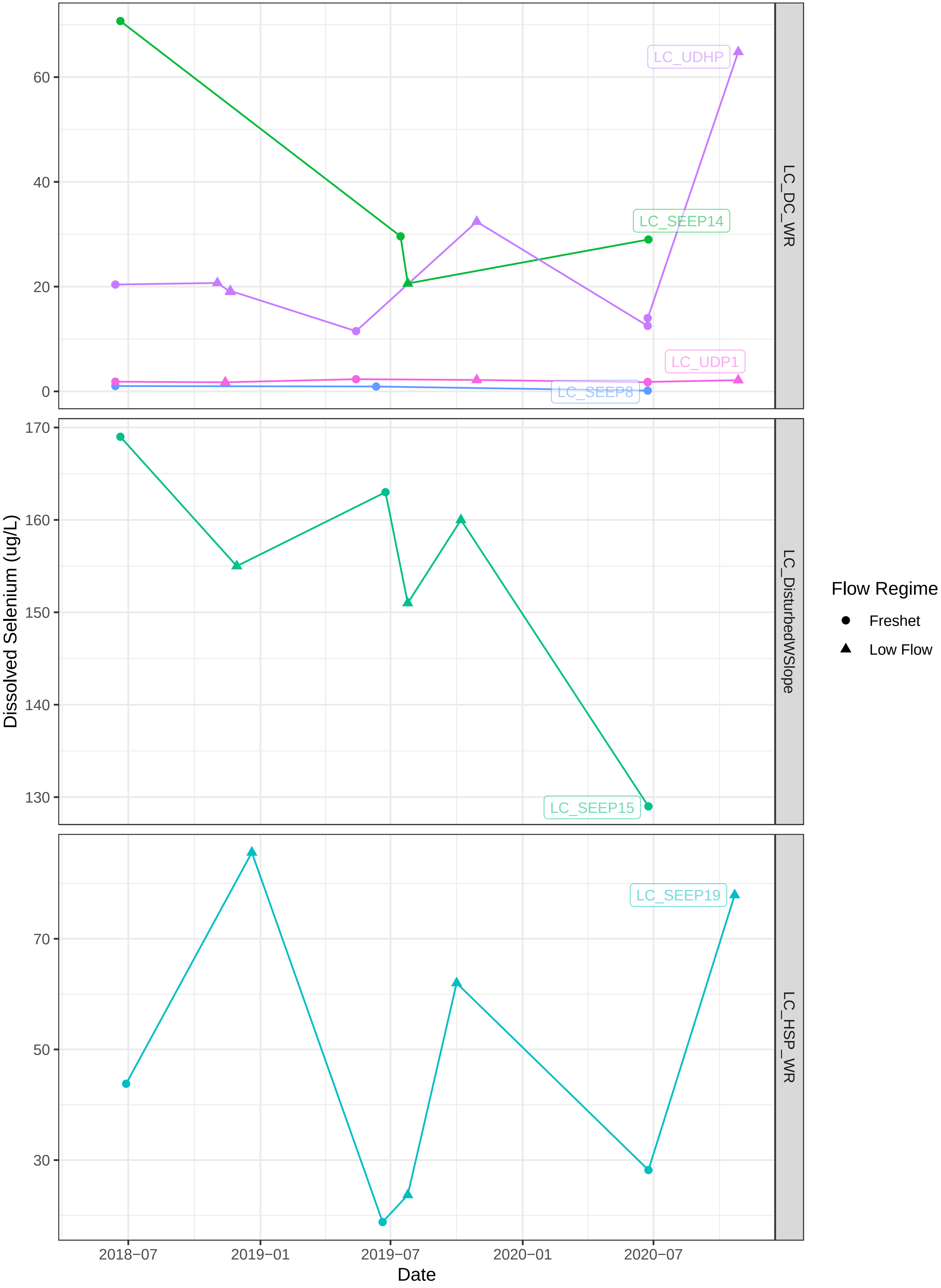
Note: The FWAL BCWQG for Nitrite is dependent on Hardness



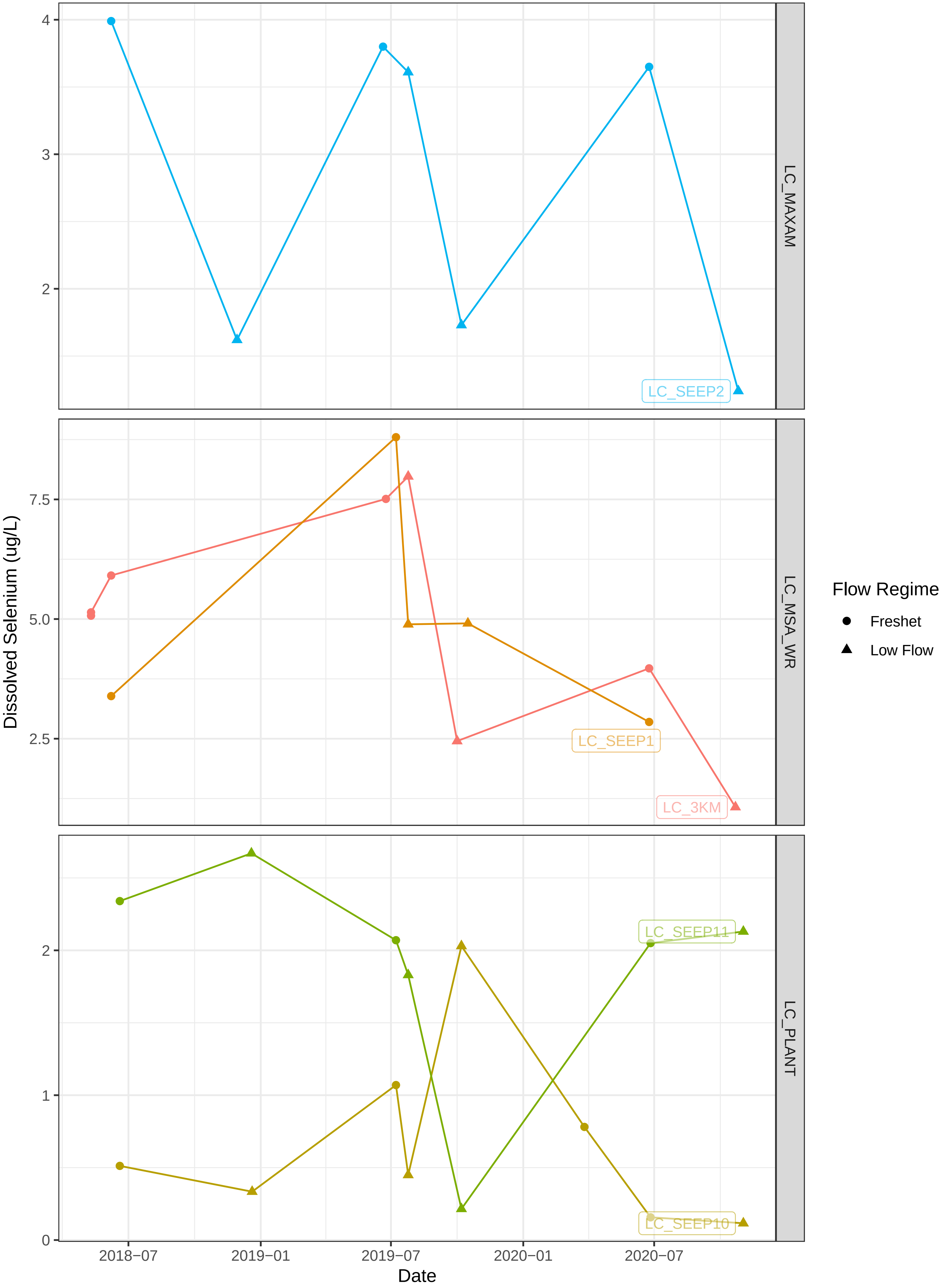
Field pH (pH units)
9.0
8.5
8.0
7.5
7.0
6.5
LC_SEEP8
LC_SEEP14
LC_UDP1
LC_UDHP
LC_DC_WR
LC_SEEP15
LC_DisturbedWSlope
LC_SEEP19
LC_HSP_WR
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
Maximum Field pH
Minimum Field pH


Field pH (pH units)
9.0
8.5
8.0
7.5
7.0
6.5
LC_MAXAM
LC_SEEP2
LC_MSA_WR
LC_SEEP1
LC_3KM
LC_PLANT
LC_SEEP11
LC_SEEP10
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
Maximum Field pH
Minimum Field pH

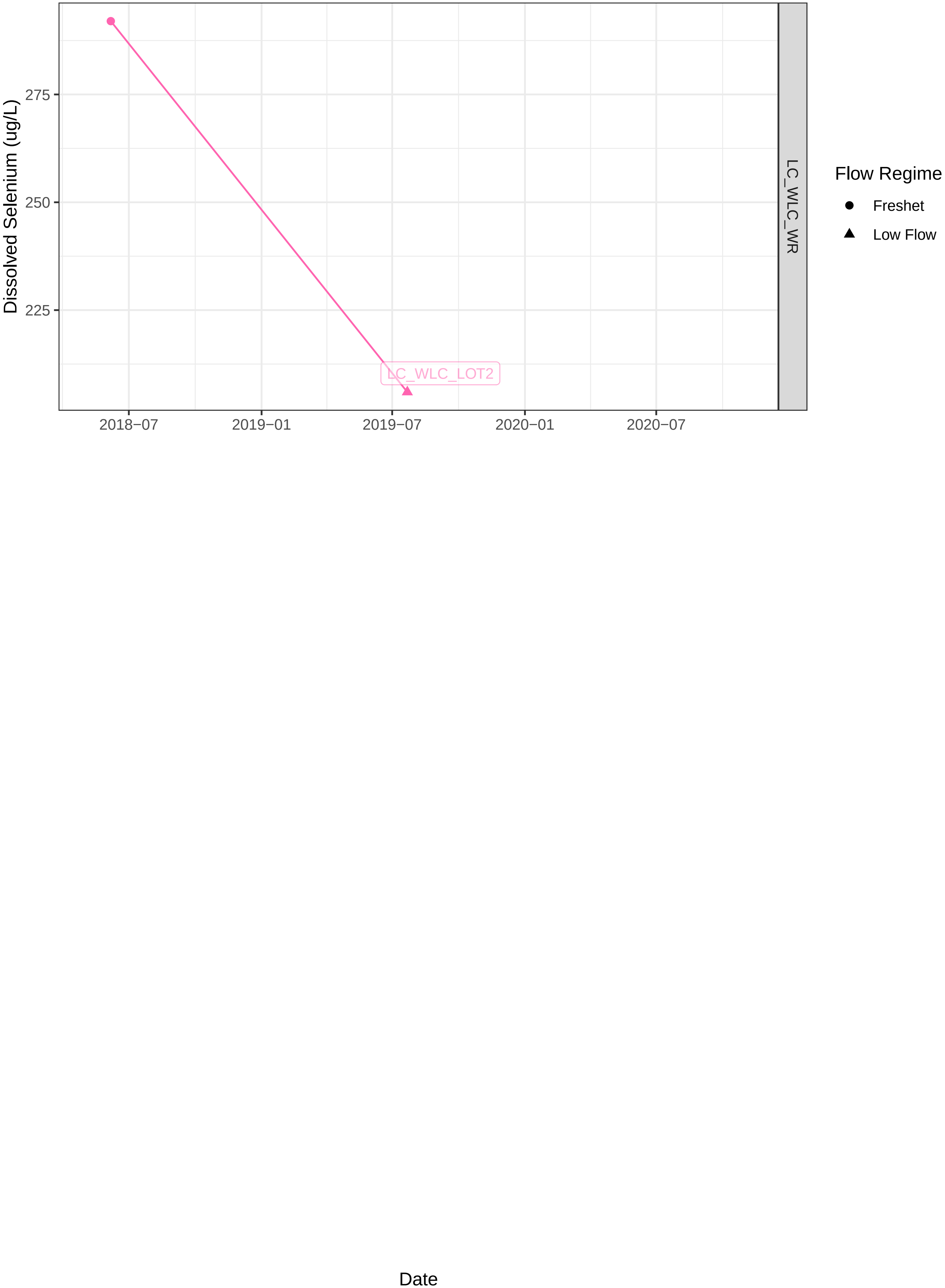

Field pH (pH units)
9.0
8.5
8.0
7.5
7.0
6.5
LC_WLC_LOT2
LC_WLC_WR
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
Maximum Field pH
Minimum Field pH



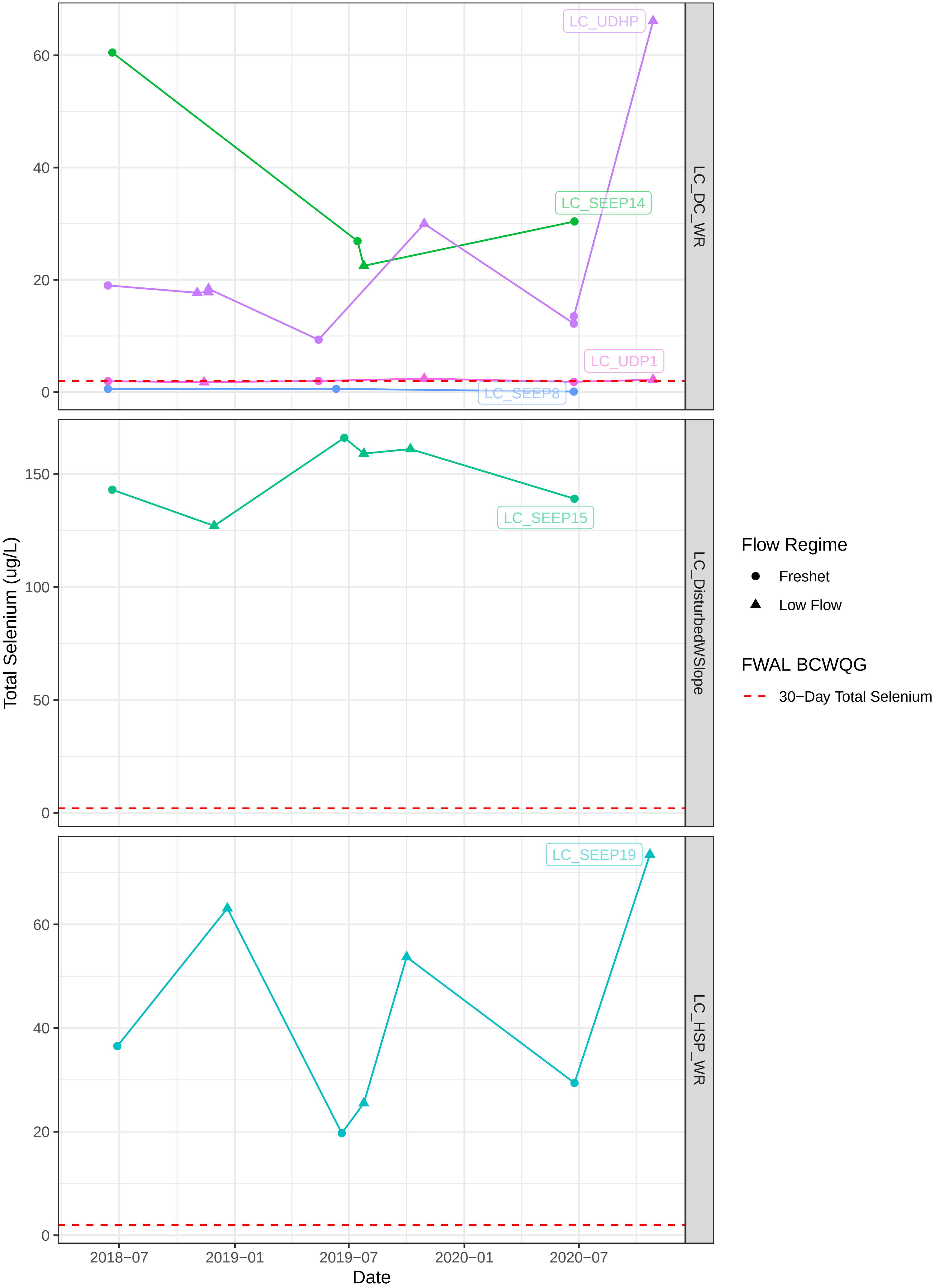
Note: there is no FWAL BCWQG for Dissolved Selenium



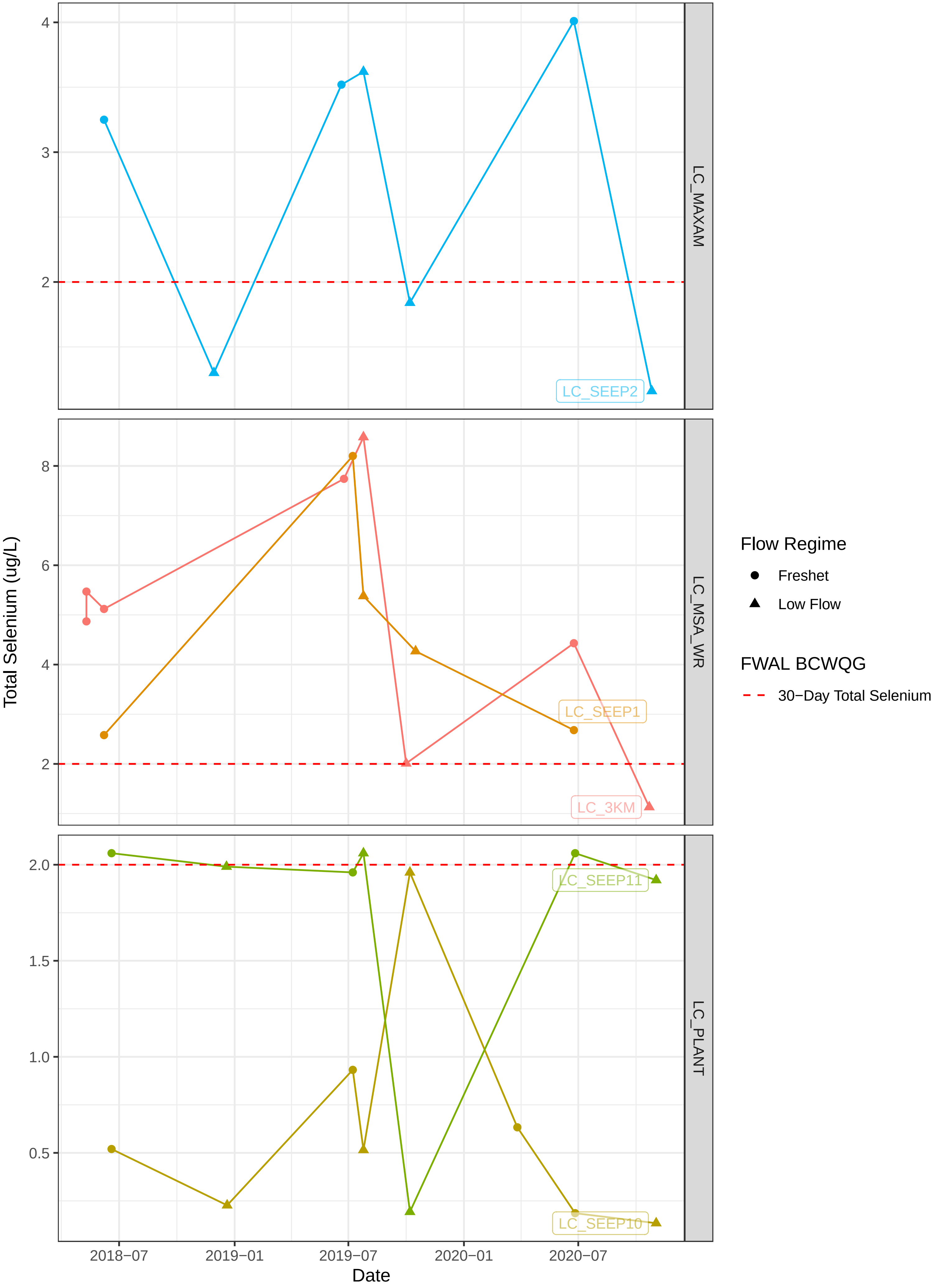
Note: there is no FWAL BCWQG for Dissolved Selenium

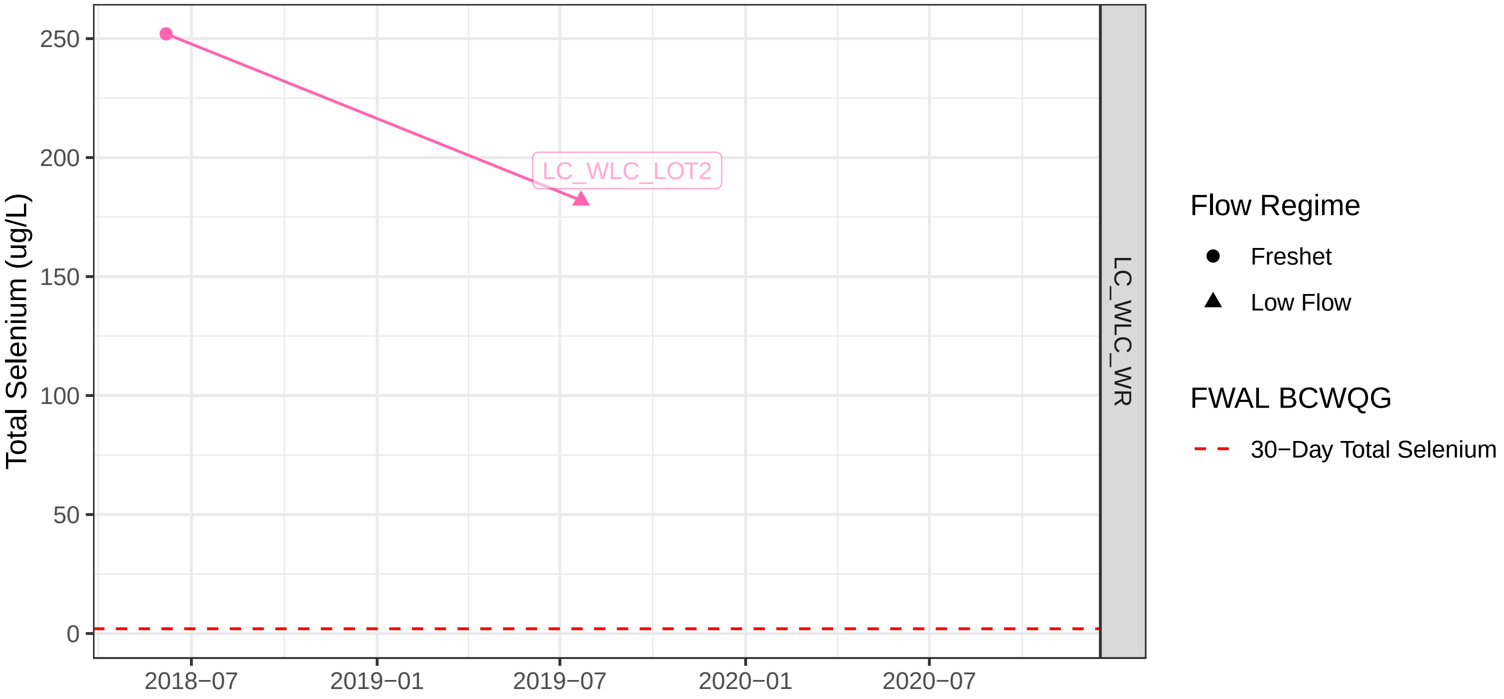


Note: there is no FWAL BCWQG for Dissolved Selenium

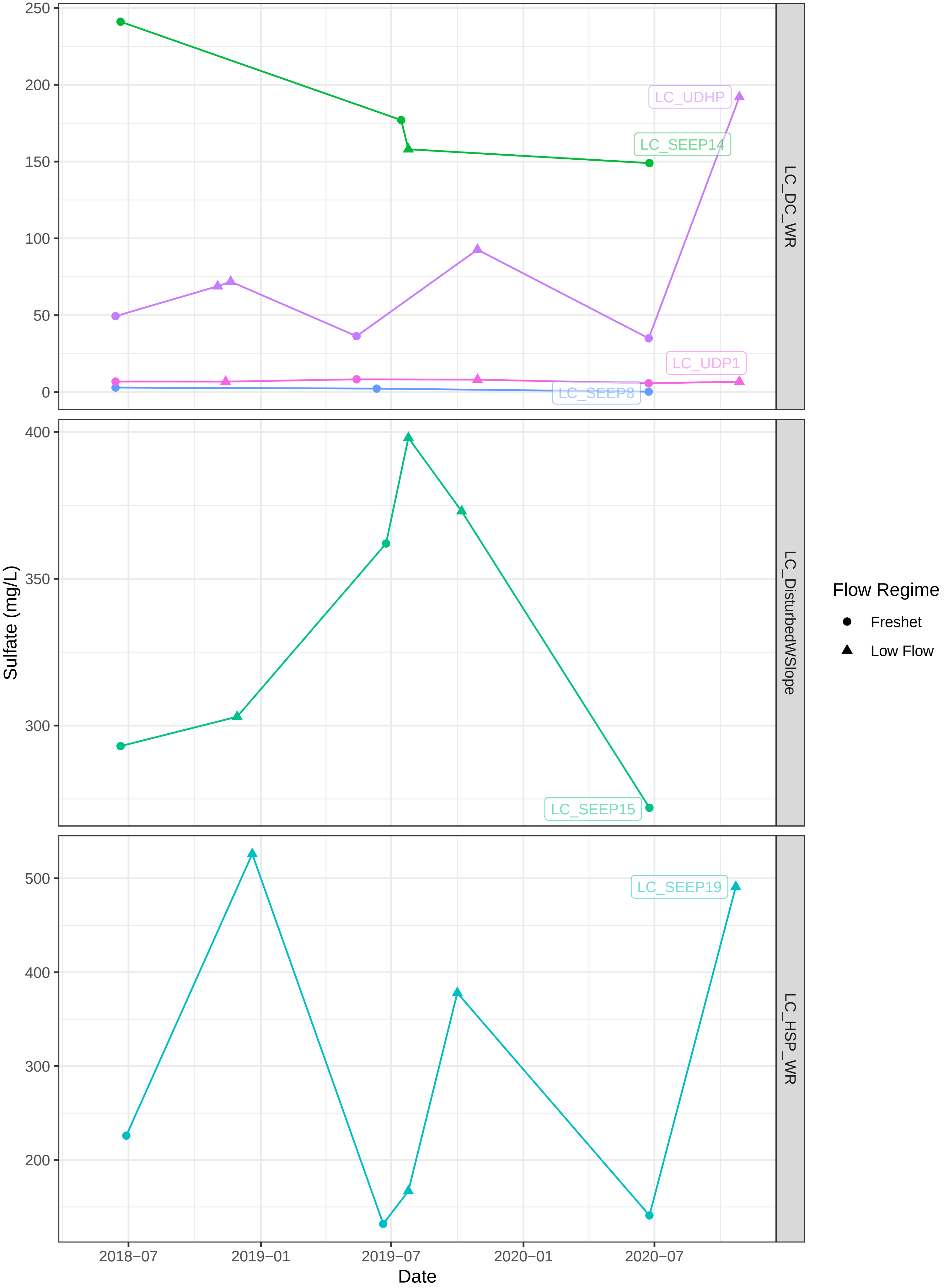


Total Selenium (ug/L)
Date
2018−07
2019−01
2019−07
2020−01
2020−07
LC_DC_WR
LC_DisturbedWSlope
LC_HSP_WR
LC_UDHP
LC_SEEP14
LC_UDP1
LC_SEEP8
LC_SEEP15
LC_SEEP19
0
20
40
60
50
100
150
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Selenium

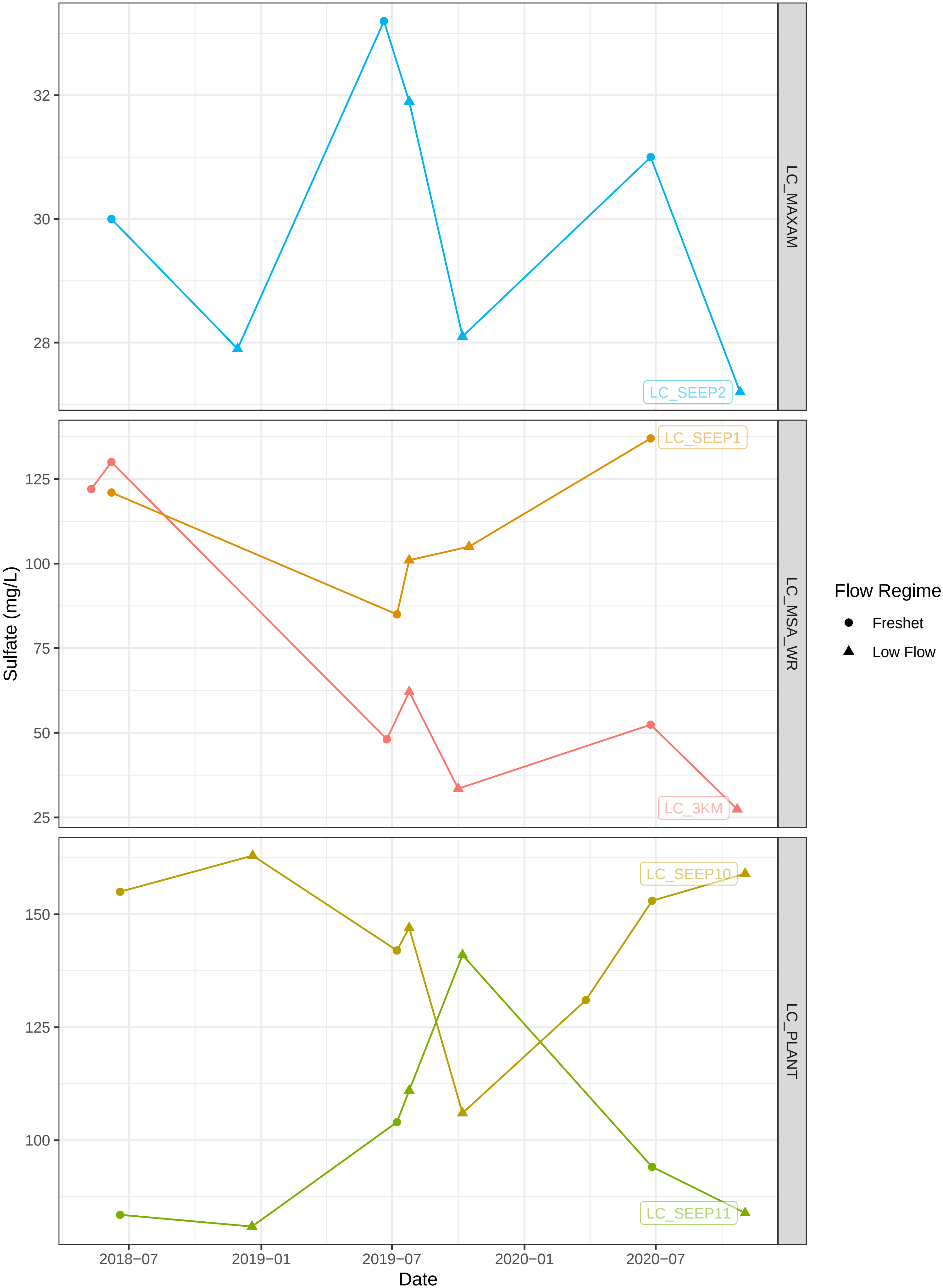

Total Selenium (ug/L)
4
3
2
LC_SEEP2
LC_MAXAM
8
6
4
2
LC_SEEP1
LC_3KM
LC_MSA_WR
2.0
1.5
1.0
0.5
LC_SEEP11
LC_SEEP10
LC_PLANT
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Selenium


Total Selenium (ug/L)
250
200
150
100
50
0
LC_WLC_LOT2
LC_WLC_WR
2018−07
2019−01
2019−07
2020−01
2020−07
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Selenium

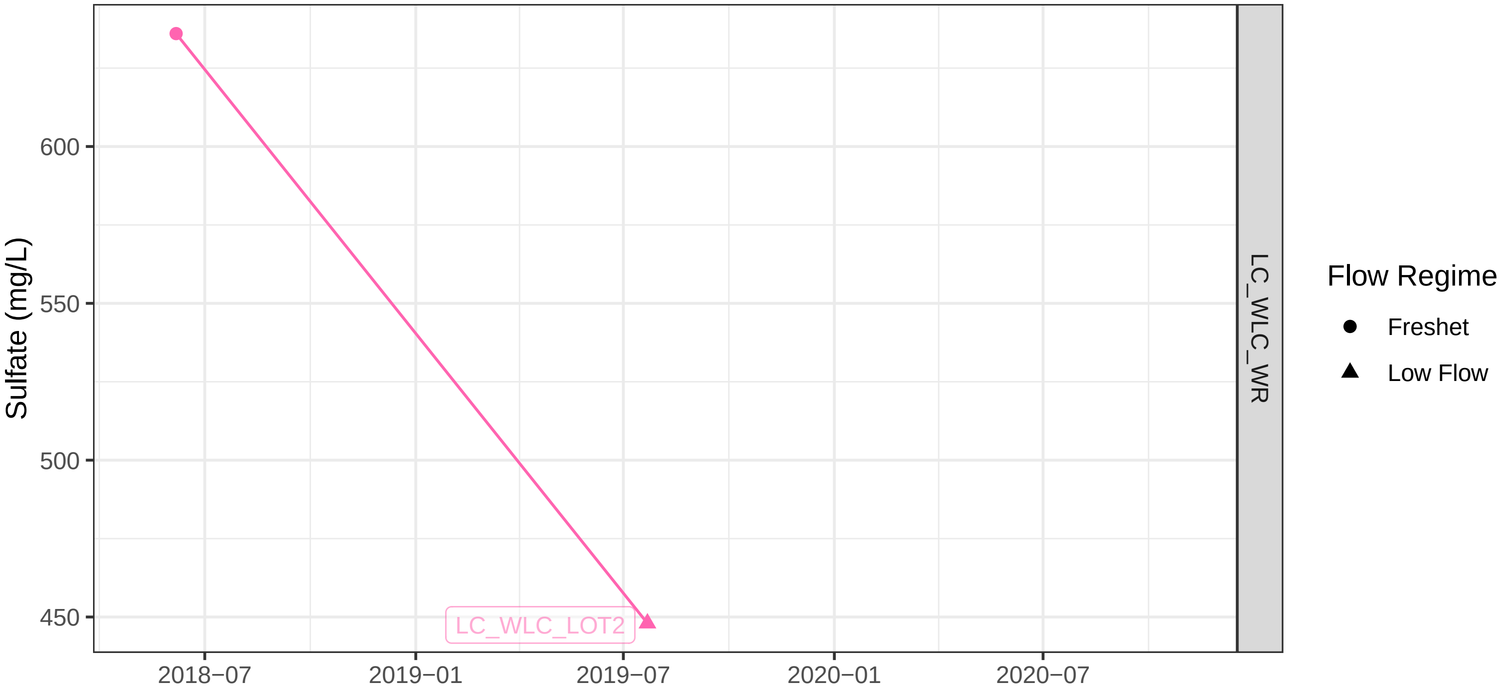
Date



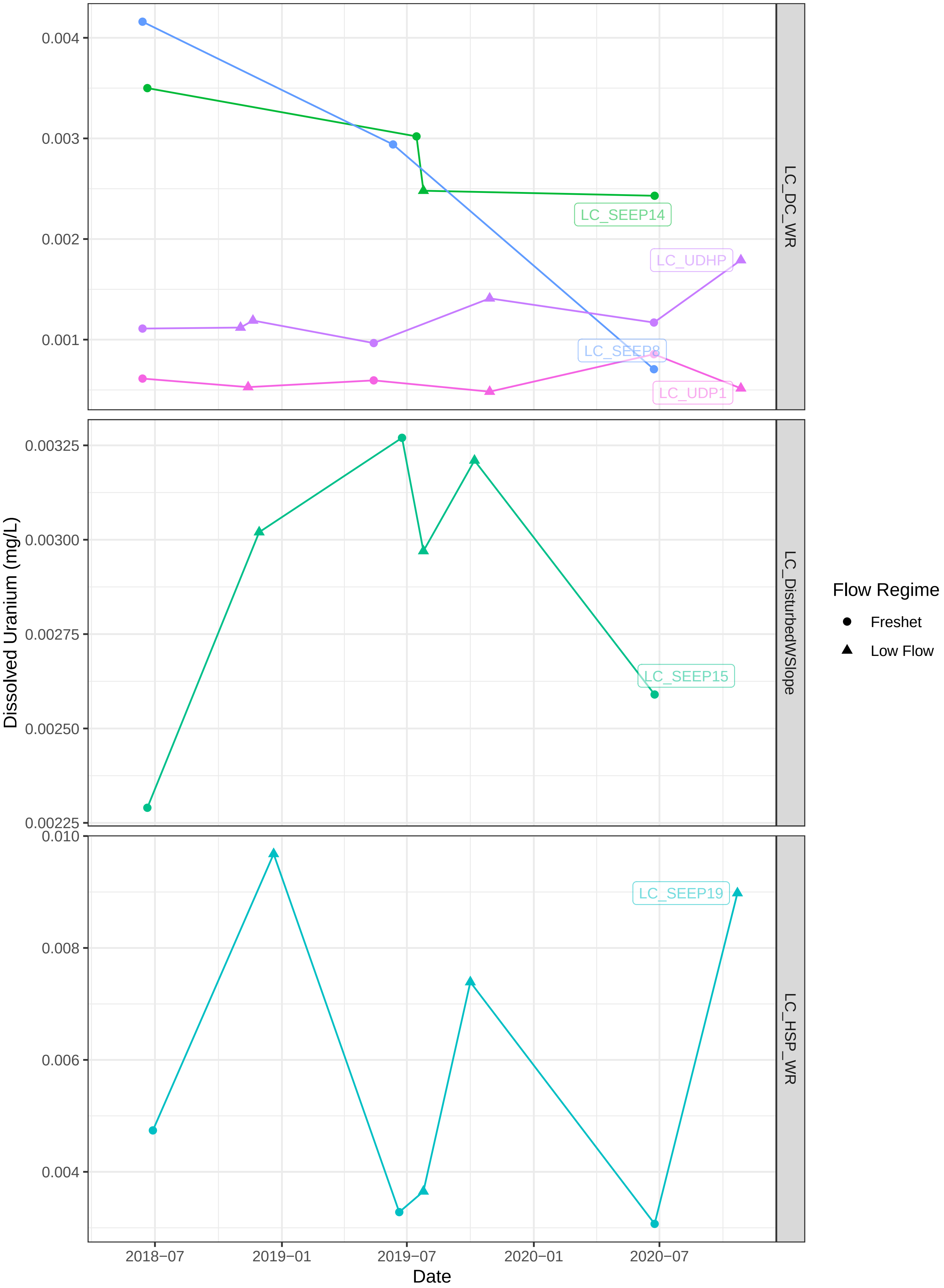
Note: The FWAL BCWQG for Sulfate is dependent on Hardness



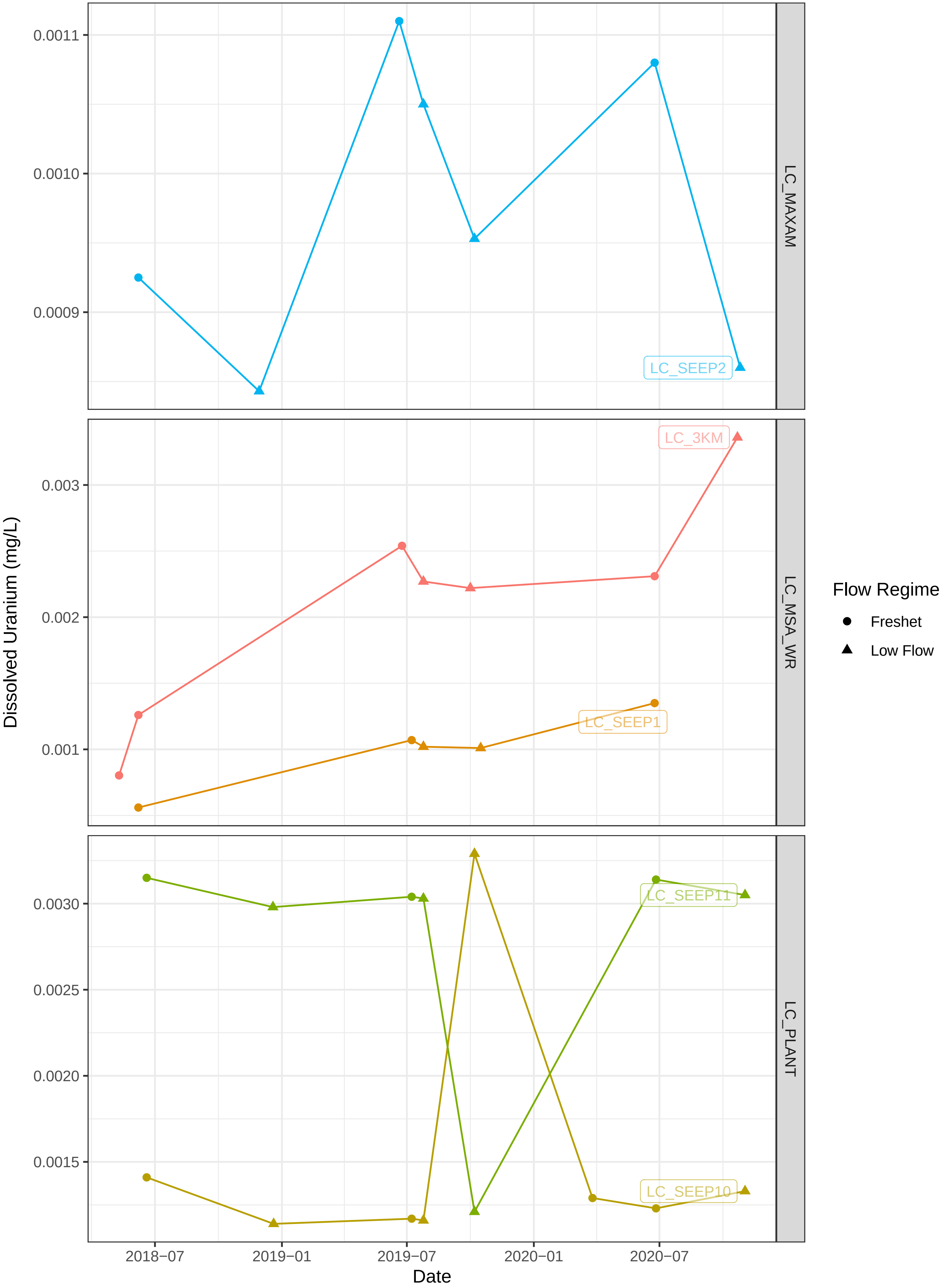
Note: The FWAL BCWQG for Sulfate is dependent on Hardness



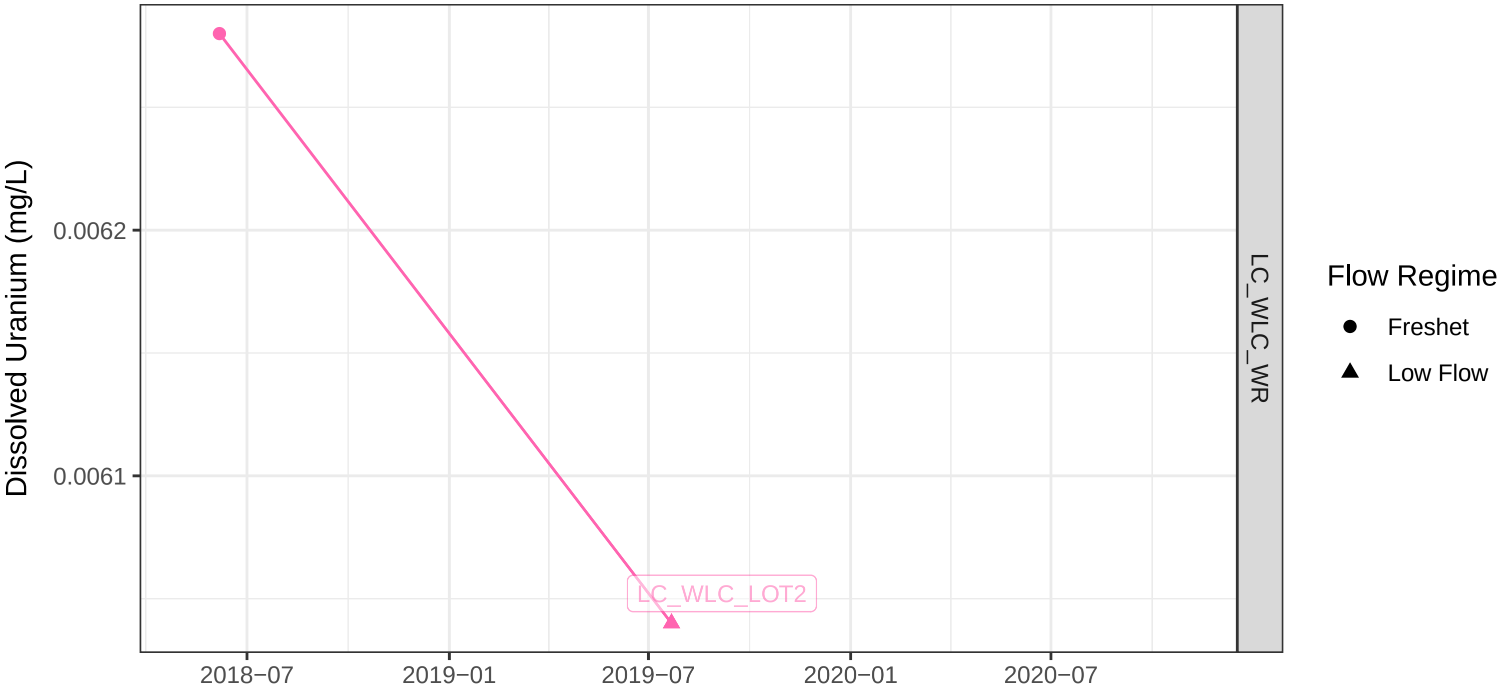
Note: The FWAL BCWQG for Sulfate is dependent on Hardness



Note: there is no FWAL BCWQG for Dissolved Uranium

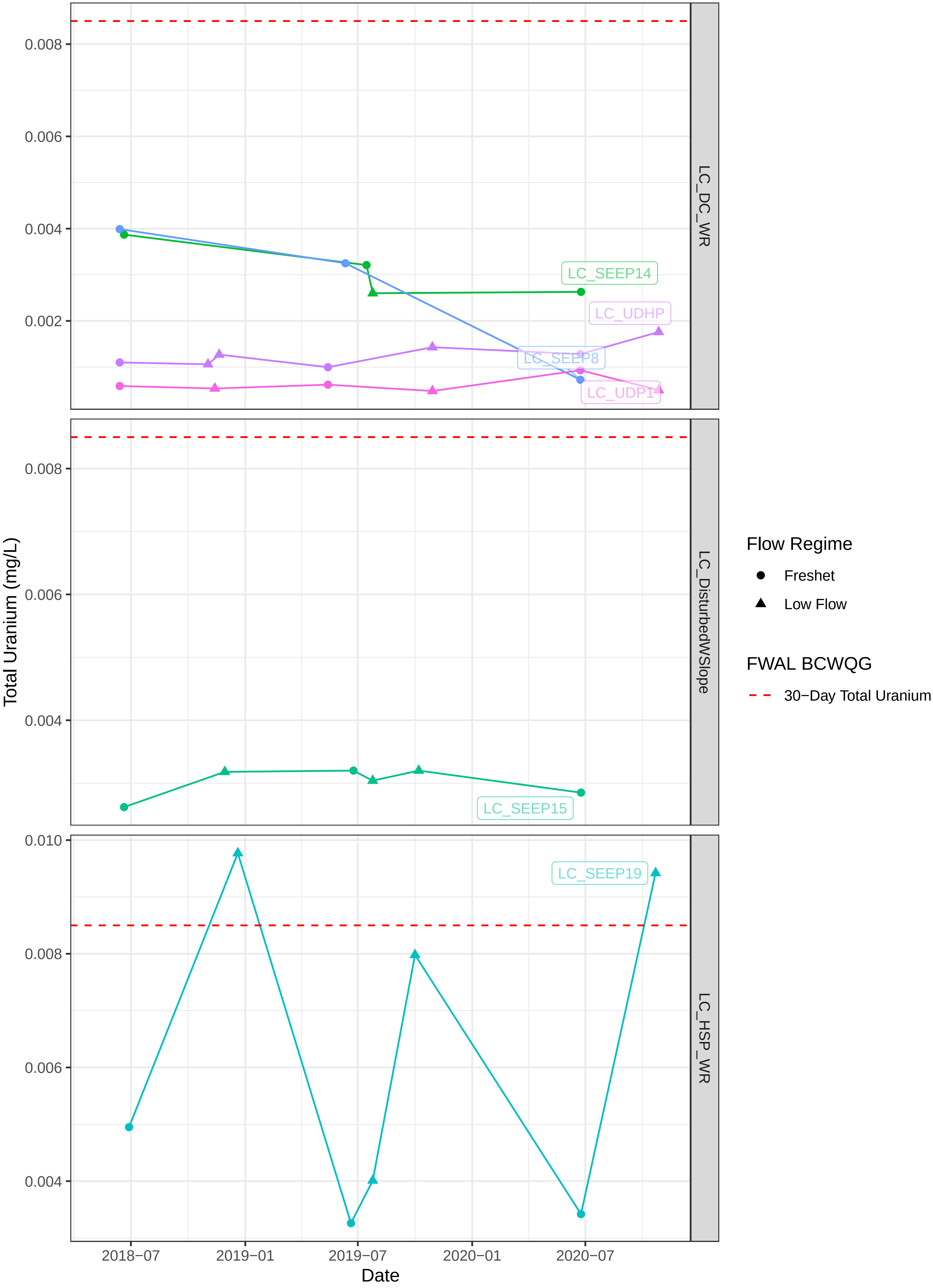


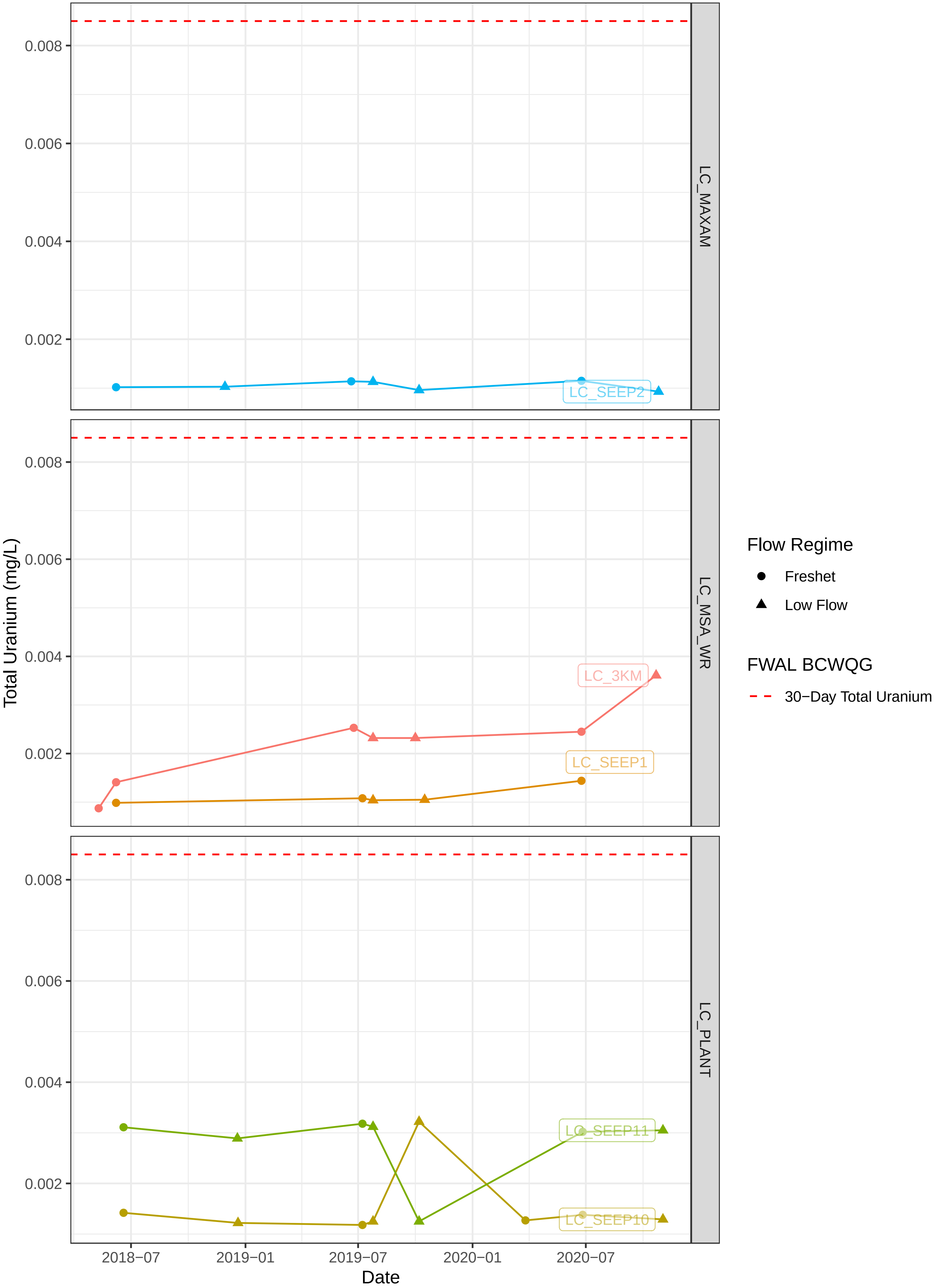
Note: there is no FWAL BCWQG for Dissolved Uranium

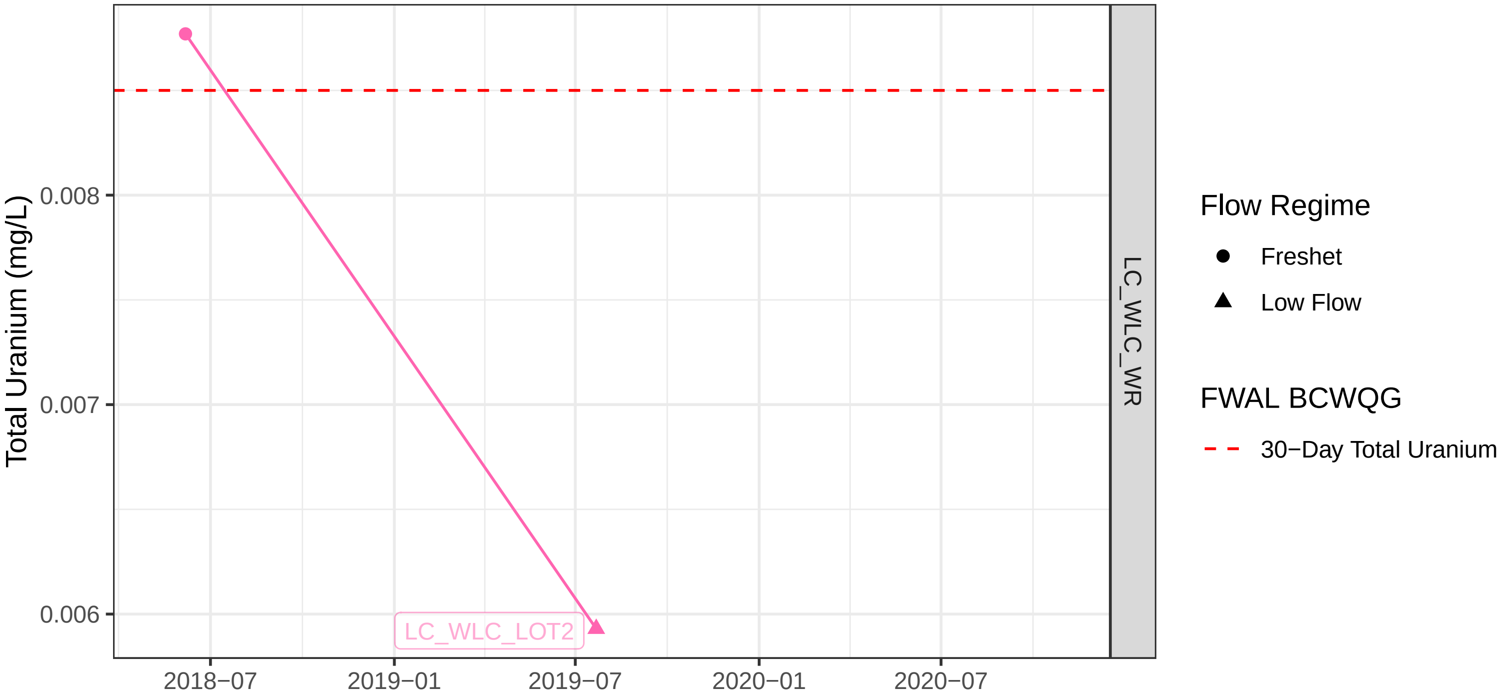


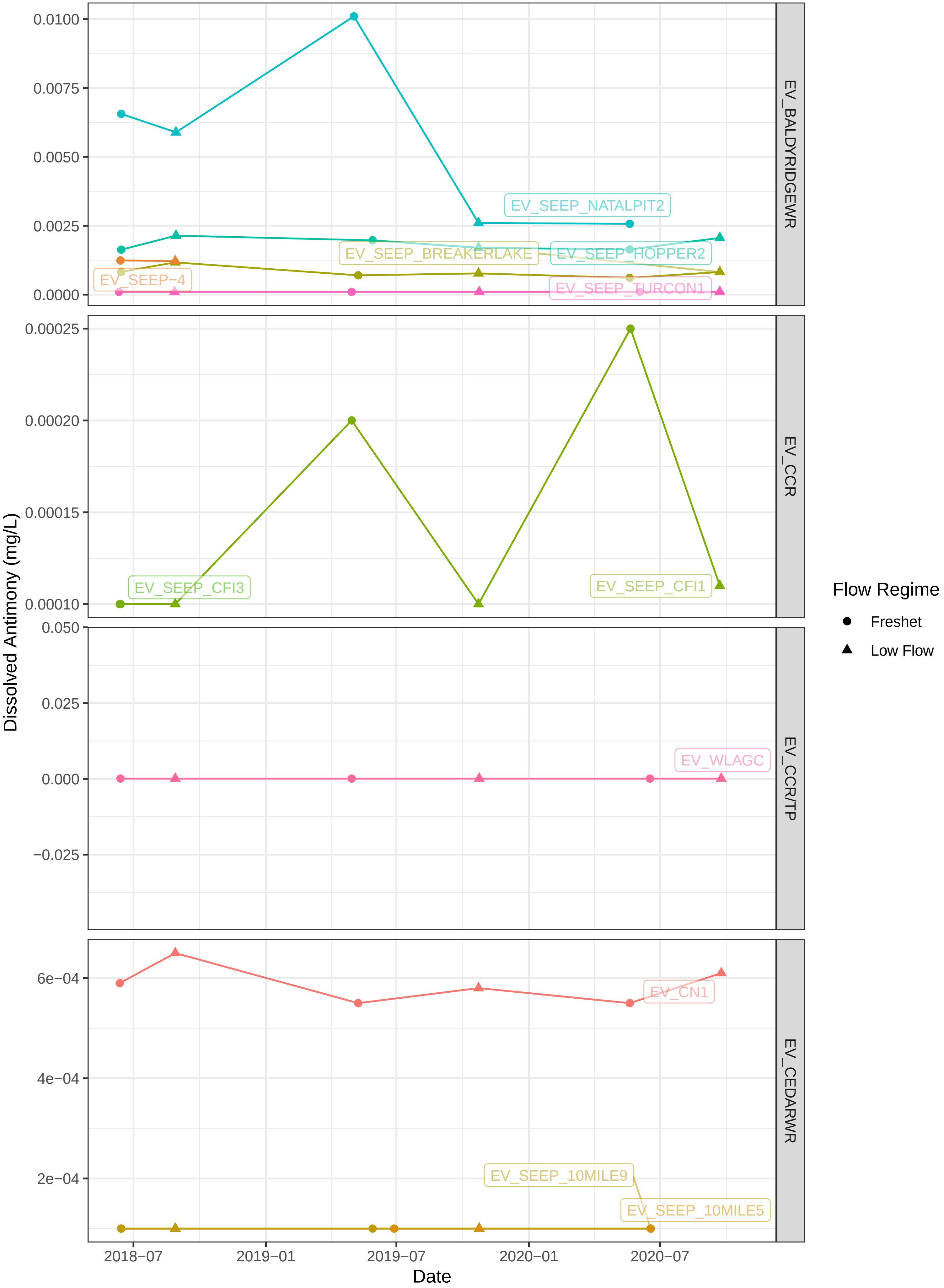
Date

Note: there is no FWAL BCWQG for Dissolved Uranium

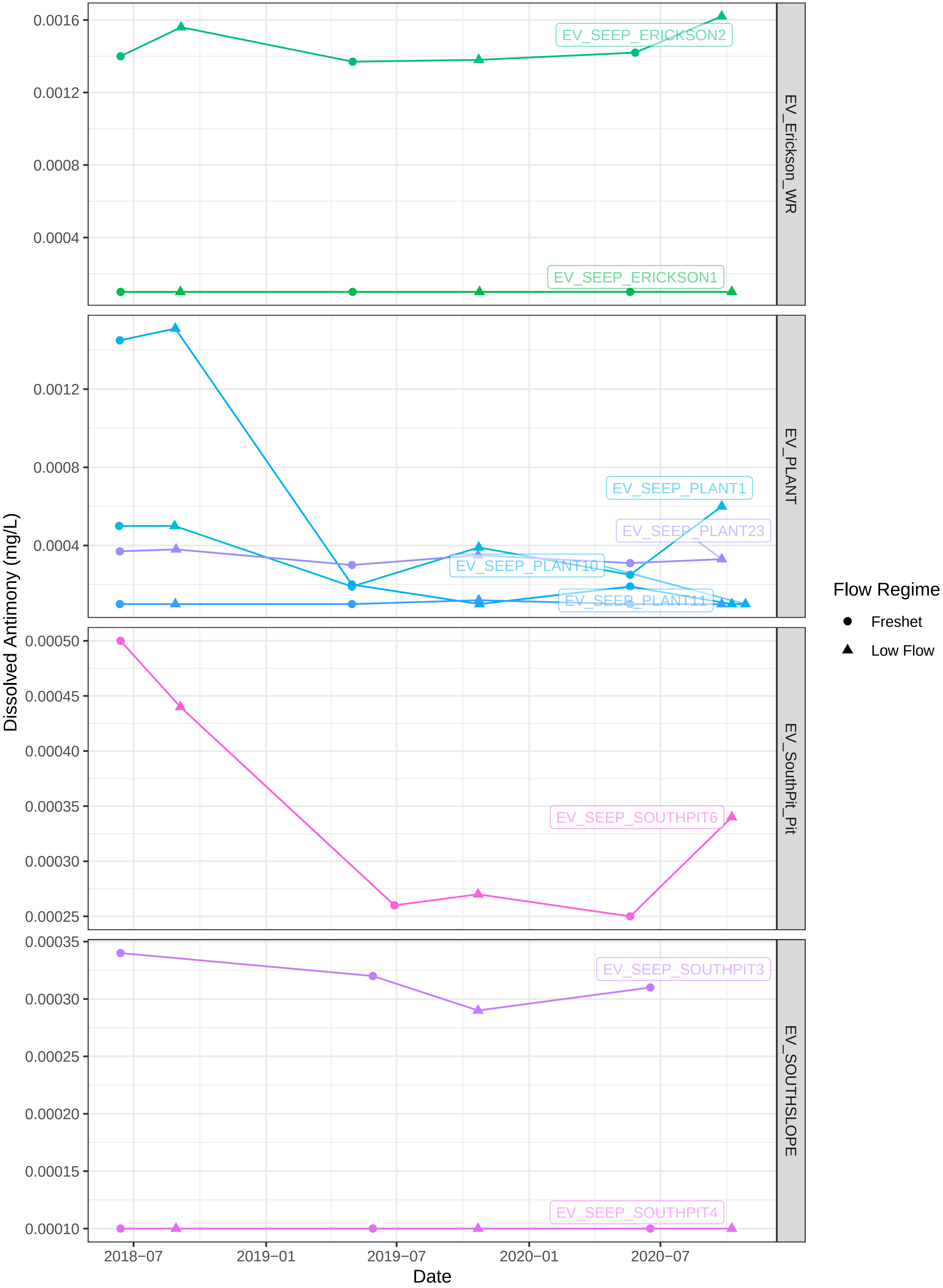

0.008
0.006
0.004
0.002
LC_SEEP14
LC_UDHP
LC_SEEP8
LC_UDP1
LC_DC_WR
0.008
0.006
0.004
LC_SEEP15
LC_DisturbedWSlope
0.010
0.008
0.006
0.004
LC_SEEP19
LC_HSP_WR
Total Uranium (mg/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Uranium


Total Uranium (mg/L)
0.008
0.006
0.004
0.002
LC_MAXAM
LC_SEEP2
LC_MSA_WR
LC_3KM
LC_SEEP1
LC_PLANT
LC_SEEP11
LC_SEEP10
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Uranium

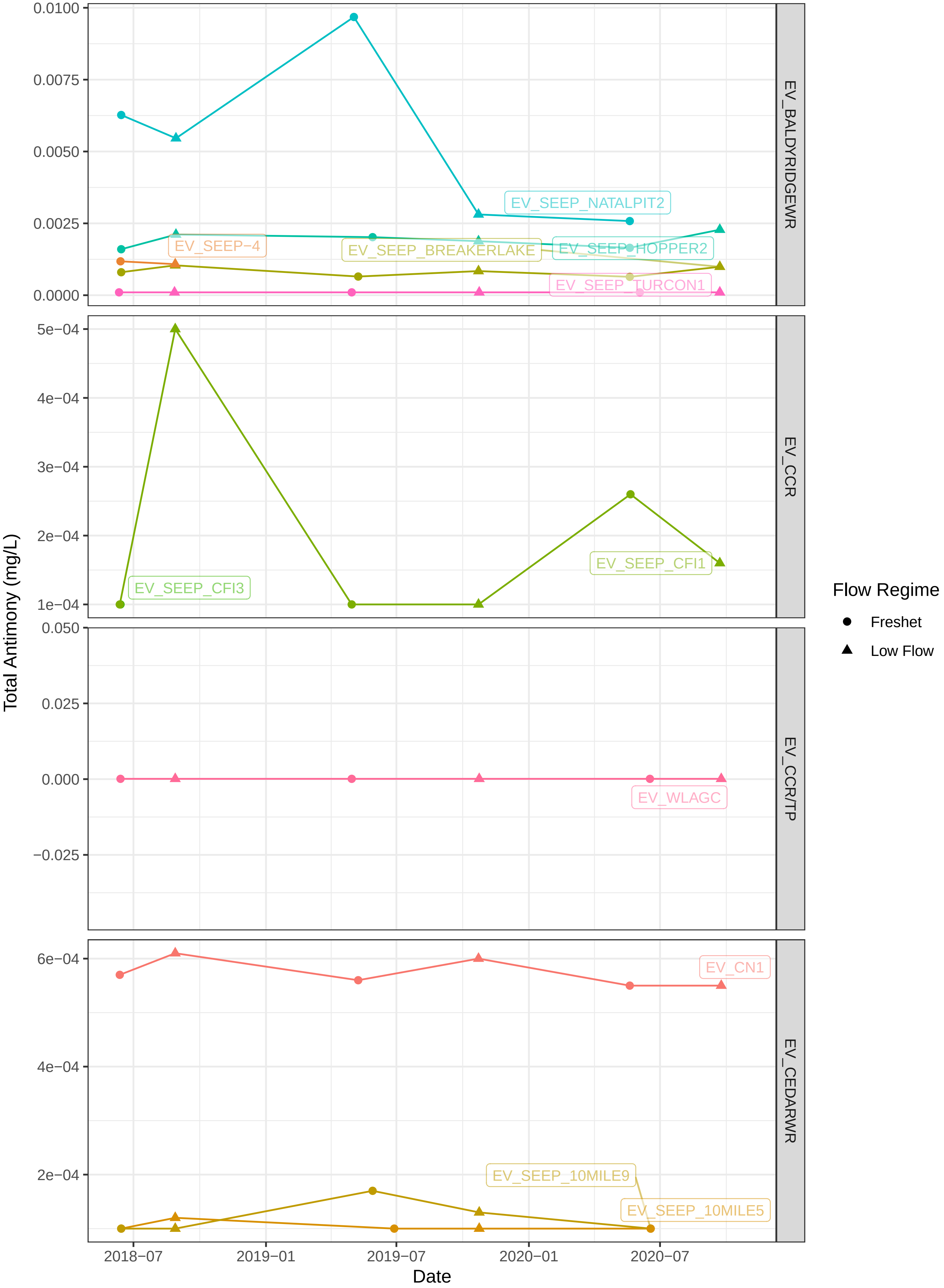

Total Uranium (mg/L)
0.008
0.007
0.006
LC_WLC_LOT2
2018−07
2019−01
2019−07
2020−01
2020−07
LC_WLC_WR
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Uranium
Date



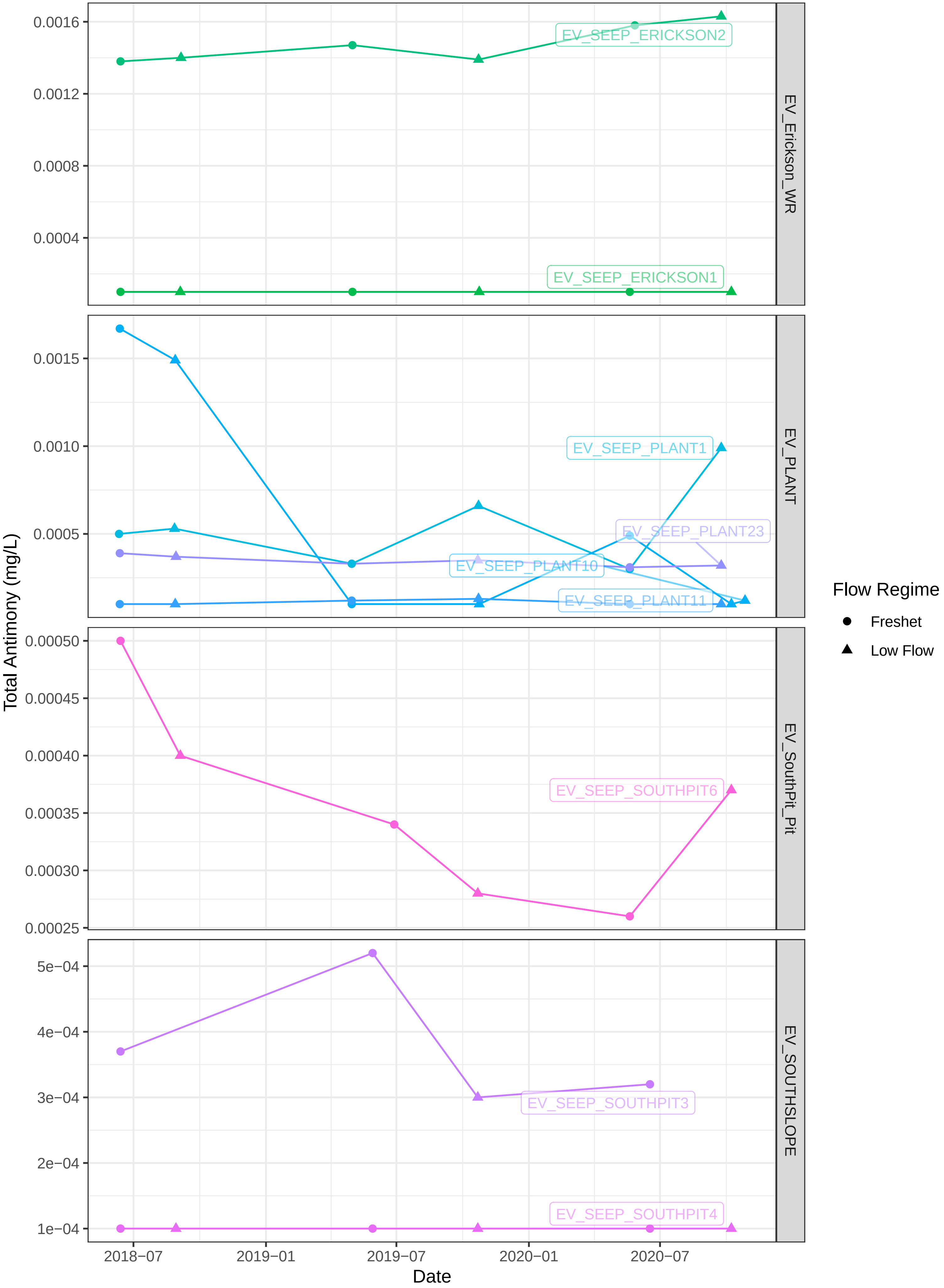
Note: there is no FWAL BCWQG for Dissolved Antimony



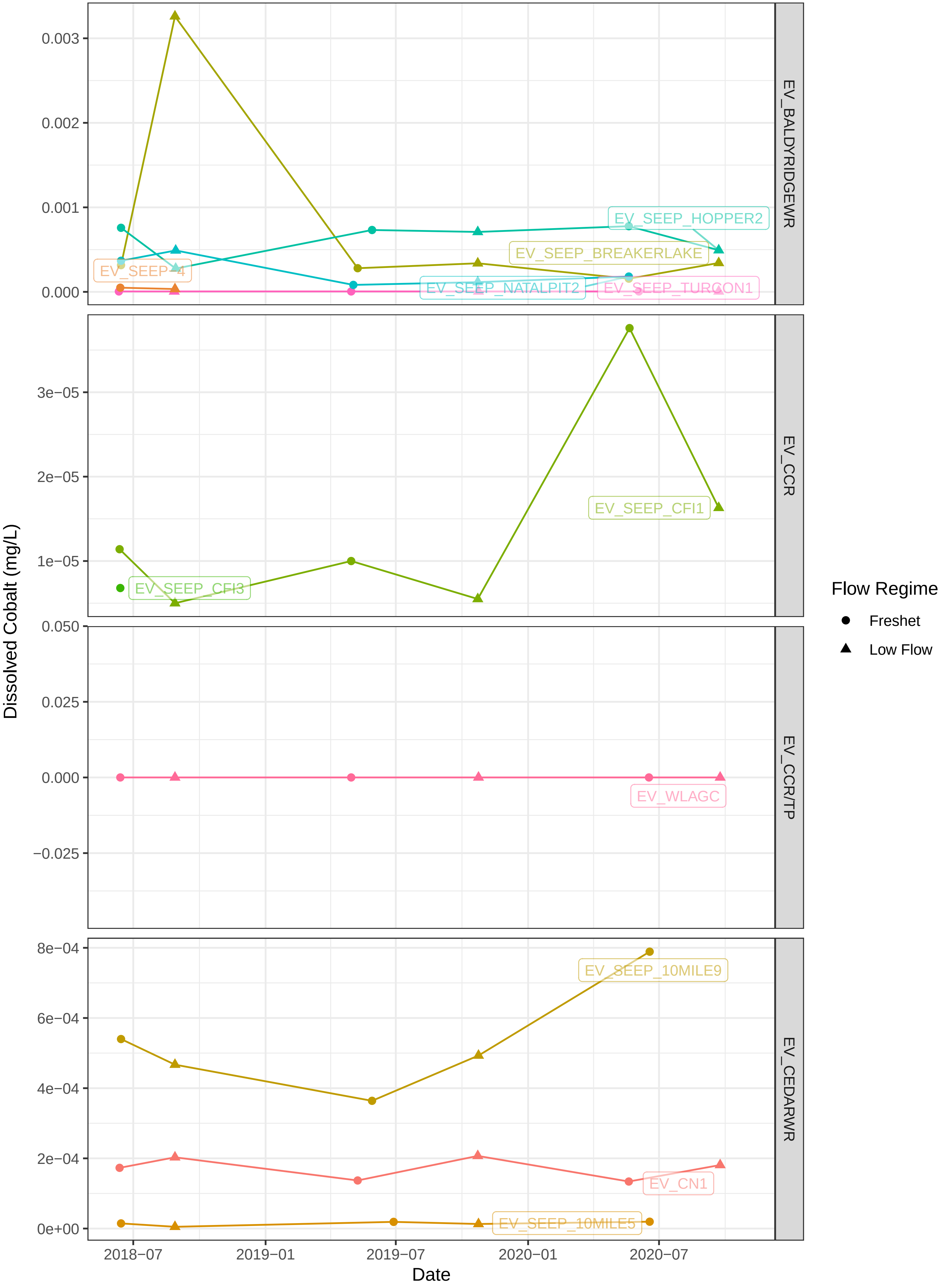
Note: there is no FWAL BCWQG for Dissolved Antimony



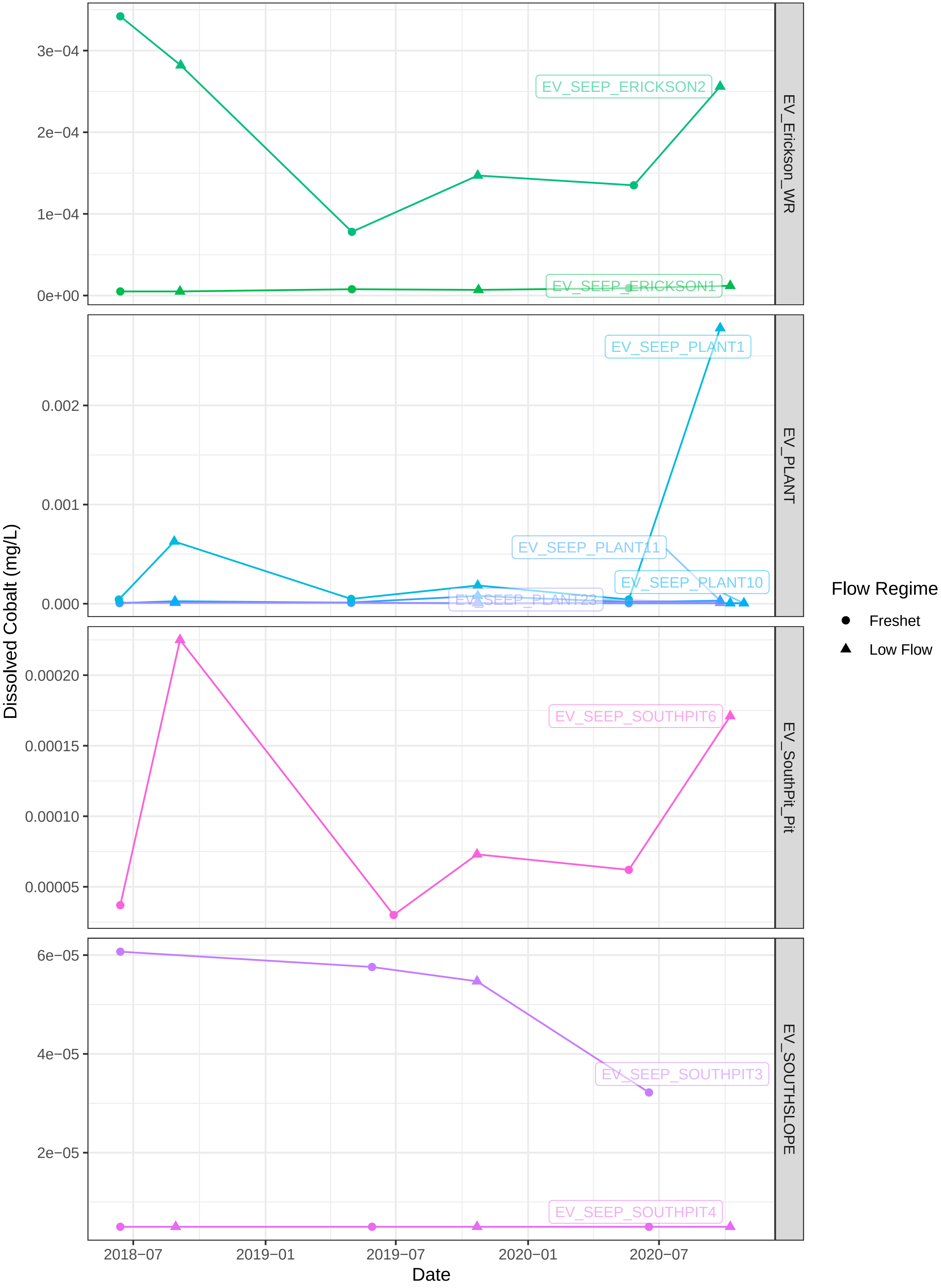
Note: there is no FWAL BCWQG for Total Antimony



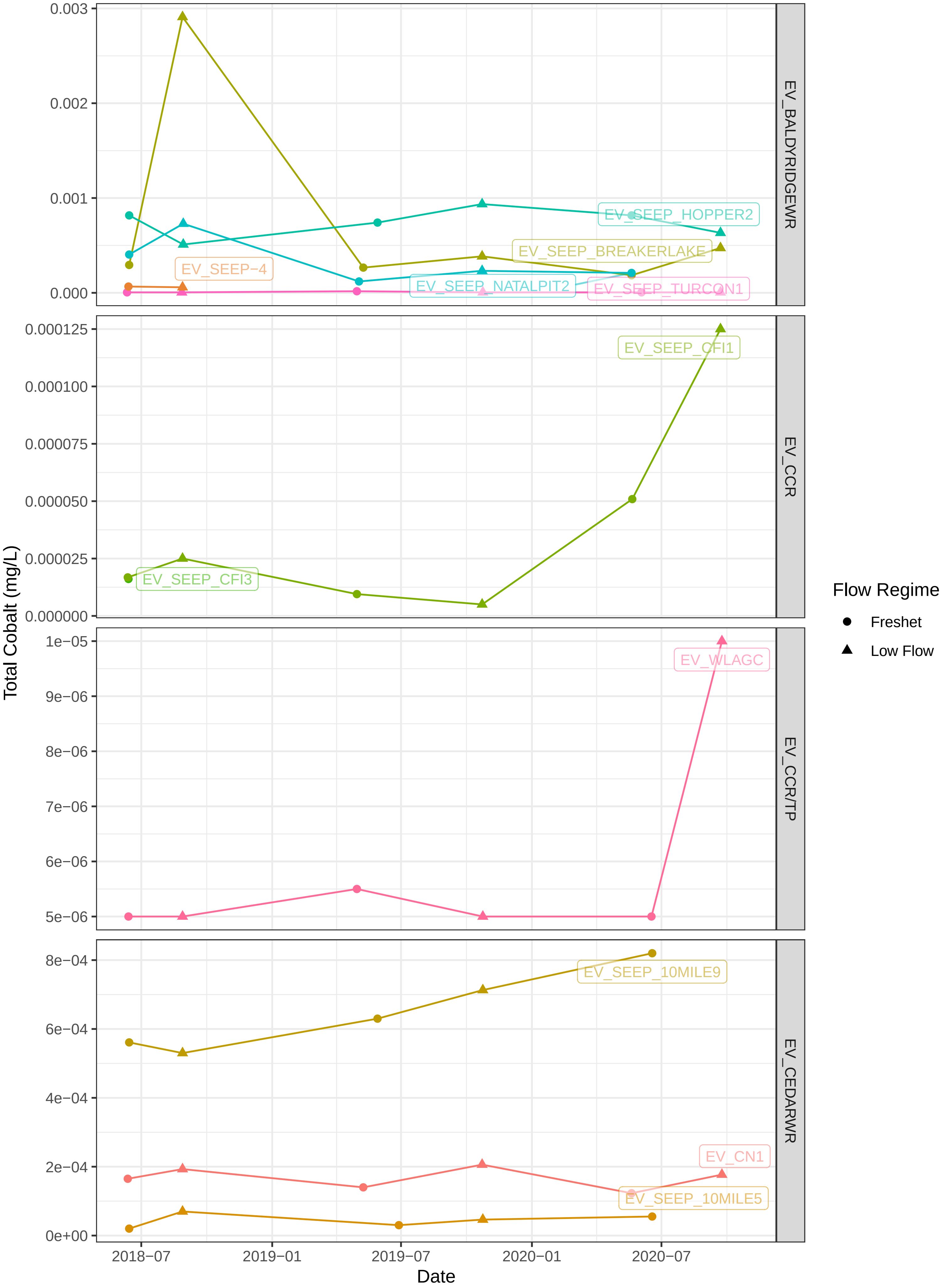
Note: there is no FWAL BCWQG for Total Antimony



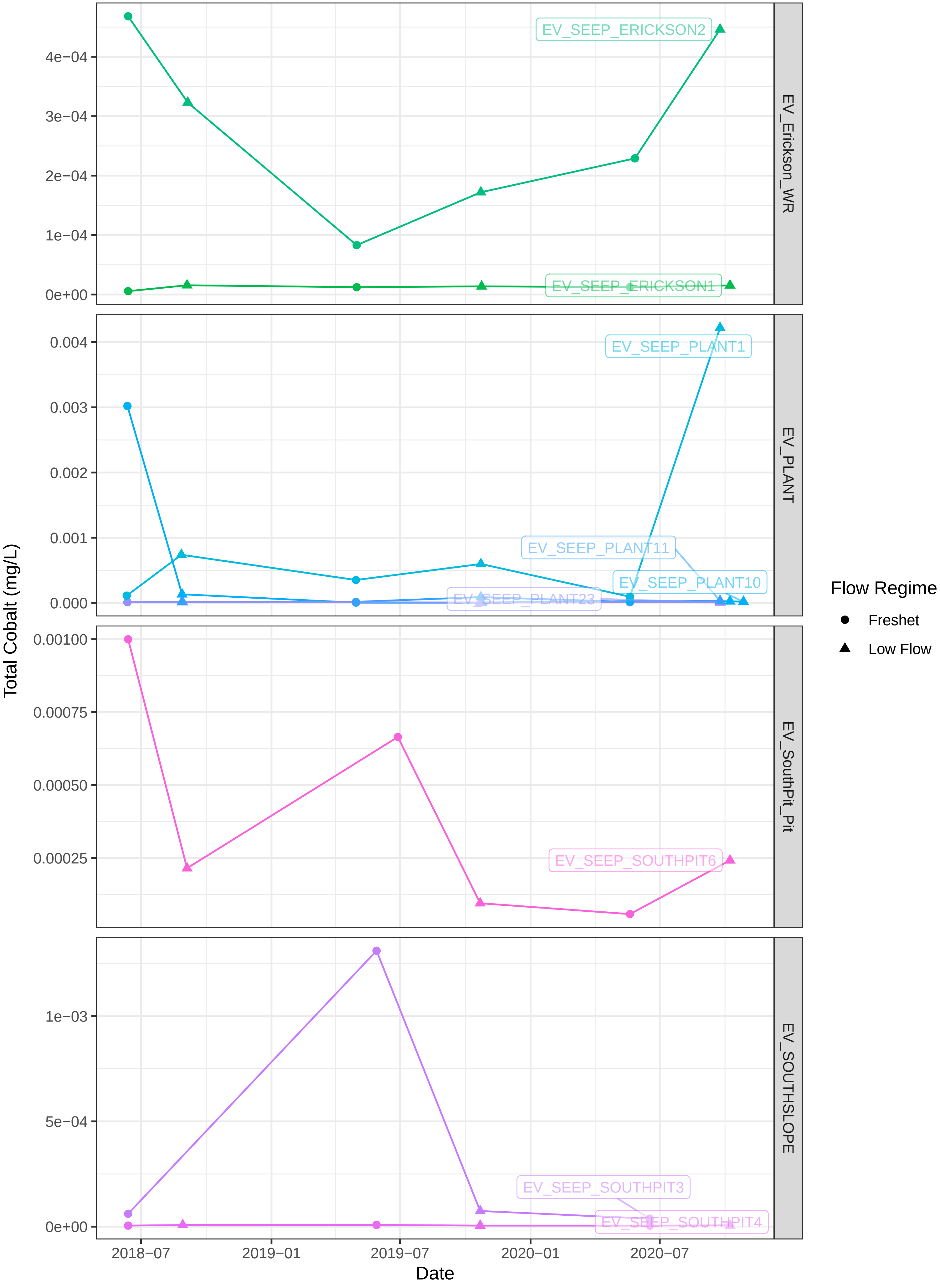
Note: The FWAL BCWQG for Dissolved Cobalt is dependent on Hardness



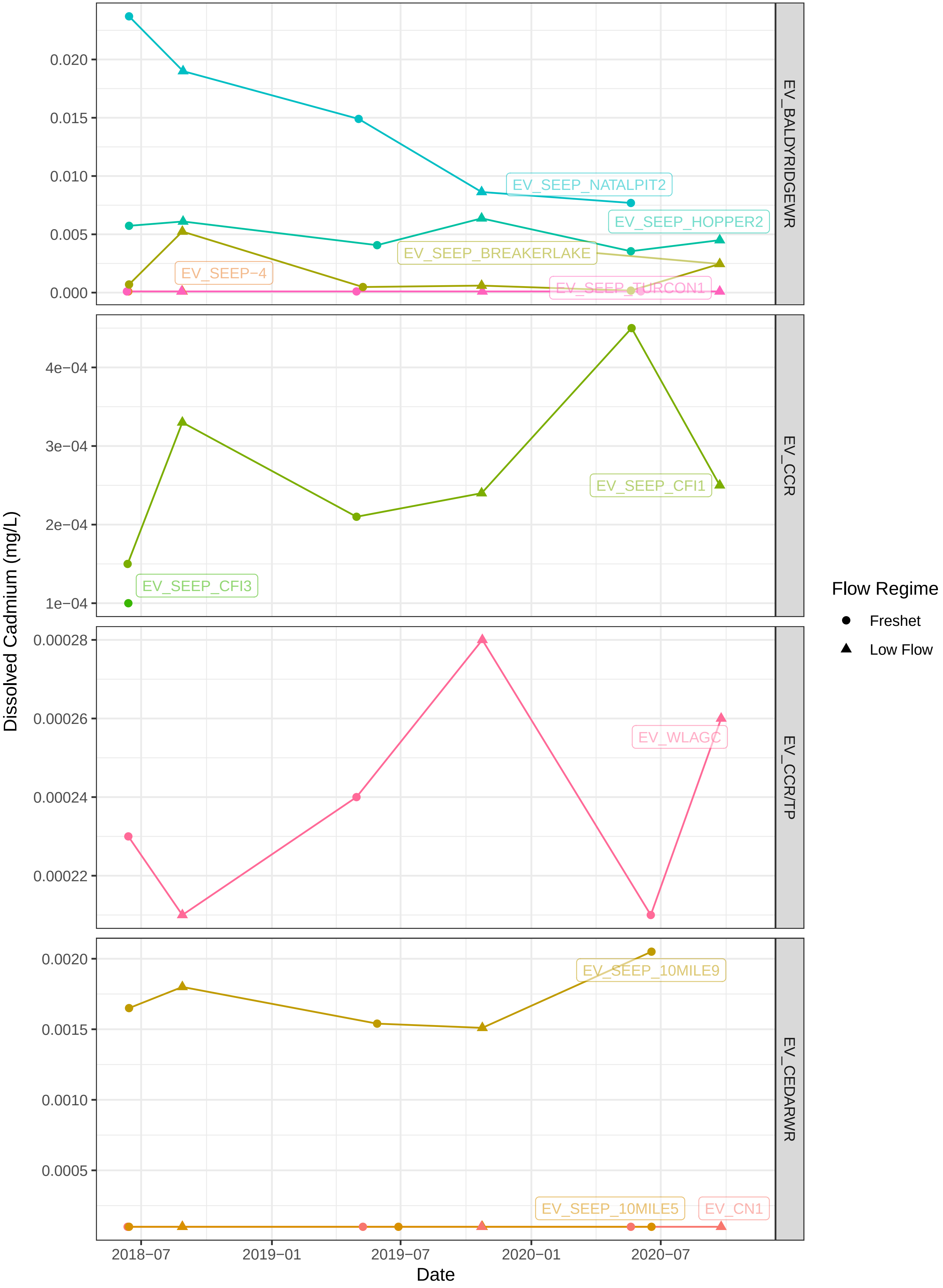
Note: The FWAL BCWQG for Dissolved Cobalt is dependent on Hardness



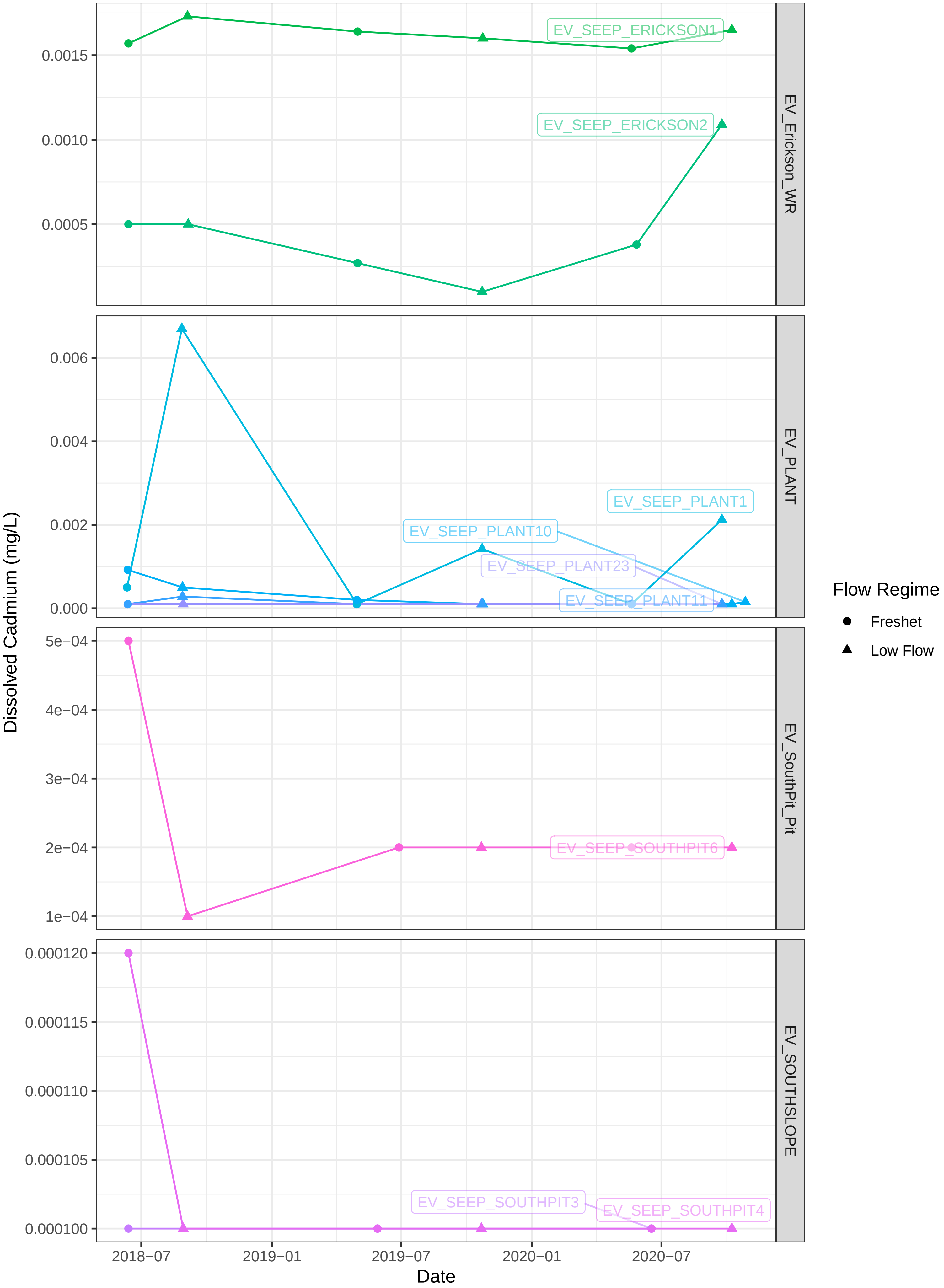
Note: there is no FWAL BCWQG for Total Cobalt



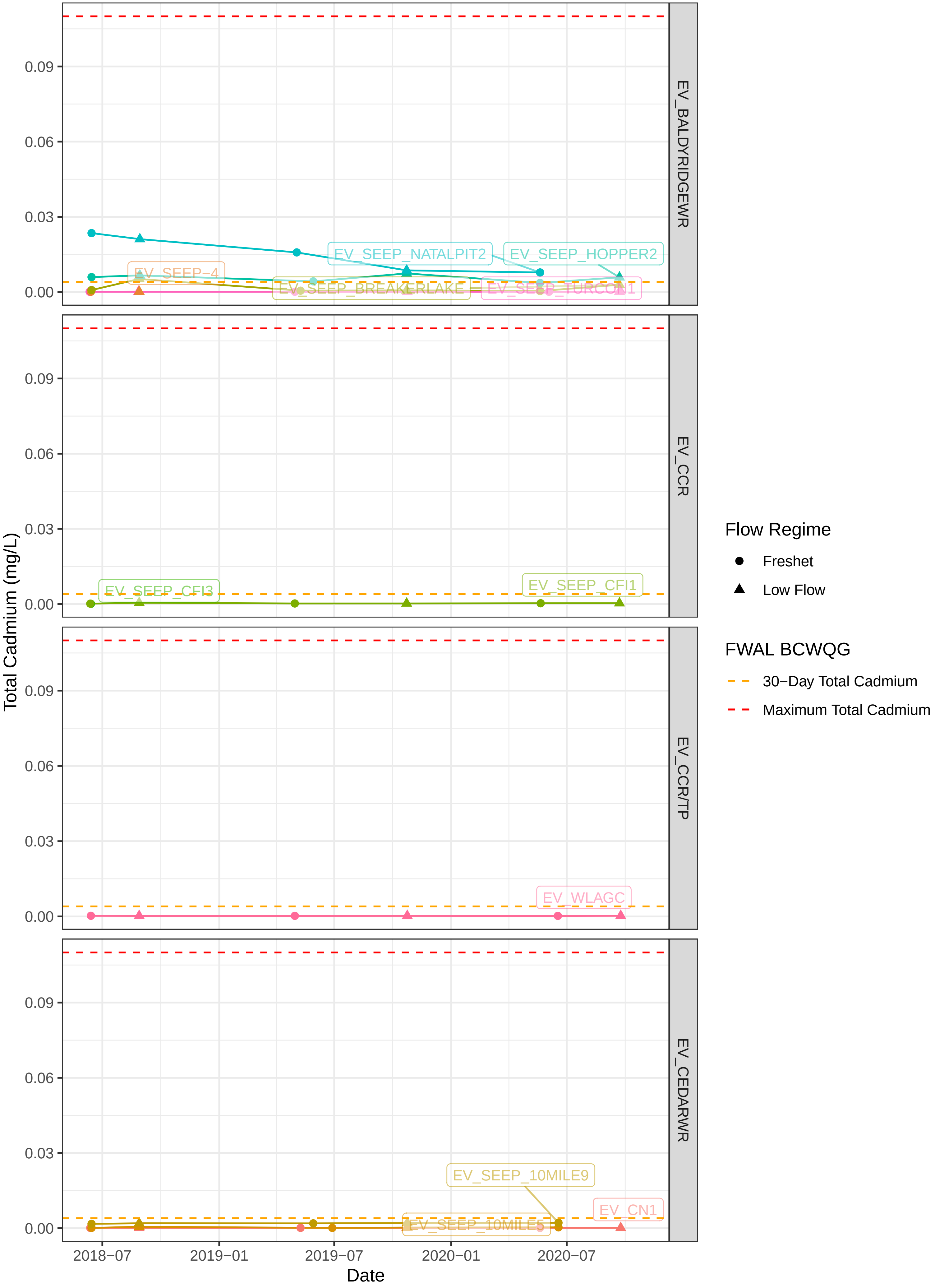
Note: there is no FWAL BCWQG for Total Cobalt



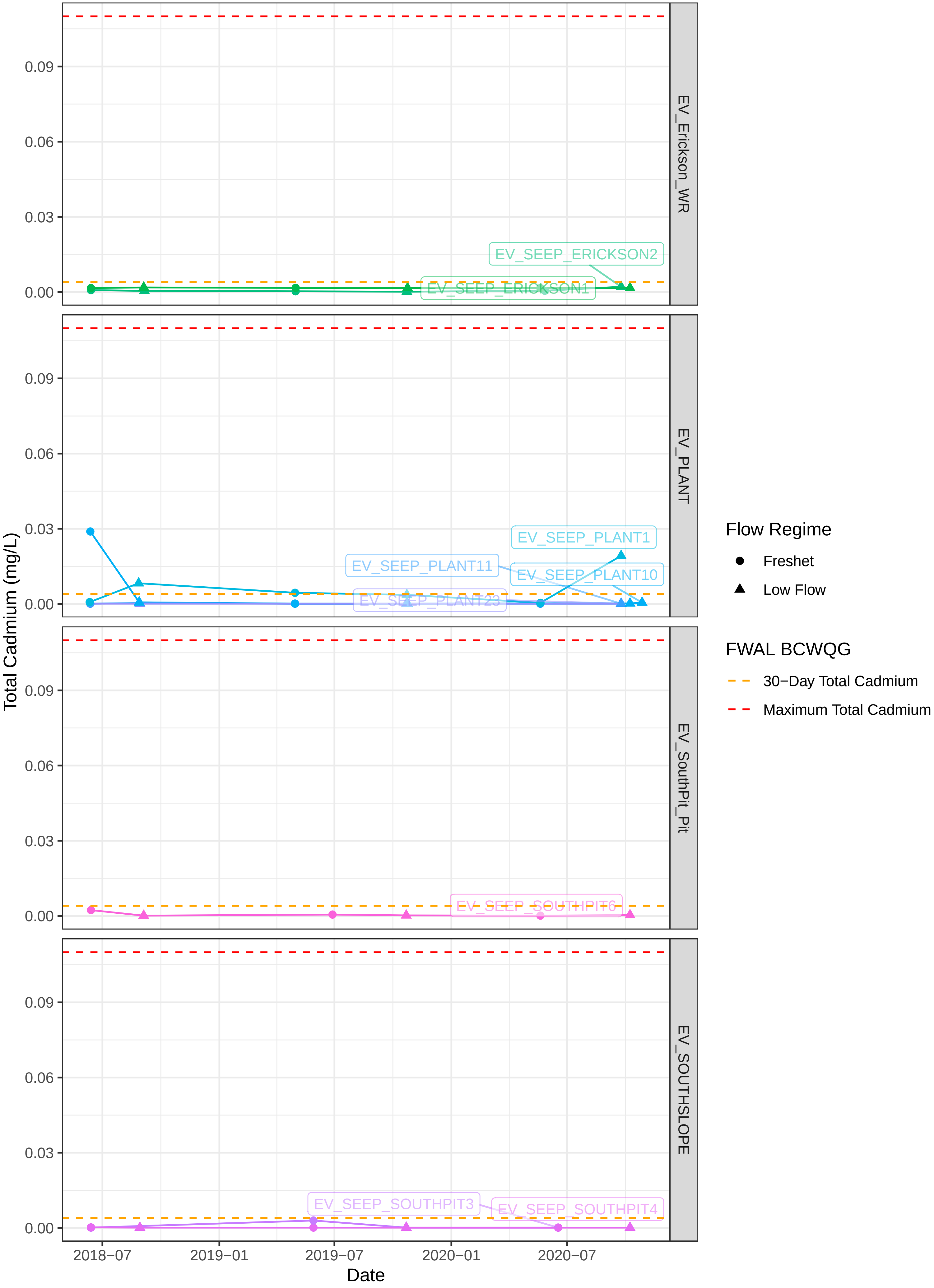
Note: there is no FWAL BCWQG for Dissolved Cadmium

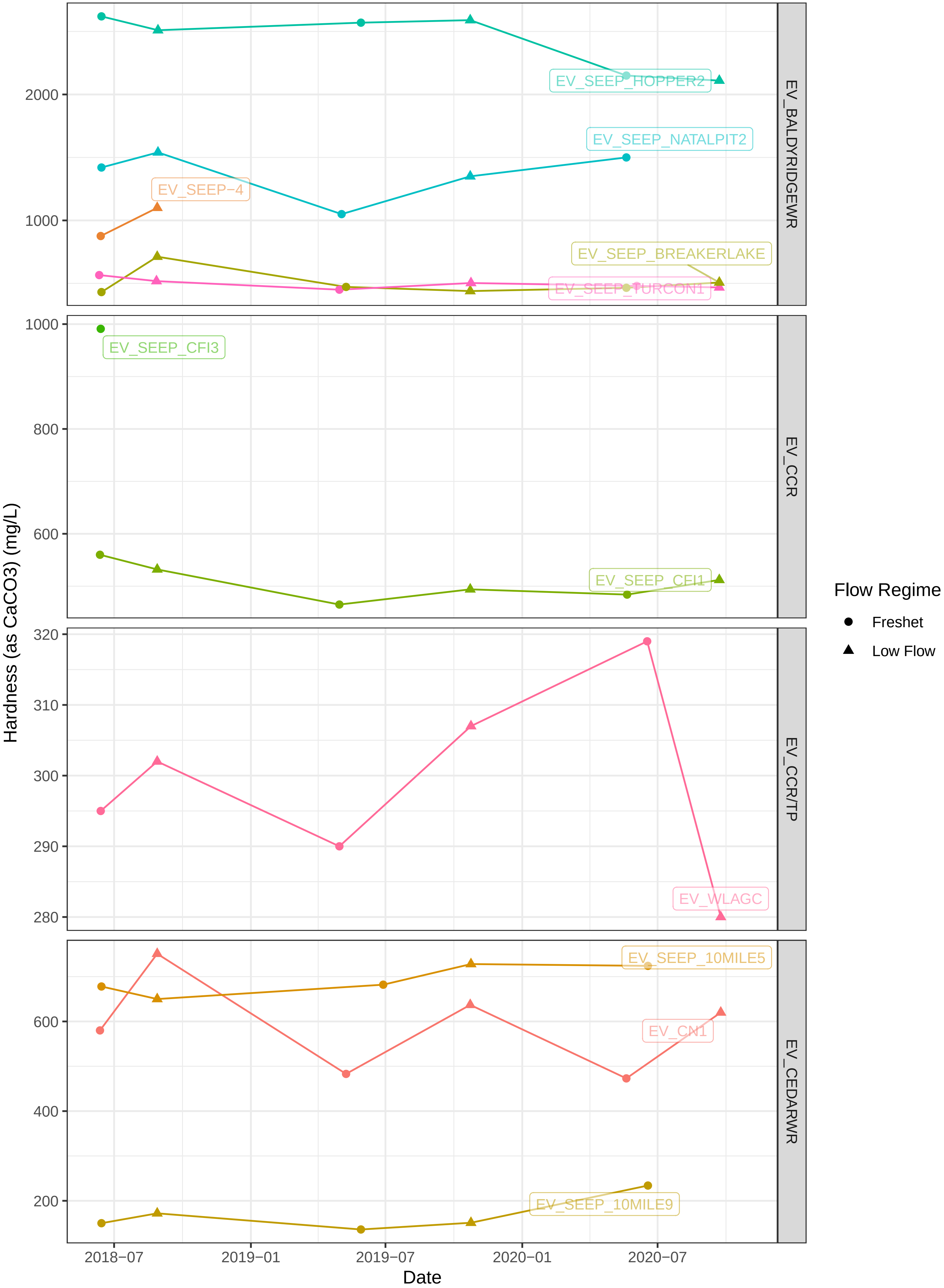


Note: there is no FWAL BCWQG for Dissolved Cadmium

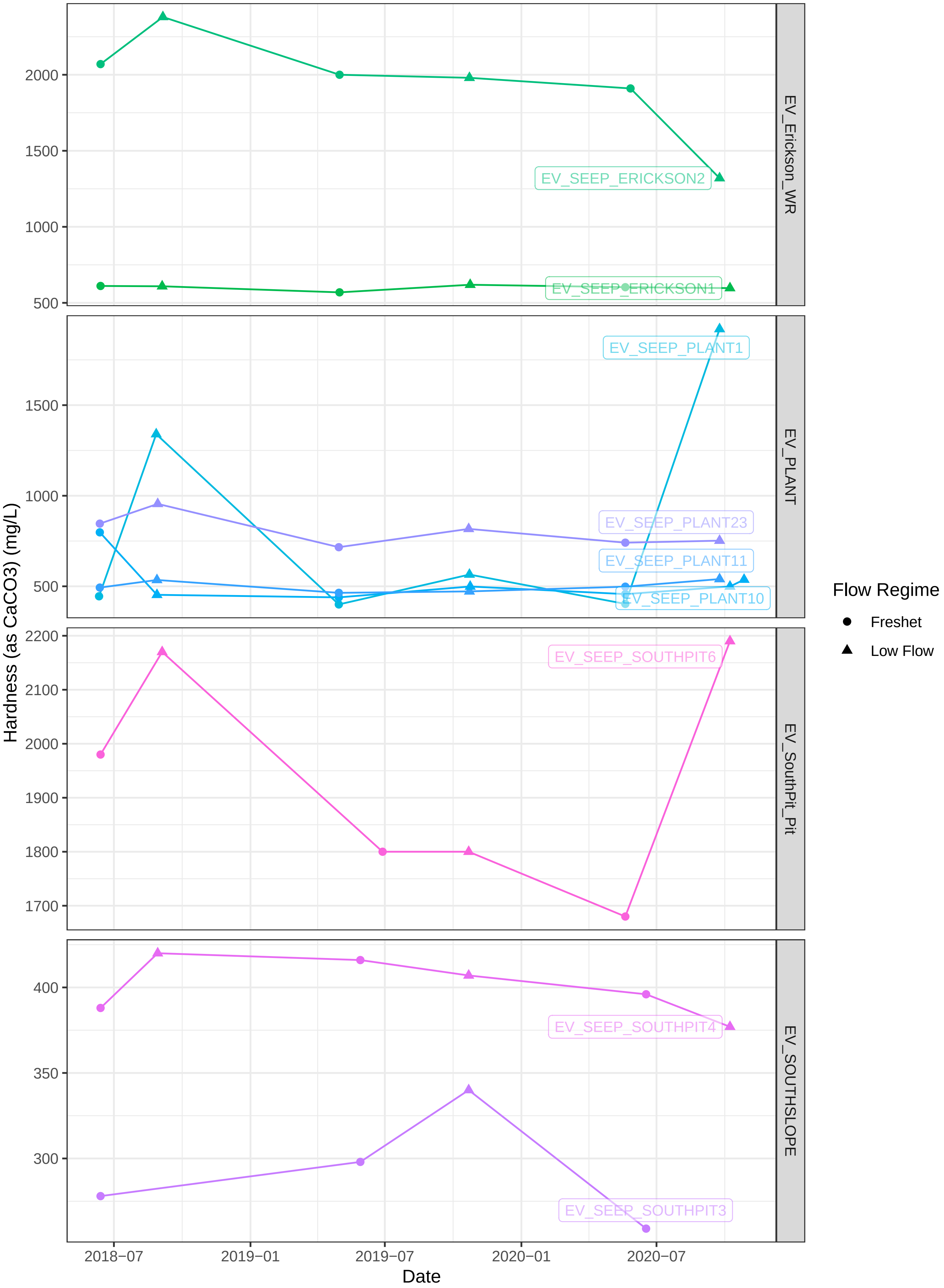


EV_BALDYRIDGEWR
EV_SEEP_NATALPIT2
EV_SEEP_HOPPER2
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_TURCON1
EV_CCR
EV_SEEP_CFI3
EV_SEEP_CFI1
EV_CCR/TP
EV_WLAGC
EV_CEDARWR
EV_SEEP_10MILE9
EV_CN1
EV_SEEP_10MILE5
0.00
0.03
0.06
0.09
Total Cadmium (mg/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Cadmium
Maximum Total Cadmium

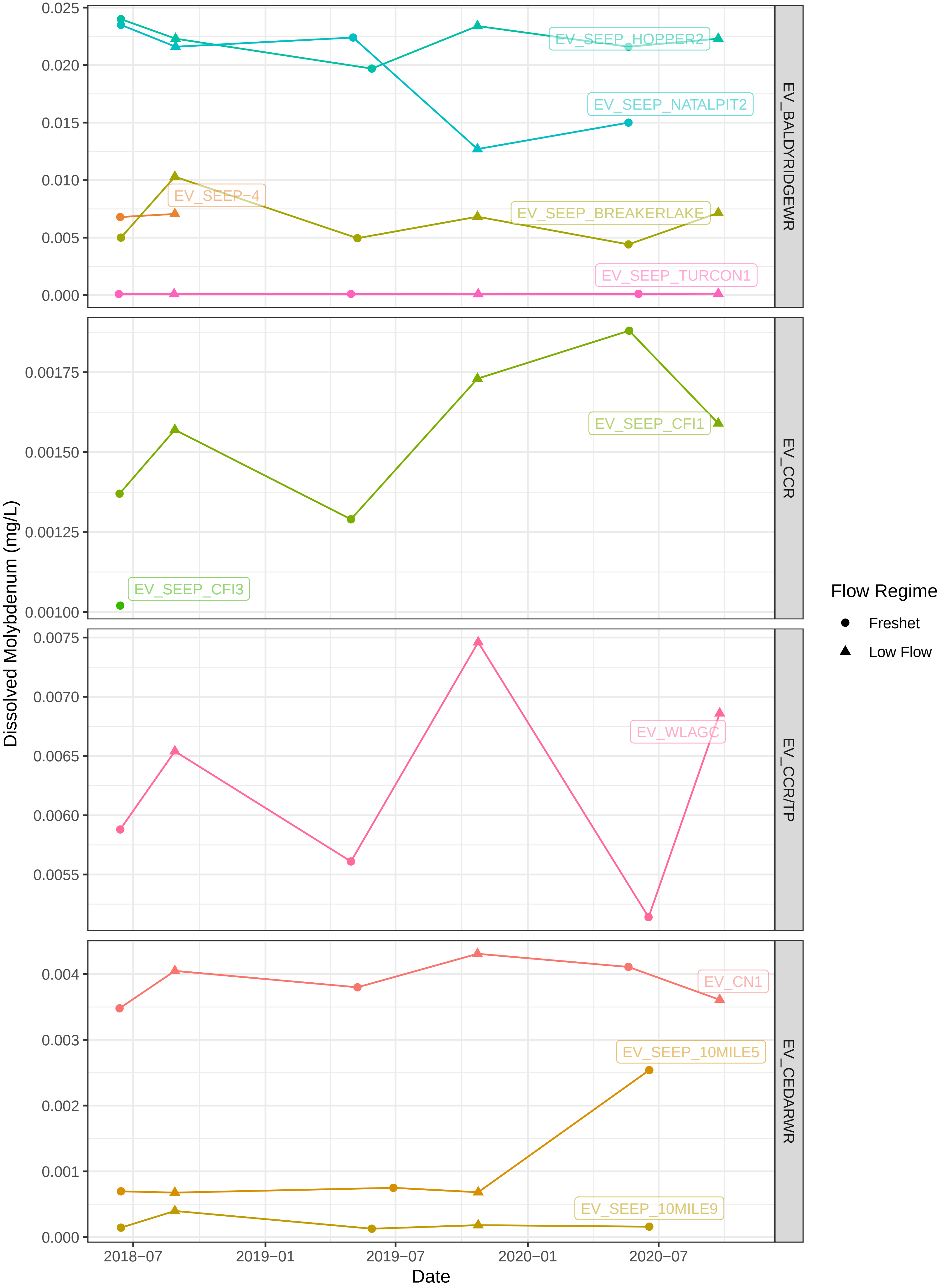

Total Cadmium (mg/L)
0.09
0.06
0.03
0.00
EV_Erickson_WR
EV_SEEP_ERICKSON2
EV_SEEP_ERICKSON1
EV_PLANT
EV_SEEP_PLANT1
EV_SEEP_PLANT11
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_SouthPit_Pit
EV_SEEP_SOUTHPIT6
EV_SOUTHSLOPE
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Cadmium
Maximum Total Cadmium



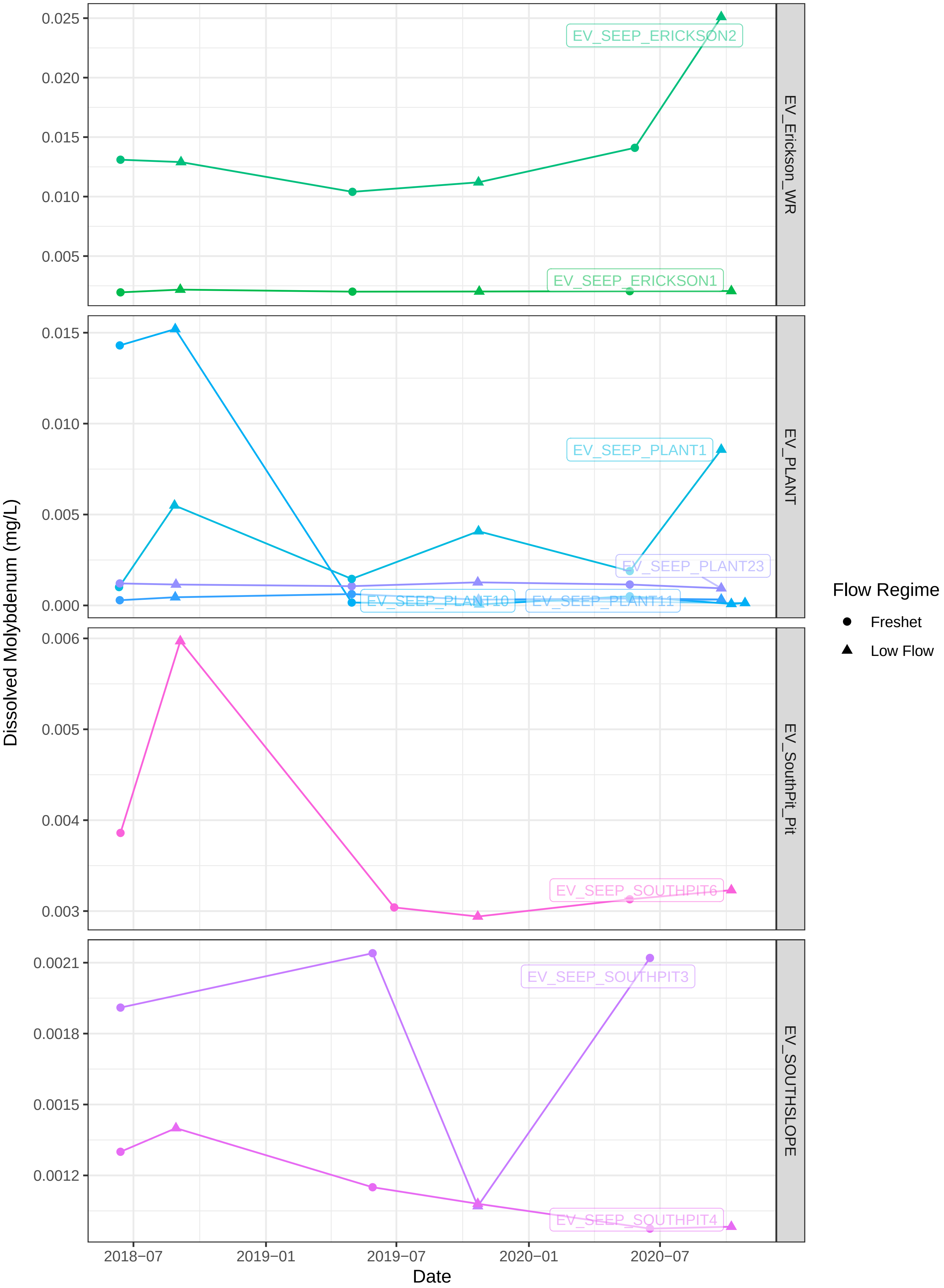
Note: there is no FWAL BCWQG for Hardness (as CaCO3)



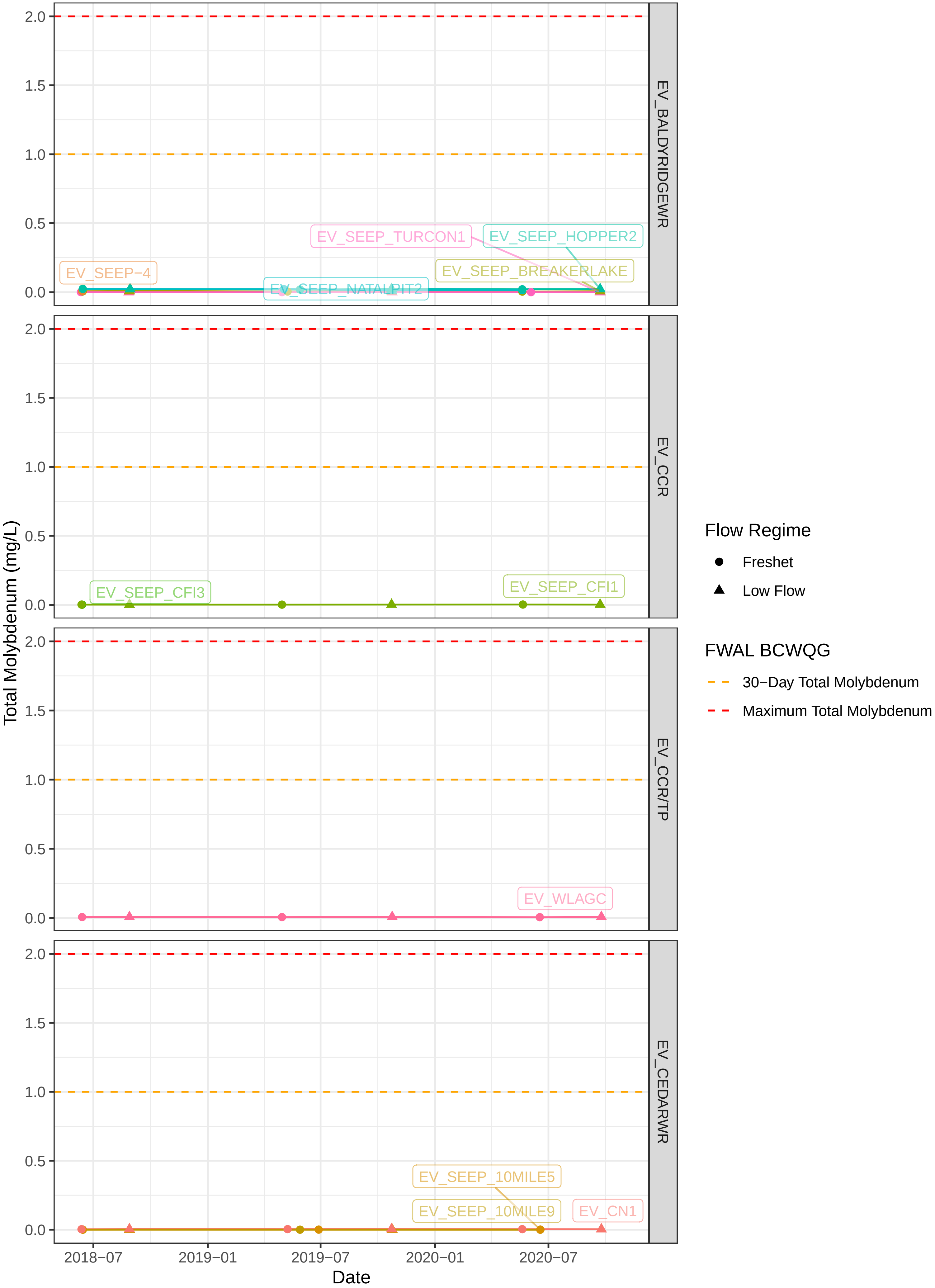
Note: there is no FWAL BCWQG for Hardness (as CaCO3)

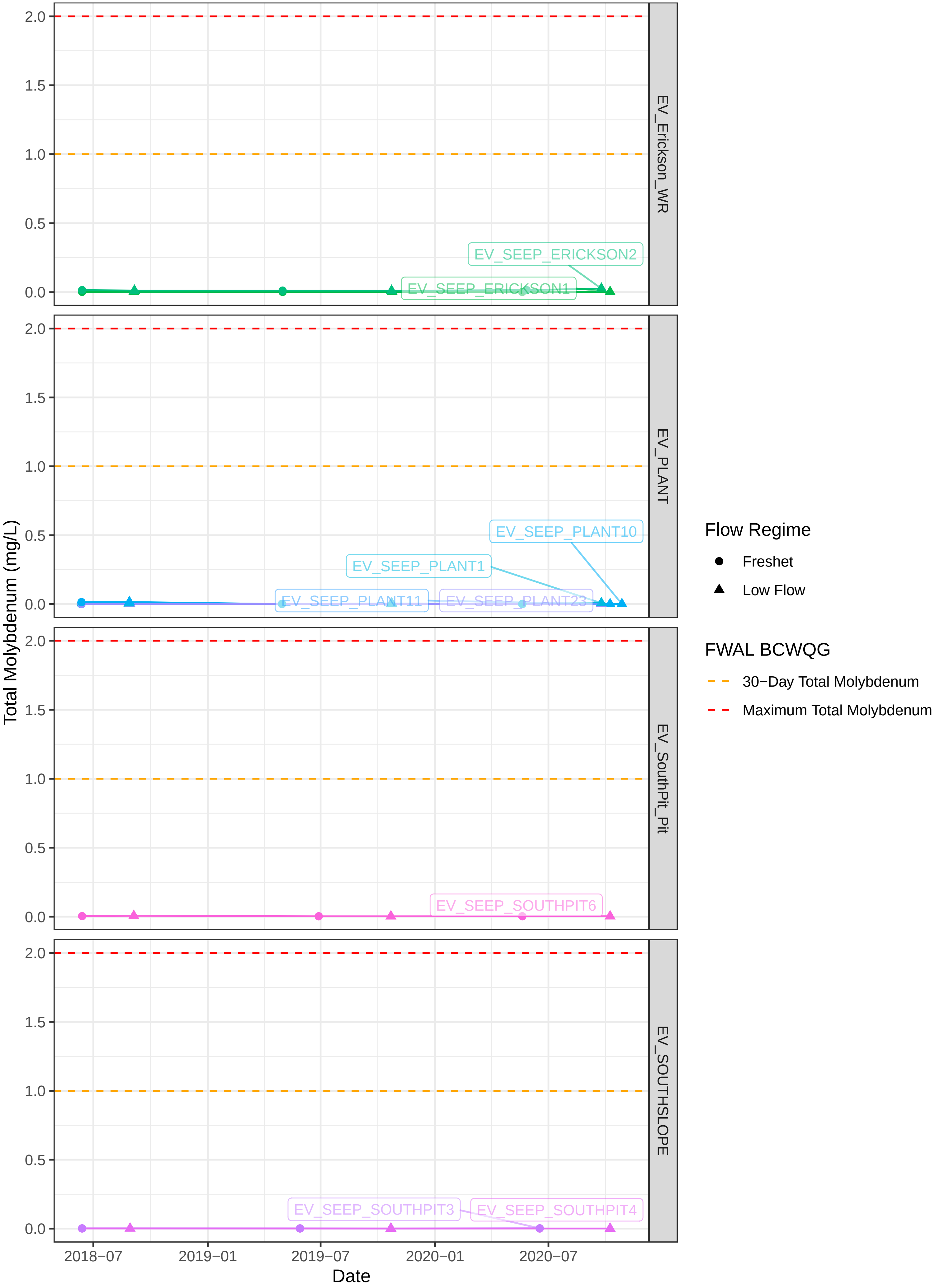


Note: there is no FWAL BCWQG for Dissolved Molybdenum

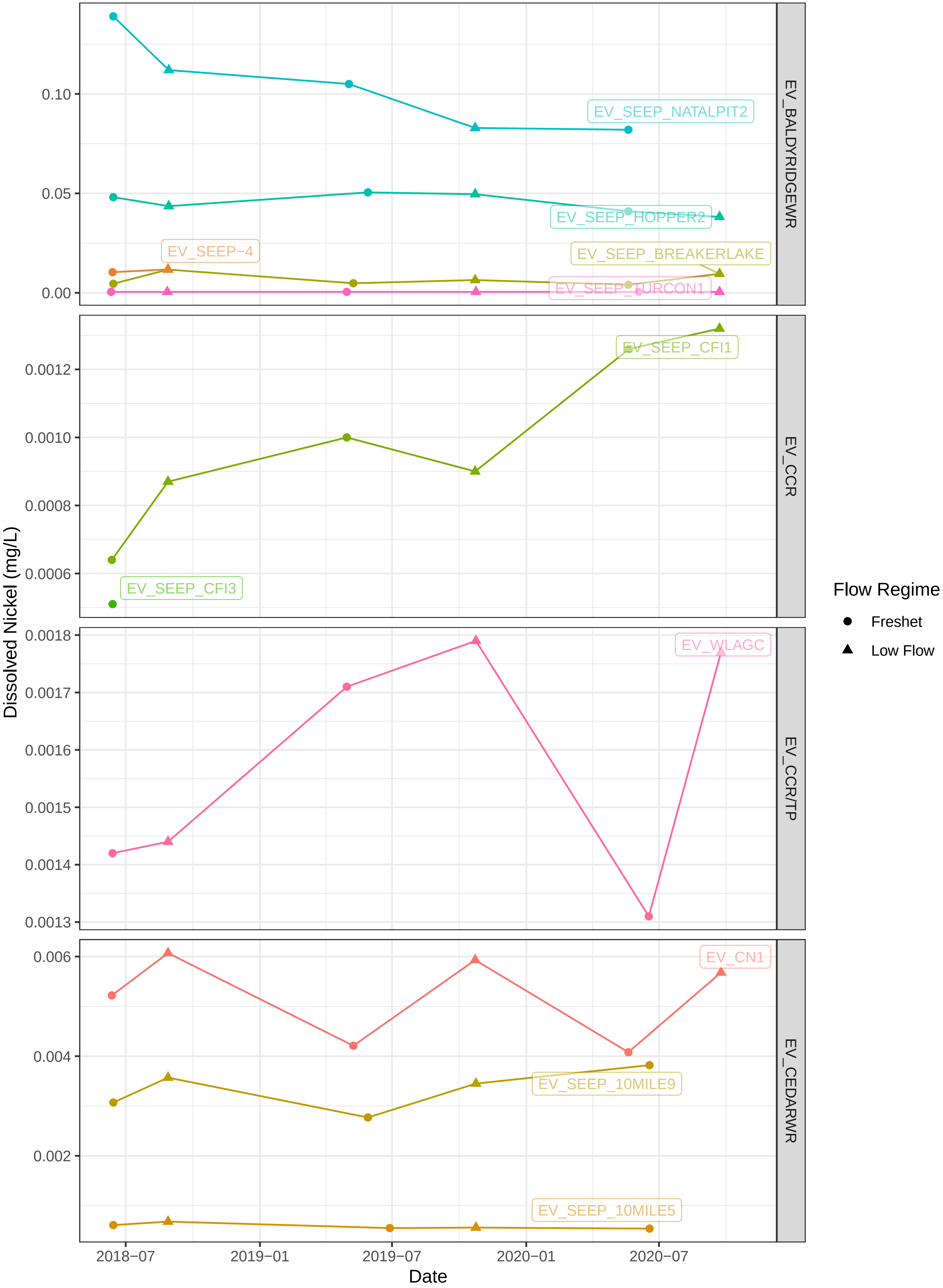


Note: there is no FWAL BCWQG for Dissolved Molybdenum

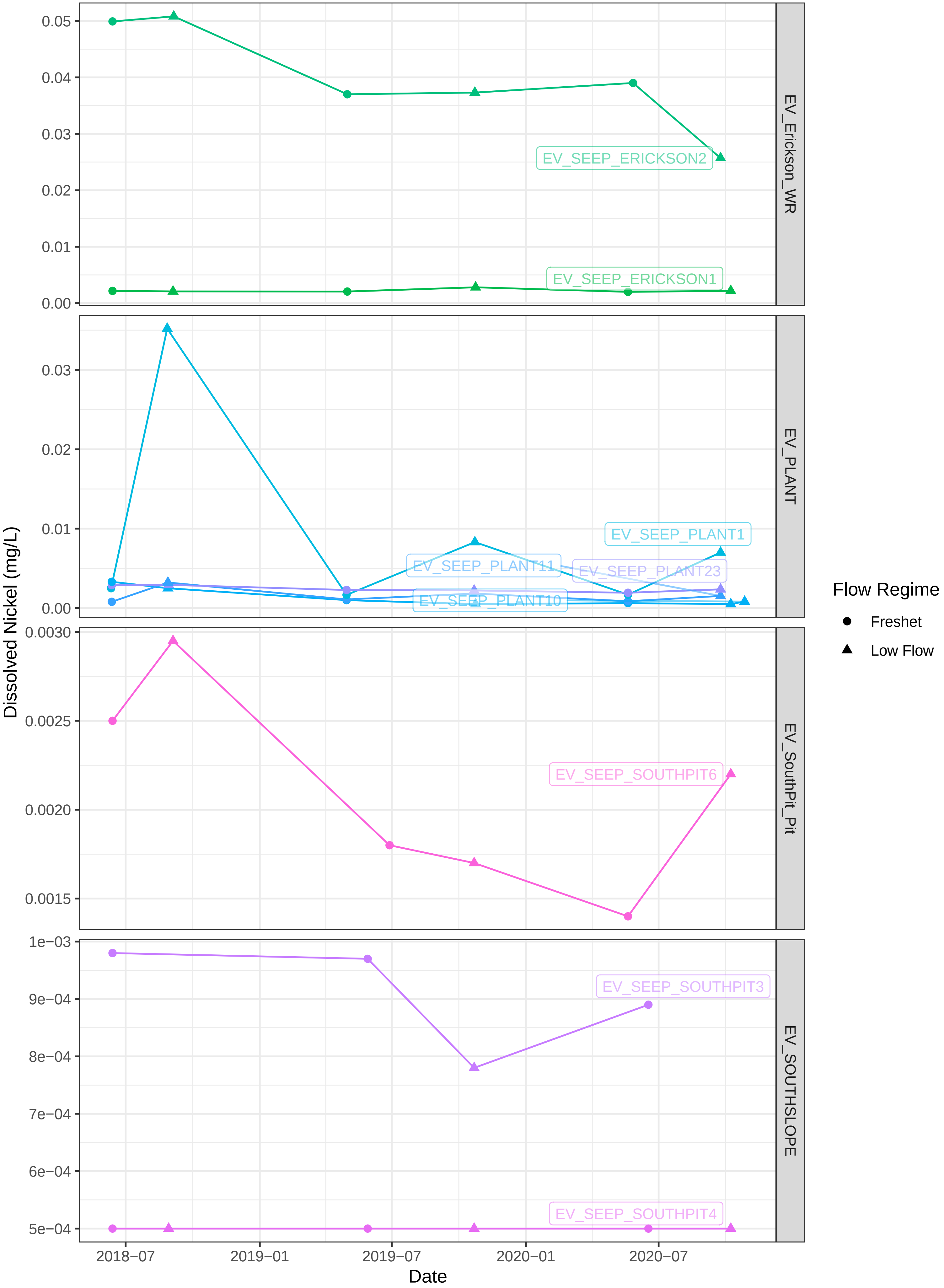

Total Molybdenum (mg/L)
Date
2.0
1.5
1.0
0.5
0.0
2018−07
2019−01
2019−07
2020−01
2020−07
EV_BALDYRIDGEWR
EV_SEEP−4
EV_SEEP_TURCON1
EV_SEEP_HOPPER2
EV_SEEP_BREAKERLAKE
EV_SEEP_NATALPIT2
EV_CCR
EV_SEEP_CFI3
EV_SEEP_CFI1
EV_CCR/TP
EV_WLAGC
EV_CEDARWR
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_CN1
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Molybdenum
Maximum Total Molybdenum



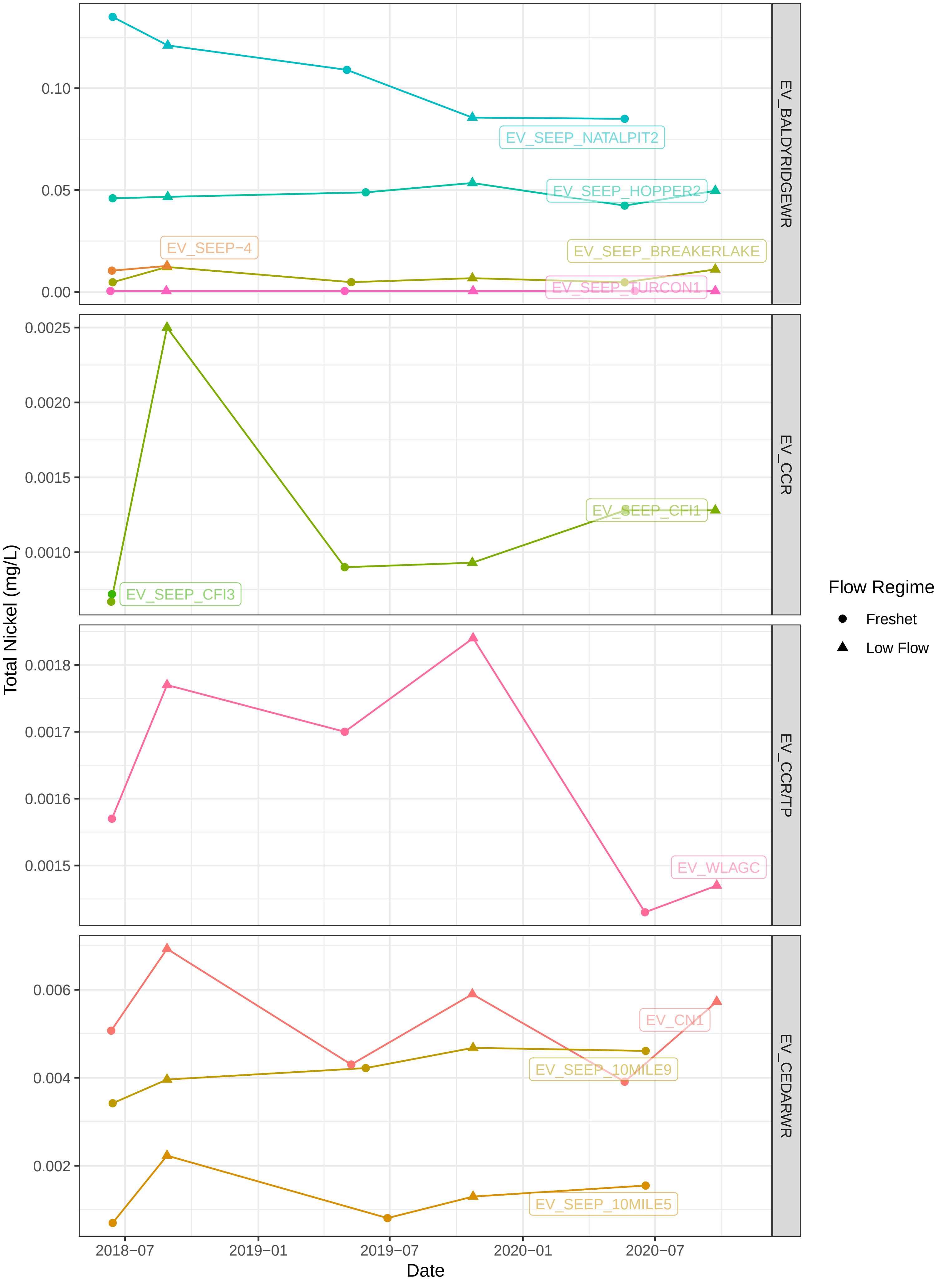
Total Molybdenum (mg/L)
2.0
1.5
1.0
0.5
0.0
EV_Erickson_WR
EV_SEEP_ERICKSON2
EV_SEEP_ERICKSON1
EV_PLANT
EV_SEEP_PLANT10
EV_SEEP_PLANT1
EV_SEEP_PLANT11
EV_SEEP_PLANT23
EV_SouthPit_Pit
EV_SEEP_SOUTHPIT6
EV_SOUTHSLOPE
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Molybdenum
Maximum Total Molybdenum



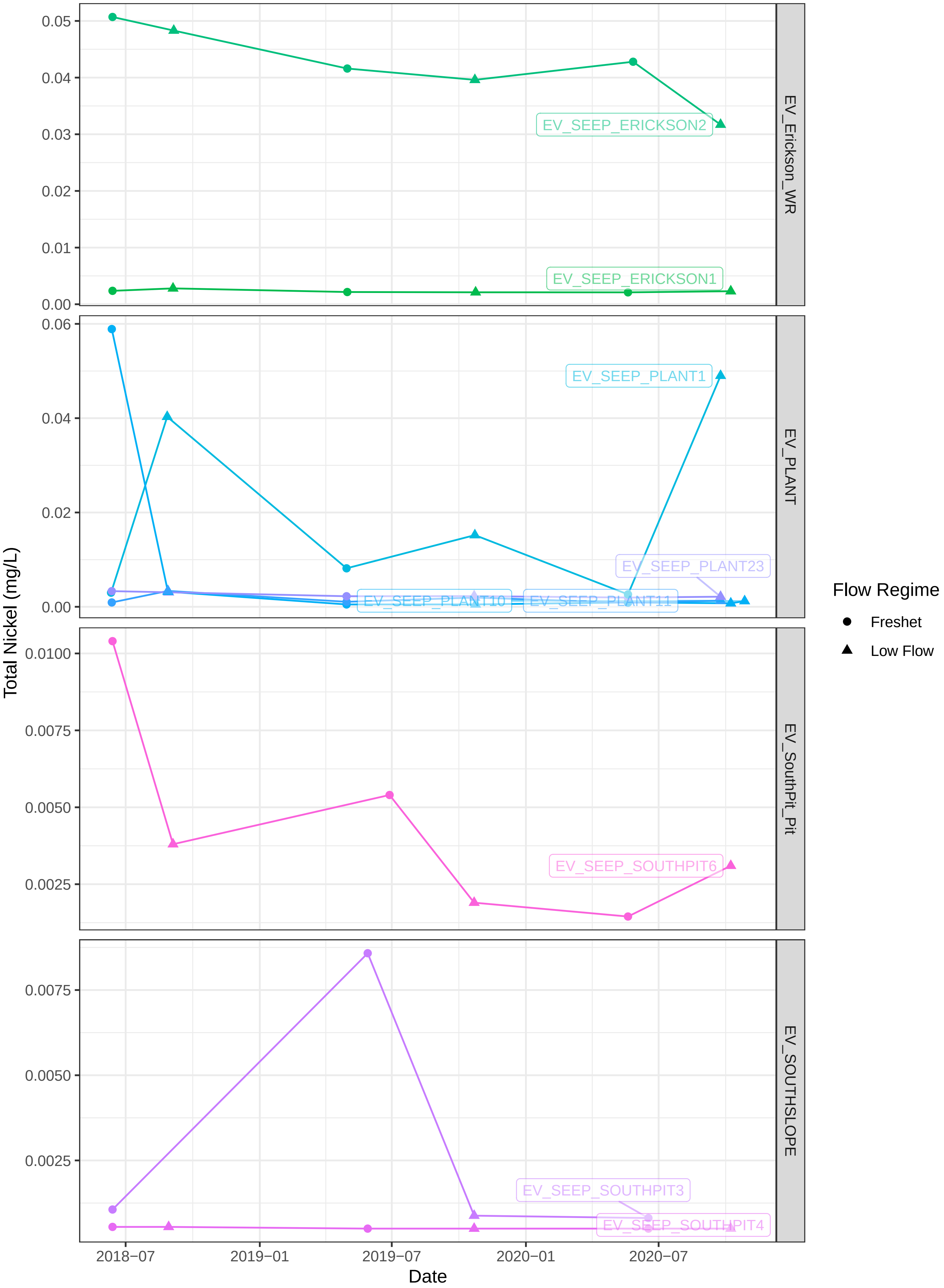
Note: there is no FWAL BCWQG for Dissolved Nickel



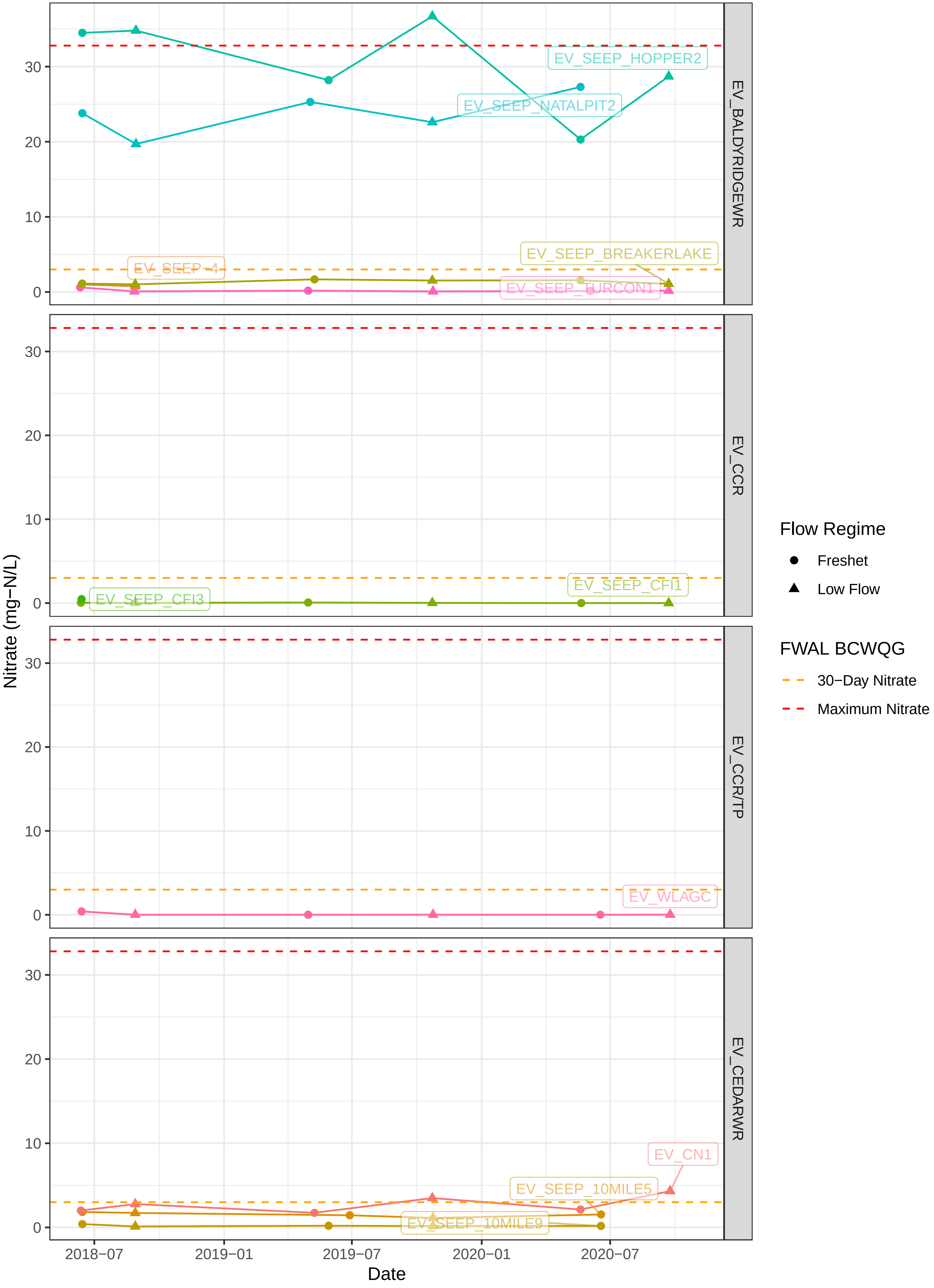
Note: there is no FWAL BCWQG for Dissolved Nickel

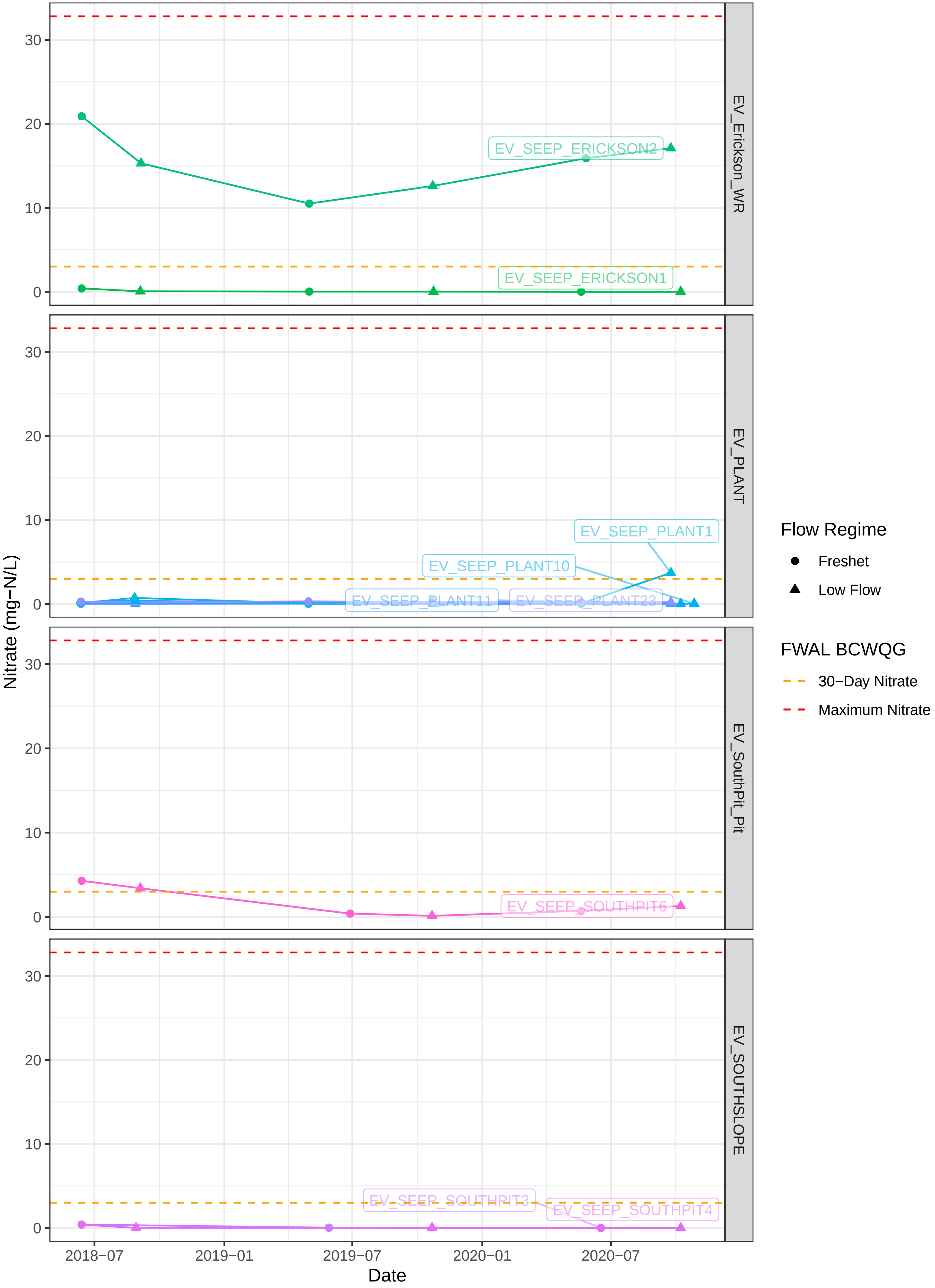


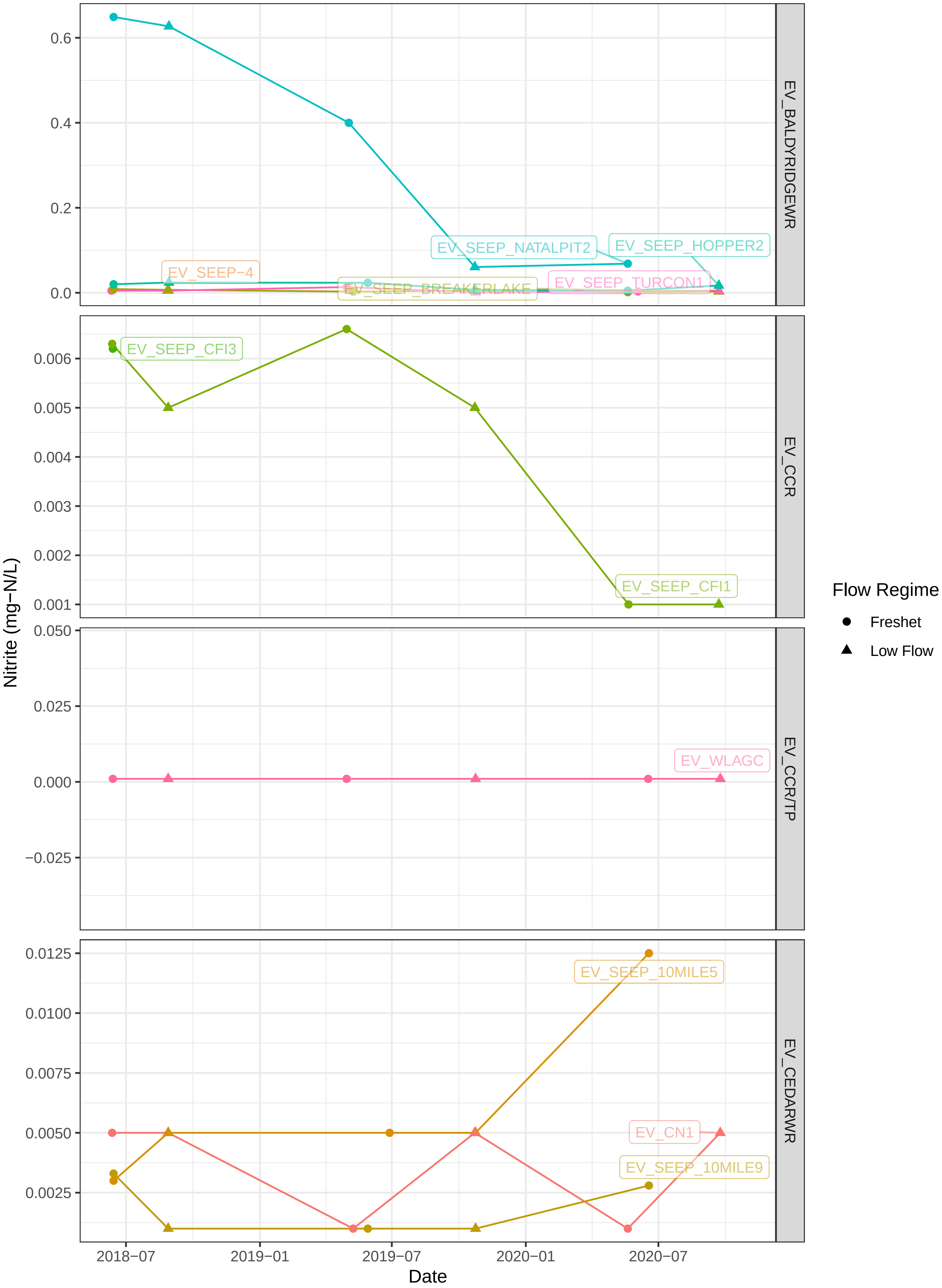
Note: The FWAL BCWQG for Total Nickel is dependent on Hardness



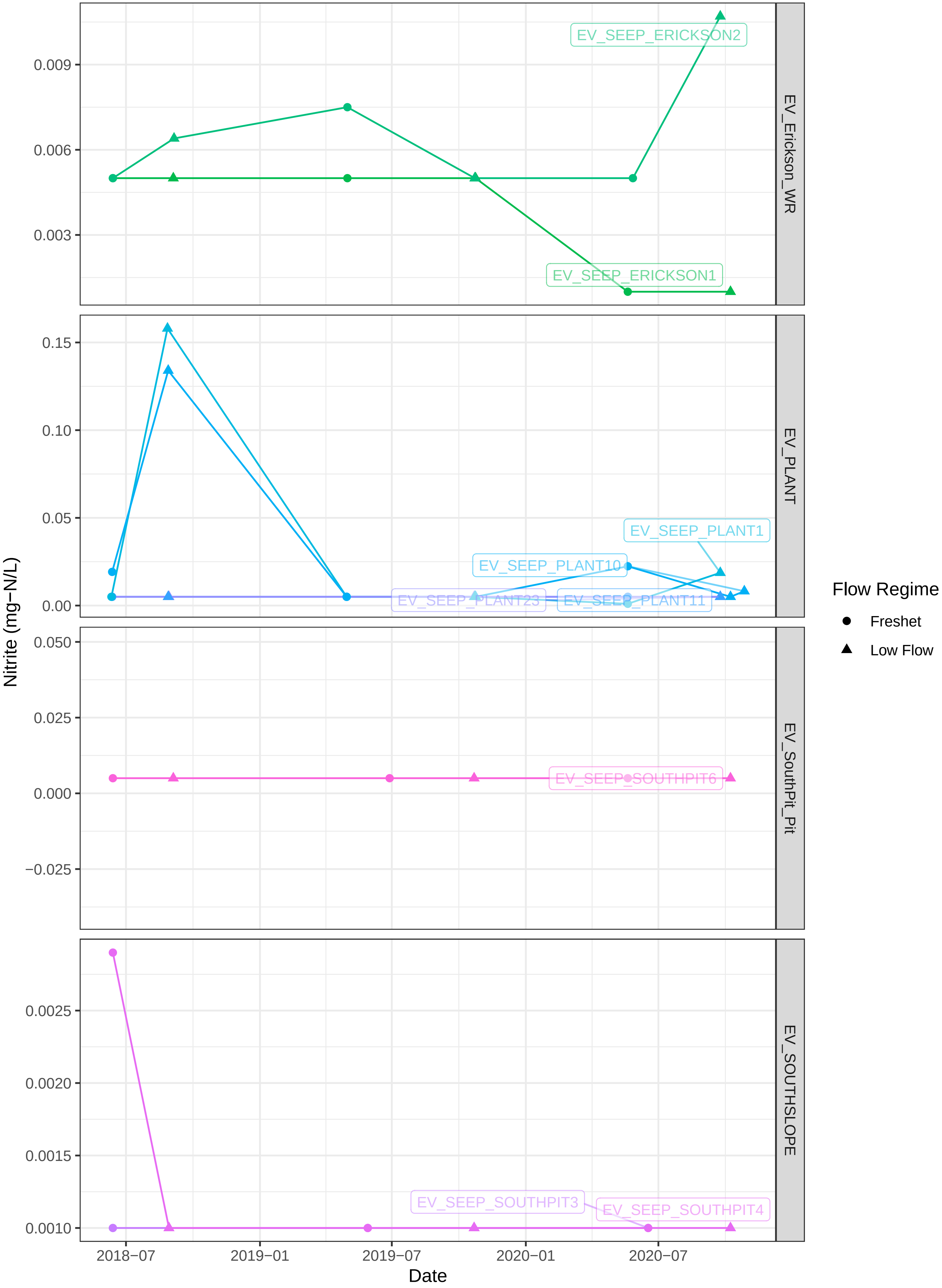
Note: The FWAL BCWQG for Total Nickel is dependent on Hardness


EV_BALDYRIDGEWR
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_4
EV_SEEP_BREAKERLAKE
EV_SEEP_TURCON1
EV_CCR
EV_SEEP_CFI3
EV_SEEP_CFI1
EV_CCR/TP
EV_WLAGC
EV_CEDARWR
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
0
10
20
30
Nitrate (mg−N/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Nitrate
Maximum Nitrate

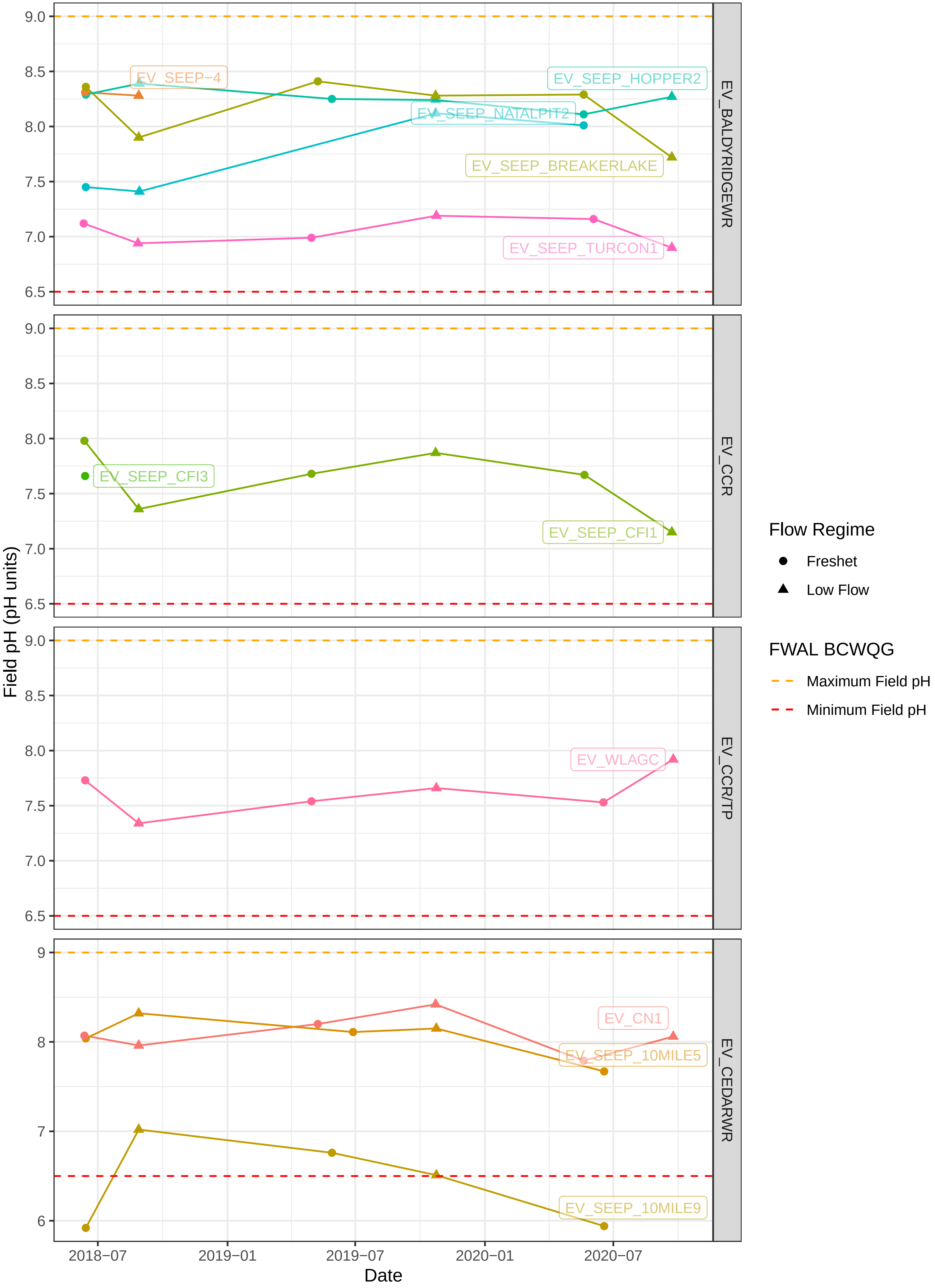

Nitrate (mg−N/L)
30
20
10
0
EV_Erickson_WR
EV_SEEP_ERICKSON2
EV_SEEP_ERICKSON1
EV_PLANT
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
EV_SouthPit_Pit
EV_SEEP_SOUTHPIT6
EV_SOUTHSLOPE
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Nitrate
Maximum Nitrate



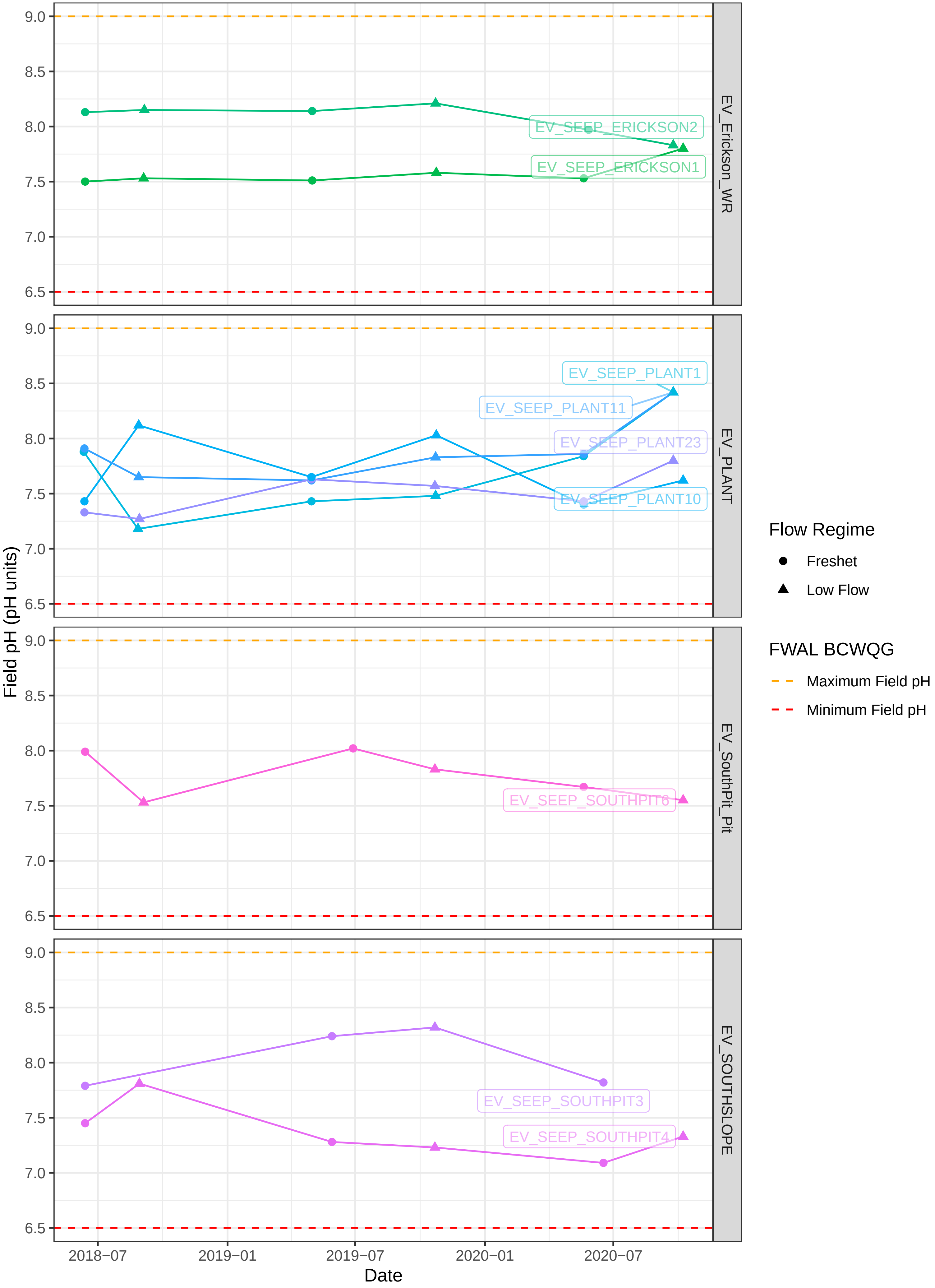
Note: The FWAL BCWQG for Nitrite is dependent on Hardness

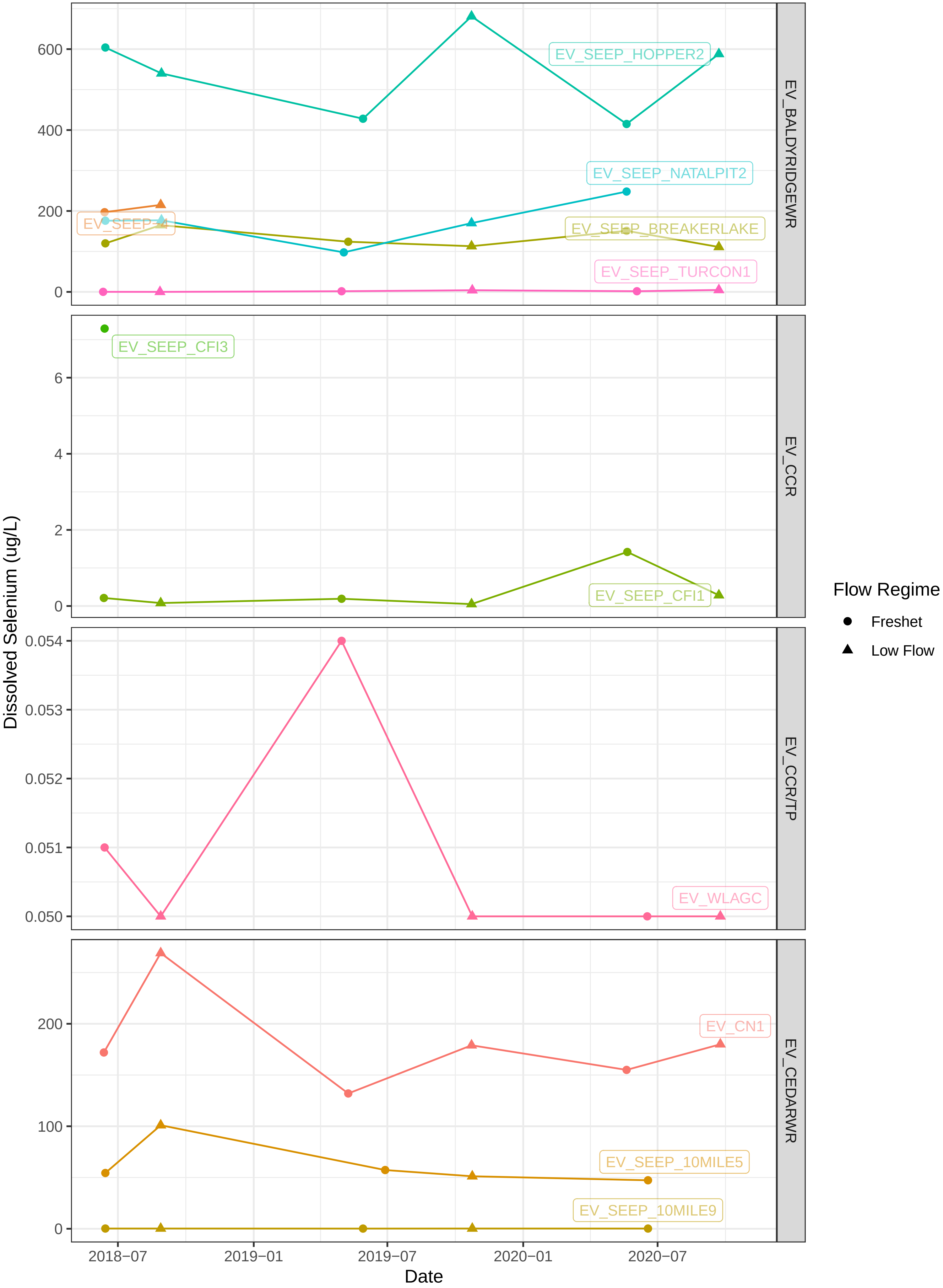


Note: The FWAL BCWQG for Nitrite is dependent on Hardness

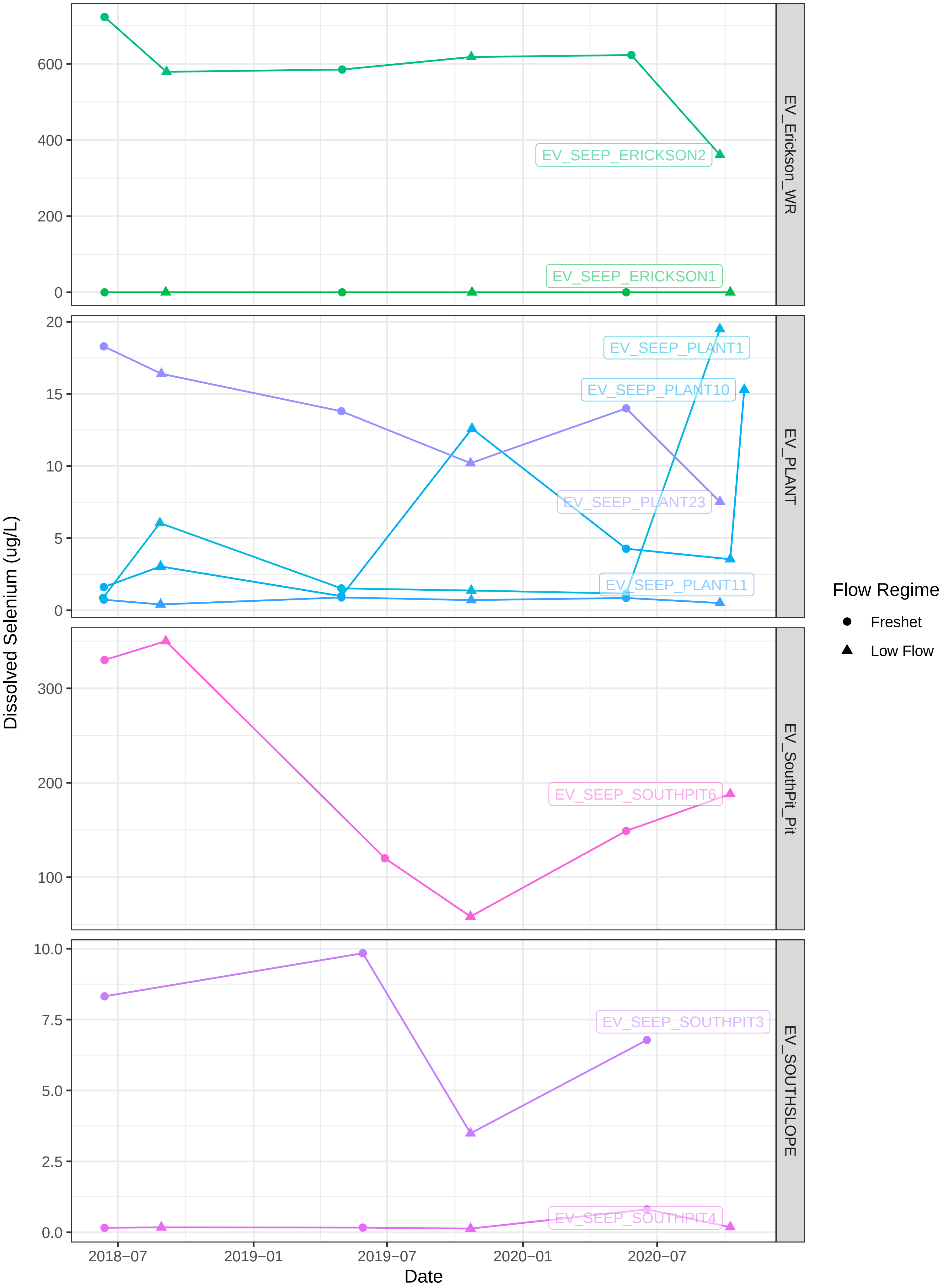


EV_BALDYRIDGEWR
EV_SEEP−4
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_BREAKERLAKE
EV_SEEP_TURCON1
EV_CCR
EV_SEEP_CFI3
EV_SEEP_CFI1
EV_CCR/TP
EV_WLAGC
EV_CEDARWR
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
9.0
8.5
8.0
7.5
7.0
6.5
9
8
7
6
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Field pH (pH units)
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
Maximum Field pH
Minimum Field pH

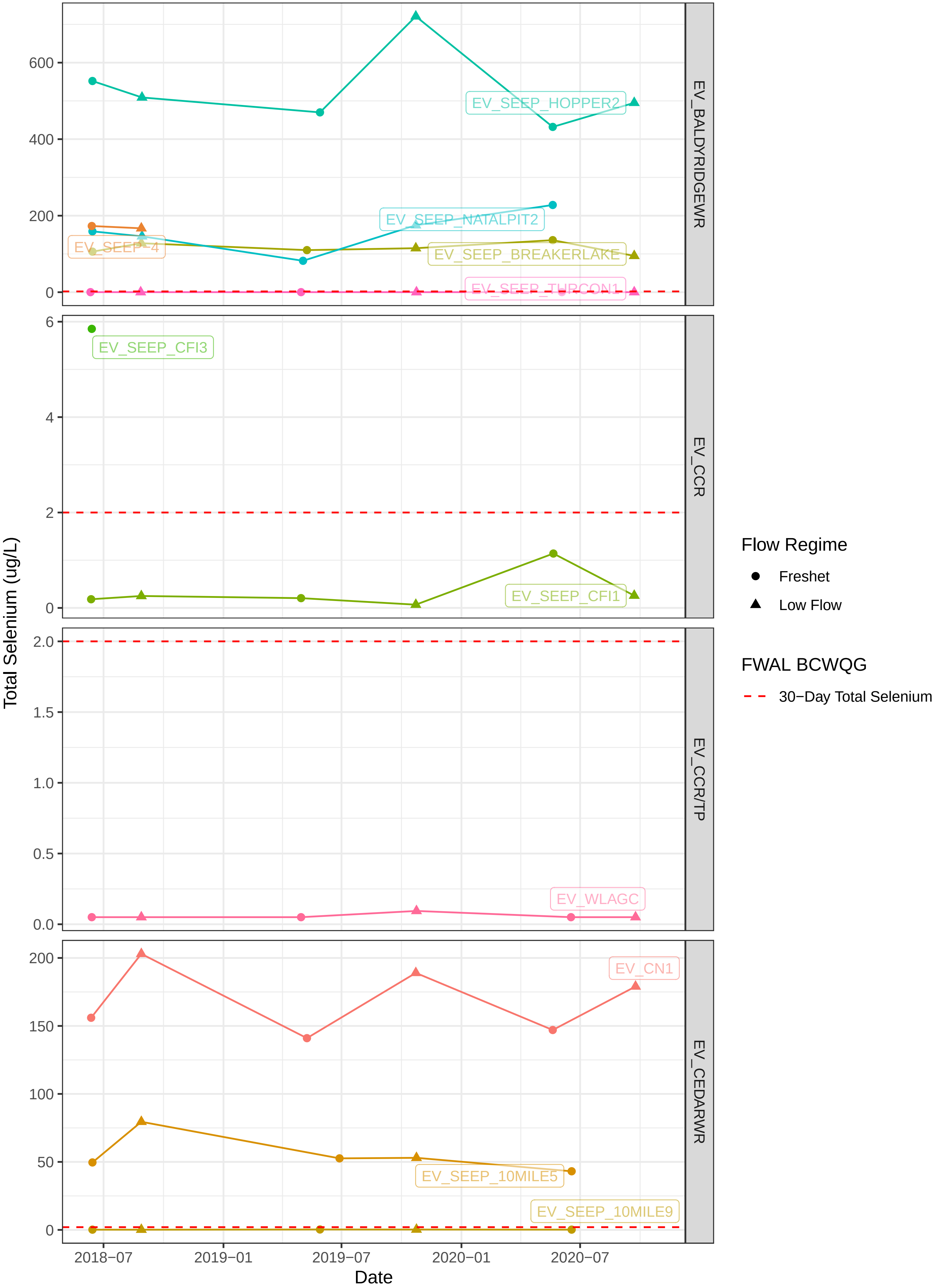

Field pH (pH units)
9.0
8.5
8.0
7.5
7.0
6.5
EV_SEEP_ERICKSON2
EV_SEEP_ERICKSON1
EV_Erickson_WR
EV_SEEP_PLANT1
EV_SEEP_PLANT11
EV_SEEP_PLANT23
EV_SEEP_PLANT10
EV_PLANT
EV_SEEP_SOUTHPIT6
EV_SouthPit_Pit
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_SOUTHSLOPE
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
Maximum Field pH
Minimum Field pH

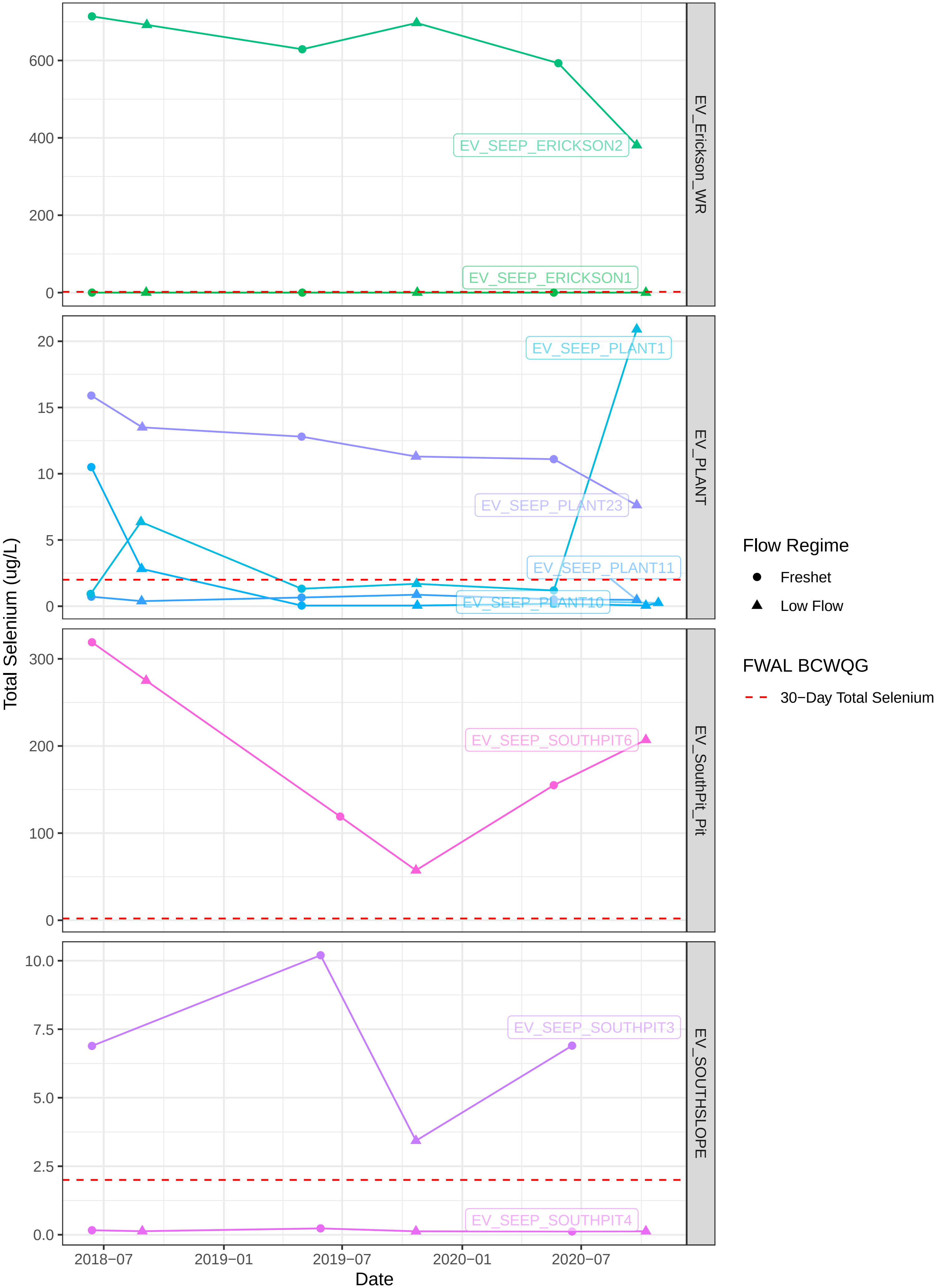


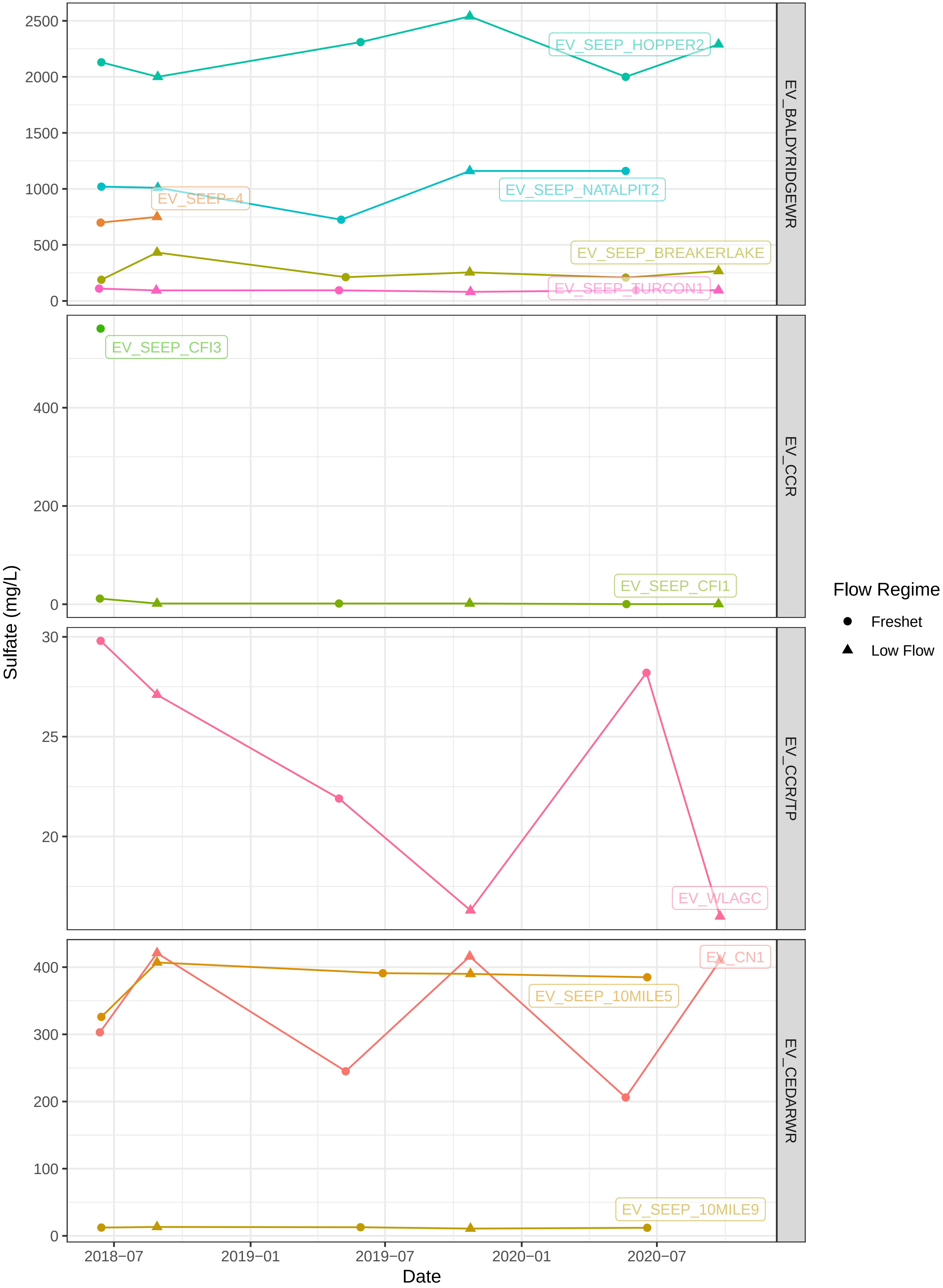
Note: there is no FWAL BCWQG for Dissolved Selenium



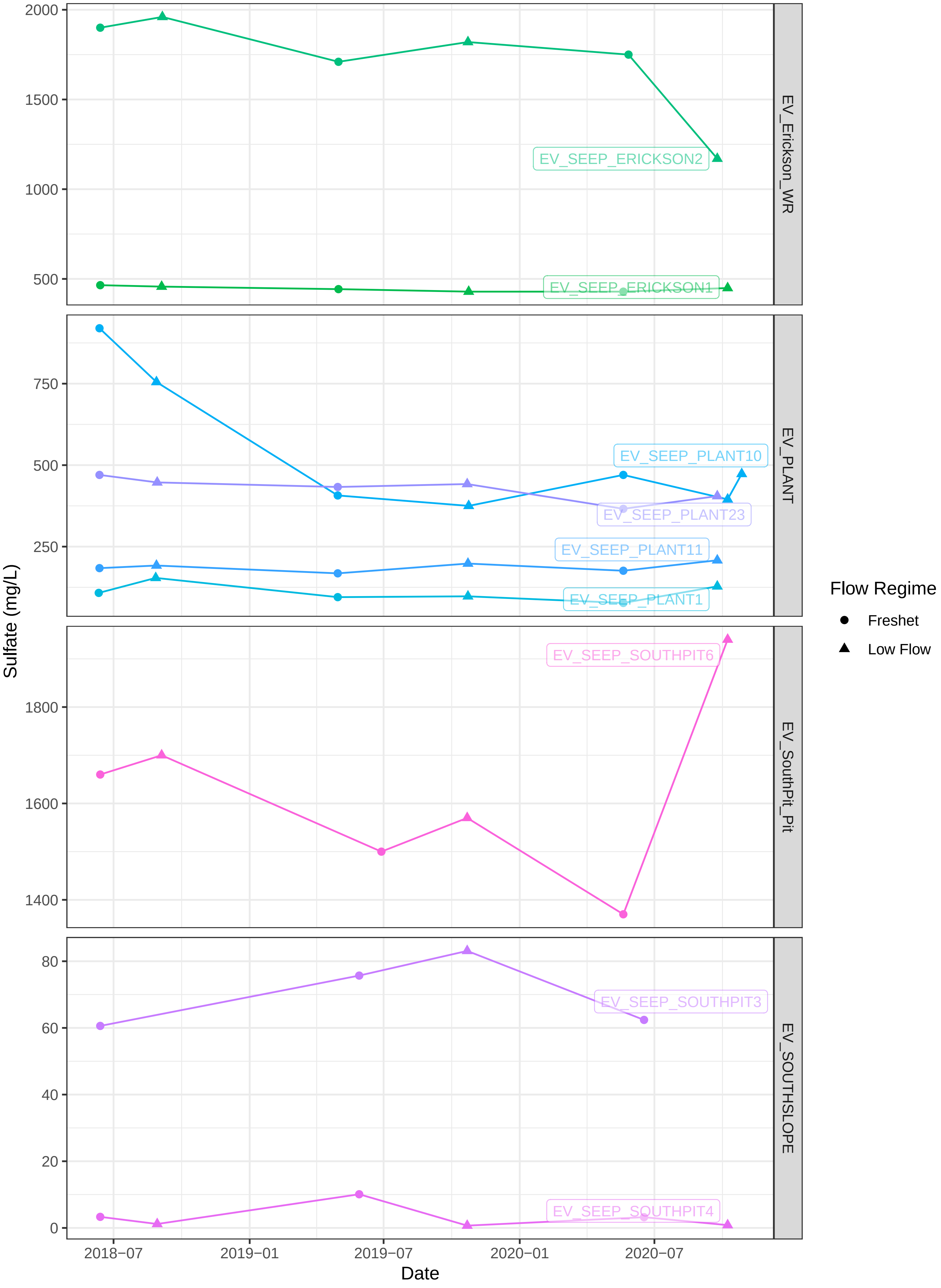
Note: there is no FWAL BCWQG for Dissolved Selenium


600
400
200
0
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_4
EV_SEEP_BREAKERLAKE
EV_SEEP_TURCON1
EV_BALDYRIDGEWR
6
4
2
0
EV_SEEP_CFI3
EV_SEEP_CFI1
EV_CCR
2.0
1.5
1.0
0.5
0.0
EV_WLAGC
EV_CCR/TP
200
150
100
50
0
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_CEDARWR
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Total Selenium (ug/L)
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Selenium

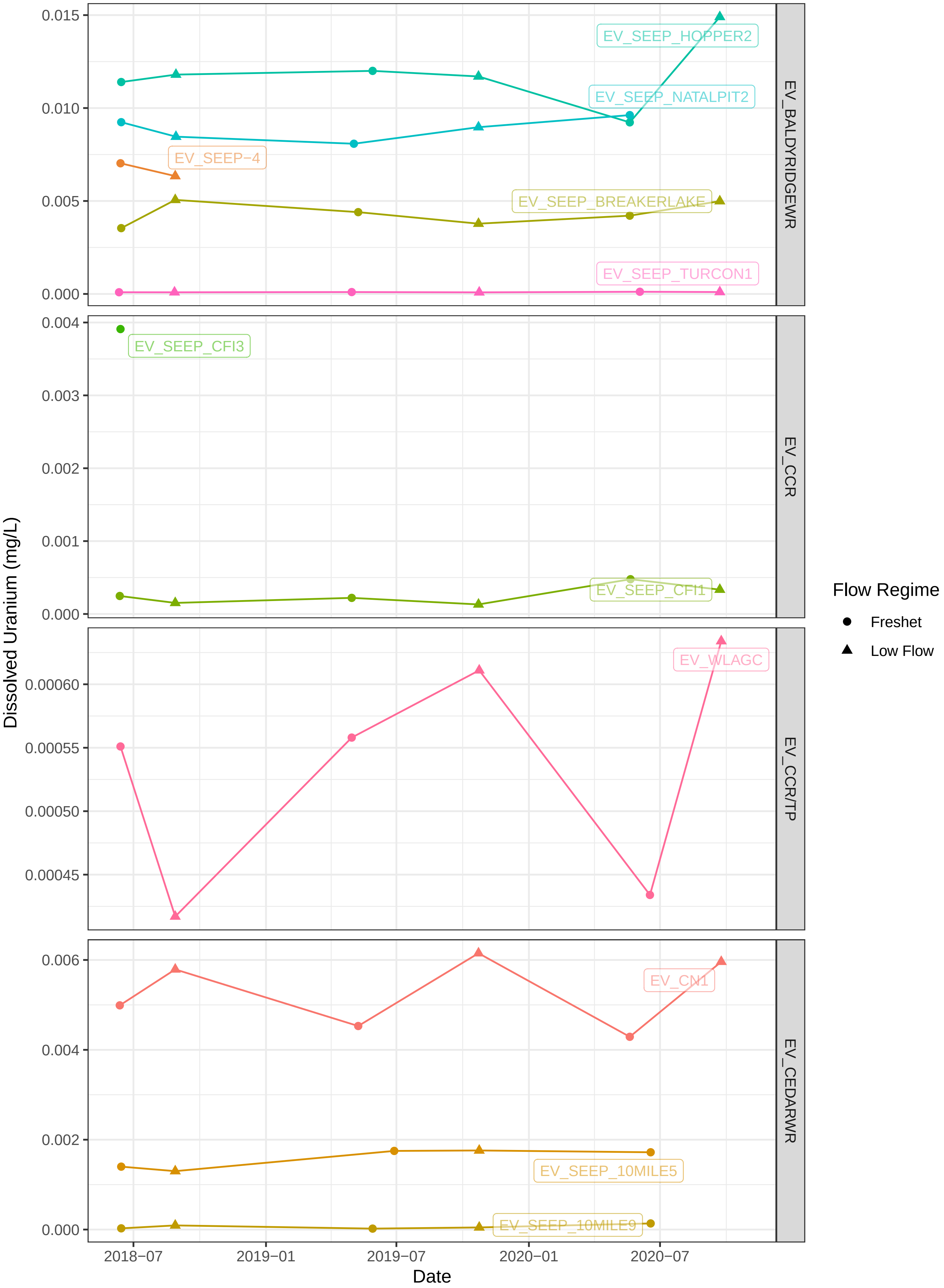

EV_Erickson_WR
EV_SEEP_ERICKSON2
EV_SEEP_ERICKSON1
600
400
200
0
EV_PLANT
EV_SEEP_PLANT1
EV_SEEP_PLANT23
EV_SEEP_PLANT11
EV_SEEP_PLANT10
20
15
10
5
0
EV_SouthPit_Pit
EV_SEEP_SOUTHPIT6
300
200
100
0
EV_SOUTHSLOPE
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
10.0
7.5
5.0
2.5
0.0
Total Selenium (ug/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Selenium



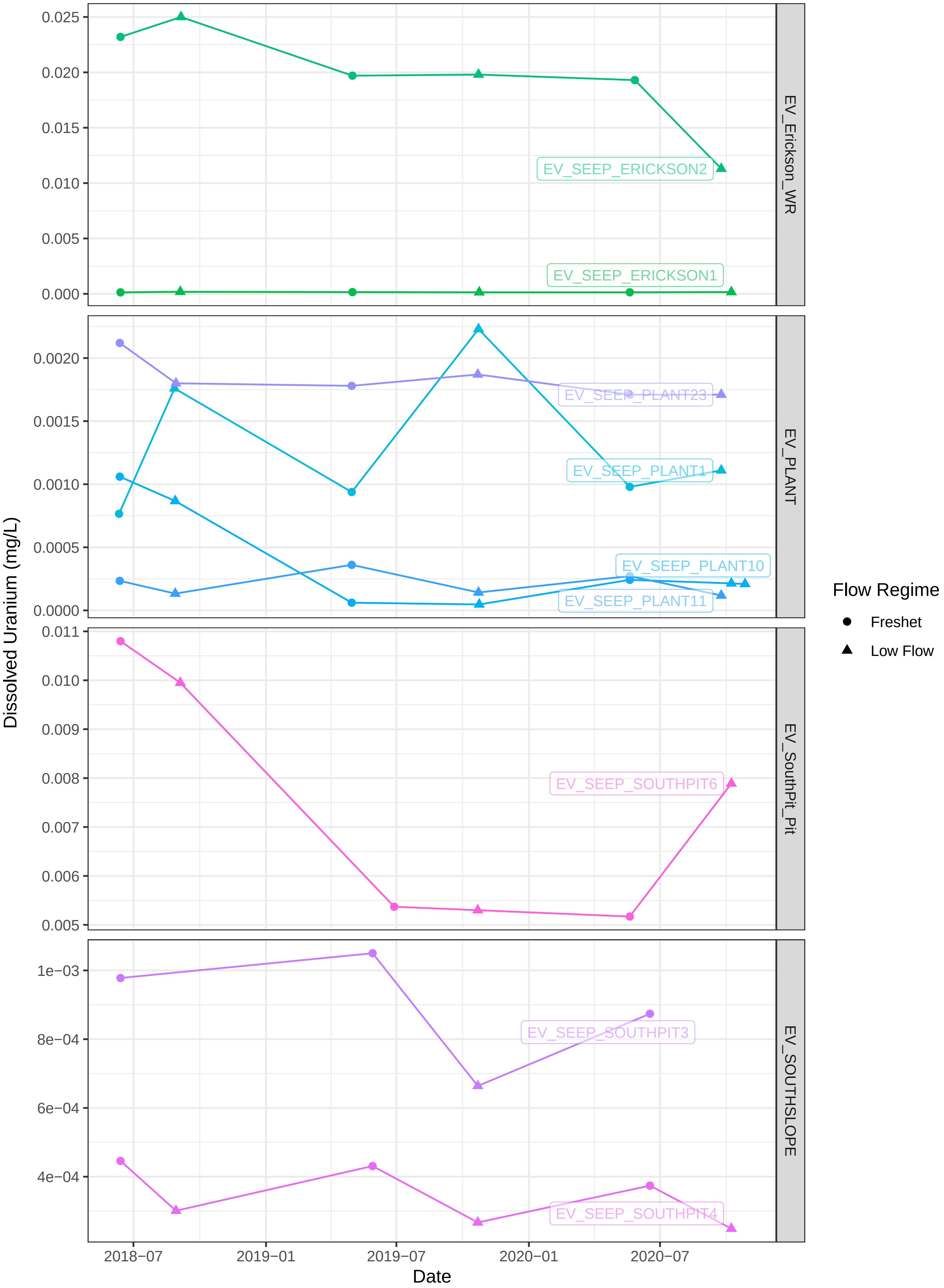
Note: The FWAL BCWQG for Sulfate is dependent on Hardness



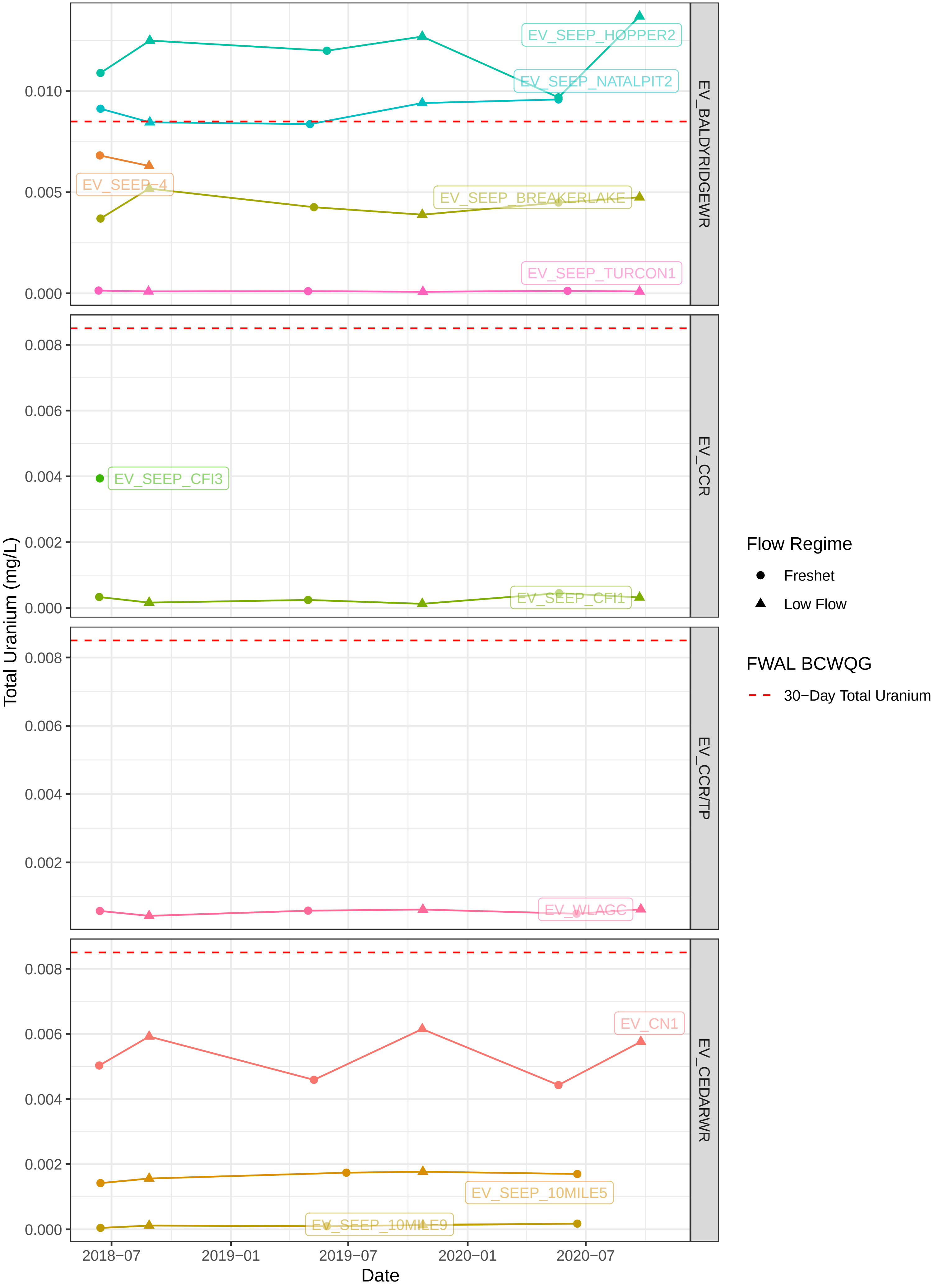
Note: The FWAL BCWQG for Sulfate is dependent on Hardness

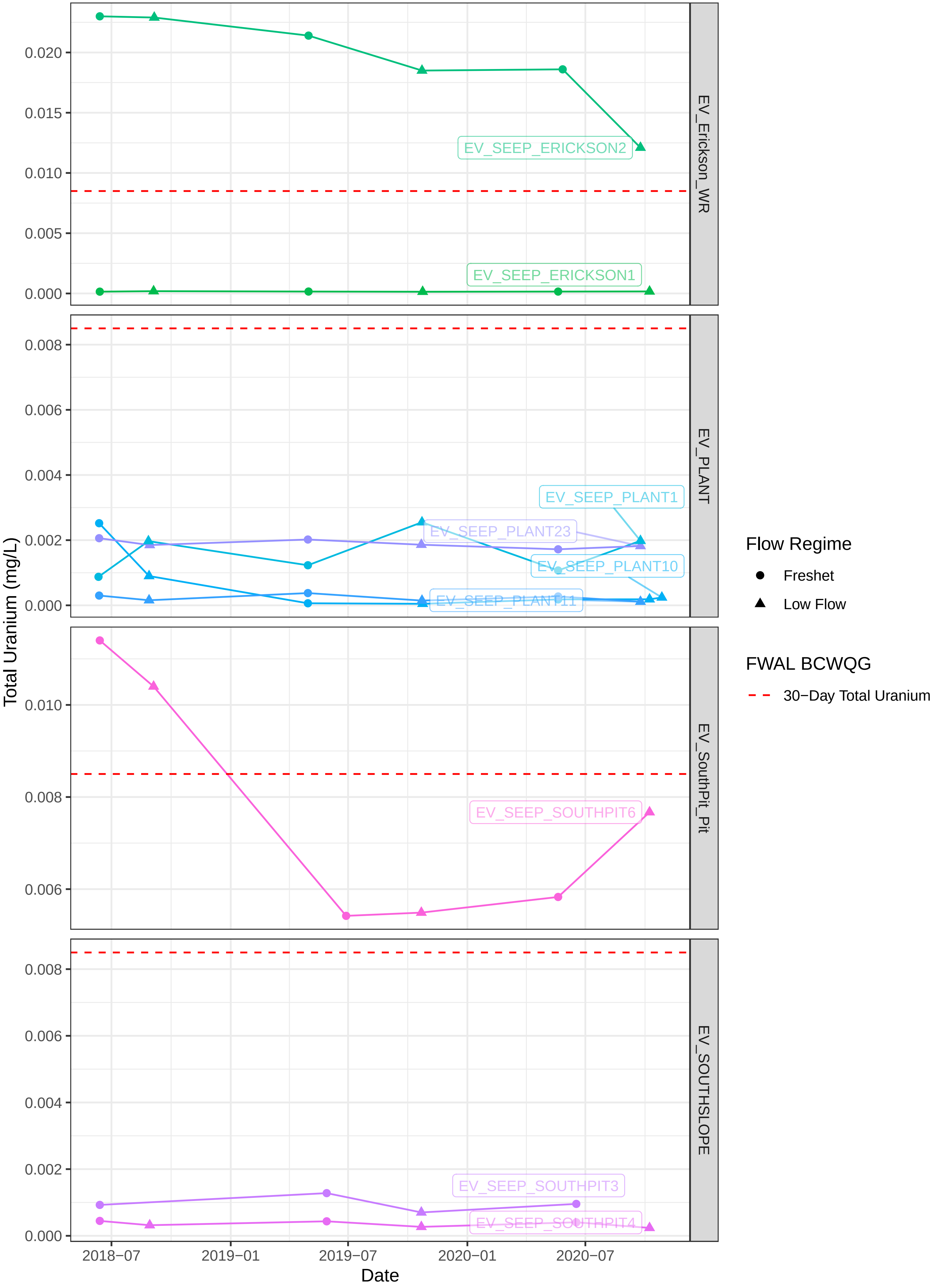


Note: there is no FWAL BCWQG for Dissolved Uranium

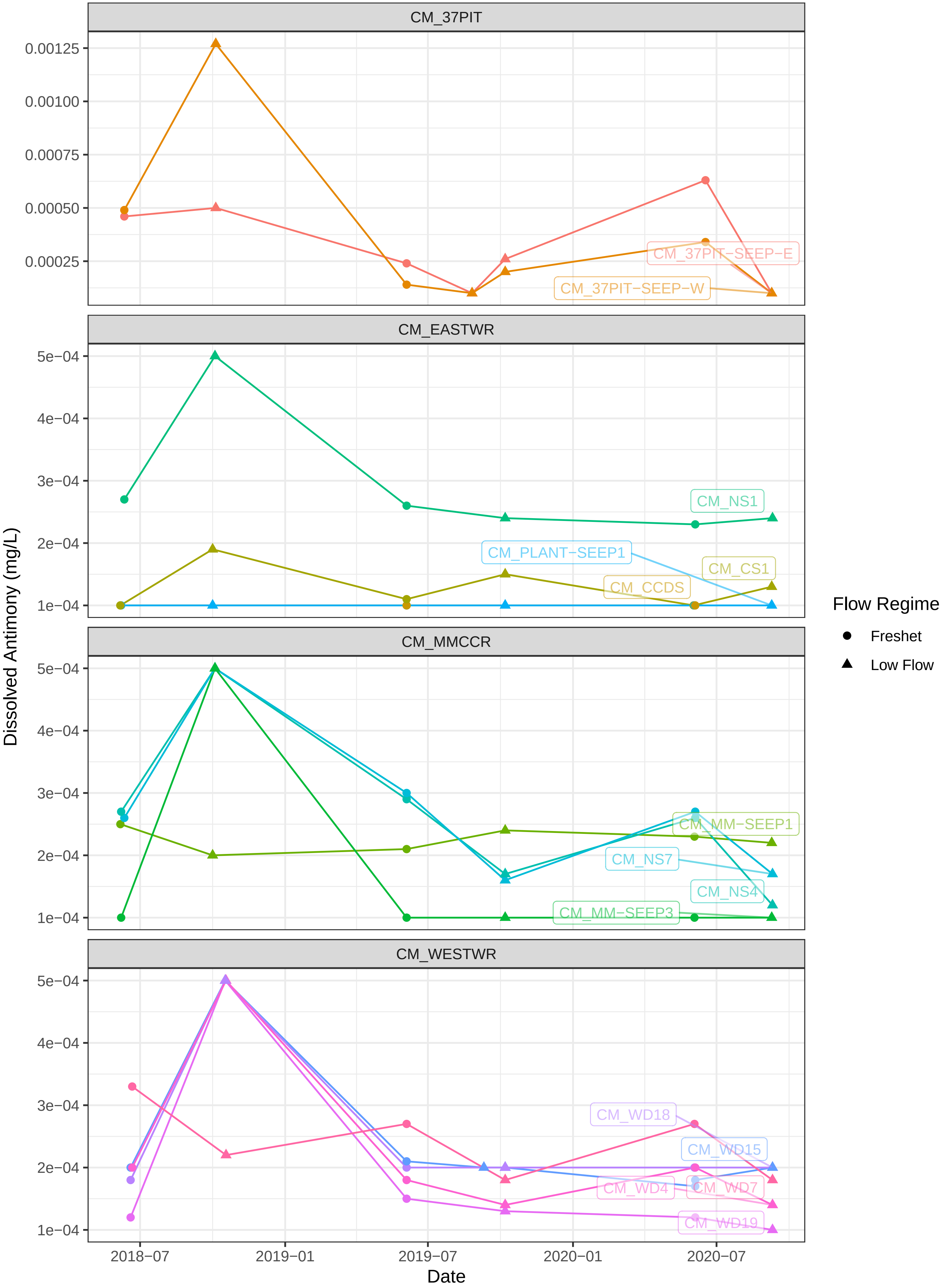


Note: there is no FWAL BCWQG for Dissolved Uranium

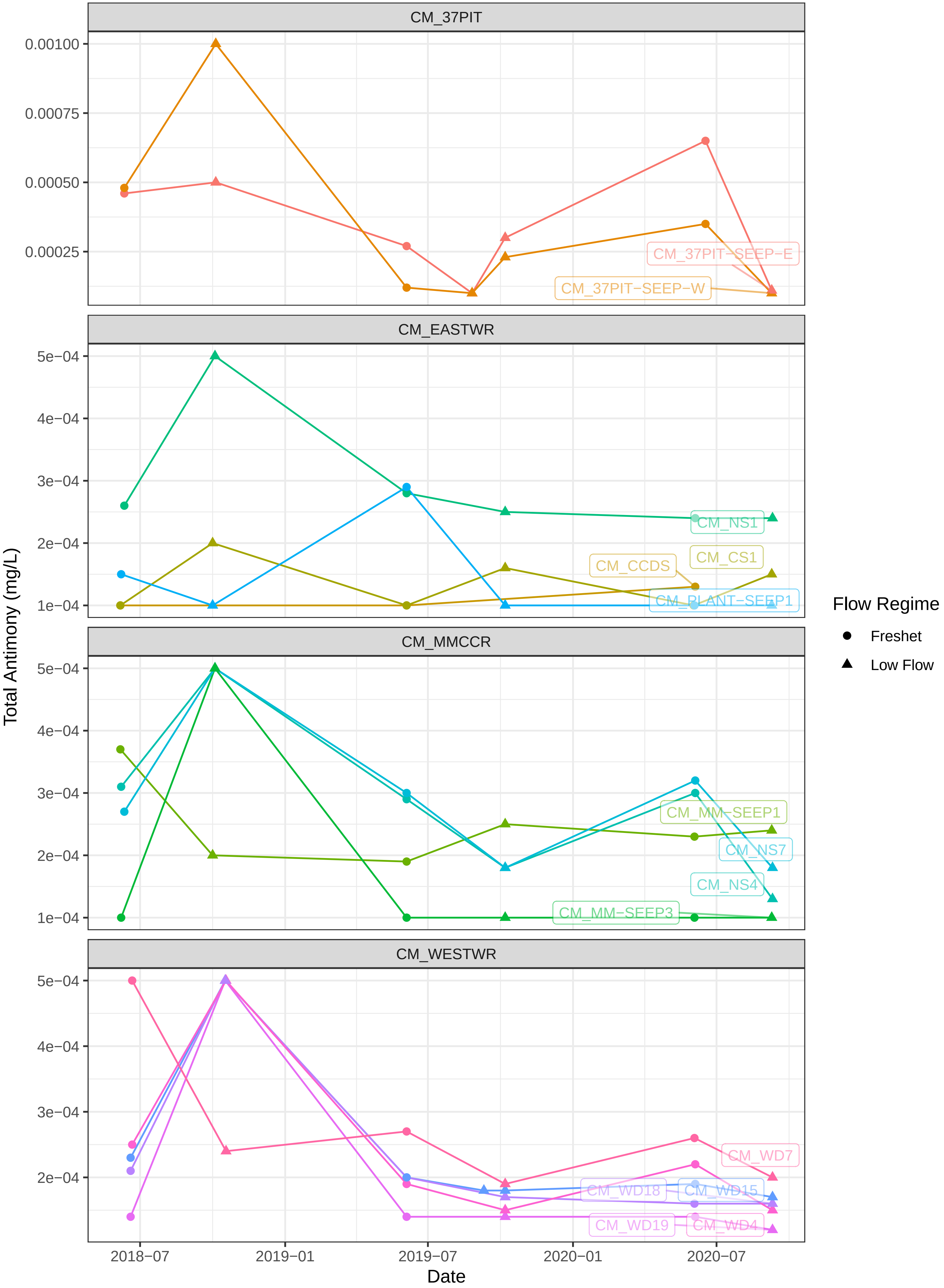

Total Uranium (mg/L)
Date
2018−07
2019−01
2019−07
2020−01
2020−07
0.000
0.005
0.010
0.000
0.002
0.004
0.006
0.008
EV_BALDYRIDGEWR
EV_CCR
EV_CCR/TP
EV_CEDARWR
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_4
EV_SEEP_BREAKERLAKE
EV_SEEP_TURCON1
EV_SEEP_CFI3
EV_SEEP_CFI1
EV_WLAGC
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Uranium



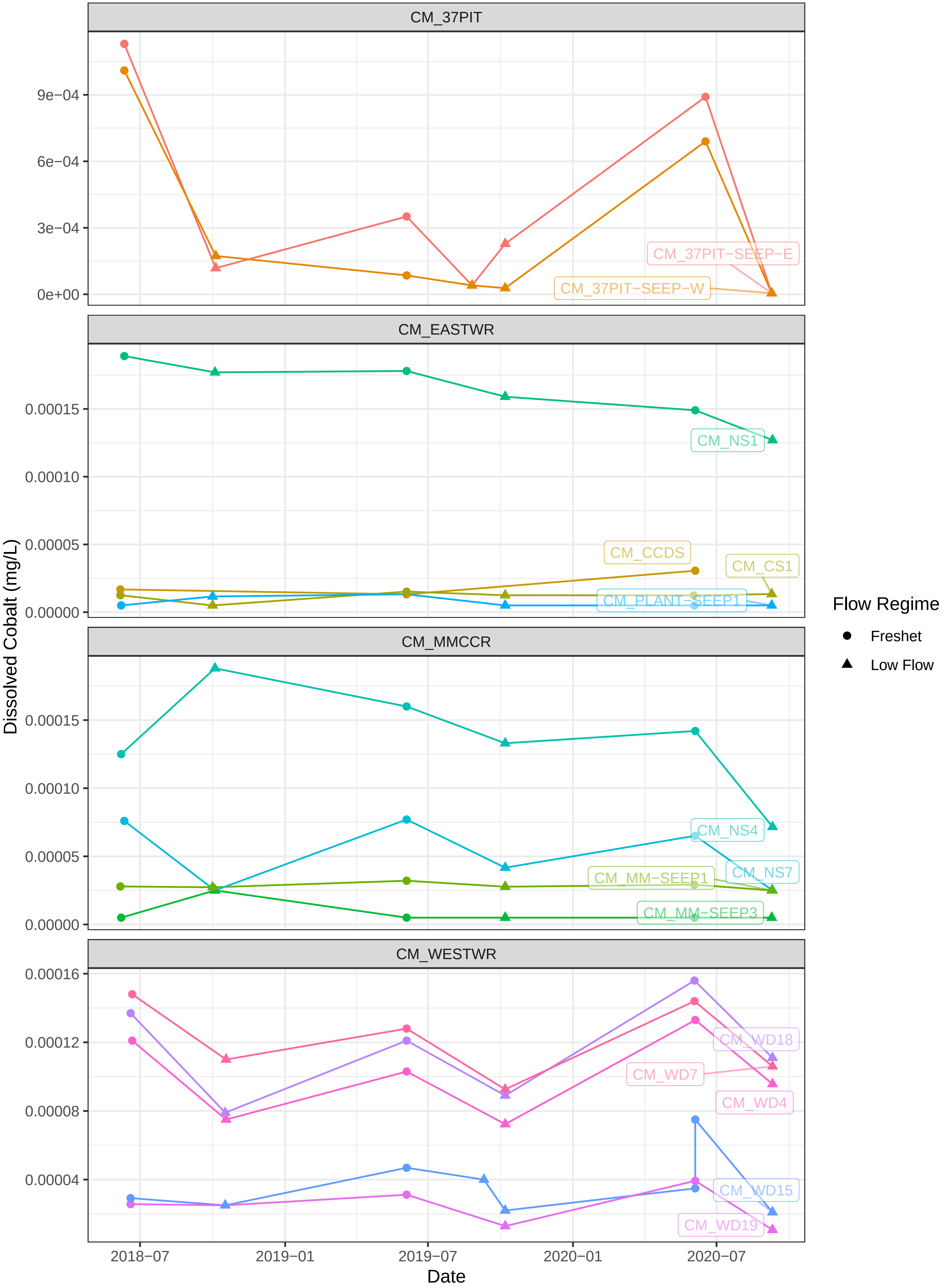
EV_Erickson_WR
EV_SEEP_ERICKSON2
EV_SEEP_ERICKSON1
EV_PLANT
EV_SEEP_PLANT1
EV_SEEP_PLANT23
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SouthPit_Pit
EV_SEEP_SOUTHPIT6
EV_SOUTHSLOPE
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
0.020
0.015
0.010
0.005
0.000
0.008
0.006
0.004
0.002
0.000
0.010
0.008
0.006
0.008
0.006
0.004
0.002
0.000
Total Uranium (mg/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Uranium



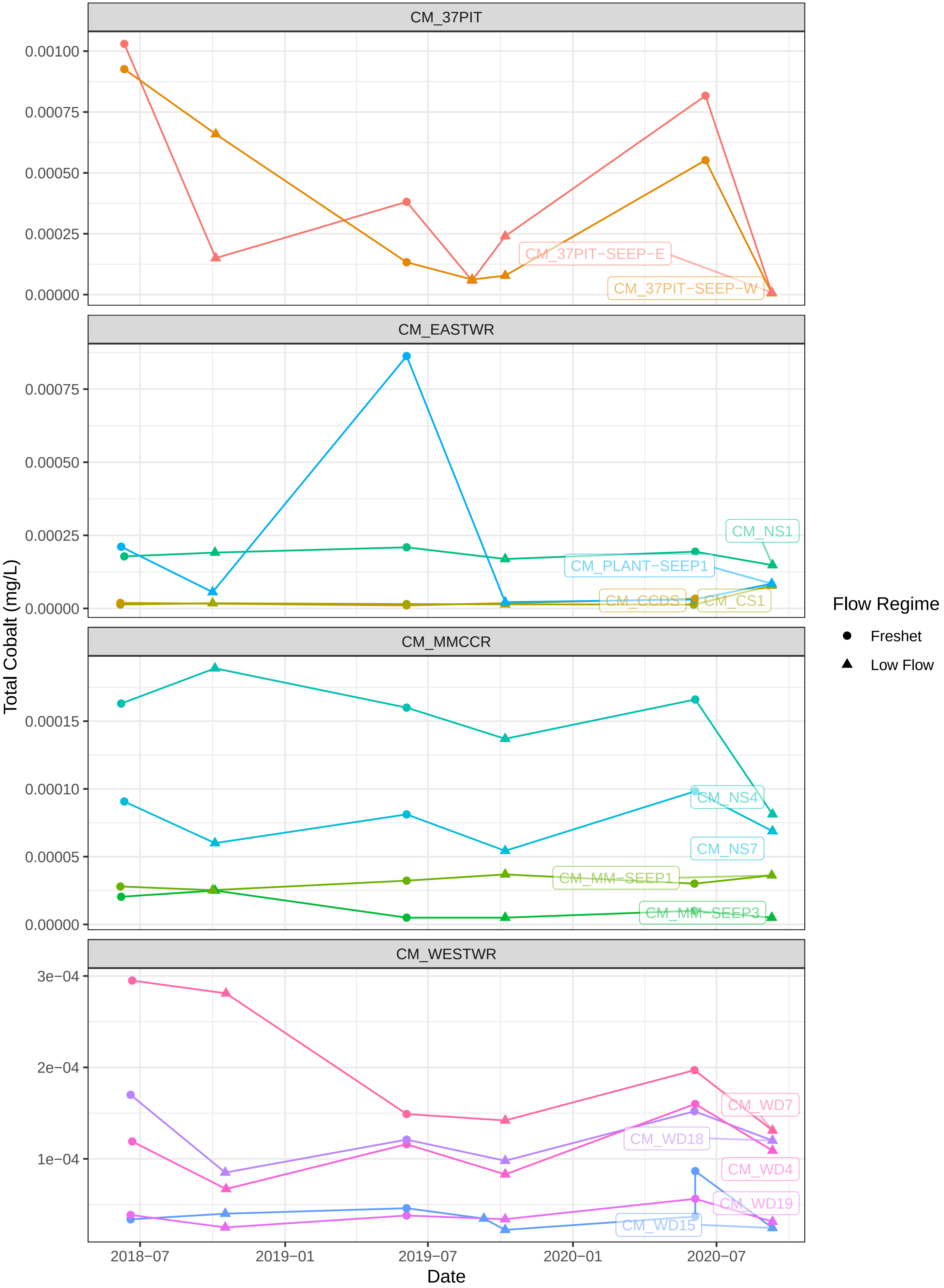
Note: there is no FWAL BCWQG for Dissolved Antimony



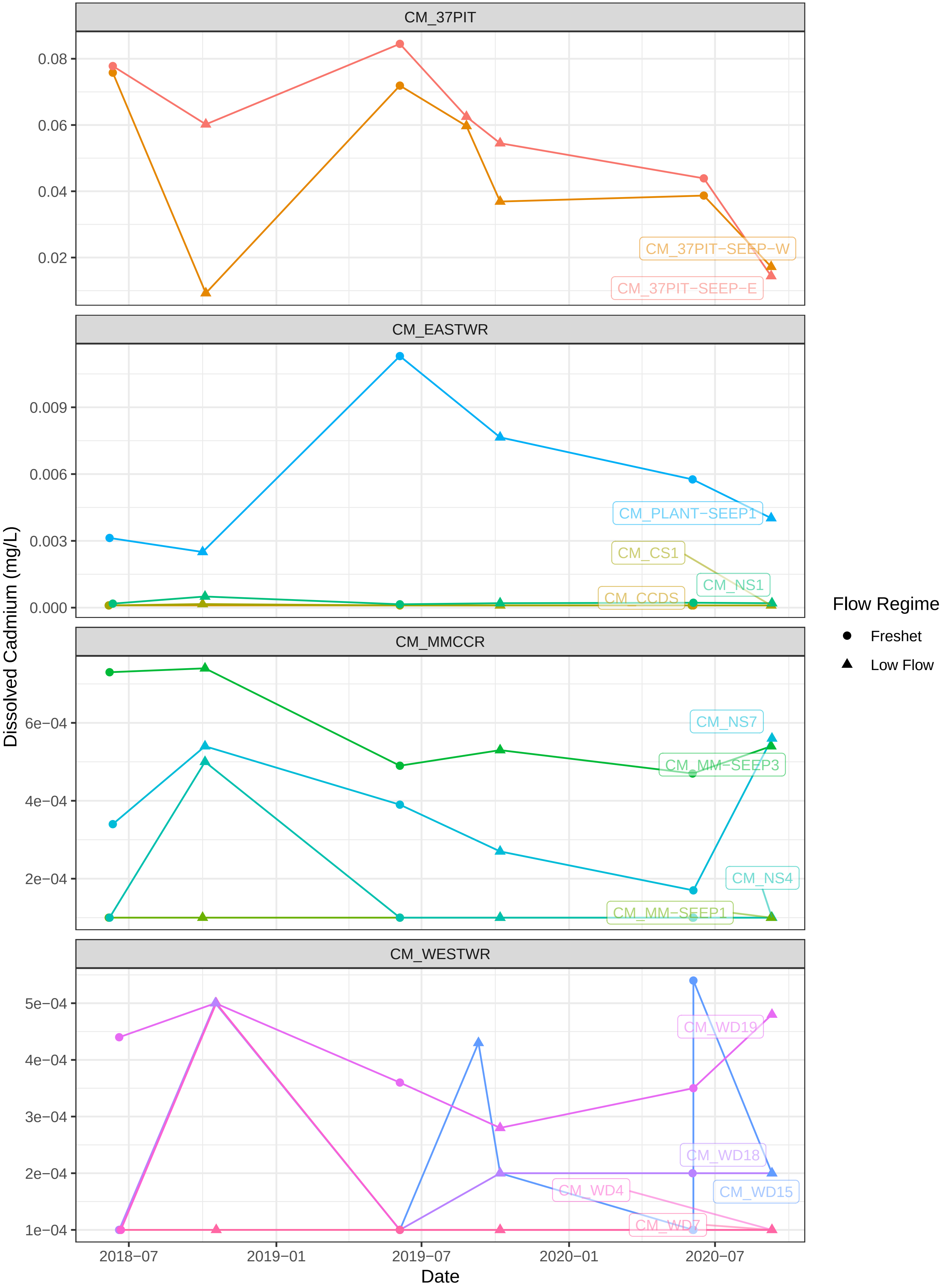
Note: there is no FWAL BCWQG for Total Antimony



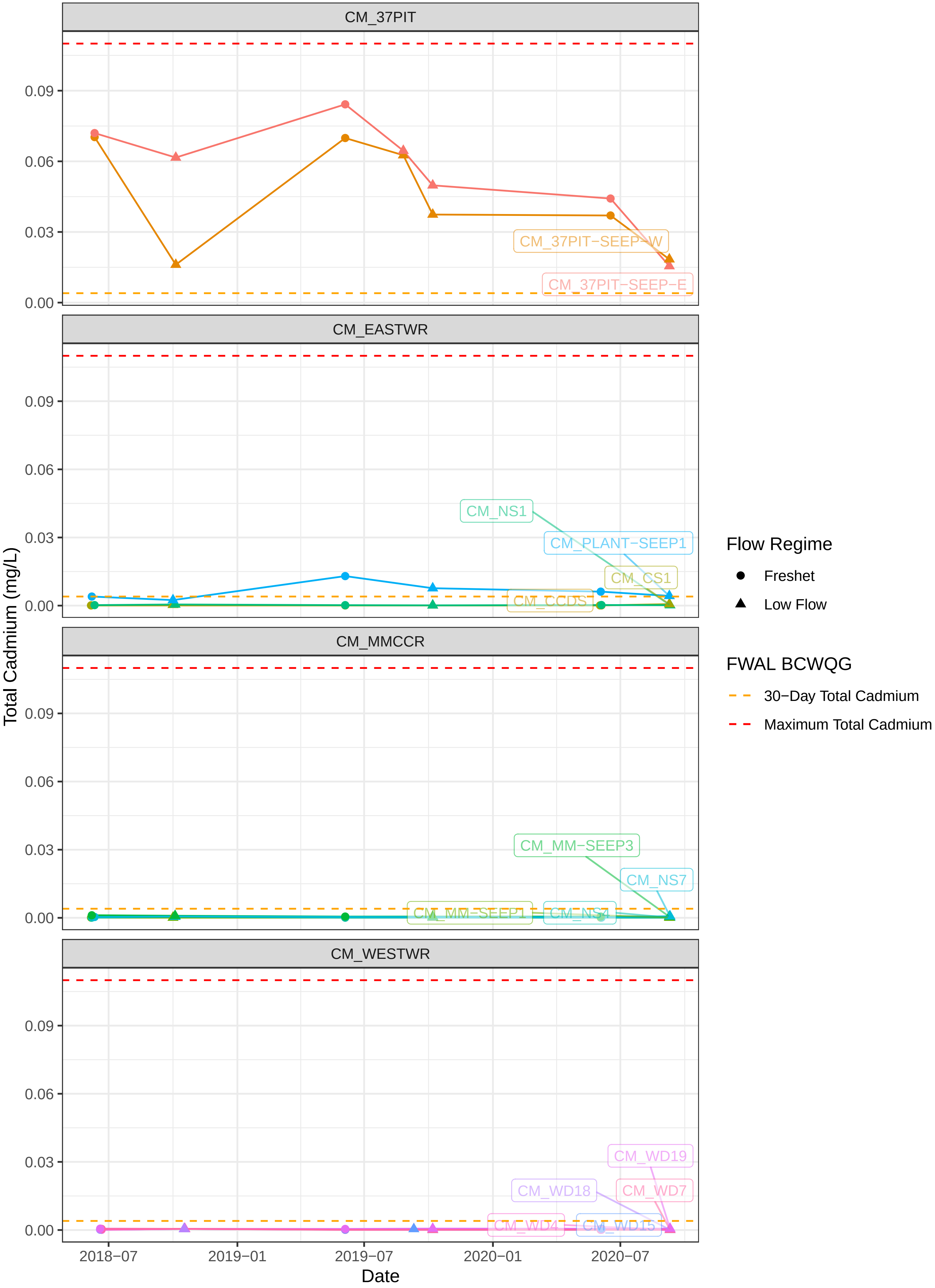
Note: The FWAL BCWQG for Dissolved Cobalt is dependent on Hardness

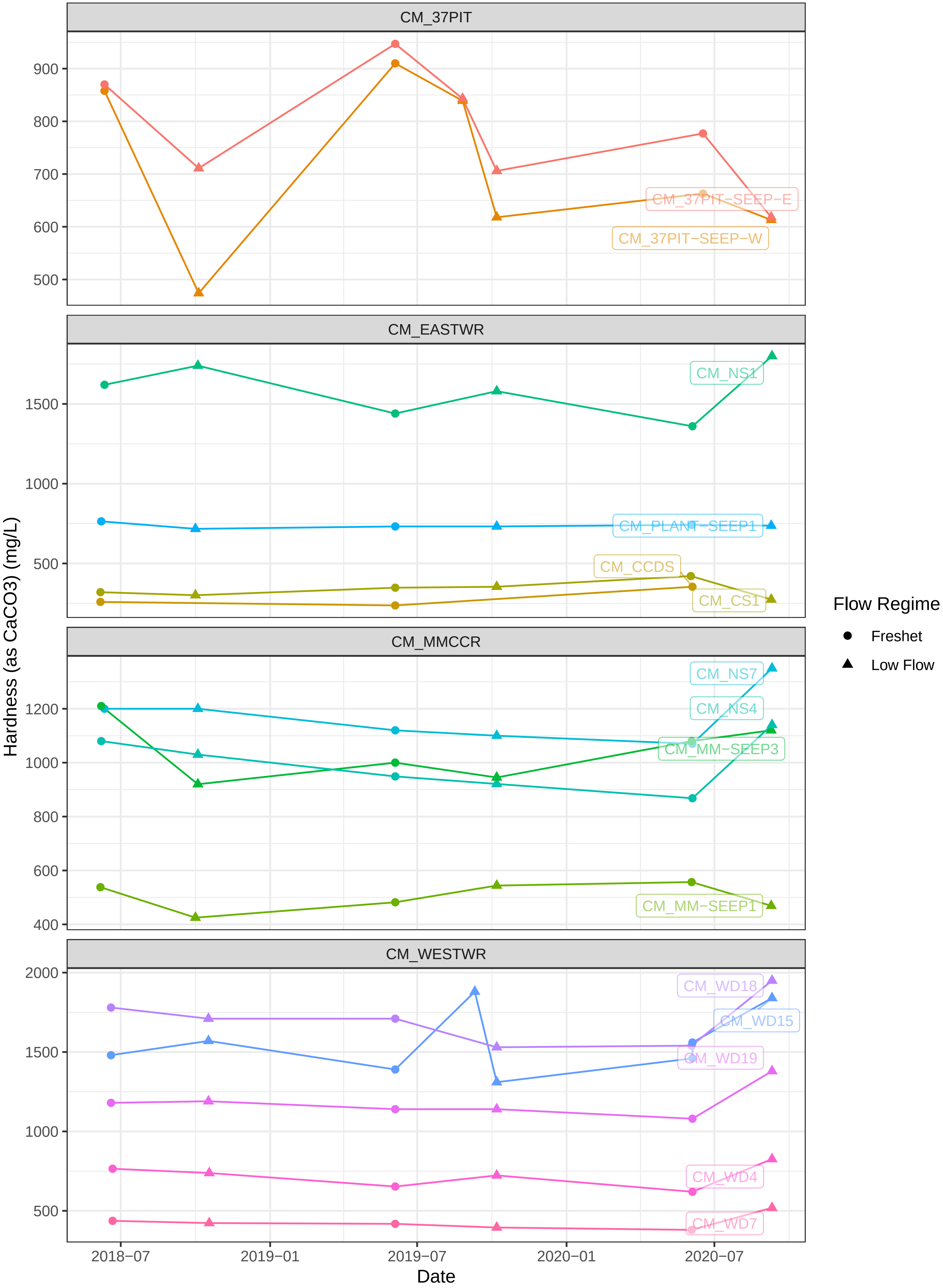


Note: there is no FWAL BCWQG for Total Cobalt

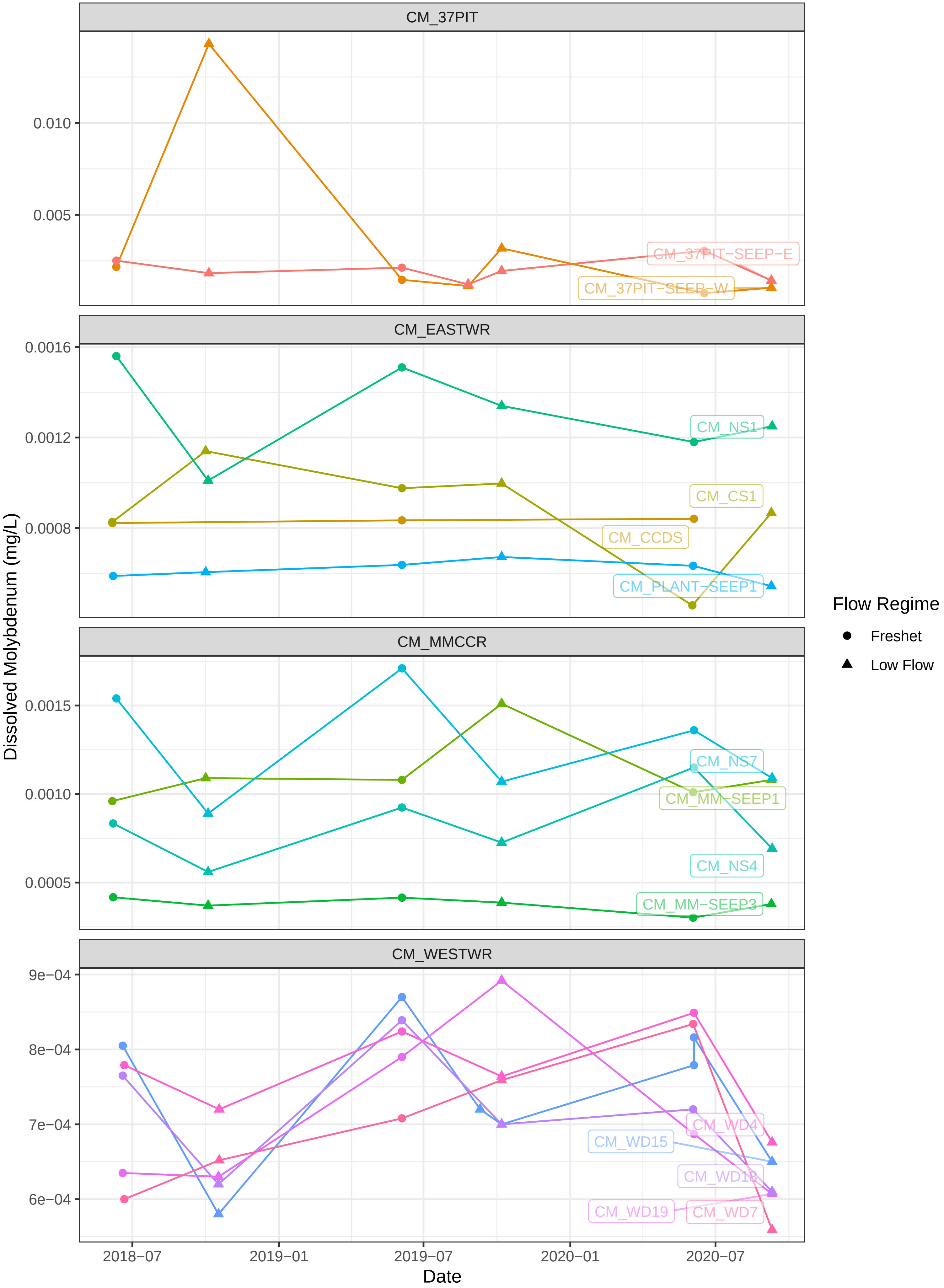


Note: there is no FWAL BCWQG for Dissolved Cadmium

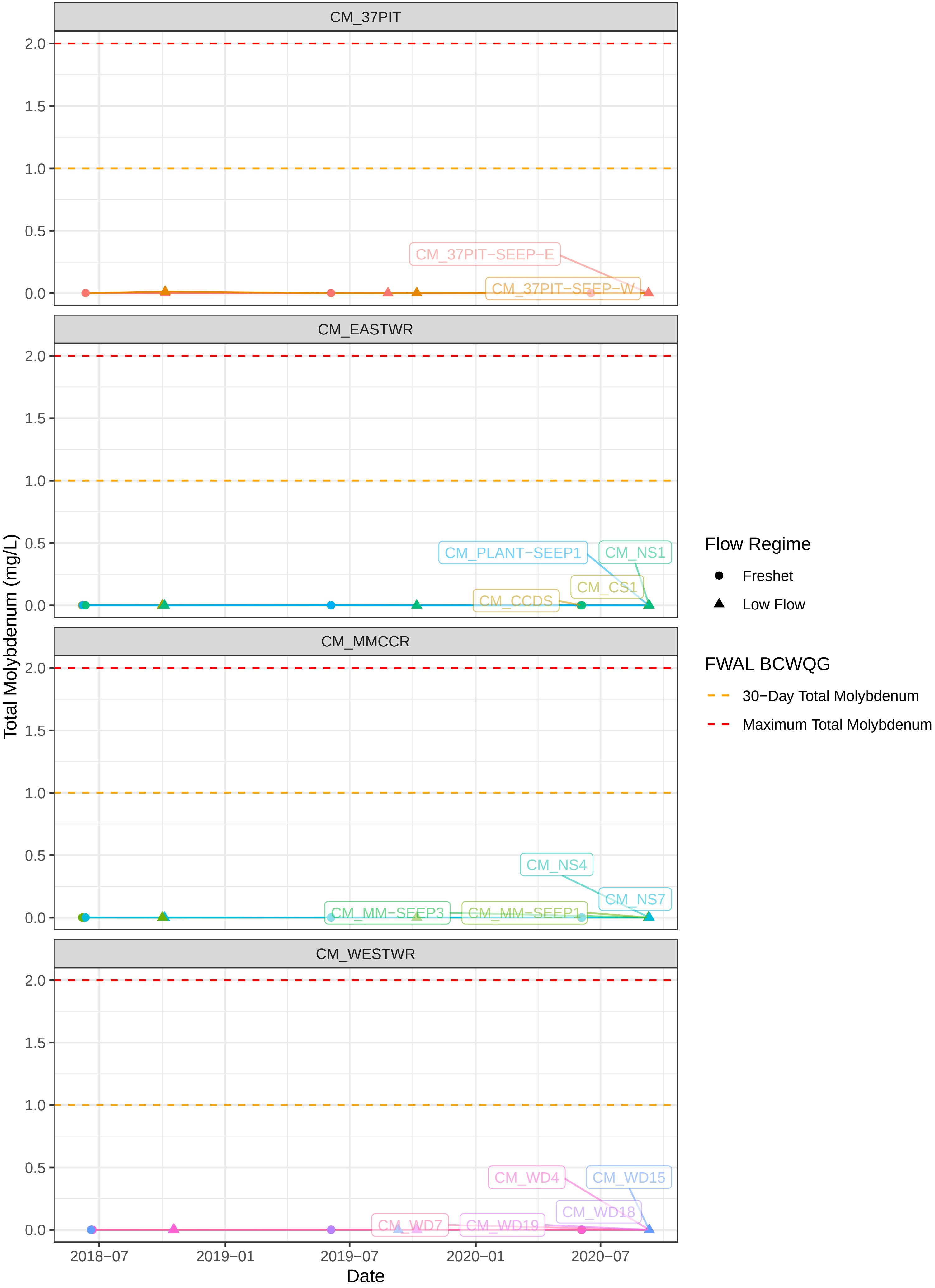

CM_37PIT
CM_37PIT−SEEP−W
CM_37PIT−SEEP−E
CM_EASTWR
CM_NS1
CM_PLANT−SEEP1
CM_CS1
CM_CCDS
CM_MMCCR
CM_MM−SEEP3
CM_NS7
CM_MM−SEEP1
CM_NS4
CM_WESTWR
CM_WD19
CM_WD18
CM_WD7
CM_WD4
CM_WD15
0.00
0.03
0.06
0.09
Total Cadmium (mg/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
Freshet
Low Flow
FWAL BCWQG
30−Day Total Cadmium
Maximum Total Cadmium

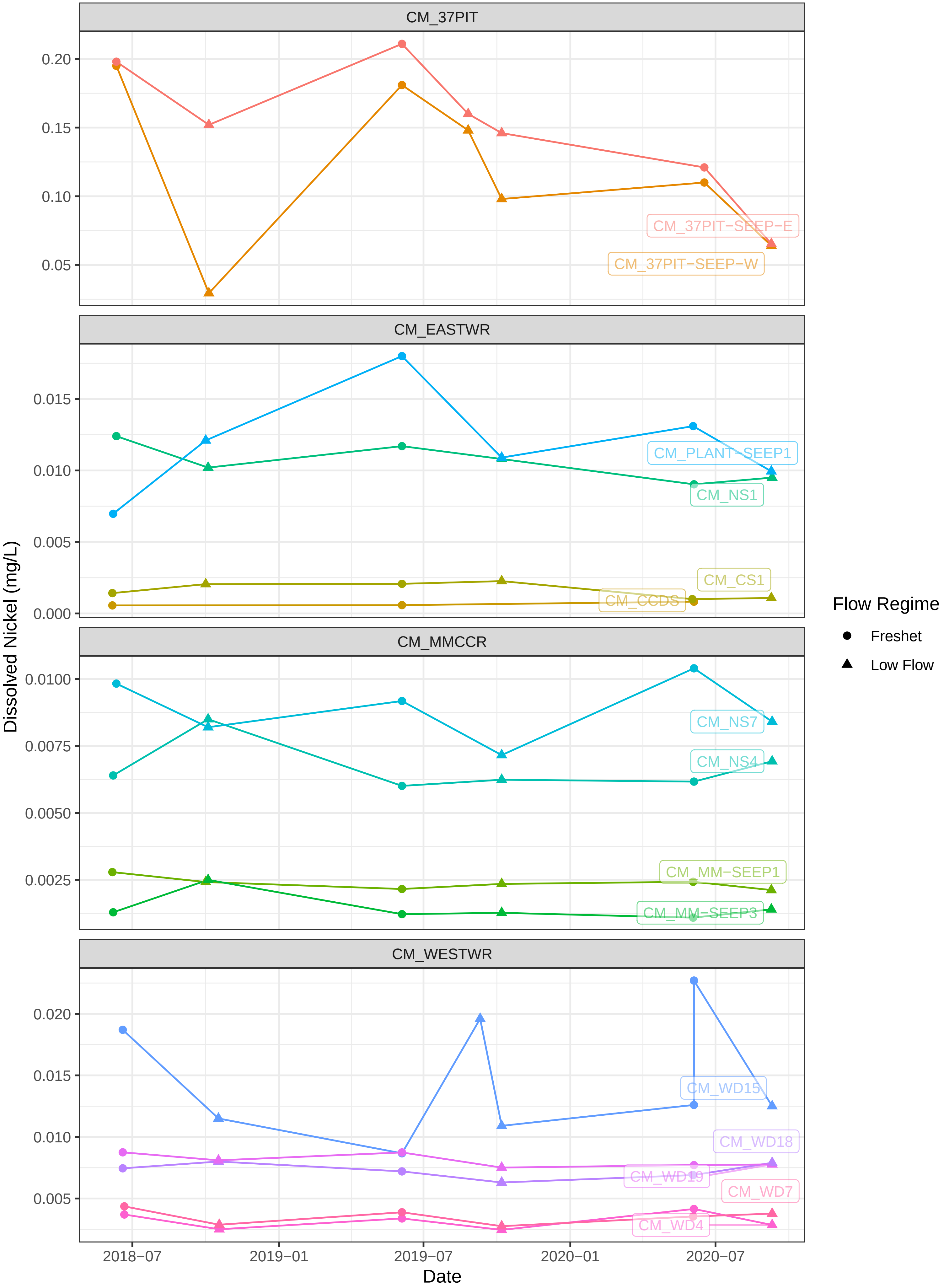


Note: there is no FWAL BCWQG for Hardness (as CaCO3)

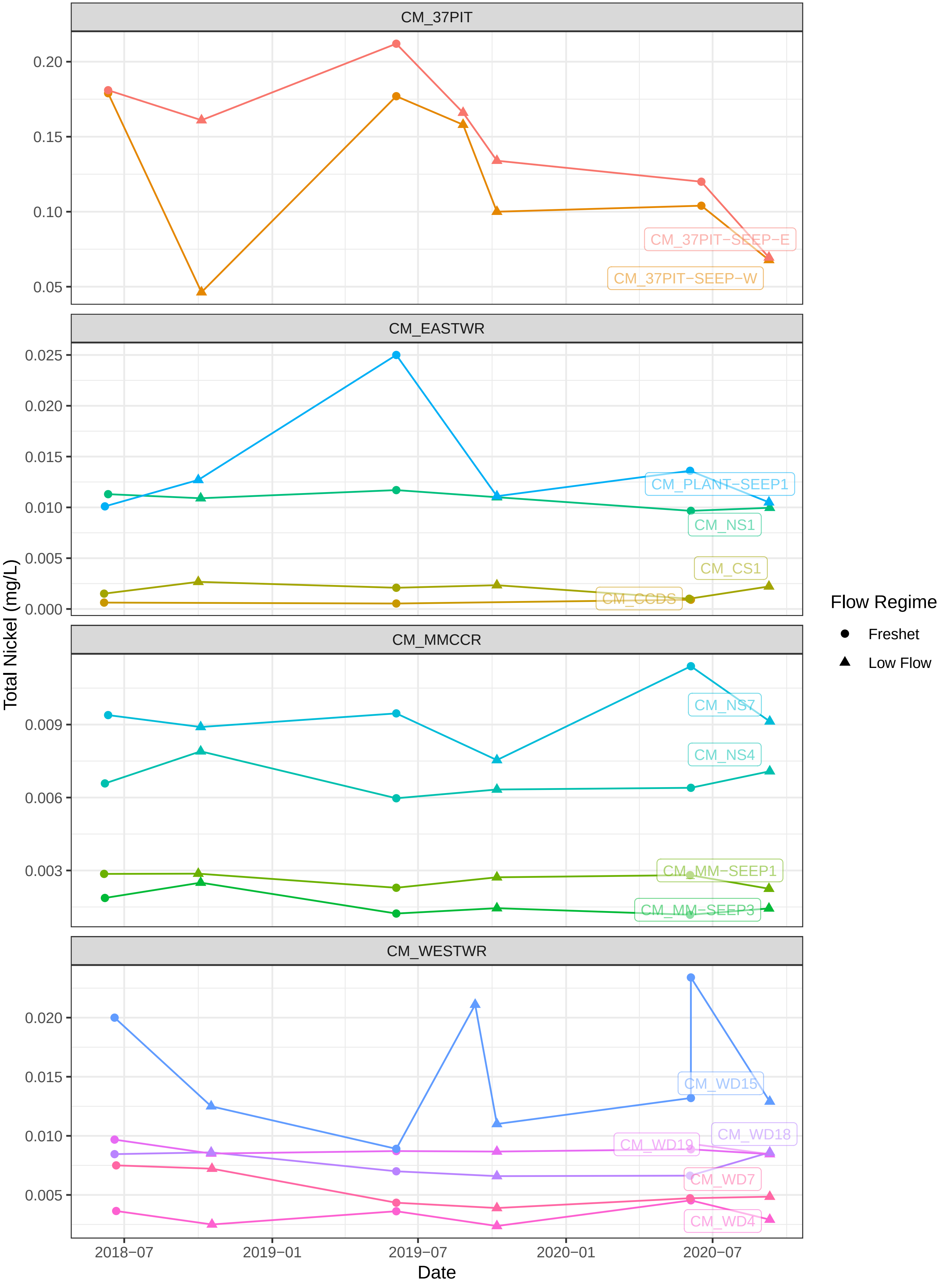


Note: there is no FWAL BCWQG for Dissolved Molybdenum

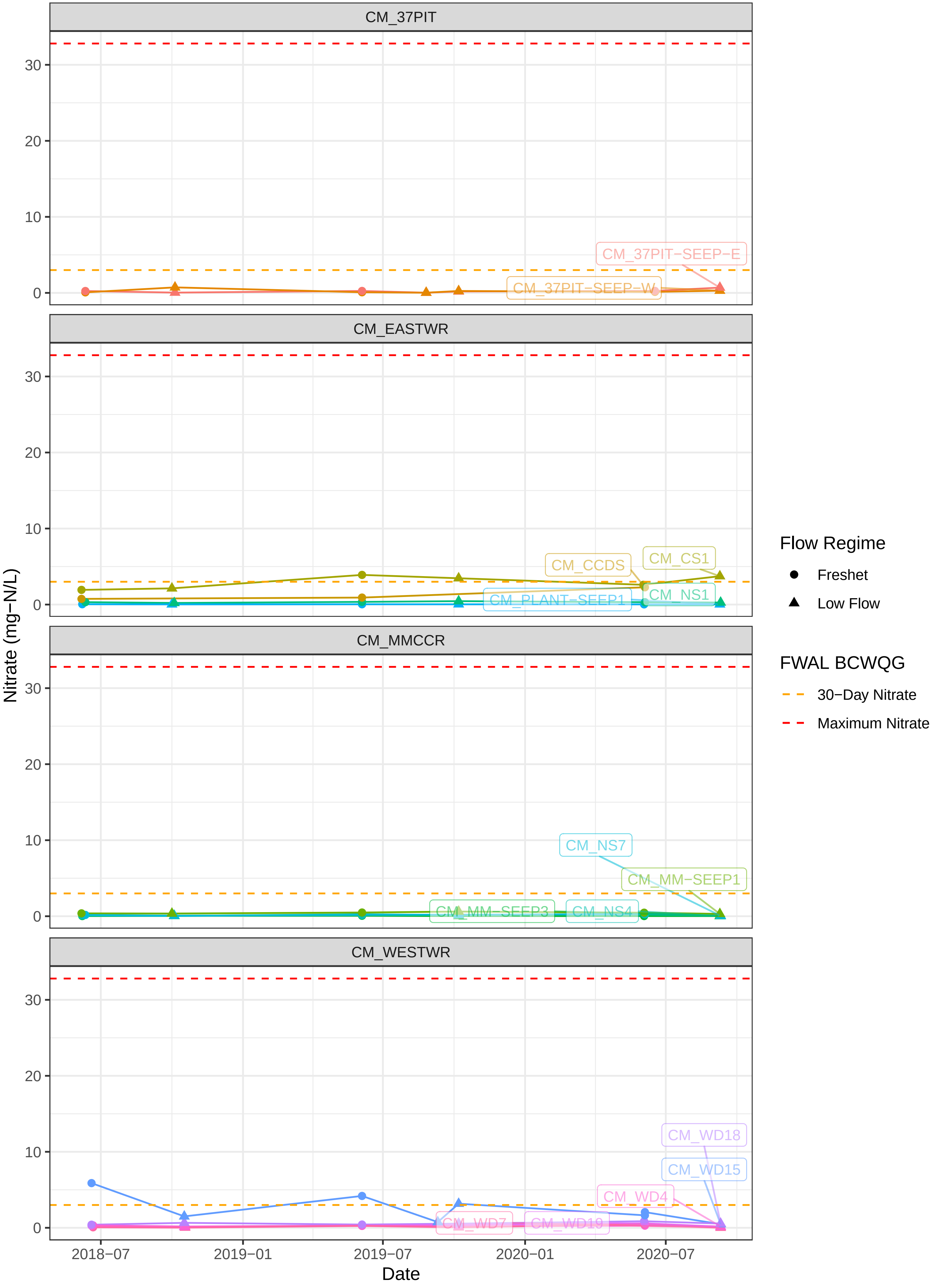

CM_37PIT
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_EASTWR
CM_PLANT−SEEP1
CM_NS1
CM_CS1
CM_CCDS
CM_MMCCR
CM_NS4
CM_NS7
CM_MM−SEEP3
CM_MM−SEEP1
CM_WESTWR
CM_WD4
CM_WD15
CM_WD18
CM_WD7
CM_WD19
2.0
1.5
1.0
0.5
0.0
Total Molybdenum (mg/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Molybdenum
Maximum Total Molybdenum

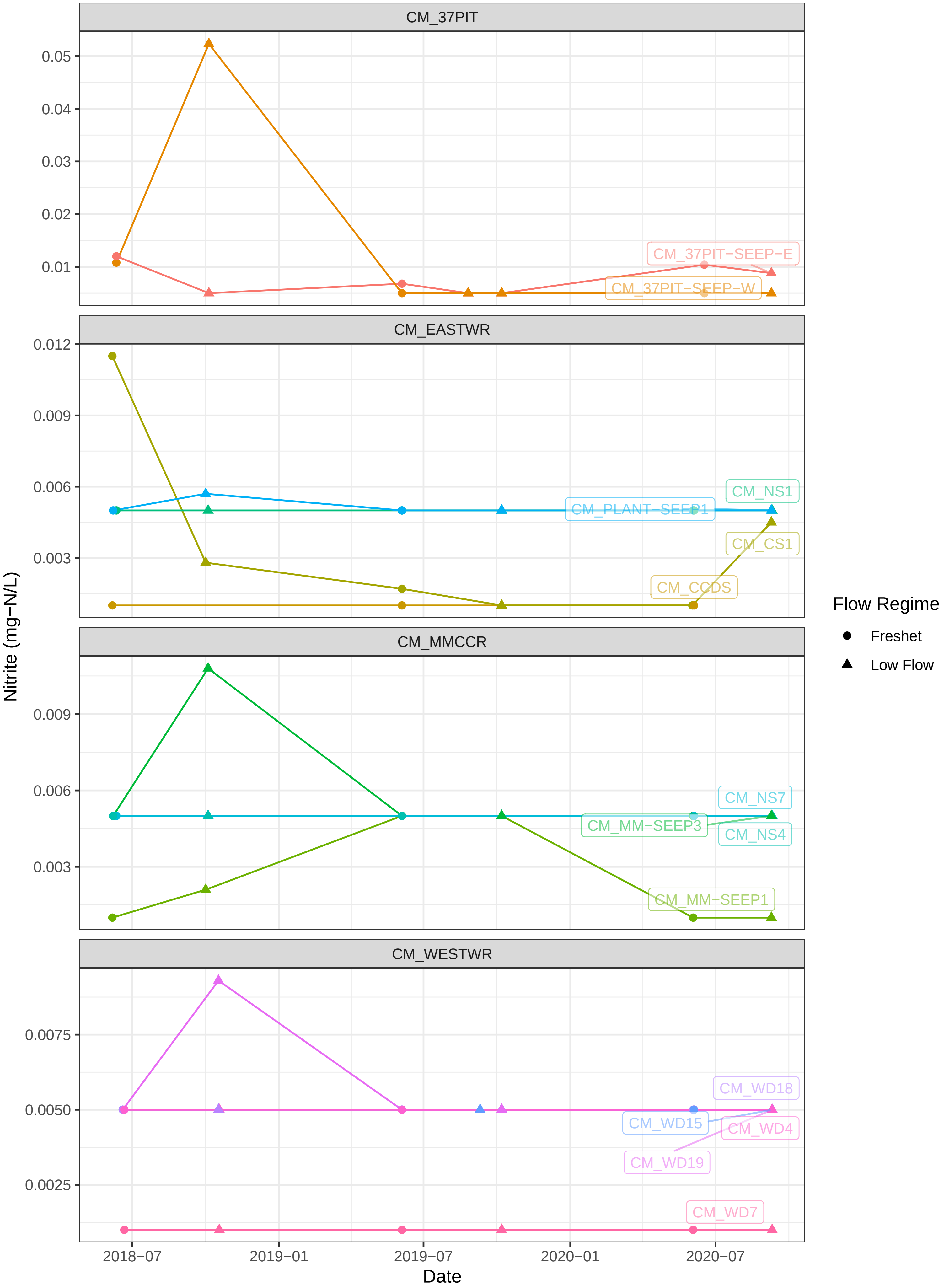


Note: there is no FWAL BCWQG for Dissolved Nickel

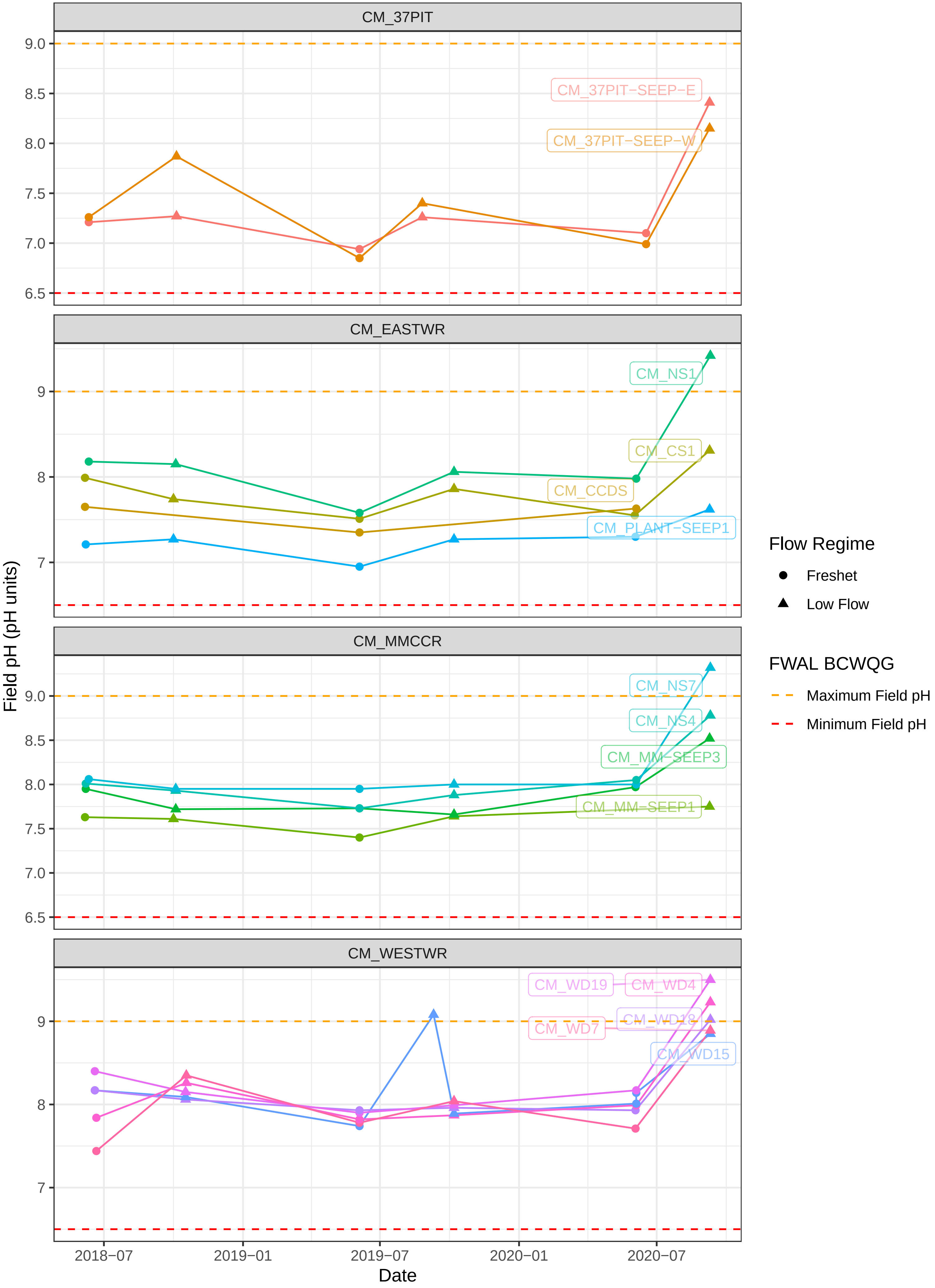


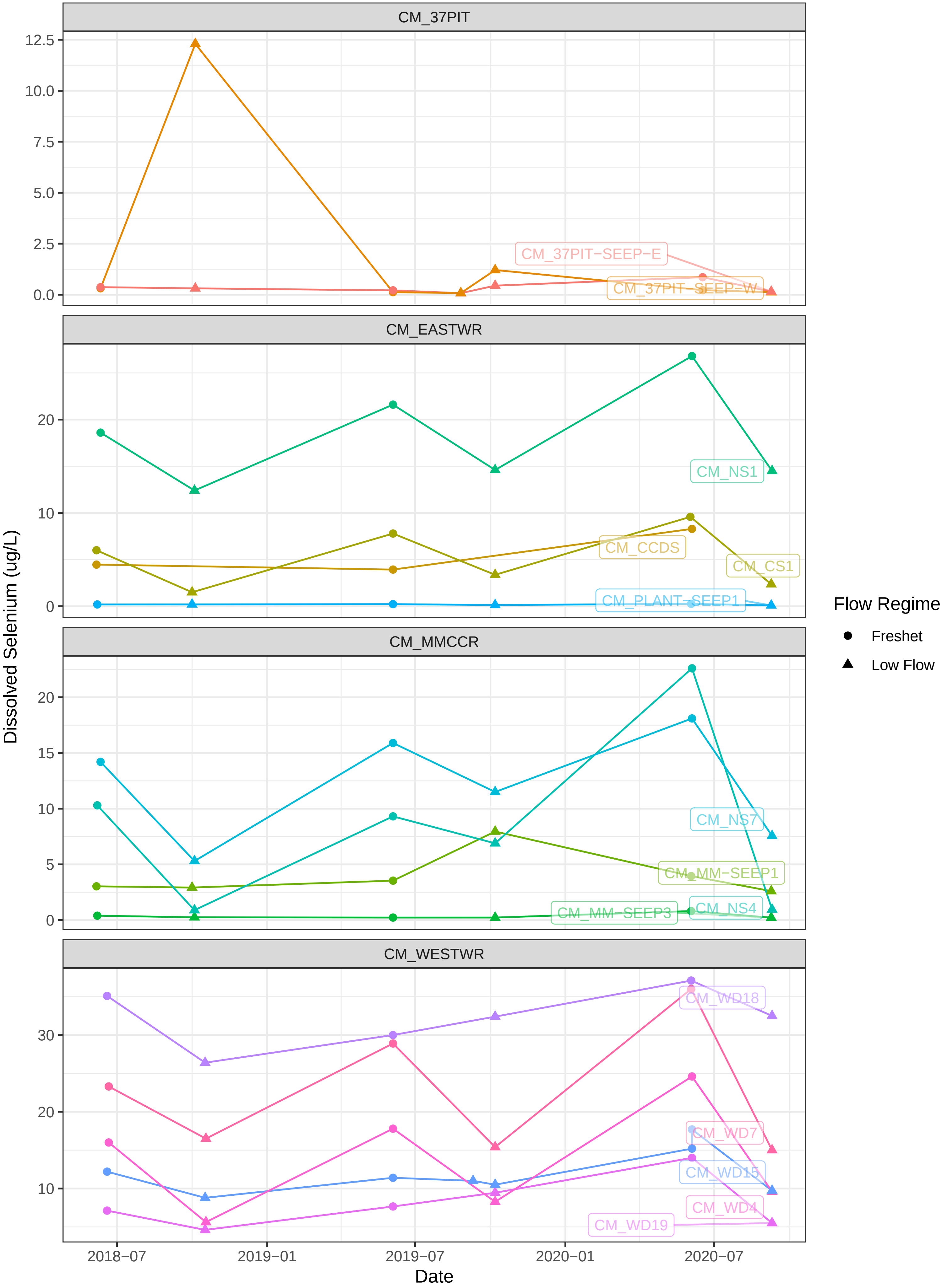
Note: The FWAL BCWQG for Total Nickel is dependent on Hardness


CM_37PIT
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_EASTWR
CM_CCDS
CM_CS1
CM_PLANT−SEEP1
CM_NS1
CM_MMCCR
CM_NS7
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_WESTWR
CM_WD18
CM_WD15
CM_WD4
CM_WD7
CM_WD19
30
20
10
0
Nitrate (mg−N/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Nitrate
Maximum Nitrate

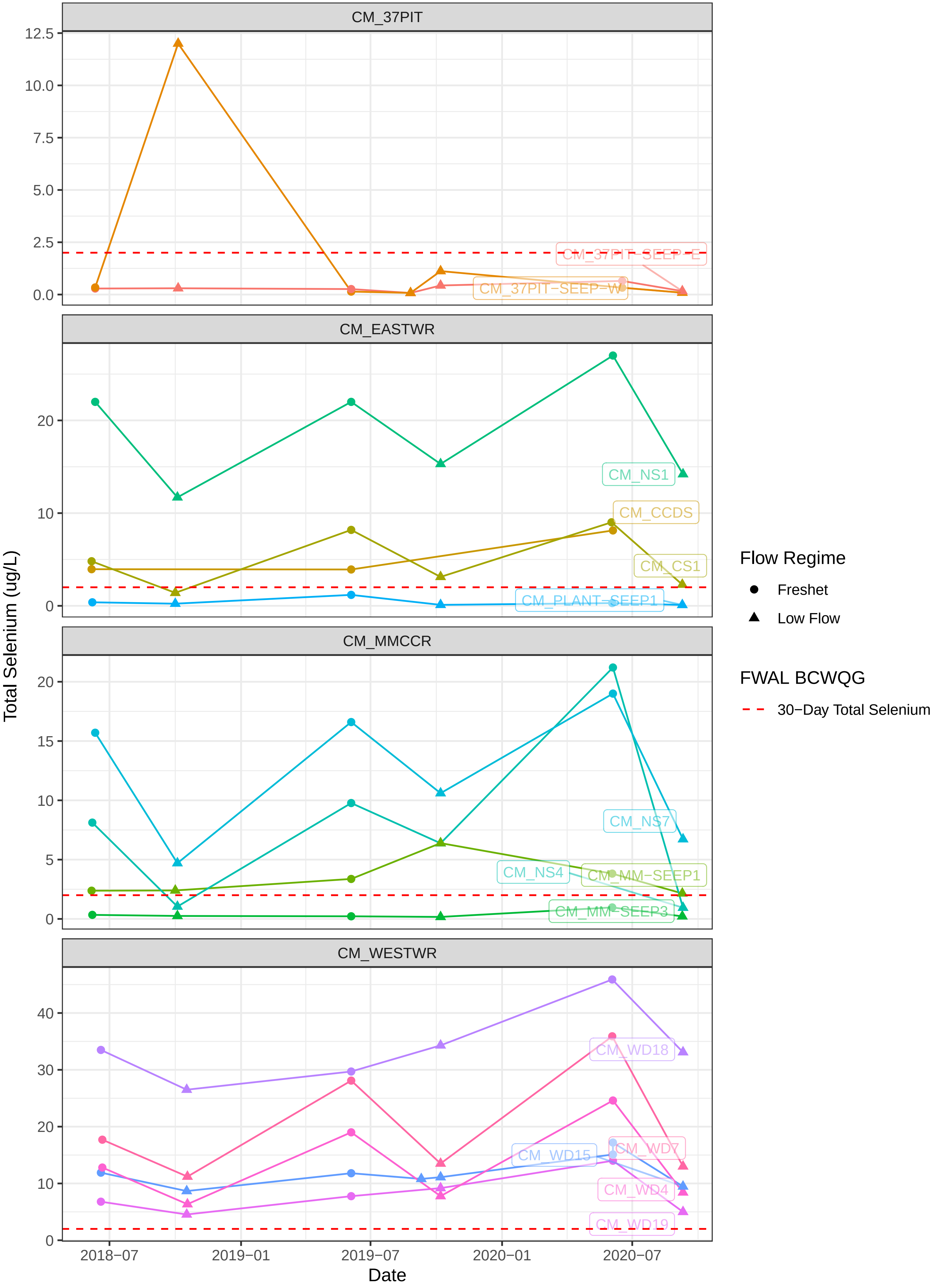


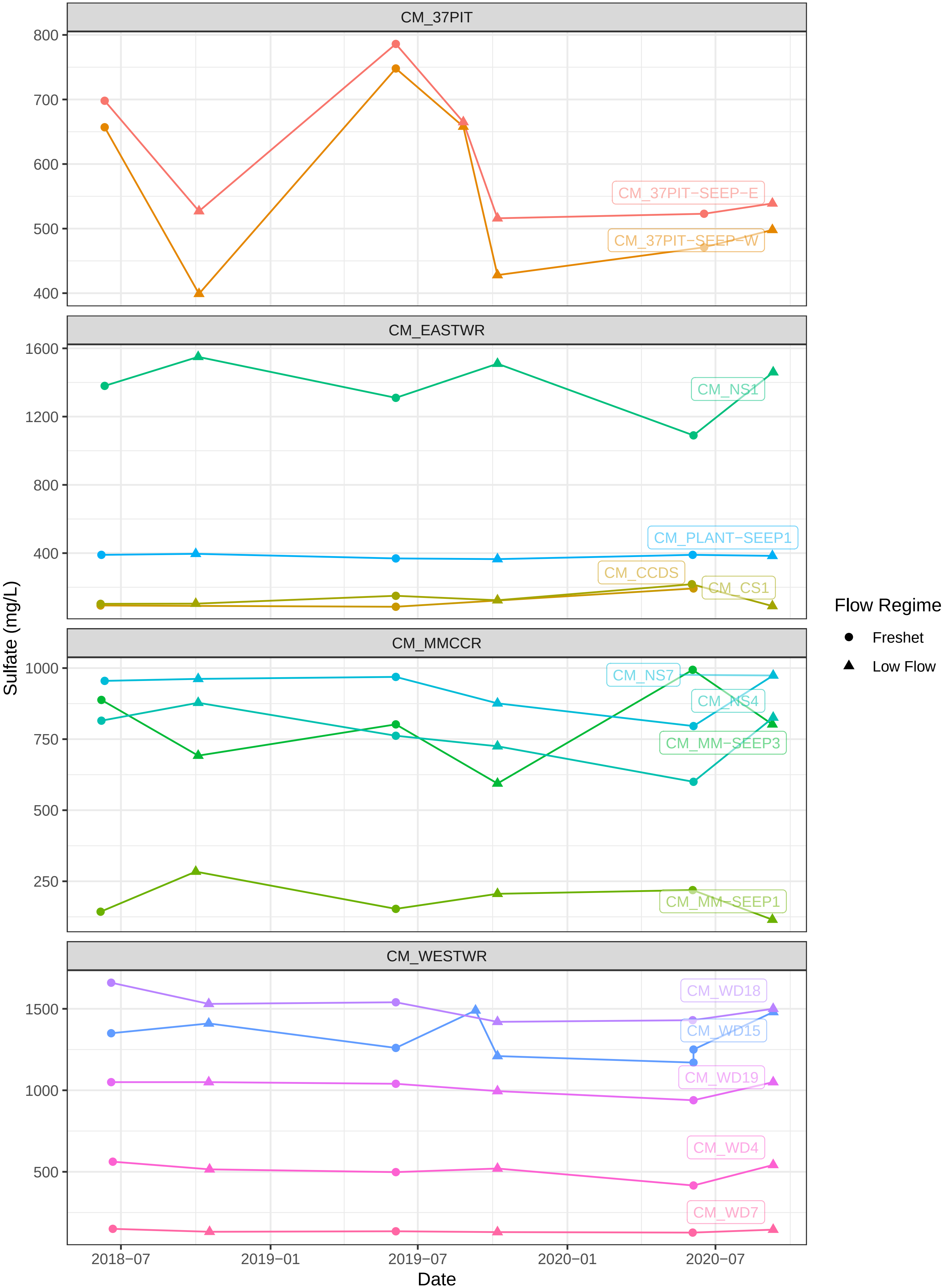
Note: The FWAL BCWQG for Nitrite is dependent on Hardness


CM_37PIT
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_EASTWR
CM_NS1
CM_CS1
CM_CCDS
CM_PLANT−SEEP1
CM_MMCCR
CM_NS7
CM_NS4
CM_MM−SEEP3
CM_MM−SEEP1
CM_WESTWR
CM_WD19
CM_WD4
CM_WD18
CM_WD7
CM_WD15
9.0
8.5
8.0
7.5
7.0
6.5
9
8
7
Field pH (pH units)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
Maximum Field pH
Minimum Field pH

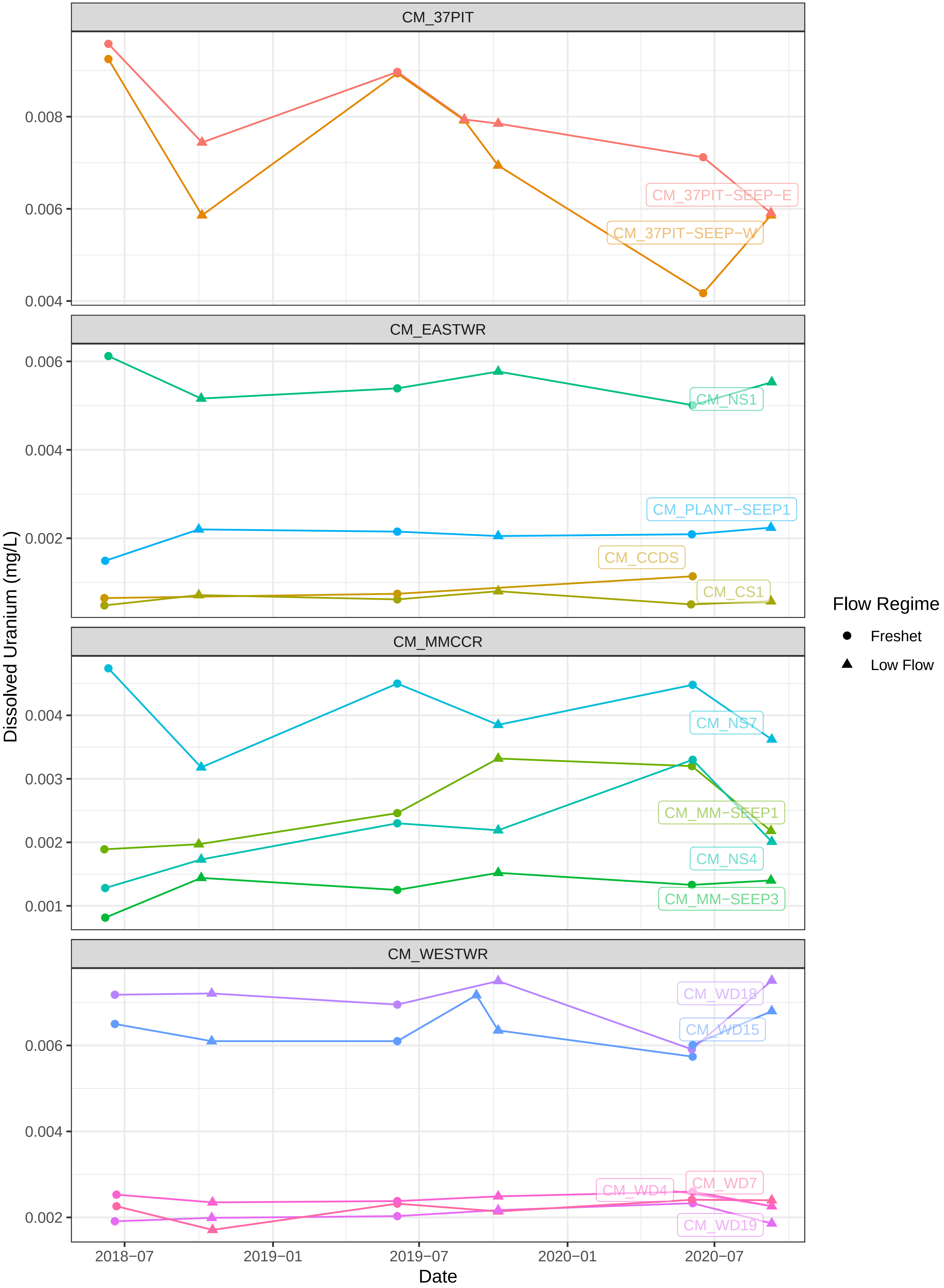


Note: there is no FWAL BCWQG for Dissolved Selenium

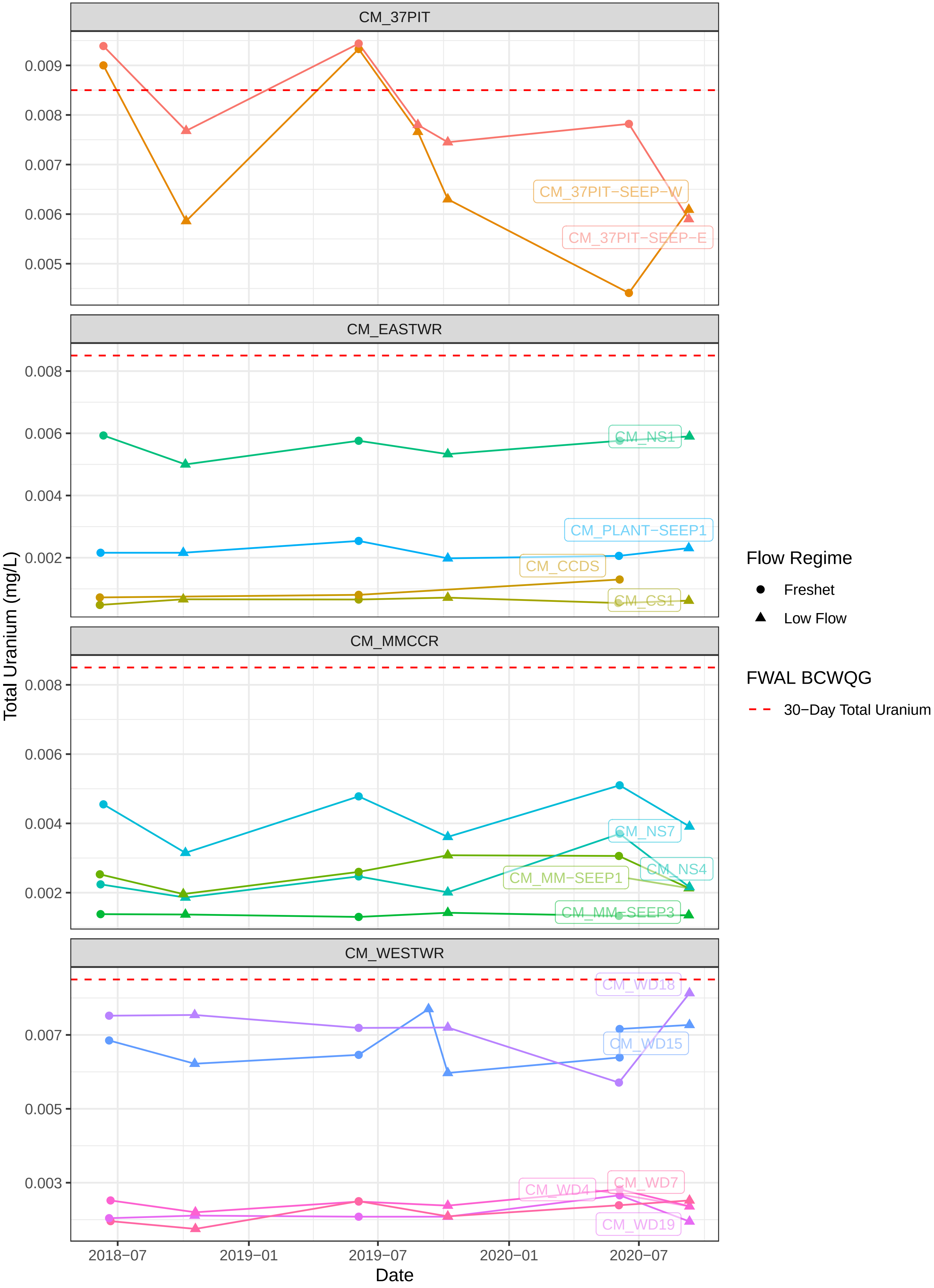

CM_37PIT
12.5
10.0
7.5
5.0
2.5
0.0
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_EASTWR
20
10
0
CM_NS1
CM_CCDS
CM_CS1
CM_PLANT−SEEP1
CM_MMCCR
20
15
10
5
0
CM_NS7
CM_NS4
CM_MM−SEEP1
CM_MM−SEEP3
CM_WESTWR
40
30
20
10
0
CM_WD18
CM_WD15
CM_WD7
CM_WD4
CM_WD19
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Total Selenium (ug/L)
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
30−Day Total Selenium



Note: The FWAL BCWQG for Sulfate is dependent on Hardness



Note: there is no FWAL BCWQG for Dissolved Uranium


CM_37PIT
CM_EASTWR
CM_MMCCR
CM_WESTWR
0.009
0.008
0.007
0.006
0.005
0.004
0.002
0.003
CM_37PIT−SEEP−W
CM_37PIT−SEEP−E
CM_NS1
CM_PLANT−SEEP1
CM_CCDS
CM_CS1
CM_NS7
CM_NS4
CM_MM−SEEP1
CM_MM−SEEP3
CM_WD18
CM_WD15
CM_WD4
CM_WD7
CM_WD19
Total Uranium (mg/L)
2018−07
2019−01
2019−07
2020−01
2020−07
Date
Flow Regime
● Freshet
▲ Low Flow
FWAL BCWQG
– – 30−Day Total Uranium

Appendix C Year to Year BCWQG FWAL Changes Summary

Tables

1 Fording River Operation (FRO)

Table 1: FRO Seep BC Water Quality Guideline Year to Year Changes

Seep ID	Year	Flow Regime	pH	Sulfate[1] *(chronic)*	Total Se *(chronic)*	Nitrate *(acute)*	Nitrate *(chronic)*	Dissolved Cd[1] *(acute)*	Dissolved Cd[1] *(chronic)*	Total Co *(acute)*	Total Co *(chronic)*	Total Ni[1,2] *(chronic)*	Nitrite[1] *(acute)*	Nitrite[1] *(chronic)*	Total U[2] *(chronic)*	Total Mo *(acute)*	Total Mo *(chronic)*
FR_ASPSEEP1	2018	Freshet			Exceeded		Exceeded					▨				▨	▨
		Low Flow		Exceeded	Exceeded		Exceeded					▨				▨	▨
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow		Exceeded	Exceeded		Exceeded		Exceeded								
	2020	Freshet			Exceeded		Exceeded										
		Low Flow		Exceeded	Exceeded		Exceeded							Exceeded			
FR_BLAINESEEP1	2018	Freshet		Exceeded	Exceeded		Exceeded					▨			Exceeded	▨	▨
		Low Flow		Exceeded	Exceeded		Exceeded					▨			Exceeded	▨	▨
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow		Exceeded	Exceeded		Exceeded					Exceeded			Exceeded		
	2020	Freshet		Exceeded	Exceeded		Exceeded								Exceeded		
		Low Flow		Exceeded	Exceeded		Exceeded								Exceeded		
FR_BLAINESEEP5	2018	Freshet		Exceeded	Exceeded		Exceeded					▨		Exceeded	Exceeded	▨	▨
		Low Flow		Exceeded	Exceeded		Exceeded					▨		Exceeded	Exceeded	▨	▨
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow		Exceeded	Exceeded		Exceeded		Exceeded				Exceeded	Exceeded	Exceeded		
	2020	Freshet		Exceeded	Exceeded		Exceeded							Exceeded	Exceeded		
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FR_BLAKESEEP1	2018	Freshet		Exceeded	Exceeded		Exceeded					▨				▨	▨
		Low Flow		Exceeded	Exceeded		Exceeded					▨				▨	▨
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow		Exceeded	Exceeded		Exceeded										
	2020	Freshet			Exceeded		Exceeded										
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FR_SPRWSEEP1	2018	Freshet			Exceeded							▨				▨	▨
		Low Flow			Exceeded							▨				▨	▨
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow			Exceeded		Exceeded	Exceeded	Exceeded								
	2020	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow			Exceeded		Exceeded										
FR_CCSEEPE1	2018	Freshet		Exceeded	Exceeded	Exceeded	Exceeded					▨			Exceeded	▨	▨
		Low Flow		Exceeded	Exceeded	Exceeded	Exceeded					▨			Exceeded	▨	▨

Seep ID	Year	Flow Regime	pH	Sulfate[1] *(chronic)*	Total Se *(chronic)*	Nitrate *(acute)*	Nitrate *(chronic)*	Dissolved Cd[1] *(acute)*	Dissolved Cd[1] *(chronic)*	Total Co *(acute)*	Total Co *(chronic)*	Total Ni[1,2] *(chronic)*	Nitrite[1] *(acute)*	Nitrite[1] *(chronic)*	Total U[2] *(chronic)*	Total Mo *(acute)*	Total Mo *(chronic)*
	2019	Freshet		Exceeded	Exceeded	Exceeded	Exceeded	Exceeded	Exceeded			Exceeded			Exceeded	Exceeded	Exceeded
		Low Flow		Exceeded	Exceeded	Exceeded	Exceeded	Exceeded	Exceeded			Exceeded			Exceeded		
	2020	Freshet		Exceeded	Exceeded	Exceeded	Exceeded								Exceeded		
		Low Flow		Exceeded	Exceeded	Exceeded	Exceeded							Exceeded	Exceeded		
FR_CCSEEPSE1	2018	Freshet		Exceeded	Exceeded	Exceeded	Exceeded								Exceeded		
		Low Flow		Exceeded	Exceeded	Exceeded	Exceeded								Exceeded		
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow		Exceeded	Exceeded	Exceeded	Exceeded	Exceeded	Exceeded			Exceeded			Exceeded		
	2020	Freshet		Exceeded	Exceeded	Exceeded	Exceeded								Exceeded		
		Low Flow		Exceeded	Exceeded	Exceeded	Exceeded								Exceeded		
FR_DOKASEEP1	2018	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow			Exceeded		Exceeded										
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow															
	2020	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FR_FSEAMSEEP7	2018	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow		Exceeded	Exceeded		Exceeded										
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow			Exceeded		Exceeded										
	2020	Freshet			Exceeded		Exceeded										
		Low Flow			Exceeded		Exceeded				Exceeded	Exceeded			Exceeded		
FR_EAGLENORTH	2018	Freshet		Exceeded	Exceeded	Exceeded	Exceeded								Exceeded		
		Low Flow		Exceeded	Exceeded	Exceeded	Exceeded								Exceeded		
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow		Exceeded	Exceeded	Exceeded	Exceeded	Exceeded	Exceeded			Exceeded			Exceeded		
	2020	Freshet		Exceeded	Exceeded	Exceeded	Exceeded								Exceeded		
		Low Flow		Exceeded	Exceeded	Exceeded	Exceeded								Exceeded		
FR_FSEAMWSEEP4	2018	Freshet			Exceeded		Exceeded						Exceeded	Exceeded			
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow		Exceeded	Exceeded	Exceeded	Exceeded		Exceeded					Exceeded	Exceeded		
	2020	Freshet			Exceeded		Exceeded										
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FR_HENSEEP1	2018	Freshet		Exceeded	Exceeded	Exceeded	Exceeded							Exceeded			
		Low Flow		Exceeded													

Seep ID	Year	Flow Regime	pH	Sulfate[1] (chronic)	Total Se (chronic)	Nitrate (acute)	Nitrate (chronic)	Dissolved Cd[1] (acute)	Dissolved Cd[1] (chronic)	Total Co (acute)	Total Co (chronic)	Total Ni[1,2] (chronic)	Nitrite[1] (acute)	Nitrite[1] (chronic)	Total U[2] (chronic)	Total Mo (acute)	Total Mo (chronic)
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2020	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FR_HENSEEP3	2018	Freshet		Exceeded	Exceeded	Exceeded	Exceeded					▨				▨	▨
		Low Flow		Exceeded	Exceeded		Exceeded					▨				▨	▨
	2019	Freshet															
		Low Flow		Exceeded	Exceeded	Exceeded	Exceeded										
	2020	Freshet		Exceeded	Exceeded	Exceeded	Exceeded										
		Low Flow		Exceeded	Exceeded	Exceeded	Exceeded							Exceeded			
FR_HENSSEEP1	2018	Freshet		Exceeded								▨				▨	▨
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2019	Freshet															
		Low Flow		Exceeded													
	2020	Freshet		Exceeded	Exceeded												
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FR_LMCWSEEP5	2018	Freshet			Exceeded							▨				▨	▨
		Low Flow			Exceeded		Exceeded					▨				▨	▨
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow		Exceeded	Exceeded	Exceeded	Exceeded		Exceeded			Exceeded					
	2020	Freshet			Exceeded	Exceeded	Exceeded							Exceeded			
		Low Flow			Exceeded		Exceeded										
FR_LMCWSEEP7	2018	Freshet			Exceeded							▨				▨	▨
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2020	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FR_SHNSEEP1	2018	Freshet			Exceeded		Exceeded					▨				▨	▨
		Low Flow			Exceeded		Exceeded					▨				▨	▨
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow			Exceeded	Exceeded	Exceeded							Exceeded			
	2020	Freshet			Exceeded		Exceeded										
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FR_FRVWSEEP3	2018	Freshet		Exceeded	Exceeded							▨				▨	▨
		Low Flow		Exceeded	Exceeded							▨				▨	▨

Seep ID	Year	Flow Regime	pH	Sulfate[1] *(chronic)*	Total Se *(chronic)*	Nitrate *(acute)*	Nitrate *(chronic)*	Dissolved Cd[1] *(acute)*	Dissolved Cd[1] *(chronic)*	Total Co *(acute)*	Total Co *(chronic)*	Total Ni[1,2] *(chronic)*	Nitrite[1] *(acute)*	Nitrite[1] *(chronic)*	Total U[2] *(chronic)*	Total Mo *(acute)*	Total Mo *(chronic)*
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow		Exceeded	Exceeded												
	2020	Freshet		Exceeded	Exceeded												
		Low Flow		Exceeded	Exceeded												
FR_STPNSEEP	2018	Freshet			Exceeded		Exceeded					▨				▨	▨
		Low Flow			Exceeded		Exceeded					▨				▨	▨
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow			Exceeded		Exceeded										
	2020	Freshet			Exceeded		Exceeded										
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FR_STPSWSEEP	2018	Freshet										▨				▨	▨
		Low Flow										▨				▨	▨
	2019	Freshet							Exceeded						Exceeded		
		Low Flow						Exceeded	Exceeded						Exceeded		
	2020	Freshet															
		Low Flow															
FR_STPWSEEP	2018	Freshet										▨				▨	▨
		Low Flow										▨				▨	▨
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow			Exceeded			Exceeded	Exceeded								
	2020	Freshet	Exceeded												Exceeded		
		Low Flow															
FR_SCRDSEEP1	2018	Freshet			Exceeded							▨				▨	▨
		Low Flow			Exceeded		Exceeded					▨				▨	▨
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow			Exceeded	Exceeded	Exceeded						Exceeded	Exceeded			
	2020	Freshet			Exceeded	Exceeded	Exceeded						Exceeded	Exceeded			
		Low Flow			Exceeded		Exceeded										
FR_FCSEEP2	2018	Freshet			Exceeded							▨				▨	▨
		Low Flow			Exceeded		Exceeded					▨				▨	▨
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow			Exceeded												
	2020	Freshet			Exceeded												
		Low Flow			Exceeded		Exceeded										
FR_TURNSEEP1	2018	Freshet			Exceeded	Exceeded	Exceeded					▨	Exceeded	Exceeded		▨	▨
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Seep ID	Year	Flow Regime	pH	Sulfate[1] *(chronic)*	Total Se *(chronic)*	Nitrate *(acute)*	Nitrate *(chronic)*	Dissolved Cd[1] *(acute)*	Dissolved Cd[1] *(chronic)*	Total Co *(acute)*	Total Co *(chronic)*	Total Ni[1,2] *(chronic)*	Nitrite[1] *(acute)*	Nitrite[1] *(chronic)*	Total U[2] *(chronic)*	Total Mo *(acute)*	Total Mo *(chronic)*
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow			Exceeded	Exceeded	Exceeded		Exceeded				Exceeded	Exceeded	Exceeded		
	2020	Freshet			Exceeded	Exceeded	Exceeded										
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FR_TBWSEEP1	2018	Freshet			Exceeded		Exceeded					▨				▨	▨
		Low Flow			Exceeded		Exceeded					▨				▨	▨
	2019	Freshet					Exceeded										
		Low Flow			Exceeded		Exceeded										
	2020	Freshet			Exceeded		Exceeded										
		Low Flow			Exceeded		Exceeded										
FR_TURNSEEP2	2018	Freshet			Exceeded	Exceeded	Exceeded					▨				▨	▨
		Low Flow			Exceeded		Exceeded					▨				▨	▨
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow			Exceeded		Exceeded										
	2020	Freshet			Exceeded		Exceeded										
		Low Flow			Exceeded		Exceeded										

Notes: N/A indicates no sample were collected during that sampling event. Greyed out cells indicate that samples were not screened against criterium in question.

[1] BCWQG FWAL guideline is hardness dependent for this parameter

[2] This parameter is currently a working guideline

2 Greenhills Operation (GHO)

Table 2: GHO Seep BC Water Quality Guideline Year to Year Changes

Seep ID	Year	Flow Regime	pH	Sulfate[1] *(chronic)*	Total Se *(chronic)*	Nitrate *(acute)*	Nitrate *(chronic)*	Dissolved Cd[1] *(acute)*	Dissolved Cd[1] *(chronic)*	Total Co *(acute)*	Total Co *(chronic)*	Total Ni[1,2] *(chronic)*	Nitrite[1] *(acute)*	Nitrite[1] *(chronic)*	Total U[2] *(chronic)*	Total Mo *(acute)*	Total Mo *(chronic)*
GH_E1	2018	Freshet										▨				▨	▨
		Low Flow										▨				▨	▨
	2019	Freshet		Exceeded													
		Low Flow		Exceeded													
	2020	Freshet															
		Low Flow		Exceeded	Exceeded												
GH_E3	2018	Freshet										▨				▨	▨
		Low Flow										▨				▨	▨
	2019	Freshet		Exceeded	Exceeded										Exceeded		
		Low Flow		Exceeded	Exceeded										Exceeded		
	2020	Freshet		Exceeded	Exceeded												
		Low Flow		Exceeded	Exceeded												
GH_SEEP_16	2018	Freshet			Exceeded							▨				▨	▨
		Low Flow										▨				▨	▨
	2019	Freshet			Exceeded												
		Low Flow			Exceeded												
	2020	Freshet															
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
GH_SEEP_21	2018	Freshet		Exceeded	Exceeded							▨				▨	▨
		Low Flow										▨				▨	▨
	2019	Freshet		Exceeded	Exceeded												
		Low Flow		Exceeded													
	2020	Freshet															
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
GH_SEEP_22	2018	Freshet		Exceeded	Exceeded							▨			Exceeded	▨	▨
		Low Flow										▨				▨	▨
	2019	Freshet		Exceeded	Exceeded										Exceeded		
		Low Flow		Exceeded	Exceeded										Exceeded		
	2020	Freshet															
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
GH_SEEP_26	2018	Freshet		Exceeded								▨				▨	▨
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2019	Freshet		Exceeded													

Seep ID	Year	Flow Regime	pH	Sulfate[1] (*chronic*)	Total Se (*chronic*)	Nitrate (*acute*)	Nitrate (*chronic*)	Dissolved Cd[1] (*acute*)	Dissolved Cd[1] (*chronic*)	Total Co (*acute*)	Total Co (*chronic*)	Total Ni[1,2] (*chronic*)	Nitrite[1] (*acute*)	Nitrite[1] (*chronic*)	Total U[2] (*chronic*)	Total Mo (*acute*)	Total Mo (*chronic*)
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2020	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
GH_W-SEEP	2018	Freshet		Exceeded	Exceeded												
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2019	Freshet		Exceeded													
		Low Flow		Exceeded													
	2020	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
GH_WTDS	2018	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow			Exceeded				Exceeded								
	2019	Freshet			Exceeded			Exceeded	Exceeded								
		Low Flow			Exceeded		Exceeded	Exceeded	Exceeded								
	2020	Freshet			Exceeded												
		Low Flow			Exceeded												
GH_SEEP_76	2018	Freshet															
		Low Flow															
	2019	Freshet		Exceeded	Exceeded	Exceeded	Exceeded				Exceeded	Exceeded	Exceeded	Exceeded	Exceeded		
		Low Flow		Exceeded	Exceeded	Exceeded	Exceeded					Exceeded			Exceeded		
	2020	Freshet		Exceeded	Exceeded	Exceeded	Exceeded								Exceeded		
		Low Flow															
GH_SEEP_12	2018	Freshet			Exceeded												
		Low Flow															
	2019	Freshet			Exceeded												
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2020	Freshet			Exceeded												
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
GH_SEEP_46	2018	Freshet			Exceeded		Exceeded										
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2020	Freshet			Exceeded		Exceeded										
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
GH_SEEP_5	2018	Freshet			Exceeded												
		Low Flow															
	2019	Freshet			Exceeded				Exceeded								

Seep ID	Year	Flow Regime	pH	Sulfate[1] *(chronic)*	Total Se *(chronic)*	Nitrate *(acute)*	Nitrate *(chronic)*	Dissolved Cd[1] *(acute)*	Dissolved Cd[1] *(chronic)*	Total Co *(acute)*	Total Co *(chronic)*	Total Ni[1,2] *(chronic)*	Nitrite[1] *(acute)*	Nitrite[1] *(chronic)*	Total U[2] *(chronic)*	Total Mo *(acute)*	Total Mo *(chronic)*
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2020	Freshet			Exceeded												
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
GH_SEEP_60	2018	Freshet															
		Low Flow		Exceeded	Exceeded	Exceeded	Exceeded								Exceeded		
	2019	Freshet		Exceeded	Exceeded	Exceeded	Exceeded							Exceeded			
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2020	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow		Exceeded	Exceeded	Exceeded	Exceeded								Exceeded		
GH_SEEP_15	2018	Freshet		Exceeded	Exceeded												
		Low Flow															
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2020	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
GH_SEEP_30	2018	Freshet															
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2019	Freshet			Exceeded						Exceeded						
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2020	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
GH_SEEP_50	2018	Freshet															
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2019	Freshet															
		Low Flow															
	2020	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
GH_SEEP_77	2018	Freshet															
		Low Flow															
	2019	Freshet		Exceeded	Exceeded	Exceeded	Exceeded					Exceeded		Exceeded	Exceeded		
		Low Flow		Exceeded	Exceeded	Exceeded	Exceeded					Exceeded			Exceeded		
	2020	Freshet		Exceeded	Exceeded	Exceeded	Exceeded					Exceeded			Exceeded		
		Low Flow		Exceeded	Exceeded	Exceeded	Exceeded								Exceeded		
GH_SEEP_79	2018	Freshet															
		Low Flow															
	2019	Freshet															

Seep ID	Year	Flow Regime	pH	Sulfate[1] *(chronic)*	Total Se *(chronic)*	Nitrate *(acute)*	Nitrate *(chronic)*	Dissolved Cd[1] *(acute)*	Dissolved Cd[1] *(chronic)*	Total Co *(acute)*	Total Co *(chronic)*	Total Ni[1,2] *(chronic)*	Nitrite[1] *(acute)*	Nitrite[1] *(chronic)*	Total U[2] *(chronic)*	Total Mo *(acute)*	Total Mo *(chronic)*
		Low Flow															
	2020	Freshet															
		Low Flow															

Notes: N/A indicates no sample were collected during that sampling event. Greyed out cells indicate that samples were not screened against criterium in question.

[1] BCWQG FWAL guideline is hardness dependent for this parameter

[2] This parameter is currently a working guideline

3 Line Creek Operation (LCO)

Table 3: LCO Seep BC Water Quality Guideline Year to Year Changes

Seep ID	Year	Flow Regime	pH	Sulfate[1] *(chronic)*	Total Se *(chronic)*	Nitrate *(acute)*	Nitrate *(chronic)*	Dissolved Cd[1] *(acute)*	Dissolved Cd[1] *(chronic)*	Total Co *(acute)*	Total Co *(chronic)*	Total Ni[1,2] *(chronic)*	Nitrite[1] *(acute)*	Nitrite[1] *(chronic)*	Total U[2] *(chronic)*	Total Mo *(acute)*	Total Mo *(chronic)*
LC_SEEP14	2018	Freshet			Exceeded		Exceeded										
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2019	Freshet															
		Low Flow			Exceeded		Exceeded		Exceeded								
	2020	Freshet			Exceeded		Exceeded										
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
LC_SEEP8	2018	Freshet															
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2019	Freshet															
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2020	Freshet															
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
LC_UDHP	2018	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2019	Freshet			Exceeded		Exceeded										
		Low Flow			Exceeded		Exceeded										
	2020	Freshet															
		Low Flow			Exceeded	Exceeded	Exceeded										
LC_UDP1	2018	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2019	Freshet															
		Low Flow			Exceeded												
	2020	Freshet															
		Low Flow			Exceeded												
LC_SEEP15	2018	Freshet			Exceeded		Exceeded										
		Low Flow			Exceeded		Exceeded										
	2019	Freshet			Exceeded		Exceeded										
		Low Flow			Exceeded		Exceeded										
	2020	Freshet			Exceeded		Exceeded										
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
LC_SEEP19	2018	Freshet			Exceeded		Exceeded										
		Low Flow															
	2019	Freshet			Exceeded												

Seep ID	Year	Flow Regime	pH	Sulfate[1] (*chronic*)	Total Se (*chronic*)	Nitrate (*acute*)	Nitrate (*chronic*)	Dissolved Cd[1] (*acute*)	Dissolved Cd[1] (*chronic*)	Total Co (*acute*)	Total Co (*chronic*)	Total Ni[1,2] (*chronic*)	Nitrite[1] (*acute*)	Nitrite[1] (*chronic*)	Total U[2] (*chronic*)	Total Mo (*acute*)	Total Mo (*chronic*)
		Low Flow			Exceeded		Exceeded										
	2020	Freshet			Exceeded												
		Low Flow		Exceeded	Exceeded		Exceeded								Exceeded		
LC_SEEP2	2018	Freshet			Exceeded		Exceeded										
		Low Flow															
	2019	Freshet			Exceeded		Exceeded										
		Low Flow			Exceeded												
	2020	Freshet			Exceeded		Exceeded										
		Low Flow															
LC_3KM	2018	Freshet															
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2019	Freshet			Exceeded		Exceeded										
		Low Flow			Exceeded												
	2020	Freshet			Exceeded												
		Low Flow															
LC_SEEP1	2018	Freshet			Exceeded												
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2019	Freshet															
		Low Flow			Exceeded												
	2020	Freshet			Exceeded												
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
LC_SEEP10	2018	Freshet															
		Low Flow															
	2019	Freshet															
		Low Flow									Exceeded						
	2020	Freshet															
		Low Flow															
LC_SEEP11	2018	Freshet			Exceeded												
		Low Flow															
	2019	Freshet															
		Low Flow			Exceeded						Exceeded						
	2020	Freshet			Exceeded												
		Low Flow															
LC_WLC_LOT2	2018	Freshet		Exceeded	Exceeded		Exceeded		Exceeded						Exceeded		
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Seep ID	Year	Flow Regime	pH	Sulfate[1] *(chronic)*	Total Se *(chronic)*	Nitrate *(acute)*	Nitrate *(chronic)*	Dissolved Cd[1] *(acute)*	Dissolved Cd[1] *(chronic)*	Total Co *(acute)*	Total Co *(chronic)*	Total Ni[1,2] *(chronic)*	Nitrite[1] *(acute)*	Nitrite[1] *(chronic)*	Total U[2] *(chronic)*	Total Mo *(acute)*	Total Mo *(chronic)*
		Low Flow		Exceeded	Exceeded		Exceeded	Exceeded	Exceeded								
	2020	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes: N/A indicates no sample were collected during that sampling event. Greyed out cells indicate that samples were not screened against criterium in question.

[1] BCWQG FWAL guideline is hardness dependent for this parameter

[2] This parameter is currently a working guideline

4 Elkview Operation (EVO)

Table 4: EVO Seep BC Water Quality Guideline Year to Year Changes

Seep ID	Year	Flow Regime	pH	Sulfate[1] (*chronic*)	Total Se (*chronic*)	Nitrate (*acute*)	Nitrate (*chronic*)	Dissolved Cd[1] (*acute*)	Dissolved Cd[1] (*chronic*)	Total Co (*acute*)	Total Co (*chronic*)	Total Ni[1,2] (*chronic*)	Nitrite[1] (*acute*)	Nitrite[1] (*chronic*)	Total U[2] (*chronic*)	Total Mo (*acute*)	Total Mo (*chronic*)
EV_SEEP_BR2_1	2018	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2020	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EV_SEEP_BREAKERLAKE	2018	Freshet			Exceeded												
		Low Flow		Exceeded	Exceeded				Exceeded		Exceeded						
	2019	Freshet			Exceeded				Exceeded								
		Low Flow			Exceeded				Exceeded								
	2020	Freshet			Exceeded												
		Low Flow			Exceeded												
EV_SEEP_HOPPER2	2018	Freshet		Exceeded	Exceeded	Exceeded	Exceeded				Exceeded				Exceeded		
		Low Flow		Exceeded	Exceeded	Exceeded	Exceeded				Exceeded				Exceeded		
	2019	Freshet		Exceeded	Exceeded		Exceeded	Exceeded	Exceeded		Exceeded	Exceeded		Exceeded	Exceeded		
		Low Flow		Exceeded	Exceeded	Exceeded	Exceeded	Exceeded	Exceeded		Exceeded	Exceeded			Exceeded		
	2020	Freshet		Exceeded	Exceeded		Exceeded								Exceeded		
		Low Flow		Exceeded	Exceeded		Exceeded				Exceeded				Exceeded		
EV_SEEP_NATALPIT2	2018	Freshet		Exceeded	Exceeded		Exceeded				Exceeded		Exceeded	Exceeded	Exceeded		
		Low Flow		Exceeded	Exceeded		Exceeded				Exceeded		Exceeded	Exceeded			
	2019	Freshet		Exceeded	Exceeded		Exceeded				Exceeded	Exceeded	Exceeded	Exceeded			
		Low Flow		Exceeded	Exceeded		Exceeded				Exceeded	Exceeded	Exceeded	Exceeded	Exceeded		
	2020	Freshet		Exceeded	Exceeded		Exceeded				Exceeded				Exceeded		
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EV_SEEP_TURCON1	2018	Freshet															
		Low Flow															
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow															
	2020	Freshet															
		Low Flow															
EV_SEEP-4	2018	Freshet		Exceeded	Exceeded												
		Low Flow		Exceeded	Exceeded												
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Seep ID	Year	Flow Regime	pH	Sulfate[1] *(chronic)*	Total Se *(chronic)*	Nitrate *(acute)*	Nitrate *(chronic)*	Dissolved Cd[1] *(acute)*	Dissolved Cd[1] *(chronic)*	Total Co *(acute)*	Total Co *(chronic)*	Total Ni[1,2] *(chronic)*	Nitrite[1] *(acute)*	Nitrite[1] *(chronic)*	Total U[2] *(chronic)*	Total Mo *(acute)*	Total Mo *(chronic)*
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2020	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EV_SEEP_CFI1	2018	Freshet										▨				▨	▨
		Low Flow										▨				▨	▨
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow															
	2020	Freshet															
		Low Flow															
EV_SEEP_CFI3	2018	Freshet		Exceeded	Exceeded							▨				▨	▨
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2020	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EV_WLAGC	2018	Freshet										▨				▨	▨
		Low Flow										▨				▨	▨
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow															
	2020	Freshet															
		Low Flow															
EV_CN1	2018	Freshet			Exceeded							▨				▨	▨
		Low Flow			Exceeded							▨				▨	▨
	2019	Freshet			Exceeded												
		Low Flow			Exceeded		Exceeded										
	2020	Freshet			Exceeded												
		Low Flow			Exceeded		Exceeded										
EV_SEEP_10MILE5	2018	Freshet			Exceeded							▨				▨	▨
		Low Flow			Exceeded							▨				▨	▨
	2019	Freshet			Exceeded												
		Low Flow			Exceeded												
	2020	Freshet			Exceeded												
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EV_SEEP_10MILE9	2018	Freshet	Below minimum						Exceeded			▨				▨	▨
		Low Flow							Exceeded			▨				▨	▨
	2019	Freshet							Exceeded								

Seep ID	Year	Flow Regime	pH	Sulfate[1] (*chronic*)	Total Se (*chronic*)	Nitrate (*acute*)	Nitrate (*chronic*)	Dissolved Cd[1] (*acute*)	Dissolved Cd[1] (*chronic*)	Total Co (*acute*)	Total Co (*chronic*)	Total Ni[1,2] (*chronic*)	Nitrite[1] (*acute*)	Nitrite[1] (*chronic*)	Total U[2] (*chronic*)	Total Mo (*acute*)	Total Mo (*chronic*)
		Low Flow							Exceeded								
	2020	Freshet	Below minimum														
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EV_SEEP_ERICKSON1	2018	Freshet		Exceeded								▨				▨	▨
		Low Flow		Exceeded								▨				▨	▨
	2019	Freshet		Exceeded													
		Low Flow															
	2020	Freshet															
		Low Flow		Exceeded													
EV_SEEP_ERICKSON2	2018	Freshet		Exceeded	Exceeded		Exceeded					▨			Exceeded	▨	▨
		Low Flow		Exceeded	Exceeded		Exceeded					▨			Exceeded	▨	▨
	2019	Freshet		Exceeded	Exceeded		Exceeded					Exceeded			Exceeded		
		Low Flow		Exceeded	Exceeded		Exceeded					Exceeded			Exceeded		
	2020	Freshet		Exceeded	Exceeded		Exceeded								Exceeded		
		Low Flow		Exceeded	Exceeded		Exceeded								Exceeded		
EV_SEEP_PLANT1	2018	Freshet										▨				▨	▨
		Low Flow			Exceeded						Exceeded	▨				▨	▨
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow									Exceeded						
	2020	Freshet															
		Low Flow			Exceeded		Exceeded		Exceeded		Exceeded						
EV_SEEP_PLANT10	2018	Freshet		Exceeded	Exceeded						Exceeded	▨				▨	▨
		Low Flow		Exceeded	Exceeded							▨				▨	▨
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow															
	2020	Freshet		Exceeded													
		Low Flow		Exceeded													
EV_SEEP_PLANT11	2018	Freshet										▨				▨	▨
		Low Flow										▨				▨	▨
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low Flow															
	2020	Freshet															
		Low Flow															
EV_SEEP_PLANT23	2018	Freshet		Exceeded	Exceeded							▨				▨	▨
		Low Flow		Exceeded	Exceeded							▨				▨	▨
	2019	Freshet	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Seep ID	Year	Flow Regime	pH	Sulfate[1] *(chronic)*	Total Se *(chronic)*	Nitrate *(acute)*	Nitrate *(chronic)*	Dissolved Cd[1] *(acute)*	Dissolved Cd[1] *(chronic)*	Total Co *(acute)*	Total Co *(chronic)*	Total Ni[1,2] *(chronic)*	Nitrite[1] *(acute)*	Nitrite[1] *(chronic)*	Total U[2] *(chronic)*	Total Mo *(acute)*	Total Mo *(chronic)*
		Low Flow		Exceeded	Exceeded												
	2020	Freshet			Exceeded												
		Low Flow			Exceeded												
EV_SEEP_SOUTHPIT6	2018	Freshet		Exceeded	Exceeded		Exceeded					▨			Exceeded	▨	▨
		Low Flow		Exceeded	Exceeded		Exceeded					▨			Exceeded	▨	▨
	2019	Freshet		Exceeded	Exceeded										Exceeded		
		Low Flow		Exceeded	Exceeded												
	2020	Freshet		Exceeded	Exceeded												
		Low Flow		Exceeded	Exceeded												
EV_SEEP_SOUTHPIT3	2018	Freshet			Exceeded							▨				▨	▨
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2019	Freshet			Exceeded												
		Low Flow			Exceeded												
	2020	Freshet			Exceeded												
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EV_SEEP_SOUTHPIT4	2018	Freshet										▨				▨	▨
		Low Flow										▨				▨	▨
	2019	Freshet															
		Low Flow															
	2020	Freshet															
		Low Flow															

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\2020_BCWQGs_Reporting_rev03_AD.xlsx

Notes: N/A indicates no sample were collected during that sampling event. Greyed out cells indicate that samples were not screened against criterium in question.

[3] BCWQG FWAL guideline is hardness dependent for this parameter

[4] This parameter is currently a working guideline

5 Coal Mountain Operation (CMO)

Table 5: CMO Seep BC Water Quality Guideline Year to Year Changes

Seep ID	Year	Flow Regime	pH	Sulfate[1] *(chronic)*	Total Se *(chronic)*	Nitrate *(acute)*	Nitrate *(chronic)*	Dissolved Cd[1] *(acute)*	Dissolved Cd[1] *(chronic)*	Total Co *(acute)*	Total Co *(chronic)*	Total Ni[1,2] *(chronic)*	Nitrite[1] *(acute)*	Nitrite[1] *(chronic)*	Total U[2] *(chronic)*	Total Mo *(acute)*	Total Mo *(chronic)*
CM_37PIT-SEEP-E	2018	Freshet		Exceeded					Exceeded		Exceeded				Exceeded		
		Low Flow		Exceeded							Exceeded						
	2019	Freshet		Exceeded					Exceeded		Exceeded	Exceeded			Exceeded		
		Low Flow		Exceeded					Exceeded		Exceeded	Exceeded					
	2020	Freshet		Exceeded							Exceeded						
		Low Flow		Exceeded							Exceeded						
CM_37PIT-SEEP-W	2018	Freshet		Exceeded							Exceeded				Exceeded		
		Low Flow			Exceeded						Exceeded						
	2019	Freshet		Exceeded							Exceeded	Exceeded			Exceeded		
		Low Flow		Exceeded							Exceeded	Exceeded					
	2020	Freshet		Exceeded							Exceeded						
		Low Flow		Exceeded							Exceeded						
CM_CCDS	2018	Freshet			Exceeded												
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2019	Freshet			Exceeded												
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2020	Freshet			Exceeded												
		Low Flow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CM_CS1	2018	Freshet			Exceeded												
		Low Flow															
	2019	Freshet			Exceeded		Exceeded										
		Low Flow			Exceeded												
	2020	Freshet			Exceeded												
		Low Flow			Exceeded		Exceeded										
CM_NS1	2018	Freshet		Exceeded	Exceeded												
		Low Flow		Exceeded	Exceeded												
	2019	Freshet		Exceeded	Exceeded												
		Low Flow		Exceeded	Exceeded												
	2020	Freshet		Exceeded	Exceeded												
		Low Flow	Above maximum	Exceeded	Exceeded												
CM_PLANT-SEEP1	2018	Freshet															
		Low Flow															
	2019	Freshet									Exceeded						

Seep ID	Year	Flow Regime	pH	Sulfate[1] *(chronic)*	Total Se *(chronic)*	Nitrate *(acute)*	Nitrate *(chronic)*	Dissolved Cd[1] *(acute)*	Dissolved Cd[1] *(chronic)*	Total Co *(acute)*	Total Co *(chronic)*	Total Ni[1,2] *(chronic)*	Nitrite[1] *(acute)*	Nitrite[1] *(chronic)*	Total U[2] *(chronic)*	Total Mo *(acute)*	Total Mo *(chronic)*
		Low Flow									Exceeded						
	2020	Freshet									Exceeded						
		Low Flow									Exceeded						
CM_MM-SEEP1	2018	Freshet			Exceeded												
		Low Flow			Exceeded												
	2019	Freshet			Exceeded												
		Low Flow			Exceeded												
	2020	Freshet			Exceeded												
		Low Flow			Exceeded												
CM_MM-SEEP3	2018	Freshet		Exceeded													
		Low Flow		Exceeded													
	2019	Freshet		Exceeded													
		Low Flow		Exceeded													
	2020	Freshet		Exceeded													
		Low Flow		Exceeded													
CM_NS4	2018	Freshet		Exceeded	Exceeded												
		Low Flow		Exceeded													
	2019	Freshet		Exceeded	Exceeded												
		Low Flow		Exceeded	Exceeded												
	2020	Freshet		Exceeded	Exceeded												
		Low Flow		Exceeded													
CM_NS7	2018	Freshet		Exceeded	Exceeded												
		Low Flow		Exceeded	Exceeded												
	2019	Freshet		Exceeded	Exceeded												
		Low Flow		Exceeded	Exceeded												
	2020	Freshet		Exceeded	Exceeded												
		Low Flow	Above maximum	Exceeded	Exceeded												
CM_WD15	2018	Freshet		Exceeded	Exceeded		Exceeded										
		Low Flow		Exceeded	Exceeded												
	2019	Freshet		Exceeded	Exceeded		Exceeded										
		Low Flow		Exceeded	Exceeded		Exceeded										
	2020	Freshet		Exceeded	Exceeded												
		Low Flow		Exceeded	Exceeded												
CM_WD18	2018	Freshet		Exceeded	Exceeded												
		Low Flow		Exceeded	Exceeded												
	2019	Freshet		Exceeded	Exceeded												

Seep ID	Year	Flow Regime	pH	Sulfate[1] *(chronic)*	Total Se *(chronic)*	Nitrate *(acute)*	Nitrate *(chronic)*	Dissolved Cd[1] *(acute)*	Dissolved Cd[1] *(chronic)*	Total Co *(acute)*	Total Co *(chronic)*	Total Ni[1,2] *(chronic)*	Nitrite[1] *(acute)*	Nitrite[1] *(chronic)*	Total U[2] *(chronic)*	Total Mo *(acute)*	Total Mo *(chronic)*
		Low Flow		Exceeded	Exceeded												
	2020	Freshet		Exceeded	Exceeded												
		Low Flow	Above maximum	Exceeded	Exceeded												
CM_WD19	2018	Freshet		Exceeded	Exceeded												
		Low Flow		Exceeded	Exceeded												
	2019	Freshet		Exceeded	Exceeded												
		Low Flow		Exceeded	Exceeded												
	2020	Freshet		Exceeded	Exceeded												
		Low Flow	Above maximum	Exceeded	Exceeded												
CM_WD4	2018	Freshet		Exceeded	Exceeded												
		Low Flow		Exceeded	Exceeded												
	2019	Freshet		Exceeded	Exceeded												
		Low Flow		Exceeded	Exceeded												
	2020	Freshet			Exceeded												
		Low Flow	Above maximum	Exceeded	Exceeded												
CM_WD7	2018	Freshet			Exceeded												
		Low Flow			Exceeded												
	2019	Freshet			Exceeded												
		Low Flow			Exceeded												
	2020	Freshet			Exceeded												
		Low Flow			Exceeded												

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\2020_BCWQGs_Reporting_rev03_AD.xlsx

Notes: N/A indicates no sample were collected during that sampling event. Greyed out cells indicate that samples were not screened against criterium in question.

[5] BCWQG FWAL guideline is hardness dependent for this parameter

[6] This parameter is currently a working guideline

Appendix D BC Water Quality Guideline for Freshwater Aquatic Life Screening

Table 1: Seep BC Water Quality Guideline for Freshwater Aquatic Life Screening (1/6)

Seep ID	Sample Date	Flow Regime	# of parameters exceeding BCWQG	Hardness	pH	Alkalinity (as CaCO3)	Fluoride	Chloride	Sulfate	Nitrite, (as N)	Nitrate, (as N)	Calcium, Dissolved	Antimony, Total	Arsenic, Total	Boron, Total	Barium, Total	Beryllium, Total	Cadmium, Total	Chromium, Total	Cobalt, Total	Copper, Total
				mg/l	*pH units*		*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
CM_37PIT-SEEP-E	9/9/2020	Low Flow	3	618	8.41	200	0.330	0.640	539	0.00880	0.696	162	0.000110	0.000260	0.314	0.0180	0.0000200	0.00000850	0.000100	0.0155	0.00500
CM_37PIT-SEEP-E	6/17/2020	Freshet	5	777	7.10	368	0.220	2.50	523	0.0104	0.260	228	0.000650	0.000180	0.231	0.0224	0.0000200	0.000817	0.000100	0.0442	0.000590
CM_37PIT-SEEP-W	9/9/2020	Low Flow	3	613	8.15	238	0.340	0.890	498	0.00500	0.292	167	0.000100	0.000250	0.323	0.0197	0.0000200	0.00000590	0.000100	0.0184	0.000500
CM_37PIT-SEEP-W	6/17/2020	Freshet	3	663	6.99	382	0.260	2.50	471	0.00500	0.133	194	0.000350	0.000110	0.264	0.0209	0.0000200	0.000552	0.000100	0.0370	0.000500
CM_CCDS	6/4/2020	Freshet	2	354	7.63	178	0.161	1.12	193	0.00100	2.27	90.6	0.000130	0.000330	0.0430	0.0523	0.0000200	0.0000333	0.000240	0.000100	0.000500
CM_CS1	9/9/2020	Low Flow	3	274	8.31	177	0.236	3.09	89.9	0.00450	3.73	69.8	0.000150	0.000730	0.0150	0.0494	0.0000280	0.0000780	0.000480	0.000630	0.000900
CM_CS1	6/2/2020	Freshet	2	421	7.55	153	0.148	2.83	218	0.00100	2.60	107	0.000100	0.000370	0.0100	0.0356	0.0000200	0.0000131	0.000310	0.000100	0.000500
CM_MM-SEEP1	9/9/2020	Low Flow	2	469	7.75	395	0.292	3.25	115	0.00100	0.307	105	0.000240	0.000120	0.0830	0.0876	0.0000200	0.0000362	0.000100	0.000100	0.000500
CM_MM-SEEP1	6/3/2020	Freshet	2	557	7.73	357	0.263	3.30	219	0.00100	0.464	119	0.000230	0.000100	0.0900	0.0659	0.0000200	0.0000301	0.000100	0.000100	0.000500
CM_MM-SEEP3	6/3/2020	Freshet	2	1080	7.97	176	0.100	2.50	994	0.00500	0.025	283	0.000100	0.000660	0.0730	0.0749	0.0000200	0.0000101	0.000100	0.000550	0.000500
CM_MM-SEEP3	9/9/2020	Low Flow	2	1120	8.52	380	0.100	0.520	802	0.00500	0.026	284	0.000100	0.000550	0.0800	0.0749	0.0000200	0.00000500	0.000100	0.000490	0.000500
CM_MM-SEEP5	5/6/2020	Freshet	14	1270	3.00	1.0	0.9000	2.50	1680	0.0520	0.434	239	0.000100	0.0249	0.0800	0.0122	0.0412	0.0405	0.0364	0.796	0.516
CM_MM-SEEP5	6/3/2020	Freshet	13	1130	4.36	1.0	0.370	2.50	1340	0.00500	0.195	222	0.000100	0.00870	0.0900	0.0126	0.0247	0.0223	0.0188	0.470	0.270
CM_MM-SEEP5	9/9/2020	Low Flow	12	745	7.54	173	0.200	0.870	649	0.00500	0.237	156	0.000100	0.00130	0.0750	0.0197	0.00730	0.00710	0.00710	0.101	0.0765
CM_NS1	6/4/2020	Freshet	3	1360	7.98	213	0.240	4.90	1090	0.00500	0.312	259	0.000240	0.000210	0.0270	0.0259	0.0000200	0.000194	0.000100	0.000260	0.000500
CM_NS1	9/10/2020	Low Flow	4	1800	9.42	242	0.290	5.81	1460	0.00500	0.268	338	0.000240	0.000220	0.0290	0.0200	0.0000200	0.000148	0.000110	0.000200	0.000500
CM_NS4	6/4/2020	Freshet	3	868	8.05	186	0.250	5.10	600	0.00500	0.337	199	0.000300	0.000140	0.0590	0.0271	0.0000200	0.000166	0.000100	0.000100	0.000500
CM_NS4	9/10/2020	Low Flow	2	1140	8.78	222	0.290	2.52	826	0.00500	0.025	287	0.000130	0.000130	0.0810	0.0299	0.0000200	0.0000813	0.000100	0.000100	0.000500
CM_NS7	6/4/2020	Freshet	3	1070	8.00	207	0.250	4.30	796	0.00500	0.254	227	0.000320	0.000380	0.0430	0.0279	0.0000200	0.0000983	0.000100	0.000290	0.000500
CM_NS7	9/10/2020	Low Flow	4	1350	9.32	247	0.260	4.30	974	0.00500	0.057	288	0.000180	0.000440	0.0410	0.0400	0.0000200	0.0000688	0.000110	0.000670	0.000500
CM_PLANT-SEEP1	9/9/2020	Low Flow	4	737	7.62	300	0.300	4.47	384	0.00500	0.025	177	0.000100	0.000340	0.0630	0.0472	0.0000200	0.0000846	0.000110	0.00428	0.000500
CM_PLANT-SEEP1	6/3/2020	Freshet	4	742	7.30	267	0.300	7.50	390	0.00500	0.025	181	0.000100	0.000160	0.0730	0.0442	0.0000200	0.0000304	0.000100	0.00615	0.000500
CM_WD15	6/4/2020	Freshet	3	1460	8.01	179	0.170	4.60	1170	0.00500	1.64	296	0.000190	0.000200	0.0510	0.0199	0.0000200	0.0000369	0.000100	0.000120	0.000500
CM_WD15	9/10/2020	Low Flow	3	1840	8.85	231	0.170	4.97	1480	0.00500	0.472	370	0.000170	0.000170	0.0460	0.0181	0.0000200	0.0000244	0.000100	0.000100	0.000500
CM_WD18	6/3/2020	Freshet	3	1540	7.93	185	0.100	5.00	1430	0.00500	0.863	313	0.000160	0.000150	0.0210	0.0233	0.0000200	0.000152	0.000110	0.000100	0.000500
CM_WD18	9/10/2020	Low Flow	4	1950	9.02	223	0.190	5.25	1500	0.00500	0.556	395	0.000160	0.000160	0.0180	0.0196	0.0000200	0.000120	0.000100	0.000110	0.000500
CM_WD19	6/4/2020	Freshet	3	1080	8.17	169	0.150	4.50	939	0.00500	0.591	254	0.000140	0.000290	0.0320	0.0246	0.0000200	0.0000563	0.000100	0.000560	0.000500
CM_WD19	9/10/2020	Low Flow	4	1380	9.50	197	0.210	4.31	1050	0.00500	0.144	328	0.000120	0.000210	0.0380	0.0231	0.0000200	0.0000313	0.000100	0.000620	0.000500
CM_WD4	6/4/2020	Freshet	2	620	7.99	206	0.200	2.50	416	0.00500	0.283	132	0.000220	0.000200	0.0180	0.0365	0.0000200	0.000160	0.000100	0.000180	0.000500
CM_WD4	9/10/2020	Low Flow	4	826	9.23	213	0.180	1.07	542	0.00500	0.178	191	0.000150	0.000140	0.0200	0.0449	0.0000200	0.000109	0.000100	0.000100	0.000500
CM_WD7	6/3/2020	Freshet	2	380	7.71	242	0.197	0.500	127	0.00100	0.480	82.8	0.000260	0.000140	0.0160	0.0456	0.0000200	0.000197	0.000120	0.000120	0.000650
CM_WD7	9/10/2020	Low Flow	1	519	8.89	-	0.235	0.370	145	0.00100	0.009	116	0.000200	0.000150	0.0150	0.0487	0.0000200	0.000131	0.000100	0.000140	0.000500
CM_WD9	10/8/2020	Low Flow	3	889	7.89	220	0.150	4.66	701	0.00500	0.041	206	0.000130	0.000220	0.0560	0.0346	0.0000200	0.0000186	0.000100	0.000130	0.000500
EV_CN1	5/20/2020	Freshet	2	473	7.79	245	0.185	2.12	206	0.00100	2.13	81.6	0.000550	0.000120	0.0100	0.0155	0.0000200	0.000123	0.000130	0.000100	0.000500

Seep ID	Sample Date	Flow Regime	# of parameters exceeding BCWQG	Hardness	pH	Alkalinity (as CaCO3)	Fluoride	Chloride	Sulfate	Nitrite, (as N)	Nitrate, (as N)	Calcium, Dissolved	Antimony, Total	Arsenic, Total	Boron, Total	Barium, Total	Beryllium, Total	Cadmium, Total	Chromium, Total	Cobalt, Total	Copper, Total
				mg/l	*pH units*		*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
EV_CN1	9/24/2020	Low Flow	3	620	8.06	269	0.170	2.47	410	0.00500	4.32	109	0.000550	0.000190	0.0100	0.0205	0.0000200	0.000177	0.000110	0.000100	0.000500
EV_SEEP_10MILE5	6/18/2020	Freshet	2	724	7.67	261	0.120	23.9	385	0.0125	1.54	171	0.000100	0.000200	0.0110	0.0587	0.0000200	0.0000553	0.000410	0.000320	0.000630
EV_SEEP_10MILE9	6/18/2020	Freshet	4	234	5.94	144	0.111	48.1	12.0	0.00280	0.181	61.7	0.000100	0.000300	0.0100	0.398	0.0000200	0.000820	0.000550	0.00215	0.000800
EV_SEEP_BREAKERLAKE	5/20/2020	Freshet	2	465	8.29	195	0.174	4.92	208	0.00130	1.56	82.3	0.000640	0.000230	0.0100	0.0361	0.0000200	0.000185	0.000270	0.000390	0.000630
EV_SEEP_BREAKERLAKE	9/22/2020	Low Flow	2	507	7.72	259	0.211	13.0	267	0.00310	1.08	98.2	0.000990	0.000390	0.0170	0.0489	0.0000250	0.000473	0.000450	0.00289	0.00211
EV_SEEP_CFI1	5/21/2020	Freshet	2	484	7.67	471	0.301	5.94	0.300	0.00100	0.005	100	0.000260	0.000110	0.0490	2.98	0.0000200	0.0000509	0.000100	0.000310	0.00163
EV_SEEP_CFI1	9/22/2020	Low Flow	4	512	7.15	471	0.274	6.93	0.320	0.00100	0.006	113	0.000160	0.000110	0.0460	3.96	0.0000200	0.000125	0.000100	0.000320	0.000820
EV_SEEP_ERICKSON1	10/8/2020	Low Flow	4	597	7.80	161	0.219	4.16	449	0.00100	0.010	159	0.000100	0.00169	0.0120	0.0270	0.0000200	0.0000153	0.000100	0.00165	0.000500
EV_SEEP_ERICKSON1	5/20/2020	Freshet	3	603	7.53	150	0.276	4.67	429	0.00100	0.005	167	0.000100	0.00165	0.0100	0.0257	0.0000200	0.0000123	0.000100	0.00160	0.000500
EV_SEEP_ERICKSON2	9/24/2020	Low Flow	5	1320	7.83	142	0.320	4.41	1170	0.0107	17.1	263	0.00163	0.00127	0.0250	0.0591	0.0000510	0.000446	0.001000	0.00214	0.00320
EV_SEEP_ERICKSON2	5/27/2020	Freshet	4	1910	7.97	270	0.420	2.50	1750	0.00500	15.9	-	0.00158	0.000720	0.0290	0.0174	0.0000400	0.000229	0.000300	0.000550	0.00110
EV_SEEP_HOPPER2	5/20/2020	Freshet	5	2150	8.11	169	0.390	7.20	2000	0.00500	20.3	290	0.00165	0.000220	0.0510	0.0149	0.0000200	0.000817	0.000730	0.00363	0.00164
EV_SEEP_PLANT1	5/20/2020	Freshet	1	403	7.84	447	0.422	34.1	77.1	0.00100	0.064	94.4	0.000300	0.000540	0.193	0.0987	0.0000320	0.0000956	0.000570	0.000430	0.00190
EV_SEEP_PLANT1	9/24/2020	Low Flow	12	1920	8.42	29	0.220	1590	128	0.0187	3.71	571	0.000990	0.00873	0.146	0.601	0.00105	0.00422	0.0114	0.0192	0.0360
EV_SEEP_PLANT10	5/20/2020	Freshet	2	457	7.40	412	0.350	71.2	470	0.0224	0.025	94.3	0.000490	0.000270	0.356	0.0300	0.0000200	0.0000271	0.000360	0.000210	0.00106
EV_SEEP_PLANT10	10/8/2020	Low Flow	1	499	7.62	349	0.400	88.9	395	0.00500	0.025	107	0.000100	0.000200	0.352	0.0543	0.0000200	0.0000255	0.000160	0.000190	0.000500
EV_SEEP_PLANT10	10/27/2020	Low Flow	2	537	-	340	0.290	96.5	473	0.00820	0.049	117	0.000120	0.000230	0.299	0.0355	0.0000200	0.0000193	0.000160	0.000510	0.000500
EV_SEEP_PLANT11	5/20/2020	Freshet	1	498	7.86	331	0.220	97.3	176	0.00500	0.025	117	0.000100	0.000210	0.201	0.130	0.0000200	0.0000156	0.000100	0.000100	0.000500
EV_SEEP_PLANT11	9/24/2020	Low Flow	1	540	8.42	372	0.180	126	208	0.00500	0.025	125	0.000100	0.000360	0.315	0.162	0.0000200	0.0000343	0.000100	0.000100	0.000890
EV_SEEP_PLANT23	5/20/2020	Freshet	2	741	7.43	322	0.180	28.6	366	0.00500	0.222	153	0.000310	0.000230	0.0760	0.0245	0.0000200	0.0000100	0.000100	0.000100	0.000500
EV_SEEP_PLANT23	9/24/2020	Low Flow	2	752	7.80	366	0.130	27.6	405	0.00500	0.214	159	0.000320	0.000290	0.0950	0.0291	0.0000200	0.00000790	0.000100	0.000100	0.000500
EV_SEEP_SOUTHPIT3	6/17/2020	Freshet	2	259	7.82	204	0.127	0.500	62.4	0.00100	0.005	60.1	0.000320	0.000330	0.0100	0.0756	0.0000200	0.0000380	0.000100	0.000100	0.000500
EV_SEEP_SOUTHPIT4	10/8/2020	Low Flow	4	377	7.33	388	0.856	0.970	0.840	0.00100	0.005	94.0	0.000100	0.000170	0.0950	3.72	0.0000200	0.00000600	0.000100	0.000100	0.000500
EV_SEEP_SOUTHPIT4	6/17/2020	Freshet	2	396	7.09	426	0.728	1.20	3.22	0.00100	0.005	94.8	0.000100	0.000230	0.0990	3.43	0.0000200	0.00000500	0.000100	0.000100	0.000500
EV_SEEP_SOUTHPIT6	10/8/2020	Low Flow	3	2190	7.55	255	0.290	4.09	1940	0.00500	1.30	446	0.000370	0.000560	0.0300	0.0448	0.0000400	0.000242	0.000330	0.000330	0.00150
EV_SEEP_TURCON1	9/22/2020	Low Flow	1	468	6.90	413	0.200	33.3	95.4	0.00500	0.173	120	0.000100	0.000100	0.0890	0.0934	0.0000200	0.00000500	0.000100	0.000100	0.000500
EV_SEEP_TURCON1	6/3/2020	Freshet	1	480	7.16	391	0.199	40.4	94.8	0.00310	0.130	112	0.000100	0.000100	0.0820	0.0904	0.0000200	0.00000500	0.000100	0.000100	0.000500
EV_SPR12	8/26/2020	Low Flow	1	308	-	315	0.189	0.720	12.0	0.00100	0.081	87.7	0.000100	0.000420	0.0390	0.183	0.0000200	0.00000730	0.000100	0.000100	0.000500
EV_SPR12	6/11/2020	Freshet	1	310	7.84	300	0.119	0.500	19.9	0.00100	0.005	91.6	0.000100	0.000200	0.0280	0.190	0.0000200	0.00000500	0.000100	0.000100	0.000500
EV_SPR15	6/23/2020	Freshet	2	292	-	322	0.276	0.860	23.5	0.00100	0.654	73.1	0.000100	0.000150	0.0320	0.985	0.0000200	0.0000183	0.000100	0.000100	0.000500
EV_SPR15	10/22/2020	Low Flow	3	323	-	340	0.322	0.990	21.1	0.00100	0.695	81.2	0.000100	0.000190	0.0340	1.16	0.0000200	0.0000359	0.000200	0.000100	0.000500
EV_SPR15	2/24/2020	Low Flow	3	337	7.33	326	0.199	0.860	21.7	0.00100	0.662	80.9	0.000100	0.000160	0.0320	1.14	0.0000200	0.0000185	0.000100	0.000100	0.000500
EV_SPR16	10/22/2020	Low Flow	3	354	-	386	0.314	1.87	40.7	0.00170	0.027	90.0	0.000100	0.000370	0.101	0.470	0.0000200	0.000143	0.000100	0.000900	0.000540
EV_SPR16	2/26/2020	Low Flow	3	401	7.31	331	0.195	1.74	34.0	0.00100	0.005	95.3	0.000100	0.00150	0.0770	0.484	0.0000200	0.0000659	0.000100	0.000200	0.000500
EV_SPR16	8/25/2020	Low Flow	3	488	-	420	0.281	1.79	39.6	0.00100	0.020	124	0.000100	0.000850	0.147	0.590	0.0000200	0.000191	0.000100	0.000750	0.000500
EV_SPR1B	6/11/2020	Freshet	2	478	7.62	337	0.164	0.500	111	0.00100	0.005	100	0.000290	0.000110	0.0300	0.0630	0.0000200	0.0000247	0.000100	0.000100	0.000500

Seep ID	Sample Date	Flow Regime	# of parameters exceeding BCWQG	Hardness	pH	Alkalinity (as CaCO3)	Fluoride	Chloride	Sulfate	Nitrite, (as N)	Nitrate, (as N)	Calcium, Dissolved	Antimony, Total	Arsenic, Total	Boron, Total	Barium, Total	Beryllium, Total	Cadmium, Total	Chromium, Total	Cobalt, Total	Copper, Total
				mg/l	*pH units*		*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
EV_SPR1B	2/26/2020	Low Flow	2	481	7.72	371	0.181	0.500	97.2	0.00910	0.028	94.6	0.000180	0.000110	0.0270	0.0520	0.0000200	0.0000244	0.000100	0.000100	0.000500
EV_SPR1B	10/22/2020	Low Flow	1	517	-	392	0.242	0.850	147	0.00100	0.118	110	0.000150	0.000100	0.0340	0.0653	0.0000200	0.0000263	0.000100	0.000100	0.000500
EV_SPR1B	8/26/2020	Low Flow	1	535	-	383	0.248	0.620	160	0.00100	0.005	113	0.000200	0.000140	0.0350	0.0729	0.0000200	0.0000382	0.000100	0.000100	0.00104
EV_SPR2	6/10/2020	Freshet	2	361	7.28	287	0.178	47.6	78.6	0.00220	0.581	91.0	0.000140	0.000180	0.0200	0.179	0.0000200	0.0000749	0.000140	0.000100	0.000500
EV_SPR2	7/7/2020	Freshet	2	396	7.54	298	0.145	50.7	83.8	0.00100	0.641	103	0.000130	0.000160	0.0240	0.203	0.0000200	0.0000721	0.000140	0.000100	0.000500
EV_SPR2	2/5/2020	Low Flow	2	406	7.52	276	0.197	52.8	89.4	0.00100	1.17	105	0.000150	0.000180	0.0240	0.177	0.0000200	0.0000931	0.000150	0.000100	0.000550
EV_SPR2	4/6/2020	Freshet	2	415	7.47	296	0.182	59.7	70.7	0.00990	0.750	109	0.000180	0.000340	0.0240	0.201	0.0000200	0.0000955	0.000220	0.000130	0.000500
EV_SPR2	3/3/2020	Low Flow	2	416	7.49	300	0.114	58.3	79.3	0.00630	1.08	106	0.000140	0.000370	0.0300	0.209	0.0000200	0.0000805	0.000110	0.000140	0.000730
EV_SPR2	5/4/2020	Freshet	2	439	7.49	292	0.157	44.3	83.4	0.00100	0.855	114	0.000130	0.000210	0.0200	0.206	0.0000200	0.000117	0.000300	0.000100	0.000540
EV_SPR2	9/2/2020	Low Flow	2	454	7.59	247	0.152	54.9	106	0.00220	0.941	124	0.000140	0.000220	0.0300	0.218	0.0000200	0.0000606	0.000120	0.000100	0.000500
EV_SPR2	10/8/2020	Low Flow	2	454	7.80	260	0.152	49.7	117	0.00290	1.06	116	0.000130	0.000270	0.0320	0.230	0.0000200	0.0000680	0.000130	0.000100	0.000500
EV_SPR2	8/6/2020	Low Flow	2	463	7.58	292	0.167	55.1	97.4	0.00160	0.729	123	0.000130	0.000200	0.0290	0.245	0.0000200	0.0000588	0.000100	0.000100	0.000500
EV_SPR3	6/11/2020	Freshet	3	520	7.04	395	0.226	0.500	102	0.00100	0.005	115	0.000100	0.000300	0.0320	0.385	0.0000200	0.0000587	0.000160	0.000270	0.000500
EV_WLAGC	9/24/2020	Low Flow	3	280	7.92	264	0.288	7.68	16.0	0.00100	0.022	69.7	0.000100	0.00131	0.0270	0.333	0.0000200	0.0000100	0.000100	0.000280	0.000500
FR_ASPSEEP1	6/12/2020	Freshet	3	713	7.31	276	0.190	2.50	414	0.00500	9.35	129	0.000300	0.000130	0.0250	0.0281	0.0000200	0.000149	0.000100	0.000100	0.000800
FR_ASPSEEP1	10/26/2020	Low Flow	5	1230	7.58	356	0.180	1.74	808	0.0293	21.2	227	0.000390	0.000250	0.0300	0.0452	0.0000200	0.000244	0.000100	0.00161	0.000760
FR_BLAINESEEP1	6/12/2020	Freshet	5	2170	8.27	336	0.220	2.50	1510	0.00500	17.2	342	0.000580	0.000200	0.0410	0.0157	0.0000400	0.000505	0.000200	0.000200	0.001000
FR_BLAINESEEP1	10/26/2020	Low Flow	5	2280	8.13	384	0.170	1.42	1900	0.00500	20.8	355	0.000570	0.000250	0.0350	0.0136	0.0000400	0.0000310	0.000200	0.000200	0.001000
FR_BLAINESEEP5	6/12/2020	Freshet	6	2560	7.62	370	0.170	2.50	1900	0.0639	14.9	401	0.000600	0.000640	0.0890	0.0331	0.0000400	0.000176	0.000400	0.000340	0.00110
FR_BLAKESEEP1	6/12/2020	Freshet	3	697	8.45	202	0.190	2.50	422	0.00500	6.11	164	0.000530	0.000310	0.0310	0.0528	0.0000200	0.000107	0.000210	0.000590	0.000740
FR_CCSEEPE1	5/21/2020	Freshet	6	999	-	261	0.270	2.50	583	0.00500	63.3	210	0.000990	0.000150	0.0330	0.0137	0.0000200	0.000940	0.000100	0.000540	0.000600
FR_CCSEEPE1	6/24/2020	Freshet	5	1050	-	260	0.270	2.50	549	0.0110	63.1	219	0.000930	0.000100	0.0340	0.0130	0.0000200	0.000968	0.000100	0.000430	0.000500
FR_CCSEEPE1	6/11/2020	Freshet	6	1060	8.01	270	0.180	2.50	535	0.00500	61.5	219	0.00105	0.000100	0.0380	0.0133	0.0000200	0.000980	0.000100	0.000450	0.000500
FR_CCSEEPE1	8/19/2020	Low Flow	5	1070	-	264	0.260	2.50	626	0.00500	76.4	226	0.00104	0.000140	0.0390	0.0129	0.0000200	0.00109	0.000100	0.000460	0.000500
FR_CCSEEPE1	7/29/2020	Low Flow	6	1140	-	294	0.170	2.50	578	0.00500	73.3	235	0.000960	0.000110	0.0370	0.0136	0.0000200	0.00106	0.000100	0.000430	0.000500
FR_CCSEEPE1	8/24/2020	Low Flow	5	1200	-	308	0.260	2.50	644	0.00500	78.6	261	0.000870	0.000500	0.0500	0.0148	0.0001000	0.00110	0.000500	0.000500	0.00250
FR_CCSEEPE1	9/2/2020	Low Flow	5	1260	-	290	0.250	2.10	753	0.00500	94.2	271	0.000980	0.000100	0.0420	0.0154	0.0000200	0.00121	0.000100	0.000520	0.000520
FR_CCSEEPE1	9/18/2020	Low Flow	5	1270	-	349	0.210	1.93	754	0.00500	89.8	245	0.000970	0.000500	0.0500	0.0148	0.0001000	0.00127	0.000500	0.000530	0.0624
FR_CCSEEPE1	10/2/2020	Low Flow	5	1280	-	264	0.220	1.77	712	0.00500	78.7	262	0.000990	0.000500	0.0500	0.0148	0.0001000	0.00125	0.000500	0.000550	0.00250
FR_CCSEEPE1	9/28/2020	Low Flow	5	1290	-	302	0.190	1.73	744	0.00500	82.4	264	0.00102	0.000500	0.0500	0.0145	0.0001000	0.00120	0.000500	0.000560	0.00250
FR_CCSEEPE1	10/26/2020	Low Flow	6	1290	-	334	0.200	1.39	820	0.00500	79.8	267	0.00103	0.000500	0.0500	0.0139	0.0001000	0.000802	0.000500	0.000500	0.00250
FR_CCSEEPE1	10/16/2020	Low Flow	6	1300	-	313	0.210	1.63	835	0.0205	86.4	271	0.000970	0.000500	0.0500	0.0142	0.0001000	0.00116	0.000500	0.000510	0.00250
FR_CCSEEPE1	4/27/2020	Freshet	6	1330	8.20	299	0.180	2.50	873	0.00500	96.4	300	0.000910	0.000200	0.0320	0.0128	0.0000400	0.00108	0.000200	0.000800	0.00100
FR_CCSEEPE1	9/25/2020	Low Flow	5	1330	-	283	0.200	2.18	726	0.00500	86.0	275	0.000940	0.000500	0.0500	0.0151	0.0001000	0.00133	0.000500	0.000560	0.0025
FR_CCSEEPE1	11/2/2020	Low Flow	6	1330	-	289	0.230	1.80	779	0.00500	75.1	274	0.000960	0.000500	0.0500	0.0147	0.0001000	0.000883	0.000500	0.000570	0.0025
FR_CCSEEPE1	9/11/2020	Low Flow	5	1340	-	359	0.160	1.81	738	0.00500	91.0	282	0.000950	0.000130	0.0370	0.0150	0.0000200	0.00127	0.000100	0.000570	0.000510

Seep ID	Sample Date	Flow Regime	# of parameters exceeding BCWQG	Hardness	pH	Alkalinity (as CaCO3)	Fluoride	Chloride	Sulfate	Nitrite, (as N)	Nitrate, (as N)	Calcium, Dissolved	Antimony, Total	Arsenic, Total	Boron, Total	Barium, Total	Beryllium, Total	Cadmium, Total	Chromium, Total	Cobalt, Total	Copper, Total
				mg/l	*pH units*		*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
FR_CCSEEPE1	9/21/2020	Low Flow	5	1350	-	326	0.200	1.48	774	0.00500	90.6	277	0.000990	0.000120	0.0440	0.0148	0.0000200	0.00124	0.000100	0.000560	0.000500
FR_CCSEEPE1	9/9/2020	Low Flow	6	1350	7.80	330	0.150	1.62	692	0.00500	89.6	304	0.000990	0.000120	0.0370	0.0154	0.0000200	0.00125	0.000100	0.000510	0.000620
FR_CCSEEPE1	10/9/2020	Low Flow	5	1370	-	283	0.140	1.36	725	0.00500	80.6	282	0.000990	0.000500	0.0500	0.0146	0.0001000	0.00134	0.000500	0.000550	0.00410
FR_CCSEEPE1	10/19/2020	Low Flow	6	1390	-	285	0.280	2.43	793	0.00500	78.5	282	0.000970	0.000500	0.0500	0.0141	0.0001000	0.00115	0.000500	0.000520	0.00250
FR_CCSEEPE1	9/14/2020	Low Flow	5	1420	-	300	0.230	1.74	757	0.00500	90.9	301	0.00102	0.000500	0.0500	0.0148	0.0001000	0.00130	0.000500	0.000620	0.00250
FR_CCSEEPE1	4/20/2020	Freshet	6	1490	8.43	318	0.240	2.60	779	0.00500	106	312	0.00106	0.000200	0.0370	0.0130	0.0000400	0.000811	0.000200	0.000740	0.001000
FR_CCSEEPE1	4/22/2020	Freshet	6	1500	8.47	323	0.230	3.00	772	0.00500	102	320	0.00101	0.000200	0.0400	0.0135	0.0000400	0.000929	0.000200	0.000780	0.001000
FR_CCSEEPE1	4/24/2020	Freshet	6	1520	8.50	316	0.240	2.50	779	0.00500	95.1	316	0.000980	0.000200	0.0380	0.0136	0.0000400	0.001000	0.000200	0.000760	0.001000
FR_CCSEEPE1	4/17/2020	Freshet	6	1590	8.44	317	0.140	2.50	931	0.00500	113	348	0.00110	0.000200	0.0400	0.0131	0.0000400	0.000511	0.000200	0.000760	0.001000
FR_CCSEEPE1	4/13/2020	Freshet	6	1650	8.58	301	0.220	2.80	856	0.00500	113	336	0.00106	0.000200	0.0370	0.0133	0.0000400	0.000173	0.000200	0.000670	0.001000
FR_CCSEEPE1	3/13/2020	Low Flow	7	1720	8.51	302	0.210	2.70	948	0.00500	155	369	0.00147	0.000500	0.0500	0.0182	0.0001000	0.000169	0.000500	0.000770	0.00250
FR_CCSEEPE1	3/18/2020	Freshet	6	1740	8.50	296	0.200	5.00	904	0.01000	154	368	0.00106	0.000180	0.0410	0.0148	0.0000200	0.000166	0.000100	0.000690	0.000730
FR_CCSEEPE1	2/24/2020	Low Flow	5	1750	-	308	0.220	5.00	904	0.01000	150	362	0.00107	0.000500	0.0500	0.0155	0.0001000	0.000165	0.000500	0.000640	0.00250
FR_CCSEEPE1	3/30/2020	Freshet	7	1750	8.57	303	0.270	5.00	1030	0.01000	150	370	0.00101	0.000200	0.0390	0.0141	0.0000400	0.000109	0.000210	0.000600	0.001000
FR_CCSEEPE1	4/6/2020	Freshet	7	1750	8.64	284	0.240	5.00	965	0.01000	146	368	0.00104	0.000200	0.0390	0.0159	0.0000400	0.000109	0.000200	0.000660	0.001000
FR_CCSEEPE1	3/21/2020	Freshet	6	1830	8.31	300	0.260	5.10	978	0.01000	153	390	0.00107	0.000200	0.0400	0.0151	0.0000400	0.000149	0.000200	0.000690	0.001000
FR_CCSEEPE3	10/26/2020	Low Flow	3	592	-	214	0.190	0.710	360	0.00500	27.7	130	0.000640	0.000500	0.0500	0.0565	0.0001000	0.000661	0.000500	0.000500	0.00250
FR_CCSEEPE3	8/19/2020	Low Flow	2	615	-	202	0.230	2.50	325	0.00500	32.7	133	0.000730	0.000110	0.0210	0.0427	0.0000200	0.000716	0.000100	0.000100	0.000580
FR_CCSEEPE3	9/28/2020	Low Flow	2	637	-	226	0.220	0.760	354	0.00500	32.3	140	0.000620	0.000500	0.0500	0.0534	0.0001000	0.000672	0.000500	0.000500	0.00250
FR_CCSEEPE3	8/24/2020	Low Flow	3	646	-	219	0.280	2.50	342	0.00500	34.9	145	0.000610	0.000500	0.0500	0.0424	0.0001000	0.000630	0.000500	0.000500	0.00250
FR_CCSEEPE3	10/2/2020	Low Flow	2	652	-	194	0.220	0.800	341	0.00500	30.7	145	0.000600	0.000500	0.0500	0.0547	0.0001000	0.000679	0.000500	0.000500	0.00250
FR_CCSEEPE3	9/14/2020	Low Flow	3	669	-	223	0.220	0.970	361	0.00500	35.3	149	0.000650	0.000100	0.0180	0.0452	0.0000200	0.000681	0.000100	0.000100	0.00254
FR_CCSEEPE3	10/9/2020	Low Flow	2	676	-	217	0.180	0.770	347	0.00500	31.4	151	0.000600	0.000100	0.0190	0.0543	0.0000200	0.000715	0.000130	0.000100	0.000570
FR_CCSEEPE3	10/16/2020	Low Flow	4	681	-	215	0.190	0.870	391	0.0219	33.4	150	0.000590	0.000130	0.0180	0.0512	0.0000200	0.000688	0.000400	0.000100	0.000520
FR_CCSEEPE3	9/18/2020	Low Flow	3	682	-	242	0.200	0.850	398	0.00500	39.7	138	0.000710	0.000100	0.0180	0.0447	0.0000200	0.000800	0.000100	0.000120	0.000630
FR_CCSEEPE3	9/11/2020	Low Flow	3	704	-	244	0.200	0.840	383	0.00500	38.1	154	0.000690	0.000100	0.0200	0.0395	0.0000200	0.000739	0.000100	0.000100	0.000530
FR_CCSEEPE3	10/19/2020	Low Flow	3	704	-	221	0.240	1.18	381	0.00500	31.7	155	0.000600	0.000160	0.0190	0.0513	0.0000200	0.000730	0.000110	0.000100	0.000530
FR_CCSEEPE3	11/2/2020	Low Flow	3	716	-	226	0.230	1.01	396	0.00500	31.8	161	0.000660	0.000140	0.0200	0.0471	0.0000200	0.000760	0.000100	0.000100	0.000500
FR_CCSEEPE3	9/21/2020	Low Flow	3	729	-	236	0.190	6.18	400	0.00500	39.2	157	0.000680	0.000100	0.0220	0.0444	0.0000200	0.000794	0.000100	0.000100	0.00103
FR_CCSEEPE3	8/31/2020	Low Flow	3	736	-	253	0.250	1.08	421	0.00500	43.9	163	0.000710	0.000110	0.0210	0.0398	0.0000200	0.000822	0.000100	0.000100	0.000530
FR_CCSEEPE3	6/24/2020	Freshet	4	738	-	240	0.250	2.50	379	0.00660	38.5	155	0.000800	0.000100	0.0240	0.0312	0.0000200	0.000763	0.000100	0.000100	0.000570
FR_CCSEEPE3	9/25/2020	Low Flow	3	739	-	224	0.200	1.01	384	0.00500	38.0	162	0.000630	0.000120	0.0220	0.0452	0.0000200	0.000808	0.000100	0.000100	0.000520
FR_CCSEEPE3	5/21/2020	Freshet	4	750	-	211	0.200	2.50	416	0.00500	39.2	161	0.000800	0.000120	0.0200	0.0418	0.0000200	0.000748	0.000100	0.000130	0.000570
FR_CCSEEPE3	4/4/2020	Freshet	4	753	8.22	219	0.200	2.50	426	0.00500	50.6	170	0.000610	0.000100	0.0140	0.0591	0.0000200	0.000747	0.000100	0.000100	0.000500
FR_CCSEEPE3	8/27/2020	Low Flow	3	789	-	230	0.260	2.10	407	0.00500	41.9	165	0.000750	0.000100	0.0210	0.0372	0.0000200	0.000803	0.000100	0.000100	0.000520
FR_CCSEEPE3	4/6/2020	Freshet	5	824	8.25	216	0.230	2.50	424	0.00500	52.5	185	0.000570	0.000100	0.0160	0.0567	0.0000200	0.000789	0.000100	0.000100	0.000500

Seep ID	Sample Date	Flow Regime	# of parameters exceeding BCWQG	Hardness	pH	Alkalinity (as CaCO3)	Fluoride	Chloride	Sulfate	Nitrite, (as N)	Nitrate, (as N)	Calcium, Dissolved	Antimony, Total	Arsenic, Total	Boron, Total	Barium, Total	Beryllium, Total	Cadmium, Total	Chromium, Total	Cobalt, Total	Copper, Total
				mg/l	*pH units*		*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
FR_CCSEEPE3	3/18/2020	Freshet	6	829	8.03	206	0.200	2.50	437	0.00500	58.0	183	0.000600	0.000120	0.0170	0.0539	0.0000200	0.000766	0.000100	0.000100	0.000530
FR_CCSEEPE3	4/27/2020	Freshet	6	834	8.13	235	0.190	2.50	544	0.00500	60.4	192	0.000710	0.000100	0.0200	0.0503	0.0000200	0.000936	0.000100	0.000120	0.000500
FR_CCSEEPE3	4/8/2020	Freshet	6	839	8.34	213	0.200	2.50	451	0.00500	57.0	191	0.000620	0.000100	0.0190	0.0502	0.0000200	0.000861	0.000100	0.000100	0.000500
FR_CCSEEPE3	3/21/2020	Freshet	6	848	8.20	210	0.210	2.50	489	0.00500	63.0	188	0.000620	0.000110	0.0170	0.0547	0.0000200	0.000865	0.000100	0.000100	0.000500
FR_CCSEEPE3	2/24/2020	Low Flow	4	867	-	209	0.200	2.50	419	0.00500	55.6	189	0.000590	0.000150	0.0160	0.0610	0.0000200	0.000809	0.000100	0.000100	0.000620
FR_CCSEEPE3	3/13/2020	Low Flow	6	873	8.08	210	0.220	2.50	453	0.00500	57.5	193	0.000660	0.000130	0.0170	0.0527	0.0000200	0.000831	0.000100	0.000100	0.000500
FR_CCSEEPE3	4/20/2020	Freshet	6	887	-	220	0.210	2.50	462	0.00500	55.0	194	0.000700	0.000100	0.0180	0.0518	0.0000200	0.000959	0.000100	0.000100	0.000500
FR_CCSEEPE3	4/14/2020	Freshet	6	890	8.41	214	0.170	3.10	523	0.00500	62.9	187	0.000580	0.000100	0.0190	0.0514	0.0000200	0.000841	0.000100	0.000100	0.000500
FR_CCSEEPE3	4/12/2020	Freshet	6	899	8.22	210	0.100	2.50	467	0.00500	54.3	205	0.000610	0.000100	0.0170	0.0500	0.0000200	0.000831	0.000100	0.000100	0.000500
FR_CCSEEPE3	4/10/2020	Freshet	6	911	8.27	219	0.210	2.50	502	0.00500	61.6	198	0.000650	0.000110	0.0180	0.0481	0.0000200	0.000925	0.000100	0.000100	0.000500
FR_CCSEEPE3	4/17/2020	Freshet	6	924	8.27	219	0.170	2.50	566	0.00500	66.2	212	0.000680	0.000100	0.0180	0.0538	0.0000200	0.000892	0.000100	0.000100	0.000580
FR_CCSEEPE3	4/16/2020	Freshet	6	957	8.38	216	0.220	2.50	468	0.00500	56.0	220	0.000690	0.000100	0.0200	0.0519	0.0000200	0.000918	0.000100	0.000100	0.000500
FR_CCSEEPE3	4/2/2020	Freshet	6	958	8.24	230	0.150	2.50	533	0.00500	72.0	214	0.000690	0.000120	0.0240	0.0508	0.0000200	0.000821	0.000100	0.000190	0.000500
FR_CCSEEPE3	4/24/2020	Freshet	6	979	8.27	236	0.210	2.50	497	0.00500	56.8	214	0.000740	0.000100	0.0210	0.0522	0.0000200	0.000953	0.000100	0.000120	0.000540
FR_CCSEEPE3	4/22/2020	Freshet	6	983	8.25	228	0.240	2.70	502	0.00500	59.3	221	0.000750	0.000100	0.0220	0.0492	0.0000200	0.000999	0.000100	0.000120	0.000540
FR_CCSEEPE3	3/31/2020	Freshet	6	999	8.25	233	0.160	2.50	509	0.00500	73.7	220	0.000670	0.000100	0.0220	0.0480	0.0000200	0.000822	0.000100	0.000200	0.000500
FR_CCSEEPE3	3/27/2020	Freshet	6	1010	-	235	0.220	2.50	532	0.00500	80.0	229	0.000680	0.000110	0.0230	0.0472	0.0000200	0.000897	0.000100	0.000270	0.000510
FR_CCSEEPE3	3/25/2020	Freshet	6	1040	8.07	239	0.110	2.50	552	0.00500	80.3	224	0.000690	0.000100	0.0250	0.0480	0.0000200	0.000898	0.000100	0.000360	0.000500
FR_CCSEEPE3	3/29/2020	Freshet	6	1050	8.23	235	0.150	2.50	562	0.00500	77.1	234	0.000670	0.000140	0.0230	0.0483	0.0000200	0.000895	0.000100	0.000220	0.000500
FR_CCSEEPSE1	9/3/2020	Low Flow	6	1950	-	318	0.140	5.63	1510	0.00860	45.5	366	0.00104	0.000290	0.0210	0.0133	0.0000400	0.00158	0.000200	0.000200	0.001000
FR_CCSEEPSE1	6/11/2020	Freshet	6	1980	7.82	275	0.170	10.2	1350	0.00720	70.8	359	0.000980	0.000440	0.0200	0.0168	0.0000200	0.00140	0.000260	0.000650	0.000980
FR_CCSEEPSE4	5/21/2020	Freshet	6	956	-	239	0.220	2.50	575	0.00500	57.3	198	0.000880	0.000150	0.0310	0.0188	0.0000200	0.000249	0.000100	0.000110	0.000530
FR_CCSEEPSE4	6/24/2020	Freshet	5	1110	-	263	0.240	2.50	621	0.00500	68.8	225	0.000840	0.000110	0.0340	0.0170	0.0000200	0.000389	0.000100	0.000120	0.000500
FR_CCSEEPSE4	7/29/2020	Low Flow	6	1240	-	298	0.140	2.50	664	0.00500	76.7	254	0.000860	0.000120	0.0350	0.0170	0.0000200	0.000447	0.000100	0.000130	0.000500
FR_CCSEEPSE4	3/29/2020	Freshet	6	1710	-	309	0.250	5.00	902	0.01000	142	363	0.00108	0.000500	0.0500	0.0229	0.0001000	0.000283	0.000500	0.000500	0.00250
FR_CCSEEPSE4	2/24/2020	Low Flow	5	1820	-	314	0.200	5.00	959	0.01000	150	370	0.00102	0.000500	0.0500	0.0185	0.0001000	0.000106	0.000500	0.000500	0.00250
FR_CCSEEPSE5	5/21/2020	Freshet	6	986	-	253	0.100	3.70	619	0.00500	59.1	204	0.000920	0.000150	0.0310	0.0161	0.0000200	0.000545	0.000100	0.000140	0.000500
FR_CCSEEPSE5	4/27/2020	Freshet	6	1060	8.47	310	0.220	2.50	639	0.00500	80.2	242	0.000920	0.000100	0.0370	0.0147	0.0000200	0.000681	0.000100	0.000180	0.000520
FR_CCSEEPSE5	4/20/2020	Freshet	6	1100	8.73	312	0.260	2.50	556	0.00500	71.5	231	0.00103	0.000120	0.0370	0.0154	0.0000200	0.000642	0.000100	0.000160	0.000500
FR_CCSEEPSE5	4/22/2020	Freshet	6	1140	8.51	311	0.250	3.10	564	0.00500	71.1	246	0.00103	0.000160	0.0360	0.0156	0.0000200	0.000637	0.000100	0.000170	0.000540
FR_CCSEEPSE5	6/24/2020	Freshet	5	1180	-	266	0.230	2.50	640	0.00640	67.8	238	0.000840	0.000100	0.0340	0.0160	0.0000200	0.000722	0.000100	0.000150	0.000500
FR_CCSEEPSE5	4/24/2020	Freshet	6	1210	8.54	316	0.260	2.50	582	0.00500	73.1	253	0.001000	0.000140	0.0400	0.0155	0.0000200	0.000657	0.000100	0.000170	0.000520
FR_CCSEEPSE5	4/17/2020	Freshet	6	1230	8.51	315	0.170	2.50	698	0.00500	91.2	270	0.00106	0.000110	0.0410	0.0160	0.0000200	0.000622	0.000100	0.000180	0.000520
FR_CCSEEPSE5	8/19/2020	Low Flow	5	1290	-	273	0.240	2.50	754	0.00500	83.6	271	0.000960	0.000130	0.0420	0.0163	0.0000200	0.000993	0.000100	0.000180	0.000520
FR_CCSEEPSE5	9/18/2020	Low Flow	5	1320	-	343	0.210	1.81	849	0.00500	78.8	252	0.000860	0.000500	0.0500	0.0157	0.0001000	0.00103	0.000500	0.000500	0.00250
FR_CCSEEPSE5	4/6/2020	Freshet	6	1330	8.28	323	0.300	2.90	667	0.00500	99.2	292	0.00108	0.000200	0.0410	0.0174	0.0000400	0.000676	0.000200	0.000200	0.001000

Seep ID	Sample Date	Flow Regime	# of parameters exceeding BCWQG	Hardness	pH	Alkalinity (as CaCO3)	Fluoride	Chloride	Sulfate	Nitrite, (as N)	Nitrate, (as N)	Calcium, Dissolved	Antimony, Total	Arsenic, Total	Boron, Total	Barium, Total	Beryllium, Total	Cadmium, Total	Chromium, Total	Cobalt, Total	Copper, Total
				mg/l	*pH units*		*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
FR_CCSEEPSE5	4/12/2020	Freshet	6	1340	8.52	292	0.100	4.30	654	0.00500	90.4	291	0.00109	0.000140	0.0400	0.0161	0.0000200	0.000685	0.000100	0.000180	0.000510
FR_CCSEEPSE5	4/4/2020	Freshet	6	1350	8.43	287	0.250	2.60	729	0.00500	99.3	291	0.00117	0.000200	0.0430	0.0179	0.0000400	0.000686	0.000200	0.000200	0.001000
FR_CCSEEPSE5	4/14/2020	Freshet	6	1360	8.54	283	0.170	2.50	577	0.00500	83.9	281	0.000990	0.000200	0.0420	0.0163	0.0000400	0.000719	0.000200	0.000200	0.001000
FR_CCSEEPSE5	4/16/2020	Freshet	6	1360	8.52	323	0.240	2.50	654	0.00500	95.4	294	0.00109	0.000120	0.0440	0.0155	0.0000200	0.000650	0.000100	0.000160	0.000500
FR_CCSEEPSE5	4/8/2020	Freshet	6	1370	8.52	327	0.260	3.50	685	0.00510	96.3	303	0.00113	0.000200	0.0470	0.0163	0.0000400	0.000714	0.000200	0.000200	0.001000
FR_CCSEEPSE5	8/24/2020	Low Flow	5	1370	-	325	0.240	2.50	785	0.00500	90.0	292	0.000720	0.000500	0.0500	0.0181	0.0001000	0.000967	0.000500	0.000500	0.00250
FR_CCSEEPSE5	9/11/2020	Low Flow	5	1380	-	365	0.160	2.20	825	0.00500	82.4	285	0.000840	0.000130	0.0370	0.0163	0.0000200	0.00109	0.000100	0.000180	0.000550
FR_CCSEEPSE5	10/2/2020	Low Flow	5	1380	-	280	0.220	1.97	829	0.00500	69.6	268	0.000860	0.000500	0.0500	0.0170	0.0001000	0.00118	0.000500	0.000500	0.00250
FR_CCSEEPSE5	9/25/2020	Low Flow	5	1400	-	288	0.200	2.36	810	0.00500	73.9	283	0.000830	0.000500	0.0500	0.0167	0.0001000	0.00112	0.000500	0.000500	0.00250
FR_CCSEEPSE5	4/10/2020	Freshet	6	1410	8.50	295	0.240	2.90	664	0.00500	91.8	296	0.00109	0.000130	0.0390	0.0154	0.0000200	0.000670	0.000100	0.000160	0.000500
FR_CCSEEPSE5	4/2/2020	Freshet	6	1420	8.55	328	0.180	3.10	755	0.00500	101	307	0.00115	0.000130	0.0470	0.0177	0.0000200	0.000716	0.000100	0.000190	0.000520
FR_CCSEEPSE5	10/16/2020	Low Flow	5	1420	-	308	0.200	2.02	1030	0.0156	83.8	279	0.000840	0.000500	0.0500	0.0157	0.0001000	0.000576	0.000500	0.000500	0.00250
FR_CCSEEPSE5	9/21/2020	Low Flow	5	1430	-	338	0.190	1.66	862	0.00590	78.1	287	0.000870	0.000120	0.0420	0.0166	0.0000200	0.00107	0.000100	0.000150	0.000510
FR_CCSEEPSE5	9/28/2020	Low Flow	5	1430	-	314	0.180	1.97	854	0.00500	72.0	285	0.000960	0.000500	0.0500	0.0163	0.0001000	0.000994	0.000500	0.000500	0.00250
FR_CCSEEPSE5	9/14/2020	Low Flow	5	1450	-	309	0.230	1.94	832	0.00500	80.8	302	0.000910	0.000500	0.0500	0.0157	0.0001000	0.00106	0.000500	0.000500	0.00250
FR_CCSEEPSE5	10/13/2020	Low Flow	5	1450	-	336	0.180	2.70	930	0.00500	74.7	294	0.000860	0.000500	0.0500	0.0156	0.0001000	0.000930	0.000500	0.000500	0.00250
FR_CCSEEPSE5	8/31/2020	Low Flow	5	1460	-	345	0.230	2.42	870	0.00980	97.1	306	0.000860	0.000110	0.0380	0.0191	0.0000200	0.00118	0.000100	0.000200	0.000550
FR_CCSEEPSE5	10/26/2020	Low Flow	6	1460	-	300	0.170	1.76	1020	0.0116	80.4	290	0.000880	0.000500	0.0500	0.0154	0.0001000	0.000296	0.000500	0.000500	0.00250
FR_CCSEEPSE5	10/9/2020	Low Flow	5	1480	-	289	0.120	1.71	844	0.00500	71.0	297	0.000850	0.000500	0.0500	0.0172	0.0001000	0.00123	0.000500	0.000500	0.00250
FR_CCSEEPSE5	3/31/2020	Freshet	6	1530	8.47	330	0.170	3.60	746	0.00500	124	329	0.00106	0.000200	0.0450	0.0166	0.0000400	0.000791	0.000200	0.000200	0.001000
FR_CCSEEPSE5	11/2/2020	Low Flow	6	1530	-	264	0.210	2.35	943	0.00500	75.8	308	0.000840	0.000500	0.0500	0.0161	0.0001000	0.000317	0.000500	0.000500	0.00250
FR_CCSEEPSE5	8/27/2020	Low Flow	5	1550	-	286	0.240	2.21	830	0.00720	95.2	317	0.000910	0.000100	0.0390	0.0183	0.0000200	0.00111	0.000100	0.000210	0.000530
FR_CCSEEPSE5	10/19/2020	Low Flow	6	1590	-	284	0.240	2.39	974	0.00500	77.0	309	0.000850	0.000500	0.0500	0.0159	0.0001000	0.000418	0.000500	0.000500	0.00250
FR_CCSEEPSE5	3/29/2020	Freshet	7	1710	8.39	336	0.290	5.00	875	0.01000	145	362	0.00104	0.000500	0.0500	0.0191	0.0001000	0.000958	0.000500	0.000500	0.00250
FR_CCSEEPSE5	3/25/2020	Freshet	6	1720	8.09	330	0.100	3.90	805	0.00500	125	367	0.00107	0.000200	0.0460	0.0191	0.0000400	0.000818	0.000200	0.000230	0.001000
FR_CCSEEPSE5	3/27/2020	Freshet	6	1740	-	339	0.240	2.60	839	0.00500	158	386	0.00109	0.000220	0.0480	0.0194	0.0000200	0.000947	0.000100	0.000250	0.000500
FR_CCSEEPSE5	3/18/2020	Freshet	6	1750	8.43	317	0.270	5.00	867	0.01000	163	370	0.00110	0.000170	0.0480	0.0183	0.0000200	0.000524	0.000100	0.000190	0.000690
FR_CCSEEPSE5	2/24/2020	Low Flow	6	1790	-	335	0.230	5.00	896	0.01000	157	379	0.00109	0.000500	0.0500	0.0192	0.0001000	0.000547	0.000500	0.000500	0.00250
FR_CCSEEPSE5	3/21/2020	Freshet	6	1790	8.48	316	0.200	5.00	924	0.01000	163	378	0.00111	0.000200	0.0460	0.0185	0.0000400	0.000626	0.000200	0.000200	0.001000
FR_CCSEEPSE5	3/13/2020	Low Flow	7	1910	8.47	320	0.220	3.10	1020	0.00500	157	407	0.00107	0.000500	0.0500	0.0175	0.0000200	0.000370	0.000500	0.000500	0.00250
FR_EAGLENORTH	6/11/2020	Freshet	6	2560	7.66	397	0.100	13.5	1720	0.00500	61.5	430	0.000510	0.000180	0.0280	0.0153	0.0000200	0.000575	0.000100	0.000100	0.000510
FR_EAGLENORTH	10/15/2020	Low Flow	6	2660	7.82	538	0.100	15.1	2030	0.00890	47.8	457	0.000470	0.000200	0.0300	0.0131	0.0000400	0.000542	0.000200	0.000200	0.001000
FR_FCSEEP2	6/11/2020	Freshet	2	158	7.96	94	0.169	0.500	32.0	0.00100	0.938	41.0	0.000120	0.000100	0.0100	0.0419	0.0000200	0.00000750	0.000150	0.000100	0.000500
FR_FCSEEP2	10/22/2020	Low Flow	3	300	7.75	169	0.182	0.210	169	0.00100	4.08	77.3	0.000100	0.000100	0.0100	0.0852	0.0000200	0.0000178	0.000120	0.000100	0.000500
FR_FRVWSEEP3	6/11/2020	Freshet	3	926	8.09	370	0.130	2.60	478	0.00500	0.705	150	0.000310	0.000110	0.0140	0.0177	0.0000200	0.0000402	0.000100	0.000120	0.000500
FR_FRVWSEEP3	10/27/2020	Low Flow	3	940	8.24	423	0.130	2.33	582	0.00500	0.627	152	0.000270	0.000130	0.0120	0.0178	0.0000200	0.0000275	0.000100	0.000100	0.000500

Seep ID	Sample Date	Flow Regime	# of parameters exceeding BCWQG	Hardness	pH	Alkalinity (as CaCO3)	Fluoride	Chloride	Sulfate	Nitrite, (as N)	Nitrate, (as N)	Calcium, Dissolved	Antimony, Total	Arsenic, Total	Boron, Total	Barium, Total	Beryllium, Total	Cadmium, Total	Chromium, Total	Cobalt, Total	Copper, Total
				mg/l	*pH units*		*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
FR_FSEAMSEEP7	6/12/2020	Freshet	3	492	8.08	215	0.276	1.55	226	0.00300	9.12	102	0.00103	0.000330	0.0240	0.0621	0.0000270	0.000168	0.000450	0.000550	0.001000
FR_FSEAMSEEP7	10/26/2020	Low Flow	12	642	8.32	214	0.250	4.69	373	0.00500	18.8	128	0.00140	0.0207	0.0510	0.857	0.00424	0.00573	0.0283	0.0589	0.0812
FR_FSEAMWSEEP4	6/12/2020	Freshet	3	364	8.11	196	0.248	0.500	140	0.00310	7.58	68.5	0.000590	0.000190	0.0170	0.0449	0.0000200	0.000170	0.000170	0.000100	0.000880
FR_GC1	6/24/2020	Freshet	4	721	-	227	0.220	2.50	386	0.00880	36.9	152	0.000590	0.000100	0.0250	0.0387	0.0000200	0.0000853	0.000100	0.000100	0.000500
FR_GC1	7/28/2020	Low Flow	6	901	-	267	0.210	2.50	505	0.00500	49.3	190	0.000700	0.000100	0.0310	0.0456	0.0000200	0.0000672	0.000100	0.000100	0.000500
FR_GC1	8/17/2020	Low Flow	6	901	-	261	0.220	2.50	482	0.00500	48.9	188	0.000700	0.000100	0.0310	0.0486	0.0000200	0.0000905	0.000170	0.000100	0.000500
FR_GC1	5/21/2020	Freshet	6	928	-	234	0.160	2.50	561	0.00500	58.9	199	0.000590	0.000130	0.0230	0.0511	0.0000200	0.000117	0.000120	0.000100	0.000500
FR_GC1	10/5/2020	Low Flow	6	941	-	249	0.230	1.64	579	0.00500	54.3	200	0.000690	0.000130	0.0320	0.0492	0.0000200	0.0000810	0.000100	0.000100	0.000500
FR_GC1	9/23/2020	Low Flow	6	957	-	260	0.200	1.21	543	0.00500	53.2	199	0.000630	0.000100	0.0300	0.0491	0.0000200	0.0000939	0.000100	0.000100	0.000500
FR_GC1	9/2/2020	Low Flow	6	966	-	270	0.230	1.92	593	0.00500	61.5	204	0.000670	0.000100	0.0340	0.0506	0.0000200	0.0000797	0.000100	0.000100	0.000500
FR_GC1	9/30/2020	Low Flow	6	1000	-	262	0.180	1.65	586	0.00500	55.4	194	0.000740	0.000100	0.0330	0.0504	0.0000200	0.0000803	0.000100	0.000100	0.000500
FR_GC1	10/26/2020	Low Flow	6	1030	-	276	0.180	1.32	661	0.00610	57.6	209	0.000660	0.000500	0.0500	0.0488	0.0001000	0.0000820	0.000500	0.000500	0.00250
FR_GC1	10/14/2020	Low Flow	6	1050	-	279	0.270	2.15	630	0.00500	55.5	217	0.000650	0.000110	0.0290	0.0483	0.0000200	0.0000717	0.000100	0.000100	0.000500
FR_GC1	3/26/2020	Freshet	6	1100	8.18	249	0.190	2.50	611	0.00500	91.2	236	0.000540	0.000100	0.0210	0.0548	0.0000200	0.000123	0.000110	0.000100	0.000500
FR_GC1	9/16/2020	Low Flow	6	1100	-	270	0.190	1.45	603	0.00500	59.7	232	0.000670	0.000100	0.0310	0.0498	0.0000200	0.0000737	0.000100	0.000100	0.000500
FR_GC1	11/2/2020	Low Flow	6	1120	-	276	0.210	1.83	651	0.00500	55.7	233	0.000630	0.000500	0.0500	0.0481	0.0001000	0.0000690	0.000500	0.000500	0.00250
FR_GC1	10/19/2020	Low Flow	6	1130	-	270	0.220	1.75	622	0.00500	55.2	230	0.000640	0.000130	0.0280	0.0480	0.0000200	0.0000807	0.000100	0.000100	0.000500
FR_GC1	3/12/2020	Low Flow	6	1140	8.01	244	0.220	2.50	656	0.00500	88.8	245	0.000540	0.000150	0.0210	0.0575	0.0000200	0.000144	0.000110	0.000100	0.000500
FR_GC1	9/9/2020	Low Flow	6	1140	-	238	0.130	1.63	572	0.00500	59.7	236	0.000740	0.000500	0.0500	0.0536	0.0001000	0.0000680	0.000500	0.000500	0.00250
FR_GC1	4/24/2020	Freshet	6	1160	-	248	0.200	2.50	593	0.00500	76.6	239	0.000590	0.000120	0.0240	0.0499	0.0000200	0.000115	0.000100	0.000100	0.000500
FR_GC1	4/13/2020	Freshet	6	1170	8.41	257	0.220	2.50	600	0.00500	80.5	242	0.000640	0.000110	0.0240	0.0453	0.0000200	0.000110	0.000100	0.000100	0.000500
FR_GC1	2/24/2020	Low Flow	5	1200	-	251	0.180	2.50	637	0.00500	87.6	251	0.000560	0.000500	0.0500	0.0682	0.0001000	0.000173	0.000500	0.000500	0.00250
FR_GC1	4/9/2020	Freshet	6	1200	8.22	251	0.220	2.60	646	0.00500	83.5	258	0.000640	0.000120	0.0240	0.0486	0.0000200	0.000117	0.000100	0.000100	0.000500
FR_GC1	4/15/2020	Freshet	6	1200	8.32	249	0.220	2.50	628	0.00500	85.2	249	0.000590	0.000200	0.0240	0.0456	0.0000200	0.000116	0.000120	0.000100	0.000500
FR_GC1	4/17/2020	Freshet	6	1220	8.34	252	0.150	2.50	669	0.00500	85.7	272	0.000640	0.000100	0.0250	0.0461	0.0000200	0.000111	0.000100	0.000100	0.000500
FR_GC1	3/30/2020	Freshet	6	1230	8.13	249	0.140	2.50	673	0.00500	92.0	262	0.000590	0.000110	0.0250	0.0480	0.0000200	0.000118	0.000100	0.000100	0.000500
FR_GC1	4/11/2020	Freshet	6	1230	8.31	250	0.190	2.50	627	0.00500	81.3	264	0.000630	0.000100	0.0270	0.0475	0.0000200	0.000122	0.000100	0.000100	0.000500
FR_GC1	4/5/2020	Freshet	6	1270	8.20	242	0.190	2.50	655	0.00500	89.4	274	0.000580	0.000110	0.0240	0.0542	0.0000200	0.000129	0.000100	0.000100	0.000500
FR_GC1	4/1/2020	Freshet	6	1280	8.41	263	0.180	2.50	644	0.00500	99.5	281	0.000620	0.000110	0.0240	0.0496	0.0000200	0.000124	0.000100	0.000100	0.000500
FR_GC1	4/7/2020	Freshet	6	1290	8.28	254	0.230	2.50	669	0.00500	97.4	284	0.000600	0.000130	0.0240	0.0485	0.0000200	0.000128	0.000100	0.000100	0.000500
FR_HENSEEP3	6/10/2020	Freshet	5	1790	7.88	228	0.160	2.50	1210	0.00970	81.6	369	0.000310	0.000310	0.0200	0.0414	0.0000400	0.000305	0.000230	0.000760	0.001000
FR_HENSEEP3	10/19/2020	Low Flow	6	2090	7.66	243	0.150	1.05	1450	0.0334	138	444	0.000290	0.000800	0.0210	0.0604	0.0000400	0.000662	0.000660	0.00124	0.00250
FR_HENSSEEP1	6/10/2020	Freshet	3	806	7.90	283	0.100	2.50	487	0.00500	0.128	215	0.000250	0.000200	0.0120	0.0591	0.0000200	0.000164	0.000100	0.000130	0.000600
FR_LMCWSEEP5	6/11/2020	Freshet	3	278	7.71	169	0.100	0.500	98.7	0.00100	6.29	55.9	0.000250	0.000190	0.0100	0.0266	0.0000200	0.0000798	0.000130	0.000100	0.000810
FR_LMCWSEEP5	10/26/2020	Low Flow	3	724	8.18	237	0.120	0.610	405	0.00500	30.7	150	0.000250	0.000190	0.0100	0.0600	0.0000200	0.0000852	0.000120	0.000100	0.000500
FR_LMCWSEEP5	5/5/2020	Freshet	5	771	-	191	0.120	2.50	345	0.0779	55.9	184	0.00130	0.000370	0.0120	0.0576	0.0000200	0.000568	0.000100	0.00318	0.000820

Seep ID	Sample Date	Flow Regime	# of parameters exceeding BCWQG	Hardness	pH	Alkalinity (as CaCO3)	Fluoride	Chloride	Sulfate	Nitrite, (as N)	Nitrate, (as N)	Calcium, Dissolved	Antimony, Total	Arsenic, Total	Boron, Total	Barium, Total	Beryllium, Total	Cadmium, Total	Chromium, Total	Cobalt, Total	Copper, Total
				mg/l	*pH units*		*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
FR_SCRDSEEP1	10/29/2020	Low Flow	4	773	8.10	462	0.240	2.77	313	0.0275	26.7	167	0.000840	0.00250	0.0160	0.528	0.000123	0.000459	0.00202	0.00341	0.00477
FR_SCRDSEEP1	6/18/2020	Freshet	6	779	7.92	373	0.240	2.90	343	2.30	40.5	169	0.000700	0.000770	0.0160	0.447	0.0000200	0.000116	0.000370	0.00163	0.00153
FR_SHNSEEP1	6/18/2020	Freshet	3	409	7.67	230	0.252	0.500	107	0.00560	28.3	89.3	0.000350	0.000100	0.0210	0.0486	0.0000200	0.000144	0.000100	0.000110	0.000500
FR_SPRWSEEP1	10/26/2020	Low Flow	3	771	8.11	318	0.100	2.24	398	0.00500	15.4	182	0.000340	0.000120	0.0170	0.0406	0.0000200	0.000661	0.000100	0.000100	0.000510
FR_STPNSEEP	6/12/2020	Freshet	3	255	7.79	170	0.219	2.71	73.1	0.00100	4.00	61.6	0.000170	0.000100	0.0100	0.0494	0.0000200	0.0000288	0.000120	0.000100	0.000500
FR_STPSWSEEP	10/22/2020	Low Flow	1	656	7.64	351	0.290	7.36	357	0.00500	0.025	137	0.000100	0.000100	0.0280	0.0739	0.0000200	0.000444	0.000100	0.000850	0.000500
FR_STPSWSEEP	6/12/2020	Freshet	1	684	7.44	329	0.340	7.00	328	0.00500	0.139	139	0.000100	0.000100	0.0320	0.0695	0.0000200	0.000353	0.000100	0.000990	0.000500
FR_STPWSEEP	10/22/2020	Low Flow	1	612	7.84	326	0.300	7.21	283	0.00500	0.036	124	0.000100	0.000100	0.0300	0.0664	0.0000200	0.000460	0.000100	0.00114	0.000500
FR_STPWSEEP	6/12/2020	Freshet	7	632	4.74	339	0.360	6.10	258	0.00500	0.025	125	0.000100	0.000100	0.0360	0.0870	0.0000200	0.00113	0.000100	0.00111	0.000500
FR_TBWSEEP1	10/19/2020	Low Flow	3	425	7.57	204	0.091	0.250	211	0.00610	8.28	109	0.000100	0.000200	0.0120	0.0757	0.0000200	0.0000441	0.000210	0.000100	0.000500
FR_TBWSEEP1	3/28/2020	Freshet	3	437	-	169	0.068	0.500	237	0.00500	10.6	114	0.000130	0.000170	0.0100	0.124	0.0000200	0.0000722	0.000310	0.000130	0.000500
FR_TBWSEEP1	5/21/2020	Freshet	3	554	-	201	0.068	0.500	296	0.00100	14.3	144	0.000110	0.000110	0.0110	0.112	0.0000200	0.0000606	0.000180	0.000100	0.000500
FR_TBWSEEP1	6/24/2020	Freshet	3	648	-	236	0.074	0.510	292	0.00100	15.4	159	0.000120	0.000100	0.0120	0.104	0.0000200	0.0000439	0.000160	0.000100	0.000500
FR_TBWSEEP1	6/10/2020	Freshet	3	656	7.36	232	0.100	2.50	348	0.00500	17.9	165	0.000110	0.000100	0.0140	0.122	0.0000200	0.0000610	0.000200	0.000100	0.000500
FR_TBWSEEP1	4/24/2020	Freshet	3	753	-	265	0.100	2.50	369	0.00500	24.4	191	0.000160	0.000130	0.0120	0.156	0.0000200	0.000118	0.000200	0.000230	0.000500
FR_TURNSEEP1	6/10/2020	Freshet	4	672	8.02	253	0.130	2.50	272	0.0295	37.4	153	0.000980	0.000100	0.0230	0.0435	0.0000200	0.000396	0.000100	0.000100	0.000520
FR_TURNSEEP2	6/10/2020	Freshet	3	636	7.15	267	0.100	2.50	305	0.00500	19.1	164	0.000200	0.000100	0.0140	0.214	0.0000200	0.0000662	0.000120	0.000100	0.000500
FR_TURNSEEP2	10/19/2020	Low Flow	3	639	7.11	252	0.100	0.500	337	0.00500	18.3	169	0.000130	0.000170	0.0110	0.166	0.0000200	0.0000496	0.000200	0.000100	0.000500
FR_WED1	6/24/2020	Freshet	1	197	-	145	0.217	0.500	58.5	0.00200	2.29	49.4	0.000100	0.000100	0.0100	0.0508	0.0000200	0.0000176	0.000110	0.000100	0.000500
FR_WED1	7/28/2020	Low Flow	3	226	-	146	0.217	0.500	78.7	0.00190	3.23	58.8	0.000120	0.000100	0.0100	0.0634	0.0000200	0.0000142	0.000150	0.000100	0.000500
FR_WED1	8/17/2020	Low Flow	3	272	-	154	0.200	0.500	97.4	0.00100	3.94	70.6	0.000140	0.000100	0.0100	0.0751	0.0000200	0.0000171	0.000170	0.000100	0.000500
FR_WED1	5/25/2020	Freshet	3	274	-	162	0.148	0.500	108	0.00100	4.35	71.2	0.000100	0.000100	0.0100	0.0616	0.0000200	0.0000178	0.000190	0.000100	0.000500
FR_WED1	9/2/2020	Low Flow	3	283	-	164	0.205	0.230	127	0.00350	5.16	73.1	0.000110	0.000100	0.0100	0.0855	0.0000200	0.0000199	0.000130	0.000100	0.000500
FR_WED1	9/30/2020	Low Flow	3	298	-	159	0.170	0.220	146	0.00120	5.13	72.4	0.000170	0.000100	0.0100	0.0874	0.0000200	0.0000223	0.000140	0.000100	0.000500
FR_WED1	9/9/2020	Low Flow	3	302	-	160	0.172	0.190	122	0.00270	5.04	78.4	0.000120	0.000100	0.0100	0.0916	0.0000200	0.0000176	0.000200	0.000100	0.000500
FR_WED1	10/5/2020	Low Flow	3	306	-	162	0.194	0.260	145	0.00250	5.15	78.7	0.000100	0.000110	0.0100	0.0865	0.0000200	0.0000206	0.000150	0.000100	0.000500
FR_WED1	10/26/2020	Low Flow	3	306	-	157	0.175	0.220	167	0.00190	5.33	77.3	0.000100	0.000100	0.0100	0.0886	0.0000200	0.0000198	0.000120	0.000100	0.000500
FR_WED1	9/23/2020	Low Flow	3	311	-	164	0.168	0.200	145	0.00140	5.38	79.4	0.000110	0.000100	0.0100	0.0874	0.0000200	0.0000136	0.000120	0.000100	0.000500
FR_WED1	9/16/2020	Low Flow	3	322	-	164	0.189	0.220	136	0.00100	5.23	83.8	0.000110	0.000100	0.0100	0.0891	0.0000200	0.0000239	0.000150	0.000100	0.000500
FR_WED1	10/14/2020	Low Flow	3	326	-	161	0.217	0.270	155	0.00130	5.21	84.1	0.000100	0.000100	0.0100	0.0920	0.0000200	0.0000234	0.000170	0.000100	0.000500
FR_WED1	11/2/2020	Low Flow	3	329	-	157	0.192	0.290	158	0.00120	5.18	84.8	0.000100	0.000100	0.0100	0.0888	0.0000200	0.0000212	0.000130	0.000100	0.000500
FR_WED1	3/12/2020	Low Flow	3	334	8.43	151	0.184	0.500	185	0.00100	6.93	84.6	0.000100	0.000110	0.0100	0.0830	0.0000200	0.0000270	0.000120	0.000100	0.000500
FR_WED1	4/13/2020	Freshet	3	340	8.59	155	0.052	0.660	167	0.00100	6.66	85.0	0.000100	0.000100	0.0100	0.0835	0.0000200	0.0000235	0.000120	0.000100	0.000500
FR_WED1	10/19/2020	Low Flow	3	344	-	161	0.221	0.310	158	0.00110	5.33	87.8	0.000100	0.000100	0.0100	0.0908	0.0000200	0.0000188	0.000180	0.000100	0.000500
FR_WED1	3/26/2020	Freshet	3	346	8.45	164	0.160	0.610	179	0.00290	7.99	88.8	0.000100	0.000100	0.0100	0.0884	0.0000200	0.0000259	0.000140	0.000100	0.000500
FR_WED1	3/23/2020	Freshet	3	361	-	151	0.123	0.500	177	0.00220	7.80	91.6	0.000100	0.000100	0.0100	0.0877	0.0000200	0.0000295	0.000140	0.000100	0.000500

Seep ID	Sample Date	Flow Regime	# of parameters exceeding BCWQG	Hardness	pH	Alkalinity (as CaCO3)	Fluoride	Chloride	Sulfate	Nitrite, (as N)	Nitrate, (as N)	Calcium, Dissolved	Antimony, Total	Arsenic, Total	Boron, Total	Barium, Total	Beryllium, Total	Cadmium, Total	Chromium, Total	Cobalt, Total	Copper, Total
				mg/l	*pH units*		*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
FR_WED1	3/30/2020	Freshet	3	361	8.38	157	0.149	0.500	187	0.00100	8.09	91.3	0.000100	0.000100	0.0100	0.0863	0.0000200	0.0000217	0.000120	0.000100	0.000500
FR_WED1	4/17/2020	Freshet	3	361	8.71	150	0.155	0.500	190	0.00100	7.58	94.6	0.000100	0.000100	0.0100	0.0869	0.0000200	0.0000230	0.000270	0.000100	0.000500
FR_WED1	4/9/2020	Freshet	3	364	8.56	158	0.144	0.500	186	0.00100	7.23	93.8	0.000100	0.000100	0.0100	0.0873	0.0000200	0.0000213	0.000110	0.000100	0.000500
FR_WED1	2/24/2020	Low Flow	2	366	-	158	0.156	0.500	179	0.00100	6.97	92.6	0.000100	0.000100	0.0100	0.0897	0.0000200	0.0000194	0.000120	0.000100	0.000500
FR_WED1	4/24/2020	Freshet	3	366	-	149	0.161	0.500	168	0.00100	7.03	94.0	0.000100	0.000100	0.0100	0.0852	0.0000200	0.0000233	0.000110	0.000100	0.000500
FR_WED1	4/11/2020	Freshet	3	367	8.27	157	0.135	0.500	168	0.00100	6.75	94.7	0.000100	0.000100	0.0100	0.0838	0.0000200	0.0000198	0.000110	0.000100	0.000500
FR_WED1	4/15/2020	Freshet	3	368	8.61	153	0.155	0.500	176	0.00100	6.93	94.5	0.000100	0.000140	0.0100	0.0790	0.0000200	0.0000195	0.000120	0.000100	0.000500
FR_WED1	4/1/2020	Freshet	3	372	8.72	160	0.136	0.500	179	0.00200	8.14	97.2	0.000100	0.000100	0.0100	0.0867	0.0000200	0.0000191	0.000120	0.000100	0.000500
FR_WED1	4/5/2020	Freshet	3	380	8.49	151	0.155	0.500	183	0.00100	7.69	97.9	0.000100	0.000100	0.0100	0.0933	0.0000200	0.0000236	0.000510	0.000100	0.000500
FR_WED1	4/7/2020	Freshet	3	386	8.44	149	0.172	0.500	188	0.00150	7.71	101	0.000100	0.000100	0.0100	0.0893	0.0000200	0.0000241	0.000110	0.000100	0.000500
GH_E1	3/5/2020	Low Flow	2	1130	7.97	486	0.160	4.60	676	0.00500	0.025	242	0.000100	0.000130	0.0230	0.0152	0.0000200	0.0000184	0.000100	0.00105	0.000500
GH_E1	2/19/2020	Low Flow	3	1270	8.35	490	0.130	5.20	767	0.00500	0.056	286	0.000100	0.000180	0.0230	0.0160	0.0000200	0.0000220	0.000100	0.00125	0.000500
GH_E1	4/27/2020	Freshet	2	1270	7.59	443	0.130	3.80	913	0.00500	0.025	283	0.000100	0.000200	0.0250	0.0210	0.0000200	0.0000249	0.000100	0.00150	0.000500
GH_E1	9/6/2020	Low Flow	2	1370	7.61	322	0.160	4.78	1040	0.00500	0.025	291	0.000100	0.000180	0.0390	0.0208	0.0000200	0.00000700	0.000100	0.000720	0.000500
GH_E1	8/13/2020	Low Flow	2	1430	7.68	345	0.150	4.60	1040	0.00500	0.025	286	0.000100	0.000170	0.0300	0.0165	0.0000200	0.00000670	0.000100	0.00108	0.000500
GH_E1	10/15/2020	Low Flow	3	1470	8.03	337	0.100	4.70	1190	0.00500	0.025	273	0.000100	0.000320	0.0120	0.0236	0.0000200	0.00000500	0.000100	0.000100	0.000500
GH_E2	6/8/2020	Freshet	2	664	8.33	302	0.100	29.5	366	0.00500	0.142	163	0.000100	0.000160	0.0470	0.0297	0.0000200	0.0000292	0.000100	0.000100	0.000500
GH_E2	5/14/2020	Freshet	2	693	7.82	249	0.072	25.7	323	0.00120	0.051	168	0.000100	0.000170	0.0430	0.0314	0.0000200	0.0000258	0.000100	0.000100	0.000500
GH_E2	9/6/2020	Low Flow	2	736	7.80	270	0.100	33.5	412	0.00500	0.124	184	0.000100	0.000230	0.0450	0.0393	0.0000200	0.0000244	0.000100	0.000300	0.000500
GH_E2	8/13/2020	Low Flow	2	747	7.70	266	0.100	32.0	410	0.00630	0.025	181	0.000100	0.000140	0.0420	0.0313	0.0000200	0.0000262	0.000100	0.000200	0.000500
GH_E2	7/20/2020	Low Flow	2	780	7.83	266	0.100	30.9	379	0.00500	0.025	193	0.000100	0.000150	0.0420	0.0311	0.0000200	0.0000320	0.000100	0.000160	0.000500
GH_E2	10/15/2020	Low Flow	2	790	7.80	302	0.100	31.8	419	0.00500	0.025	196	0.000100	0.000170	0.0400	0.0314	0.0000200	0.0000237	0.000100	0.000190	0.000500
GH_E2	2/19/2020	Low Flow	3	858	8.48	397	0.100	38.7	440	0.00500	0.025	214	0.000100	0.000100	0.0390	0.0299	0.0000200	0.0000312	0.000100	0.000100	0.000500
GH_E2	4/27/2020	Freshet	3	964	7.23	616	0.140	10.3	431	0.00500	0.083	220	0.000170	0.000180	0.0260	0.0401	0.0000200	0.000643	0.000100	0.000120	0.000610
GH_E3	9/6/2020	Low Flow	2	836	7.86	313	0.100	7.26	541	0.00500	0.025	147	0.000200	0.000330	0.0330	0.0280	0.0000200	0.0000120	0.000100	0.000120	0.000510
GH_E3	10/14/2020	Low Flow	2	970	8.07	386	0.100	6.79	520	0.00500	0.123	184	0.000130	0.000160	0.0250	0.0192	0.0000200	0.0000246	0.000100	0.000110	0.000500
GH_E3	6/8/2020	Freshet	3	993	8.41	289	0.100	6.30	677	0.00500	0.025	178	0.000230	0.000210	0.0300	0.0341	0.0000200	0.0000131	0.000100	0.000140	0.000500
GH_E3	1/9/2020	Low Flow	3	1050	-	498	0.110	6.70	524	0.00500	0.025	213	0.000340	0.000270	0.0240	0.0347	0.0000200	0.000272	0.000100	0.000150	0.00102
GH_E3	8/13/2020	Low Flow	3	1060	7.73	312	0.100	6.20	712	0.00500	0.032	185	0.000170	0.000460	0.0310	0.0348	0.0000200	0.0000269	0.000270	0.000250	0.000560
GH_E3	5/14/2020	Freshet	3	1140	7.92	302	0.170	5.50	632	0.00500	0.054	210	0.000280	0.000210	0.0240	0.0426	0.0000200	0.0000271	0.000100	0.000130	0.000500
GH_E-SEEP	7/16/2020	Low Flow	3	946	7.32	391	0.100	16.8	480	0.00500	0.025	263	0.000100	0.000440	0.0730	0.0990	0.0000240	0.0000449	0.000390	0.000280	0.00109
GH_E-SEEP	3/5/2020	Low Flow	3	1700	7.21	529	0.140	2.50	1190	0.00500	0.146	309	0.000220	0.000200	0.0200	0.0140	0.0000400	0.000219	0.000200	0.000260	0.00130
GH_E-SEEP	4/17/2020	Freshet	4	1790	-	510	0.130	2.50	1200	0.00500	0.044	332	0.000260	0.000440	0.0200	0.0258	0.0000400	0.000307	0.000430	0.000340	0.00170
GH_E-SEEP	2/12/2020	Low Flow	3	2090	7.64	565	0.100	2.50	1500	0.00500	0.025	403	0.000230	0.000180	0.0160	0.0131	0.0000200	0.000244	0.000100	0.000100	0.000970
GH_E-SEEP	6/8/2020	Freshet	3	2120	7.73	471	0.100	2.50	1570	0.00500	0.034	389	0.000200	0.000210	0.0230	0.0205	0.0000400	0.0000310	0.000200	0.000200	0.001000
GH_E-SEEP	5/15/2020	Freshet	3	2160	7.44	553	0.100	2.60	1530	0.00500	0.086	413	0.000230	0.000280	0.0220	0.0222	0.0000400	0.0000180	0.000200	0.000270	0.001000

Seep ID	**Sample Date**	**Flow Regime**	**# of parameters exceeding BCWQG**	**Hardness**	**pH**	**Alkalinity (as CaCO3)**	**Fluoride**	**Chloride**	**Sulfate**	**Nitrite, (as N)**	**Nitrate, (as N)**	**Calcium, Dissolved**	**Antimony, Total**	**Arsenic, Total**	**Boron, Total**	**Barium, Total**	**Beryllium, Total**	**Cadmium, Total**	**Chromium, Total**	**Cobalt, Total**	**Copper, Total**
				mg/l	*pH units*		*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
GH_E-SEEP	10/21/2020	Low Flow	2	2160	6.95	594	0.100	2.75	1350	0.00500	0.025	445	0.000200	0.000350	0.0240	0.0277	0.0000400	0.0000100	0.000200	0.00178	0.001000
GH_E-SEEP	9/6/2020	Low Flow	2	2230	7.11	478	0.100	1.00	1800	0.00500	0.025	411	0.000200	0.000250	0.0250	0.0165	0.0000400	0.0000100	0.000200	0.000200	0.001000
GH_E-SEEP	8/3/2020	Low Flow	2	2420	7.09	532	0.100	2.50	1740	0.00500	0.032	417	0.000200	0.000480	0.0280	0.0168	0.0000400	0.0000100	0.000200	0.000200	0.001000
GH_SEEP_12	6/25/2020	Freshet	2	222	7.80	219	0.342	0.500	22.3	0.00100	0.005	49.6	0.000100	0.000360	0.0100	0.117	0.0000200	0.0000577	0.000480	0.000100	0.000500
GH_SEEP_46	7/15/2020	Freshet	3	618	7.74	144	0.087	14.2	389	0.00100	5.94	147	0.000260	0.000370	0.0100	0.102	0.0000200	0.000423	0.000100	0.000100	0.000500
GH_SEEP_5	7/3/2020	Freshet	2	283	-	174	0.097	10.0	119	0.00100	0.701	68.7	0.000200	0.000390	0.0210	0.113	0.0000200	0.000167	0.000370	0.000960	0.000720
GH_SEEP_60	9/29/2020	Low Flow	6	2090	7.89	263	0.100	4.98	1720	0.00500	41.3	386	0.000210	0.000200	0.0200	0.0399	0.0000400	0.0000220	0.000330	0.000210	0.001000
GH_SEEP_76	6/26/2020	Freshet	6	1210	7.80	176	0.240	2.50	751	0.0322	103	266	0.00210	0.000370	0.0200	0.138	0.0000400	0.0000350	0.000200	0.00235	0.001000
GH_SEEP_77	6/26/2020	Freshet	7	1670	7.84	355	0.100	4.70	1240	0.00500	47.9	298	0.00221	0.000320	0.0360	0.0317	0.0000400	0.0000280	0.000200	0.00122	0.001000
GH_SEEP_79	6/26/2020	Freshet	1	200	8.21	322	0.524	74.6	70.6	0.00100	0.017	45.1	0.000250	0.000490	0.529	0.0876	0.0000470	0.0000727	0.000540	0.000670	0.00125
GH_WTDS	1/9/2020	Low Flow	2	535	8.65	365	0.150	15.3	169	0.00500	0.337	137	0.000180	0.000110	0.0530	0.0336	0.0000200	0.000500	0.000100	0.00201	0.000770
GH_WTDS	9/6/2020	Low Flow	2	537	7.75	310	0.170	15.4	183	0.00500	0.929	144	0.000120	0.000110	0.0470	0.0340	0.0000200	0.000513	0.000100	0.00162	0.000600
GH_WTDS	10/14/2020	Low Flow	2	555	7.86	362	0.120	15.4	156	0.00500	0.434	150	0.000120	0.000100	0.0480	0.0311	0.0000200	0.000434	0.000100	0.00161	0.000560
GH_WTDS	4/6/2020	Freshet	2	565	8.45	404	0.166	17.6	186	0.00100	0.451	147	0.000160	0.000120	0.0490	0.0315	0.0000200	0.000515	0.000100	0.00191	0.000700
GH_WTDS	8/12/2020	Low Flow	2	574	7.70	377	0.170	15.3	196	0.00500	1.43	148	0.000150	0.000170	0.0510	0.0418	0.0000200	0.000488	0.000100	0.00166	0.000790
GH_WTDS	5/13/2020	Freshet	2	576	8.19	359	0.201	11.9	213	0.00100	1.44	146	0.000240	0.000100	0.0460	0.0318	0.0000200	0.000478	0.000100	0.00161	0.000740
GH_WTDS	3/4/2020	Low Flow	2	589	8.27	354	0.216	17.5	178	0.00100	0.272	156	0.000170	0.000100	0.0540	0.0334	0.0000200	0.000485	0.000100	0.00189	0.000670
GH_WTDS	7/8/2020	Freshet	2	594	7.70	389	0.180	14.7	217	0.00500	2.93	157	0.000160	0.000100	0.0450	0.0306	0.0000200	0.000526	0.000100	0.00161	0.000810
GH_WTDS	2/12/2020	Low Flow	2	597	8.05	408	0.197	16.9	174	0.00100	0.331	165	0.000160	0.000100	0.0550	0.0337	0.0000200	0.000520	0.000100	0.00199	0.000690
LC_3KM	10/22/2020	Low Flow	1	306	8.23	342	0.079	1.90	27.4	0.00140	2.12	64.9	0.000370	0.000720	0.0280	0.604	0.0000450	0.000152	0.000440	0.000550	0.00208
LC_3KM	6/24/2020	Freshet	2	327	8.22	290	0.060	1.40	52.4	0.00960	2.66	78.7	0.000310	0.000280	0.0340	0.528	0.0000200	0.0000135	0.000100	0.000100	0.000500
LC_ERX	6/25/2020	Freshet	2	612	-	182	0.220	332	70.3	0.00500	0.032	152	0.000340	0.000730	0.0330	0.317	0.0000200	0.0000199	0.000360	0.000280	0.000870
LC_SEEP1	6/24/2020	Freshet	2	420	8.37	313	0.173	1.60	137	0.00140	0.322	105	0.000220	0.000170	0.0580	0.167	0.0000200	0.0000361	0.000100	0.000100	0.000500
LC_SEEP10	6/26/2020	Freshet	3	732	6.76	421	0.180	163	153	0.00500	0.025	202	0.000100	0.000310	0.0370	0.156	0.0000200	0.0000794	0.000100	0.00333	0.000500
LC_SEEP11	6/26/2020	Freshet	2	583	7.05	334	0.330	143	94.1	0.00500	0.491	148	0.000100	0.000110	0.0170	0.145	0.0000200	0.0000111	0.000100	0.000100	0.000500
LC_SEEP14	6/24/2020	Freshet	3	347	7.76	179	0.170	4.99	149	0.00100	7.74	79.1	0.000270	0.000120	0.0130	0.0328	0.0000200	0.000155	0.000170	0.000100	0.000500
LC_SEEP15	6/24/2020	Freshet	3	564	8.13	211	0.145	0.820	272	0.00100	7.45	132	0.000100	0.000220	0.0100	0.0514	0.0000200	0.0000362	0.000430	0.000100	0.000500
LC_SEEP19	6/24/2020	Freshet	2	317	7.67	167	0.167	0.500	141	0.00100	1.42	72.0	0.000170	0.000120	0.0100	0.0288	0.0000200	0.000105	0.000150	0.000100	0.000500
LC_SEEP19	10/22/2020	Low Flow	5	710	7.54	255	0.190	0.770	491	0.00500	5.69	156	0.000220	0.000180	0.0140	0.0665	0.0000200	0.000274	0.000280	0.000100	0.000500
LC_SEEP2	10/26/2020	Low Flow	1	230	7.47	208	0.196	0.400	27.2	0.00100	0.293	64.3	0.000100	0.000100	0.0100	0.117	0.0000200	0.0000189	0.000310	0.000100	0.000500
LC_SEEP2	6/24/2020	Freshet	3	291	7.56	241	0.158	6.75	31.0	0.00100	6.20	79.0	0.000100	0.000100	0.0100	0.151	0.0000200	0.0000201	0.000290	0.000100	0.000500
LC_SEEP8	6/23/2020	Freshet	1	209	8.35	238	0.140	0.500	0.300	0.00100	0.016	52.2	0.000270	0.000600	0.0100	0.175	0.0000200	0.0000487	0.000270	0.000190	0.000660
LC_UDHP	10/27/2020	Low Flow	4	484	7.42	162	0.100	16.5	192	0.00500	39.9	124	0.000390	0.000270	0.0100	0.458	0.0000200	0.000121	0.000140	0.000100	0.000500
LC_UDP1	10/27/2020	Low Flow	2	198	7.61	204	0.120	0.270	6.78	0.00100	0.076	55.9	0.000190	0.000340	0.0100	0.178	0.0000200	0.0000223	0.000390	0.000100	0.000500
LC_WLC_lot2	6/25/2020	Freshet	4	880	7.50	347	0.210	2.80	586	0.00500	8.39	177	0.000440	0.000180	0.0220	0.0182	0.0000200	0.00125	0.000100	0.000100	0.000800

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.259_2019_Seep_Monitoring_Report\2020 Data\Data Analysis\2020_BCWQGs_Screening_1CT017.259_SM_rev03.xlsx

Table 2: Seep BC Water Quality Guideline for Freshwater Aquatic Life Screening (2/6)

Seep ID	Sample Date	Flow Regime	Iron, Total	Lead, Total	Manganese, Total	Molybdenum, Total	Nickel, Total	Potassium, Total	Selenium, Total	Silver, Total	Thallium, Total	Uranium, Total	Vanadium, Total	Zinc, Total	Aluminum, Dissolved	Cadmium, Dissolved	Copper, Dissolved	Iron, Dissolved
			mg/l	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
CM_37PIT-SEEP-E	9/9/2020	Low Flow	0.509	0.0000500	0.0903	0.00139	0.0695	4.62	0.164	0.0000100	0.0000580	0.00590	0.000500	0.00300	0.00300	0.00000500	0.000200	0.0100
CM_37PIT-SEEP-E	6/17/2020	Freshet	1.15	0.0000500	0.401	0.00306	0.120	3.84	0.651	0.0000100	0.000125	0.00782	0.000500	0.0617	0.00300	0.000891	0.000480	1.12
CM_37PIT-SEEP-W	9/9/2020	Low Flow	0.404	0.0000500	0.146	0.00100	0.0678	4.32	0.088	0.0000100	0.0000430	0.00609	0.000500	0.00300	0.00300	0.00000500	0.000200	0.0100
CM_37PIT-SEEP-W	6/17/2020	Freshet	0.275	0.0000500	0.340	0.000701	0.104	4.02	0.328	0.0000100	0.000136	0.00441	0.000500	0.0567	0.00300	0.000690	0.000200	0.195
CM_CCDS	6/4/2020	Freshet	0.0100	0.0000500	0.000240	0.000889	0.000910	1.22	8.13	0.0000100	0.0000350	0.00130	0.000500	0.00420	0.00300	0.0000306	0.000200	0.0100
CM_CS1	9/9/2020	Low Flow	0.386	0.000302	0.0193	0.000748	0.00222	0.887	2.29	0.0000100	0.0000400	0.000620	0.000960	0.00860	0.00300	0.0000134	0.000230	0.0100
CM_CS1	6/2/2020	Freshet	0.0100	0.0000500	0.000150	0.000462	0.00101	0.735	9.01	0.0000100	0.0000150	0.000544	0.000500	0.00510	0.00300	0.0000124	0.000200	0.0100
CM_MM-SEEP1	9/9/2020	Low Flow	0.0100	0.0000500	0.00344	0.00103	0.00225	3.20	2.15	0.0000100	0.0000100	0.00213	0.000500	0.00300	0.00300	0.0000250	0.000270	0.0100
CM_MM-SEEP1	6/3/2020	Freshet	0.0100	0.0000500	0.00137	0.00106	0.00281	3.47	3.82	0.0000100	0.0000100	0.00306	0.000500	0.00300	0.00300	0.0000292	0.000230	0.0100
CM_MM-SEEP3	6/3/2020	Freshet	0.305	0.0000500	0.185	0.000324	0.00118	1.50	0.968	0.0000100	0.0000100	0.00133	0.000500	0.00300	0.00300	0.00000500	0.000280	0.0340
CM_MM-SEEP3	9/9/2020	Low Flow	0.0340	0.0000500	0.193	0.000405	0.00144	1.73	0.217	0.0000100	0.0000100	0.00135	0.000500	0.00300	0.00300	0.00000500	0.000200	0.0240
CM_MM-SEEP5	5/6/2020	Freshet	115	0.000383	7.98	0.0000890	2.04	1.97	6.73	0.0000180	0.000151	0.0358	0.00180	8.1	29.0	0.0364	0.457	88.9
CM_MM-SEEP5	6/3/2020	Freshet	49.8	0.000186	5.10	0.0000540	1.32	2.31	4.11	0.0000100	0.00012	0.0194	0.000500	4.8	16.1	0.0236	0.245	3.58
CM_MM-SEEP5	9/9/2020	Low Flow	12.5	0.000299	1.14	0.000102	0.383	2.15	1.04	0.0000100	0.0000980	0.00560	0.000500	1.2	0.0497	0.00510	0.00290	0.0950
CM_NS1	6/4/2020	Freshet	0.0160	0.0000500	0.00906	0.00123	0.00966	4.10	27.0	0.0000100	0.0000150	0.00576	0.000500	0.0168	0.00300	0.000149	0.000320	0.0260
CM_NS1	9/10/2020	Low Flow	0.0300	0.0000500	0.0150	0.00137	0.00996	4.84	14.2	0.0000100	0.0000180	0.00590	0.000500	0.0154	0.00300	0.000127	0.000400	0.0200
CM_NS4	6/4/2020	Freshet	0.0100	0.0000500	0.00117	0.00123	0.00640	4.22	21.2	0.0000100	0.0000160	0.00370	0.000500	0.00910	0.00300	0.000142	0.000210	0.0100
CM_NS4	9/10/2020	Low Flow	0.0100	0.0000500	0.00512	0.000767	0.00708	4.27	0.945	0.0000100	0.0000200	0.00216	0.000500	0.00530	0.00300	0.0000716	0.000200	0.0100
CM_NS7	6/4/2020	Freshet	0.0770	0.0000500	0.0291	0.00140	0.0114	4.58	19.0	0.0000100	0.0000130	0.00510	0.000500	0.0119	0.00350	0.0000651	0.000240	0.0190
CM_NS7	9/10/2020	Low Flow	0.292	0.0000520	0.195	0.00106	0.00913	4.04	6.72	0.0000100	0.0000100	0.00391	0.000500	0.00810	0.00300	0.0000250	0.000200	0.0240
CM_PLANT-SEEP1	9/9/2020	Low Flow	5.77	0.000112	0.472	0.000538	0.0105	2.92	0.094	0.0000100	0.0000150	0.00231	0.000500	0.0272	0.00300	0.00000500	0.000200	4.23
CM_PLANT-SEEP1	6/3/2020	Freshet	3.97	0.0000500	0.727	0.000712	0.0136	3.12	0.294	0.0000100	0.0000100	0.00206	0.000500	0.0291	0.00300	0.00000500	0.000200	3.70
CM_WD15	6/4/2020	Freshet	0.0210	0.0000500	0.00116	0.000781	0.0132	4.87	15.1	0.0000100	0.0000140	0.00639	0.000500	0.00670	0.00330	0.0000349	0.000200	0.0100
CM_WD15	9/10/2020	Low Flow	0.0200	0.0000500	0.00144	0.000728	0.0129	4.94	9.47	0.0000100	0.0000100	0.00727	0.000500	0.00300	0.00300	0.0000210	0.000400	0.0200
CM_WD18	6/3/2020	Freshet	0.0100	0.0000500	0.00132	0.000742	0.00663	3.88	45.9	0.0000100	0.0000180	0.00571	0.000500	0.0102	0.00300	0.000156	0.000410	0.0200
CM_WD18	9/10/2020	Low Flow	0.0190	0.0000500	0.00282	0.000630	0.00860	4.06	33.1	0.0000100	0.0000220	0.00813	0.000500	0.00690	0.00300	0.000111	0.000400	0.0200
CM_WD19	6/4/2020	Freshet	0.0820	0.0000500	0.0299	0.000771	0.00886	3.58	14.0	0.0000100	0.0000120	0.00266	0.000500	0.00970	0.00300	0.0000393	0.000200	0.0100
CM_WD19	9/10/2020	Low Flow	0.0950	0.0000500	0.0570	0.000596	0.00845	3.51	4.99	0.0000100	0.0000100	0.00195	0.000500	0.00460	0.00300	0.0000107	0.000200	0.0100
CM_WD4	6/4/2020	Freshet	0.0470	0.0000600	0.0104	0.000870	0.00454	1.99	24.6	0.0000100	0.0000130	0.00282	0.000500	0.0119	0.00600	0.000133	0.000230	0.0100
CM_WD4	9/10/2020	Low Flow	0.0180	0.0000500	0.00578	0.000725	0.00291	2.19	8.42	0.0000100	0.0000100	0.00236	0.000500	0.00930	0.00300	0.0000957	0.000200	0.0100
CM_WD7	6/3/2020	Freshet	0.0690	0.0000530	0.0138	0.000837	0.00472	1.89	35.9	0.0000100	0.0000100	0.00239	0.000500	0.0139	0.00300	0.000144	0.000380	0.0100
CM_WD7	9/10/2020	Low Flow	0.0460	0.0000540	0.0253	0.000562	0.00485	1.05	13.0	0.0000100	0.0000100	0.00252	0.000500	0.00970	0.00300	0.000106	0.000240	0.0100
CM_WD9	10/8/2020	Low Flow	0.0180	0.0000500	0.0117	0.000526	0.00257	2.47	3.65	0.0000100	0.0000100	0.00244	0.000500	0.00300	0.00300	0.0000175	0.000200	0.0110
EV_CN1	5/20/2020	Freshet	0.0100	0.0000500	0.000100	0.00391	0.00391	1.79	147	0.0000100	0.0000100	0.00443	0.000500	0.00430	0.00300	0.000134	0.000230	0.0100
EV_CN1	9/24/2020	Low Flow	0.0100	0.0000500	0.000100	0.00354	0.00573	2.11	179	0.0000100	0.0000140	0.00576	0.000570	0.00530	0.00300	0.000181	0.000200	0.0100

Seep ID	Sample Date	Flow Regime	Iron, Total	Lead, Total	Manganese, Total	Molybdenum, Total	Nickel, Total	Potassium, Total	Selenium, Total	Silver, Total	Thallium, Total	Uranium, Total	Vanadium, Total	Zinc, Total	Aluminum, Dissolved	Cadmium, Dissolved	Copper, Dissolved	Iron, Dissolved
EV_SEEP_10MILE5	6/18/2020	Freshet	0.346	0.000336	0.0110	0.000621	0.00155	1.70	43.1	0.0000100	0.0000100	0.00170	0.00107	0.00300	0.00300	0.0000195	0.000200	0.0100
EV_SEEP_10MILE9	6/18/2020	Freshet	0.417	0.000340	0.701	0.000170	0.00461	0.952	0.184	0.0000120	0.0000230	0.000175	0.00158	0.00950	0.00300	0.000789	0.000200	0.0100
EV_SEEP_BREAKERLAKE	5/20/2020	Freshet	0.101	0.000243	0.00489	0.00419	0.00475	1.83	136	0.0000100	0.0000170	0.00449	0.000670	0.00580	0.00300	0.000156	0.000260	0.0100
EV_SEEP_BREAKERLAKE	9/22/2020	Low Flow	0.513	0.000730	0.0679	0.00723	0.0111	2.53	94.9	0.0000210	0.0000470	0.00475	0.00181	0.0139	0.00300	0.000342	0.000610	0.0100
EV_SEEP_CFI1	5/21/2020	Freshet	0.404	0.0000500	0.0618	0.00205	0.00128	4.32	1.14	0.0000100	0.0000100	0.000451	0.000500	0.00380	0.00300	0.0000376	0.00187	0.312
EV_SEEP_CFI1	9/22/2020	Low Flow	1.57	0.000160	0.138	0.00153	0.00128	4.64	0.258	0.0000100	0.0000100	0.000320	0.000500	0.00700	0.00300	0.0000163	0.000270	0.667
EV_SEEP_ERICKSON1	10/8/2020	Low Flow	3.00	0.0000500	0.447	0.00212	0.00230	1.11	0.050	0.0000100	0.0000100	0.000167	0.000500	0.00300	0.00300	0.0000119	0.000200	2.91
EV_SEEP_ERICKSON1	5/20/2020	Freshet	2.89	0.0000500	0.422	0.00204	0.00210	1.09	0.050	0.0000100	0.0000130	0.000158	0.000500	0.00300	0.00300	0.00000900	0.000200	2.68
EV_SEEP_ERICKSON2	9/24/2020	Low Flow	0.705	0.000870	0.0368	0.0262	0.0317	6.10	381	0.0000420	0.000124	0.0121	0.00340	0.0852	0.00400	0.000256	0.00117	0.0100
EV_SEEP_ERICKSON2	5/27/2020	Freshet	0.161	0.000220	0.00890	0.0148	0.0428	5.93	593	0.0000200	0.0000500	0.0186	0.00130	0.0208	0.00300	0.000135	0.000830	0.0200
EV_SEEP_HOPPER2	5/20/2020	Freshet	0.102	0.000239	0.00638	0.0209	0.0424	14.8	432	0.0000100	0.0000250	0.00969	0.000500	0.0429	0.00360	0.000777	0.000760	0.0200
EV_SEEP_PLANT1	5/20/2020	Freshet	0.726	0.000561	0.0227	0.00189	0.00263	3.01	1.19	0.0000190	0.0000200	0.00107	0.00146	0.0370	0.00300	0.0000424	0.000770	0.0100
EV_SEEP_PLANT1	9/24/2020	Low Flow	22.3	0.0216	1.18	0.00713	0.0490	38.4	20.9	0.000459	0.000450	0.00198	0.0265	0.192	0.00560	0.00278	0.001000	0.0500
EV_SEEP_PLANT10	5/20/2020	Freshet	0.305	0.000397	0.0402	0.00123	0.000930	2.54	0.184	0.0000140	0.0000100	0.000182	0.000840	0.112	0.00300	0.00000500	0.000200	0.0120
EV_SEEP_PLANT10	10/8/2020	Low Flow	0.301	0.000187	0.0375	0.000107	0.000740	2.68	0.050	0.0000100	0.0000100	0.000185	0.000500	0.00650	0.00790	0.00000500	0.000200	0.0760
EV_SEEP_PLANT10	10/27/2020	Low Flow	0.258	0.000235	0.0446	0.000547	0.00121	2.44	0.255	0.0000100	0.0000100	0.000241	0.000500	0.00390	0.00300	0.00000500	0.000200	0.0560
EV_SEEP_PLANT11	5/20/2020	Freshet	0.0110	0.0000500	0.00267	0.000375	0.000860	3.12	0.518	0.0000100	0.0000100	0.000272	0.000500	0.00300	0.00300	0.0000165	0.000450	0.0100
EV_SEEP_PLANT11	9/24/2020	Low Flow	0.0210	0.0000500	0.0384	0.000318	0.00129	5.51	0.479	0.0000100	0.0000100	0.000111	0.000690	0.00320	0.00610	0.0000308	0.000860	0.0210
EV_SEEP_PLANT23	5/20/2020	Freshet	0.0100	0.0000500	0.000100	0.00109	0.00196	2.72	11.1	0.0000100	0.0000100	0.00172	0.000500	0.0540	0.00300	0.00000870	0.000700	0.0100
EV_SEEP_PLANT23	9/24/2020	Low Flow	0.0100	0.0000500	0.000110	0.00104	0.00214	3.02	7.63	0.0000100	0.0000100	0.00182	0.000680	0.0350	0.00300	0.00000850	0.000390	0.0100
EV_SEEP_SOUTHPIT3	6/17/2020	Freshet	0.0100	0.0000500	0.000100	0.00227	0.000810	0.784	6.90	0.0000100	0.0000100	0.000957	0.000650	0.00300	0.00300	0.0000322	0.000430	0.0100
EV_SEEP_SOUTHPIT4	10/8/2020	Low Flow	1.38	0.0000500	0.0505	0.00111	0.000500	6.31	0.126	0.0000100	0.0000100	0.000237	0.000660	0.00300	0.00300	0.00000500	0.000200	0.366
EV_SEEP_SOUTHPIT4	6/17/2020	Freshet	0.388	0.0000500	0.0632	0.00110	0.000500	6.27	0.119	0.0000100	0.0000100	0.000405	0.000500	0.00300	0.00300	0.00000500	0.000200	0.287
EV_SEEP_SOUTHPIT6	10/8/2020	Low Flow	0.501	0.001500	0.0228	0.00321	0.00310	4.19	207	0.0000200	0.0000290	0.00767	0.00130	0.0181	0.00300	0.000171	0.000510	0.0200
EV_SEEP_TURCON1	9/22/2020	Low Flow	0.150	0.0000500	0.0378	0.0000980	0.000500	2.38	0.087	0.0000100	0.0000100	0.0000910	0.000500	0.00300	0.00300	0.00000500	0.000200	0.134
EV_SEEP_TURCON1	6/3/2020	Freshet	0.105	0.0000500	0.0306	0.000149	0.000500	2.40	0.146	0.0000100	0.0000100	0.000123	0.000500	0.00300	0.00300	0.00000500	0.000200	0.103
EV_SPR12	8/26/2020	Low Flow	0.0260	0.0000500	0.00558	0.000518	0.000510	1.02	0.255	0.0000100	0.0000100	0.000275	0.000500	0.00300	0.00300	0.00000500	0.000350	0.0100
EV_SPR12	6/11/2020	Freshet	0.0220	0.0000500	0.00208	0.000320	0.000500	0.681	0.865	0.0000100	0.0000100	0.000345	0.000500	0.00300	0.00300	0.00000500	0.000330	0.0100
EV_SPR15	6/23/2020	Freshet	0.0130	0.0000500	0.00201	0.000713	0.000510	2.25	4.19	0.0000100	0.0000100	0.000582	0.000500	0.00300	0.00300	0.0000153	0.000200	0.0100
EV_SPR15	10/22/2020	Low Flow	0.154	0.000174	0.00675	0.000705	0.000660	2.75	3.55	0.0000100	0.0000100	0.000551	0.000500	0.00300	0.00300	0.0000190	0.000200	0.0100
EV_SPR15	2/24/2020	Low Flow	0.0540	0.0000500	0.00162	0.000637	0.000590	2.30	4.33	0.0000100	0.0000100	0.000473	0.000500	0.00300	0.00140	0.0000237	0.000370	0.0100
EV_SPR16	10/22/2020	Low Flow	1.20	0.0000610	1.23	0.00158	0.00504	3.32	0.141	0.0000100	0.000154	0.000713	0.000500	0.00420	0.00300	0.000270	0.000240	0.575
EV_SPR16	2/26/2020	Low Flow	1.76	0.0000500	0.519	0.00169	0.00171	2.69	0.096	0.0000100	0.0000750	0.000522	0.000500	0.00300	0.00110	0.00000510	0.000200	2.92
EV_SPR16	8/25/2020	Low Flow	1.96	0.0000500	1.13	0.00159	0.00654	3.76	0.216	0.0000100	0.000331	0.000825	0.000500	0.00300	0.00300	0.000129	0.000200	1.02
EV_SPR1B	6/11/2020	Freshet	0.0180	0.0000500	0.00362	0.000501	0.00103	2.13	13.1	0.0000100	0.0000100	0.00162	0.000500	0.00300	0.00300	0.0000157	0.000220	0.0100
EV_SPR1B	2/26/2020	Low Flow	0.0170	0.0000500	0.000780	0.000647	0.00100	1.82	3.35	0.0000100	0.0000100	0.00168	0.000500	0.00410	0.00100	0.0000119	0.000230	0.0100
EV_SPR1B	10/22/2020	Low Flow	0.0340	0.0000500	0.00203	0.000535	0.000950	2.37	0.814	0.0000100	0.0000100	0.00160	0.000500	0.00300	0.00300	0.0000167	0.000210	0.0100

Seep ID	Sample Date	Flow Regime	Iron, Total	Lead, Total	Manganese, Total	Molybdenum, Total	Nickel, Total	Potassium, Total	Selenium, Total	Silver, Total	Thallium, Total	Uranium, Total	Vanadium, Total	Zinc, Total	Aluminum, Dissolved	Cadmium, Dissolved	Copper, Dissolved	Iron, Dissolved
EV_SPR1B	8/26/2020	Low Flow	0.0880	0.0000700	0.00624	0.000573	0.00148	2.13	0.773	0.0000100	0.0000100	0.00200	0.000500	0.00320	0.00300	0.0000218	0.000200	0.0190
EV_SPR2	6/10/2020	Freshet	0.0280	0.0000500	0.00880	0.000731	0.000530	1.82	6.5	0.0000100	0.0000100	0.000908	0.000500	0.0201	0.00300	0.0000517	0.000200	0.0110
EV_SPR2	7/7/2020	Freshet	0.0120	0.0000500	0.00534	0.000720	0.000530	1.89	5.8	0.0000100	0.0000100	0.000955	0.000500	0.00300	0.00300	0.0000575	0.000440	0.0130
EV_SPR2	2/5/2020	Low Flow	0.0290	0.0000500	0.00688	0.000623	0.000690	1.86	8.5	0.0000100	0.0000100	0.000932	0.000500	0.00300	0.00300	0.0000742	0.000330	0.0100
EV_SPR2	4/6/2020	Freshet	0.139	0.000102	0.0339	0.000844	0.000880	2.72	7.1	0.0000100	0.0000100	0.000932	0.000540	0.00300	0.00300	0.0000454	0.000250	0.0240
EV_SPR2	3/3/2020	Low Flow	0.0400	0.0000500	0.0158	0.000883	0.000890	7.00	7.9	0.0000100	0.0000100	0.00102	0.000500	0.00390	0.00300	0.0000732	0.000620	0.0190
EV_SPR2	5/4/2020	Freshet	0.138	0.000284	0.0113	0.000575	0.000800	1.88	8.8	0.0000100	0.0000100	0.000965	0.000590	0.00300	0.00300	0.0000561	0.000200	0.0140
EV_SPR2	9/2/2020	Low Flow	0.0100	0.0000500	0.00347	0.000700	0.000610	2.13	7.5	0.0000100	0.0000100	0.00107	0.000500	0.00300	0.00300	0.0000512	0.000200	0.0100
EV_SPR2	10/8/2020	Low Flow	0.0130	0.0000500	0.0120	0.000670	0.000570	2.37	8.0	0.0000100	0.0000100	0.00106	0.000500	0.00300	0.00300	0.0000631	0.000200	0.0100
EV_SPR2	8/6/2020	Low Flow	0.0160	0.0000500	0.00706	0.000708	0.000550	2.12	6.3	0.0000100	0.0000100	0.000937	0.000500	0.00300	0.00300	0.0000481	0.000200	0.0100
EV_SPR3	6/11/2020	Freshet	1.62	0.000389	0.0600	0.0000500	0.00153	3.49	0.111	0.0000100	0.0000100	0.000545	0.000540	0.0164	0.00300	0.00000500	0.000200	1.50
EV_WLAGC	9/24/2020	Low Flow	1.08	0.0000500	0.565	0.00731	0.00147	1.69	0.050	0.0000100	0.000105	0.000627	0.000890	0.00300	0.00300	0.00000500	0.000200	0.396
FR_ASPSEEP1	6/12/2020	Freshet	0.0100	0.0000500	0.000130	0.000987	0.000990	2.92	79.5	0.0000100	0.0000100	0.00274	0.000500	0.00750	0.00300	0.000146	0.000810	0.0100
FR_ASPSEEP1	10/26/2020	Low Flow	0.0250	0.0000500	0.0434	0.00189	0.00770	4.25	99.4	0.0000100	0.0000250	0.00498	0.000500	0.00920	0.00300	0.000230	0.000750	0.0100
FR_BLAINESEEP1	6/12/2020	Freshet	0.0200	0.000100	0.0173	0.00314	0.0601	6.07	490	0.0000200	0.0000360	0.0267	0.001000	0.0248	0.00300	0.000485	0.000800	0.0100
FR_BLAINESEEP1	10/26/2020	Low Flow	0.0200	0.000100	0.0151	0.00347	0.0625	6.05	494	0.0000200	0.0000380	0.0321	0.001000	0.00600	0.00300	0.0000370	0.000410	0.0200
FR_BLAINESEEP5	6/12/2020	Freshet	0.428	0.000400	0.0670	0.00293	0.00810	6.44	204	0.0000200	0.0000430	0.0249	0.00370	0.0119	0.00300	0.0000822	0.000710	0.0100
FR_BLAKESEEP1	6/12/2020	Freshet	0.254	0.000249	0.00948	0.00379	0.00799	2.75	105	0.0000100	0.0000120	0.00275	0.000650	0.00480	0.00440	0.0000779	0.000490	0.0100
FR_CCSEEPE1	5/21/2020	Freshet	0.0460	0.0000860	0.00314	0.00412	0.0480	6.57	190	0.0000100	0.0000380	0.0125	0.000500	0.0494	0.00300	0.000856	0.000400	0.0100
FR_CCSEEPE1	6/24/2020	Freshet	0.0100	0.0000500	0.000120	0.00424	0.0457	6.87	-	0.0000100	0.0000420	0.0123	0.000500	0.0468	0.00300	0.000930	0.000470	0.0100
FR_CCSEEPE1	6/11/2020	Freshet	0.0100	0.0000500	0.000100	0.00442	0.0473	6.98	200	0.0000100	0.0000450	0.0129	0.000500	0.0503	0.00300	0.000904	0.000390	0.0100
FR_CCSEEPE1	8/19/2020	Low Flow	0.0100	0.0000500	0.000100	0.00404	0.0546	6.95	-	0.0000100	0.0000470	0.0152	0.000500	0.0504	0.00300	0.000964	0.000380	0.0100
FR_CCSEEPE1	7/29/2020	Low Flow	0.0100	0.0000500	0.000100	0.00403	0.0492	6.75	195	0.0000100	0.0000460	0.0140	0.000500	0.0510	0.00300	0.00103	0.00103	0.0100
FR_CCSEEPE1	8/24/2020	Low Flow	0.0500	0.000250	0.000500	0.00358	0.0552	6.62	-	0.0000500	0.0000500	0.0135	0.00250	0.0530	0.00500	0.00112	0.001000	0.0500
FR_CCSEEPE1	9/2/2020	Low Flow	0.0100	0.0000500	0.000300	0.00391	0.0658	7.00	-	0.0000100	0.0000480	0.0169	0.000500	0.0579	0.00100	0.00120	0.000500	0.0100
FR_CCSEEPE1	9/18/2020	Low Flow	0.0500	0.00293	0.000500	0.00368	0.0755	7.41	-	0.0000500	0.0000530	0.0169	0.00250	0.103	0.00500	0.00122	0.001000	0.0500
FR_CCSEEPE1	10/2/2020	Low Flow	0.0500	0.000250	0.000500	0.00360	0.0753	6.63	-	0.0000500	0.0000520	0.0156	0.00250	0.0810	0.00500	0.00116	0.001000	0.0500
FR_CCSEEPE1	9/28/2020	Low Flow	0.0500	0.000250	0.000500	0.00375	0.0737	6.66	-	0.0000500	0.0000500	0.0164	0.00250	0.0610	0.00500	0.00109	0.001000	0.0500
FR_CCSEEPE1	10/26/2020	Low Flow	0.0500	0.000250	0.000500	0.00390	0.0669	7.13	242	0.0000500	0.0000500	0.0166	0.00250	0.0410	0.00100	0.000791	0.000520	0.0100
FR_CCSEEPE1	10/16/2020	Low Flow	0.0500	0.000250	0.000500	0.00364	0.0734	7.05	-	0.0000500	0.0000500	0.0167	0.00250	0.0590	0.00500	0.00122	0.001000	0.0500
FR_CCSEEPE1	4/27/2020	Freshet	0.0200	0.000100	0.000550	0.00449	0.0635	7.08	238	0.0000200	0.0000460	0.0158	0.001000	0.0650	0.00480	0.000980	0.000440	0.0100
FR_CCSEEPE1	9/25/2020	Low Flow	0.0500	0.000250	0.000500	0.00381	0.0747	7.06	-	0.0000500	0.0000500	0.0167	0.00250	0.0640	0.00500	0.00123	0.001000	0.0500
FR_CCSEEPE1	11/2/2020	Low Flow	0.0500	0.000250	0.000500	0.00369	0.0715	7.30	247	0.0000500	0.0000500	0.0167	0.00250	0.0500	0.00500	0.000752	0.001000	0.0500
FR_CCSEEPE1	9/11/2020	Low Flow	0.0100	0.0000500	0.000100	0.00338	0.0728	7.51	-	0.0000100	0.0000450	0.0140	0.000500	0.0633	0.00100	0.00130	0.000500	0.0100
FR_CCSEEPE1	9/21/2020	Low Flow	0.0100	0.0000500	0.000100	0.00355	0.0733	7.02	-	0.0000100	0.0000480	0.0179	0.000500	0.0624	0.00120	0.00129	0.000540	0.0100
FR_CCSEEPE1	9/9/2020	Low Flow	0.0100	0.0000500	0.000100	0.00375	0.0634	7.20	203	0.0000100	0.0000630	0.0157	0.000500	0.0619	0.00300	0.00125	0.000510	0.0100
FR_CCSEEPE1	10/9/2020	Low Flow	0.0500	0.000250	0.000500	0.00353	0.0758	6.63	-	0.0000500	0.0000500	0.0156	0.00250	0.0650	0.00500	0.00134	0.001000	0.0500

Seep ID	Sample Date	Flow Regime	Iron, Total	Lead, Total	Manganese, Total	Molybdenum, Total	Nickel, Total	Potassium, Total	Selenium, Total	Silver, Total	Thallium, Total	Uranium, Total	Vanadium, Total	Zinc, Total	Aluminum, Dissolved	Cadmium, Dissolved	Copper, Dissolved	Iron, Dissolved
FR_CCSEEPE1	10/19/2020	Low Flow	0.0500	0.000250	0.000500	0.00391	0.0716	7.09	234	0.0000500	0.0000500	0.0173	0.00250	0.0560	0.00500	0.00106	0.001000	0.0500
FR_CCSEEPE1	9/14/2020	Low Flow	0.0500	0.000250	0.000500	0.00367	0.0727	7.28	-	0.0000500	0.0000670	0.0181	0.00250	0.0650	0.00500	0.00126	0.001000	0.0500
FR_CCSEEPE1	4/20/2020	Freshet	0.0200	0.000100	0.000200	0.00419	0.0752	7.67	209	0.0000200	0.0000550	0.0179	0.001000	0.0641	0.00300	0.000761	0.000400	0.0200
FR_CCSEEPE1	4/22/2020	Freshet	0.0200	0.000100	0.000210	0.00416	0.0743	7.87	230	0.0000200	0.0000500	0.0187	0.001000	0.0650	0.00300	0.000870	0.000400	0.0200
FR_CCSEEPE1	4/24/2020	Freshet	0.0200	0.000100	0.000270	0.00398	0.0707	7.58	221	0.0000200	0.0000510	0.0178	0.001000	0.0634	0.00300	0.000987	0.000400	0.0200
FR_CCSEEPE1	4/17/2020	Freshet	0.0200	0.000100	0.000200	0.00408	0.0789	8.02	222	0.0000200	0.0000560	0.0194	0.001000	0.0560	0.00300	0.000517	0.000400	0.0200
FR_CCSEEPE1	4/13/2020	Freshet	0.0200	0.000100	0.000200	0.00490	0.0840	8.26	208	0.0000200	0.0000490	0.0210	0.001000	0.0304	0.00300	0.000186	0.000400	0.0200
FR_CCSEEPE1	3/13/2020	Low Flow	0.0620	0.000280	0.001000	0.00462	0.0921	8.49	214	0.0000500	0.0000770	0.0246	0.00250	0.0310	0.00500	0.000163	0.001000	0.0500
FR_CCSEEPE1	3/18/2020	Freshet	0.0100	0.0000500	0.000270	0.00431	0.0911	8.93	232	0.0000140	0.0000610	0.0242	0.000500	0.0292	0.00500	0.000153	0.001000	0.0500
FR_CCSEEPE1	2/24/2020	Low Flow	0.0500	0.000250	0.000500	0.00451	0.0946	8.81	-	0.0000500	0.0000570	0.0235	0.00250	0.0320	0.00500	0.000165	0.001000	0.0500
FR_CCSEEPE1	3/30/2020	Freshet	0.0200	0.000100	0.000200	0.00410	0.0851	8.42	251	0.0000200	0.0000530	0.0225	0.001000	0.0249	0.00300	0.000112	0.000410	0.0200
FR_CCSEEPE1	4/6/2020	Freshet	0.0200	0.000100	0.000200	0.00465	0.0886	9.20	221	0.0000200	0.0000530	0.0248	0.001000	0.0267	0.00300	0.000113	0.000400	0.0200
FR_CCSEEPE1	3/21/2020	Freshet	0.0200	0.000100	0.000200	0.00443	0.0952	9.05	226	0.0000200	0.0000580	0.0249	0.001000	0.0303	0.00300	0.000124	0.000270	0.0100
FR_CCSEEPE3	10/26/2020	Low Flow	0.0500	0.000250	0.000500	0.00229	0.0202	2.87	91.5	0.0000500	0.0000500	0.00591	0.00250	0.0210	0.00100	0.000656	0.000530	0.0100
FR_CCSEEPE3	8/19/2020	Low Flow	0.0100	0.0000500	0.000100	0.00313	0.0244	3.47	-	0.0000100	0.0000270	0.00697	0.000500	0.0246	0.00300	0.000653	0.000500	0.0100
FR_CCSEEPE3	9/28/2020	Low Flow	0.0500	0.000250	0.000500	0.00265	0.0235	2.90	-	0.0000500	0.0000500	0.00650	0.00250	0.0250	0.00500	0.000696	0.001000	0.0500
FR_CCSEEPE3	8/24/2020	Low Flow	0.0500	0.000250	0.000500	0.00258	0.0225	3.14	-	0.0000500	0.0000500	0.00644	0.00250	0.0240	0.00500	0.000687	0.001000	0.0500
FR_CCSEEPE3	10/2/2020	Low Flow	0.0500	0.000250	0.000500	0.00265	0.0234	2.94	-	0.0000500	0.0000500	0.00640	0.00250	0.0250	0.00500	0.000697	0.001000	0.0500
FR_CCSEEPE3	9/14/2020	Low Flow	0.0100	0.000102	0.000100	0.00276	0.0245	3.31	-	0.0000100	0.0000270	0.00739	0.000500	0.0248	0.00100	0.000705	0.000490	0.0100
FR_CCSEEPE3	10/9/2020	Low Flow	0.0100	0.0000500	0.000100	0.00255	0.0229	2.86	-	0.0000100	0.0000250	0.00628	0.000500	0.0238	0.00100	0.000716	0.000480	0.0100
FR_CCSEEPE3	10/16/2020	Low Flow	0.0100	0.0000500	0.000220	0.00257	0.0233	3.09	-	0.0000100	0.0000290	0.00668	0.000500	0.0255	0.00100	0.000733	0.000480	0.0100
FR_CCSEEPE3	9/18/2020	Low Flow	0.0140	0.0000500	0.000960	0.00289	0.0275	3.70	-	0.0000100	0.0000320	0.00793	0.000500	0.0267	0.00100	0.000769	0.000520	0.0100
FR_CCSEEPE3	9/11/2020	Low Flow	0.0100	0.0000500	0.000380	0.00277	0.0267	3.68	-	0.0000100	0.0000230	0.00671	0.000500	0.0240	0.00100	0.000767	0.000500	0.0100
FR_CCSEEPE3	10/19/2020	Low Flow	0.0100	0.0000500	0.000140	0.00259	0.0226	3.06	102	0.0000100	0.0000270	0.00677	0.000510	0.0229	0.00100	0.000747	0.000510	0.0100
FR_CCSEEPE3	11/2/2020	Low Flow	0.0100	0.0000500	0.000360	0.00293	0.0236	3.57	119	0.0000100	0.0000260	0.00758	0.000500	0.0235	0.00100	0.000745	0.000420	0.0100
FR_CCSEEPE3	9/21/2020	Low Flow	0.0100	0.0000780	0.000300	0.00274	0.0261	3.36	-	0.0000100	0.0000290	0.00752	0.000500	0.0242	0.00100	0.000807	0.000520	0.0100
FR_CCSEEPE3	8/31/2020	Low Flow	0.0100	0.0000500	0.000100	0.00324	0.0283	3.97	-	0.0000100	0.0000330	0.00841	0.000500	0.0271	0.00100	0.000808	0.000510	0.0100
FR_CCSEEPE3	6/24/2020	Freshet	0.0100	0.0000500	0.000150	0.00369	0.0273	4.47	140	0.0000100	0.0000300	0.00842	0.000500	0.0239	0.00300	0.000704	0.000510	0.0100
FR_CCSEEPE3	9/25/2020	Low Flow	0.0100	0.0000500	0.000270	0.00293	0.0265	3.52	-	0.0000100	0.0000280	0.00774	0.000500	0.0245	0.00100	0.000807	0.000470	0.0100
FR_CCSEEPE3	5/21/2020	Freshet	0.0100	0.0000500	0.000170	0.00374	0.0268	3.79	133	0.0000100	0.0000290	0.00807	0.000500	0.0251	0.00300	0.000756	0.000530	0.0100
FR_CCSEEPE3	4/4/2020	Freshet	0.0100	0.0000500	0.000230	0.00282	0.0228	3.07	91.7	0.0000100	0.0000240	0.00825	0.000500	0.0238	0.00300	0.000688	0.000400	0.0100
FR_CCSEEPE3	8/27/2020	Low Flow	0.0100	0.0000500	0.000100	0.00324	0.0281	3.93	-	0.0000100	0.0000290	0.00804	0.000500	0.0260	0.00100	0.000855	0.000530	0.0100
FR_CCSEEPE3	4/6/2020	Freshet	0.0100	0.0000500	0.000230	0.00265	0.0254	3.47	103	0.0000100	0.0000280	0.00869	0.000500	0.0254	0.00300	0.000817	0.000430	0.0100
FR_CCSEEPE3	3/18/2020	Freshet	0.0100	0.0000650	0.000250	0.00256	0.0248	3.15	93.1	0.0000130	0.0000550	0.00920	0.000500	0.0252	0.00100	0.000827	0.000580	0.0100
FR_CCSEEPE3	4/27/2020	Freshet	0.0100	0.0000500	0.000100	0.00344	0.0315	3.99	143	0.0000100	0.0000340	0.0111	0.000500	0.0326	0.00300	0.000884	0.000540	0.0100
FR_CCSEEPE3	4/8/2020	Freshet	0.0100	0.0000500	0.000250	0.00277	0.0271	3.62	115	0.0000100	0.0000300	0.00929	0.000500	0.0287	0.00300	0.000868	0.000380	0.0100
FR_CCSEEPE3	3/21/2020	Freshet	0.0100	0.0000500	0.000500	0.00262	0.0280	3.41	102	0.0000100	0.0000300	0.00963	0.000500	0.0282	0.00300	0.000796	0.000410	0.0100

Seep ID	Sample Date	Flow Regime	Iron, Total	Lead, Total	Manganese, Total	Molybdenum, Total	Nickel, Total	Potassium, Total	Selenium, Total	Silver, Total	Thallium, Total	Uranium, Total	Vanadium, Total	Zinc, Total	Aluminum, Dissolved	Cadmium, Dissolved	Copper, Dissolved	Iron, Dissolved
FR_CCSEEPE3	2/24/2020	Low Flow	0.0100	0.0000500	0.000230	0.00254	0.0260	3.37	-	0.0000100	0.0000270	0.00895	0.000500	0.0265	0.00100	0.000897	0.000560	0.0100
FR_CCSEEPE3	3/13/2020	Low Flow	0.0100	0.0000500	0.000330	0.00271	0.0257	3.25	98.1	0.0000100	0.0000270	0.00953	0.000500	0.0267	0.00100	0.000886	0.000440	0.0100
FR_CCSEEPE3	4/20/2020	Freshet	0.0100	0.0000500	0.000100	0.00338	0.0297	3.82	120	0.0000100	0.0000330	0.00980	0.000500	0.0311	0.00300	0.000941	0.000460	0.0100
FR_CCSEEPE3	4/14/2020	Freshet	0.0100	0.0000500	0.000120	0.00319	0.0287	3.71	125	0.0000100	0.0000270	0.00902	0.000500	0.0298	0.00300	0.000886	0.000430	0.0100
FR_CCSEEPE3	4/12/2020	Freshet	0.0100	0.0000500	0.000100	0.00287	0.0253	3.31	104	0.0000100	0.0000280	0.00883	0.000500	0.0260	0.00300	0.000841	0.000500	0.0100
FR_CCSEEPE3	4/10/2020	Freshet	0.0100	0.0000500	0.000180	0.00292	0.0288	3.73	109	0.0000100	0.0000290	0.00986	0.000500	0.0280	0.00300	0.000858	0.000500	0.0100
FR_CCSEEPE3	4/17/2020	Freshet	0.0100	0.0000500	0.000220	0.00300	0.0305	3.84	112	0.0000100	0.0000320	0.0105	0.000500	0.0329	0.00300	0.000943	0.000450	0.0100
FR_CCSEEPE3	4/16/2020	Freshet	0.0100	0.0000500	0.000120	0.00316	0.0291	3.85	126	0.0000100	0.0000340	0.0104	0.000500	0.0309	0.00300	0.000862	0.000450	0.0100
FR_CCSEEPE3	4/2/2020	Freshet	0.0120	0.0000500	0.000740	0.00322	0.0422	4.36	129	0.0000100	0.0000380	0.0122	0.000500	0.0289	0.00300	0.000866	0.000520	0.0120
FR_CCSEEPE3	4/24/2020	Freshet	0.0100	0.0000500	0.000380	0.00360	0.0308	4.08	149	0.0000100	0.0000320	0.0107	0.000500	0.0312	0.00300	0.000958	0.000490	0.0100
FR_CCSEEPE3	4/22/2020	Freshet	0.0100	0.0000500	0.000380	0.00369	0.0327	4.31	148	0.0000100	0.0000350	0.0116	0.000500	0.0331	0.00300	0.000974	0.000510	0.0100
FR_CCSEEPE3	3/31/2020	Freshet	0.0130	0.0000500	0.000860	0.00285	0.0441	4.38	121	0.0000100	0.0000380	0.0115	0.000500	0.0293	0.00300	0.000792	0.000390	0.0100
FR_CCSEEPE3	3/27/2020	Freshet	0.0180	0.0000500	0.000920	0.00318	0.0491	5.05	130	0.0000100	0.0000420	0.0134	0.000500	0.0335	0.00100	0.000938	0.000470	0.0140
FR_CCSEEPE3	3/25/2020	Freshet	0.0280	0.0000500	0.00130	0.00301	0.0542	5.40	129	0.0000100	0.0000460	0.0139	0.000500	0.0370	0.00300	0.000886	0.000340	0.0160
FR_CCSEEPE3	3/29/2020	Freshet	0.0140	0.0000500	0.000740	0.00310	0.0458	4.94	124	0.0000100	0.0000400	0.0131	0.000500	0.0332	0.00100	0.000855	0.000490	0.0100
FR_CCSEEPSE1	9/3/2020	Low Flow	0.0200	0.000100	0.00333	0.00534	0.0747	6.05	381	0.0000200	0.0000560	0.0194	0.001000	0.165	0.00300	0.00151	0.000650	0.0200
FR_CCSEEPSE1	6/11/2020	Freshet	0.182	0.000168	0.0210	0.00639	0.0590	6.39	456	0.0000100	0.0000470	0.0177	0.000730	0.103	0.00300	0.00132	0.000630	0.0100
FR_CCSEEPSE4	5/21/2020	Freshet	0.0170	0.0000550	0.00150	0.00350	0.0532	6.54	180	0.0000100	0.0000420	0.0111	0.000500	0.0197	0.00300	0.000264	0.000390	0.0100
FR_CCSEEPSE4	6/24/2020	Freshet	0.0100	0.0000500	0.00103	0.00339	0.0672	7.19	-	0.0000100	0.0000440	0.0129	0.000500	0.0268	0.00300	0.000355	0.000340	0.0100
FR_CCSEEPSE4	7/29/2020	Low Flow	0.0100	0.0000500	0.000980	0.00325	0.0758	7.01	202	0.0000100	0.0000460	0.0151	0.000500	0.0330	0.00300	0.000431	0.000890	0.0100
FR_CCSEEPSE4	3/29/2020	Freshet	0.0500	0.000250	0.000530	0.00468	0.116	9.97	201	0.0000500	0.0000720	0.0249	0.00250	0.0260	0.00500	0.000267	0.001000	0.0500
FR_CCSEEPSE4	2/24/2020	Low Flow	0.0500	0.000250	0.000500	0.00429	0.122	10.1	-	0.0000500	0.0000670	0.0247	0.00250	0.0150	0.00500	0.000107	0.001000	0.0500
FR_CCSEEPSE5	5/21/2020	Freshet	0.0100	0.0000500	0.000730	0.00361	0.0609	6.70	193	0.0000100	0.0000490	0.0113	0.000500	0.0316	0.00300	0.000541	0.000460	0.0100
FR_CCSEEPSE5	4/27/2020	Freshet	0.0100	0.0000500	0.000160	0.00392	0.0679	7.46	181	0.0000100	0.0000580	0.0133	0.000500	0.0428	0.00300	0.000648	0.000550	0.0100
FR_CCSEEPSE5	4/20/2020	Freshet	0.0100	0.0000500	0.000120	0.00442	0.0735	7.81	173	0.0000100	0.0000580	0.0132	0.000500	0.0350	0.00300	0.000625	0.000490	0.0100
FR_CCSEEPSE5	4/22/2020	Freshet	0.0100	0.0000500	0.000170	0.00425	0.0741	7.67	176	0.0000100	0.0000620	0.0139	0.000500	0.0360	0.00300	0.000669	0.000620	0.0100
FR_CCSEEPSE5	6/24/2020	Freshet	0.0100	0.0000500	0.000960	0.00334	0.0698	7.17	-	0.0000100	0.0000480	0.0133	0.000500	0.0393	0.00300	0.000717	0.000470	0.0100
FR_CCSEEPSE5	4/24/2020	Freshet	0.0100	0.0000500	0.000130	0.00430	0.0719	7.55	201	0.0000100	0.0000590	0.0142	0.000500	0.0367	0.00300	0.000699	0.000560	0.0100
FR_CCSEEPSE5	4/17/2020	Freshet	0.0100	0.0000500	0.000170	0.00442	0.0802	8.49	209	0.0000100	0.0000670	0.0175	0.000500	0.0389	0.00300	0.000654	0.000490	0.0100
FR_CCSEEPSE5	8/19/2020	Low Flow	0.0100	0.0000500	0.00110	0.00340	0.0949	7.41	-	0.0000100	0.0000590	0.0166	0.000500	0.0584	0.00300	0.000894	0.000460	0.0100
FR_CCSEEPSE5	9/18/2020	Low Flow	0.0500	0.000250	0.00179	0.00298	0.0944	7.14	-	0.0000500	0.0000590	0.0161	0.00250	0.0580	0.00500	0.00105	0.001000	0.0500
FR_CCSEEPSE5	4/6/2020	Freshet	0.0200	0.000100	0.000200	0.00465	0.0977	9.24	196	0.0000200	0.0000690	0.0180	0.001000	0.0354	0.00300	0.000635	0.000470	0.0100
FR_CCSEEPSE5	4/12/2020	Freshet	0.0100	0.0000500	0.000180	0.00461	0.0957	9.36	199	0.0000100	0.0000630	0.0182	0.000500	0.0353	0.00300	0.000660	0.000550	0.0100
FR_CCSEEPSE5	4/4/2020	Freshet	0.0200	0.000100	0.000200	0.00506	0.102	9.53	209	0.0000200	0.0000660	0.0202	0.001000	0.0385	0.00300	0.000688	0.000500	0.0100
FR_CCSEEPSE5	4/14/2020	Freshet	0.0200	0.000100	0.000200	0.00468	0.0928	8.79	206	0.0000200	0.0000630	0.0161	0.001000	0.0411	0.00300	0.000676	0.000460	0.0100
FR_CCSEEPSE5	4/16/2020	Freshet	0.0100	0.000050	0.000170	0.00464	0.0869	8.88	225	0.0000100	0.0000710	0.0199	0.000500	0.0383	0.00300	0.000629	0.000470	0.0100
FR_CCSEEPSE5	4/8/2020	Freshet	0.0200	0.000100	0.000200	0.00467	0.102	9.29	228	0.0000200	0.0000770	0.0182	0.001000	0.0389	0.00300	0.000677	0.000450	0.0100

Seep ID	Sample Date	Flow Regime	Iron, Total	Lead, Total	Manganese, Total	Molybdenum, Total	Nickel, Total	Potassium, Total	Selenium, Total	Silver, Total	Thallium, Total	Uranium, Total	Vanadium, Total	Zinc, Total	Aluminum, Dissolved	Cadmium, Dissolved	Copper, Dissolved	Iron, Dissolved
FR_CCSEEPSE5	8/24/2020	Low Flow	0.0500	0.000250	0.000830	0.00278	0.0969	7.07	-	0.0000500	0.0000510	0.0152	0.00250	0.0630	0.00500	0.001000	0.001000	0.0500
FR_CCSEEPSE5	9/11/2020	Low Flow	0.0100	0.0000500	0.00159	0.00282	0.0978	7.52	-	0.0000100	0.0000490	0.0138	0.000500	0.0601	0.00100	0.00107	0.000520	0.0100
FR_CCSEEPSE5	10/2/2020	Low Flow	0.0500	0.000250	0.000860	0.00301	0.102	6.89	-	0.0000500	0.0000590	0.0158	0.00250	0.0640	0.00500	0.00105	0.001000	0.0500
FR_CCSEEPSE5	9/25/2020	Low Flow	0.0500	0.000250	0.000970	0.00319	0.0974	7.11	-	0.0000500	0.0000560	0.0164	0.00250	0.0610	0.00500	0.00111	0.001000	0.0500
FR_CCSEEPSE5	4/10/2020	Freshet	0.0100	0.0000500	0.000120	0.00455	0.0920	8.85	193	0.0000100	0.0000670	0.0186	0.000500	0.0320	0.00300	0.000679	0.000460	0.0100
FR_CCSEEPSE5	4/2/2020	Freshet	0.0100	0.0000500	0.000210	0.00487	0.101	8.93	217	0.0000100	0.0000780	0.0198	0.000500	0.0354	0.00300	0.000690	0.000480	0.0100
FR_CCSEEPSE5	10/16/2020	Low Flow	0.0500	0.000250	0.000650	0.00329	0.0980	7.28	-	0.0000500	0.0000560	0.0173	0.00250	0.0370	0.00500	0.000521	0.001000	0.0500
FR_CCSEEPSE5	9/21/2020	Low Flow	0.0100	0.0000500	0.00113	0.00303	0.0944	7.22	-	0.0000100	0.0000550	0.0172	0.000500	0.0576	0.00100	0.00109	0.000630	0.0100
FR_CCSEEPSE5	9/28/2020	Low Flow	0.0500	0.000250	0.000890	0.00305	0.0973	6.92	-	0.0000500	0.0000550	0.0165	0.00250	0.0600	0.00500	0.00101	0.001000	0.0500
FR_CCSEEPSE5	9/14/2020	Low Flow	0.0500	0.000250	0.00126	0.00287	0.0962	7.24	-	0.0000500	0.0000910	0.0172	0.00250	0.0620	0.00500	0.00116	0.001000	0.0500
FR_CCSEEPSE5	10/13/2020	Low Flow	0.0500	0.000250	0.000610	0.00327	0.0966	7.13	-	0.0000500	0.0000600	0.0167	0.00250	0.0520	0.00500	0.000905	0.001000	0.0500
FR_CCSEEPSE5	8/31/2020	Low Flow	0.0100	0.0000500	0.00136	0.00318	0.110	8.10	-	0.0000100	0.0000600	0.0185	0.000500	0.0684	0.00100	0.00115	0.000490	0.0100
FR_CCSEEPSE5	10/26/2020	Low Flow	0.0500	0.000250	0.000610	0.00333	0.0949	7.46	305	0.0000500	0.0000540	0.0173	0.00250	0.0190	0.00100	0.000255	0.000390	0.0100
FR_CCSEEPSE5	10/9/2020	Low Flow	0.0500	0.000250	0.000890	0.00307	0.104	6.93	-	0.0000500	0.0000540	0.0158	0.00250	0.0680	0.00500	0.00118	0.001000	0.0500
FR_CCSEEPSE5	3/31/2020	Freshet	0.0200	0.000100	0.000210	0.00459	0.108	9.51	202	0.0000200	0.0000730	0.0197	0.001000	0.0421	0.00300	0.000765	0.000430	0.0200
FR_CCSEEPSE5	11/2/2020	Low Flow	0.0500	0.000250	0.000500	0.00355	0.0916	7.45	304	0.0000500	0.0000560	0.0178	0.00250	0.0260	0.00500	0.000333	0.001000	0.0500
FR_CCSEEPSE5	8/27/2020	Low Flow	0.0100	0.0000500	0.00128	0.00330	0.109	7.60	-	0.0000100	0.0000590	0.0178	0.000500	0.0679	0.00200	0.00113	0.000530	0.0100
FR_CCSEEPSE5	10/19/2020	Low Flow	0.0500	0.000250	0.000650	0.00321	0.0997	7.37	295	0.0000500	0.0000580	0.0178	0.00250	0.0280	0.00500	0.000413	0.001000	0.0500
FR_CCSEEPSE5	3/29/2020	Freshet	0.0500	0.000250	0.000500	0.00443	0.130	10.0	197	0.0000500	0.0000850	0.0245	0.00250	0.0540	0.00500	0.00100	0.001000	0.0500
FR_CCSEEPSE5	3/25/2020	Freshet	0.0200	0.000100	0.000470	0.00442	0.134	10.2	204	0.0000200	0.0000840	0.0258	0.001000	0.0497	0.00300	0.000861	0.000400	0.0200
FR_CCSEEPSE5	3/27/2020	Freshet	0.0100	0.0000500	0.000350	0.00475	0.134	10.6	231	0.0000100	0.0000830	0.0253	0.000500	0.0504	0.00100	0.000931	0.000430	0.0100
FR_CCSEEPSE5	3/18/2020	Freshet	0.0100	0.0000500	0.000170	0.00453	0.135	10.2	224	0.0000100	0.0000850	0.0262	0.000500	0.0297	0.00500	0.000478	0.00110	0.0500
FR_CCSEEPSE5	2/24/2020	Low Flow	0.0500	0.000250	0.000500	0.00451	0.144	10.3	219	0.0000500	0.0000850	0.0257	0.00250	0.0320	0.00500	0.000532	0.001000	0.0500
FR_CCSEEPSE5	3/21/2020	Freshet	0.0200	0.000100	0.000200	0.00463	0.140	10.4	216	0.0000200	0.0000900	0.0265	0.001000	0.0346	0.00300	0.000596	0.000400	0.0200
FR_CCSEEPSE5	3/13/2020	Low Flow	0.0500	0.000250	0.000500	0.00435	0.120	9.29	213	0.0000500	0.0000780	0.0251	0.00250	0.0230	0.00500	0.000394	0.001000	0.0500
FR_EAGLENORTH	6/11/2020	Freshet	0.0100	0.0000500	0.000610	0.00179	0.0279	6.32	525	0.0000100	0.0000400	0.0267	0.000500	0.0285	0.00300	0.000548	0.000450	0.0100
FR_EAGLENORTH	10/15/2020	Low Flow	0.0200	0.000100	0.000820	0.00178	0.0323	6.71	453	0.0000200	0.0000370	0.0307	0.001000	0.0255	0.00300	0.0005960	0.000490	0.0200
FR_FCSEEP2	6/11/2020	Freshet	0.0100	0.0000500	0.000120	0.000983	0.000500	0.552	6.10	0.0000100	0.0000100	0.000674	0.000500	0.00300	0.00300	0.00000690	0.000200	0.0100
FR_FCSEEP2	10/22/2020	Low Flow	0.0100	0.0000500	0.000100	0.000893	0.000500	0.817	27.3	0.0000100	0.0000100	0.00117	0.000500	0.00300	0.00300	0.0000168	0.000200	0.0100
FR_FRVWSEEP3	6/11/2020	Freshet	0.0750	0.0000850	0.00654	0.00210	0.00261	3.21	93.9	0.0000100	0.0000100	0.00621	0.000500	0.00840	0.00300	0.0000194	0.000220	0.0100
FR_FRVWSEEP3	10/27/2020	Low Flow	0.0370	0.0000500	0.0112	0.00152	0.00229	3.40	72.5	0.0000100	0.0000100	0.00553	0.000500	0.0108	0.00300	0.0000228	0.000230	0.0100
FR_FSEAMSEEP7	6/12/2020	Freshet	0.330	0.000322	0.00752	0.00991	0.00926	4.03	126	0.0000100	0.0000170	0.00395	0.00127	0.00800	0.00430	0.000121	0.000490	0.0100
FR_FSEAMSEEP7	10/26/2020	Low Flow	50.5	0.0405	1.60	0.00718	0.171	9.77	123	0.00117	0.000545	0.00870	0.0874	0.387	0.00900	0.0000859	0.00564	0.0200
FR_FSEAMWSEEP4	6/12/2020	Freshet	0.0210	0.0000500	0.00230	0.00459	0.00467	2.68	59.6	0.0000100	0.0000180	0.00258	0.000500	0.0105	0.00300	0.000156	0.000800	0.0100
FR_GC1	6/24/2020	Freshet	0.0100	0.0000500	0.000330	0.00278	0.0125	4.55	-	0.0000100	0.0000110	0.00872	0.000500	0.00510	0.00300	0.0000872	0.000200	0.0100
FR_GC1	7/28/2020	Low Flow	0.0100	0.0000500	0.000250	0.00284	0.0137	5.29	145	0.0000100	0.0000120	0.0109	0.000500	0.00380	0.00300	0.0000619	0.000200	0.0100
FR_GC1	8/17/2020	Low Flow	0.0100	0.0000500	0.000470	0.00272	0.0128	4.76	128	0.0000100	0.0000110	0.00990	0.000500	0.00380	0.00100	0.0000913	0.000200	0.0100

Seep ID	Sample Date	Flow Regime	Iron, Total	Lead, Total	Manganese, Total	Molybdenum, Total	Nickel, Total	Potassium, Total	Selenium, Total	Silver, Total	Thallium, Total	Uranium, Total	Vanadium, Total	Zinc, Total	Aluminum, Dissolved	Cadmium, Dissolved	Copper, Dissolved	Iron, Dissolved
FR_GC1	5/21/2020	Freshet	0.0150	0.0000500	0.00108	0.00268	0.0140	5.15	162	0.0000100	0.0000130	0.0108	0.000500	0.00840	0.00300	0.000106	0.000200	0.0100
FR_GC1	10/5/2020	Low Flow	0.0100	0.0000500	0.000360	0.00308	0.0138	5.33	164	0.0000100	0.0000100	0.0119	0.000500	0.00360	0.00500	0.0000700	0.001000	0.0500
FR_GC1	9/23/2020	Low Flow	0.0100	0.0000500	0.000380	0.00261	0.0135	4.83	154	0.0000100	0.0000110	0.0114	0.000500	0.00450	0.00100	0.0000911	0.000200	0.0100
FR_GC1	9/2/2020	Low Flow	0.0100	0.0000500	0.000370	0.00288	0.0150	5.50	145	0.0000100	0.0000100	0.0113	0.000500	0.00360	0.00100	0.0000784	0.000200	0.0100
FR_GC1	9/30/2020	Low Flow	0.0100	0.0000500	0.000300	0.00290	0.0131	5.42	160	0.0000100	0.0000120	0.0125	0.000500	0.00400	0.00100	0.0000693	0.000200	0.0100
FR_GC1	10/26/2020	Low Flow	0.0500	0.000250	0.000500	0.00270	0.0128	5.32	172	0.0000500	0.0000500	0.0120	0.00250	0.0150	0.00100	0.0000784	0.000200	0.0100
FR_GC1	10/14/2020	Low Flow	0.0100	0.000050	0.000290	0.00274	0.0128	5.43	172	0.0000100	0.0000100	0.0121	0.000500	0.00310	0.00100	0.0000802	0.000200	0.0100
FR_GC1	3/26/2020	Freshet	0.0100	0.000050	0.000530	0.00246	0.0164	5.00	144	0.0000100	0.0000110	0.0127	0.000500	0.00590	0.00300	0.000109	0.000200	0.0100
FR_GC1	9/16/2020	Low Flow	0.0100	0.000050	0.000260	0.00269	0.0117	5.35	157	0.0000100	0.0000100	0.0116	0.000500	0.00300	0.00100	0.0000688	0.000200	0.0100
FR_GC1	11/2/2020	Low Flow	0.0500	0.000250	0.000500	0.00278	0.0123	5.44	177	0.0000500	0.0000500	0.0127	0.00250	0.0150	0.00500	0.0000720	0.001000	0.0500
FR_GC1	10/19/2020	Low Flow	0.0100	0.0000500	0.000360	0.00283	0.0127	5.29	176	0.0000100	0.0000100	0.0125	0.000500	0.00310	0.00100	0.0000754	0.000200	0.0100
FR_GC1	3/12/2020	Low Flow	0.0120	0.0000500	0.000700	0.00252	0.0165	4.87	151	0.0000100	0.0000120	0.0127	0.000660	0.00650	0.00300	0.000271	0.000200	0.0100
FR_GC1	9/9/2020	Low Flow	0.0500	0.000250	0.000520	0.00312	0.0150	5.58	148	0.0000500	0.0000500	0.0114	0.00250	0.0150	0.00500	0.0000440	0.001000	0.0500
FR_GC1	4/24/2020	Freshet	0.0100	0.0000500	0.000530	0.00288	0.0192	5.22	159	0.0000100	0.0000150	0.0121	0.000500	0.00570	0.00300	0.000121	0.000200	0.0100
FR_GC1	4/13/2020	Freshet	0.0100	0.0000500	0.000470	0.00292	0.0227	5.30	148	0.0000100	0.0000140	0.0126	0.000500	0.00580	0.00300	0.000119	0.000200	0.0100
FR_GC1	2/24/2020	Low Flow	0.101	0.000250	0.00534	0.00249	0.0193	4.88	-	0.0000500	0.0000500	0.0125	0.00250	0.0150	0.00500	0.000130	0.001000	0.0500
FR_GC1	4/9/2020	Freshet	0.0100	0.0000500	0.000670	0.00294	0.0242	5.42	144	0.0000100	0.0000170	0.0128	0.000500	0.00590	0.00300	0.000125	0.000200	0.0100
FR_GC1	4/15/2020	Freshet	0.0140	0.0000500	0.000790	0.00290	0.0227	5.70	160	0.0000100	0.0000140	0.0129	0.000500	0.00660	0.00300	0.000111	0.000350	0.0100
FR_GC1	4/17/2020	Freshet	0.0100	0.0000500	0.000510	0.00274	0.0219	5.41	161	0.0000100	0.0000160	0.0136	0.000500	0.00650	0.00300	0.000115	0.000200	0.0100
FR_GC1	3/30/2020	Freshet	0.0100	0.0000500	0.000570	0.00256	0.0257	5.38	161	0.0000100	0.0000170	0.0131	0.000500	0.00660	0.00300	0.000119	0.000200	0.0100
FR_GC1	4/11/2020	Freshet	0.0100	0.0000500	0.000630	0.00280	0.0237	5.65	164	0.0000100	0.0000190	0.0135	0.000500	0.00630	0.00300	0.000109	0.000200	0.0100
FR_GC1	4/5/2020	Freshet	0.0100	0.0000500	0.000450	0.00277	0.0237	5.86	165	0.0000100	0.0000150	0.0145	0.000500	0.00630	0.00300	0.000131	0.000200	0.0100
FR_GC1	4/1/2020	Freshet	0.0100	0.0000500	0.000400	0.00264	0.0261	5.34	144	0.0000100	0.0000150	0.0132	0.000500	0.00630	0.00660	0.000123	0.000220	0.0100
FR_GC1	4/7/2020	Freshet	0.0100	0.0000500	0.000380	0.00278	0.0239	5.74	156	0.0000100	0.0000120	0.0128	0.000500	0.00610	0.00300	0.000129	0.000200	0.0100
FR_HENSEEP3	6/10/2020	Freshet	0.143	0.000340	0.0137	0.00472	0.00540	3.54	562	0.0000200	0.0000210	0.00452	0.001000	0.0122	0.00300	0.000213	0.000210	0.0100
FR_HENSEEP3	10/19/2020	Low Flow	0.434	0.001050	0.0236	0.00195	0.00670	3.75	684	0.0000370	0.0000440	0.00421	0.00250	0.0233	0.00300	0.000208	0.000400	0.0200
FR_HENSSEEP1	6/10/2020	Freshet	0.0100	0.0000500	0.0240	0.000771	0.00258	1.91	2.17	0.0000100	0.0000230	0.00248	0.000500	0.00830	0.00300	0.000162	0.000540	0.0100
FR_LMCWSEEP5	6/11/2020	Freshet	0.0590	0.0000810	0.00196	0.00161	0.00207	1.53	40.9	0.0000100	0.0000160	0.00138	0.000500	0.00360	0.00300	0.0000511	0.000640	0.0100
FR_LMCWSEEP5	10/26/2020	Low Flow	0.0260	0.0000500	0.00228	0.00251	0.00301	2.26	142	0.0000100	0.0000140	0.00400	0.000500	0.00360	0.00310	0.0000989	0.000430	0.0100
FR_LMCWSEEP5	5/5/2020	Freshet	0.0230	0.0000570	0.0153	0.00565	0.0387	4.42	165	0.0000100	0.0000440	0.00436	0.000770	0.0259	0.00380	0.000584	0.000850	0.0100
FR_SCRDSEEP1	10/29/2020	Low Flow	4.01	0.00227	0.668	0.00596	0.0178	9.33	70.2	0.0000630	0.0000870	0.00281	0.00578	0.0309	0.00340	0.0000284	0.000420	0.0350
FR_SCRDSEEP1	6/18/2020	Freshet	0.331	0.000137	0.321	0.00436	0.0113	10.4	85.9	0.0000110	0.0000340	0.00281	0.000760	0.0376	0.0155	0.0000638	0.00116	0.220
FR_SHNSEEP1	6/18/2020	Freshet	0.0100	0.0000500	0.000410	0.00468	0.00222	4.12	31.0	0.0000100	0.0000410	0.00195	0.000500	0.00410	0.00300	0.000126	0.000280	0.0100
FR_SPRWSEEP1	10/26/2020	Low Flow	0.0100	0.0000500	0.000120	0.00994	0.0116	2.20	39.1	0.0000100	0.000136	0.00222	0.000500	0.0334	0.00300	0.000716	0.000540	0.0100
FR_STPNSEEP	6/12/2020	Freshet	0.0100	0.0000500	0.001000	0.00154	0.000500	1.25	15.6	0.0000100	0.0000100	0.00160	0.000500	0.00300	0.00300	0.0000250	0.000200	0.0100
FR_STPSWSEEP	10/22/2020	Low Flow	0.0170	0.0000500	0.367	0.00200	0.00534	5.66	0.082	0.0000100	0.0000190	0.00622	0.000500	0.00300	0.00300	0.000379	0.000200	0.0160
FR_STPSWSEEP	6/12/2020	Freshet	0.0400	0.0000500	0.341	0.00193	0.00551	5.23	0.062	0.0000100	0.0000200	0.00635	0.000500	0.00300	0.00300	0.000433	0.000200	0.0300

Seep ID	Sample Date	Flow Regime	Iron, Total	Lead, Total	Manganese, Total	Molybdenum, Total	Nickel, Total	Potassium, Total	Selenium, Total	Silver, Total	Thallium, Total	Uranium, Total	Vanadium, Total	Zinc, Total	Aluminum, Dissolved	Cadmium, Dissolved	Copper, Dissolved	Iron, Dissolved
FR_STPWSEEP	10/22/2020	Low Flow	0.0270	0.0000500	0.335	0.00224	0.00541	5.86	0.140	0.0000100	0.0000170	0.00664	0.000500	0.00300	0.00300	0.000383	0.000200	0.0100
FR_STPWSEEP	6/12/2020	Freshet	0.0100	0.0000540	0.274	0.00223	0.00600	5.45	0.173	0.0000100	0.0000560	0.00856	0.000500	0.00380	0.00300	0.00108	0.000300	0.0100
FR_TBWSEEP1	10/19/2020	Low Flow	0.0120	0.0000500	0.00300	0.000280	0.00126	1.45	39.1	0.0000100	0.0000100	0.00255	0.000530	0.00300	0.00300	0.0000344	0.000200	0.0100
FR_TBWSEEP1	3/28/2020	Freshet	0.104	0.000118	0.00444	0.000383	0.00179	1.42	52.2	0.0000100	0.0000100	0.00246	0.000700	0.00390	0.00120	0.0000547	0.000200	0.0100
FR_TBWSEEP1	5/21/2020	Freshet	0.0110	0.0000500	0.000570	0.000304	0.00133	1.43	87.1	0.0000100	0.0000100	0.00324	0.000500	0.00300	0.00300	0.0000497	0.000200	0.0100
FR_TBWSEEP1	6/24/2020	Freshet	0.0100	0.0000500	0.000100	0.000336	0.00104	1.33	74.2	0.0000100	0.0000100	0.00332	0.000500	0.00300	0.00200	0.0000721	0.000390	0.0100
FR_TBWSEEP1	6/10/2020	Freshet	0.0140	0.0000500	0.000680	0.000347	0.00118	1.57	103	0.0000100	0.0000100	0.00357	0.000500	0.00300	0.00300	0.0000480	0.000200	0.0100
FR_TBWSEEP1	4/24/2020	Freshet	0.0430	0.0000960	0.00209	0.000386	0.00269	1.79	96.5	0.0000100	0.0000100	0.00439	0.000500	0.00680	0.00100	0.000115	0.000240	0.0100
FR_TURNSEEP1	6/10/2020	Freshet	0.0240	0.0000500	0.00132	0.00473	0.00788	2.90	169	0.0000100	0.0000320	0.00586	0.000500	0.0162	0.00300	0.000338	0.000430	0.0100
FR_TURNSEEP2	6/10/2020	Freshet	0.0100	0.0000500	0.000100	0.000425	0.00132	1.96	89.4	0.0000100	0.0000100	0.00288	0.000500	0.00320	0.00300	0.0000539	0.000210	0.0100
FR_TURNSEEP2	10/19/2020	Low Flow	0.0100	0.0000500	0.000100	0.000337	0.00136	1.65	79.4	0.0000100	0.0000100	0.00219	0.000520	0.00300	0.00300	0.0000619	0.000200	0.0100
FR_WED1	6/24/2020	Freshet	0.0100	0.0000500	0.000330	0.000751	0.000500	0.707	-	0.0000100	0.0000100	0.000872	0.000500	0.00300	0.00300	0.0000112	0.000200	0.0100
FR_WED1	7/28/2020	Low Flow	0.0100	0.0000500	0.000240	0.000797	0.000500	0.820	14.7	0.0000100	0.0000100	0.00106	0.000500	0.00300	0.00300	0.0000120	0.000200	0.0100
FR_WED1	8/17/2020	Low Flow	0.0100	0.0000500	0.000510	0.000764	0.000500	0.868	18.5	0.0000100	0.0000100	0.00117	0.000500	0.00300	0.00100	0.0000167	0.000200	0.0100
FR_WED1	5/25/2020	Freshet	0.0100	0.0000500	0.000220	0.000600	0.000500	0.715	19.0	0.0000100	0.0000100	0.00116	0.000500	0.00300	0.00100	0.0000182	0.000230	0.0100
FR_WED1	9/2/2020	Low Flow	0.0100	0.0000500	0.000330	0.000698	0.000500	0.896	20.9	0.0000100	0.0000100	0.00116	0.000500	0.00300	0.00100	0.0000170	0.000200	0.0100
FR_WED1	9/30/2020	Low Flow	0.0100	0.0000500	0.000590	0.000689	0.000500	0.938	25.1	0.0000100	0.0000100	0.00129	0.000500	0.00300	0.00100	0.0000221	0.000200	0.0100
FR_WED1	9/9/2020	Low Flow	0.0100	0.0000500	0.000460	0.000685	0.000570	0.904	24.3	0.0000100	0.0000100	0.00116	0.000500	0.00300	0.00100	0.0000138	0.000200	0.0100
FR_WED1	10/5/2020	Low Flow	0.0100	0.0000500	0.000340	0.000733	0.000500	0.855	27.6	0.0000100	0.0000100	0.00125	0.000500	0.00300	0.00100	0.0000145	0.000200	0.0100
FR_WED1	10/26/2020	Low Flow	0.0100	0.0000500	0.000380	0.000600	0.000500	0.896	27.8	0.0000100	0.0000100	0.00121	0.000500	0.00300	0.00100	0.0000184	0.000200	0.0100
FR_WED1	9/23/2020	Low Flow	0.0100	0.0000500	0.000290	0.000642	0.000500	0.890	26.2	0.0000100	0.0000100	0.00120	0.000500	0.00300	0.00100	0.0000164	0.000200	0.0100
FR_WED1	9/16/2020	Low Flow	0.0310	0.0000500	0.00171	0.000724	0.000500	0.872	24.4	0.0000100	0.0000100	0.00115	0.000500	0.00300	0.00100	0.0000169	0.000200	0.0100
FR_WED1	10/14/2020	Low Flow	0.0100	0.0000500	0.000250	0.000643	0.000500	0.903	27.7	0.0000100	0.0000100	0.00126	0.000500	0.00300	0.00100	0.0000175	0.000200	0.0100
FR_WED1	11/2/2020	Low Flow	0.0100	0.0000500	0.000220	0.000614	0.000500	0.877	28.2	0.0000100	0.0000100	0.00127	0.000500	0.00300	0.00100	0.0000202	0.000200	0.0100
FR_WED1	3/12/2020	Low Flow	0.0100	0.0000500	0.000220	0.000494	0.000550	0.727	29.3	0.0000100	0.0000100	0.00132	0.000710	0.00300	0.00300	0.0000206	0.000200	0.0100
FR_WED1	4/13/2020	Freshet	0.0100	0.0000500	0.000150	0.000521	0.000530	0.768	29.6	0.0000100	0.0000100	0.00134	0.000500	0.00300	0.00300	0.0000232	0.000200	0.0100
FR_WED1	10/19/2020	Low Flow	0.0100	0.0000500	0.000240	0.000651	0.000500	0.924	27.8	0.0000100	0.0000100	0.00129	0.000500	0.00300	0.00100	0.0000199	0.000200	0.0100
FR_WED1	3/26/2020	Freshet	0.0100	0.0000500	0.000250	0.000513	0.000500	0.768	30.6	0.0000100	0.0000100	0.00155	0.000500	0.00300	0.00300	0.0000190	0.000200	0.0100
FR_WED1	3/23/2020	Freshet	0.0280	0.0000500	0.00157	0.000513	0.000720	0.843	30.5	0.0000100	0.0000100	0.00151	0.000500	0.00310	0.00300	0.0000201	0.000200	0.0100
FR_WED1	3/30/2020	Freshet	0.0100	0.0000500	0.000270	0.000503	0.000500	0.774	30.2	0.0000100	0.0000100	0.00140	0.000500	0.00300	0.00300	0.0000202	0.000200	0.0100
FR_WED1	4/17/2020	Freshet	0.0100	0.0000500	0.000200	0.000541	0.000620	0.796	33.9	0.0000100	0.0000100	0.00144	0.000500	0.00300	0.00300	0.0000220	0.000200	0.0100
FR_WED1	4/9/2020	Freshet	0.0100	0.0000500	0.000180	0.000540	0.000530	0.816	31.0	0.0000100	0.0000100	0.00145	0.000500	0.00300	0.00300	0.0000219	0.000200	0.0100
FR_WED1	2/24/2020	Low Flow	0.0100	0.0000500	0.000100	0.000602	0.000500	0.746	-	0.0000100	0.0000100	0.00140	0.000500	0.00300	0.00100	0.0000198	0.000260	0.0100
FR_WED1	4/24/2020	Freshet	0.0100	0.0000500	0.000170	0.000550	0.000530	0.782	32.1	0.0000100	0.0000100	0.00145	0.000500	0.00300	0.00300	0.0000228	0.000200	0.0100
FR_WED1	4/11/2020	Freshet	0.0100	0.0000500	0.000200	0.000531	0.000600	0.816	34.4	0.0000100	0.0000100	0.00143	0.000500	0.00300	0.00300	0.0000128	0.000200	0.0100
FR_WED1	4/15/2020	Freshet	0.0100	0.0000500	0.000290	0.000526	0.000630	0.782	32.7	0.0000100	0.0000100	0.00145	0.000500	0.00300	0.00300	0.0000188	0.000300	0.0100
FR_WED1	4/1/2020	Freshet	0.0100	0.0000500	0.000160	0.000534	0.000500	0.730	28.3	0.0000100	0.0000100	0.00142	0.000500	0.00300	0.00300	0.0000203	0.000200	0.0100

Seep ID	Sample Date	Flow Regime	Iron, Total	Lead, Total	Manganese, Total	Molybdenum, Total	Nickel, Total	Potassium, Total	Selenium, Total	Silver, Total	Thallium, Total	Uranium, Total	Vanadium, Total	Zinc, Total	Aluminum, Dissolved	Cadmium, Dissolved	Copper, Dissolved	Iron, Dissolved
FR_WED1	4/5/2020	Freshet	0.0100	0.0000500	0.000150	0.000501	0.000500	0.829	32.6	0.0000100	0.0000100	0.00151	0.000500	0.00300	0.00300	0.0000214	0.000200	0.0100
FR_WED1	4/7/2020	Freshet	0.0100	0.0000500	0.000300	0.000531	0.000550	0.794	31.4	0.0000100	0.0000100	0.00141	0.000500	0.00300	0.00300	0.0000179	0.000200	0.010
GH_E1	3/5/2020	Low Flow	0.432	0.0000500	0.0982	0.000785	0.00877	3.55	0.267	0.0000100	0.0000100	0.00533	0.000500	0.0106	0.00300	0.0000140	0.000200	0.284
GH_E1	2/19/2020	Low Flow	1.06	0.0000500	0.0953	0.000731	0.00880	3.48	0.296	0.0000100	0.0000100	0.00651	0.000500	0.0146	0.00300	0.0000123	0.000200	0.152
GH_E1	4/27/2020	Freshet	0.411	0.0000500	0.130	0.000876	0.0113	4.00	0.279	0.0000100	0.0000100	0.00692	0.000500	0.0128	0.00300	0.0000190	0.000550	0.273
GH_E1	9/6/2020	Low Flow	0.177	0.0000500	0.0806	0.000944	0.00941	4.72	0.140	0.0000100	0.0000100	0.00590	0.000500	0.00530	0.00300	0.00000590	0.000200	0.115
GH_E1	8/13/2020	Low Flow	0.260	0.0000500	0.125	0.000857	0.0110	4.44	0.166	0.0000100	0.0000130	0.00651	0.000500	0.00720	0.00300	0.00000790	0.000200	0.161
GH_E1	10/15/2020	Low Flow	0.032	0.0000500	0.0227	0.00152	0.00208	4.83	2.30	0.0000100	0.0000100	0.00685	0.000500	0.00750	0.00300	0.00000500	0.000310	0.0100
GH_E2	6/8/2020	Freshet	0.041	0.0000500	0.0129	0.000635	0.00150	3.24	5.18	0.0000100	0.0000100	0.00325	0.000500	0.00780	0.00300	0.0000287	0.000200	0.0110
GH_E2	5/14/2020	Freshet	0.049	0.0000500	0.0107	0.000739	0.00162	3.42	5.61	0.0000100	0.0000100	0.00337	0.000500	0.00760	0.00300	0.0000322	0.000200	0.0100
GH_E2	9/6/2020	Low Flow	0.334	0.0000500	0.138	0.000599	0.00212	3.76	2.61	0.0000100	0.0000100	0.00307	0.000500	0.0110	0.00300	0.0000210	0.000200	0.154
GH_E2	8/13/2020	Low Flow	0.114	0.0000500	0.127	0.000641	0.00206	3.85	3.26	0.0000100	0.0000100	0.00342	0.000500	0.0111	0.00300	0.0000221	0.000200	0.0620
GH_E2	7/20/2020	Low Flow	0.075	0.0000500	0.112	0.000655	0.00169	3.42	3.77	0.0000100	0.0000110	0.00352	0.000500	0.00960	0.00300	0.0000286	0.000200	0.0300
GH_E2	10/15/2020	Low Flow	0.226	0.0000500	0.0713	0.000604	0.00199	3.63	2.54	0.0000100	0.0000100	0.00366	0.000500	0.00840	0.00300	0.0000177	0.000200	0.0550
GH_E2	2/19/2020	Low Flow	0.024	0.0000500	0.00431	0.000625	0.00176	3.57	4.04	0.0000100	0.0000100	0.00472	0.000500	0.0106	0.00300	0.0000308	0.000220	0.0170
GH_E2	4/27/2020	Freshet	0.076	0.0000500	0.0203	0.000916	0.00461	4.38	8.84	0.0000100	0.000116	0.00662	0.000500	0.0106	0.00300	0.000546	0.000410	0.0140
GH_E3	9/6/2020	Low Flow	0.082	0.0000500	0.0170	0.00158	0.00374	4.62	1.67	0.0000100	0.0000180	0.00620	0.000560	0.00300	0.00300	0.00000700	0.000370	0.0100
GH_E3	10/14/2020	Low Flow	0.043	0.0000500	0.0139	0.00123	0.00371	4.02	1.74	0.0000100	0.0000110	0.00645	0.000500	0.00300	0.00300	0.0000216	0.000290	0.0100
GH_E3	6/8/2020	Freshet	0.056	0.0000500	0.0148	0.00169	0.00305	4.16	9.85	0.0000100	0.0000110	0.00717	0.000500	0.00300	0.00300	0.0000106	0.000340	0.0100
GH_E3	1/9/2020	Low Flow	0.083	0.0000520	0.0295	0.00212	0.00545	4.53	7.07	0.0000100	0.0000290	0.00621	0.000500	0.0182	0.00310	0.000235	0.000890	0.0200
GH_E3	8/13/2020	Low Flow	0.214	0.000190	0.0378	0.00196	0.00429	4.71	3.28	0.0000100	0.0000150	0.00823	0.000590	0.00300	0.00300	0.00000610	0.000200	0.0100
GH_E3	5/14/2020	Freshet	0.061	0.0000510	0.0115	0.00188	0.00335	4.23	20.2	0.0000100	0.0000100	0.00792	0.000500	0.00300	0.00300	0.0000168	0.000360	0.0100
GH_E-SEEP	7/16/2020	Low Flow	1.22	0.000510	0.0250	0.000312	0.00111	2.76	0.586	0.0000120	0.0000140	0.000797	0.00176	0.0137	0.00300	0.00000500	0.000200	0.0480
GH_E-SEEP	3/5/2020	Low Flow	0.380	0.000100	0.433	0.000800	0.00360	4.26	13.4	0.0000200	0.0000260	0.00402	0.001000	0.0102	0.00300	0.0000465	0.000530	0.306
GH_E-SEEP	4/17/2020	Freshet	1.01	0.000400	0.146	0.000700	0.00350	4.35	12.2	0.0000200	0.0000440	0.00621	0.001000	0.0118	0.00370	0.000127	0.000400	0.0200
GH_E-SEEP	2/12/2020	Low Flow	0.021	0.0000500	0.0109	0.00109	0.00399	5.31	16.1	0.0000100	0.0000300	0.00710	0.000500	0.0126	0.00300	0.000197	0.000730	0.0200
GH_E-SEEP	6/8/2020	Freshet	0.151	0.000100	0.164	0.000390	0.00270	5.03	5.13	0.0000200	0.0000200	0.00640	0.001000	0.00600	0.00300	0.00000660	0.000200	0.0300
GH_E-SEEP	5/15/2020	Freshet	0.226	0.000100	0.223	0.000530	0.00290	5.42	3.94	0.0000200	0.0000200	0.00756	0.001000	0.00600	0.00300	0.00000500	0.000200	0.0310
GH_E-SEEP	10/21/2020	Low Flow	0.794	0.000100	2.36	0.000360	0.00750	2.87	0.510	0.0000200	0.0000200	0.00427	0.001000	0.00600	0.00300	0.00001000	0.000400	0.219
GH_E-SEEP	9/6/2020	Low Flow	0.226	0.000100	0.154	0.000540	0.00150	4.26	0.900	0.0000200	0.0000200	0.00499	0.001000	0.00600	0.00300	0.00000500	0.000200	0.0650
GH_E-SEEP	8/3/2020	Low Flow	0.222	0.000100	0.180	0.000400	0.00170	4.34	0.970	0.0000200	0.0000200	0.00478	0.001000	0.00600	0.00300	0.0000100	0.000400	0.0670
GH_SEEP_12	6/25/2020	Freshet	0.032	0.0000500	0.00567	0.00418	0.000830	0.380	2.51	0.0000100	0.0000140	0.00151	0.000690	0.00760	0.00300	0.0000349	0.000350	0.0110
GH_SEEP_46	7/15/2020	Freshet	0.077	0.000148	0.00186	0.00253	0.00241	1.98	160	0.0000100	0.0000470	0.00150	0.000550	0.00910	0.00300	0.000343	0.000200	0.0100
GH_SEEP_5	7/3/2020	Freshet	0.184	0.000246	0.0118	0.000626	0.00573	1.93	2.26	0.0000100	0.0000270	0.000622	0.00115	0.00660	0.00300	0.000160	0.000400	0.0100
GH_SEEP_60	9/29/2020	Low Flow	0.263	0.000200	0.0139	0.00291	0.00110	3.68	599	0.0000200	0.0000200	0.0172	0.001000	0.00600	0.00300	0.0000110	0.000400	0.0200
GH_SEEP_76	6/26/2020	Freshet	0.067	0.000100	0.00270	0.0261	0.0374	4.08	632	0.0000200	0.0000200	0.0130	0.001000	0.00600	0.00300	0.0000400	0.000580	0.0100
GH_SEEP_77	6/26/2020	Freshet	0.054	0.000100	0.0107	0.00679	0.248	8.43	88.7	0.0000200	0.0000350	0.0207	0.001000	0.00600	0.00300	0.0000257	0.000360	0.0100

Seep ID	Sample Date	Flow Regime	Iron, Total	Lead, Total	Manganese, Total	Molybdenum, Total	Nickel, Total	Potassium, Total	Selenium, Total	Silver, Total	Thallium, Total	Uranium, Total	Vanadium, Total	Zinc, Total	Aluminum, Dissolved	Cadmium, Dissolved	Copper, Dissolved	Iron, Dissolved
GH_SEEP_79	6/26/2020	Freshet	0.852	0.000813	0.0886	0.00278	0.00147	2.20	1.33	0.0000100	0.0000350	0.000450	0.00148	0.00530	0.0117	0.0000100	0.000330	0.0180
GH_WTDS	1/9/2020	Low Flow	0.0100	0.000159	0.000280	0.00334	0.0095	2.58	3.66	0.0000100	0.0000350	0.00380	0.000500	0.0157	0.00300	0.000437	0.00115	0.0130
GH_WTDS	9/6/2020	Low Flow	0.0100	0.000136	0.000440	0.00288	0.0120	2.49	6.94	0.0000100	0.0000440	0.00361	0.000500	0.0248	0.00300	0.000477	0.000600	0.0100
GH_WTDS	10/14/2020	Low Flow	0.0100	0.000126	0.000340	0.00334	0.00977	2.42	4.49	0.0000100	0.0000450	0.00368	0.000500	0.0188	0.00300	0.000456	0.000570	0.0100
GH_WTDS	4/6/2020	Freshet	0.0100	0.000160	0.000390	0.00339	0.00950	2.55	5.12	0.0000100	0.0000290	0.00375	0.000500	0.0170	0.00300	0.000515	0.000640	0.0100
GH_WTDS	8/12/2020	Low Flow	0.0230	0.000159	0.00222	0.00320	0.0120	2.60	12.6	0.0000100	0.0000490	0.00368	0.000500	0.0274	0.00300	0.000454	0.000570	0.0100
GH_WTDS	5/13/2020	Freshet	0.0100	0.000132	0.000640	0.00413	0.0117	2.61	19.6	0.0000100	0.0000340	0.00397	0.000500	0.0195	0.00300	0.000476	0.000680	0.0100
GH_WTDS	3/4/2020	Low Flow	0.0100	0.000167	0.000280	0.00351	0.00899	2.55	2.85	0.0000100	0.0000340	0.00389	0.000500	0.0157	0.00300	0.000471	0.000660	0.0100
GH_WTDS	7/8/2020	Freshet	0.0100	0.000127	0.000360	0.00338	0.0106	2.42	16.4	0.0000100	0.0000350	0.00354	0.000500	0.0181	0.00300	0.000449	0.000640	0.0100
GH_WTDS	2/12/2020	Low Flow	0.0100	0.000163	0.000240	0.00354	0.00952	2.61	3.59	0.0000100	0.0000300	0.00388	0.000500	0.0170	0.00300	0.000498	0.000660	0.0100
LC_3KM	10/22/2020	Low Flow	0.519	0.000789	0.0136	0.00166	0.00260	6.53	1.13	0.0000220	0.0000300	0.00361	0.00210	0.00680	0.00470	0.0000116	0.000230	0.0100
LC_3KM	6/24/2020	Freshet	0.0100	0.0000500	0.000710	0.00140	0.000800	4.85	4.43	0.0000100	0.0000150	0.00245	0.000910	0.00300	0.0188	0.0000143	0.000260	0.0100
LC_ERX	6/25/2020	Freshet	0.176	0.000106	0.101	0.00335	0.00178	2.58	0.808	0.0000100	0.0000230	0.00151	0.00112	0.00300	0.00870	0.00000640	0.00134	0.0220
LC_SEEP1	6/24/2020	Freshet	0.0840	0.0000500	0.0103	0.000759	0.00108	2.82	2.68	0.0000100	0.0000100	0.00144	0.000500	0.0311	0.00300	0.0000364	0.000300	0.0330
LC_SEEP10	6/26/2020	Freshet	0.702	0.0000500	0.166	0.000866	0.00651	3.49	0.186	0.0000100	0.0000100	0.00138	0.000500	0.00640	0.00300	0.0000427	0.000200	0.664
LC_SEEP11	6/26/2020	Freshet	0.0140	0.0000500	0.00571	0.000499	0.000600	1.89	2.06	0.0000100	0.0000100	0.00302	0.000500	0.00300	0.00300	0.0000109	0.000200	0.0100
LC_SEEP14	6/24/2020	Freshet	0.0160	0.0000500	0.000570	0.00166	0.00508	1.22	30.4	0.0000100	0.0000100	0.00263	0.000500	0.00750	0.00300	0.000146	0.000200	0.0100
LC_SEEP15	6/24/2020	Freshet	0.199	0.000137	0.00933	0.00108	0.000500	0.938	139	0.0000100	0.0000100	0.00285	0.000730	0.00300	0.00300	0.0000153	0.000200	0.0100
LC_SEEP19	6/24/2020	Freshet	0.0100	0.0000500	0.000270	0.00100	0.00614	0.950	29.4	0.0000100	0.0000100	0.00342	0.000500	0.00680	0.00300	0.000102	0.000200	0.0100
LC_SEEP19	10/22/2020	Low Flow	0.0420	0.0000500	0.00177	0.00135	0.0166	1.85	73.5	0.0000100	0.0000100	0.00942	0.000500	0.0151	0.00300	0.000222	0.000200	0.0100
LC_SEEP2	10/26/2020	Low Flow	0.0100	0.0000500	0.000480	0.000801	0.000500	0.657	1.16	0.0000100	0.0000100	0.000930	0.000500	0.00300	0.00300	0.0000191	0.000200	0.0100
LC_SEEP2	6/24/2020	Freshet	0.0100	0.0000500	0.000580	0.000729	0.000500	0.680	4.01	0.0000100	0.0000100	0.00115	0.000500	0.00300	0.00300	0.0000186	0.000200	0.0100
LC_SEEP8	6/23/2020	Freshet	0.107	0.0000500	0.0263	0.000433	0.00137	0.625	0.089	0.0000180	0.0000120	0.000724	0.00140	0.00300	0.00300	0.0000264	0.000740	0.0100
LC_UDHP	10/27/2020	Low Flow	0.0240	0.0000500	0.000540	0.00279	0.00100	2.37	66.1	0.0000100	0.0000100	0.00176	0.000880	0.00330	0.00300	0.000106	0.000210	0.0100
LC_UDP1	10/27/2020	Low Flow	0.0100	0.0000500	0.000140	0.00108	0.000500	1.16	2.22	0.0000100	0.0000100	0.000499	0.000500	0.00300	0.00300	0.0000192	0.000200	0.0100
LC_WLC_lot2	6/25/2020	Freshet	0.0170	0.0000500	0.000610	0.00243	0.0259	2.31	207	0.0000100	0.0000250	0.00789	0.000500	0.0561	0.00300	0.00127	0.000760	0.0100

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.259_2019_Seep_Monitoring_Report\2020 Data\Data Analysis\2020_BCWQGs_Screening_1CT017.259_SM_rev03.xlsx

Table 2: Seep BC Water Quality Guideline for Freshwater Aquatic Life Screening (3/6)

Seep ID	Sample Date	Flow Regime	pH (min)	pH (max)	Alkalinity (as CaCO3)	Fluoride (chronic)	Chloride (acute)	Chloride (chronic)	Sulfate (chronic)	Nitrite, AS N (acute)	Nitrite, AS N (chronic)	Nitrate, AS N (acute)	Nitrate, AS N (chronic)	Antimony, Total (acute)	Arsenic, Total (acute)	Boron, Total (chronic)	Barium, Total (chronic)	Beryllium, Total (chronic)	Cadmium, Dissolved (acute)	Cadmium, Dissolved (chronic)	Cobalt, Total (acute)	Cobalt, Total (chronic)	Copper, Total (acute)
CM_37PIT-SEEP-E	9/9/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
CM_37PIT-SEEP-E	6/17/2020	Freshet	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
CM_37PIT-SEEP-W	9/9/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
CM_37PIT-SEEP-W	6/17/2020	Freshet	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
CM_CCDS	6/4/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_CS1	9/9/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
CM_CS1	6/2/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_MM-SEEP1	9/9/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_MM-SEEP1	6/3/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_MM-SEEP3	6/3/2020	Freshet	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_MM-SEEP3	9/9/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_MM-SEEP5	5/6/2020	Freshet	0	1	0	0	1	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	1
CM_MM-SEEP5	6/3/2020	Freshet	0	1	0	0	1	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	1
CM_MM-SEEP5	9/9/2020	Low Flow	0	1	1	0	1	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	1
CM_NS1	6/4/2020	Freshet	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_NS1	9/10/2020	Low Flow	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_NS4	6/4/2020	Freshet	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_NS4	9/10/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_NS7	6/4/2020	Freshet	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_NS7	9/10/2020	Low Flow	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_PLANT-SEEP1	9/9/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
CM_PLANT-SEEP1	6/3/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
CM_WD15	6/4/2020	Freshet	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_WD15	9/10/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_WD18	6/3/2020	Freshet	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_WD18	9/10/2020	Low Flow	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_WD19	6/4/2020	Freshet	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_WD19	9/10/2020	Low Flow	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_WD4	6/4/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_WD4	9/10/2020	Low Flow	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_WD7	6/3/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_WD7	9/10/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_WD9	10/8/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_CN1	5/20/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_CN1	9/24/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
EV_SEEP_10MILE5	6/18/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Seep ID	Sample Date	Flow Regime	pH (min)	pH (max)	Alkalinity (as CaCO3)	Fluoride (chronic)	Chloride (acute)	Chloride (chronic)	Sulfate (chronic)	Nitrite, AS N (acute)	Nitrite, AS N (chronic)	Nitrate, AS N (acute)	Nitrate, AS N (chronic)	Antimony, Total (acute)	Arsenic, Total (acute)	Boron, Total (chronic)	Barium, Total (chronic)	Beryllium, Total (chronic)	Cadmium, Dissolved (acute)	Cadmium, Dissolved (chronic)	Cobalt, Total (acute)	Cobalt, Total (chronic)	Copper, Total (acute)
EV_SEEP_10MILE9	6/18/2020	Freshet	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_BREAKERLAKE	5/20/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_BREAKERLAKE	9/22/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_CFI1	5/21/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
EV_SEEP_CFI1	9/22/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
EV_SEEP_ERICKSON1	10/8/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_ERICKSON1	5/20/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_ERICKSON2	9/24/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
EV_SEEP_ERICKSON2	5/27/2020	Freshet	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
EV_SEEP_HOPPER2	5/20/2020	Freshet	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
EV_SEEP_PLANT1	5/20/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_PLANT1	9/24/2020	Low Flow	0	0	1	0	1	1	0	0	0	0	1	0	1	0	0	1	0	1	0	1	0
EV_SEEP_PLANT10	5/20/2020	Freshet	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_PLANT10	10/8/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_PLANT10	10/27/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_PLANT11	5/20/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_PLANT11	9/24/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_PLANT23	5/20/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_PLANT23	9/24/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_SOUTHPIT3	6/17/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_SOUTHPIT4	10/8/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
EV_SEEP_SOUTHPIT4	6/17/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
EV_SEEP_SOUTHPIT6	10/8/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_TURCON1	9/22/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_TURCON1	6/3/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SPR12	8/26/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SPR12	6/11/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SPR15	6/23/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SPR15	10/22/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
EV_SPR15	2/24/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
EV_SPR16	10/22/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SPR16	2/26/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SPR16	8/25/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SPR1B	6/11/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SPR1B	2/26/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SPR1B	10/22/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SPR1B	8/26/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Seep ID	Sample Date	Flow Regime	pH (min)	pH (max)	Alkalinity (as CaCO3)	Fluoride (chronic)	Chloride (acute)	Chloride (chronic)	Sulfate (chronic)	Nitrite, AS N (acute)	Nitrite, AS N (chronic)	Nitrate, AS N (acute)	Nitrate, AS N (chronic)	Antimony, Total (acute)	Arsenic, Total (acute)	Boron, Total (chronic)	Barium, Total (chronic)	Beryllium, Total (chronic)	Cadmium, Dissolved (acute)	Cadmium, Dissolved (chronic)	Cobalt, Total (acute)	Cobalt, Total (chronic)	Copper, Total (acute)
EV_SPR2	6/10/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SPR2	7/7/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SPR2	2/5/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SPR2	4/6/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SPR2	3/3/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SPR2	5/4/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SPR2	9/2/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SPR2	10/8/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SPR2	8/6/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SPR3	6/11/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_WLAGC	9/24/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR_ASPSEEP1	6/12/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_ASPSEEP1	10/26/2020	Low Flow	0	0	1	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0
FR_BLAINESEEP1	6/12/2020	Freshet	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_BLAINESEEP1	10/26/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_BLAINESEEP5	6/12/2020	Freshet	0	0	1	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0
FR_BLAKESEEP1	6/12/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	5/21/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	6/24/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	6/11/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	8/19/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	7/29/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	8/24/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	9/2/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	9/18/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	10/2/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	9/28/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	10/26/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	10/16/2020	Low Flow	0	0	1	0	0	0	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	4/27/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	9/25/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	11/2/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	9/11/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	9/21/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	9/9/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	10/9/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	10/19/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0

Seep ID	Sample Date	Flow Regime	pH (min)	pH (max)	Alkalinity (as CaCO3)	Fluoride (chronic)	Chloride (acute)	Chloride (chronic)	Sulfate (chronic)	Nitrite, AS N (acute)	Nitrite, AS N (chronic)	Nitrate, AS N (acute)	Nitrate, AS N (chronic)	Antimony, Total (acute)	Arsenic, Total (acute)	Boron, Total (chronic)	Barium, Total (chronic)	Beryllium, Total (chronic)	Cadmium, Dissolved (acute)	Cadmium, Dissolved (chronic)	Cobalt, Total (acute)	Cobalt, Total (chronic)	Copper, Total (acute)
FR_CCSEEPE1	9/14/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	4/20/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	4/22/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	4/24/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	4/17/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	4/13/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	3/13/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	3/18/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	2/24/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	3/30/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	4/6/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	3/21/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	10/26/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	8/19/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	9/28/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	8/24/2020	Low Flow	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	10/2/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	9/14/2020	Low Flow	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	10/9/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	10/16/2020	Low Flow	0	0	1	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	9/18/2020	Low Flow	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	9/11/2020	Low Flow	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	10/19/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	11/2/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	9/21/2020	Low Flow	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	8/31/2020	Low Flow	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	6/24/2020	Freshet	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	9/25/2020	Low Flow	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	5/21/2020	Freshet	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	4/4/2020	Freshet	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	8/27/2020	Low Flow	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	4/6/2020	Freshet	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	3/18/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	4/27/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	4/8/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	3/21/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	2/24/2020	Low Flow	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0

Seep ID	Sample Date	Flow Regime	pH (min)	pH (max)	Alkalinity (as CaCO3)	Fluoride (chronic)	Chloride (acute)	Chloride (chronic)	Sulfate (chronic)	Nitrite, AS N (acute)	Nitrite, AS N (chronic)	Nitrate, AS N (acute)	Nitrate, AS N (chronic)	Antimony, Total (acute)	Arsenic, Total (acute)	Boron, Total (chronic)	Barium, Total (chronic)	Beryllium, Total (chronic)	Cadmium, Dissolved (acute)	Cadmium, Dissolved (chronic)	Cobalt, Total (acute)	Cobalt, Total (chronic)	Copper, Total (acute)
FR_CCSEEPE3	3/13/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	4/20/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	4/14/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	4/12/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	4/10/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	4/17/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	4/16/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	4/2/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	4/24/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	4/22/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	3/31/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	3/27/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	3/25/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	3/29/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE1	9/3/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE1	6/11/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE4	5/21/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE4	6/24/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE4	7/29/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE4	3/29/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE4	2/24/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	5/21/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	4/27/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	4/20/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	4/22/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	6/24/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	4/24/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	4/17/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	8/19/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	9/18/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	4/6/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	4/12/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	4/4/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	4/14/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	4/16/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	4/8/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	8/24/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0

Seep ID	Sample Date	Flow Regime	pH (min)	pH (max)	Alkalinity (as CaCO3)	Fluoride (chronic)	Chloride (acute)	Chloride (chronic)	Sulfate (chronic)	Nitrite, AS N (acute)	Nitrite, AS N (chronic)	Nitrate, AS N (acute)	Nitrate, AS N (chronic)	Antimony, Total (acute)	Arsenic, Total (acute)	Boron, Total (chronic)	Barium, Total (chronic)	Beryllium, Total (chronic)	Cadmium, Dissolved (acute)	Cadmium, Dissolved (chronic)	Cobalt, Total (acute)	Cobalt, Total (chronic)	Copper, Total (acute)
FR_CCSEEPSE5	9/11/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	10/2/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	9/25/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	4/10/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	4/2/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	10/16/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	9/21/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	9/28/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	9/14/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	10/13/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	8/31/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	10/26/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	10/9/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	3/31/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	11/2/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	8/27/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	10/19/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	3/29/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	3/25/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	3/27/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	3/18/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	2/24/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	3/21/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPSE5	3/13/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_EAGLENORTH	6/11/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_EAGLENORTH	10/15/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_FCSEEP2	6/11/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR_FCSEEP2	10/22/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_FRVWSEEP3	6/11/2020	Freshet	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR_FRVWSEEP3	10/27/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR_FSEAMSEEP7	6/12/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_FSEAMSEEP7	10/26/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0	0	1	1
FR_FSEAMWSEEP4	6/12/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_GC1	6/24/2020	Freshet	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_GC1	7/28/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_GC1	8/17/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_GC1	5/21/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0

Seep ID	Sample Date	Flow Regime	pH (min)	pH (max)	Alkalinity (as CaCO3)	Fluoride (chronic)	Chloride (acute)	Chloride (chronic)	Sulfate (chronic)	Nitrite, AS N (acute)	Nitrite, AS N (chronic)	Nitrate, AS N (acute)	Nitrate, AS N (chronic)	Antimony, Total (acute)	Arsenic, Total (acute)	Boron, Total (chronic)	Barium, Total (chronic)	Beryllium, Total (chronic)	Cadmium, Dissolved (acute)	Cadmium, Dissolved (chronic)	Cobalt, Total (acute)	Cobalt, Total (chronic)	Copper, Total (acute)
FR_GC1	10/5/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_GC1	9/23/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_GC1	9/2/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_GC1	9/30/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_GC1	10/26/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_GC1	10/14/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_GC1	3/26/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_GC1	9/16/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_GC1	11/2/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_GC1	10/19/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_GC1	3/12/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_GC1	9/9/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_GC1	4/24/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_GC1	4/13/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_GC1	2/24/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_GC1	4/9/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_GC1	4/15/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_GC1	4/17/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_GC1	3/30/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_GC1	4/11/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_GC1	4/5/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_GC1	4/1/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_GC1	4/7/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_HENSEEP3	6/10/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_HENSEEP3	10/19/2020	Low Flow	0	0	1	0	0	0	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0
FR_HENSSEEP1	6/10/2020	Freshet	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR_LMCWSEEP5	6/11/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_LMCWSEEP5	10/26/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_LMCWSEEP5	5/5/2020	Freshet	0	0	1	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
FR_SCRDSEEP1	10/29/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_SCRDSEEP1	6/18/2020	Freshet	0	0	1	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0
FR_SHNSEEP1	6/18/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_SPRWSEEP1	10/26/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_STPNSEEP	6/12/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_STPSWSEEP	10/22/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR_STPSWSEEP	6/12/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR_STPWSEEP	10/22/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Seep ID	Sample Date	Flow Regime	pH (min)	pH (max)	Alkalinity (as CaCO3)	Fluoride (chronic)	Chloride (acute)	Chloride (chronic)	Sulfate (chronic)	Nitrite, AS N (acute)	Nitrite, AS N (chronic)	Nitrate, AS N (acute)	Nitrate, AS N (chronic)	Antimony, Total (acute)	Arsenic, Total (acute)	Boron, Total (chronic)	Barium, Total (chronic)	Beryllium, Total (chronic)	Cadmium, Dissolved (acute)	Cadmium, Dissolved (chronic)	Cobalt, Total (acute)	Cobalt, Total (chronic)	Copper, Total (acute)
FR_STPWSEEP	6/12/2020	Freshet	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
FR_TBWSEEP1	10/19/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_TBWSEEP1	3/28/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_TBWSEEP1	5/21/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_TBWSEEP1	6/24/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_TBWSEEP1	6/10/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_TBWSEEP1	4/24/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_TURNSEEP1	6/10/2020	Freshet	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
FR_TURNSEEP2	6/10/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_TURNSEEP2	10/19/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_WED1	6/24/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	7/28/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_WED1	8/17/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_WED1	5/25/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_WED1	9/2/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_WED1	9/30/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_WED1	9/9/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_WED1	10/5/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_WED1	10/26/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_WED1	9/23/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_WED1	9/16/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_WED1	10/14/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_WED1	11/2/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_WED1	3/12/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_WED1	4/13/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_WED1	10/19/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_WED1	3/26/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_WED1	3/23/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_WED1	3/30/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_WED1	4/17/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_WED1	4/9/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_WED1	2/24/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_WED1	4/24/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_WED1	4/11/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_WED1	4/15/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_WED1	4/1/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
FR_WED1	4/5/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0

Seep ID	Sample Date	Flow Regime	pH (min)	pH (max)	Alkalinity (as CaCO3)	Fluoride (chronic)	Chloride (acute)	Chloride (chronic)	Sulfate (chronic)	Nitrite, AS N (acute)	Nitrite, AS N (chronic)	Nitrate, AS N (acute)	Nitrate, AS N (chronic)	Antimony, Total (acute)	Arsenic, Total (acute)	Boron, Total (chronic)	Barium, Total (chronic)	Beryllium, Total (chronic)	Cadmium, Dissolved (acute)	Cadmium, Dissolved (chronic)	Cobalt, Total (acute)	Cobalt, Total (chronic)	Copper, Total (acute)
FR_WED1	4/7/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
GH_E1	3/5/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E1	2/19/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E1	4/27/2020	Freshet	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E1	9/6/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E1	8/13/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E1	10/15/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E2	6/8/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E2	5/14/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E2	9/6/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E2	8/13/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E2	7/20/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E2	10/15/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E2	2/19/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E2	4/27/2020	Freshet	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E3	9/6/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E3	10/14/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E3	6/8/2020	Freshet	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E3	1/9/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E3	8/13/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E3	5/14/2020	Freshet	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E-SEEP	7/16/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E-SEEP	3/5/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E-SEEP	4/17/2020	Freshet	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E-SEEP	2/12/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E-SEEP	6/8/2020	Freshet	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E-SEEP	5/15/2020	Freshet	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E-SEEP	10/21/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E-SEEP	9/6/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E-SEEP	8/3/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_SEEP_12	6/25/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_SEEP_46	7/15/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
GH_SEEP_5	7/3/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_SEEP_60	9/29/2020	Low Flow	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
GH_SEEP_76	6/26/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
GH_SEEP_77	6/26/2020	Freshet	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
GH_SEEP_79	6/26/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Seep ID	**Sample Date**	**Flow Regime**	**pH (min)**	**pH (max)**	**Alkalinity (as CaCO3)**	**Fluoride (chronic)**	**Chloride (acute)**	**Chloride (chronic)**	**Sulfate (chronic)**	**Nitrite, AS N (acute)**	**Nitrite, AS N (chronic)**	**Nitrate, AS N (acute)**	**Nitrate, AS N (chronic)**	**Antimony, Total (acute)**	**Arsenic, Total (acute)**	**Boron, Total (chronic)**	**Barium, Total (chronic)**	**Beryllium, Total (chronic)**	**Cadmium, Dissolved (acute)**	**Cadmium, Dissolved (chronic)**	**Cobalt, Total (acute)**	**Cobalt, Total (chronic)**	**Copper, Total (acute)**
GH_WTDS	1/9/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_WTDS	9/6/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_WTDS	10/14/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_WTDS	4/6/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_WTDS	8/12/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_WTDS	5/13/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_WTDS	3/4/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_WTDS	7/8/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_WTDS	2/12/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LC_3KM	10/22/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LC_3KM	6/24/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LC_ERX	6/25/2020	Freshet	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LC_SEEP1	6/24/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LC_SEEP10	6/26/2020	Freshet	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LC_SEEP11	6/26/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LC_SEEP14	6/24/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
LC_SEEP15	6/24/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
LC_SEEP19	6/24/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LC_SEEP19	10/22/2020	Low Flow	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
LC_SEEP2	10/26/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LC_SEEP2	6/24/2020	Freshet	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
LC_SEEP8	6/23/2020	Freshet	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LC_UDHP	10/27/2020	Low Flow	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
LC_UDP1	10/27/2020	Low Flow	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LC_WLC_lot2	6/25/2020	Freshet	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.259_2019_Seep_Monitoring_Report\2020 Data\Data Analysis\2020_BCWQGs_Screening_1CT017.259_SM_rev03.xlsx

Table 3: Seep BC Water Quality Guideline for Freshwater Aquatic Life Screening (4/6)

Seep ID	Sample Date	Flow Regime	Copper, Total (chronic)	Iron, Total (acute)	Lead, Total (acute)	Lead, Total (chronic)	Manganese, Total (acute)	Manganese, Total (chronic)	Molybdenum, Total (acute)	Molybdenum, Total (chronic)	Nickel, Total (chronic)	Selenium, Total (chronic)	Silver, Total (acute)	Silver, Total (chronic)	Thallium, Total (chronic)	Uranium, Total (chronic)	Zinc, Total (acute)	Zinc, Total (chronic)	Aluminum, Dissolved (acute)	Aluminum, Dissolved (chronic)	Cadmium, Dissolved (acute)	Cadmium, Dissolved (chronic)	Iron, Dissolved (acute)
CM_37PIT-SEEP-E	9/9/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_37PIT-SEEP-E	6/17/2020	Freshet	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
CM_37PIT-SEEP-W	9/9/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_37PIT-SEEP-W	6/17/2020	Freshet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_CCDS	6/4/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
CM_CS1	9/9/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
CM_CS1	6/2/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
CM_MM-SEEP1	9/9/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
CM_MM-SEEP1	6/3/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
CM_MM-SEEP3	6/3/2020	Freshet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_MM-SEEP3	9/9/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_MM-SEEP5	5/6/2020	Freshet	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	1	1	1	1	1	0
CM_MM-SEEP5	6/3/2020	Freshet	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	1	1	1	0
CM_MM-SEEP5	9/9/2020	Low Flow	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	1	1	0
CM_NS1	6/4/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
CM_NS1	9/10/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
CM_NS4	6/4/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
CM_NS4	9/10/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CM_NS7	6/4/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
CM_NS7	9/10/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
CM_PLANT-SEEP1	9/9/2020	Low Flow	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
CM_PLANT-SEEP1	6/3/2020	Freshet	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
CM_WD15	6/4/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
CM_WD15	9/10/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
CM_WD18	6/3/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
CM_WD18	9/10/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
CM_WD19	6/4/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
CM_WD19	9/10/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
CM_WD4	6/4/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
CM_WD4	9/10/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
CM_WD7	6/3/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
CM_WD7	9/10/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
CM_WD9	10/8/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
EV_CN1	5/20/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
EV_CN1	9/24/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_10MILE5	6/18/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0

Seep ID	Sample Date	Flow Regime	Copper, Total (chronic)	Iron, Total (acute)	Lead, Total (acute)	Lead, Total (chronic)	Manganese, Total (acute)	Manganese, Total (chronic)	Molybdenum, Total (acute)	Molybdenum, Total (chronic)	Nickel, Total (chronic)	Selenium, Total (chronic)	Silver, Total (acute)	Silver, Total (chronic)	Thallium, Total (chronic)	Uranium, Total (chronic)	Zinc, Total (acute)	Zinc, Total (chronic)	Aluminum, Dissolved (acute)	Aluminum, Dissolved (chronic)	Cadmium, Dissolved (acute)	Cadmium, Dissolved (chronic)	Iron, Dissolved (acute)
EV_SEEP_10MILE9	6/18/2020	Freshet	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
EV_SEEP_BREAKERLAKE	5/20/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_BREAKERLAKE	9/22/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_CFI1	5/21/2020	Freshet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_CFI1	9/22/2020	Low Flow	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
EV_SEEP_ERICKSON1	10/8/2020	Low Flow	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
EV_SEEP_ERICKSON1	5/20/2020	Freshet	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
EV_SEEP_ERICKSON2	9/24/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
EV_SEEP_ERICKSON2	5/27/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
EV_SEEP_HOPPER2	5/20/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
EV_SEEP_PLANT1	5/20/2020	Freshet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_PLANT1	9/24/2020	Low Flow	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
EV_SEEP_PLANT10	5/20/2020	Freshet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_PLANT10	10/8/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_PLANT10	10/27/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_PLANT11	5/20/2020	Freshet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_PLANT11	9/24/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_PLANT23	5/20/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_PLANT23	9/24/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_SOUTHPIT3	6/17/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_SOUTHPIT4	10/8/2020	Low Flow	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
EV_SEEP_SOUTHPIT4	6/17/2020	Freshet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_SOUTHPIT6	10/8/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_TURCON1	9/22/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SEEP_TURCON1	6/3/2020	Freshet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SPR12	8/26/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SPR12	6/11/2020	Freshet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SPR15	6/23/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
EV_SPR15	10/22/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
EV_SPR15	2/24/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
EV_SPR16	10/22/2020	Low Flow	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
EV_SPR16	2/26/2020	Low Flow	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
EV_SPR16	8/25/2020	Low Flow	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
EV_SPR1B	6/11/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
EV_SPR1B	2/26/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
EV_SPR1B	10/22/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EV_SPR1B	8/26/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Seep ID	Sample Date	Flow Regime	Copper, Total (chronic)	Iron, Total (acute)	Lead, Total (acute)	Lead, Total (chronic)	Manganese, Total (acute)	Manganese, Total (chronic)	Molybdenum, Total (acute)	Molybdenum, Total (chronic)	Nickel, Total (chronic)	Selenium, Total (chronic)	Silver, Total (acute)	Silver, Total (chronic)	Thallium, Total (chronic)	Uranium, Total (chronic)	Zinc, Total (acute)	Zinc, Total (chronic)	Aluminum, Dissolved (acute)	Aluminum, Dissolved (chronic)	Cadmium, Dissolved (acute)	Cadmium, Dissolved (chronic)	Iron, Dissolved (acute)
EV_SPR2	6/10/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
EV_SPR2	7/7/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
EV_SPR2	2/5/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
EV_SPR2	4/6/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
EV_SPR2	3/3/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
EV_SPR2	5/4/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
EV_SPR2	9/2/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
EV_SPR2	10/8/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
EV_SPR2	8/6/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
EV_SPR3	6/11/2020	Freshet	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
EV_WLAGC	9/24/2020	Low Flow	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
FR_ASPSEEP1	6/12/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_ASPSEEP1	10/26/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_BLAINESEEP1	6/12/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_BLAINESEEP1	10/26/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_BLAINESEEP5	6/12/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_BLAKESEEP1	6/12/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE1	5/21/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	6/24/2020	Freshet	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	6/11/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	8/19/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	7/29/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	8/24/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	9/2/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	9/18/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	10/2/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	9/28/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	10/26/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	10/16/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	4/27/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	9/25/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	11/2/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	9/11/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	9/21/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	9/9/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	10/9/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	10/19/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0

Seep ID	Sample Date	Flow Regime	Copper, Total (chronic)	Iron, Total (acute)	Lead, Total (acute)	Lead, Total (chronic)	Manganese, Total (acute)	Manganese, Total (chronic)	Molybdenum, Total (acute)	Molybdenum, Total (chronic)	Nickel, Total (chronic)	Selenium, Total (chronic)	Silver, Total (acute)	Silver, Total (chronic)	Thallium, Total (chronic)	Uranium, Total (chronic)	Zinc, Total (acute)	Zinc, Total (chronic)	Aluminum, Dissolved (acute)	Aluminum, Dissolved (chronic)	Cadmium, Dissolved (acute)	Cadmium, Dissolved (chronic)	Iron, Dissolved (acute)
FR_CCSEEPE1	9/14/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	4/20/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	4/22/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	4/24/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	4/17/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	4/13/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	3/13/2020	Low Flow	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	3/18/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	2/24/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	3/30/2020	Freshet	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	4/6/2020	Freshet	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE1	3/21/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE3	10/26/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	8/19/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	9/28/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	8/24/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	10/2/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	9/14/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	10/9/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	10/16/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	9/18/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	9/11/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	10/19/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	11/2/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	9/21/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	8/31/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	6/24/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	9/25/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	5/21/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	4/4/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	8/27/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR_CCSEEPE3	4/6/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE3	3/18/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE3	4/27/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE3	4/8/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE3	3/21/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE3	2/24/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0

Seep ID	Sample Date	Flow Regime	Copper, Total (chronic)	Iron, Total (acute)	Lead, Total (acute)	Lead, Total (chronic)	Manganese, Total (acute)	Manganese, Total (chronic)	Molybdenum, Total (acute)	Molybdenum, Total (chronic)	Nickel, Total (chronic)	Selenium, Total (chronic)	Silver, Total (acute)	Silver, Total (chronic)	Thallium, Total (chronic)	Uranium, Total (chronic)	Zinc, Total (acute)	Zinc, Total (chronic)	Aluminum, Dissolved (acute)	Aluminum, Dissolved (chronic)	Cadmium, Dissolved (acute)	Cadmium, Dissolved (chronic)	Iron, Dissolved (acute)
FR_CCSEEPE3	3/13/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE3	4/20/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE3	4/14/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE3	4/12/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE3	4/10/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE3	4/17/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE3	4/16/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE3	4/2/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE3	4/24/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE3	4/22/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE3	3/31/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE3	3/27/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE3	3/25/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPE3	3/29/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE1	9/3/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE1	6/11/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE4	5/21/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE4	6/24/2020	Freshet	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE4	7/29/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE4	3/29/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE4	2/24/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	5/21/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	4/27/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	4/20/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	4/22/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	6/24/2020	Freshet	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	4/24/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	4/17/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	8/19/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	9/18/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	4/6/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	4/12/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	4/4/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	4/14/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	4/16/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	4/8/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	8/24/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0

Seep ID	Sample Date	Flow Regime	Copper, Total (chronic)	Iron, Total (acute)	Lead, Total (acute)	Lead, Total (chronic)	Manganese, Total (acute)	Manganese, Total (chronic)	Molybdenum, Total (acute)	Molybdenum, Total (chronic)	Nickel, Total (chronic)	Selenium, Total (chronic)	Silver, Total (acute)	Silver, Total (chronic)	Thallium, Total (chronic)	Uranium, Total (chronic)	Zinc, Total (acute)	Zinc, Total (chronic)	Aluminum, Dissolved (acute)	Aluminum, Dissolved (chronic)	Cadmium, Dissolved (acute)	Cadmium, Dissolved (chronic)	Iron, Dissolved (acute)
FR_CCSEEPSE5	9/11/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	10/2/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	9/25/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	4/10/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	4/2/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	10/16/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	9/21/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	9/28/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	9/14/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	10/13/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	8/31/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	10/26/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	10/9/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	3/31/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	11/2/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	8/27/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	10/19/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	3/29/2020	Freshet	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	3/25/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	3/27/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	3/18/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	2/24/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	3/21/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_CCSEEPSE5	3/13/2020	Low Flow	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_EAGLENORTH	6/11/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_EAGLENORTH	10/15/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_FCSEEP2	6/11/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_FCSEEP2	10/22/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_FRVWSEEP3	6/11/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_FRVWSEEP3	10/27/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_FSEAMSEEP7	6/12/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_FSEAMSEEP7	10/26/2020	Low Flow	1	1	0	1	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0
FR_FSEAMWSEEP4	6/12/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_GC1	6/24/2020	Freshet	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_GC1	7/28/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_GC1	8/17/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_GC1	5/21/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0

Seep ID	Sample Date	Flow Regime	Copper, Total (chronic)	Iron, Total (acute)	Lead, Total (acute)	Lead, Total (chronic)	Manganese, Total (acute)	Manganese, Total (chronic)	Molybdenum, Total (acute)	Molybdenum, Total (chronic)	Nickel, Total (chronic)	Selenium, Total (chronic)	Silver, Total (acute)	Silver, Total (chronic)	Thallium, Total (chronic)	Uranium, Total (chronic)	Zinc, Total (acute)	Zinc, Total (chronic)	Aluminum, Dissolved (acute)	Aluminum, Dissolved (chronic)	Cadmium, Dissolved (acute)	Cadmium, Dissolved (chronic)	Iron, Dissolved (acute)
FR_GC1	10/5/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_GC1	9/23/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_GC1	9/2/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_GC1	9/30/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_GC1	10/26/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_GC1	10/14/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_GC1	3/26/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_GC1	9/16/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_GC1	11/2/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_GC1	10/19/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_GC1	3/12/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_GC1	9/9/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_GC1	4/24/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_GC1	4/13/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_GC1	2/24/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
FR_GC1	4/9/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_GC1	4/15/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_GC1	4/17/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_GC1	3/30/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_GC1	4/11/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_GC1	4/5/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_GC1	4/1/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_GC1	4/7/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
FR_HENSEEP3	6/10/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_HENSEEP3	10/19/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_HENSSEEP1	6/10/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_LMCWSEEP5	6/11/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_LMCWSEEP5	10/26/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_LMCWSEEP5	5/5/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_SCRDSEEP1	10/29/2020	Low Flow	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_SCRDSEEP1	6/18/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_SHNSEEP1	6/18/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_SPRWSEEP1	10/26/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_STPNSEEP	6/12/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_STPSWSEEP	10/22/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR_STPSWSEEP	6/12/2020	Freshet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR_STPWSEEP	10/22/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Seep ID	Sample Date	Flow Regime	Copper, Total (chronic)	Iron, Total (acute)	Lead, Total (acute)	Lead, Total (chronic)	Manganese, Total (acute)	Manganese, Total (chronic)	Molybdenum, Total (acute)	Molybdenum, Total (chronic)	Nickel, Total (chronic)	Selenium, Total (chronic)	Silver, Total (acute)	Silver, Total (chronic)	Thallium, Total (chronic)	Uranium, Total (chronic)	Zinc, Total (acute)	Zinc, Total (chronic)	Aluminum, Dissolved (acute)	Aluminum, Dissolved (chronic)	Cadmium, Dissolved (acute)	Cadmium, Dissolved (chronic)	Iron, Dissolved (acute)
FR_STPWSEEP	6/12/2020	Freshet	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
FR_TBWSEEP1	10/19/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_TBWSEEP1	3/28/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_TBWSEEP1	5/21/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_TBWSEEP1	6/24/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_TBWSEEP1	6/10/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_TBWSEEP1	4/24/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_TURNSEEP1	6/10/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_TURNSEEP2	6/10/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_TURNSEEP2	10/19/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	6/24/2020	Freshet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	7/28/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	8/17/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	5/25/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	9/2/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	9/30/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	9/9/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	10/5/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	10/26/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	9/23/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	9/16/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	10/14/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	11/2/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	3/12/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	4/13/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	10/19/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	3/26/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	3/23/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	3/30/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	4/17/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	4/9/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	2/24/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	4/24/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	4/11/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	4/15/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	4/1/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
FR_WED1	4/5/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0

Seep ID	Sample Date	Flow Regime	Copper, Total (chronic)	Iron, Total (acute)	Lead, Total (acute)	Lead, Total (chronic)	Manganese, Total (acute)	Manganese, Total (chronic)	Molybdenum, Total (acute)	Molybdenum, Total (chronic)	Nickel, Total (chronic)	Selenium, Total (chronic)	Silver, Total (acute)	Silver, Total (chronic)	Thallium, Total (chronic)	Uranium, Total (chronic)	Zinc, Total (acute)	Zinc, Total (chronic)	Aluminum, Dissolved (acute)	Aluminum, Dissolved (chronic)	Cadmium, Dissolved (acute)	Cadmium, Dissolved (chronic)	Iron, Dissolved (acute)
FR_WED1	4/7/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_E1	3/5/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E1	2/19/2020	Low Flow	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E1	4/27/2020	Freshet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E1	9/6/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E1	8/13/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E1	10/15/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_E2	6/8/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_E2	5/14/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_E2	9/6/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_E2	8/13/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_E2	7/20/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_E2	10/15/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_E2	2/19/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_E2	4/27/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_E3	9/6/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E3	10/14/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E3	6/8/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_E3	1/9/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_E3	8/13/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_E3	5/14/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_E-SEEP	7/16/2020	Low Flow	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E-SEEP	3/5/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_E-SEEP	4/17/2020	Freshet	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_E-SEEP	2/12/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_E-SEEP	6/8/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_E-SEEP	5/15/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_E-SEEP	10/21/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E-SEEP	9/6/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_E-SEEP	8/3/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GH_SEEP_12	6/25/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_SEEP_46	7/15/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_SEEP_5	7/3/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_SEEP_60	9/29/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
GH_SEEP_76	6/26/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
GH_SEEP_77	6/26/2020	Freshet	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0
GH_SEEP_79	6/26/2020	Freshet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Seep ID	Sample Date	Flow Regime	Copper, Total (chronic)	Iron, Total (acute)	Lead, Total (acute)	Lead, Total (chronic)	Manganese, Total (acute)	Manganese, Total (chronic)	Molybdenum, Total (acute)	Molybdenum, Total (chronic)	Nickel, Total (chronic)	Selenium, Total (chronic)	Silver, Total (acute)	Silver, Total (chronic)	Thallium, Total (chronic)	Uranium, Total (chronic)	Zinc, Total (acute)	Zinc, Total (chronic)	Aluminum, Dissolved (acute)	Aluminum, Dissolved (chronic)	Cadmium, Dissolved (acute)	Cadmium, Dissolved (chronic)	Iron, Dissolved (acute)
GH_WTDS	1/9/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_WTDS	9/6/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_WTDS	10/14/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_WTDS	4/6/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_WTDS	8/12/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_WTDS	5/13/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_WTDS	3/4/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_WTDS	7/8/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
GH_WTDS	2/12/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
LC_3KM	10/22/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LC_3KM	6/24/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
LC_ERX	6/25/2020	Freshet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LC_SEEP1	6/24/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
LC_SEEP10	6/26/2020	Freshet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
LC_SEEP11	6/26/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
LC_SEEP14	6/24/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
LC_SEEP15	6/24/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
LC_SEEP19	6/24/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
LC_SEEP19	10/22/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
LC_SEEP2	10/26/2020	Low Flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LC_SEEP2	6/24/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
LC_SEEP8	6/23/2020	Freshet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LC_UDHP	10/27/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
LC_UDP1	10/27/2020	Low Flow	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
LC_WLC_lot2	6/25/2020	Freshet	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.259_2019_Seep_Monitoring_Report\2020 Data\Data Analysis\2020_BCWQGs_Screening_1CT017.259_SM_rev03.xlsx

Table 4: Seep BC Water Quality Guideline for Freshwater Aquatic Life Screening (5/6)

Seep ID	Sample Date	Flow Regime	pH (min)	pH (max)	Alkalinity (as CaCO3)	Fluoride (chronic)^1	Chloride (acute)	Chloride (chronic)	Sulfate (chronic)^1	Nitrite, AS N (acute)^2	Nitrite, AS N (chronic)^2	Nitrate, AS N (acute)	Nitrate, AS N (chronic)	Antimony, Total (acute)	Arsenic, Total (acute)	Boron, Total (chronic)	Barium, Total (chronic)	Beryllium, Total (chronic)	Cadmium, Dissolved (acute)^1	Cadmium, Dissolved (chronic)^1	Cobalt, Total (acute)	Cobalt, Total (chronic)
			pH units	*pH units*		*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
CM_37PIT-SEEP-E	9/9/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_37PIT-SEEP-E	6/17/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_37PIT-SEEP-W	9/9/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_37PIT-SEEP-W	6/17/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_CCDS	6/4/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00216	0.00173	0.110	0.00400
CM_CS1	9/9/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00166	0.00166	0.110	0.00400
CM_CS1	6/2/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00259	0.00173	0.110	0.00400
CM_MM-SEEP1	9/9/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_MM-SEEP1	6/3/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_MM-SEEP3	6/3/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_MM-SEEP3	9/9/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_MM-SEEP5	5/6/2020	Freshet	6.5	9	20	1.5	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_MM-SEEP5	6/3/2020	Freshet	6.5	9	20	1.5	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_MM-SEEP5	9/9/2020	Low Flow	6.5	9	20	1.5	600	150	429	0.060	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_NS1	6/4/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_NS1	9/10/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_NS4	6/4/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_NS4	9/10/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_NS7	6/4/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_NS7	9/10/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_PLANT-SEEP1	9/9/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_PLANT-SEEP1	6/3/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.240	0.0800	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_WD15	6/4/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_WD15	9/10/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_WD18	6/3/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_WD18	9/10/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_WD19	6/4/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_WD19	9/10/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_WD4	6/4/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_WD4	9/10/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_WD7	6/3/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00233	0.00173	0.110	0.00400
CM_WD7	9/10/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
CM_WD9	10/8/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_CN1	5/20/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400

Seep ID	Sample Date	Flow Regime	pH (min)	pH (max)	Alkalinity (as CaCO3)	Fluoride (chronic)[1]	Chloride (acute)	Chloride (chronic)	Sulfate (chronic)[1]	Nitrite, AS N (acute)[2]	Nitrite, AS N (chronic)[2]	Nitrate, AS N (acute)	Nitrate, AS N (chronic)	Antimony, Total (acute)	Arsenic, Total (acute)	Boron, Total (chronic)	Barium, Total (chronic)	Beryllium, Total (chronic)	Cadmium, Dissolved (acute)[1]	Cadmium, Dissolved (chronic)[1]	Cobalt, Total (acute)	Cobalt, Total (chronic)
			pH units	*pH units*		*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
EV_CN1	9/24/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_SEEP_10MILE5	6/18/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_SEEP_10MILE9	6/18/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00141	0.00141	0.110	0.00400
EV_SEEP_BREAKERLAKE	5/20/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_SEEP_BREAKERLAKE	9/22/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_SEEP_CFI1	5/21/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_SEEP_CFI1	9/22/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.240	0.0800	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_SEEP_ERICKSON1	10/8/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_SEEP_ERICKSON1	5/20/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_SEEP_ERICKSON2	9/24/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_SEEP_ERICKSON2	5/27/2020	Freshet	6.50	9.00	-	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_SEEP_HOPPER2	5/20/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.240	0.0800	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_SEEP_PLANT1	5/20/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00247	0.00173	0.110	0.00400
EV_SEEP_PLANT1	9/24/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_SEEP_PLANT10	5/20/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_SEEP_PLANT10	10/8/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_SEEP_PLANT10	10/27/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_SEEP_PLANT11	5/20/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_SEEP_PLANT11	9/24/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_SEEP_PLANT23	5/20/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_SEEP_PLANT23	9/24/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_SEEP_SOUTHPIT3	6/17/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00157	0.00157	0.110	0.00400
EV_SEEP_SOUTHPIT4	10/8/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00231	0.00173	0.110	0.00400
EV_SEEP_SOUTHPIT4	6/17/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00243	0.00173	0.110	0.00400
EV_SEEP_SOUTHPIT6	10/8/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_SEEP_TURCON1	9/22/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_SEEP_TURCON1	6/3/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_SPR12	8/26/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00187	0.00173	0.110	0.00400
EV_SPR12	6/11/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00189	0.00173	0.110	0.00400
EV_SPR15	6/23/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00177	0.00173	0.110	0.00400
EV_SPR15	10/22/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00197	0.00173	0.110	0.00400
EV_SPR15	2/24/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00206	0.00173	0.110	0.00400
EV_SPR16	10/22/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00216	0.00173	0.110	0.00400
EV_SPR16	2/26/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00246	0.00173	0.110	0.00400
EV_SPR16	8/25/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_SPR1B	6/11/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400

Seep ID	Sample Date	Flow Regime	pH (min)	pH (max)	Alkalinity (as CaCO3)	Fluoride (chronic)[1]	Chloride (acute)	Chloride (chronic)	Sulfate (chronic)[1]	Nitrite, AS N (acute)[2]	Nitrite, AS N (chronic)[2]	Nitrate, AS N (acute)	Nitrate, AS N (chronic)	Antimony, Total (acute)	Arsenic, Total (acute)	Boron, Total (chronic)	Barium, Total (chronic)	Beryllium, Total (chronic)	Cadmium, Dissolved (acute)[1]	Cadmium, Dissolved (chronic)[1]	Cobalt, Total (acute)	Cobalt, Total (chronic)
			pH units	*pH units*		*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
EV_SPR1B	2/26/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_SPR1B	10/22/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_SPR1B	8/26/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_SPR2	6/10/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00221	0.00173	0.110	0.00400
EV_SPR2	7/7/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00243	0.00173	0.110	0.00400
EV_SPR2	2/5/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00249	0.00173	0.110	0.00400
EV_SPR2	4/6/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00255	0.00173	0.110	0.00400
EV_SPR2	3/3/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00255	0.00173	0.110	0.00400
EV_SPR2	5/4/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00270	0.00173	0.110	0.00400
EV_SPR2	9/2/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00279	0.00173	0.110	0.00400
EV_SPR2	10/8/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00279	0.00173	0.110	0.00400
EV_SPR2	8/6/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_SPR3	6/11/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
EV_WLAGC	9/24/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.240	0.0800	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00170	0.00170	0.110	0.00400
FR_ASPSEEP1	6/12/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_ASPSEEP1	10/26/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_BLAINESEEP1	6/12/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_BLAINESEEP1	10/26/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_BLAINESEEP5	6/12/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_BLAKESEEP1	6/12/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	5/21/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	6/24/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	6/11/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	8/19/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	7/29/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	8/24/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	9/2/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	9/18/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	10/2/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	9/28/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	10/26/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	10/16/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	4/27/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	9/25/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	11/2/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	9/11/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400

Seep ID	Sample Date	Flow Regime	pH (min)	pH (max)	Alkalinity (as CaCO3)	Fluoride (chronic)[1]	Chloride (acute)	Chloride (chronic)	Sulfate (chronic)[1]	Nitrite, AS N (acute)[2]	Nitrite, AS N (chronic)[2]	Nitrate, AS N (acute)	Nitrate, AS N (chronic)	Antimony, Total (acute)	Arsenic, Total (acute)	Boron, Total (chronic)	Barium, Total (chronic)	Beryllium, Total (chronic)	Cadmium, Dissolved (acute)[1]	Cadmium, Dissolved (chronic)[1]	Cobalt, Total (acute)	Cobalt, Total (chronic)
			pH units	*pH units*		*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
FR_CCSEEPE1	9/21/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	9/9/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	10/9/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	10/19/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	9/14/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	4/20/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	4/22/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	4/24/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	4/17/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	4/13/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	3/13/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	3/18/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	2/24/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	3/30/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	4/6/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE1	3/21/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	10/26/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	8/19/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	9/28/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	8/24/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	10/2/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	9/14/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	10/9/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	10/16/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	9/18/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	9/11/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	10/19/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	11/2/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	9/21/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.240	0.0800	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	8/31/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	6/24/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	9/25/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	5/21/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	4/4/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	8/27/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	4/6/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400

Seep ID	Sample Date	Flow Regime	pH (min)	pH (max)	Alkalinity (as CaCO3)	Fluoride (chronic)[1]	Chloride (acute)	Chloride (chronic)	Sulfate (chronic)[1]	Nitrite, AS N (acute)[2]	Nitrite, AS N (chronic)[2]	Nitrate, AS N (acute)	Nitrate, AS N (chronic)	Antimony, Total (acute)	Arsenic, Total (acute)	Boron, Total (chronic)	Barium, Total (chronic)	Beryllium, Total (chronic)	Cadmium, Dissolved (acute)[1]	Cadmium, Dissolved (chronic)[1]	Cobalt, Total (acute)	Cobalt, Total (chronic)
			pH units	*pH units*		*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
FR_CCSEEPE3	3/18/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	4/27/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	4/8/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	3/21/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	2/24/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	3/13/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	4/20/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	4/14/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	4/12/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	4/10/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	4/17/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	4/16/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	4/2/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	4/24/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	4/22/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	3/31/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	3/27/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	3/25/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPE3	3/29/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE1	9/3/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE1	6/11/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE4	5/21/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE4	6/24/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE4	7/29/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE4	3/29/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE4	2/24/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	5/21/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	4/27/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	4/20/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	4/22/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	6/24/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	4/24/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	4/17/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	8/19/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	9/18/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	4/6/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400

Seep ID	Sample Date	Flow Regime	pH (min)	pH (max)	Alkalinity (as CaCO3)	Fluoride (chronic)[1]	Chloride (acute)	Chloride (chronic)	Sulfate (chronic)[1]	Nitrite, AS N (acute)[2]	Nitrite, AS N (chronic)[2]	Nitrate, AS N (acute)	Nitrate, AS N (chronic)	Antimony, Total (acute)	Arsenic, Total (acute)	Boron, Total (chronic)	Barium, Total (chronic)	Beryllium, Total (chronic)	Cadmium, Dissolved (acute)[1]	Cadmium, Dissolved (chronic)[1]	Cobalt, Total (acute)	Cobalt, Total (chronic)
			pH units	*pH units*		*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
FR_CCSEEPSE5	4/12/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	4/4/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	4/14/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	4/16/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	4/8/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	8/24/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	9/11/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	10/2/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	9/25/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	4/10/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	4/2/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	10/16/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	9/21/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	9/28/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	9/14/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	10/13/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	8/31/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	10/26/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	10/9/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	3/31/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	11/2/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	8/27/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	10/19/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	3/29/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	3/25/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	3/27/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	3/18/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	2/24/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	3/21/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_CCSEEPSE5	3/13/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_EAGLENORTH	6/11/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_EAGLENORTH	10/15/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_FCSEEP2	6/11/2020	Freshet	6.50	9.00	20.0	1.50	600	150	309	0.060	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00094	0.00094	0.110	0.00400
FR_FCSEEP2	10/22/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.060	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00182	0.00173	0.110	0.00400
FR_FRVWSEEP3	6/11/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_FRVWSEEP3	10/27/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400

Seep ID	Sample Date	Flow Regime	pH (min)	pH (max)	Alkalinity (as CaCO3)	Fluoride (chronic)[1]	Chloride (acute)	Chloride (chronic)	Sulfate (chronic)[1]	Nitrite, AS N (acute)[2]	Nitrite, AS N (chronic)[2]	Nitrate, AS N (acute)	Nitrate, AS N (chronic)	Antimony, Total (acute)	Arsenic, Total (acute)	Boron, Total (chronic)	Barium, Total (chronic)	Beryllium, Total (chronic)	Cadmium, Dissolved (acute)[1]	Cadmium, Dissolved (chronic)[1]	Cobalt, Total (acute)	Cobalt, Total (chronic)
			pH units	*pH units*		*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
FR_FSEAMSEEP7	6/12/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.060	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_FSEAMSEEP7	10/26/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_FSEAMWSEEP4	6/12/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.060	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00223	0.00173	0.110	0.00400
FR_GC1	6/24/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_GC1	7/28/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_GC1	8/17/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_GC1	5/21/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_GC1	10/5/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_GC1	9/23/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_GC1	9/2/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_GC1	9/30/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_GC1	10/26/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_GC1	10/14/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_GC1	3/26/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_GC1	9/16/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_GC1	11/2/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_GC1	10/19/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_GC1	3/12/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_GC1	9/9/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_GC1	4/24/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_GC1	4/13/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_GC1	2/24/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_GC1	4/9/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_GC1	4/15/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_GC1	4/17/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_GC1	3/30/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_GC1	4/11/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_GC1	4/5/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_GC1	4/1/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_GC1	4/7/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_HENSEEP3	6/10/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_HENSEEP3	10/19/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_HENSSEEP1	6/10/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_LMCWSEEP5	6/11/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00169	0.00169	0.110	0.00400
FR_LMCWSEEP5	10/26/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_LMCWSEEP5	5/5/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400

Seep ID	Sample Date	Flow Regime	pH (min)	pH (max)	Alkalinity (as CaCO3)	Fluoride (chronic)[1]	Chloride (acute)	Chloride (chronic)	Sulfate (chronic)[1]	Nitrite, AS N (acute)[2]	Nitrite, AS N (chronic)[2]	Nitrate, AS N (acute)	Nitrate, AS N (chronic)	Antimony, Total (acute)	Arsenic, Total (acute)	Boron, Total (chronic)	Barium, Total (chronic)	Beryllium, Total (chronic)	Cadmium, Dissolved (acute)[1]	Cadmium, Dissolved (chronic)[1]	Cobalt, Total (acute)	Cobalt, Total (chronic)
			pH units	*pH units*		*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
FR_SCRDSEEP1	10/29/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_SCRDSEEP1	6/18/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_SHNSEEP1	6/18/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00251	0.00173	0.110	0.00400
FR_SPRWSEEP1	10/26/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_STPNSEEP	6/12/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00154	0.00154	0.110	0.00400
FR_STPSWSEEP	10/22/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.240	0.0800	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_STPSWSEEP	6/12/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.240	0.0800	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_STPWSEEP	10/22/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.240	0.0800	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_STPWSEEP	6/12/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.240	0.0800	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_TBWSEEP1	10/19/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00261	0.00173	0.110	0.00400
FR_TBWSEEP1	3/28/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00269	0.00173	0.110	0.00400
FR_TBWSEEP1	5/21/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_TBWSEEP1	6/24/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_TBWSEEP1	6/10/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_TBWSEEP1	4/24/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_TURNSEEP1	6/10/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_TURNSEEP2	6/10/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_TURNSEEP2	10/19/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
FR_WED1	6/24/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00118	0.00118	0.110	0.00400
FR_WED1	7/28/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00136	0.00136	0.110	0.00400
FR_WED1	8/17/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00165	0.00165	0.110	0.00400
FR_WED1	5/25/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00166	0.00166	0.110	0.00400
FR_WED1	9/2/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00172	0.00172	0.110	0.00400
FR_WED1	9/30/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00181	0.00173	0.110	0.00400
FR_WED1	9/9/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00184	0.00173	0.110	0.00400
FR_WED1	10/5/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00186	0.00173	0.110	0.00400
FR_WED1	10/26/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00186	0.00173	0.110	0.00400
FR_WED1	9/23/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00189	0.00173	0.110	0.00400
FR_WED1	9/16/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00196	0.00173	0.110	0.00400
FR_WED1	10/14/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00199	0.00173	0.110	0.00400
FR_WED1	11/2/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00201	0.00173	0.110	0.00400
FR_WED1	3/12/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00204	0.00173	0.110	0.00400
FR_WED1	4/13/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00207	0.00173	0.110	0.00400
FR_WED1	10/19/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00210	0.00173	0.110	0.00400
FR_WED1	3/26/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00211	0.00173	0.110	0.00400
FR_WED1	3/23/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00221	0.00173	0.110	0.00400

Seep ID	Sample Date	Flow Regime	pH (min)	pH (max)	Alkalinity (as CaCO3)	Fluoride (chronic)[1]	Chloride (acute)	Chloride (chronic)	Sulfate (chronic)[1]	Nitrite, AS N (acute)[2]	Nitrite, AS N (chronic)[2]	Nitrate, AS N (acute)	Nitrate, AS N (chronic)	Antimony, Total (acute)	Arsenic, Total (acute)	Boron, Total (chronic)	Barium, Total (chronic)	Beryllium, Total (chronic)	Cadmium, Dissolved (acute)[1]	Cadmium, Dissolved (chronic)[1]	Cobalt, Total (acute)	Cobalt, Total (chronic)
			pH units	*pH units*		*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
FR_WED1	3/30/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00221	0.00173	0.110	0.00400
FR_WED1	4/17/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00221	0.00173	0.110	0.00400
FR_WED1	4/9/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00223	0.00173	0.110	0.00400
FR_WED1	2/24/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00224	0.00173	0.110	0.00400
FR_WED1	4/24/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00224	0.00173	0.110	0.00400
FR_WED1	4/11/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00224	0.00173	0.110	0.00400
FR_WED1	4/15/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00225	0.00173	0.110	0.00400
FR_WED1	4/1/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00228	0.00173	0.110	0.00400
FR_WED1	4/5/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00233	0.00173	0.110	0.00400
FR_WED1	4/7/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00236	0.00173	0.110	0.00400
GH_E1	3/5/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_E1	2/19/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_E1	4/27/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_E1	9/6/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_E1	8/13/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_E1	10/15/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_E2	6/8/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_E2	5/14/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_E2	9/6/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_E2	8/13/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_E2	7/20/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_E2	10/15/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_E2	2/19/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_E2	4/27/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_E3	9/6/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.240	0.0800	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_E3	10/14/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.240	0.0800	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_E3	6/8/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.240	0.0800	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_E3	1/9/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.240	0.0800	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_E3	8/13/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.240	0.0800	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_E3	5/14/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_E-SEEP	7/16/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_E-SEEP	3/5/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_E-SEEP	4/17/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_E-SEEP	2/12/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_E-SEEP	6/8/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_E-SEEP	5/15/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400

Seep ID	Sample Date	Flow Regime	pH (min)	pH (max)	Alkalinity (as CaCO3)	Fluoride (chronic)[1]	Chloride (acute)	Chloride (chronic)	Sulfate (chronic)[1]	Nitrite, AS N (acute)[2]	Nitrite, AS N (chronic)[2]	Nitrate, AS N (acute)	Nitrate, AS N (chronic)	Antimony, Total (acute)	Arsenic, Total (acute)	Boron, Total (chronic)	Barium, Total (chronic)	Beryllium, Total (chronic)	Cadmium, Dissolved (acute)[1]	Cadmium, Dissolved (chronic)[1]	Cobalt, Total (acute)	Cobalt, Total (chronic)
			pH units	*pH units*		*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
GH_E-SEEP	10/21/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_E-SEEP	9/6/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_E-SEEP	8/3/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_SEEP_12	6/25/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00134	0.00134	0.110	0.00400
GH_SEEP_46	7/15/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.6000	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_SEEP_5	7/3/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.300	0.100	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00172	0.00172	0.110	0.00400
GH_SEEP_60	9/29/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_SEEP_76	6/26/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_SEEP_77	6/26/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_SEEP_79	6/26/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00120	0.00120	0.110	0.00400
GH_WTDS	1/9/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_WTDS	9/6/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_WTDS	10/14/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_WTDS	4/6/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_WTDS	8/12/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_WTDS	5/13/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_WTDS	3/4/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_WTDS	7/8/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
GH_WTDS	2/12/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
LC_3KM	10/22/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00186	0.00173	0.110	0.00400
LC_3KM	6/24/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00199	0.00173	0.110	0.00400
LC_ERX	6/25/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
LC_SEEP1	6/24/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00258	0.00173	0.110	0.00400
LC_SEEP10	6/26/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
LC_SEEP11	6/26/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
LC_SEEP14	6/24/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.180	0.0600	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00212	0.00173	0.110	0.00400
LC_SEEP15	6/24/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
LC_SEEP19	6/24/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00193	0.00173	0.110	0.00400
LC_SEEP19	10/22/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
LC_SEEP2	10/26/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00139	0.00139	0.110	0.00400
LC_SEEP2	6/24/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.240	0.0800	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00177	0.00173	0.110	0.00400
LC_SEEP8	6/23/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.0600	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00126	0.00126	0.110	0.00400
LC_UDHP	10/27/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.600	0.200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400
LC_UDP1	10/27/2020	Low Flow	6.50	9.00	20.0	1.50	600	150	429	0.060	0.0200	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00119	0.00119	0.110	0.00400
LC_WLC_lot2	6/25/2020	Freshet	6.50	9.00	20.0	1.50	600	150	429	0.120	0.0400	32.8	3.00	0.00900	0.00500	1.20	1.00	0.000130	0.00280	0.00173	0.110	0.00400

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.259_2019_Seep_Monitoring_Report\2020 Data\Data Analysis\2020_BCWQGs_Screening_1CT017.259_SM_rev03.xlsx

Table 5: Seep BC Water Quality Guideline for Freshwater Aquatic Life Screening (6/6)

Seep ID	Sample Date	Flow Regime	Copper, Total (acute)	Copper, Total (chronic)	Iron, Total (acute)	Lead, Total (acute)[1]	Lead, Total (chronic)[1]	Manganese, Total (acute)[1]	Manganese, Total (chronic)[1]	Molybdenum, Total (acute)	Molybdenum, Total (chronic)	Nickel, Total (chronic)	Selenium, Total (chronic)	Silver, Total (acute)[1]	Silver, Total (chronic)[1]	Thallium, Total (chronic)	Uranium, Total (chronic)	Zinc, Total (acute)[1]	Zinc, Total (chronic)[1]	Aluminum, Dissolved (acute)[3]	Aluminum, Dissolved (chronic)[3]	Iron, Dissolved (acute)
			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
CM_37PIT-SEEP-E	9/9/2020	Low Flow	0.00920	0.00190	1.00	0.830	0.0357	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.429	0.404	0.100	0.0500	0.350
CM_37PIT-SEEP-E	6/17/2020	Freshet	0.00570	0.000800	1.00	1.11	0.0466	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.548	0.523	0.100	0.0500	0.350
CM_37PIT-SEEP-W	9/9/2020	Low Flow	0.00920	0.00200	1.00	0.821	0.0353	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.425	0.400	0.100	0.0500	0.350
CM_37PIT-SEEP-W	6/17/2020	Freshet	0.00520	0.000700	1.00	0.907	0.0387	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.463	0.437	0.100	0.0500	0.350
CM_CCDS	6/4/2020	Freshet	0.0151	0.00310	1.00	0.408	0.0192	3.39	4.44	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.231	0.206	0.100	0.0500	0.350
CM_CS1	9/9/2020	Low Flow	0.00780	0.00150	1.00	0.295	0.0148	3.39	3.56	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.171	0.146	0.100	0.0500	0.350
CM_CS1	6/2/2020	Freshet	0.00850	0.00160	1.00	0.509	0.0232	3.39	5.18	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.281	0.256	0.100	0.0500	0.350
CM_MM-SEEP1	9/9/2020	Low Flow	0.00720	0.00140	1.00	0.584	0.0261	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.317	0.292	0.100	0.0500	0.350
CM_MM-SEEP1	6/3/2020	Freshet	0.0112	0.00230	1.00	0.727	0.0317	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.383	0.358	0.100	0.0500	0.350
CM_MM-SEEP3	6/3/2020	Freshet	0.0546	0.00940	1.00	1.69	0.0692	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.776	0.750	0.100	0.0500	0.350
CM_MM-SEEP3	9/9/2020	Low Flow	0.0600	0.0141	1.00	1.77	0.0723	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.806	0.780	0.100	0.0500	0.350
CM_MM-SEEP5	5/6/2020	Freshet	-	-	1.00	2.08	0.0840	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.920	0.890	0.100	0.0500	0.350
CM_MM-SEEP5	6/3/2020	Freshet	-	-	1.00	1.79	0.0730	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.810	0.790	0.100	0.0500	0.350
CM_MM-SEEP5	9/9/2020	Low Flow	-	-	1.00	1.05	0.0440	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.520	0.500	0.100	0.0500	0.350
CM_NS1	6/4/2020	Freshet	0.0207	0.00400	1.00	2.26	0.0916	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.986	0.960	0.100	0.0500	0.350
CM_NS1	9/10/2020	Low Flow	-	-	1.00	3.24	0.130	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.32	1.29	0.100	0.0500	0.350
CM_NS4	6/4/2020	Freshet	0.0102	0.00200	1.00	1.28	0.0532	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.617	0.591	0.100	0.0500	0.350
CM_NS4	9/10/2020	Low Flow	0.00800	0.00150	1.00	1.81	0.0739	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.821	0.795	0.100	0.0500	0.350
CM_NS7	6/4/2020	Freshet	0.0209	0.00420	1.00	1.67	0.0684	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.768	0.743	0.100	0.0500	0.350
CM_NS7	9/10/2020	Low Flow	0.0146	0.00260	1.00	2.24	0.0908	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.978	0.953	0.100	0.0500	0.350
CM_PLANT-SEEP1	9/9/2020	Low Flow	0.00880	0.00170	1.00	1.04	0.0438	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.518	0.493	0.100	0.0500	0.350
CM_PLANT-SEEP1	6/3/2020	Freshet	0.0134	0.00240	1.00	1.05	0.0442	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.522	0.497	0.100	0.0500	0.350
CM_WD15	6/4/2020	Freshet	0.0171	0.00340	1.00	2.48	0.100	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.06	1.04	0.100	0.0500	0.350
CM_WD15	9/10/2020	Low Flow	0.00620	0.00110	1.00	3.33	0.133	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.35	1.32	0.100	0.0500	0.350
CM_WD18	6/3/2020	Freshet	0.0147	0.00280	1.00	2.65	0.107	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.12	1.10	0.100	0.0500	0.350
CM_WD18	9/10/2020	Low Flow	0.00520	0.000900	1.00	3.58	0.143	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.43	1.40	0.100	0.0500	0.350
CM_WD19	6/4/2020	Freshet	0.0155	0.00300	1.00	1.69	0.0692	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.776	0.750	0.100	0.0500	0.350
CM_WD19	9/10/2020	Low Flow	0.0124	0.00210	1.00	2.31	0.0933	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.00	0.975	0.100	0.0500	0.350
CM_WD4	6/4/2020	Freshet	0.0178	0.00330	1.00	0.833	0.0358	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.431	0.405	0.100	0.0500	0.350
CM_WD4	9/10/2020	Low Flow	0.0113	0.00180	1.00	1.20	0.0501	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.585	0.560	0.100	0.0500	0.350
CM_WD7	6/3/2020	Freshet	0.0214	0.00410	1.00	0.447	0.0207	3.39	4.73	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.251	0.225	0.100	0.0500	0.350
CM_WD7	9/10/2020	Low Flow	-	-	1.00	0.664	0.0292	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.355	0.329	0.100	0.0500	0.350
CM_WD9	10/8/2020	Low Flow	0.0136	0.00270	1.00	1.32	0.0547	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.632	0.607	0.100	0.0500	0.350
EV_CN1	5/20/2020	Freshet	0.00720	0.00140	1.00	0.590	0.0263	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.320	0.295	0.100	0.0500	0.350

Seep ID	Sample Date	Flow Regime	Copper, Total (acute)	Copper, Total (chronic)	Iron, Total (acute)	Lead, Total (acute)[1]	Lead, Total (chronic)[1]	Manganese, Total (acute)[1]	Manganese, Total (chronic)[1]	Molybdenum, Total (acute)	Molybdenum, Total (chronic)	Nickel, Total (chronic)	Selenium, Total (chronic)	Silver, Total (acute)[1]	Silver, Total (chronic)[1]	Thallium, Total (chronic)	Uranium, Total (chronic)	Zinc, Total (acute)[1]	Zinc, Total (chronic)[1]	Aluminum, Dissolved (acute)[3]	Aluminum, Dissolved (chronic)[3]	Iron, Dissolved (acute)
			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
EV_CN1	9/24/2020	Low Flow	0.00610	0.00110	1.00	0.833	0.0358	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.431	0.405	0.100	0.0500	0.350
EV_SEEP_10MILE5	6/18/2020	Freshet	0.00710	0.00130	1.00	1.01	0.0429	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.509	0.483	0.100	0.0500	0.350
EV_SEEP_10MILE9	6/18/2020	Freshet	0.00100	0.000200	1.00	0.241	0.0127	3.12	3.12	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.141	0.116	0.045	0.0000	0.350
EV_SEEP_BREAKERLAKE	5/20/2020	Freshet	0.00740	0.00130	1.00	0.578	0.0258	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.314	0.289	0.100	0.0500	0.350
EV_SEEP_BREAKERLAKE	9/22/2020	Low Flow	0.0135	0.00260	1.00	0.645	0.0285	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.346	0.320	0.100	0.0500	0.350
EV_SEEP_CFI1	5/21/2020	Freshet	-	-	1.00	0.608	0.0270	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.329	0.303	0.100	0.0500	0.350
EV_SEEP_CFI1	9/22/2020	Low Flow	-	-	1.00	0.653	0.0288	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.350	0.324	0.100	0.0500	0.350
EV_SEEP_ERICKSON1	10/8/2020	Low Flow	0.00590	0.00110	1.00	0.794	0.0343	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.413	0.388	0.100	0.0500	0.350
EV_SEEP_ERICKSON1	5/20/2020	Freshet	0.00530	0.00100	1.00	0.804	0.0347	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.418	0.392	0.100	0.0500	0.350
EV_SEEP_ERICKSON2	9/24/2020	Low Flow	0.0366	0.00680	1.00	2.18	0.0883	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.956	0.930	0.100	0.0500	0.350
EV_SEEP_ERICKSON2	5/27/2020	Freshet	-	-	1.00	3.49	0.139	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.40	1.37	0.100	0.0500	0.350
EV_SEEP_HOPPER2	5/20/2020	Freshet	0.0193	0.00390	1.00	4.06	0.162	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.58	1.55	0.100	0.0500	0.350
EV_SEEP_PLANT1	5/20/2020	Freshet	0.0515	0.0100	1.00	0.481	0.0221	3.39	4.98	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.268	0.242	0.100	0.0500	0.350
EV_SEEP_PLANT1	9/24/2020	Low Flow	0.136	0.0281	1.00	3.51	0.140	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.41	1.38	0.100	0.0500	0.350
EV_SEEP_PLANT10	5/20/2020	Freshet	0.0286	0.00420	1.00	0.565	0.0253	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.308	0.283	0.100	0.0500	0.350
EV_SEEP_PLANT10	10/8/2020	Low Flow	0.0144	0.00250	1.00	0.632	0.0280	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.340	0.314	0.100	0.0500	0.350
EV_SEEP_PLANT10	10/27/2020	Low Flow	-	-	1.00	0.694	0.0304	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.368	0.343	-	-	0.350
EV_SEEP_PLANT11	5/20/2020	Freshet	0.0740	0.0145	1.00	0.630	0.0279	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.339	0.314	0.100	0.0500	0.350
EV_SEEP_PLANT11	9/24/2020	Low Flow	0.0908	0.0188	1.00	0.70	0.0306	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.371	0.345	0.100	0.0500	0.350
EV_SEEP_PLANT23	5/20/2020	Freshet	0.0119	0.00210	1.00	1.05	0.0441	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.521	0.496	0.100	0.0500	0.350
EV_SEEP_PLANT23	9/24/2020	Low Flow	0.00860	0.00170	1.00	1.07	0.0449	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.530	0.504	0.100	0.0500	0.350
EV_SEEP_SOUTHPIT3	6/17/2020	Freshet	0.0444	0.00840	1.00	0.274	0.0140	3.39	3.39	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.160	0.134	0.100	0.0500	0.350
EV_SEEP_SOUTHPIT4	10/8/2020	Low Flow	0.0158	0.00300	1.00	0.442	0.0206	3.39	4.69	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.248	0.223	0.100	0.0500	0.350
EV_SEEP_SOUTHPIT4	6/17/2020	Freshet	0.0289	0.00530	1.00	0.471	0.0217	3.39	4.90	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.263	0.237	0.100	0.0500	0.350
EV_SEEP_SOUTHPIT6	10/8/2020	Low Flow	0.0278	0.00520	1.00	4.15	0.165	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.61	1.58	0.100	0.0500	0.350
EV_SEEP_TURCON1	9/22/2020	Low Flow	0.00530	0.000900	1.00	0.582	0.0260	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.317	0.291	0.100	0.0500	0.350
EV_SEEP_TURCON1	6/3/2020	Freshet	-	-	1.00	0.601	0.0268	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.326	0.300	0.100	0.0500	0.350
EV_SPR12	8/26/2020	Low Flow	-	-	1.00	0.342	0.0166	3.39	3.93	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.197	0.171	-	-	0.350
EV_SPR12	6/11/2020	Freshet	0.0420	0.00810	1.00	0.345	0.0168	3.39	3.96	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.198	0.173	0.100	0.0500	0.350
EV_SPR15	6/23/2020	Freshet	-	-	1.00	0.319	0.0158	3.39	3.76	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.185	0.159	-	-	0.350
EV_SPR15	10/22/2020	Low Flow	-	-	1.00	0.363	0.0175	3.39	4.10	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.208	0.182	-	-	0.350
EV_SPR15	2/24/2020	Low Flow	0.00540	0.00100	1.00	0.383	0.0183	3.39	4.25	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.218	0.193	0.100	0.0500	0.350
EV_SPR16	10/22/2020	Low Flow	-	-	1.00	0.408	0.0192	3.39	4.44	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.231	0.206	-	-	0.350
EV_SPR16	2/26/2020	Low Flow	0.00930	0.00180	1.00	0.478	0.0220	3.39	4.96	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.266	0.241	0.100	0.0500	0.350
EV_SPR16	8/25/2020	Low Flow	-	-	1.00	0.614	0.0273	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.332	0.306	-	-	0.350
EV_SPR1B	6/11/2020	Freshet	0.0133	0.00260	1.00	0.598	0.0266	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.324	0.299	0.100	0.0500	0.350

Seep ID	Sample Date	Flow Regime	Copper, Total (acute)	Copper, Total (chronic)	Iron, Total (acute)	Lead, Total (acute)[1]	Lead, Total (chronic)[1]	Manganese, Total (acute)[1]	Manganese, Total (chronic)[1]	Molybdenum, Total (acute)	Molybdenum, Total (chronic)	Nickel, Total (chronic)	Selenium, Total (chronic)	Silver, Total (acute)[1]	Silver, Total (chronic)[1]	Thallium, Total (chronic)	Uranium, Total (chronic)	Zinc, Total (acute)[1]	Zinc, Total (chronic)[1]	Aluminum, Dissolved (acute)[3]	Aluminum, Dissolved (chronic)[3]	Iron, Dissolved (acute)
			mg/l	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
EV_SPR1B	2/26/2020	Low Flow	0.00630	0.00120	1.00	0.603	0.0268	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.326	0.301	0.100	0.0500	0.350
EV_SPR1B	10/22/2020	Low Flow	-	-	1.00	0.661	0.0291	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.353	0.328	-	-	0.350
EV_SPR1B	8/26/2020	Low Flow	-	-	1.00	0.690	0.0302	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.367	0.341	-	-	0.350
EV_SPR2	6/10/2020	Freshet	0.0178	0.00340	1.00	0.418	0.0196	3.39	4.52	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.236	0.211	0.100	0.0500	0.350
EV_SPR2	7/7/2020	Freshet	0.00970	0.00190	1.00	0.471	0.0217	3.39	4.90	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.263	0.237	0.100	0.0500	0.350
EV_SPR2	2/5/2020	Low Flow	0.0142	0.00280	1.00	0.486	0.0223	3.39	5.01	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.270	0.245	0.100	0.0500	0.350
EV_SPR2	4/6/2020	Freshet	0.0350	0.00680	1.00	0.500	0.0228	3.39	5.11	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.277	0.251	0.100	0.0500	0.350
EV_SPR2	3/3/2020	Low Flow	0.0858	0.01670	1.00	0.501	0.0229	3.39	5.12	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.278	0.252	0.100	0.0500	0.350
EV_SPR2	5/4/2020	Freshet	0.0129	0.00250	1.00	0.537	0.0242	3.39	5.38	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.295	0.269	0.100	0.0500	0.350
EV_SPR2	9/2/2020	Low Flow	0.00630	0.00120	1.00	0.560	0.0252	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.306	0.281	0.100	0.0500	0.350
EV_SPR2	10/8/2020	Low Flow	0.0178	0.00350	1.00	0.560	0.0252	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.306	0.281	0.100	0.0500	0.350
EV_SPR2	8/6/2020	Low Flow	0.0136	0.00260	1.00	0.574	0.0257	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.313	0.287	0.100	0.0500	0.350
EV_SPR3	6/11/2020	Freshet	0.0127	0.00230	1.00	0.666	0.0293	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.356	0.330	0.100	0.0500	0.350
EV_WLAGC	9/24/2020	Low Flow	0.0132	0.00250	1.00	0.303	0.0151	3.39	3.63	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.176	0.150	0.100	0.0500	0.350
FR_ASPSEEP1	6/12/2020	Freshet	0.0212	0.00390	1.00	1.00	0.0421	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.500	0.475	0.100	0.0500	0.350
FR_ASPSEEP1	10/26/2020	Low Flow	0.0208	0.00390	1.00	1.99	0.0810	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.888	0.863	0.100	0.0500	0.350
FR_BLAINESEEP1	6/12/2020	Freshet	0.0205	0.00370	1.00	4.10	0.163	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.59	1.57	0.100	0.0500	0.350
FR_BLAINESEEP1	10/26/2020	Low Flow	0.0210	0.00380	1.00	4.37	0.174	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.68	1.65	0.100	0.0500	0.350
FR_BLAINESEEP5	6/12/2020	Freshet	0.0384	0.00720	1.00	5.07	0.201	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.89	1.86	0.100	0.0500	0.350
FR_BLAKESEEP1	6/12/2020	Freshet	0.0287	0.00520	1.00	0.967	0.0410	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.488	0.463	0.100	0.0500	0.350
FR_CCSEEPE1	5/21/2020	Freshet	-	-	1.00	1.53	0.0629	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.715	0.689	-	-	0.350
FR_CCSEEPE1	6/24/2020	Freshet	-	-	1.00	1.63	0.0669	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.753	0.728	-	-	0.350
FR_CCSEEPE1	6/11/2020	Freshet	0.00610	0.00110	1.00	1.65	0.0676	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.761	0.735	0.100	0.0500	0.350
FR_CCSEEPE1	8/19/2020	Low Flow	-	-	1.00	1.67	0.0684	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.768	0.743	-	-	0.350
FR_CCSEEPE1	7/29/2020	Low Flow	-	-	1.00	1.81	0.0739	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.821	0.795	-	-	0.350
FR_CCSEEPE1	8/24/2020	Low Flow	-	-	1.00	1.93	0.0786	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.866	0.840	-	-	0.350
FR_CCSEEPE1	9/2/2020	Low Flow	-	-	1.00	2.05	0.0835	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.911	0.885	-	-	0.350
FR_CCSEEPE1	9/18/2020	Low Flow	-	-	1.00	2.08	0.0843	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.918	0.893	-	-	0.350
FR_CCSEEPE1	10/2/2020	Low Flow	-	-	1.00	2.10	0.0851	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.926	0.900	-	-	0.350
FR_CCSEEPE1	9/28/2020	Low Flow	-	-	1.00	2.12	0.0859	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.933	0.908	-	-	0.350
FR_CCSEEPE1	10/26/2020	Low Flow	-	-	1.00	2.12	0.0859	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.933	0.908	-	-	0.350
FR_CCSEEPE1	10/16/2020	Low Flow	-	-	1.00	2.14	0.0867	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.941	0.915	-	-	0.350
FR_CCSEEPE1	4/27/2020	Freshet	0.00590	0.00110	1.00	2.20	0.0892	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.963	0.938	0.100	0.0500	0.350
FR_CCSEEPE1	9/25/2020	Low Flow	-	-	1.00	2.20	0.0892	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.963	0.938	-	-	0.350
FR_CCSEEPE1	11/2/2020	Low Flow	-	-	1.00	2.20	0.0892	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.963	0.938	-	-	0.350
FR_CCSEEPE1	9/11/2020	Low Flow	-	-	1.00	2.22	0.0900	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.971	0.945	-	-	0.350

Seep ID	Sample Date	Flow Regime	Copper, Total (acute)	Copper, Total (chronic)	Iron, Total (acute)	Lead, Total (acute)[1]	Lead, Total (chronic)[1]	Manganese, Total (acute)[1]	Manganese, Total (chronic)[1]	Molybdenum, Total (acute)	Molybdenum, Total (chronic)	Nickel, Total (chronic)	Selenium, Total (chronic)	Silver, Total (acute)[1]	Silver, Total (chronic)[1]	Thallium, Total (chronic)	Uranium, Total (chronic)	Zinc, Total (acute)[1]	Zinc, Total (chronic)[1]	Aluminum, Dissolved (acute)[3]	Aluminum, Dissolved (chronic)[3]	Iron, Dissolved (acute)
			mg/l	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
FR_CCSEEPE1	9/21/2020	Low Flow	-	-	1.00	2.24	0.0908	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.978	0.953	-	-	0.350
FR_CCSEEPE1	9/9/2020	Low Flow	0.00700	0.00130	1.00	2.24	0.0908	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.978	0.953	0.100	0.0500	0.350
FR_CCSEEPE1	10/9/2020	Low Flow	-	-	1.00	2.29	0.0925	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.993	0.968	-	-	0.350
FR_CCSEEPE1	10/19/2020	Low Flow	-	-	1.00	2.33	0.0941	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.01	0.983	-	-	0.350
FR_CCSEEPE1	9/14/2020	Low Flow	-	-	1.00	2.39	0.0966	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.03	1.01	-	-	0.350
FR_CCSEEPE1	4/20/2020	Freshet	0.00800	0.00140	1.00	2.54	0.103	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.08	1.06	0.100	0.0500	0.350
FR_CCSEEPE1	4/22/2020	Freshet	0.0100	0.00180	1.00	2.57	0.103	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.09	1.07	0.100	0.0500	0.350
FR_CCSEEPE1	4/24/2020	Freshet	0.00780	0.00130	1.00	2.61	0.105	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.11	1.08	0.100	0.0500	0.350
FR_CCSEEPE1	4/17/2020	Freshet	0.00570	0.00100	1.00	2.76	0.111	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.16	1.13	0.100	0.0500	0.350
FR_CCSEEPE1	4/13/2020	Freshet	0.0116	0.00200	1.00	2.90	0.116	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.20	1.18	0.100	0.0500	0.350
FR_CCSEEPE1	3/13/2020	Low Flow	0.00560	0.00100	1.00	3.05	0.122	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.26	1.23	0.100	0.0500	0.350
FR_CCSEEPE1	3/18/2020	Freshet	-	-	1.00	3.10	0.124	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.27	1.25	0.100	0.0500	0.350
FR_CCSEEPE1	2/24/2020	Low Flow	-	-	1.00	3.12	0.125	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.28	1.25	-	-	0.350
FR_CCSEEPE1	3/30/2020	Freshet	0.00540	0.000900	1.00	3.12	0.125	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.28	1.25	0.100	0.0500	0.350
FR_CCSEEPE1	4/6/2020	Freshet	0.00530	0.000900	1.00	3.12	0.125	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.28	1.25	0.100	0.0500	0.350
FR_CCSEEPE1	3/21/2020	Freshet	0.00600	0.00110	1.00	3.30	0.132	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.34	1.31	0.100	0.0500	0.350
FR_CCSEEPE3	10/26/2020	Low Flow	-	-	1.00	0.785	0.0339	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.410	0.384	-	-	0.350
FR_CCSEEPE3	8/19/2020	Low Flow	-	-	1.00	0.824	0.0355	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.427	0.401	-	-	0.350
FR_CCSEEPE3	9/28/2020	Low Flow	-	-	1.00	0.862	0.0369	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.443	0.418	-	-	0.350
FR_CCSEEPE3	8/24/2020	Low Flow	-	-	1.00	0.878	0.0375	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.450	0.425	-	-	0.350
FR_CCSEEPE3	10/2/2020	Low Flow	-	-	1.00	0.888	0.0380	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.455	0.429	-	-	0.350
FR_CCSEEPE3	9/14/2020	Low Flow	-	-	1.00	0.918	0.0391	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.467	0.442	-	-	0.350
FR_CCSEEPE3	10/9/2020	Low Flow	-	-	1.00	0.930	0.0396	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.473	0.447	-	-	0.350
FR_CCSEEPE3	10/16/2020	Low Flow	-	-	1.00	0.939	0.0399	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.476	0.451	-	-	0.350
FR_CCSEEPE3	9/18/2020	Low Flow	-	-	1.00	0.940	0.0400	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.477	0.452	-	-	0.350
FR_CCSEEPE3	9/11/2020	Low Flow	-	-	1.00	0.979	0.0415	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.494	0.468	-	-	0.350
FR_CCSEEPE3	10/19/2020	Low Flow	-	-	1.00	0.979	0.0415	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.494	0.468	-	-	0.350
FR_CCSEEPE3	11/2/2020	Low Flow	-	-	1.00	1.00	0.0423	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.503	0.477	-	-	0.350
FR_CCSEEPE3	9/21/2020	Low Flow	-	-	1.00	1.02	0.0432	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.512	0.487	-	-	0.350
FR_CCSEEPE3	8/31/2020	Low Flow	-	-	1.00	1.04	0.0437	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.518	0.492	-	-	0.350
FR_CCSEEPE3	6/24/2020	Freshet	-	-	1.00	1.04	0.0439	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.519	0.494	-	-	0.350
FR_CCSEEPE3	9/25/2020	Low Flow	-	-	1.00	1.04	0.0439	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.520	0.494	-	-	0.350
FR_CCSEEPE3	5/21/2020	Freshet	-	-	1.00	1.06	0.0447	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.528	0.503	-	-	0.350
FR_CCSEEPE3	4/4/2020	Freshet	0.00600	0.00110	1.00	1.07	0.0449	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.530	0.505	0.100	0.0500	0.350
FR_CCSEEPE3	8/27/2020	Low Flow	-	-	1.00	1.13	0.0475	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.557	0.532	-	-	0.350
FR_CCSEEPE3	4/6/2020	Freshet	0.00600	0.00110	1.00	1.20	0.0500	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.584	0.558	0.100	0.0500	0.350

Seep ID	Sample Date	Flow Regime	Copper, Total (acute)	Copper, Total (chronic)	Iron, Total (acute)	Lead, Total (acute)[1]	Lead, Total (chronic)[1]	Manganese, Total (acute)[1]	Manganese, Total (chronic)[1]	Molybdenum, Total (acute)	Molybdenum, Total (chronic)	Nickel, Total (chronic)	Selenium, Total (chronic)	Silver, Total (acute)[1]	Silver, Total (chronic)[1]	Thallium, Total (chronic)	Uranium, Total (chronic)	Zinc, Total (acute)[1]	Zinc, Total (chronic)[1]	Aluminum, Dissolved (acute)[3]	Aluminum, Dissolved (chronic)[3]	Iron, Dissolved (acute)
			mg/l	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
FR_CCSEEPE3	3/18/2020	Freshet	0.00610	0.00110	1.00	1.21	0.0503	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.587	0.562	0.100	0.0500	0.350
FR_CCSEEPE3	4/27/2020	Freshet	0.00600	0.00110	1.00	1.21	0.0507	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.591	0.566	0.100	0.0500	0.350
FR_CCSEEPE3	4/8/2020	Freshet	0.00590	0.00100	1.00	1.22	0.0511	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.595	0.569	0.100	0.0500	0.350
FR_CCSEEPE3	3/21/2020	Freshet	0.00600	0.00110	1.00	1.24	0.0517	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.602	0.576	0.100	0.0500	0.350
FR_CCSEEPE3	2/24/2020	Low Flow	-	-	1.00	1.28	0.0531	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.616	0.590	-	-	0.350
FR_CCSEEPE3	3/13/2020	Low Flow	0.00610	0.00110	1.00	1.29	0.0535	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.620	0.595	0.100	0.0500	0.350
FR_CCSEEPE3	4/20/2020	Freshet	-	-	1.00	1.31	0.0546	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.631	0.605	-	-	0.350
FR_CCSEEPE3	4/14/2020	Freshet	0.00570	0.00100	1.00	1.32	0.0548	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.633	0.608	0.100	0.0500	0.350
FR_CCSEEPE3	4/12/2020	Freshet	0.00830	0.00150	1.00	1.34	0.0555	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.640	0.614	0.100	0.0500	0.350
FR_CCSEEPE3	4/10/2020	Freshet	0.00820	0.00150	1.00	1.36	0.0563	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.649	0.623	0.100	0.0500	0.350
FR_CCSEEPE3	4/17/2020	Freshet	0.00590	0.00100	1.00	1.38	0.0573	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.659	0.633	0.100	0.0500	0.350
FR_CCSEEPE3	4/16/2020	Freshet	0.00580	0.00100	1.00	1.45	0.0598	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.683	0.658	0.100	0.0500	0.350
FR_CCSEEPE3	4/2/2020	Freshet	0.00600	0.00110	1.00	1.45	0.0599	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.684	0.659	0.100	0.0500	0.350
FR_CCSEEPE3	4/24/2020	Freshet	0.00590	0.00110	1.00	1.49	0.0614	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.700	0.674	0.100	0.0500	0.350
FR_CCSEEPE3	4/22/2020	Freshet	0.00820	0.00150	1.00	1.50	0.0617	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.703	0.677	0.100	0.0500	0.350
FR_CCSEEPE3	3/31/2020	Freshet	0.00600	0.00110	1.00	1.53	0.0629	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.715	0.689	0.100	0.0500	0.350
FR_CCSEEPE3	3/27/2020	Freshet	-	-	1.00	1.55	0.0638	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.723	0.698	-	-	0.350
FR_CCSEEPE3	3/25/2020	Freshet	0.00960	0.00180	1.00	1.61	0.0661	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.746	0.720	0.100	0.0500	0.350
FR_CCSEEPE3	3/29/2020	Freshet	0.00600	0.00110	1.00	1.63	0.0669	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.753	0.728	0.100	0.0500	0.350
FR_CCSEEPSE1	9/3/2020	Low Flow	-	-	1.00	3.58	0.143	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.43	1.40	-	-	0.350
FR_CCSEEPSE1	6/11/2020	Freshet	0.0190	0.00370	1.00	3.65	0.146	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.45	1.43	0.100	0.0500	0.350
FR_CCSEEPSE4	5/21/2020	Freshet	-	-	1.00	1.45	0.0597	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.683	0.657	-	-	0.350
FR_CCSEEPSE4	6/24/2020	Freshet	-	-	1.00	1.75	0.0715	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.798	0.773	-	-	0.350
FR_CCSEEPSE4	7/29/2020	Low Flow	-	-	1.00	2.01	0.0818	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.896	0.870	-	-	0.350
FR_CCSEEPSE4	3/29/2020	Freshet	-	-	1.00	3.03	0.122	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.25	1.22	-	-	0.350
FR_CCSEEPSE4	2/24/2020	Low Flow	-	-	1.00	3.28	0.131	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.33	1.31	-	-	0.350
FR_CCSEEPSE5	5/21/2020	Freshet	-	-	1.00	1.50	0.0620	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.705	0.680	-	-	0.350
FR_CCSEEPSE5	4/27/2020	Freshet	0.00690	0.00120	1.00	1.65	0.0676	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.761	0.735	0.100	0.0500	0.350
FR_CCSEEPSE5	4/20/2020	Freshet	0.0111	0.00190	1.00	1.73	0.0707	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.791	0.765	0.100	0.0500	0.350
FR_CCSEEPSE5	4/22/2020	Freshet	0.0111	0.00190	1.00	1.81	0.0739	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.821	0.795	0.100	0.0500	0.350
FR_CCSEEPSE5	6/24/2020	Freshet	-	-	1.00	1.89	0.0770	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.851	0.825	-	-	0.350
FR_CCSEEPSE5	4/24/2020	Freshet	0.00670	0.00120	1.00	1.95	0.0794	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.873	0.848	0.100	0.0500	0.350
FR_CCSEEPSE5	4/17/2020	Freshet	0.00560	0.00100	1.00	1.99	0.0810	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.888	0.863	0.100	0.0500	0.350
FR_CCSEEPSE5	8/19/2020	Low Flow	-	-	1.00	2.12	0.0859	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.933	0.908	-	-	0.350
FR_CCSEEPSE5	9/18/2020	Low Flow	-	-	1.00	2.18	0.0883	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.956	0.930	-	-	0.350
FR_CCSEEPSE5	4/6/2020	Freshet	0.00600	0.00110	1.00	2.20	0.0892	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.963	0.938	0.100	0.0500	0.350

Seep ID	Sample Date	Flow Regime	Copper, Total (acute)	Copper, Total (chronic)	Iron, Total (acute)	Lead, Total (acute)[1]	Lead, Total (chronic)[1]	Manganese, Total (acute)[1]	Manganese, Total (chronic)[1]	Molybdenum, Total (acute)	Molybdenum, Total (chronic)	Nickel, Total (chronic)	Selenium, Total (chronic)	Silver, Total (acute)[1]	Silver, Total (chronic)[1]	Thallium, Total (chronic)	Uranium, Total (chronic)	Zinc, Total (acute)[1]	Zinc, Total (chronic)[1]	Aluminum, Dissolved (acute)[3]	Aluminum, Dissolved (chronic)[3]	Iron, Dissolved (acute)
			mg/l	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
FR_CCSEEPSE5	4/12/2020	Freshet	0.0100	0.00170	1.00	2.22	0.0900	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.971	0.945	0.100	0.0500	0.350
FR_CCSEEPSE5	4/4/2020	Freshet	0.00580	0.00100	1.00	2.24	0.0908	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.978	0.953	0.100	0.0500	0.350
FR_CCSEEPSE5	4/14/2020	Freshet	0.00570	0.00100	1.00	2.26	0.0916	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.986	0.960	0.100	0.0500	0.350
FR_CCSEEPSE5	4/16/2020	Freshet	0.00560	0.00100	1.00	2.26	0.0916	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.986	0.960	0.100	0.0500	0.350
FR_CCSEEPSE5	4/8/2020	Freshet	0.00560	0.00100	1.00	2.29	0.0925	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.993	0.968	0.100	0.0500	0.350
FR_CCSEEPSE5	8/24/2020	Low Flow	-	-	1.00	2.29	0.0925	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.993	0.968	-	-	0.350
FR_CCSEEPSE5	9/11/2020	Low Flow	-	-	1.00	2.31	0.0933	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.00	0.975	-	-	0.350
FR_CCSEEPSE5	10/2/2020	Low Flow	-	-	1.00	2.31	0.0933	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.00	0.975	-	-	0.350
FR_CCSEEPSE5	9/25/2020	Low Flow	-	-	1.00	2.35	0.0950	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.02	0.990	-	-	0.350
FR_CCSEEPSE5	4/10/2020	Freshet	0.00680	0.00120	1.00	2.37	0.0958	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.02	1.00	0.100	0.0500	0.350
FR_CCSEEPSE5	4/2/2020	Freshet	0.00560	0.00100	1.00	2.39	0.0966	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.03	1.01	0.100	0.0500	0.350
FR_CCSEEPSE5	10/16/2020	Low Flow	-	-	1.00	2.39	0.0966	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.03	1.01	-	-	0.350
FR_CCSEEPSE5	9/21/2020	Low Flow	-	-	1.00	2.41	0.0975	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.04	1.01	-	-	0.350
FR_CCSEEPSE5	9/28/2020	Low Flow	-	-	1.00	2.41	0.0975	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.04	1.01	-	-	0.350
FR_CCSEEPSE5	9/14/2020	Low Flow	-	-	1.00	2.46	0.0991	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.05	1.03	-	-	0.350
FR_CCSEEPSE5	10/13/2020	Low Flow	-	-	1.00	2.46	0.0991	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.05	1.03	-	-	0.350
FR_CCSEEPSE5	8/31/2020	Low Flow	-	-	1.00	2.48	0.100	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.06	1.04	-	-	0.350
FR_CCSEEPSE5	10/26/2020	Low Flow	-	-	1.00	2.48	0.100	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.06	1.04	-	-	0.350
FR_CCSEEPSE5	10/9/2020	Low Flow	-	-	1.00	2.52	0.102	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.08	1.05	-	-	0.350
FR_CCSEEPSE5	3/31/2020	Freshet	0.00580	0.00100	1.00	2.63	0.106	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.11	1.09	0.100	0.0500	0.350
FR_CCSEEPSE5	11/2/2020	Low Flow	-	-	1.00	2.63	0.106	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.11	1.09	-	-	0.350
FR_CCSEEPSE5	8/27/2020	Low Flow	-	-	1.00	2.67	0.108	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.13	1.10	-	-	0.350
FR_CCSEEPSE5	10/19/2020	Low Flow	-	-	1.00	2.76	0.111	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.16	1.13	-	-	0.350
FR_CCSEEPSE5	3/29/2020	Freshet	0.00590	0.00110	1.00	3.03	0.122	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.25	1.22	0.100	0.0500	0.350
FR_CCSEEPSE5	3/25/2020	Freshet	0.00630	0.00120	1.00	3.05	0.122	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.26	1.23	0.100	0.0500	0.350
FR_CCSEEPSE5	3/27/2020	Freshet	-	-	1.00	3.10	0.124	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.27	1.25	-	-	0.350
FR_CCSEEPSE5	3/18/2020	Freshet	0.00580	0.00100	1.00	3.12	0.125	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.28	1.25	0.100	0.0500	0.350
FR_CCSEEPSE5	2/24/2020	Low Flow	-	-	1.00	3.21	0.129	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.31	1.28	-	-	0.350
FR_CCSEEPSE5	3/21/2020	Freshet	0.00570	0.00100	1.00	3.21	0.129	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.31	1.28	0.100	0.0500	0.350
FR_CCSEEPSE5	3/13/2020	Low Flow	0.00570	0.00100	1.00	3.49	0.139	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.40	1.37	0.100	0.0500	0.350
FR_EAGLENORTH	6/11/2020	Freshet	0.0115	0.00230	1.00	5.07	0.201	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.89	1.86	0.100	0.0500	0.350
FR_EAGLENORTH	10/15/2020	Low Flow	0.0120	0.00230	1.00	5.32	0.211	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.96	1.94	0.100	0.0500	0.350
FR_FCSEEP2	6/11/2020	Freshet	0.0108	0.00200	1.00	0.146	0.0090	2.28	2.28	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.0840	0.0585	0.100	0.0500	0.350
FR_FCSEEP2	10/22/2020	Low Flow	0.00600	0.00110	1.00	0.331	0.0162	3.39	3.85	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.191	0.165	0.100	0.0500	0.350
FR_FRVWSEEP3	6/11/2020	Freshet	0.0160	0.00300	1.00	1.39	0.0575	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.660	0.635	0.100	0.0500	0.350
FR_FRVWSEEP3	10/27/2020	Low Flow	0.0211	0.00380	1.00	1.41	0.0585	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.671	0.645	0.100	0.0500	0.350

Seep ID	Sample Date	Flow Regime	Copper, Total (acute)	Copper, Total (chronic)	Iron, Total (acute)	Lead, Total (acute)[1]	Lead, Total (chronic)[1]	Manganese, Total (acute)[1]	Manganese, Total (chronic)[1]	Molybdenum, Total (acute)	Molybdenum, Total (chronic)	Nickel, Total (chronic)	Selenium, Total (chronic)	Silver, Total (acute)[1]	Silver, Total (chronic)[1]	Thallium, Total (chronic)	Uranium, Total (chronic)	Zinc, Total (acute)[1]	Zinc, Total (chronic)[1]	Aluminum, Dissolved (acute)[3]	Aluminum, Dissolved (chronic)[3]	Iron, Dissolved (acute)
			mg/l	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
FR_FSEAMSEEP7	6/12/2020	Freshet	0.0174	0.00320	1.00	0.621	0.0275	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.335	0.309	0.100	0.0500	0.350
FR_FSEAMSEEP7	10/26/2020	Low Flow	0.0220	0.00390	1.00	0.871	0.0373	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.447	0.422	0.100	0.0500	0.350
FR_FSEAMWSEEP4	6/12/2020	Freshet	0.0313	0.00570	1.00	0.423	0.0198	3.39	4.55	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.239	0.213	0.100	0.0500	0.350
FR_GC1	6/24/2020	Freshet	-	-	1.00	1.01	0.0427	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.506	0.481	-	-	0.350
FR_GC1	7/28/2020	Low Flow	-	-	1.00	1.34	0.0556	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.641	0.616	-	-	0.350
FR_GC1	8/17/2020	Low Flow	-	-	1.00	1.34	0.0556	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.641	0.616	-	-	0.350
FR_GC1	5/21/2020	Freshet	-	-	1.00	1.39	0.0576	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.662	0.636	-	-	0.350
FR_GC1	10/5/2020	Low Flow	-	-	1.00	1.42	0.0586	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.671	0.646	-	-	0.350
FR_GC1	9/23/2020	Low Flow	-	-	1.00	1.45	0.0598	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.683	0.658	-	-	0.350
FR_GC1	9/2/2020	Low Flow	-	-	1.00	1.46	0.0605	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.690	0.665	-	-	0.350
FR_GC1	9/30/2020	Low Flow	-	-	1.00	1.53	0.0630	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.716	0.690	-	-	0.350
FR_GC1	10/26/2020	Low Flow	-	-	1.00	1.59	0.0653	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.738	0.713	-	-	0.350
FR_GC1	10/14/2020	Low Flow	-	-	1.00	1.63	0.0669	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.753	0.728	-	-	0.350
FR_GC1	3/26/2020	Freshet	0.00840	0.00150	1.00	1.73	0.0707	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.791	0.765	0.100	0.0500	0.350
FR_GC1	9/16/2020	Low Flow	-	-	1.00	1.73	0.0707	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.791	0.765	-	-	0.350
FR_GC1	11/2/2020	Low Flow	-	-	1.00	1.77	0.0723	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.806	0.780	-	-	0.350
FR_GC1	10/19/2020	Low Flow	-	-	1.00	1.79	0.0731	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.813	0.788	-	-	0.350
FR_GC1	3/12/2020	Low Flow	0.00600	0.00110	1.00	1.81	0.0739	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.821	0.795	0.100	0.0500	0.350
FR_GC1	9/9/2020	Low Flow	-	-	1.00	1.81	0.0739	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.821	0.795	-	-	0.350
FR_GC1	4/24/2020	Freshet	-	-	1.00	1.85	0.0754	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.836	0.810	-	-	0.350
FR_GC1	4/13/2020	Freshet	0.00800	0.00140	1.00	1.87	0.0762	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.843	0.818	0.100	0.0500	0.350
FR_GC1	2/24/2020	Low Flow	-	-	1.00	1.93	0.0786	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.866	0.840	-	-	0.350
FR_GC1	4/9/2020	Freshet	0.0141	0.00260	1.00	1.93	0.0786	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.866	0.840	0.100	0.0500	0.350
FR_GC1	4/15/2020	Freshet	0.00590	0.00100	1.00	1.93	0.0786	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.866	0.840	0.100	0.0500	0.350
FR_GC1	4/17/2020	Freshet	0.00590	0.00100	1.00	1.97	0.0802	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.881	0.855	0.100	0.0500	0.350
FR_GC1	3/30/2020	Freshet	0.00600	0.00110	1.00	1.99	0.0810	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.888	0.863	0.100	0.0500	0.350
FR_GC1	4/11/2020	Freshet	0.0139	0.00250	1.00	1.99	0.0810	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.888	0.863	0.100	0.0500	0.350
FR_GC1	4/5/2020	Freshet	0.0153	0.00280	1.00	2.08	0.0843	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.918	0.893	0.100	0.0500	0.350
FR_GC1	4/1/2020	Freshet	0.00570	0.00100	1.00	2.10	0.0851	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.926	0.900	0.100	0.0500	0.350
FR_GC1	4/7/2020	Freshet	0.00590	0.00110	1.00	2.12	0.0859	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.933	0.908	0.100	0.0500	0.350
FR_HENSEEP3	6/10/2020	Freshet	0.0172	0.00320	1.00	3.21	0.129	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.31	1.28	0.100	0.0500	0.350
FR_HENSEEP3	10/19/2020	Low Flow	0.0140	0.00260	1.00	3.91	0.156	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.53	1.51	0.100	0.0500	0.350
FR_HENSSEEP1	6/10/2020	Freshet	0.0154	0.00290	1.00	1.16	0.0487	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.570	0.545	0.100	0.0500	0.350
FR_LMCWSEEP5	6/11/2020	Freshet	0.0281	0.00530	1.00	0.300	0.0150	3.39	3.60	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.174	0.149	0.100	0.0500	0.350
FR_LMCWSEEP5	10/26/2020	Low Flow	0.0219	0.00390	1.00	1.01	0.0429	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.509	0.483	0.100	0.0500	0.350
FR_LMCWSEEP5	5/5/2020	Freshet	-	-	1.00	1.10	0.0462	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.544	0.518	-	-	0.350

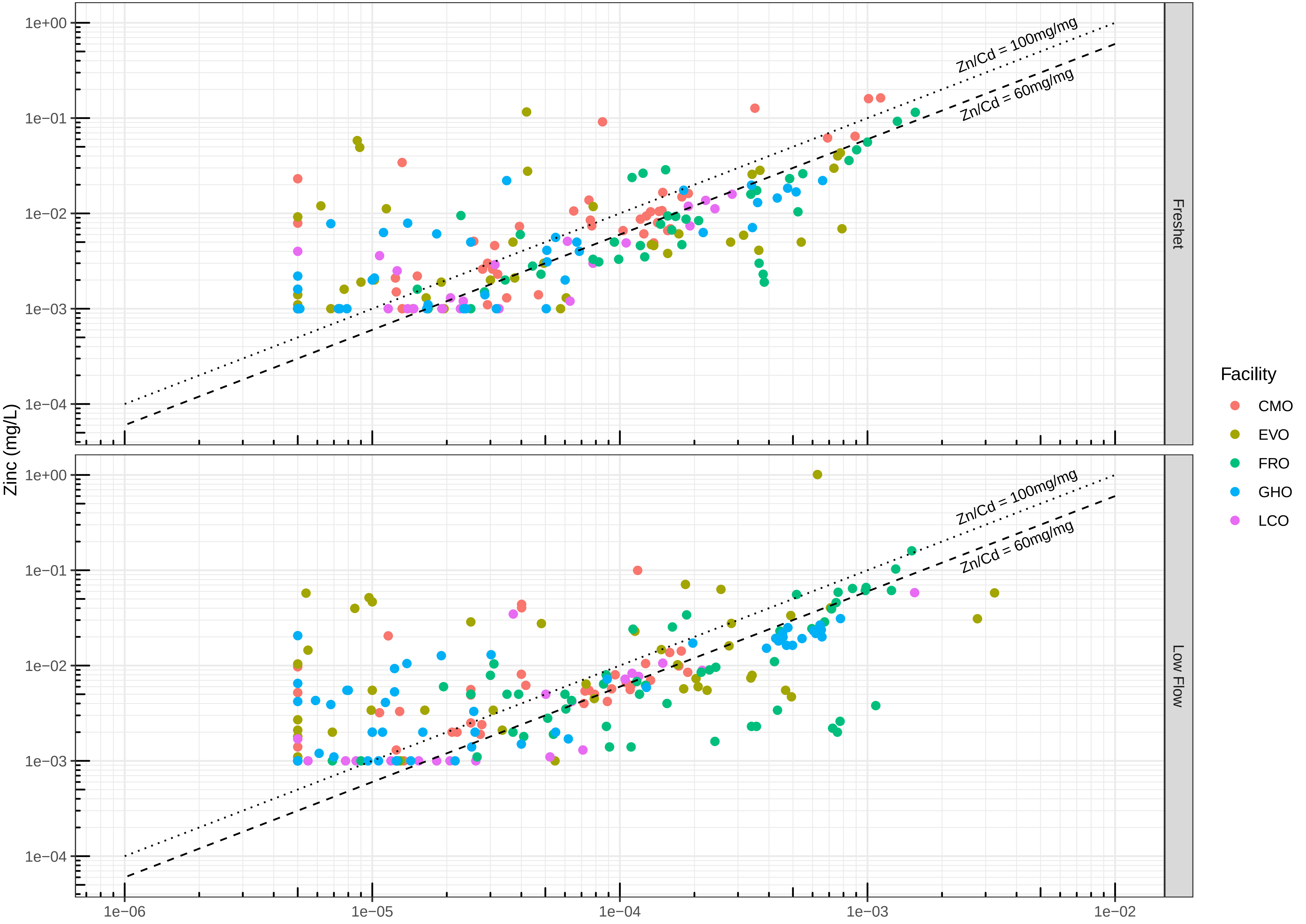
Seep ID	Sample Date	Flow Regime	Copper, Total (acute)	Copper, Total (chronic)	Iron, Total (acute)	Lead, Total (acute)[1]	Lead, Total (chronic)[1]	Manganese, Total (acute)[1]	Manganese, Total (chronic)[1]	Molybdenum, Total (acute)	Molybdenum, Total (chronic)	Nickel, Total (chronic)	Selenium, Total (chronic)	Silver, Total (acute)[1]	Silver, Total (chronic)[1]	Thallium, Total (chronic)	Uranium, Total (chronic)	Zinc, Total (acute)[1]	Zinc, Total (chronic)[1]	Aluminum, Dissolved (acute)[3]	Aluminum, Dissolved (chronic)[3]	Iron, Dissolved (acute)
			mg/l	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
FR_SCRDSEEP1	10/29/2020	Low Flow	0.145	0.0266	1.00	1.10	0.0463	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.545	0.520	0.100	0.0500	0.350
FR_SCRDSEEP1	6/18/2020	Freshet	0.237	0.0444	1.00	1.11	0.0468	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.550	0.524	0.100	0.0500	0.350
FR_SHNSEEP1	6/18/2020	Freshet	0.0129	0.00240	1.00	0.491	0.0224	3.39	5.05	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.272	0.247	0.100	0.0500	0.350
FR_SPRWSEEP1	10/26/2020	Low Flow	0.0207	0.00380	1.00	1.10	0.0462	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.544	0.518	0.100	0.0500	0.350
FR_STPNSEEP	6/12/2020	Freshet	0.0170	0.00320	1.00	0.269	0.0138	3.35	3.35	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.157	0.131	0.100	0.0500	0.350
FR_STPSWSEEP	10/22/2020	Low Flow	0.00590	0.00110	1.00	0.895	0.0382	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.458	0.432	0.100	0.0500	0.350
FR_STPSWSEEP	6/12/2020	Freshet	0.0106	0.00200	1.00	0.944	0.0401	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.479	0.453	0.100	0.0500	0.350
FR_STPWSEEP	10/22/2020	Low Flow	0.00750	0.00140	1.00	0.819	0.0353	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.425	0.399	0.100	0.0500	0.350
FR_STPWSEEP	6/12/2020	Freshet	0.000200	0.000200	1.00	0.854	0.0366	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.440	0.414	0.021	0.0000	0.350
FR_TBWSEEP1	10/19/2020	Low Flow	0.00560	0.00100	1.00	0.515	0.0234	3.39	5.22	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.284	0.259	0.100	0.0500	0.350
FR_TBWSEEP1	3/28/2020	Freshet	-	-	1.00	0.534	0.0241	3.39	5.36	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.293	0.268	-	-	0.350
FR_TBWSEEP1	5/21/2020	Freshet	-	-	1.00	0.722	0.0315	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.381	0.356	-	-	0.350
FR_TBWSEEP1	6/24/2020	Freshet	-	-	1.00	0.881	0.0377	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.452	0.426	-	-	0.350
FR_TBWSEEP1	6/10/2020	Freshet	-	-	1.00	0.895	0.0382	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.458	0.432	0.100	0.0500	0.350
FR_TBWSEEP1	4/24/2020	Freshet	-	-	1.00	1.07	0.0449	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.530	0.505	-	-	0.350
FR_TURNSEEP1	6/10/2020	Freshet	-	-	1.00	0.923	0.0393	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.470	0.444	0.100	0.0500	0.350
FR_TURNSEEP2	6/10/2020	Freshet	0.0116	0.00210	1.00	0.860	0.0369	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.443	0.417	0.100	0.0500	0.350
FR_TURNSEEP2	10/19/2020	Low Flow	0.00710	0.00130	1.00	0.866	0.0371	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.445	0.419	0.100	0.0500	0.350
FR_WED1	6/24/2020	Freshet	-	-	1.00	0.194	0.0109	2.71	2.71	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.113	0.0878	-	-	0.350
FR_WED1	7/28/2020	Low Flow	-	-	1.00	0.231	0.0123	3.03	3.03	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.135	0.110	-	-	0.350
FR_WED1	8/17/2020	Low Flow	-	-	1.00	0.292	0.0147	3.39	3.54	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.170	0.144	-	-	0.350
FR_WED1	5/25/2020	Freshet	-	-	1.00	0.295	0.0148	3.39	3.56	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.171	0.146	-	-	0.350
FR_WED1	9/2/2020	Low Flow	-	-	1.00	0.307	0.0153	3.39	3.66	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.178	0.152	-	-	0.350
FR_WED1	9/30/2020	Low Flow	-	-	1.00	0.328	0.0161	3.39	3.82	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.189	0.164	-	-	0.350
FR_WED1	9/9/2020	Low Flow	-	-	1.00	0.333	0.0163	3.39	3.87	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.192	0.167	-	-	0.350
FR_WED1	10/5/2020	Low Flow	-	-	1.00	0.339	0.0165	3.39	3.91	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.195	0.170	-	-	0.350
FR_WED1	10/26/2020	Low Flow	-	-	1.00	0.339	0.0165	3.39	3.91	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.195	0.170	-	-	0.350
FR_WED1	9/23/2020	Low Flow	-	-	1.00	0.346	0.0168	3.39	3.97	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.199	0.173	-	-	0.350
FR_WED1	9/16/2020	Low Flow	-	-	1.00	0.362	0.0174	3.39	4.09	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.207	0.182	-	-	0.350
FR_WED1	10/14/2020	Low Flow	-	-	1.00	0.367	0.0176	3.39	4.13	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.210	0.185	-	-	0.350
FR_WED1	11/2/2020	Low Flow	-	-	1.00	0.372	0.0178	3.39	4.17	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.212	0.187	-	-	0.350
FR_WED1	3/12/2020	Low Flow	0.00570	0.00100	1.00	0.379	0.0181	3.39	4.22	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.216	0.191	0.100	0.0500	0.350
FR_WED1	4/13/2020	Freshet	0.00540	0.000900	1.00	0.388	0.0184	3.39	4.29	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.221	0.195	0.100	0.0500	0.350
FR_WED1	10/19/2020	Low Flow	-	-	1.00	0.394	0.0187	3.39	4.33	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.224	0.198	-	-	0.350
FR_WED1	3/26/2020	Freshet	0.00570	0.00100	1.00	0.396	0.0188	3.39	4.35	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.225	0.200	0.100	0.0500	0.350
FR_WED1	3/23/2020	Freshet	-	-	1.00	0.418	0.0196	3.39	4.52	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.236	0.211	-	-	0.350

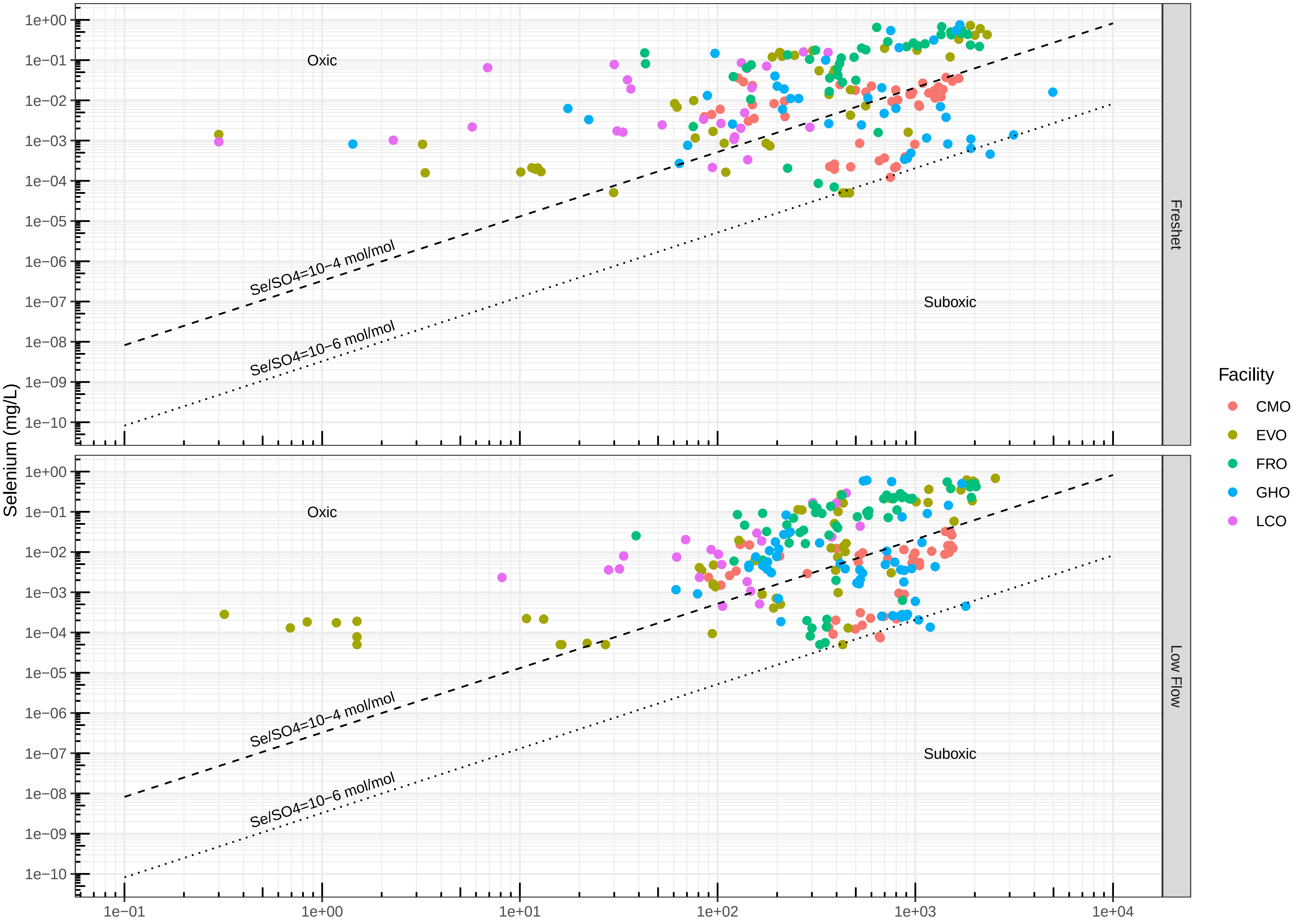
Seep ID	Sample Date	Flow Regime	Copper, Total (acute)	Copper, Total (chronic)	Iron, Total (acute)	Lead, Total (acute)[1]	Lead, Total (chronic)[1]	Manganese, Total (acute)[1]	Manganese, Total (chronic)[1]	Molybdenum, Total (acute)	Molybdenum, Total (chronic)	Nickel, Total (chronic)	Selenium, Total (chronic)	Silver, Total (acute)[1]	Silver, Total (chronic)[1]	Thallium, Total (chronic)	Uranium, Total (chronic)	Zinc, Total (acute)[1]	Zinc, Total (chronic)[1]	Aluminum, Dissolved (acute)[3]	Aluminum, Dissolved (chronic)[3]	Iron, Dissolved (acute)
			mg/l	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*
FR_WED1	3/30/2020	Freshet	0.00580	0.00100	1.00	0.418	0.0196	3.39	4.52	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.236	0.211	0.100	0.0500	0.350
FR_WED1	4/17/2020	Freshet	0.00510	0.000800	1.00	0.418	0.0196	3.39	4.52	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.236	0.211	0.100	0.0500	0.350
FR_WED1	4/9/2020	Freshet	0.0126	0.00210	1.00	0.423	0.0198	3.39	4.55	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.239	0.213	0.100	0.0500	0.350
FR_WED1	2/24/2020	Low Flow	-	-	1.00	0.426	0.0199	3.39	4.57	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.240	0.215	-	-	0.350
FR_WED1	4/24/2020	Freshet	-	-	1.00	0.426	0.0199	3.39	4.57	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.240	0.215	-	-	0.350
FR_WED1	4/11/2020	Freshet	0.0106	0.00190	1.00	0.427	0.0200	3.39	4.58	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.241	0.215	0.100	0.0500	0.350
FR_WED1	4/15/2020	Freshet	0.00540	0.000900	1.00	0.429	0.0200	3.39	4.60	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.242	0.216	0.100	0.0500	0.350
FR_WED1	4/1/2020	Freshet	0.00510	0.000800	1.00	0.435	0.0203	3.39	4.64	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.245	0.219	0.100	0.0500	0.350
FR_WED1	4/5/2020	Freshet	0.00560	0.00100	1.00	0.45	0.0207	3.39	4.73	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.251	0.225	0.100	0.0500	0.350
FR_WED1	4/7/2020	Freshet	0.00570	0.00100	1.00	0.456	0.0211	3.39	4.79	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.255	0.230	0.100	0.0500	0.350
GH_E1	3/5/2020	Low Flow	0.0144	0.00270	1.00	1.79	0.0731	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.813	0.788	0.100	0.0500	0.350
GH_E1	2/19/2020	Low Flow	0.0183	0.00330	1.00	2.08	0.0843	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.918	0.893	0.100	0.0500	0.350
GH_E1	4/27/2020	Freshet	0.0264	0.00500	1.00	2.08	0.0843	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.918	0.893	0.100	0.0500	0.350
GH_E1	9/6/2020	Low Flow	0.0166	0.00290	1.00	2.29	0.0925	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.993	0.968	0.100	0.0500	0.350
GH_E1	8/13/2020	Low Flow	0.0165	0.00320	1.00	2.41	0.0975	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.04	1.01	0.100	0.0500	0.350
GH_E1	10/15/2020	Low Flow	0.0524	0.00990	1.00	2.50	0.101	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.07	1.04	0.100	0.0500	0.350
GH_E2	6/8/2020	Freshet	0.0169	0.00310	1.00	0.909	0.0388	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.464	0.438	0.100	0.0500	0.350
GH_E2	5/14/2020	Freshet	0.0140	0.00270	1.00	0.960	0.0407	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.485	0.460	0.100	0.0500	0.350
GH_E2	9/6/2020	Low Flow	0.0193	0.00380	1.00	1.04	0.0437	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.518	0.492	0.100	0.0500	0.350
GH_E2	8/13/2020	Low Flow	0.0229	0.00440	1.00	1.06	0.0445	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.526	0.500	0.100	0.0500	0.350
GH_E2	7/20/2020	Low Flow	0.0229	0.00440	1.00	1.12	0.0468	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.551	0.525	0.100	0.0500	0.350
GH_E2	10/15/2020	Low Flow	0.0185	0.00360	1.00	1.13	0.0475	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.558	0.533	0.100	0.0500	0.350
GH_E2	2/19/2020	Low Flow	0.0172	0.0030	1.00	1.26	0.0524	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.609	0.584	0.100	0.0500	0.350
GH_E2	4/27/2020	Freshet	0.00980	0.00180	1.00	1.46	0.0603	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.689	0.663	0.100	0.0500	0.350
GH_E3	9/6/2020	Low Flow	0.0209	0.00410	1.00	1.22	0.0508	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.593	0.567	0.100	0.0500	0.350
GH_E3	10/14/2020	Low Flow	0.0182	0.00340	1.00	1.47	0.0608	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.693	0.668	0.100	0.0500	0.350
GH_E3	6/8/2020	Freshet	0.0172	0.00320	1.00	1.52	0.0625	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.710	0.685	0.100	0.0500	0.350
GH_E3	1/9/2020	Low Flow	-	-	1.00	1.63	0.0669	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.753	0.728	-	-	0.350
GH_E3	8/13/2020	Low Flow	0.0219	0.00420	1.00	1.65	0.0676	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.761	0.735	0.100	0.0500	0.350
GH_E3	5/14/2020	Freshet	0.00970	0.00180	1.00	1.81	0.0739	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.821	0.795	0.100	0.0500	0.350
GH_E-SEEP	7/16/2020	Low Flow	0.0258	0.00420	1.00	1.43	0.0590	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.675	0.650	0.100	0.0500	0.350
GH_E-SEEP	3/5/2020	Low Flow	0.0192	0.00340	1.00	3.01	0.121	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.24	1.22	0.100	0.0500	0.350
GH_E-SEEP	4/17/2020	Freshet	-	-	1.00	3.21	0.129	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.31	1.28	-	-	0.350
GH_E-SEEP	2/12/2020	Low Flow	0.0234	0.00430	1.00	3.91	0.156	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.53	1.51	0.100	0.0500	0.350
GH_E-SEEP	6/8/2020	Freshet	0.0347	0.00650	1.00	3.98	0.159	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.56	1.53	0.100	0.0500	0.350
GH_E-SEEP	5/15/2020	Freshet	0.0272	0.00500	1.00	4.08	0.162	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.59	1.56	0.100	0.0500	0.350

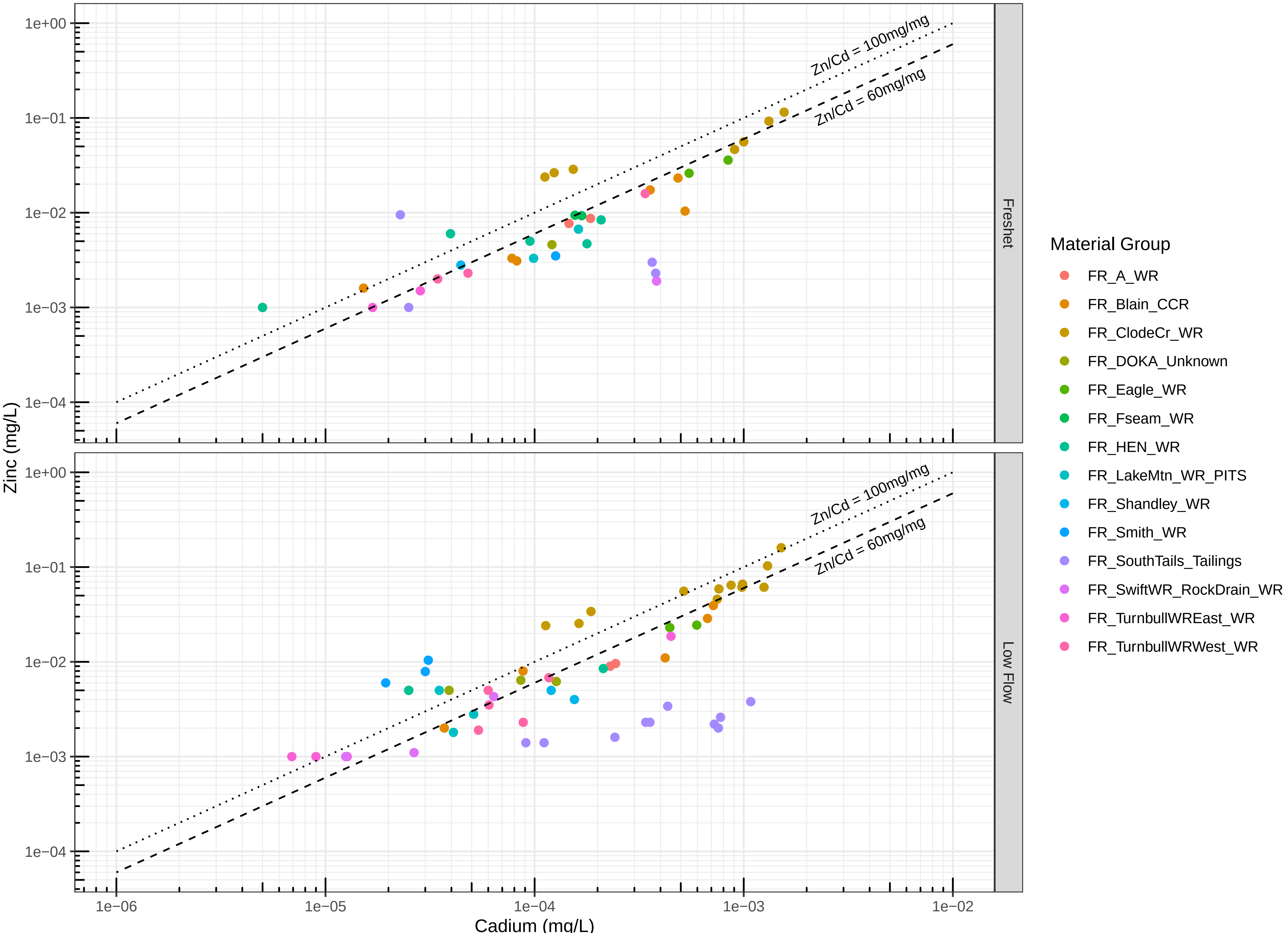
Seep ID	Sample Date	Flow Regime	Copper, Total (acute)	Copper, Total (chronic)	Iron, Total (acute)	Lead, Total (acute)[1]	Lead, Total (chronic)[1]	Manganese, Total (acute)[1]	Manganese, Total (chronic)[1]	Molybdenum, Total (acute)	Molybdenum, Total (chronic)	Nickel, Total (chronic)	Selenium, Total (chronic)	Silver, Total (acute)[1]	Silver, Total (chronic)[1]	Thallium, Total (chronic)	Uranium, Total (chronic)	Zinc, Total (acute)[1]	Zinc, Total (chronic)[1]	Aluminum, Dissolved (acute)[3]	Aluminum, Dissolved (chronic)[3]	Iron, Dissolved (acute)
			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
GH_E-SEEP	10/21/2020	Low Flow	0.0202	0.00340	1.00	4.08	0.162	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.59	1.56	0.100	0.0500	0.350
GH_E-SEEP	9/6/2020	Low Flow	0.0288	0.00500	1.00	4.25	0.169	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.64	1.61	0.100	0.0500	0.350
GH_E-SEEP	8/3/2020	Low Flow	0.0288	0.00500	1.00	4.72	0.187	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.78	1.76	0.100	0.0500	0.350
GH_SEEP_12	6/25/2020	Freshet	0.0417	0.00800	1.00	0.225	0.0121	2.99	2.99	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.132	0.107	0.100	0.0500	0.350
GH_SEEP_46	7/15/2020	Freshet	0.00700	0.00130	1.00	0.830	0.0357	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.429	0.404	0.100	0.0500	0.350
GH_SEEP_5	7/3/2020	Freshet	-	-	1.00	0.307	0.0153	3.39	3.66	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.178	0.152	-	-	0.350
GH_SEEP_60	9/29/2020	Low Flow	0.0572	0.0107	1.00	3.91	0.1559	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.53	1.51	0.100	0.0500	0.350
GH_SEEP_76	6/26/2020	Freshet	0.0221	0.00430	1.00	1.95	0.0794	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.873	0.848	0.100	0.0500	0.350
GH_SEEP_77	6/26/2020	Freshet	0.0135	0.00270	1.00	2.94	0.118	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	1.22	1.19	0.100	0.0500	0.350
GH_SEEP_79	6/26/2020	Freshet	0.0180	0.00410	1.00	0.197	0.0110	2.74	2.74	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.116	0.0900	0.100	0.0500	0.350
GH_WTDS	1/9/2020	Low Flow	0.0138	0.00240	1.00	0.690	0.0302	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.367	0.341	0.100	0.0500	0.350
GH_WTDS	9/6/2020	Low Flow	0.0134	0.00260	1.00	0.694	0.0304	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.368	0.343	0.100	0.0500	0.350
GH_WTDS	10/14/2020	Low Flow	0.0200	0.00390	1.00	0.723	0.0315	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.382	0.356	0.100	0.0500	0.350
GH_WTDS	4/6/2020	Freshet	0.0118	0.00210	1.00	0.740	0.0322	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.389	0.364	0.100	0.0500	0.350
GH_WTDS	8/12/2020	Low Flow	0.00780	0.00150	1.00	0.755	0.0328	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.396	0.371	0.100	0.0500	0.350
GH_WTDS	5/13/2020	Freshet	0.0107	0.00200	1.00	0.758	0.0329	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.398	0.372	0.100	0.0500	0.350
GH_WTDS	3/4/2020	Low Flow	0.0238	0.00440	1.00	0.780	0.0337	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.407	0.382	0.100	0.0500	0.350
GH_WTDS	7/8/2020	Freshet	0.0168	0.00330	1.00	0.789	0.0341	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.411	0.386	0.100	0.0500	0.350
GH_WTDS	2/12/2020	Low Flow	0.0176	0.00340	1.00	0.794	0.0343	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.413	0.388	0.100	0.0500	0.350
LC_3KM	10/22/2020	Low Flow	0.0622	0.0118	1.00	0.339	0.0165	3.39	3.91	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.195	0.170	0.100	0.0500	0.350
LC_3KM	6/24/2020	Freshet	0.0312	0.00600	1.00	0.369	0.0177	3.39	4.14	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.211	0.185	0.100	0.0500	0.350
LC_ERX	6/25/2020	Freshet	-	-	1.00	0.819	0.0353	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.425	0.399	-	-	0.350
LC_SEEP1	6/24/2020	Freshet	0.0366	0.00730	1.00	0.507	0.0231	3.39	5.17	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.281	0.255	0.100	0.0500	0.350
LC_SEEP10	6/26/2020	Freshet	0.0162	0.00280	1.00	1.03	0.0435	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.515	0.489	0.100	0.0500	0.350
LC_SEEP11	6/26/2020	Freshet	0.00450	0.000800	1.00	0.770	0.0334	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.403	0.377	0.100	0.0500	0.350
LC_SEEP14	6/24/2020	Freshet	0.00630	0.00120	1.00	0.398	0.0188	3.39	4.36	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.226	0.200	0.100	0.0500	0.350
LC_SEEP15	6/24/2020	Freshet	0.00630	0.00110	1.00	0.738	0.0321	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.389	0.363	0.100	0.0500	0.350
LC_SEEP19	6/24/2020	Freshet	0.00710	0.00130	1.00	0.355	0.0171	3.39	4.03	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.203	0.178	0.100	0.0500	0.350
LC_SEEP19	10/22/2020	Low Flow	0.0135	0.00250	1.00	0.990	0.0419	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.498	0.473	0.100	0.0500	0.350
LC_SEEP2	10/26/2020	Low Flow	0.00770	0.00140	1.00	0.236	0.0125	3.07	3.07	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.138	0.113	0.100	0.0500	0.350
LC_SEEP2	6/24/2020	Freshet	-	-	1.00	0.32	0.0157	3.39	3.75	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.184	0.158	0.100	0.0500	0.350
LC_SEEP8	6/23/2020	Freshet	-	-	1.00	0.2087	0.0115	2.84	2.84	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.122	0.0968	0.100	0.0500	0.350
LC_UDHP	10/27/2020	Low Flow	-	-	1.00	0.608	0.0270	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.329	0.303	0.100	0.0500	0.350
LC_UDP1	10/27/2020	Low Flow	0.0125	0.00240	1.00	0.195	0.0109	2.72	2.72	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.114	0.0885	0.100	0.0500	0.350
LC_WLC_lot2	6/25/2020	Freshet	0.00910	0.00170	1.00	1.30	0.0541	3.39	5.50	2.00	1.00	0.150	2.00	0.00300	0.00150	0.000800	0.00850	0.626	0.600	0.100	0.0500	0.350

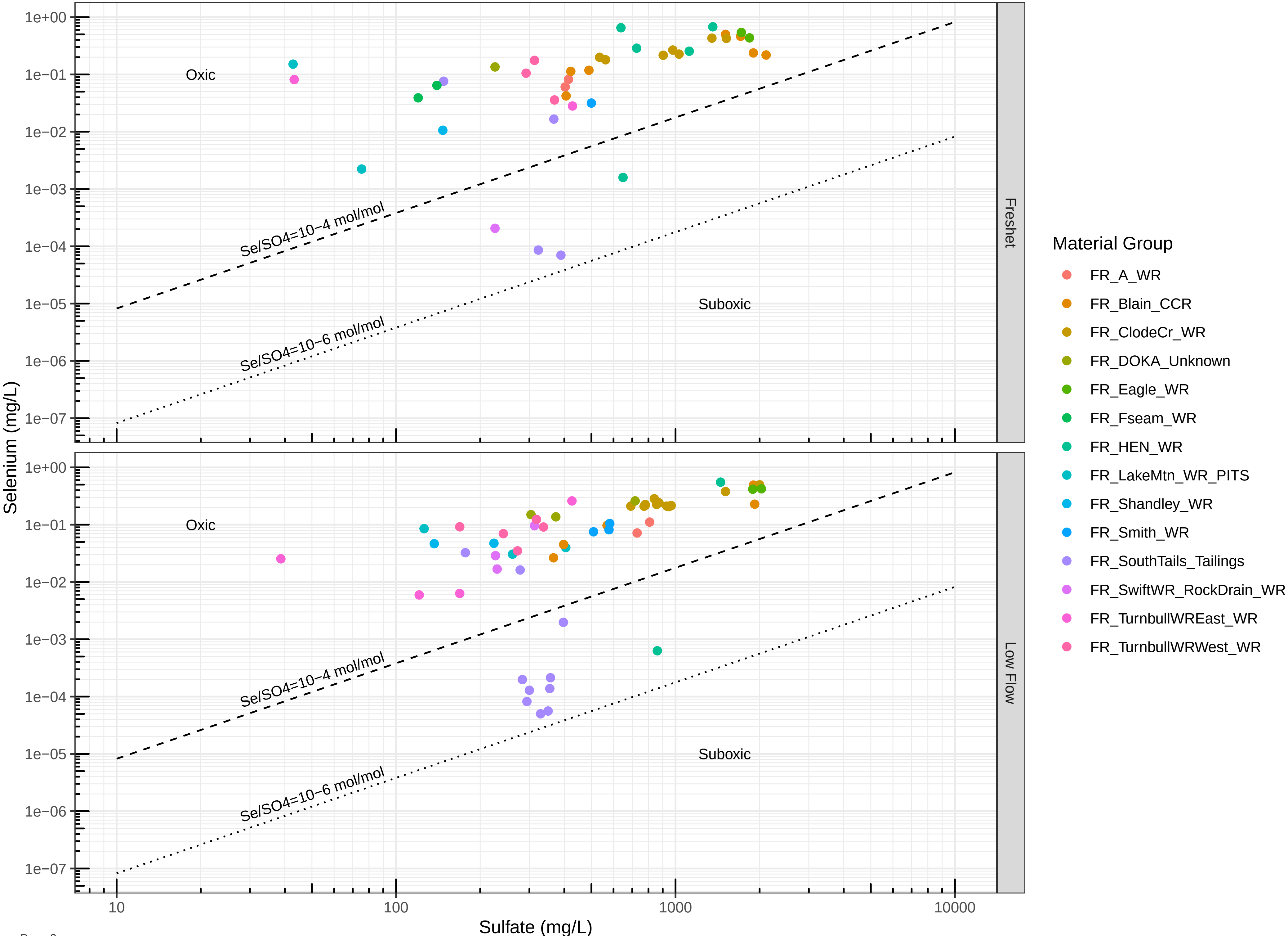
Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.259_2019_Seep_Monitoring_Report\2020 Data\Data Analysis\2020_BCWQGs_Screening_1CT017.259_SM_rev03.xlsx

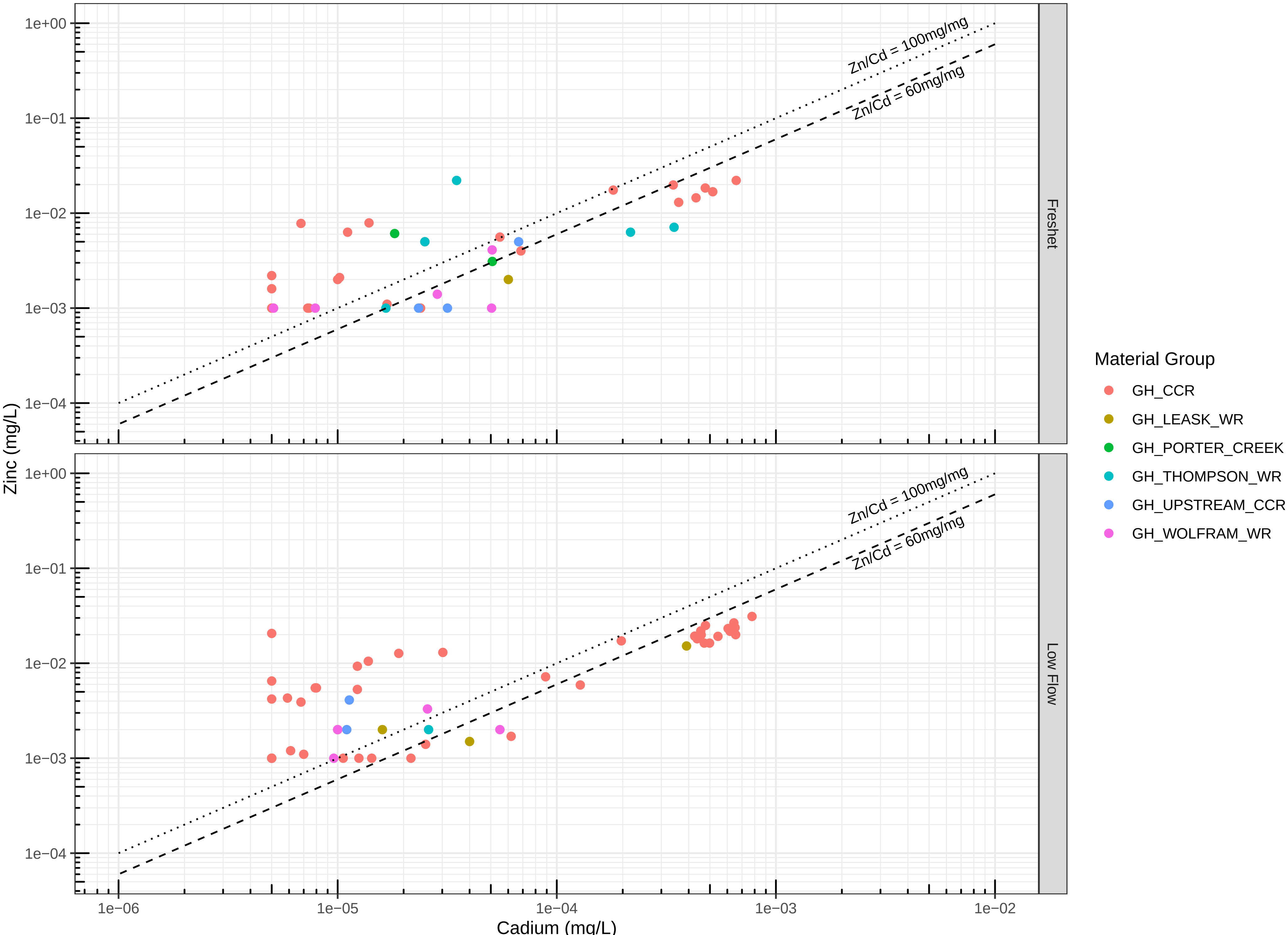
Appendix E Zn/Cd (Morrissey Formation Category) and Se/SO_4 (Oxidation Category) Plots


Zinc (mg/L)
Cadium (mg/L)
1e+00
1e−01
1e−02
1e−03
1e−04
1e−06
1e−05
1e−04
1e−03
1e−02
Zn/Cd = 100mg/mg
Zn/Cd = 60mg/mg
Freshet
Low Flow
Facility
● CMO
● EVO
● FRO
● GHO
● LCO

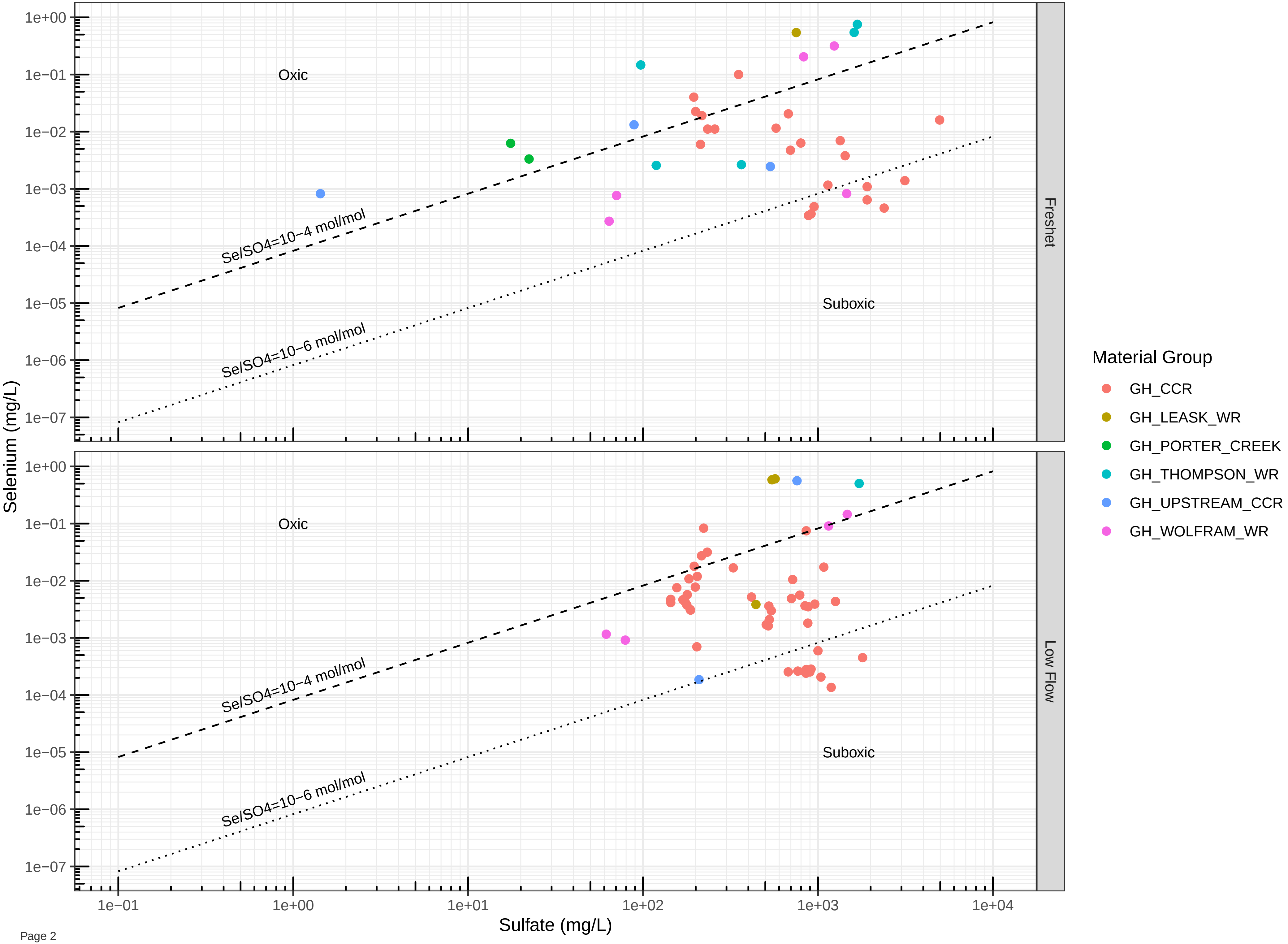

Selenium (mg/L)
Sulfate (mg/L)
1e+00
1e−01
1e−02
1e−03
1e−04
1e−05
1e−06
1e−07
1e−08
1e−09
1e−10
1e−01
1e+00
1e+01
1e+02
1e+03
1e+04
Oxic
Suboxic
Se/SO4=10−4 mol/mol
Se/SO4=10−6 mol/mol
Freshet
Low Flow
Facility
CMO
EVO
FRO
GHO
LCO

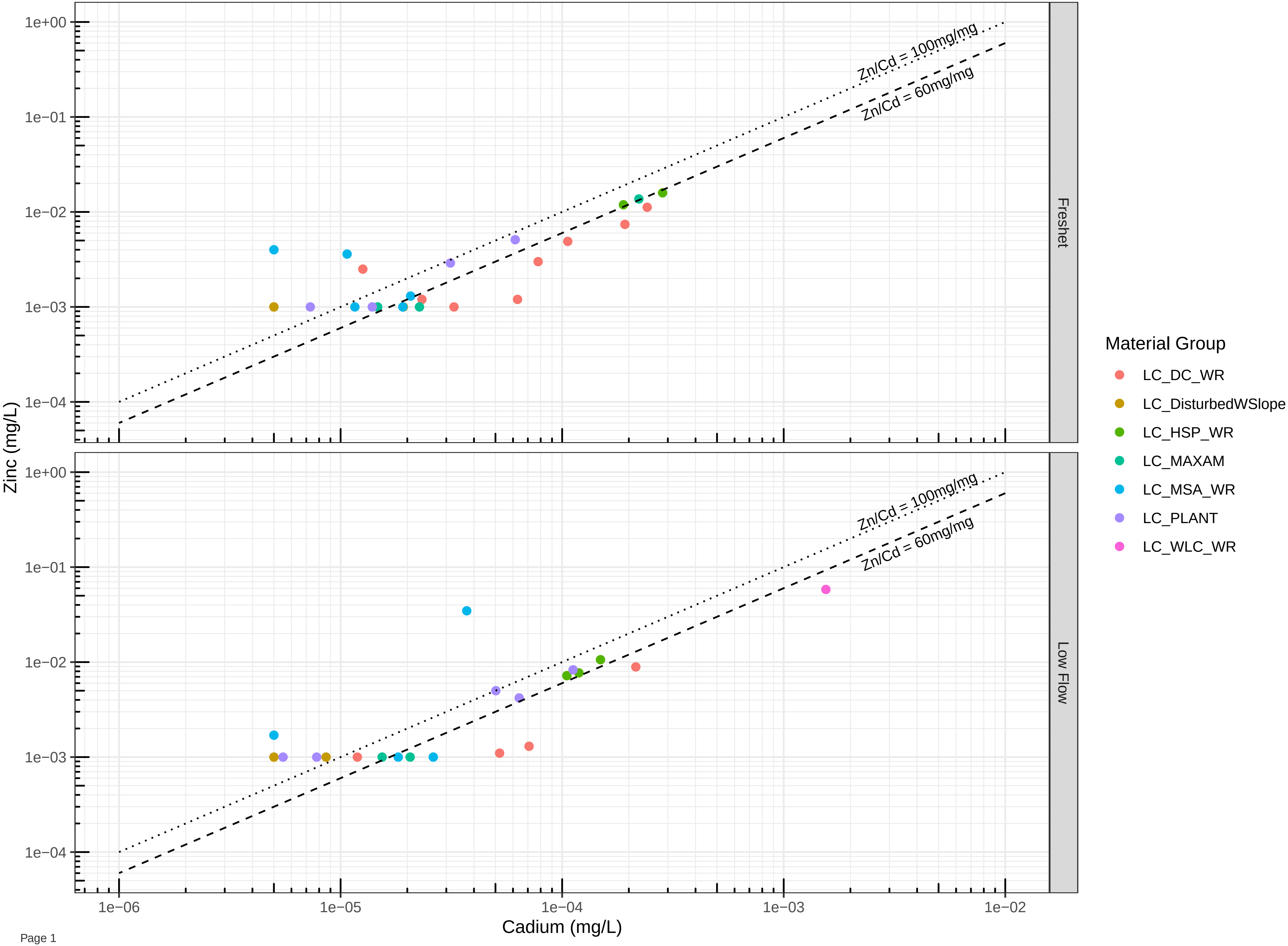

Zn/Cd = 100mg/mg
Zn/Cd = 60mg/mg
Freshet
Low Flow
1e+00
1e−01
1e−02
1e−03
1e−04
Zinc (mg/L)
1e−06
1e−05
1e−04
1e−03
1e−02
Cadium (mg/L)
Material Group
FR_A_WR
FR_Blain_CCR
FR_ClodeCr_WR
FR_DOKA_Unknown
FR_Eagle_WR
FR_Fseam_WR
FR_HEN_WR
FR_LakeMtn_WR_PITS
FR_Shandley_WR
FR_Smith_WR
FR_SouthTails_Tailings
FR_SwiftWR_RockDrain_WR
FR_TurnbullWREast_WR
FR_TurnbullWRWest_WR


Selenium (mg/L)
1e+00
1e−01
1e−02
1e−03
1e−04
1e−05
1e−06
1e−07
Oxic
Suboxic
Se/SO4=10−4 mol/mol
Se/SO4=10−6 mol/mol
Freshet
Low Flow
10
100
1000
10000
Sulfate (mg/L)
Material Group
FR_A_WR
FR_Blain_CCR
FR_ClodeCr_WR
FR_DOKA_Unknown
FR_Eagle_WR
FR_Fseam_WR
FR_HEN_WR
FR_LakeMtn_WR_PITS
FR_Shandley_WR
FR_Smith_WR
FR_SouthTails_Tailings
FR_SwiftWR_RockDrain_WR
FR_TurnbullWREast_WR
FR_TurnbullWRWest_WR

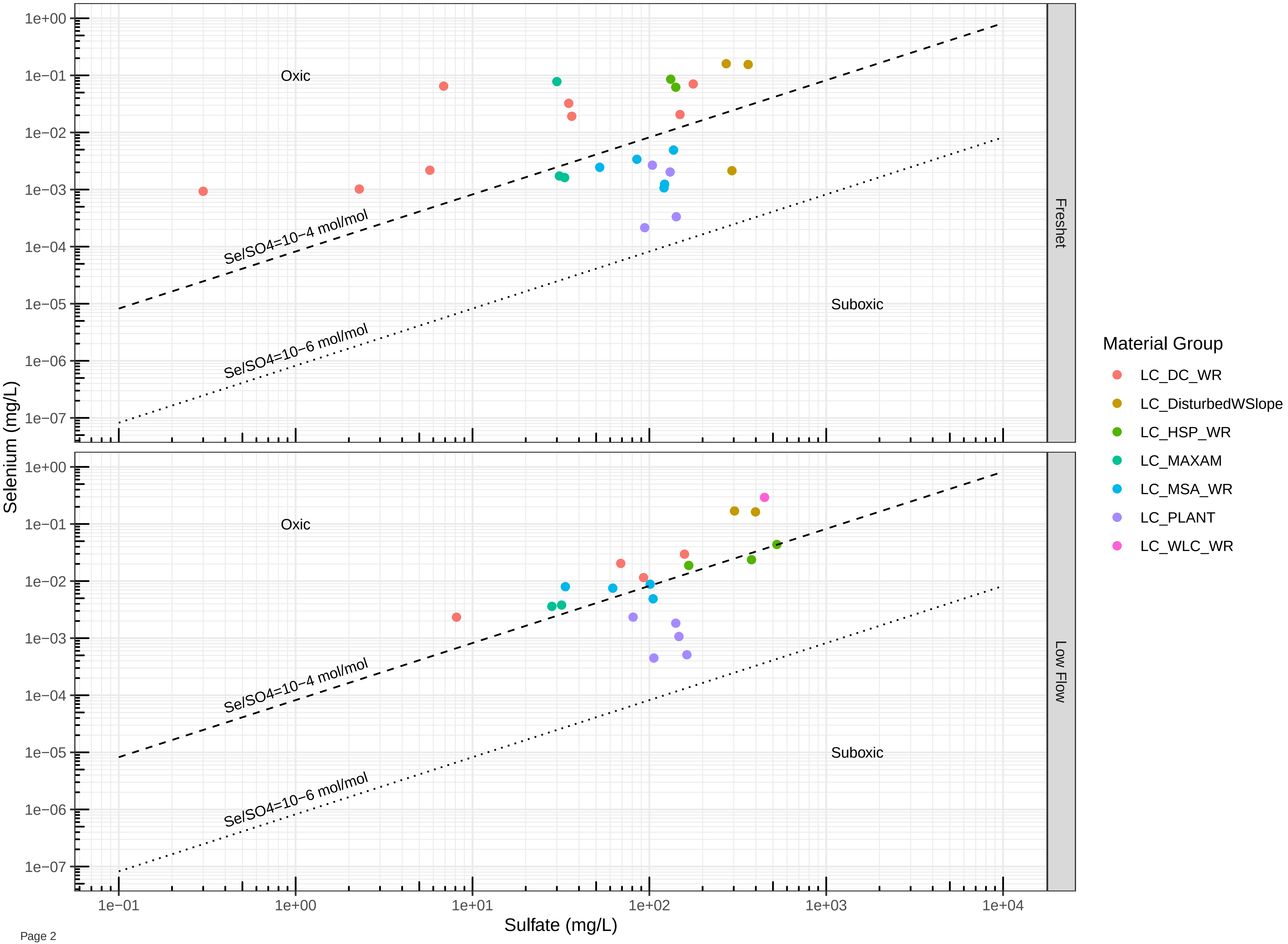


Zinc (mg/L)
1e+00
1e−01
1e−02
1e−03
1e−04
Zn/Cd = 100mg/mg
Zn/Cd = 60mg/mg
Freshet
Low Flow
1e−06
1e−05
1e−04
1e−03
1e−02
Cadium (mg/L)
Material Group
● GH_CCR
● GH_LEASK_WR
● GH_PORTER_CREEK
● GH_THOMPSON_WR
● GH_UPSTREAM_CCR
● GH_WOLFRAM_WR

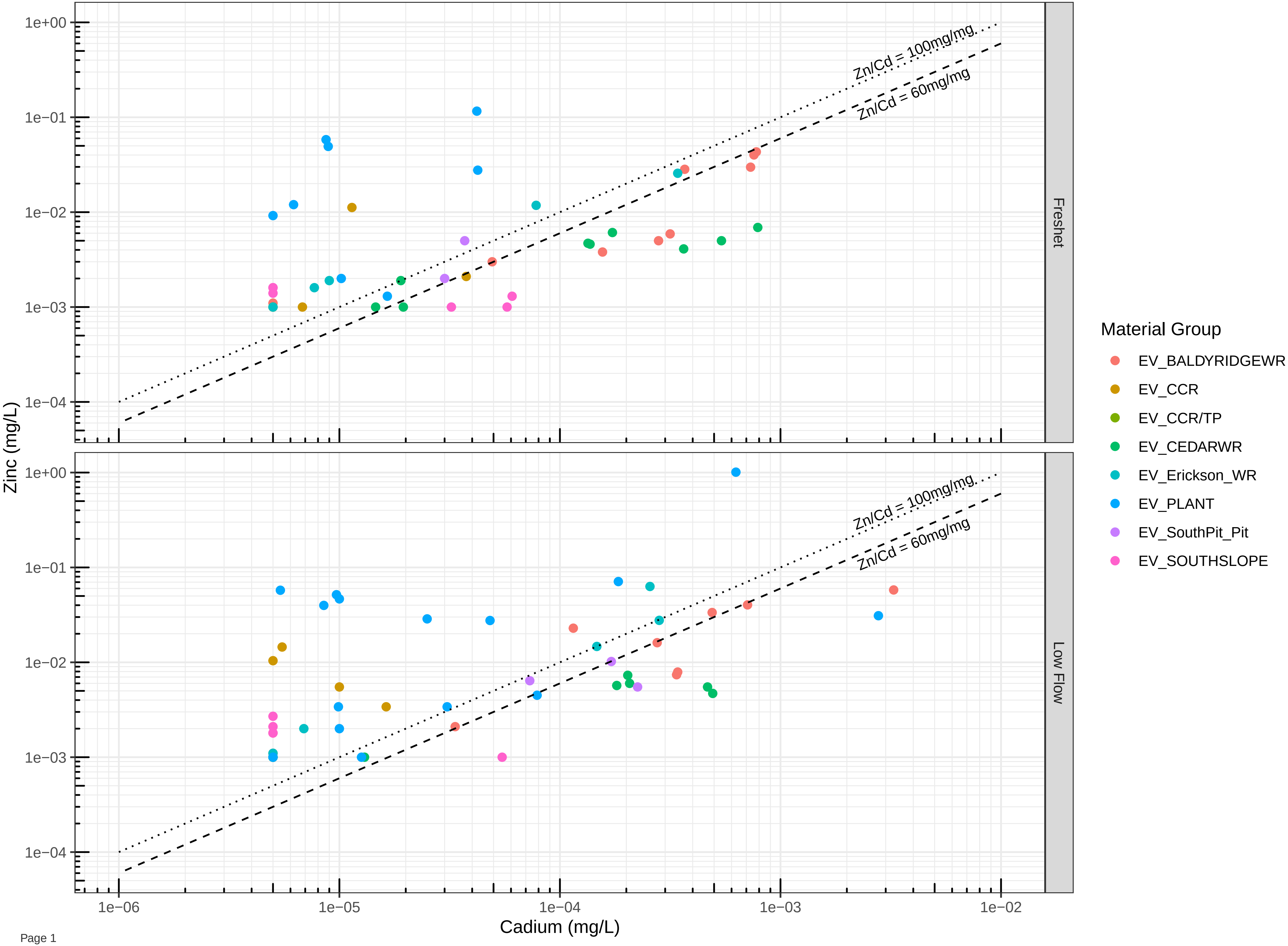

Selenium (mg/L)
Sulfate (mg/L)
1e+00
1e−01
1e−02
1e−03
1e−04
1e−05
1e−06
1e−07
1e−01
1e+00
1e+01
1e+02
1e+03
1e+04
Oxic
Suboxic
Se/SO4=10−4 mol/mol
Se/SO4=10−6 mol/mol
Freshet
Low Flow
Material Group
GH_CCR
GH_LEASK_WR
GH_PORTER_CREEK
GH_THOMPSON_WR
GH_UPSTREAM_CCR
GH_WOLFRAM_WR

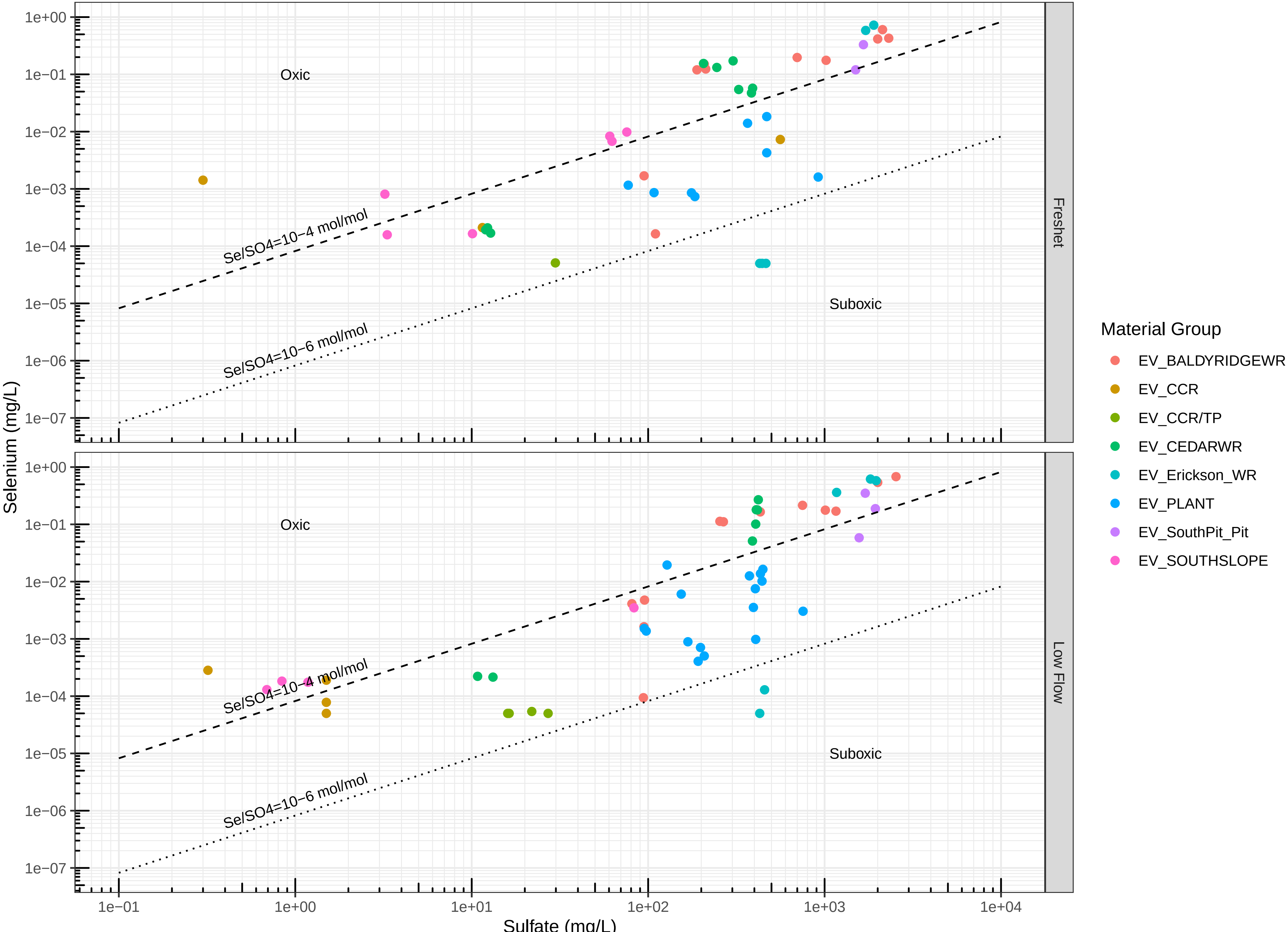


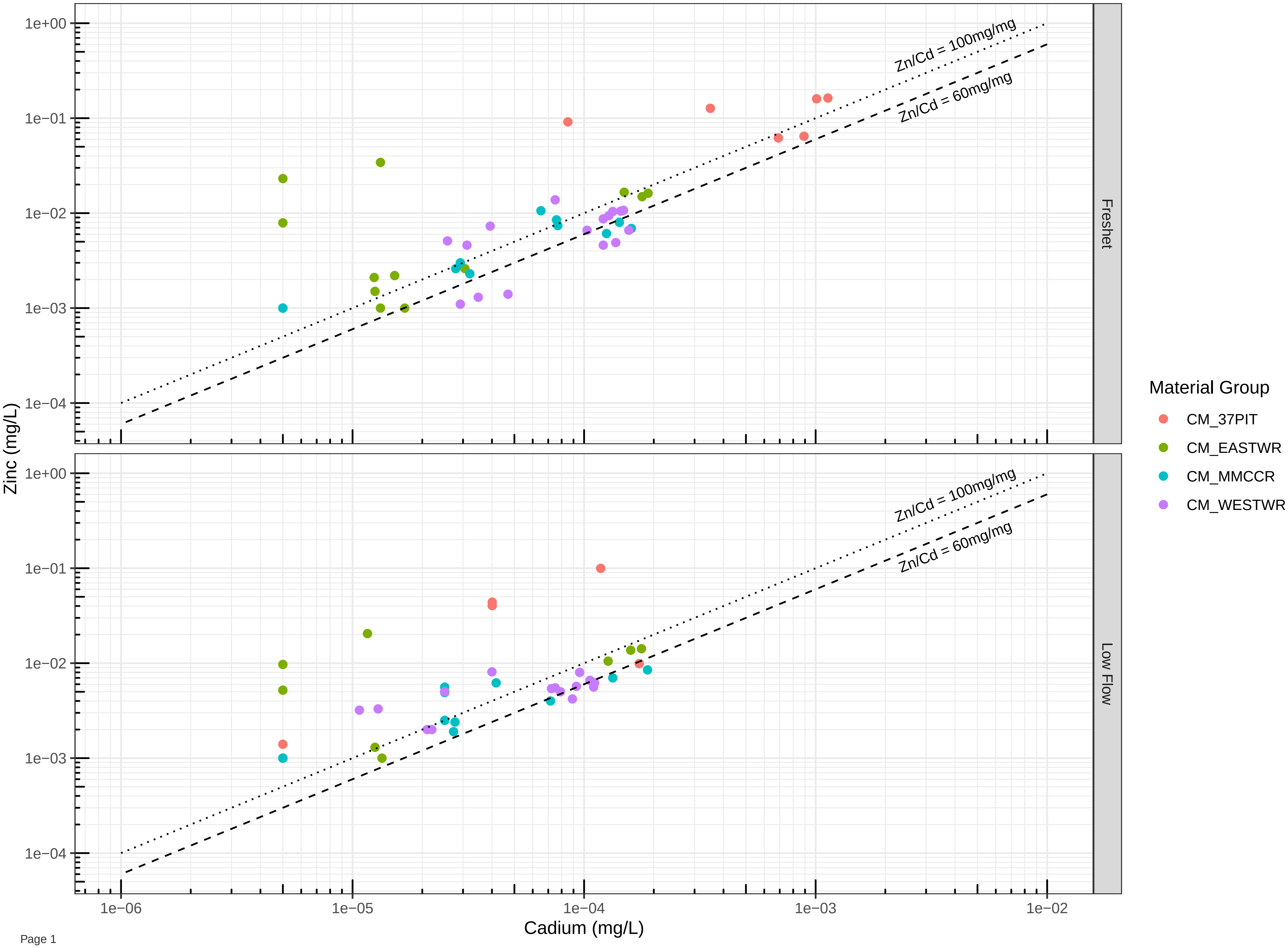
Zinc (mg/L)
Cadium (mg/L)
1e+00
1e−01
1e−02
1e−03
1e−04
1e−06
1e−05
1e−04
1e−03
1e−02
Zn/Cd = 100mg/mg
Zn/Cd = 60mg/mg
Freshet
Low Flow
Material Group
LC_DC_WR
LC_DisturbedWSlope
LC_HSP_WR
LC_MAXAM
LC_MSA_WR
LC_PLANT
LC_WLC_WR

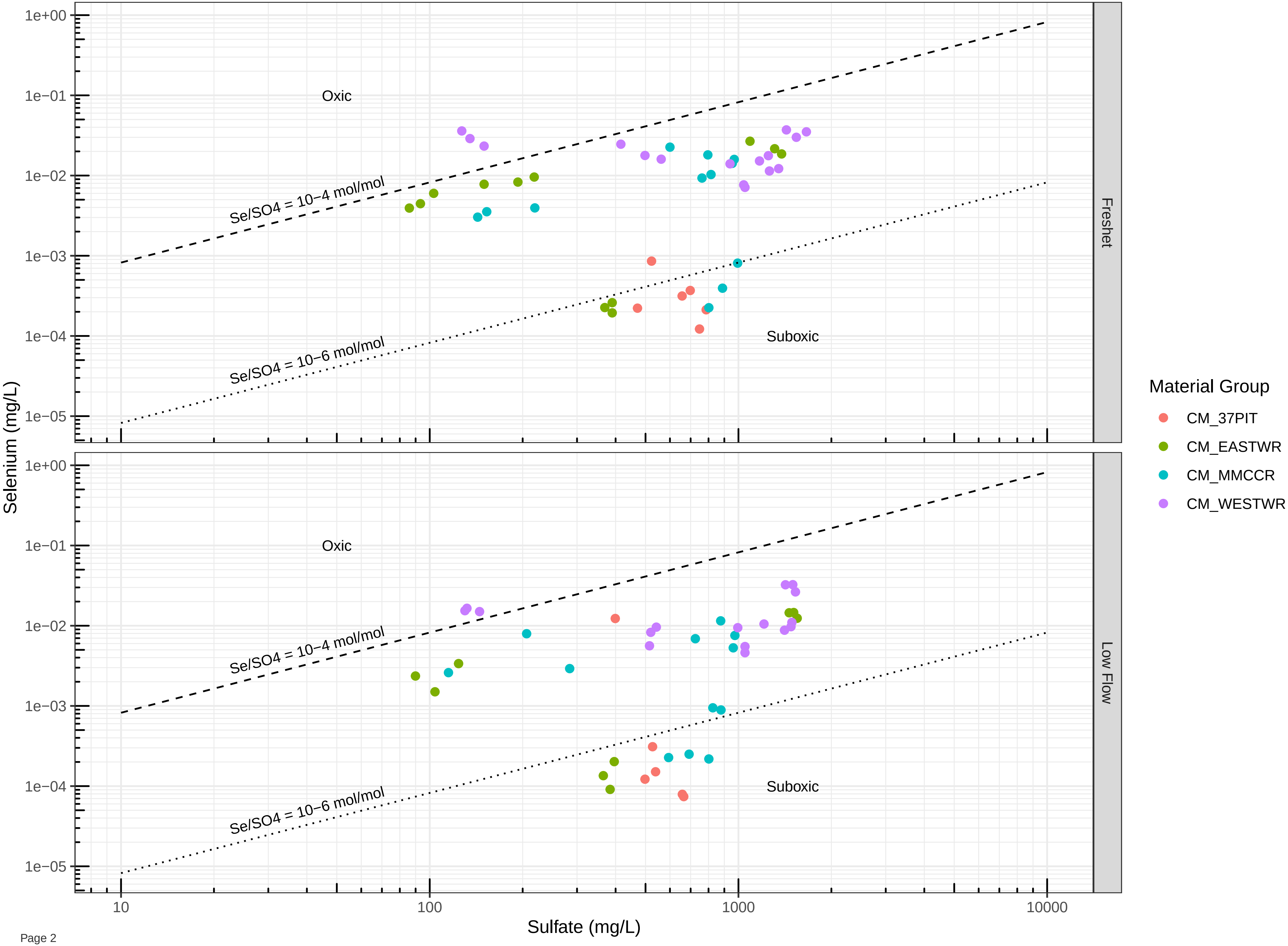


Oxic
Se/SO4=10−4 mol/mol
Se/SO4=10−6 mol/mol
Suboxic
Freshet
Oxic
Se/SO4=10−4 mol/mol
Se/SO4=10−6 mol/mol
Suboxic
Low Flow
Selenium (mg/L)
1e+00
1e−01
1e−02
1e−03
1e−04
1e−05
1e−06
1e−07
Sulfate (mg/L)
1e−01
1e+00
1e+01
1e+02
1e+03
1e+04
Material Group
LC_DC_WR
LC_DisturbedWSlope
LC_HSP_WR
LC_MAXAM
LC_MSA_WR
LC_PLANT
LC_WLC_WR


Zinc (mg/L)
Cadium (mg/L)
1e+00
1e−01
1e−02
1e−03
1e−04
1e−06
1e−05
1e−04
1e−03
1e−02
Zn/Cd = 100mg/mg
Zn/Cd = 60mg/mg
Freshet
Low Flow
Material Group
EV_BALDYRIDGEWR
EV_CCR
EV_CCR/TP
EV_CEDARWR
EV_Erickson_WR
EV_PLANT
EV_SouthPit_Pit
EV_SOUTHSLOPE


1e+00
1e−01
1e−02
1e−03
1e−04
1e−05
1e−06
1e−07
Oxic
Suboxic
Se/SO4=10−4 mol/mol
Se/SO4=10−6 mol/mol
Freshet
Low Flow
Selenium (mg/L)
Sulfate (mg/L)
1e−01
1e+00
1e+01
1e+02
1e+03
1e+04
Material Group
EV_BALDYRIDGEWR
EV_CCR
EV_CCR/TP
EV_CEDARWR
EV_Erickson_WR
EV_PLANT
EV_SouthPit_Pit
EV_SOUTHSLOPE


Zn/Cd = 100mg/mg
Zn/Cd = 60mg/mg
Freshet
Low Flow
1e+00
1e−01
1e−02
1e−03
1e−04
1e−06
1e−05
1e−04
1e−03
1e−02
Zinc (mg/L)
Cadium (mg/L)
Material Group
CM_37PIT
CM_EASTWR
CM_MMCCR
CM_WESTWR


Oxic
Suboxic
Se/SO4 = 10−4 mol/mol
Se/SO4 = 10−6 mol/mol
Freshet
Low Flow
Selenium (mg/L)
Sulfate (mg/L)
1e+00
1e−01
1e−02
1e−03
1e−04
1e−05
10
100
1000
10000
Material Group
CM_37PIT
CM_EASTWR
CM_MMCCR
CM_WESTWR

Appendix F Seep Oxidation and Morrissey Formation Categorization

Tables

1 Fording River Operation (FRO)

Table 1: FRO - Seep Selection Criteria Summary

Year	Flow Regime	Seep ID	Material Group	Cadmium (mg/L)	Selenium (ug/L)	Sulfate (mg/L)	Zinc (mg/L)	Zn/Cd (mg/mg)	Se/SO4 (mol/mol)	Suboxic/Oxic	MF Influence
2018	High Flow	FR_ASPSEEP1	FR_A_WR	0.00019	60.40000	403.00000	0.00870	47.00000	0.00018	Oxic	Not MF Influenced
2018	Low Flow	FR_ASPSEEP1	FR_A_WR	0.00024	71.70000	729.00000	0.00960	39.00000	0.00012	Oxic	Not MF Influenced
2019	High Flow	FR_ASPSEEP1	FR_A_WR	-	-	-	-	-	-	-	-
2019	Low Flow	FR_ASPSEEP1	FR_A_WR	0.00021	76.30000	462.00000	0.00870	41.00000	0.00020	Oxic	Not MF Influenced
2020	High Flow	FR_ASPSEEP1	FR_A_WR	0.00015	82.00000	414.00000	0.00770	53.00000	0.00024	Oxic	Not MF Influenced
2020	Low Flow	FR_ASPSEEP1	FR_A_WR	0.00023	111.00000	808.00000	0.00900	39.00000	0.00017	Oxic	Not MF Influenced
2018	High Flow	FR_BLAINESEEP1	FR_Blain_CCR	0.00036	463.00000	1710.00000	0.01740	49.00000	0.00033	Oxic	Not MF Influenced
2018	Low Flow	FR_BLAINESEEP1	FR_Blain_CCR	0.00009	477.00000	1950.00000	0.00800	91.00000	0.00030	Oxic	Not MF Influenced
2019	High Flow	FR_BLAINESEEP1	FR_Blain_CCR	-	-	-	-	-	-	-	-
2019	Low Flow	FR_BLAINESEEP1	FR_Blain_CCR	0.00001	448.00000	1460.00000	0.00100	87.00000	0.00037	Oxic	Not MF Influenced
2020	High Flow	FR_BLAINESEEP1	FR_Blain_CCR	0.00049	500.00000	1510.00000	0.02320	48.00000	0.00040	Oxic	Not MF Influenced
2020	Low Flow	FR_BLAINESEEP1	FR_Blain_CCR	0.00004	490.00000	1900.00000	0.00200	54.00000	0.00031	Oxic	Not MF Influenced
2018	High Flow	FR_BLAINESEEP5	FR_Blain_CCR	0.00052	218.00000	2110.00000	0.01040	20.00000	0.00013	Oxic	Not MF Influenced
2018	Low Flow	FR_BLAINESEEP5	FR_Blain_CCR	0.00042	228.00000	1920.00000	0.01100	26.00000	0.00014	Oxic	Not MF Influenced
2019	High Flow	FR_BLAINESEEP5	FR_Blain_CCR	-	-	-	-	-	-	-	-
2019	Low Flow	FR_BLAINESEEP5	FR_Blain_CCR	0.00005	198.00000	2000.00000	0.00230	46.00000	0.00012	Oxic	Not MF Influenced
2020	High Flow	FR_BLAINESEEP5	FR_Blain_CCR	0.00008	237.00000	1900.00000	0.00310	38.00000	0.00015	Oxic	Not MF Influenced
2020	Low Flow	FR_BLAINESEEP5	FR_Blain_CCR	-	-	-	-	-	-	-	-
2018	High Flow	FR_BLAKESEEP1	FR_Blain_CCR	0.00001	118.00000	490.00000	0.00100	200.00000	0.00029	Oxic	Not MF Influenced
2018	Low Flow	FR_BLAKESEEP1	FR_Blain_CCR	0.00003	96.90000	569.00000	0.00500	200.00000	0.00021	Oxic	Not MF Influenced
2019	High Flow	FR_BLAKESEEP1	FR_Blain_CCR	-	-	-	-	-	-	-	-
2019	Low Flow	FR_BLAKESEEP1	FR_Blain_CCR	0.00008	96.90000	319.00000	0.00160	19.00000	0.00037	Oxic	Not MF Influenced
2020	High Flow	FR_BLAKESEEP1	FR_Blain_CCR	0.00008	113.00000	422.00000	0.00330	42.00000	0.00033	Oxic	Not MF Influenced
2020	Low Flow	FR_BLAKESEEP1	FR_Blain_CCR	-	-	-	-	-	-	-	-
2018	High Flow	FR_CCSEEPE1	FR_ClodeCr_WR	0.00100	180.00000	562.00000	0.05600	56.00000	0.00039	Oxic	Not MF Influenced
2018	Low Flow	FR_CCSEEPE1	FR_ClodeCr_WR	0.00075	283.00000	840.00000	0.04580	61.00000	0.00041	Oxic	Not MF Influenced
2019	High Flow	FR_CCSEEPE1	FR_ClodeCr_WR	-	-	-	-	-	-	-	-
2019	Low Flow	FR_CCSEEPE1	FR_ClodeCr_WR	-	-	-	-	-	-	-	-
2020	High Flow	FR_CCSEEPE1	FR_ClodeCr_WR	0.00015	216.00000	904.00000	0.02870	190.00000	0.00029	Oxic	Not MF Influenced
2020	Low Flow	FR_CCSEEPE1	FR_ClodeCr_WR	0.00026	220.00000	918.00000	0.03440	130.00000	0.00029	Oxic	Not MF Influenced
2018	High Flow	FR_CCSEEPSE1	FR_ClodeCr_WR	0.00156	425.00000	1520.00000	0.11500	74.00000	0.00034	Oxic	Not MF Influenced
2018	Low Flow	FR_CCSEEPSE1	FR_ClodeCr_WR	0.00130	496.00000	2000.00000	0.10300	79.00000	0.00030	Oxic	Not MF Influenced
2019	High Flow	FR_CCSEEPSE1	FR_ClodeCr_WR	-	-	-	-	-	-	-	-
2019	Low Flow	FR_CCSEEPSE1	FR_ClodeCr_WR	0.00143	474.00000	1520.00000	0.13500	94.00000	0.00038	Oxic	Not MF Influenced
2020	High Flow	FR_CCSEEPSE1	FR_ClodeCr_WR	0.00132	429.00000	1350.00000	0.09250	70.00000	0.00039	Oxic	Not MF Influenced

Year	Flow Regime	Seep ID	Material Group	Cadmium (mg/L)	Selenium (ug/L)	Sulfate (mg/L)	Zinc (mg/L)	Zn/Cd (mg/mg)	Se/SO4 (mol/mol)	Suboxic/Oxic	MF Influence
2020	Low Flow	FR_CCSEEPSE1	FR_ClodeCr_WR	0.00151	378.00000	1510.00000	0.16000	110.00000	0.00030	Oxic	Not MF Influenced
2018	High Flow	FR_DOKASEEP1	FR_DOKA_Unknown	-	-	-	-	-	-	-	-
2018	Low Flow	FR_DOKASEEP1	FR_DOKA_Unknown	0.00004	150.00000	304.00000	0.00500	130.00000	0.00060	Oxic	Not MF Influenced
2019	High Flow	FR_DOKASEEP1	FR_DOKA_Unknown	-	-	-	-	-	-	-	-
2019	Low Flow	FR_DOKASEEP1	FR_DOKA_Unknown	0.00001	1.49000	93.00000	0.00100	150.00000	0.00002	Oxic	Not MF Influenced
2020	High Flow	FR_DOKASEEP1	FR_DOKA_Unknown	-	-	-	-	-	-	-	-
2020	Low Flow	FR_DOKASEEP1	FR_DOKA_Unknown	-	-	-	-	-	-	-	-
2018	High Flow	FR_EAGLENORTH	FR_Eagle_WR	0.00084	434.00000	1840.00000	0.03590	43.00000	0.00029	Oxic	Not MF Influenced
2018	Low Flow	FR_EAGLENORTH	FR_Eagle_WR	0.00044	416.00000	1890.00000	0.02300	52.00000	0.00027	Oxic	Not MF Influenced
2019	High Flow	FR_EAGLENORTH	FR_Eagle_WR	-	-	-	-	-	-	-	-
2019	Low Flow	FR_EAGLENORTH	FR_Eagle_WR	0.00103	482.00000	1860.00000	0.04240	41.00000	0.00031	Oxic	Not MF Influenced
2020	High Flow	FR_EAGLENORTH	FR_Eagle_WR	0.00055	539.00000	1720.00000	0.02610	48.00000	0.00038	Oxic	Not MF Influenced
2020	Low Flow	FR_EAGLENORTH	FR_Eagle_WR	0.00060	423.00000	2030.00000	0.02440	41.00000	0.00025	Oxic	Not MF Influenced
2018	High Flow	FR_FCSEEP2	FR_TurnbullWREast_WR	0.00001	5.94000	43.20000	0.00100	110.00000	0.00017	Oxic	Not MF Influenced
2018	Low Flow	FR_FCSEEP2	FR_TurnbullWREast_WR	0.00001	25.40000	121.00000	0.00100	79.00000	0.00026	Oxic	Not MF Influenced
2019	High Flow	FR_FCSEEP2	FR_TurnbullWREast_WR	-	-	-	-	-	-	-	-
2019	Low Flow	FR_FCSEEP2	FR_TurnbullWREast_WR	0.00001	6.44000	38.70000	0.00100	100.00000	0.00020	Oxic	Not MF Influenced
2020	High Flow	FR_FCSEEP2	FR_TurnbullWREast_WR	0.00001	6.31000	32.00000	0.00100	140.00000	0.00024	Oxic	Not MF Influenced
2020	Low Flow	FR_FCSEEP2	FR_TurnbullWREast_WR	0.00002	28.10000	169.00000	0.00100	60.00000	0.00020	Oxic	Not MF Influenced
2018	High Flow	FR_FRVWSEEP3	FR_Smith_WR	0.00003	81.60000	500.00000	0.00790	260.00000	0.00020	Oxic	Possibly MF Influenced
2018	Low Flow	FR_FRVWSEEP3	FR_Smith_WR	0.00003	75.10000	578.00000	0.01040	340.00000	0.00016	Oxic	Possibly MF Influenced
2019	High Flow	FR_FRVWSEEP3	FR_Smith_WR	-	-	-	-	-	-	-	-
2019	Low Flow	FR_FRVWSEEP3	FR_Smith_WR	0.00005	91.20000	509.00000	0.02290	480.00000	0.00022	Oxic	Possibly MF Influenced
2020	High Flow	FR_FRVWSEEP3	FR_Smith_WR	0.00002	105.00000	478.00000	0.00600	310.00000	0.00027	Oxic	Possibly MF Influenced
2020	Low Flow	FR_FRVWSEEP3	FR_Smith_WR	0.00002	76.10000	582.00000	0.00950	420.00000	0.00016	Oxic	Possibly MF Influenced
2018	High Flow	FR_FSEAMSEEP7	FR_DOKA_Unknown	-	-	-	-	-	-	-	-
2018	Low Flow	FR_FSEAMSEEP7	FR_DOKA_Unknown	0.00013	260.00000	717.00000	0.00620	49.00000	0.00044	Oxic	Not MF Influenced
2019	High Flow	FR_FSEAMSEEP7	FR_DOKA_Unknown	-	-	-	-	-	-	-	-
2019	Low Flow	FR_FSEAMSEEP7	FR_DOKA_Unknown	0.00009	140.00000	245.00000	0.00140	16.00000	0.00069	Oxic	Not MF Influenced
2020	High Flow	FR_FSEAMSEEP7	FR_DOKA_Unknown	0.00012	135.00000	226.00000	0.00460	38.00000	0.00073	Oxic	Not MF Influenced
2020	Low Flow	FR_FSEAMSEEP7	FR_DOKA_Unknown	0.00009	137.00000	373.00000	0.00640	75.00000	0.00045	Oxic	Not MF Influenced
2018	High Flow	FR_FSEAMWSEEP4	FR_Fseam_WR	0.00017	39.00000	120.00000	0.00930	55.00000	0.00039	Oxic	Not MF Influenced
2018	Low Flow	FR_FSEAMWSEEP4	FR_Fseam_WR	-	-	-	-	-	-	-	-
2019	High Flow	FR_FSEAMWSEEP4	FR_Fseam_WR	-	-	-	-	-	-	-	-
2019	Low Flow	FR_FSEAMWSEEP4	FR_Fseam_WR	0.00024	128.00000	287.00000	0.01650	70.00000	0.00054	Oxic	Not MF Influenced
2020	High Flow	FR_FSEAMWSEEP4	FR_Fseam_WR	0.00016	64.30000	140.00000	0.00940	60.00000	0.00056	Oxic	Not MF Influenced
2020	Low Flow	FR_FSEAMWSEEP4	FR_Fseam_WR	-	-	-	-	-	-	-	-
2018	High Flow	FR_HENSEEP1	FR_HEN_WR	0.00004	287.00000	726.00000	0.00600	150.00000	0.00048	Oxic	Not MF Influenced
2018	Low Flow	FR_HENSEEP1	FR_HEN_WR	0.00003	0.63000	861.00000	0.00500	200.00000	0.00000	Suboxic	Not MF Influenced

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2019	High Flow	FR_HENSEEP1	FR_HEN_WR	-	-	-	-	-	-	-	-
2019	Low Flow	FR_HENSEEP1	FR_HEN_WR	-	-	-	-	-	-	-	-
2020	High Flow	FR_HENSEEP1	FR_HEN_WR	-	-	-	-	-	-	-	-
2020	Low Flow	FR_HENSEEP1	FR_HEN_WR	-	-	-	-	-	-	-	-
2018	High Flow	FR_HENSEEP3	FR_HEN_WR	0.00018	677.00000	1360.00000	0.00470	26.00000	0.00060	Oxic	Not MF Influenced
2018	Low Flow	FR_HENSEEP3	FR_HEN_WR	0.00010	254.00000	1270.00000	0.00500	53.00000	0.00024	Oxic	Not MF Influenced
2019	High Flow	FR_HENSEEP3	FR_HEN_WR	0.00013	526.00000	1120.00000	0.00500	37.00000	0.00057	Oxic	Not MF Influenced
2019	Low Flow	FR_HENSEEP3	FR_HEN_WR	0.00016	569.00000	1340.00000	0.00630	39.00000	0.00052	Oxic	Not MF Influenced
2020	High Flow	FR_HENSEEP3	FR_HEN_WR	0.00021	553.00000	1210.00000	0.00850	40.00000	0.00056	Oxic	Not MF Influenced
2020	Low Flow	FR_HENSEEP3	FR_HEN_WR	0.00021	652.00000	1450.00000	0.00840	40.00000	0.00055	Oxic	Not MF Influenced
2018	High Flow	FR_HENSSEEP1	FR_HEN_WR	0.00001	1.59000	638.00000	0.00100	200.00000	0.00000	Suboxic	Not MF Influenced
2018	Low Flow	FR_HENSSEEP1	FR_HEN_WR	-	-	-	-	-	-	-	-
2019	High Flow	FR_HENSSEEP1	FR_HEN_WR	0.00001	1.84000	649.00000	0.00100	200.00000	0.00000	Suboxic	Not MF Influenced
2019	Low Flow	FR_HENSSEEP1	FR_HEN_WR	0.00006	1.04000	762.00000	0.00360	56.00000	0.00000	Suboxic	Not MF Influenced
2020	High Flow	FR_HENSSEEP1	FR_HEN_WR	0.00016	2.23000	487.00000	0.00670	41.00000	0.00001	Oxic	Not MF Influenced
2020	Low Flow	FR_HENSSEEP1	FR_HEN_WR	-	-	-	-	-	-	-	-
2018	High Flow	FR_LMCWSEEP5	FR_LakeMtn_WR_PITS	0.00004	30.60000	75.30000	0.00180	44.00000	0.00049	Oxic	Not MF Influenced
2018	Low Flow	FR_LMCWSEEP5	FR_LakeMtn_WR_PITS	0.00004	85.30000	261.00000	0.00500	140.00000	0.00040	Oxic	Not MF Influenced
2019	High Flow	FR_LMCWSEEP5	FR_LakeMtn_WR_PITS	-	-	-	-	-	-	-	-
2019	Low Flow	FR_LMCWSEEP5	FR_LakeMtn_WR_PITS	0.00006	50.90000	126.00000	0.00310	54.00000	0.00049	Oxic	Not MF Influenced
2020	High Flow	FR_LMCWSEEP5	FR_LakeMtn_WR_PITS	0.00058	147.00000	345.00000	0.02830	48.00000	0.00052	Oxic	Not MF Influenced
2020	Low Flow	FR_LMCWSEEP5	FR_LakeMtn_WR_PITS	0.00011	153.00000	403.00000	0.00340	31.00000	0.00046	Oxic	Not MF Influenced
2018	High Flow	FR_LMCWSEEP7	FR_LakeMtn_WR_PITS	0.00004	10.60000	42.80000	0.00280	63.00000	0.00030	Oxic	Not MF Influenced
2018	Low Flow	FR_LMCWSEEP7	FR_LakeMtn_WR_PITS	-	-	-	-	-	-	-	-
2019	High Flow	FR_LMCWSEEP7	FR_LakeMtn_WR_PITS	-	-	-	-	-	-	-	-
2019	Low Flow	FR_LMCWSEEP7	FR_LakeMtn_WR_PITS	-	-	-	-	-	-	-	-
2020	High Flow	FR_LMCWSEEP7	FR_LakeMtn_WR_PITS	-	-	-	-	-	-	-	-
2020	Low Flow	FR_LMCWSEEP7	FR_LakeMtn_WR_PITS	-	-	-	-	-	-	-	-
2018	High Flow	FR_SCRDSEEP1	FR_SwiftWR_RockDrain_WR	0.00001	28.80000	226.00000	0.00100	80.00000	0.00015	Oxic	Not MF Influenced
2018	Low Flow	FR_SCRDSEEP1	FR_SwiftWR_RockDrain_WR	0.00003	16.80000	227.00000	0.00110	42.00000	0.00009	Oxic	Not MF Influenced
2019	High Flow	FR_SCRDSEEP1	FR_SwiftWR_RockDrain_WR	-	-	-	-	-	-	-	-
2019	Low Flow	FR_SCRDSEEP1	FR_SwiftWR_RockDrain_WR	0.00007	167.00000	413.00000	0.00290	43.00000	0.00049	Oxic	Not MF Influenced
2020	High Flow	FR_SCRDSEEP1	FR_SwiftWR_RockDrain_WR	0.00006	95.80000	343.00000	0.00430	67.00000	0.00034	Oxic	Not MF Influenced
2020	Low Flow	FR_SCRDSEEP1	FR_SwiftWR_RockDrain_WR	0.00003	81.30000	313.00000	0.00150	53.00000	0.00032	Oxic	Not MF Influenced
2018	High Flow	FR_SHNSEEP1	FR_Shandley_WR	0.00016	47.40000	147.00000	0.00400	26.00000	0.00039	Oxic	Not MF Influenced
2018	Low Flow	FR_SHNSEEP1	FR_Shandley_WR	0.00012	46.50000	224.00000	0.00500	42.00000	0.00025	Oxic	Not MF Influenced
2019	High Flow	FR_SHNSEEP1	FR_Shandley_WR	-	-	-	-	-	-	-	-
2019	Low Flow	FR_SHNSEEP1	FR_Shandley_WR	0.00017	54.30000	137.00000	0.00420	24.00000	0.00048	Oxic	Not MF Influenced
2020	High Flow	FR_SHNSEEP1	FR_Shandley_WR	0.00013	31.60000	107.00000	0.00350	28.00000	0.00036	Oxic	Not MF Influenced

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2020	Low Flow	FR_SHNSEEP1	FR_Shandley_WR	-	-	-	-	-	-	-	-
2018	High Flow	FR_SPRWSEEP1	FR_Blain_CCR	0.00002	42.20000	406.00000	0.00160	110.00000	0.00013	Oxic	Not MF Influenced
2018	Low Flow	FR_SPRWSEEP1	FR_Blain_CCR	0.00067	26.40000	366.00000	0.02870	43.00000	0.00009	Oxic	Not MF Influenced
2019	High Flow	FR_SPRWSEEP1	FR_Blain_CCR	-	-	-	-	-	-	-	-
2019	Low Flow	FR_SPRWSEEP1	FR_Blain_CCR	0.00065	47.70000	402.00000	0.03000	46.00000	0.00014	Oxic	Not MF Influenced
2020	High Flow	FR_SPRWSEEP1	FR_Blain_CCR	-	-	-	-	-	-	-	-
2020	Low Flow	FR_SPRWSEEP1	FR_Blain_CCR	0.00072	45.10000	398.00000	0.03930	55.00000	0.00014	Oxic	Not MF Influenced
2018	High Flow	FR_STPNSEEP	FR_SouthTails_Tailings	0.00011	16.20000	148.00000	0.00140	13.00000	0.00013	Oxic	Not MF Influenced
2018	Low Flow	FR_STPNSEEP	FR_SouthTails_Tailings	0.00009	32.40000	278.00000	0.00140	15.00000	0.00014	Oxic	Not MF Influenced
2019	High Flow	FR_STPNSEEP	FR_SouthTails_Tailings	-	-	-	-	-	-	-	-
2019	Low Flow	FR_STPNSEEP	FR_SouthTails_Tailings	0.00010	11.10000	177.00000	0.00150	15.00000	0.00008	Oxic	Not MF Influenced
2020	High Flow	FR_STPNSEEP	FR_SouthTails_Tailings	0.00003	16.60000	73.10000	0.00100	40.00000	0.00028	Oxic	Not MF Influenced
2020	Low Flow	FR_STPNSEEP	FR_SouthTails_Tailings	-	-	-	-	-	-	-	-
2018	High Flow	FR_STPSWSEEP	FR_SouthTails_Tailings	0.00036	0.05600	367.00000	0.00230	6.50000	0.00000	Oxic	Not MF Influenced
2018	Low Flow	FR_STPSWSEEP	FR_SouthTails_Tailings	0.00034	0.05000	350.00000	0.00230	6.80000	0.00000	Oxic	Not MF Influenced
2019	High Flow	FR_STPSWSEEP	FR_SouthTails_Tailings	0.00024	1.98000	389.00000	0.00160	6.60000	0.00001	Oxic	Not MF Influenced
2019	Low Flow	FR_STPSWSEEP	FR_SouthTails_Tailings	0.00080	1.88000	397.00000	0.00680	8.50000	0.00001	Oxic	Not MF Influenced
2020	High Flow	FR_STPSWSEEP	FR_SouthTails_Tailings	0.00043	0.21300	328.00000	0.00340	7.90000	0.00000	Oxic	Not MF Influenced
2020	Low Flow	FR_STPSWSEEP	FR_SouthTails_Tailings	0.00038	0.09200	356.00000	0.00210	5.60000	0.00000	Oxic	Not MF Influenced
2018	High Flow	FR_STPWSEEP	FR_SouthTails_Tailings	0.00076	0.12900	323.00000	0.00200	2.60000	0.00000	Oxic	Not MF Influenced
2018	Low Flow	FR_STPWSEEP	FR_SouthTails_Tailings	0.00078	0.08200	300.00000	0.00260	3.40000	0.00000	Oxic	Not MF Influenced
2019	High Flow	FR_STPWSEEP	FR_SouthTails_Tailings	-	-	-	-	-	-	-	-
2019	Low Flow	FR_STPWSEEP	FR_SouthTails_Tailings	0.00064	3.01000	355.00000	0.00290	4.50000	0.00001	Oxic	Not MF Influenced
2020	High Flow	FR_STPWSEEP	FR_SouthTails_Tailings	0.00108	0.19800	258.00000	0.00380	3.50000	0.00000	Oxic	Not MF Influenced
2020	Low Flow	FR_STPWSEEP	FR_SouthTails_Tailings	0.00038	0.20600	283.00000	0.00190	5.00000	0.00000	Oxic	Not MF Influenced
2018	High Flow	FR_TBWSEEP1	FR_TurnbullWRWest_WR	0.00012	91.80000	313.00000	0.00680	58.00000	0.00036	Oxic	Not MF Influenced
2018	Low Flow	FR_TBWSEEP1	FR_TurnbullWRWest_WR	0.00006	35.30000	169.00000	0.00360	61.00000	0.00025	Oxic	Not MF Influenced
2019	High Flow	FR_TBWSEEP1	FR_TurnbullWRWest_WR	0.00007	59.90000	272.00000	0.00330	50.00000	0.00027	Oxic	Not MF Influenced
2019	Low Flow	FR_TBWSEEP1	FR_TurnbullWRWest_WR	0.00006	49.20000	184.00000	0.00290	46.00000	0.00032	Oxic	Not MF Influenced
2020	High Flow	FR_TBWSEEP1	FR_TurnbullWRWest_WR	0.00005	63.20000	237.00000	0.00260	48.00000	0.00032	Oxic	Not MF Influenced
2020	Low Flow	FR_TBWSEEP1	FR_TurnbullWRWest_WR	0.00003	34.30000	210.00000	0.00170	56.00000	0.00020	Oxic	Not MF Influenced
2018	High Flow	FR_TURNSEEP1	FR_TurnbullWREast_WR	0.00045	260.00000	428.00000	0.01860	41.00000	0.00074	Oxic	Not MF Influenced
2018	Low Flow	FR_TURNSEEP1	FR_TurnbullWREast_WR	-	-	-	-	-	-	-	-
2019	High Flow	FR_TURNSEEP1	FR_TurnbullWREast_WR	-	-	-	-	-	-	-	-
2019	Low Flow	FR_TURNSEEP1	FR_TurnbullWREast_WR	0.00049	235.00000	426.00000	0.02050	42.00000	0.00067	Oxic	Not MF Influenced
2020	High Flow	FR_TURNSEEP1	FR_TurnbullWREast_WR	0.00034	176.00000	272.00000	0.01590	47.00000	0.00079	Oxic	Not MF Influenced
2020	Low Flow	FR_TURNSEEP1	FR_TurnbullWREast_WR	-	-	-	-	-	-	-	-
2018	High Flow	FR_TURNSEEP2	FR_TurnbullWRWest_WR	0.00009	124.00000	369.00000	0.00230	26.00000	0.00041	Oxic	Not MF Influenced
2018	Low Flow	FR_TURNSEEP2	FR_TurnbullWRWest_WR	0.00006	69.70000	318.00000	0.00500	83.00000	0.00027	Oxic	Not MF Influenced

Year	Flow Regime	Seep ID	Material Group	Cadmium (mg/L)	Selenium (ug/L)	Sulfate (mg/L)	Zinc (mg/L)	Zn/Cd (mg/mg)	Se/SO4 (mol/mol)	Suboxic/Oxic	MF Influence
2019	High Flow	FR_TURNSEEP2	FR_TurnbullWRWest_WR	-	-	-	-	-	-	-	-
2019	Low Flow	FR_TURNSEEP2	FR_TurnbullWRWest_WR	0.00007	66.30000	242.00000	0.00180	26.00000	0.00033	Oxic	Not MF Influenced
2020	High Flow	FR_TURNSEEP2	FR_TurnbullWRWest_WR	0.00005	91.10000	305.00000	0.00190	35.00000	0.00036	Oxic	Not MF Influenced
2020	Low Flow	FR_TURNSEEP2	FR_TurnbullWRWest_WR	0.00006	74.70000	337.00000	0.00170	27.00000	0.00027	Oxic	Not MF Influenced

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\2020_Seep_Selection_Criteria_rev0_amd.xlsx

2 Greenhills Operation (GHO)

Table 2: GHO - Seep Selection Criteria Summary

Year	Flow Regime	Seep ID	Material Group	Cadmium (mg/L)	Selenium (ug/L)	Sulfate (mg/L)	Zinc (mg/L)	Zn/Cd (mg/mg)	Se/SO4 (mg/mg)	Suboxic/Oxic	MF Influence
2018	High Flow	GH_E1	GH_CCR	0.00001	0.29900	969.00000	0.00560	440.00000	0.00000	Suboxic	Possibly MF Influenced
2018	Low Flow	GH_E1	GH_CCR	0.00001	0.27700	857.00000	0.00800	950.00000	0.00000	Suboxic	Possibly MF Influenced
2019	High Flow	GH_E1	GH_CCR	0.00003	0.59500	775.00000	0.01300	430.00000	0.00000	Suboxic	Possibly MF Influenced
2019	Low Flow	GH_E1	GH_CCR	-	-	-	-	-	-	-	-
2020	High Flow	GH_E1	GH_CCR	0.00002	0.28400	913.00000	0.01270	670.00000	0.00000	Suboxic	Possibly MF Influenced
2020	Low Flow	GH_E1	GH_CCR	0.00001	0.25400	767.00000	0.00930	760.00000	0.00000	Suboxic	Possibly MF Influenced
2018	High Flow	GH_E3	GH_CCR	0.00001	21.30000	543.00000	0.00100	200.00000	0.00005	Oxic	Not MF Influenced
2018	Low Flow	GH_E3	GH_CCR	0.00001	4.17000	527.00000	0.00300	600.00000	0.00001	Suboxic	Possibly MF Influenced
2019	High Flow	GH_E3	GH_CCR	0.00008	22.70000	440.00000	0.00360	44.00000	0.00006	Oxic	Not MF Influenced
2019	Low Flow	GH_E3	GH_CCR	0.00001	5.60000	705.00000	0.00100	200.00000	0.00001	Suboxic	Not MF Influenced
2020	High Flow	GH_E3	GH_CCR	0.00002	20.50000	632.00000	0.00110	65.00000	0.00004	Oxic	Not MF Influenced
2020	Low Flow	GH_E3	GH_CCR	0.00024	8.57000	524.00000	0.01940	83.00000	0.00002	Oxic	Not MF Influenced
2018	High Flow	GH_SEEP_12	GH_PORTER_CREEK	0.00008	4.02000	17.50000	0.00440	55.00000	0.00028	Oxic	Not MF Influenced
2018	Low Flow	GH_SEEP_12	GH_PORTER_CREEK	0.00002	6.26000	35.30000	0.00610	340.00000	0.00022	Oxic	Not MF Influenced
2019	High Flow	GH_SEEP_12	GH_PORTER_CREEK	0.00004	3.56000	33.90000	0.00200	56.00000	0.00013	Oxic	Not MF Influenced
2019	Low Flow	GH_SEEP_12	GH_PORTER_CREEK	-	-	-	-	-	-	-	-
2020	High Flow	GH_SEEP_12	GH_PORTER_CREEK	0.00003	2.64000	22.30000	0.02210	630.00000	0.00014	Oxic	Not MF Influenced
2020	Low Flow	GH_SEEP_12	GH_PORTER_CREEK	-	-	-	-	-	-	-	-
2018	High Flow	GH_SEEP_15	GH_UPSTREAM_CCR	0.00002	2.30000	534.00000	0.00100	50.00000	0.00001	Suboxic	Not MF Influenced
2018	Low Flow	GH_SEEP_15	GH_UPSTREAM_CCR	0.00002	2.45000	759.00000	0.00100	43.00000	0.00000	Suboxic	Not MF Influenced
2019	High Flow	GH_SEEP_15	GH_UPSTREAM_CCR	-	-	-	-	-	-	-	-
2019	Low Flow	GH_SEEP_15	GH_UPSTREAM_CCR	-	-	-	-	-	-	-	-
2020	High Flow	GH_SEEP_15	GH_UPSTREAM_CCR	-	-	-	-	-	-	-	-
2020	Low Flow	GH_SEEP_15	GH_UPSTREAM_CCR	-	-	-	-	-	-	-	-
2018	High Flow	GH_SEEP_16	GH_CCR	0.00001	83.50000	352.00000	0.00100	200.00000	0.00029	Oxic	Not MF Influenced
2018	Low Flow	GH_SEEP_16	GH_CCR	0.00001	100.00000	417.00000	0.00210	210.00000	0.00029	Oxic	Possibly MF Influenced
2019	High Flow	GH_SEEP_16	GH_CCR	0.00001	17.70000	303.00000	0.00100	200.00000	0.00007	Oxic	Not MF Influenced
2019	Low Flow	GH_SEEP_16	GH_CCR	0.00001	40.20000	328.00000	0.00220	440.00000	0.00015	Oxic	Possibly MF Influenced
2020	High Flow	GH_SEEP_16	GH_CCR	-	-	-	-	-	-	-	-
2020	Low Flow	GH_SEEP_16	GH_CCR	-	-	-	-	-	-	-	-
2018	High Flow	GH_SEEP_21	GH_CCR	0.00019	8.39000	1140.00000	0.01040	54.00000	0.00001	Suboxic	Not MF Influenced
2018	Low Flow	GH_SEEP_21	GH_CCR	0.00034	1.16000	1200.00000	0.01980	58.00000	0.00000	Suboxic	Not MF Influenced
2019	High Flow	GH_SEEP_21	GH_CCR	0.00013	3.90000	1010.00000	0.00590	46.00000	0.00000	Suboxic	Not MF Influenced
2019	Low Flow	GH_SEEP_21	GH_CCR	0.00007	1.39000	959.00000	0.00400	58.00000	0.00000	Suboxic	Not MF Influenced
2020	High Flow	GH_SEEP_21	GH_CCR	-	-	-	-	-	-	-	-
2020	Low Flow	GH_SEEP_21	GH_CCR	-	-	-	-	-	-	-	-

Year	Flow Regime	Seep ID	Material Group	Cadmium (mg/L)	Selenium (ug/L)	Sulfate (mg/L)	Zinc (mg/L)	Zn/Cd (mg/mg)	Se/SO4 (mg/mg)	Suboxic/Oxic	MF Influence
2018	High Flow	GH_SEEP_22	GH_CCR	0.00013	19.30000	1430.00000	0.00860	68.00000	0.00002	Oxic	Not MF Influenced
2018	Low Flow	GH_SEEP_22	GH_CCR	0.00018	3.79000	1220.00000	0.01750	97.00000	0.00000	Suboxic	Not MF Influenced
2019	High Flow	GH_SEEP_22	GH_CCR	0.00009	17.30000	1050.00000	0.00720	81.00000	0.00002	Oxic	Not MF Influenced
2019	Low Flow	GH_SEEP_22	GH_CCR	0.00006	16.00000	1080.00000	0.00560	100.00000	0.00002	Oxic	Not MF Influenced
2020	High Flow	GH_SEEP_22	GH_CCR	0.00004	8.55000	1240.00000	0.00490	140.00000	0.00001	Suboxic	Not MF Influenced
2020	Low Flow	GH_SEEP_22	GH_CCR	-	-	-	-	-	-	-	-
2018	High Flow	GH_SEEP_26	GH_CCR	0.00003	0.46000	2010.00000	0.00500	200.00000	0.00000	Suboxic	Not MF Influenced
2018	Low Flow	GH_SEEP_26	GH_CCR	-	-	-	-	-	-	-	-
2019	High Flow	GH_SEEP_26	GH_CCR	-	-	-	-	-	-	-	-
2019	Low Flow	GH_SEEP_26	GH_CCR	-	-	-	-	-	-	-	-
2020	High Flow	GH_SEEP_26	GH_CCR	-	-	-	-	-	-	-	-
2020	Low Flow	GH_SEEP_26	GH_CCR	-	-	-	-	-	-	-	-
2018	High Flow	GH_SEEP_30	GH_UPSTREAM_CCR	0.00001	0.20000	5.22000	0.00100	160.00000	0.00005	Oxic	Not MF Influenced
2018	Low Flow	GH_SEEP_30	GH_UPSTREAM_CCR	-	-	-	-	-	-	-	-
2019	High Flow	GH_SEEP_30	GH_UPSTREAM_CCR	0.00003	13.20000	59.40000	0.00100	32.00000	0.00027	Oxic	Not MF Influenced
2019	Low Flow	GH_SEEP_30	GH_UPSTREAM_CCR	-	-	-	-	-	-	-	-
2020	High Flow	GH_SEEP_30	GH_UPSTREAM_CCR	-	-	-	-	-	-	-	-
2020	Low Flow	GH_SEEP_30	GH_UPSTREAM_CCR	-	-	-	-	-	-	-	-
2018	High Flow	GH_SEEP_46	GH_THOMPSON_WR	0.00036	136.00000	365.00000	0.00380	11.00000	0.00045	Oxic	Not MF Influenced
2018	Low Flow	GH_SEEP_46	GH_THOMPSON_WR	-	-	-	-	-	-	-	-
2019	High Flow	GH_SEEP_46	GH_THOMPSON_WR	-	-	-	-	-	-	-	-
2019	Low Flow	GH_SEEP_46	GH_THOMPSON_WR	-	-	-	-	-	-	-	-
2020	High Flow	GH_SEEP_46	GH_THOMPSON_WR	0.00034	147.00000	389.00000	0.00710	21.00000	0.00046	Oxic	Not MF Influenced
2020	Low Flow	GH_SEEP_46	GH_THOMPSON_WR	-	-	-	-	-	-	-	-
2018	High Flow	GH_SEEP_5	GH_THOMPSON_WR	0.00016	2.44000	97.00000	0.00360	23.00000	0.00003	Oxic	Not MF Influenced
2018	Low Flow	GH_SEEP_5	GH_THOMPSON_WR	-	-	-	-	-	-	-	-
2019	High Flow	GH_SEEP_5	GH_THOMPSON_WR	0.00022	2.57000	134.00000	0.00630	29.00000	0.00002	Oxic	Not MF Influenced
2019	Low Flow	GH_SEEP_5	GH_THOMPSON_WR	-	-	-	-	-	-	-	-
2020	High Flow	GH_SEEP_5	GH_THOMPSON_WR	0.00016	2.01000	119.00000	0.00610	38.00000	0.00002	Oxic	Not MF Influenced
2020	Low Flow	GH_SEEP_5	GH_THOMPSON_WR	-	-	-	-	-	-	-	-
2018	High Flow	GH_SEEP_50	GH_UPSTREAM_CCR	0.00007	0.82000	88.80000	0.00500	75.00000	0.00001	Oxic	Not MF Influenced
2018	Low Flow	GH_SEEP_50	GH_UPSTREAM_CCR	-	-	-	-	-	-	-	-
2019	High Flow	GH_SEEP_50	GH_UPSTREAM_CCR	0.00001	0.18600	1.43000	0.00410	360.00000	0.00016	Oxic	Not MF Influenced
2019	Low Flow	GH_SEEP_50	GH_UPSTREAM_CCR	0.00005	0.82400	209.00000	0.00410	81.00000	0.00000	Oxic	Not MF Influenced
2020	High Flow	GH_SEEP_50	GH_UPSTREAM_CCR	-	-	-	-	-	-	-	-
2020	Low Flow	GH_SEEP_50	GH_UPSTREAM_CCR	-	-	-	-	-	-	-	-
2018	High Flow	GH_SEEP_60	GH_THOMPSON_WR	0.00003	545.00000	1680.00000	0.00500	200.00000	0.00039	Oxic	Not MF Influenced
2018	Low Flow	GH_SEEP_60	GH_THOMPSON_WR	0.00002	755.00000	1800.00000	0.00100	60.00000	0.00051	Oxic	Not MF Influenced
2019	High Flow	GH_SEEP_60	GH_THOMPSON_WR	0.00003	503.00000	1610.00000	0.00200	77.00000	0.00038	Oxic	Not MF Influenced

Year	Flow Regime	Seep ID	Material Group	Cadmium (mg/L)	Selenium (ug/L)	Sulfate (mg/L)	Zinc (mg/L)	Zn/Cd (mg/mg)	Se/SO4 (mg/mg)	Suboxic/Oxic	MF Influence
2019	Low Flow	GH_SEEP_60	GH_THOMPSON_WR	-	-	-	-	-	-	-	-
2020	High Flow	GH_SEEP_60	GH_THOMPSON_WR	-	-	-	-	-	-	-	-
2020	Low Flow	GH_SEEP_60	GH_THOMPSON_WR	0.00001	562.00000	1720.00000	0.00200	180.00000	0.00040	Oxic	Not MF Influenced
2018	High Flow	GH_SEEP_76	GH_LEASK_WR	0.00003	560.00000	429.00000	0.00150	45.00000	0.00160	Oxic	Not MF Influenced
2018	Low Flow	GH_SEEP_76	GH_LEASK_WR	0.00002	491.00000	442.00000	0.00100	48.00000	0.00130	Oxic	Not MF Influenced
2019	High Flow	GH_SEEP_76	GH_LEASK_WR	0.00002	584.00000	590.00000	0.00200	130.00000	0.00120	Oxic	Not MF Influenced
2019	Low Flow	GH_SEEP_76	GH_LEASK_WR	0.00007	544.00000	551.00000	0.00180	26.00000	0.00120	Oxic	Not MF Influenced
2020	High Flow	GH_SEEP_76	GH_LEASK_WR	0.00004	607.00000	751.00000	0.00150	38.00000	0.00098	Oxic	Not MF Influenced
2020	Low Flow	GH_SEEP_76	GH_LEASK_WR	-	-	-	-	-	-	-	-
2018	High Flow	GH_SEEP_77	GH_WOLFRAM_WR	0.00007	316.00000	1460.00000	0.00100	15.00000	0.00026	Oxic	Not MF Influenced
2018	Low Flow	GH_SEEP_77	GH_WOLFRAM_WR	0.00005	204.00000	882.00000	0.00100	20.00000	0.00028	Oxic	Not MF Influenced
2019	High Flow	GH_SEEP_77	GH_WOLFRAM_WR	0.00006	145.00000	828.00000	0.00200	36.00000	0.00021	Oxic	Not MF Influenced
2019	Low Flow	GH_SEEP_77	GH_WOLFRAM_WR	0.00003	316.00000	1470.00000	0.00140	49.00000	0.00026	Oxic	Not MF Influenced
2020	High Flow	GH_SEEP_77	GH_WOLFRAM_WR	0.00003	90.80000	1240.00000	0.00330	130.00000	0.00009	Oxic	Not MF Influenced
2020	Low Flow	GH_SEEP_77	GH_WOLFRAM_WR	0.00004	122.00000	1150.00000	0.00220	55.00000	0.00013	Oxic	Not MF Influenced
2018	High Flow	GH_SEEP_79	GH_WOLFRAM_WR	0.00001	1.39000	64.00000	0.00100	93.00000	0.00003	Oxic	Not MF Influenced
2018	Low Flow	GH_SEEP_79	GH_WOLFRAM_WR	0.00001	0.27100	50.60000	0.00100	200.00000	0.00001	Oxic	Not MF Influenced
2019	High Flow	GH_SEEP_79	GH_WOLFRAM_WR	0.00001	0.91400	59.30000	0.00100	100.00000	0.00002	Oxic	Not MF Influenced
2019	Low Flow	GH_SEEP_79	GH_WOLFRAM_WR	0.00001	0.76200	79.20000	0.00100	130.00000	0.00001	Oxic	Not MF Influenced
2020	High Flow	GH_SEEP_79	GH_WOLFRAM_WR	0.00001	1.16000	70.60000	0.00200	200.00000	0.00002	Oxic	Not MF Influenced
2020	Low Flow	GH_SEEP_79	GH_WOLFRAM_WR	0.00001	0.26500	61.60000	0.00250	440.00000	0.00001	Oxic	Not MF Influenced
2018	High Flow	GH_W-SEEP	GH_CCR	-	-	-	-	-	-	-	-
2018	Low Flow	GH_W-SEEP	GH_CCR	-	-	-	-	-	-	-	-
2019	High Flow	GH_W-SEEP	GH_CCR	0.00001	0.64000	1800.00000	0.00200	200.00000	0.00000	Suboxic	Not MF Influenced
2019	Low Flow	GH_W-SEEP	GH_CCR	-	-	-	-	-	-	-	-
2020	High Flow	GH_W-SEEP	GH_CCR	-	-	-	-	-	-	-	-
2020	Low Flow	GH_W-SEEP	GH_CCR	-	-	-	-	-	-	-	-
2018	High Flow	GH_WTDS	GH_CCR	-	-	-	-	-	-	-	-
2018	Low Flow	GH_WTDS	GH_CCR	-	-	-	-	-	-	-	-
2019	High Flow	GH_WTDS	GH_CCR	0.00062	83.20000	304.00000	0.02170	35.00000	0.00033	Oxic	Not MF Influenced
2019	Low Flow	GH_WTDS	GH_CCR	0.00066	3.06000	185.00000	0.02000	31.00000	0.00002	Oxic	Not MF Influenced
2020	High Flow	GH_WTDS	GH_CCR	0.00052	6.00000	186.00000	0.01680	33.00000	0.00004	Oxic	Not MF Influenced
2020	Low Flow	GH_WTDS	GH_CCR	0.00044	4.25000	169.00000	0.01810	41.00000	0.00003	Oxic	Not MF Influenced

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\2020_Seep_Selection_Criteria_rev0_amd.xlsx

3 Line Creek Operation (LCO)

Table 3: LCO - Seep Selection Criteria Summary

Year	Flow Regime	Seep ID	Material Group	Cadmium (mg/L)	Selenium (ug/L)	Sulfate (mg/L)	Zinc (mg/L)	Zn/Cd (mg/mg)	Se/SO4 (mg/mg)	Suboxic/Oxic	MF Influence
2018	High Flow	LC_3KM	LC_MSA_WR	0.00023	5.07000	122.00000	0.00470	21.00000	0.00005	Oxic	Not MF Influenced
2018	Low Flow	LC_3KM	LC_MSA_WR	-	-	-	-	-	-	-	-
2019	High Flow	LC_3KM	LC_MSA_WR	0.00003	7.51000	48.10000	0.00100	38.00000	0.00019	Oxic	Not MF Influenced
2019	Low Flow	LC_3KM	LC_MSA_WR	0.00002	7.98000	62.10000	0.00100	55.00000	0.00016	Oxic	Not MF Influenced
2020	High Flow	LC_3KM	LC_MSA_WR	0.00001	3.97000	52.40000	0.00100	70.00000	0.00009	Oxic	Not MF Influenced
2020	Low Flow	LC_3KM	LC_MSA_WR	0.00001	1.07000	27.40000	0.00100	86.00000	0.00005	Oxic	Not MF Influenced
2018	High Flow	LC_ERX	LC_PLANT	-	-	-	-	-	-	-	-
2018	Low Flow	LC_ERX	LC_PLANT	-	-	-	-	-	-	-	-
2019	High Flow	LC_ERX	LC_PLANT	-	-	-	-	-	-	-	-
2019	Low Flow	LC_ERX	LC_PLANT	-	-	-	-	-	-	-	-
2020	High Flow	LC_ERX	LC_PLANT	-	-	-	-	-	-	-	-
2020	Low Flow	LC_ERX	LC_PLANT	-	-	-	-	-	-	-	-
2018	High Flow	LC_SEEP1	LC_MSA_WR	0.00001	3.39000	121.00000	0.00360	340.00000	0.00003	Oxic	Possibly MF Influenced
2018	Low Flow	LC_SEEP1	LC_MSA_WR	-	-	-	-	-	-	-	-
2019	High Flow	LC_SEEP1	LC_MSA_WR	0.00004	8.80000	85.00000	0.03470	940.00000	0.00013	Oxic	Not MF Influenced
2019	Low Flow	LC_SEEP1	LC_MSA_WR	0.00001	4.89000	101.00000	0.00170	340.00000	0.00006	Oxic	Possibly MF Influenced
2020	High Flow	LC_SEEP1	LC_MSA_WR	0.00004	2.85000	137.00000	0.02820	770.00000	0.00003	Oxic	Possibly MF Influenced
2020	Low Flow	LC_SEEP1	LC_MSA_WR	-	-	-	-	-	-	-	-
2018	High Flow	LC_SEEP10	LC_PLANT	0.00011	0.51200	155.00000	0.00830	74.00000	0.00000	Oxic	Not MF Influenced
2018	Low Flow	LC_SEEP10	LC_PLANT	0.00006	0.33400	163.00000	0.00510	83.00000	0.00000	Oxic	Not MF Influenced
2019	High Flow	LC_SEEP10	LC_PLANT	0.00005	1.07000	142.00000	0.00500	100.00000	0.00001	Oxic	Not MF Influenced
2019	Low Flow	LC_SEEP10	LC_PLANT	0.00006	0.56100	149.00000	0.00440	75.00000	0.00000	Oxic	Not MF Influenced
2020	High Flow	LC_SEEP10	LC_PLANT	0.00015	0.78100	131.00000	0.01170	79.00000	0.00001	Oxic	Not MF Influenced
2020	Low Flow	LC_SEEP10	LC_PLANT	0.00003	0.11600	159.00000	0.00270	99.00000	0.00000	Oxic	Not MF Influenced
2018	High Flow	LC_SEEP11	LC_PLANT	0.00001	2.34000	83.50000	0.00100	130.00000	0.00003	Oxic	Not MF Influenced
2018	Low Flow	LC_SEEP11	LC_PLANT	0.00001	2.67000	80.90000	0.00100	140.00000	0.00004	Oxic	Not MF Influenced
2019	High Flow	LC_SEEP11	LC_PLANT	0.00001	2.18000	104.00000	0.00100	120.00000	0.00003	Oxic	Not MF Influenced
2019	Low Flow	LC_SEEP11	LC_PLANT	0.00001	1.83000	111.00000	0.00100	180.00000	0.00002	Oxic	Not MF Influenced
2020	High Flow	LC_SEEP11	LC_PLANT	0.00001	2.05000	94.10000	0.00100	92.00000	0.00003	Oxic	Not MF Influenced
2020	Low Flow	LC_SEEP11	LC_PLANT	0.00001	2.13000	83.90000	0.00120	120.00000	0.00003	Oxic	Not MF Influenced
2018	High Flow	LC_SEEP14	LC_DC_WR	0.00024	70.70000	241.00000	0.01120	46.00000	0.00036	Oxic	Not MF Influenced
2018	Low Flow	LC_SEEP14	LC_DC_WR	-	-	-	-	-	-	-	-
2019	High Flow	LC_SEEP14	LC_DC_WR	0.00022	29.60000	177.00000	0.00890	41.00000	0.00020	Oxic	Not MF Influenced
2019	Low Flow	LC_SEEP14	LC_DC_WR	0.00019	20.60000	158.00000	0.00740	39.00000	0.00016	Oxic	Not MF Influenced
2020	High Flow	LC_SEEP14	LC_DC_WR	0.00015	29.00000	149.00000	0.00820	56.00000	0.00024	Oxic	Not MF Influenced
2020	Low Flow	LC_SEEP14	LC_DC_WR	-	-	-	-	-	-	-	-

Year	Flow Regime	Seep ID	Material Group	Cadmium (mg/L)	Selenium (ug/L)	Sulfate (mg/L)	Zinc (mg/L)	Zn/Cd (mg/mg)	Se/SO4 (mg/mg)	Suboxic/Oxic	MF Influence
2018	High Flow	LC_SEEP15	LC_DisturbedWSlope	0.00001	169.00000	293.00000	0.00100	200.00000	0.00070	Oxic	Not MF Influenced
2018	Low Flow	LC_SEEP15	LC_DisturbedWSlope	0.00001	155.00000	303.00000	0.00100	200.00000	0.00062	Oxic	Not MF Influenced
2019	High Flow	LC_SEEP15	LC_DisturbedWSlope	0.00001	163.00000	362.00000	0.00100	120.00000	0.00055	Oxic	Not MF Influenced
2019	Low Flow	LC_SEEP15	LC_DisturbedWSlope	0.00001	151.00000	398.00000	0.00100	200.00000	0.00046	Oxic	Not MF Influenced
2020	High Flow	LC_SEEP15	LC_DisturbedWSlope	0.00002	129.00000	272.00000	0.00100	65.00000	0.00058	Oxic	Not MF Influenced
2020	Low Flow	LC_SEEP15	LC_DisturbedWSlope	-	-	-	-	-	-	-	-
2018	High Flow	LC_SEEP19	LC_HSP_WR	0.00015	43.80000	226.00000	0.01060	71.00000	0.00024	Oxic	Not MF Influenced
2018	Low Flow	LC_SEEP19	LC_HSP_WR	0.00028	85.60000	526.00000	0.01590	56.00000	0.00020	Oxic	Not MF Influenced
2019	High Flow	LC_SEEP19	LC_HSP_WR	0.00011	18.80000	132.00000	0.00720	69.00000	0.00017	Oxic	Not MF Influenced
2019	Low Flow	LC_SEEP19	LC_HSP_WR	0.00012	23.70000	167.00000	0.00770	65.00000	0.00017	Oxic	Not MF Influenced
2020	High Flow	LC_SEEP19	LC_HSP_WR	0.00010	28.20000	141.00000	0.00710	70.00000	0.00024	Oxic	Not MF Influenced
2020	Low Flow	LC_SEEP19	LC_HSP_WR	0.00022	77.90000	491.00000	0.01370	62.00000	0.00019	Oxic	Not MF Influenced
2018	High Flow	LC_SEEP2	LC_MAXAM	0.00002	3.99000	30.00000	0.00120	66.00000	0.00016	Oxic	Not MF Influenced
2018	Low Flow	LC_SEEP2	LC_MAXAM	0.00001	1.62000	27.90000	0.00100	68.00000	0.00007	Oxic	Not MF Influenced
2019	High Flow	LC_SEEP2	LC_MAXAM	0.00002	3.80000	33.20000	0.00100	49.00000	0.00014	Oxic	Not MF Influenced
2019	Low Flow	LC_SEEP2	LC_MAXAM	0.00002	3.61000	31.90000	0.00100	65.00000	0.00014	Oxic	Not MF Influenced
2020	High Flow	LC_SEEP2	LC_MAXAM	0.00002	3.41000	30.20000	0.00160	93.00000	0.00014	Oxic	Not MF Influenced
2020	Low Flow	LC_SEEP2	LC_MAXAM	0.00002	1.24000	27.20000	0.00100	52.00000	0.00006	Oxic	Not MF Influenced
2018	High Flow	LC_SEEP8	LC_DC_WR	0.00003	1.02000	2.96000	0.00100	31.00000	0.00042	Oxic	Not MF Influenced
2018	Low Flow	LC_SEEP8	LC_DC_WR	-	-	-	-	-	-	-	-
2019	High Flow	LC_SEEP8	LC_DC_WR	0.00002	0.93200	2.29000	0.00120	52.00000	0.00049	Oxic	Not MF Influenced
2019	Low Flow	LC_SEEP8	LC_DC_WR	-	-	-	-	-	-	-	-
2020	High Flow	LC_SEEP8	LC_DC_WR	0.00003	0.14300	0.30000	0.00120	45.00000	0.00058	Oxic	Not MF Influenced
2020	Low Flow	LC_SEEP8	LC_DC_WR	-	-	-	-	-	-	-	-
2018	High Flow	LC_UDHP	LC_UDHP	0.00007	20.40000	49.40000	0.00130	18.00000	0.00050	Oxic	Not MF Influenced
2018	Low Flow	LC_UDHP	LC_UDHP	0.00007	20.70000	68.90000	0.00110	16.00000	0.00037	Oxic	Not MF Influenced
2019	High Flow	LC_UDHP	LC_UDHP	0.00004	11.20000	36.50000	0.00100	24.00000	0.00037	Oxic	Not MF Influenced
2019	Low Flow	LC_UDHP	LC_UDHP	0.00008	32.40000	92.70000	0.00300	39.00000	0.00042	Oxic	Not MF Influenced
2020	High Flow	LC_UDHP	LC_UDHP	0.00008	12.50000	35.00000	0.00210	27.00000	0.00043	Oxic	Not MF Influenced
2020	Low Flow	LC_UDHP	LC_UDHP	0.00011	64.80000	192.00000	0.00490	46.00000	0.00041	Oxic	Not MF Influenced
2018	High Flow	LC_UDP1	LC_UDP1	0.00002	1.85000	6.87000	0.00320	150.00000	0.00033	Oxic	Not MF Influenced
2018	Low Flow	LC_UDP1	LC_UDP1	0.00002	1.74000	6.83000	0.00160	92.00000	0.00031	Oxic	Not MF Influenced
2019	High Flow	LC_UDP1	LC_UDP1	0.00001	2.33000	8.32000	0.00100	84.00000	0.00034	Oxic	Not MF Influenced
2019	Low Flow	LC_UDP1	LC_UDP1	0.00001	2.18000	8.12000	0.00250	200.00000	0.00033	Oxic	Not MF Influenced
2020	High Flow	LC_UDP1	LC_UDP1	0.00002	1.75000	5.74000	0.00170	91.00000	0.00037	Oxic	Not MF Influenced
2020	Low Flow	LC_UDP1	LC_UDP1	0.00002	2.14000	6.78000	0.00100	52.00000	0.00038	Oxic	Not MF Influenced
2018	High Flow	LC_WLC_LOT2	LC_WLC_WR	0.00155	292.00000	636.00000	0.05820	38.00000	0.00056	Oxic	Not MF Influenced
2018	Low Flow	LC_WLC_LOT2	LC_WLC_WR	-	-	-	-	-	-	-	-
2019	High Flow	LC_WLC_LOT2	LC_WLC_WR	-	-	-	-	-	-	-	-

Year	Flow Regime	Seep ID	Material Group	Cadmium (mg/L)	Selenium (ug/L)	Sulfate (mg/L)	Zinc (mg/L)	Zn/Cd (mg/mg)	Se/SO4 (mg/mg)	Suboxic/Oxic	MF Influence
2019	Low Flow	LC_WLC_LOT2	LC_WLC_WR	0.00066	206.00000	448.00000	0.03160	48.00000	0.00056	Oxic	Not MF Influenced
2020	High Flow	LC_WLC_LOT2	LC_WLC_WR	-	-	-	-	-	-	-	-
2020	Low Flow	LC_WLC_LOT2	LC_WLC_WR	-	-	-	-	-	-	-	-

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\2020_Seep_Selection_Criteria_rev0_amd.xlsx

4 Elkview Operation (EVO)

Table 4: EVO - Seep Selection Criteria Summary

Year	Flow Regime	Seep ID	Material Group	Cadmium (mg/L)	Selenium (ug/L)	Sulfate (mg/L)	Zinc (mg/L)	Zn/Cd (mg/mg)	Se/SO4 (mg/mg)	Suboxic/Oxic	MF Influence
2018	High Flow	EV_CN1	EV_CEDARWR	0.00017	172.00000	303.00000	0.00610	35.00000	0.00069	Oxic	Not MF Influenced
2018	Low Flow	EV_CN1	EV_CEDARWR	0.00020	269.00000	421.00000	0.00730	36.00000	0.00078	Oxic	Not MF Influenced
2019	High Flow	EV_CN1	EV_CEDARWR	0.00014	132.00000	245.00000	0.00460	34.00000	0.00065	Oxic	Not MF Influenced
2019	Low Flow	EV_CN1	EV_CEDARWR	0.00021	179.00000	416.00000	0.00600	29.00000	0.00052	Oxic	Not MF Influenced
2020	High Flow	EV_CN1	EV_CEDARWR	0.00013	155.00000	206.00000	0.00470	35.00000	0.00091	Oxic	Not MF Influenced
2020	Low Flow	EV_CN1	EV_CEDARWR	0.00018	180.00000	410.00000	0.00570	31.00000	0.00053	Oxic	Not MF Influenced
2018	High Flow	EV_SEEP_10MILE5	EV_CEDARWR	0.00001	54.40000	326.00000	0.00100	68.00000	0.00020	Oxic	Not MF Influenced
2018	Low Flow	EV_SEEP_10MILE5	EV_CEDARWR	0.00001	101.00000	407.00000	0.00100	200.00000	0.00030	Oxic	Not MF Influenced
2019	High Flow	EV_SEEP_10MILE5	EV_CEDARWR	0.00002	57.30000	391.00000	0.00190	100.00000	0.00018	Oxic	Not MF Influenced
2019	Low Flow	EV_SEEP_10MILE5	EV_CEDARWR	0.00001	51.20000	390.00000	0.00100	77.00000	0.00016	Oxic	Not MF Influenced
2020	High Flow	EV_SEEP_10MILE5	EV_CEDARWR	0.00002	47.30000	385.00000	0.00100	51.00000	0.00015	Oxic	Not MF Influenced
2020	Low Flow	EV_SEEP_10MILE5	EV_CEDARWR	-	-	-	-	-	-	-	-
2018	High Flow	EV_SEEP_10MILE9	EV_CEDARWR	0.00054	0.20900	12.30000	0.00500	9.30000	0.00002	Oxic	Not MF Influenced
2018	Low Flow	EV_SEEP_10MILE9	EV_CEDARWR	0.00047	0.21500	13.20000	0.00550	12.00000	0.00002	Oxic	Not MF Influenced
2019	High Flow	EV_SEEP_10MILE9	EV_CEDARWR	0.00036	0.16900	12.80000	0.00410	11.00000	0.00002	Oxic	Not MF Influenced
2019	Low Flow	EV_SEEP_10MILE9	EV_CEDARWR	0.00049	0.22200	10.80000	0.00470	9.50000	0.00003	Oxic	Not MF Influenced
2020	High Flow	EV_SEEP_10MILE9	EV_CEDARWR	0.00079	0.19300	12.00000	0.00690	8.70000	0.00002	Oxic	Not MF Influenced
2020	Low Flow	EV_SEEP_10MILE9	EV_CEDARWR	-	-	-	-	-	-	-	-
2018	High Flow	EV_SEEP_BR2_1	EV_BALDYRIDGEWR	-	-	-	-	-	-	-	-
2018	Low Flow	EV_SEEP_BR2_1	EV_BALDYRIDGEWR	-	-	-	-	-	-	-	-
2019	High Flow	EV_SEEP_BR2_1	EV_BALDYRIDGEWR	-	-	-	-	-	-	-	-
2019	Low Flow	EV_SEEP_BR2_1	EV_BALDYRIDGEWR	-	-	-	-	-	-	-	-
2020	High Flow	EV_SEEP_BR2_1	EV_BALDYRIDGEWR	-	-	-	-	-	-	-	-
2020	Low Flow	EV_SEEP_BR2_1	EV_BALDYRIDGEWR	-	-	-	-	-	-	-	-
2018	High Flow	EV_SEEP_BREAKERLAKE	EV_BALDYRIDGEWR	0.00032	120.00000	189.00000	0.00590	19.00000	0.00077	Oxic	Not MF Influenced
2018	Low Flow	EV_SEEP_BREAKERLAKE	EV_BALDYRIDGEWR	0.00326	165.00000	432.00000	0.05790	18.00000	0.00046	Oxic	Not MF Influenced
2019	High Flow	EV_SEEP_BREAKERLAKE	EV_BALDYRIDGEWR	0.00027	120.00000	212.00000	0.00460	17.00000	0.00069	Oxic	Not MF Influenced
2019	Low Flow	EV_SEEP_BREAKERLAKE	EV_BALDYRIDGEWR	0.00034	113.00000	255.00000	0.00740	22.00000	0.00054	Oxic	Not MF Influenced
2020	High Flow	EV_SEEP_BREAKERLAKE	EV_BALDYRIDGEWR	0.00016	151.00000	208.00000	0.00380	24.00000	0.00088	Oxic	Not MF Influenced
2020	Low Flow	EV_SEEP_BREAKERLAKE	EV_BALDYRIDGEWR	0.00034	111.00000	267.00000	0.00790	23.00000	0.00051	Oxic	Not MF Influenced
2018	High Flow	EV_SEEP_CFI1	EV_CCR	0.00001	0.21100	11.50000	0.01120	980.00000	0.00002	Oxic	Not MF Influenced
2018	Low Flow	EV_SEEP_CFI1	EV_CCR	0.00001	0.07800	1.50000	0.01040	2100.00000	0.00006	Oxic	Not MF Influenced
2019	High Flow	EV_SEEP_CFI1	EV_CCR	0.00001	0.19000	1.50000	0.00550	550.00000	0.00015	Oxic	Not MF Influenced
2019	Low Flow	EV_SEEP_CFI1	EV_CCR	0.00001	0.07700	0.30000	0.01510	3000.00000	0.00031	Oxic	Not MF Influenced
2020	High Flow	EV_SEEP_CFI1	EV_CCR	0.00004	1.42000	0.30000	0.00210	56.00000	0.00580	Oxic	Not MF Influenced
2020	Low Flow	EV_SEEP_CFI1	EV_CCR	0.00002	0.28300	0.32000	0.00340	210.00000	0.00110	Oxic	Not MF Influenced

Year	Flow Regime	Seep ID	Material Group	Cadmium (mg/L)	Selenium (ug/L)	Sulfate (mg/L)	Zinc (mg/L)	Zn/Cd (mg/mg)	Se/SO4 (mg/mg)	Suboxic/Oxic	MF Influence
2018	High Flow	EV_SEEP_CFI3	EV_CCR	0.00001	7.29000	561.00000	0.00100	150.00000	0.00002	Oxic	Not MF Influenced
2018	Low Flow	EV_SEEP_CFI3	EV_CCR	-	-	-	-	-	-	-	-
2019	High Flow	EV_SEEP_CFI3	EV_CCR	-	-	-	-	-	-	-	-
2019	Low Flow	EV_SEEP_CFI3	EV_CCR	-	-	-	-	-	-	-	-
2020	High Flow	EV_SEEP_CFI3	EV_CCR	-	-	-	-	-	-	-	-
2020	Low Flow	EV_SEEP_CFI3	EV_CCR	-	-	-	-	-	-	-	-
2018	High Flow	EV_SEEP_ERICKSON1	EV_Erickson_WR	0.00001	0.05000	465.00000	0.00100	200.00000	0.00000	Oxic	Not MF Influenced
2018	Low Flow	EV_SEEP_ERICKSON1	EV_Erickson_WR	0.00001	0.12900	457.00000	0.00110	220.00000	0.00000	Oxic	Possibly MF Influenced
2019	High Flow	EV_SEEP_ERICKSON1	EV_Erickson_WR	0.00001	0.05000	443.00000	0.00160	210.00000	0.00000	Oxic	Possibly MF Influenced
2019	Low Flow	EV_SEEP_ERICKSON1	EV_Erickson_WR	0.00001	0.05000	429.00000	0.00200	290.00000	0.00000	Oxic	Possibly MF Influenced
2020	High Flow	EV_SEEP_ERICKSON1	EV_Erickson_WR	0.00001	0.05000	429.00000	0.00190	210.00000	0.00000	Oxic	Possibly MF Influenced
2020	Low Flow	EV_SEEP_ERICKSON1	EV_Erickson_WR	0.00001	0.05000	449.00000	0.00260	220.00000	0.00000	Oxic	Possibly MF Influenced
2018	High Flow	EV_SEEP_ERICKSON2	EV_Erickson_WR	0.00034	723.00000	1900.00000	0.02570	75.00000	0.00046	Oxic	Not MF Influenced
2018	Low Flow	EV_SEEP_ERICKSON2	EV_Erickson_WR	0.00028	579.00000	1960.00000	0.02770	98.00000	0.00036	Oxic	Not MF Influenced
2019	High Flow	EV_SEEP_ERICKSON2	EV_Erickson_WR	0.00008	585.00000	1710.00000	0.01180	150.00000	0.00042	Oxic	Not MF Influenced
2019	Low Flow	EV_SEEP_ERICKSON2	EV_Erickson_WR	0.00015	618.00000	1820.00000	0.01470	100.00000	0.00041	Oxic	Not MF Influenced
2020	High Flow	EV_SEEP_ERICKSON2	EV_Erickson_WR	0.00014	623.00000	1750.00000	0.01380	100.00000	0.00043	Oxic	Not MF Influenced
2020	Low Flow	EV_SEEP_ERICKSON2	EV_Erickson_WR	0.00026	361.00000	1170.00000	0.06300	250.00000	0.00037	Oxic	Possibly MF Influenced
2018	High Flow	EV_SEEP_HOPPER2	EV_BALDYRIDGEWR	0.00076	604.00000	2130.00000	0.04010	53.00000	0.00034	Oxic	Not MF Influenced
2018	Low Flow	EV_SEEP_HOPPER2	EV_BALDYRIDGEWR	0.00028	540.00000	2000.00000	0.01610	58.00000	0.00033	Oxic	Not MF Influenced
2019	High Flow	EV_SEEP_HOPPER2	EV_BALDYRIDGEWR	0.00073	428.00000	2310.00000	0.02980	41.00000	0.00023	Oxic	Not MF Influenced
2019	Low Flow	EV_SEEP_HOPPER2	EV_BALDYRIDGEWR	0.00071	681.00000	2540.00000	0.04030	57.00000	0.00033	Oxic	Not MF Influenced
2020	High Flow	EV_SEEP_HOPPER2	EV_BALDYRIDGEWR	0.00078	415.00000	2000.00000	0.04320	56.00000	0.00025	Oxic	Not MF Influenced
2020	Low Flow	EV_SEEP_HOPPER2	EV_BALDYRIDGEWR	0.00049	588.00000	2290.00000	0.03120	63.00000	0.00031	Oxic	Not MF Influenced
2018	High Flow	EV_SEEP_NATALPIT2	EV_BALDYRIDGEWR	0.00037	176.00000	1020.00000	0.02830	77.00000	0.00021	Oxic	Not MF Influenced
2018	Low Flow	EV_SEEP_NATALPIT2	EV_BALDYRIDGEWR	0.00049	177.00000	1010.00000	0.03350	68.00000	0.00021	Oxic	Not MF Influenced
2019	High Flow	EV_SEEP_NATALPIT2	EV_BALDYRIDGEWR	0.00008	97.70000	725.00000	0.00330	40.00000	0.00016	Oxic	Not MF Influenced
2019	Low Flow	EV_SEEP_NATALPIT2	EV_BALDYRIDGEWR	0.00012	170.00000	1160.00000	0.02290	200.00000	0.00018	Oxic	Not MF Influenced
2020	High Flow	EV_SEEP_NATALPIT2	EV_BALDYRIDGEWR	0.00018	248.00000	1160.00000	0.02350	130.00000	0.00026	Oxic	Not MF Influenced
2020	Low Flow	EV_SEEP_NATALPIT2	EV_BALDYRIDGEWR	-	-	-	-	-	-	-	-
2018	High Flow	EV_SEEP_PLANT1	EV_PLANT	0.00004	0.86000	108.00000	0.11600	2800.00000	0.00001	Oxic	Possibly MF Influenced
2018	Low Flow	EV_SEEP_PLANT1	EV_PLANT	0.00063	6.05000	154.00000	1.01000	1600.00000	0.00005	Oxic	Possibly MF Influenced
2019	High Flow	EV_SEEP_PLANT1	EV_PLANT	0.00005	1.52000	95.00000	0.02760	570.00000	0.00002	Oxic	Not MF Influenced
2019	Low Flow	EV_SEEP_PLANT1	EV_PLANT	0.00018	1.37000	97.50000	0.07100	390.00000	0.00002	Oxic	Not MF Influenced
2020	High Flow	EV_SEEP_PLANT1	EV_PLANT	0.00004	1.16000	77.10000	0.02770	650.00000	0.00002	Oxic	Not MF Influenced
2020	Low Flow	EV_SEEP_PLANT1	EV_PLANT	0.00278	19.50000	128.00000	0.03100	11.00000	0.00019	Oxic	Not MF Influenced
2018	High Flow	EV_SEEP_PLANT10	EV_PLANT	0.00001	1.61000	920.00000	0.01200	1900.00000	0.00000	Suboxic	Possibly MF Influenced
2018	Low Flow	EV_SEEP_PLANT10	EV_PLANT	0.00003	3.04000	755.00000	0.02870	1100.00000	0.00000	Suboxic	Possibly MF Influenced
2019	High Flow	EV_SEEP_PLANT10	EV_PLANT	0.00001	0.98000	407.00000	0.00200	200.00000	0.00000	Oxic	Not MF Influenced

Year	Flow Regime	Seep ID	Material Group	Cadmium (mg/L)	Selenium (ug/L)	Sulfate (mg/L)	Zinc (mg/L)	Zn/Cd (mg/mg)	Se/SO4 (mg/mg)	Suboxic/Oxic	MF Influence
2019	Low Flow	EV_SEEP_PLANT10	EV_PLANT	0.00001	12.60000	375.00000	0.00100	200.00000	0.00004	Oxic	Not MF Influenced
2020	High Flow	EV_SEEP_PLANT10	EV_PLANT	0.00001	4.27000	470.00000	0.00920	1800.00000	0.00001	Oxic	Possibly MF Influenced
2020	Low Flow	EV_SEEP_PLANT10	EV_PLANT	0.00001	3.54000	395.00000	0.00100	200.00000	0.00001	Oxic	Not MF Influenced
2018	High Flow	EV_SEEP_PLANT11	EV_PLANT	0.00001	0.73400	184.00000	0.00200	200.00000	0.00000	Oxic	Not MF Influenced
2018	Low Flow	EV_SEEP_PLANT11	EV_PLANT	0.00001	0.40600	192.00000	0.00340	340.00000	0.00000	Oxic	Possibly MF Influenced
2019	High Flow	EV_SEEP_PLANT11	EV_PLANT	0.00001	0.89000	168.00000	0.00100	79.00000	0.00001	Oxic	Not MF Influenced
2019	Low Flow	EV_SEEP_PLANT11	EV_PLANT	0.00008	0.70700	198.00000	0.00450	57.00000	0.00000	Oxic	Not MF Influenced
2020	High Flow	EV_SEEP_PLANT11	EV_PLANT	0.00002	0.85400	176.00000	0.00130	79.00000	0.00001	Oxic	Not MF Influenced
2020	Low Flow	EV_SEEP_PLANT11	EV_PLANT	0.00003	0.50300	208.00000	0.00340	110.00000	0.00000	Oxic	Not MF Influenced
2018	High Flow	EV_SEEP_PLANT23	EV_PLANT	0.00001	18.30000	470.00000	0.04930	5500.00000	0.00005	Oxic	Possibly MF Influenced
2018	Low Flow	EV_SEEP_PLANT23	EV_PLANT	0.00001	16.40000	447.00000	0.05160	5300.00000	0.00005	Oxic	Possibly MF Influenced
2019	High Flow	EV_SEEP_PLANT23	EV_PLANT	0.00001	13.80000	433.00000	0.04660	4700.00000	0.00004	Oxic	Possibly MF Influenced
2019	Low Flow	EV_SEEP_PLANT23	EV_PLANT	0.00001	11.30000	442.00000	0.05660	11000.00000	0.00003	Oxic	Possibly MF Influenced
2020	High Flow	EV_SEEP_PLANT23	EV_PLANT	0.00001	14.00000	366.00000	0.05810	6700.00000	0.00005	Oxic	Possibly MF Influenced
2020	Low Flow	EV_SEEP_PLANT23	EV_PLANT	0.00001	7.52000	405.00000	0.03980	4700.00000	0.00002	Oxic	Possibly MF Influenced
2018	High Flow	EV_SEEP_SOUTHPIT3	EV_SOUTHSLOPE	0.00006	8.32000	60.60000	0.00130	21.00000	0.00017	Oxic	Not MF Influenced
2018	Low Flow	EV_SEEP_SOUTHPIT3	EV_SOUTHSLOPE	-	-	-	-	-	-	-	-
2019	High Flow	EV_SEEP_SOUTHPIT3	EV_SOUTHSLOPE	0.00006	9.84000	75.70000	0.00100	17.00000	0.00016	Oxic	Not MF Influenced
2019	Low Flow	EV_SEEP_SOUTHPIT3	EV_SOUTHSLOPE	0.00005	3.49000	83.10000	0.00100	18.00000	0.00005	Oxic	Not MF Influenced
2020	High Flow	EV_SEEP_SOUTHPIT3	EV_SOUTHSLOPE	0.00003	6.78000	62.40000	0.00100	31.00000	0.00013	Oxic	Not MF Influenced
2020	Low Flow	EV_SEEP_SOUTHPIT3	EV_SOUTHSLOPE	-	-	-	-	-	-	-	-
2018	High Flow	EV_SEEP_SOUTHPIT4	EV_SOUTHSLOPE	0.00001	0.15800	3.32000	0.00140	280.00000	0.00006	Oxic	Not MF Influenced
2018	Low Flow	EV_SEEP_SOUTHPIT4	EV_SOUTHSLOPE	0.00001	0.17500	1.18000	0.00270	540.00000	0.00018	Oxic	Not MF Influenced
2019	High Flow	EV_SEEP_SOUTHPIT4	EV_SOUTHSLOPE	0.00001	0.16500	10.10000	0.00160	320.00000	0.00002	Oxic	Not MF Influenced
2019	Low Flow	EV_SEEP_SOUTHPIT4	EV_SOUTHSLOPE	0.00001	0.13000	0.69000	0.00180	360.00000	0.00023	Oxic	Not MF Influenced
2020	High Flow	EV_SEEP_SOUTHPIT4	EV_SOUTHSLOPE	0.00001	0.80900	3.22000	0.00160	320.00000	0.00031	Oxic	Not MF Influenced
2020	Low Flow	EV_SEEP_SOUTHPIT4	EV_SOUTHSLOPE	0.00001	0.18300	0.84000	0.00210	420.00000	0.00026	Oxic	Not MF Influenced
2018	High Flow	EV_SEEP_SOUTHPIT6	EV_SouthPit_Pit	0.00004	330.00000	1660.00000	0.00500	140.00000	0.00024	Oxic	Not MF Influenced
2018	Low Flow	EV_SEEP_SOUTHPIT6	EV_SouthPit_Pit	0.00023	350.00000	1700.00000	0.00550	24.00000	0.00025	Oxic	Not MF Influenced
2019	High Flow	EV_SEEP_SOUTHPIT6	EV_SouthPit_Pit	0.00003	120.00000	1500.00000	0.00200	67.00000	0.00010	Oxic	Not MF Influenced
2019	Low Flow	EV_SEEP_SOUTHPIT6	EV_SouthPit_Pit	0.00007	58.30000	1570.00000	0.00640	88.00000	0.00005	Oxic	Not MF Influenced
2020	High Flow	EV_SEEP_SOUTHPIT6	EV_SouthPit_Pit	0.00006	149.00000	1370.00000	0.00550	89.00000	0.00013	Oxic	Not MF Influenced
2020	Low Flow	EV_SEEP_SOUTHPIT6	EV_SouthPit_Pit	0.00017	188.00000	1940.00000	0.01020	60.00000	0.00012	Oxic	Not MF Influenced
2018	High Flow	EV_SEEP_TURCON1	EV_BALDYRIDGEWR	0.00001	0.16400	110.00000	0.00100	200.00000	0.00000	Oxic	Not MF Influenced
2018	Low Flow	EV_SEEP_TURCON1	EV_BALDYRIDGEWR	0.00001	0.09400	94.00000	0.00110	220.00000	0.00000	Oxic	Not MF Influenced
2019	High Flow	EV_SEEP_TURCON1	EV_BALDYRIDGEWR	0.00001	1.63000	94.70000	0.00180	360.00000	0.00002	Oxic	Not MF Influenced
2019	Low Flow	EV_SEEP_TURCON1	EV_BALDYRIDGEWR	0.00001	4.11000	80.90000	0.00100	200.00000	0.00006	Oxic	Not MF Influenced
2020	High Flow	EV_SEEP_TURCON1	EV_BALDYRIDGEWR	0.00001	1.25000	92.80000	0.00230	460.00000	0.00002	Oxic	Not MF Influenced
2020	Low Flow	EV_SEEP_TURCON1	EV_BALDYRIDGEWR	0.00001	4.76000	95.40000	0.00100	200.00000	0.00006	Oxic	Not MF Influenced

Year	Flow Regime	Seep ID	Material Group	Cadmium (mg/L)	Selenium (ug/L)	Sulfate (mg/L)	Zinc (mg/L)	Zn/Cd (mg/mg)	Se/SO4 (mg/mg)	Suboxic/Oxic	MF Influence
2018	High Flow	EV_SEEP-4	EV_BALDYRIDGEWR	0.00005	197.00000	699.00000	0.00300	61.00000	0.00034	Oxic	Not MF Influenced
2018	Low Flow	EV_SEEP-4	EV_BALDYRIDGEWR	0.00003	215.00000	750.00000	0.00210	63.00000	0.00035	Oxic	Not MF Influenced
2019	High Flow	EV_SEEP-4	EV_BALDYRIDGEWR	-	-	-	-	-	-	-	-
2019	Low Flow	EV_SEEP-4	EV_BALDYRIDGEWR	-	-	-	-	-	-	-	-
2020	High Flow	EV_SEEP-4	EV_BALDYRIDGEWR	-	-	-	-	-	-	-	-
2020	Low Flow	EV_SEEP-4	EV_BALDYRIDGEWR	-	-	-	-	-	-	-	-
2018	High Flow	EV_WLAGC	EV_CCR/TP	0.00001	0.05100	29.80000	0.00100	200.00000	0.00000	Oxic	Not MF Influenced
2018	Low Flow	EV_WLAGC	EV_CCR/TP	0.00001	0.05000	27.10000	0.00100	200.00000	0.00000	Oxic	Not MF Influenced
2019	High Flow	EV_WLAGC	EV_CCR/TP	0.00001	0.05000	22.00000	0.00100	200.00000	0.00000	Oxic	Not MF Influenced
2019	Low Flow	EV_WLAGC	EV_CCR/TP	0.00001	0.05000	16.20000	0.00100	96.00000	0.00000	Oxic	Not MF Influenced
2020	High Flow	EV_WLAGC	EV_CCR/TP	-	-	-	-	-	-	-	-
2020	Low Flow	EV_WLAGC	EV_CCR/TP	0.00001	0.05000	16.00000	0.00100	200.00000	0.00000	Oxic	Not MF Influenced

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\2020_Seep_Selection_Criteria_rev0_amd.xlsx

5 Coal Mountain Operation (CMO)

Table 5: CMO - Seep Selection Criteria Summary

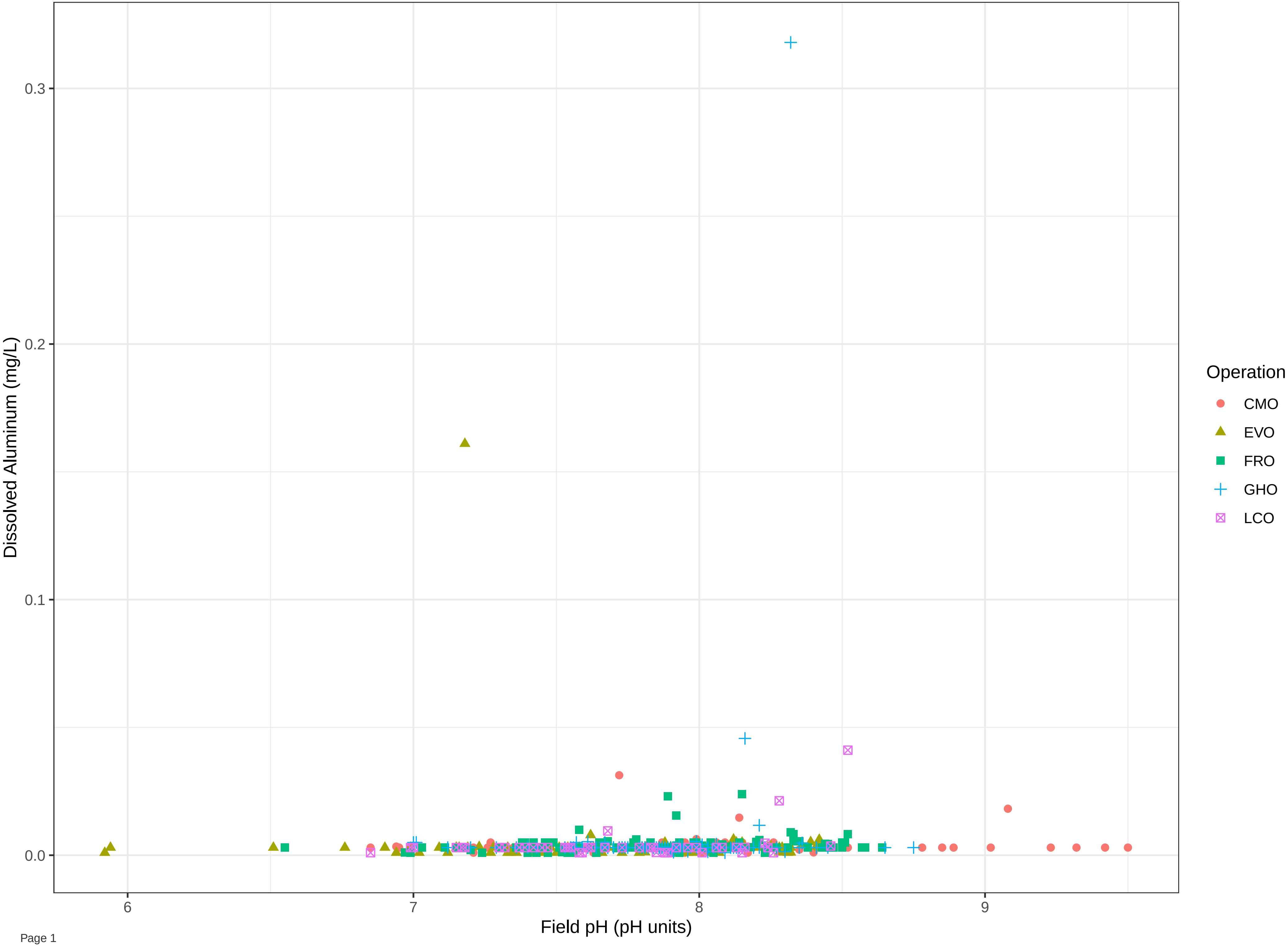
Year	Flow Regime	Seep ID	Material Group	Cadmium (mg/L)	Selenium (ug/L)	Sulfate (mg/L)	Zinc (mg/L)	Zn/Cd (mg/mg)	Se/SO4 (mg/mg)	Suboxic/Oxic	MF Influence
2018	High Flow	CM_37PIT-SEEP-E	CM_37PIT	0.00113	0.36900	698.00000	0.16300	140.00000	0.00000	Suboxic	Not MF Influenced
2018	Low Flow	CM_37PIT-SEEP-E	CM_37PIT	0.00012	0.31000	527.00000	0.09970	840.00000	0.00000	Suboxic	Possibly MF Influenced
2019	High Flow	CM_37PIT-SEEP-E	CM_37PIT	0.00035	0.21200	786.00000	0.12700	360.00000	0.00000	Suboxic	Possibly MF Influenced
2019	Low Flow	CM_37PIT-SEEP-E	CM_37PIT	0.00004	0.07400	665.00000	0.04040	1000.00000	0.00000	Suboxic	Possibly MF Influenced
2020	High Flow	CM_37PIT-SEEP-E	CM_37PIT	0.00089	0.85700	523.00000	0.06450	72.00000	0.00000	Suboxic	Not MF Influenced
2020	Low Flow	CM_37PIT-SEEP-E	CM_37PIT	0.00001	0.15100	539.00000	0.00140	280.00000	0.00000	Suboxic	Possibly MF Influenced
2018	High Flow	CM_37PIT-SEEP-W	CM_37PIT	0.00101	0.31500	657.00000	0.16000	160.00000	0.00000	Suboxic	Not MF Influenced
2018	Low Flow	CM_37PIT-SEEP-W	CM_37PIT	0.00017	12.30000	399.00000	0.00990	57.00000	0.00004	Oxic	Not MF Influenced
2019	High Flow	CM_37PIT-SEEP-W	CM_37PIT	0.00009	0.12200	748.00000	0.09140	1100.00000	0.00000	Suboxic	Possibly MF Influenced
2019	Low Flow	CM_37PIT-SEEP-W	CM_37PIT	0.00004	0.07900	658.00000	0.04390	1100.00000	0.00000	Suboxic	Possibly MF Influenced
2020	High Flow	CM_37PIT-SEEP-W	CM_37PIT	0.00069	0.22200	471.00000	0.06190	90.00000	0.00000	Oxic	Not MF Influenced
2020	Low Flow	CM_37PIT-SEEP-W	CM_37PIT	0.00001	0.12200	498.00000	0.00100	200.00000	0.00000	Oxic	Not MF Influenced
2018	High Flow	CM_CCDS	CM_EASTWR	0.00002	4.46000	93.30000	0.00100	60.00000	0.00006	Oxic	Not MF Influenced
2018	Low Flow	CM_CCDS	CM_EASTWR	-	-	-	-	-	-	-	-
2019	High Flow	CM_CCDS	CM_EASTWR	0.00001	3.93000	85.90000	0.00100	76.00000	0.00006	Oxic	Not MF Influenced
2019	Low Flow	CM_CCDS	CM_EASTWR	-	-	-	-	-	-	-	-
2020	High Flow	CM_CCDS	CM_EASTWR	0.00003	8.29000	193.00000	0.00260	85.00000	0.00005	Oxic	Not MF Influenced
2020	Low Flow	CM_CCDS	CM_EASTWR	-	-	-	-	-	-	-	-
2018	High Flow	CM_CS1	CM_EASTWR	0.00001	6.00000	103.00000	0.00150	120.00000	0.00007	Oxic	Not MF Influenced
2018	Low Flow	CM_CS1	CM_EASTWR	0.00001	1.50000	104.00000	0.00100	200.00000	0.00002	Oxic	Not MF Influenced
2019	High Flow	CM_CS1	CM_EASTWR	0.00002	7.79000	150.00000	0.00220	140.00000	0.00006	Oxic	Not MF Influenced
2019	Low Flow	CM_CS1	CM_EASTWR	0.00001	3.37000	124.00000	0.00130	100.00000	0.00003	Oxic	Not MF Influenced
2020	High Flow	CM_CS1	CM_EASTWR	0.00001	9.58000	218.00000	0.00210	170.00000	0.00005	Oxic	Not MF Influenced
2020	Low Flow	CM_CS1	CM_EASTWR	0.00001	2.36000	89.90000	0.00100	75.00000	0.00003	Oxic	Not MF Influenced
2018	High Flow	CM_MM-SEEP1	CM_MMCCR	0.00003	3.03000	143.00000	0.00260	93.00000	0.00003	Oxic	Not MF Influenced
2018	Low Flow	CM_MM-SEEP1	CM_MMCCR	0.00003	2.92000	284.00000	0.00190	70.00000	0.00001	Oxic	Not MF Influenced
2019	High Flow	CM_MM-SEEP1	CM_MMCCR	0.00003	3.54000	153.00000	0.00230	72.00000	0.00003	Oxic	Not MF Influenced
2019	Low Flow	CM_MM-SEEP1	CM_MMCCR	0.00003	7.95000	206.00000	0.00240	87.00000	0.00005	Oxic	Not MF Influenced
2020	High Flow	CM_MM-SEEP1	CM_MMCCR	0.00003	3.95000	219.00000	0.00300	100.00000	0.00002	Oxic	Not MF Influenced
2020	Low Flow	CM_MM-SEEP1	CM_MMCCR	0.00003	2.60000	115.00000	0.00250	100.00000	0.00003	Oxic	Not MF Influenced
2018	High Flow	CM_MM-SEEP3	CM_MMCCR	0.00001	0.39400	888.00000	0.00100	200.00000	0.00000	Suboxic	Not MF Influenced
2018	Low Flow	CM_MM-SEEP3	CM_MMCCR	0.00003	0.25000	692.00000	0.00500	200.00000	0.00000	Suboxic	Not MF Influenced
2019	High Flow	CM_MM-SEEP3	CM_MMCCR	0.00001	0.22500	802.00000	0.00100	200.00000	0.00000	Suboxic	Not MF Influenced
2019	Low Flow	CM_MM-SEEP3	CM_MMCCR	0.00001	0.22700	594.00000	0.00100	200.00000	0.00000	Suboxic	Not MF Influenced
2020	High Flow	CM_MM-SEEP3	CM_MMCCR	0.00001	0.80900	994.00000	0.00100	200.00000	0.00000	Suboxic	Not MF Influenced
2020	Low Flow	CM_MM-SEEP3	CM_MMCCR	0.00001	0.21800	802.00000	0.00100	200.00000	0.00000	Suboxic	Not MF Influenced

Year	Flow Regime	Seep ID	Material Group	Cadmium (mg/L)	Selenium (ug/L)	Sulfate (mg/L)	Zinc (mg/L)	Zn/Cd (mg/mg)	Se/SO4 (mg/mg)	Suboxic/Oxic	MF Influence
2018	High Flow	CM_NS1	CM_EASTWR	0.00019	18.60000	1380.00000	0.01620	86.00000	0.00002	Oxic	Not MF Influenced
2018	Low Flow	CM_NS1	CM_EASTWR	0.00018	12.40000	1550.00000	0.01420	80.00000	0.00001	Suboxic	Not MF Influenced
2019	High Flow	CM_NS1	CM_EASTWR	0.00018	21.60000	1310.00000	0.01490	84.00000	0.00002	Oxic	Not MF Influenced
2019	Low Flow	CM_NS1	CM_EASTWR	0.00016	14.60000	1510.00000	0.01370	86.00000	0.00001	Oxic	Not MF Influenced
2020	High Flow	CM_NS1	CM_EASTWR	0.00015	26.80000	1090.00000	0.01660	110.00000	0.00003	Oxic	Not MF Influenced
2020	Low Flow	CM_NS1	CM_EASTWR	0.00013	14.10000	1460.00000	0.01100	83.00000	0.00001	Oxic	Not MF Influenced
2018	High Flow	CM_NS4	CM_MMCCR	0.00013	10.30000	815.00000	0.00610	49.00000	0.00002	Oxic	Not MF Influenced
2018	Low Flow	CM_NS4	CM_MMCCR	0.00019	0.89000	878.00000	0.00850	45.00000	0.00000	Suboxic	Not MF Influenced
2019	High Flow	CM_NS4	CM_MMCCR	0.00016	9.31000	762.00000	0.00690	43.00000	0.00002	Oxic	Not MF Influenced
2019	Low Flow	CM_NS4	CM_MMCCR	0.00015	6.88000	706.00000	0.00690	48.00000	0.00001	Oxic	Not MF Influenced
2020	High Flow	CM_NS4	CM_MMCCR	0.00014	22.60000	600.00000	0.00800	56.00000	0.00005	Oxic	Not MF Influenced
2020	Low Flow	CM_NS4	CM_MMCCR	0.00007	0.94700	826.00000	0.00400	56.00000	0.00000	Suboxic	Not MF Influenced
2018	High Flow	CM_NS7	CM_MMCCR	0.00008	14.20000	955.00000	0.00850	110.00000	0.00002	Oxic	Not MF Influenced
2018	Low Flow	CM_NS7	CM_MMCCR	0.00003	5.30000	962.00000	0.00560	220.00000	0.00001	Suboxic	Possibly MF Influenced
2019	High Flow	CM_NS7	CM_MMCCR	0.00008	15.90000	969.00000	0.00740	96.00000	0.00002	Oxic	Not MF Influenced
2019	Low Flow	CM_NS7	CM_MMCCR	0.00004	11.50000	876.00000	0.00620	150.00000	0.00002	Oxic	Not MF Influenced
2020	High Flow	CM_NS7	CM_MMCCR	0.00007	18.10000	796.00000	0.01060	160.00000	0.00003	Oxic	Not MF Influenced
2020	Low Flow	CM_NS7	CM_MMCCR	0.00003	7.56000	974.00000	0.00490	200.00000	0.00001	Suboxic	Not MF Influenced
2018	High Flow	CM_PLANT-SEEP1	CM_EASTWR	0.00001	0.19400	390.00000	0.02310	4600.00000	0.00000	Oxic	Possibly MF Influenced
2018	Low Flow	CM_PLANT-SEEP1	CM_EASTWR	0.00001	0.20200	396.00000	0.02050	1800.00000	0.00000	Oxic	Possibly MF Influenced
2019	High Flow	CM_PLANT-SEEP1	CM_EASTWR	0.00001	0.22600	369.00000	0.03420	2600.00000	0.00000	Oxic	Possibly MF Influenced
2019	Low Flow	CM_PLANT-SEEP1	CM_EASTWR	0.00001	0.13500	365.00000	0.00970	1900.00000	0.00000	Oxic	Possibly MF Influenced
2020	High Flow	CM_PLANT-SEEP1	CM_EASTWR	0.00001	0.26000	390.00000	0.00790	1600.00000	0.00000	Oxic	Possibly MF Influenced
2020	Low Flow	CM_PLANT-SEEP1	CM_EASTWR	0.00001	0.09100	384.00000	0.00520	1000.00000	0.00000	Oxic	Possibly MF Influenced
2018	High Flow	CM_WD15	CM_WESTWR	0.00003	12.20000	1350.00000	0.00110	38.00000	0.00001	Oxic	Not MF Influenced
2018	Low Flow	CM_WD15	CM_WESTWR	0.00003	8.79000	1410.00000	0.00500	200.00000	0.00001	Suboxic	Not MF Influenced
2019	High Flow	CM_WD15	CM_WESTWR	0.00005	11.40000	1260.00000	0.00140	30.00000	0.00001	Oxic	Not MF Influenced
2019	Low Flow	CM_WD15	CM_WESTWR	0.00002	10.50000	1210.00000	0.00200	91.00000	0.00001	Oxic	Not MF Influenced
2020	High Flow	CM_WD15	CM_WESTWR	0.00003	15.20000	1170.00000	0.00130	37.00000	0.00002	Oxic	Not MF Influenced
2020	Low Flow	CM_WD15	CM_WESTWR	0.00002	9.73000	1480.00000	0.00200	95.00000	0.00001	Suboxic	Not MF Influenced
2018	High Flow	CM_WD18	CM_WESTWR	0.00014	35.10000	1660.00000	0.00490	36.00000	0.00003	Oxic	Not MF Influenced
2018	Low Flow	CM_WD18	CM_WESTWR	0.00008	26.40000	1530.00000	0.00500	63.00000	0.00002	Oxic	Not MF Influenced
2019	High Flow	CM_WD18	CM_WESTWR	0.00012	30.00000	1540.00000	0.00460	38.00000	0.00002	Oxic	Not MF Influenced
2019	Low Flow	CM_WD18	CM_WESTWR	0.00009	32.40000	1420.00000	0.00420	47.00000	0.00003	Oxic	Not MF Influenced
2020	High Flow	CM_WD18	CM_WESTWR	0.00016	37.10000	1430.00000	0.00660	42.00000	0.00003	Oxic	Not MF Influenced
2020	Low Flow	CM_WD18	CM_WESTWR	0.00011	32.50000	1500.00000	0.00620	56.00000	0.00003	Oxic	Not MF Influenced
2018	High Flow	CM_WD19	CM_WESTWR	0.00003	7.12000	1050.00000	0.00510	200.00000	0.00001	Suboxic	Not MF Influenced
2018	Low Flow	CM_WD19	CM_WESTWR	0.00003	4.61000	1050.00000	0.00500	200.00000	0.00001	Suboxic	Not MF Influenced
2019	High Flow	CM_WD19	CM_WESTWR	0.00003	7.45000	1020.00000	0.00460	170.00000	0.00001	Suboxic	Not MF Influenced

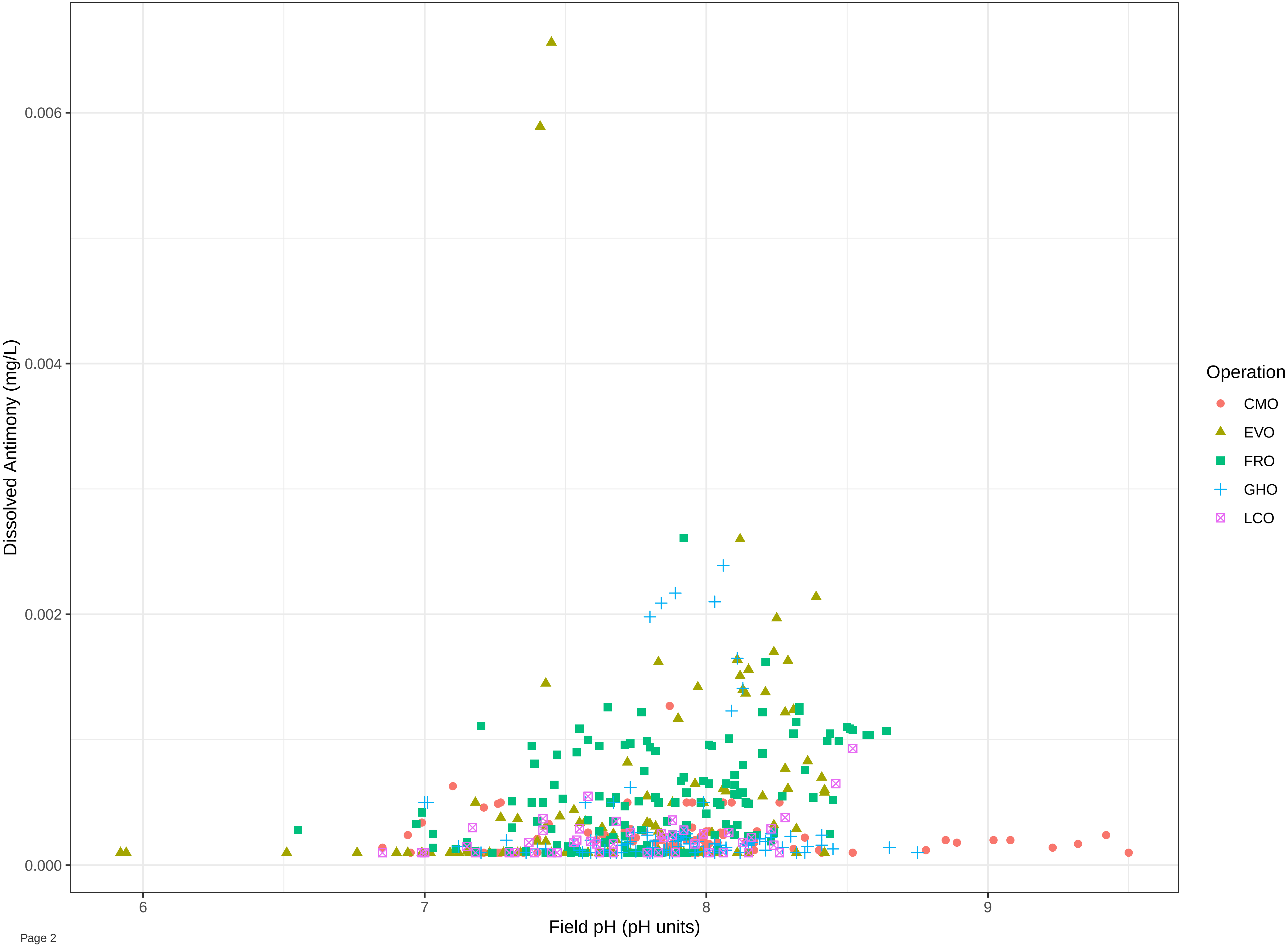
Year	Flow Regime	Seep ID	Material Group	Cadmium (mg/L)	Selenium (ug/L)	Sulfate (mg/L)	Zinc (mg/L)	Zn/Cd (mg/mg)	Se/SO4 (mg/mg)	Suboxic/Oxic	MF Influence
2019	Low Flow	CM_WD19	CM_WESTWR	0.00001	9.45000	995.00000	0.00330	260.00000	0.00001	Oxic	Possibly MF Influenced
2020	High Flow	CM_WD19	CM_WESTWR	0.00004	14.00000	939.00000	0.00730	190.00000	0.00002	Oxic	Not MF Influenced
2020	Low Flow	CM_WD19	CM_WESTWR	0.00001	5.50000	1050.00000	0.00320	300.00000	0.00001	Suboxic	Possibly MF Influenced
2018	High Flow	CM_WD4	CM_WESTWR	0.00012	16.00000	562.00000	0.00870	72.00000	0.00004	Oxic	Not MF Influenced
2018	Low Flow	CM_WD4	CM_WESTWR	0.00008	5.62000	515.00000	0.00550	73.00000	0.00001	Oxic	Not MF Influenced
2019	High Flow	CM_WD4	CM_WESTWR	0.00010	17.80000	498.00000	0.00660	64.00000	0.00004	Oxic	Not MF Influenced
2019	Low Flow	CM_WD4	CM_WESTWR	0.00008	8.48000	540.00000	0.00510	67.00000	0.00002	Oxic	Not MF Influenced
2020	High Flow	CM_WD4	CM_WESTWR	0.00013	24.60000	416.00000	0.01040	78.00000	0.00007	Oxic	Not MF Influenced
2020	Low Flow	CM_WD4	CM_WESTWR	0.00010	9.60000	542.00000	0.00800	84.00000	0.00002	Oxic	Not MF Influenced
2018	High Flow	CM_WD7	CM_WESTWR	0.00015	23.30000	150.00000	0.01070	72.00000	0.00019	Oxic	Not MF Influenced
2018	Low Flow	CM_WD7	CM_WESTWR	0.00011	16.50000	132.00000	0.00560	51.00000	0.00015	Oxic	Not MF Influenced
2019	High Flow	CM_WD7	CM_WESTWR	0.00013	28.90000	135.00000	0.00940	73.00000	0.00026	Oxic	Not MF Influenced
2019	Low Flow	CM_WD7	CM_WESTWR	0.00009	15.40000	130.00000	0.00570	62.00000	0.00014	Oxic	Not MF Influenced
2020	High Flow	CM_WD7	CM_WESTWR	0.00014	36.00000	127.00000	0.01050	73.00000	0.00034	Oxic	Not MF Influenced
2020	Low Flow	CM_WD7	CM_WESTWR	0.00011	15.00000	145.00000	0.00660	62.00000	0.00013	Oxic	Not MF Influenced

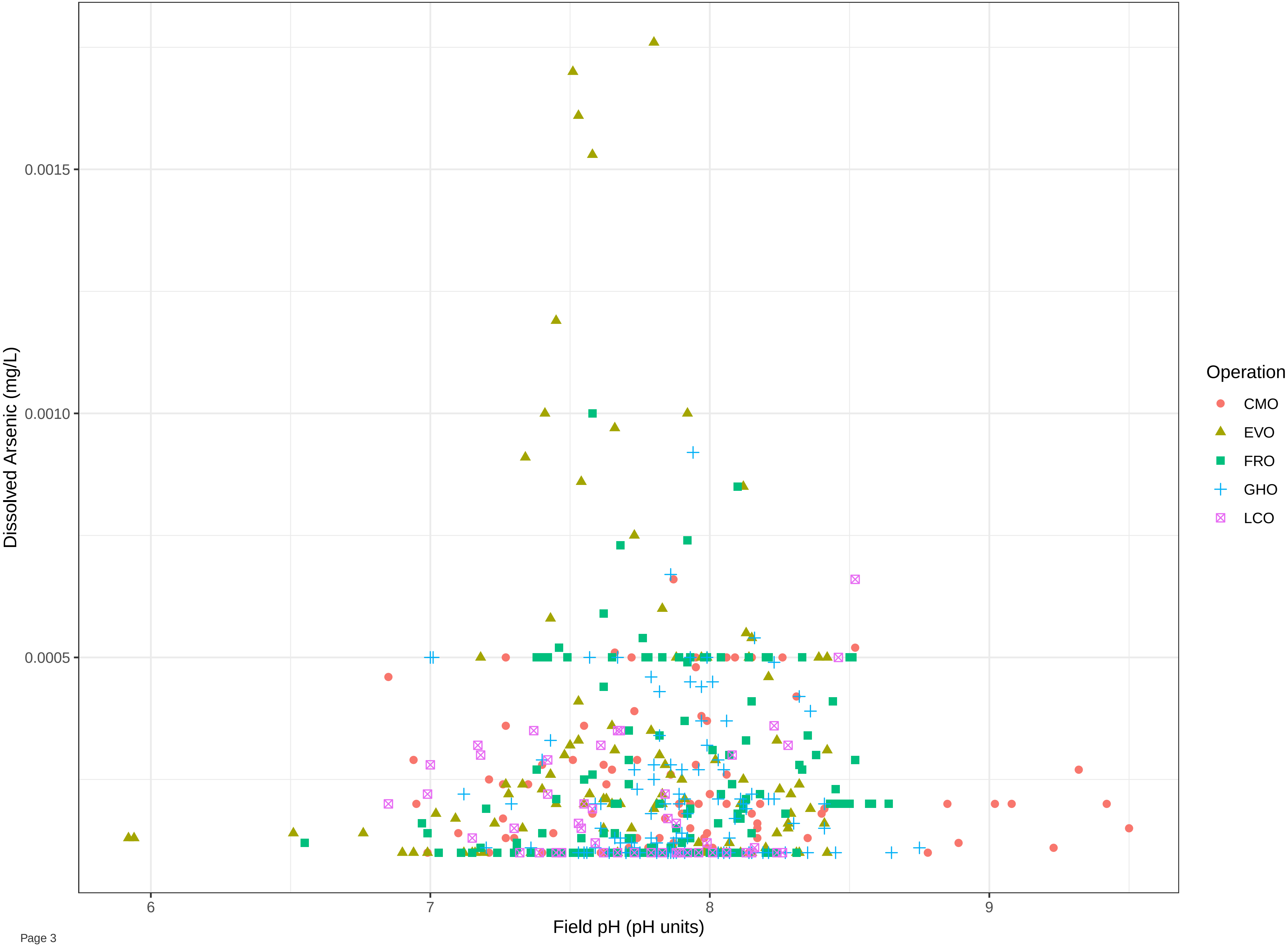
Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\2020_Seep_Selection_Criteria_rev0_amd.xlsx

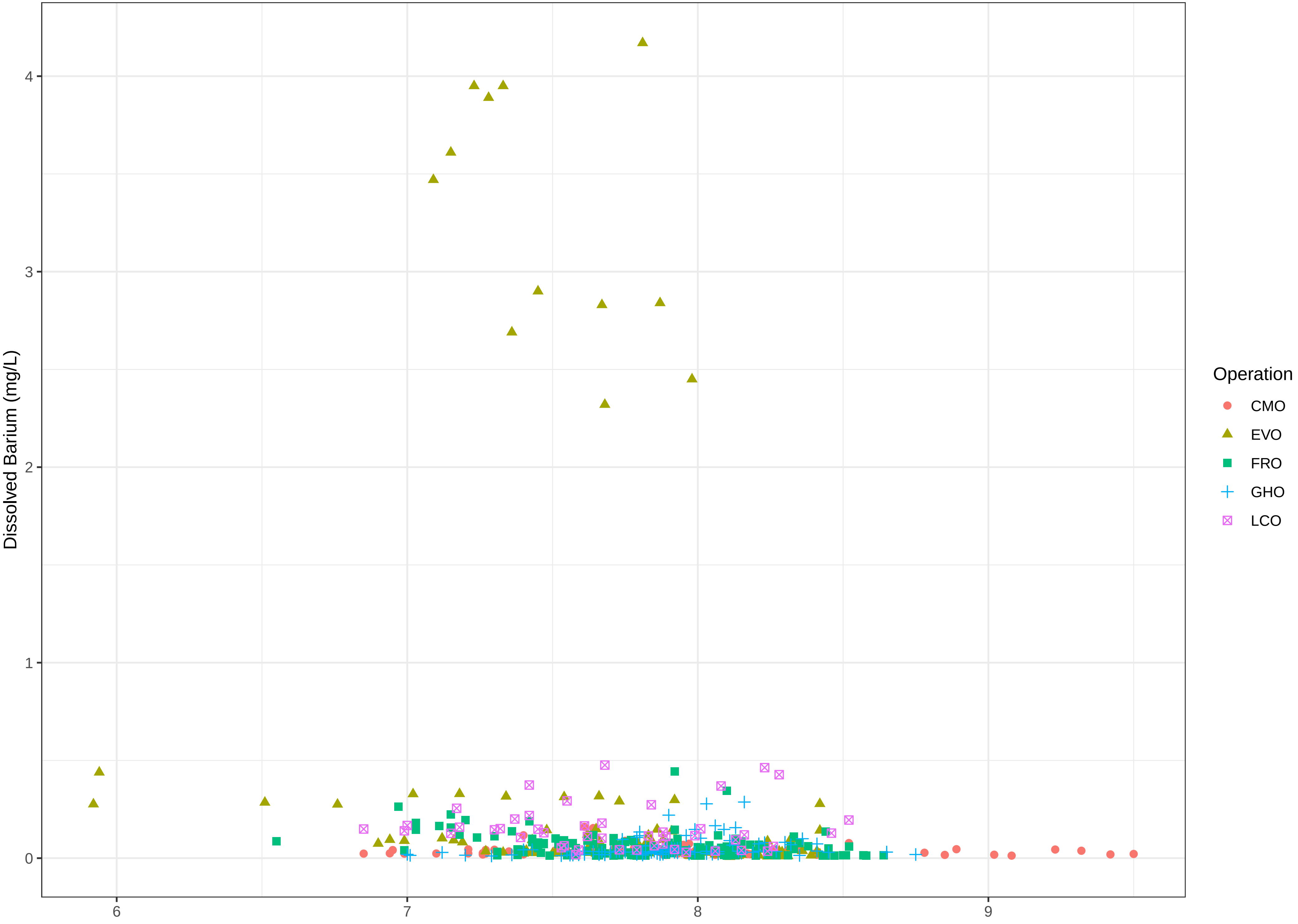
Appendix G Metals versus pH Cross Plots

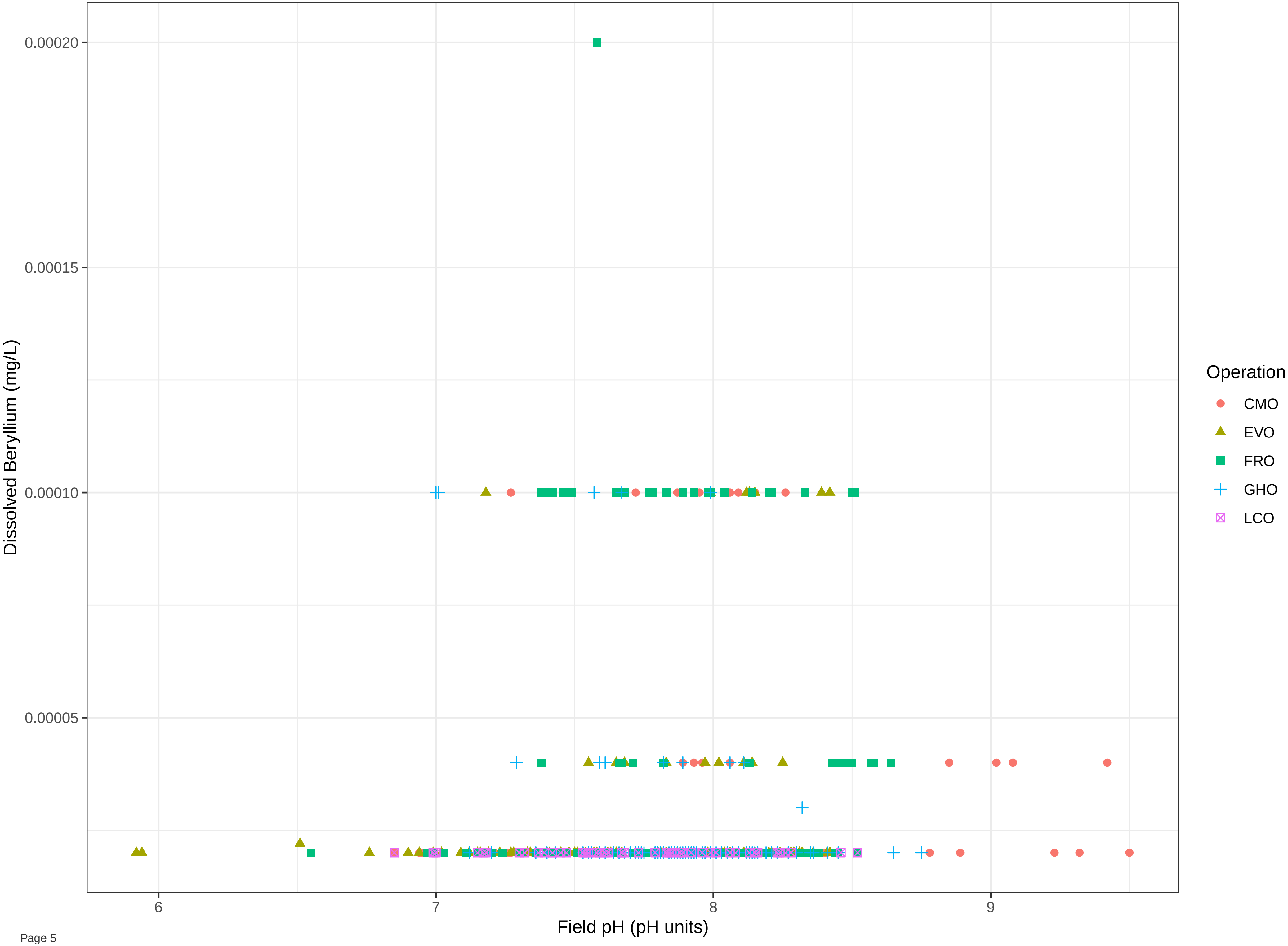


Dissolved Aluminum (mg/L)
0.0
0.1
0.2
0.3
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

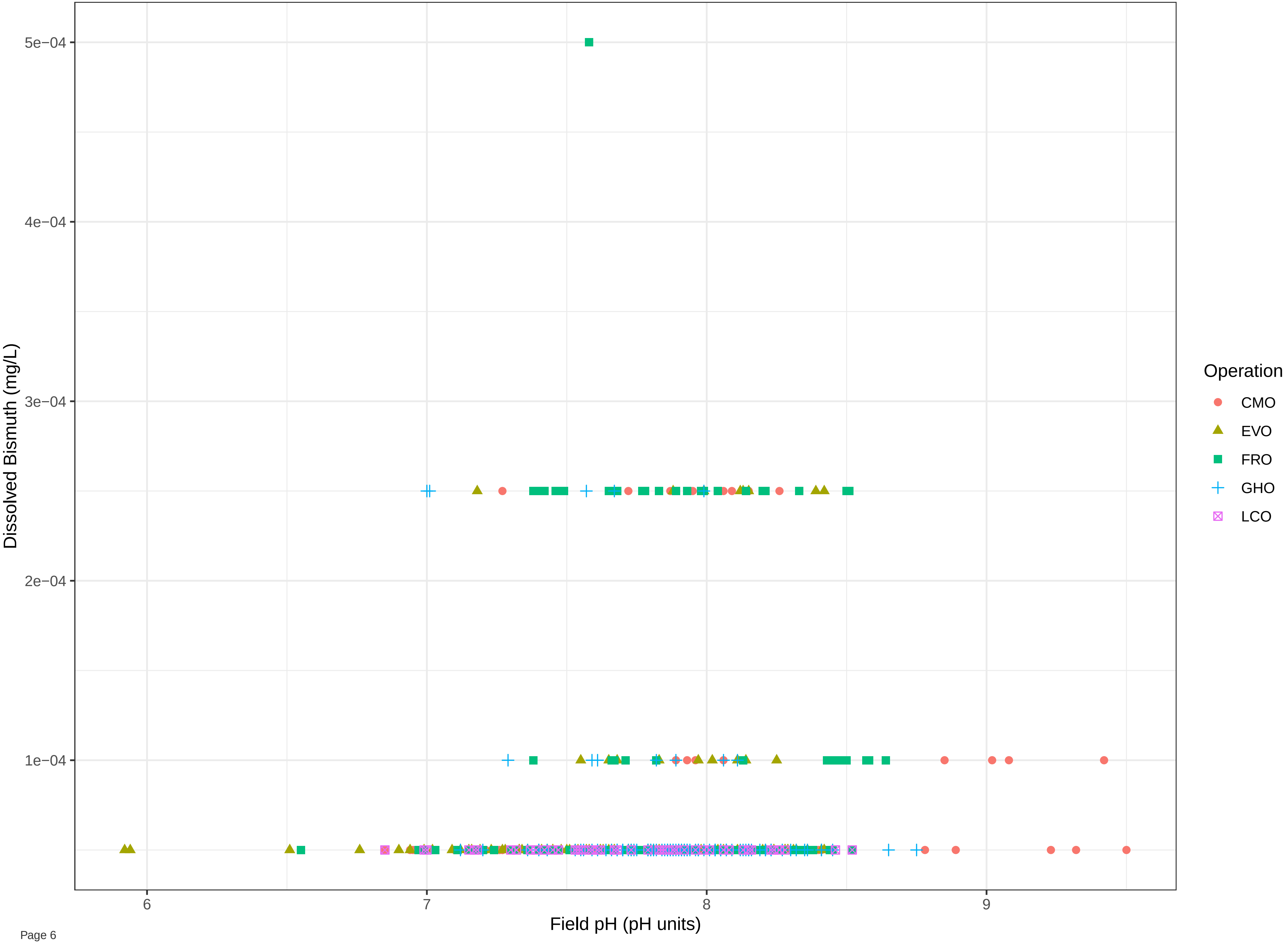

Dissolved Antimony (mg/L)
0.006
0.004
0.002
0.000
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO


Dissolved Arsenic (mg/L)
0.0015
0.0010
0.0005
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

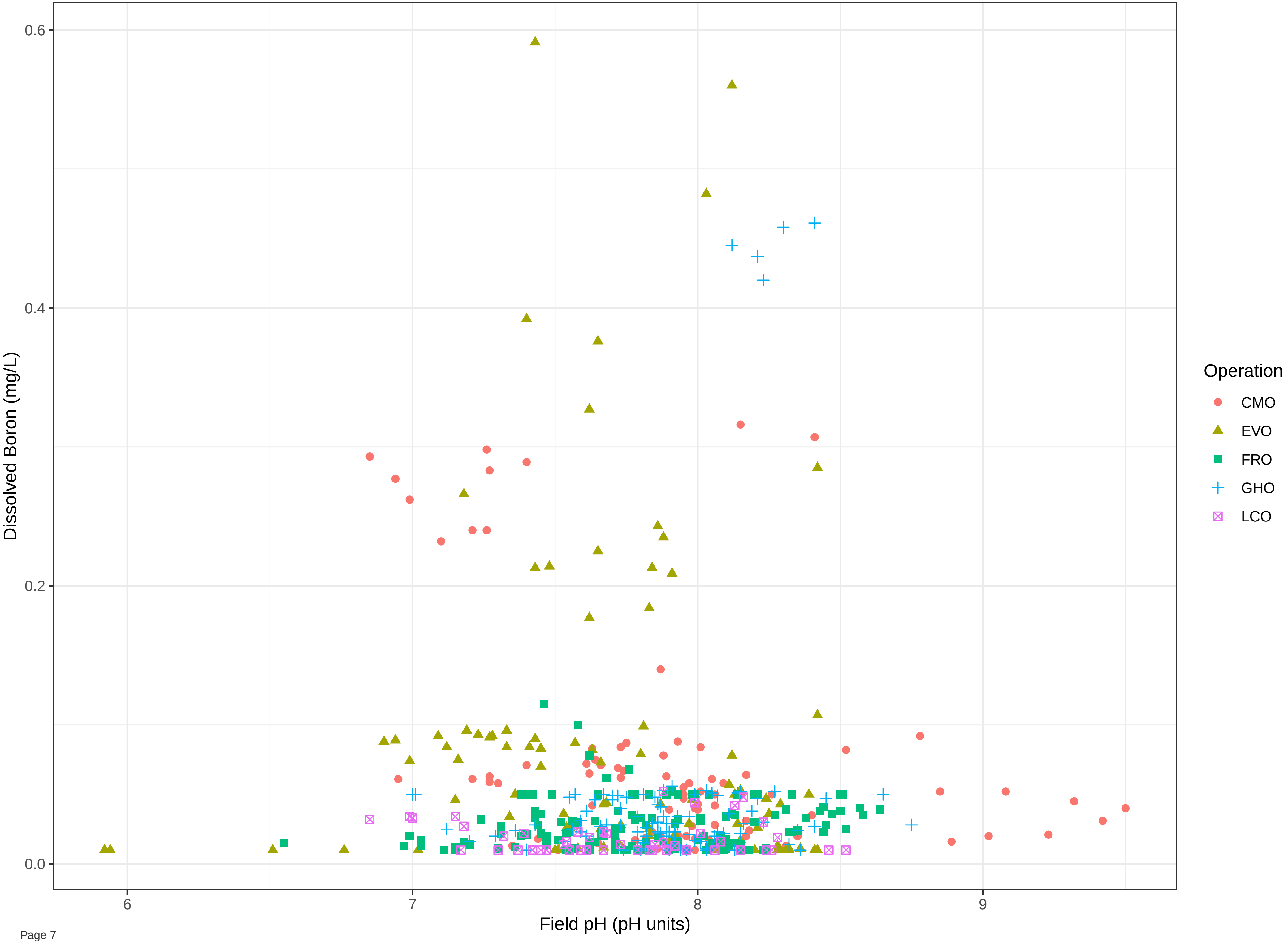

Dissolved Barium (mg/L)
4
3
2
1
0
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO



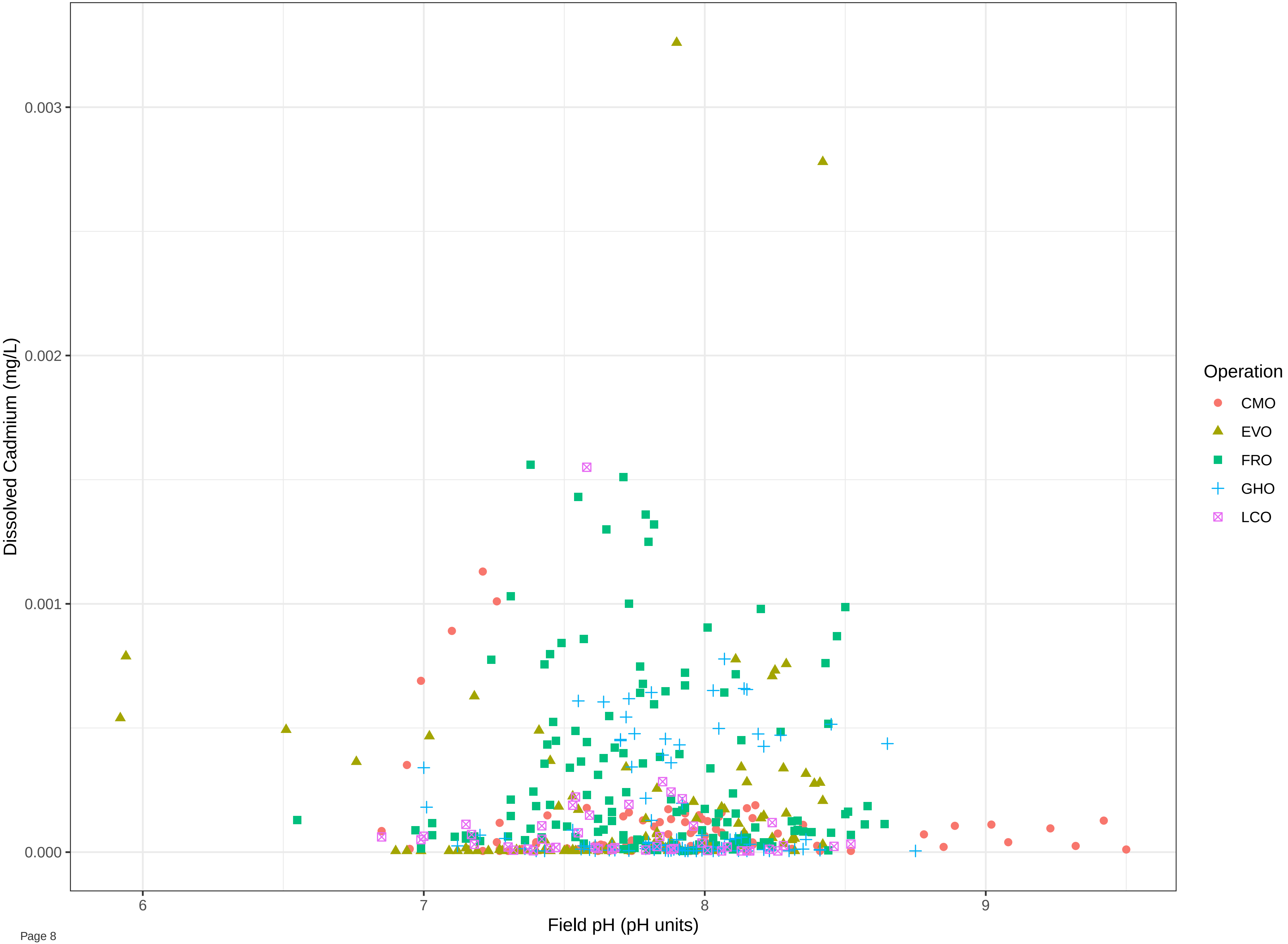
0.00020
0.00015
0.00010
0.00005
Dissolved Beryllium (mg/L)
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

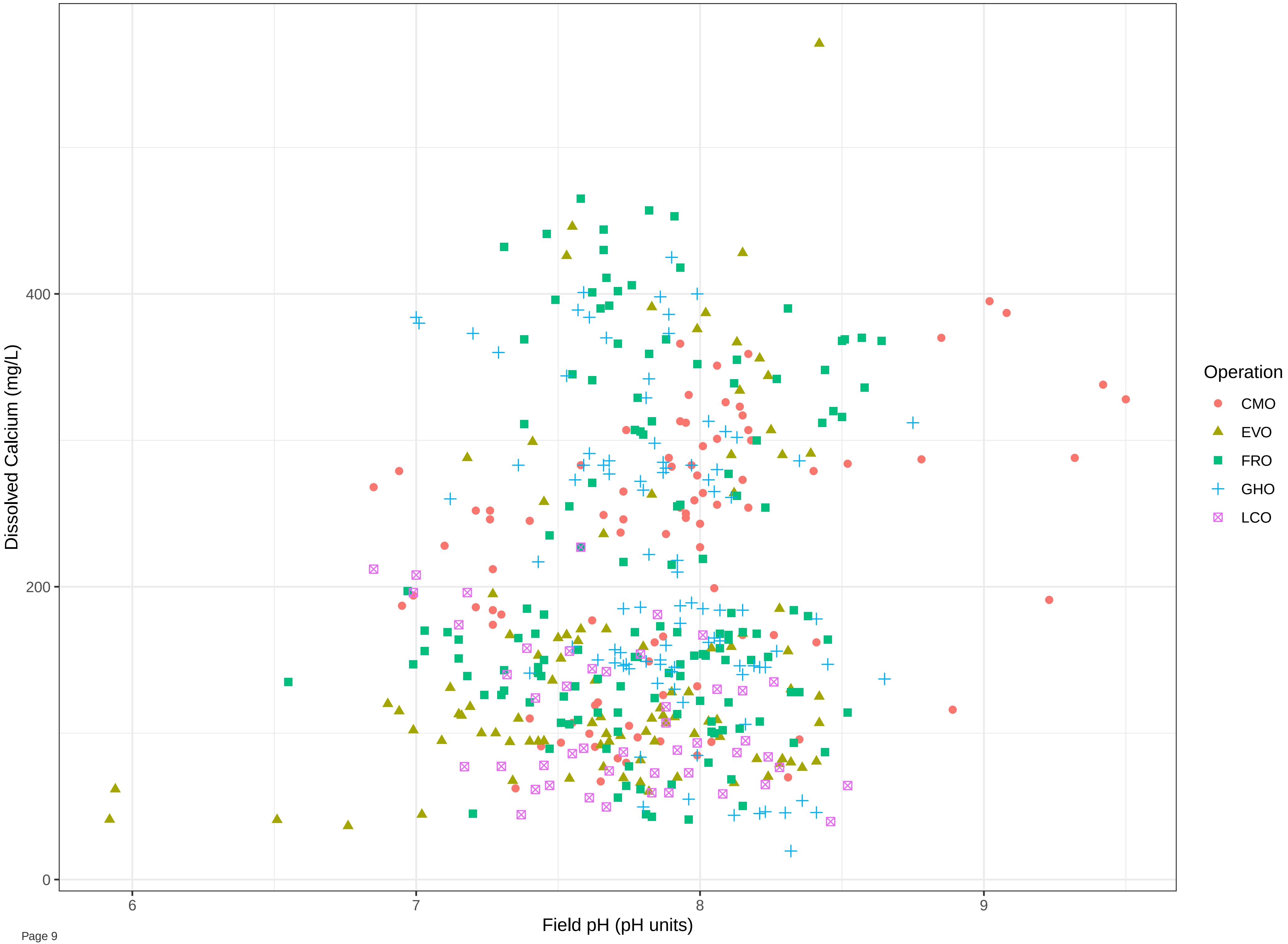


5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Bismuth (mg/L)
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

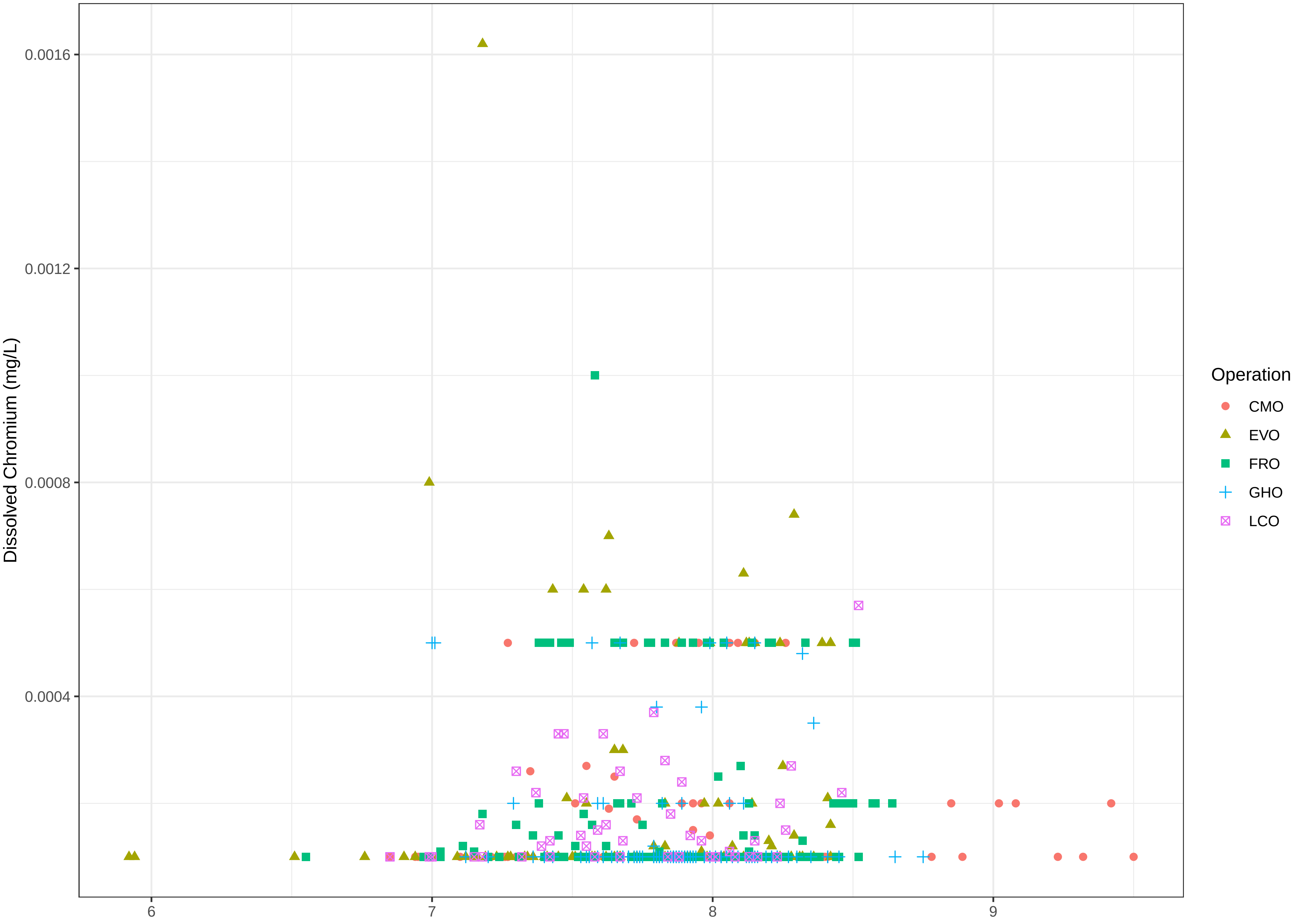


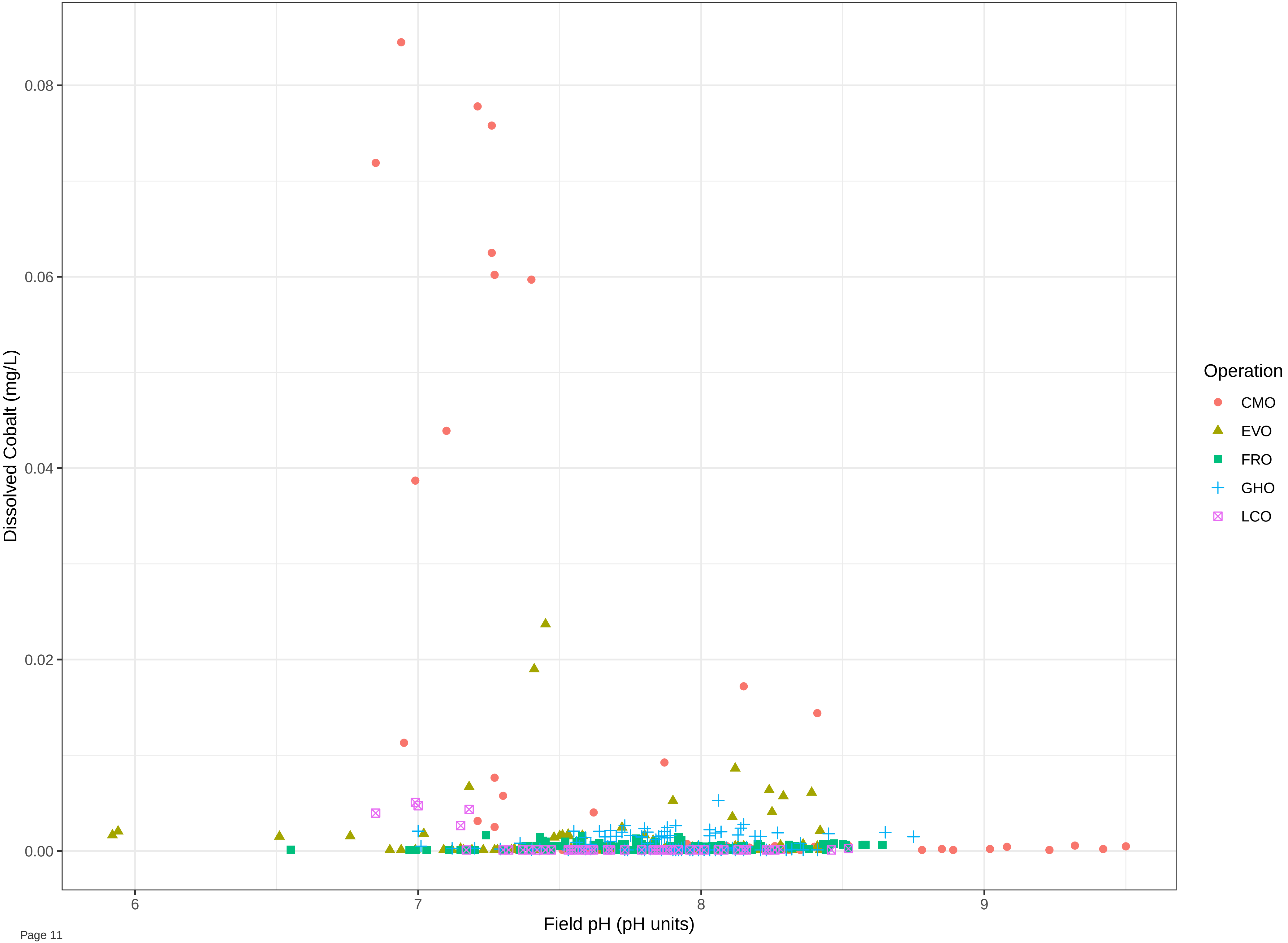
Dissolved Boron (mg/L)
0.6
0.4
0.2
0.0
6
7
8
9
Field pH (pH units)
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO

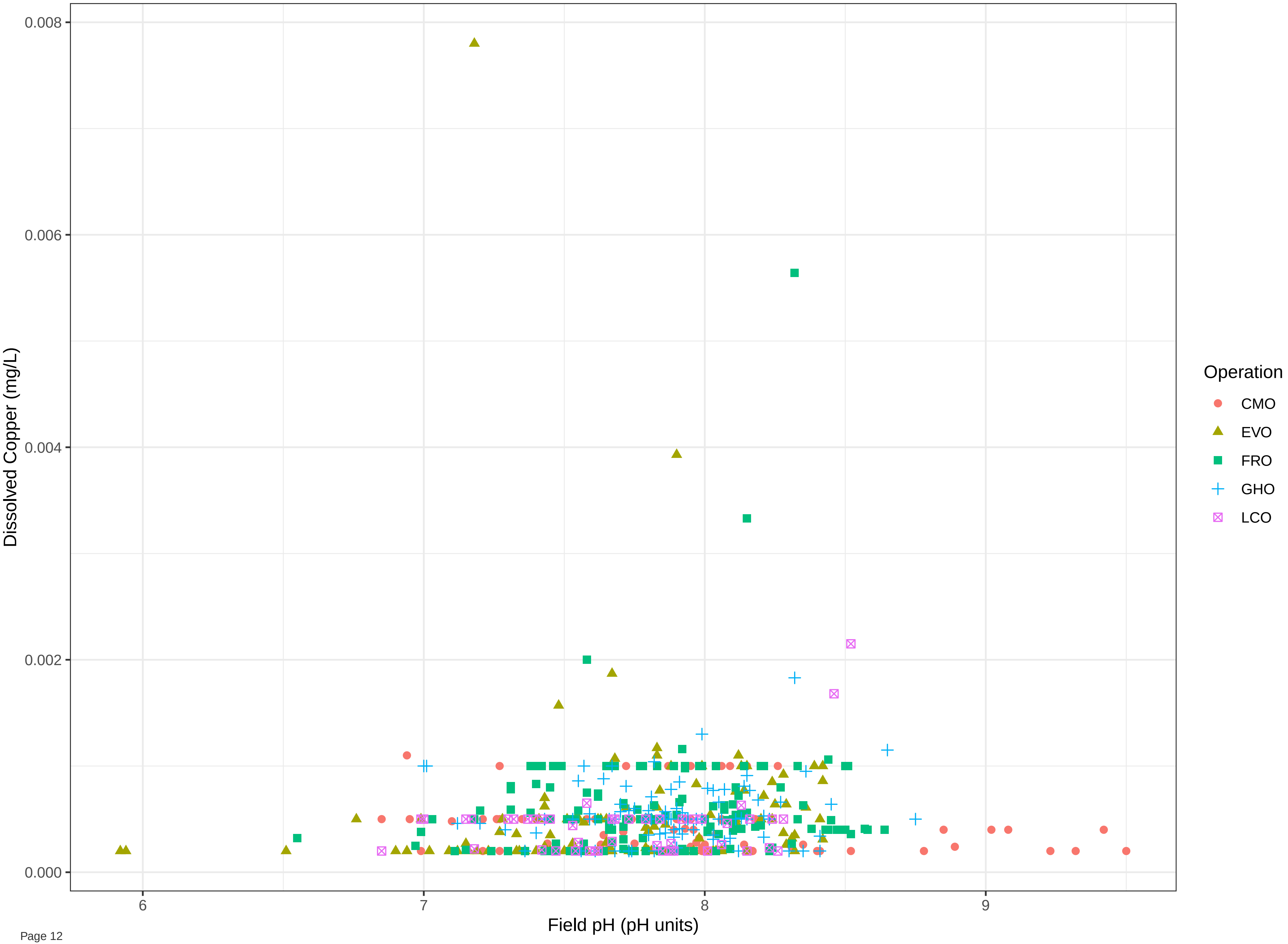

0.003
0.002
0.001
0.000
Dissolved Cadmium (mg/L)
6
7
8
9
Field pH (pH units)
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO



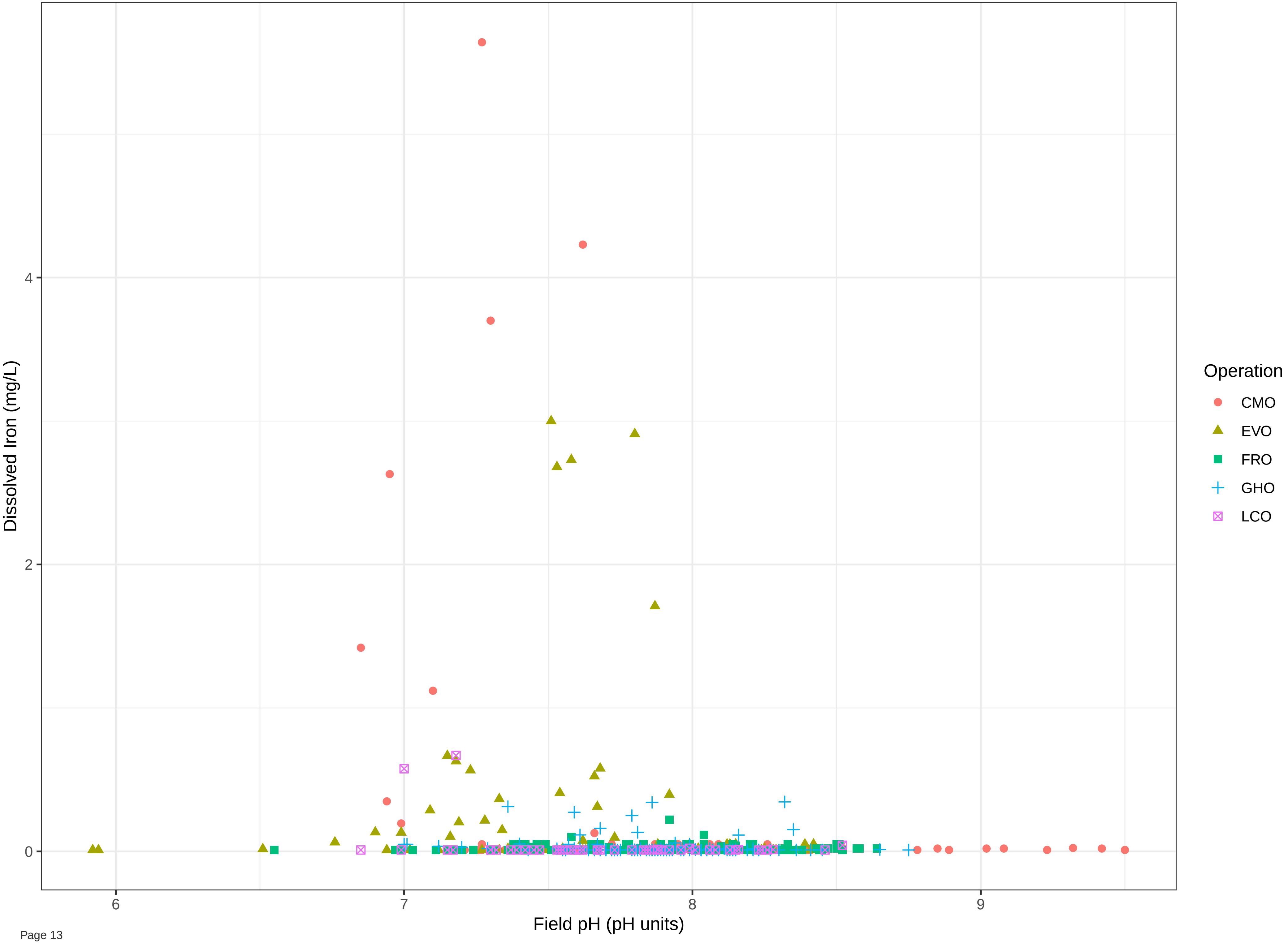
Dissolved Calcium (mg/L)
400
200
0
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

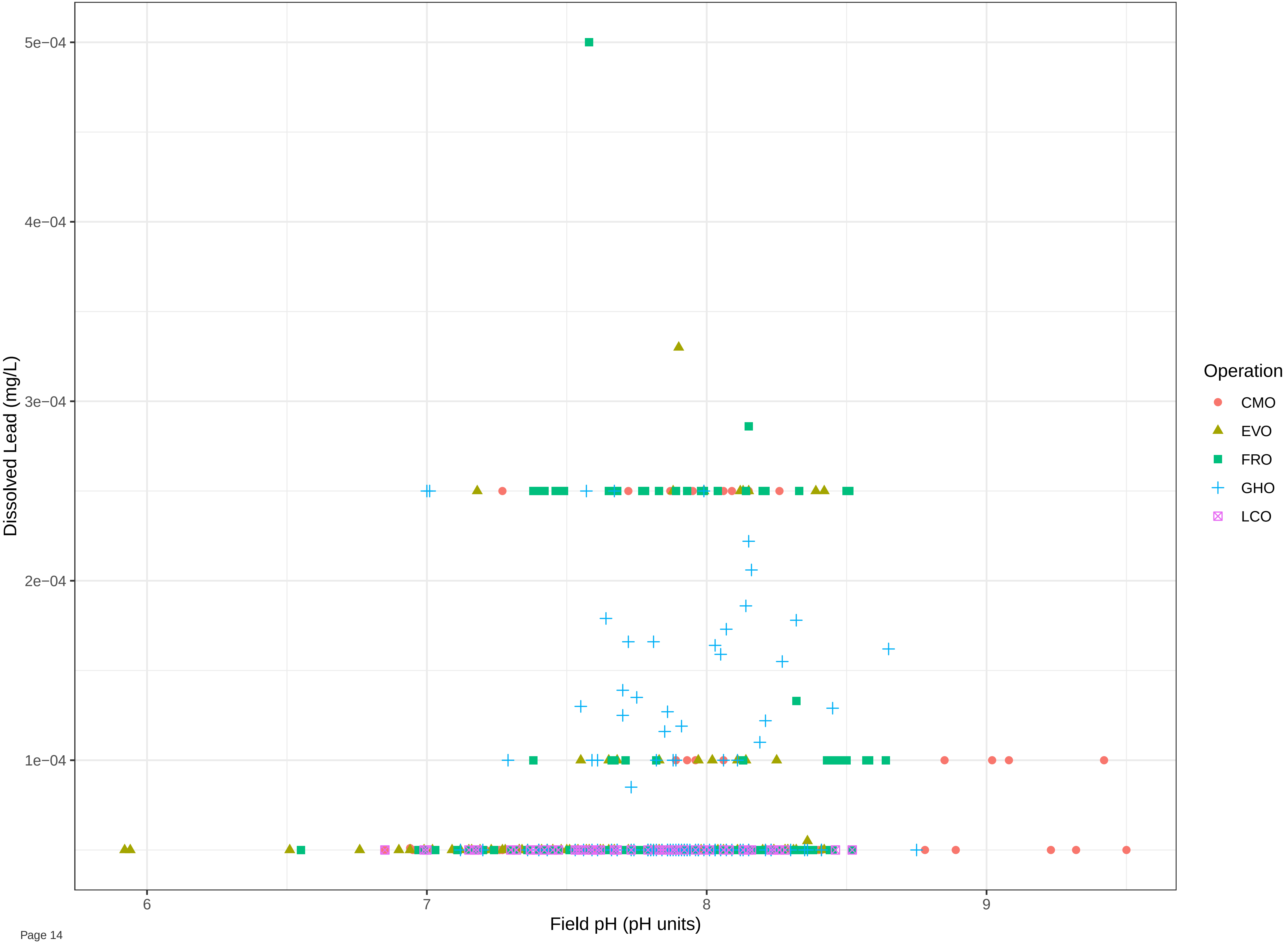

0.0016
0.0012
0.0008
0.0004
Dissolved Chromium (mg/L)
6
7
8
9
Field pH (pH units)
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO


0.08
0.06
0.04
0.02
0.00
Dissolved Cobalt (mg/L)
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

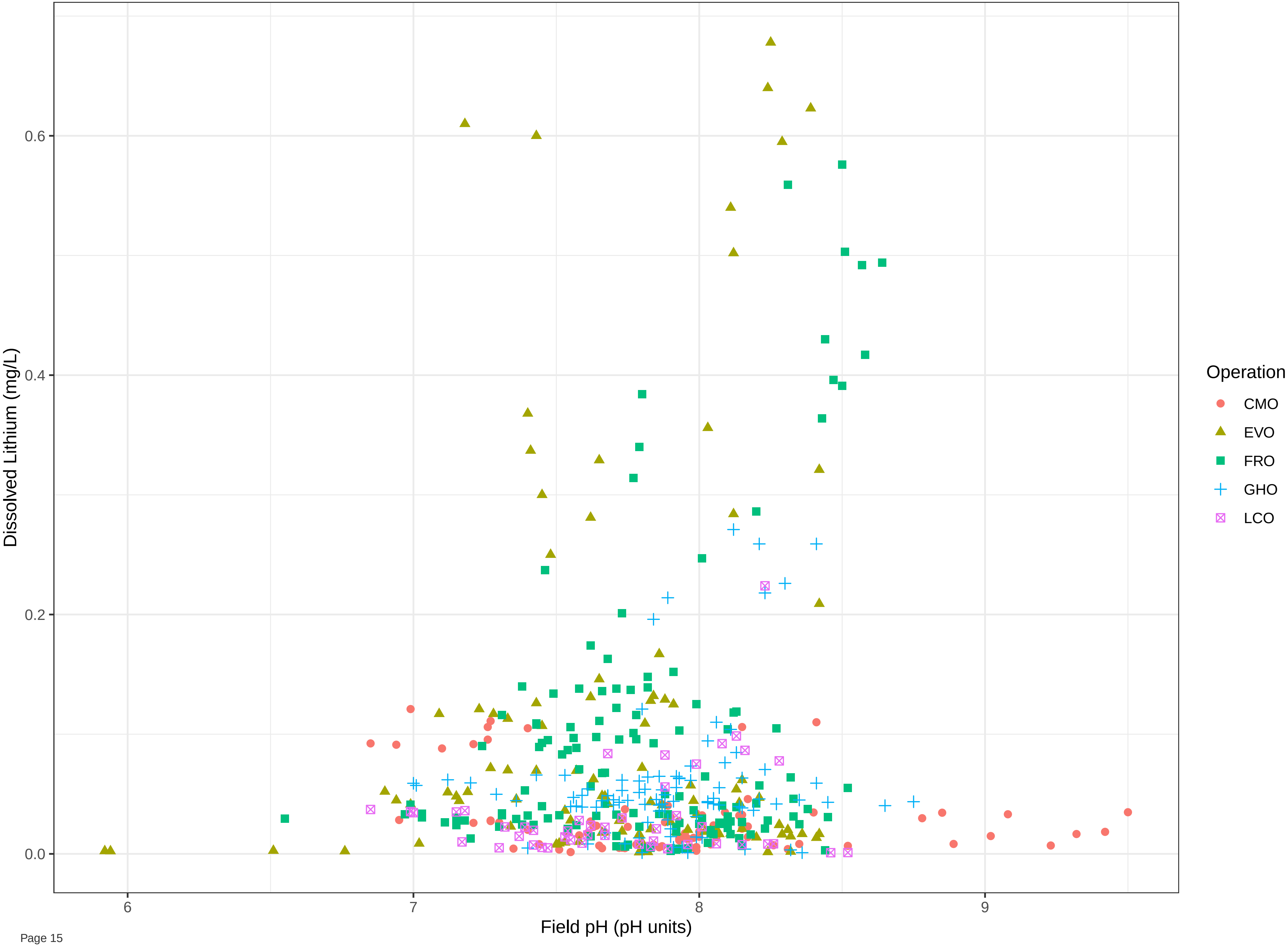


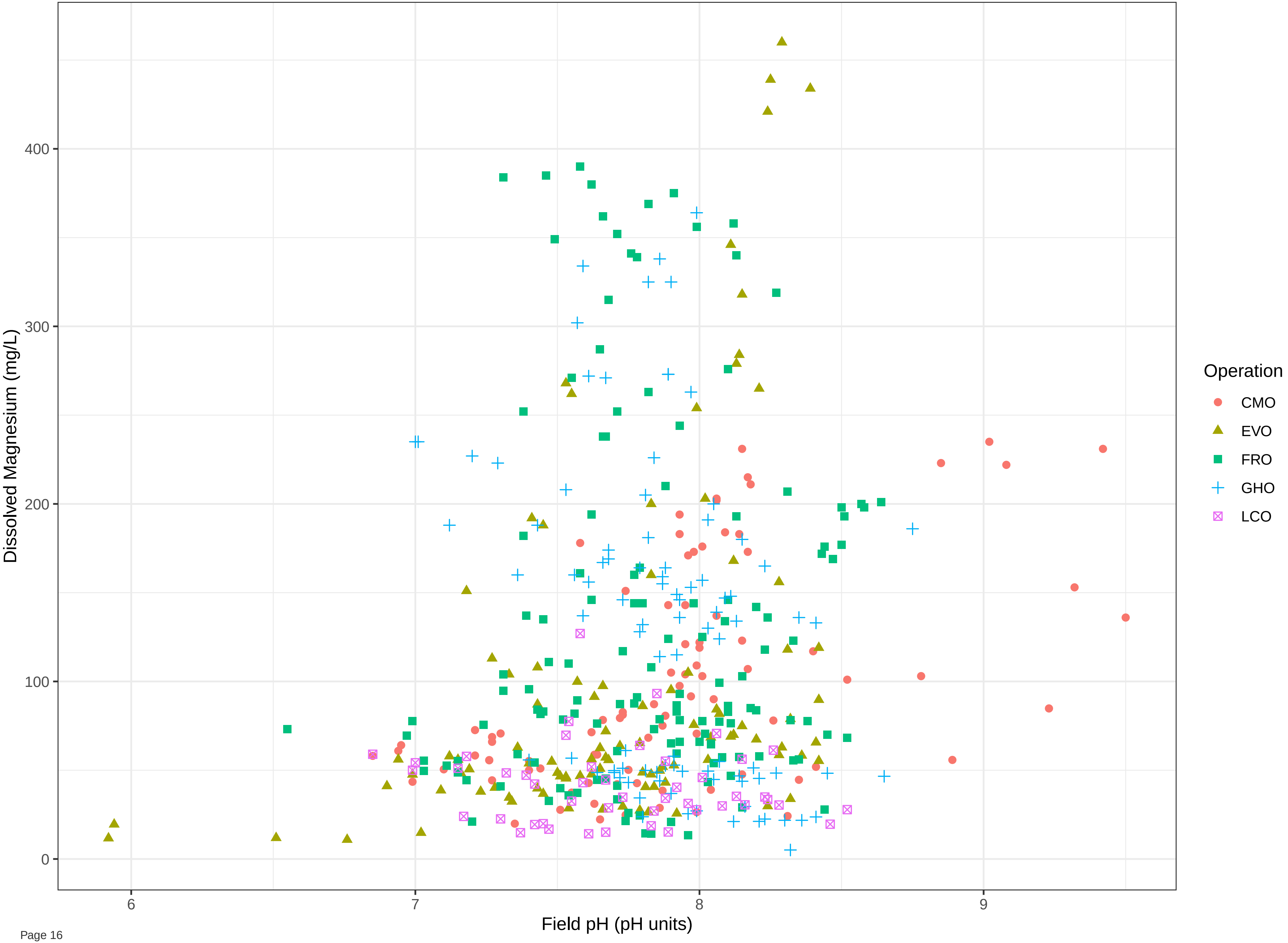
0.008
0.006
0.004
0.002
0.000
Dissolved Copper (mg/L)
6
7
8
9
Field pH (pH units)
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO

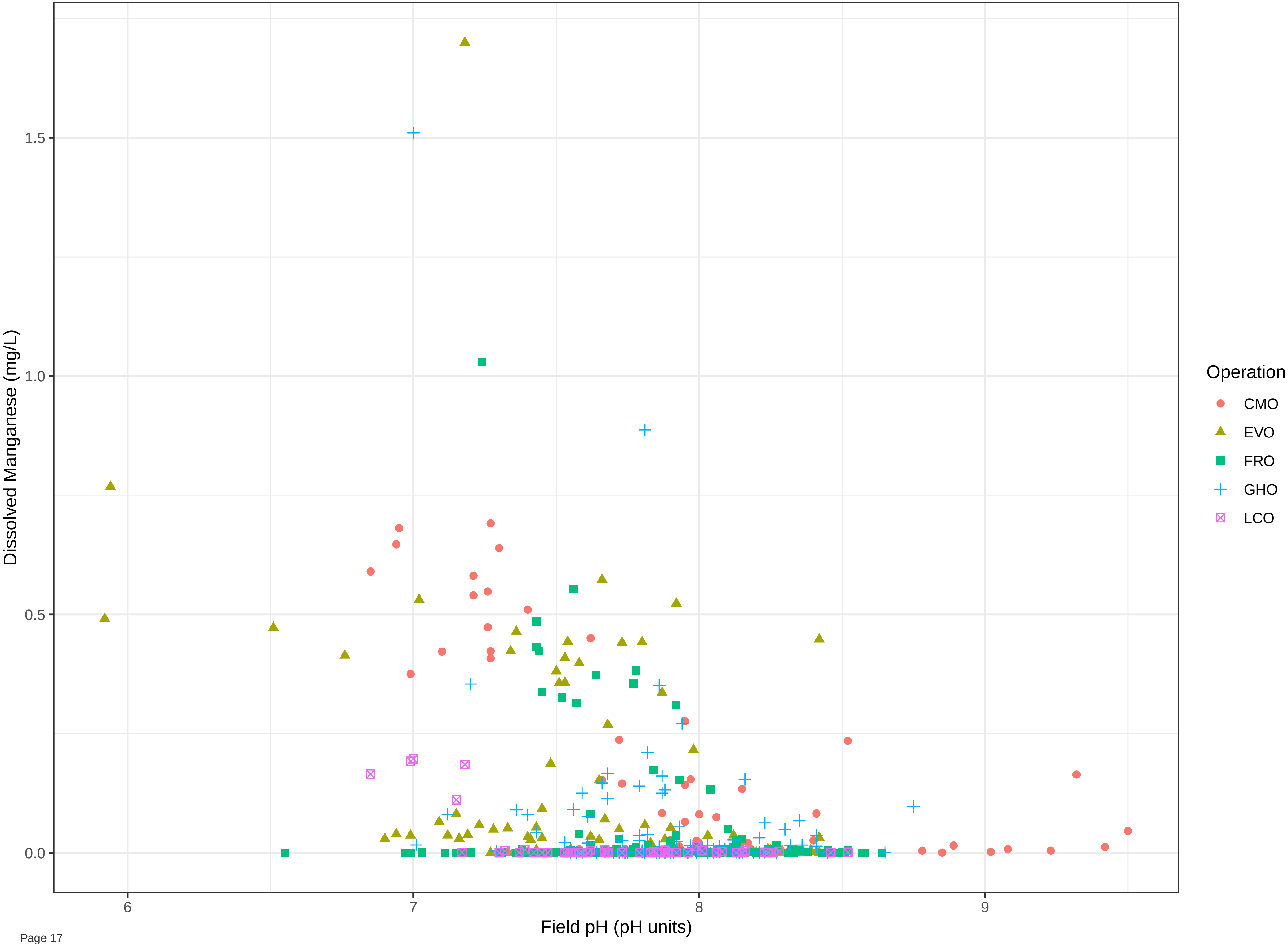

Dissolved Iron (mg/L)
0
2
4
6
7
8
9
Field pH (pH units)
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO

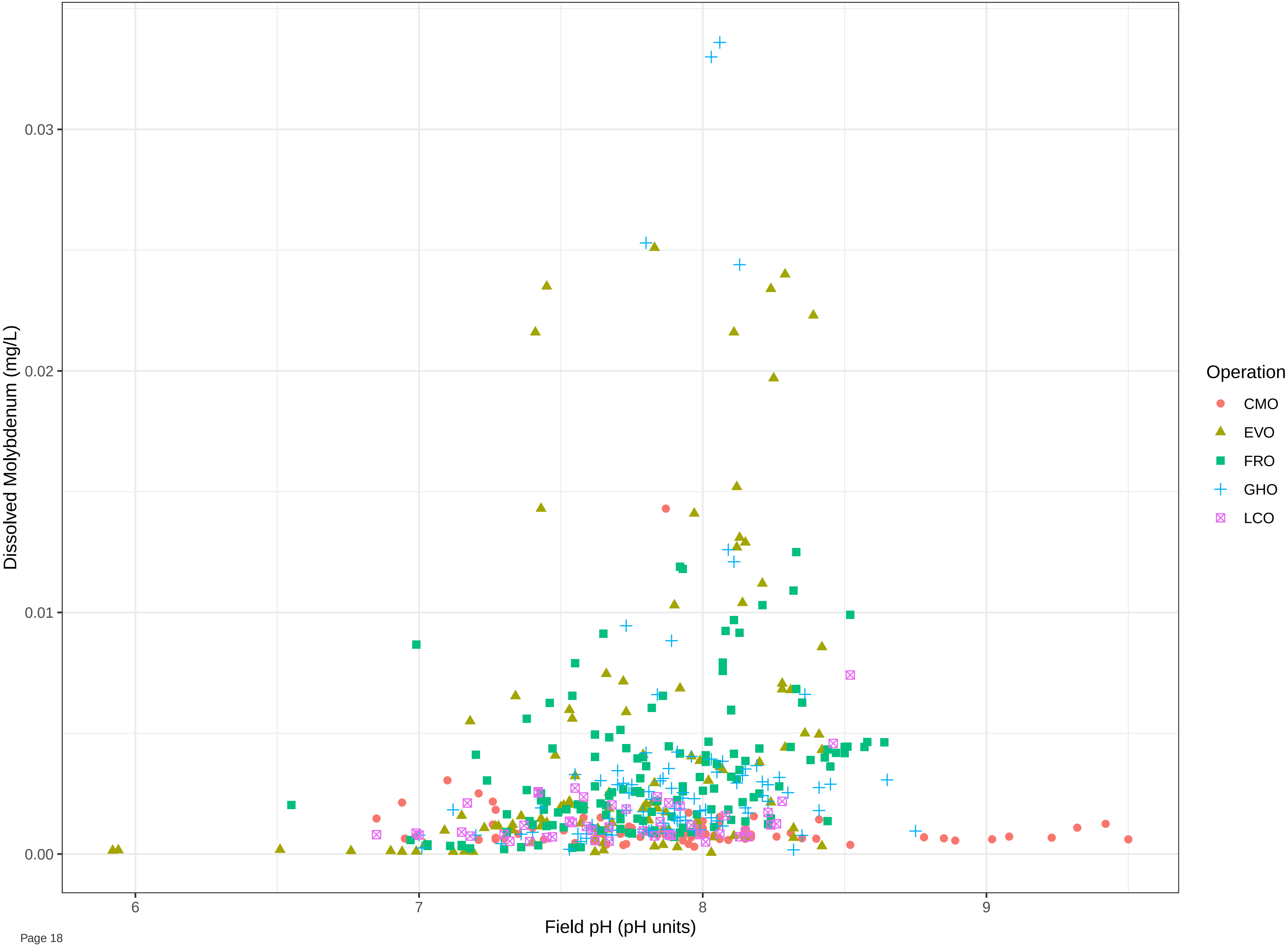


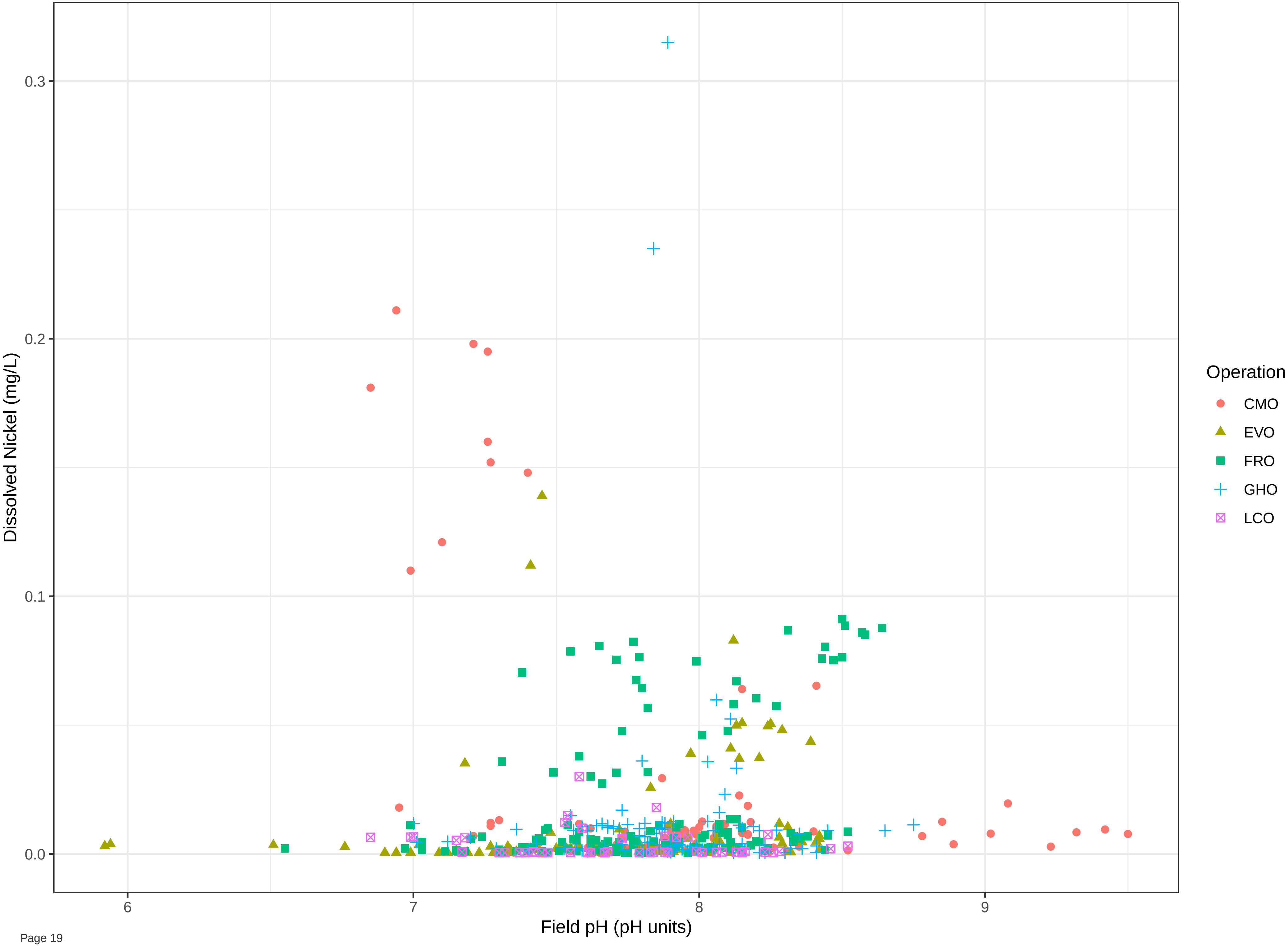
Dissolved Lead (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

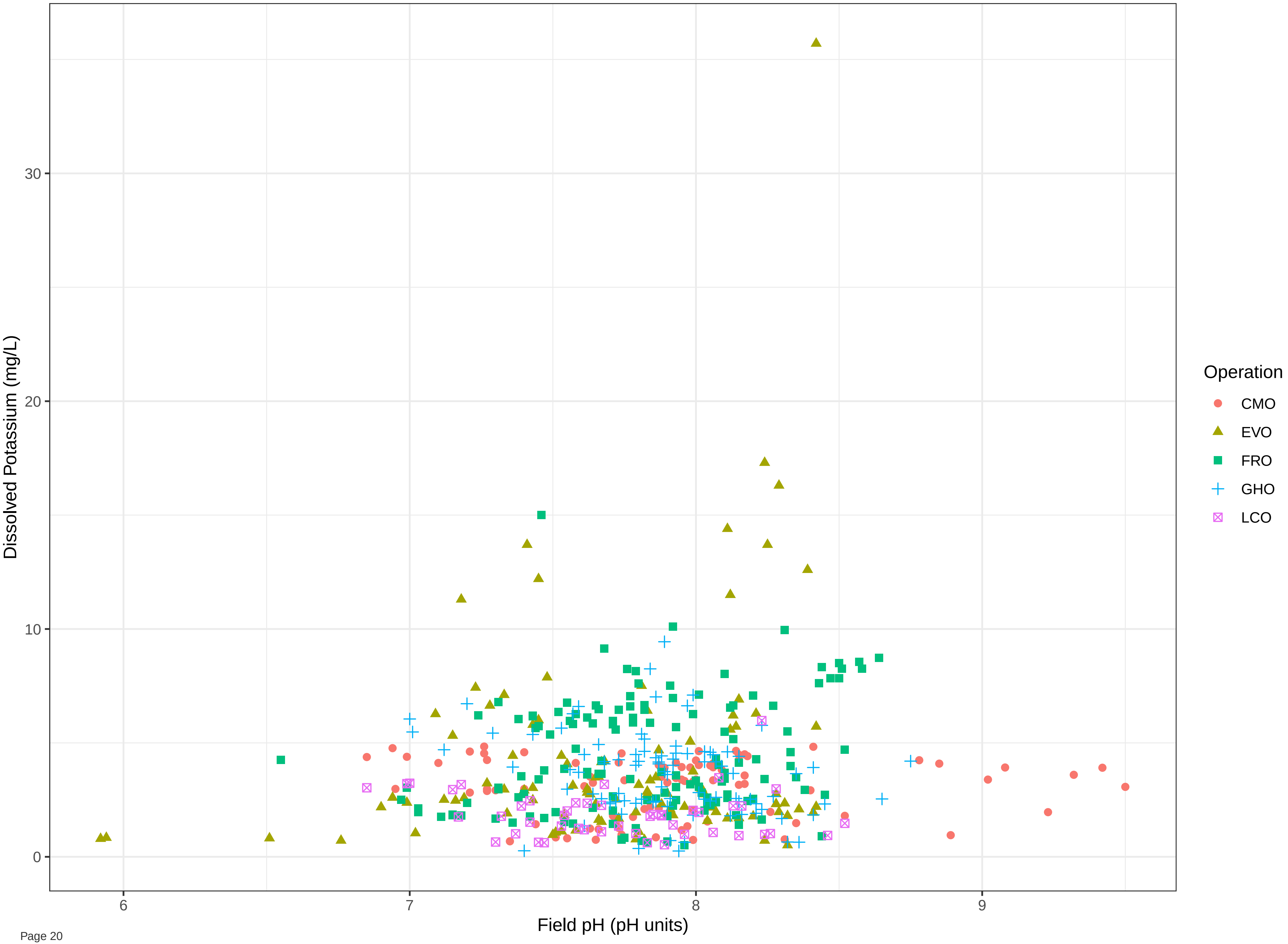

Dissolved Lithium (mg/L)
0.6
0.4
0.2
0.0
6
7
8
9
Field pH (pH units)
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO

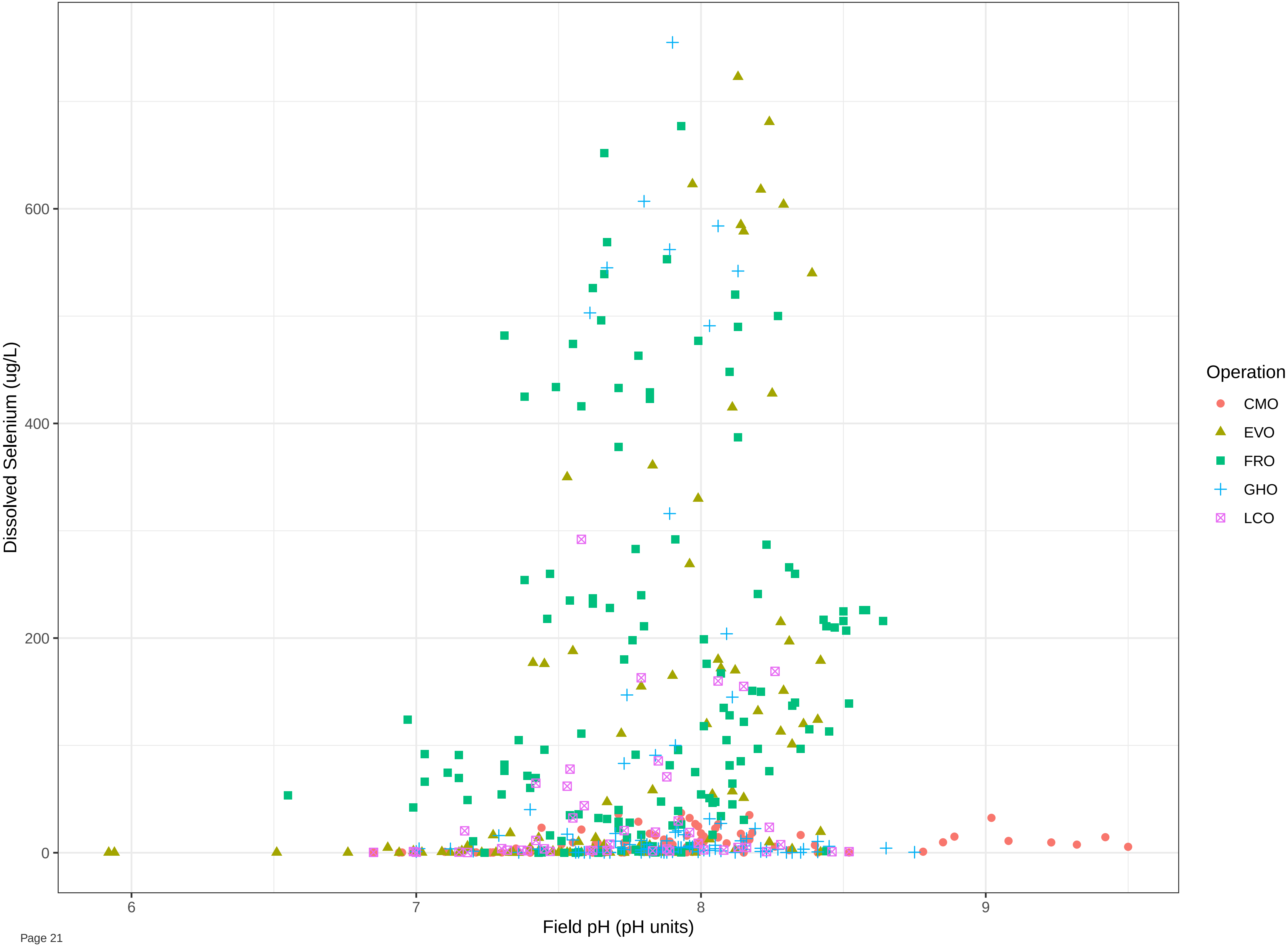

Dissolved Magnesium (mg/L)
400
300
200
100
0
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

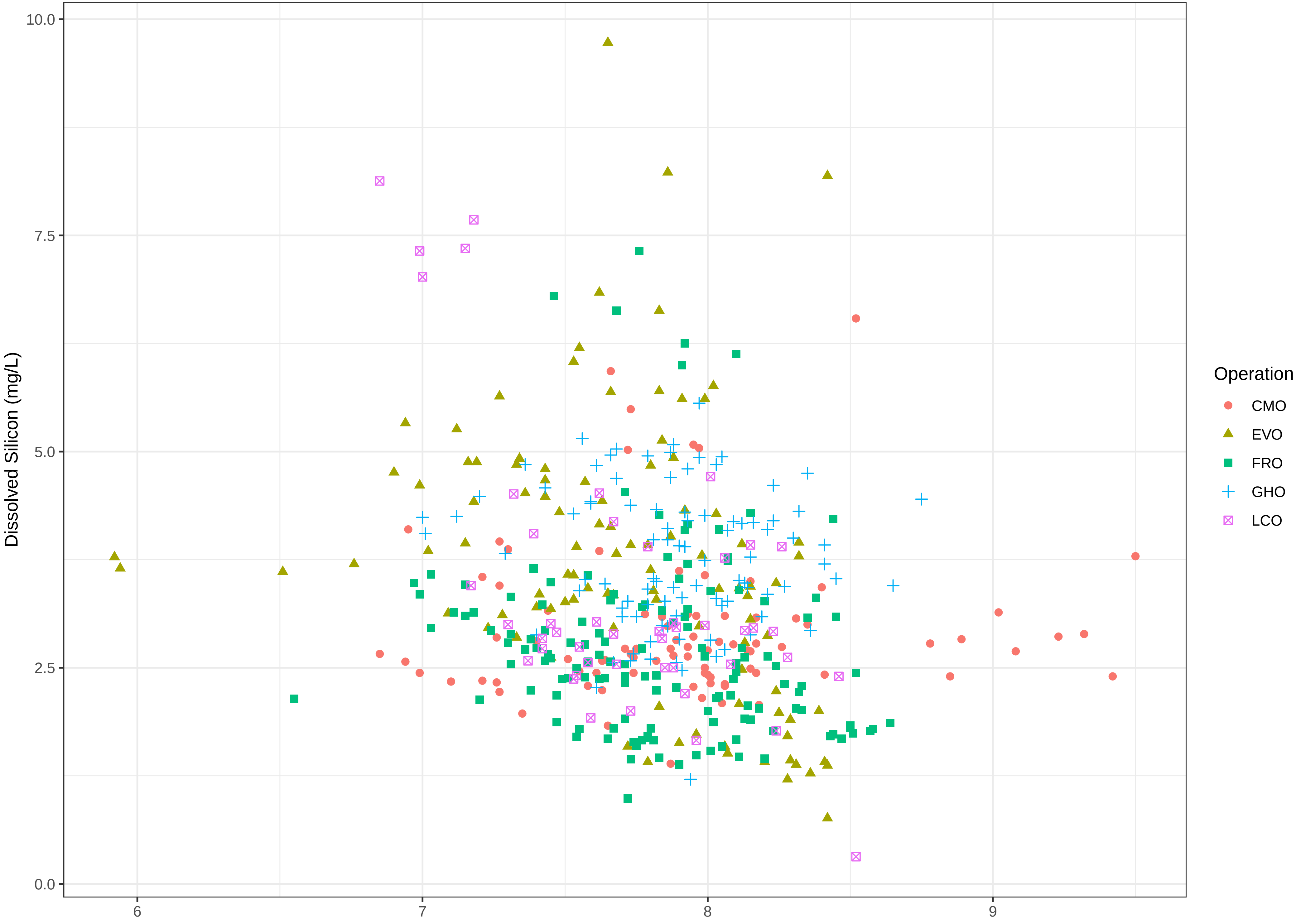

Dissolved Manganese (mg/L)
1.5
1.0
0.5
0.0
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

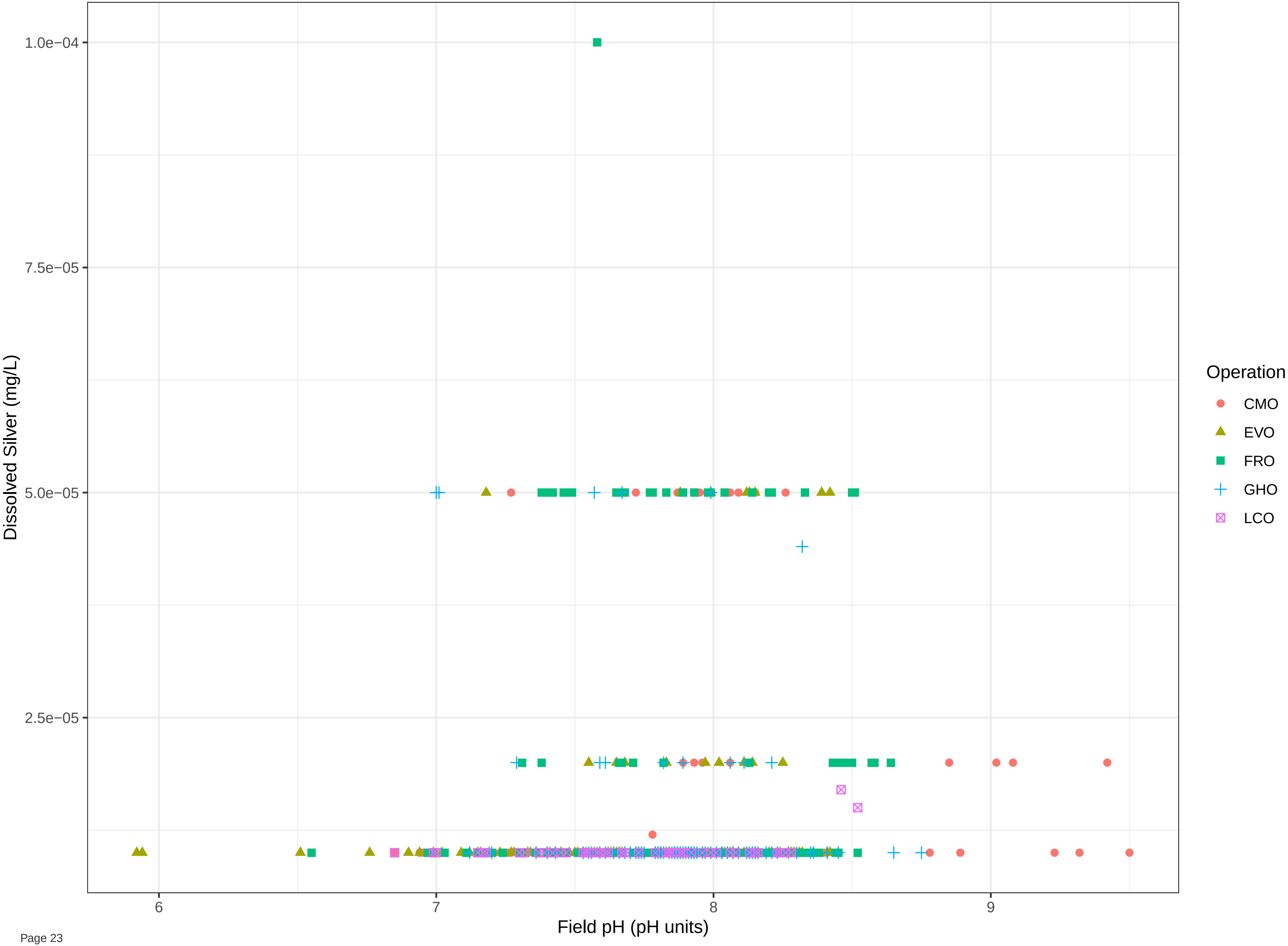

Dissolved Molybdenum (mg/L)
0.03
0.02
0.01
0.00
6
7
8
9
Field pH (pH units)
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO


Dissolved Nickel (mg/L)
0.3
0.2
0.1
0.0
6
7
8
9
Field pH (pH units)
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO

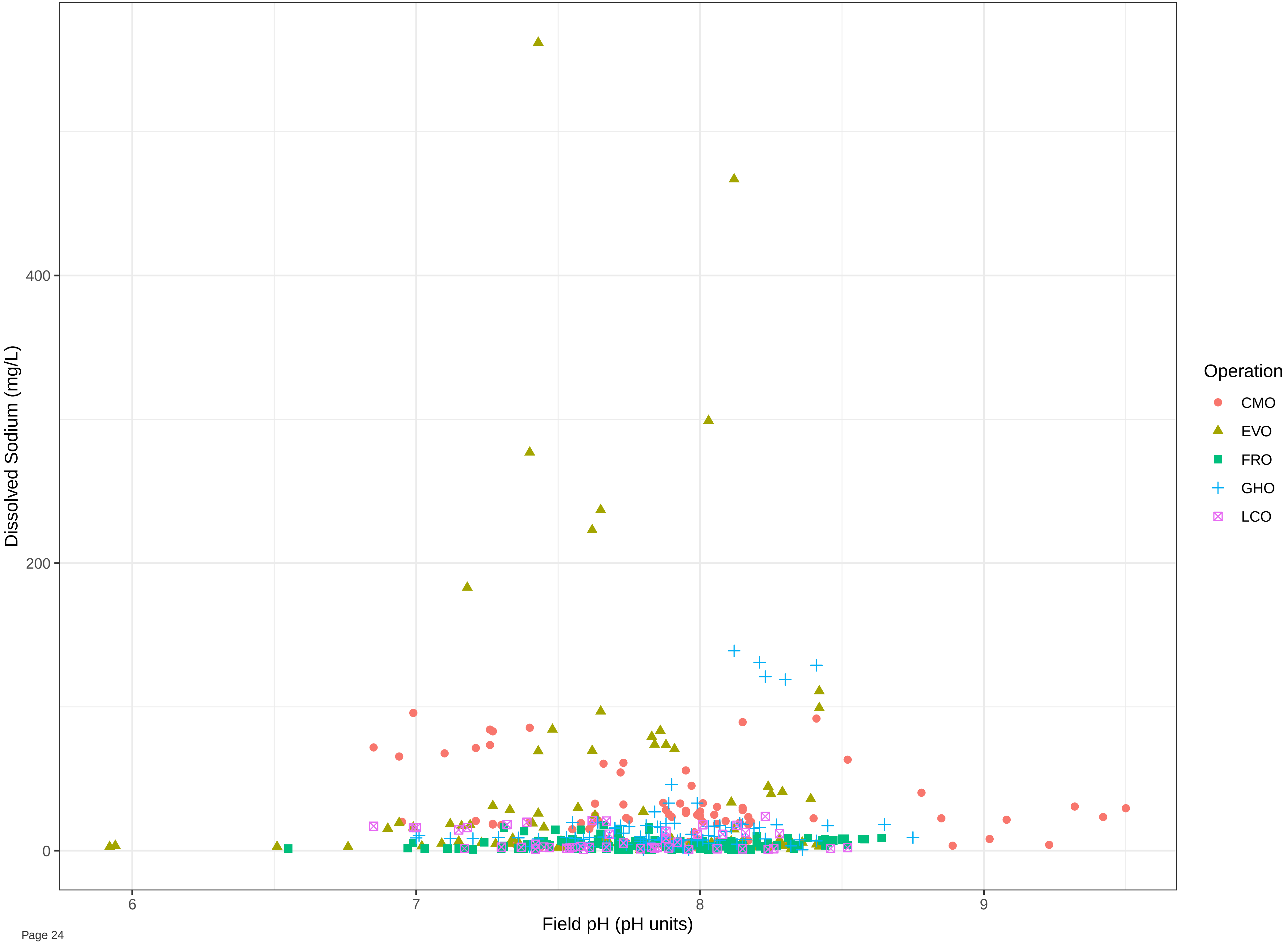

Dissolved Potassium (mg/L)
0
10
20
30
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

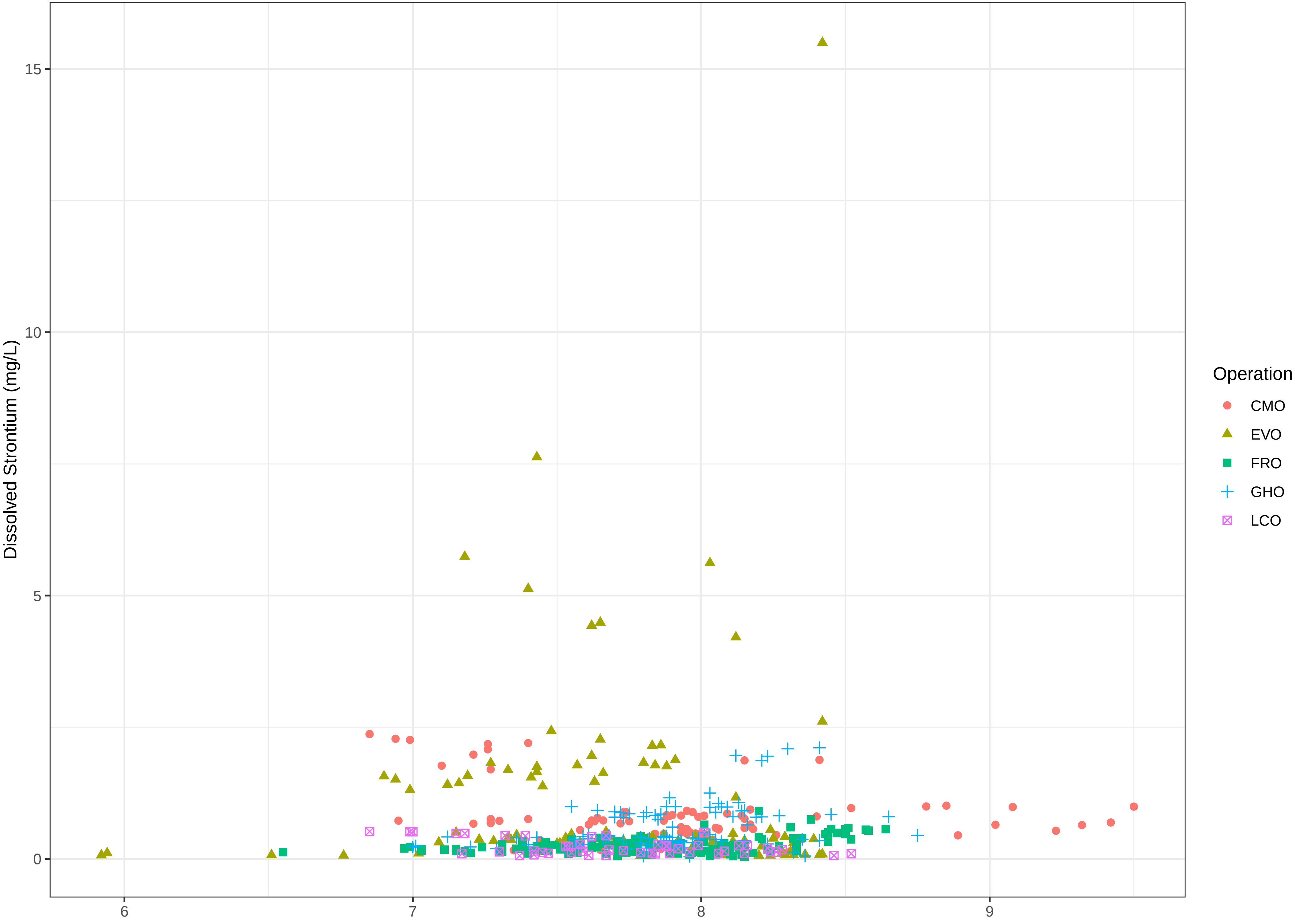

Dissolved Selenium (ug/L)
600
400
200
0
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

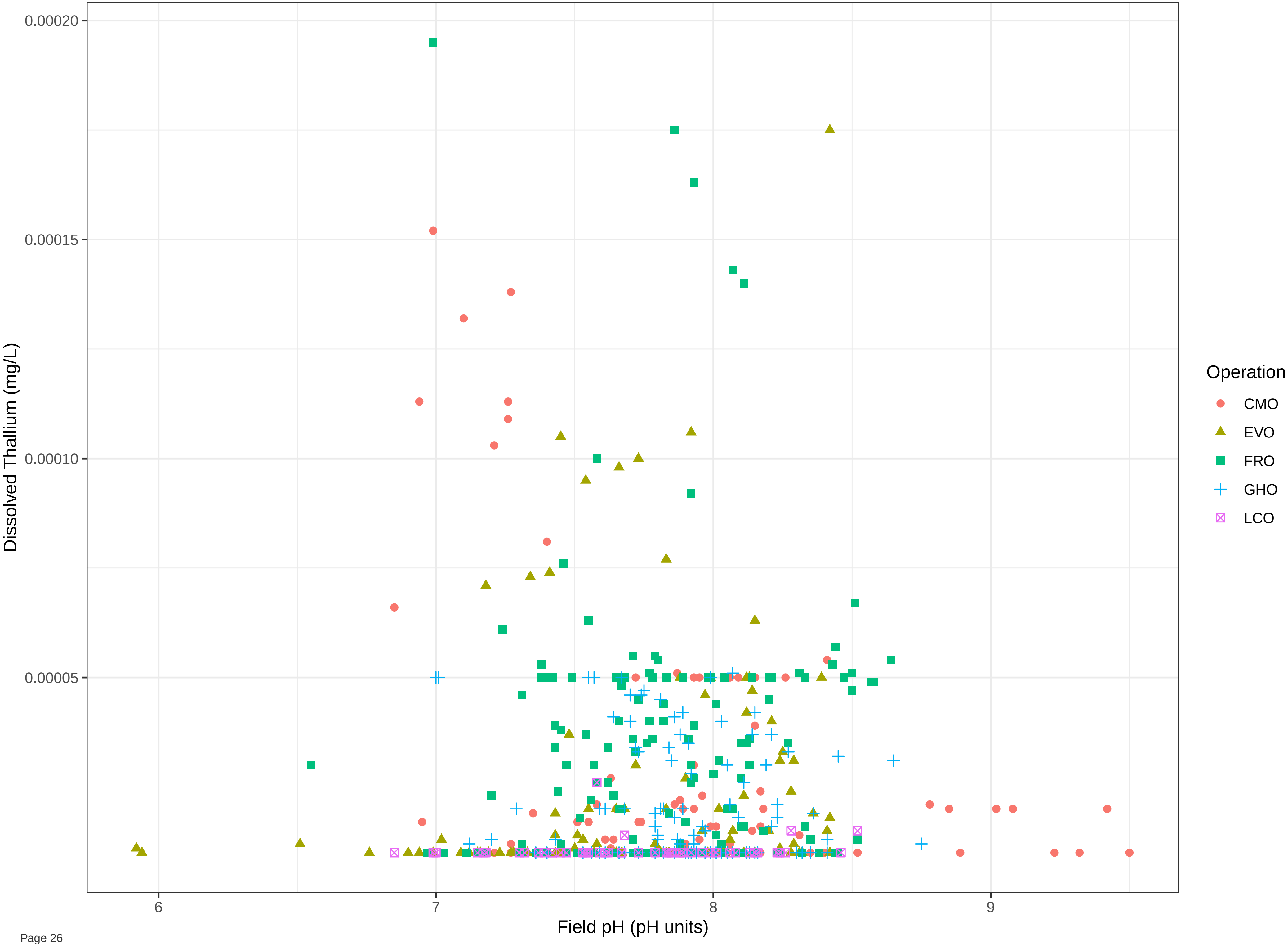

Dissolved Silicon (mg/L)
10.0
7.5
5.0
2.5
0.0
6
7
8
9
Field pH (pH units)
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO



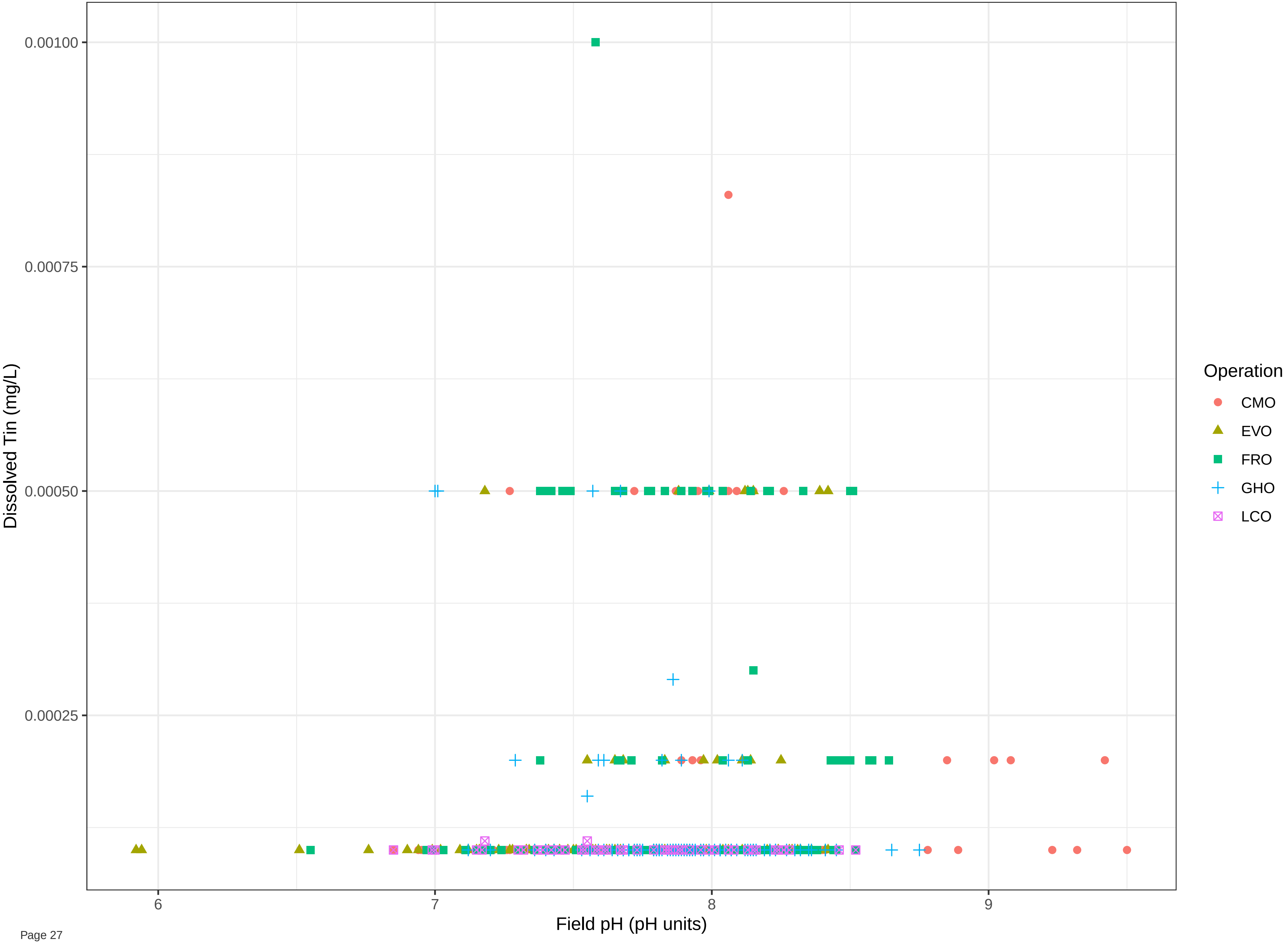
Dissolved Silver (mg/L)
1.0e−04
7.5e−05
5.0e−05
2.5e−05
6
7
8
9
Field pH (pH units)
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO

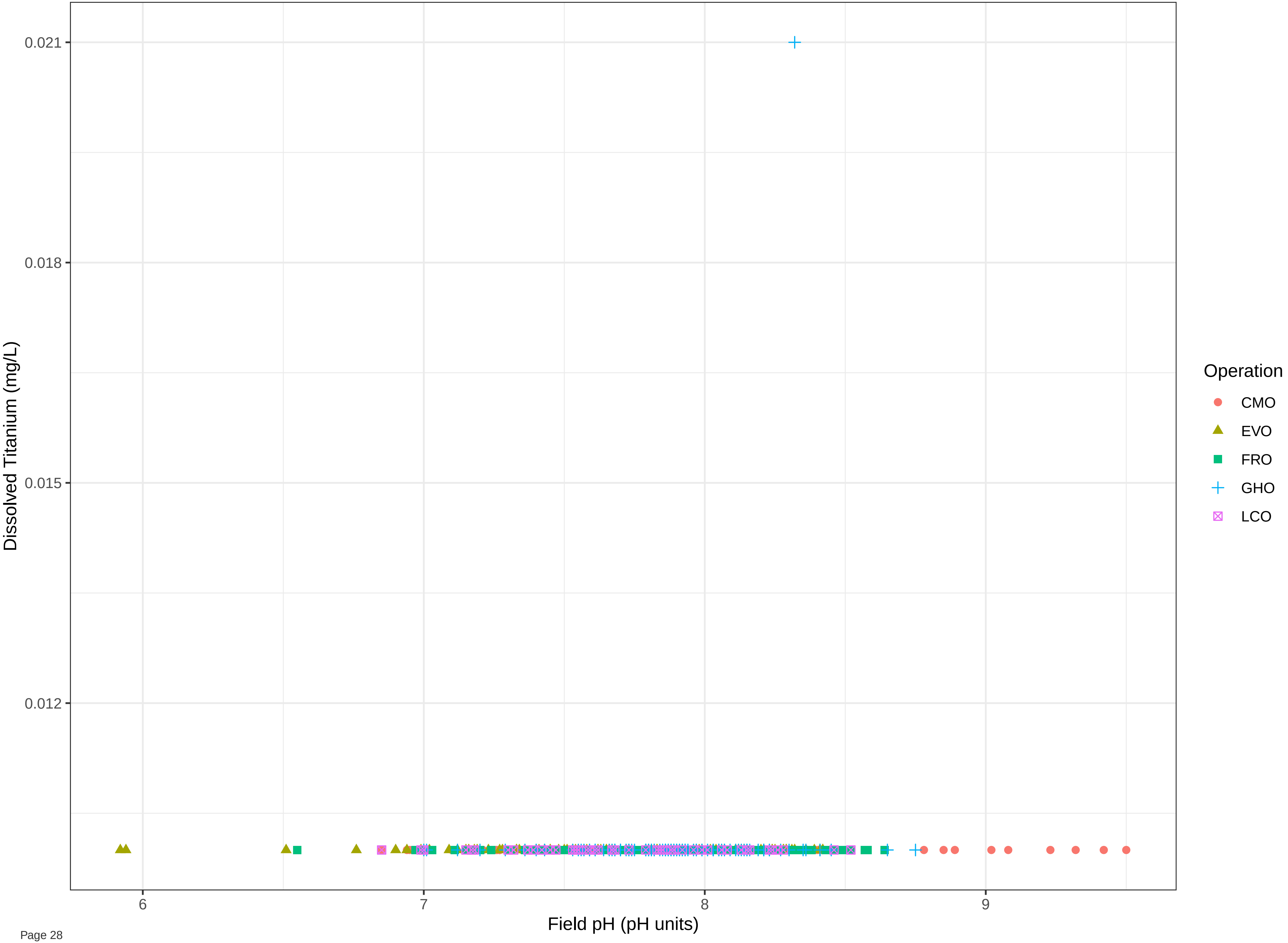

Dissolved Sodium (mg/L)
400
200
0
6
7
8
9
Field pH (pH units)
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO

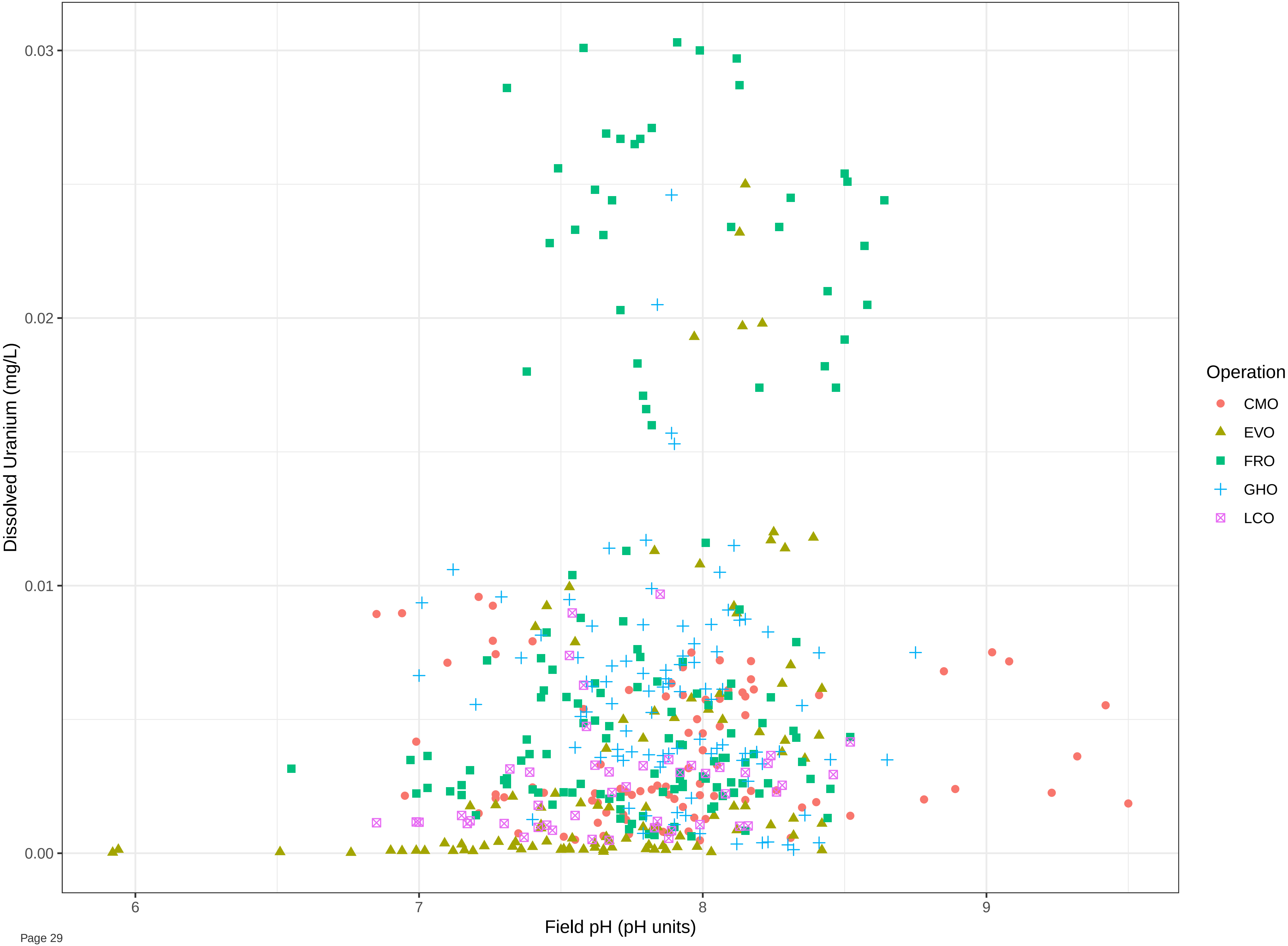

Dissolved Strontium (mg/L)
0
5
10
15
Field pH (pH units)
6
7
8
9
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO

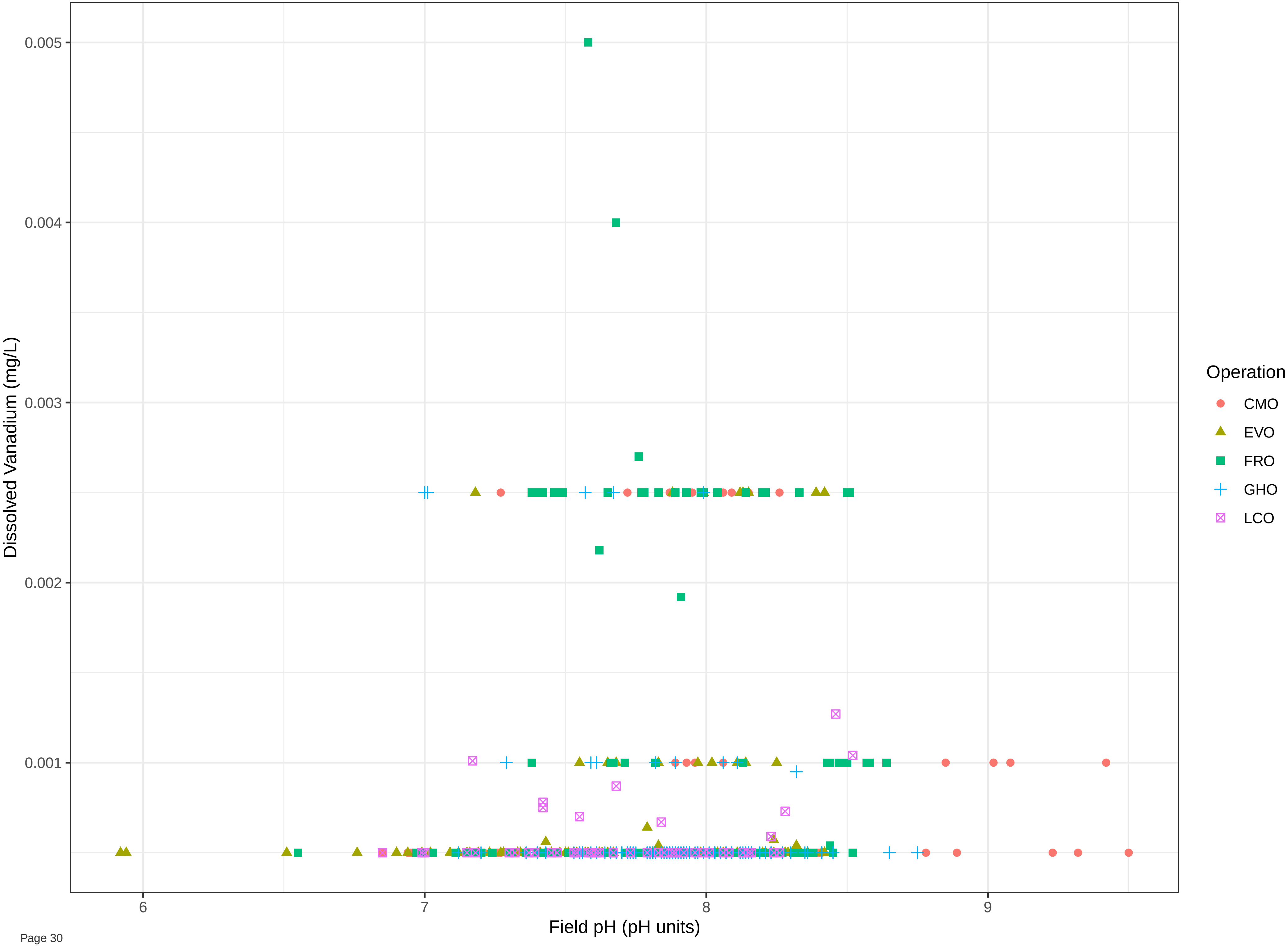


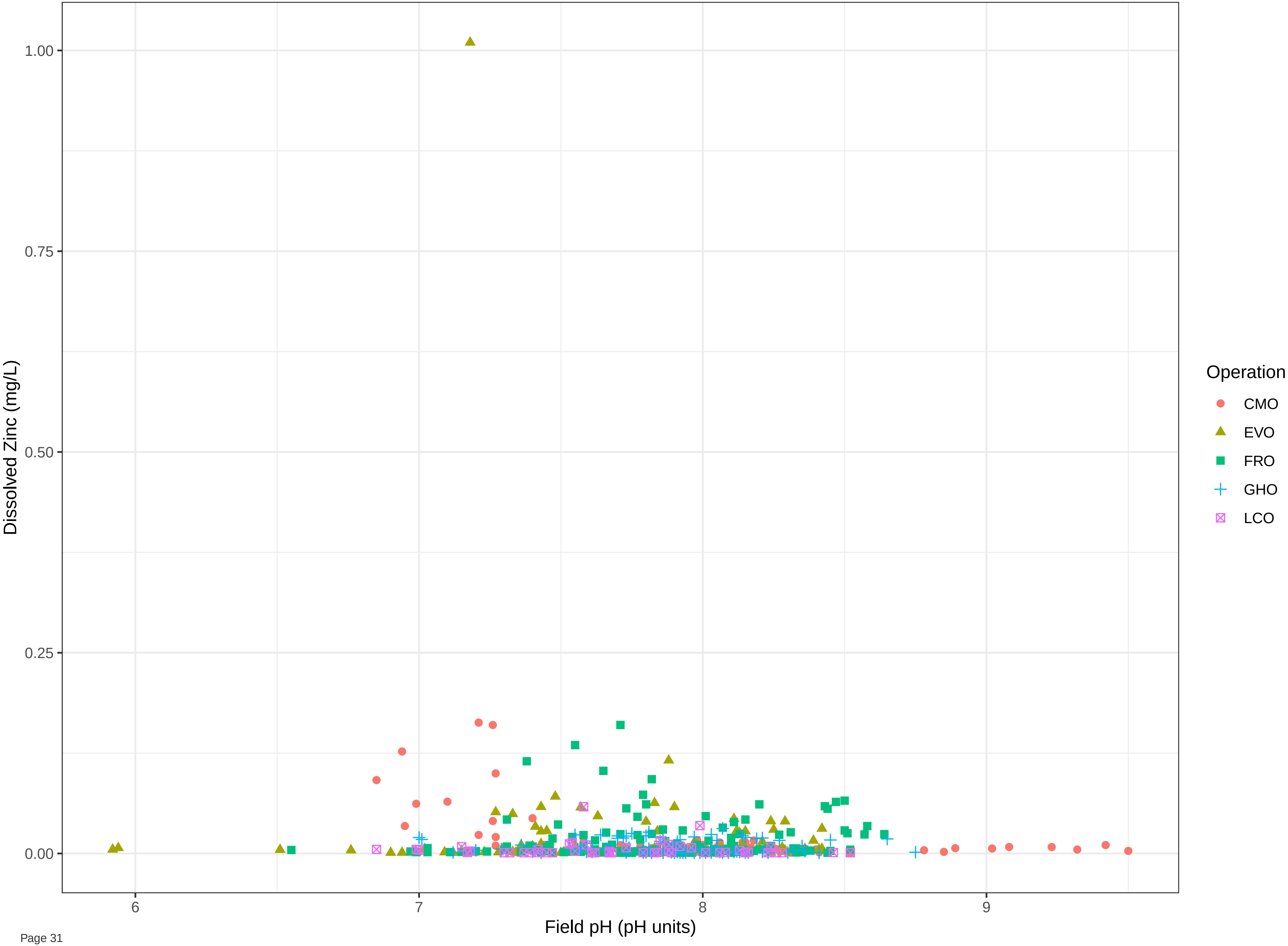
Dissolved Thallium (mg/L)
0.00020
0.00015
0.00010
0.00005
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

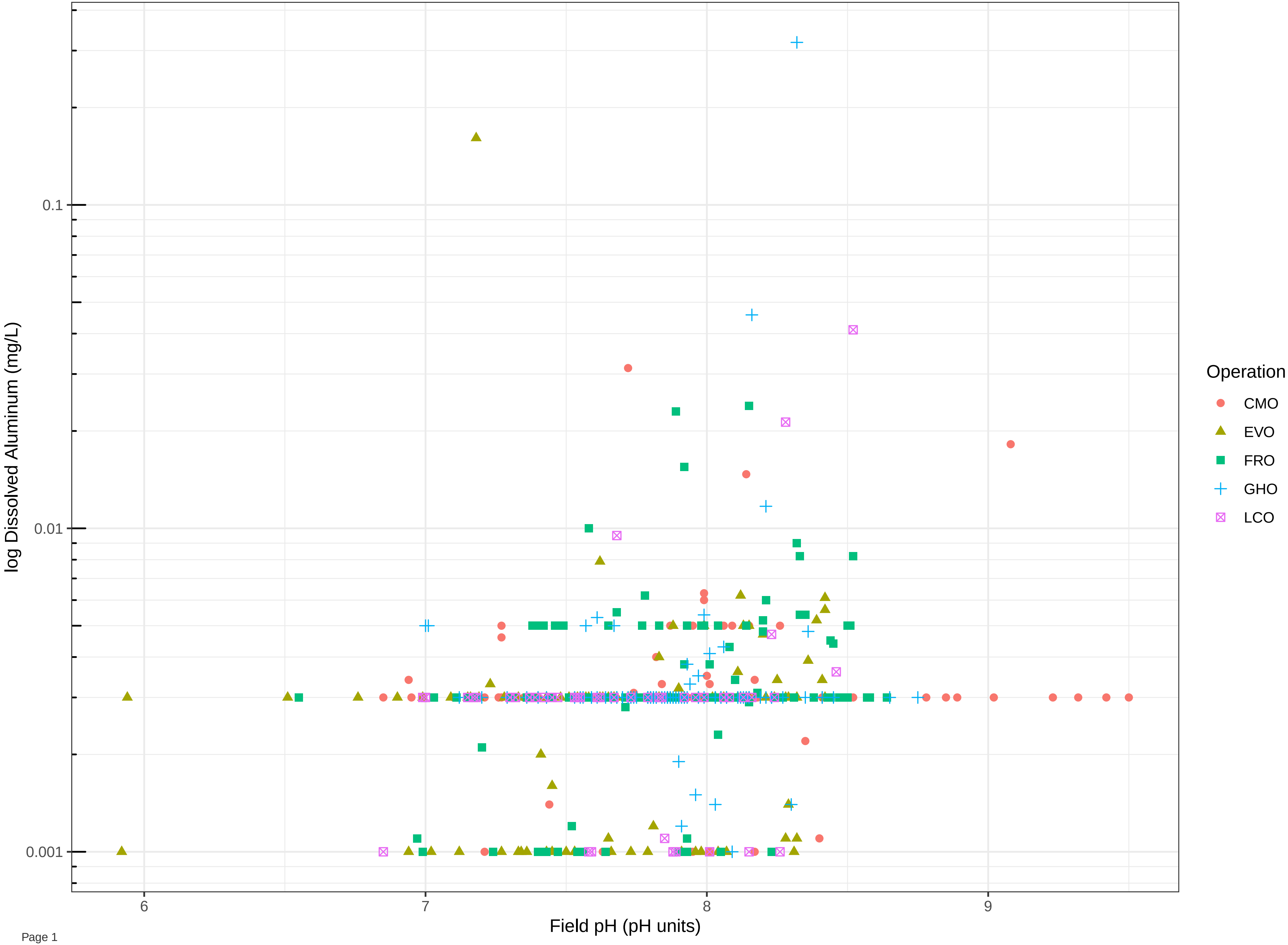

0.00100
0.00075
0.00050
0.00025
Dissolved Tin (mg/L)
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO


0.021
0.018
0.015
0.012
Dissolved Titanium (mg/L)
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

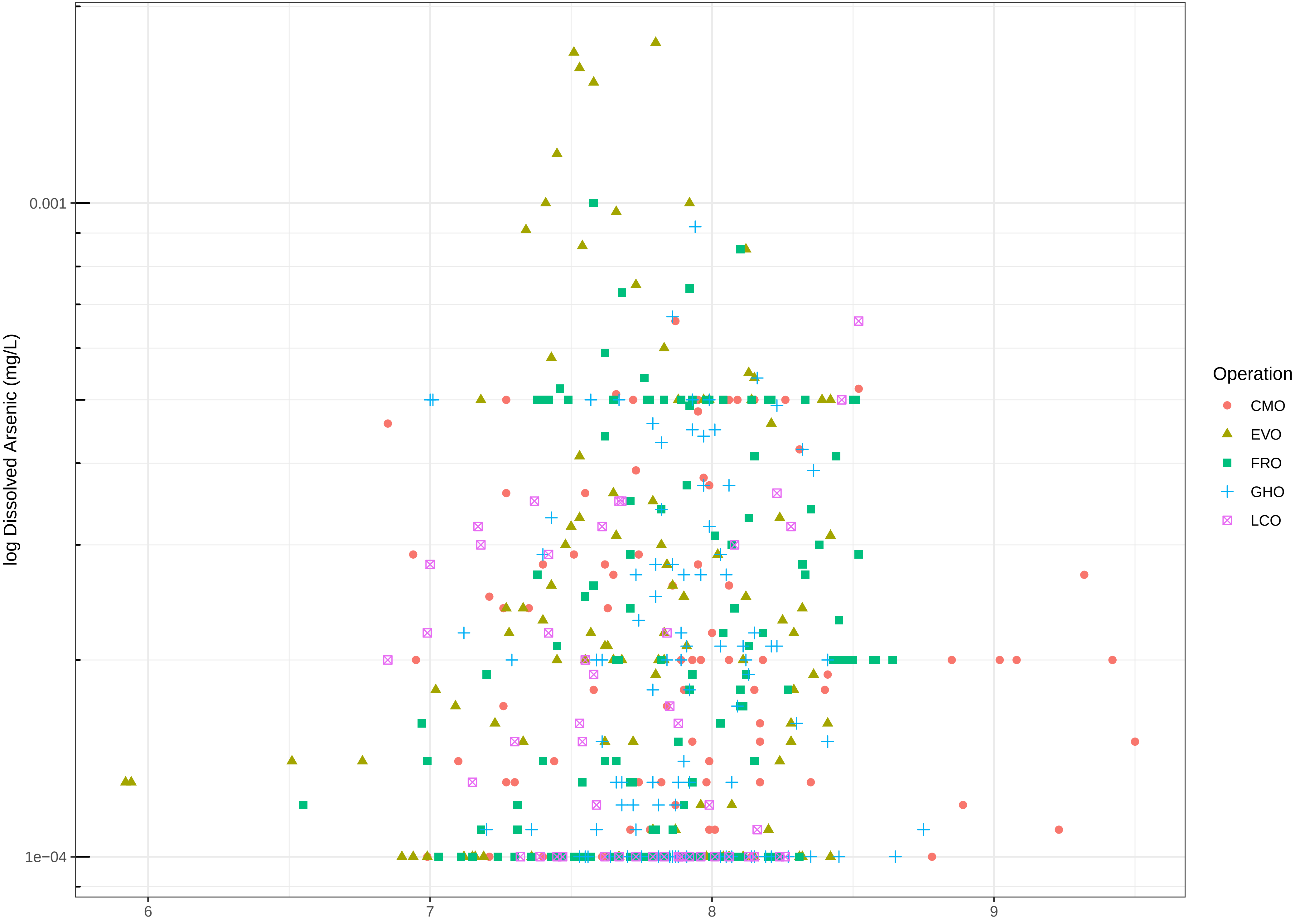

Dissolved Uranium (mg/L)
0.03
0.02
0.01
0.00
Field pH (pH units)
6
7
8
9
Operation
CMO
EVO
FRO
GHO
LCO


Dissolved Vanadium (mg/L)
0.005
0.004
0.003
0.002
0.001
6
7
8
9
Field pH (pH units)
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO

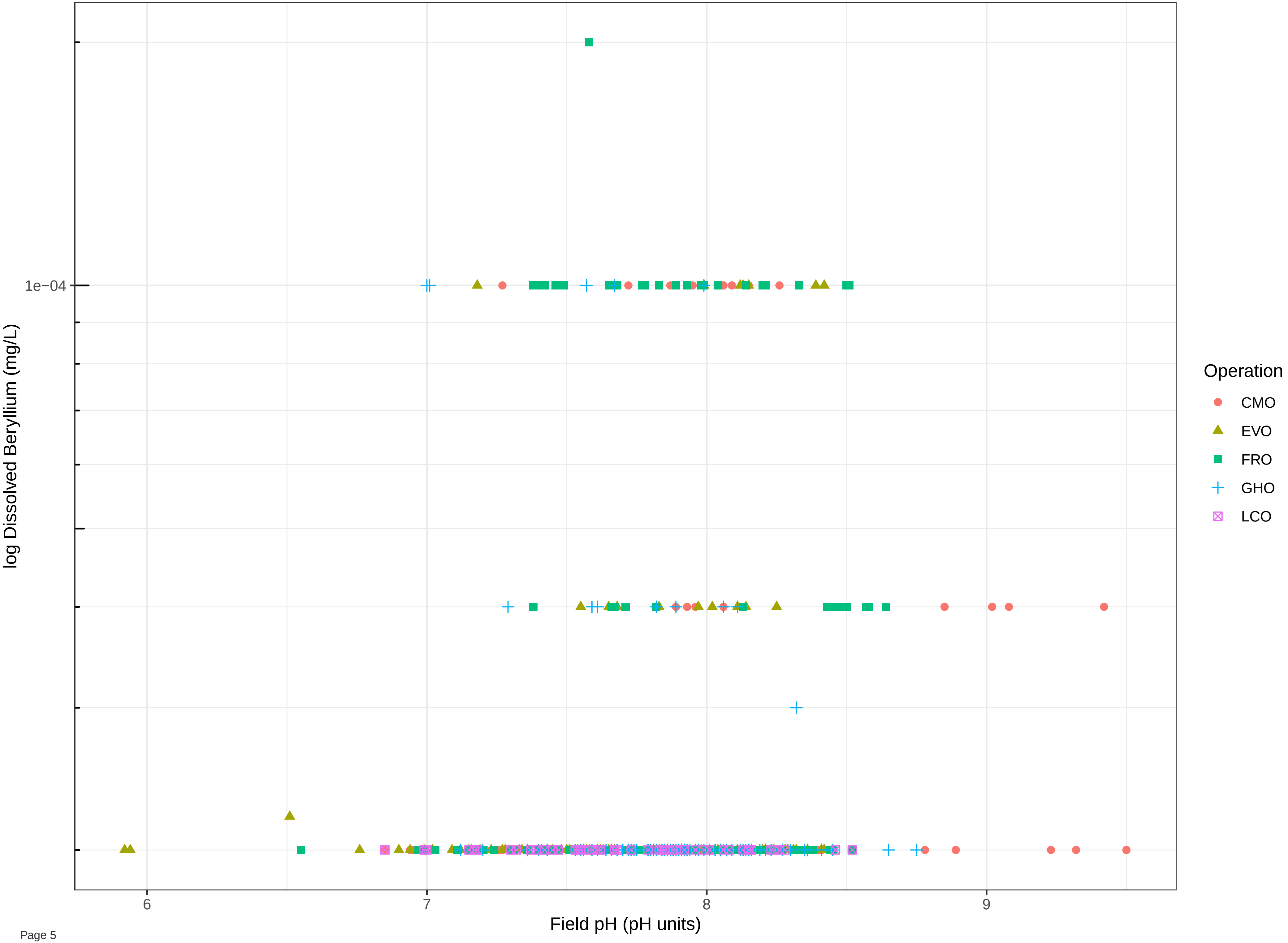

Dissolved Zinc (mg/L)
1.00
0.75
0.50
0.25
0.00
6
7
8
9
Field pH (pH units)
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO

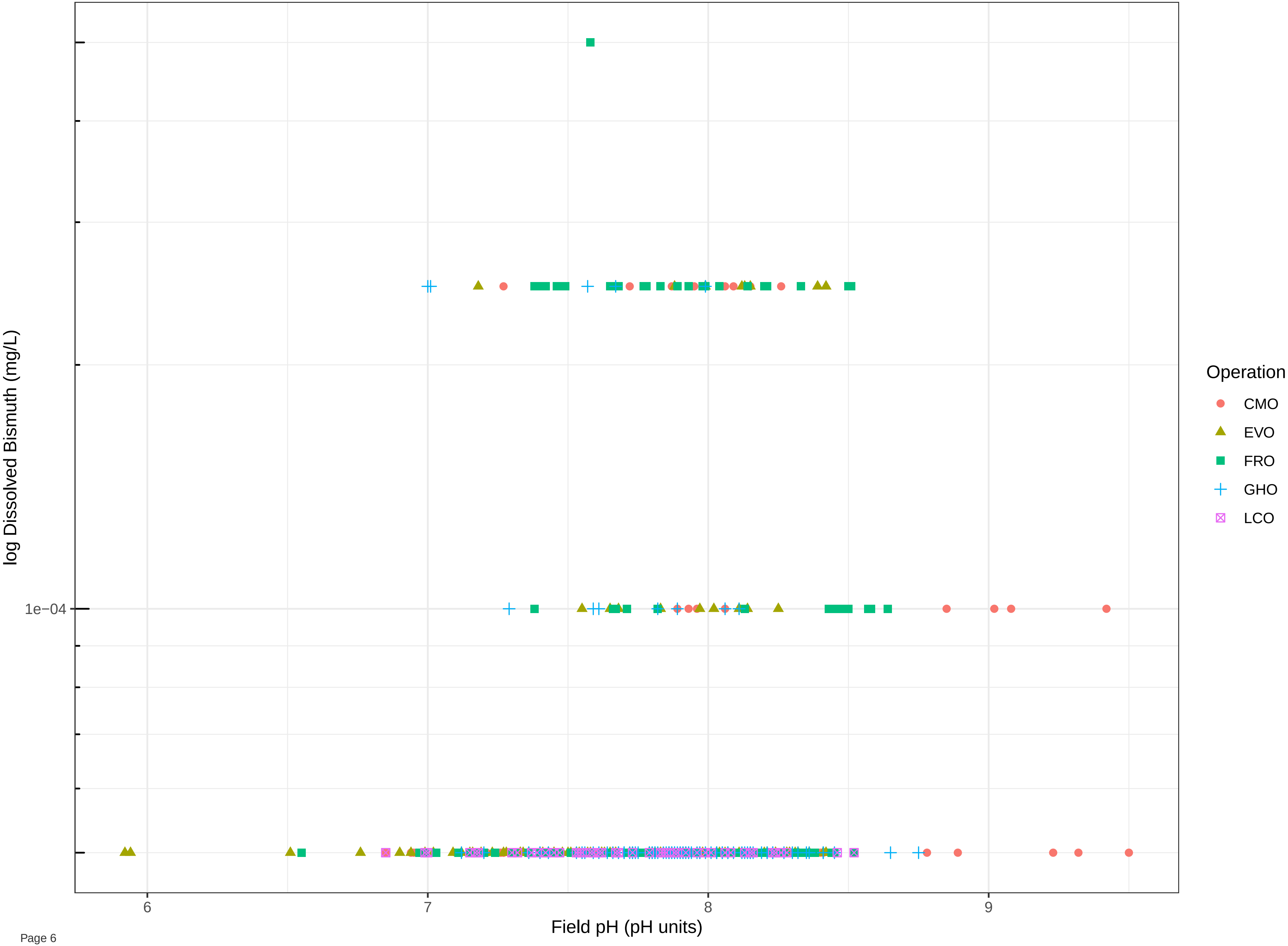

log Dissolved Aluminum (mg/L)
0.1
0.01
0.001
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO


log Dissolved Antimony (mg/L)
0.001
1e−04
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

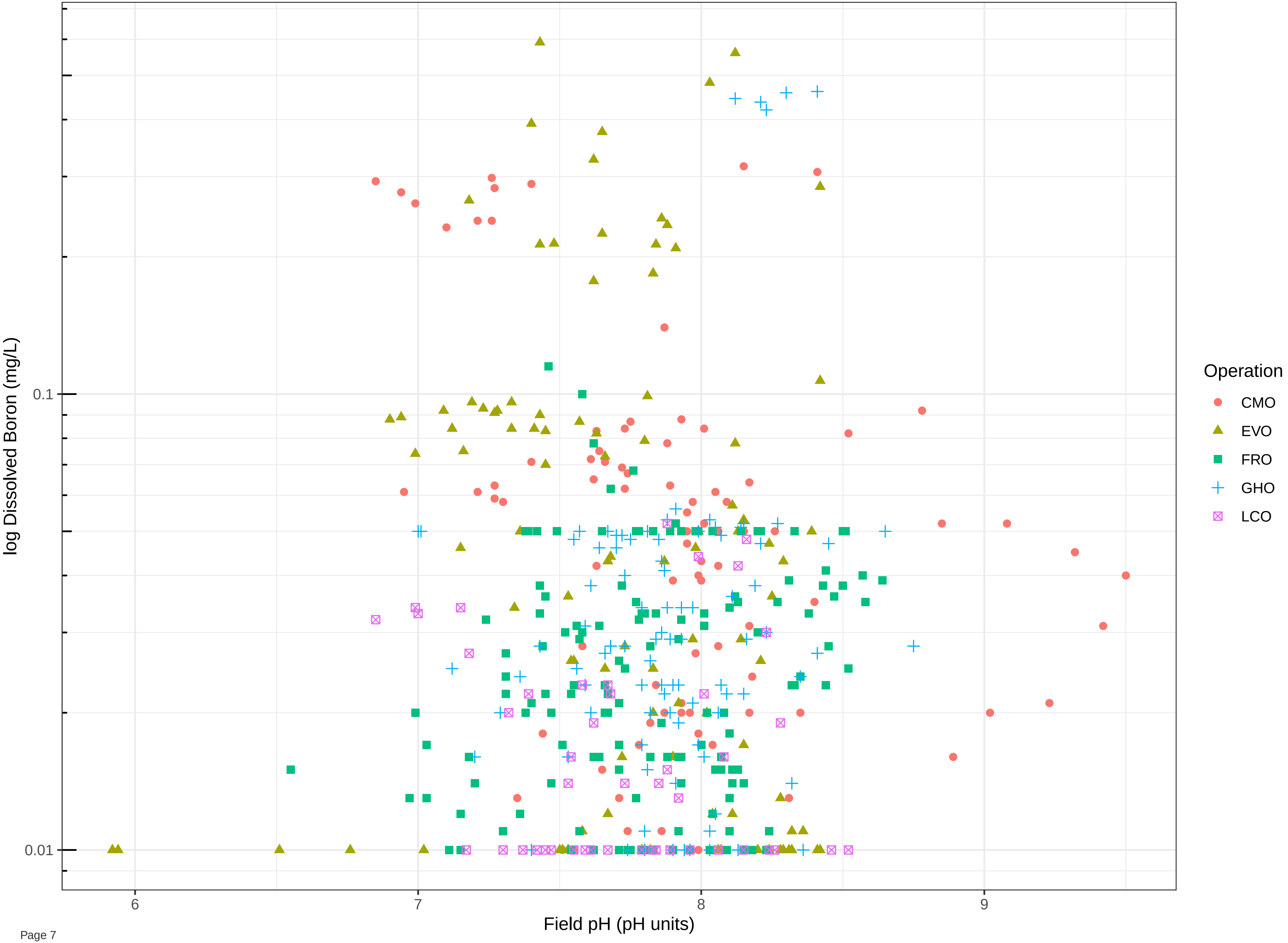

log Dissolved Arsenic (mg/L)
0.001
1e−04
6
7
8
9
Field pH (pH units)
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO

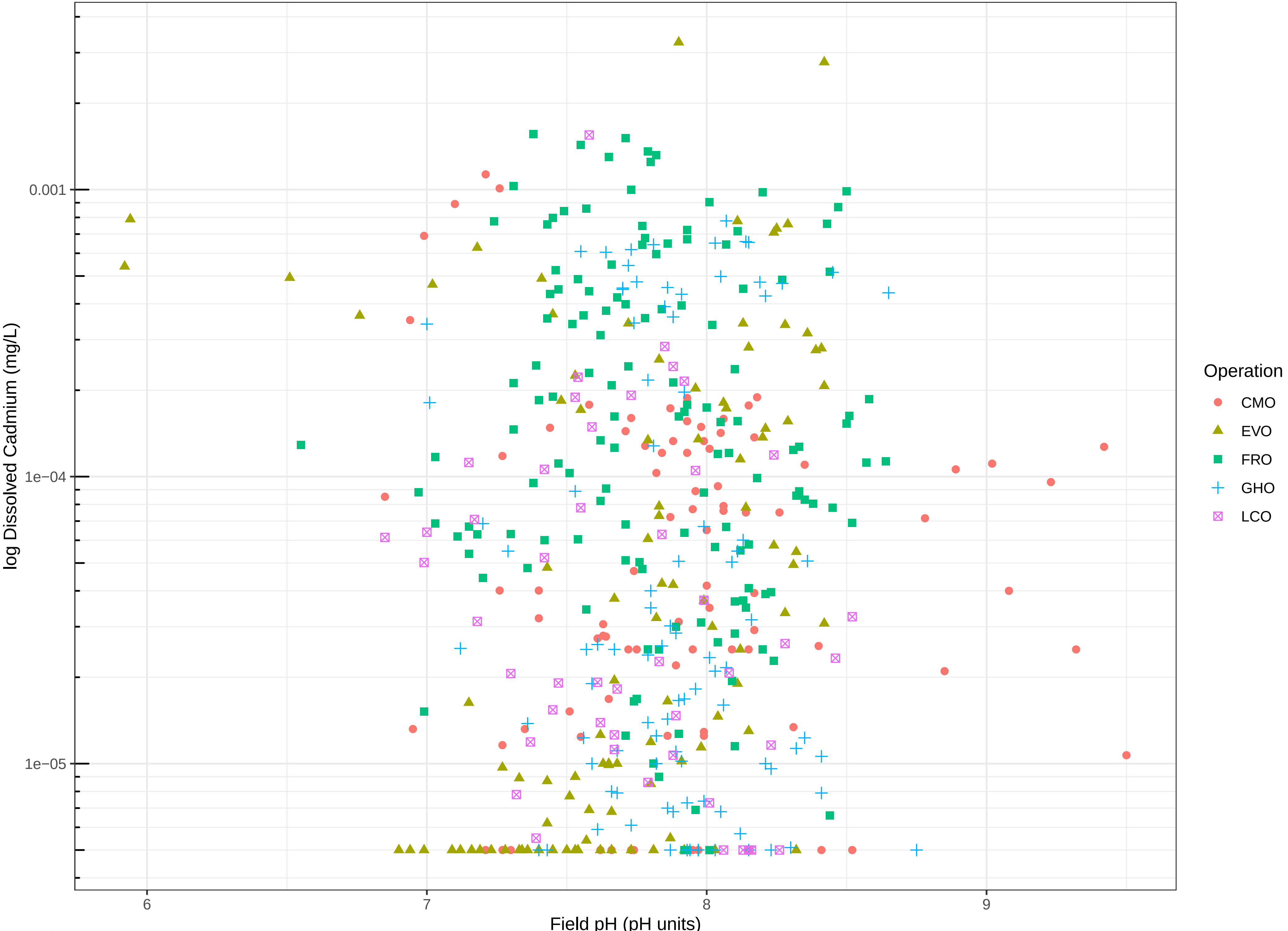

log Dissolved Barium (mg/L)
1
0.1
0.01
6
7
8
9
Field pH (pH units)
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO

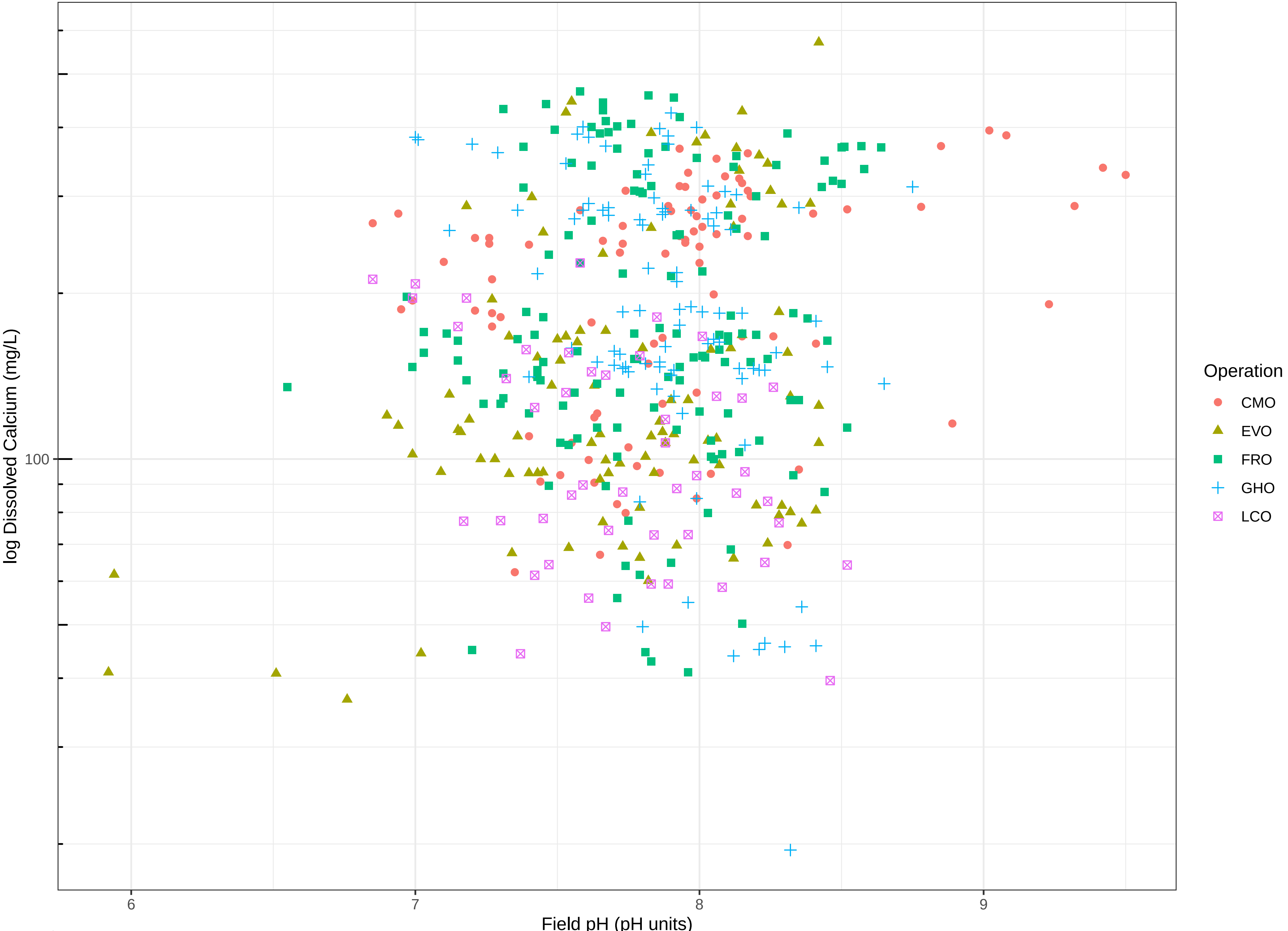

1e−04
log Dissolved Beryllium (mg/L)
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

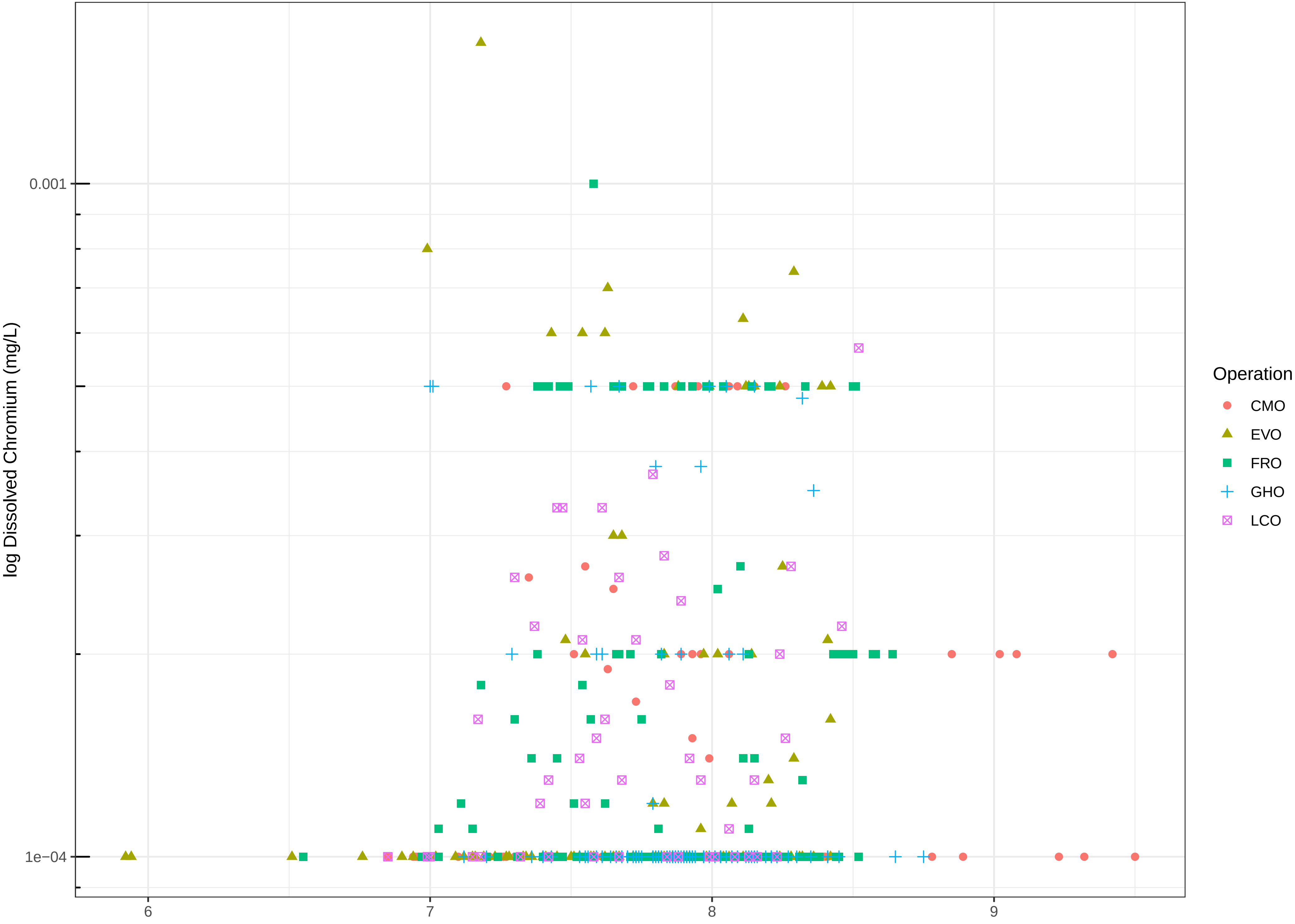


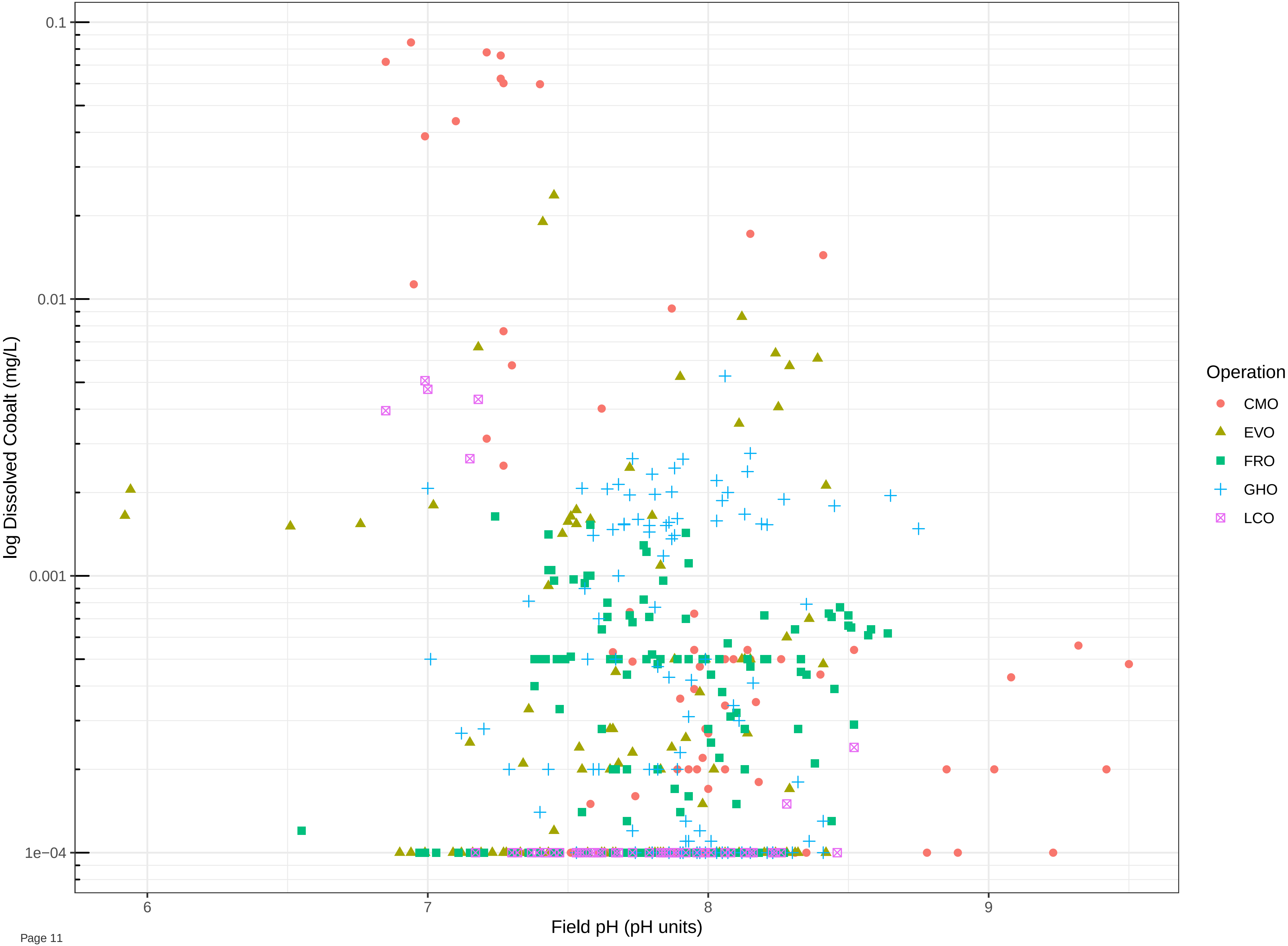
log Dissolved Bismuth (mg/L)
1e−04
6
7
8
9
Field pH (pH units)
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO


log Dissolved Boron (mg/L)
0.1
0.01
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

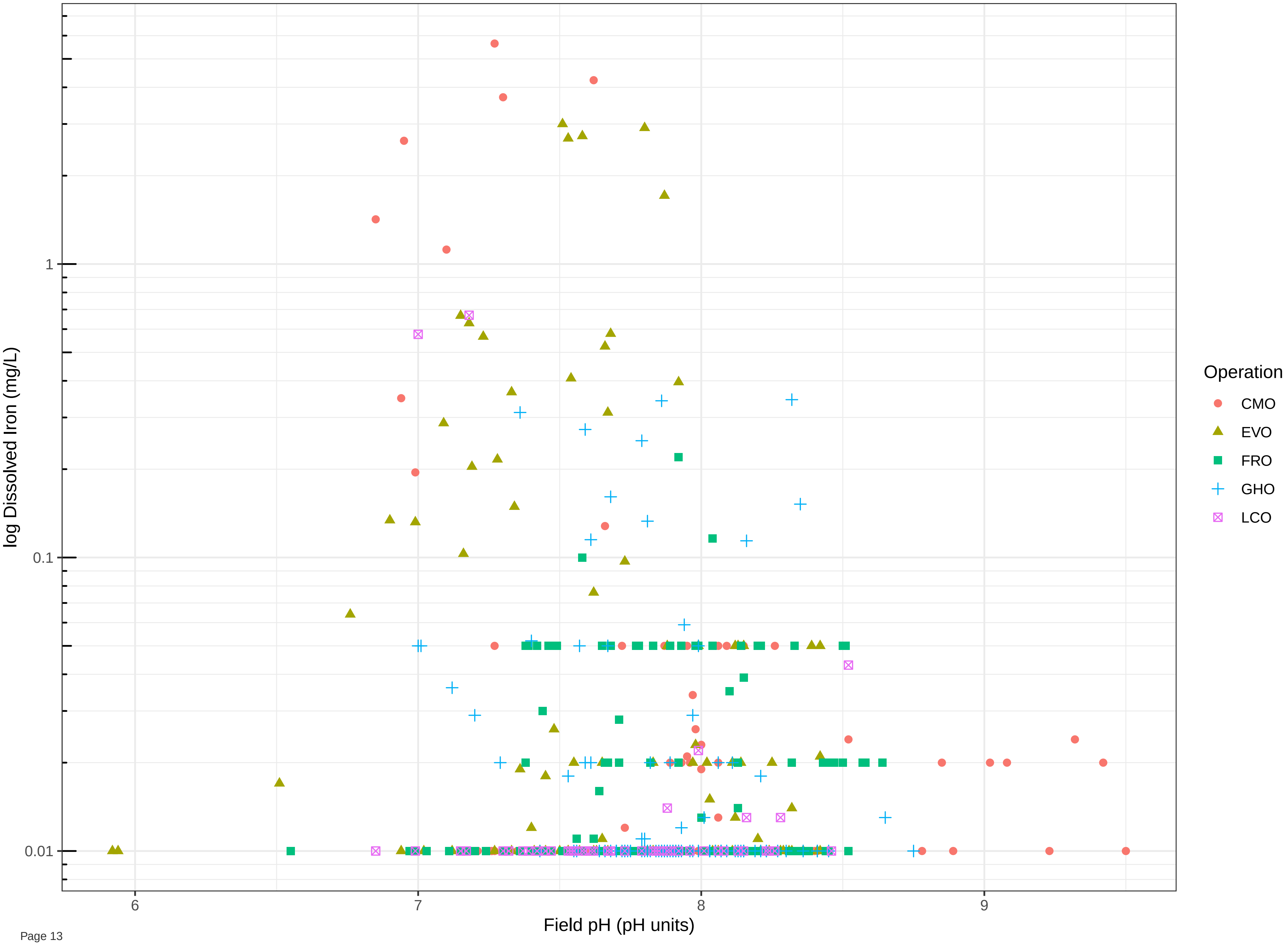

log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

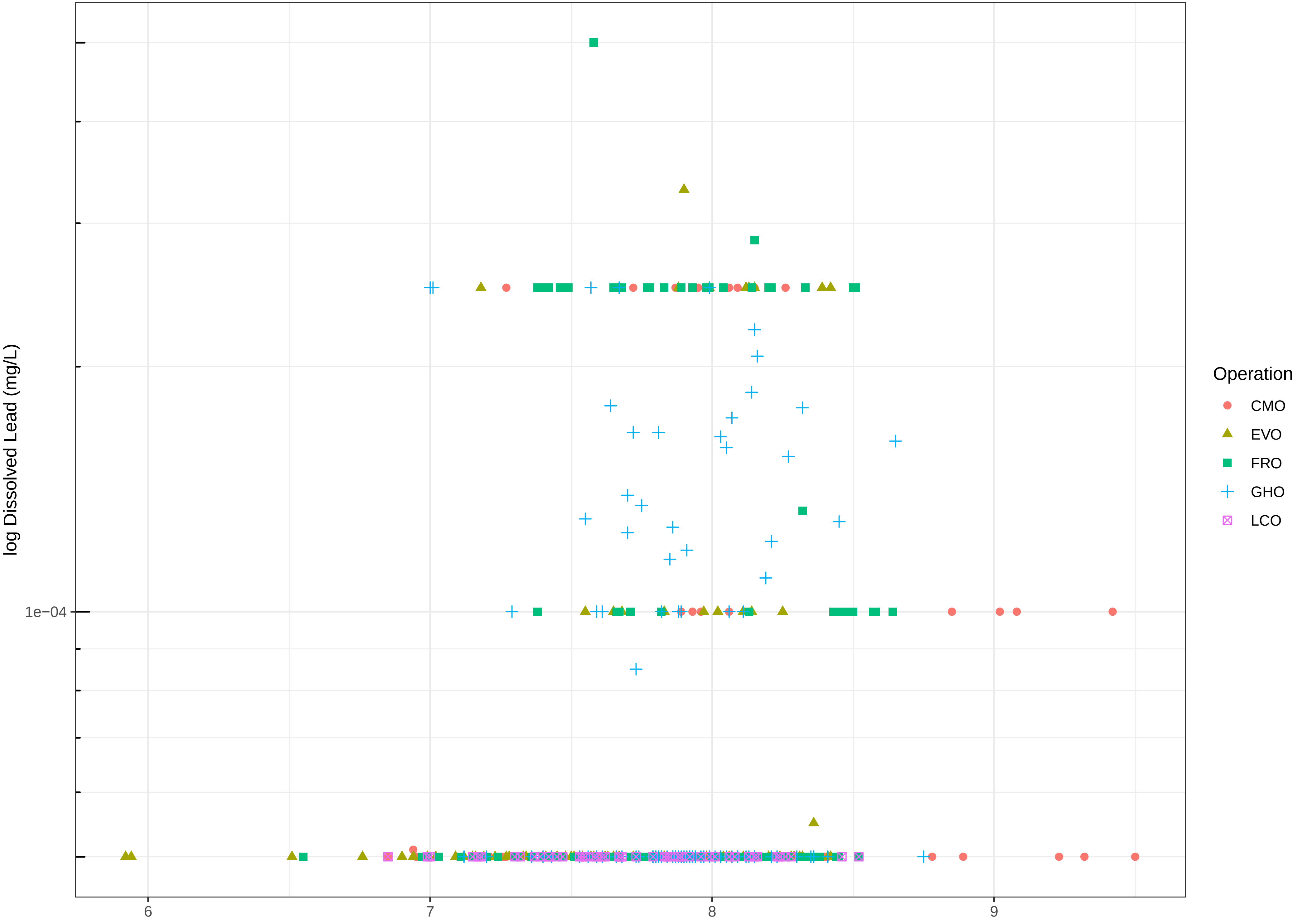

log Dissolved Calcium (mg/L)
100
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

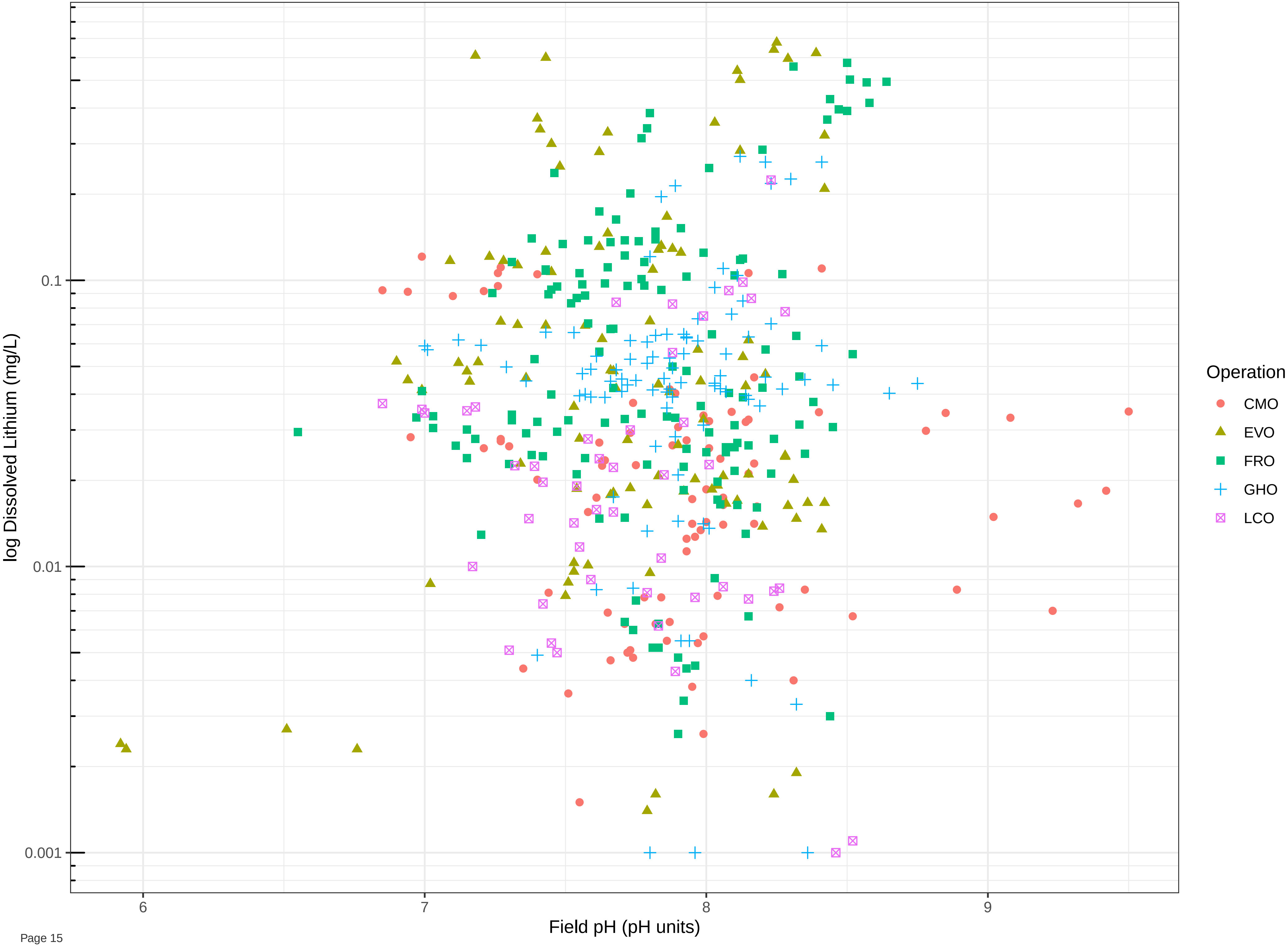

0.001
1e−04
log Dissolved Chromium (mg/L)
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

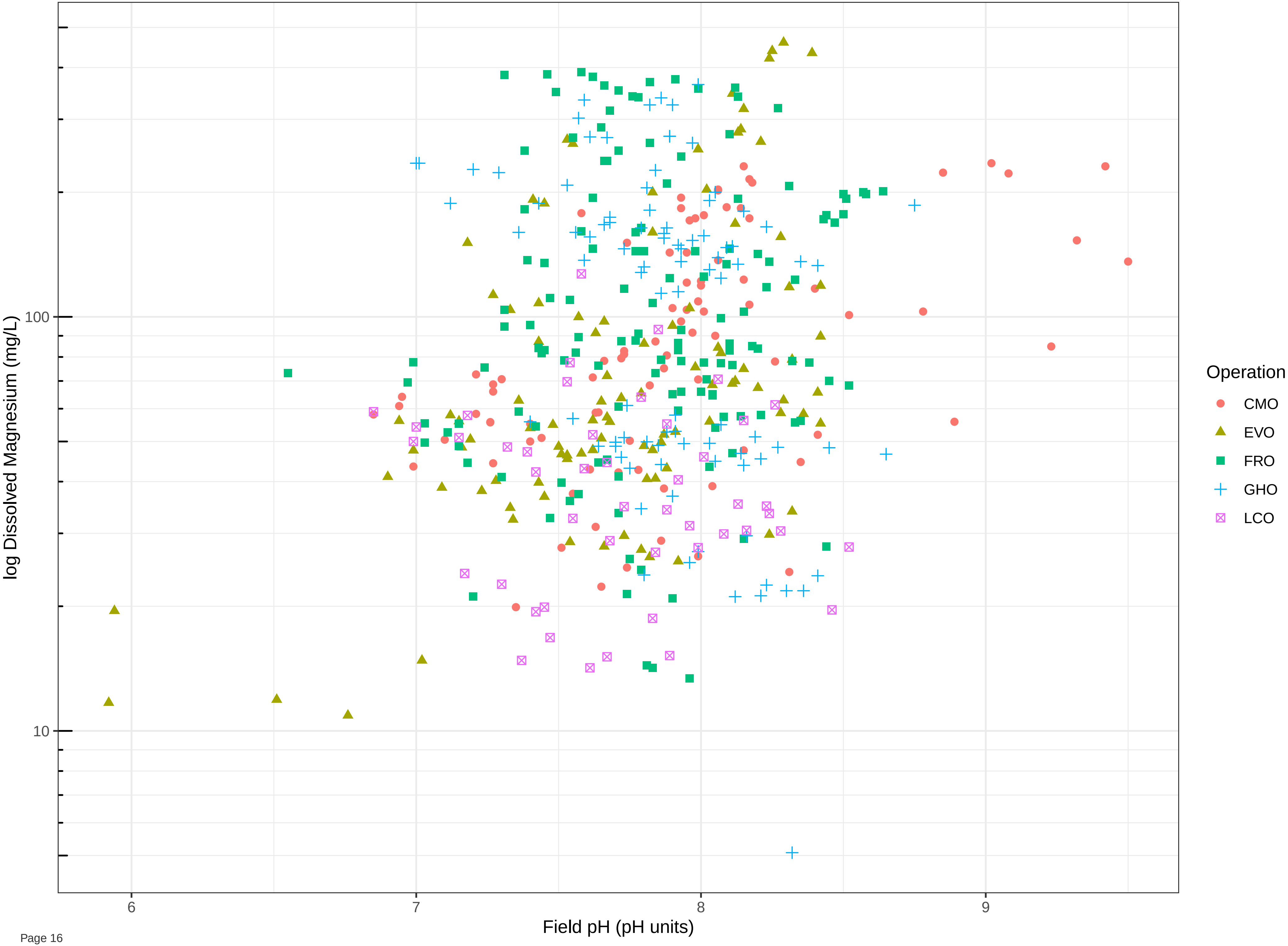

0.1
0.01
0.001
1e−04
log Dissolved Cobalt (mg/L)
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

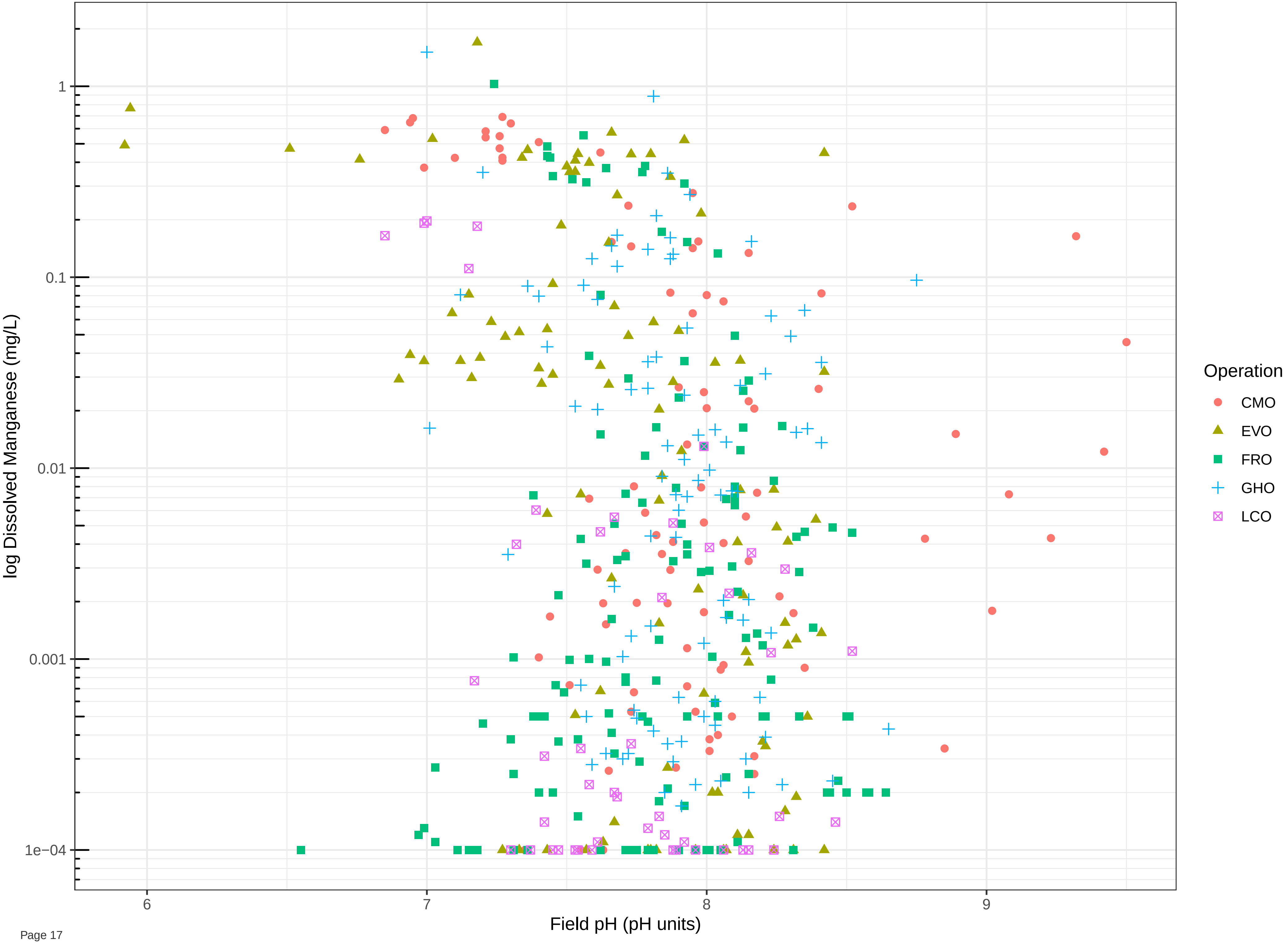

log Dissolved Copper (mg/L)
0.001
6
7
8
9
Field pH (pH units)
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO

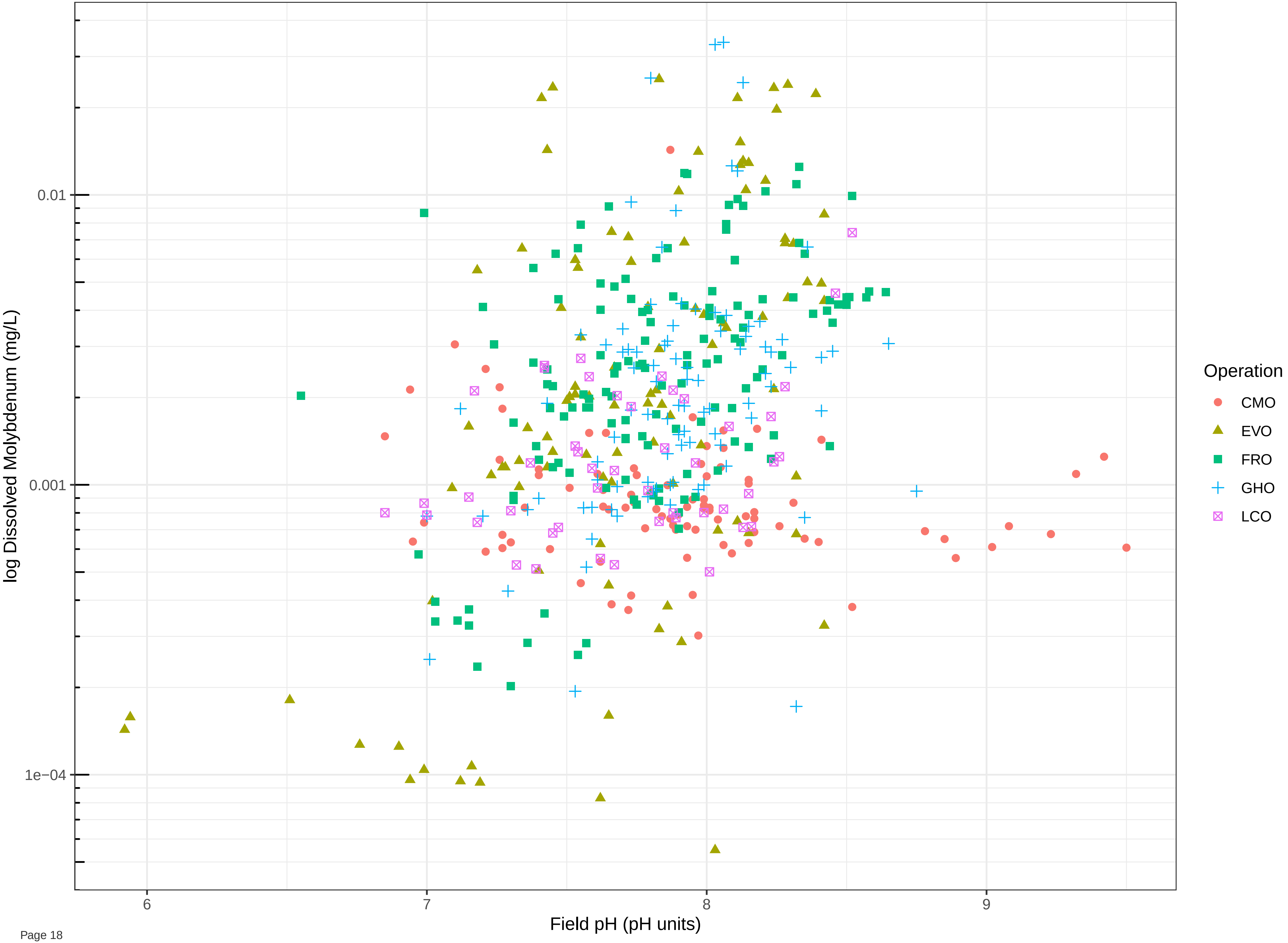

log Dissolved Iron (mg/L)
1
0.1
0.01
6
7
8
9
Field pH (pH units)
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO


log Dissolved Lead (mg/L)
1e−04
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

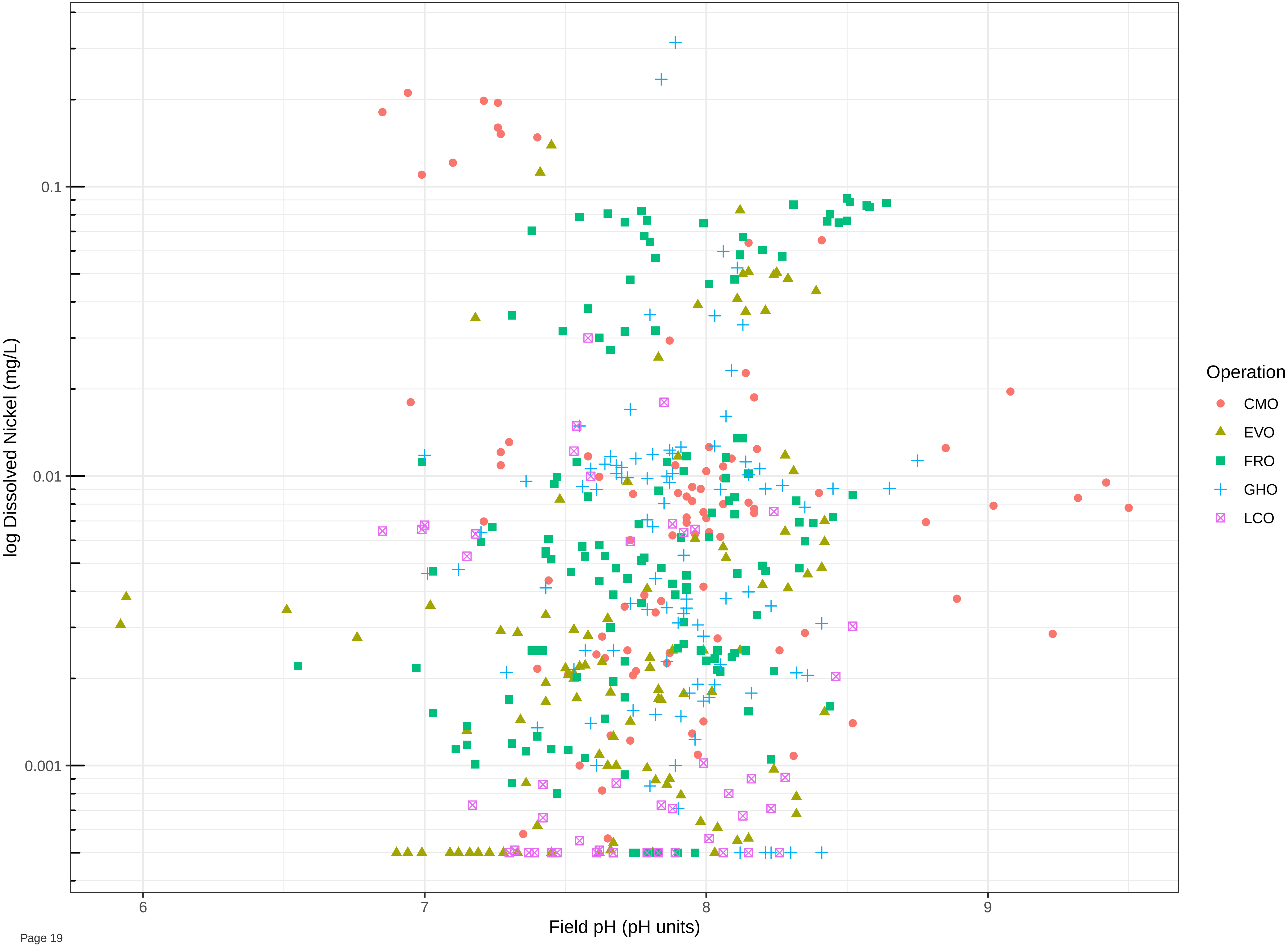

log Dissolved Lithium (mg/L)
0.1
0.01
0.001
Field pH (pH units)
6
7
8
9
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO

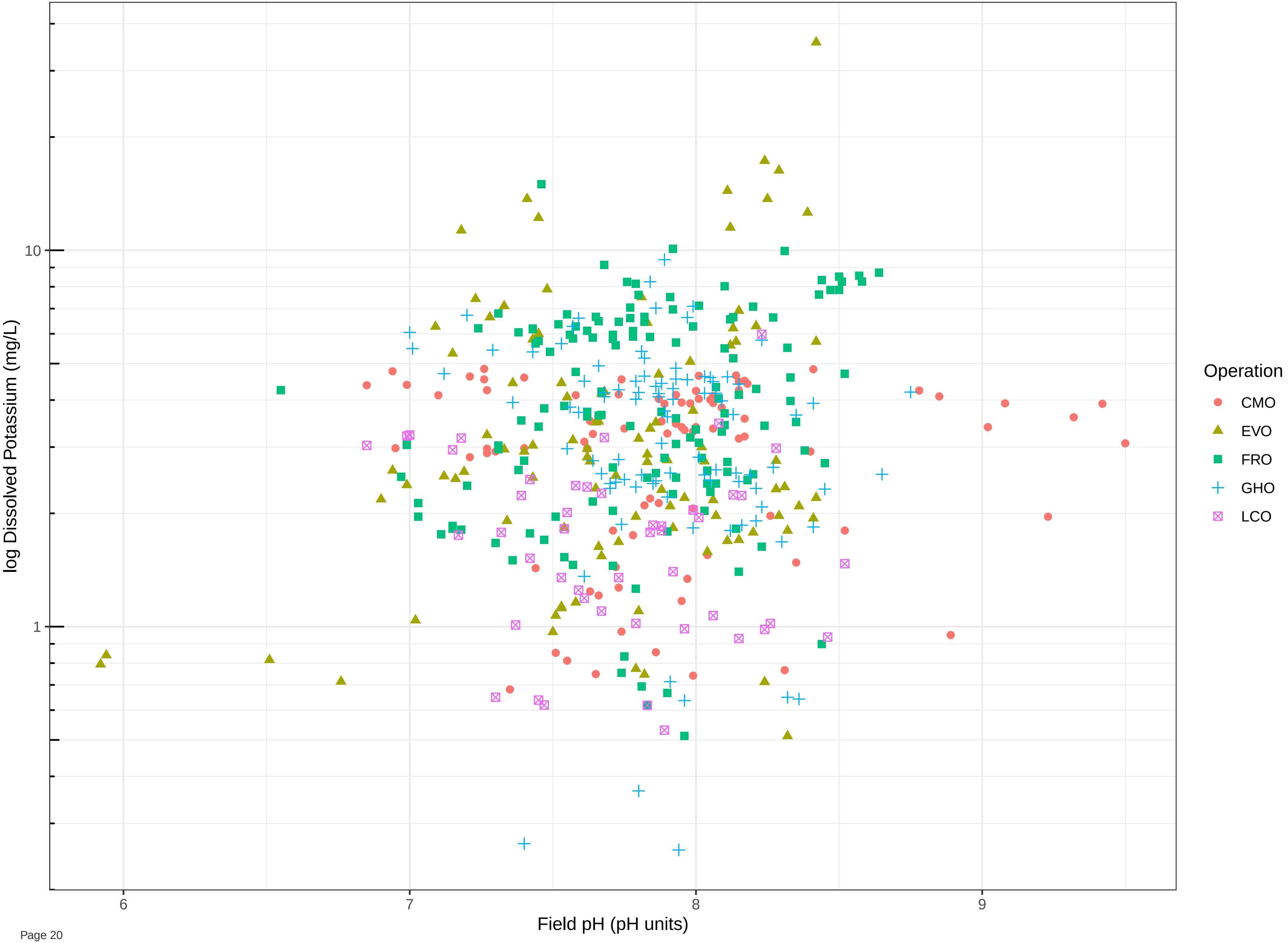

log Dissolved Magnesium (mg/L)
100
10
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

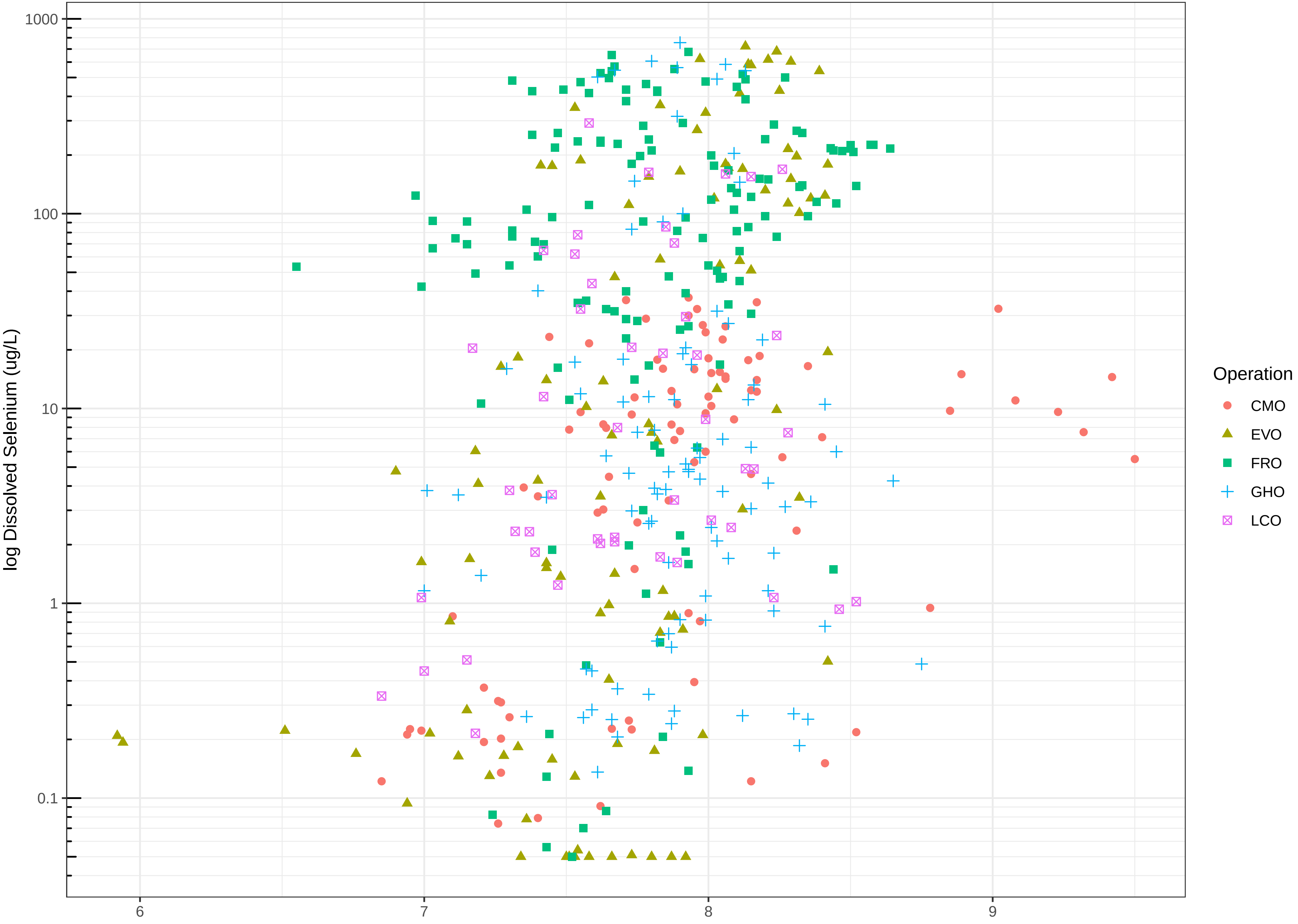

log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

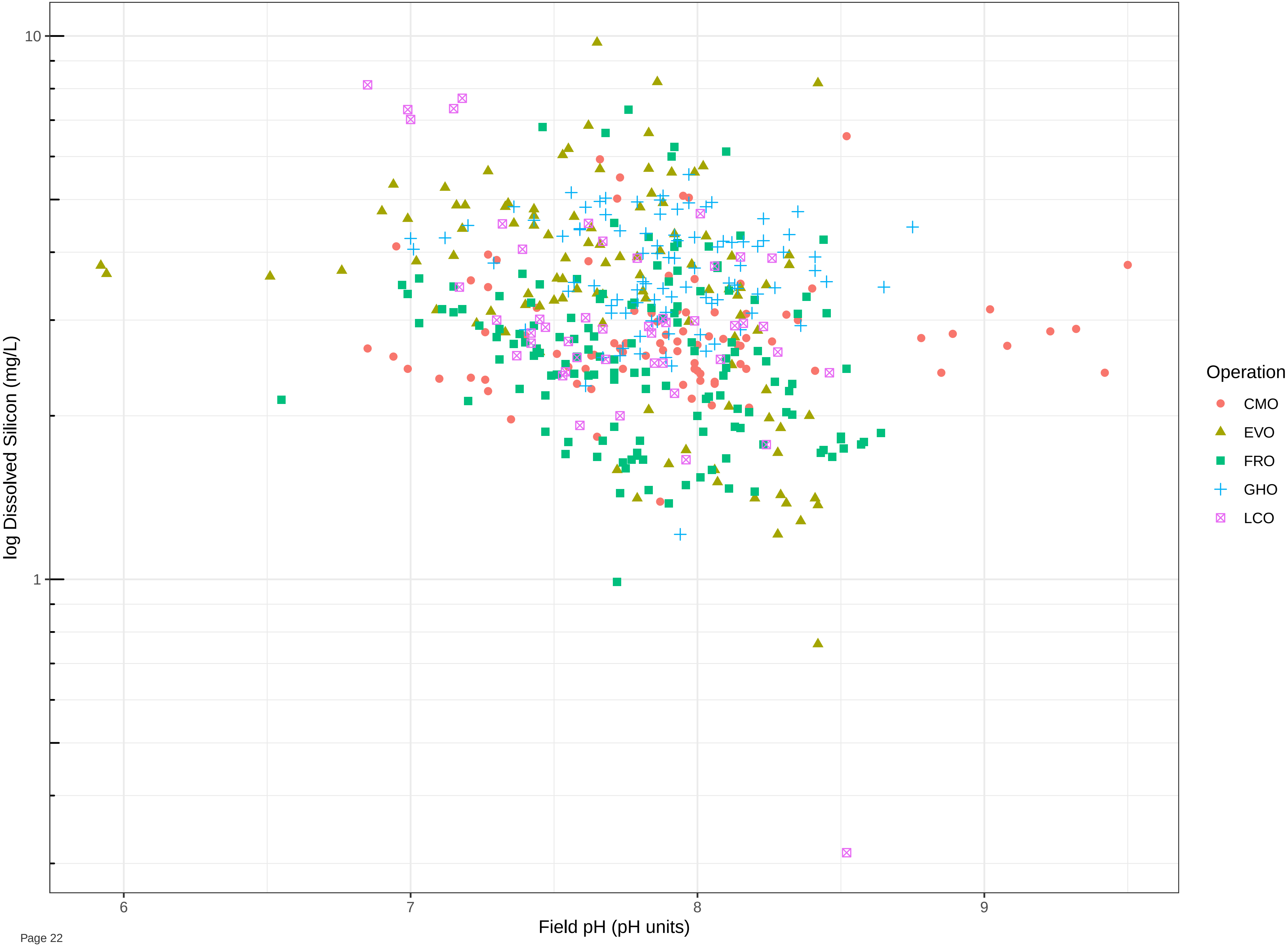


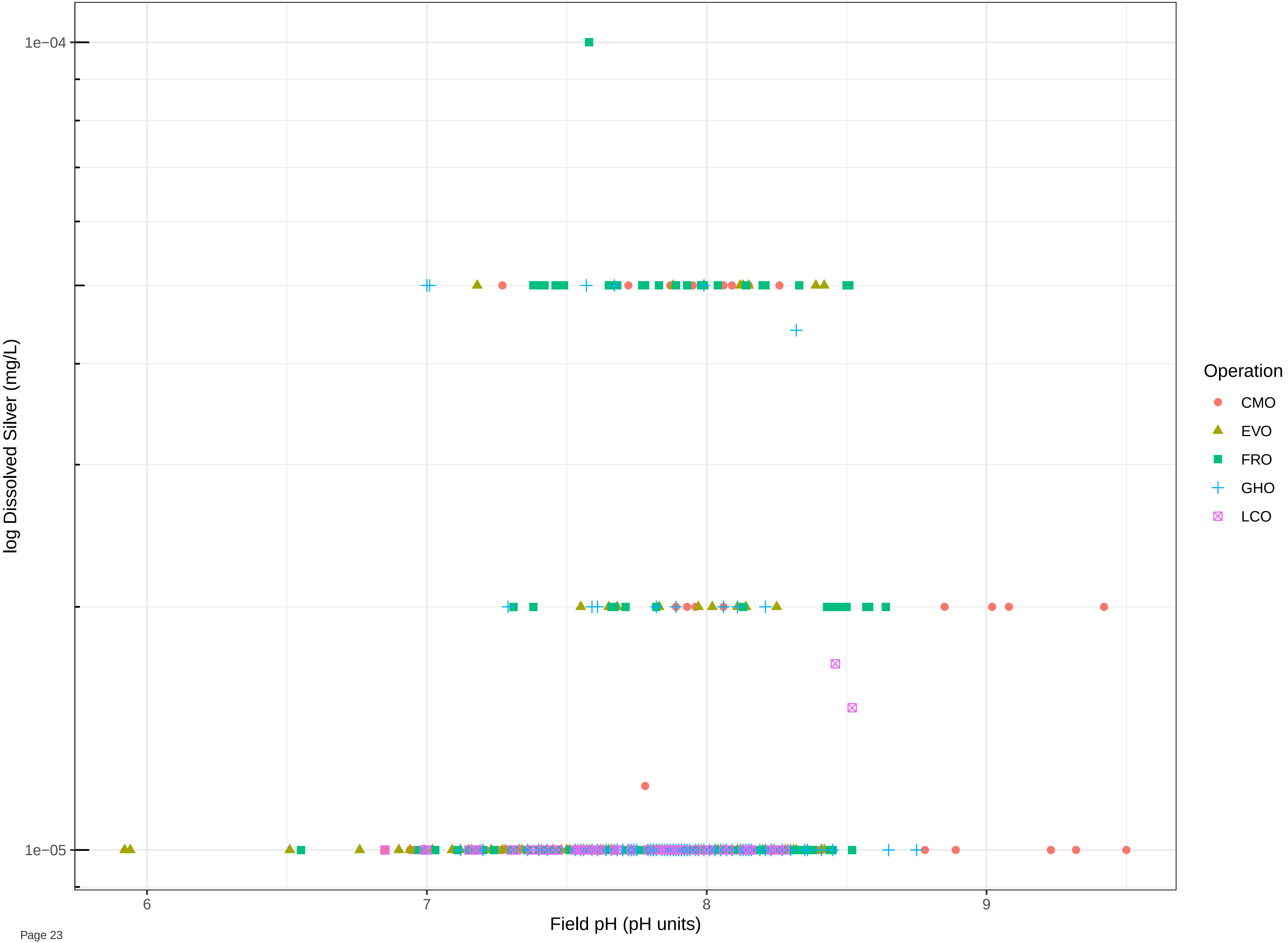
log Dissolved Molybdenum (mg/L)
0.01
0.001
1e−04
6
7
8
9
Field pH (pH units)
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO

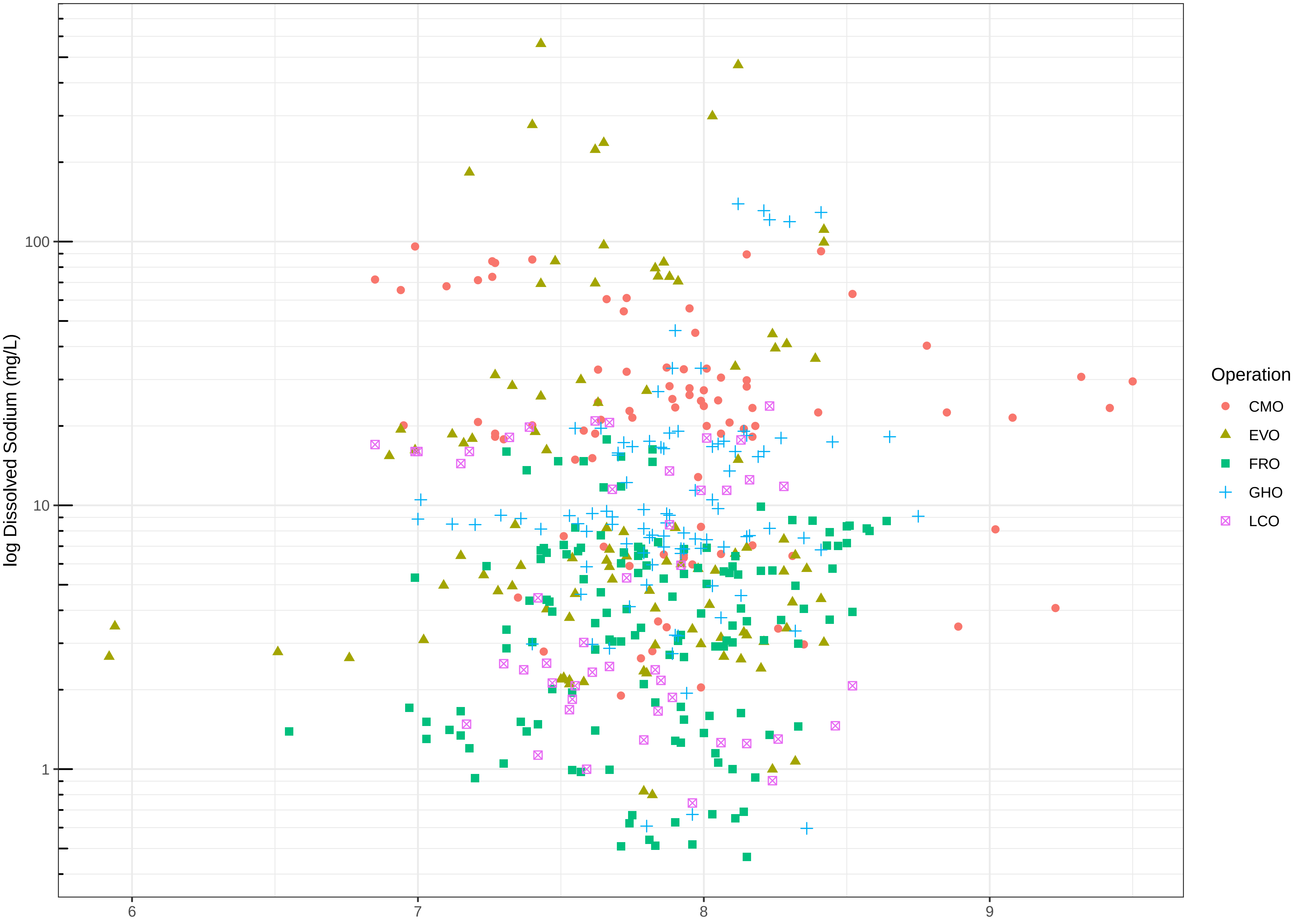

log Dissolved Nickel (mg/L)
0.1
0.01
0.001
6
7
8
9
Field pH (pH units)
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO

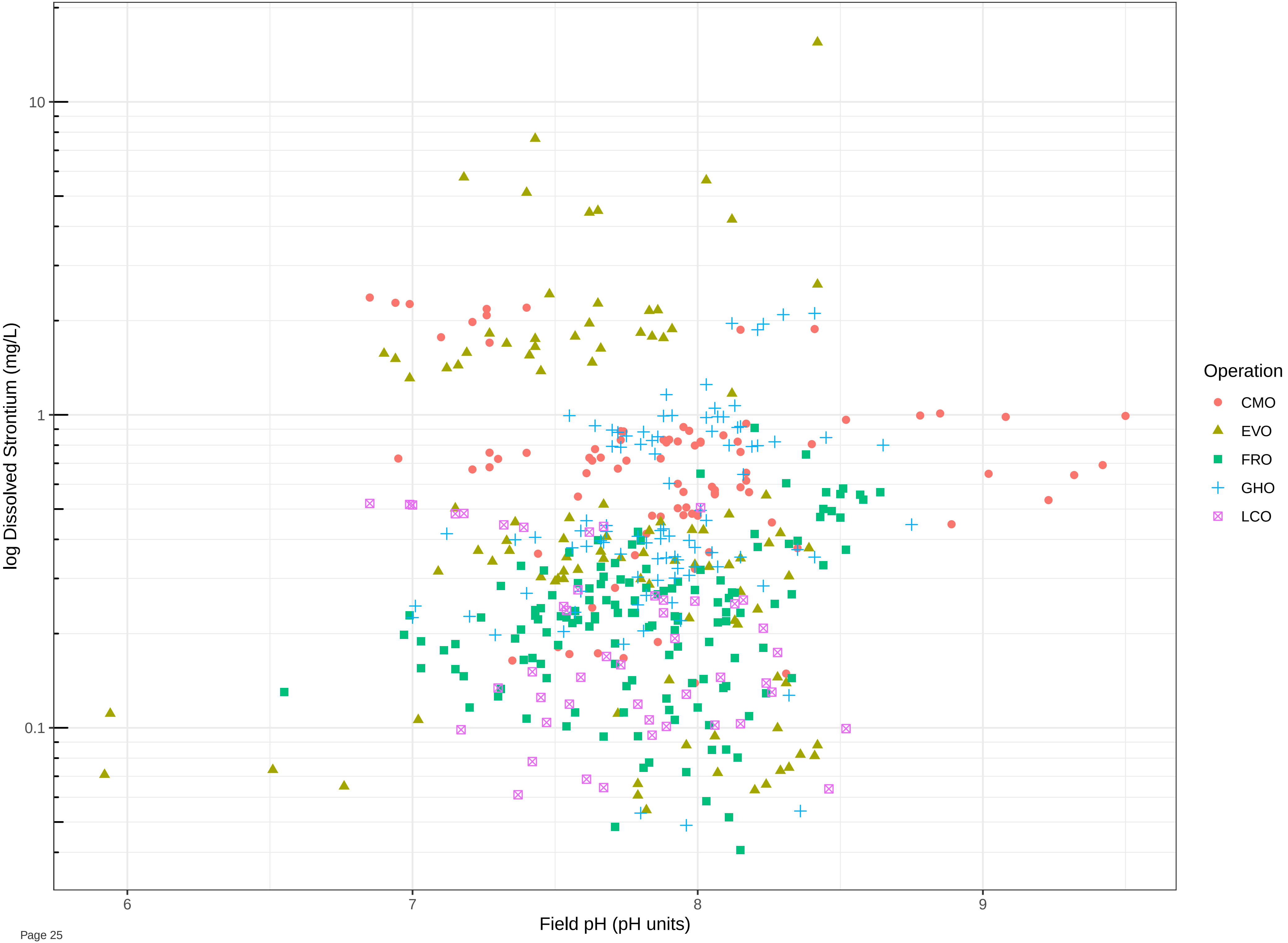

log Dissolved Potassium (mg/L)
10
1
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

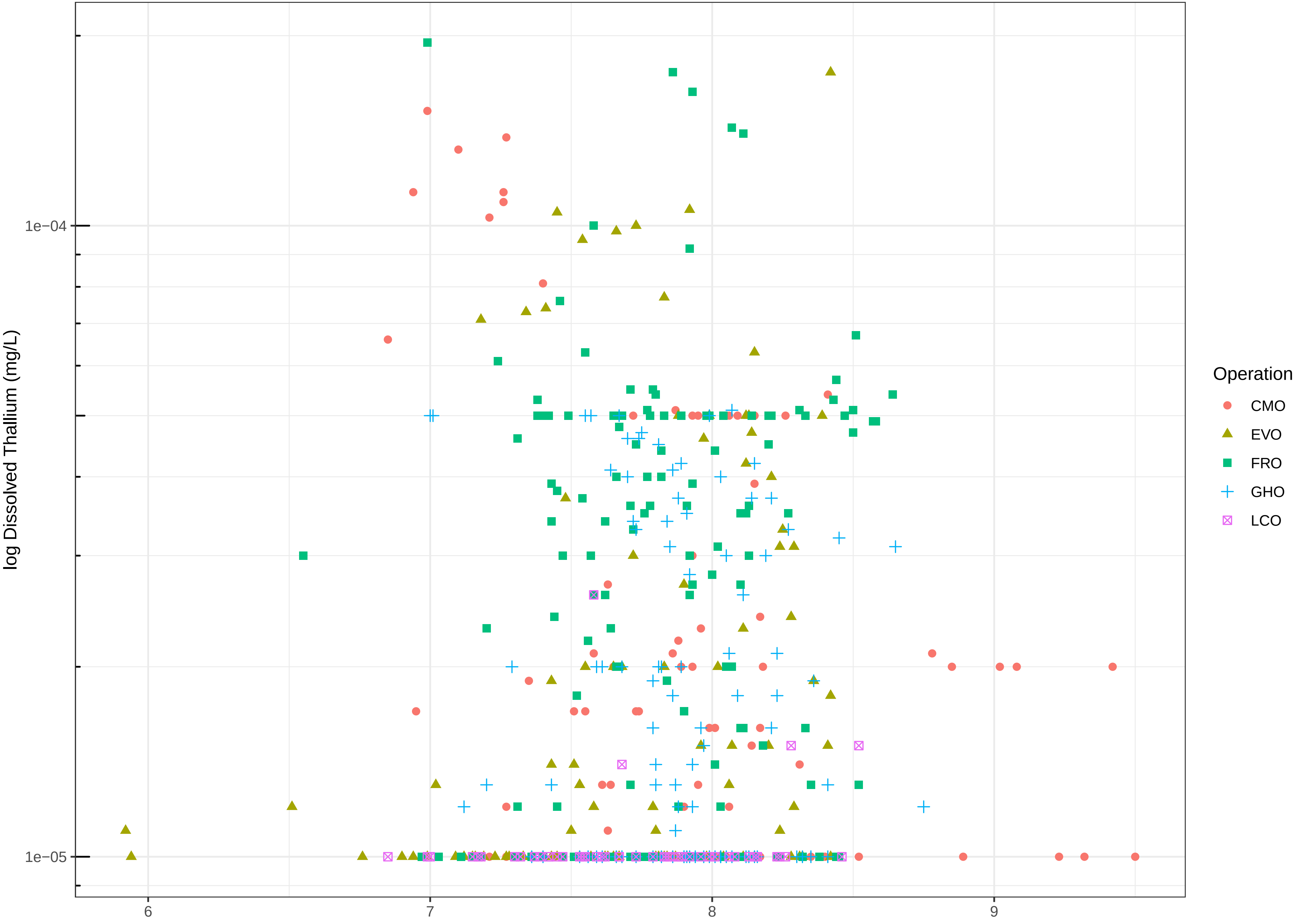

1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

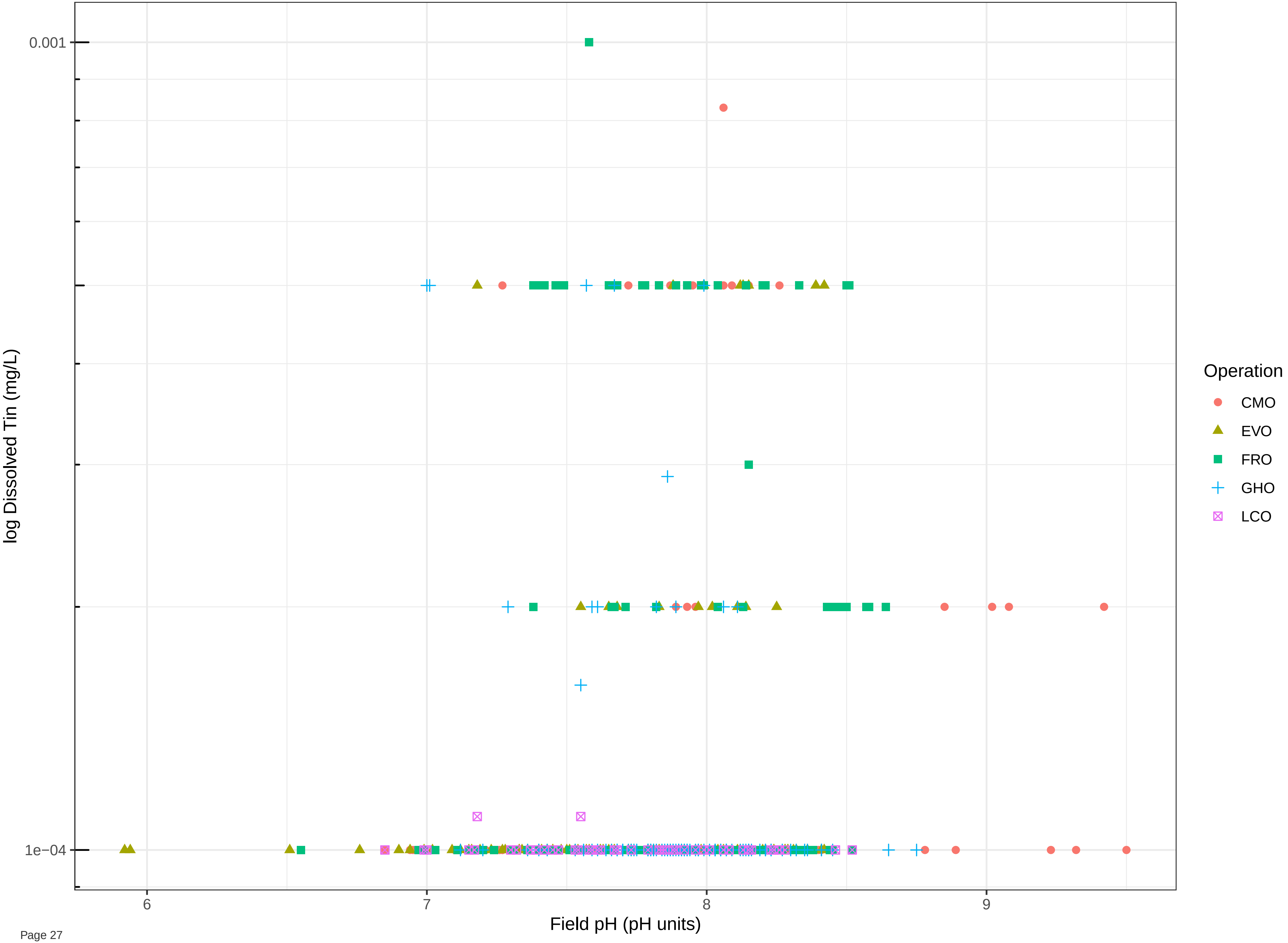

10
1
log Dissolved Silicon (mg/L)
6
7
8
9
Field pH (pH units)
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO

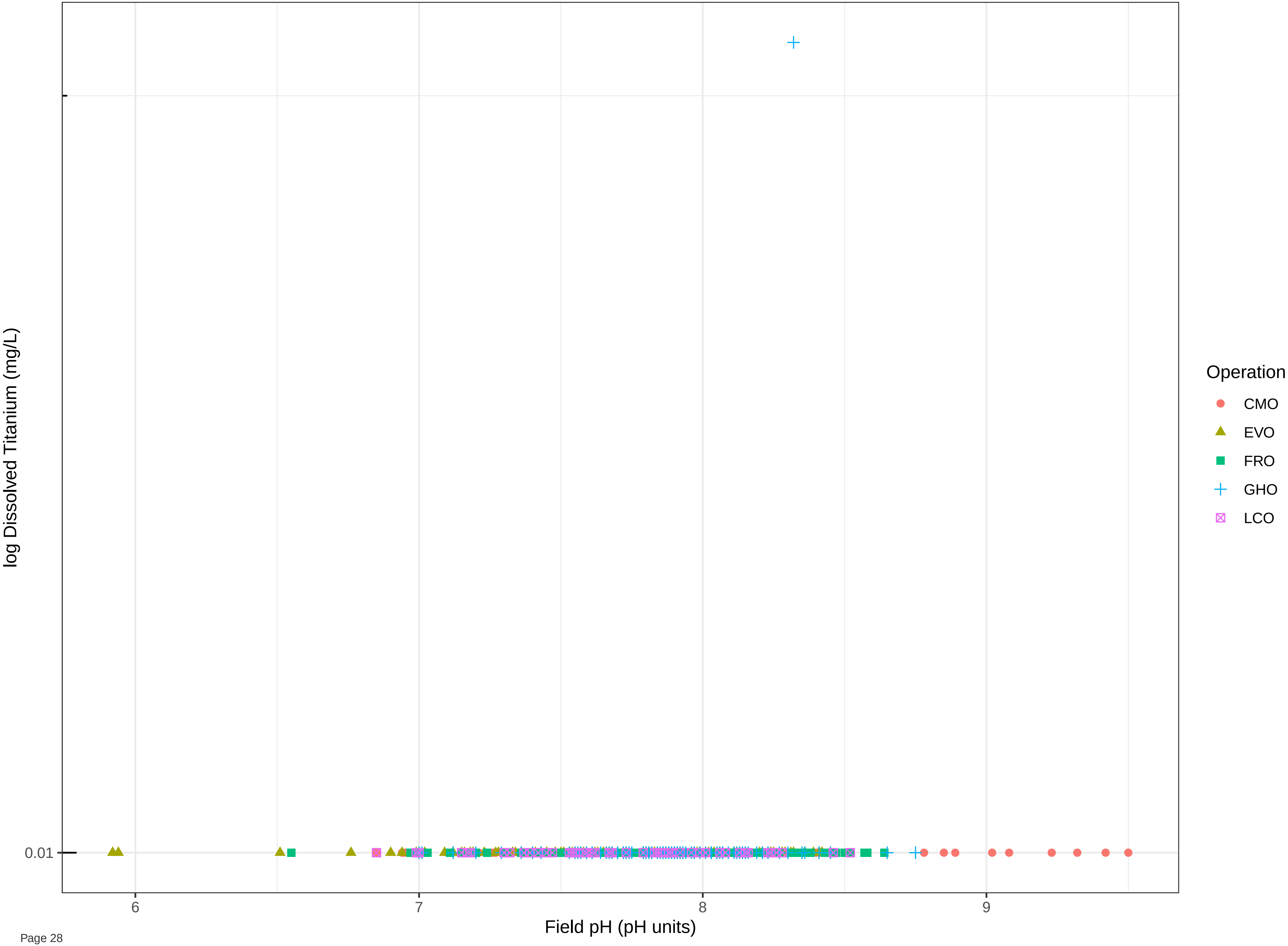

1e−04
1e−05
log Dissolved Silver (mg/L)
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

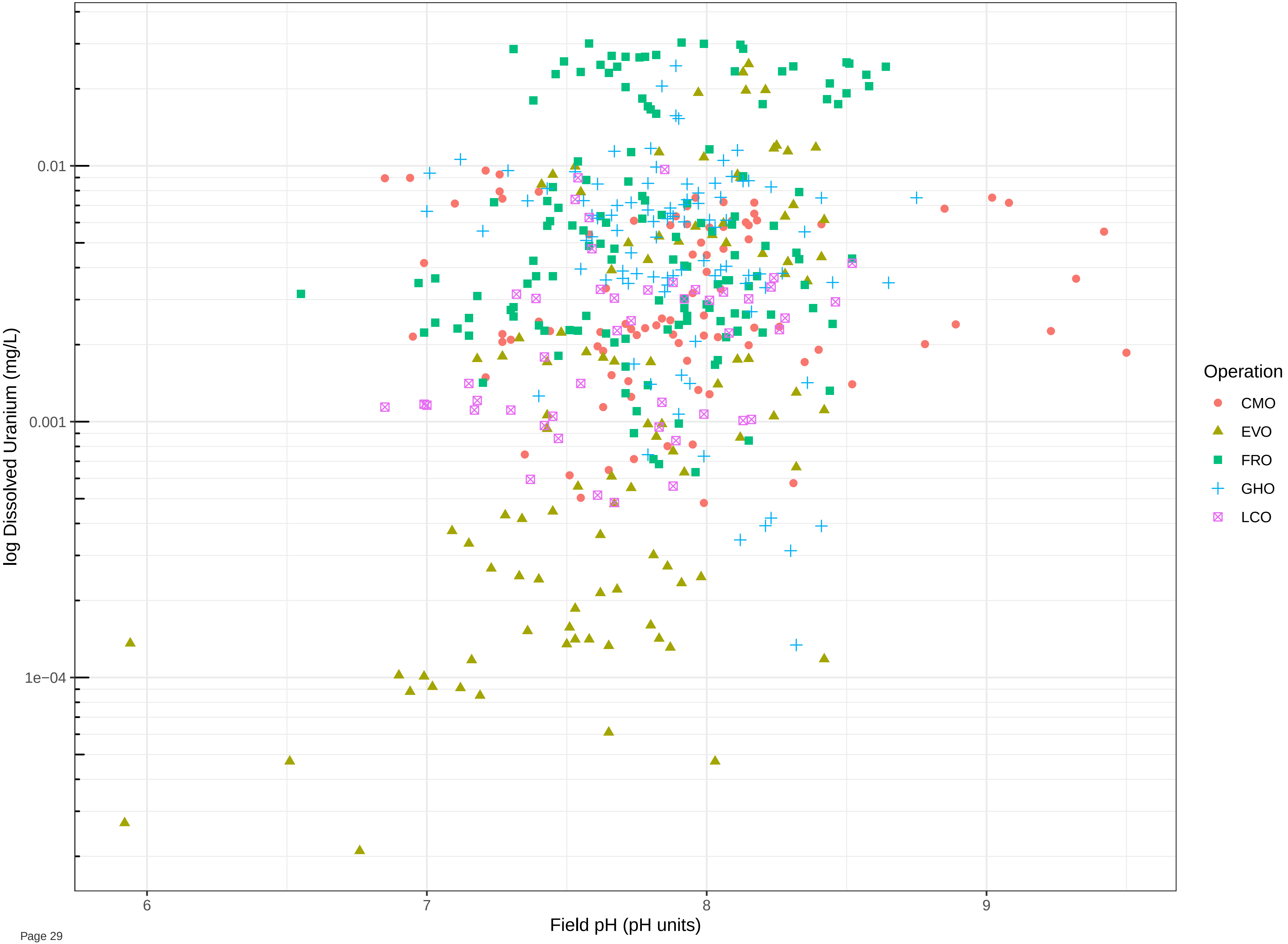

log Dissolved Sodium (mg/L)
100
10
1
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

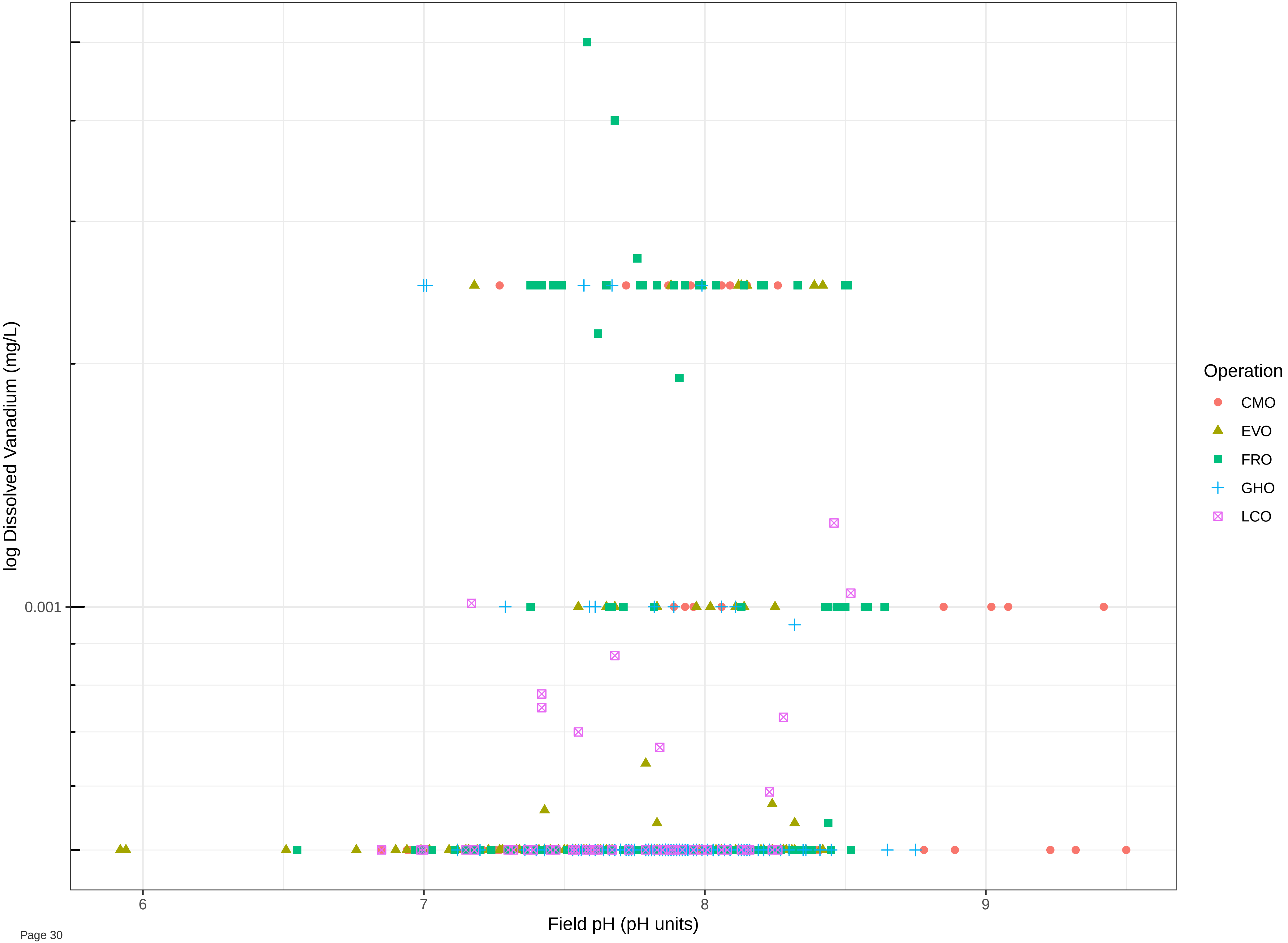

log Dissolved Strontium (mg/L)
10
1
0.1
6
7
8
9
Field pH (pH units)
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO

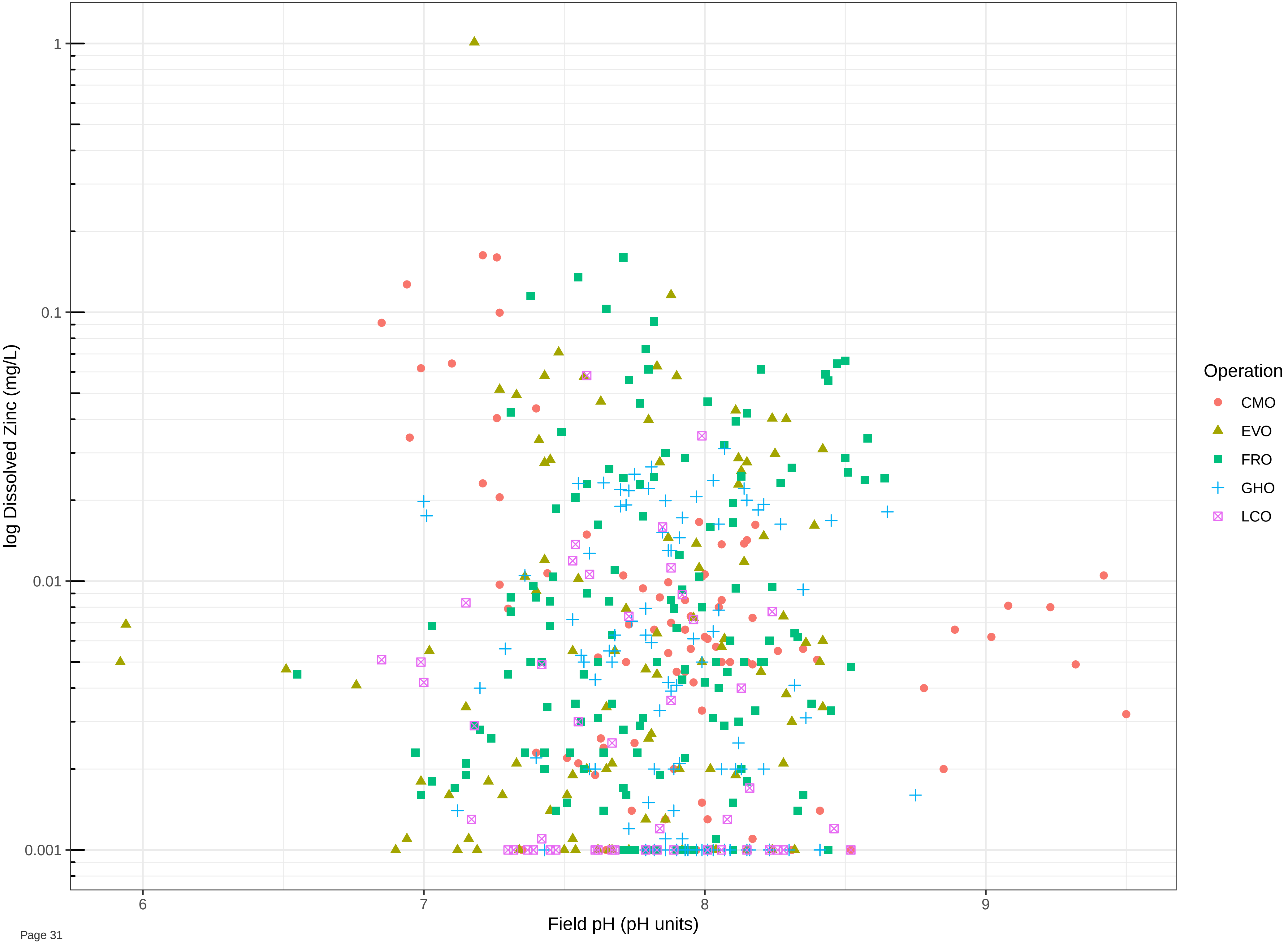

log Dissolved Thallium (mg/L)
1e−04
1e−05
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

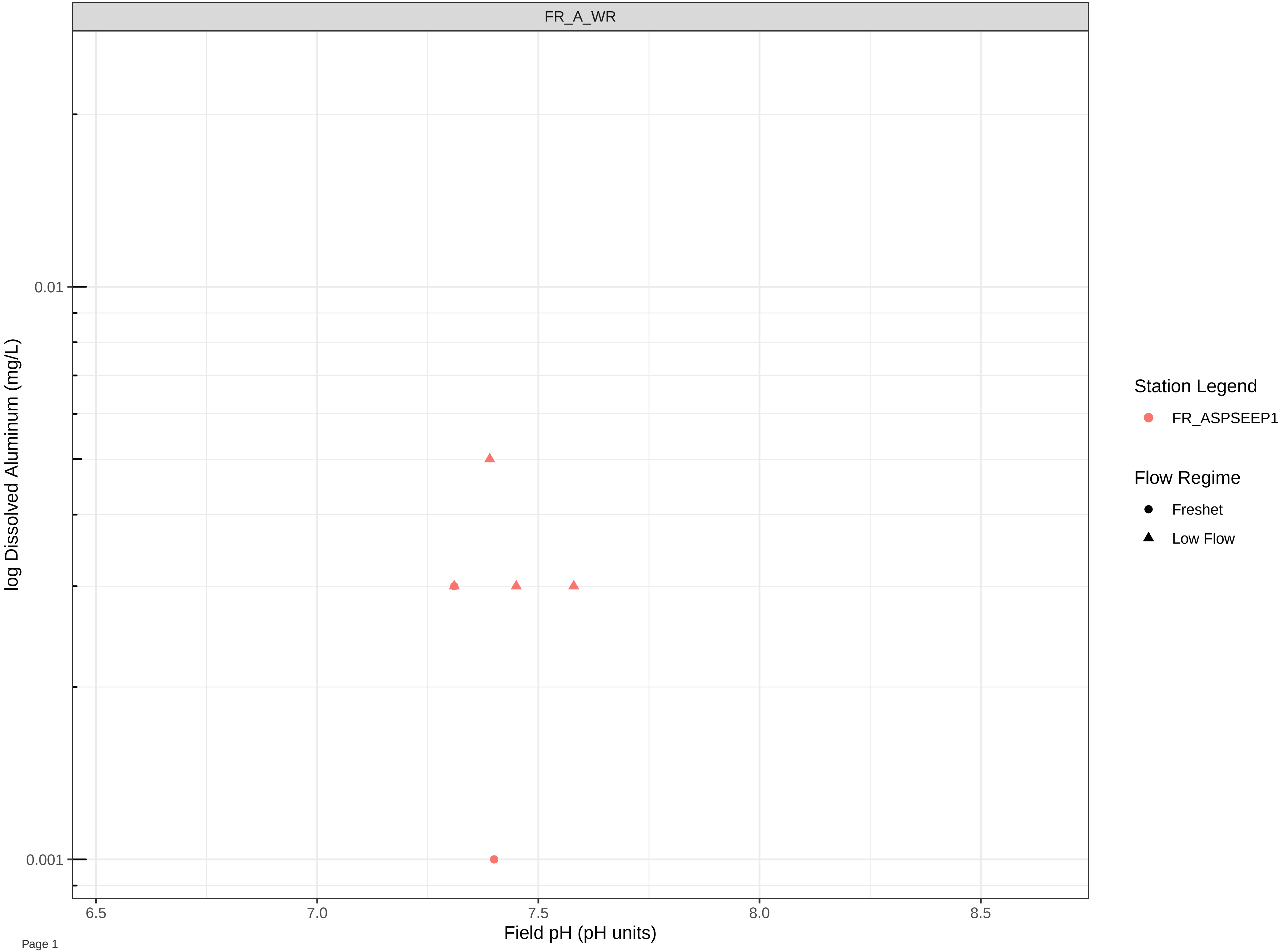

0.001
1e−04
log Dissolved Tin (mg/L)
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

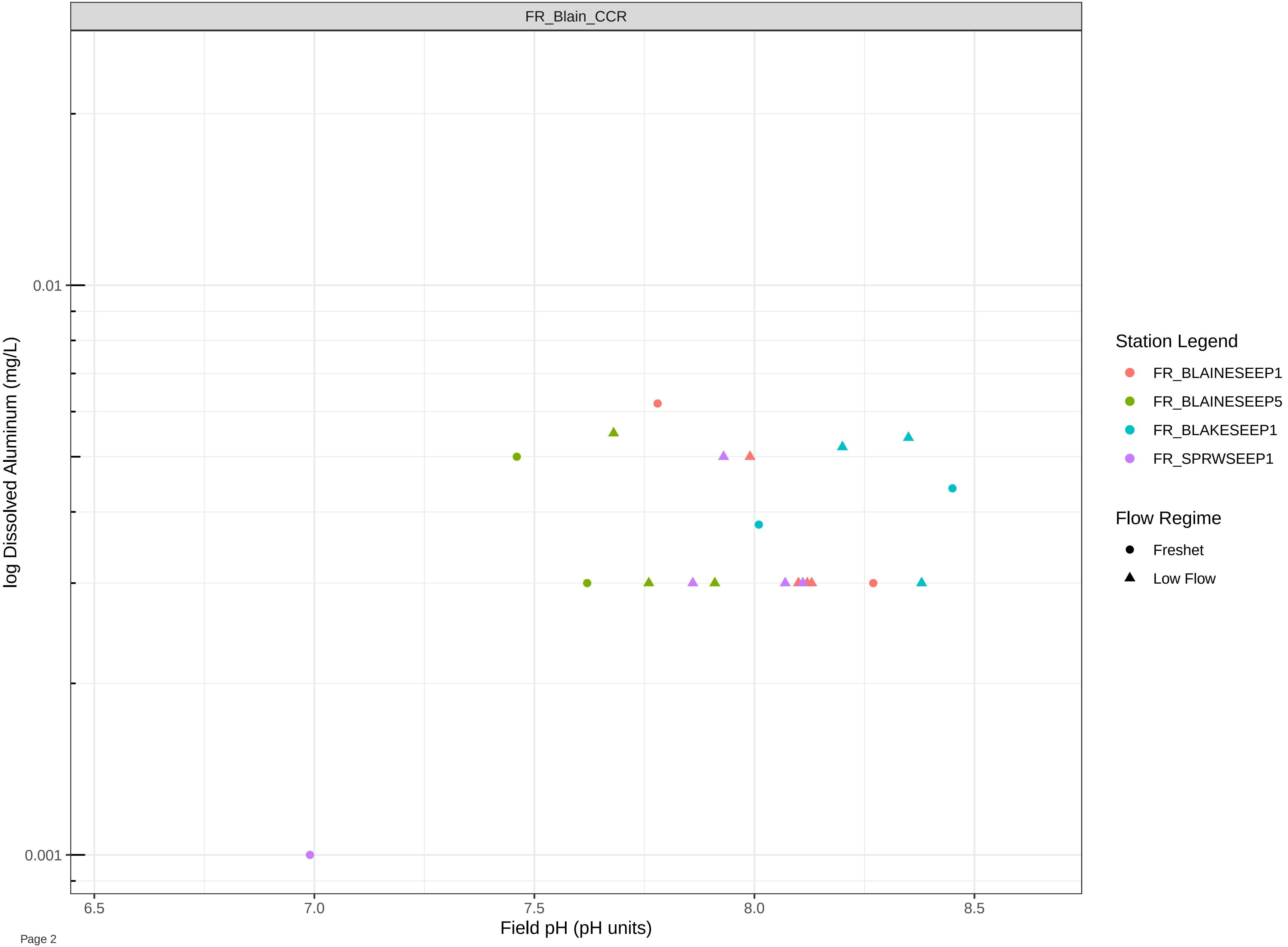

log Dissolved Titanium (mg/L)
0.01
6
7
8
9
Field pH (pH units)
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO

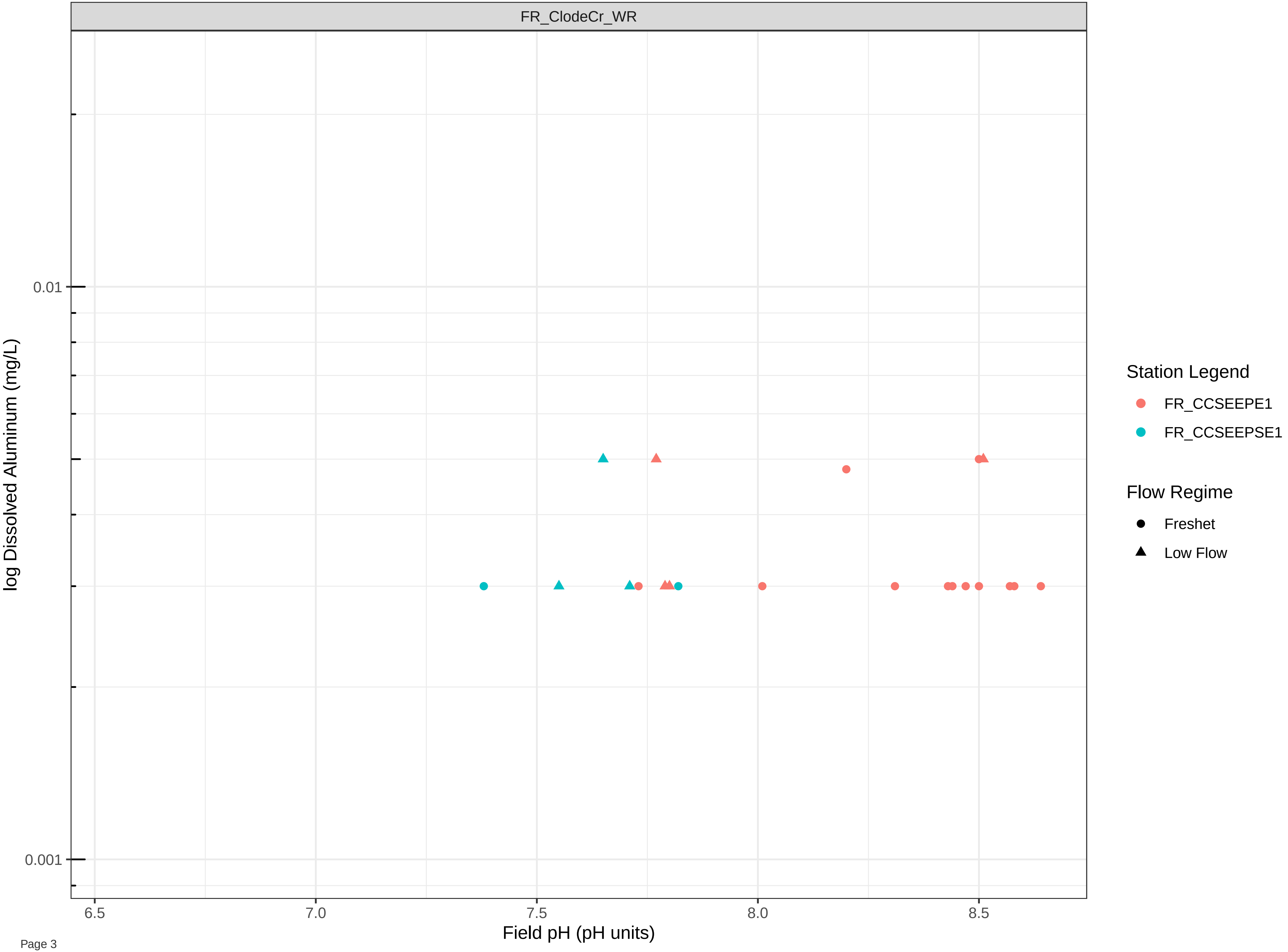

log Dissolved Uranium (mg/L)
0.01
0.001
1e−04
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

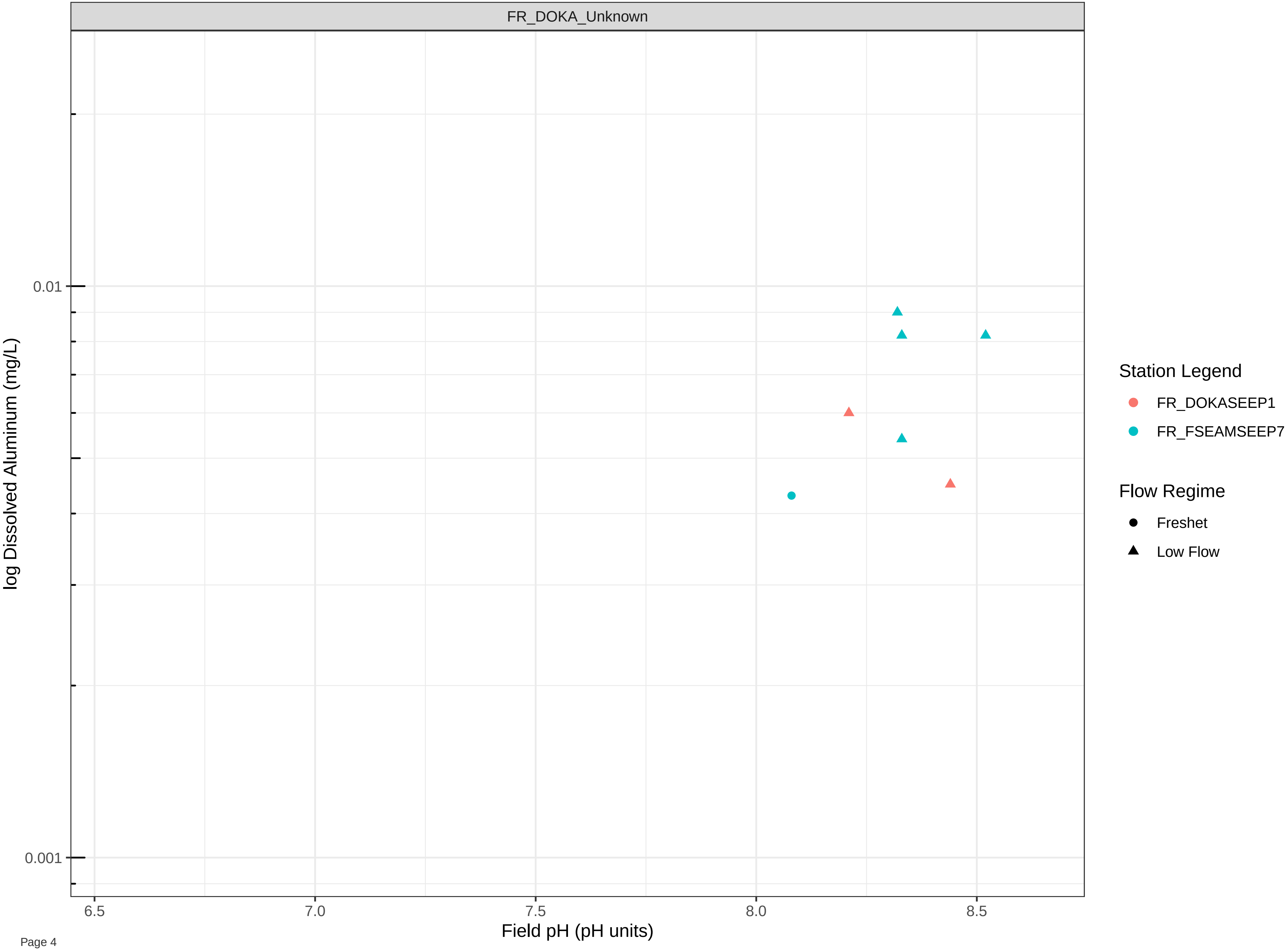

log Dissolved Vanadium (mg/L)
0.001
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

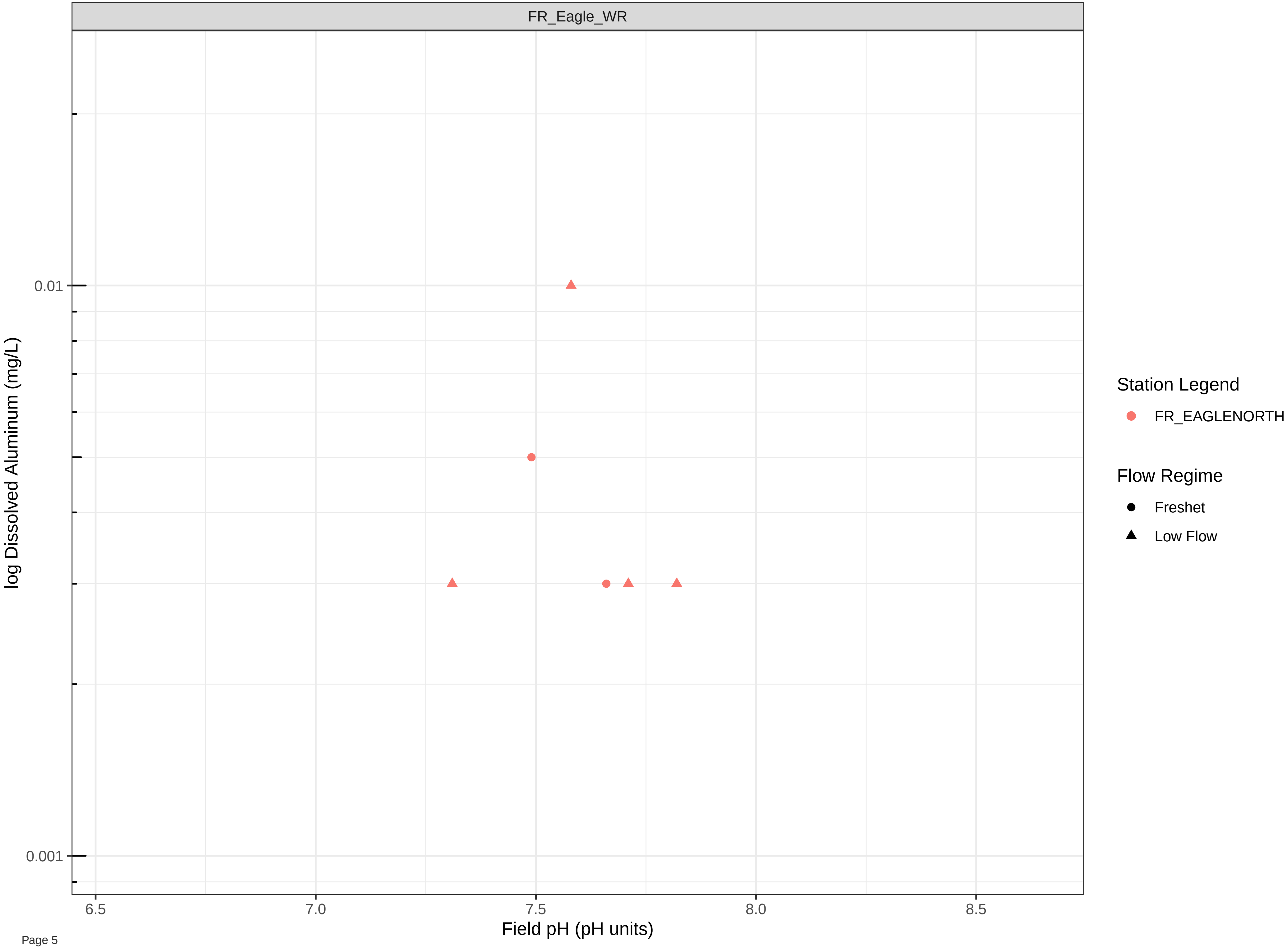

log Dissolved Zinc (mg/L)
1
0.1
0.01
0.001
6
7
8
9
Field pH (pH units)
Operation
CMO
EVO
FRO
GHO
LCO

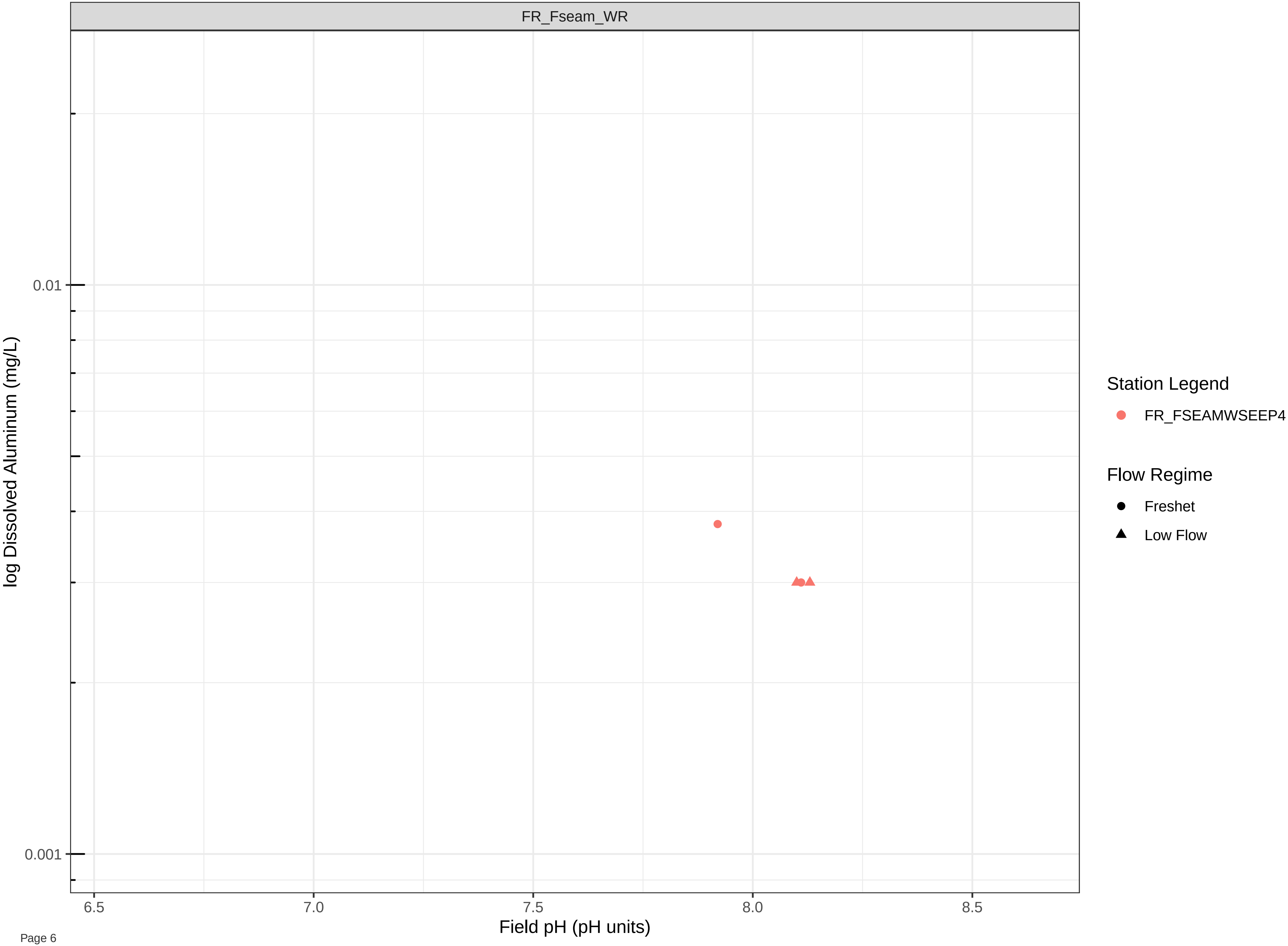

FR_A_WR
log Dissolved Aluminum (mg/L)
0.01
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

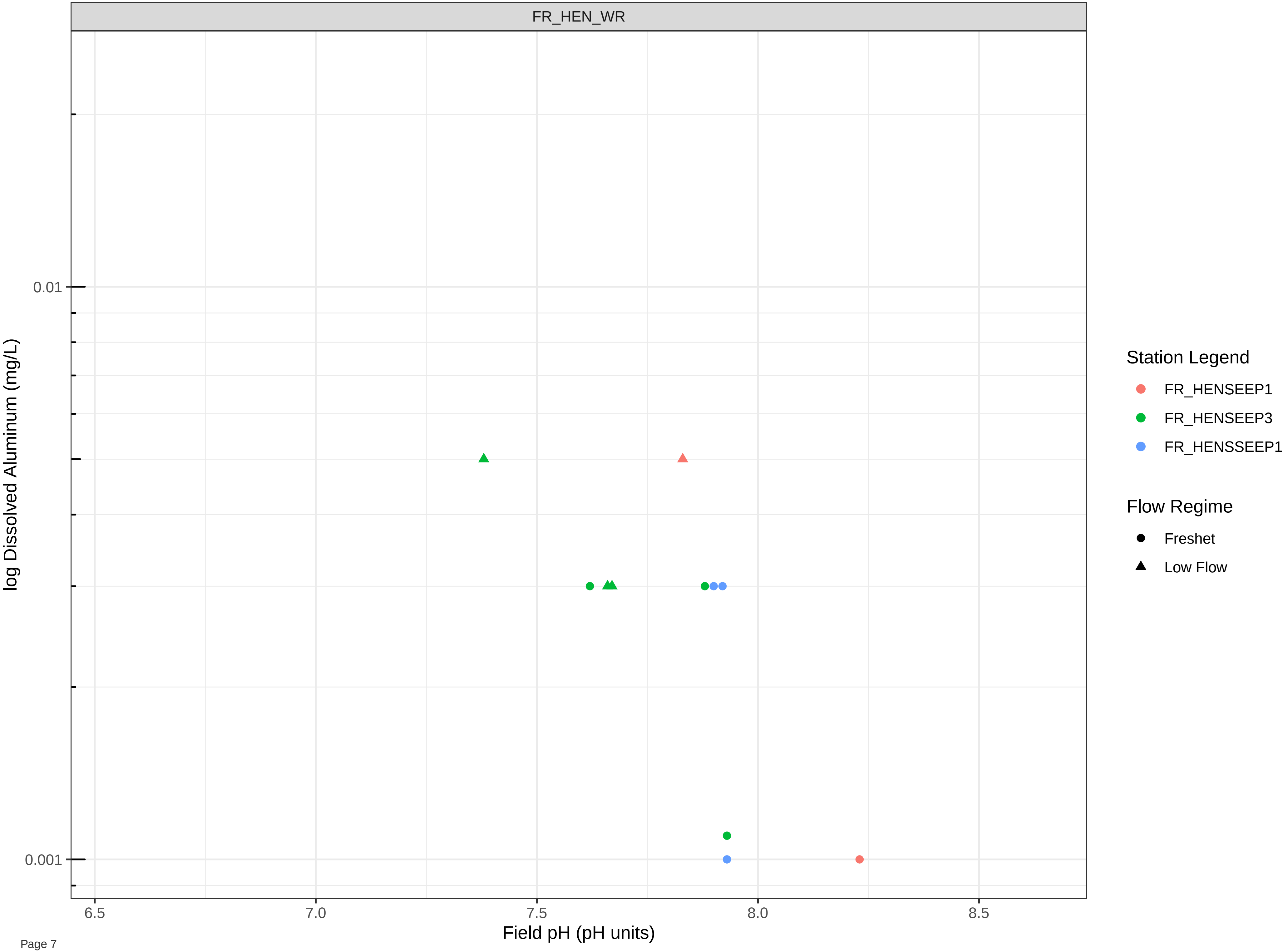

FR_Blain_CCR
log Dissolved Aluminum (mg/L)
0.01
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

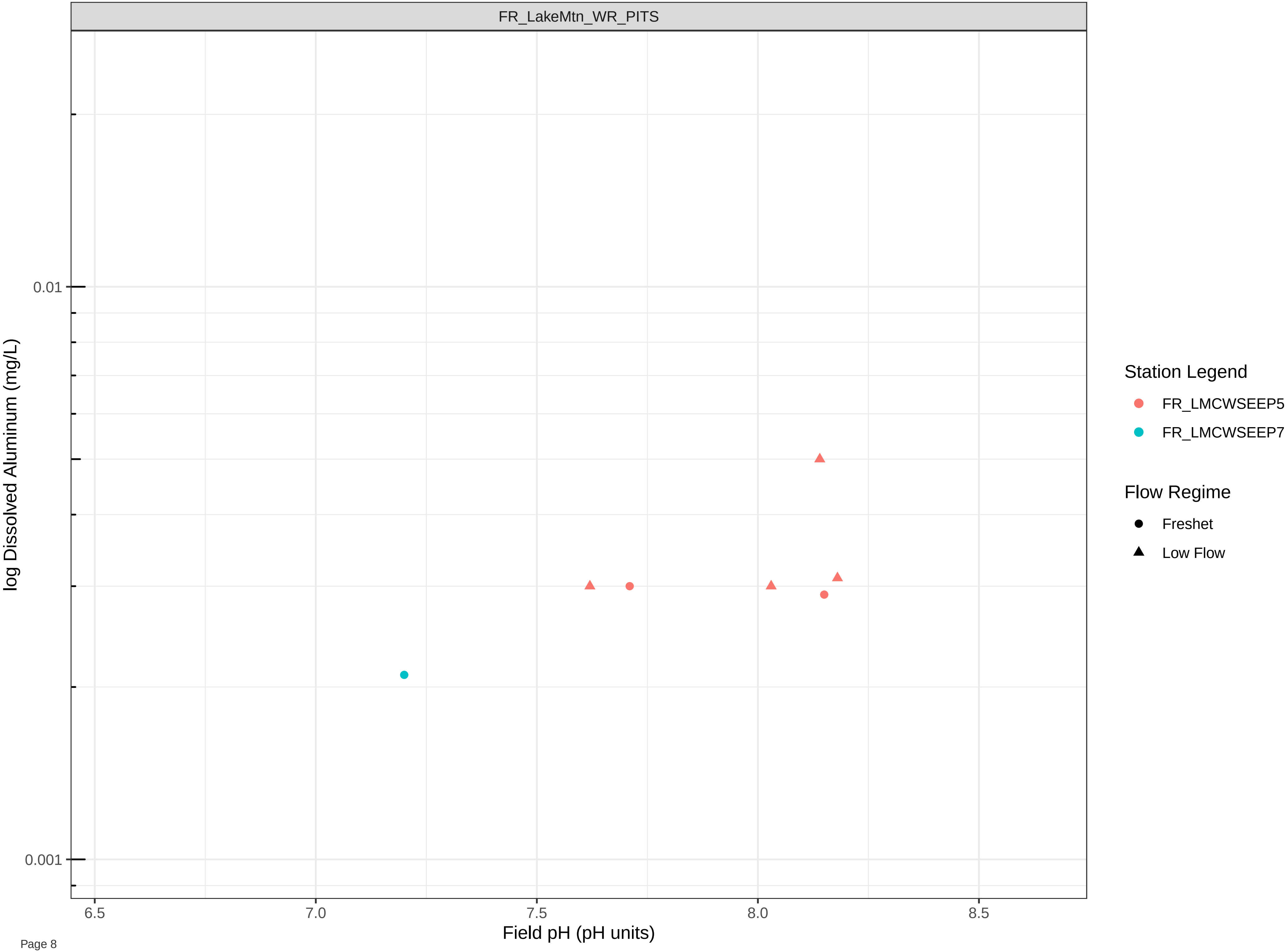

FR_ClodeCr_WR
log Dissolved Aluminum (mg/L)
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

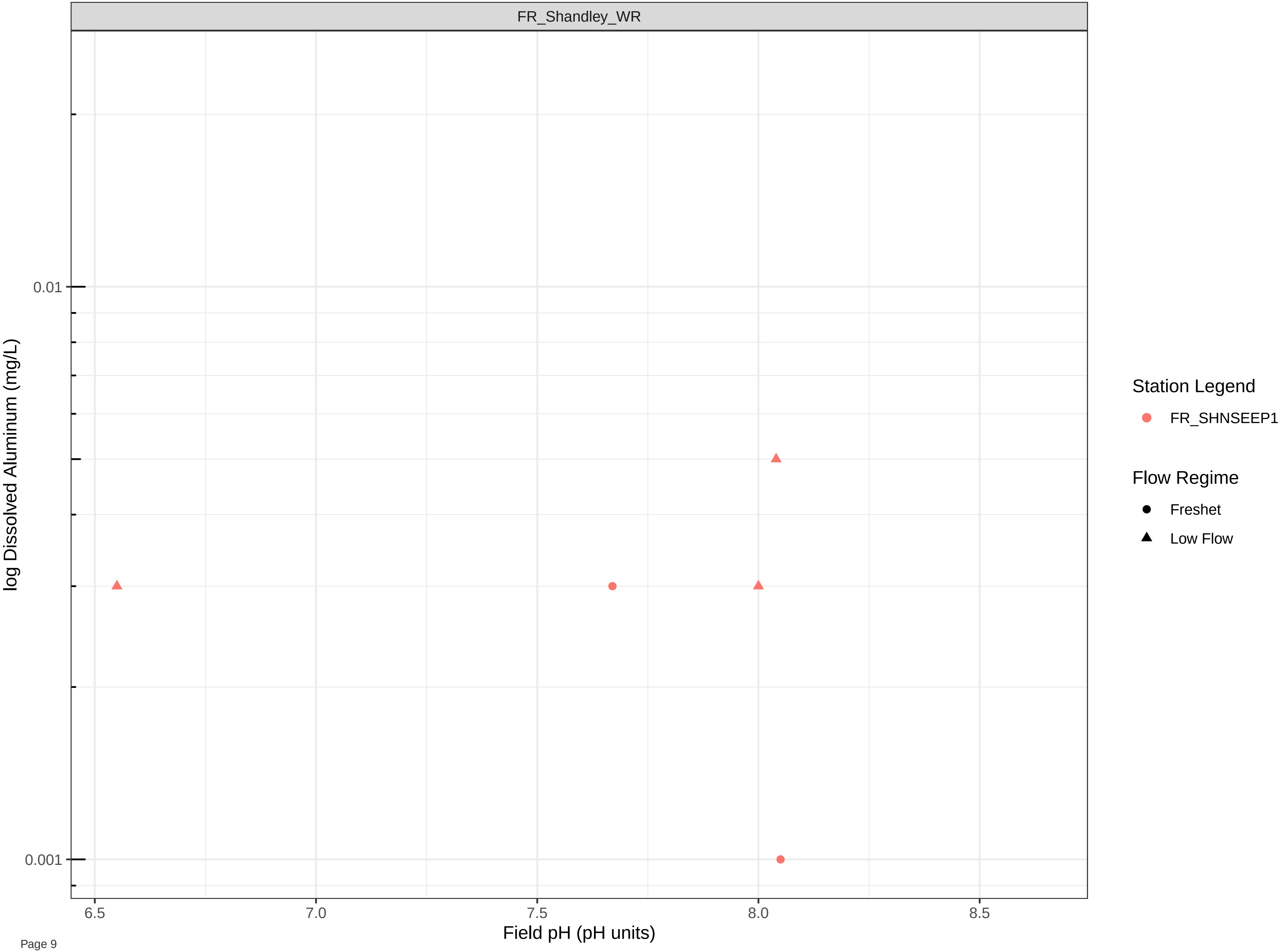

FR_DOKA_Unknown
log Dissolved Aluminum (mg/L)
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

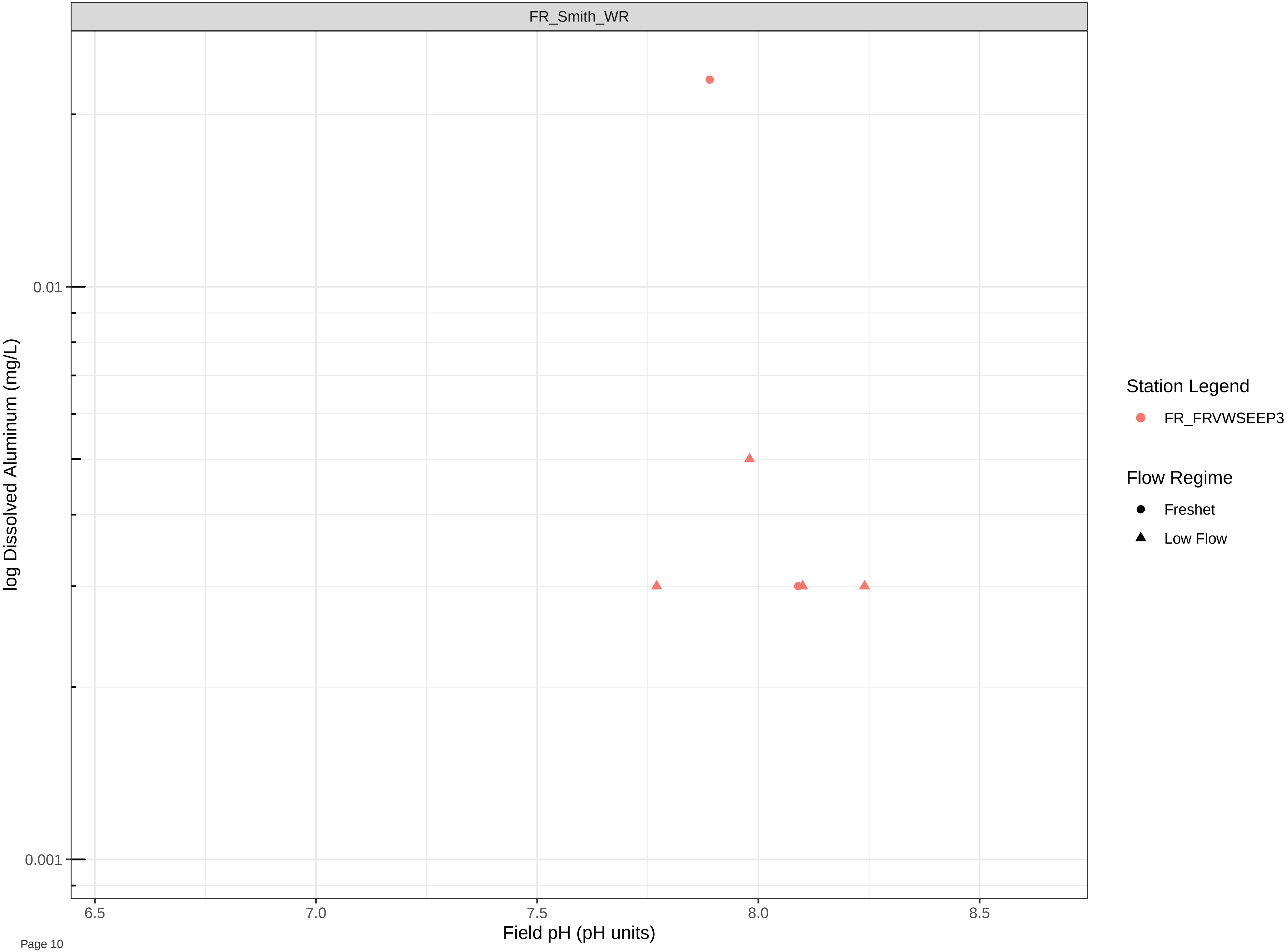

FR_Eagle_WR
0.01
0.001
log Dissolved Aluminum (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

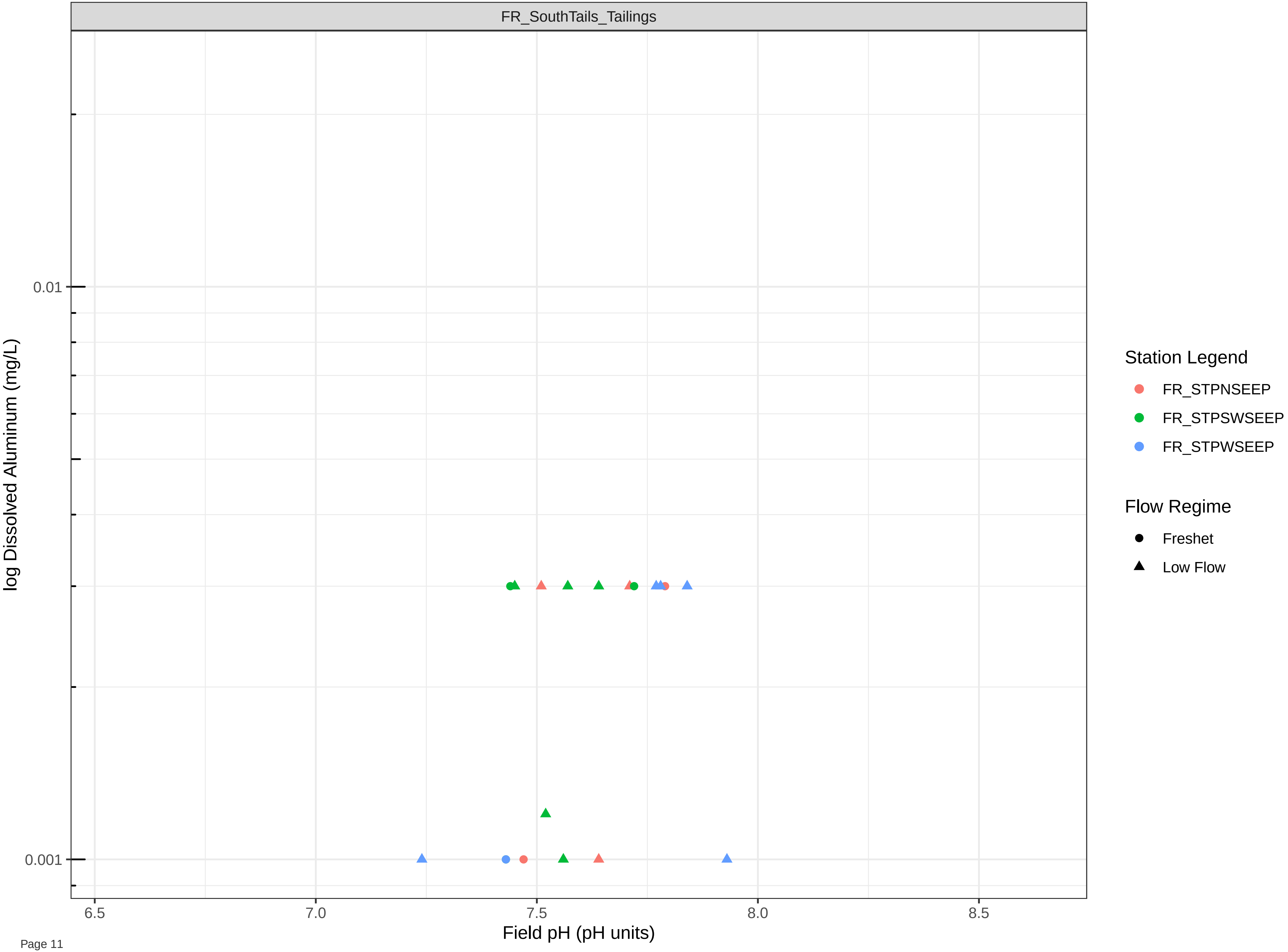

FR_Fseam_WR
log Dissolved Aluminum (mg/L)
0.01
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

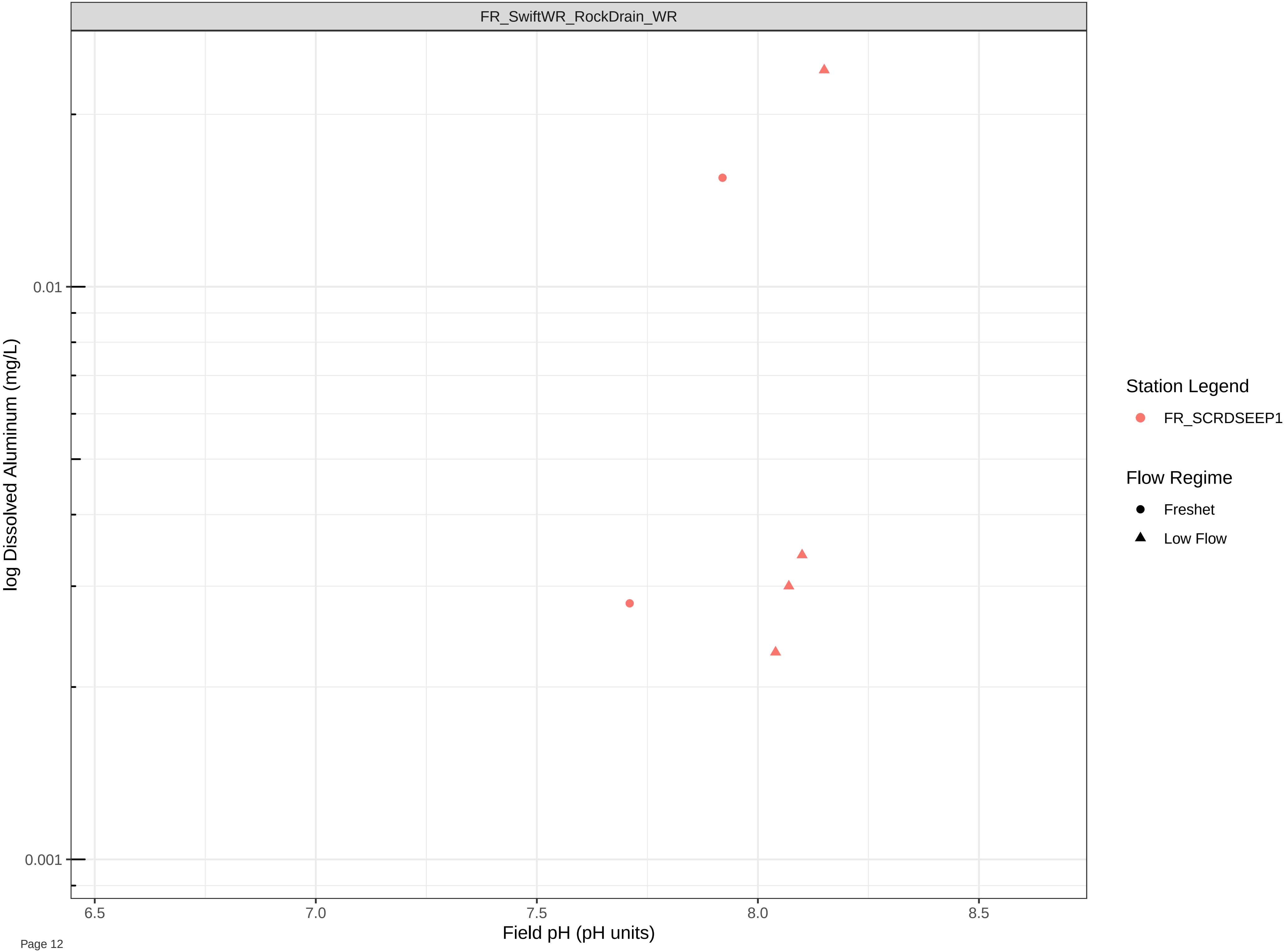

FR_HEN_WR
0.01
0.001
log Dissolved Aluminum (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

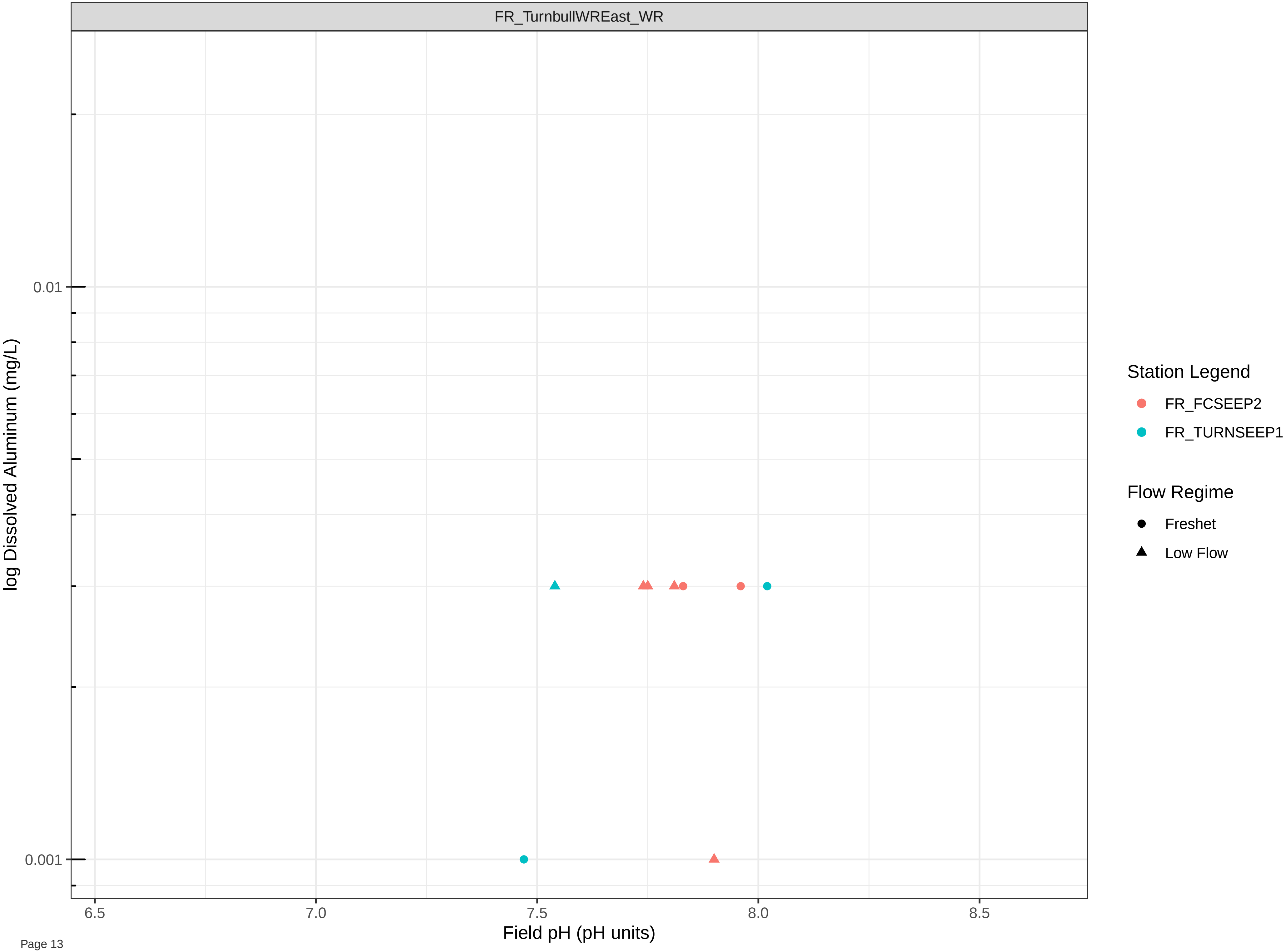

FR_LakeMtn_WR_PITS
log Dissolved Aluminum (mg/L)
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

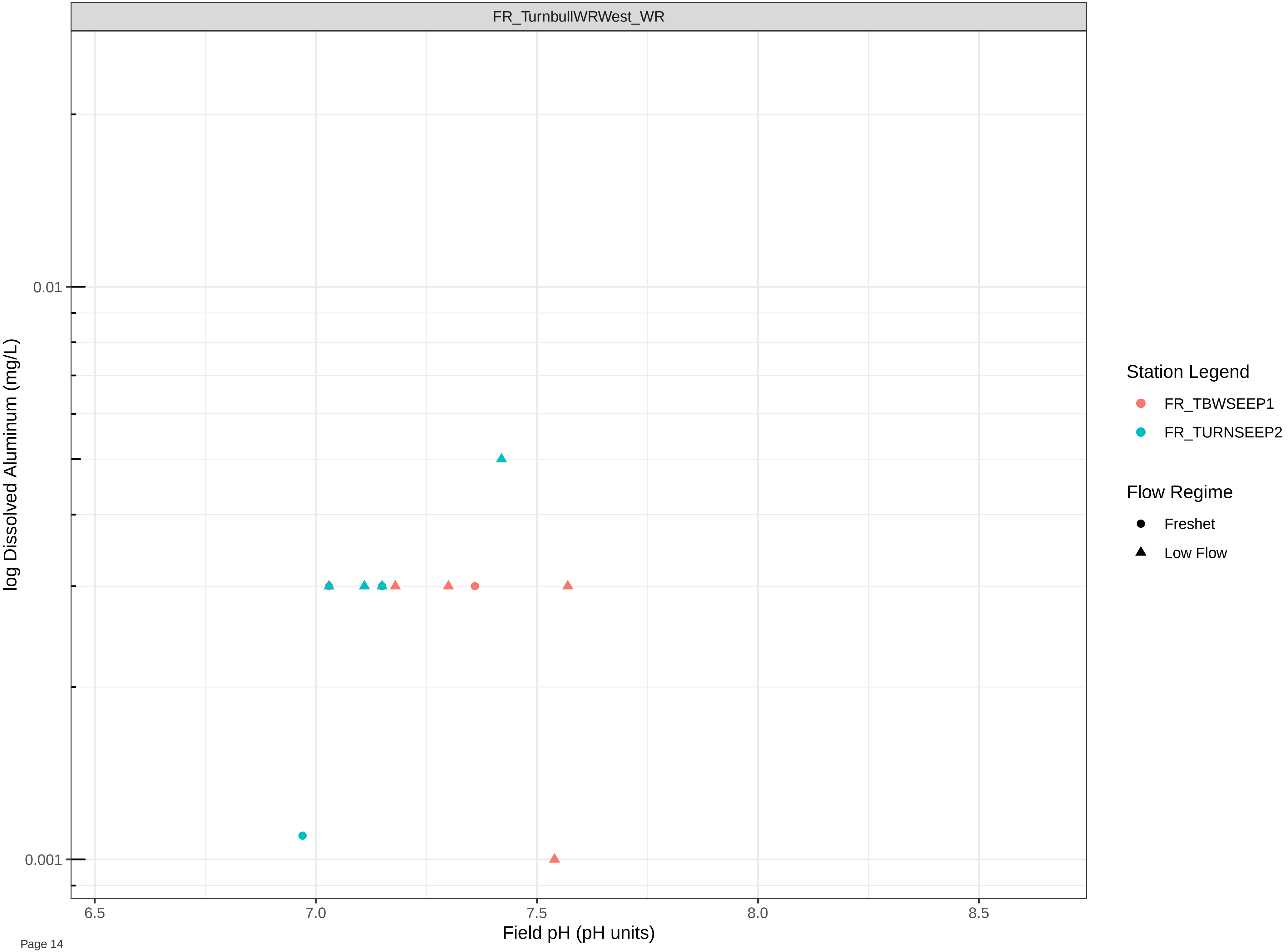

FR_Shandley_WR
log Dissolved Aluminum (mg/L)
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

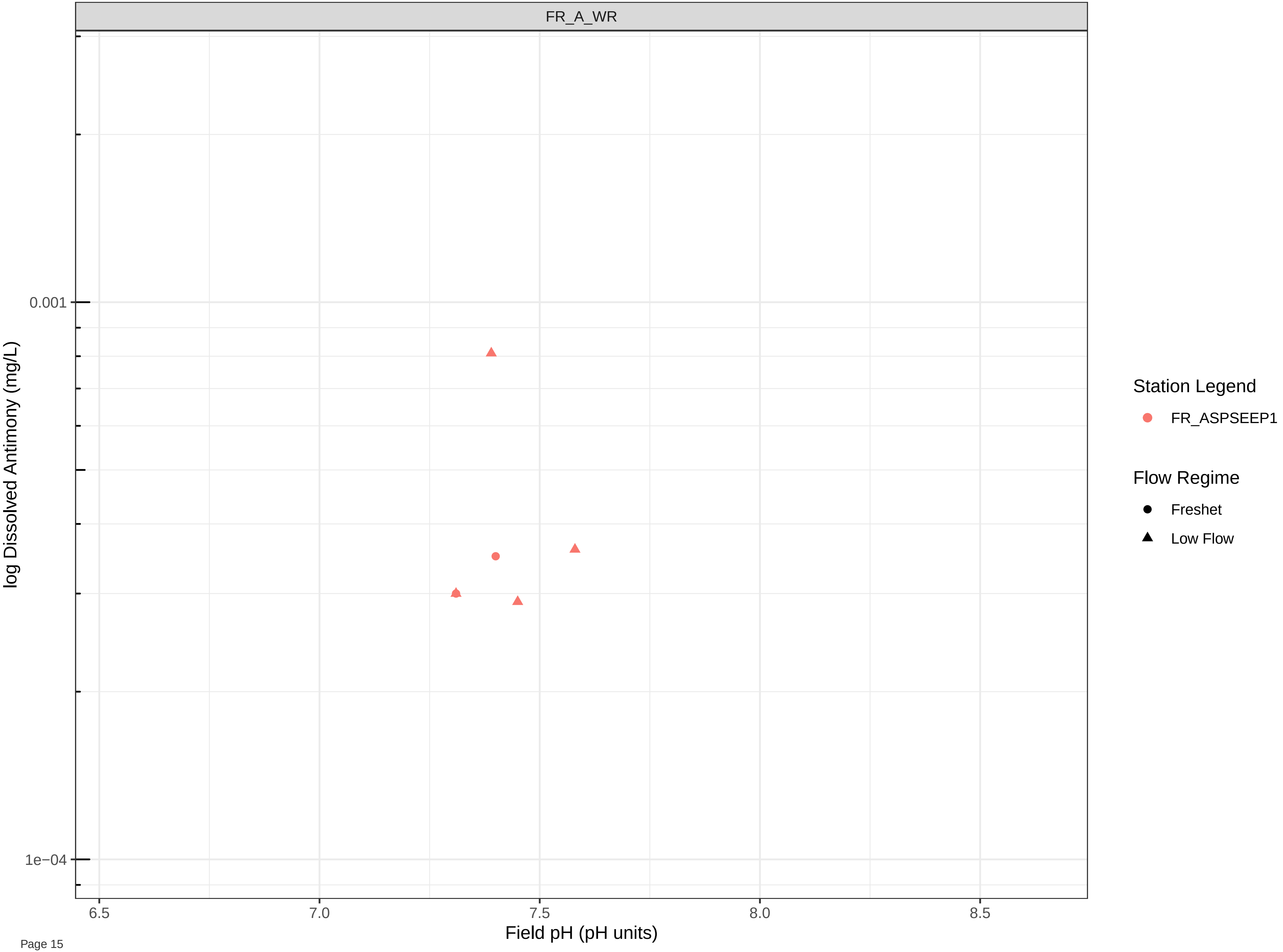

FR_Smith_WR
0.01
0.001
log Dissolved Aluminum (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

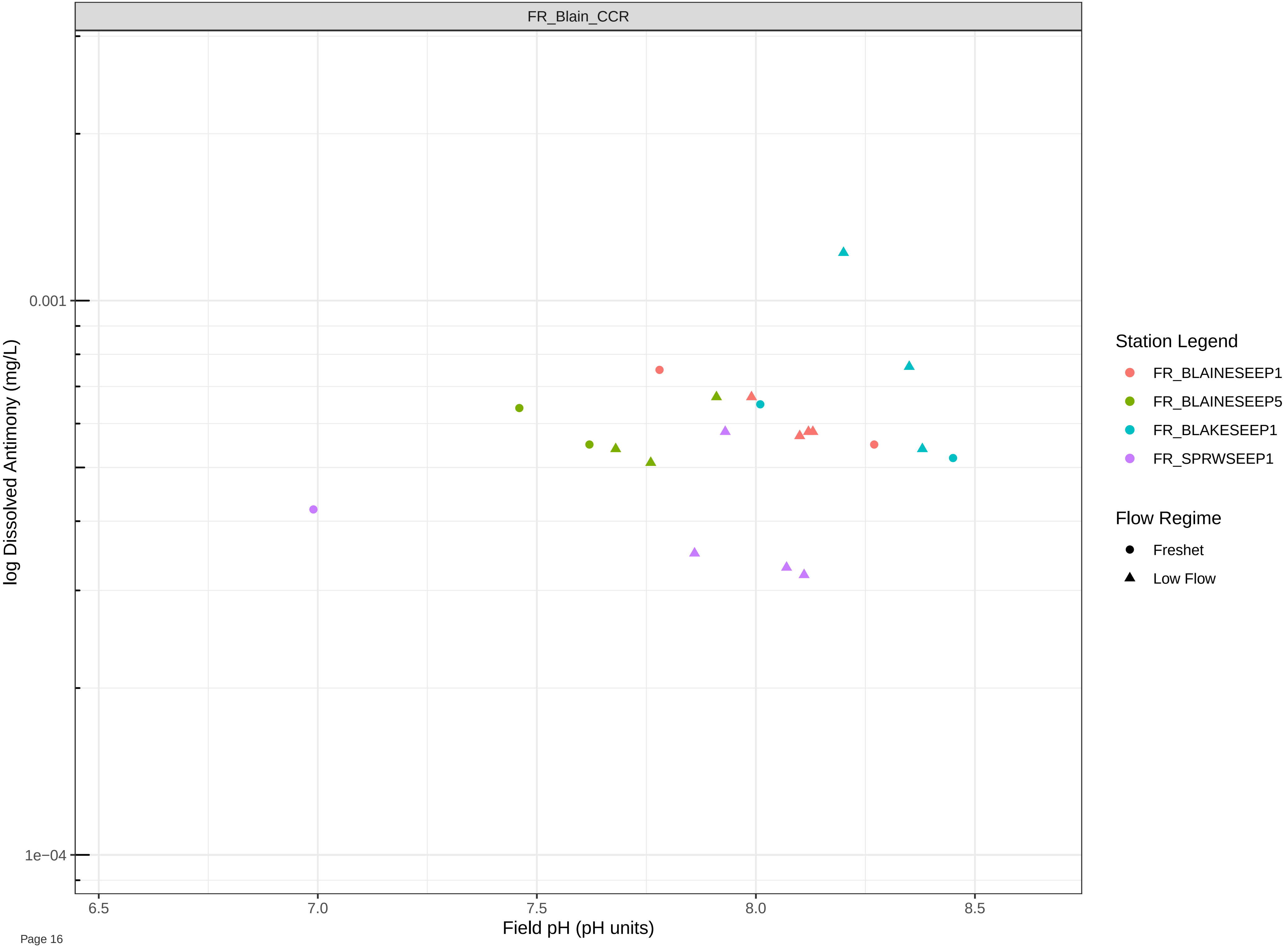

FR_SouthTails_Tailings
log Dissolved Aluminum (mg/L)
0.01
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

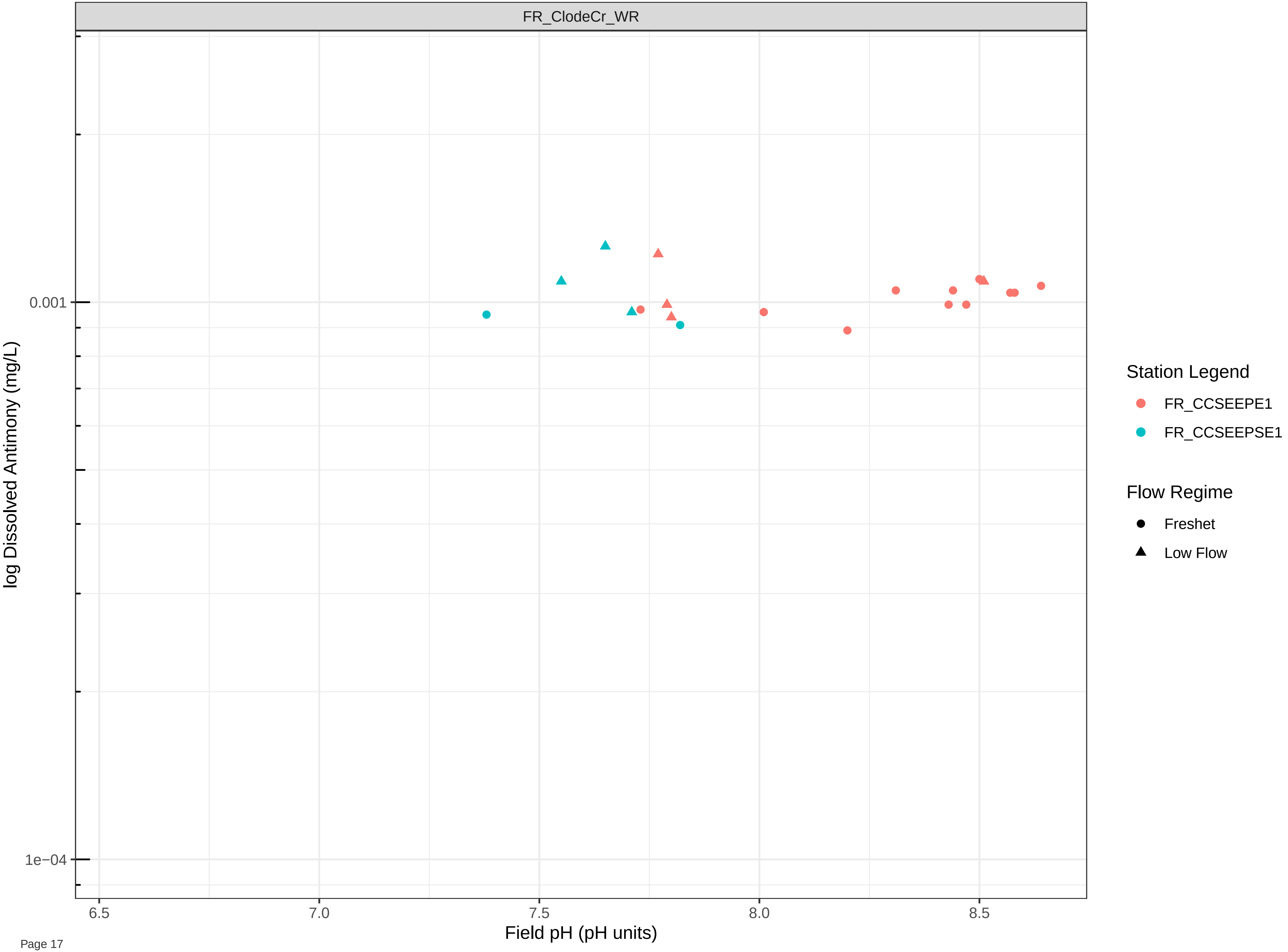

FR_SwiftWR_RockDrain_WR
log Dissolved Aluminum (mg/L)
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

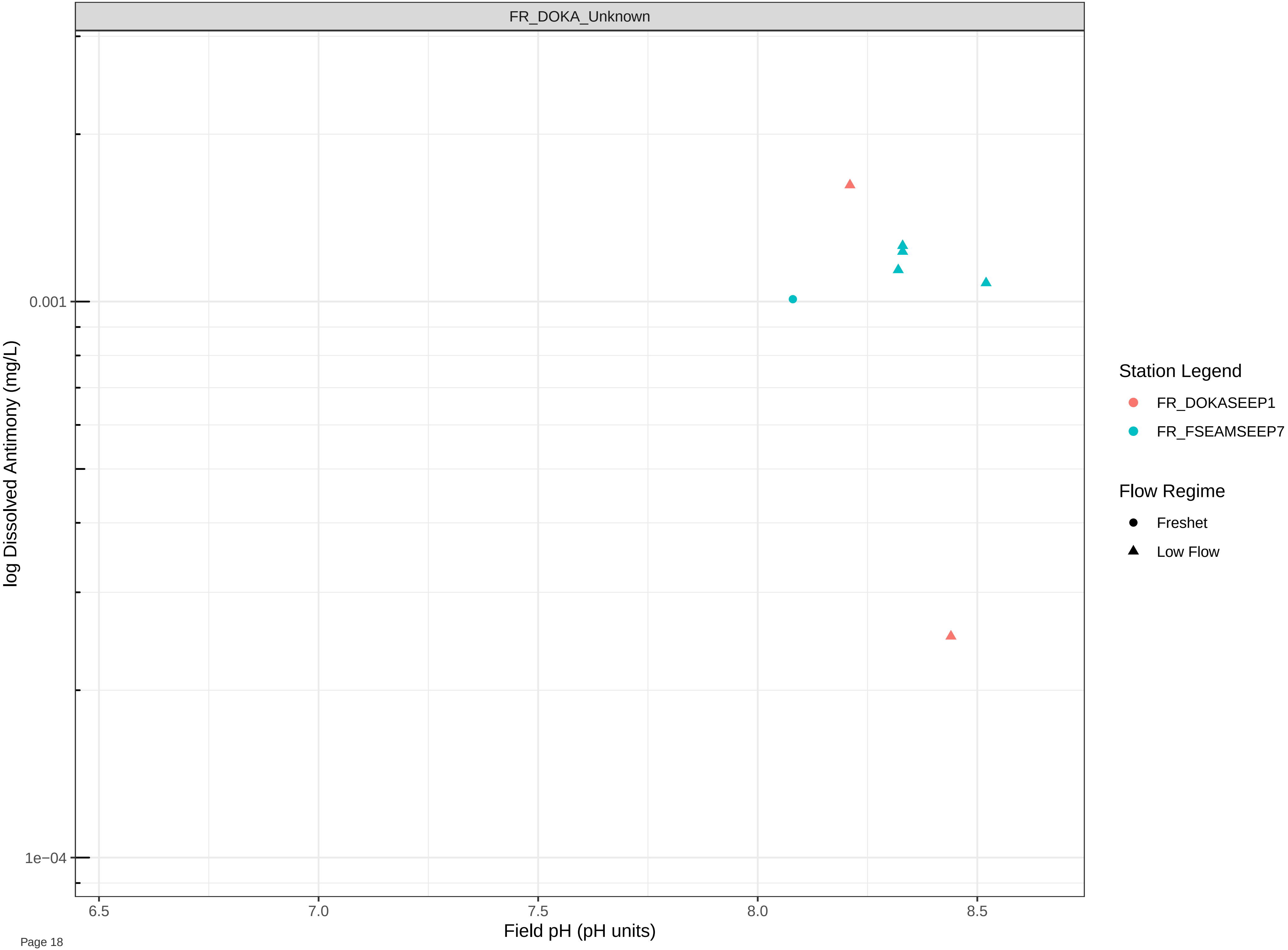

FR_TurnbullWREast_WR
log Dissolved Aluminum (mg/L)
0.01
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

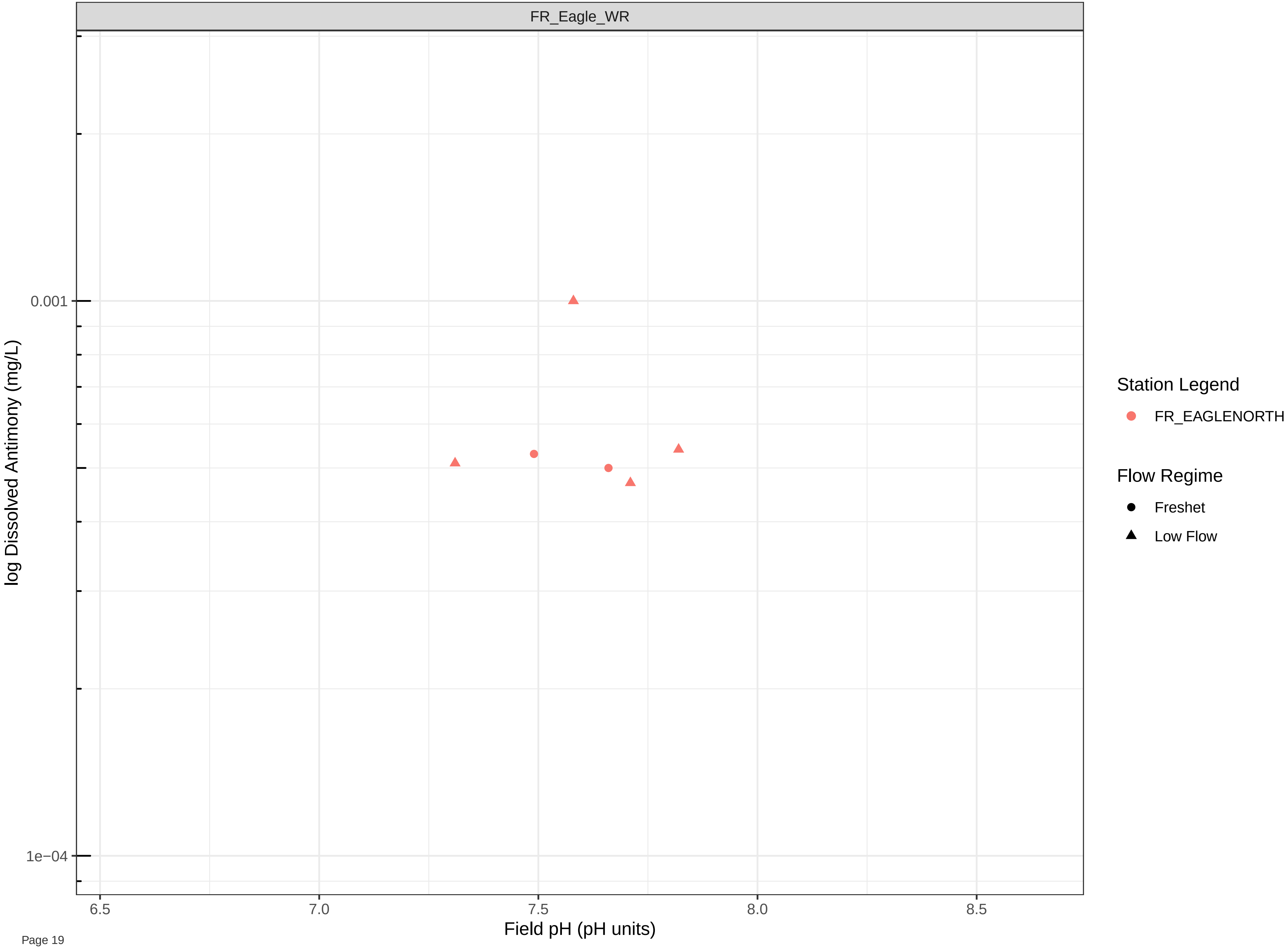

FR_TurnbullWRWest_WR
log Dissolved Aluminum (mg/L)
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

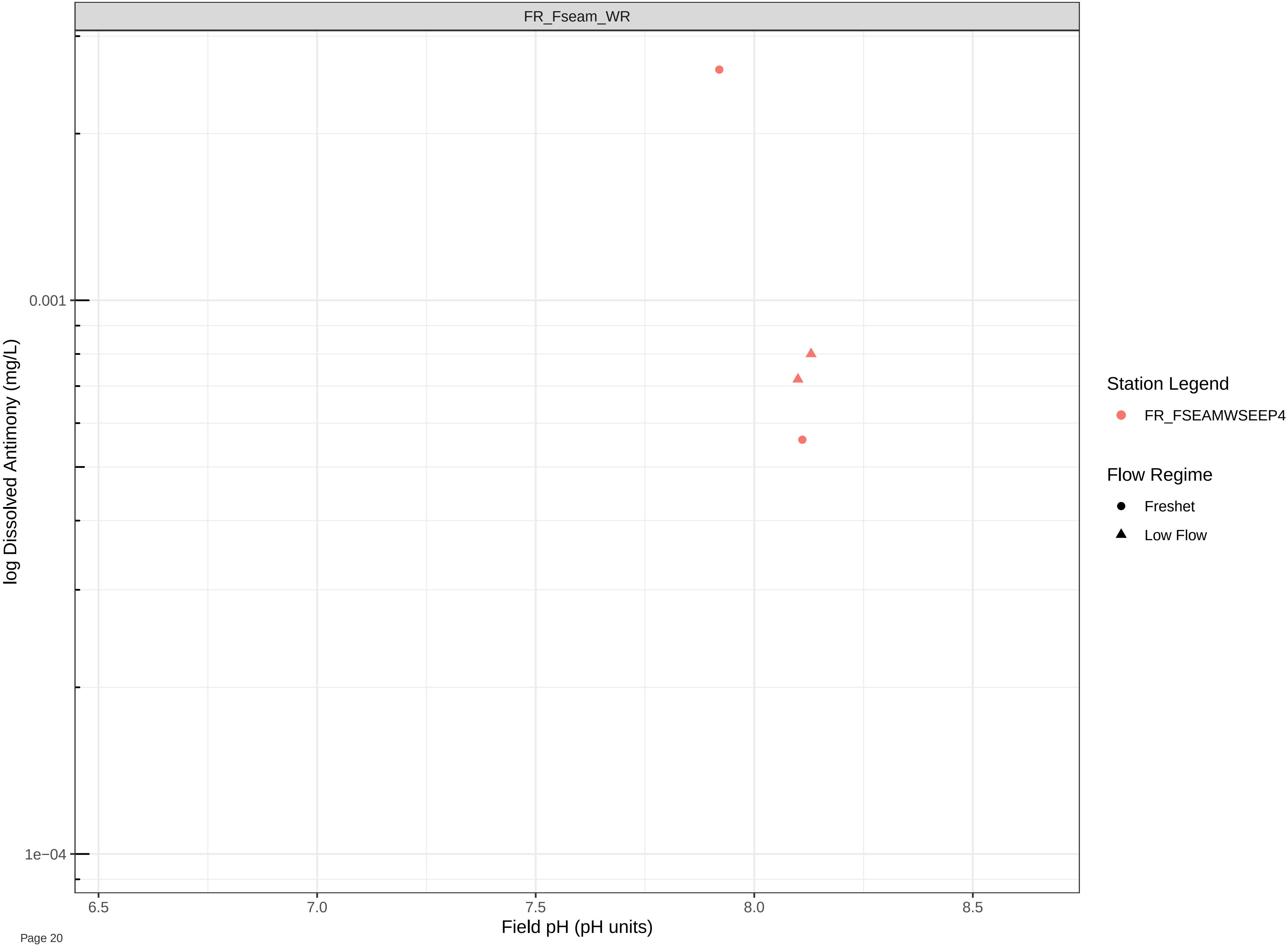

FR_A_WR
log Dissolved Antimony (mg/L)
0.001
1e−04
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

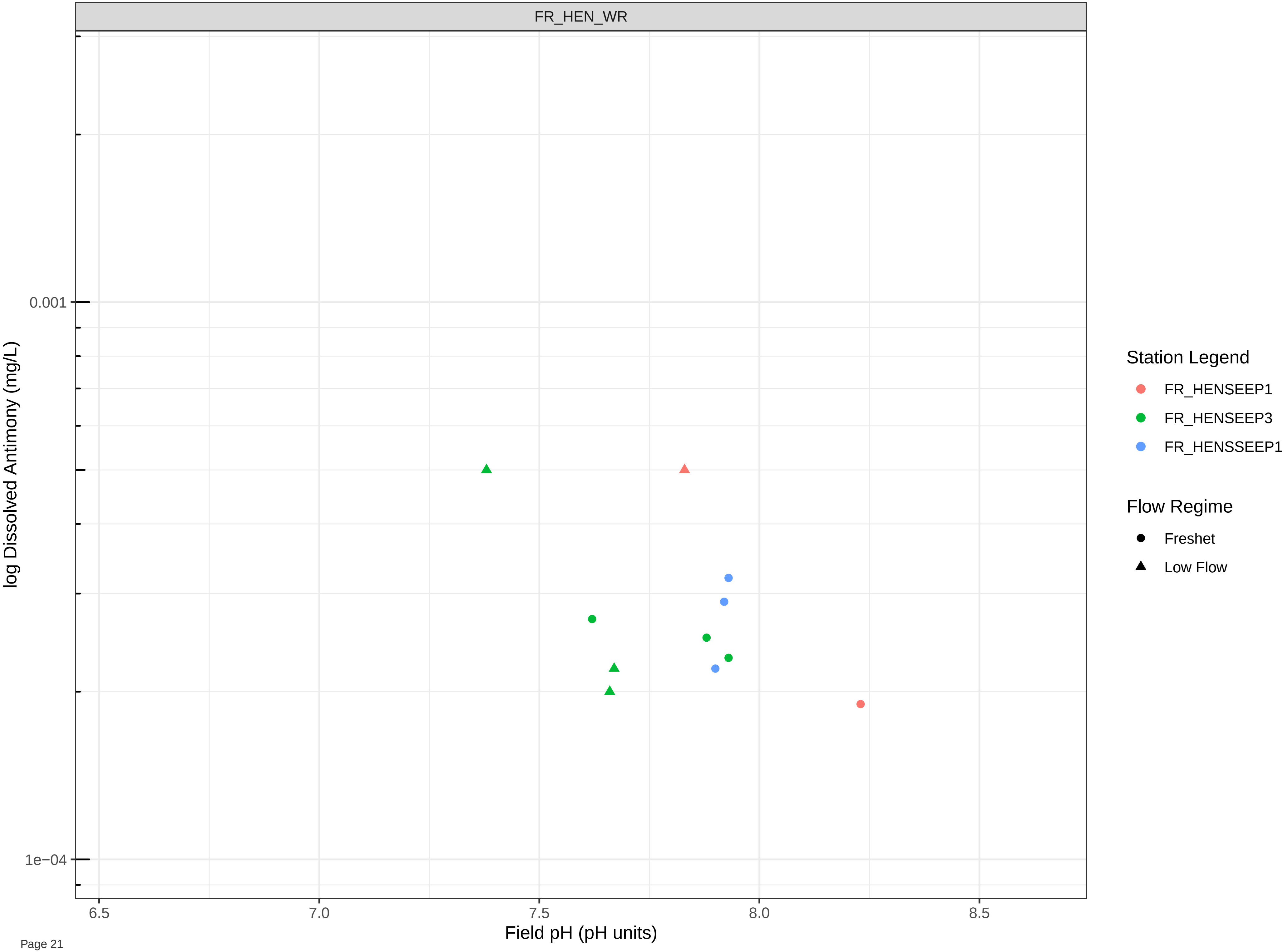

FR_Blain_CCR
0.001
1e−04
log Dissolved Antimony (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

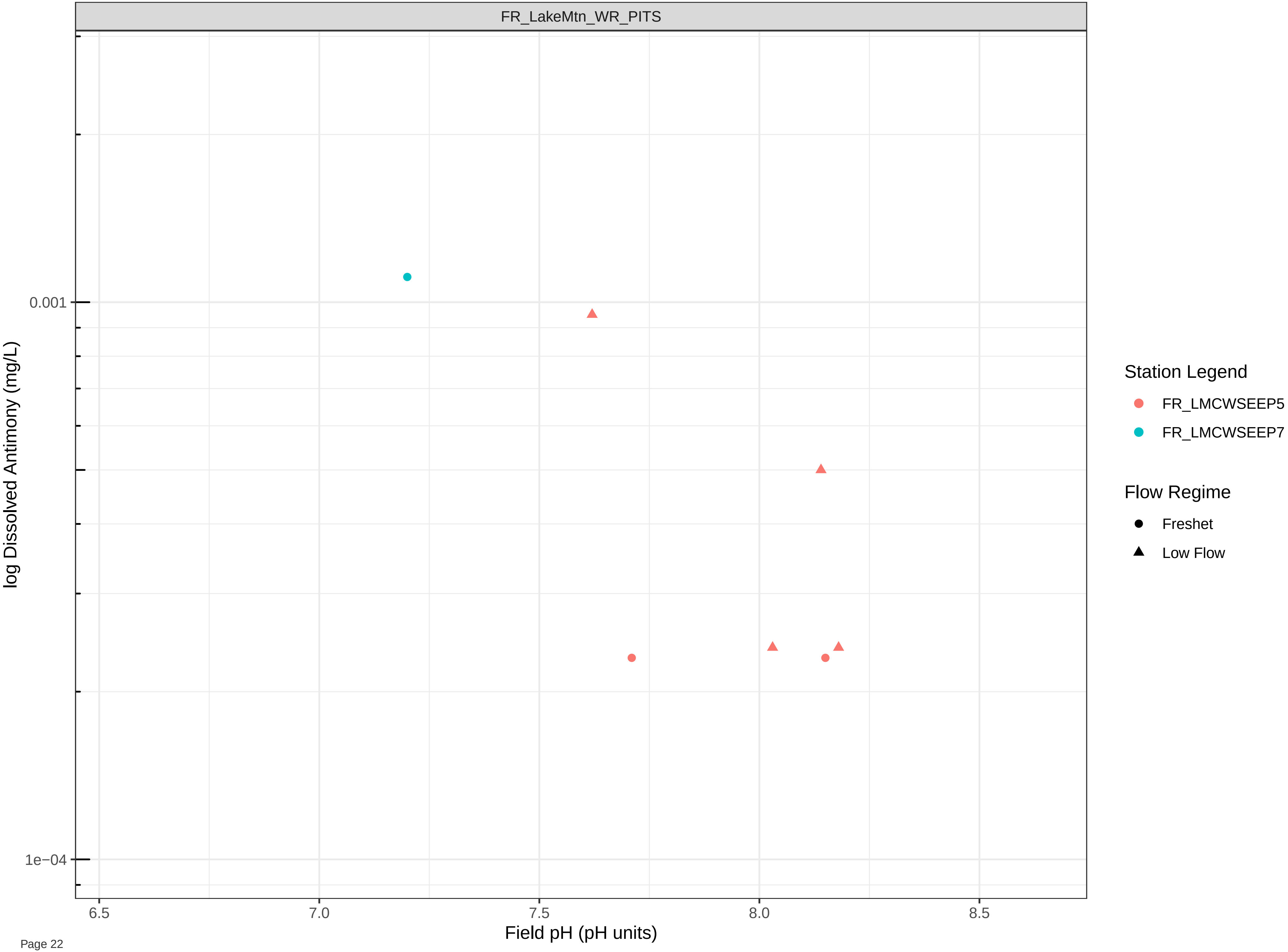

FR_ClodeCr_WR
log Dissolved Antimony (mg/L)
0.001
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

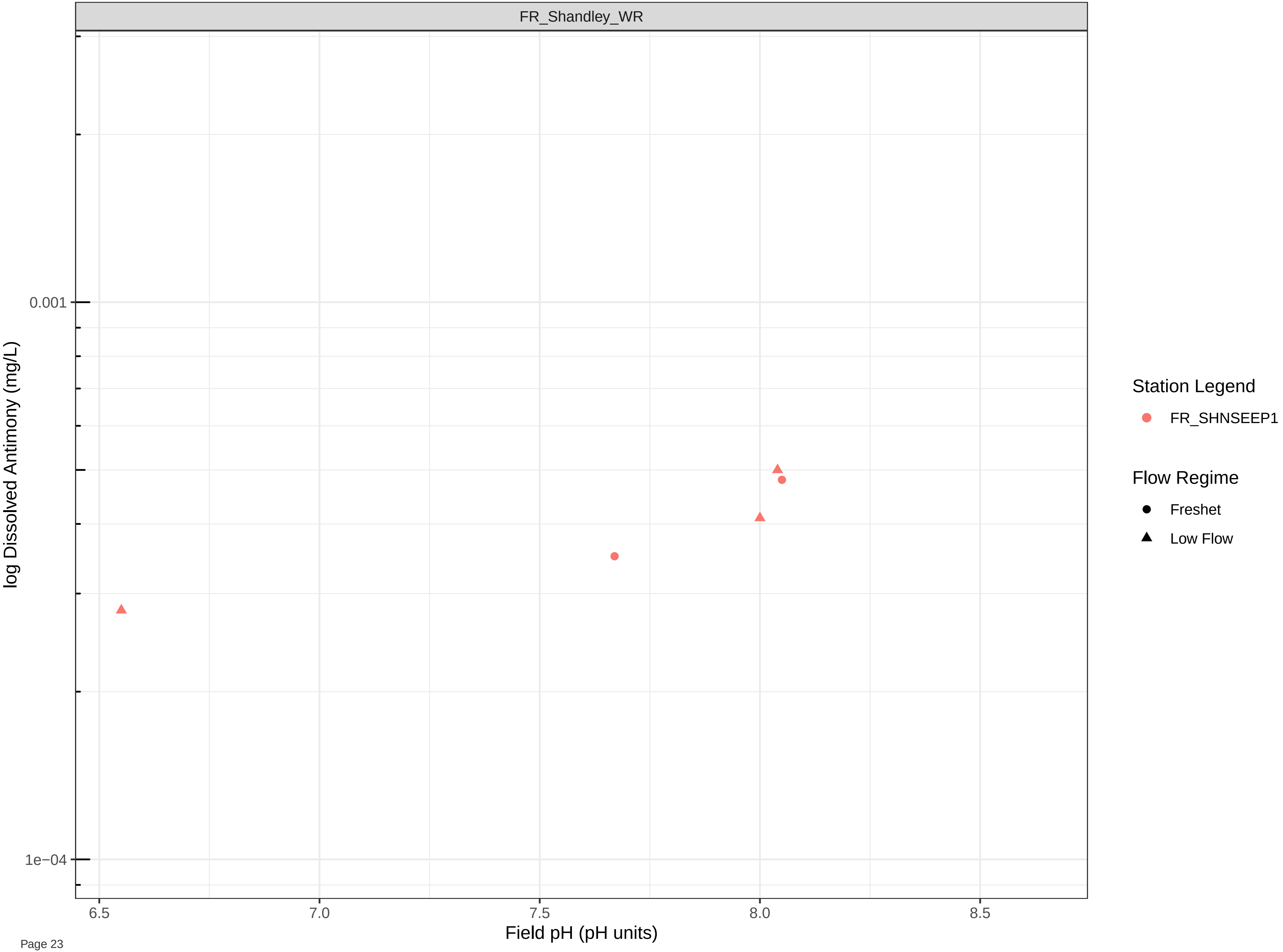

FR_DOKA_Unknown
0.001
1e−04
log Dissolved Antimony (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow

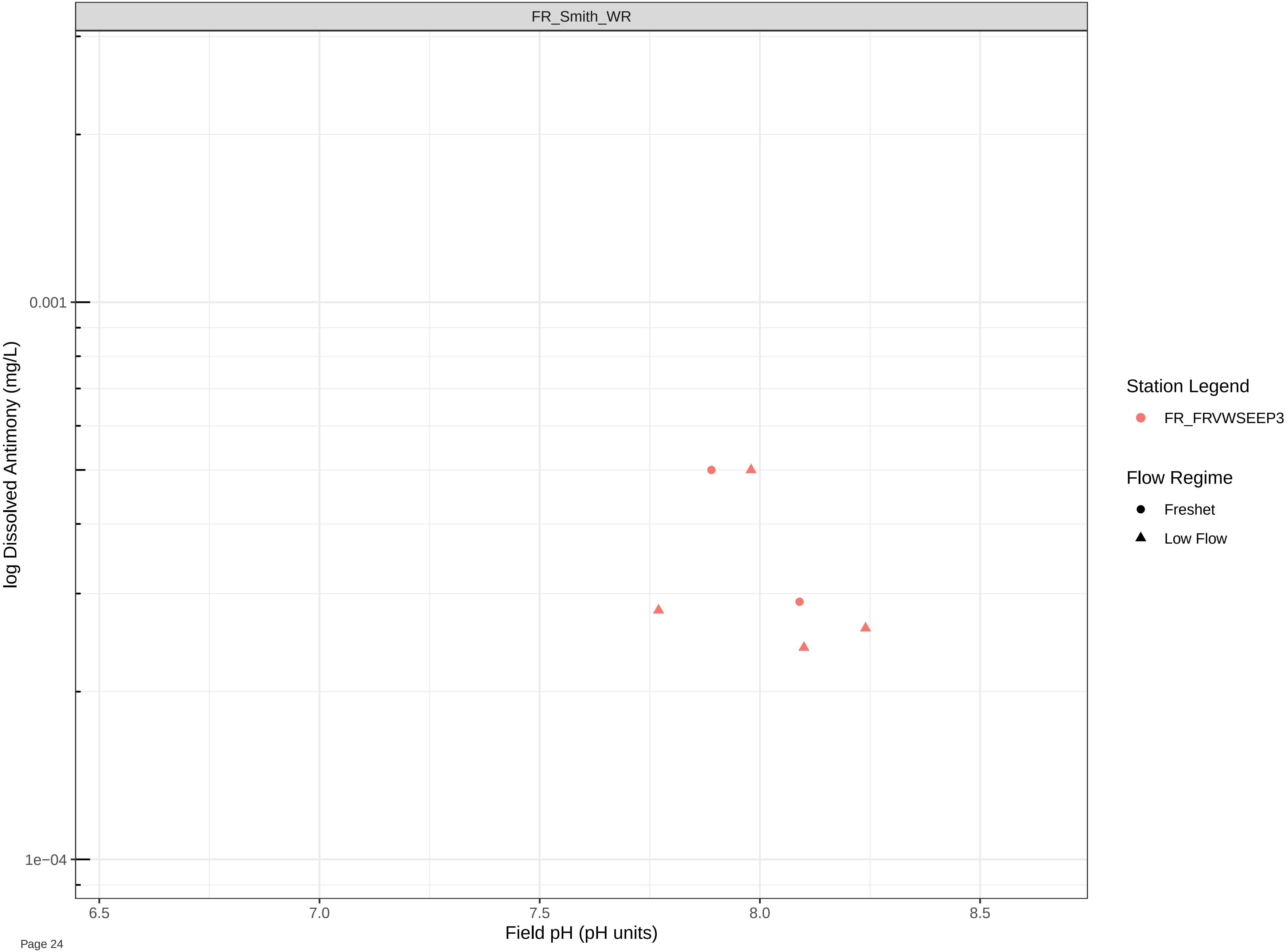

FR_Eagle_WR
log Dissolved Antimony (mg/L)
0.001
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow


FR_Fseam_WR
log Dissolved Antimony (mg/L)
0.001
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

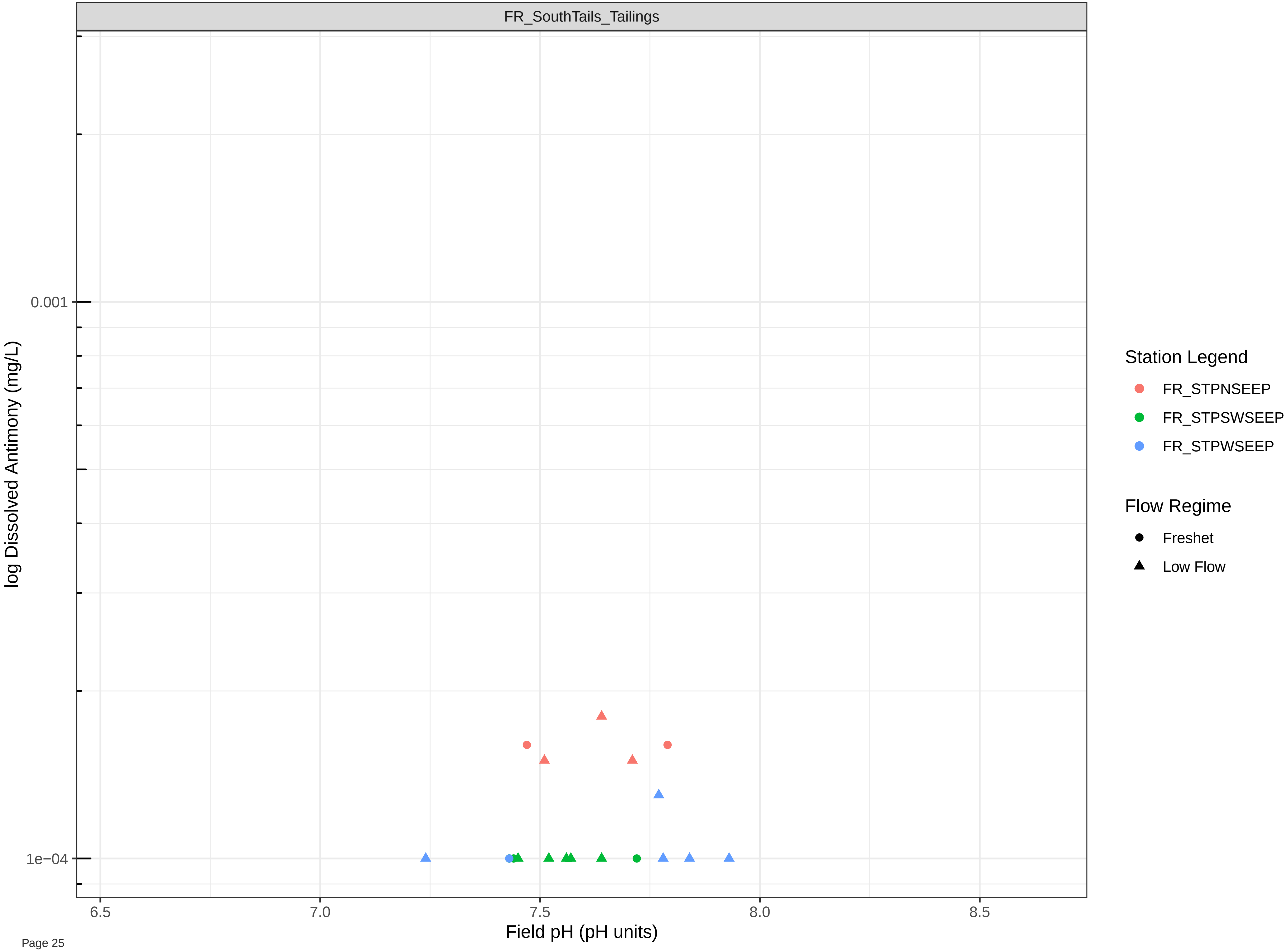

FR_HEN_WR
log Dissolved Antimony (mg/L)
0.001
1e−04
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_HENSEEP1
● FR_HENSEEP3
● FR_HENSSEEP1
Flow Regime
● Freshet
▲ Low Flow

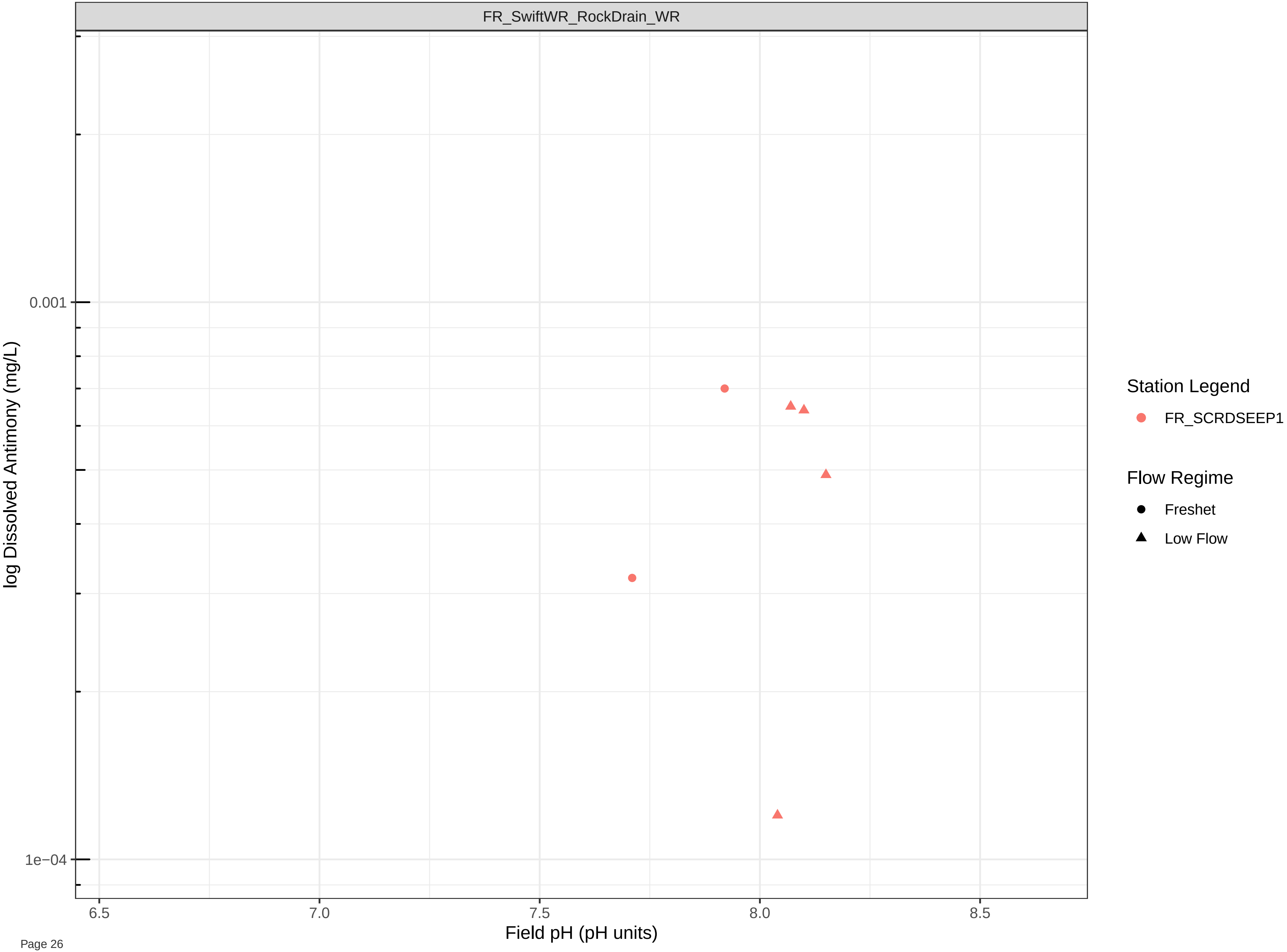

FR_LakeMtn_WR_PITS
log Dissolved Antimony (mg/L)
0.001
1e−04
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow

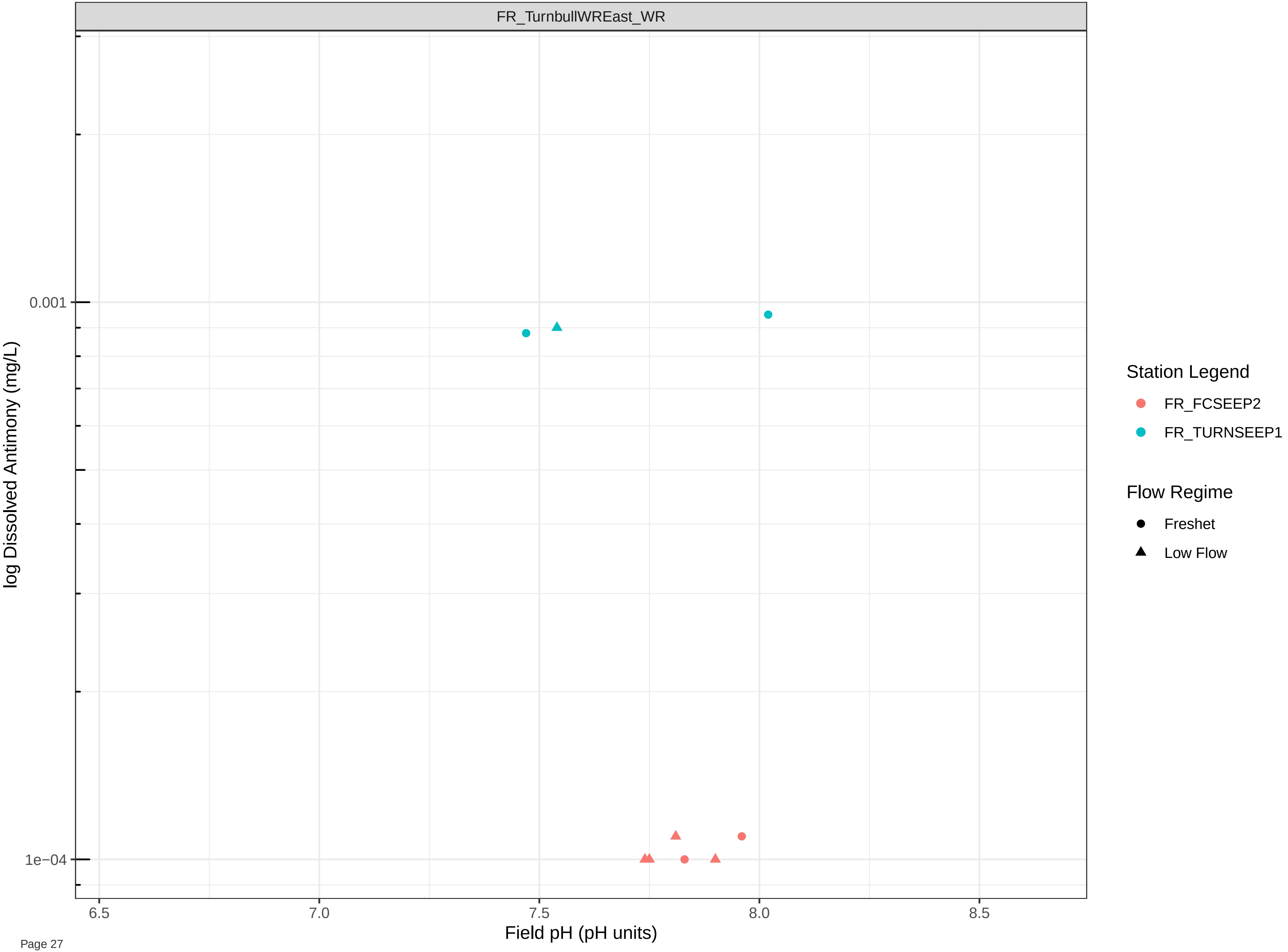

FR_Shandley_WR
log Dissolved Antimony (mg/L)
0.001
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

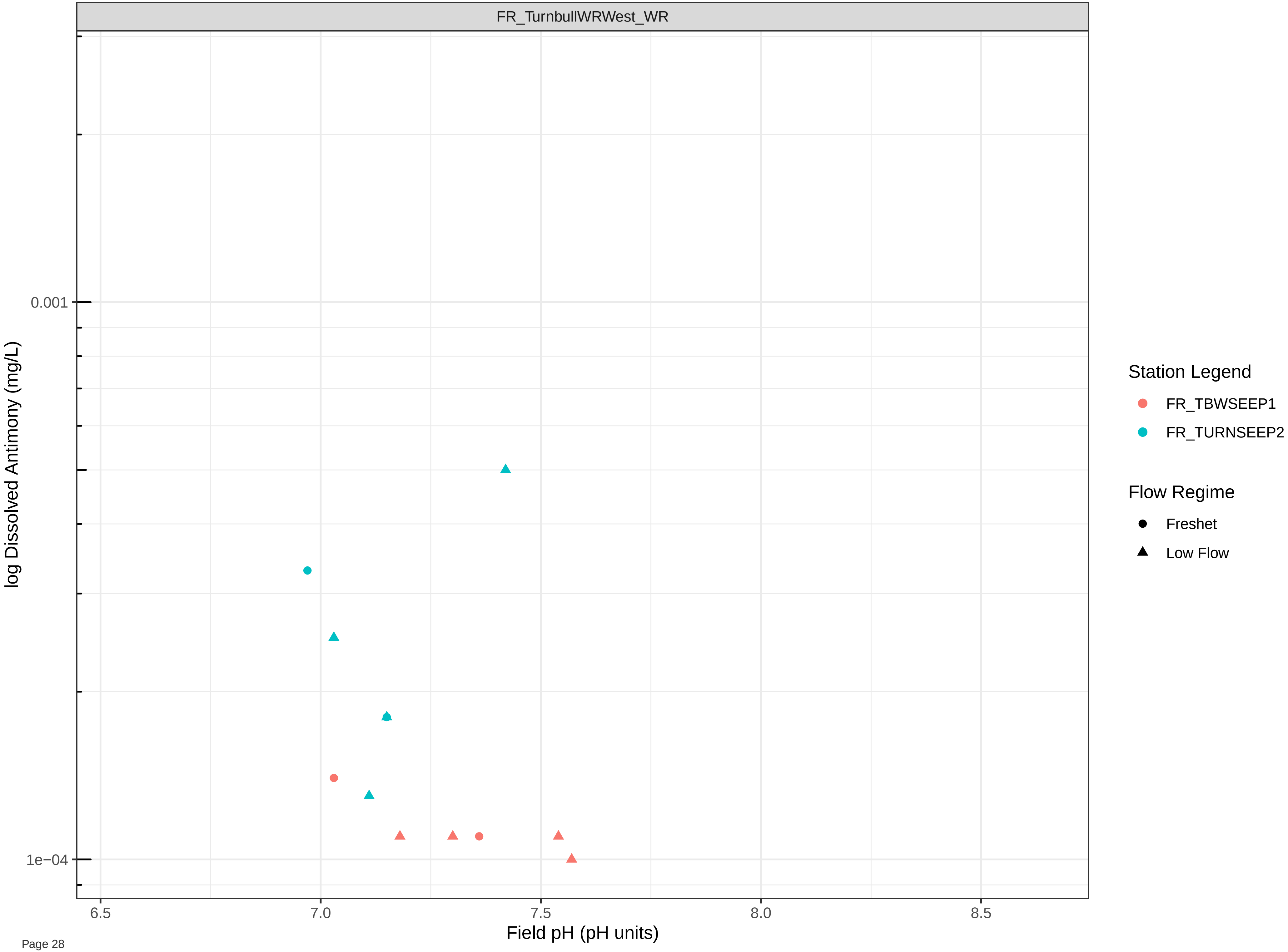


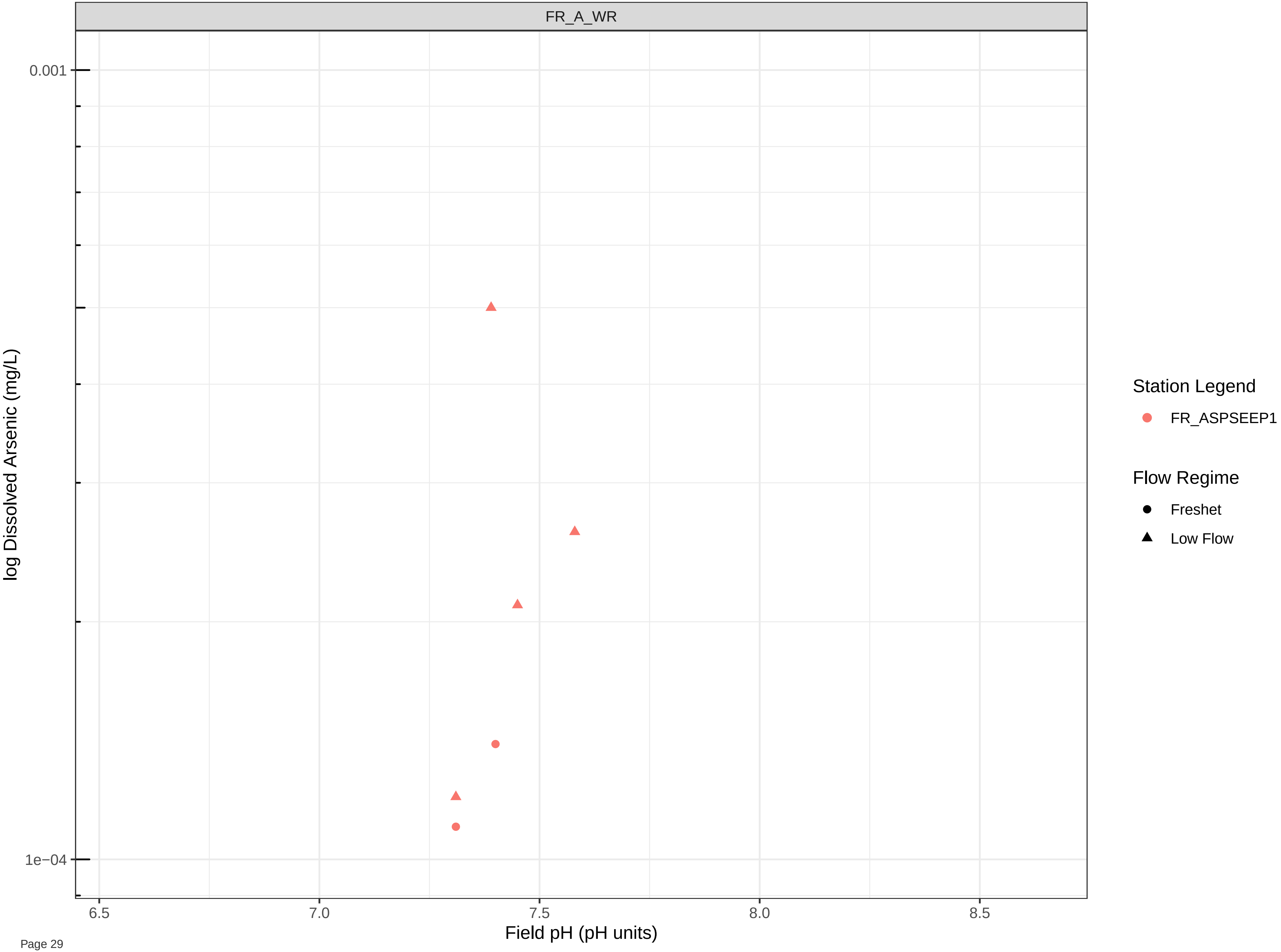
FR_Smith_WR
0.001
1e−04
log Dissolved Antimony (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

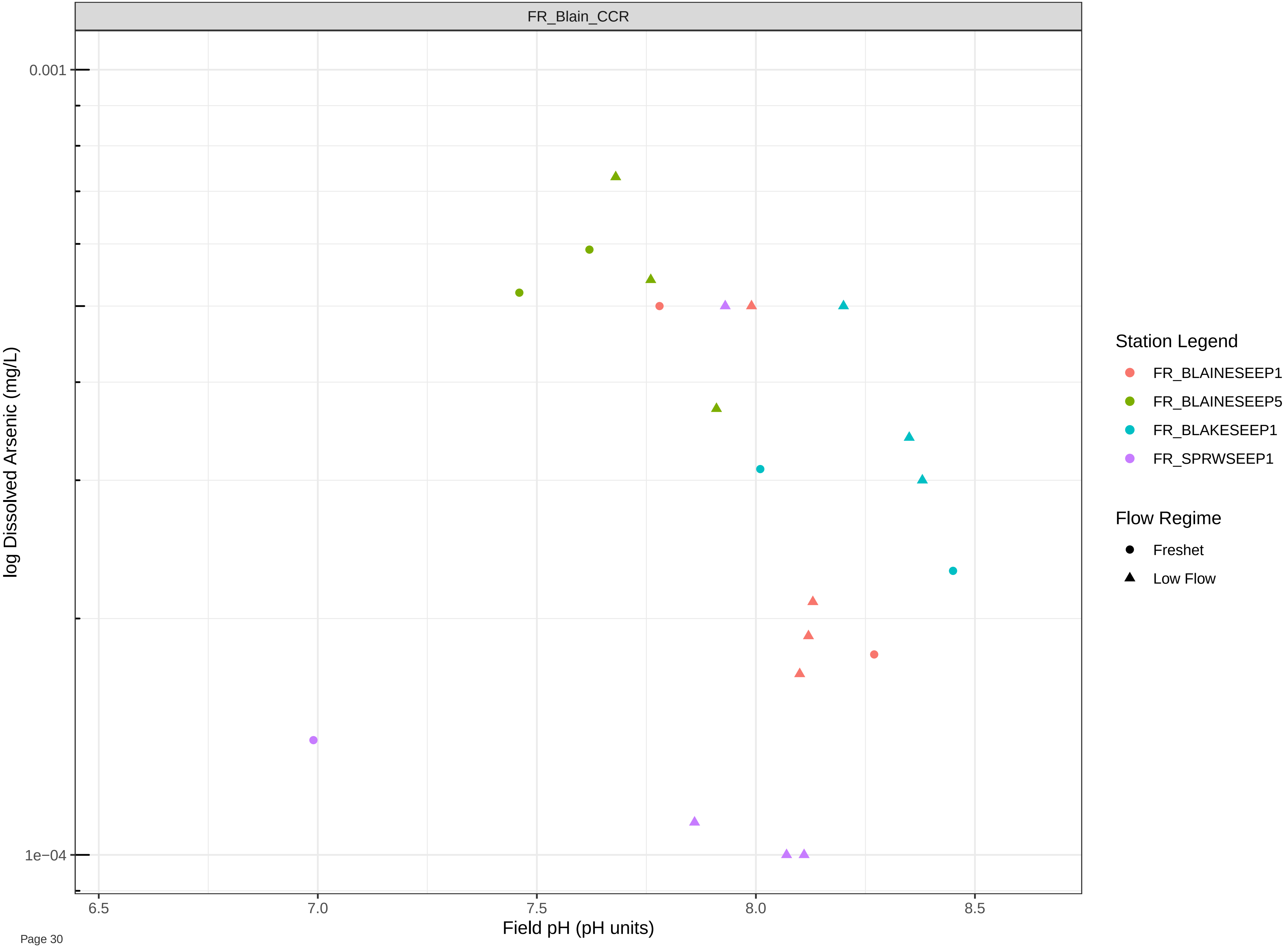

FR_SouthTails_Tailings
log Dissolved Antimony (mg/L)
0.001
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

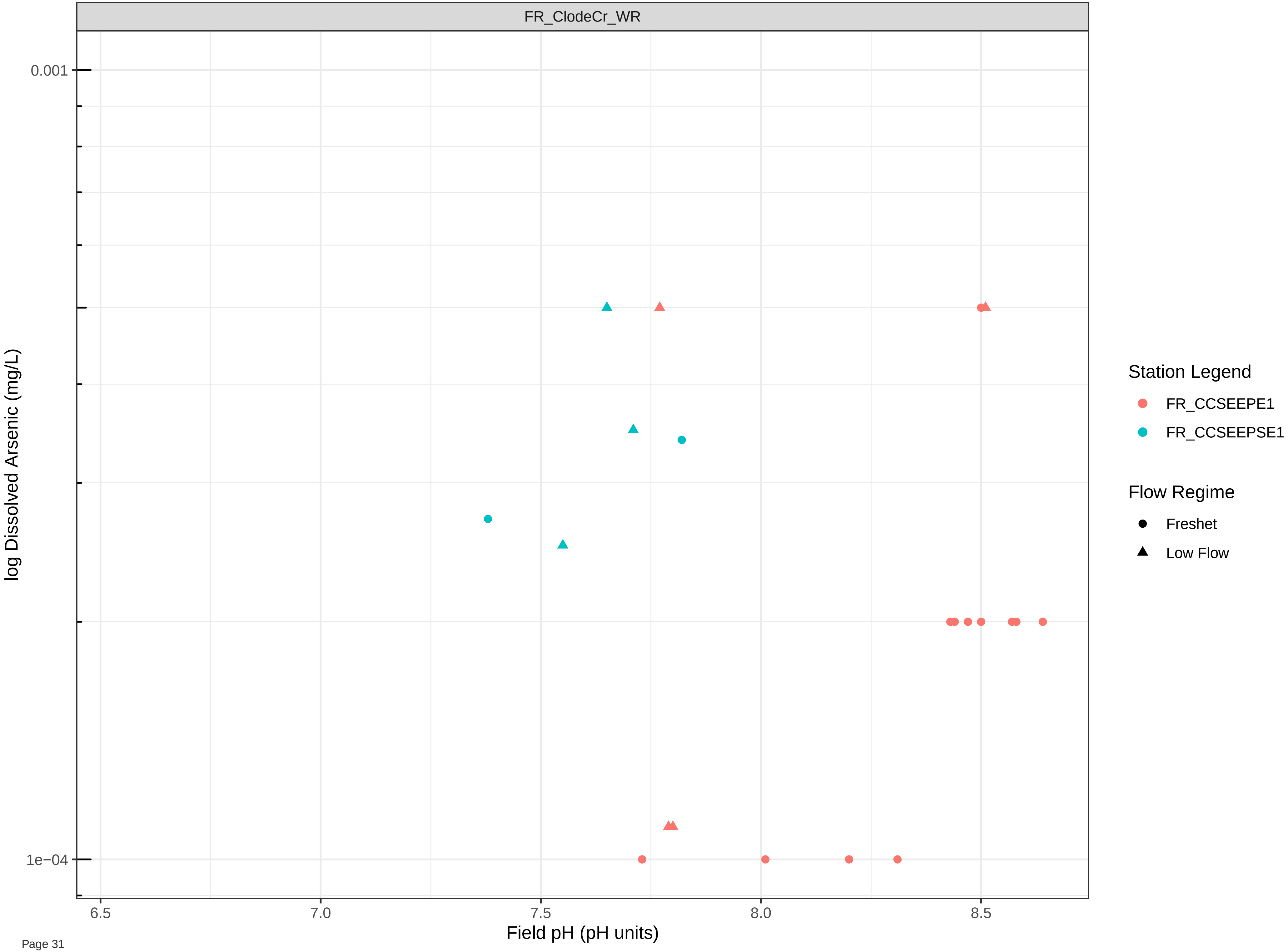

FR_SwiftWR_RockDrain_WR
0.001
1e−04
log Dissolved Antimony (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

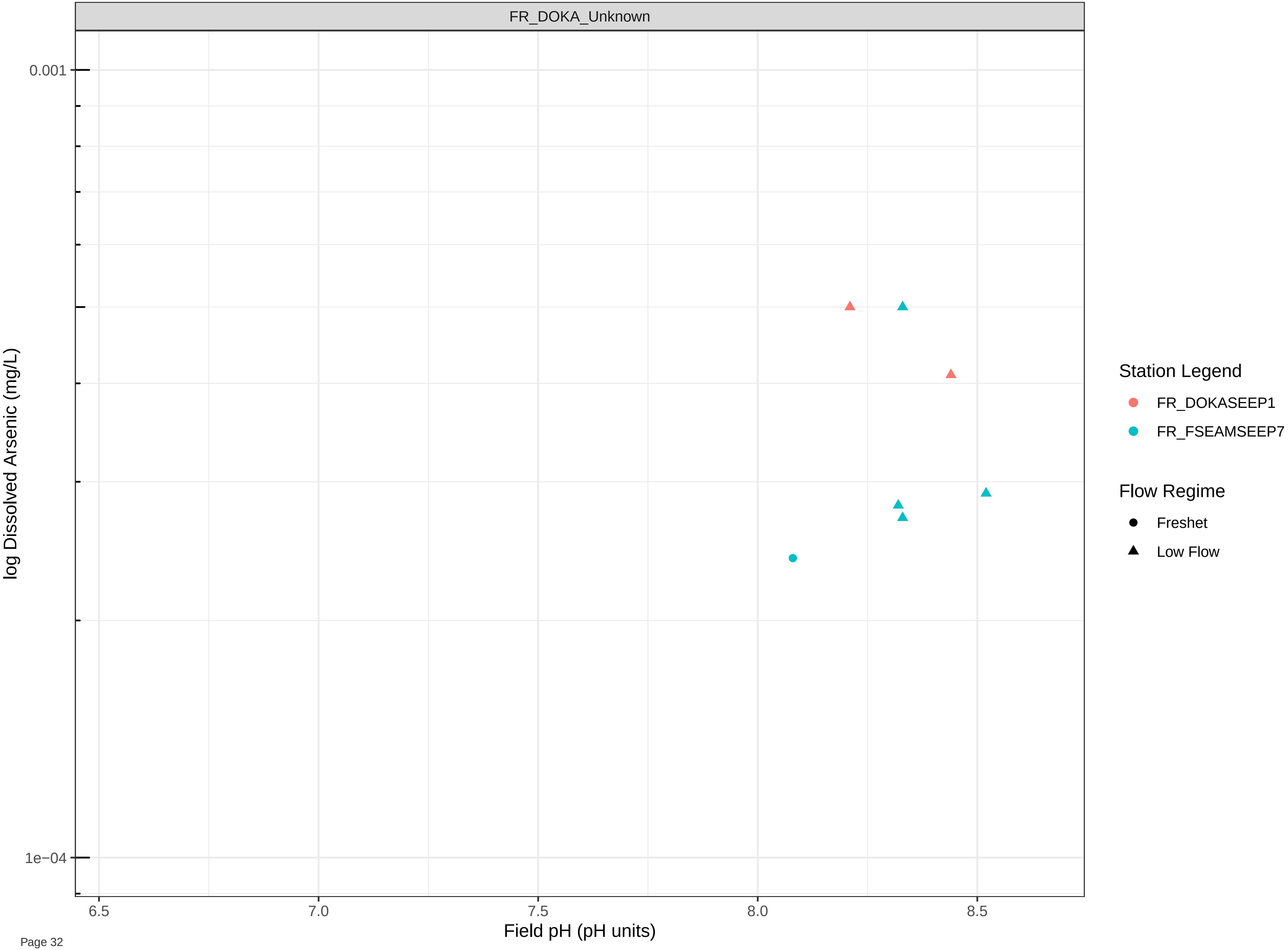

FR_TurnbullWREast_WR
0.001
1e−04
log Dissolved Antimony (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

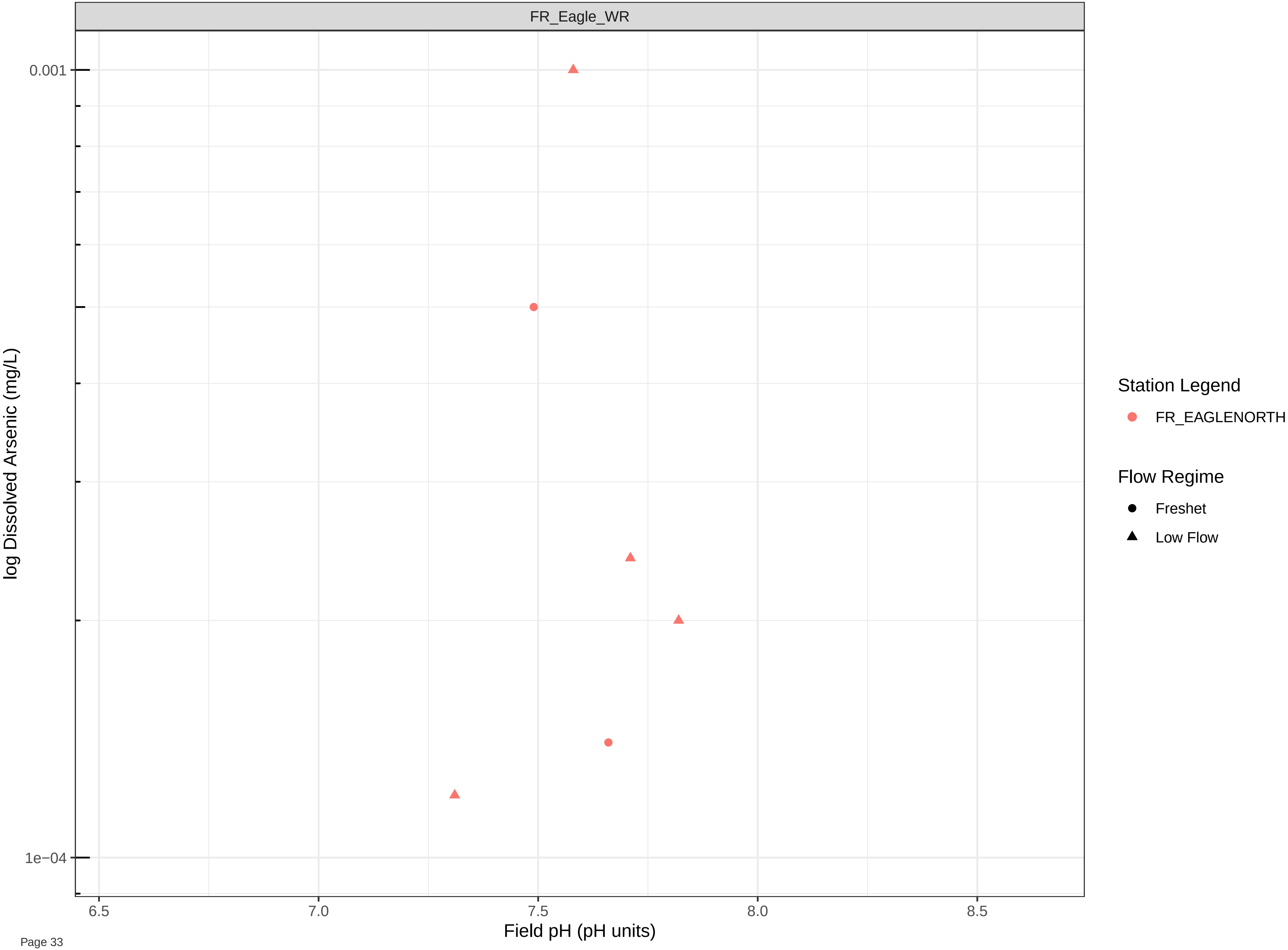

FR_TurnbullWRWest_WR
0.001
1e−04
log Dissolved Antimony (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_TBWSEEP1
● FR_TURNSEEP2
Flow Regime
● Freshet
▲ Low Flow

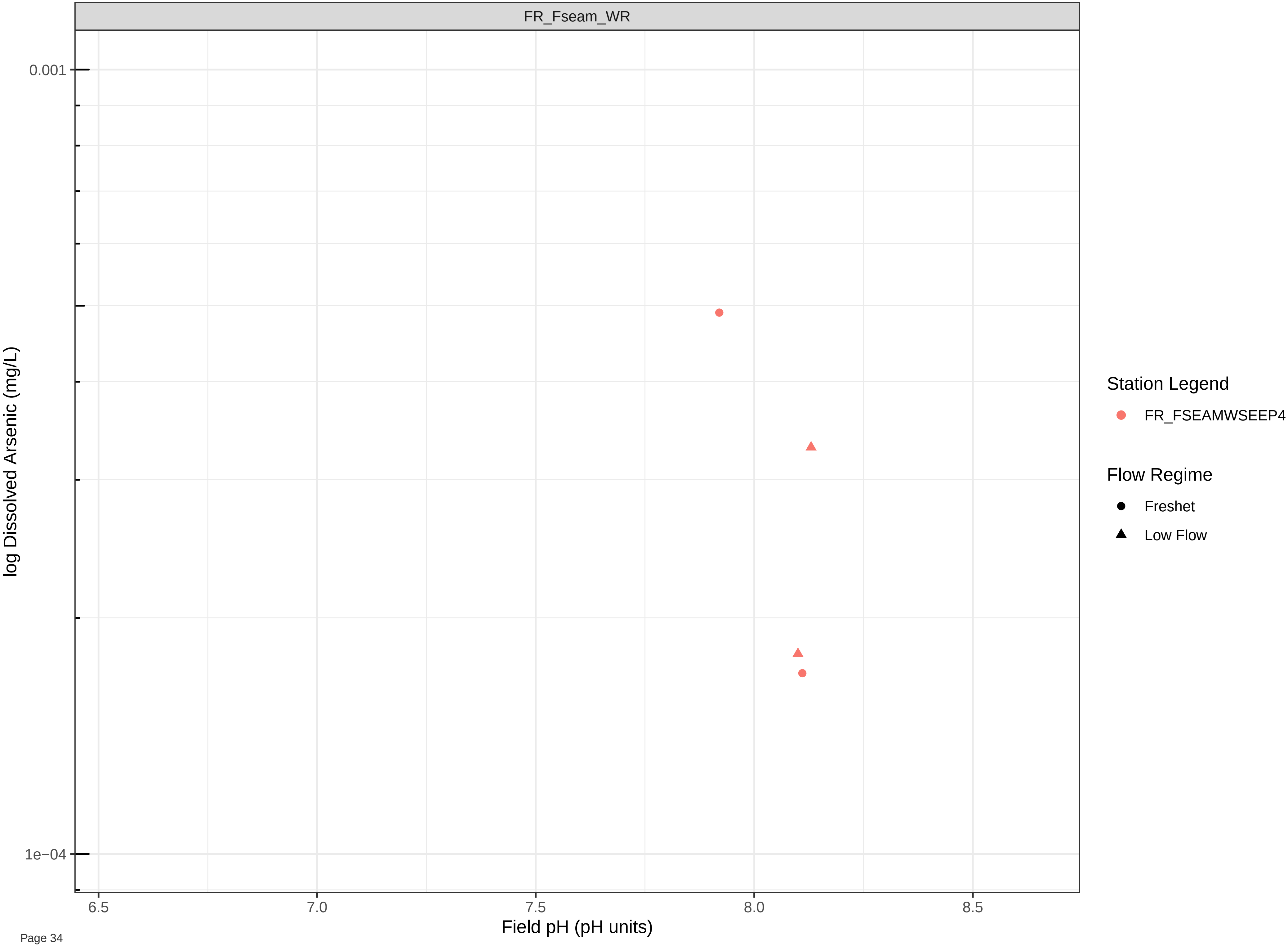

FR_A_WR
0.001
1e−04
log Dissolved Arsenic (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

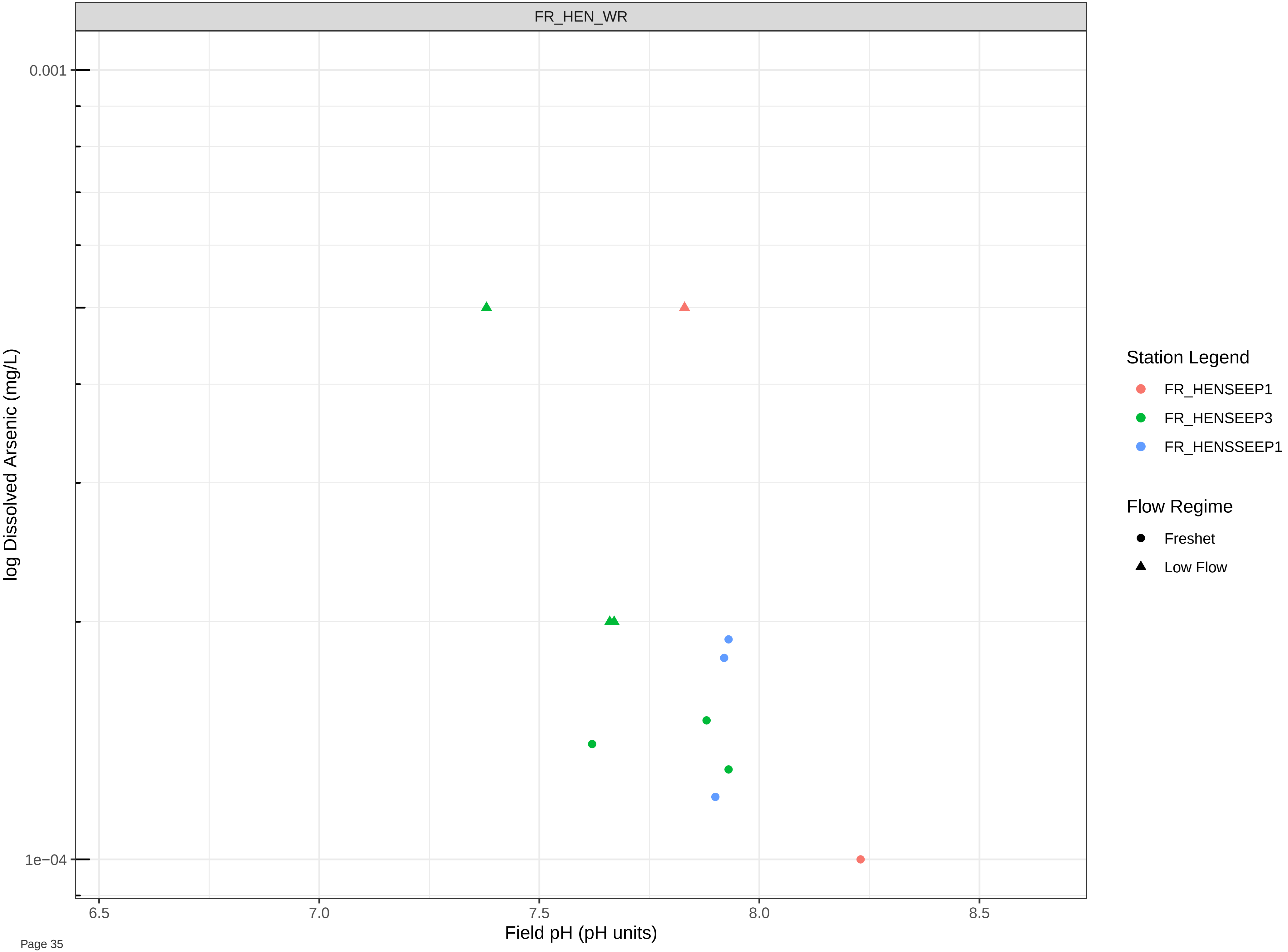

FR_Blain_CCR
0.001
1e−04
log Dissolved Arsenic (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow

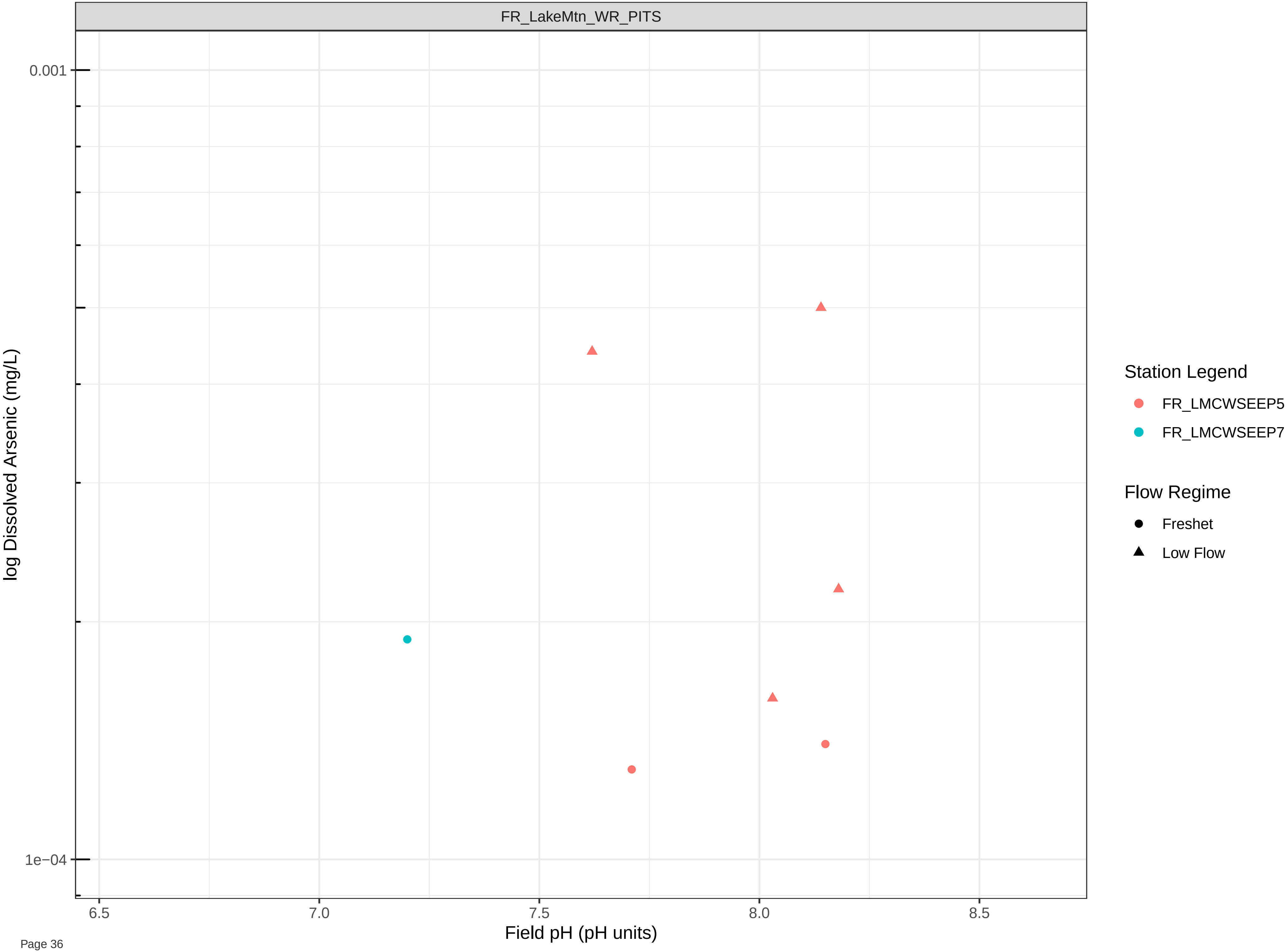

FR_ClodeCr_WR
0.001
1e−04
log Dissolved Arsenic (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

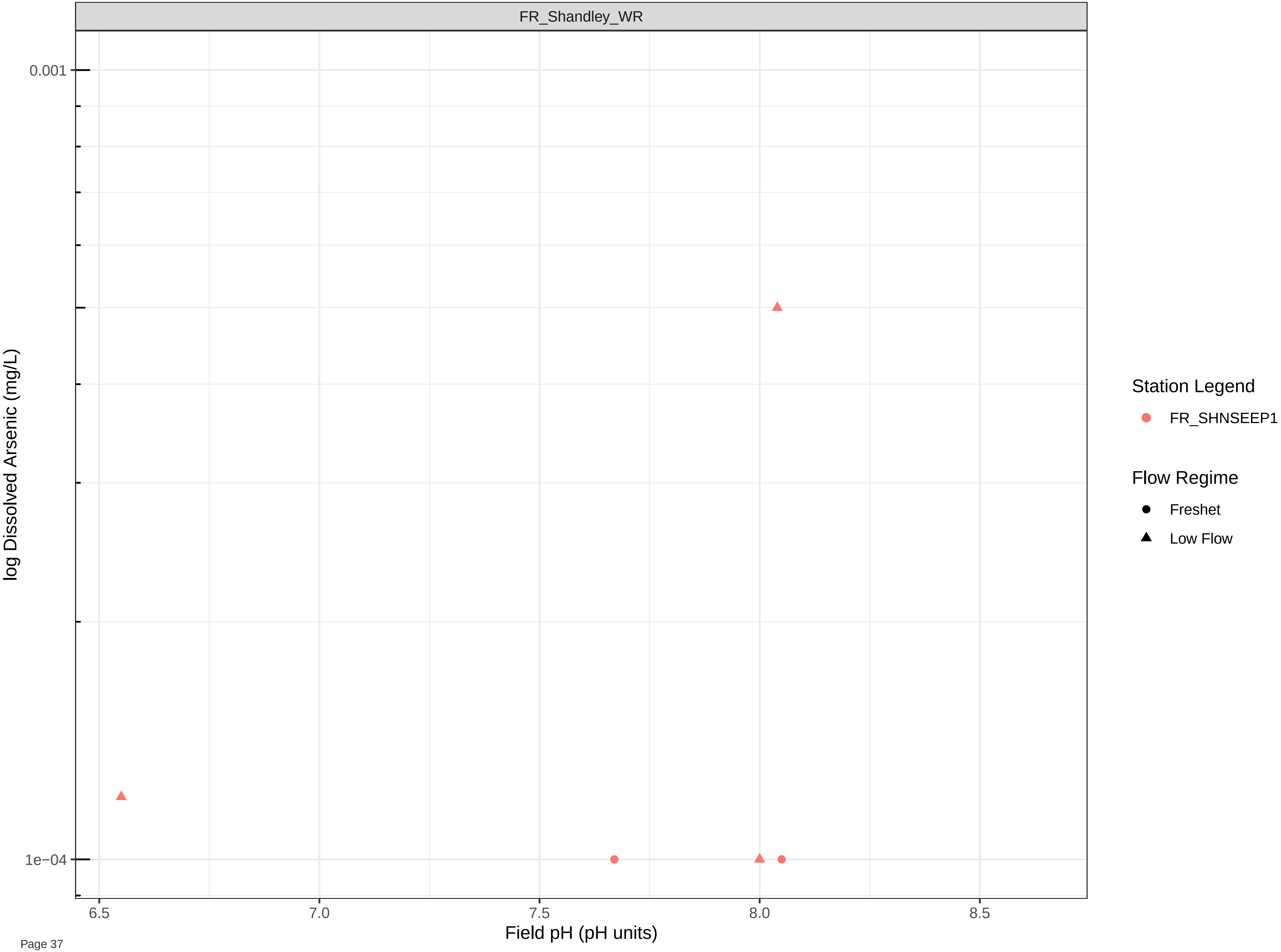

FR_DOKA_Unknown
0.001
1e−04
log Dissolved Arsenic (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

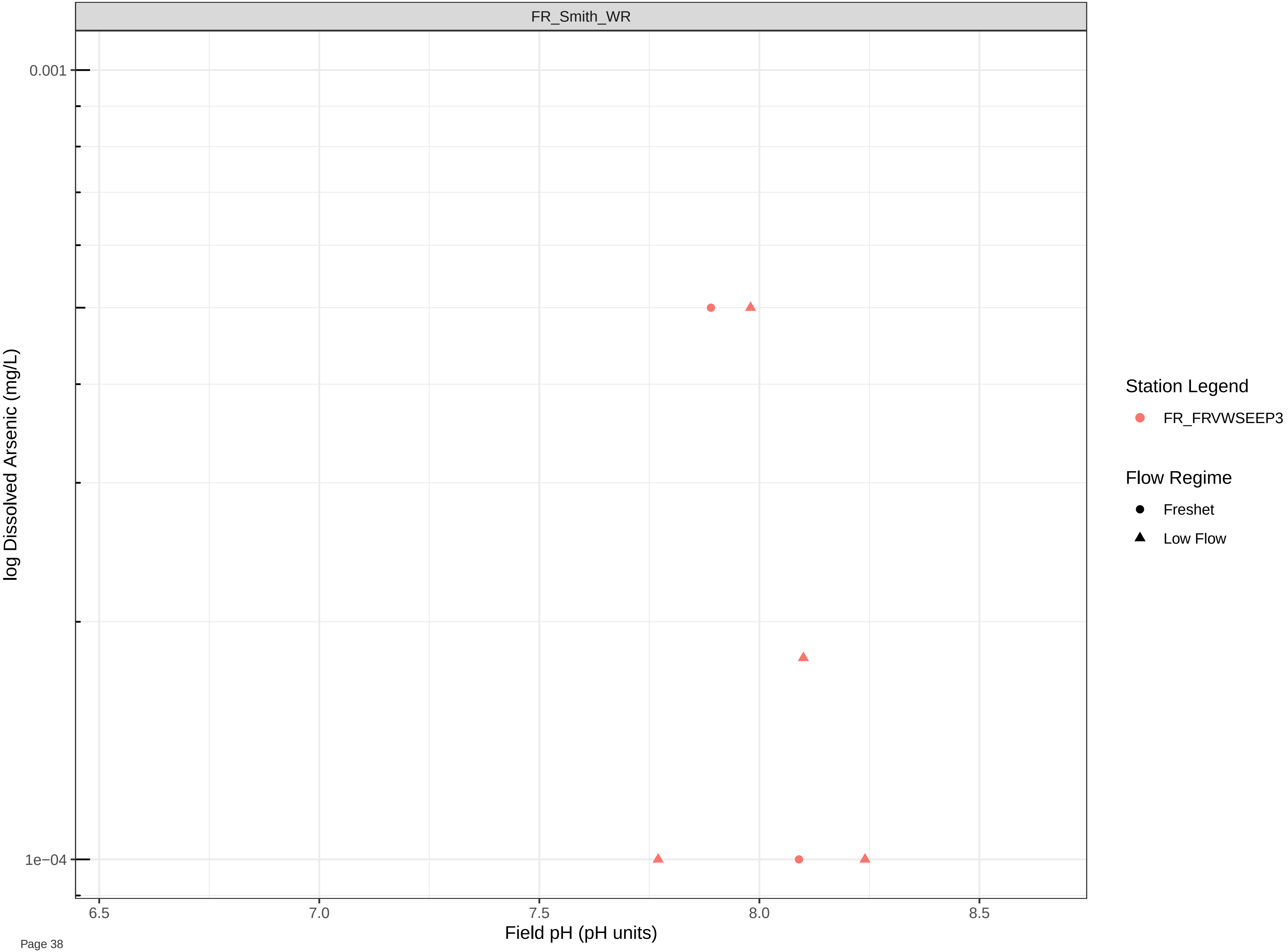

FR_Eagle_WR
0.001
1e−04
log Dissolved Arsenic (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

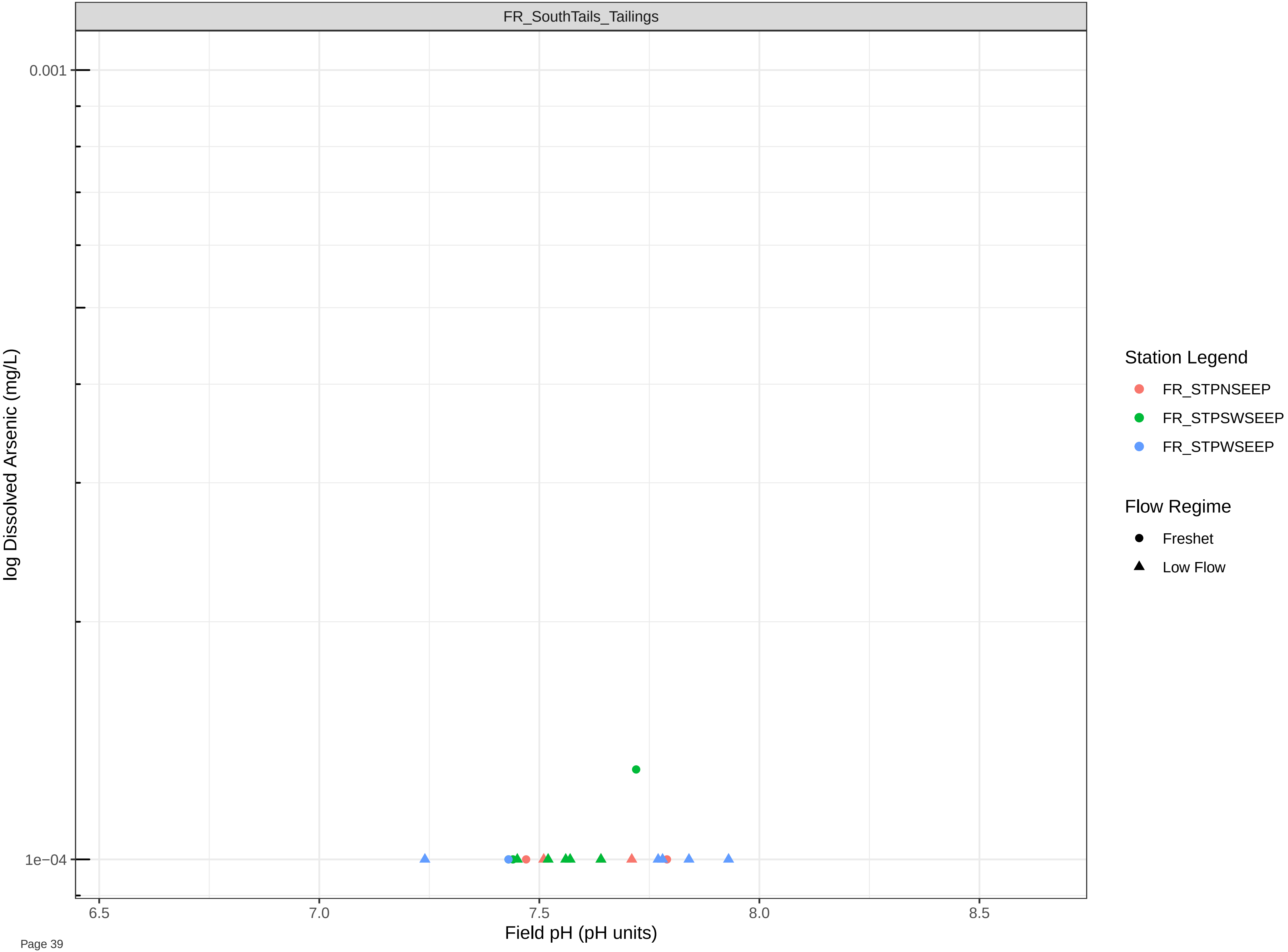

FR_Fseam_WR
0.001
1e−04
log Dissolved Arsenic (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

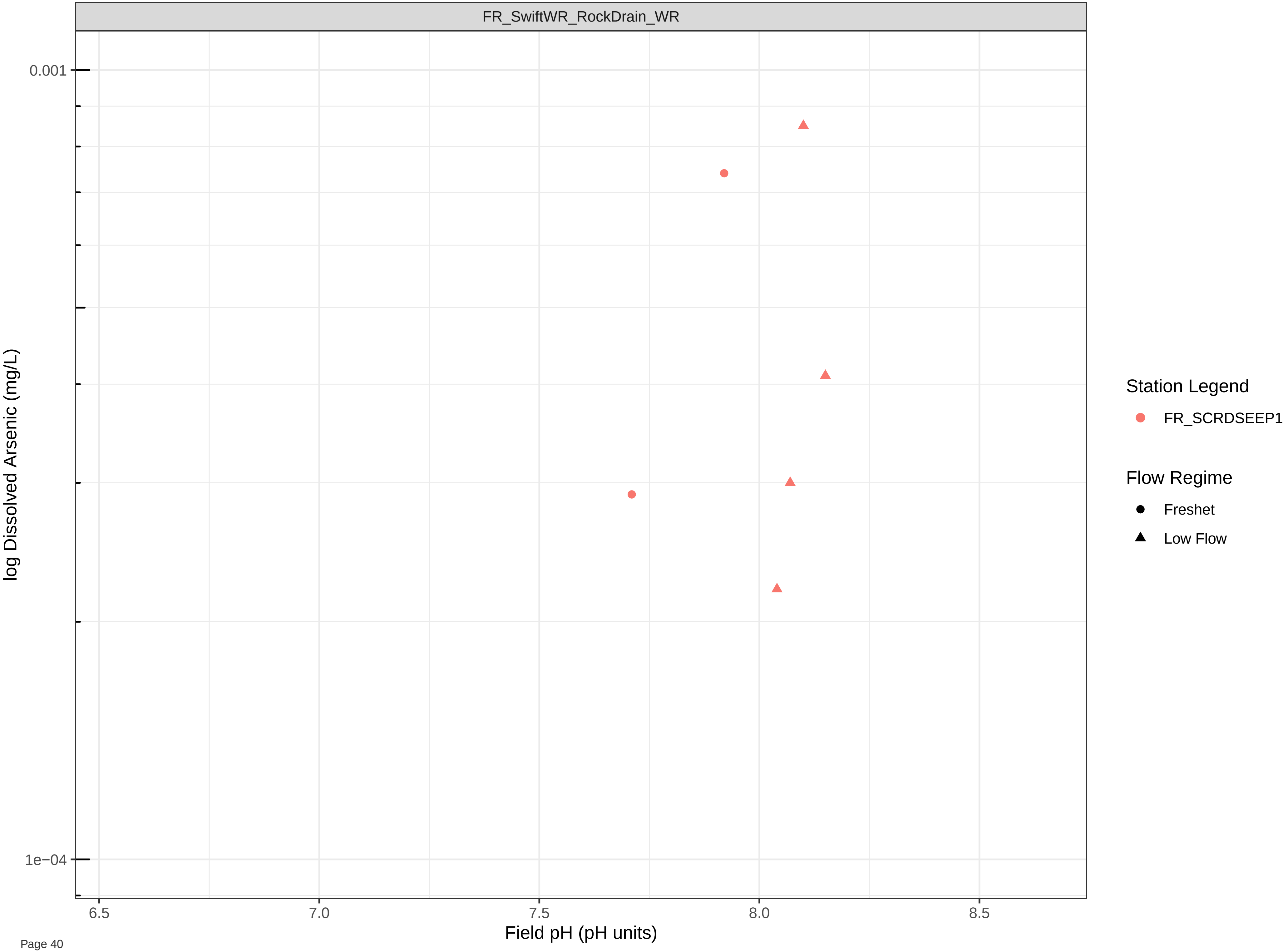

FR_HEN_WR
0.001
1e−04
log Dissolved Arsenic (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

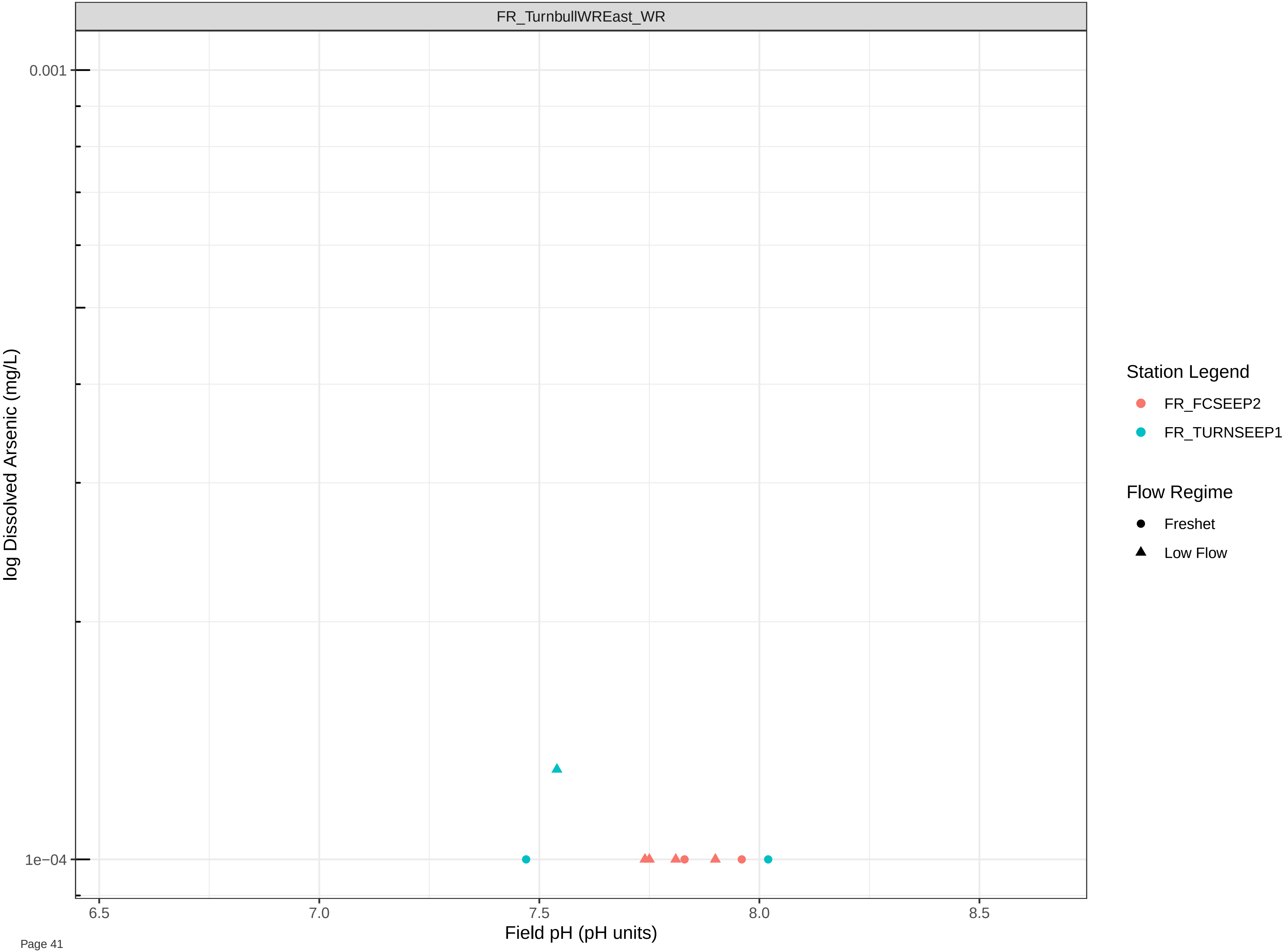

FR_LakeMtn_WR_PITS
0.001
1e−04
log Dissolved Arsenic (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

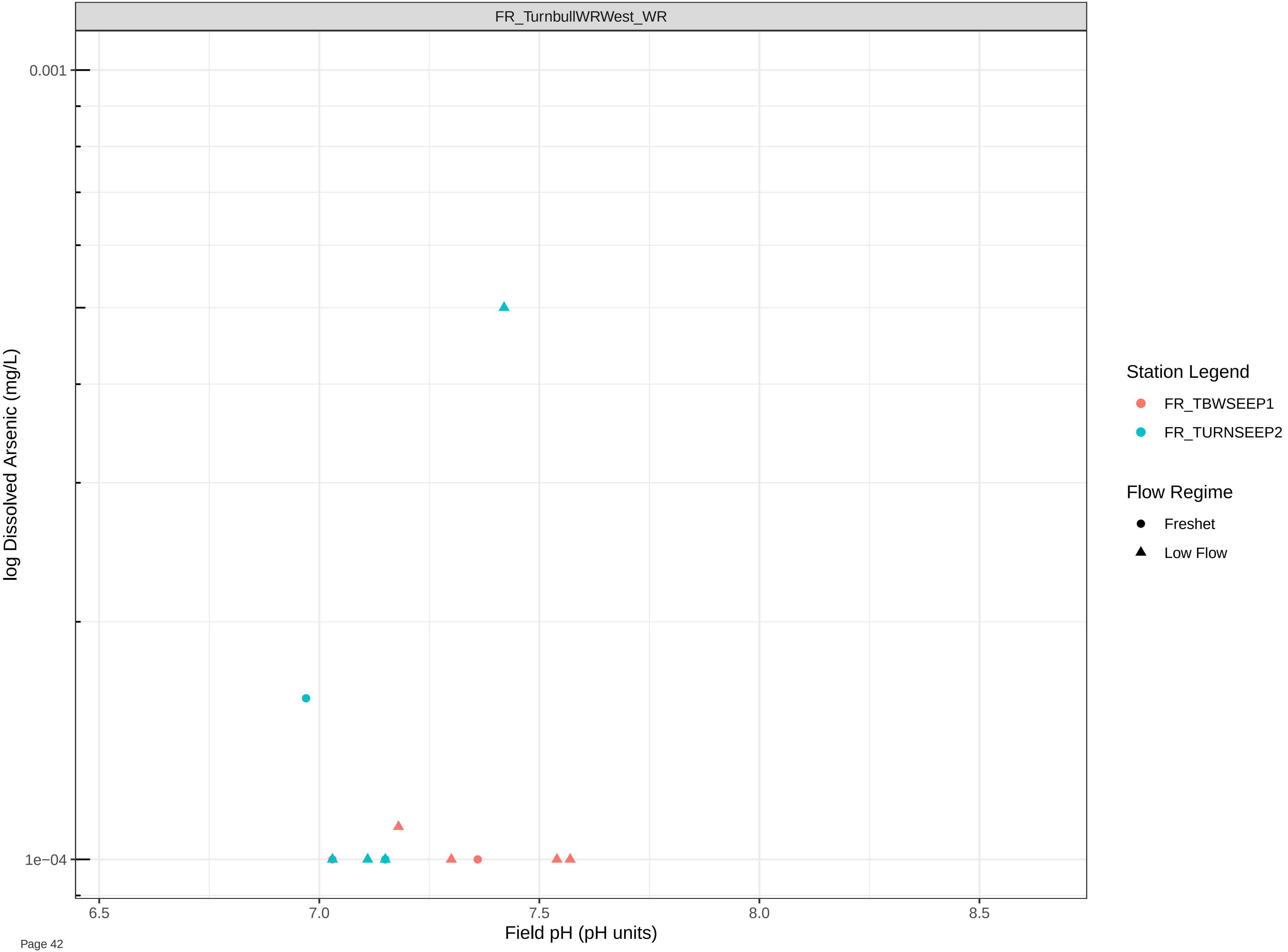

FR_Shandley_WR
0.001
1e−04
log Dissolved Arsenic (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

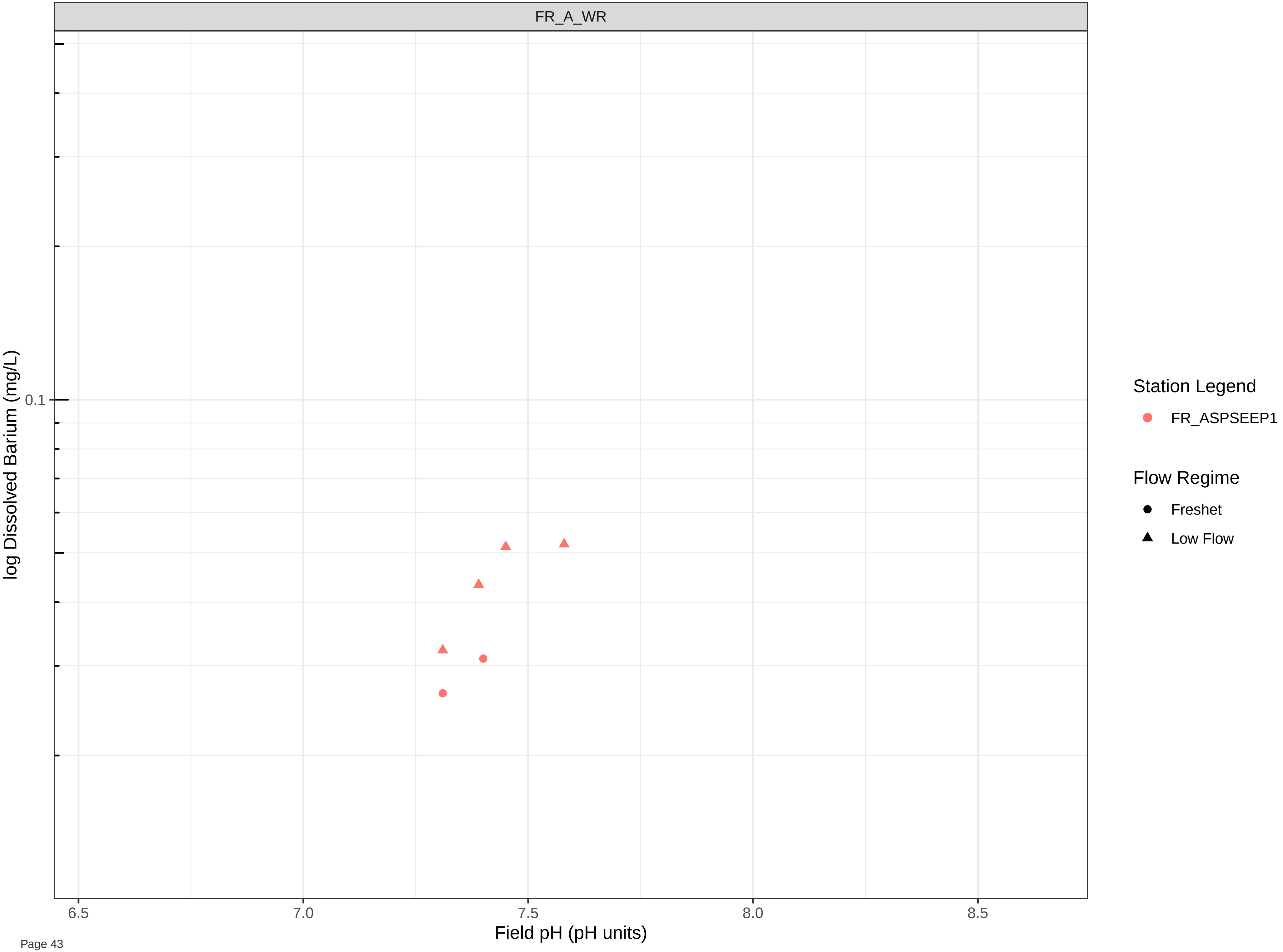

FR_Smith_WR
0.001
1e−04
log Dissolved Arsenic (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

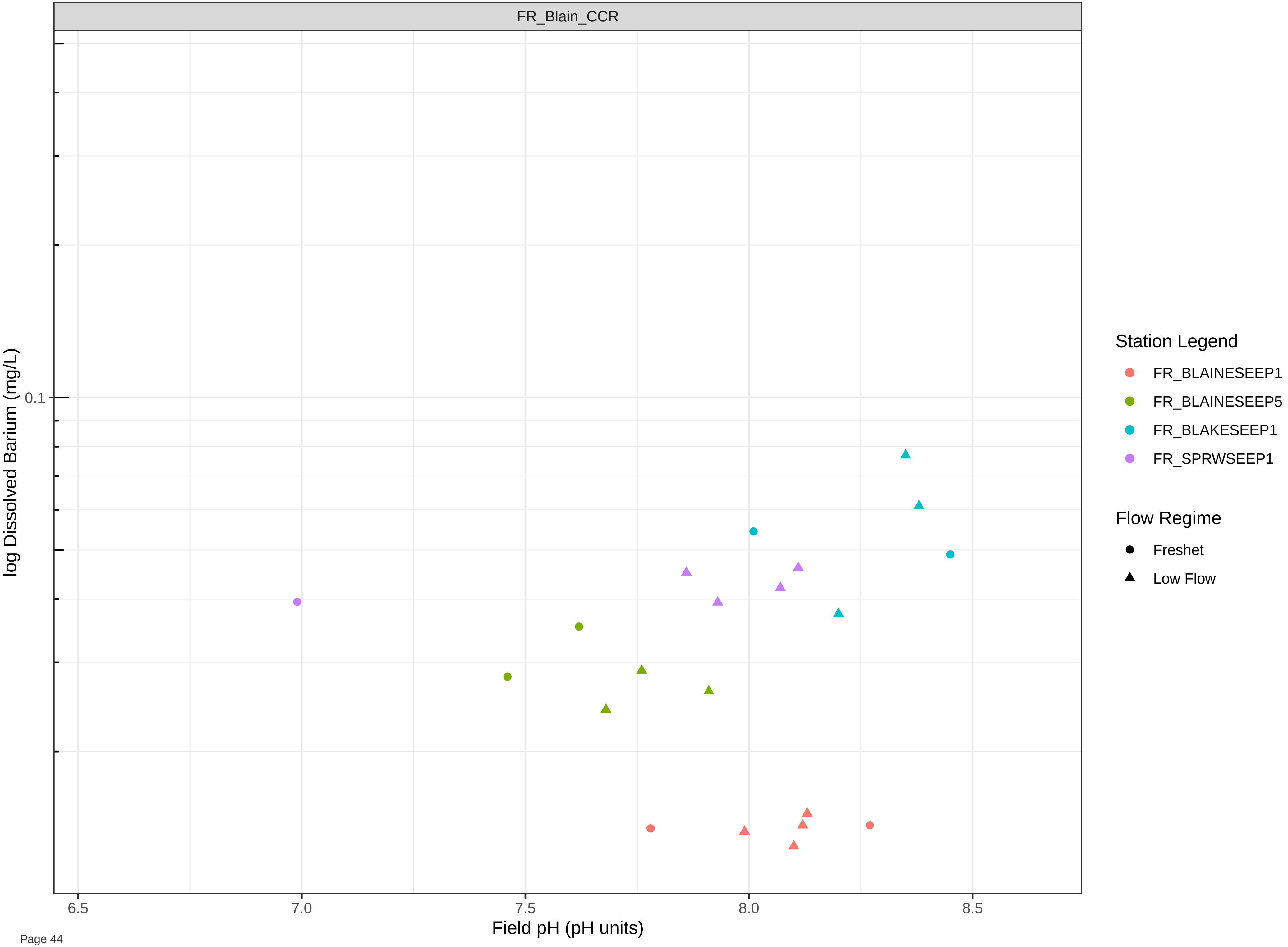

FR_SouthTails_Tailings
0.001
1e−04
log Dissolved Arsenic (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

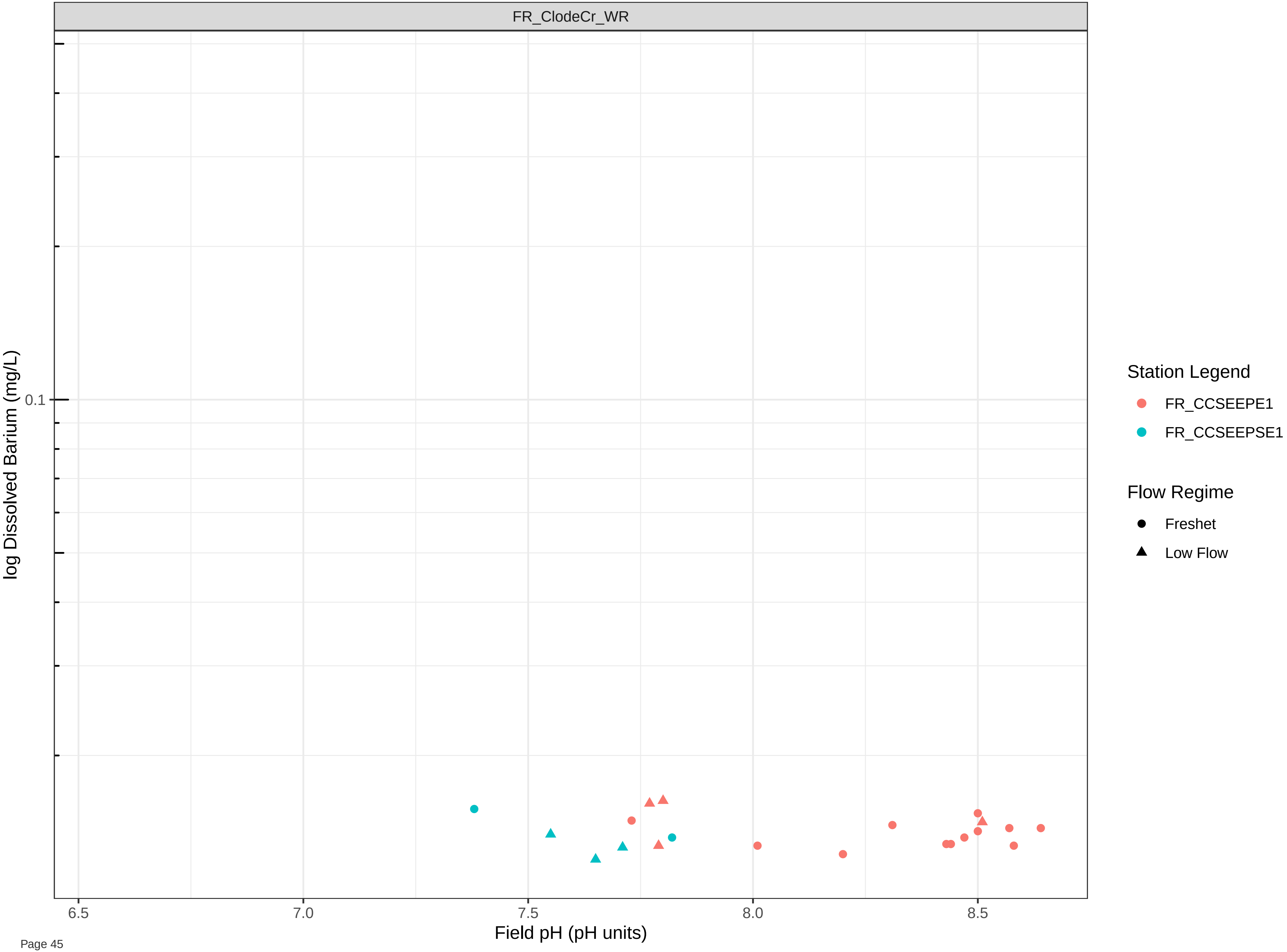

FR_SwiftWR_RockDrain_WR
0.001
1e−04
log Dissolved Arsenic (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

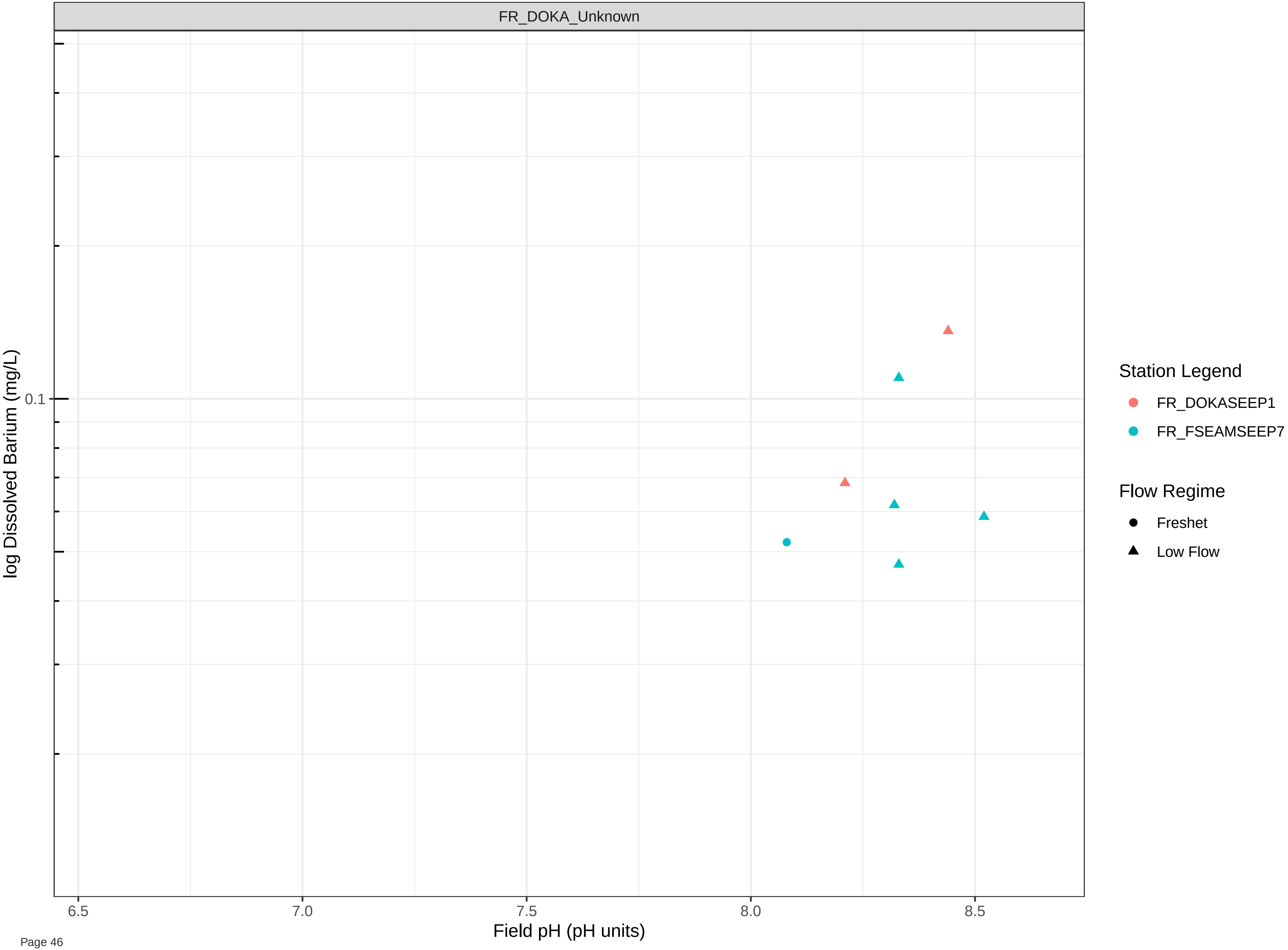

FR_TurnbullWREast_WR
log Dissolved Arsenic (mg/L)
0.001
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

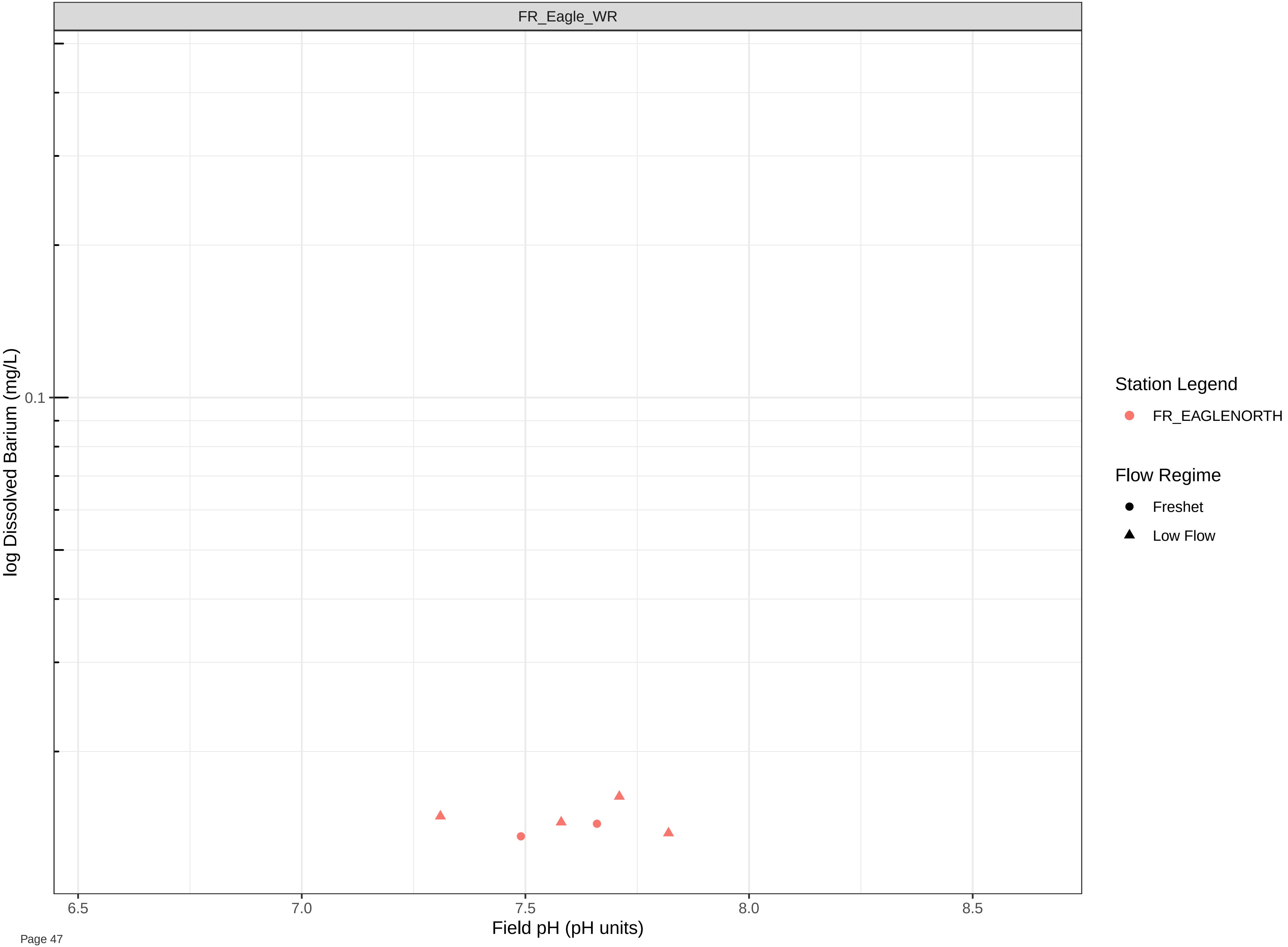

FR_TurnbullWRWest_WR
0.001
1e−04
log Dissolved Arsenic (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

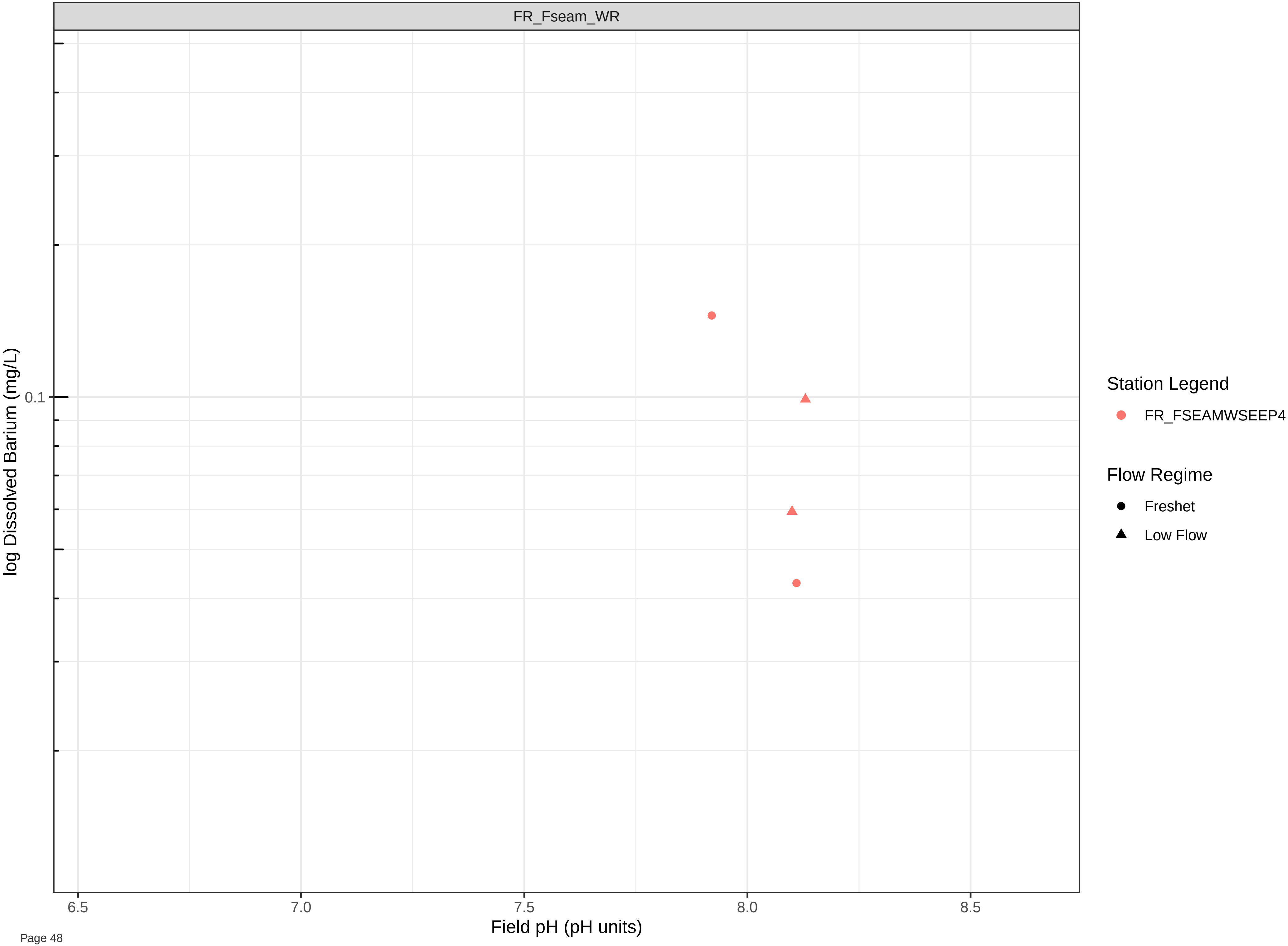

FR_A_WR
log Dissolved Barium (mg/L)
0.1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

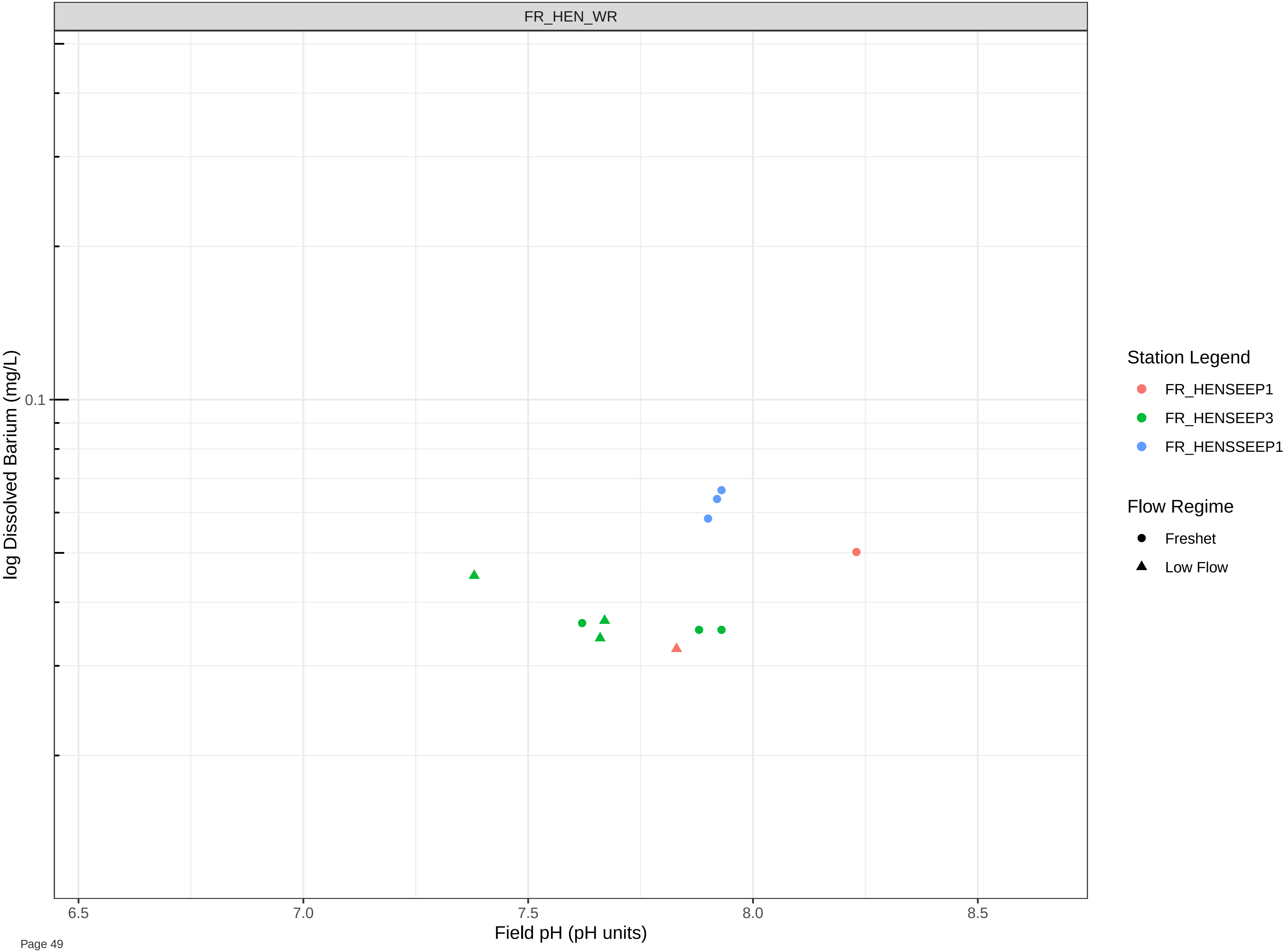

FR_Blain_CCR
log Dissolved Barium (mg/L)
0.1
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

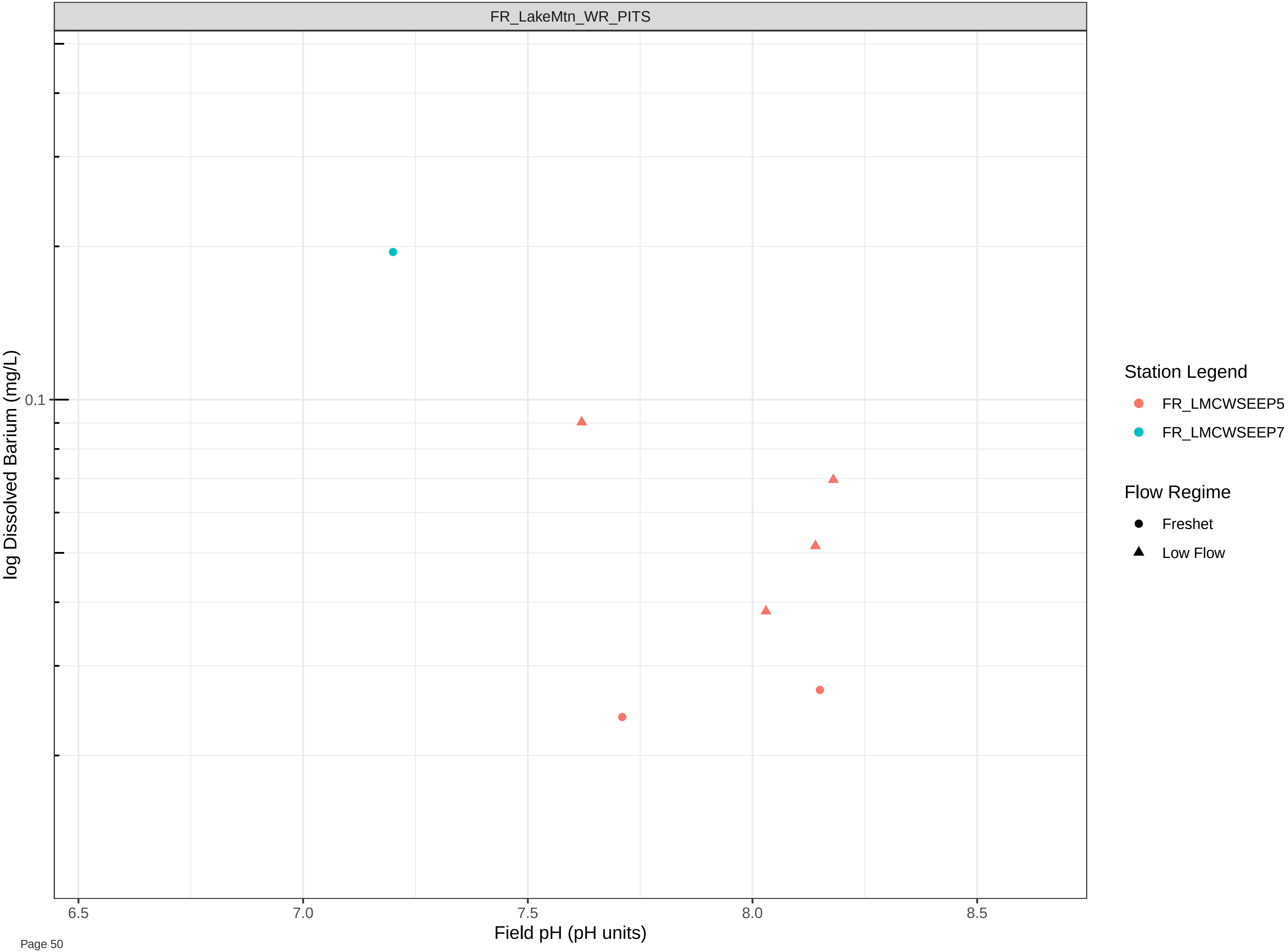

FR_ClodeCr_WR
log Dissolved Barium (mg/L)
0.1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

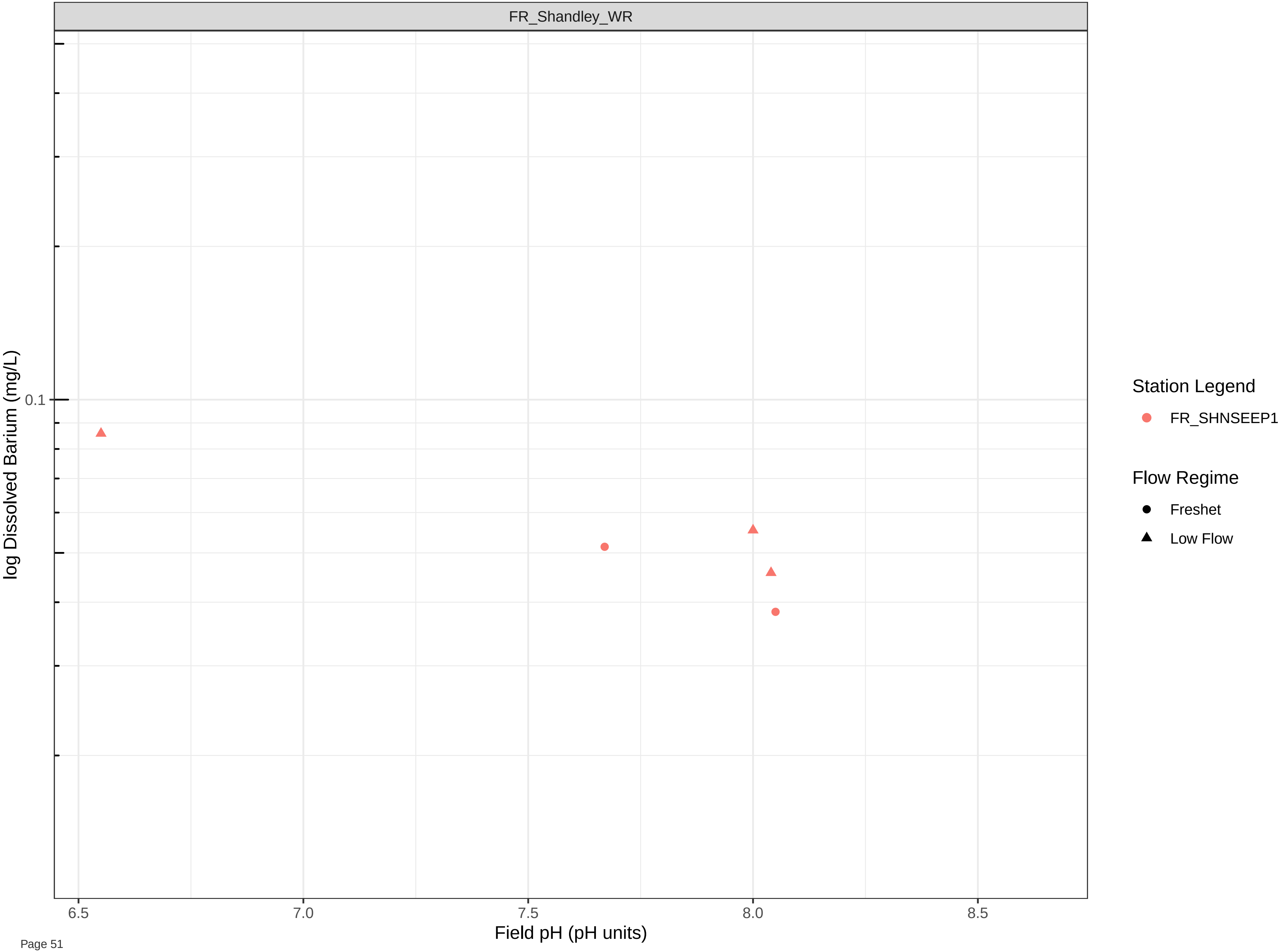

FR_DOKA_Unknown
log Dissolved Barium (mg/L)
0.1
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

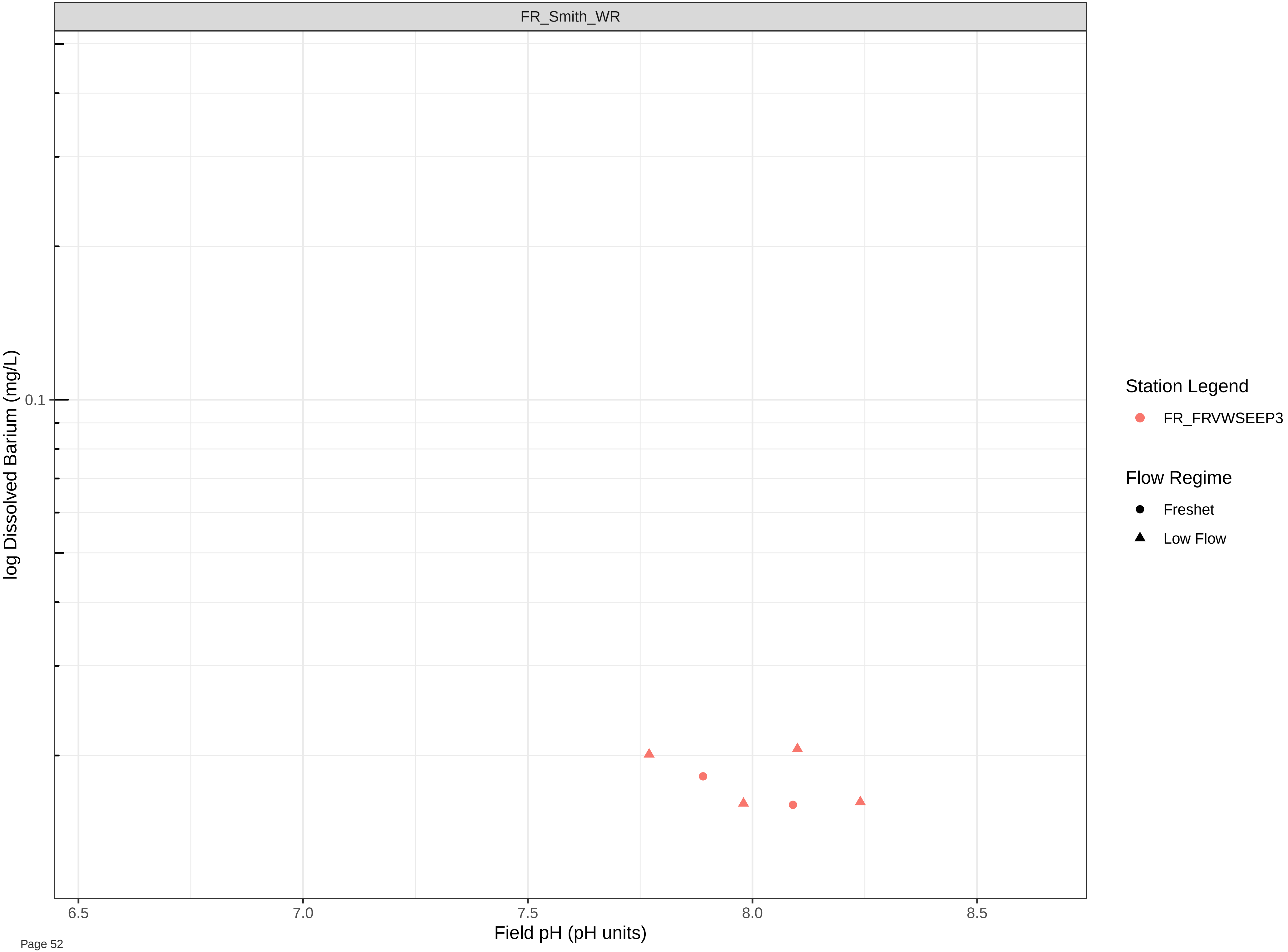

FR_Eagle_WR
log Dissolved Barium (mg/L)
0.1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

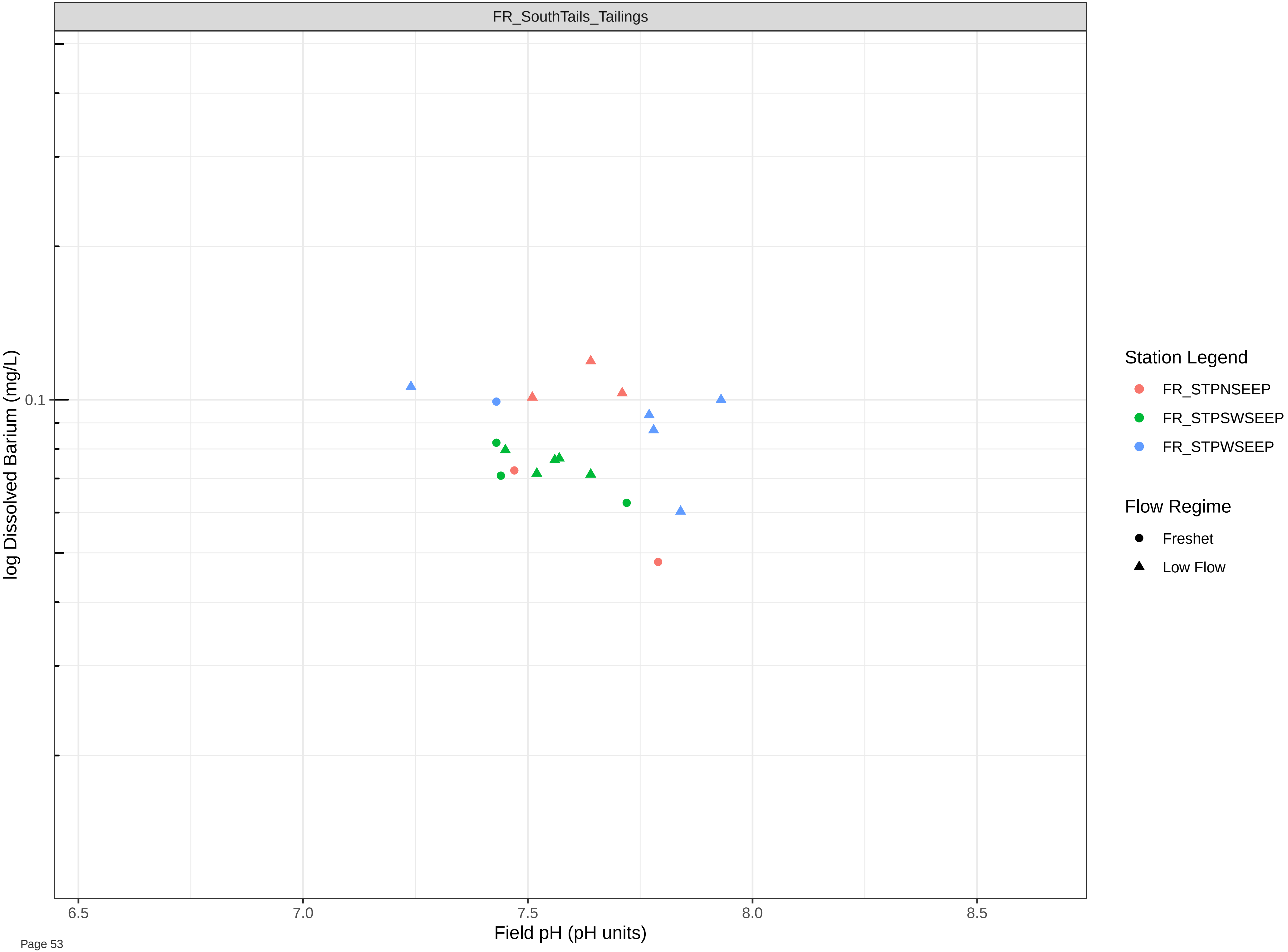

FR_Fseam_WR
log Dissolved Barium (mg/L)
0.1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

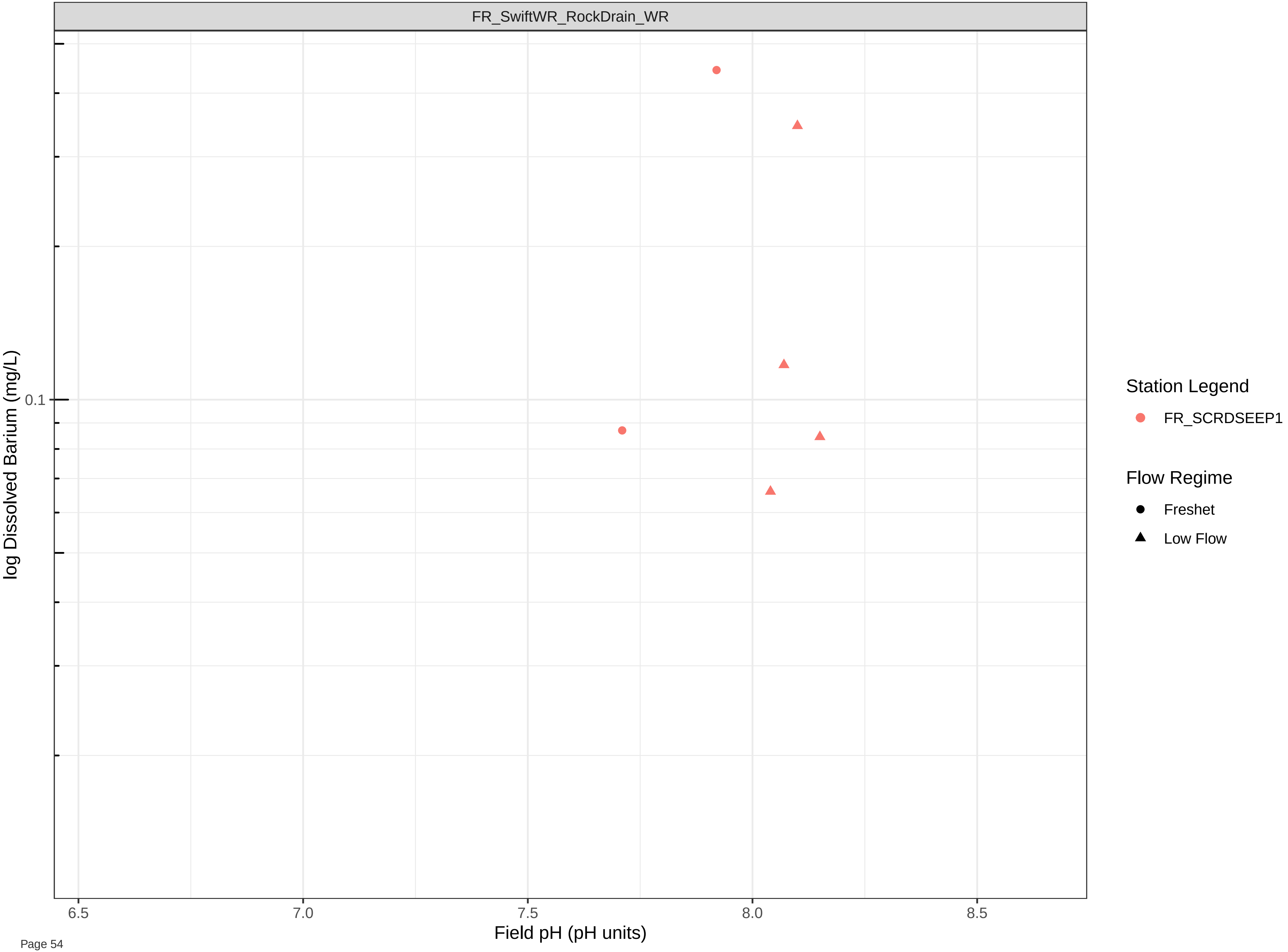

FR_HEN_WR
log Dissolved Barium (mg/L)
0.1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

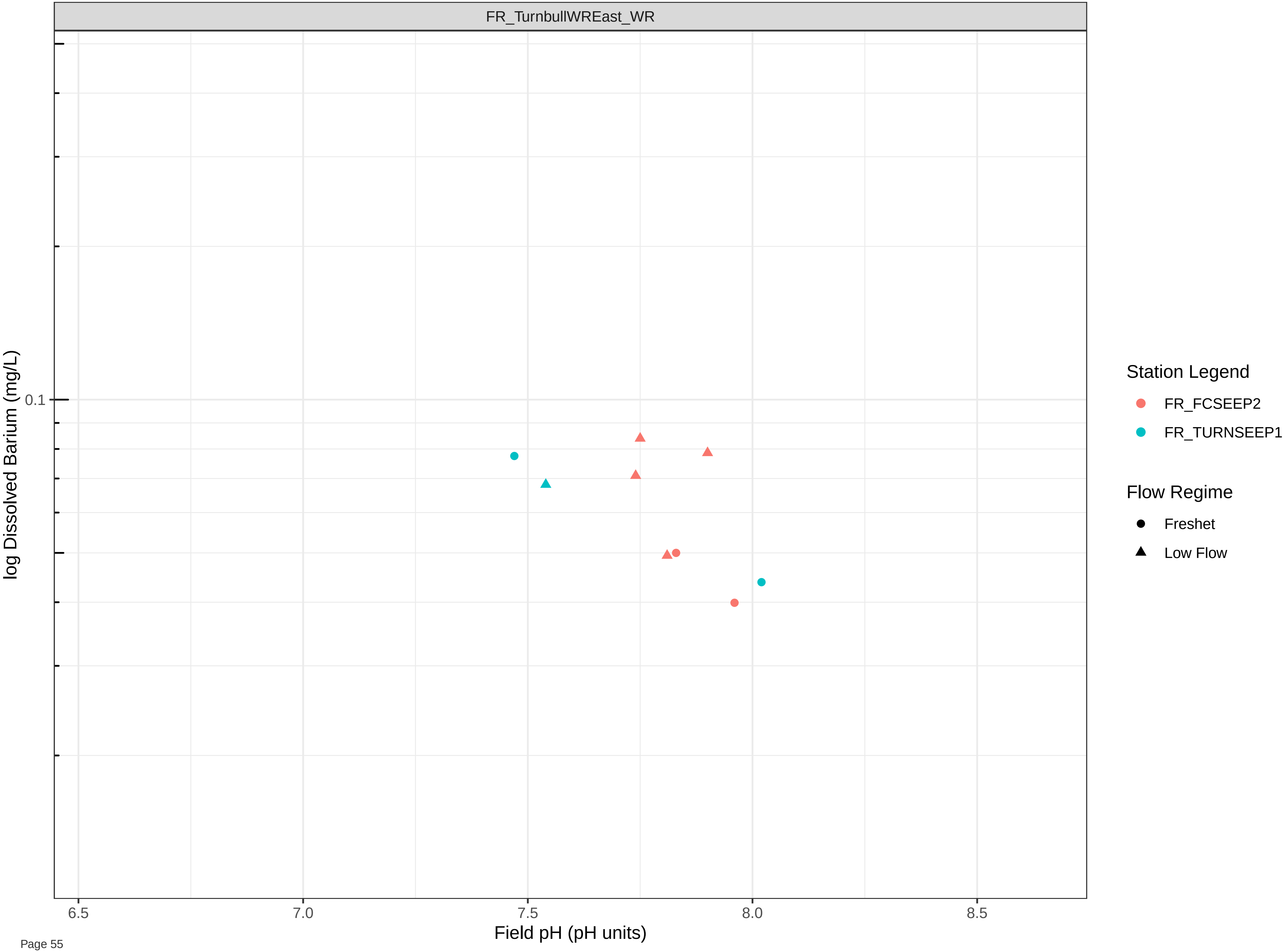

FR_LakeMtn_WR_PITS
log Dissolved Barium (mg/L)
0.1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

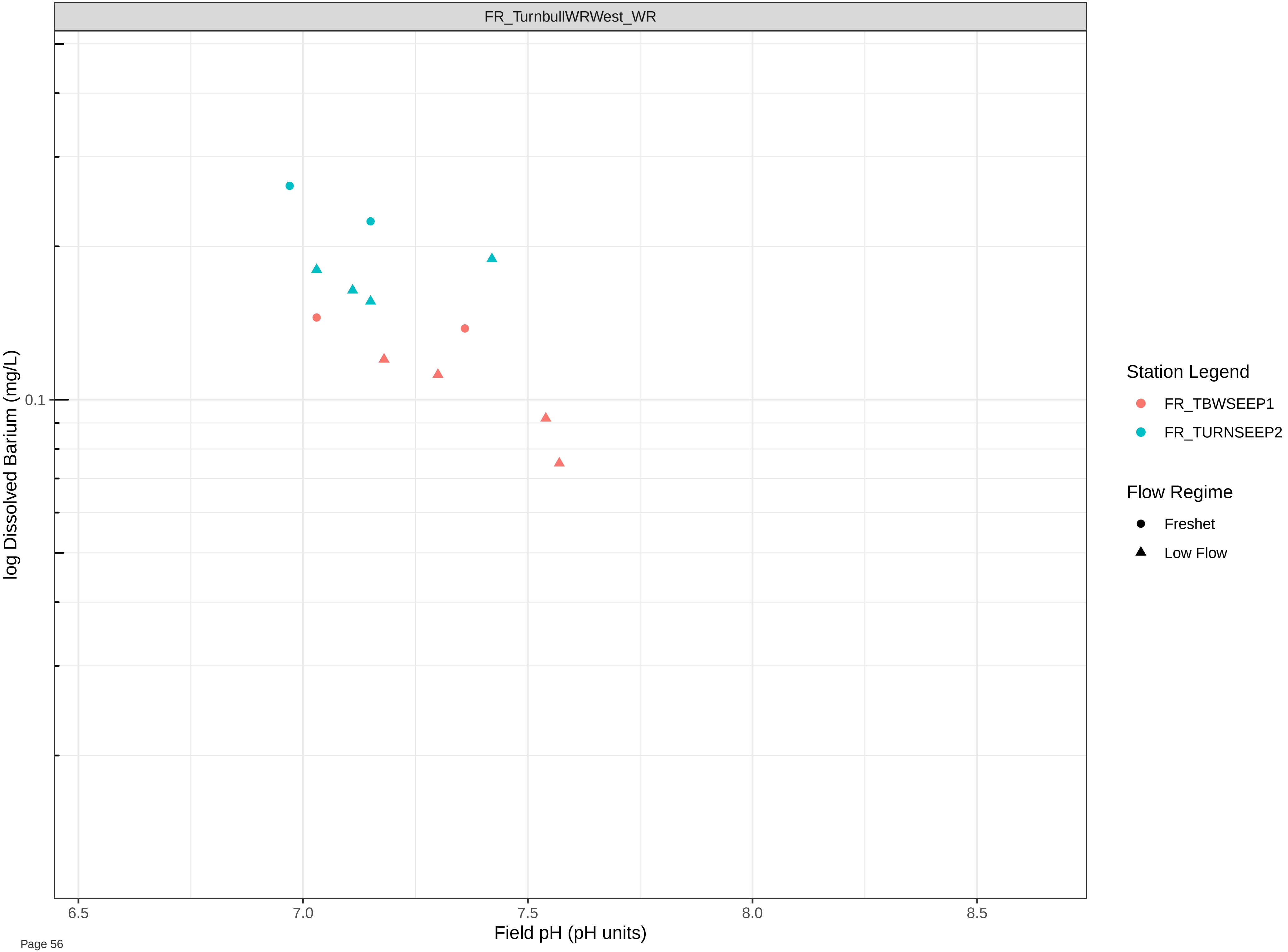

FR_Shandley_WR
log Dissolved Barium (mg/L)
0.1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

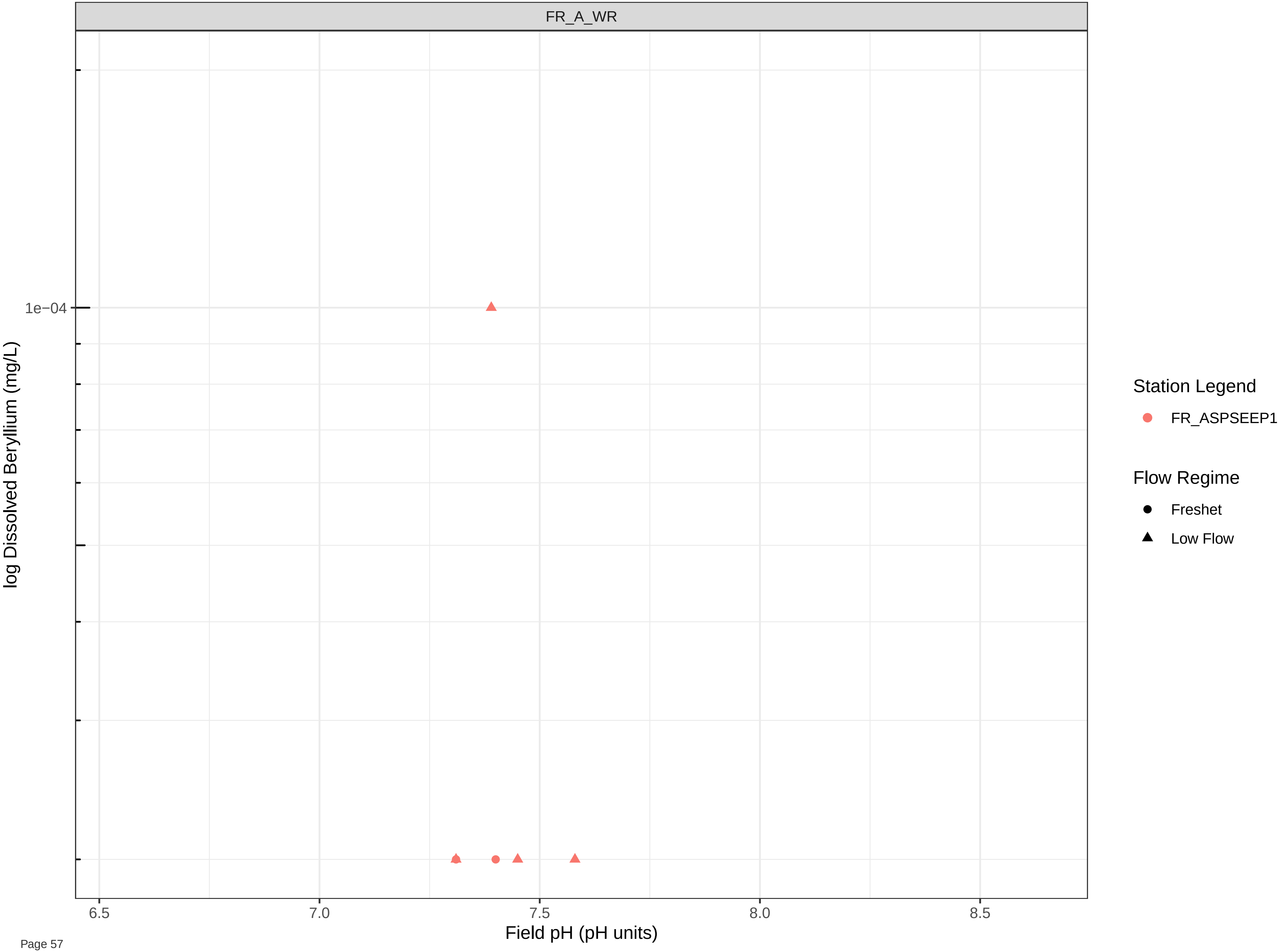

FR_Smith_WR
log Dissolved Barium (mg/L)
0.1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

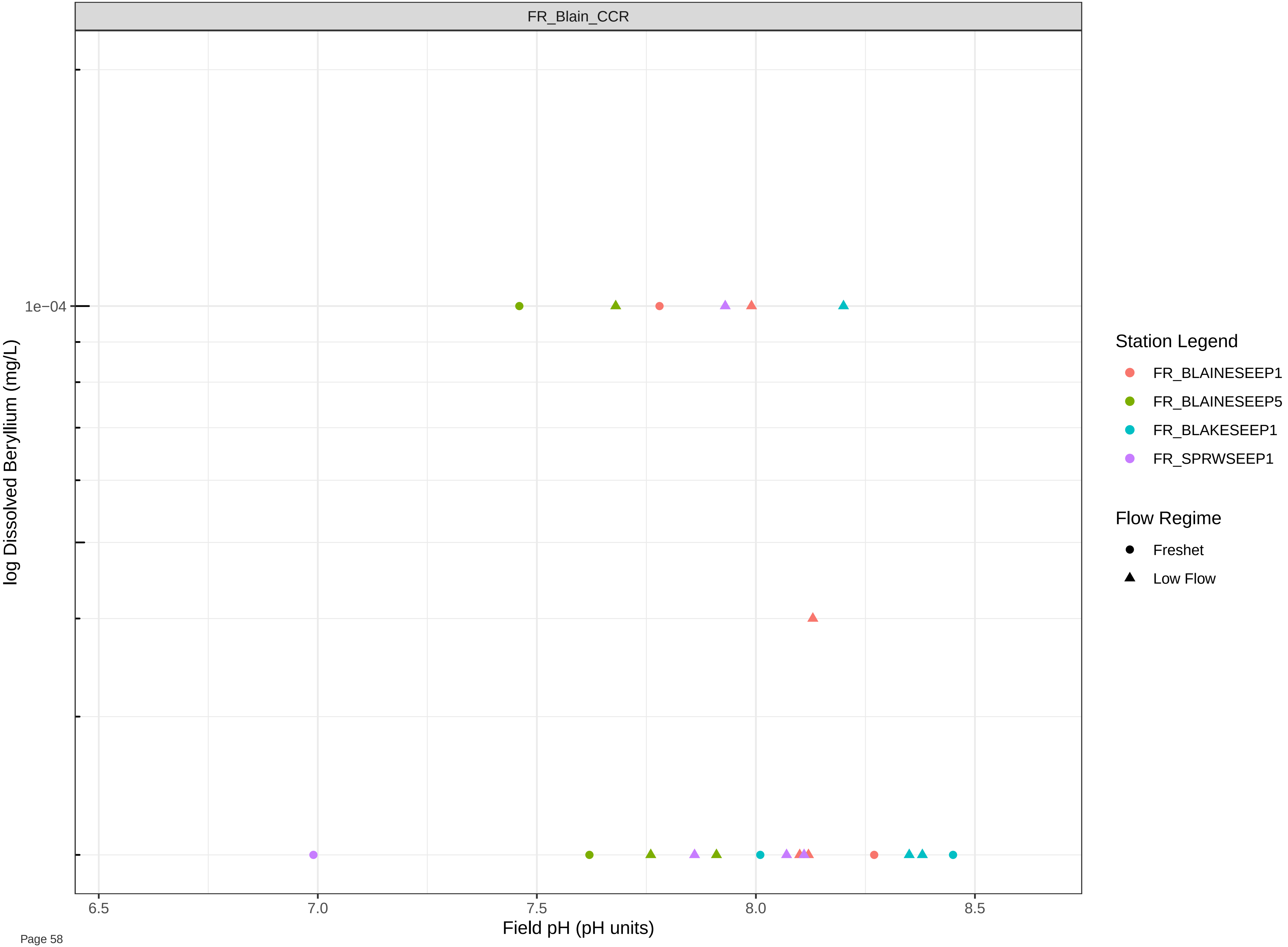

FR_SouthTails_Tailings
log Dissolved Barium (mg/L)
0.1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_STPNSEEP
● FR_STPSWSEEP
● FR_STPWSEEP
Flow Regime
● Freshet
▲ Low Flow

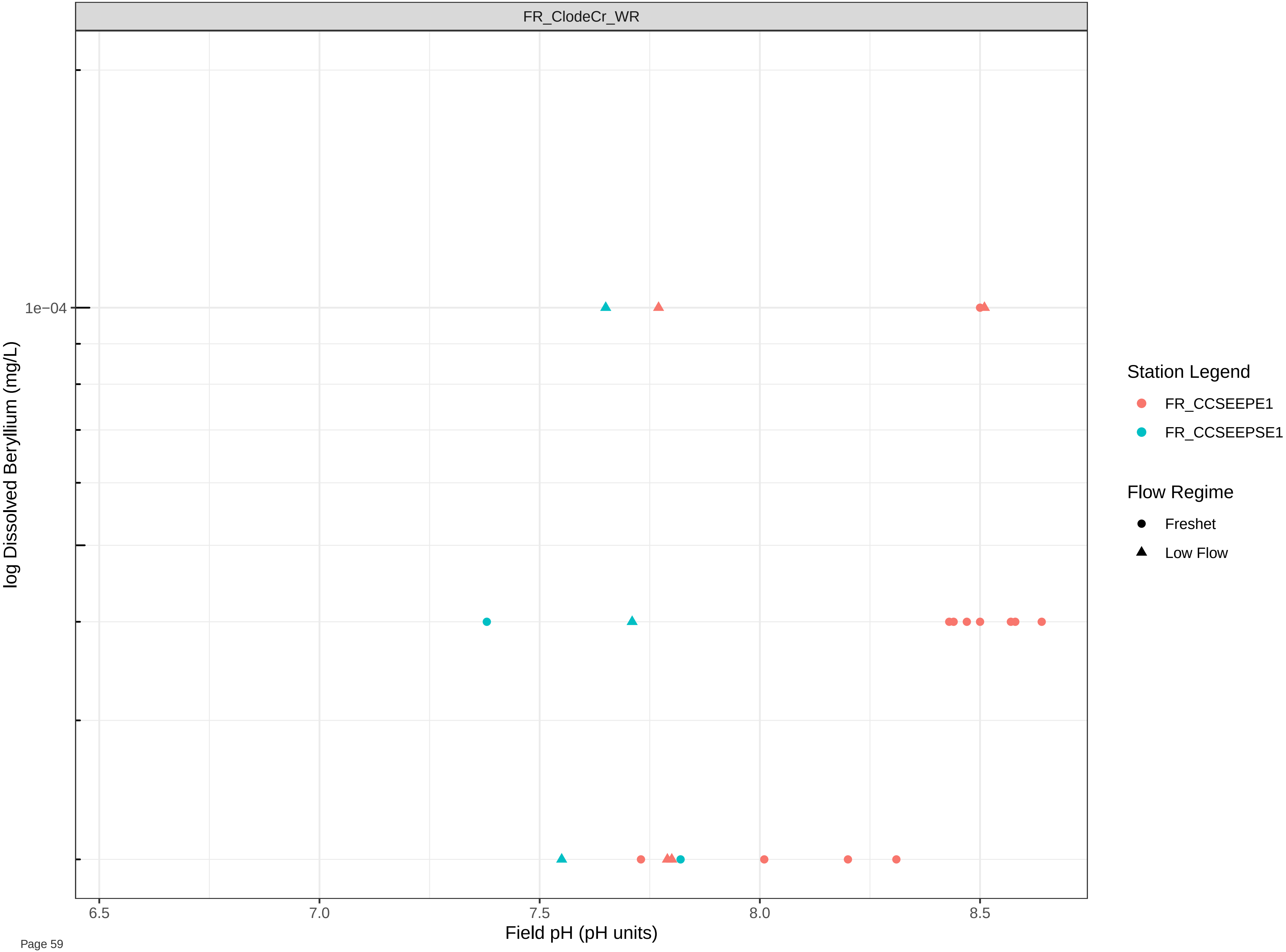

FR_SwiftWR_RockDrain_WR
log Dissolved Barium (mg/L)
0.1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

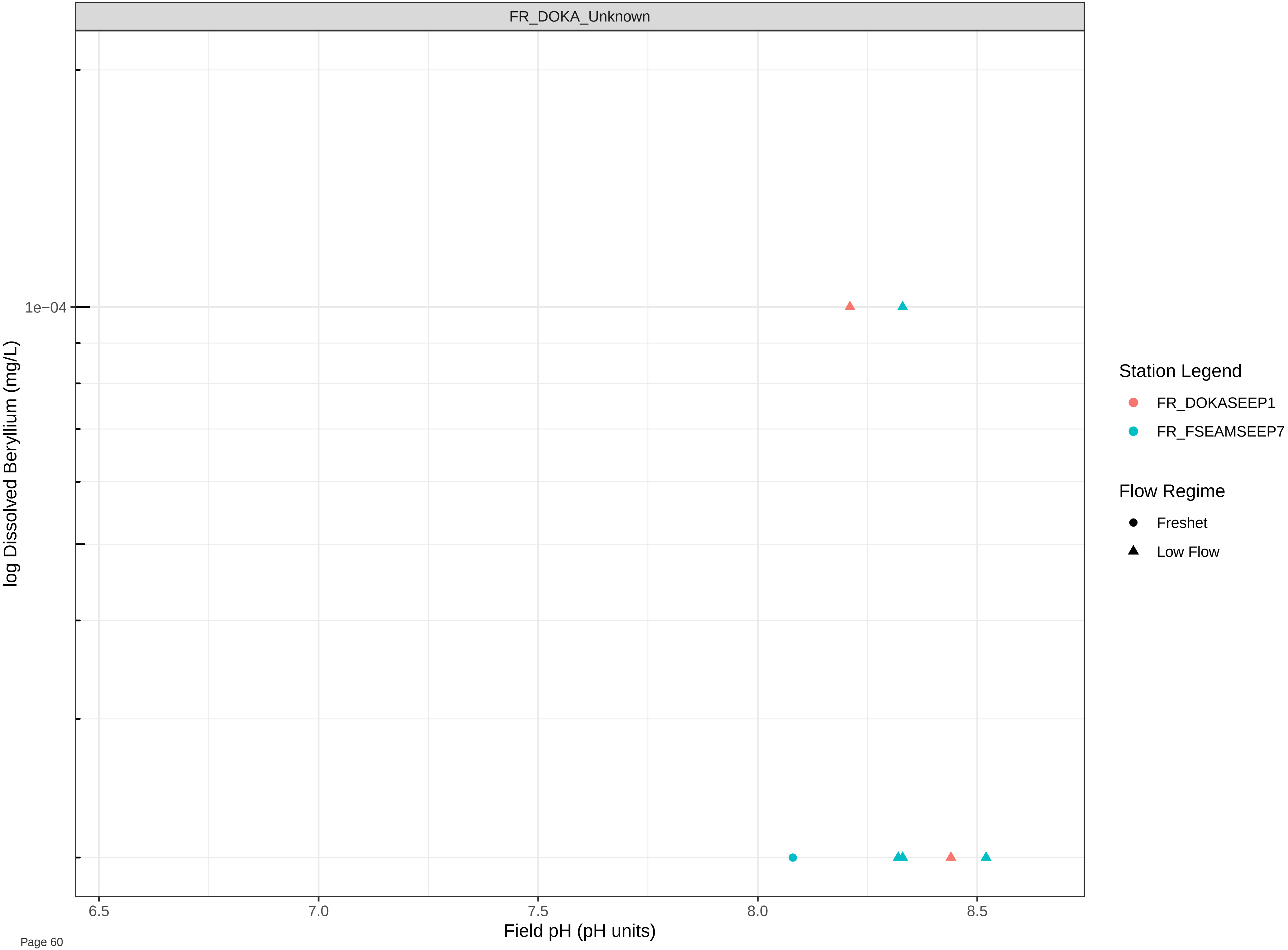

FR_TurnbullWREast_WR
log Dissolved Barium (mg/L)
0.1
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

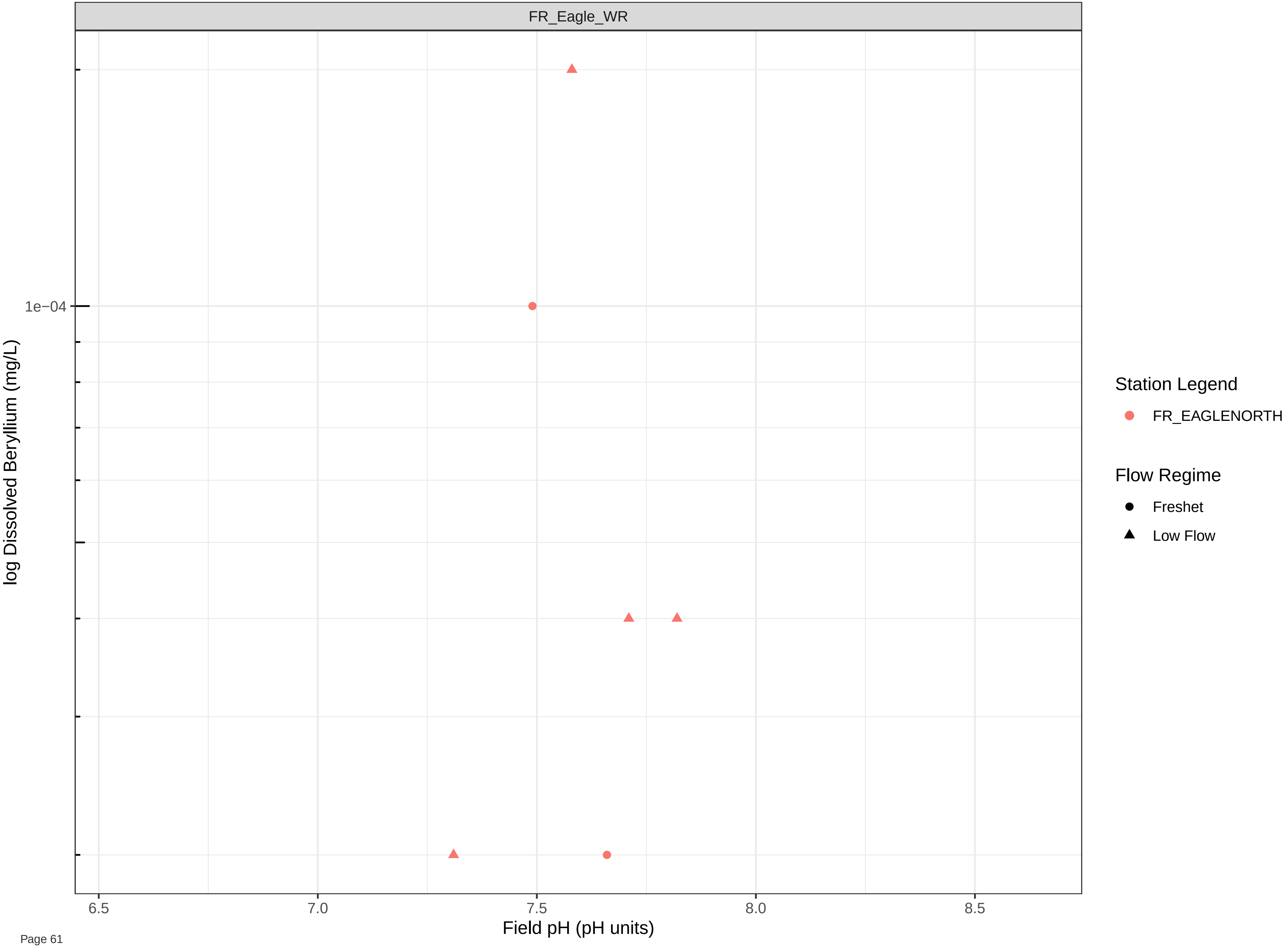

FR_TurnbullWRWest_WR
log Dissolved Barium (mg/L)
0.1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

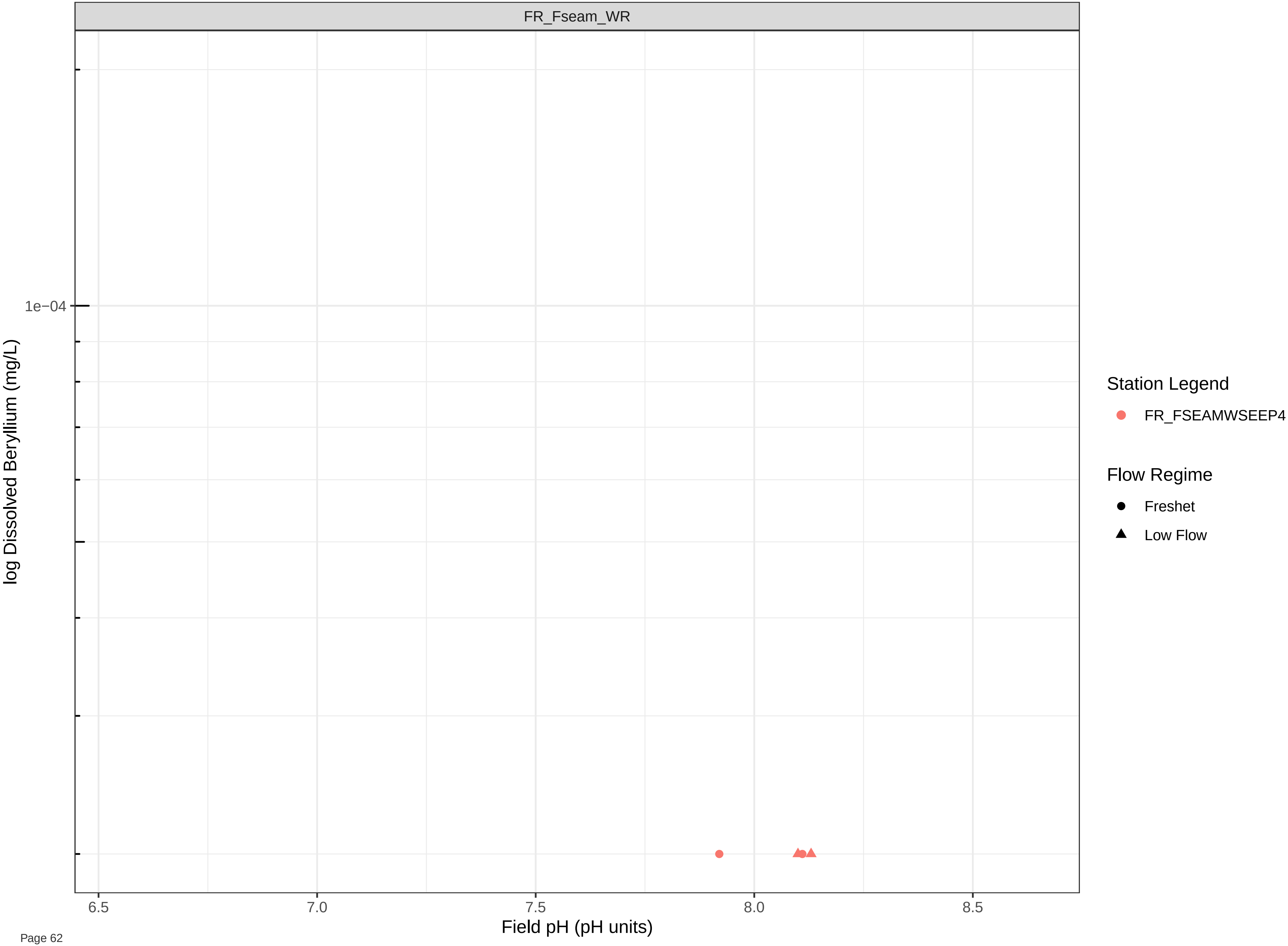

FR_A_WR
1e−04
log Dissolved Beryllium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

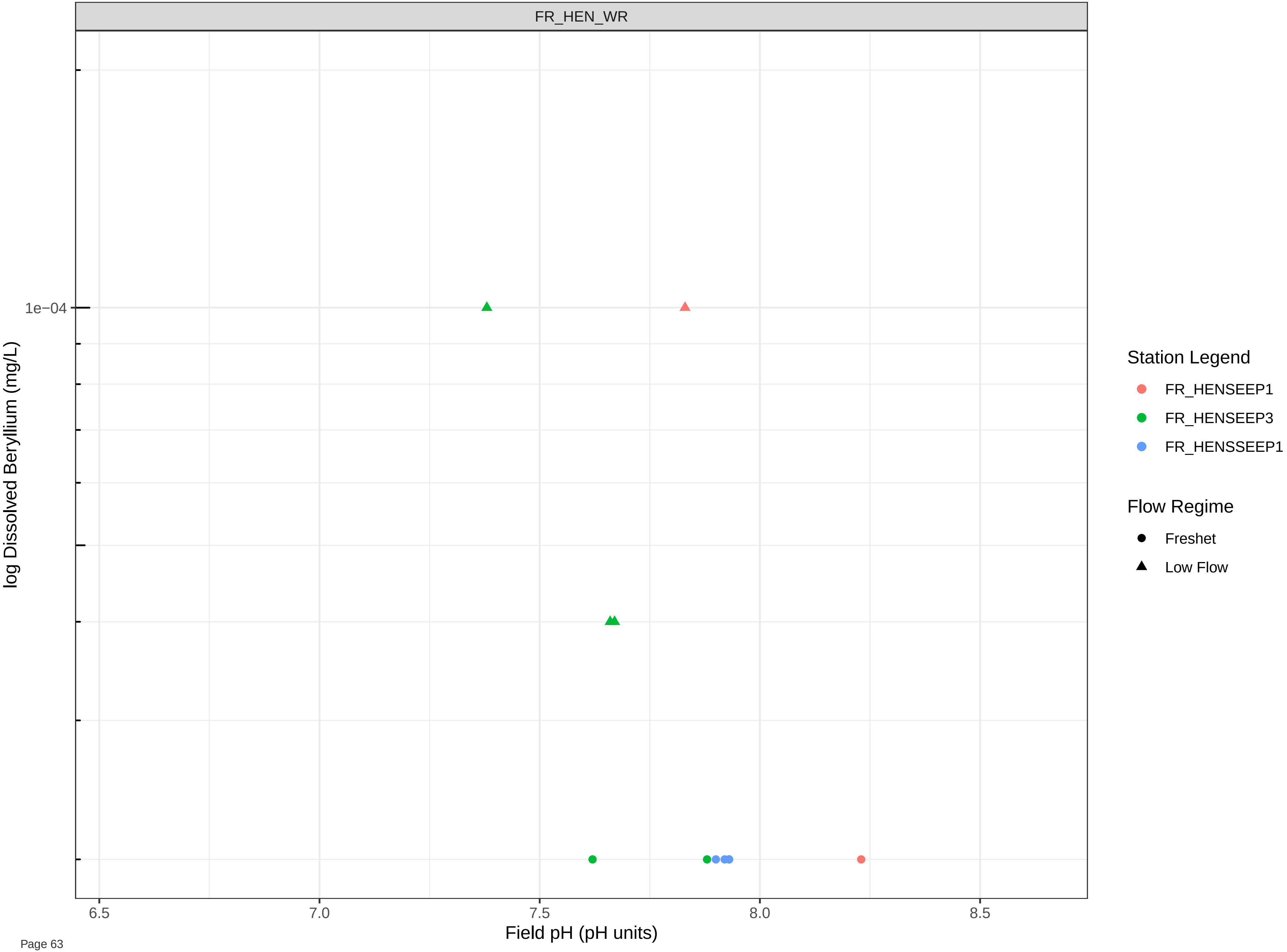

FR_Blain_CCR
log Dissolved Beryllium (mg/L)
1e−04
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

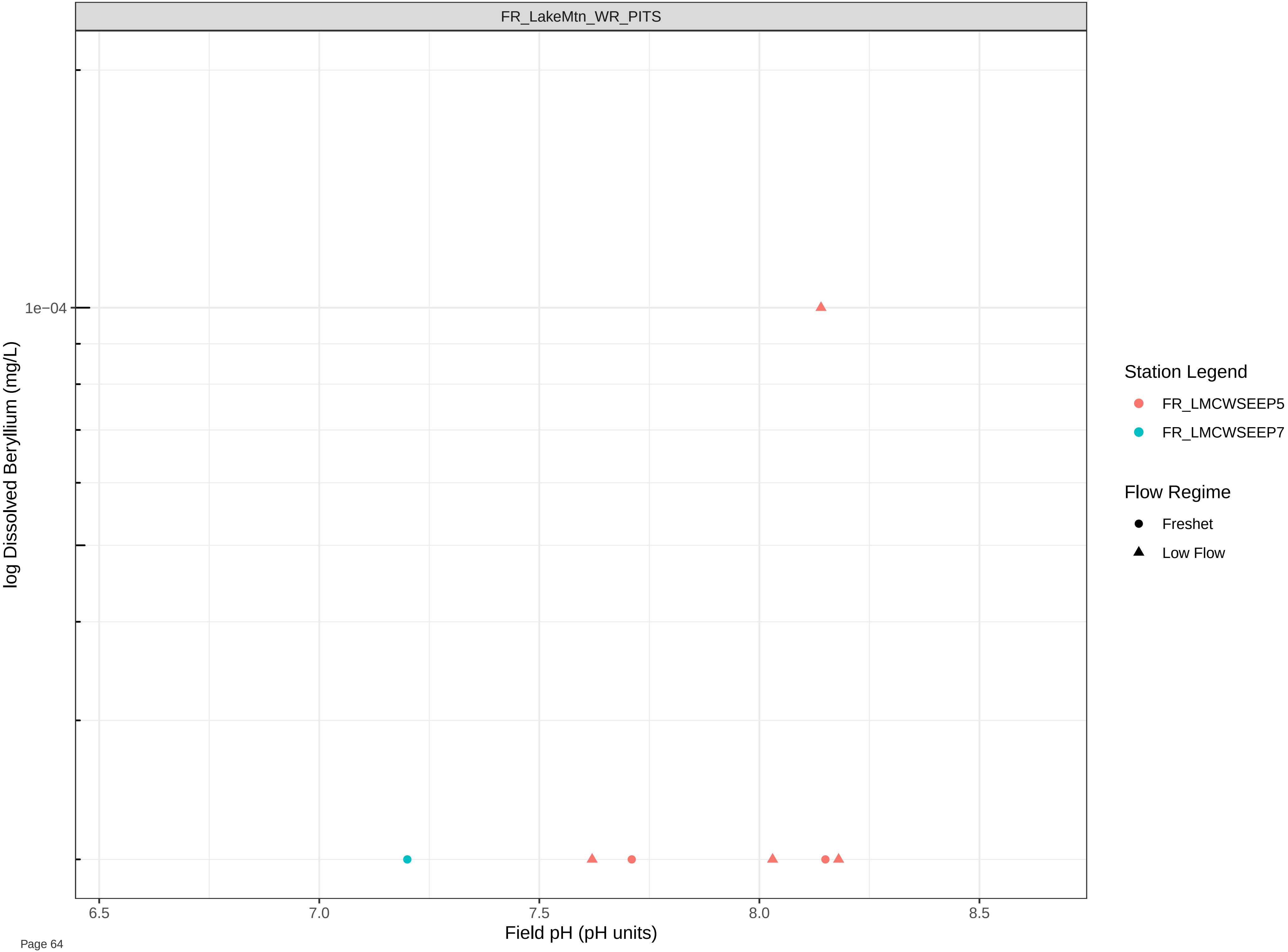

FR_ClodeCr_WR
log Dissolved Beryllium (mg/L)
1e−04
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

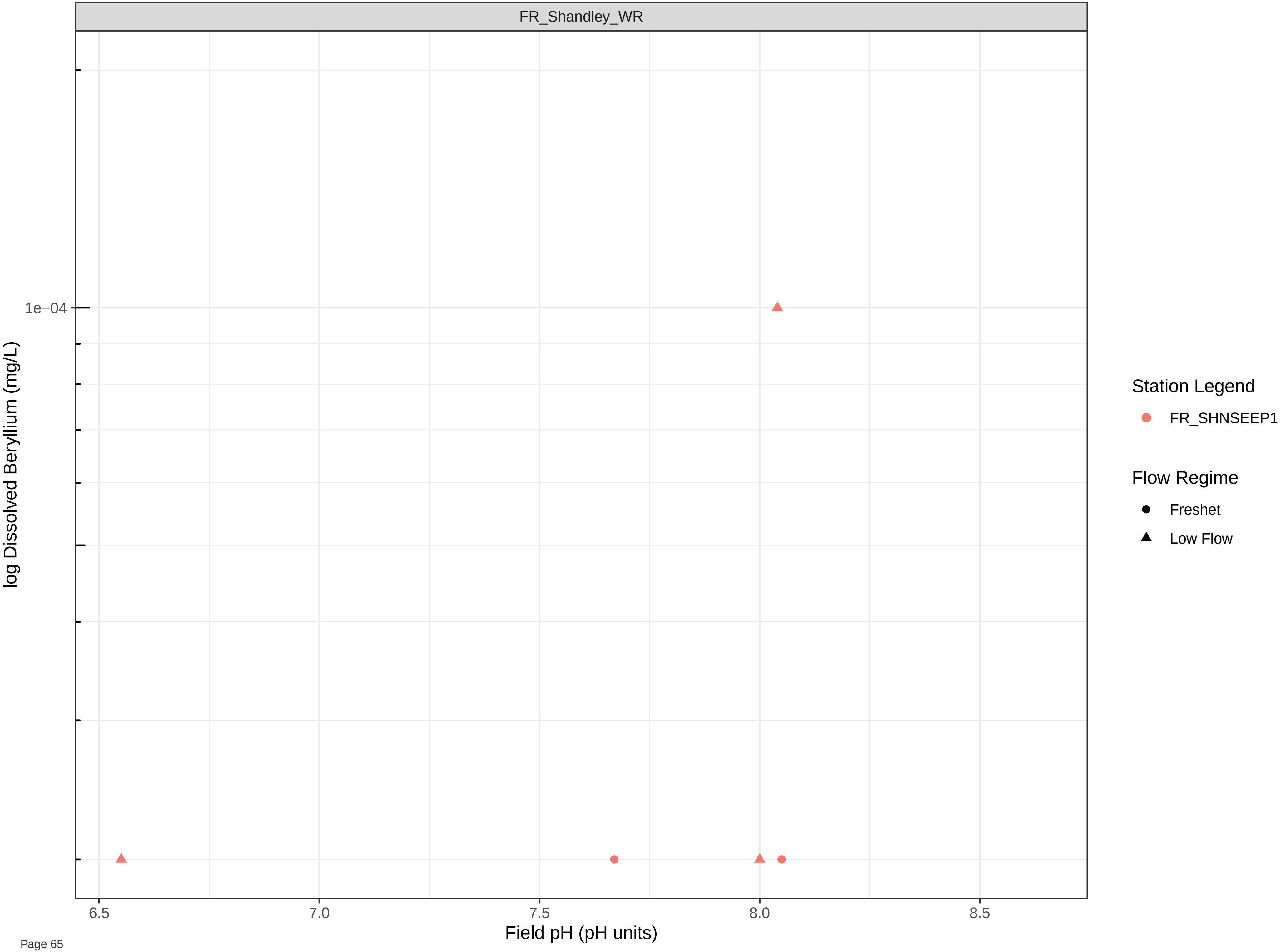

FR_DOKA_Unknown
log Dissolved Beryllium (mg/L)
1e−04
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

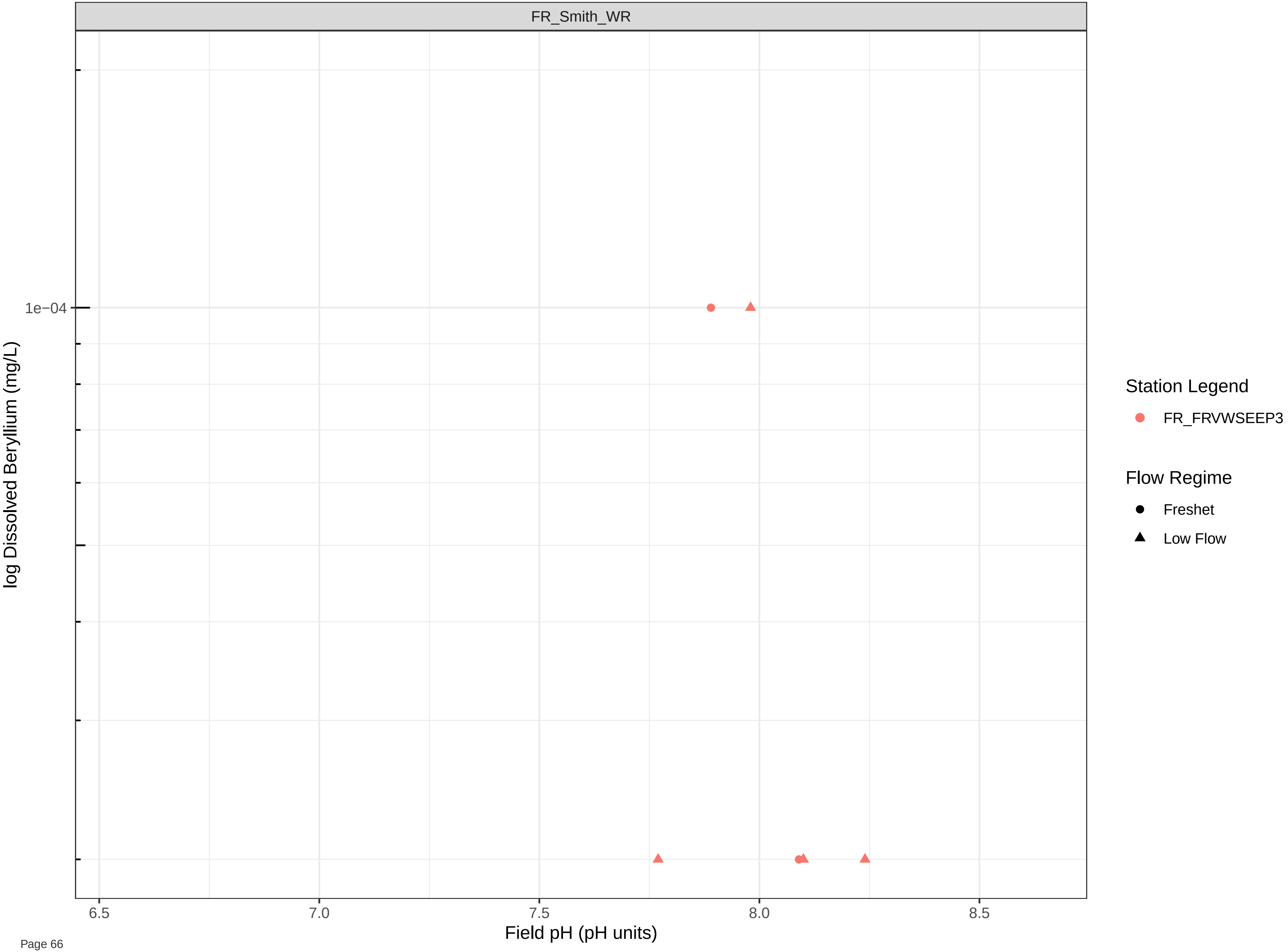

FR_Eagle_WR
log Dissolved Beryllium (mg/L)
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

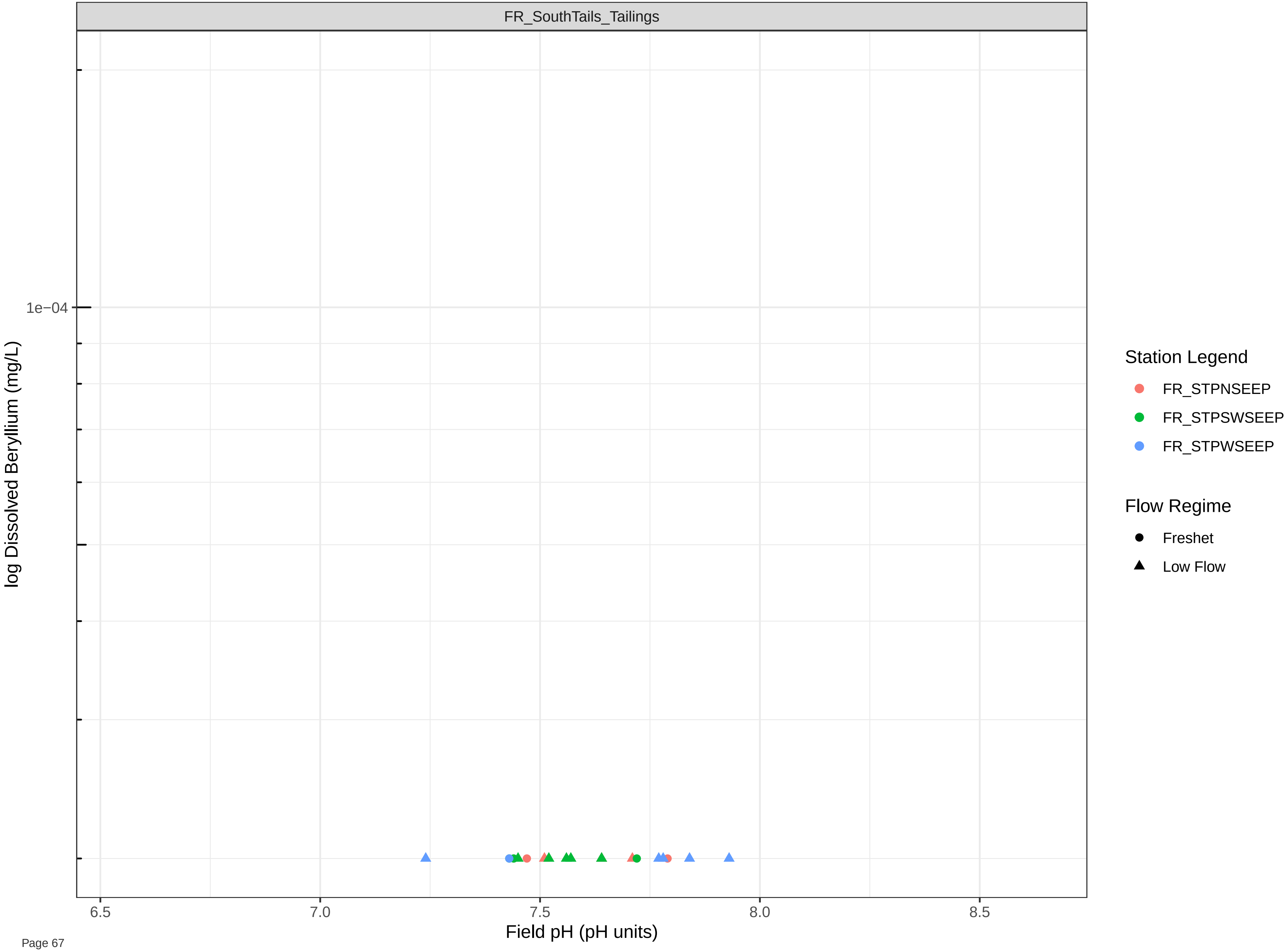

FR_Fseam_WR
1e−04
log Dissolved Beryllium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

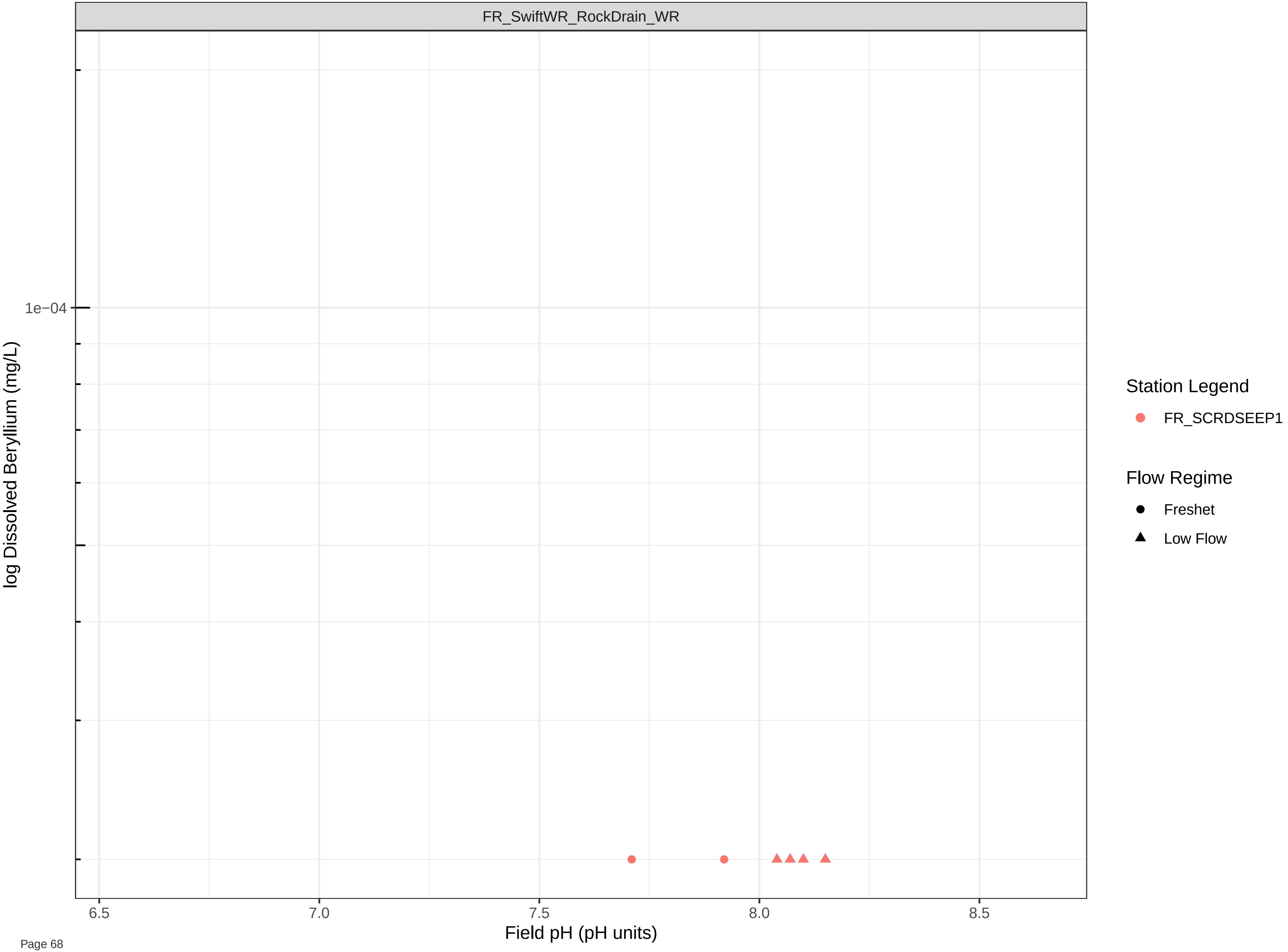

FR_HEN_WR
log Dissolved Beryllium (mg/L)
1e−04
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

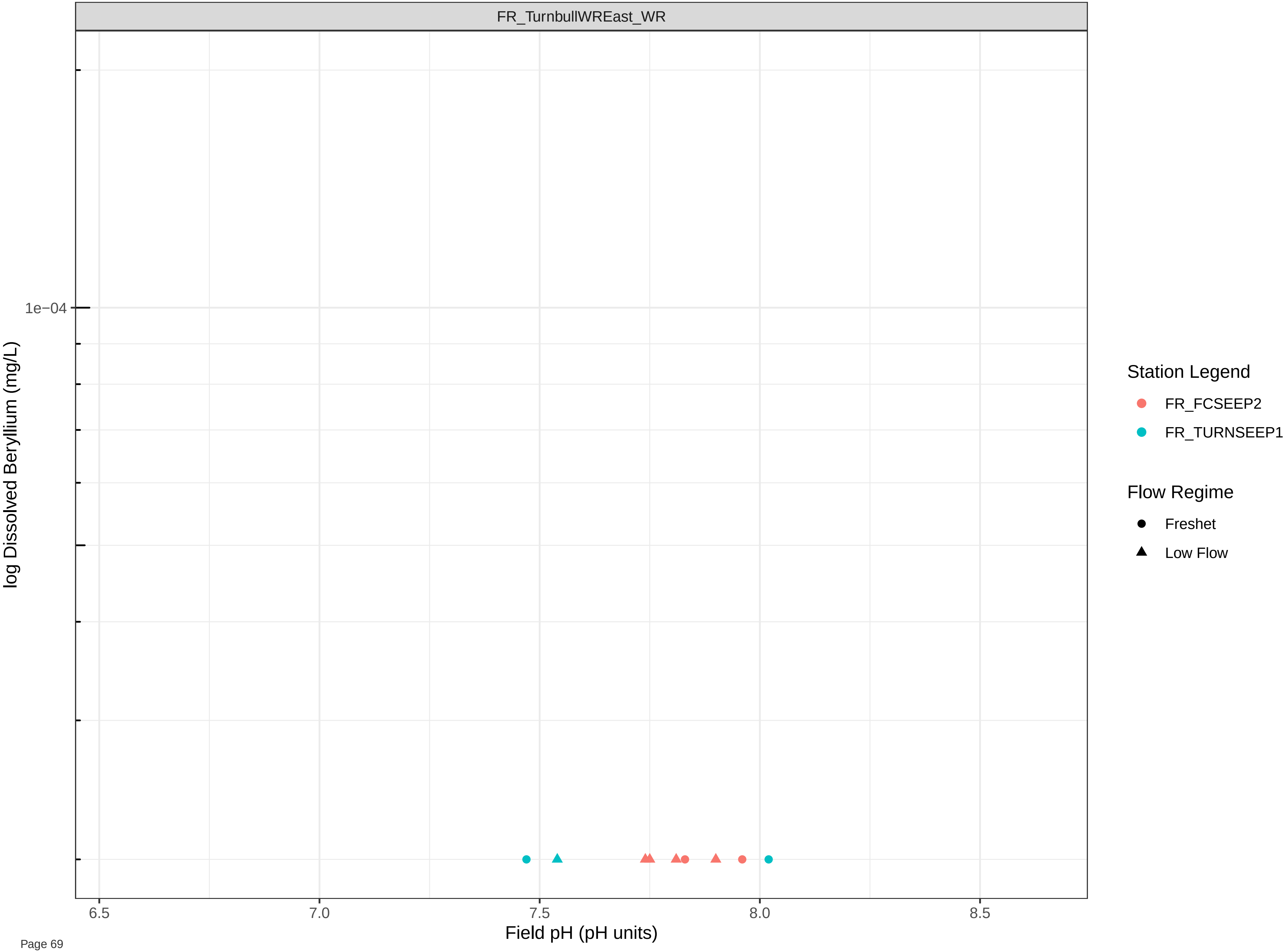

FR_LakeMtn_WR_PITS
1e−04
log Dissolved Beryllium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

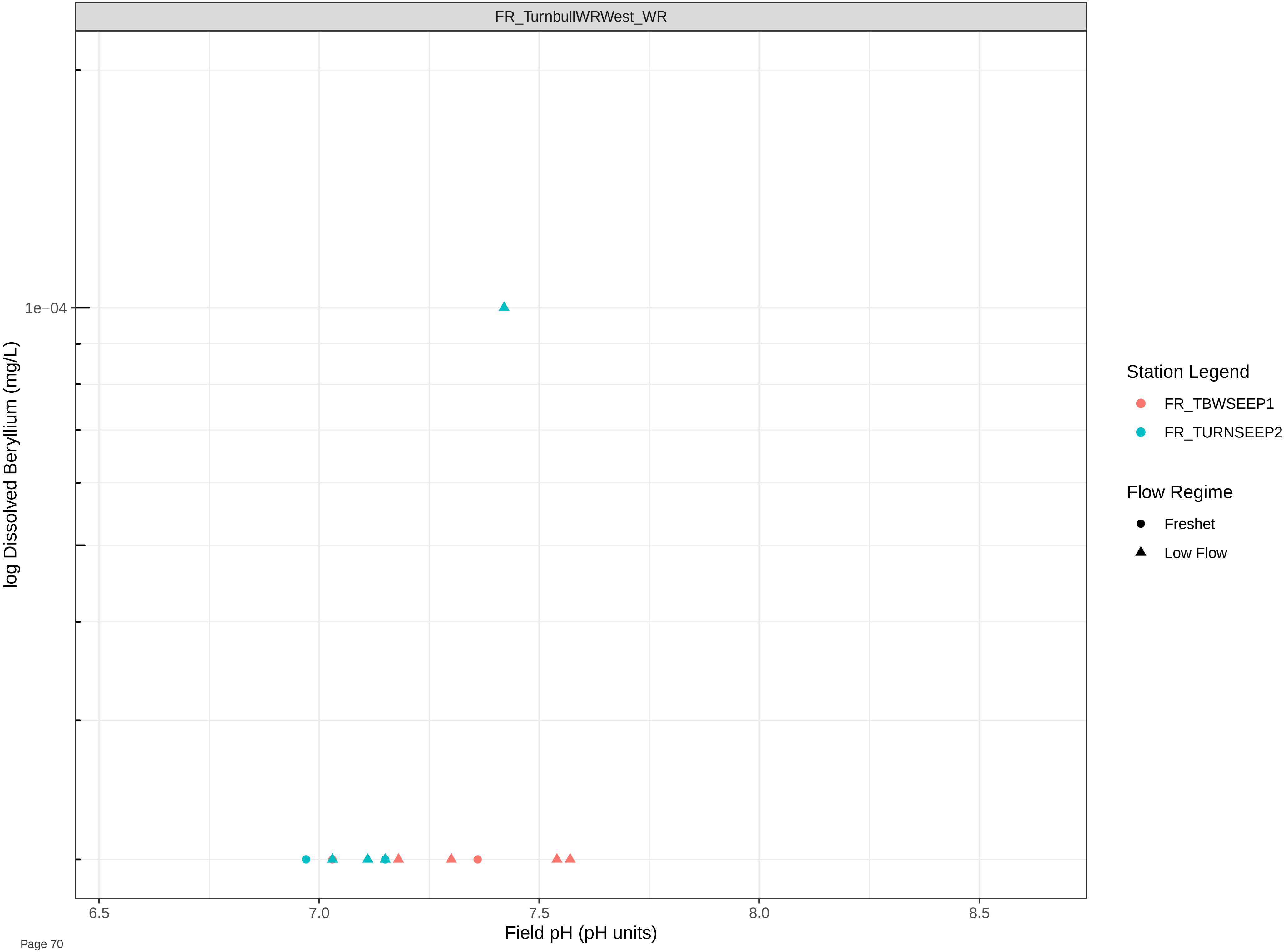

FR_Shandley_WR
log Dissolved Beryllium (mg/L)
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

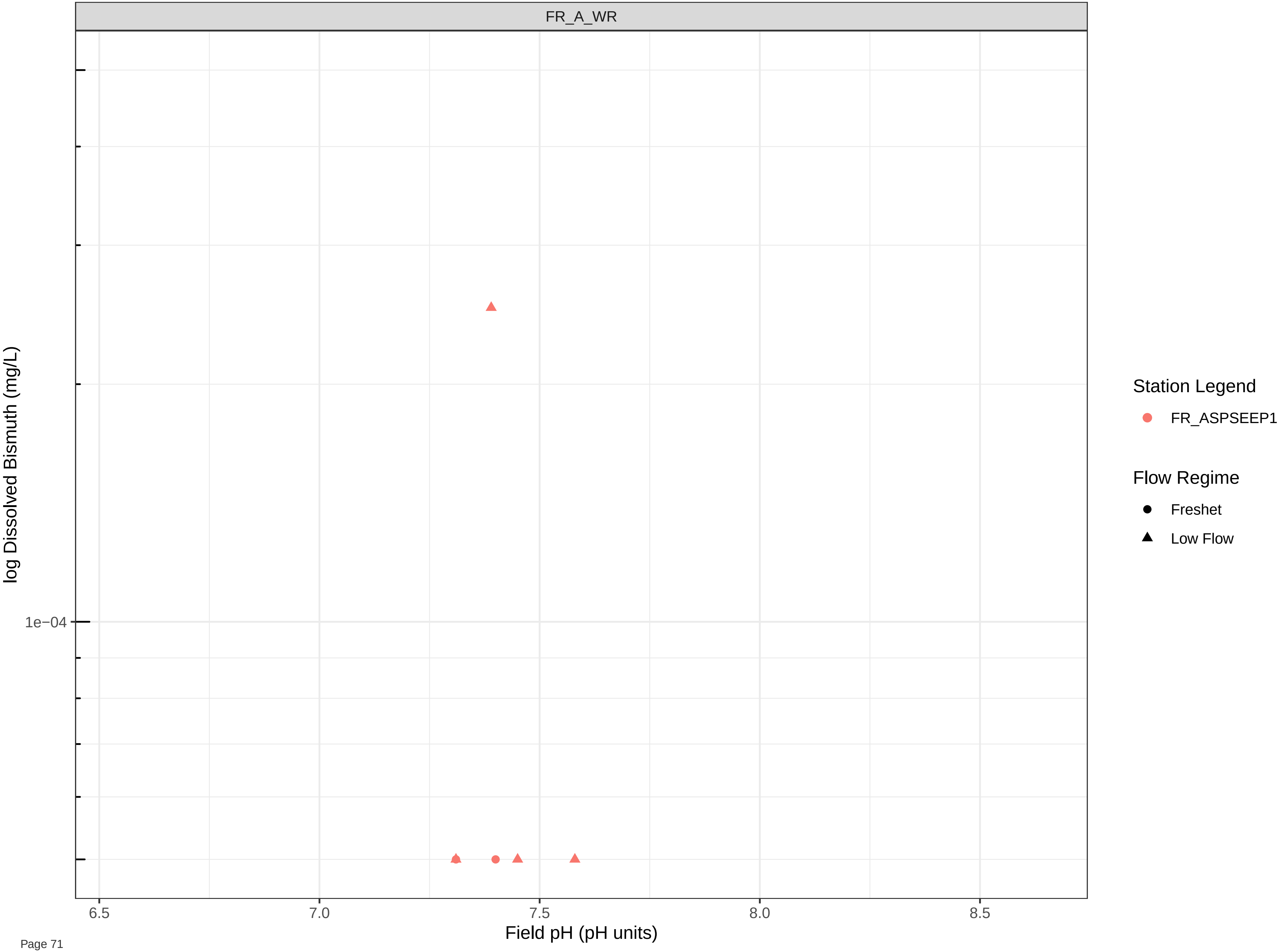

FR_Smith_WR
log Dissolved Beryllium (mg/L)
1e−04
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

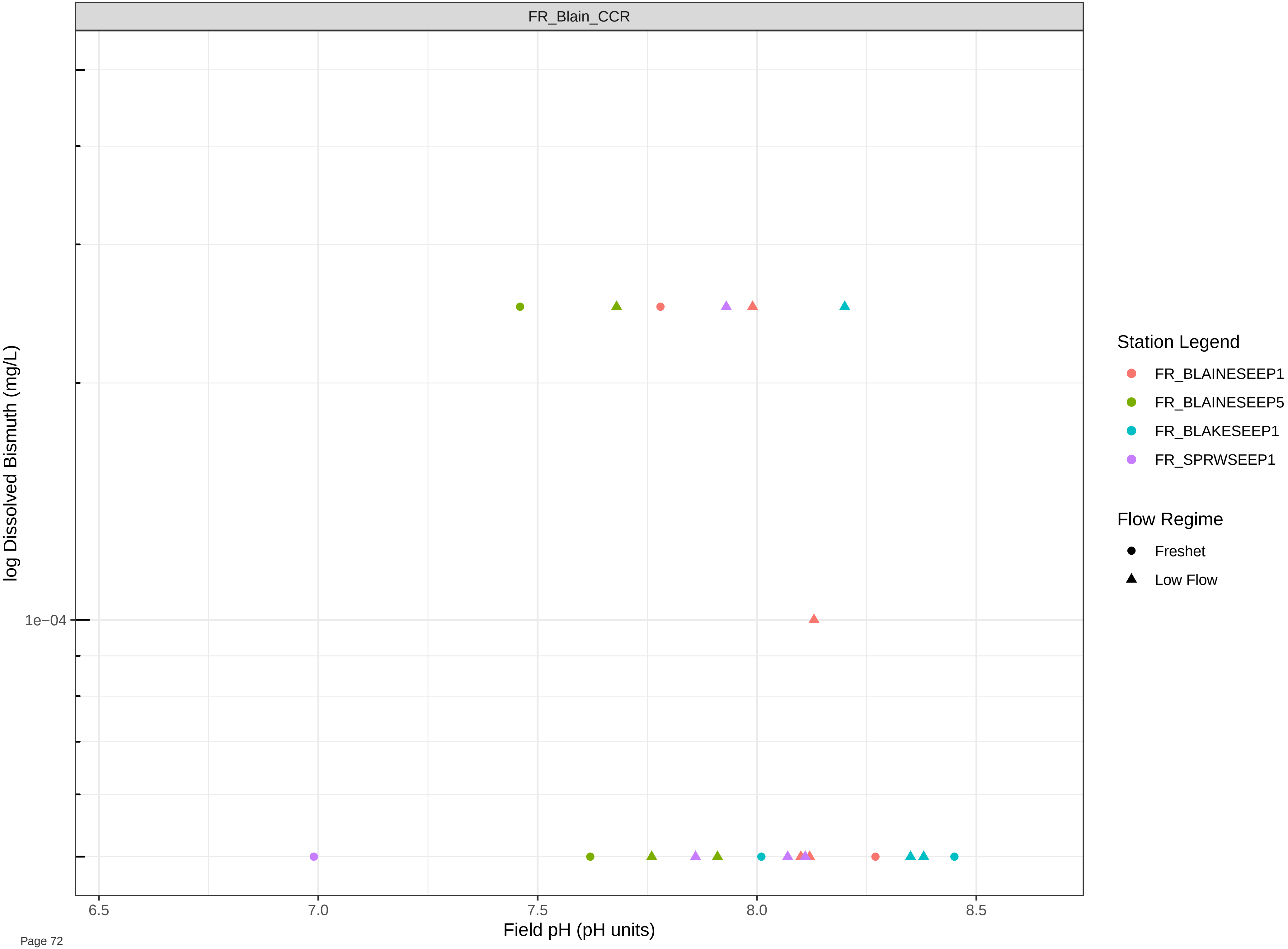

FR_SouthTails_Tailings
log Dissolved Beryllium (mg/L)
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_STPNSEEP
● FR_STPSWSEEP
● FR_STPWSEEP
Flow Regime
● Freshet
▲ Low Flow

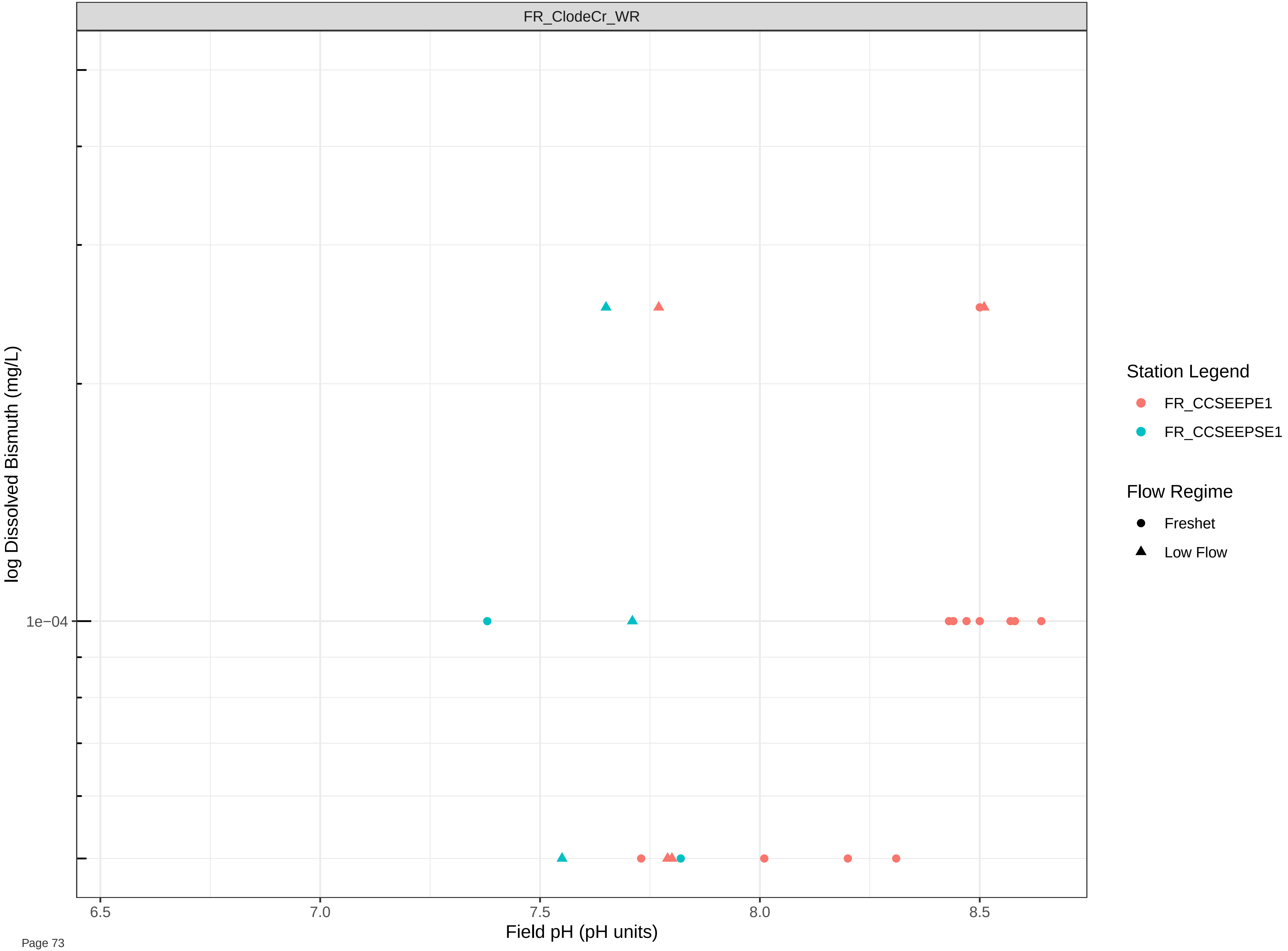

FR_SwiftWR_RockDrain_WR
1e−04
log Dissolved Beryllium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

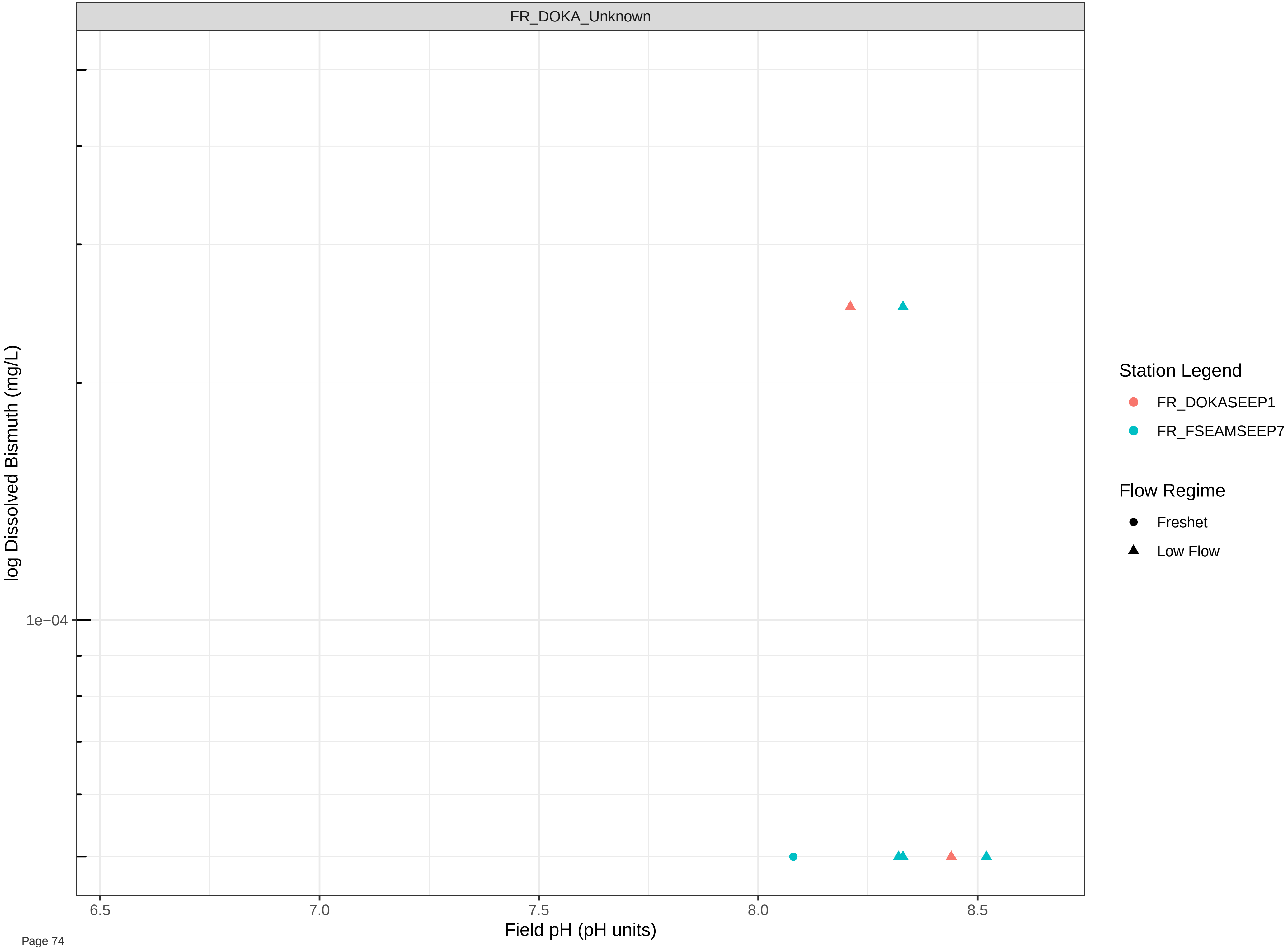

FR_TurnbullWREast_WR
log Dissolved Beryllium (mg/L)
1e−04
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

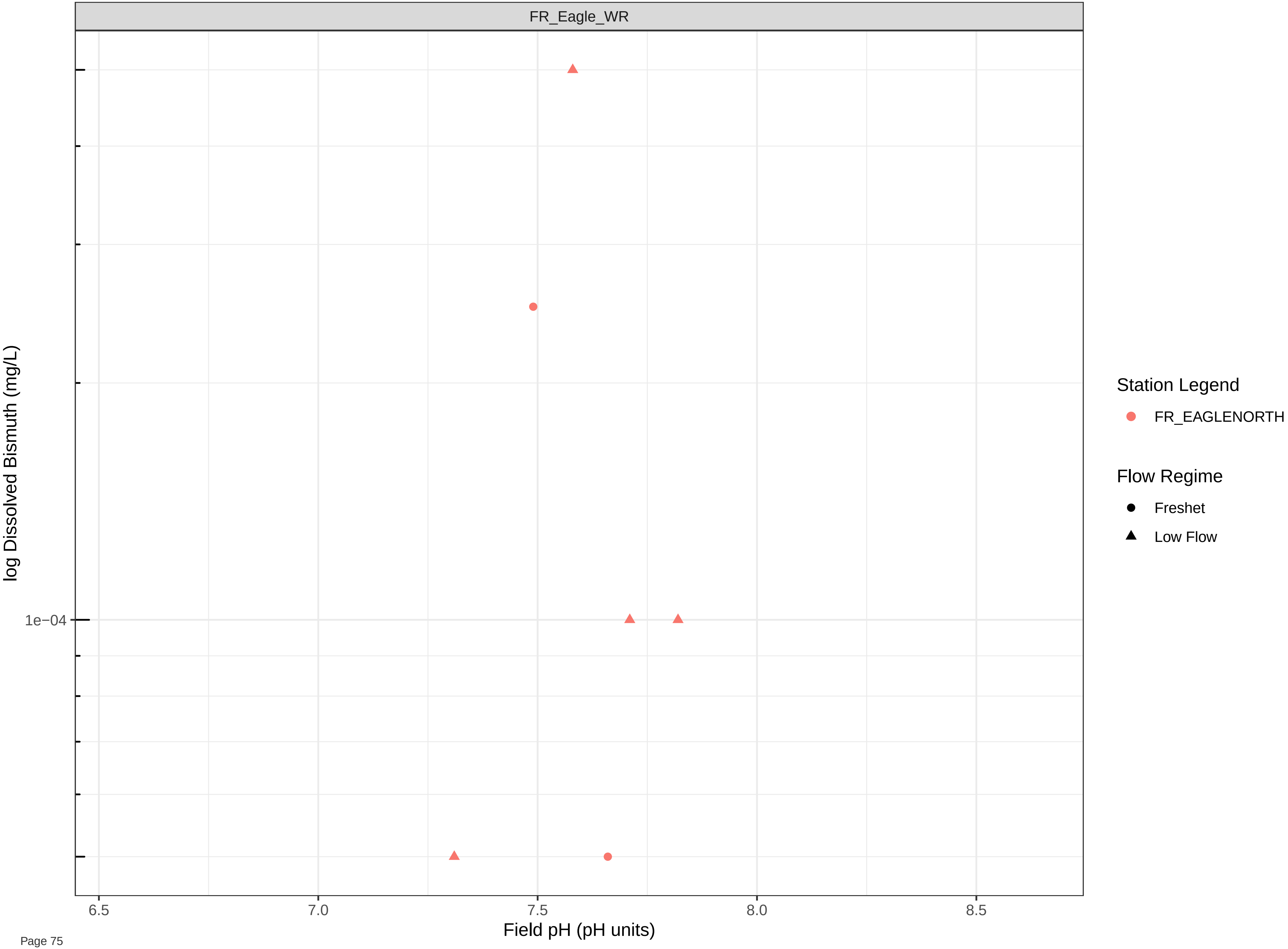

FR_TurnbullWRWest_WR
1e−04
log Dissolved Beryllium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_TBWSEEP1
● FR_TURNSEEP2
Flow Regime
● Freshet
▲ Low Flow

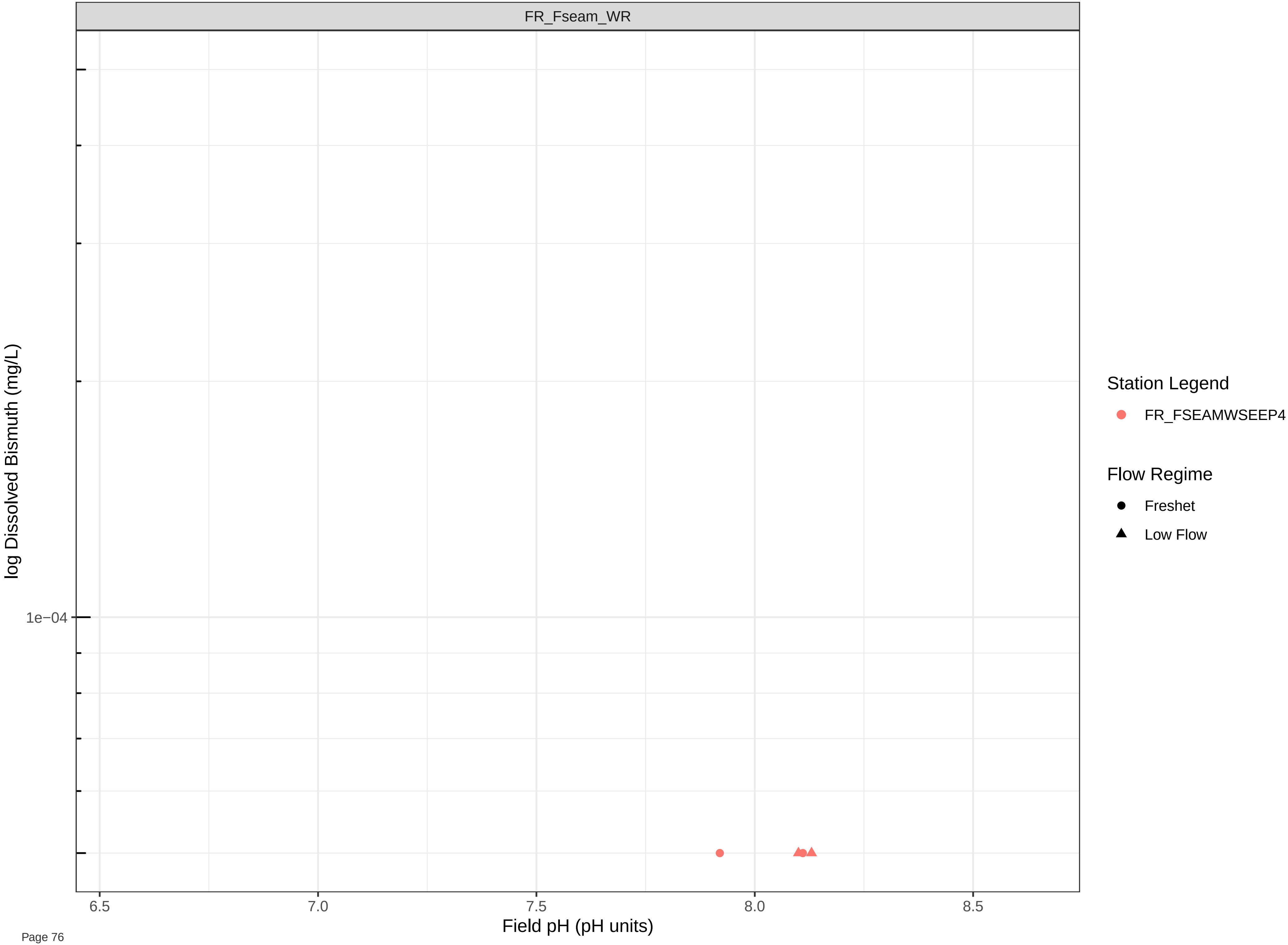

FR_A_WR
log Dissolved Bismuth (mg/L)
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

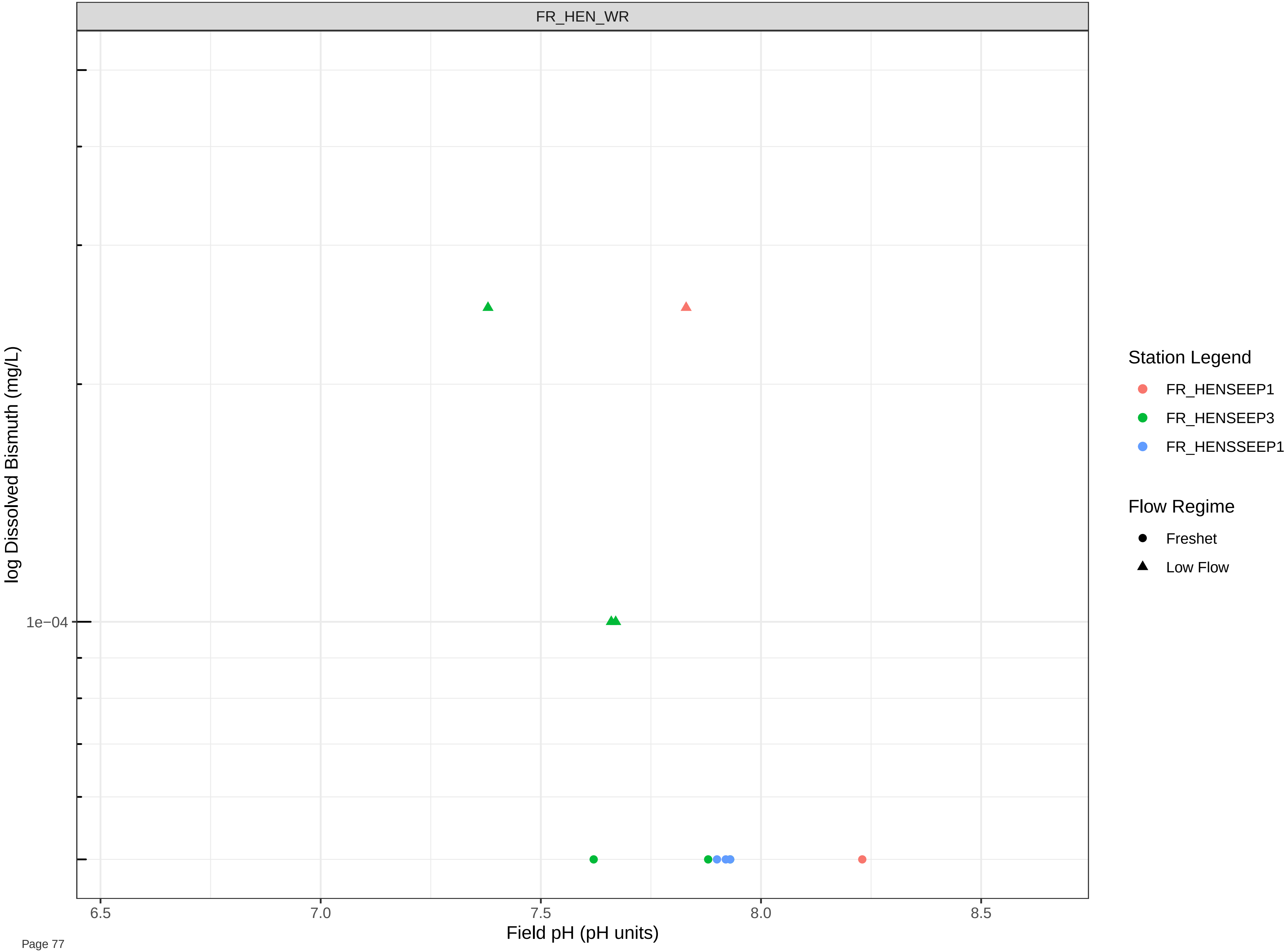

FR_Blain_CCR
log Dissolved Bismuth (mg/L)
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

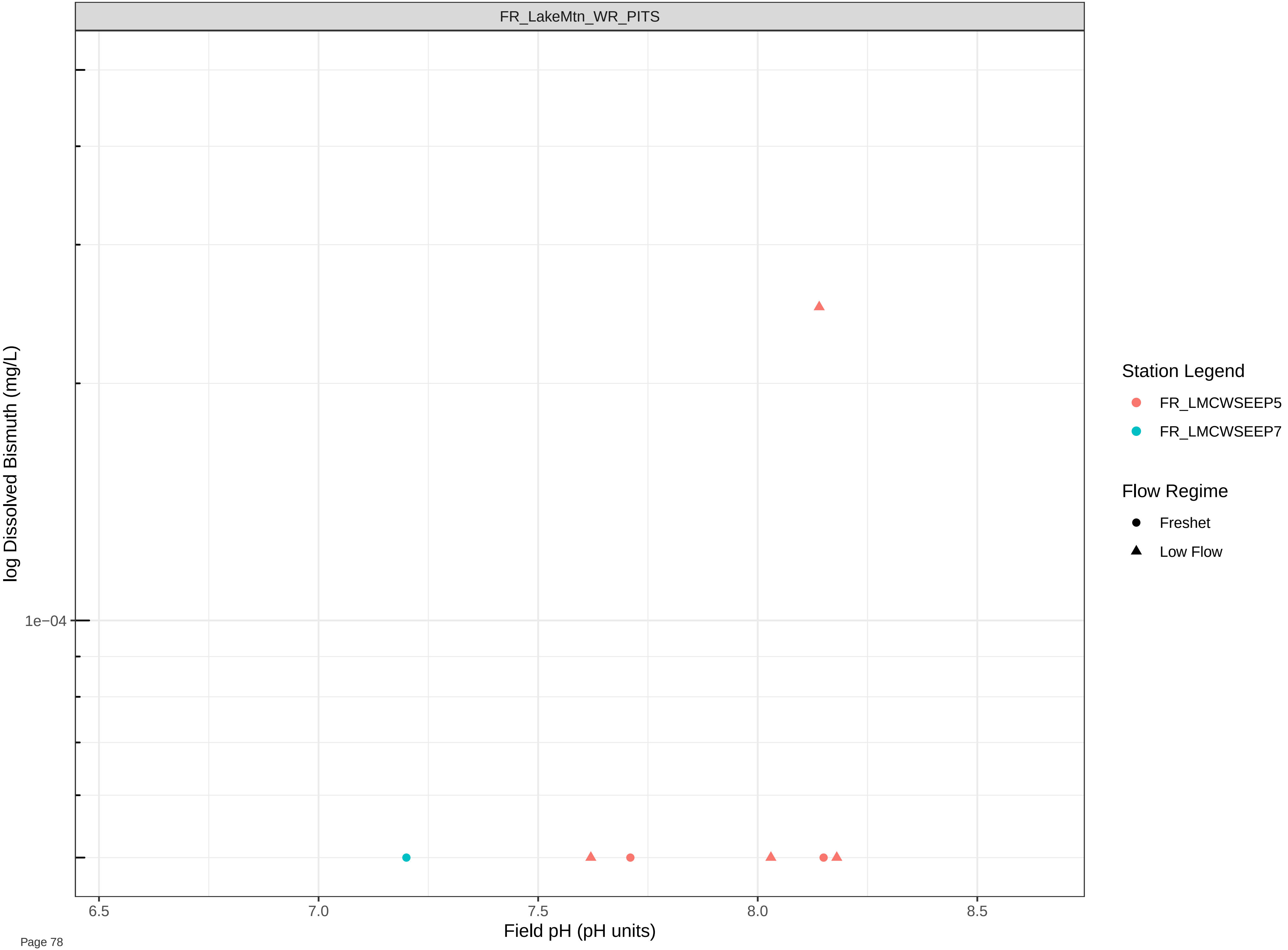

FR_ClodeCr_WR
log Dissolved Bismuth (mg/L)
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

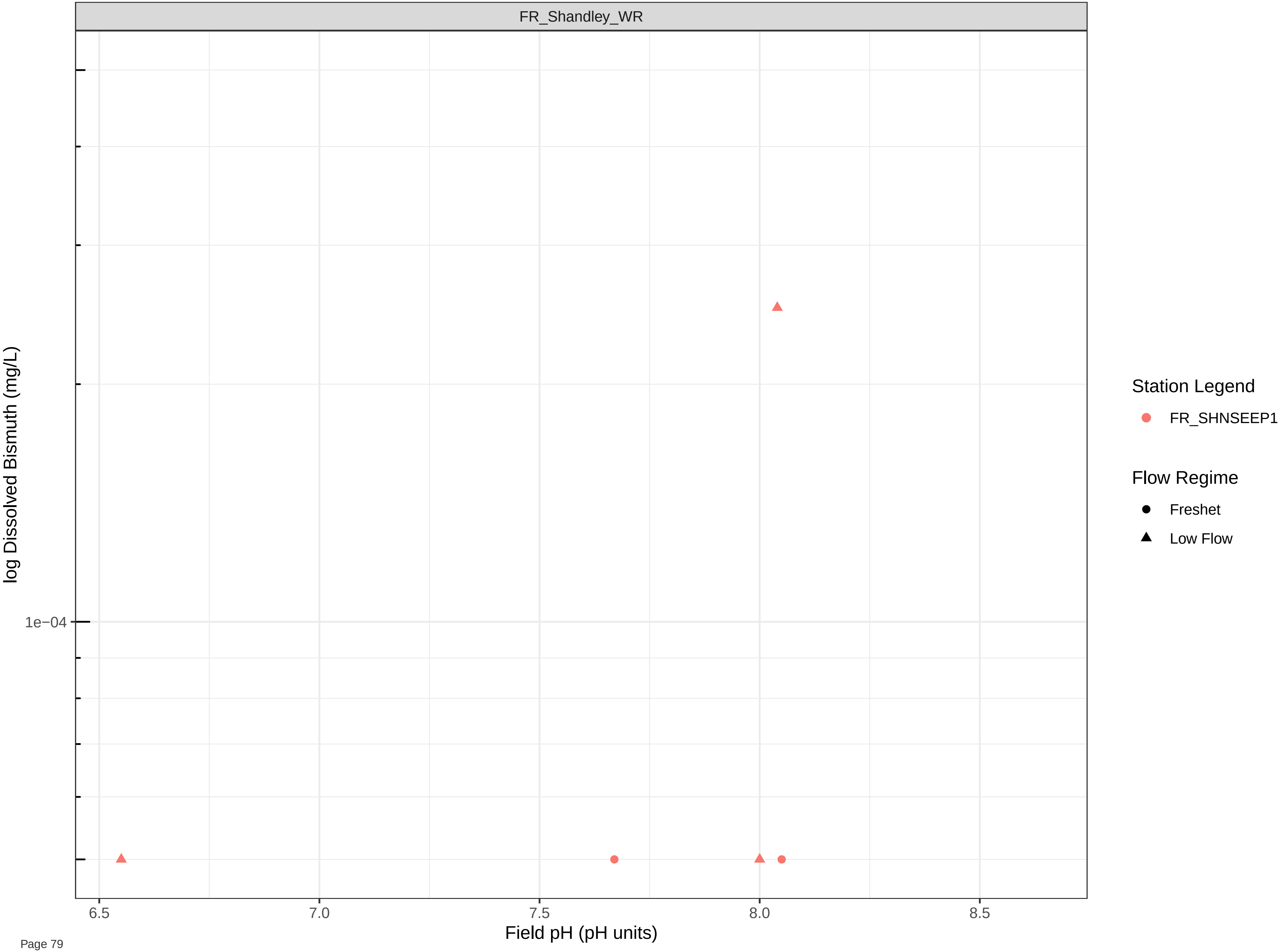

FR_DOKA_Unknown
log Dissolved Bismuth (mg/L)
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

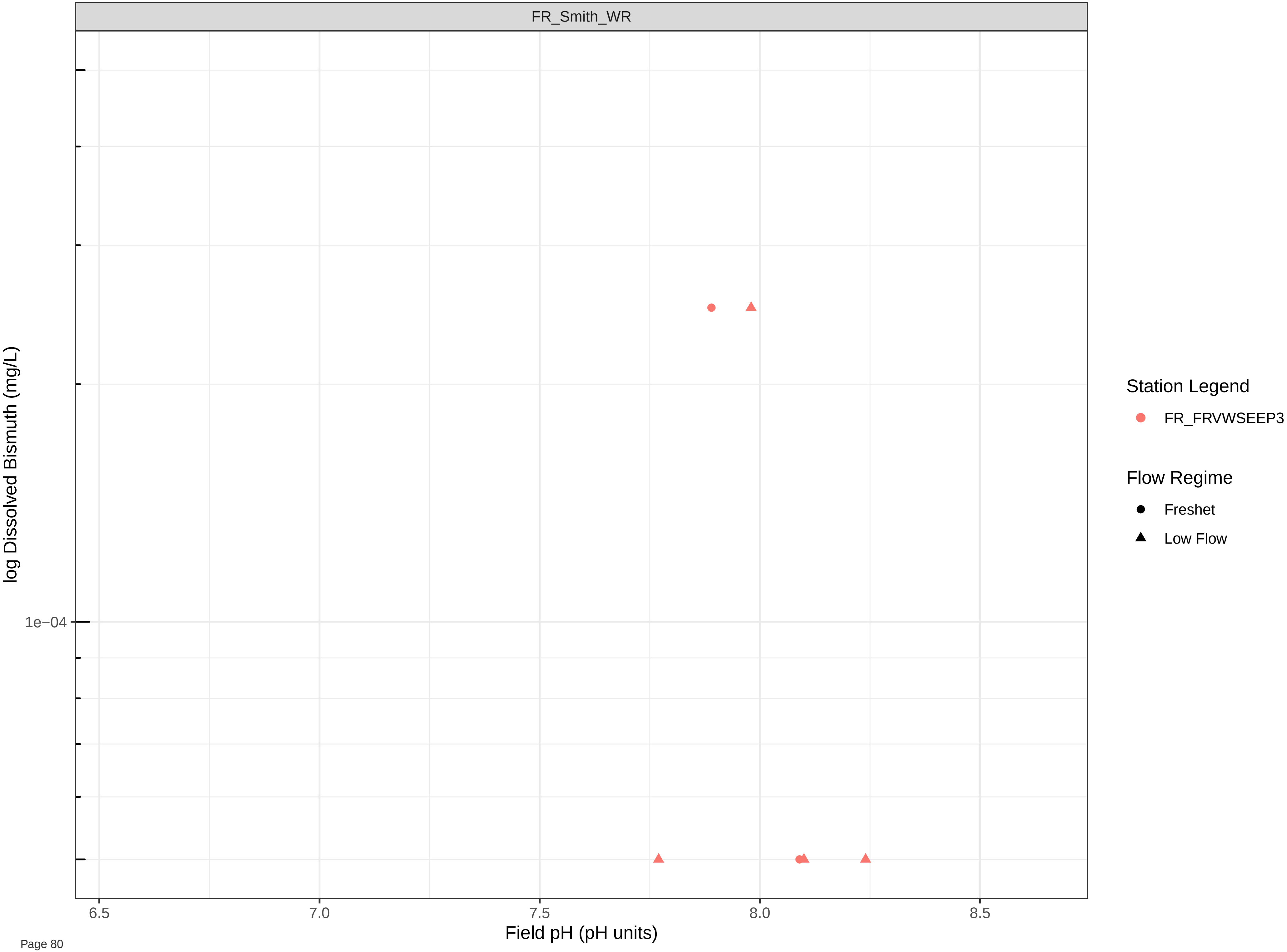

FR_Eagle_WR
log Dissolved Bismuth (mg/L)
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

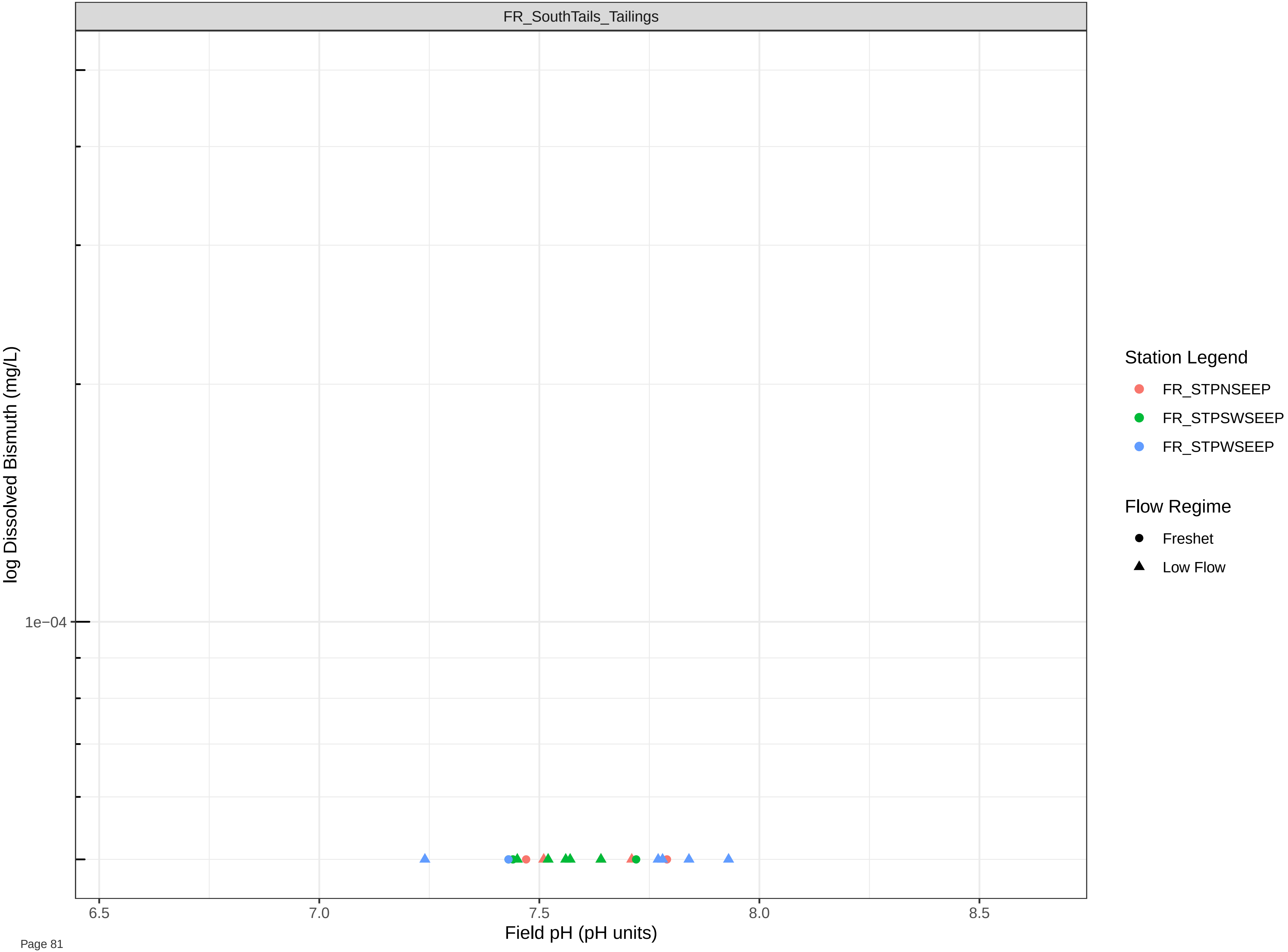

FR_Fseam_WR
log Dissolved Bismuth (mg/L)
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

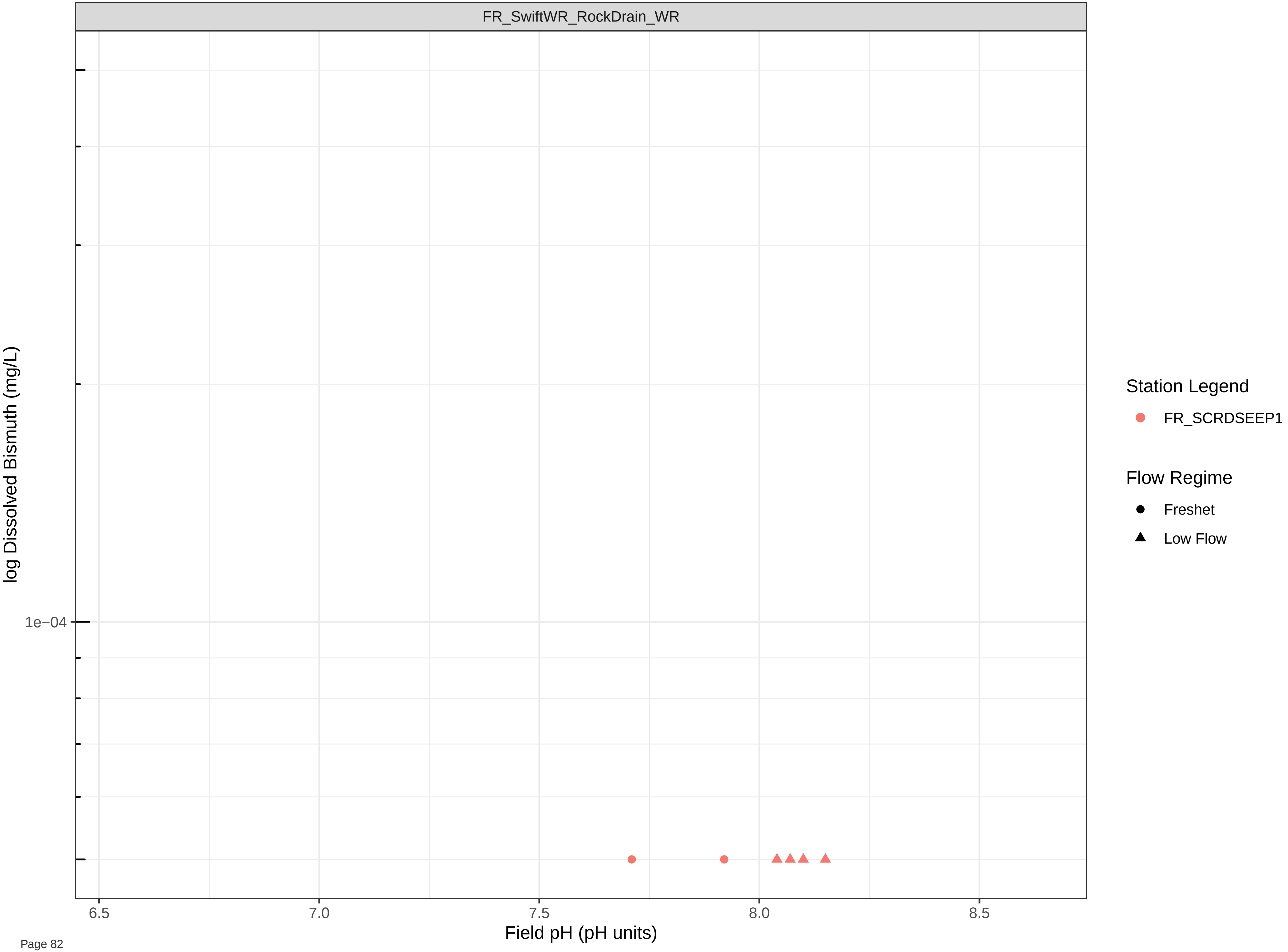

FR_HEN_WR
log Dissolved Bismuth (mg/L)
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

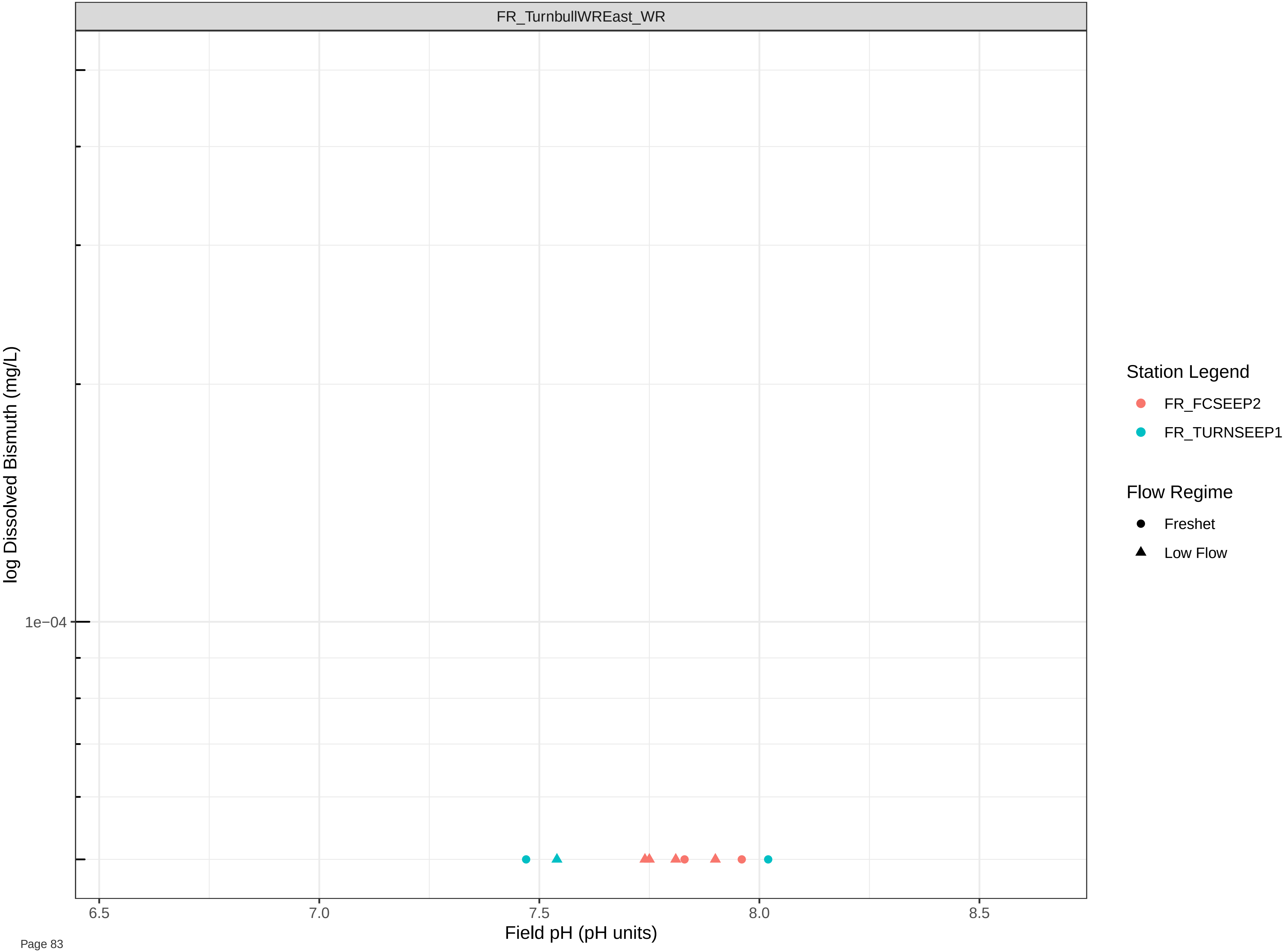

FR_LakeMtn_WR_PITS
log Dissolved Bismuth (mg/L)
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

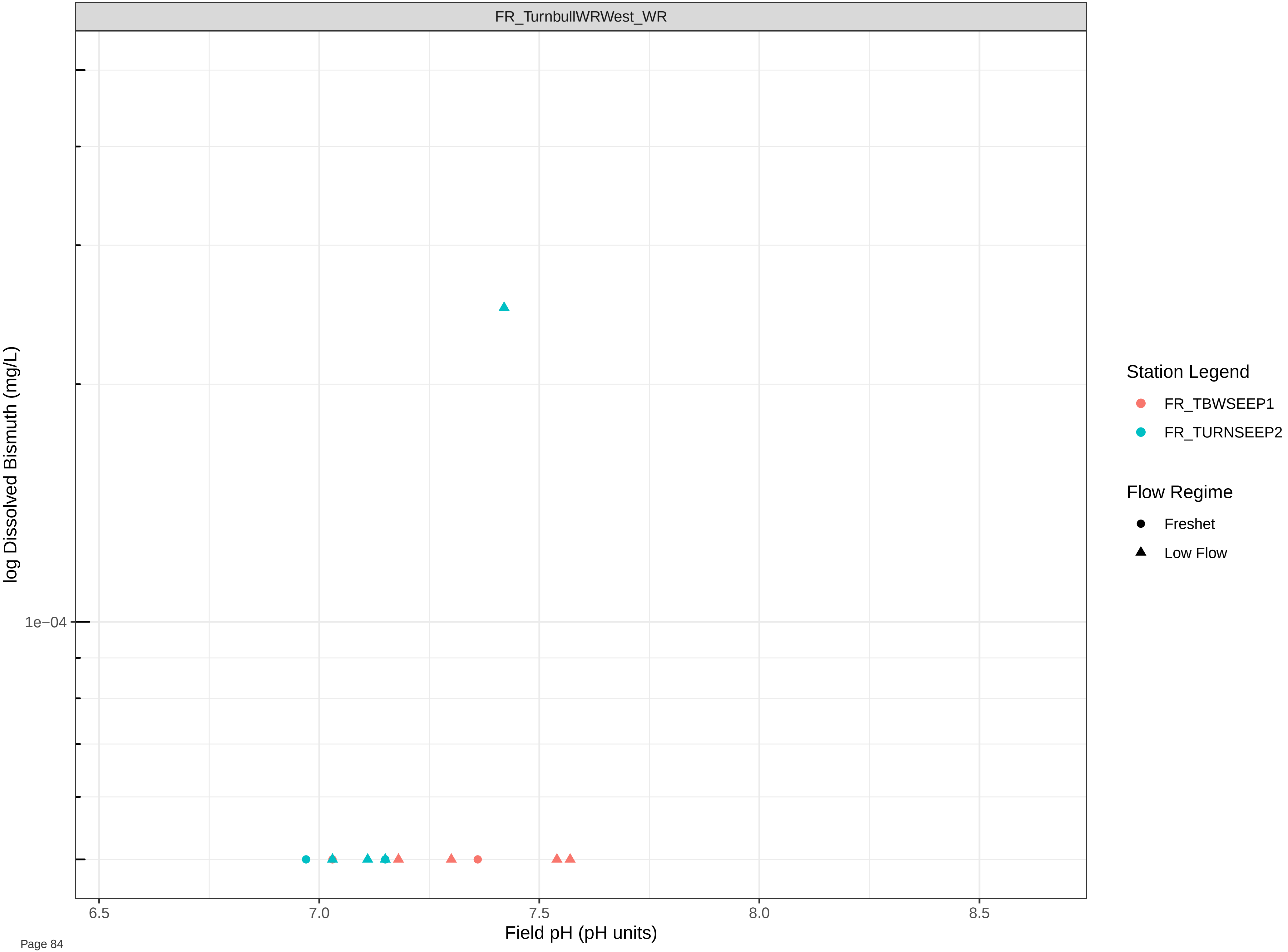

FR_Shandley_WR
log Dissolved Bismuth (mg/L)
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

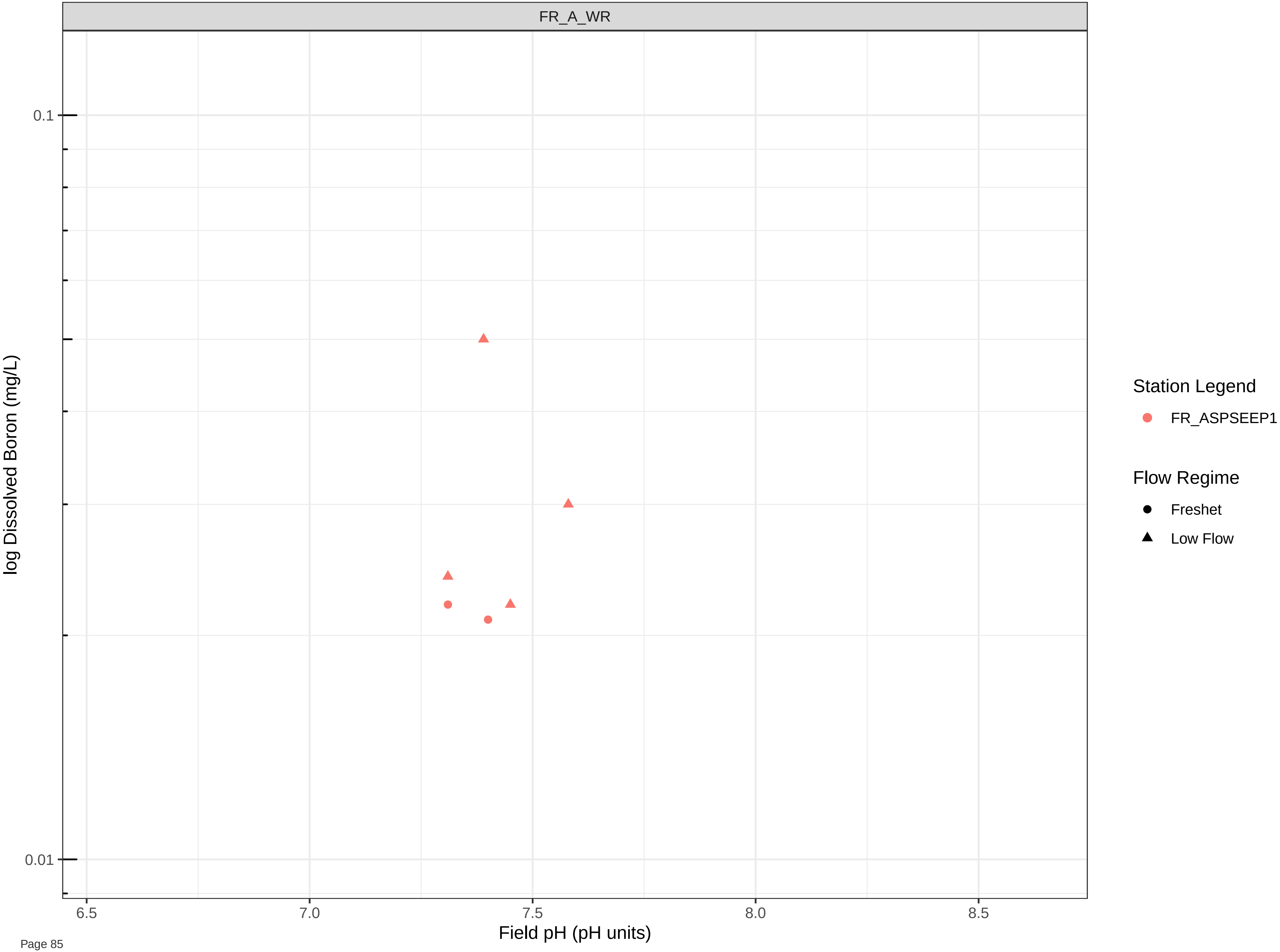

FR_Smith_WR
log Dissolved Bismuth (mg/L)
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

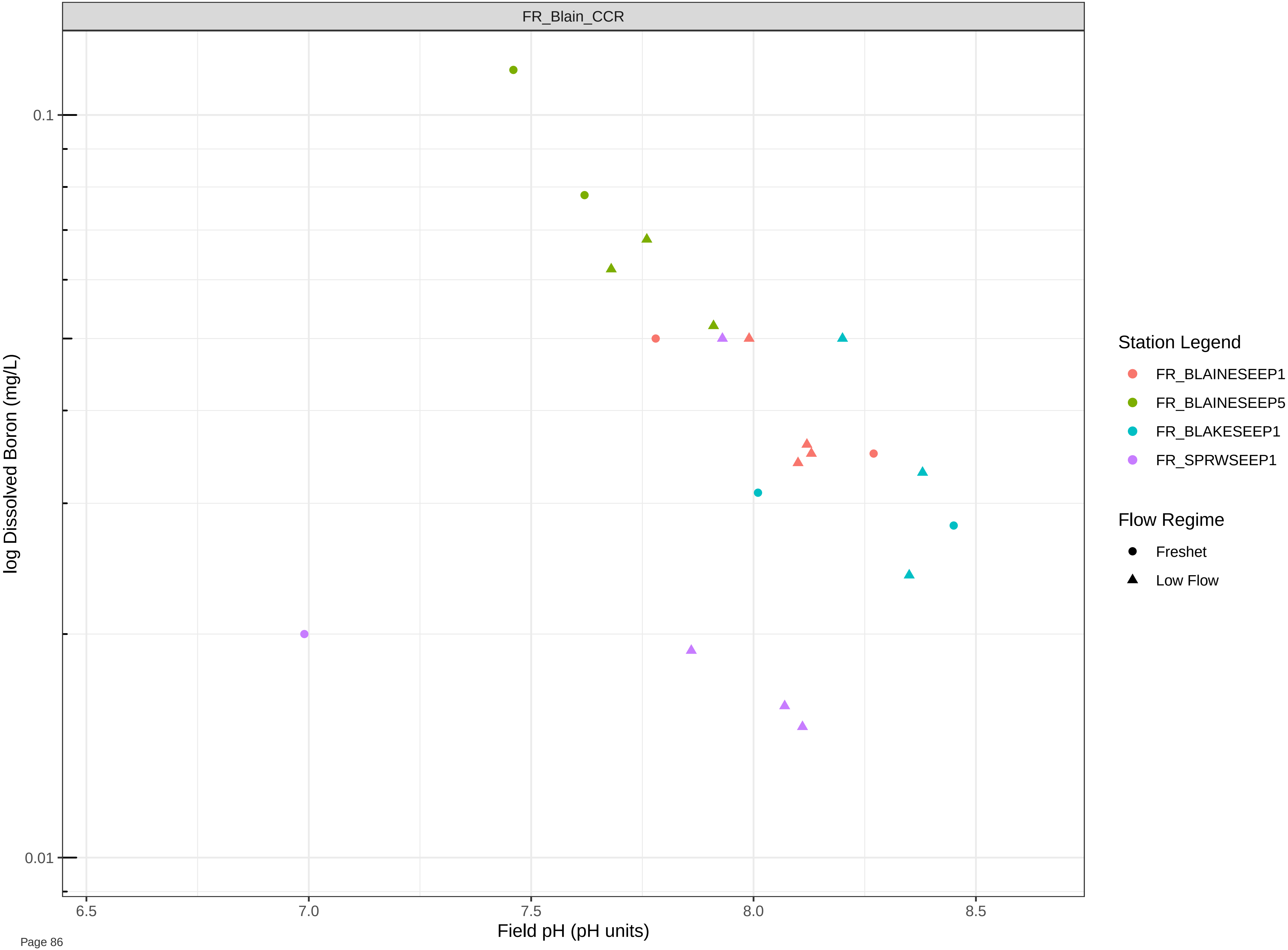

FR_SouthTails_Tailings
log Dissolved Bismuth (mg/L)
1e−04
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

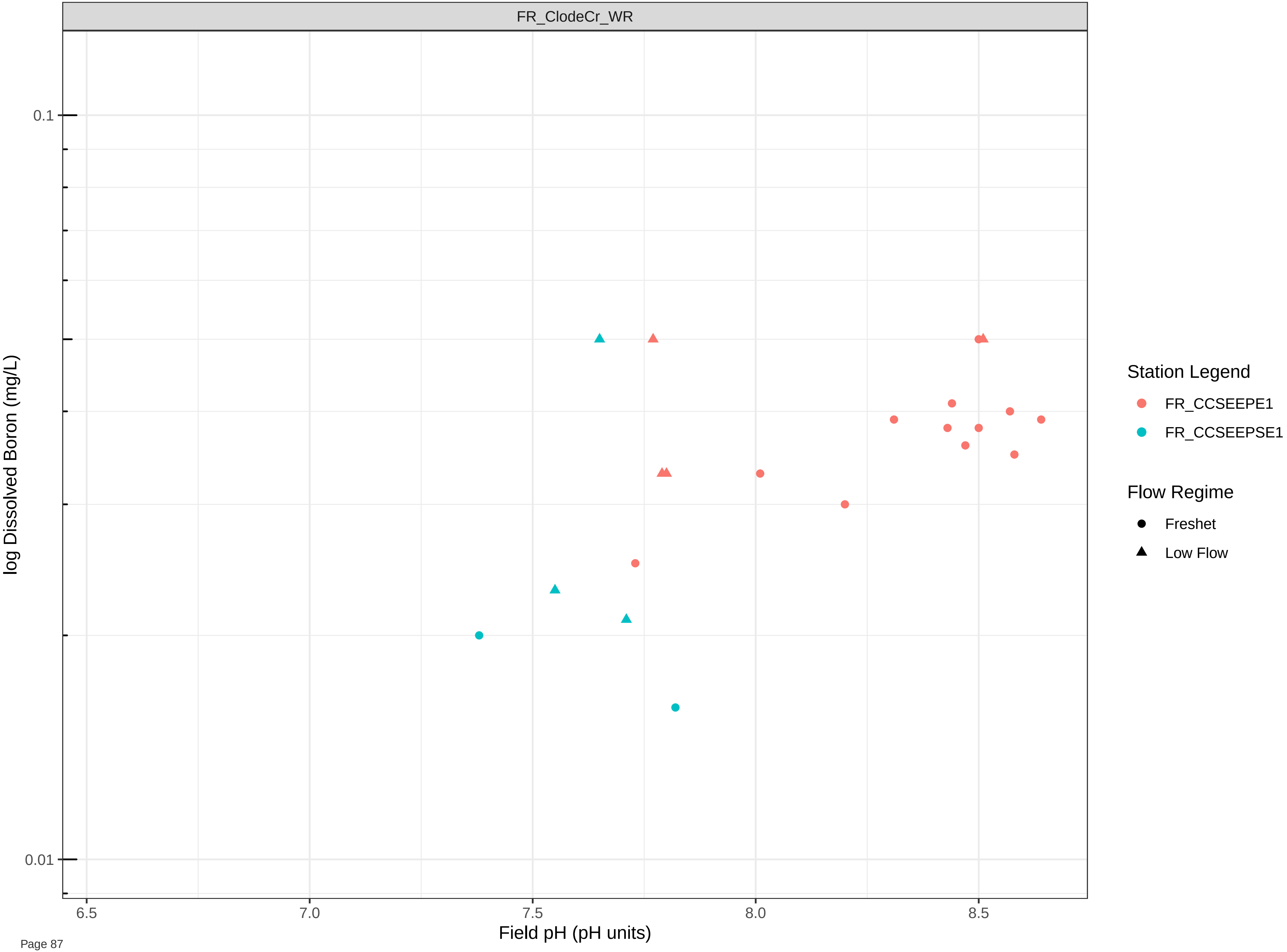

FR_SwiftWR_RockDrain_WR
log Dissolved Bismuth (mg/L)
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

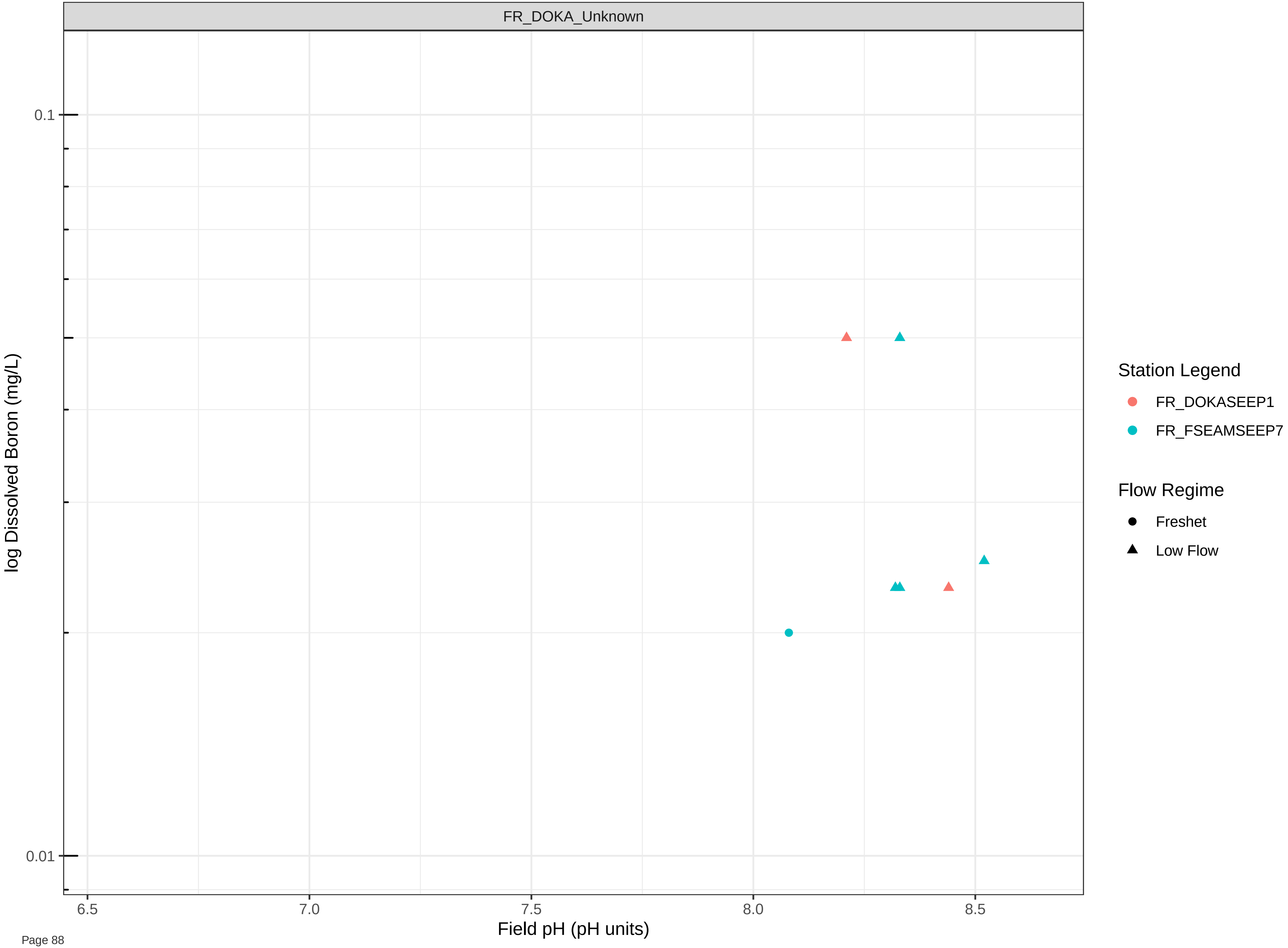

FR_TurnbullWREast_WR
log Dissolved Bismuth (mg/L)
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

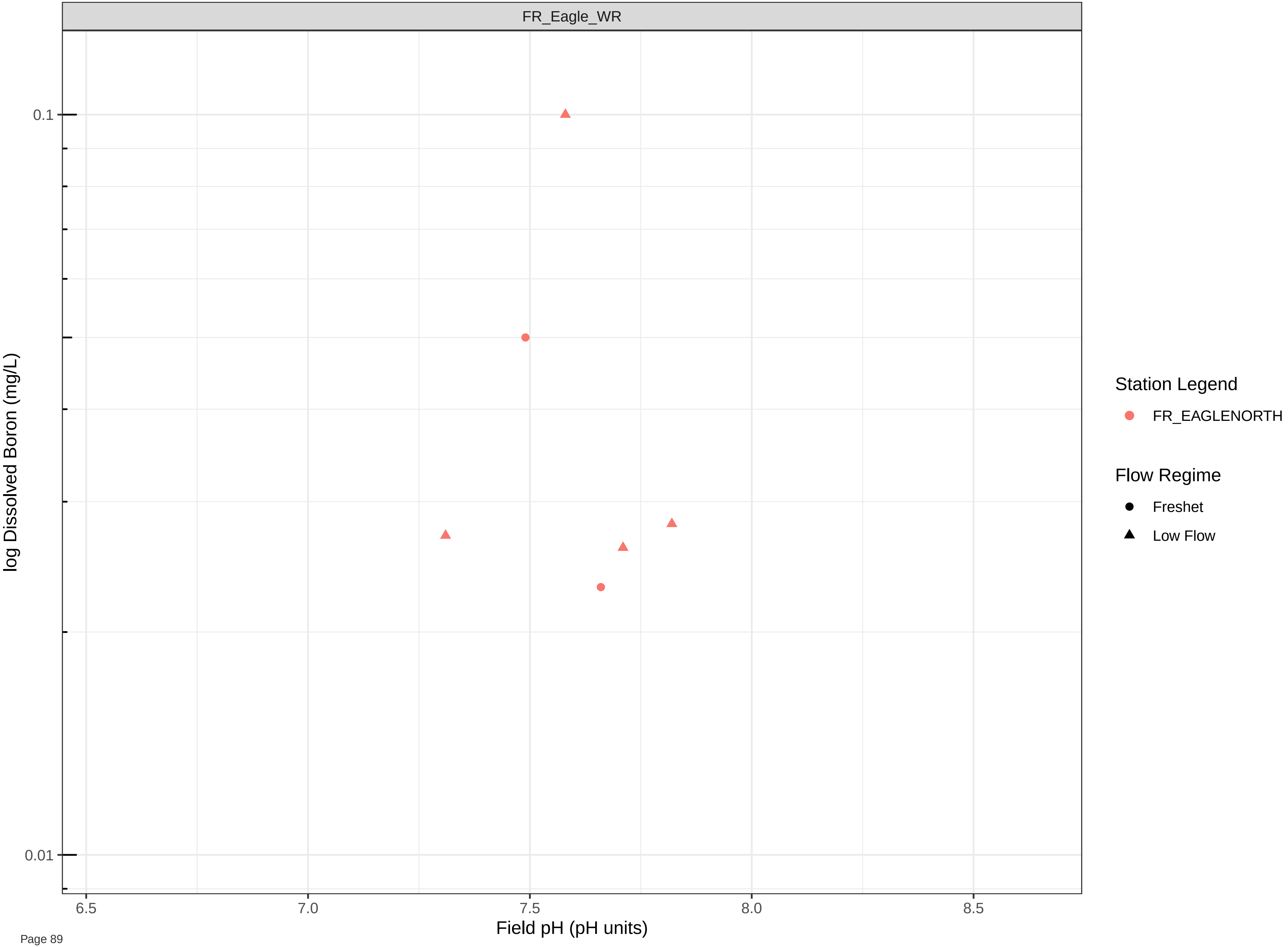

FR_TurnbullWRWest_WR
log Dissolved Bismuth (mg/L)
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

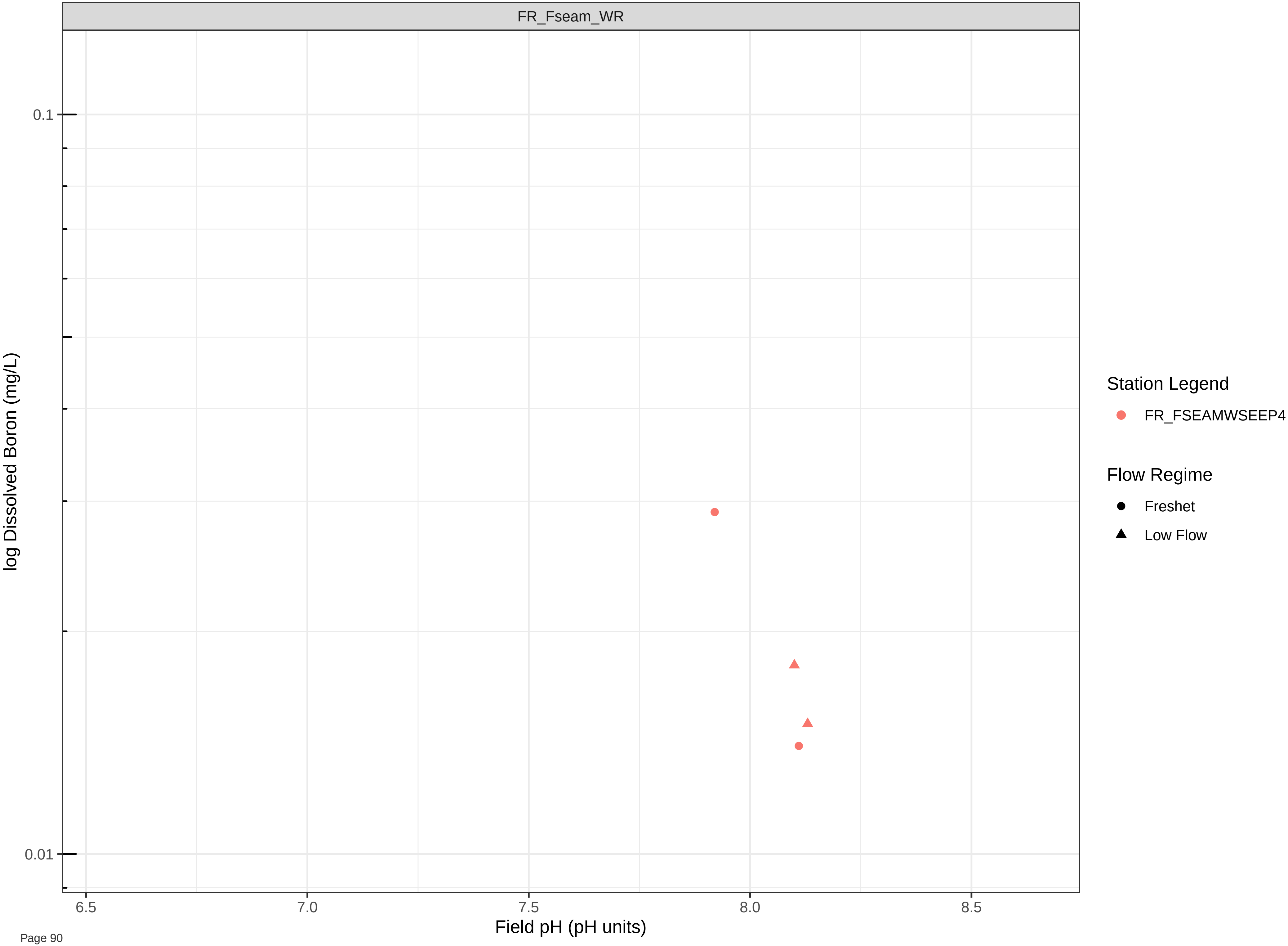

FR_A_WR
0.1
0.01
log Dissolved Boron (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

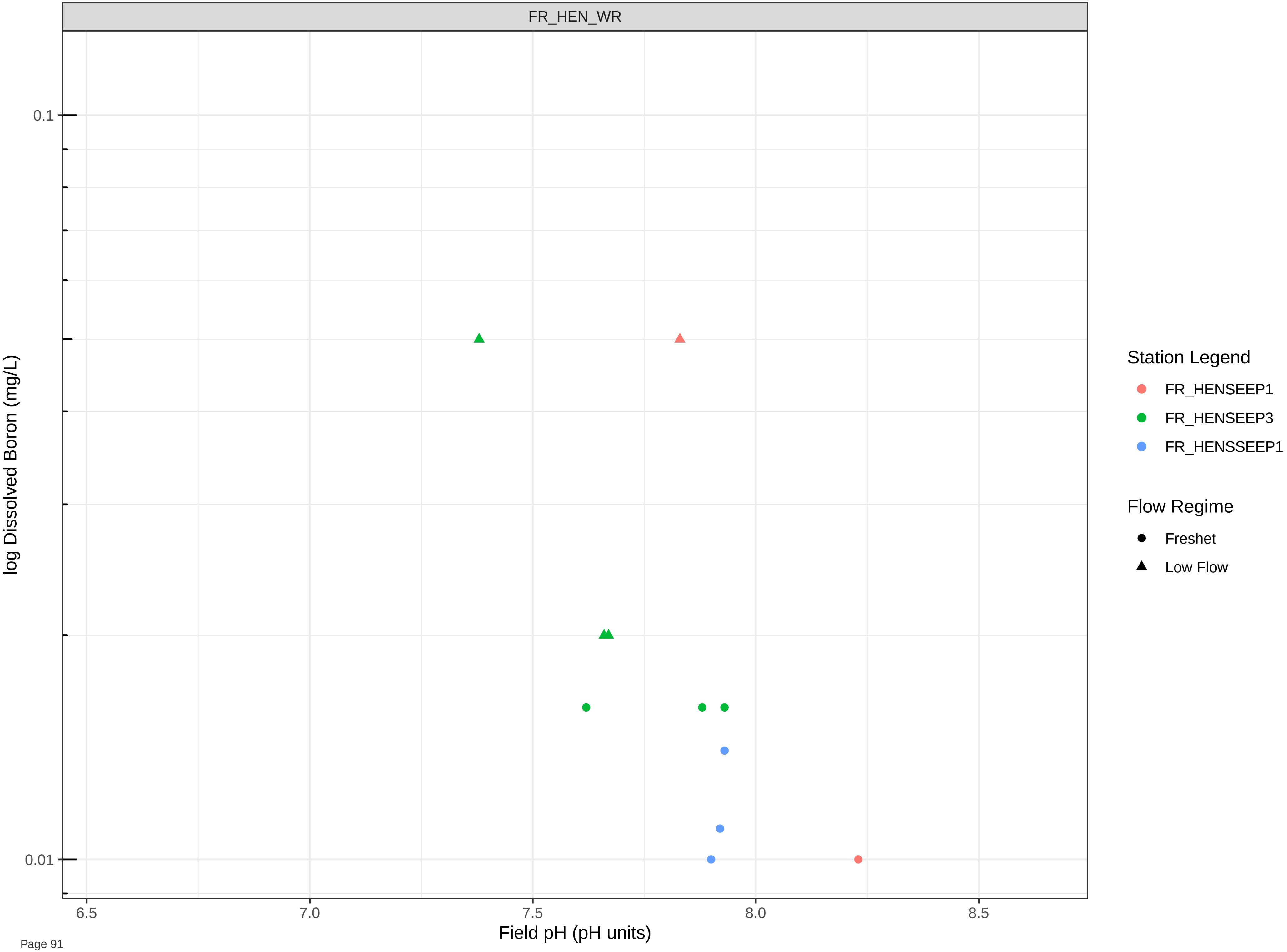

FR_Blain_CCR
log Dissolved Boron (mg/L)
0.1
0.01
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

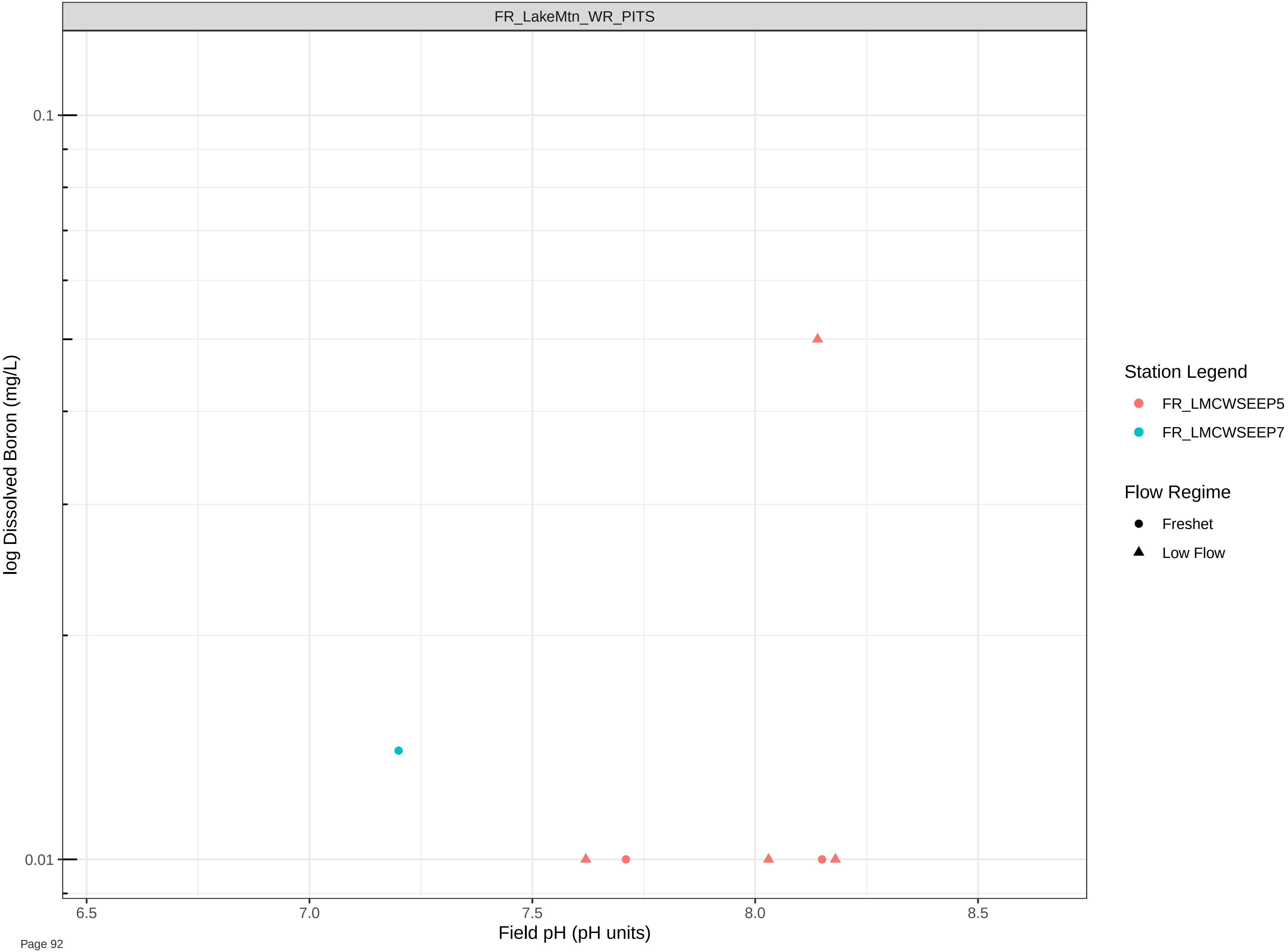

FR_ClodeCr_WR
0.1
0.01
log Dissolved Boron (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

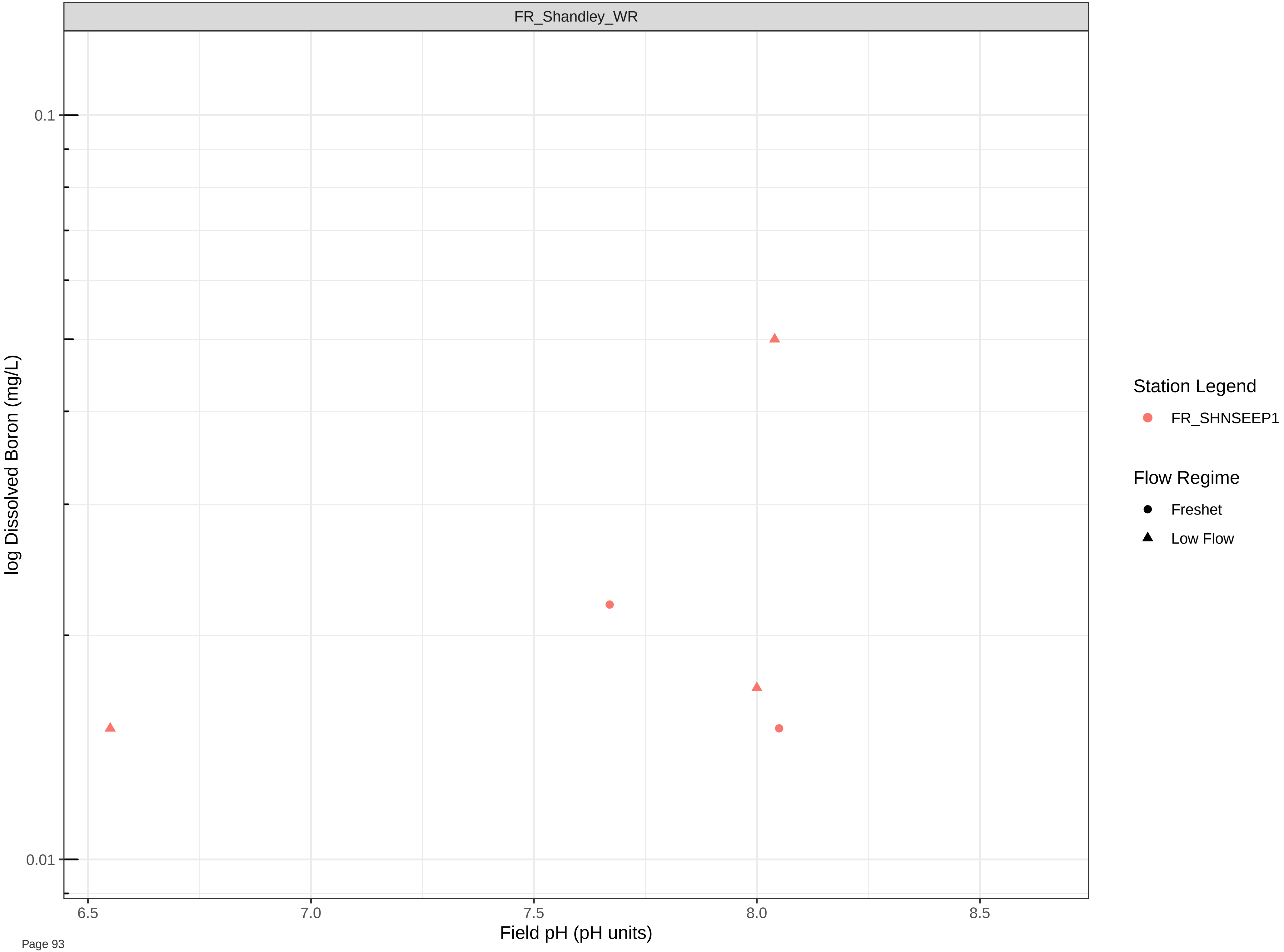

FR_DOKA_Unknown
log Dissolved Boron (mg/L)
0.1
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow

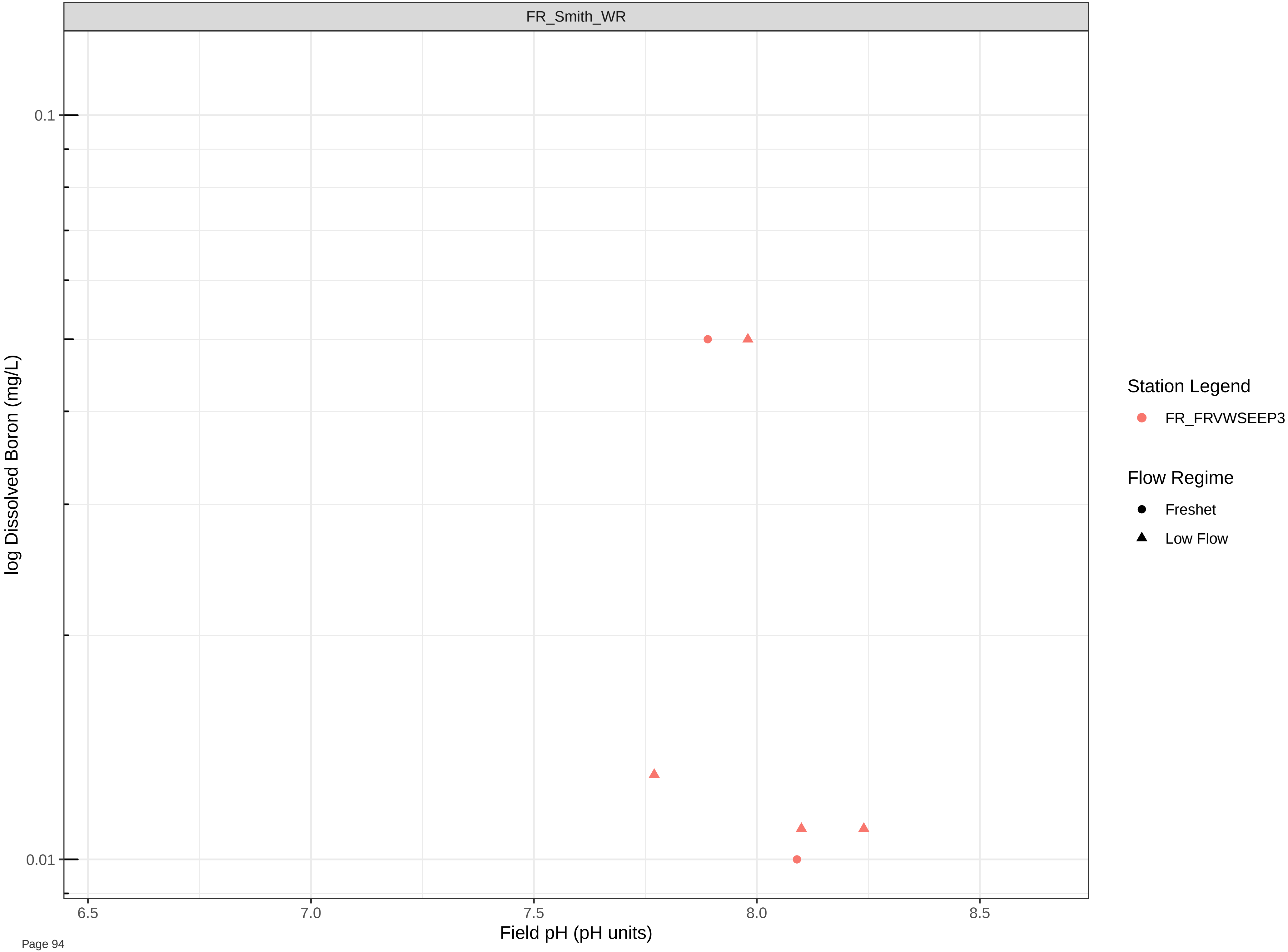

FR_Eagle_WR
0.1
0.01
log Dissolved Boron (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

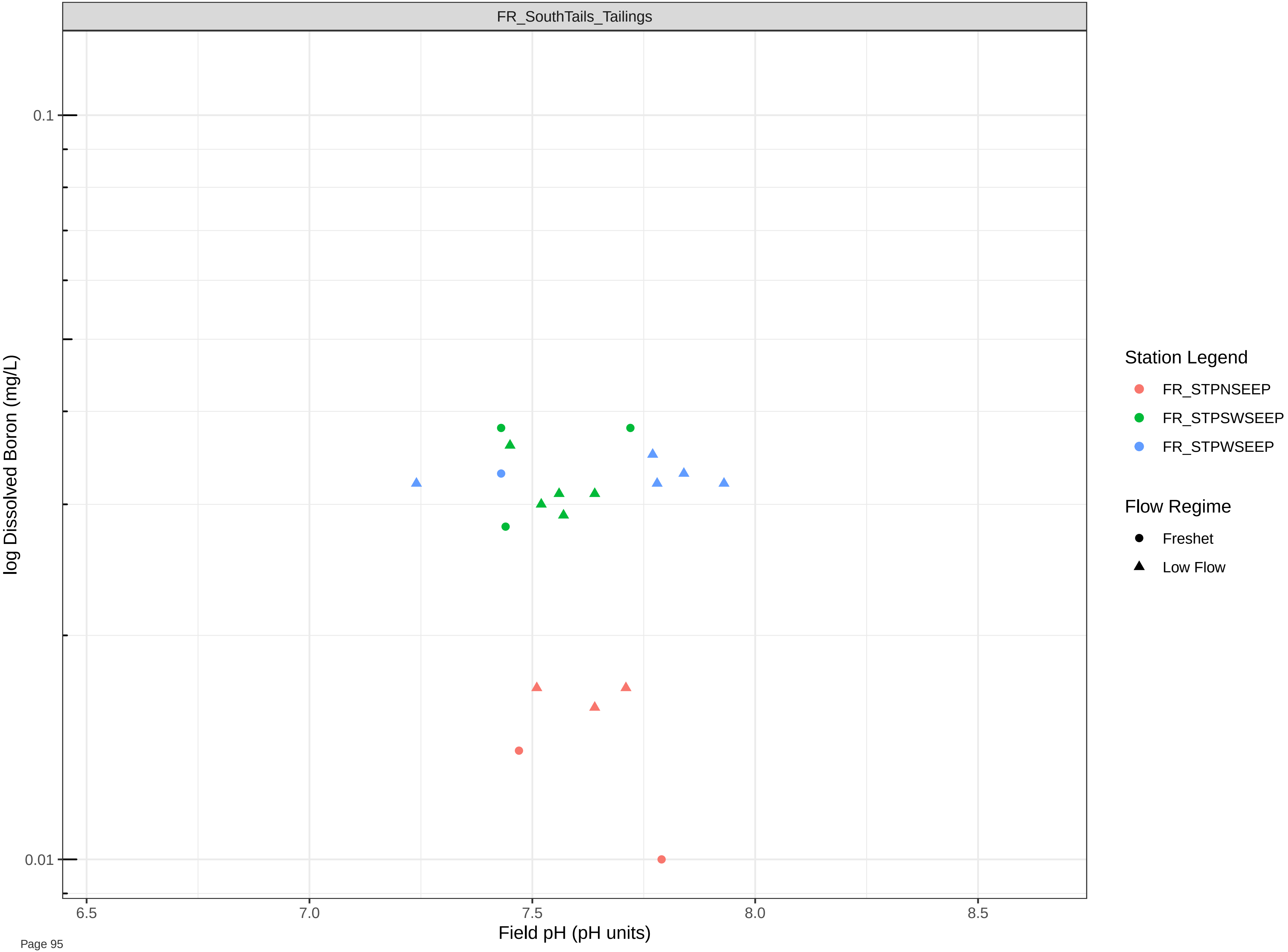

FR_Fseam_WR
log Dissolved Boron (mg/L)
0.1
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

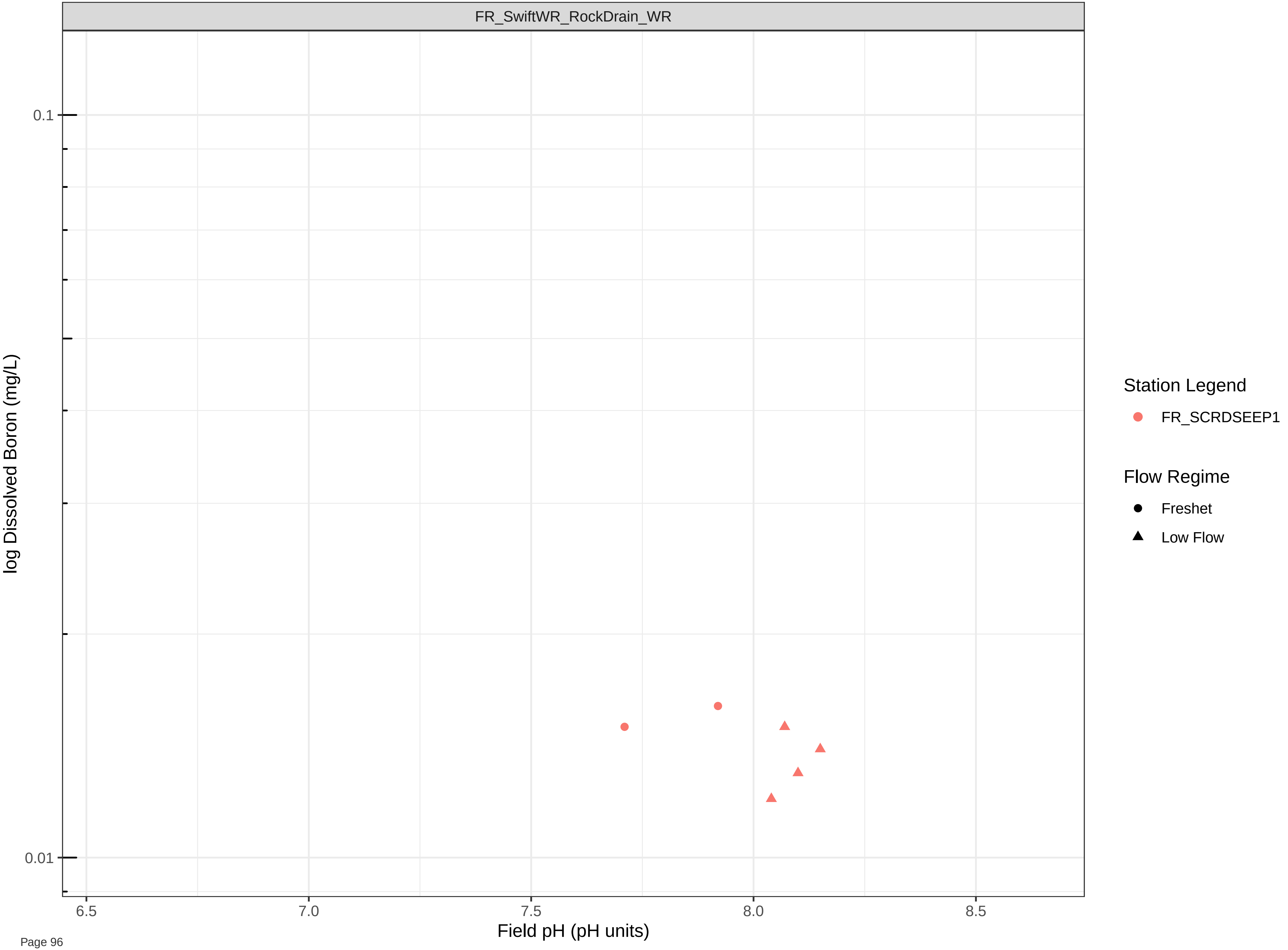

FR_HEN_WR
0.1
0.01
log Dissolved Boron (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

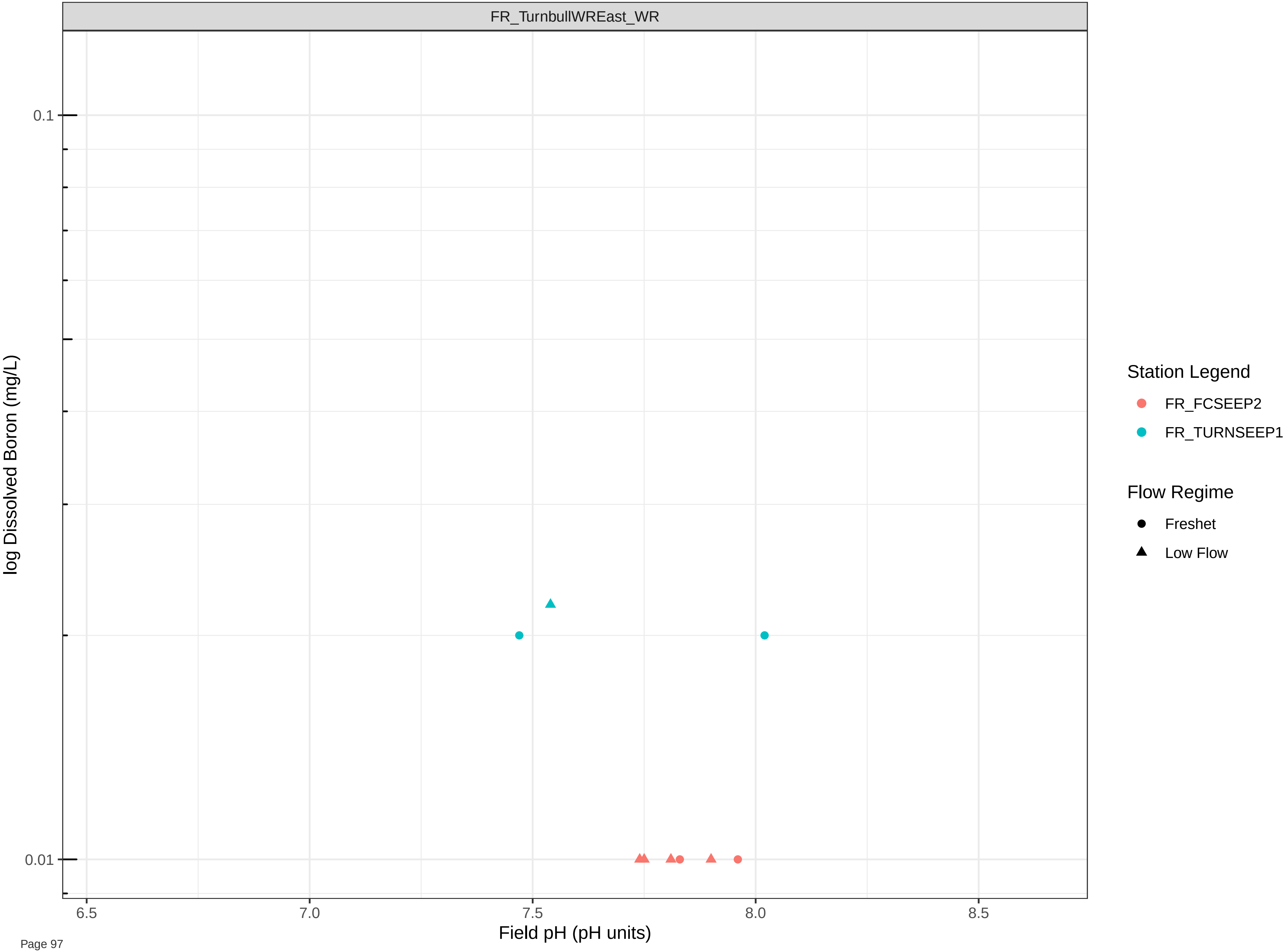

FR_LakeMtn_WR_PITS
log Dissolved Boron (mg/L)
0.1
0.01
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

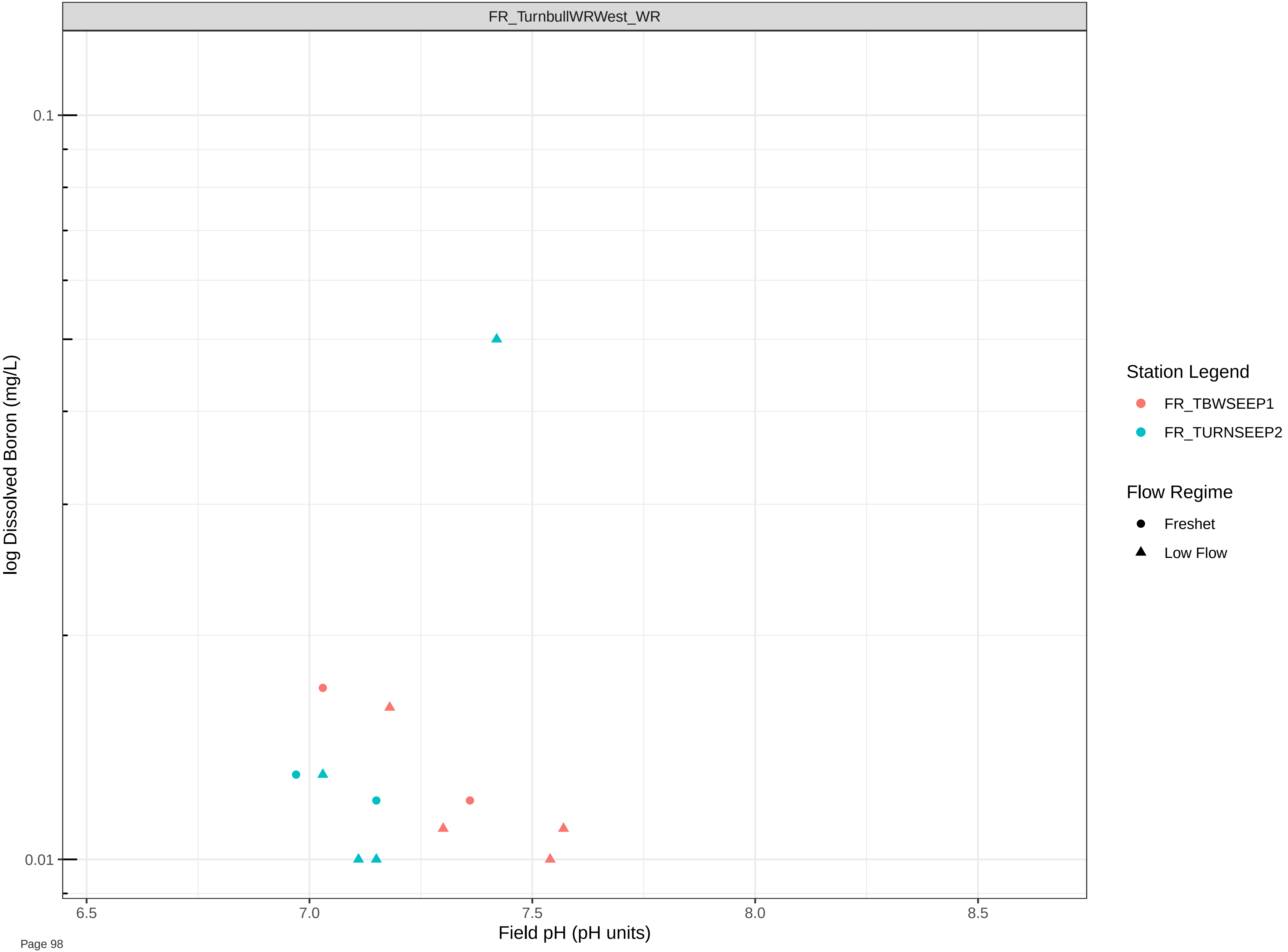

FR_Shandley_WR
0.1
0.01
log Dissolved Boron (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

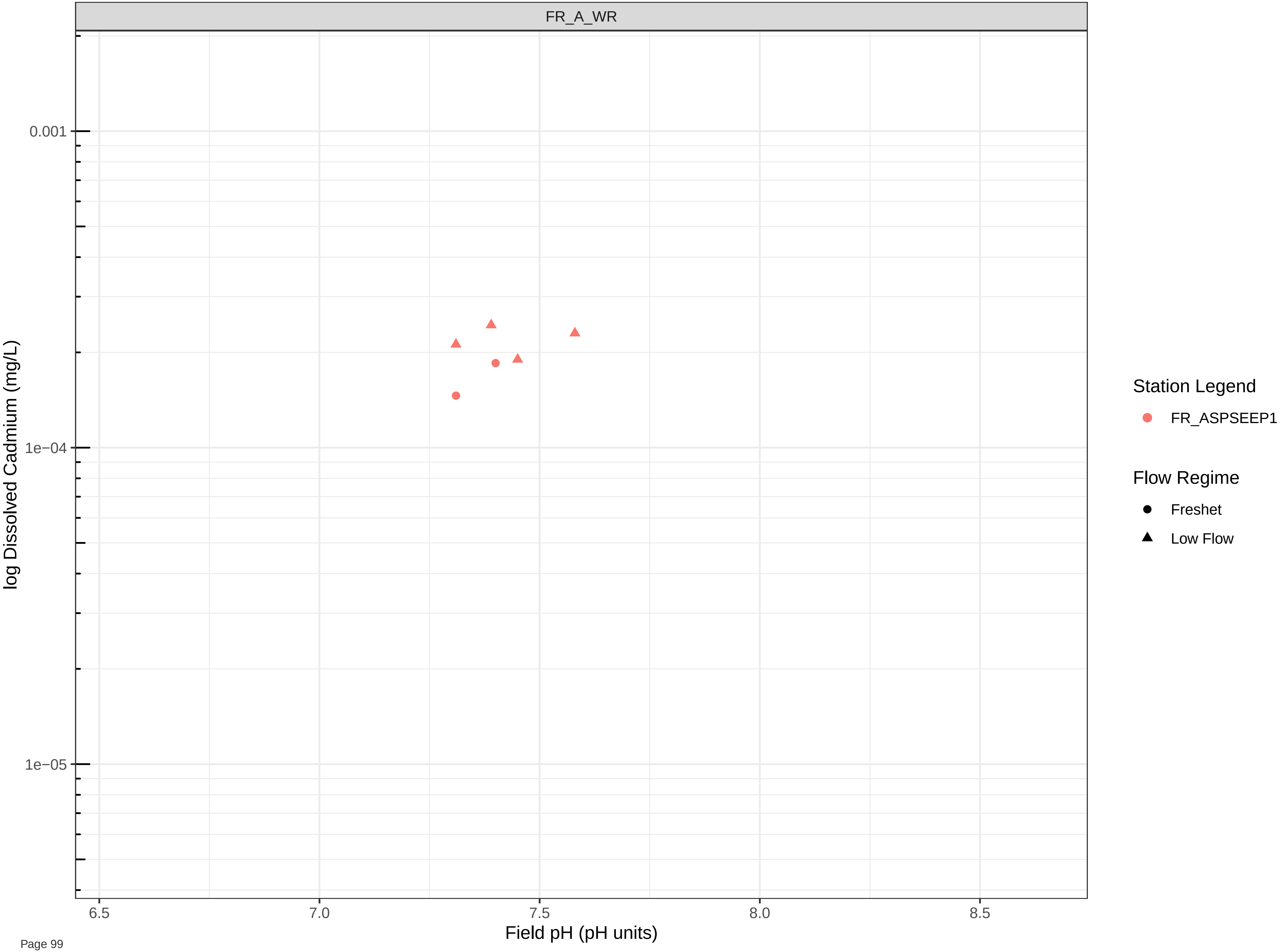

FR_Smith_WR
log Dissolved Boron (mg/L)
0.1
0.01
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

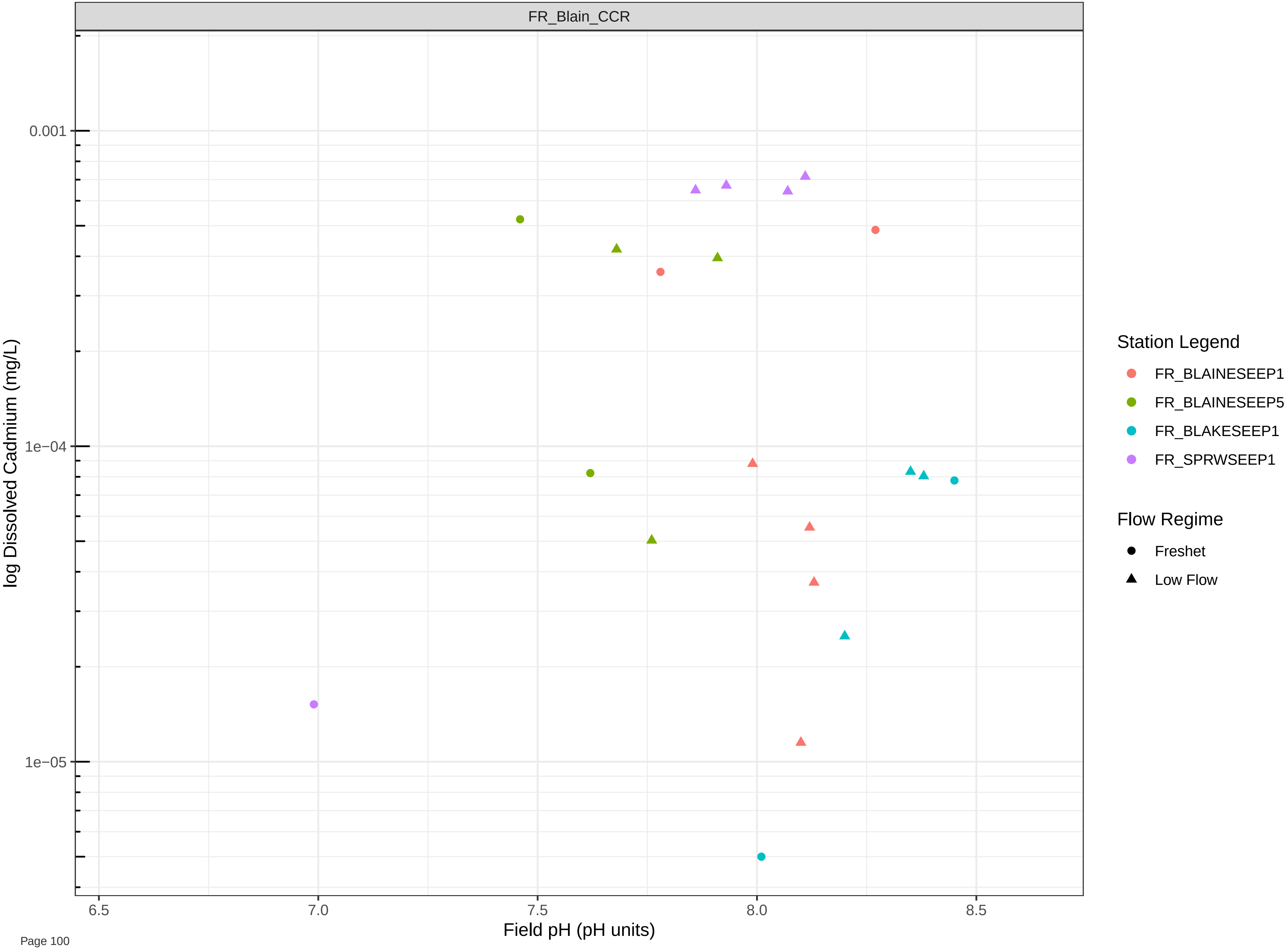

FR_SouthTails_Tailings
log Dissolved Boron (mg/L)
0.1
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

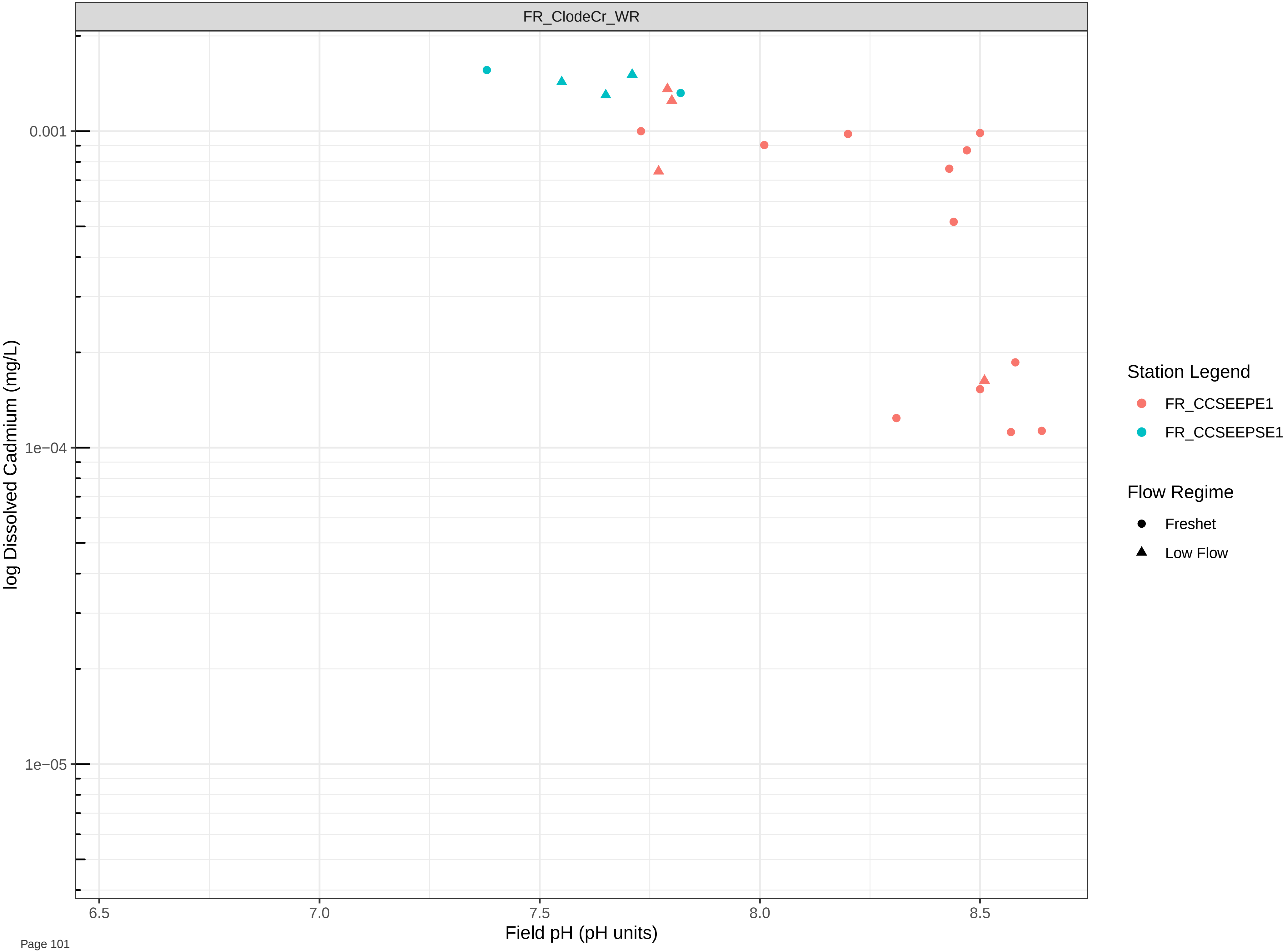

FR_SwiftWR_RockDrain_WR
0.1
0.01
log Dissolved Boron (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

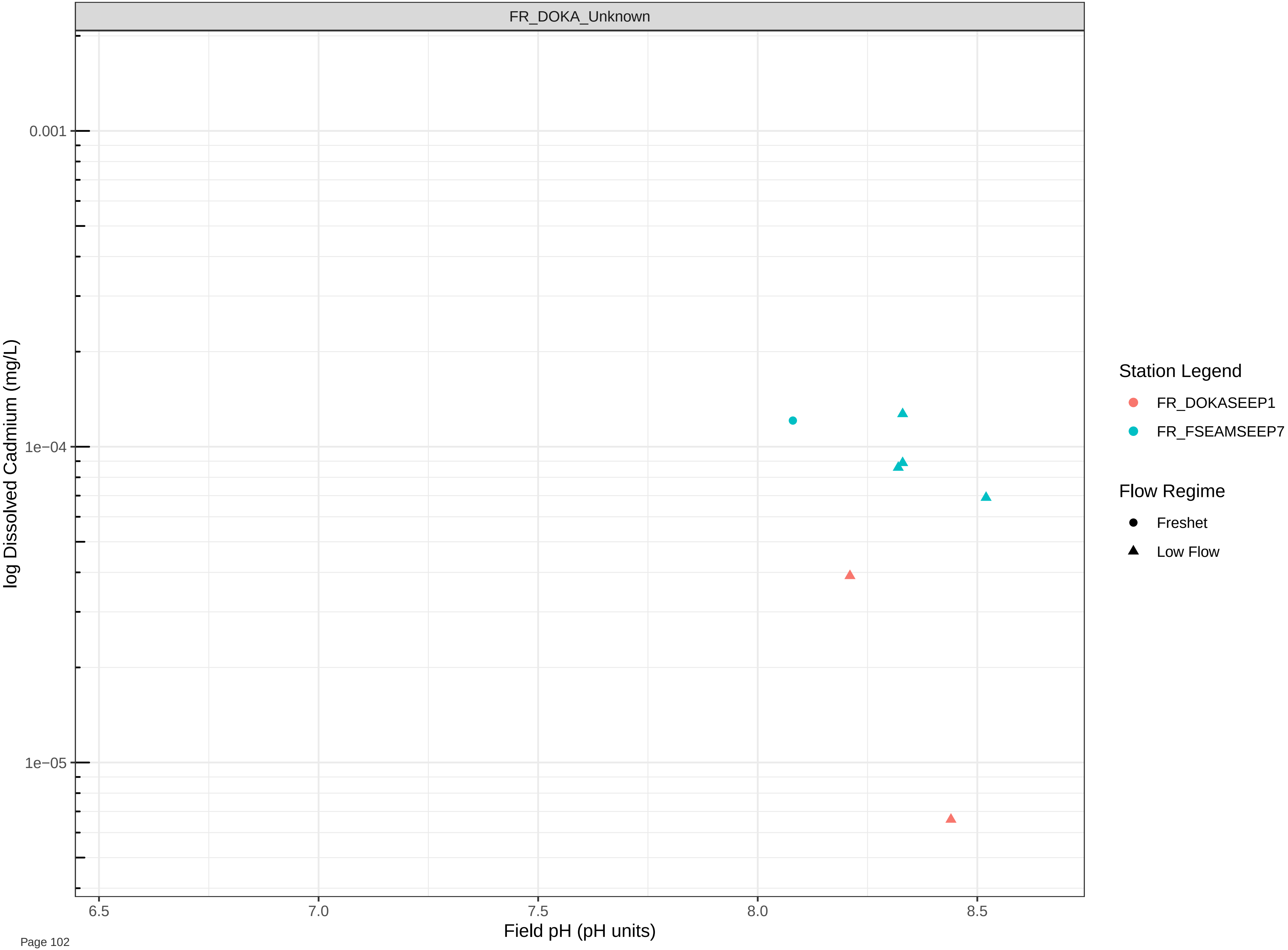

FR_TurnbullWREast_WR
log Dissolved Boron (mg/L)
0.1
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

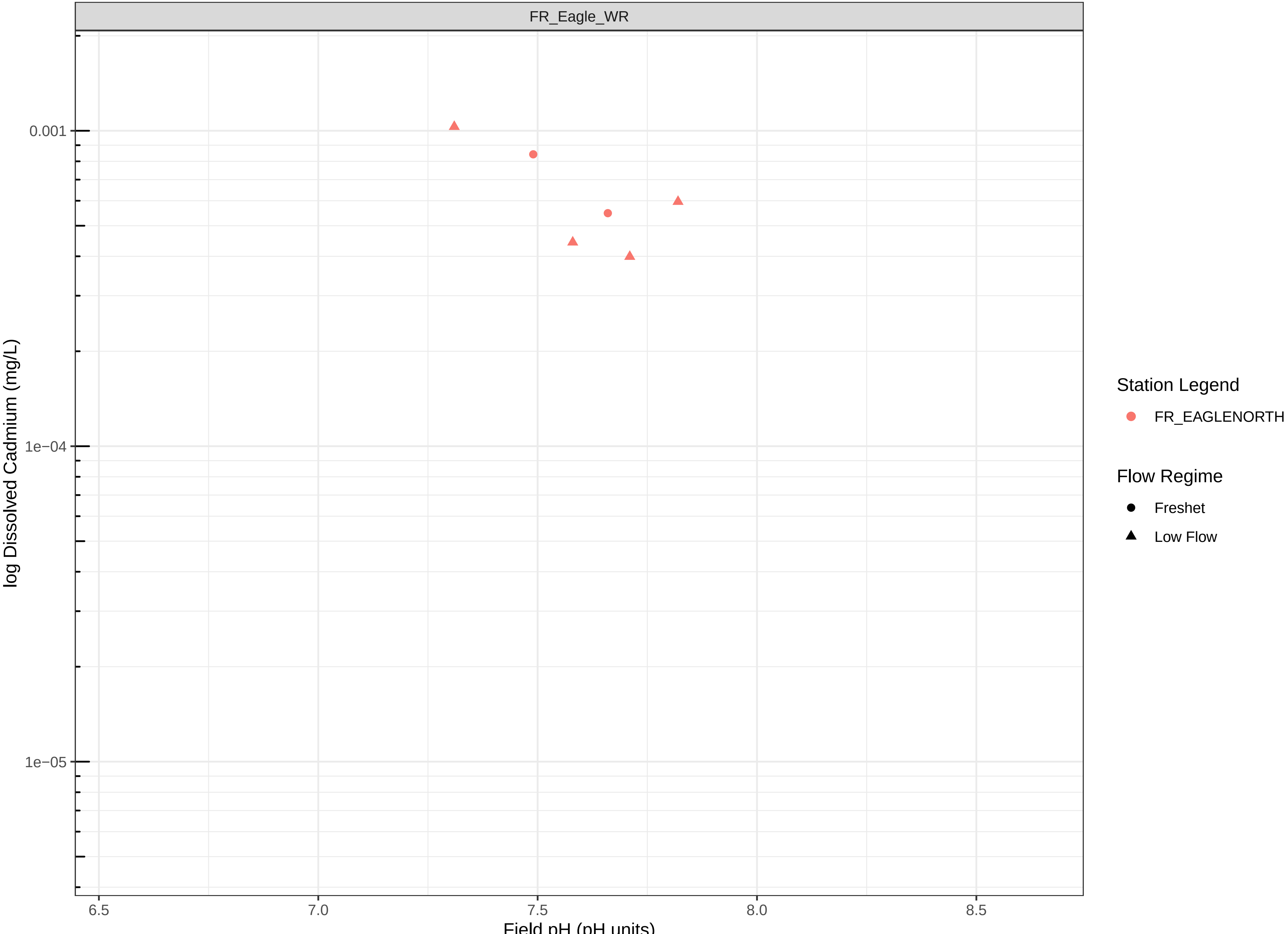

FR_TurnbullWRWest_WR
log Dissolved Boron (mg/L)
0.1
0.01
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_TBWSEEP1
● FR_TURNSEEP2
Flow Regime
● Freshet
▲ Low Flow

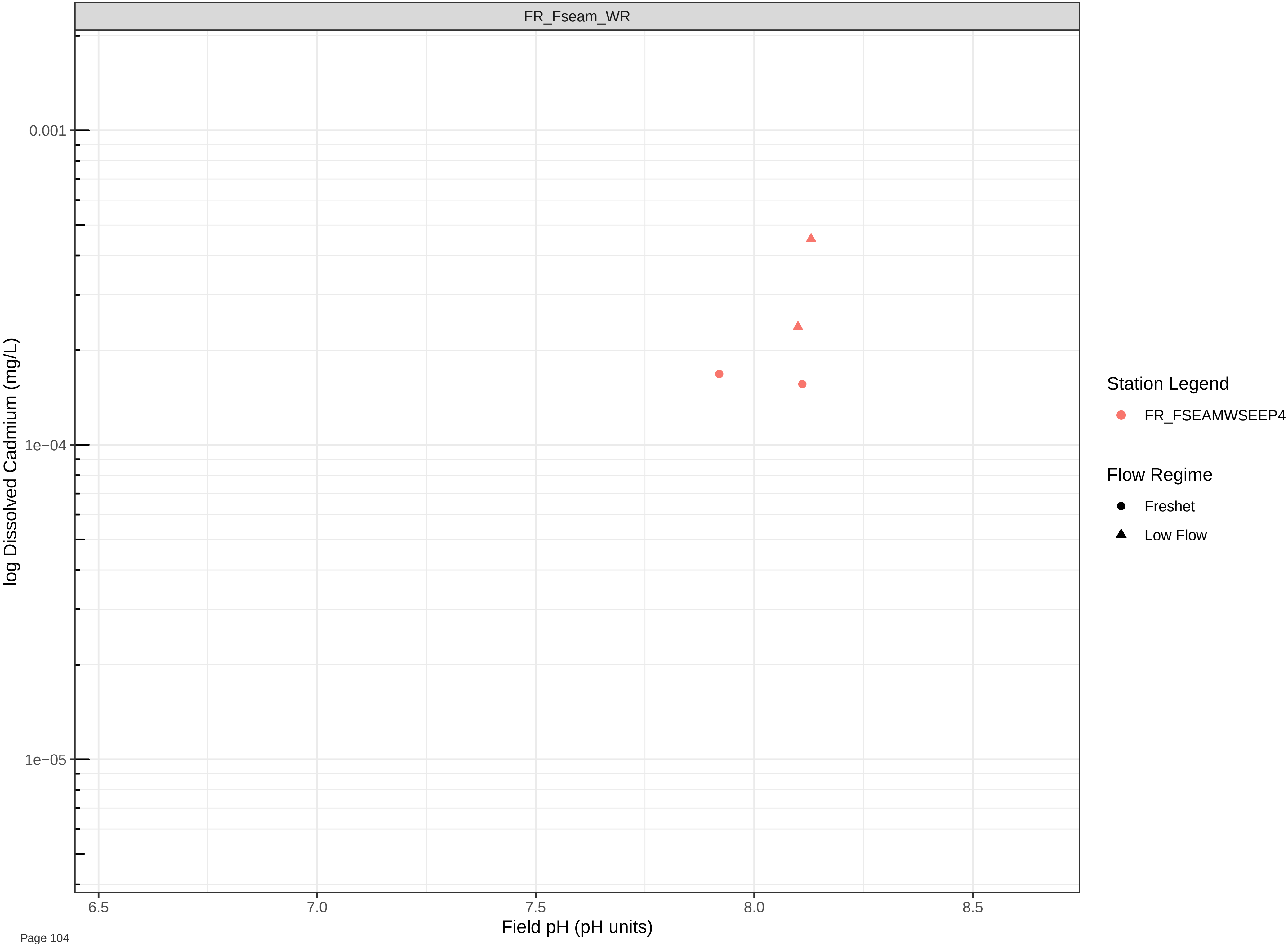

FR_A_WR
0.001
1e−04
1e−05
log Dissolved Cadmium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

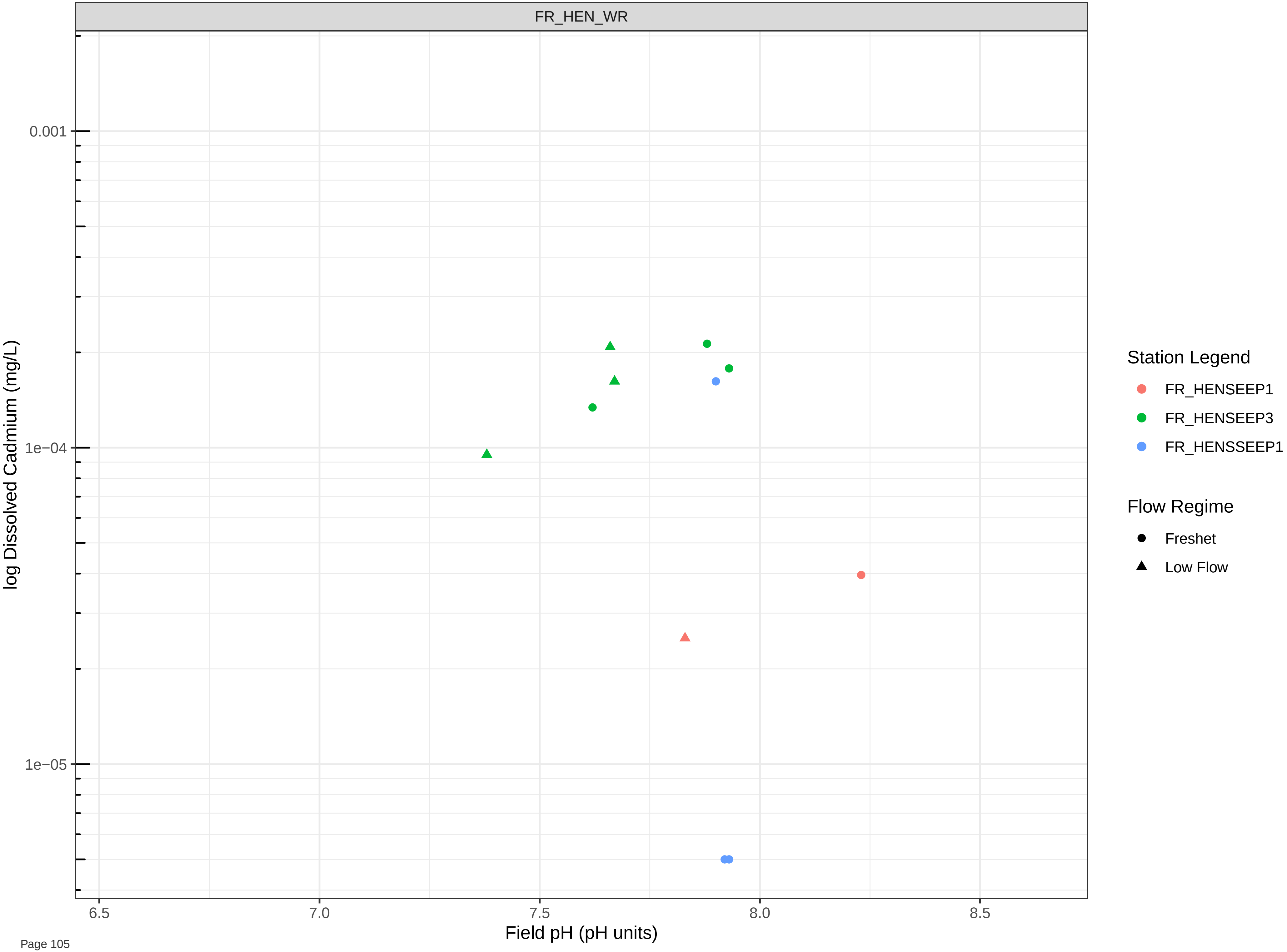

FR_Blain_CCR
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

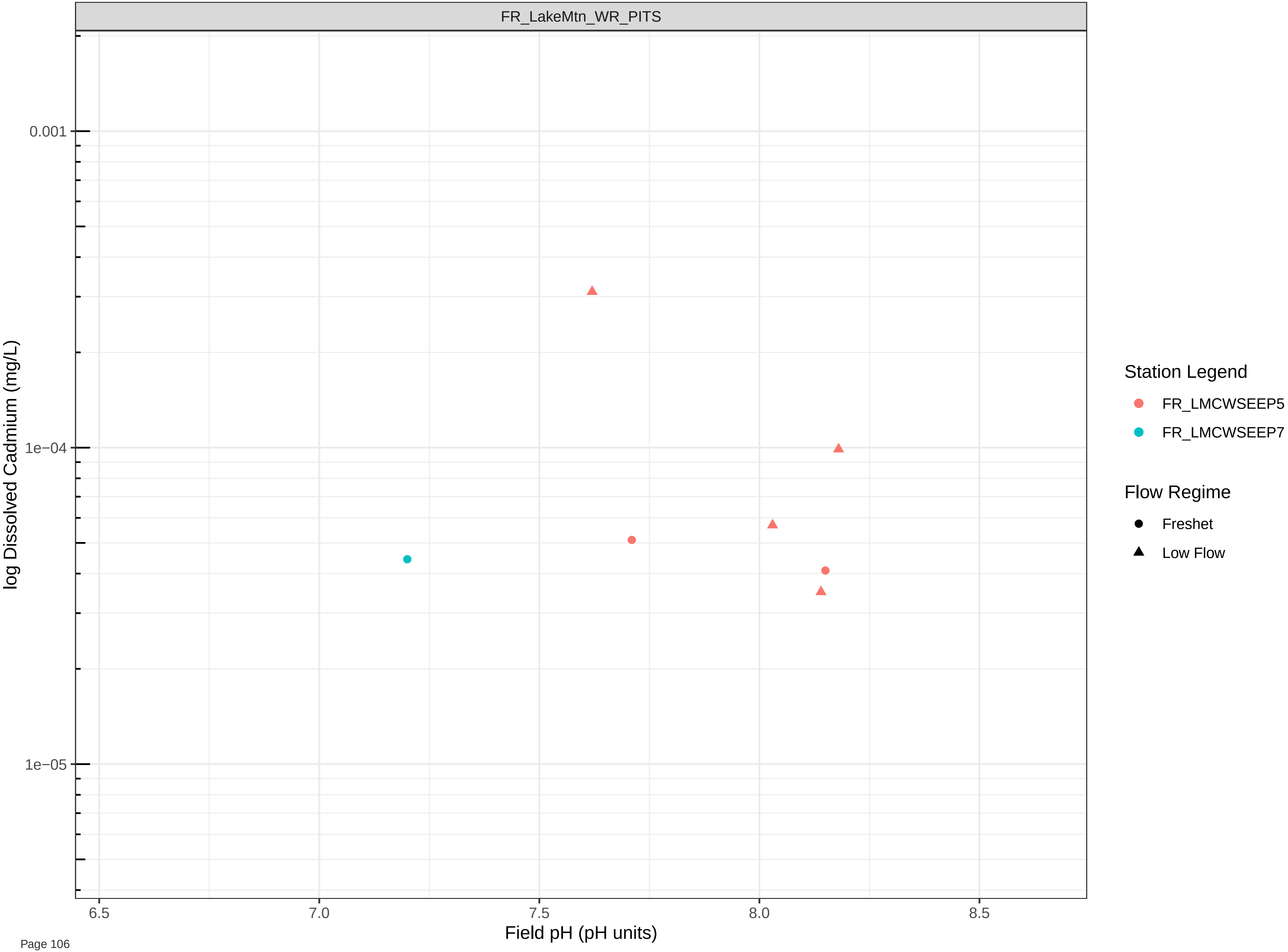

FR_ClodeCr_WR
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

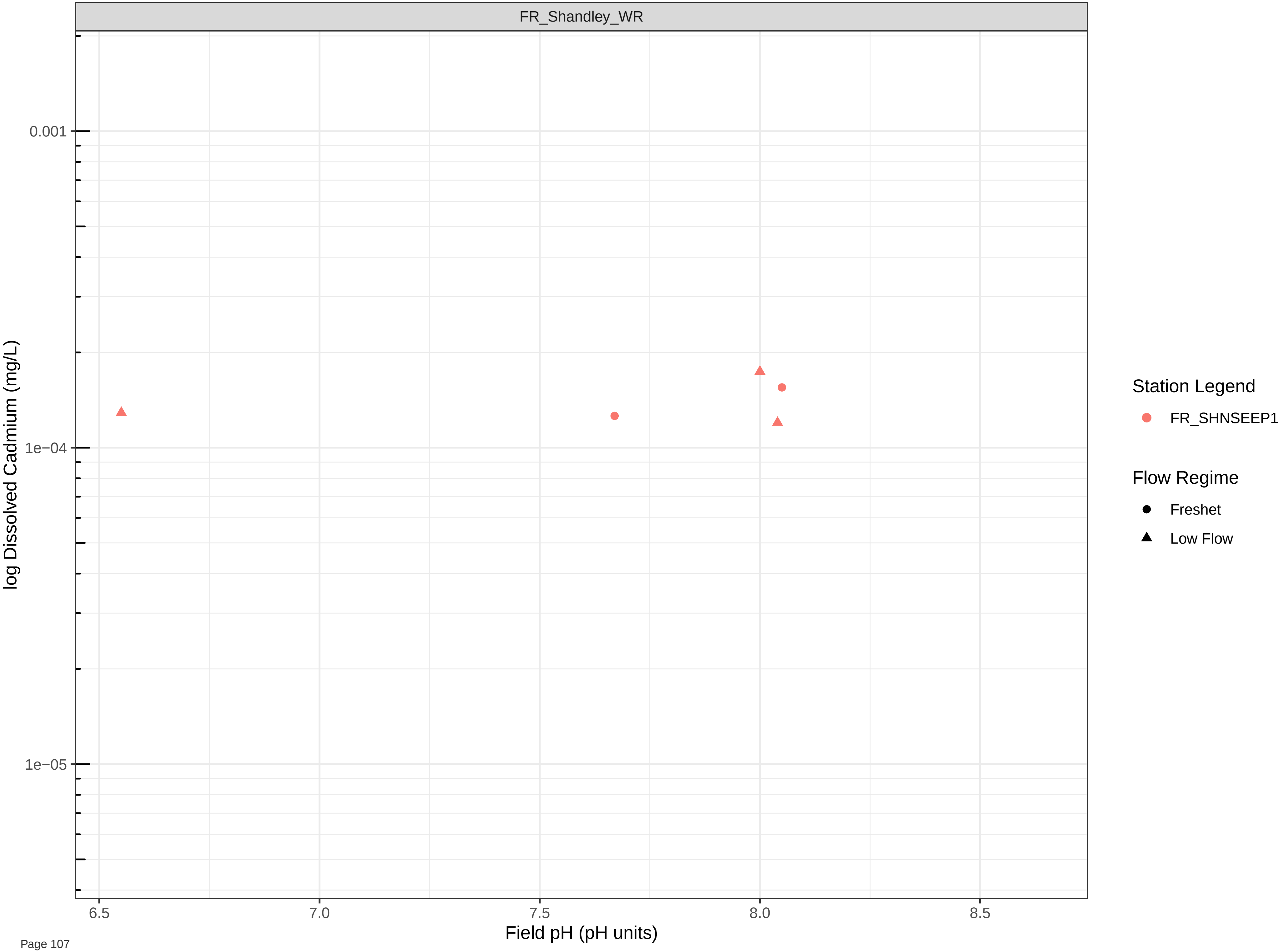

FR_DOKA_Unknown
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow


FR_Eagle_WR
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

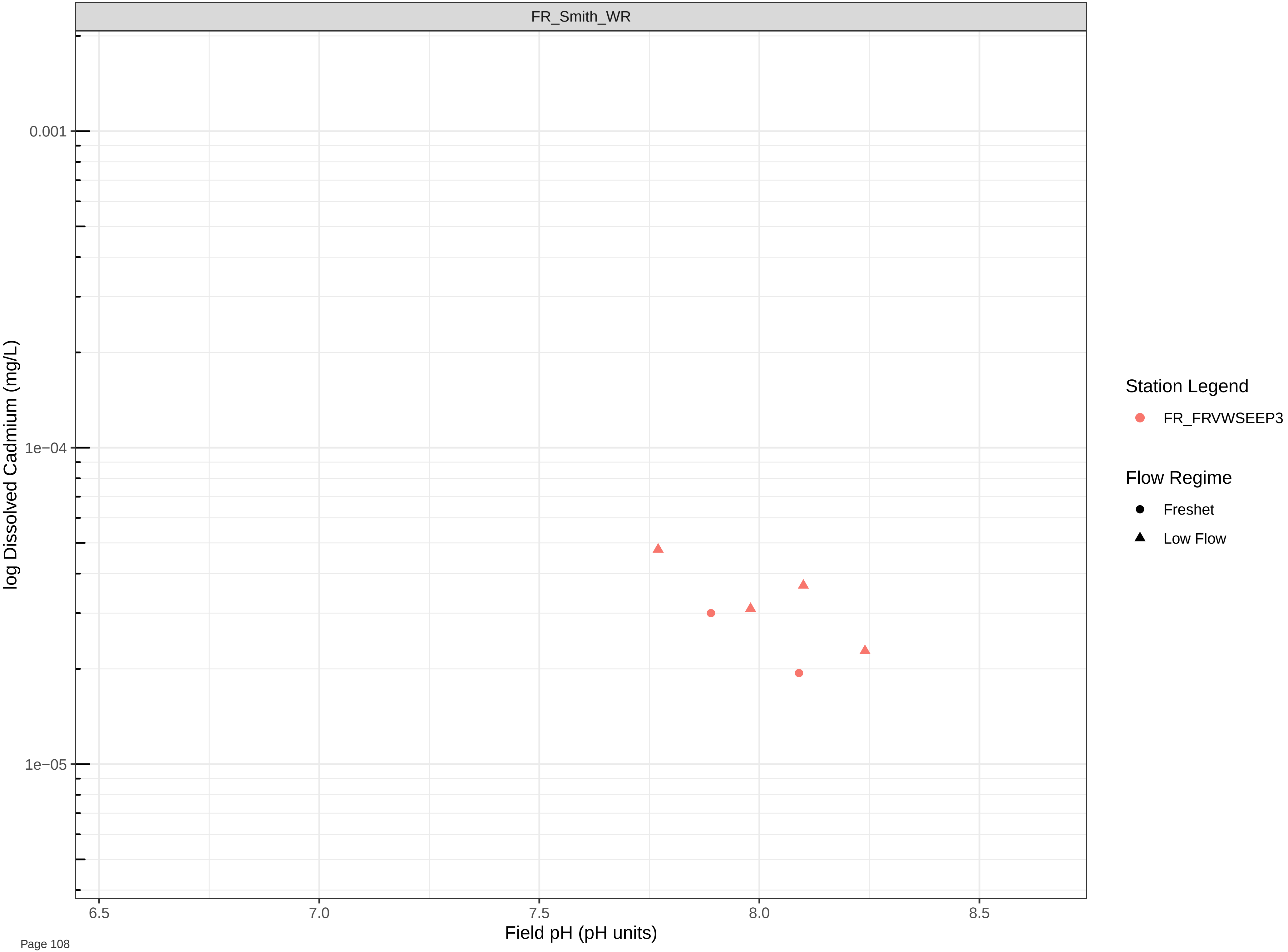

FR_Fseam_WR
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

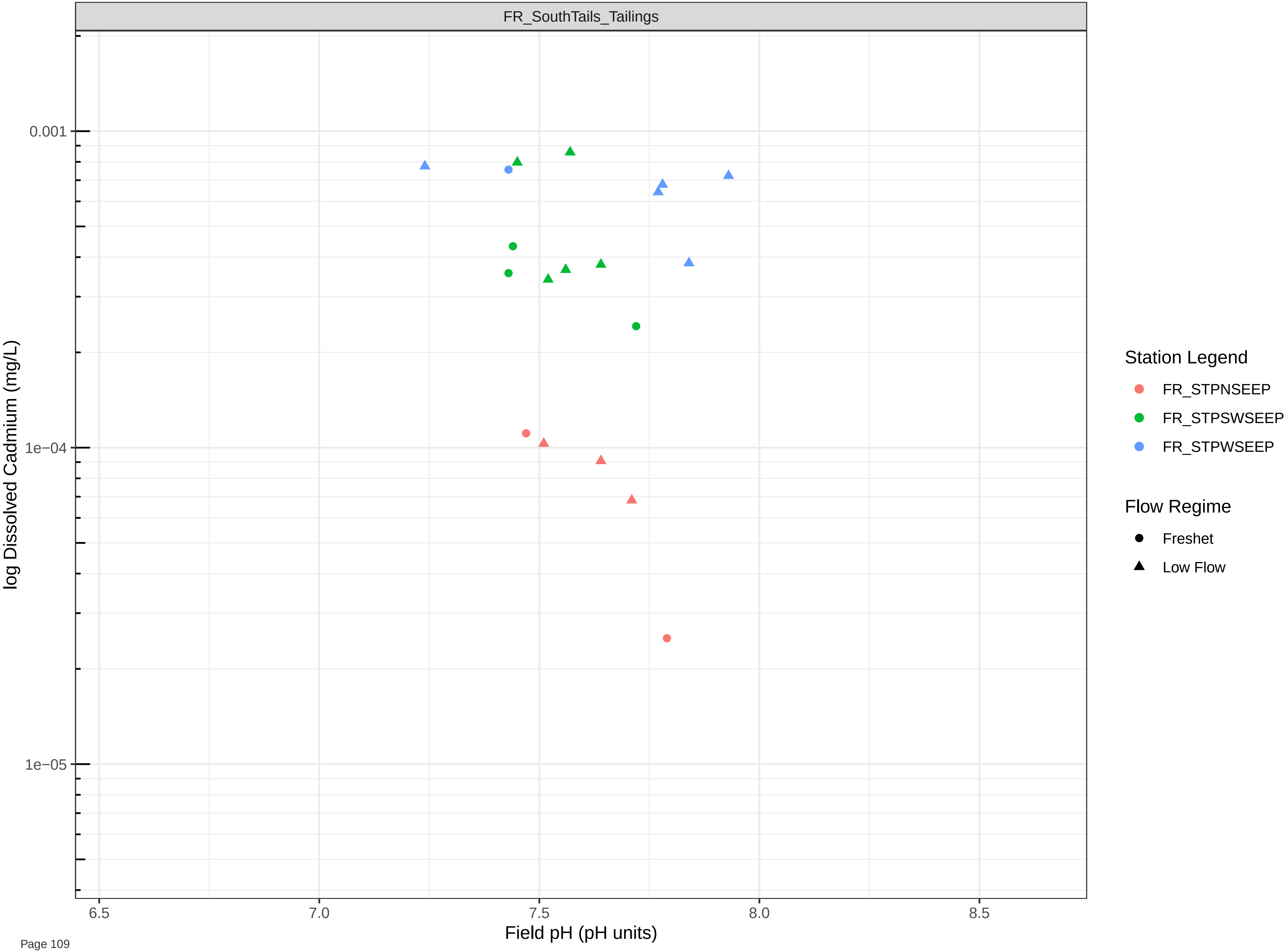

FR_HEN_WR
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

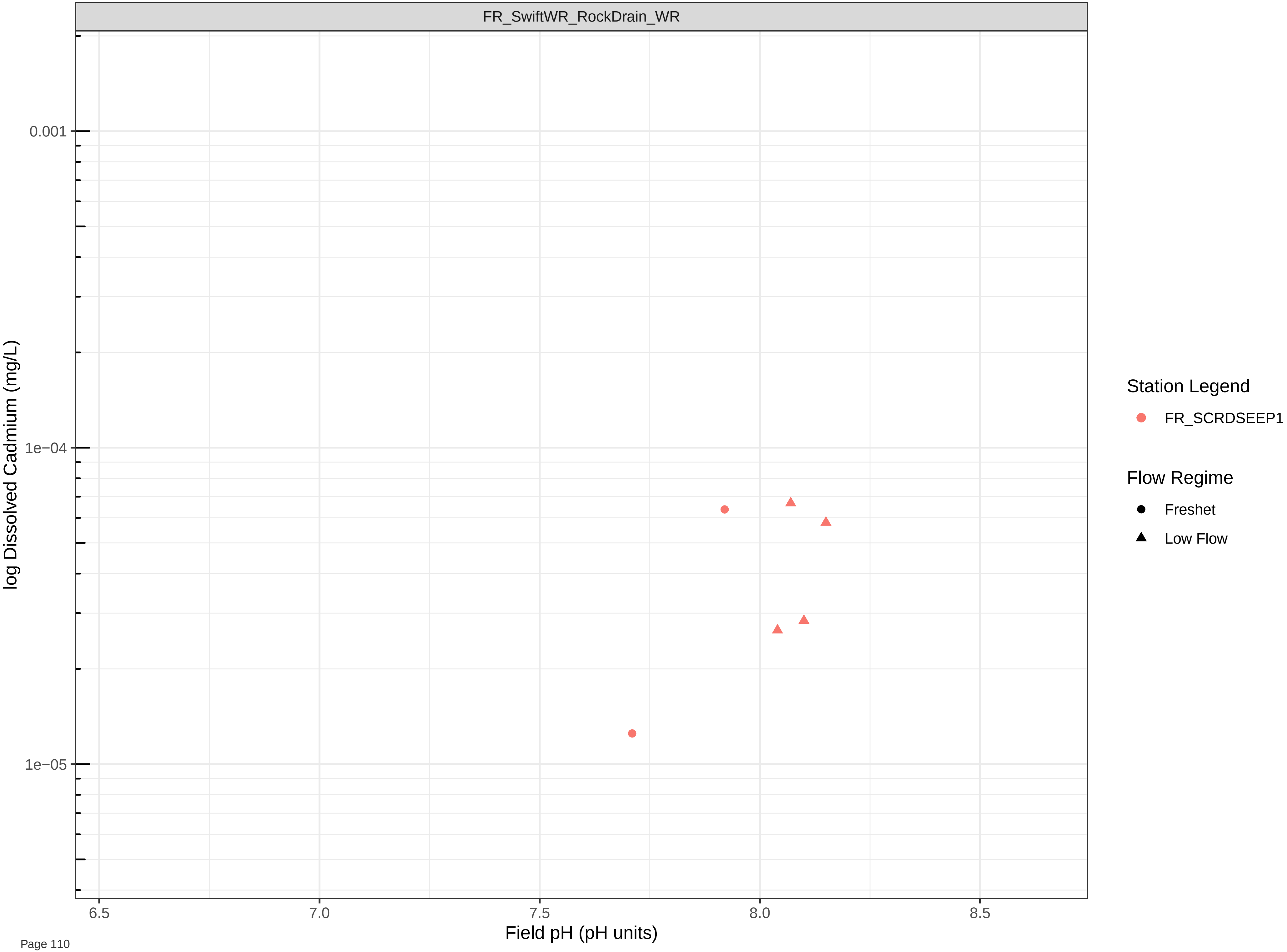

FR_LakeMtn_WR_PITS
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

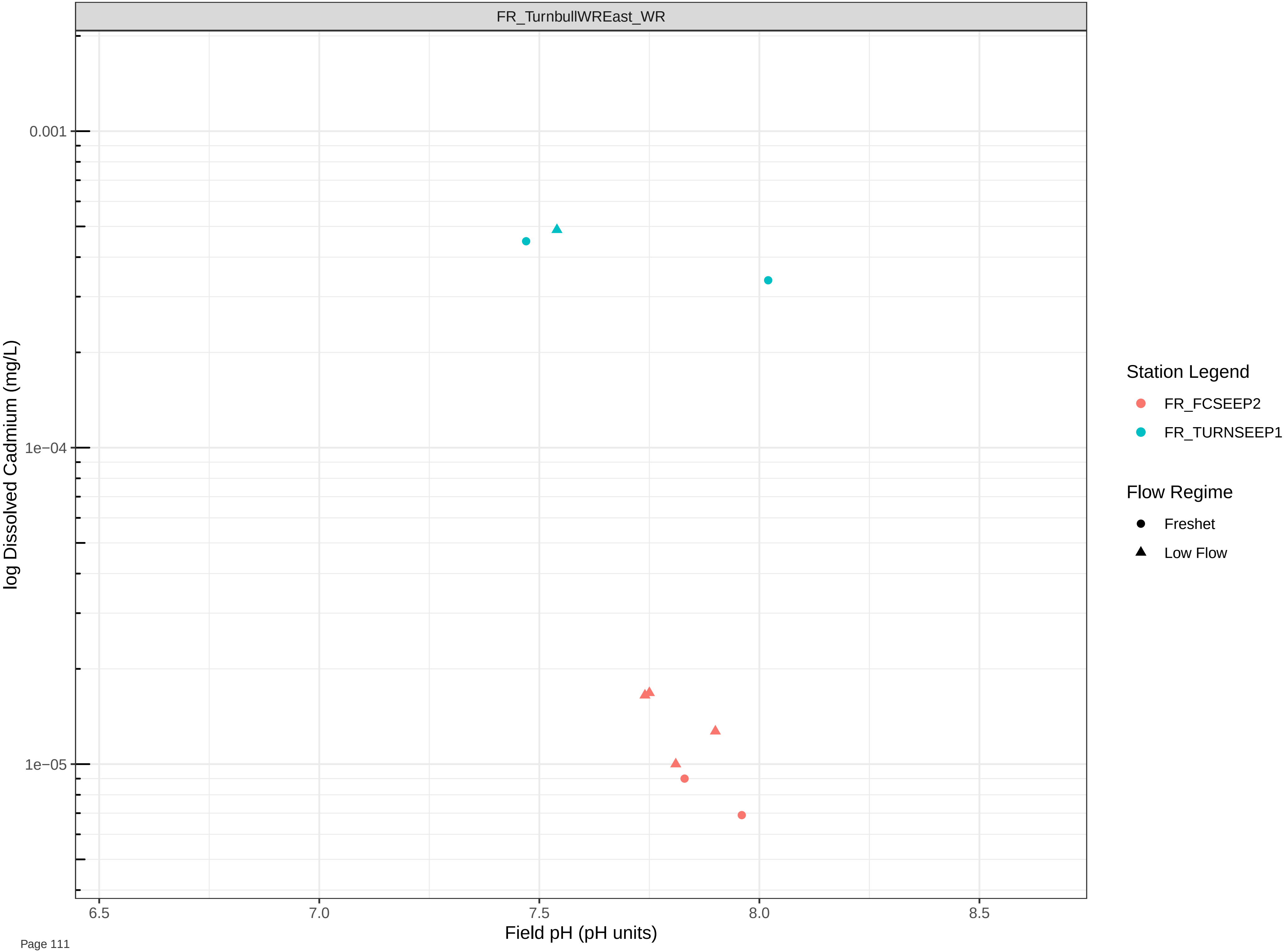


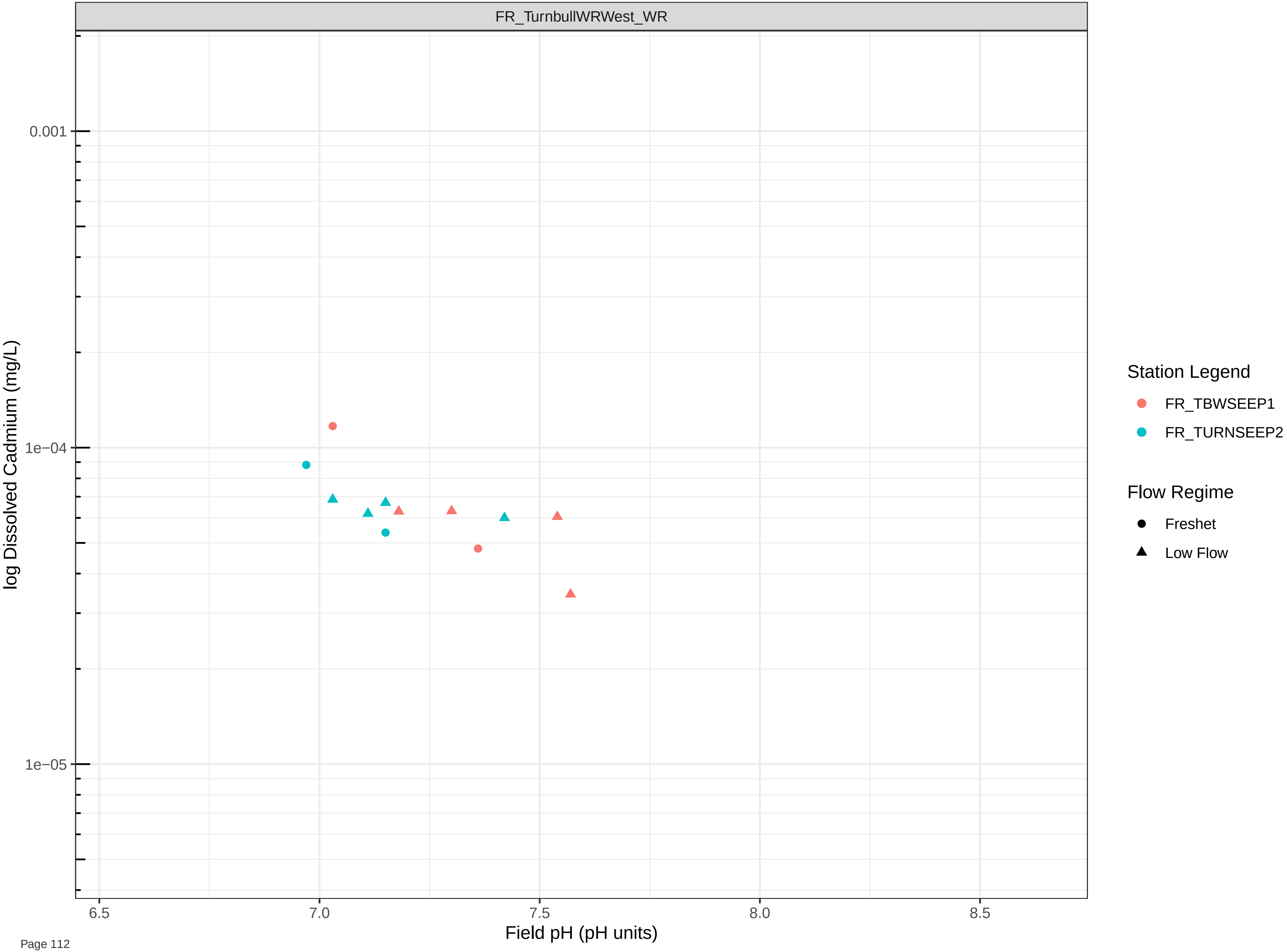
FR_Shandley_WR
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

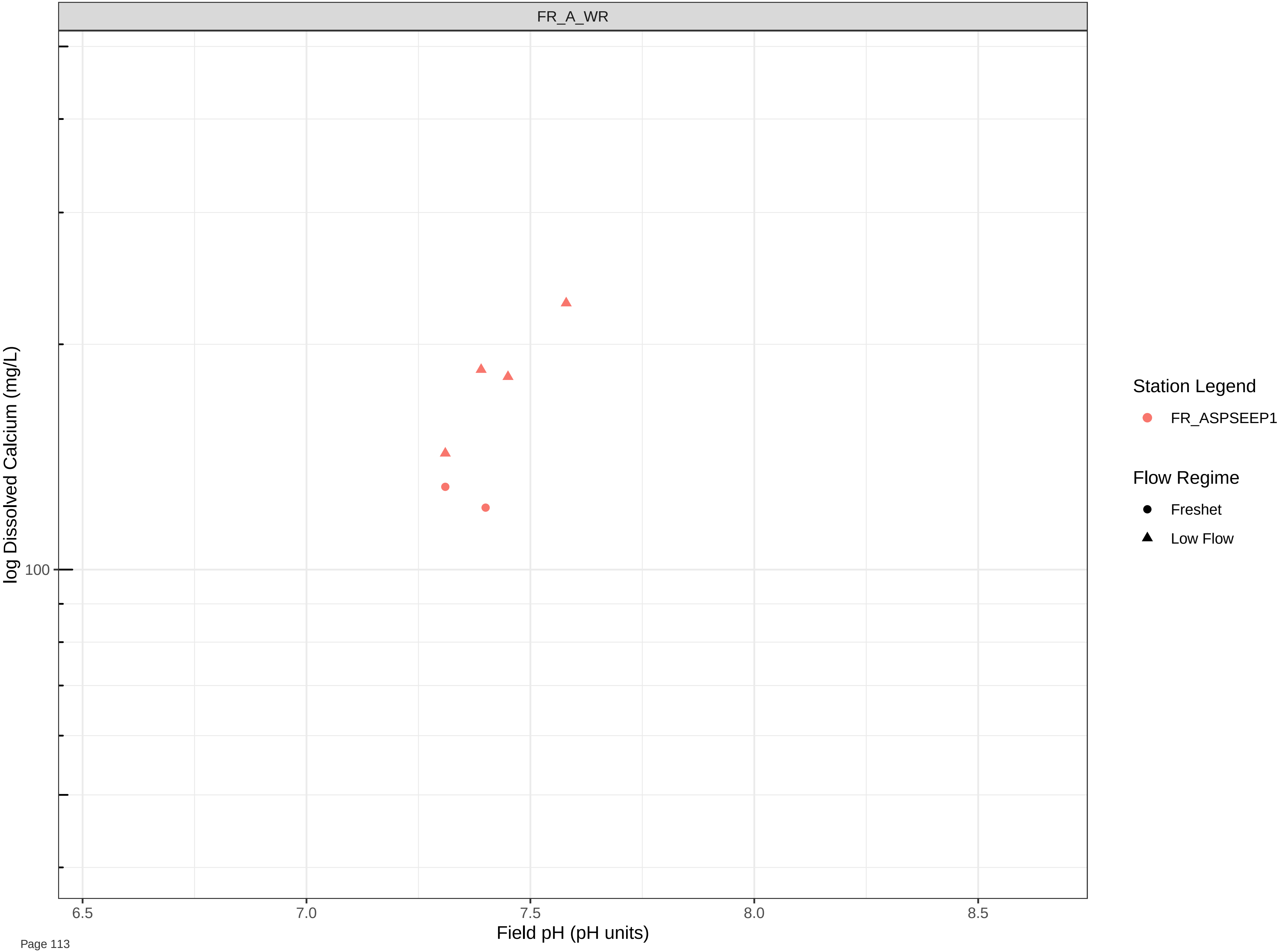

FR_Smith_WR
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

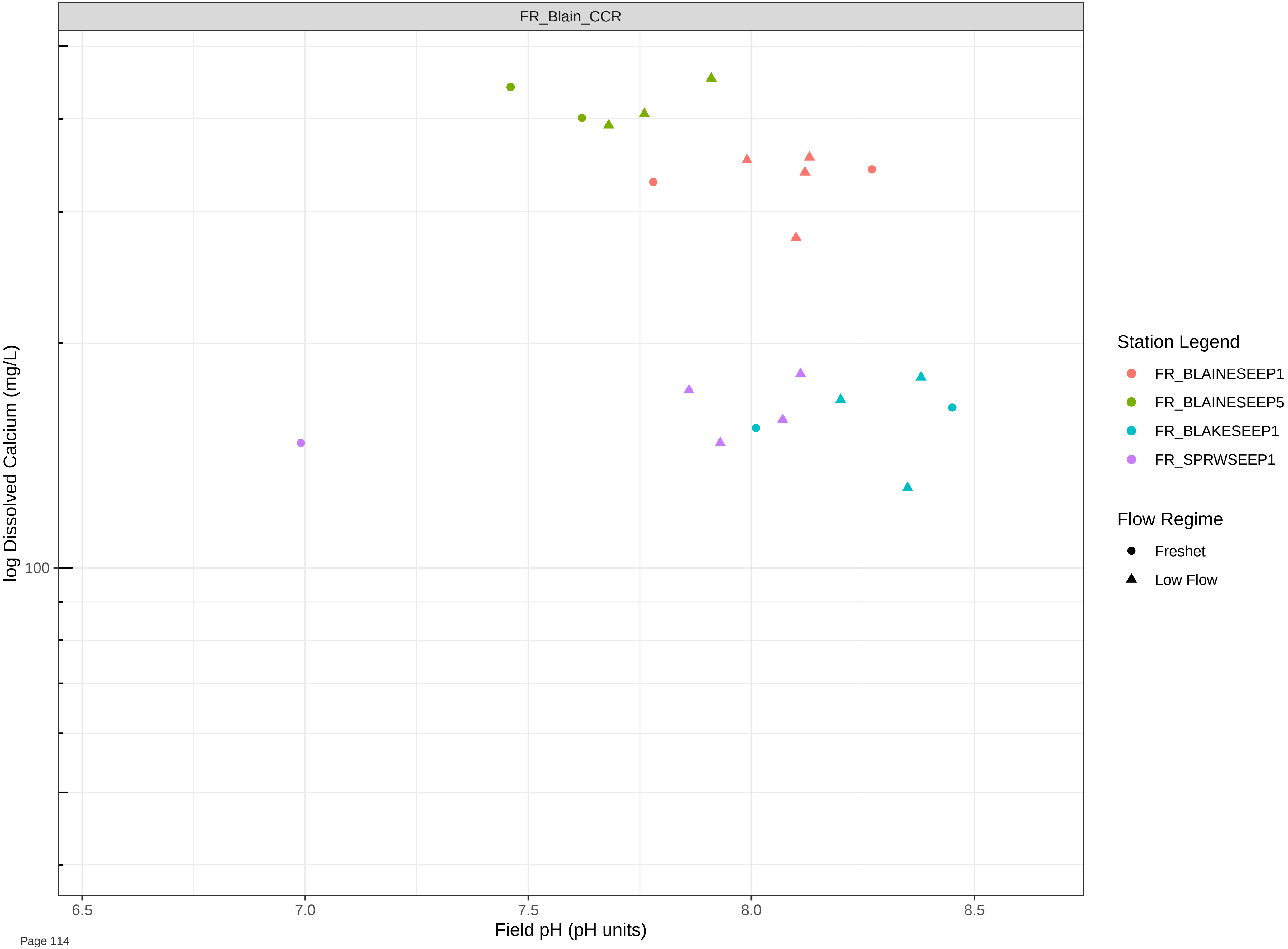

FR_SouthTails_Tailings
0.001
1e−04
1e−05
log Dissolved Cadmium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

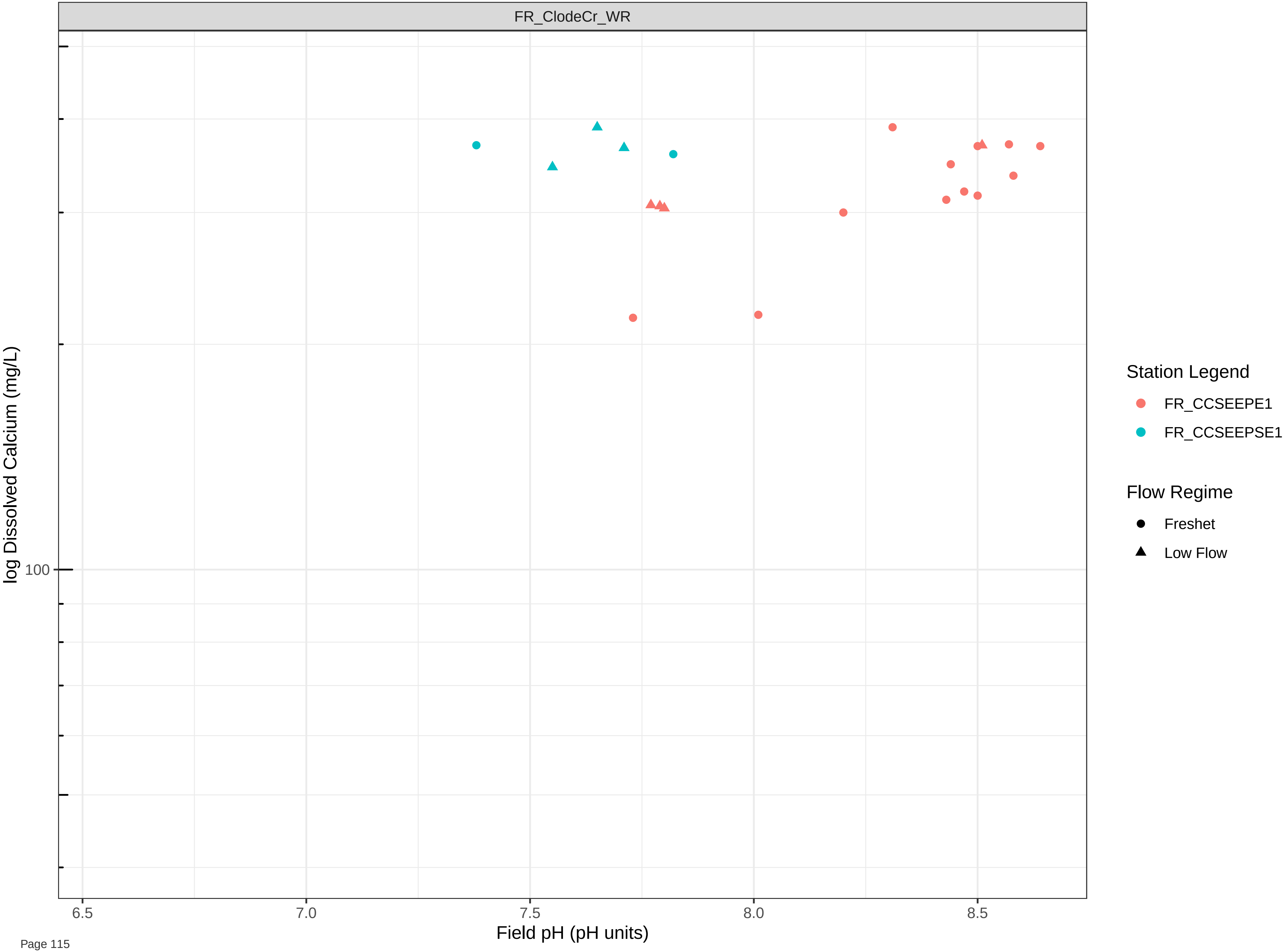

FR_SwiftWR_RockDrain_WR
0.001
1e−04
1e−05
log Dissolved Cadmium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

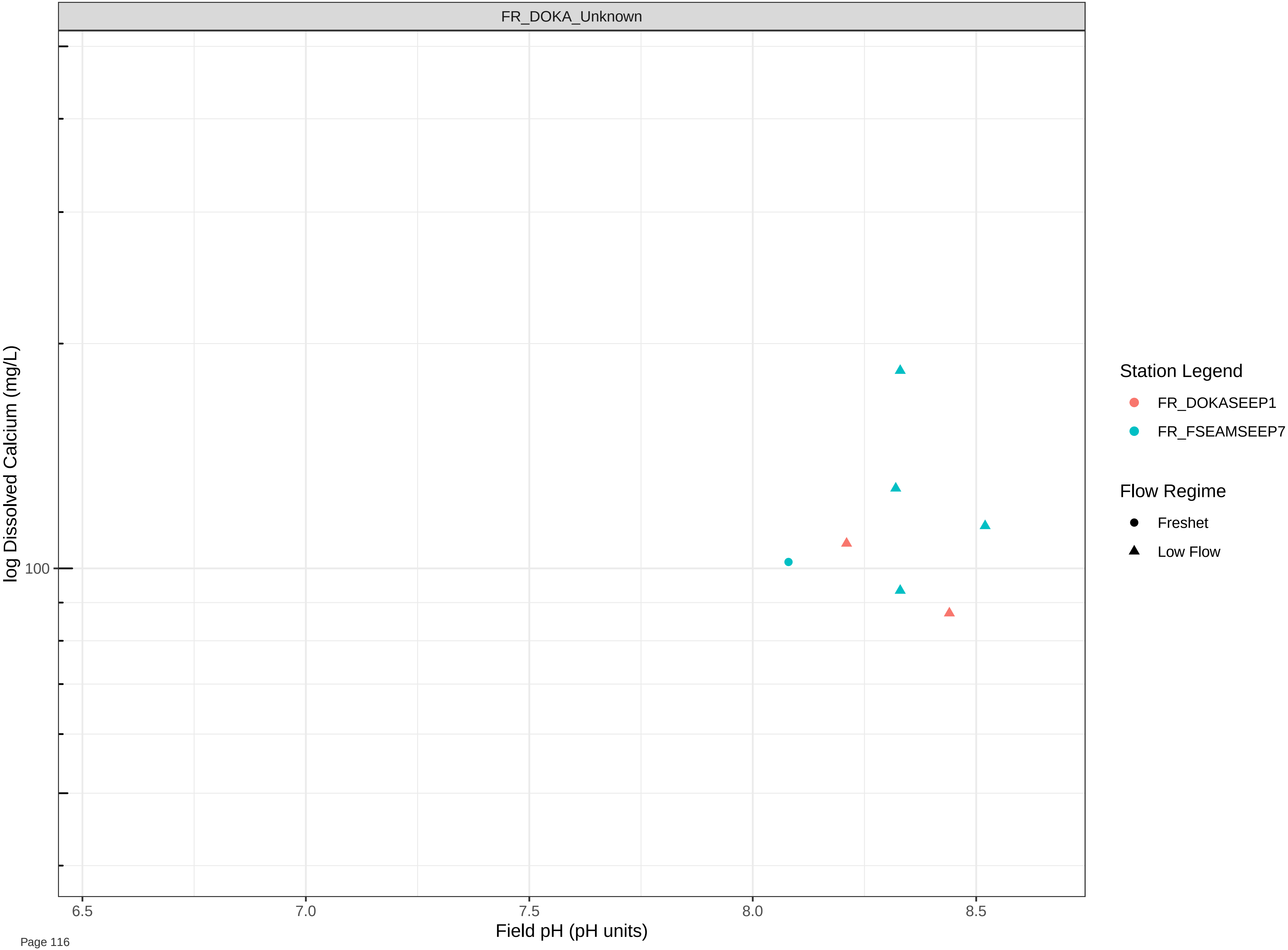

FR_TurnbullWREast_WR
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

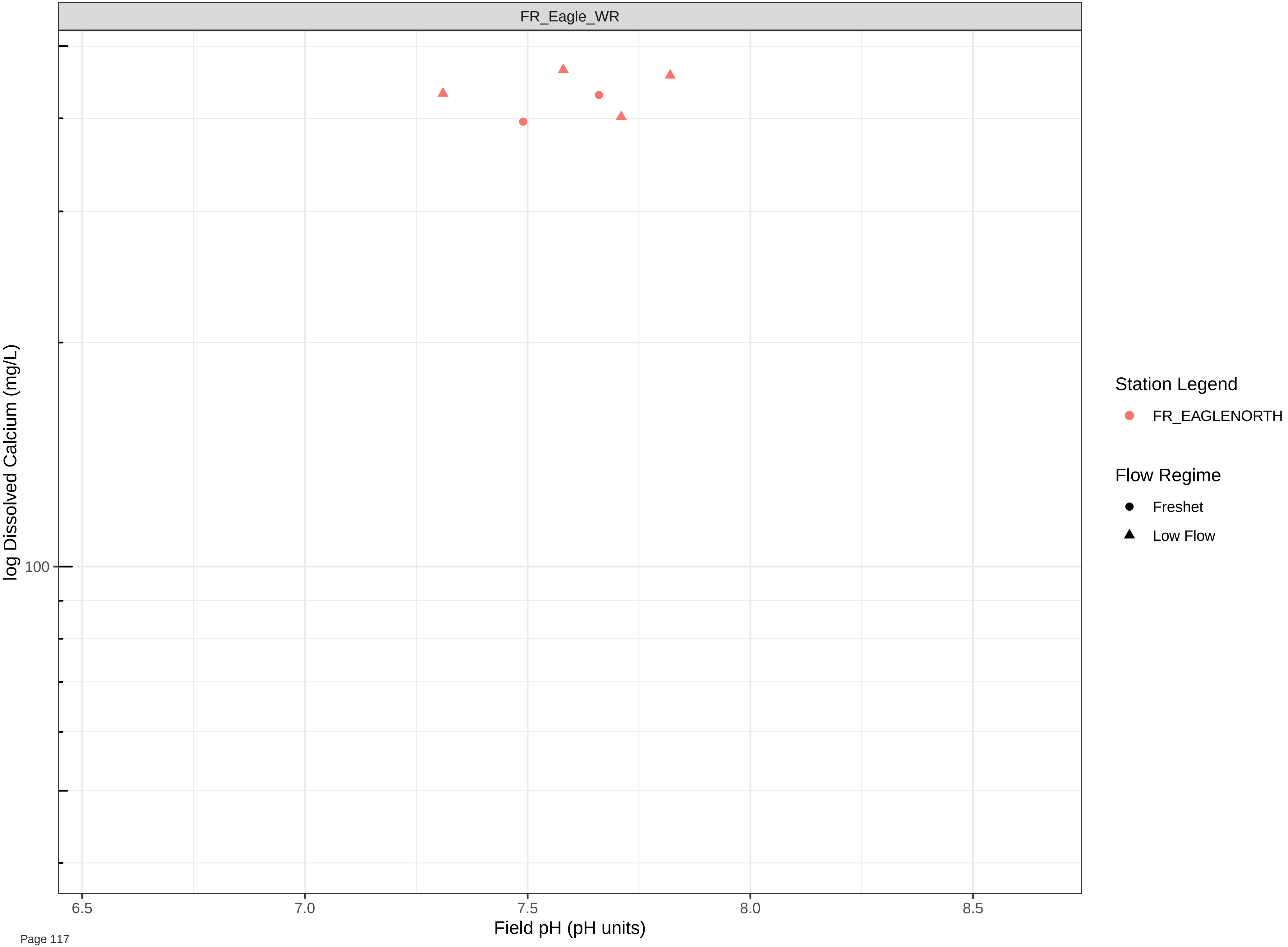

FR_TurnbullWRWest_WR
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

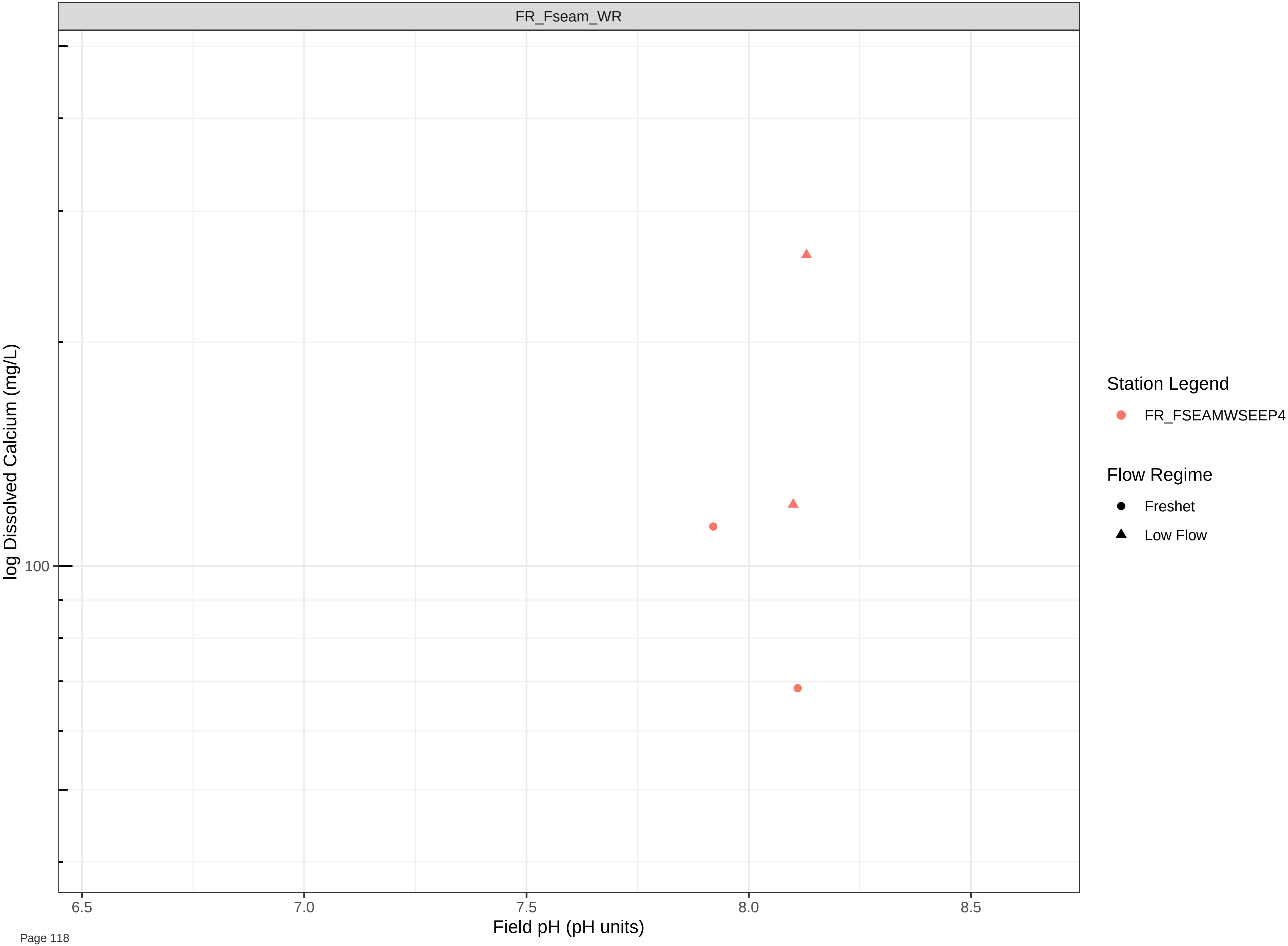

FR_A_WR
log Dissolved Calcium (mg/L)
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

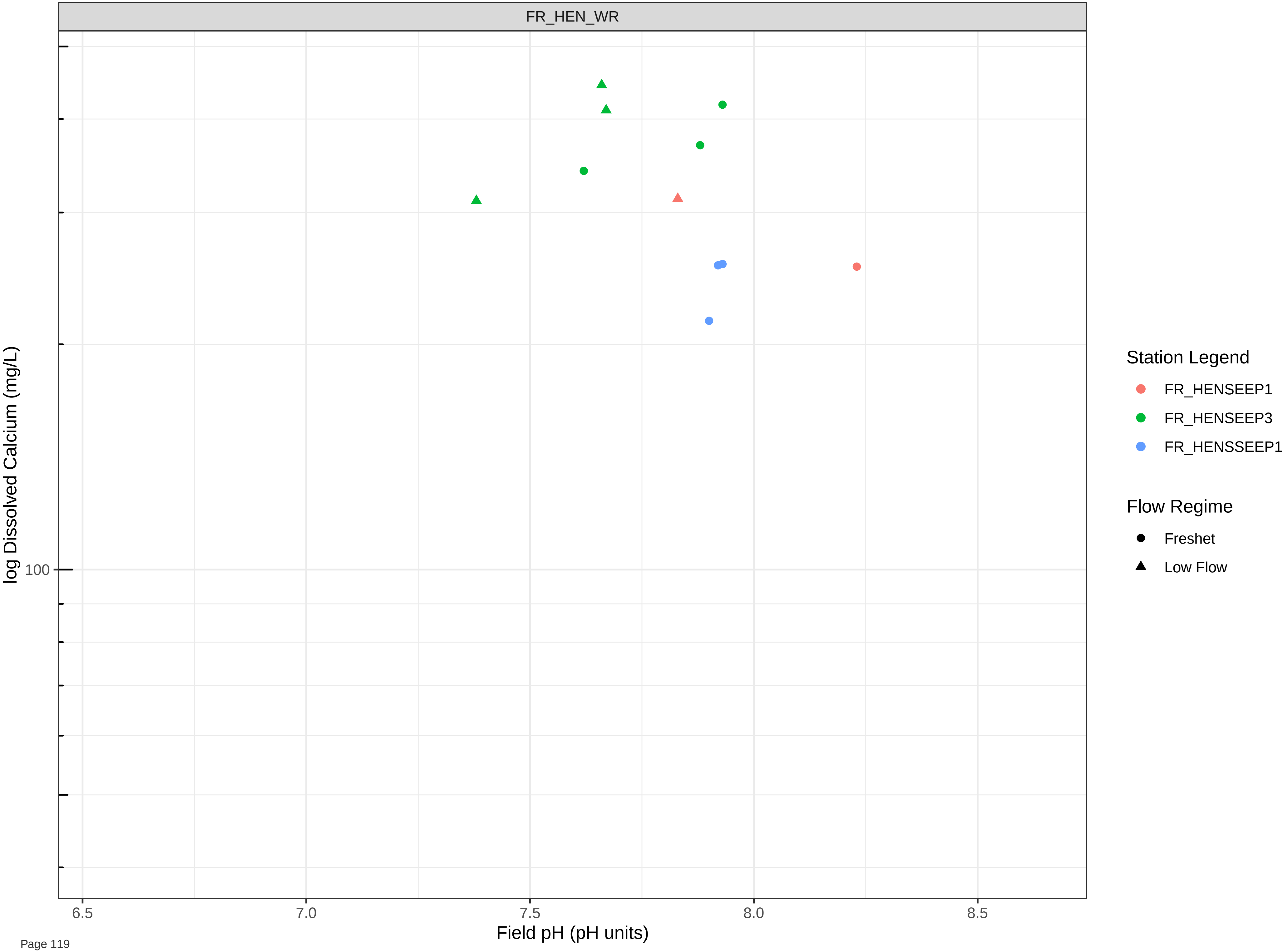

FR_Blain_CCR
log Dissolved Calcium (mg/L)
100
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

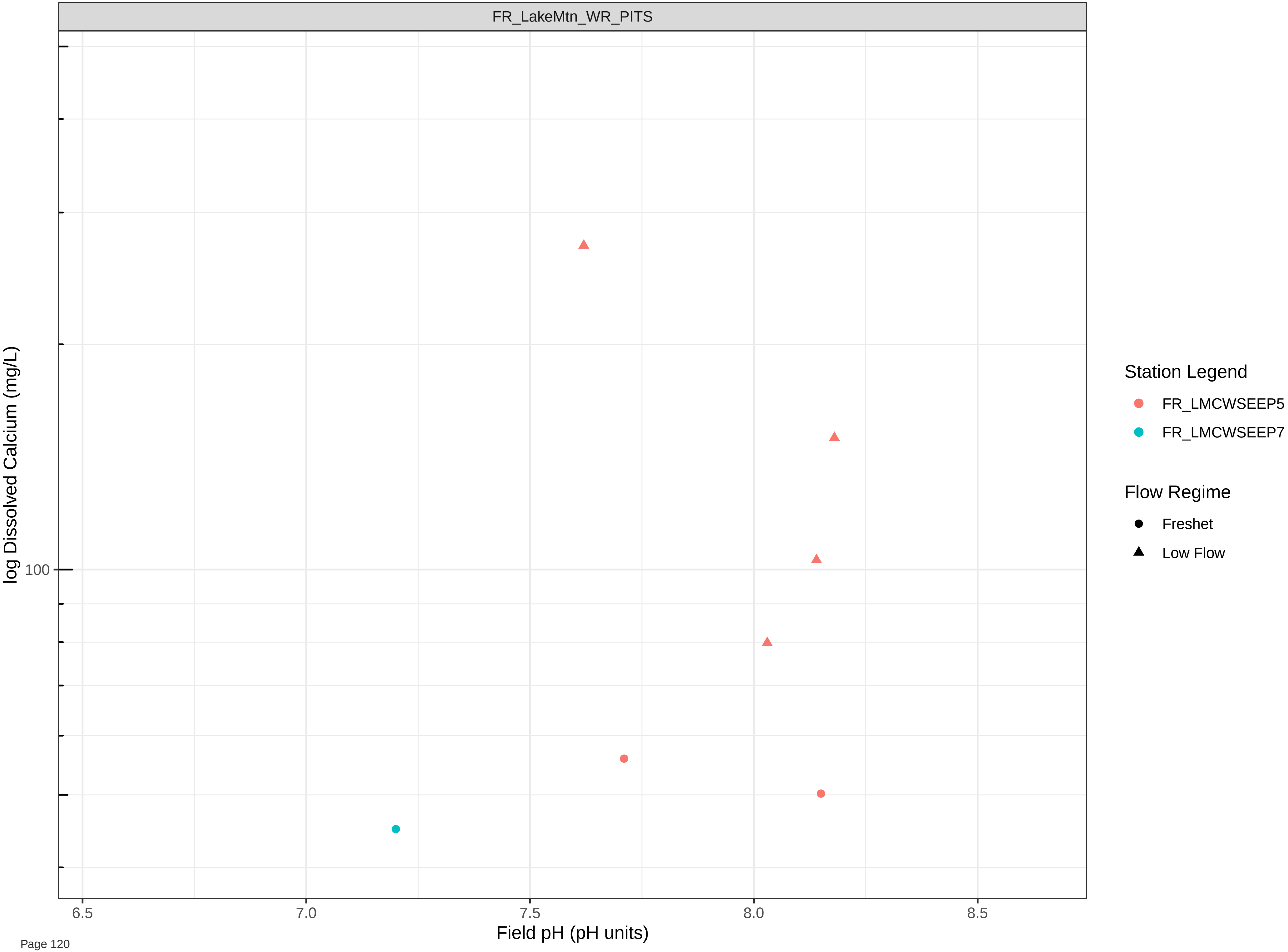

FR_ClodeCr_WR
log Dissolved Calcium (mg/L)
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

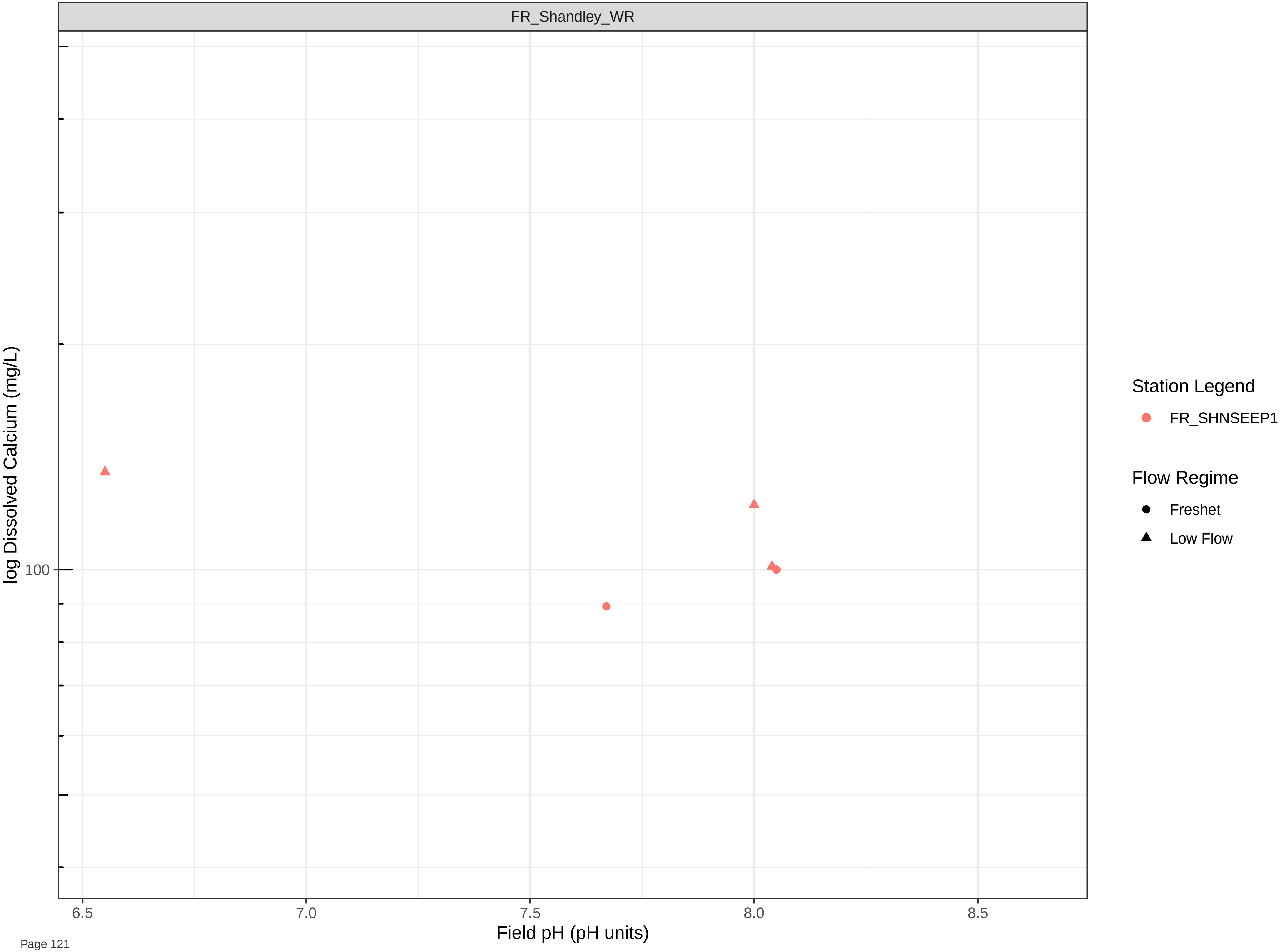

FR_DOKA_Unknown
log Dissolved Calcium (mg/L)
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow


FR_Eagle_WR
log Dissolved Calcium (mg/L)
100
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow


FR_Fseam_WR
log Dissolved Calcium (mg/L)
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow


FR_HEN_WR
log Dissolved Calcium (mg/L)
100
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow


FR_LakeMtn_WR_PITS
log Dissolved Calcium (mg/L)
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow


FR_Shandley_WR
log Dissolved Calcium (mg/L)
100
6.5
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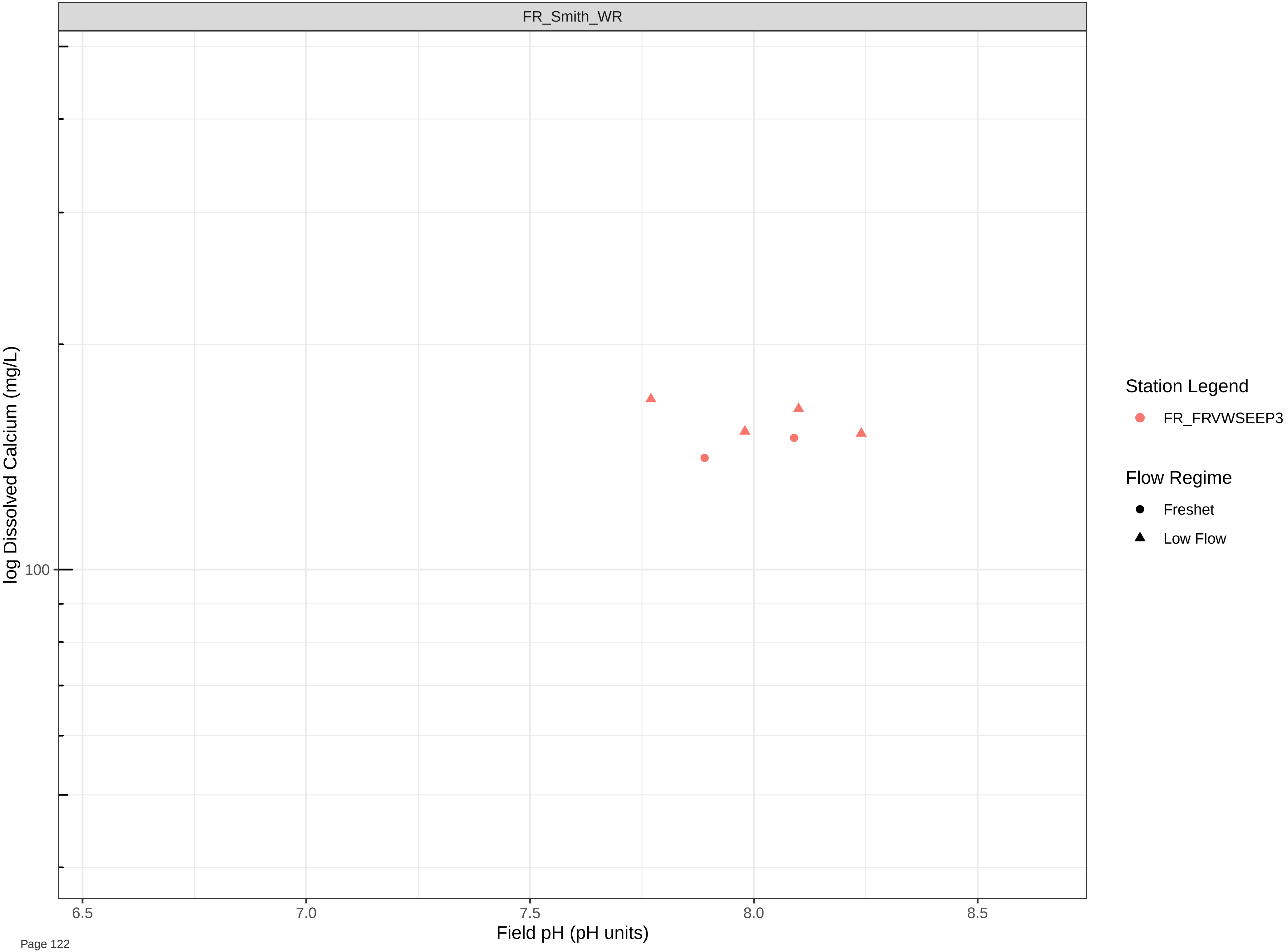
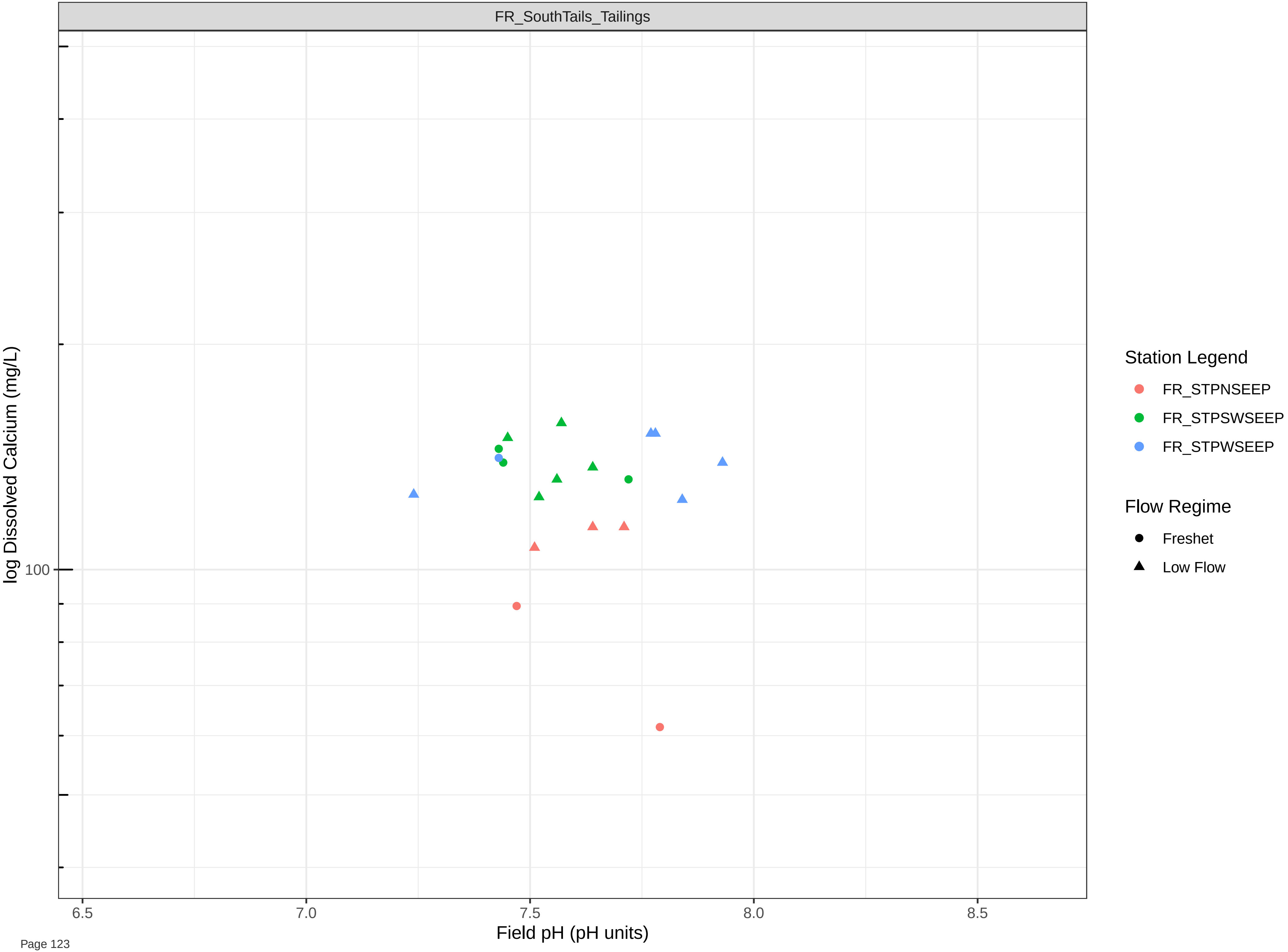
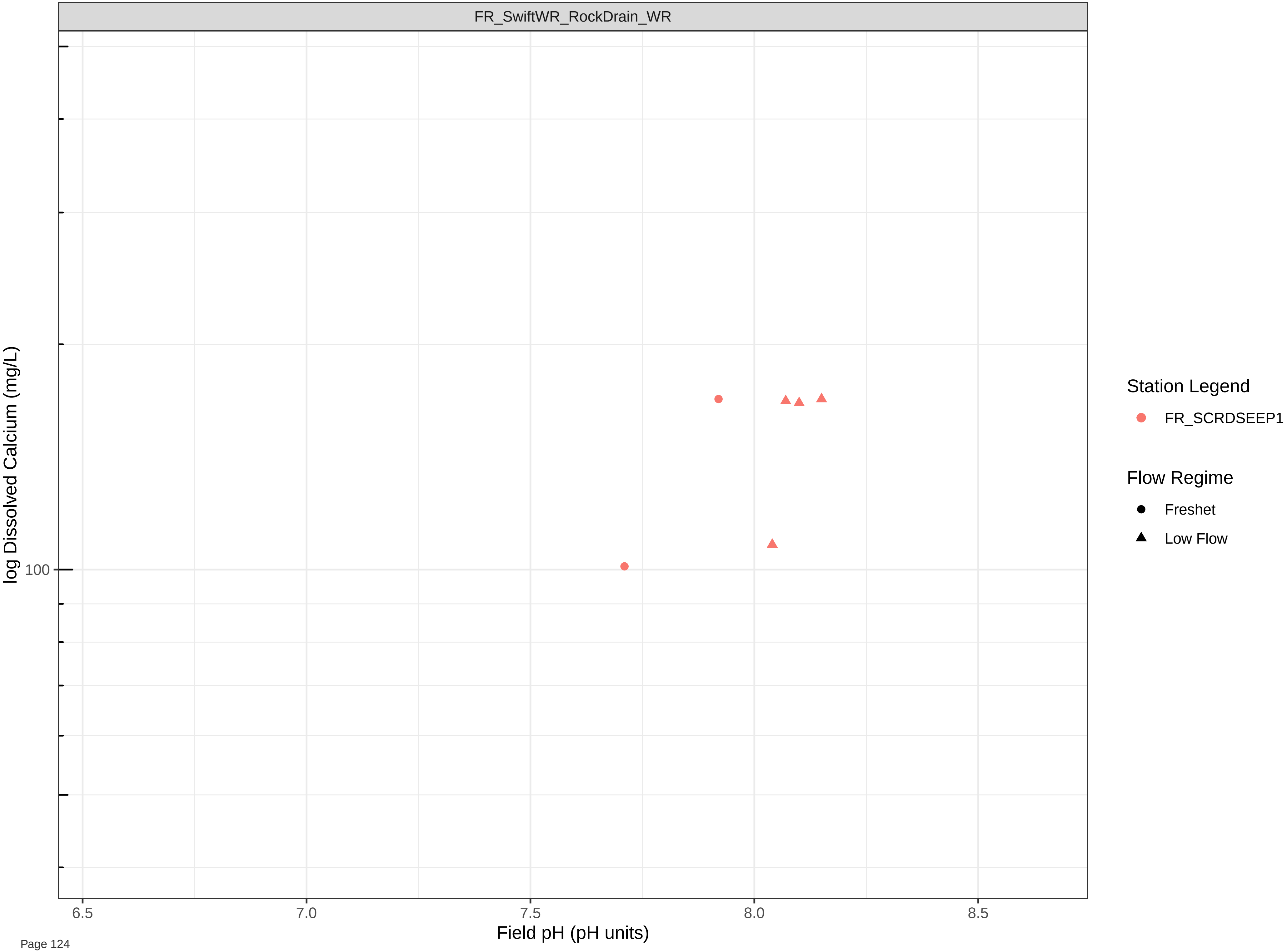
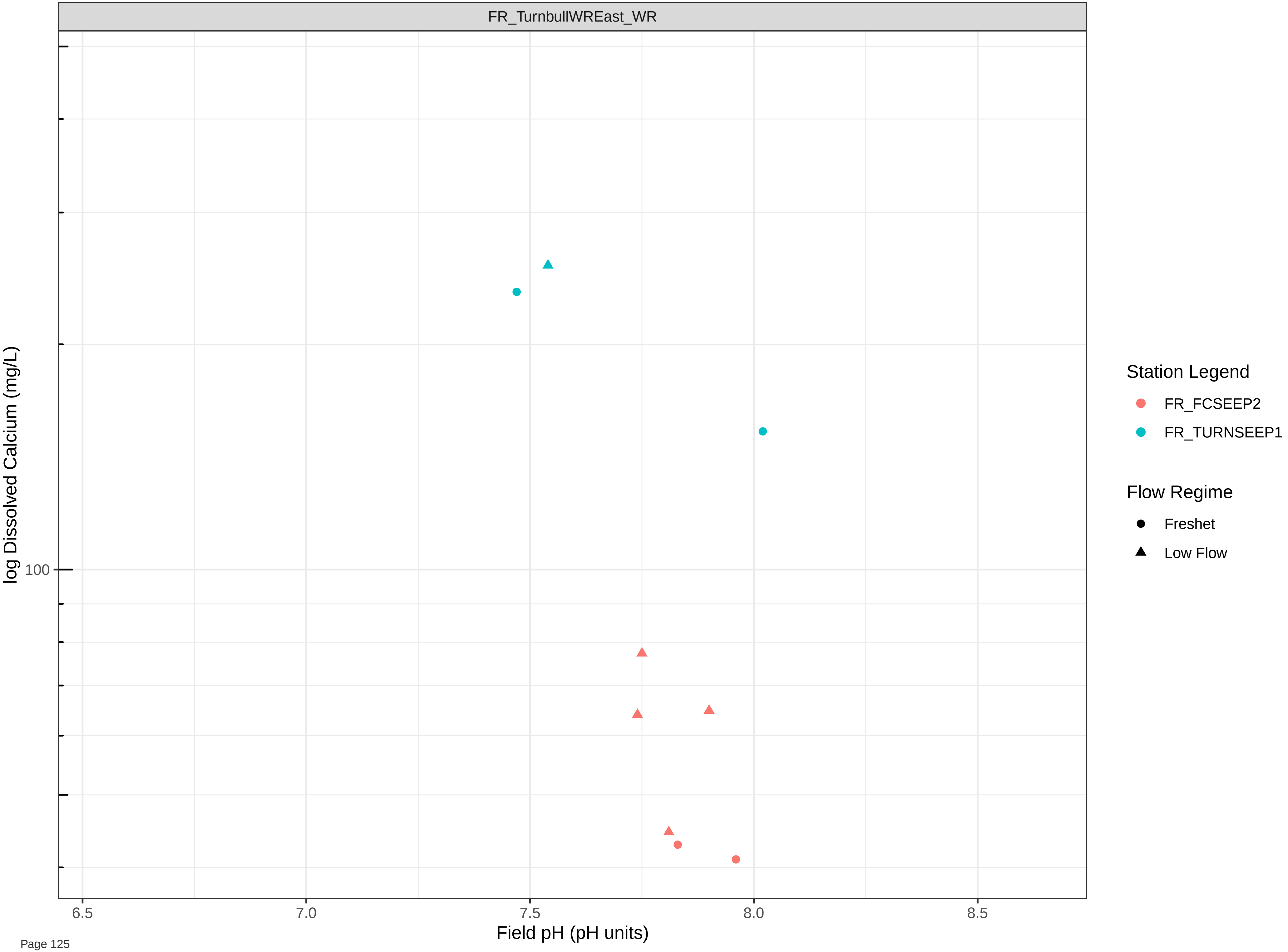
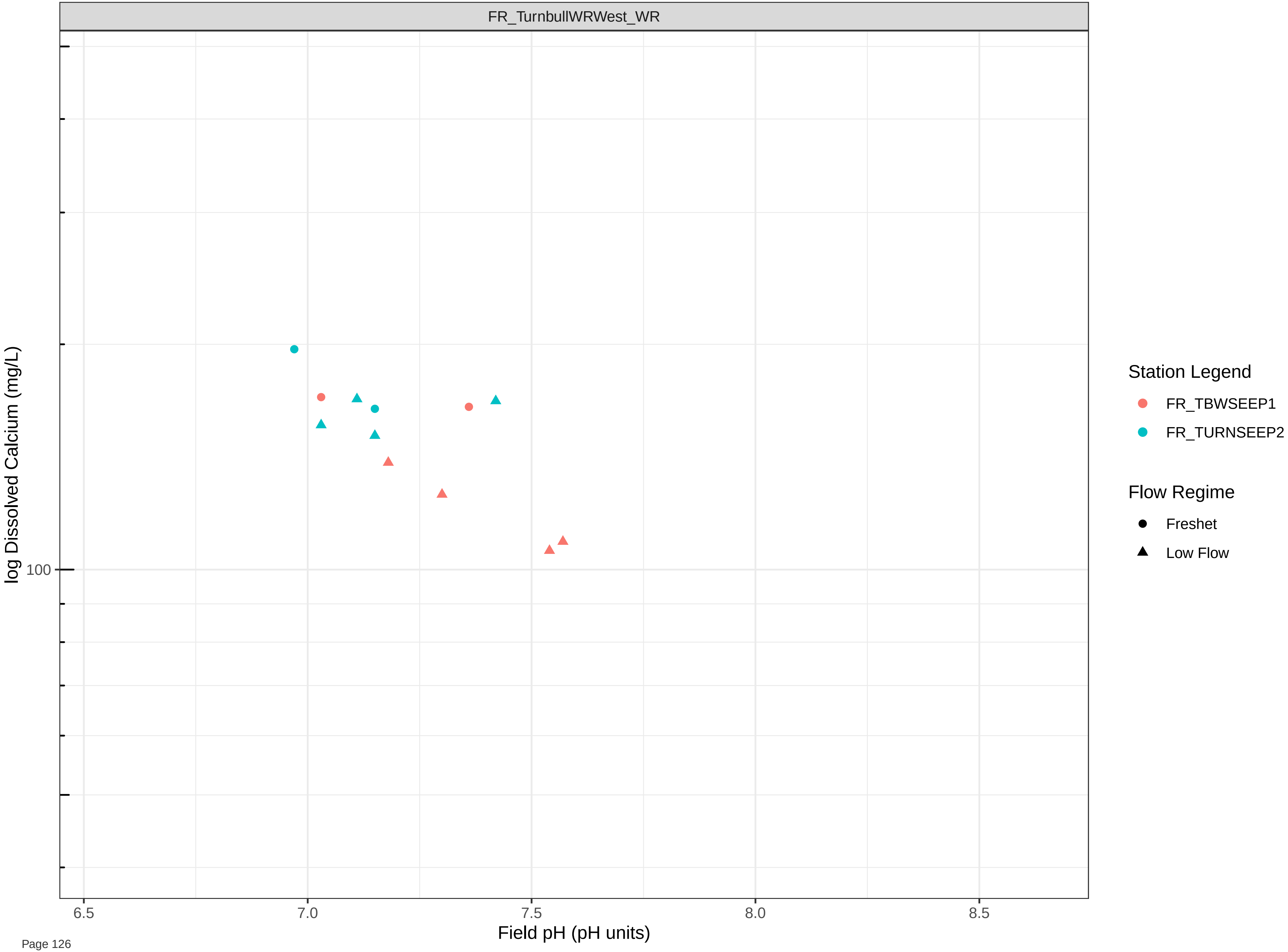
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

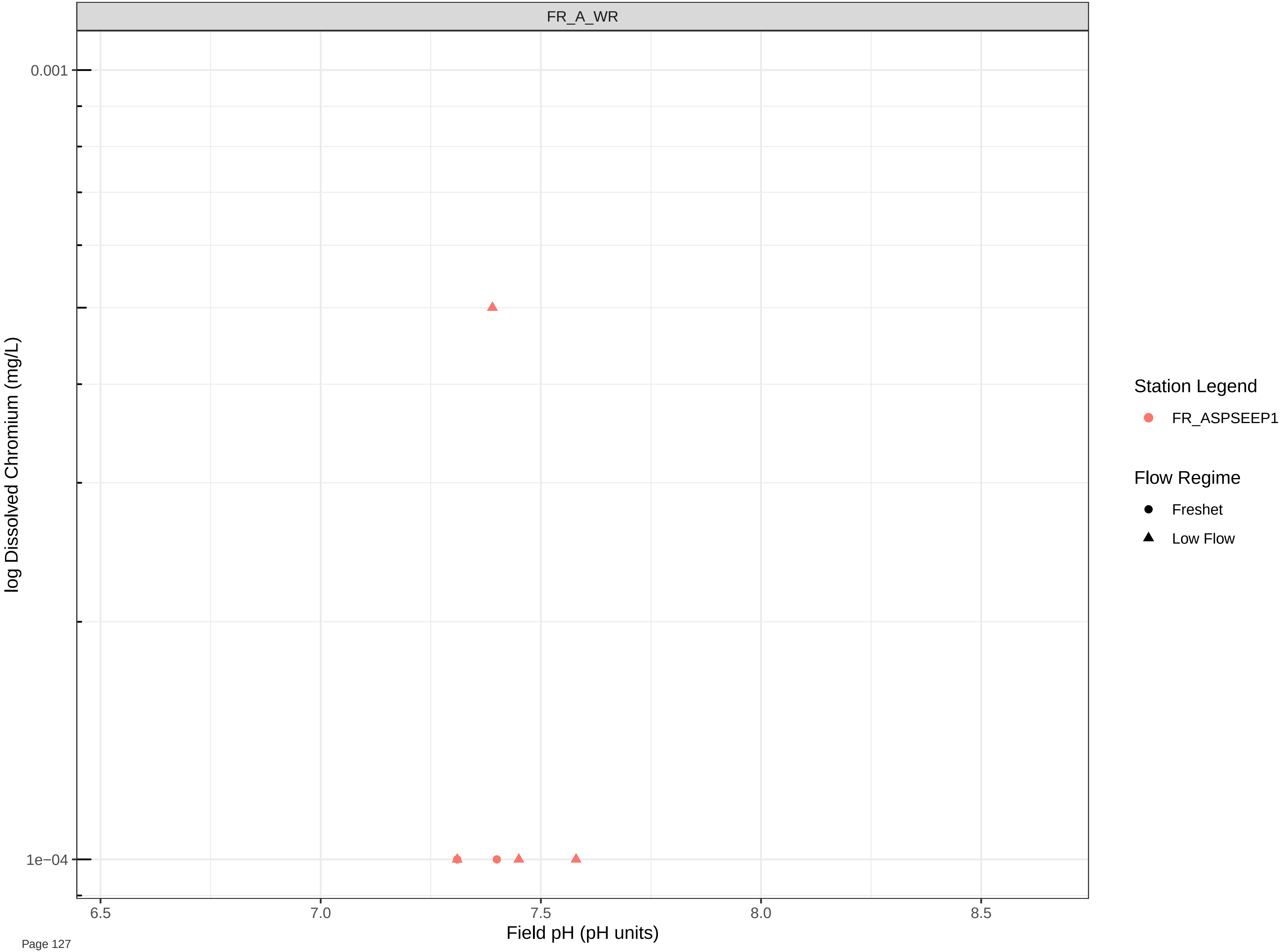

FR_Smith_WR
log Dissolved Calcium (mg/L)
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

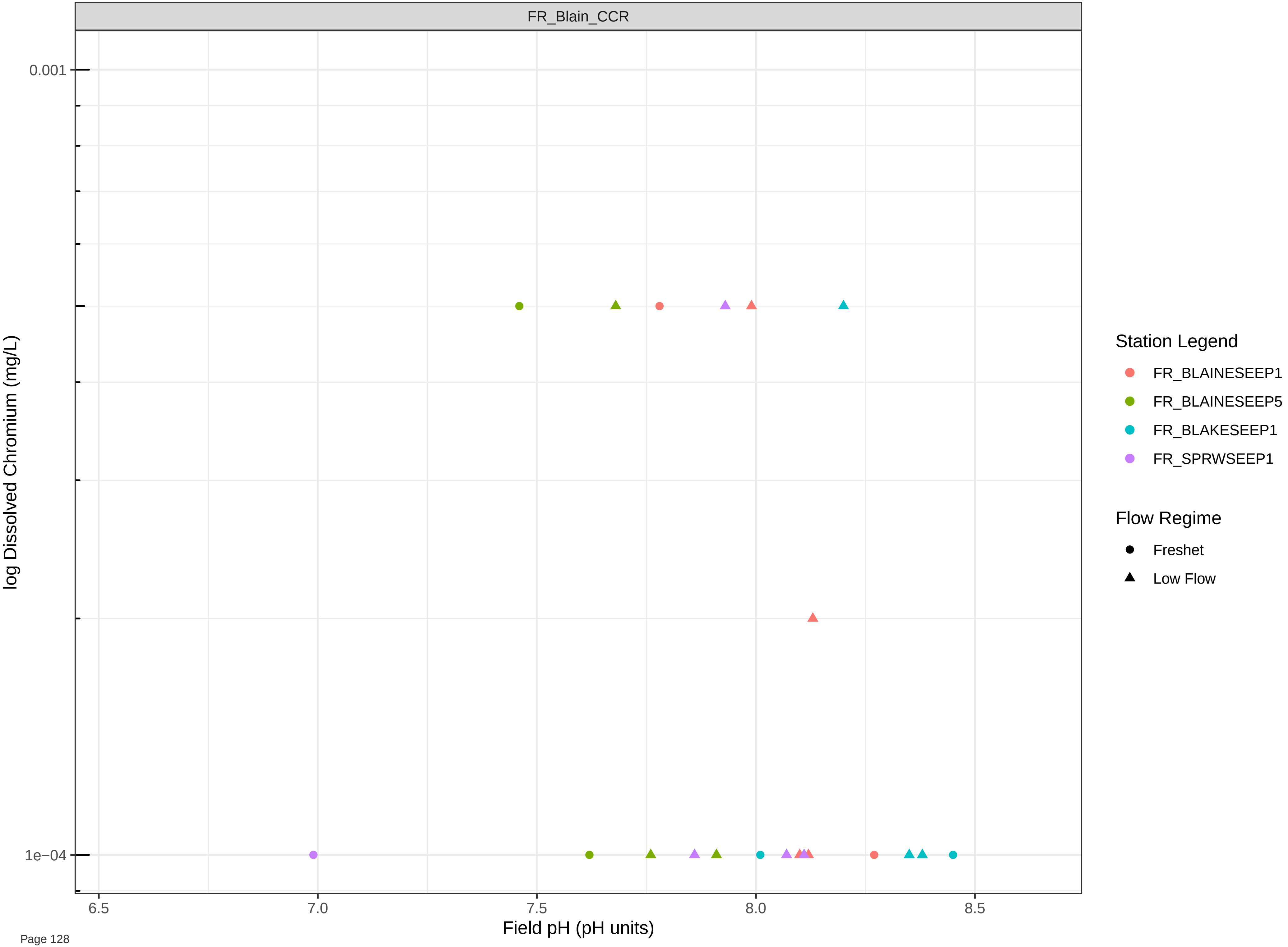

FR_SouthTails_Tailings
log Dissolved Calcium (mg/L)
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
● Freshet
▲ Low Flow

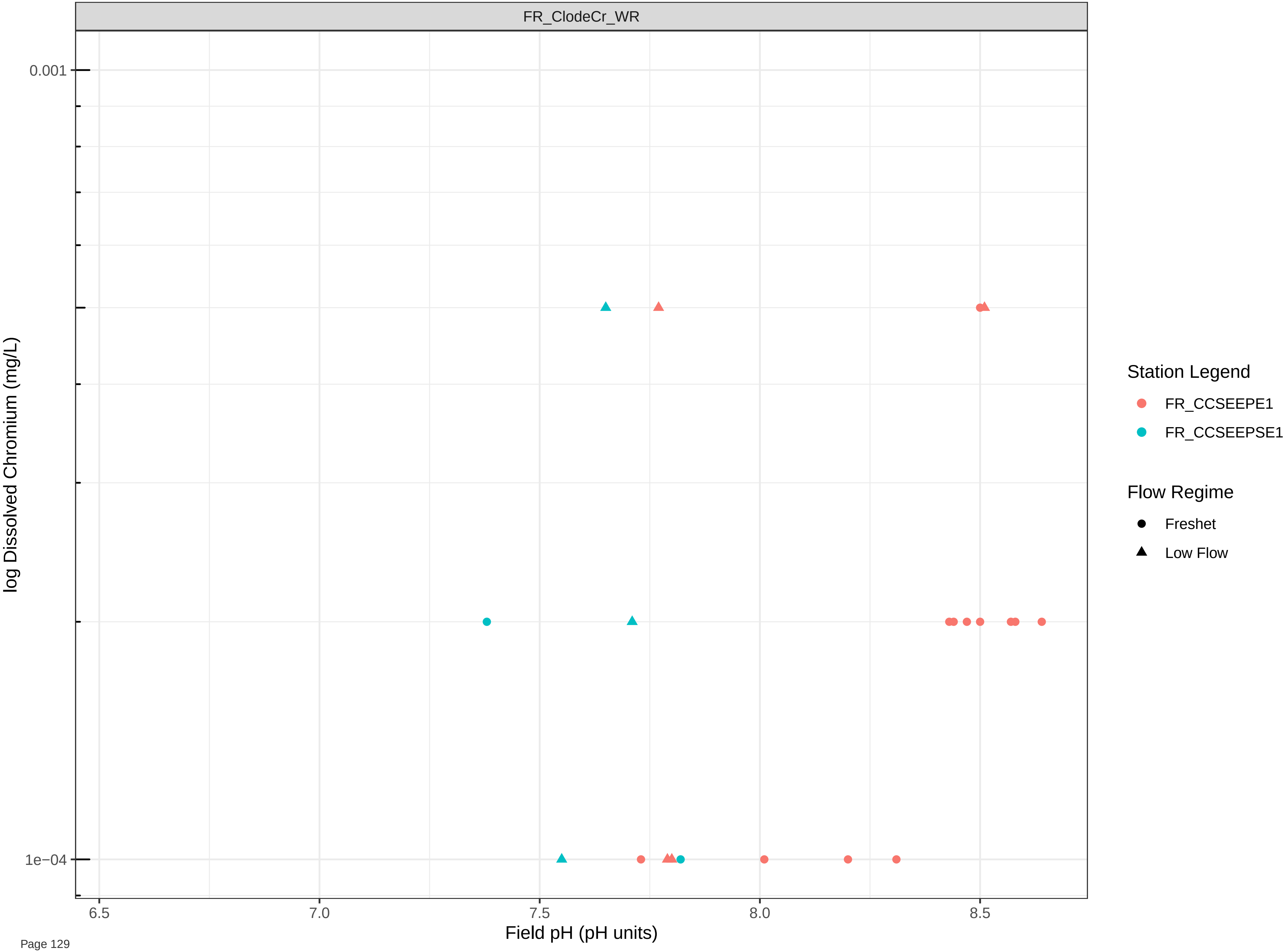

FR_SwiftWR_RockDrain_WR
log Dissolved Calcium (mg/L)
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

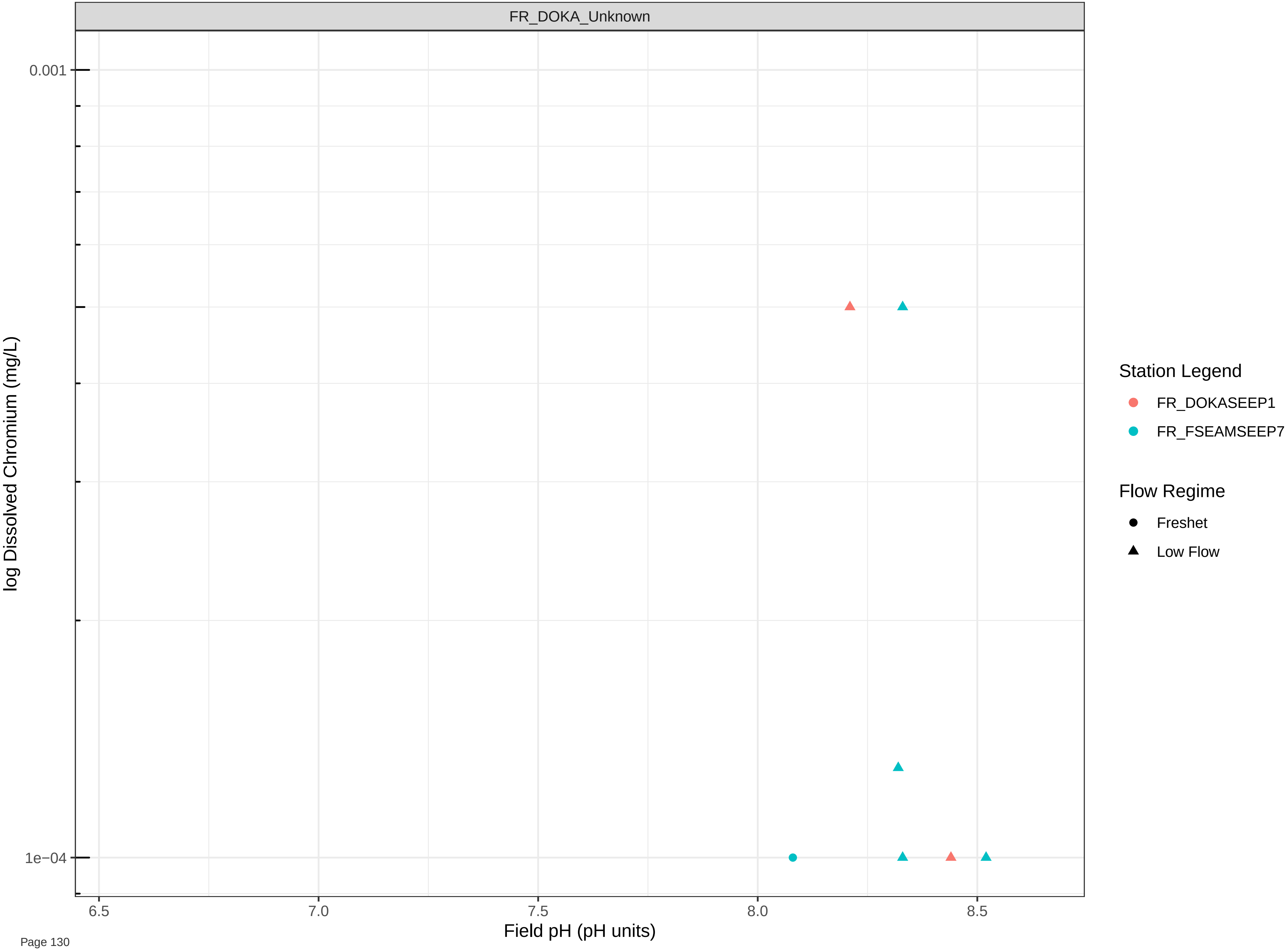

FR_TurnbullWREast_WR
log Dissolved Calcium (mg/L)
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWRWest_WR
log Dissolved Calcium (mg/L)
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow


FR_A_WR
0.001
1e−04
log Dissolved Chromium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_Blain_CCR
0.001
1e−04
log Dissolved Chromium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow


FR_ClodeCr_WR
0.001
1e−04
log Dissolved Chromium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow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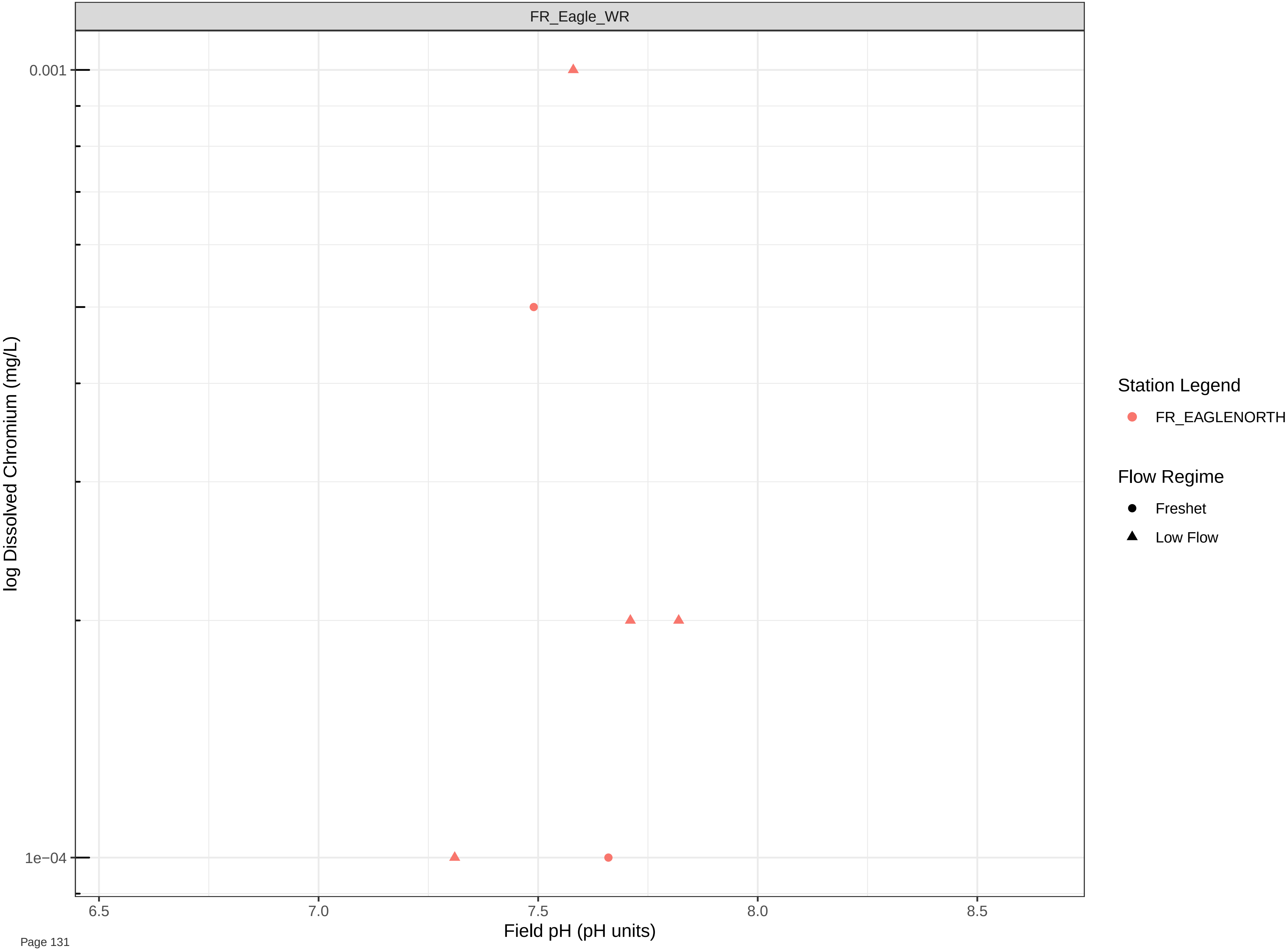
1e−04
log Dissolved Chromium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow


FR_Eagle_WR
0.001
1e−04
log Dissolved Chromium (mg/L)
6.5
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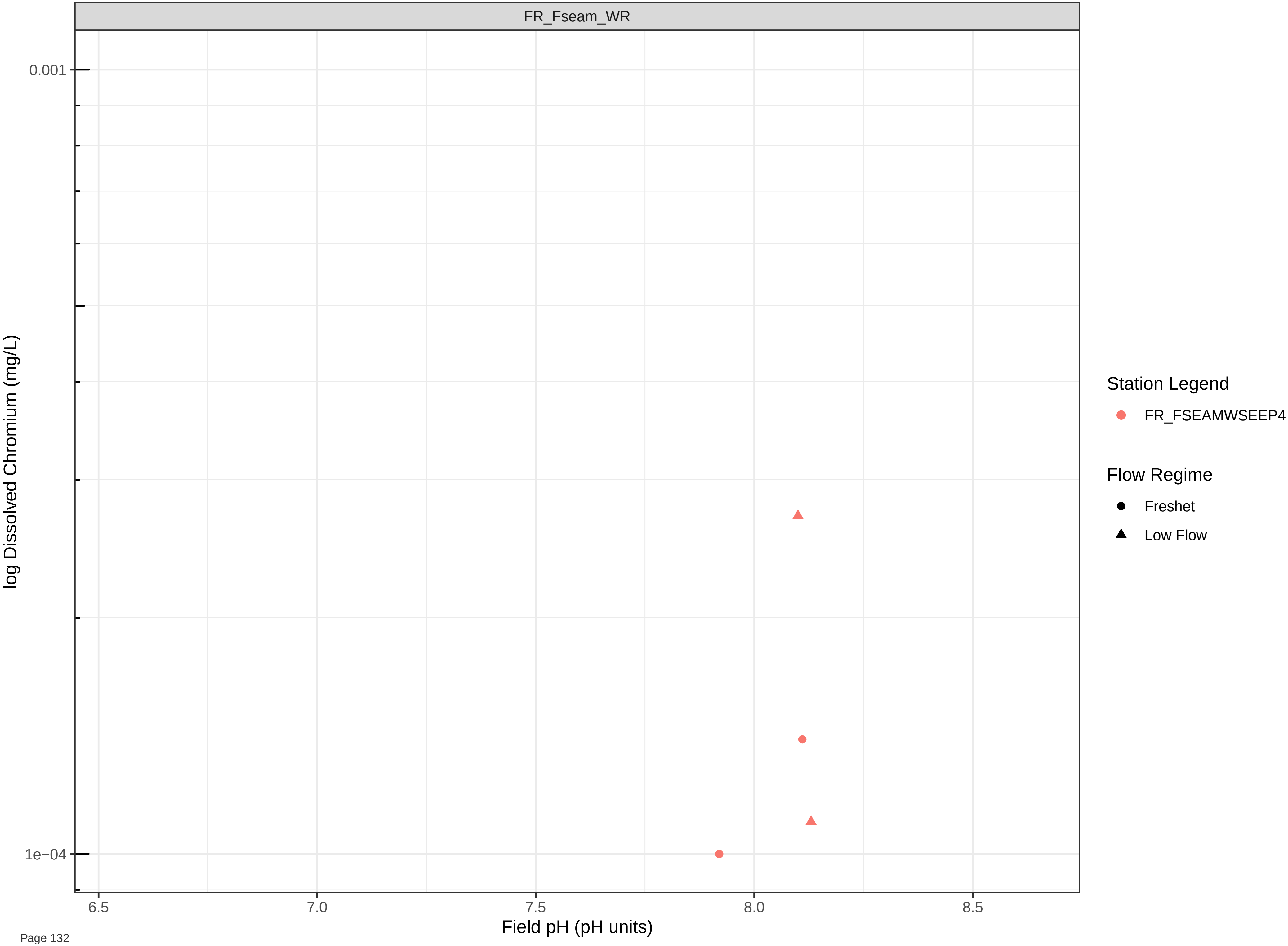
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow


FR_Fseam_WR
0.001
1e−04
log Dissolved Chromium (mg/L)
6.5
7.0
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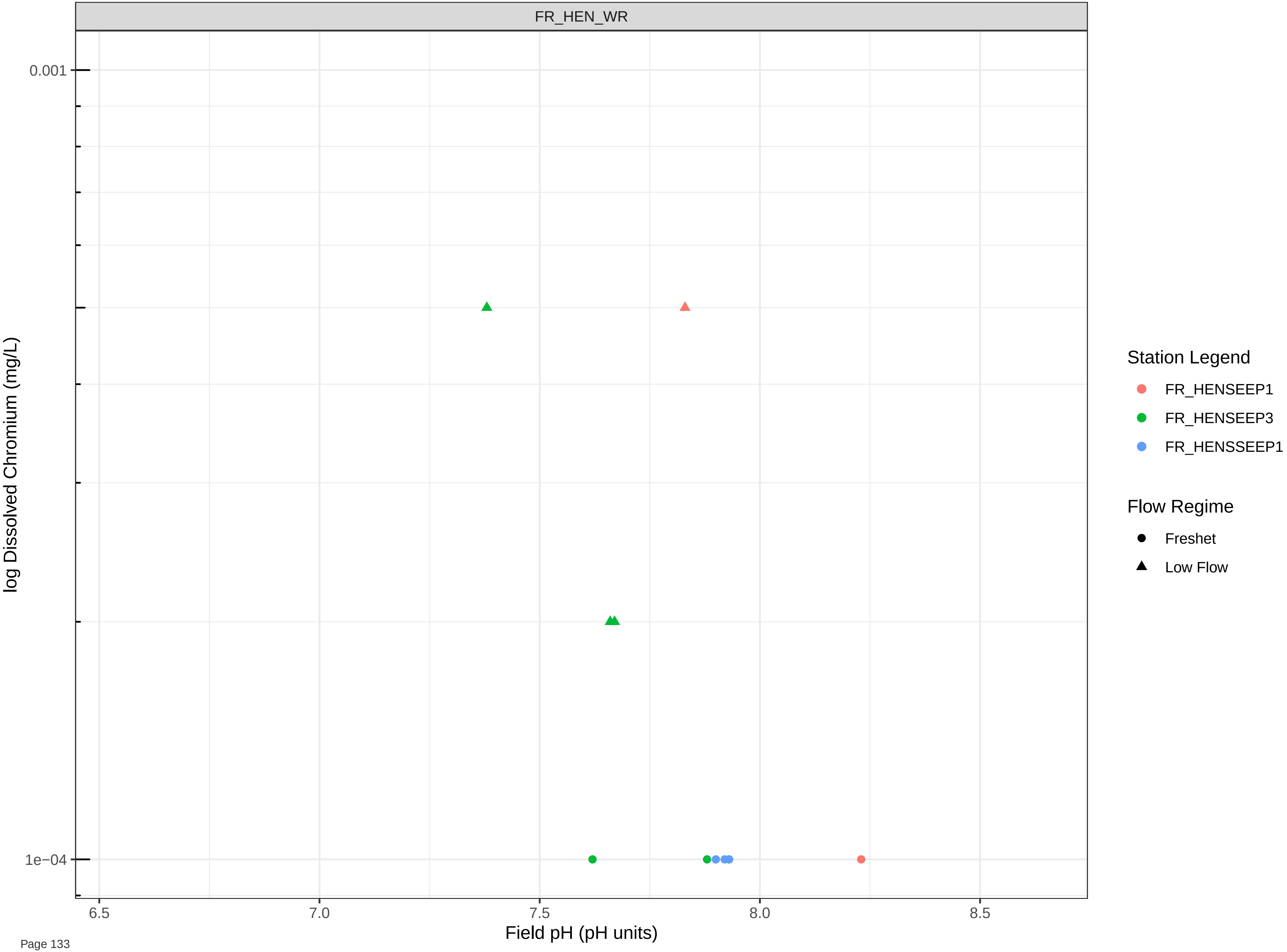
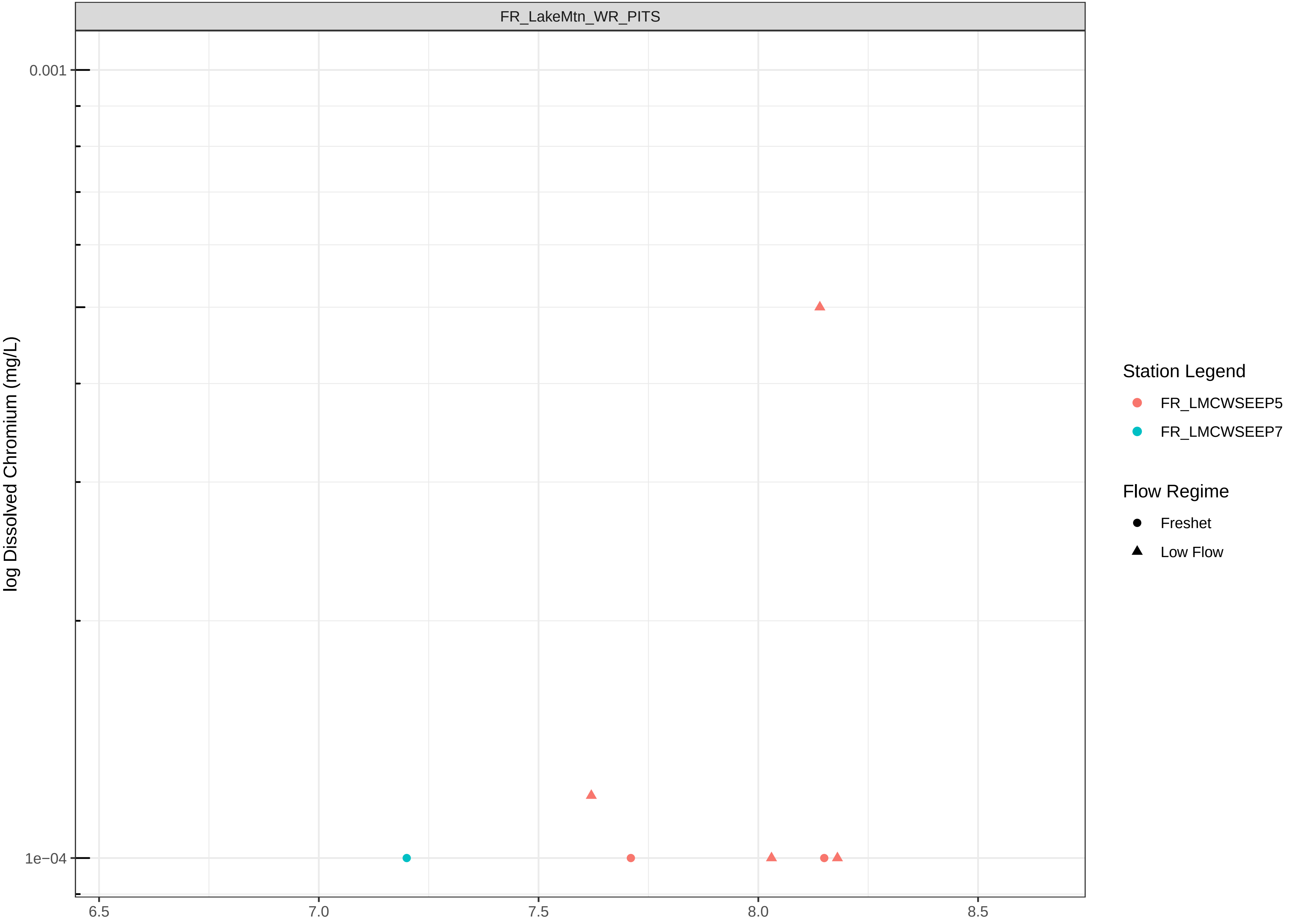
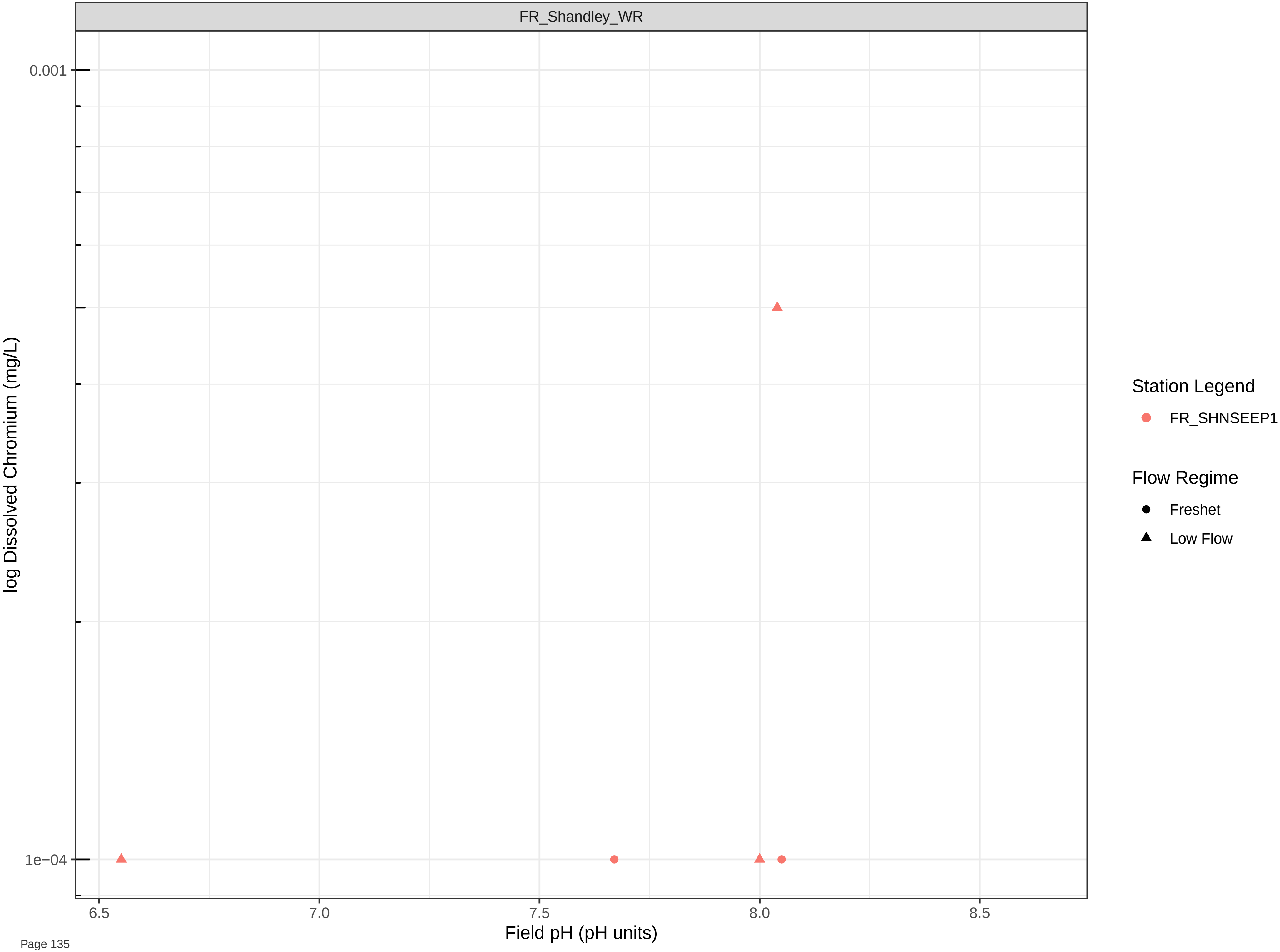
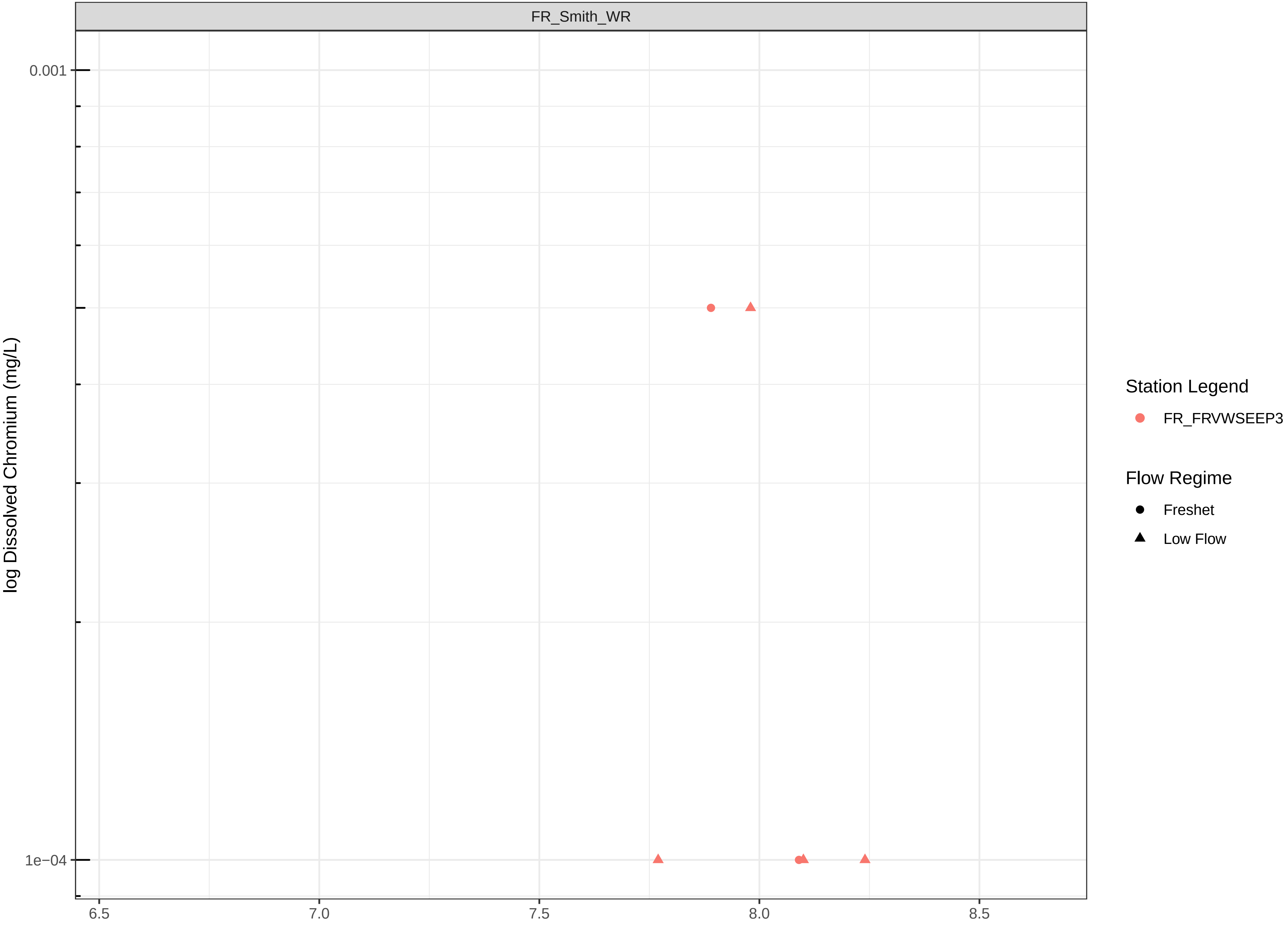
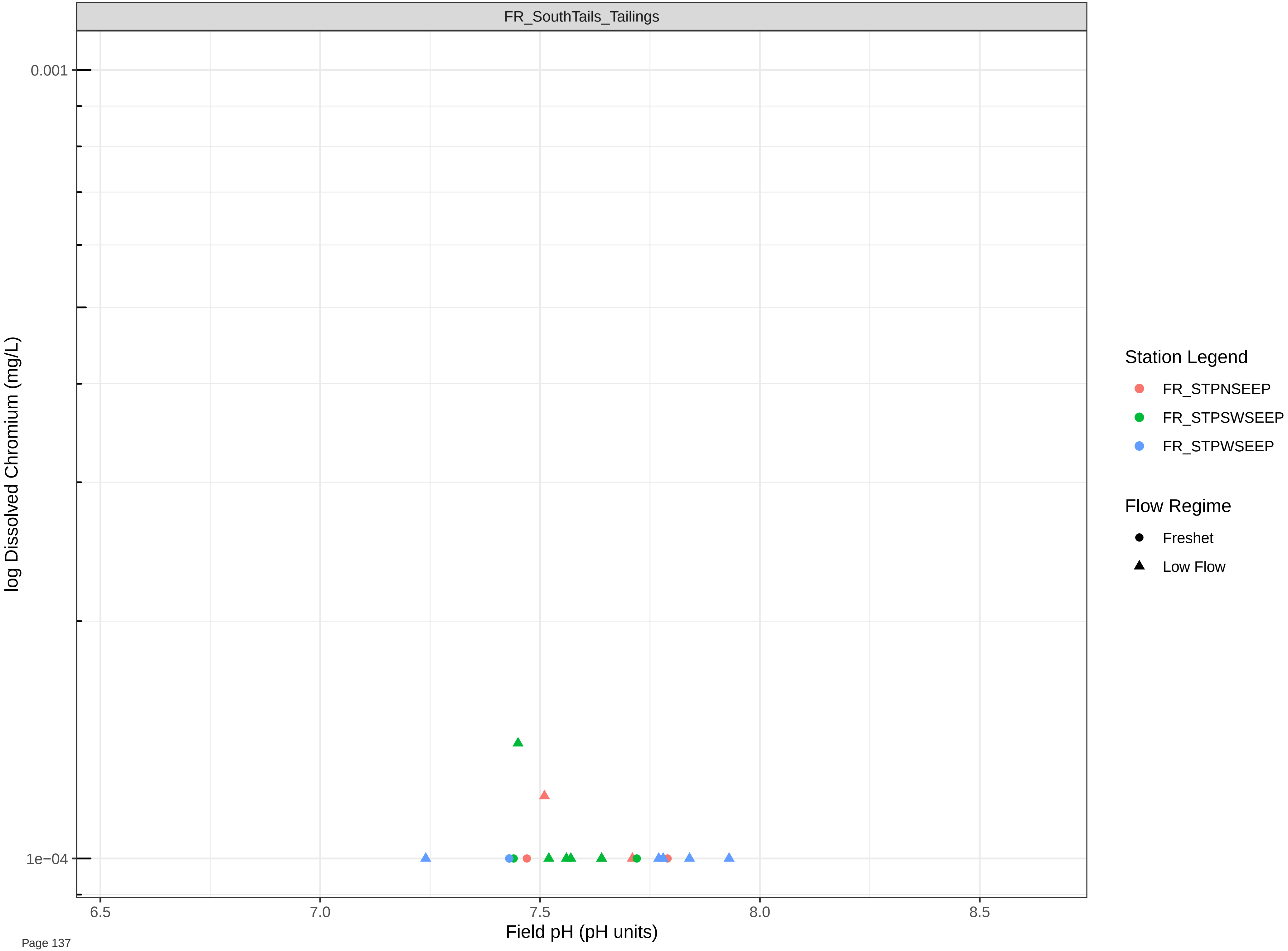
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

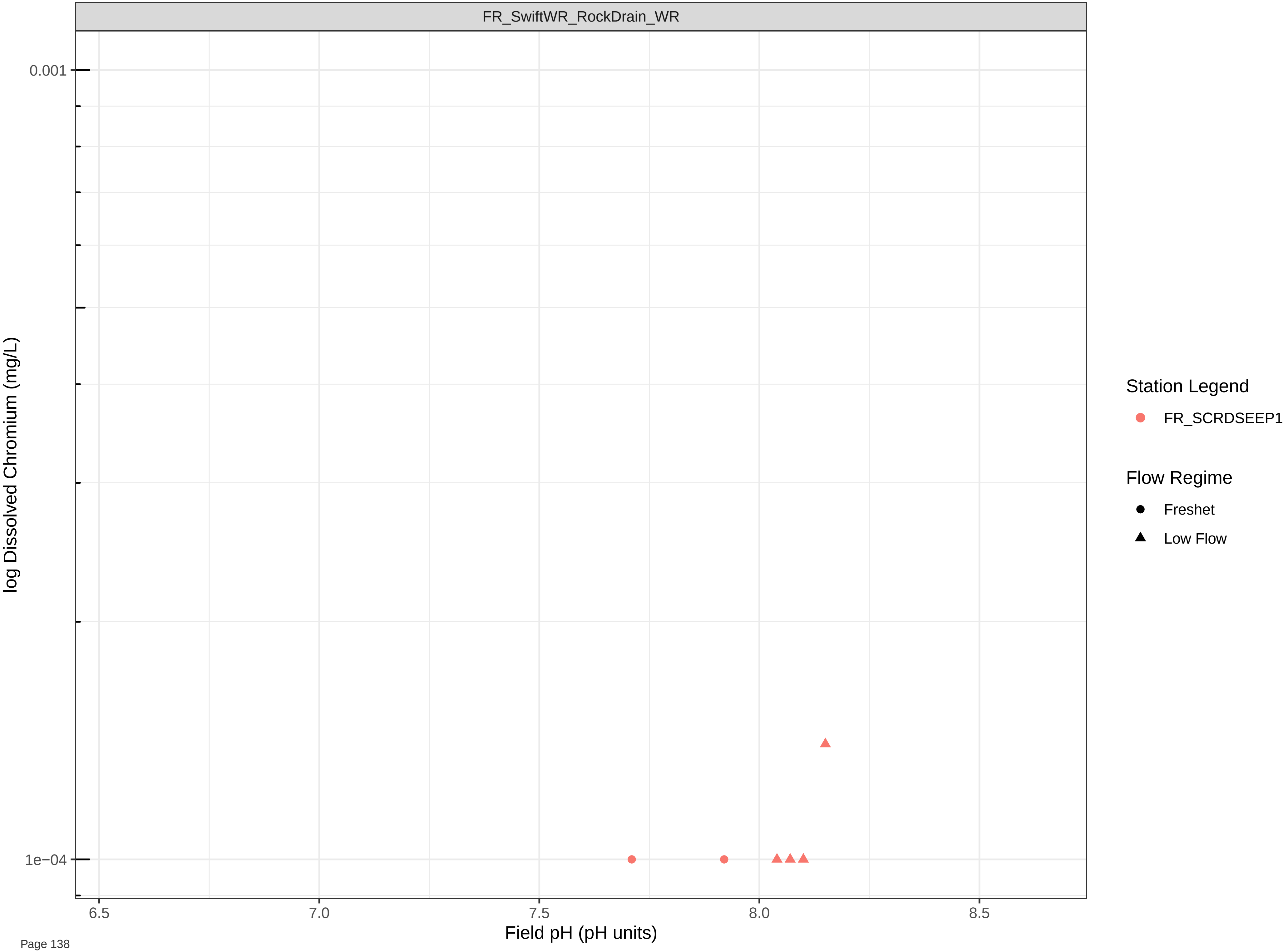

FR_HEN_WR
0.001
1e−04
log Dissolved Chromium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

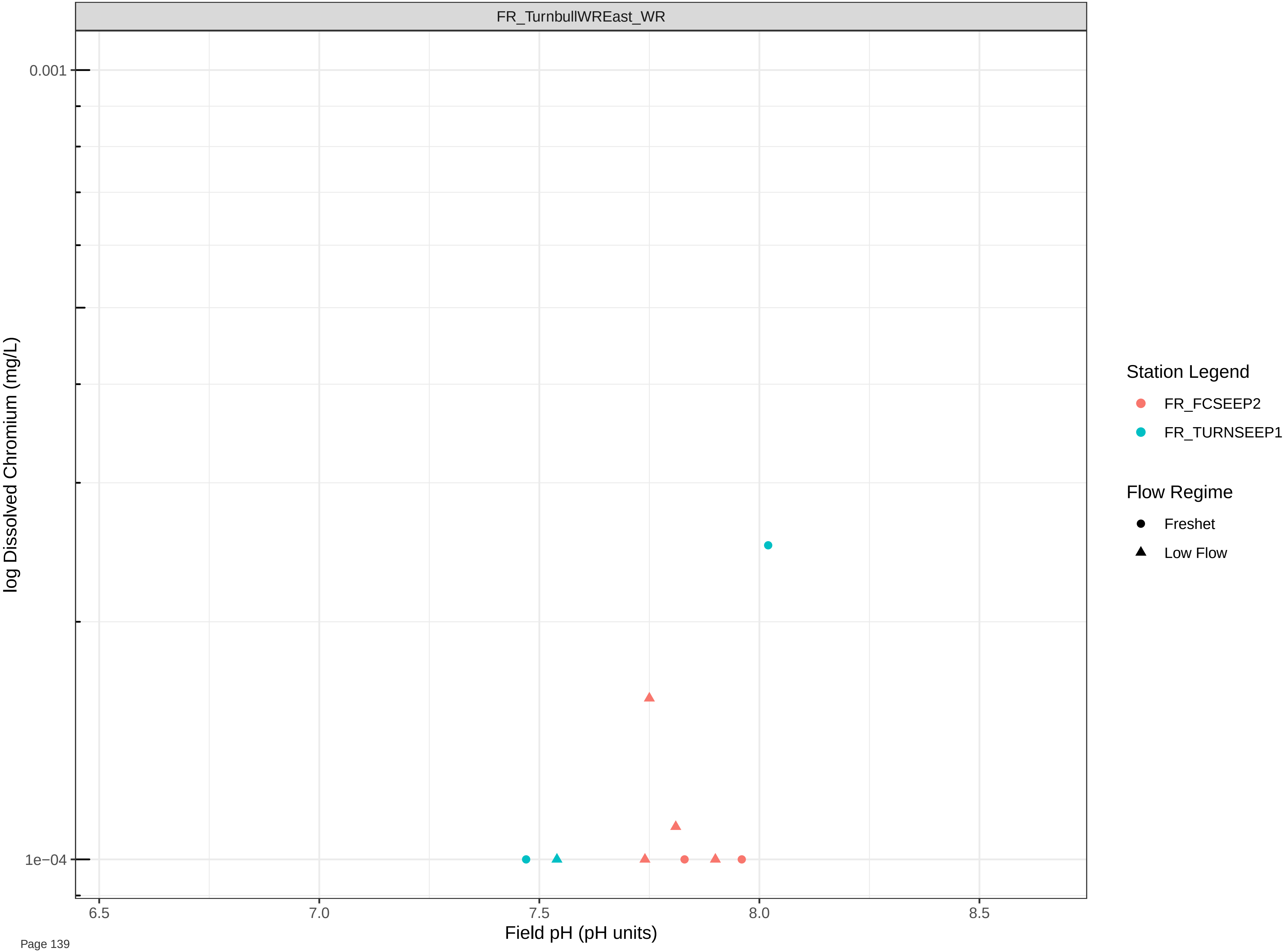

FR_LakeMtn_WR_PITS
0.001
1e−04
log Dissolved Chromium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow

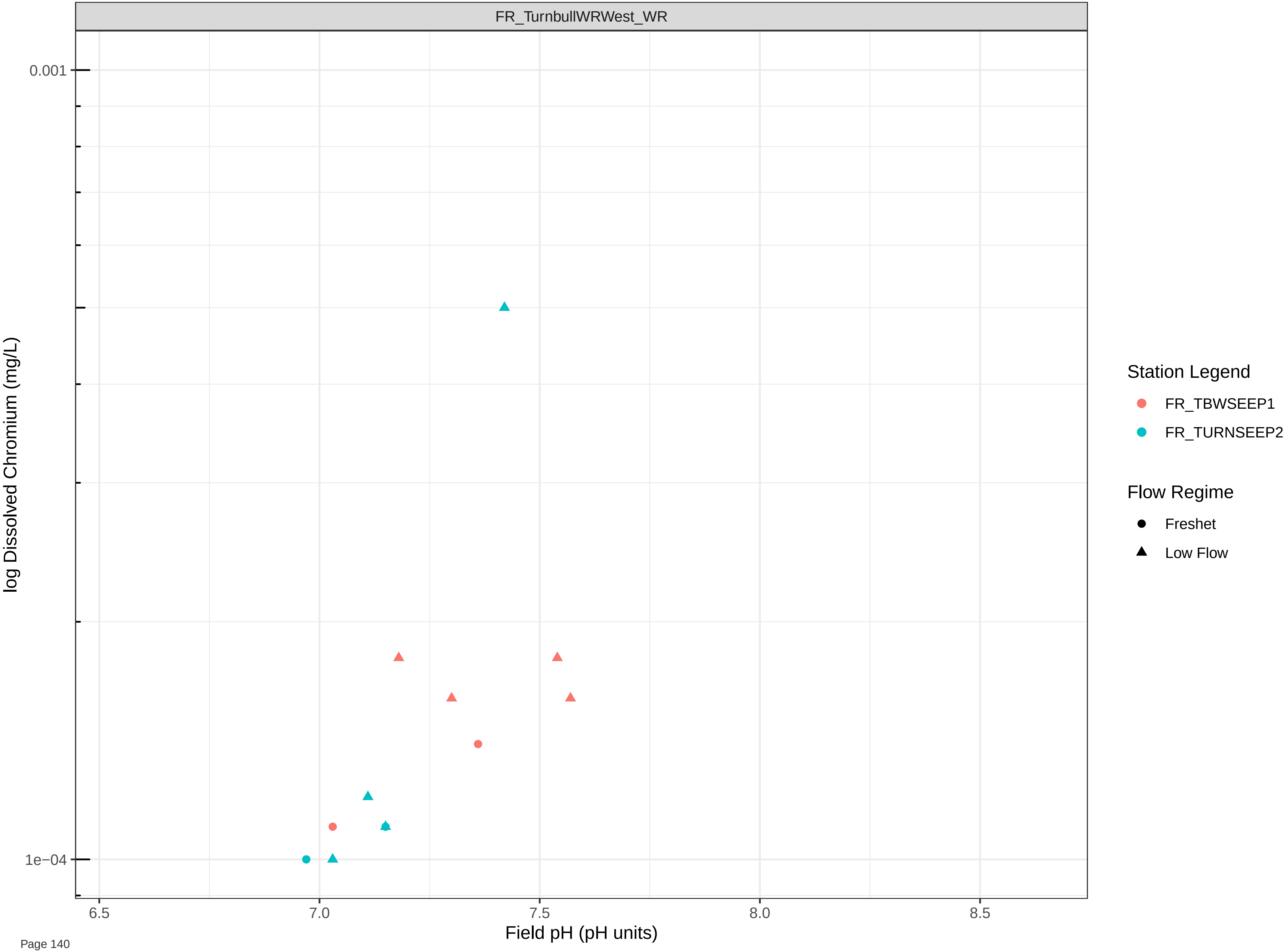

FR_Shandley_WR
0.001
1e−04
log Dissolved Chromium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

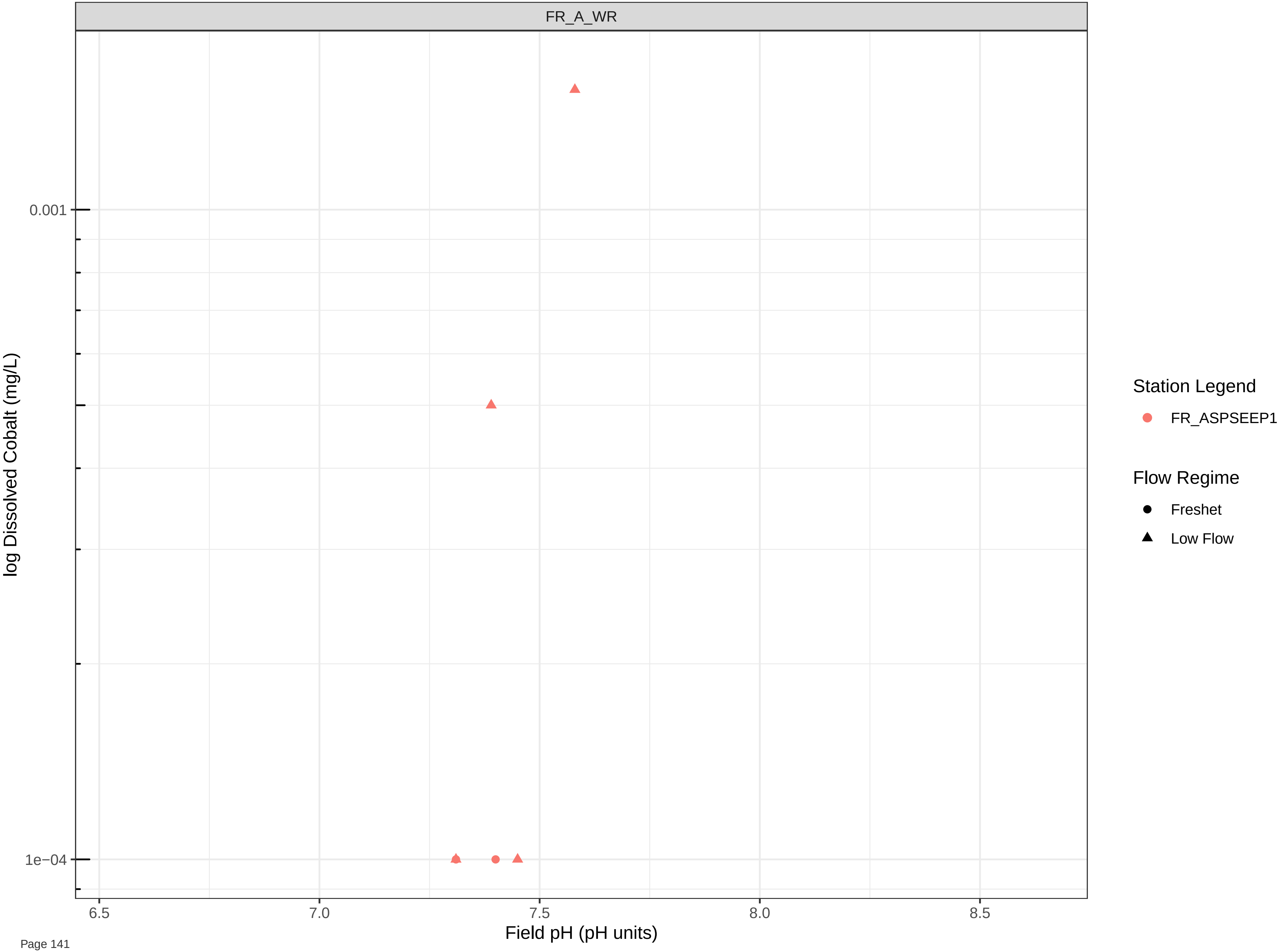

FR_Smith_WR
0.001
1e−04
log Dissolved Chromium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

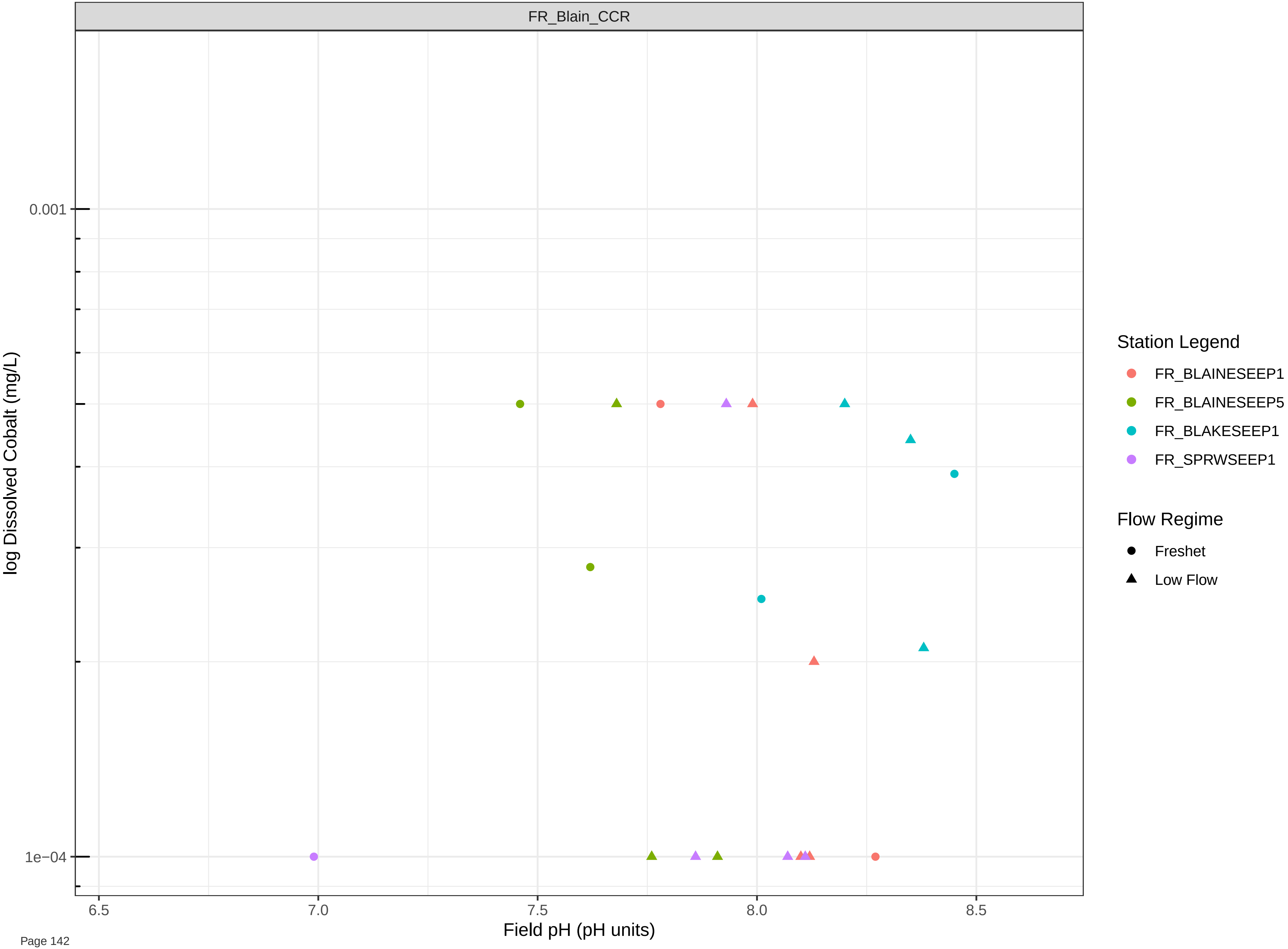

FR_SouthTails_Tailings
0.001
1e−04
log Dissolved Chromium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

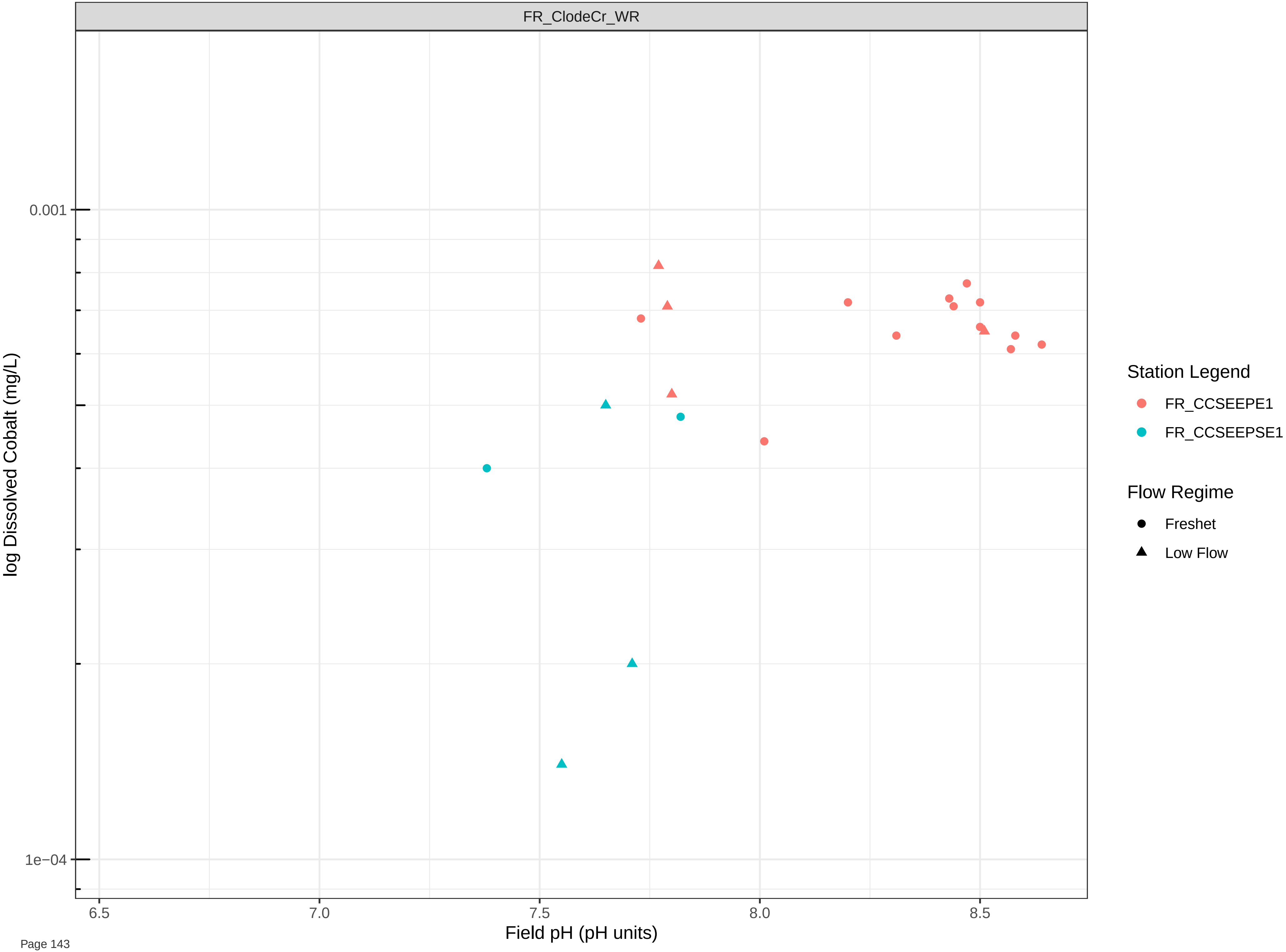

FR_SwiftWR_RockDrain_WR
0.001
1e−04
log Dissolved Chromium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWREast_WR
0.001
1e−04
log Dissolved Chromium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

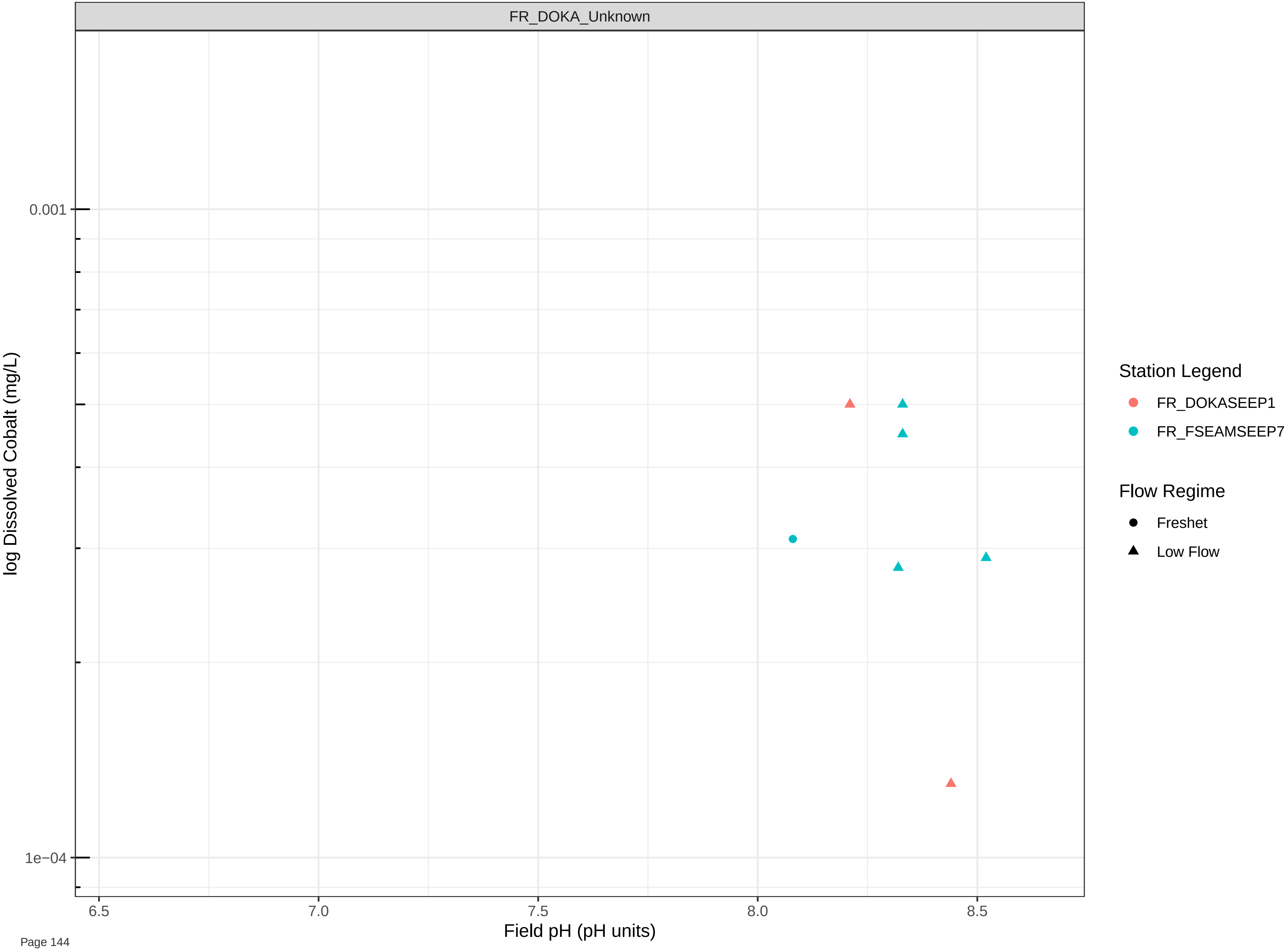

FR_TurnbullWRWest_WR
0.001
1e−04
log Dissolved Chromium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

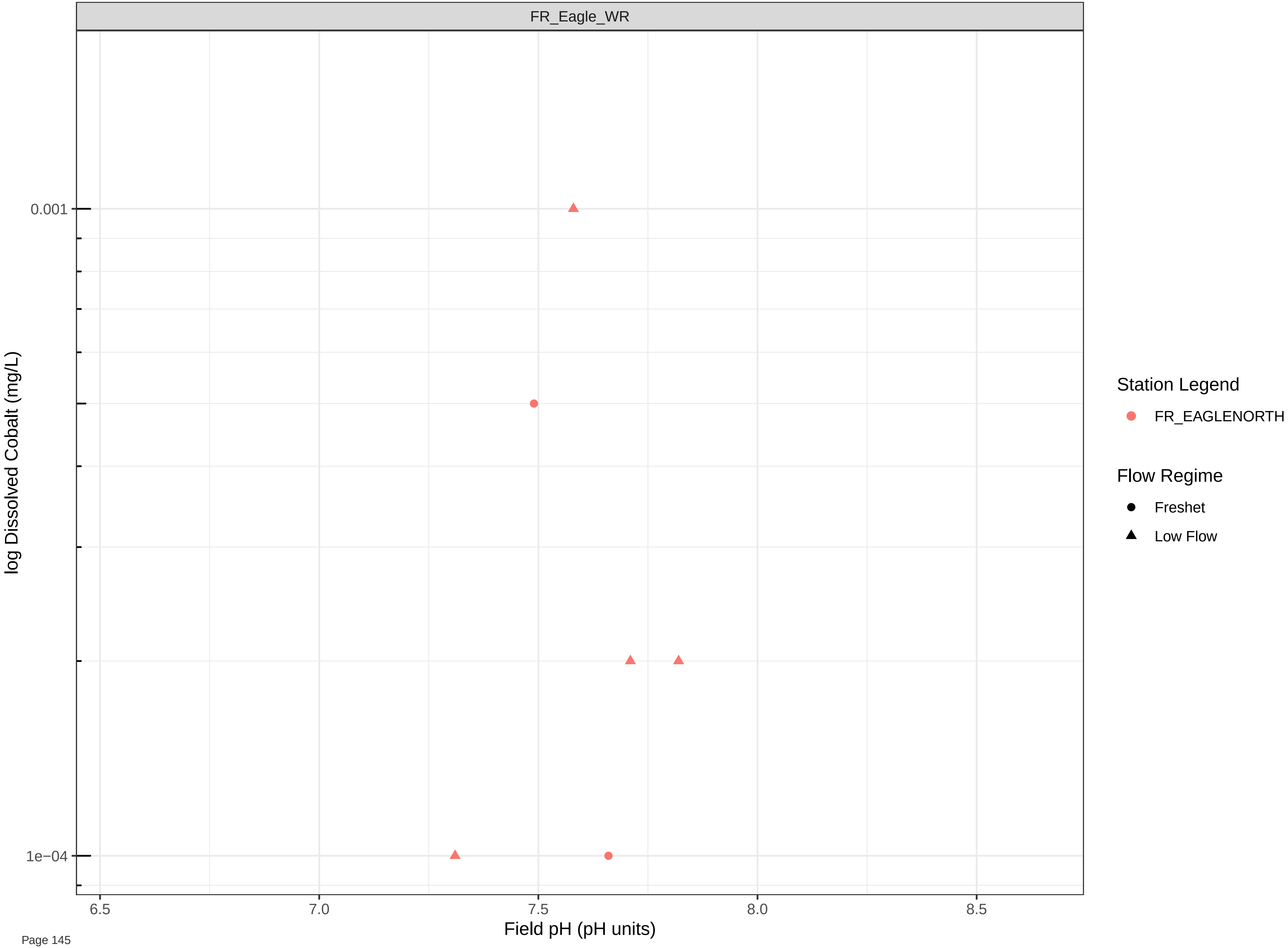

FR_A_WR
log Dissolved Cobalt (mg/L)
0.001
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

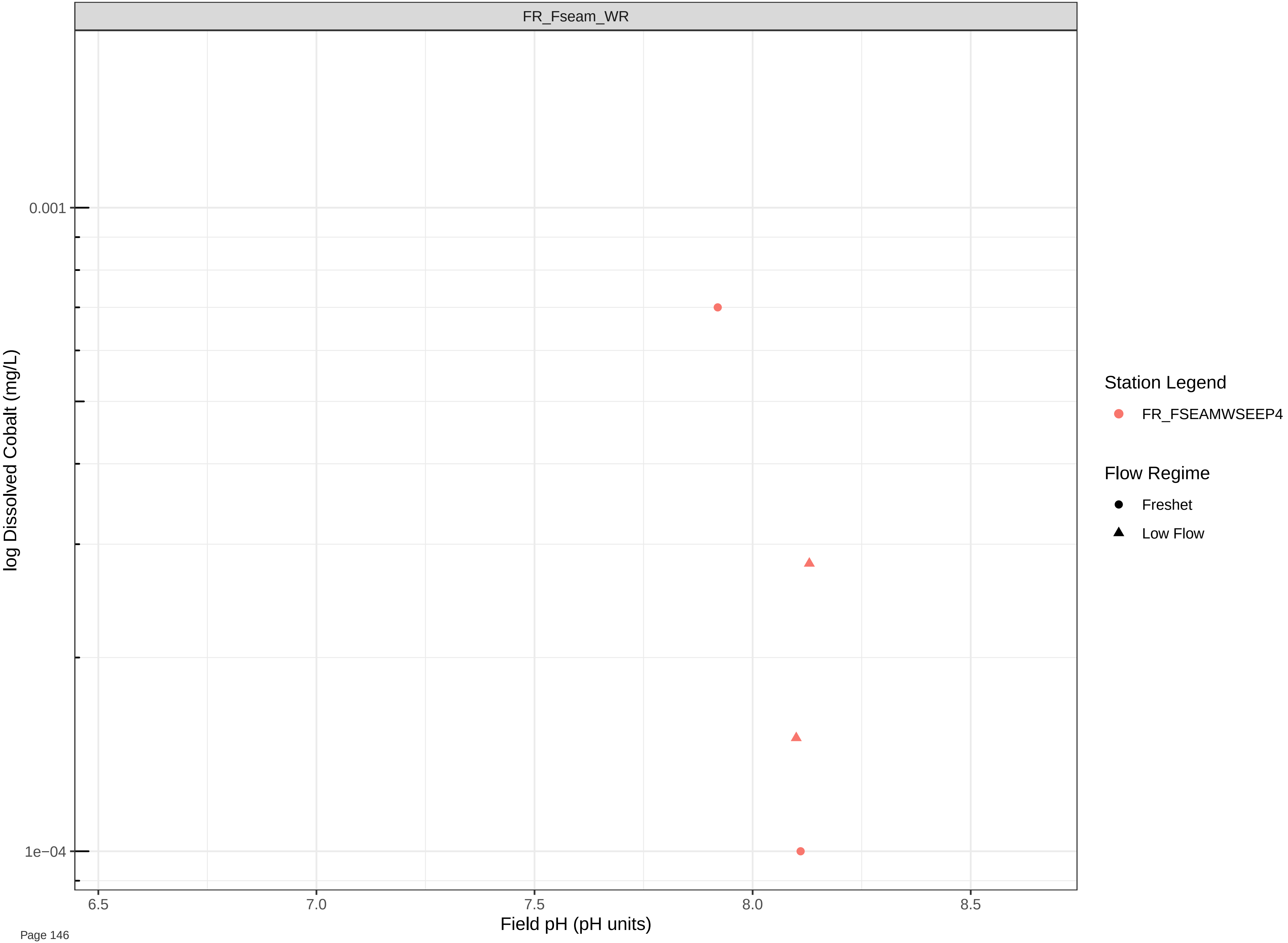

FR_Blain_CCR
0.001
1e−04
log Dissolved Cobalt (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

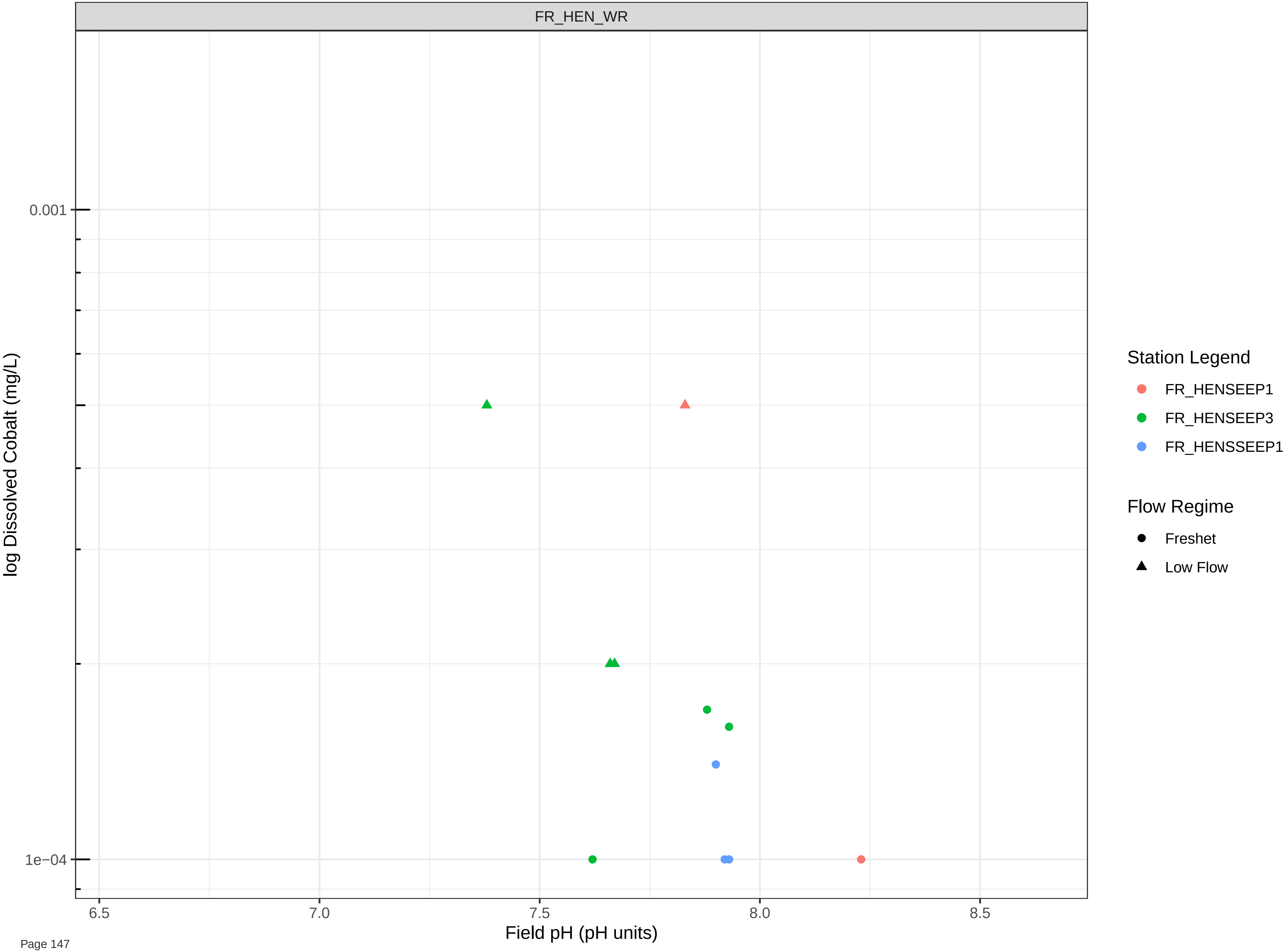


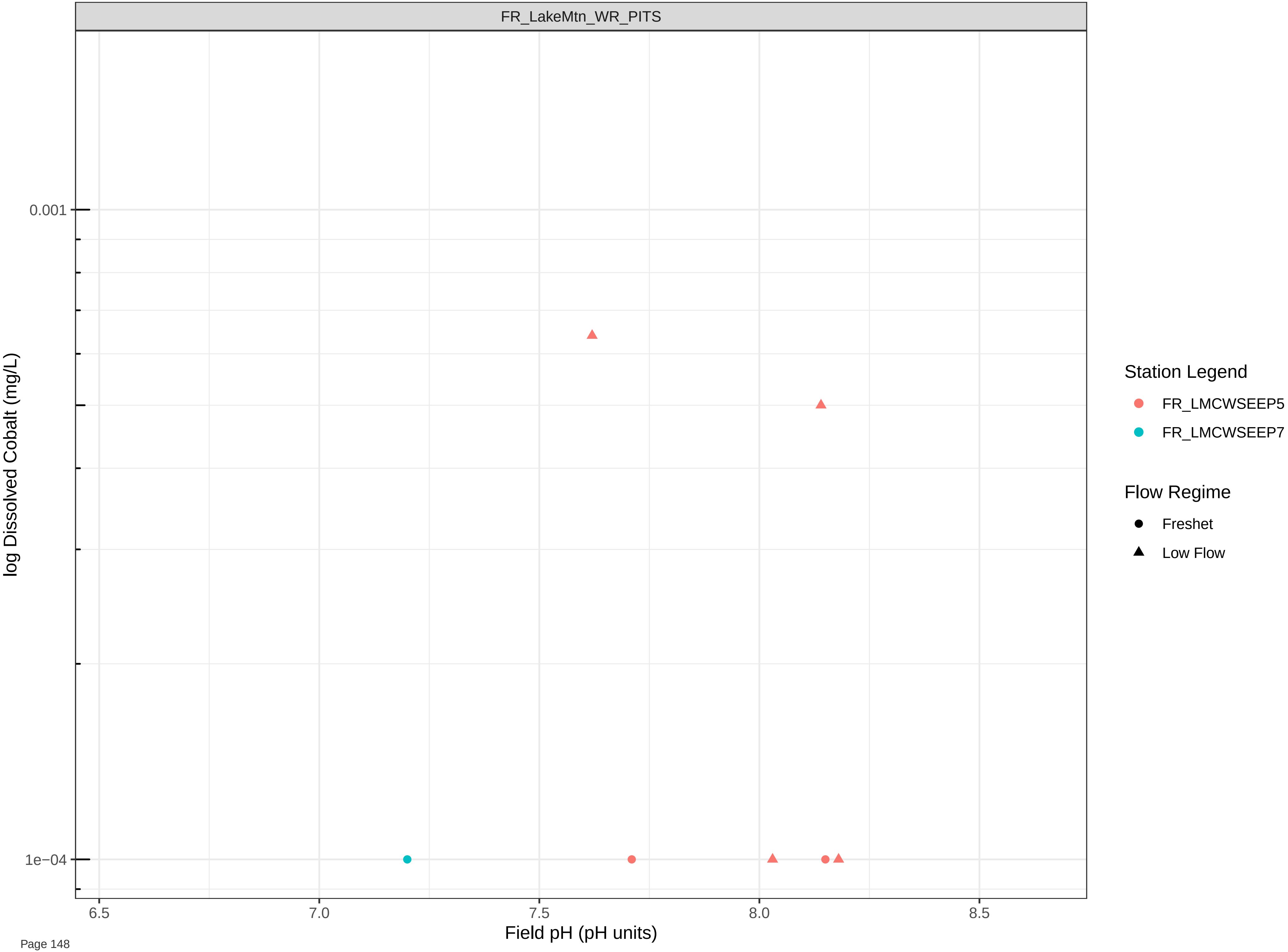
FR_ClodeCr_WR
0.001
1e−04
log Dissolved Cobalt (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

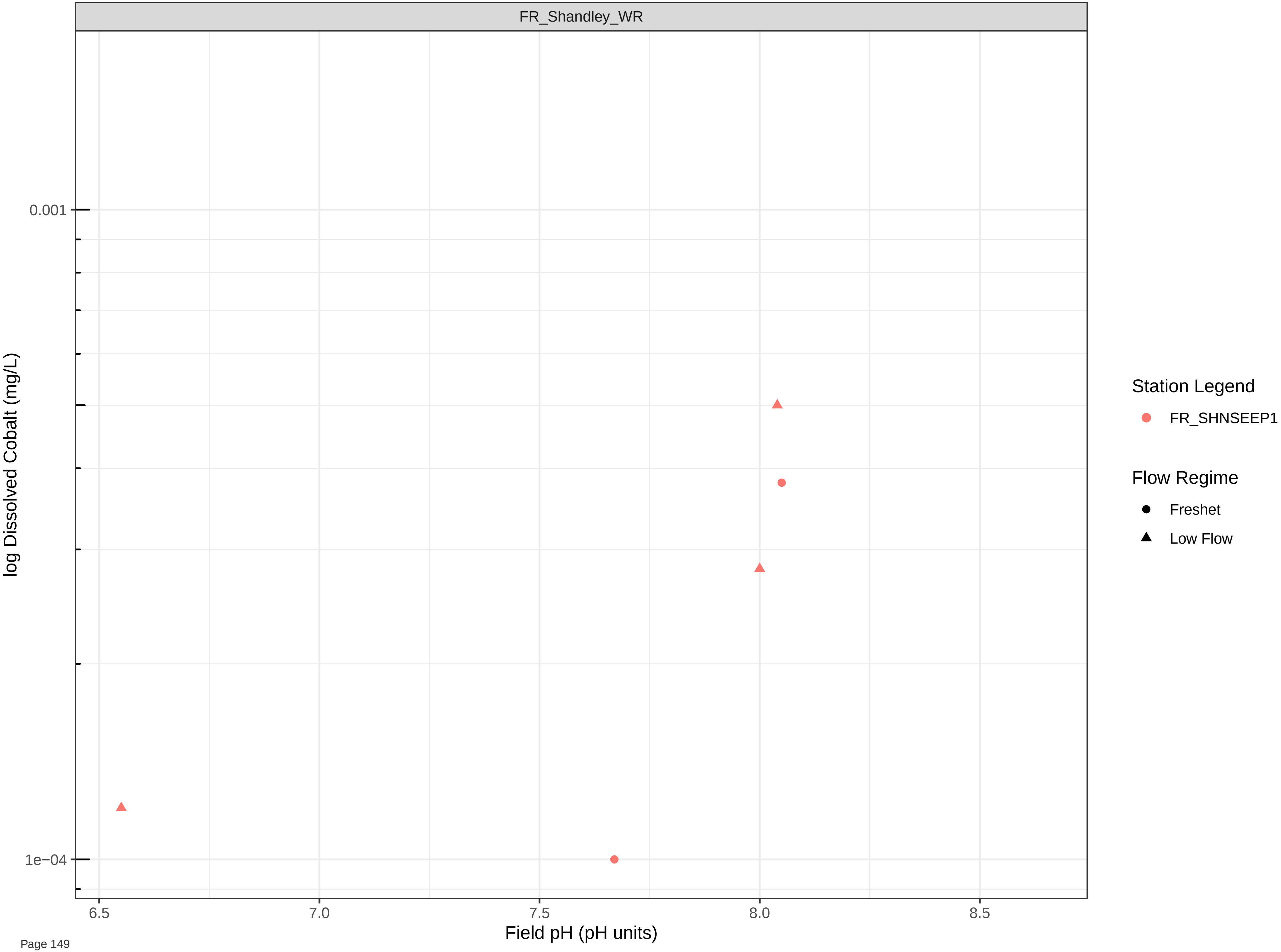

FR_DOKA_Unknown
0.001
1e−04
log Dissolved Cobalt (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

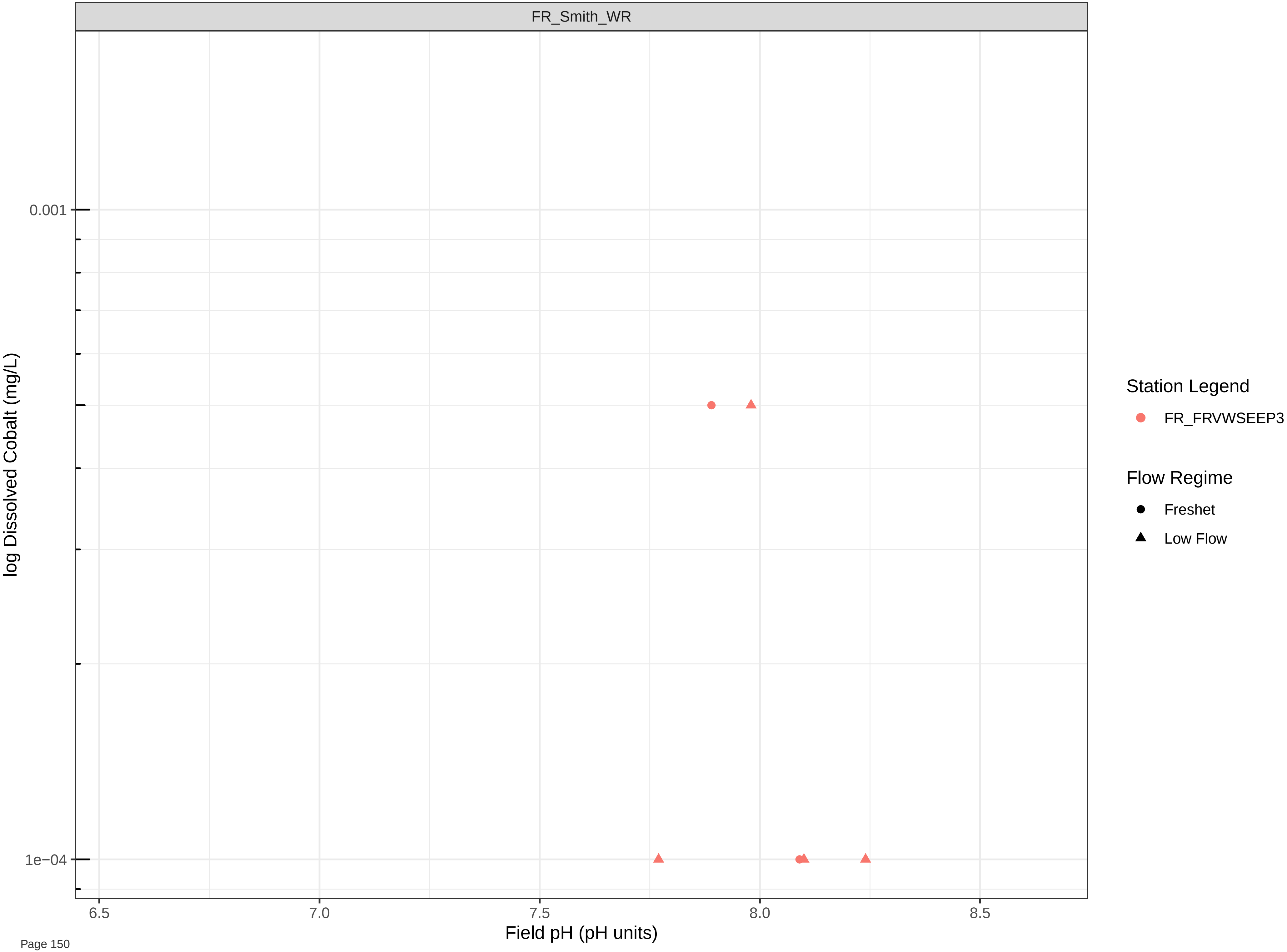

FR_Eagle_WR
0.001
1e−04
log Dissolved Cobalt (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow


FR_Fseam_WR
0.001
1e−04
log Dissolved Cobalt (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

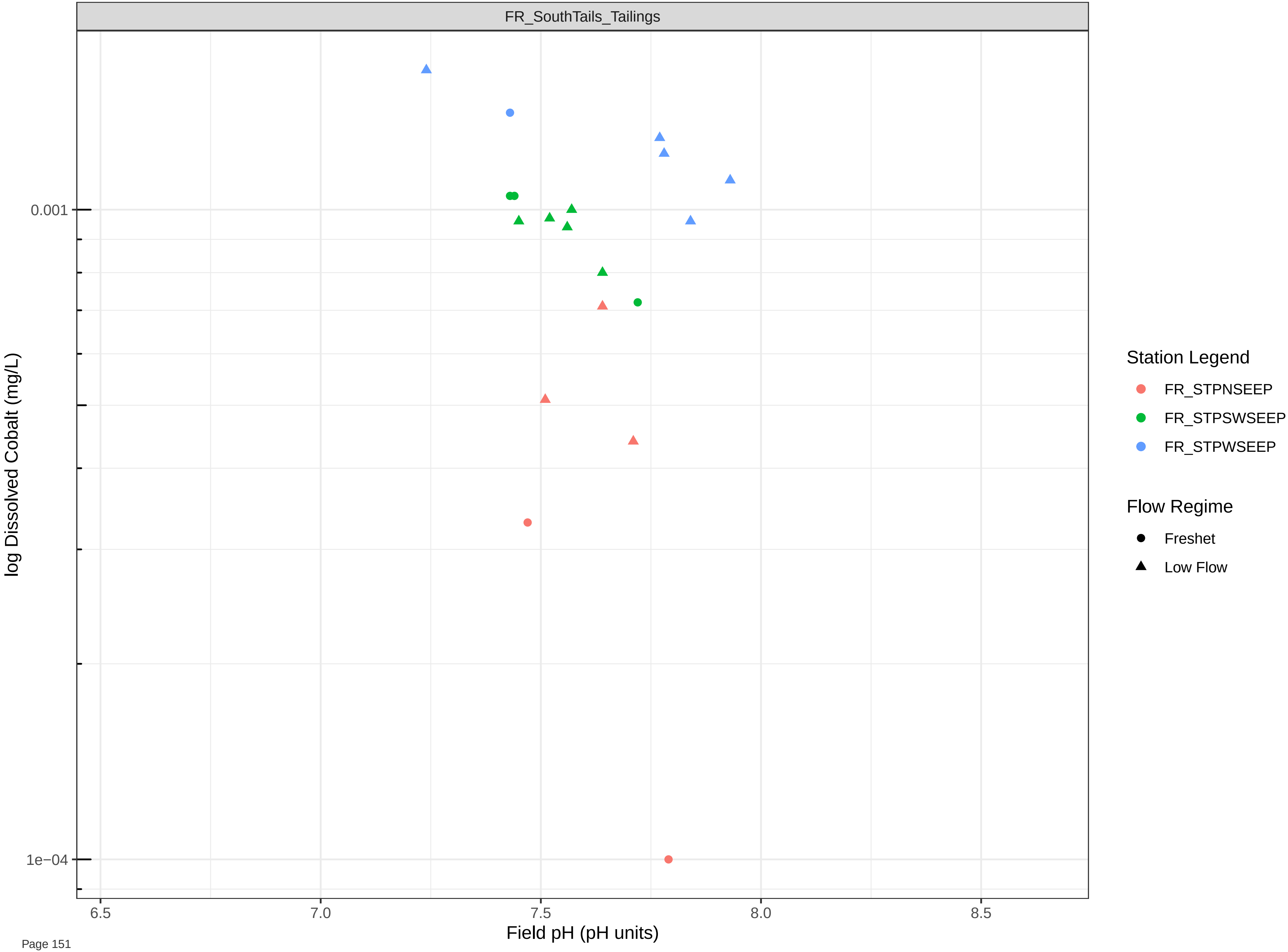

FR_HEN_WR
log Dissolved Cobalt (mg/L)
0.001
1e−04
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

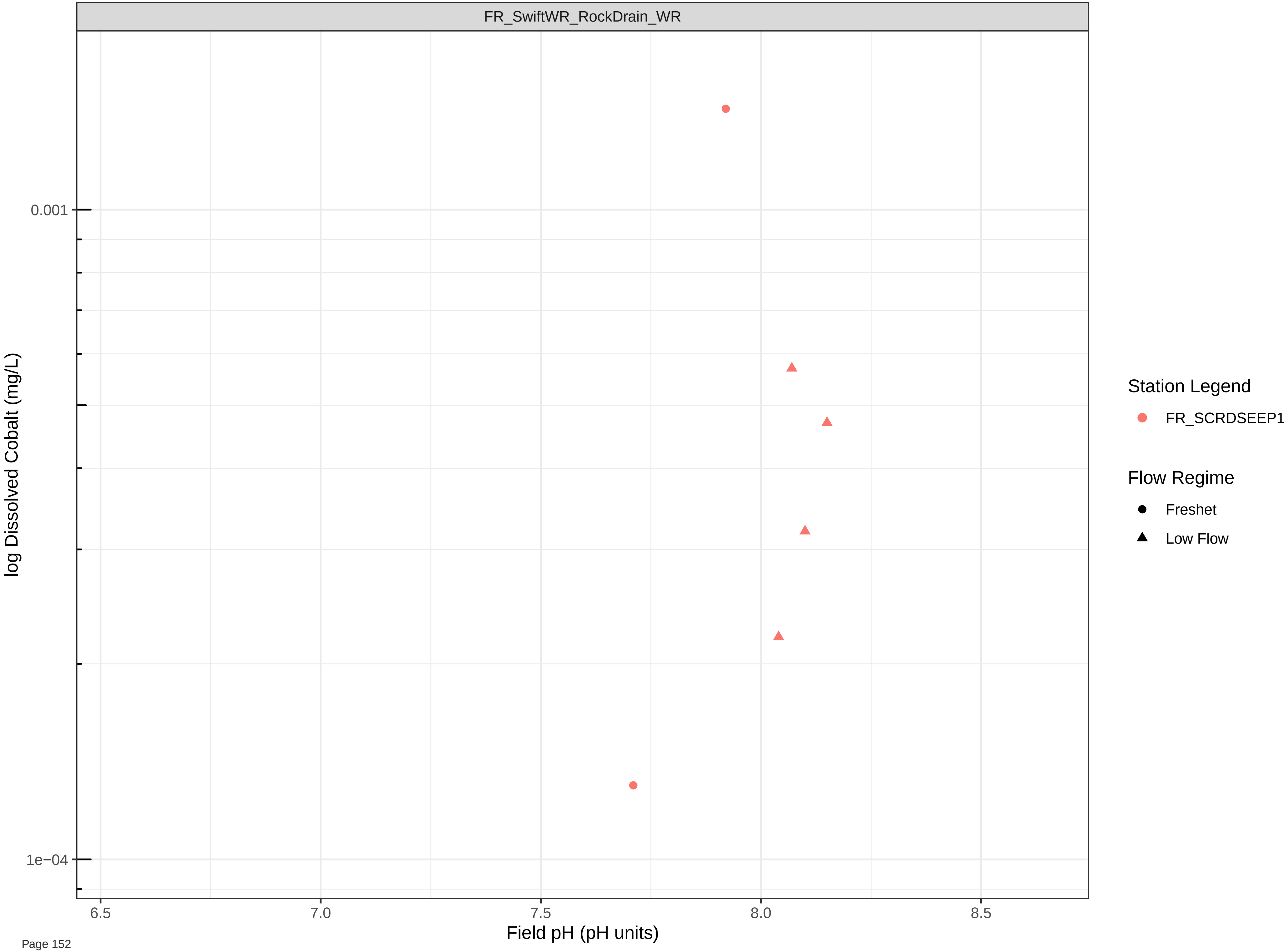

FR_LakeMtn_WR_PITS
0.001
1e−04
log Dissolved Cobalt (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

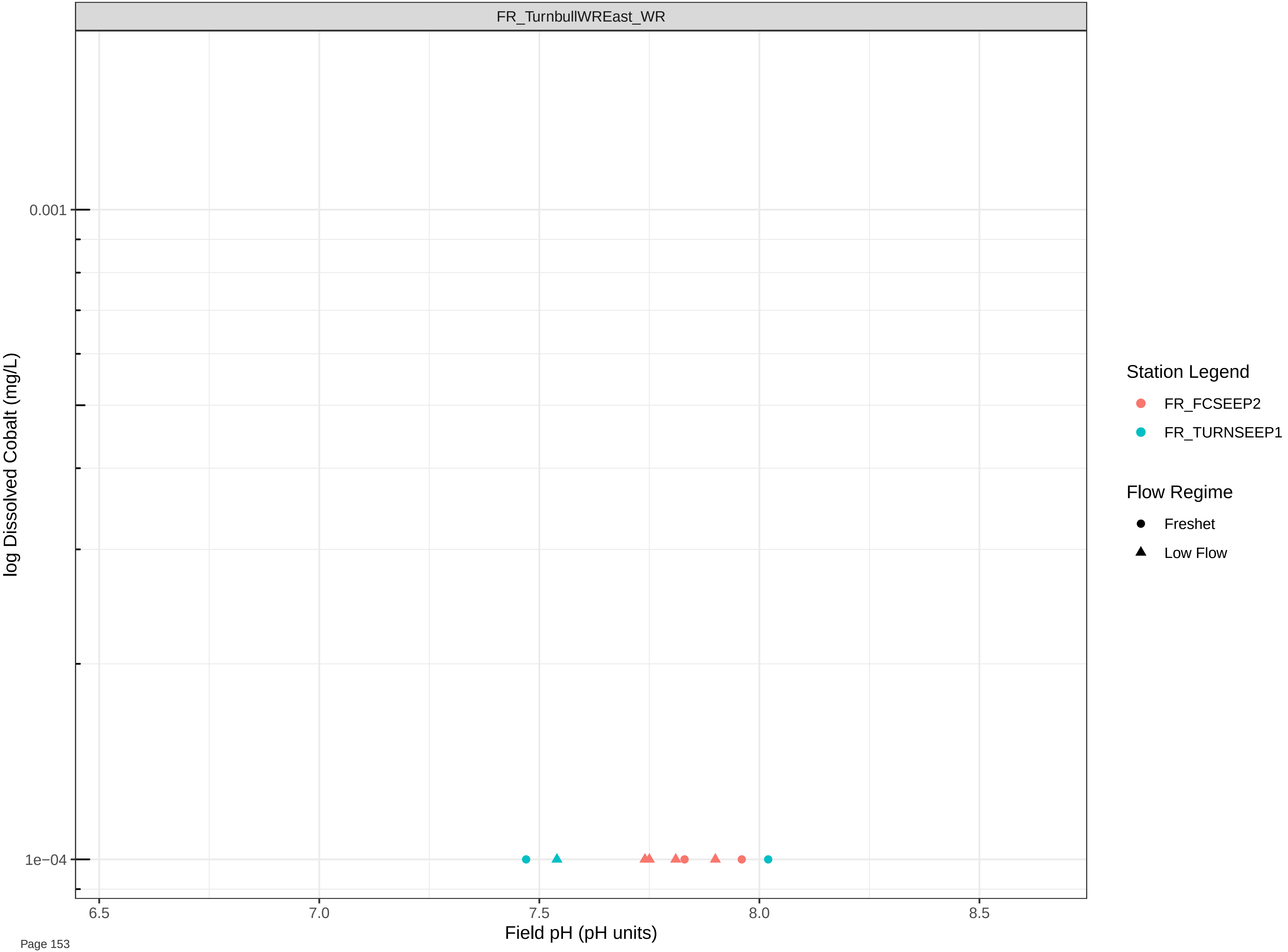

FR_Shandley_WR
log Dissolved Cobalt (mg/L)
0.001
1e−04
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

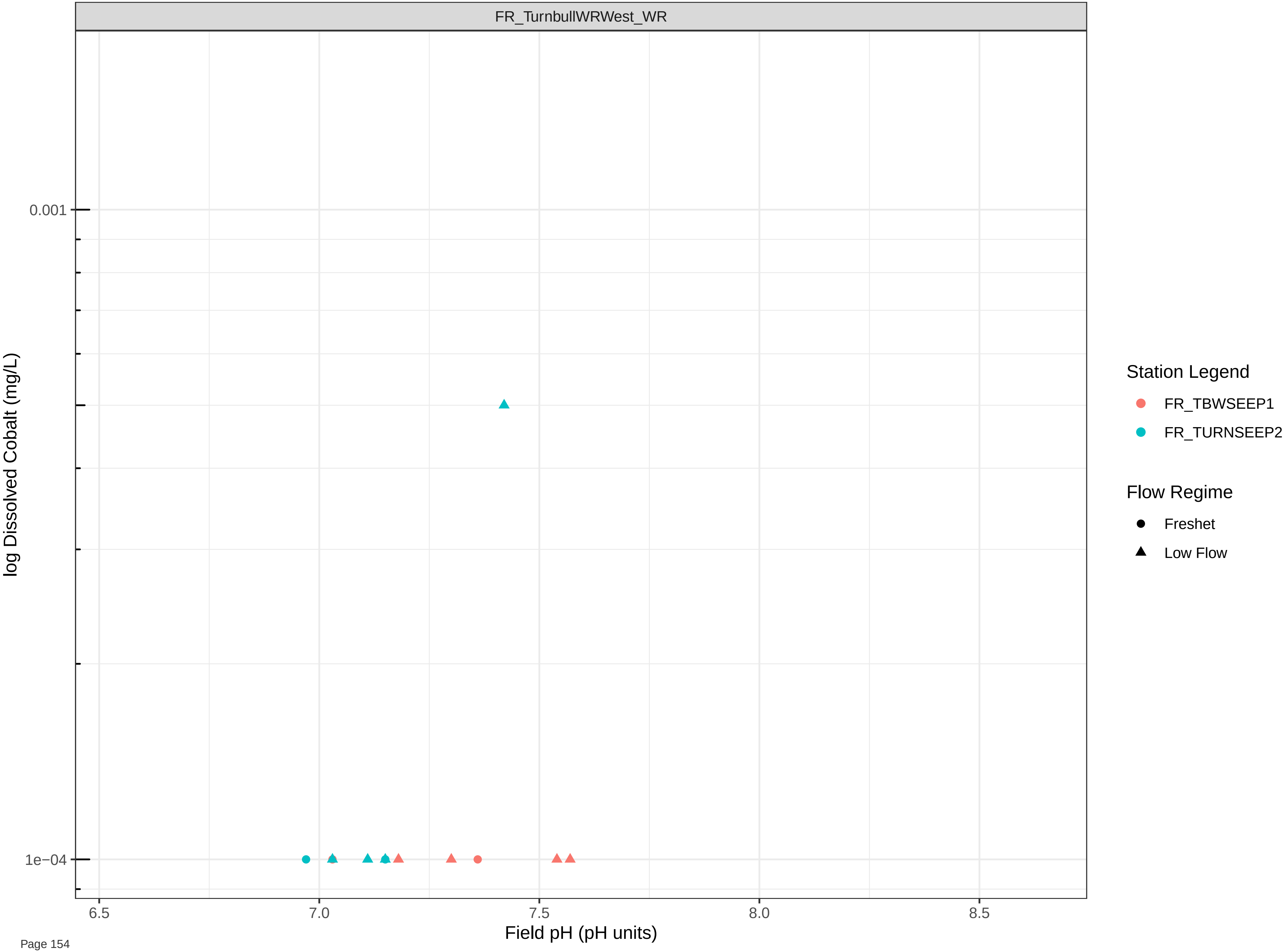


FR_Smith_WR
0.001
1e−04
log Dissolved Cobalt (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow


FR_SouthTails_Tailings
log Dissolved Cobalt (mg/L)
0.001
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_STPNSEEP
● FR_STPSWSEEP
● FR_STPWSEEP
Flow Regime
● Freshet
▲ Low Flow


FR_SwiftWR_RockDrain_WR
log Dissolved Cobalt (mg/L)
0.001
1e−04
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_TurnbullWREast_WR
0.001
1e−04
log Dissolved Cobalt (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWRWest_WR
0.001
1e−04
log Dissolved Cobalt (mg/L)
6.5
7.0
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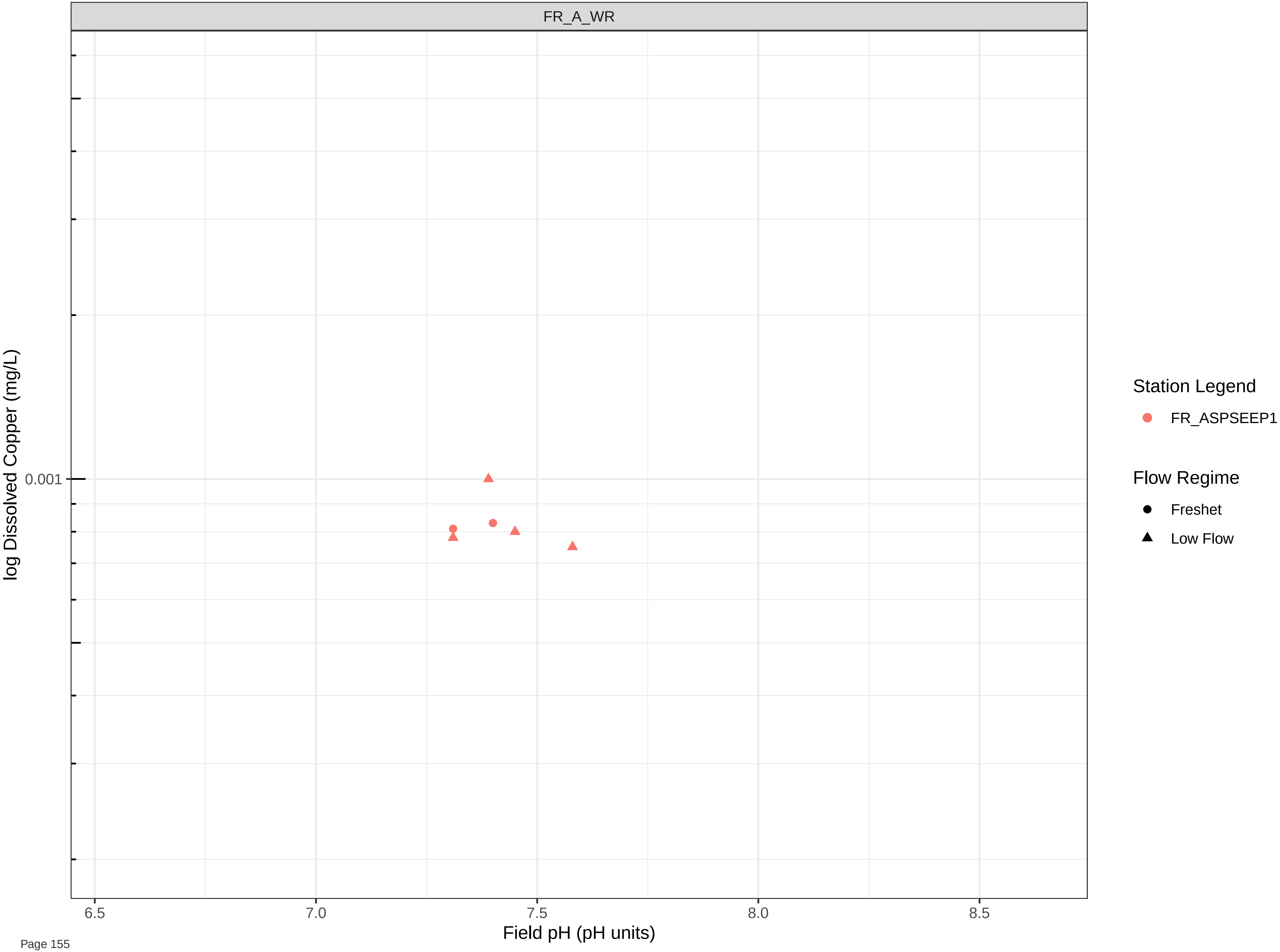
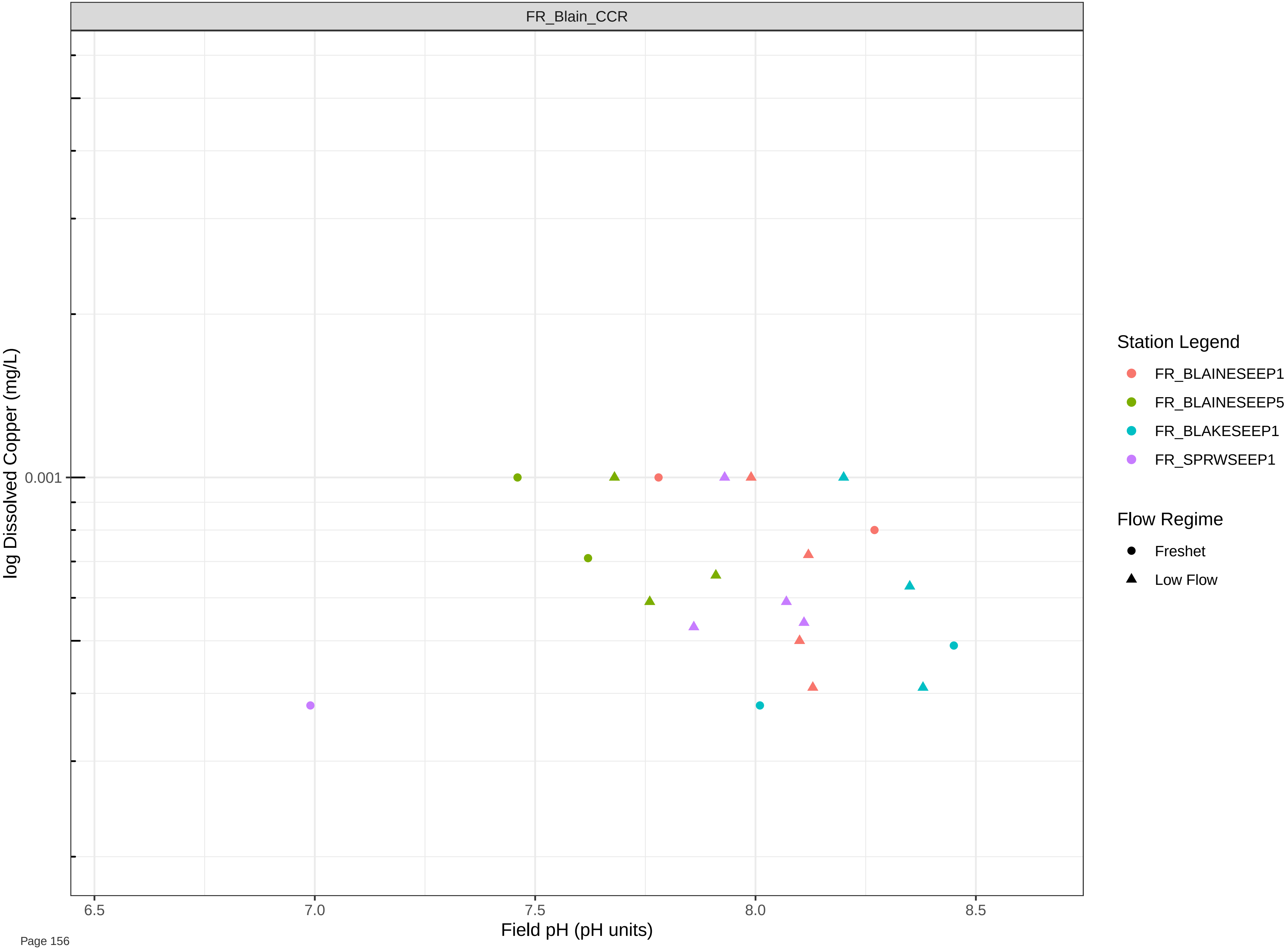
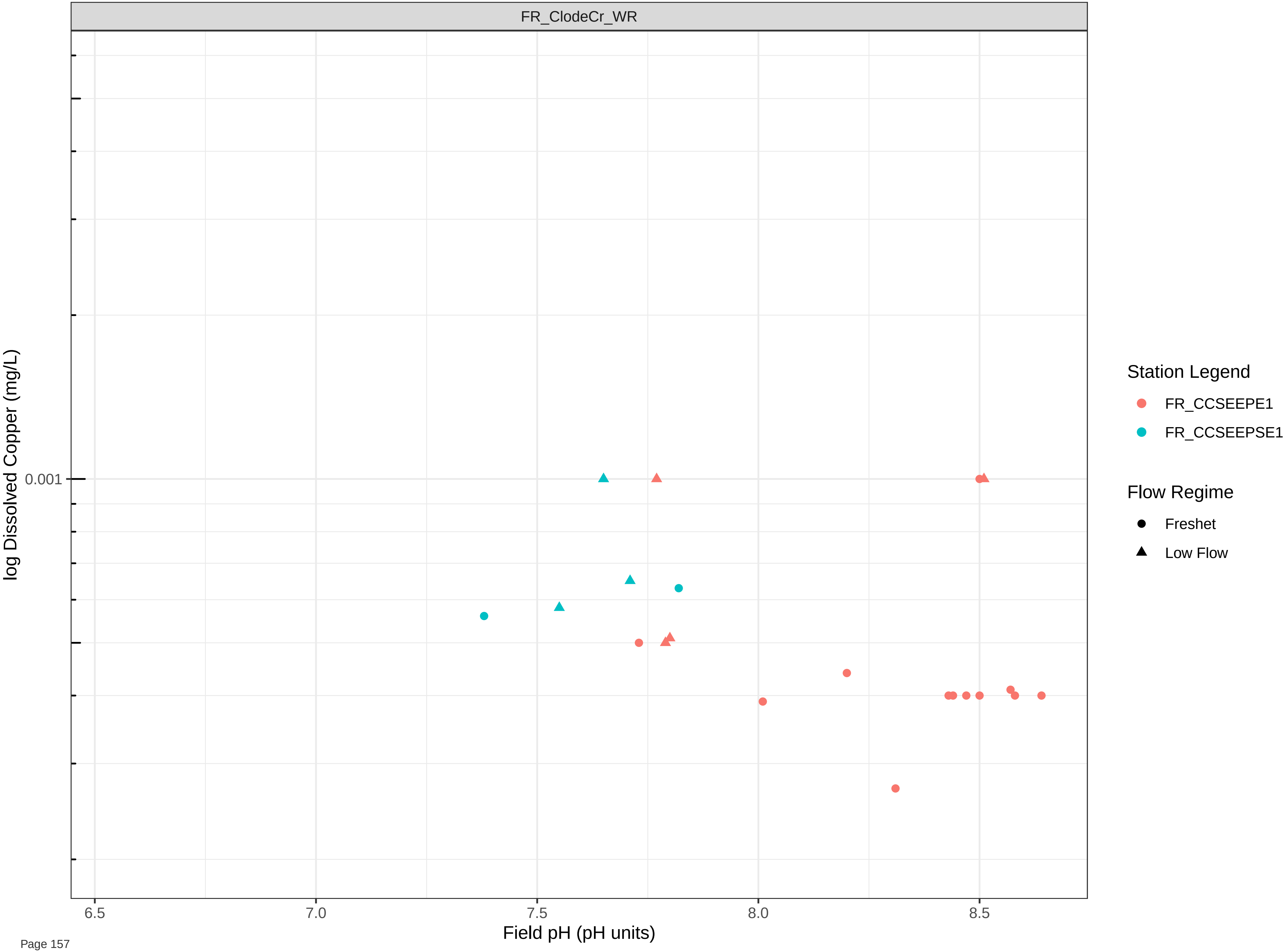
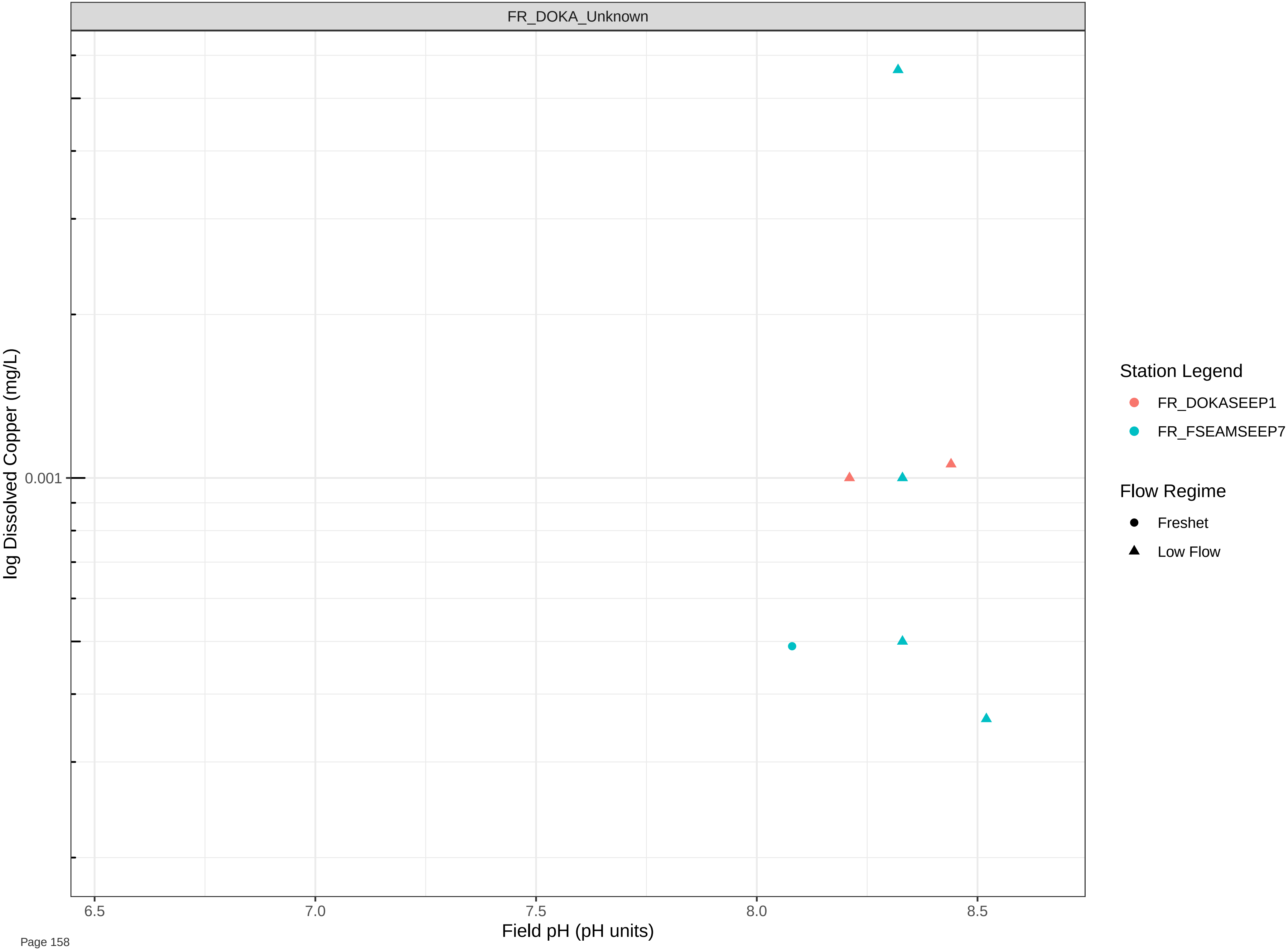
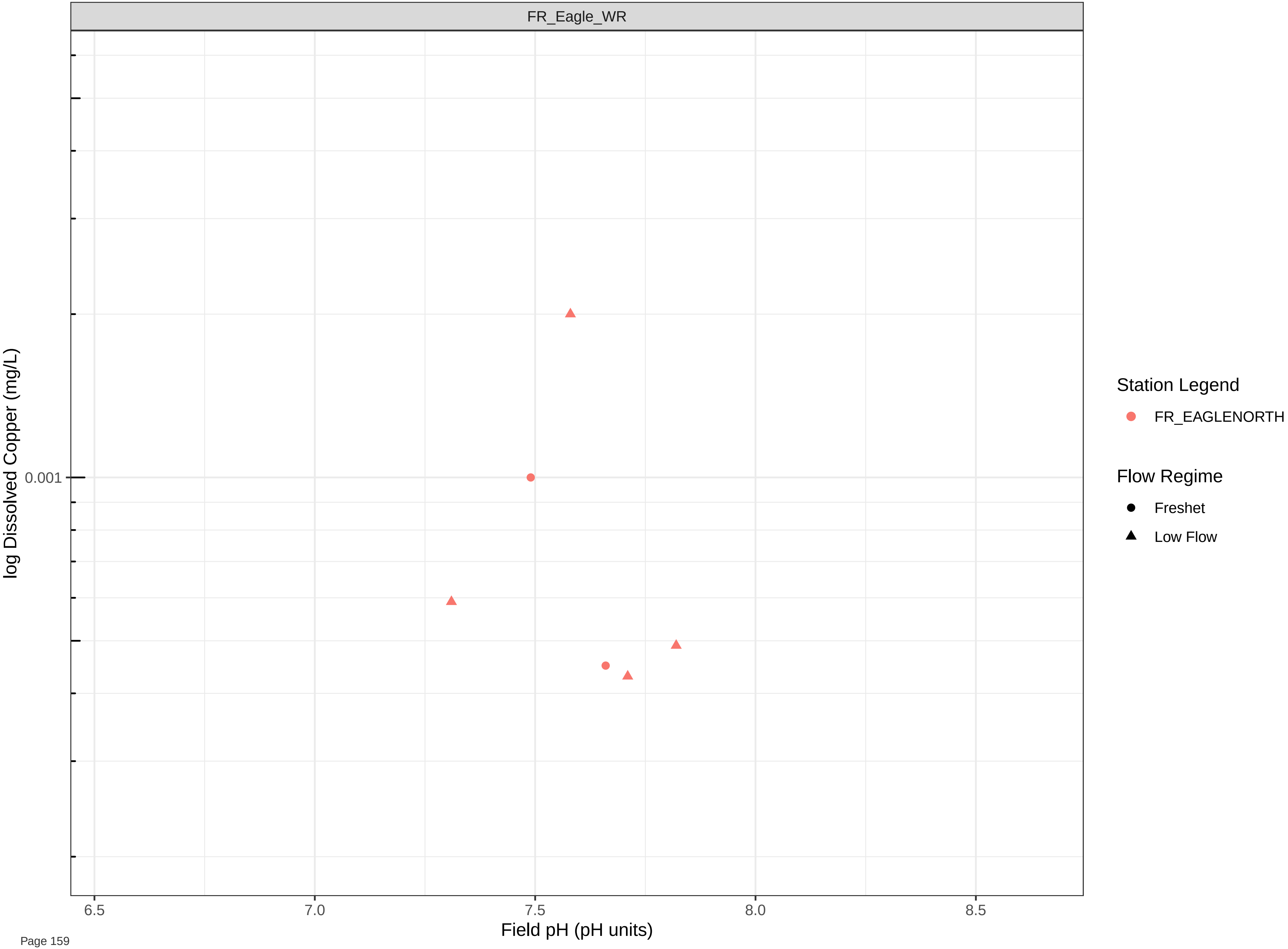
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow


FR_A_WR
log Dissolved Copper (mg/L)
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow


FR_Blain_CCR
log Dissolved Copper (mg/L)
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_ClodeCr_WR
log Dissolved Copper (mg/L)
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow


FR_DOKA_Unknown
log Dissolved Copper (mg/L)
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow


FR_Eagle_WR
log Dissolved Copper (mg/L)
0.001
6.5
7.0
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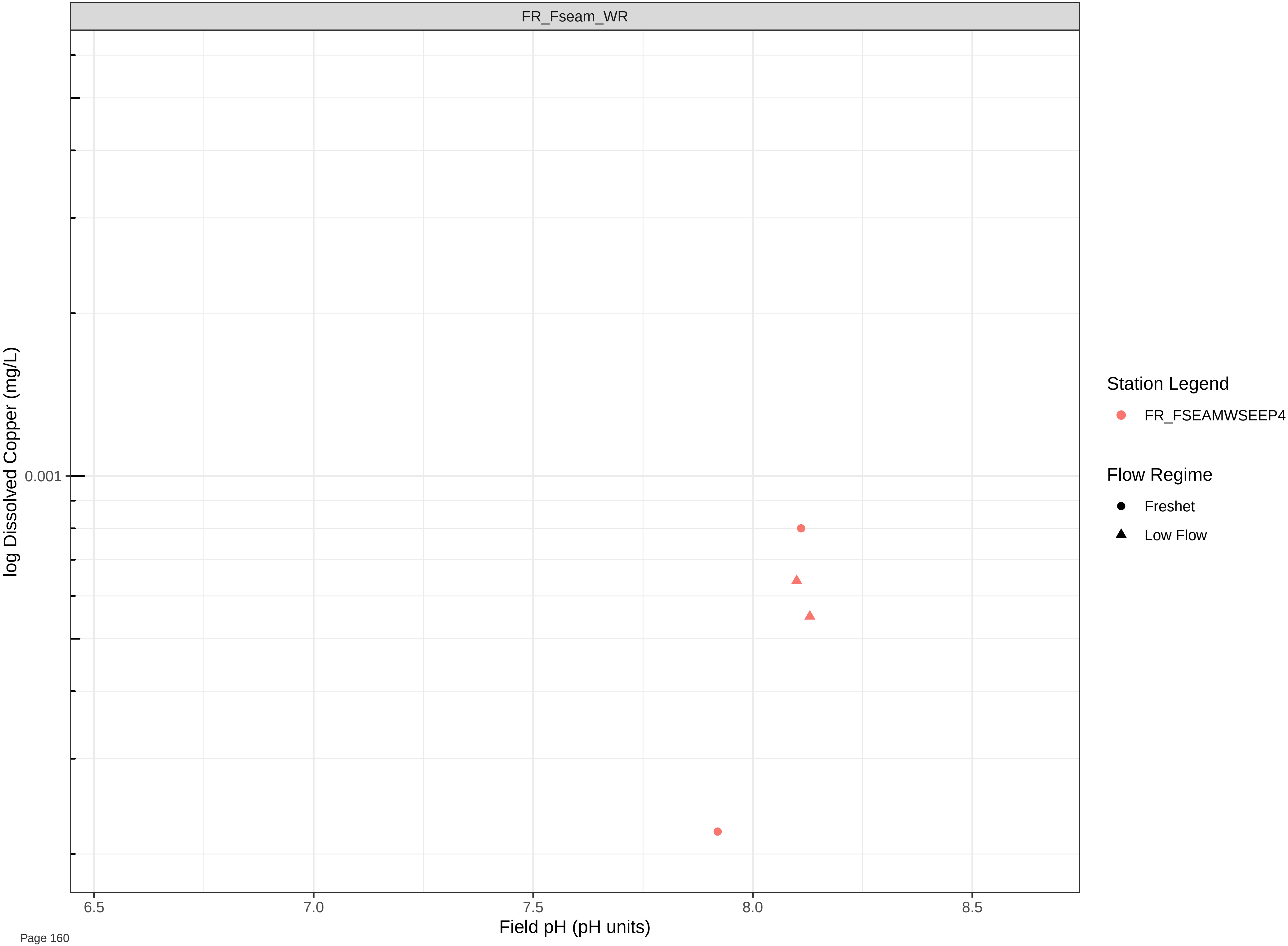
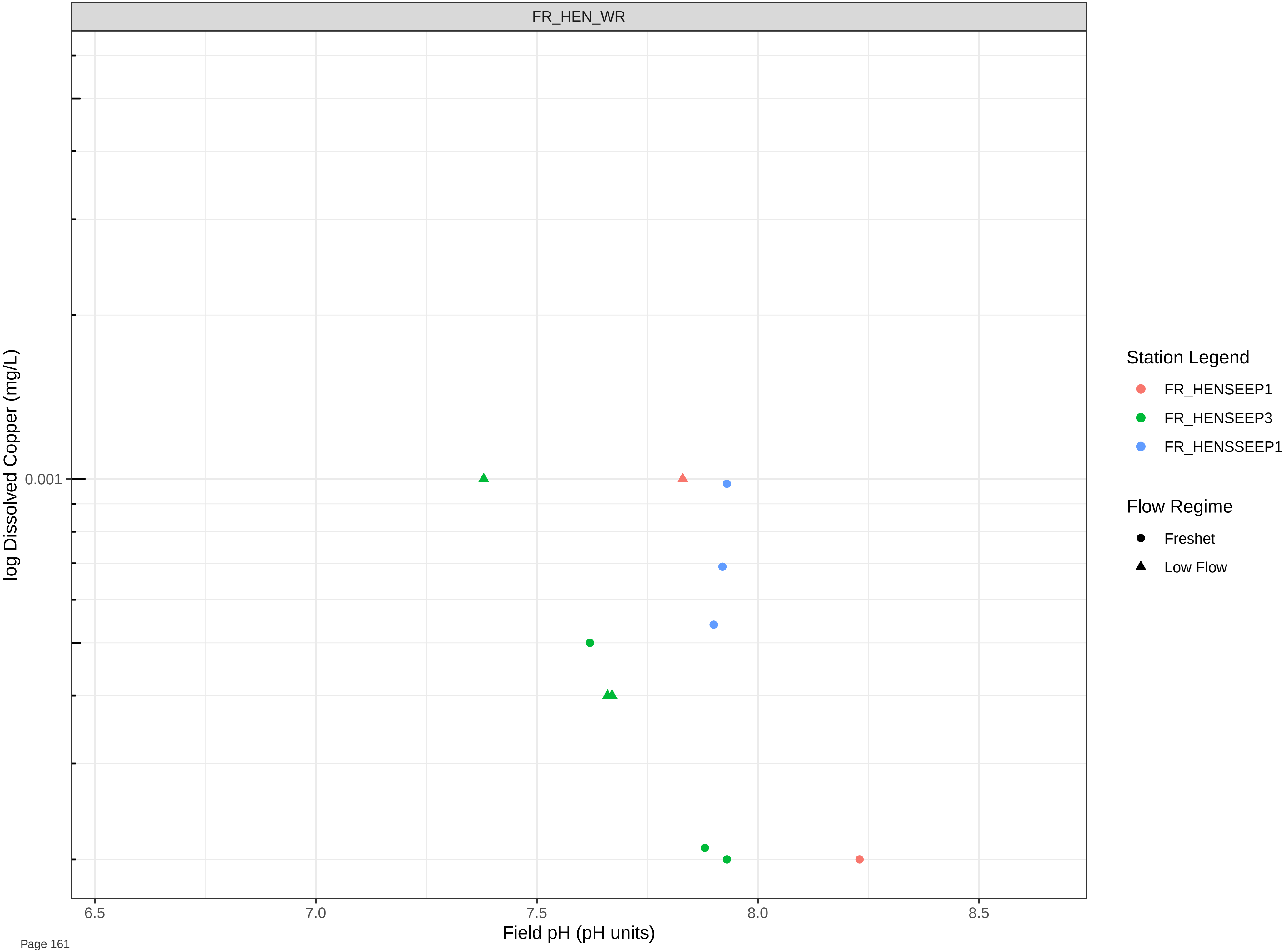
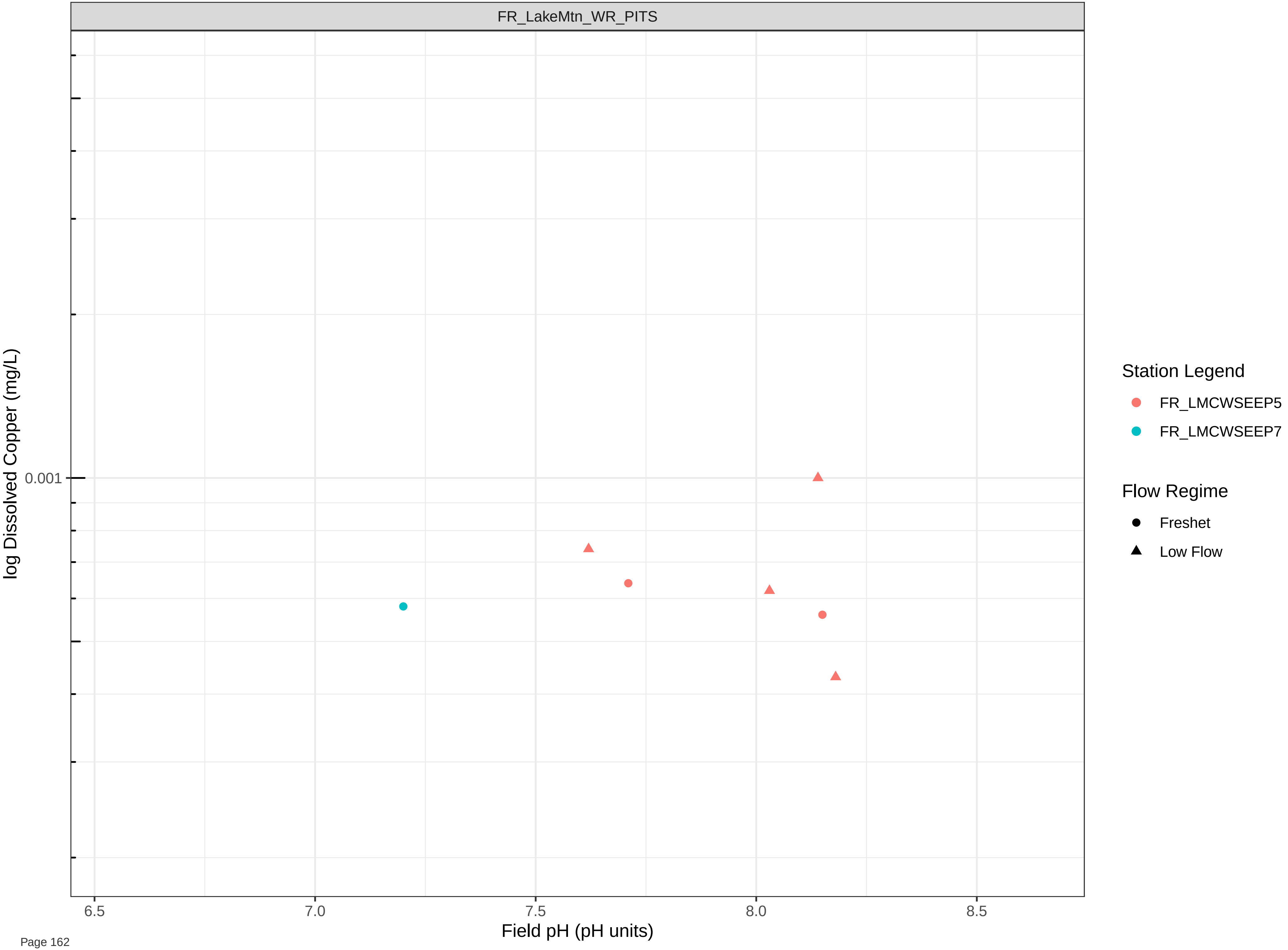
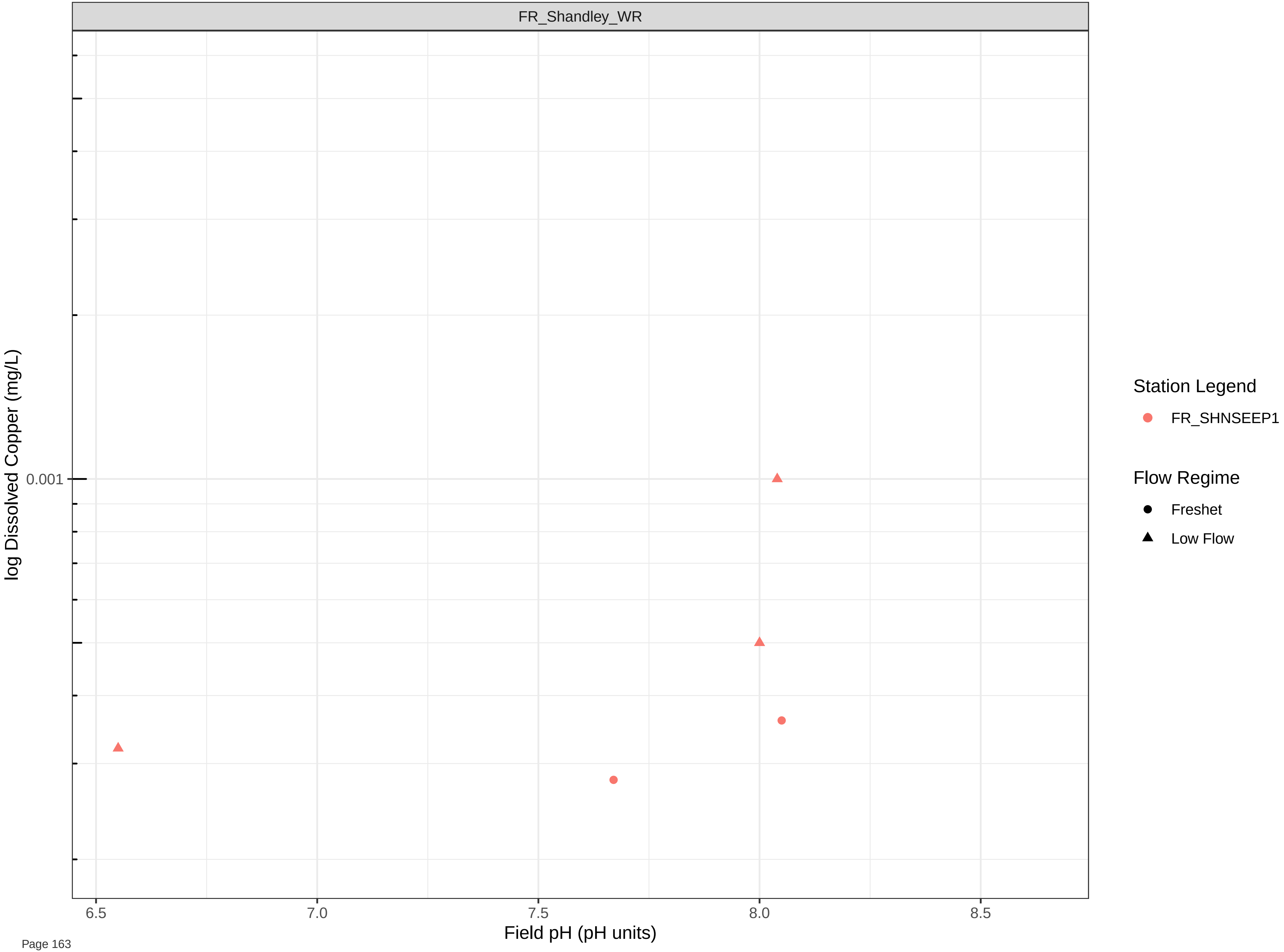
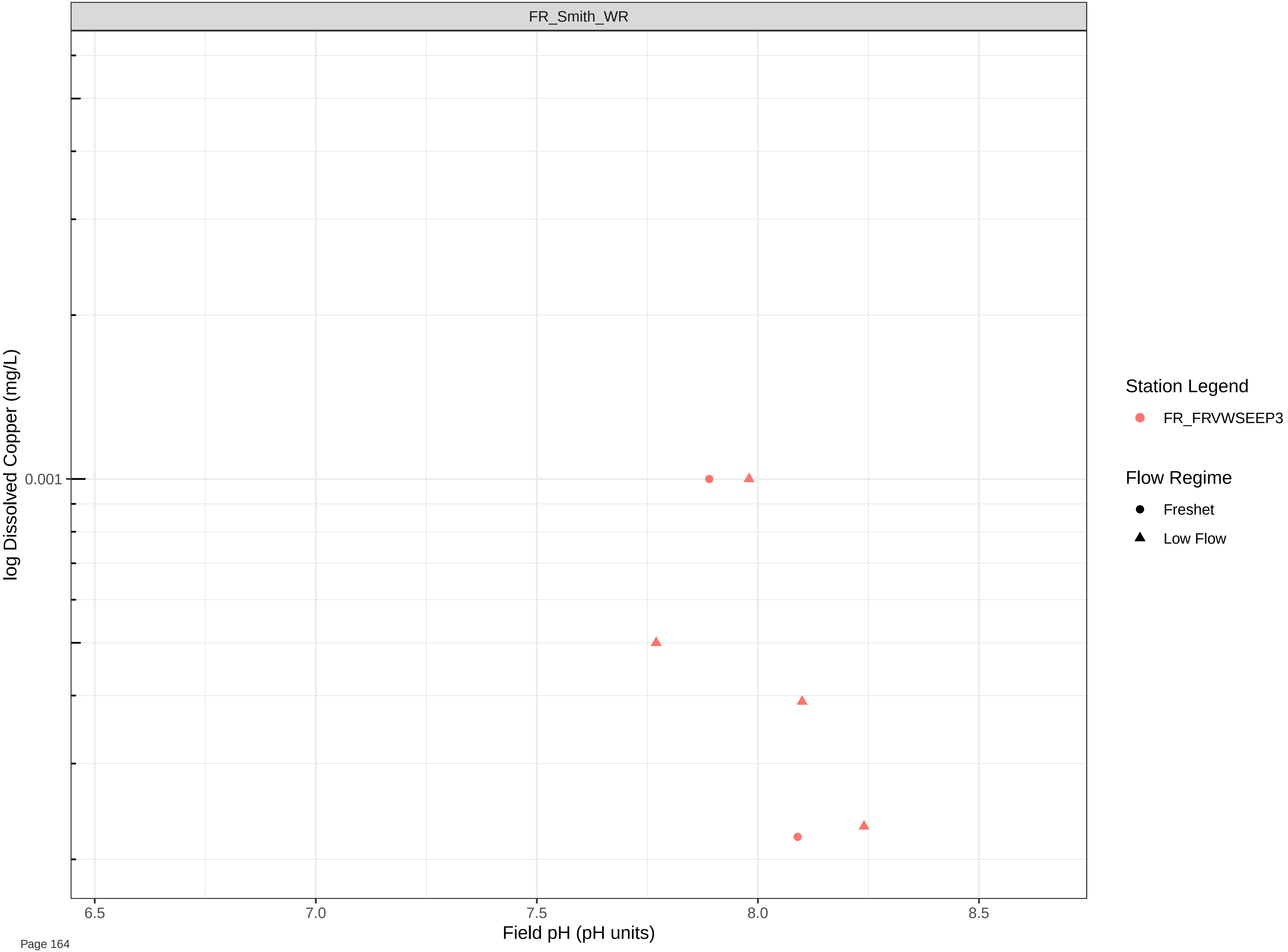
8.0
8.5
Field pH (pH units)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

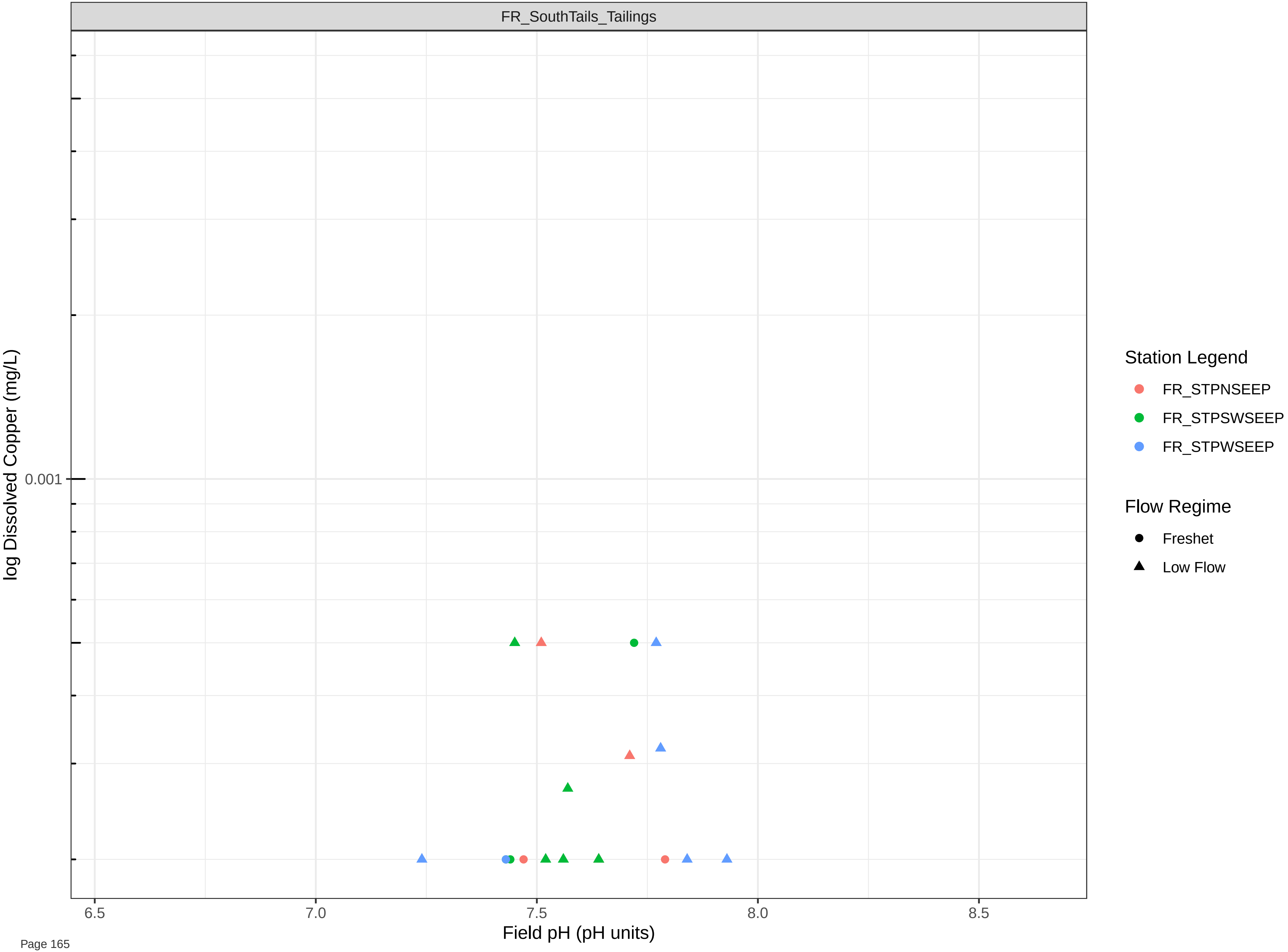

FR_Fseam_WR
log Dissolved Copper (mg/L)
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

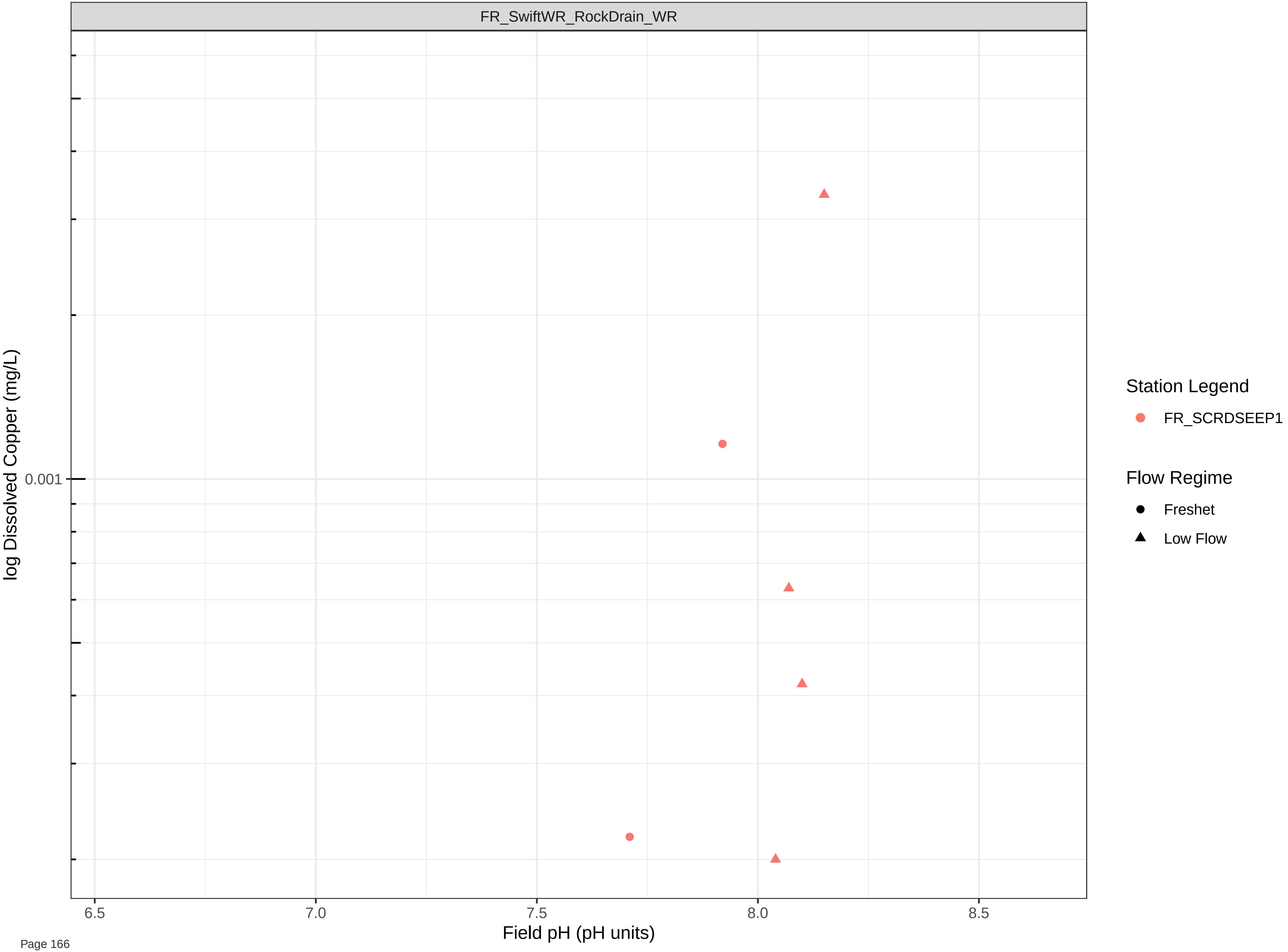

FR_HEN_WR
log Dissolved Copper (mg/L)
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

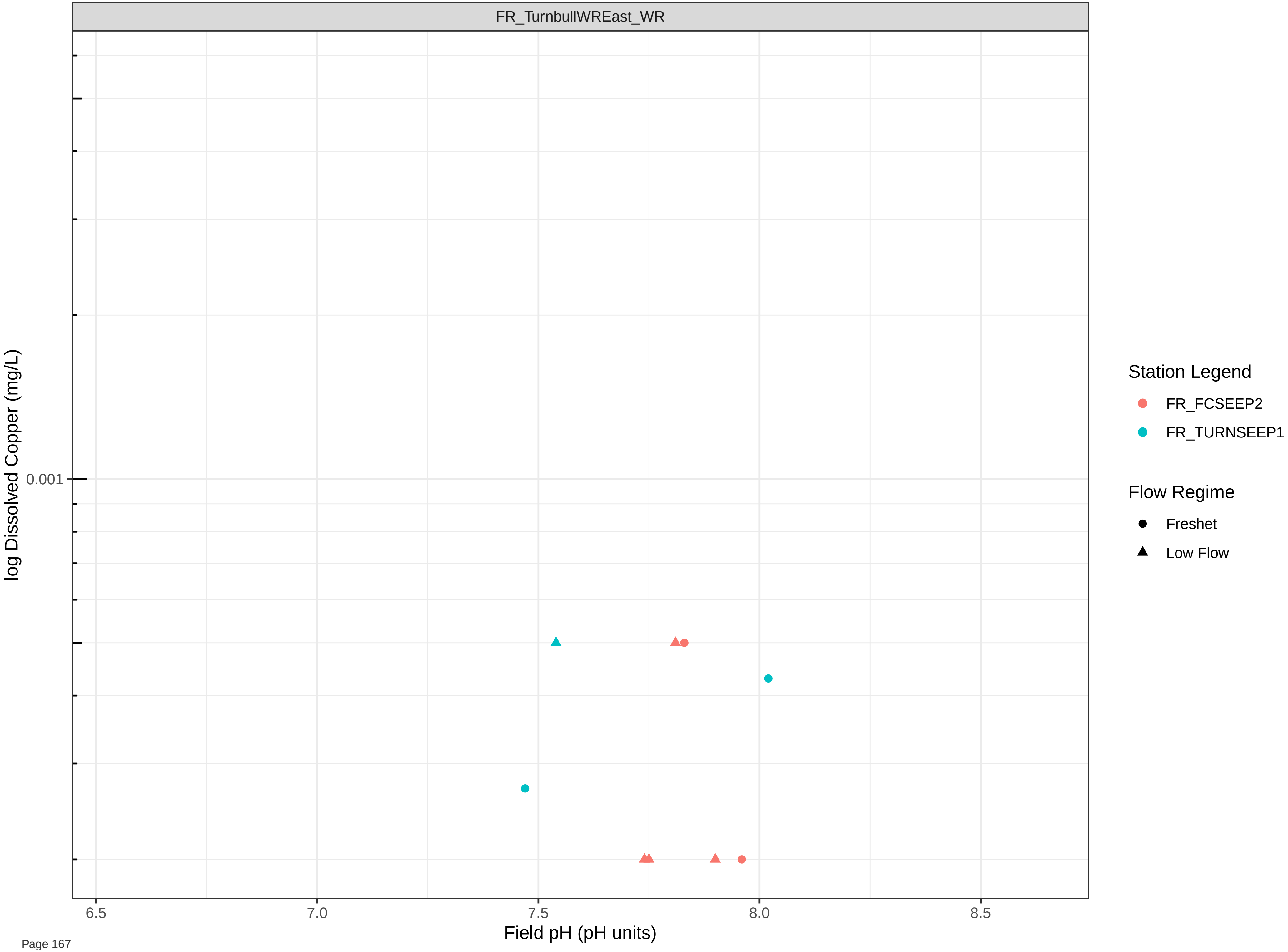

FR_LakeMtn_WR_PITS
log Dissolved Copper (mg/L)
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow

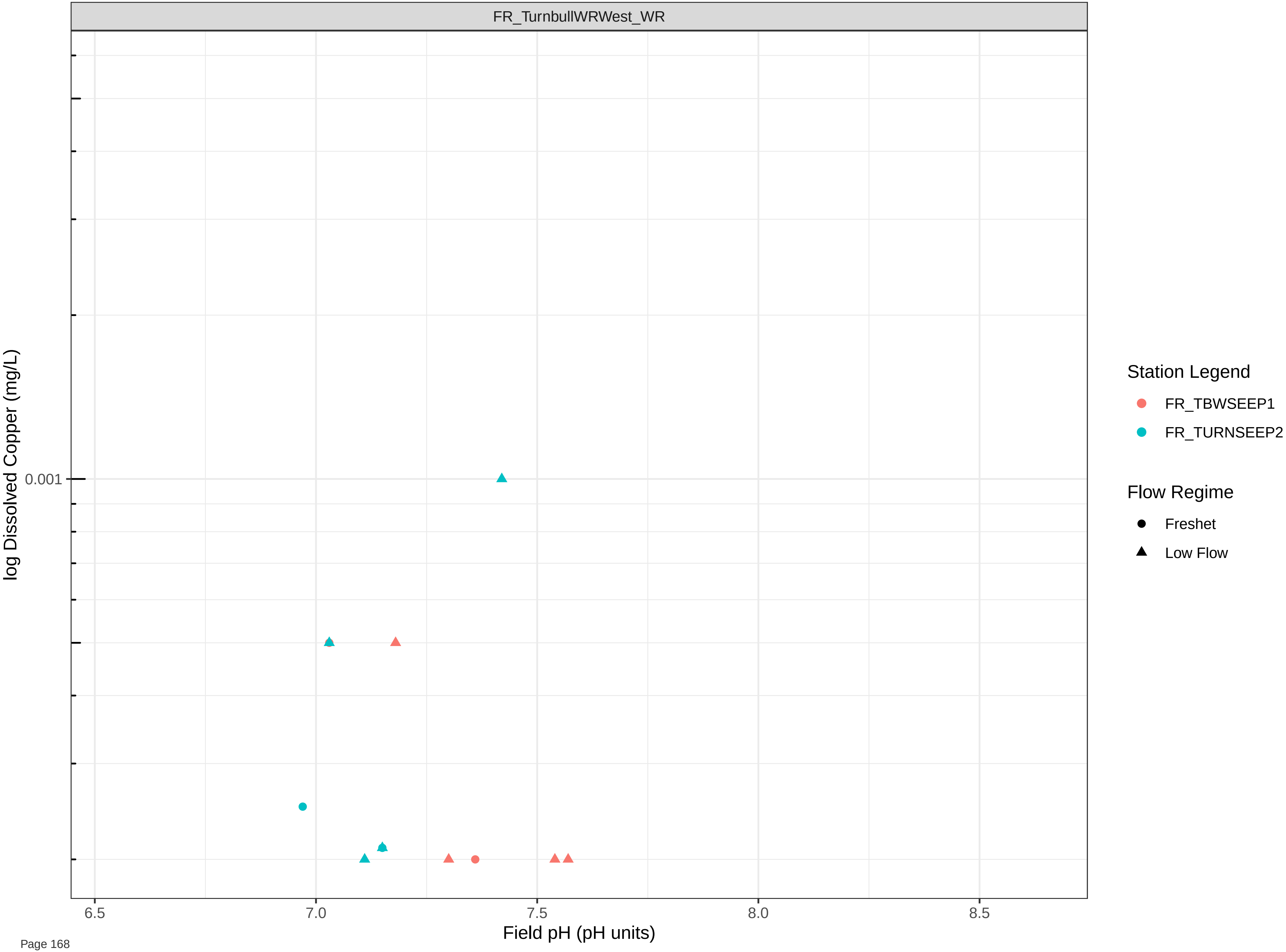

FR_Shandley_WR
log Dissolved Copper (mg/L)
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

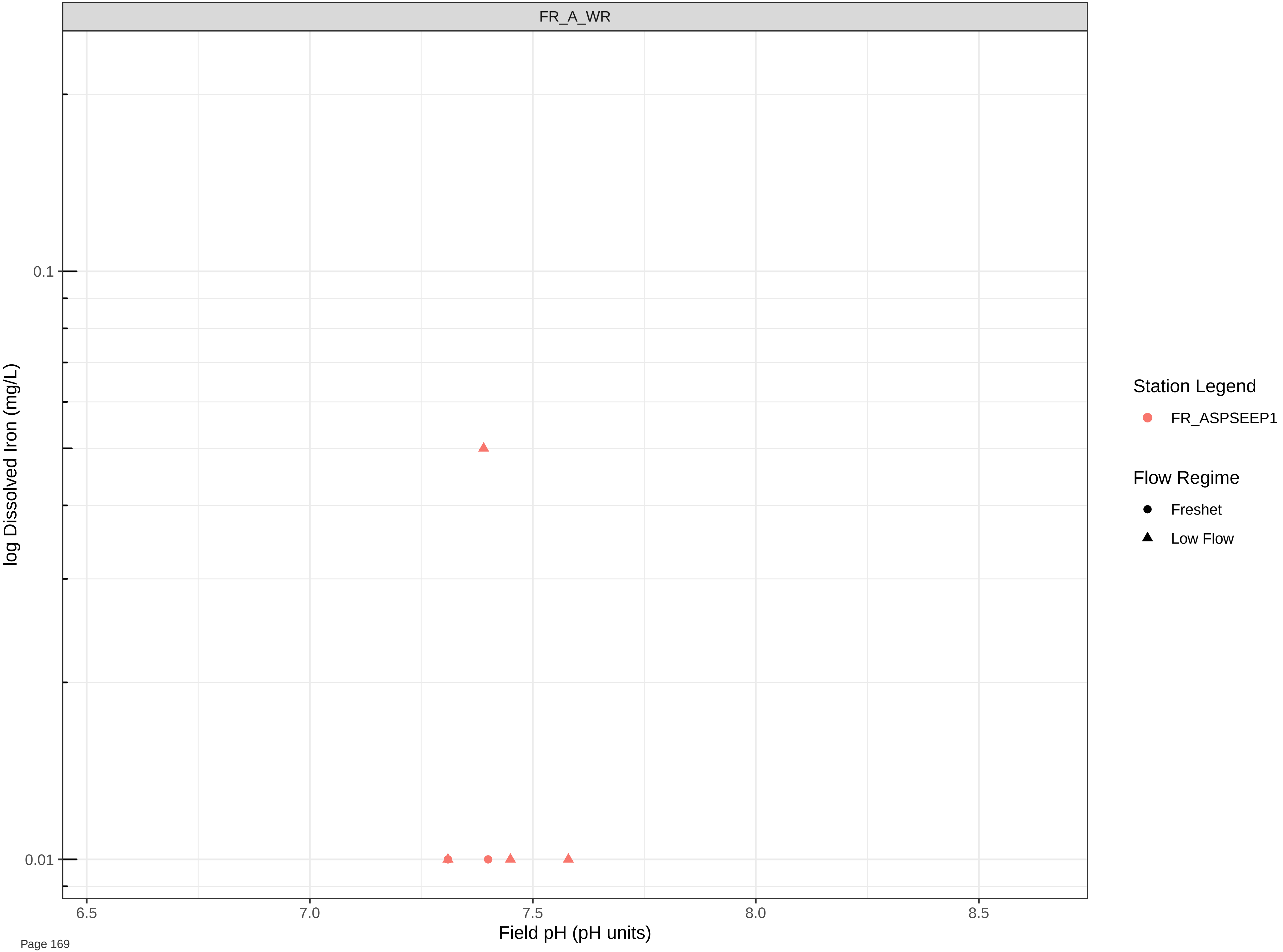

FR_Smith_WR
log Dissolved Copper (mg/L)
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow


FR_SouthTails_Tailings
log Dissolved Copper (mg/L)
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow


FR_SwiftWR_RockDrain_WR
log Dissolved Copper (mg/L)
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWREast_WR
log Dissolved Copper (mg/L)
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWRWest_WR
log Dissolved Copper (mg/L)
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_TBWSEEP1
● FR_TURNSEEP2
Flow Regime
● Freshet
▲ Low Flow


FR_A_WR
0.1
0.01
log Dissolved Iron (mg/L)
6.5
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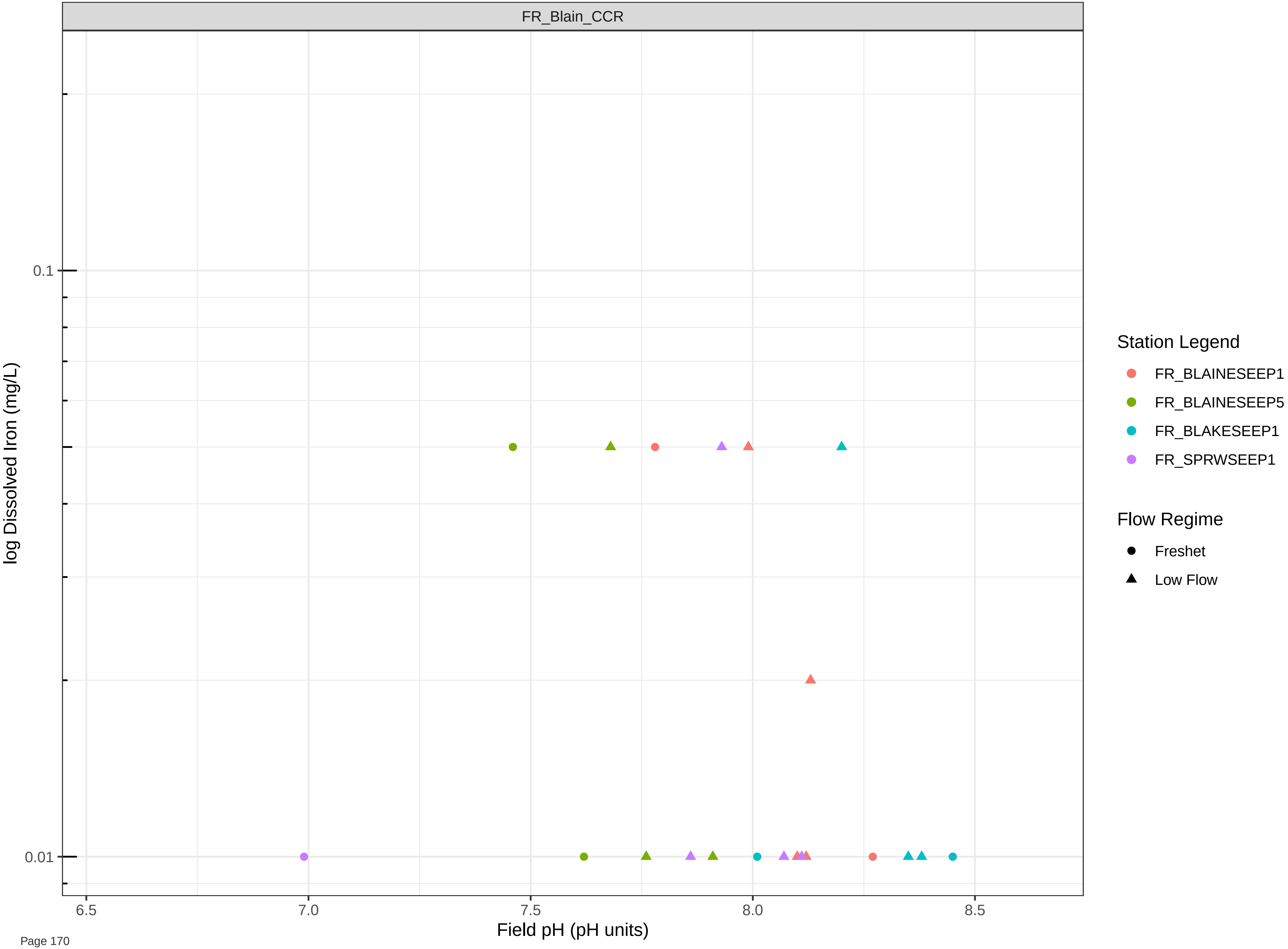
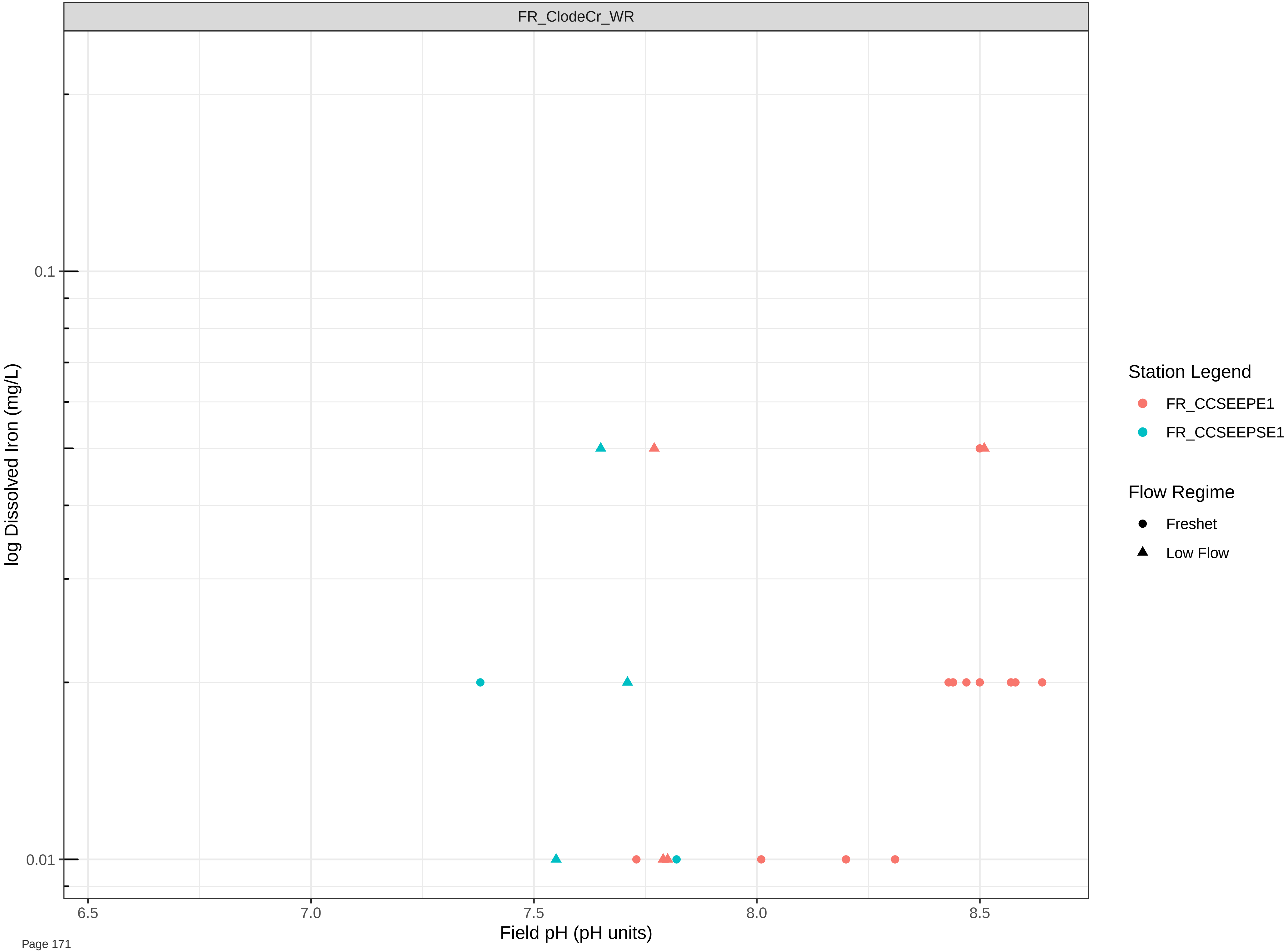
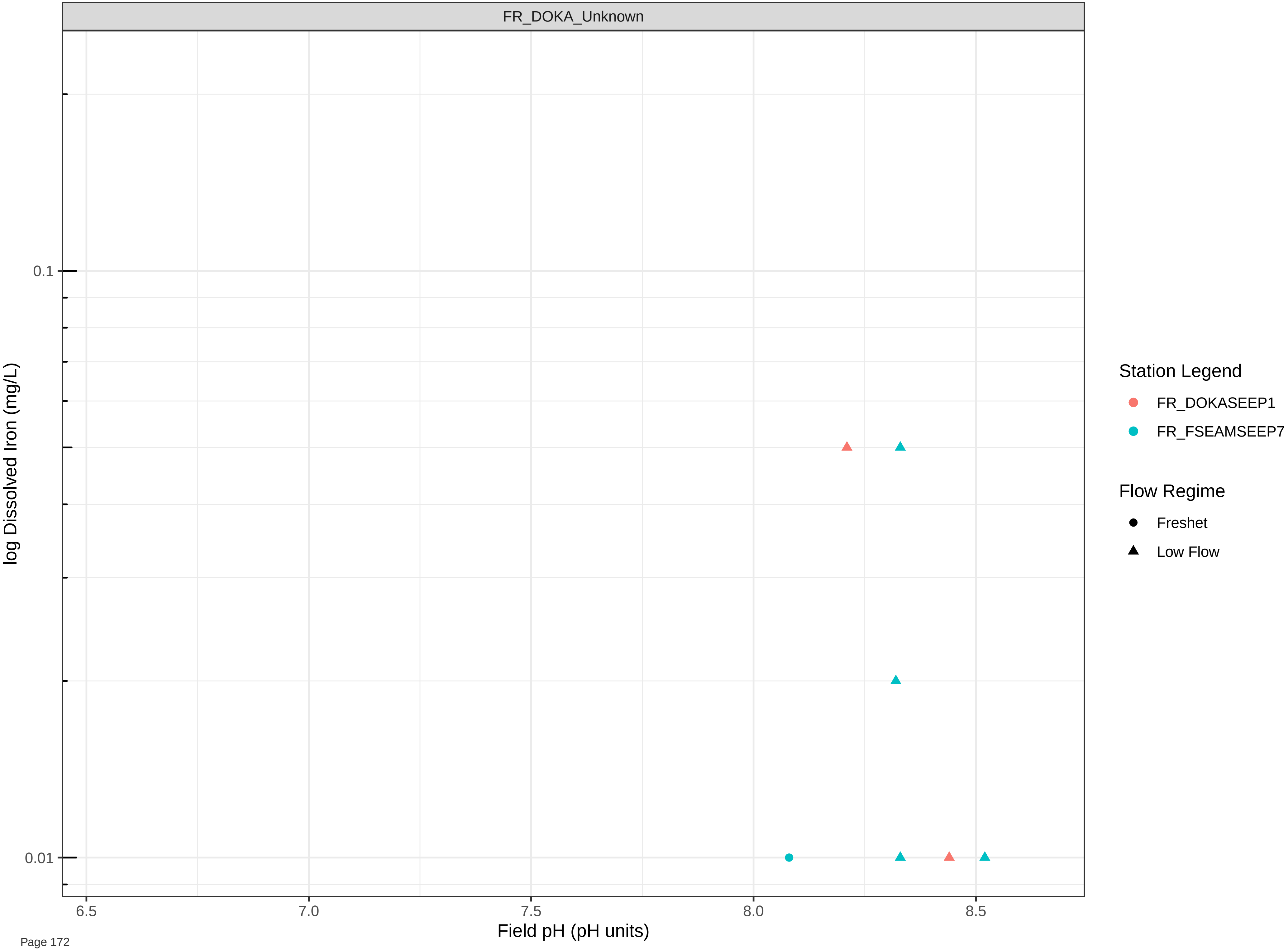
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow


FR_Blain_CCR
log Dissolved Iron (mg/L)
0.1
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow


FR_ClodeCr_WR
log Dissolved Iron (mg/L)
0.1
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow


FR_DOKA_Unknown
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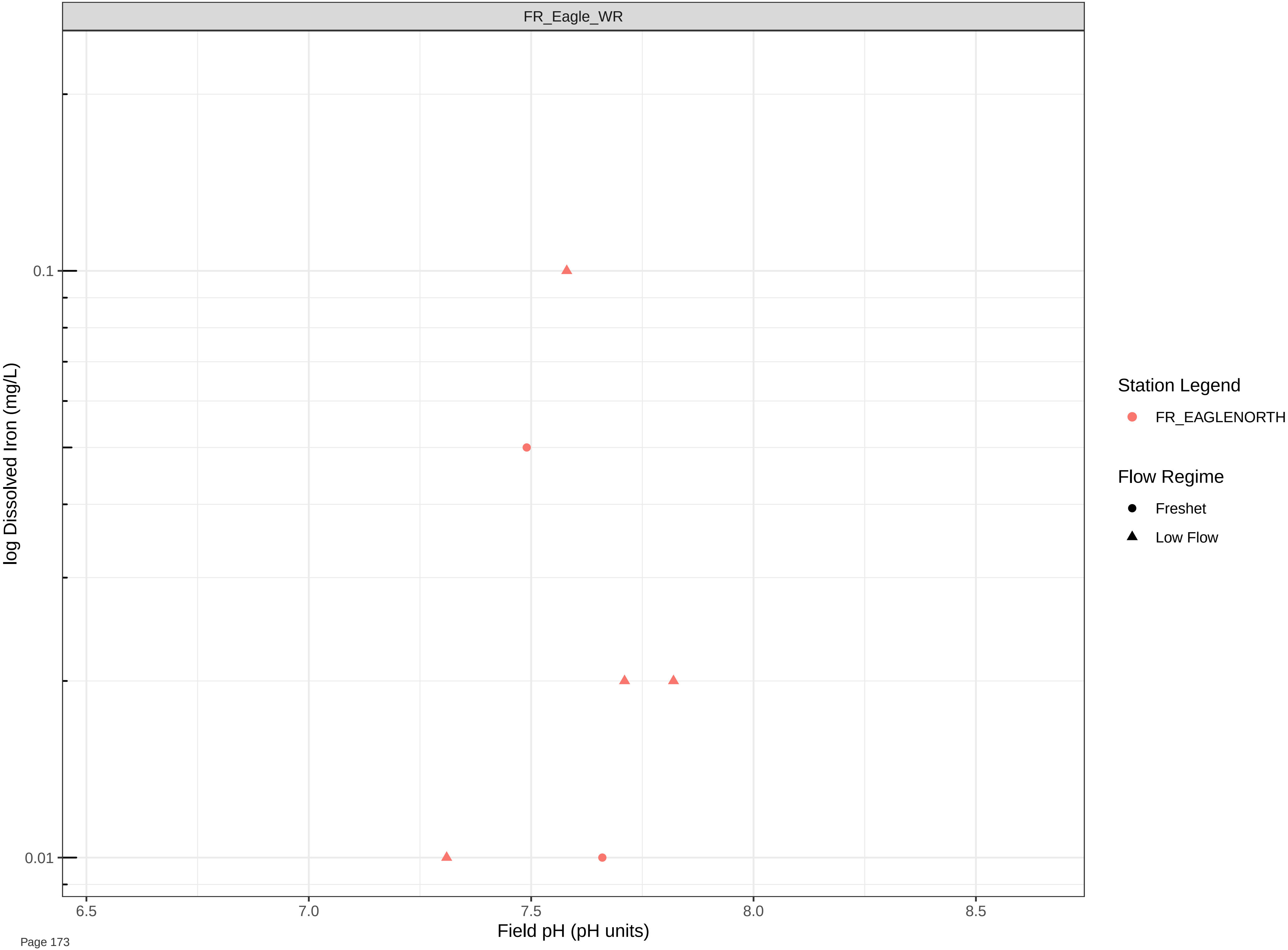
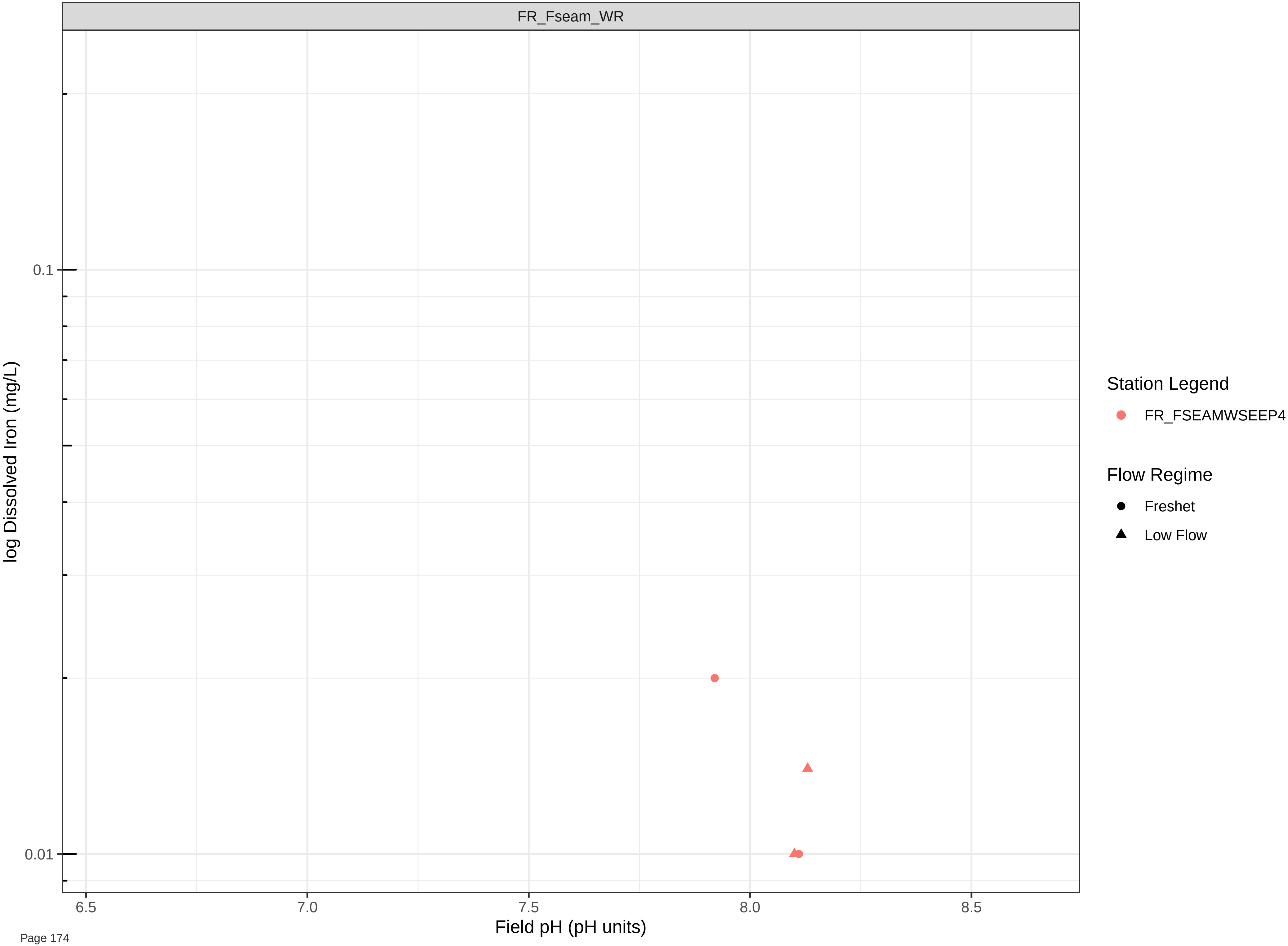
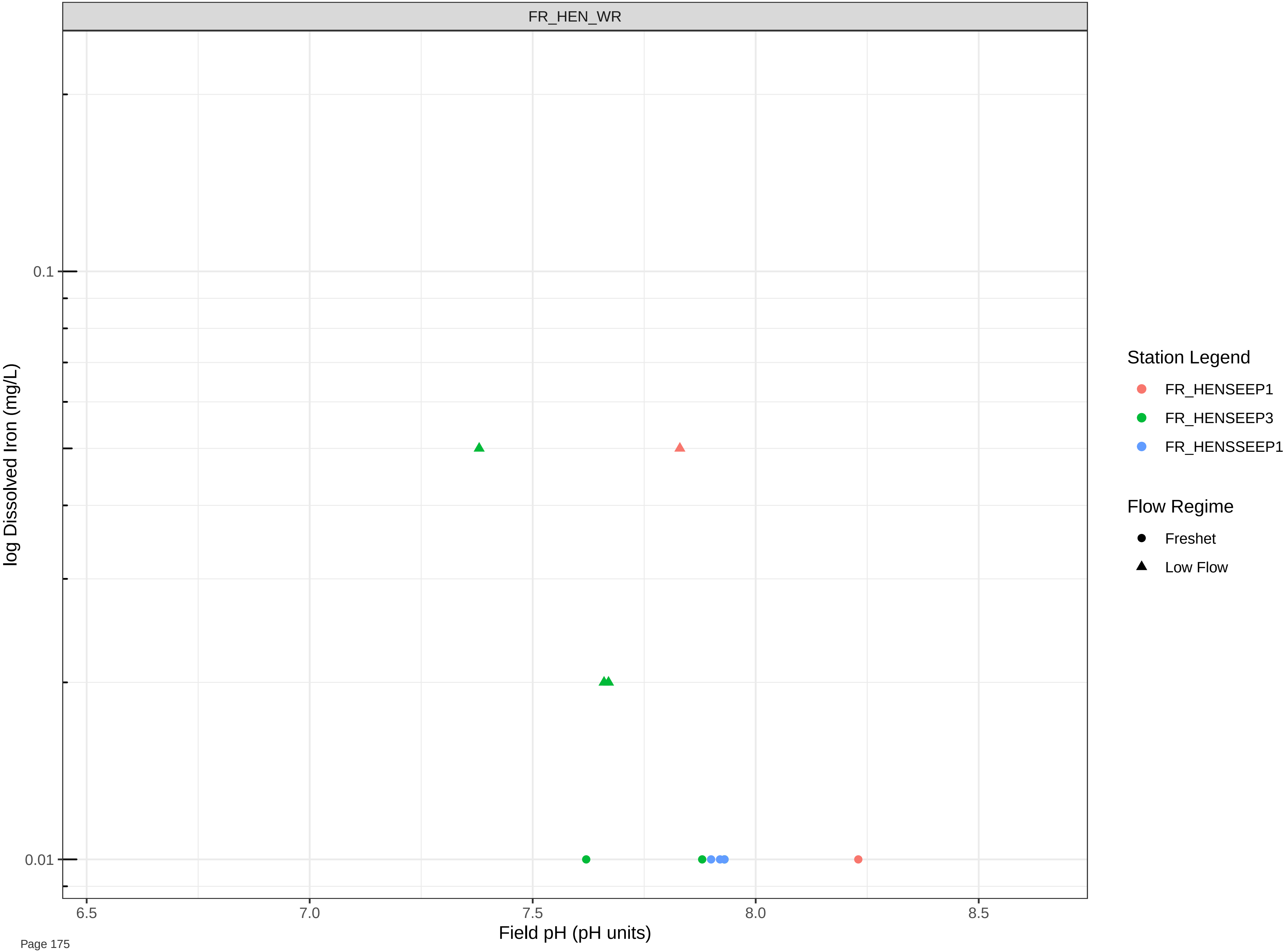
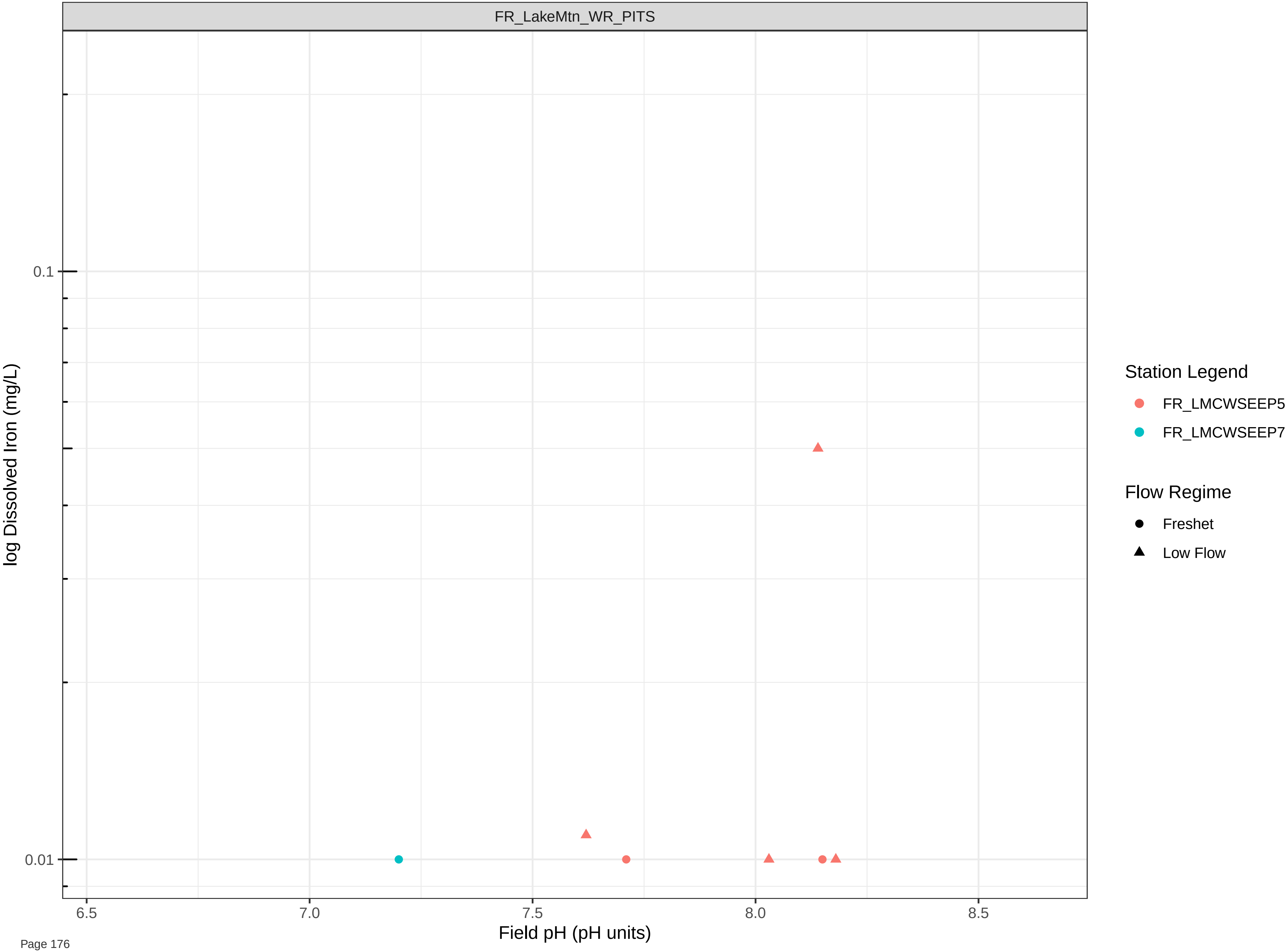
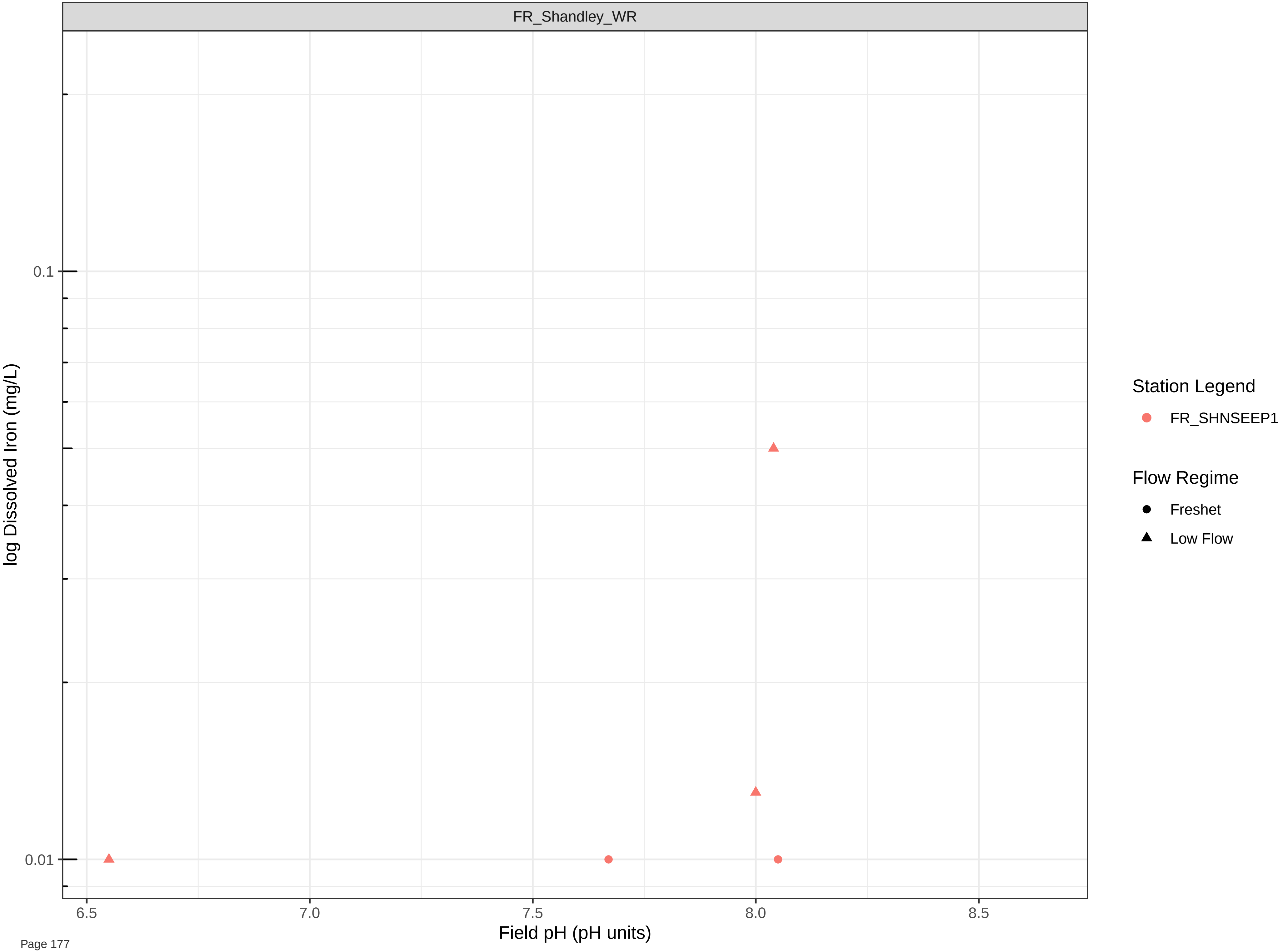
0.01
log Dissolved Iron (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

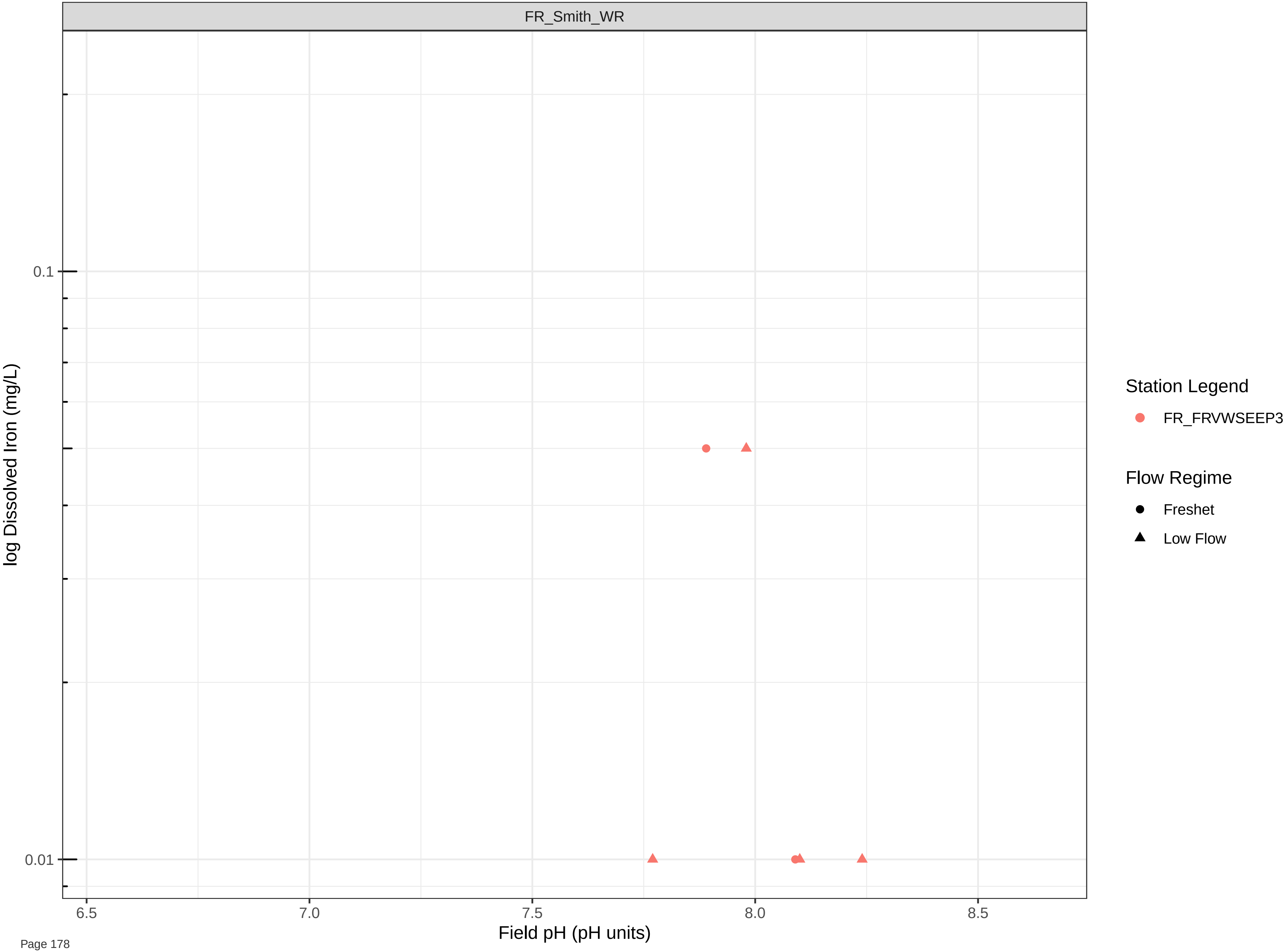

FR_Eagle_WR
log Dissolved Iron (mg/L)
0.1
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

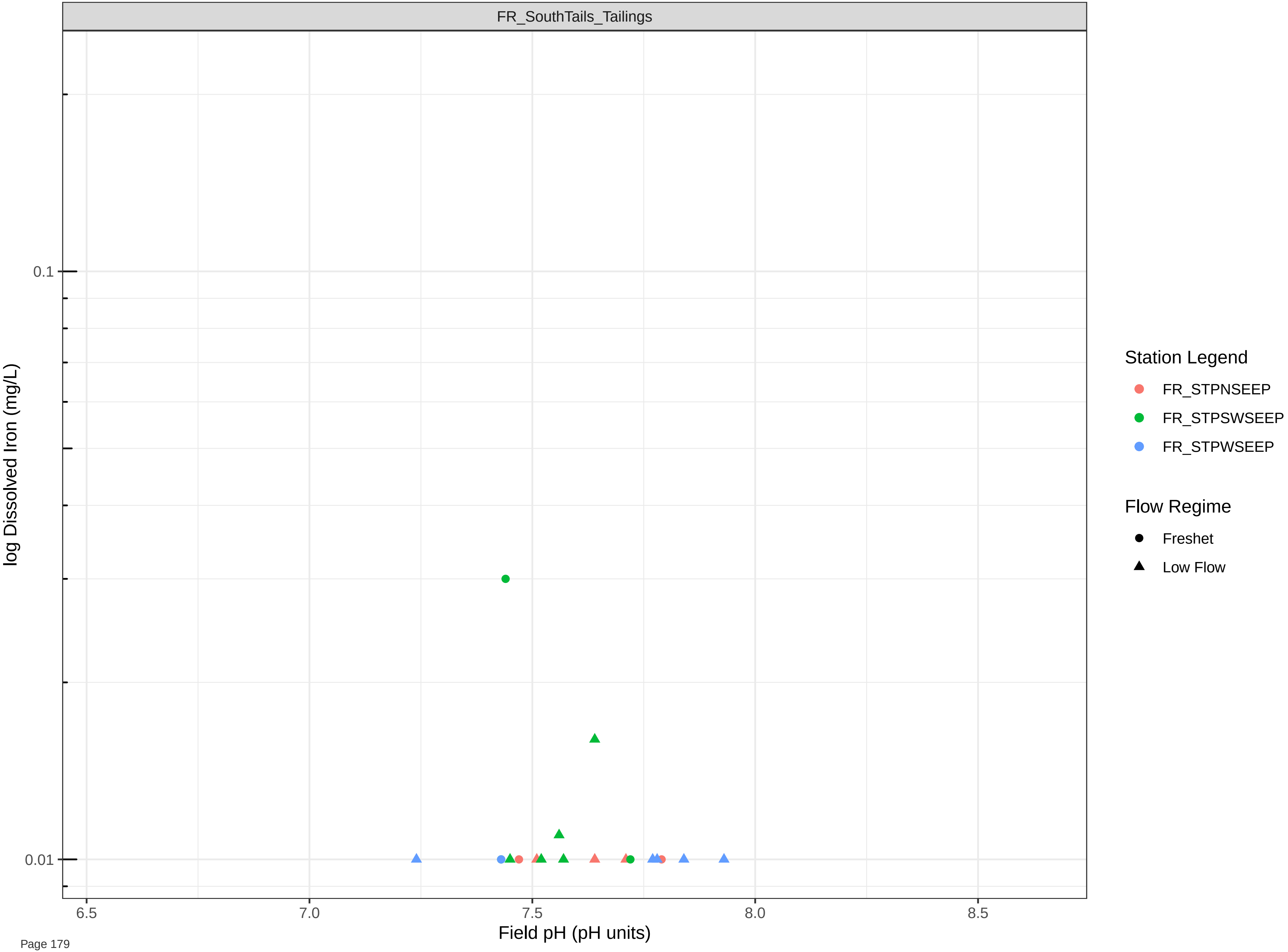

FR_Fseam_WR
log Dissolved Iron (mg/L)
0.1
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

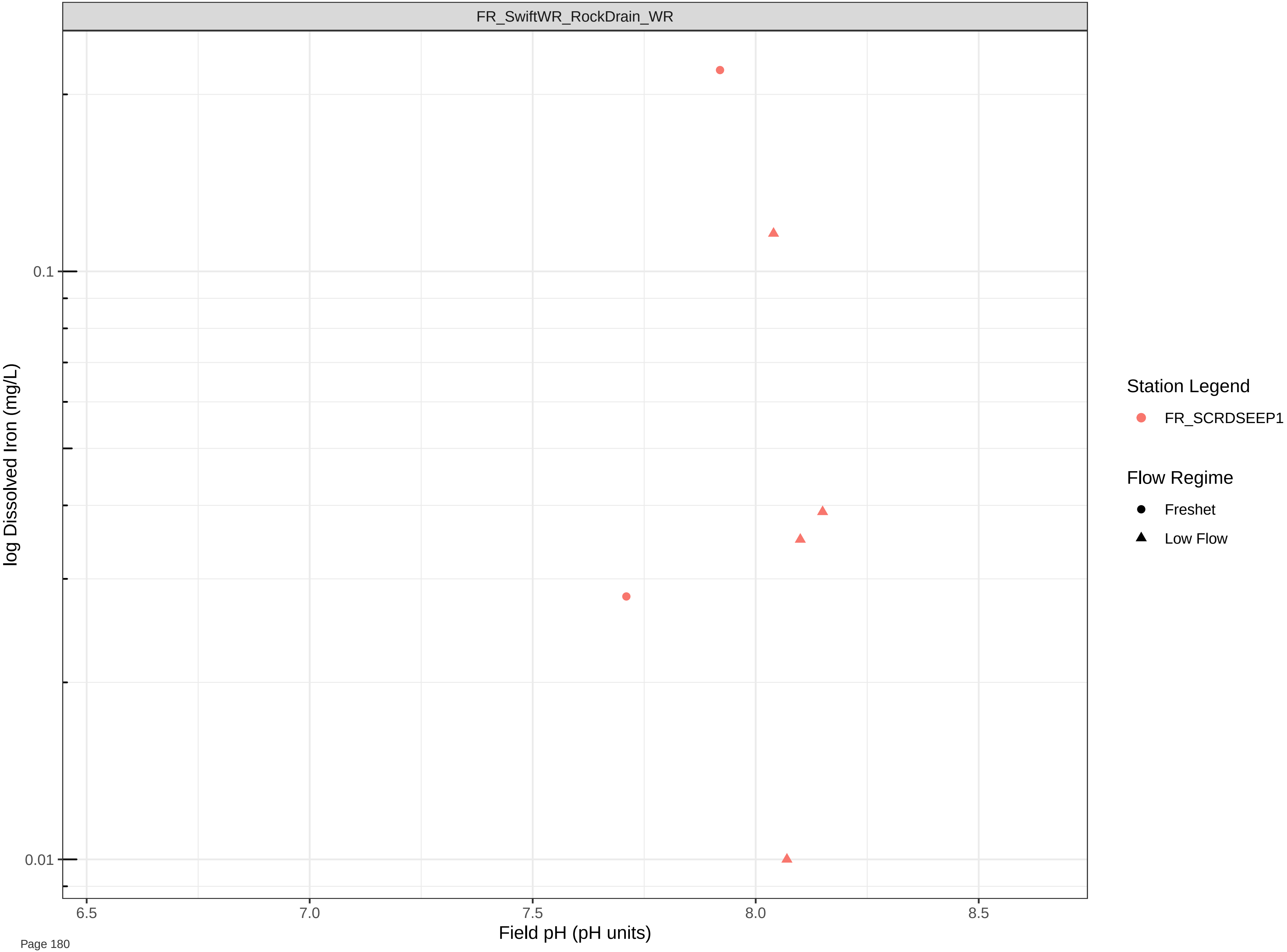

FR_HEN_WR
0.1
0.01
log Dissolved Iron (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

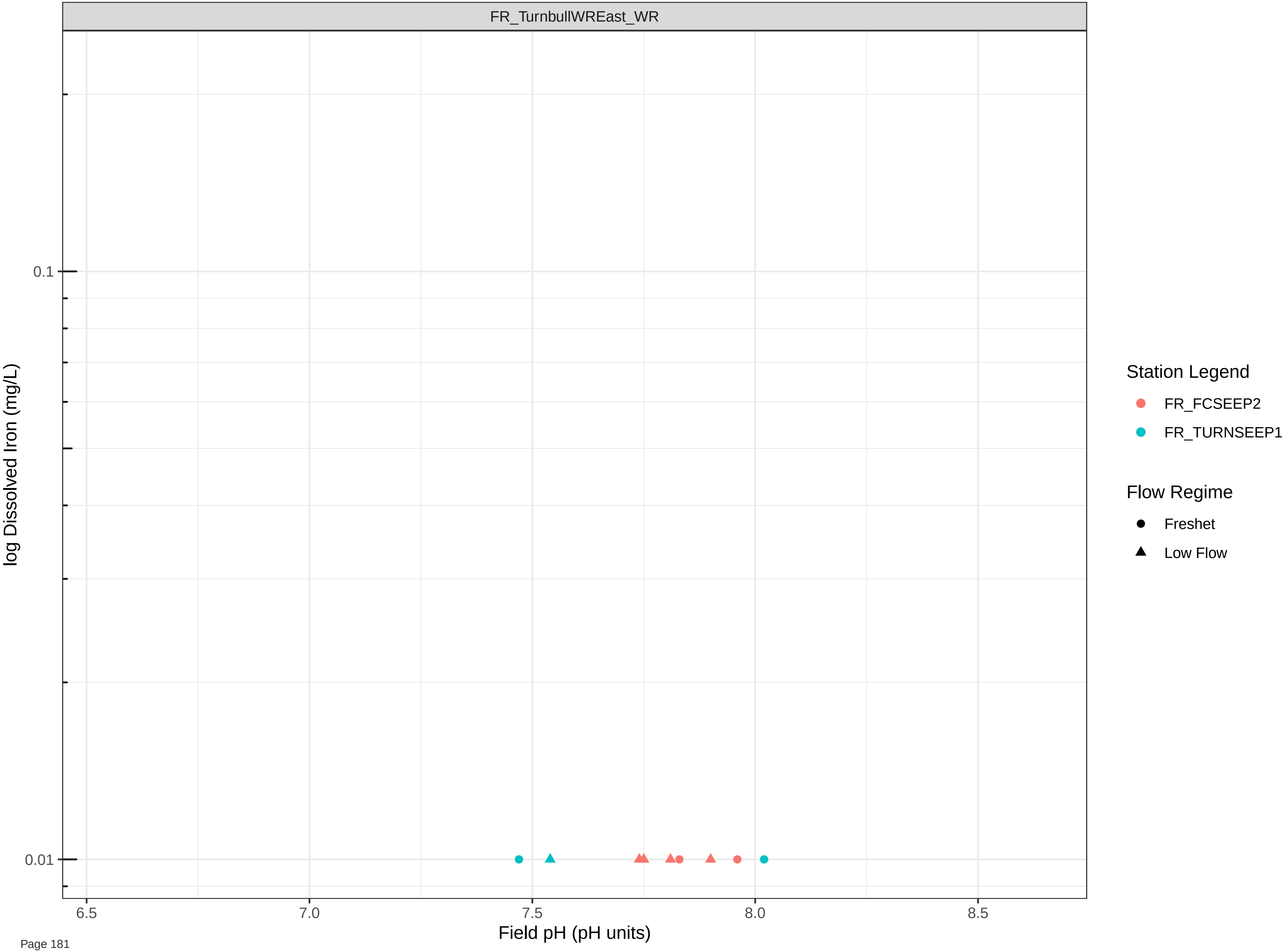

FR_LakeMtn_WR_PITS
log Dissolved Iron (mg/L)
0.1
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

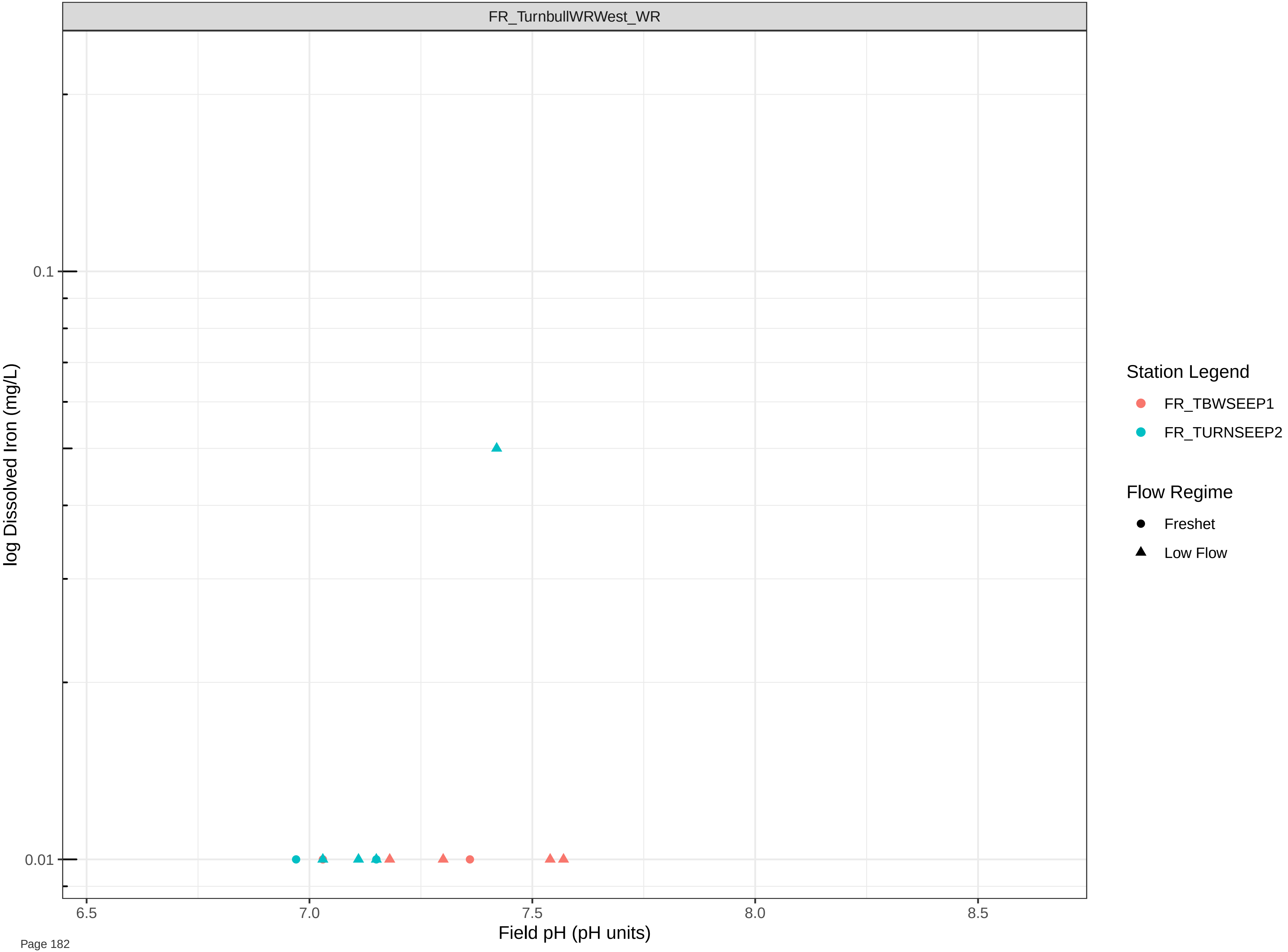

FR_Shandley_WR
log Dissolved Iron (mg/L)
0.1
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

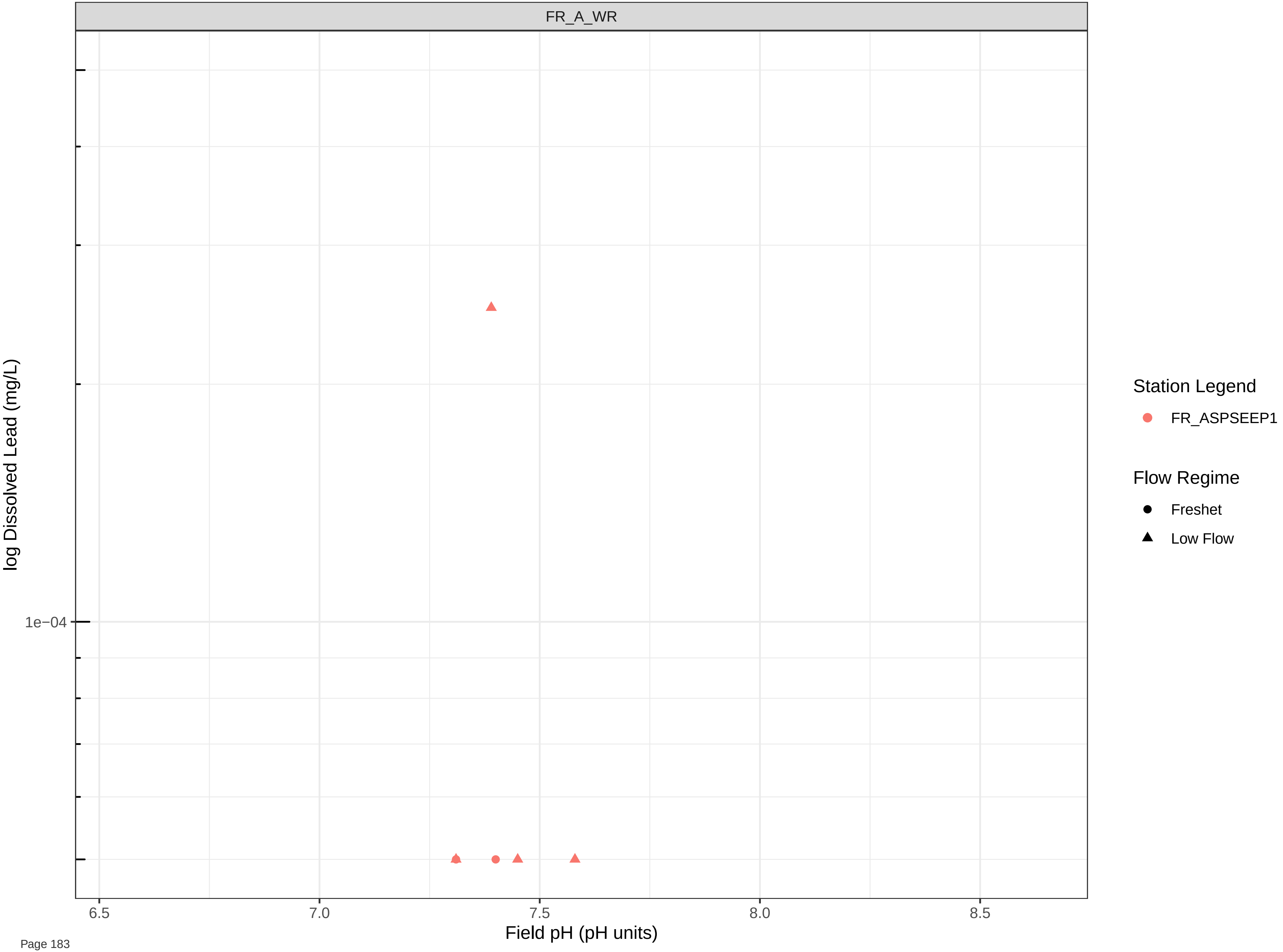

FR_Smith_WR
log Dissolved Iron (mg/L)
0.1
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

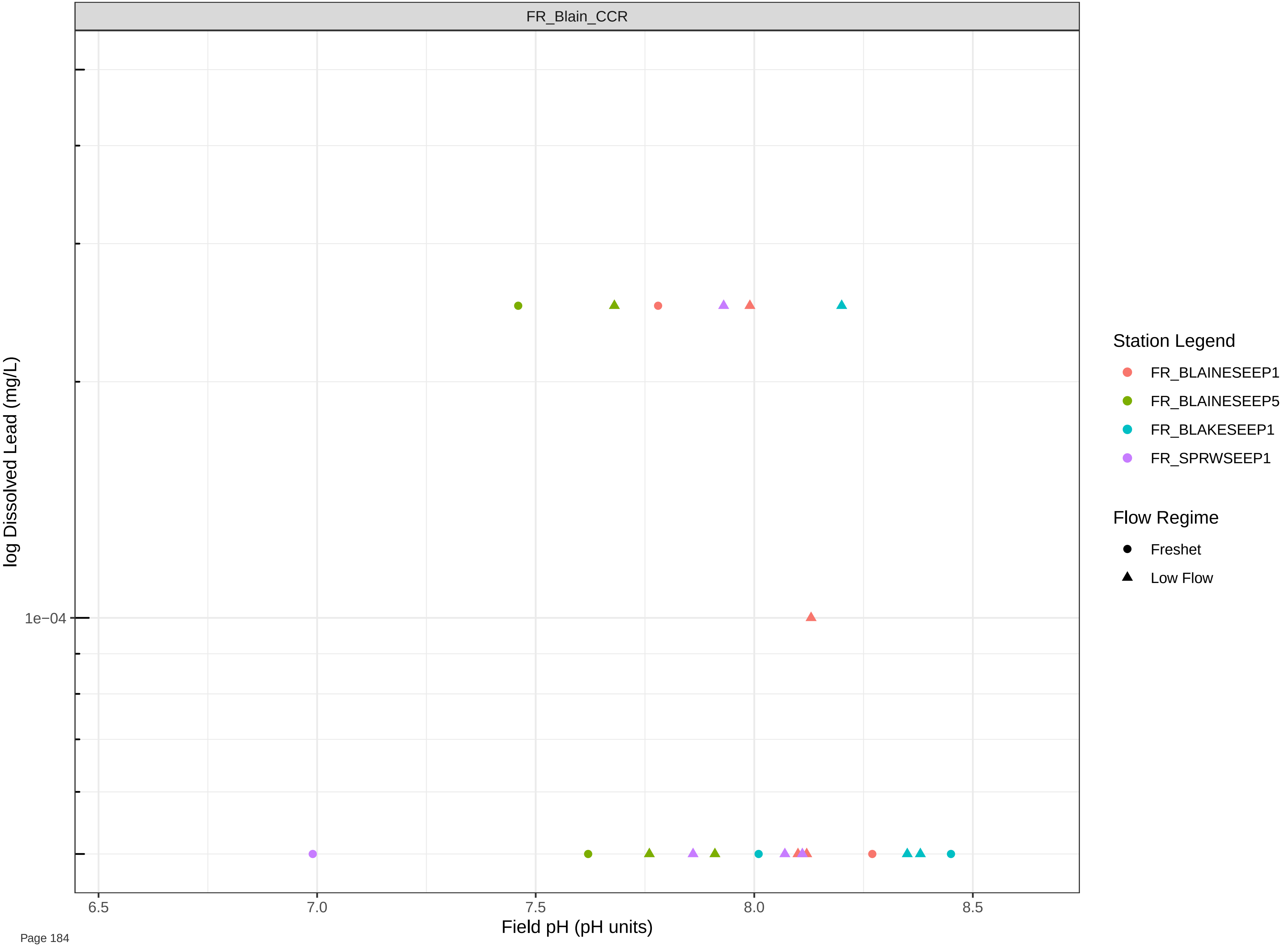

FR_SouthTails_Tailings
log Dissolved Iron (mg/L)
0.1
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

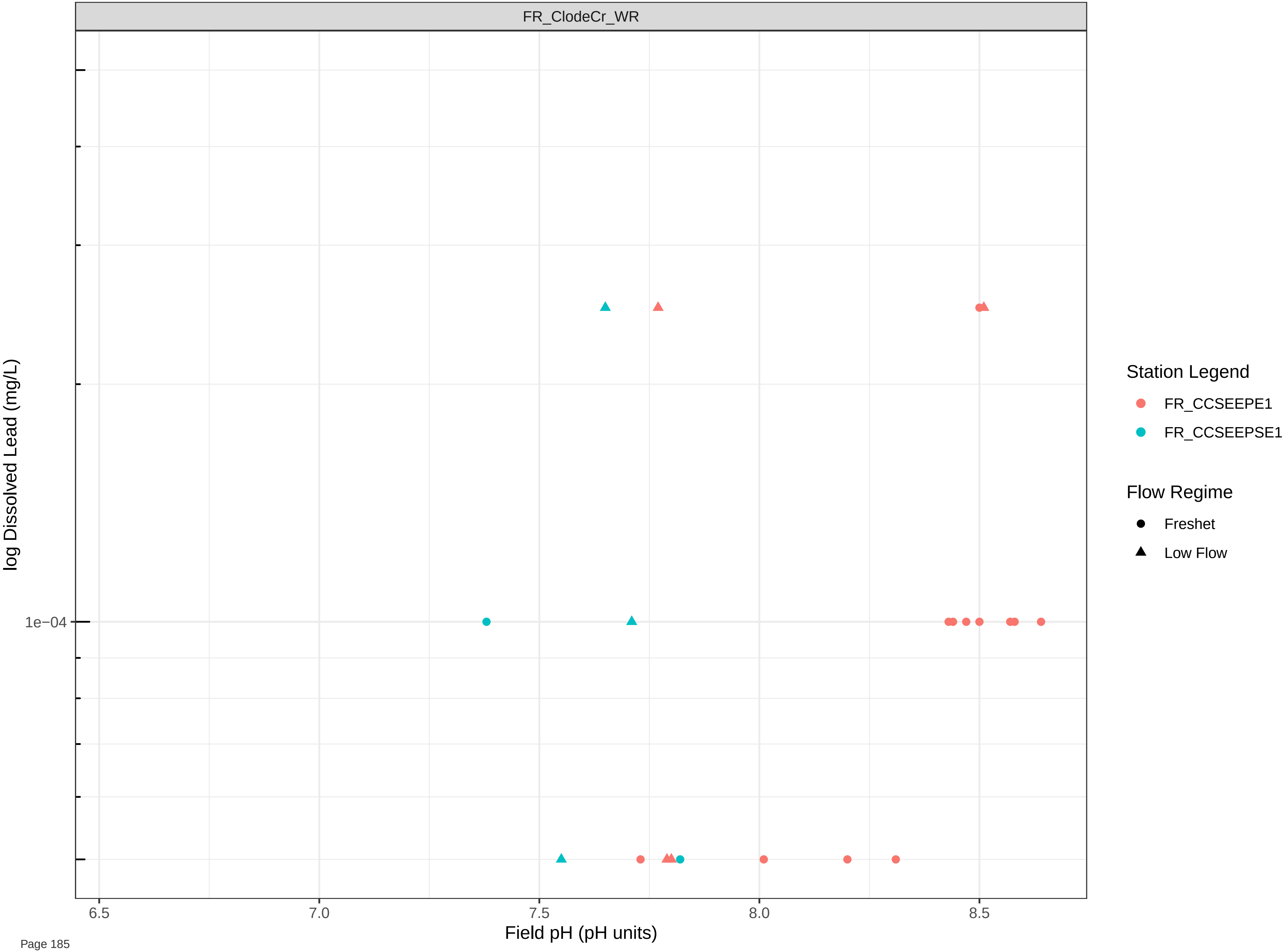

FR_SwiftWR_RockDrain_WR
log Dissolved Iron (mg/L)
0.1
0.01
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

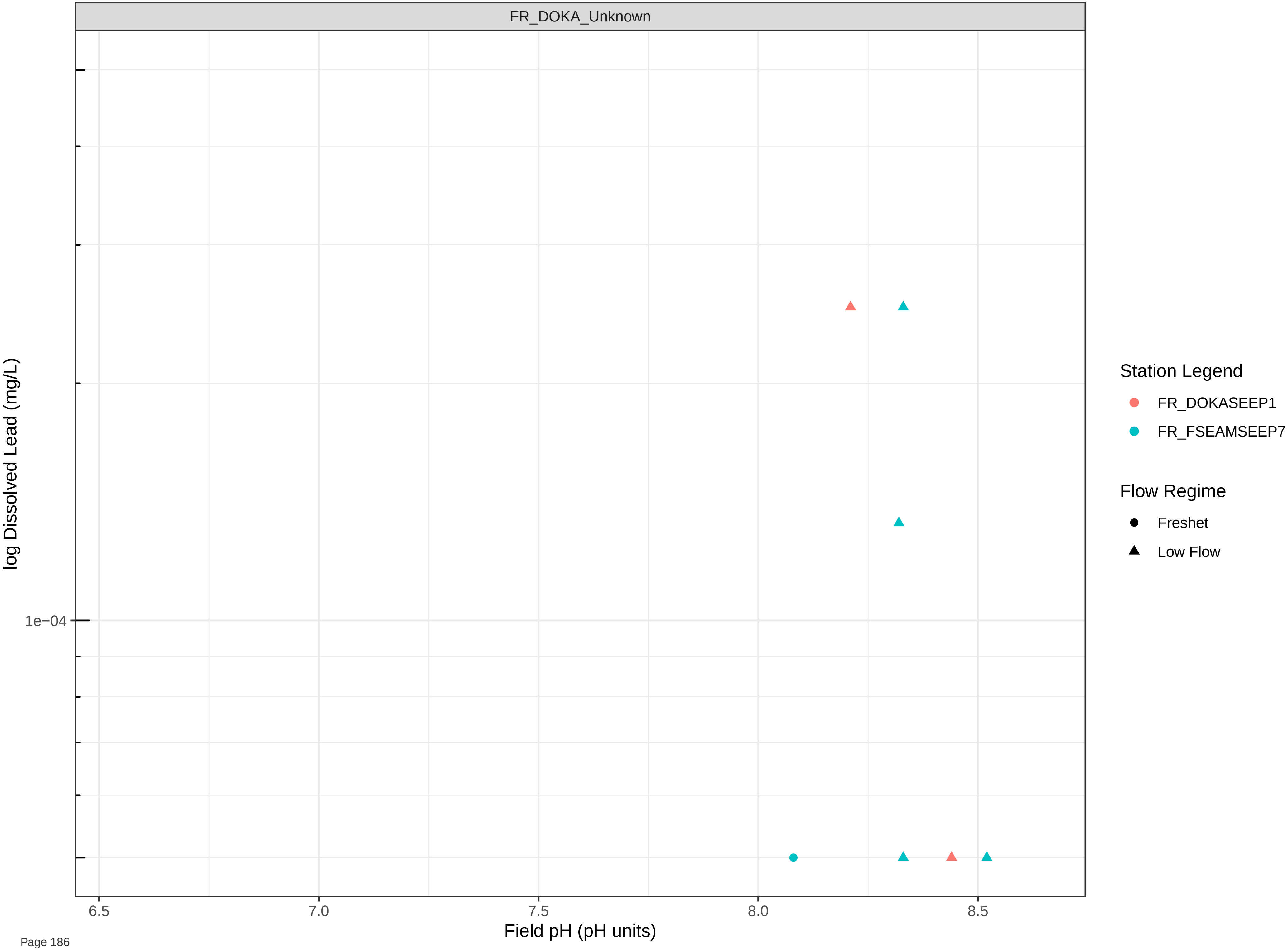

FR_TurnbullWREast_WR
log Dissolved Iron (mg/L)
0.1
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

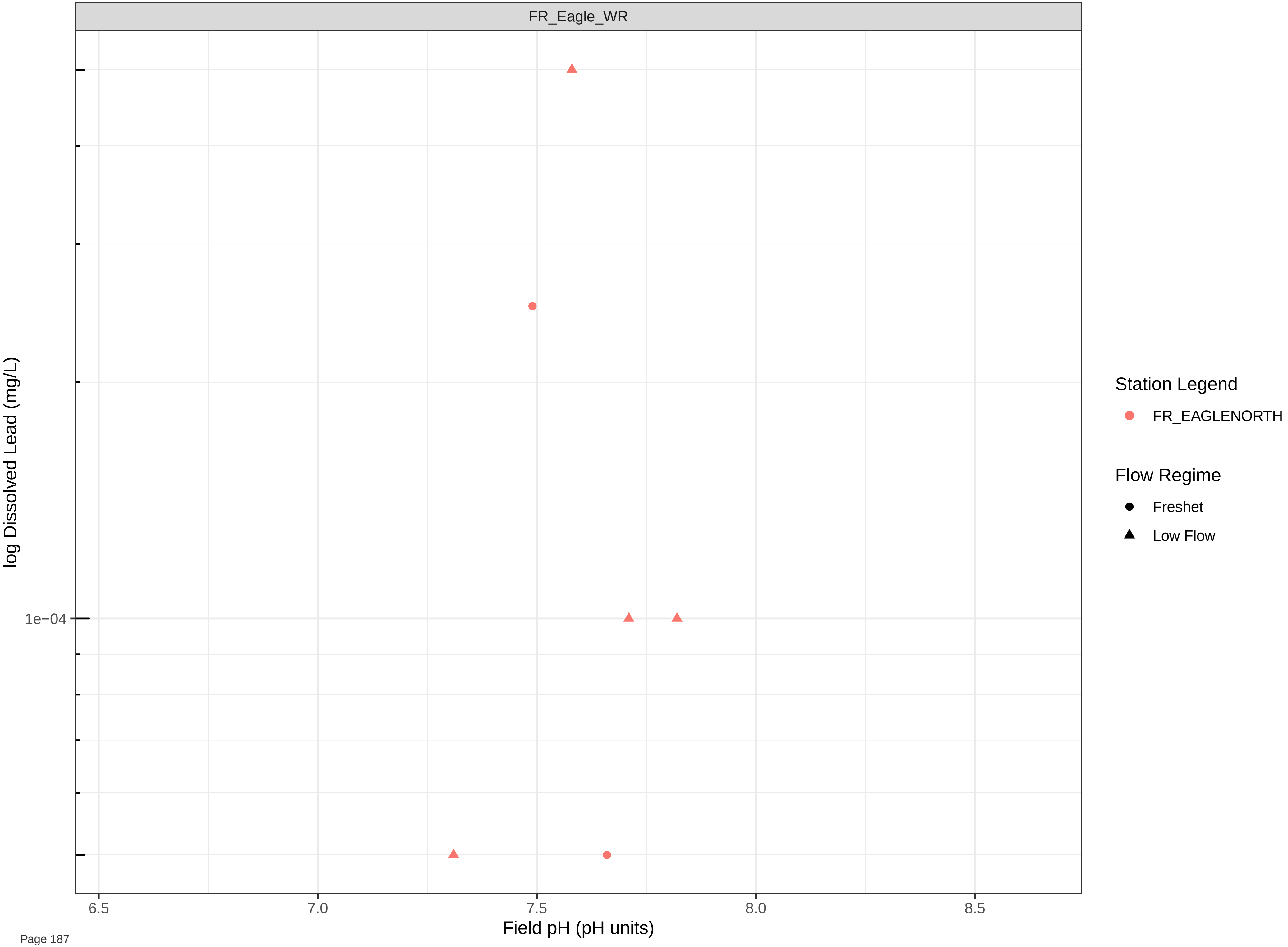

FR_TurnbullWRWest_WR
log Dissolved Iron (mg/L)
0.1
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

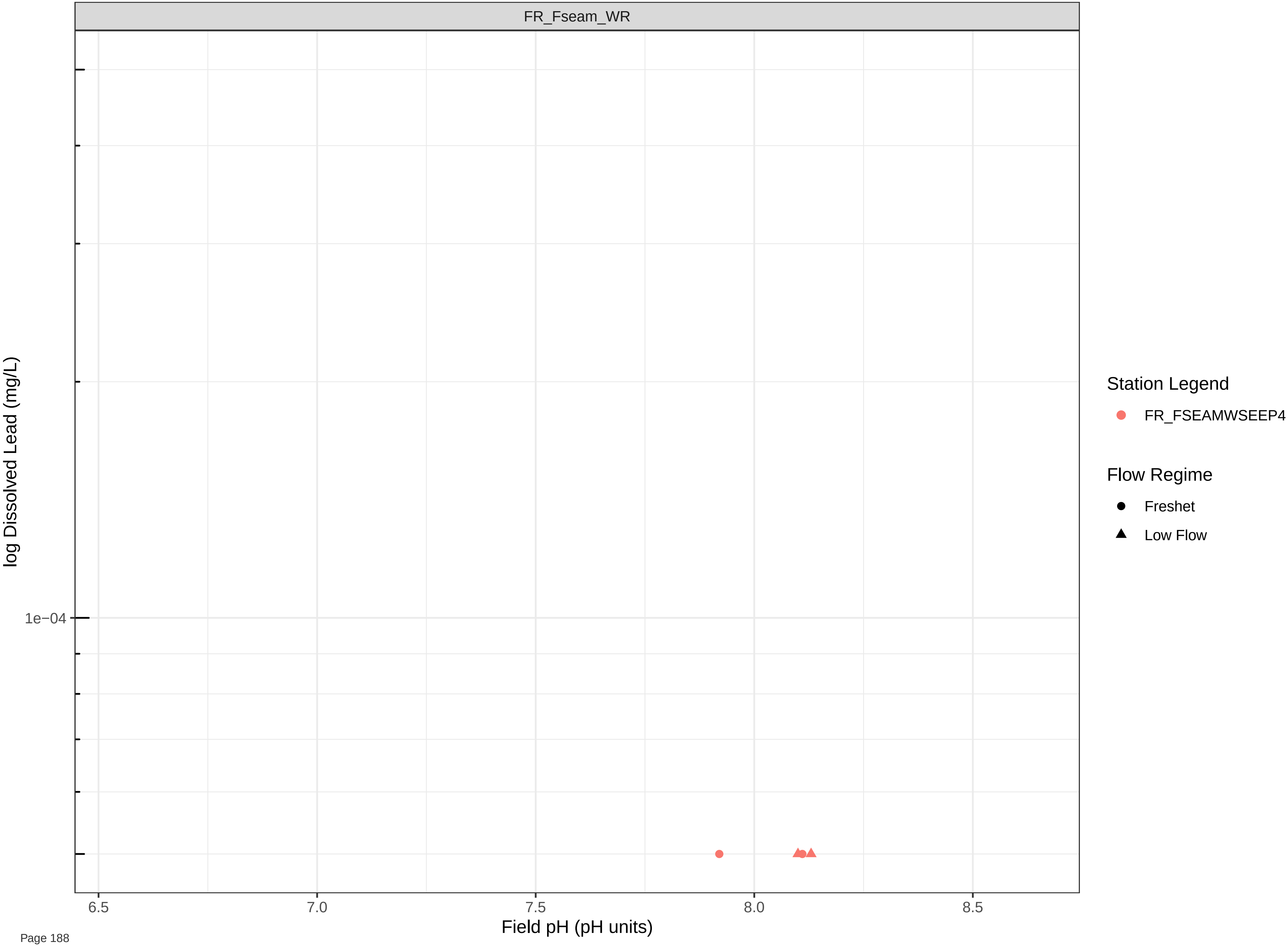

FR_A_WR
1e−04
log Dissolved Lead (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

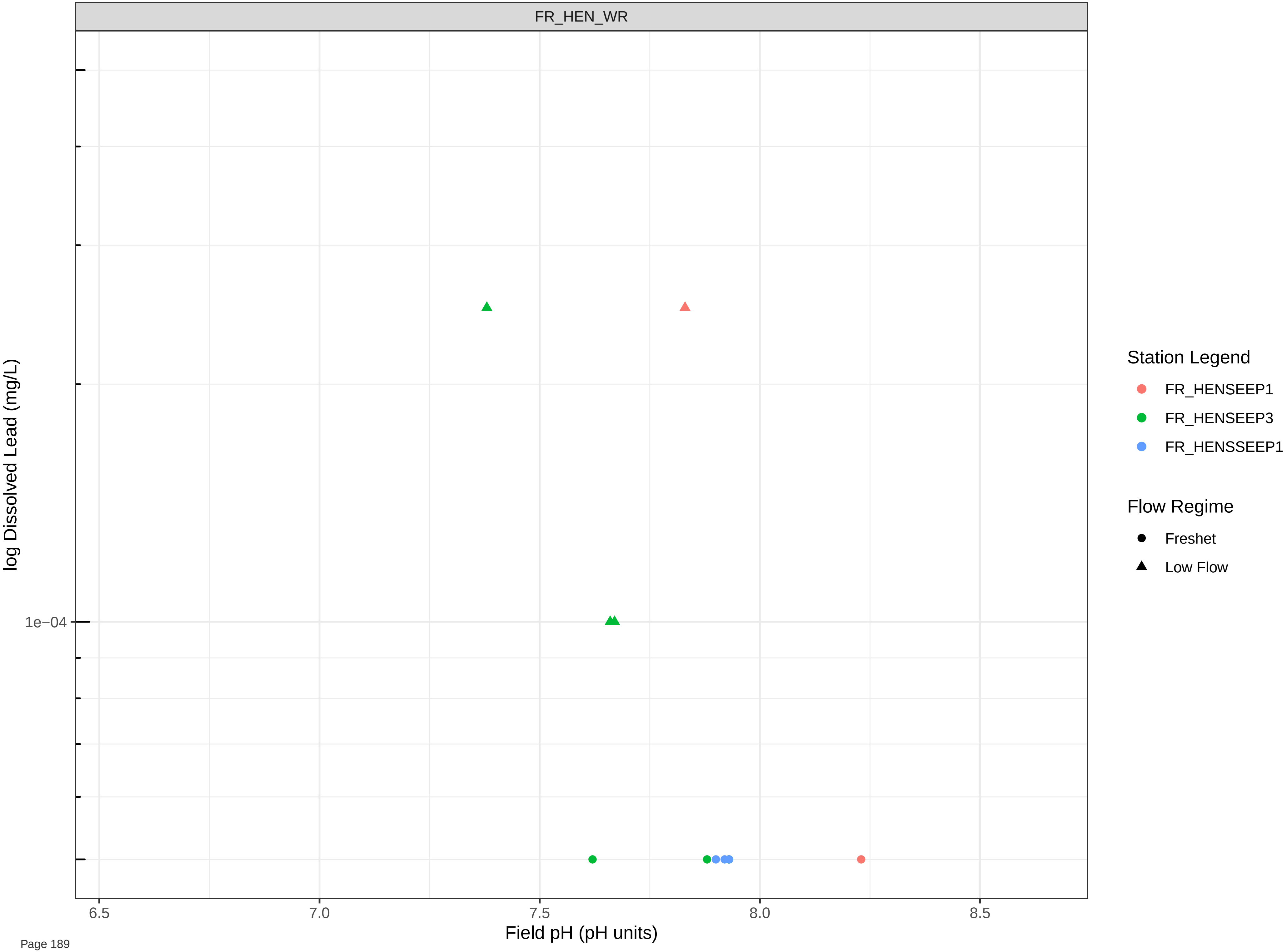

FR_Blain_CCR
log Dissolved Lead (mg/L)
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

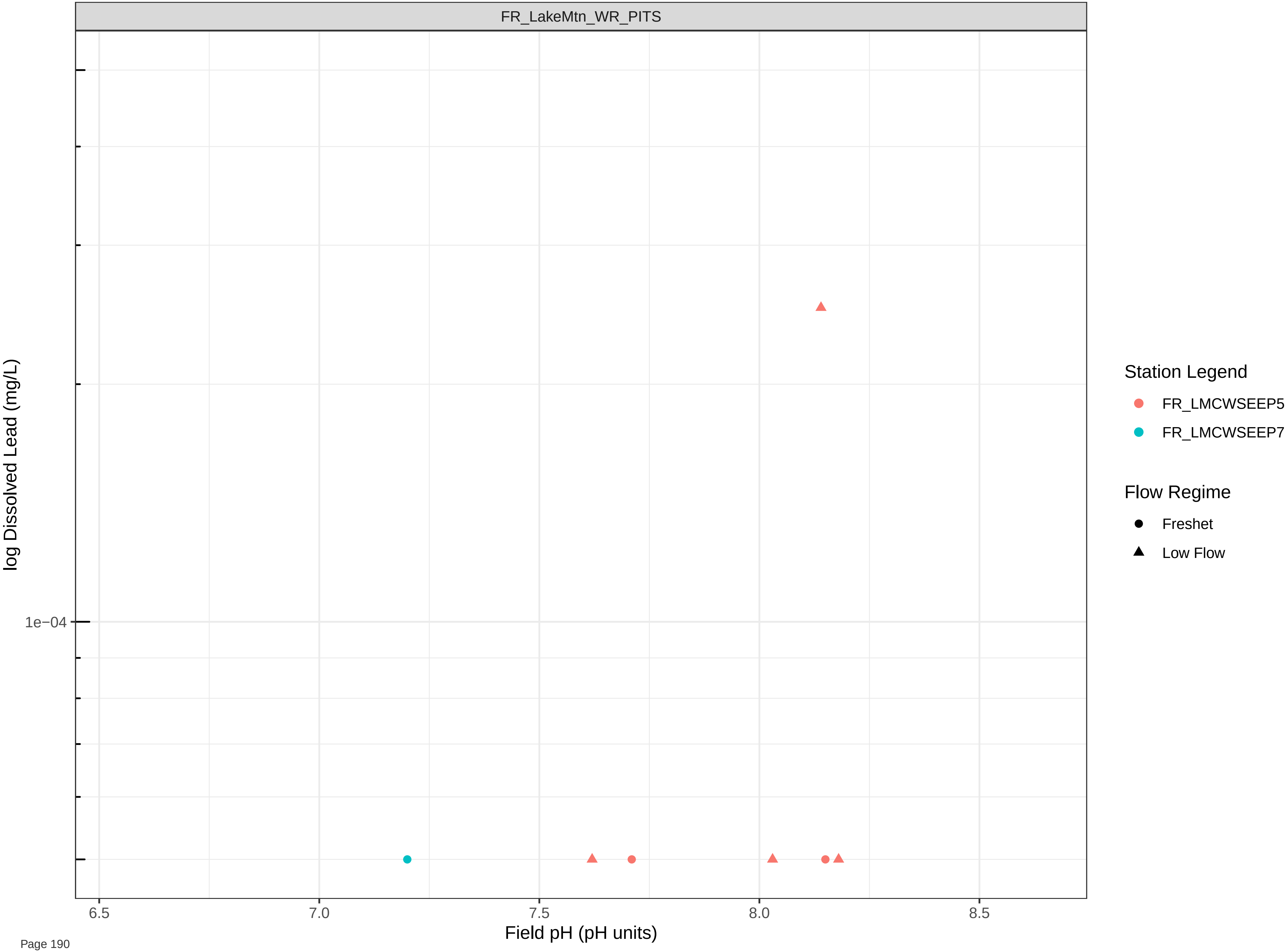

FR_ClodeCr_WR
log Dissolved Lead (mg/L)
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

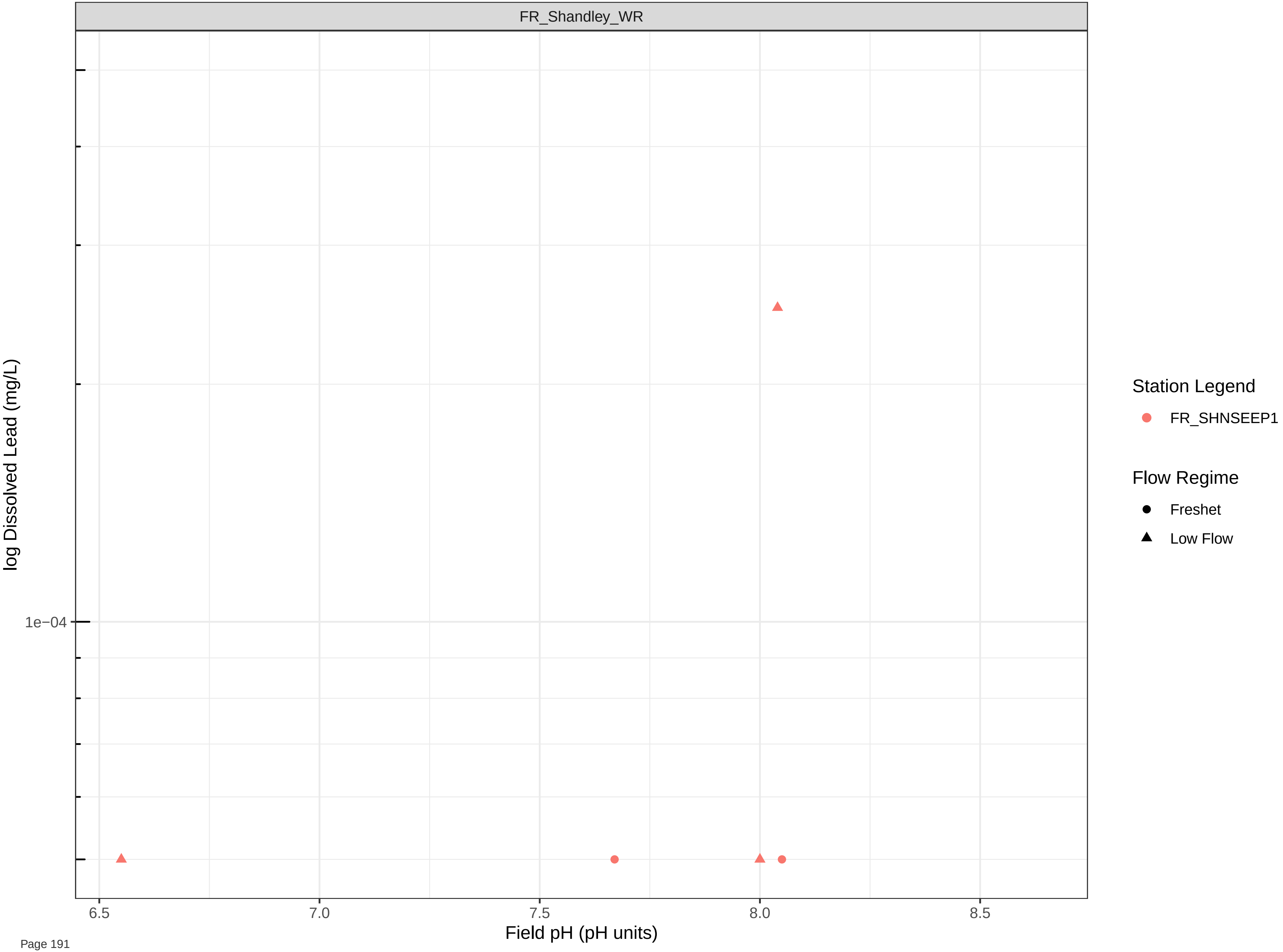

FR_DOKA_Unknown
log Dissolved Lead (mg/L)
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow

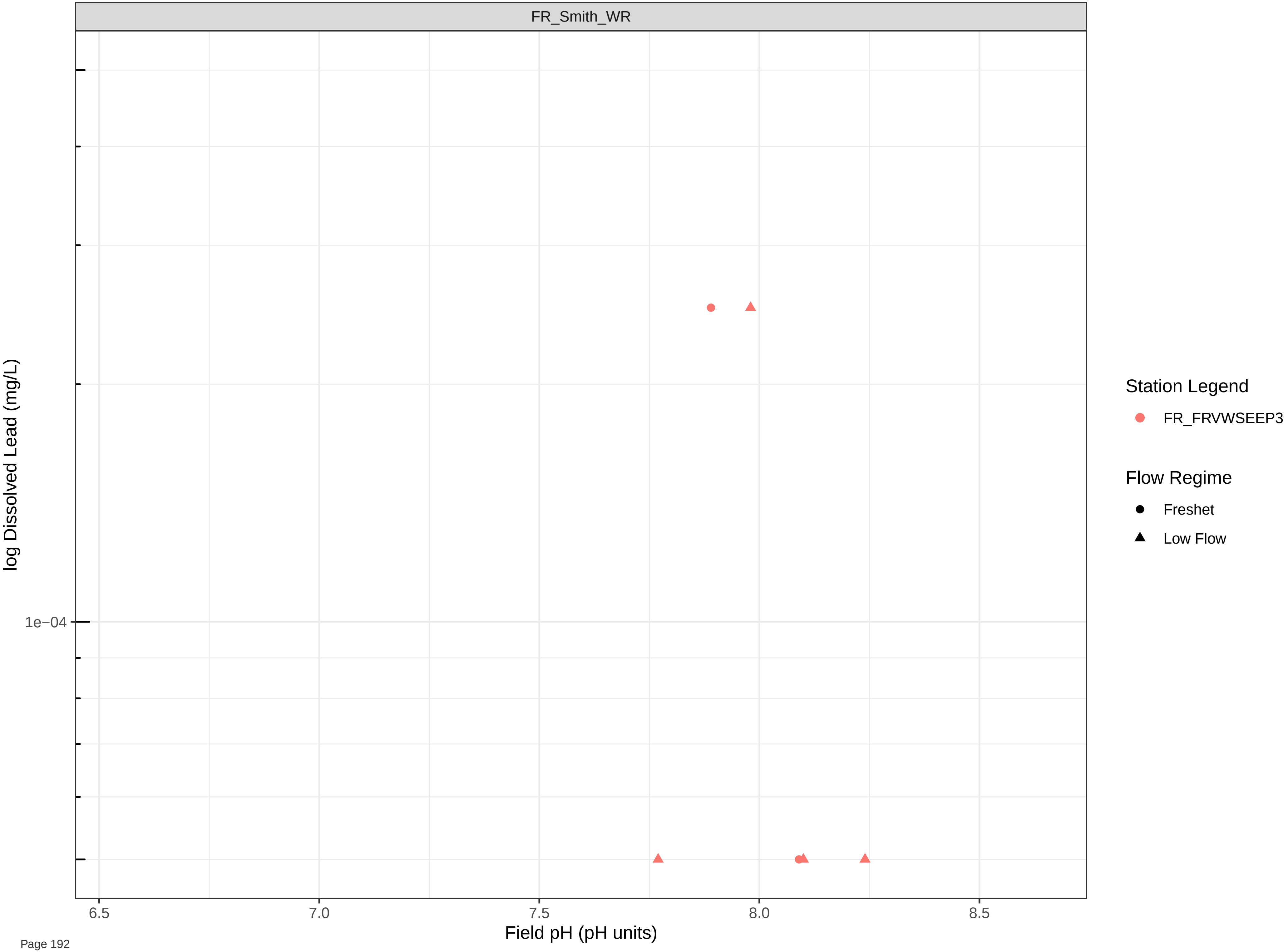

FR_Eagle_WR
log Dissolved Lead (mg/L)
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

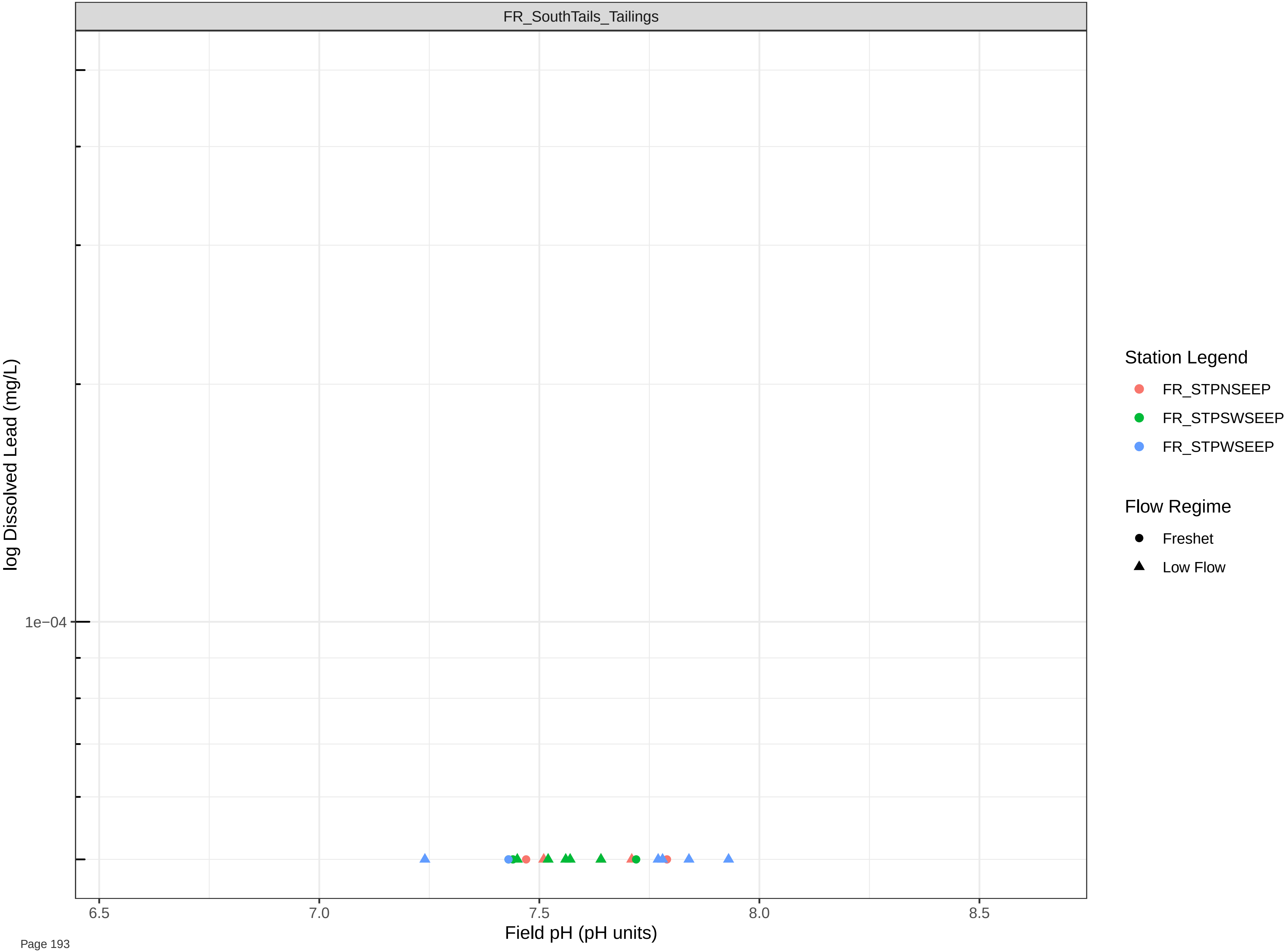

FR_Fseam_WR
log Dissolved Lead (mg/L)
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

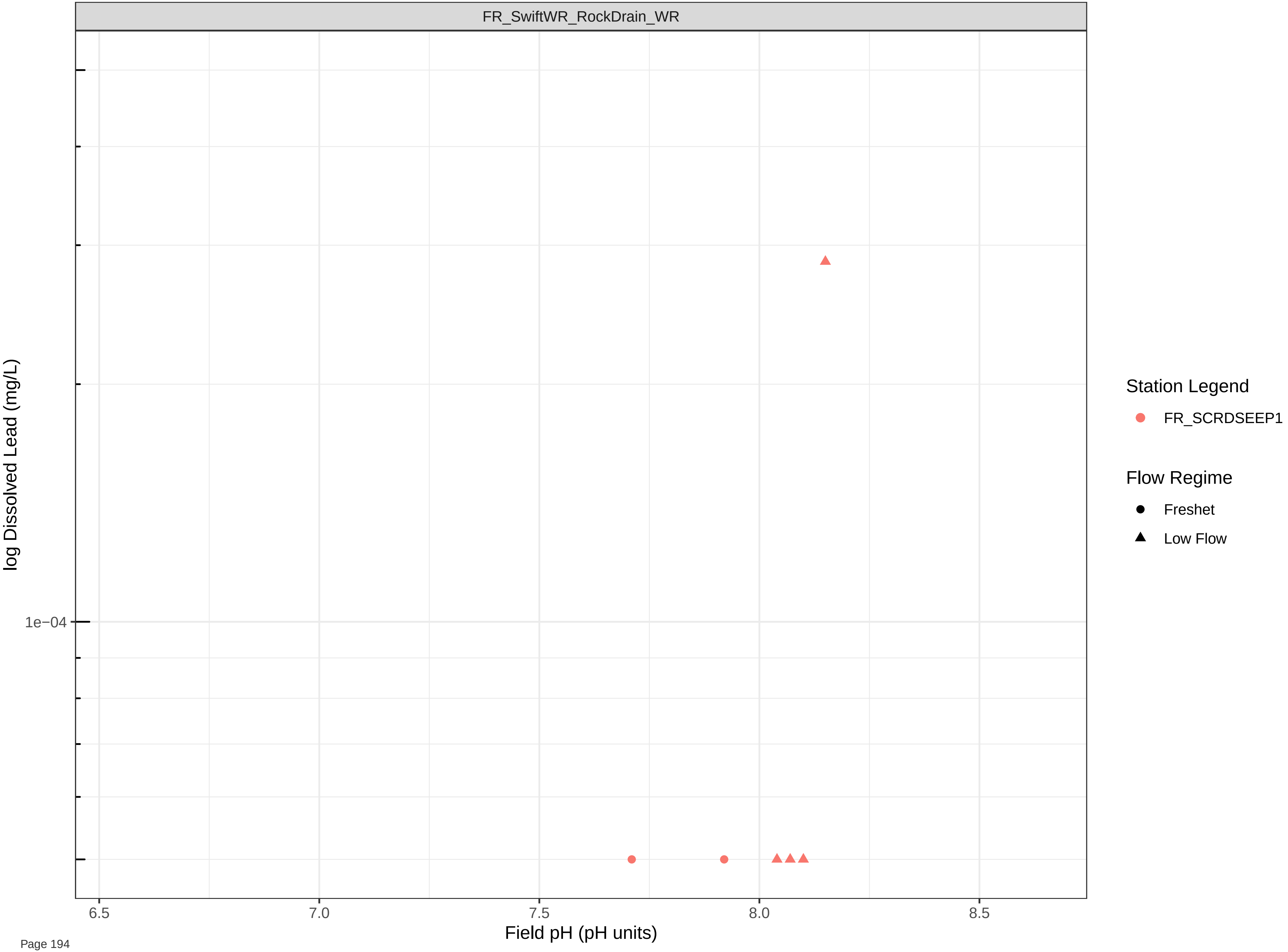

FR_HEN_WR
log Dissolved Lead (mg/L)
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_HENSEEP1
● FR_HENSEEP3
● FR_HENSSEEP1
Flow Regime
● Freshet
▲ Low Flow

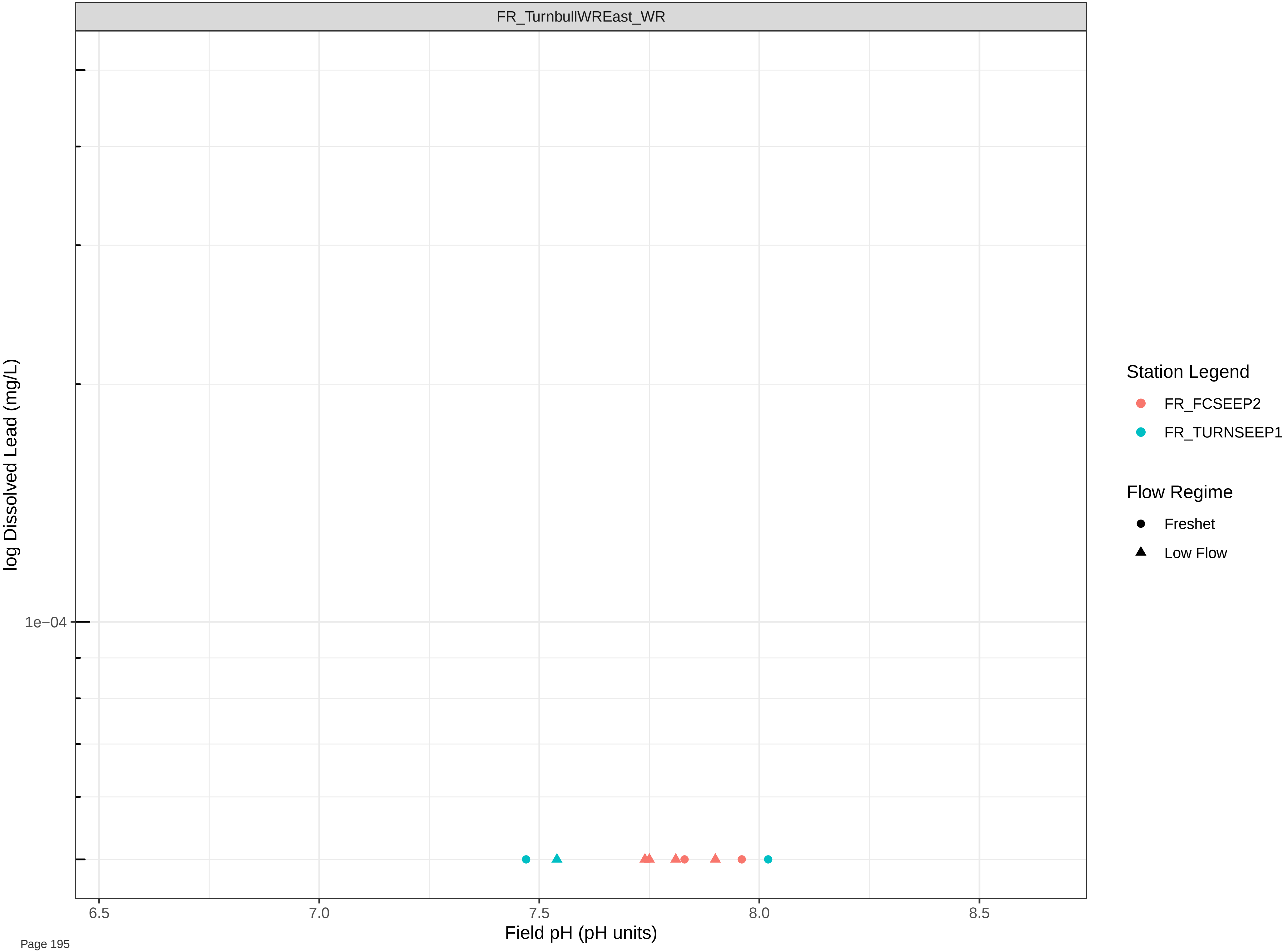

FR_LakeMtn_WR_PITS
log Dissolved Lead (mg/L)
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

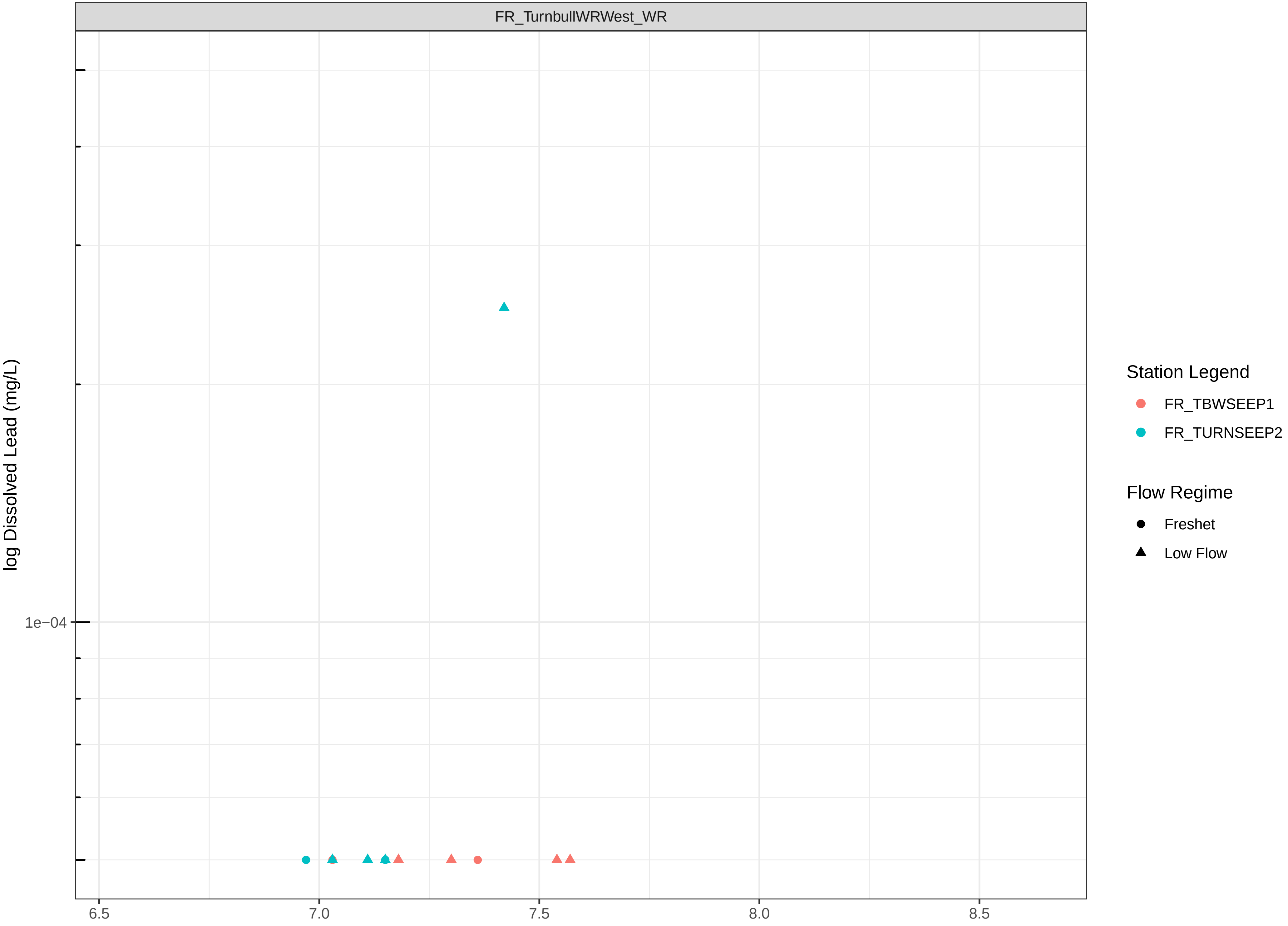

FR_Shandley_WR
log Dissolved Lead (mg/L)
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

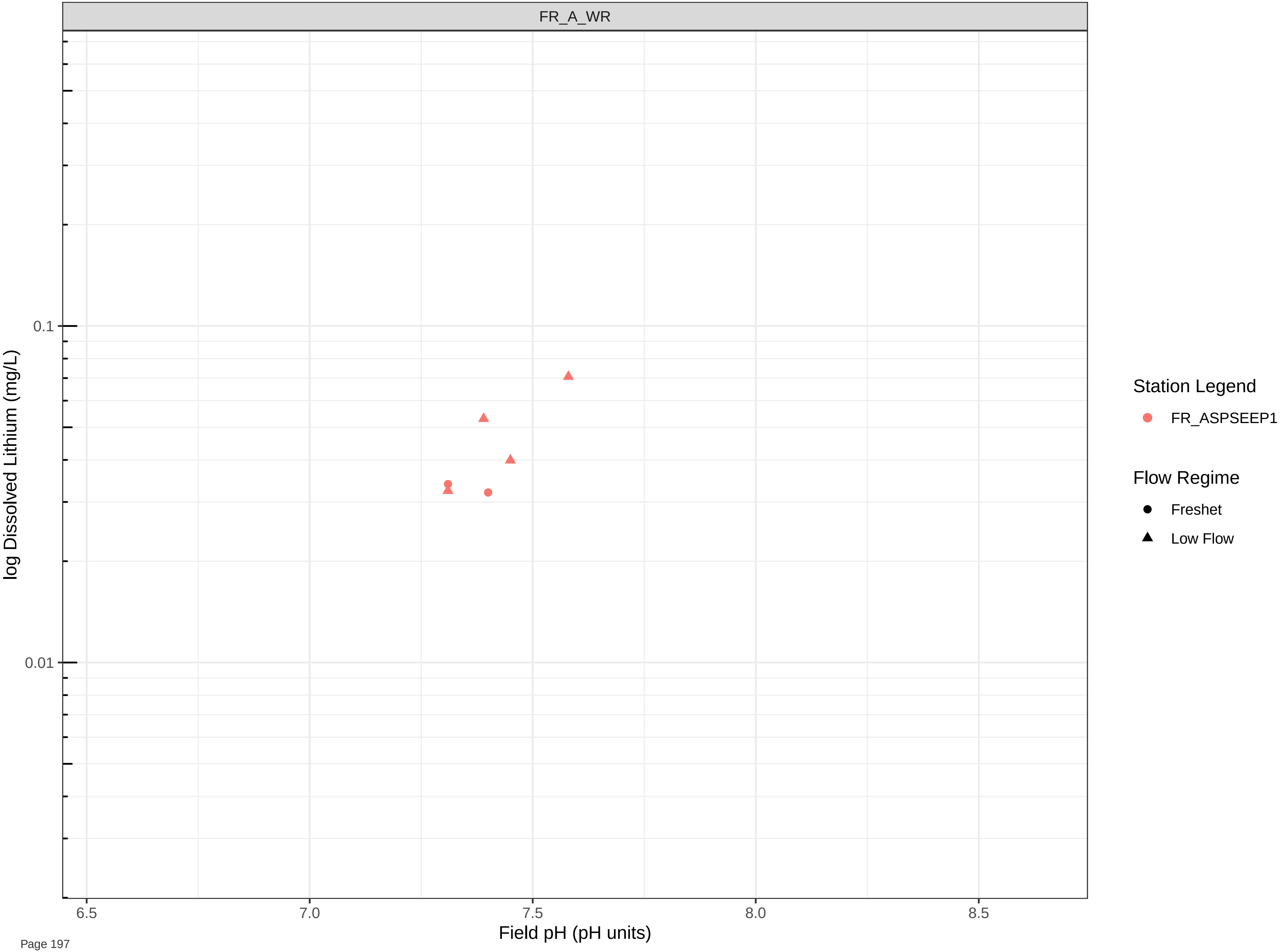

FR_Smith_WR
log Dissolved Lead (mg/L)
1e−04
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow


FR_SouthTails_Tailings
log Dissolved Lead (mg/L)
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

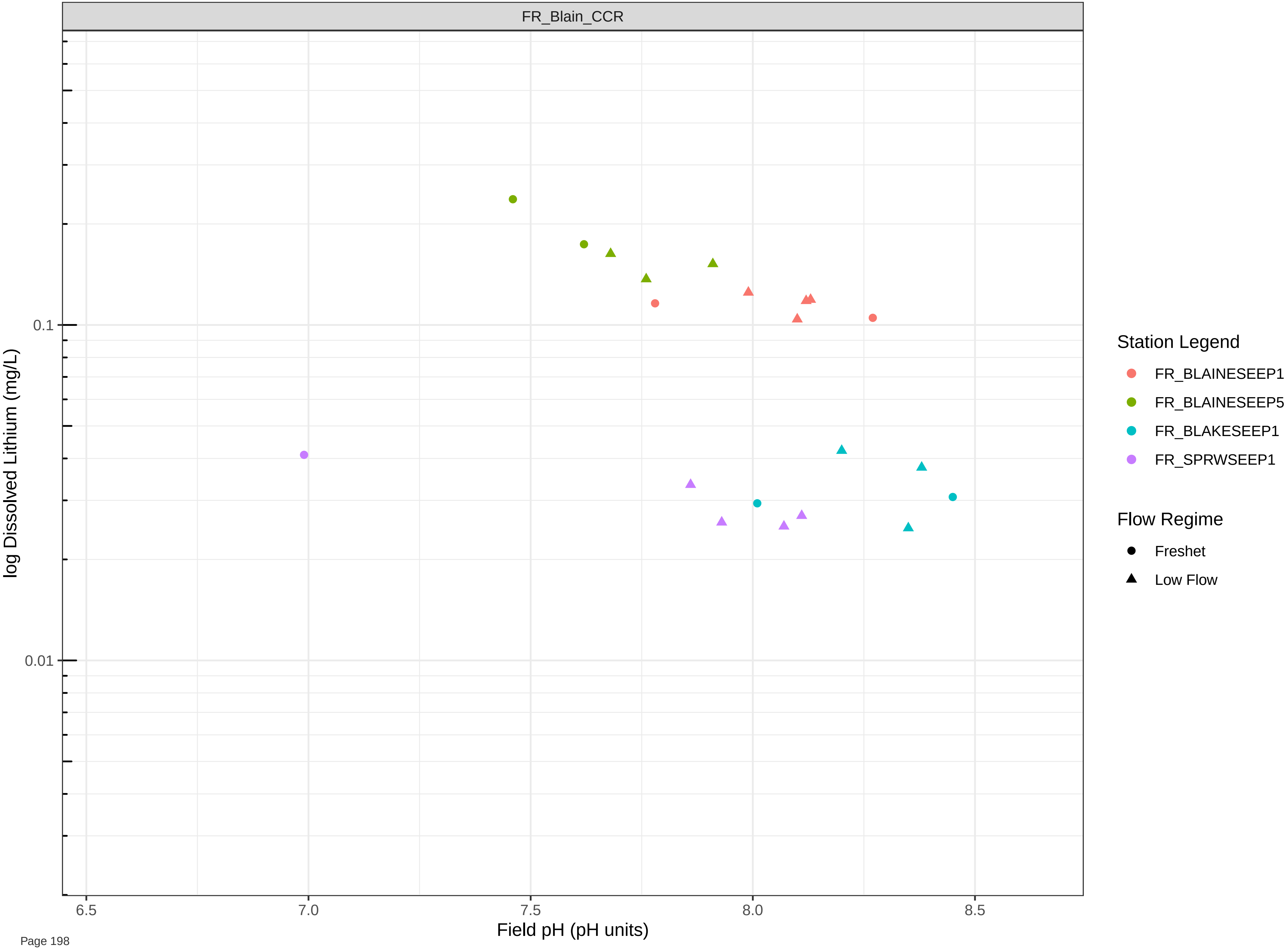

FR_SwiftWR_RockDrain_WR
log Dissolved Lead (mg/L)
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

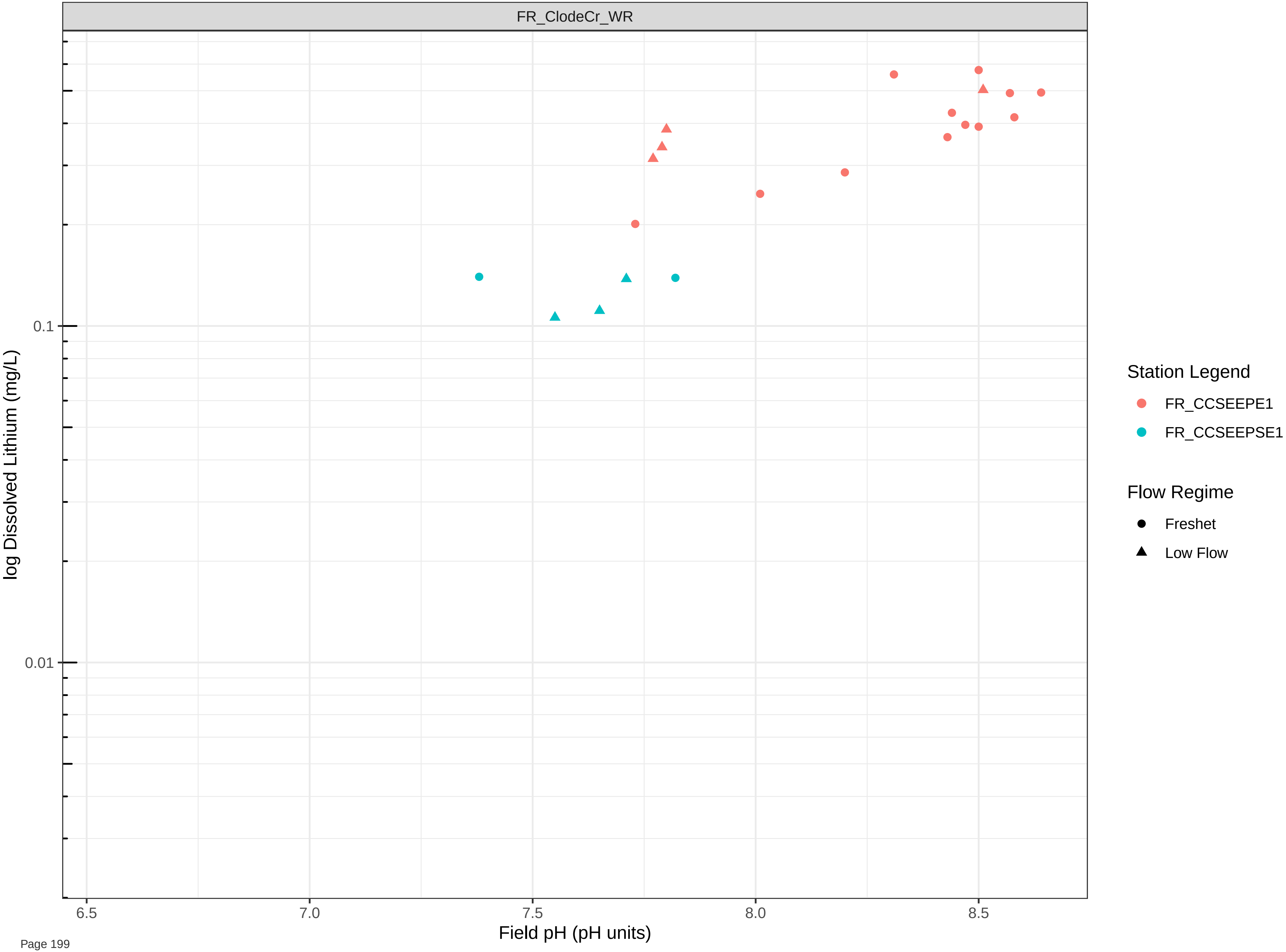

FR_TurnbullWREast_WR
log Dissolved Lead (mg/L)
1e−04
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

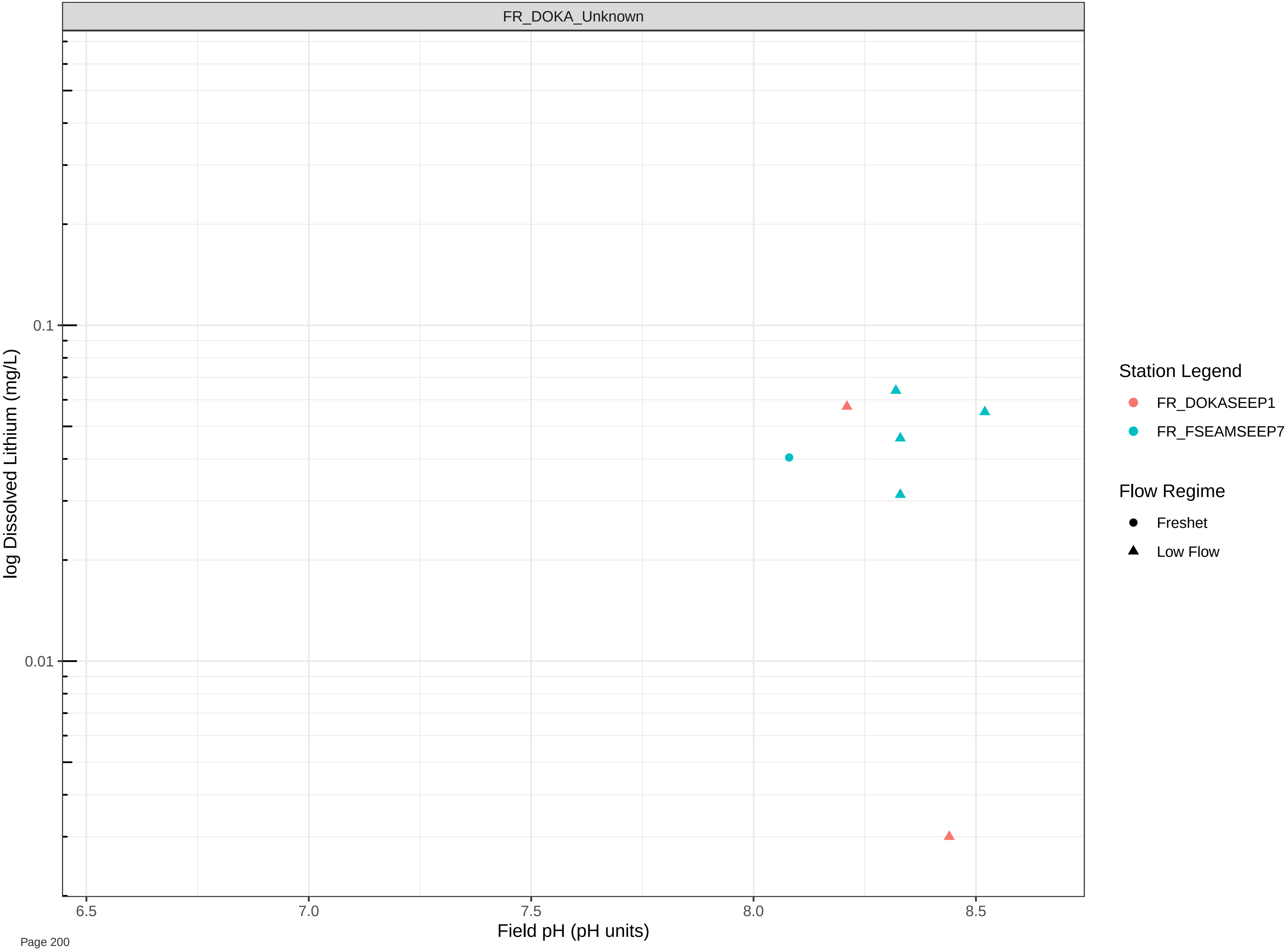

FR_TurnbullWRWest_WR
log Dissolved Lead (mg/L)
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

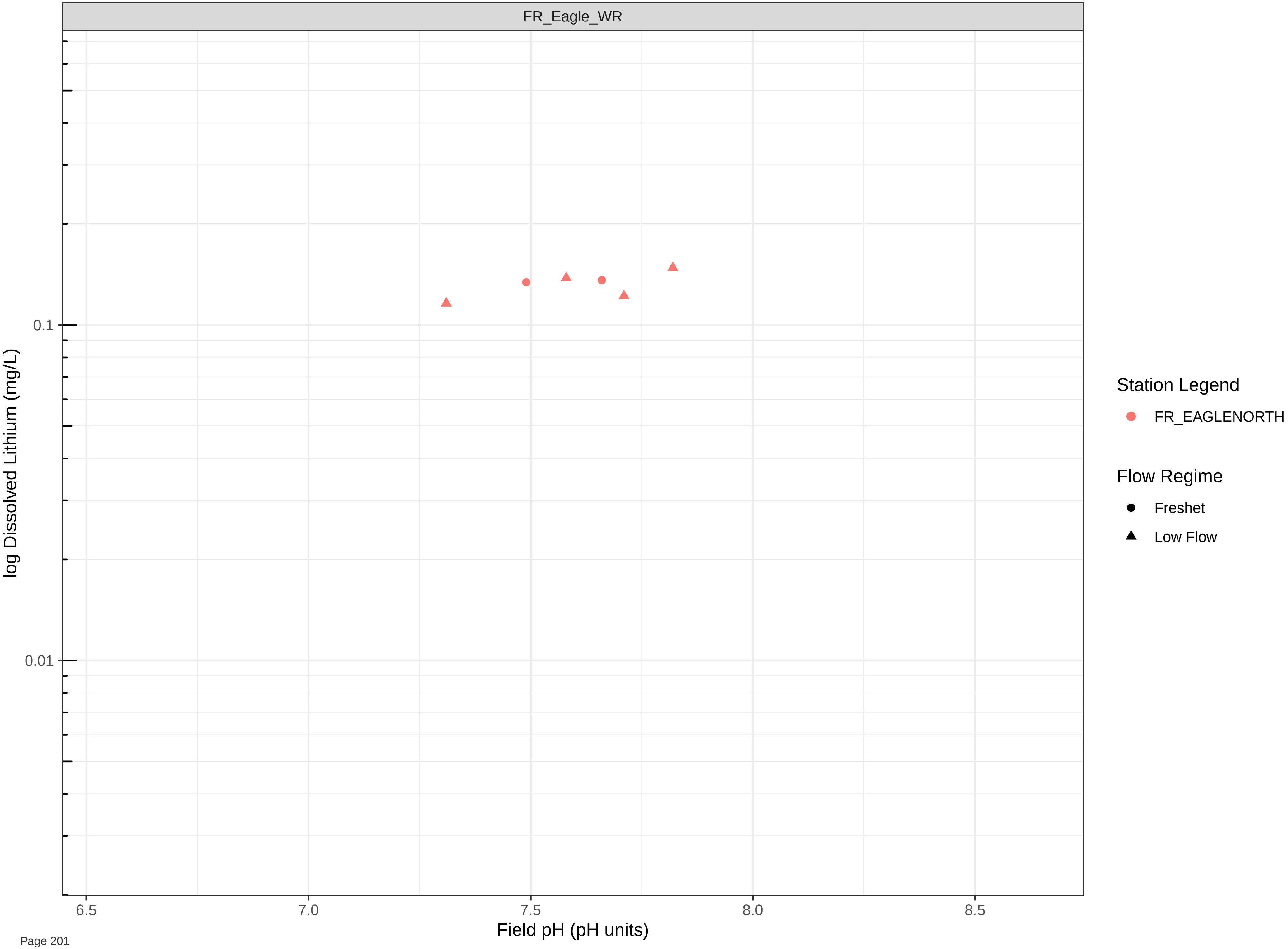


FR_A_WR
log Dissolved Lithium (mg/L)
0.1
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow


FR_Blain_CCR
log Dissolved Lithium (mg/L)
0.1
0.01
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow


FR_ClodeCr_WR
log Dissolved Lithium (mg/L)
0.1
0.01
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow


FR_DOKA_Unknown
log Dissolved Lithium (mg/L)
0.1
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow


FR_Eagle_WR
log Dissolved Lithium (mg/L)
0.1
0.01
Field pH (pH units)
6.5
7.0
7.5
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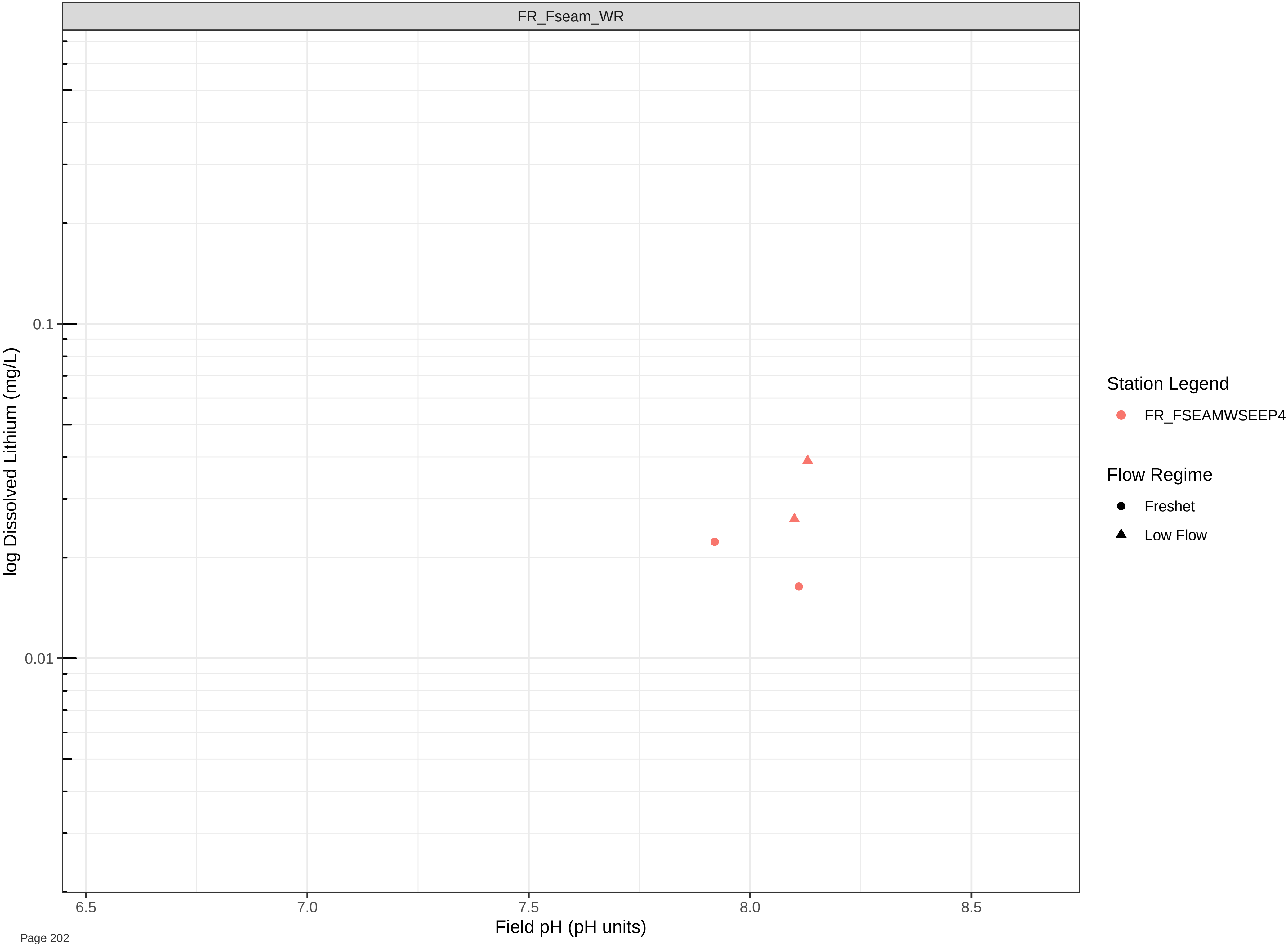
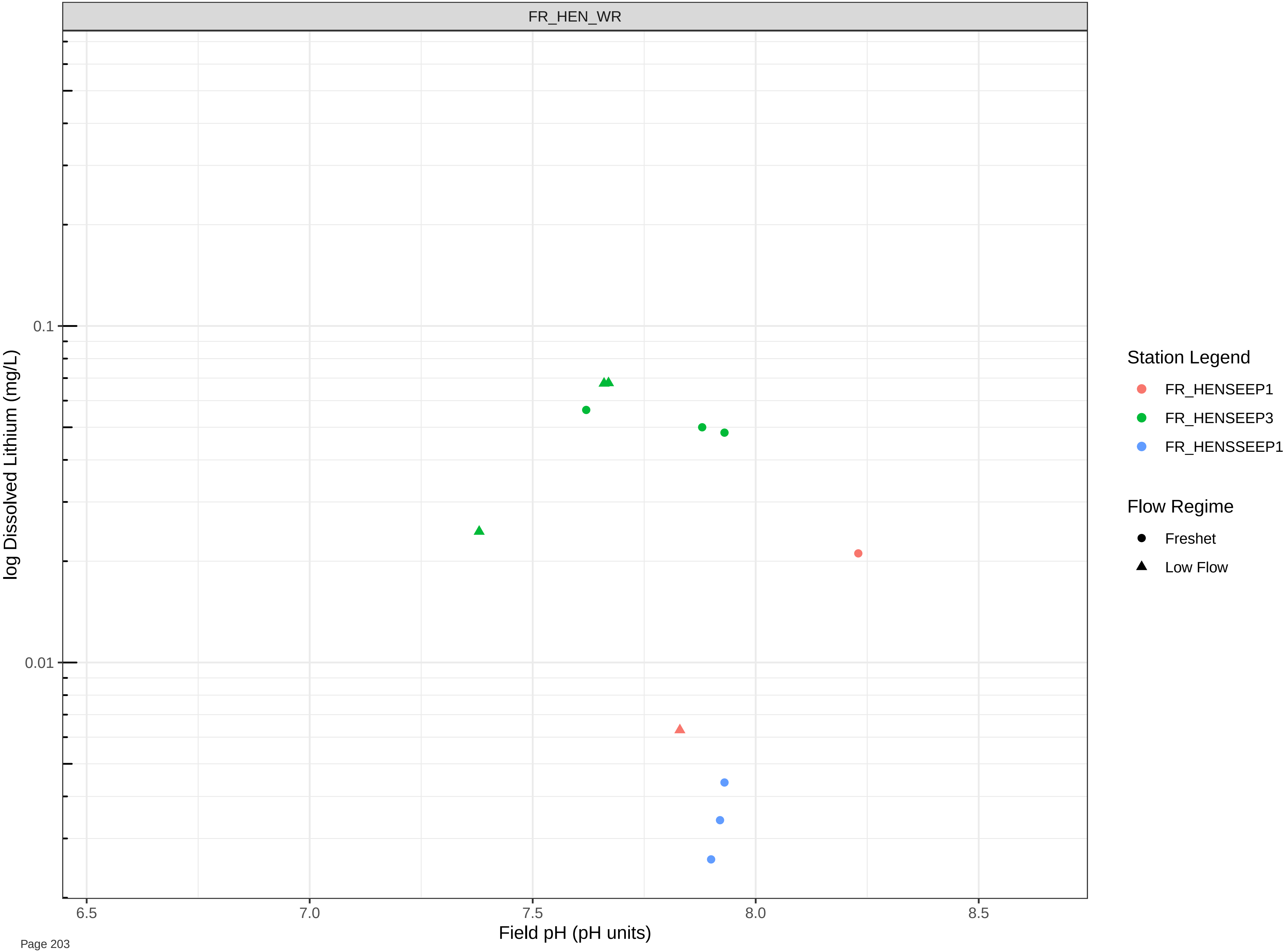
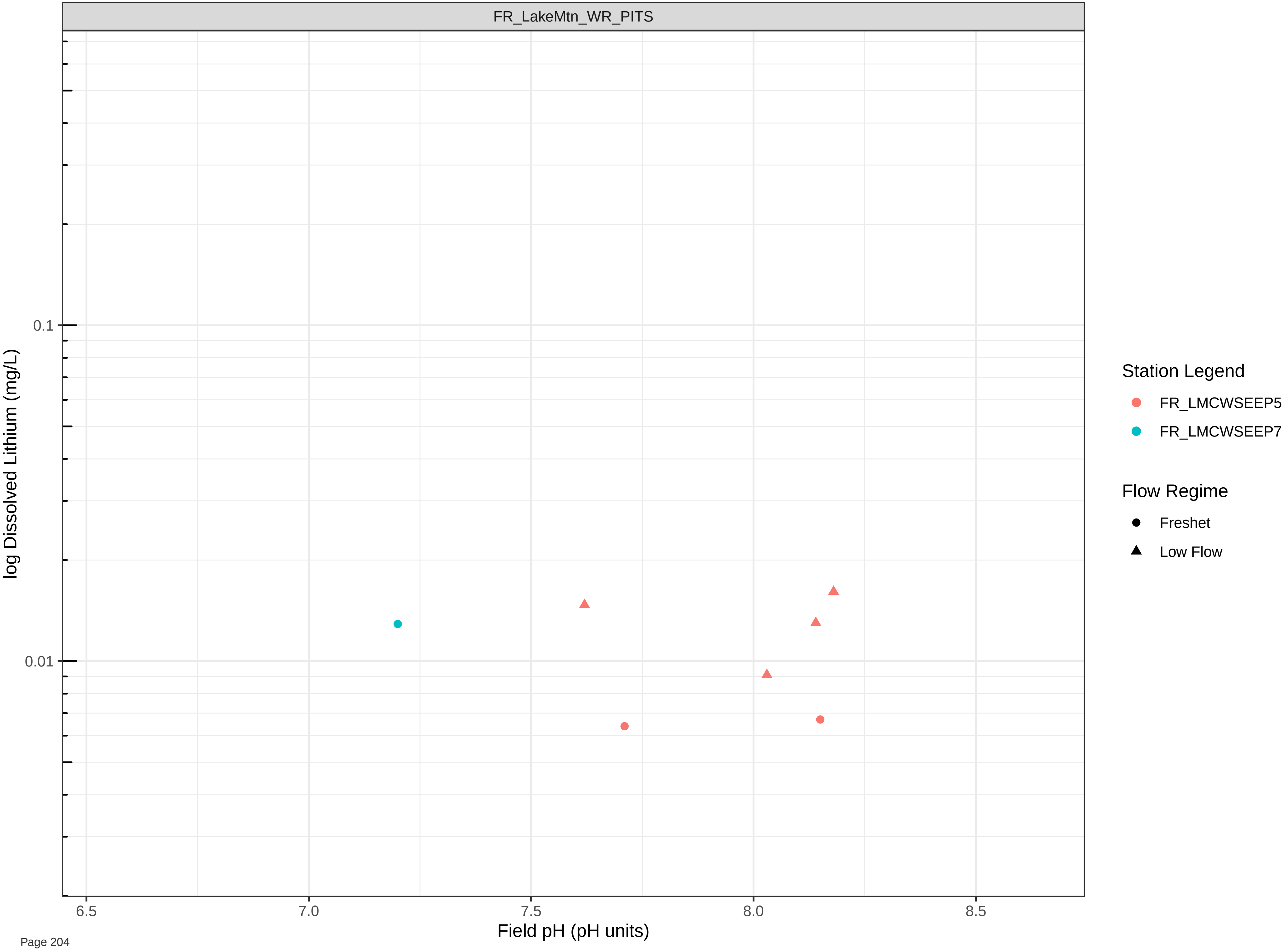
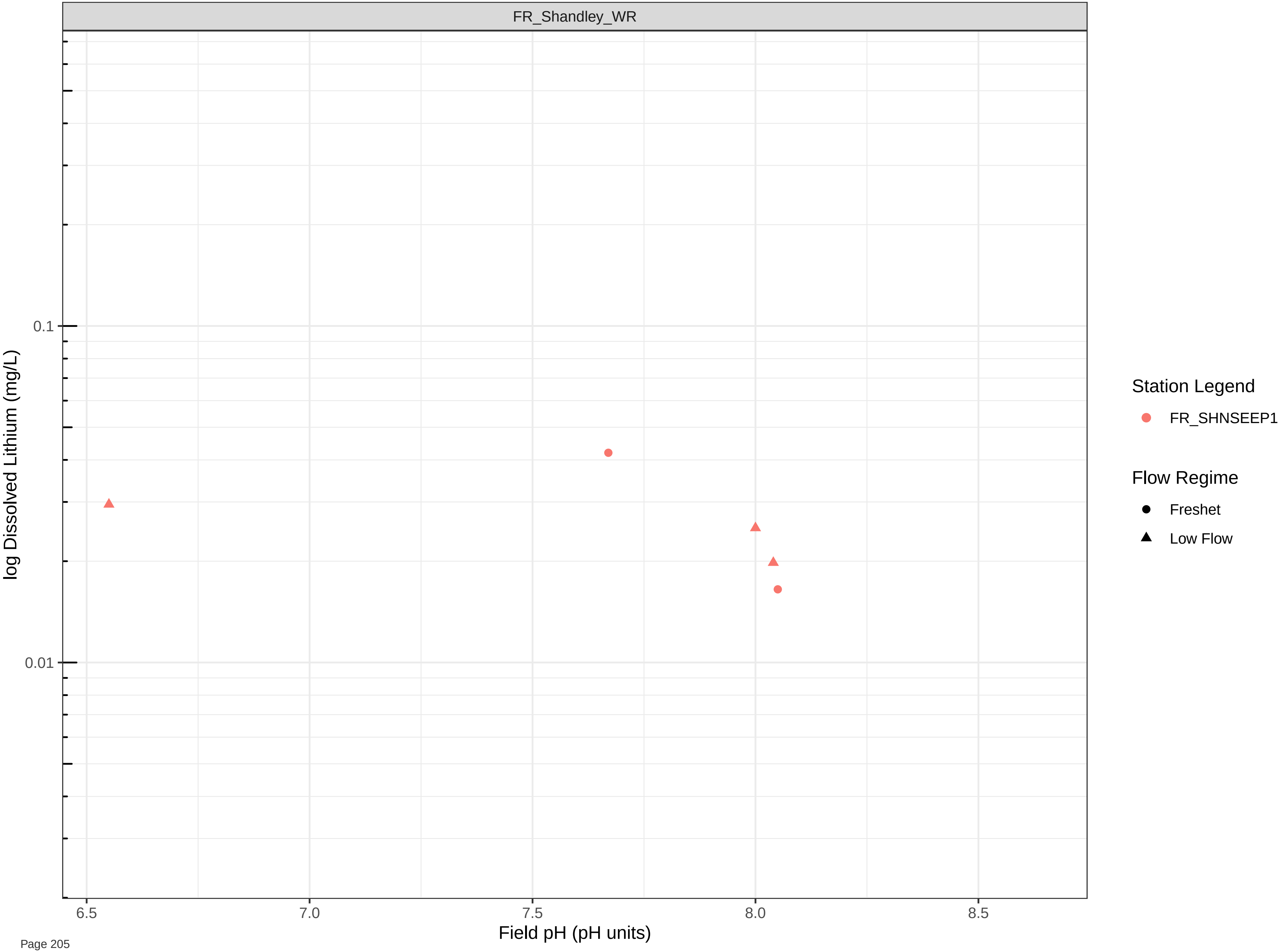
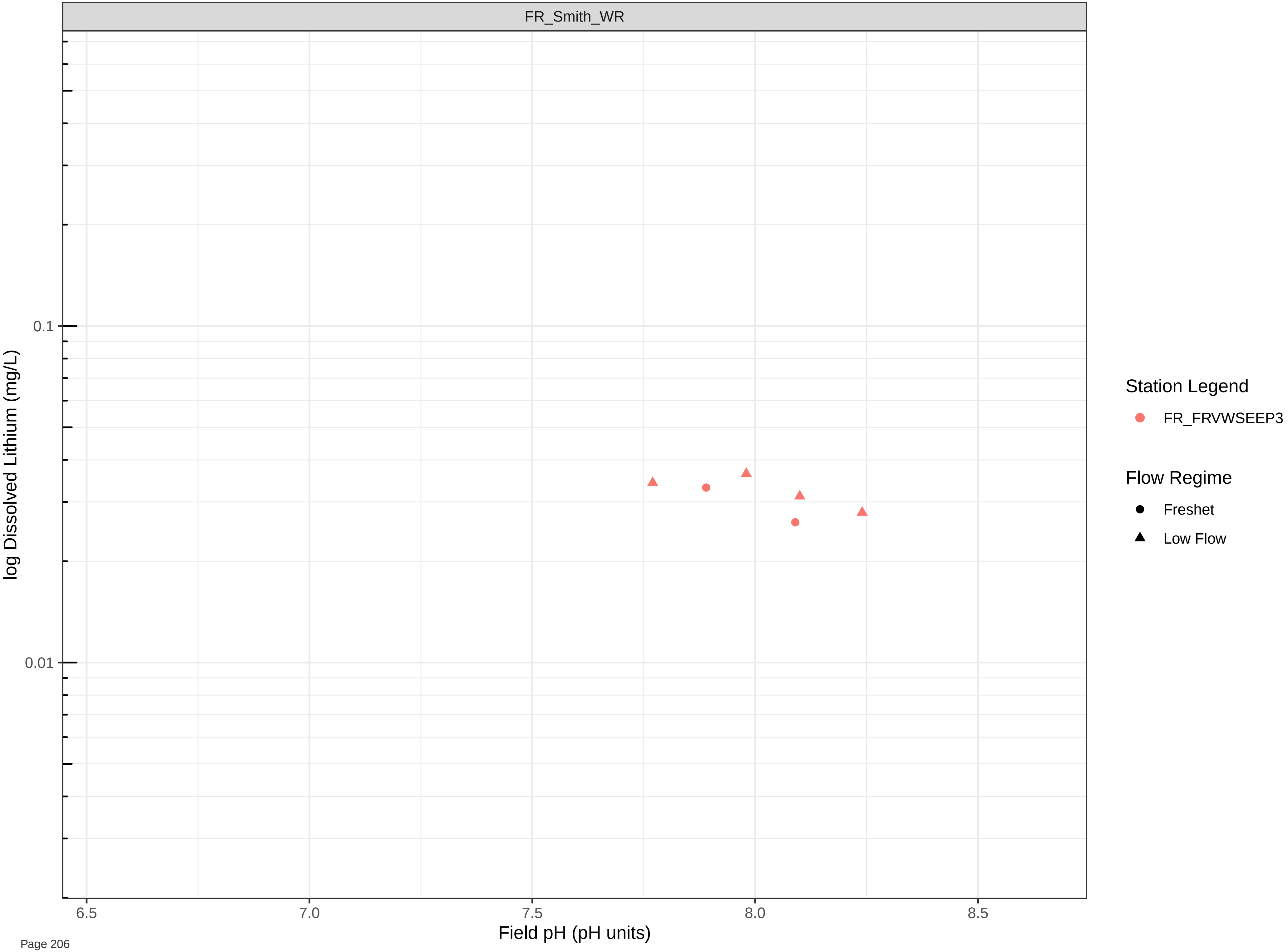
8.5
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

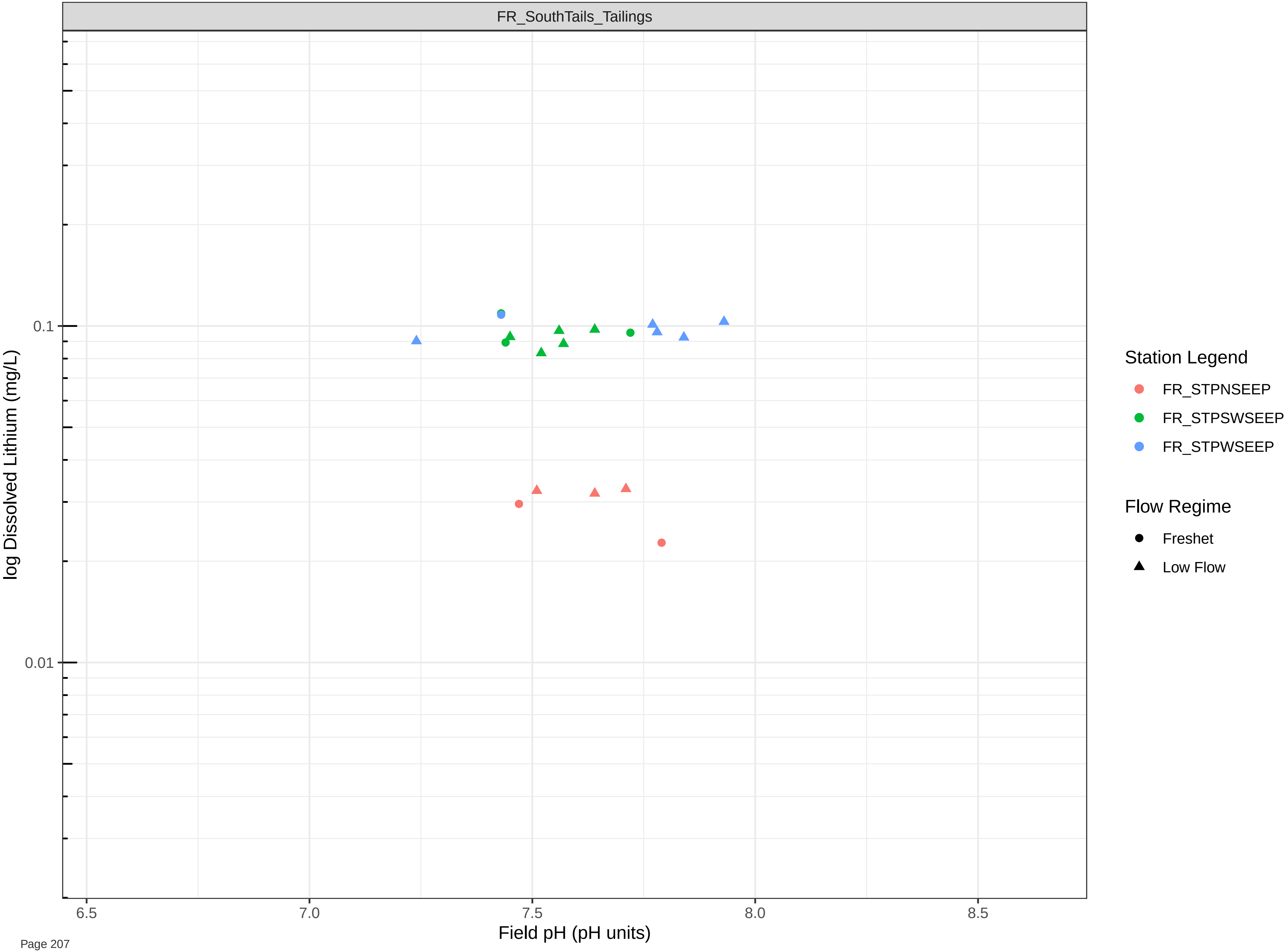

FR_Fseam_WR
log Dissolved Lithium (mg/L)
0.1
0.01
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

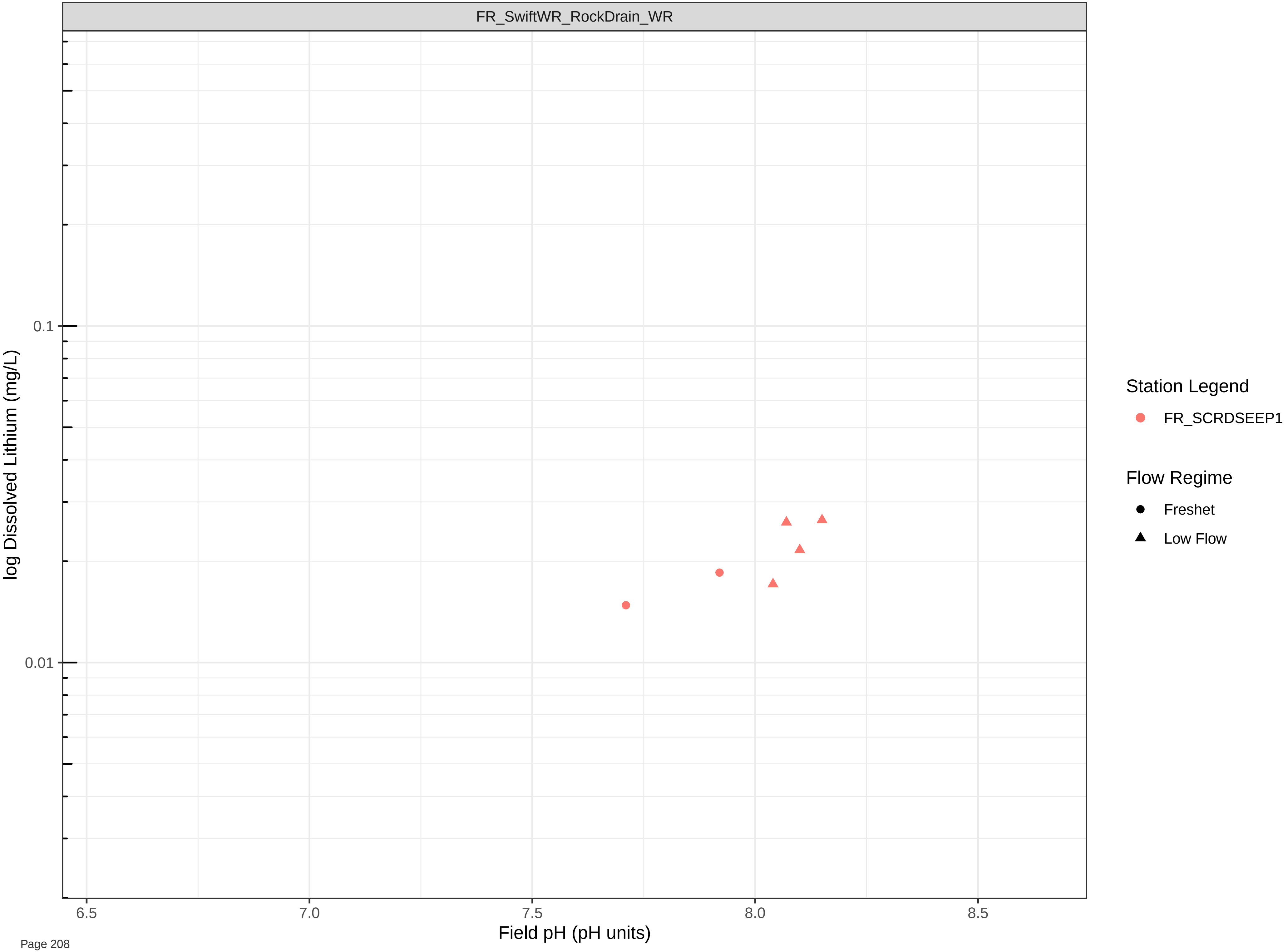

FR_HEN_WR
0.1
0.01
log Dissolved Lithium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

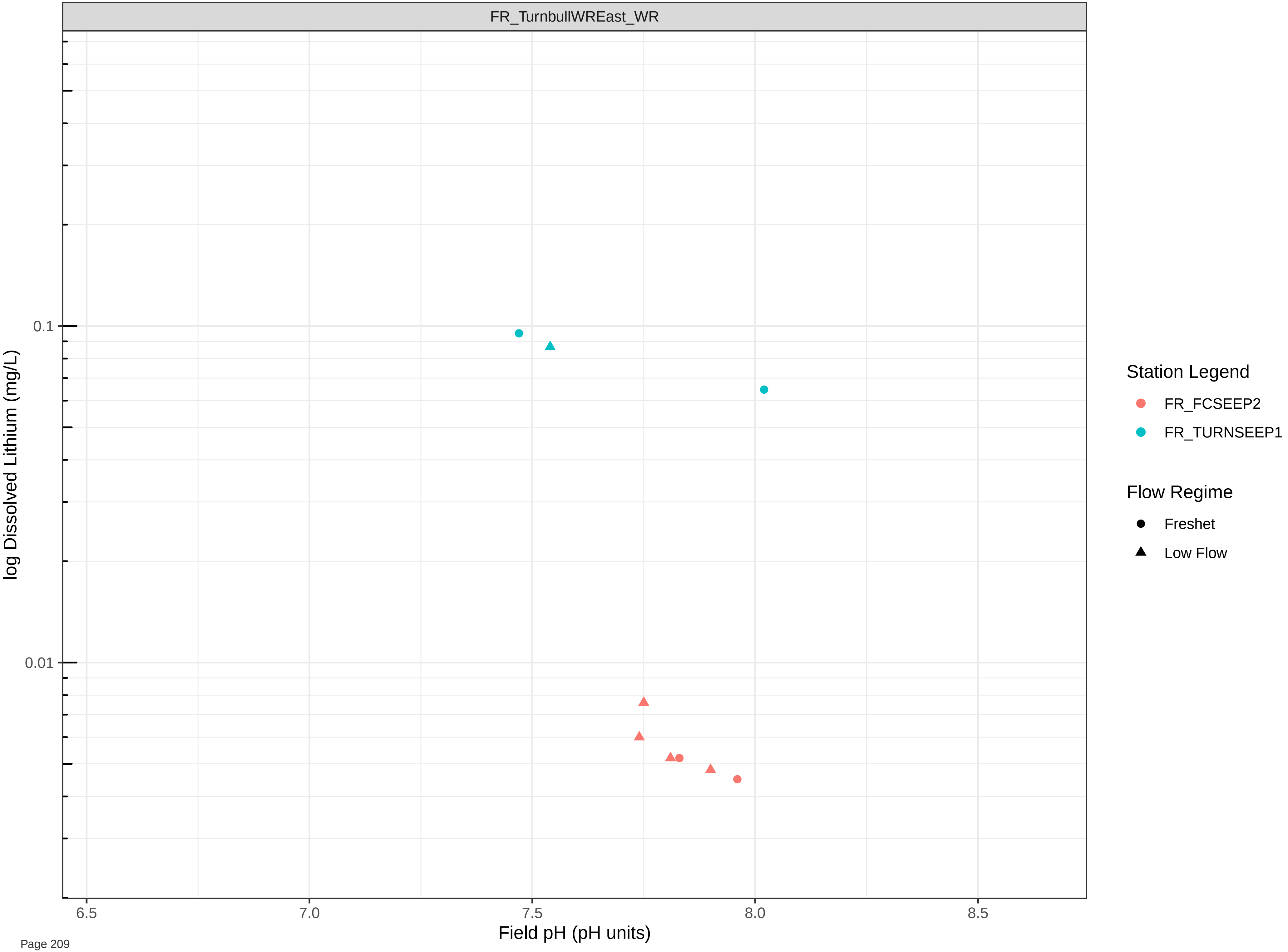

FR_LakeMtn_WR_PITS
log Dissolved Lithium (mg/L)
0.1
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

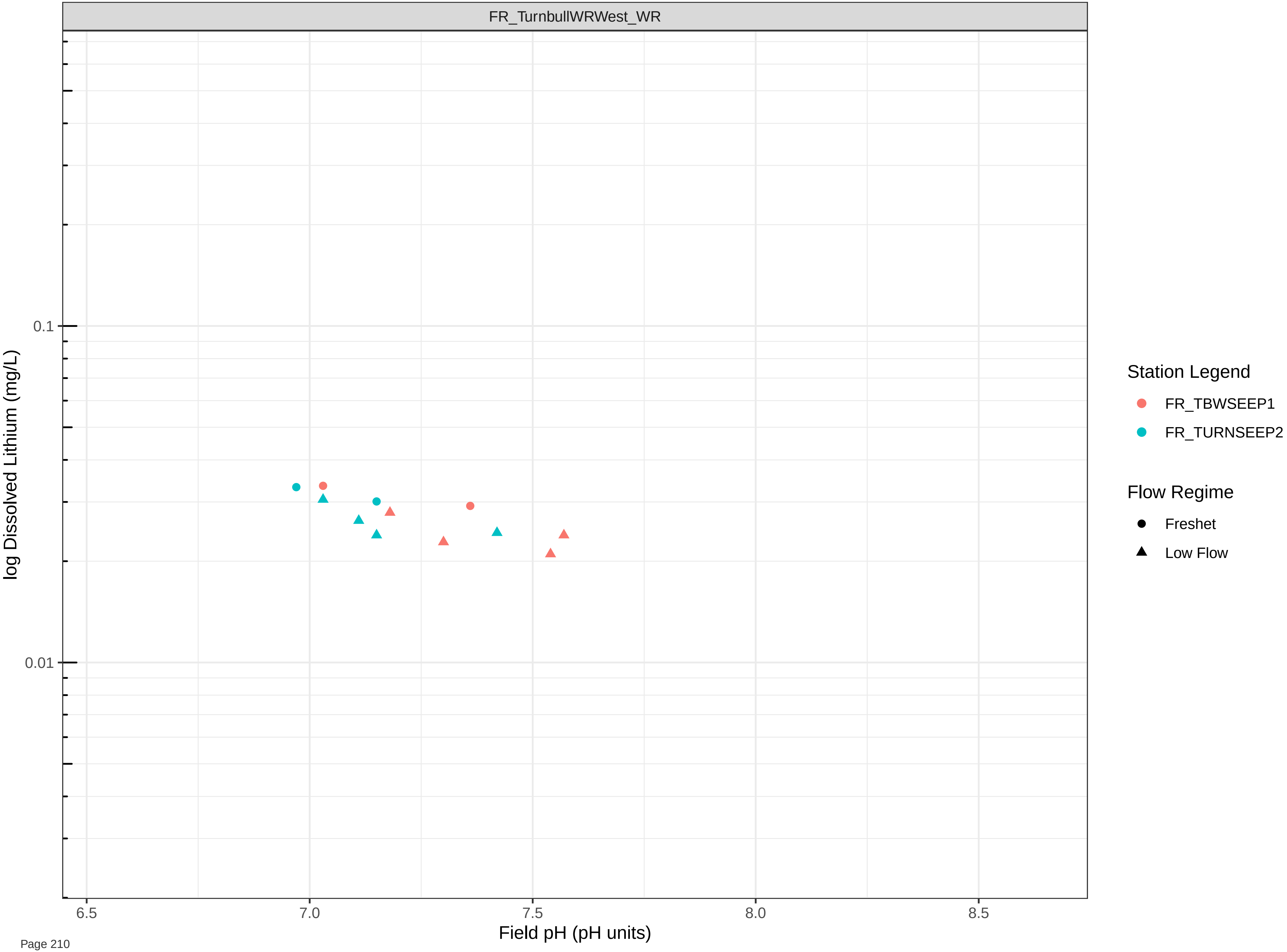

FR_Shandley_WR
log Dissolved Lithium (mg/L)
0.1
0.01
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

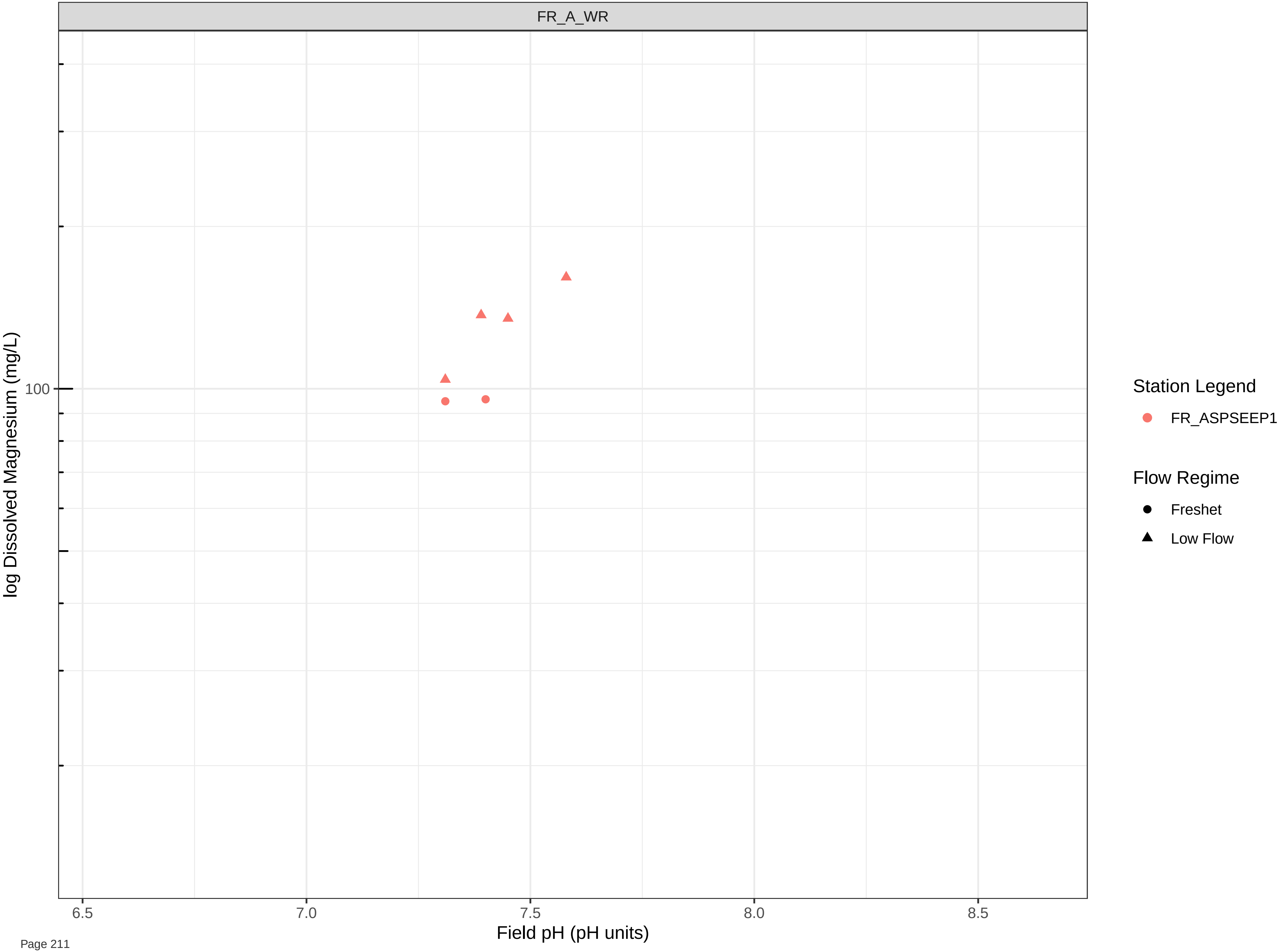

FR_Smith_WR
log Dissolved Lithium (mg/L)
0.1
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

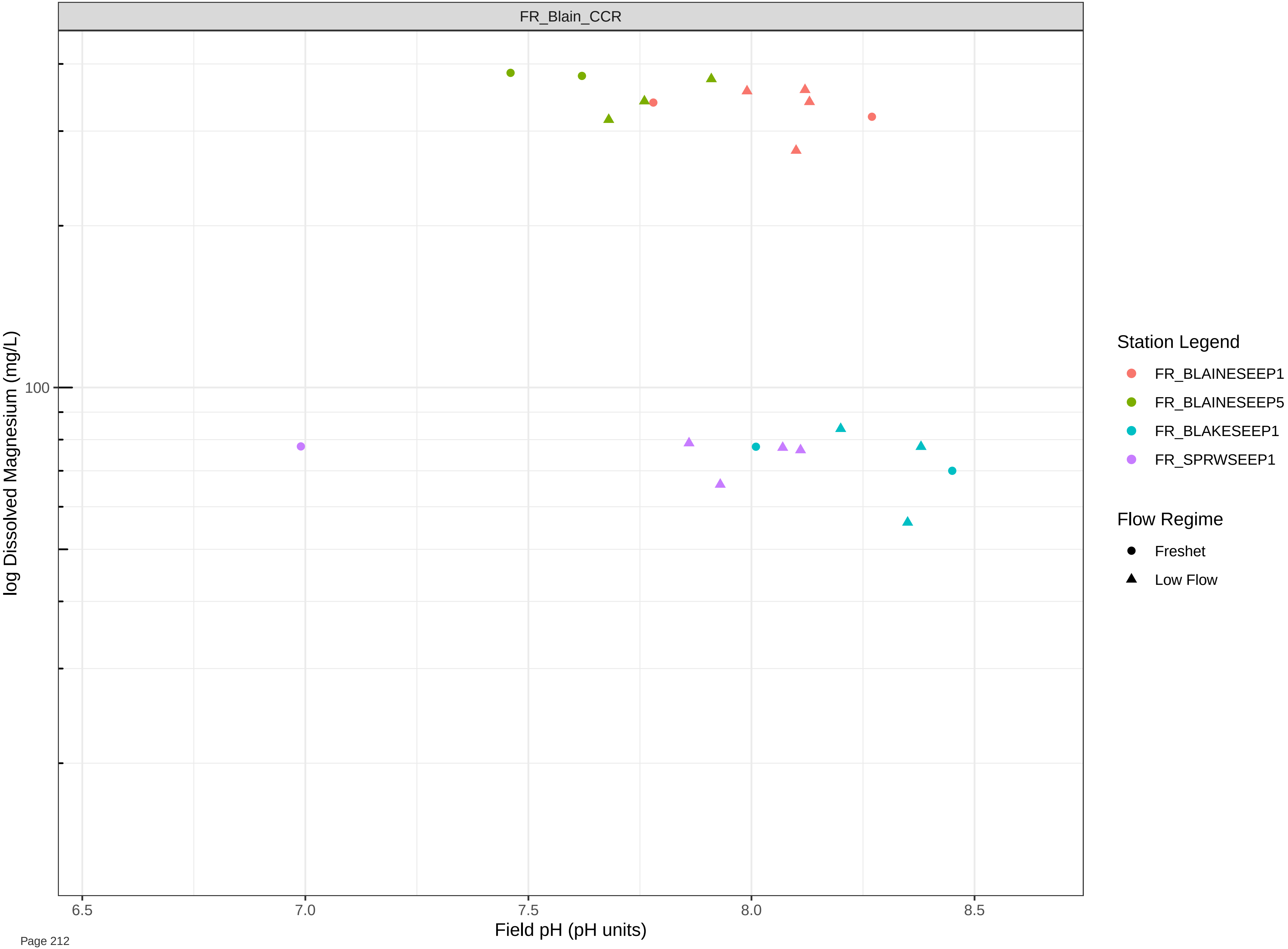

FR_SouthTails_Tailings
log Dissolved Lithium (mg/L)
0.1
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

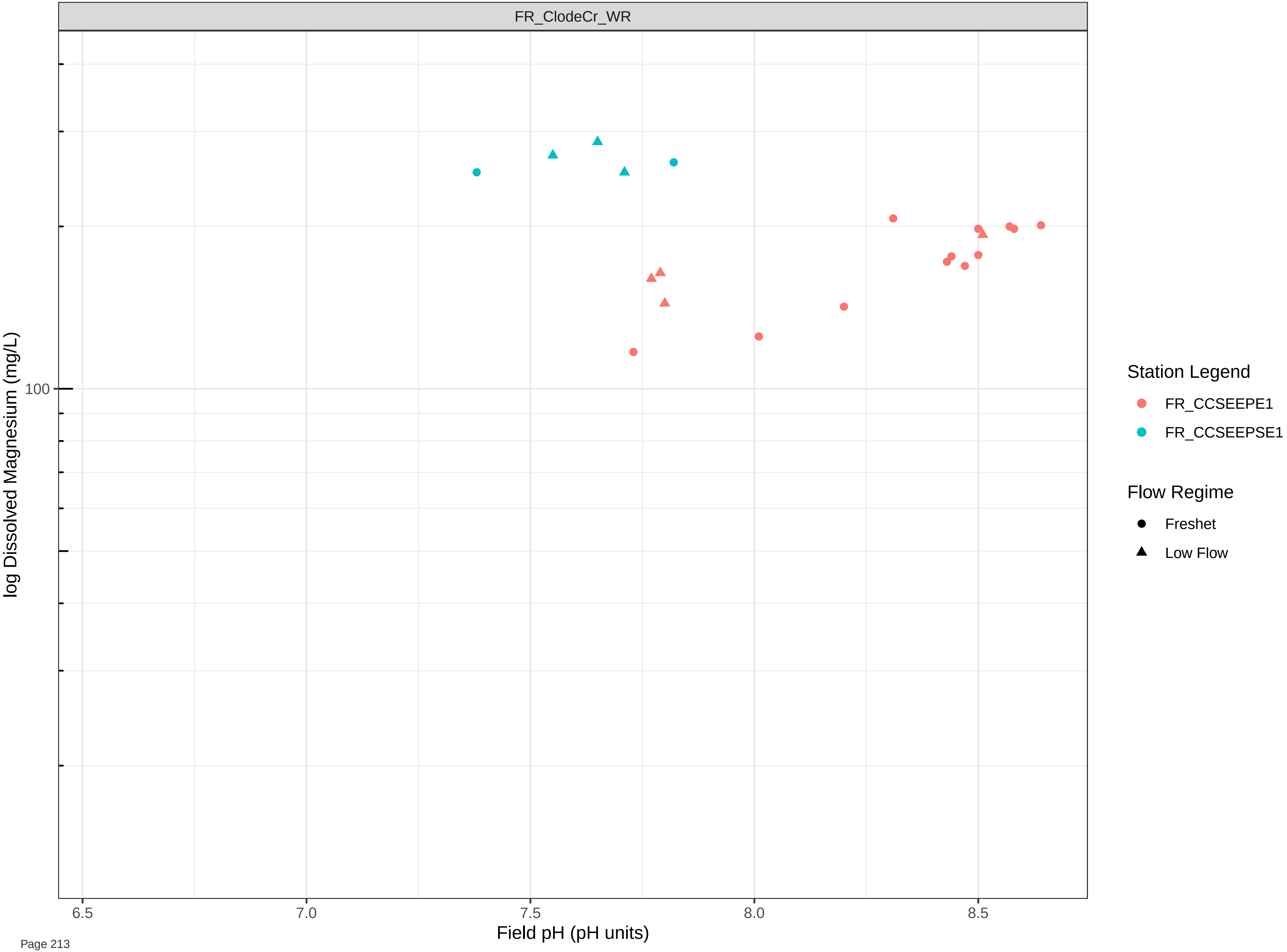

FR_SwiftWR_RockDrain_WR
log Dissolved Lithium (mg/L)
0.1
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWREast_WR
log Dissolved Lithium (mg/L)
0.1
0.01
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

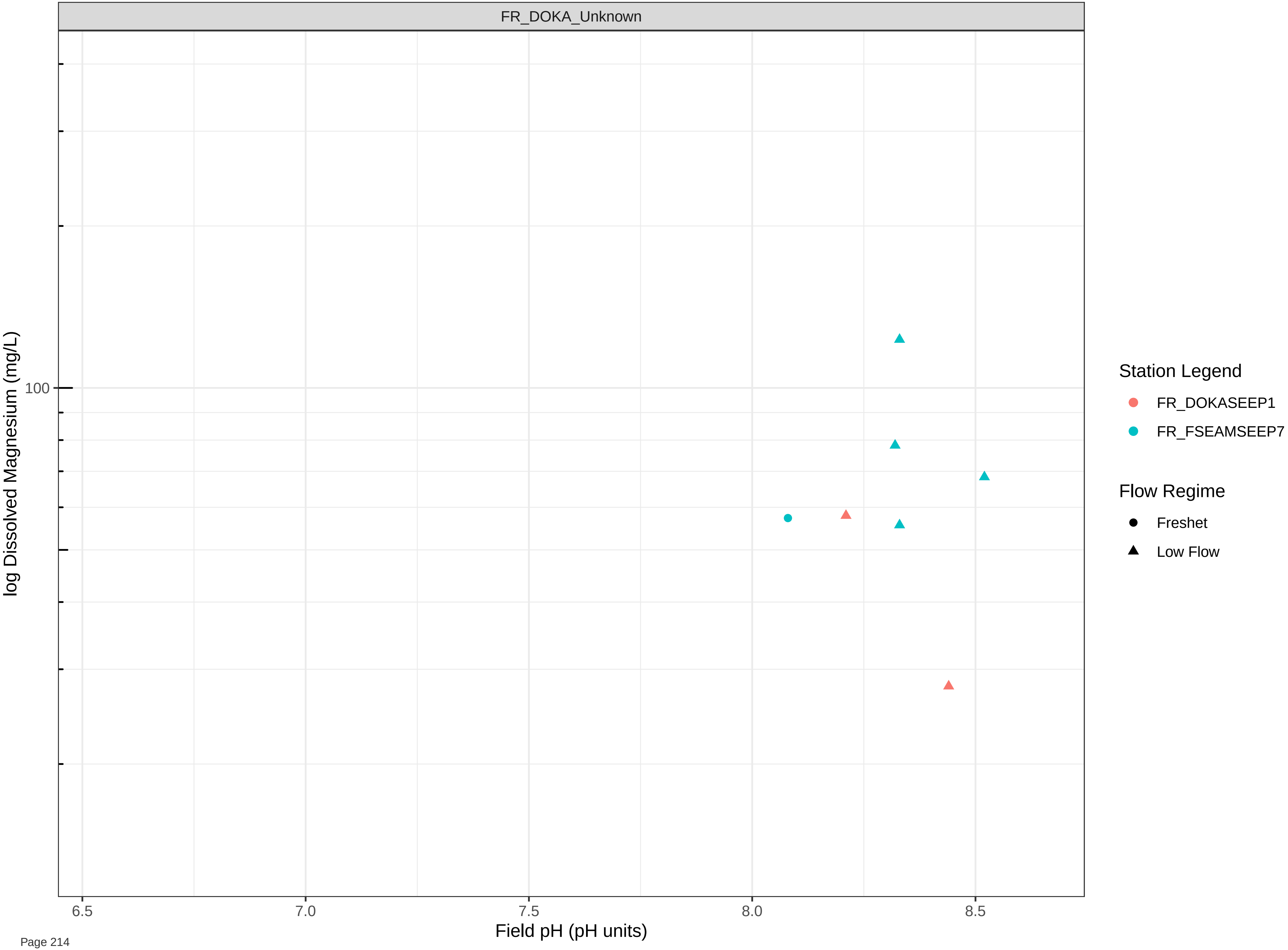

FR_TurnbullWRWest_WR
log Dissolved Lithium (mg/L)
0.1
0.01
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

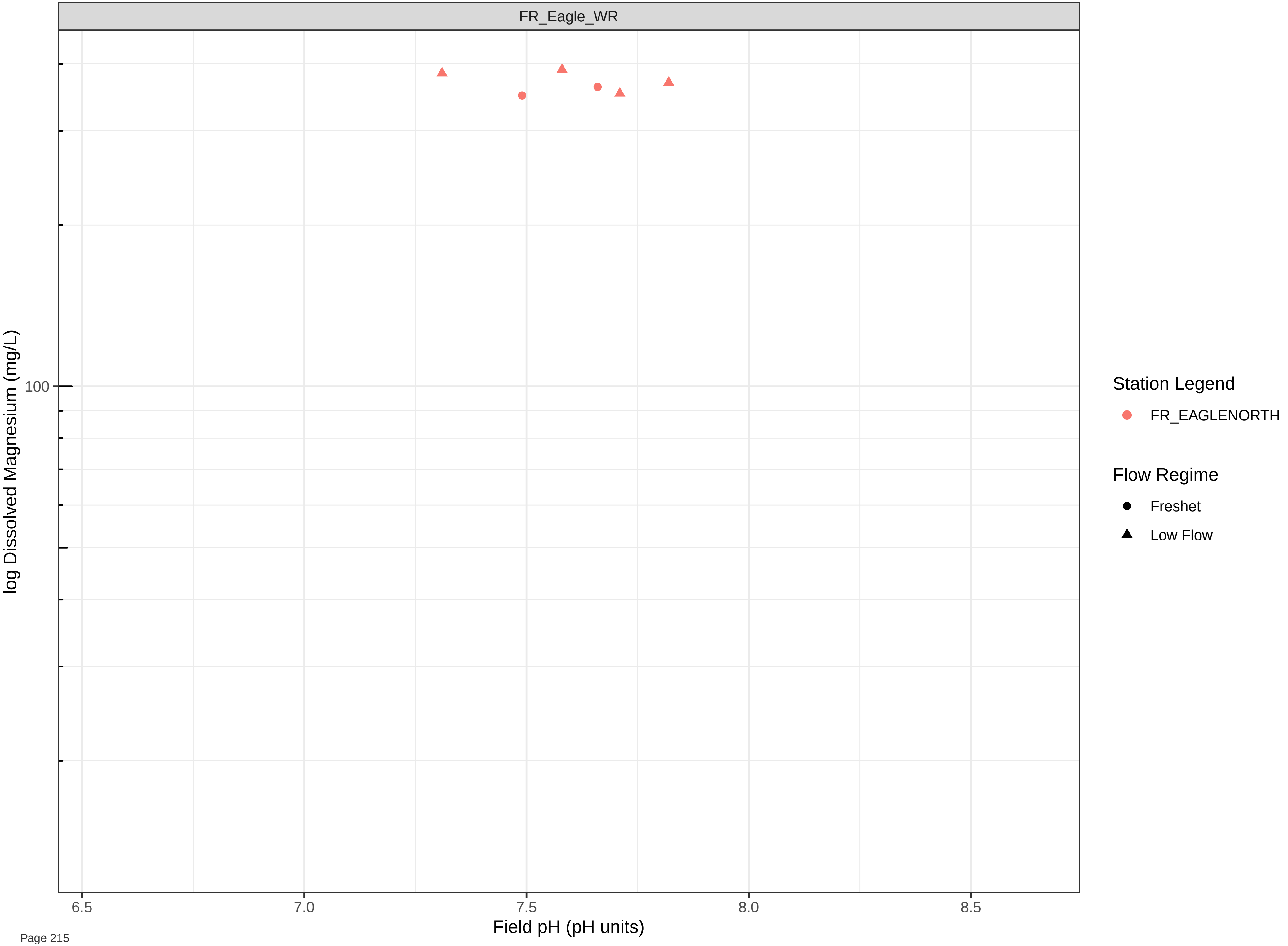

FR_A_WR
log Dissolved Magnesium (mg/L)
100
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

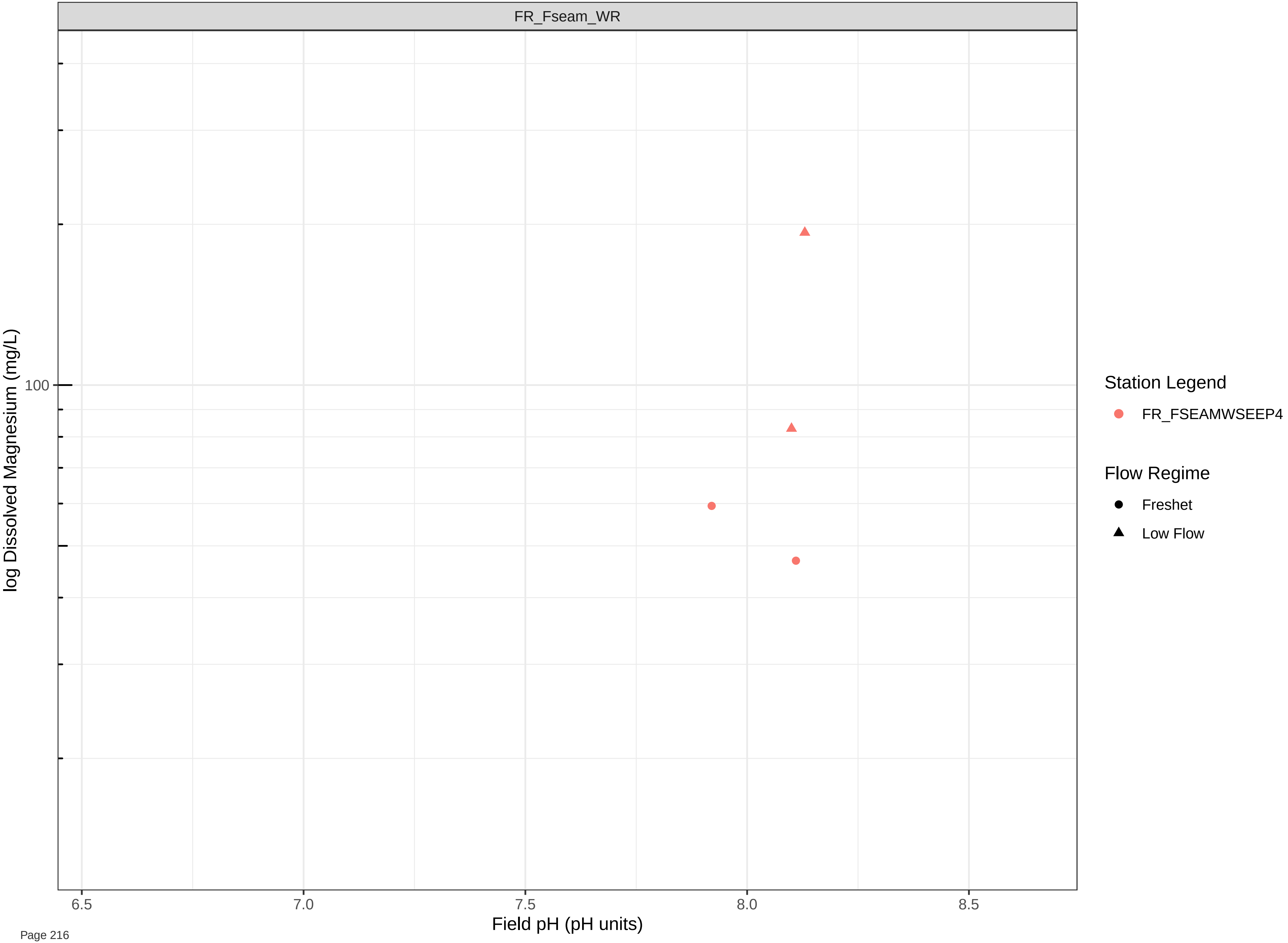

FR_Blain_CCR
log Dissolved Magnesium (mg/L)
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

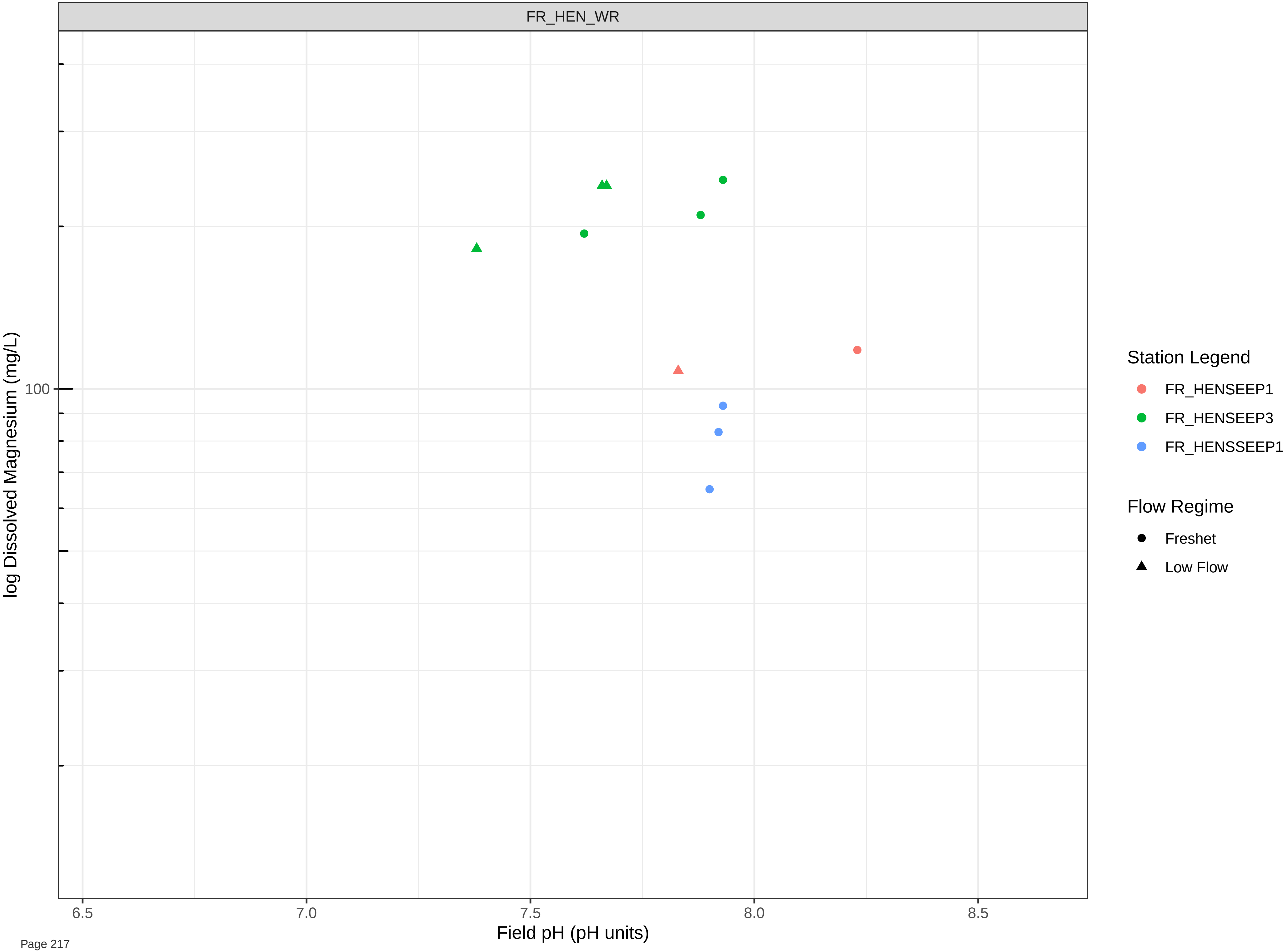


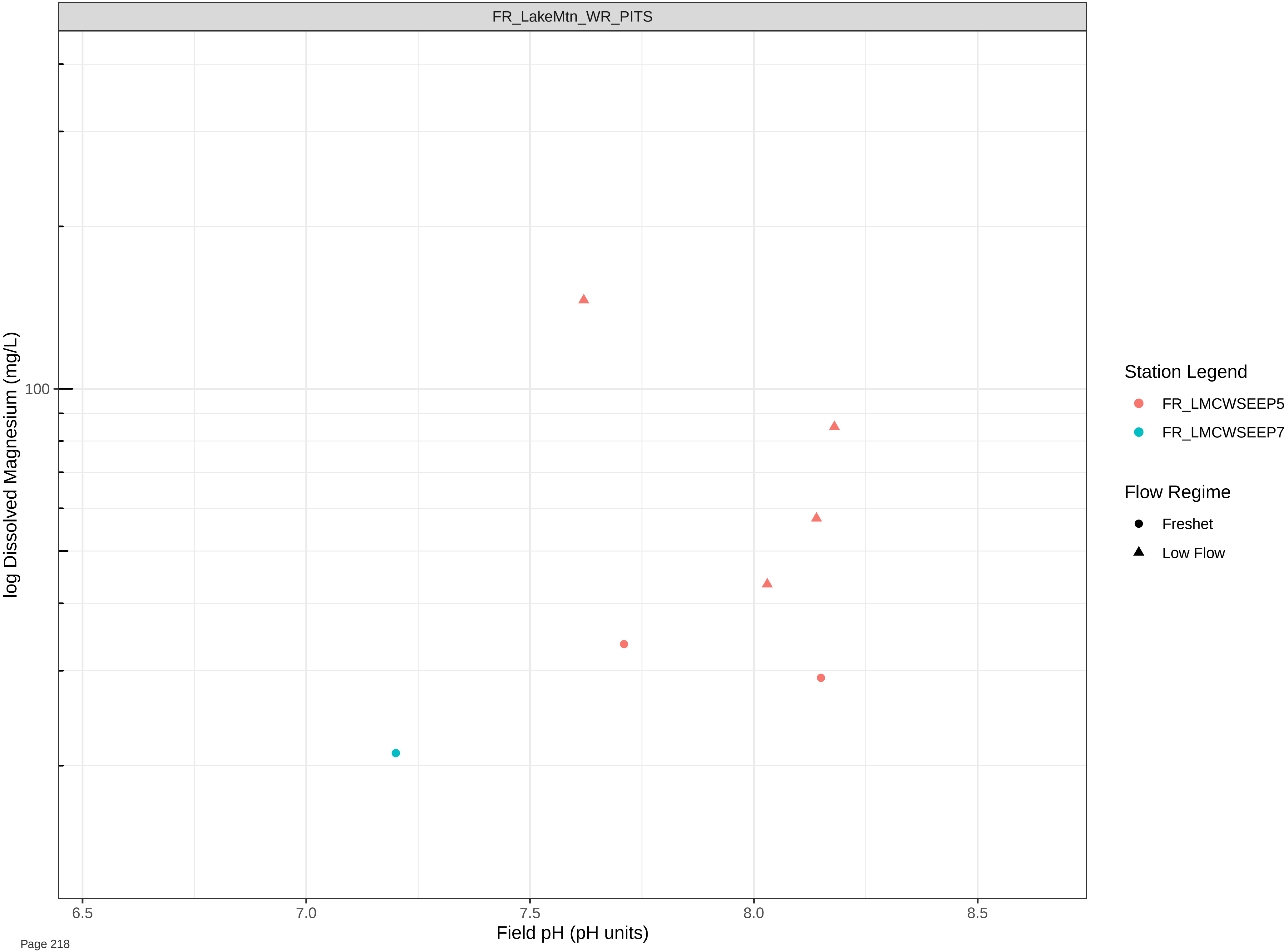
FR_ClodeCr_WR
log Dissolved Magnesium (mg/L)
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

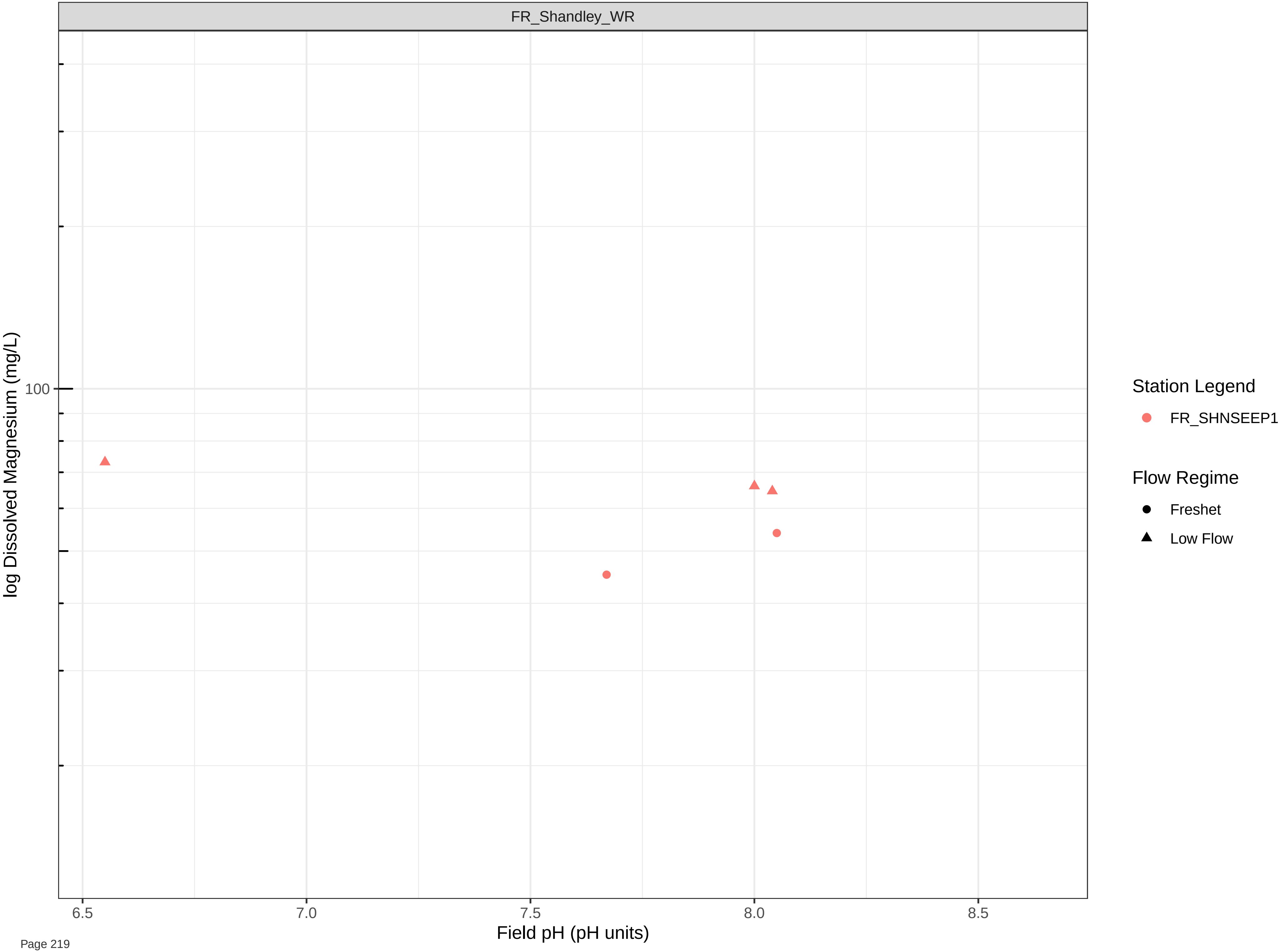

FR_DOKA_Unknown
log Dissolved Magnesium (mg/L)
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

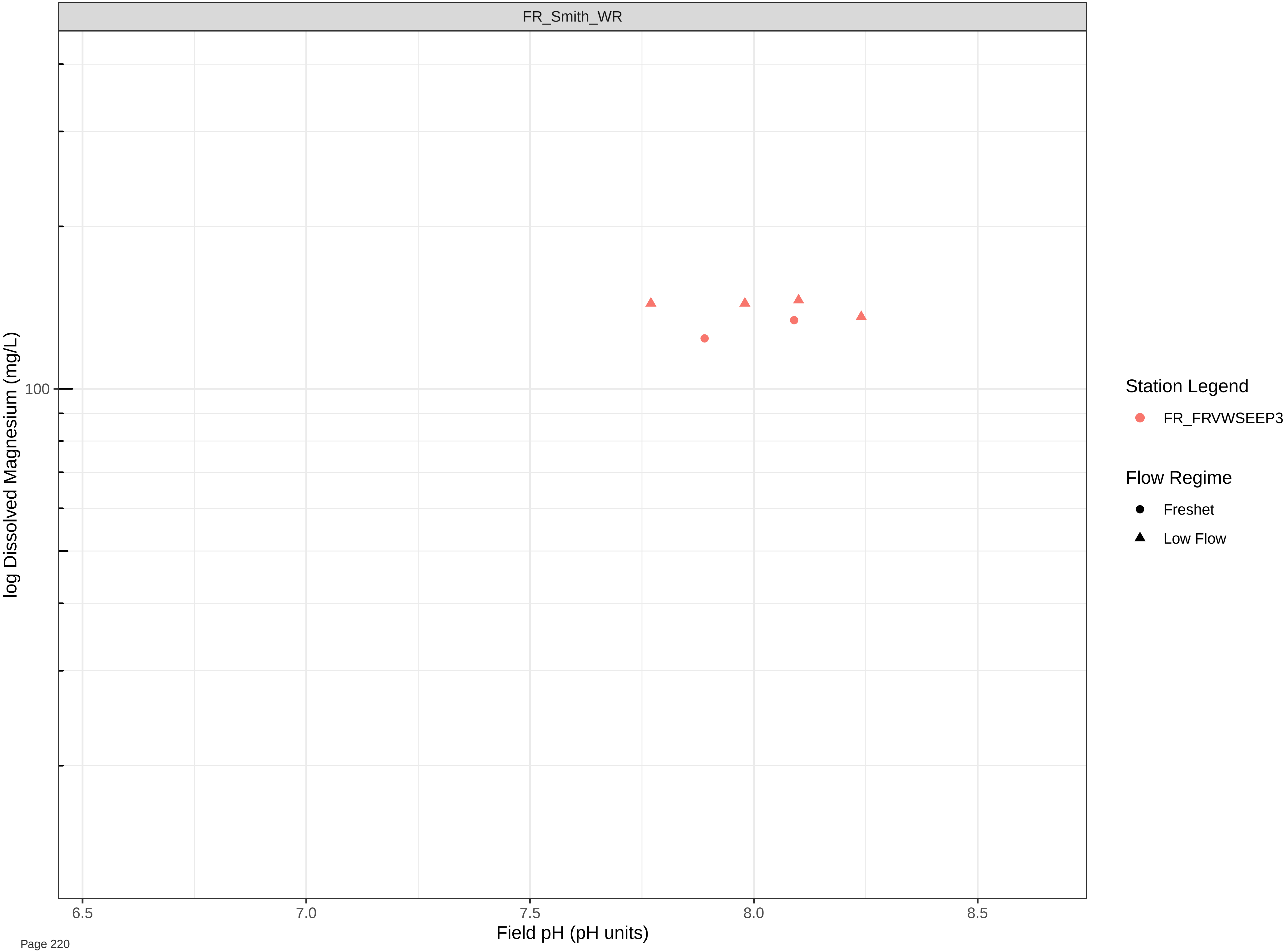

FR_Eagle_WR
log Dissolved Magnesium (mg/L)
100
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

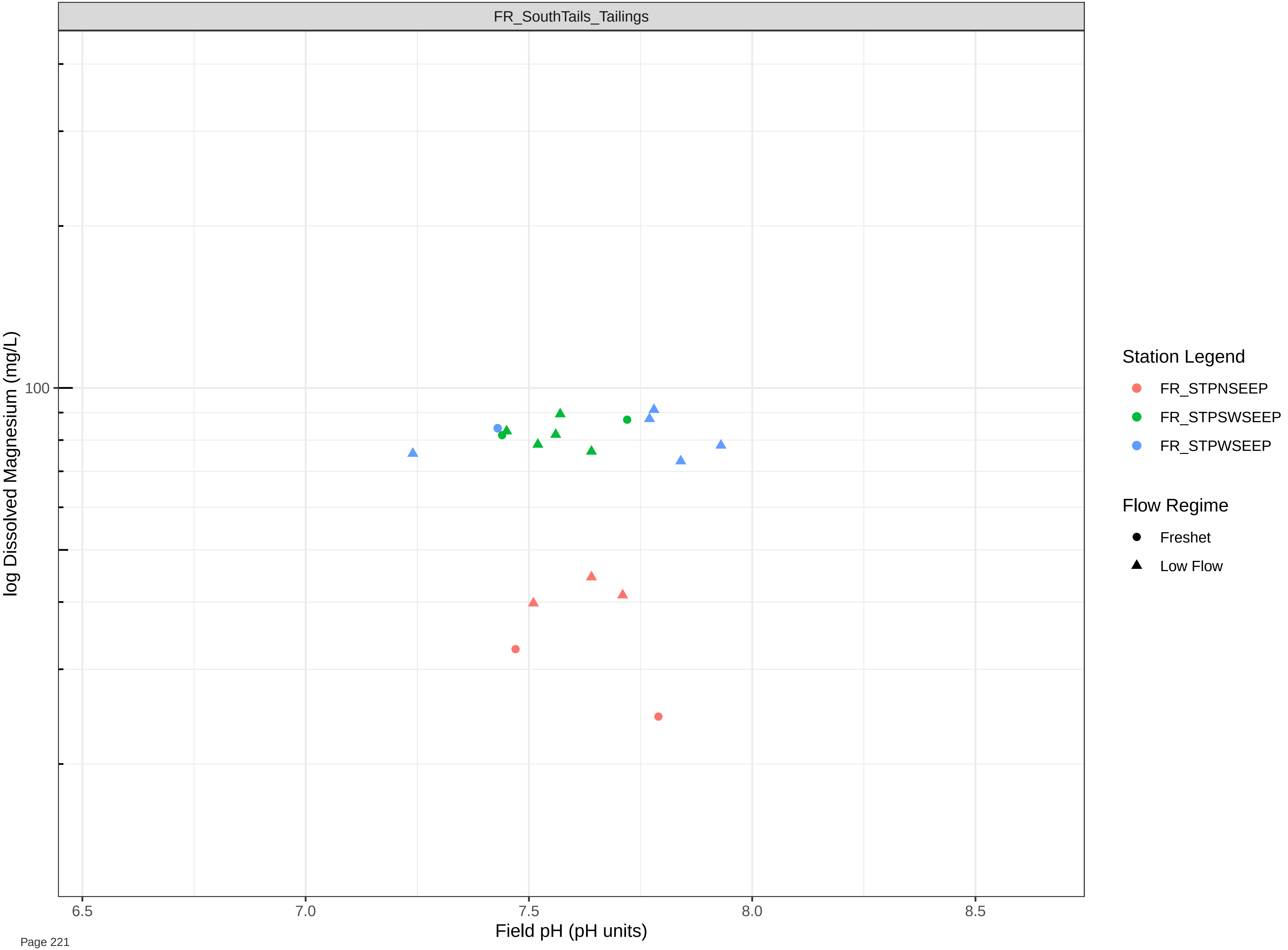

FR_Fseam_WR
log Dissolved Magnesium (mg/L)
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

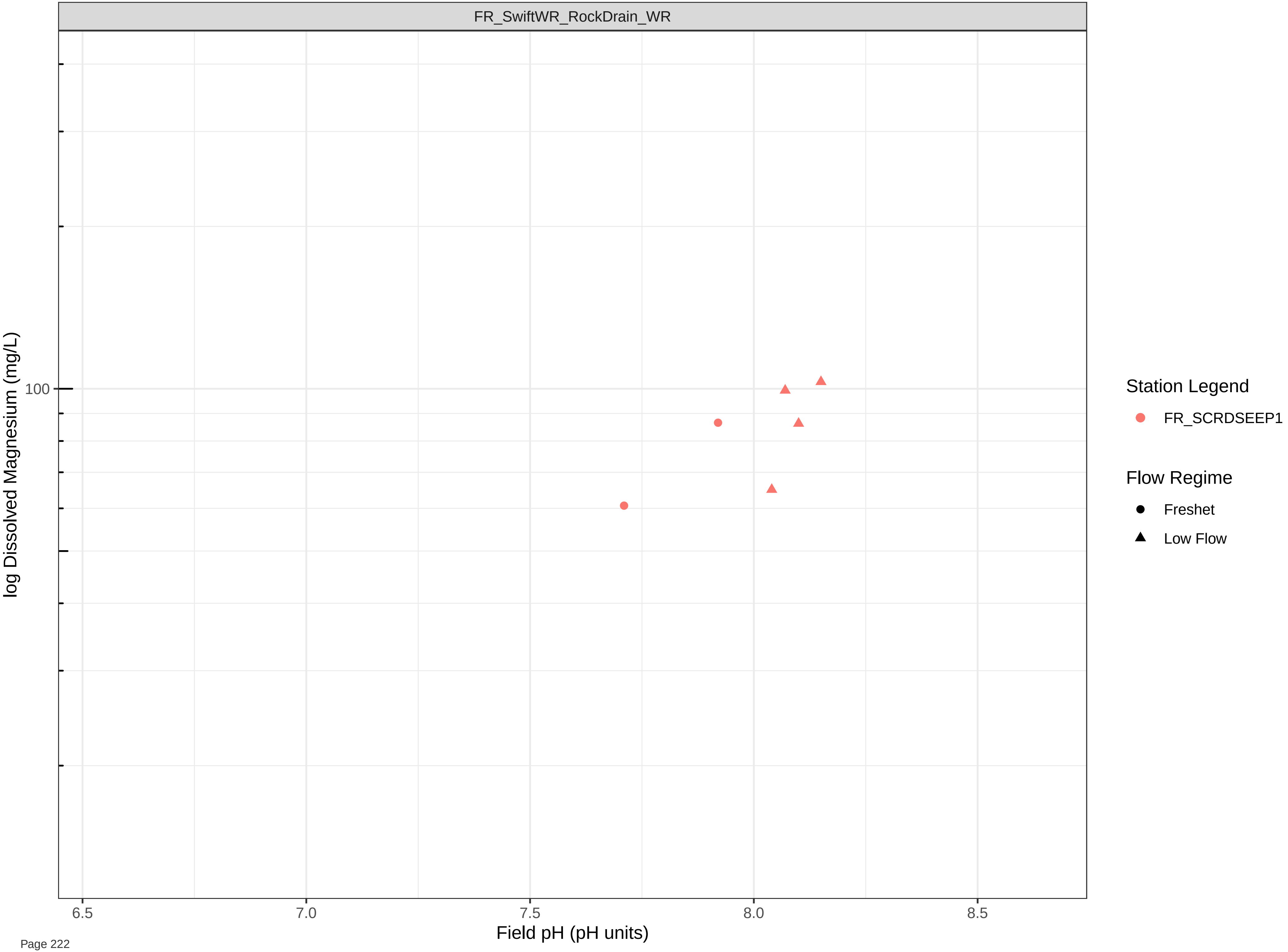

FR_HEN_WR
log Dissolved Magnesium (mg/L)
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_HENSEEP1
● FR_HENSEEP3
● FR_HENSSEEP1
Flow Regime
● Freshet
▲ Low Flow

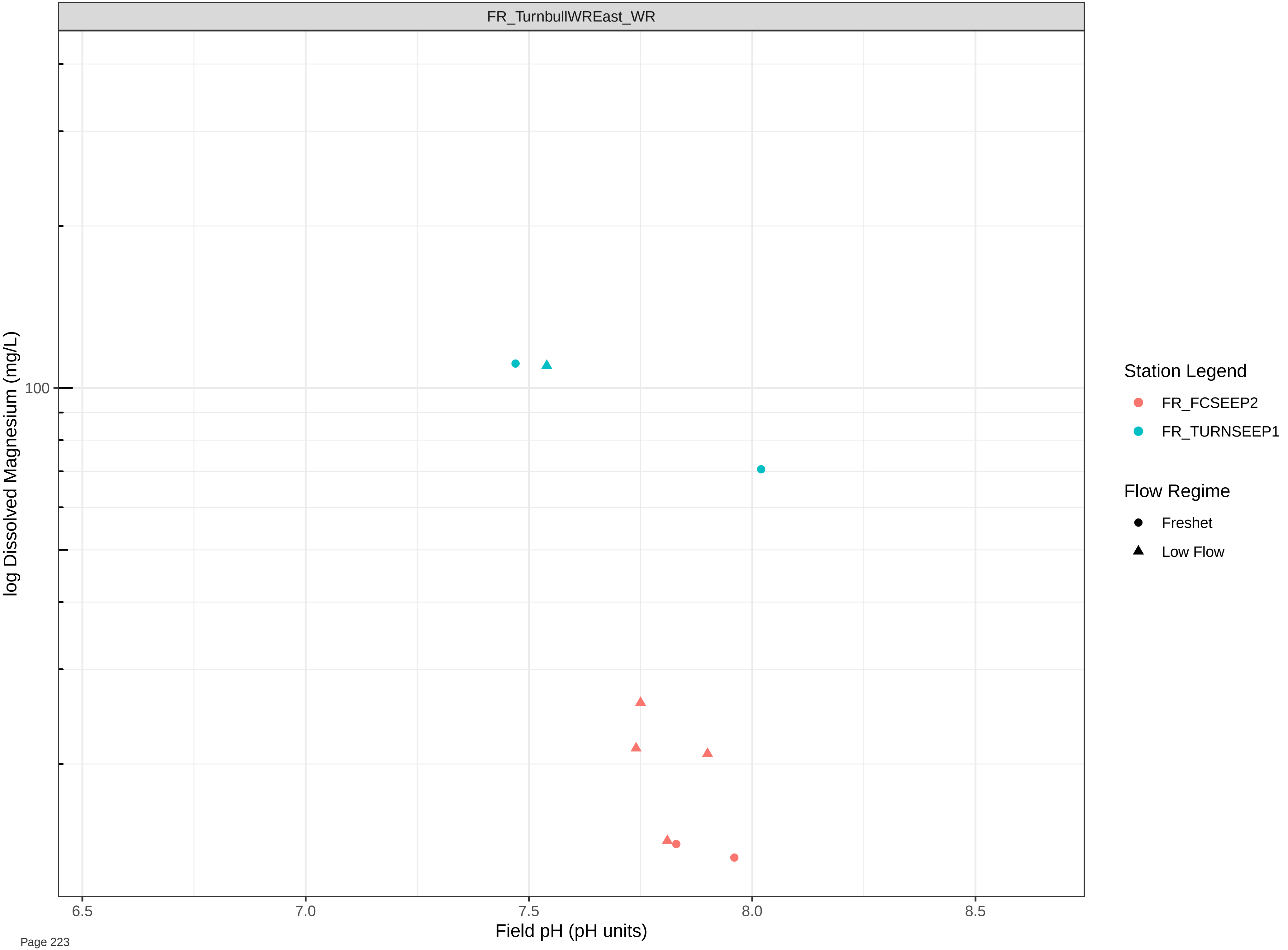

FR_LakeMtn_WR_PITS
log Dissolved Magnesium (mg/L)
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

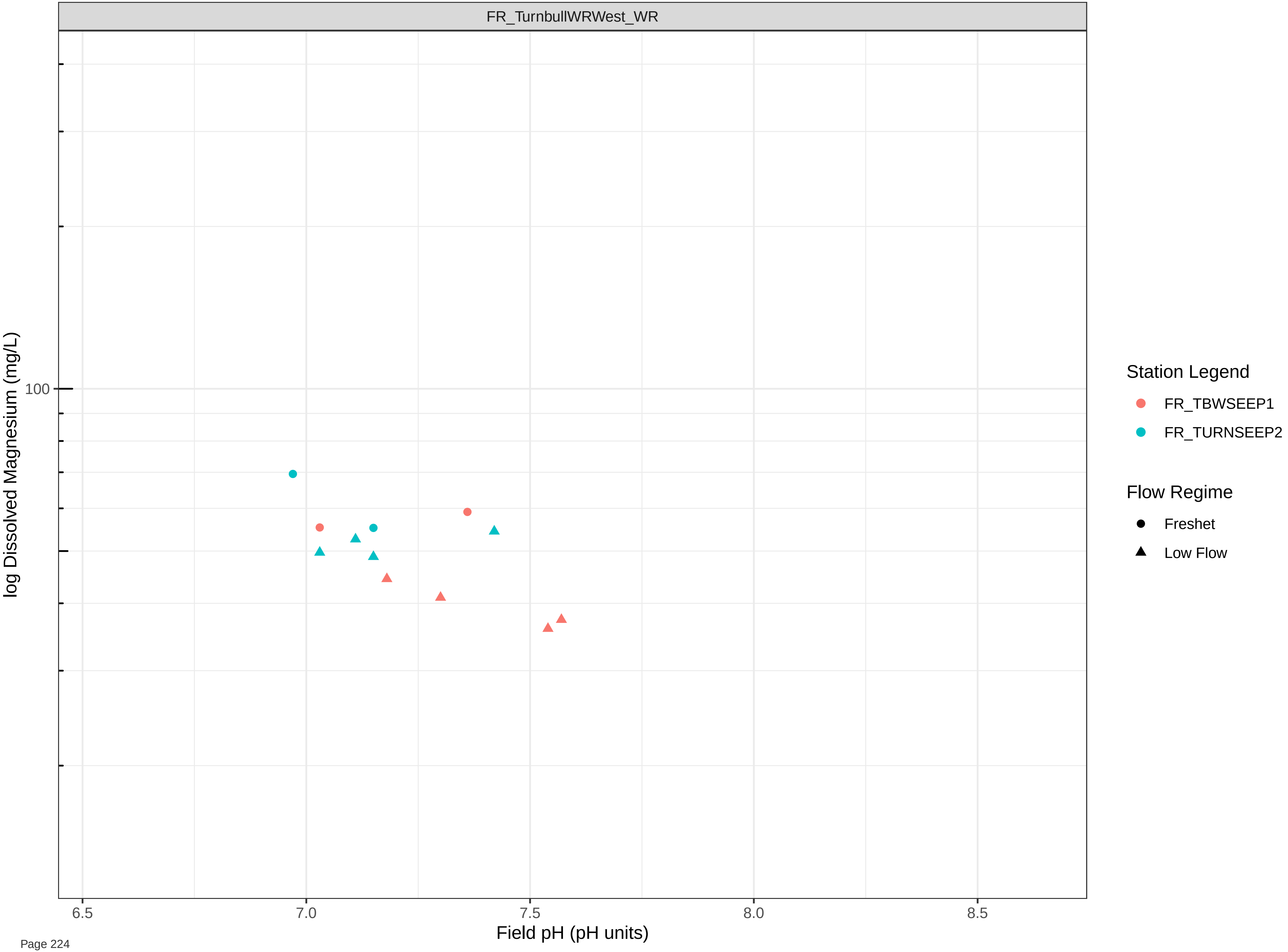

FR_Shandley_WR
log Dissolved Magnesium (mg/L)
100
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

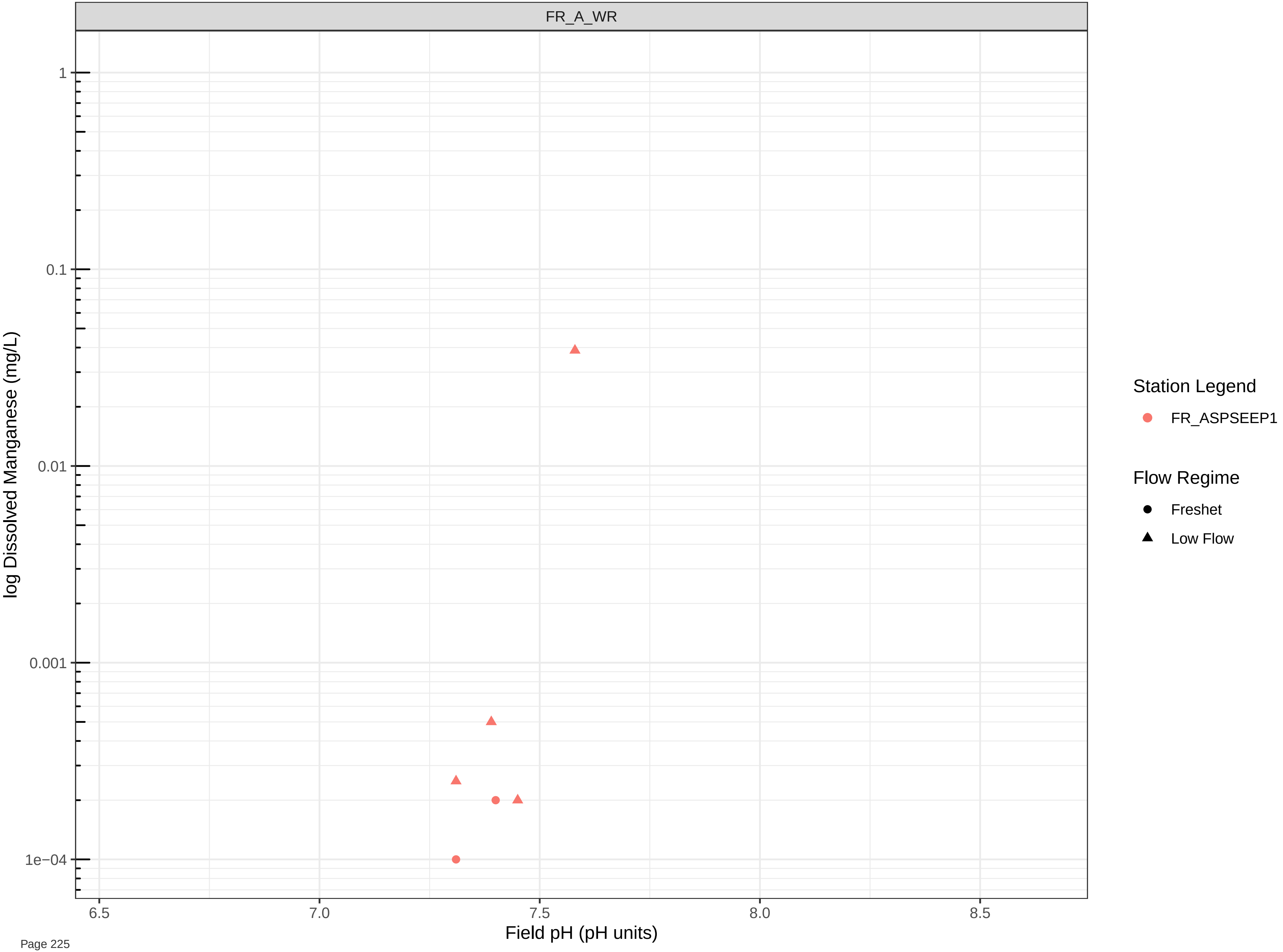

FR_Smith_WR
log Dissolved Magnesium (mg/L)
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

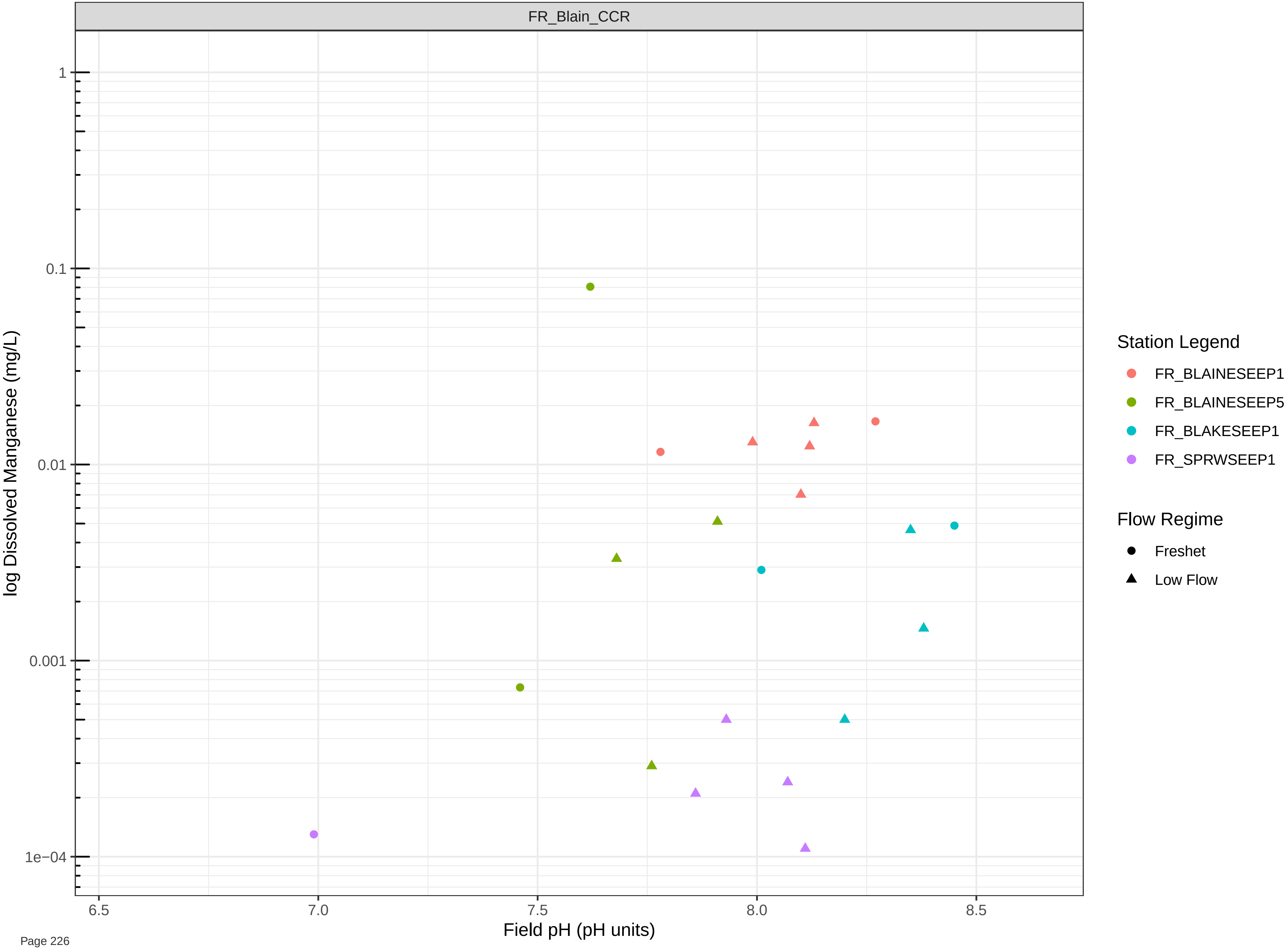

FR_SouthTails_Tailings
log Dissolved Magnesium (mg/L)
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

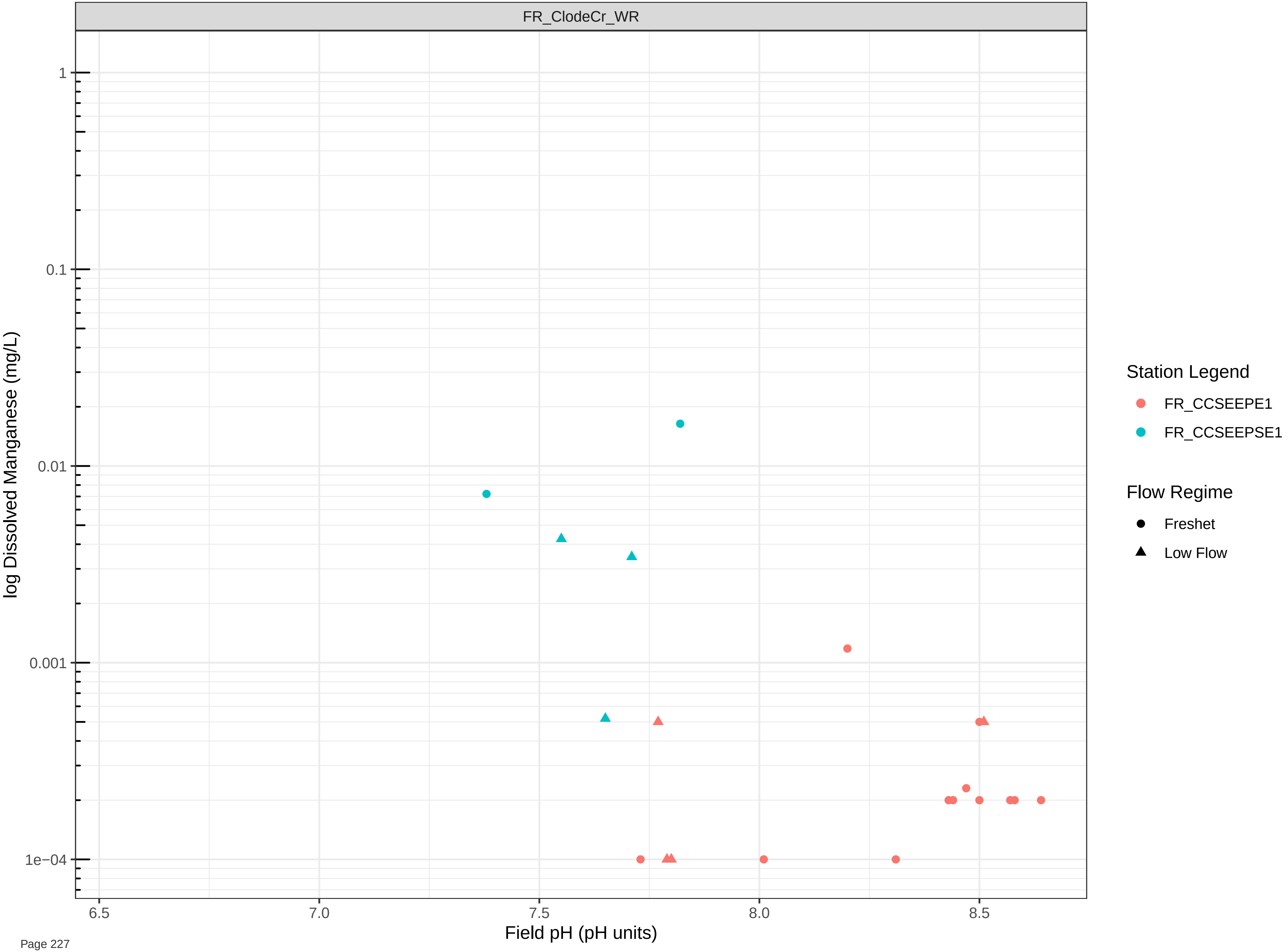

FR_SwiftWR_RockDrain_WR
log Dissolved Magnesium (mg/L)
100
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

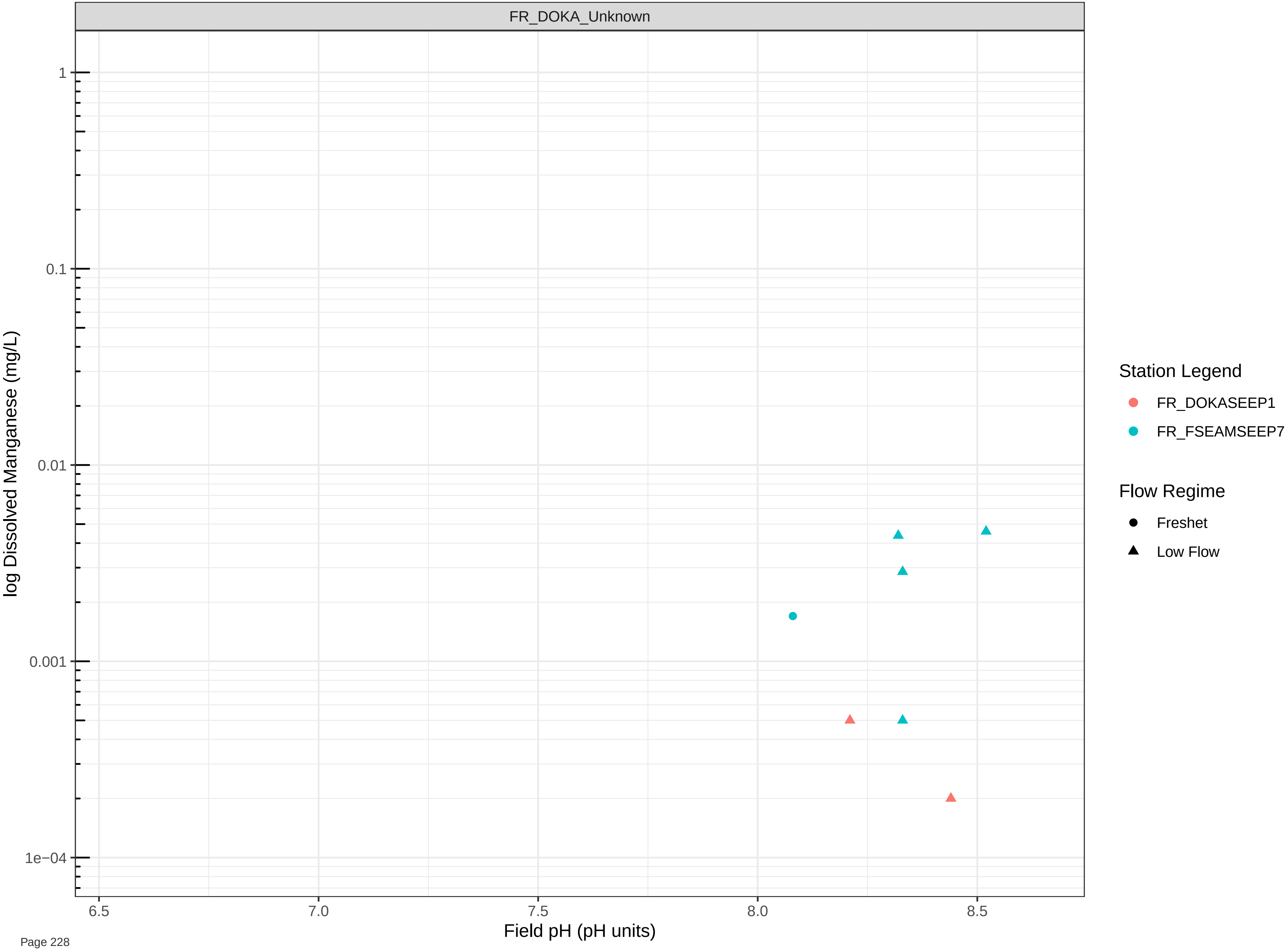

FR_TurnbullWREast_WR
log Dissolved Magnesium (mg/L)
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

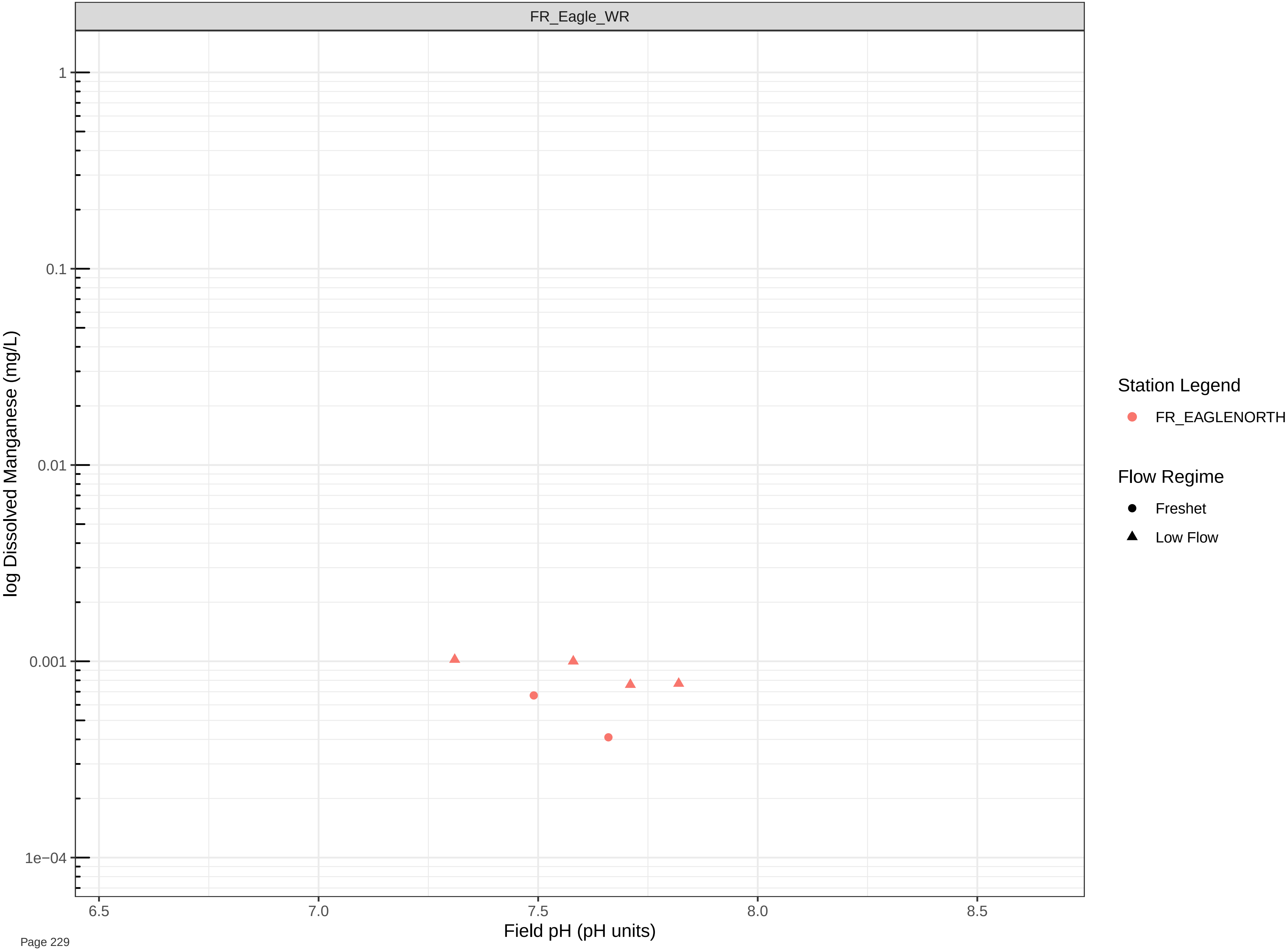

FR_TurnbullWRWest_WR
log Dissolved Magnesium (mg/L)
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

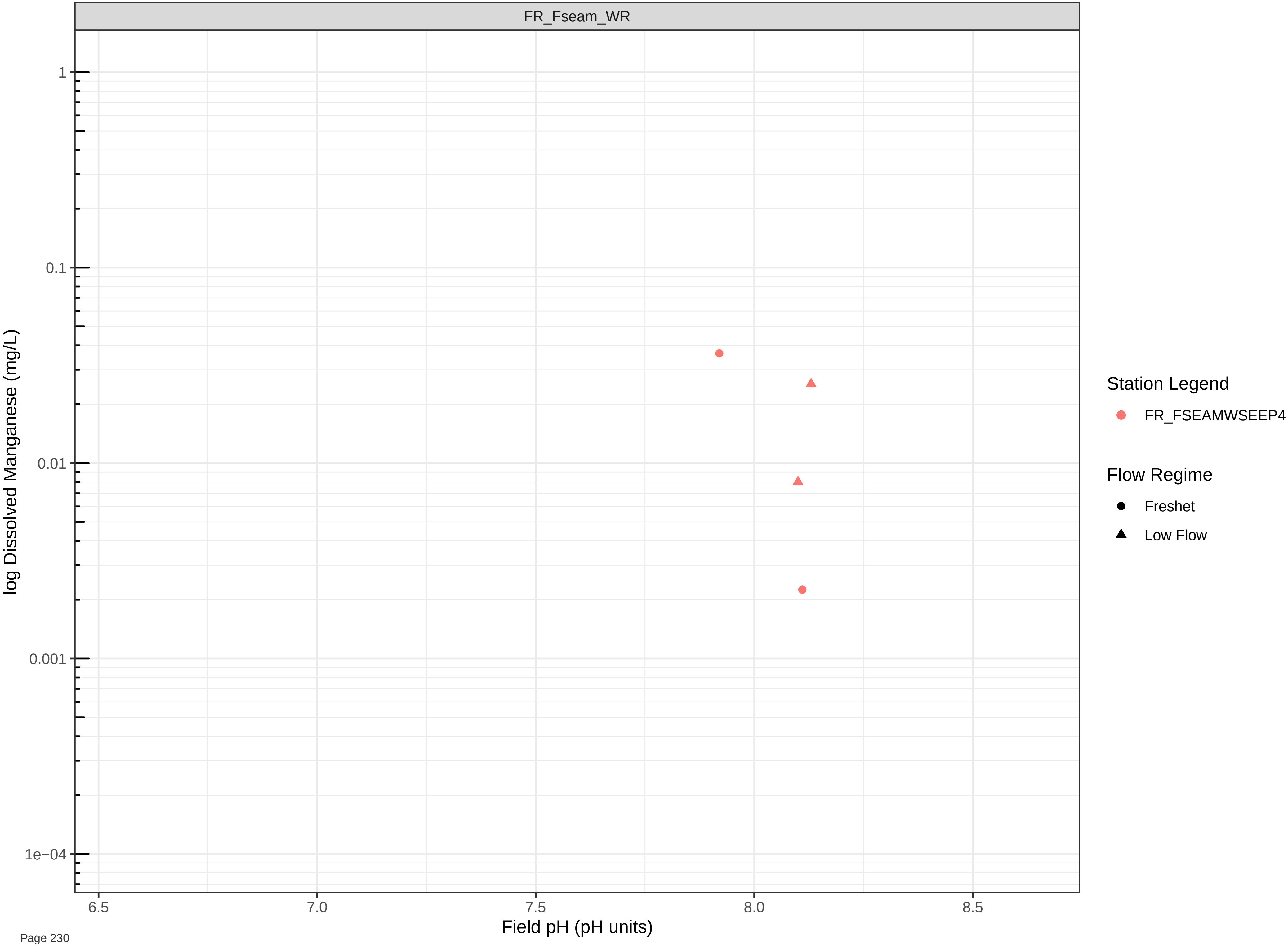

FR_A_WR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

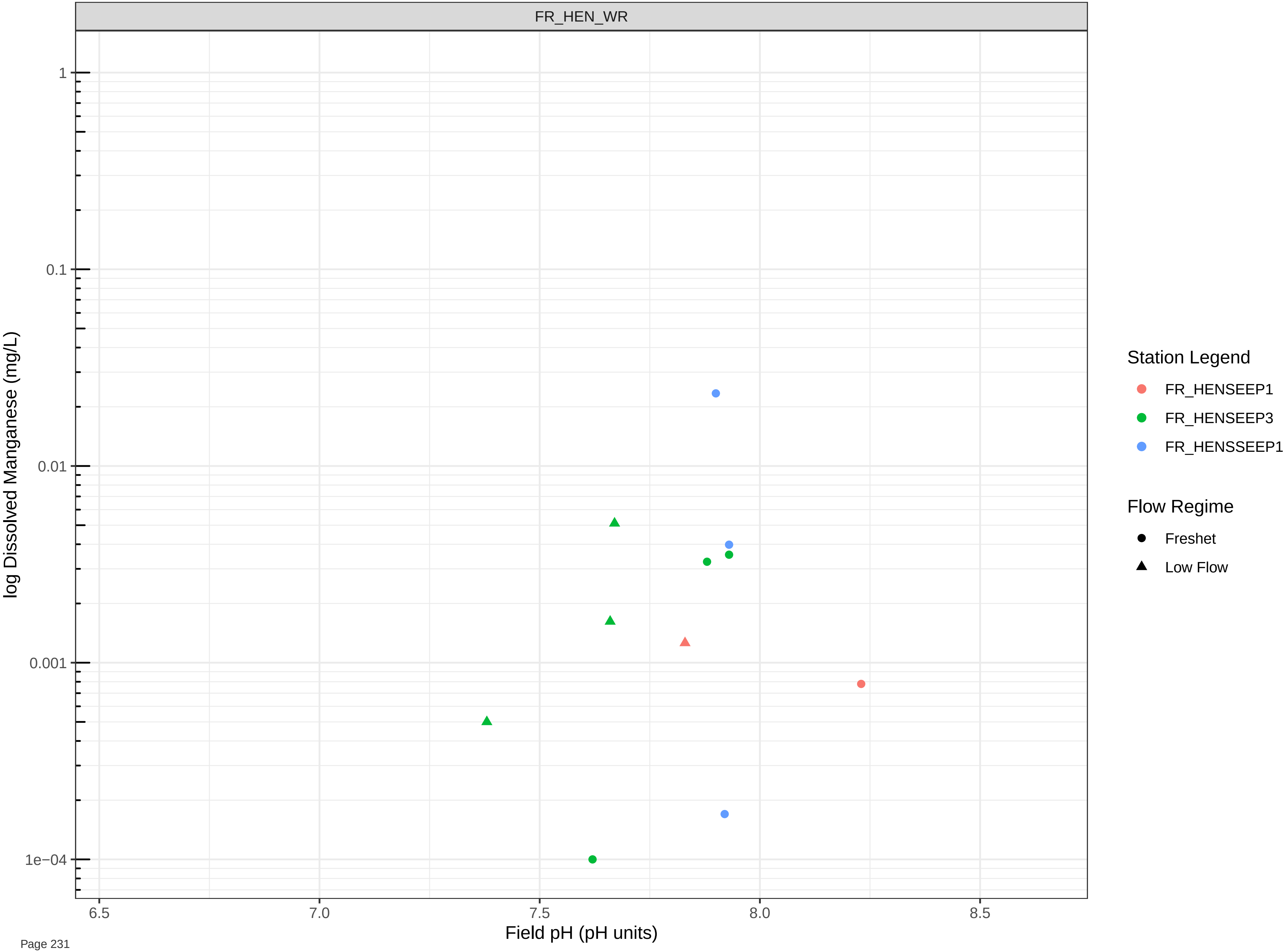

FR_Blain_CCR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

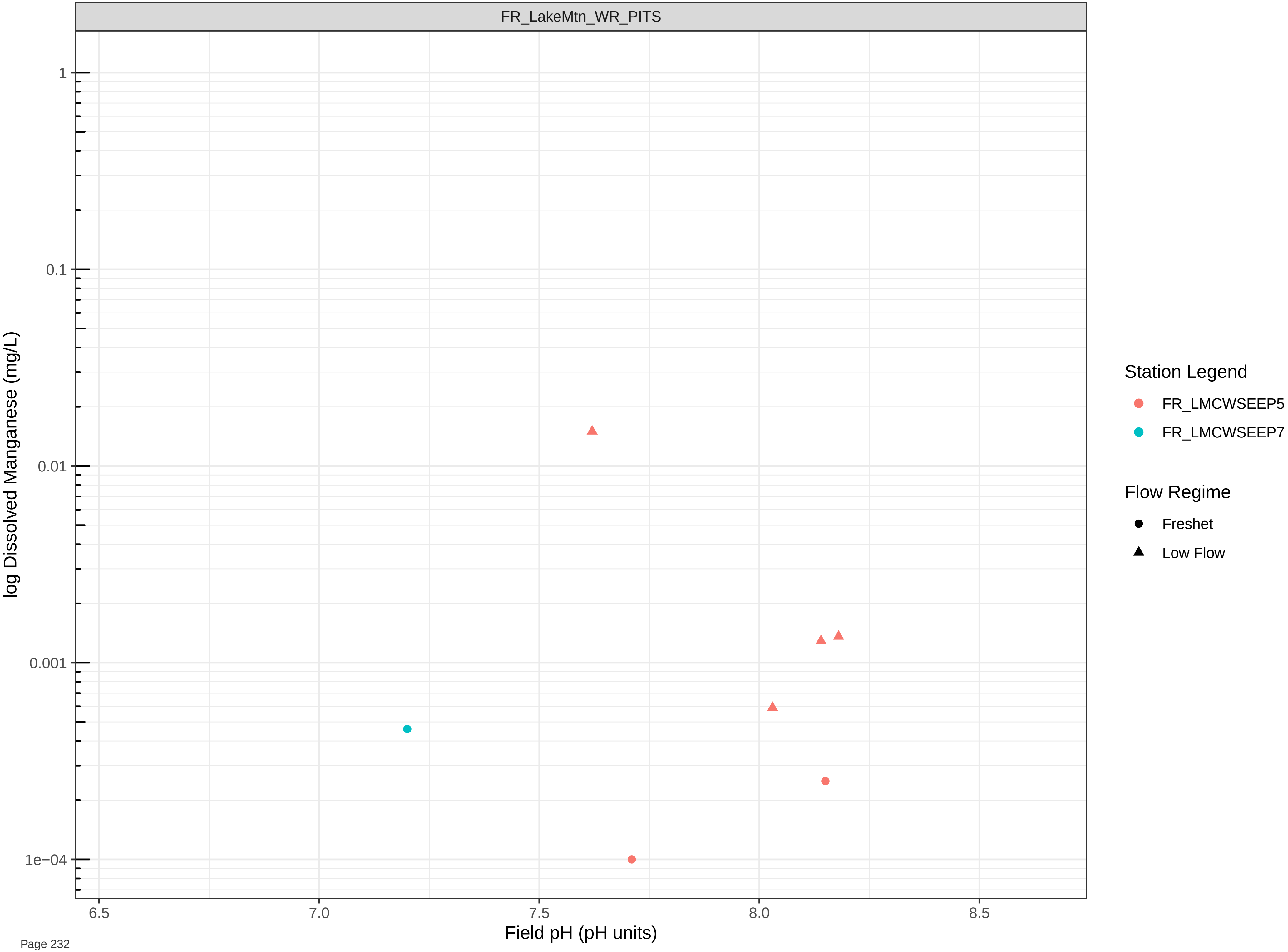

FR_ClodeCr_WR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

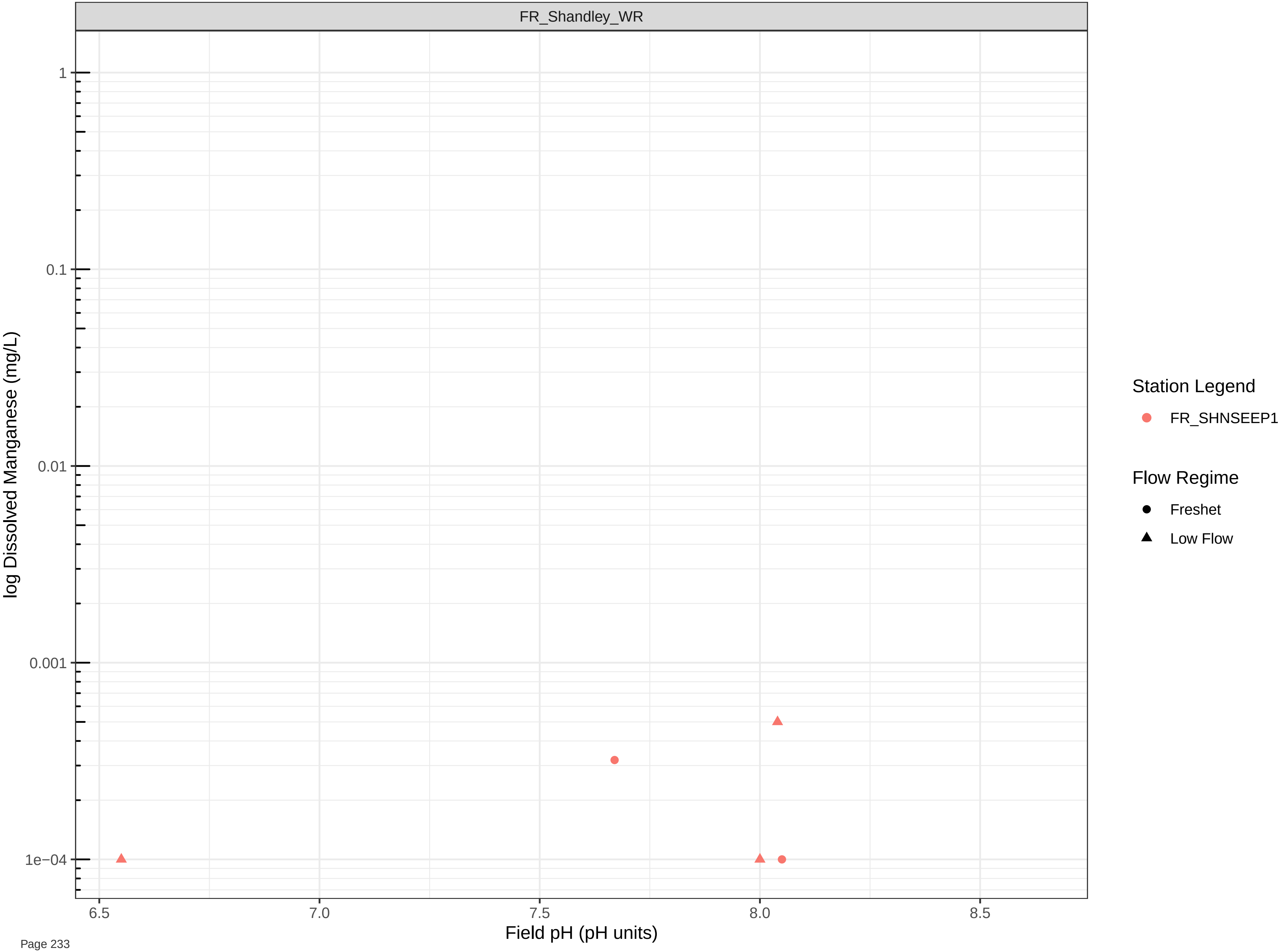

FR_DOKA_Unknown
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

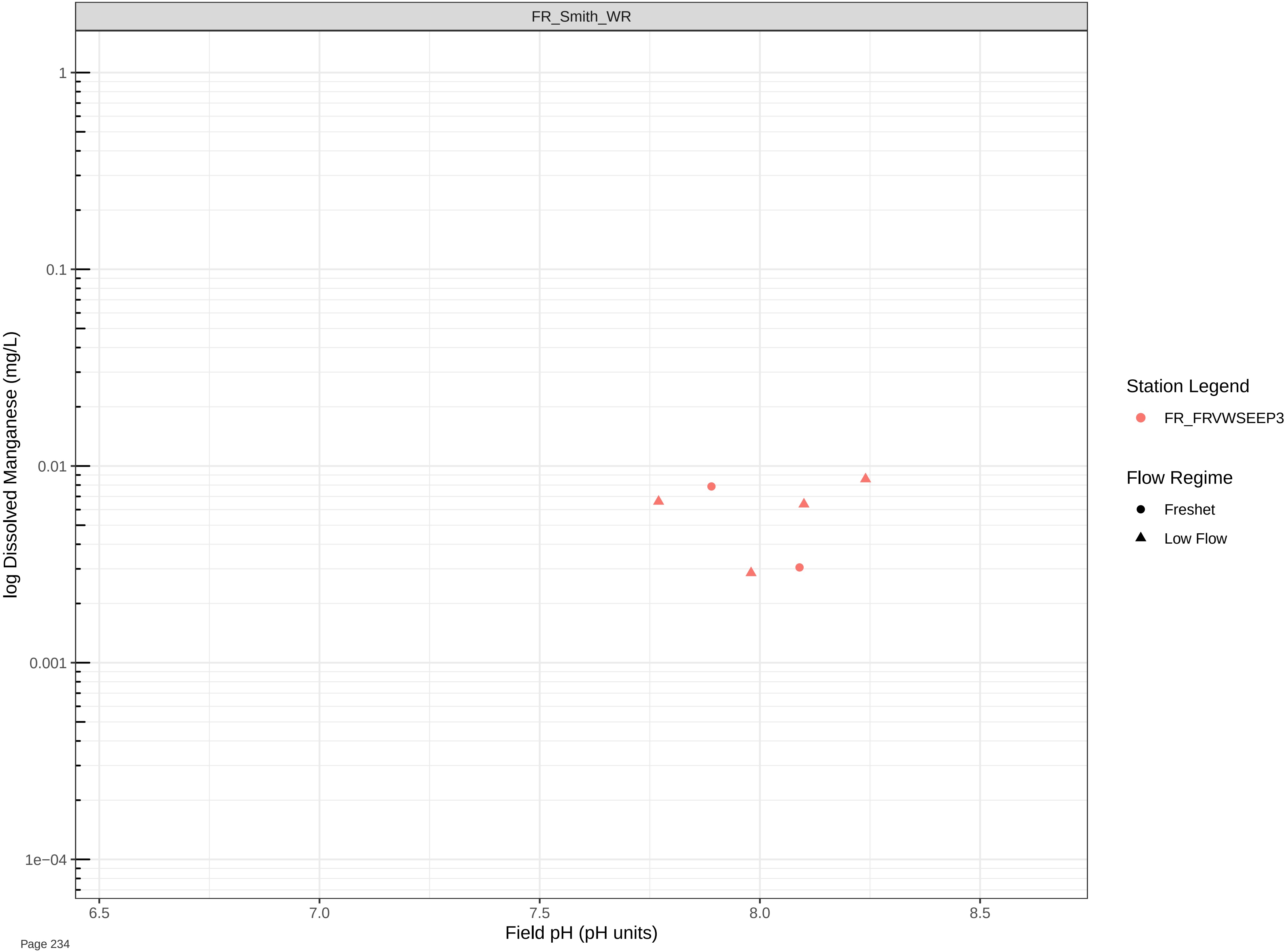

FR_Eagle_WR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

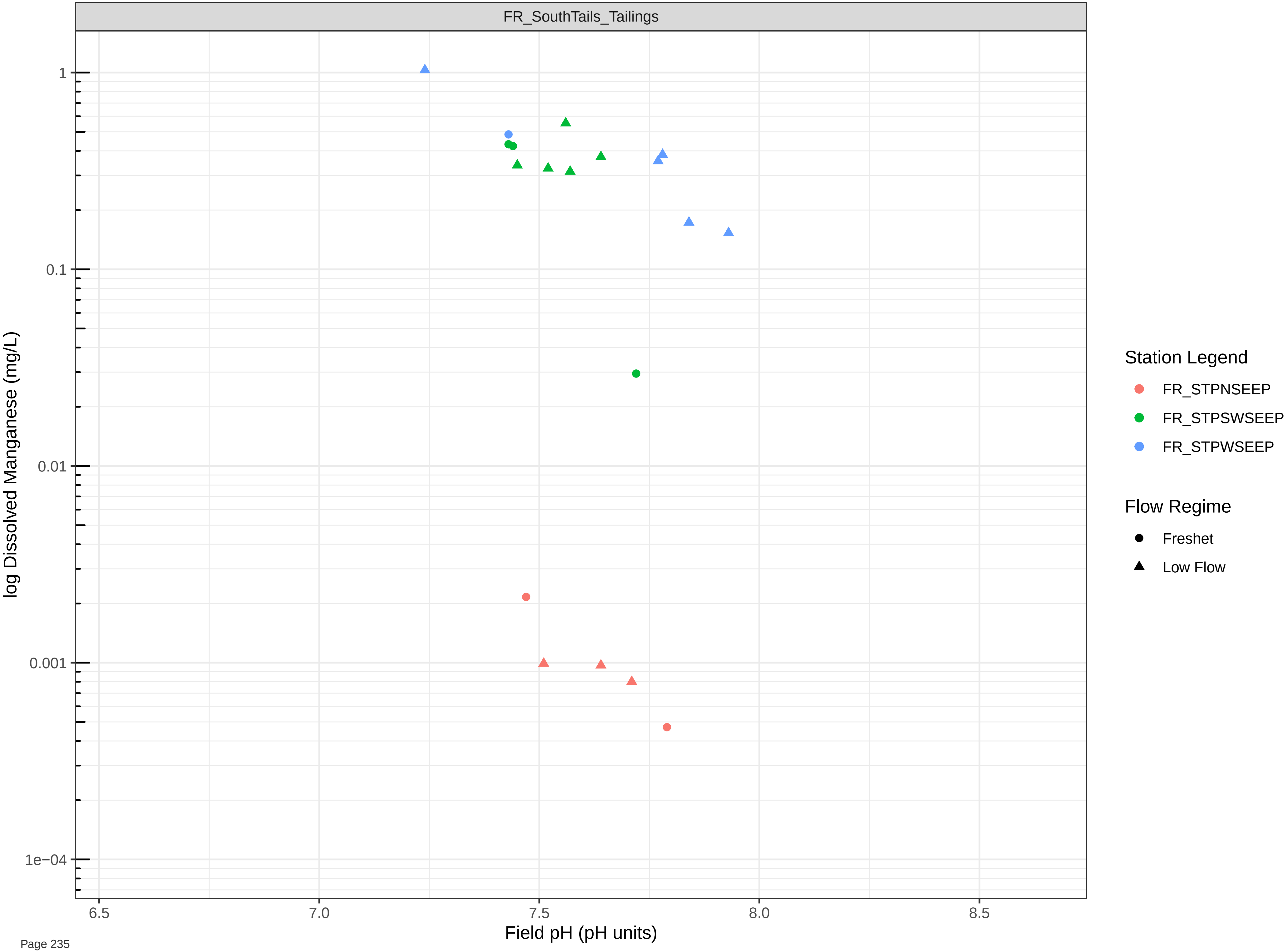

FR_Fseam_WR
1
0.1
0.01
0.001
1e−04
log Dissolved Manganese (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

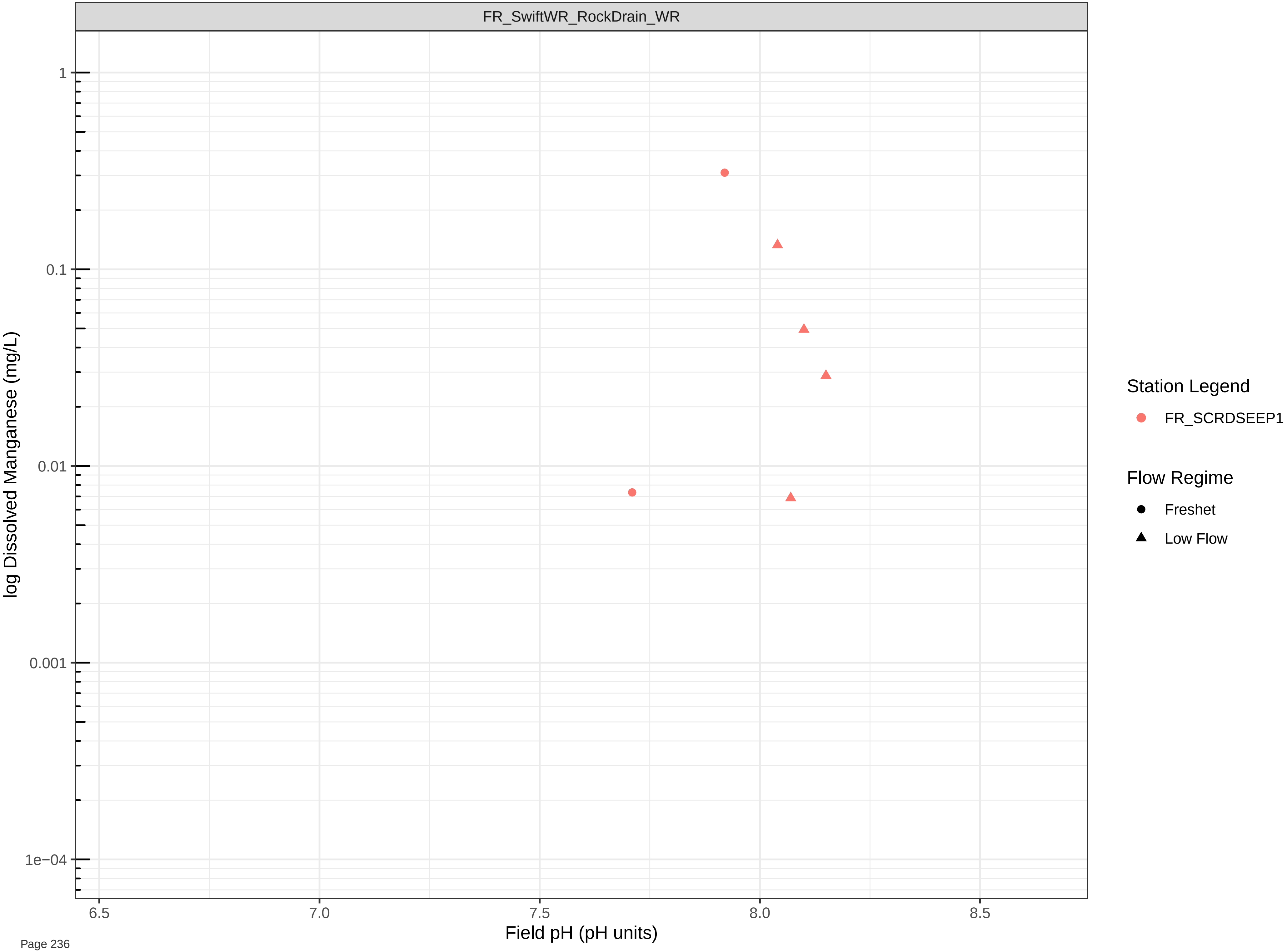

FR_HEN_WR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

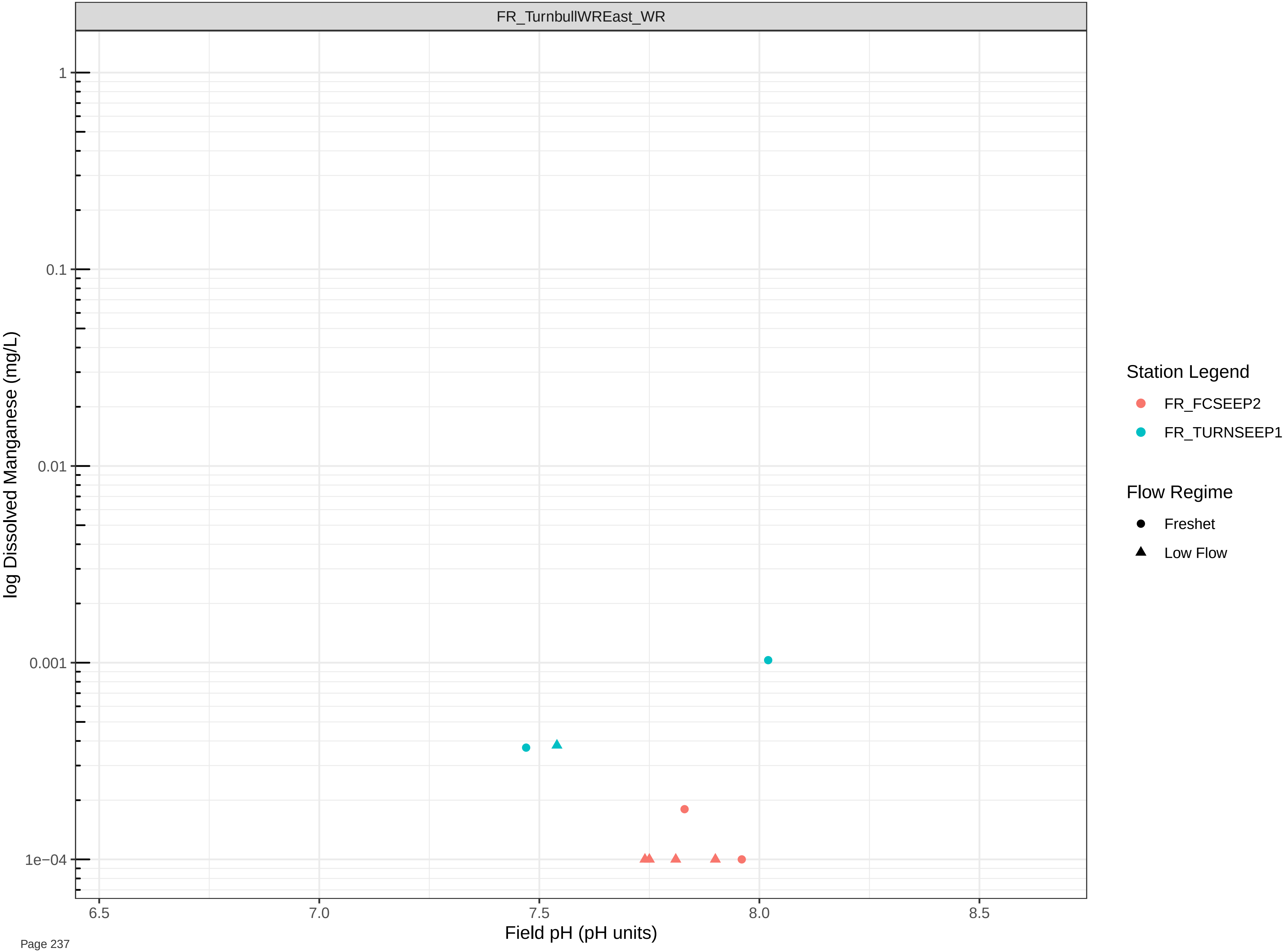

FR_LakeMtn_WR_PITS
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

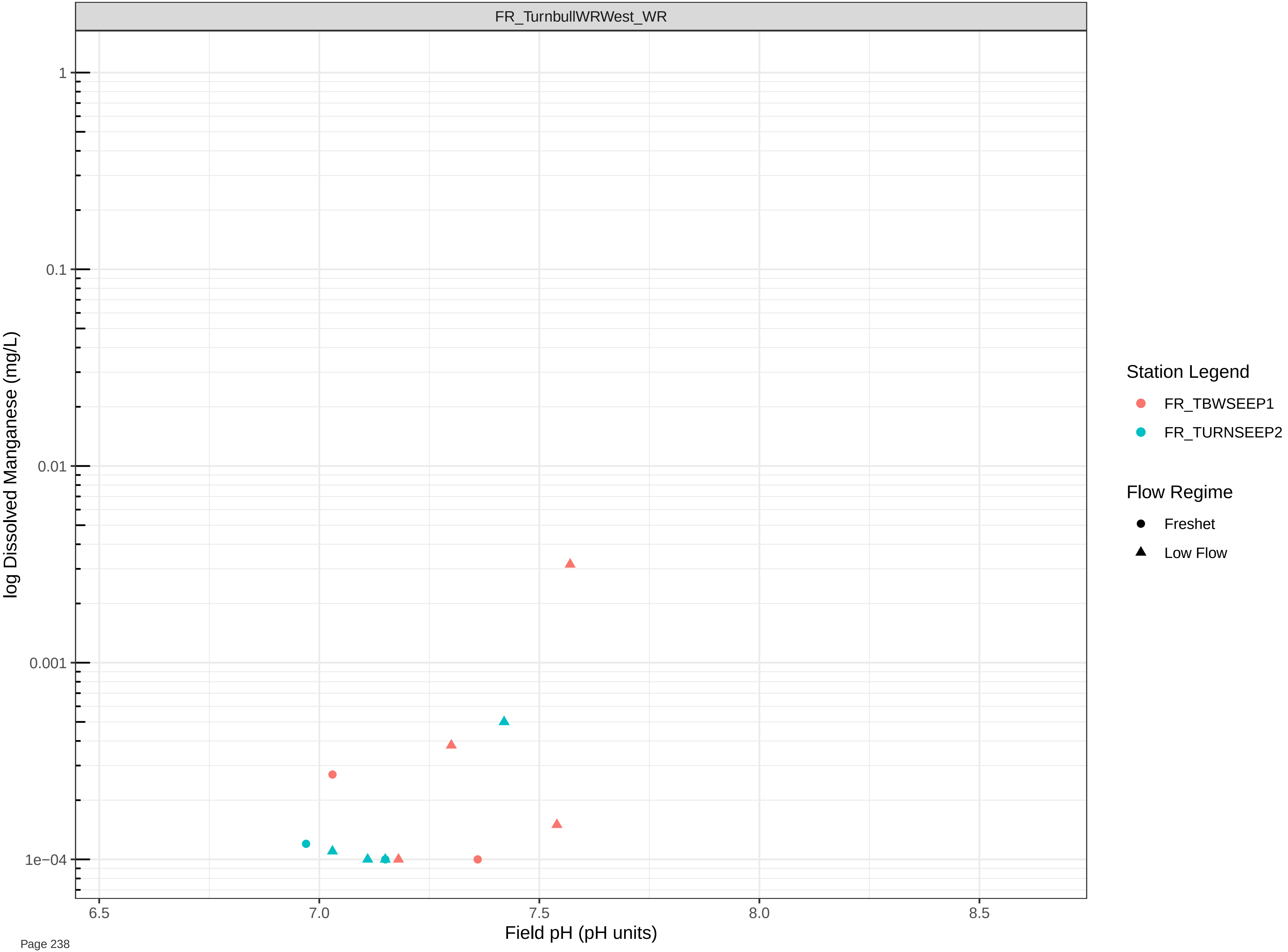

FR_Shandley_WR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

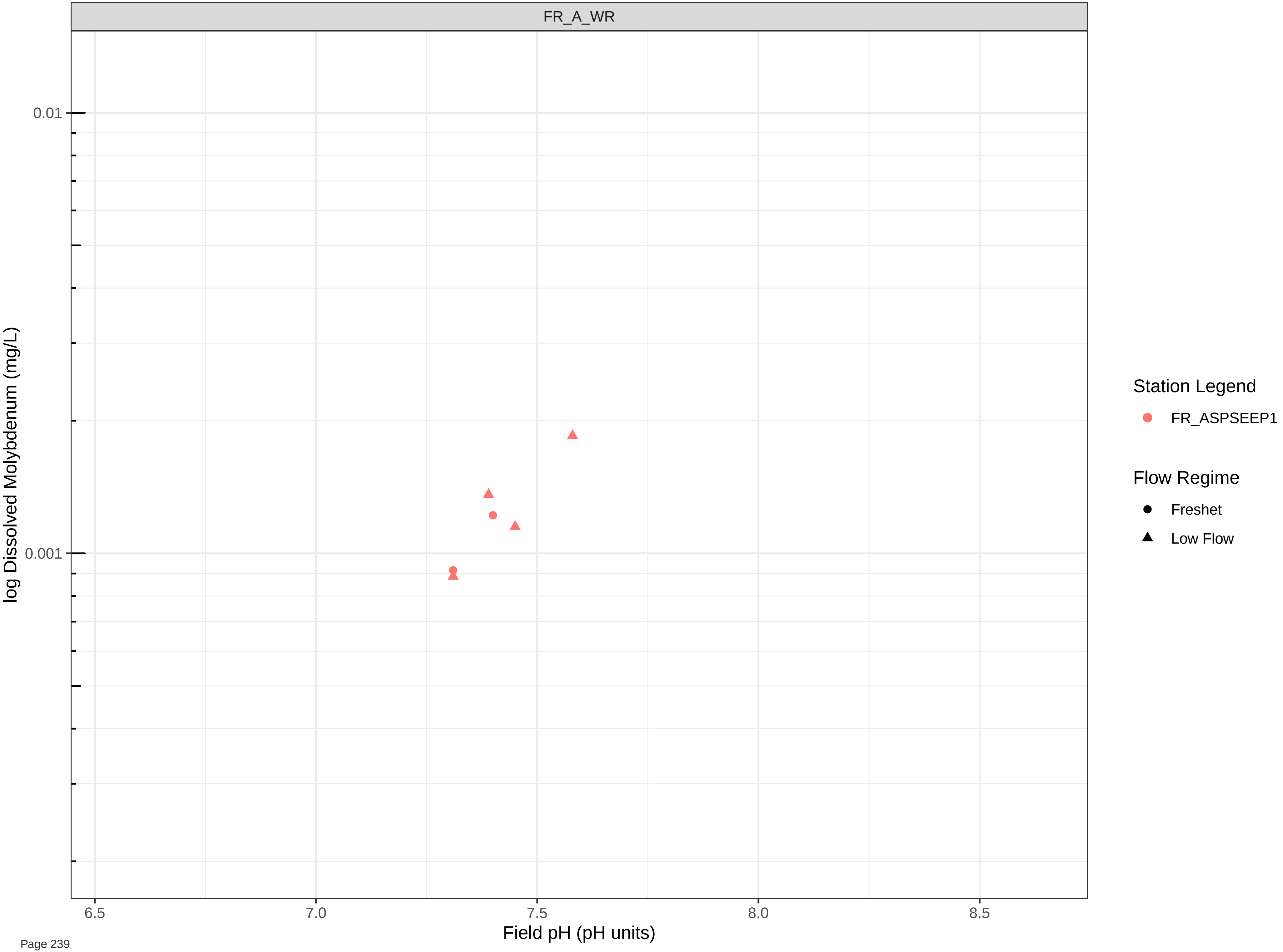

FR_Smith_WR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

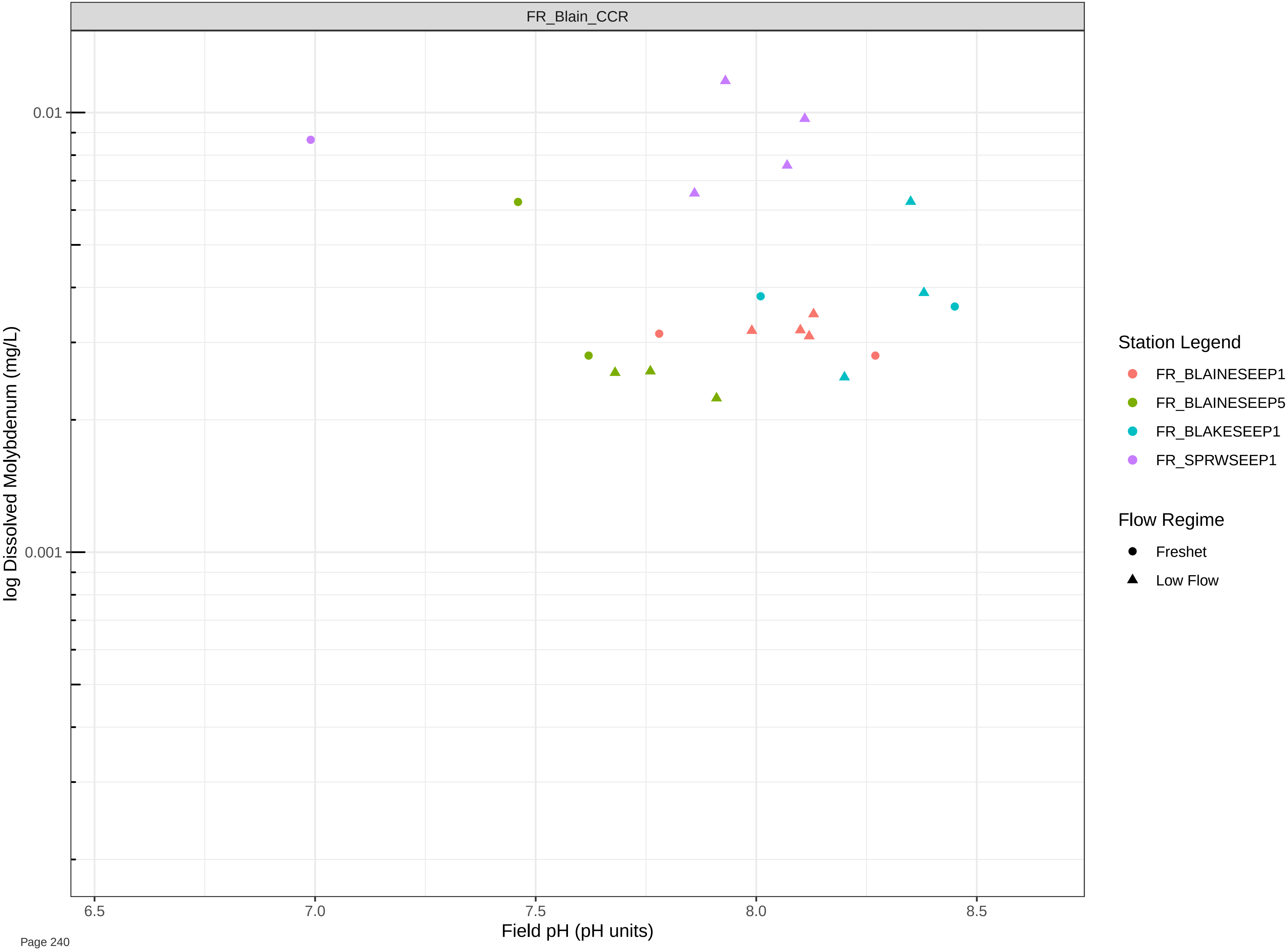

FR_SouthTails_Tailings
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

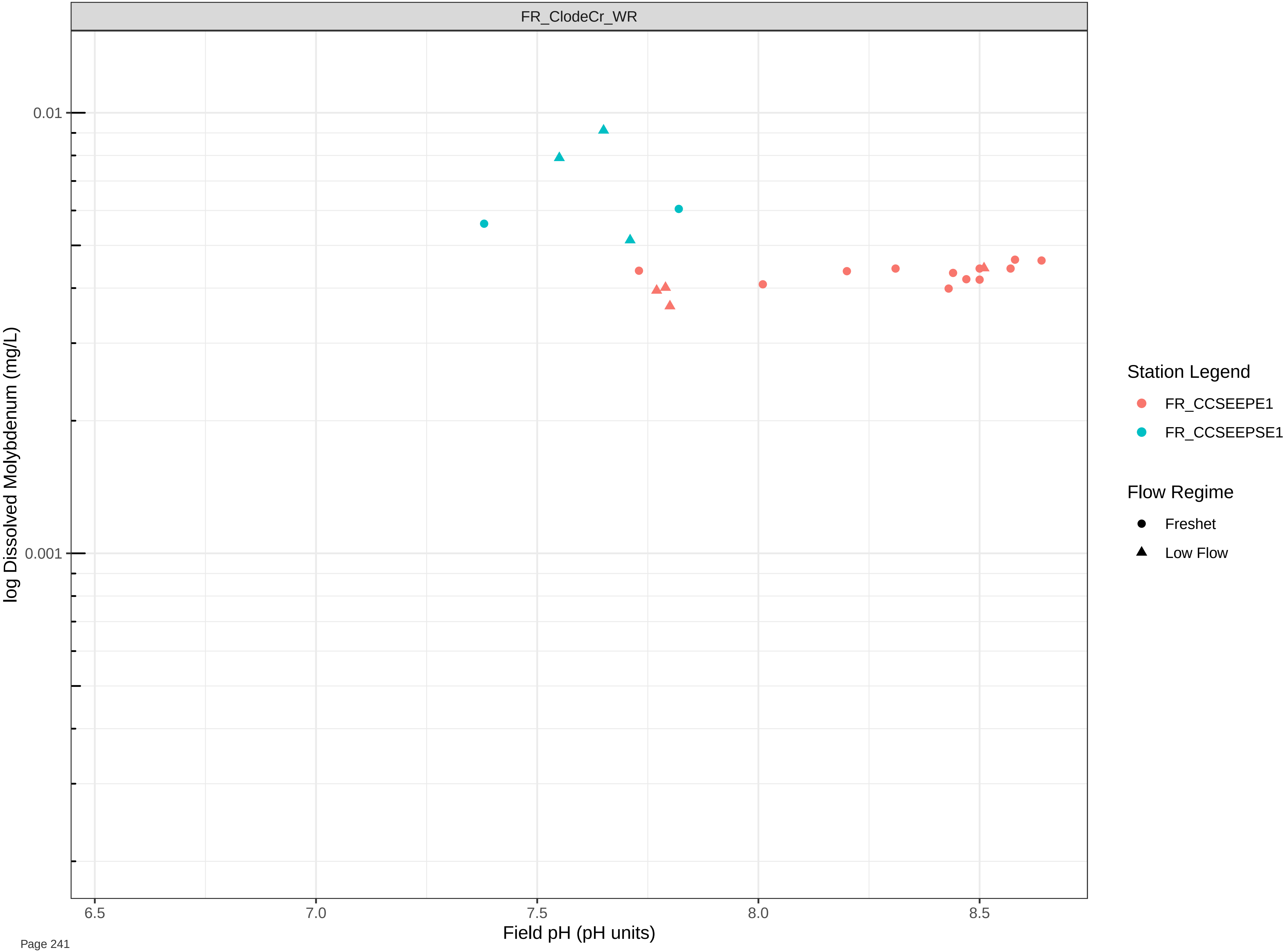

FR_SwiftWR_RockDrain_WR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

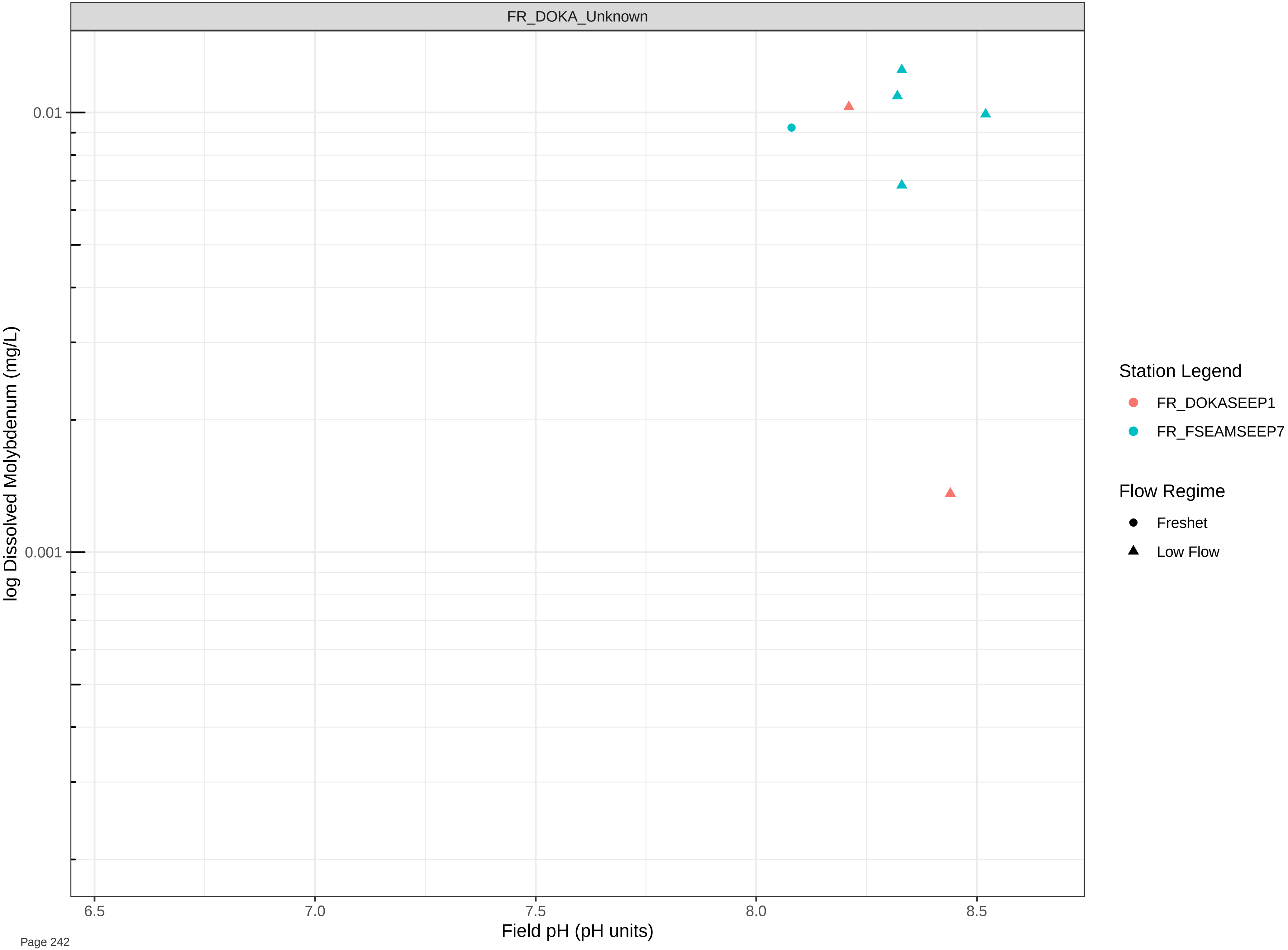

FR_TurnbullWREast_WR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FCSEEP2
● FR_TURNSEEP1
Flow Regime
● Freshet
▲ Low Flow

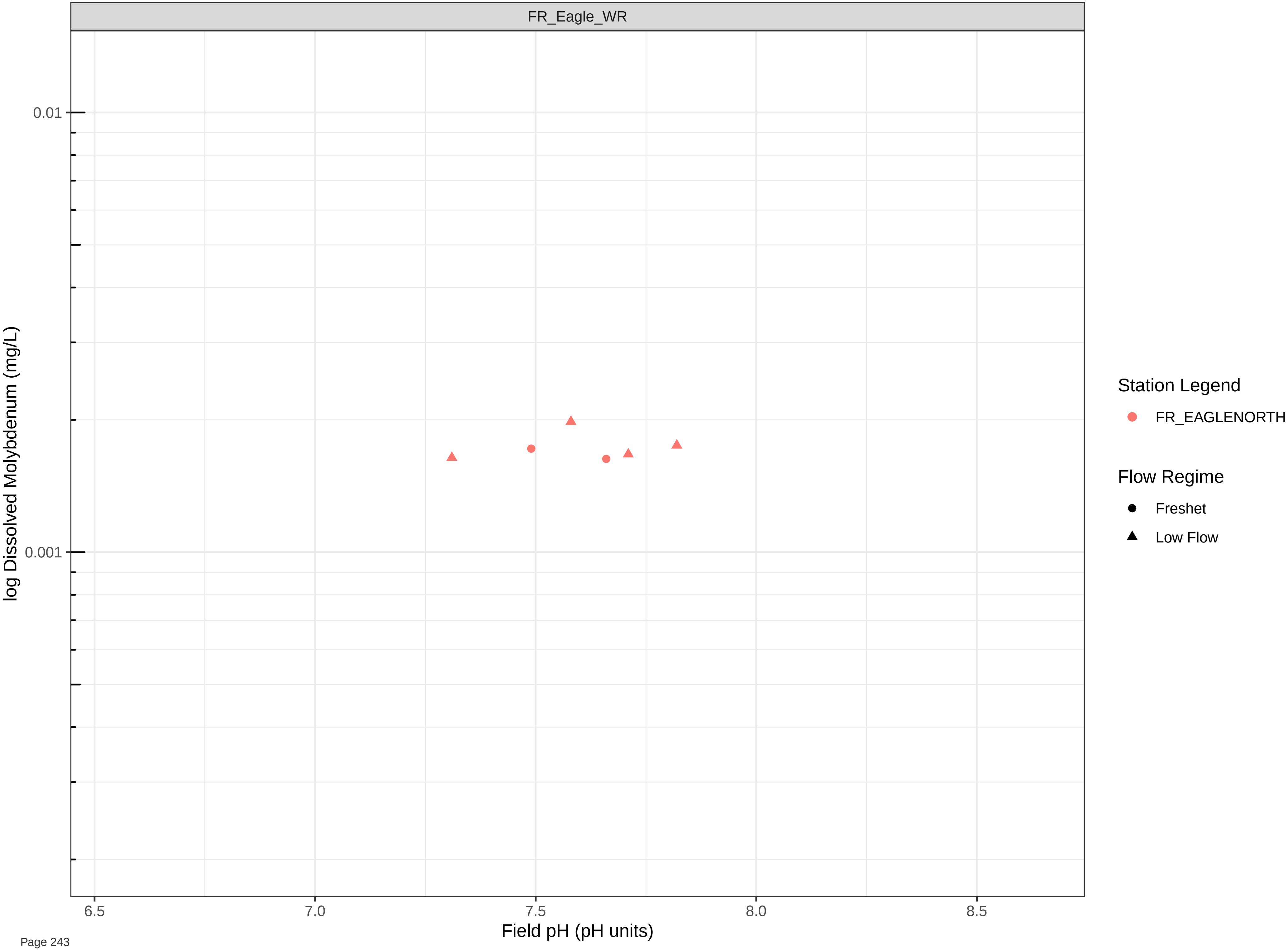

FR_TurnbullWRWest_WR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

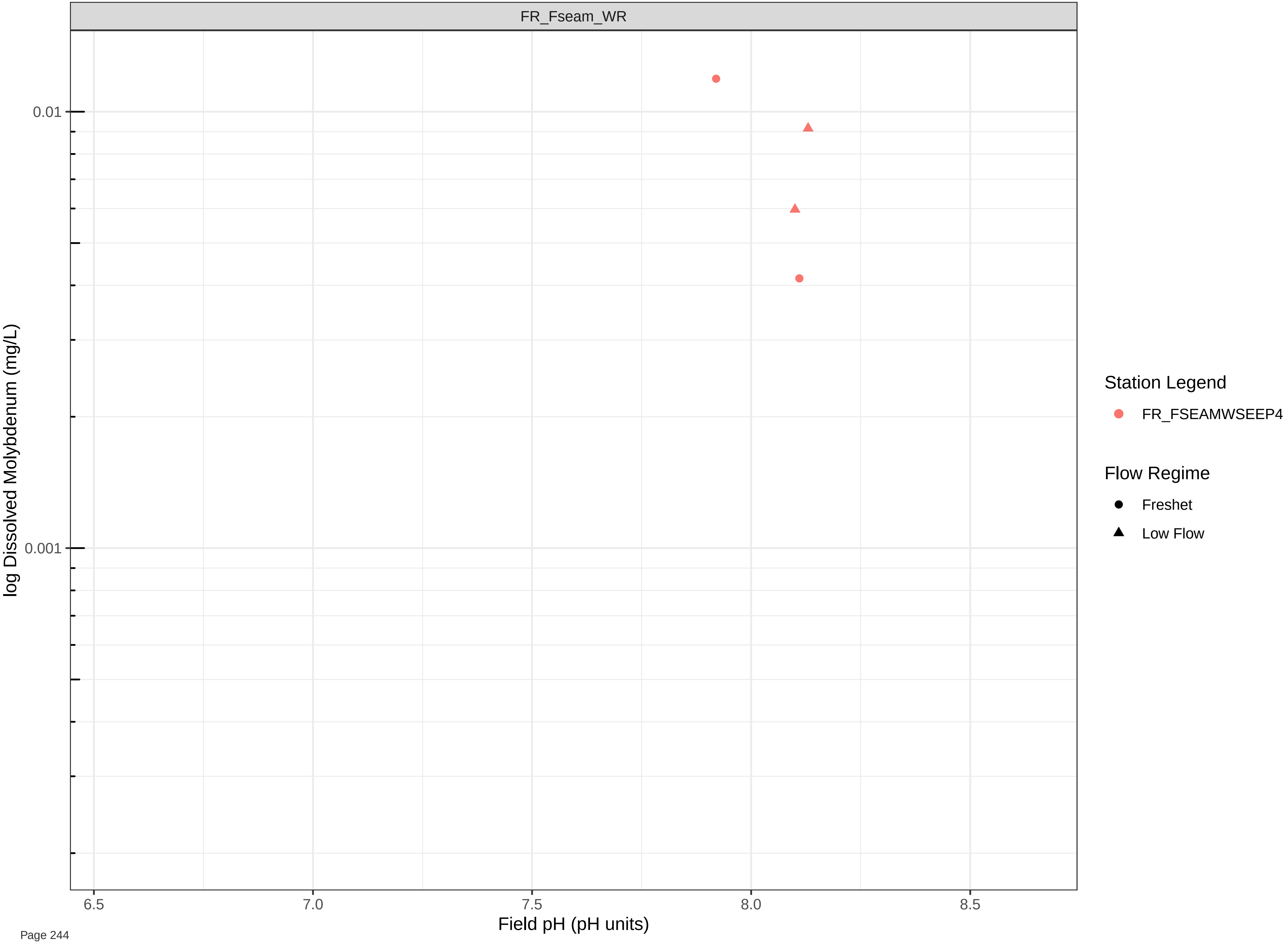

FR_A_WR
log Dissolved Molybdenum (mg/L)
0.01
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

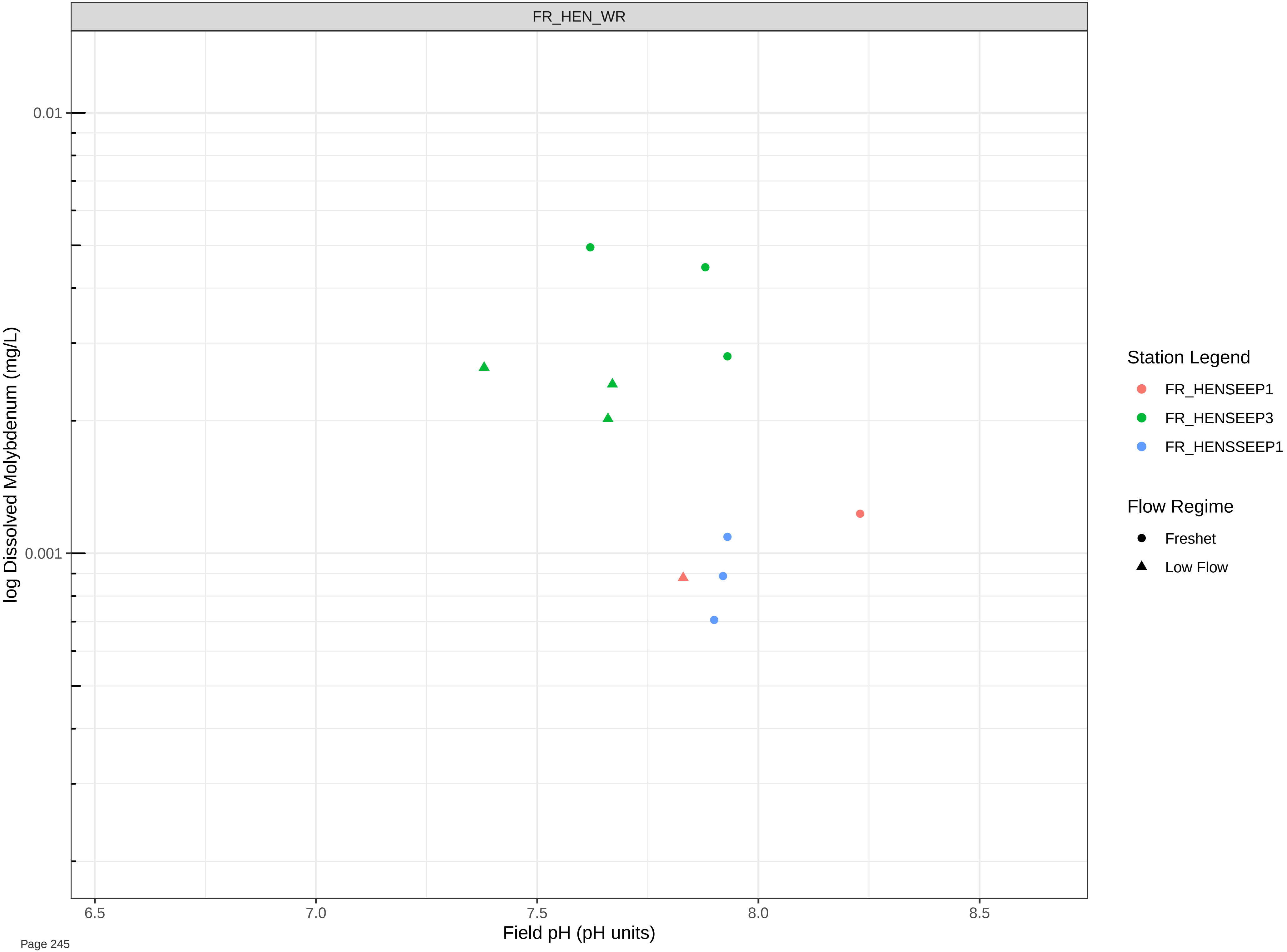

FR_Blain_CCR
0.01
0.001
log Dissolved Molybdenum (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow

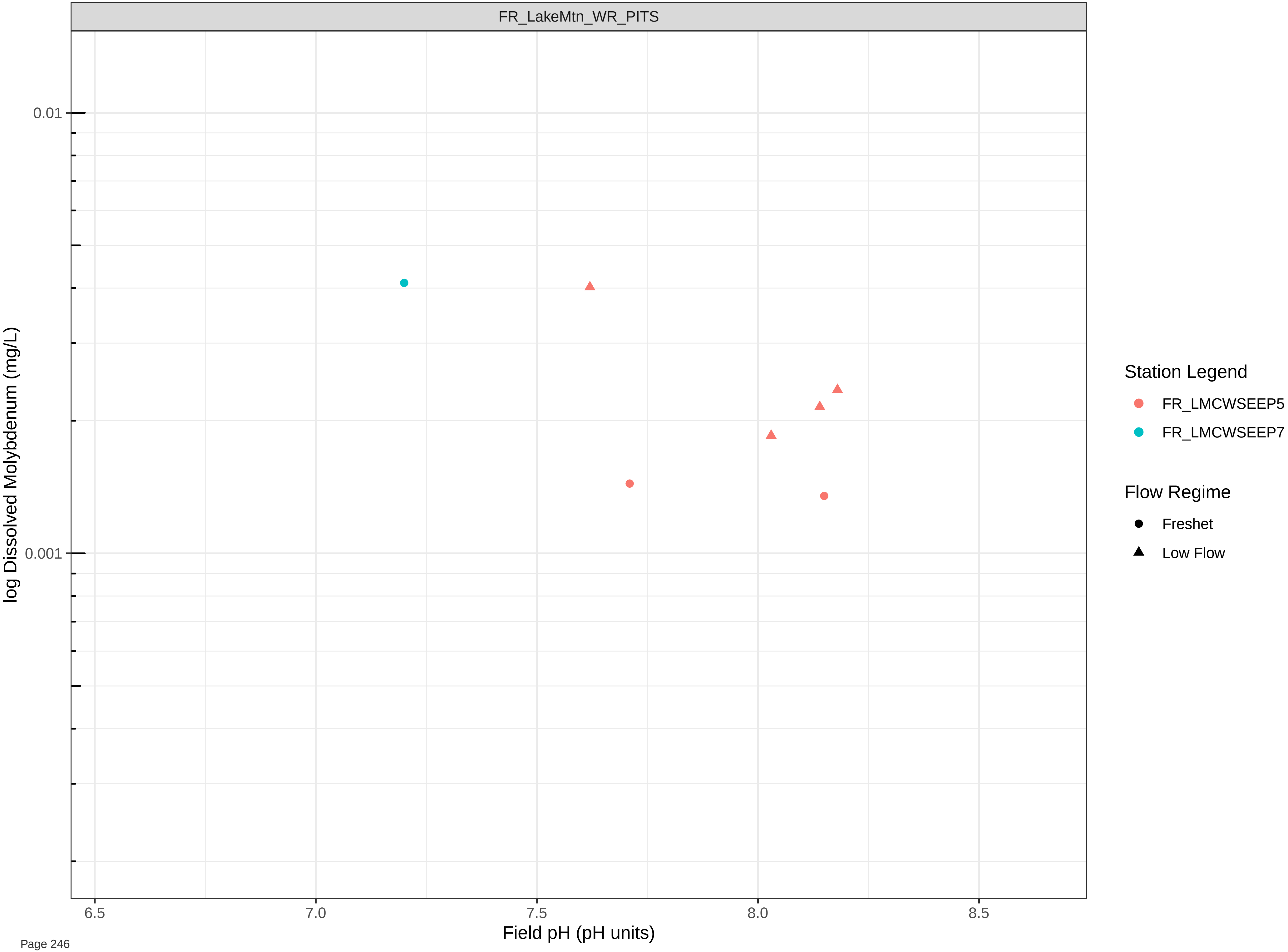

FR_ClodeCr_WR
log Dissolved Molybdenum (mg/L)
0.01
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

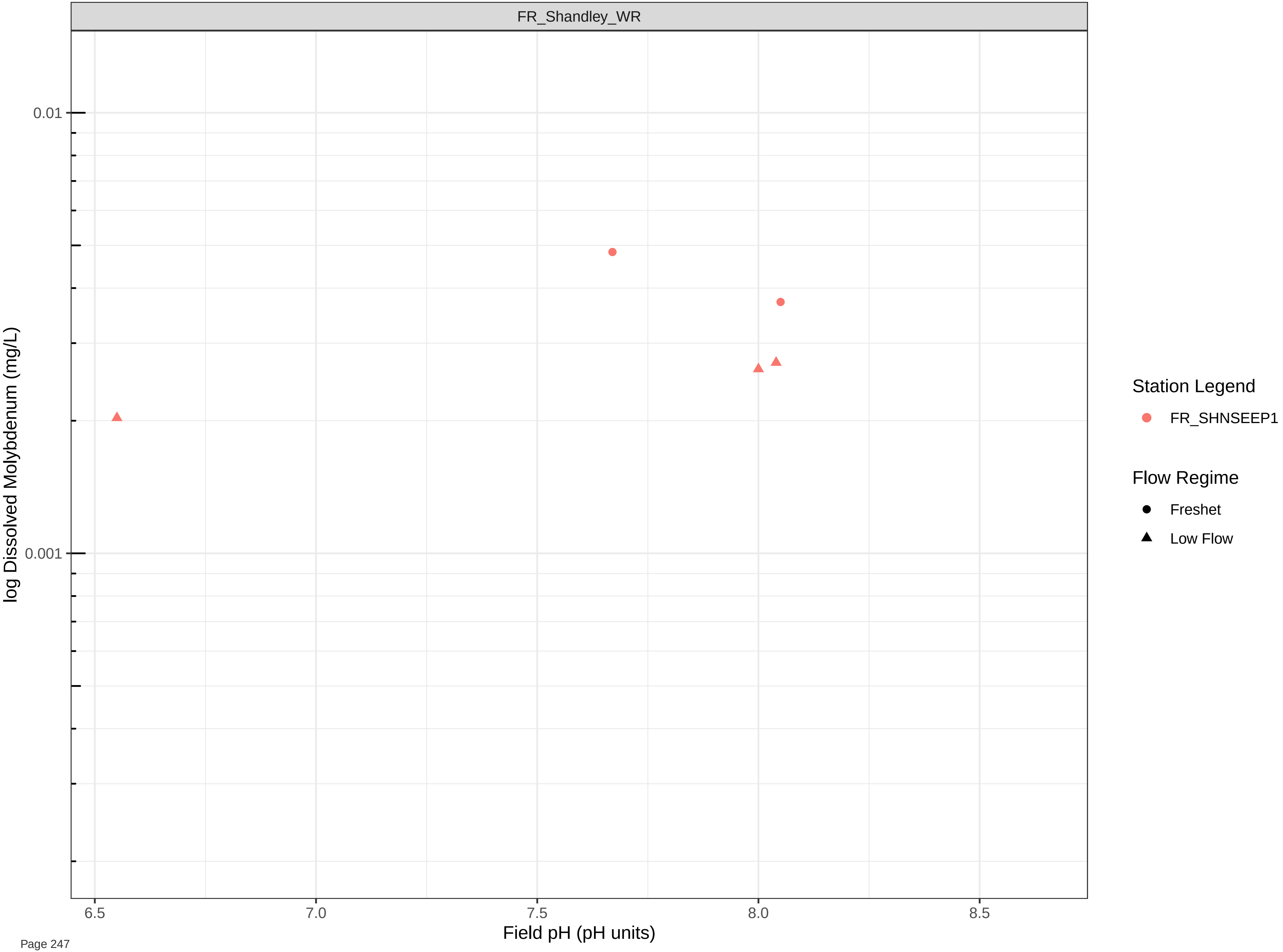

FR_DOKA_Unknown
0.01
0.001
log Dissolved Molybdenum (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow

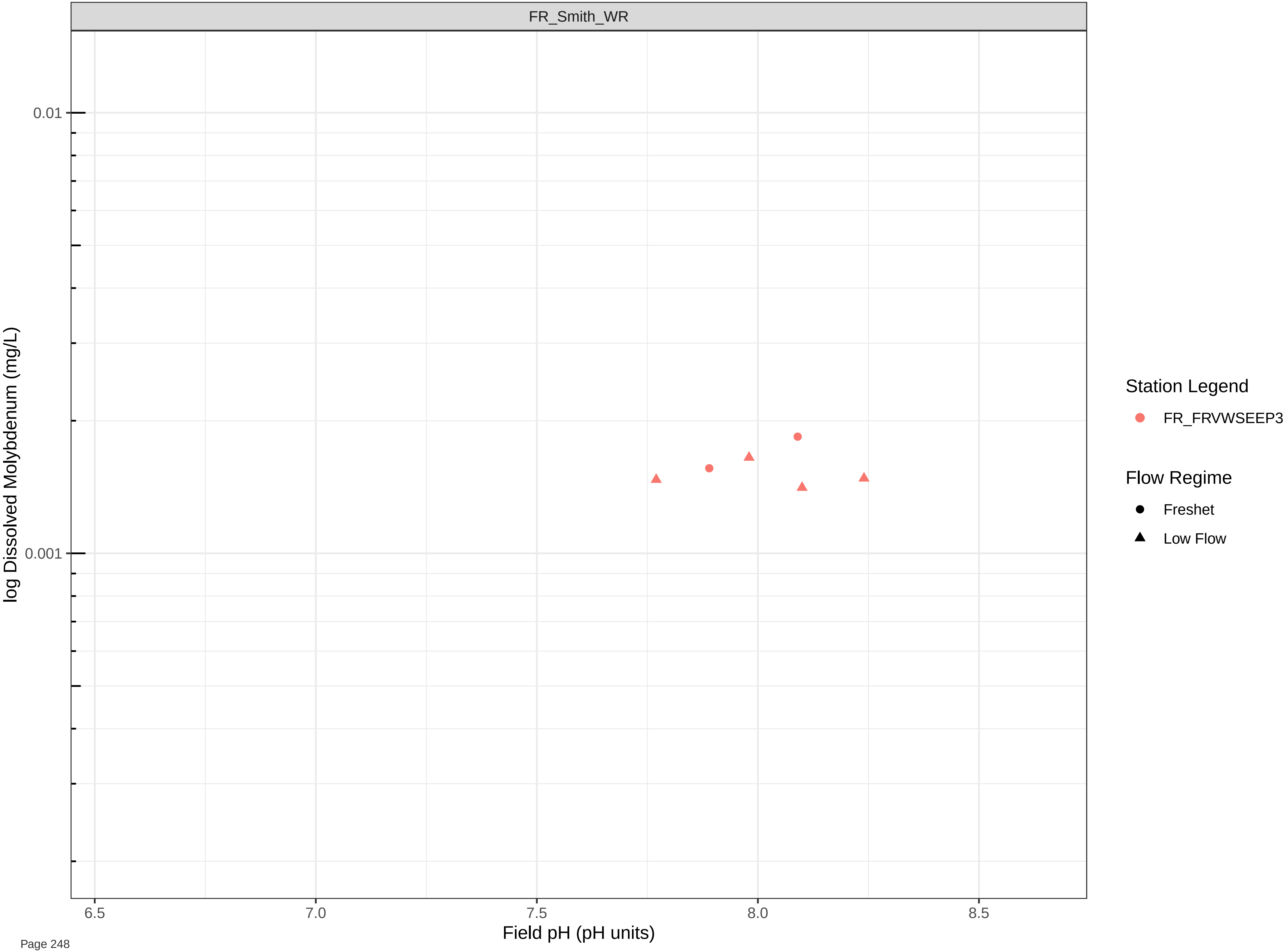

FR_Eagle_WR
0.01
0.001
log Dissolved Molybdenum (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

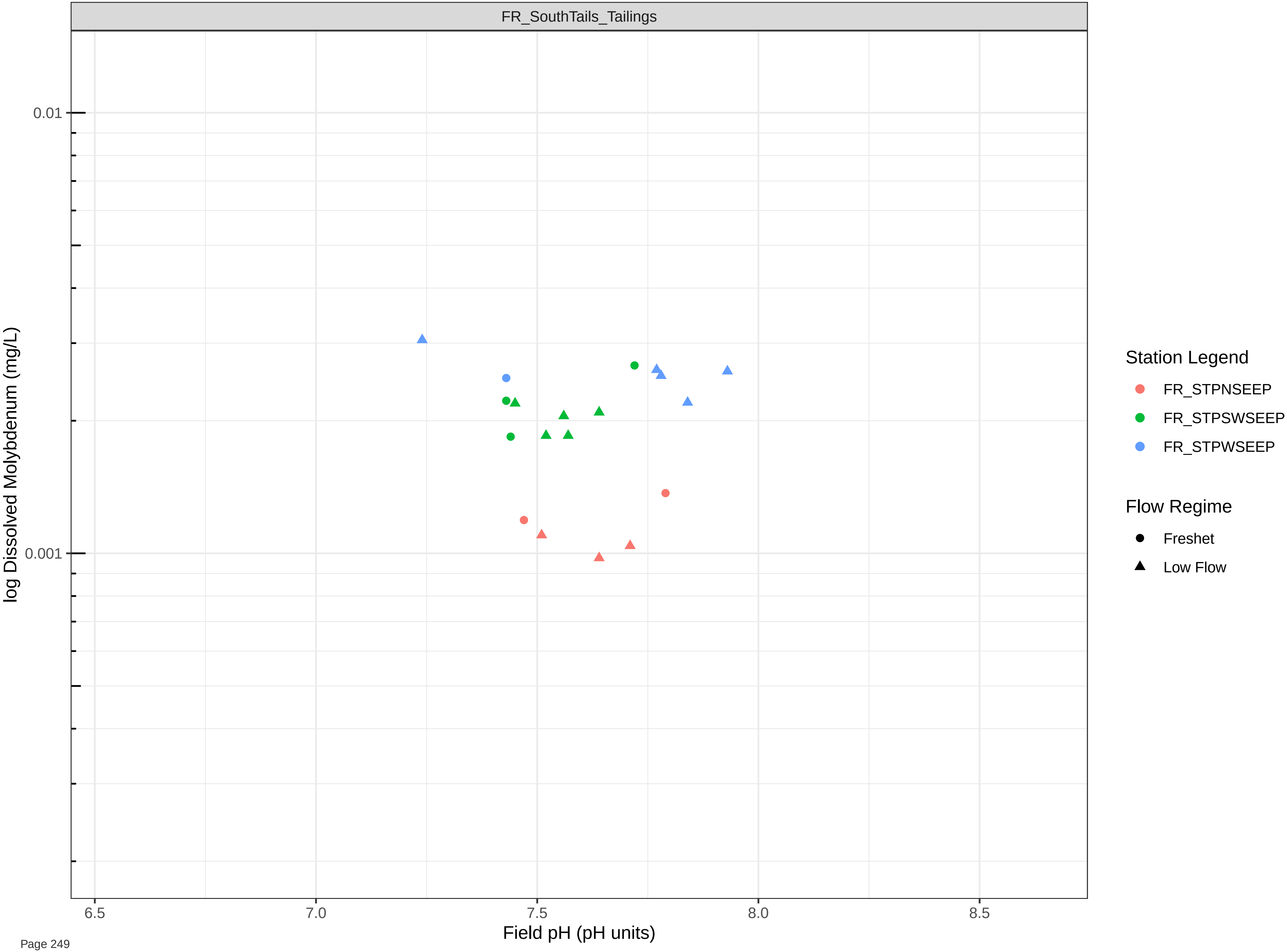

FR_Fseam_WR
log Dissolved Molybdenum (mg/L)
0.01
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

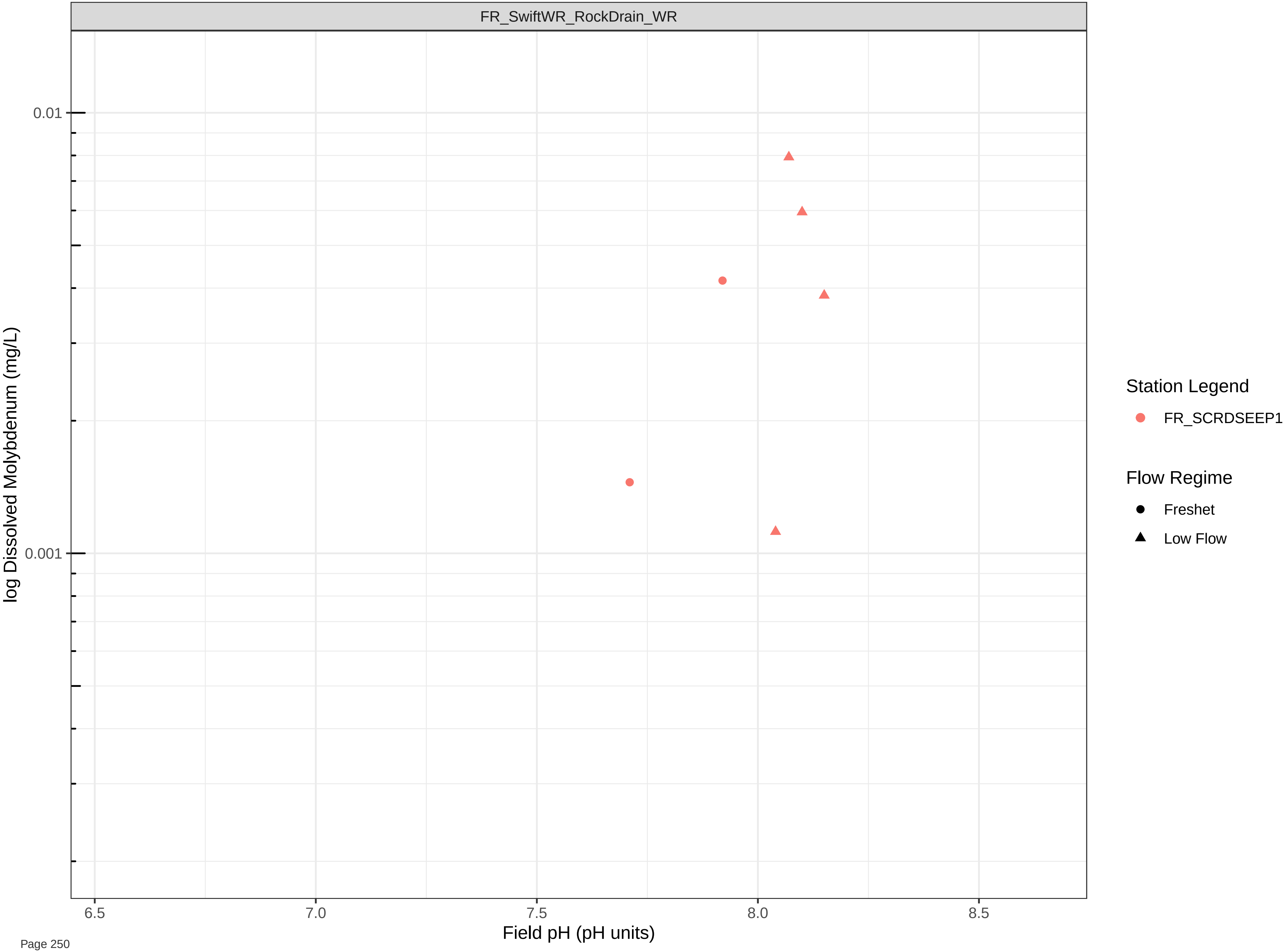

FR_HEN_WR
log Dissolved Molybdenum (mg/L)
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

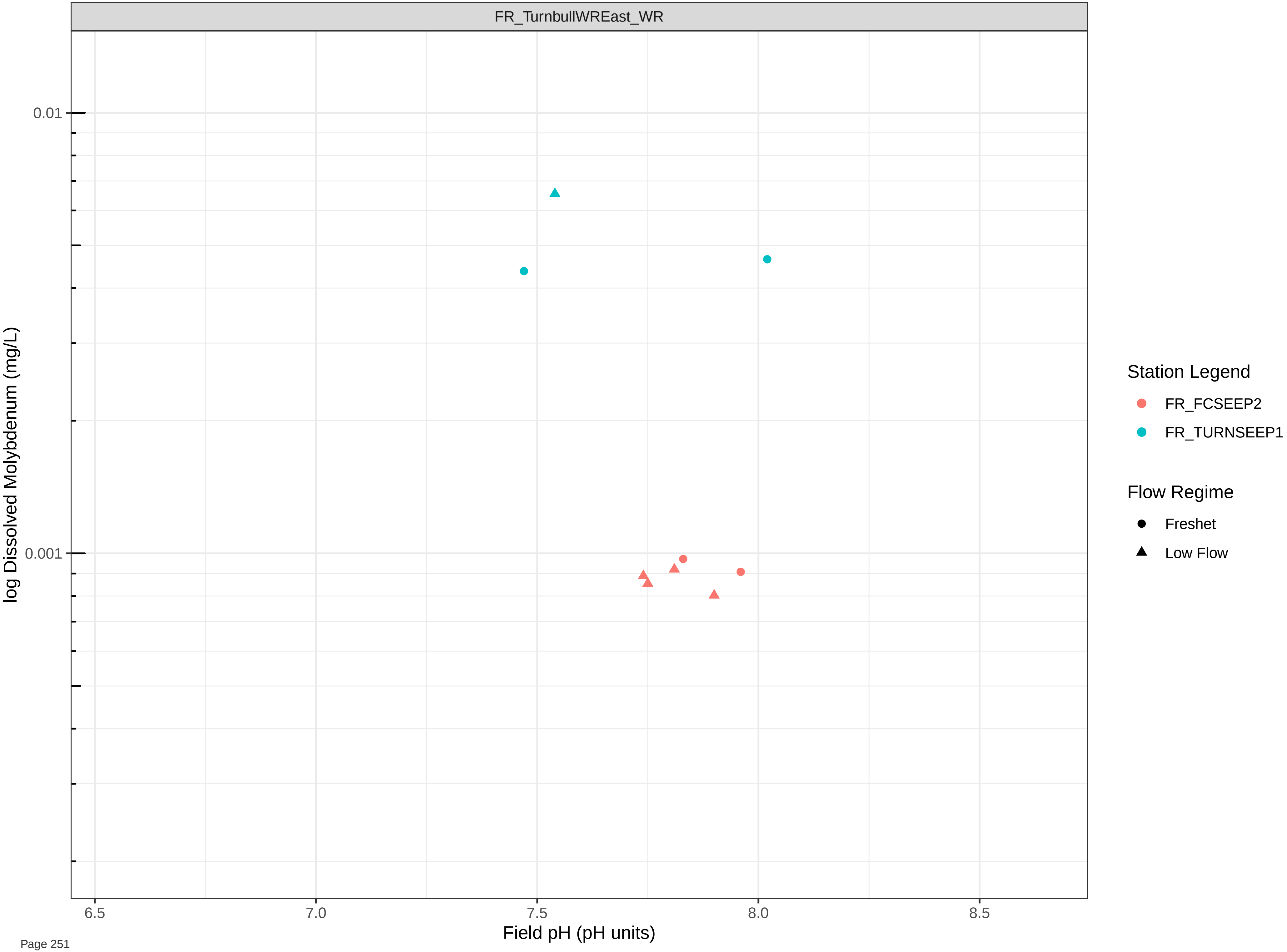

FR_LakeMtn_WR_PITS
0.01
0.001
log Dissolved Molybdenum (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow

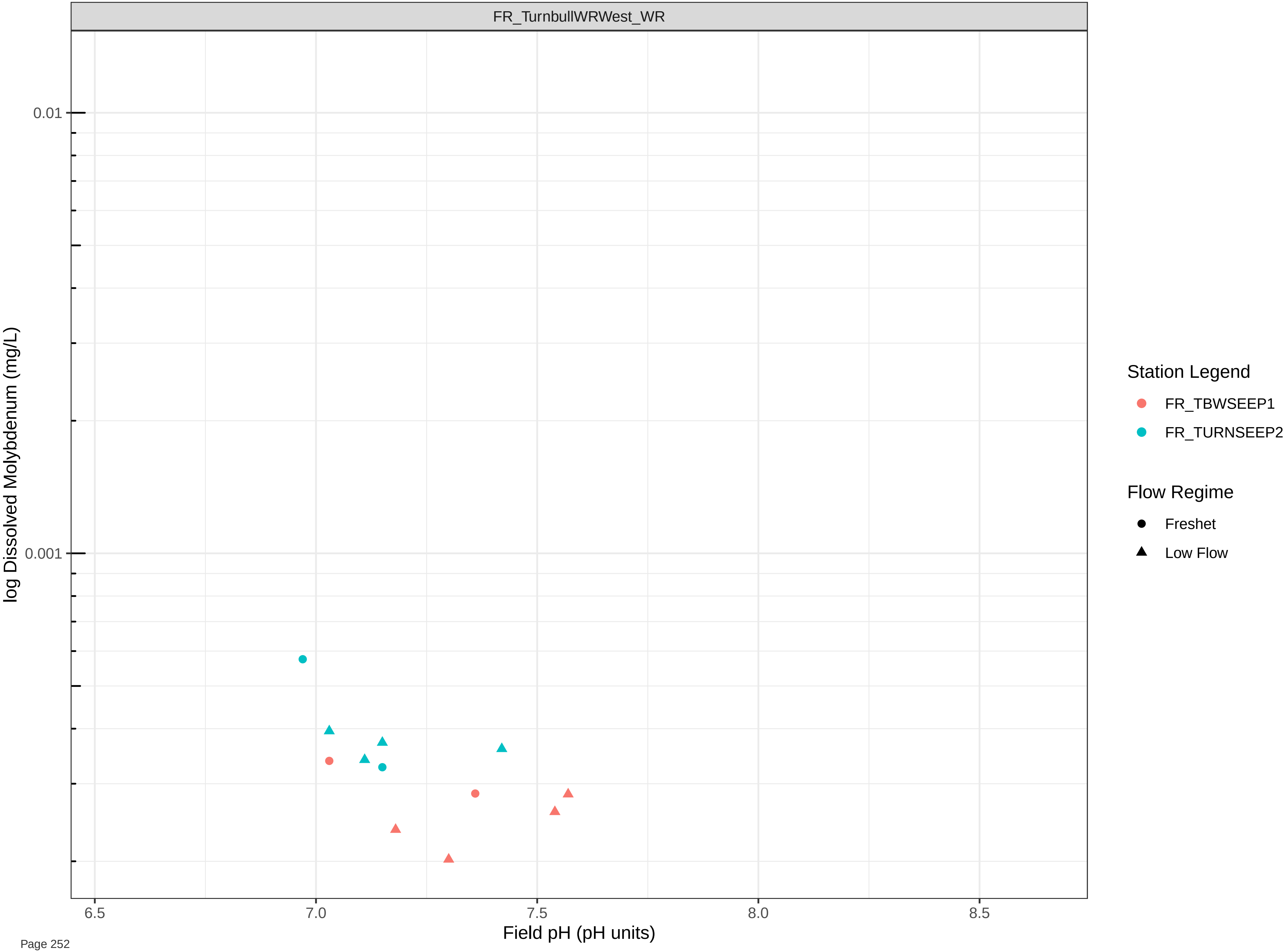

FR_Shandley_WR
log Dissolved Molybdenum (mg/L)
0.01
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

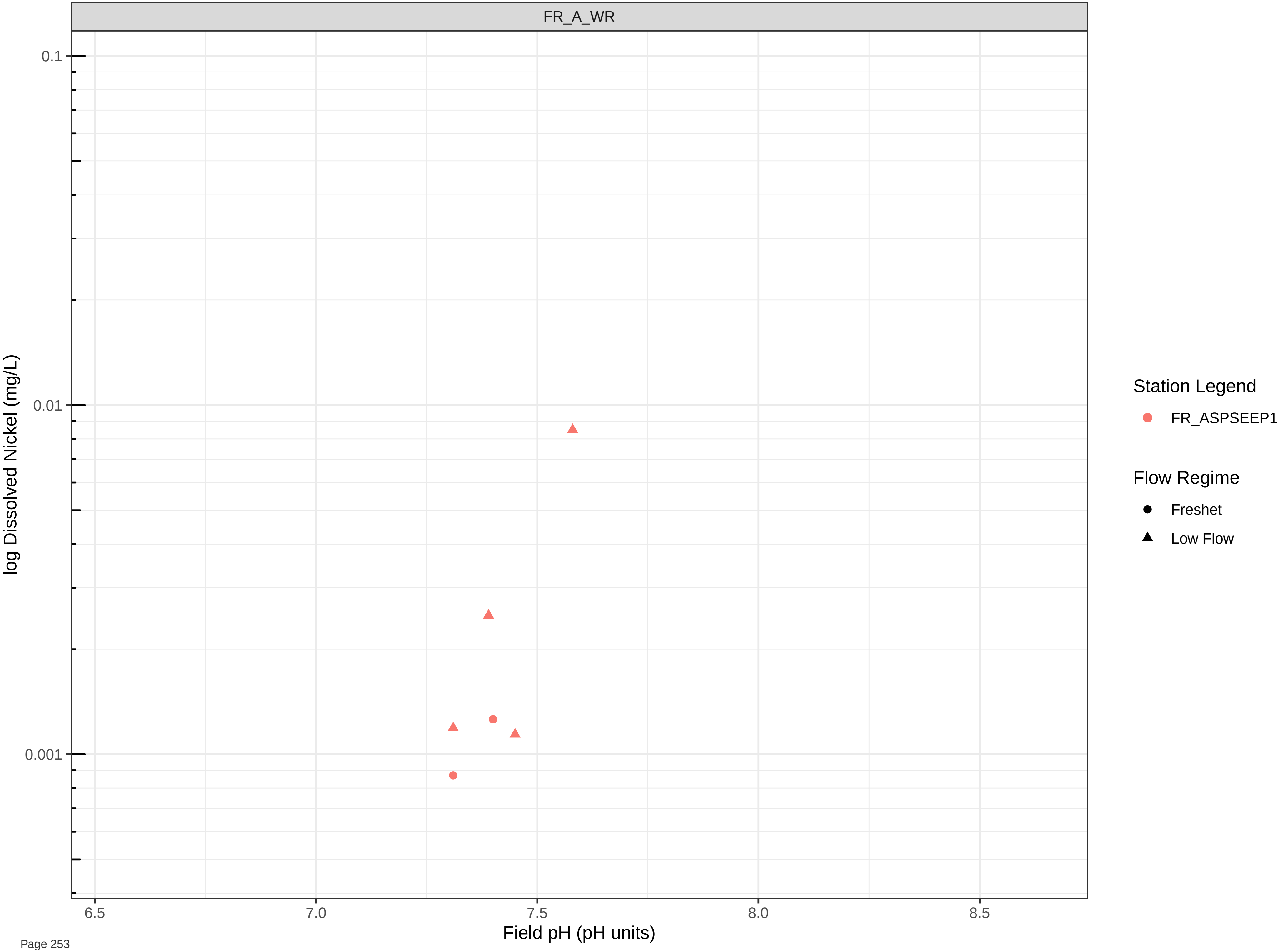

FR_Smith_WR
log Dissolved Molybdenum (mg/L)
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

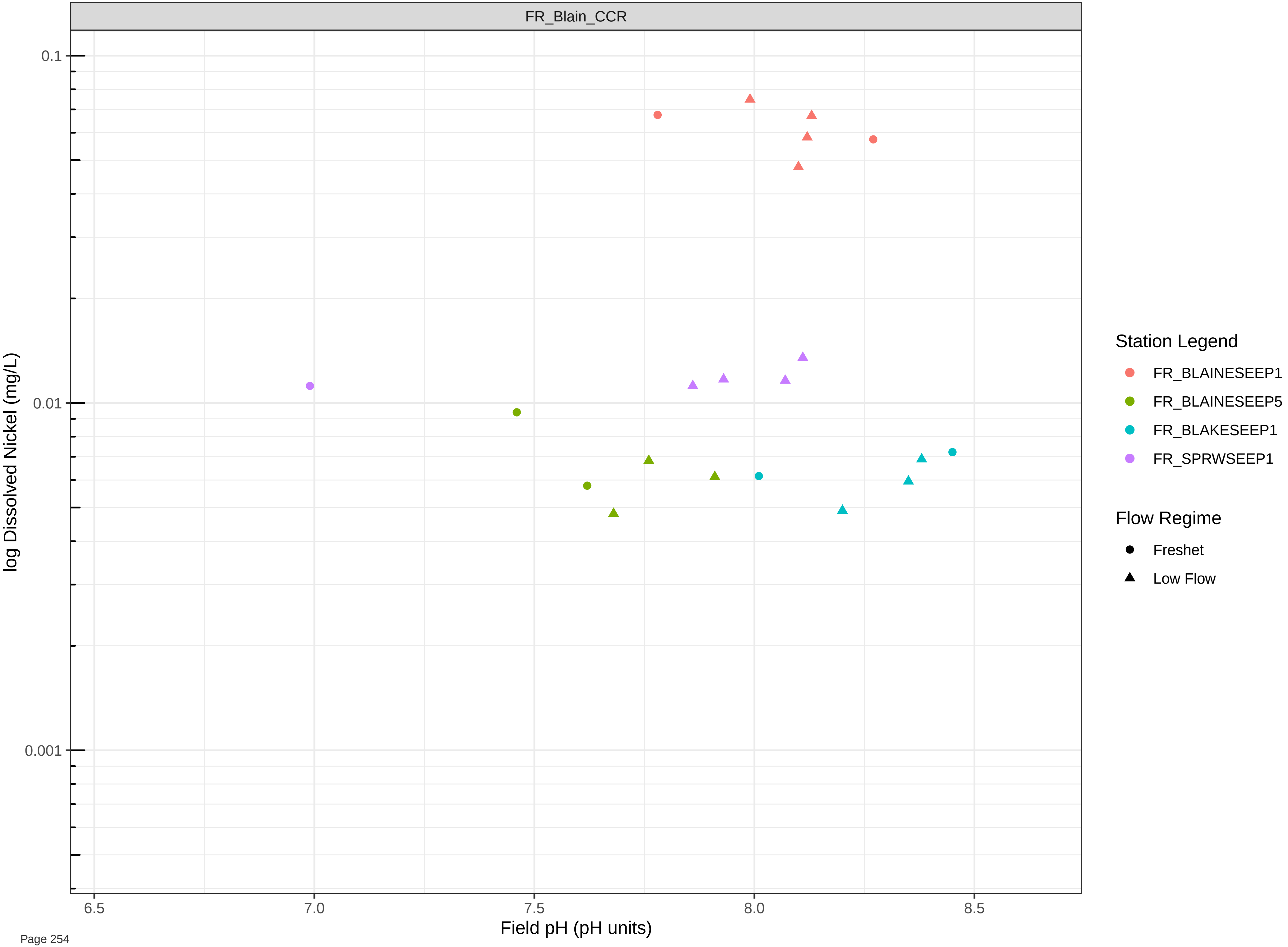

FR_SouthTails_Tailings
0.01
0.001
log Dissolved Molybdenum (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

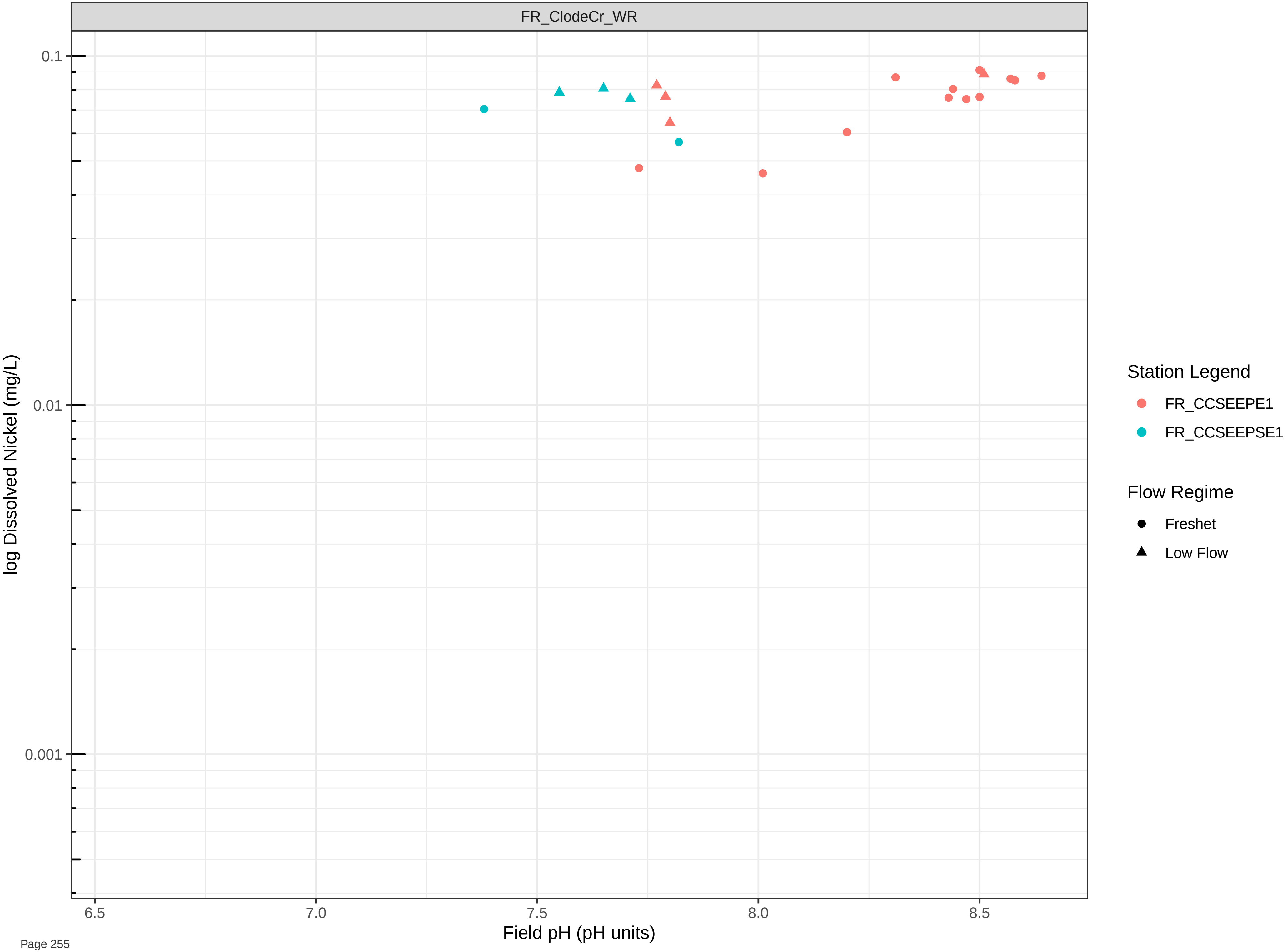

FR_SwiftWR_RockDrain_WR
log Dissolved Molybdenum (mg/L)
0.01
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

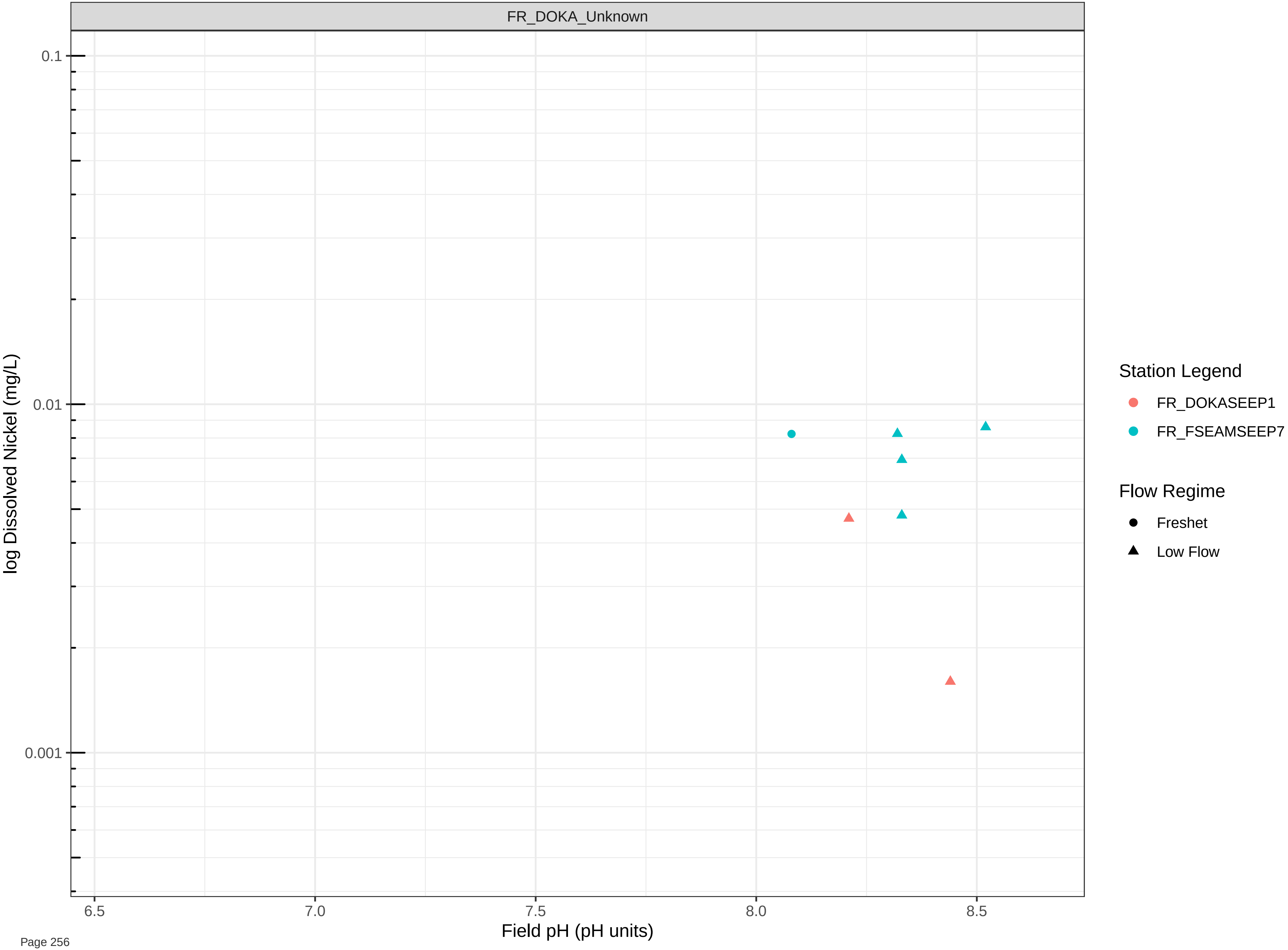

FR_TurnbullWREast_WR
0.01
0.001
log Dissolved Molybdenum (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

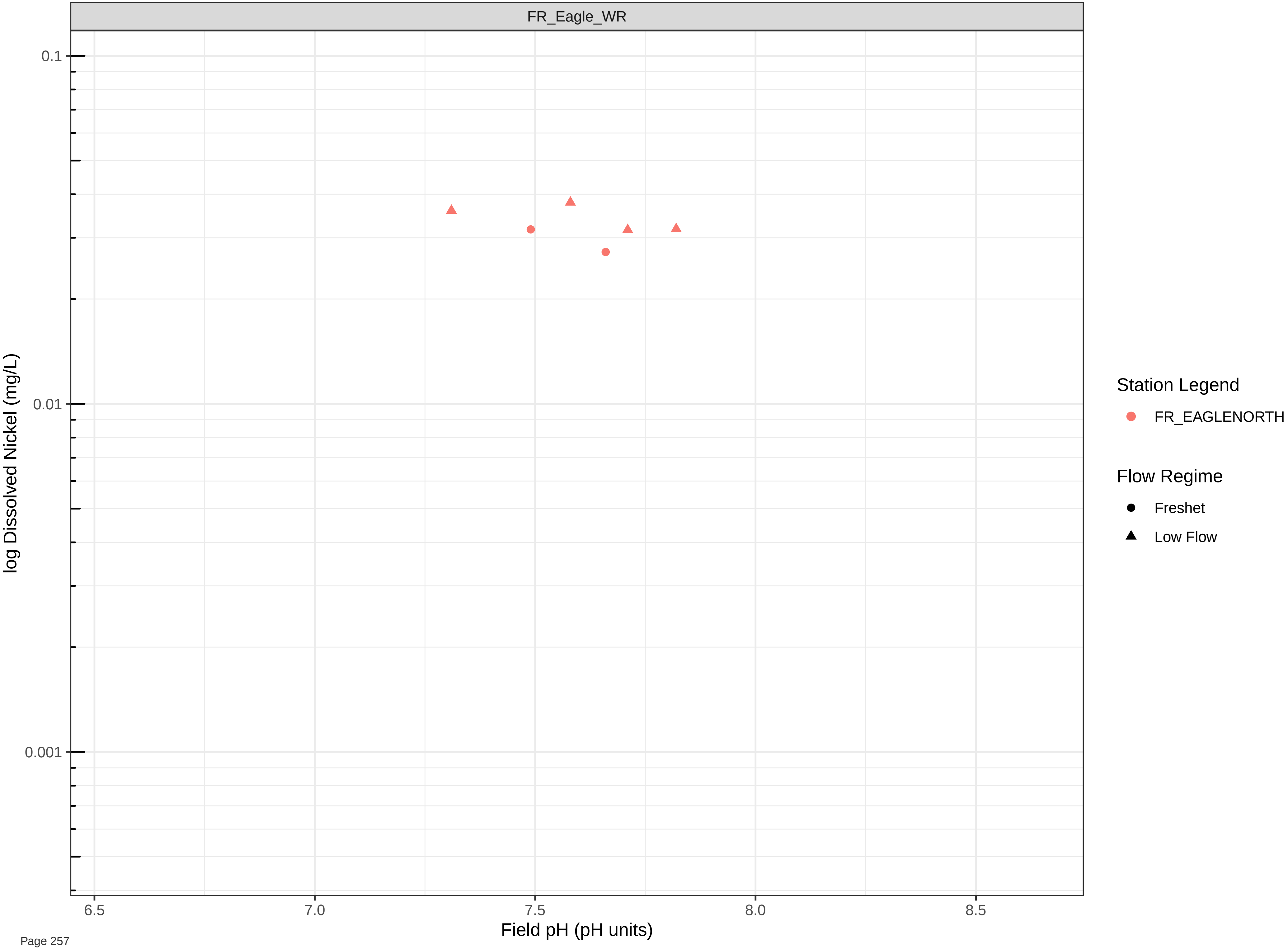

FR_TurnbullWRWest_WR
log Dissolved Molybdenum (mg/L)
0.01
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_TBWSEEP1
● FR_TURNSEEP2
Flow Regime
● Freshet
▲ Low Flow

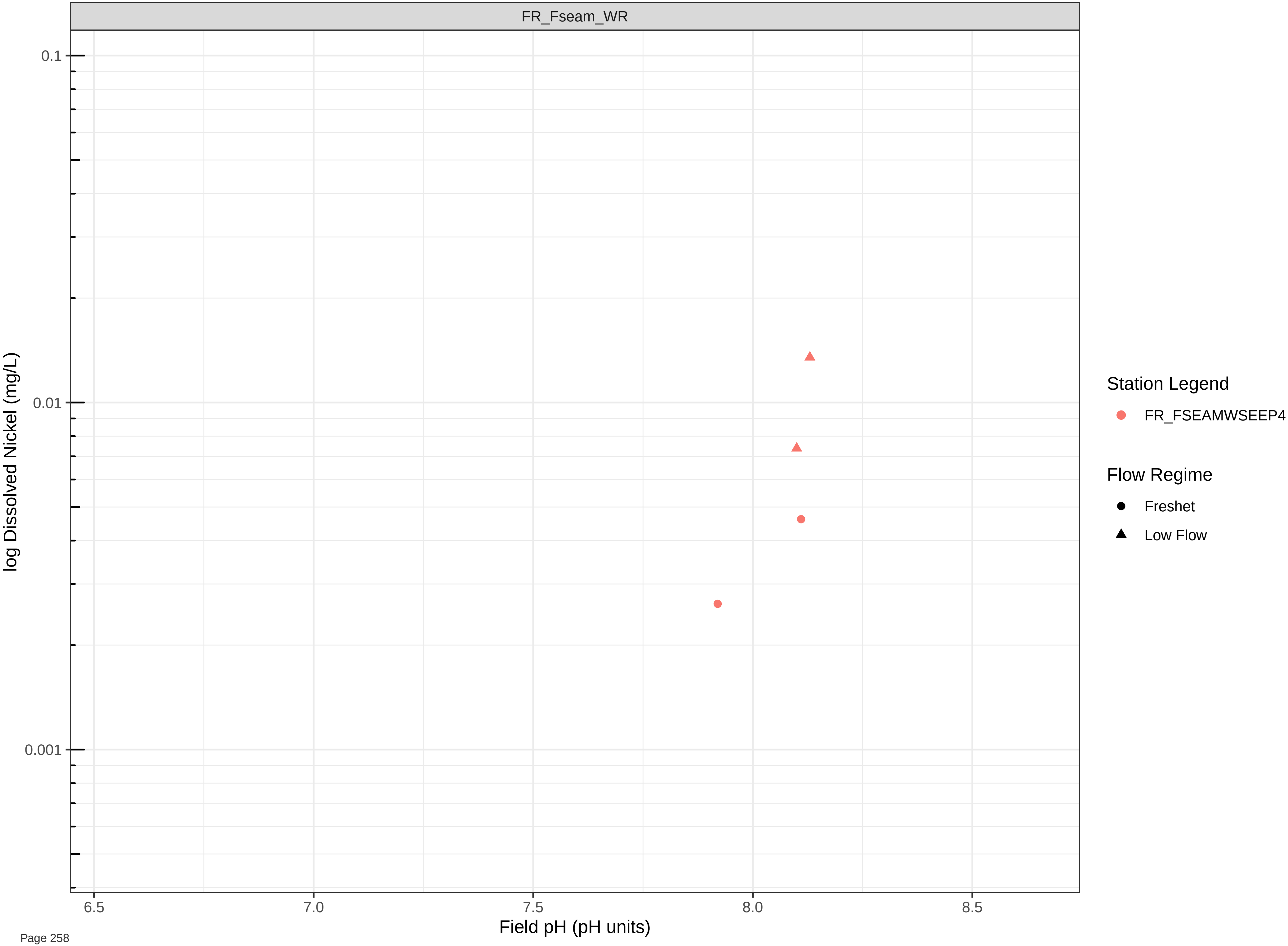

FR_A_WR
0.1
0.01
0.001
log Dissolved Nickel (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

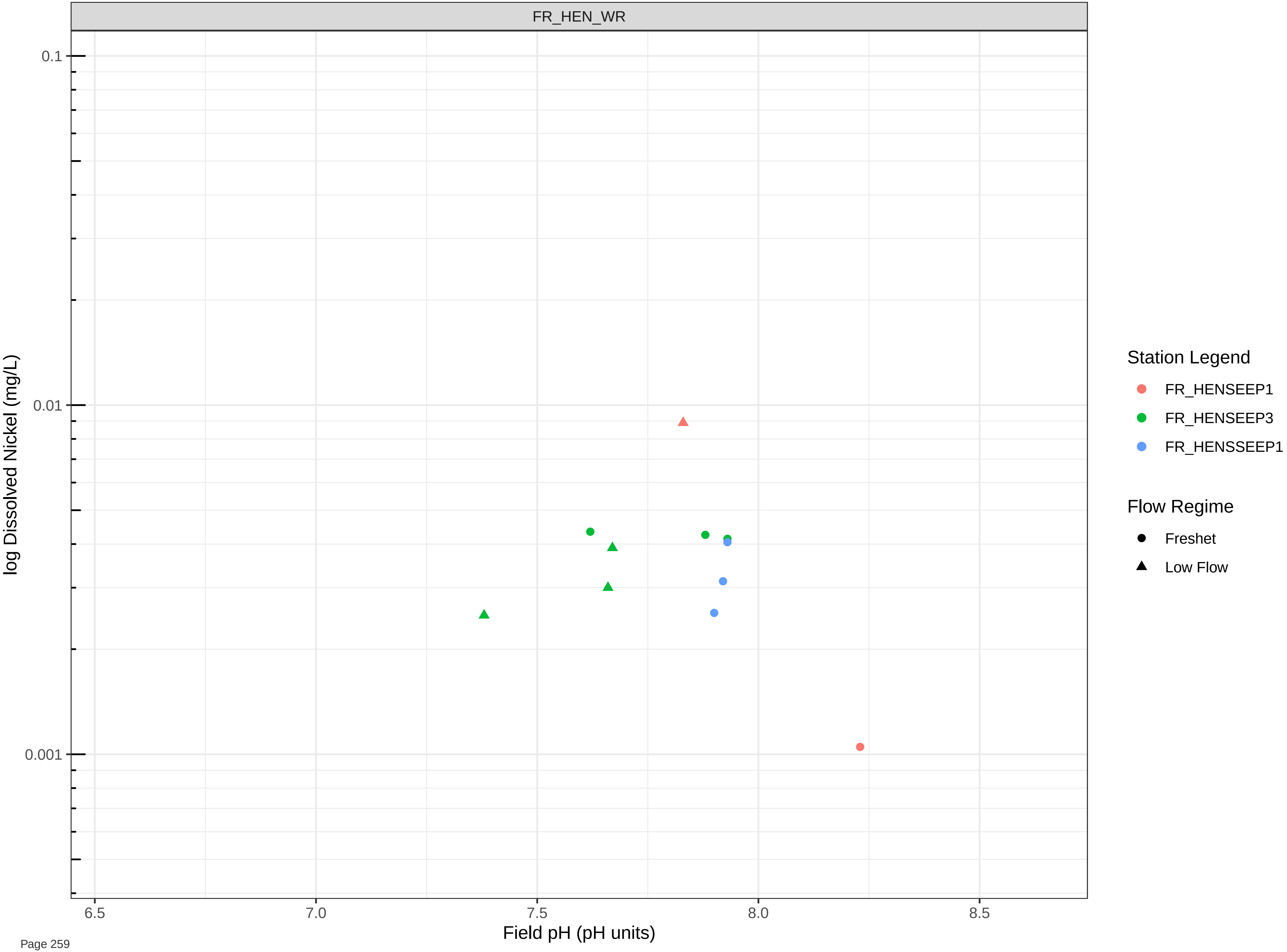

FR_Blain_CCR
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

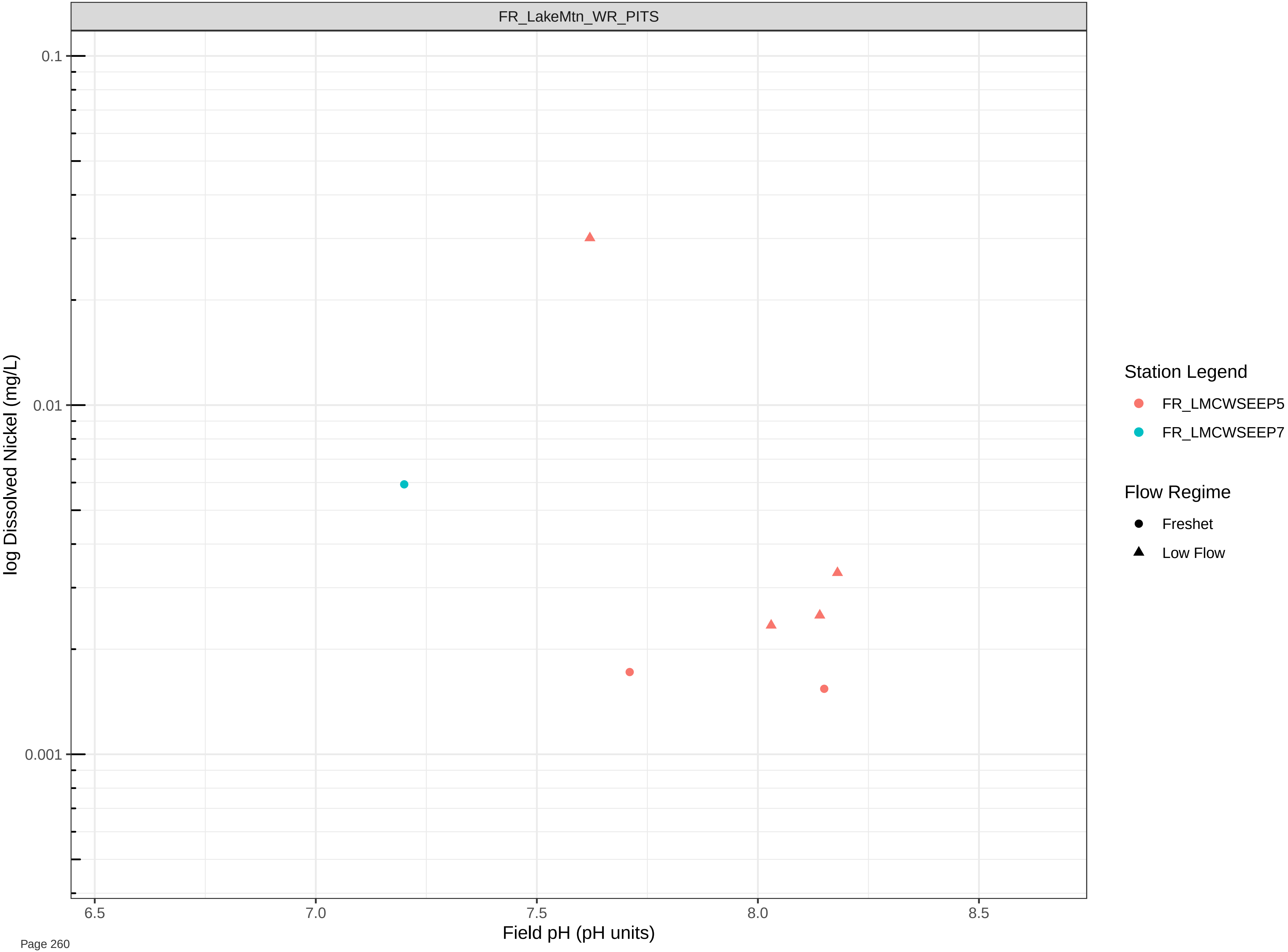

FR_ClodeCr_WR
0.1
0.01
0.001
log Dissolved Nickel (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

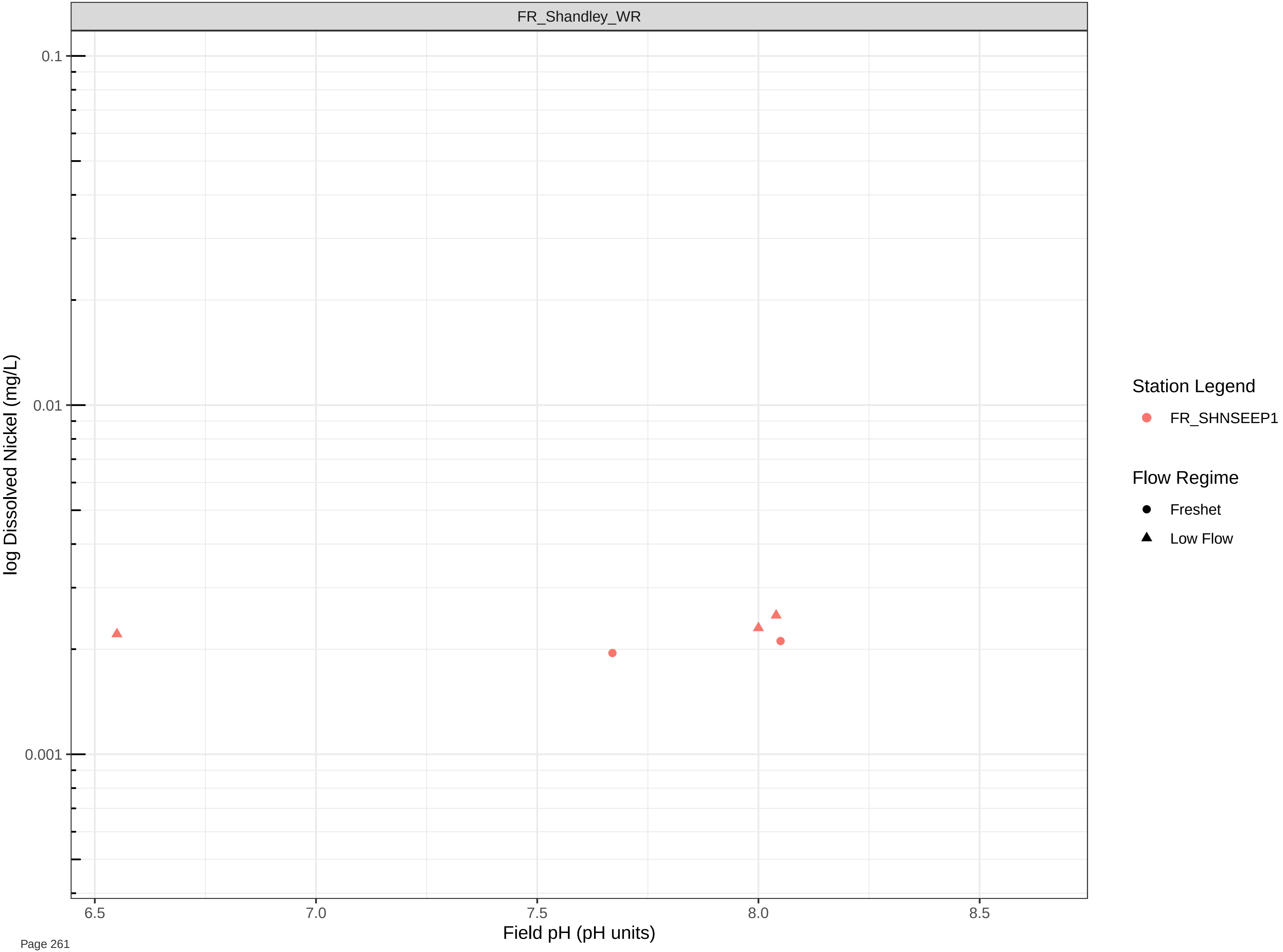

FR_DOKA_Unknown
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow

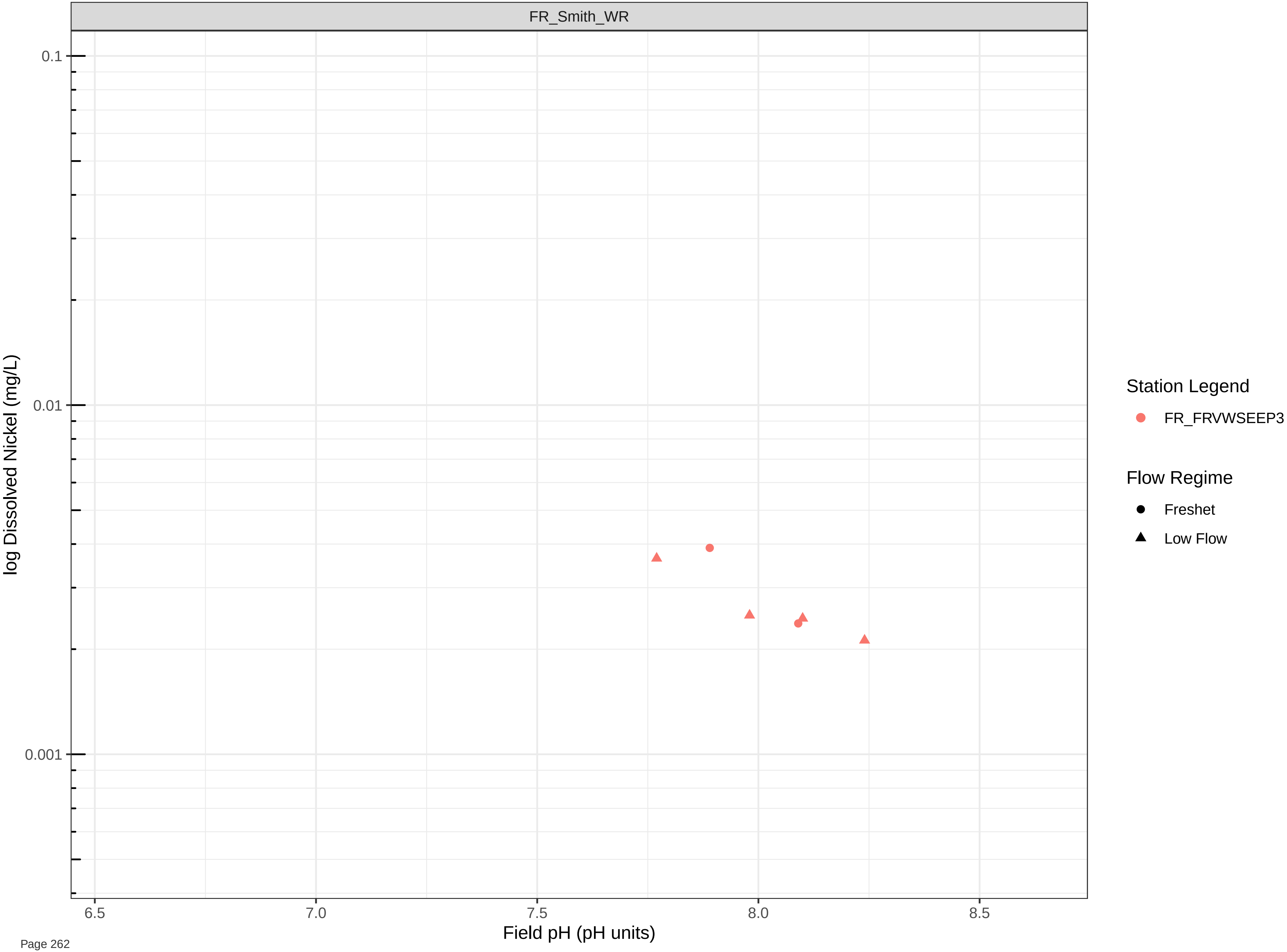

FR_Eagle_WR
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

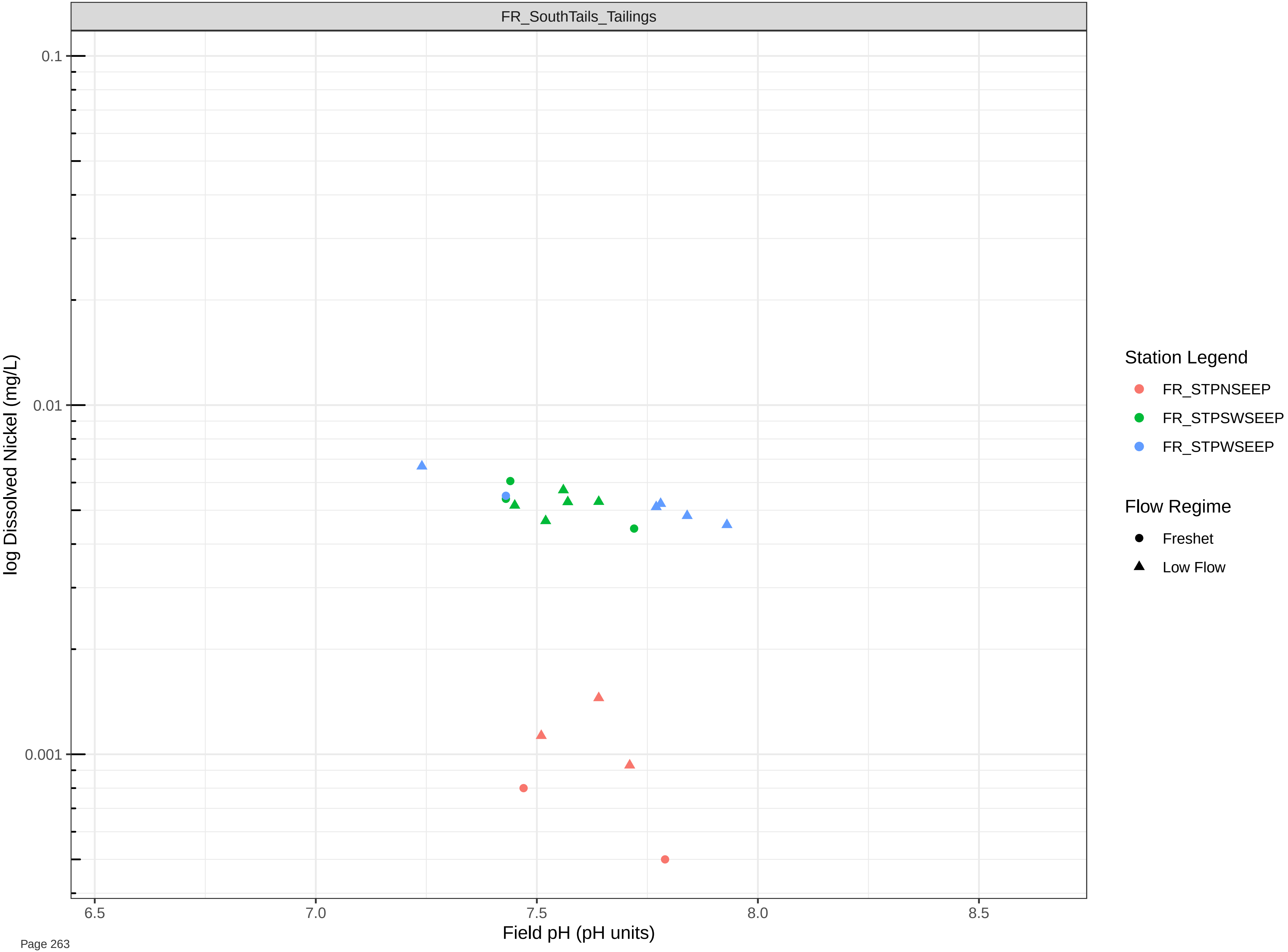

FR_Fseam_WR
0.1
0.01
0.001
log Dissolved Nickel (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

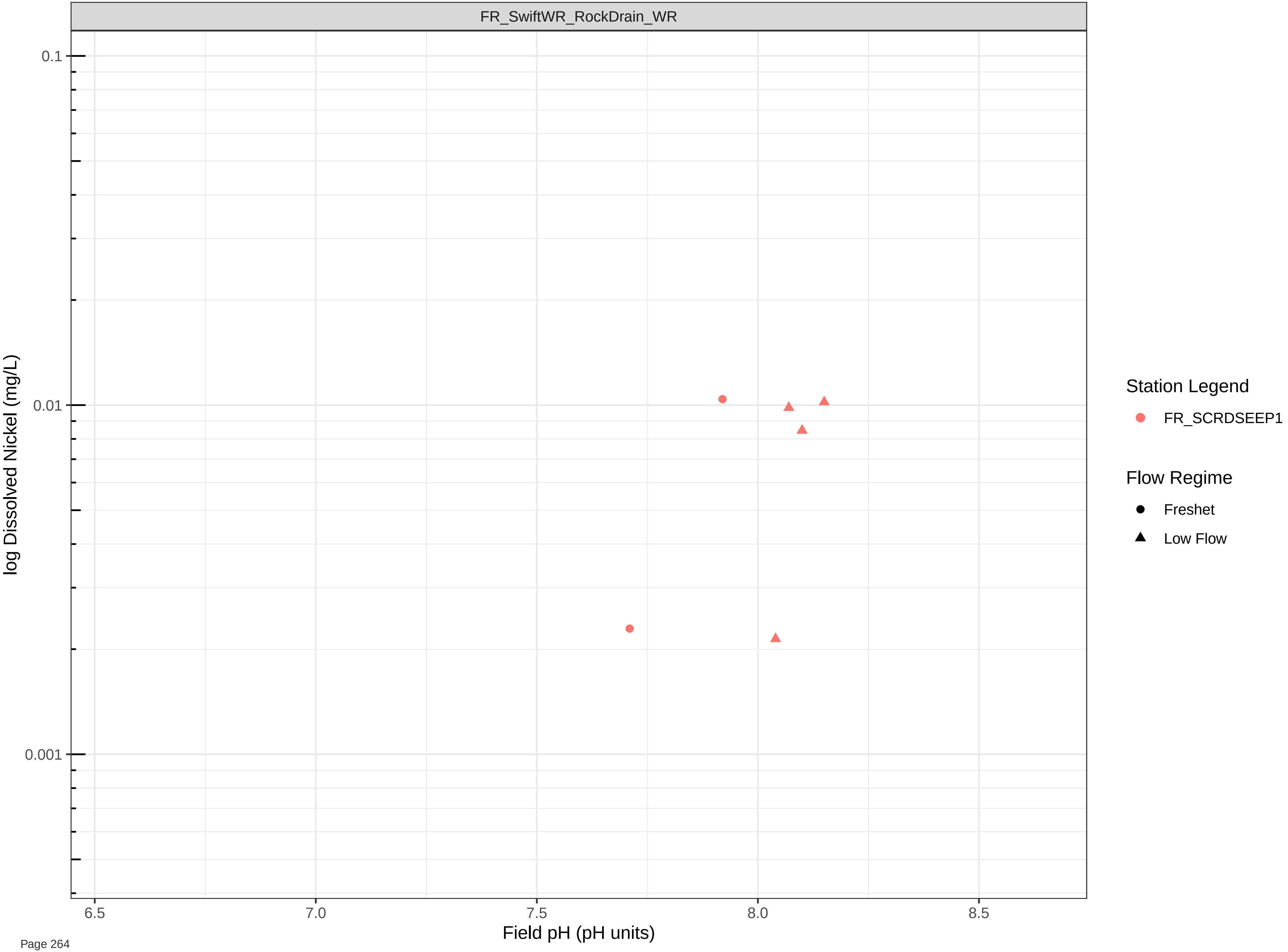

FR_HEN_WR
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

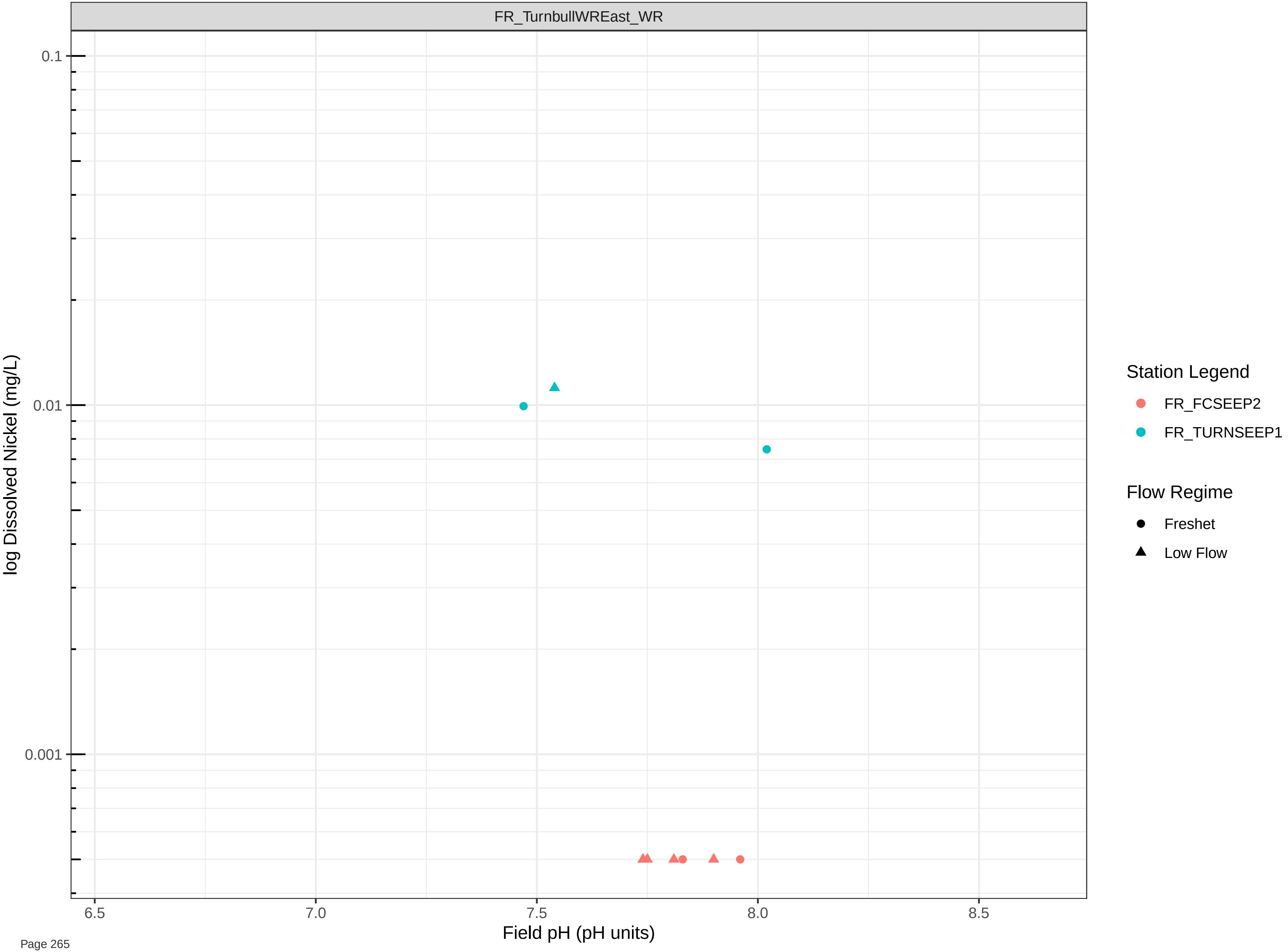

FR_LakeMtn_WR_PITS
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

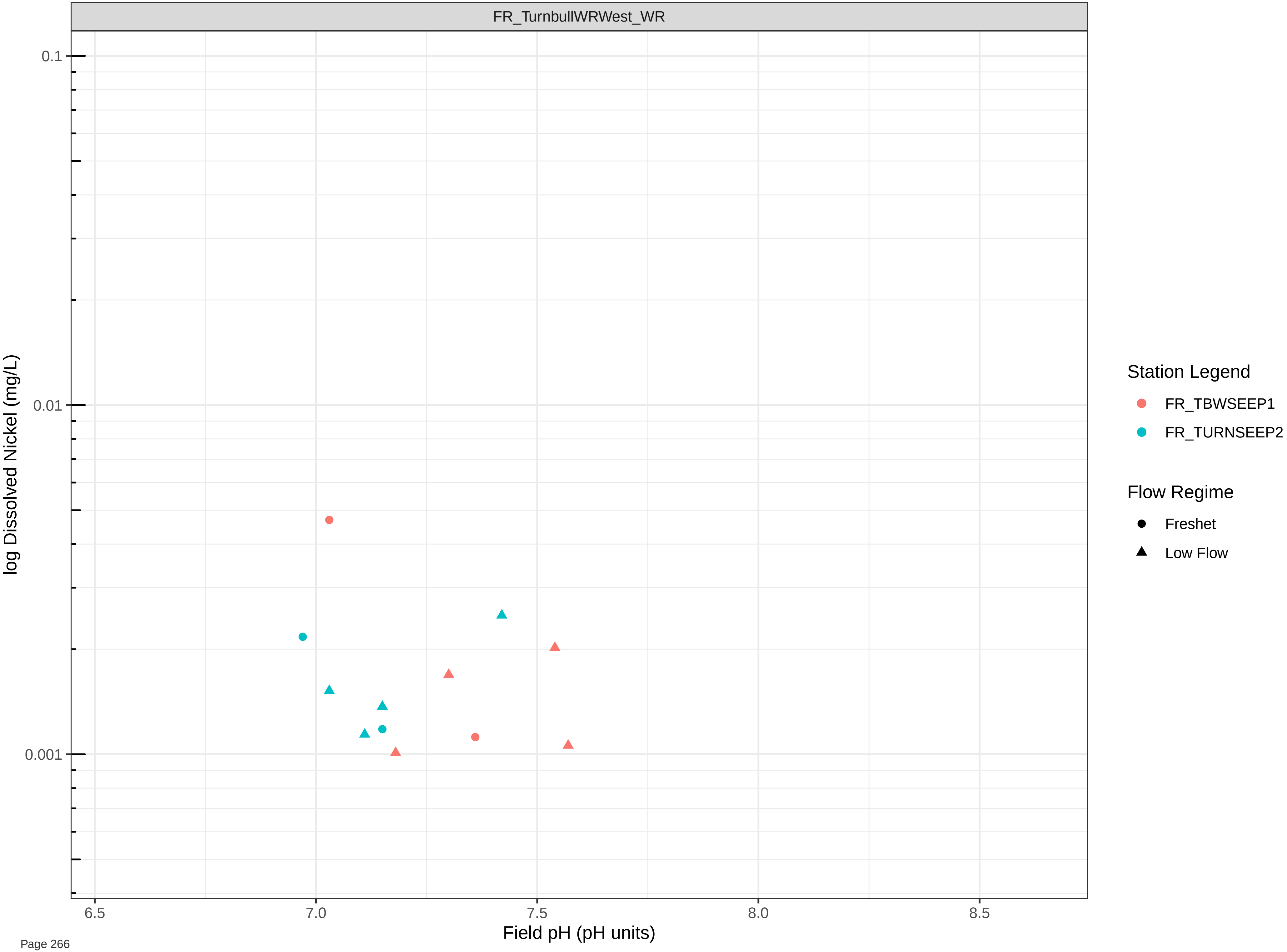

FR_Shandley_WR
0.1
0.01
0.001
log Dissolved Nickel (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

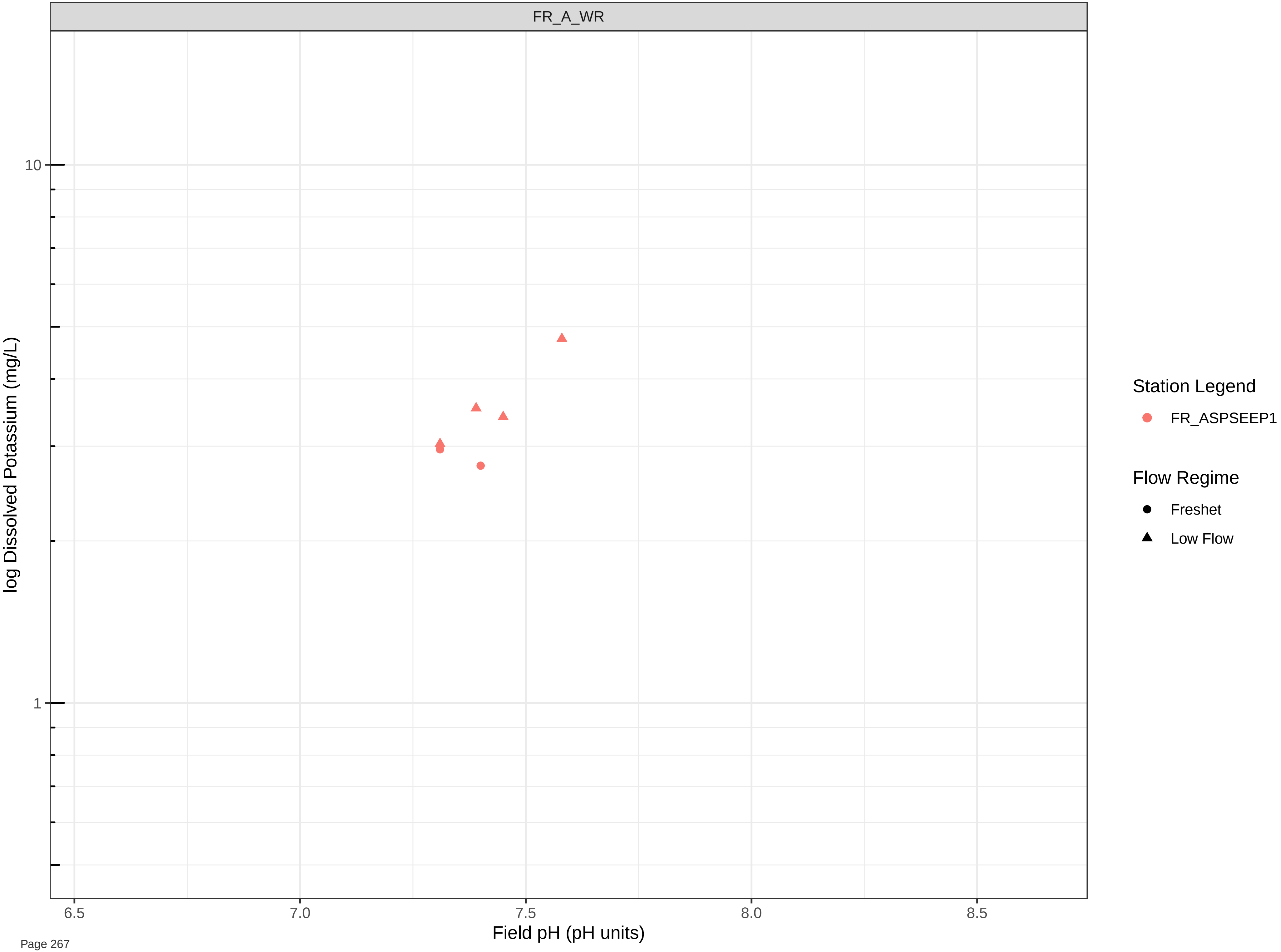

FR_Smith_WR
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

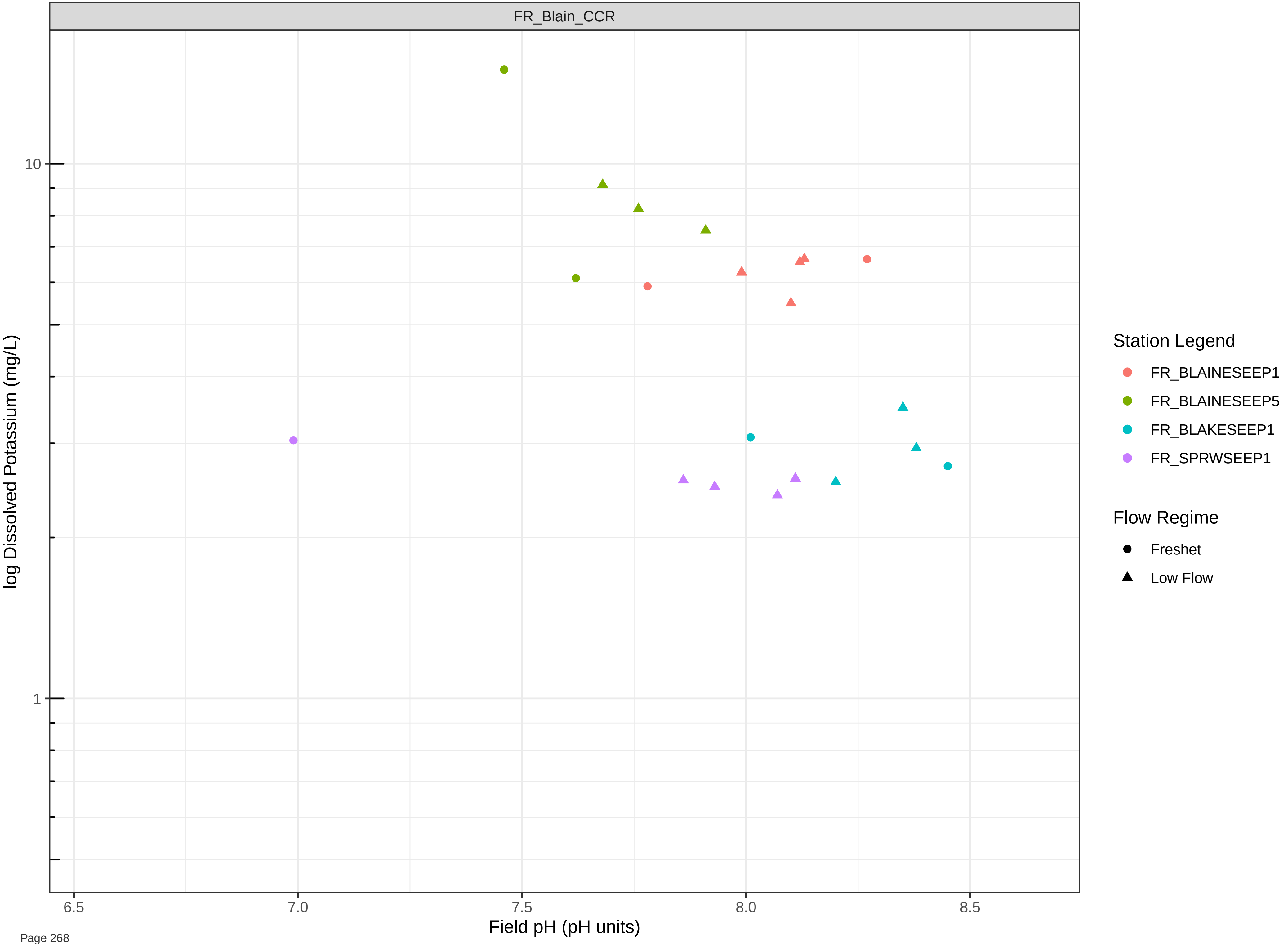

FR_SouthTails_Tailings
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

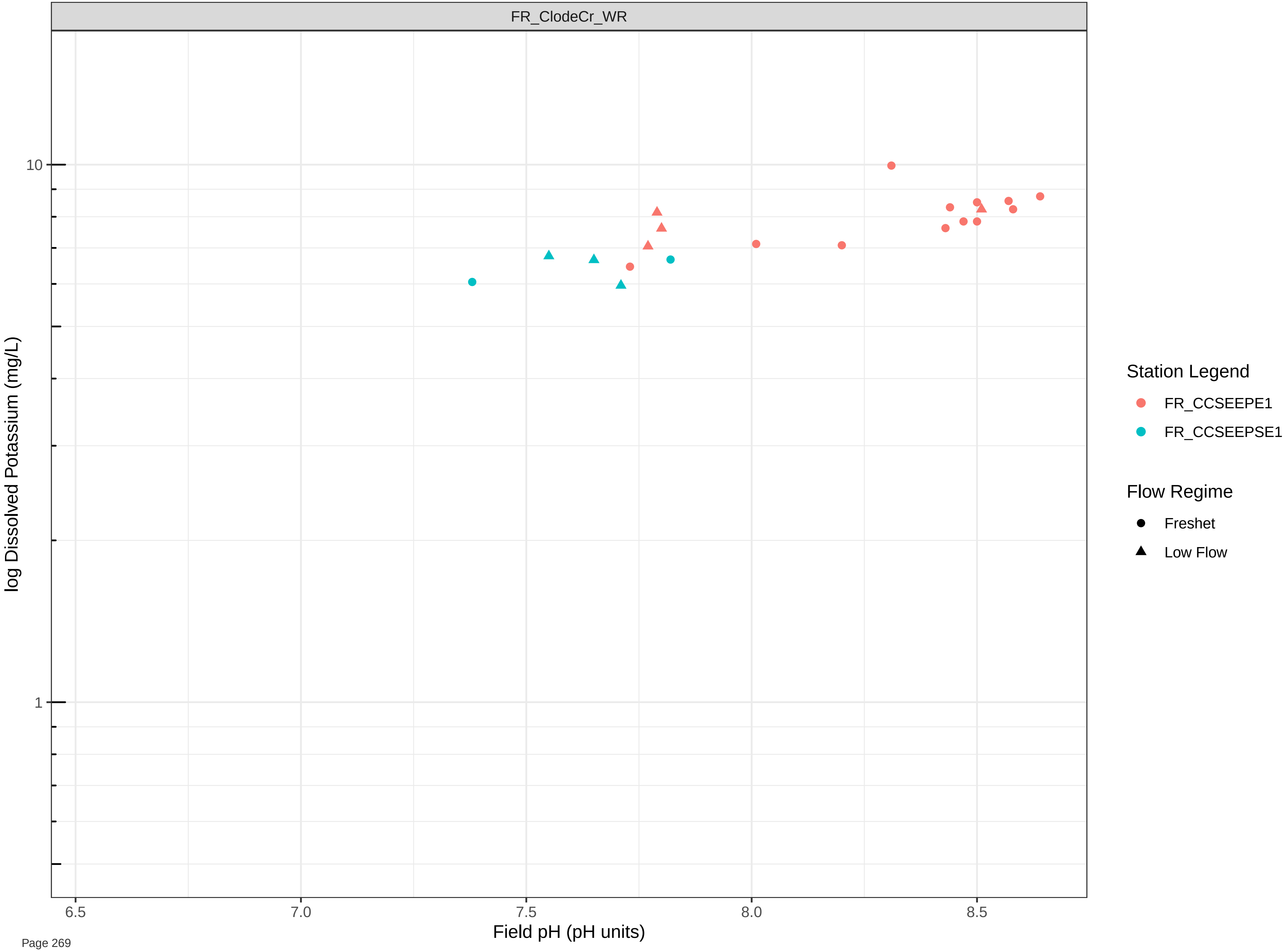

FR_SwiftWR_RockDrain_WR
0.1
0.01
0.001
log Dissolved Nickel (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

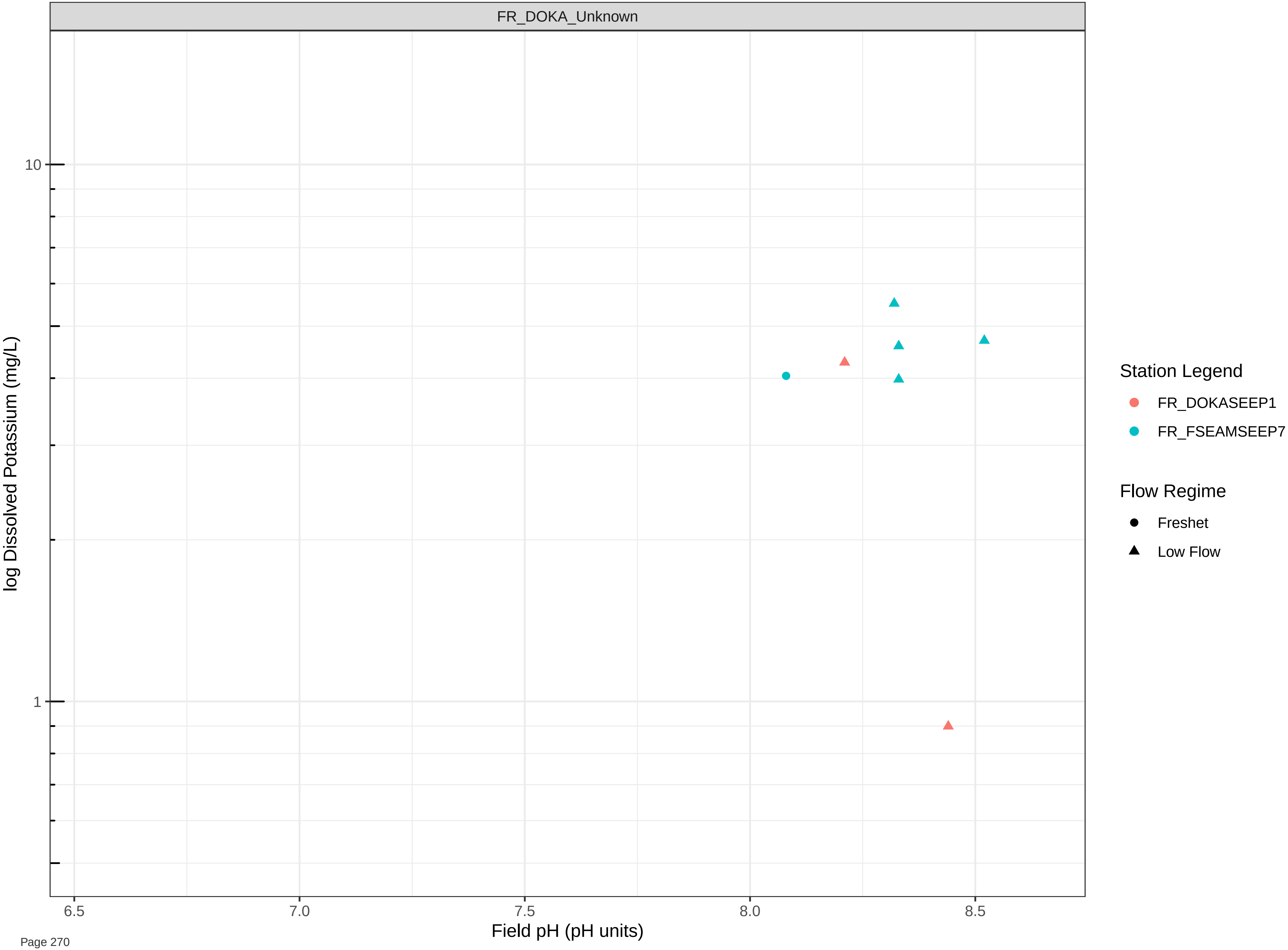

FR_TurnbullWREast_WR
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

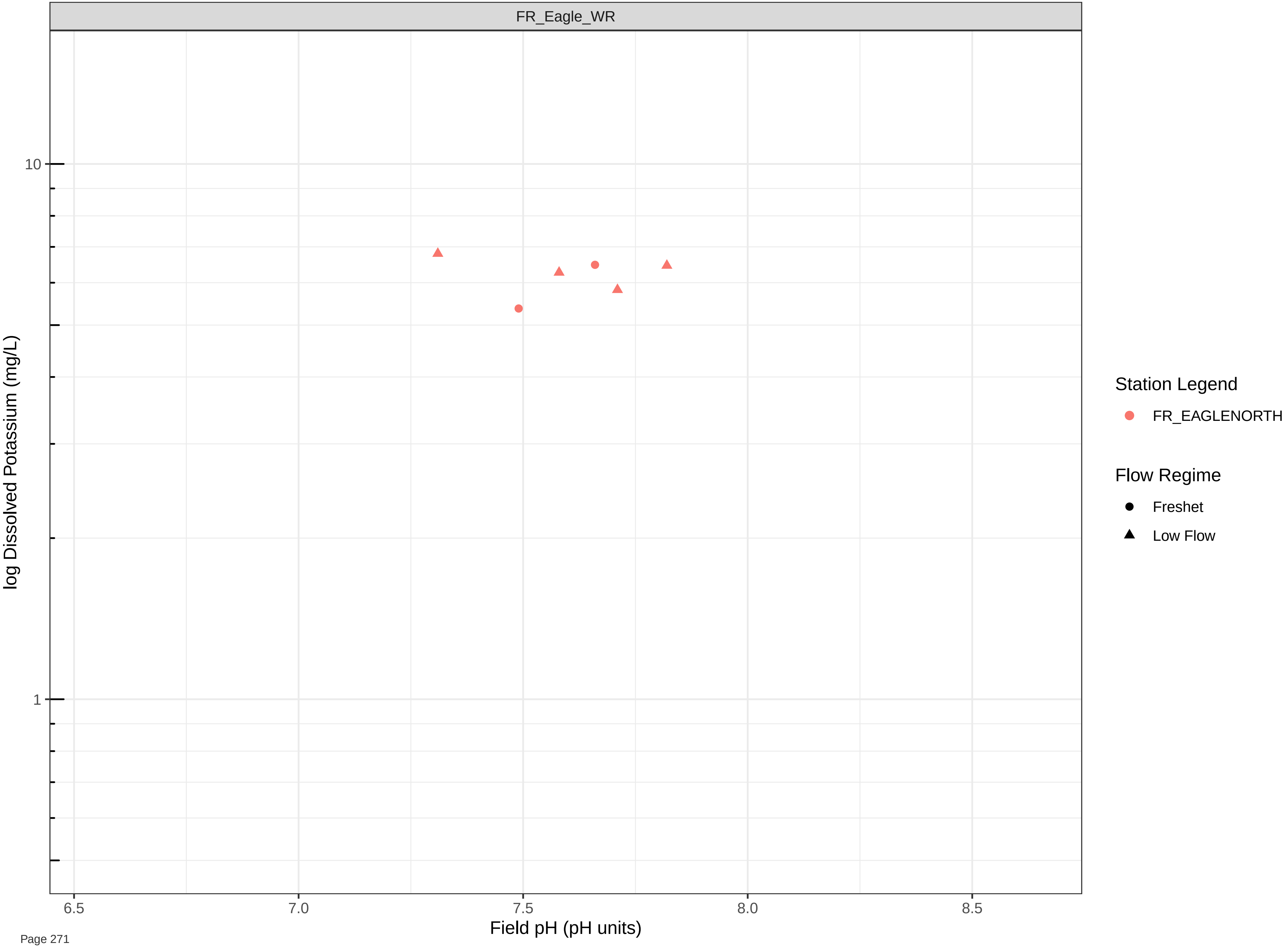

FR_TurnbullWRWest_WR
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

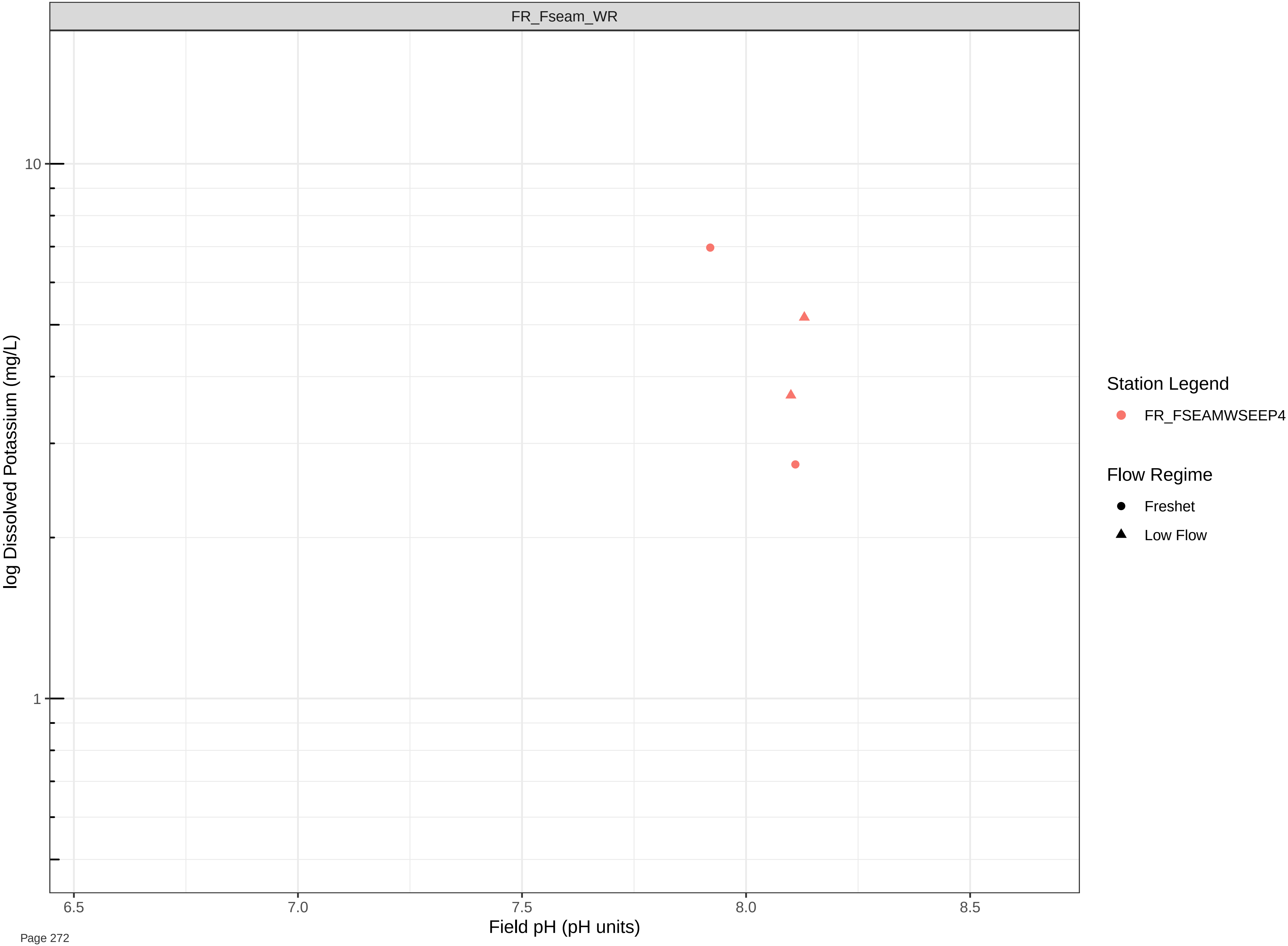

FR_A_WR
10
1
log Dissolved Potassium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

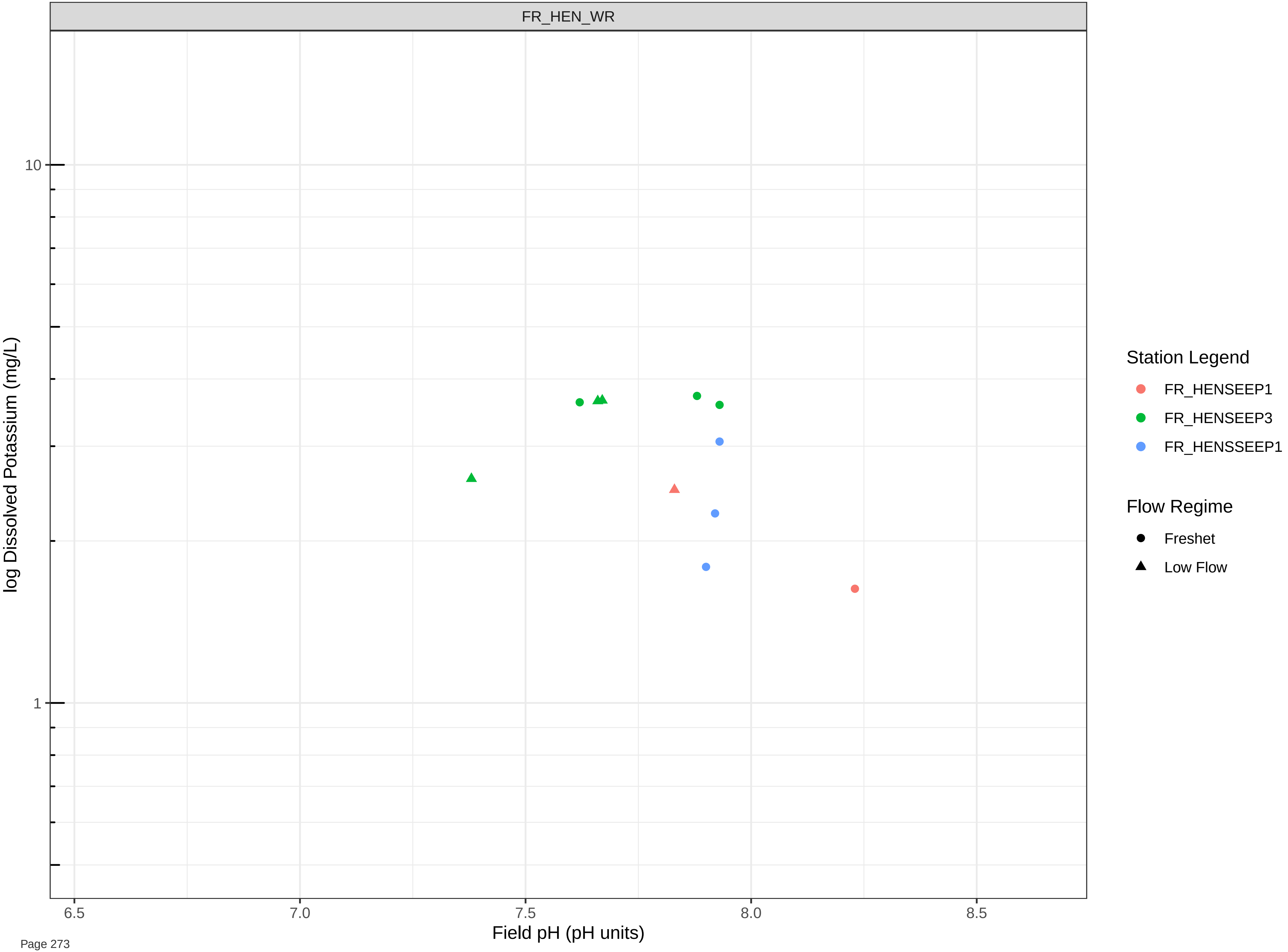

FR_Blain_CCR
log Dissolved Potassium (mg/L)
10
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

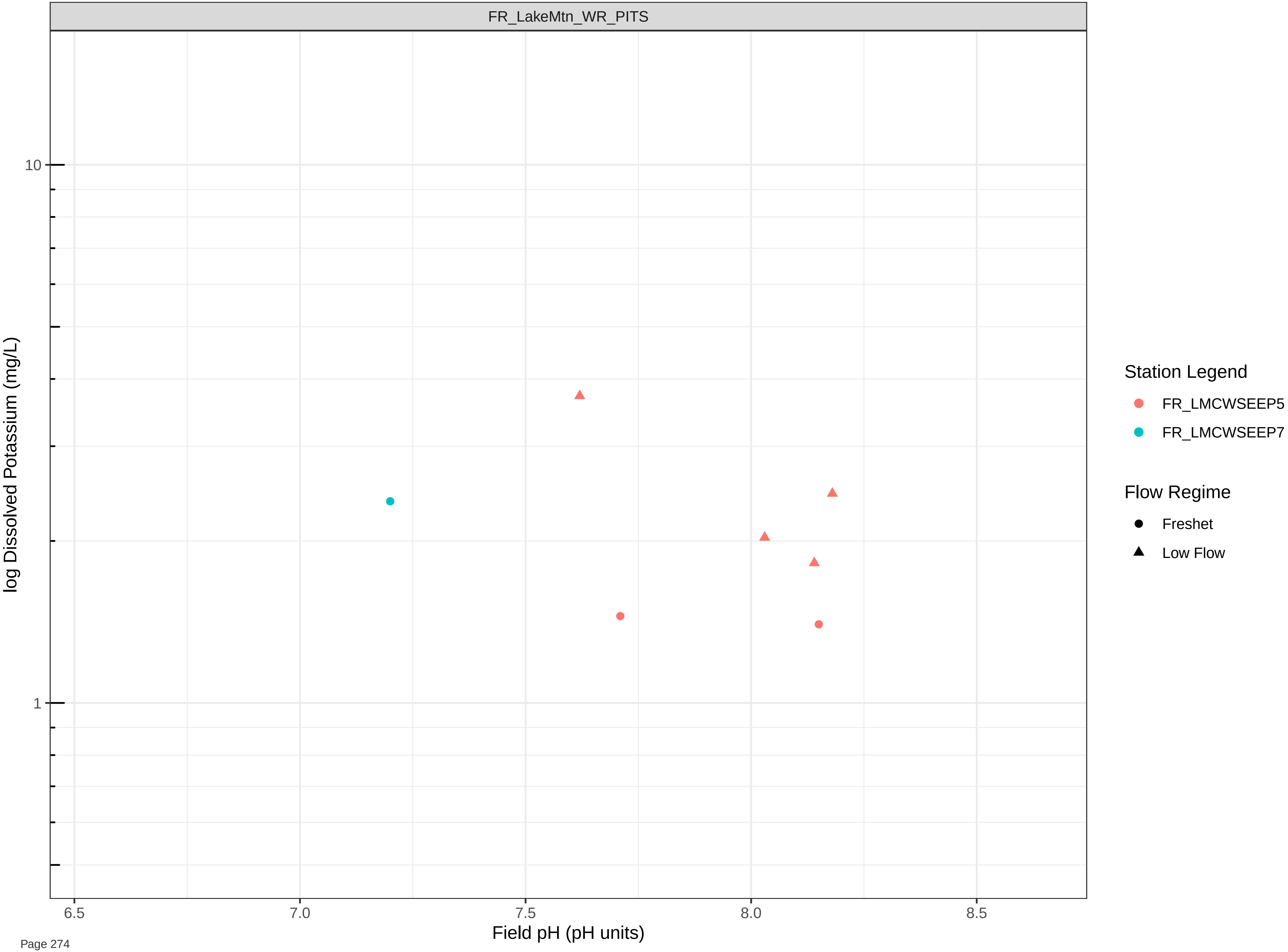

FR_ClodeCr_WR
log Dissolved Potassium (mg/L)
10
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

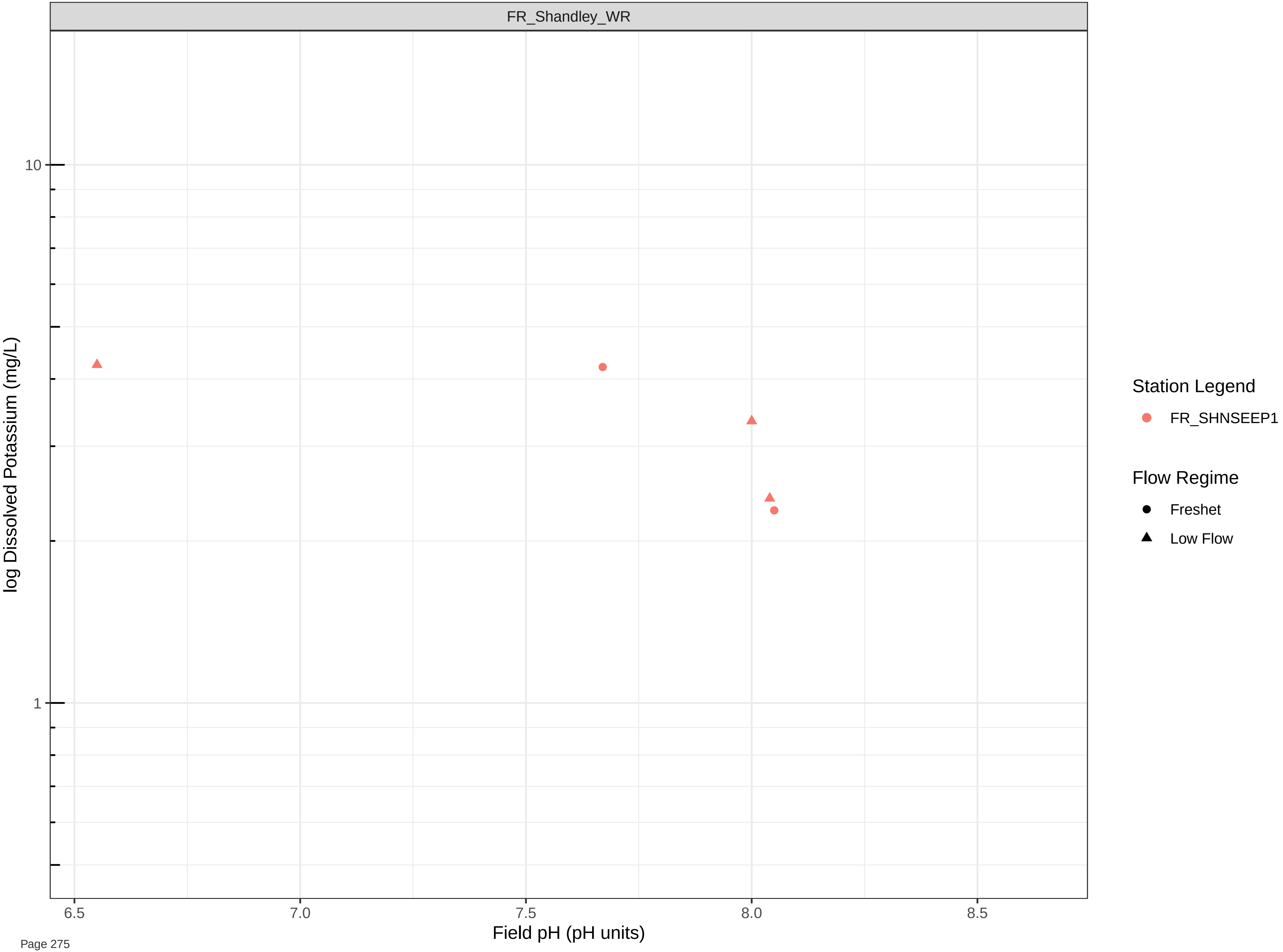

FR_DOKA_Unknown
log Dissolved Potassium (mg/L)
10
1
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow

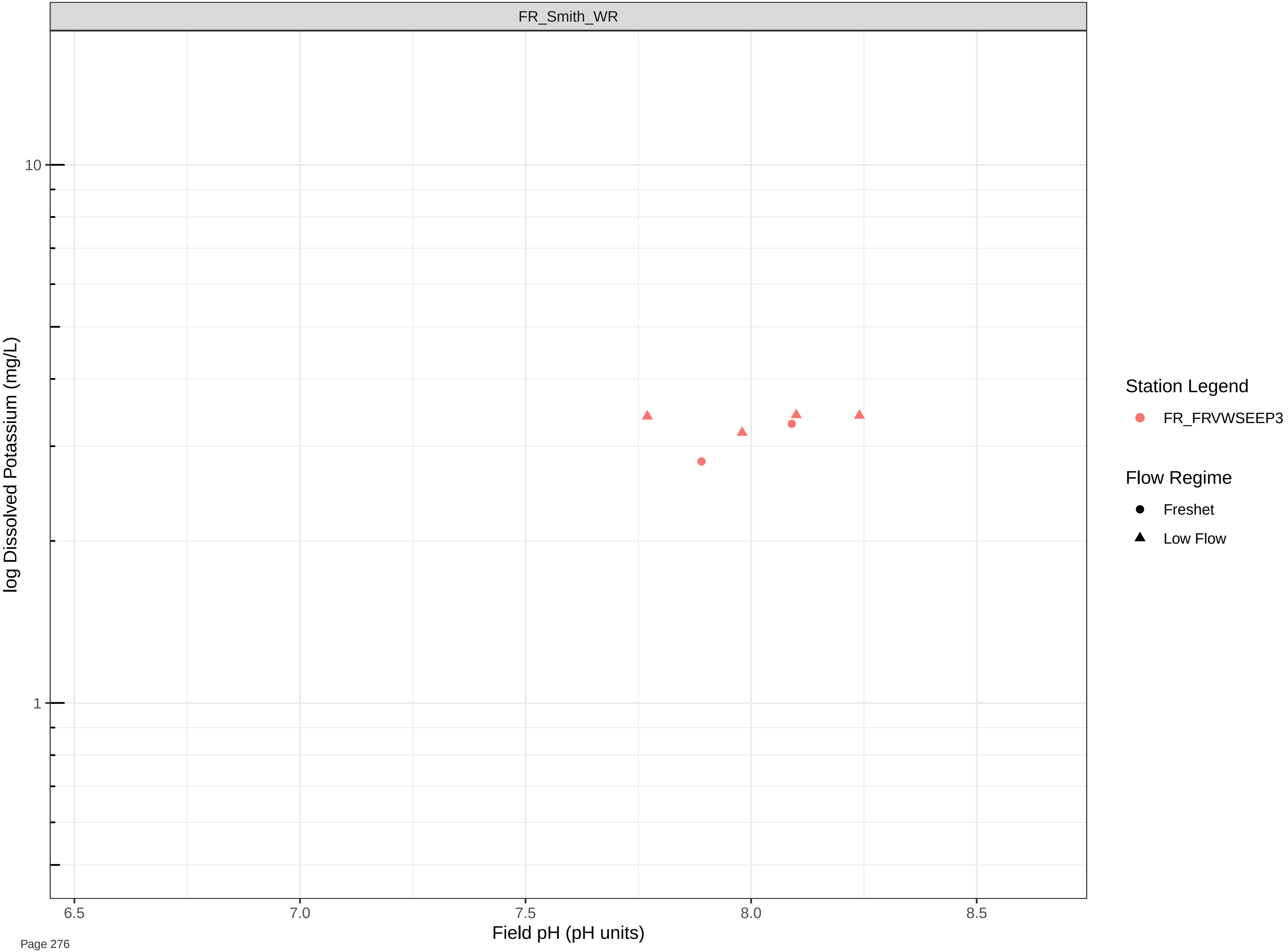

FR_Eagle_WR
log Dissolved Potassium (mg/L)
10
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

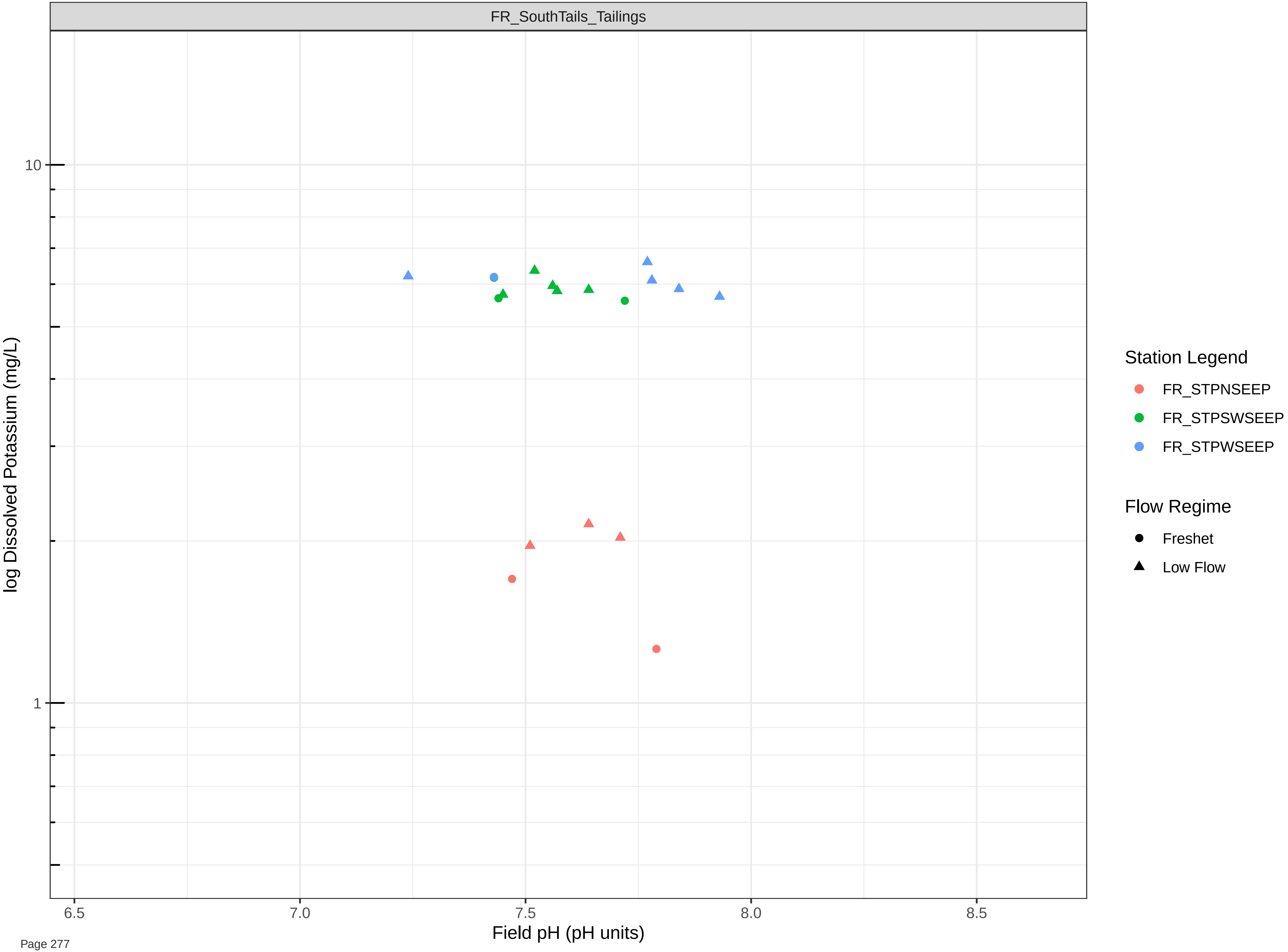

FR_Fseam_WR
log Dissolved Potassium (mg/L)
10
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

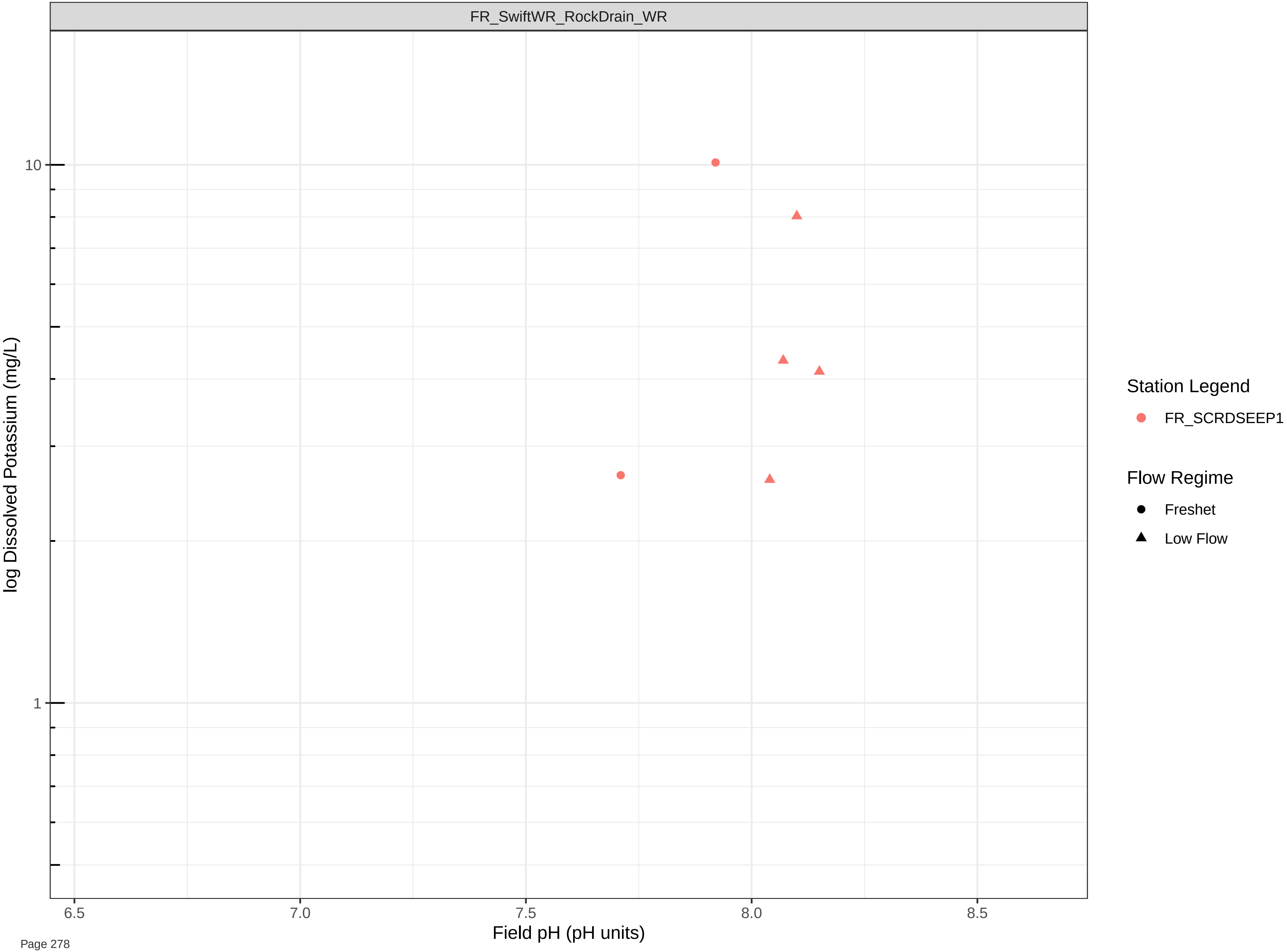

FR_HEN_WR
log Dissolved Potassium (mg/L)
10
1
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

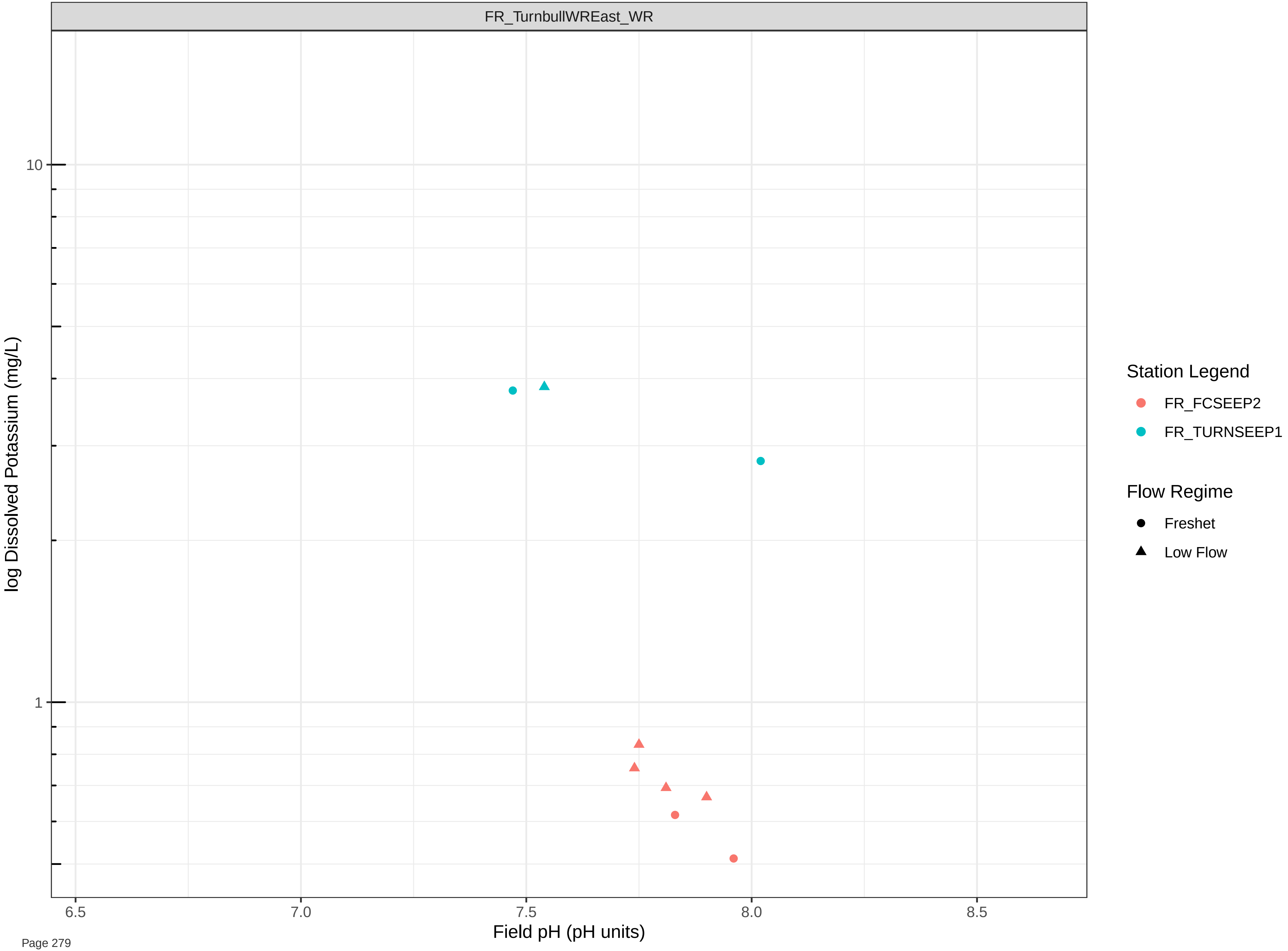

FR_LakeMtn_WR_PITS
log Dissolved Potassium (mg/L)
10
1
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

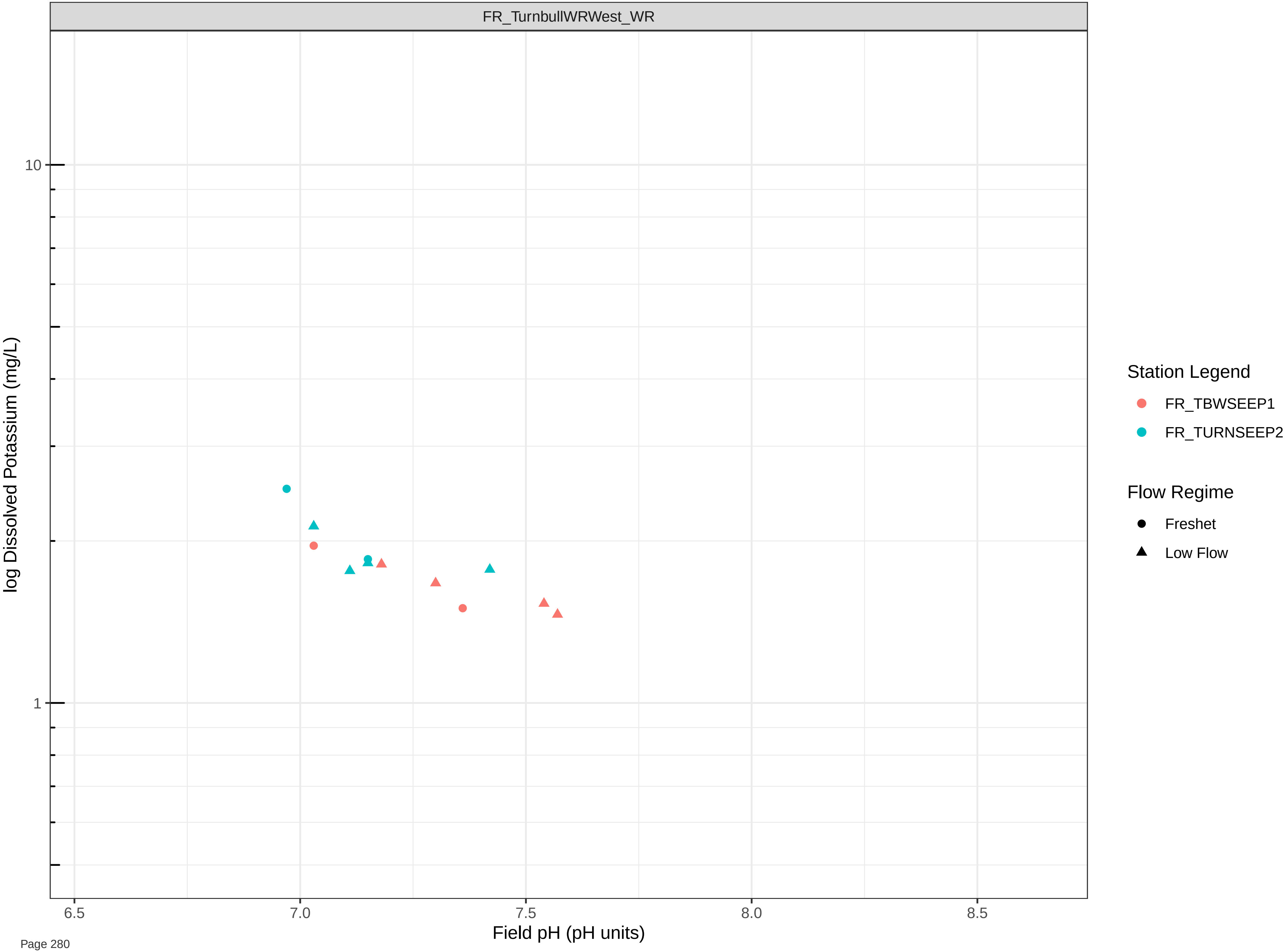

FR_Shandley_WR
10
1
log Dissolved Potassium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow


FR_Smith_WR
10
1
log Dissolved Potassium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

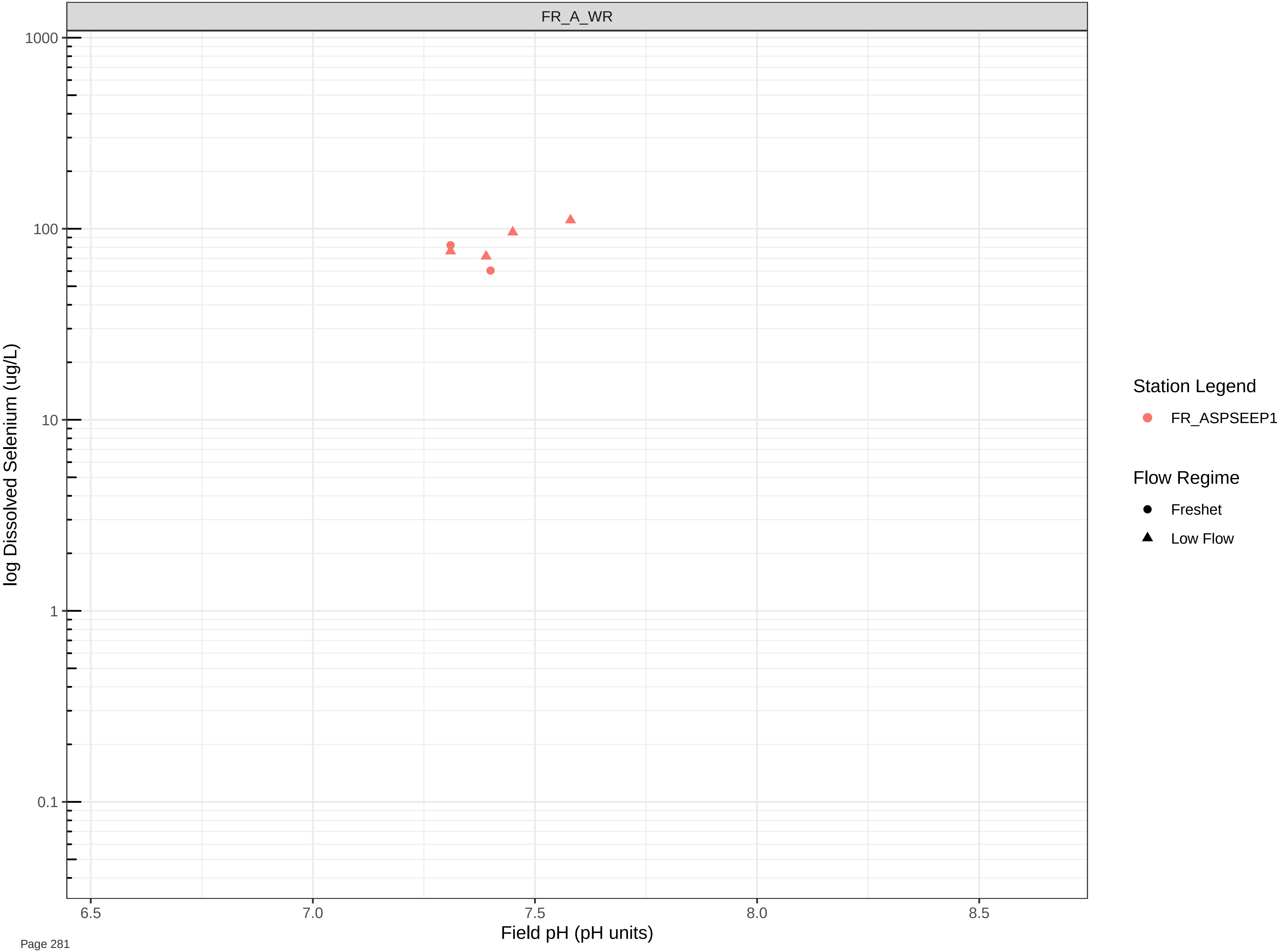

FR_SouthTails_Tailings
log Dissolved Potassium (mg/L)
10
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

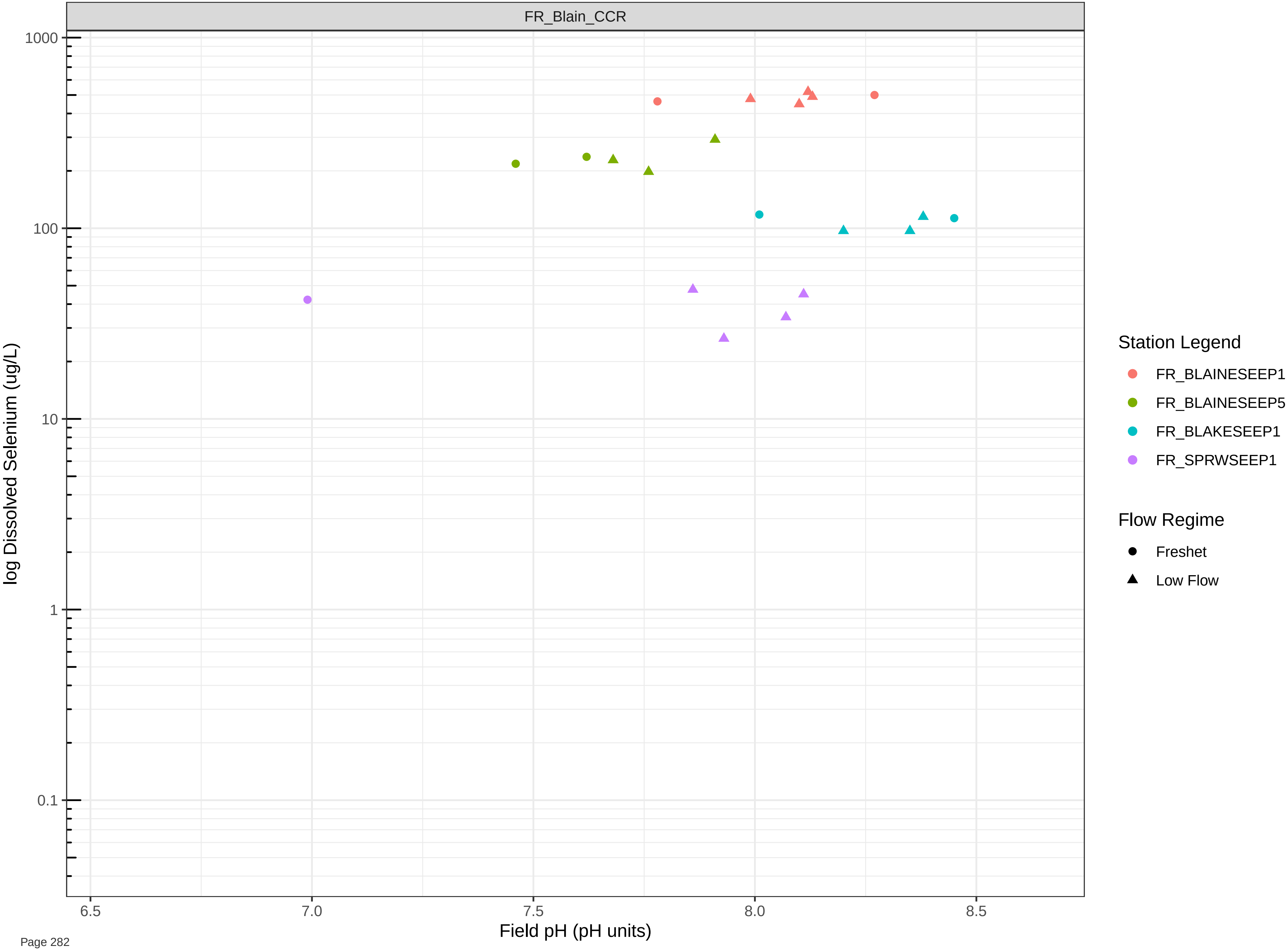

FR_SwiftWR_RockDrain_WR
log Dissolved Potassium (mg/L)
10
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

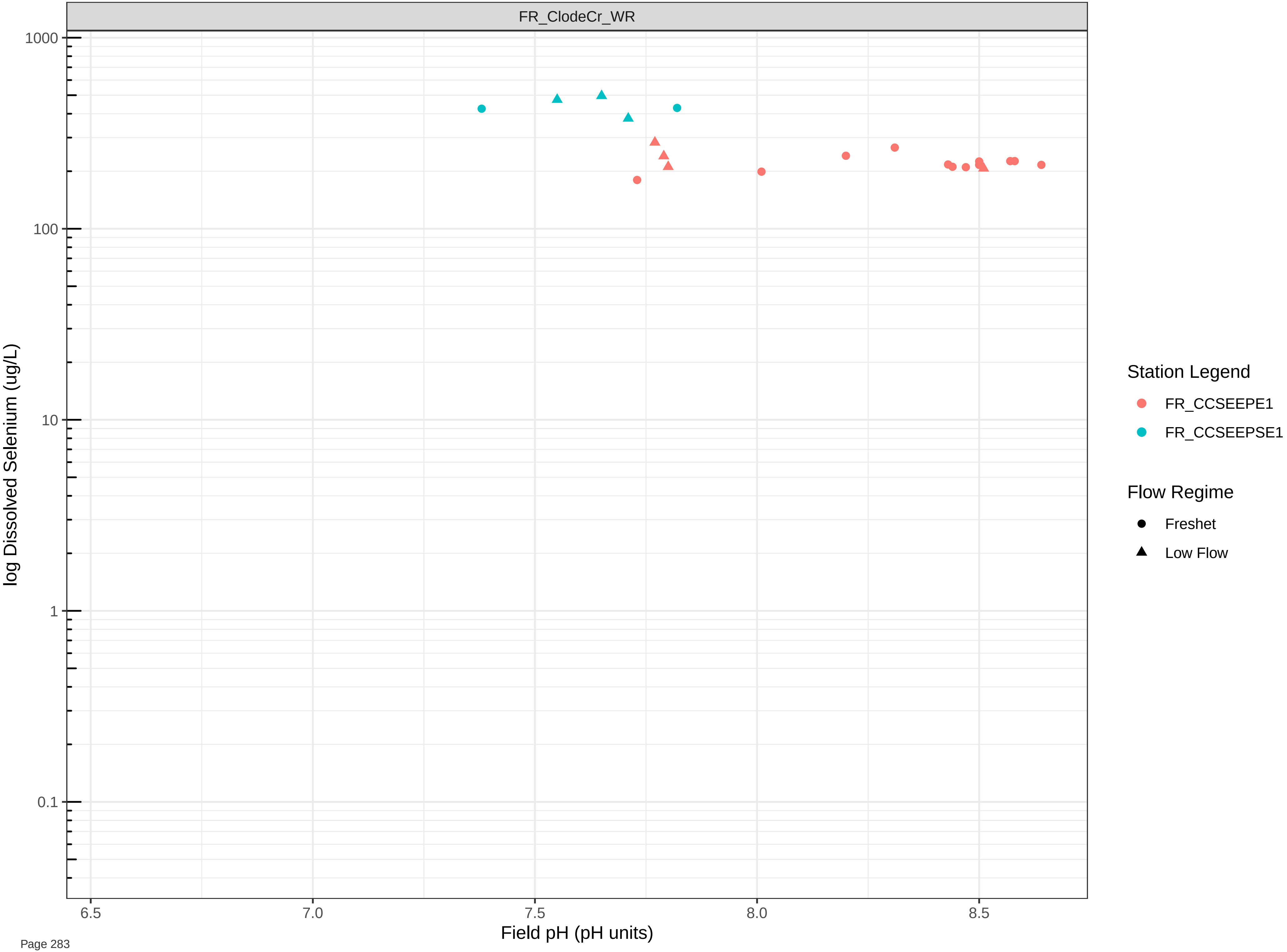

FR_TurnbullWREast_WR
10
1
log Dissolved Potassium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

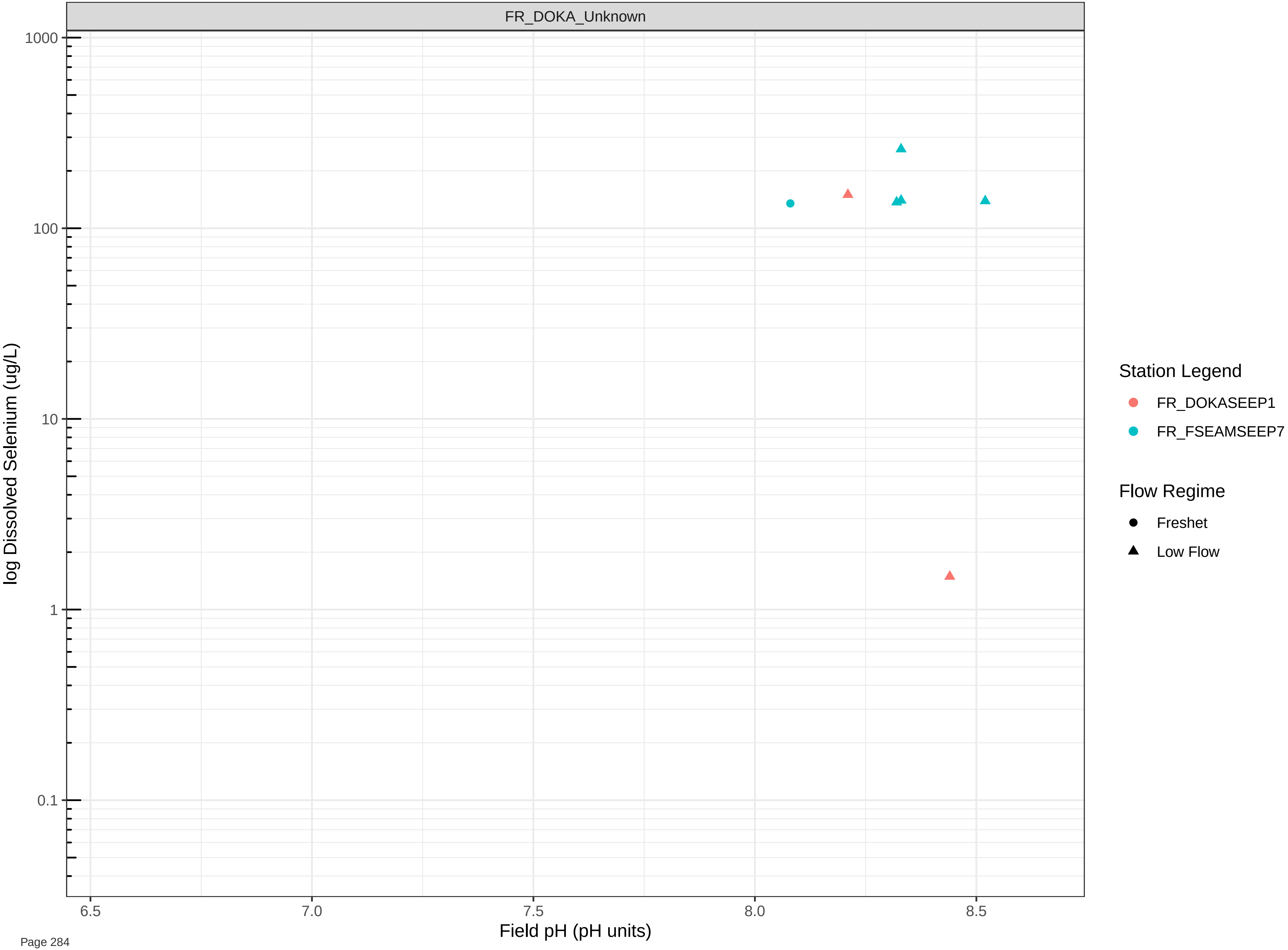


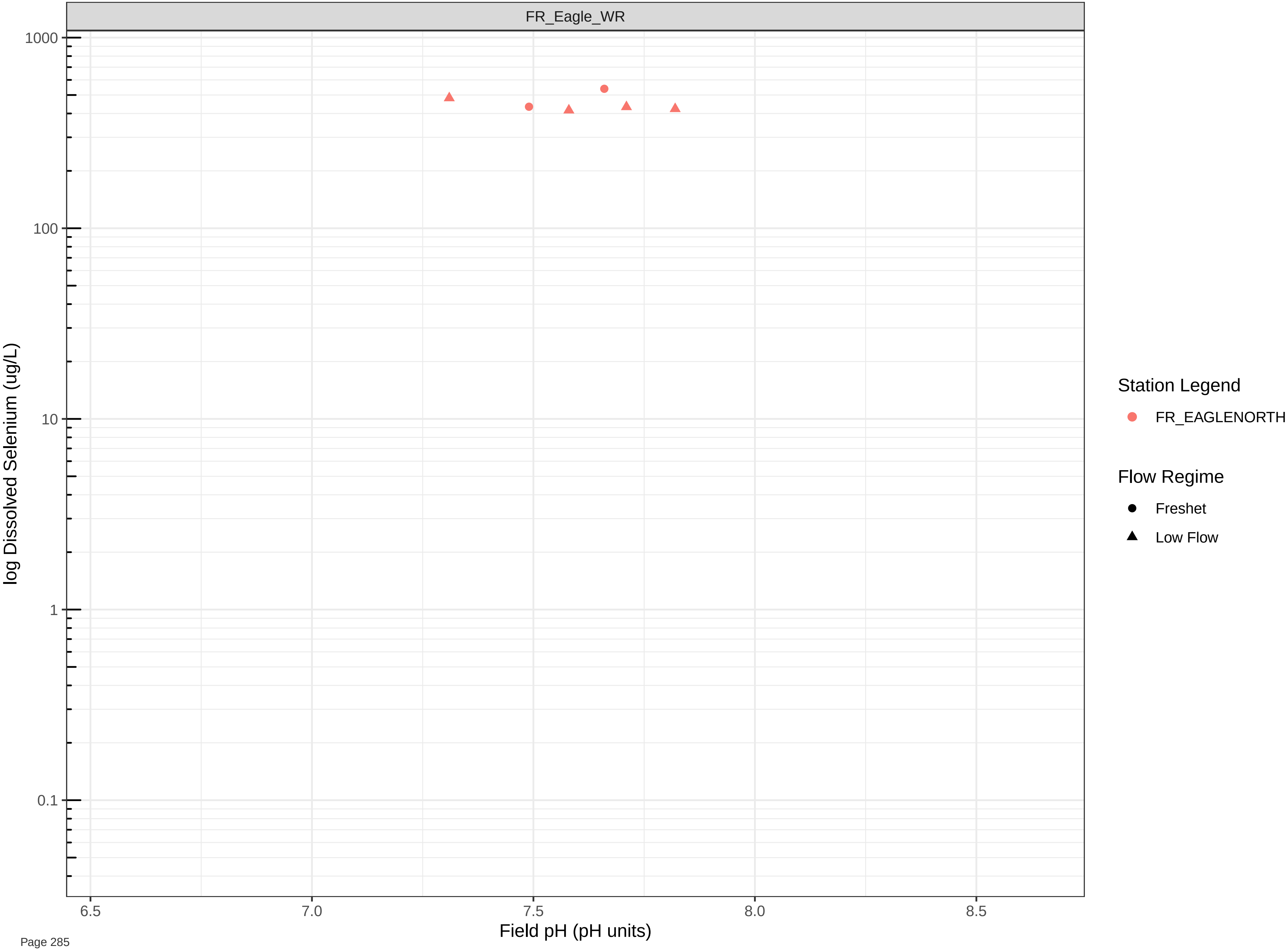
FR_TurnbullWRWest_WR
log Dissolved Potassium (mg/L)
10
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

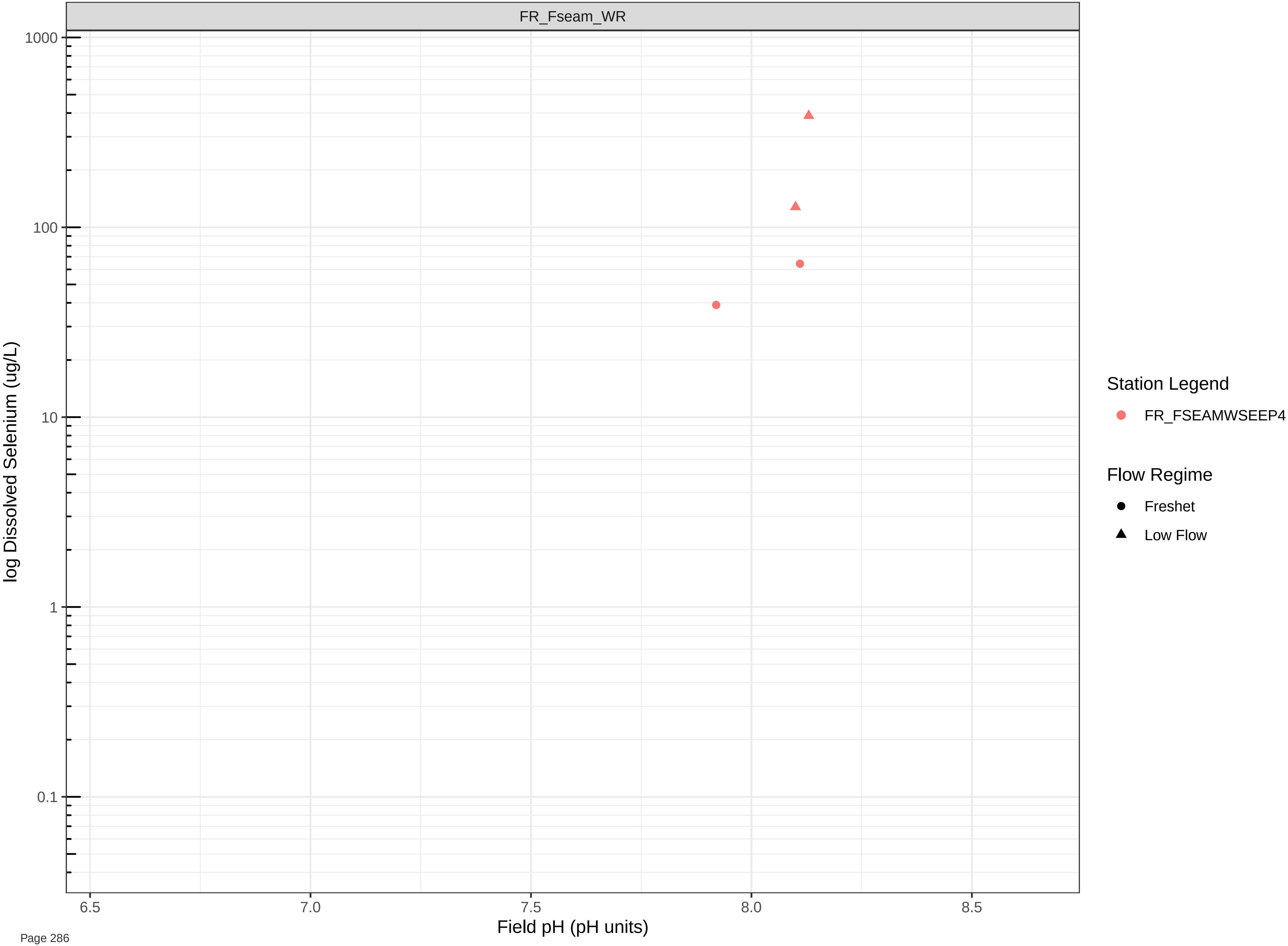

FR_A_WR
1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

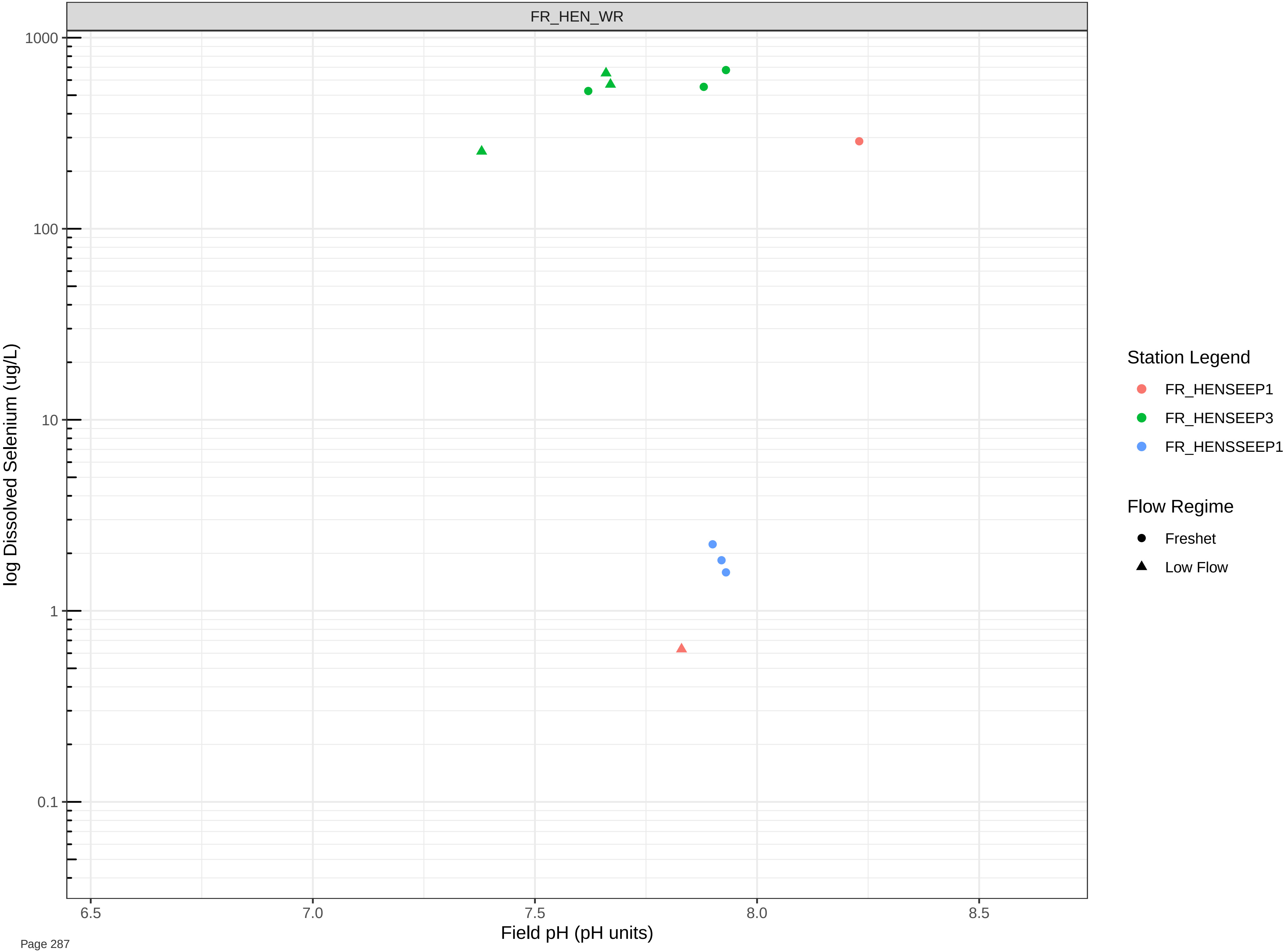

FR_Blain_CCR
log Dissolved Selenium (ug/L)
1000
100
10
1
0.1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

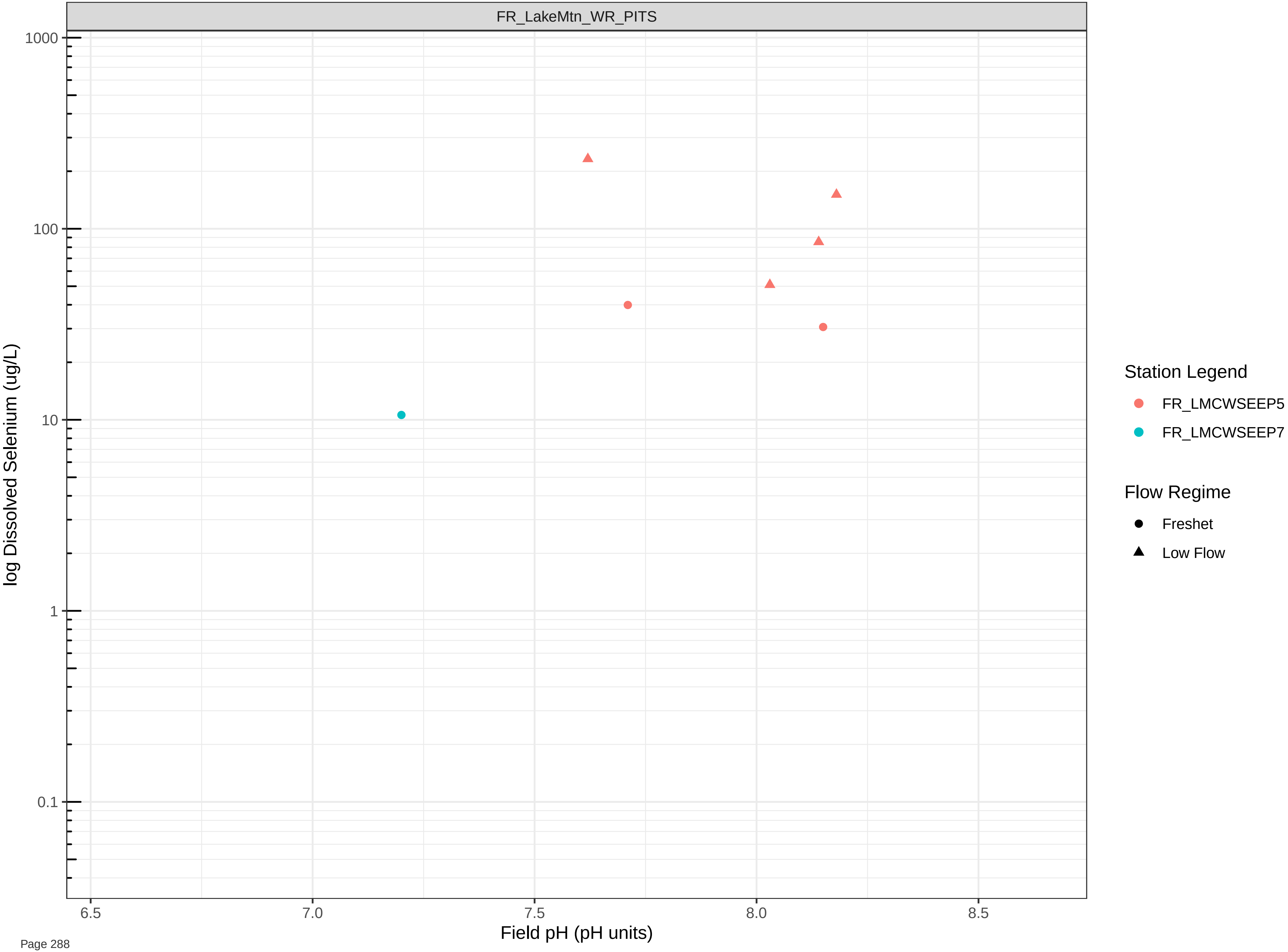

FR_ClodeCr_WR
log Dissolved Selenium (ug/L)
1000
100
10
1
0.1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

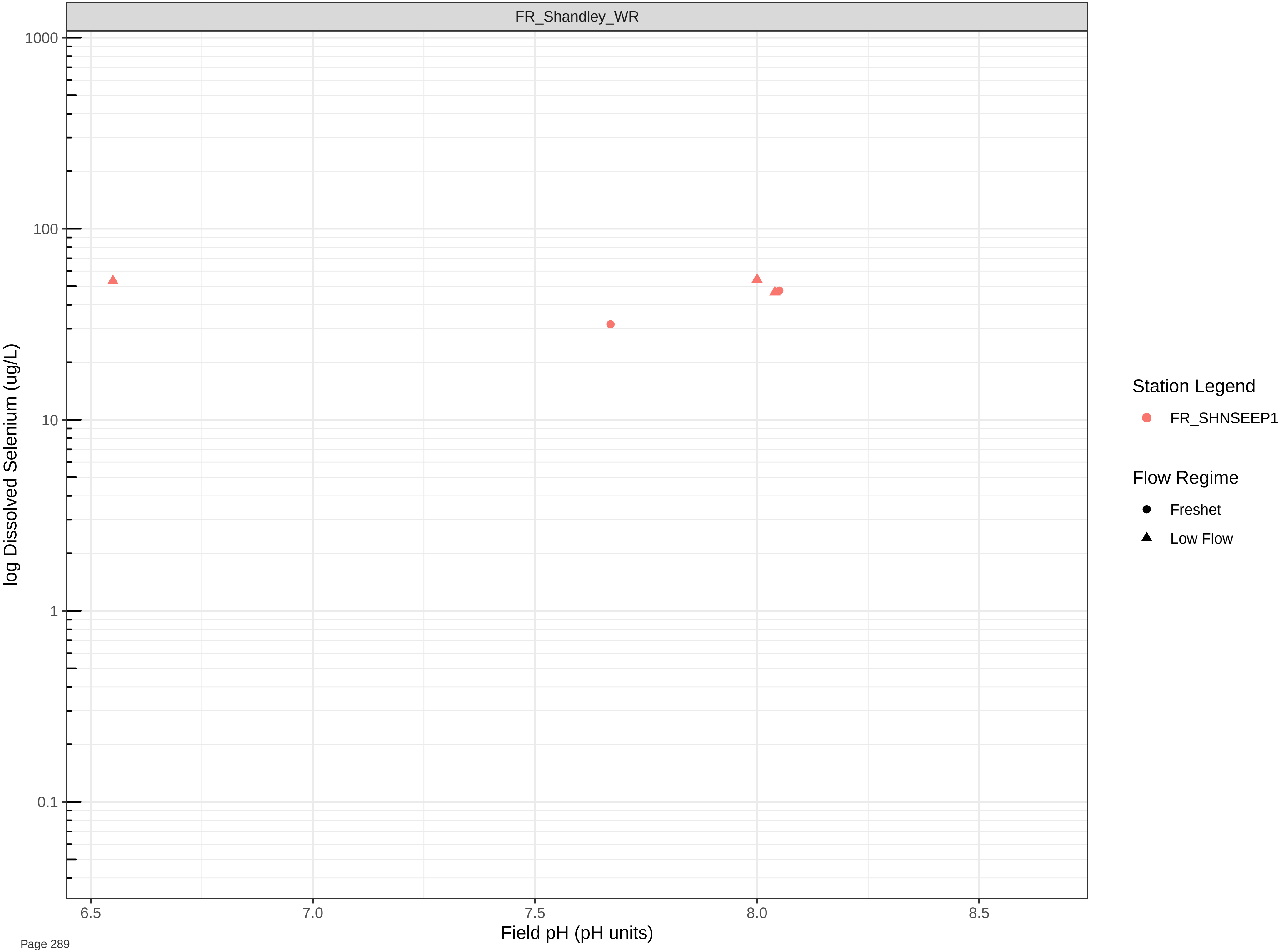

FR_DOKA_Unknown
log Dissolved Selenium (ug/L)
1000
100
10
1
0.1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

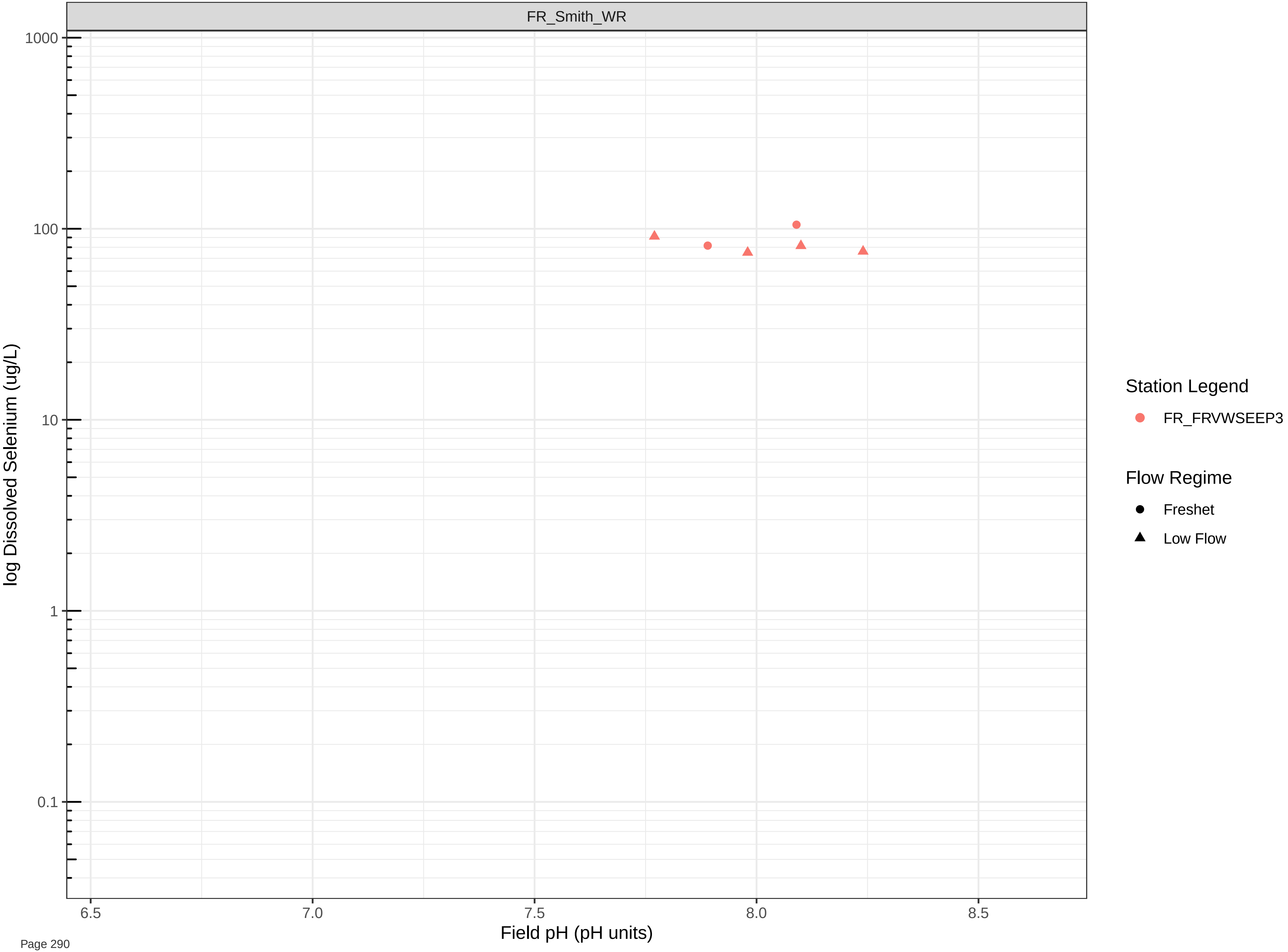

FR_Eagle_WR
log Dissolved Selenium (ug/L)
1000
100
10
1
0.1
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

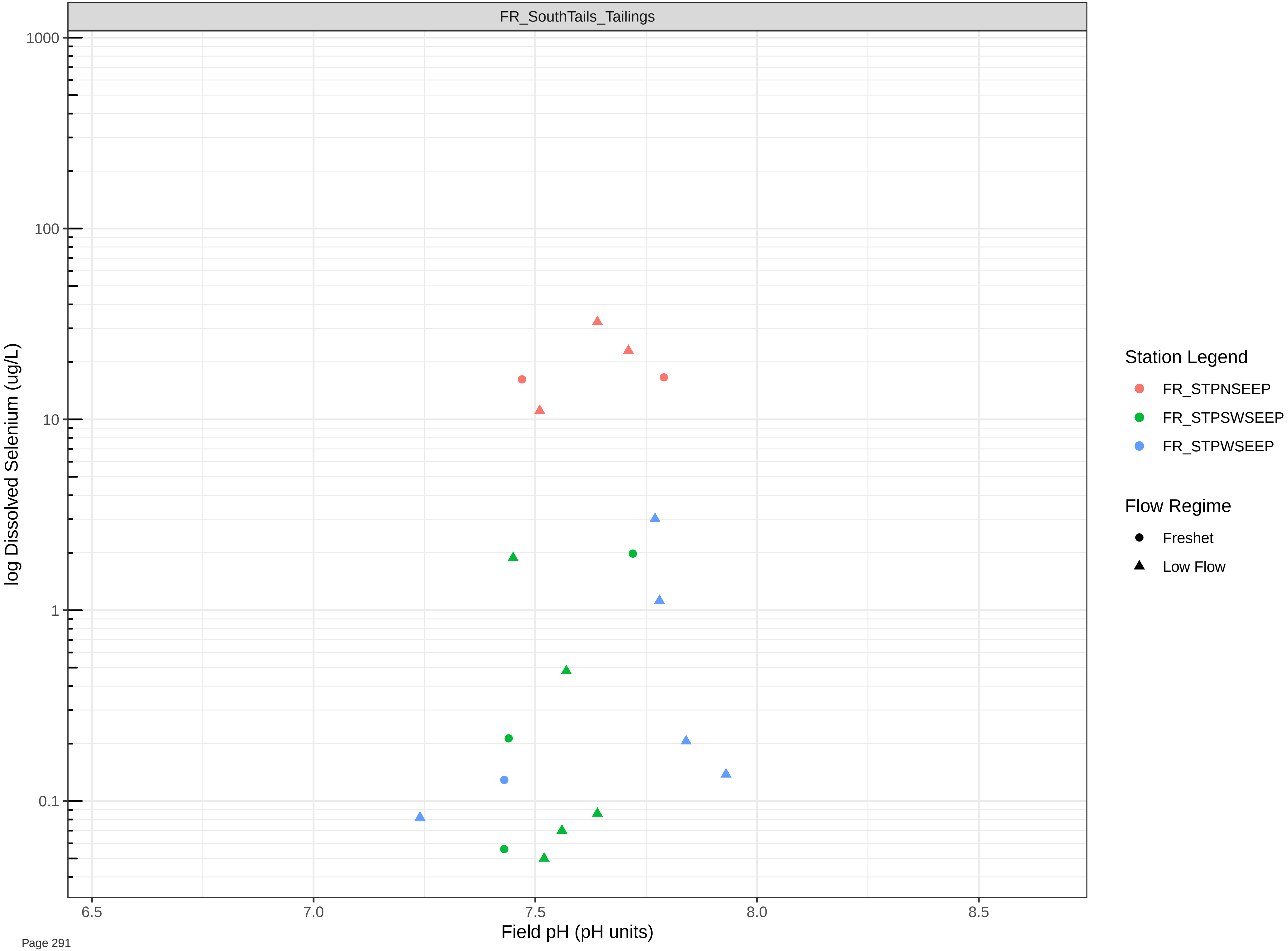

FR_Fseam_WR
1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

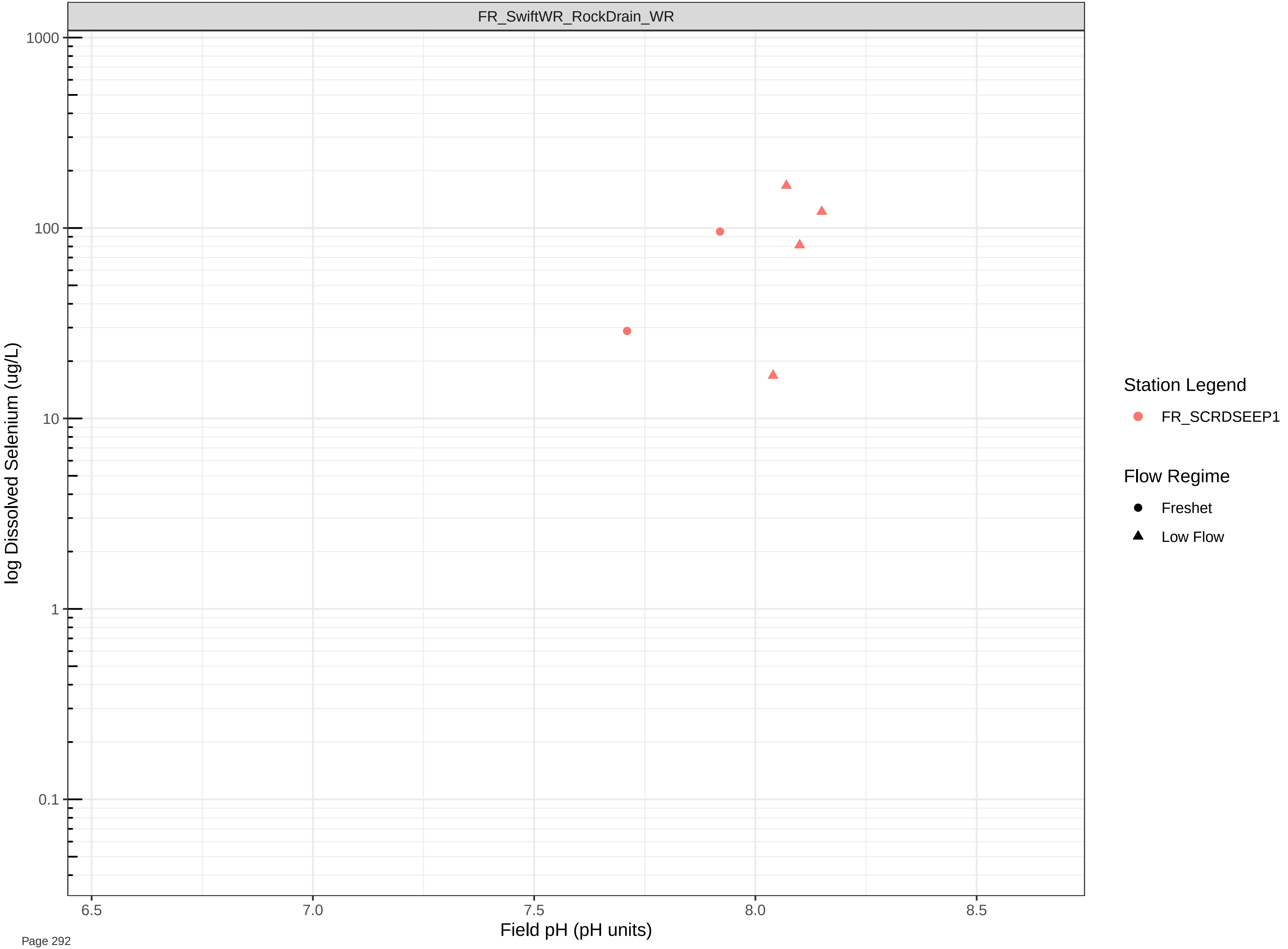

FR_HEN_WR
log Dissolved Selenium (ug/L)
1000
100
10
1
0.1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

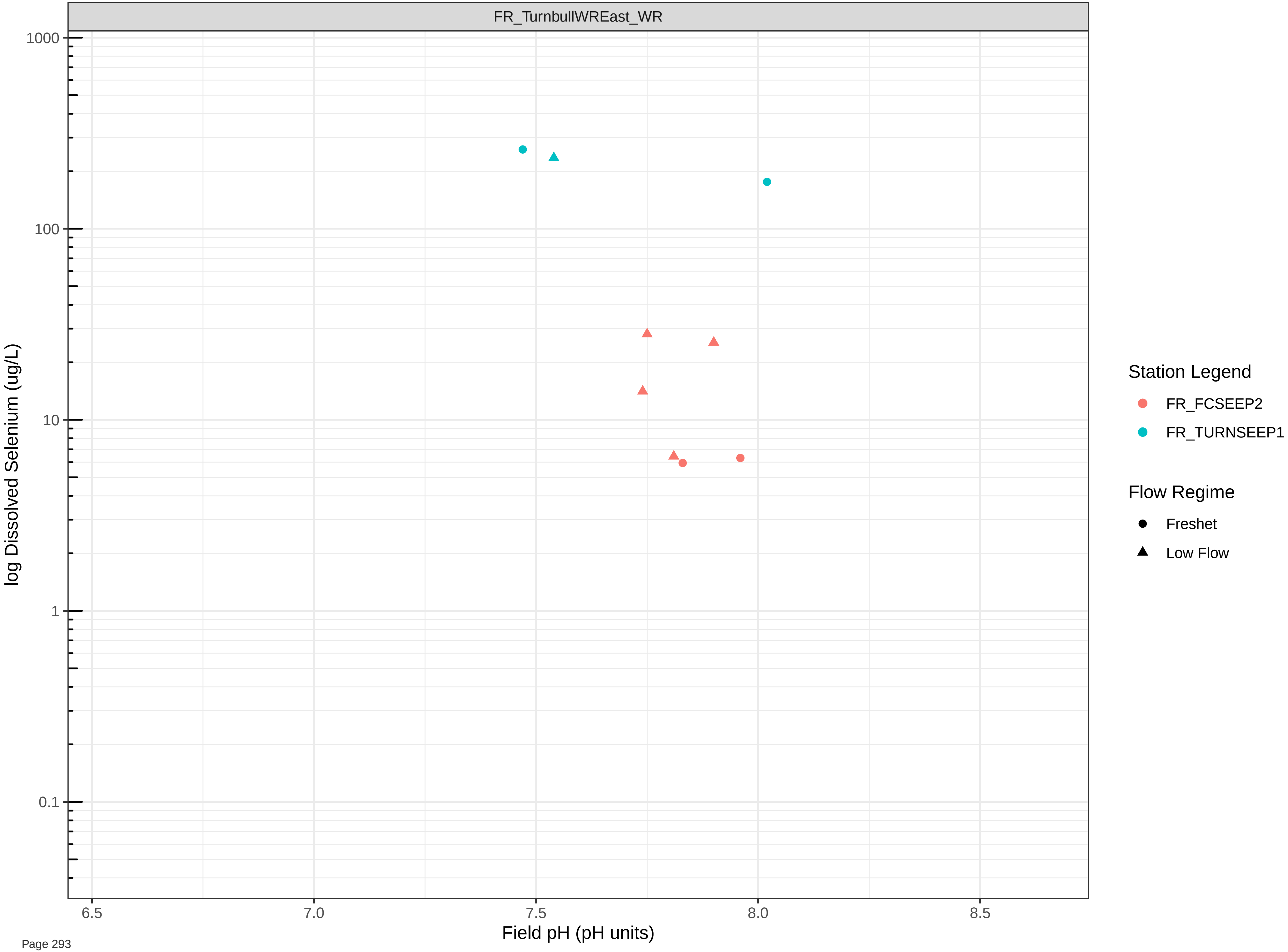

FR_LakeMtn_WR_PITS
1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow

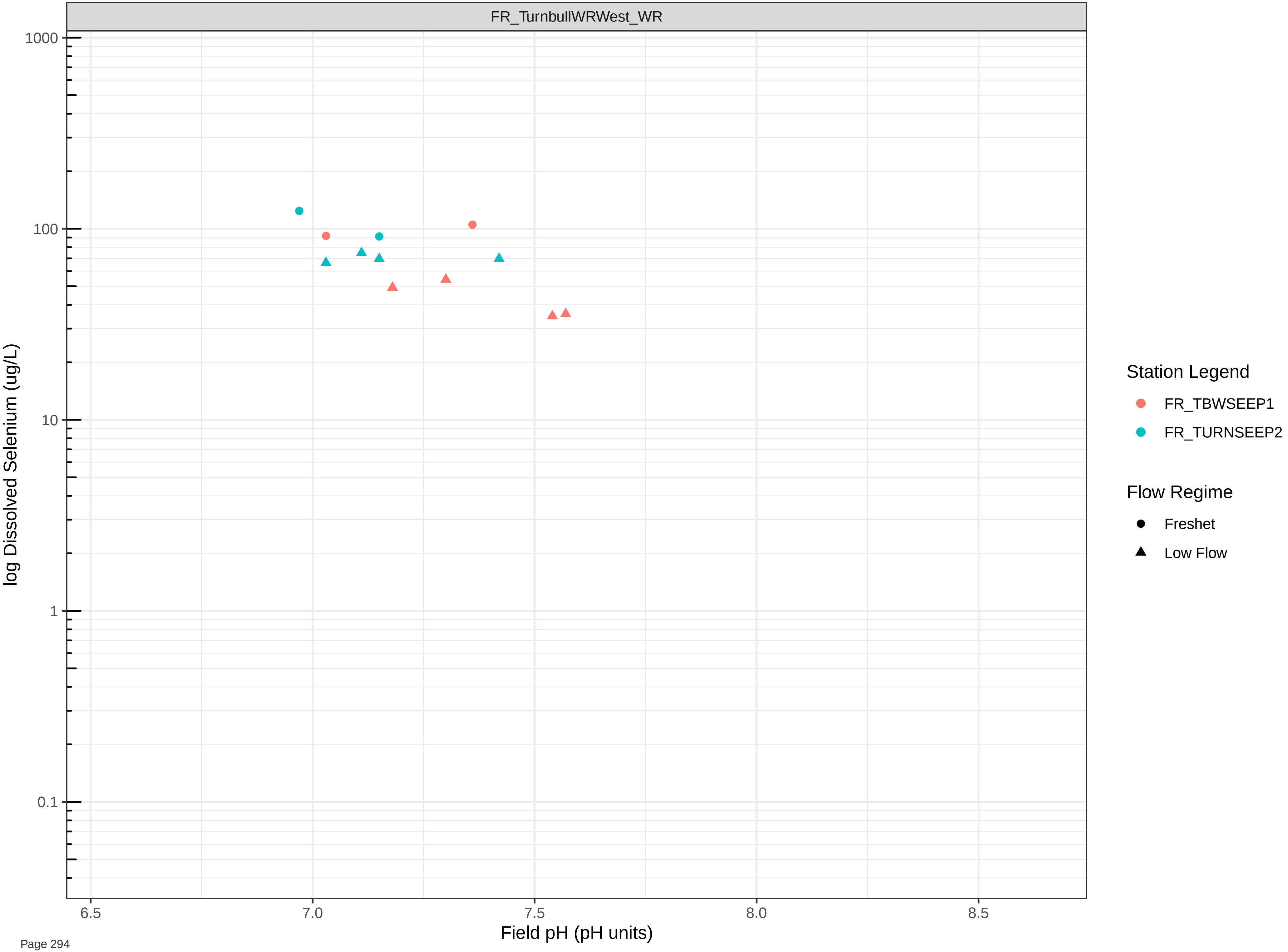

FR_Shandley_WR
1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

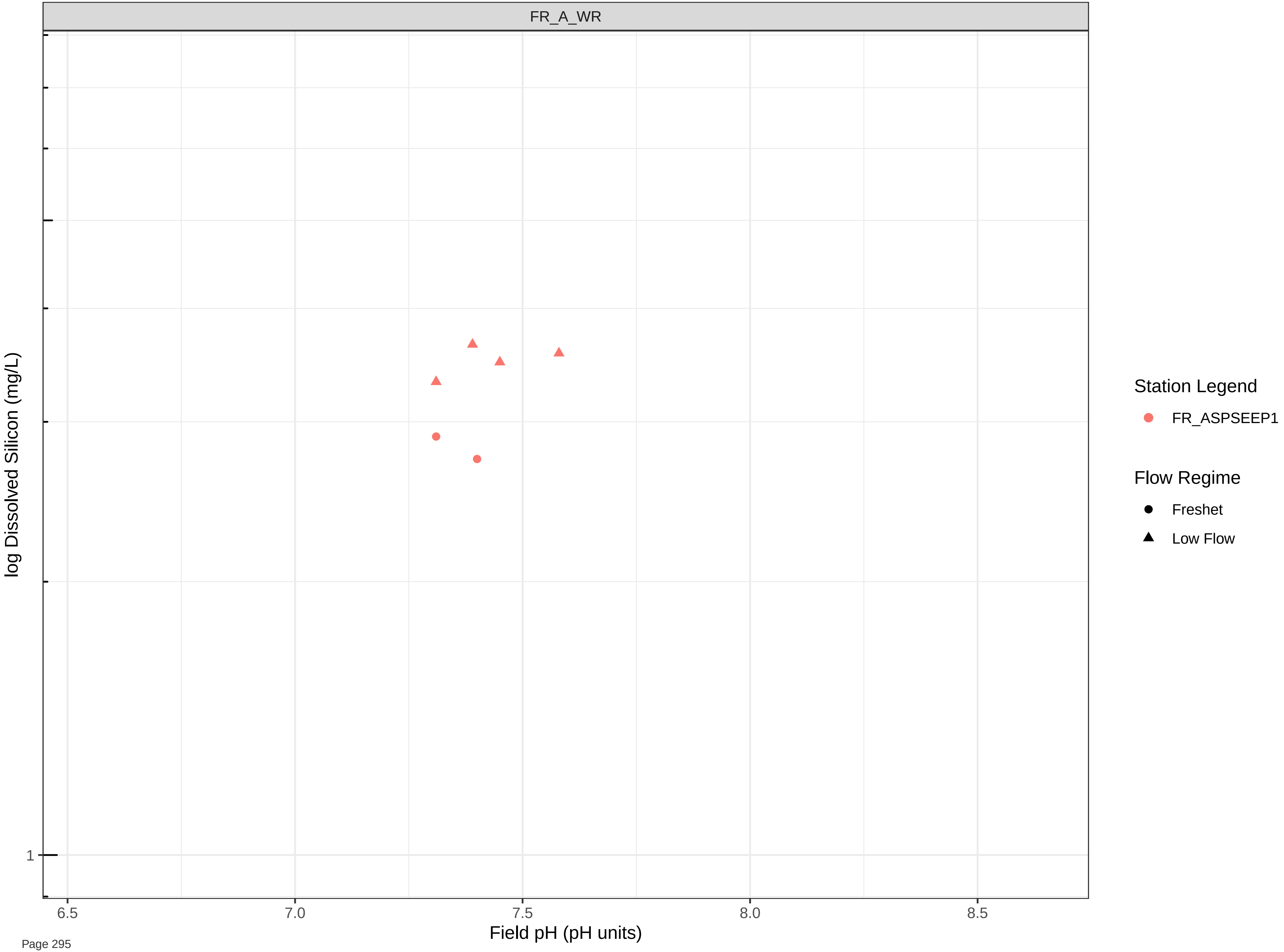

FR_Smith_WR
1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

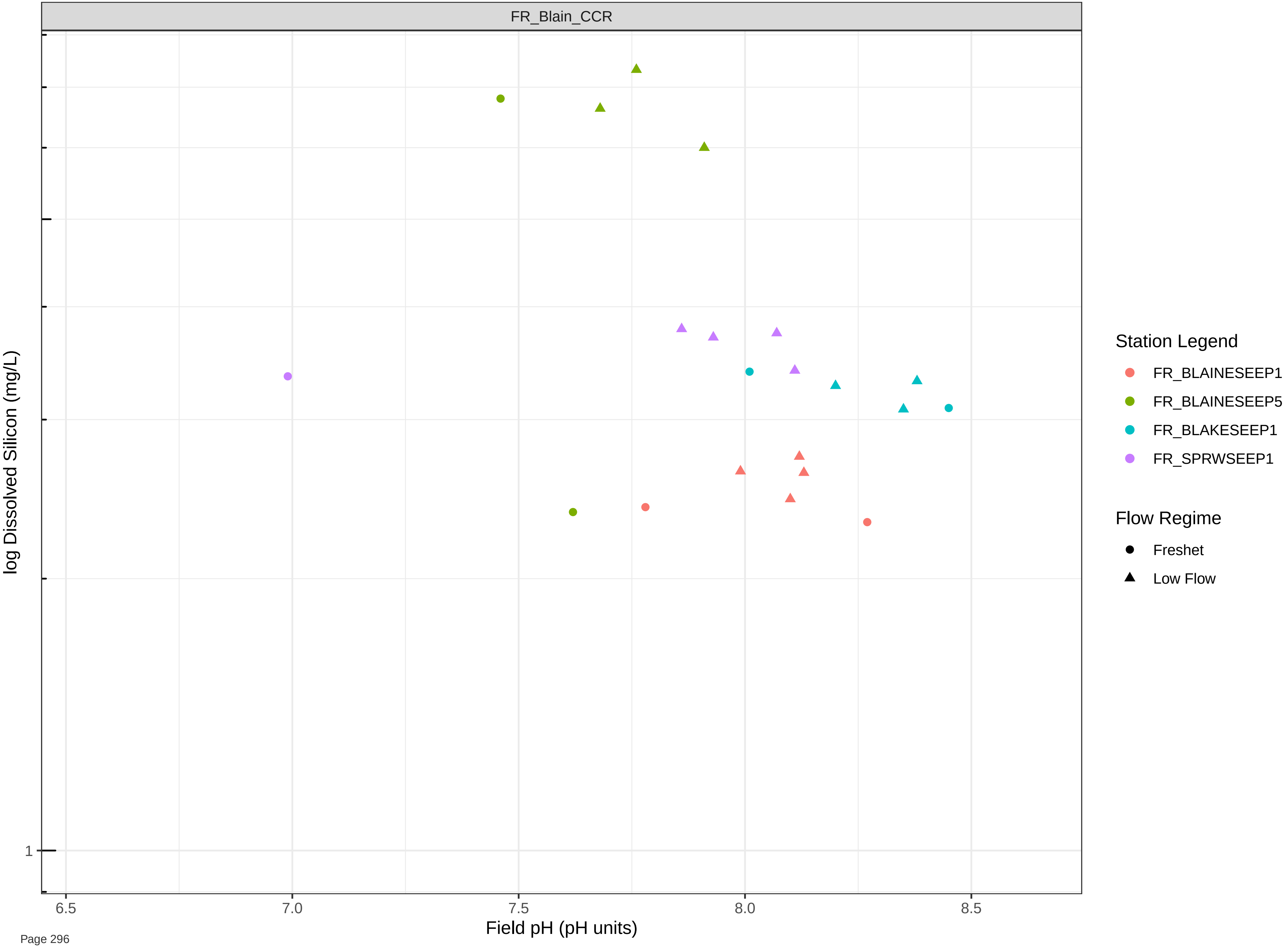

FR_SouthTails_Tailings
log Dissolved Selenium (ug/L)
1000
100
10
1
0.1
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

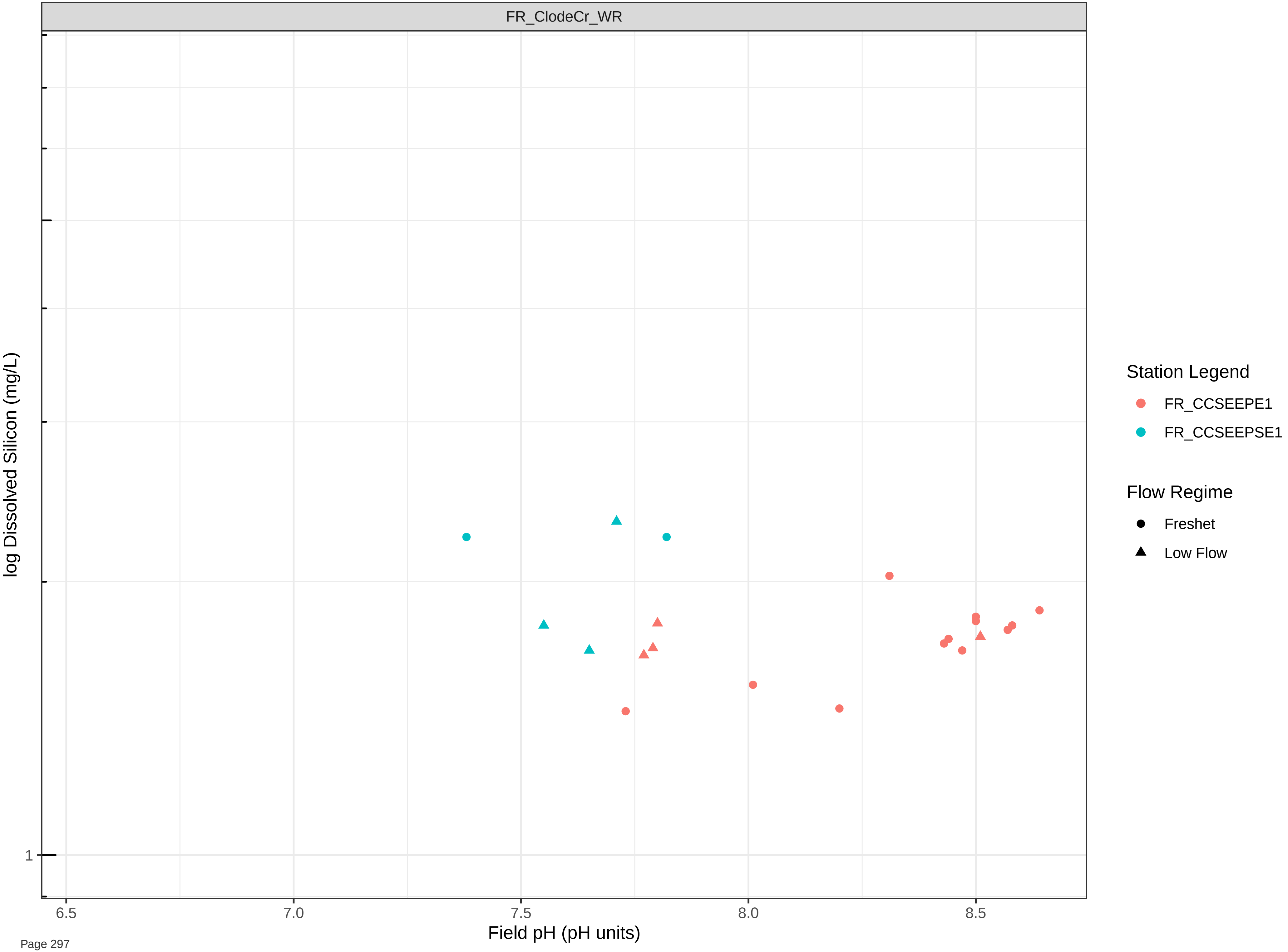

FR_SwiftWR_RockDrain_WR
1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

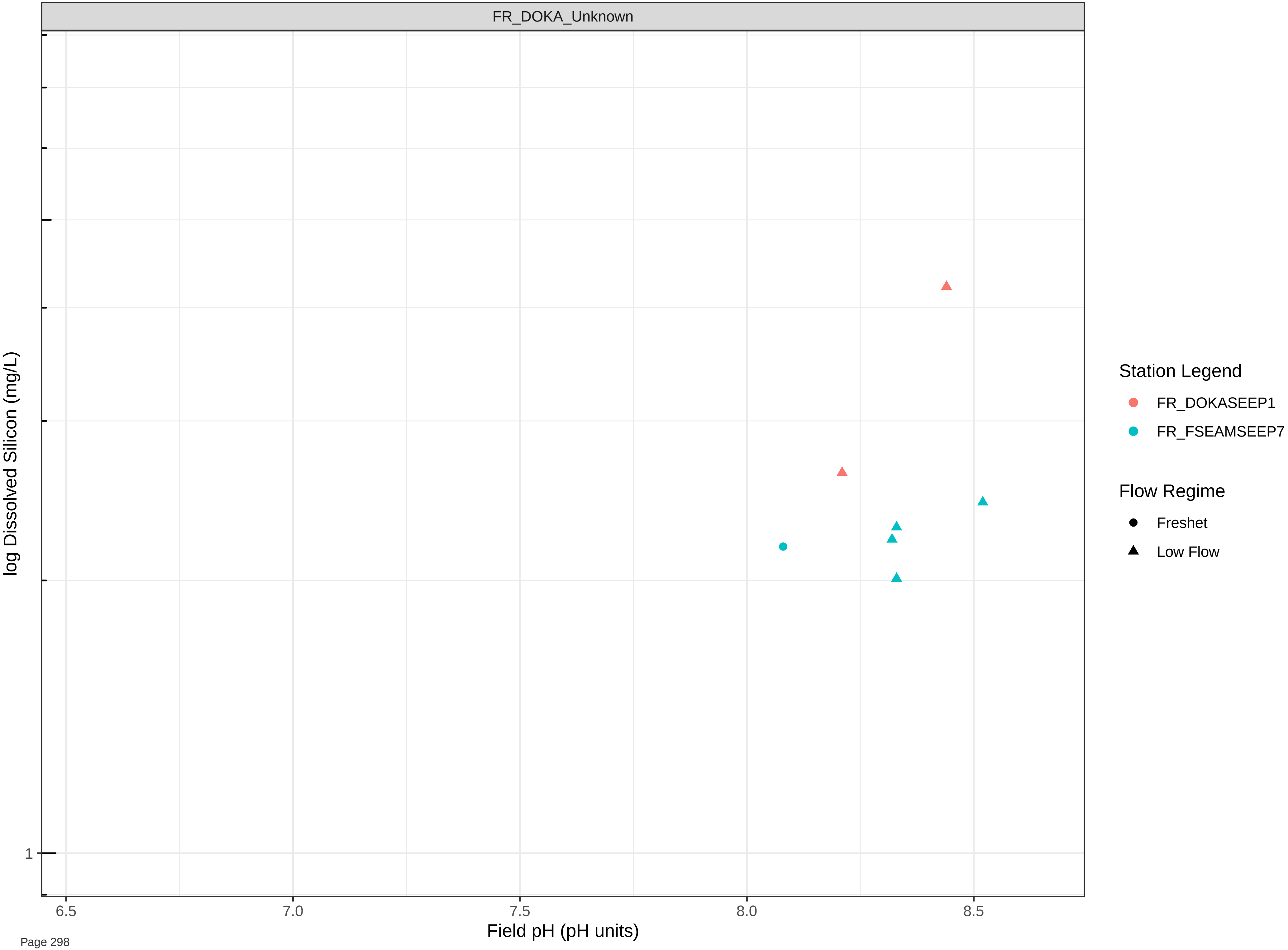

FR_TurnbullWREast_WR
1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FCSEEP2
● FR_TURNSEEP1
Flow Regime
● Freshet
▲ Low Flow

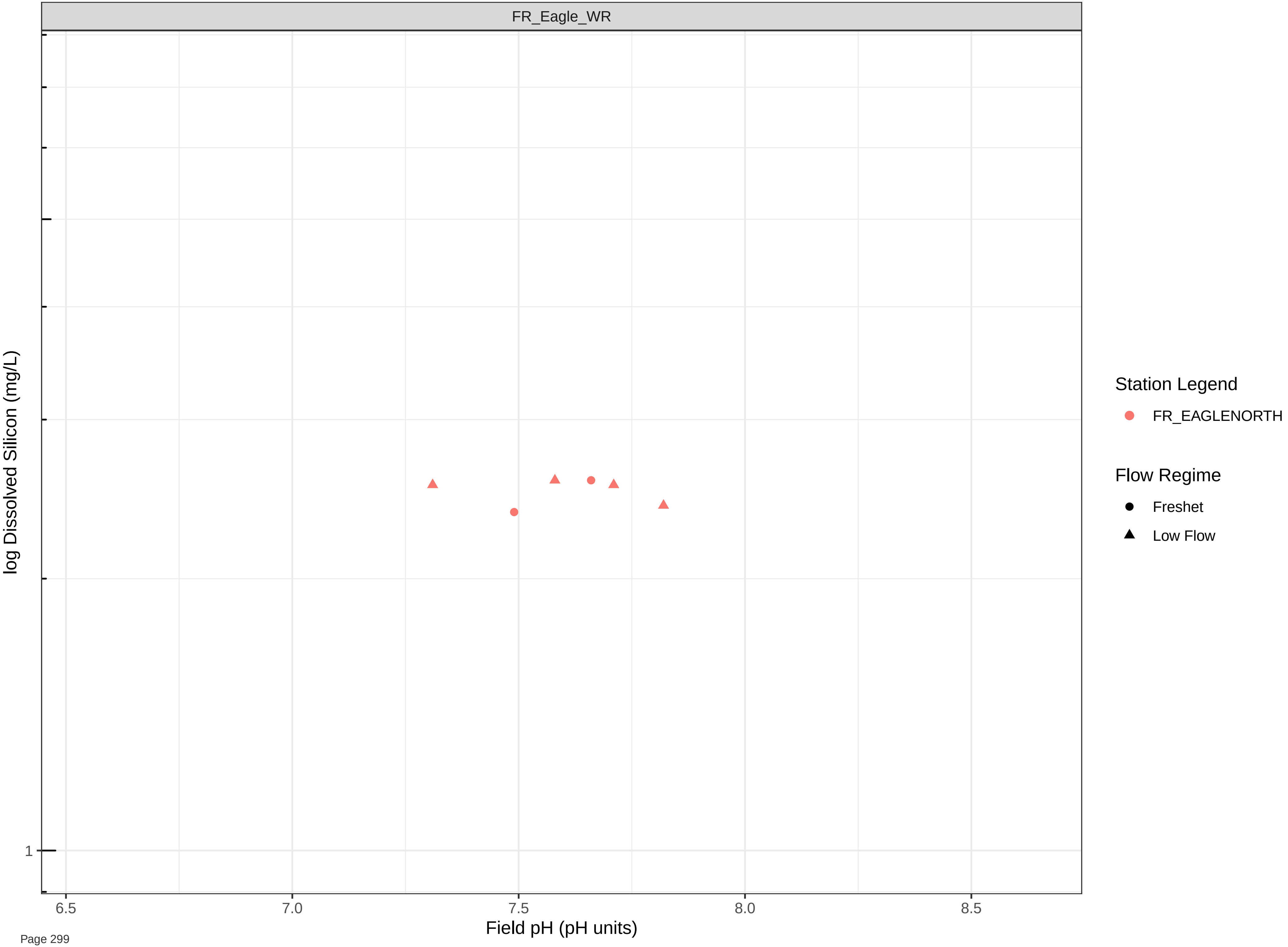

FR_TurnbullWRWest_WR
log Dissolved Selenium (ug/L)
1000
100
10
1
0.1
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_TBWSEEP1
● FR_TURNSEEP2
Flow Regime
● Freshet
▲ Low Flow

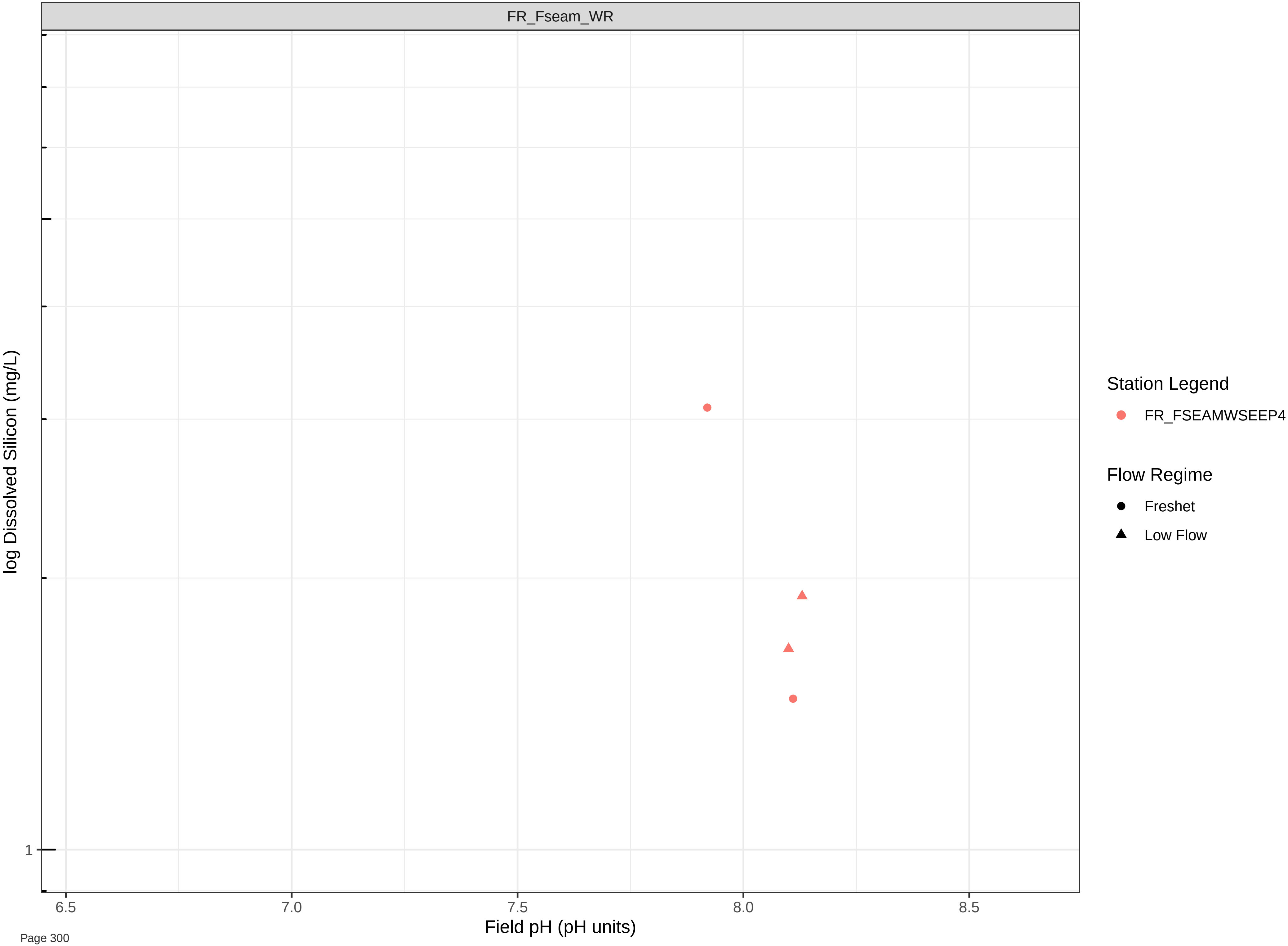

FR_A_WR
log Dissolved Silicon (mg/L)
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

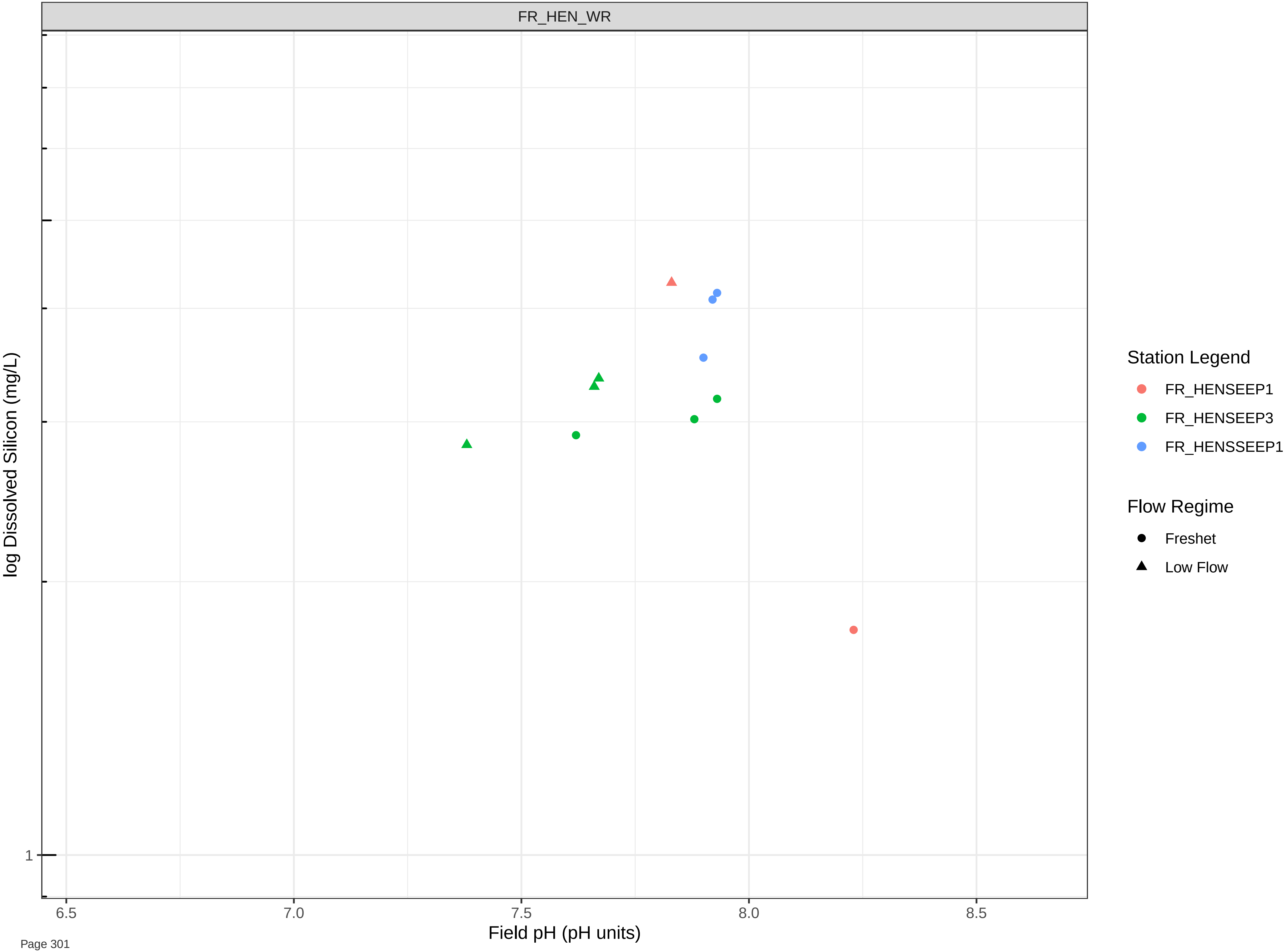

FR_Blain_CCR
log Dissolved Silicon (mg/L)
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

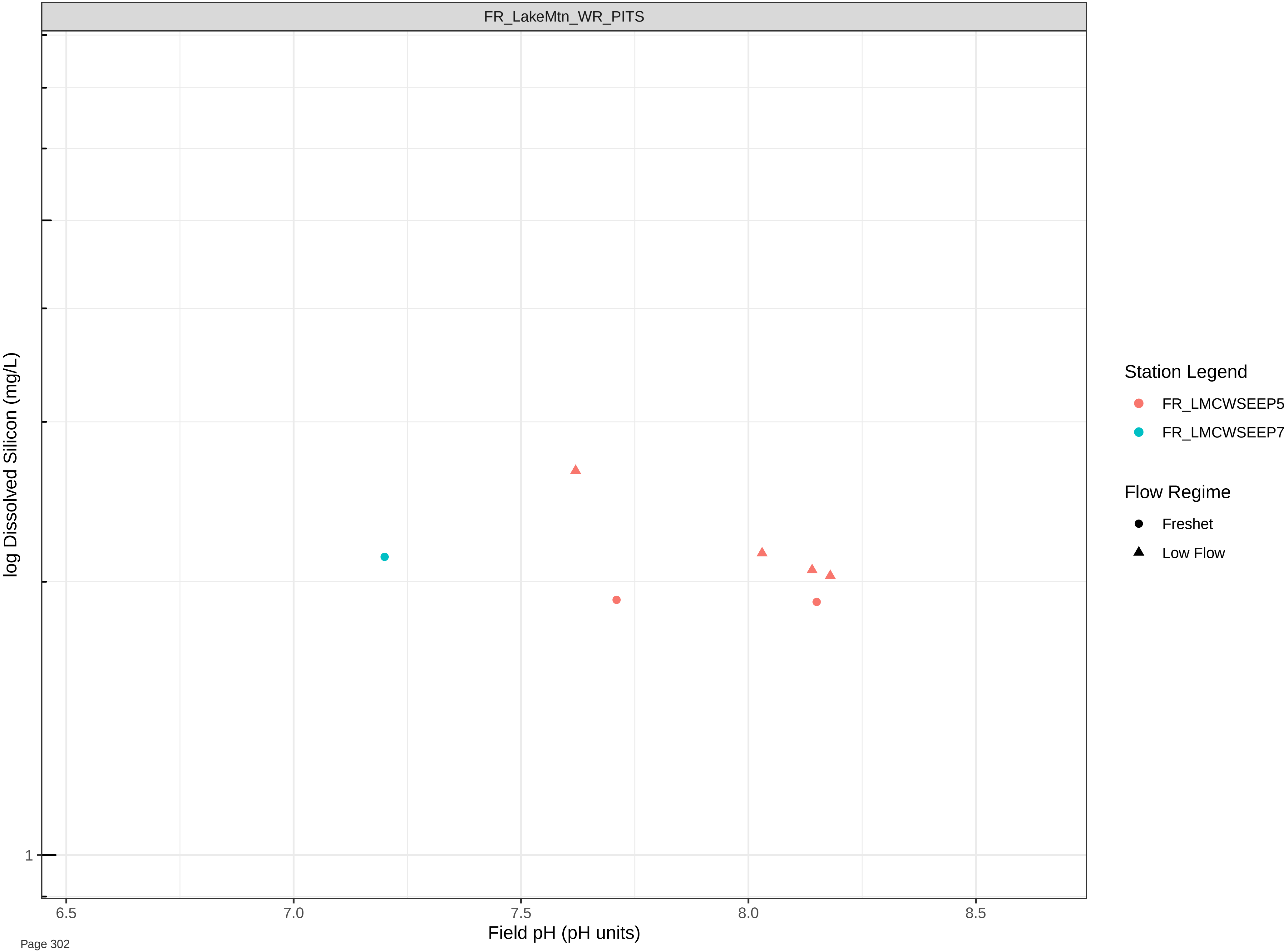

FR_ClodeCr_WR
log Dissolved Silicon (mg/L)
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

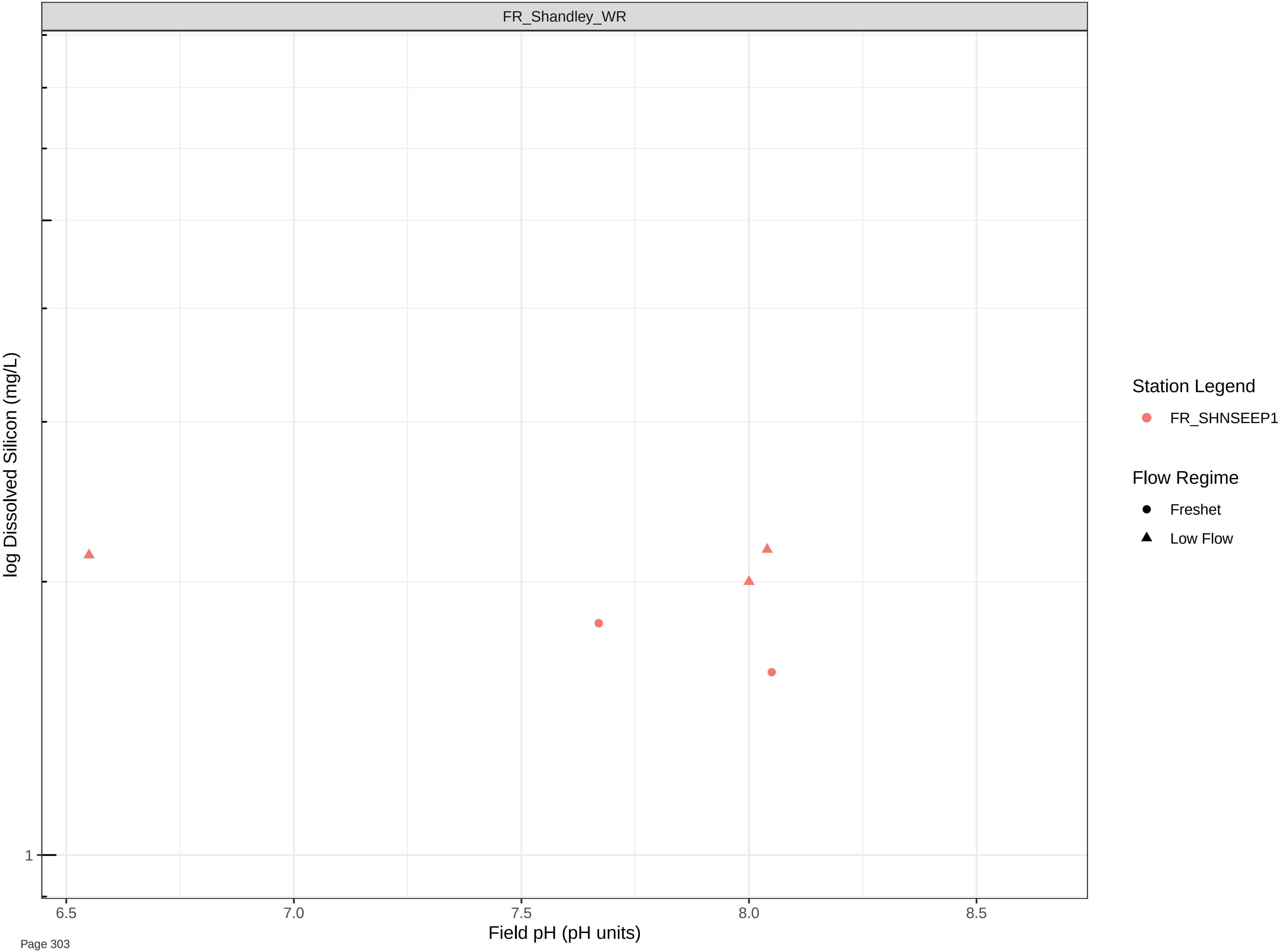

FR_DOKA_Unknown
log Dissolved Silicon (mg/L)
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

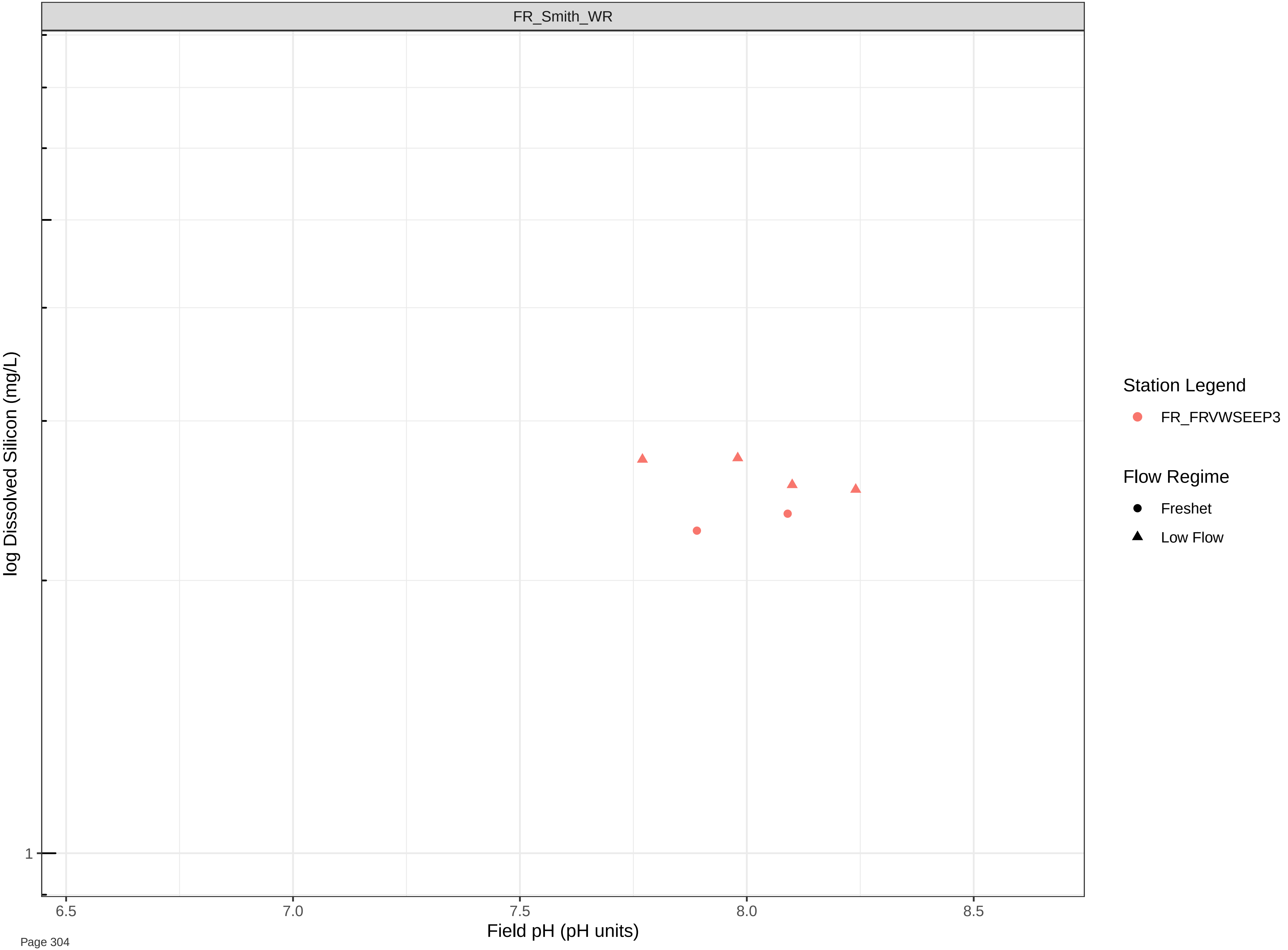

FR_Eagle_WR
log Dissolved Silicon (mg/L)
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

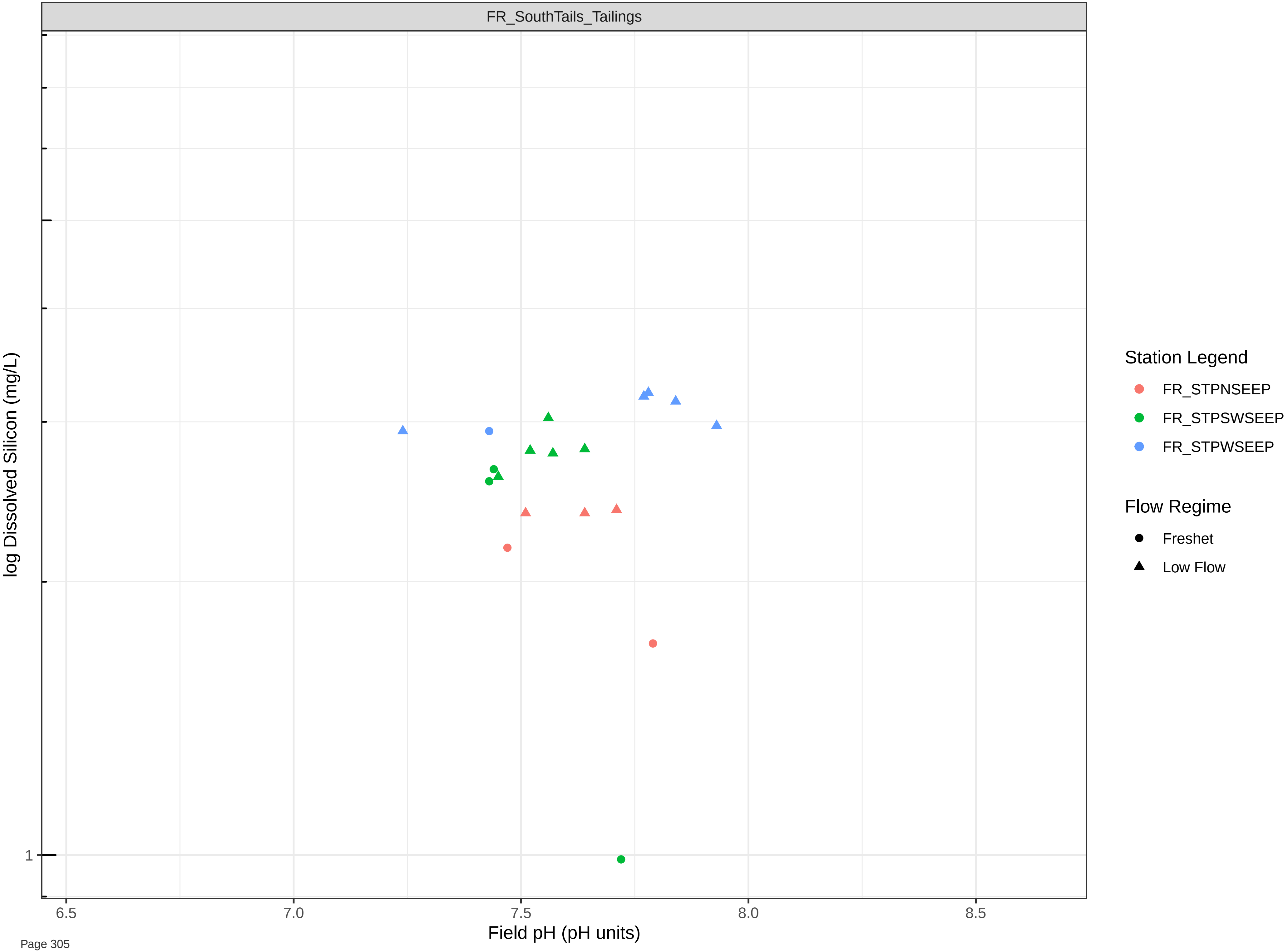

FR_Fseam_WR
log Dissolved Silicon (mg/L)
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

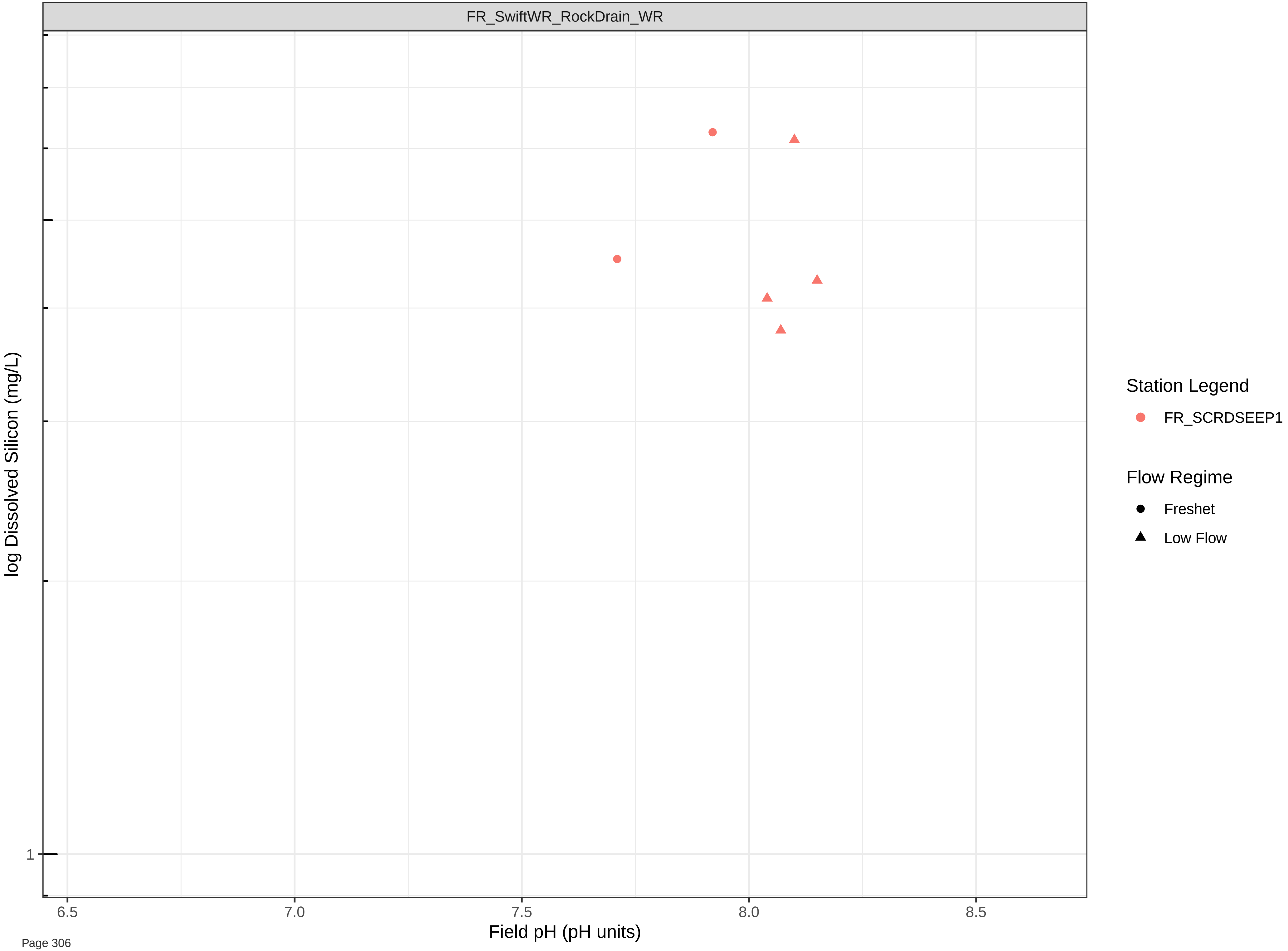

FR_HEN_WR
log Dissolved Silicon (mg/L)
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

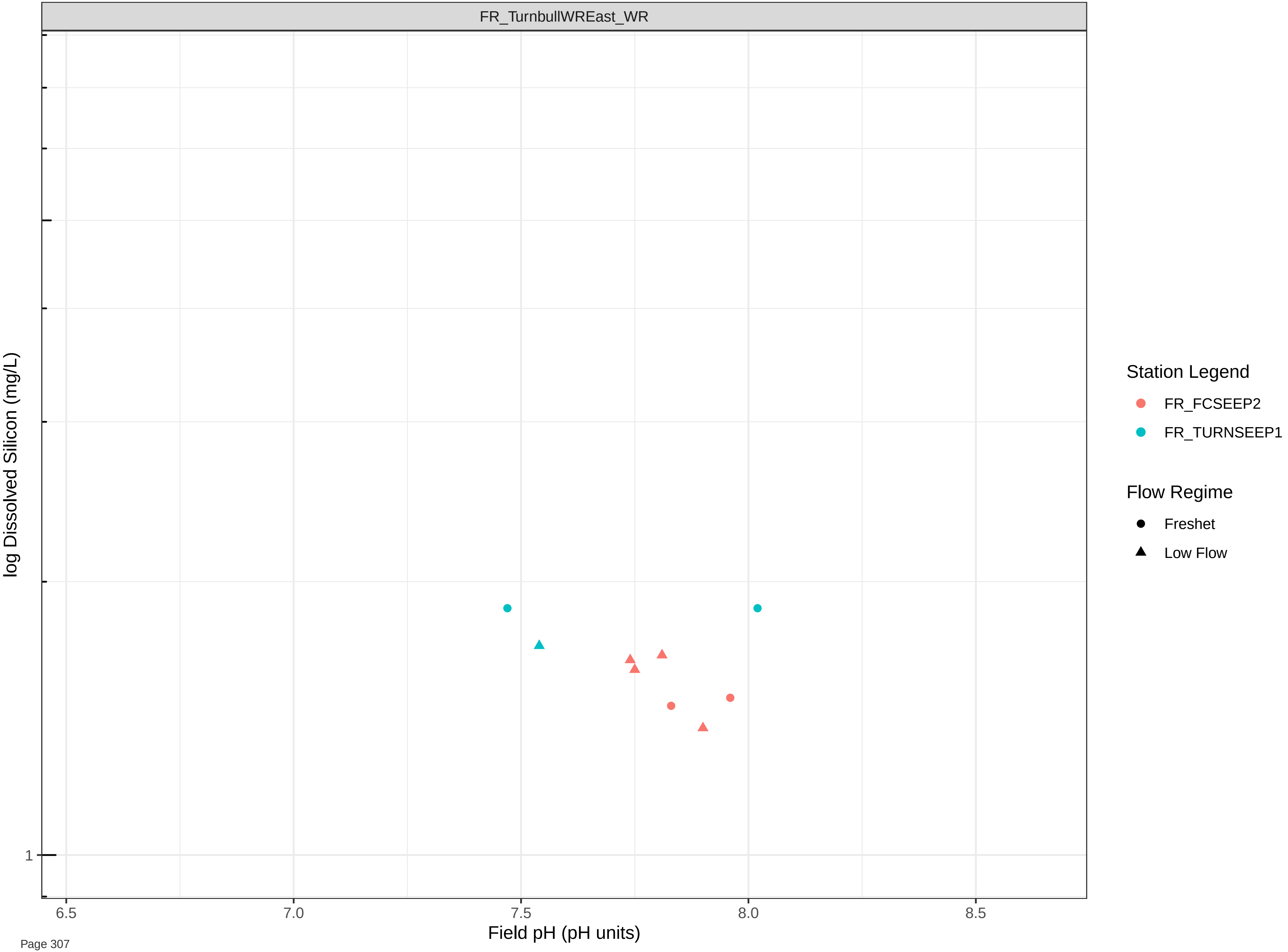

FR_LakeMtn_WR_PITS
log Dissolved Silicon (mg/L)
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

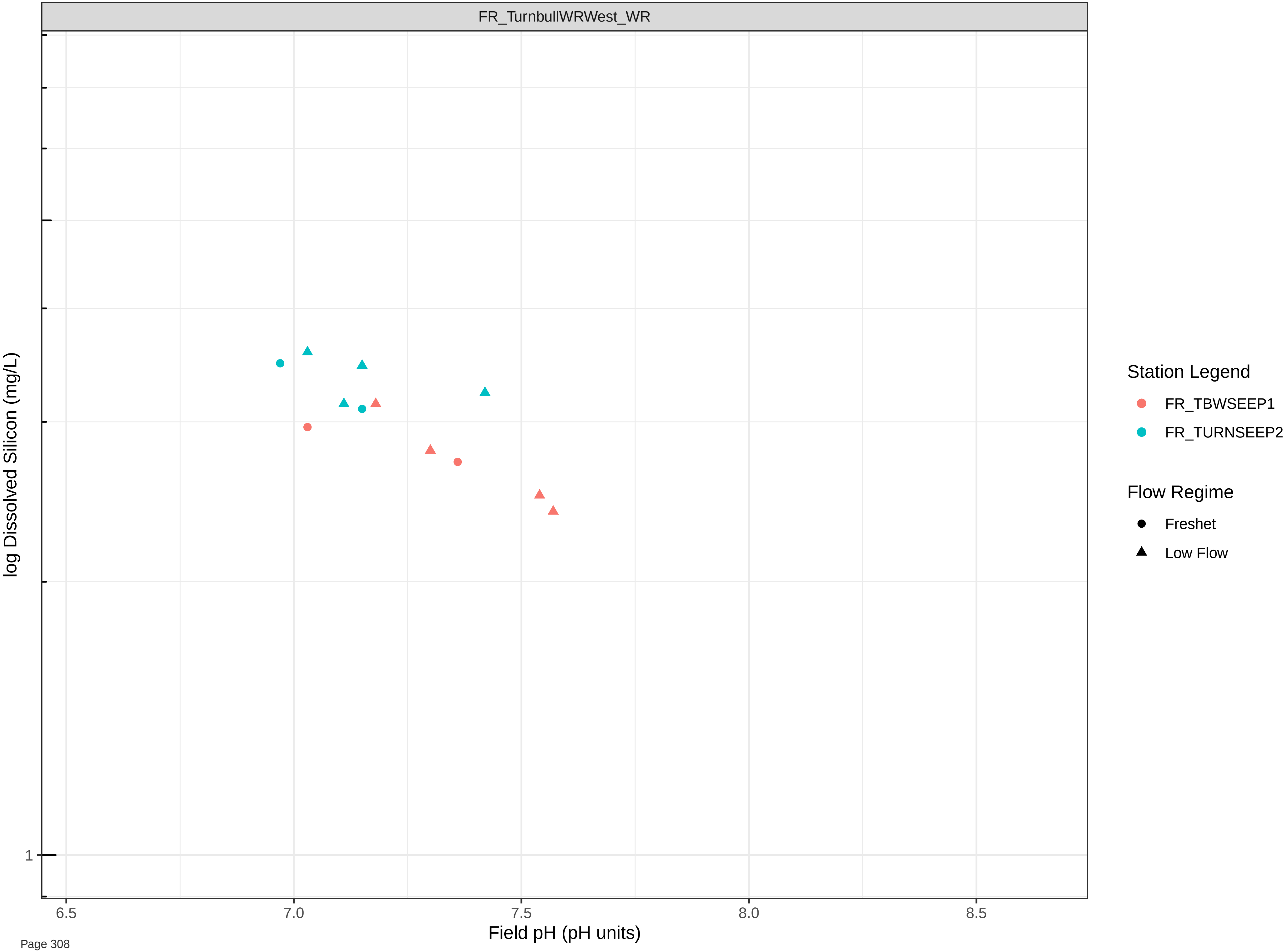

FR_Shandley_WR
log Dissolved Silicon (mg/L)
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

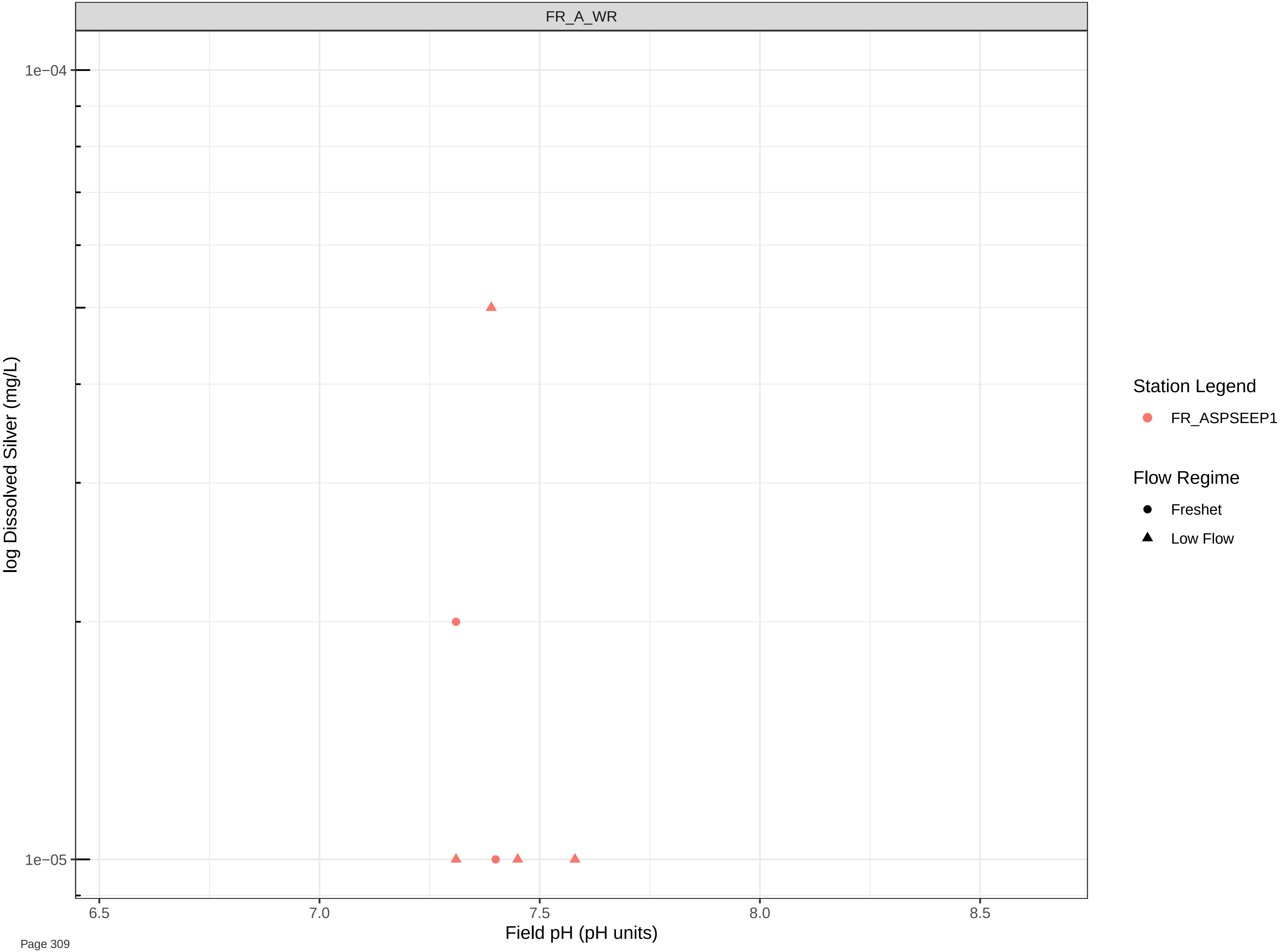

FR_Smith_WR
log Dissolved Silicon (mg/L)
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

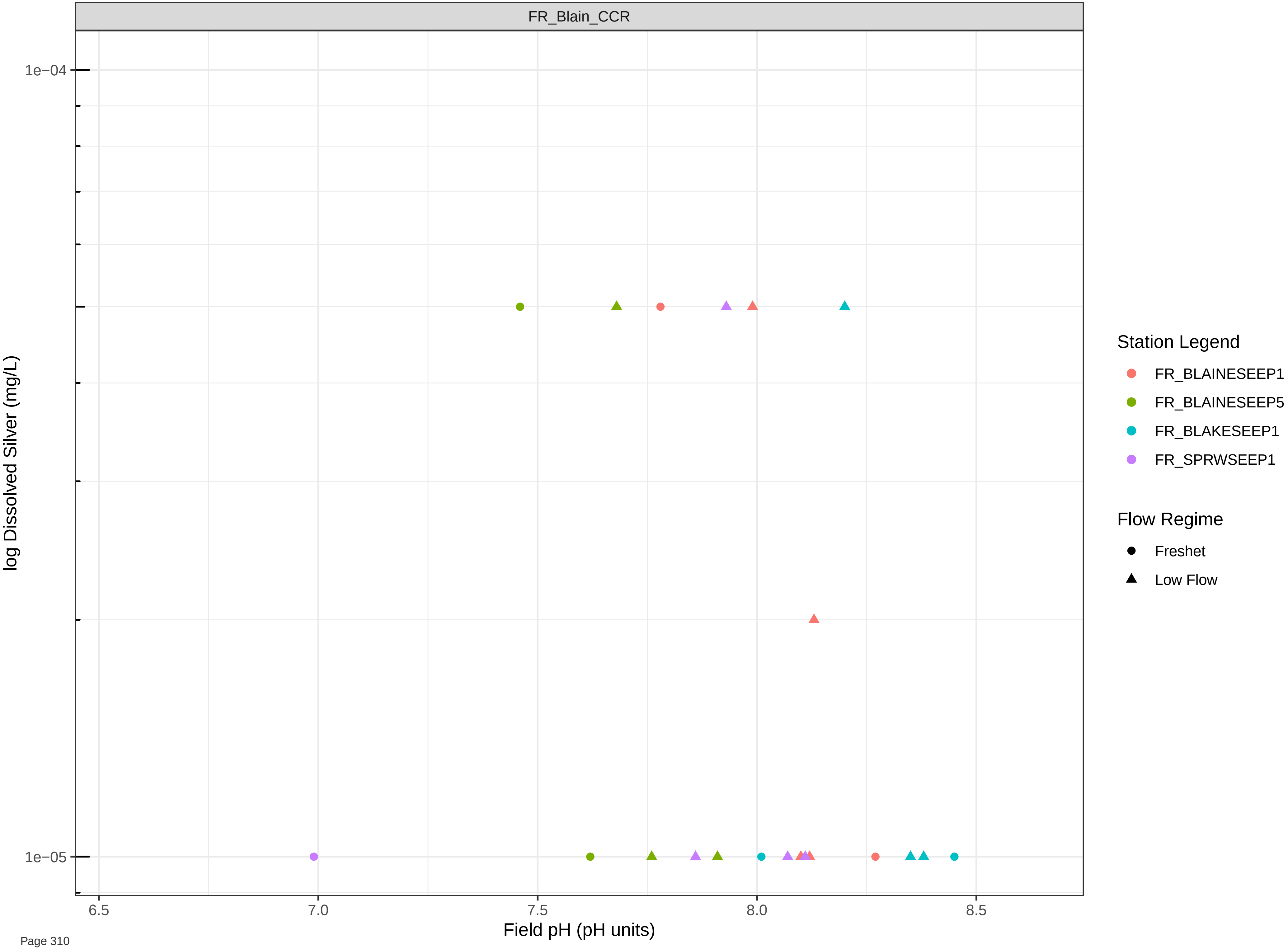

FR_SouthTails_Tailings
log Dissolved Silicon (mg/L)
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

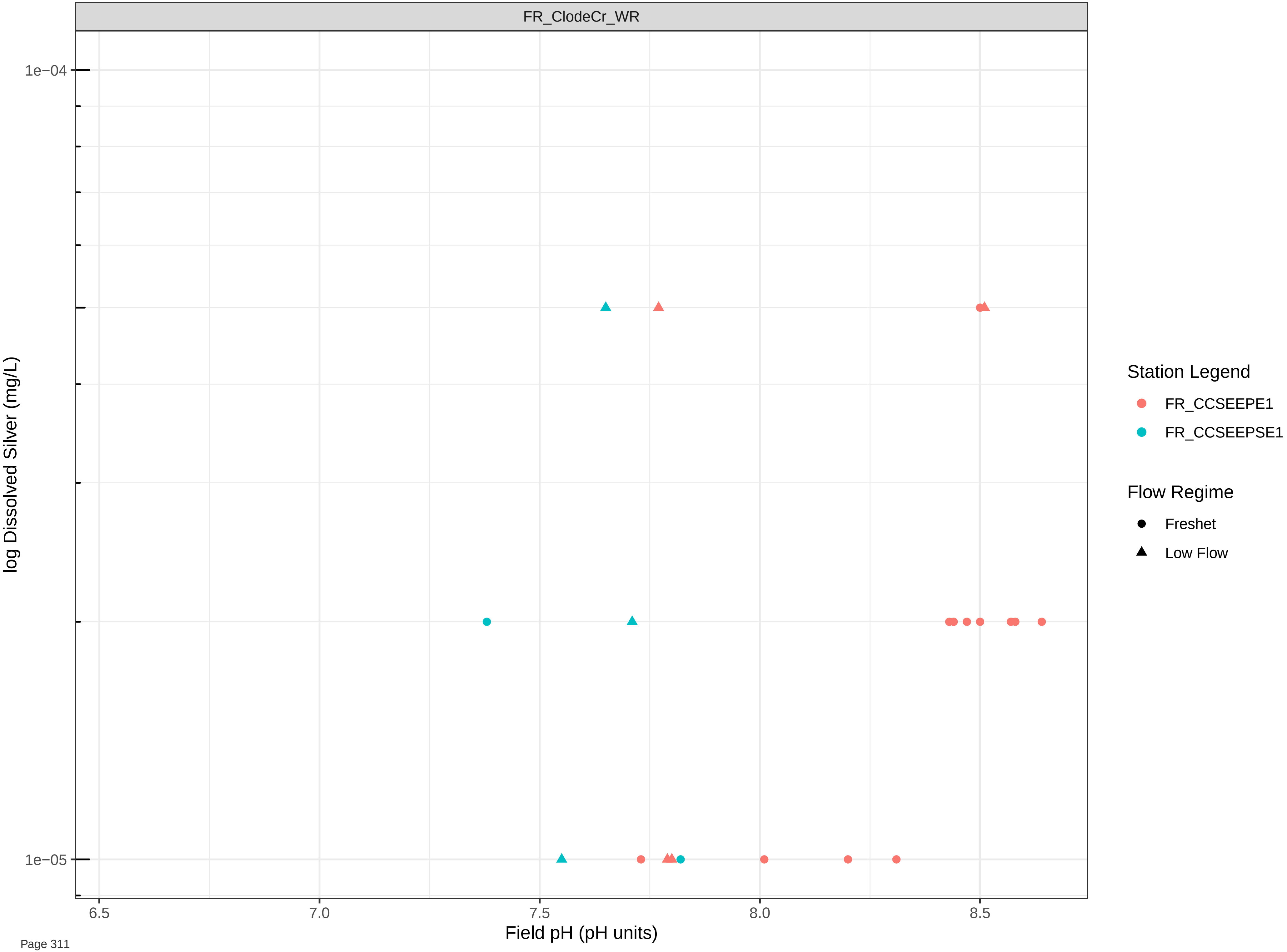

FR_SwiftWR_RockDrain_WR
log Dissolved Silicon (mg/L)
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_TurnbullWREast_WR
log Dissolved Silicon (mg/L)
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWRWest_WR
log Dissolved Silicon (mg/L)
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_TBWSEEP1
● FR_TURNSEEP2
Flow Regime
● Freshet
▲ Low Flow


FR_A_WR
1e−04
1e−05
log Dissolved Silver (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_Blain_CCR
1e−04
1e−05
log Dissolved Silver (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow


FR_ClodeCr_WR
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1e−05
log Dissolved Silver (mg/L)
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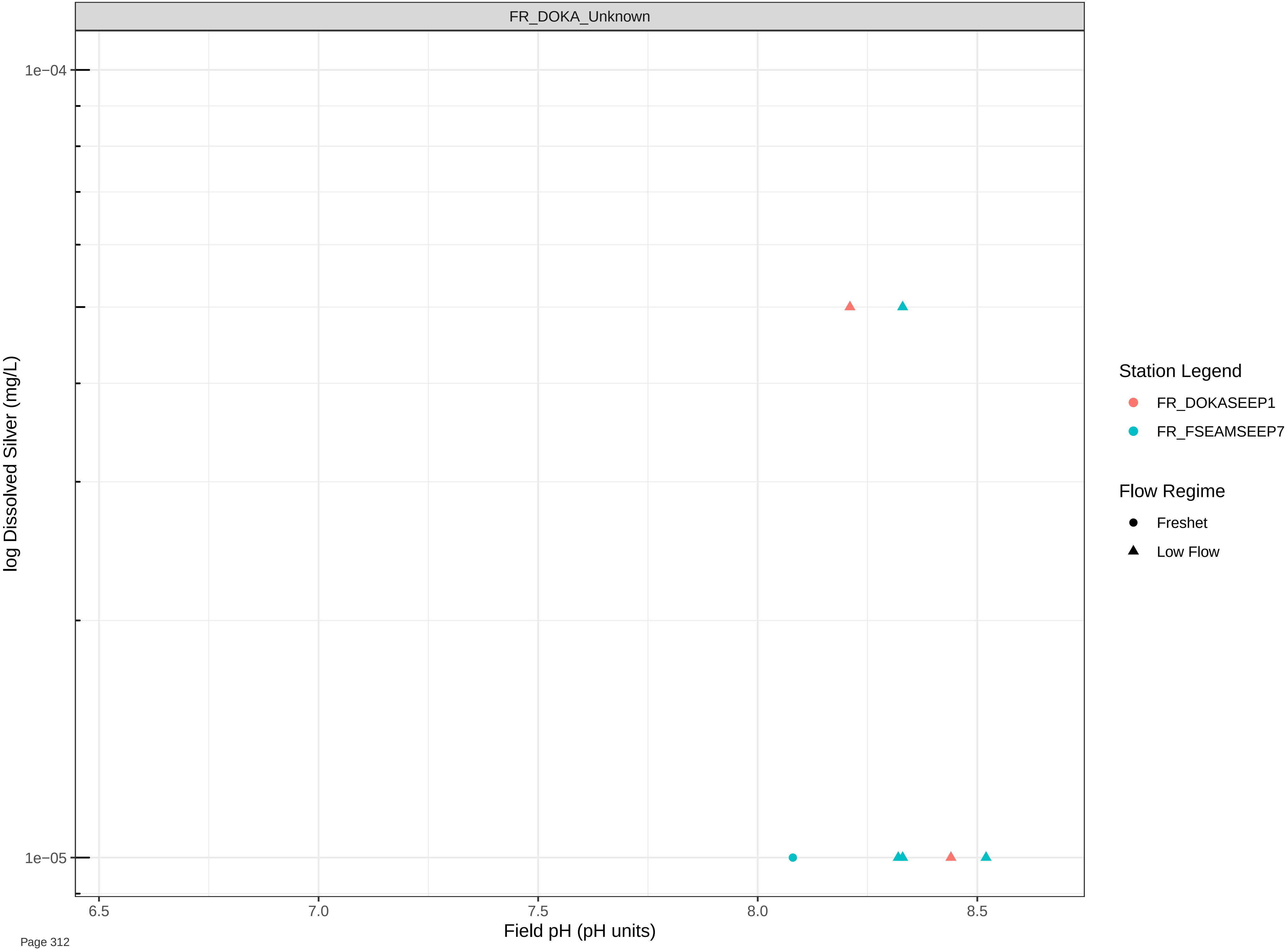
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow


FR_DOKA_Unknown
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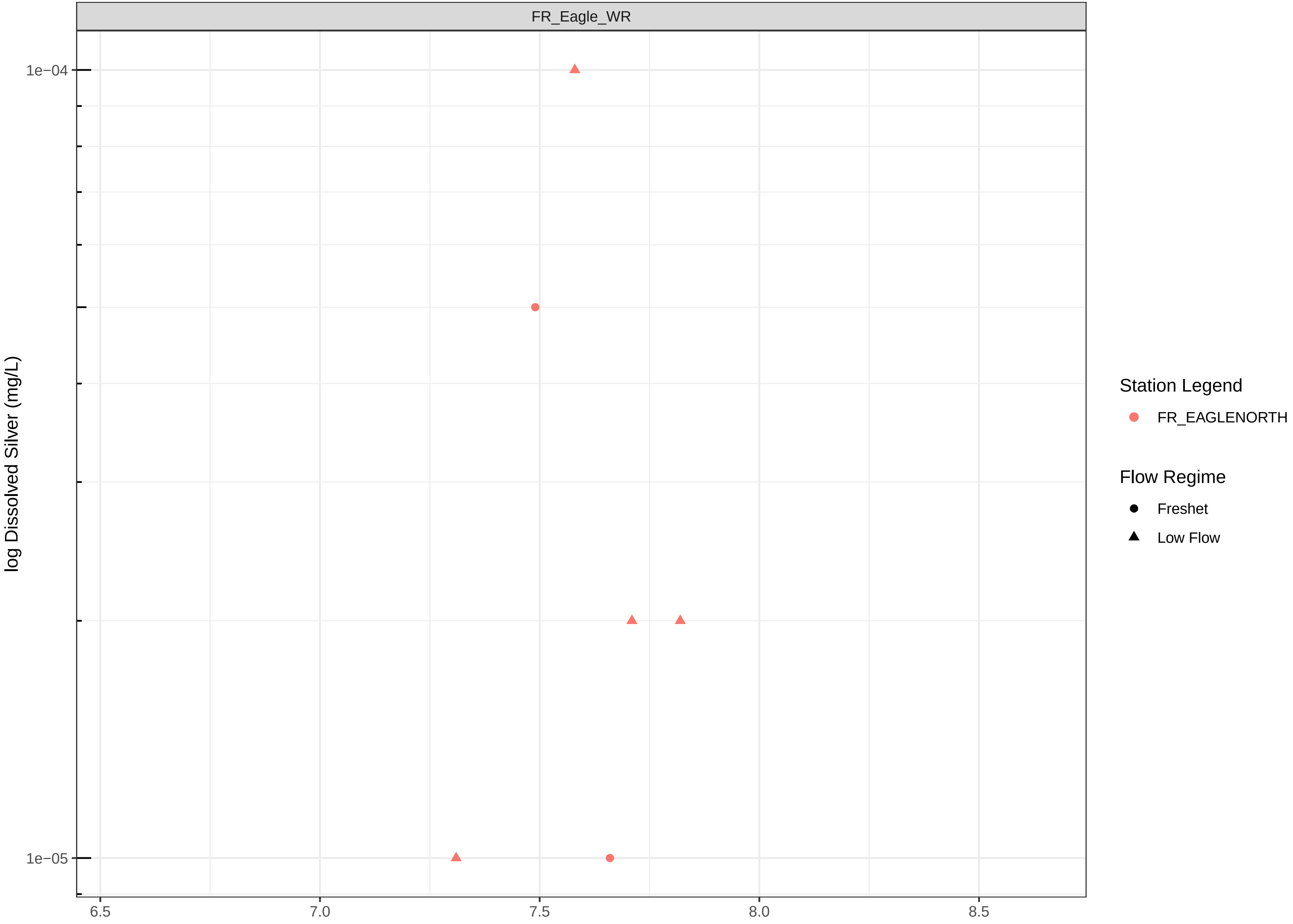
1e−05
log Dissolved Silver (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow


FR_Eagle_WR
1e−04
1e−05
log Dissolved Silver (mg/L)
6.5
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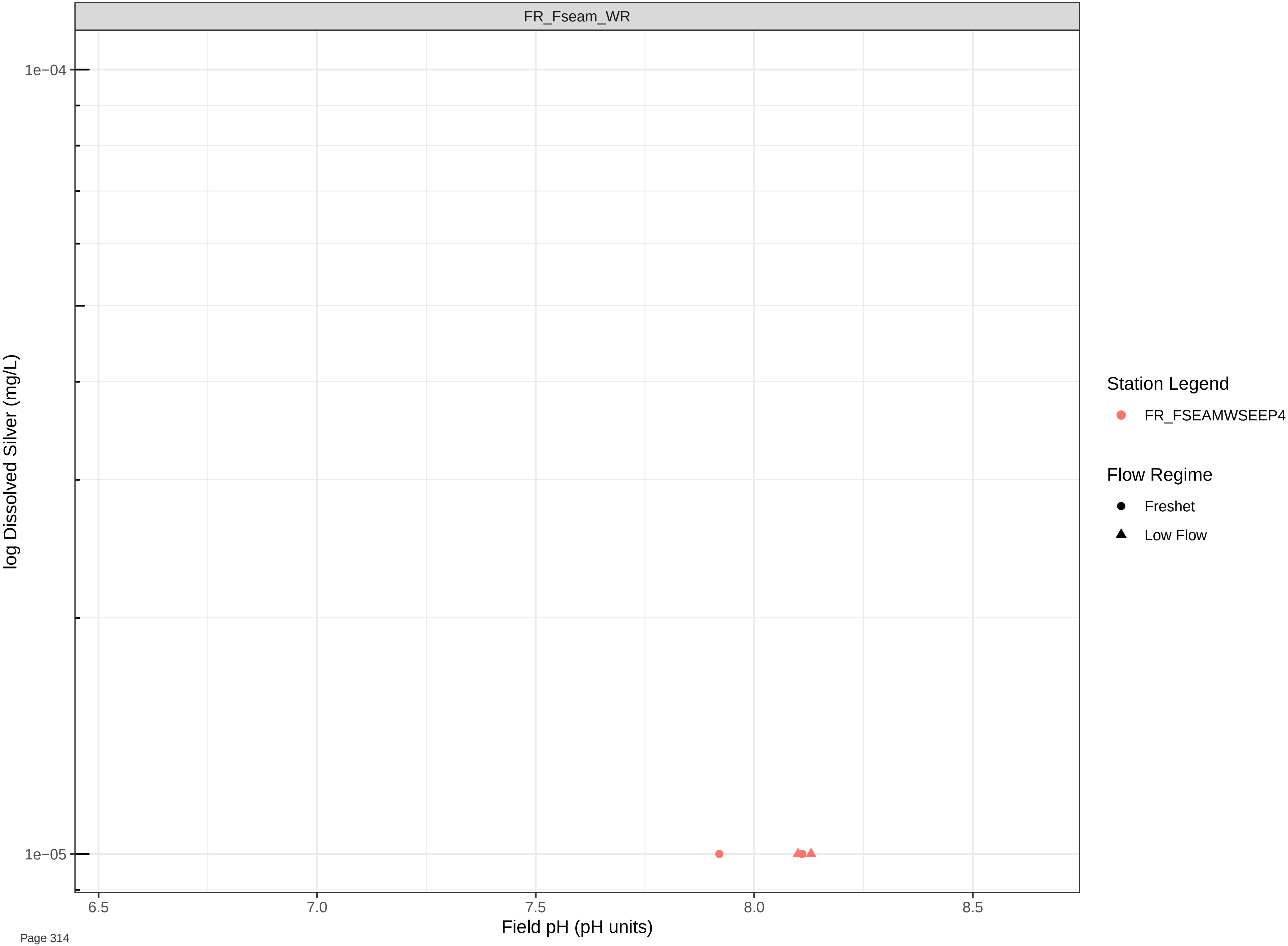
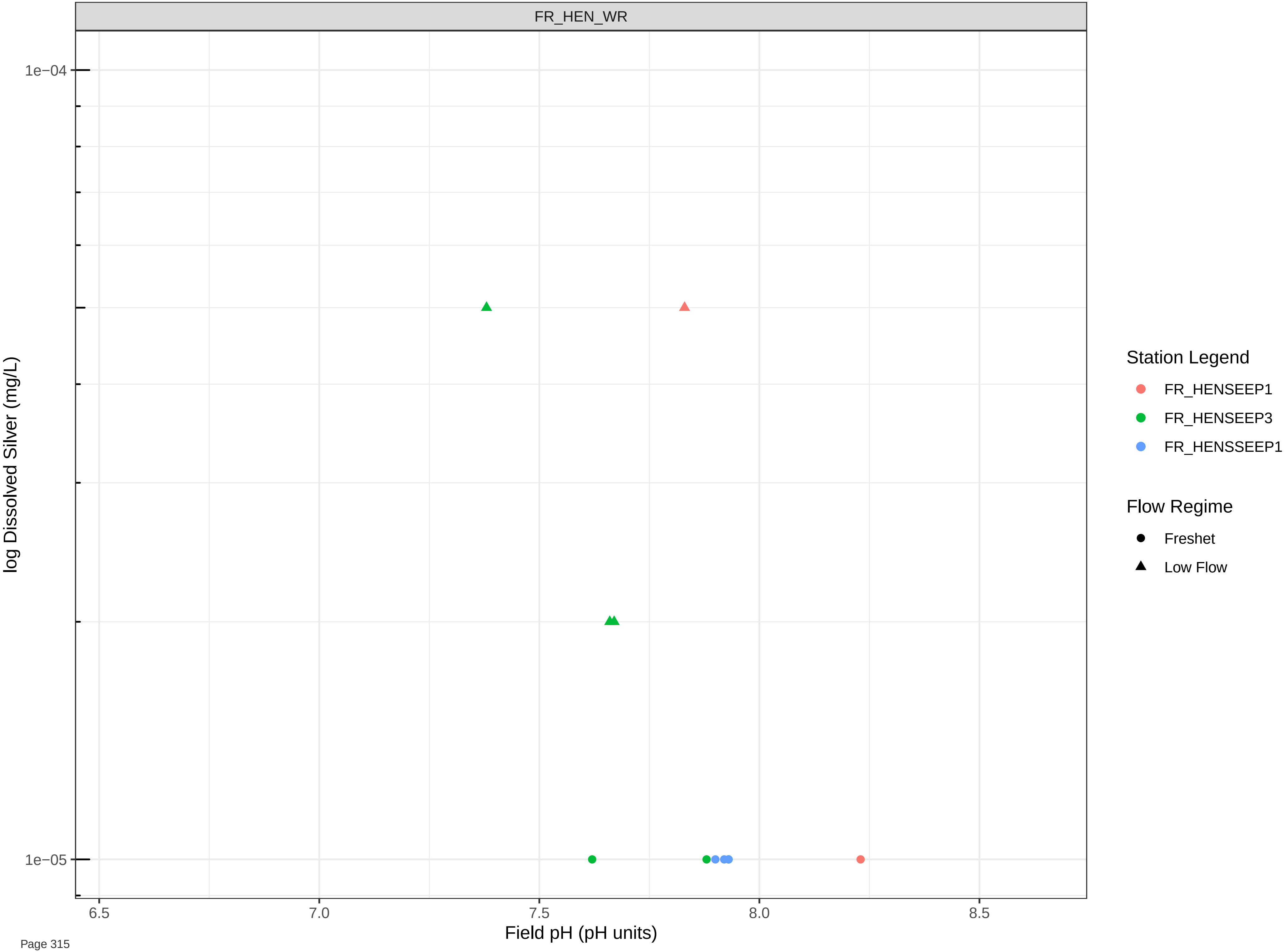
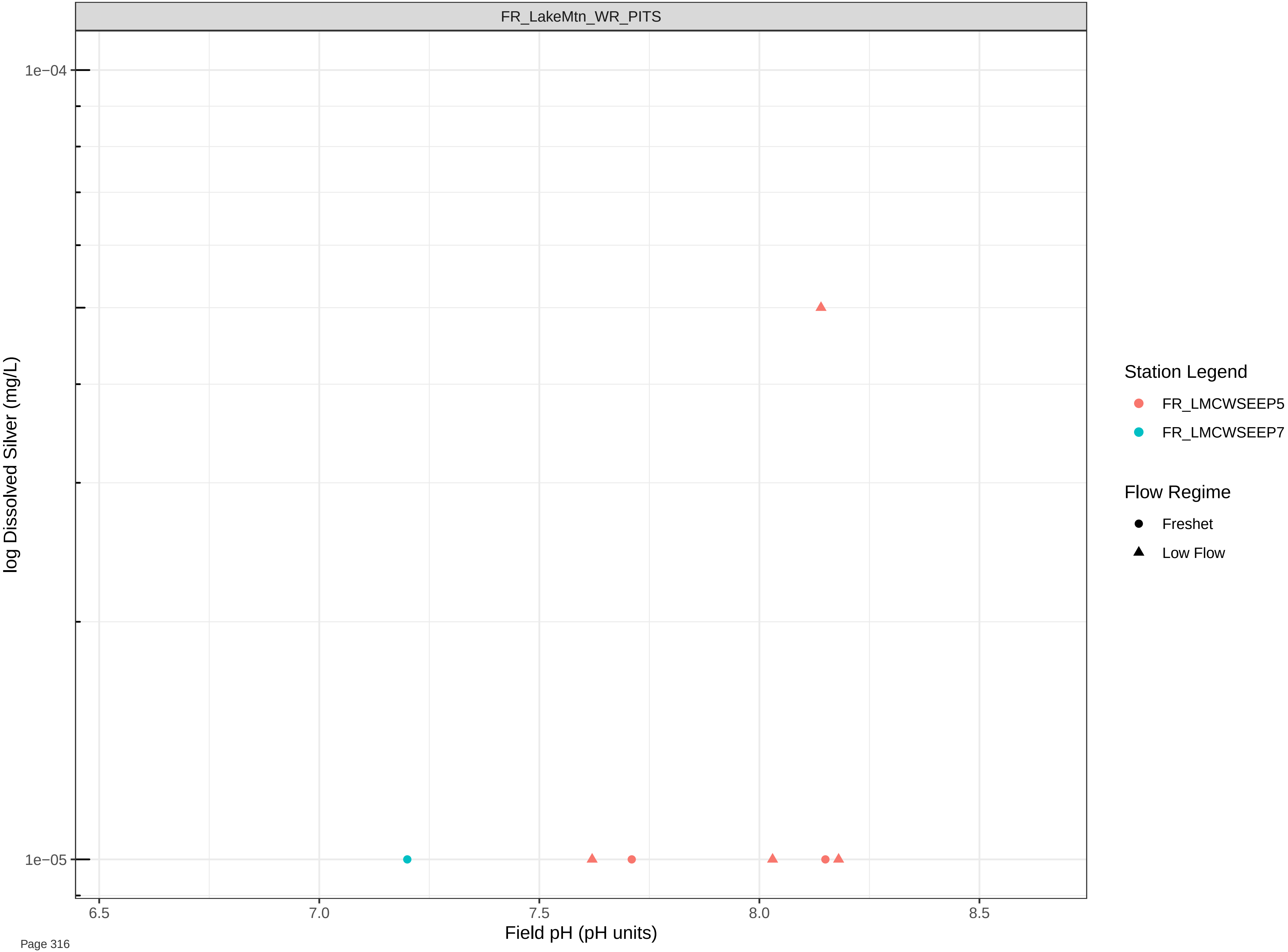
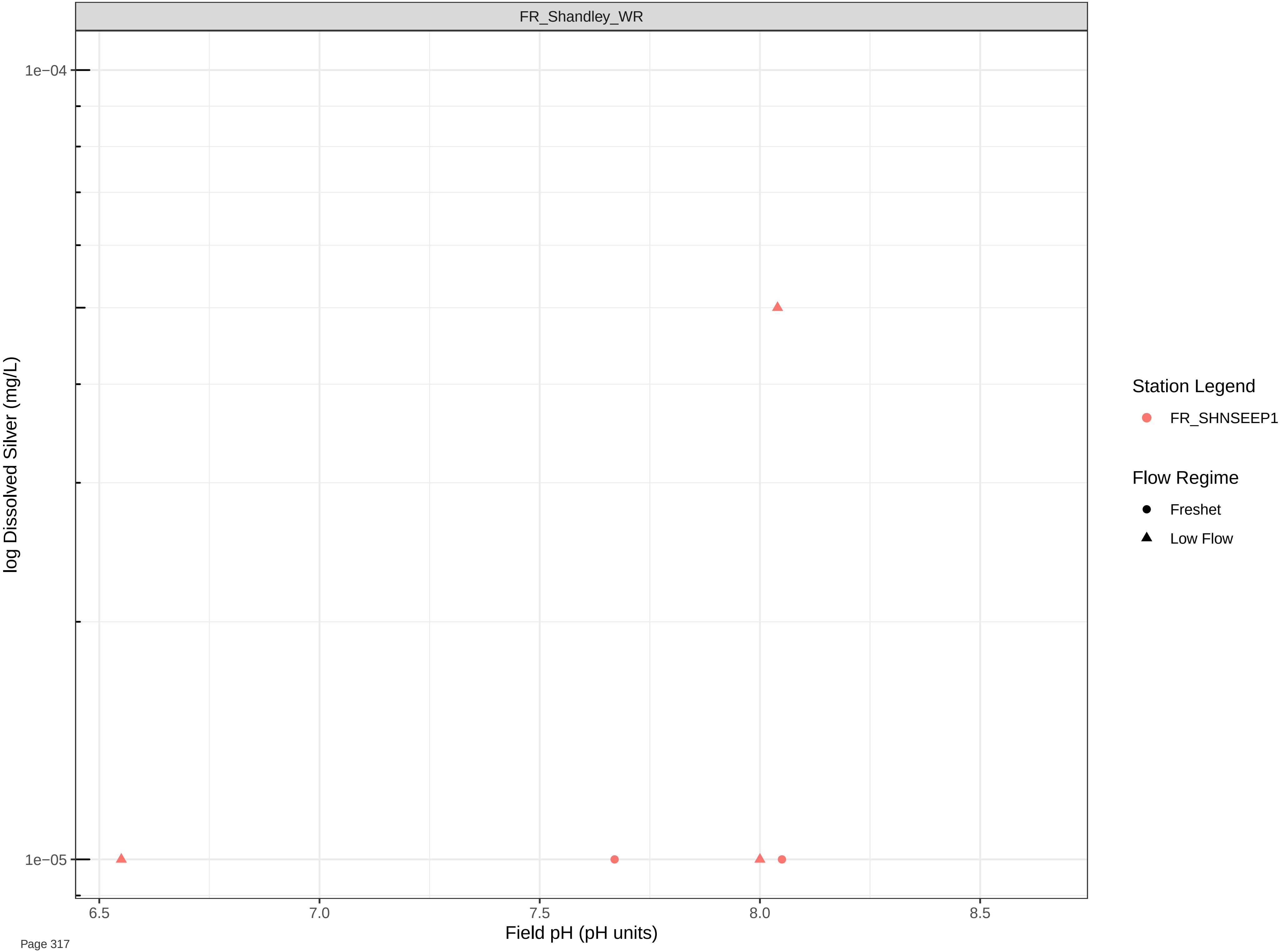
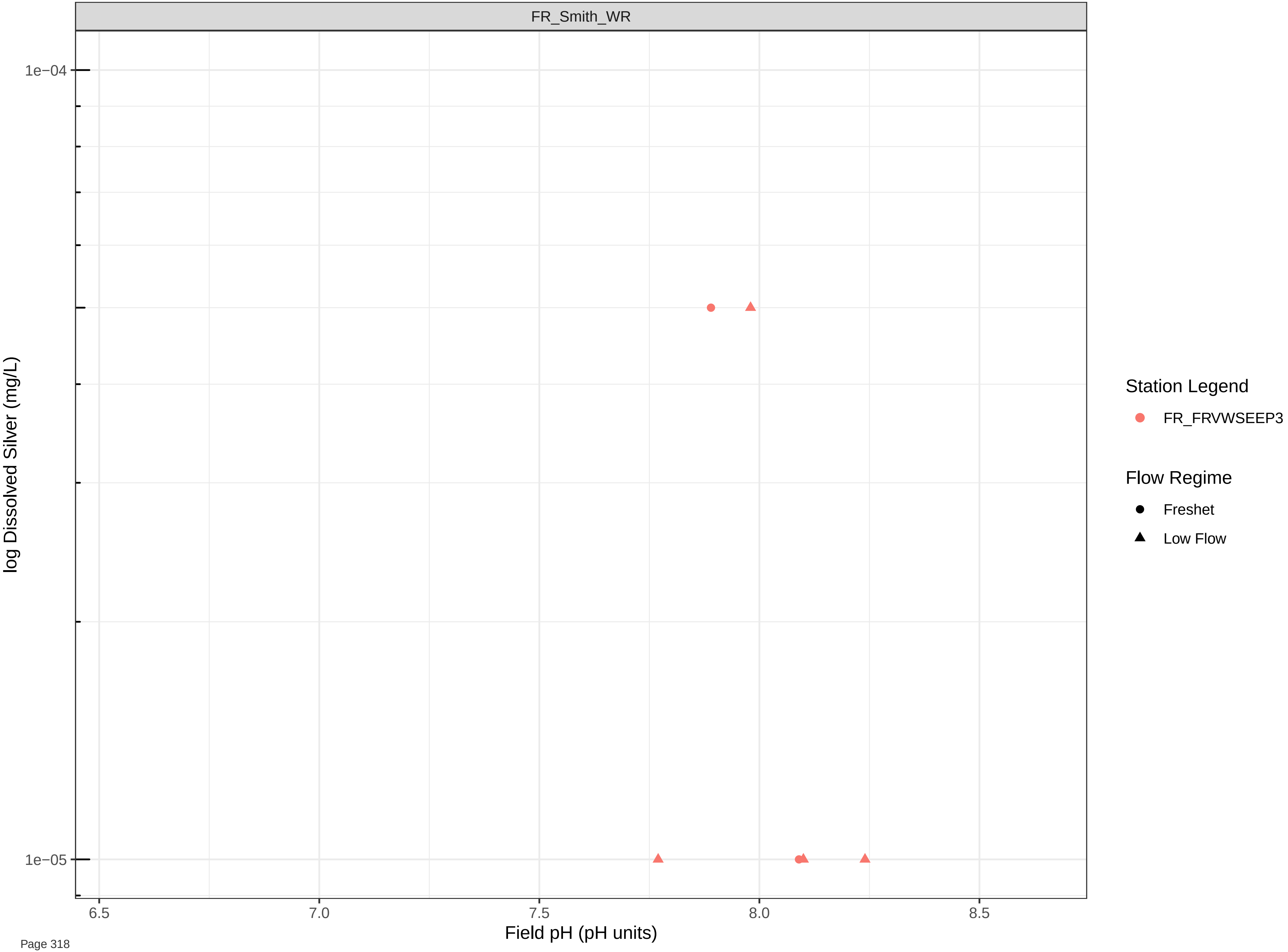
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow


FR_Fseam_WR
1e−04
1e−05
log Dissolved Silver (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow


FR_HEN_WR
1e−04
1e−05
log Dissolved Silver (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow


FR_LakeMtn_WR_PITS
1e−04
1e−05
log Dissolved Silver (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow


FR_Shandley_WR
1e−04
1e−05
log Dissolved Silver (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow


FR_Smith_WR
1e−04
1e−05
log Dissolved Silver (mg/L)
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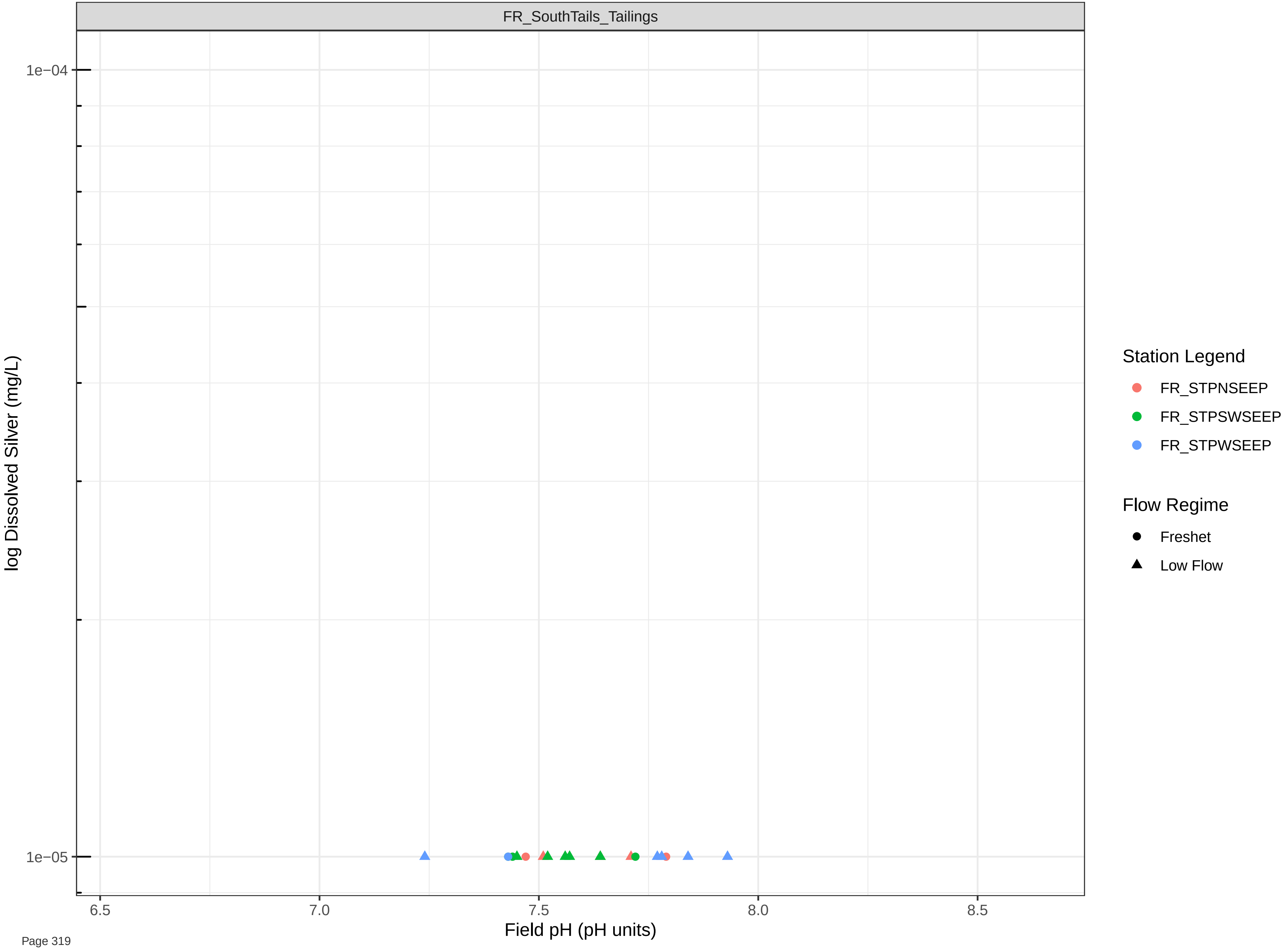
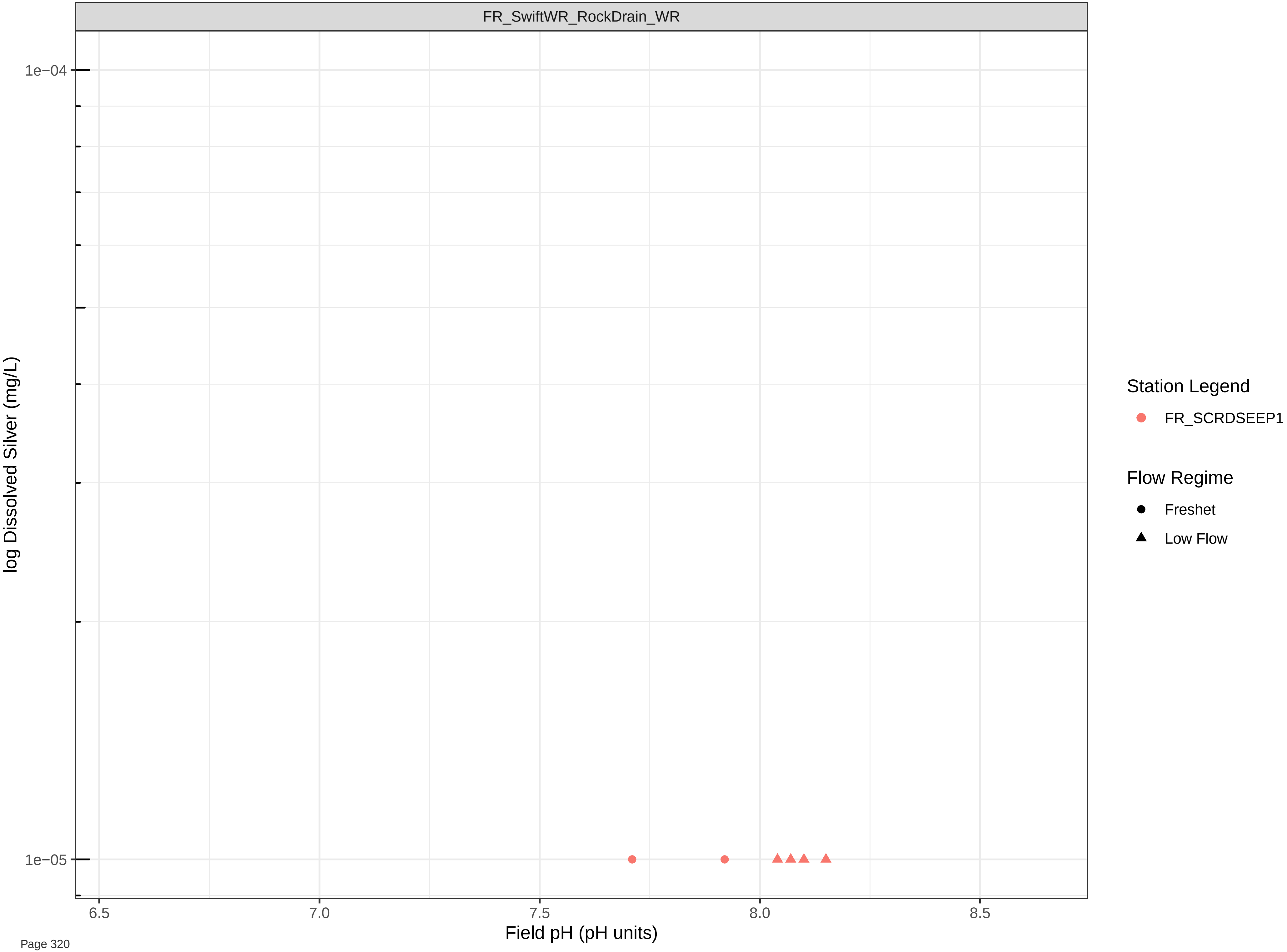
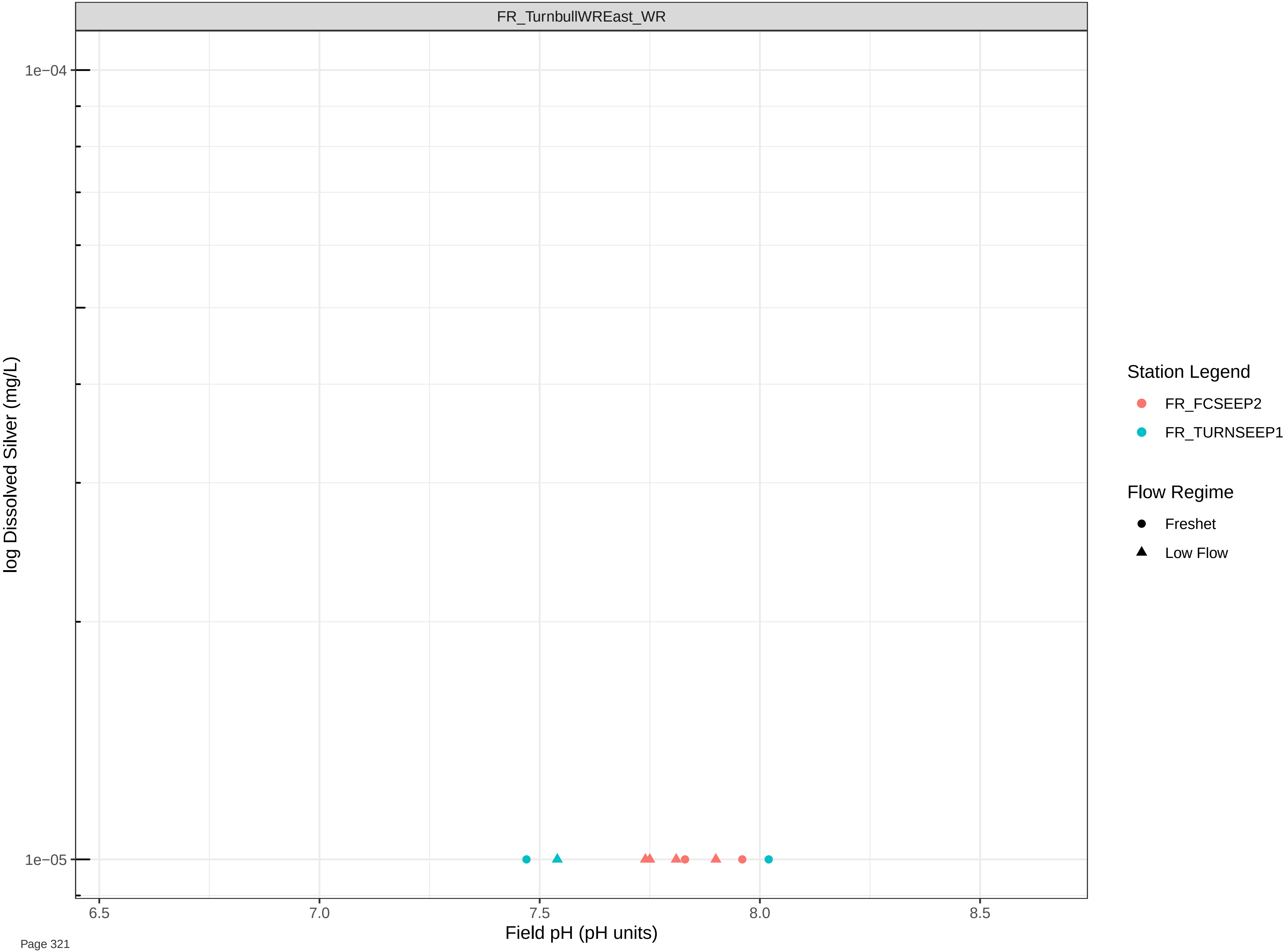
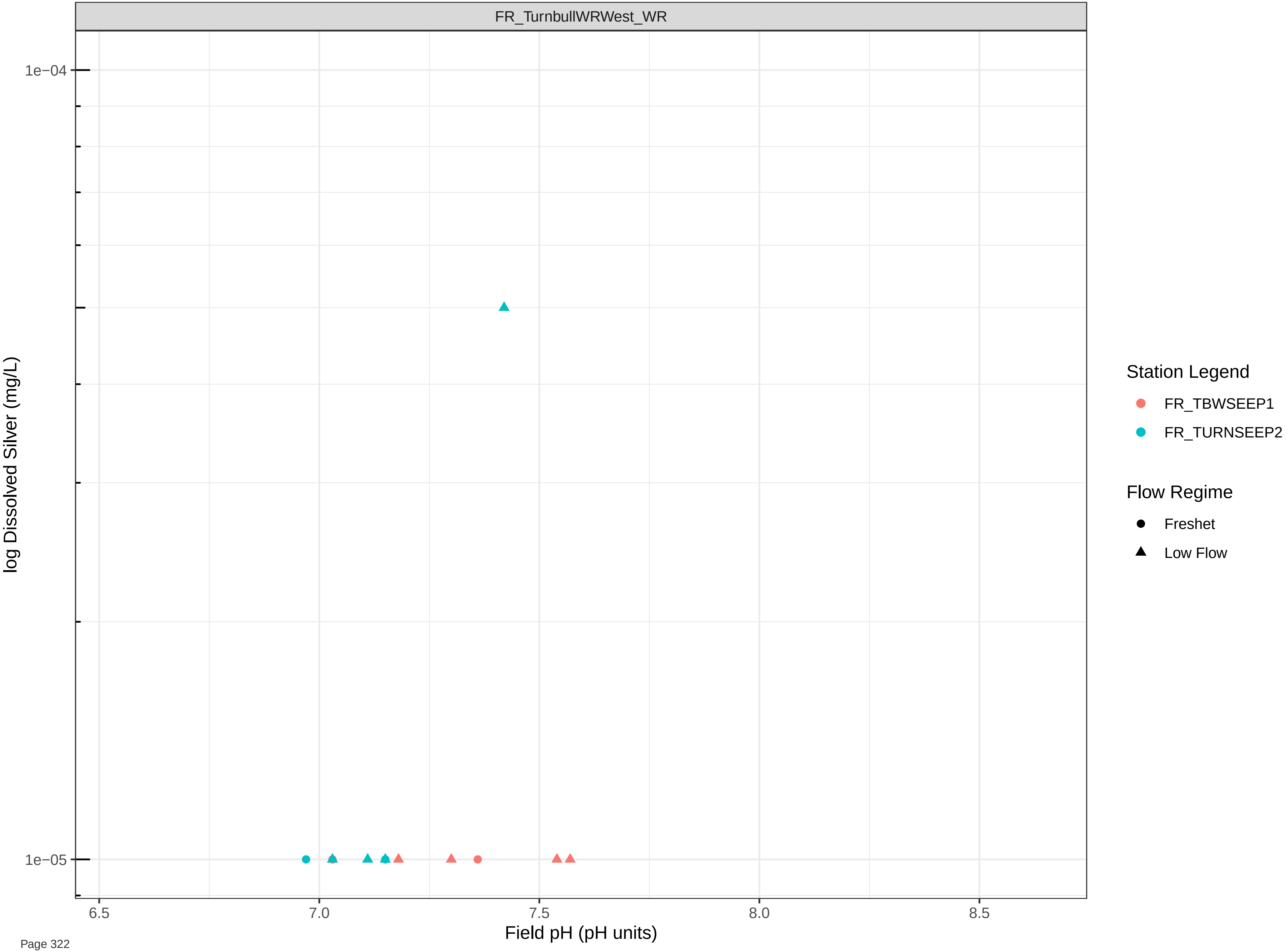
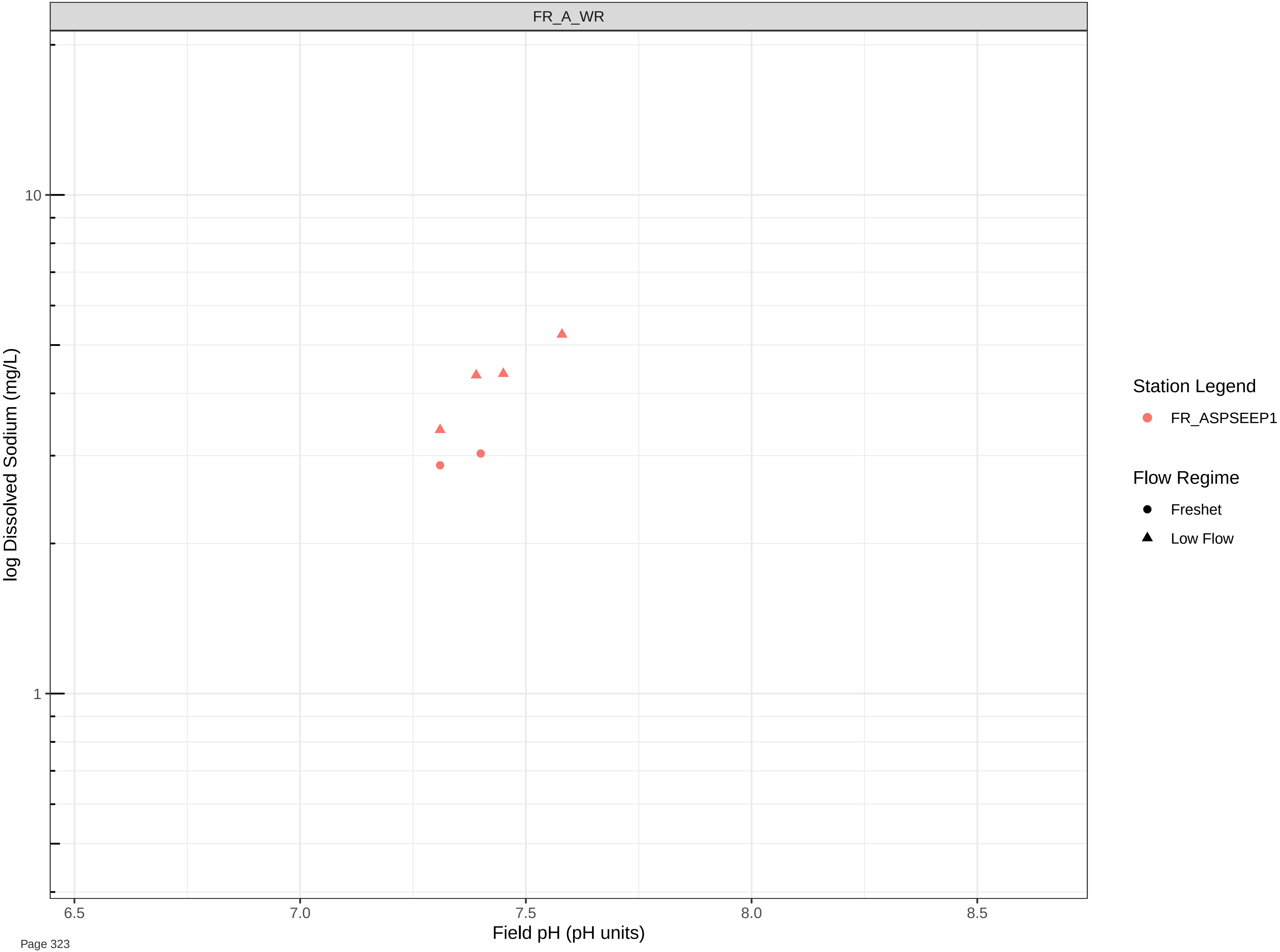
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

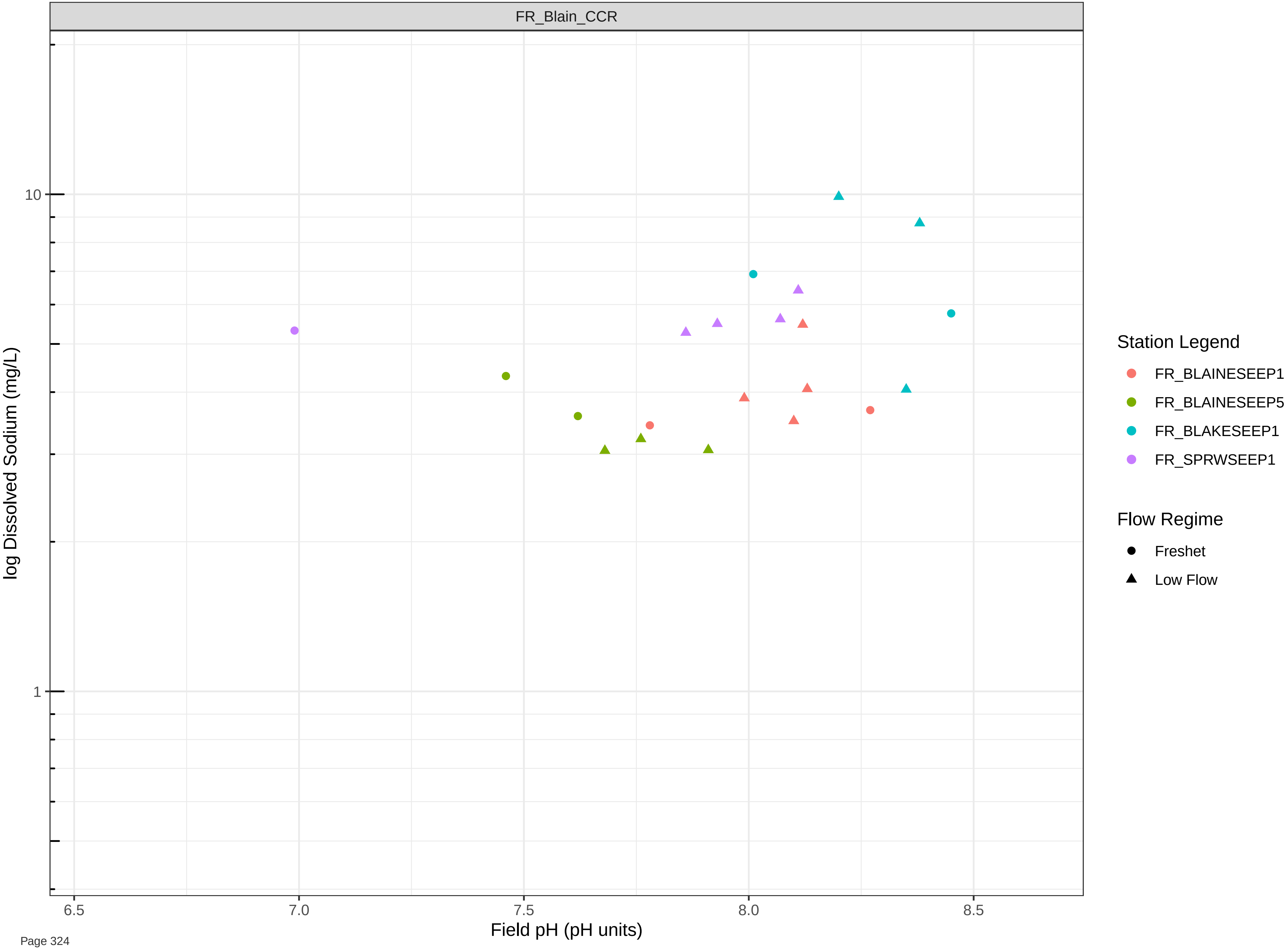

FR_SouthTails_Tailings
log Dissolved Silver (mg/L)
1e−04
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

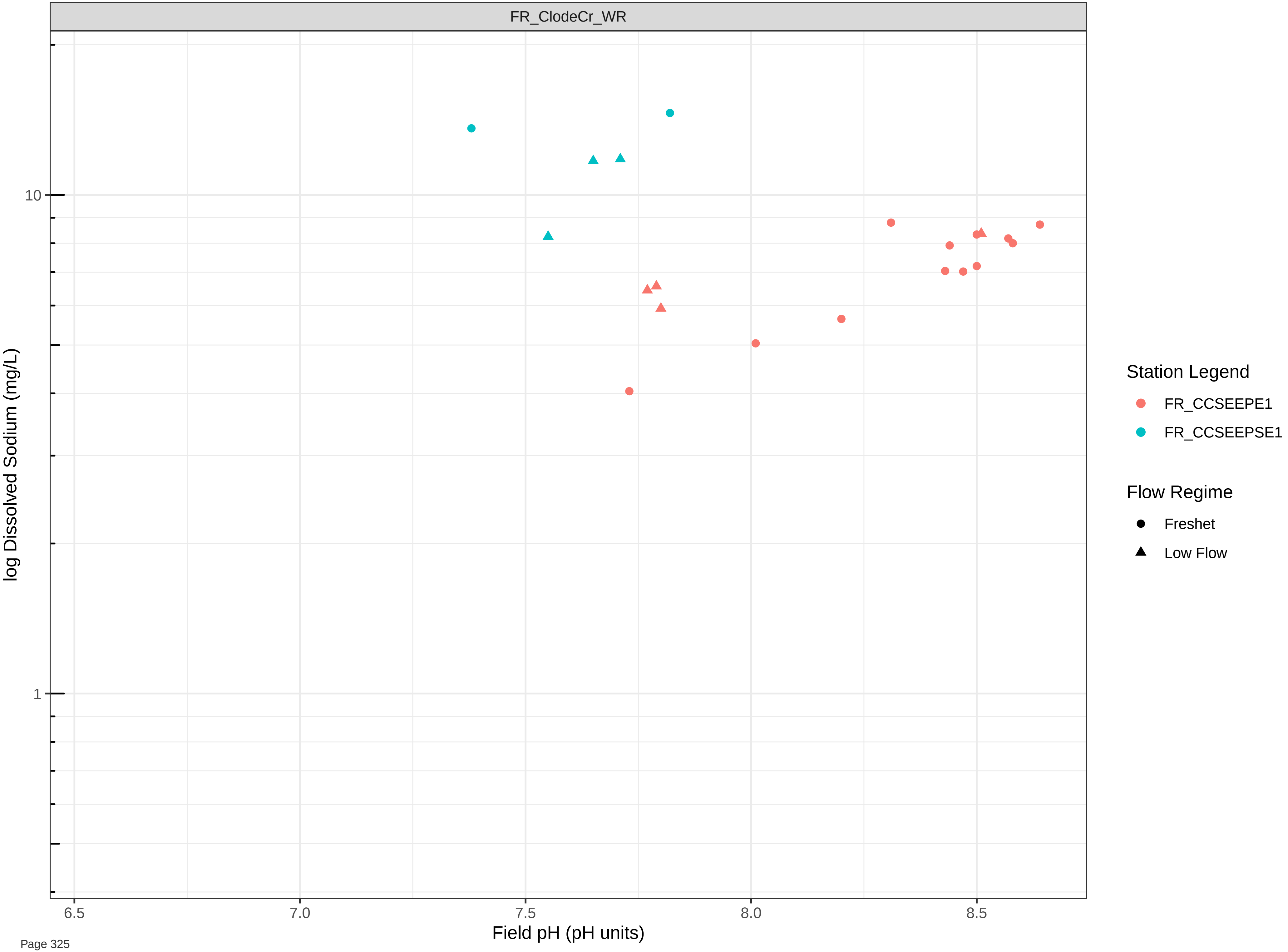

FR_SwiftWR_RockDrain_WR
1e−04
1e−05
log Dissolved Silver (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

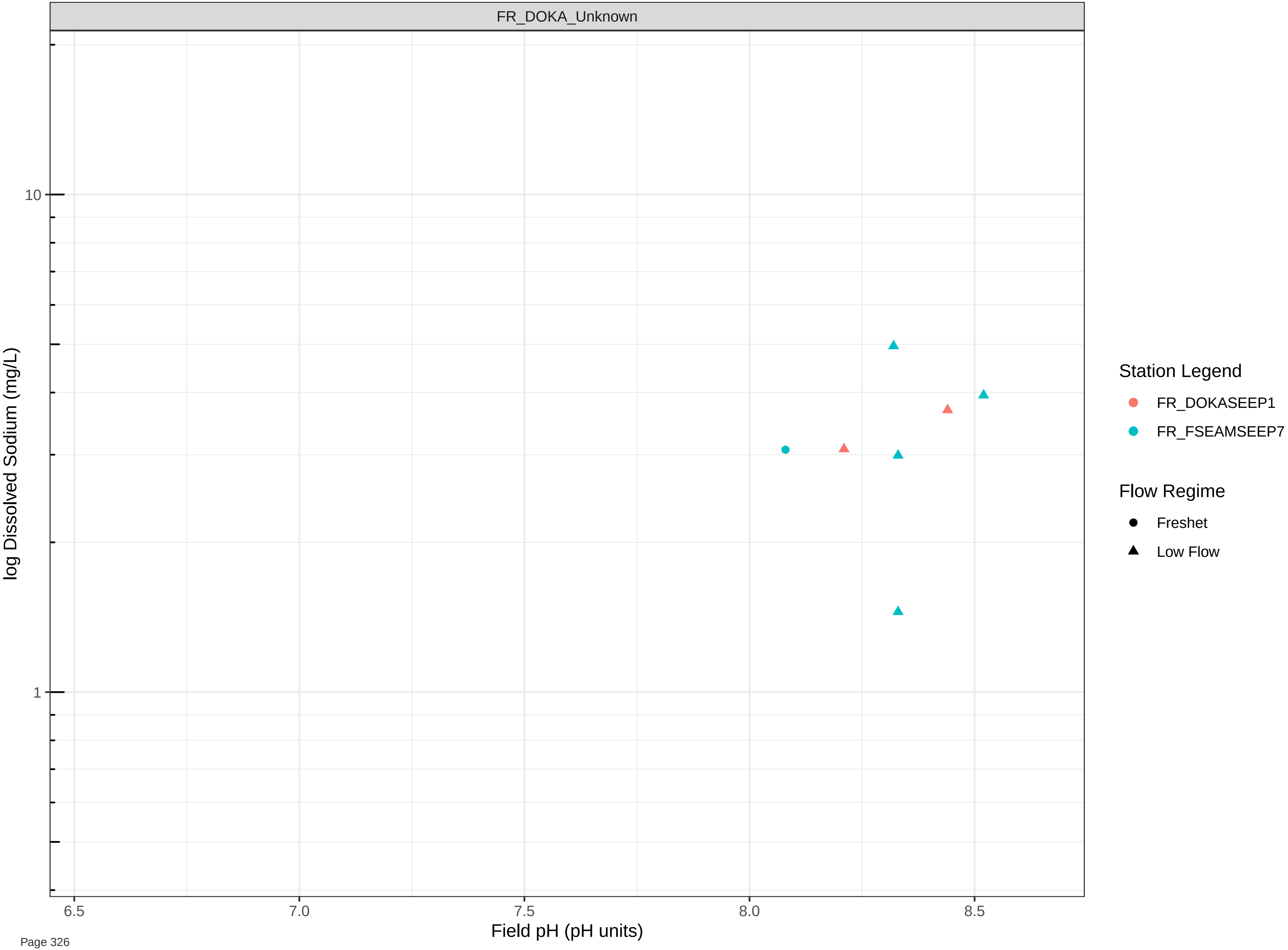

FR_TurnbullWREast_WR
1e−04
1e−05
log Dissolved Silver (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

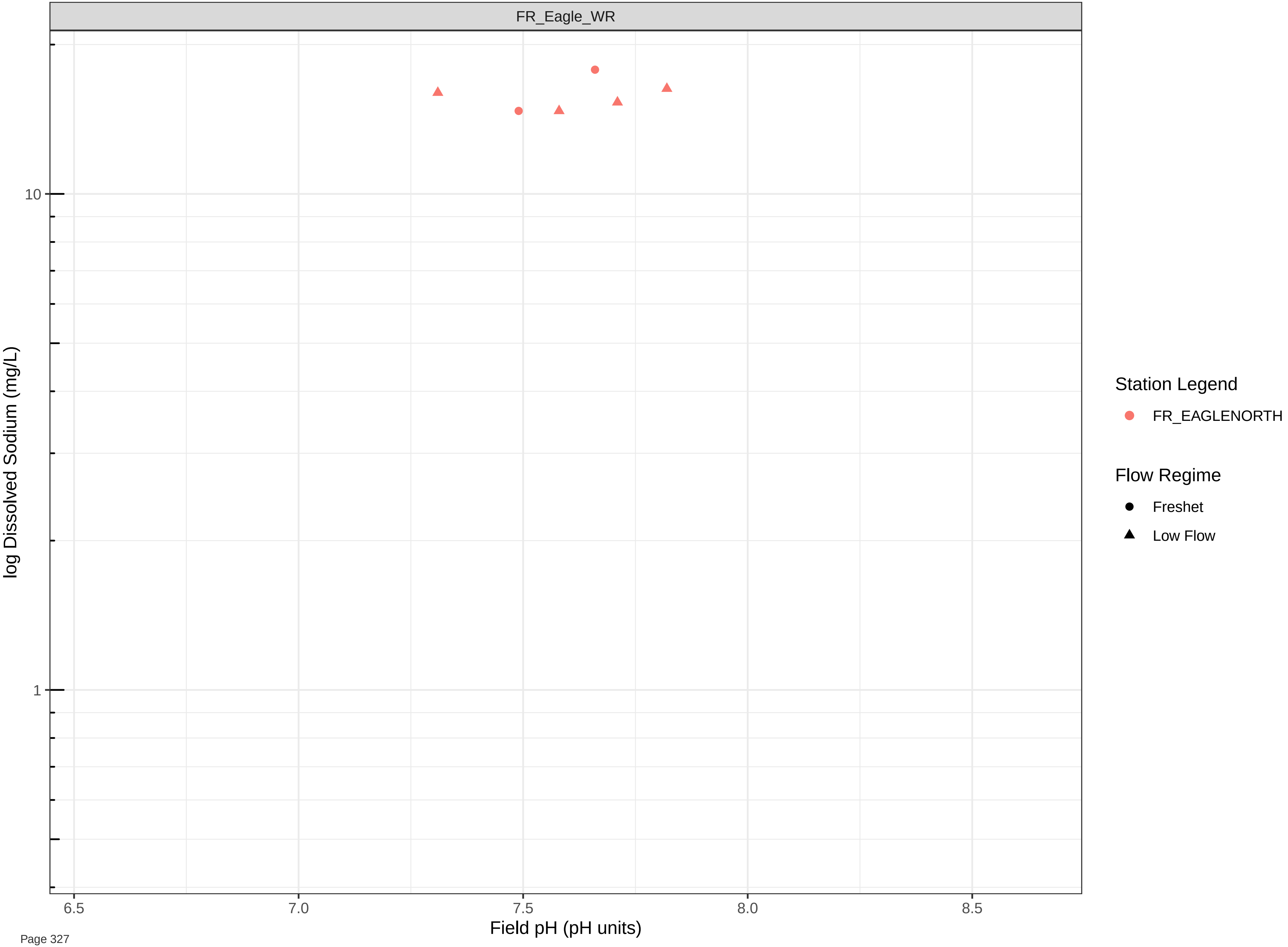

FR_TurnbullWRWest_WR
1e−04
1e−05
log Dissolved Silver (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

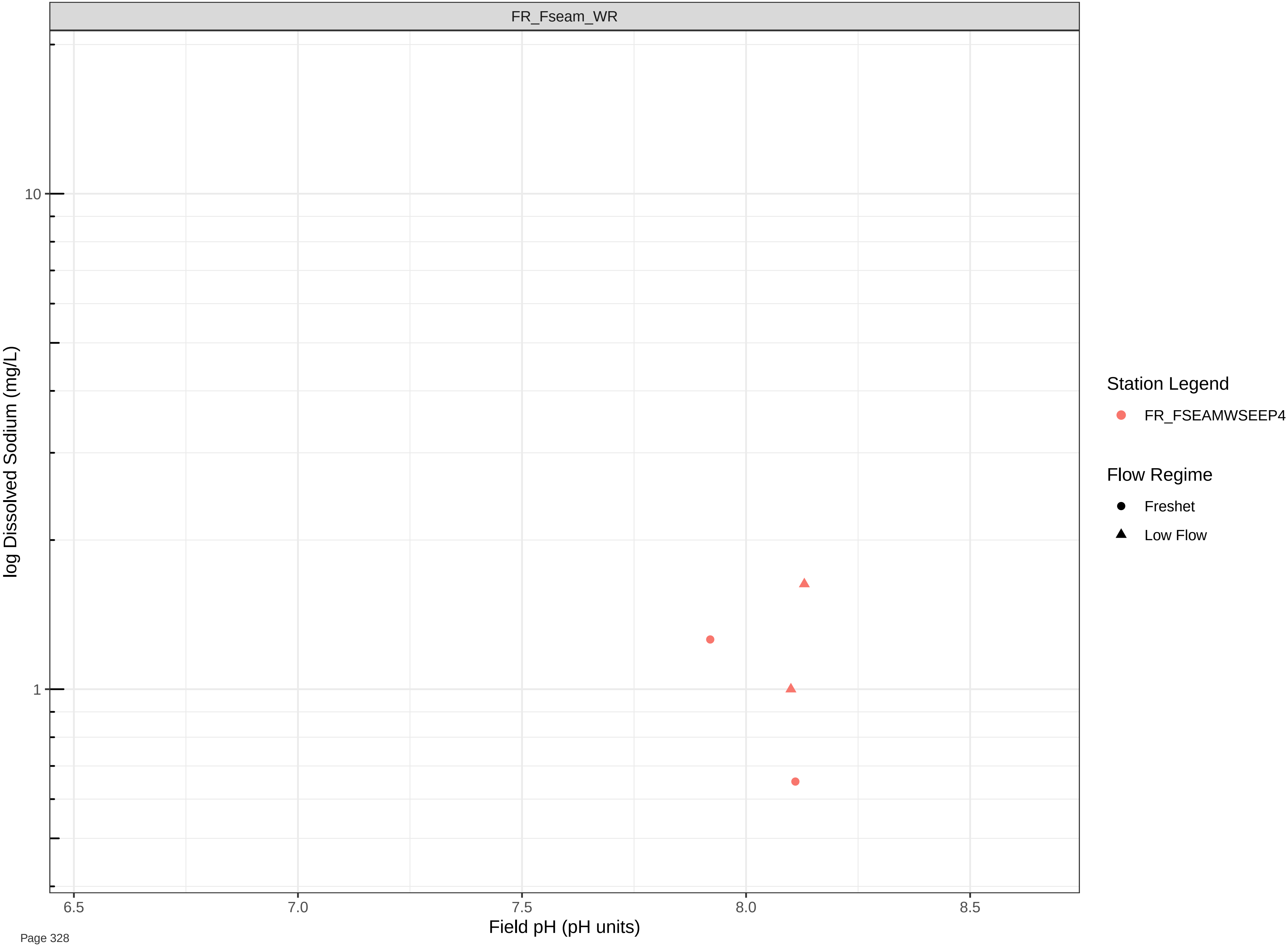

FR_A_WR
log Dissolved Sodium (mg/L)
10
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

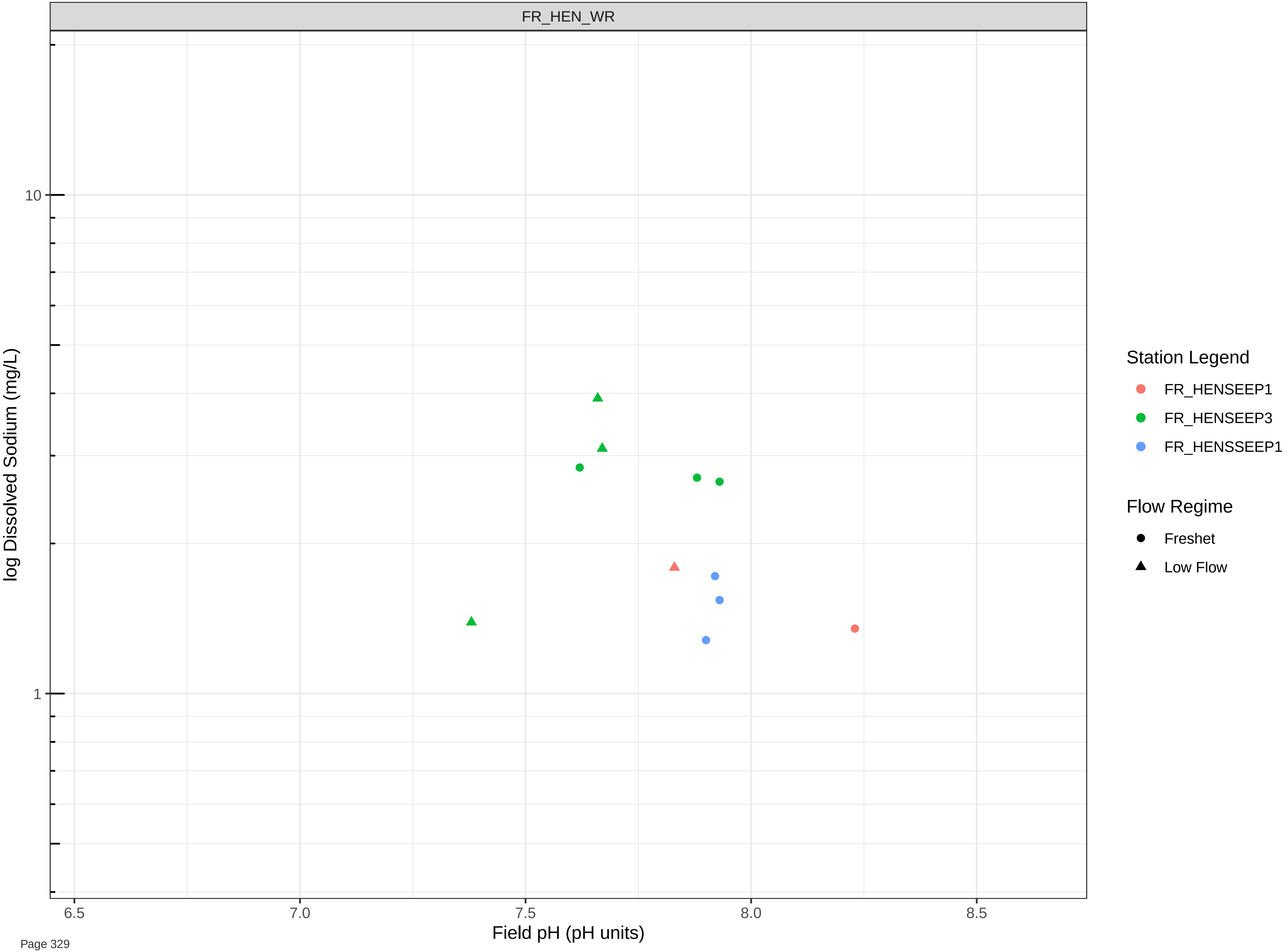

FR_Blain_CCR
log Dissolved Sodium (mg/L)
10
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

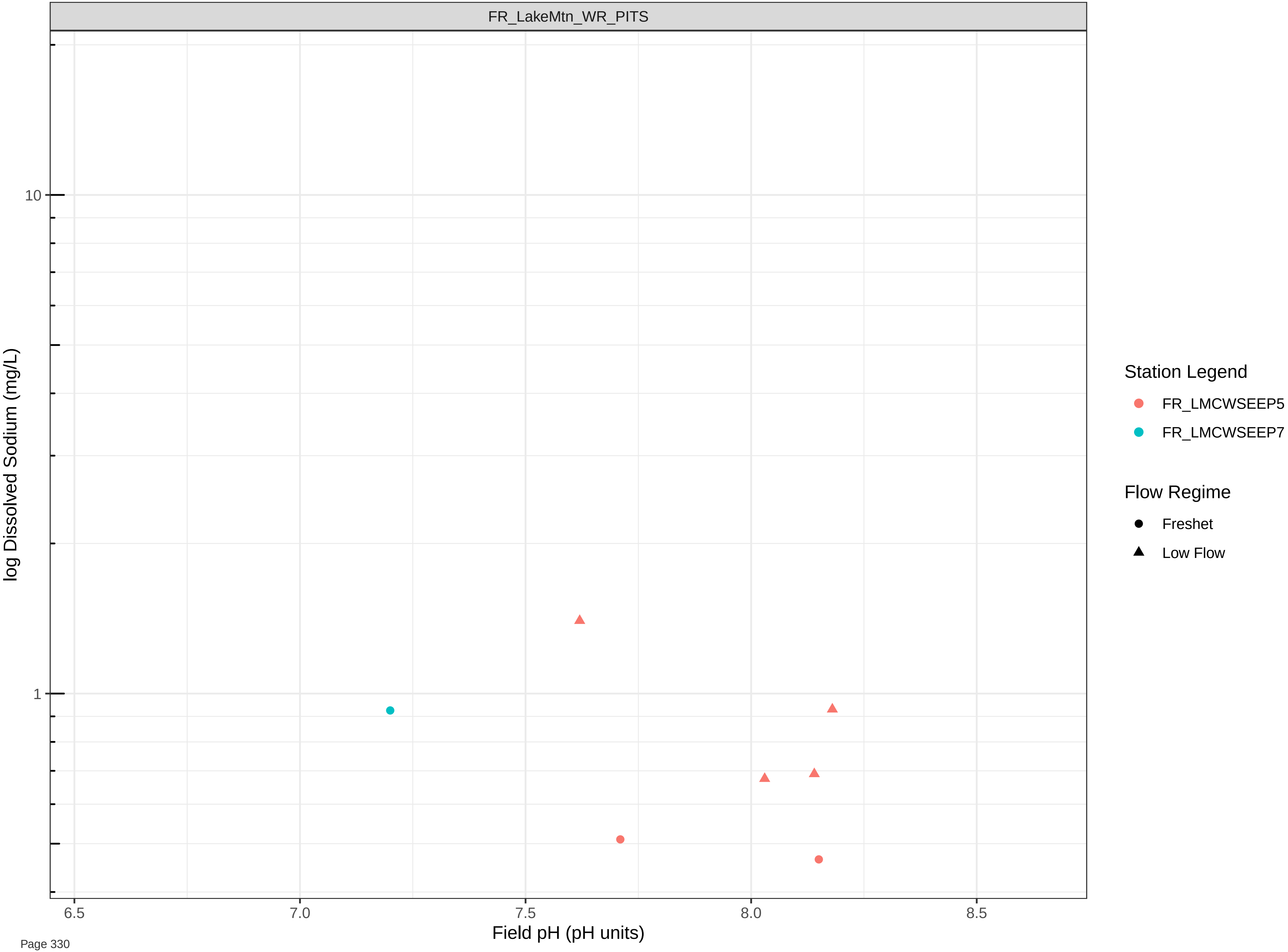

FR_ClodeCr_WR
log Dissolved Sodium (mg/L)
10
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

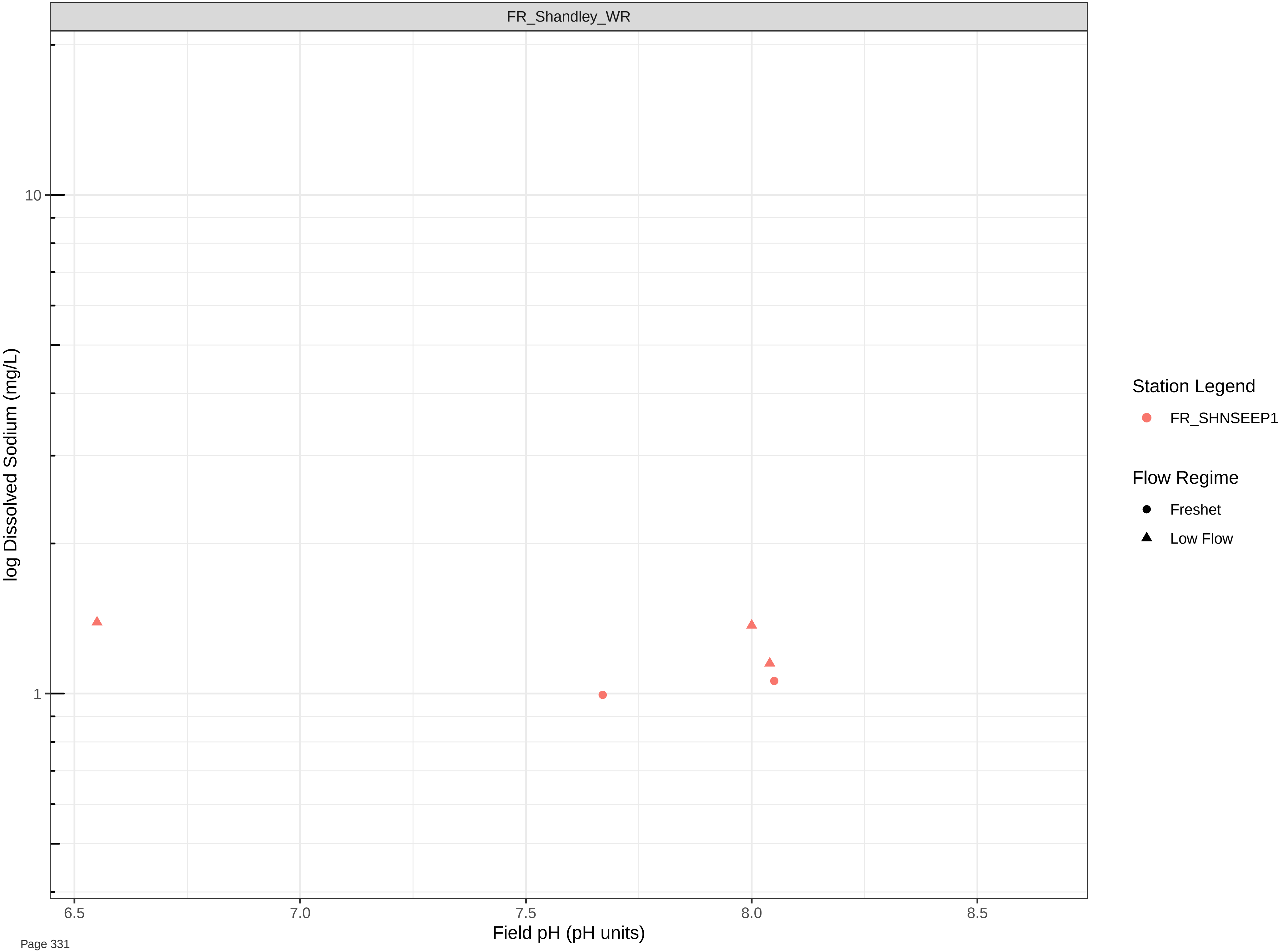

FR_DOKA_Unknown
log Dissolved Sodium (mg/L)
10
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

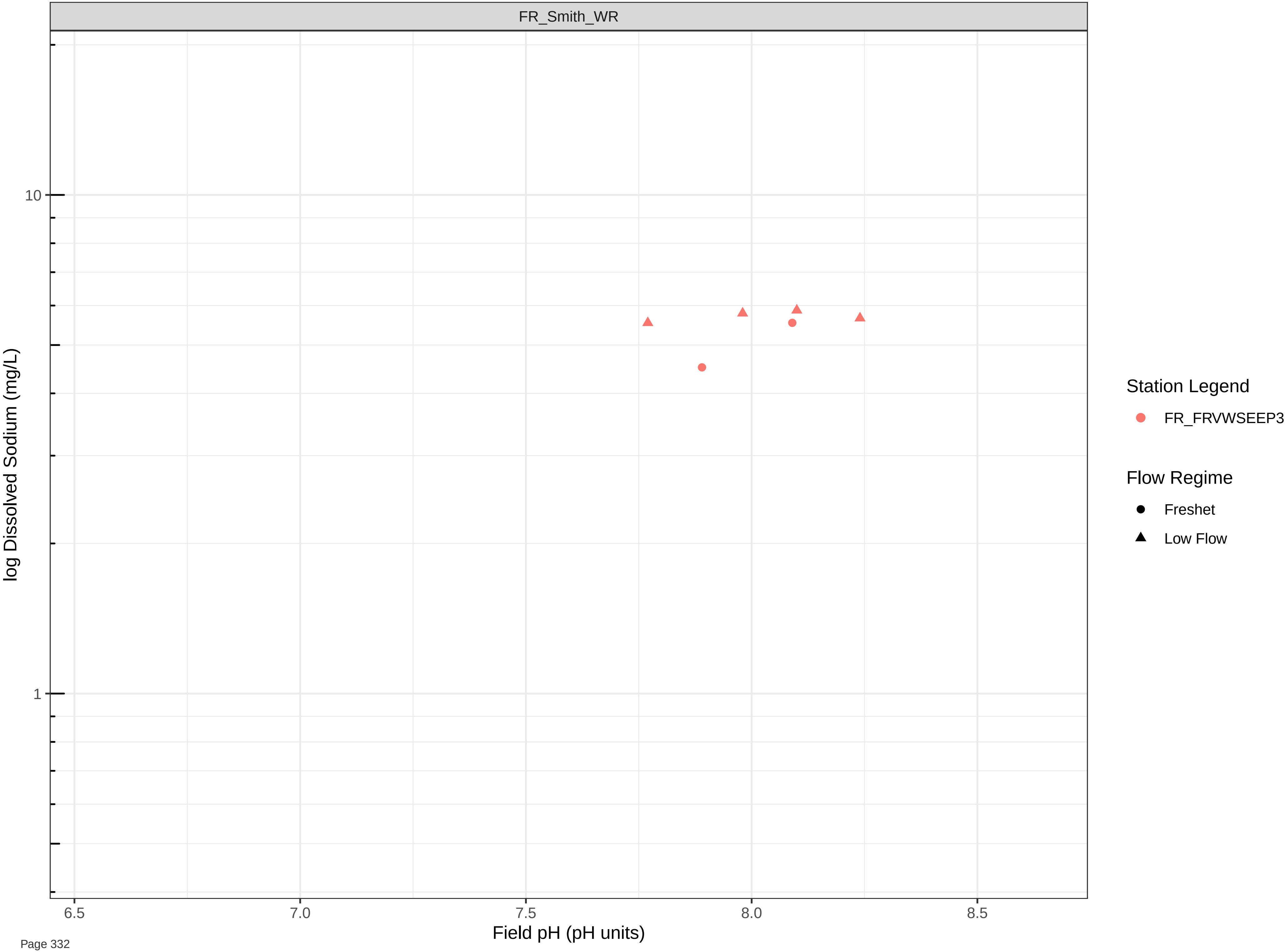

FR_Eagle_WR
10
1
log Dissolved Sodium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

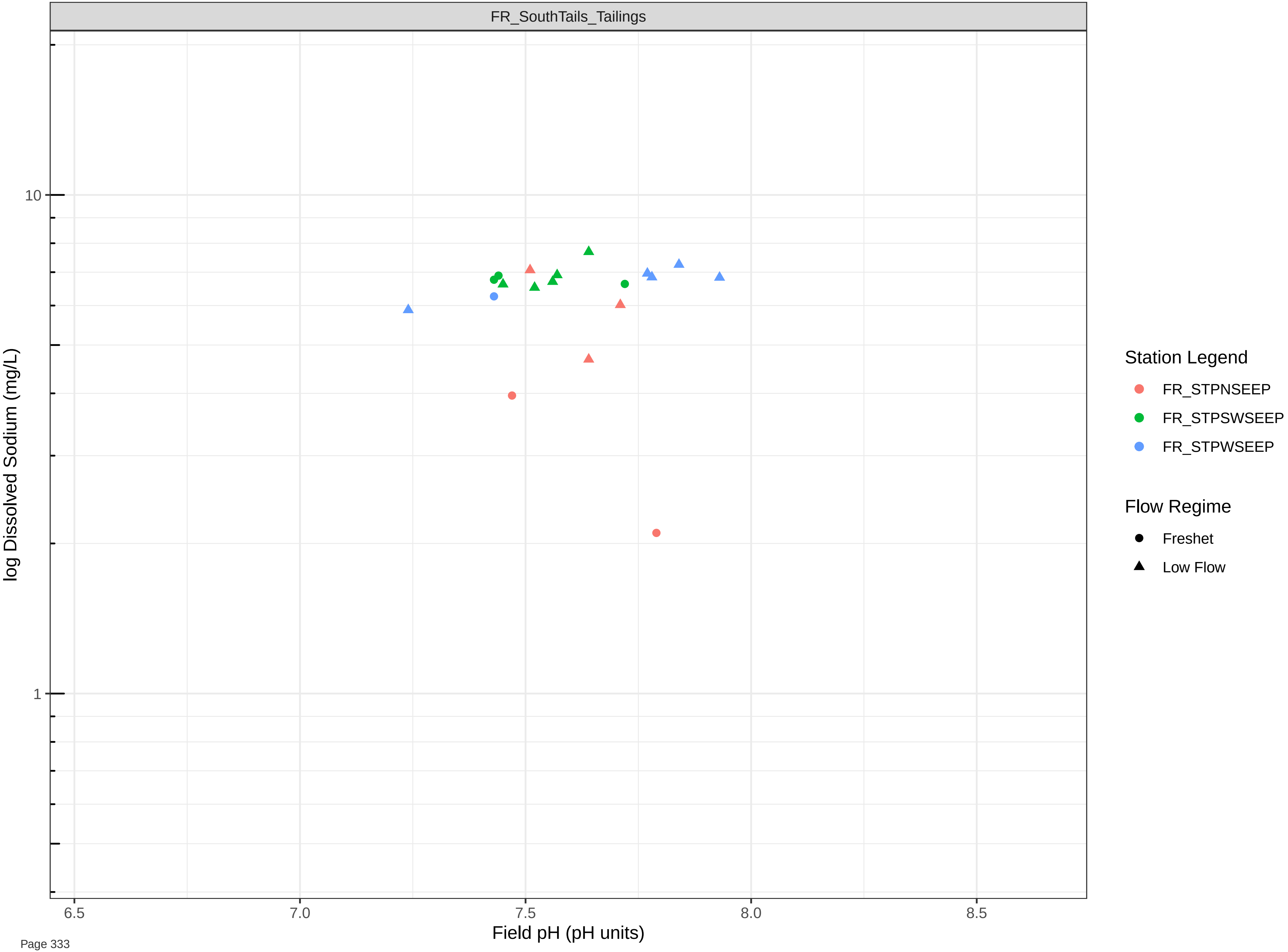

FR_Fseam_WR
log Dissolved Sodium (mg/L)
10
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

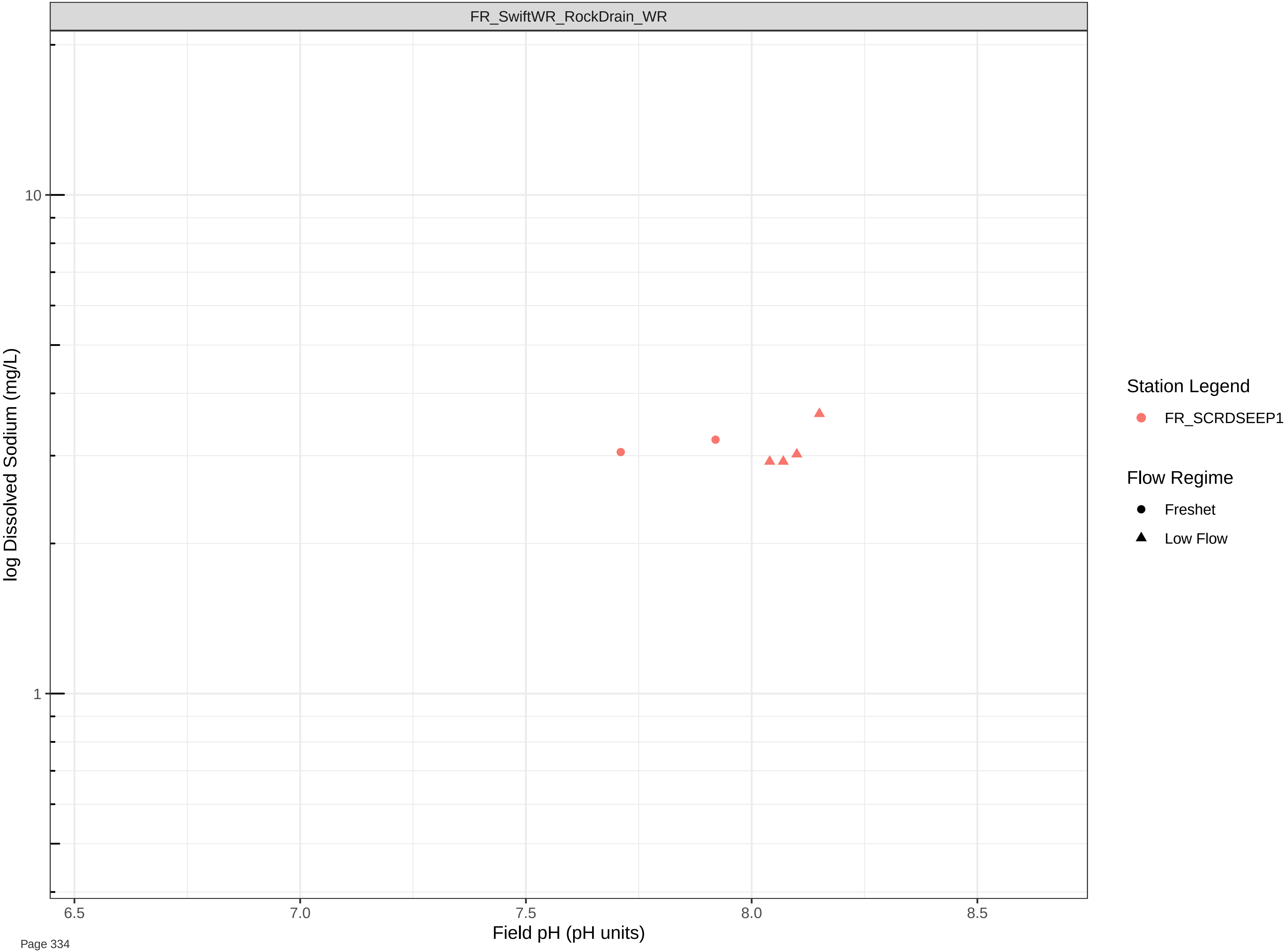

FR_HEN_WR
10
1
log Dissolved Sodium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

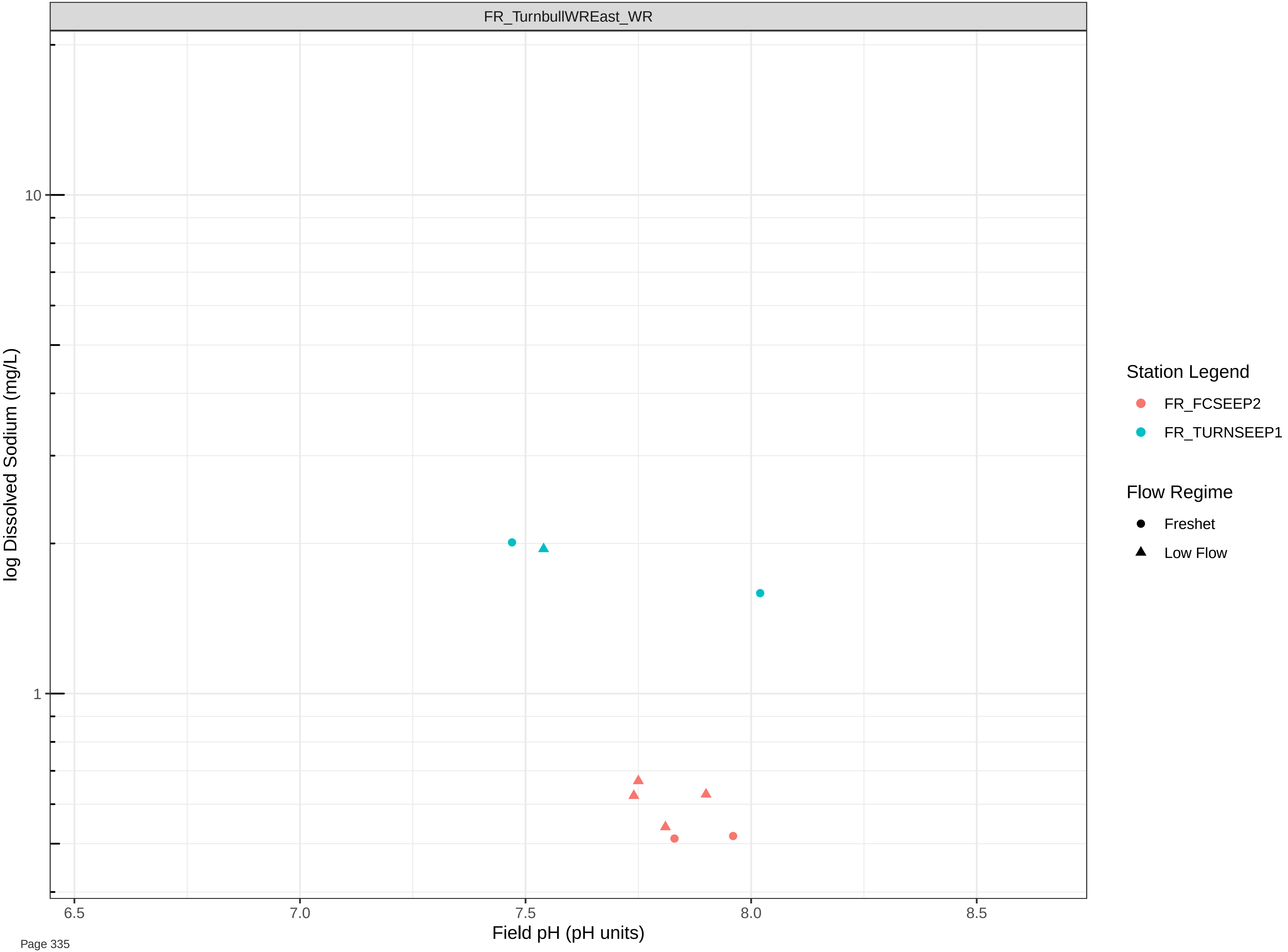

FR_LakeMtn_WR_PITS
log Dissolved Sodium (mg/L)
10
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow

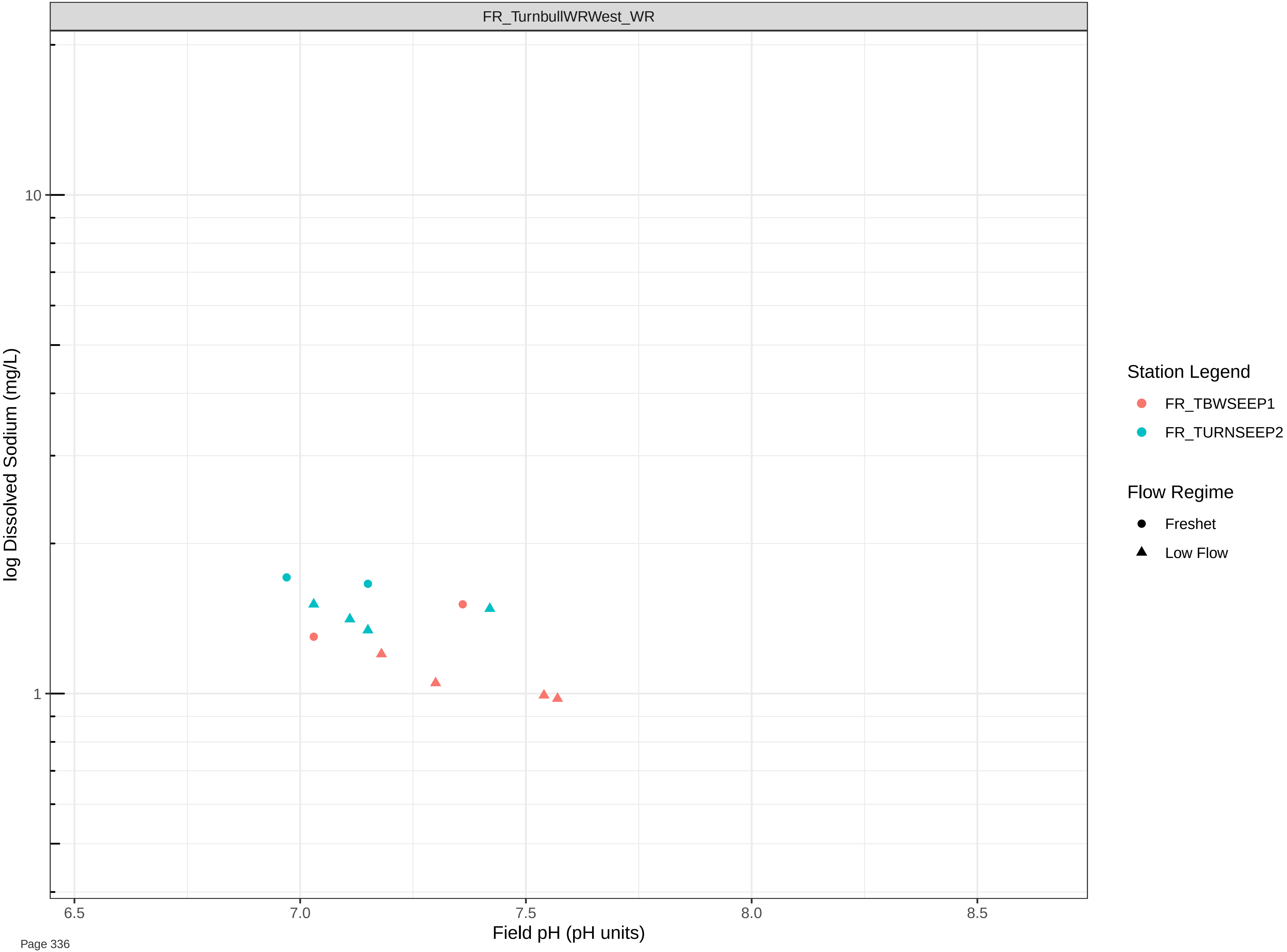

FR_Shandley_WR
log Dissolved Sodium (mg/L)
10
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

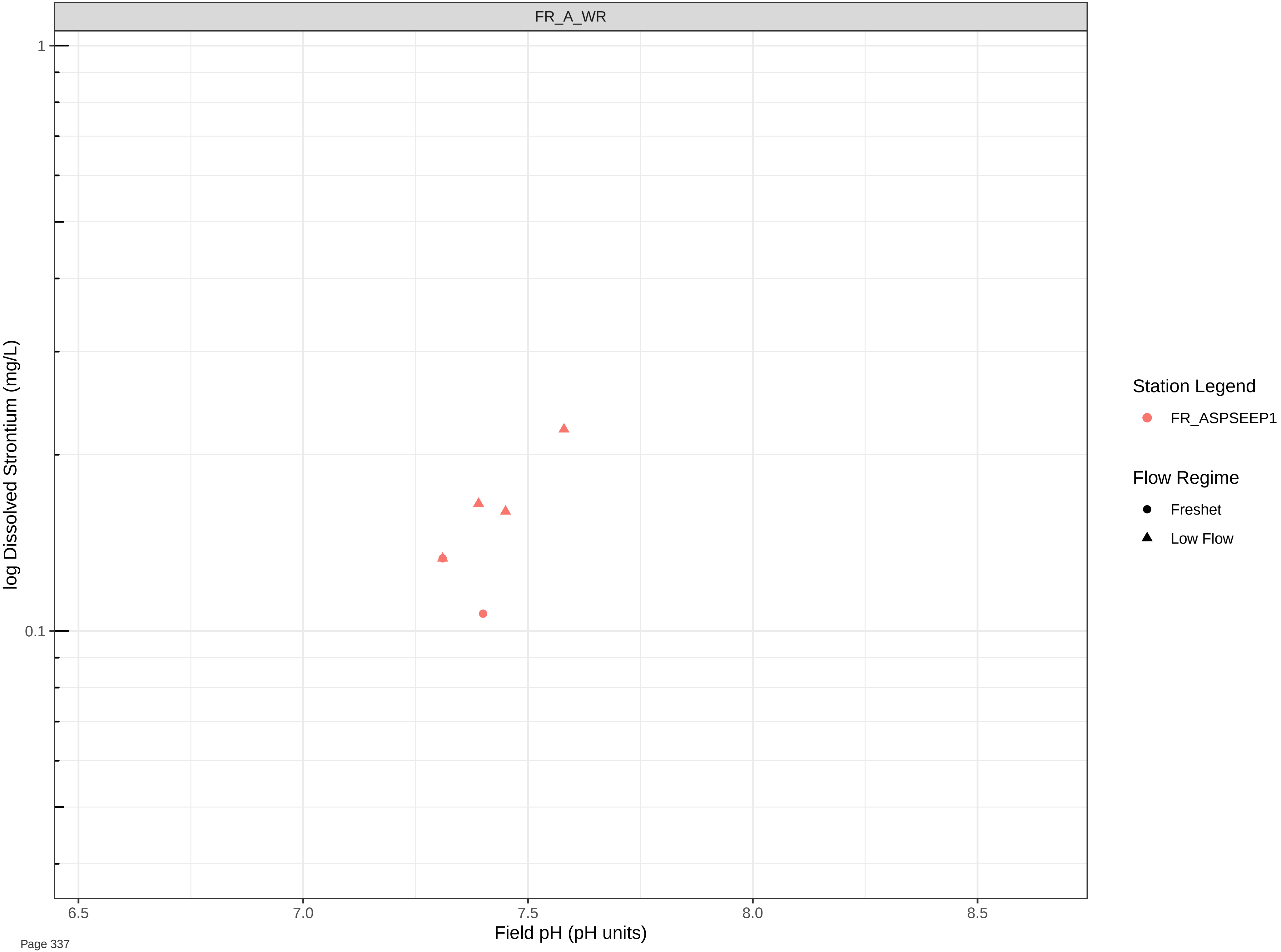

FR_Smith_WR
10
1
log Dissolved Sodium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow


FR_SouthTails_Tailings
log Dissolved Sodium (mg/L)
10
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

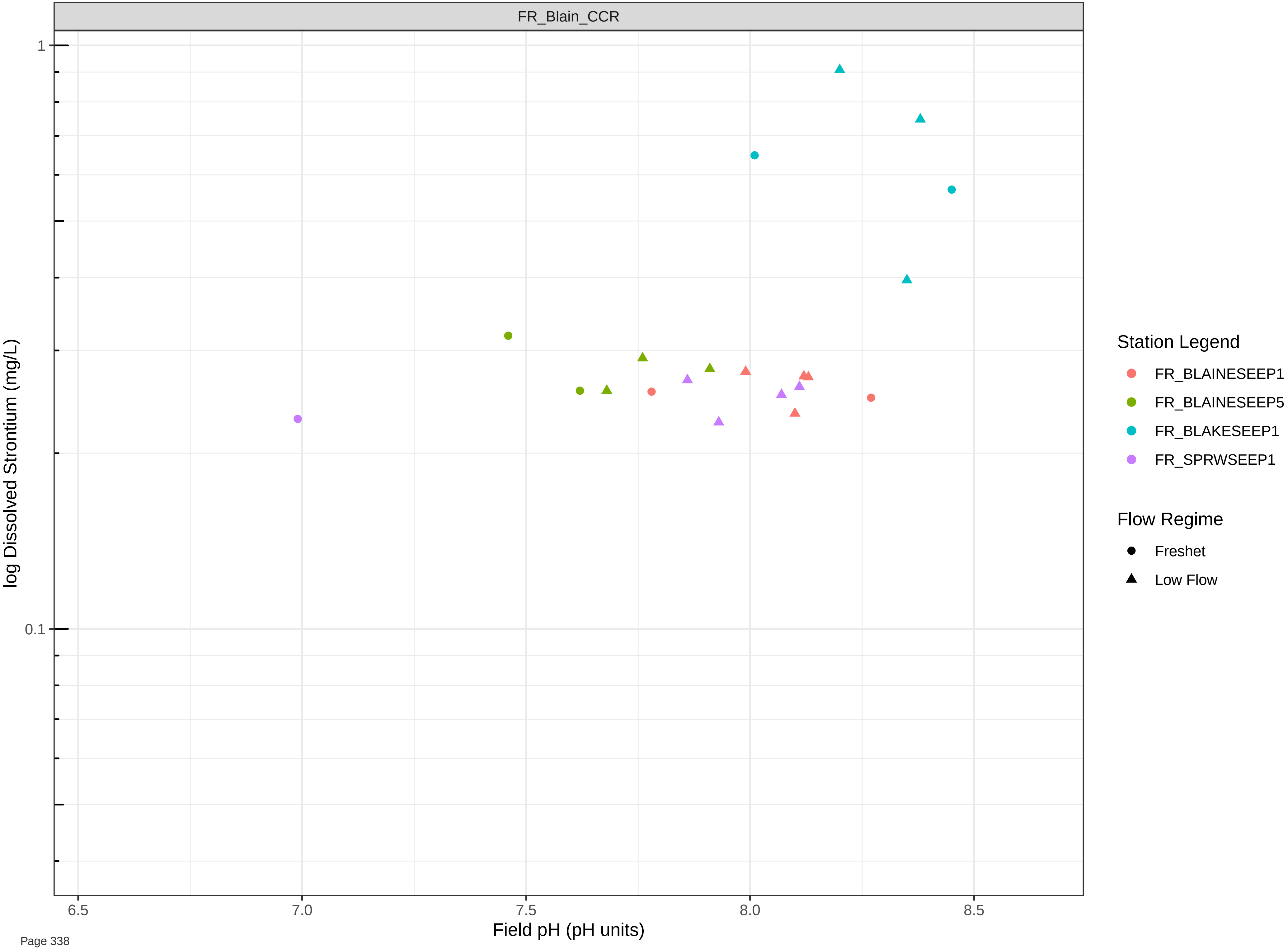

FR_SwiftWR_RockDrain_WR
log Dissolved Sodium (mg/L)
10
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

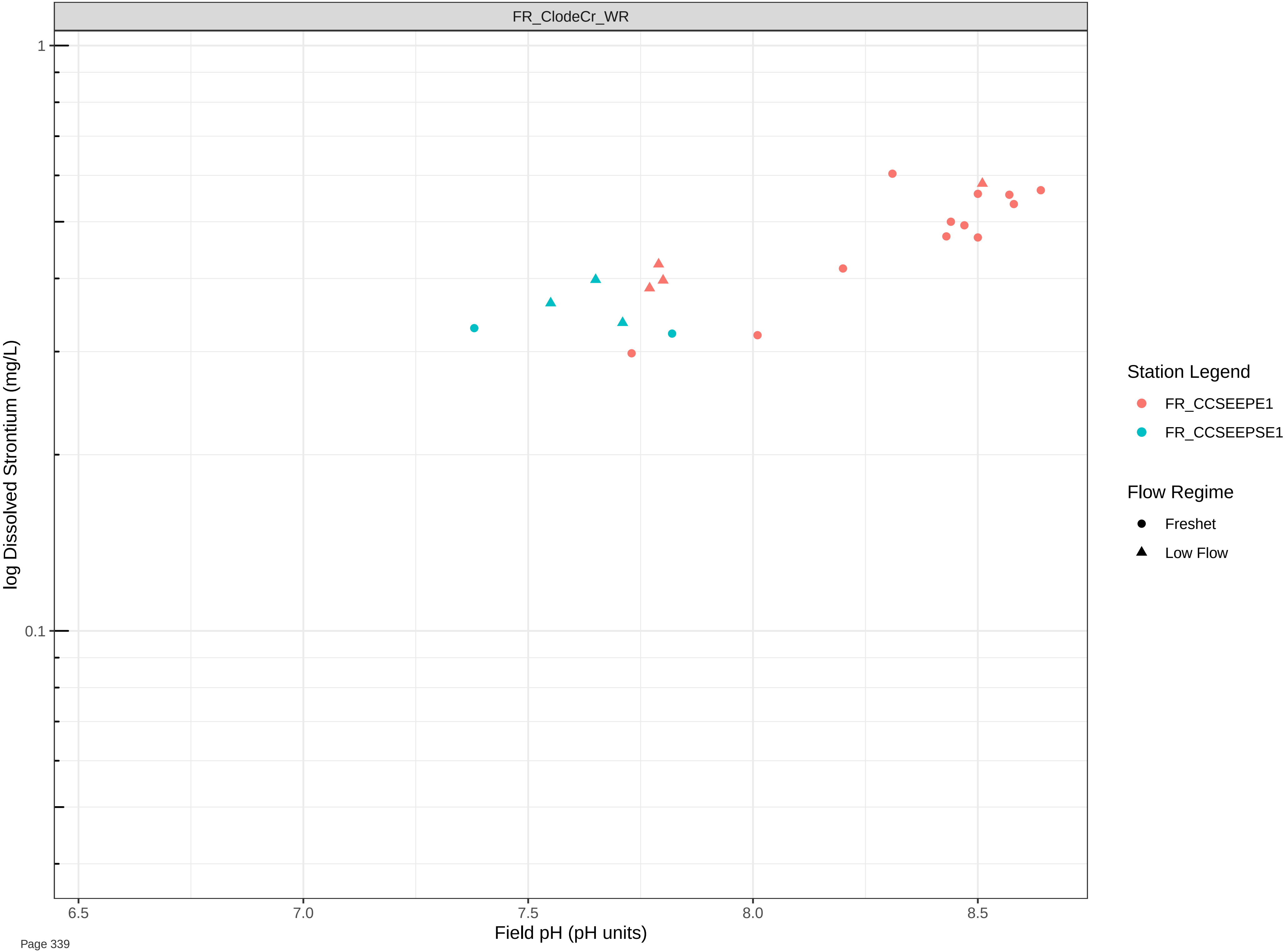

FR_TurnbullWREast_WR
10
1
log Dissolved Sodium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FCSEEP2
● FR_TURNSEEP1
Flow Regime
● Freshet
▲ Low Flow

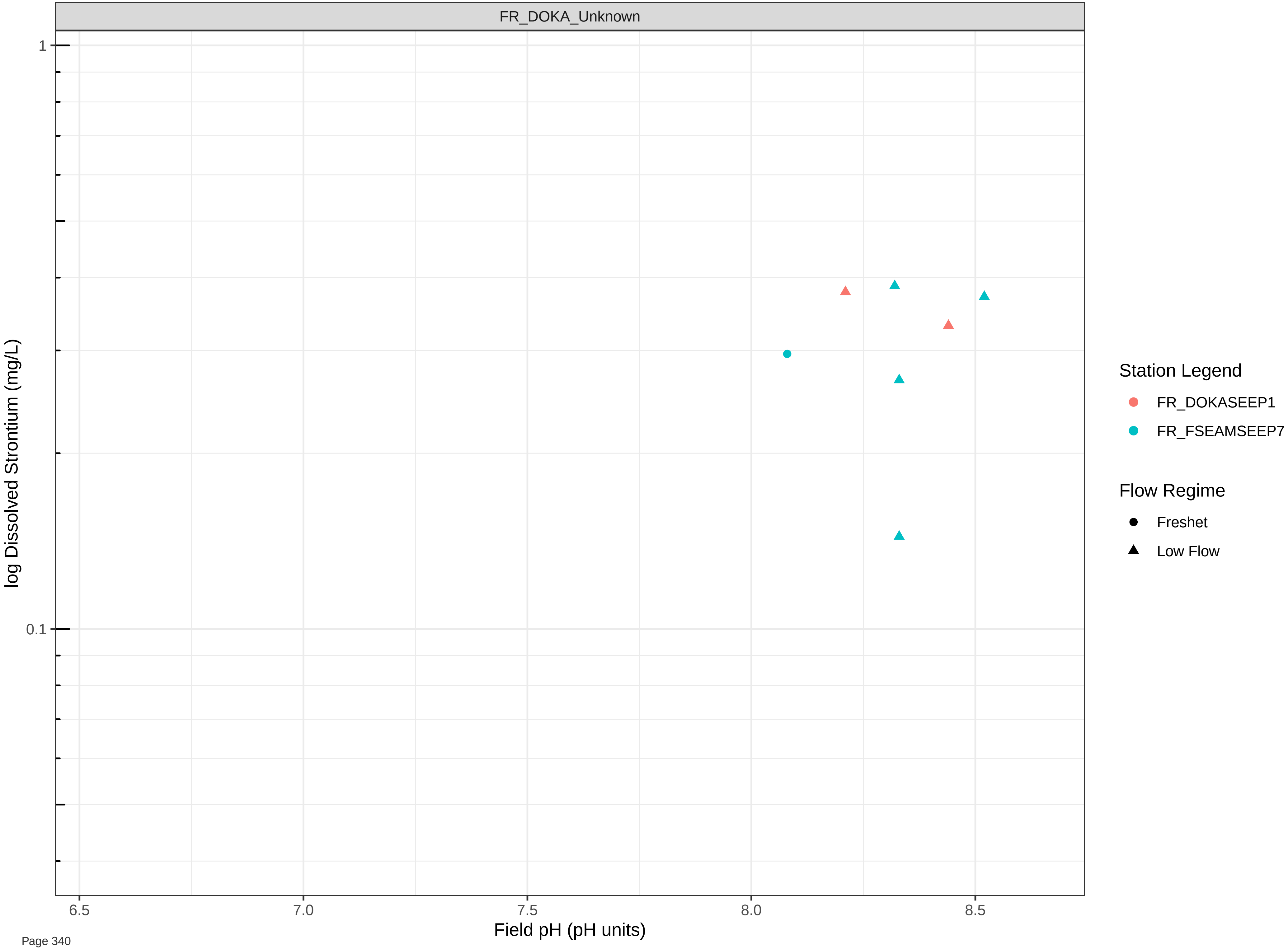

FR_TurnbullWRWest_WR
log Dissolved Sodium (mg/L)
10
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

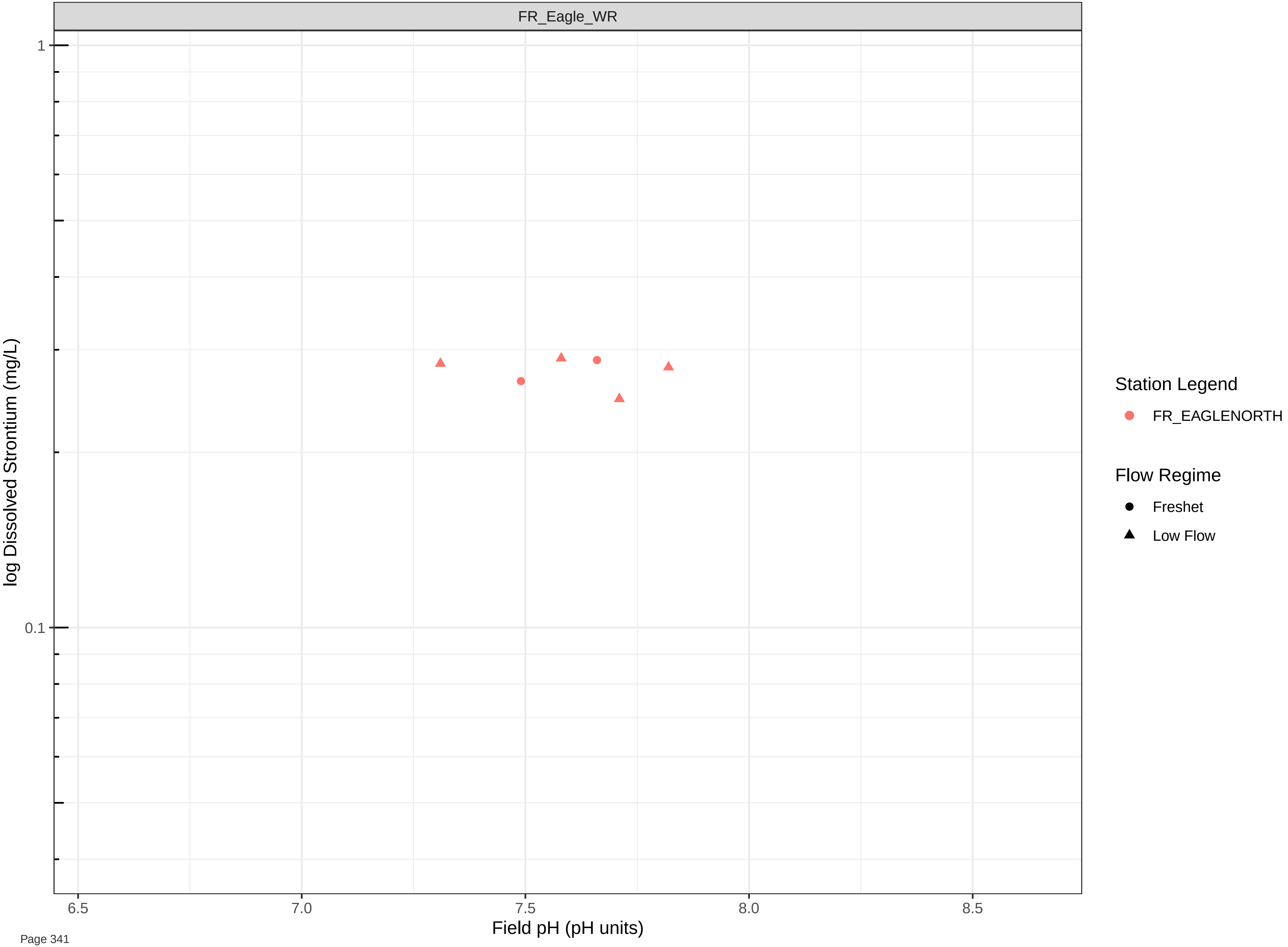


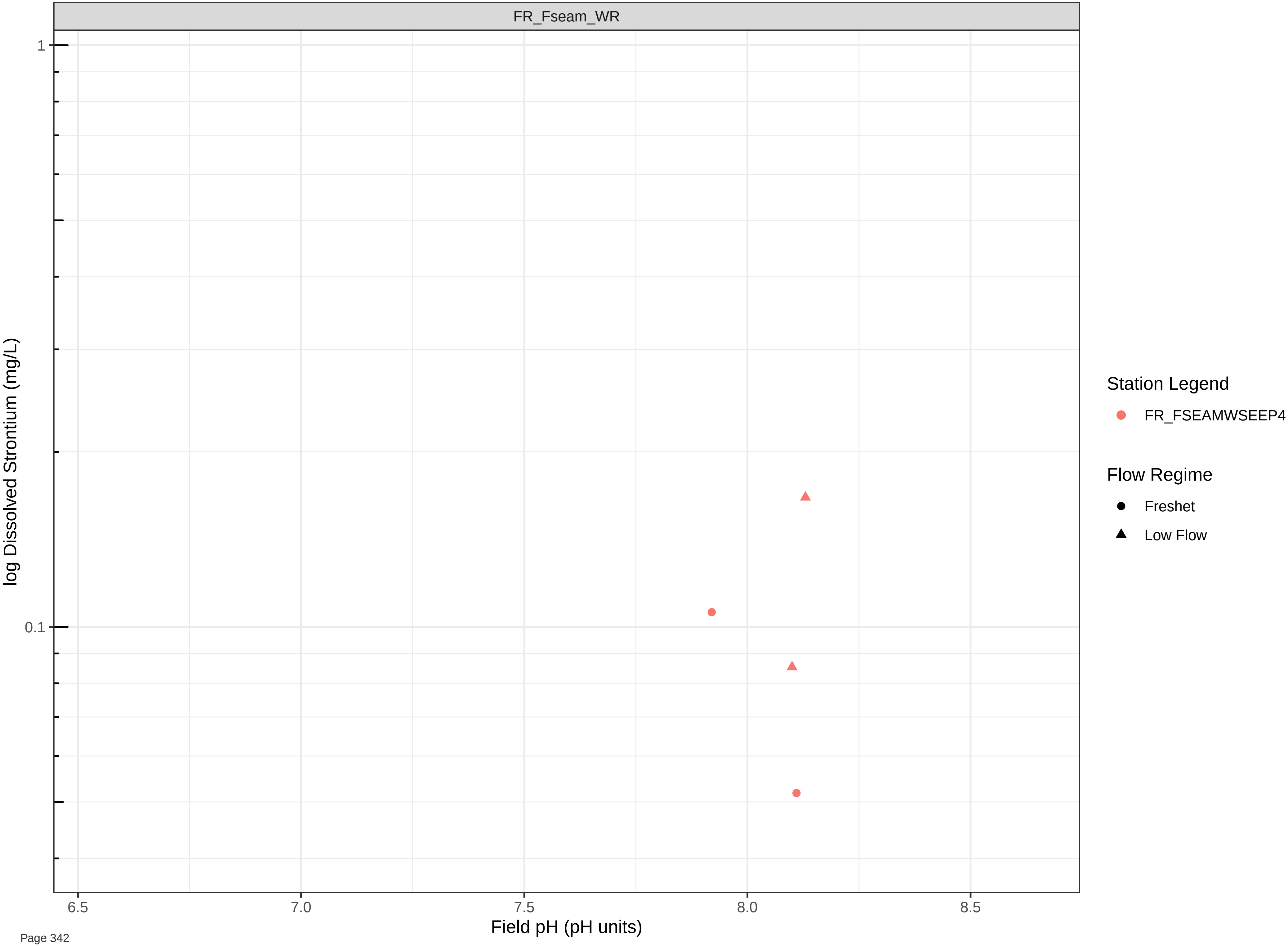
FR_A_WR
1
0.1
log Dissolved Strontium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

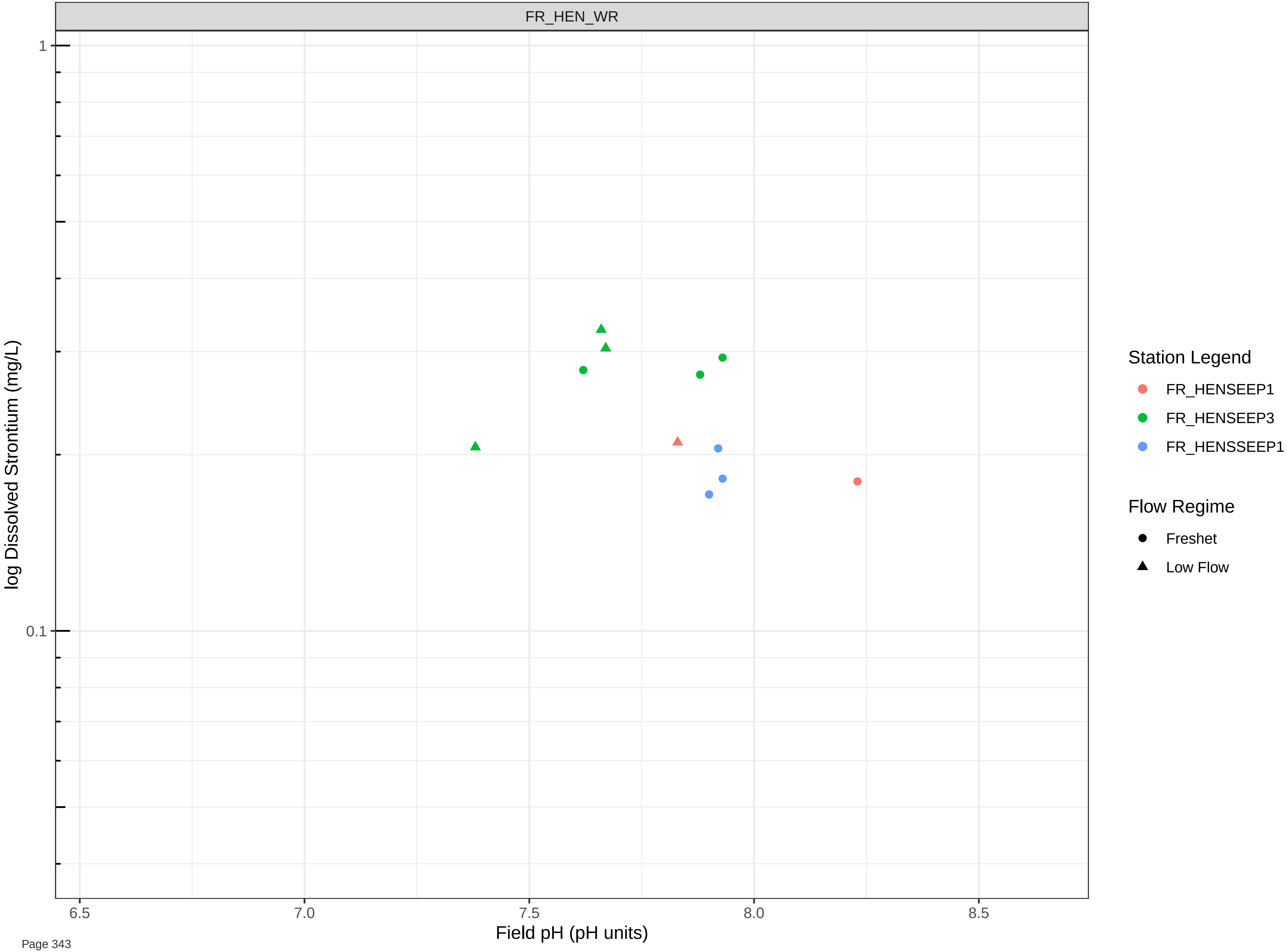

FR_Blain_CCR
1
0.1
log Dissolved Strontium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

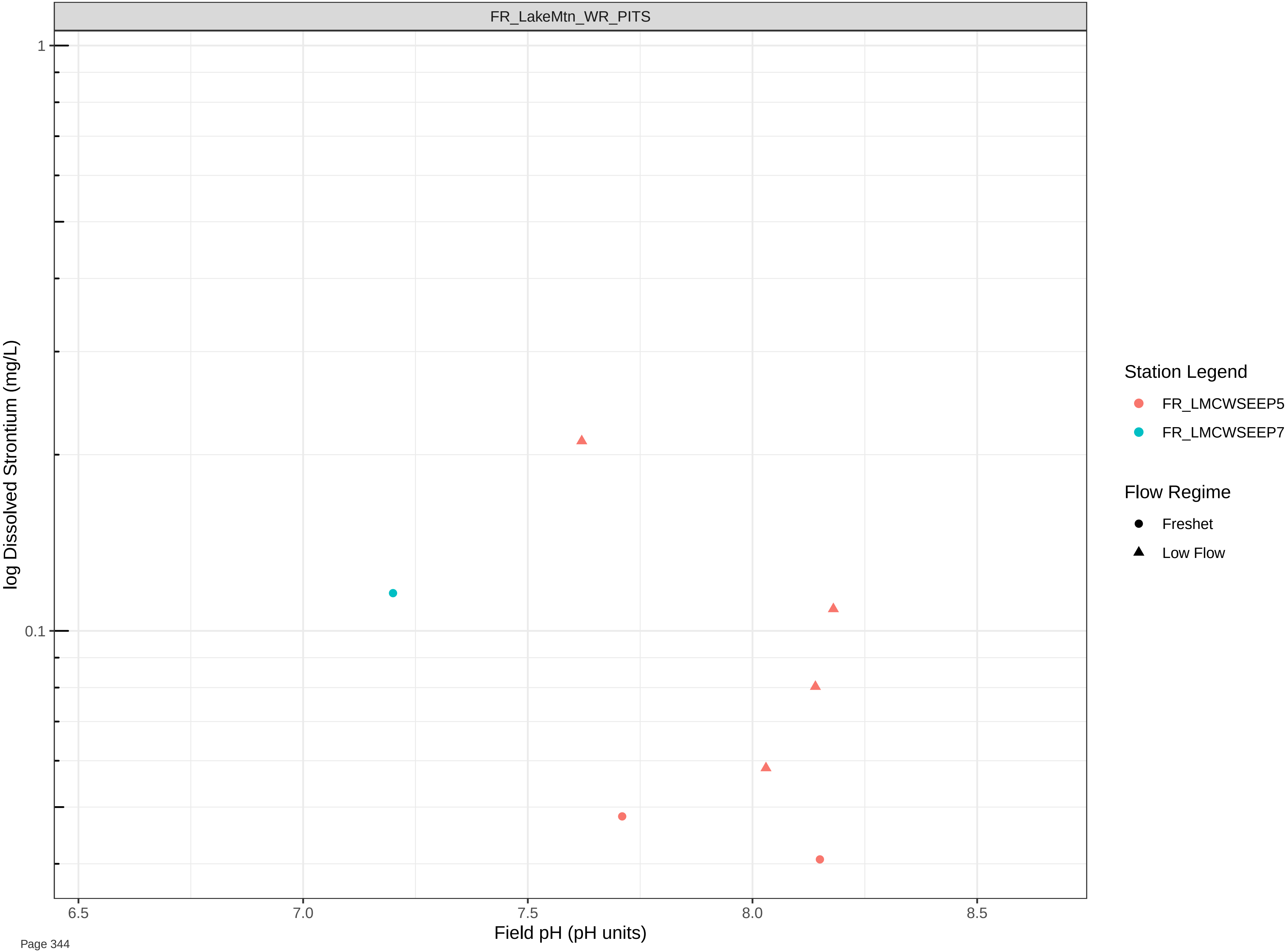

FR_ClodeCr_WR
1
0.1
log Dissolved Strontium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

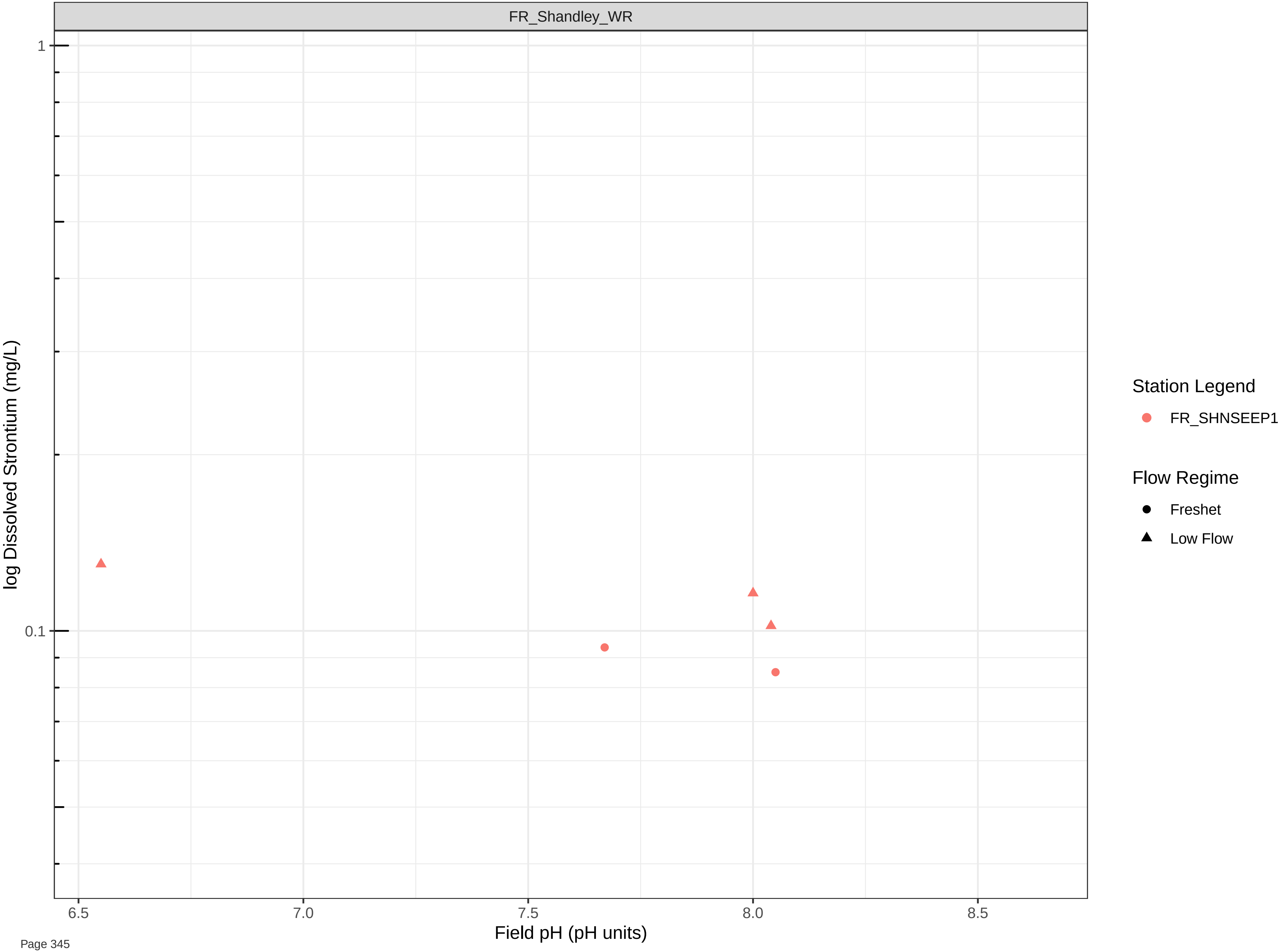

FR_DOKA_Unknown
1
0.1
log Dissolved Strontium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

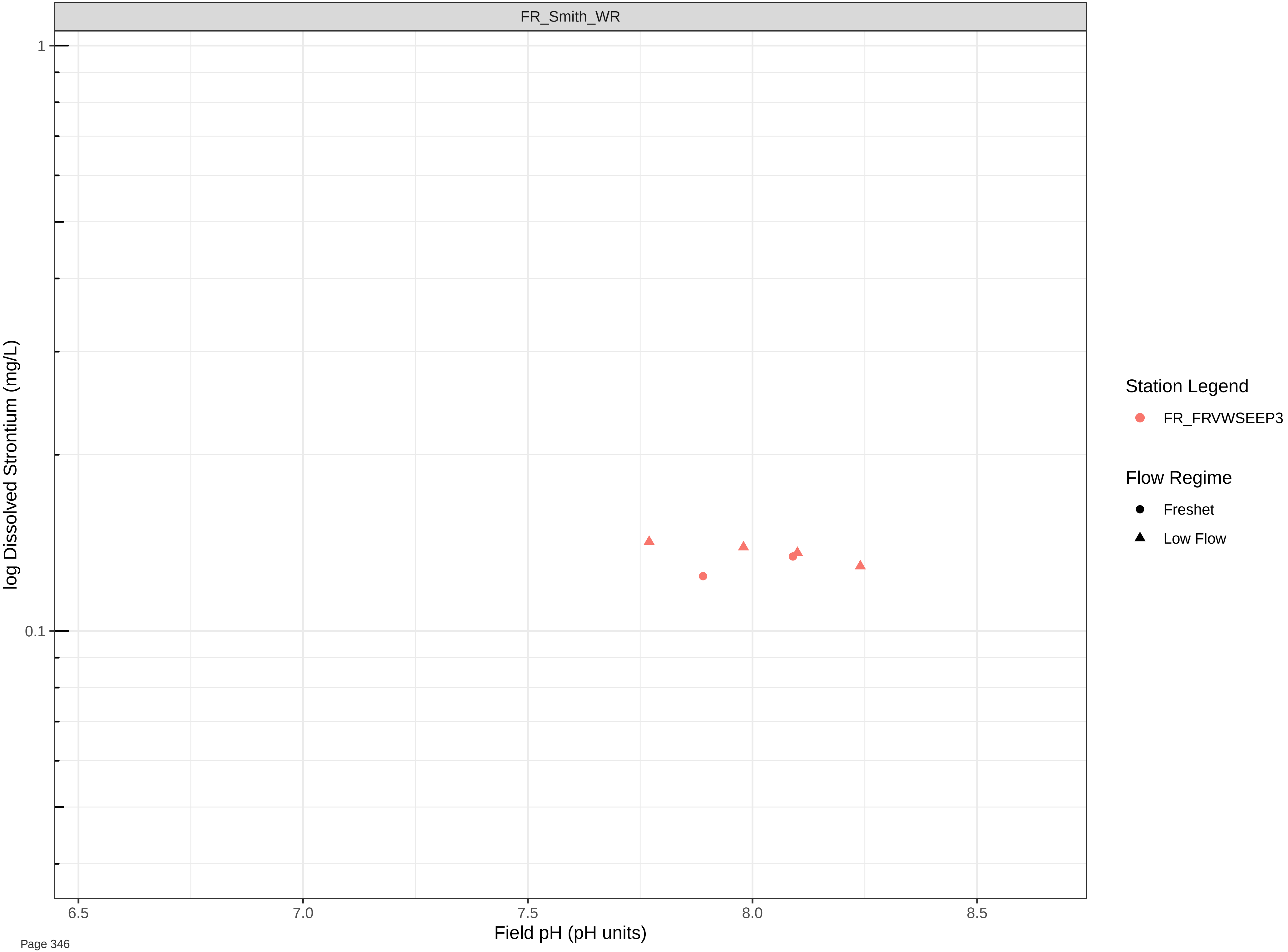

FR_Eagle_WR
1
0.1
log Dissolved Strontium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

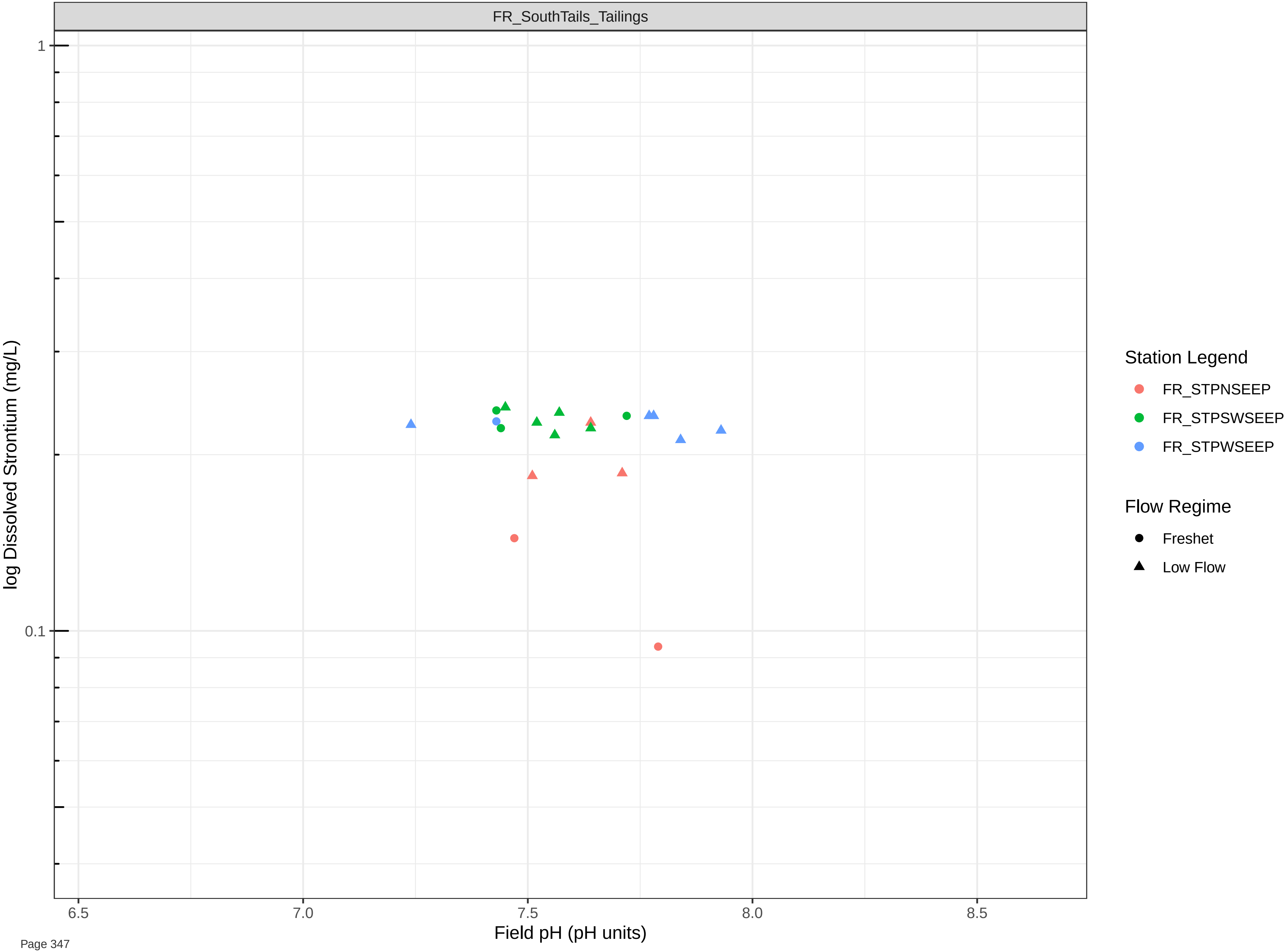

FR_Fseam_WR
log Dissolved Strontium (mg/L)
1
0.1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

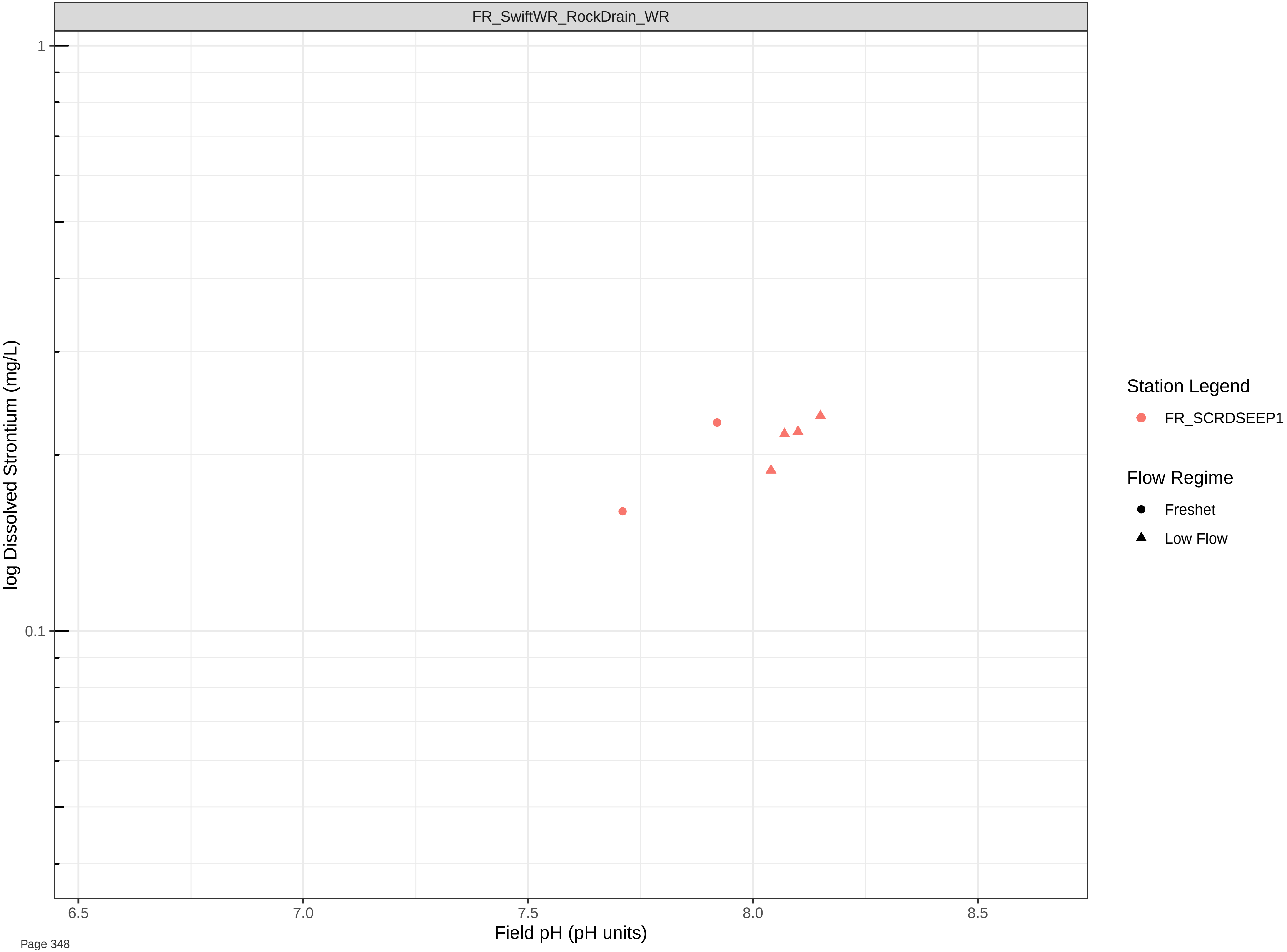

FR_HEN_WR
log Dissolved Strontium (mg/L)
1
0.1
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

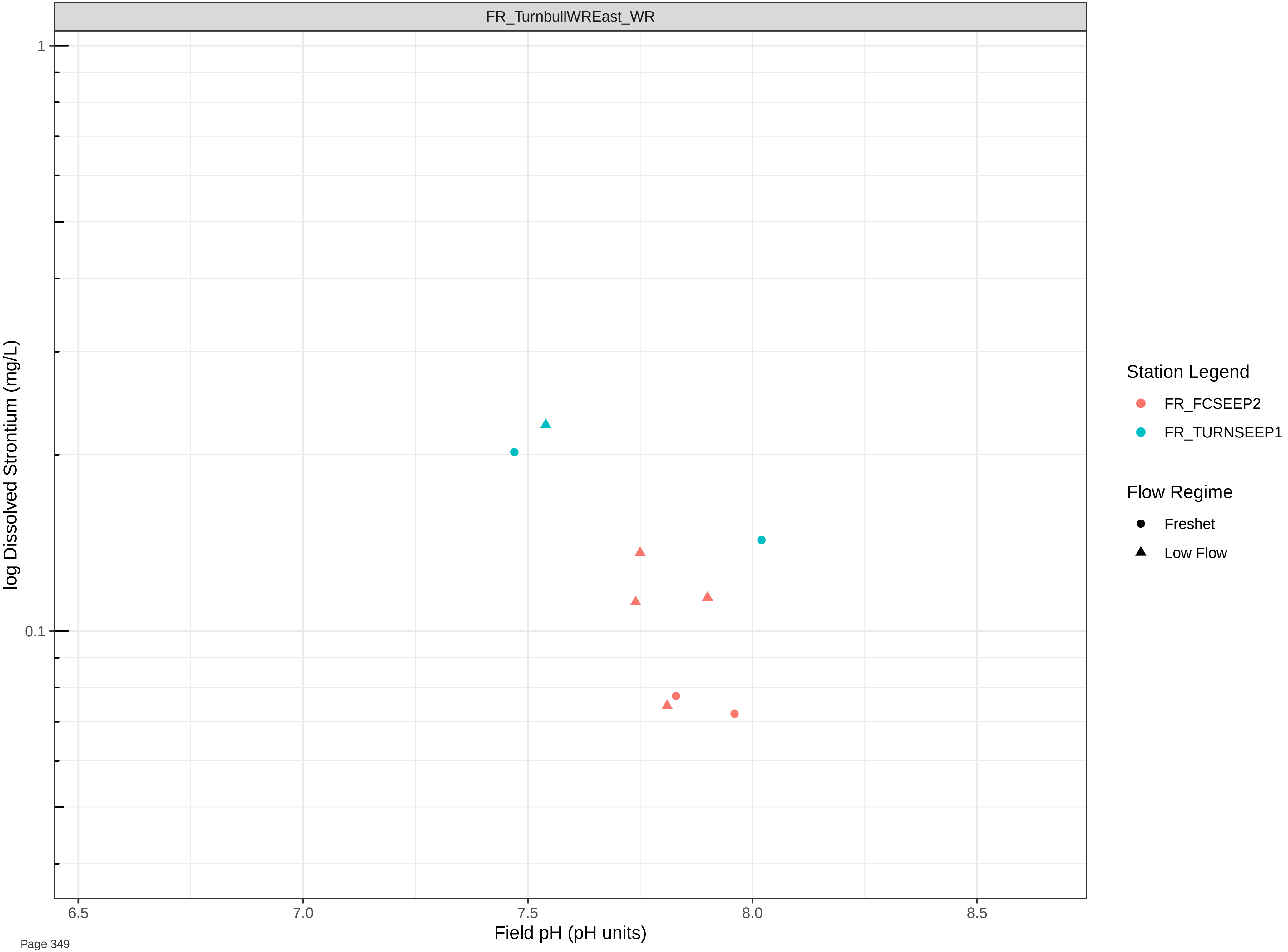

FR_LakeMtn_WR_PITS
1
0.1
log Dissolved Strontium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

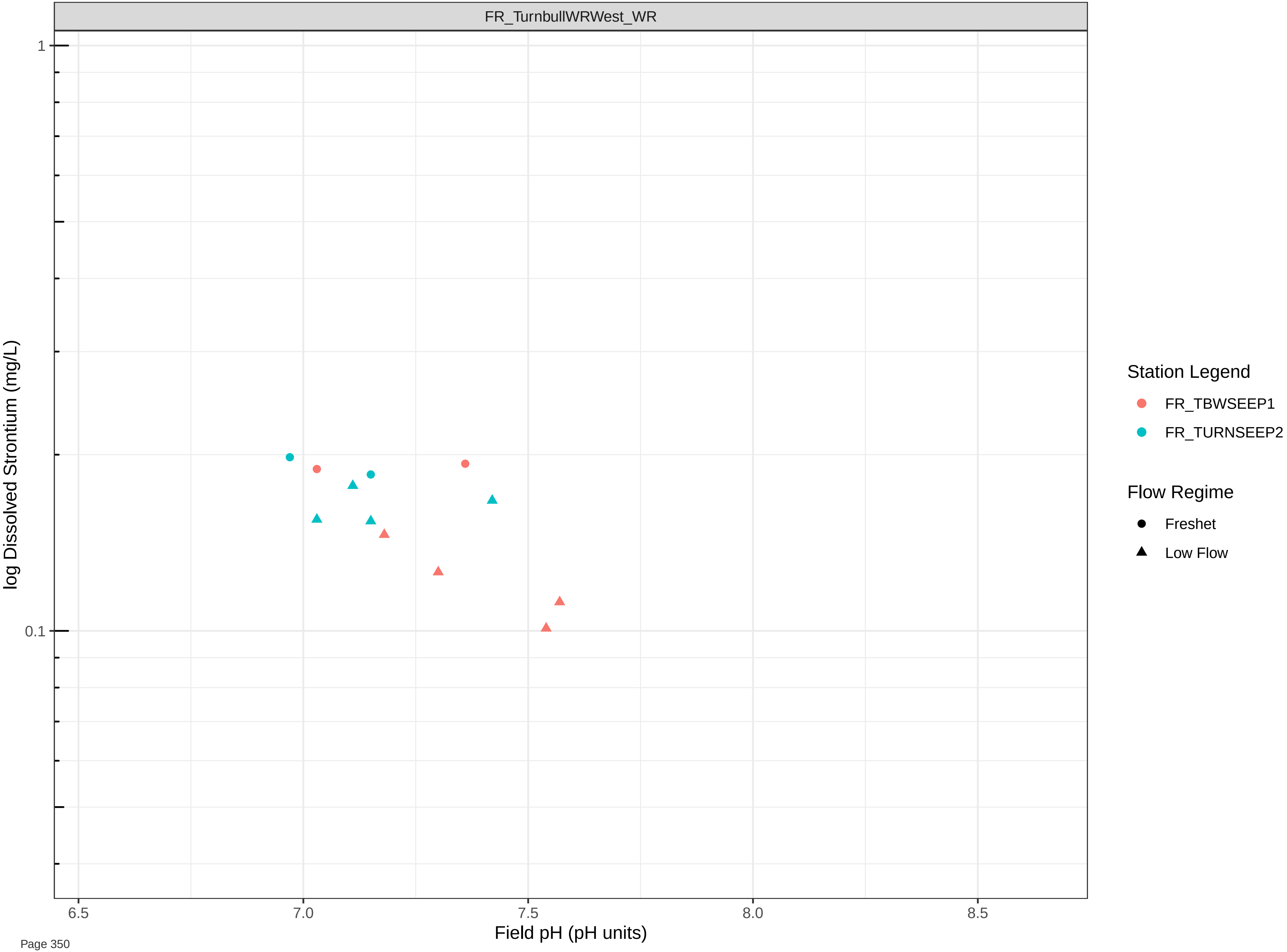

FR_Shandley_WR
1
0.1
log Dissolved Strontium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

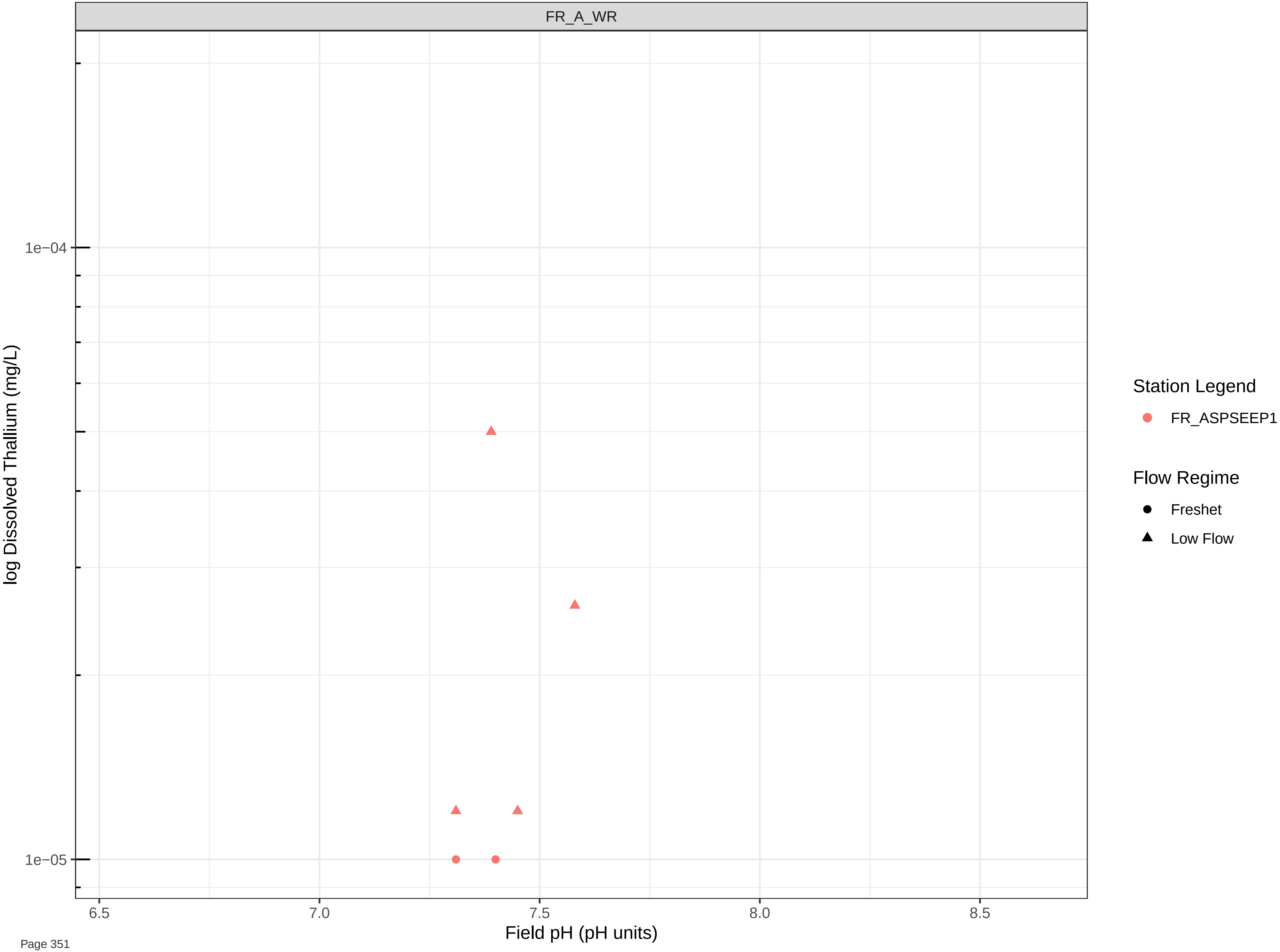

FR_Smith_WR
1
0.1
log Dissolved Strontium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

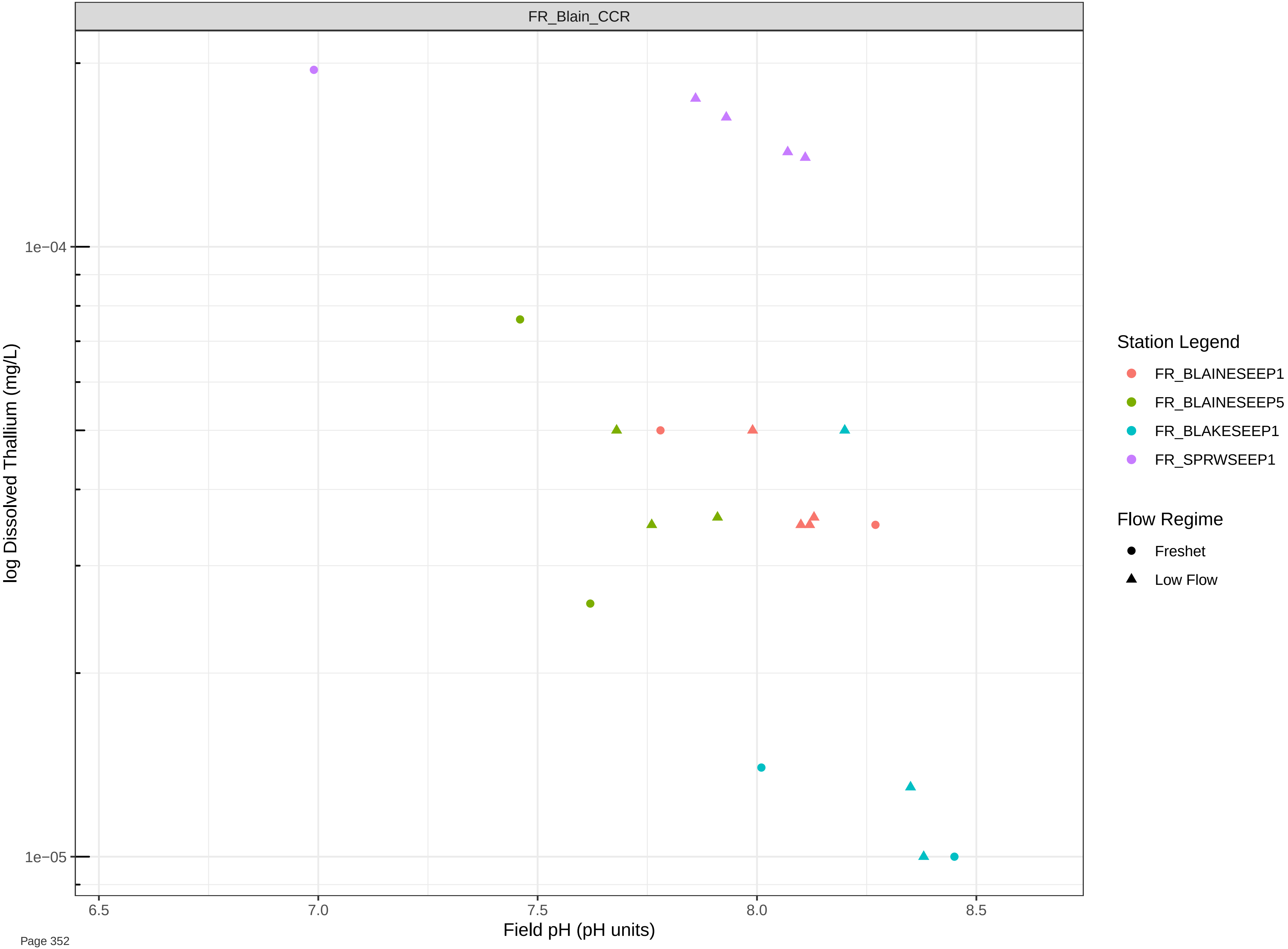

FR_SouthTails_Tailings
1
0.1
log Dissolved Strontium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_STPNSEEP
● FR_STPSWSEEP
● FR_STPWSEEP
Flow Regime
● Freshet
▲ Low Flow

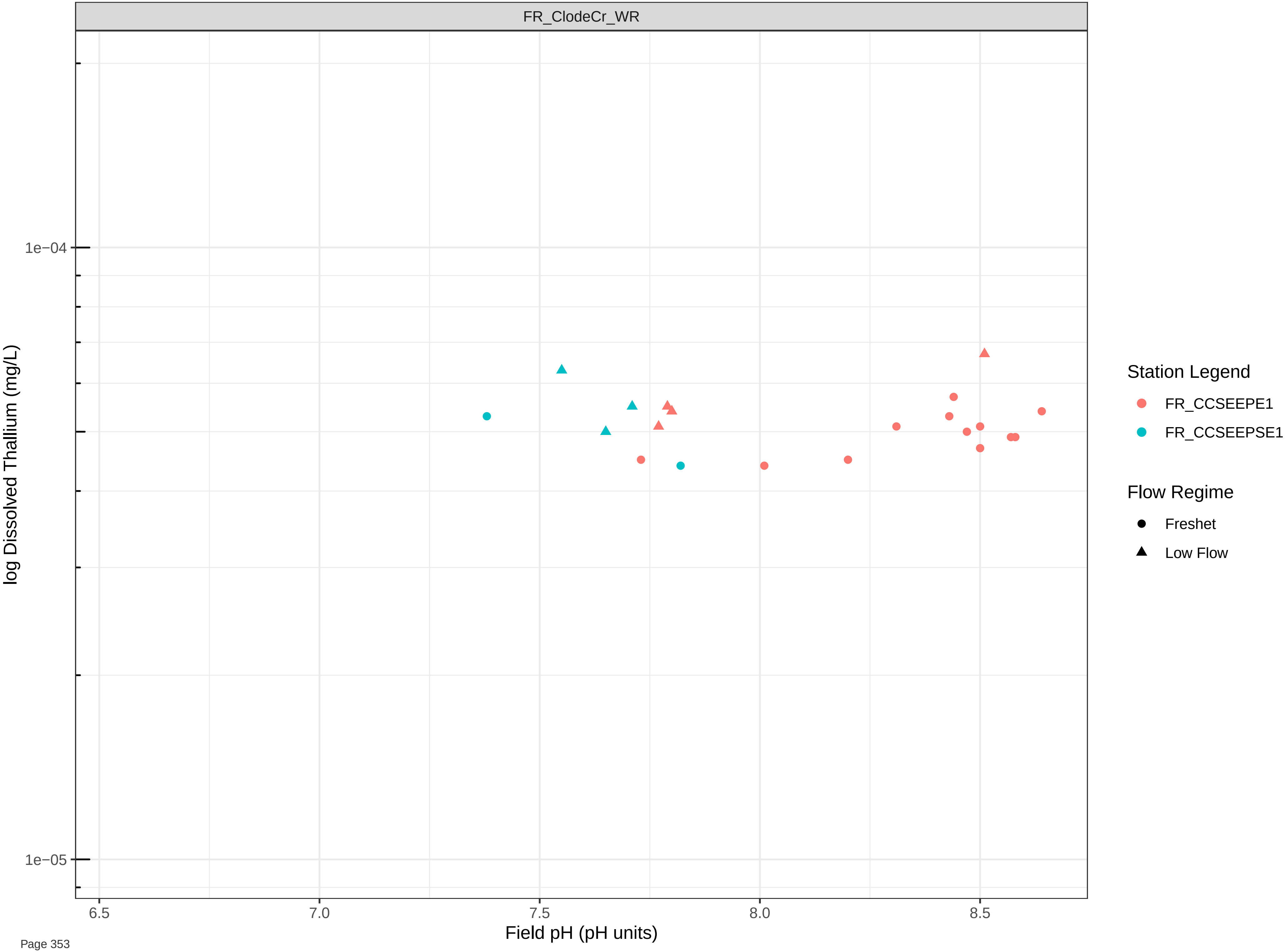

FR_SwiftWR_RockDrain_WR
log Dissolved Strontium (mg/L)
1
0.1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

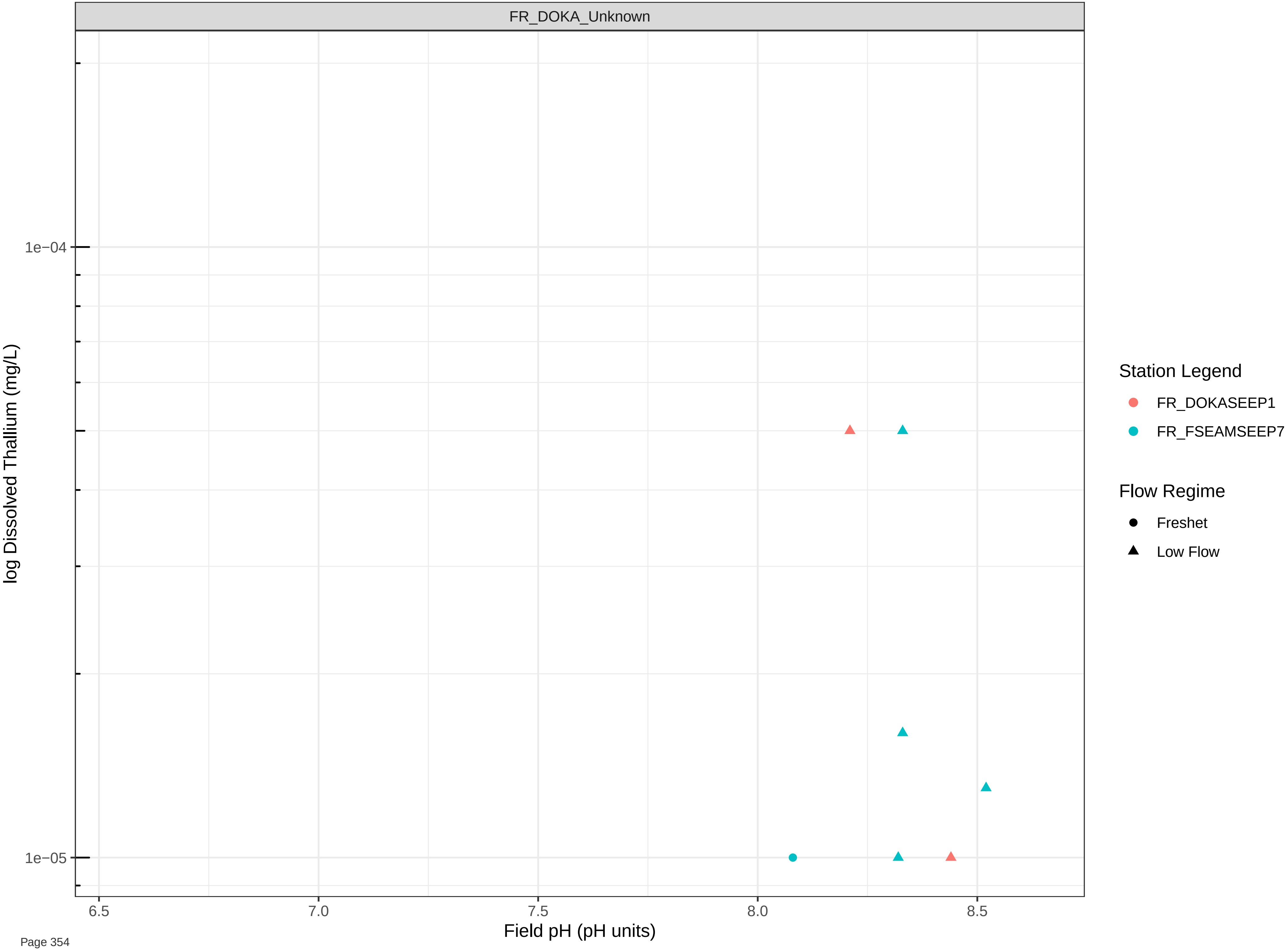

FR_TurnbullWREast_WR
1
0.1
log Dissolved Strontium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FCSEEP2
● FR_TURNSEEP1
Flow Regime
● Freshet
▲ Low Flow

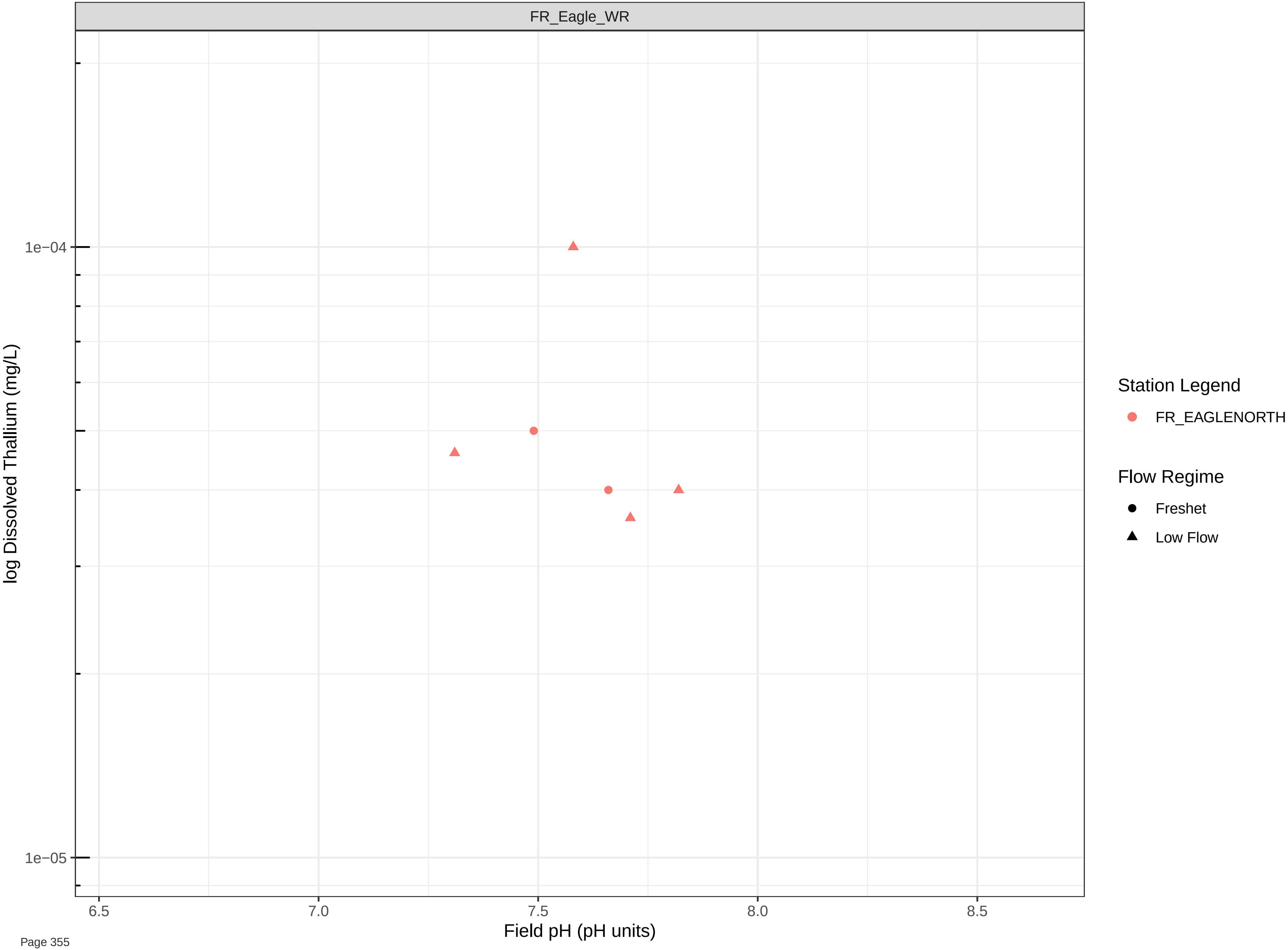

FR_TurnbullWRWest_WR
log Dissolved Strontium (mg/L)
1
0.1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

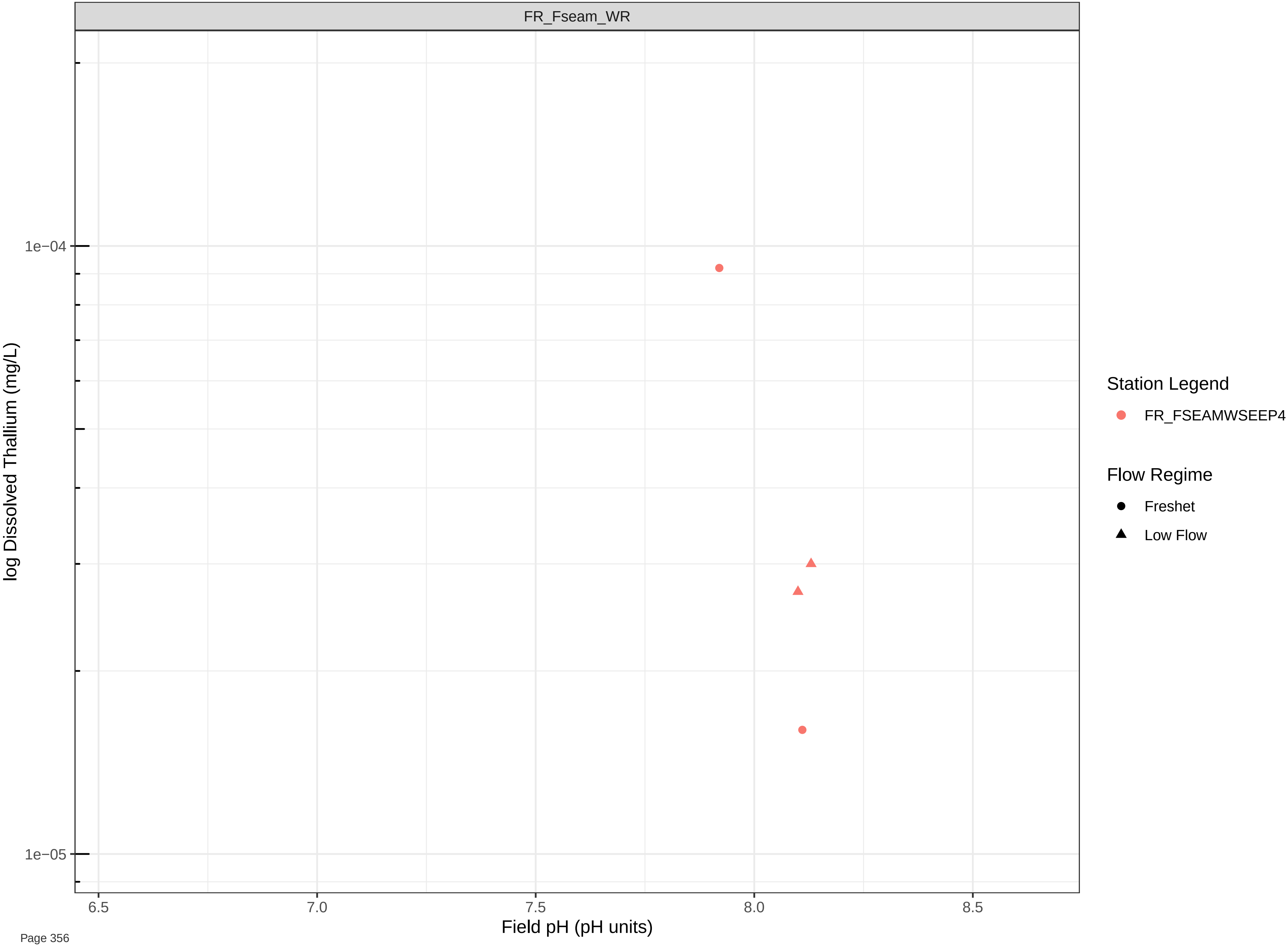

FR_A_WR
log Dissolved Thallium (mg/L)
1e−04
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

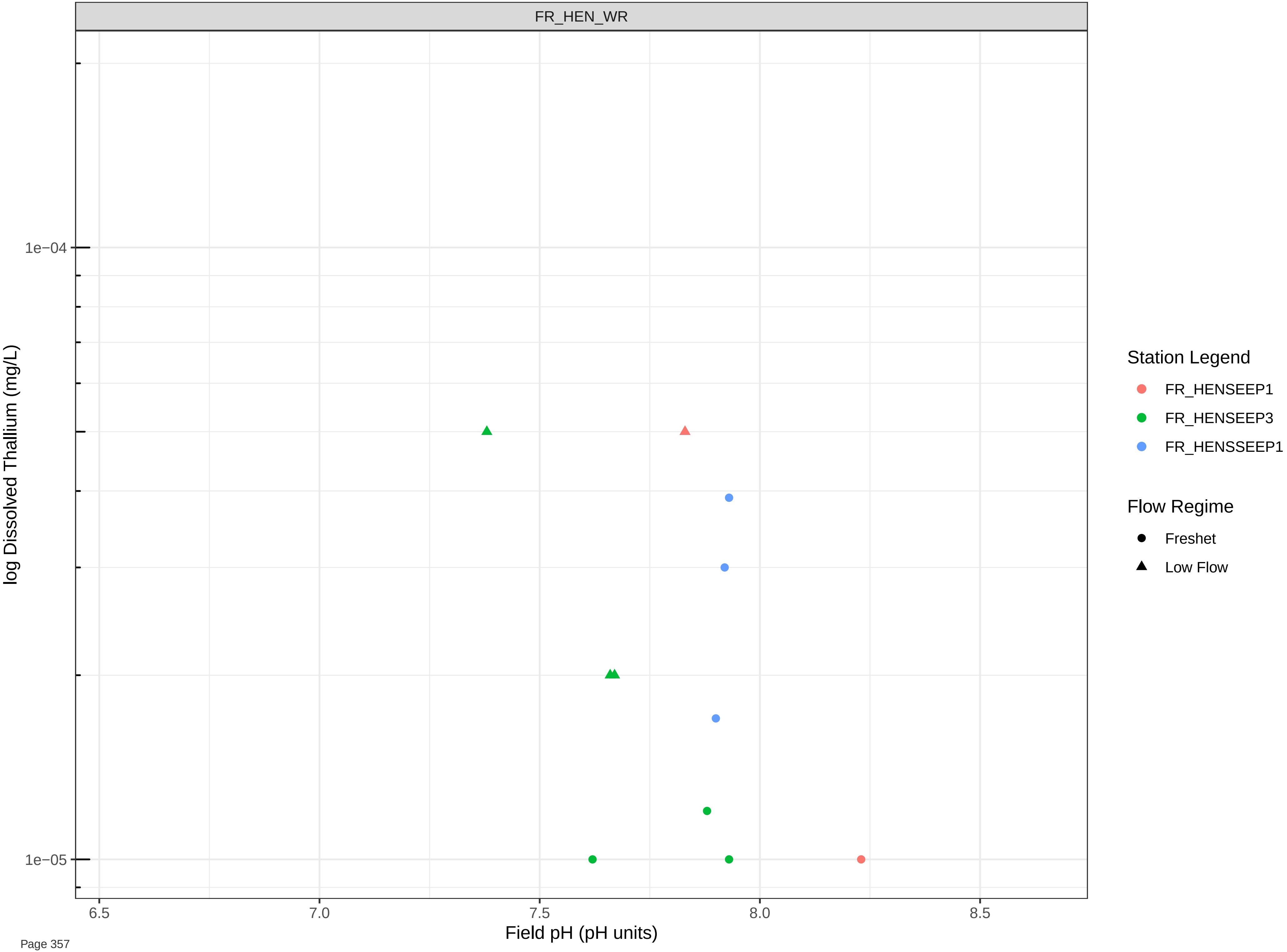

FR_Blain_CCR
log Dissolved Thallium (mg/L)
1e−04
1e−05
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

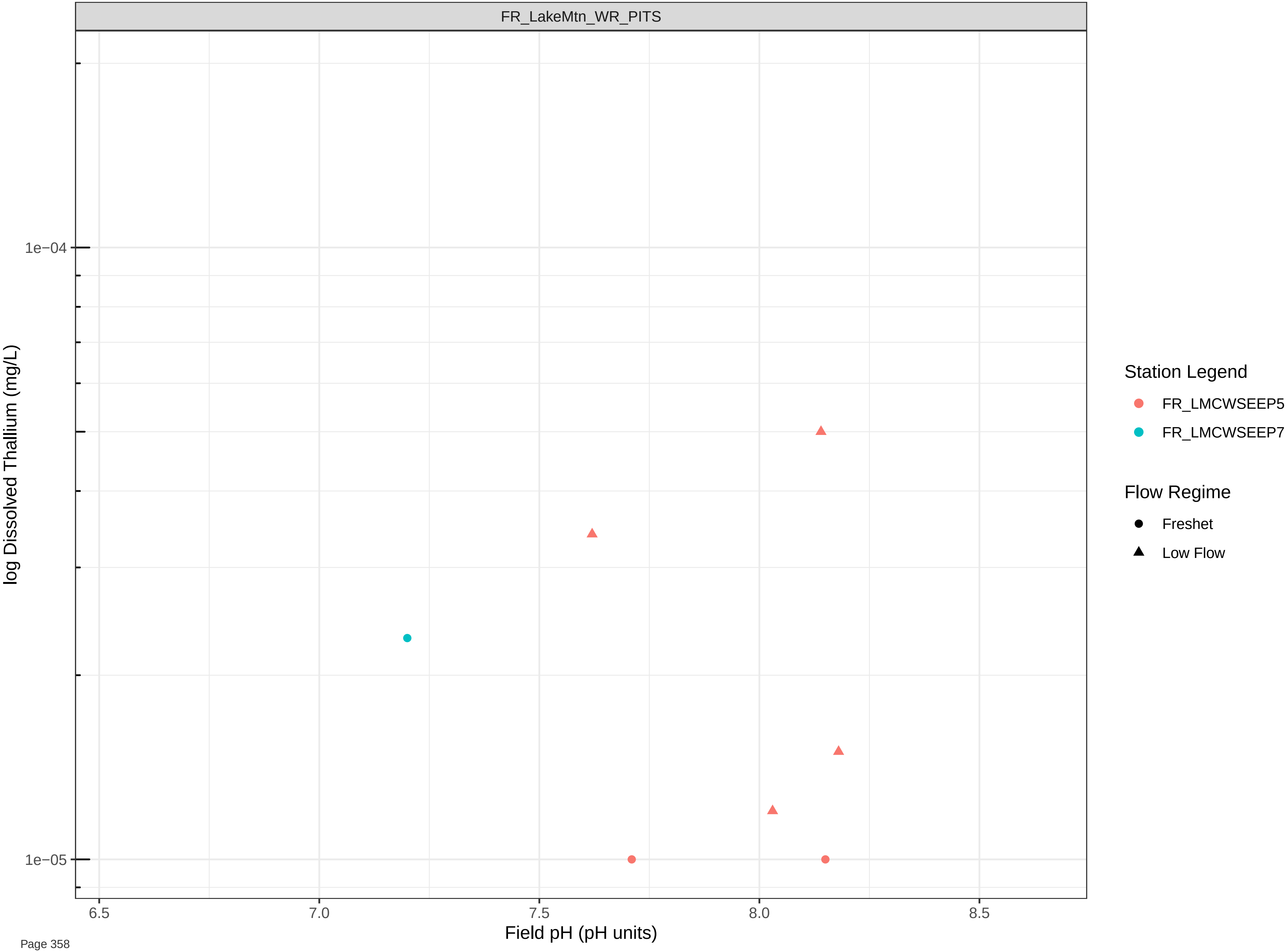

FR_ClodeCr_WR
log Dissolved Thallium (mg/L)
1e−04
1e−05
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

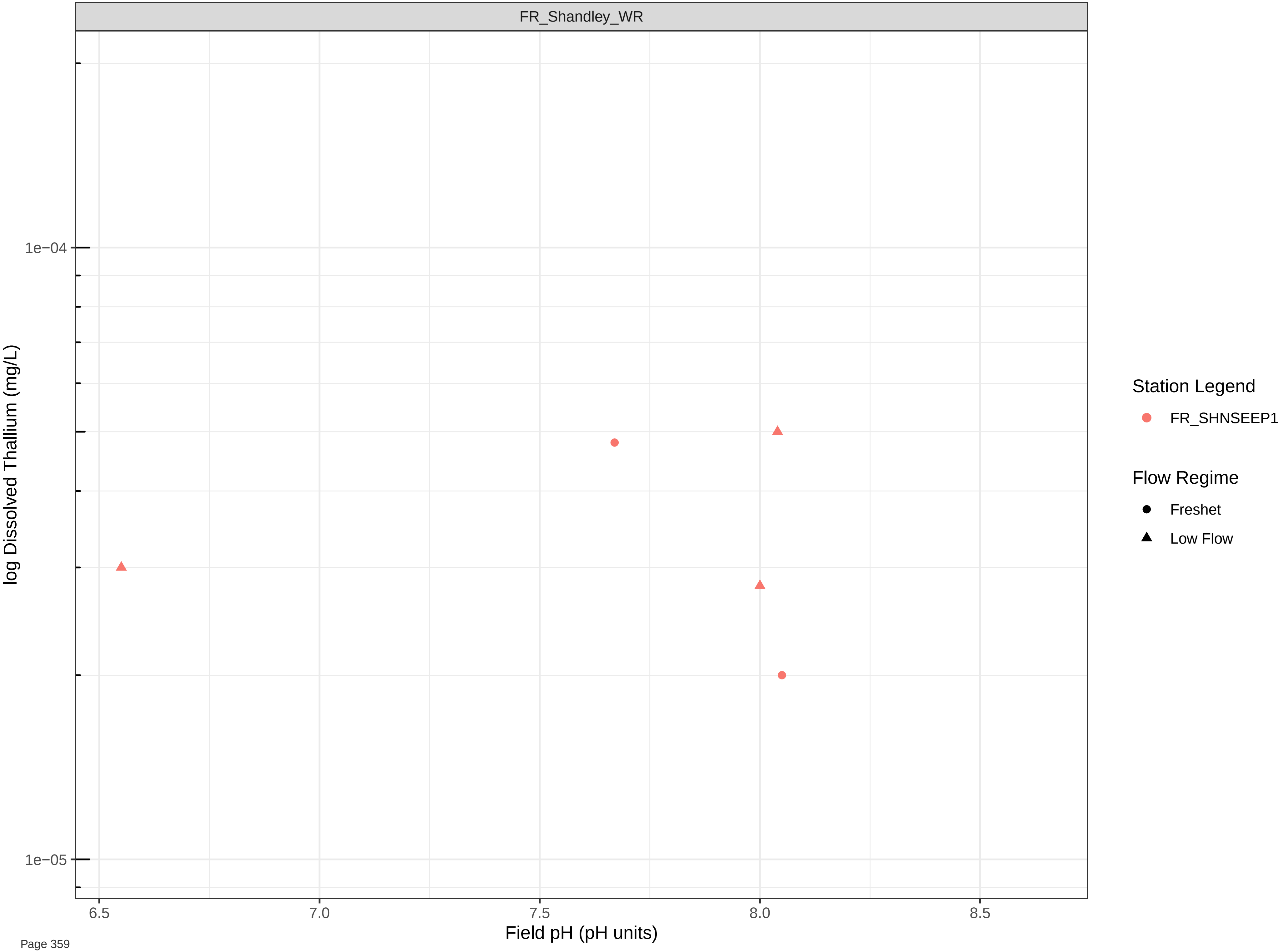

FR_DOKA_Unknown
log Dissolved Thallium (mg/L)
1e−04
1e−05
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

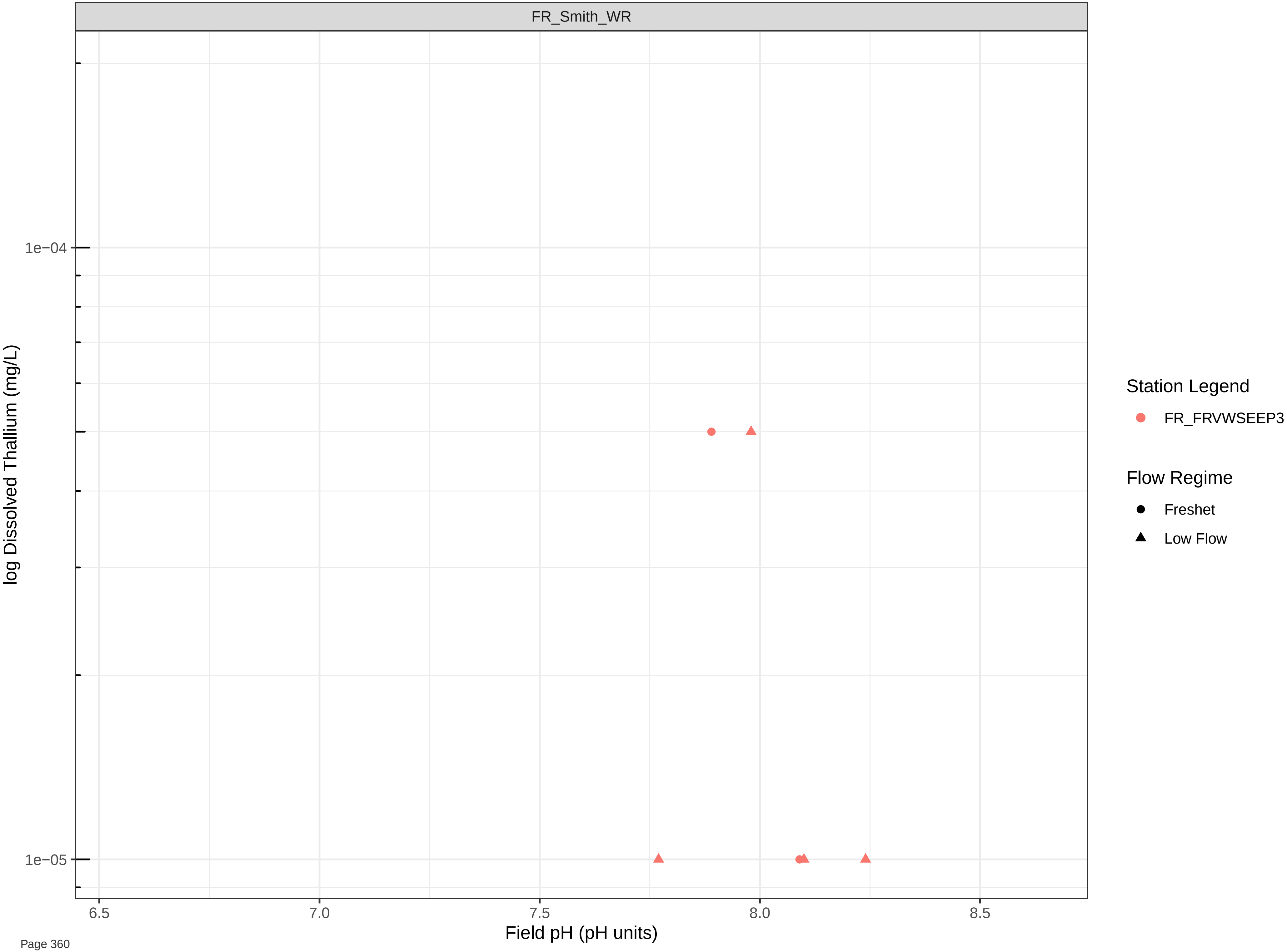

FR_Eagle_WR
log Dissolved Thallium (mg/L)
1e−04
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

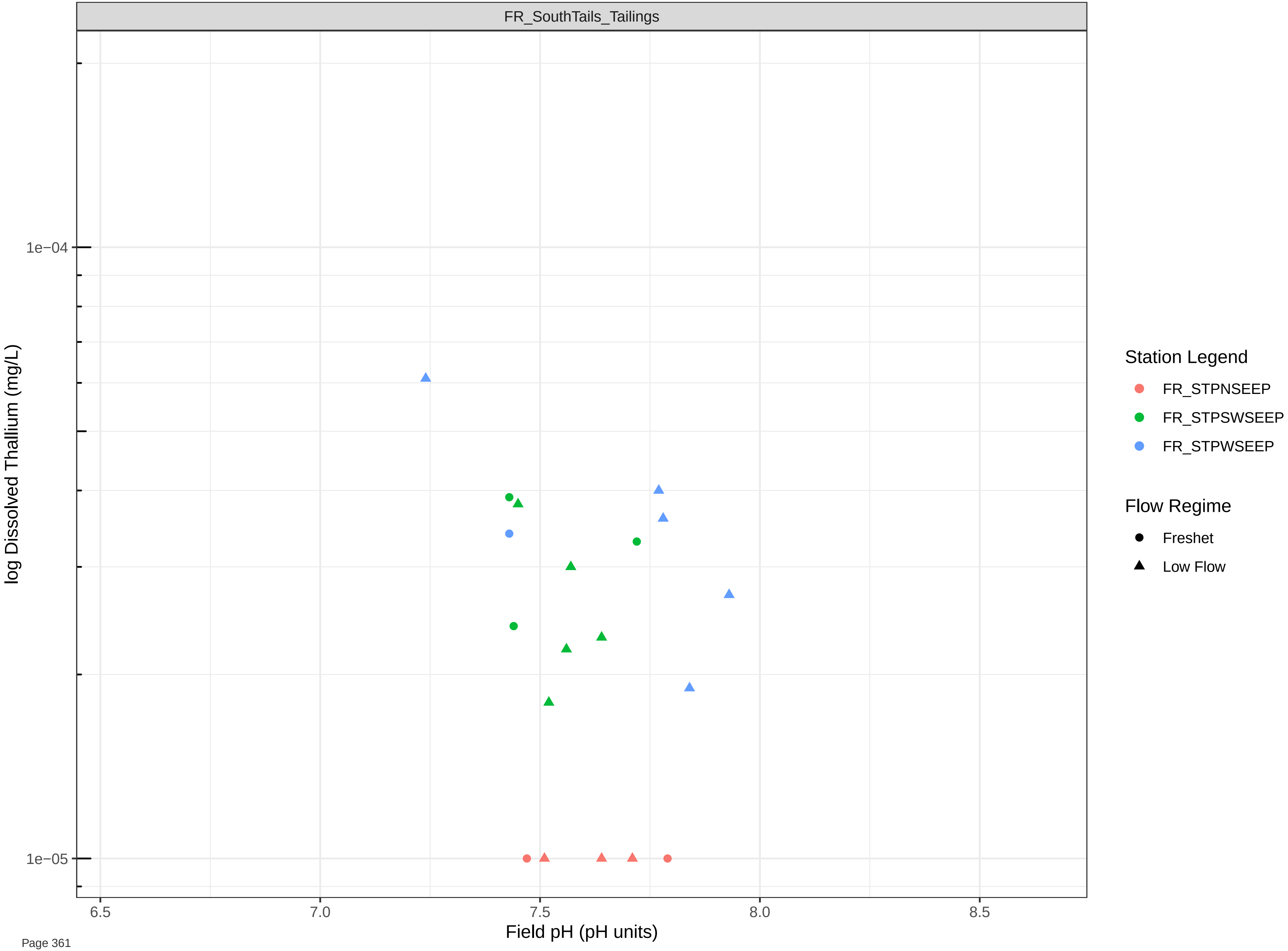

FR_Fseam_WR
log Dissolved Thallium (mg/L)
1e−04
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

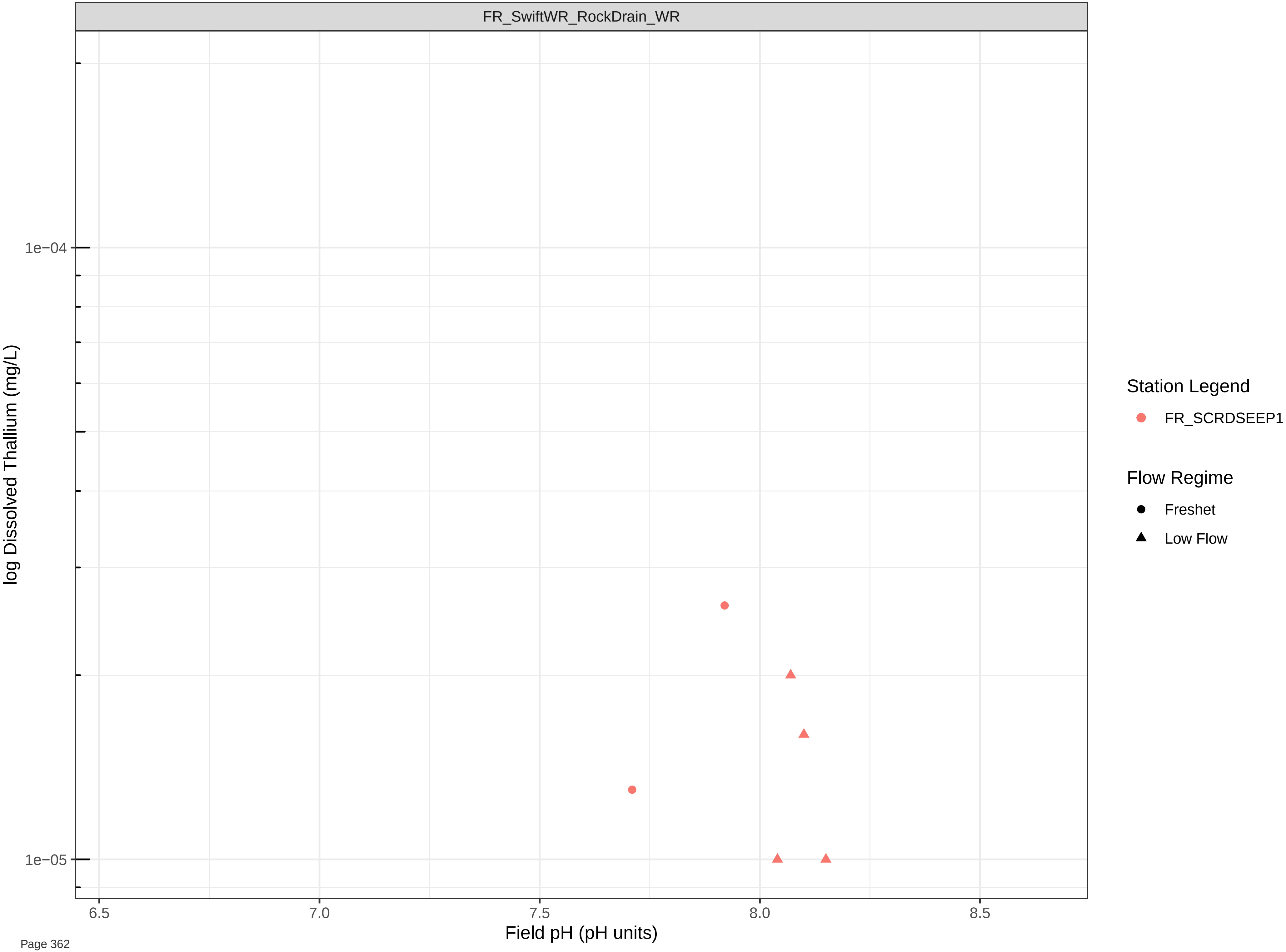

FR_HEN_WR
log Dissolved Thallium (mg/L)
1e−04
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

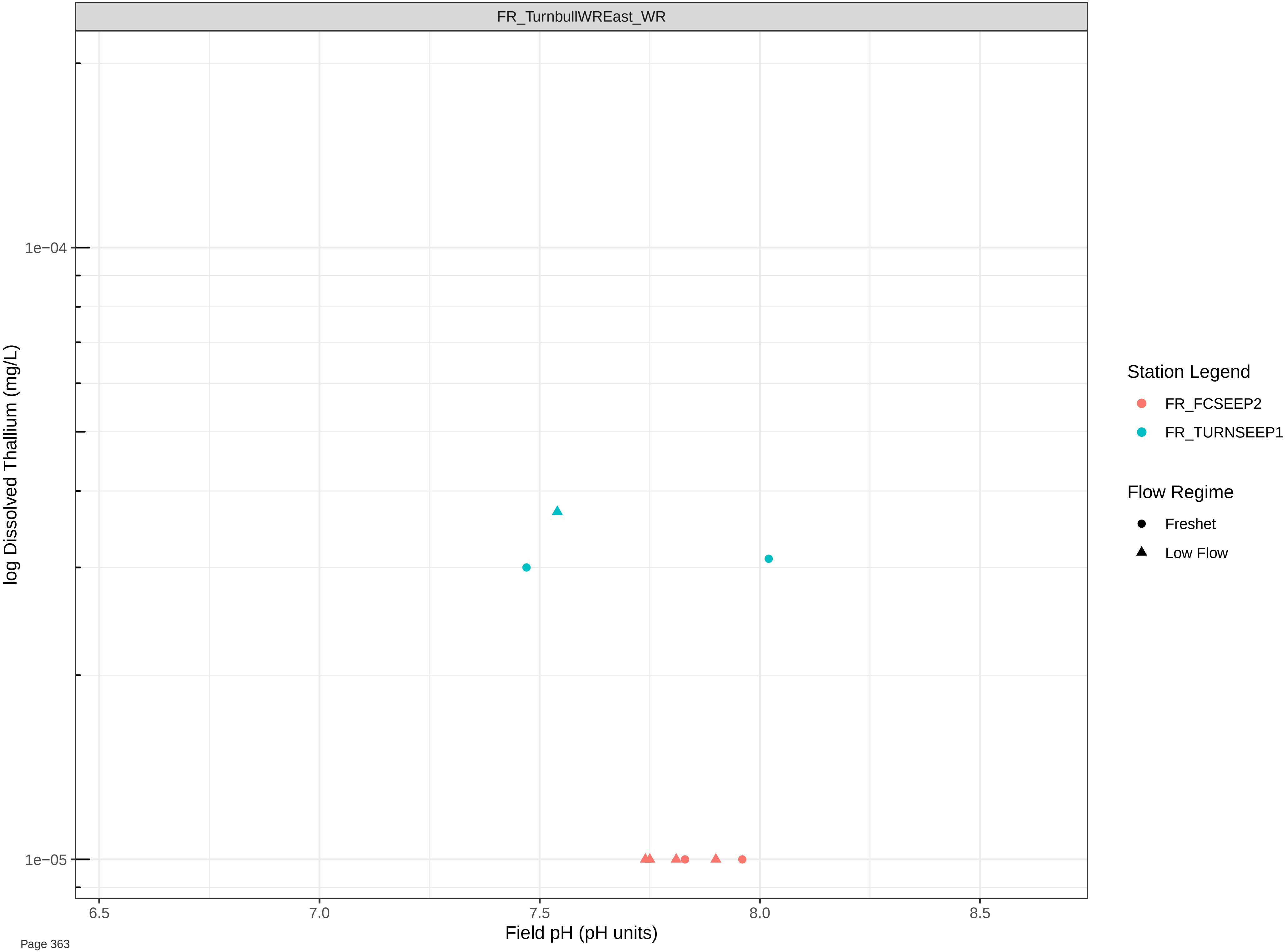

FR_LakeMtn_WR_PITS
log Dissolved Thallium (mg/L)
1e−04
1e−05
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

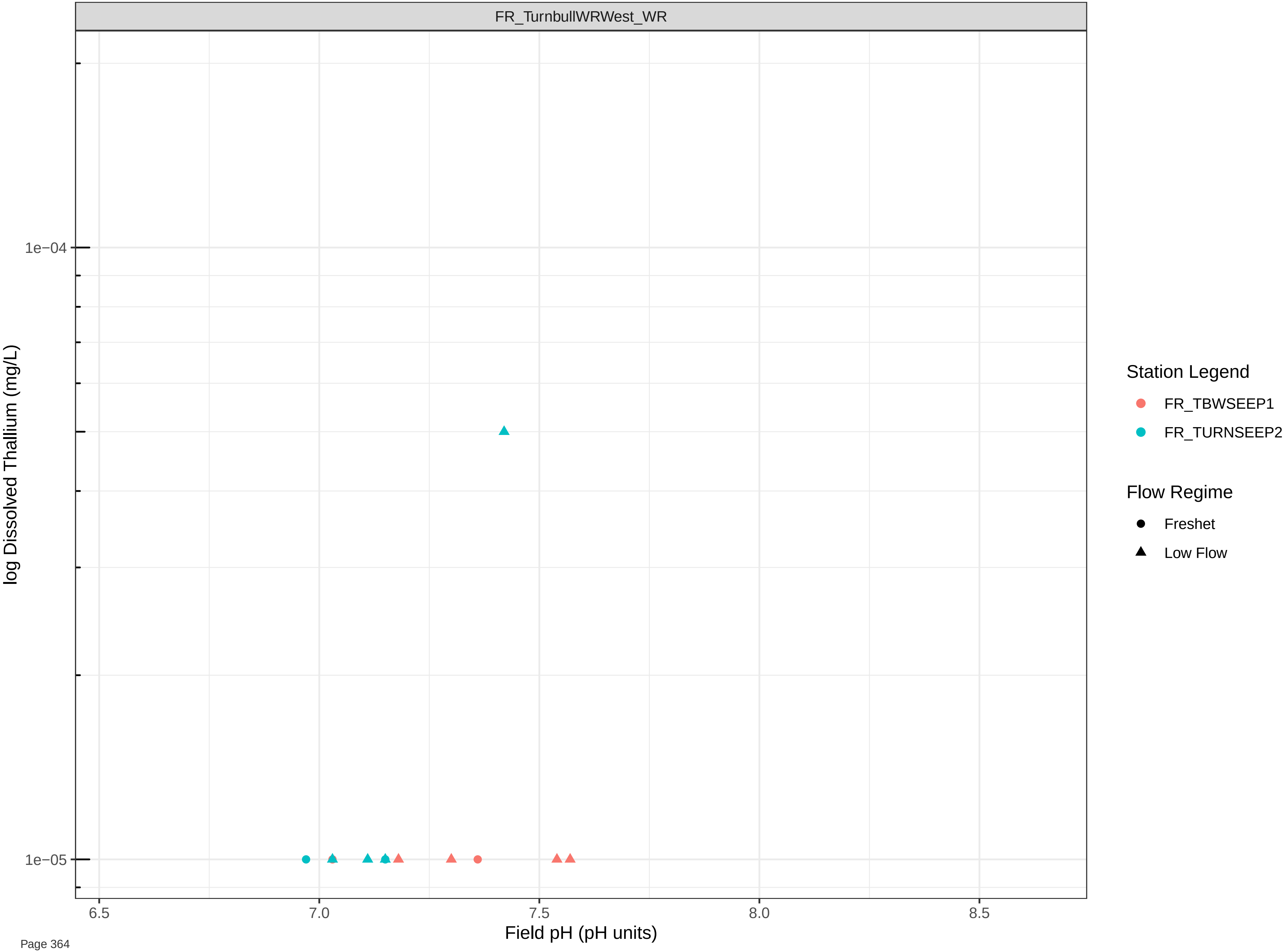

FR_Shandley_WR
log Dissolved Thallium (mg/L)
1e−04
1e−05
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

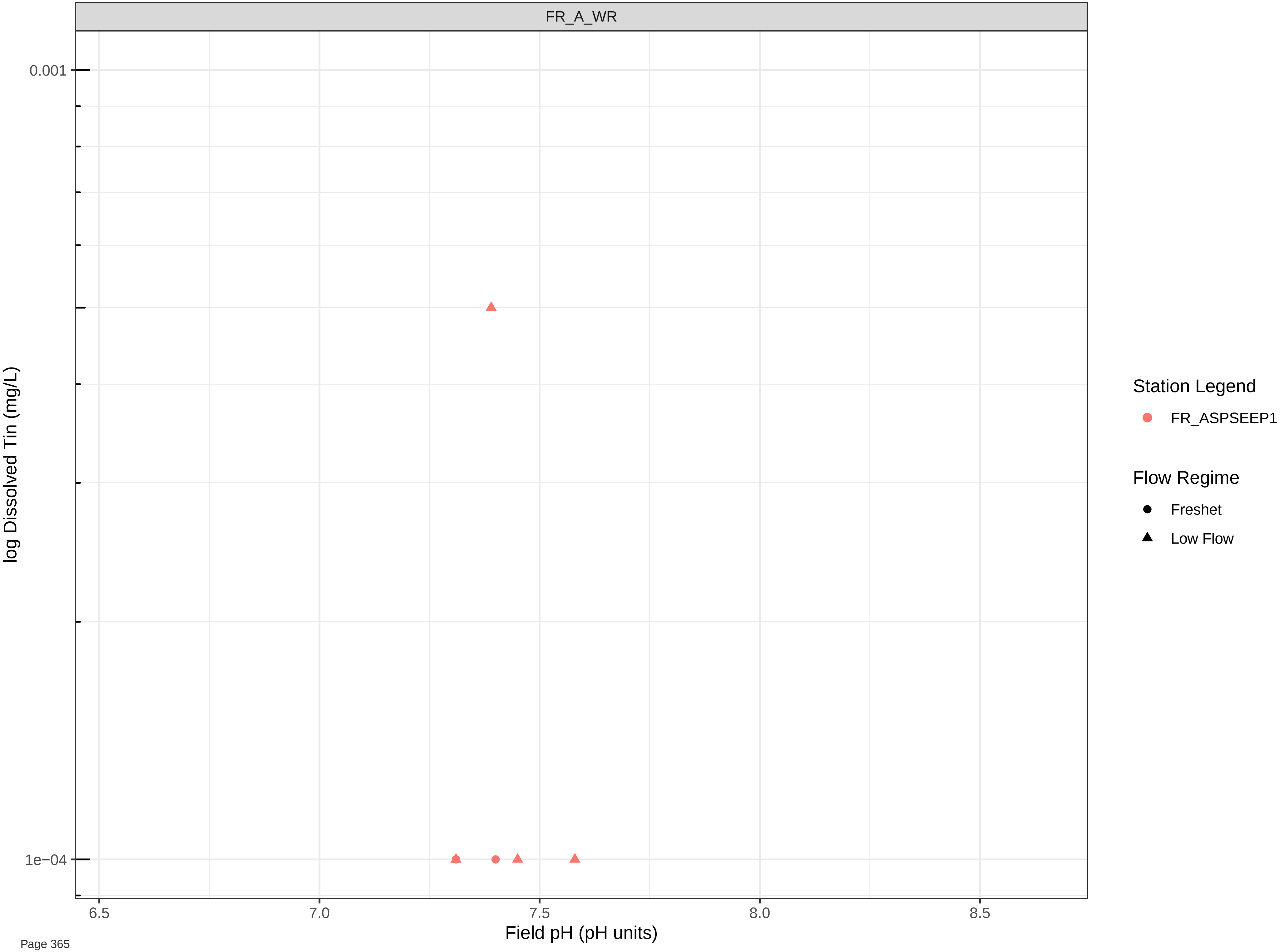

FR_Smith_WR
log Dissolved Thallium (mg/L)
1e−04
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

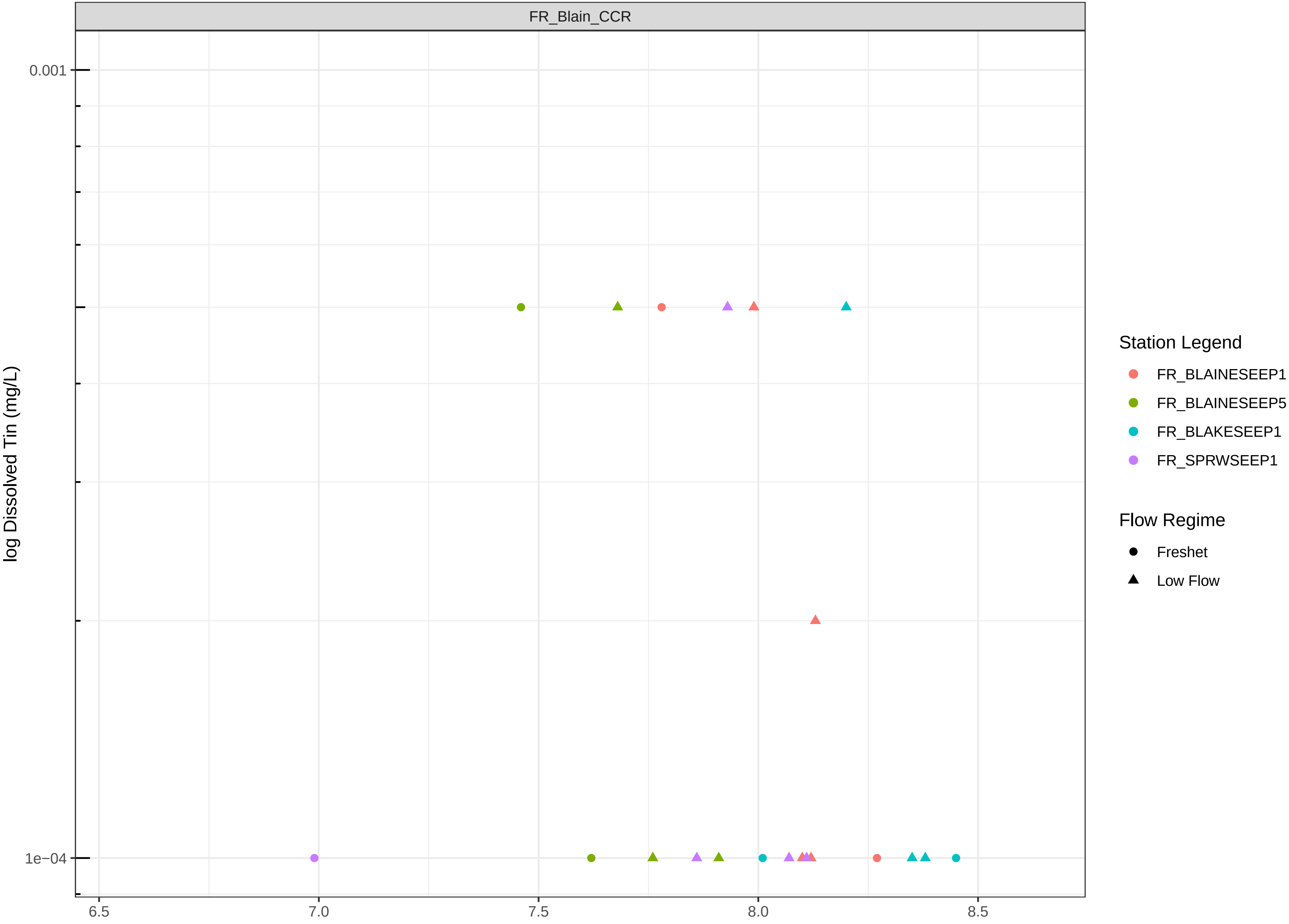

FR_SouthTails_Tailings
log Dissolved Thallium (mg/L)
1e−04
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

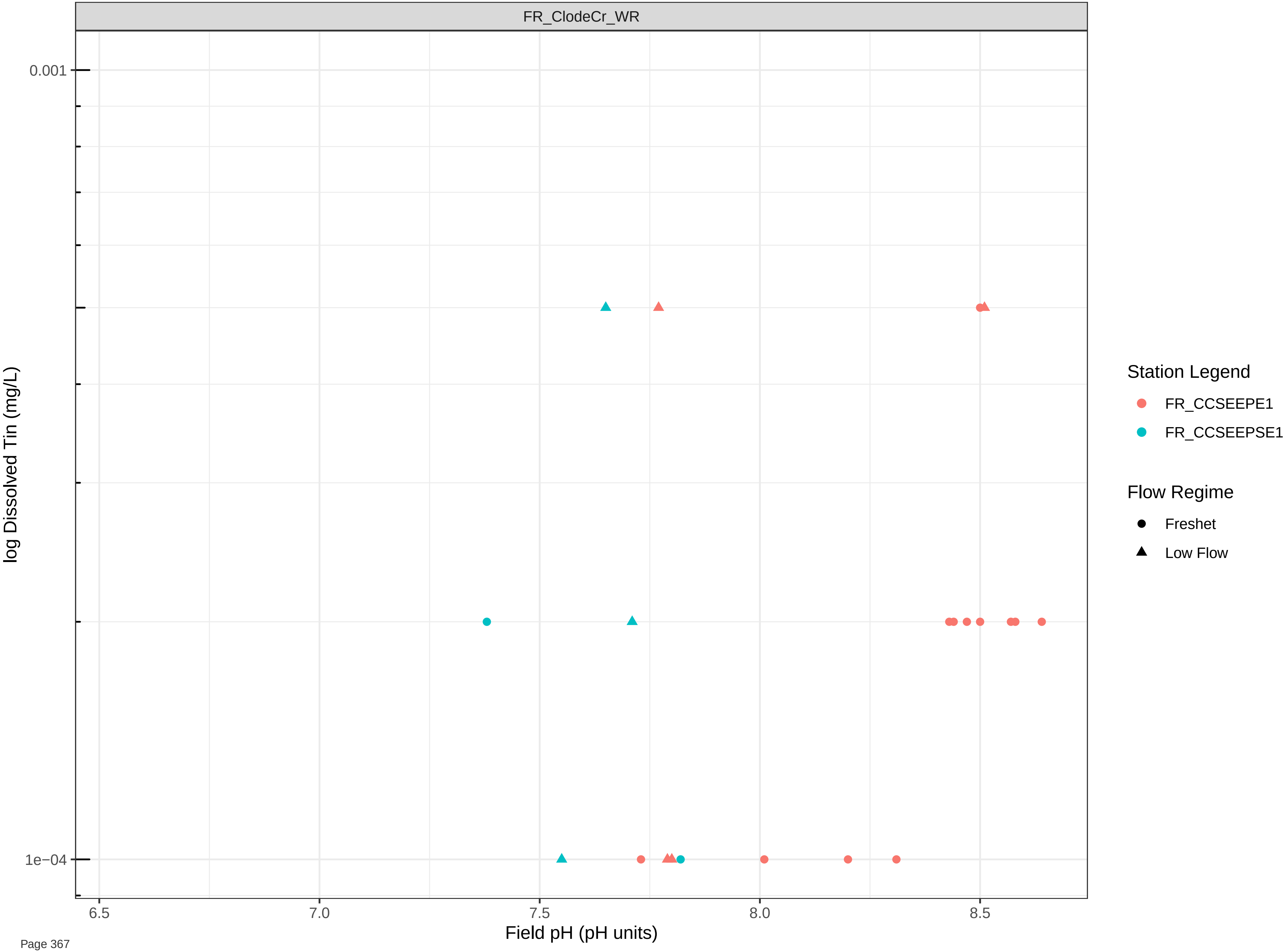

FR_SwiftWR_RockDrain_WR
log Dissolved Thallium (mg/L)
1e−04
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

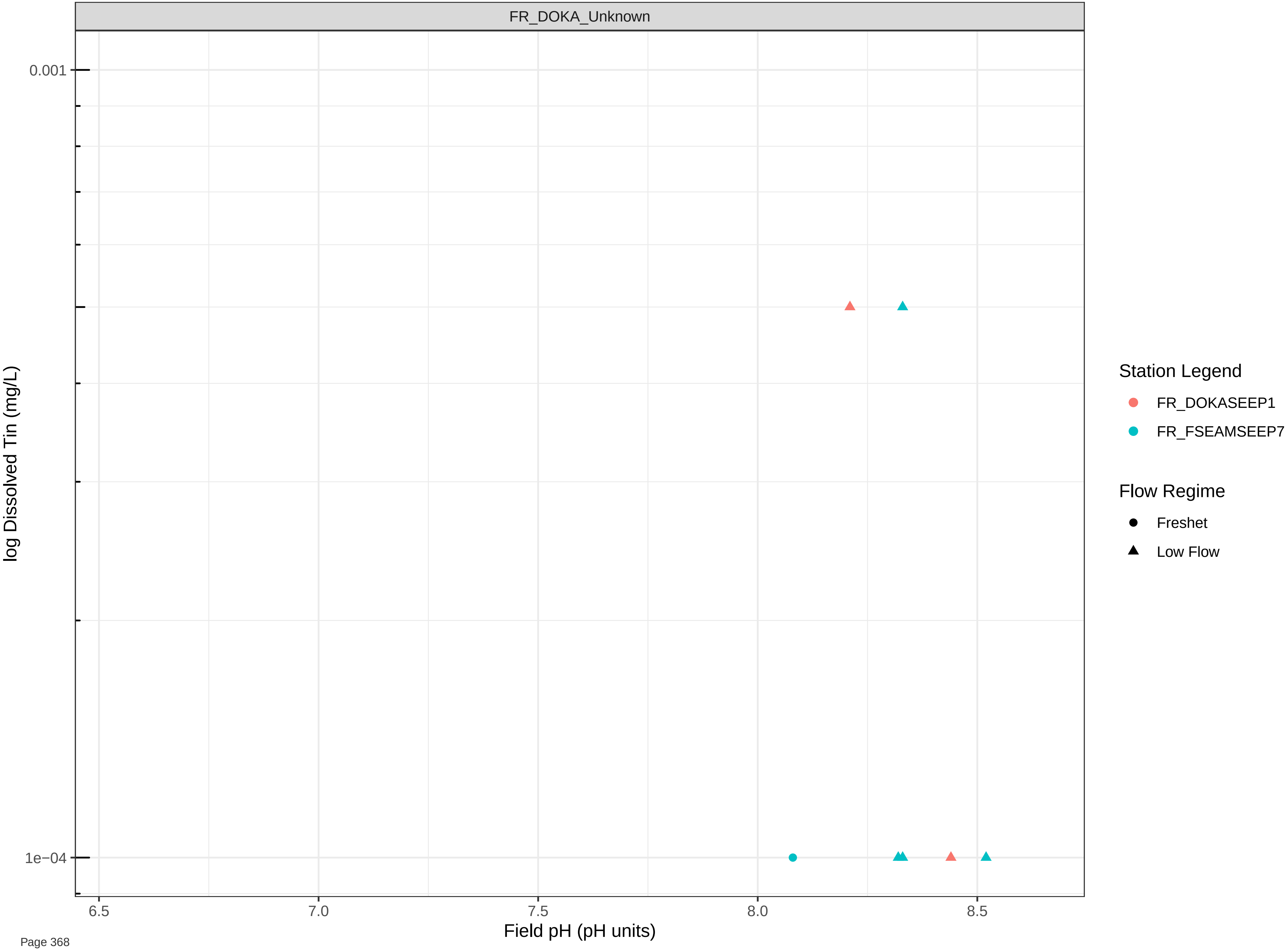

FR_TurnbullWREast_WR
log Dissolved Thallium (mg/L)
1e−04
1e−05
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

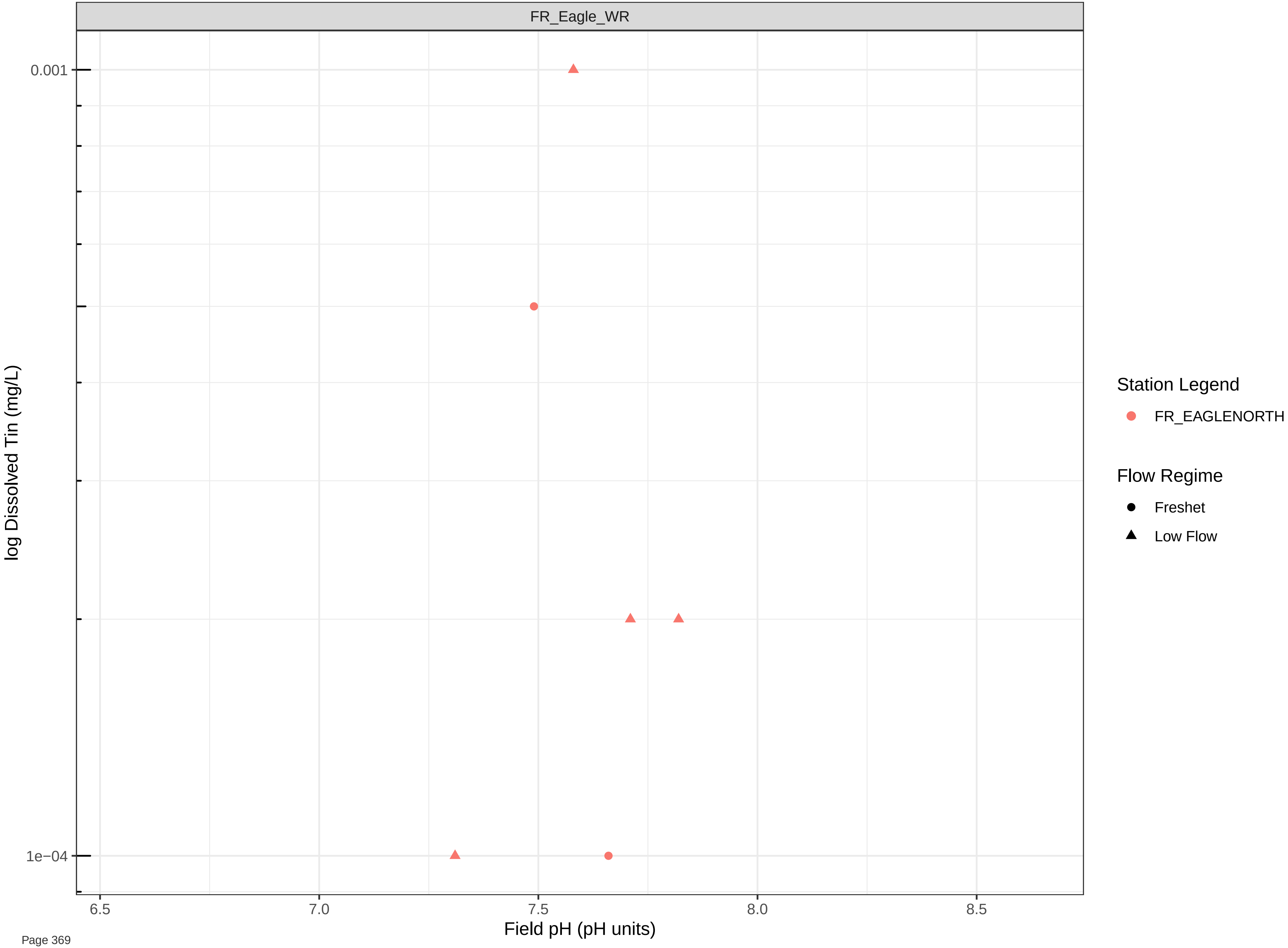

FR_TurnbullWRWest_WR
log Dissolved Thallium (mg/L)
1e−04
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

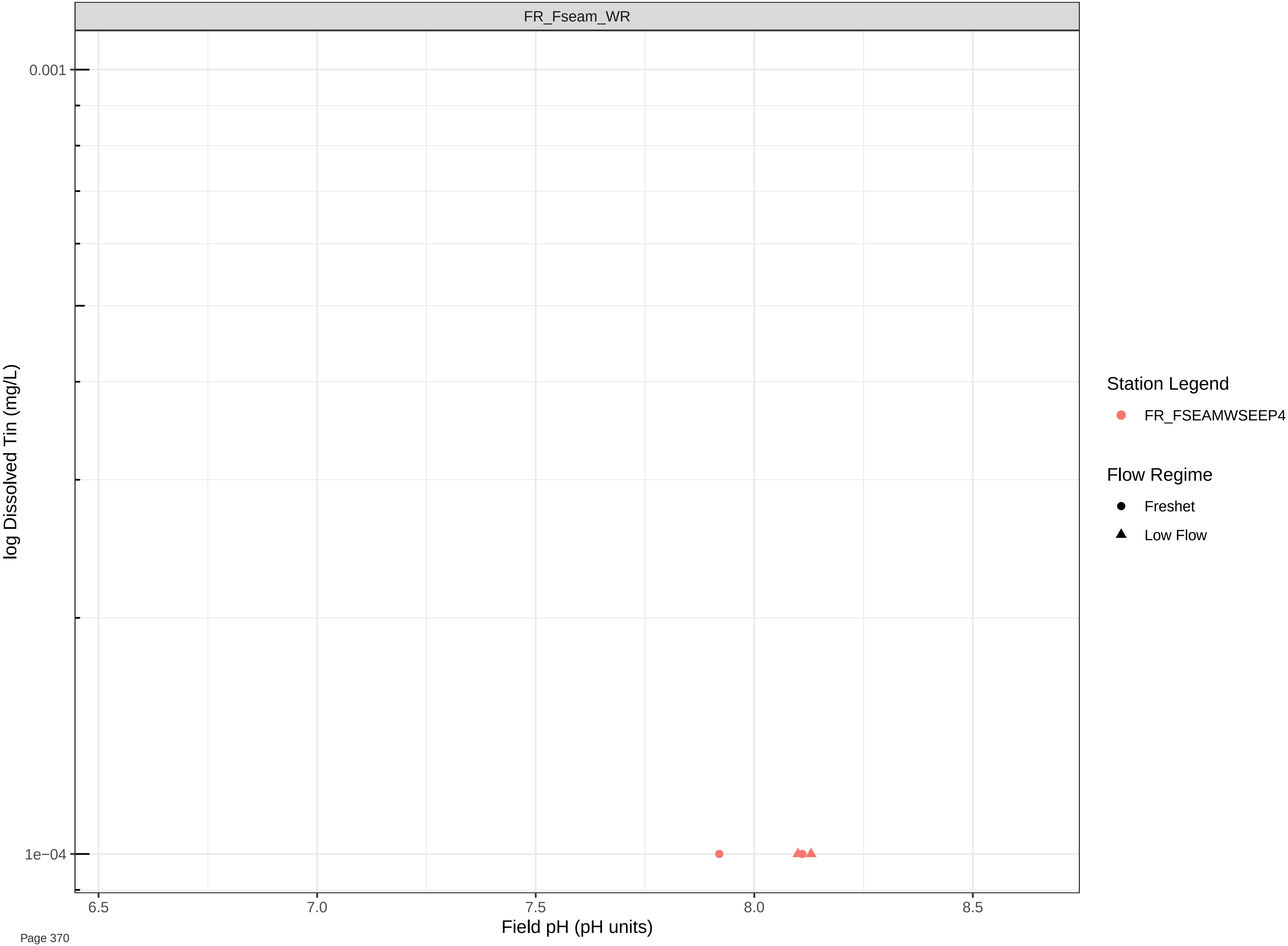

FR_A_WR
0.001
1e−04
log Dissolved Tin (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

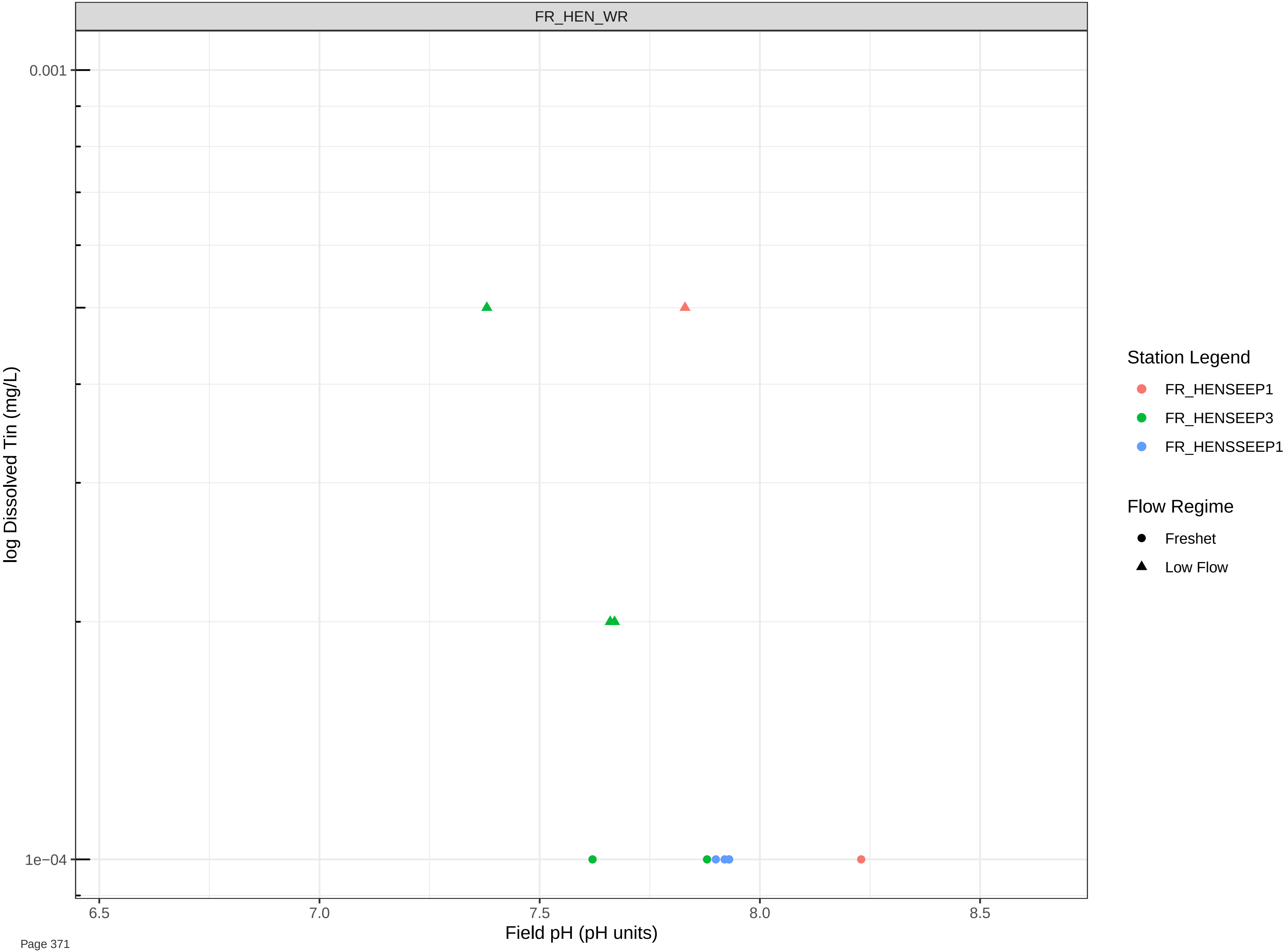

FR_Blain_CCR
0.001
1e−04
log Dissolved Tin (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

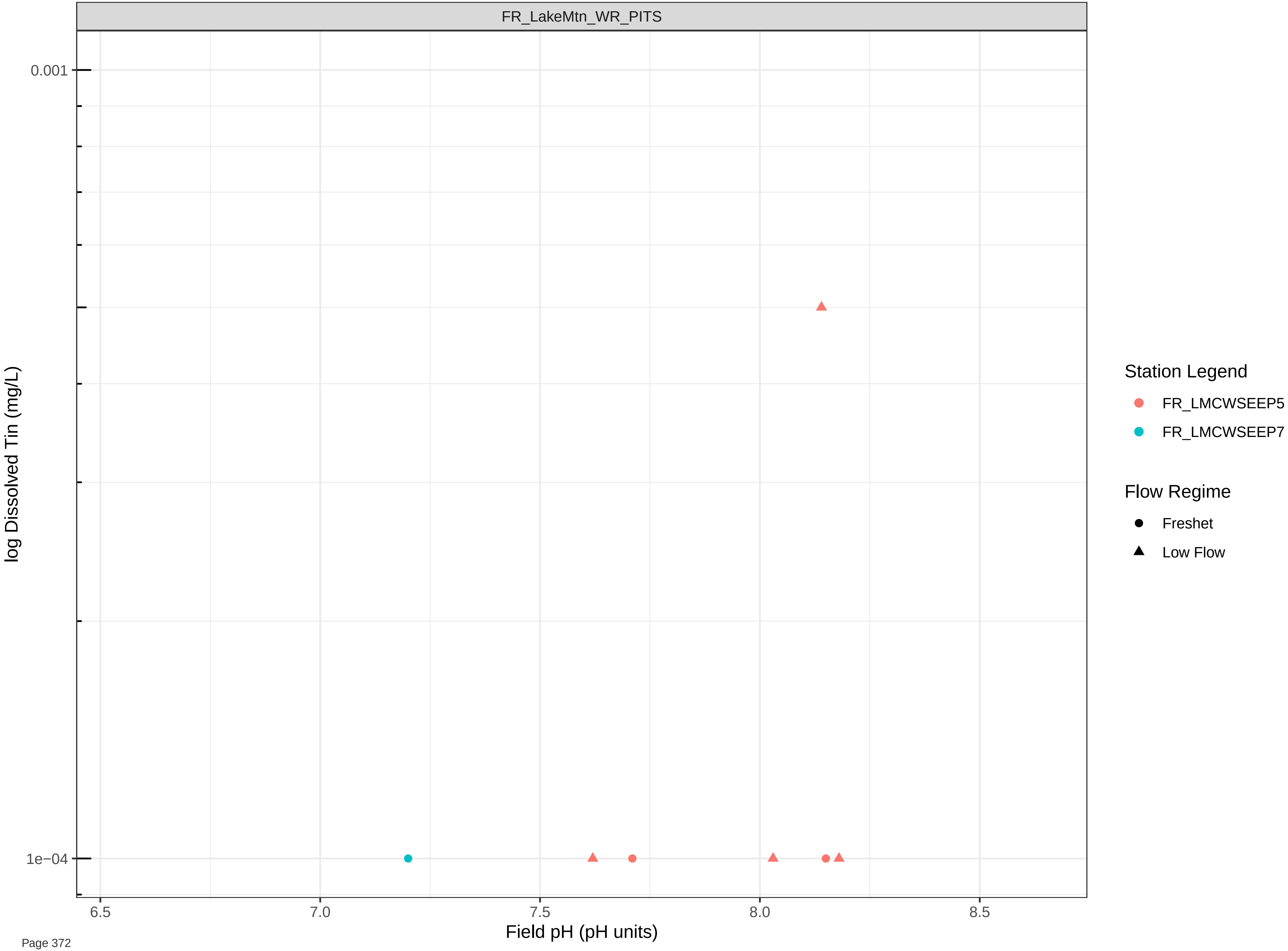

FR_ClodeCr_WR
0.001
1e−04
log Dissolved Tin (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

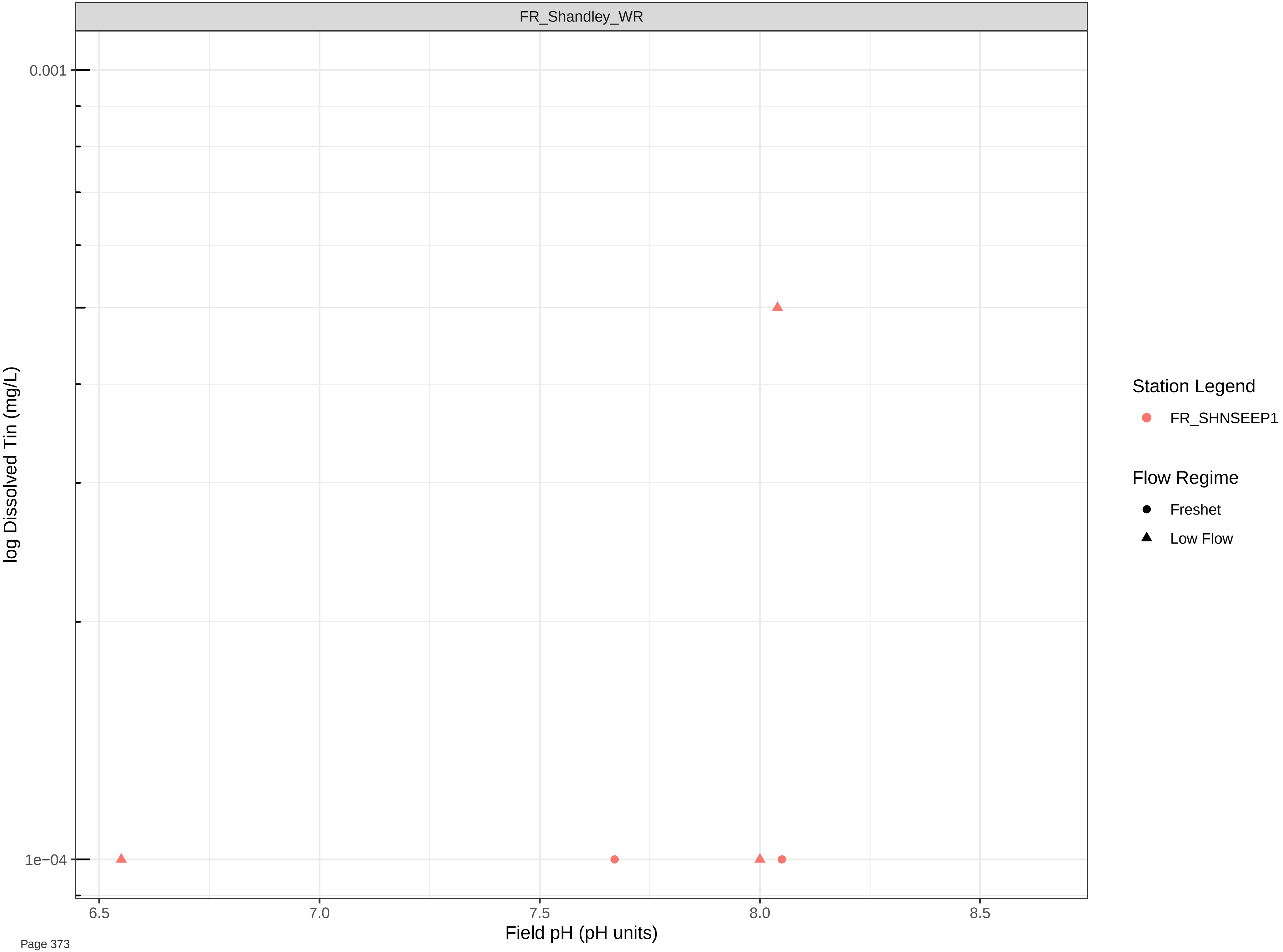

FR_DOKA_Unknown
0.001
1e−04
log Dissolved Tin (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

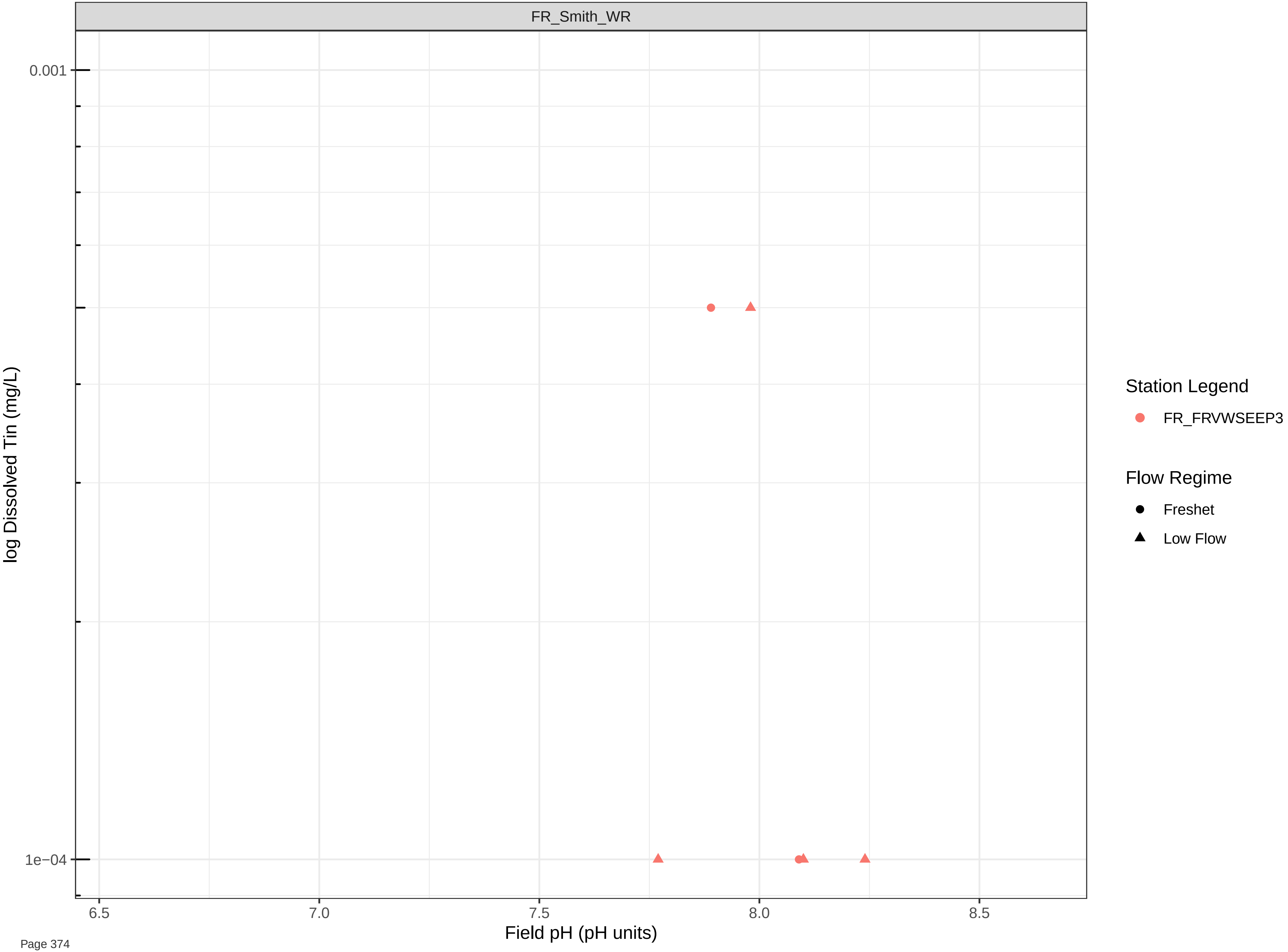

FR_Eagle_WR
0.001
1e−04
log Dissolved Tin (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

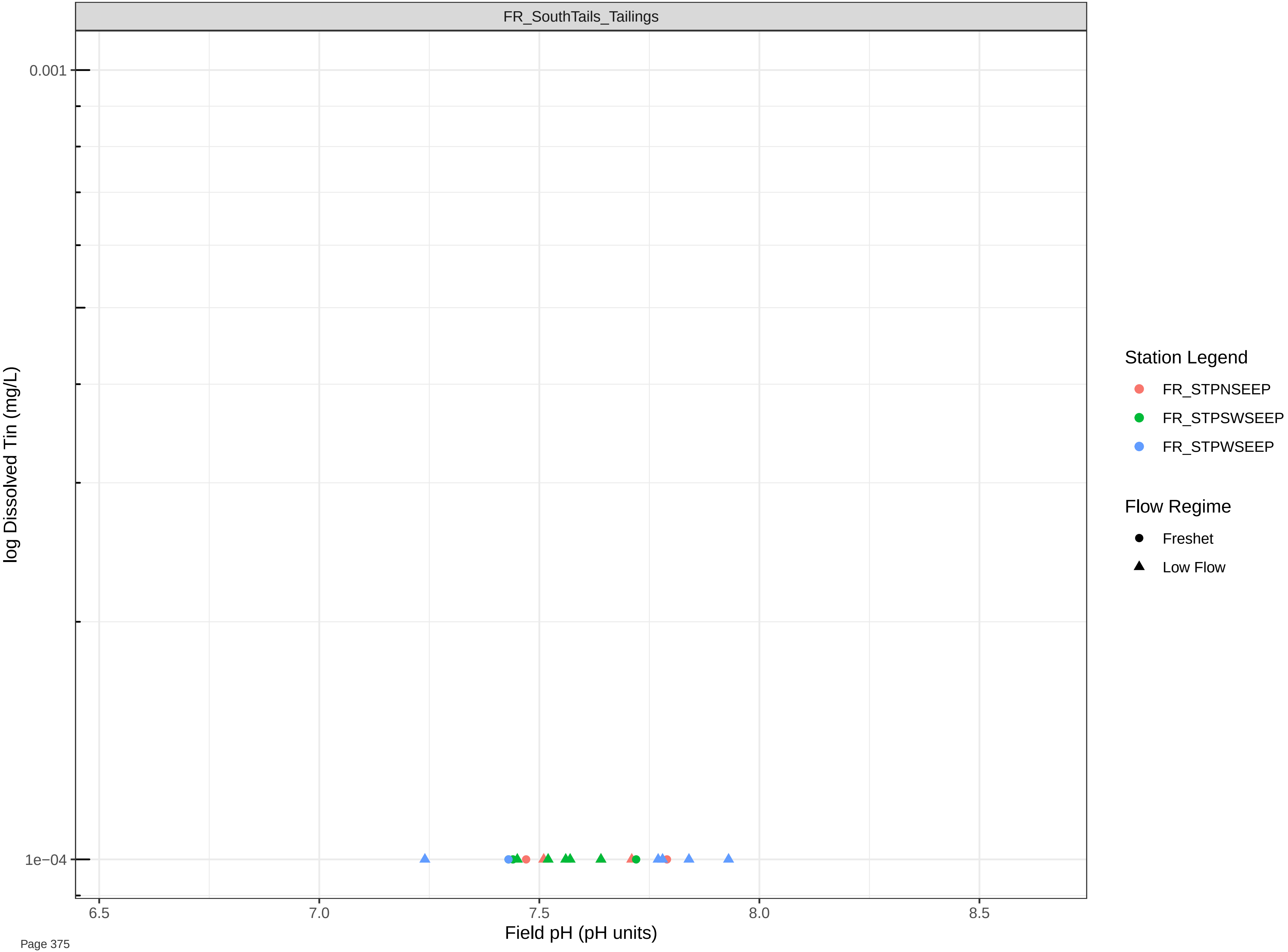

FR_Fseam_WR
0.001
1e−04
log Dissolved Tin (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

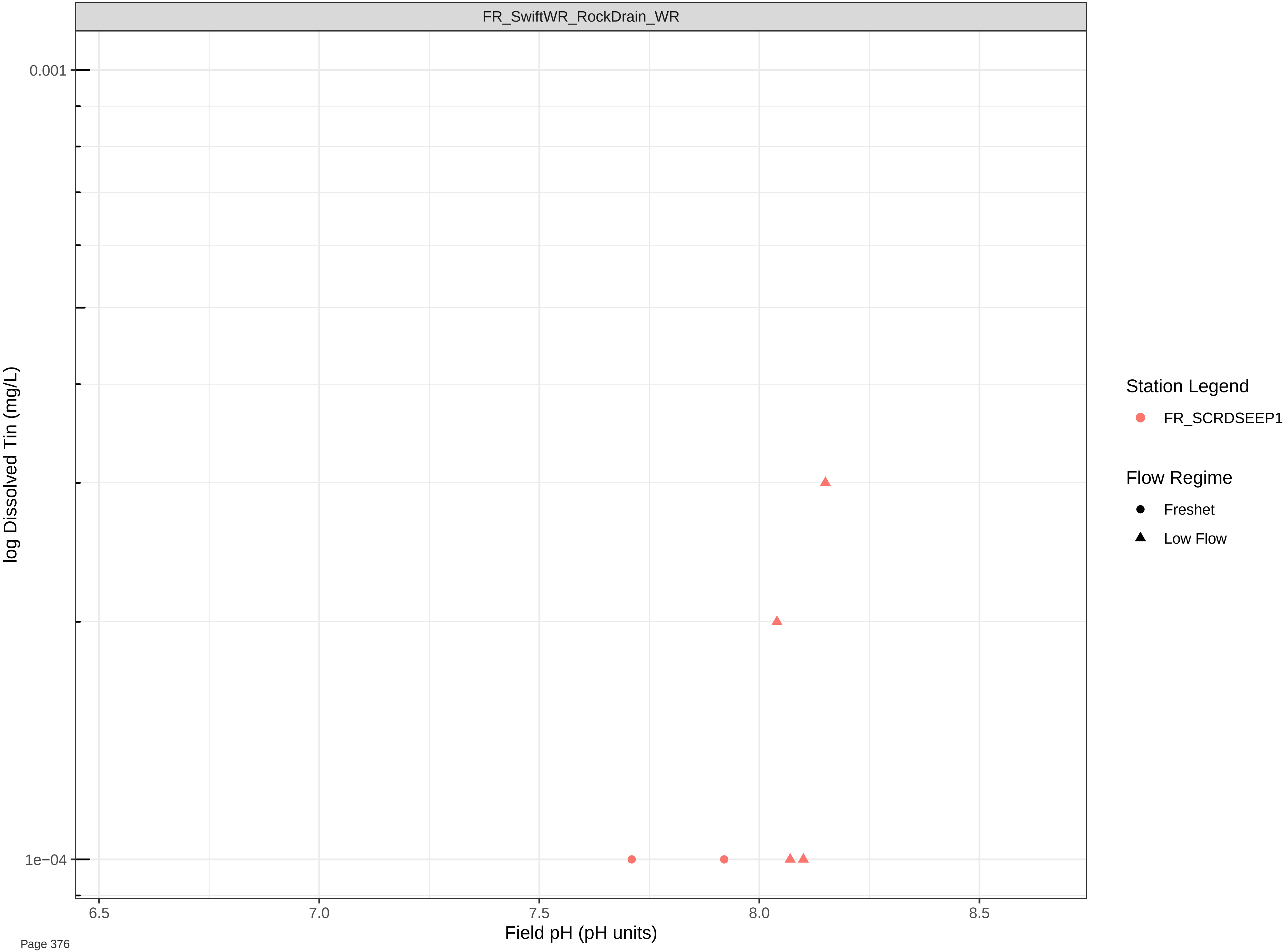

FR_HEN_WR
0.001
1e−04
log Dissolved Tin (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

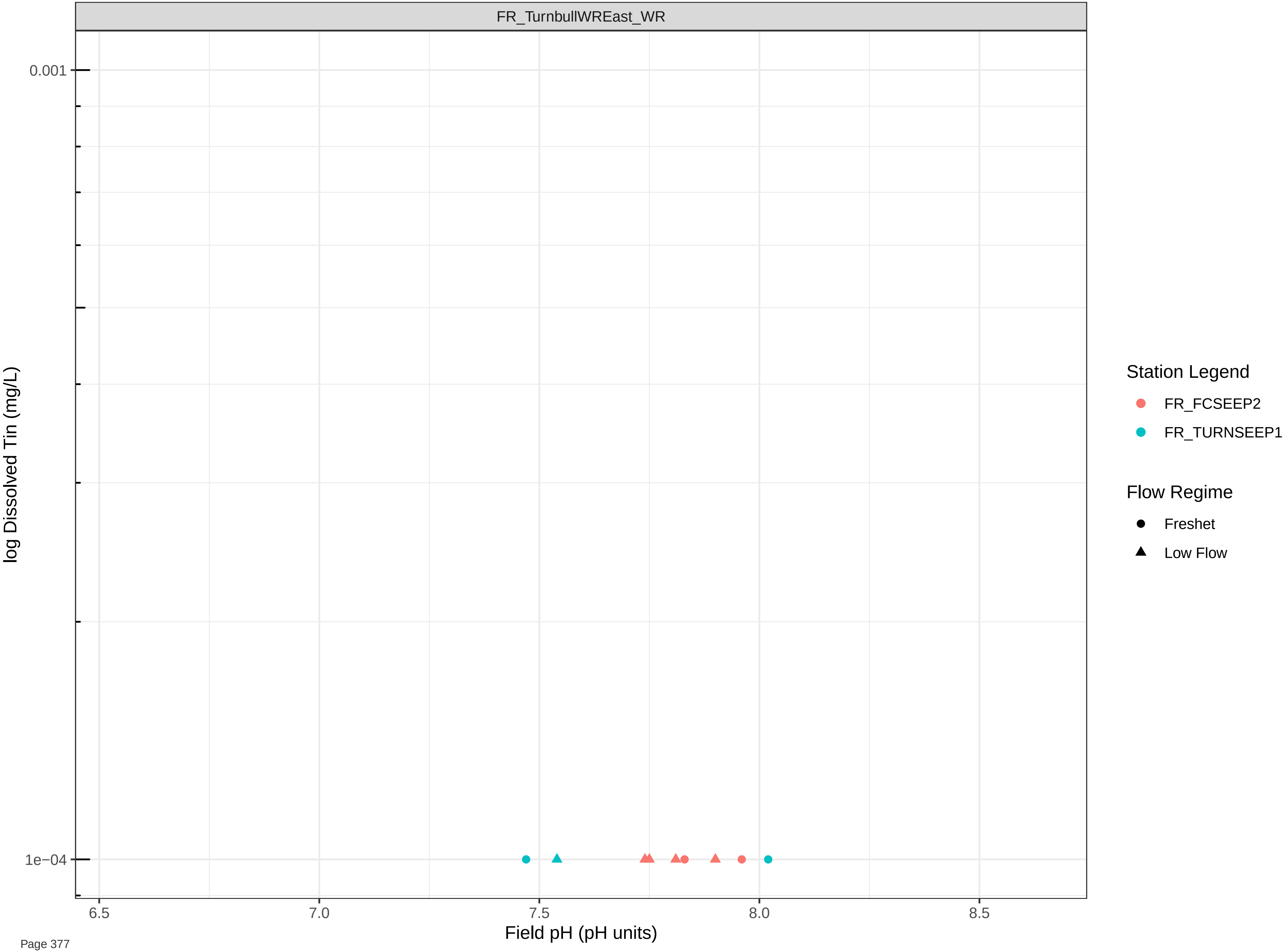

FR_LakeMtn_WR_PITS
0.001
1e−04
log Dissolved Tin (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

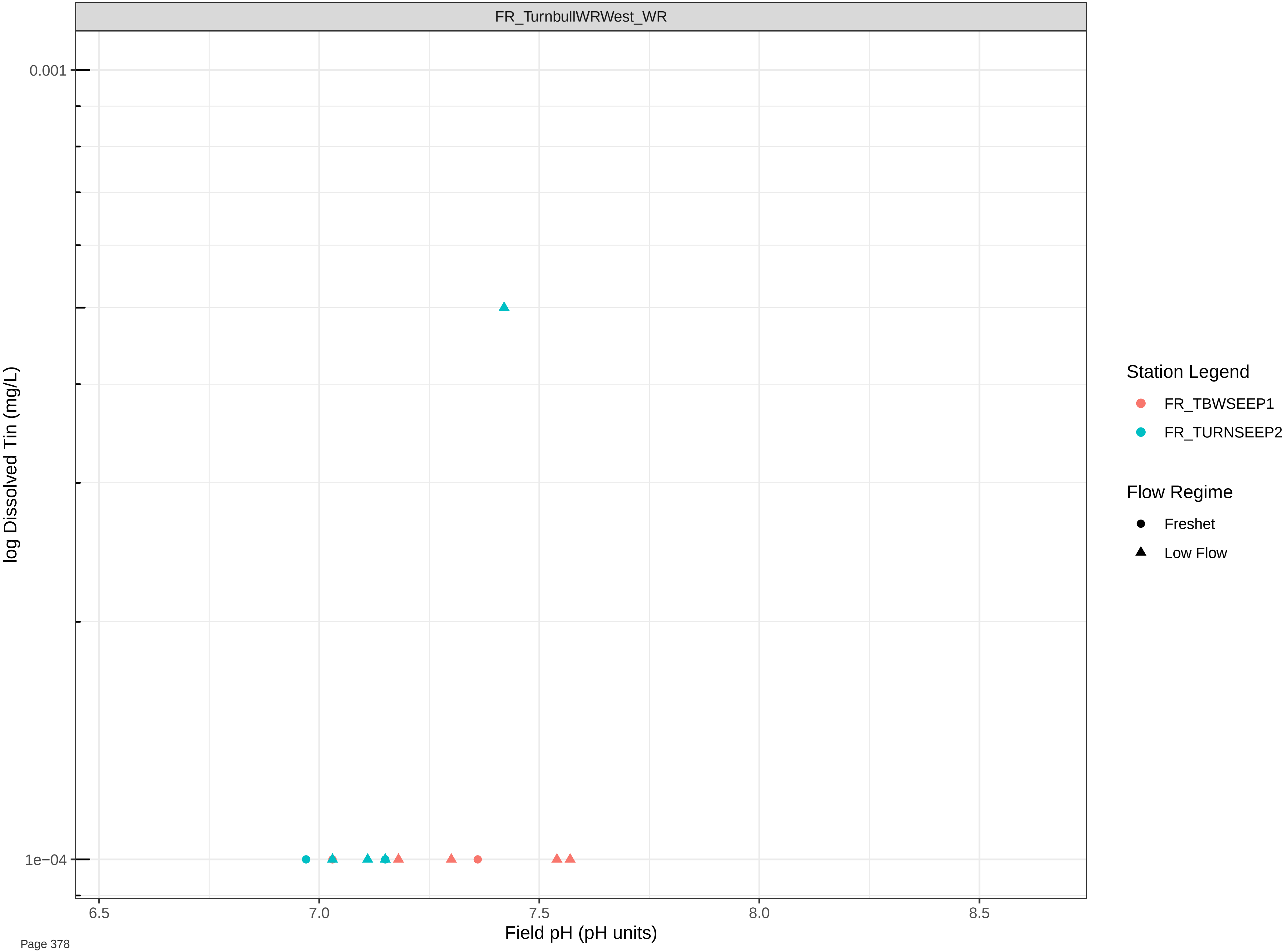

FR_Shandley_WR
0.001
1e−04
log Dissolved Tin (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

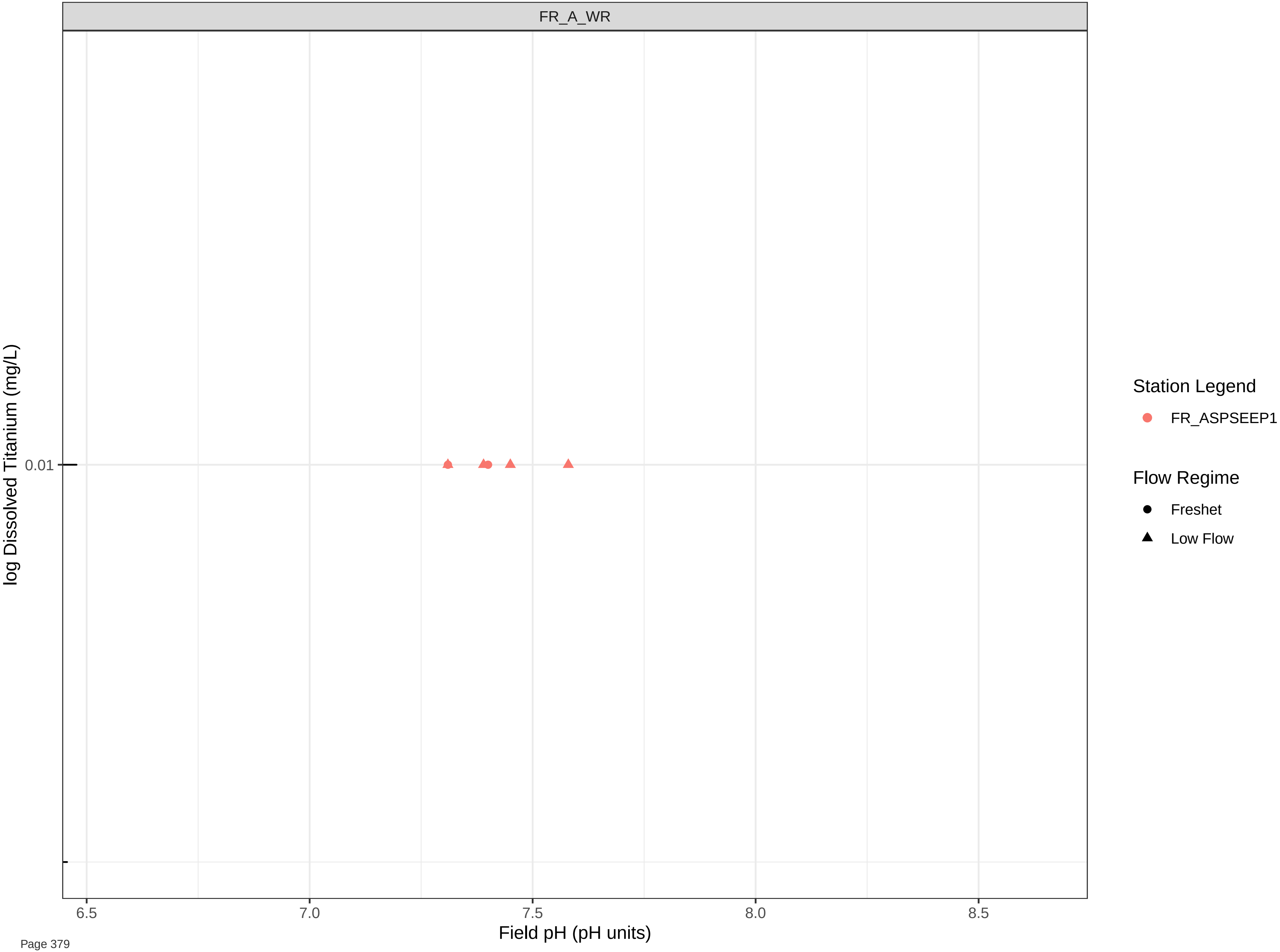

FR_Smith_WR
0.001
1e−04
log Dissolved Tin (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

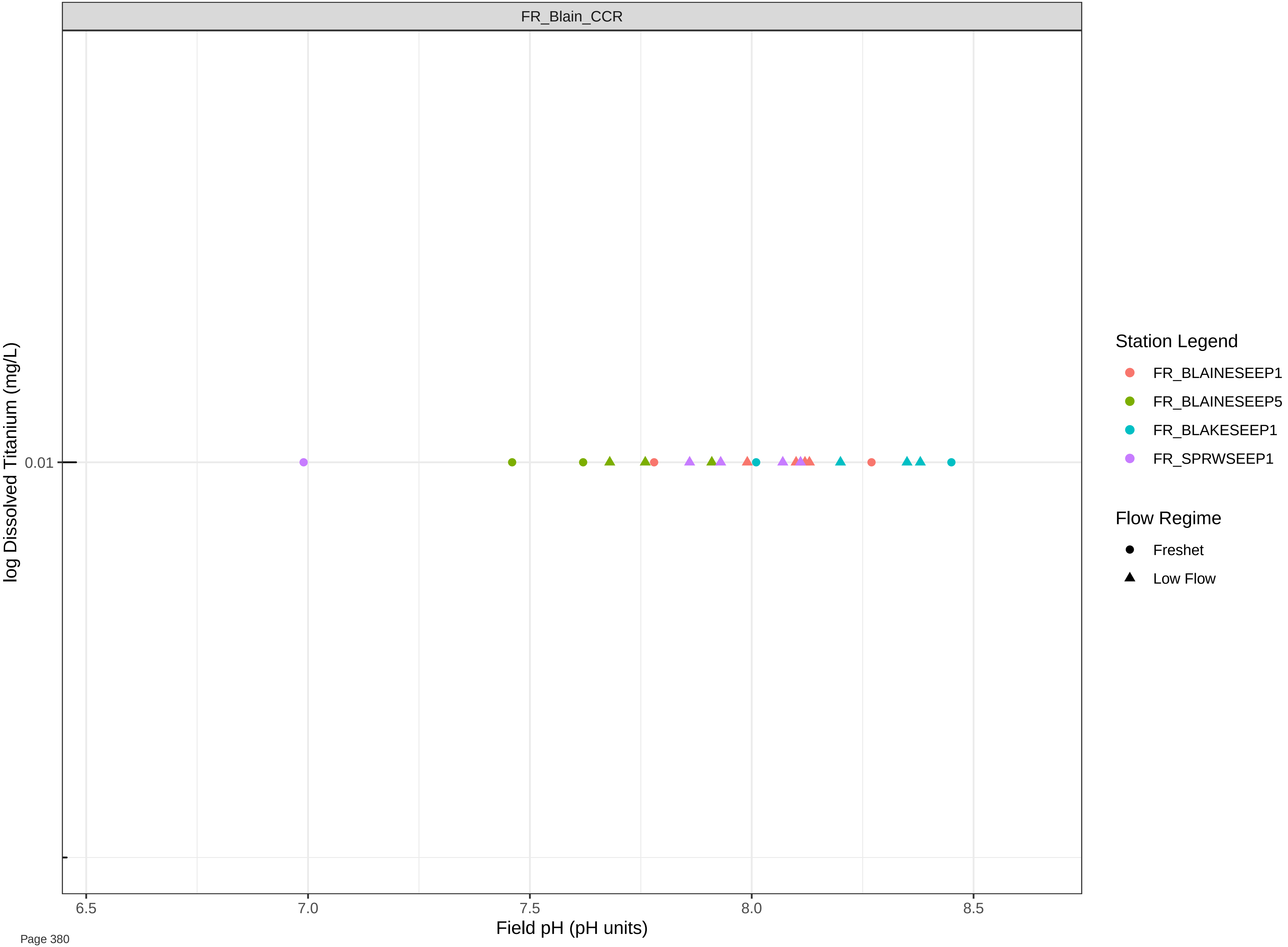

FR_SouthTails_Tailings
0.001
1e−04
log Dissolved Tin (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

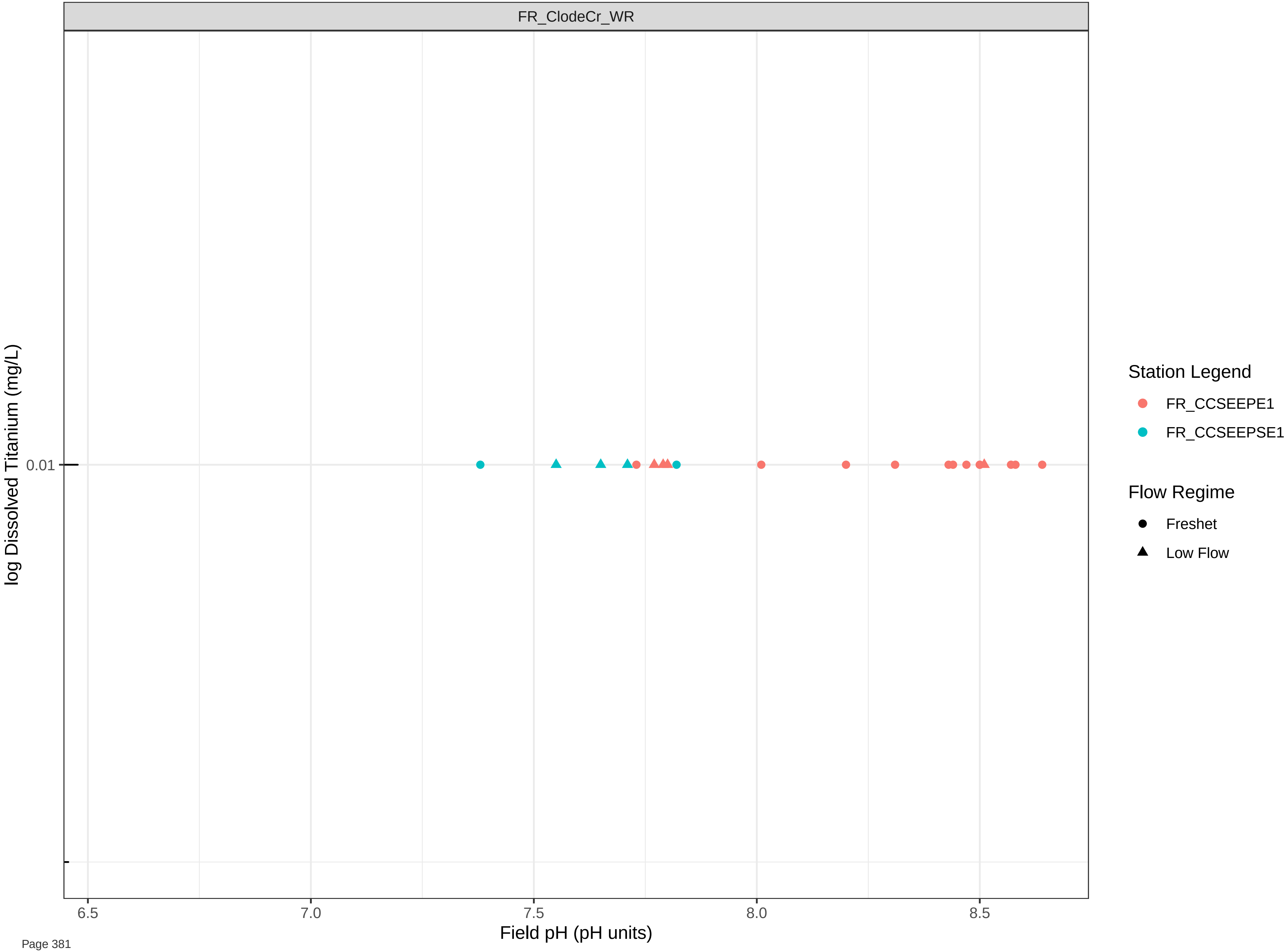

FR_SwiftWR_RockDrain_WR
0.001
1e−04
log Dissolved Tin (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

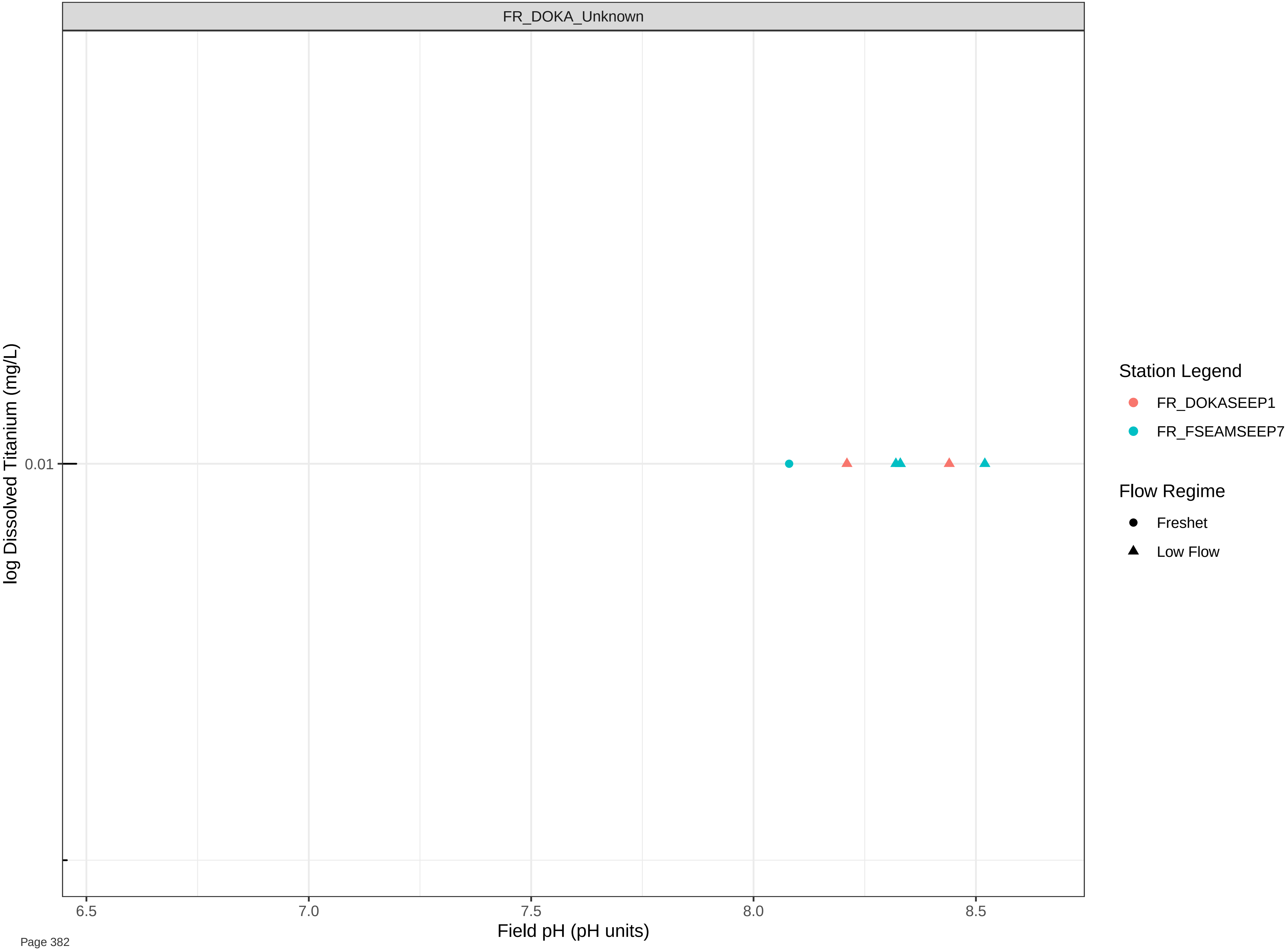

FR_TurnbullWREast_WR
0.001
1e−04
log Dissolved Tin (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

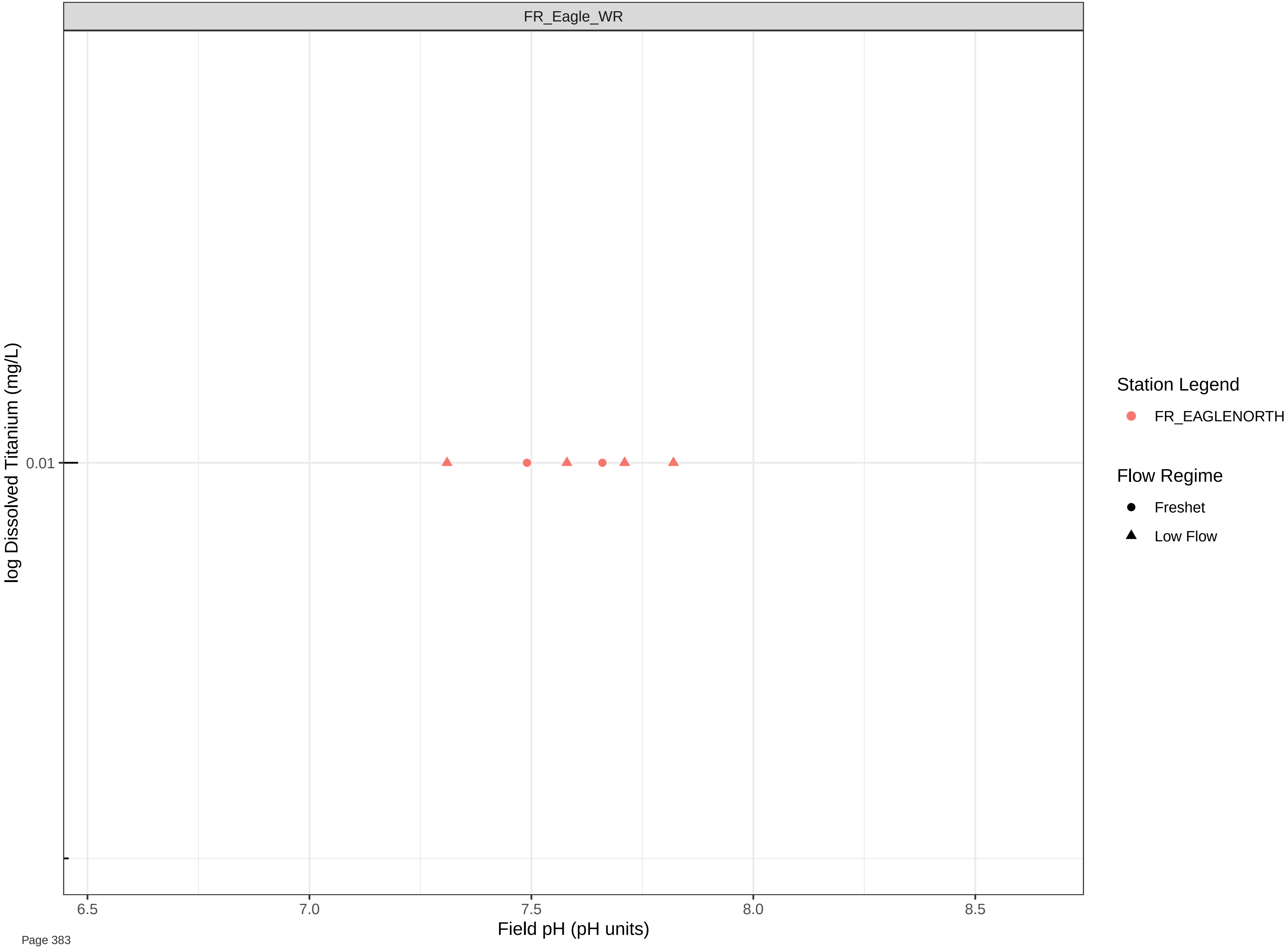

FR_TurnbullWRWest_WR
0.001
1e−04
log Dissolved Tin (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

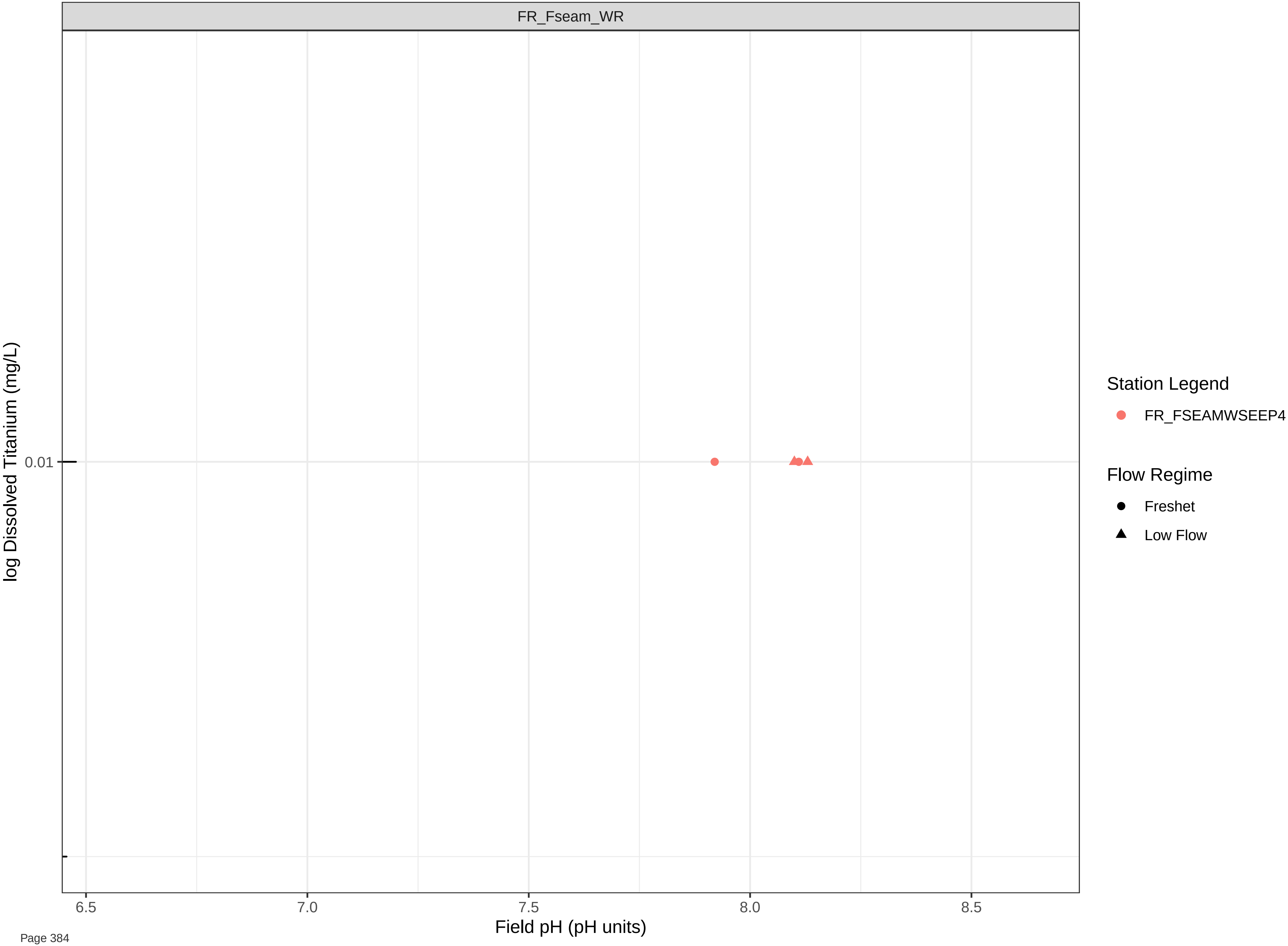

FR_A_WR
log Dissolved Titanium (mg/L)
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

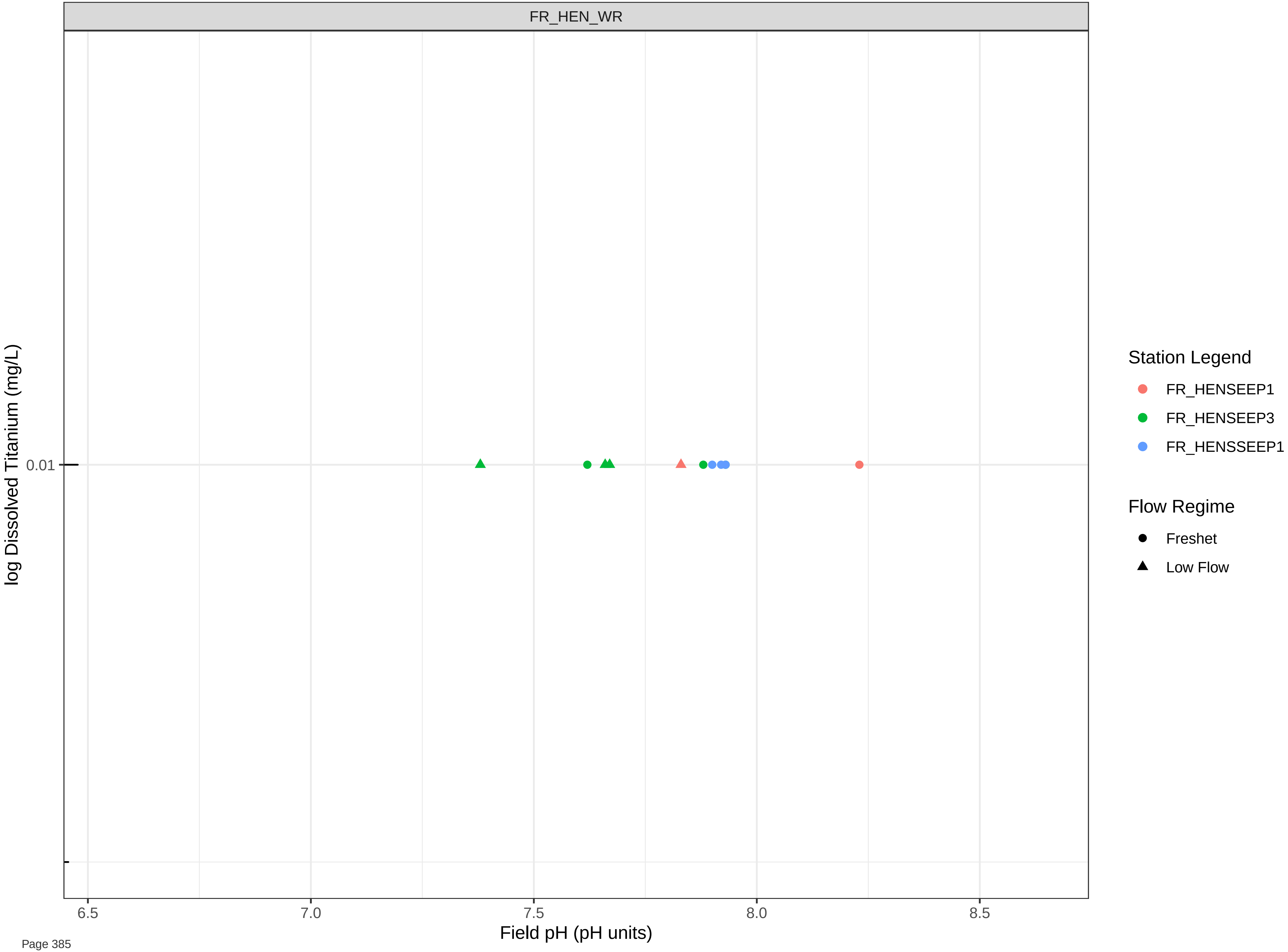

FR_Blain_CCR
log Dissolved Titanium (mg/L)
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

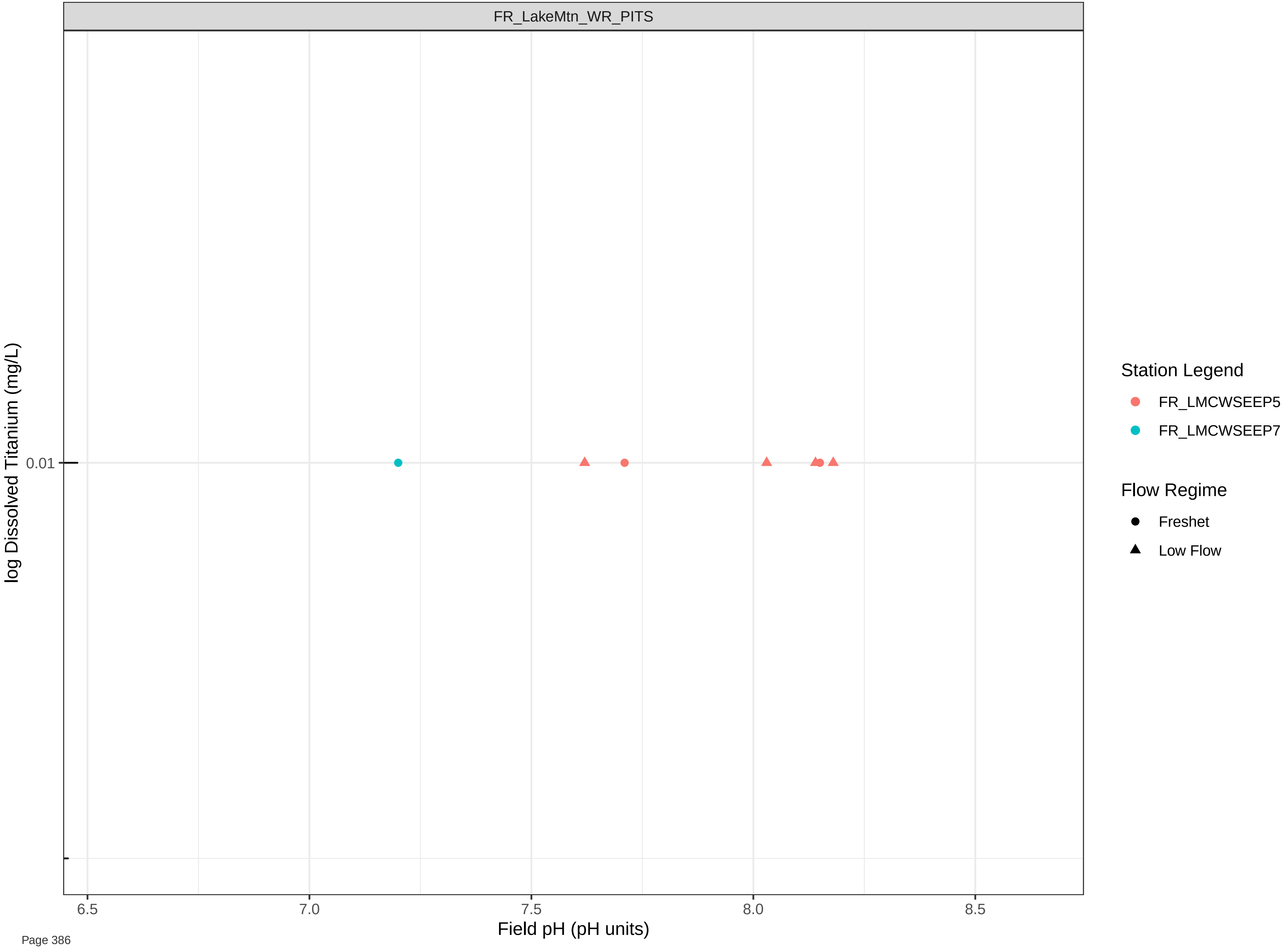

FR_ClodeCr_WR
log Dissolved Titanium (mg/L)
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

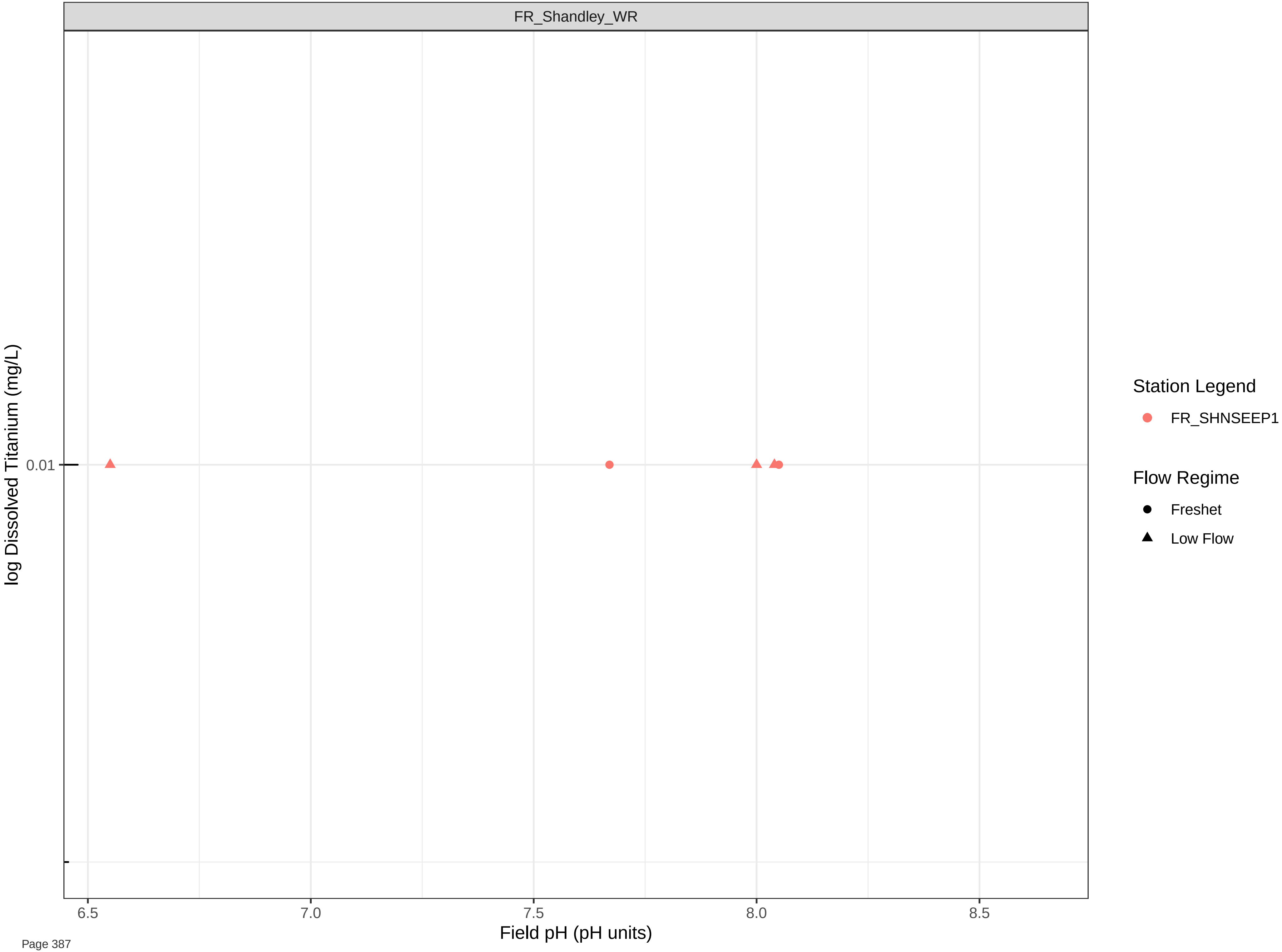

FR_DOKA_Unknown
log Dissolved Titanium (mg/L)
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow

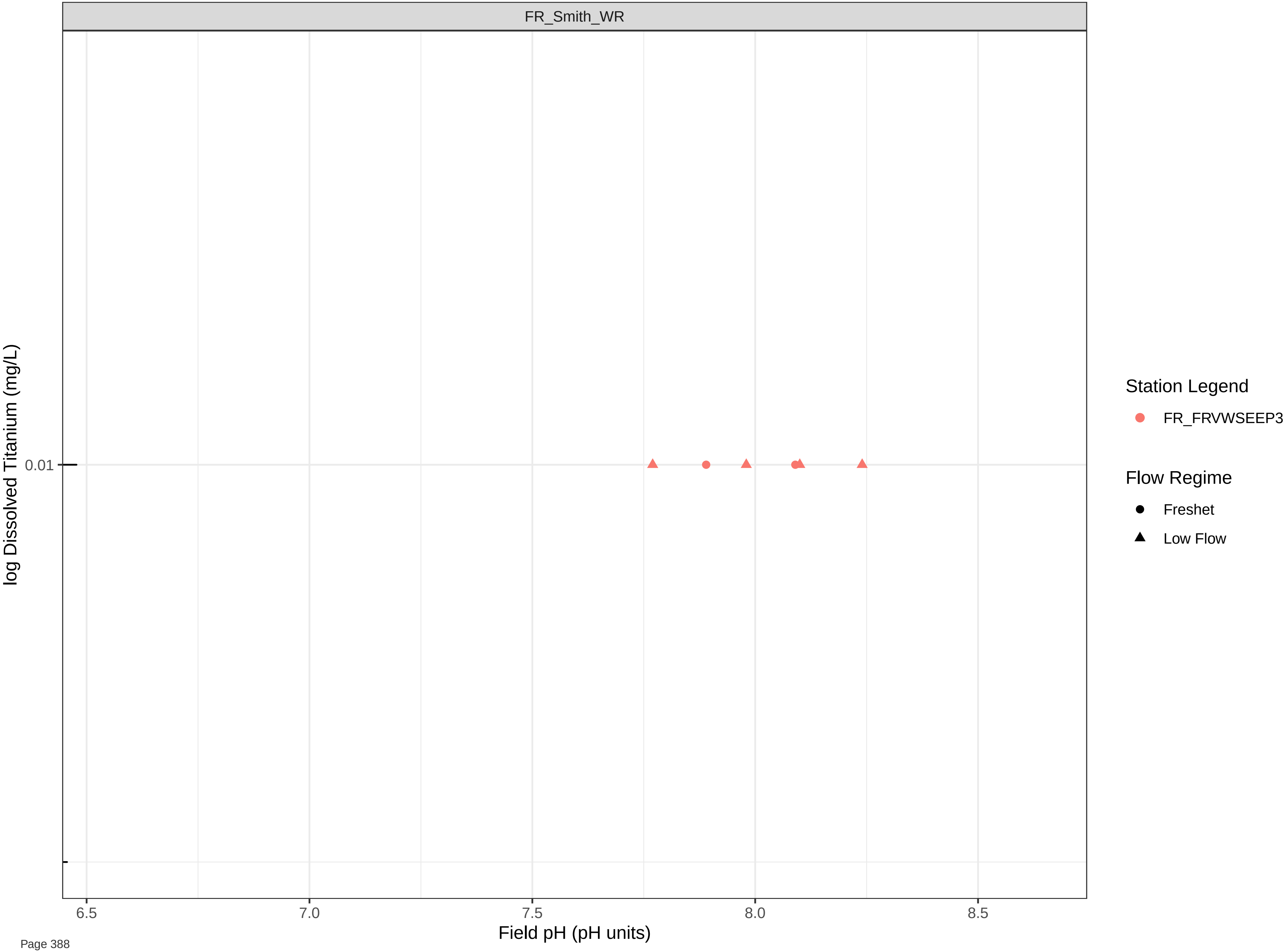

FR_Eagle_WR
log Dissolved Titanium (mg/L)
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

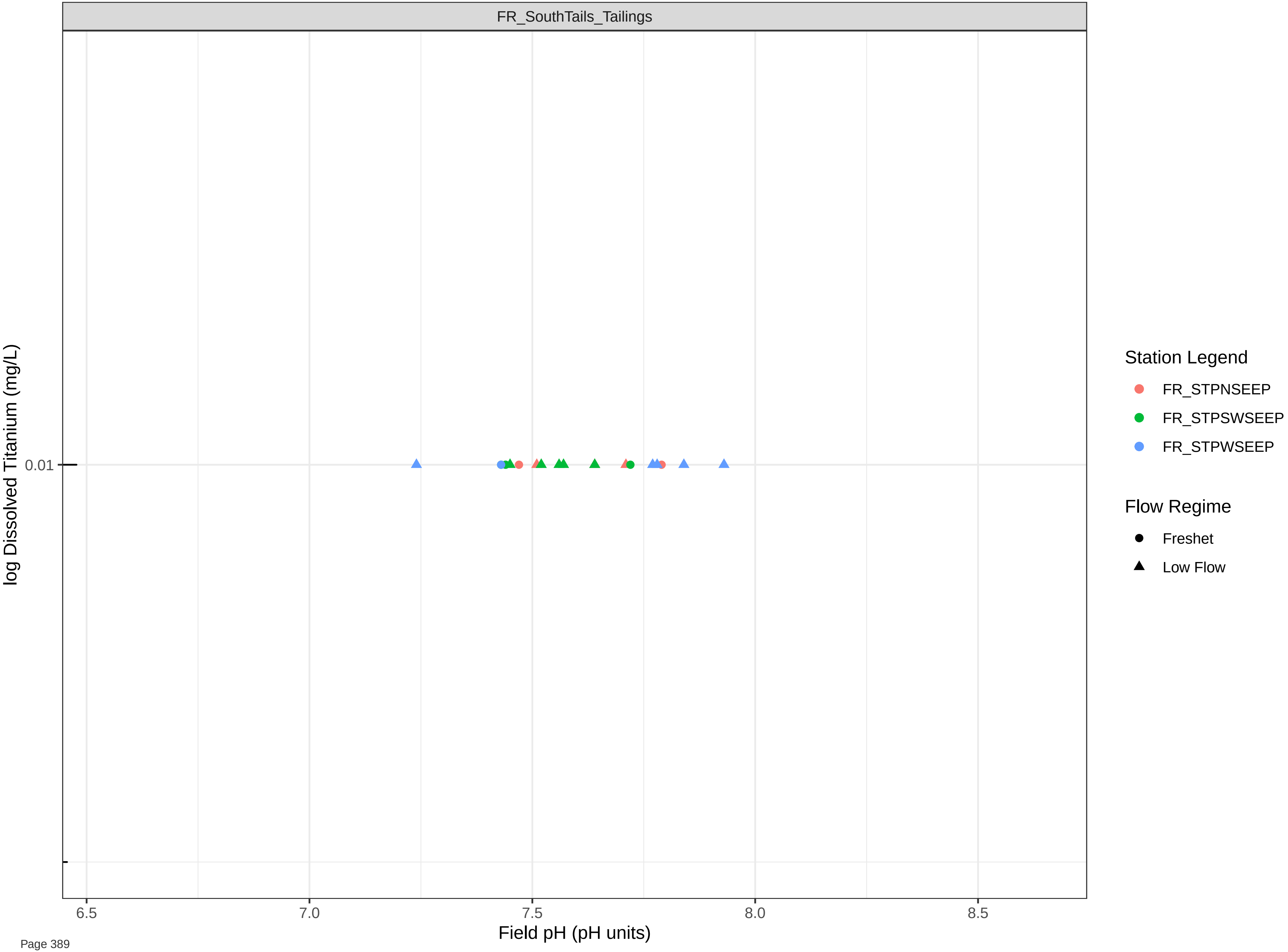

FR_Fseam_WR
log Dissolved Titanium (mg/L)
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

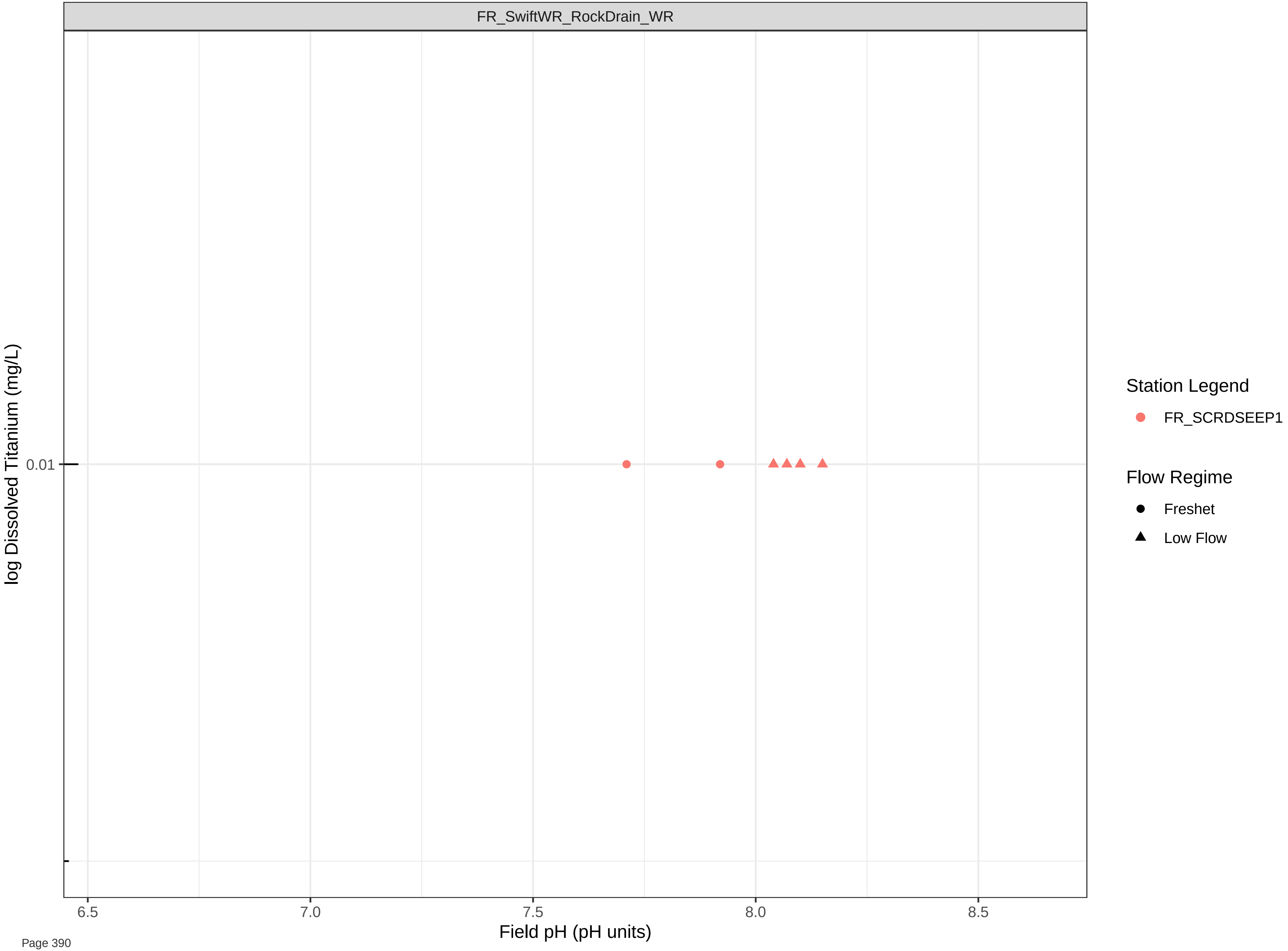

FR_HEN_WR
log Dissolved Titanium (mg/L)
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

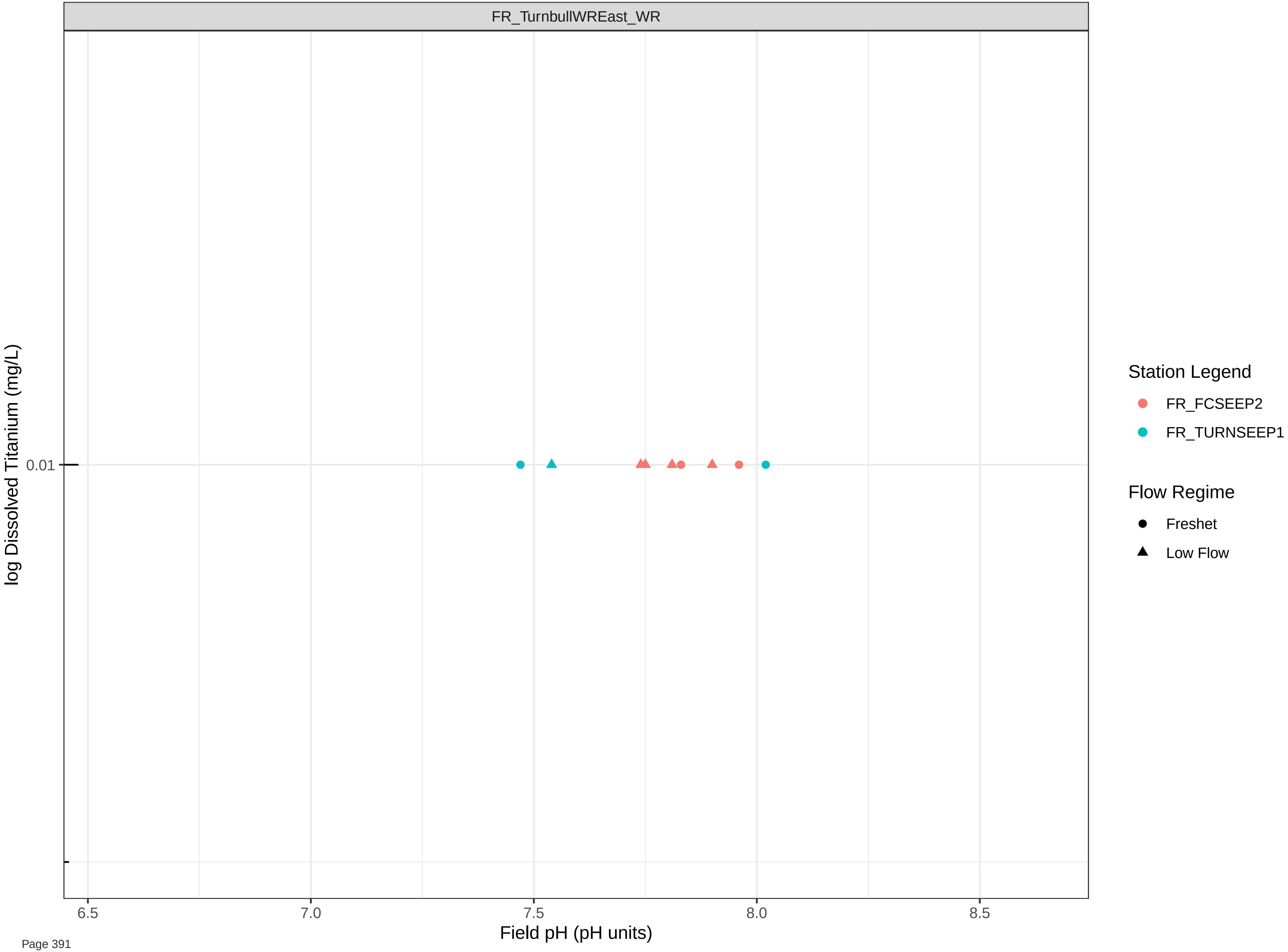

FR_LakeMtn_WR_PITS
log Dissolved Titanium (mg/L)
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

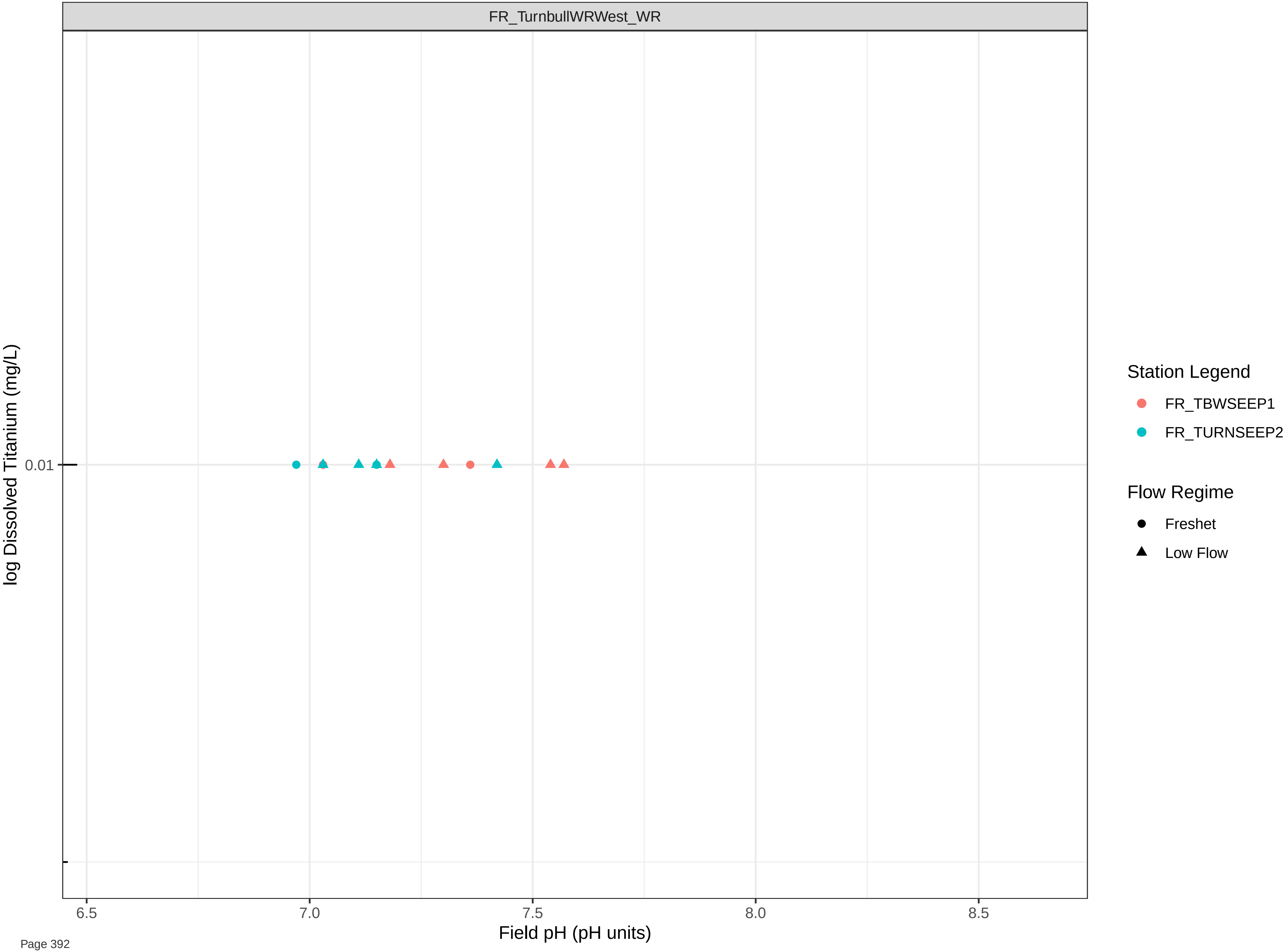

FR_Shandley_WR
log Dissolved Titanium (mg/L)
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

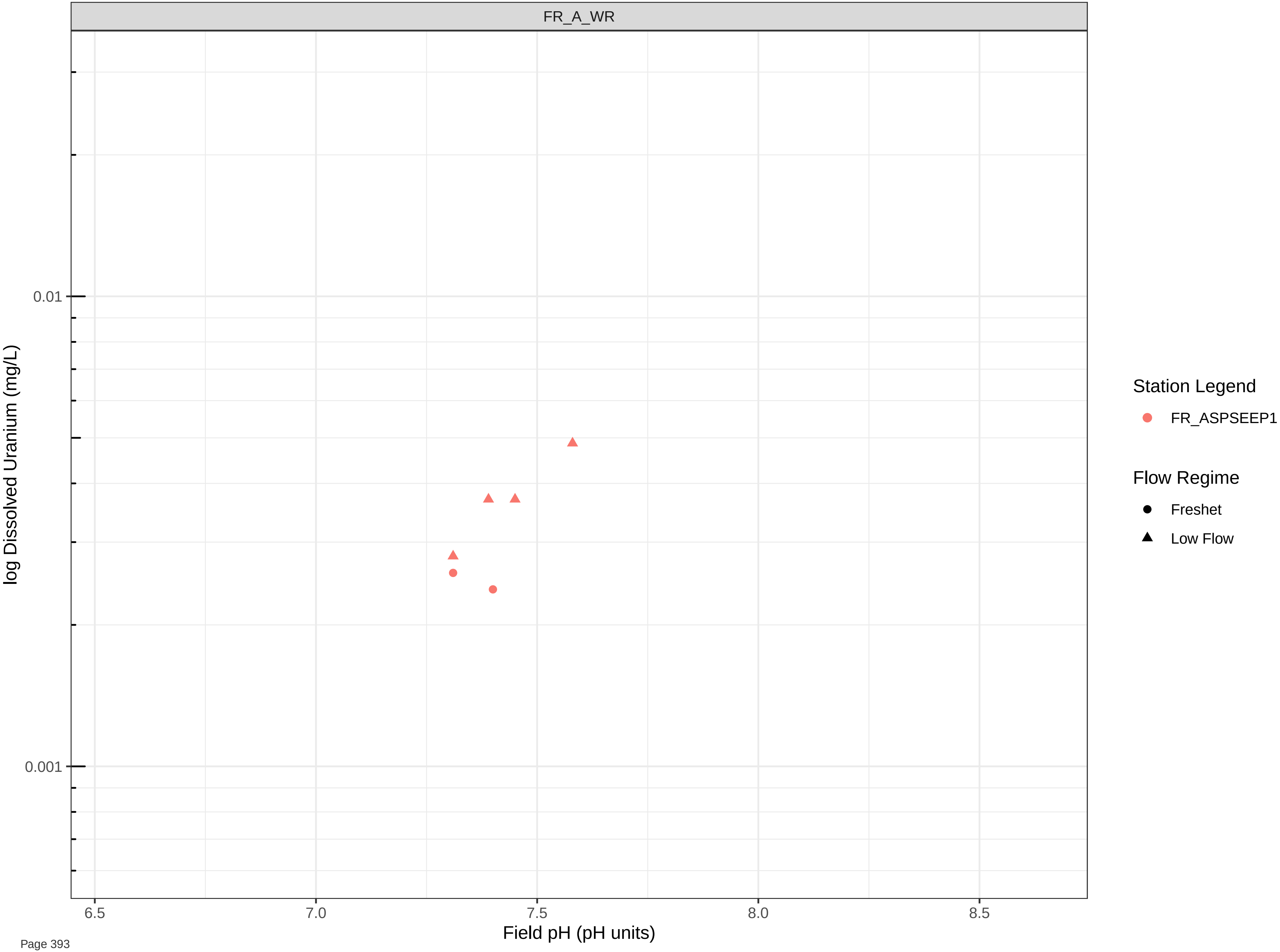

FR_Smith_WR
log Dissolved Titanium (mg/L)
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

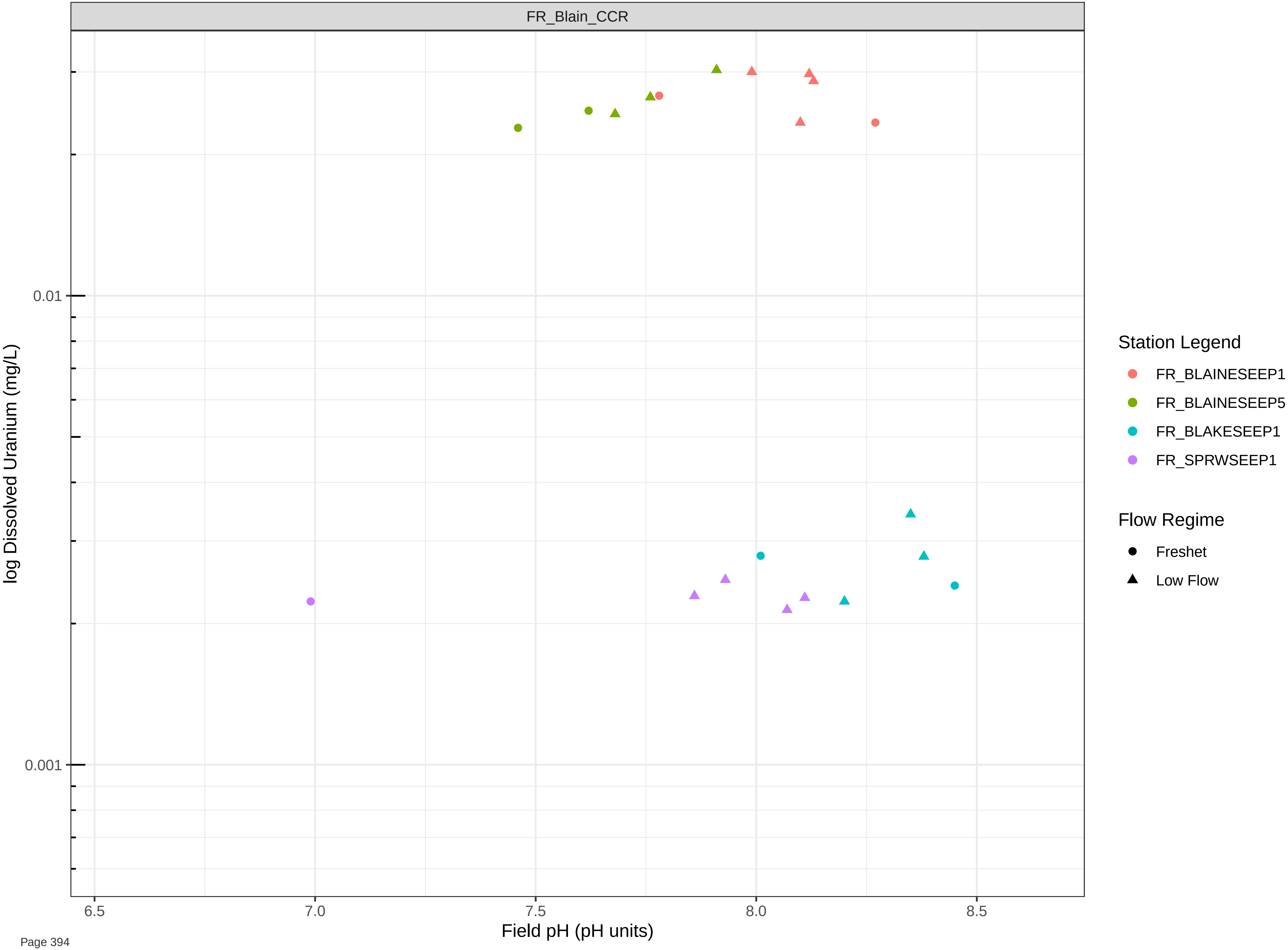

FR_SouthTails_Tailings
log Dissolved Titanium (mg/L)
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

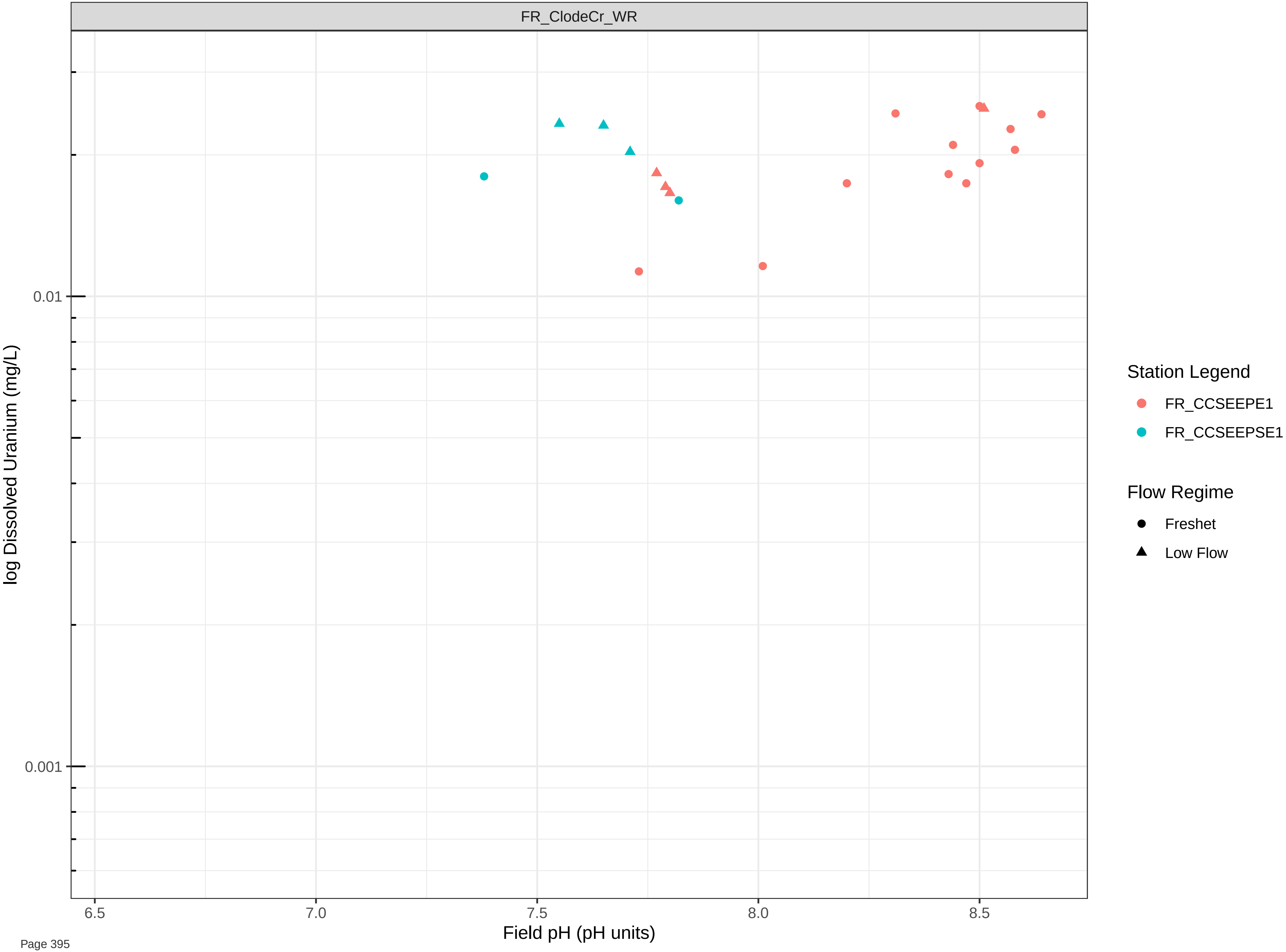

FR_SwiftWR_RockDrain_WR
log Dissolved Titanium (mg/L)
0.01
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_TurnbullWREast_WR
log Dissolved Titanium (mg/L)
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWRWest_WR
log Dissolved Titanium (mg/L)
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow


FR_A_WR
log Dissolved Uranium (mg/L)
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_Blain_CCR
log Dissolved Uranium (mg/L)
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow


FR_ClodeCr_WR
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0.001
Field pH (pH units)
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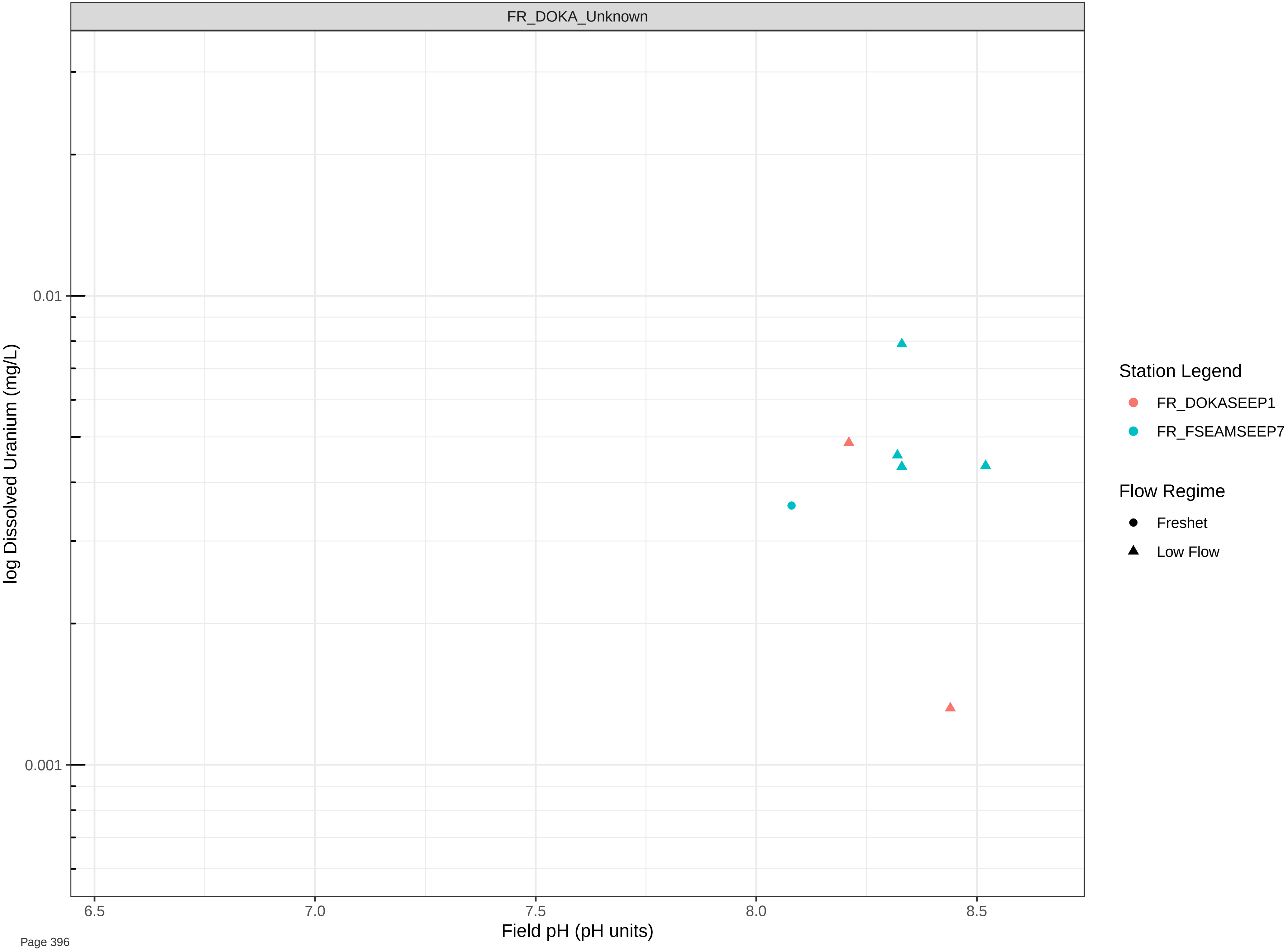
7.0
7.5
8.0
8.5
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow


FR_DOKA_Unknown
log Dissolved Uranium (mg/L)
0.01
0.001
Field pH (pH units)
6.5
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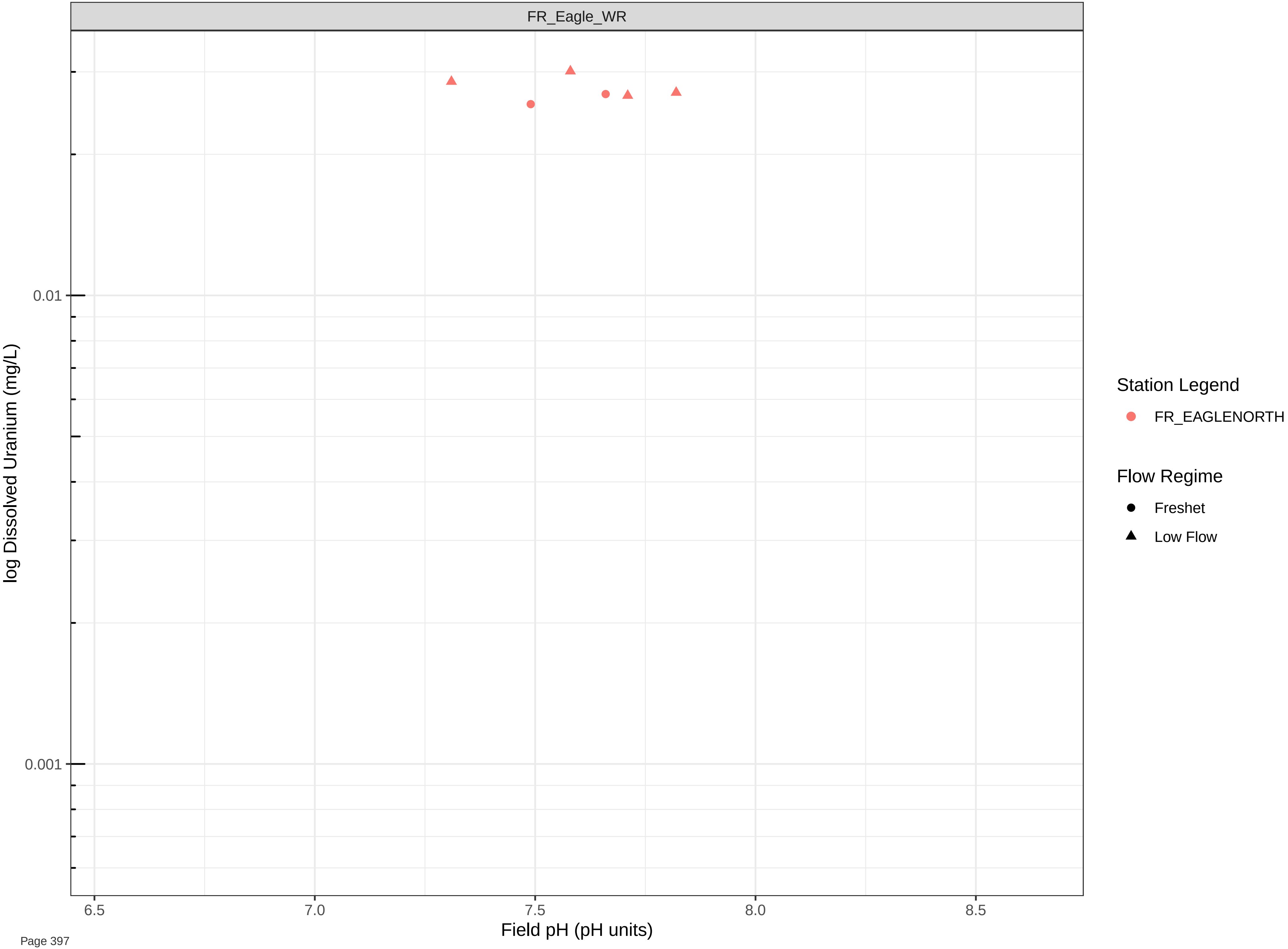
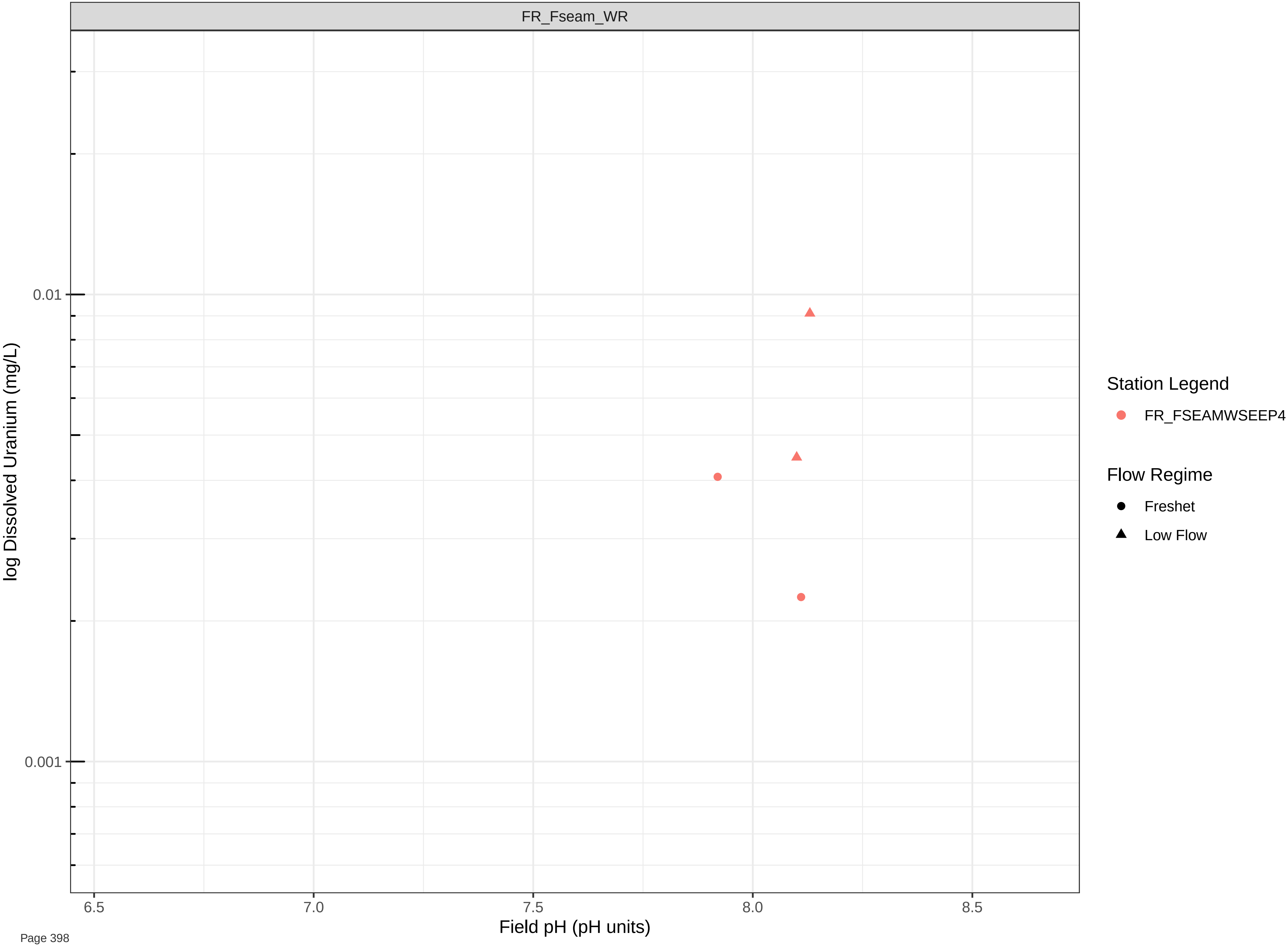
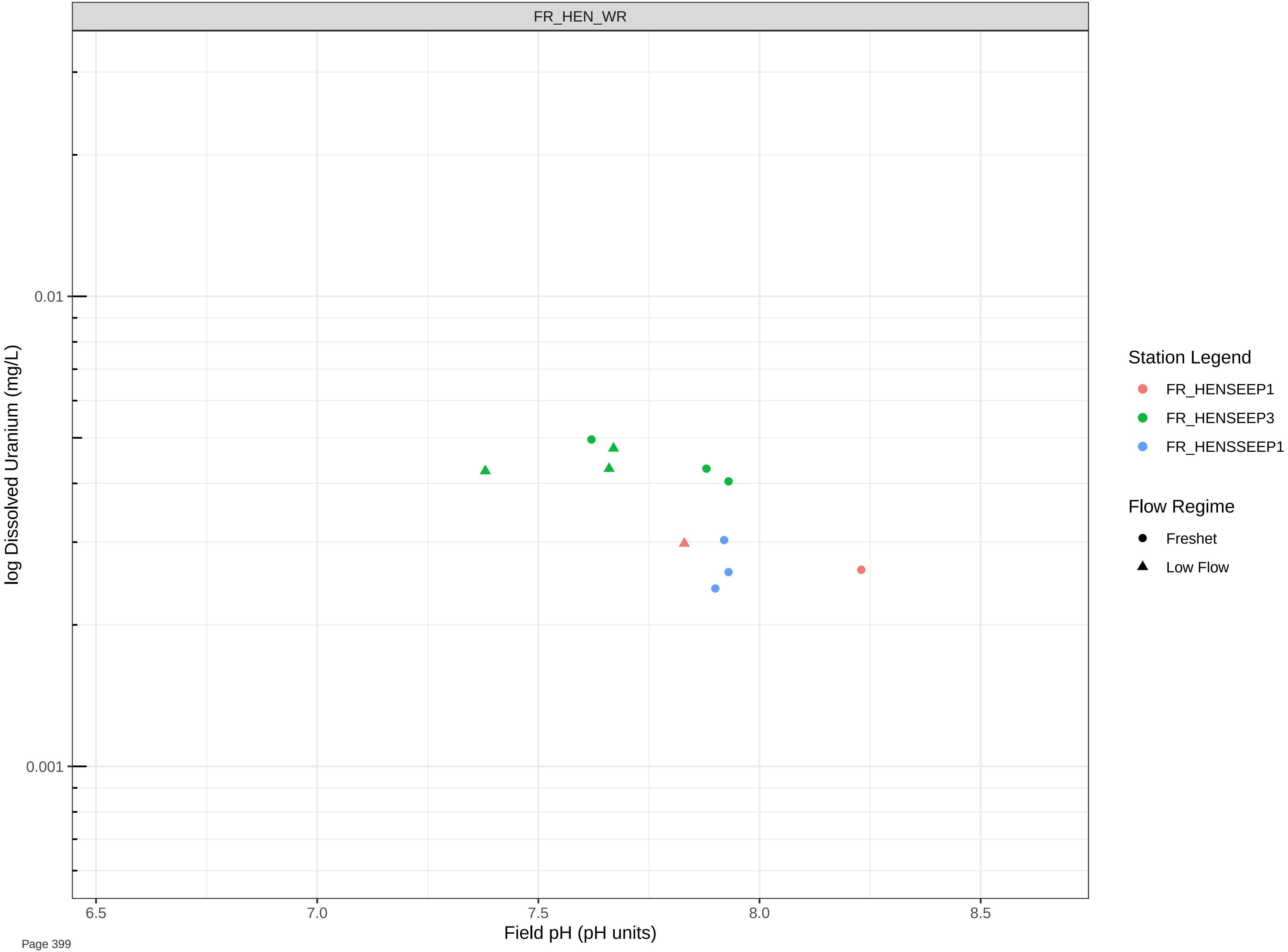
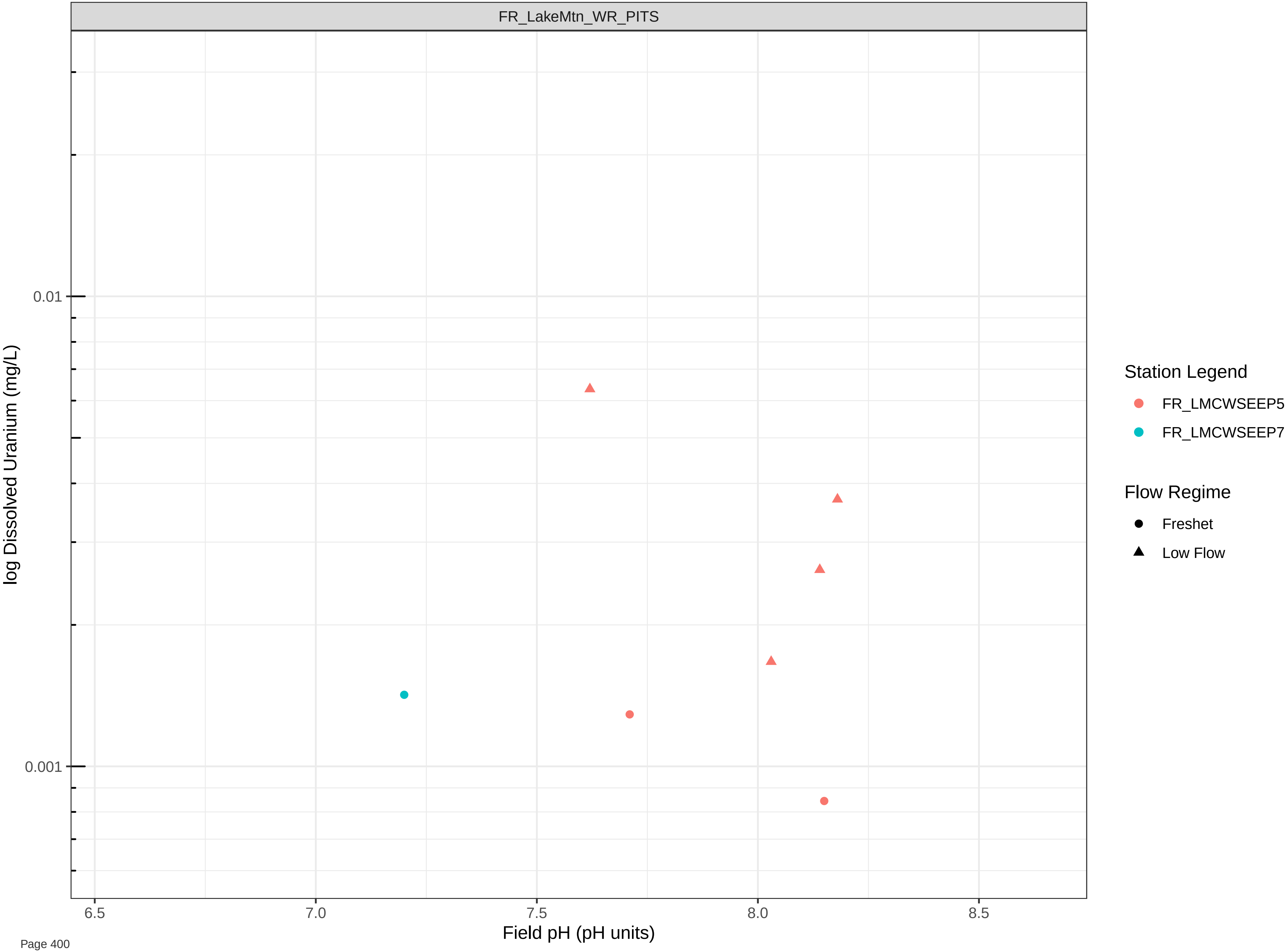
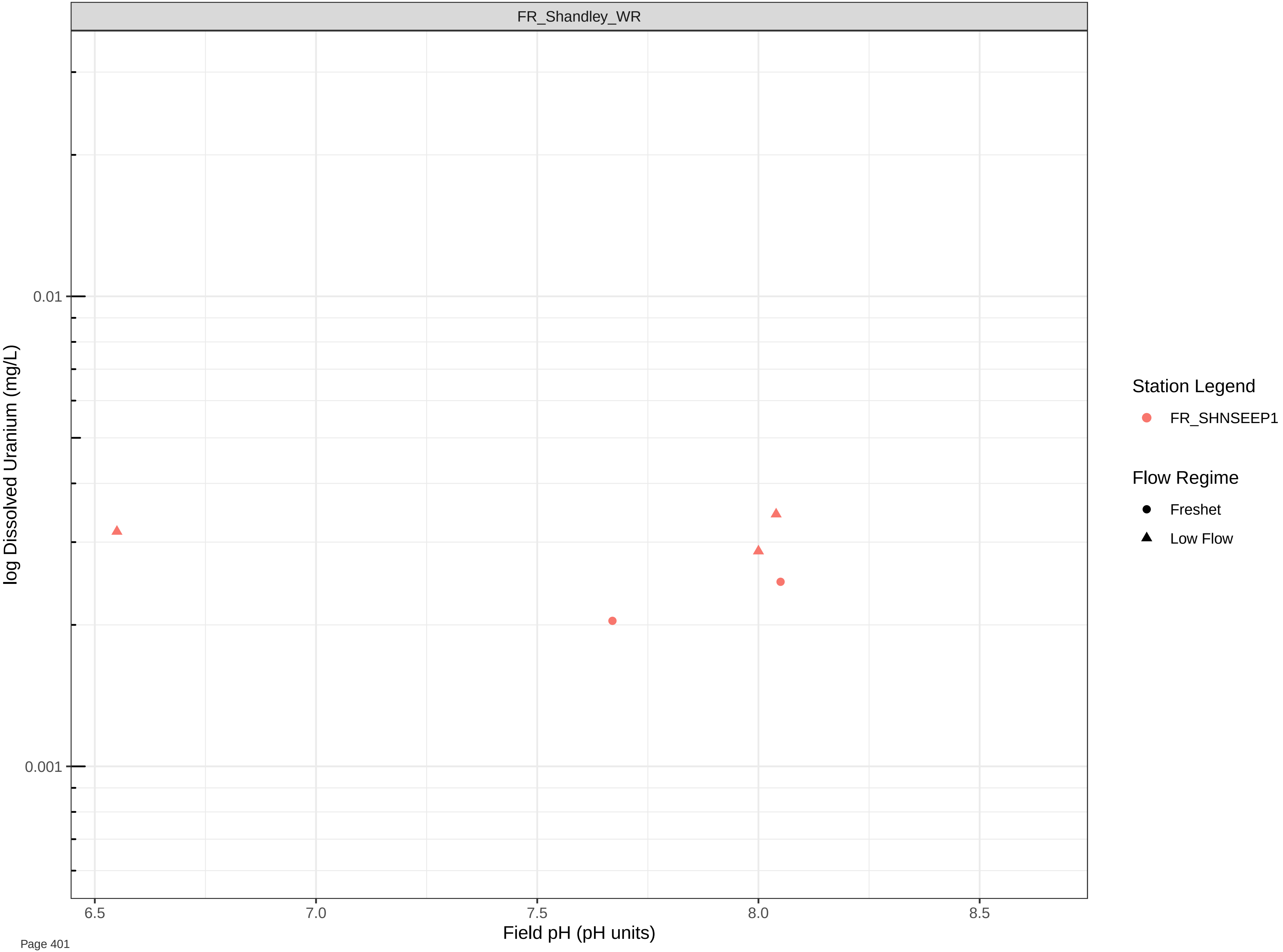
8.0
8.5
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

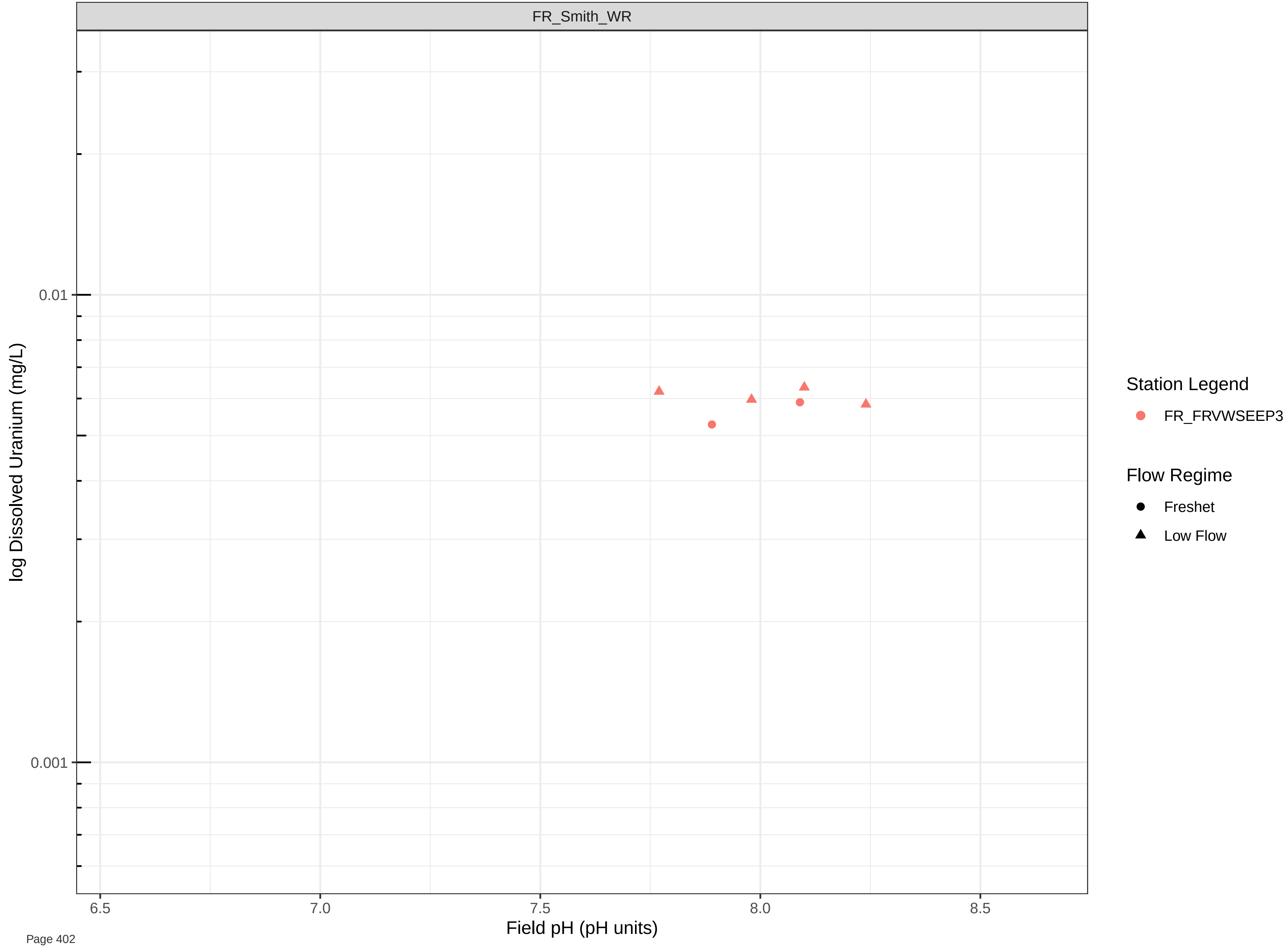

FR_Eagle_WR
log Dissolved Uranium (mg/L)
0.01
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

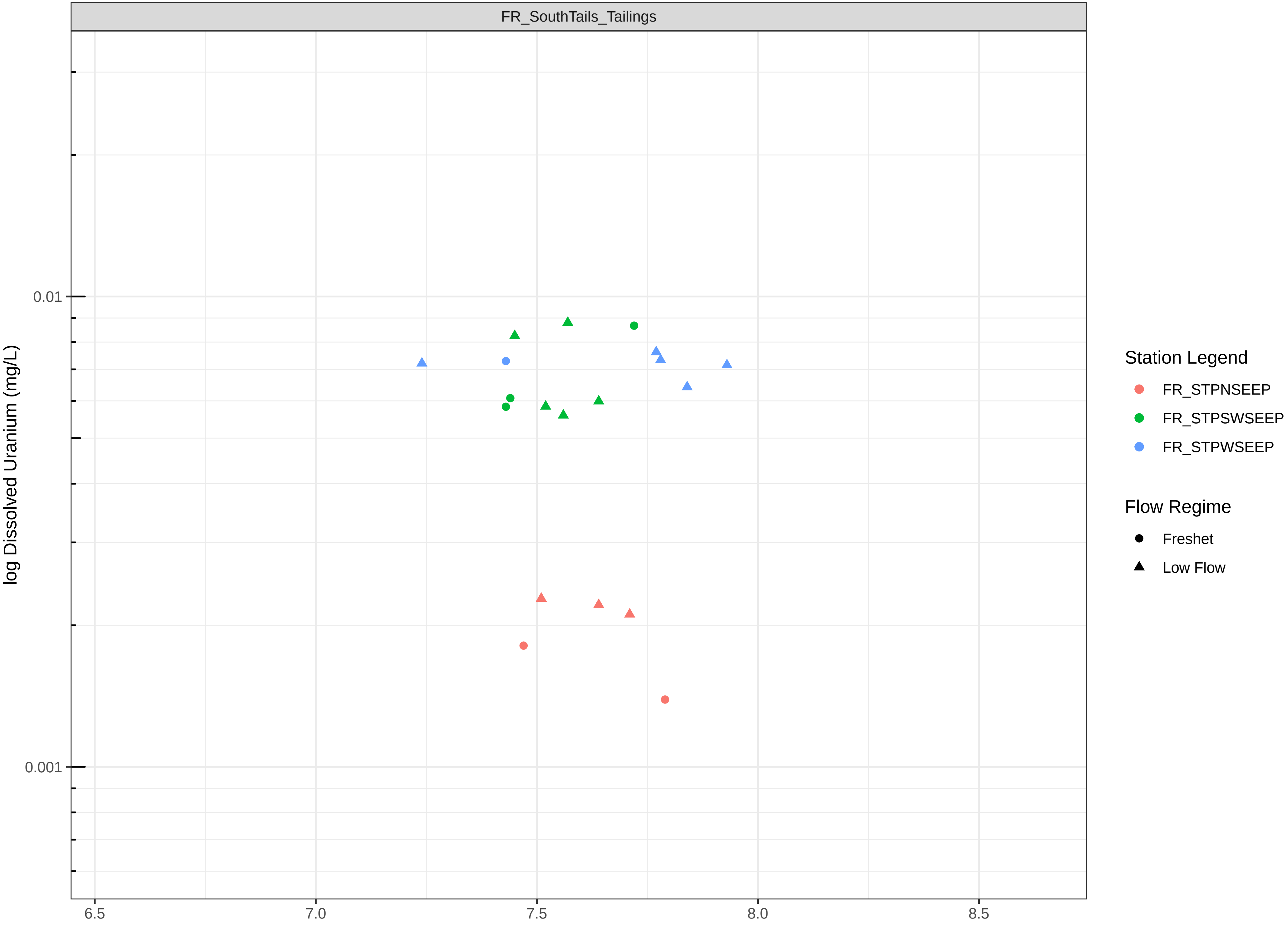

FR_Fseam_WR
0.01
0.001
log Dissolved Uranium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

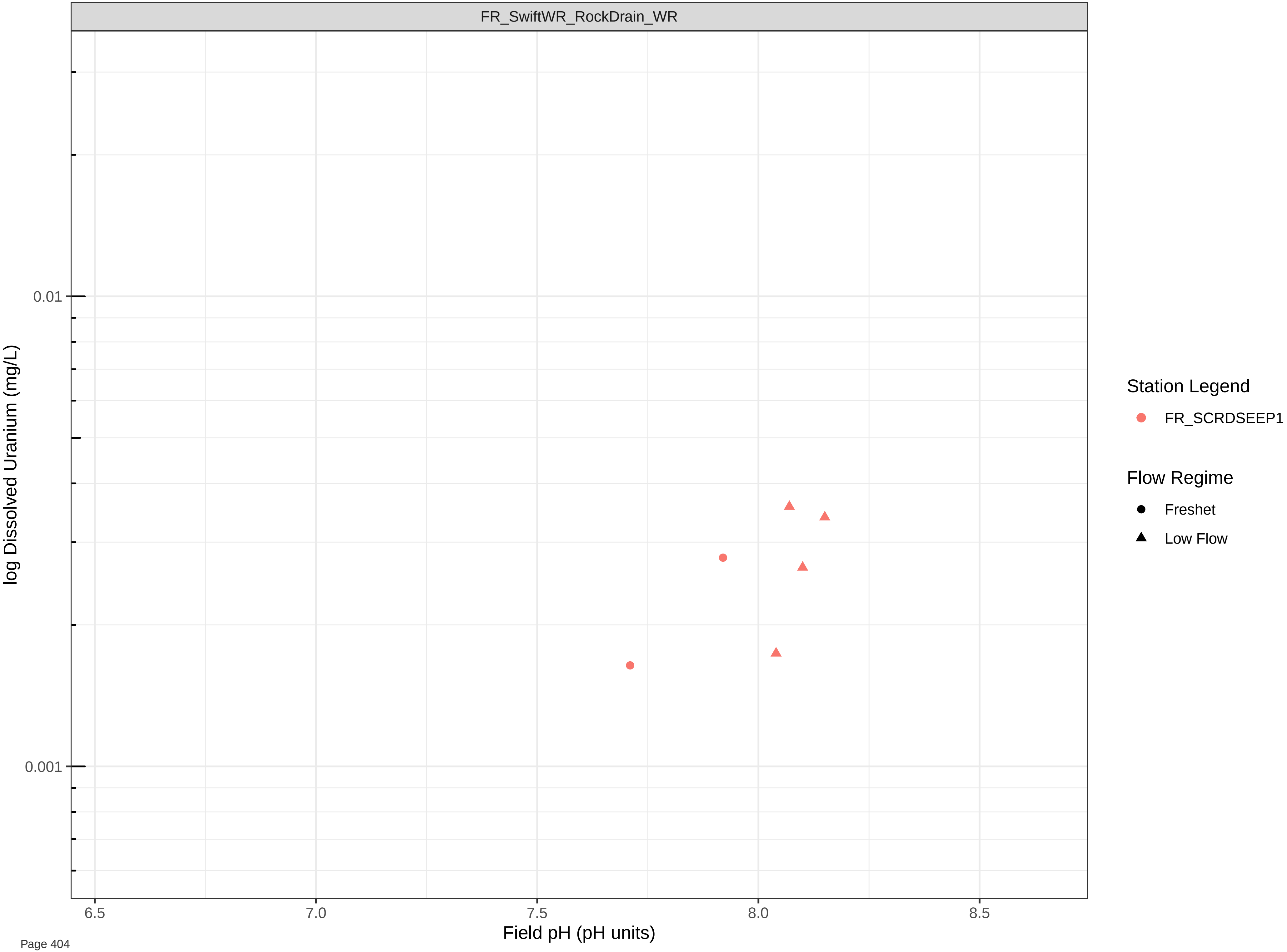

FR_HEN_WR
log Dissolved Uranium (mg/L)
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow


FR_LakeMtn_WR_PITS
log Dissolved Uranium (mg/L)
0.01
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow


FR_Shandley_WR
log Dissolved Uranium (mg/L)
0.01
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_Smith_WR
log Dissolved Uranium (mg/L)
0.01
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow


FR_SouthTails_Tailings
log Dissolved Uranium (mg/L)
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow


FR_SwiftWR_RockDrain_WR
log Dissolved Uranium (mg/L)
0.01
0.001
Field pH (pH units)
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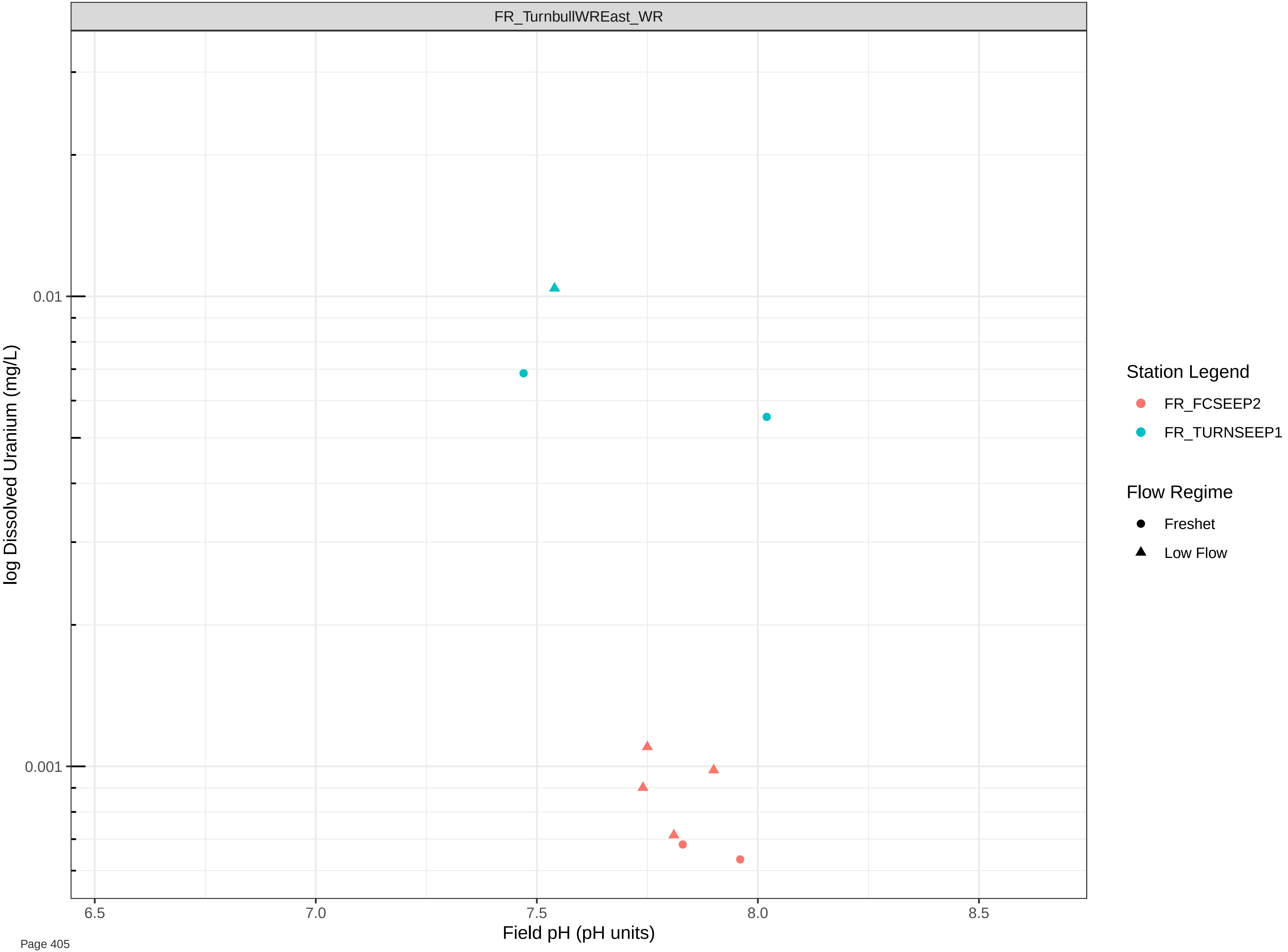
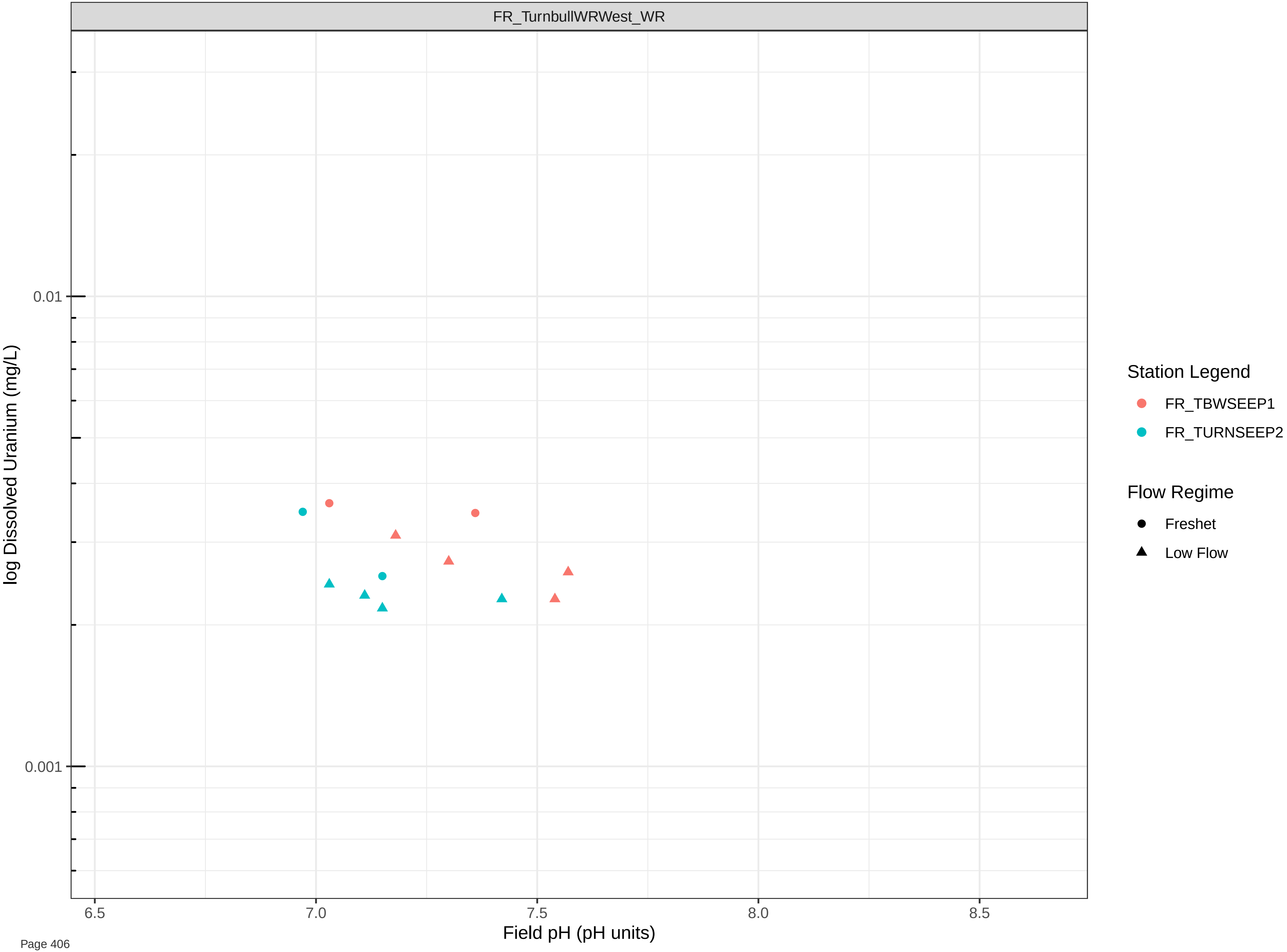
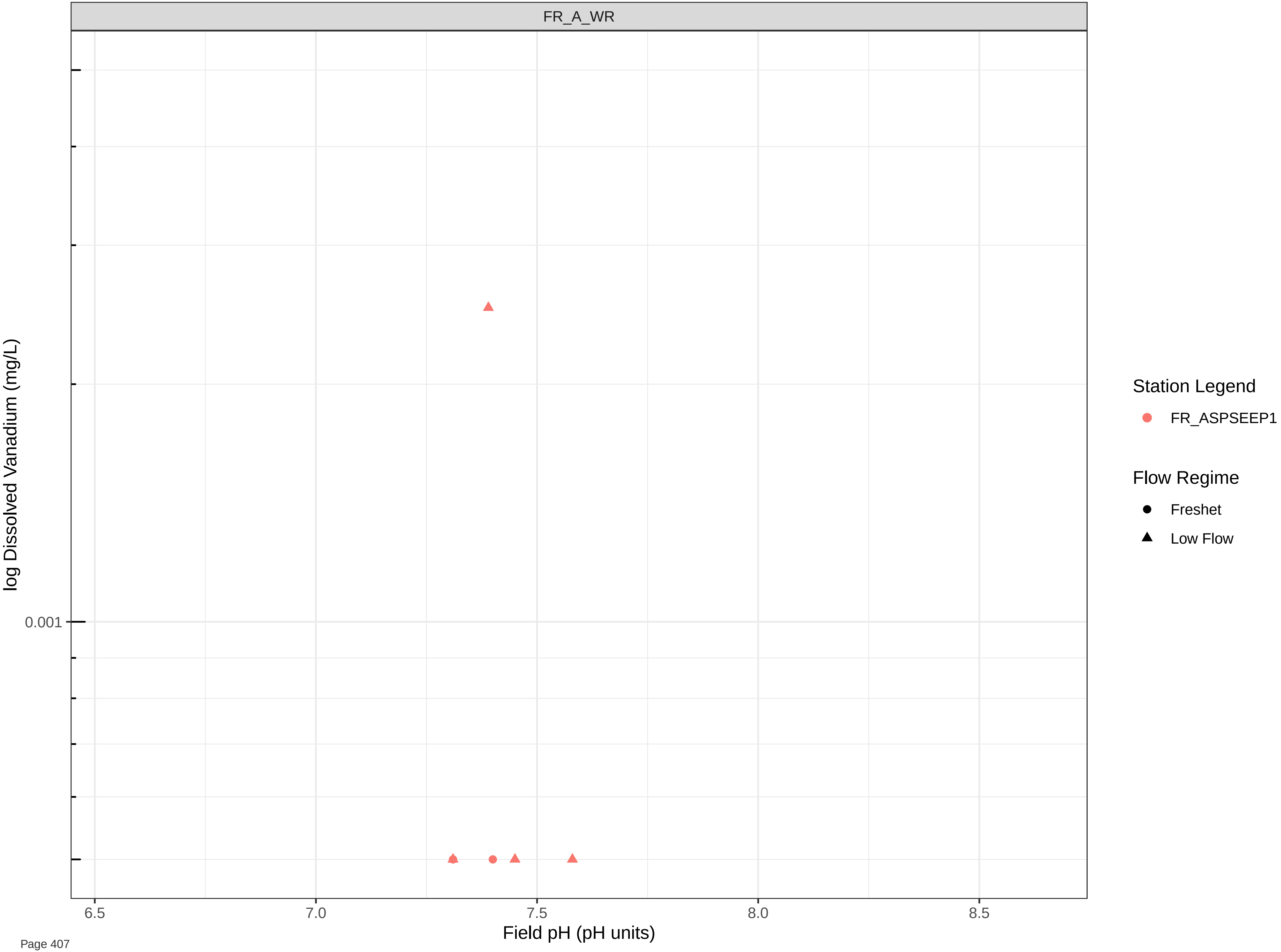
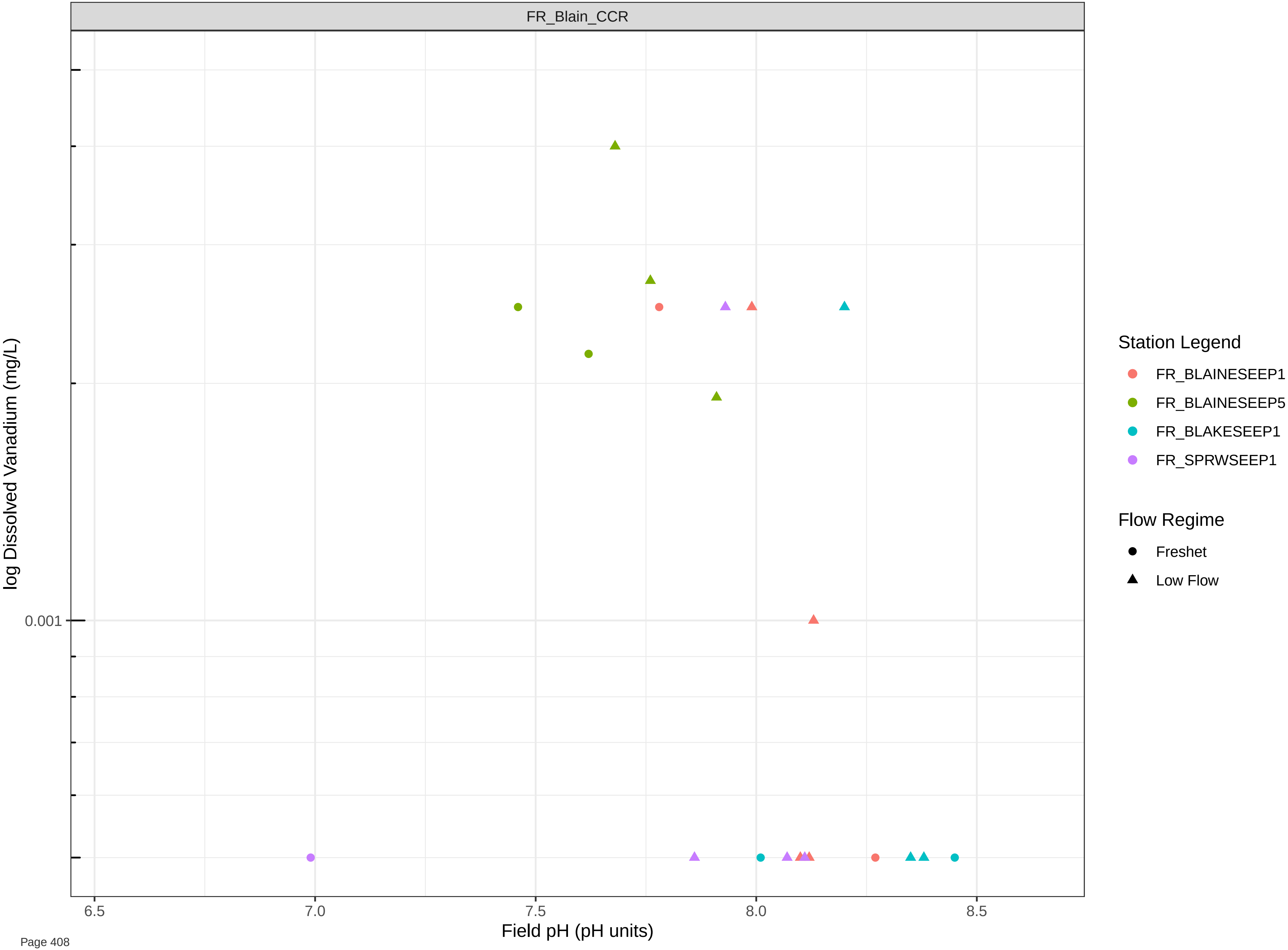
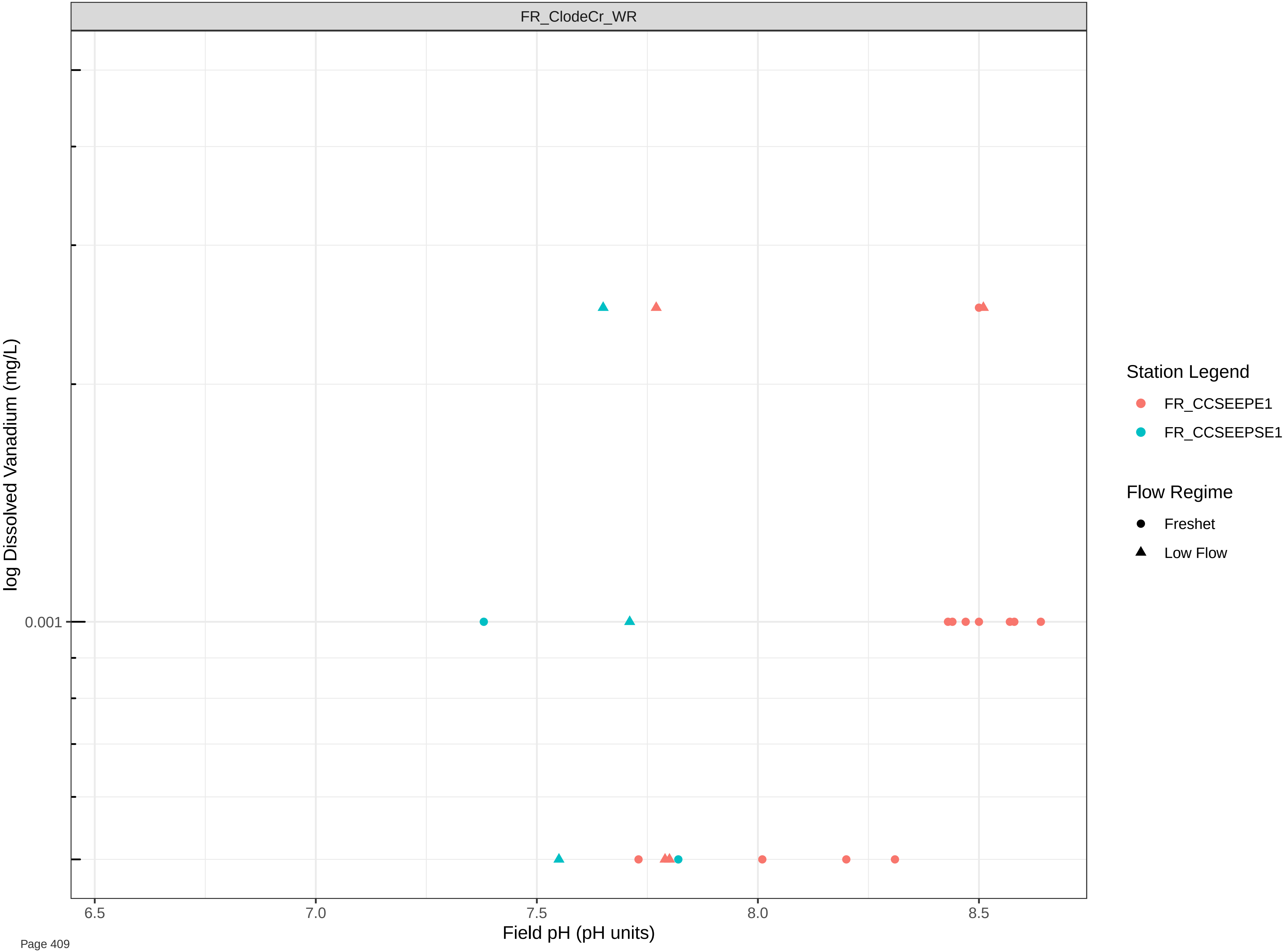
7.0
7.5
8.0
8.5
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

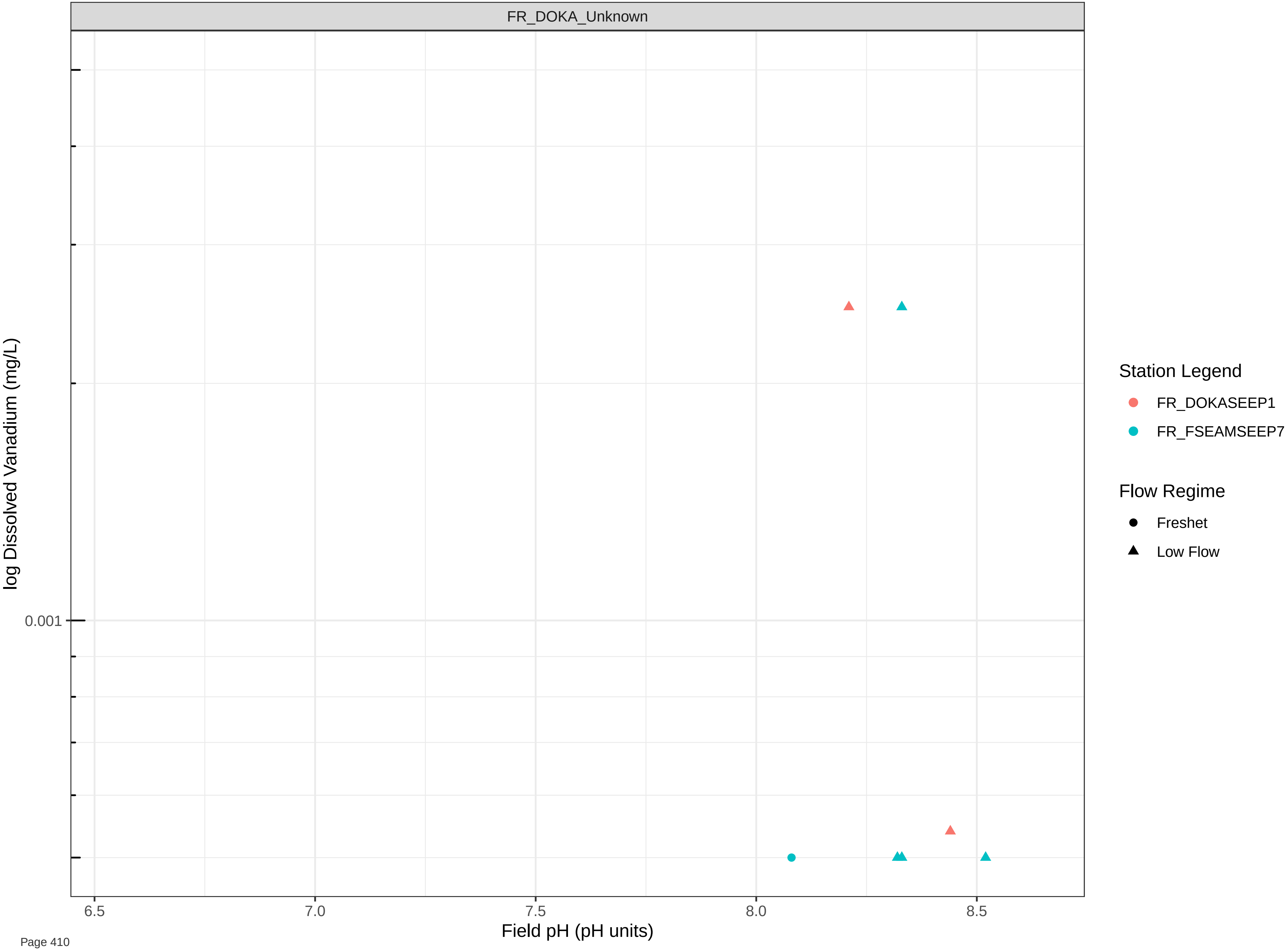

FR_TurnbullWREast_WR
log Dissolved Uranium (mg/L)
0.01
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

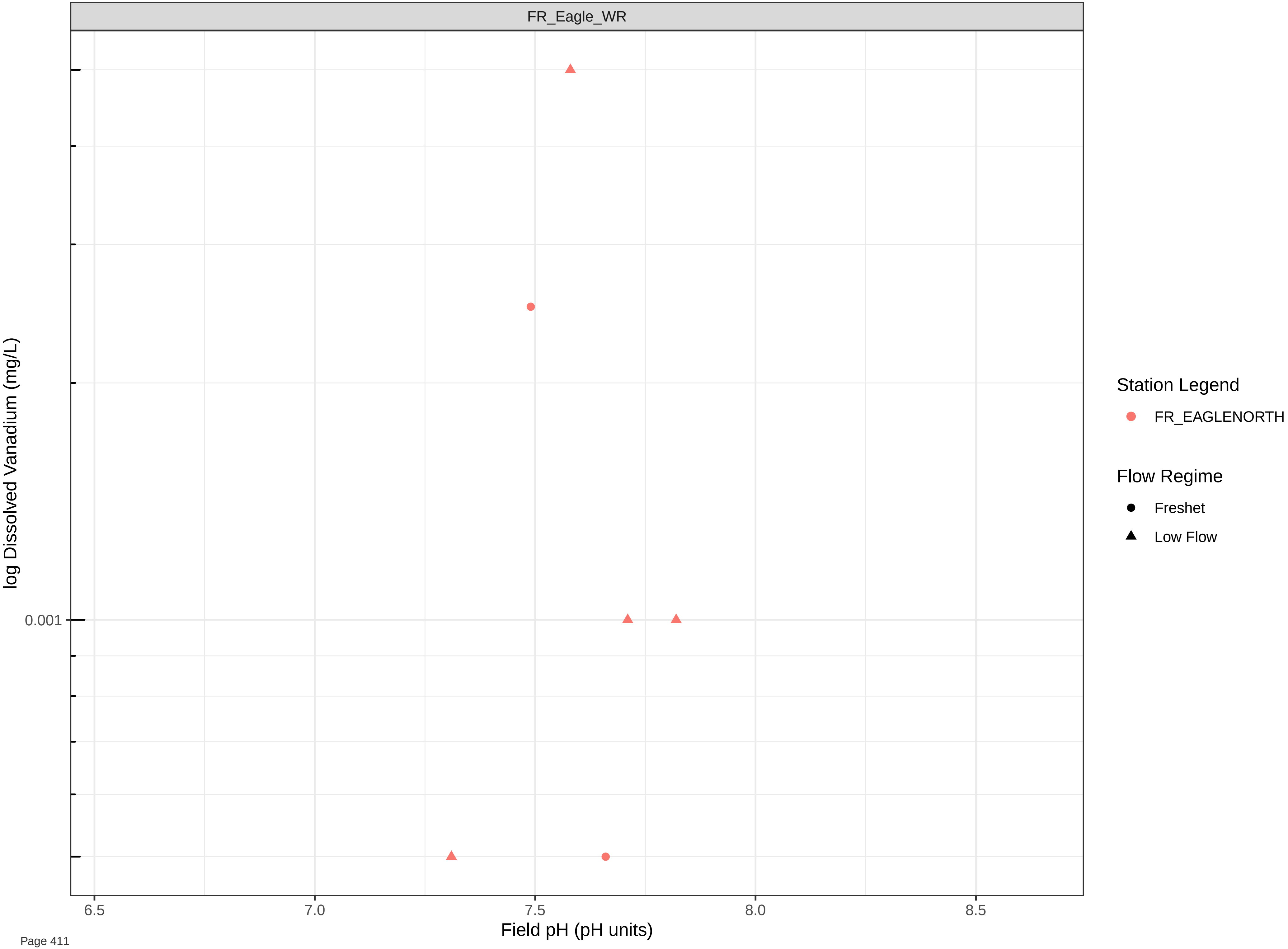

FR_TurnbullWRWest_WR
log Dissolved Uranium (mg/L)
0.01
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

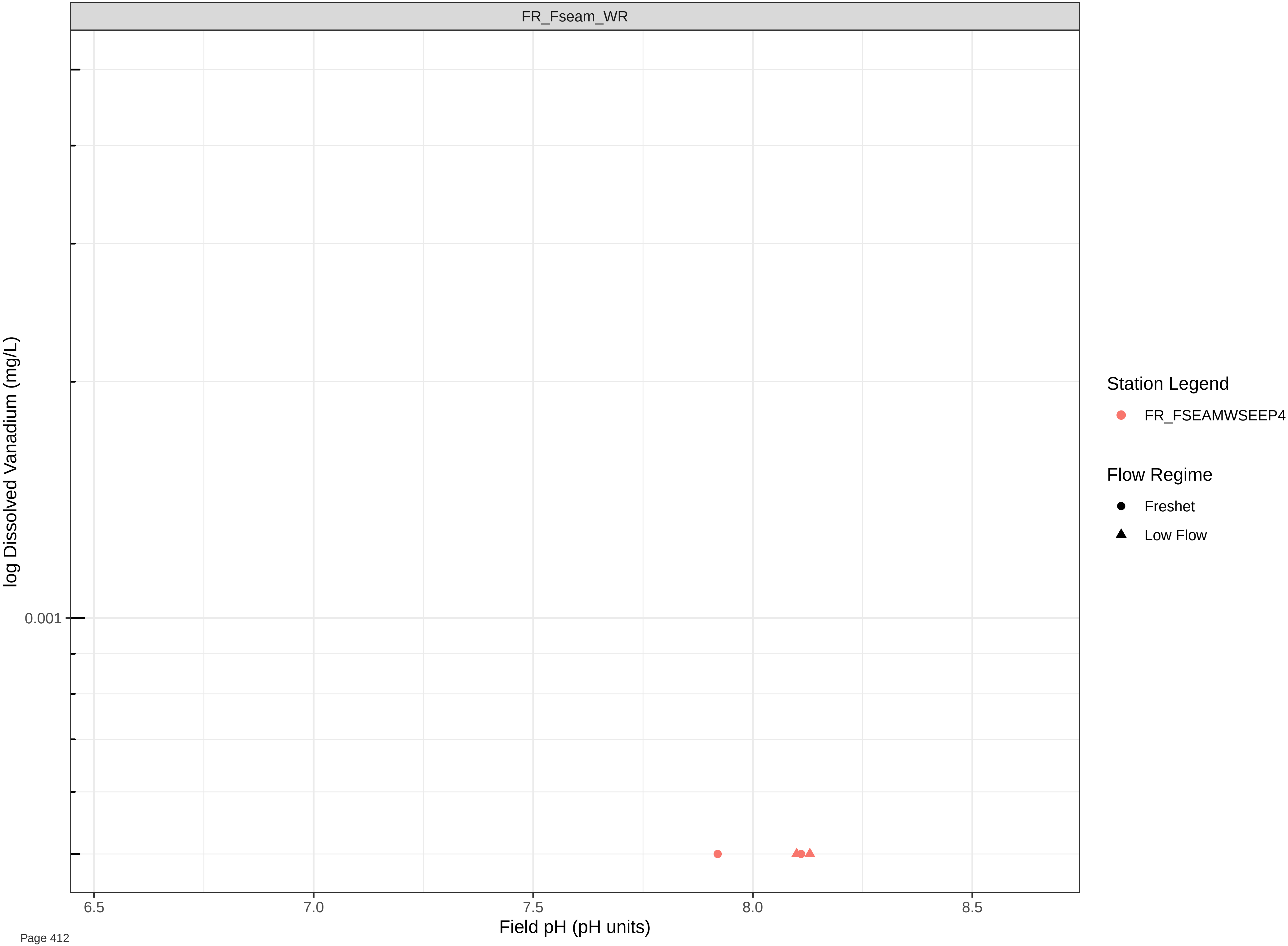

FR_A_WR
log Dissolved Vanadium (mg/L)
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

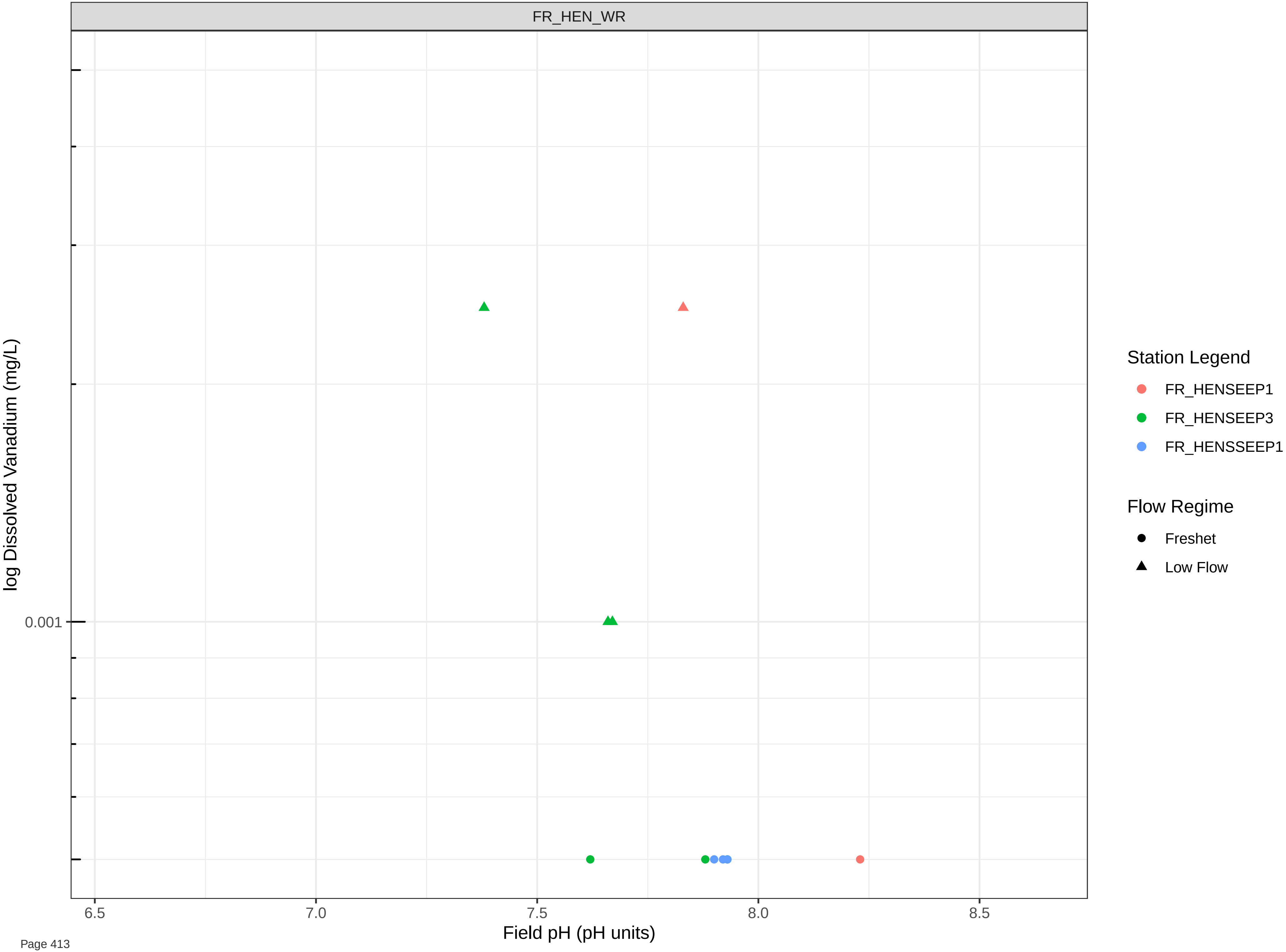

FR_Blain_CCR
log Dissolved Vanadium (mg/L)
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

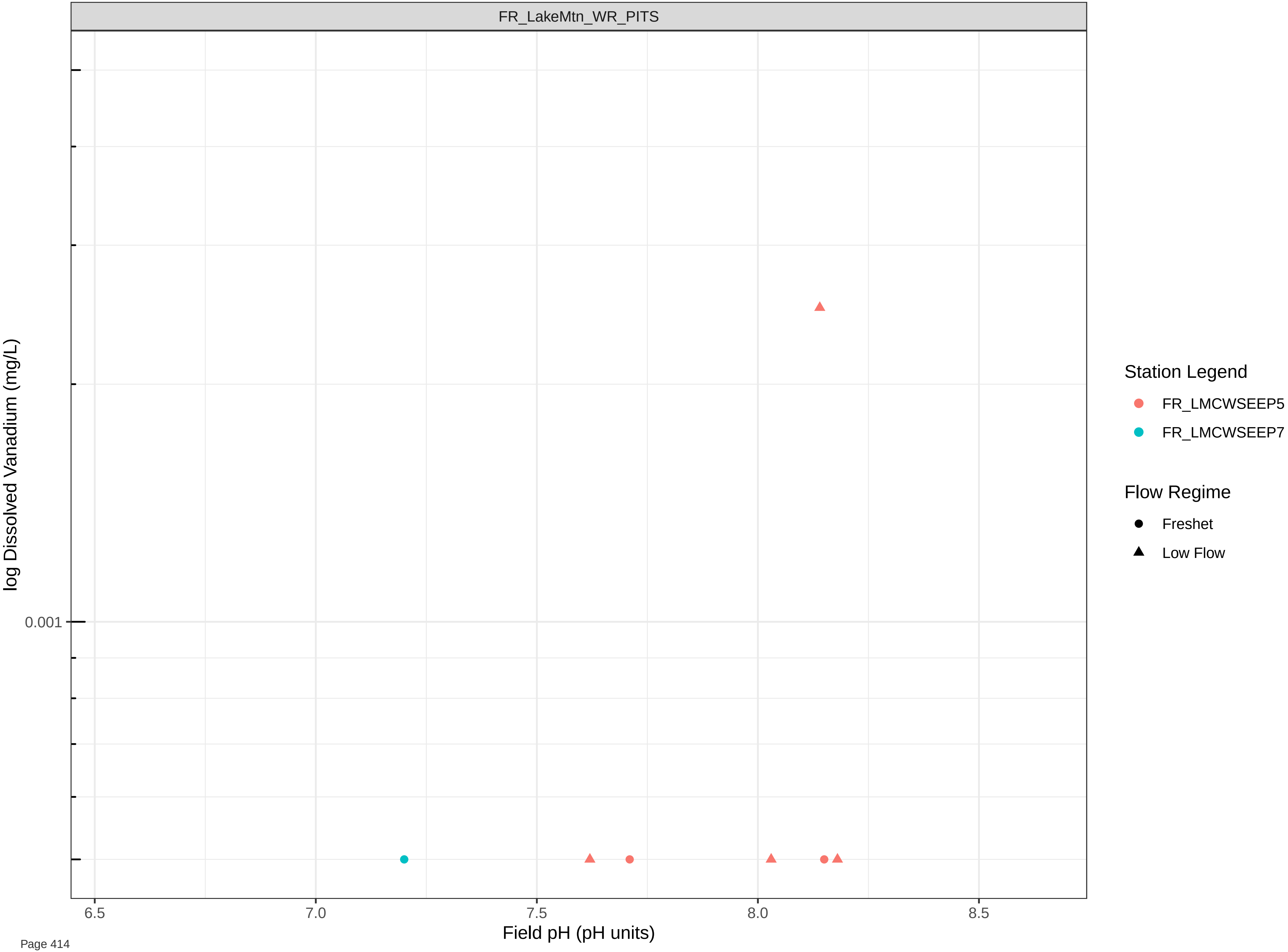

FR_ClodeCr_WR
log Dissolved Vanadium (mg/L)
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

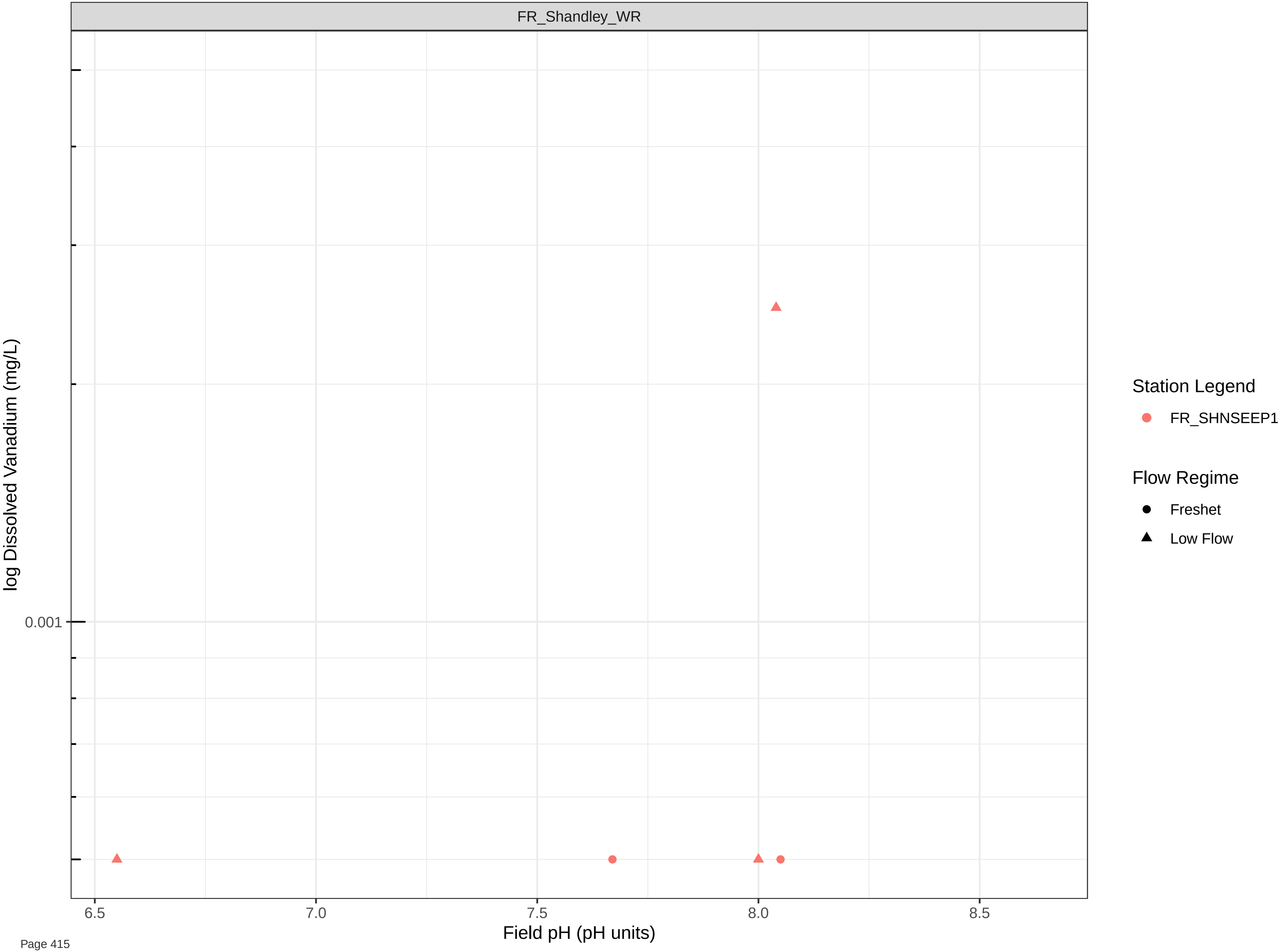

FR_DOKA_Unknown
log Dissolved Vanadium (mg/L)
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

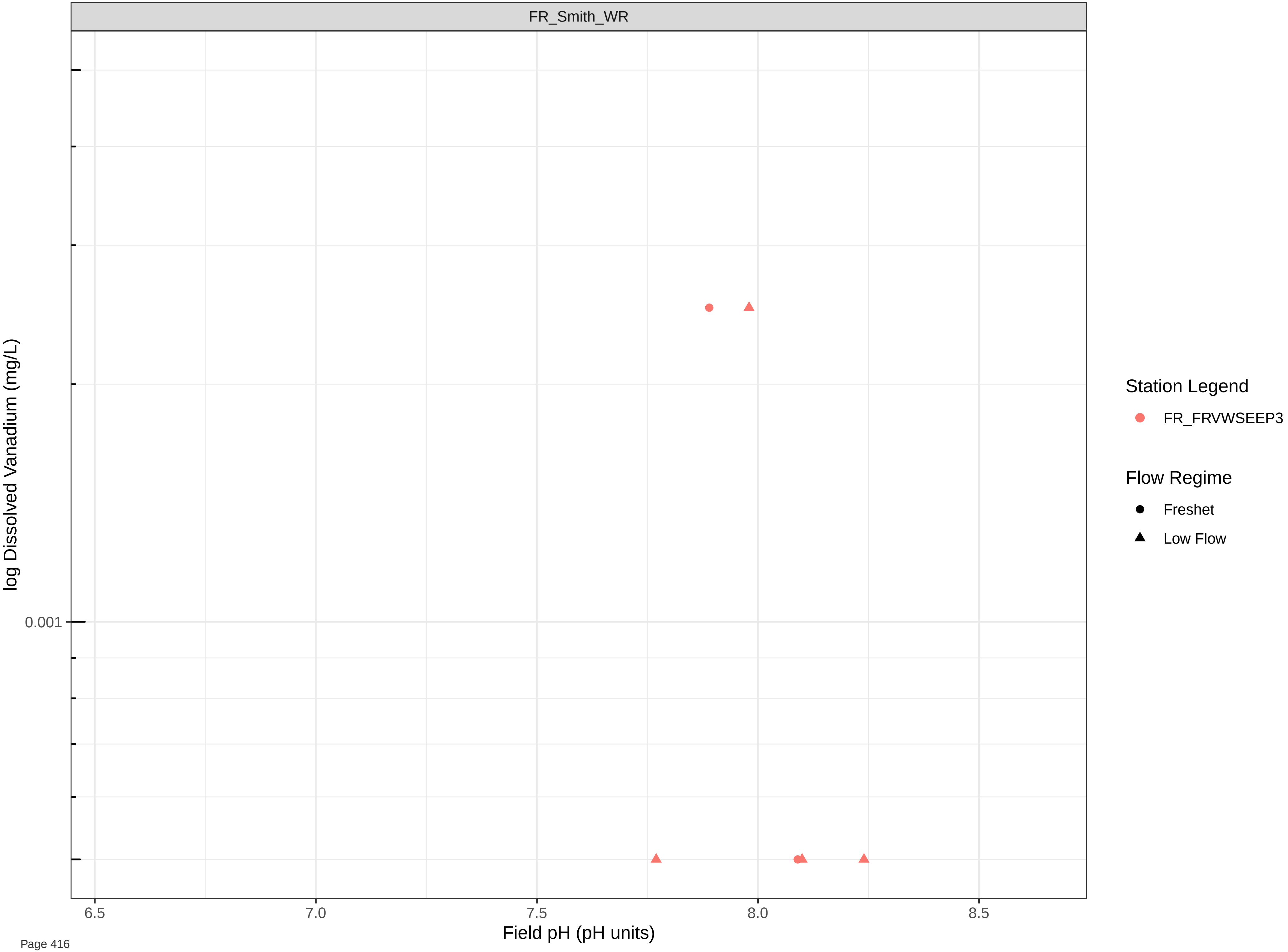

FR_Eagle_WR
log Dissolved Vanadium (mg/L)
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

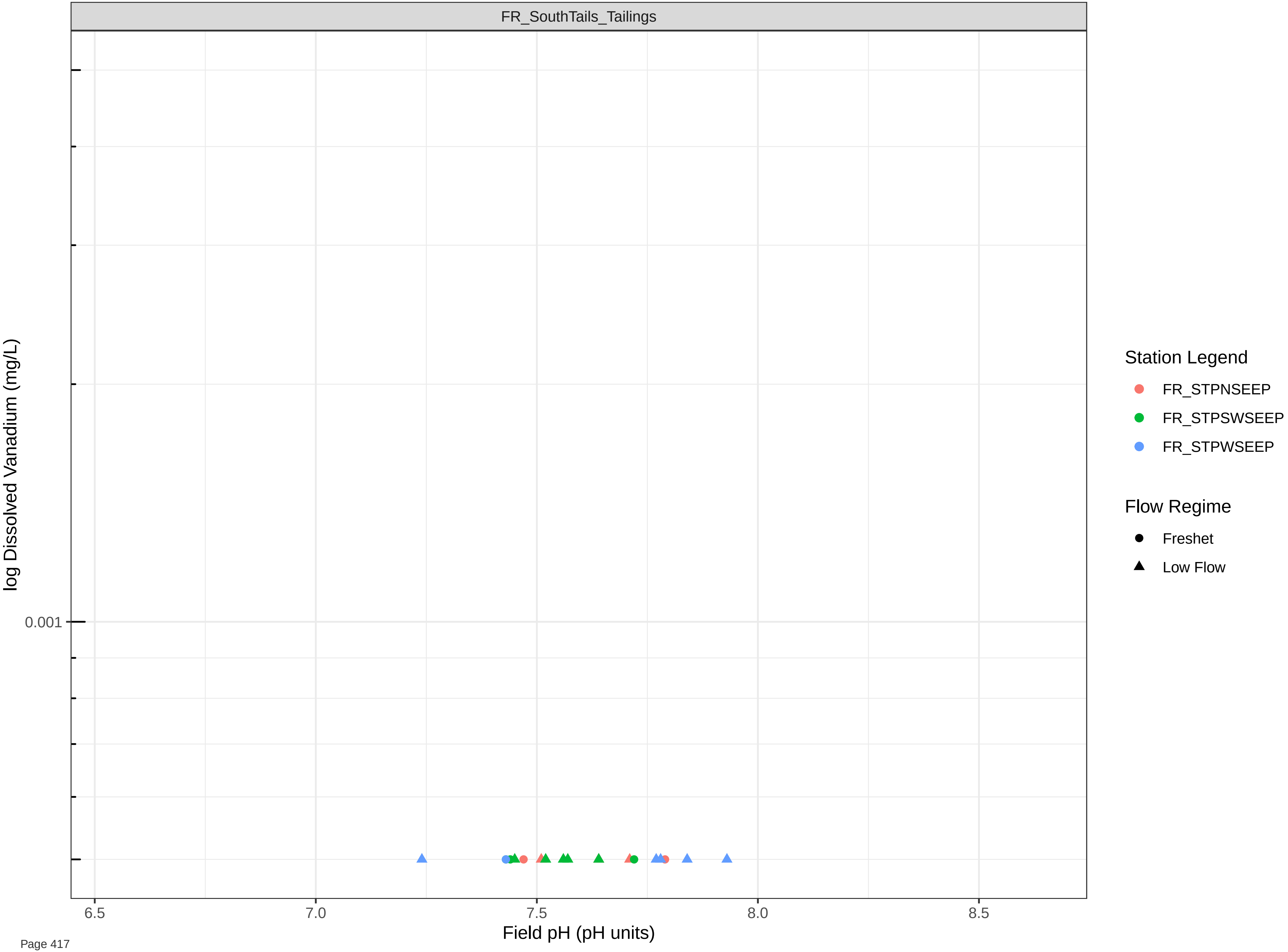

FR_Fseam_WR
log Dissolved Vanadium (mg/L)
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

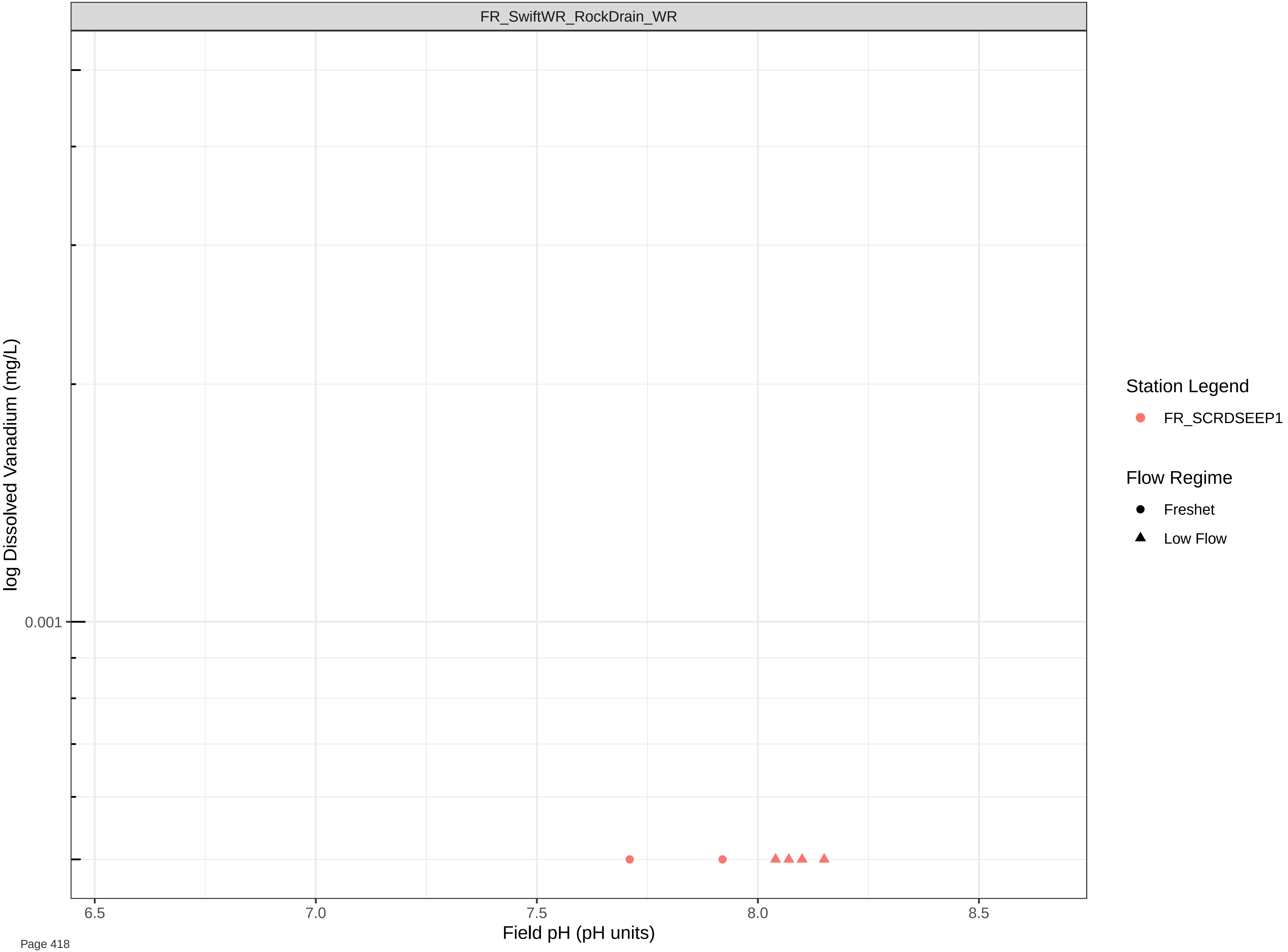

FR_HEN_WR
log Dissolved Vanadium (mg/L)
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

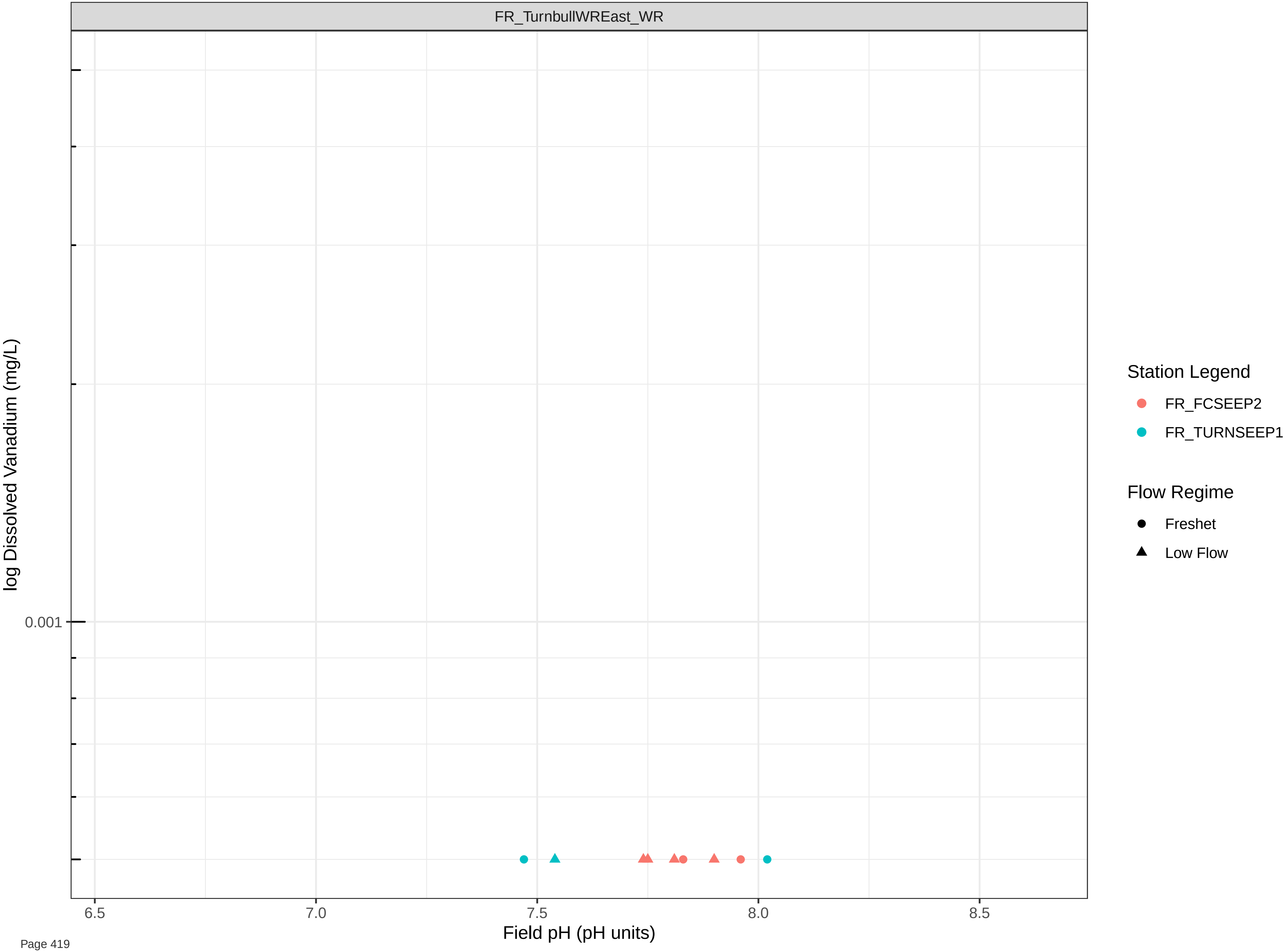

FR_LakeMtn_WR_PITS
log Dissolved Vanadium (mg/L)
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

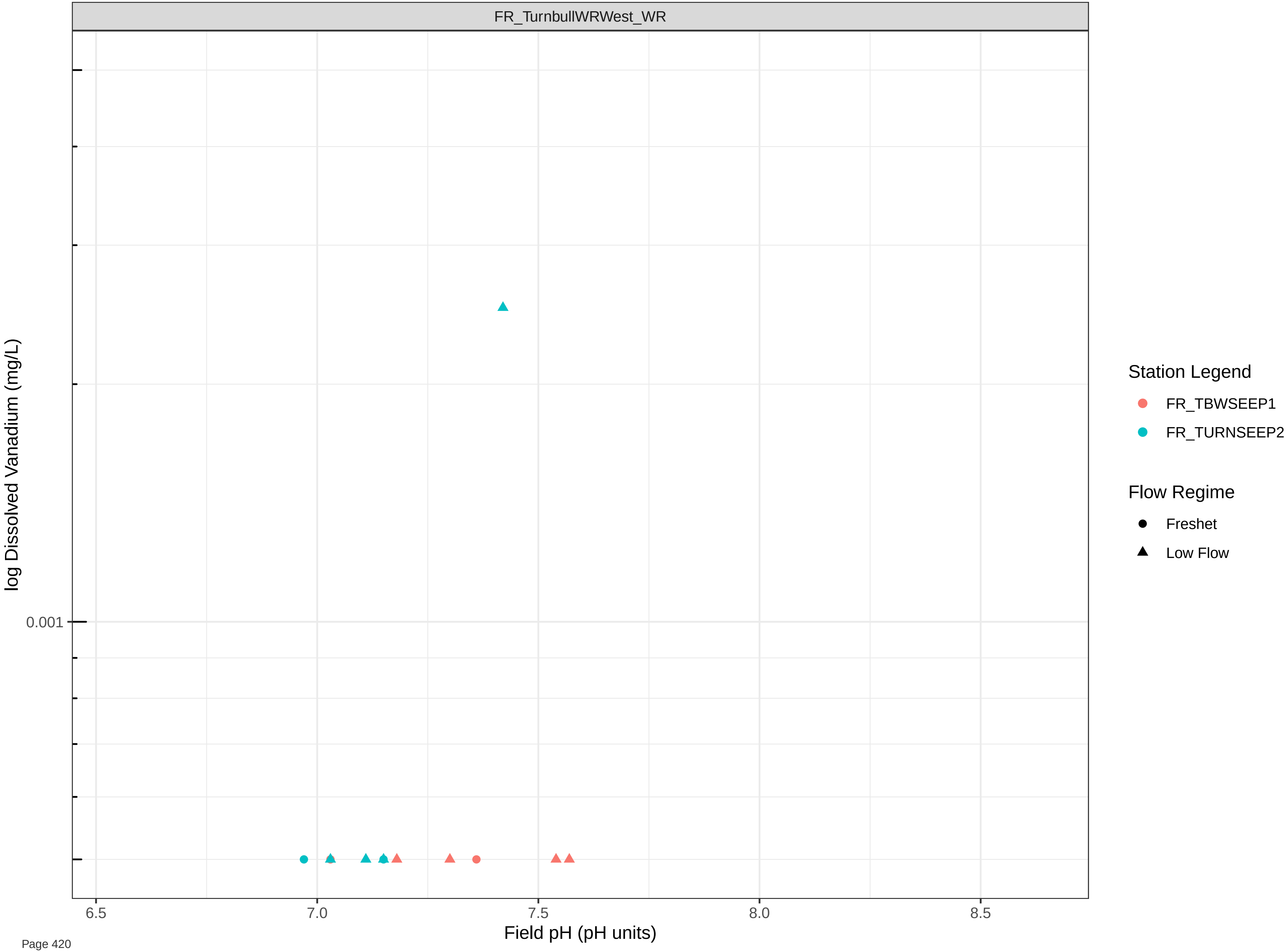

FR_Shandley_WR
log Dissolved Vanadium (mg/L)
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

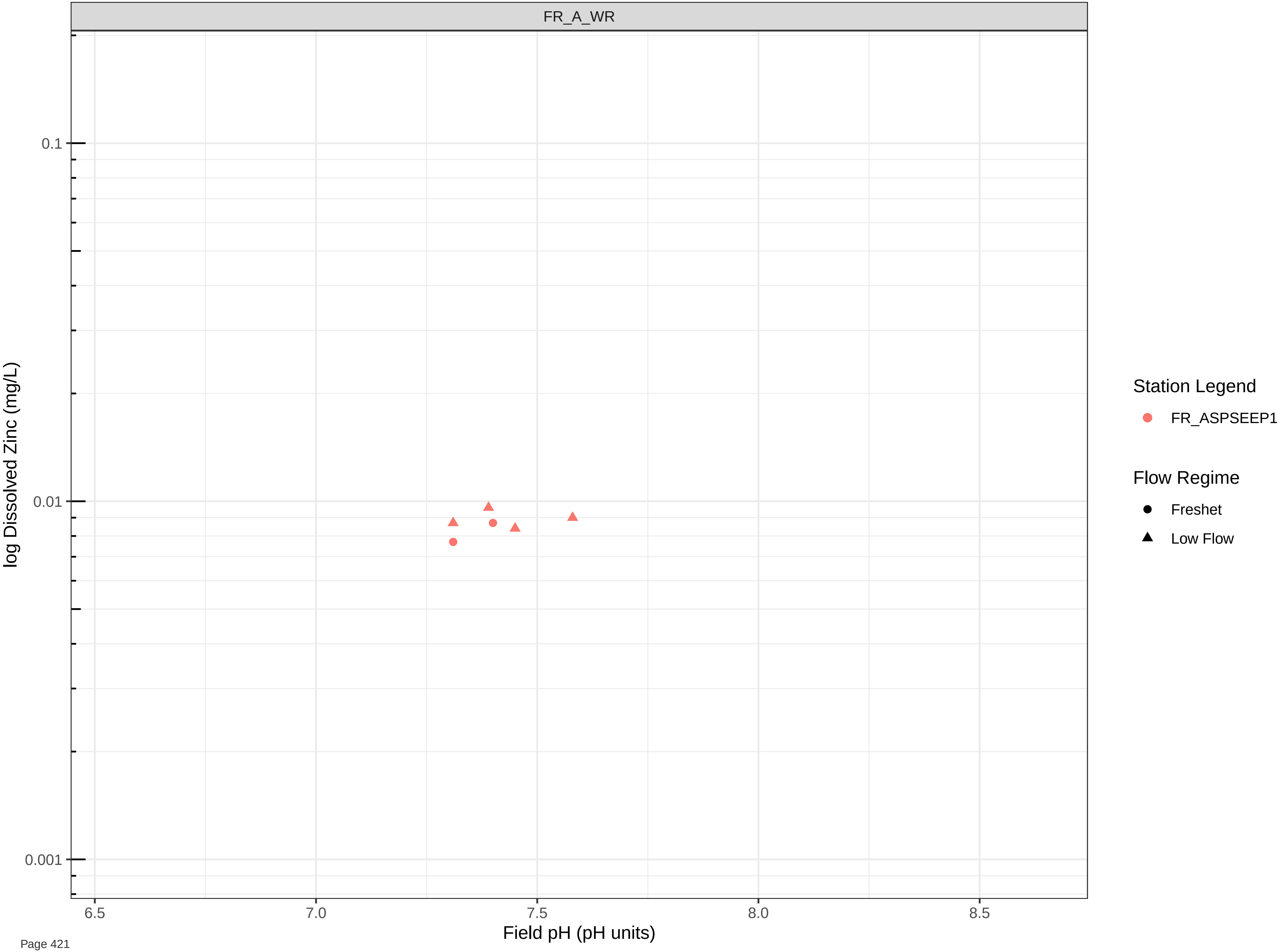

FR_Smith_WR
log Dissolved Vanadium (mg/L)
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

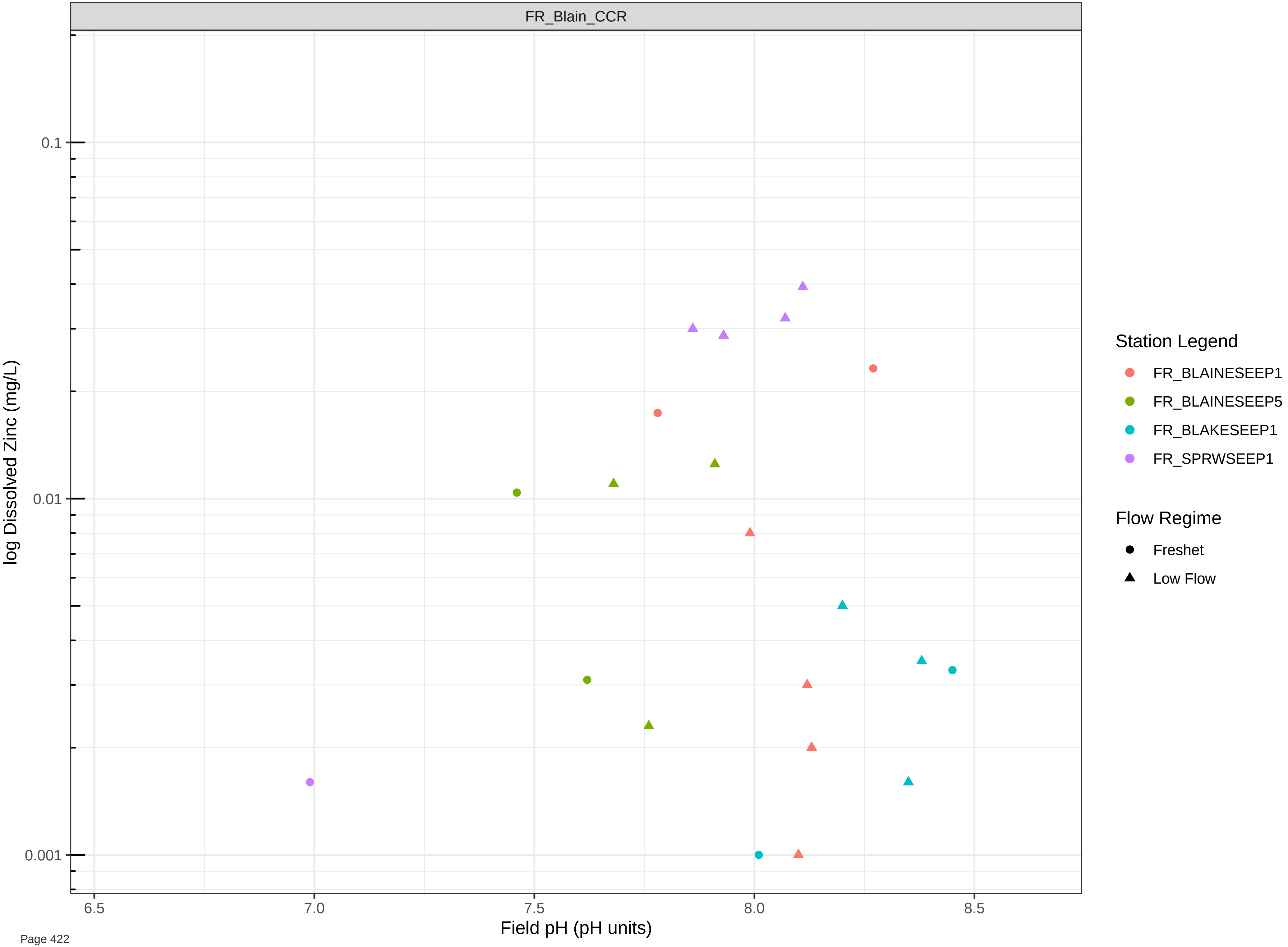

FR_SouthTails_Tailings
log Dissolved Vanadium (mg/L)
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

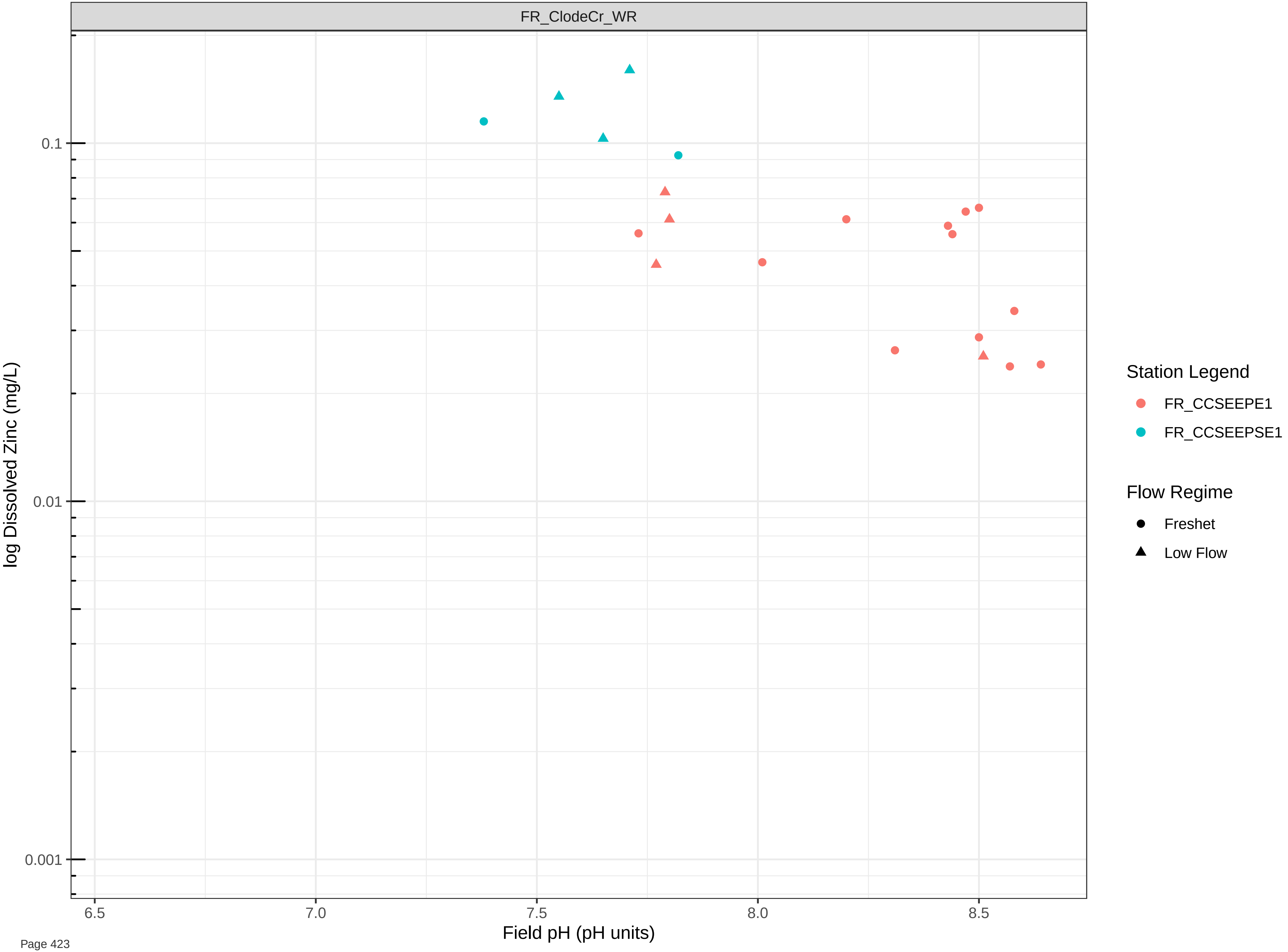

FR_SwiftWR_RockDrain_WR
log Dissolved Vanadium (mg/L)
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

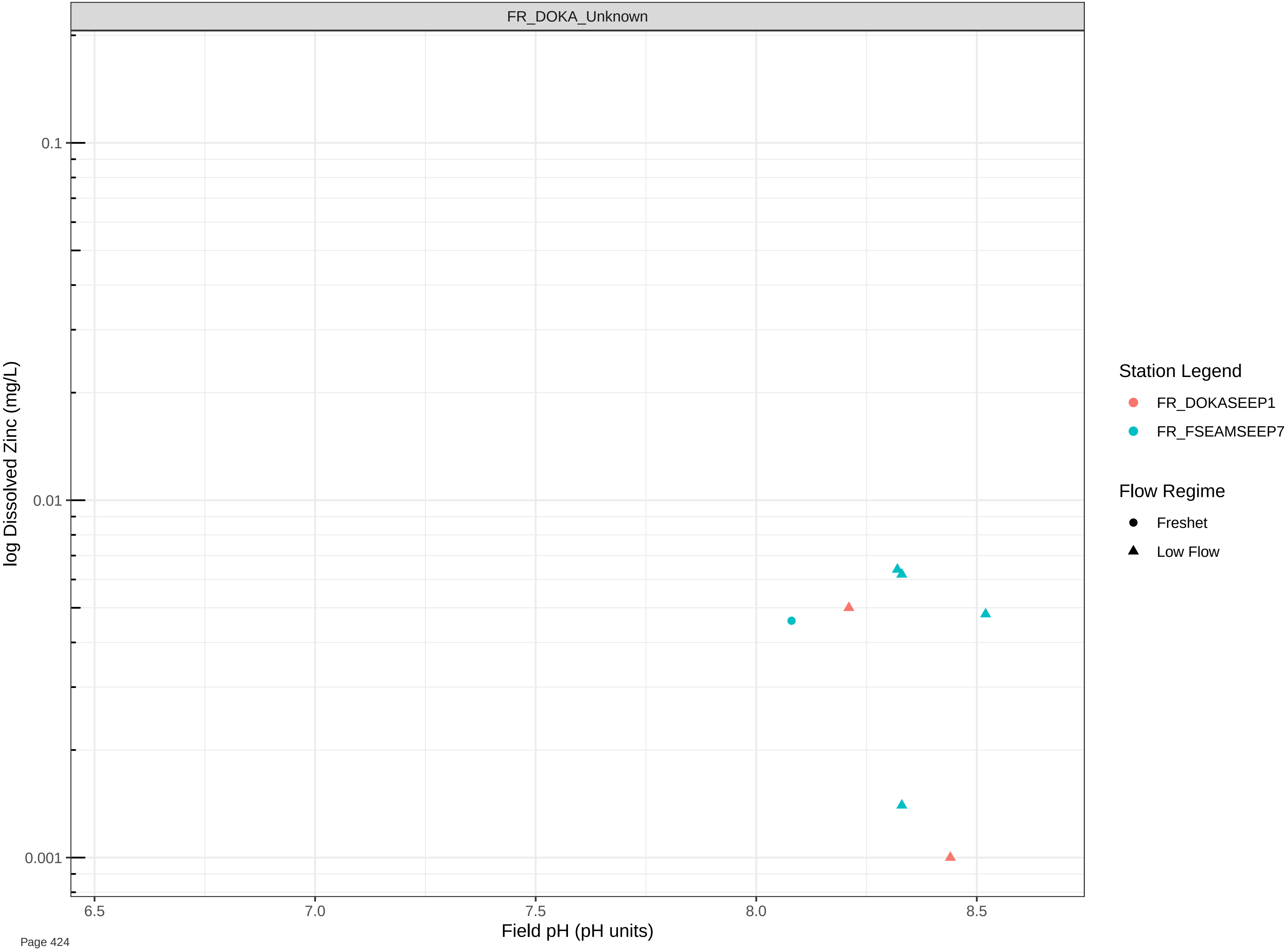

FR_TurnbullWREast_WR
log Dissolved Vanadium (mg/L)
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

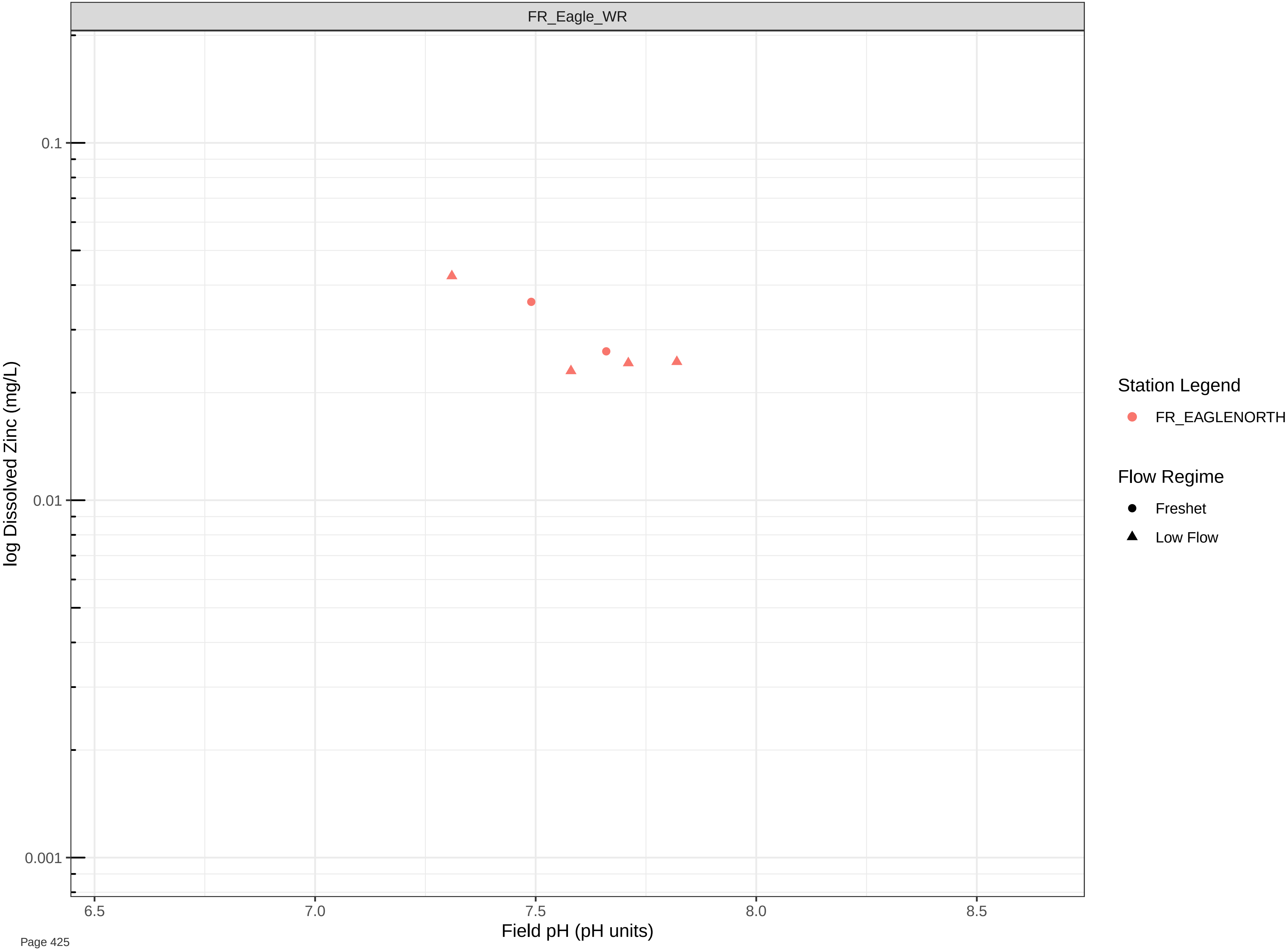

FR_TurnbullWRWest_WR
log Dissolved Vanadium (mg/L)
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

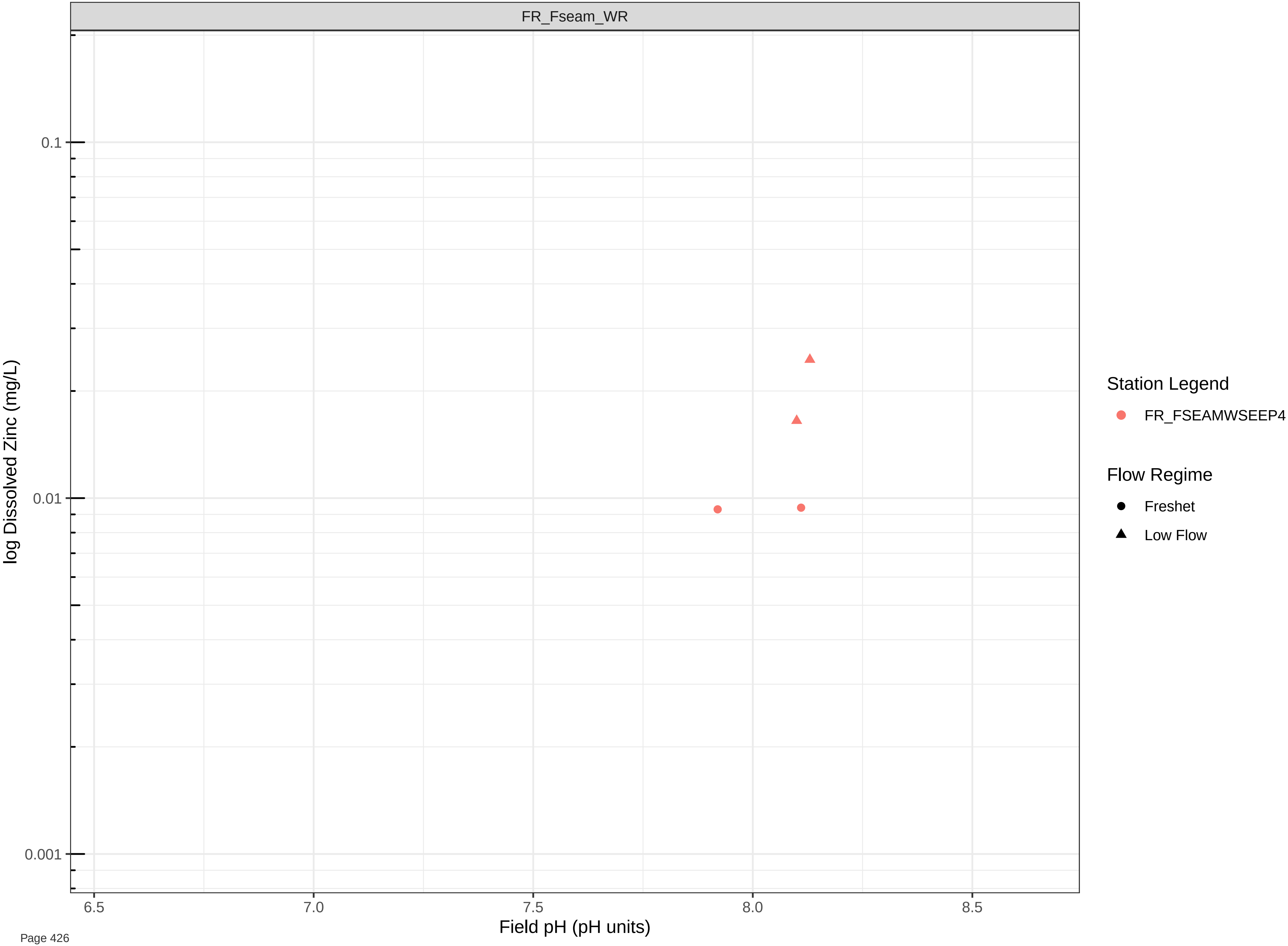

FR_A_WR
0.1
0.01
0.001
log Dissolved Zinc (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

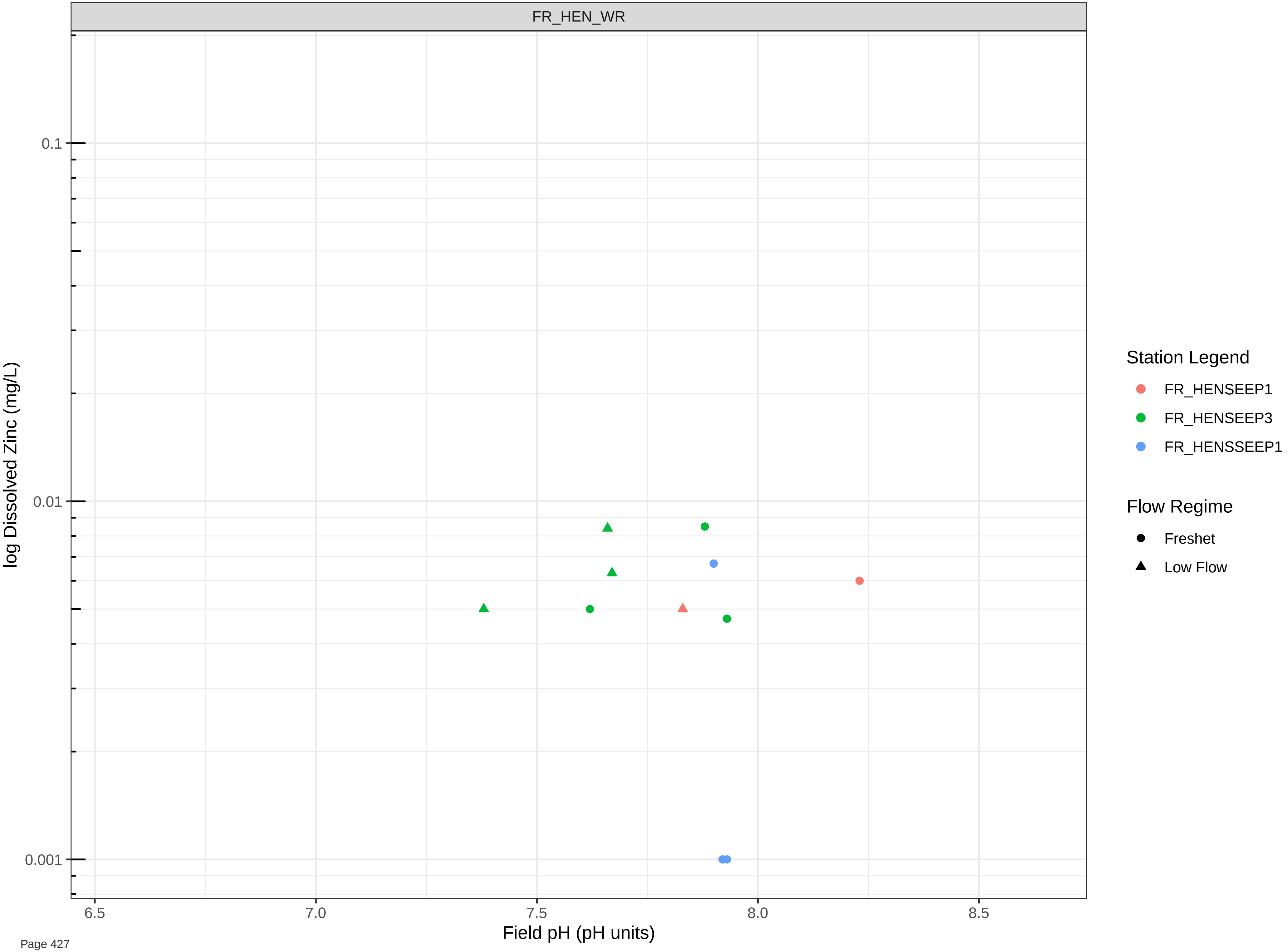

FR_Blain_CCR
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

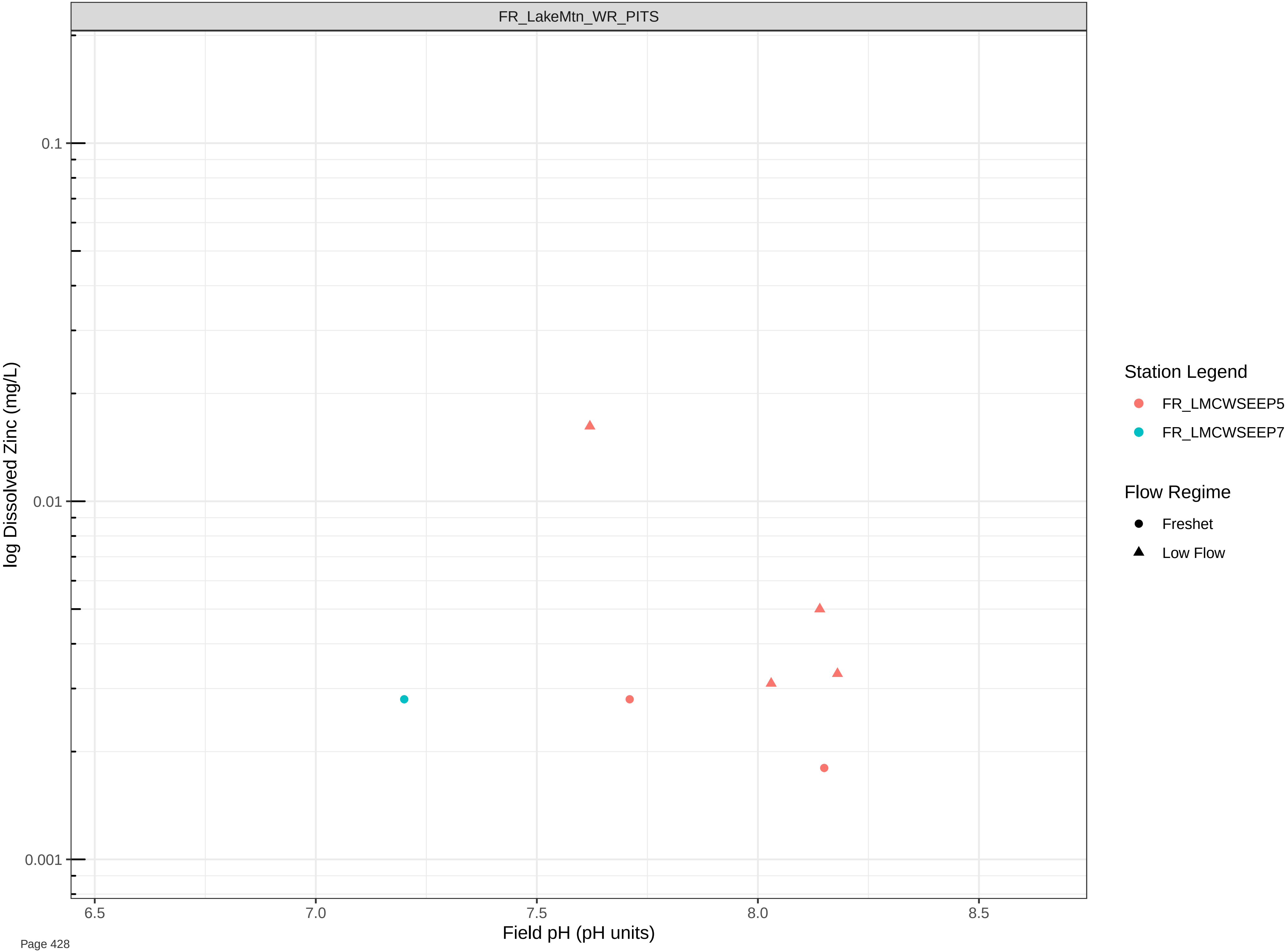

FR_ClodeCr_WR
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

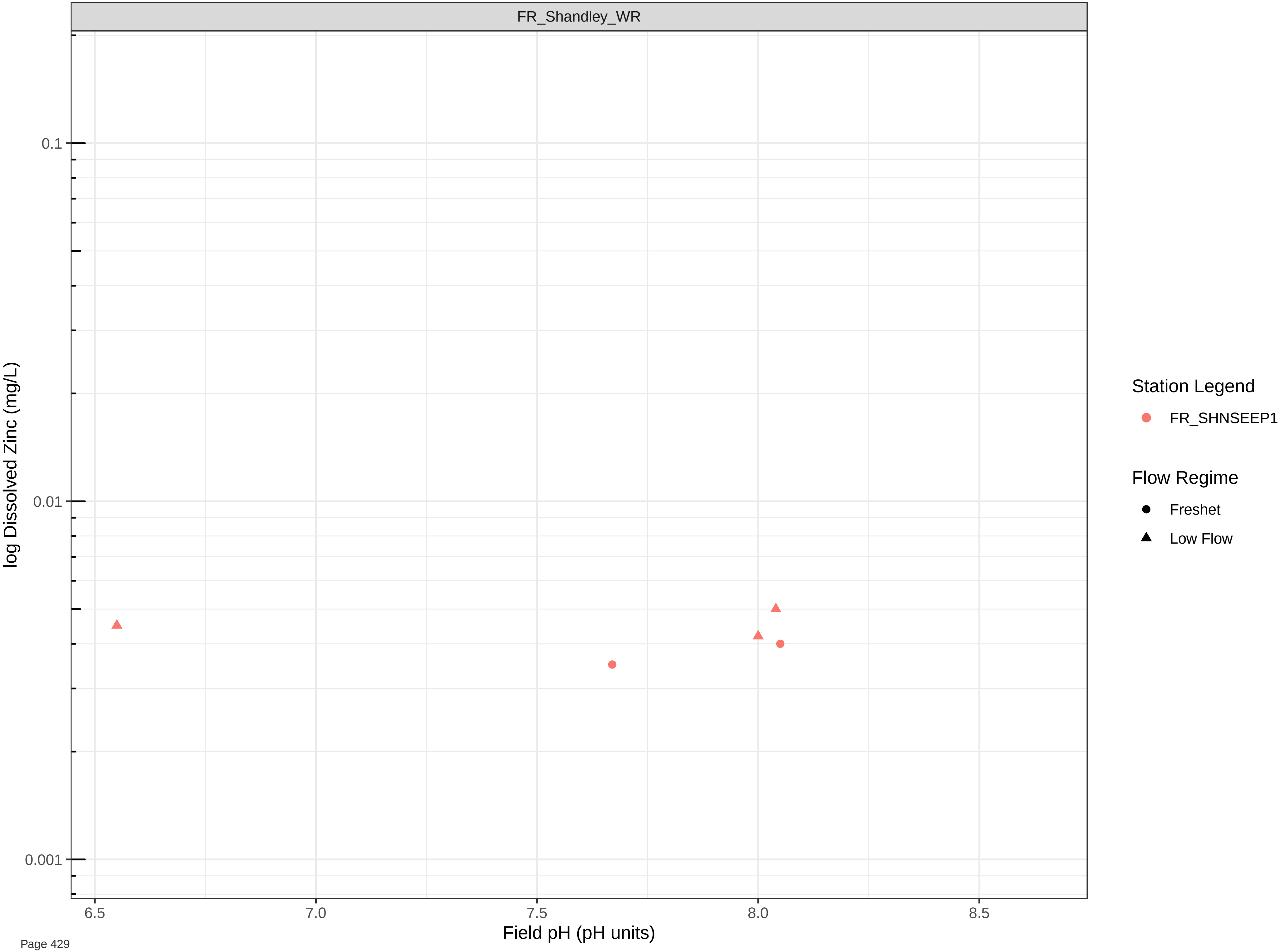

FR_DOKA_Unknown
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

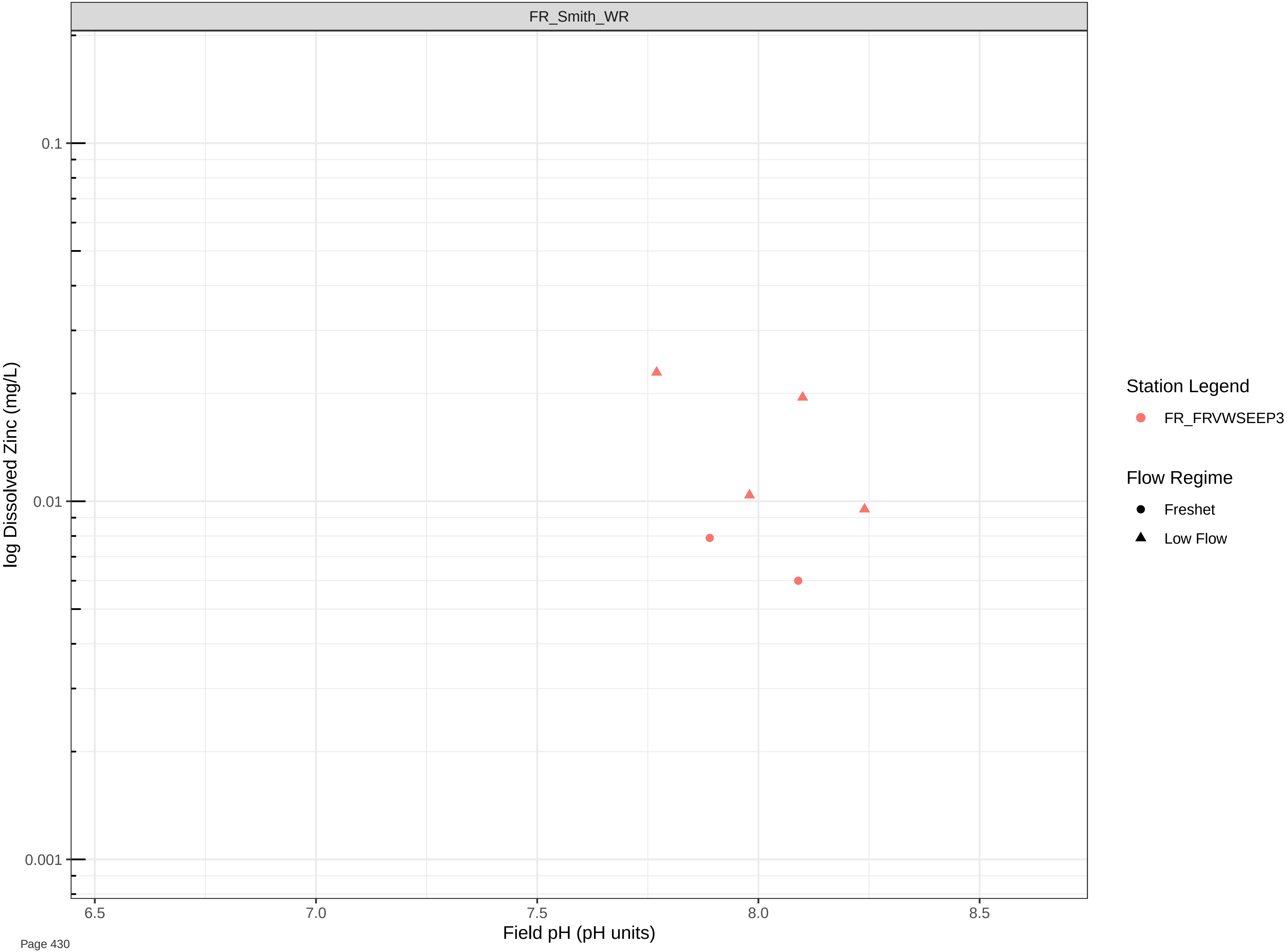

FR_Eagle_WR
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

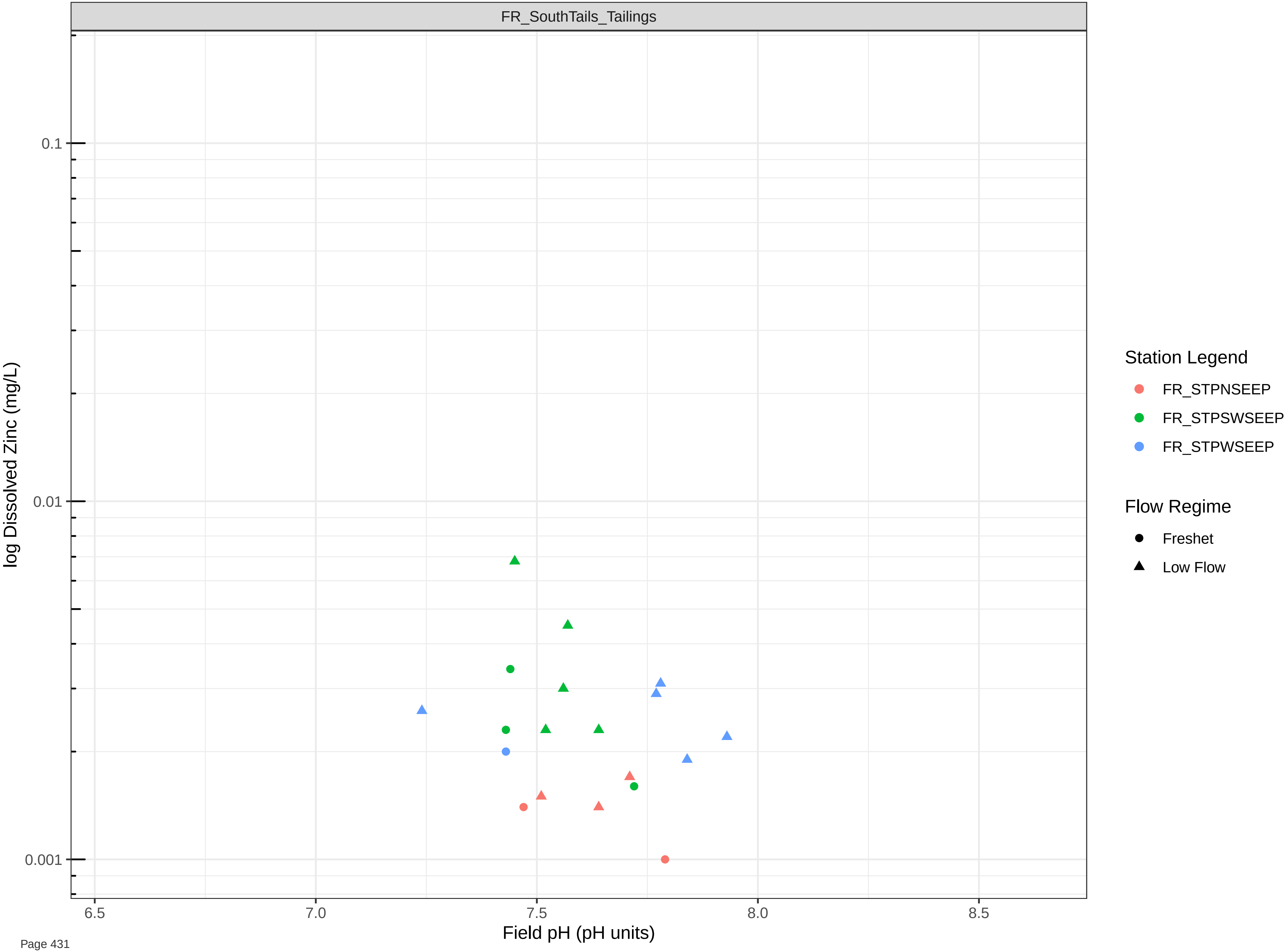

FR_Fseam_WR
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

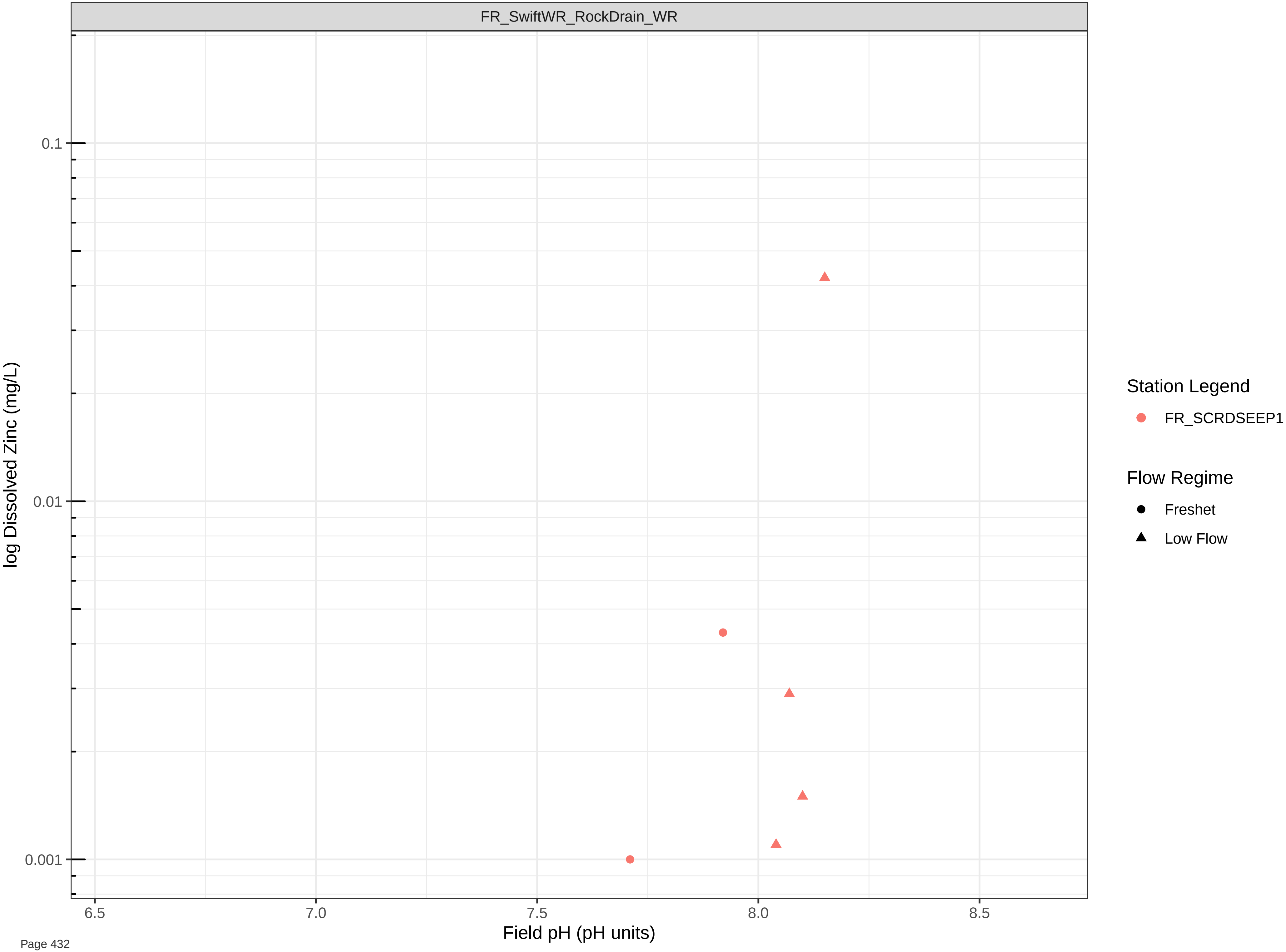

FR_HEN_WR
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

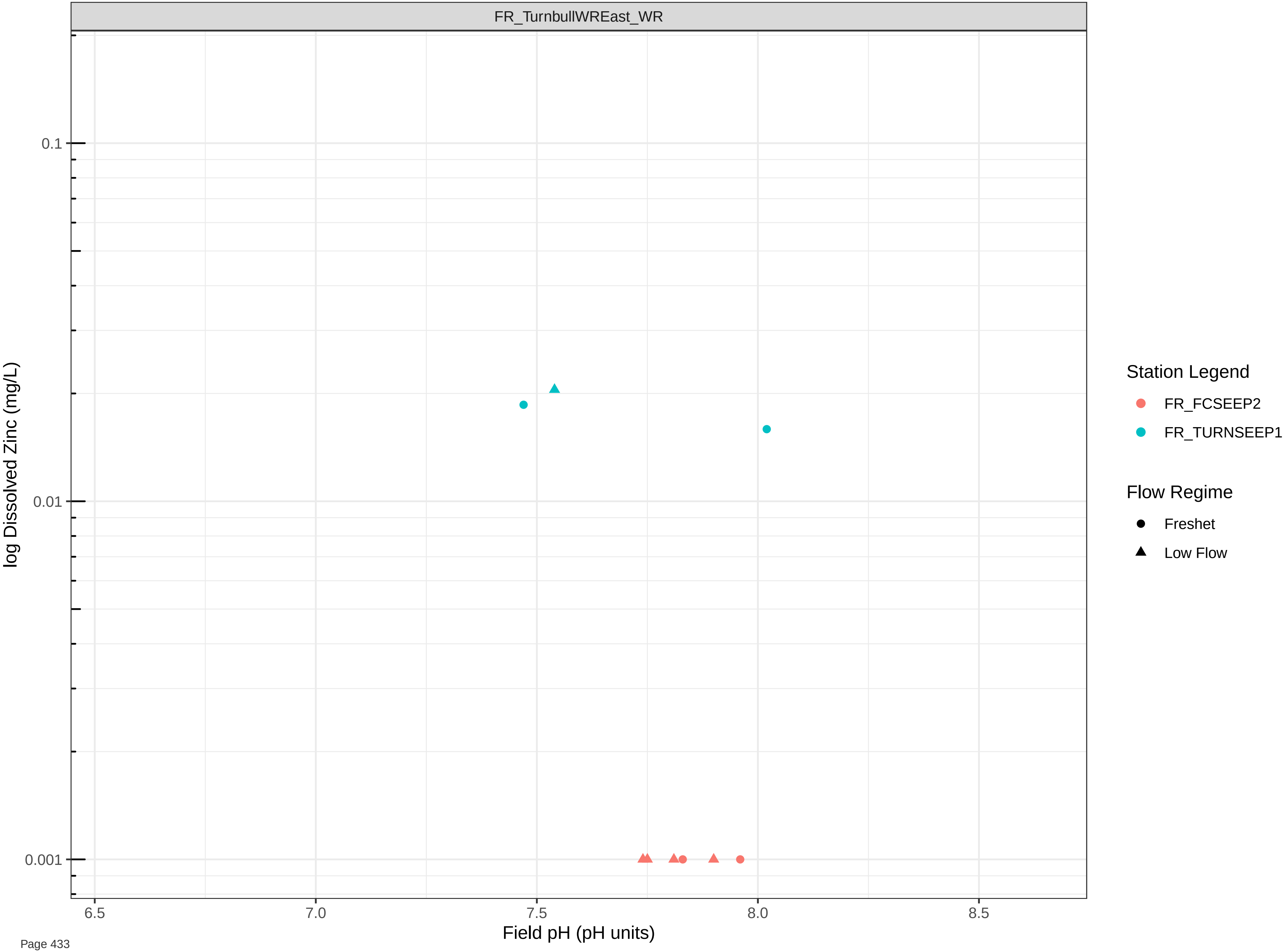

FR_LakeMtn_WR_PITS
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

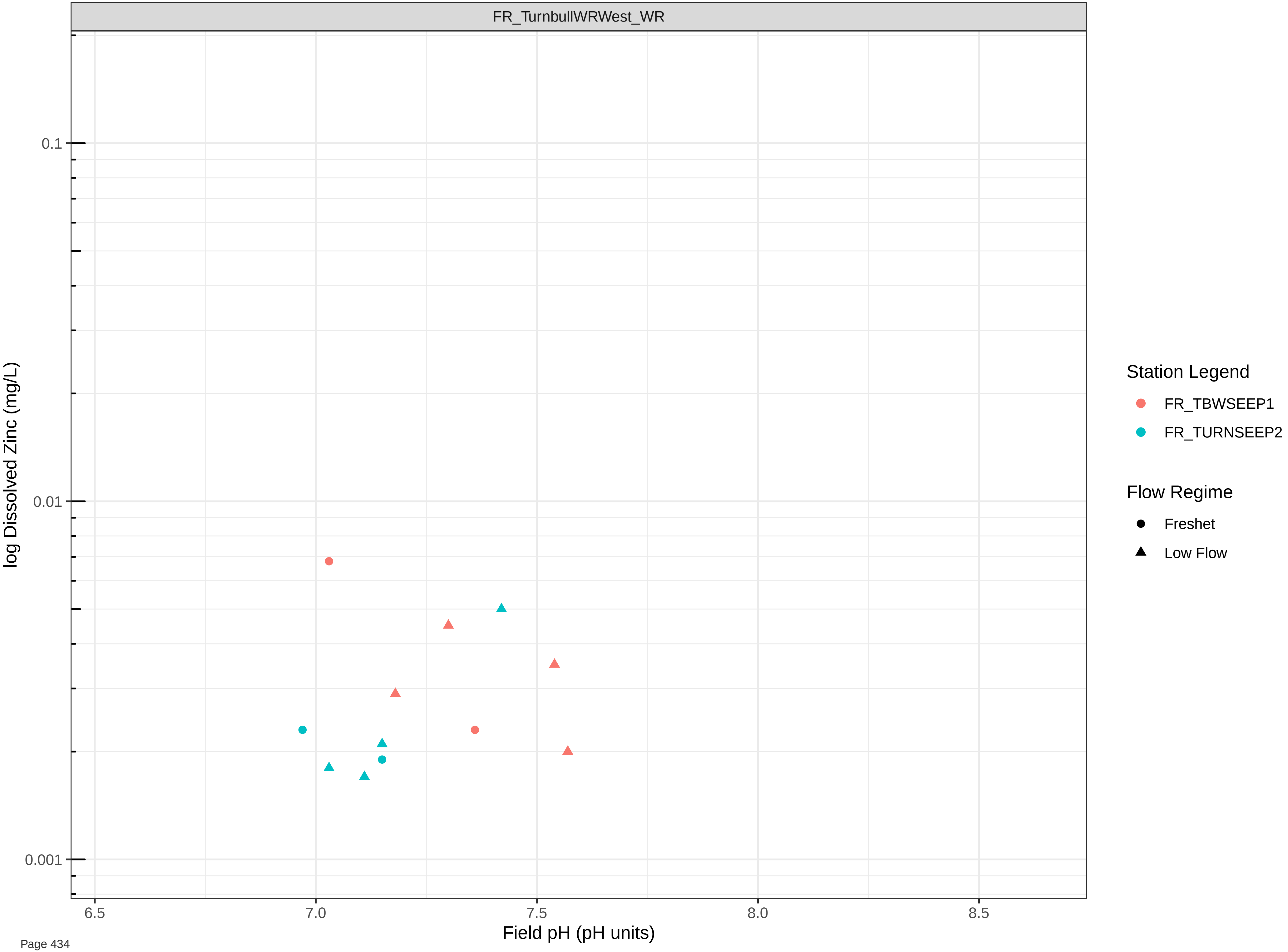

FR_Shandley_WR
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

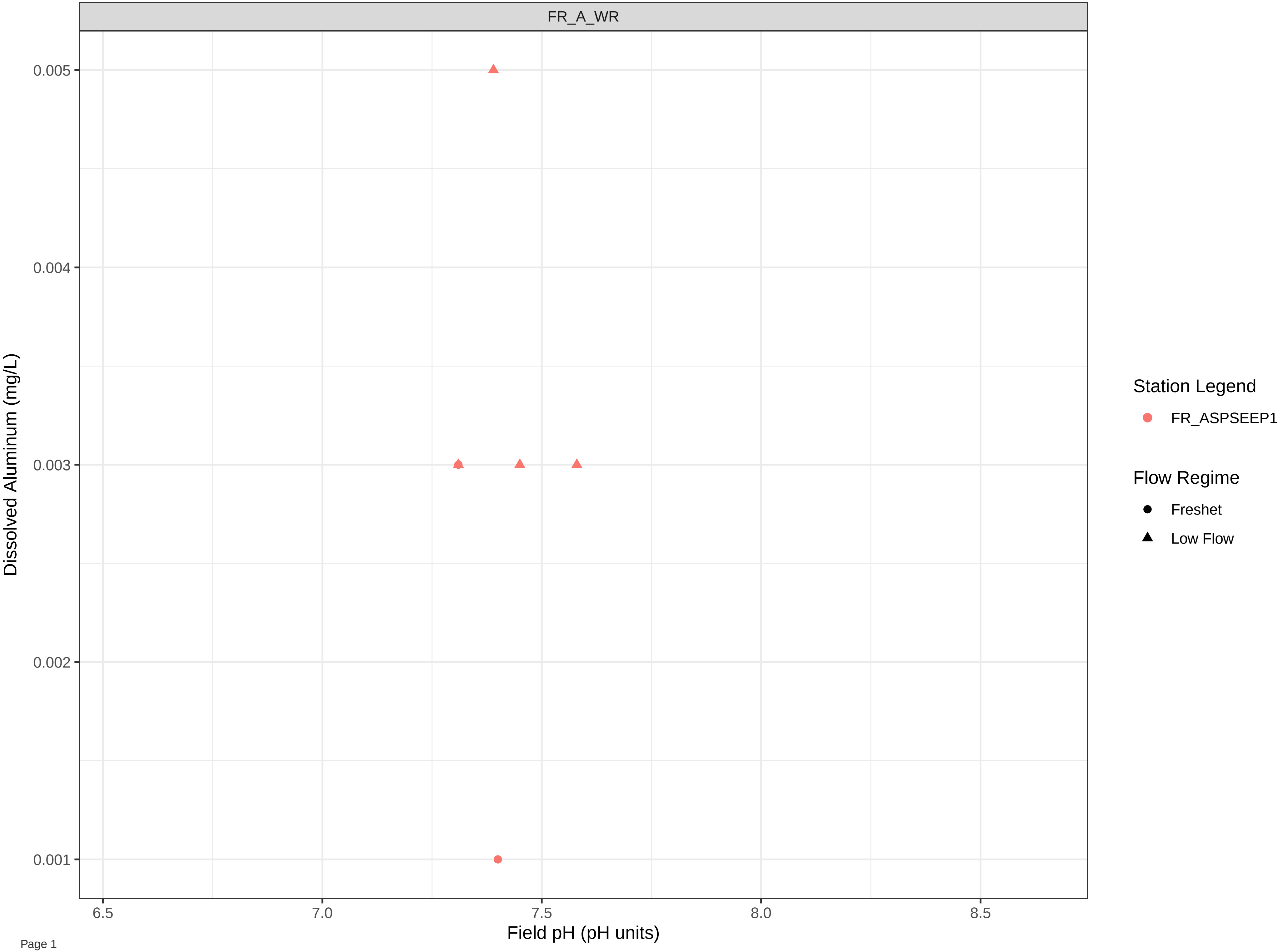

FR_Smith_WR
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

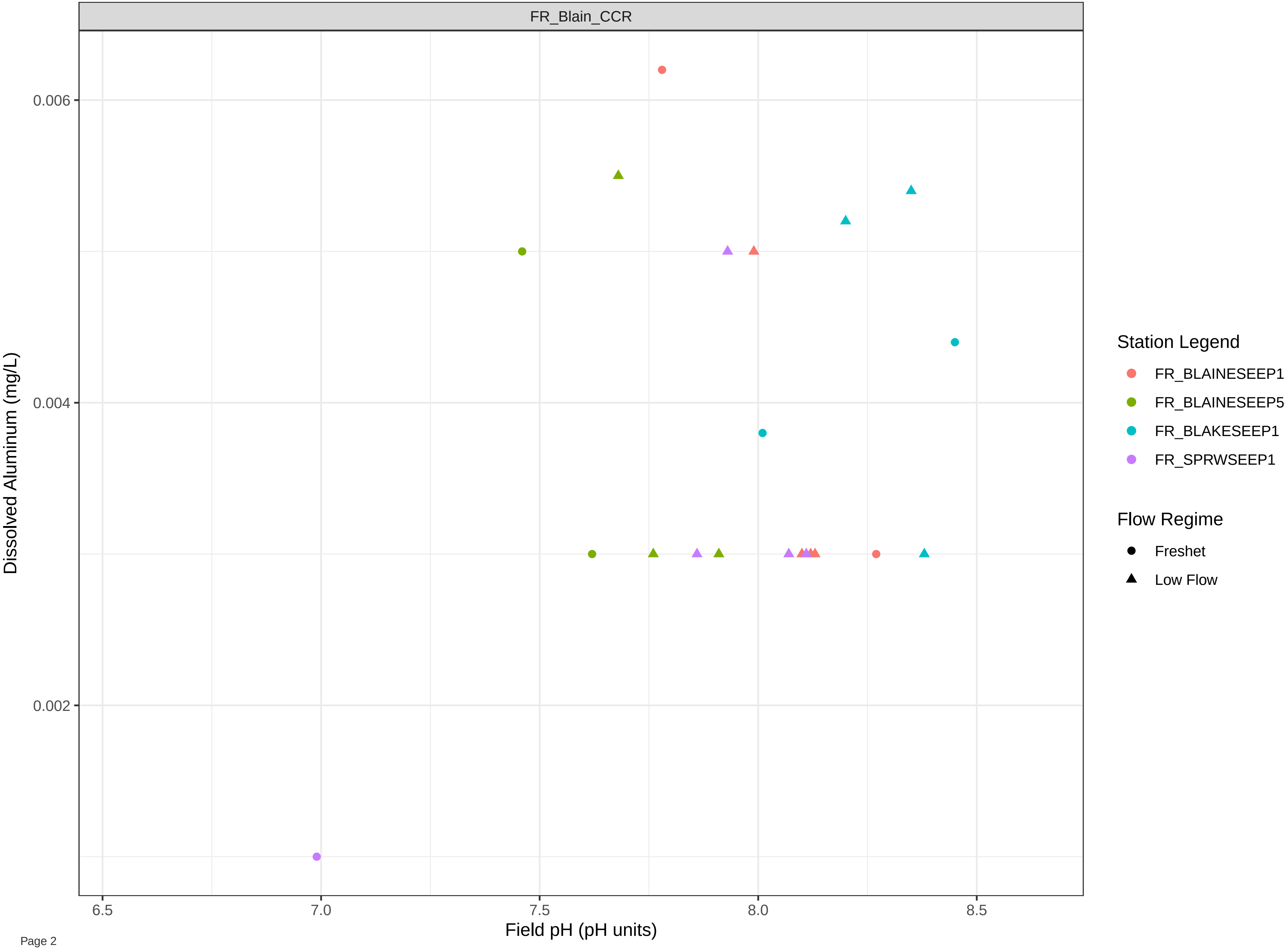

FR_SouthTails_Tailings
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

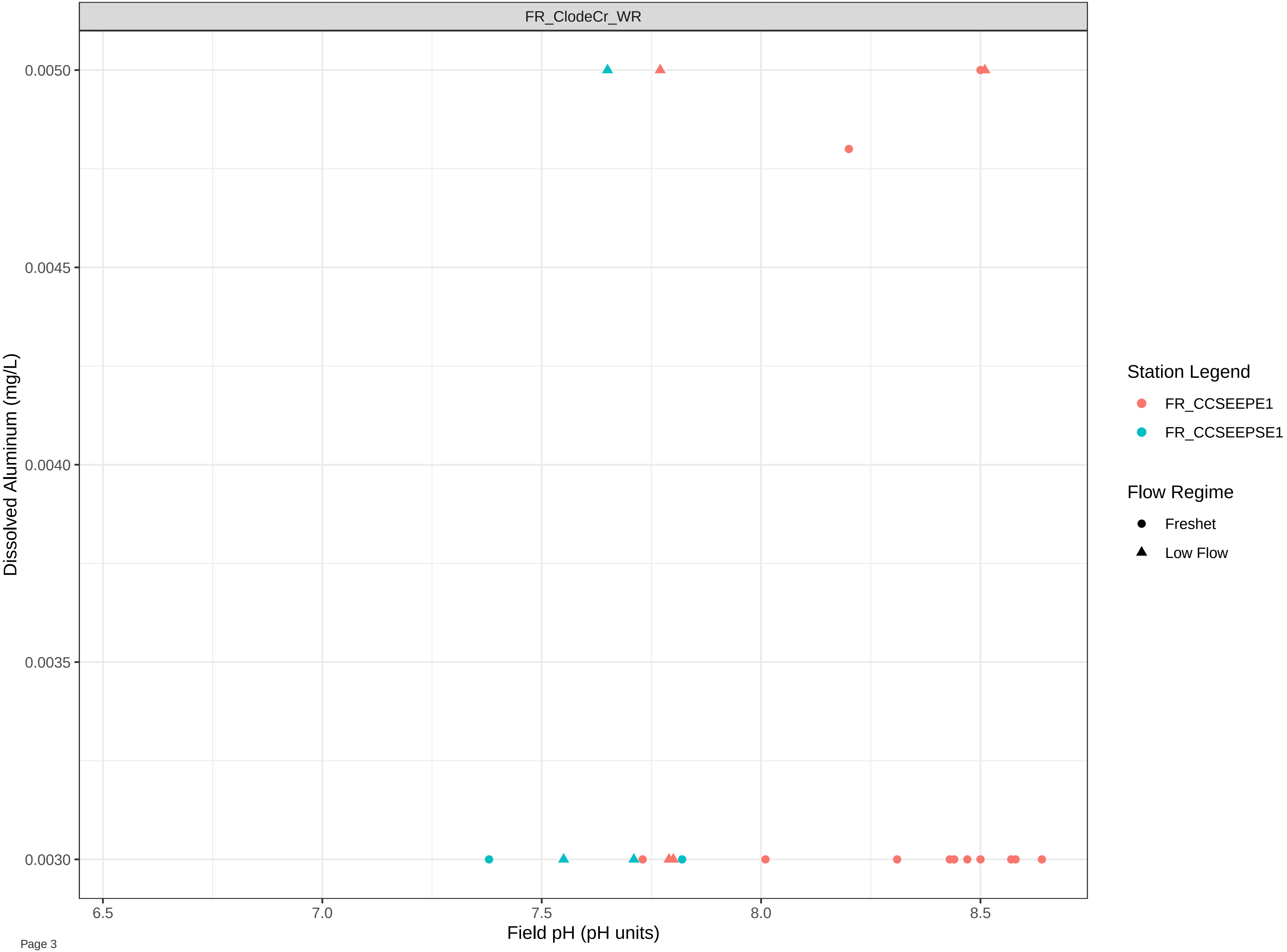

FR_SwiftWR_RockDrain_WR
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

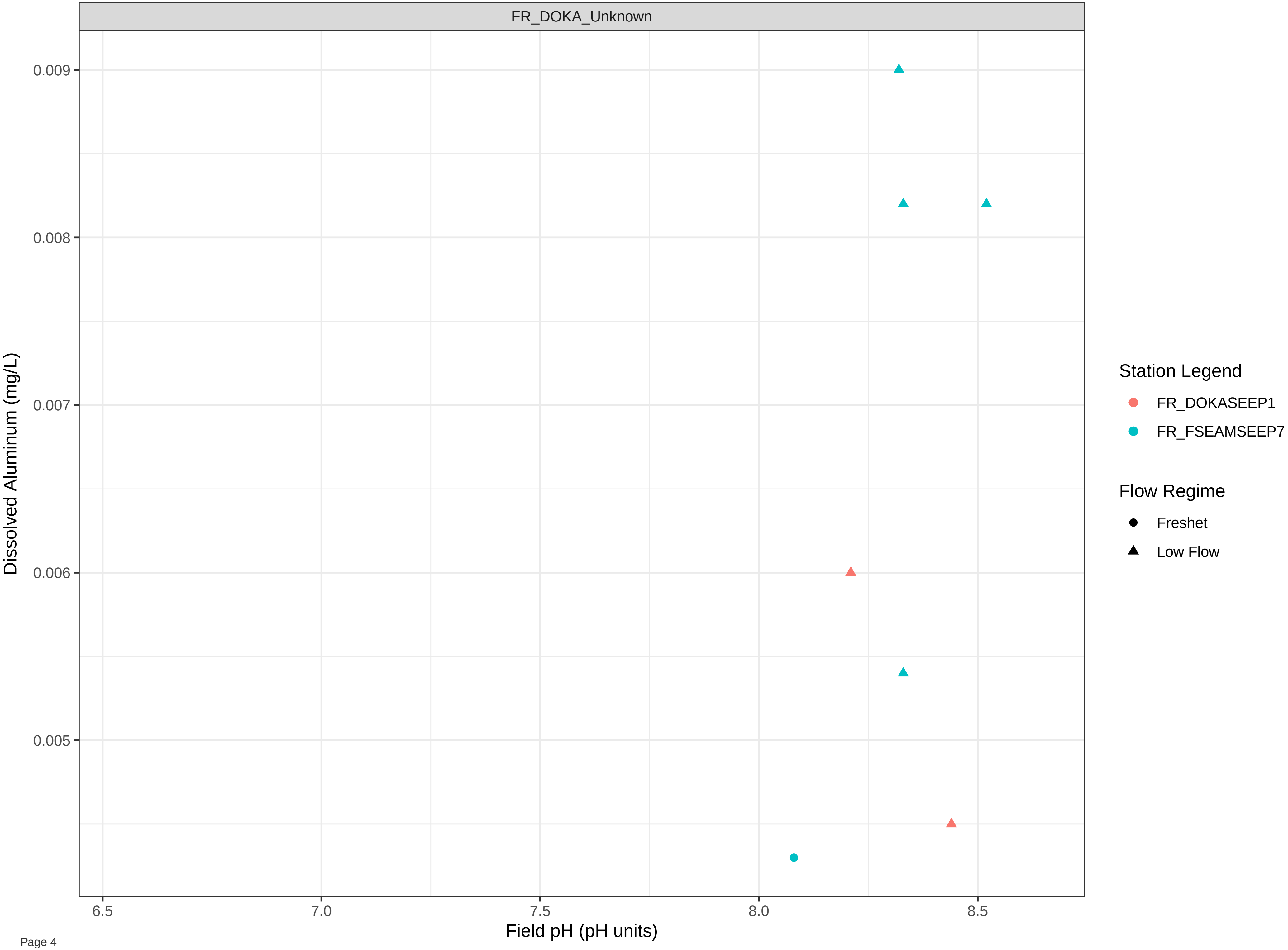

FR_TurnbullWREast_WR
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

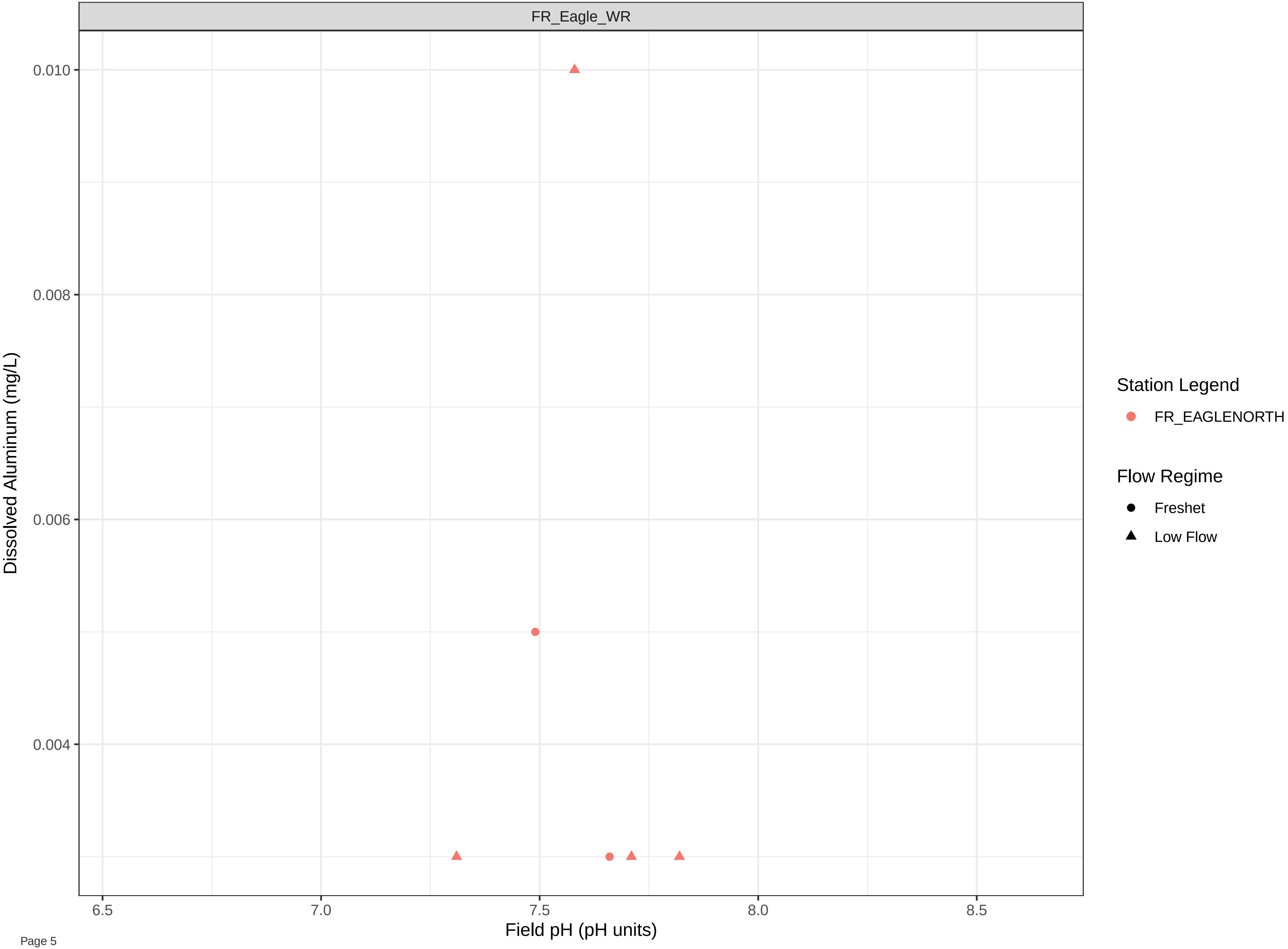

FR_TurnbullWRWest_WR
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

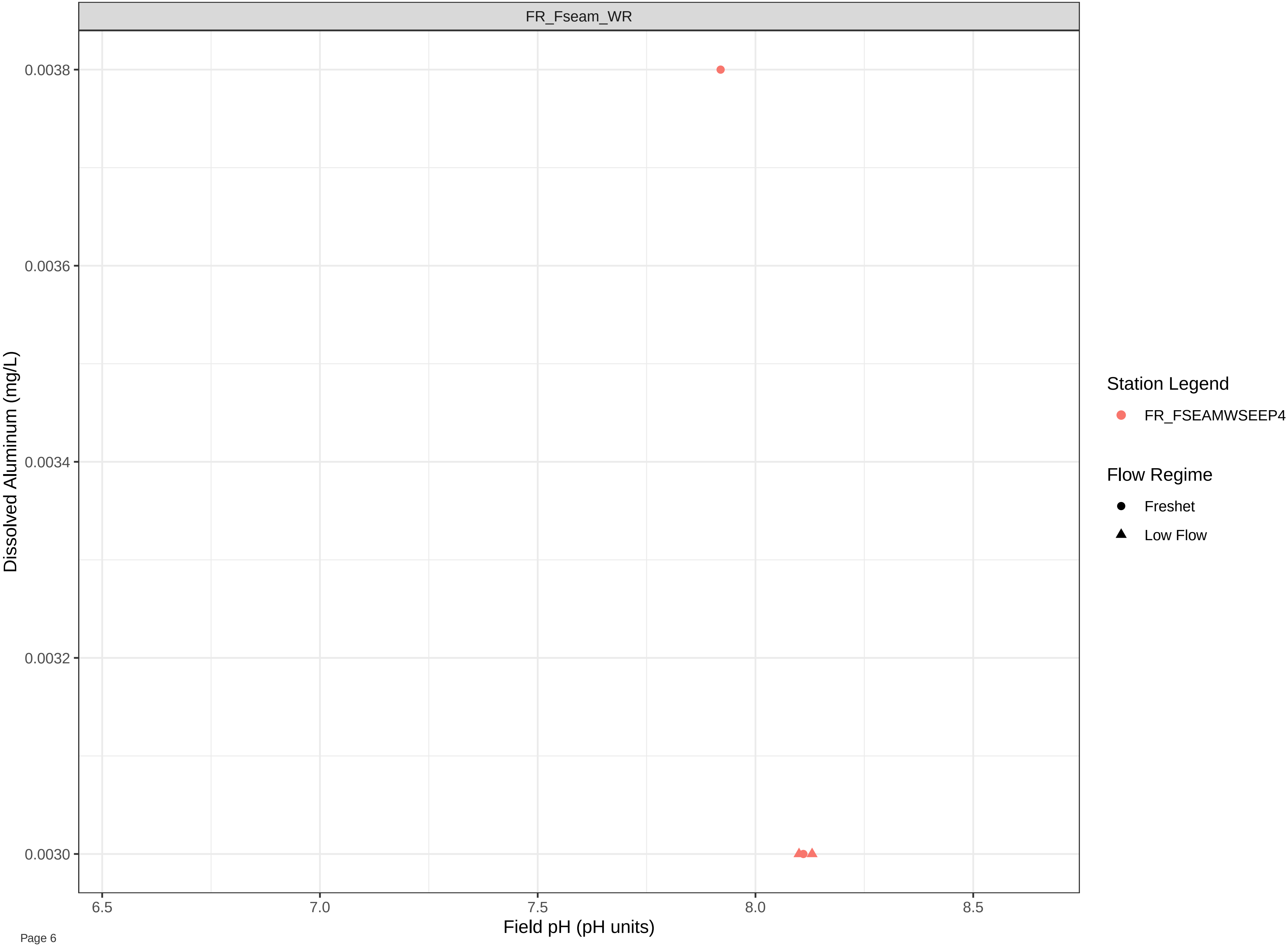

FR_A_WR
Dissolved Aluminum (mg/L)
0.005
0.004
0.003
0.002
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

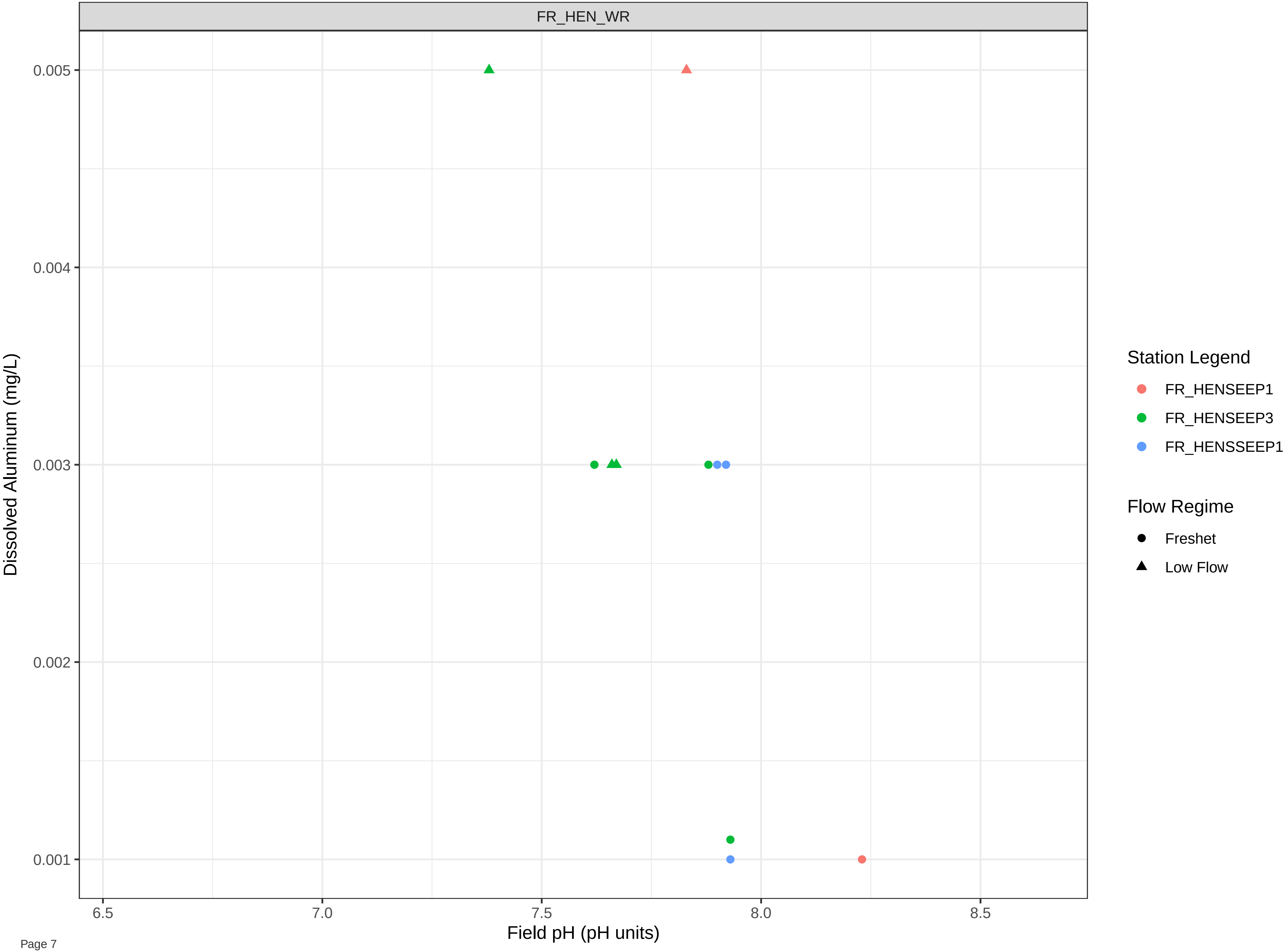

FR_Blain_CCR
Dissolved Aluminum (mg/L)
0.006
0.004
0.002
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

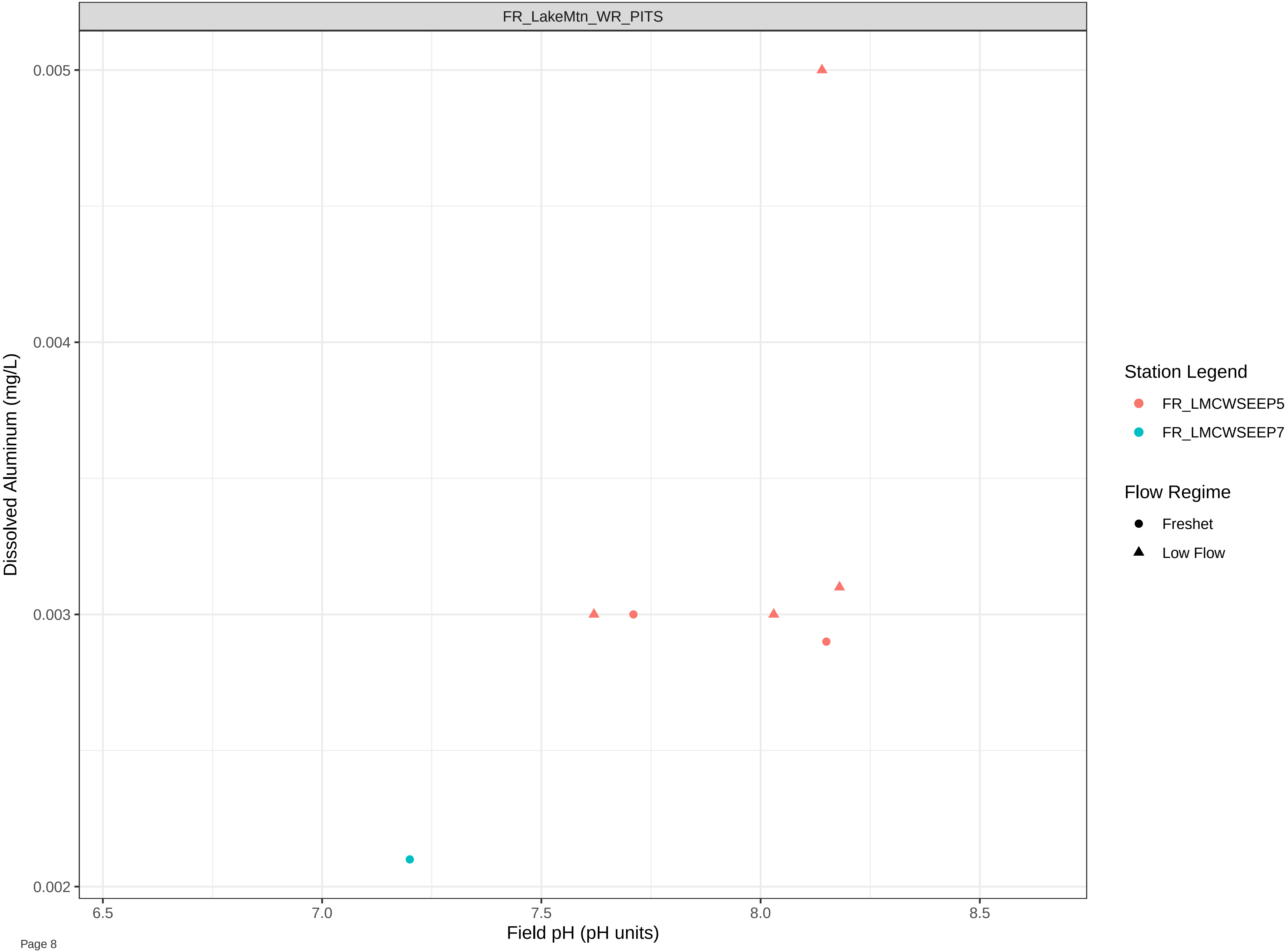

FR_ClodeCr_WR
Dissolved Aluminum (mg/L)
0.0050
0.0045
0.0040
0.0035
0.0030
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

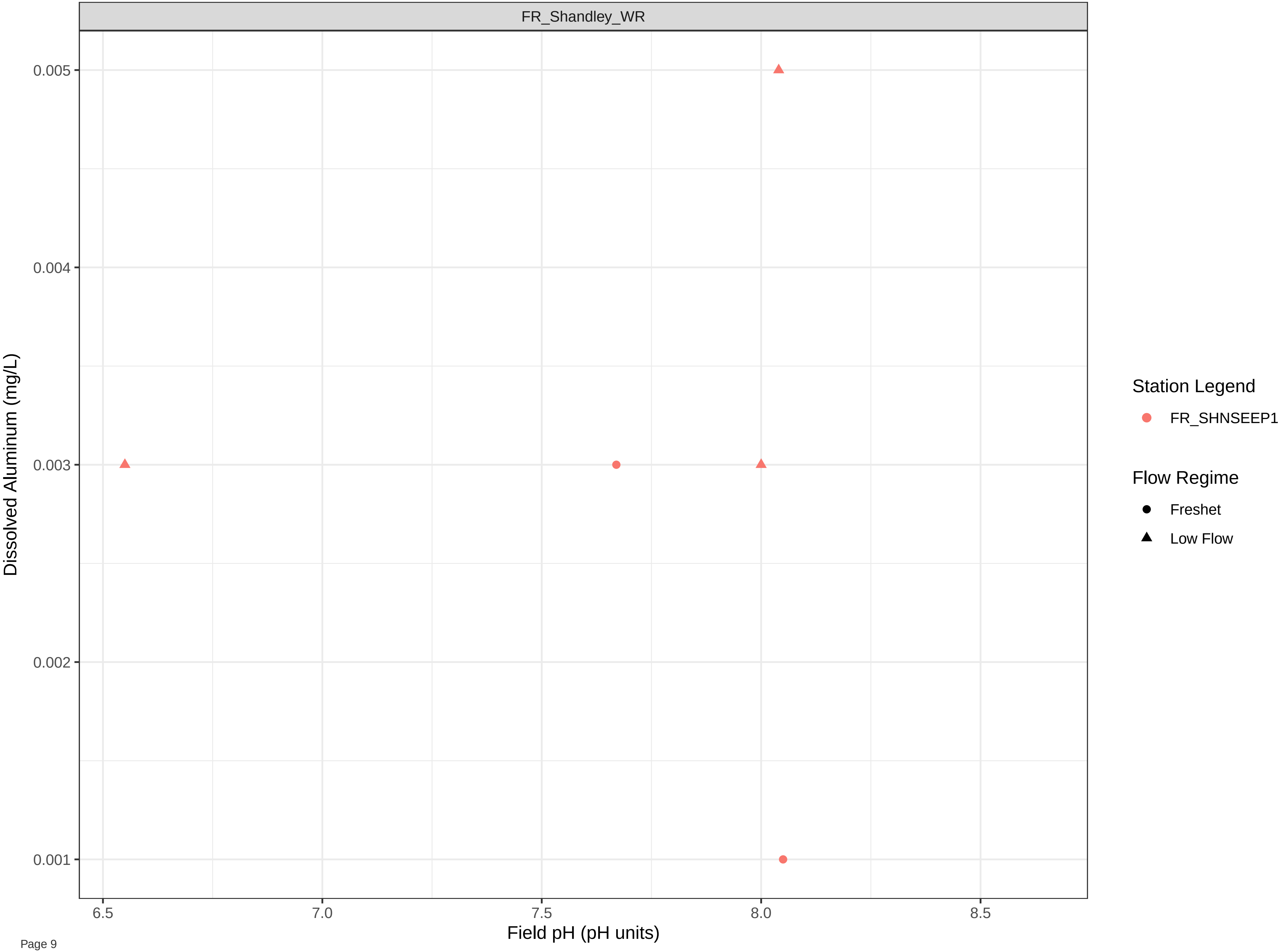

FR_DOKA_Unknown
Dissolved Aluminum (mg/L)
0.009
0.008
0.007
0.006
0.005
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

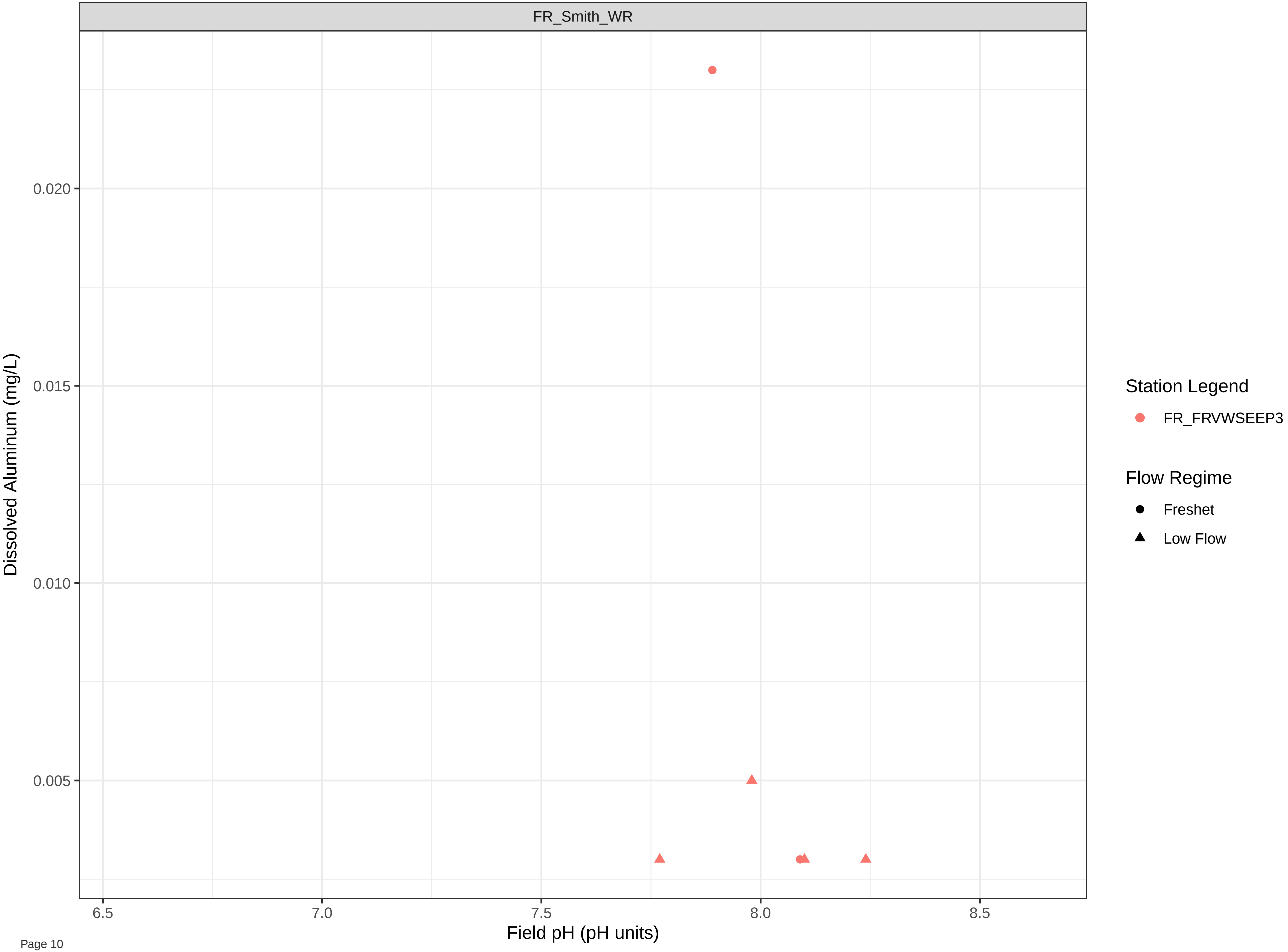

FR_Eagle_WR
Dissolved Aluminum (mg/L)
0.010
0.008
0.006
0.004
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

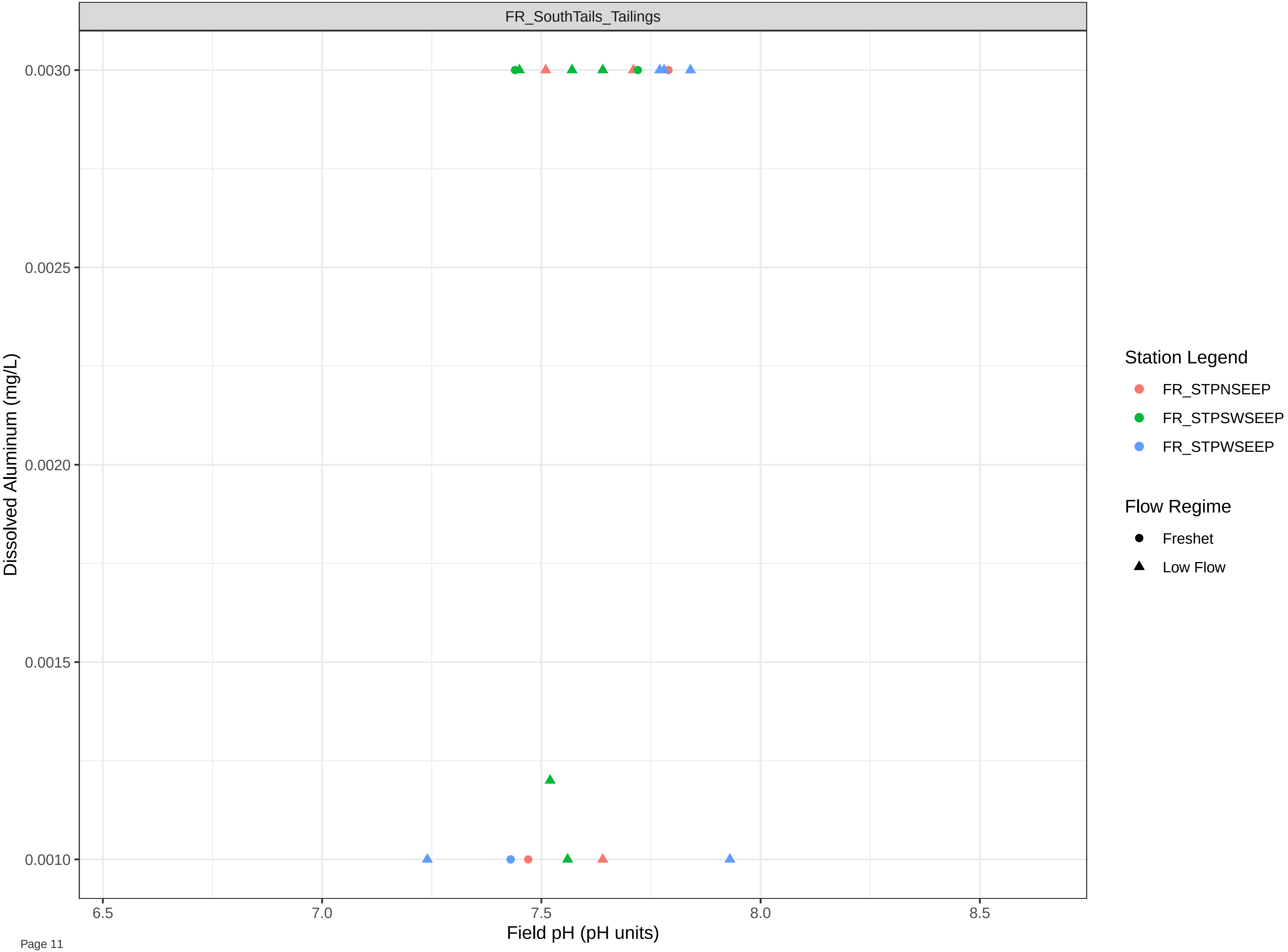

FR_Fseam_WR
Dissolved Aluminum (mg/L)
0.0038
0.0036
0.0034
0.0032
0.0030
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

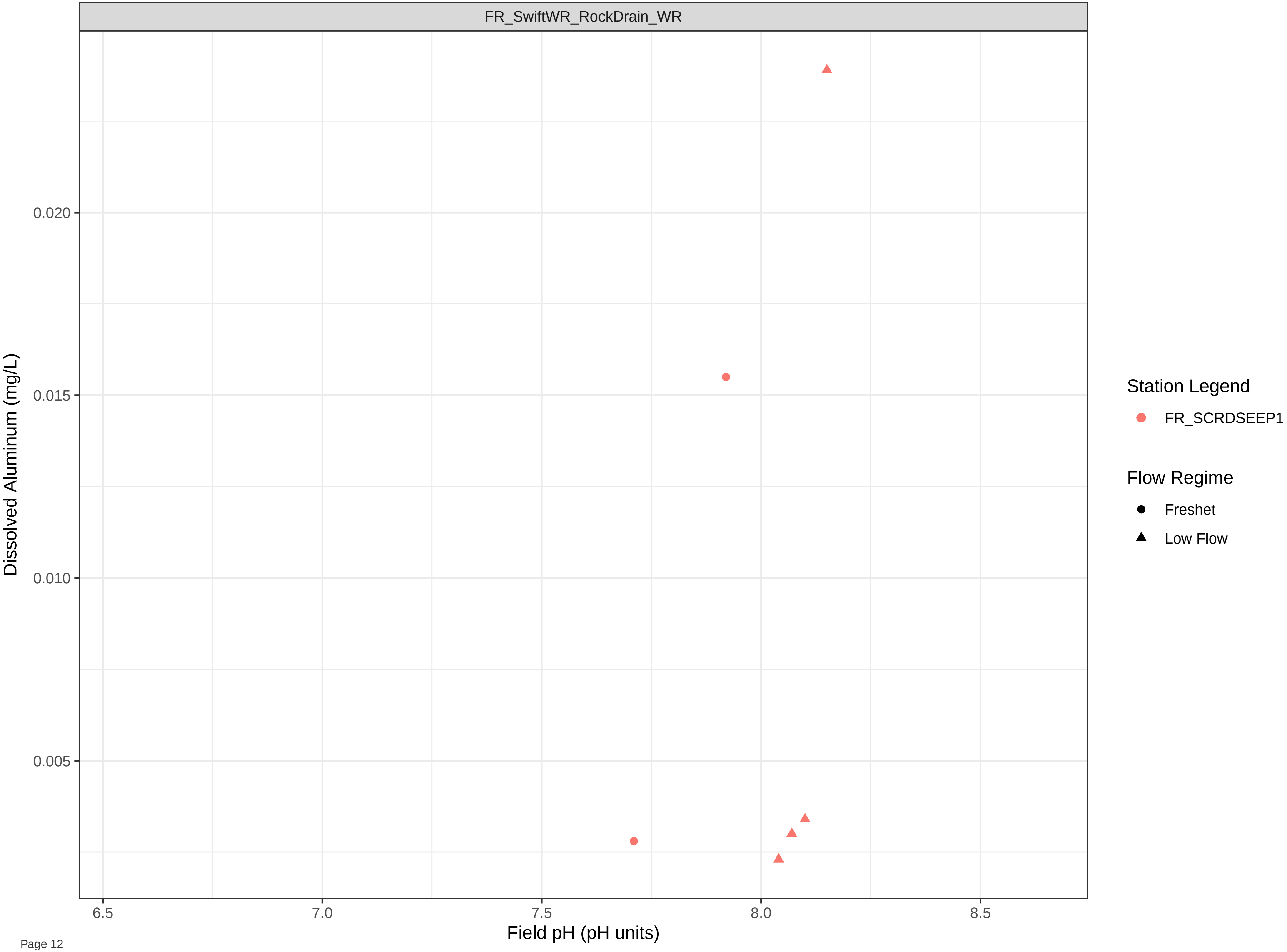

FR_HEN_WR
Dissolved Aluminum (mg/L)
0.005
0.004
0.003
0.002
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

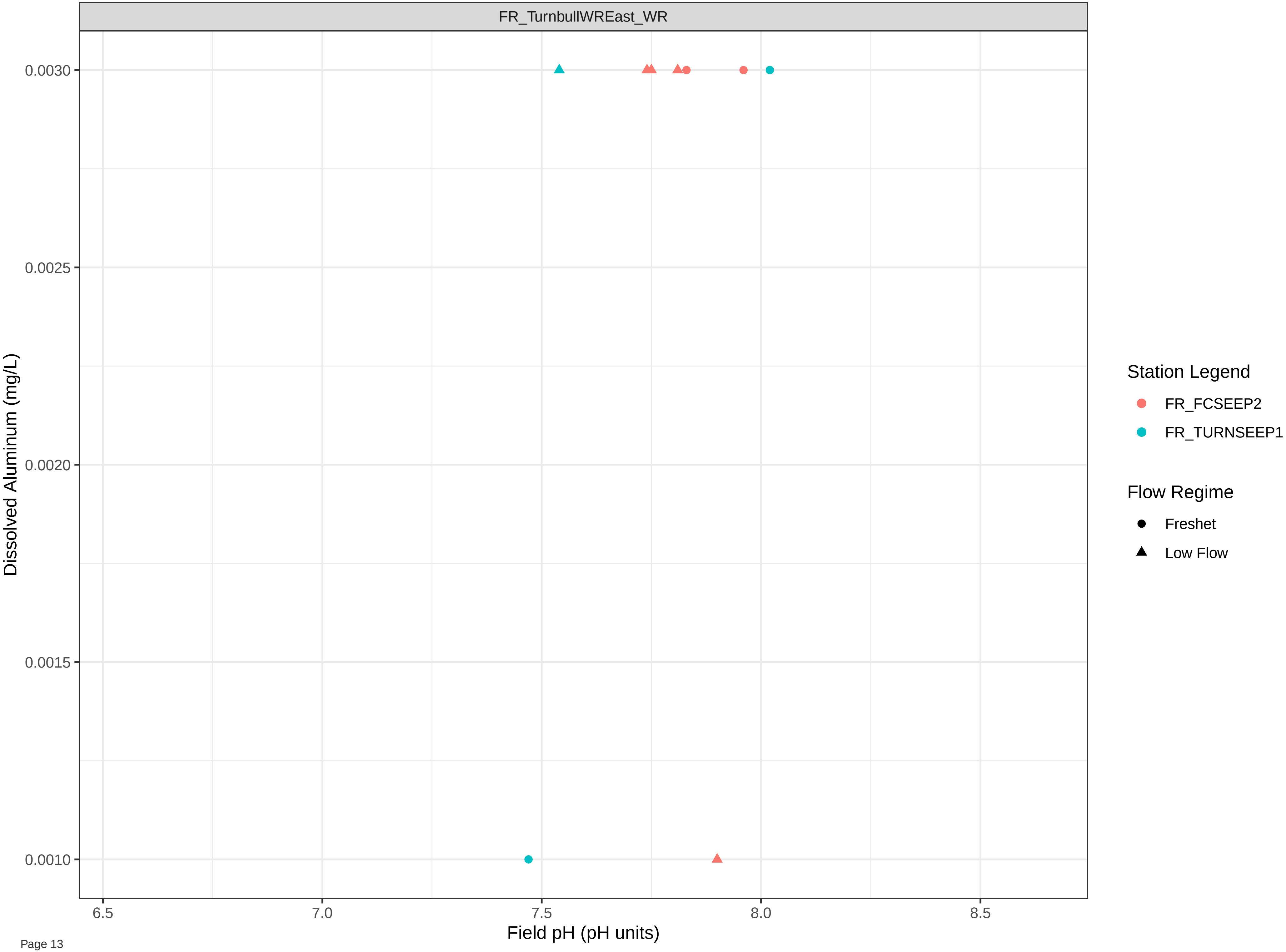

FR_LakeMtn_WR_PITS
Dissolved Aluminum (mg/L)
0.005
0.004
0.003
0.002
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow

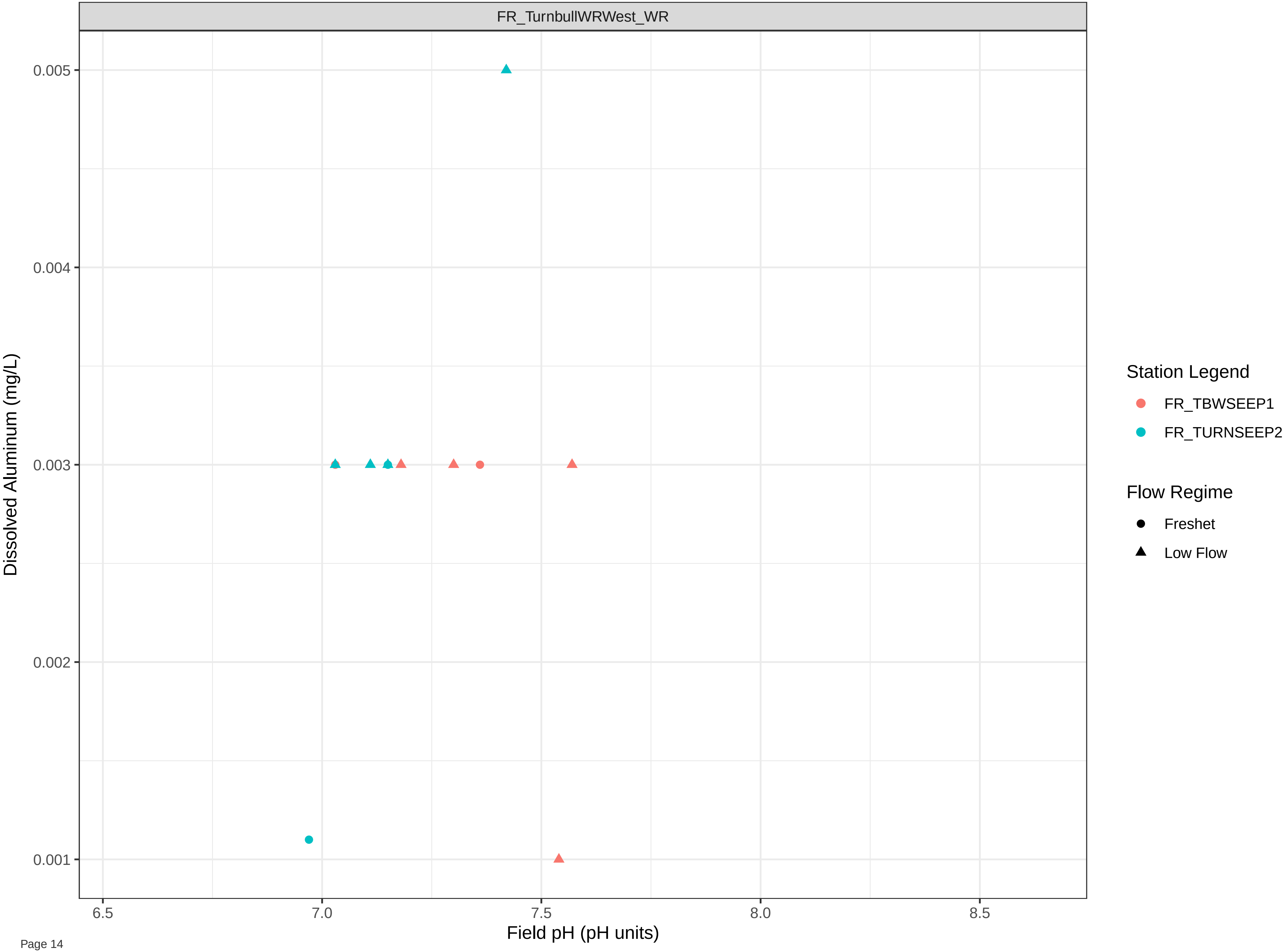

FR_Shandley_WR
Dissolved Aluminum (mg/L)
0.005
0.004
0.003
0.002
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

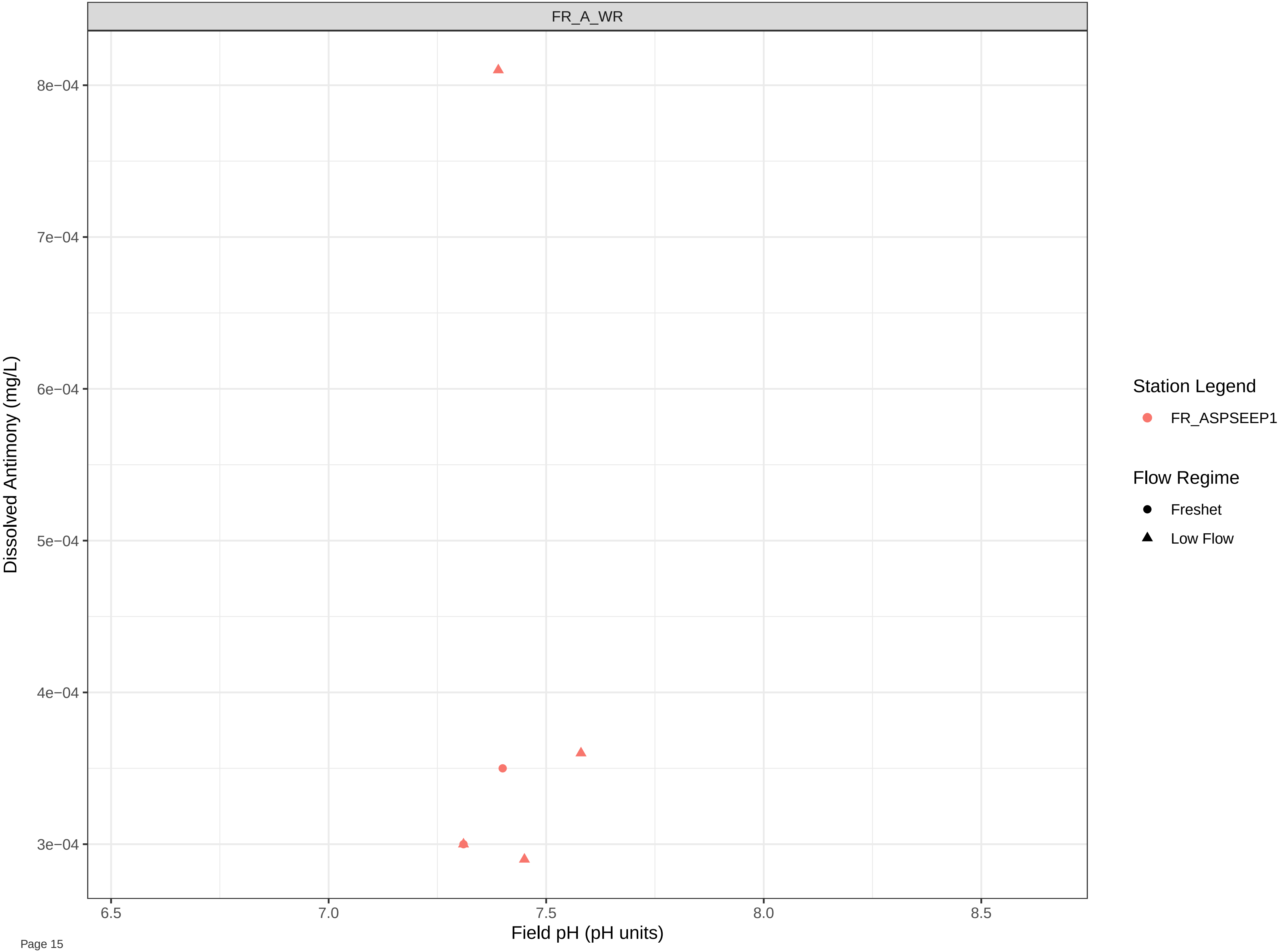

FR_Smith_WR
Dissolved Aluminum (mg/L)
0.020
0.015
0.010
0.005
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

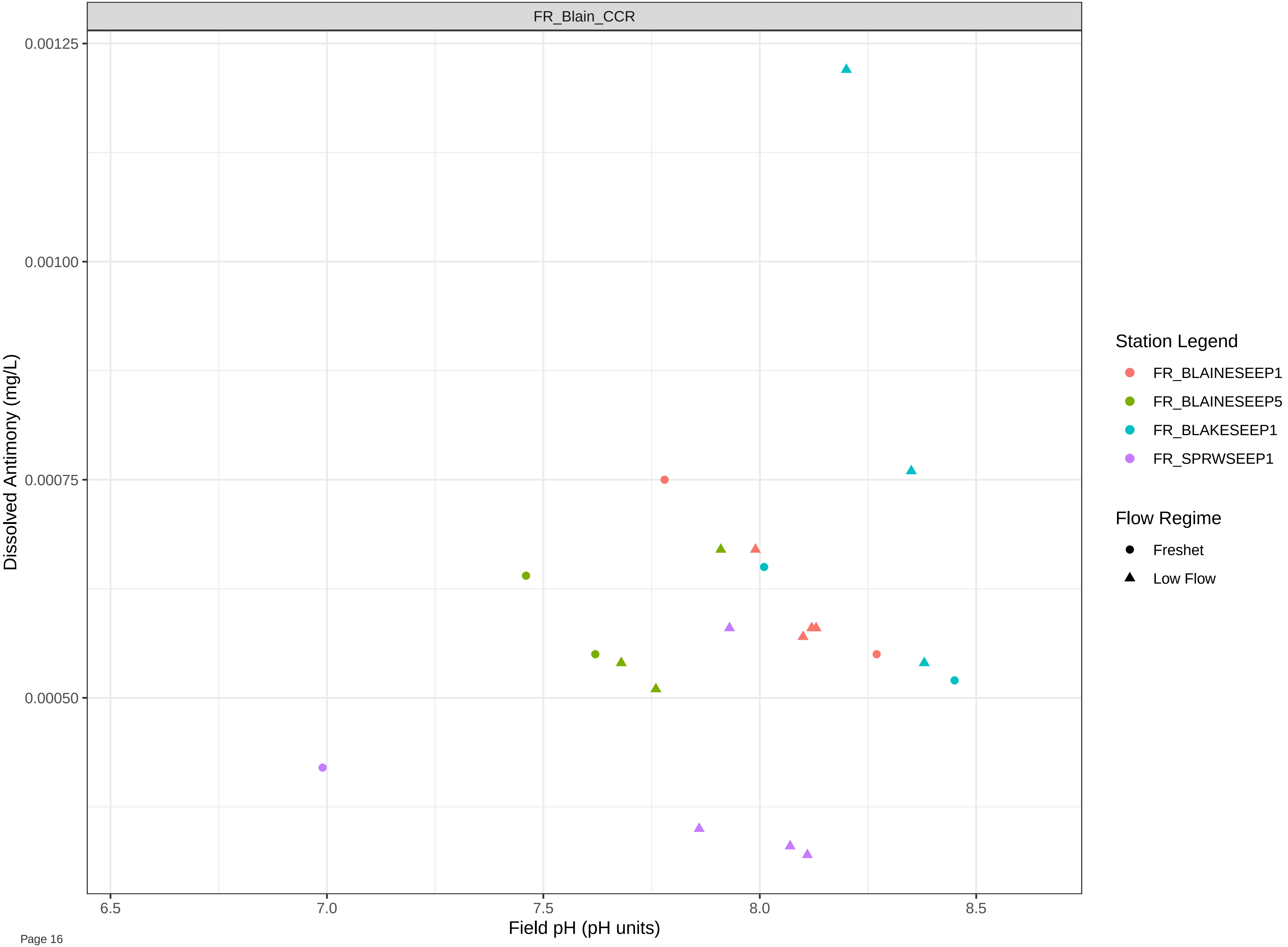

FR_SouthTails_Tailings
Dissolved Aluminum (mg/L)
0.0030
0.0025
0.0020
0.0015
0.0010
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

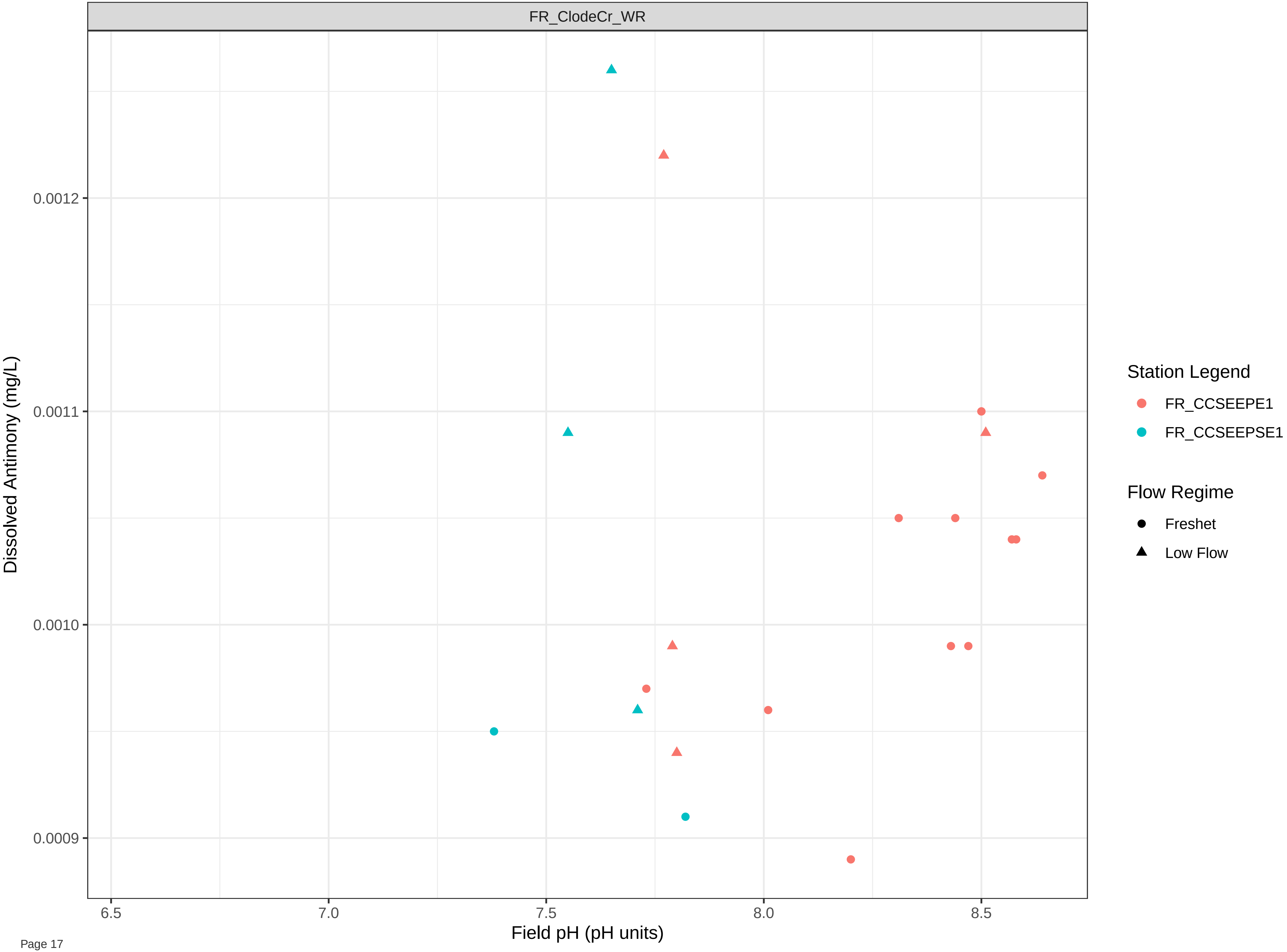

FR_SwiftWR_RockDrain_WR
Dissolved Aluminum (mg/L)
0.020
0.015
0.010
0.005
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

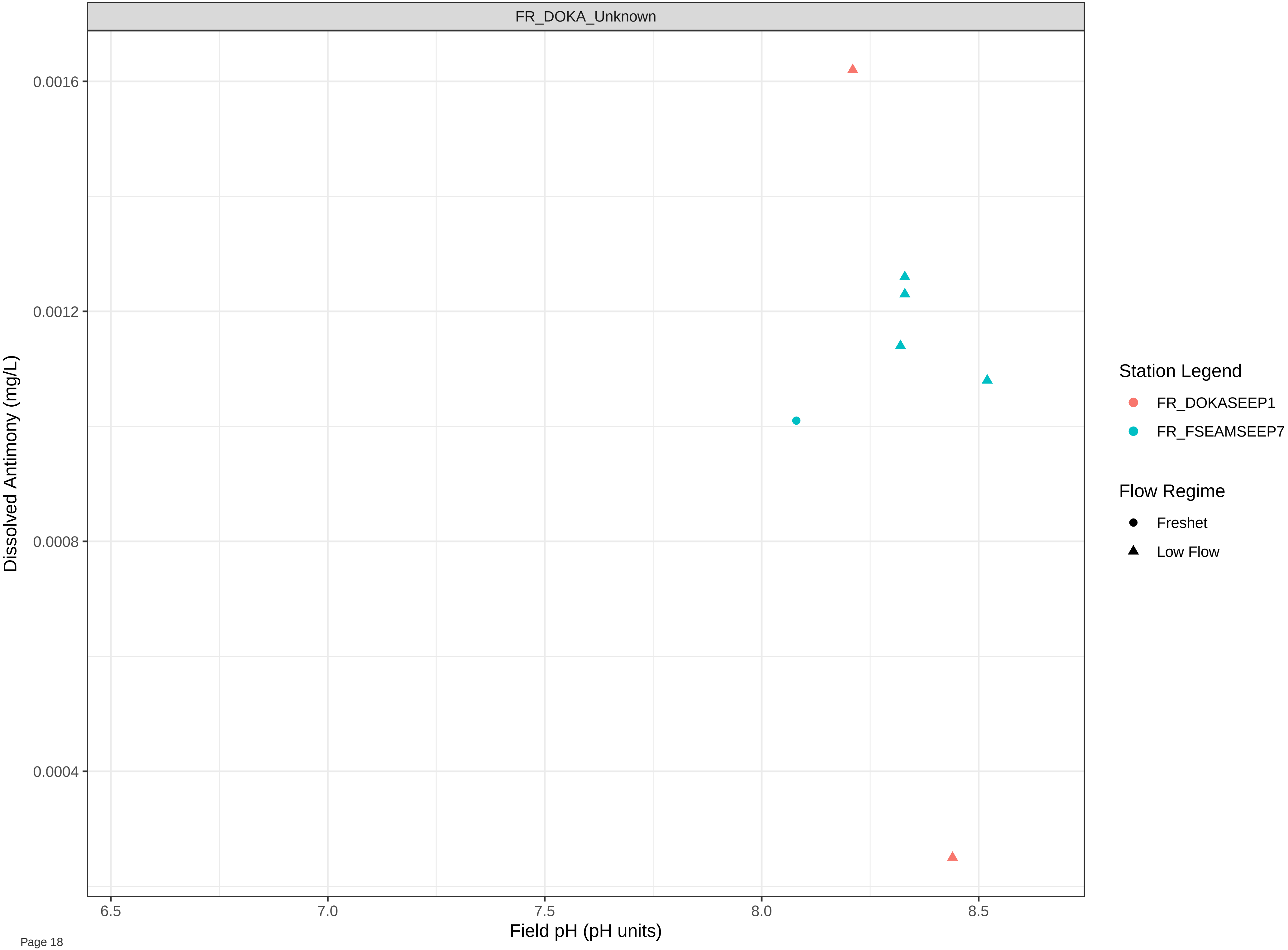

FR_TurnbullWREast_WR
Dissolved Aluminum (mg/L)
0.0030
0.0025
0.0020
0.0015
0.0010
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

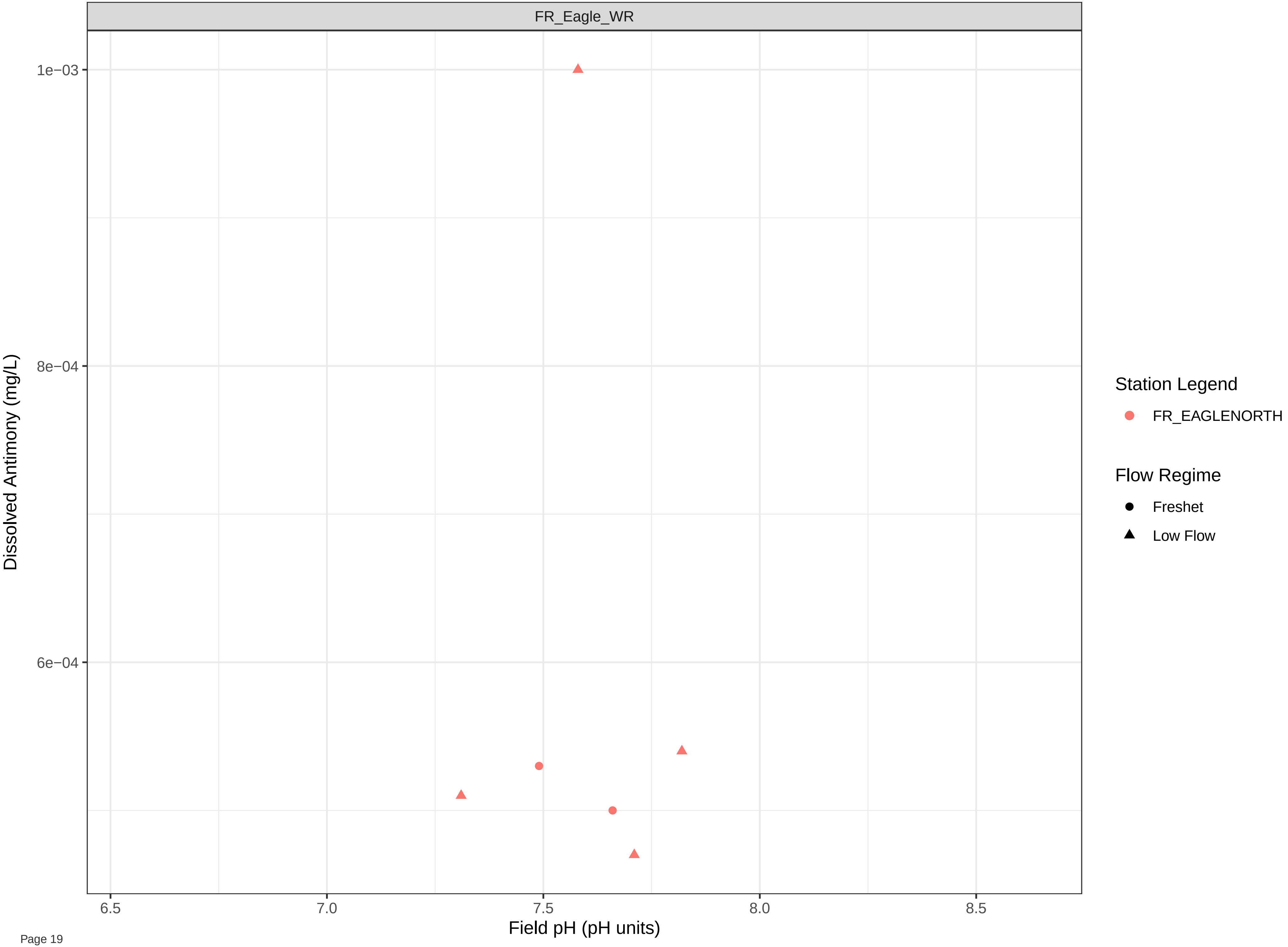

FR_TurnbullWRWest_WR
Dissolved Aluminum (mg/L)
0.005
0.004
0.003
0.002
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

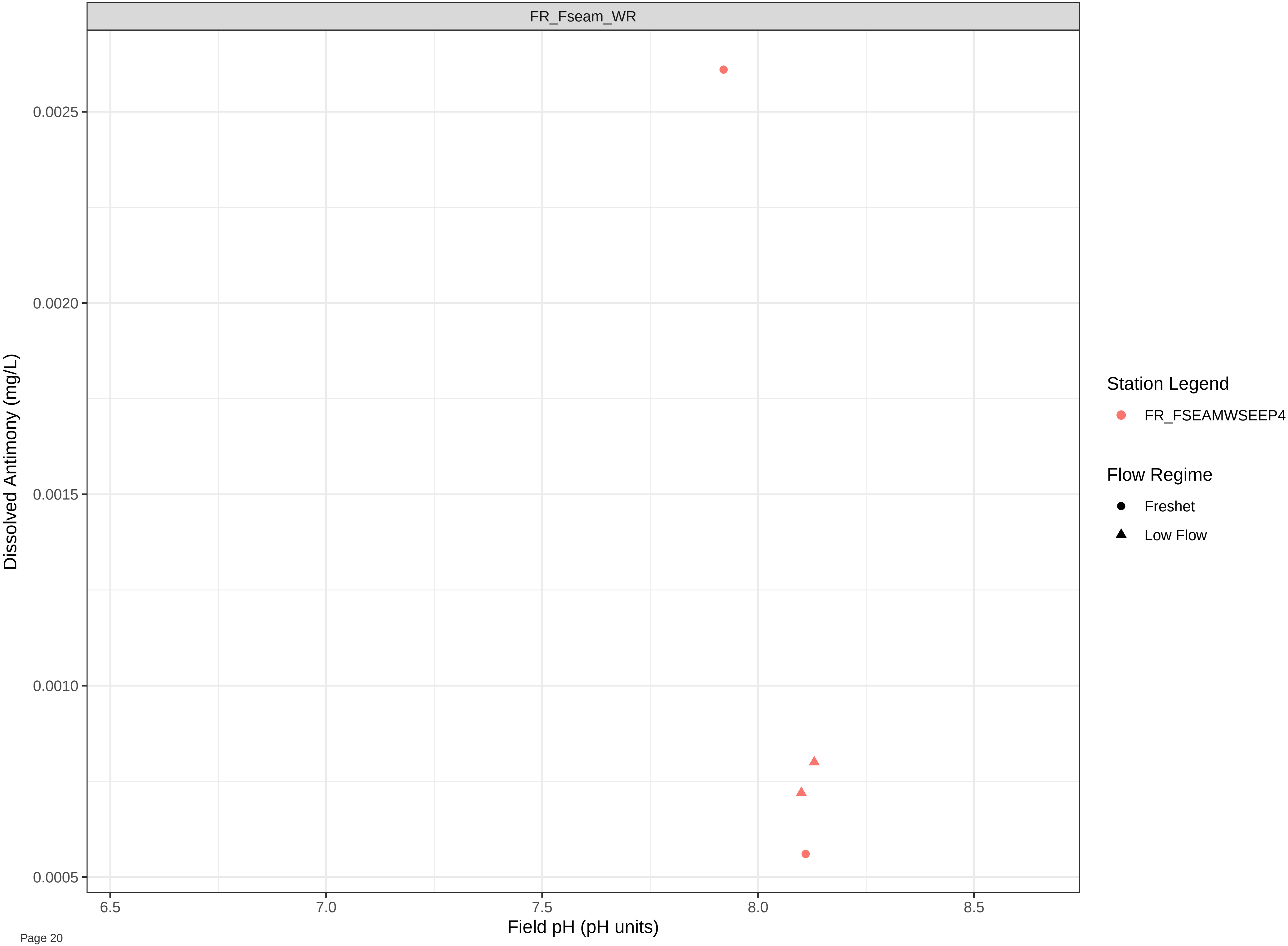

FR_A_WR
Dissolved Antimony (mg/L)
8e−04
7e−04
6e−04
5e−04
4e−04
3e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

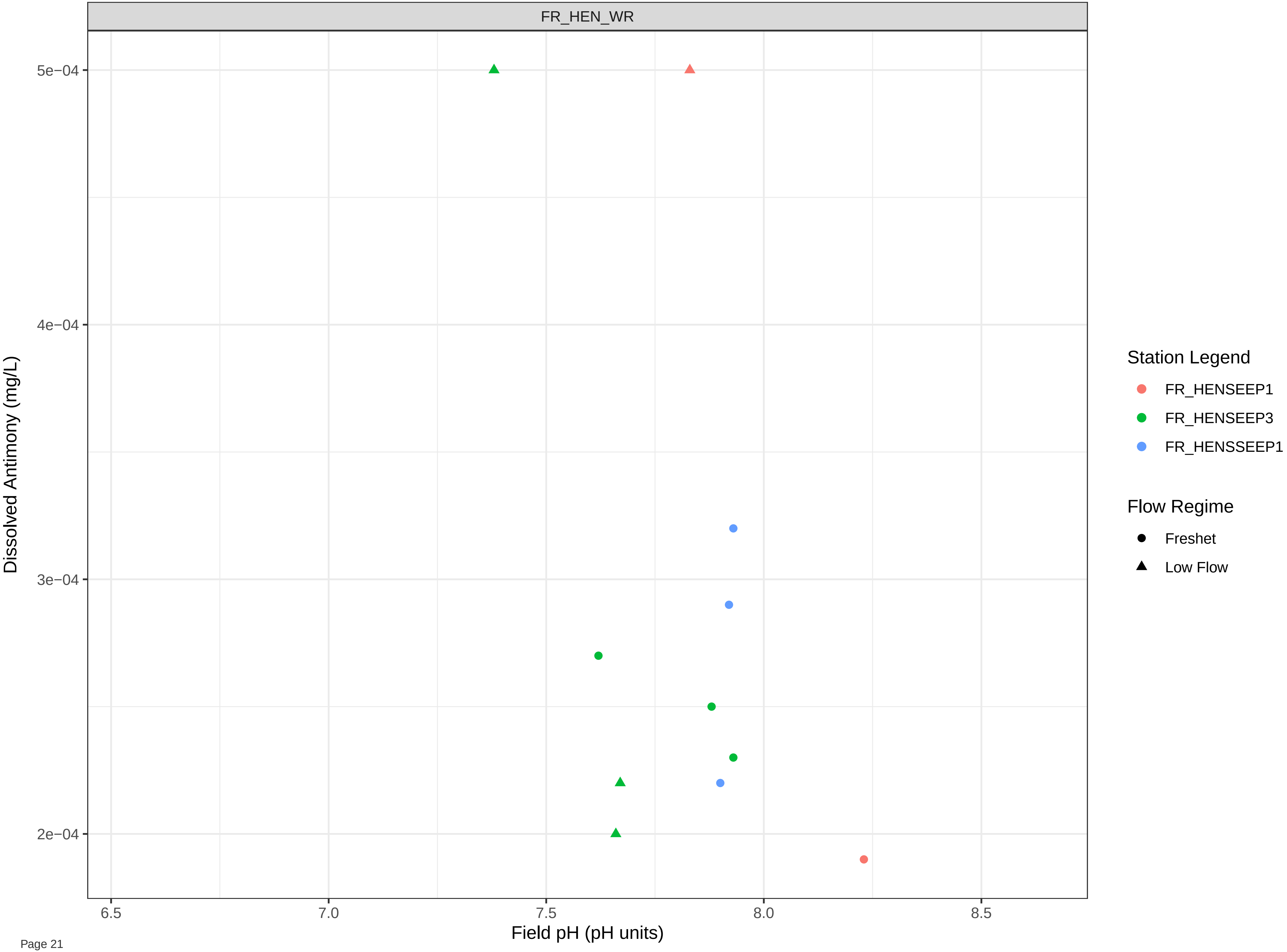

FR_Blain_CCR
Dissolved Antimony (mg/L)
0.00125
0.00100
0.00075
0.00050
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

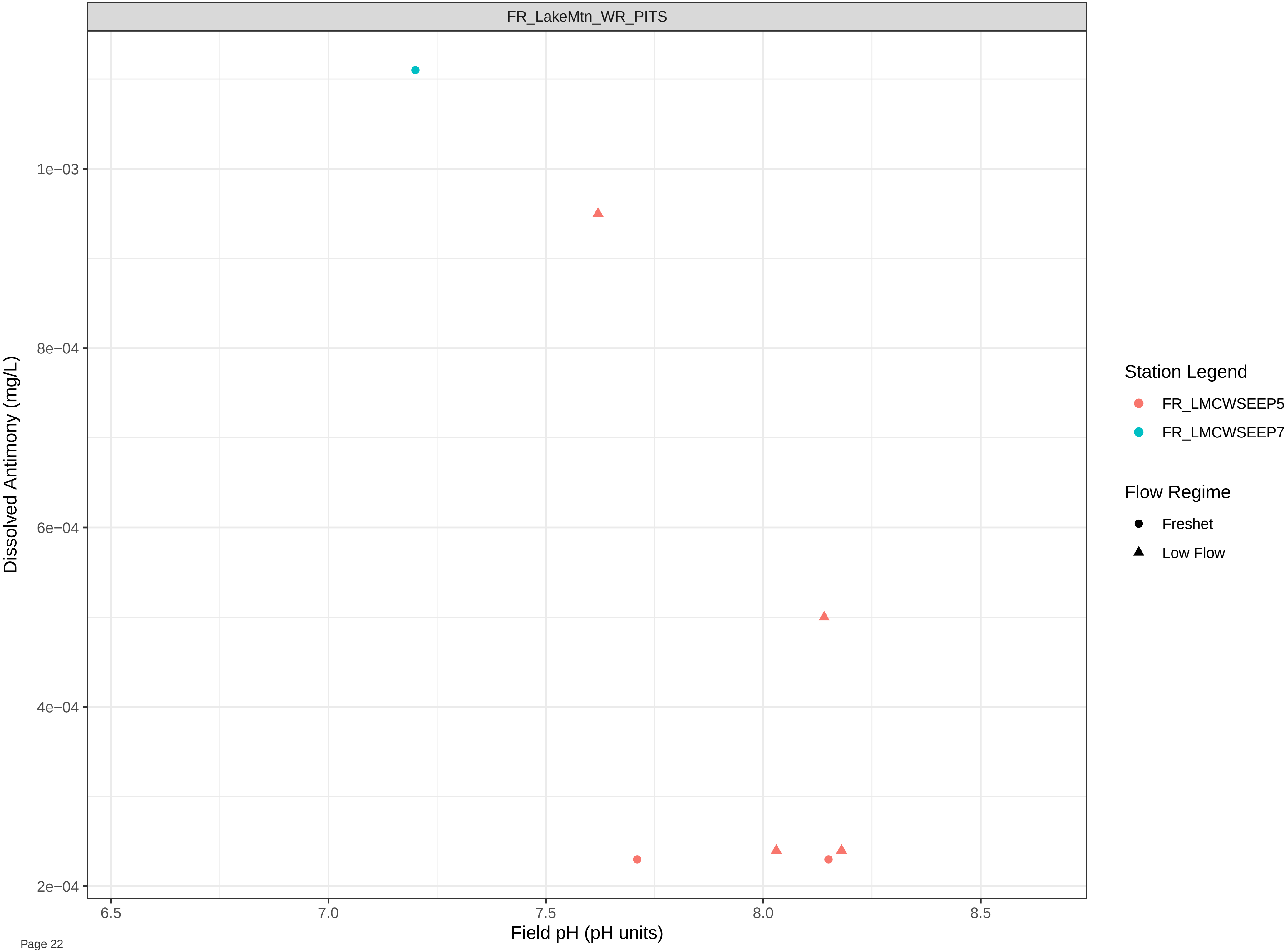

FR_ClodeCr_WR
Dissolved Antimony (mg/L)
0.0012
0.0011
0.0010
0.0009
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

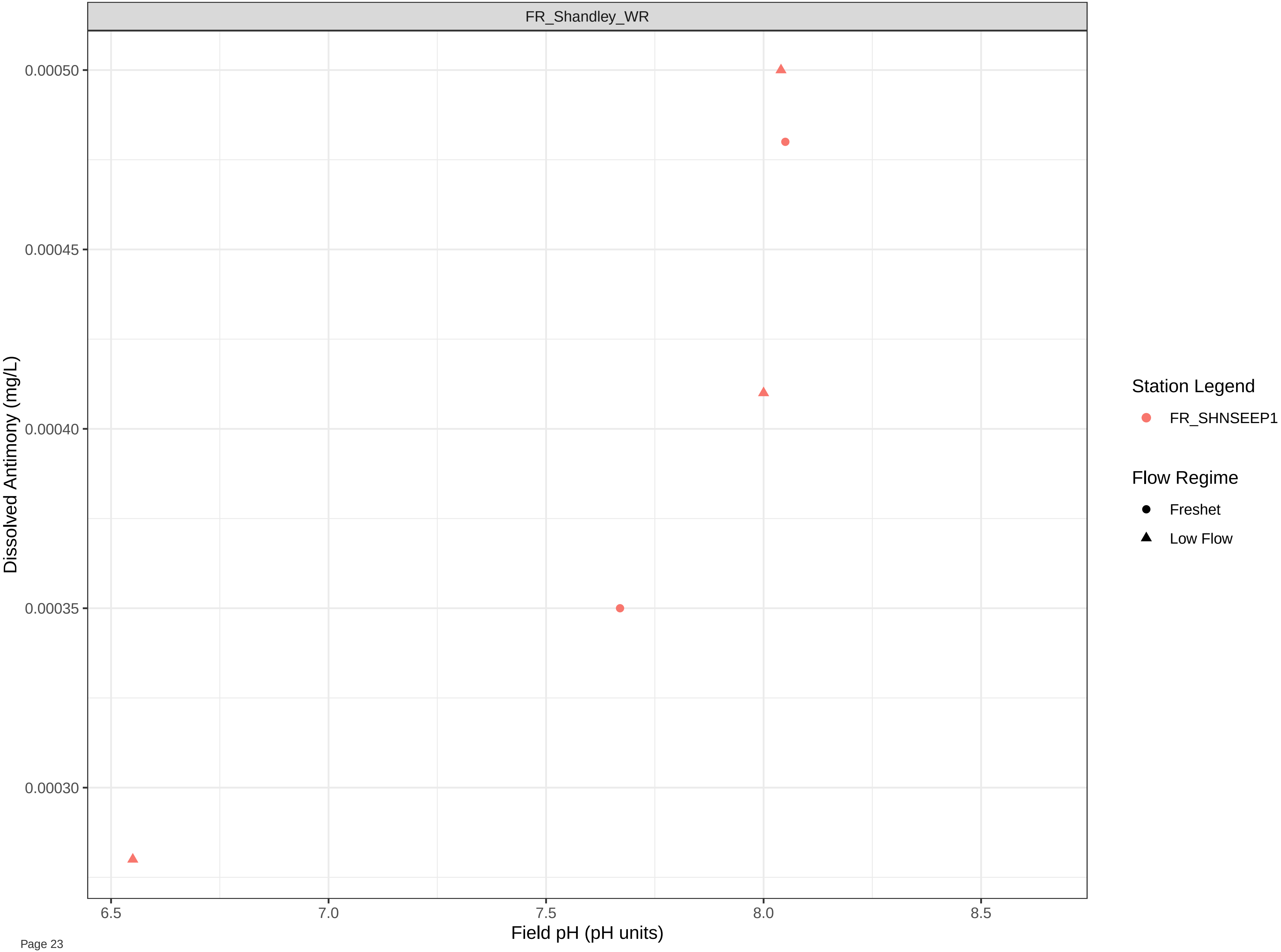

FR_DOKA_Unknown
Dissolved Antimony (mg/L)
0.0016
0.0012
0.0008
0.0004
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow

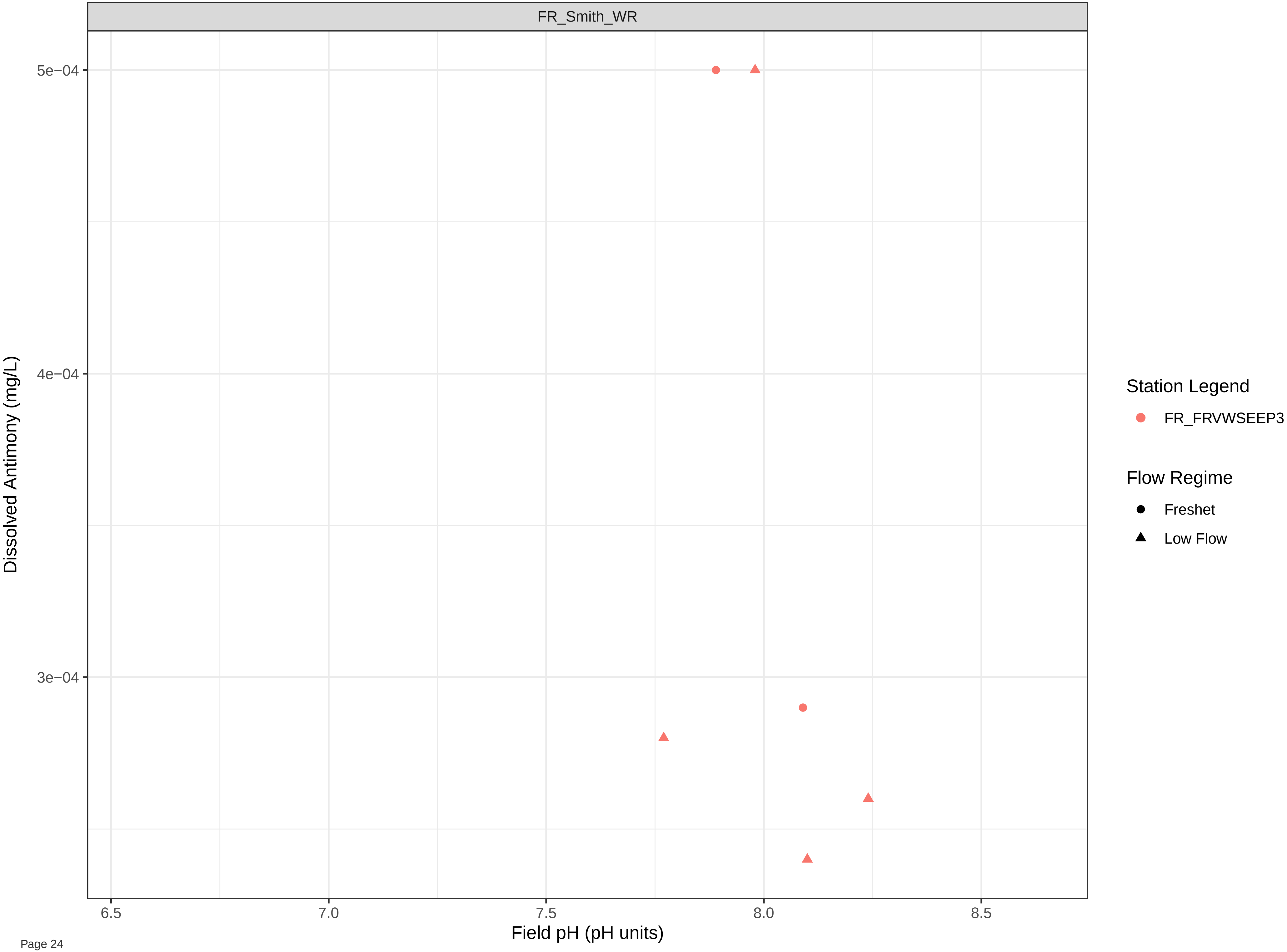

FR_Eagle_WR
1e−03
8e−04
6e−04
Dissolved Antimony (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

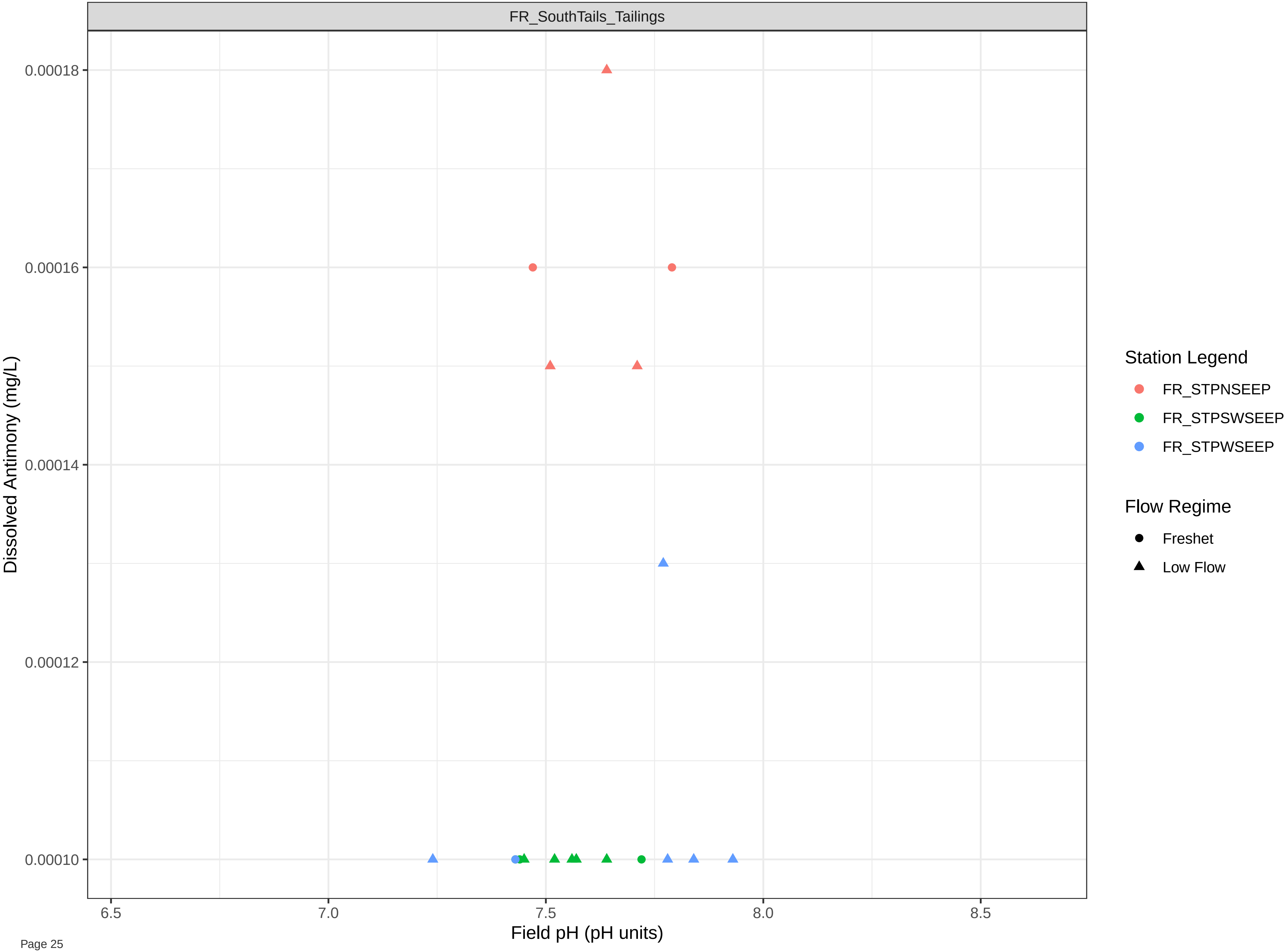

FR_Fseam_WR
Dissolved Antimony (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

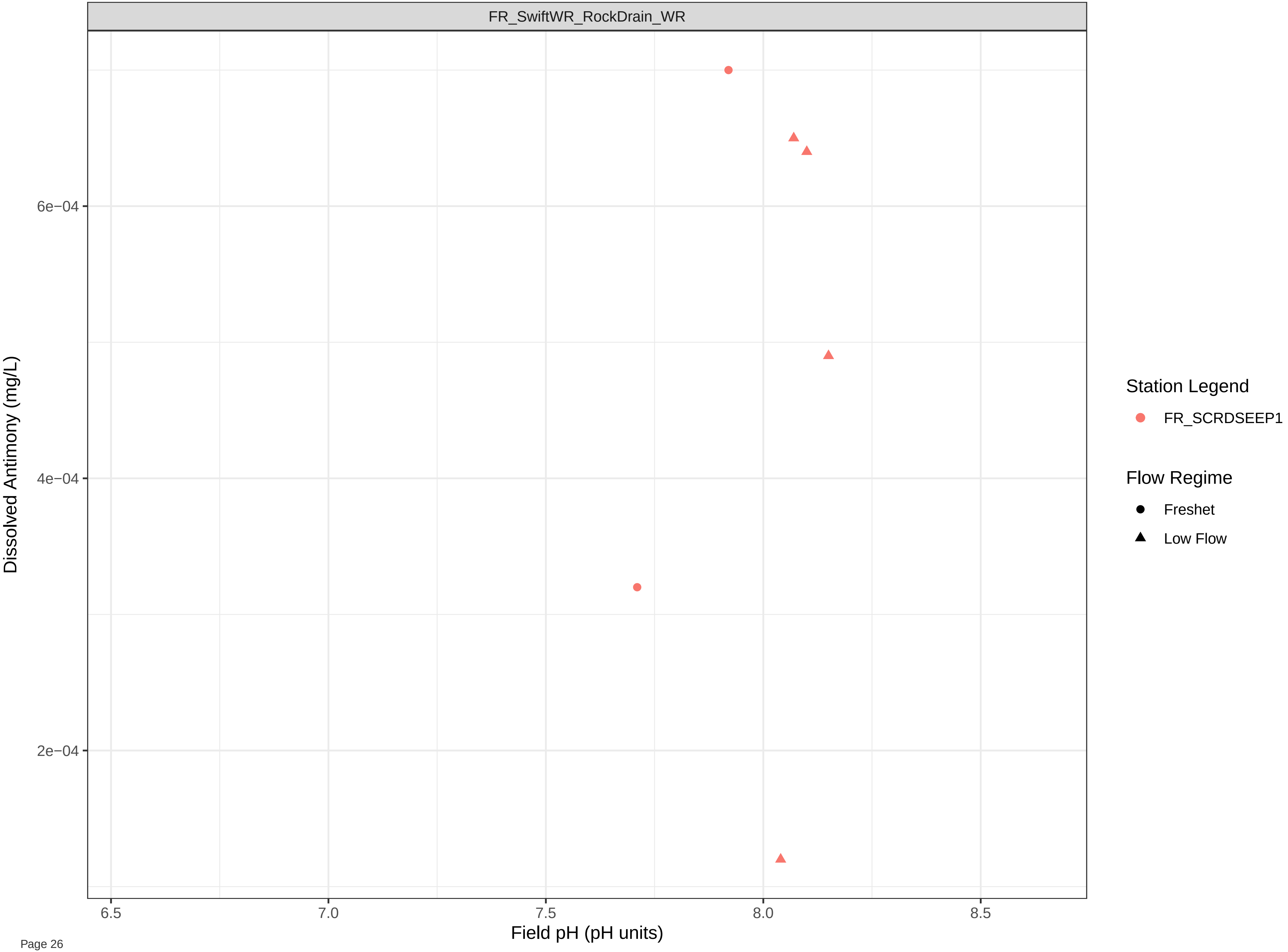

FR_HEN_WR
5e−04
4e−04
3e−04
2e−04
Dissolved Antimony (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

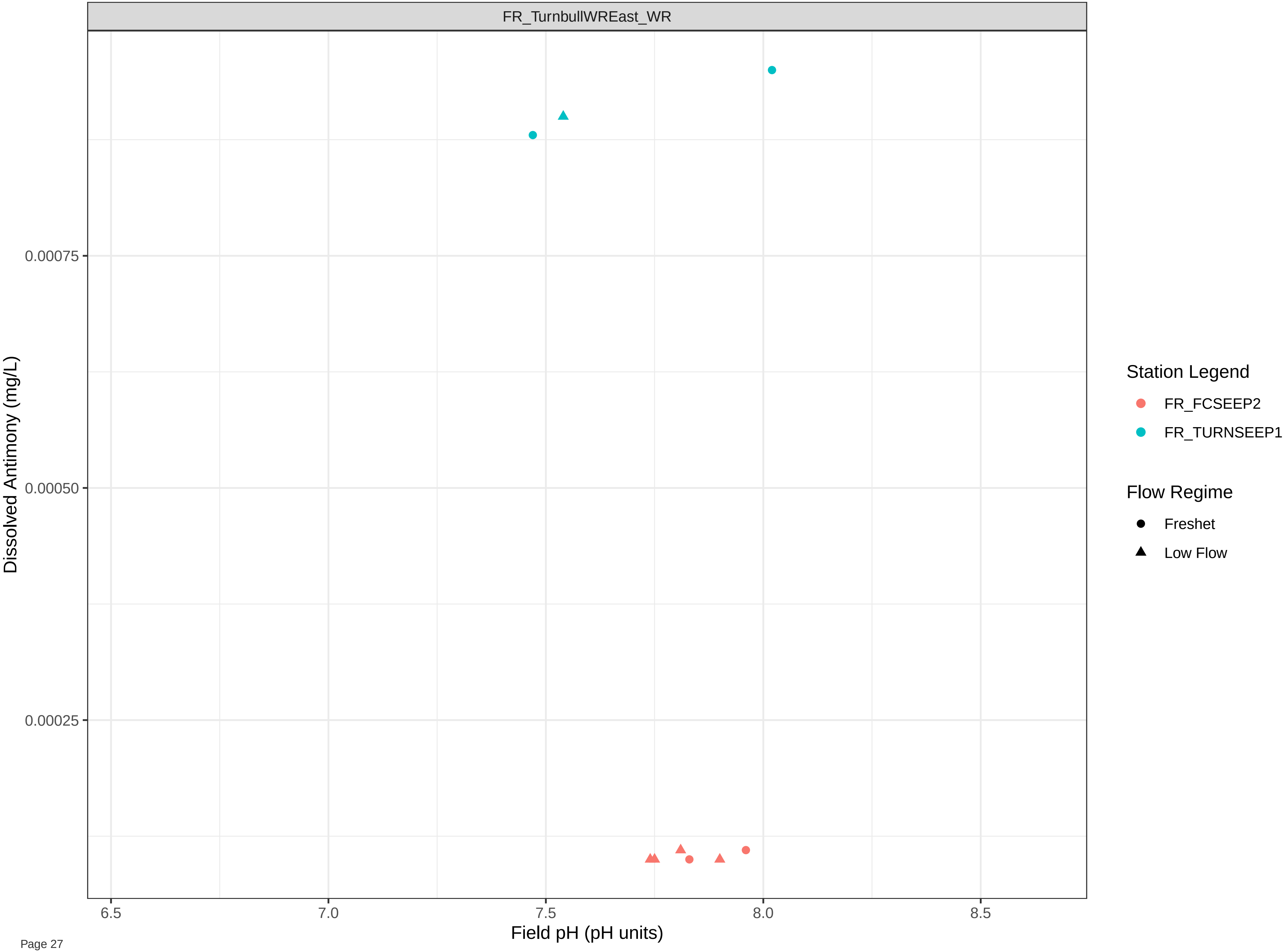

FR_LakeMtn_WR_PITS
Dissolved Antimony (mg/L)
1e−03
8e−04
6e−04
4e−04
2e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

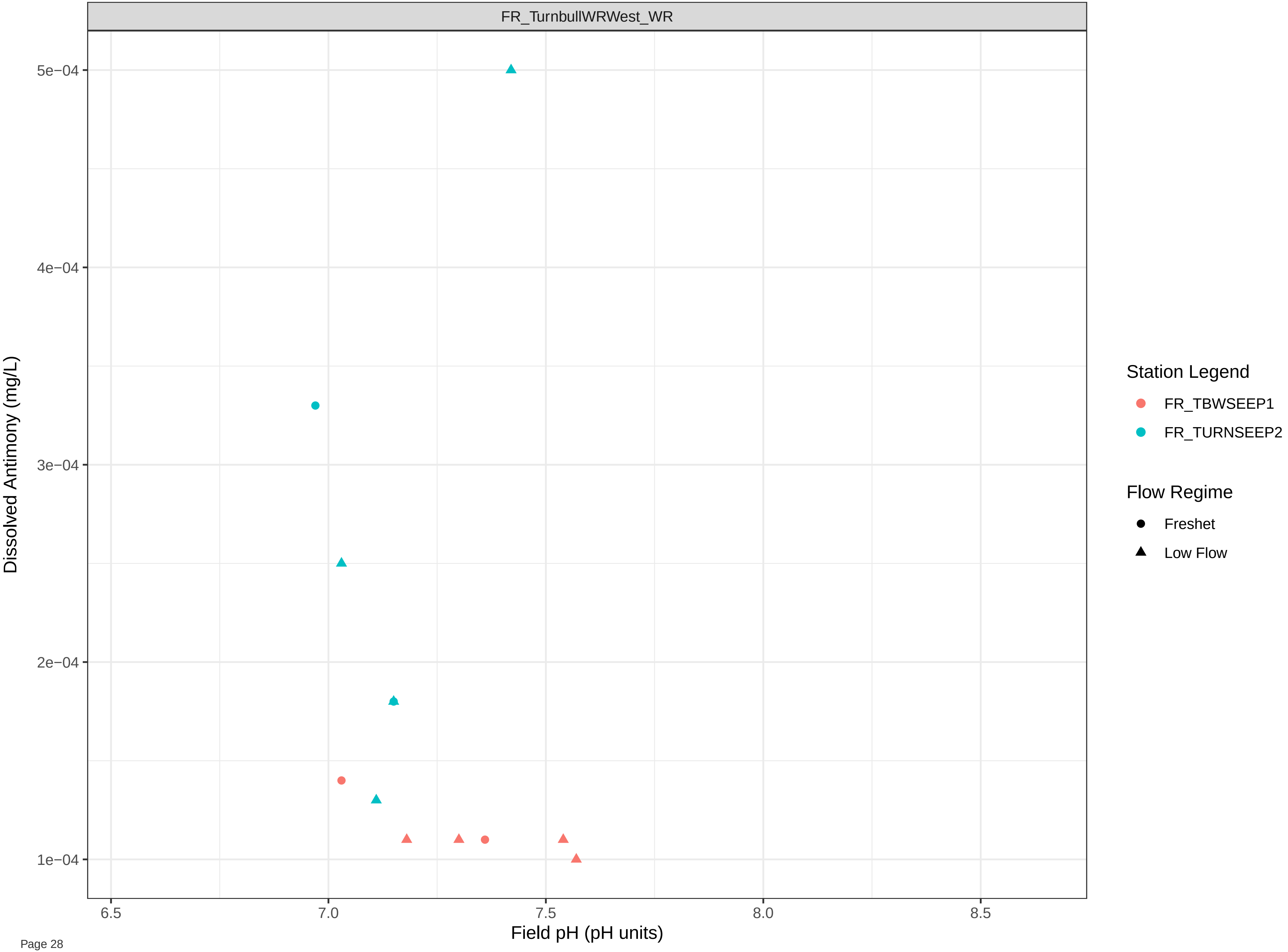

FR_Shandley_WR
Dissolved Antimony (mg/L)
0.00050
0.00045
0.00040
0.00035
0.00030
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

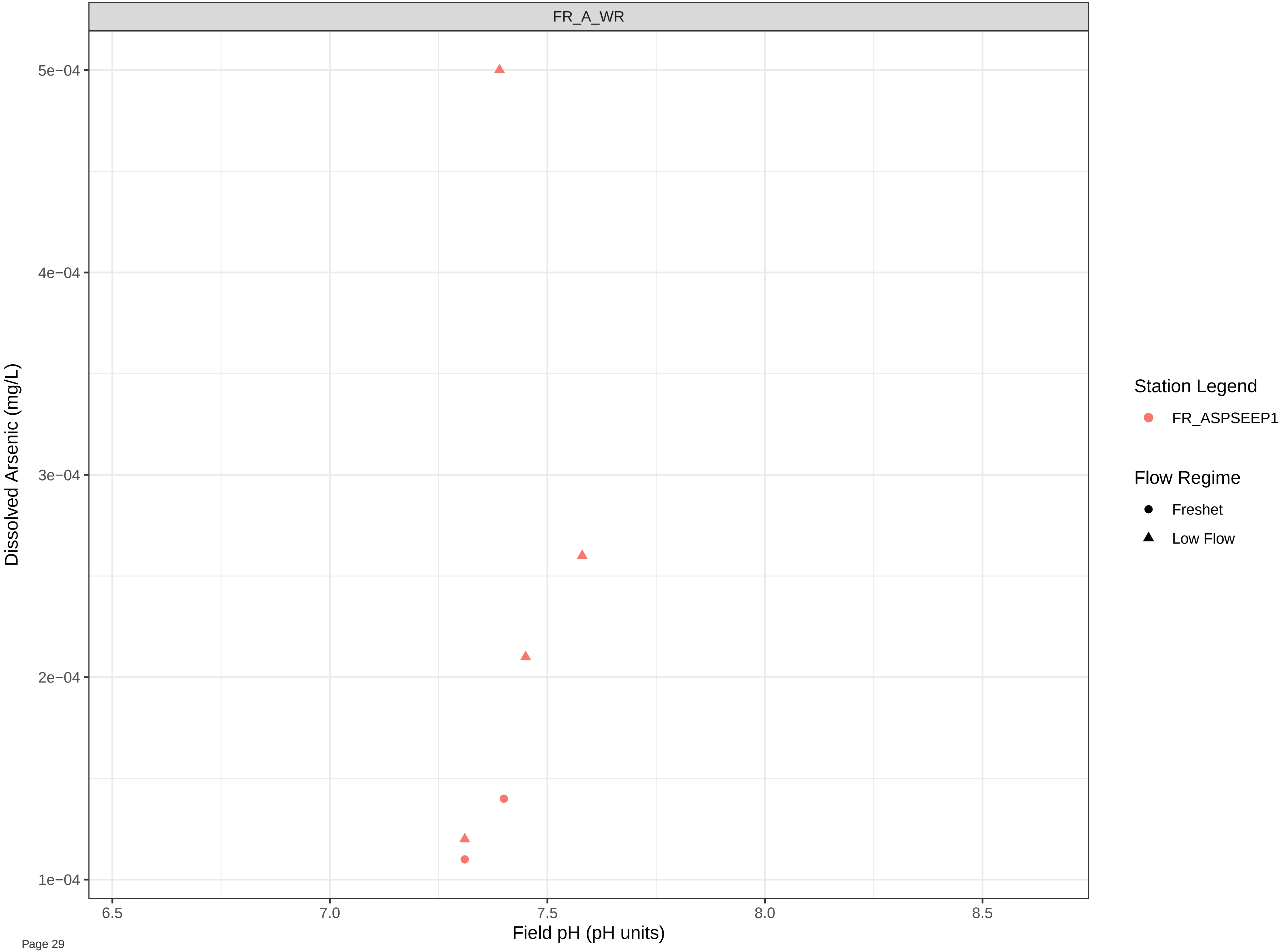

FR_Smith_WR
5e−04
4e−04
3e−04
Dissolved Antimony (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

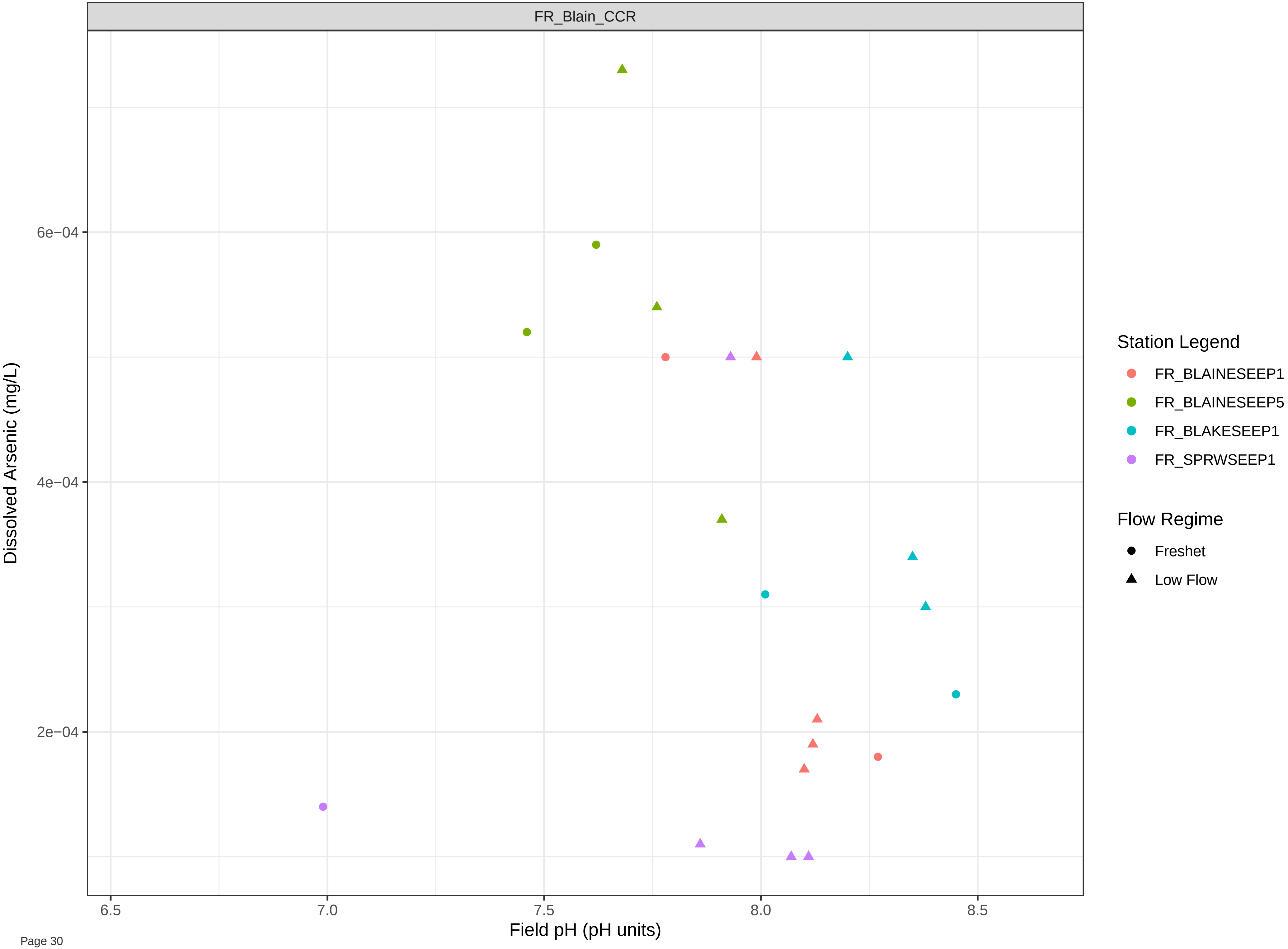

FR_SouthTails_Tailings
Dissolved Antimony (mg/L)
0.00018
0.00016
0.00014
0.00012
0.00010
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

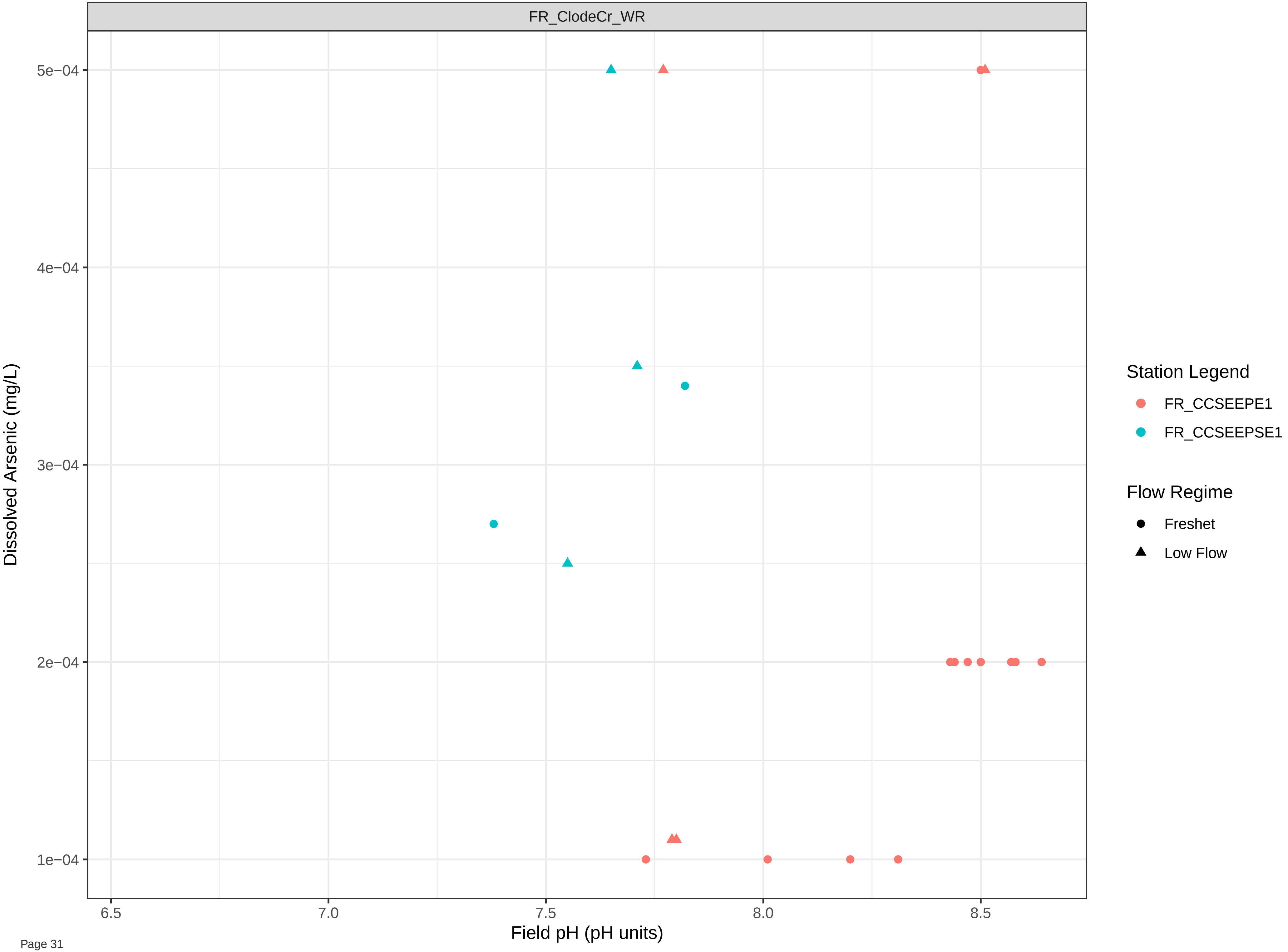

FR_SwiftWR_RockDrain_WR
Dissolved Antimony (mg/L)
6e−04
4e−04
2e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

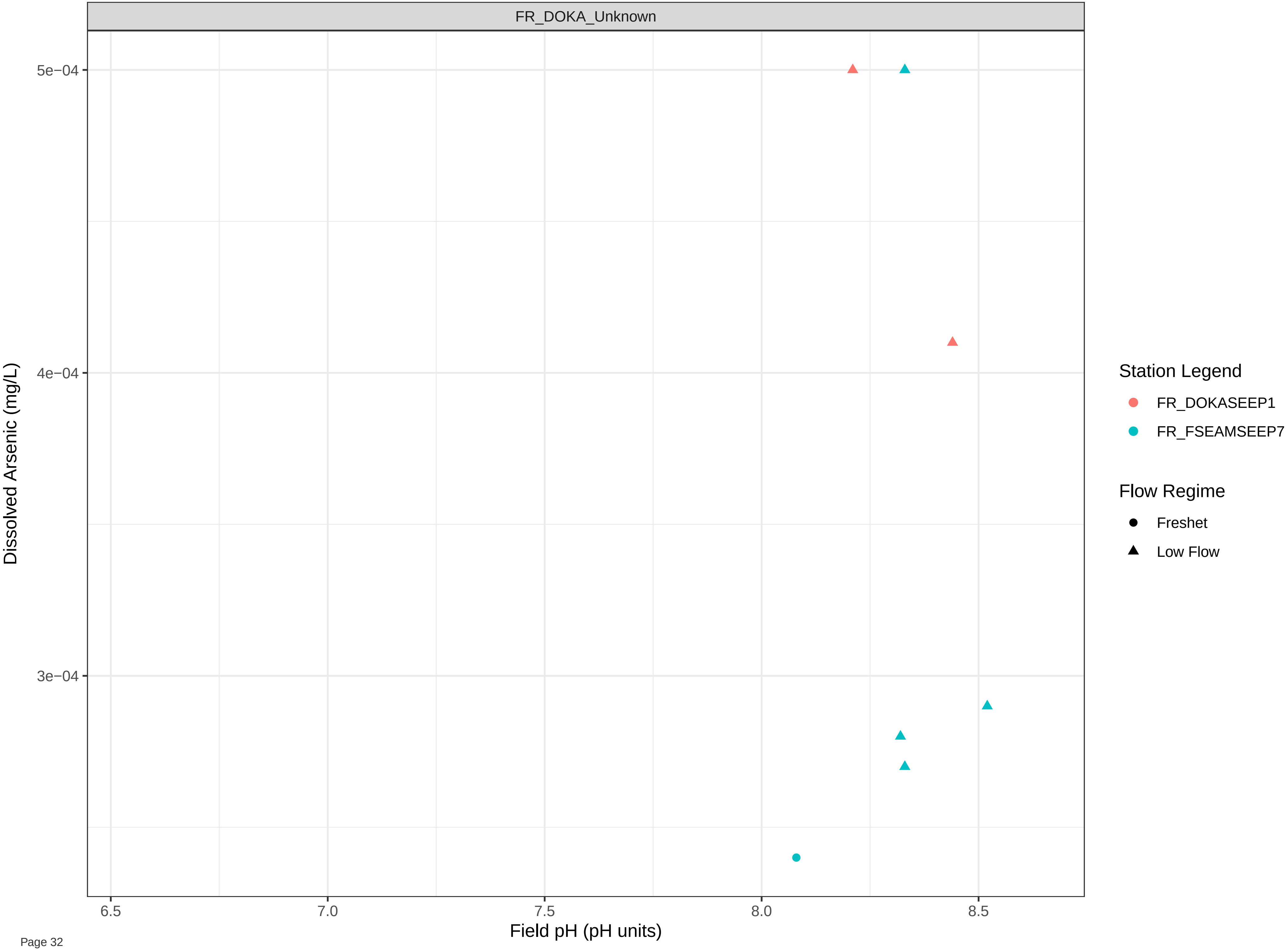

FR_TurnbullWREast_WR
Dissolved Antimony (mg/L)
0.00075
0.00050
0.00025
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FCSEEP2
● FR_TURNSEEP1
Flow Regime
● Freshet
▲ Low Flow

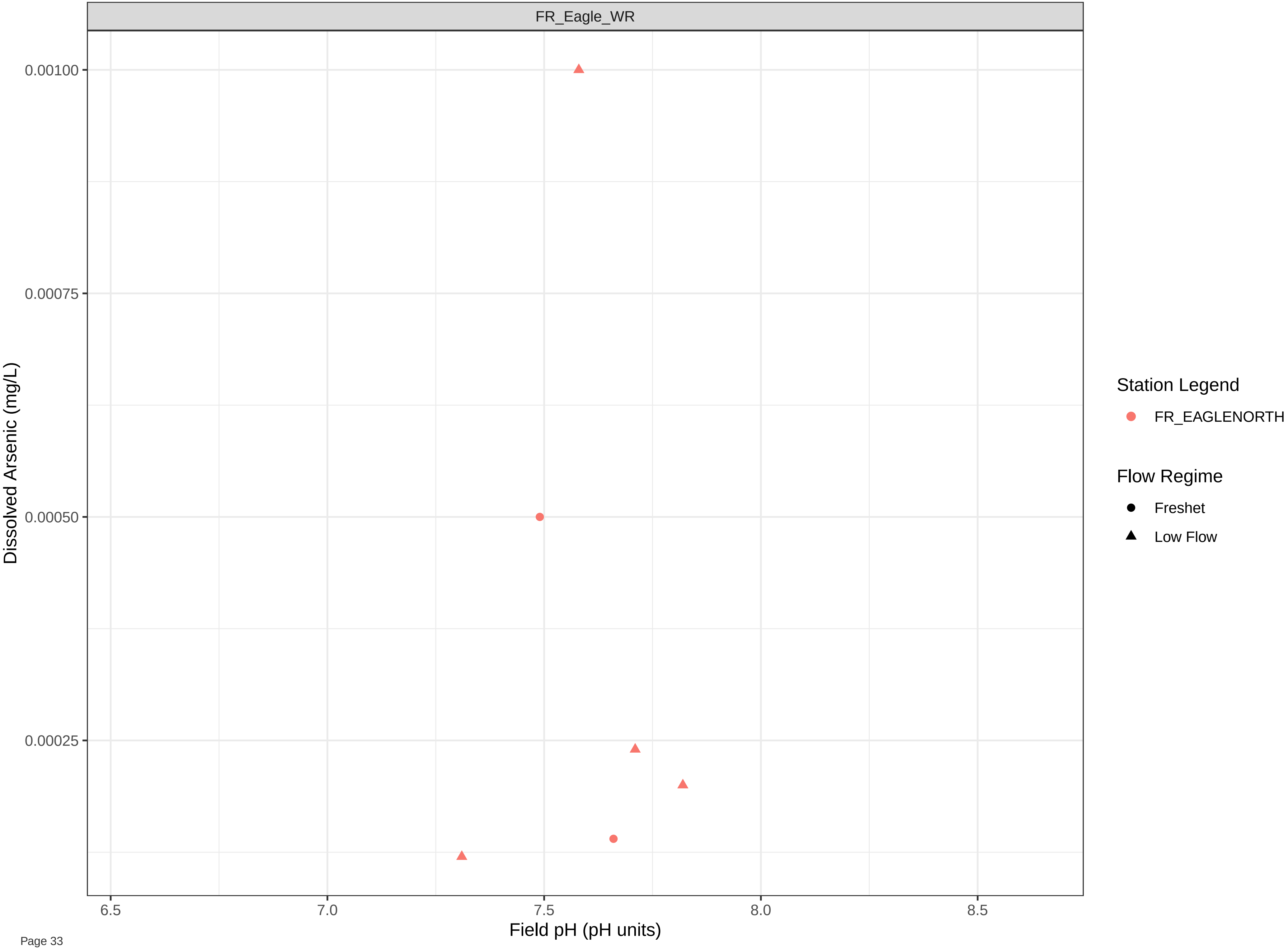

FR_TurnbullWRWest_WR
Dissolved Antimony (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

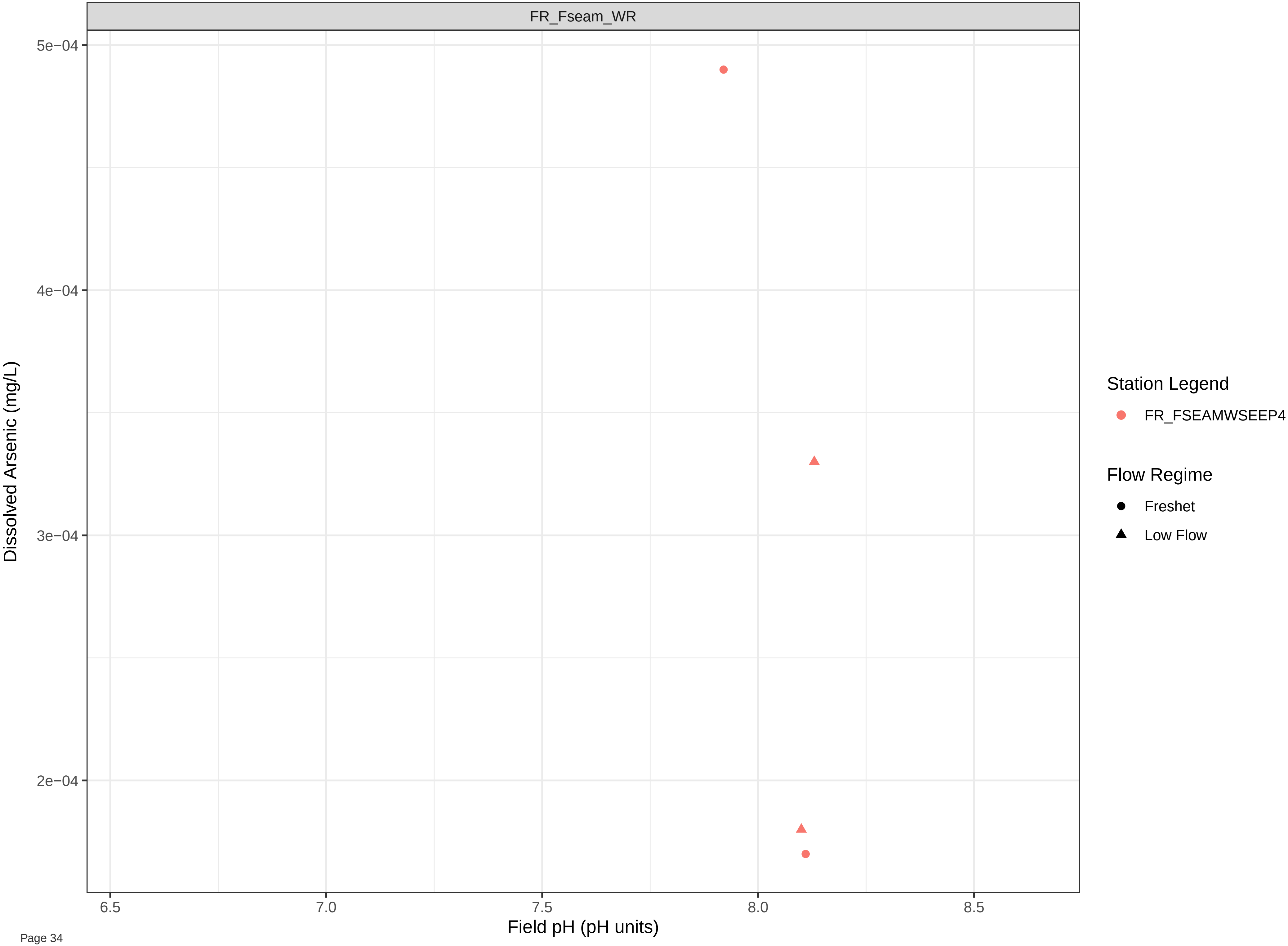

FR_A_WR
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Arsenic (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

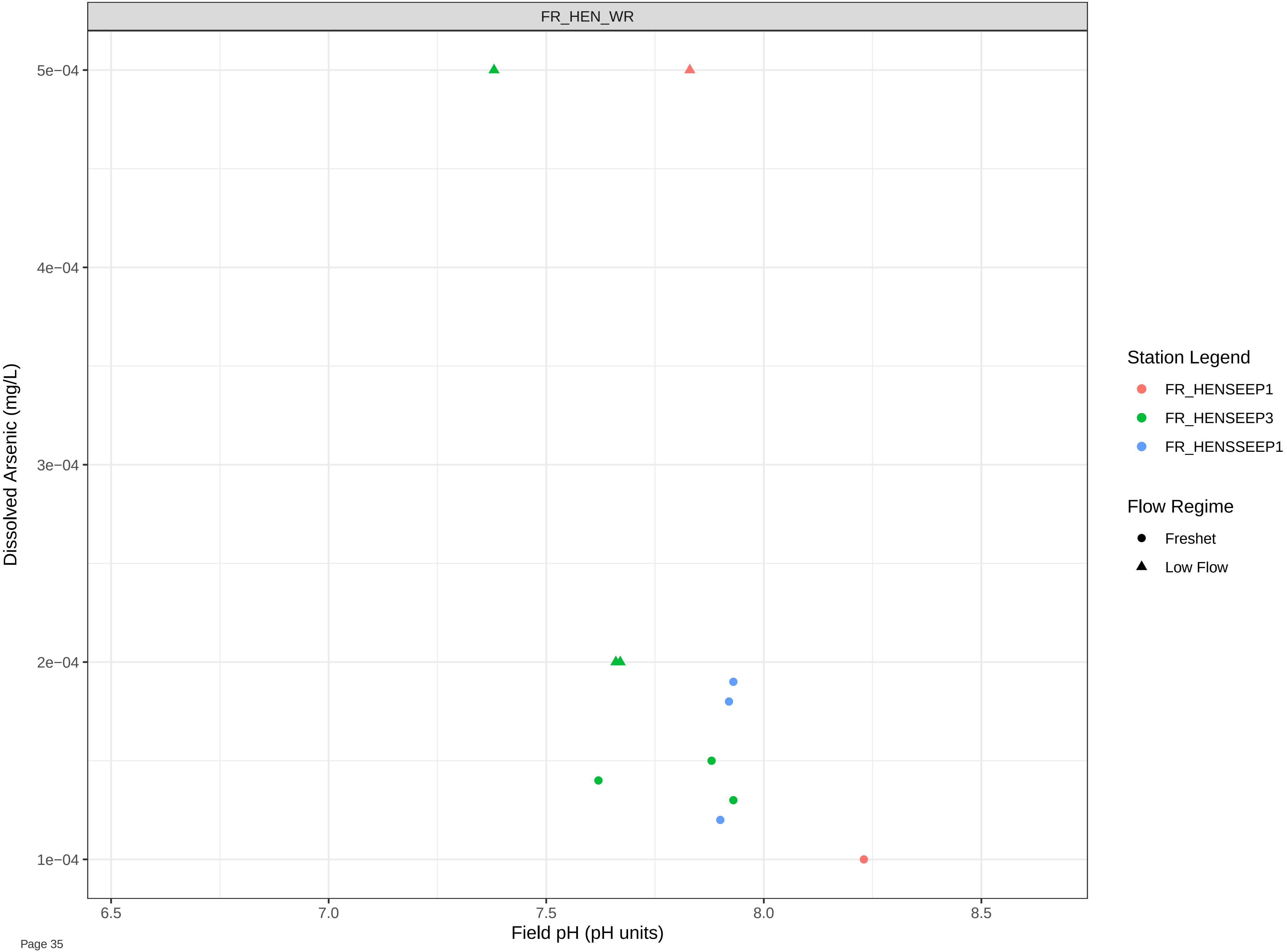

FR_Blain_CCR
Dissolved Arsenic (mg/L)
6e−04
4e−04
2e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

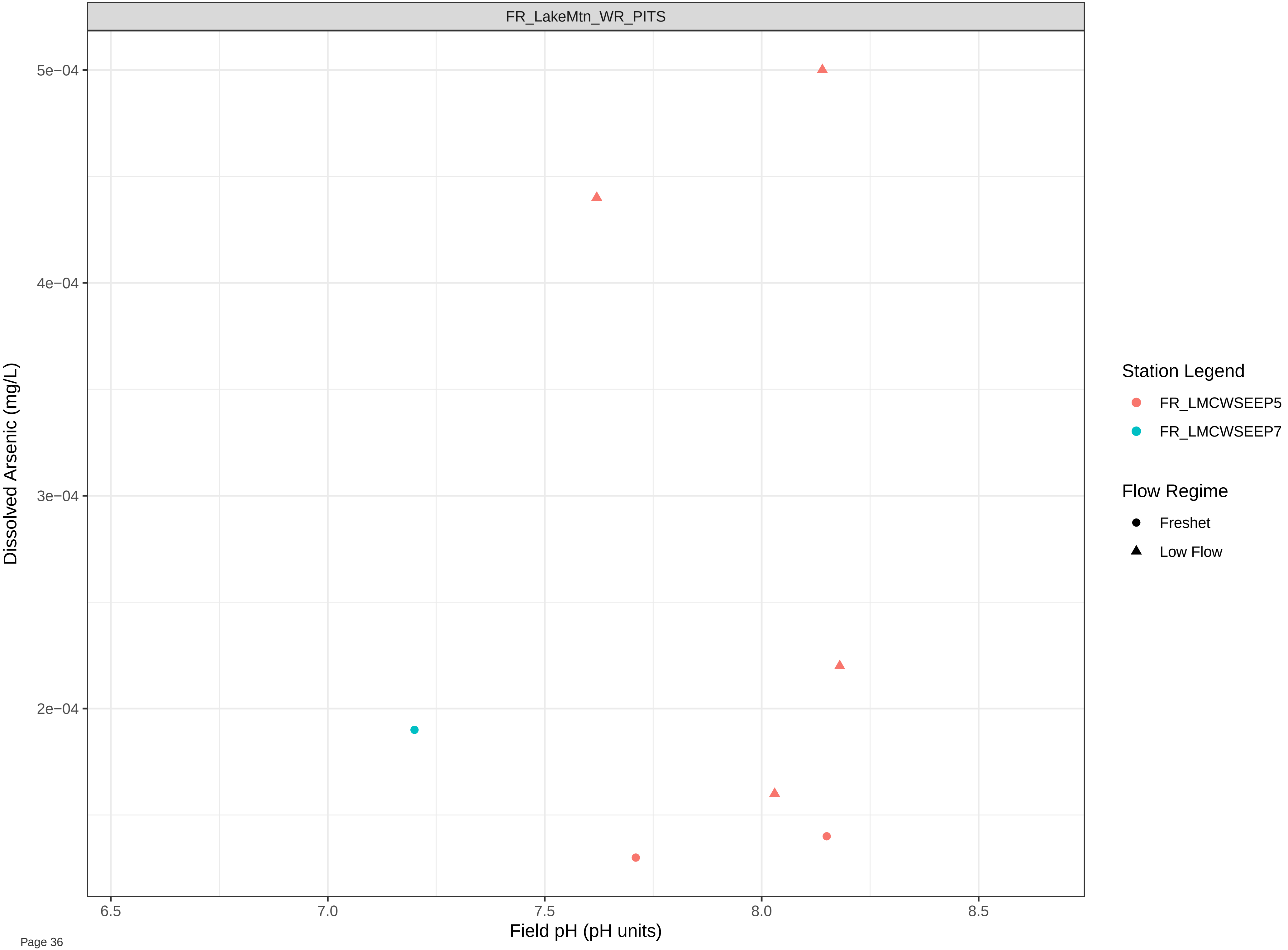

FR_ClodeCr_WR
Dissolved Arsenic (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

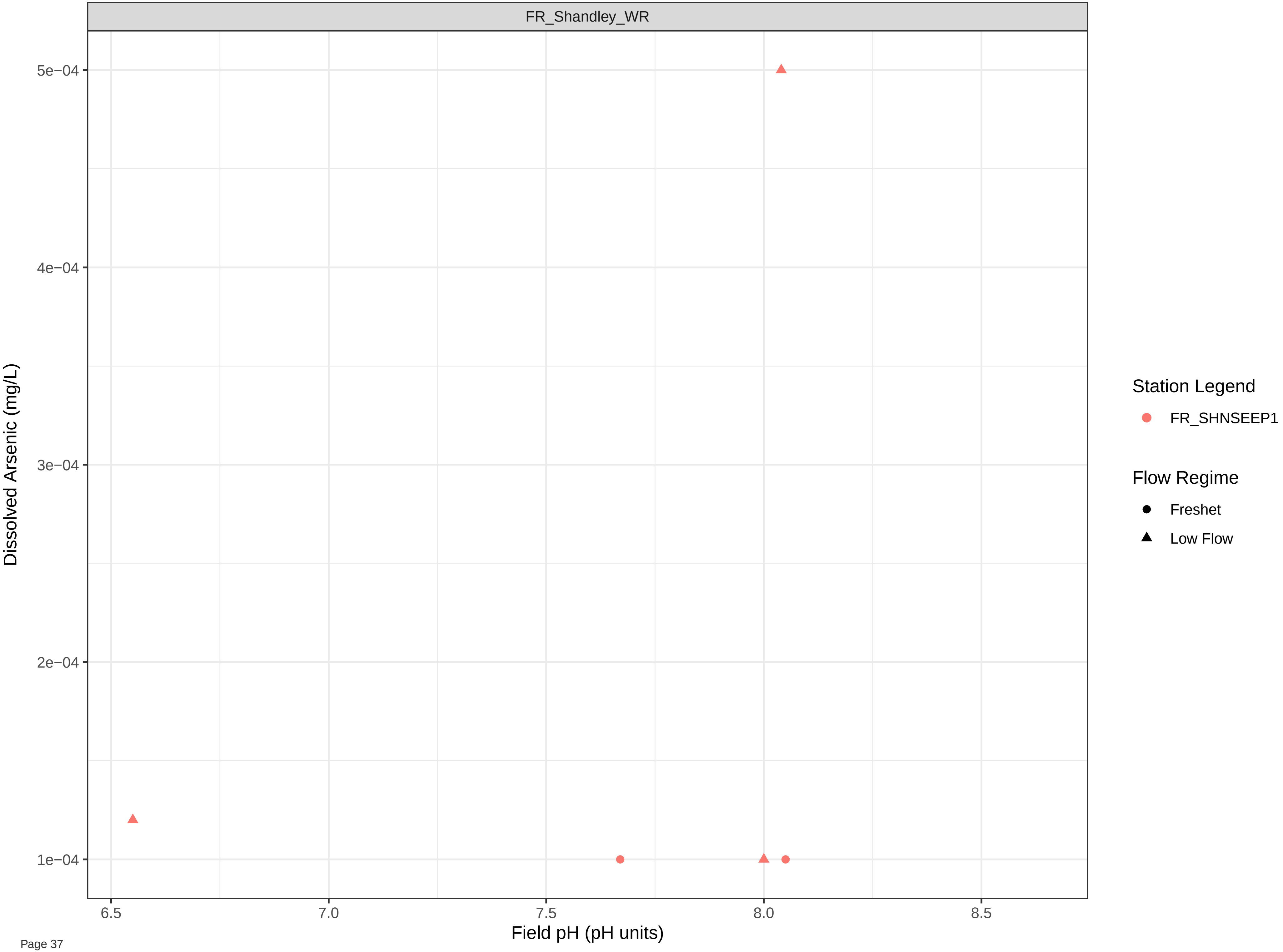

FR_DOKA_Unknown
Dissolved Arsenic (mg/L)
5e−04
4e−04
3e−04
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

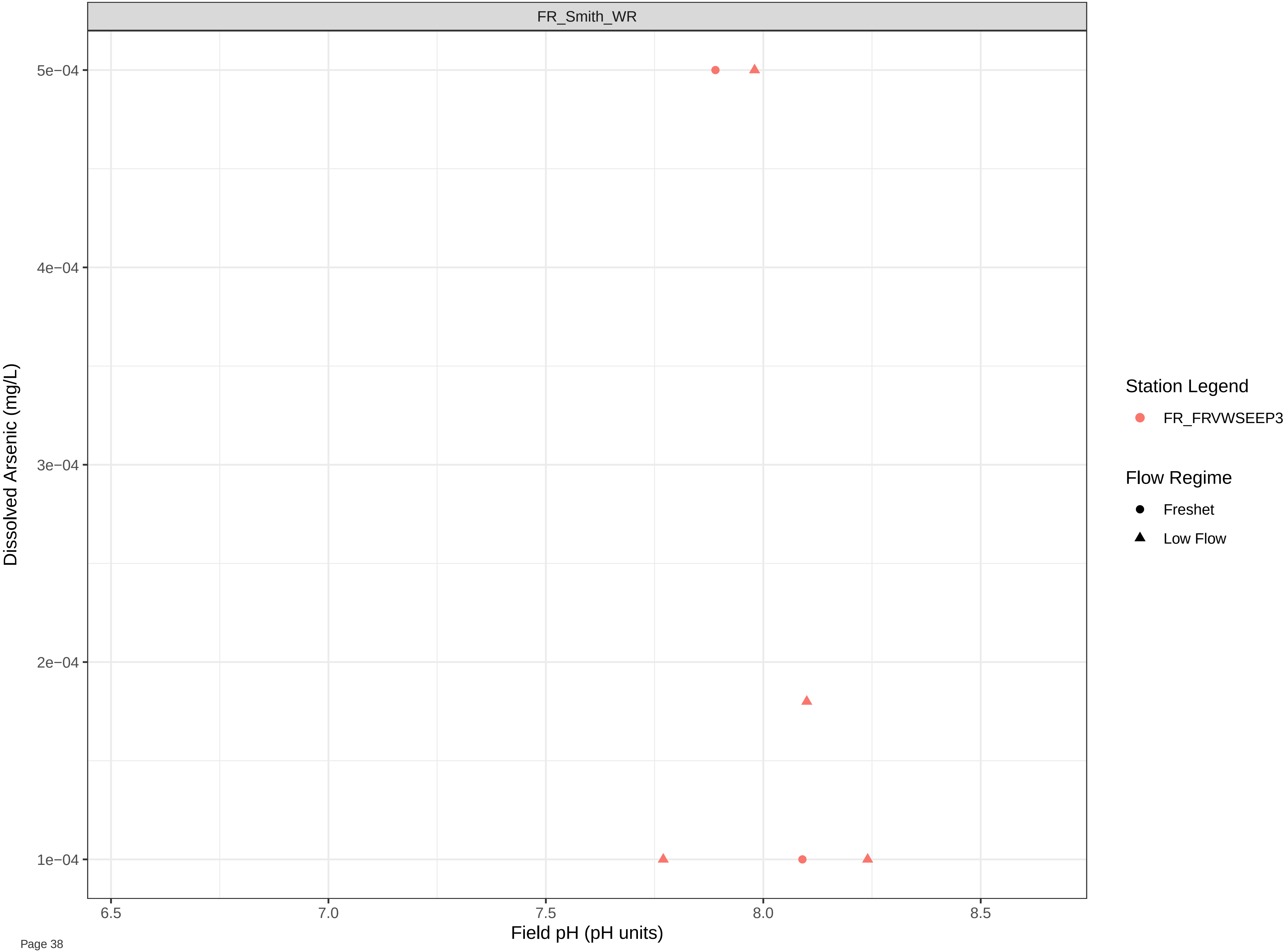

FR_Eagle_WR
Dissolved Arsenic (mg/L)
0.00100
0.00075
0.00050
0.00025
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

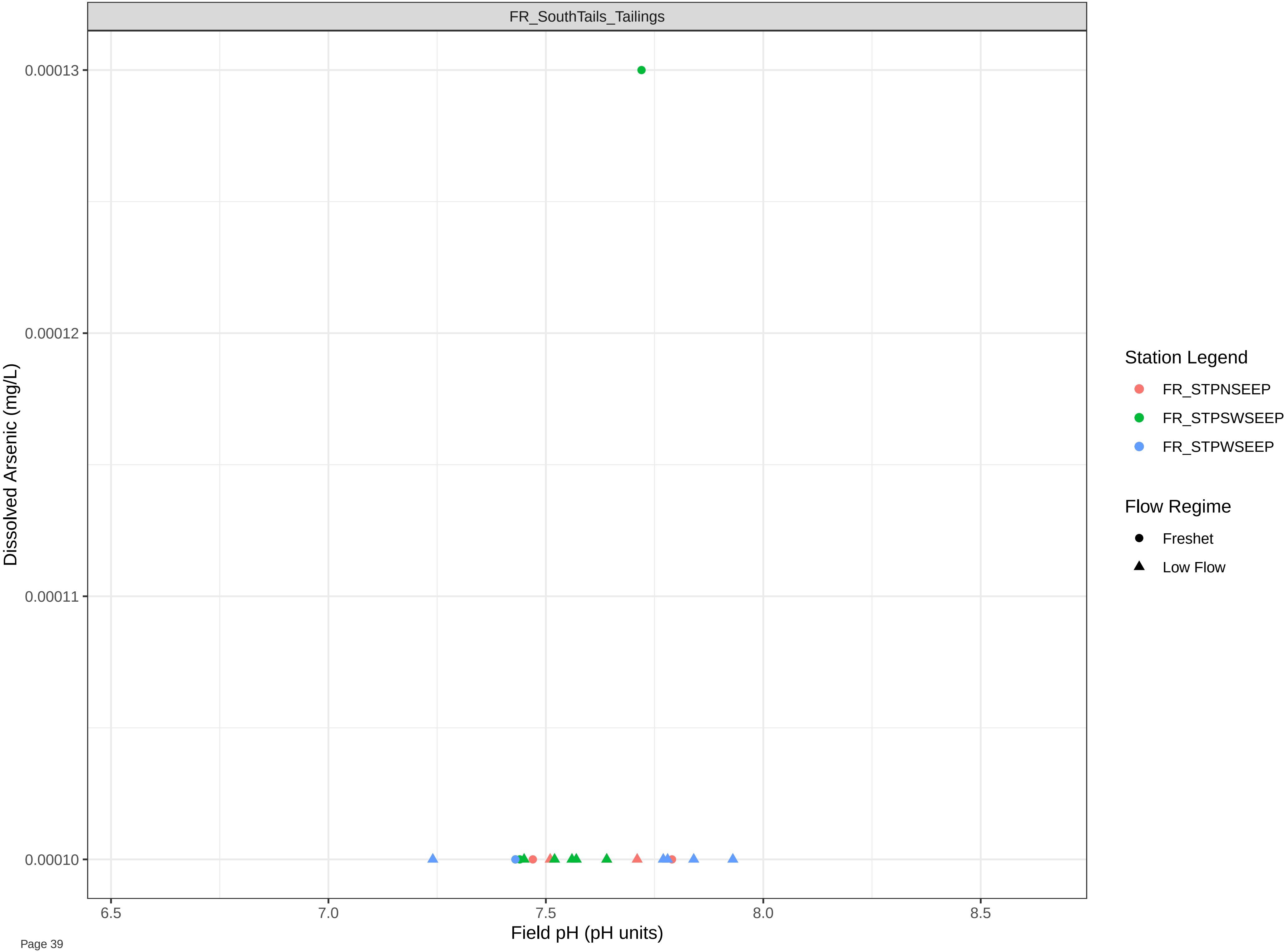

FR_Fseam_WR
5e−04
4e−04
3e−04
2e−04
Dissolved Arsenic (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

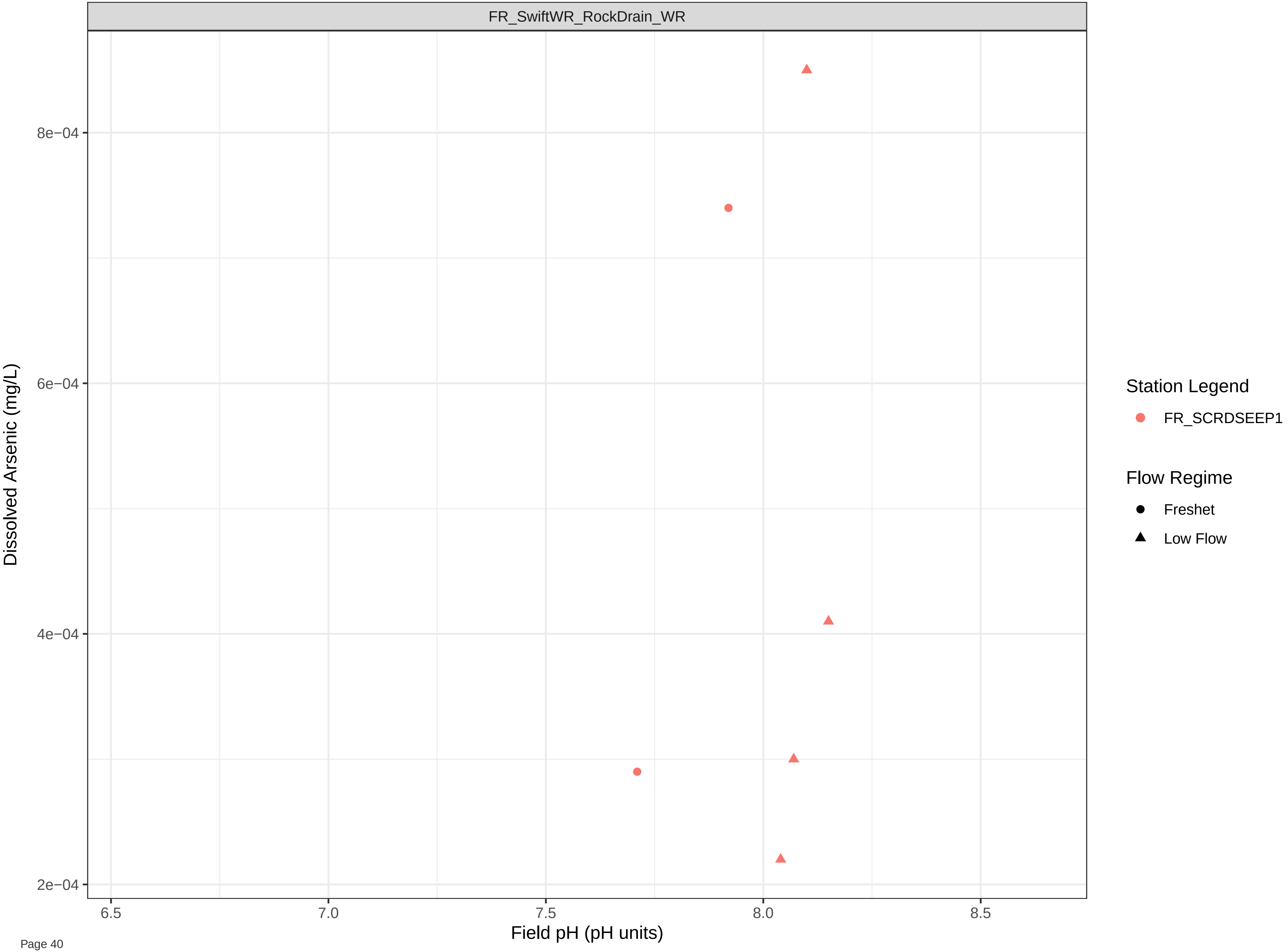

FR_HEN_WR
Dissolved Arsenic (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

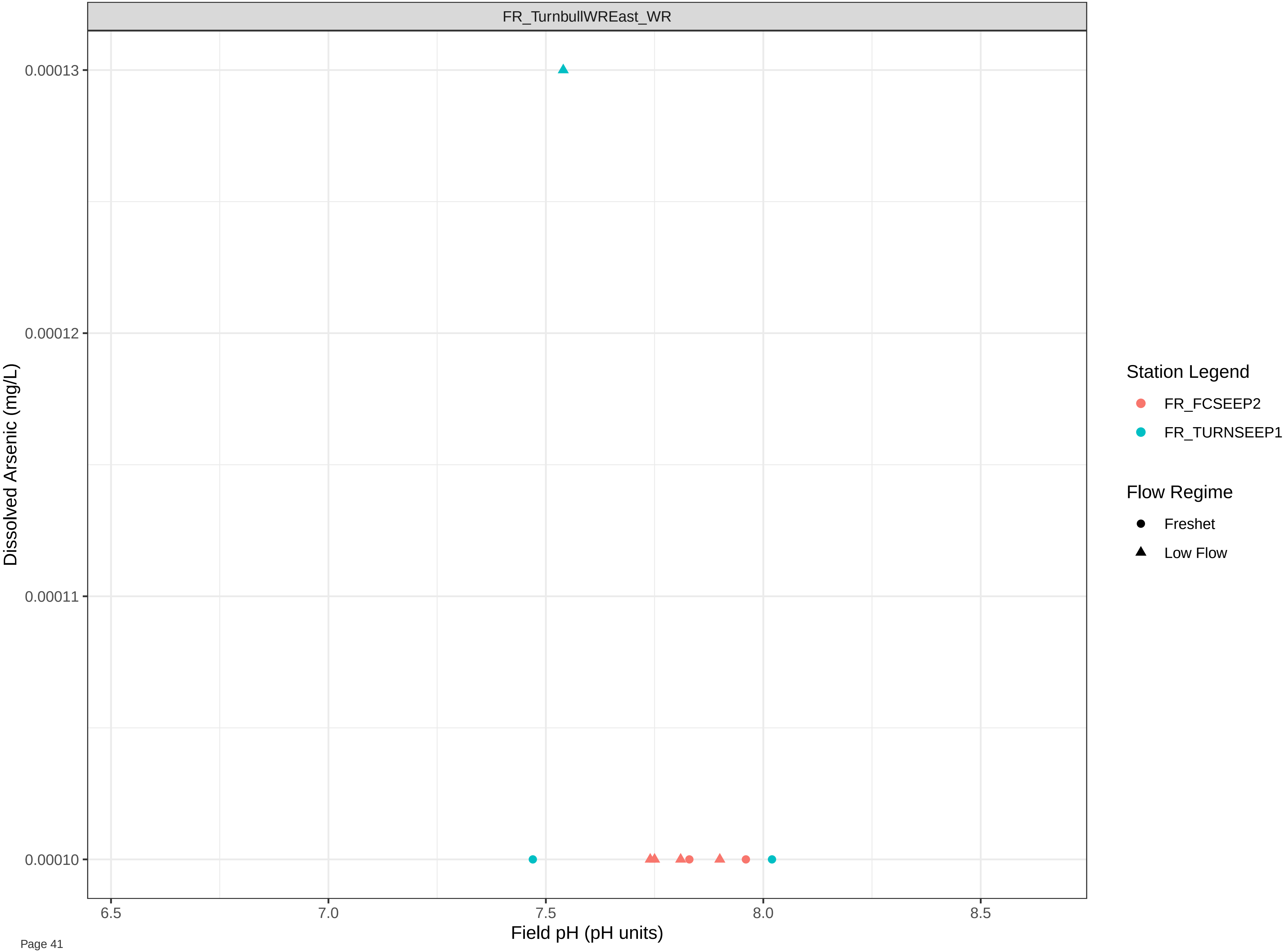

FR_LakeMtn_WR_PITS
Dissolved Arsenic (mg/L)
5e−04
4e−04
3e−04
2e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

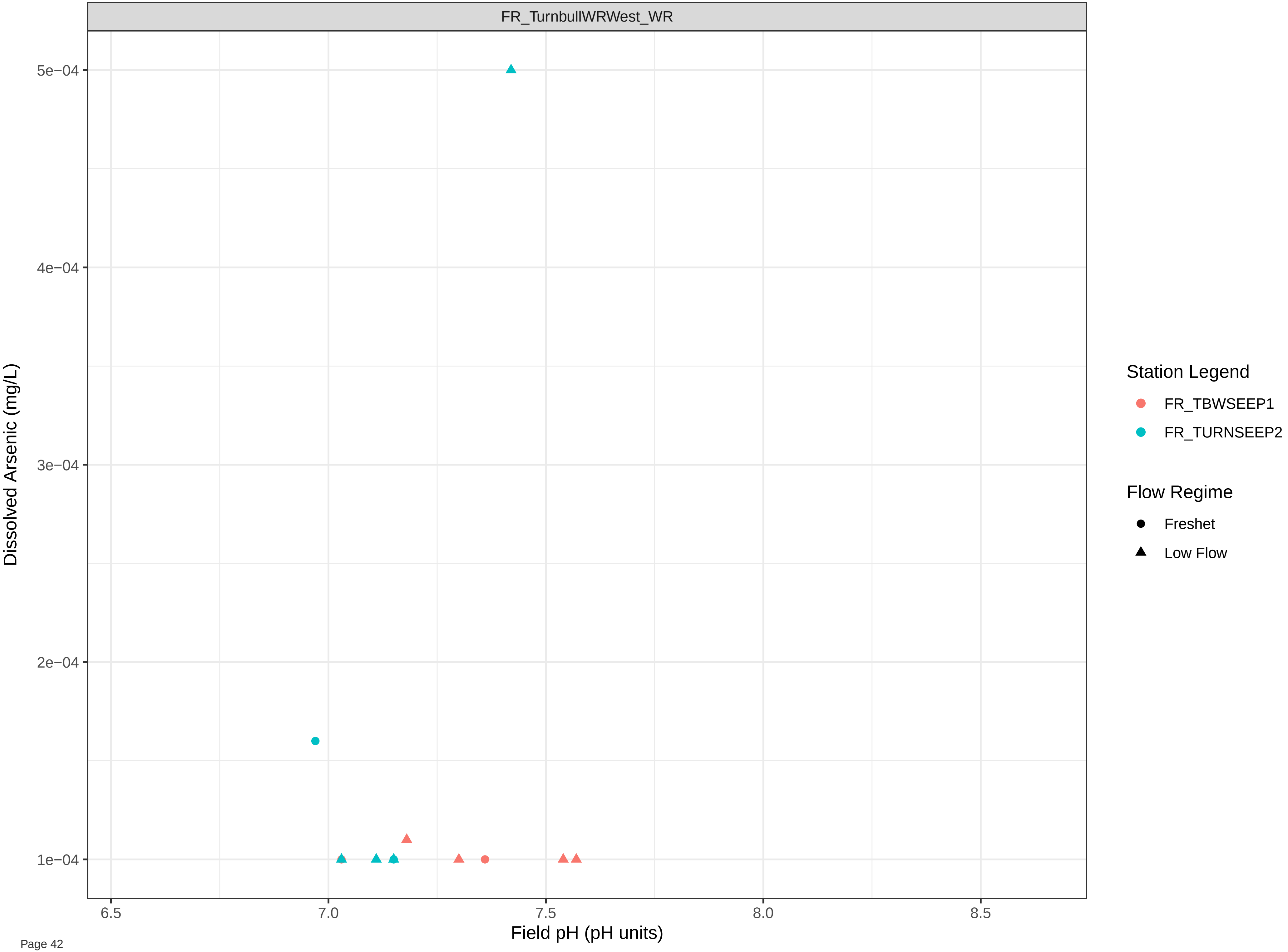

FR_Shandley_WR
Dissolved Arsenic (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

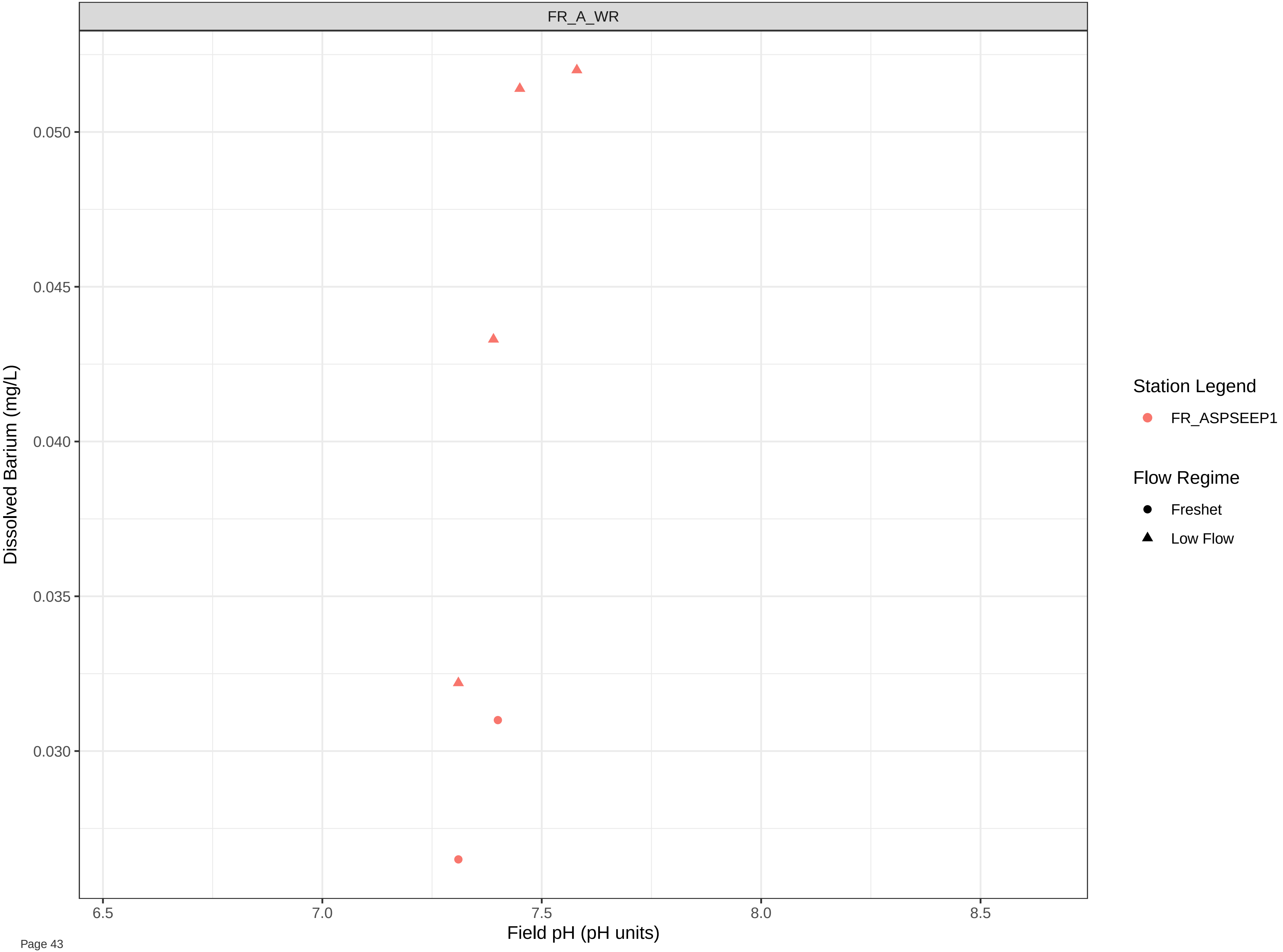

FR_Smith_WR
Dissolved Arsenic (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

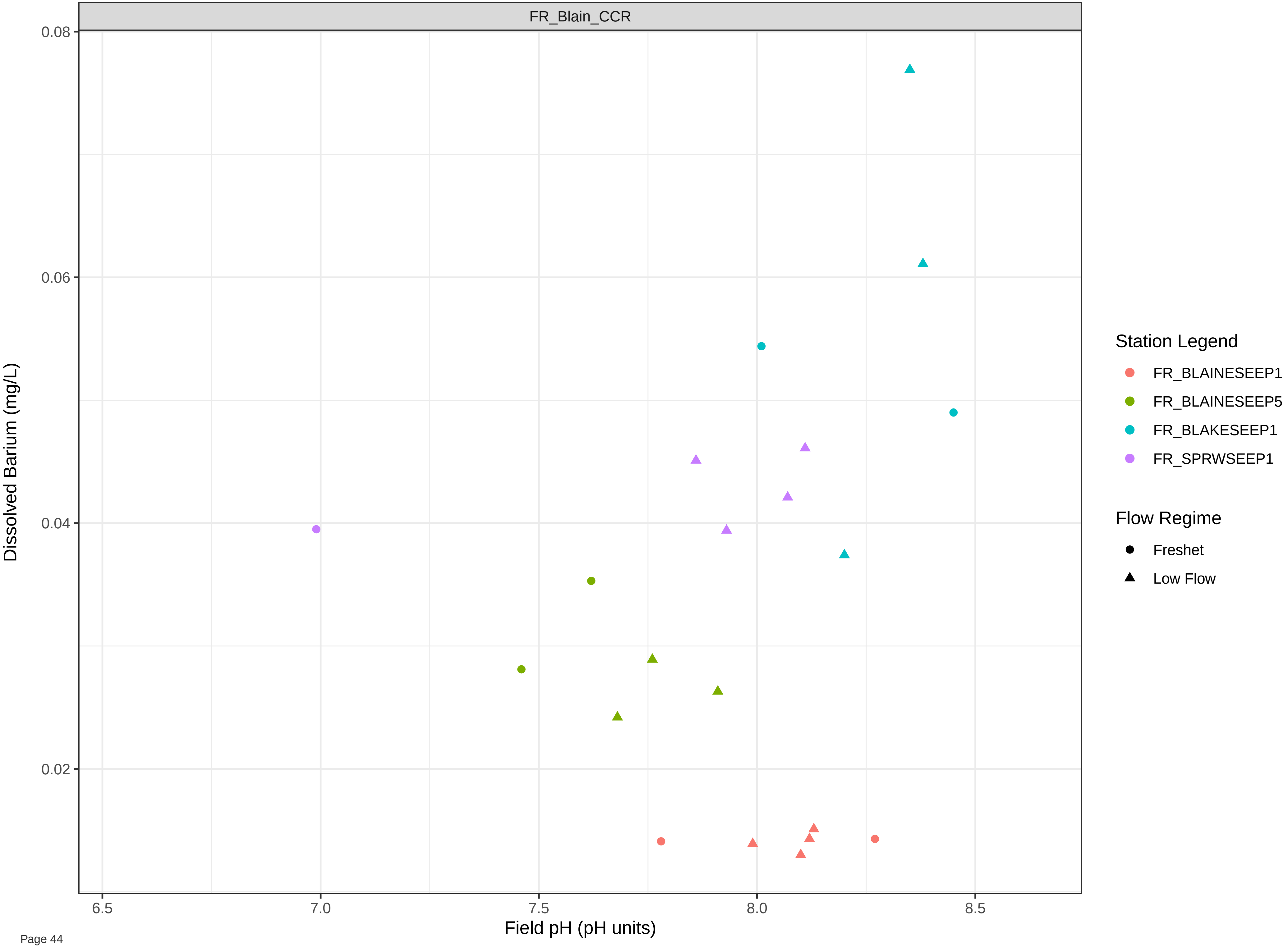

FR_SouthTails_Tailings
Dissolved Arsenic (mg/L)
0.00013
0.00012
0.00011
0.00010
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

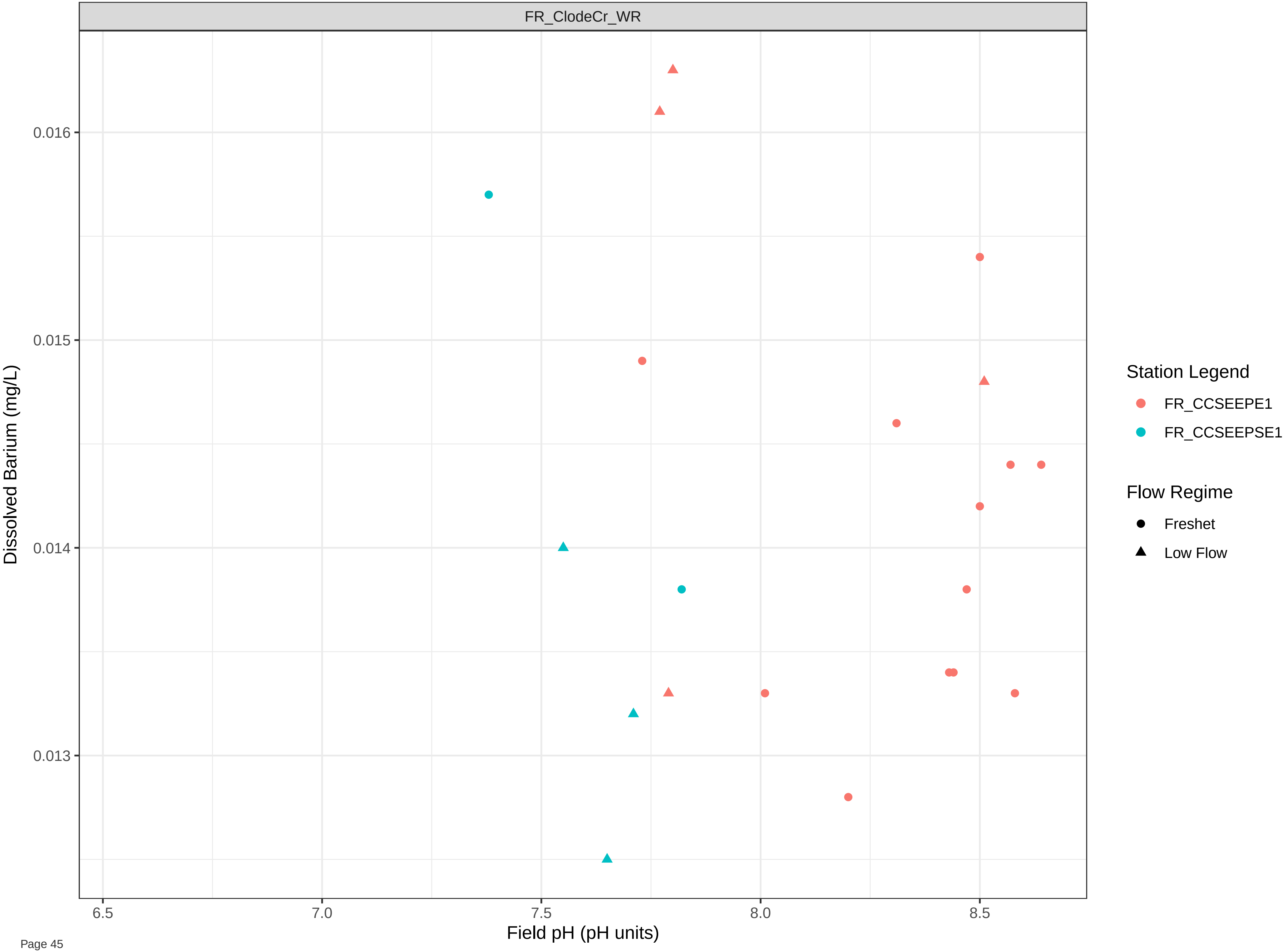

FR_SwiftWR_RockDrain_WR
Dissolved Arsenic (mg/L)
8e−04
6e−04
4e−04
2e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

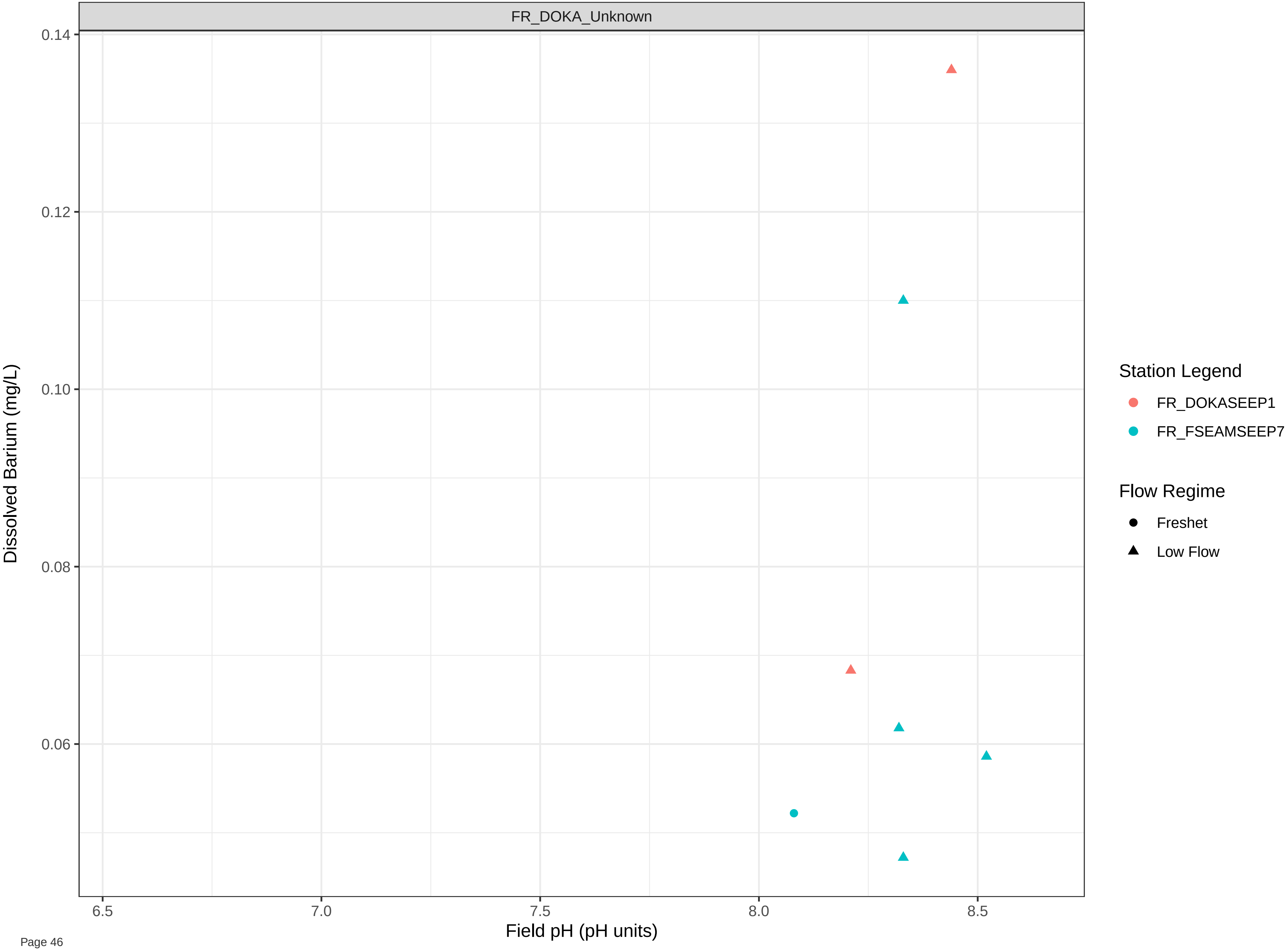

FR_TurnbullWREast_WR
0.00013
0.00012
0.00011
0.00010
Dissolved Arsenic (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FCSEEP2
● FR_TURNSEEP1
Flow Regime
● Freshet
▲ Low Flow

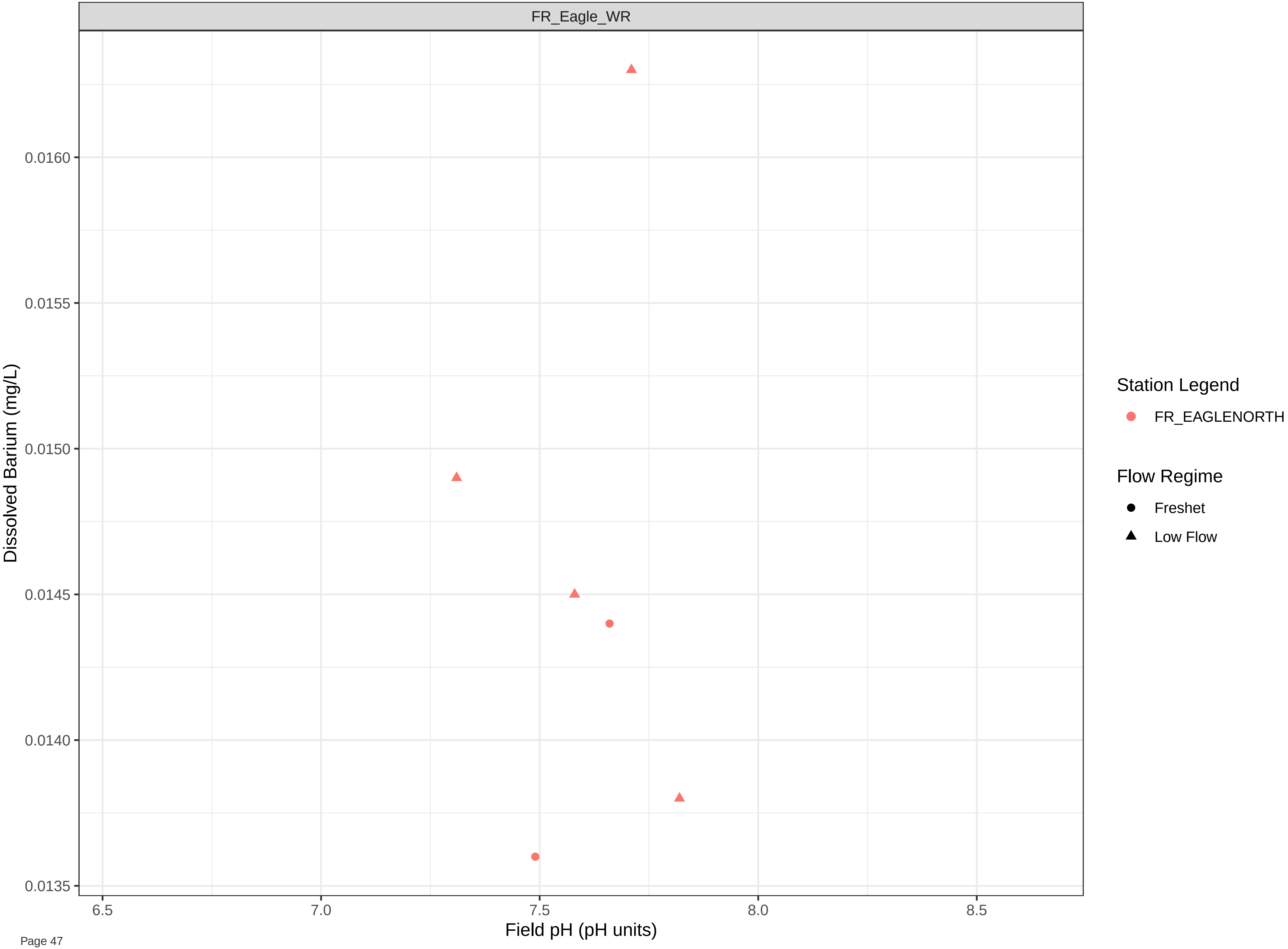

FR_TurnbullWRWest_WR
Dissolved Arsenic (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

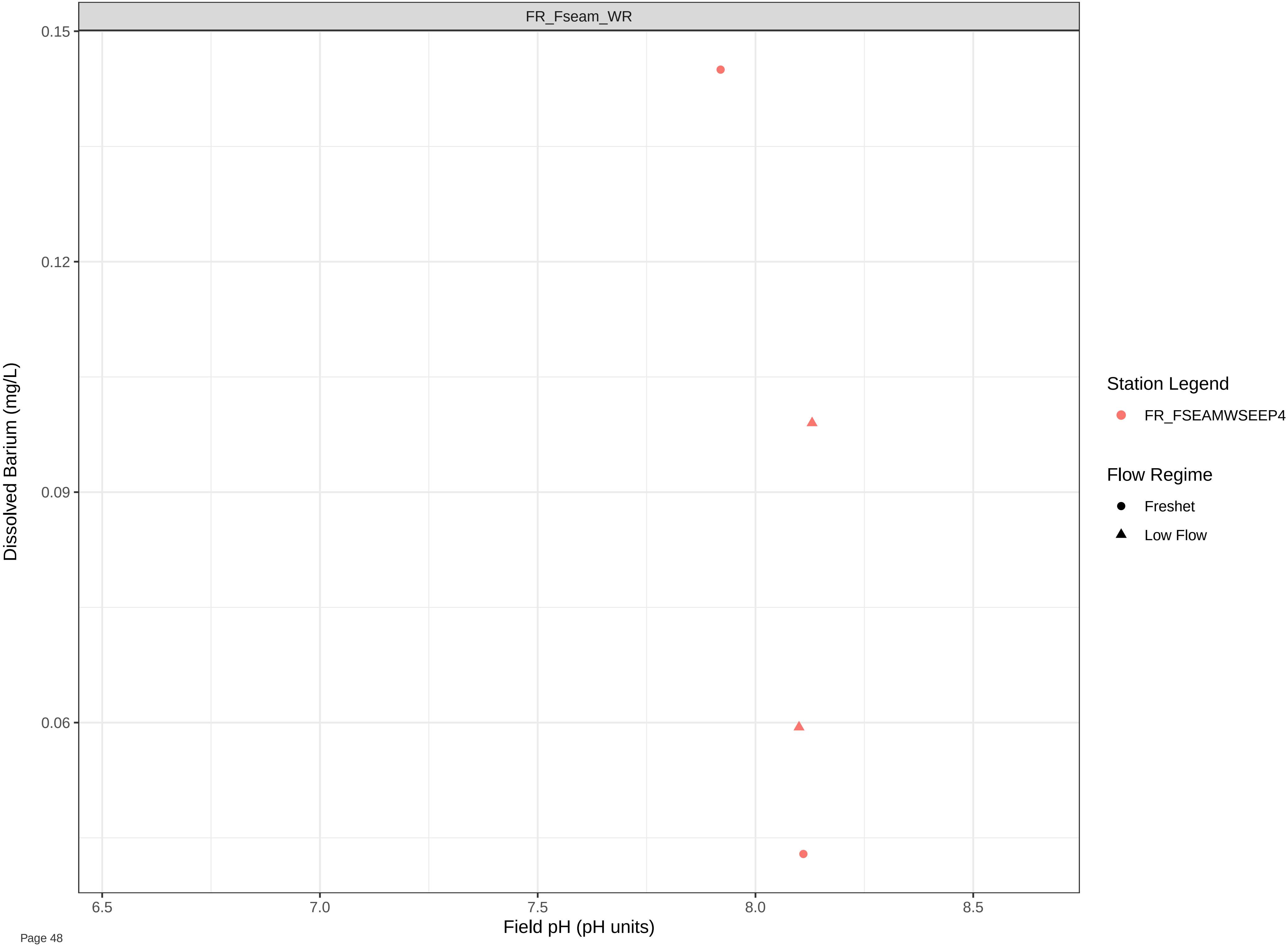

FR_A_WR
Dissolved Barium (mg/L)
0.050
0.045
0.040
0.035
0.030
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

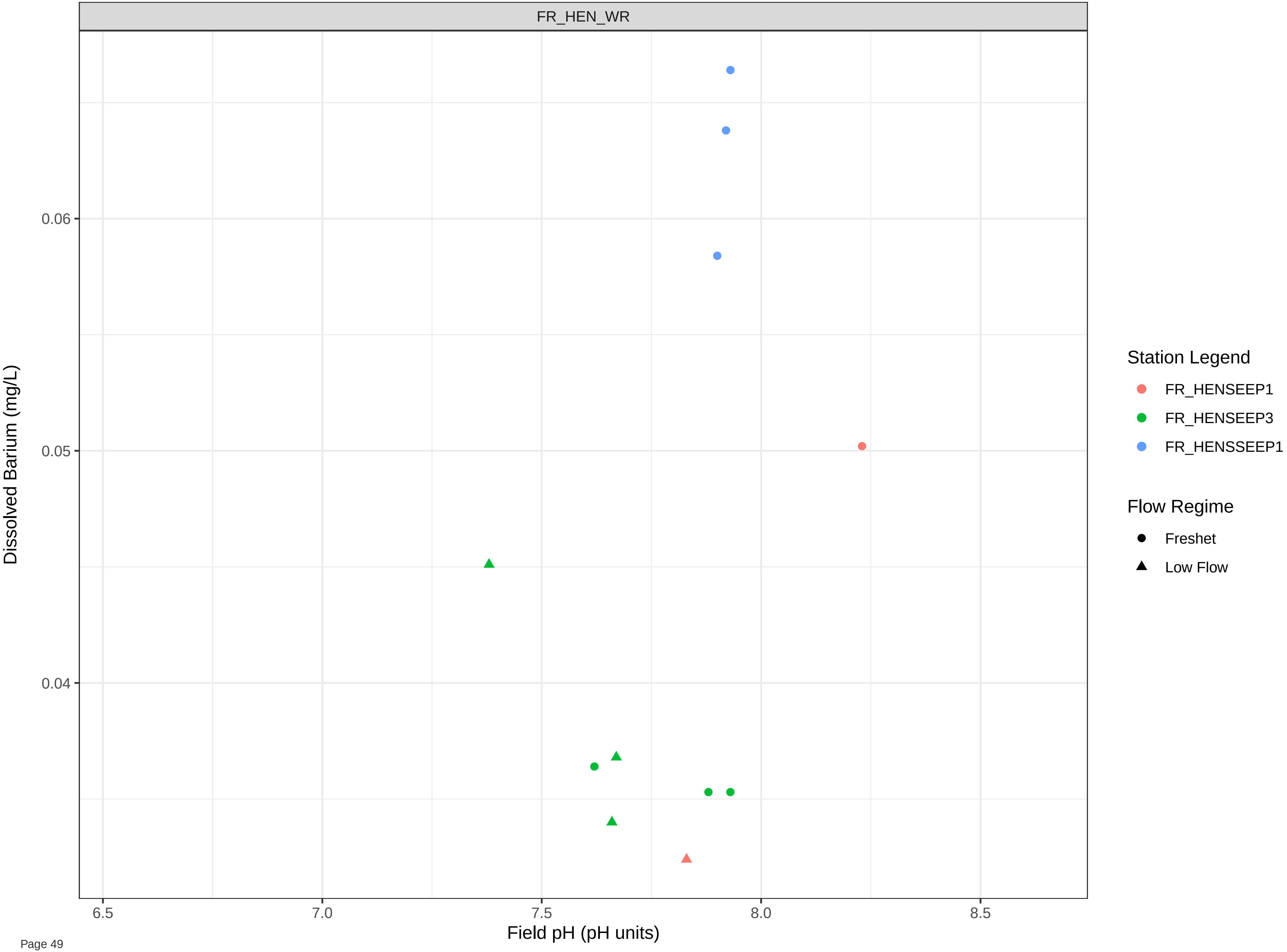

FR_Blain_CCR
Dissolved Barium (mg/L)
0.08
0.06
0.04
0.02
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow

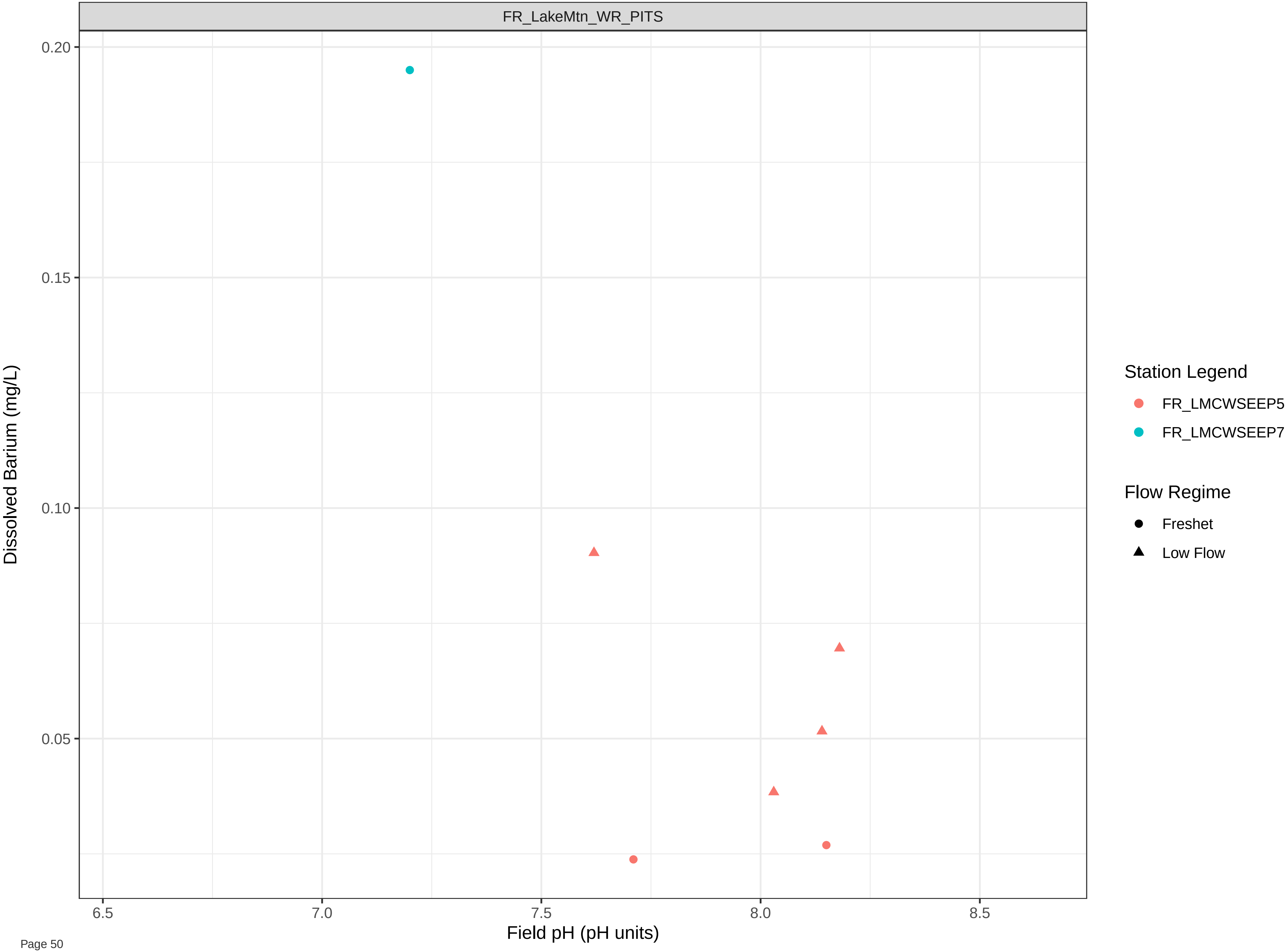

FR_ClodeCr_WR
Dissolved Barium (mg/L)
0.016
0.015
0.014
0.013
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

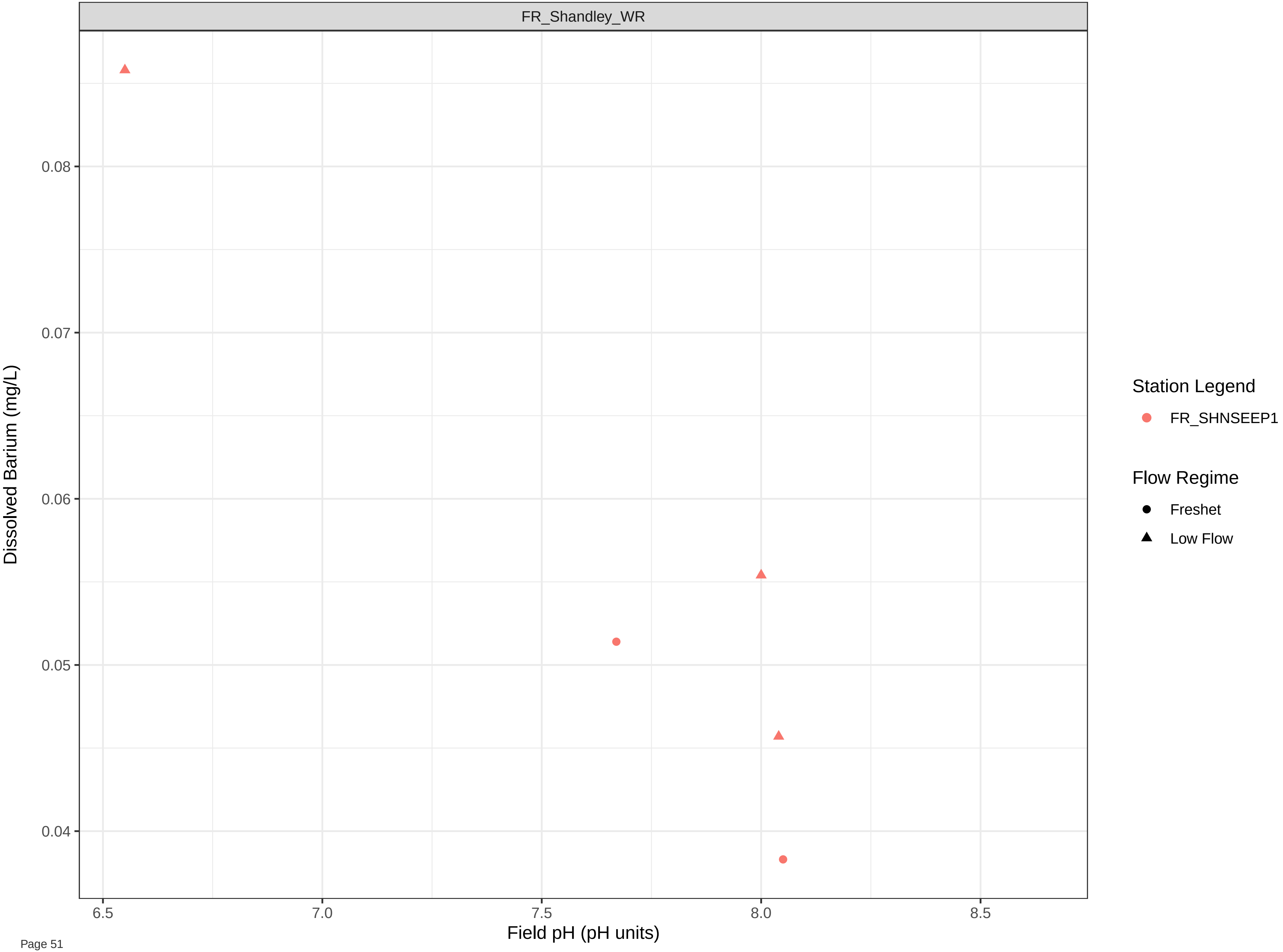

FR_DOKA_Unknown
0.14
0.12
0.10
0.08
0.06
Dissolved Barium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

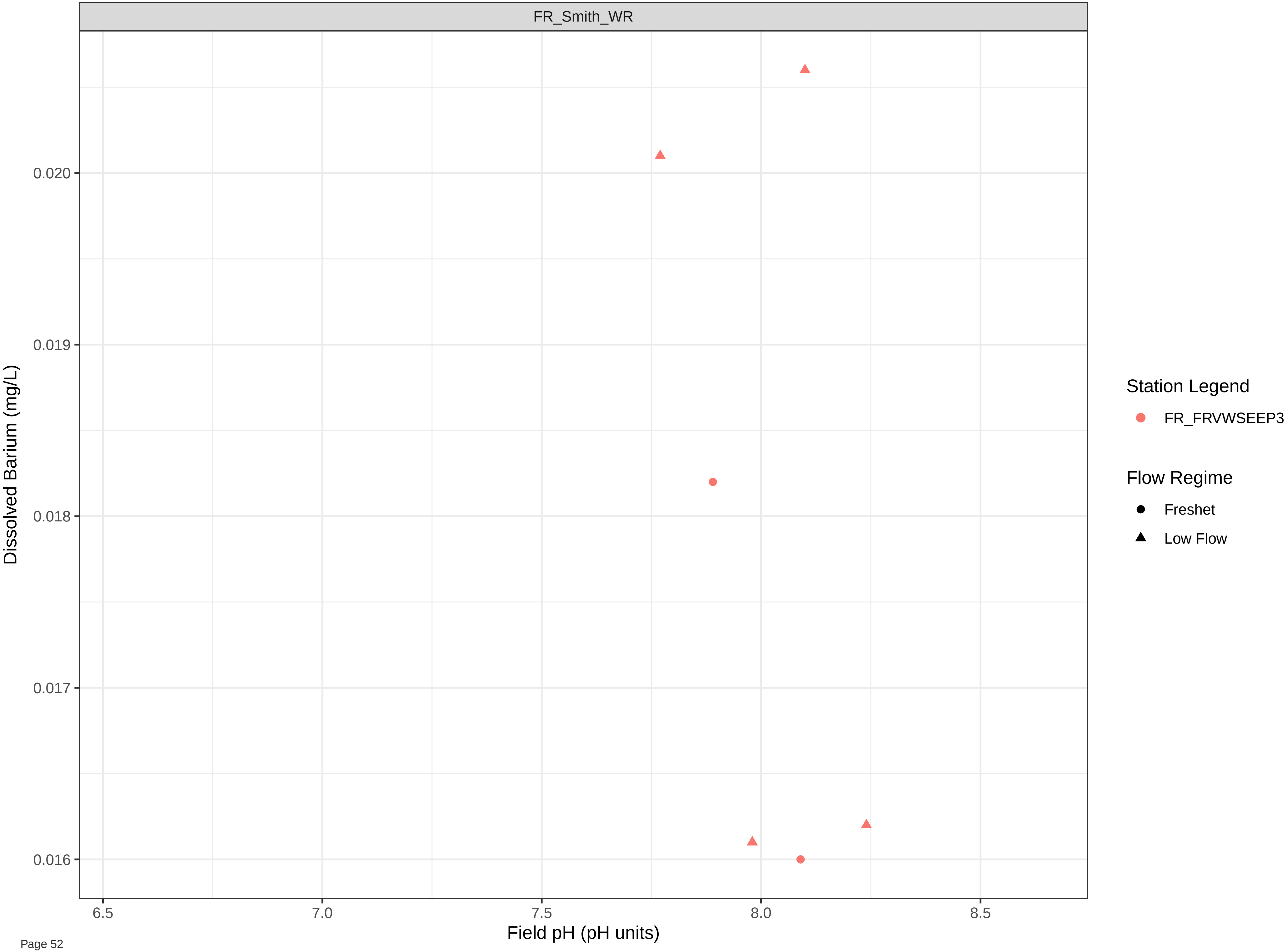

FR_Eagle_WR
Dissolved Barium (mg/L)
0.0160
0.0155
0.0150
0.0145
0.0140
0.0135
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

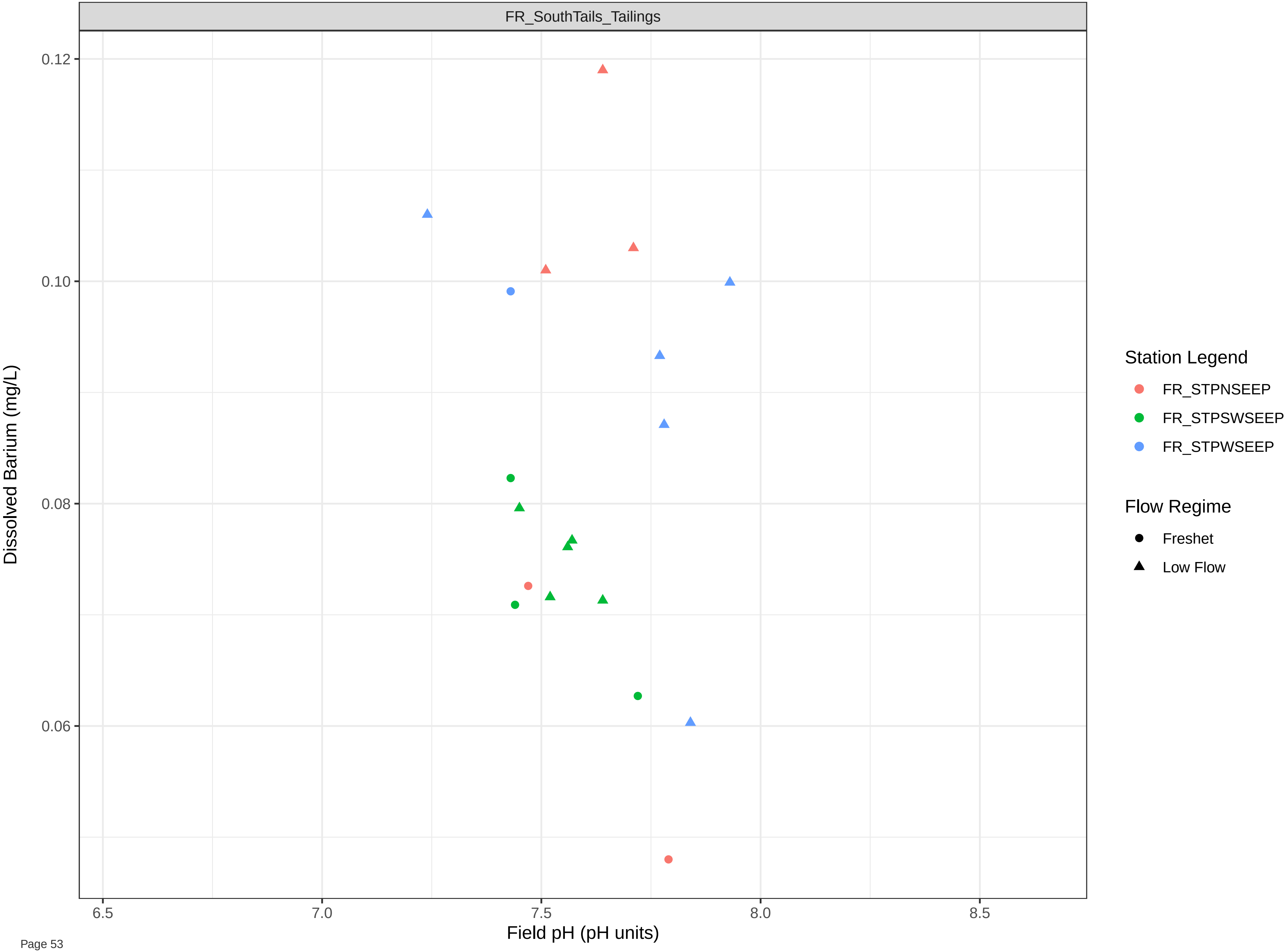

FR_Fseam_WR
Dissolved Barium (mg/L)
0.15
0.12
0.09
0.06
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

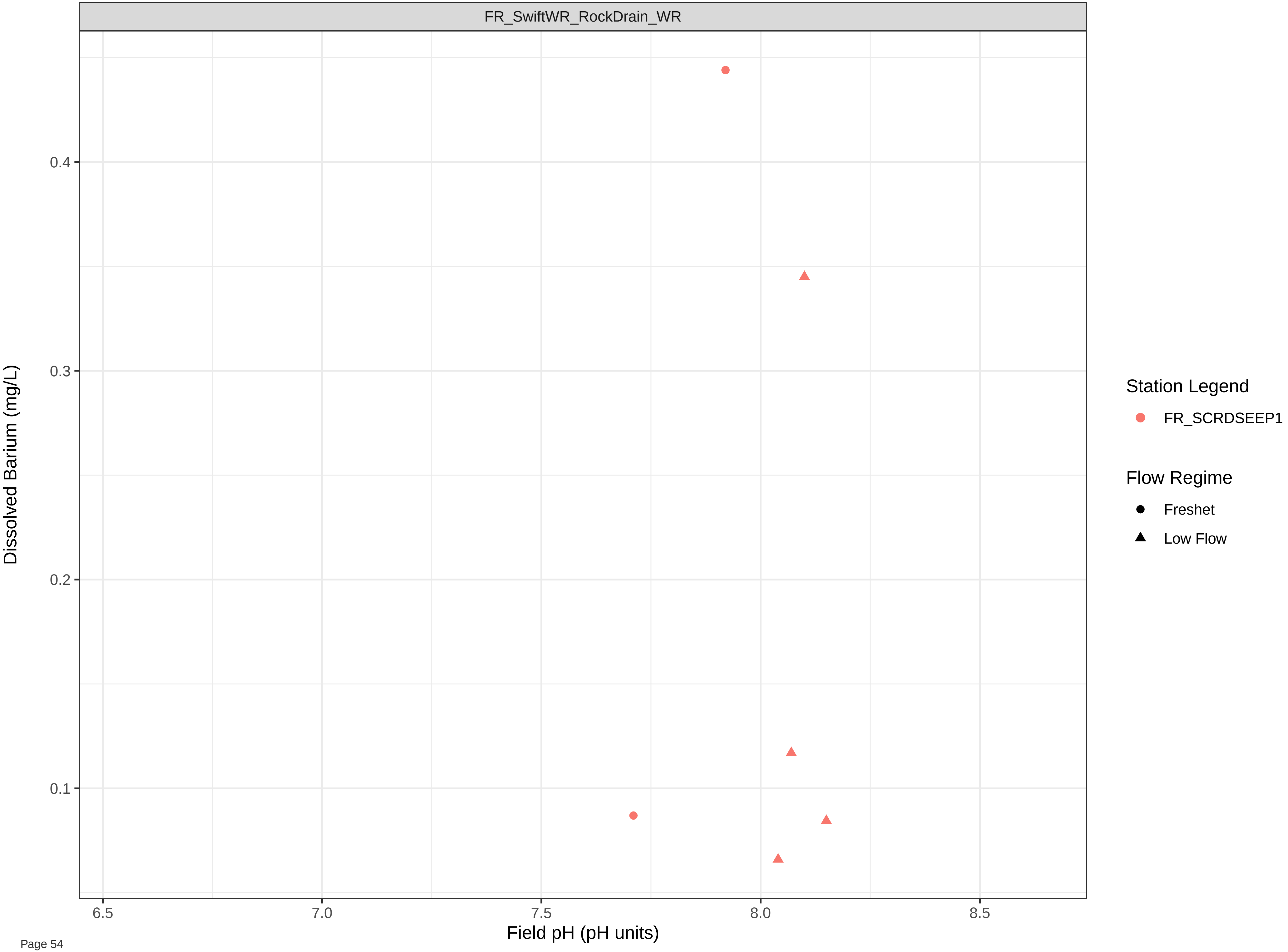

FR_HEN_WR
Dissolved Barium (mg/L)
0.06
0.05
0.04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_HENSEEP1
● FR_HENSEEP3
● FR_HENSSEEP1
Flow Regime
● Freshet
▲ Low Flow

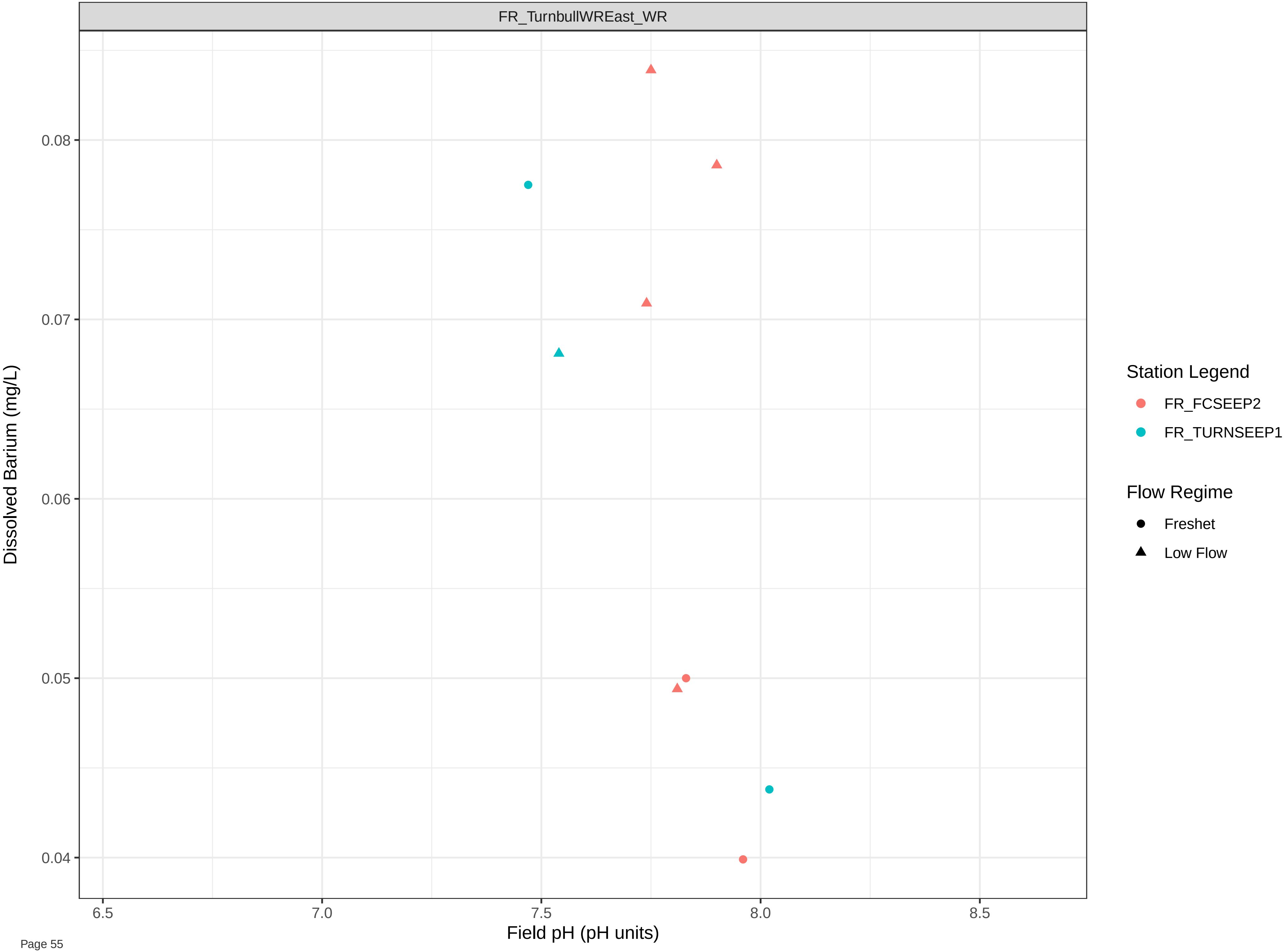

FR_LakeMtn_WR_PITS
Dissolved Barium (mg/L)
0.20
0.15
0.10
0.05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

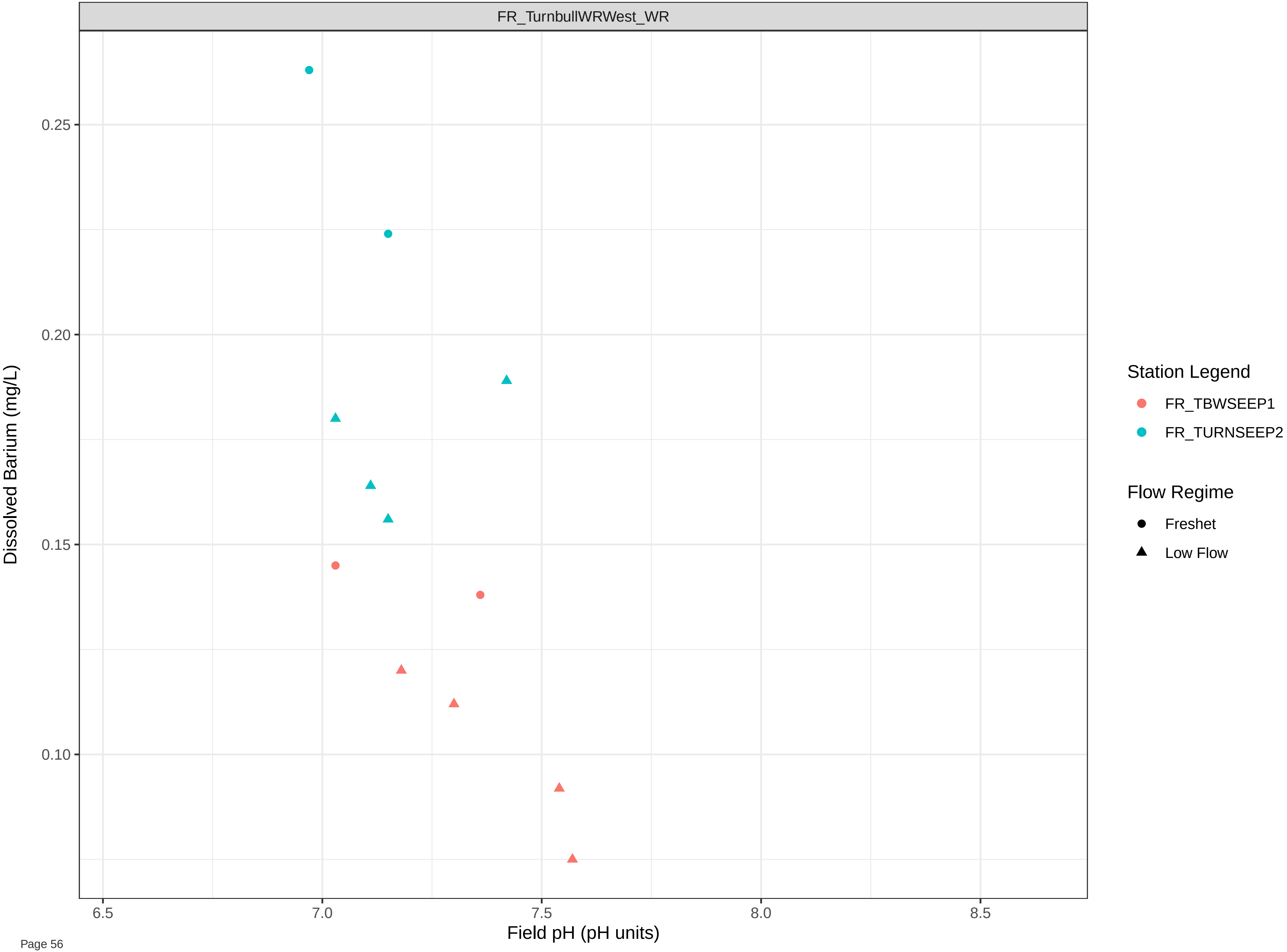

FR_Shandley_WR
Dissolved Barium (mg/L)
0.08
0.07
0.06
0.05
0.04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

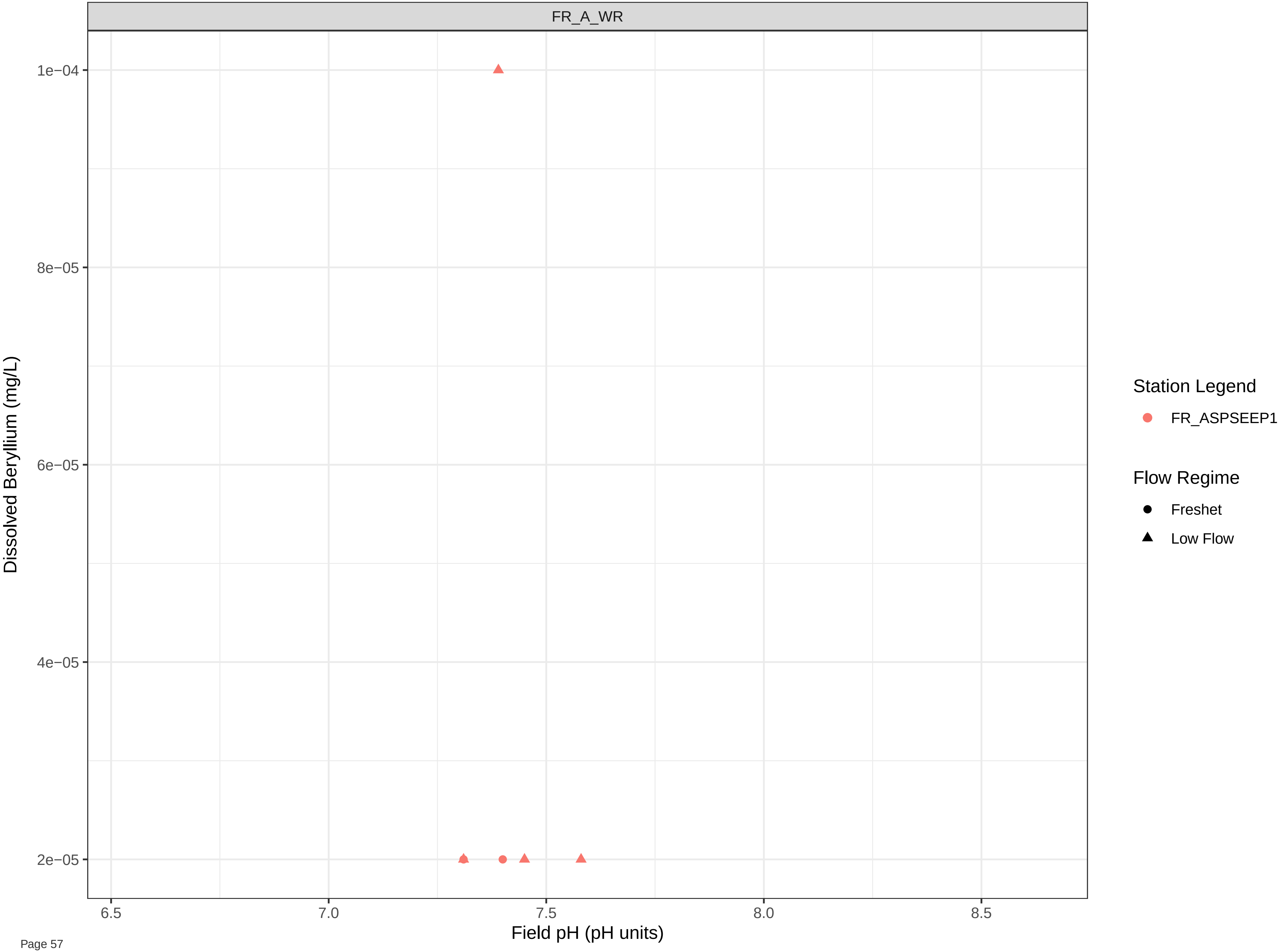

FR_Smith_WR
Dissolved Barium (mg/L)
0.020
0.019
0.018
0.017
0.016
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

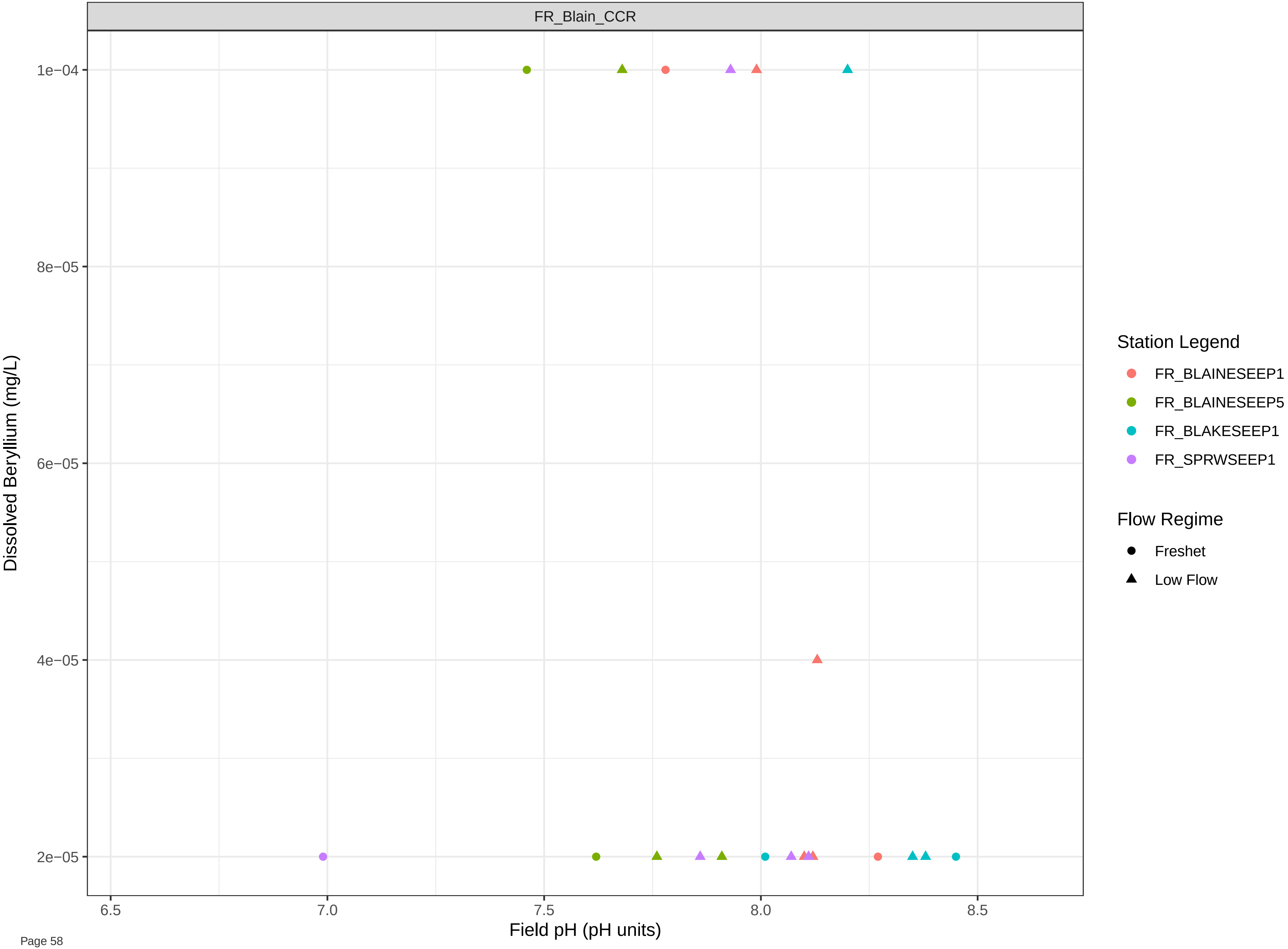

FR_SouthTails_Tailings
Dissolved Barium (mg/L)
0.12
0.10
0.08
0.06
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

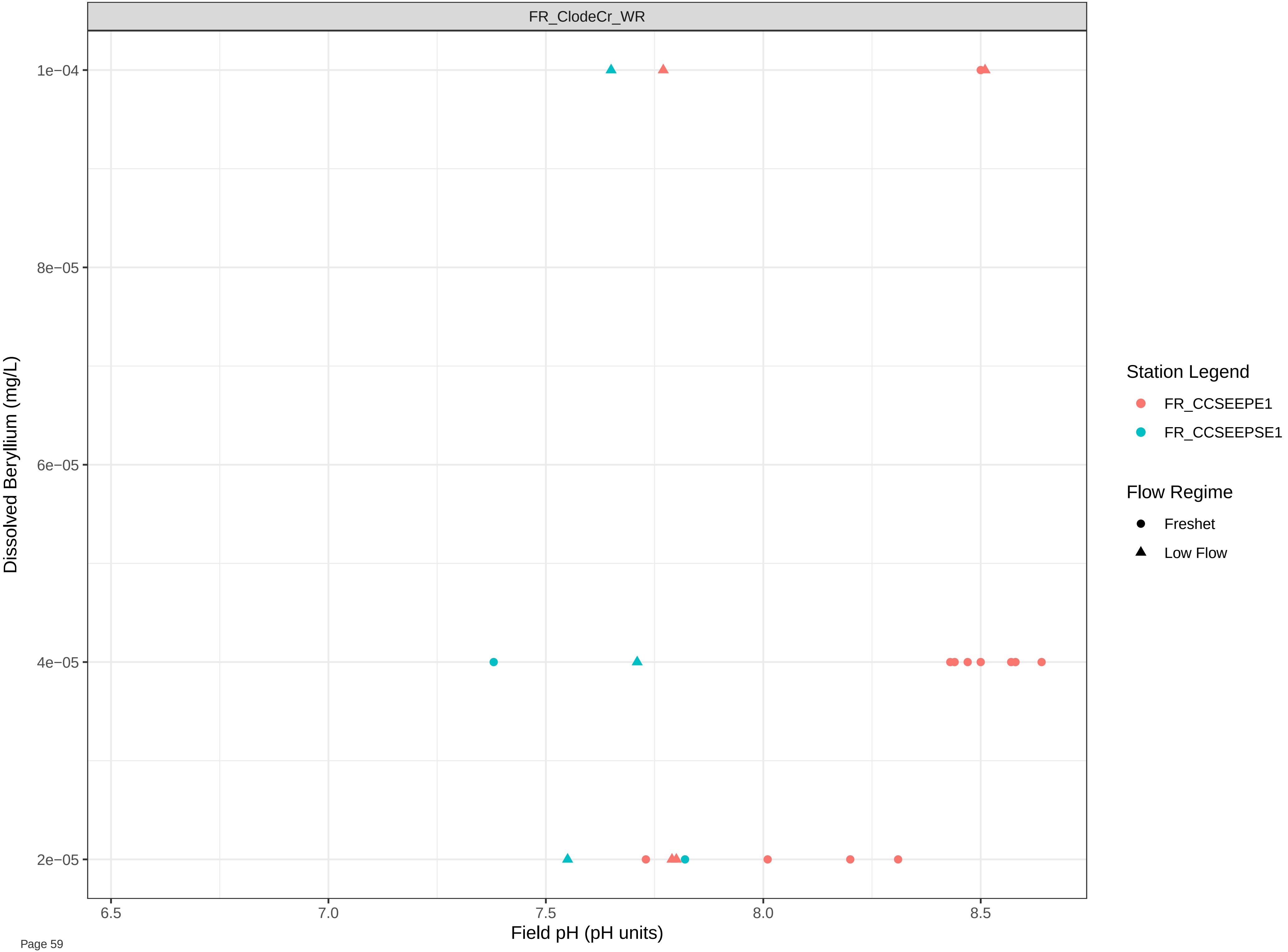

FR_SwiftWR_RockDrain_WR
Dissolved Barium (mg/L)
0.4
0.3
0.2
0.1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

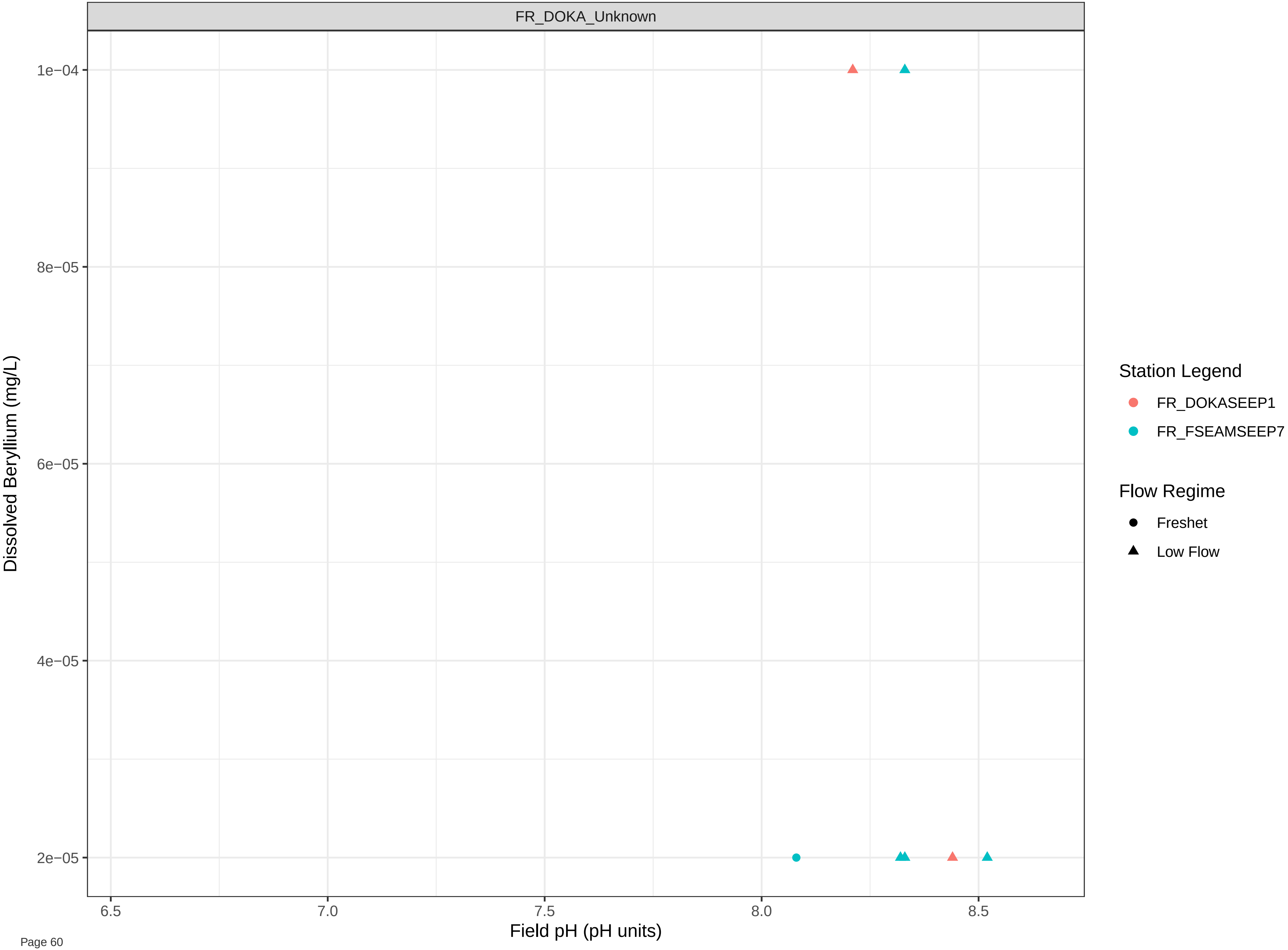

FR_TurnbullWREast_WR
Dissolved Barium (mg/L)
0.08
0.07
0.06
0.05
0.04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FCSEEP2
● FR_TURNSEEP1
Flow Regime
● Freshet
▲ Low Flow

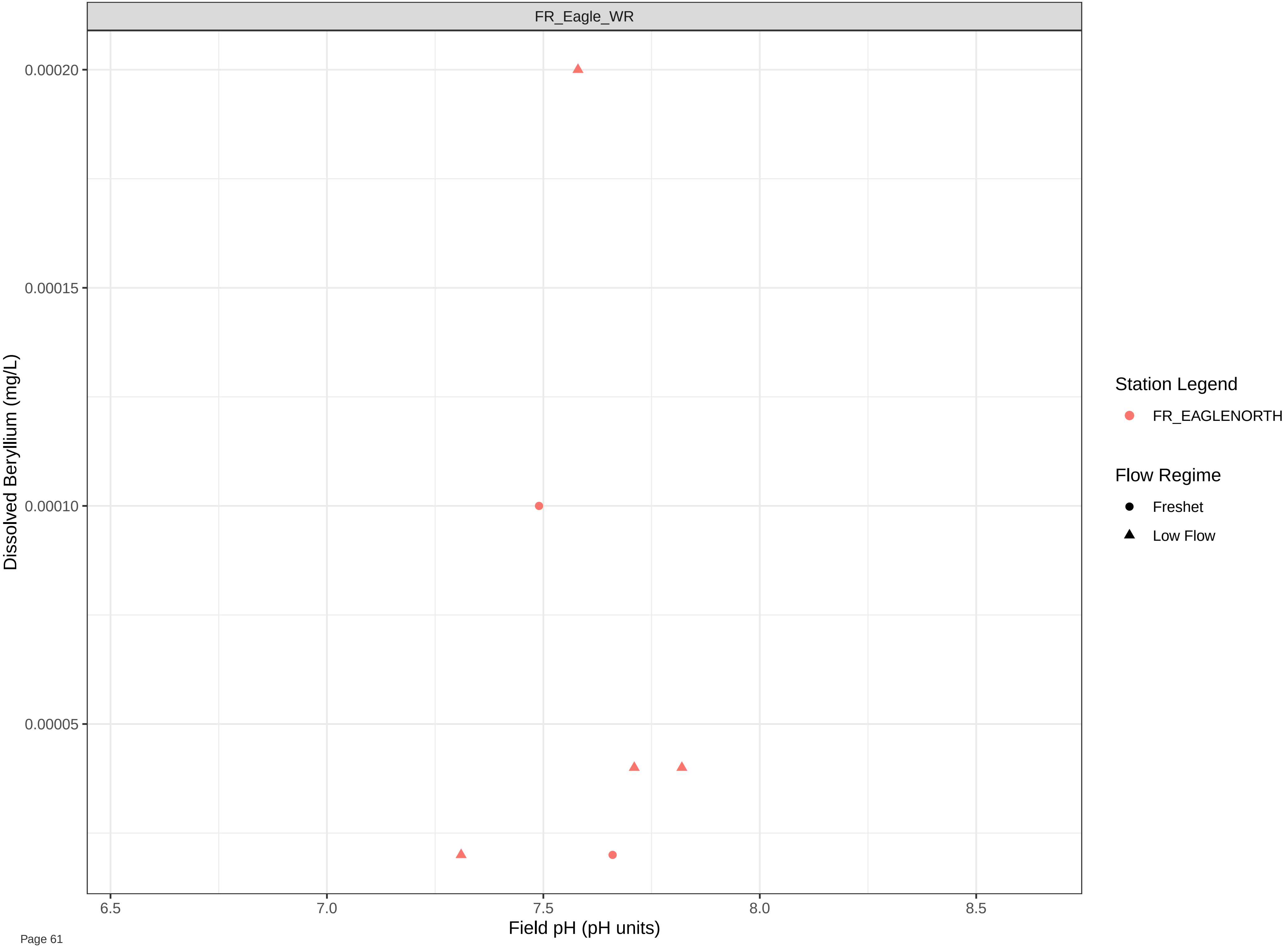

FR_TurnbullWRWest_WR
Dissolved Barium (mg/L)
0.25
0.20
0.15
0.10
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

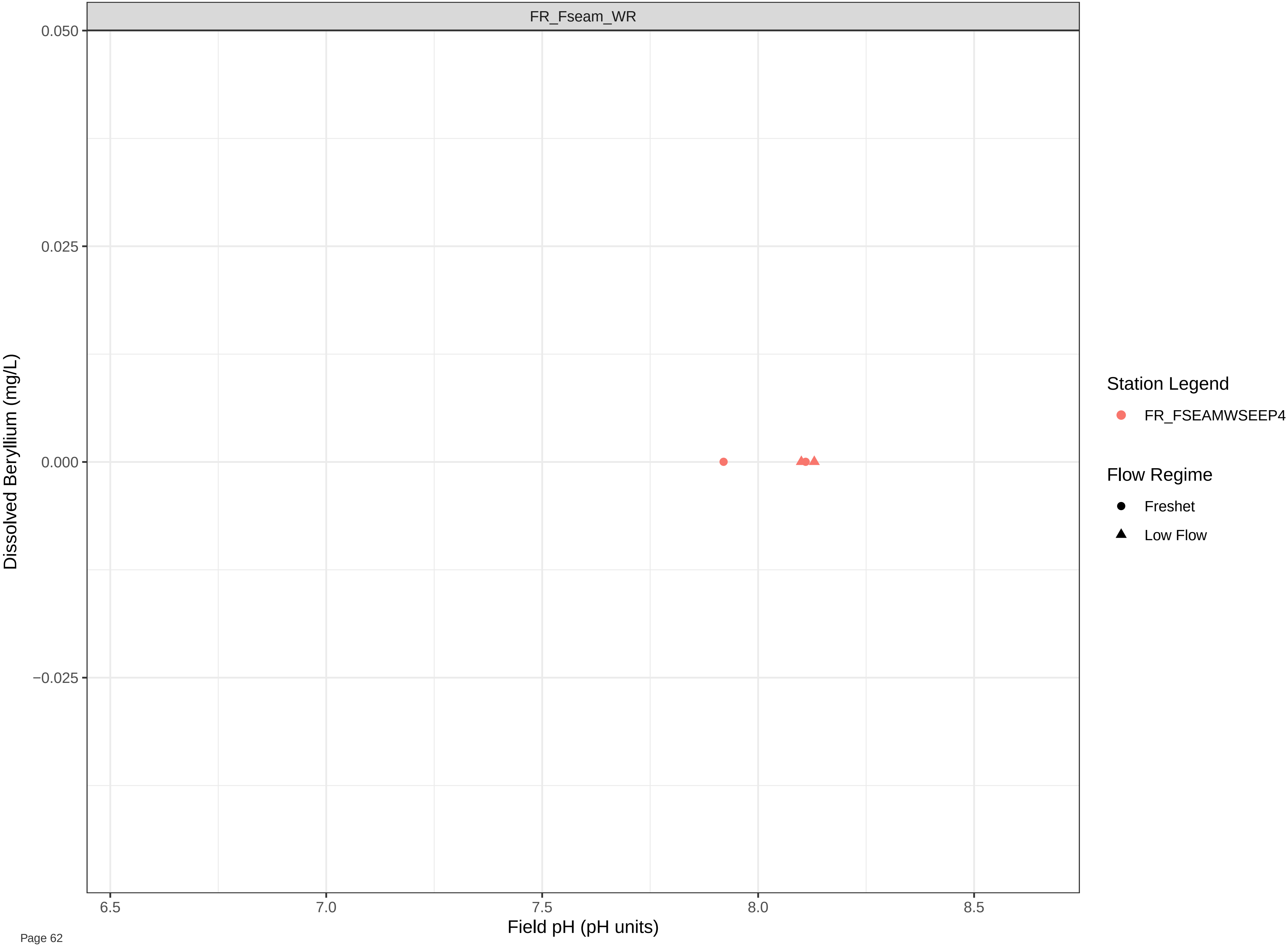

FR_A_WR
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

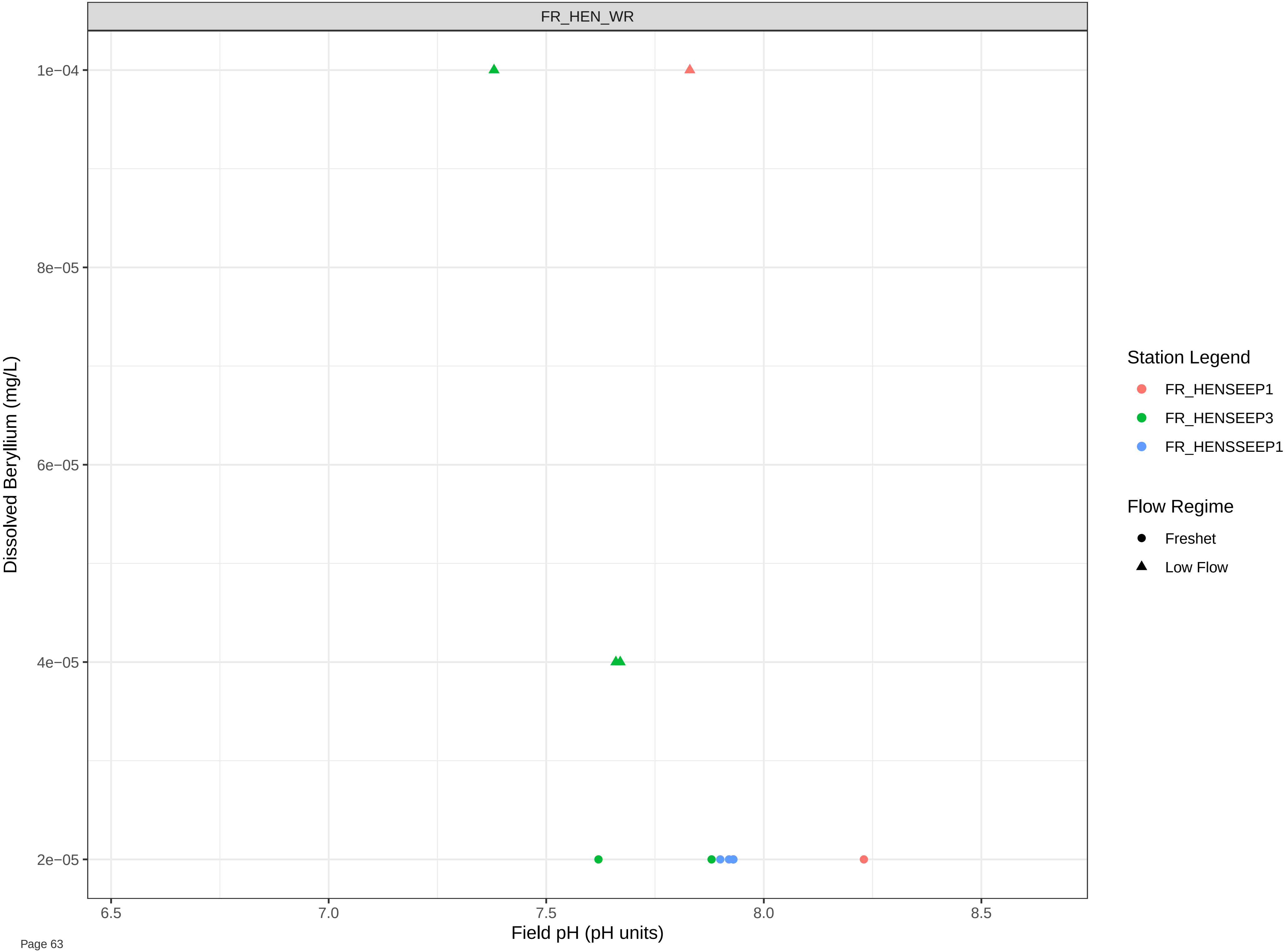

FR_Blain_CCR
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

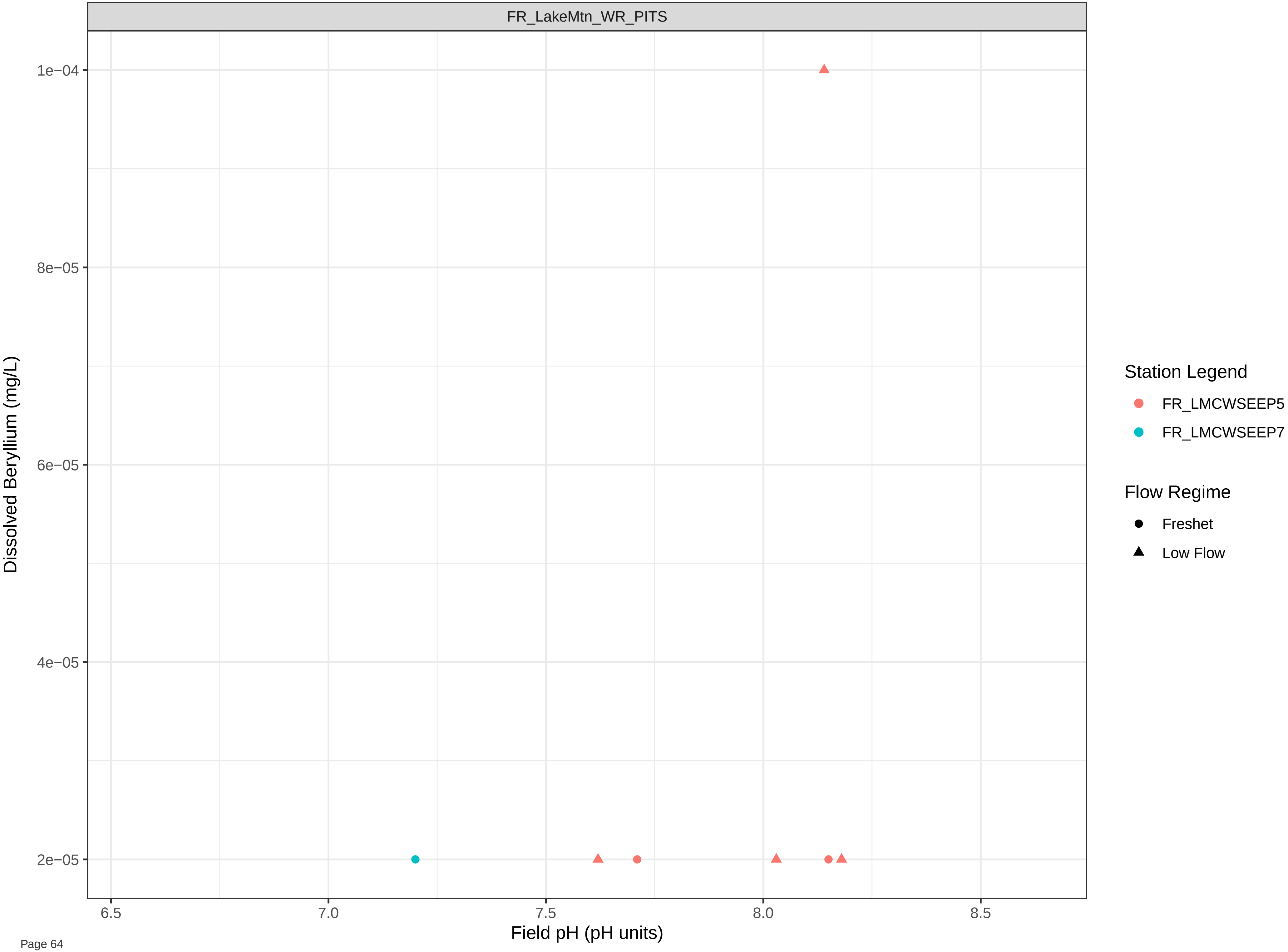

FR_ClodeCr_WR
1e−04
8e−05
6e−05
4e−05
2e−05
Dissolved Beryllium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

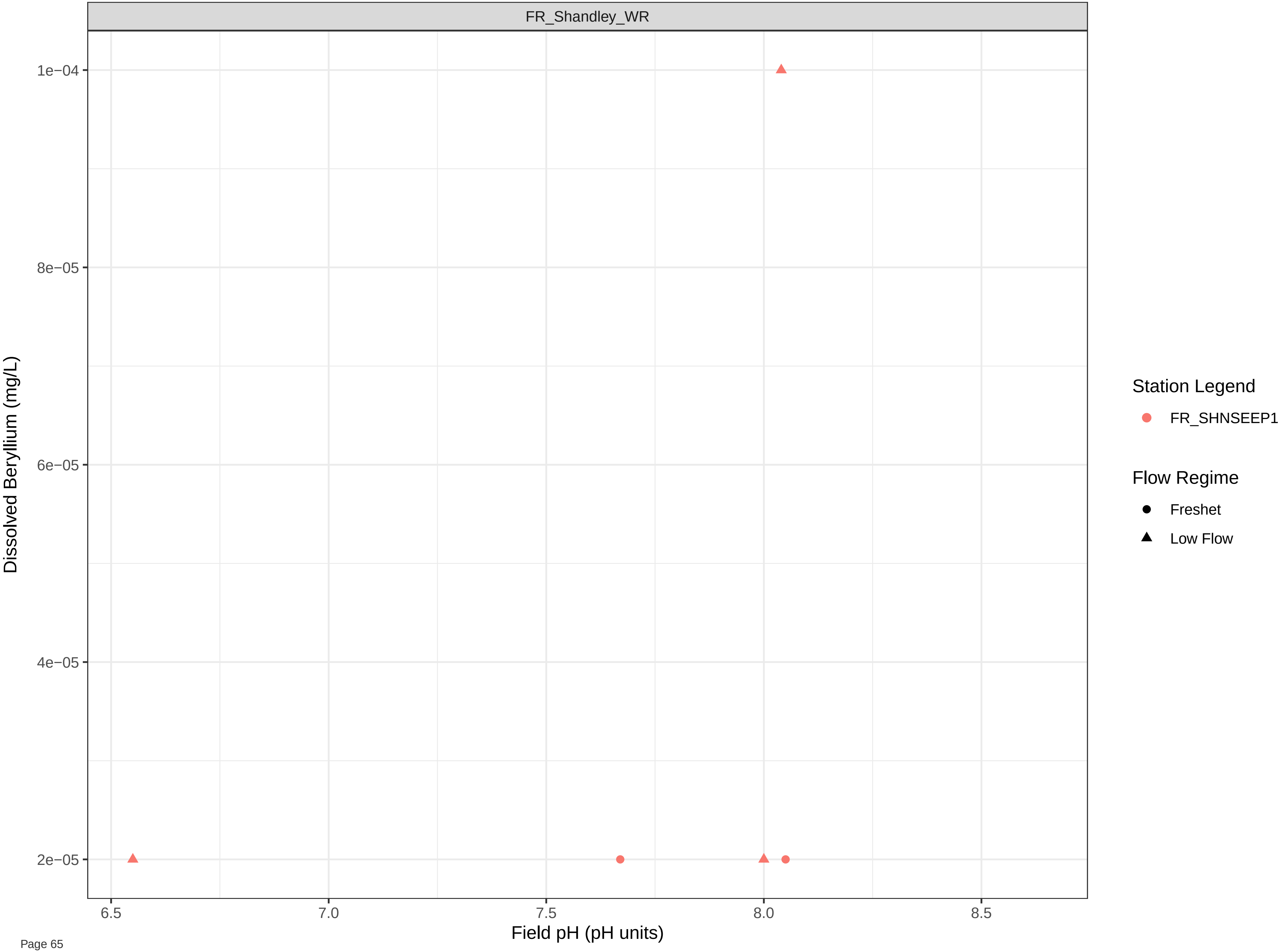

FR_DOKA_Unknown
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

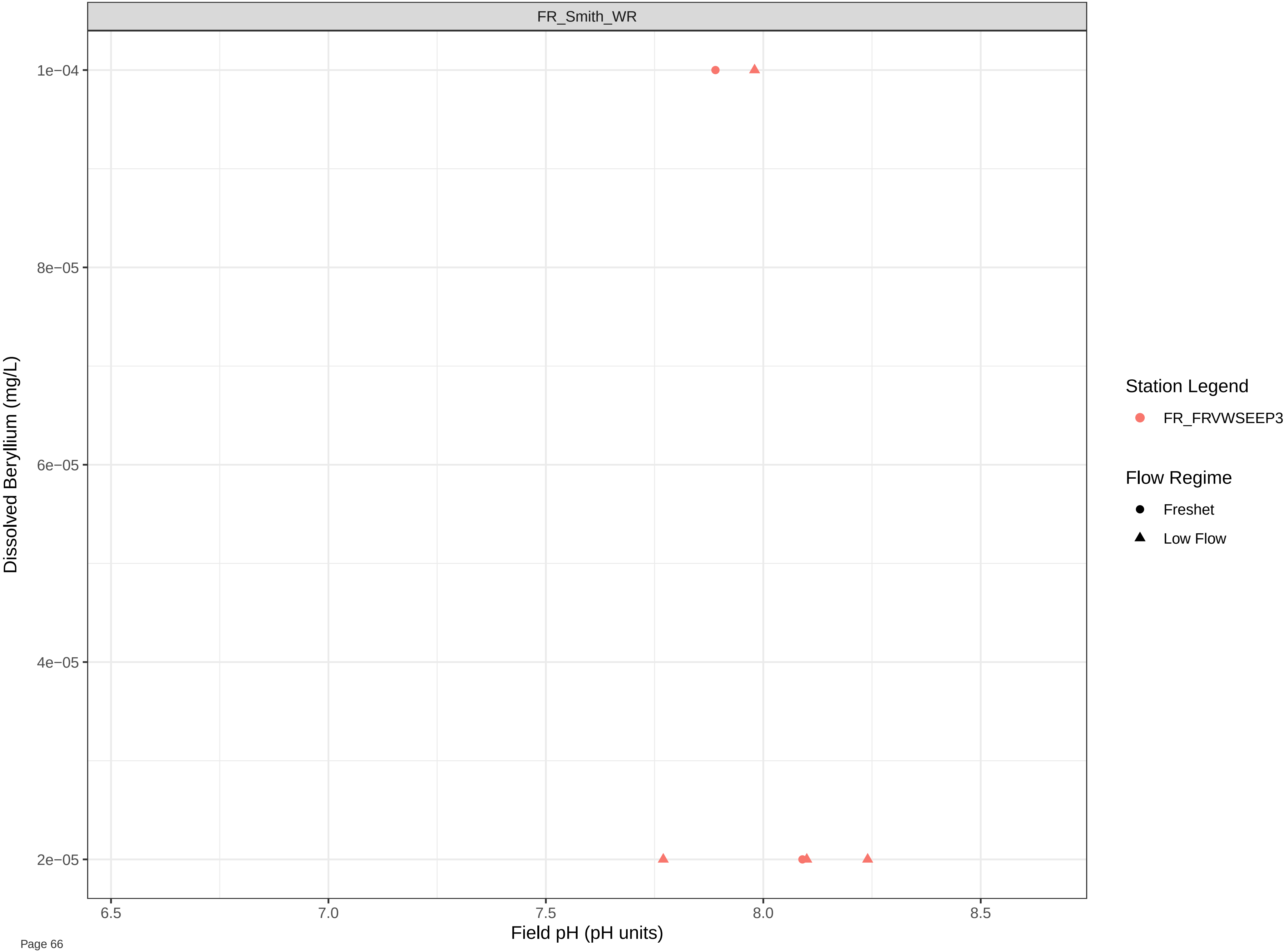

FR_Eagle_WR
Dissolved Beryllium (mg/L)
0.00020
0.00015
0.00010
0.00005
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

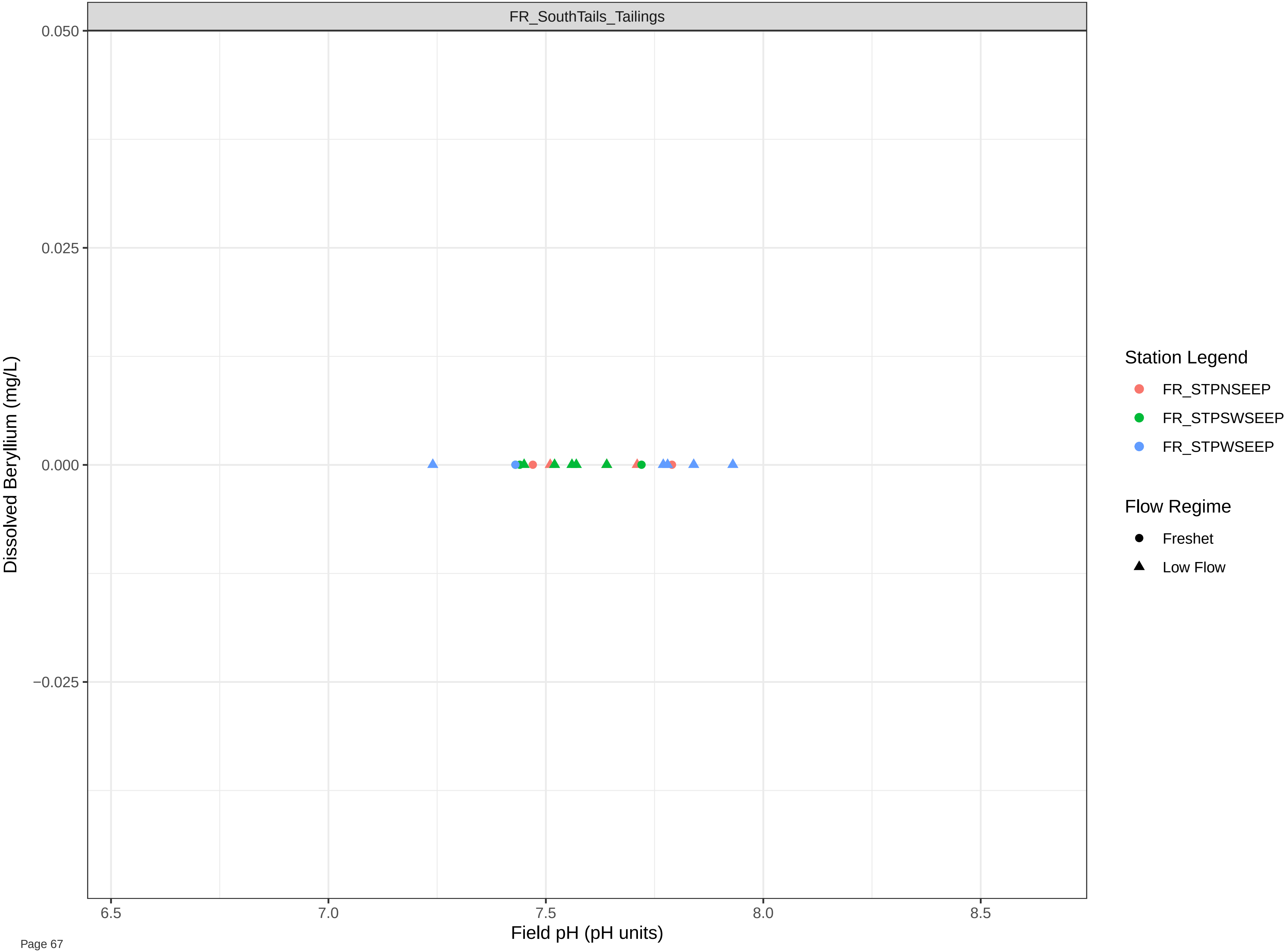

FR_Fseam_WR
0.050
0.025
0.000
−0.025
Dissolved Beryllium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

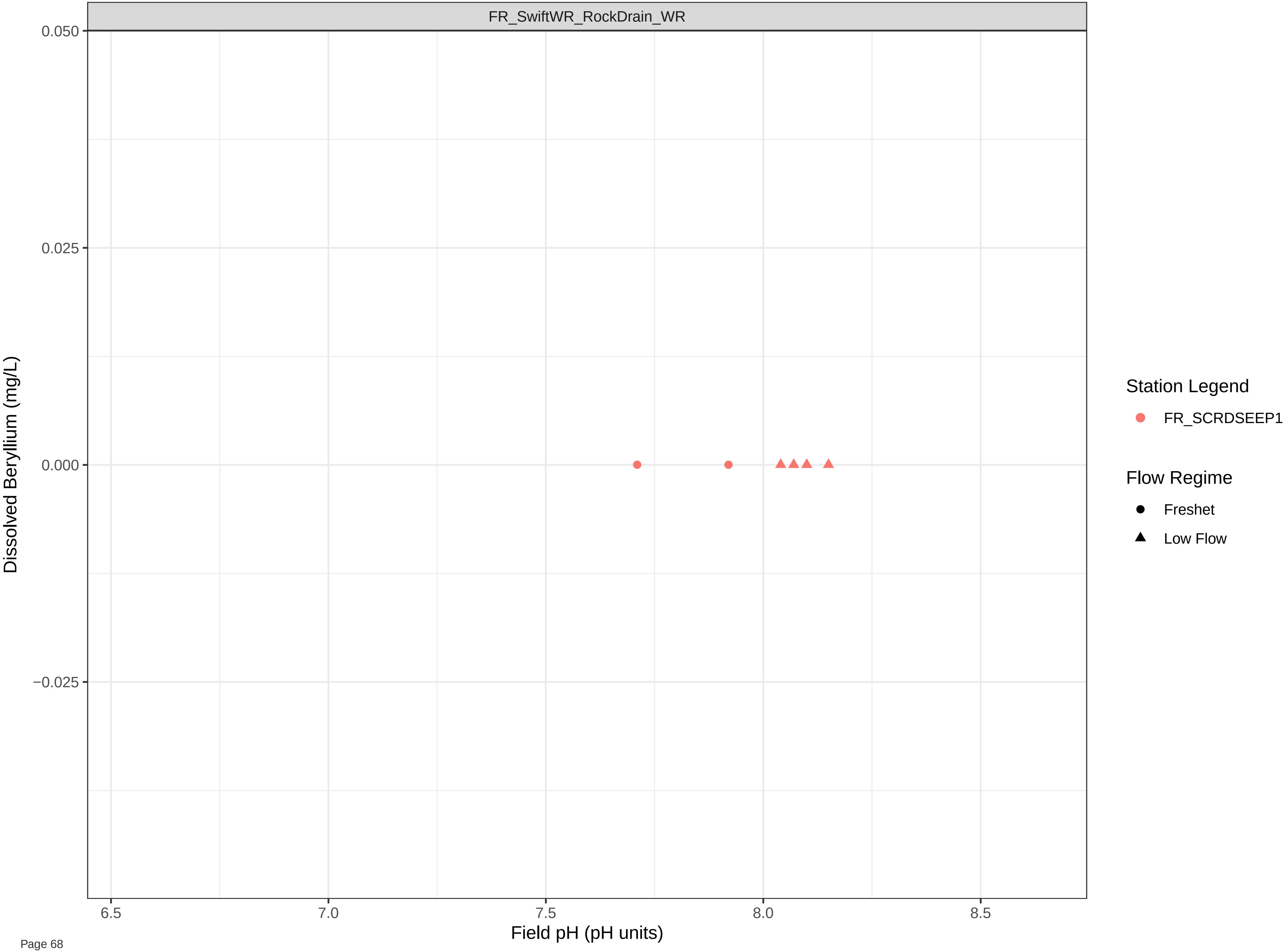

FR_HEN_WR
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

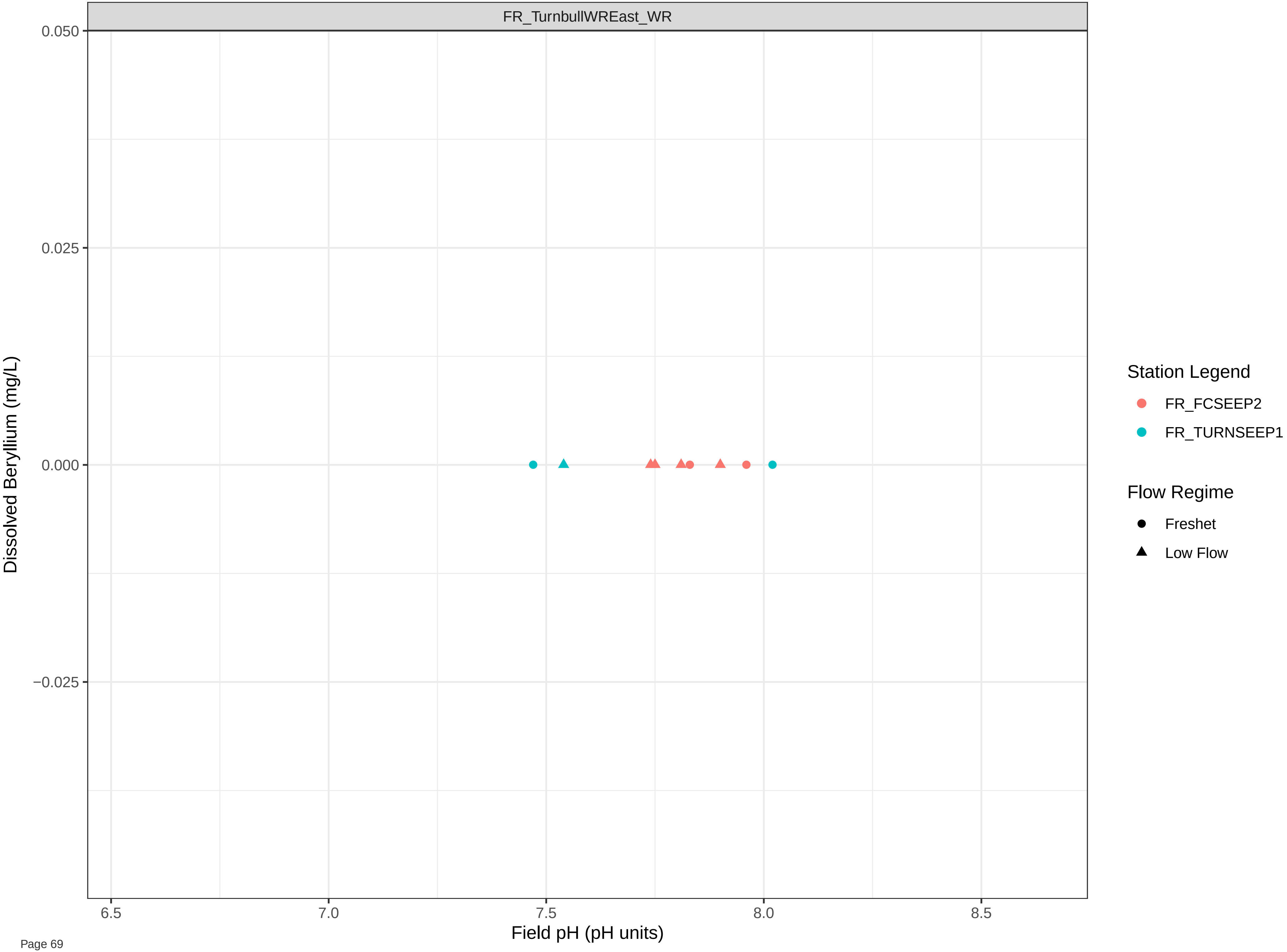

FR_LakeMtn_WR_PITS
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

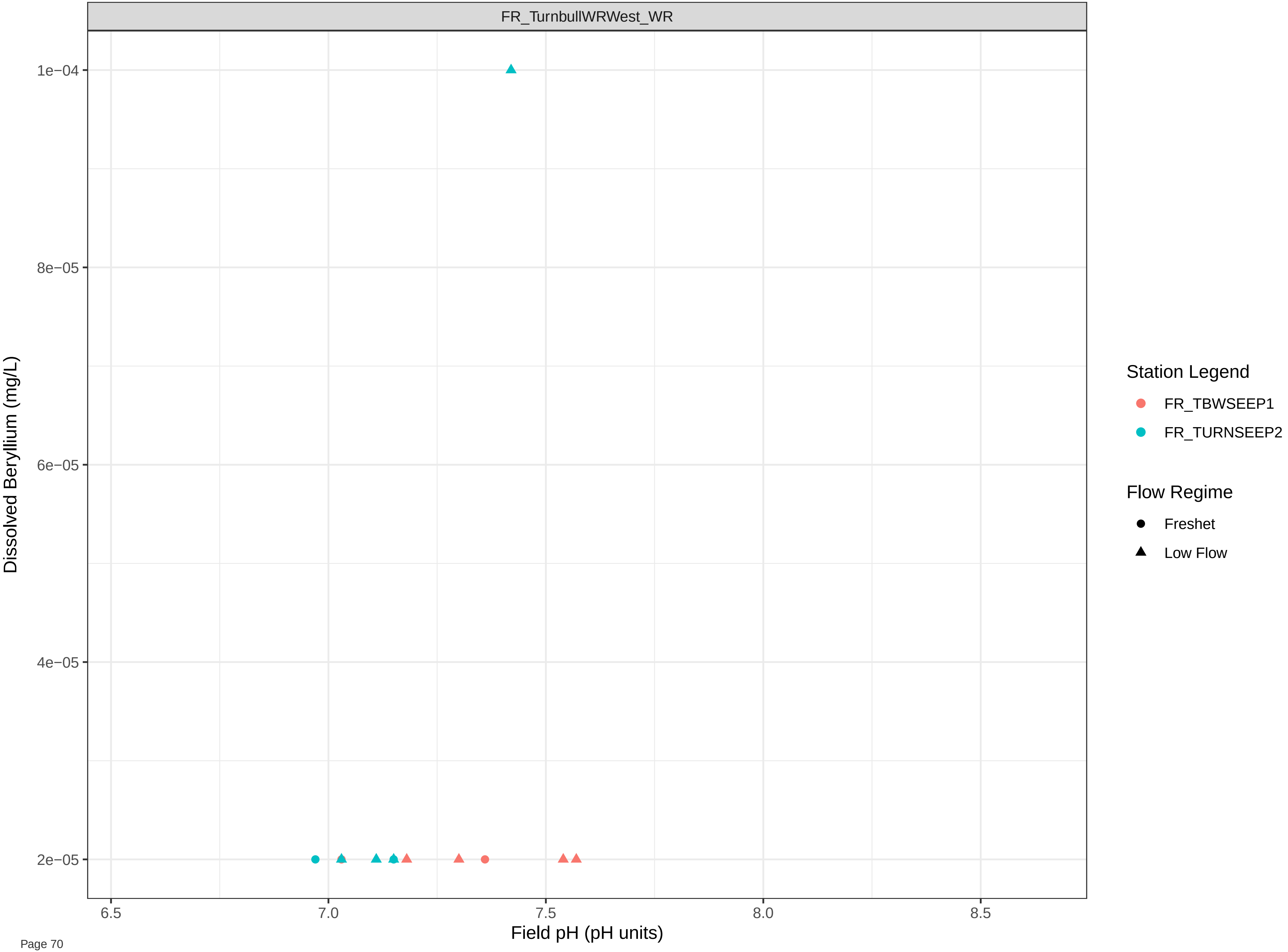

FR_Shandley_WR
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

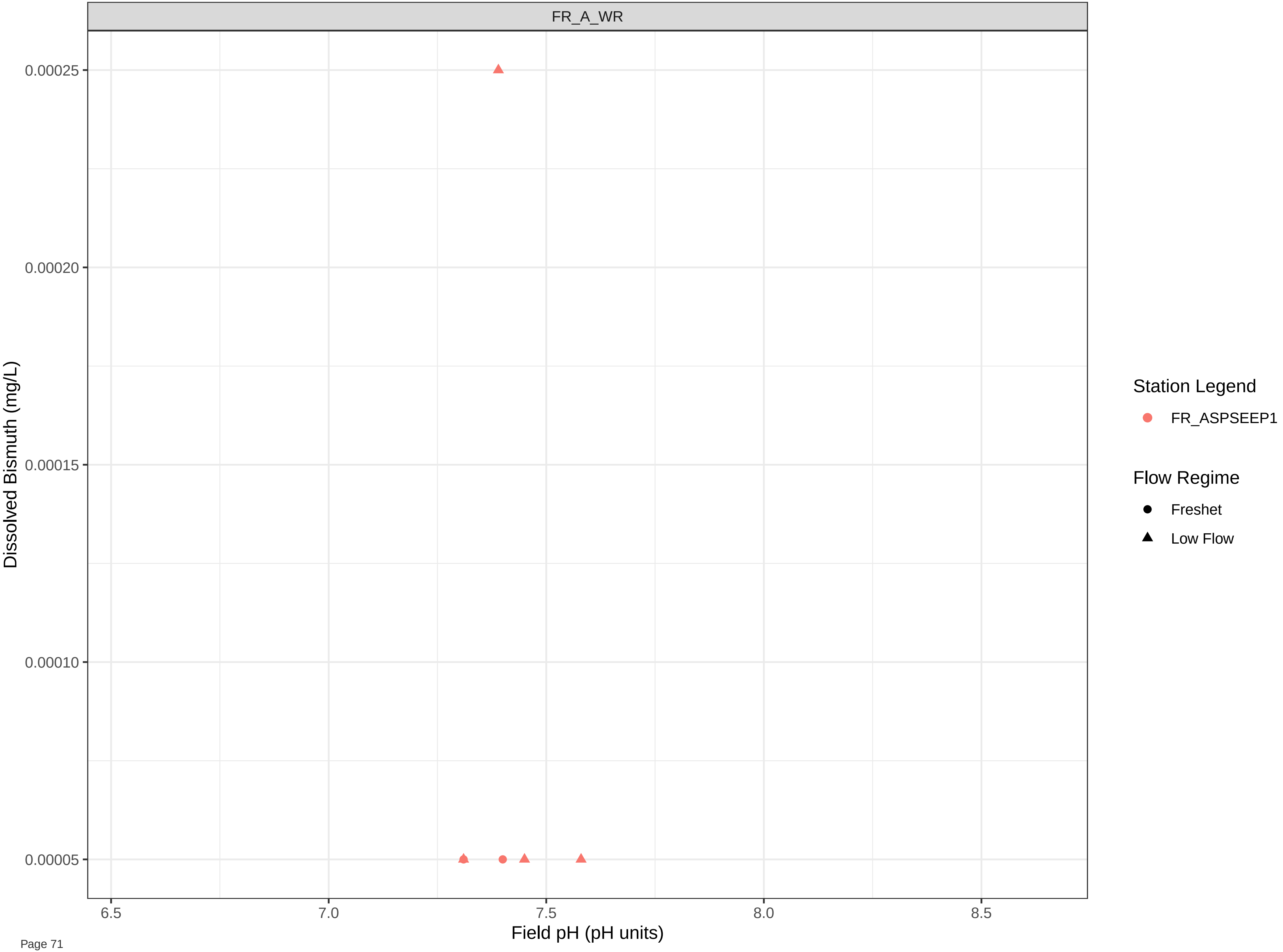

FR_Smith_WR
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

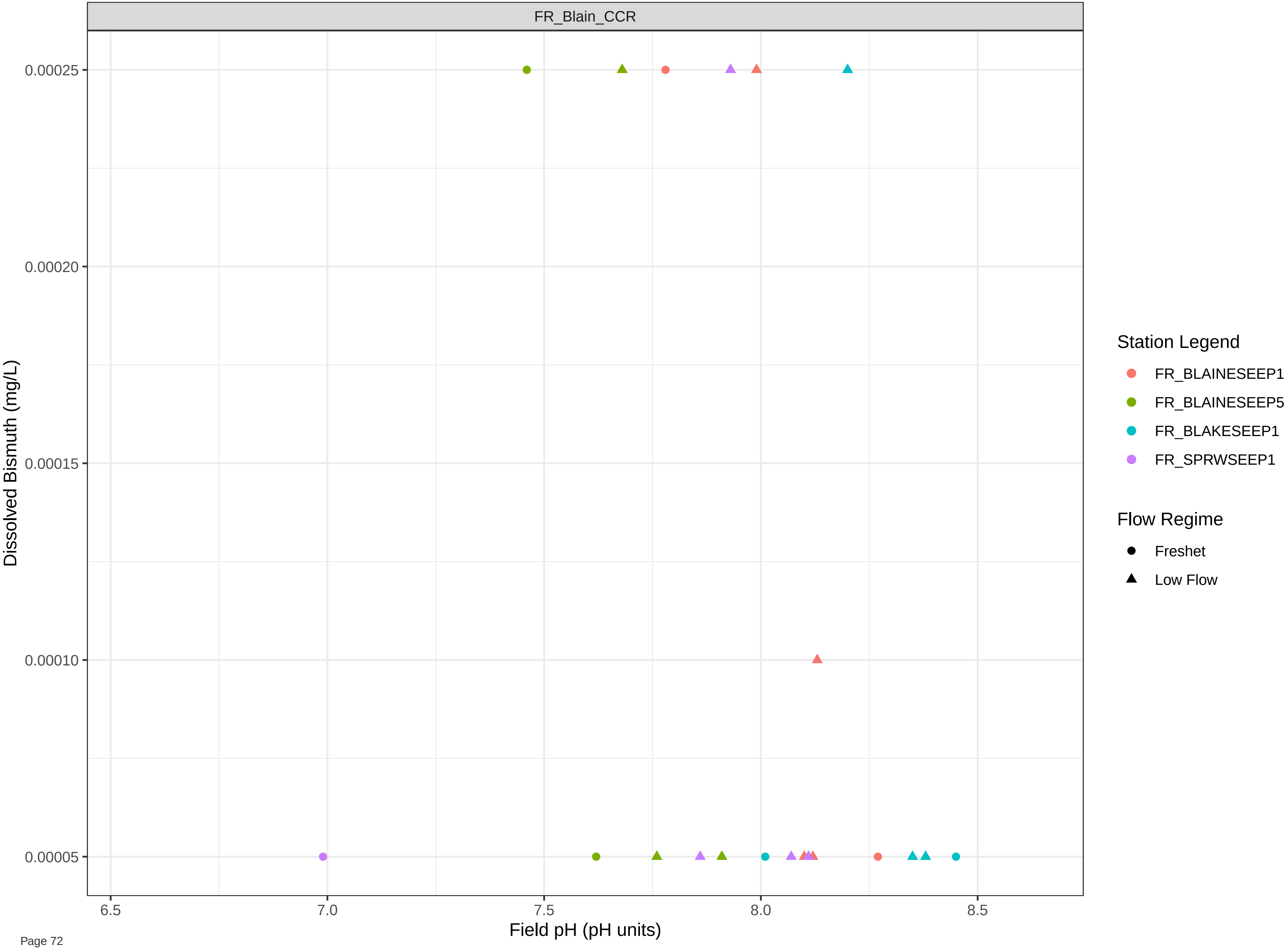

FR_SouthTails_Tailings
0.050
0.025
0.000
−0.025
Dissolved Beryllium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

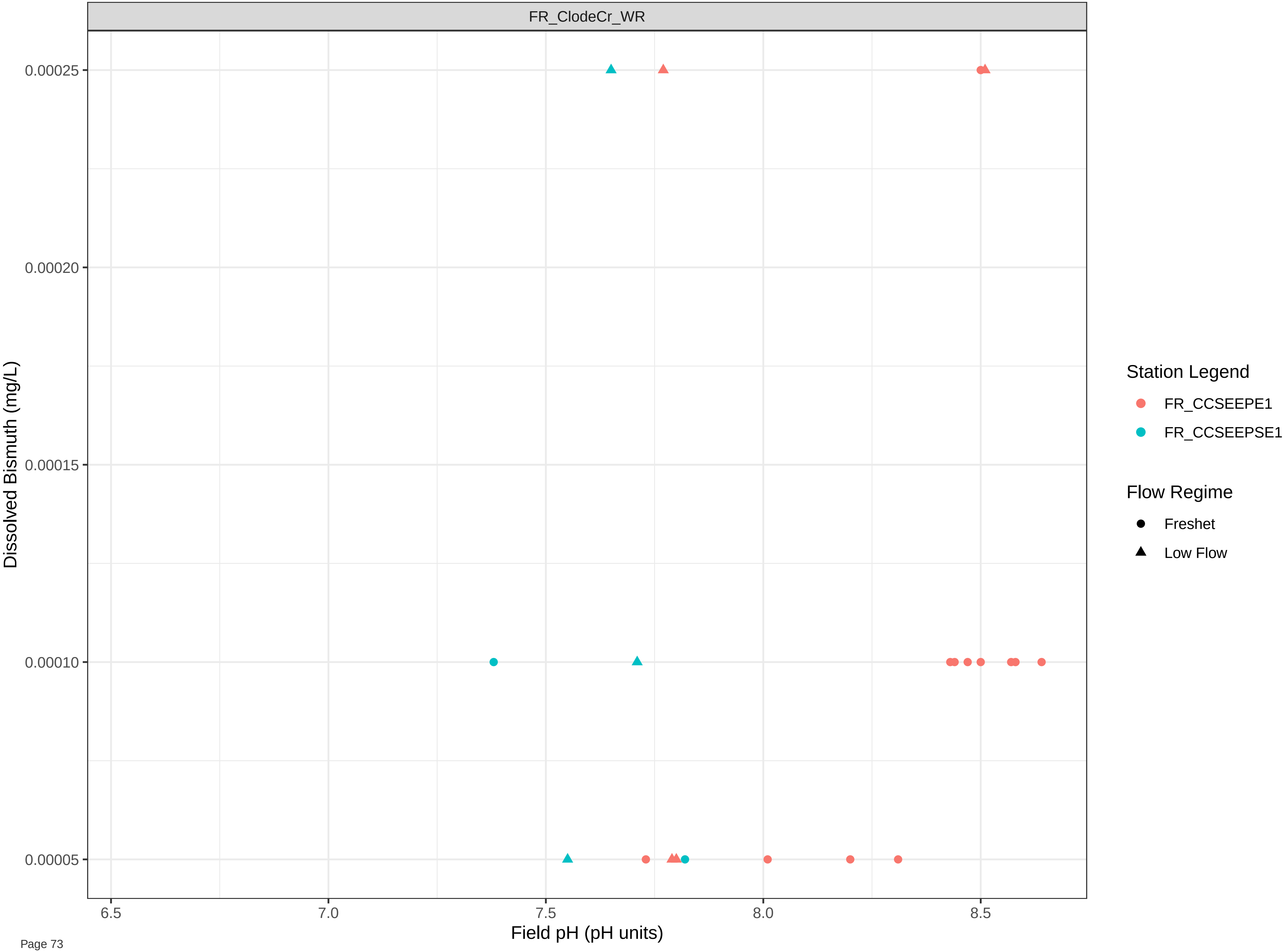

FR_SwiftWR_RockDrain_WR
0.050
0.025
0.000
−0.025
Dissolved Beryllium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

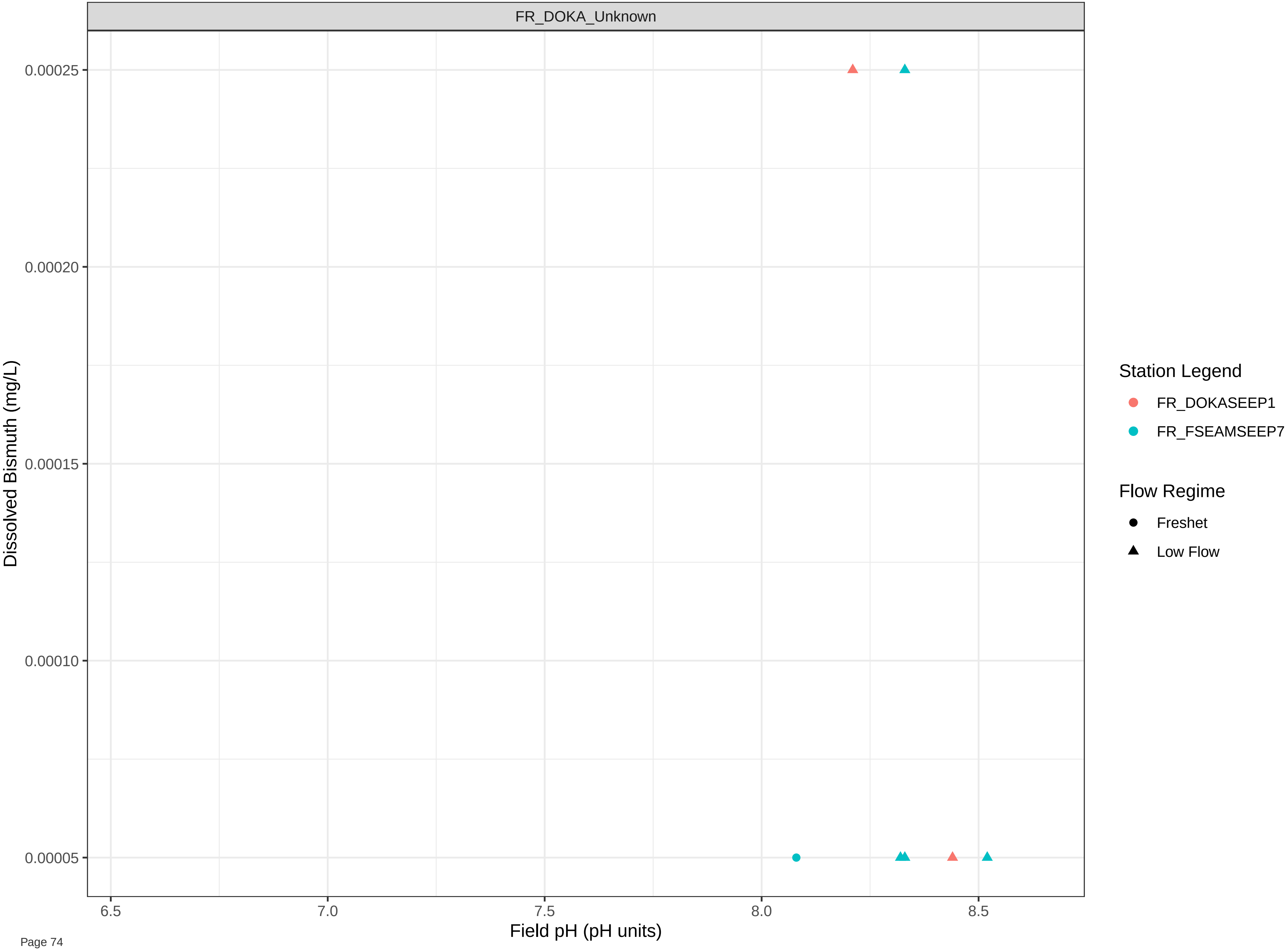

FR_TurnbullWREast_WR
0.050
0.025
0.000
−0.025
Dissolved Beryllium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

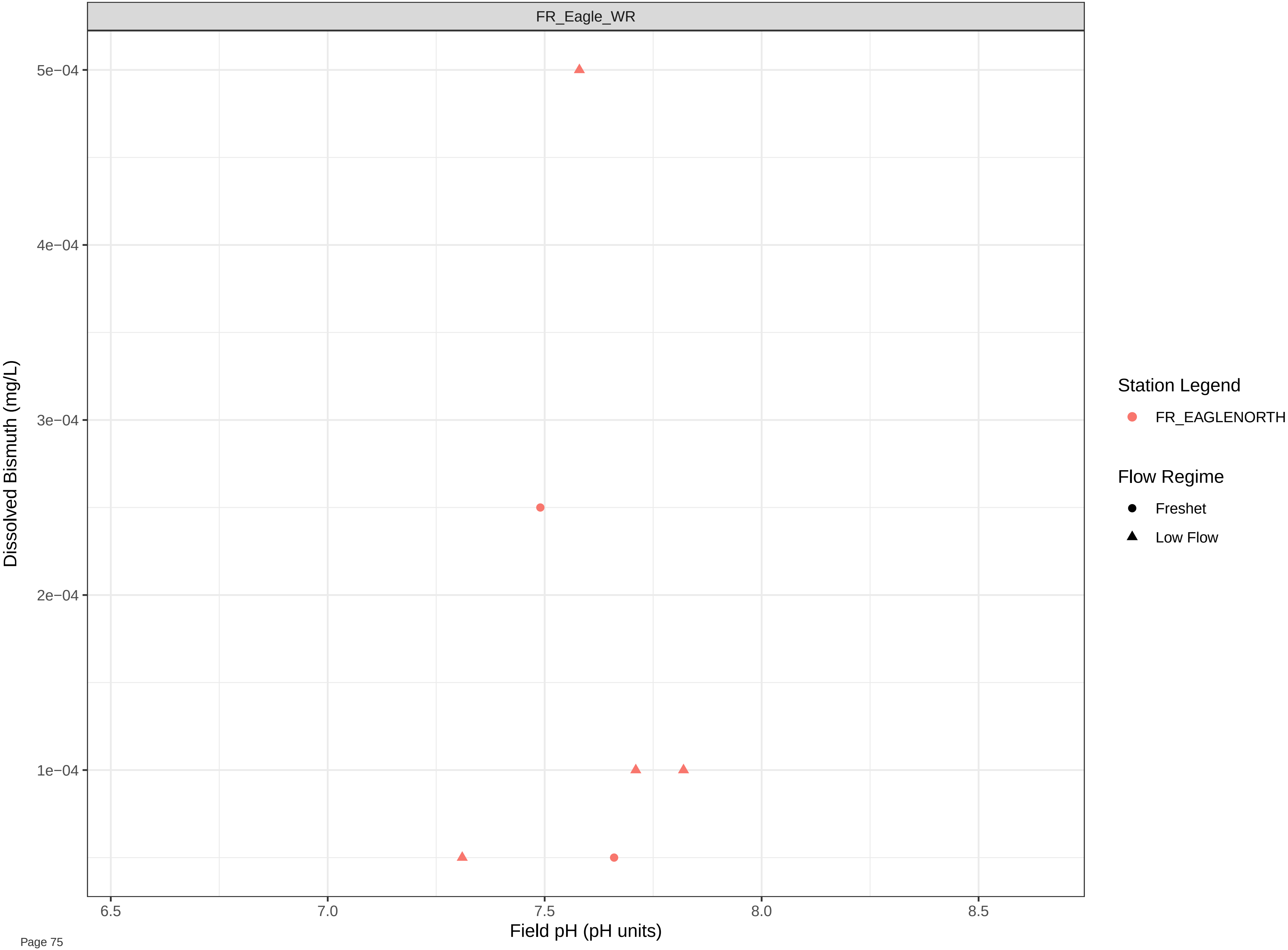

FR_TurnbullWRWest_WR
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow


FR_A_WR
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Bismuth (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

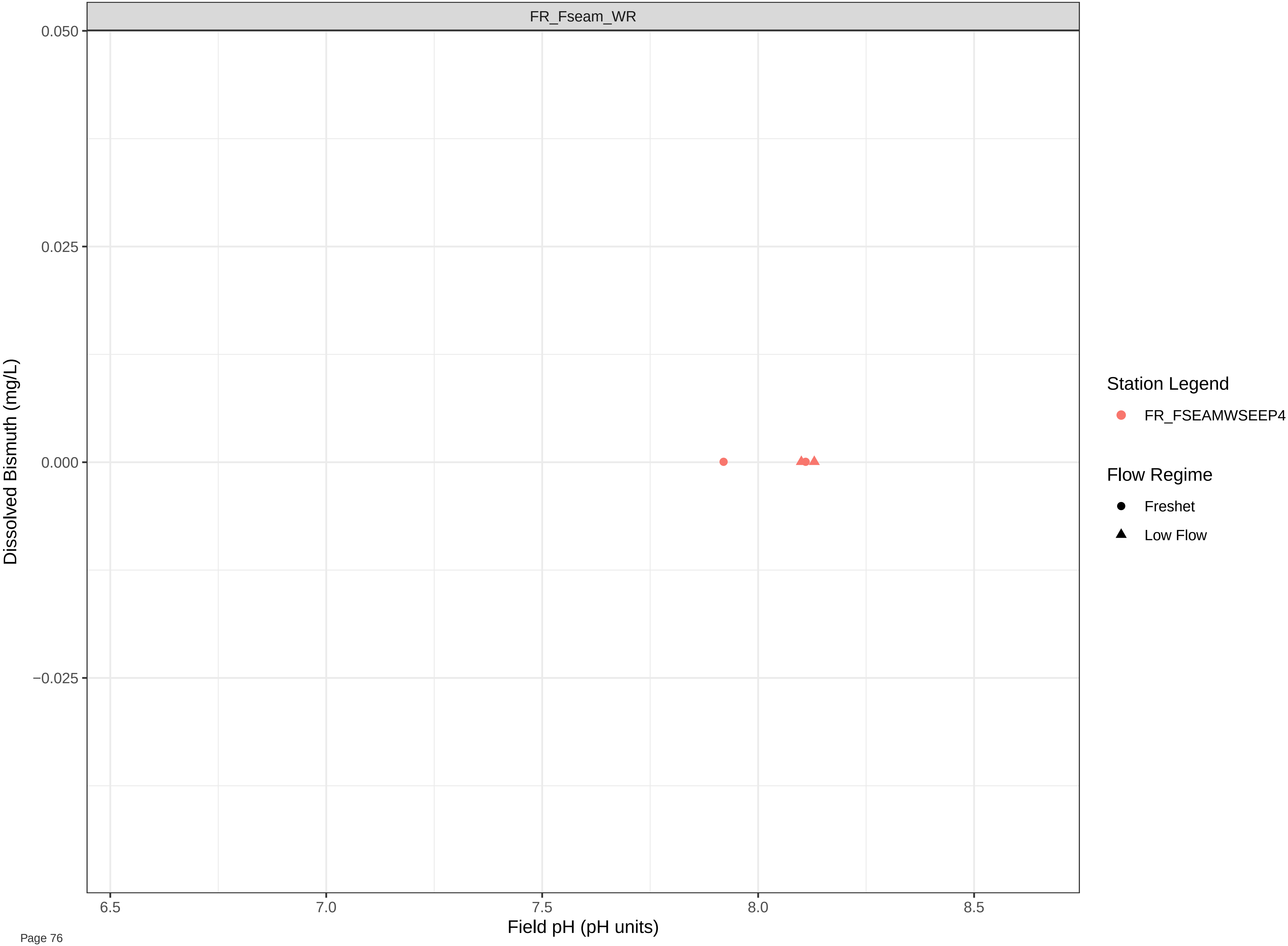

FR_Blain_CCR
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

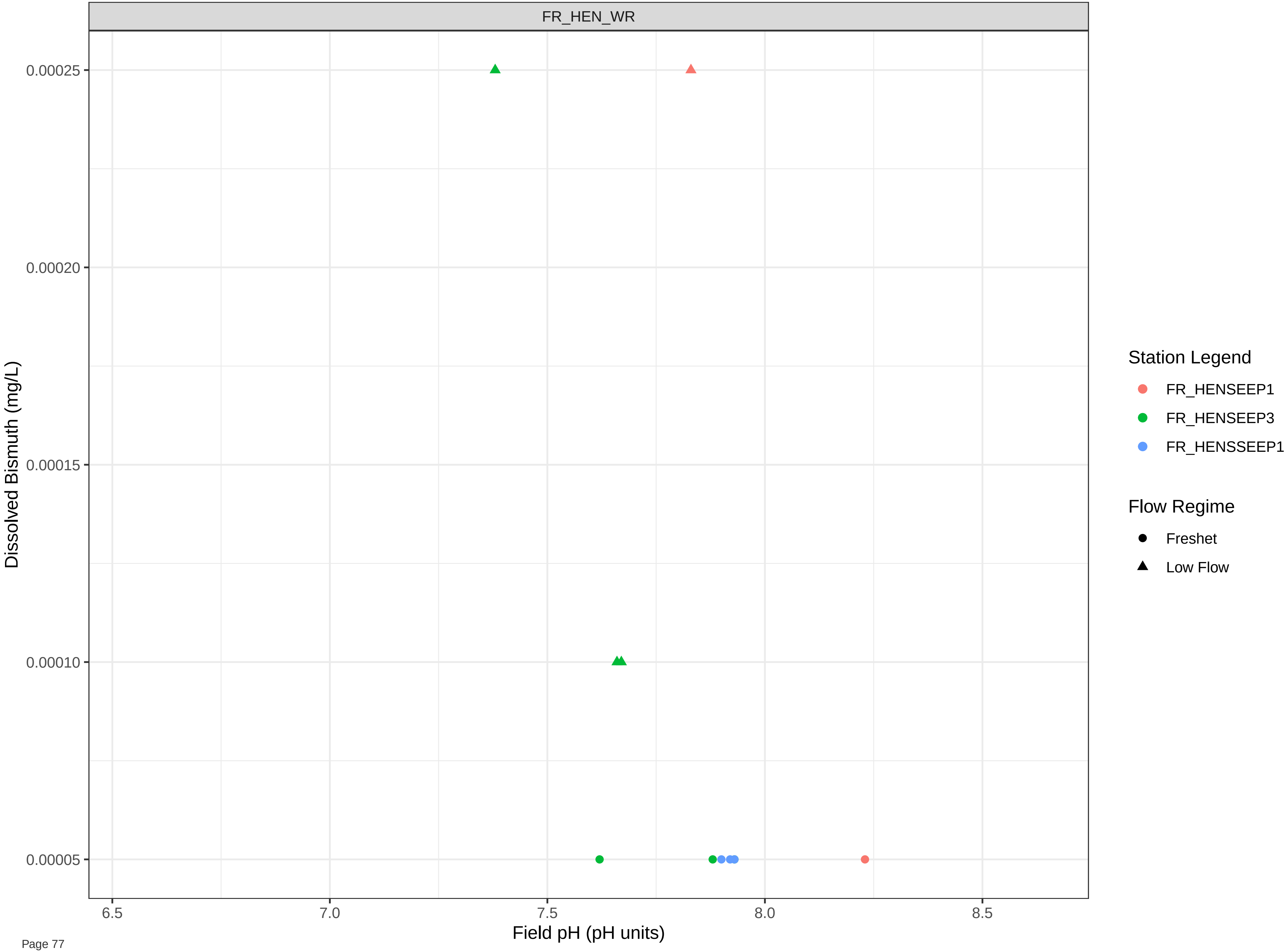

FR_ClodeCr_WR
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

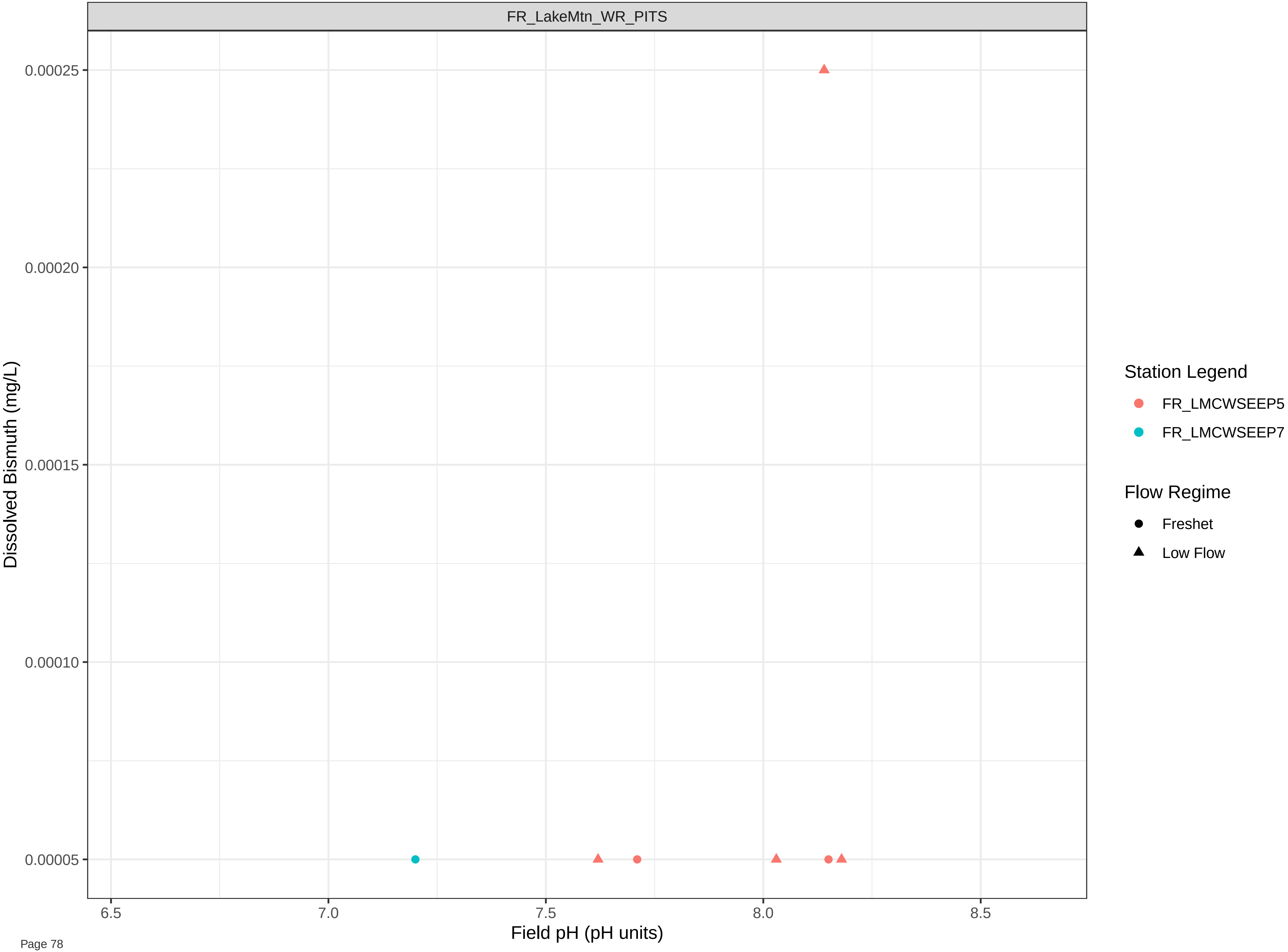

FR_DOKA_Unknown
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

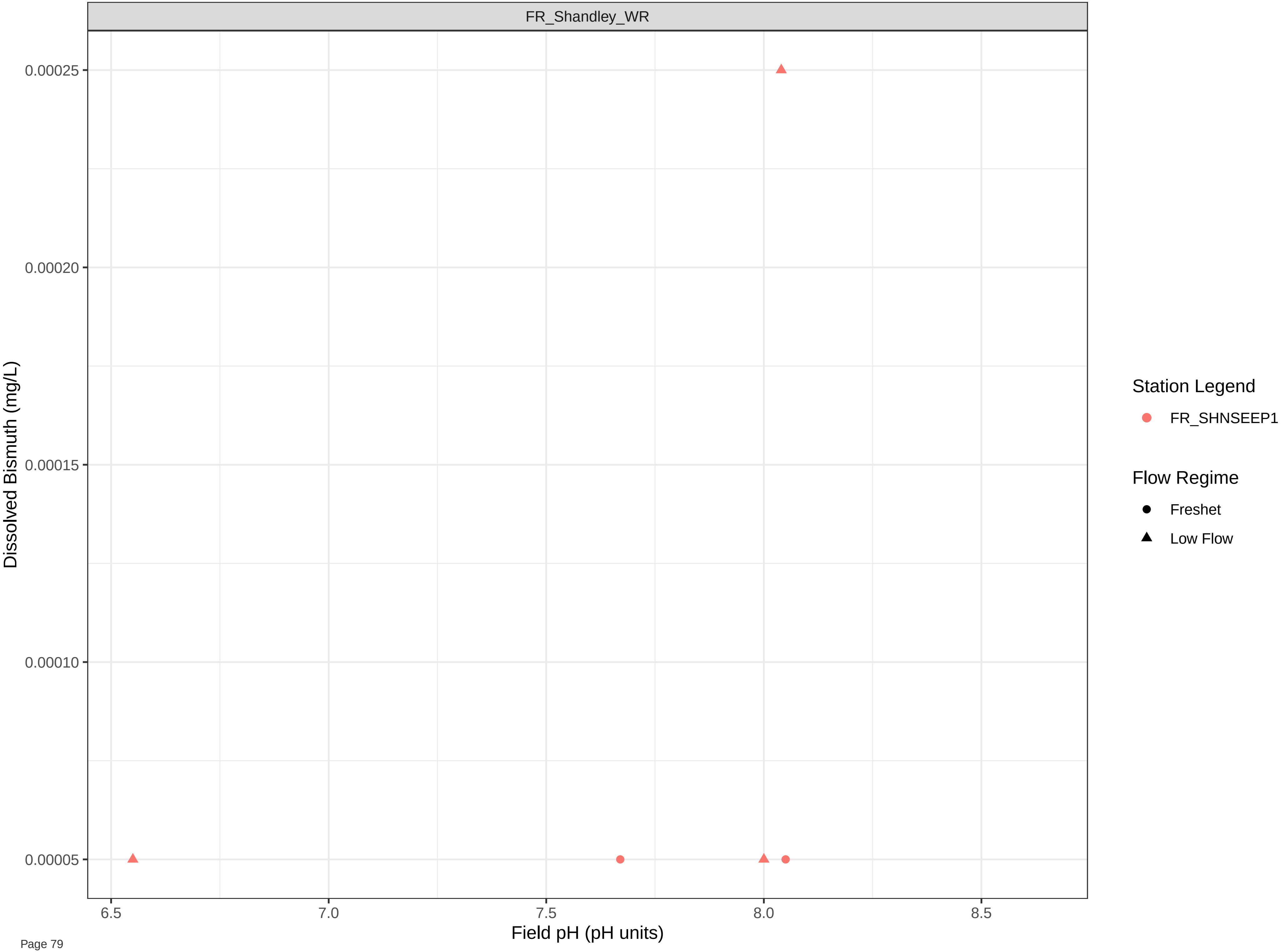


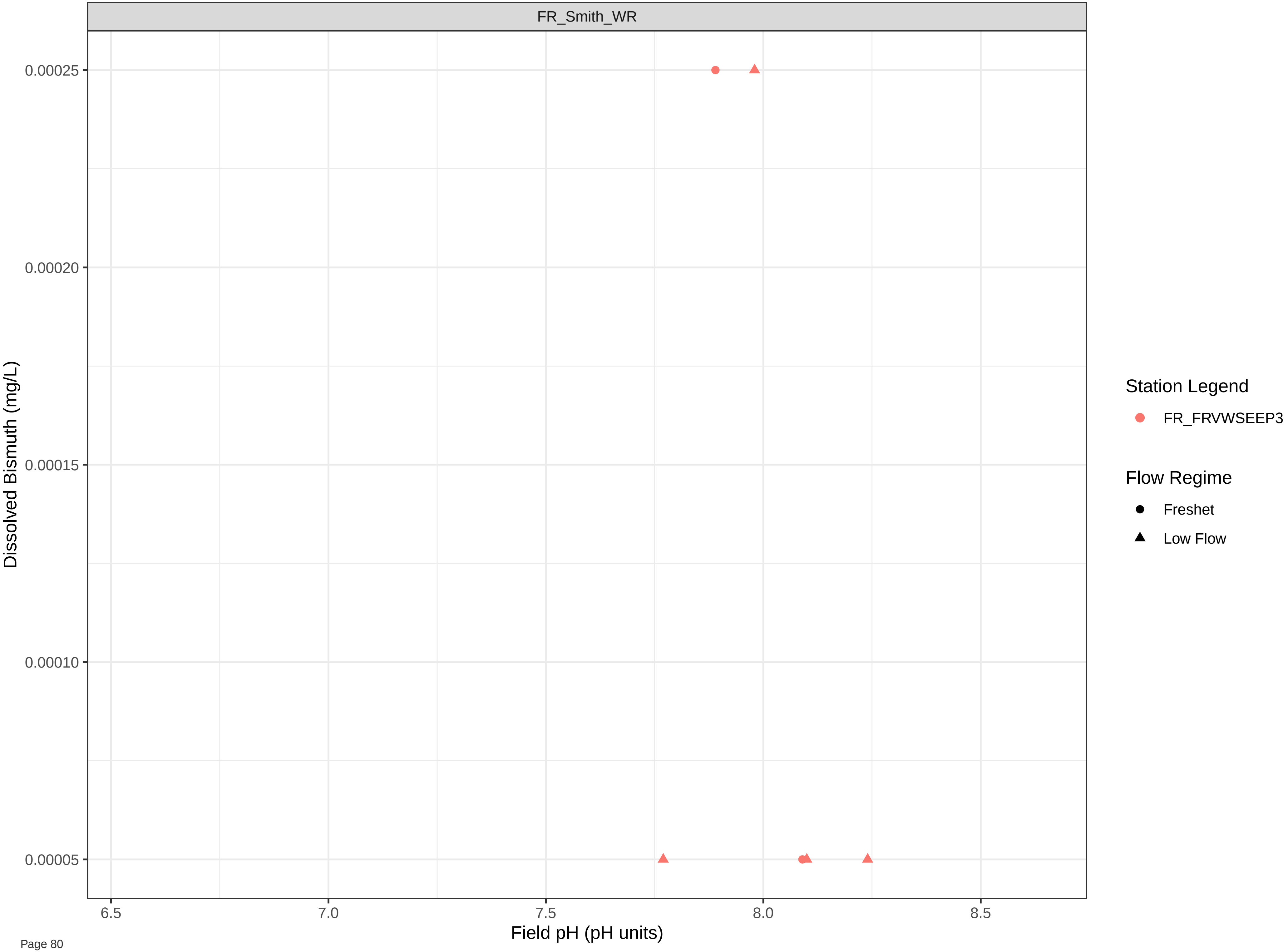
FR_Eagle_WR
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Bismuth (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

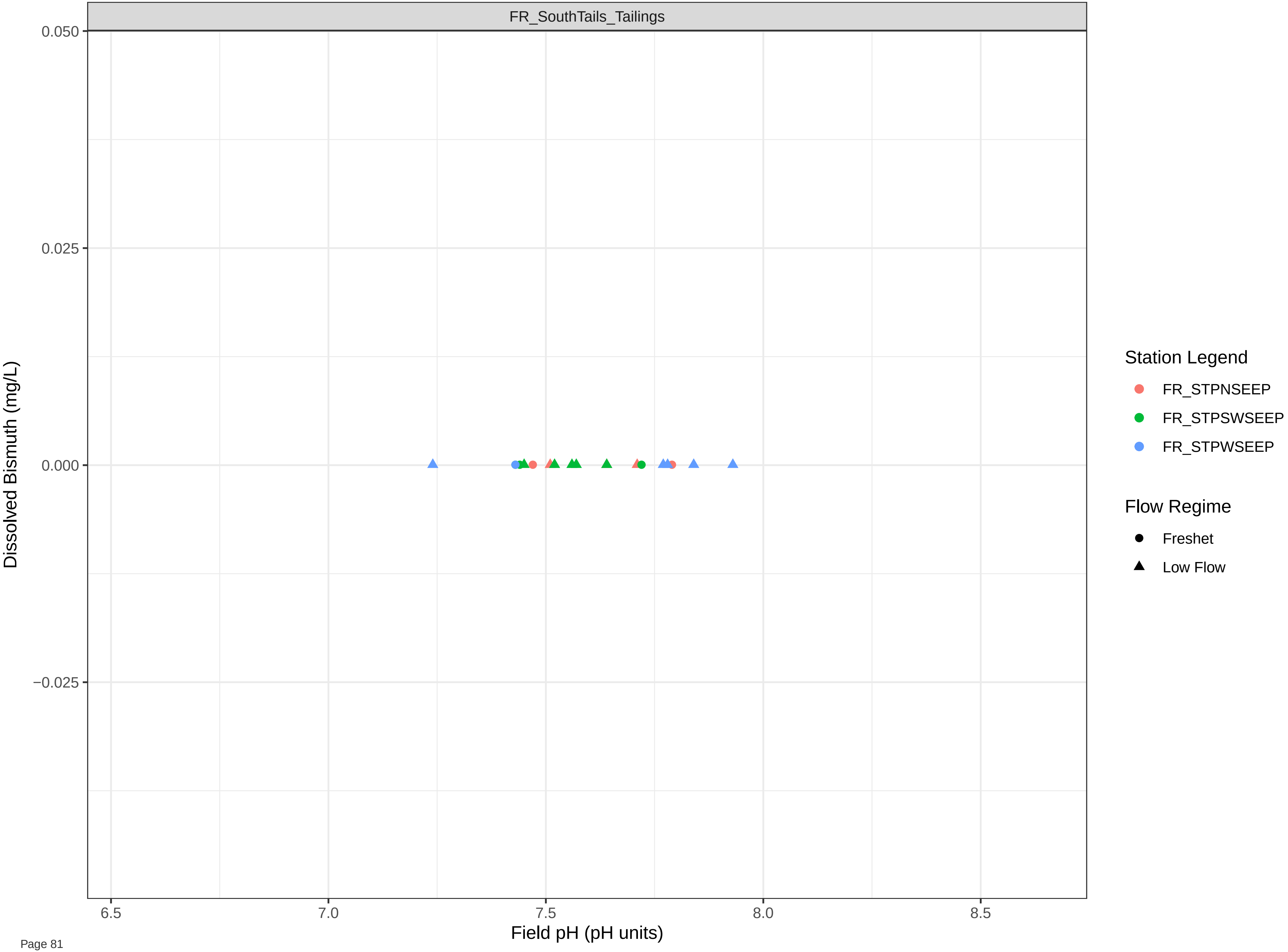

FR_Fseam_WR
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

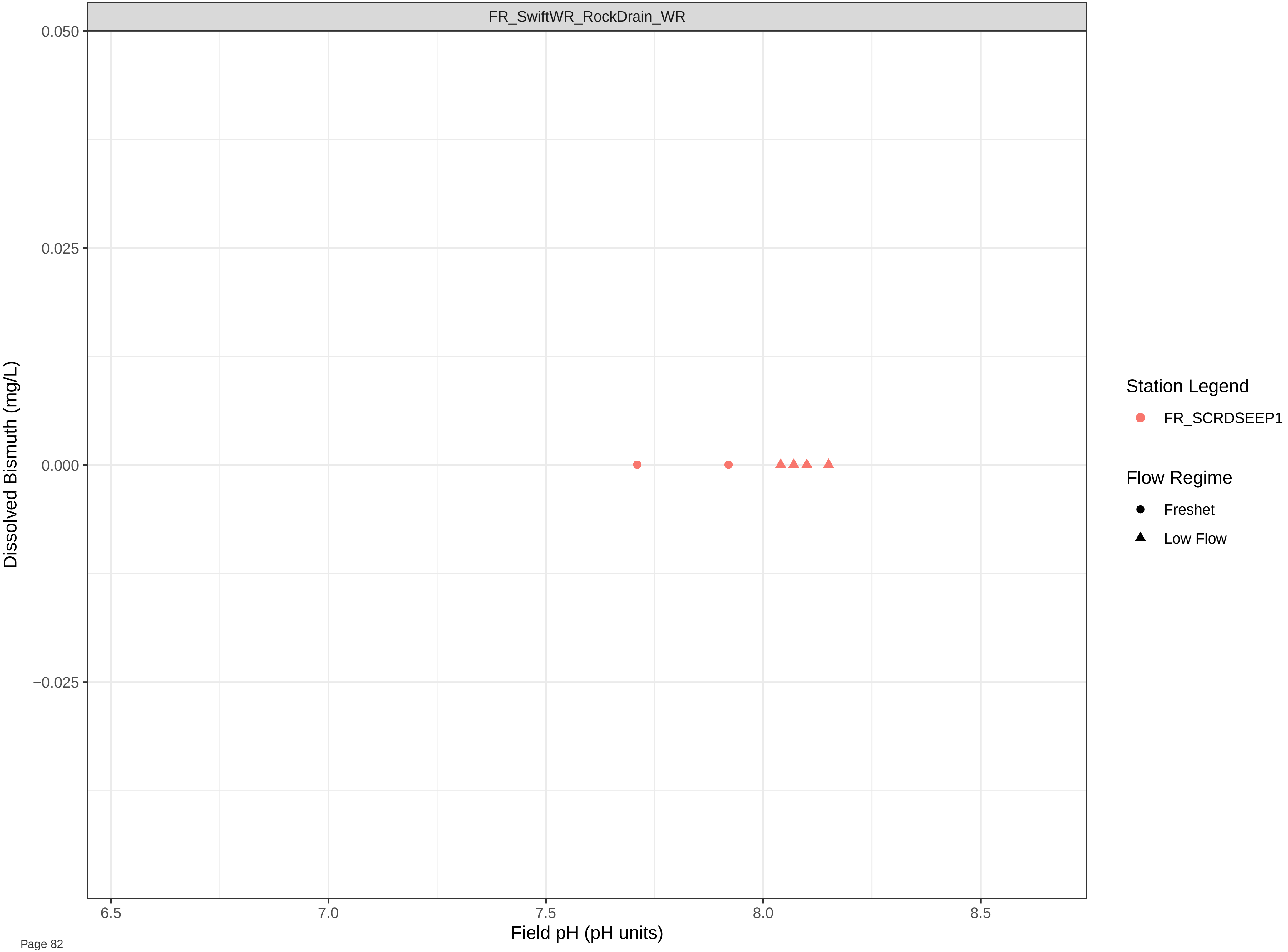

FR_HEN_WR
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

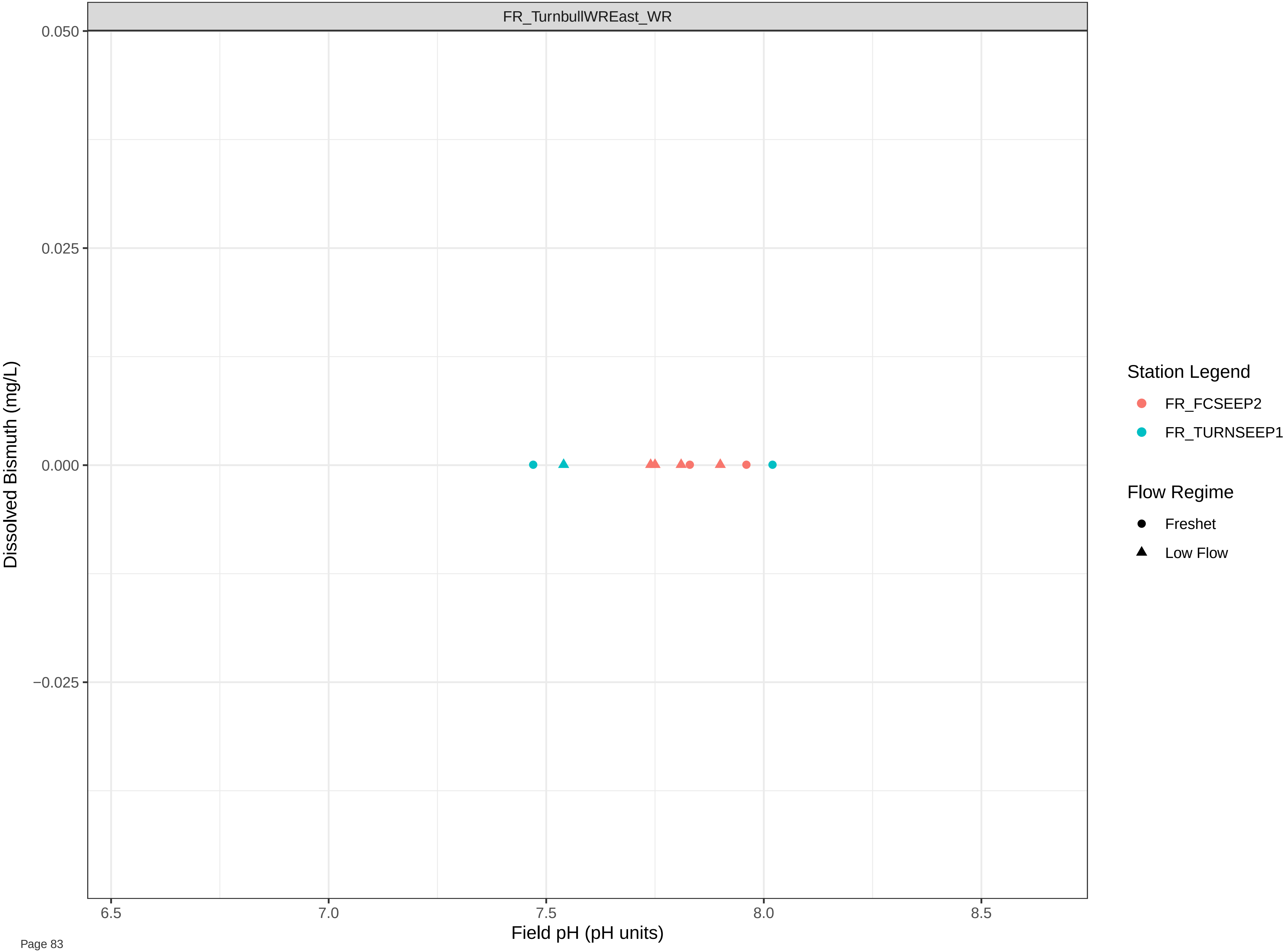

FR_LakeMtn_WR_PITS
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Bismuth (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

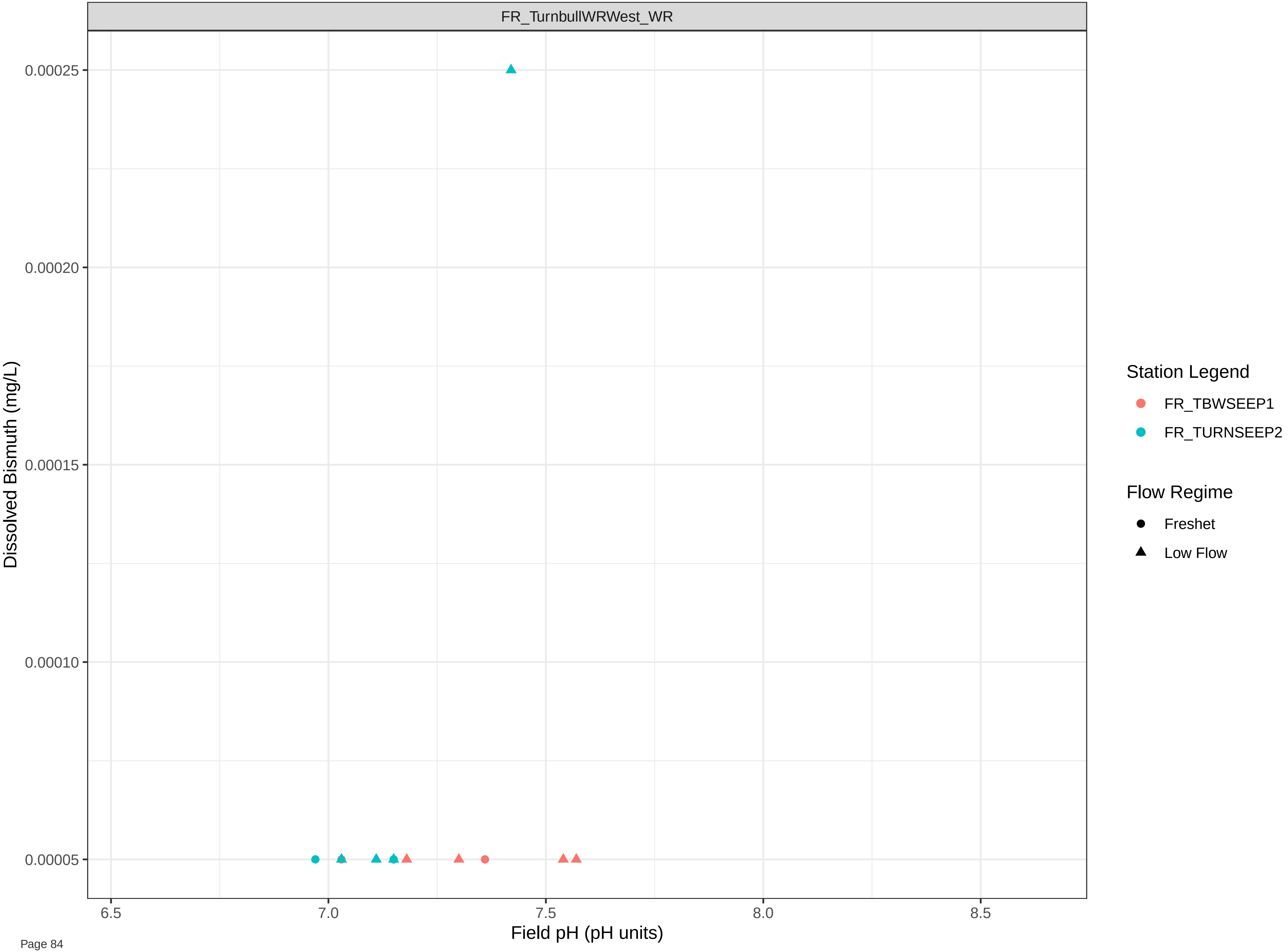

FR_Shandley_WR
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

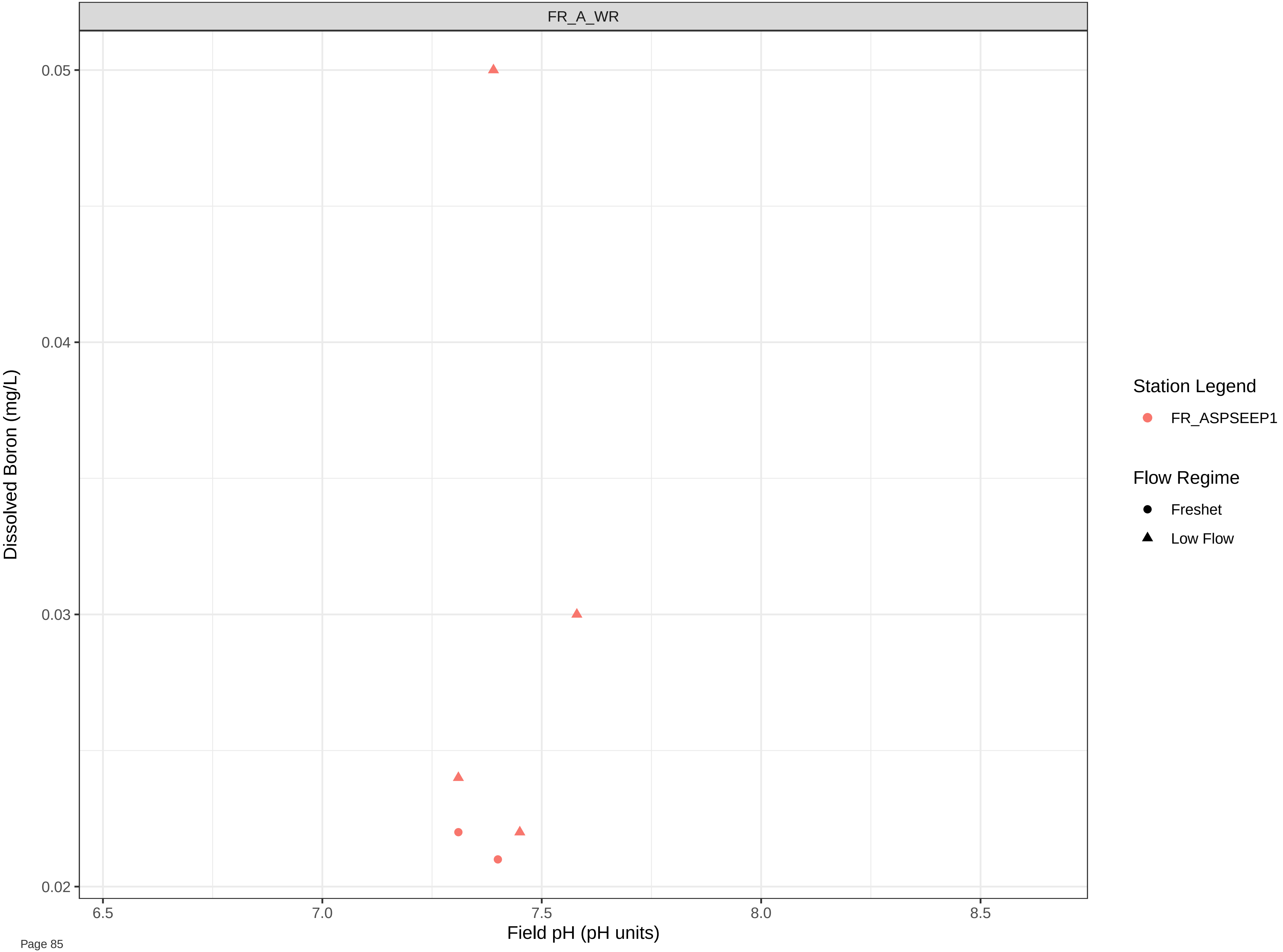

FR_Smith_WR
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

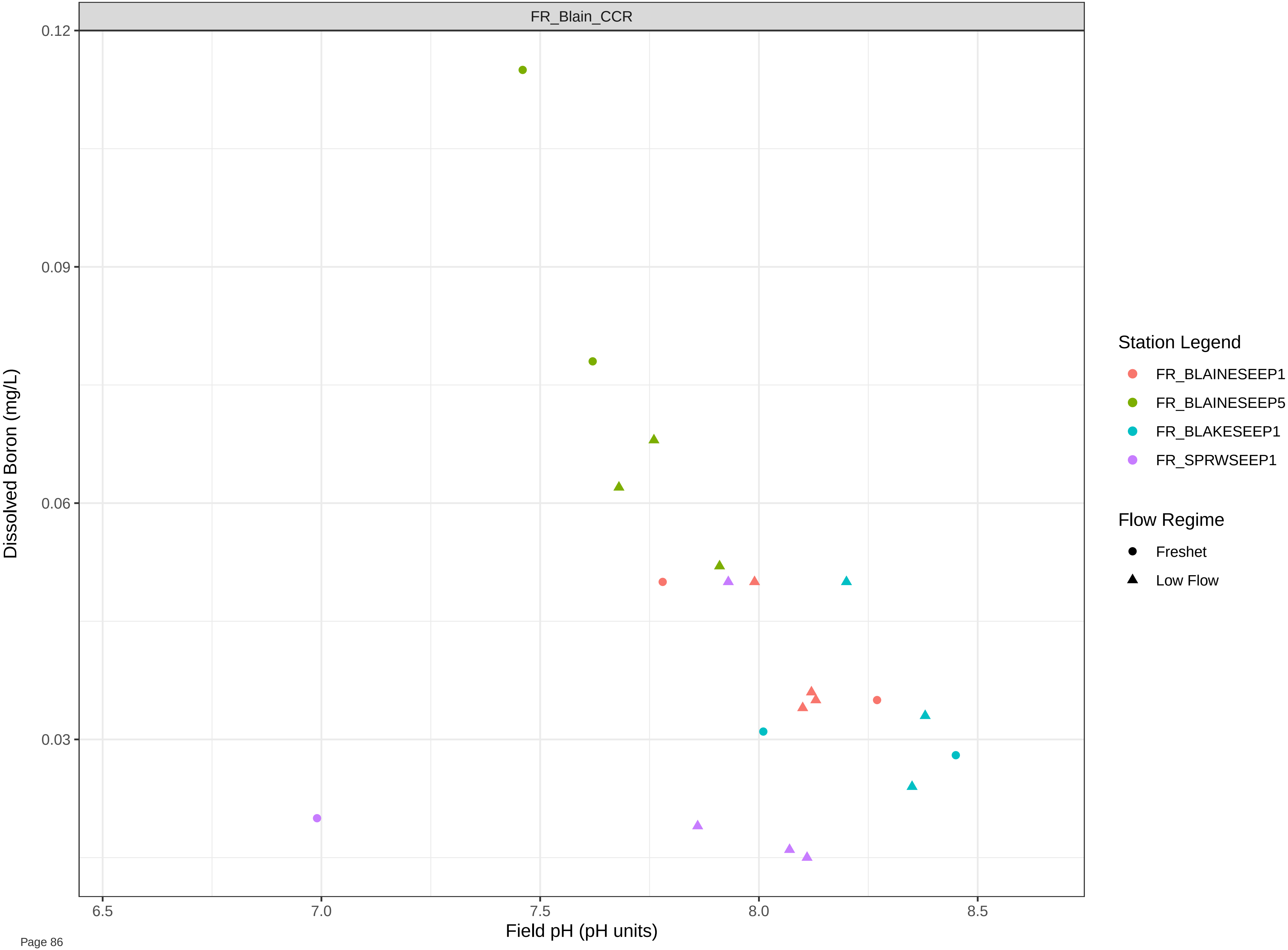

FR_SouthTails_Tailings
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

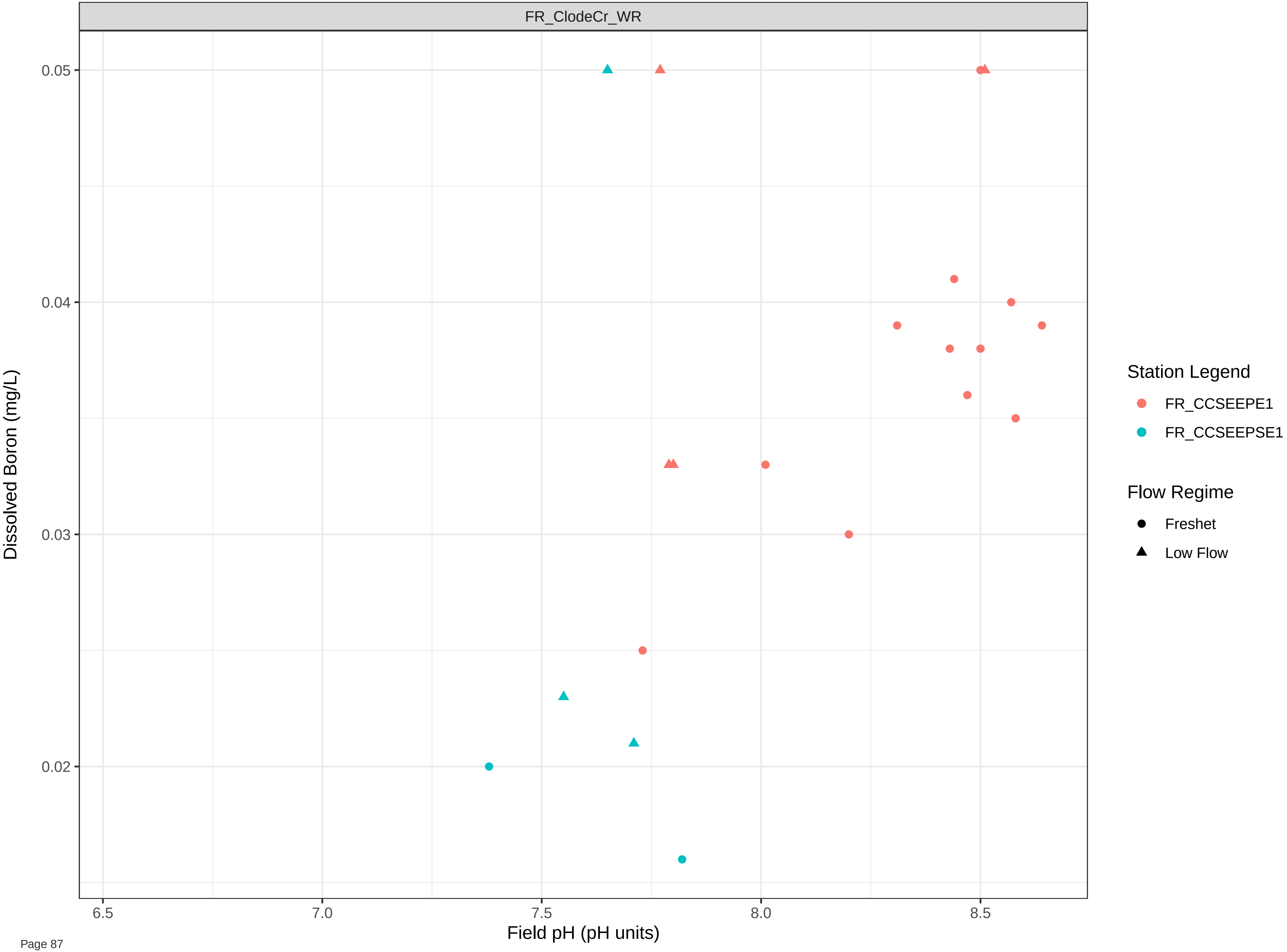

FR_SwiftWR_RockDrain_WR
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

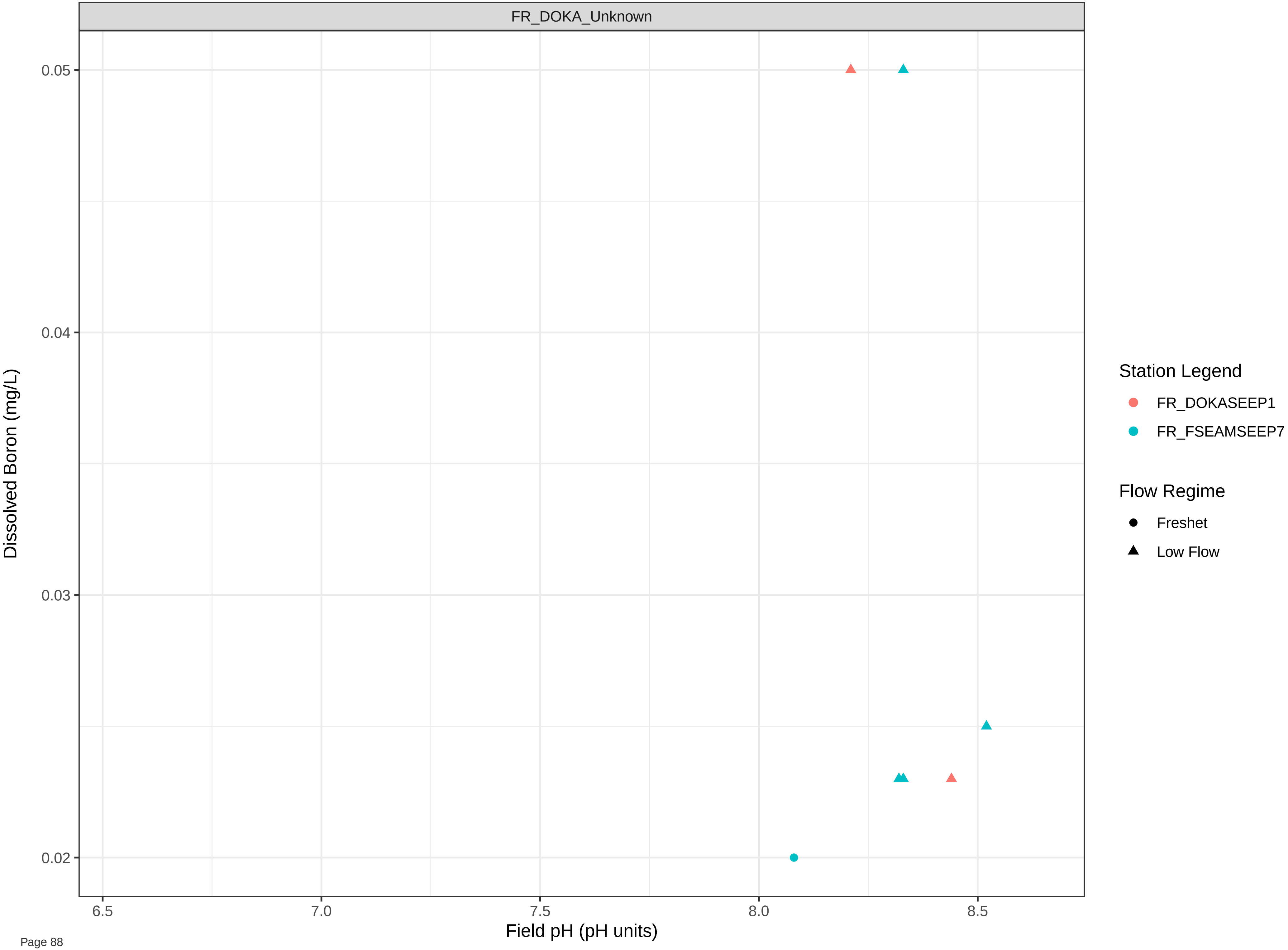

FR_TurnbullWREast_WR
Dissolved Bismuth (mg/L)
0.050
0.025
0.000
−0.025
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

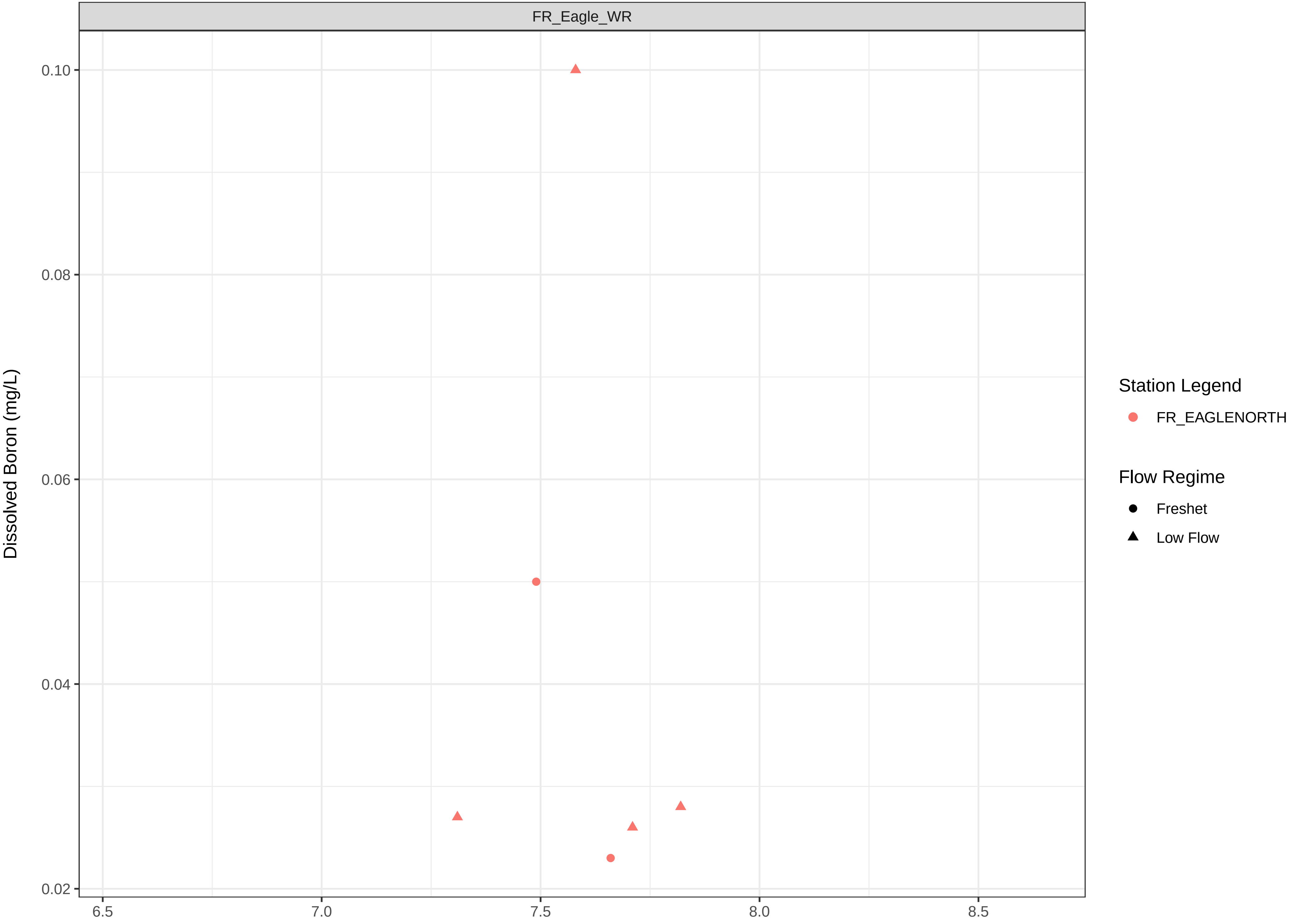

FR_TurnbullWRWest_WR
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_TBWSEEP1
● FR_TURNSEEP2
Flow Regime
● Freshet
▲ Low Flow

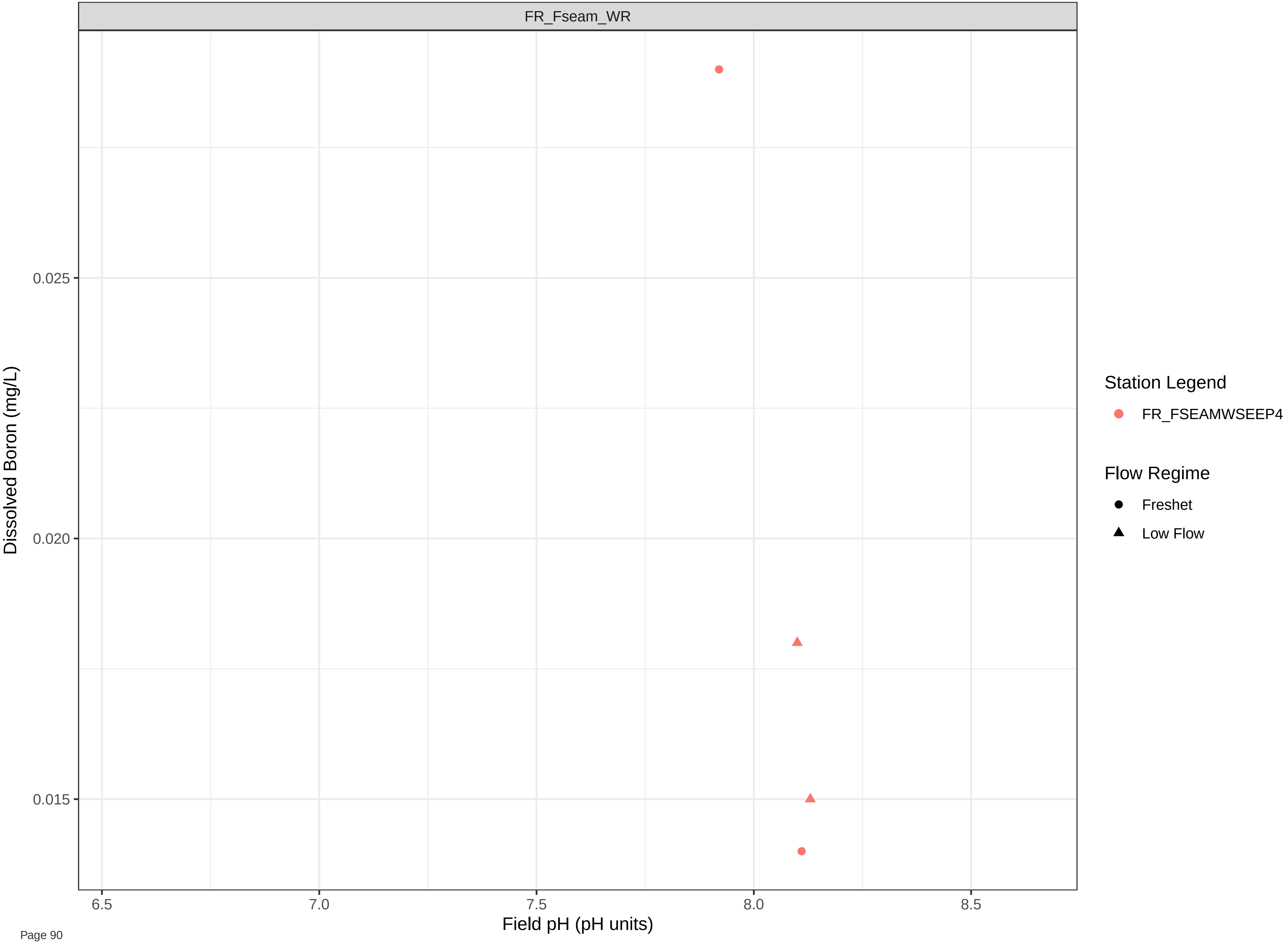

FR_A_WR
Dissolved Boron (mg/L)
0.05
0.04
0.03
0.02
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

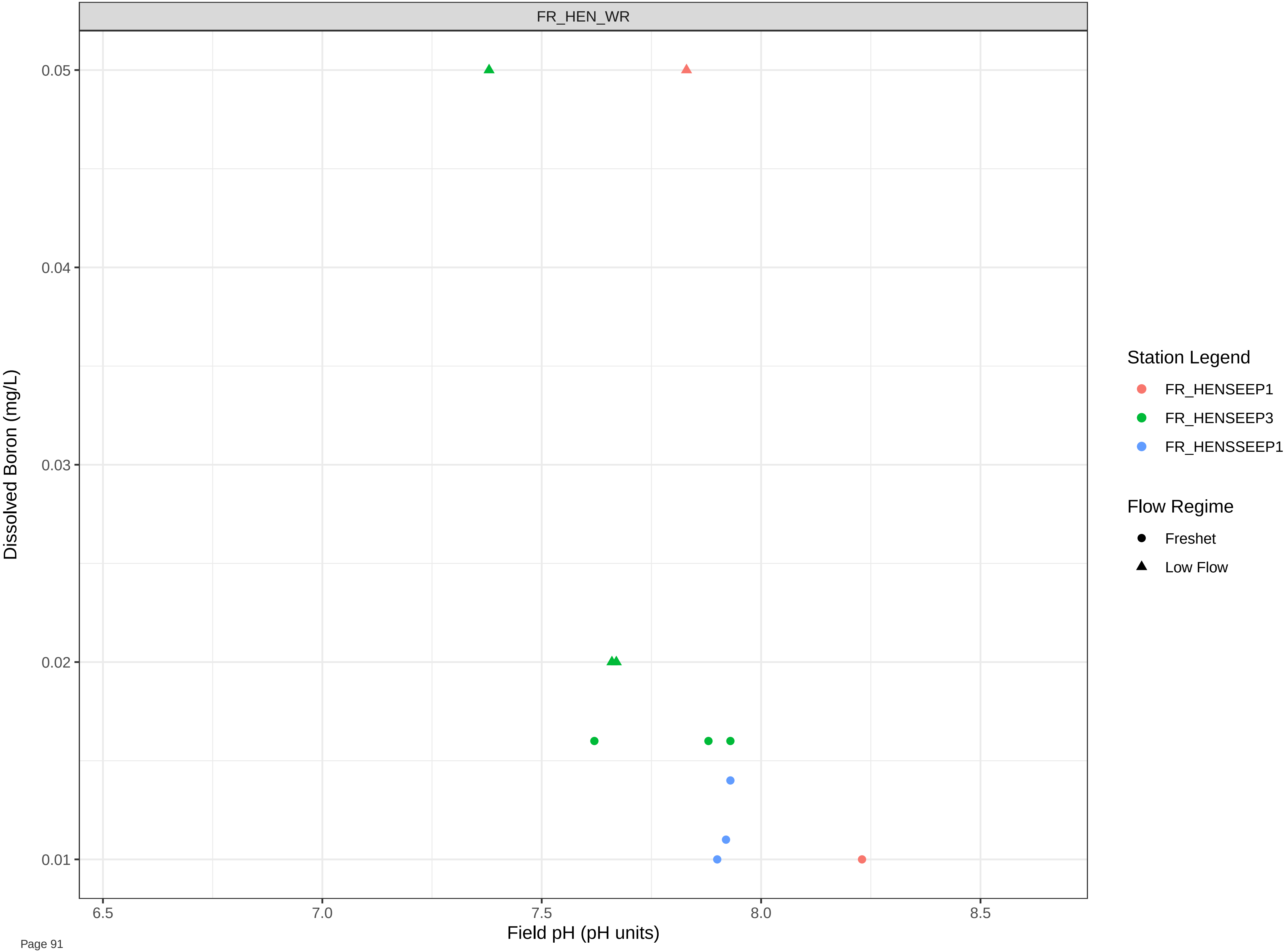

FR_Blain_CCR
Dissolved Boron (mg/L)
0.12
0.09
0.06
0.03
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

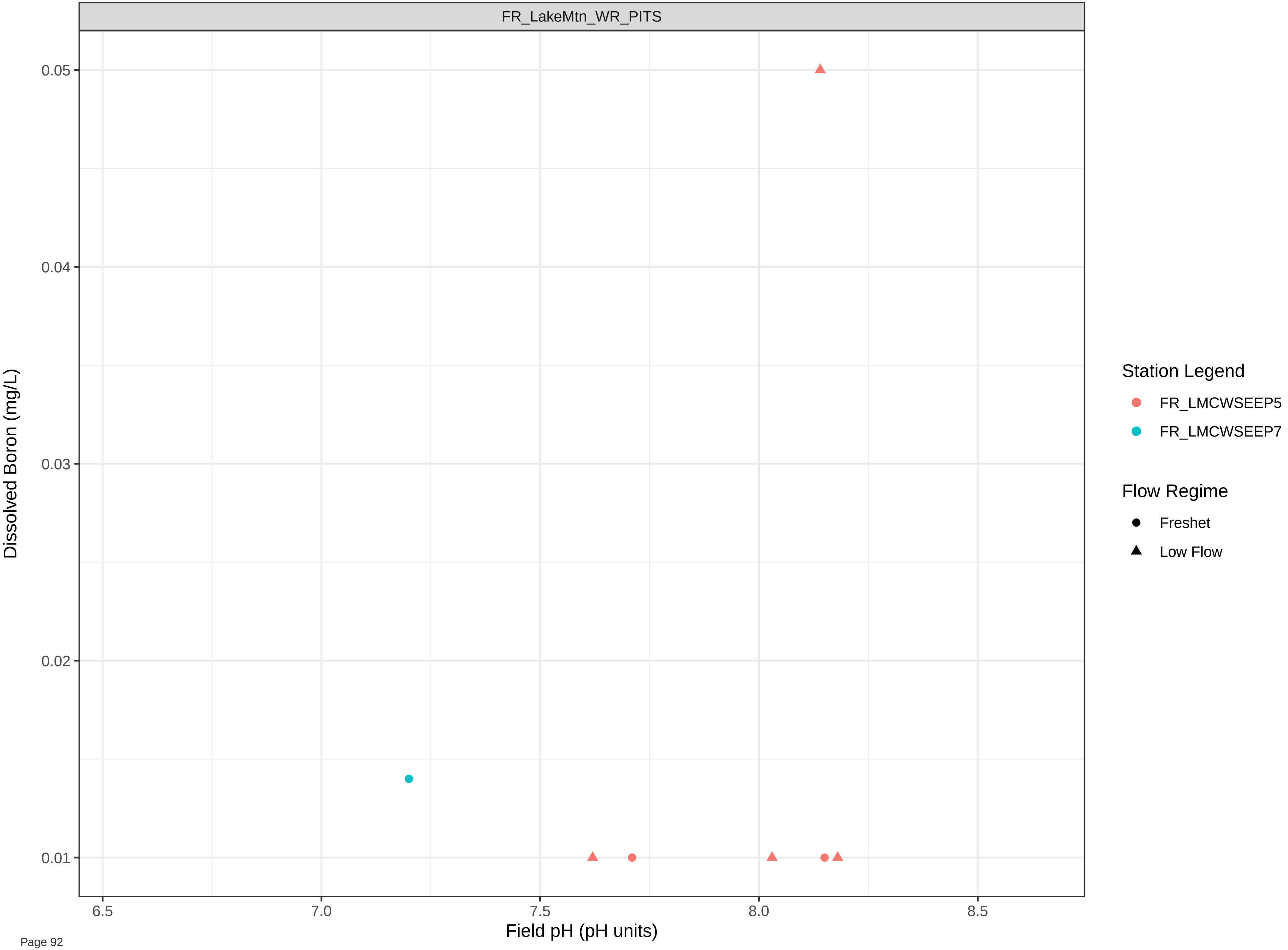

FR_ClodeCr_WR
Dissolved Boron (mg/L)
0.05
0.04
0.03
0.02
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

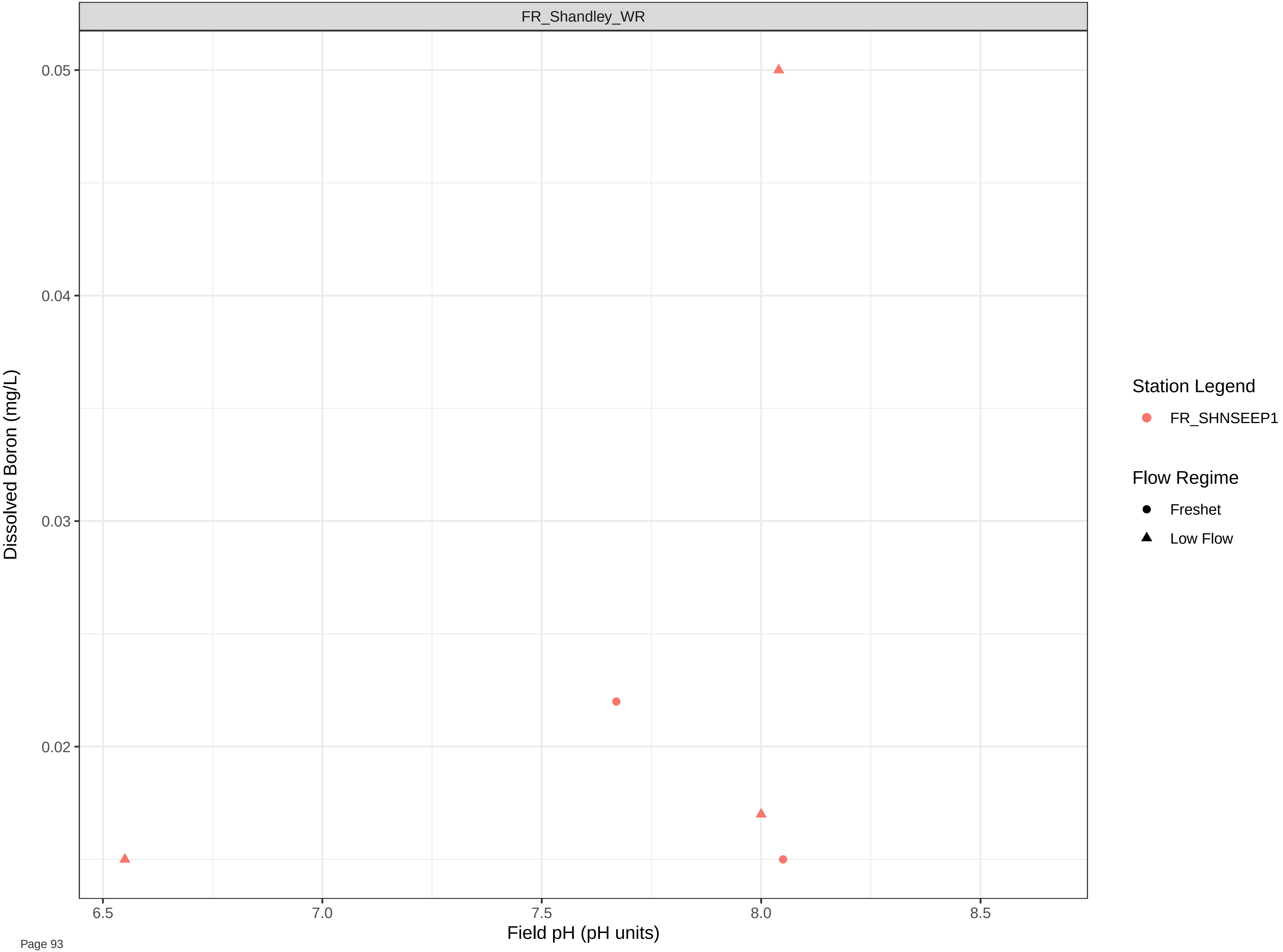

FR_DOKA_Unknown
0.05
0.04
0.03
0.02
Dissolved Boron (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

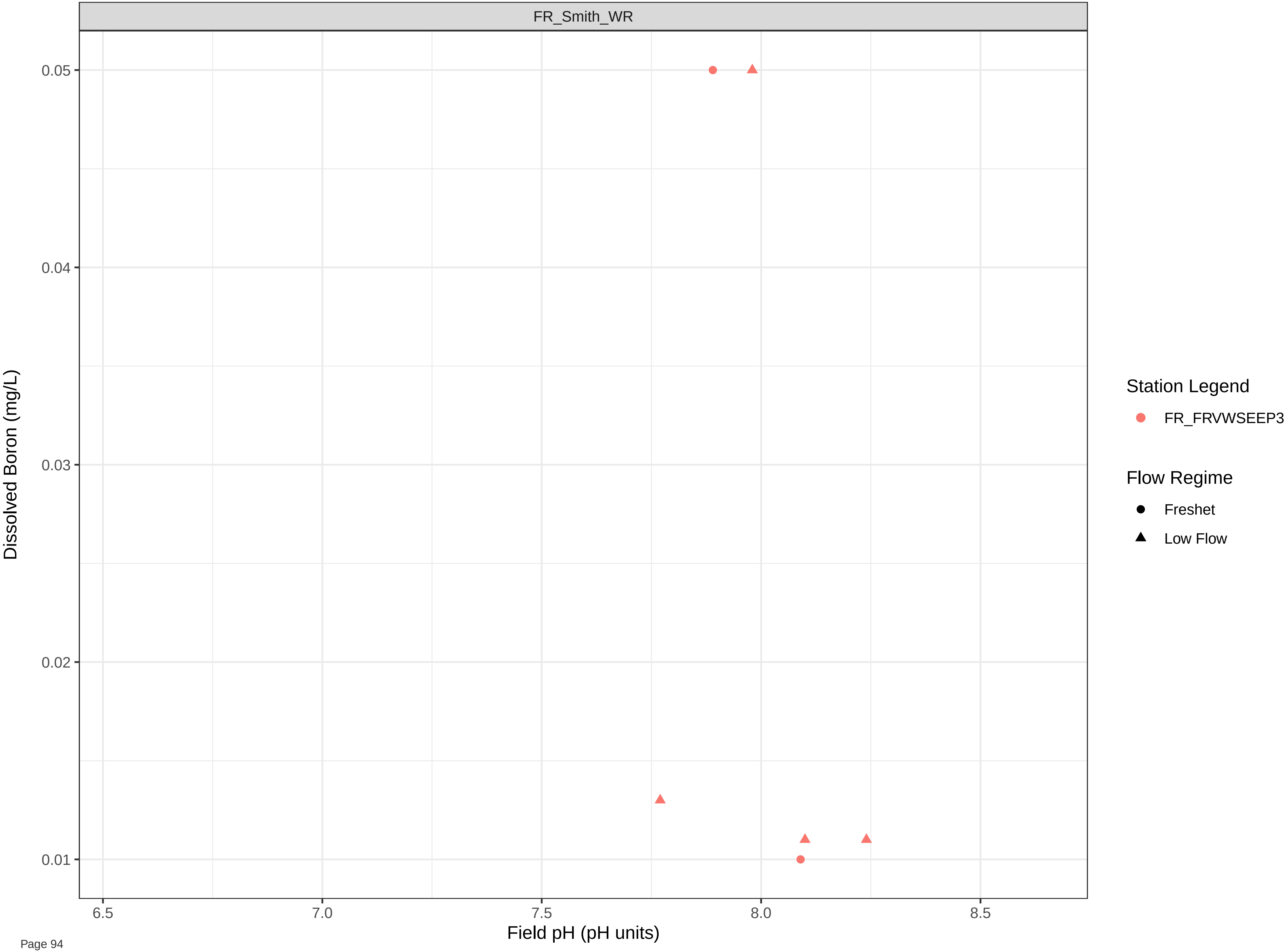

FR_Eagle_WR
Dissolved Boron (mg/L)
0.10
0.08
0.06
0.04
0.02
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

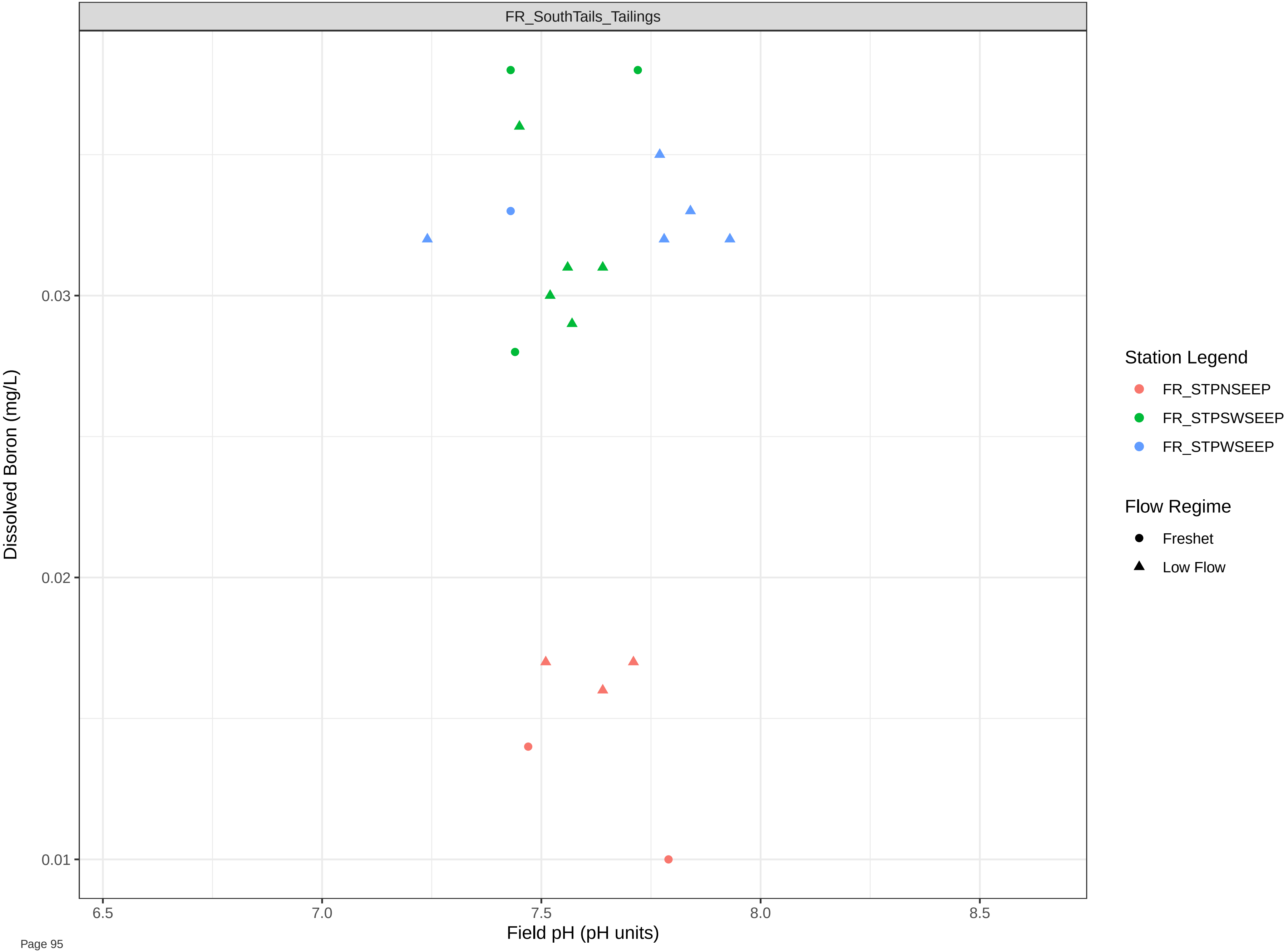

FR_Fseam_WR
Dissolved Boron (mg/L)
0.025
0.020
0.015
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

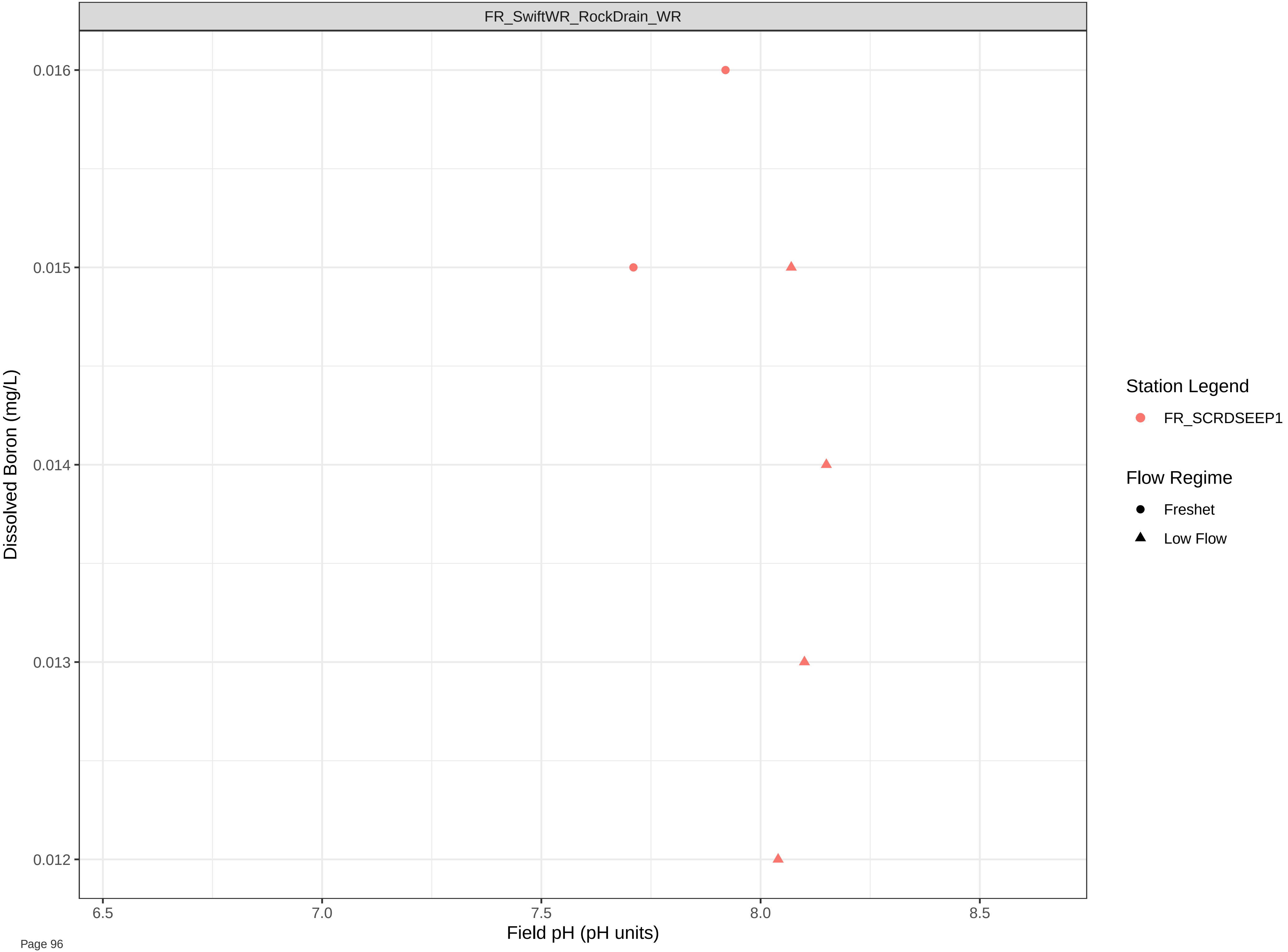

FR_HEN_WR
Dissolved Boron (mg/L)
0.05
0.04
0.03
0.02
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

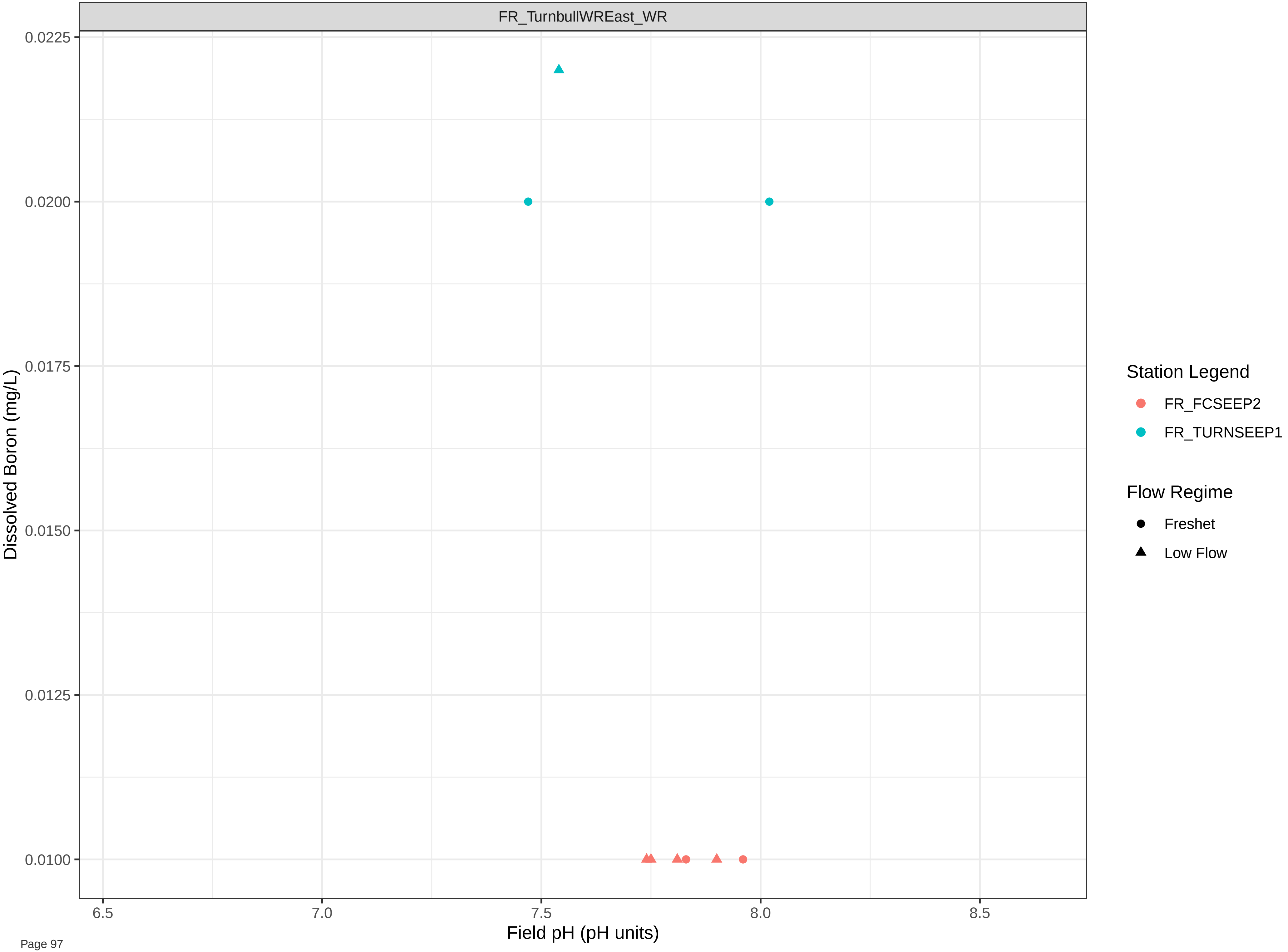

FR_LakeMtn_WR_PITS
Dissolved Boron (mg/L)
0.05
0.04
0.03
0.02
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

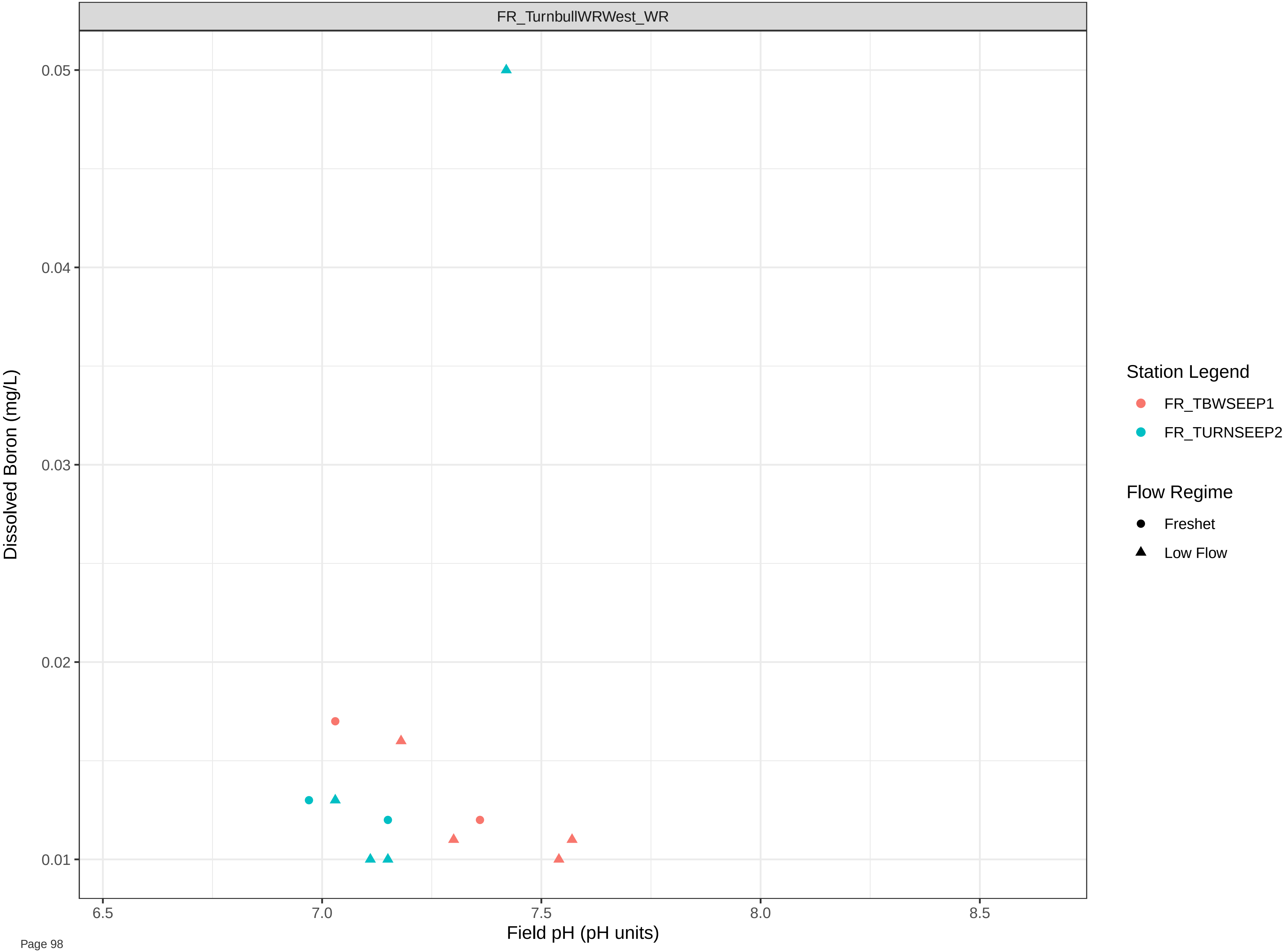

FR_Shandley_WR
Dissolved Boron (mg/L)
0.05
0.04
0.03
0.02
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

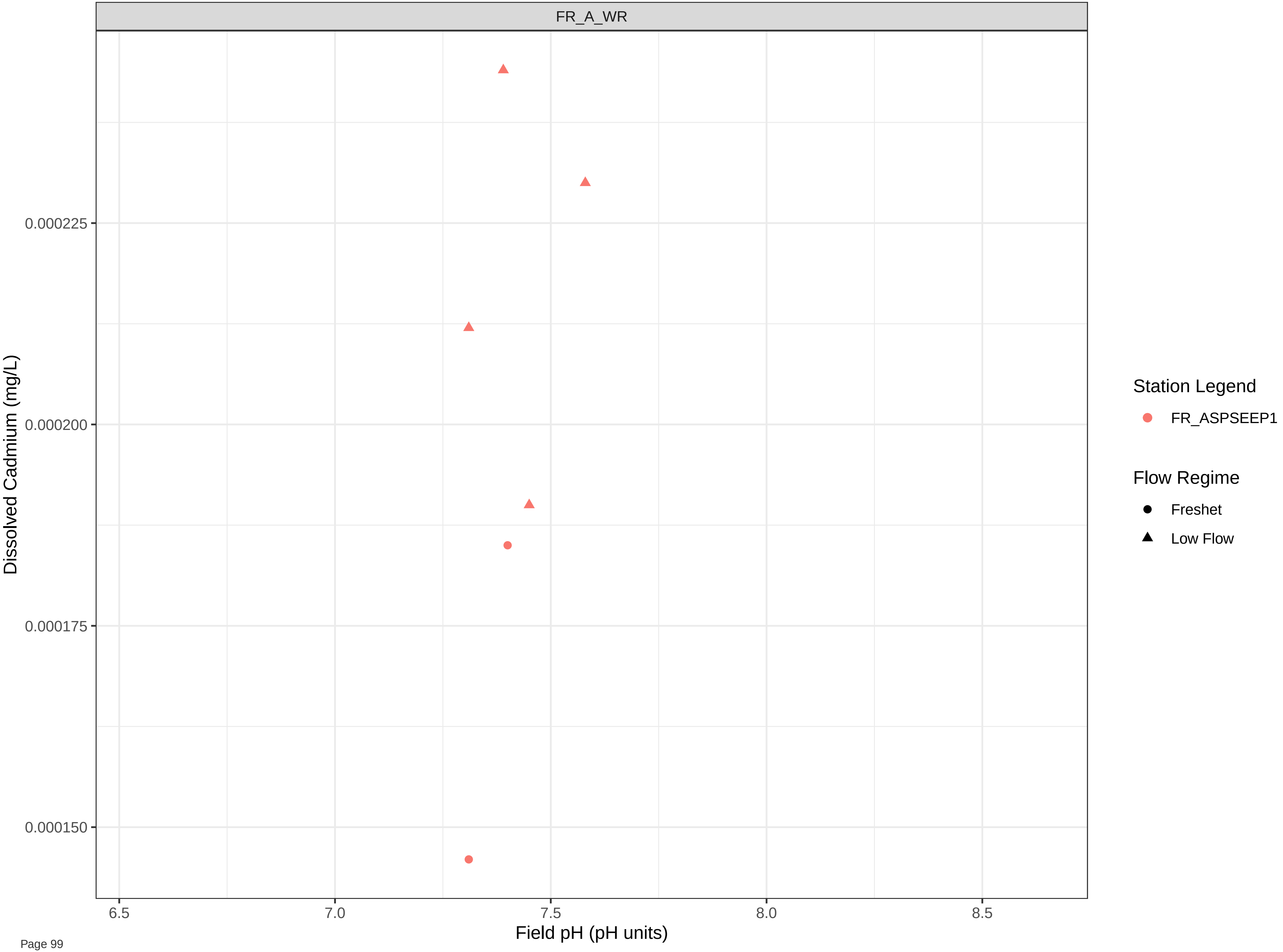

FR_Smith_WR
Dissolved Boron (mg/L)
0.05
0.04
0.03
0.02
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

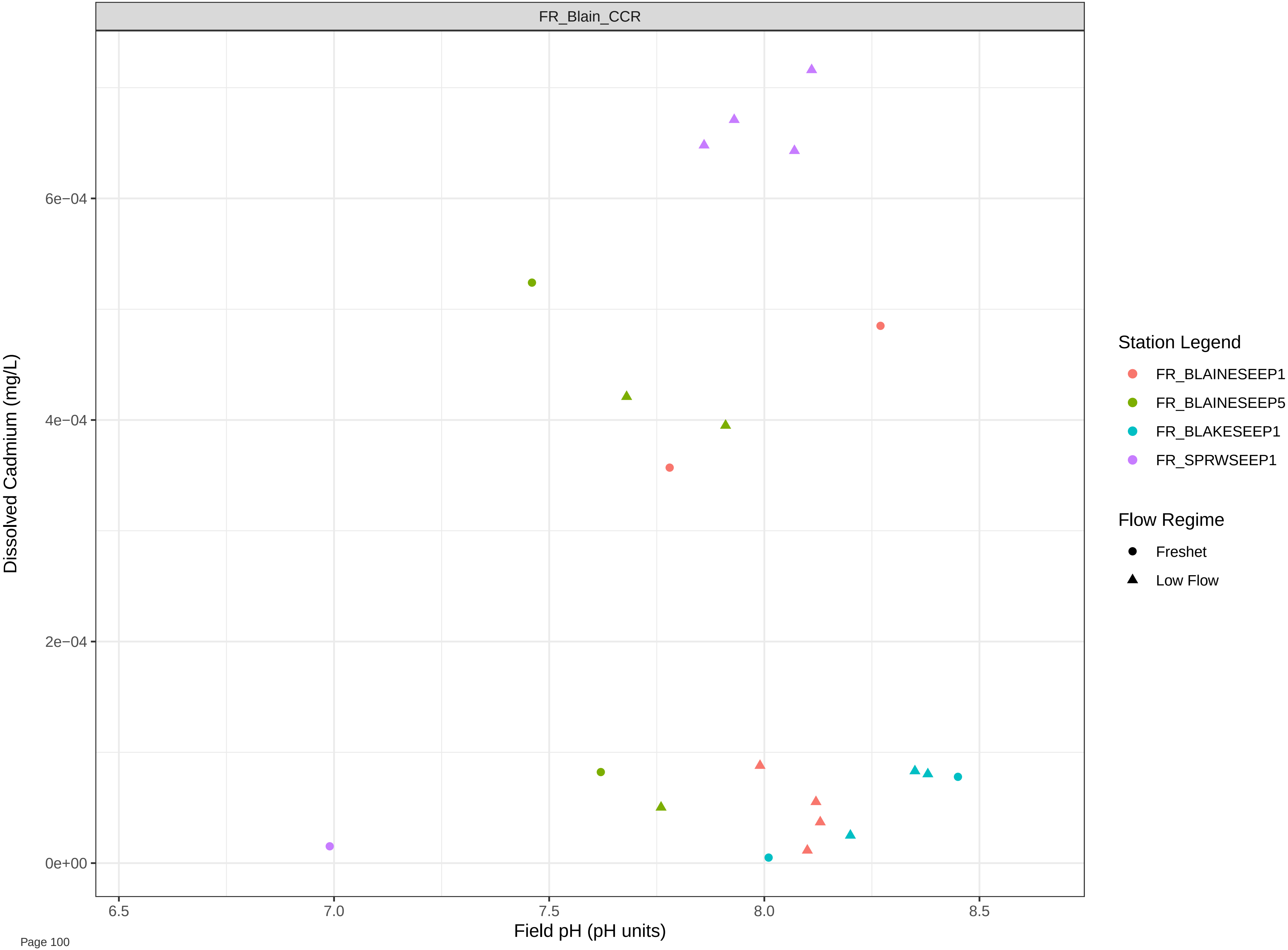

FR_SouthTails_Tailings
Dissolved Boron (mg/L)
0.03
0.02
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

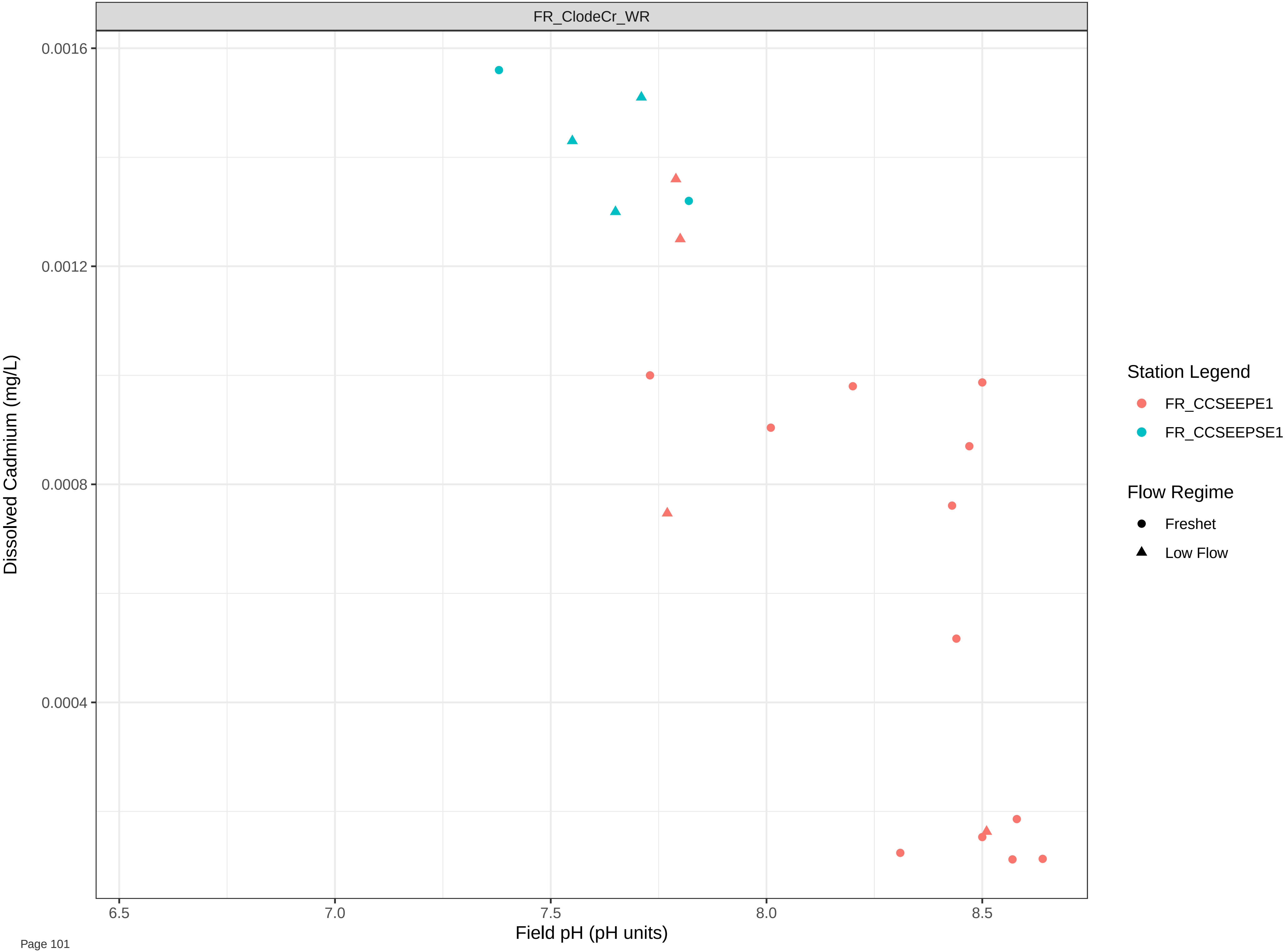

FR_SwiftWR_RockDrain_WR
Dissolved Boron (mg/L)
0.016
0.015
0.014
0.013
0.012
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

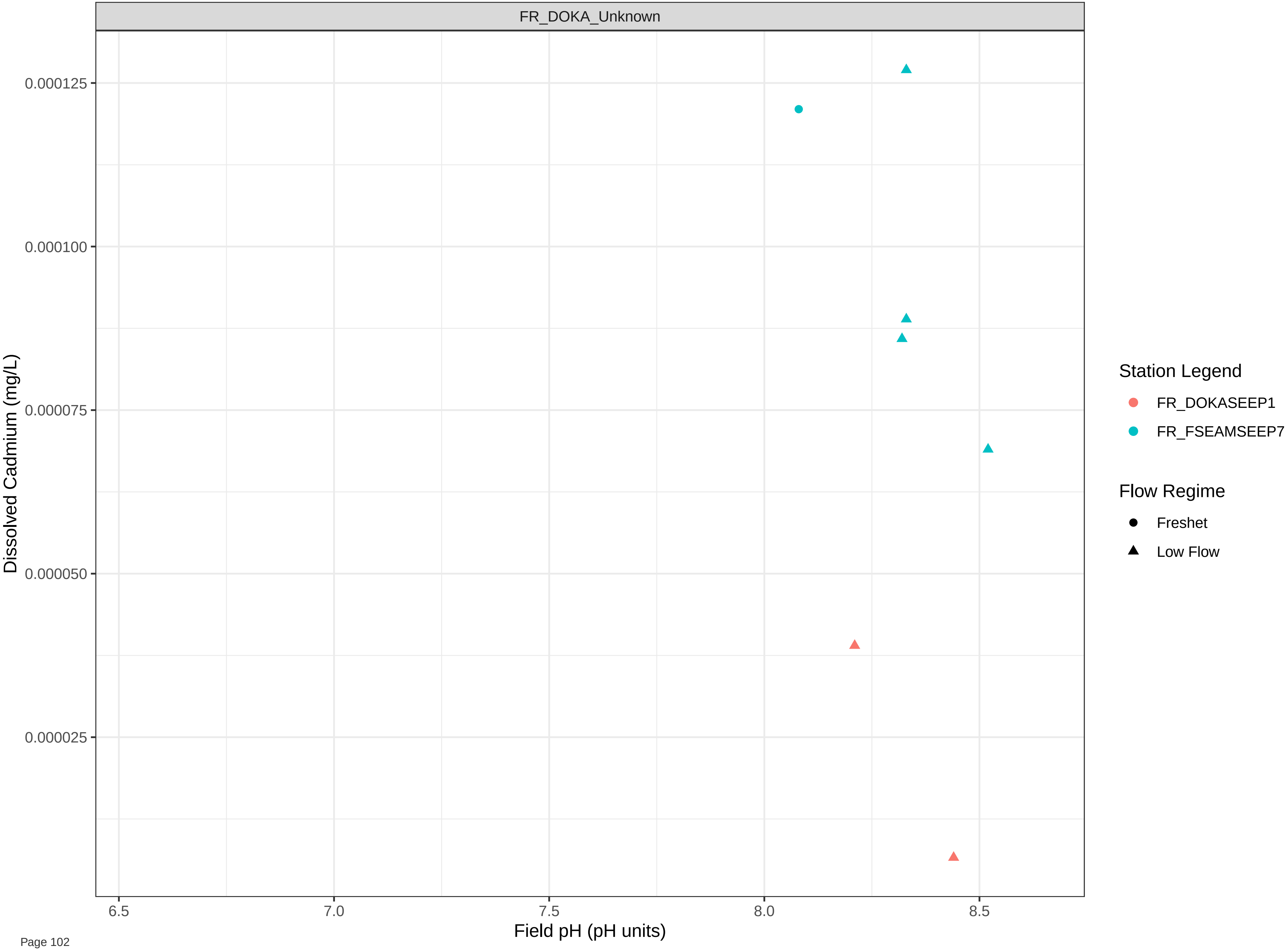

FR_TurnbullWREast_WR
0.0225
0.0200
0.0175
0.0150
0.0125
0.0100
Dissolved Boron (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

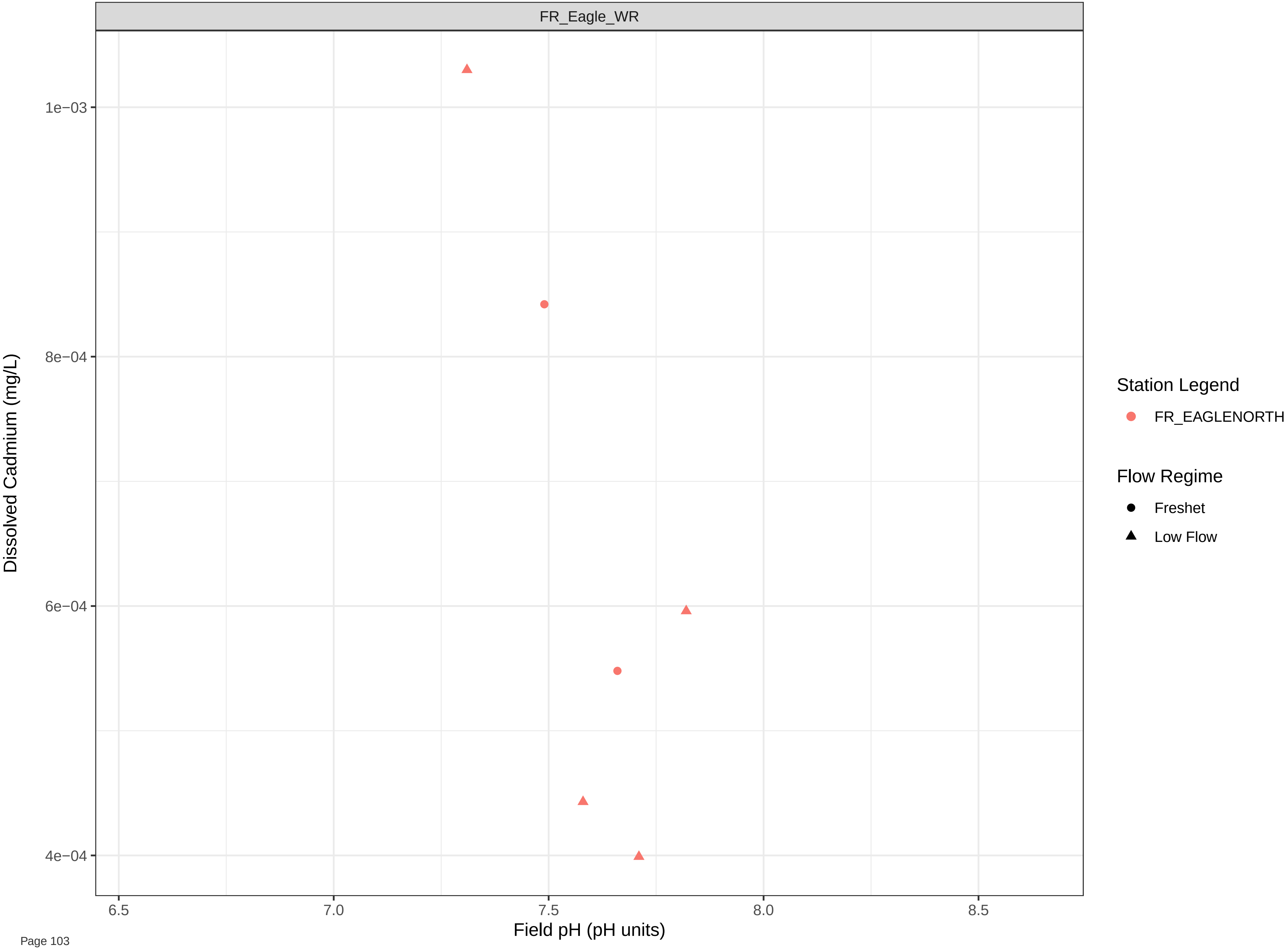

FR_TurnbullWRWest_WR
Dissolved Boron (mg/L)
0.05
0.04
0.03
0.02
0.01
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

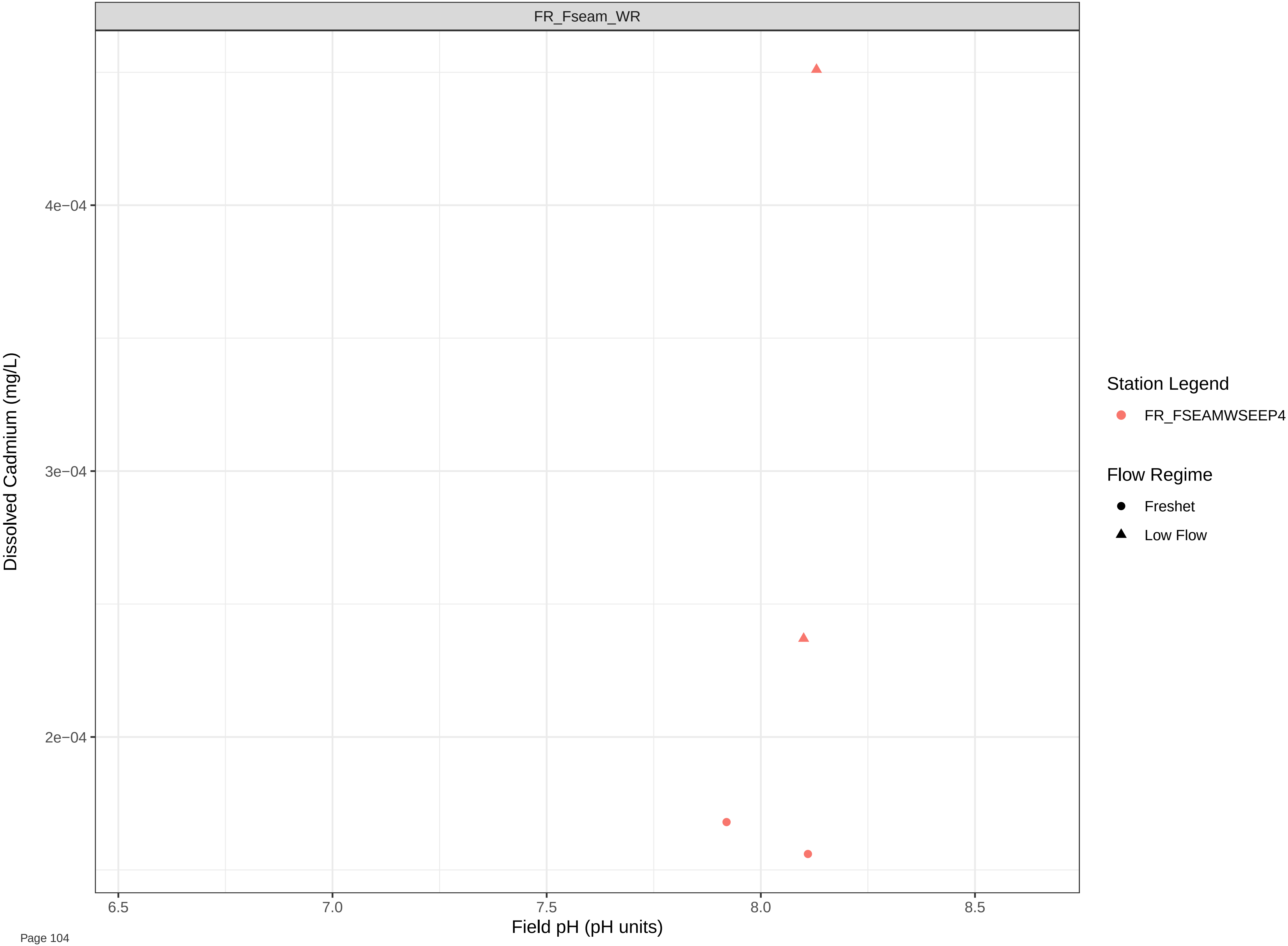

FR_A_WR
Dissolved Cadmium (mg/L)
0.000225
0.000200
0.000175
0.000150
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

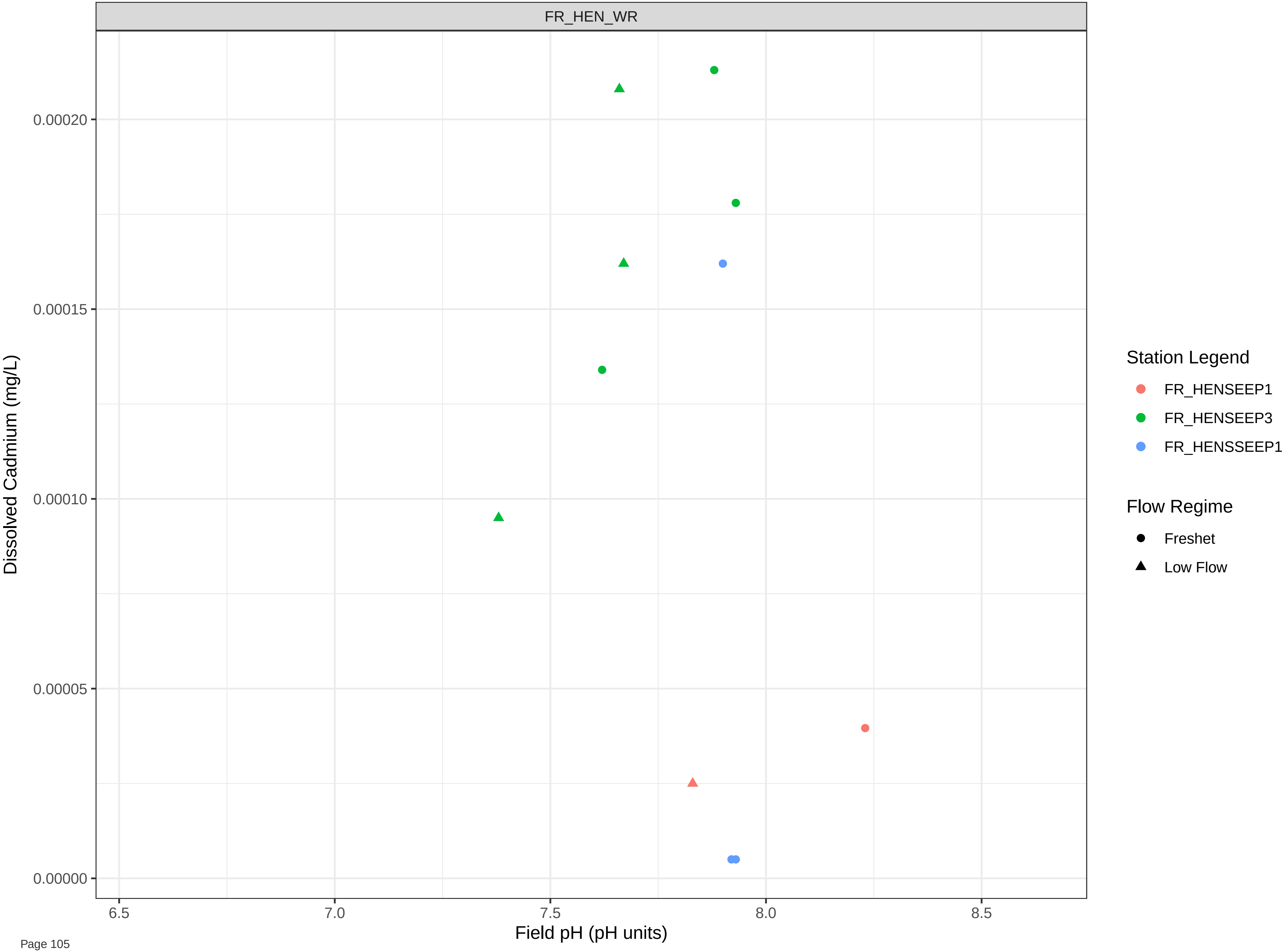

FR_Blain_CCR
Dissolved Cadmium (mg/L)
6e−04
4e−04
2e−04
0e+00
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

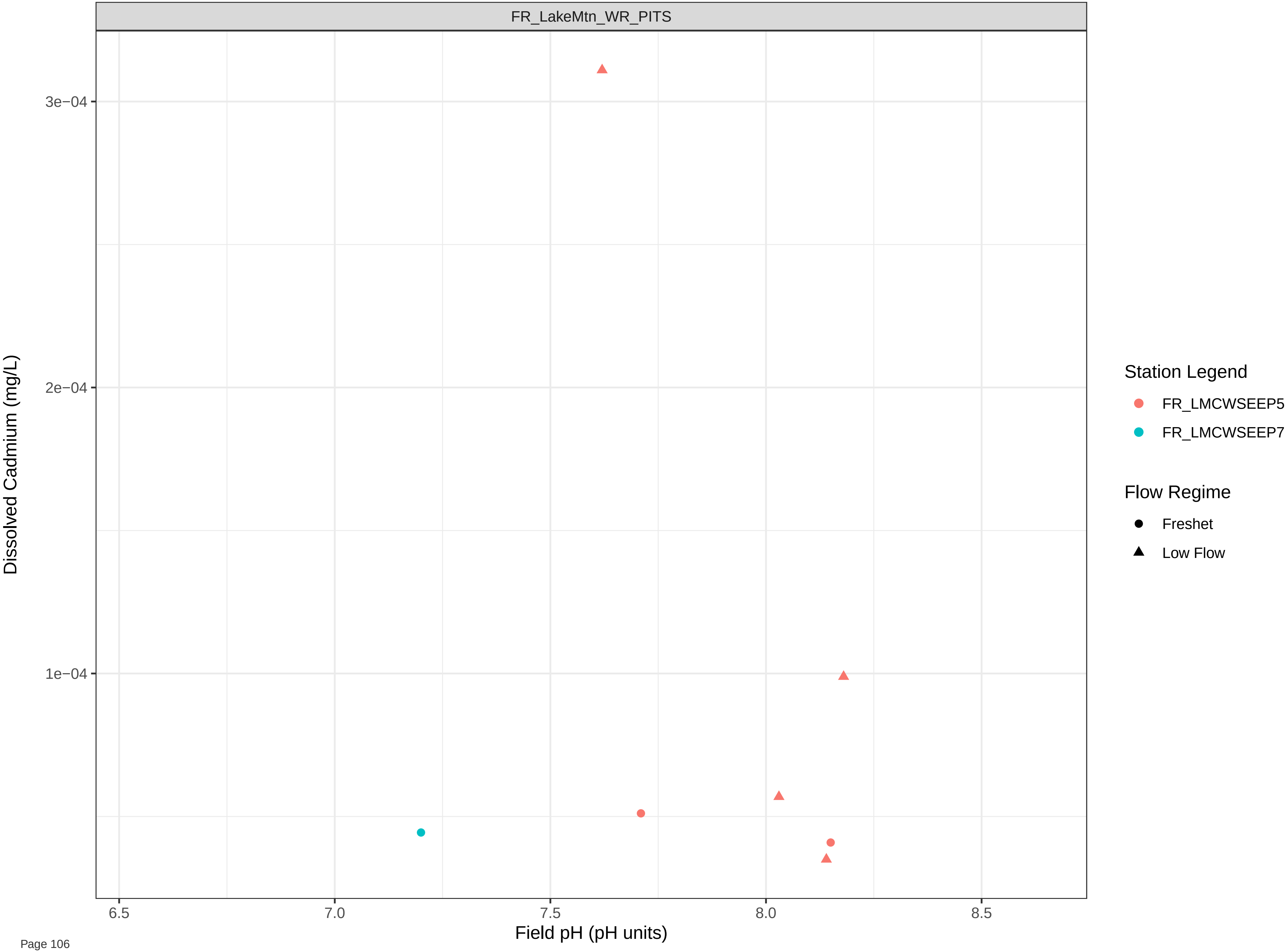

FR_ClodeCr_WR
Dissolved Cadmium (mg/L)
0.0016
0.0012
0.0008
0.0004
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

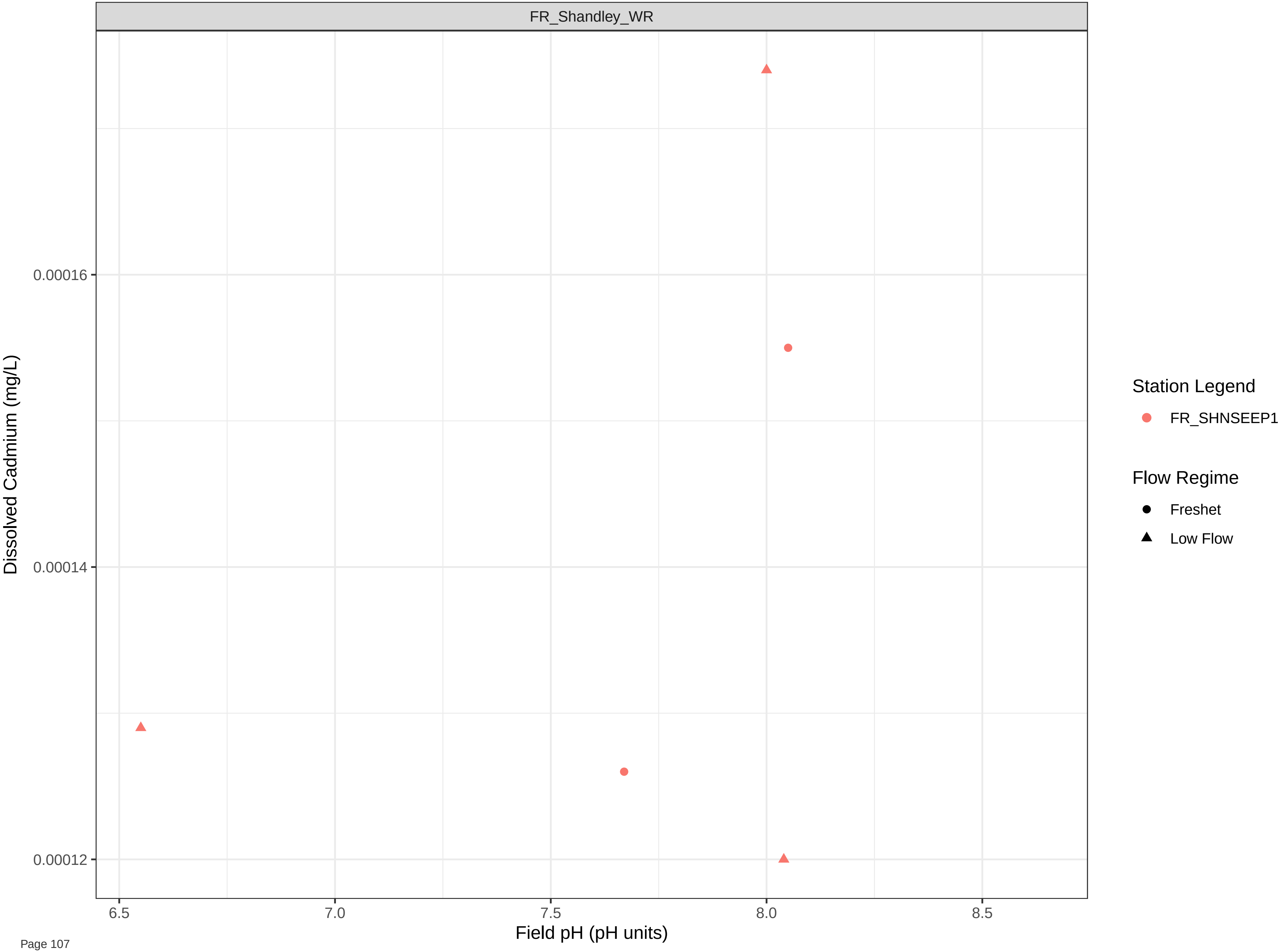

FR_DOKA_Unknown
Dissolved Cadmium (mg/L)
0.000125
0.000100
0.000075
0.000050
0.000025
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

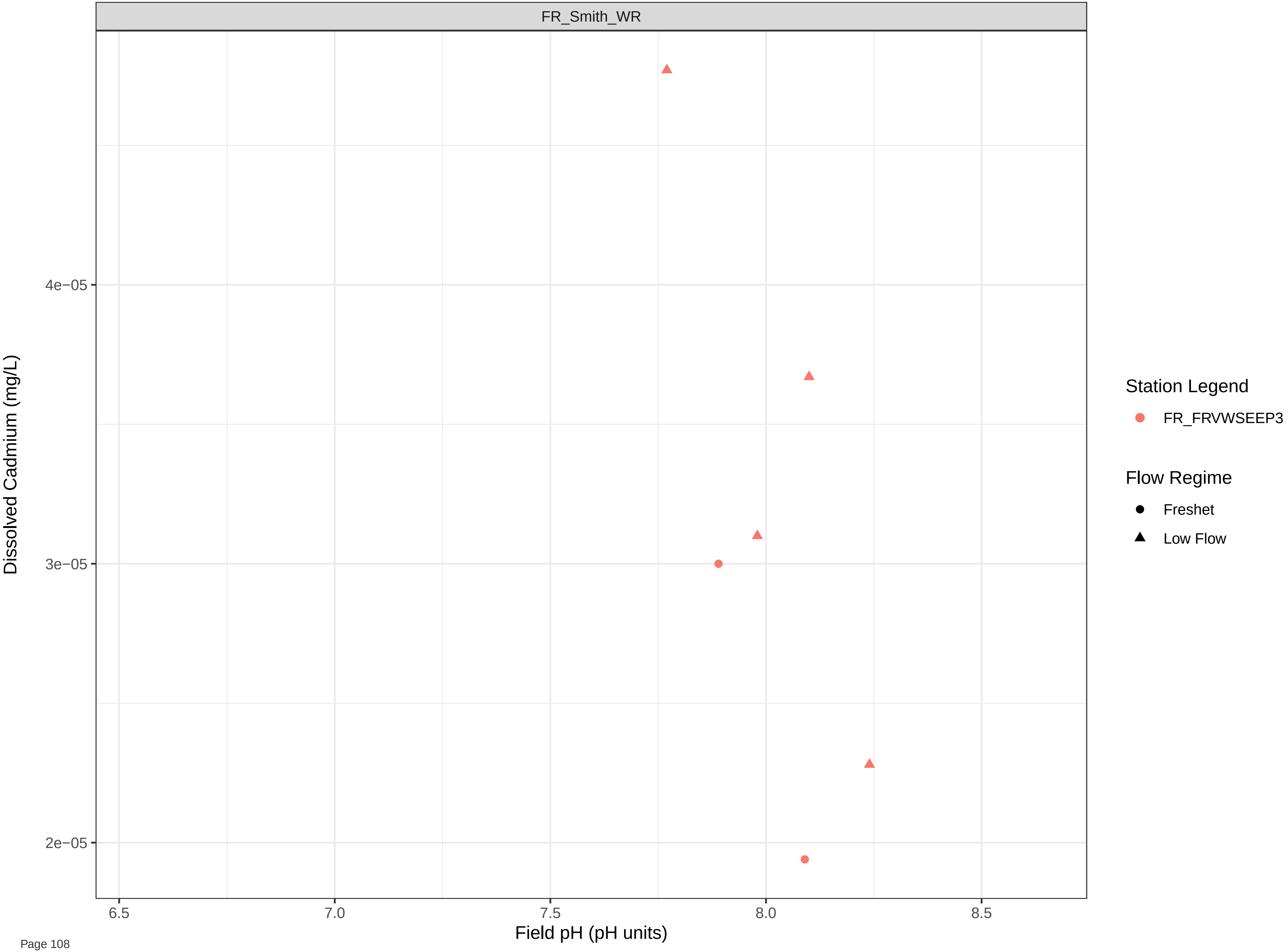

FR_Eagle_WR
Dissolved Cadmium (mg/L)
1e−03
8e−04
6e−04
4e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

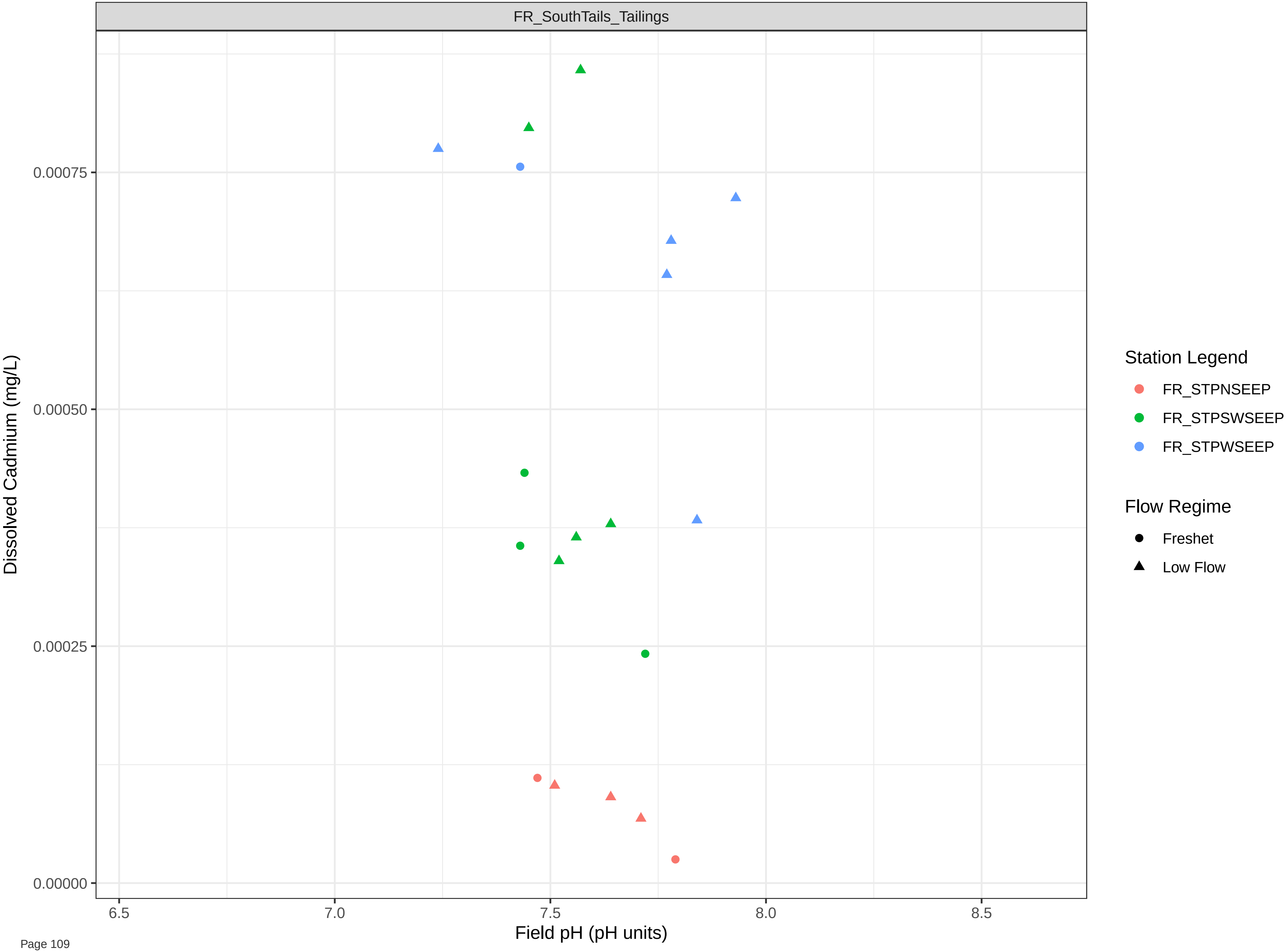

FR_Fseam_WR
Dissolved Cadmium (mg/L)
4e−04
3e−04
2e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

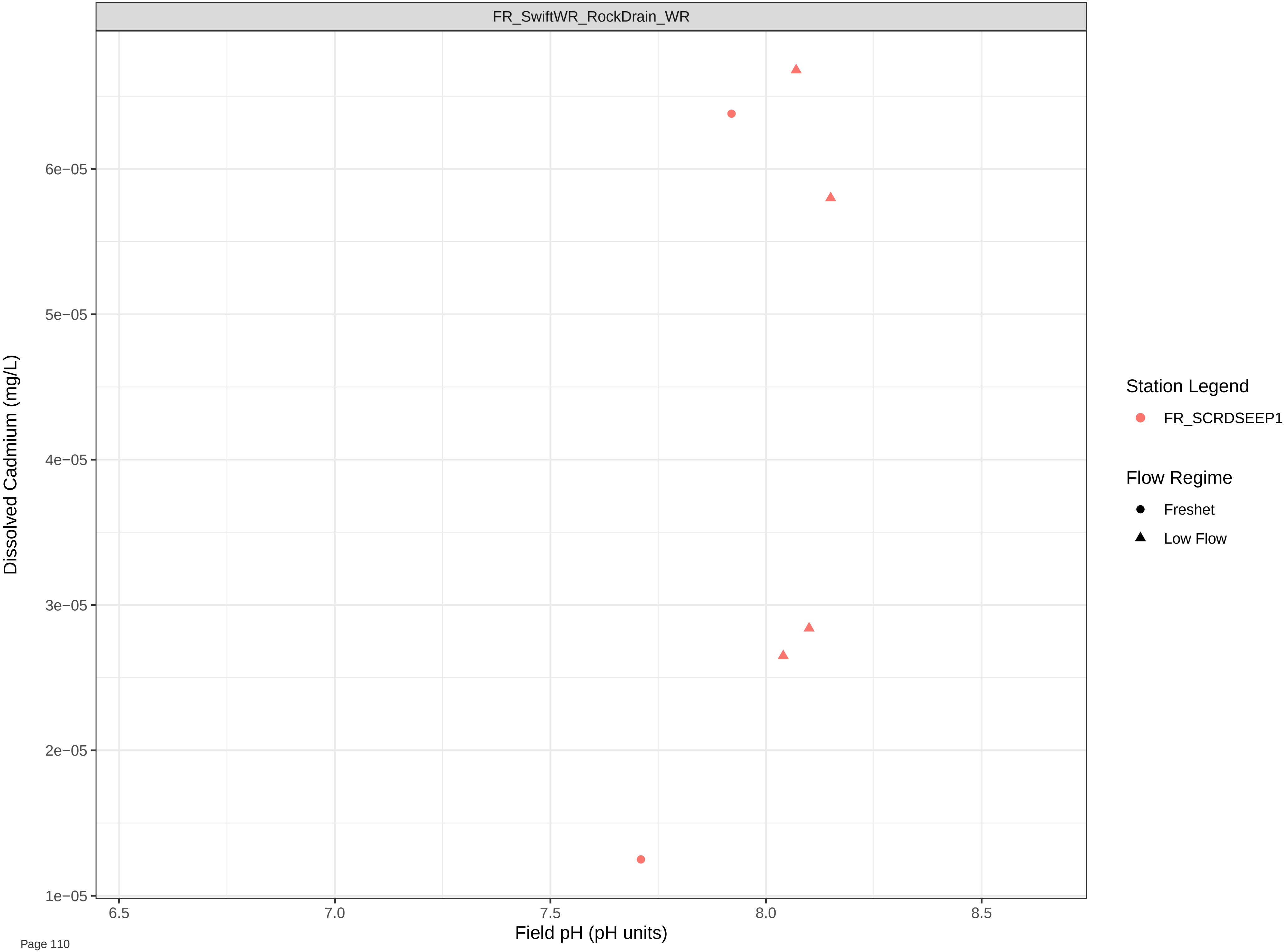

FR_HEN_WR
Dissolved Cadmium (mg/L)
0.00020
0.00015
0.00010
0.00005
0.00000
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

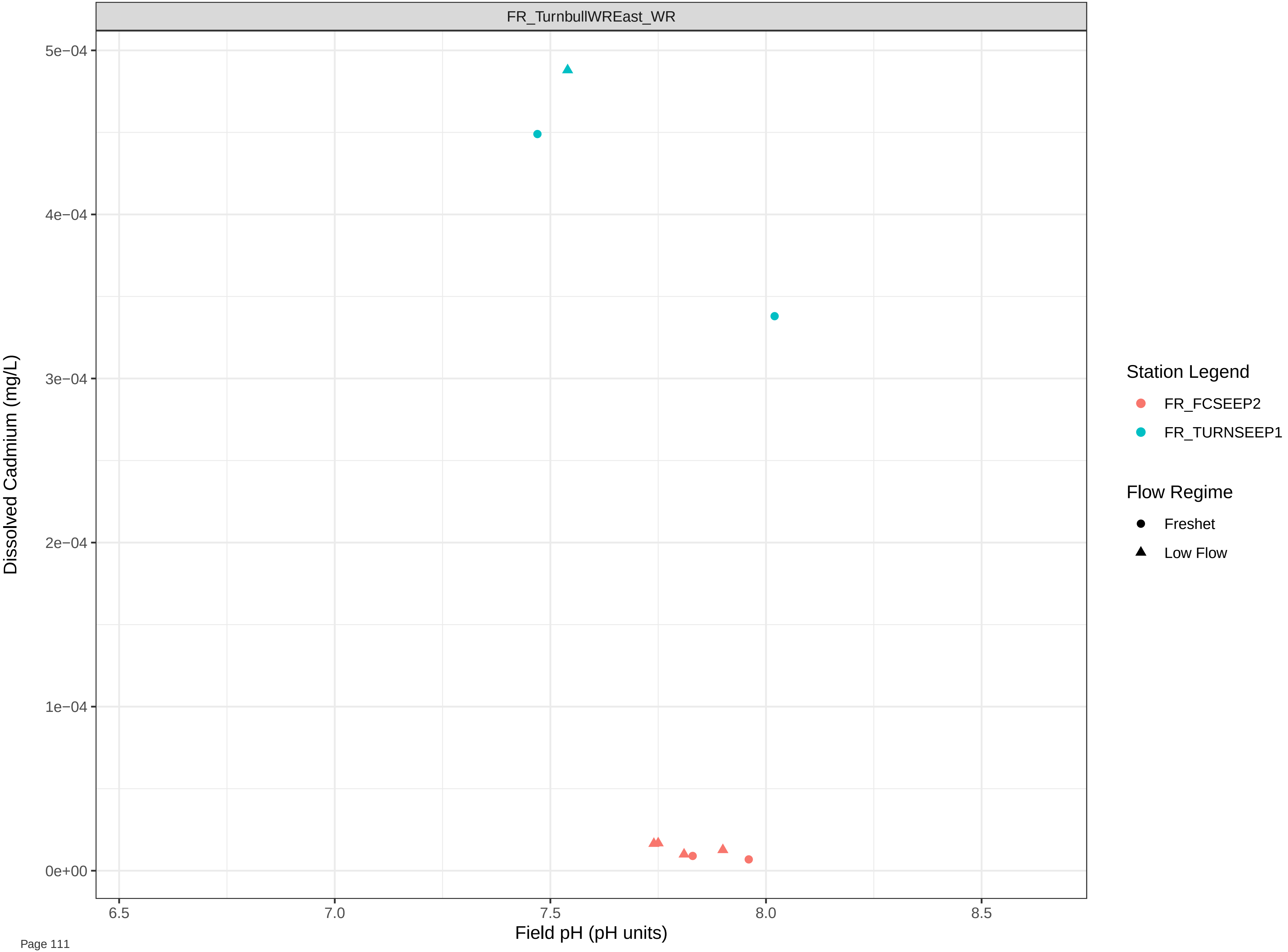

FR_LakeMtn_WR_PITS
Dissolved Cadmium (mg/L)
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

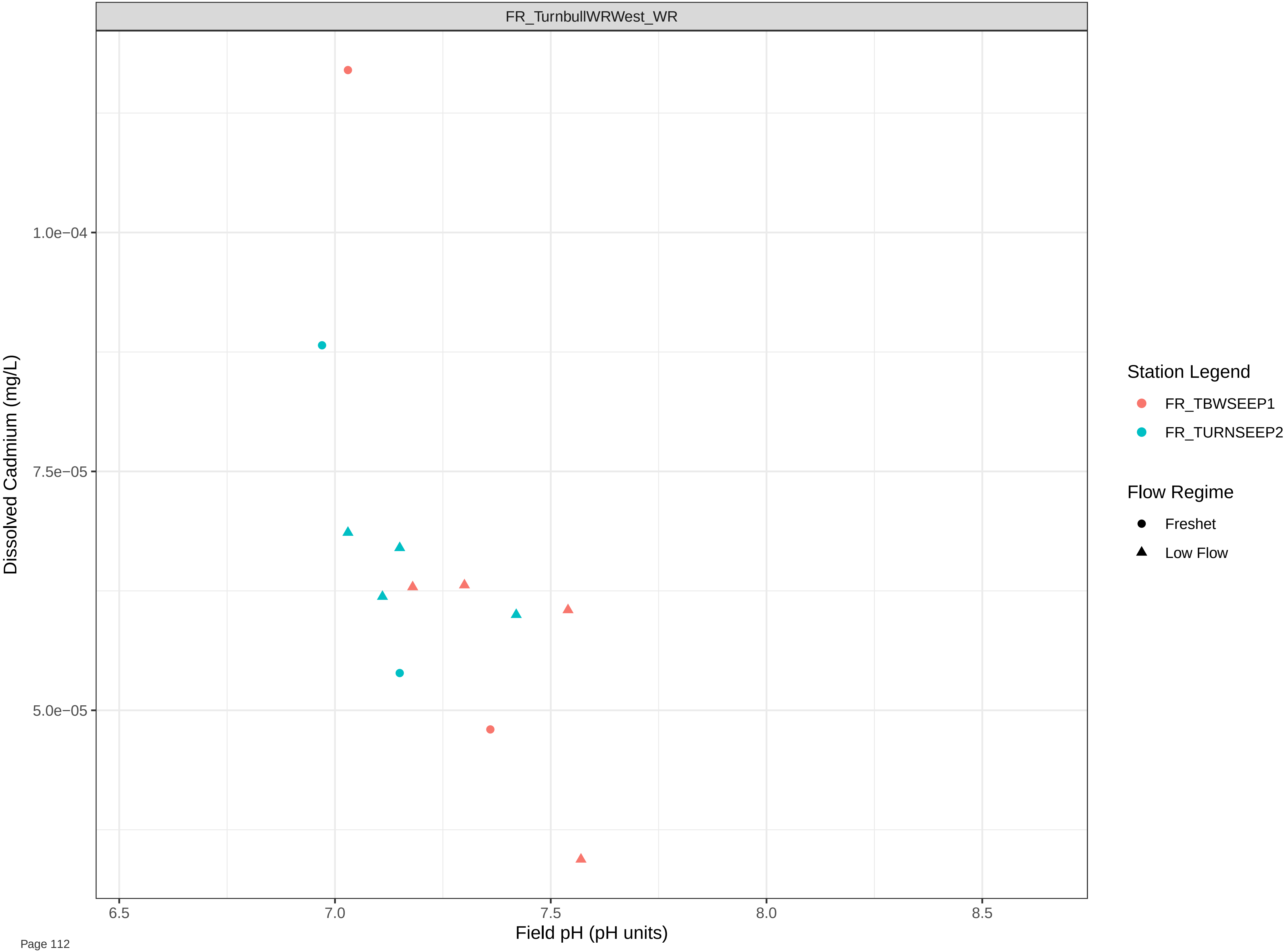

FR_Shandley_WR
Dissolved Cadmium (mg/L)
0.00016
0.00014
0.00012
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

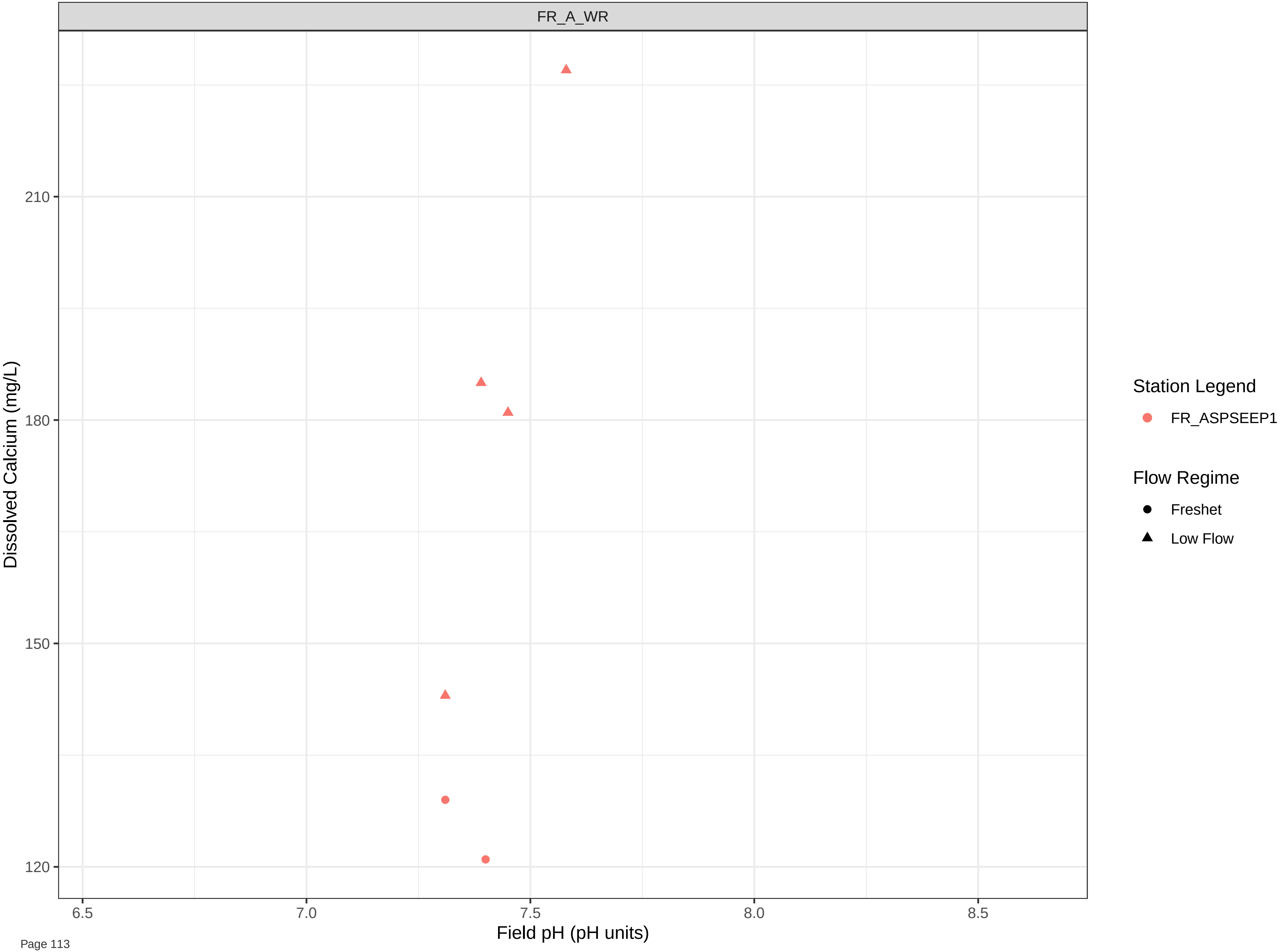

FR_Smith_WR
Dissolved Cadmium (mg/L)
4e−05
3e−05
2e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

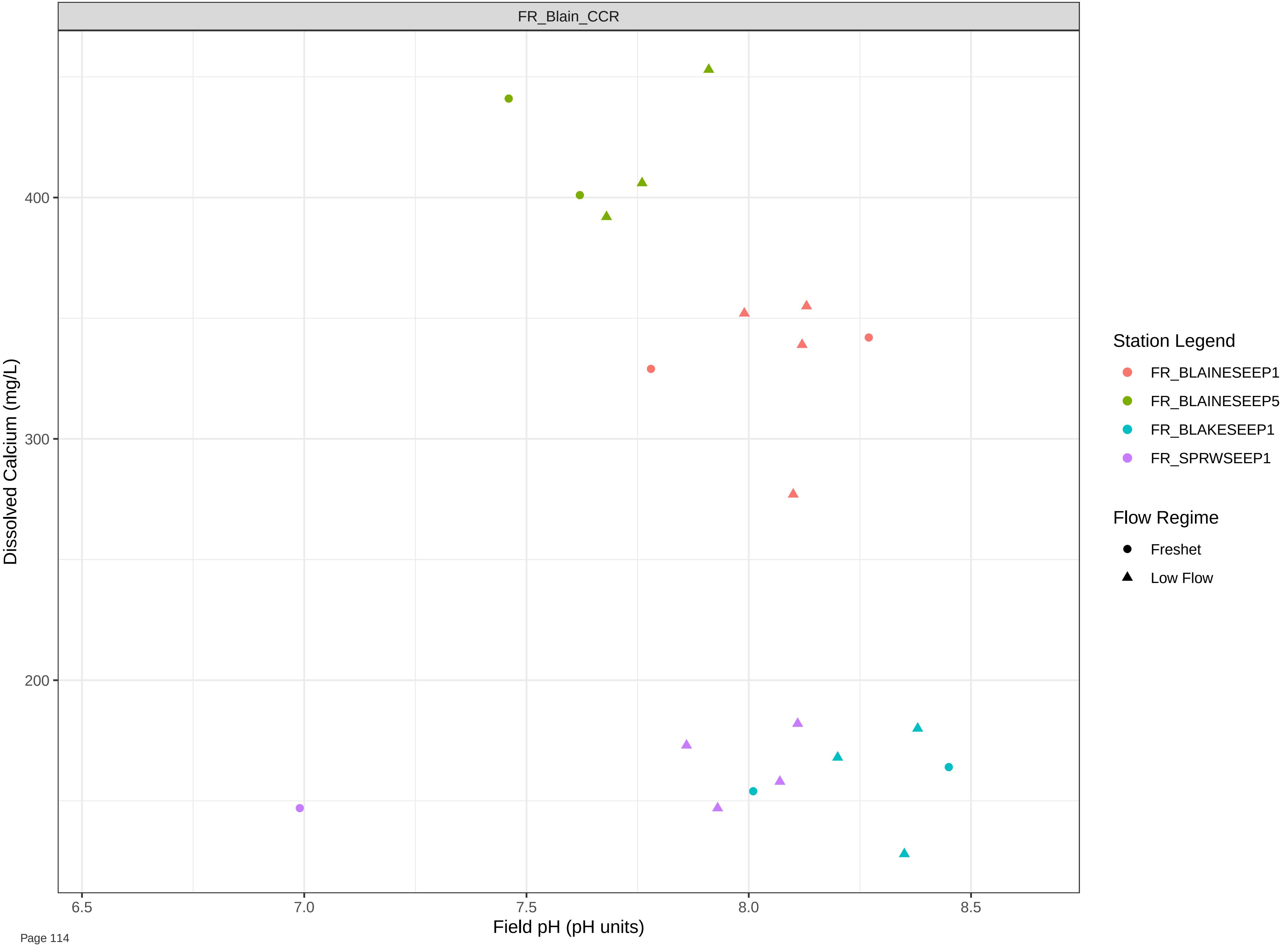

FR_SouthTails_Tailings
Dissolved Cadmium (mg/L)
0.00075
0.00050
0.00025
0.00000
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

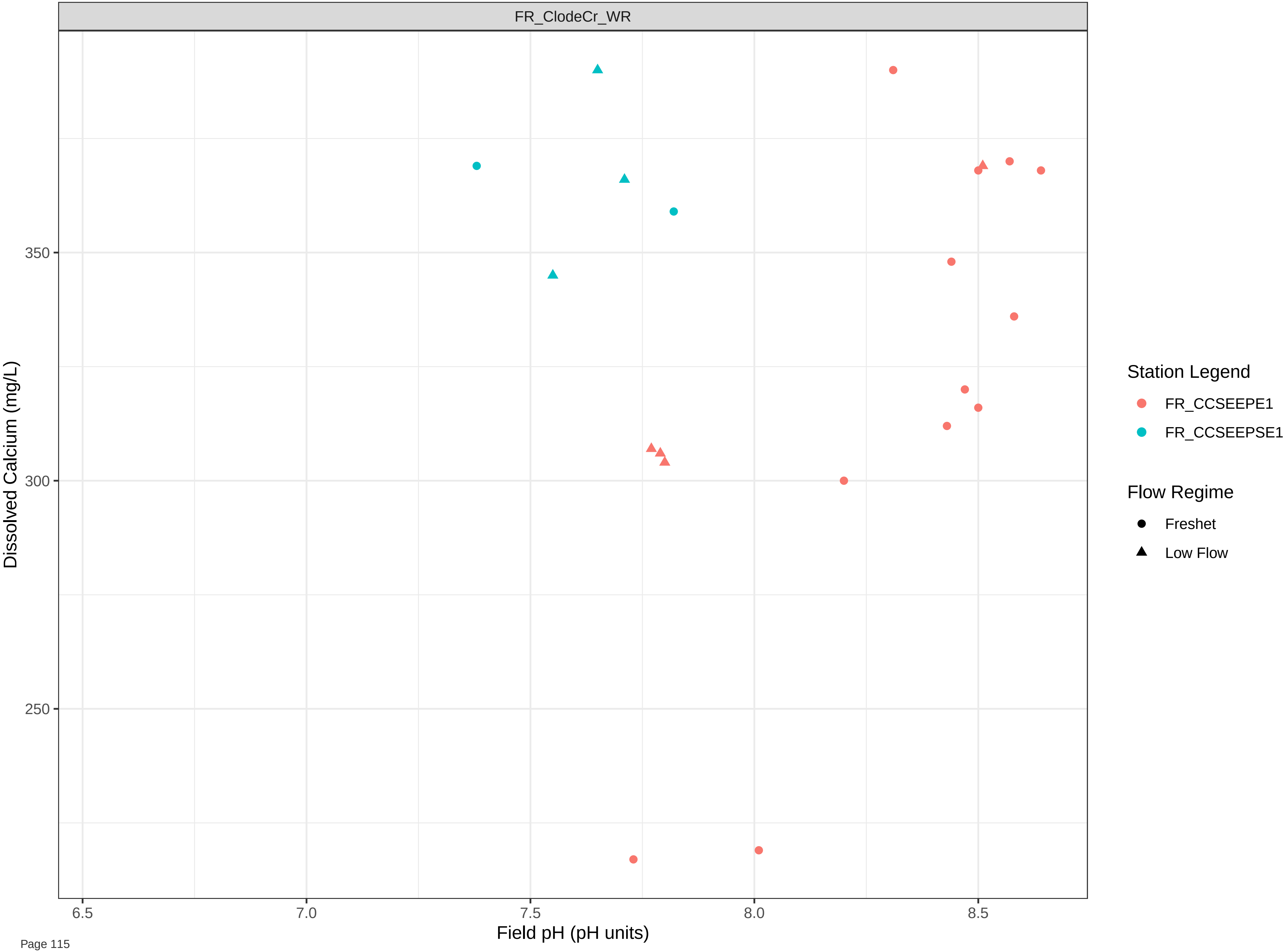

FR_SwiftWR_RockDrain_WR
Dissolved Cadmium (mg/L)
6e−05
5e−05
4e−05
3e−05
2e−05
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

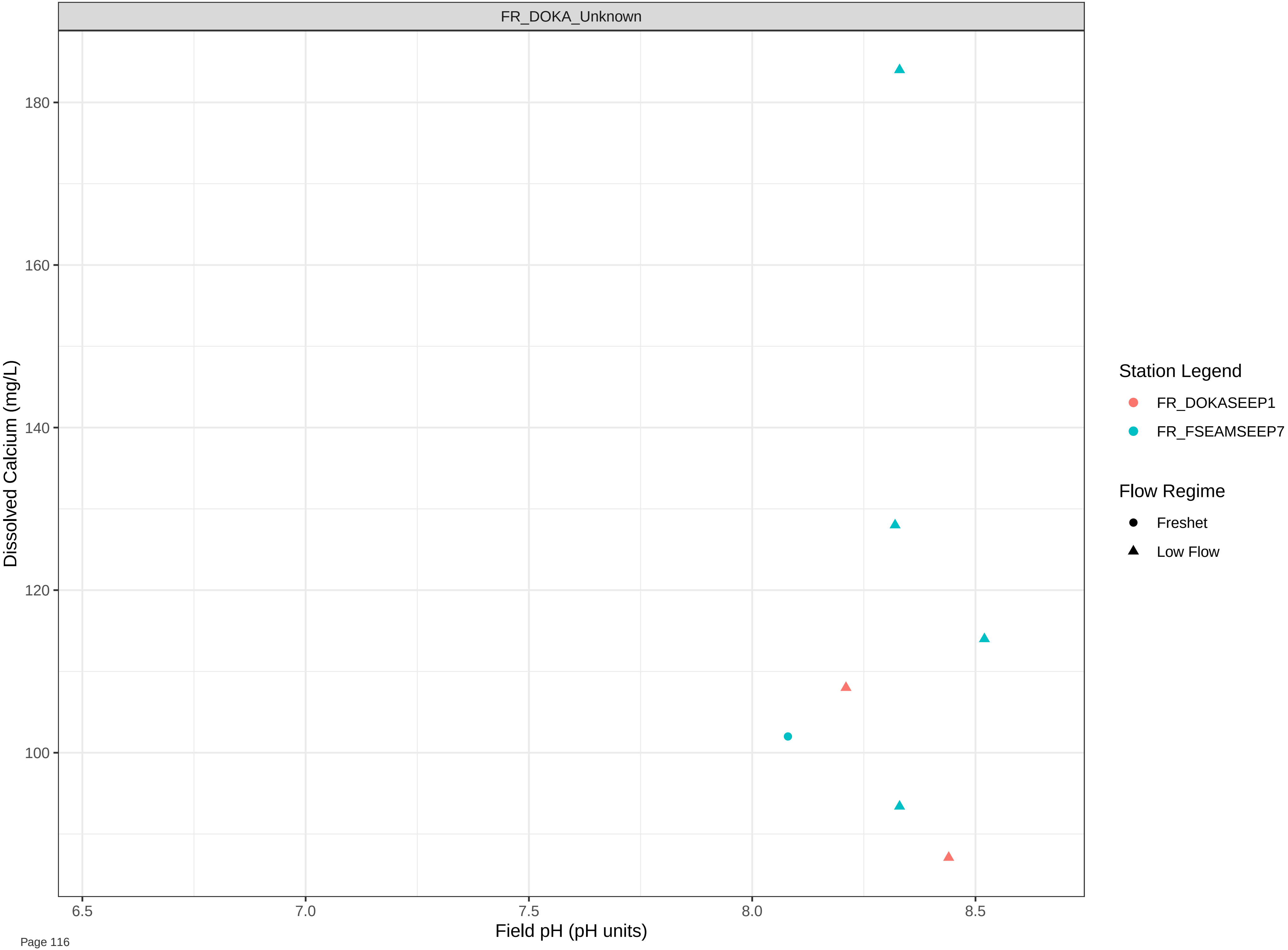

FR_TurnbullWREast_WR
Dissolved Cadmium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
0e+00
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

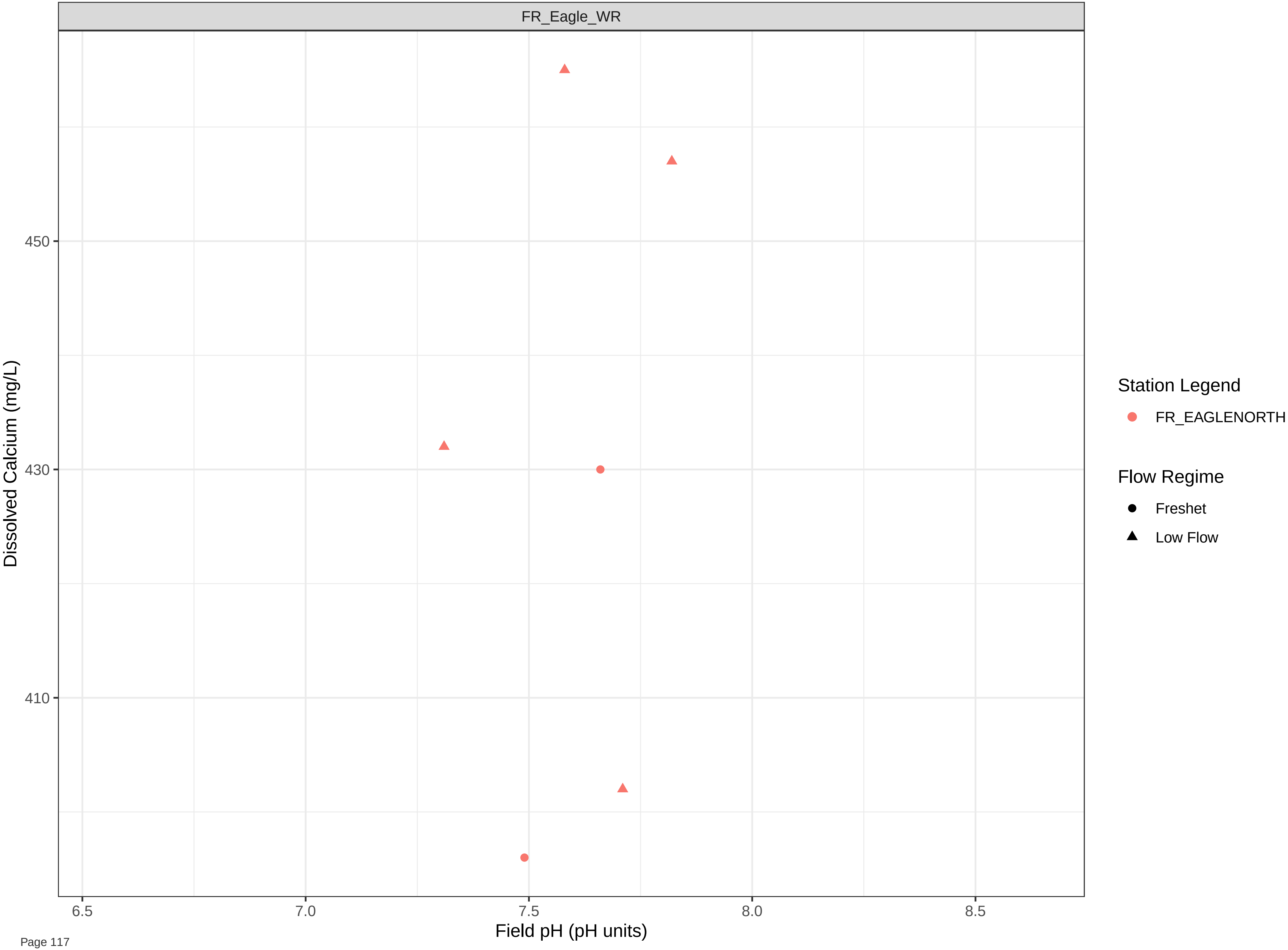

FR_TurnbullWRWest_WR
Dissolved Cadmium (mg/L)
1.0e−04
7.5e−05
5.0e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

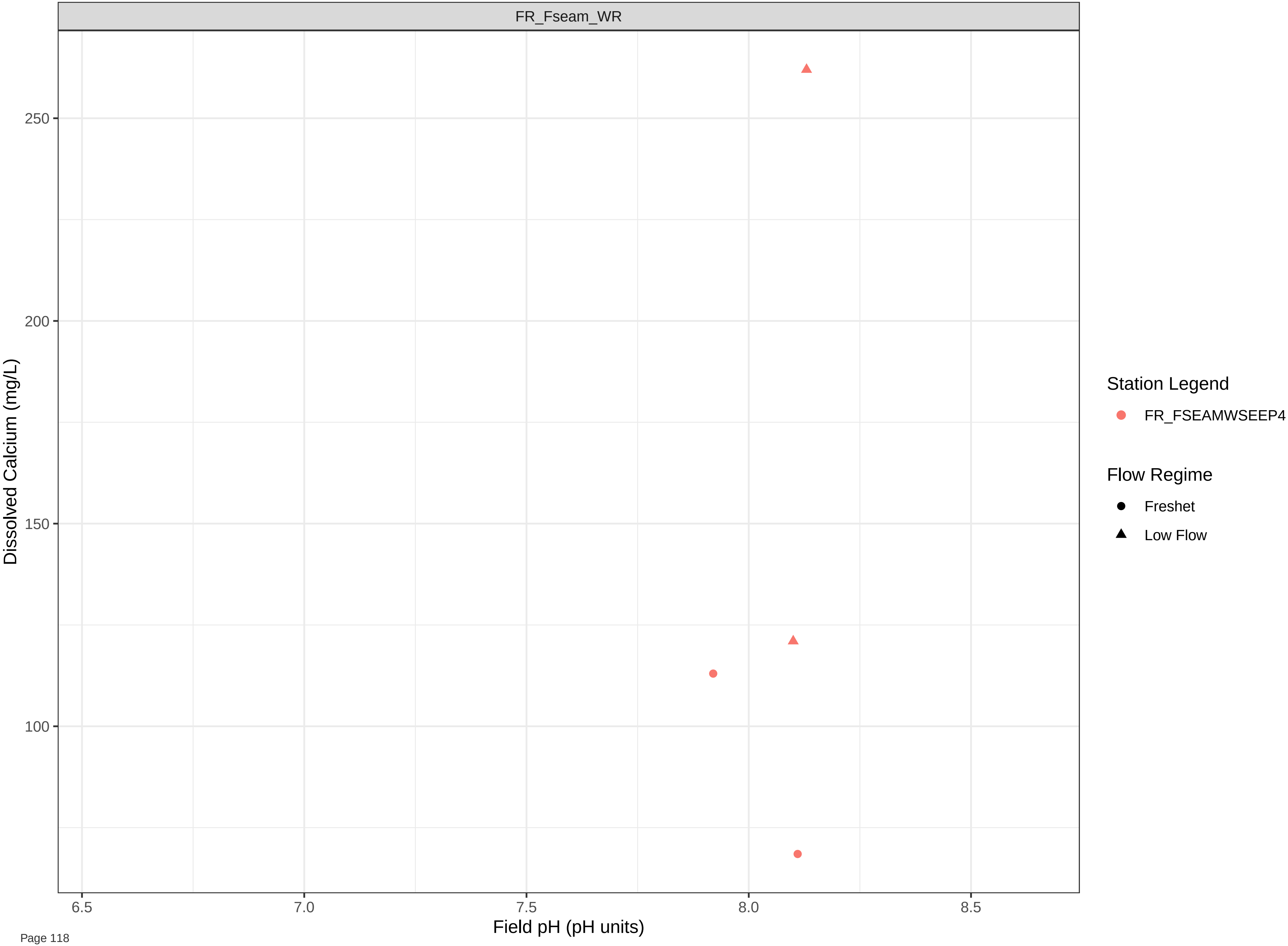

FR_A_WR
Dissolved Calcium (mg/L)
210
180
150
120
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

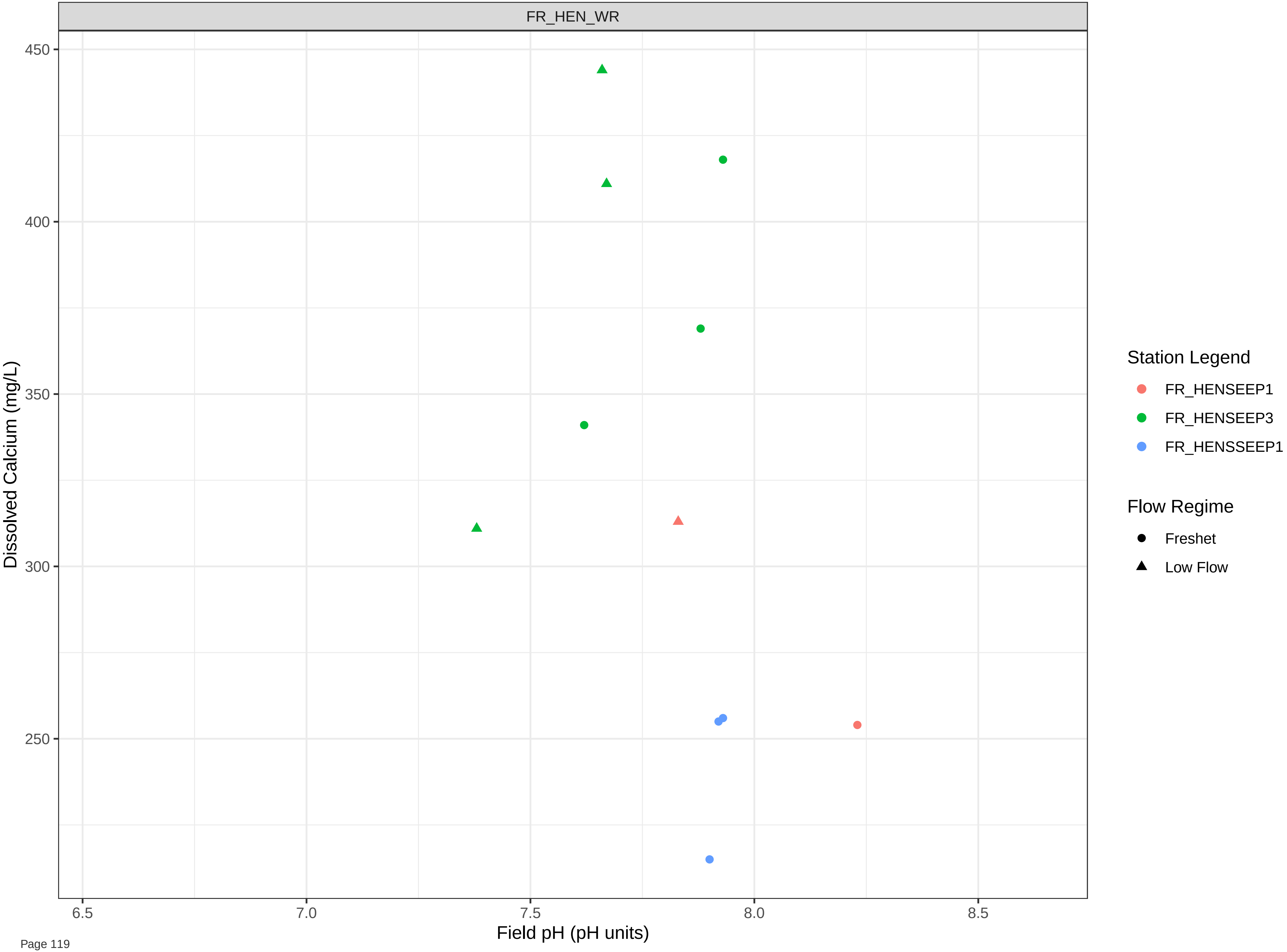

FR_Blain_CCR
Dissolved Calcium (mg/L)
400
300
200
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

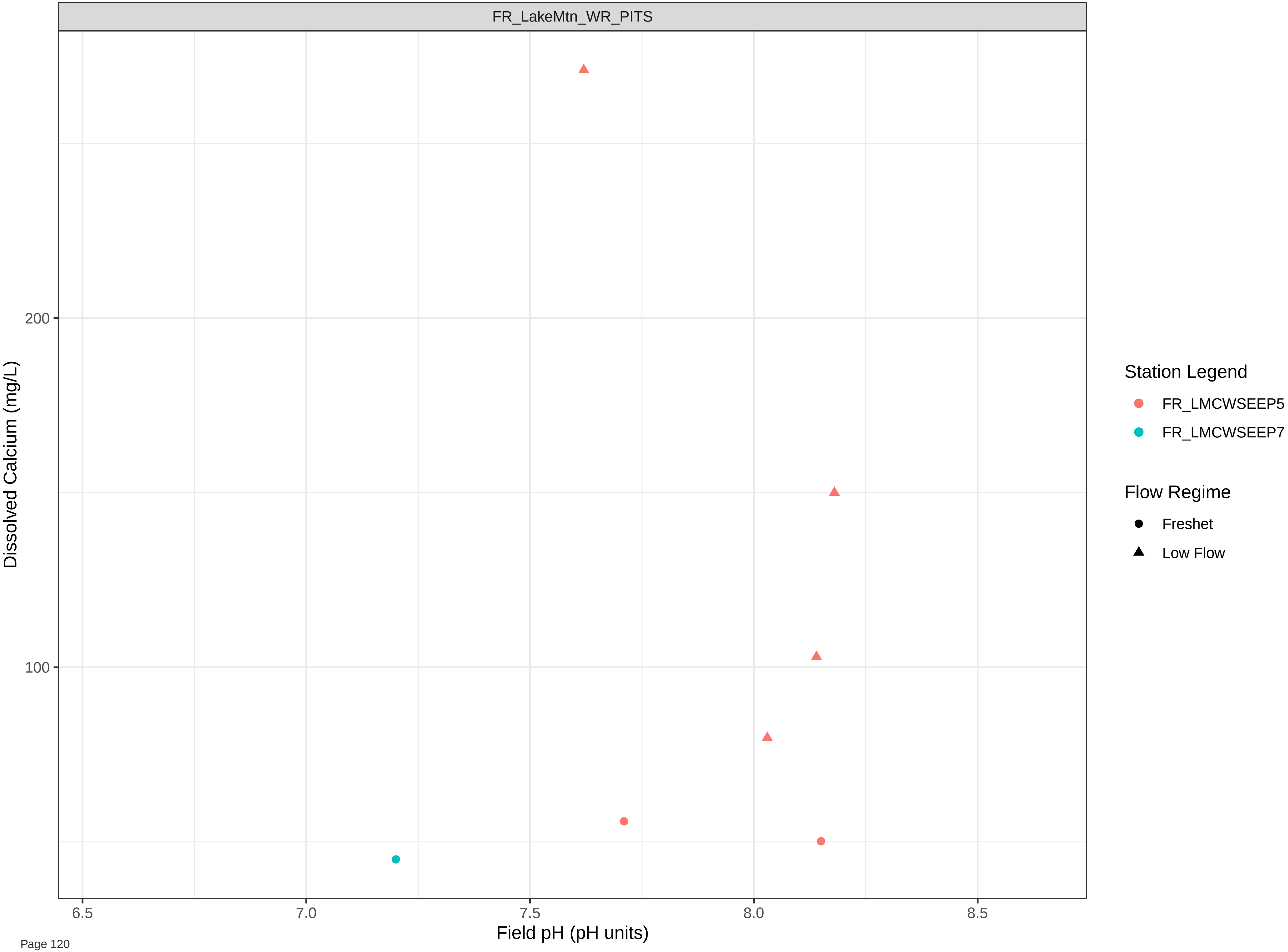

FR_ClodeCr_WR
Dissolved Calcium (mg/L)
350
300
250
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

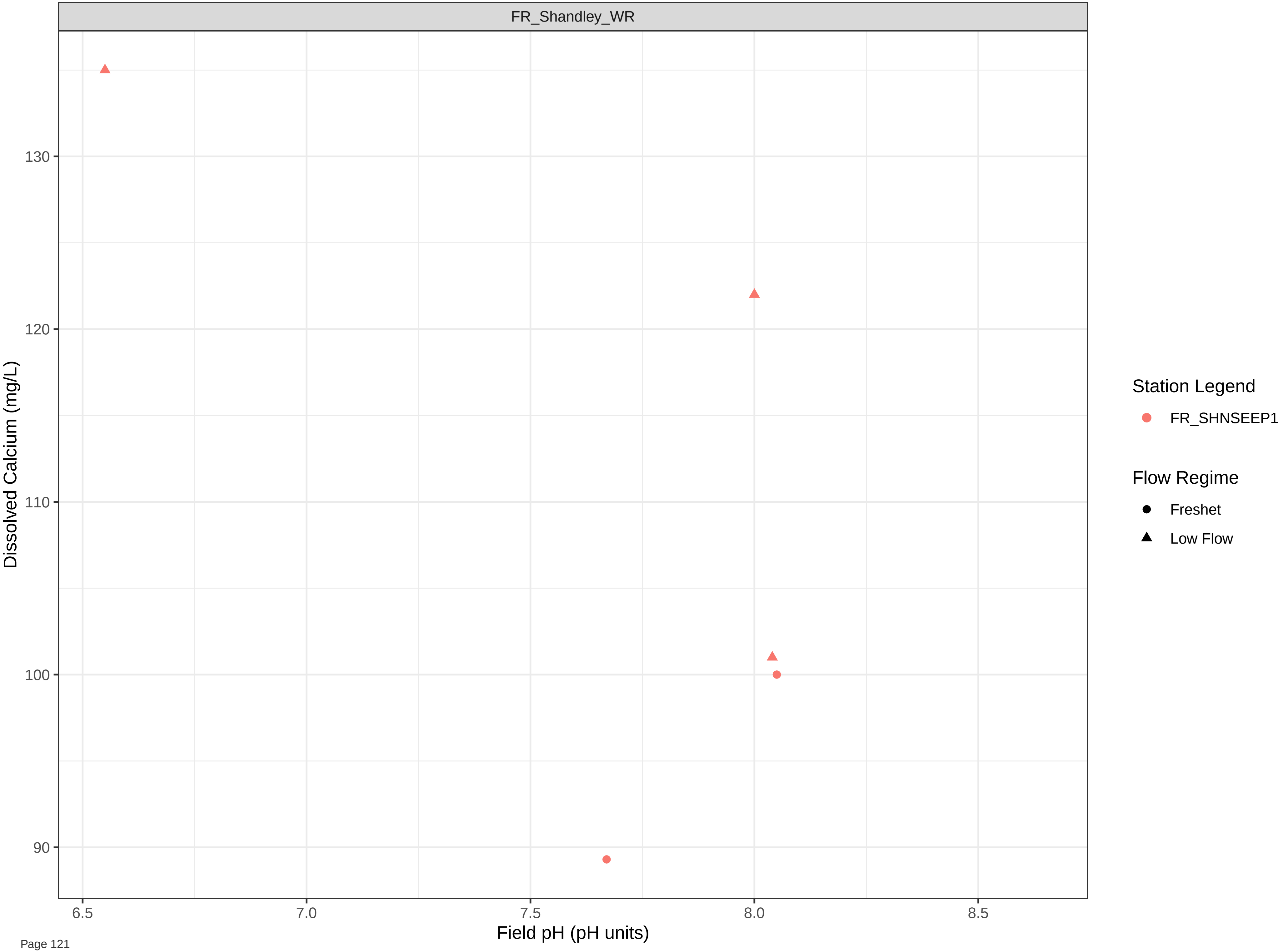

FR_DOKA_Unknown
Dissolved Calcium (mg/L)
180
160
140
120
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow

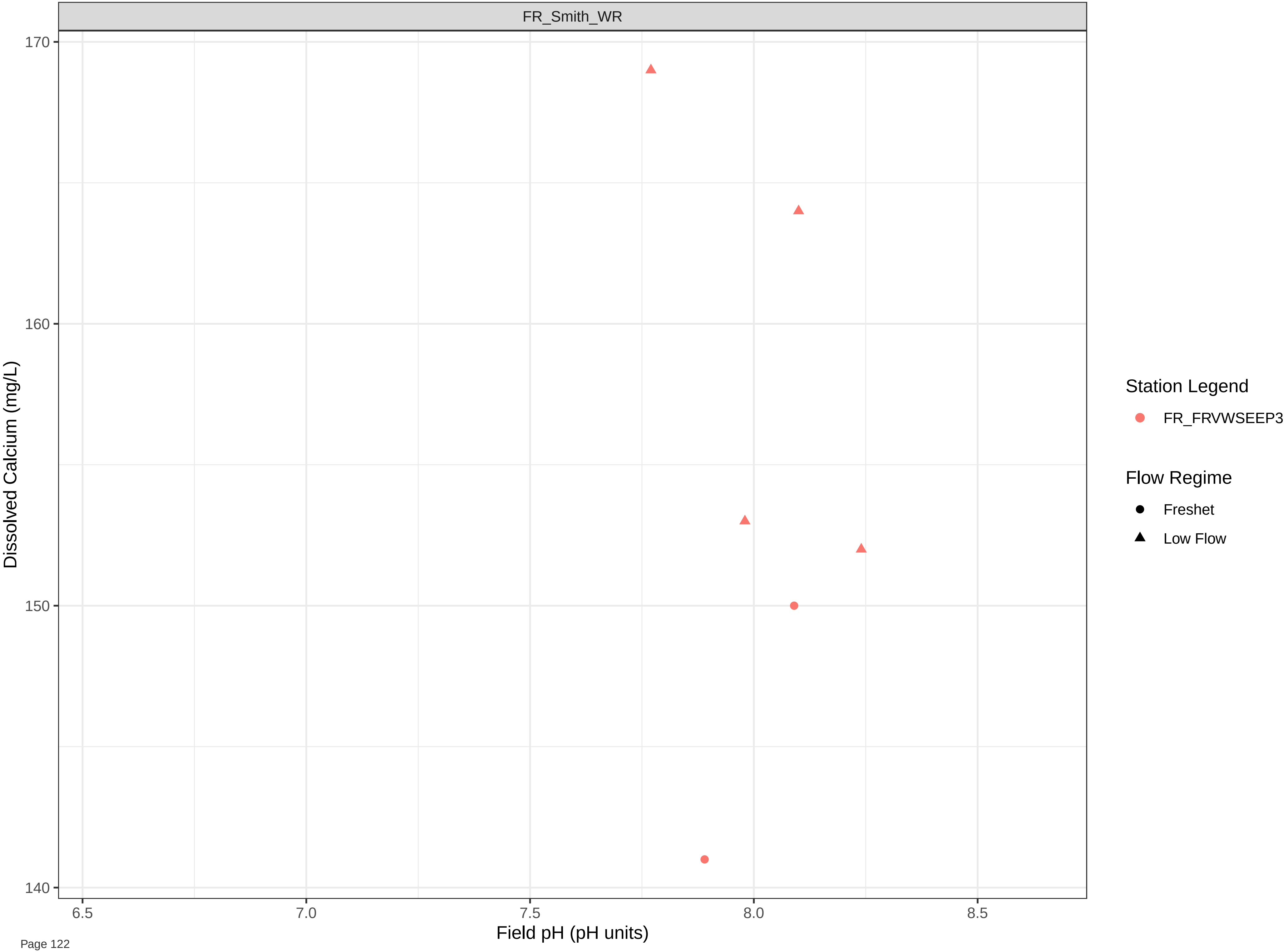

FR_Eagle_WR
Dissolved Calcium (mg/L)
450
430
410
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

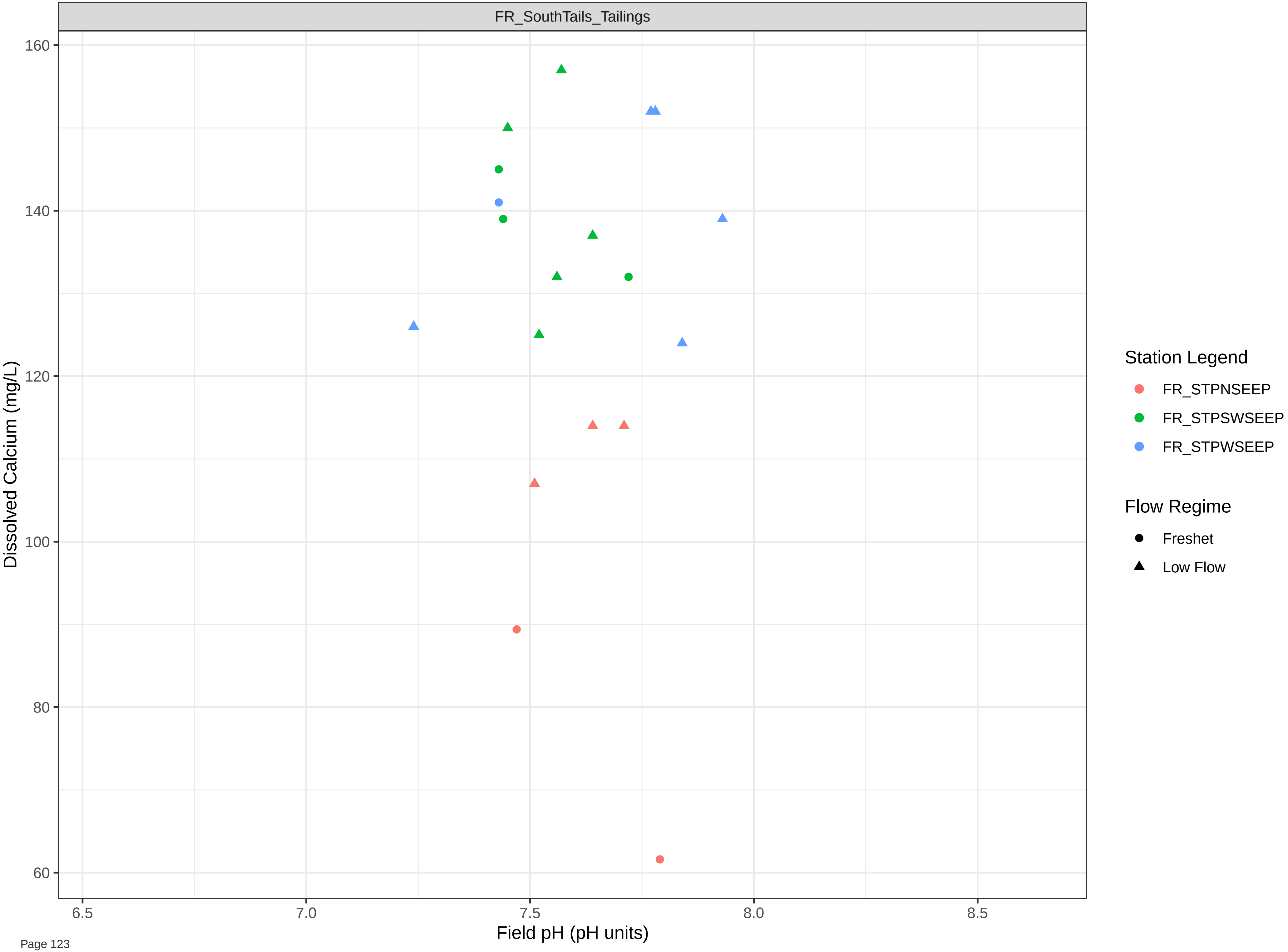

FR_Fseam_WR
Dissolved Calcium (mg/L)
250
200
150
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

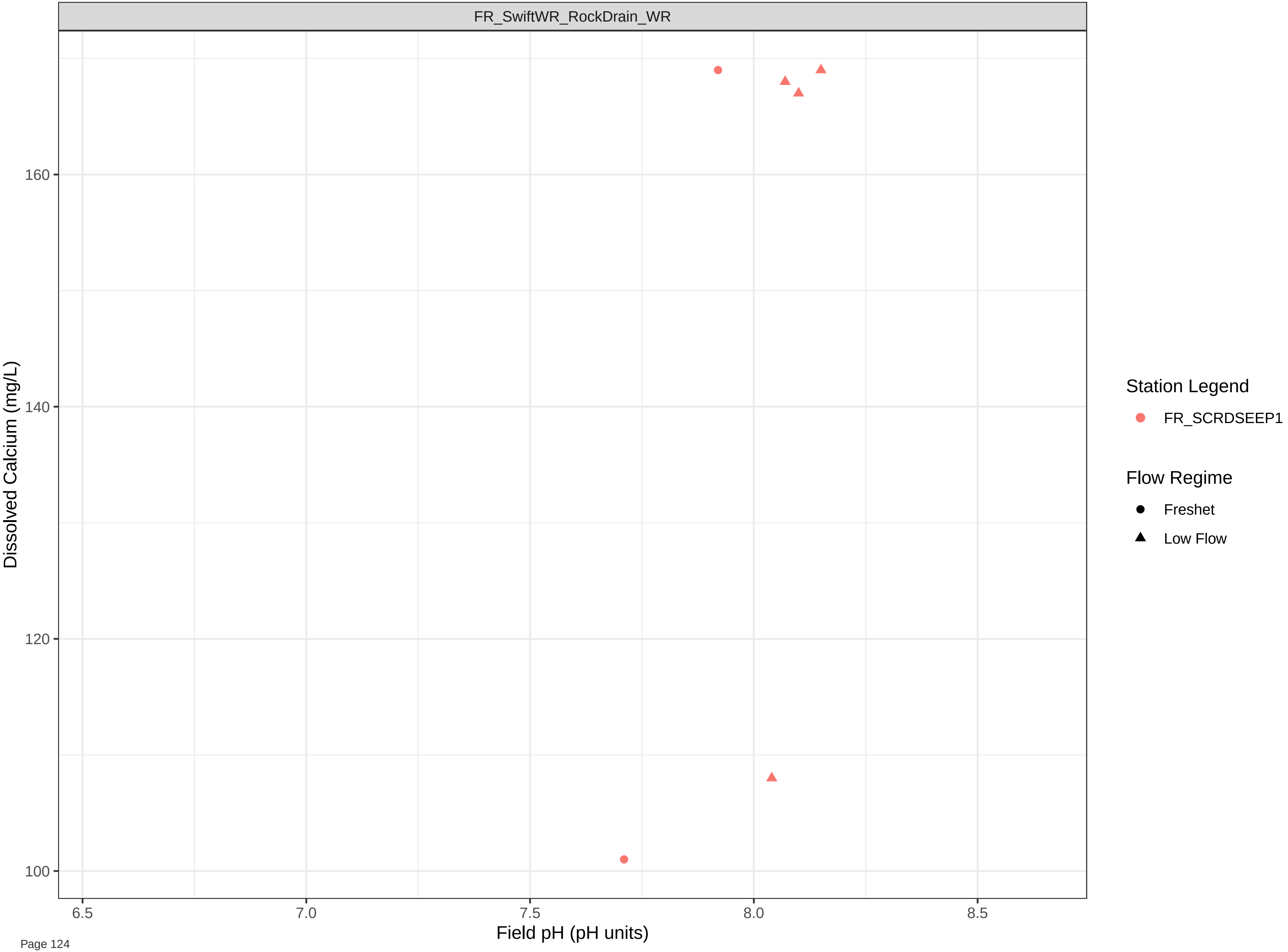

FR_HEN_WR
Dissolved Calcium (mg/L)
450
400
350
300
250
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

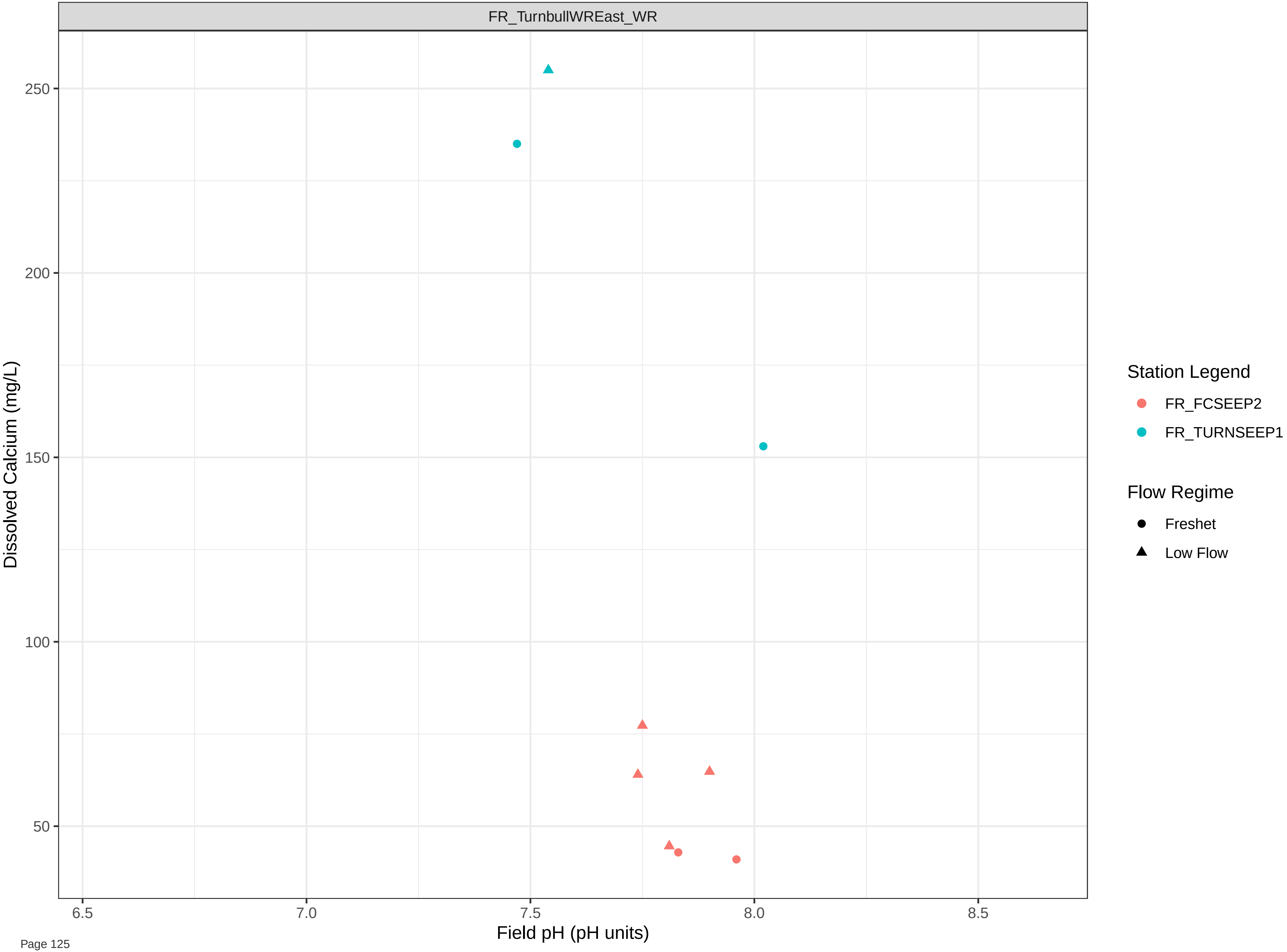

FR_LakeMtn_WR_PITS
Dissolved Calcium (mg/L)
200
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

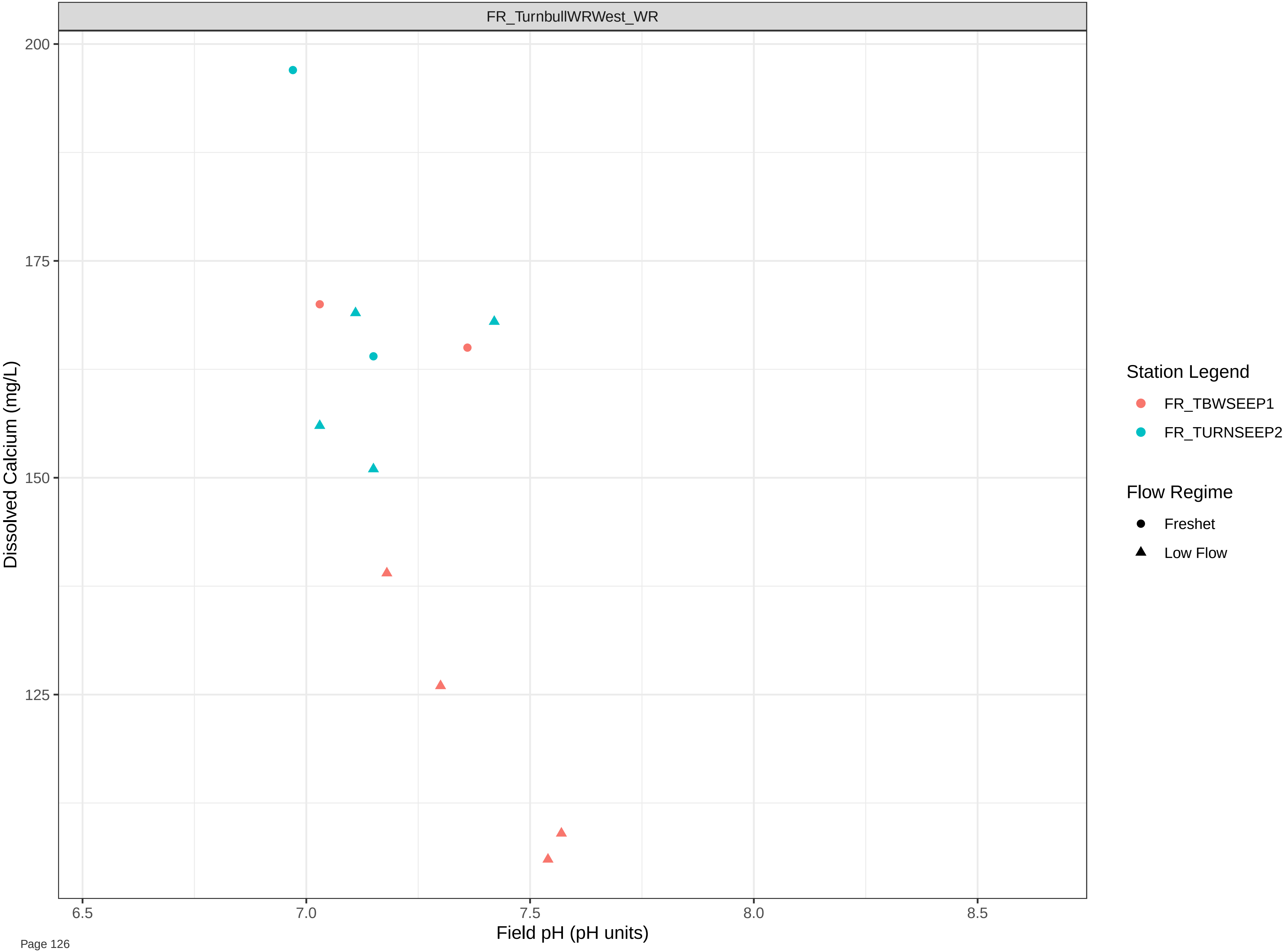

FR_Shandley_WR
Dissolved Calcium (mg/L)
130
120
110
100
90
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

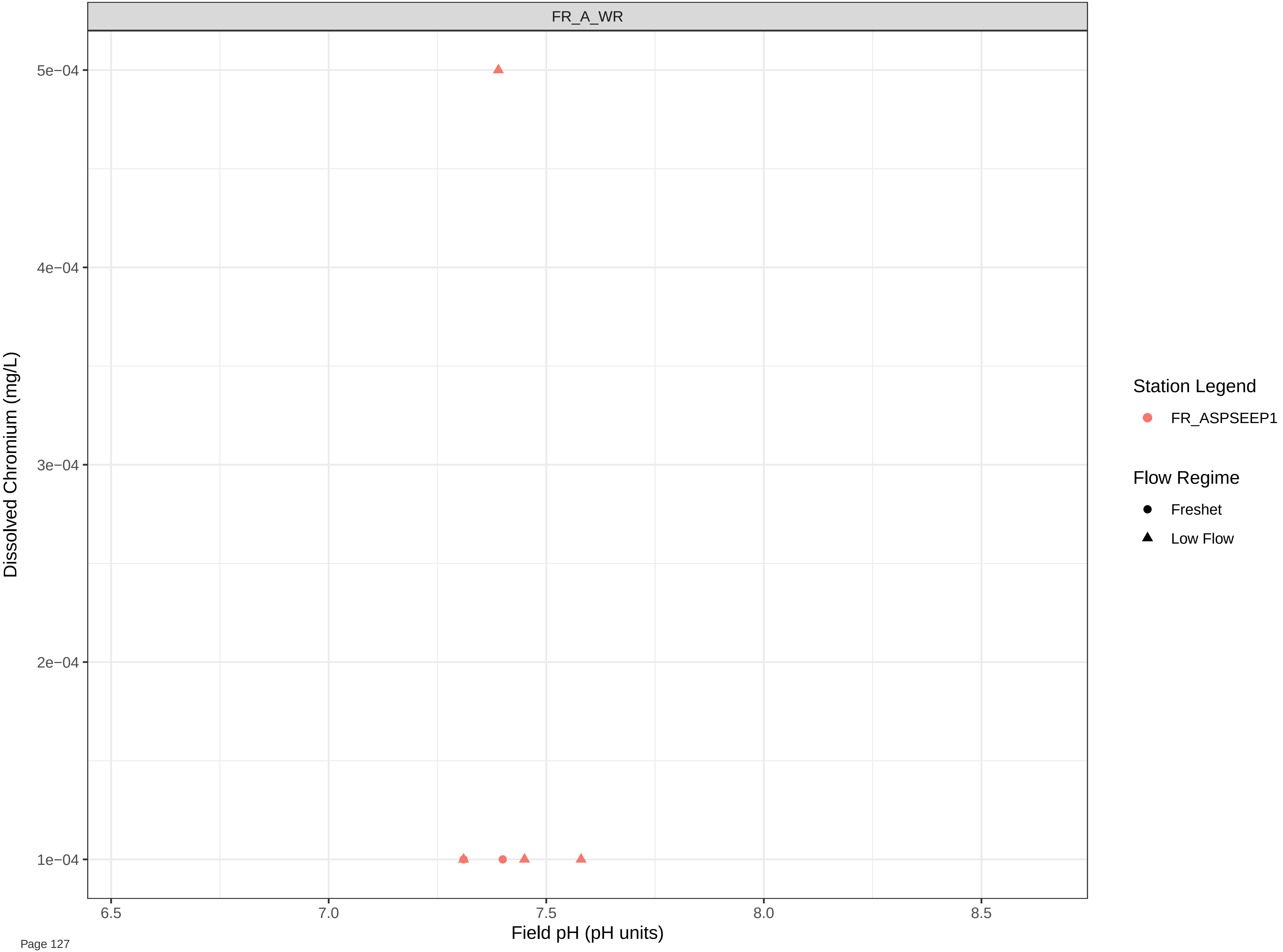

FR_Smith_WR
Dissolved Calcium (mg/L)
170
160
150
140
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

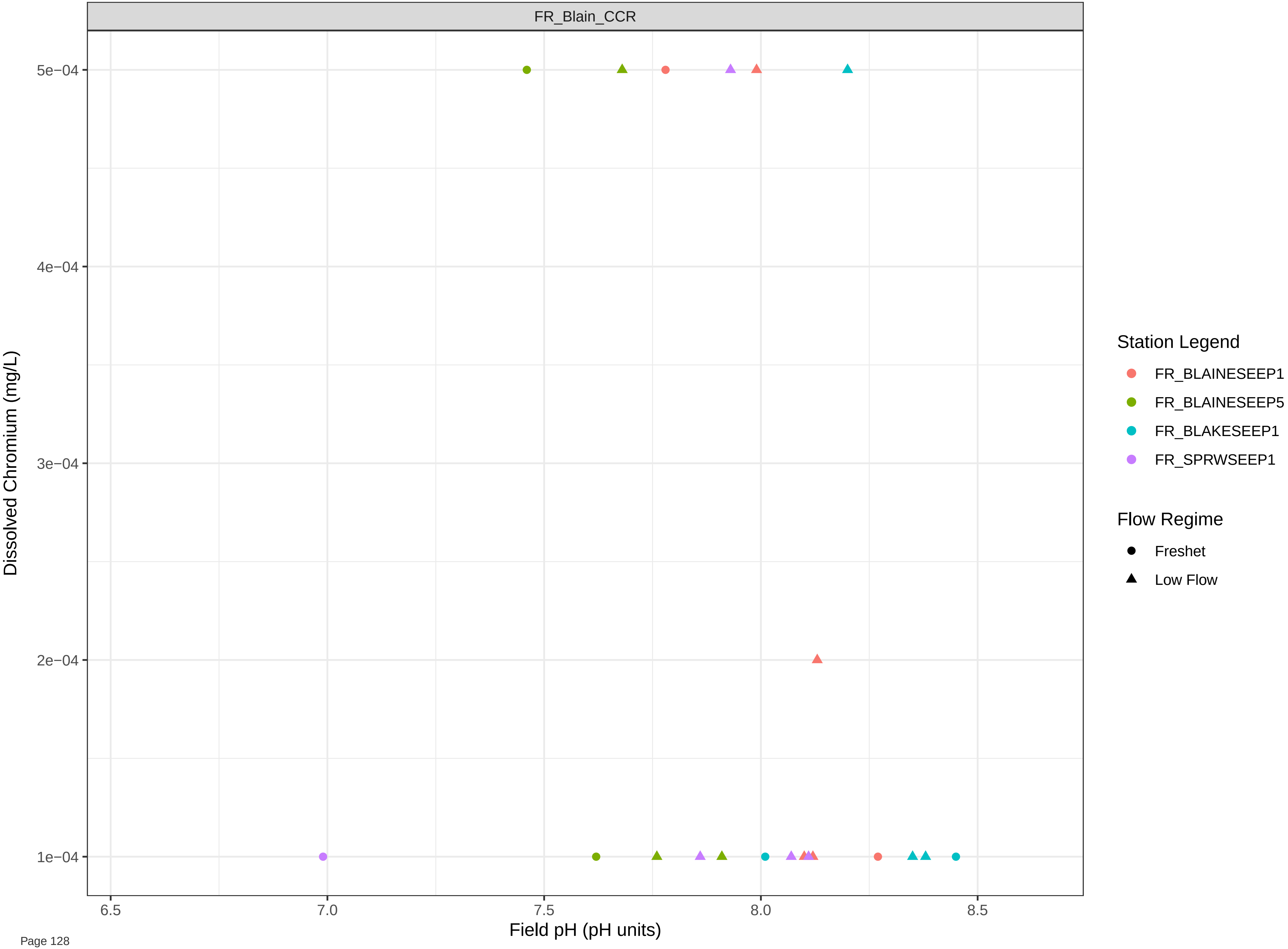

FR_SouthTails_Tailings
Dissolved Calcium (mg/L)
160
140
120
100
80
60
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

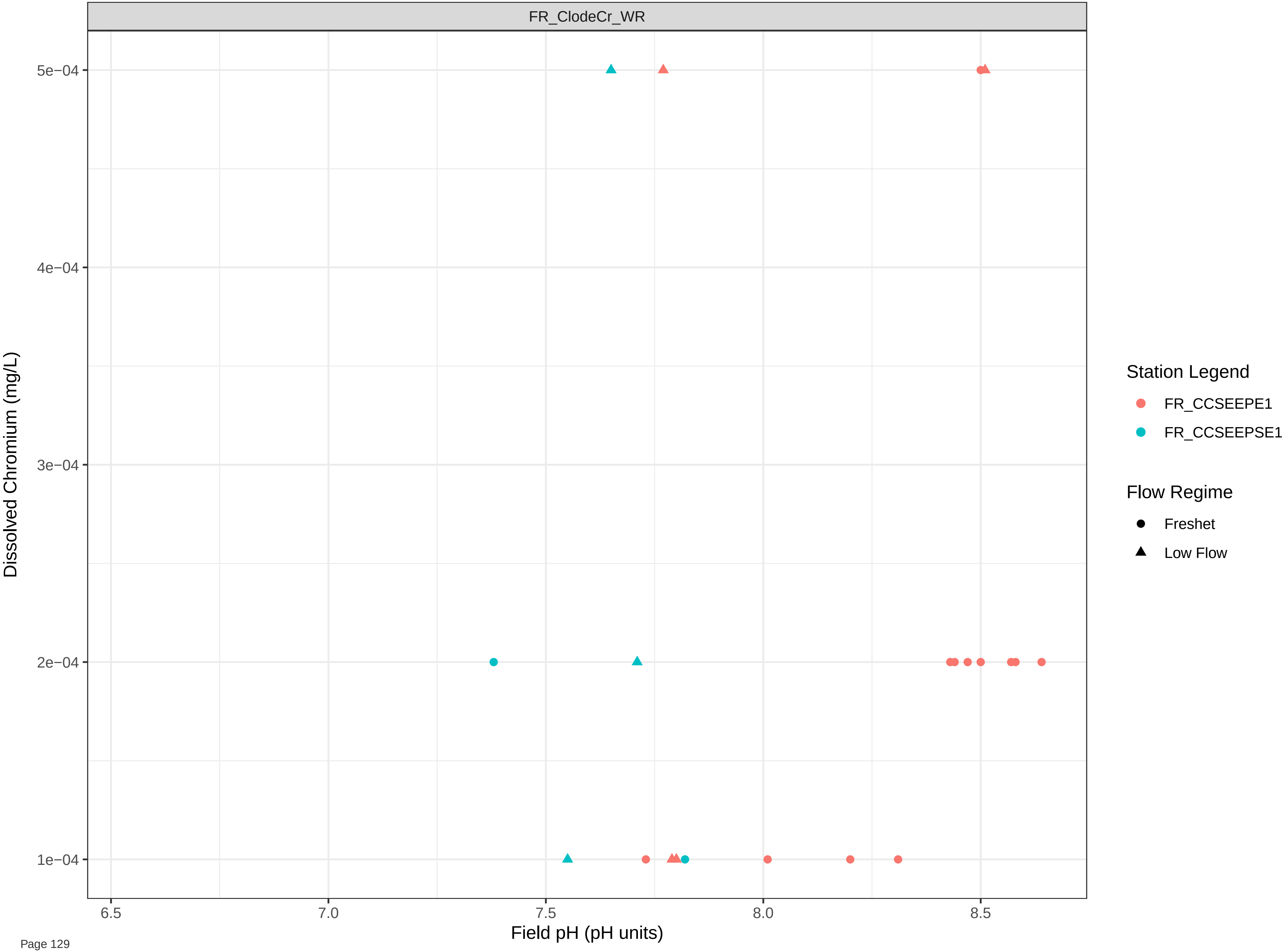

FR_SwiftWR_RockDrain_WR
Dissolved Calcium (mg/L)
160
140
120
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

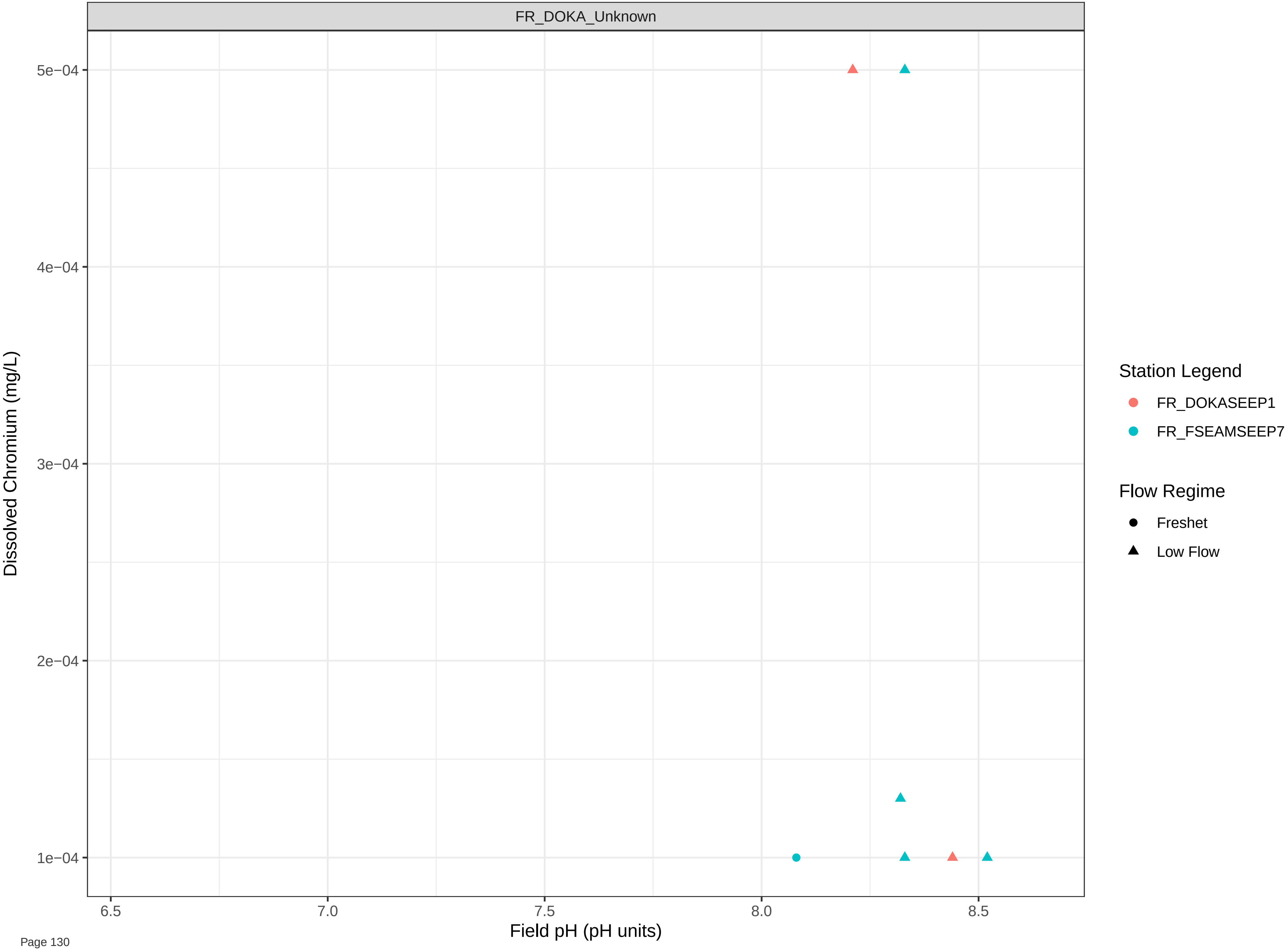

FR_TurnbullWREast_WR
Dissolved Calcium (mg/L)
250
200
150
100
50
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FCSEEP2
● FR_TURNSEEP1
Flow Regime
● Freshet
▲ Low Flow

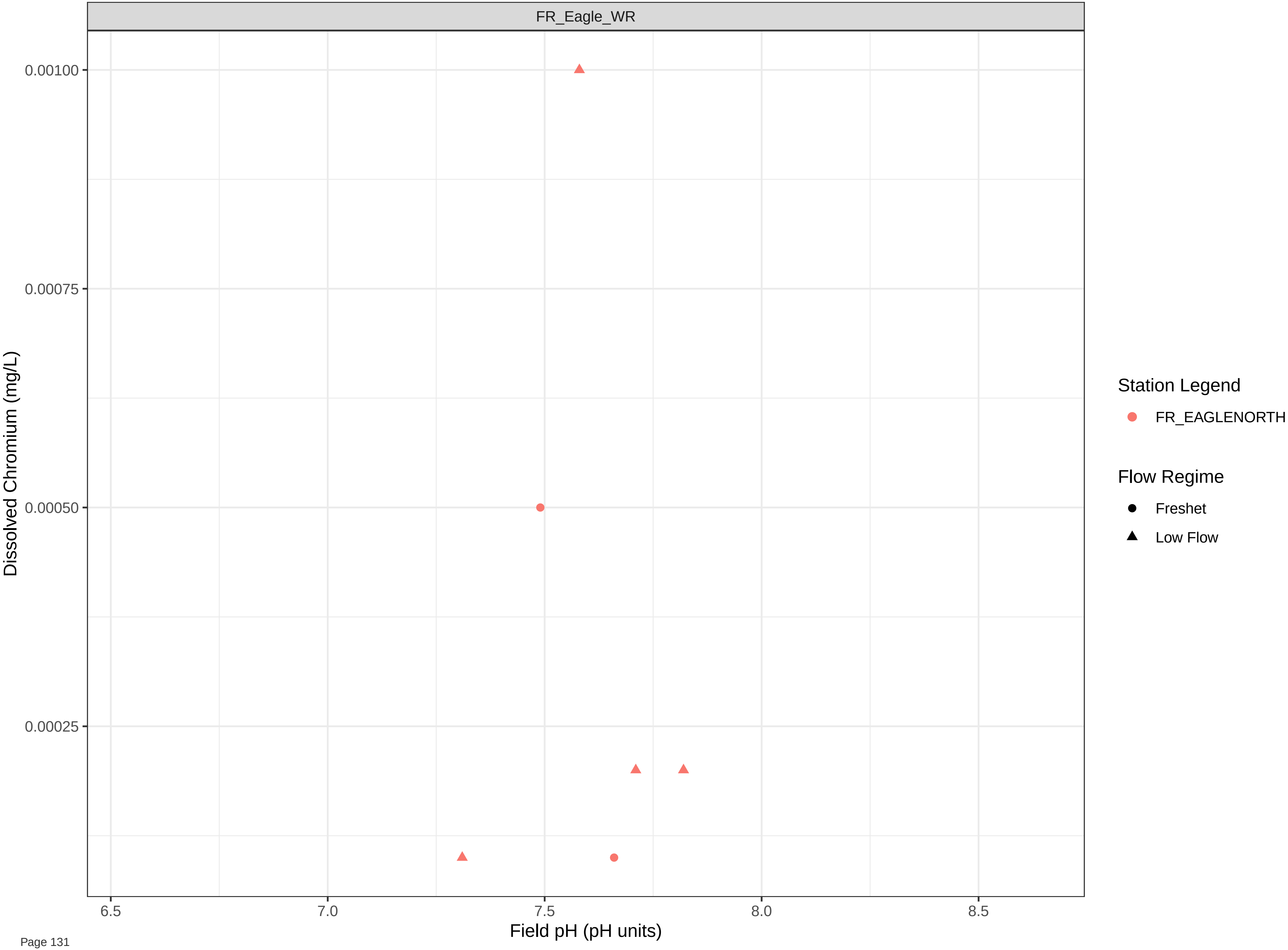

FR_TurnbullWRWest_WR
Dissolved Calcium (mg/L)
200
175
150
125
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

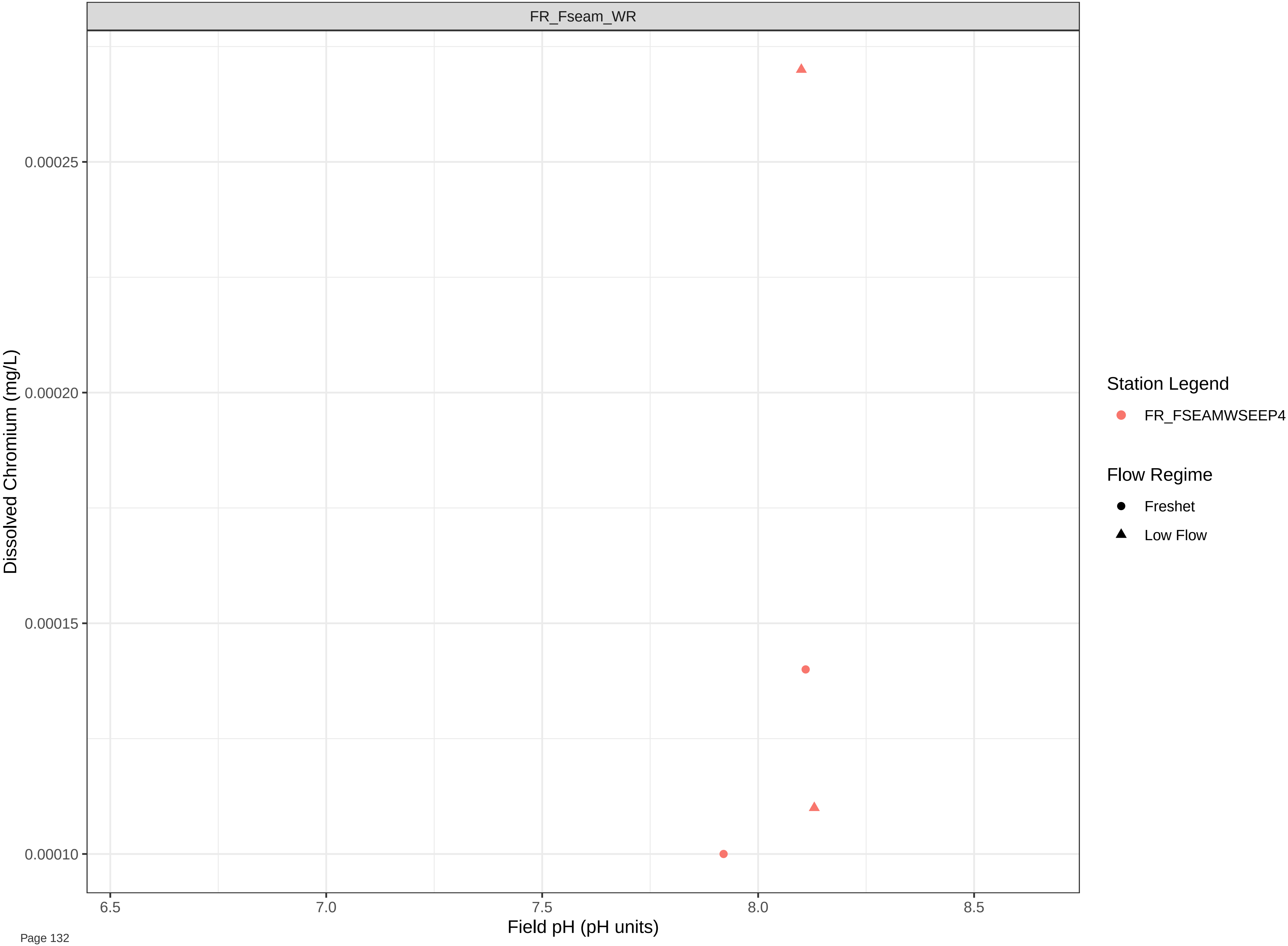

FR_A_WR
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

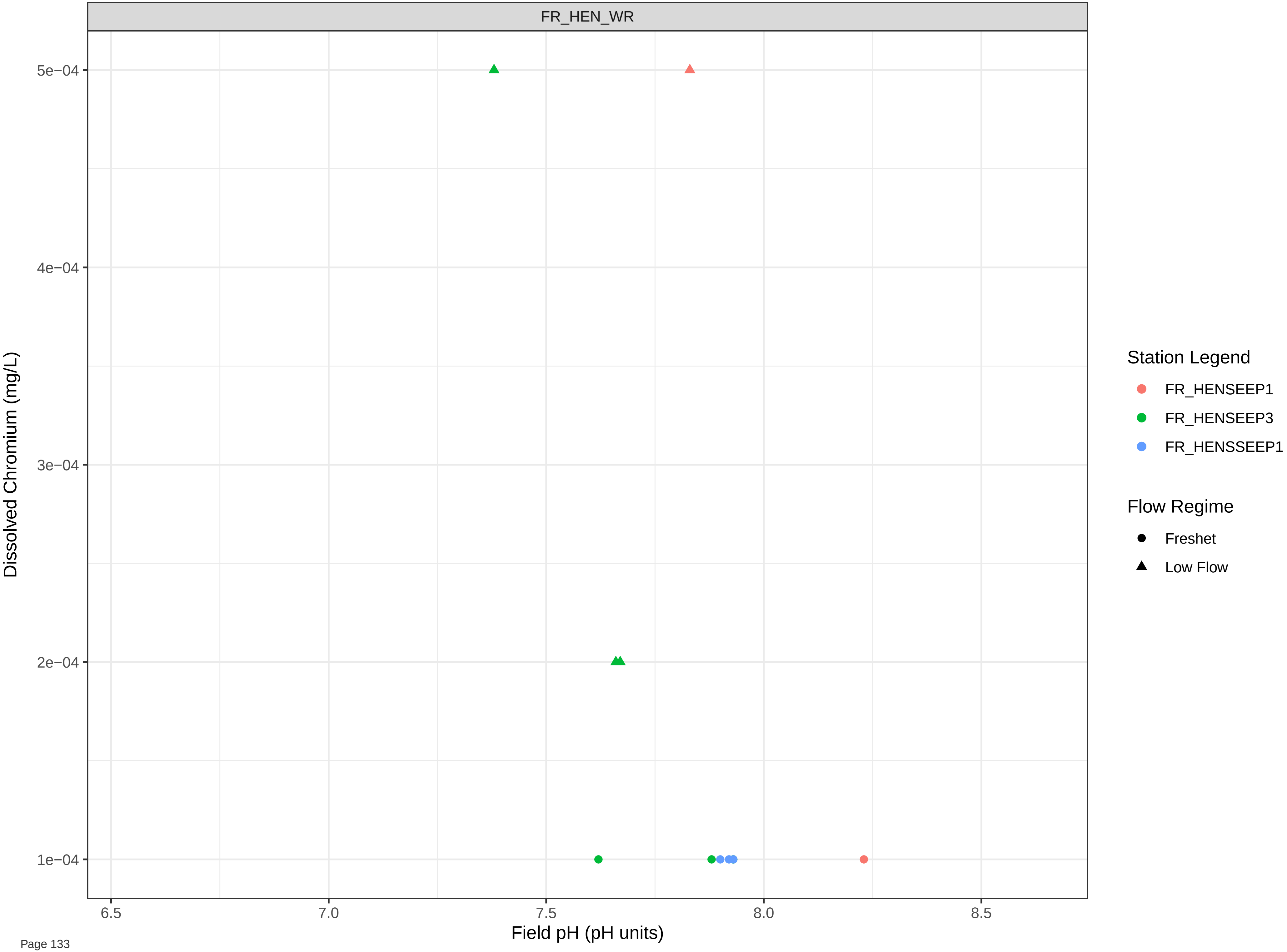

FR_Blain_CCR
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

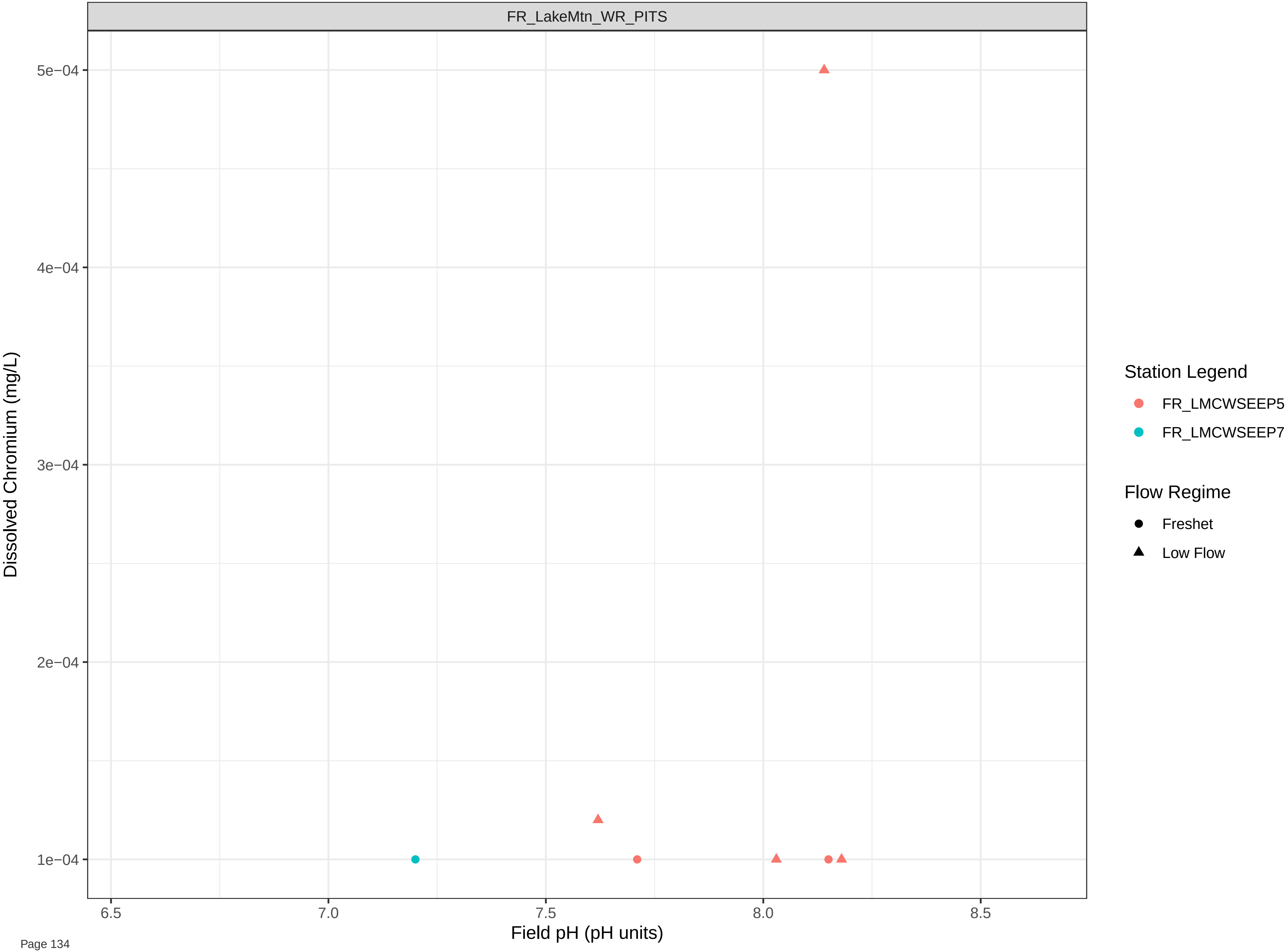

FR_ClodeCr_WR
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

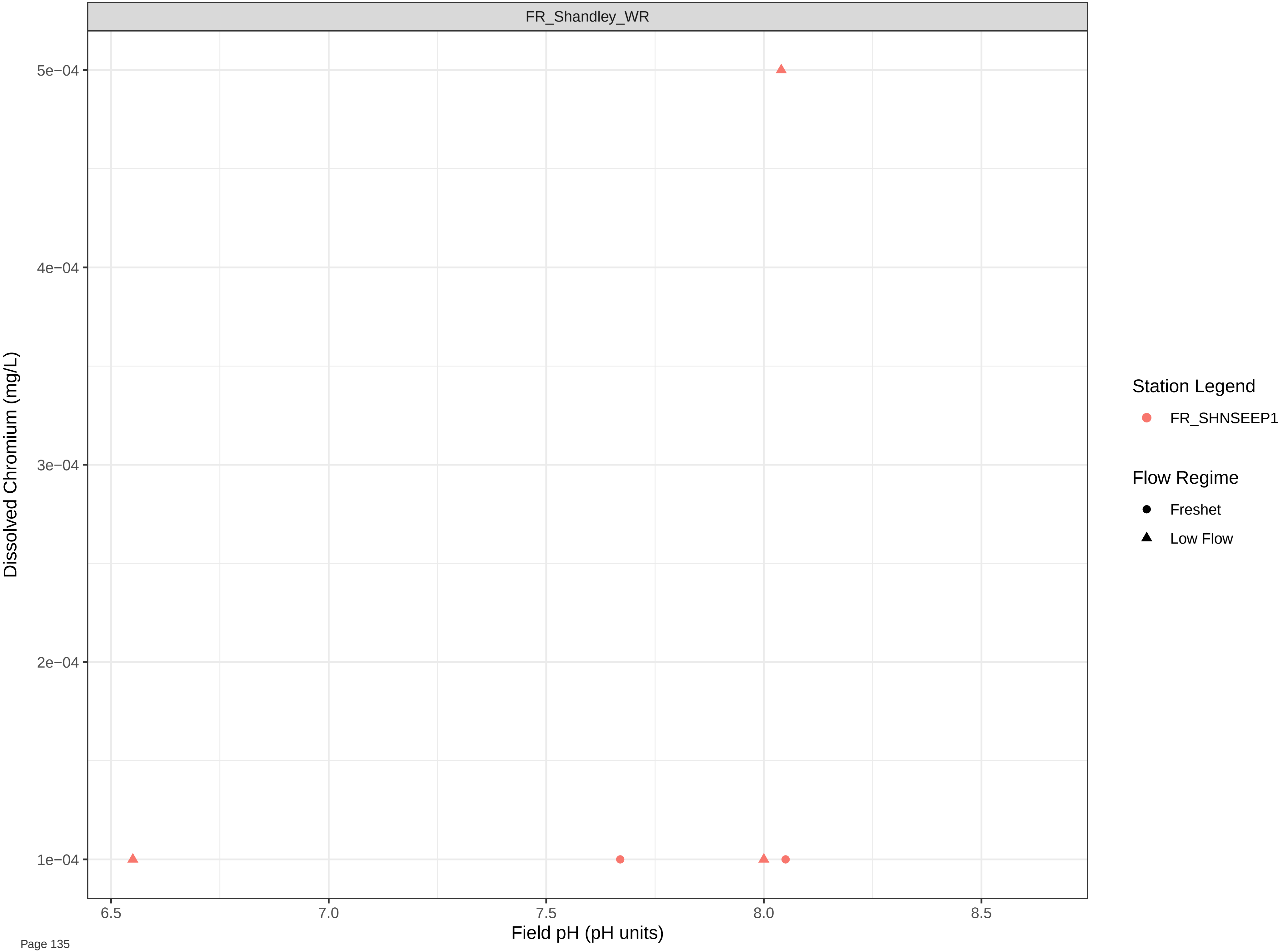

FR_DOKA_Unknown
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

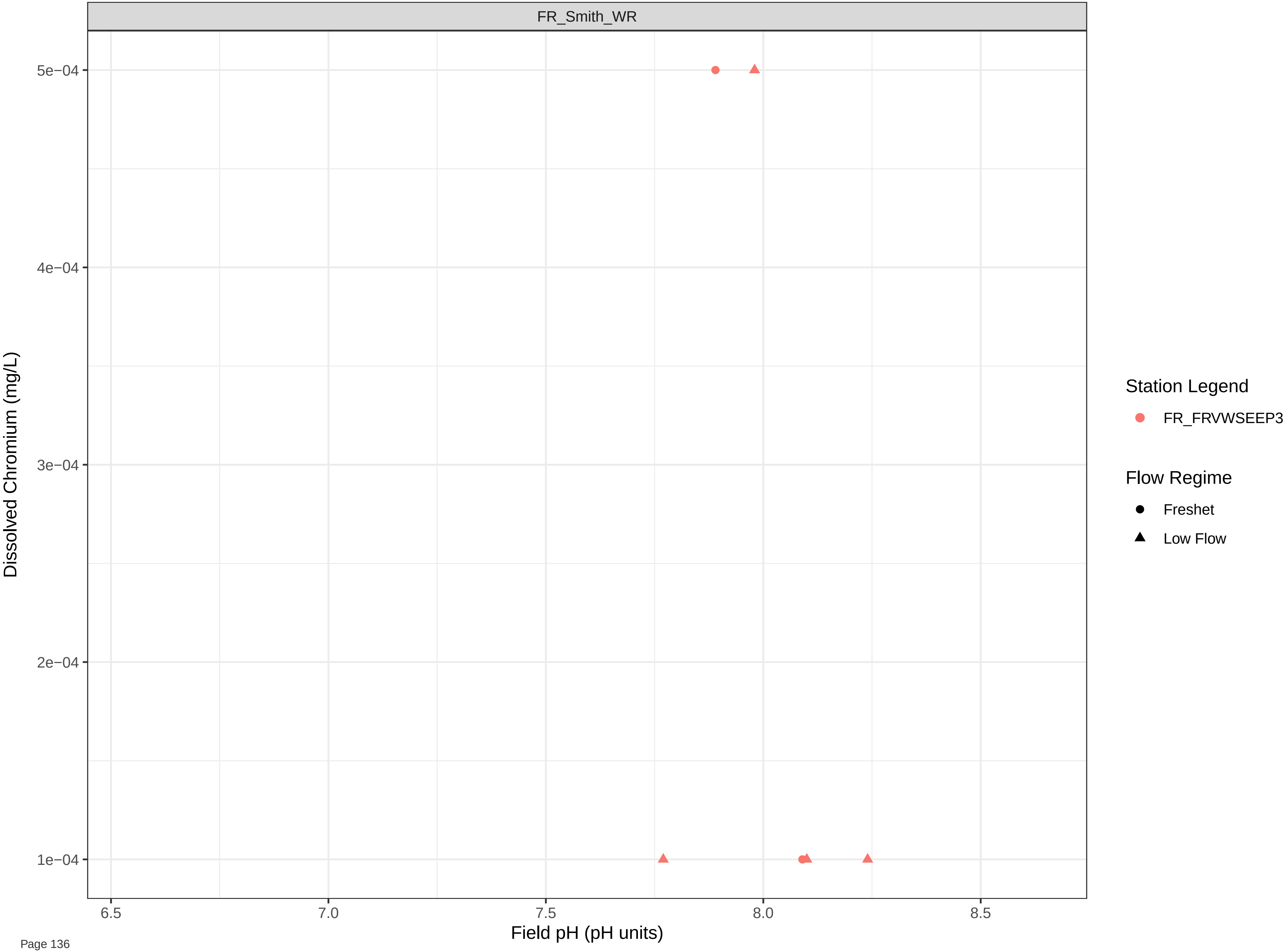

FR_Eagle_WR
Dissolved Chromium (mg/L)
0.00100
0.00075
0.00050
0.00025
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

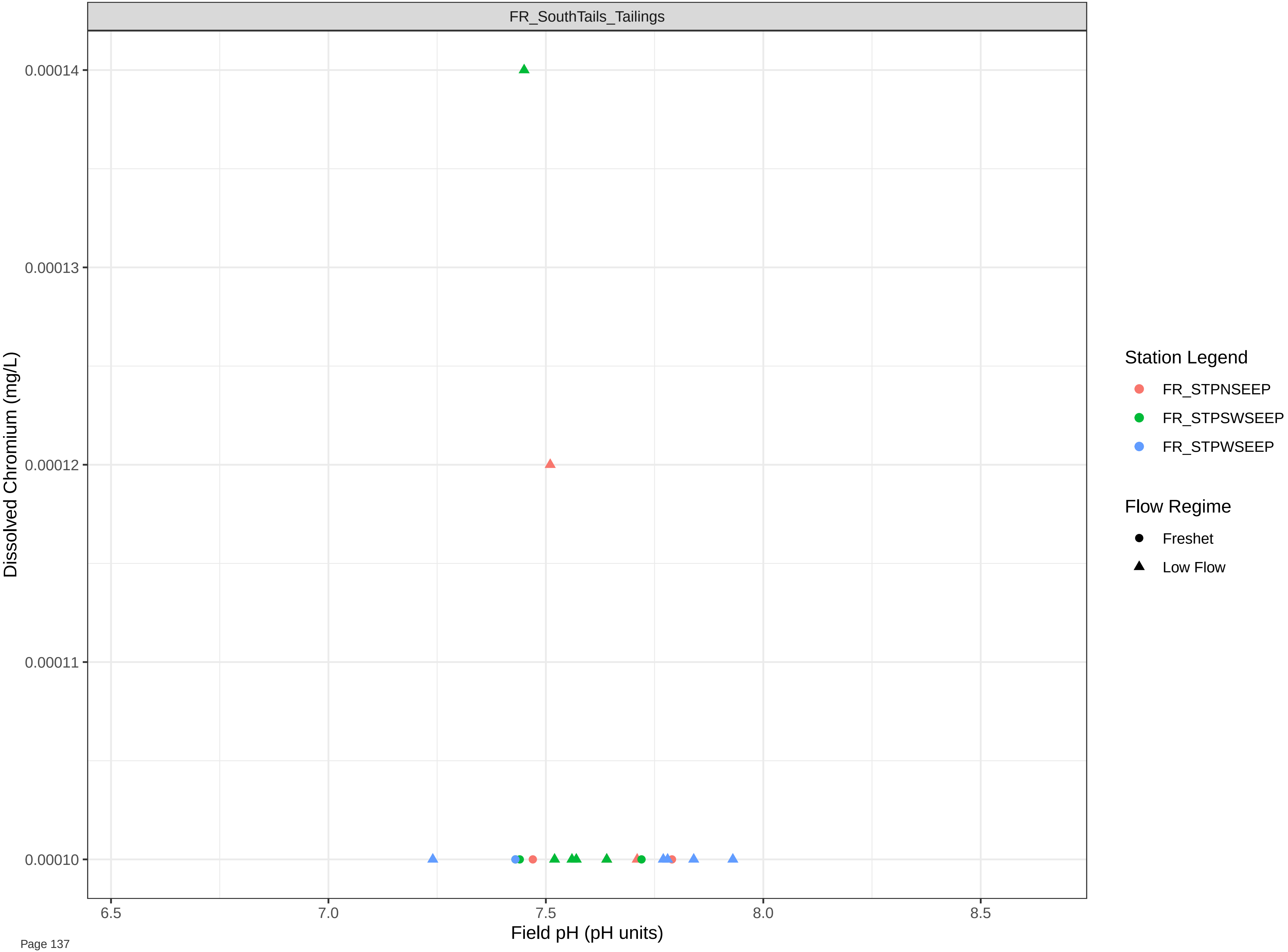

FR_Fseam_WR
Dissolved Chromium (mg/L)
0.00025
0.00020
0.00015
0.00010
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

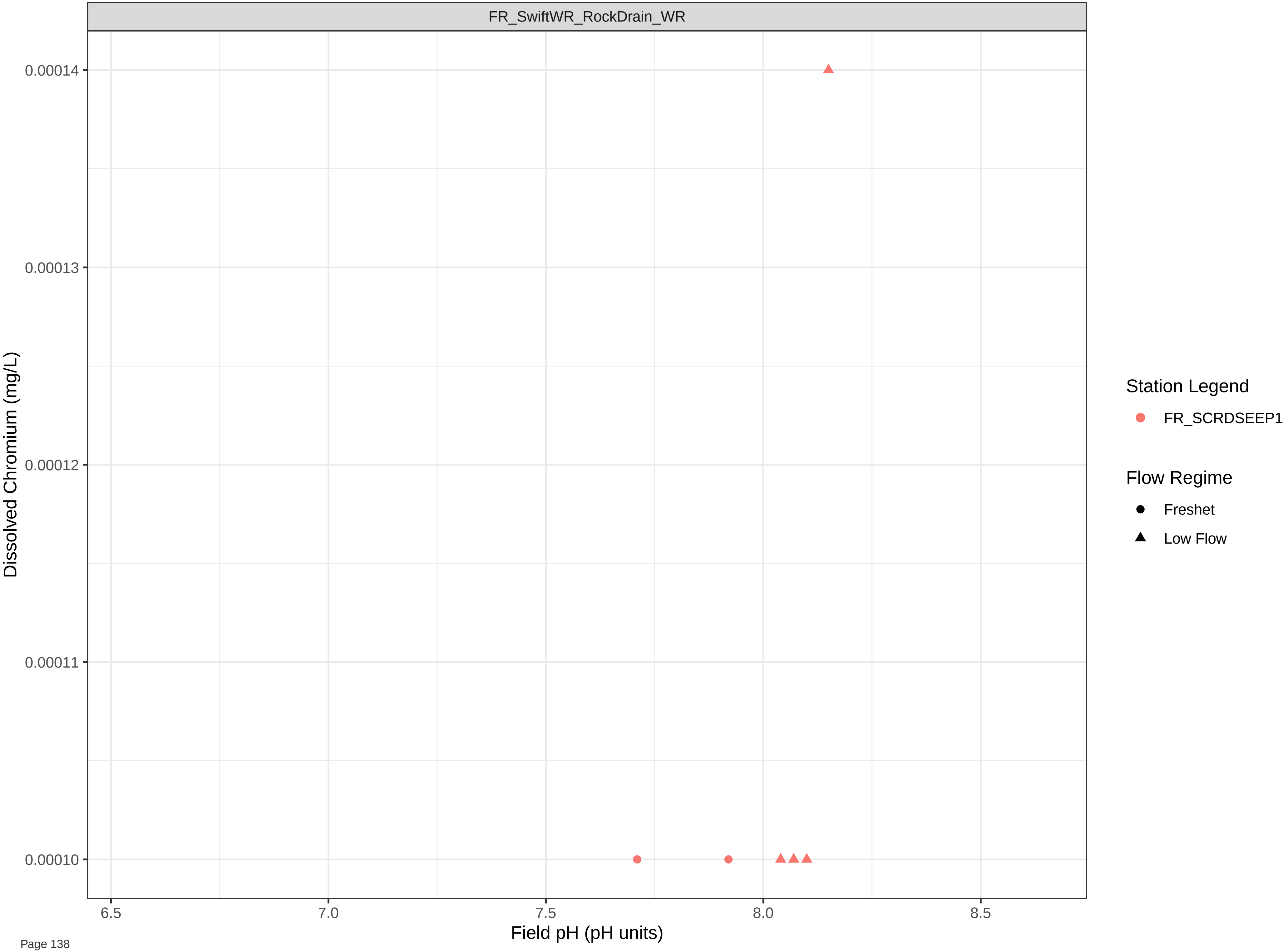

FR_HEN_WR
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

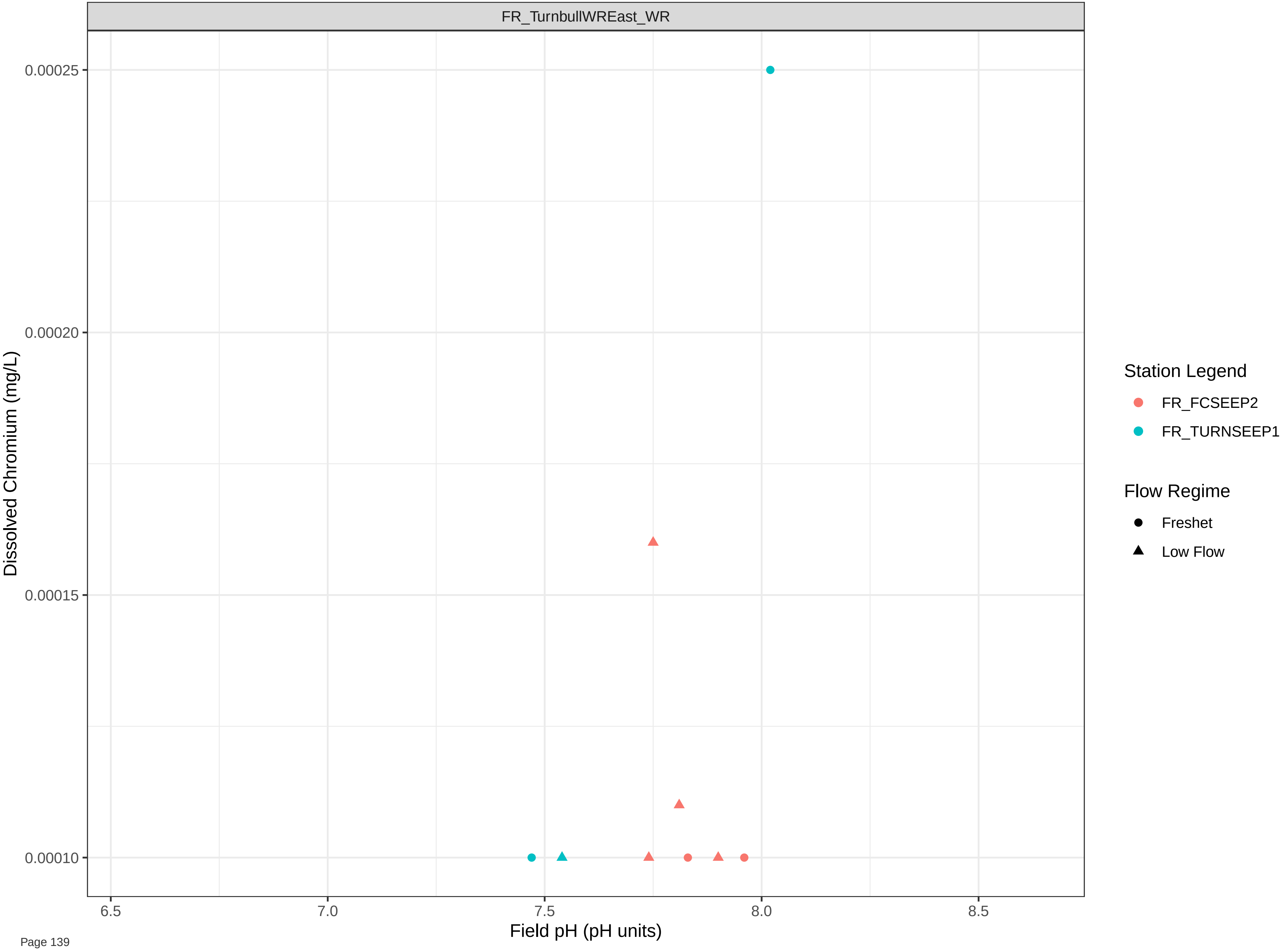

FR_LakeMtn_WR_PITS
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

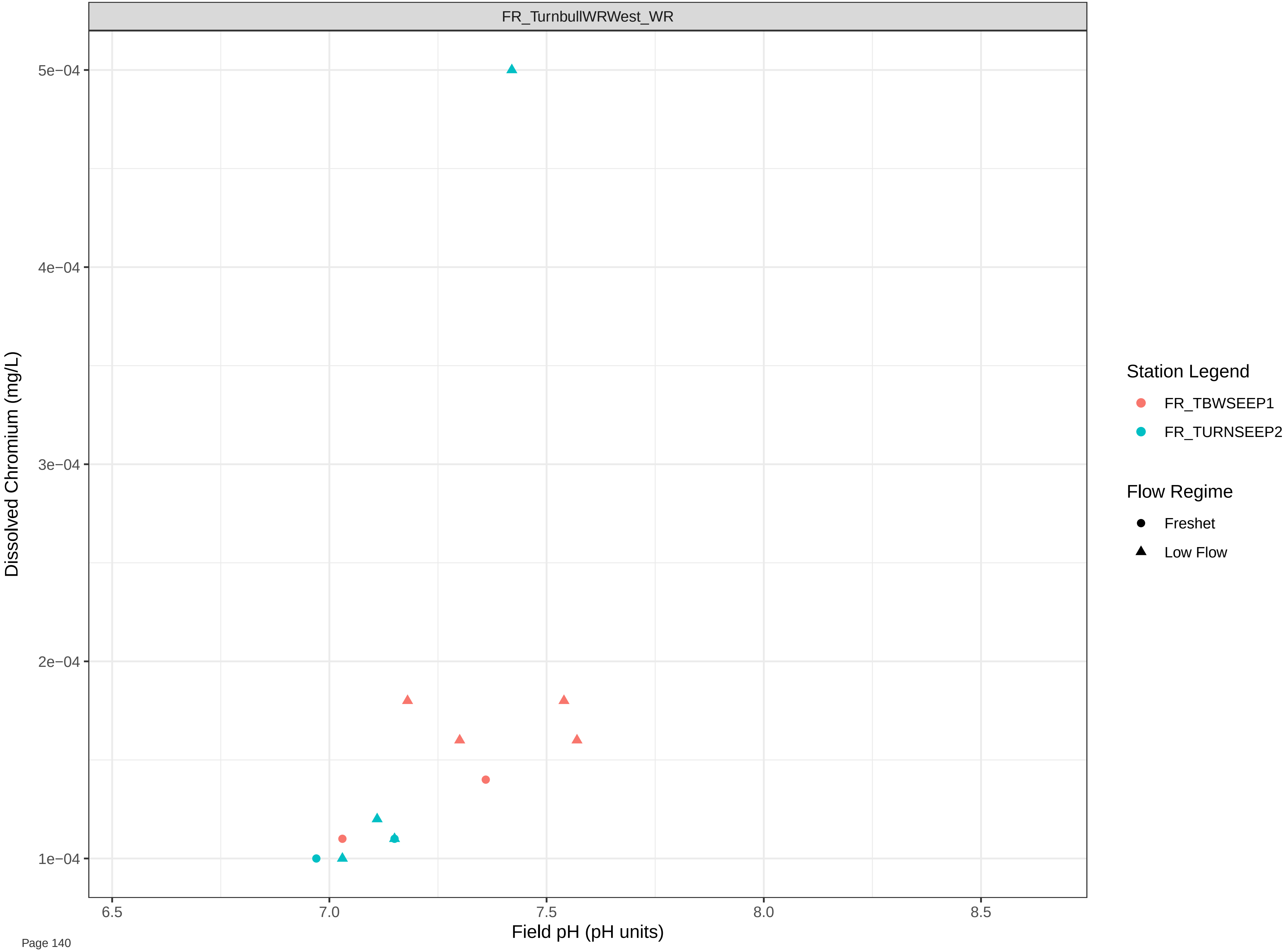

FR_Shandley_WR
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

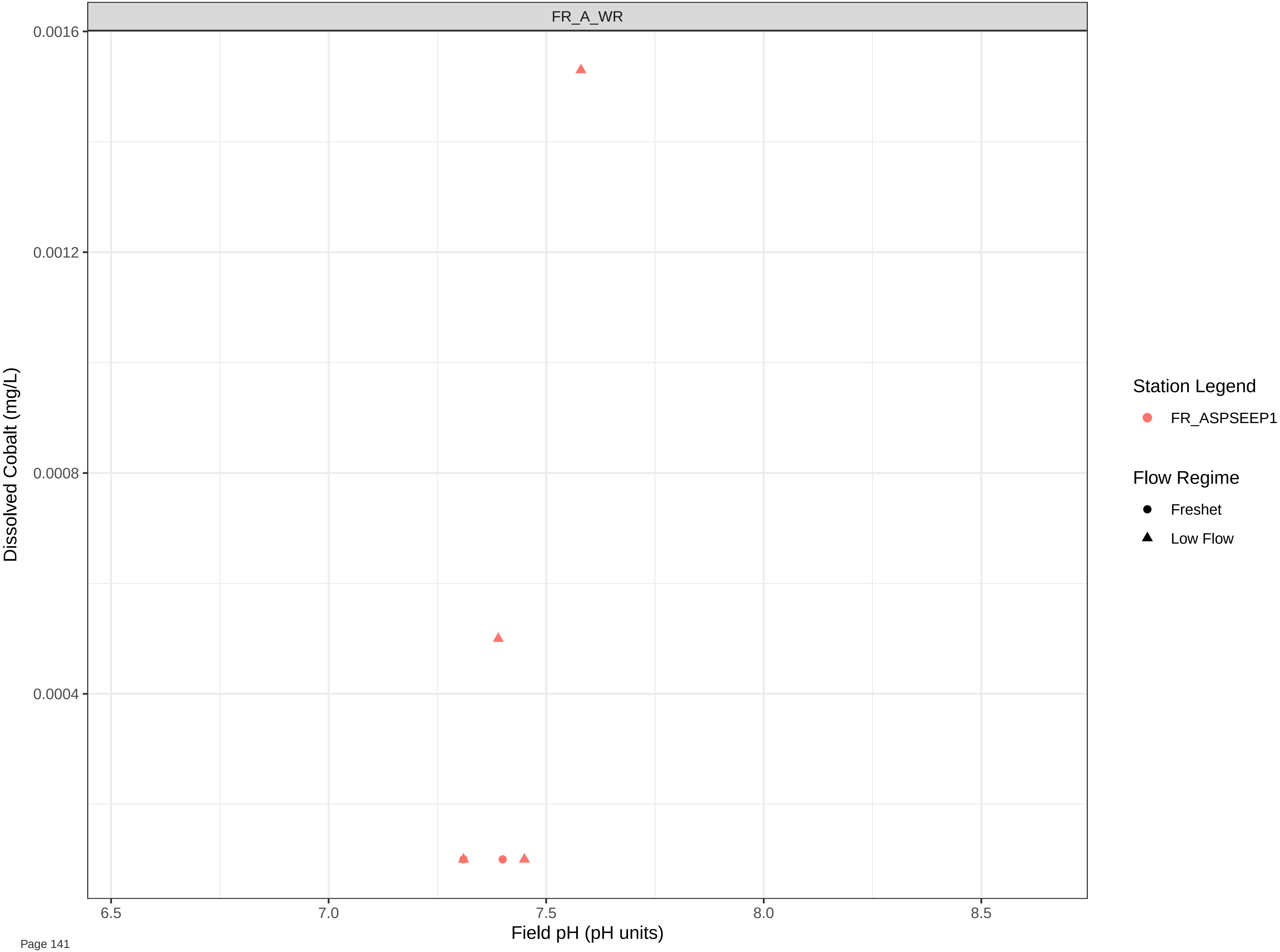

FR_Smith_WR
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

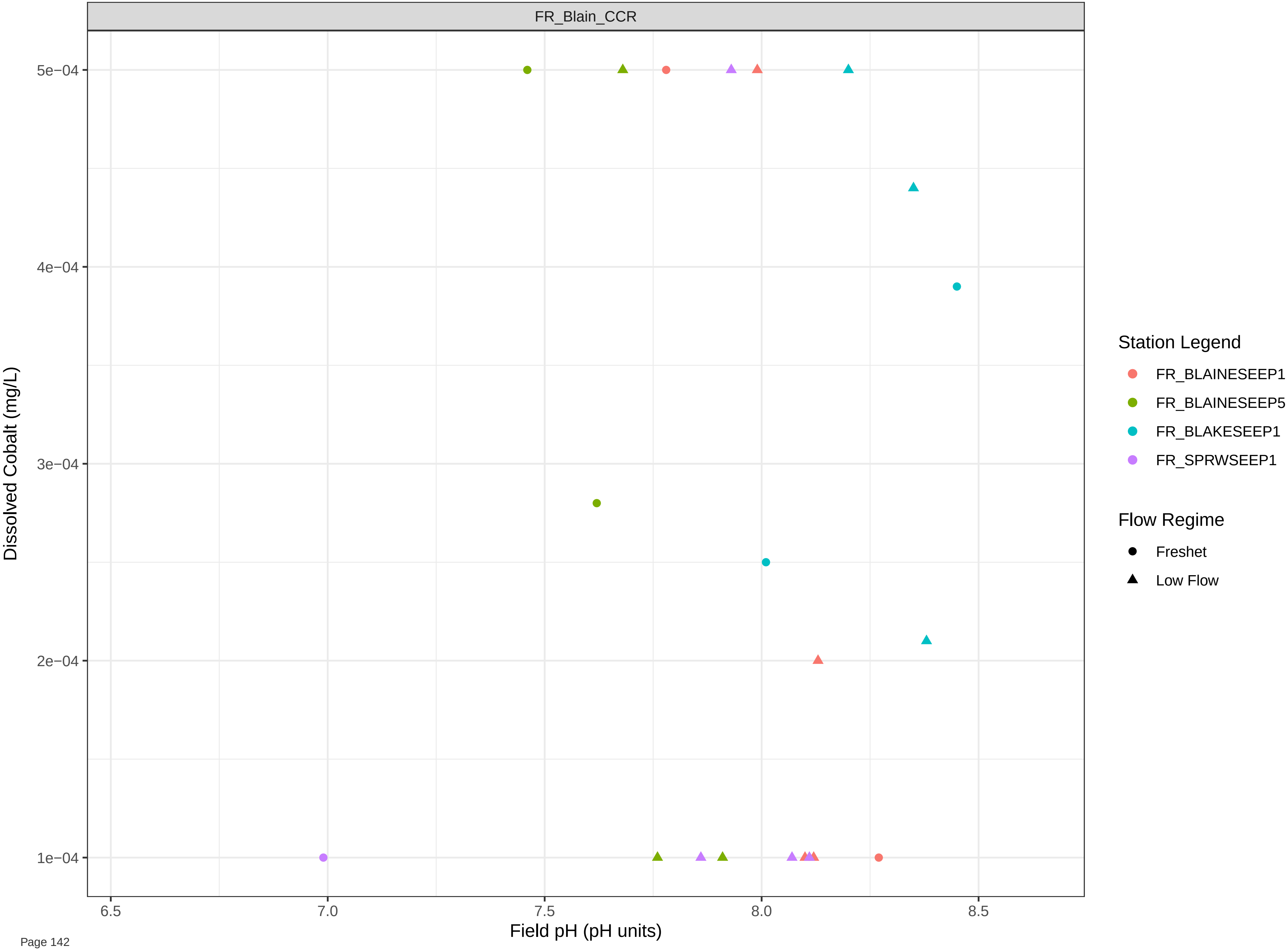

FR_SouthTails_Tailings
Dissolved Chromium (mg/L)
0.00014
0.00013
0.00012
0.00011
0.00010
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

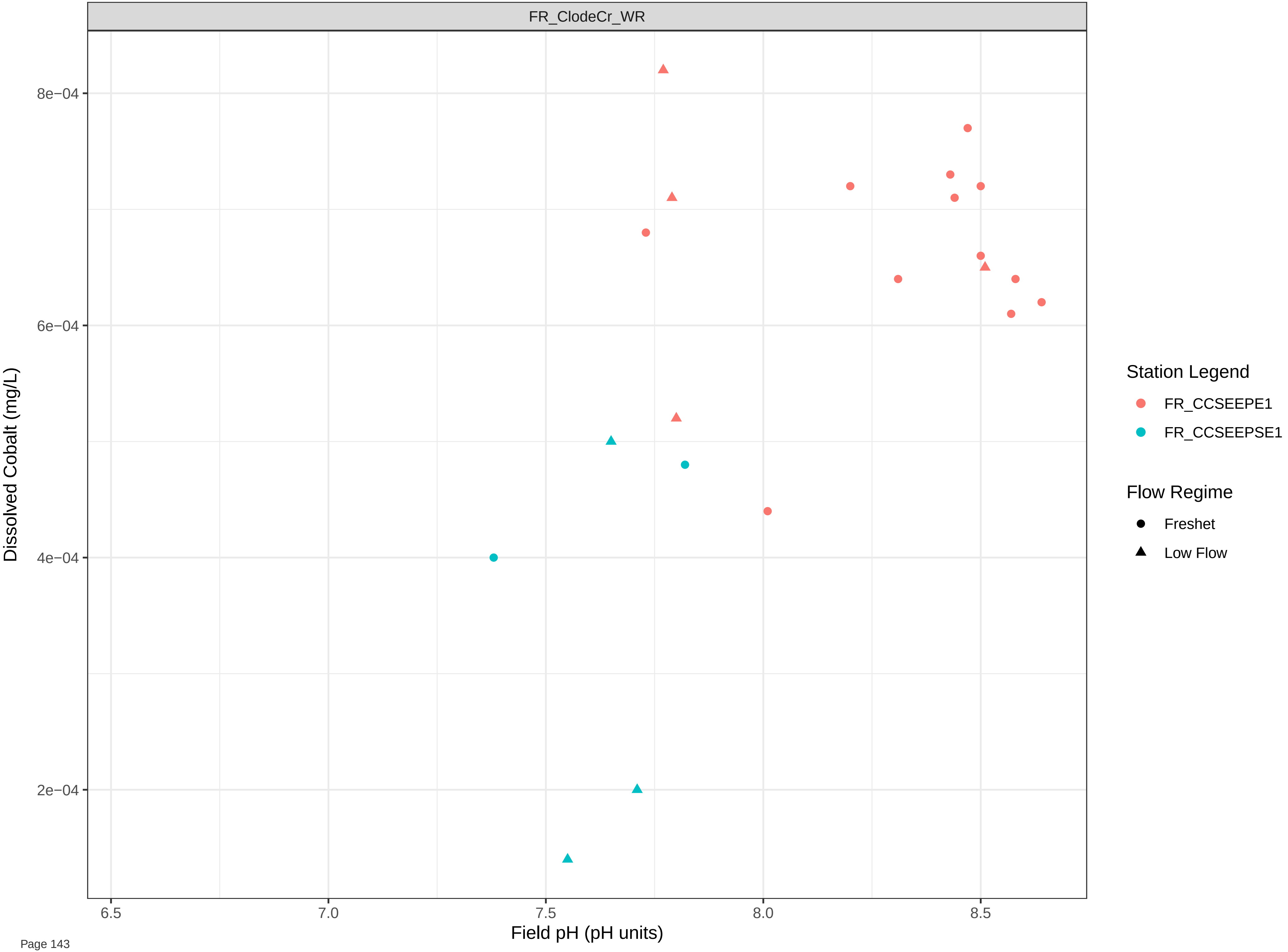

FR_SwiftWR_RockDrain_WR
Dissolved Chromium (mg/L)
0.00014
0.00013
0.00012
0.00011
0.00010
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

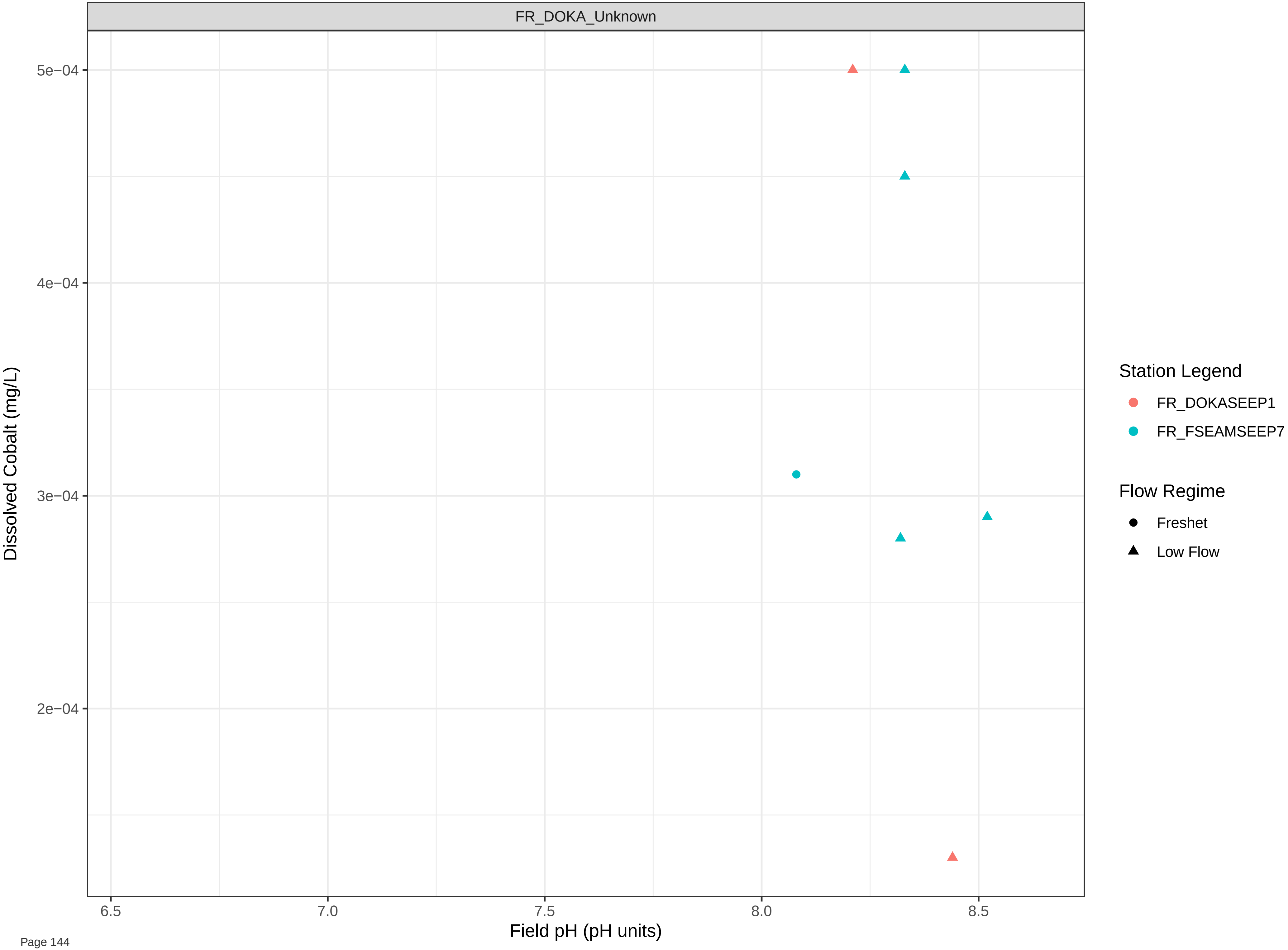

FR_TurnbullWREast_WR
0.00025
0.00020
0.00015
0.00010
Dissolved Chromium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWRWest_WR
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

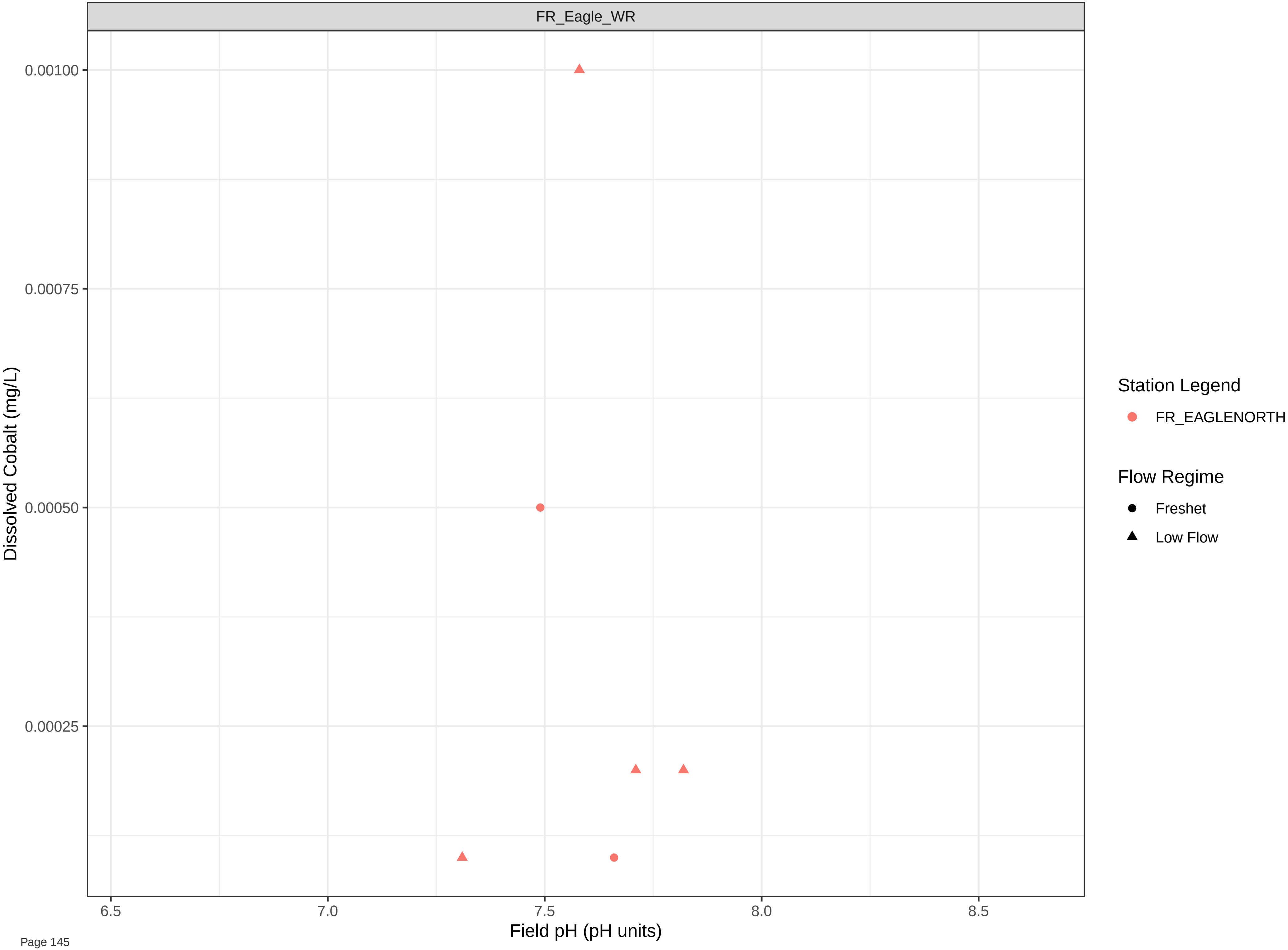

FR_A_WR
0.0016
0.0012
0.0008
0.0004
Dissolved Cobalt (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

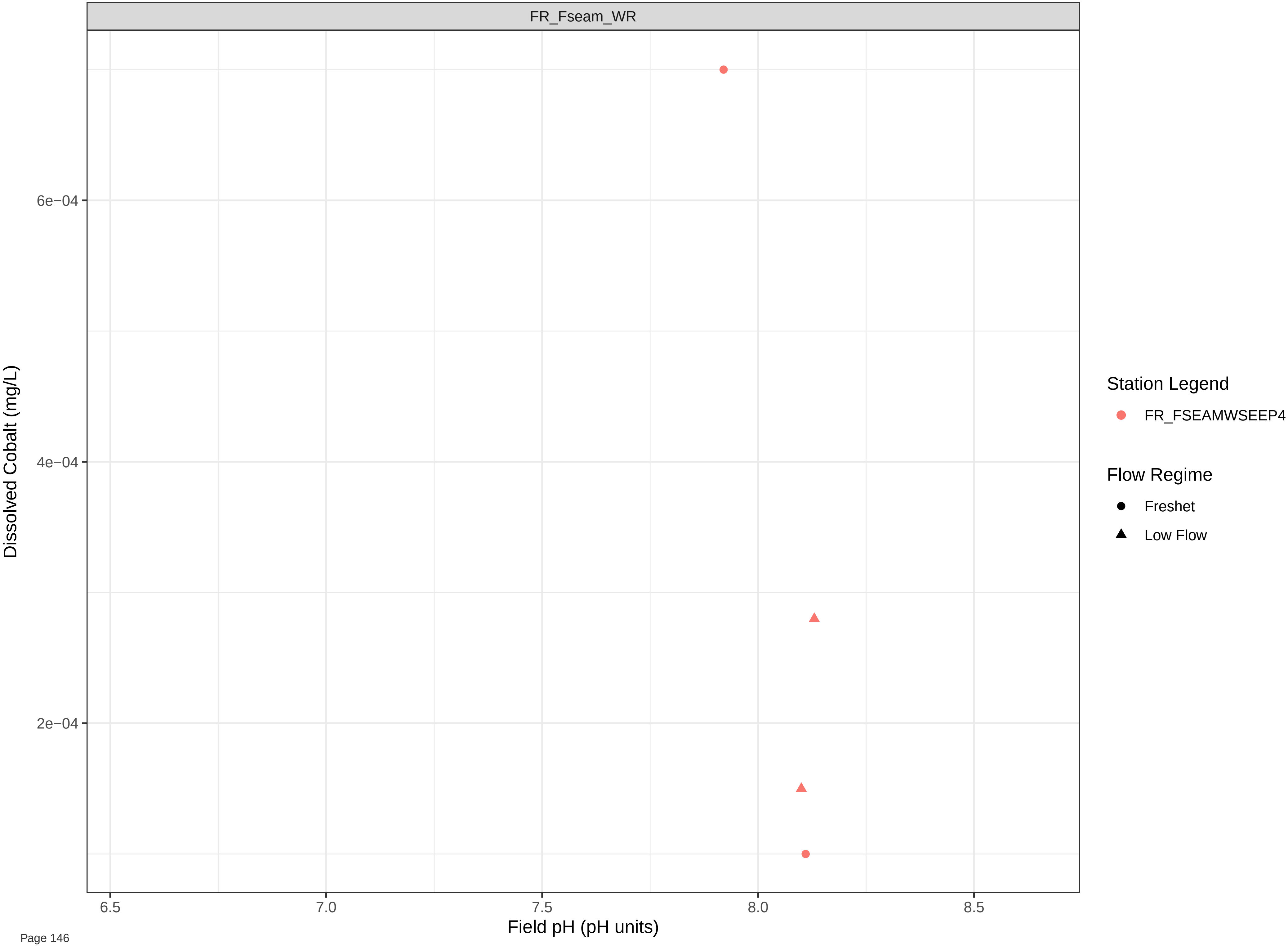

FR_Blain_CCR
Dissolved Cobalt (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

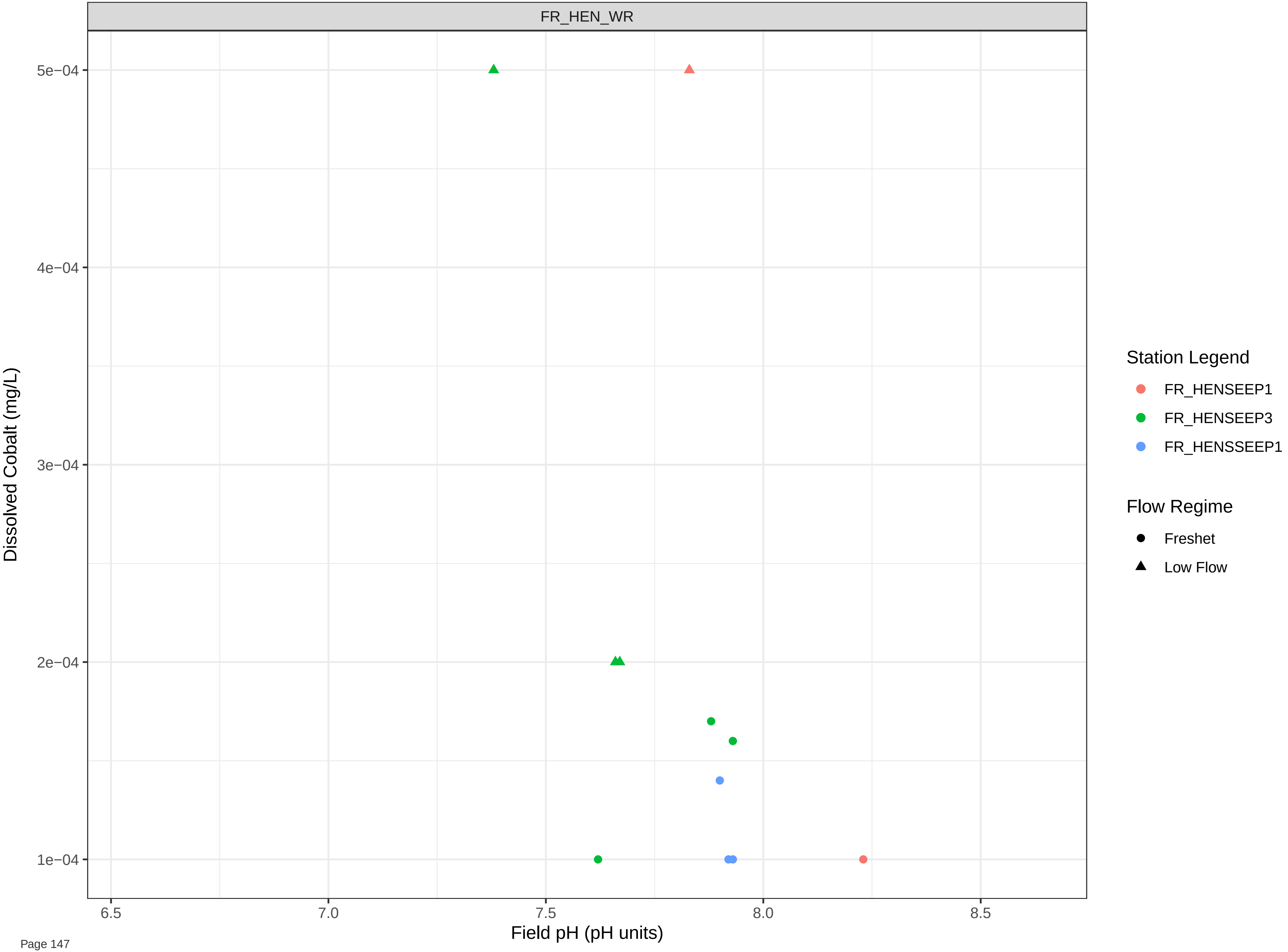

FR_ClodeCr_WR
Dissolved Cobalt (mg/L)
8e−04
6e−04
4e−04
2e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

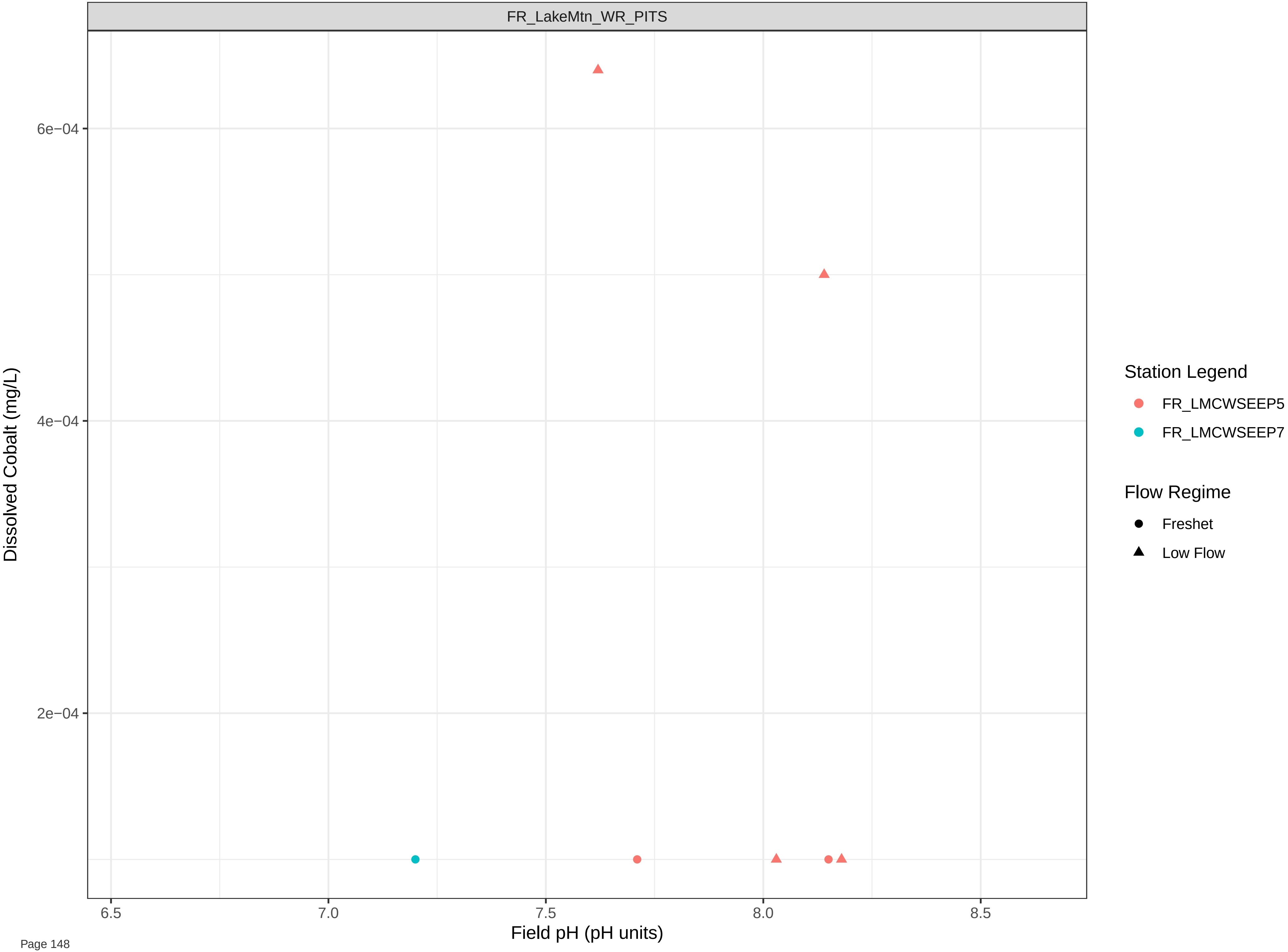


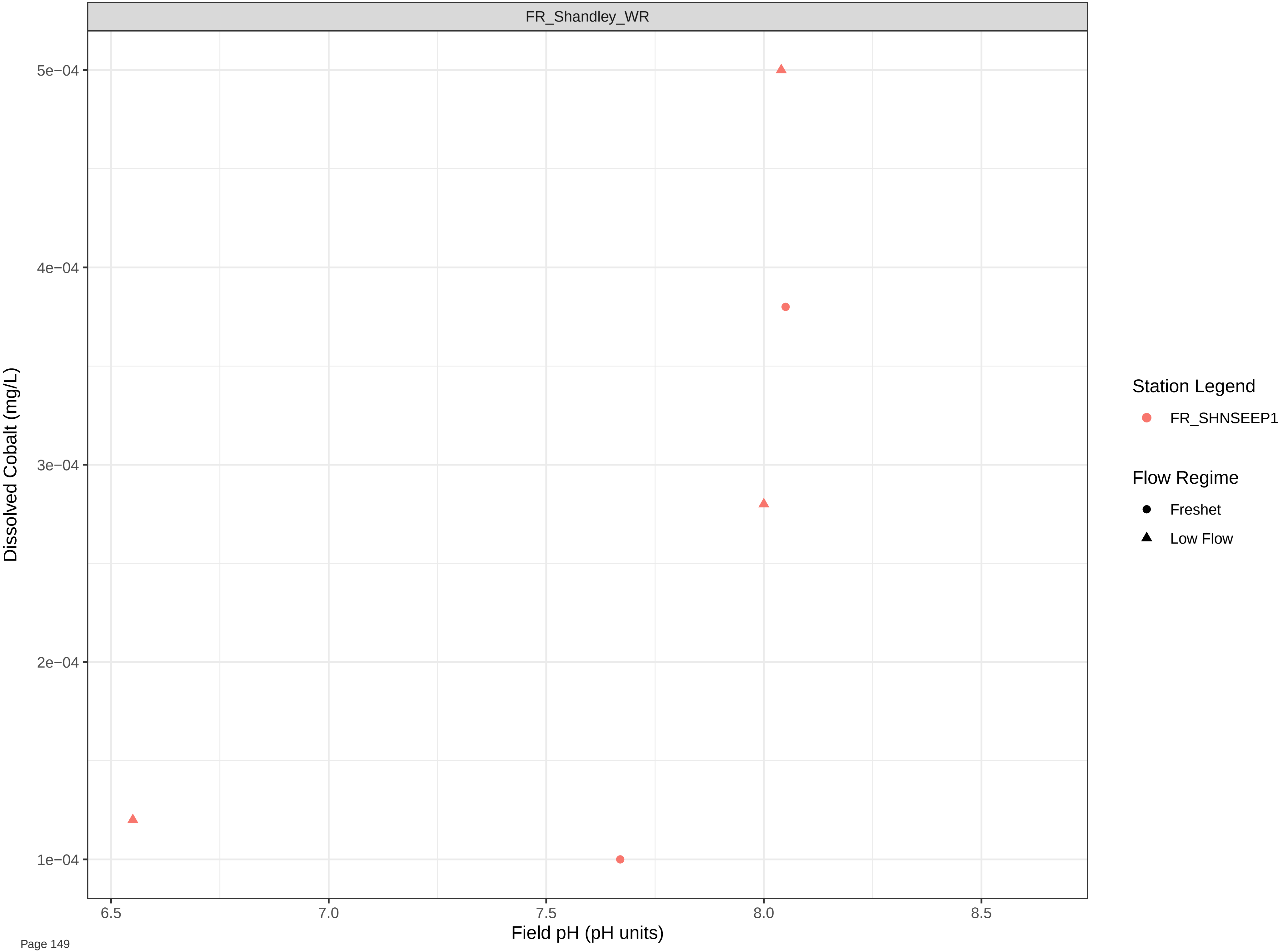
FR_DOKA_Unknown
Dissolved Cobalt (mg/L)
5e−04
4e−04
3e−04
2e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

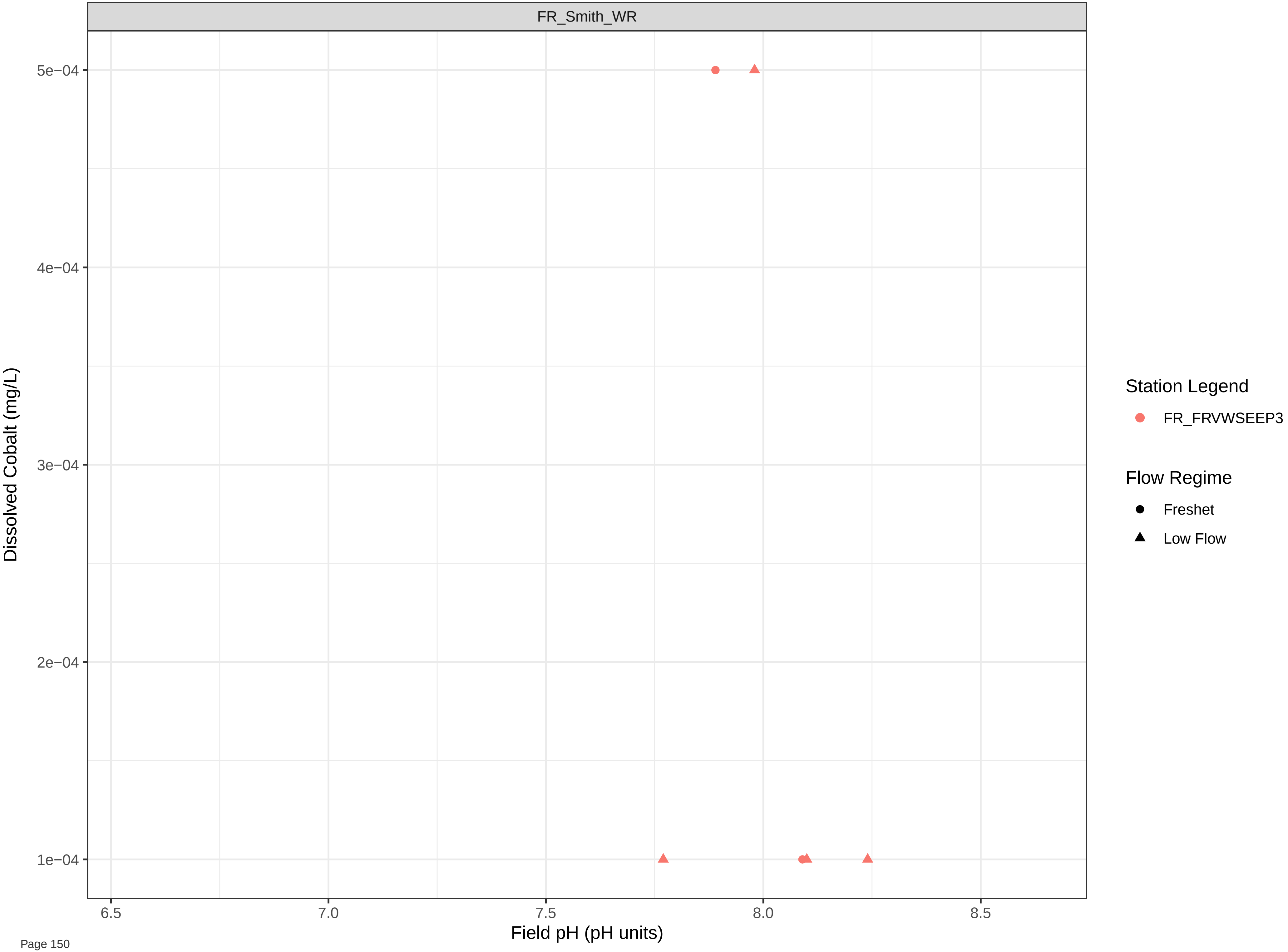

FR_Eagle_WR
Dissolved Cobalt (mg/L)
0.00100
0.00075
0.00050
0.00025
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

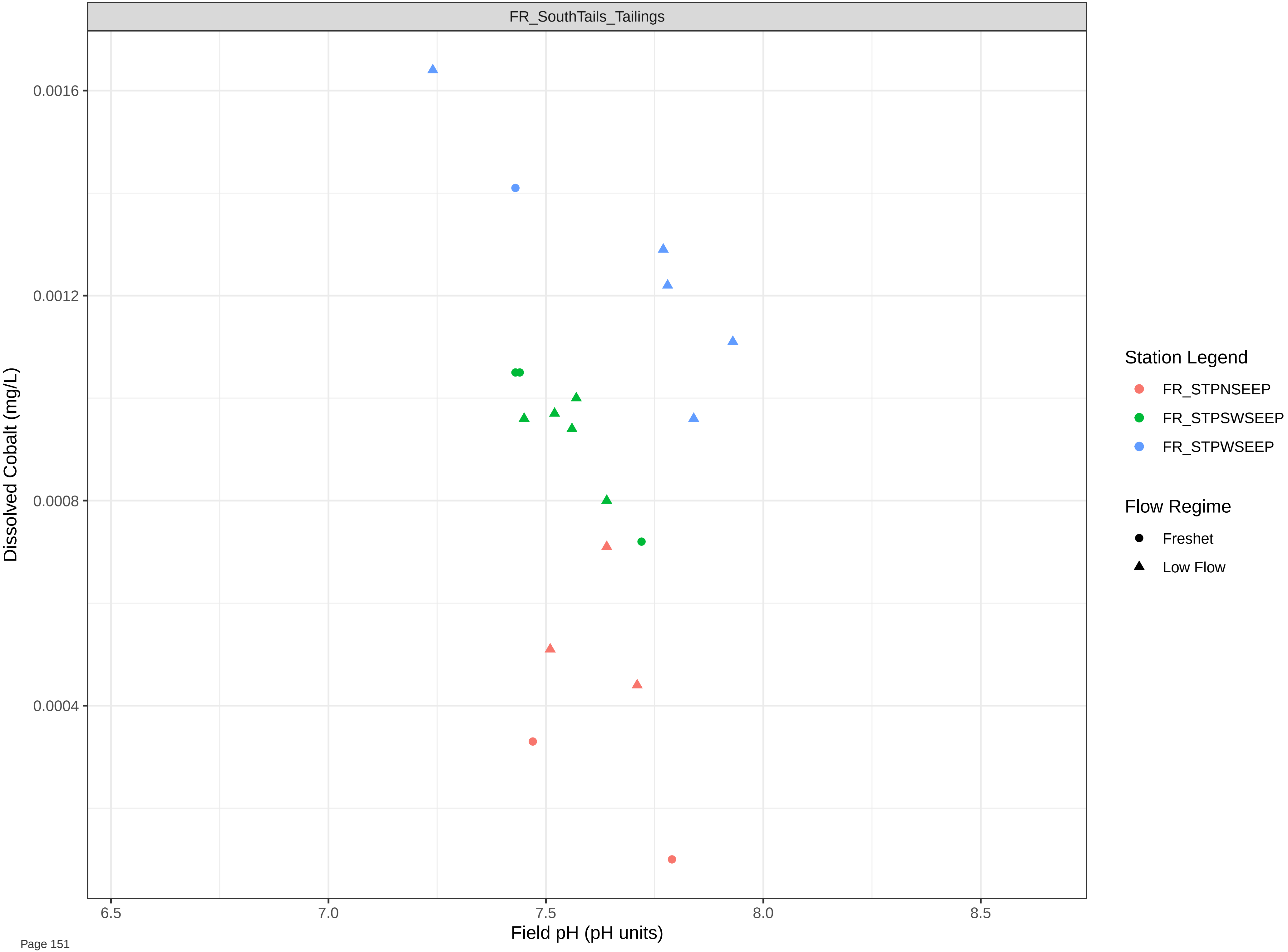

FR_Fseam_WR
Dissolved Cobalt (mg/L)
6e−04
4e−04
2e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

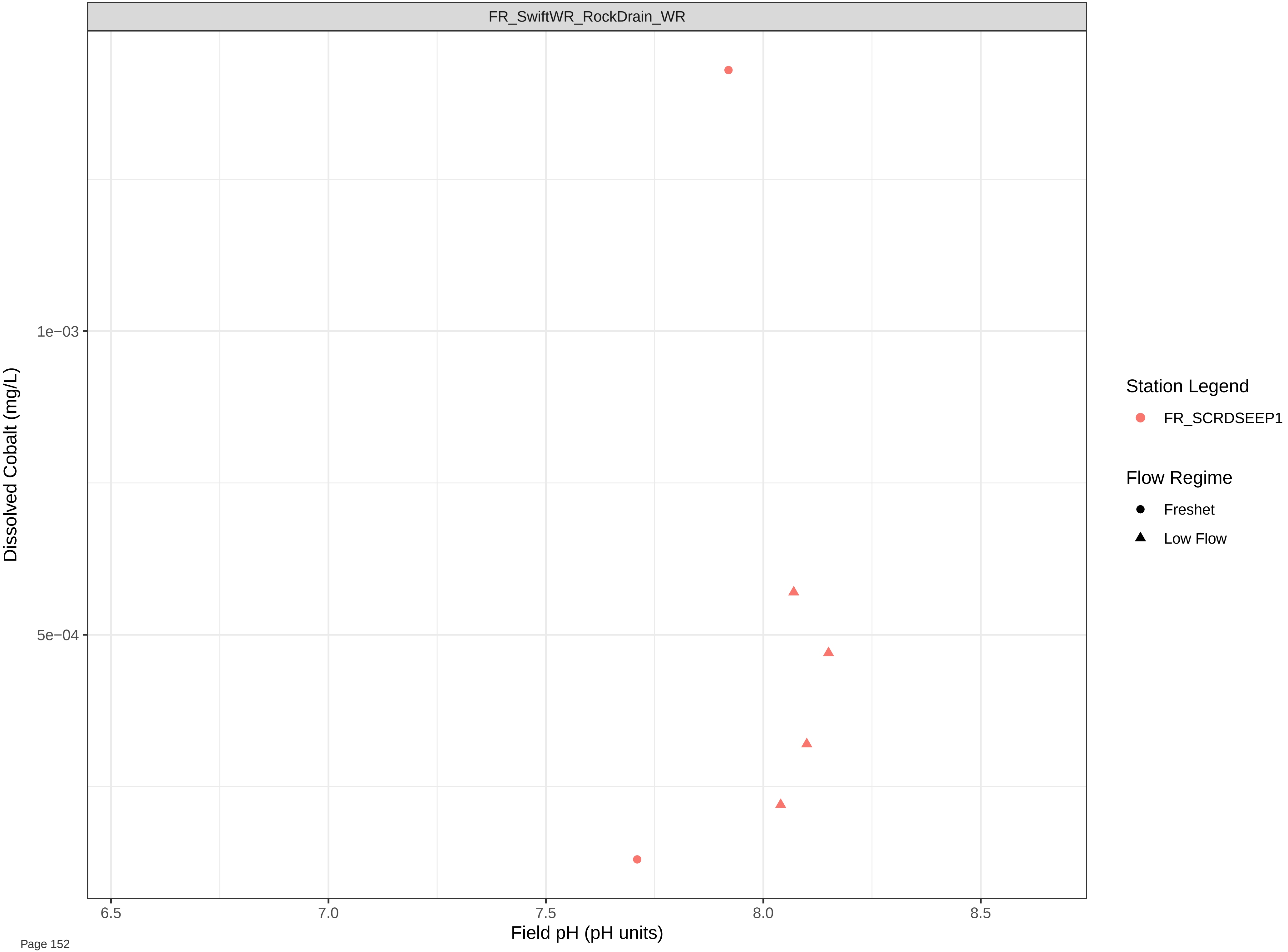

FR_HEN_WR
Dissolved Cobalt (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

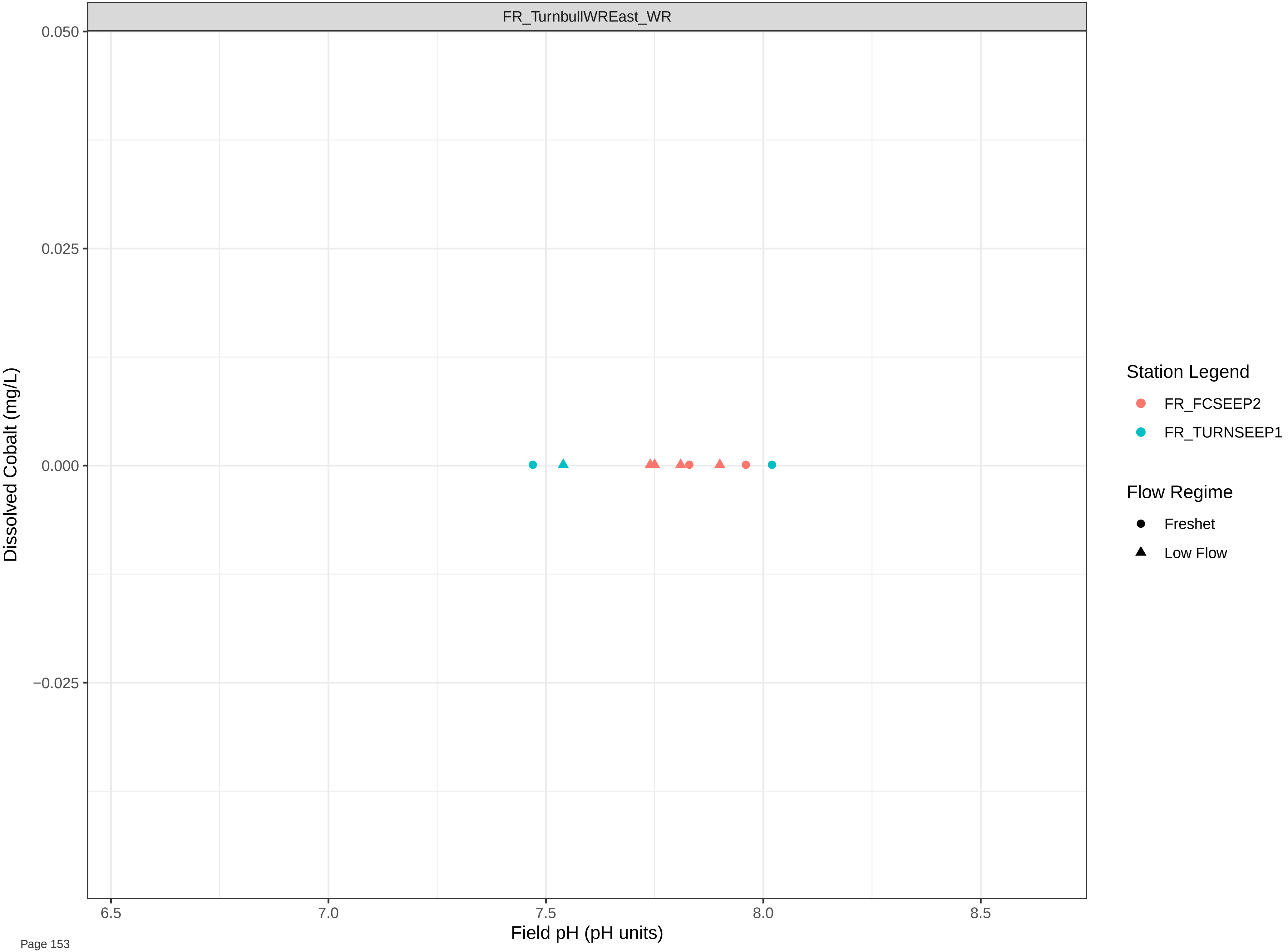

FR_LakeMtn_WR_PITS
Dissolved Cobalt (mg/L)
6e−04
4e−04
2e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

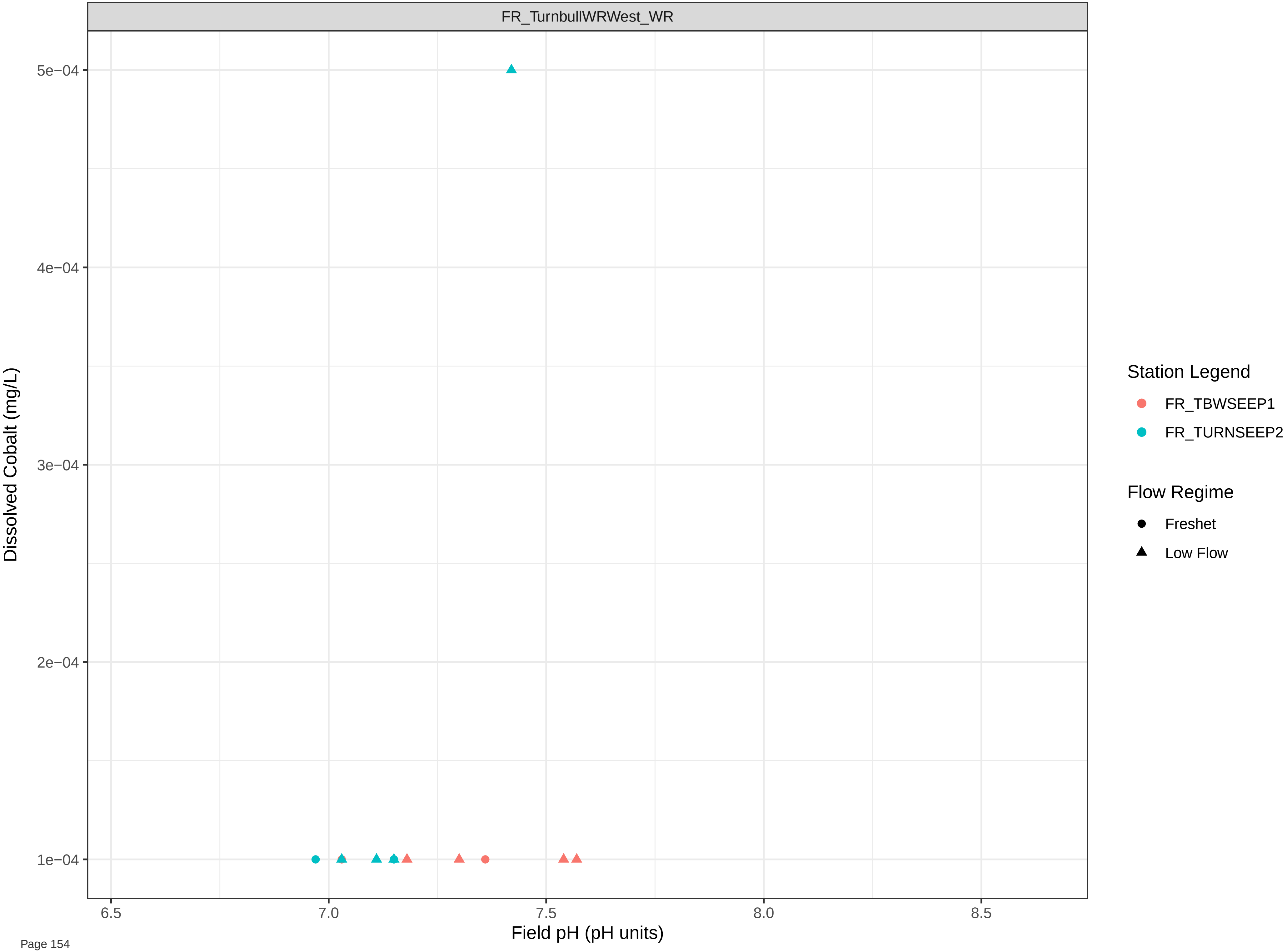

FR_Shandley_WR
Dissolved Cobalt (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

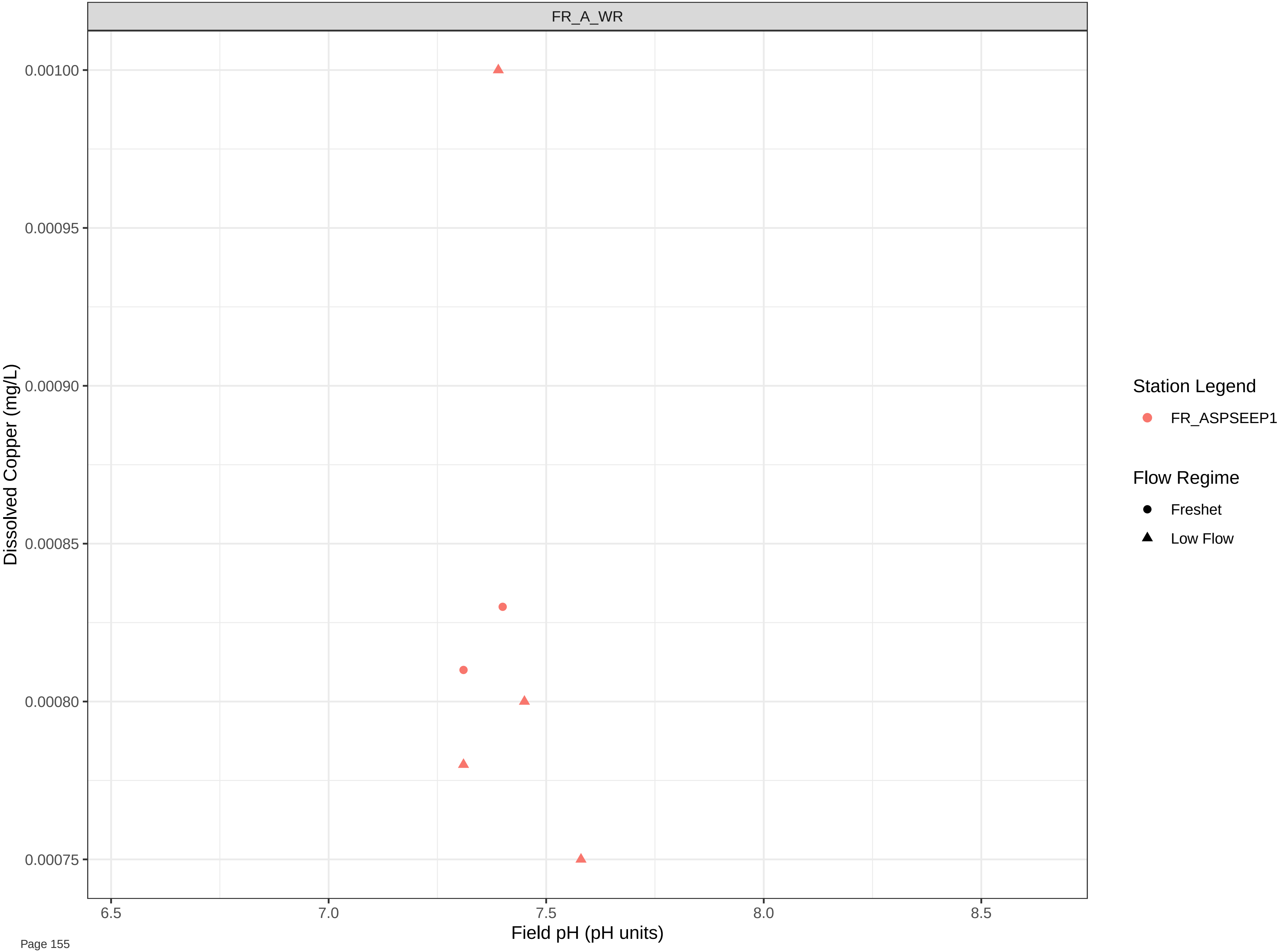

FR_Smith_WR
Dissolved Cobalt (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

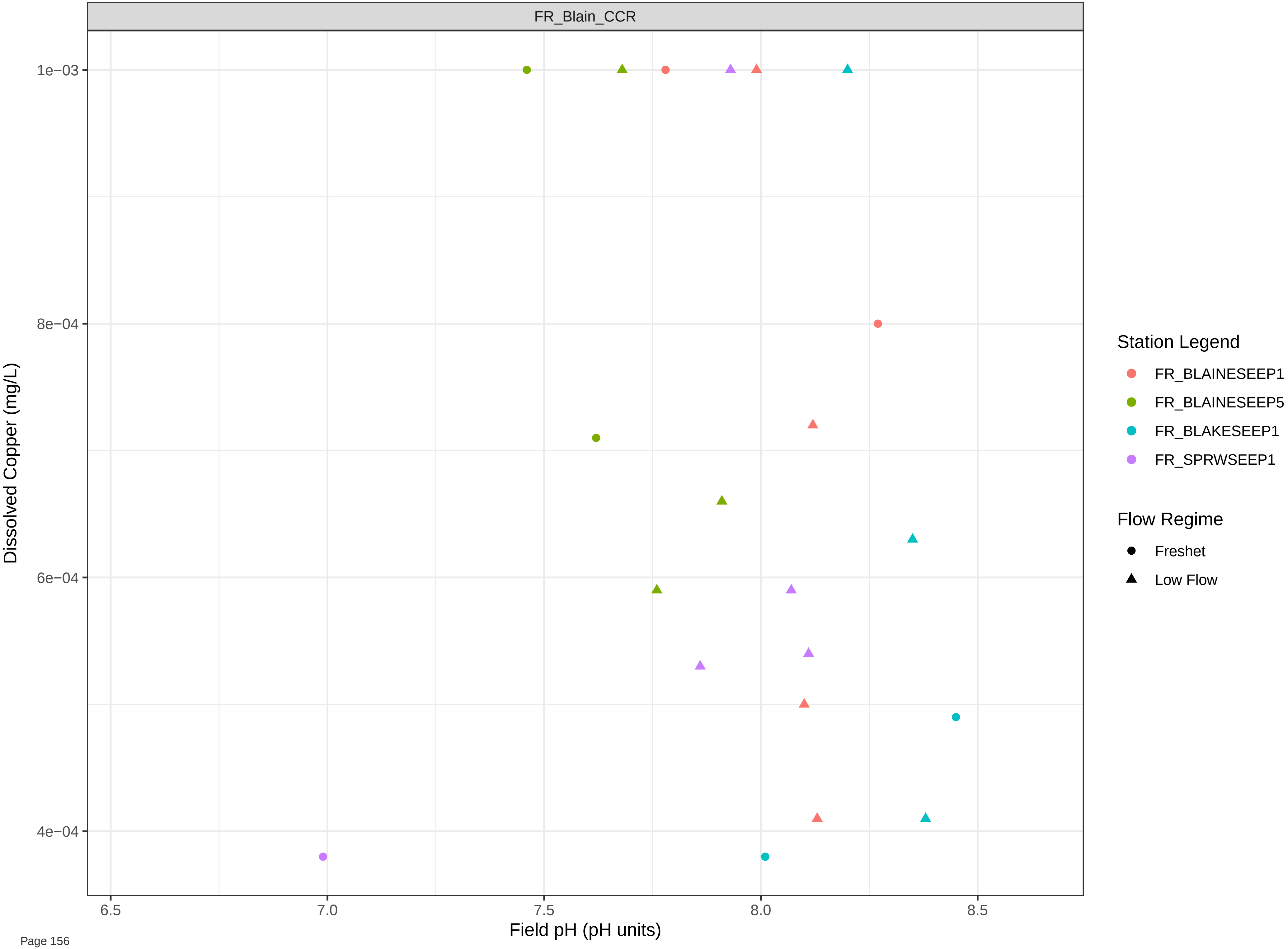

FR_SouthTails_Tailings
Dissolved Cobalt (mg/L)
0.0016
0.0012
0.0008
0.0004
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

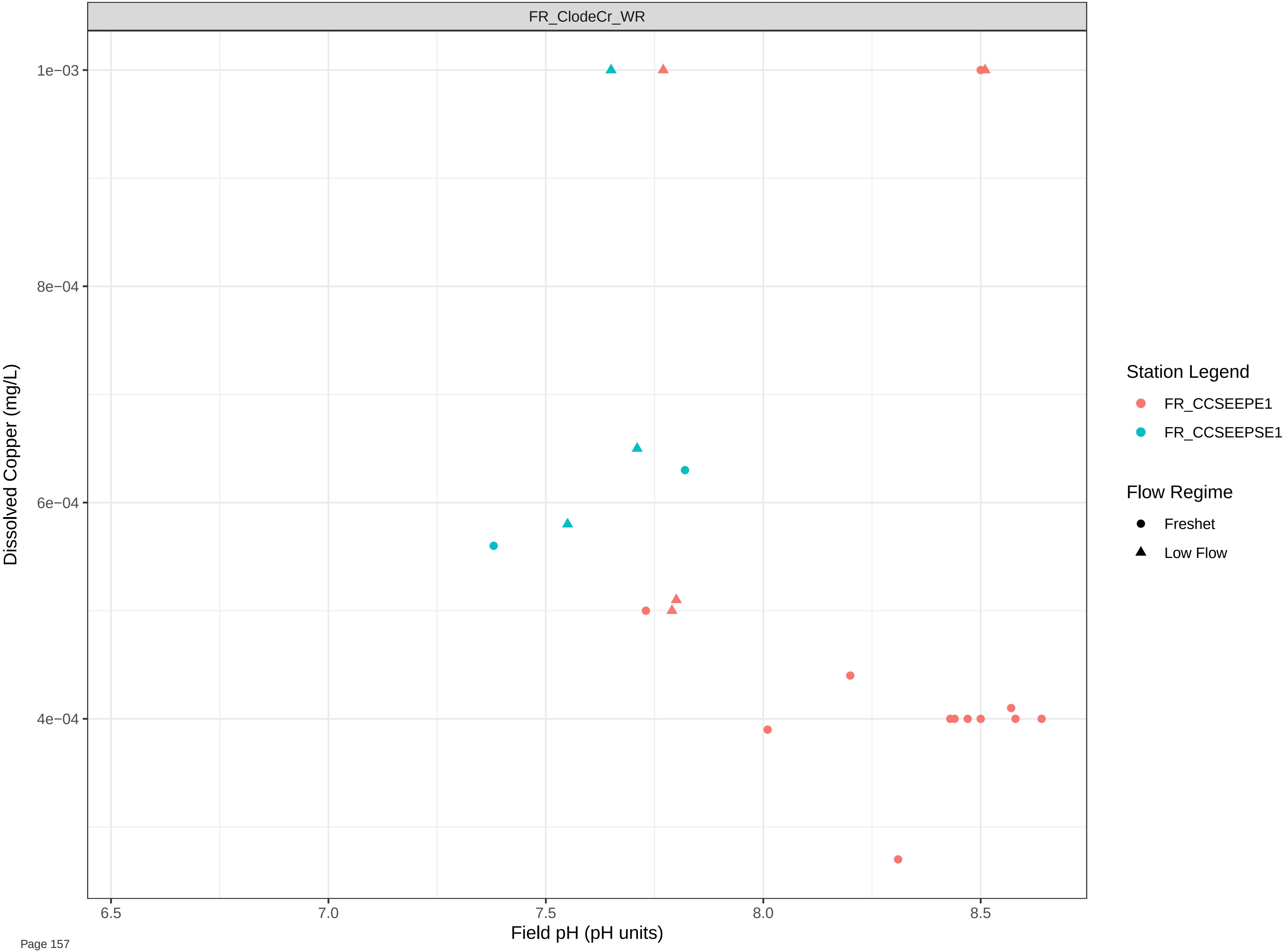

FR_SwiftWR_RockDrain_WR
Dissolved Cobalt (mg/L)
1e−03
5e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

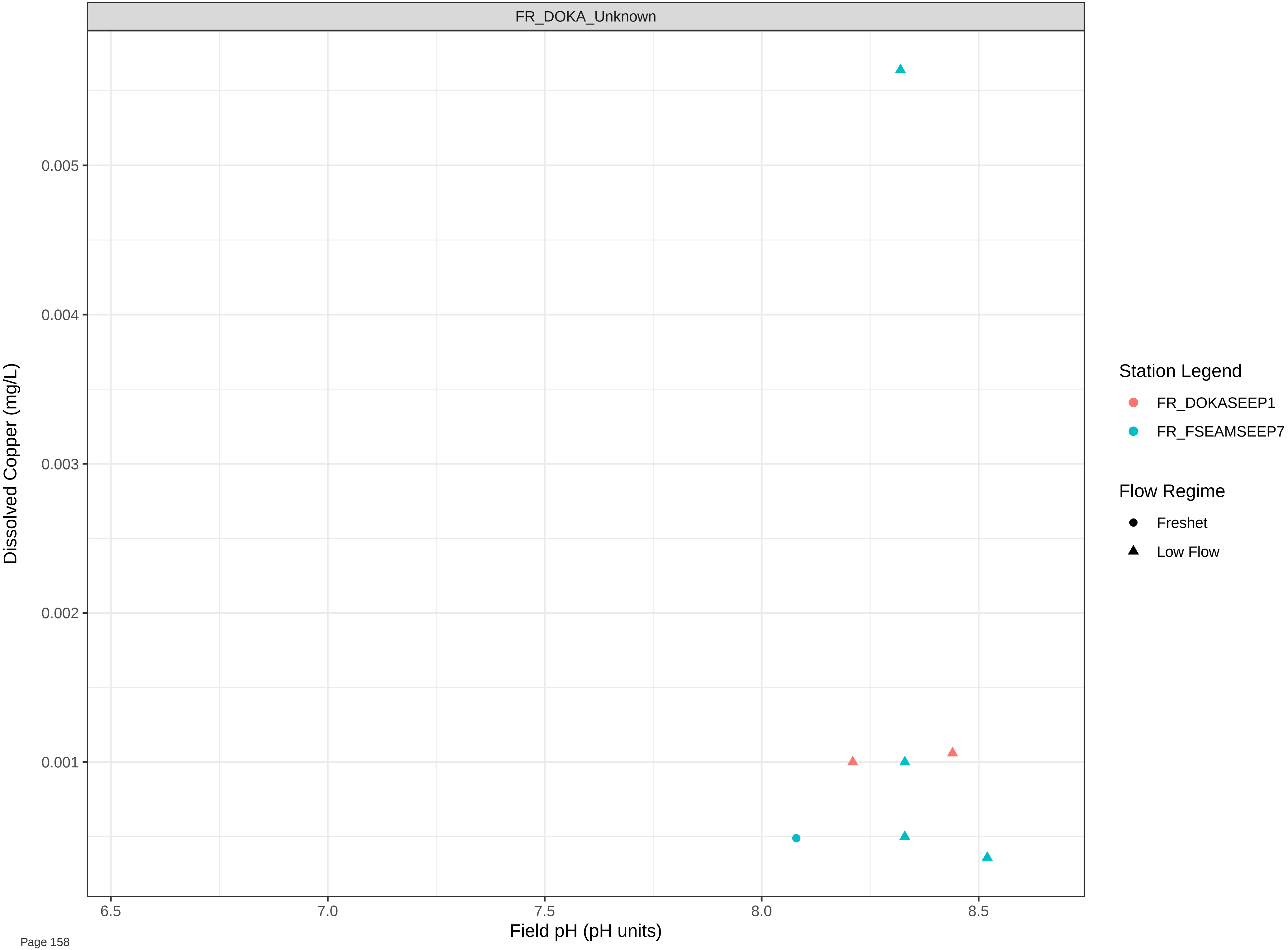

FR_TurnbullWREast_WR
0.050
0.025
0.000
−0.025
Dissolved Cobalt (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

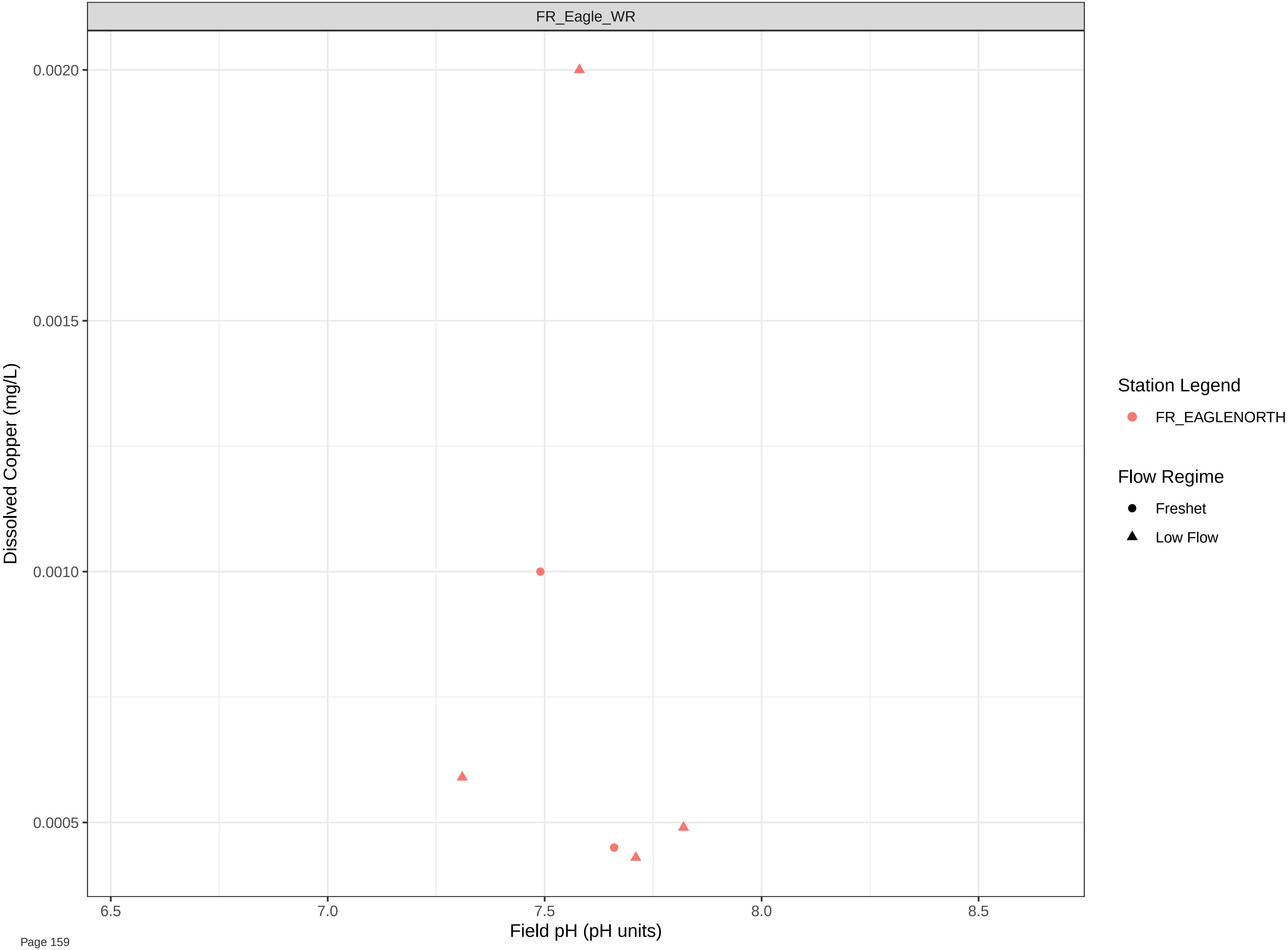

FR_TurnbullWRWest_WR
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Cobalt (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

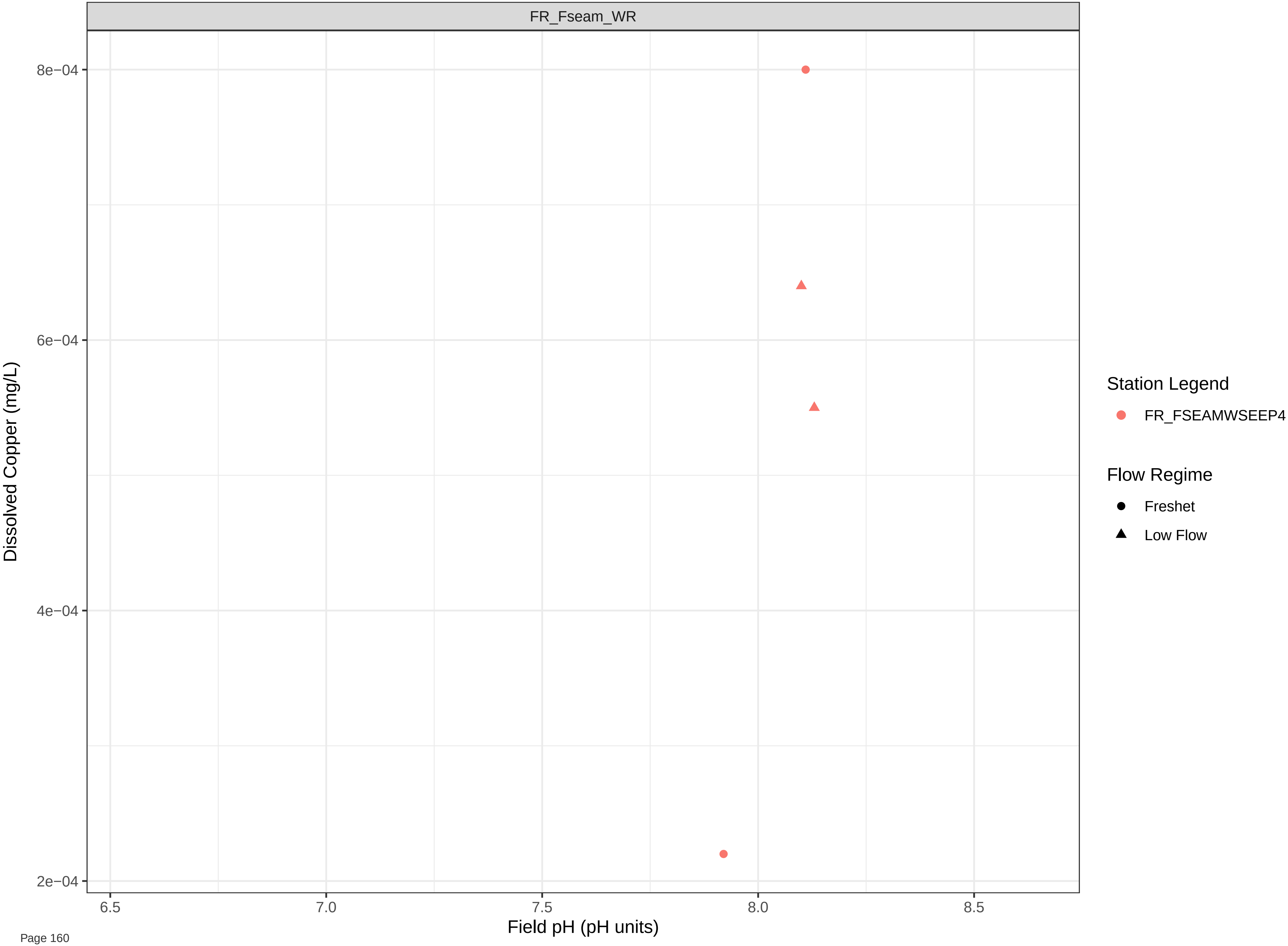

FR_A_WR
0.00100
0.00095
0.00090
0.00085
0.00080
0.00075
Dissolved Copper (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

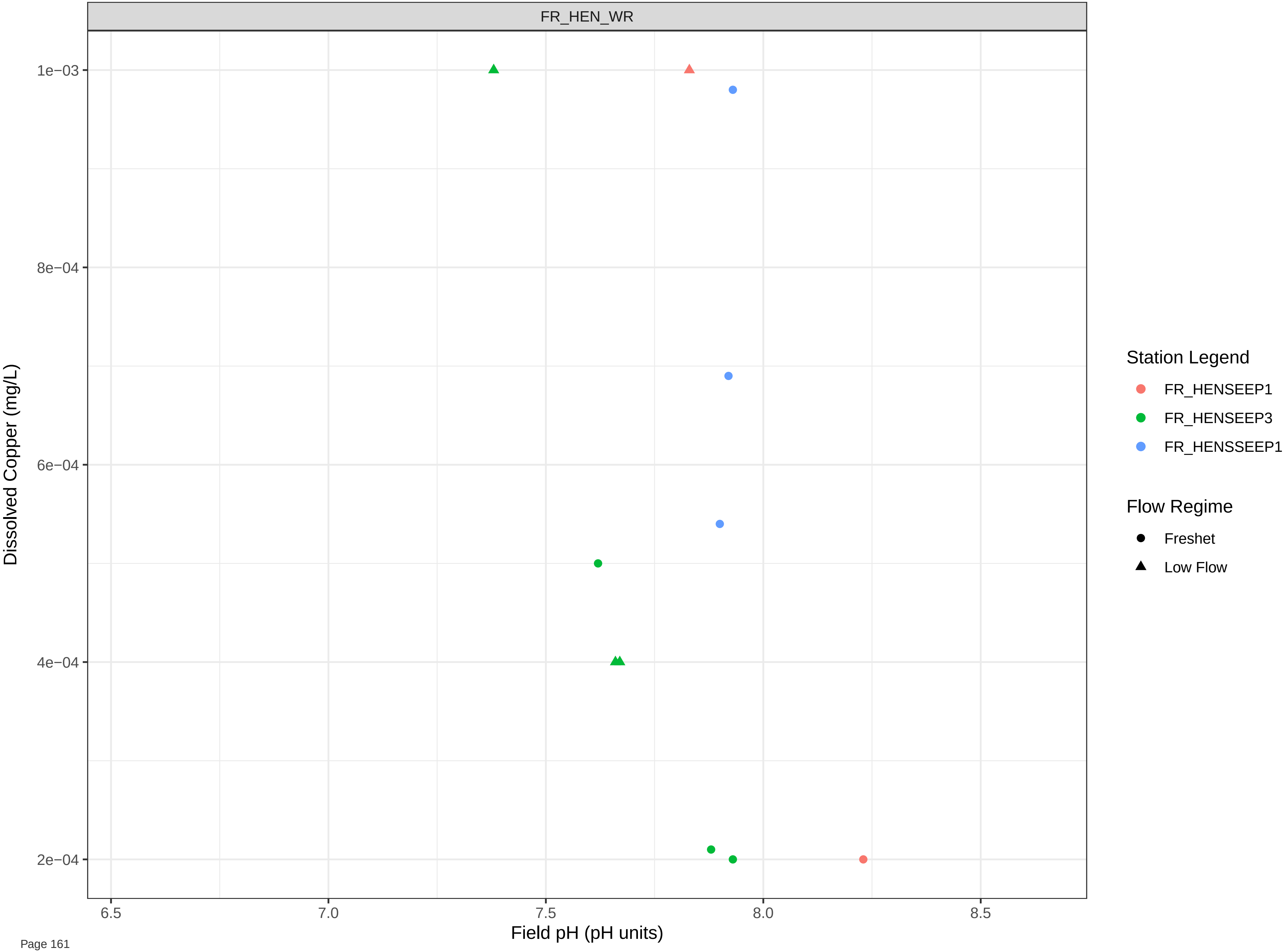

FR_Blain_CCR
Dissolved Copper (mg/L)
1e−03
8e−04
6e−04
4e−04
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow

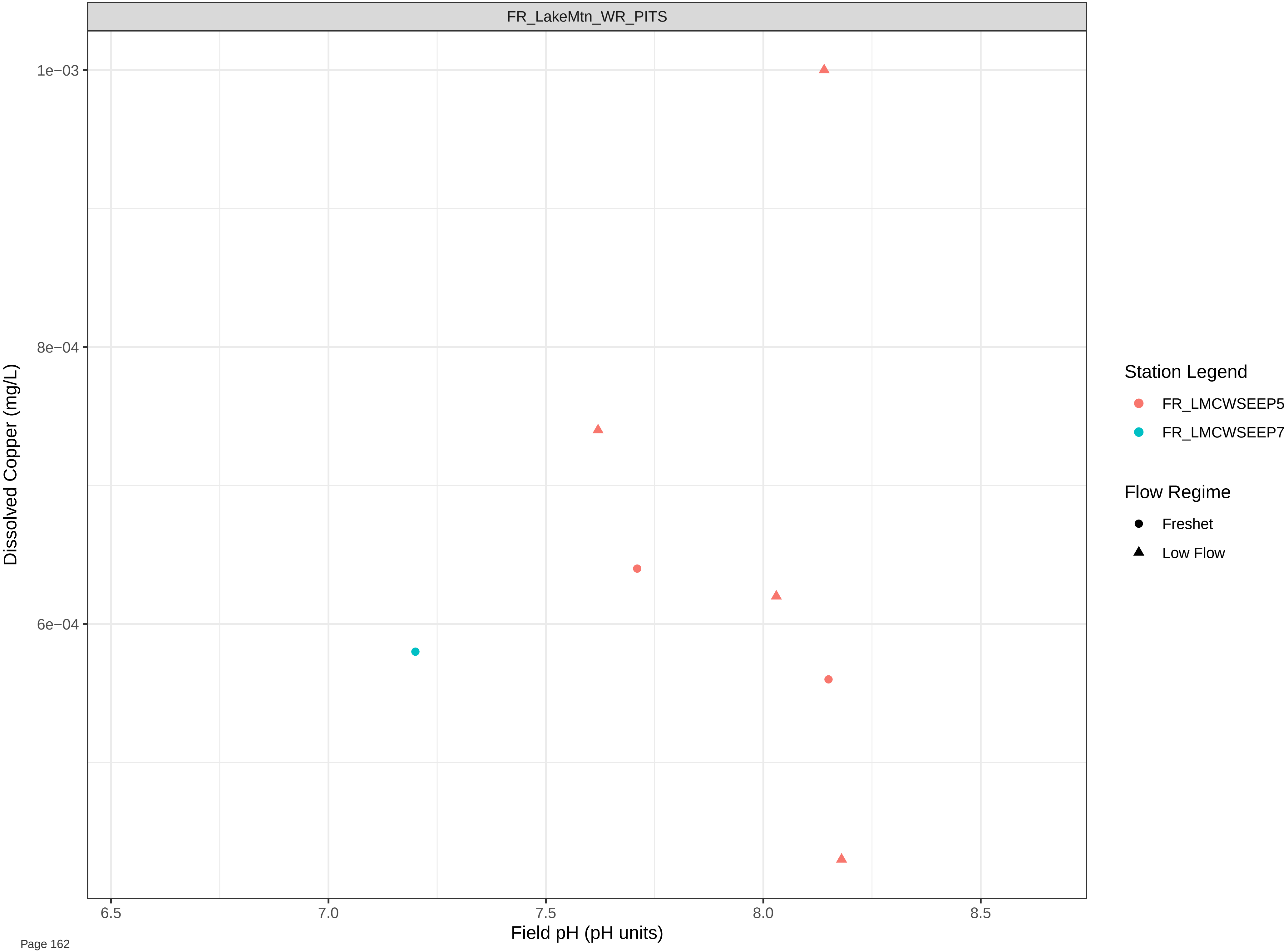

FR_ClodeCr_WR
Dissolved Copper (mg/L)
1e−03
8e−04
6e−04
4e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

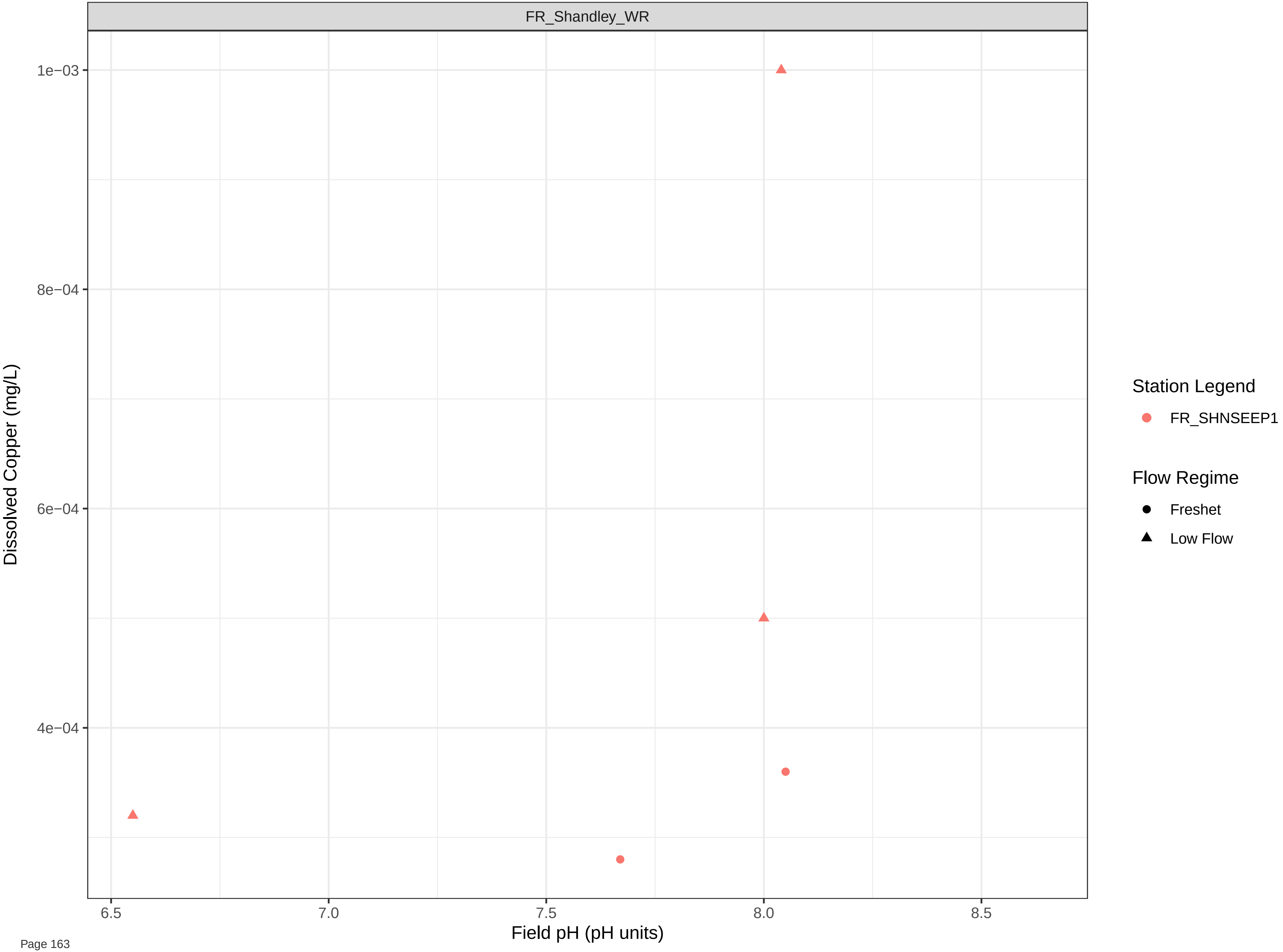

FR_DOKA_Unknown
Dissolved Copper (mg/L)
0.005
0.004
0.003
0.002
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

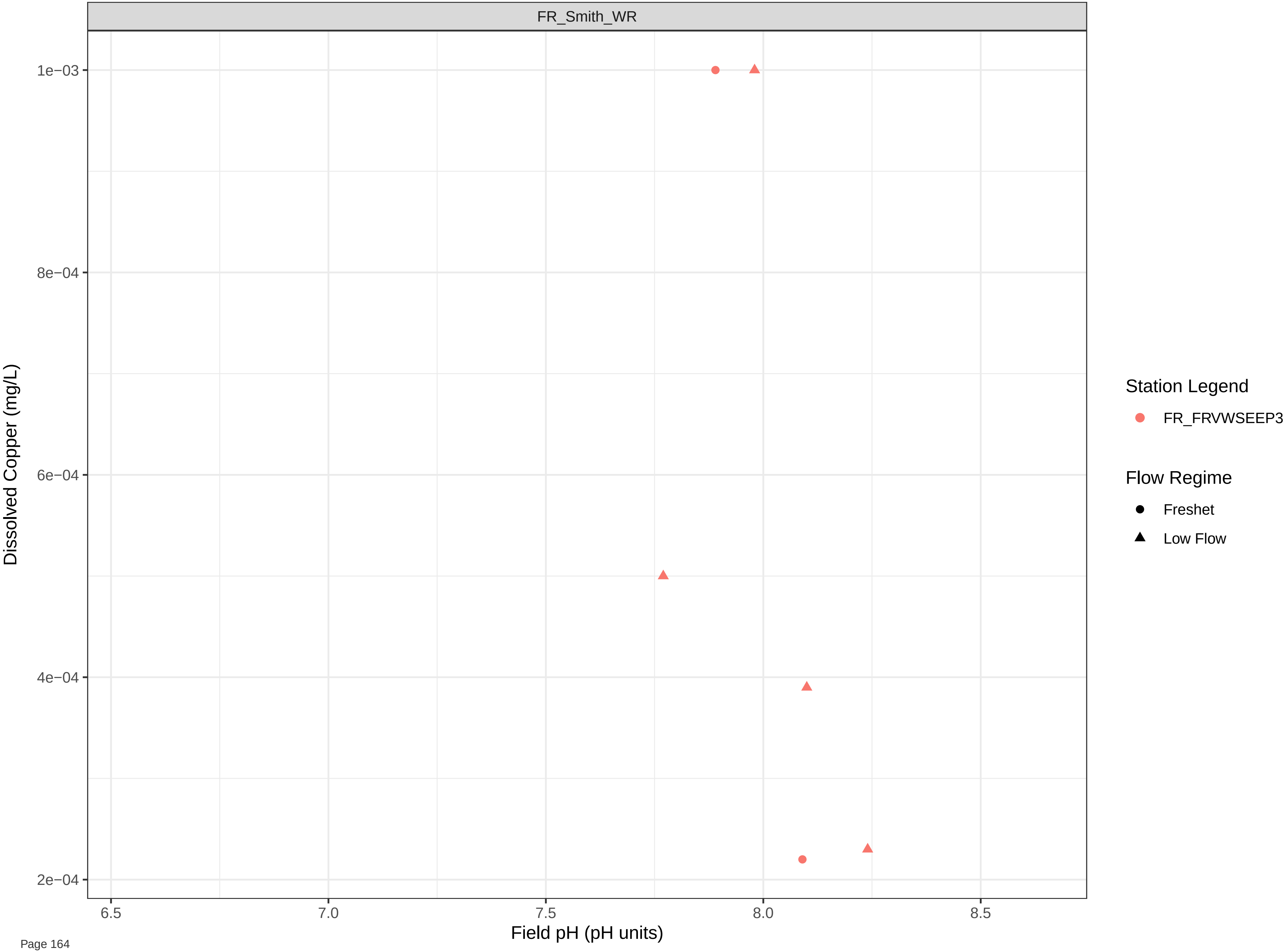

FR_Eagle_WR
0.0020
0.0015
0.0010
0.0005
Dissolved Copper (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

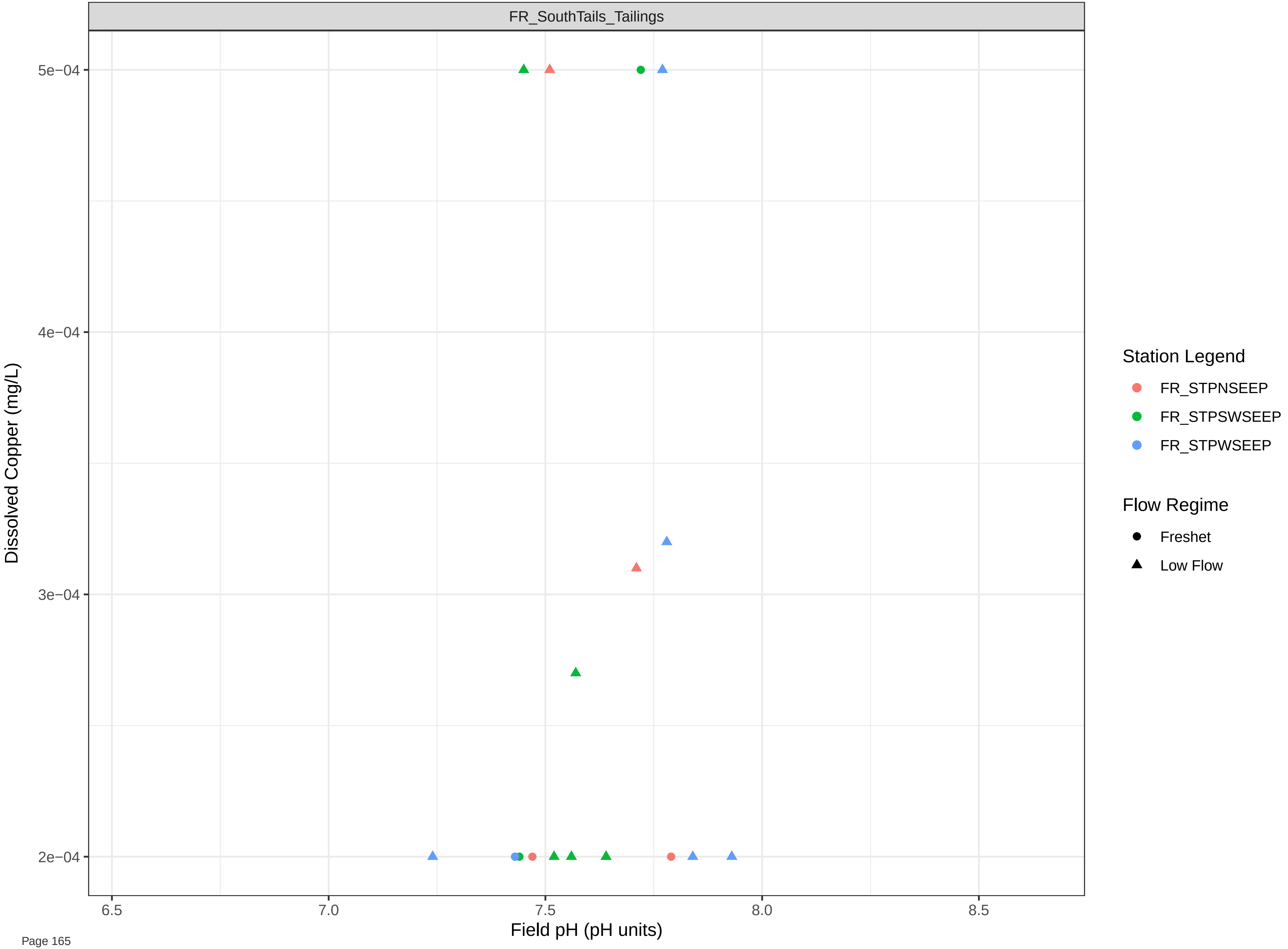

FR_Fseam_WR
8e−04
6e−04
4e−04
2e−04
Dissolved Copper (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

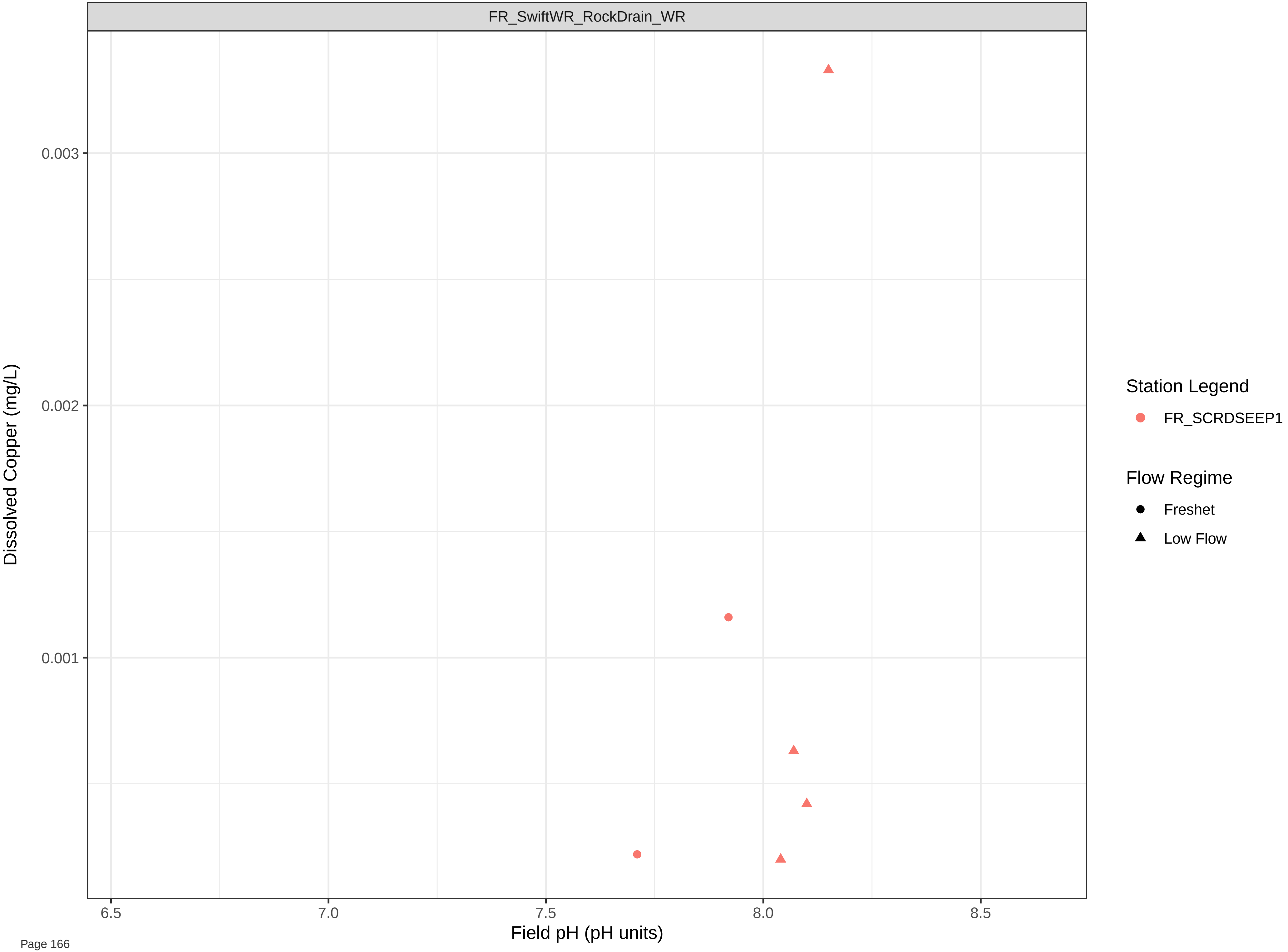

FR_HEN_WR
Dissolved Copper (mg/L)
1e−03
8e−04
6e−04
4e−04
2e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

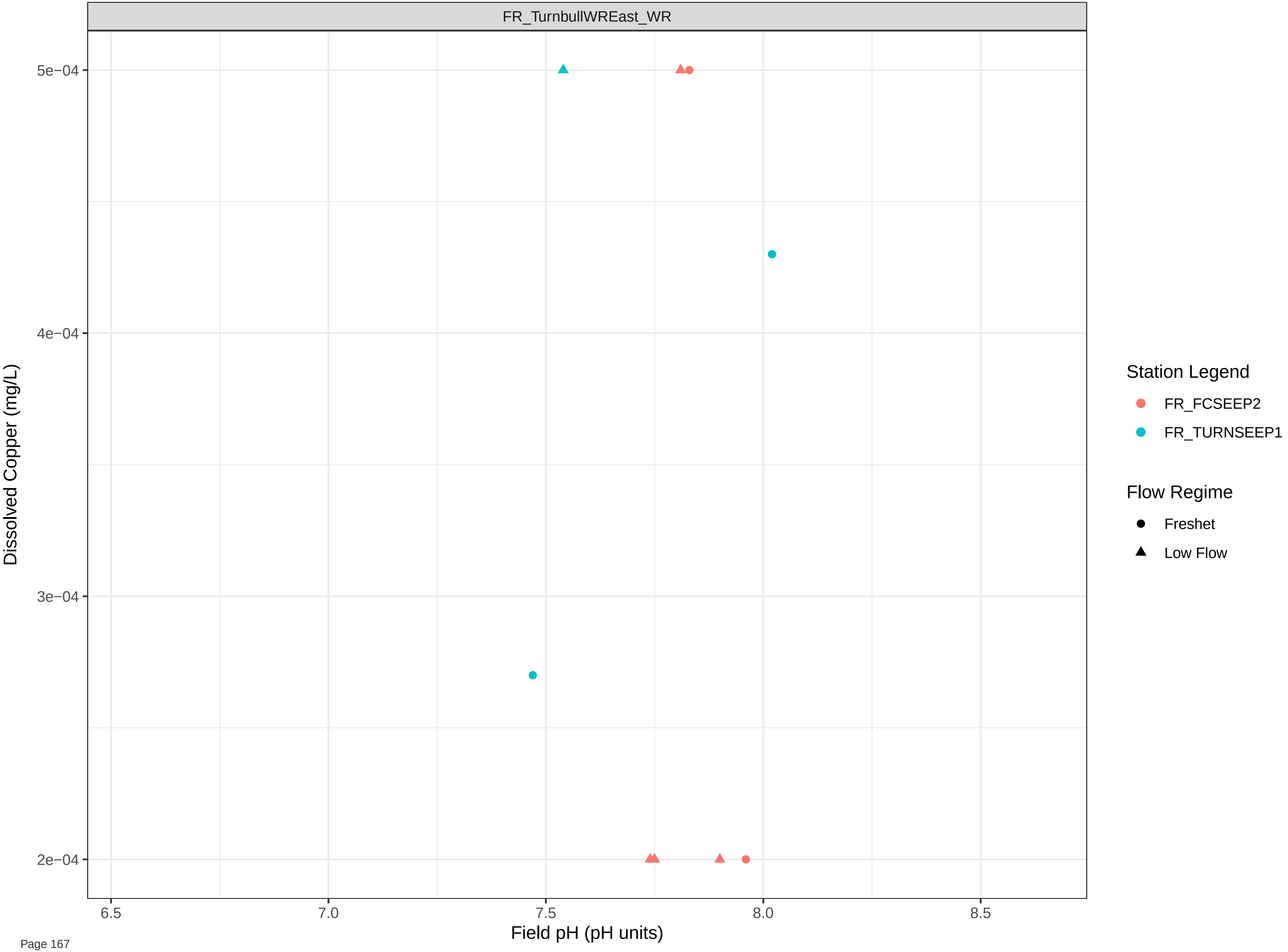

FR_LakeMtn_WR_PITS
1e−03
8e−04
6e−04
Dissolved Copper (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

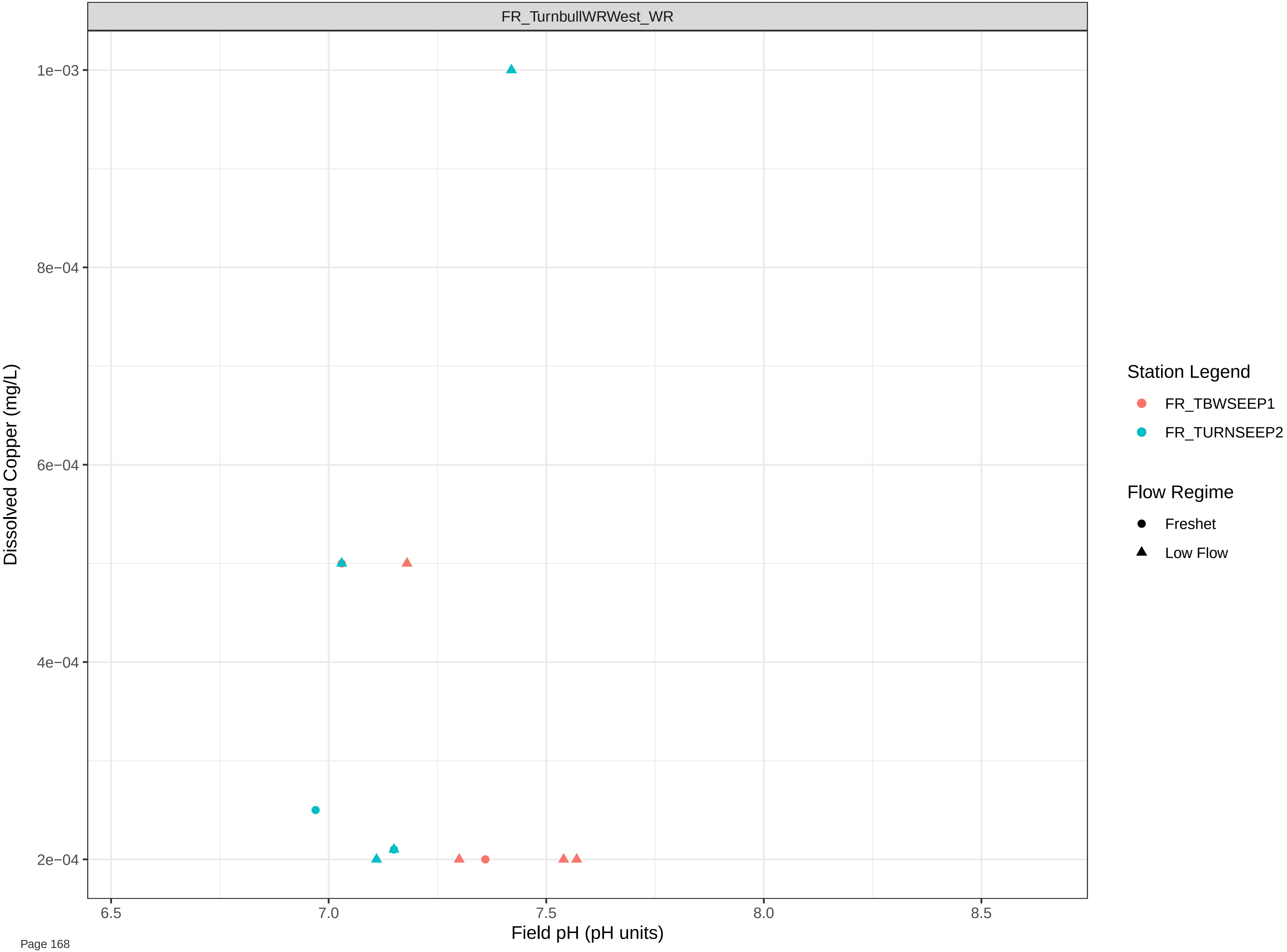

FR_Shandley_WR
Dissolved Copper (mg/L)
1e−03
8e−04
6e−04
4e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

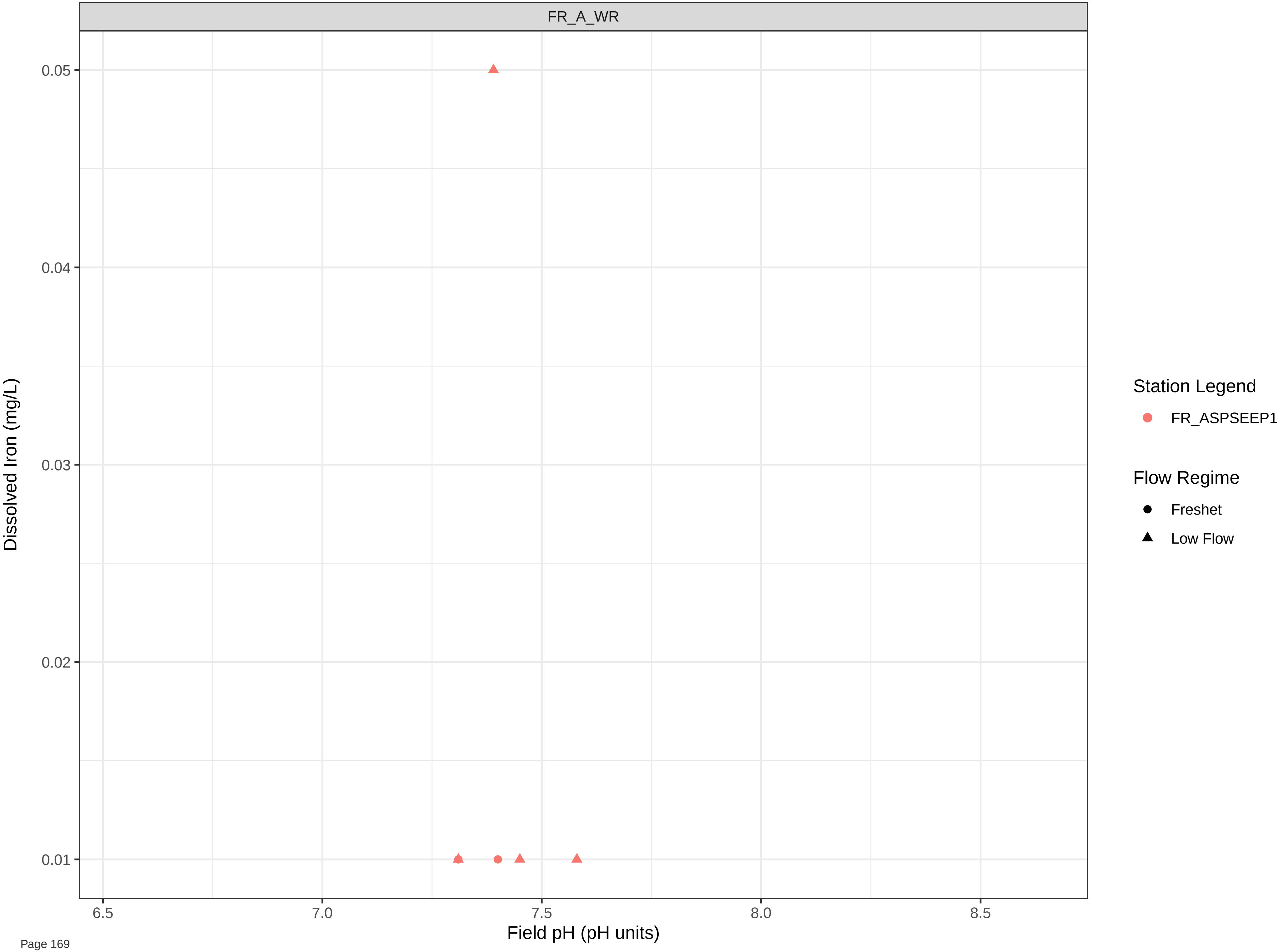

FR_Smith_WR
Dissolved Copper (mg/L)
1e−03
8e−04
6e−04
4e−04
2e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

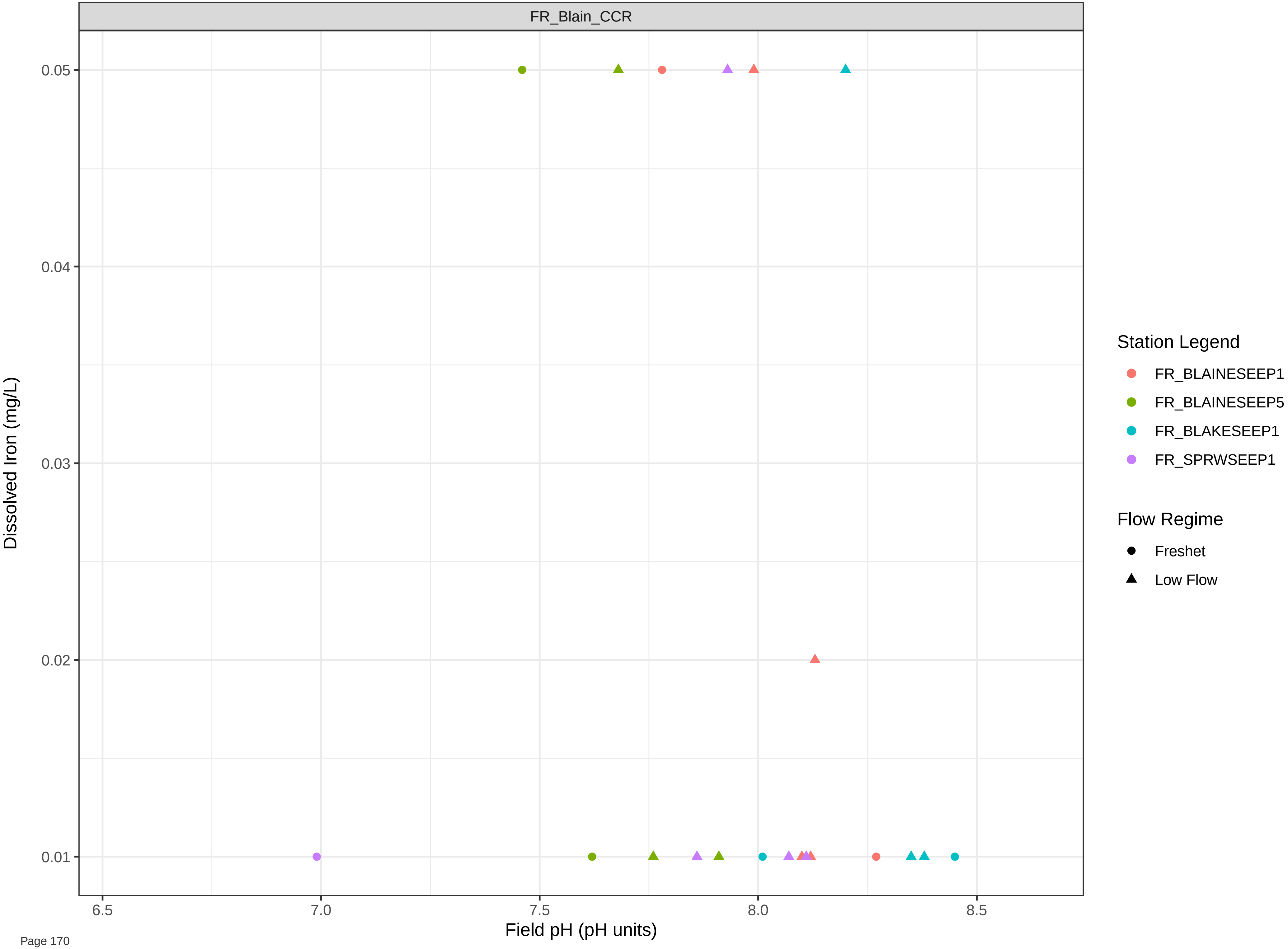

FR_SouthTails_Tailings
Dissolved Copper (mg/L)
5e−04
4e−04
3e−04
2e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

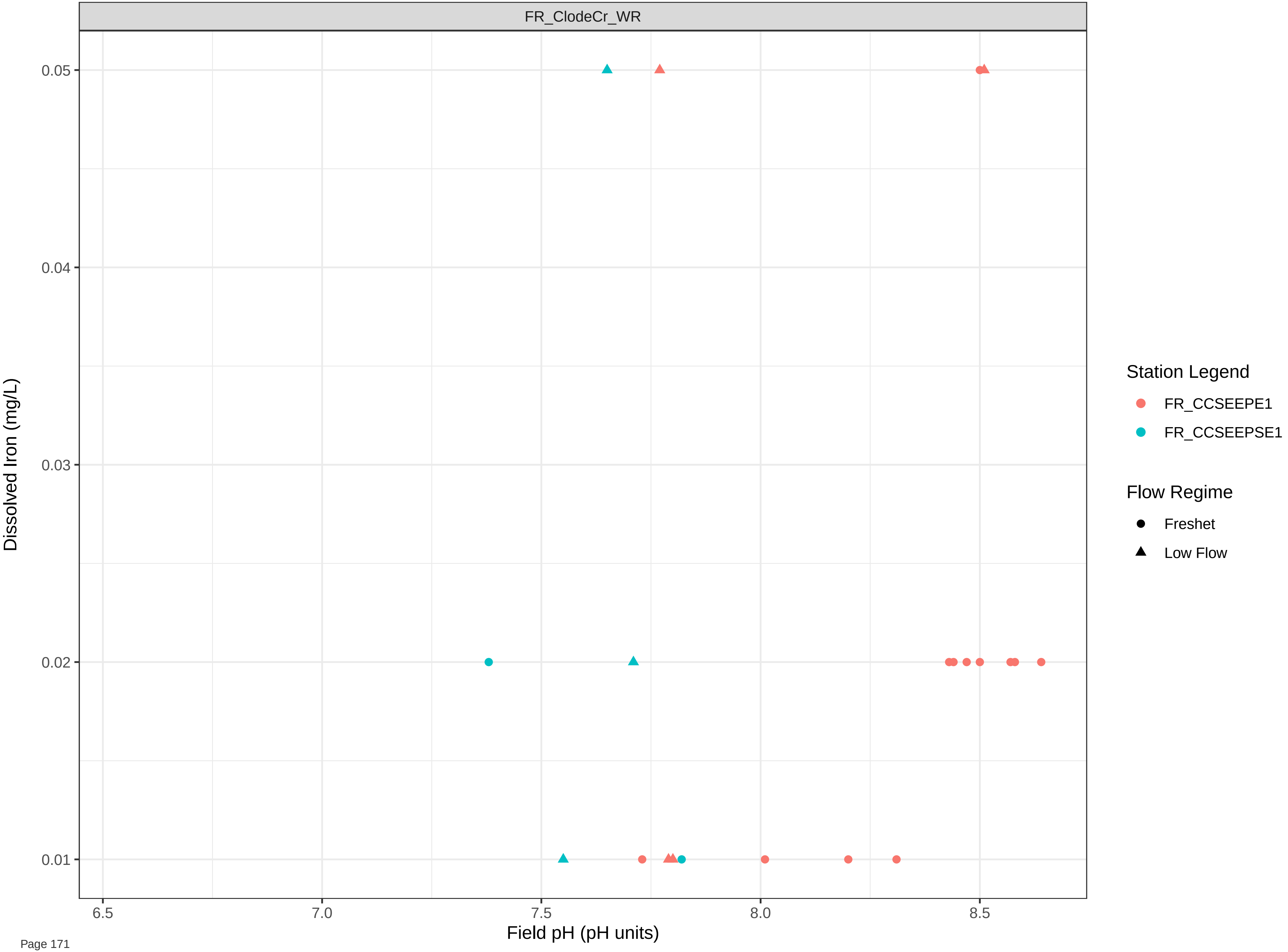
FR_SwiftWR_RockDrain_WR
Dissolved Copper (mg/L)
0.003
0.002
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

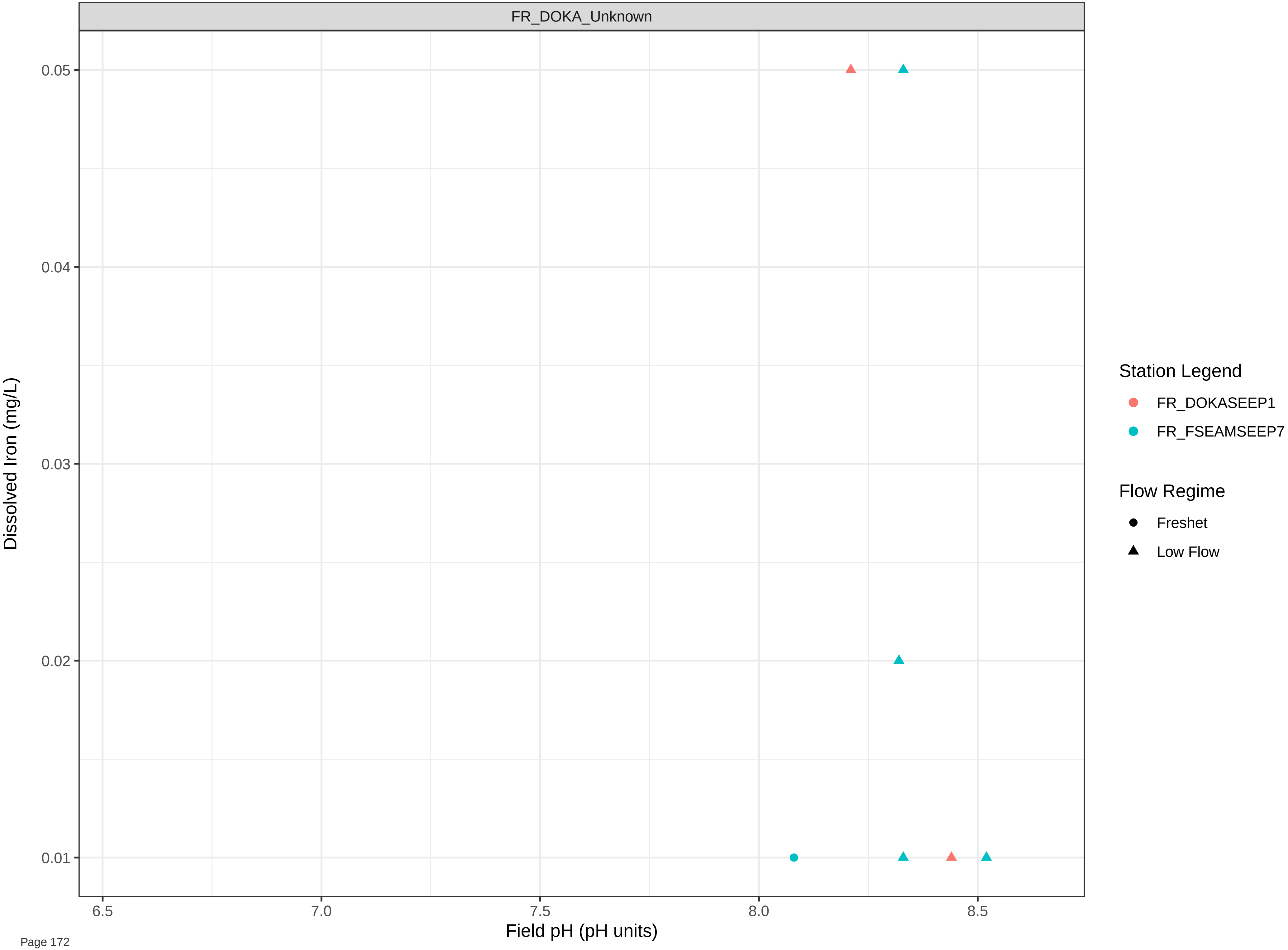

FR_TurnbullWREast_WR
Dissolved Copper (mg/L)
5e−04
4e−04
3e−04
2e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FCSEEP2
● FR_TURNSEEP1
Flow Regime
● Freshet
▲ Low Flow

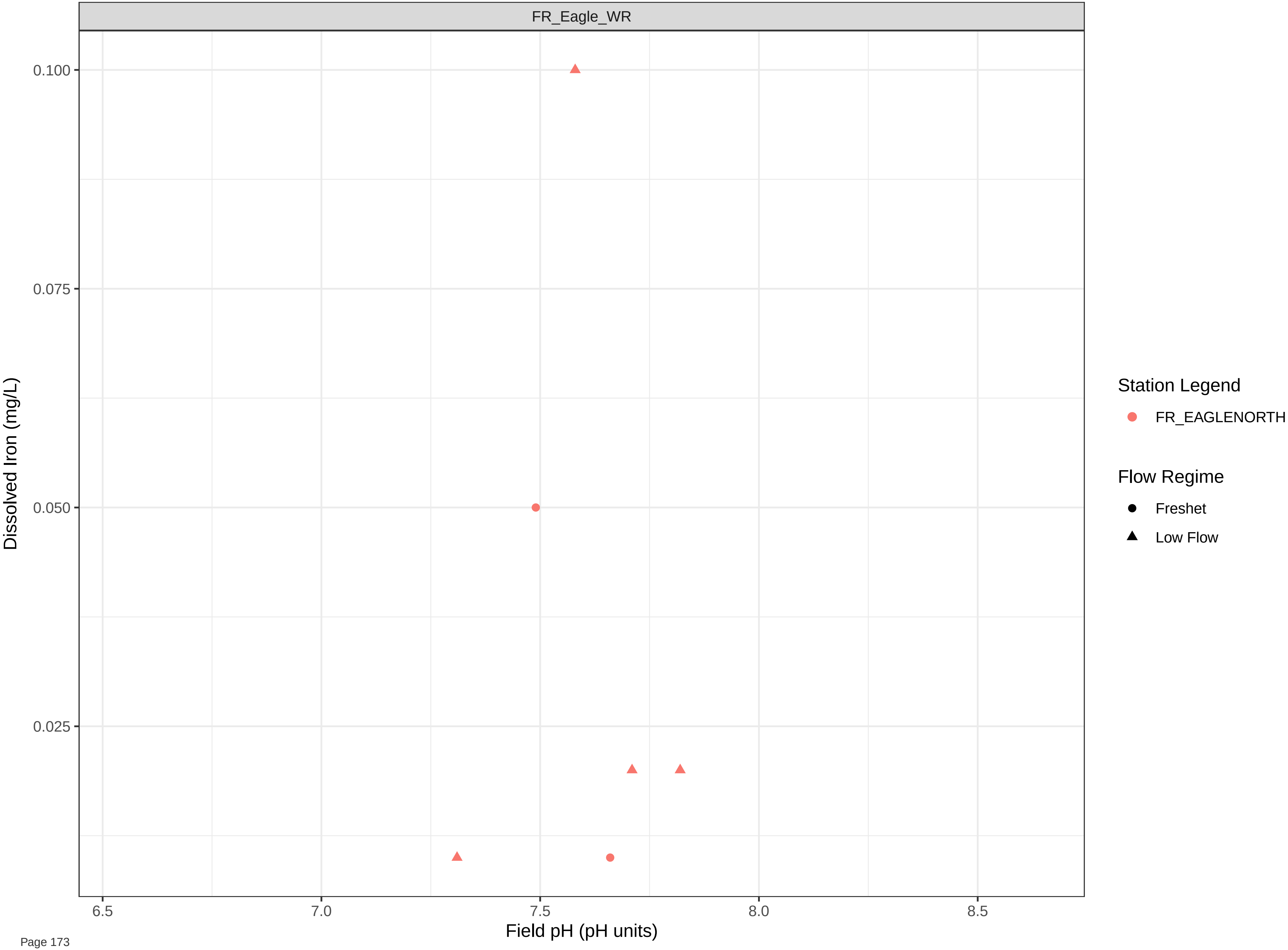

FR_TurnbullWRWest_WR
Dissolved Copper (mg/L)
1e−03
8e−04
6e−04
4e−04
2e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

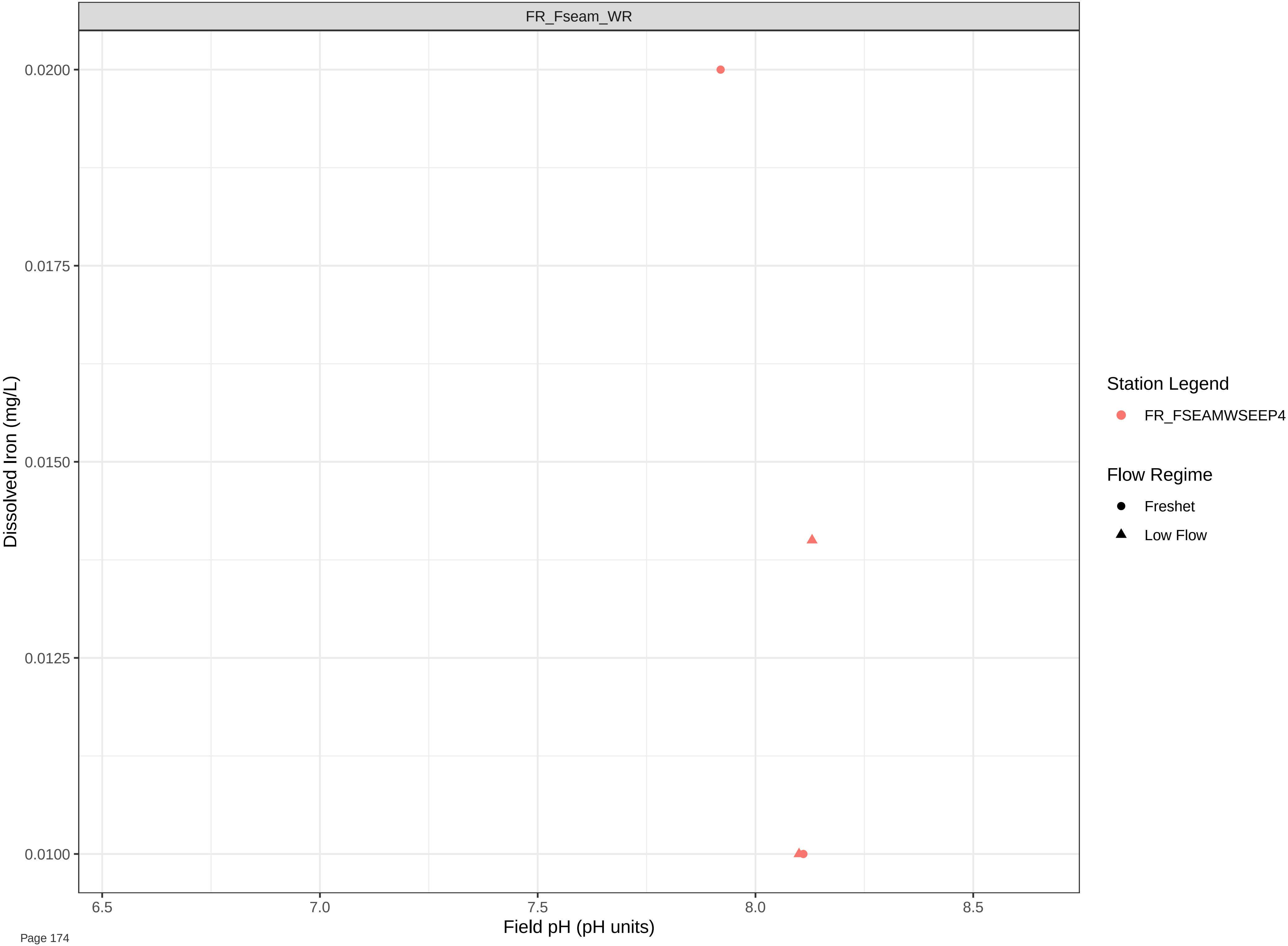

FR_A_WR
Dissolved Iron (mg/L)
0.05
0.04
0.03
0.02
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

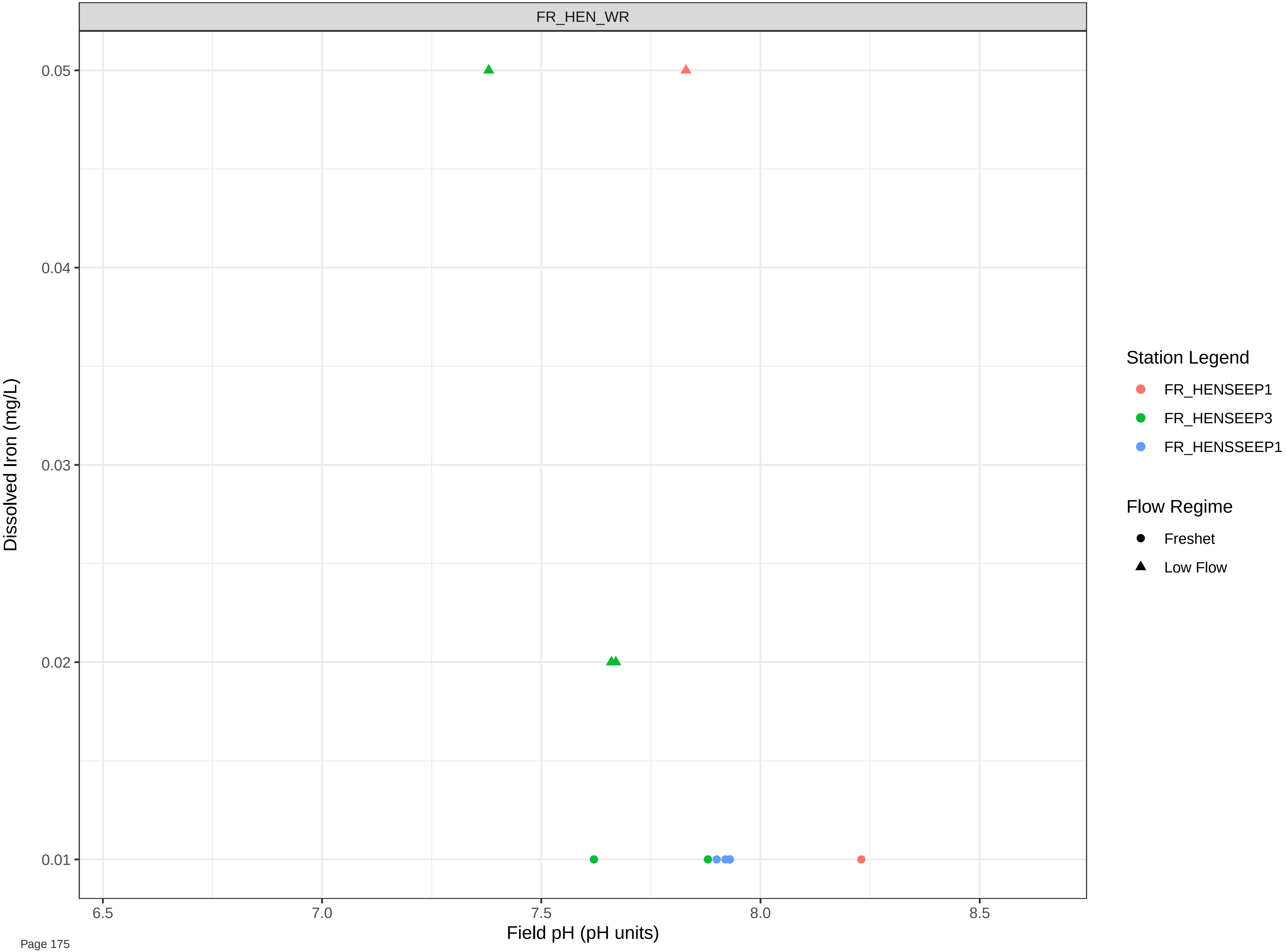

FR_Blain_CCR
Dissolved Iron (mg/L)
0.05
0.04
0.03
0.02
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow

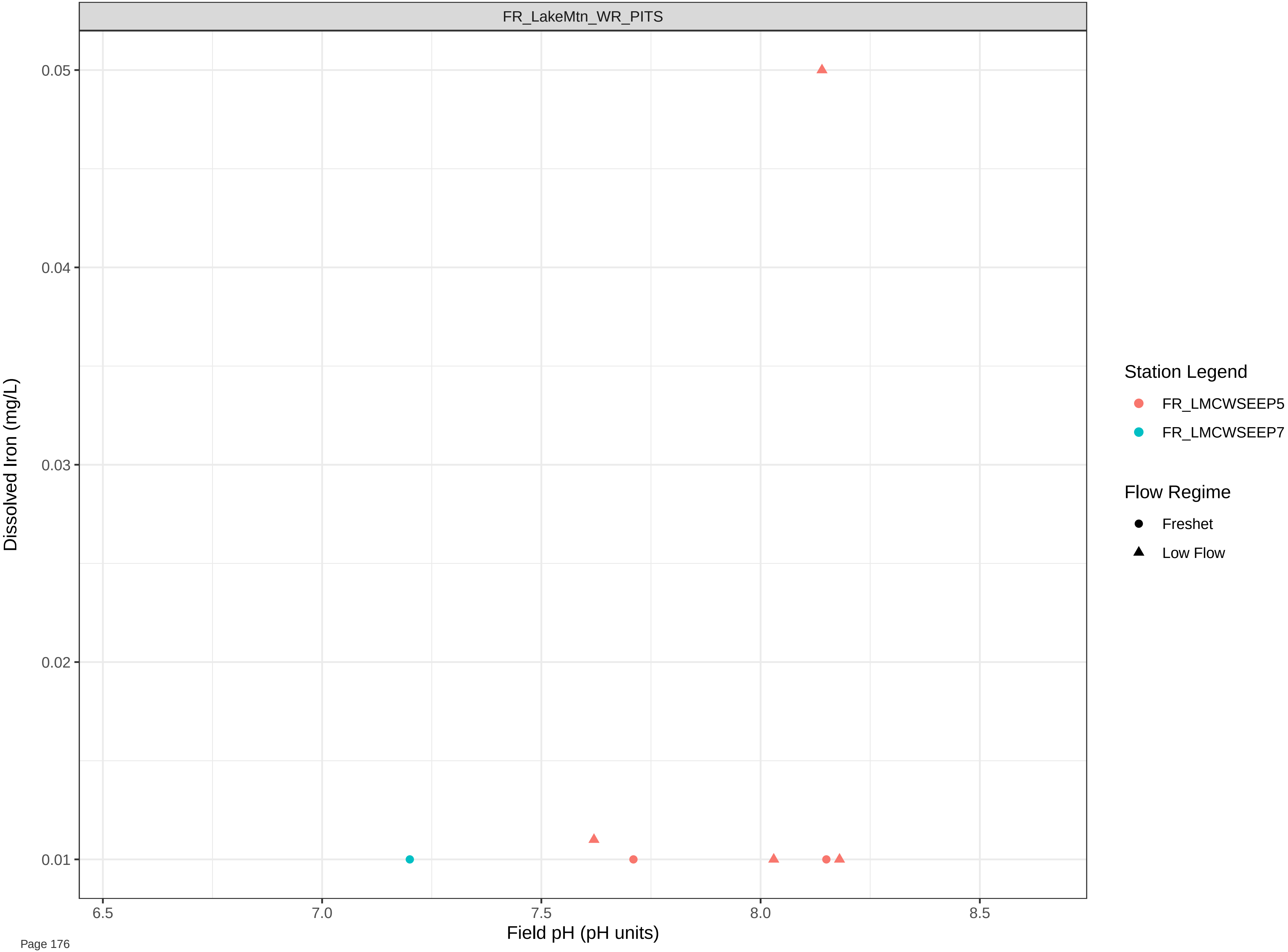

FR_ClodeCr_WR
Dissolved Iron (mg/L)
0.05
0.04
0.03
0.02
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

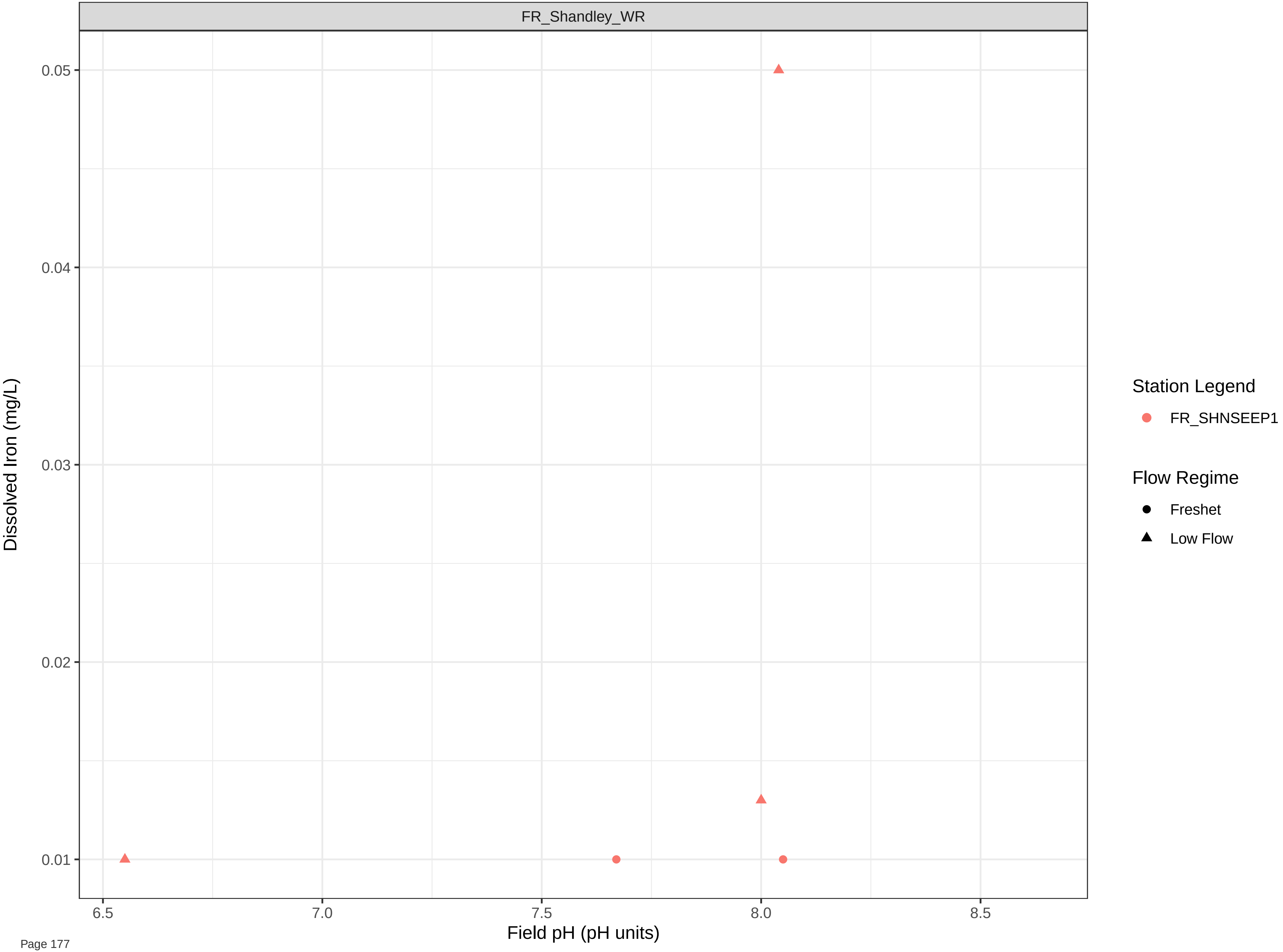

FR_DOKA_Unknown
Dissolved Iron (mg/L)
0.05
0.04
0.03
0.02
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

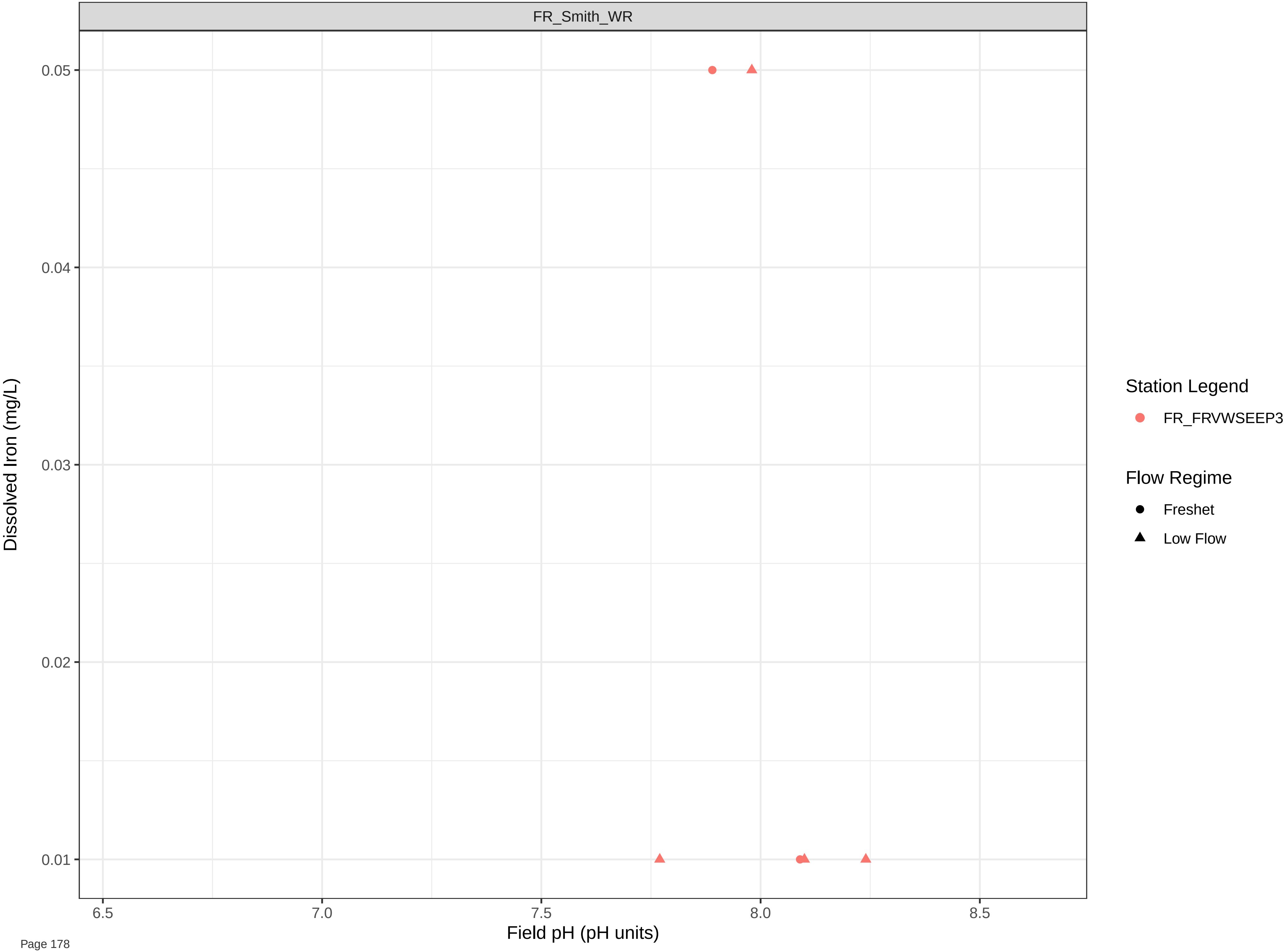

FR_Eagle_WR
Dissolved Iron (mg/L)
0.100
0.075
0.050
0.025
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

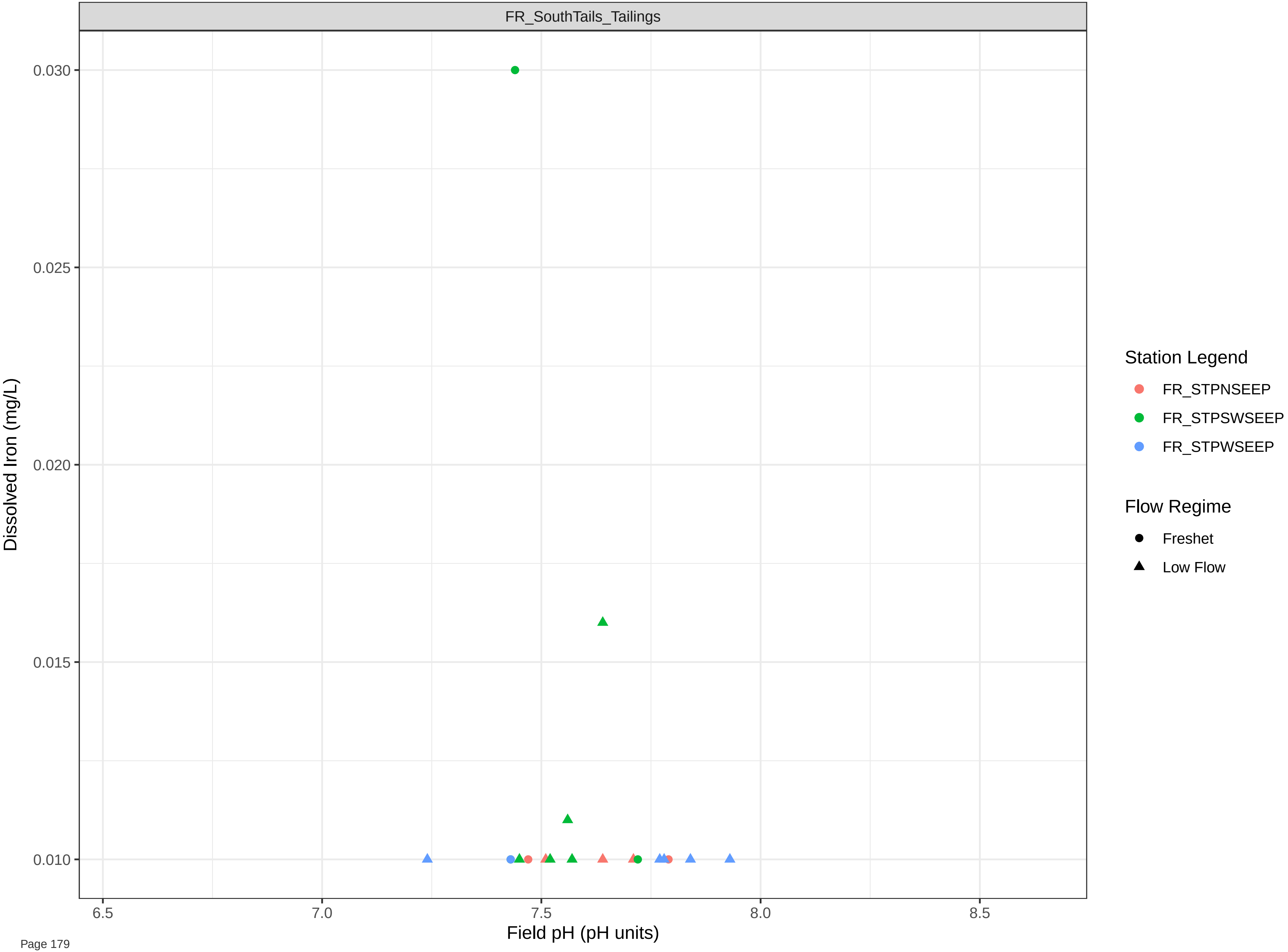

FR_Fseam_WR
Dissolved Iron (mg/L)
0.0200
0.0175
0.0150
0.0125
0.0100
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow


FR_HEN_WR
Dissolved Iron (mg/L)
0.05
0.04
0.03
0.02
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

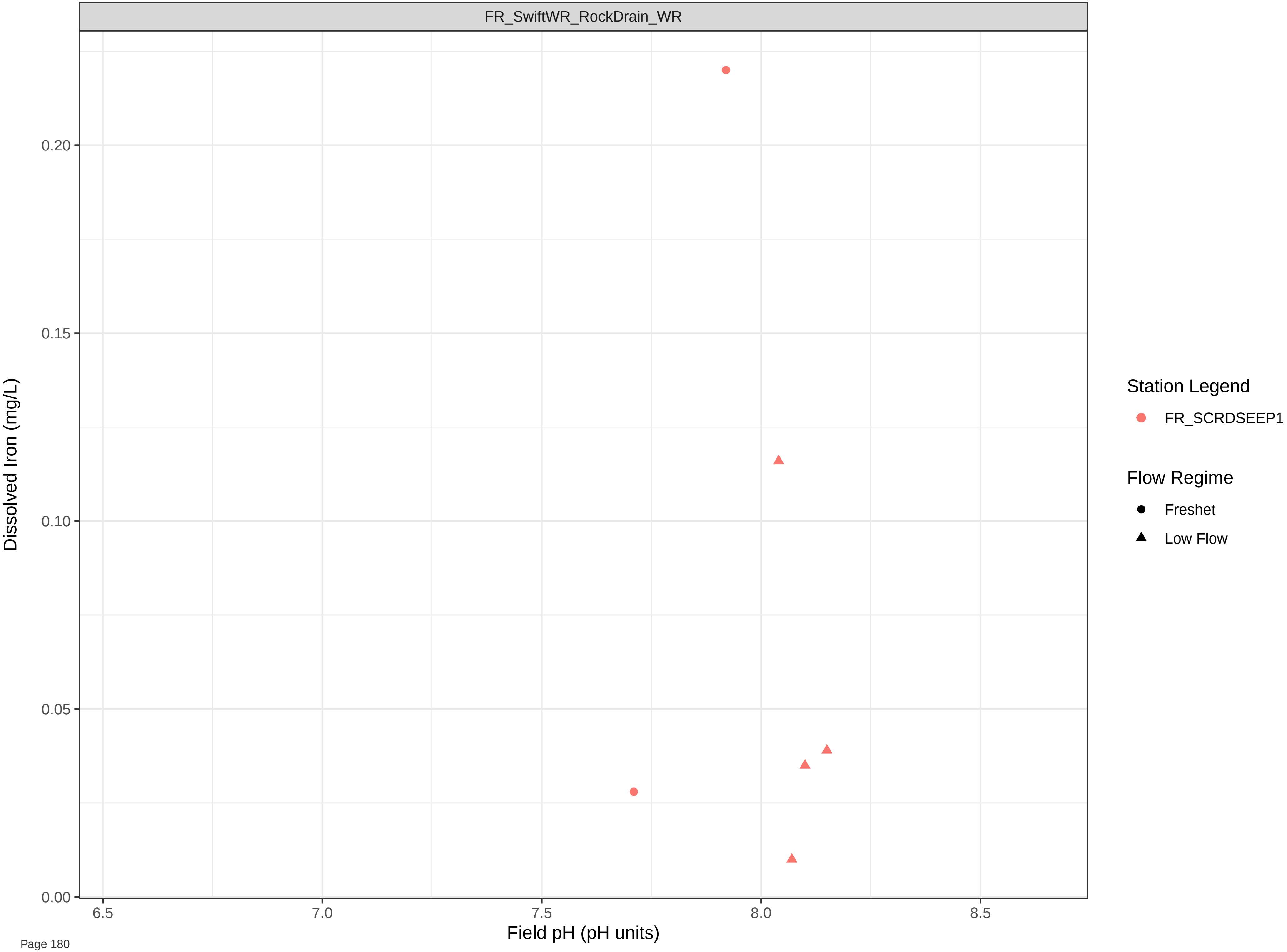

FR_LakeMtn_WR_PITS
Dissolved Iron (mg/L)
0.05
0.04
0.03
0.02
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

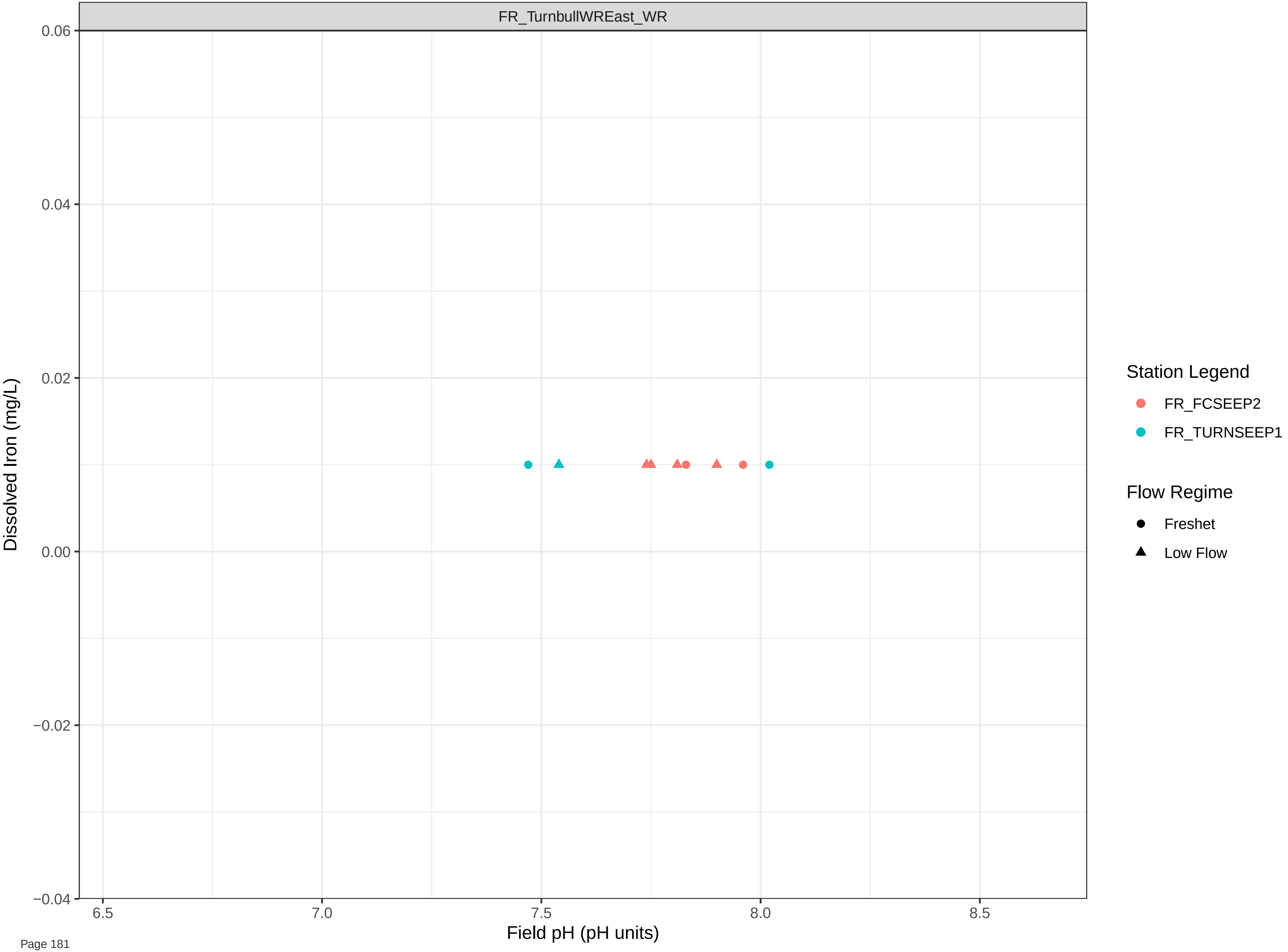

FR_Shandley_WR
Dissolved Iron (mg/L)
0.05
0.04
0.03
0.02
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

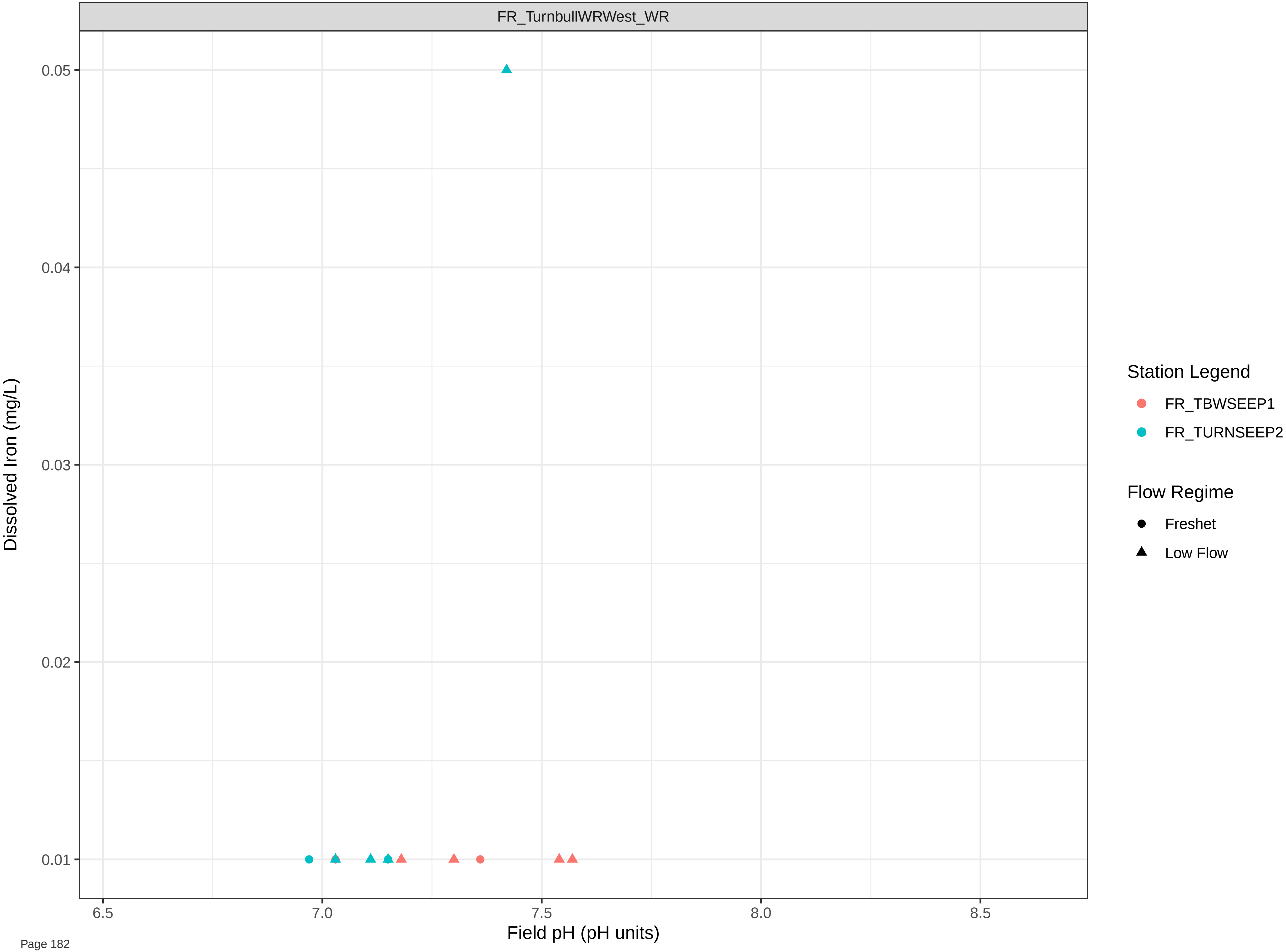

FR_Smith_WR
Dissolved Iron (mg/L)
0.05
0.04
0.03
0.02
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

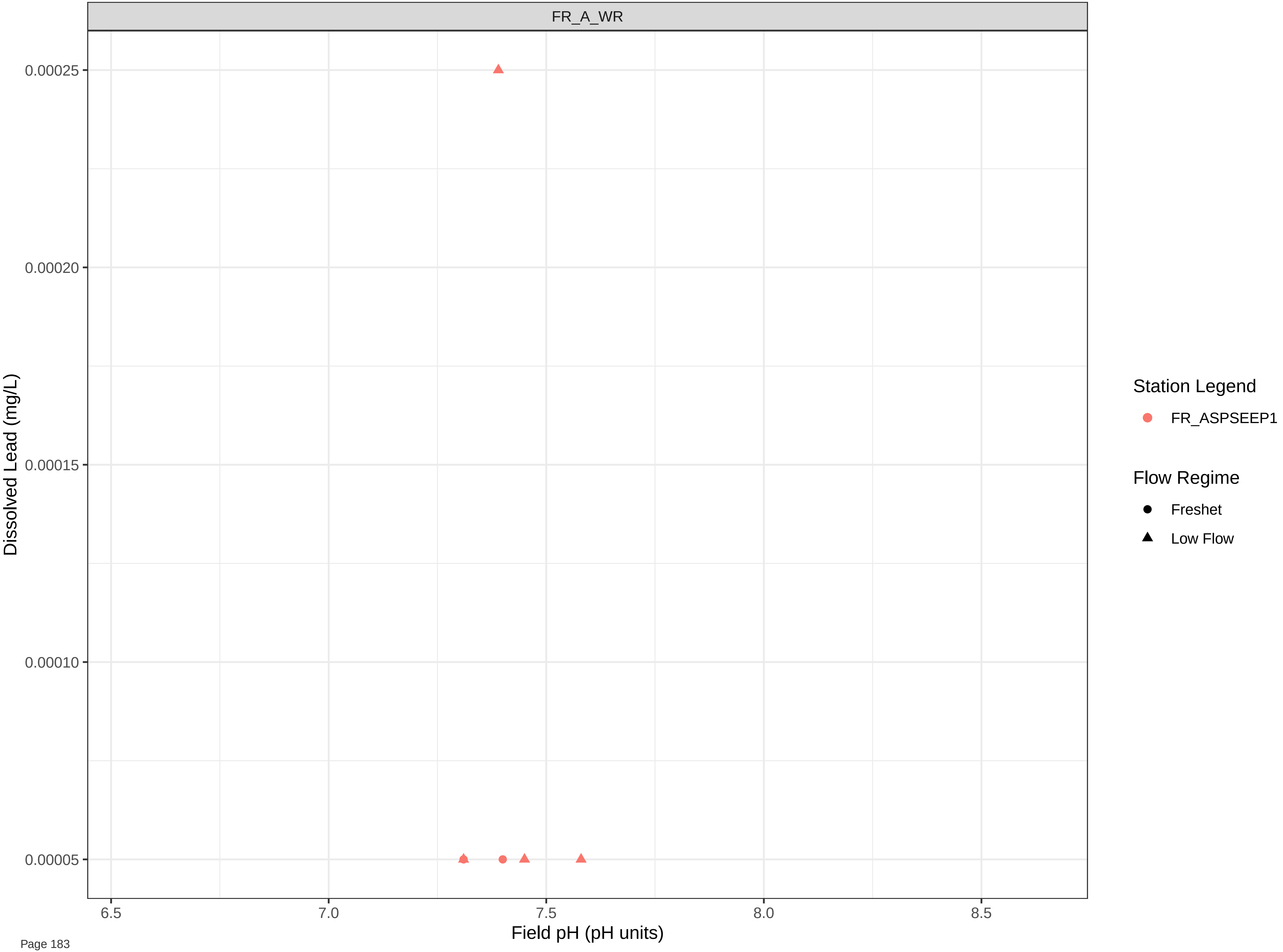


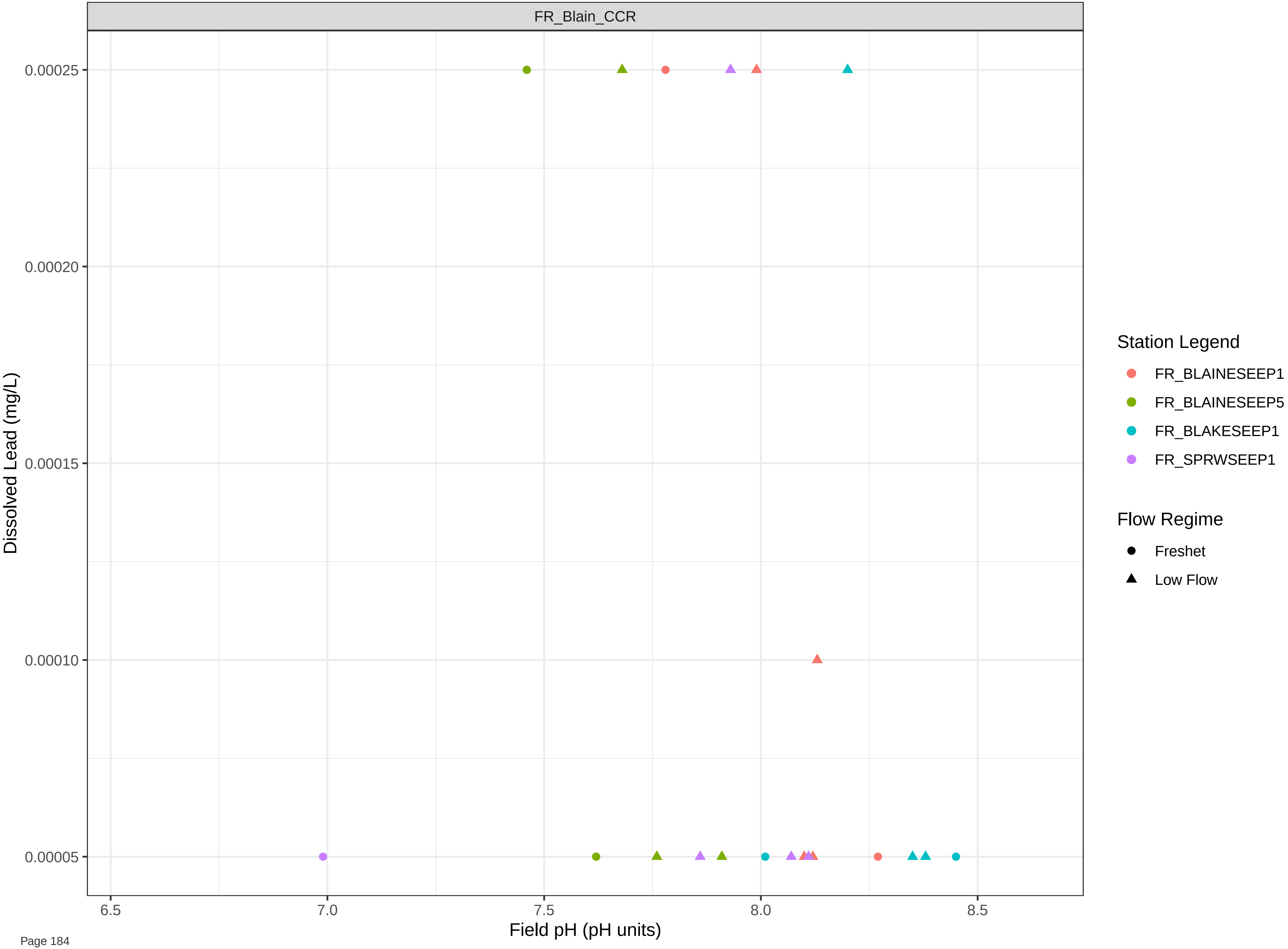
FR_SouthTails_Tailings
Dissolved Iron (mg/L)
0.030
0.025
0.020
0.015
0.010
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

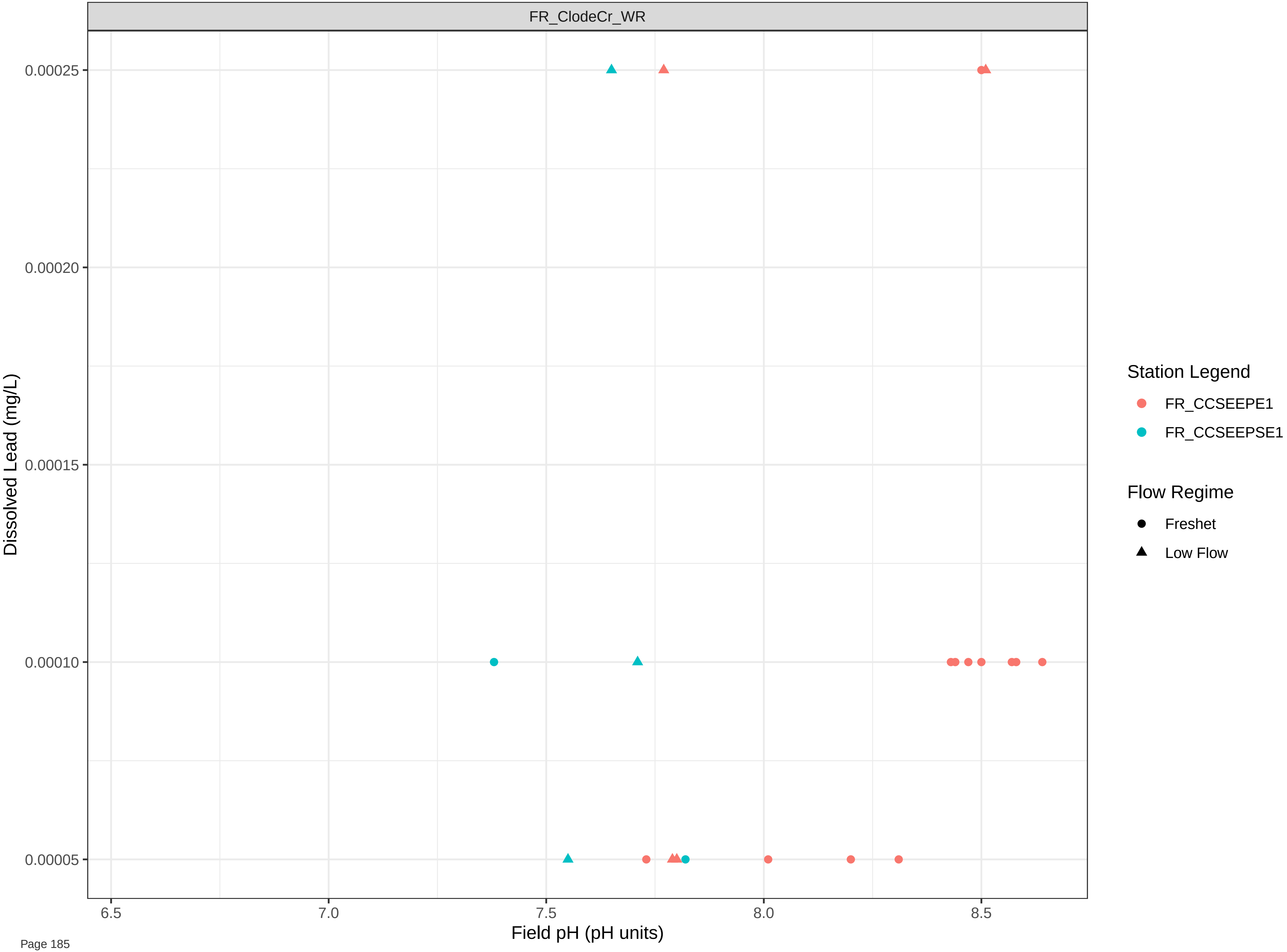

FR_SwiftWR_RockDrain_WR
Dissolved Iron (mg/L)
0.20
0.15
0.10
0.05
0.00
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

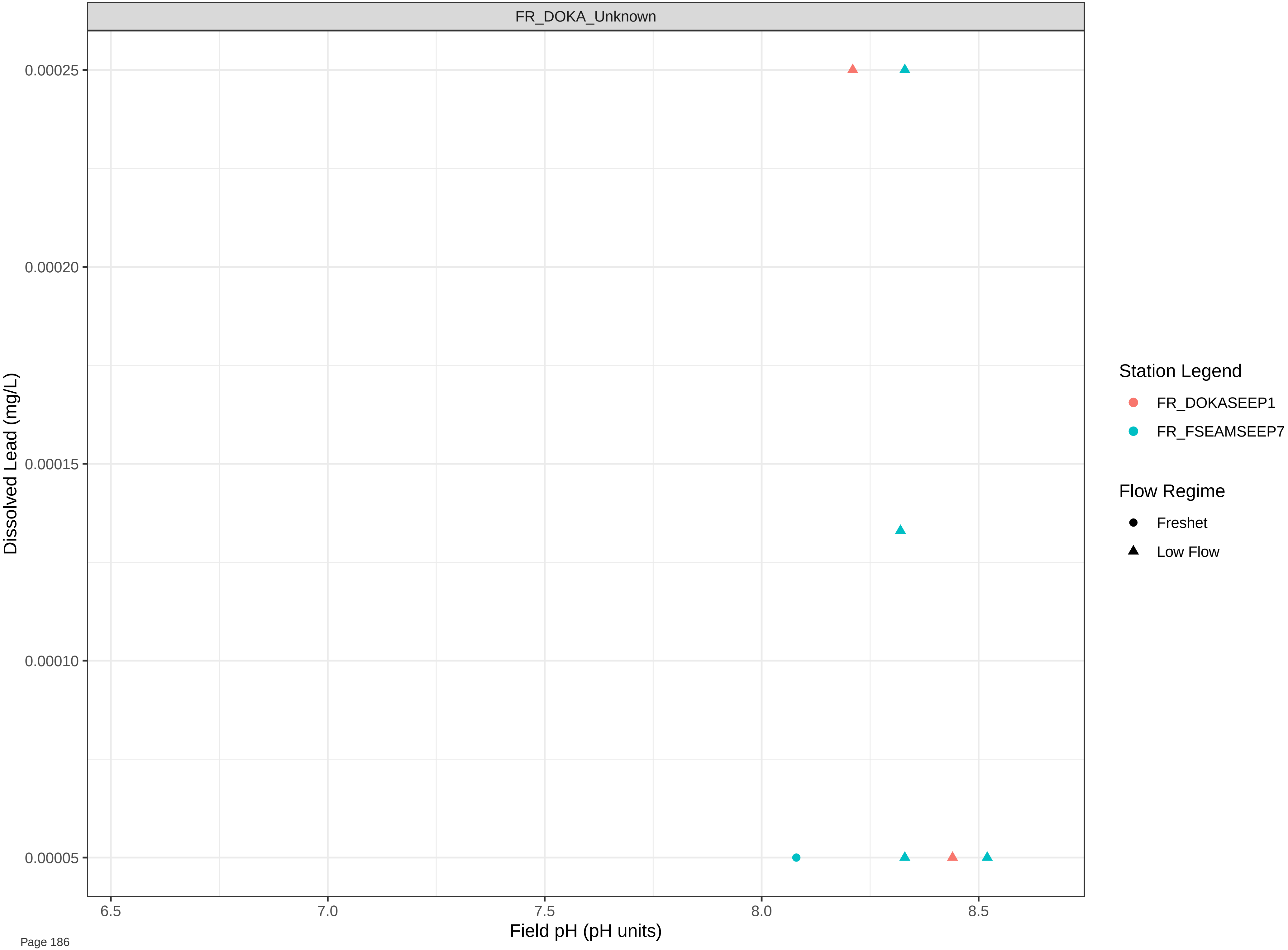

FR_TurnbullWREast_WR
Dissolved Iron (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

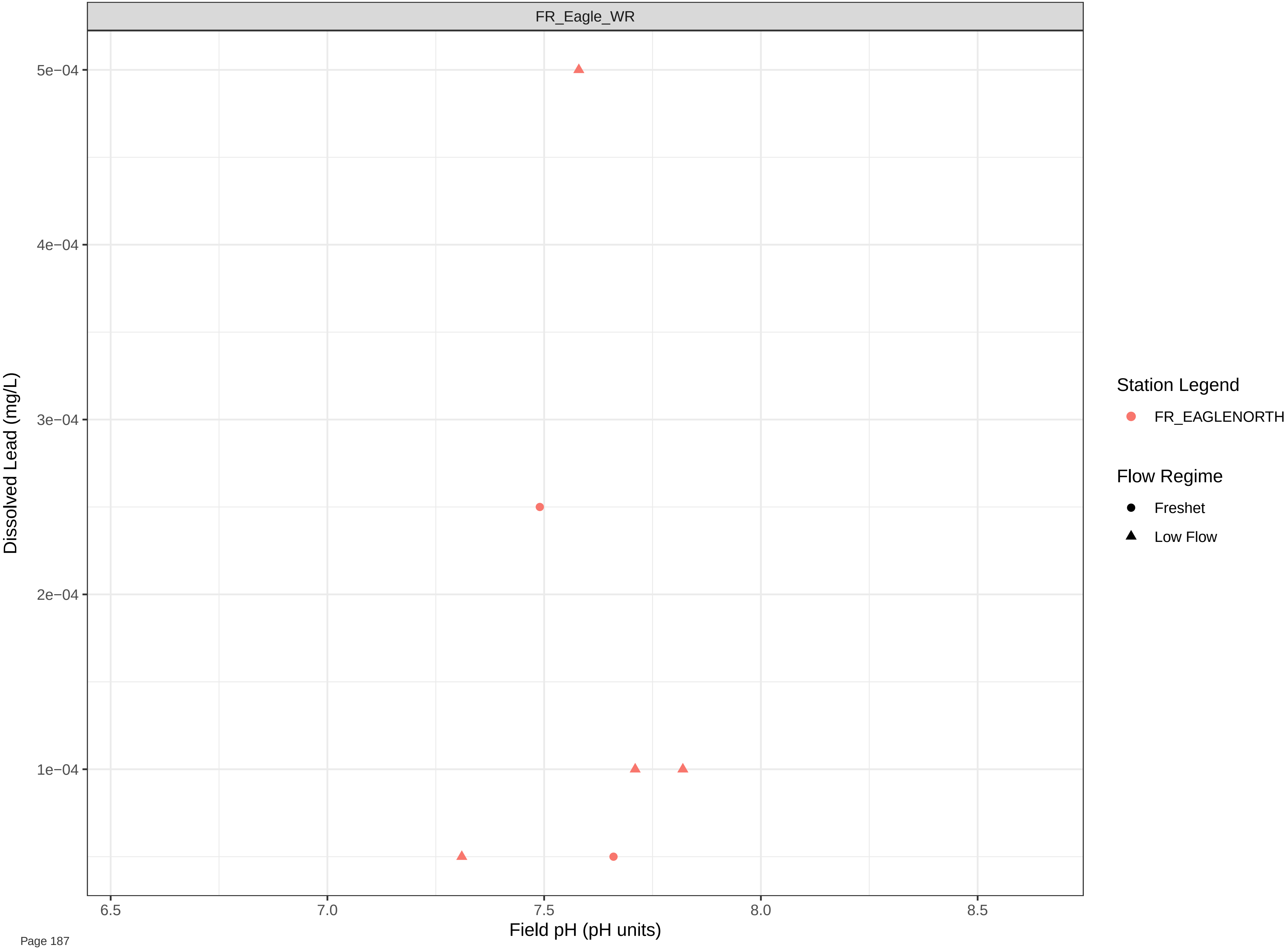

FR_TurnbullWRWest_WR
Dissolved Iron (mg/L)
0.05
0.04
0.03
0.02
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

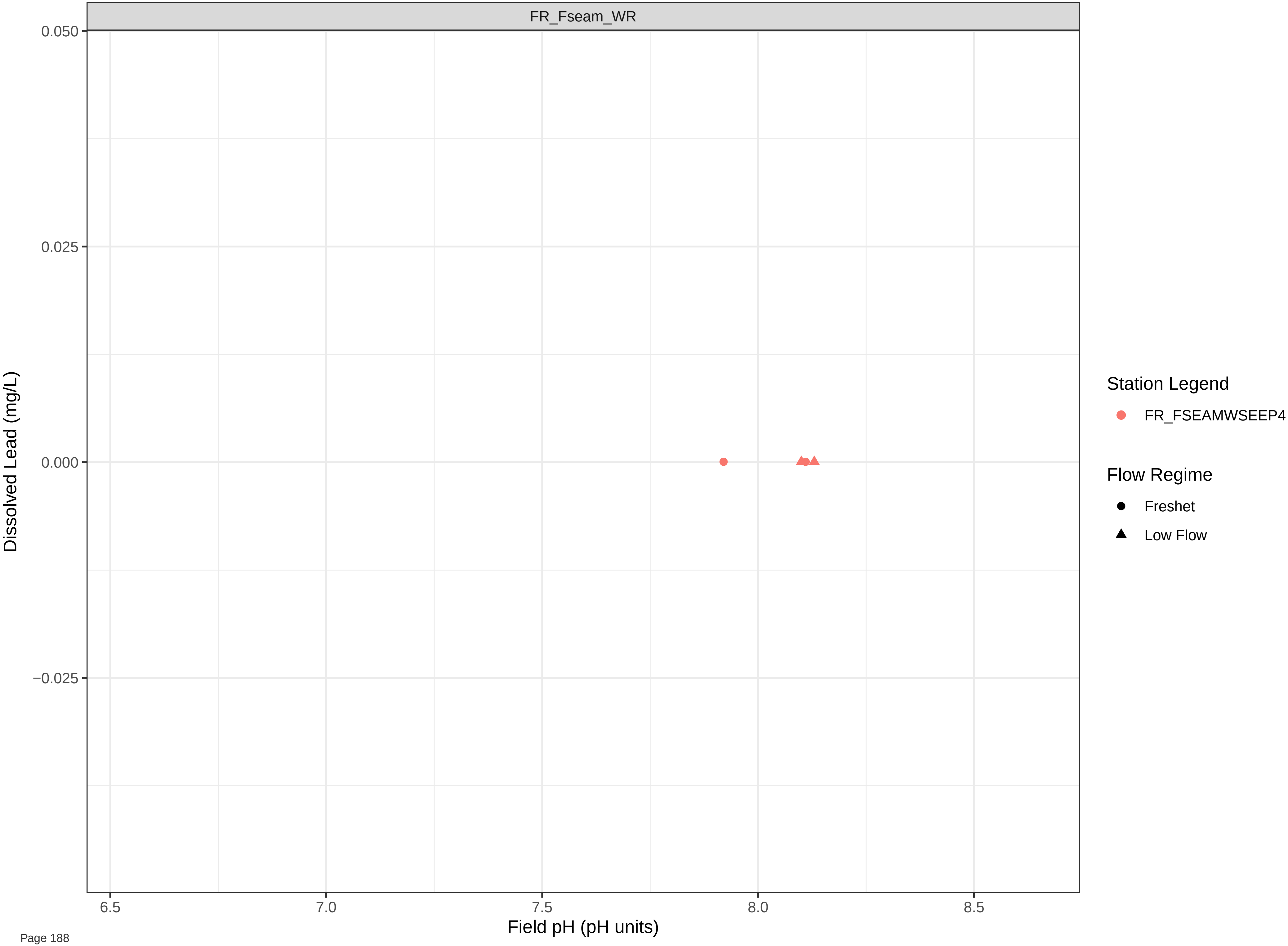

FR_A_WR
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

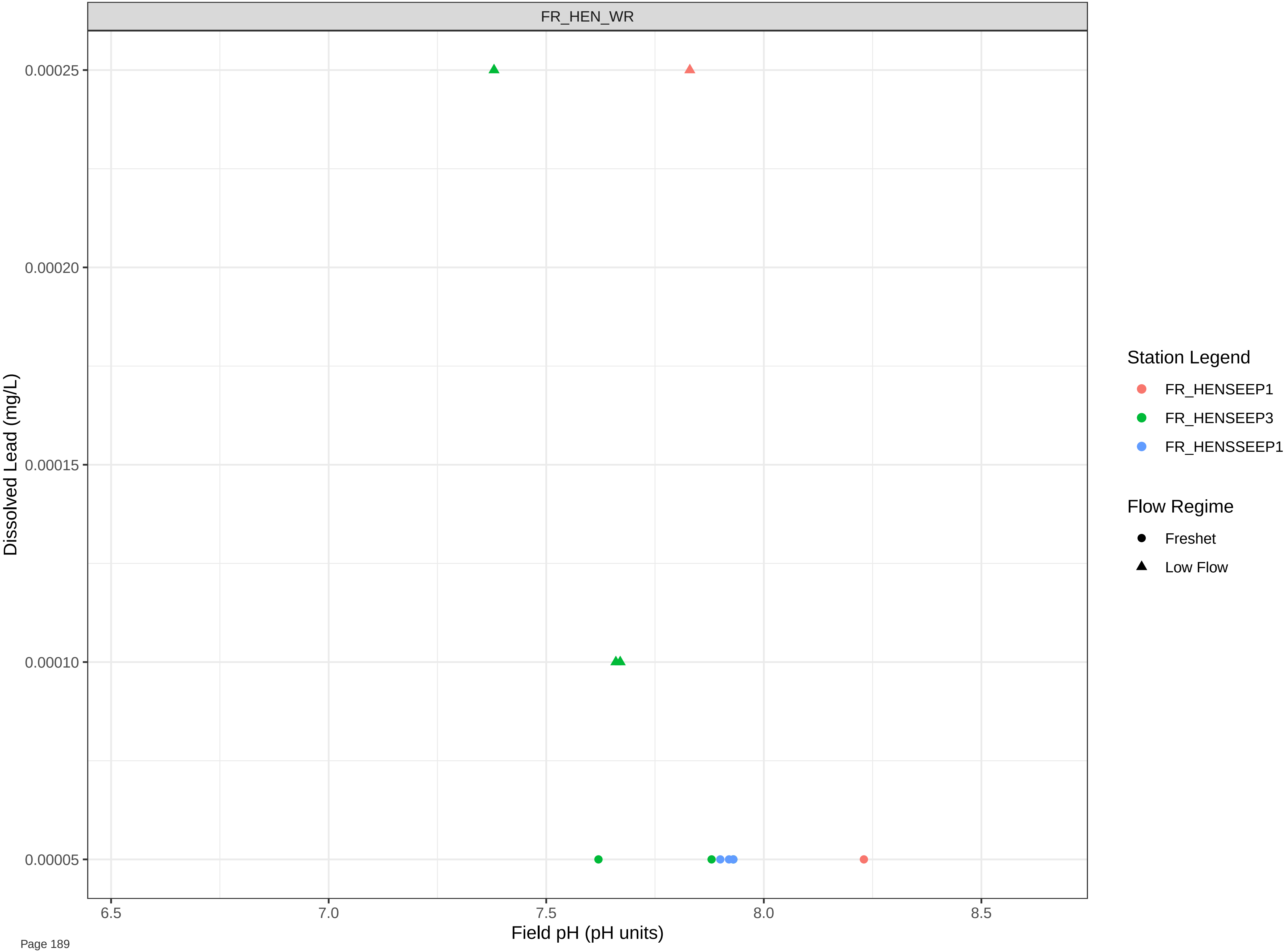

FR_Blain_CCR
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

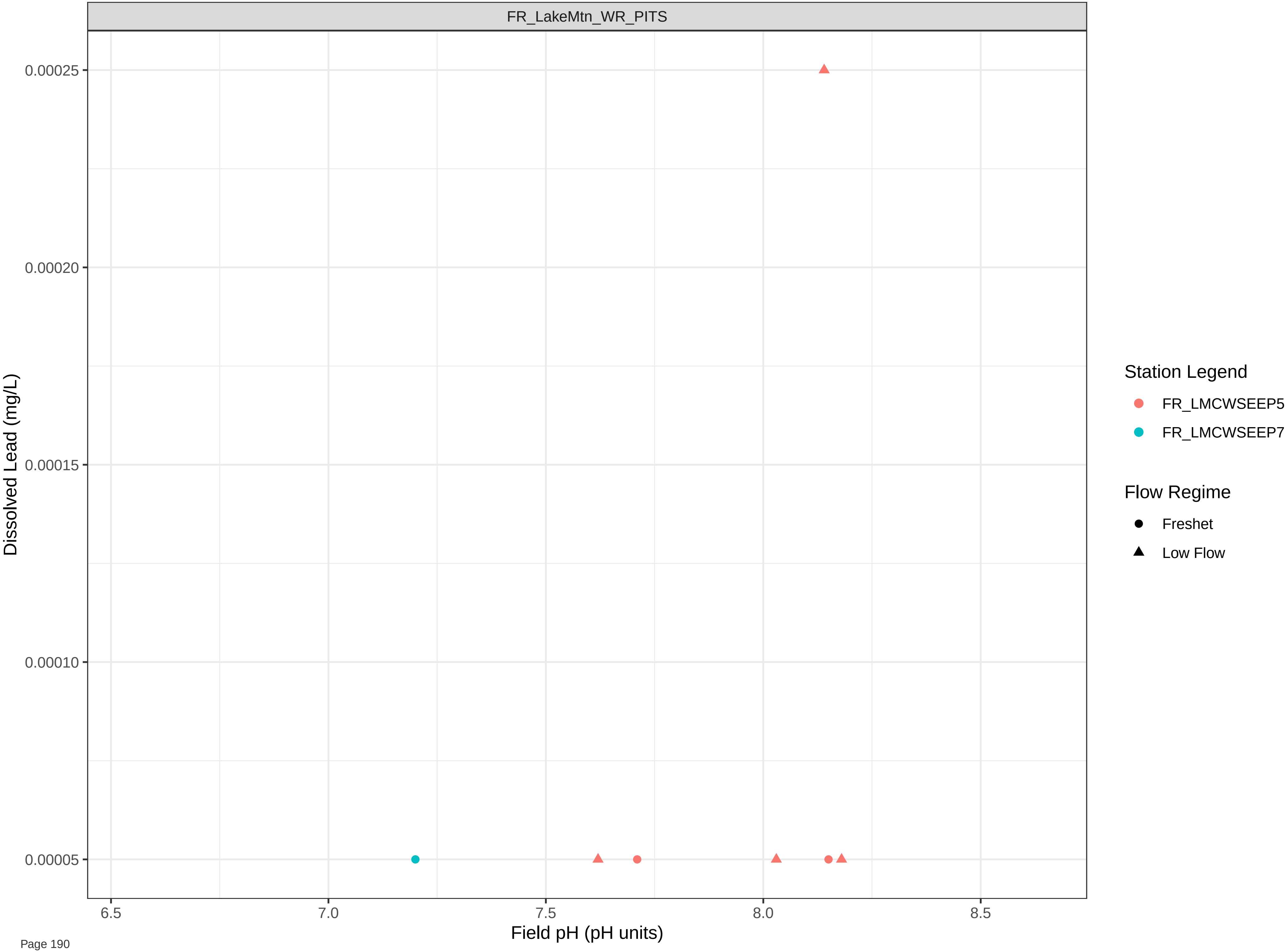

FR_ClodeCr_WR
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

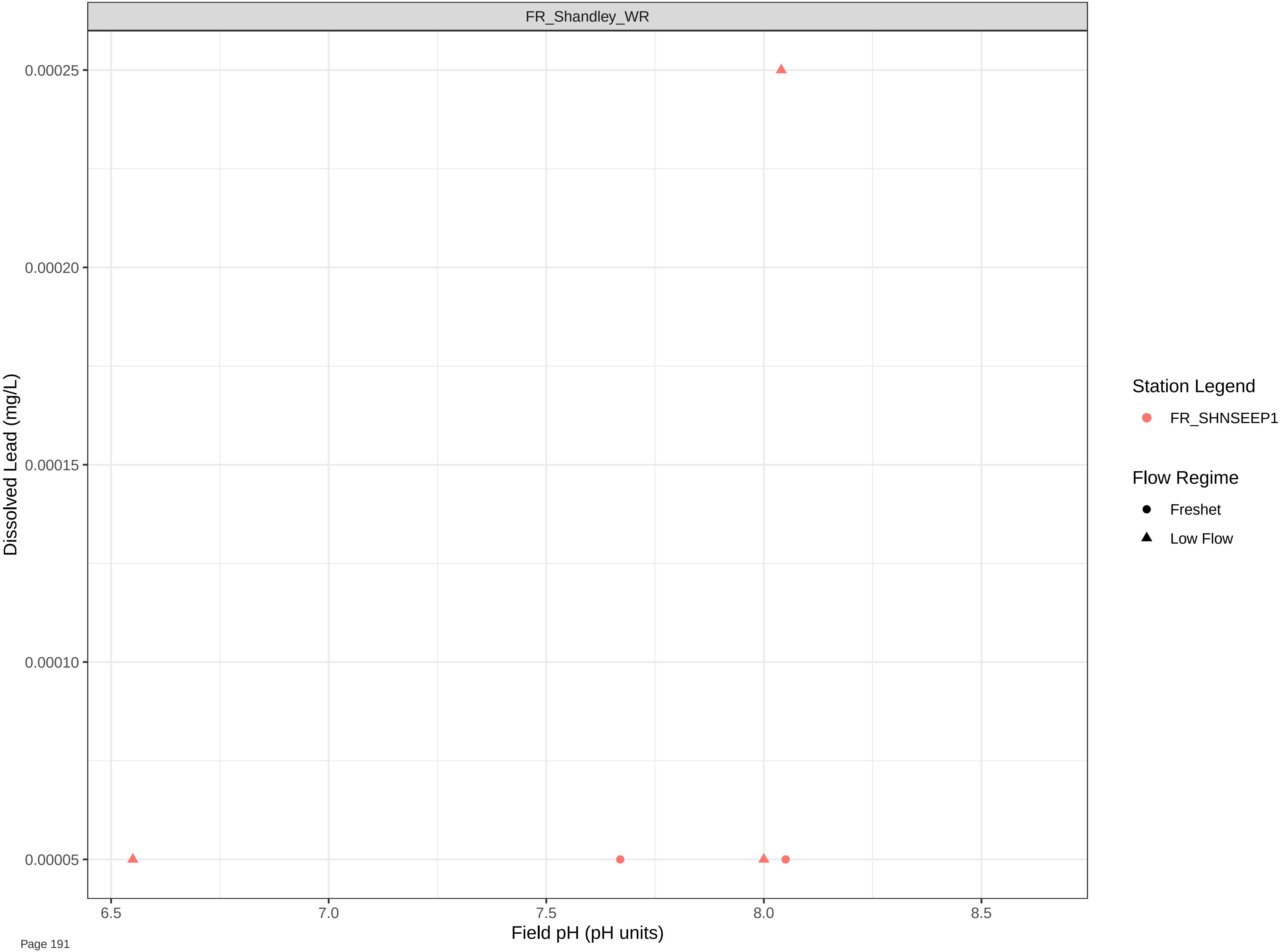

FR_DOKA_Unknown
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

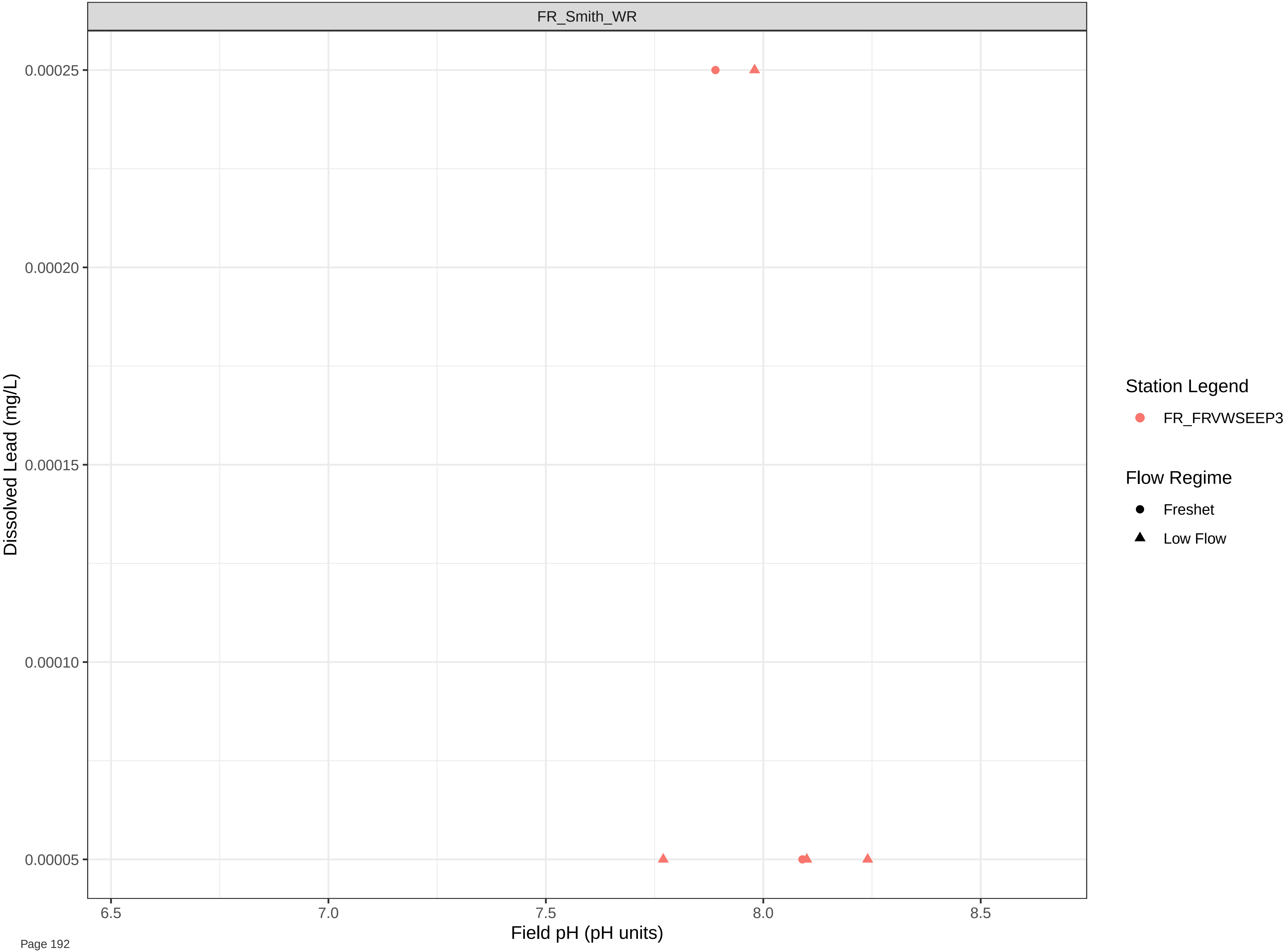

FR_Eagle_WR
Dissolved Lead (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

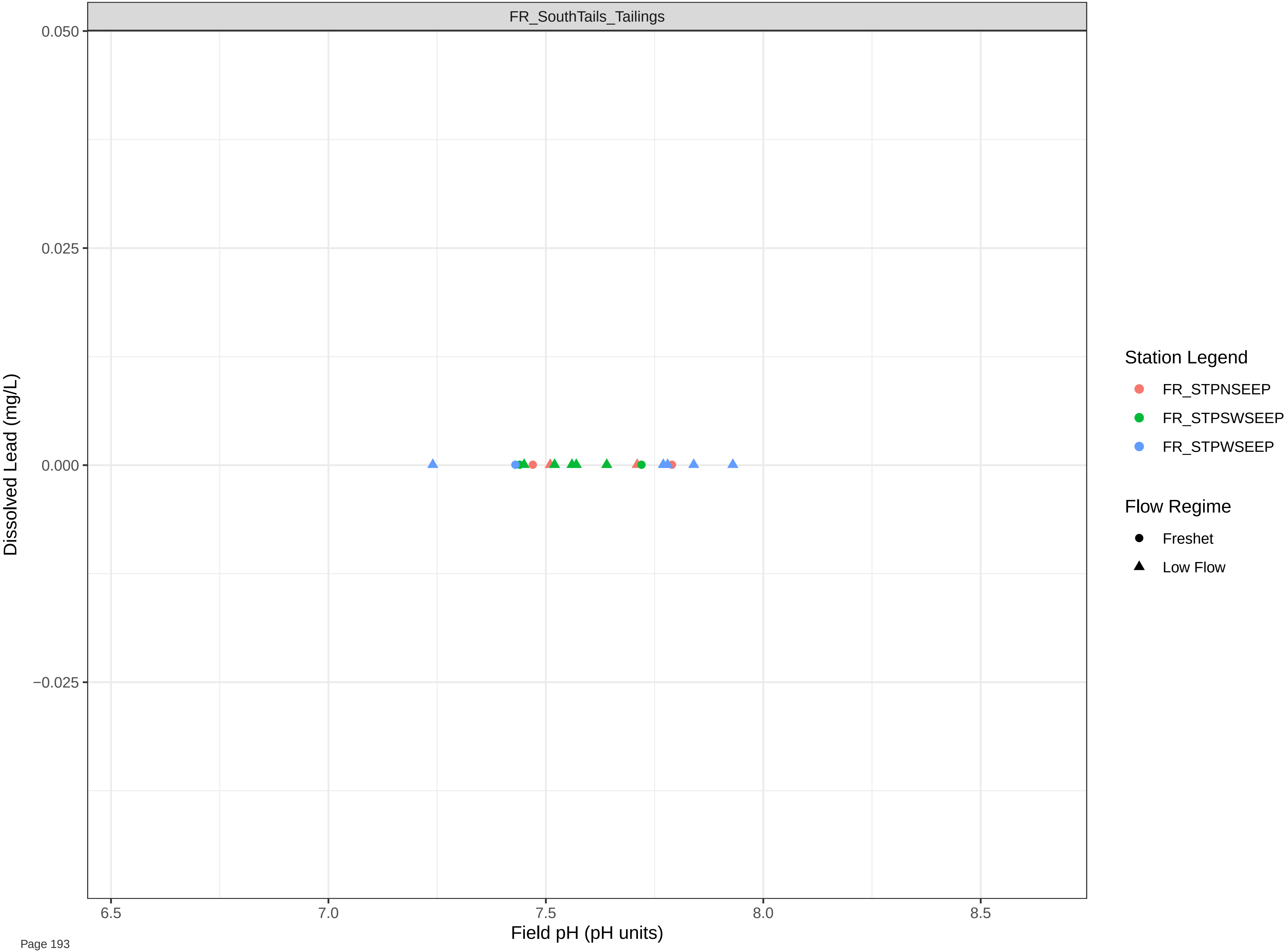

FR_Fseam_WR
0.050
0.025
0.000
−0.025
Dissolved Lead (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

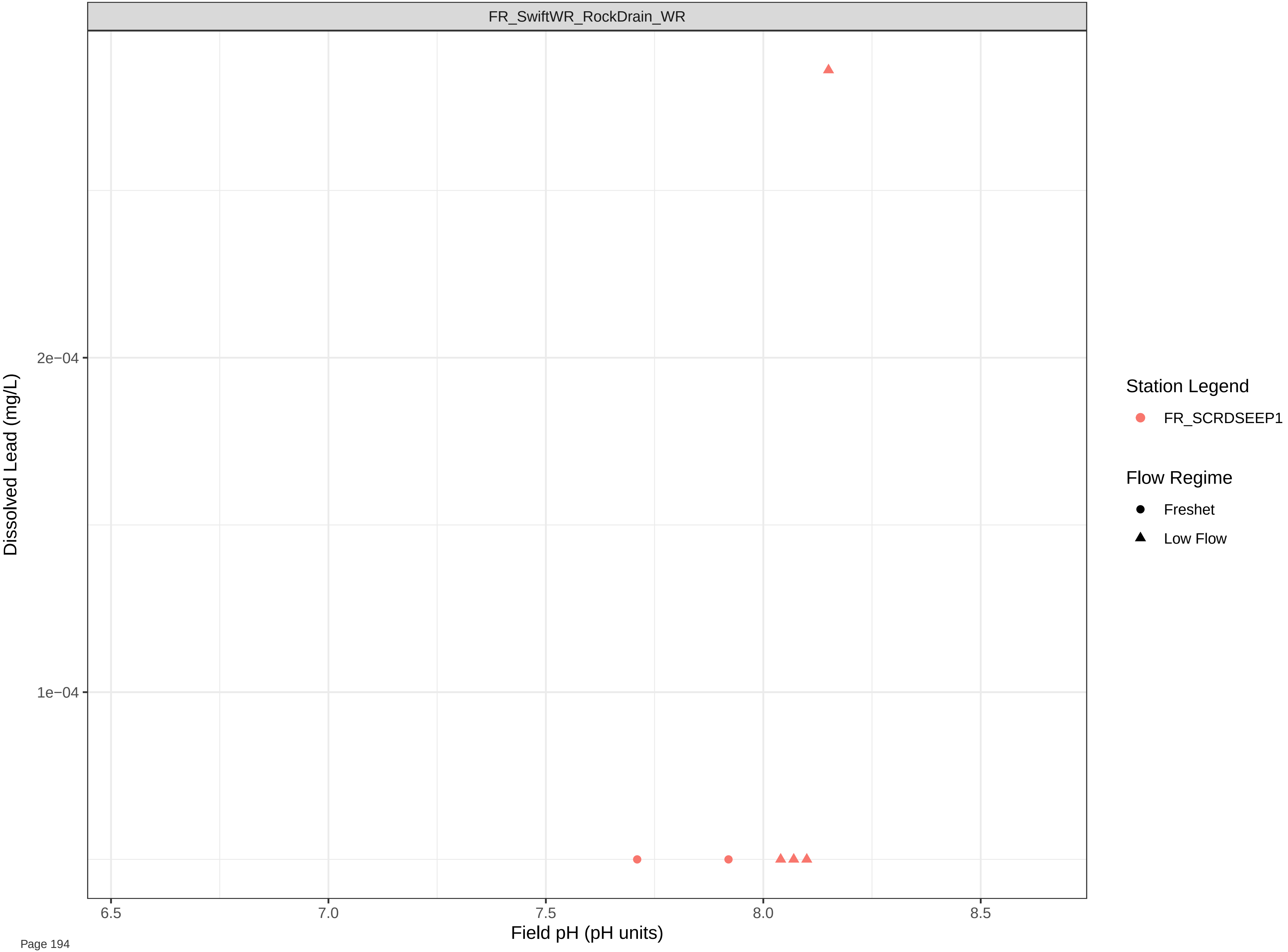

FR_HEN_WR
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

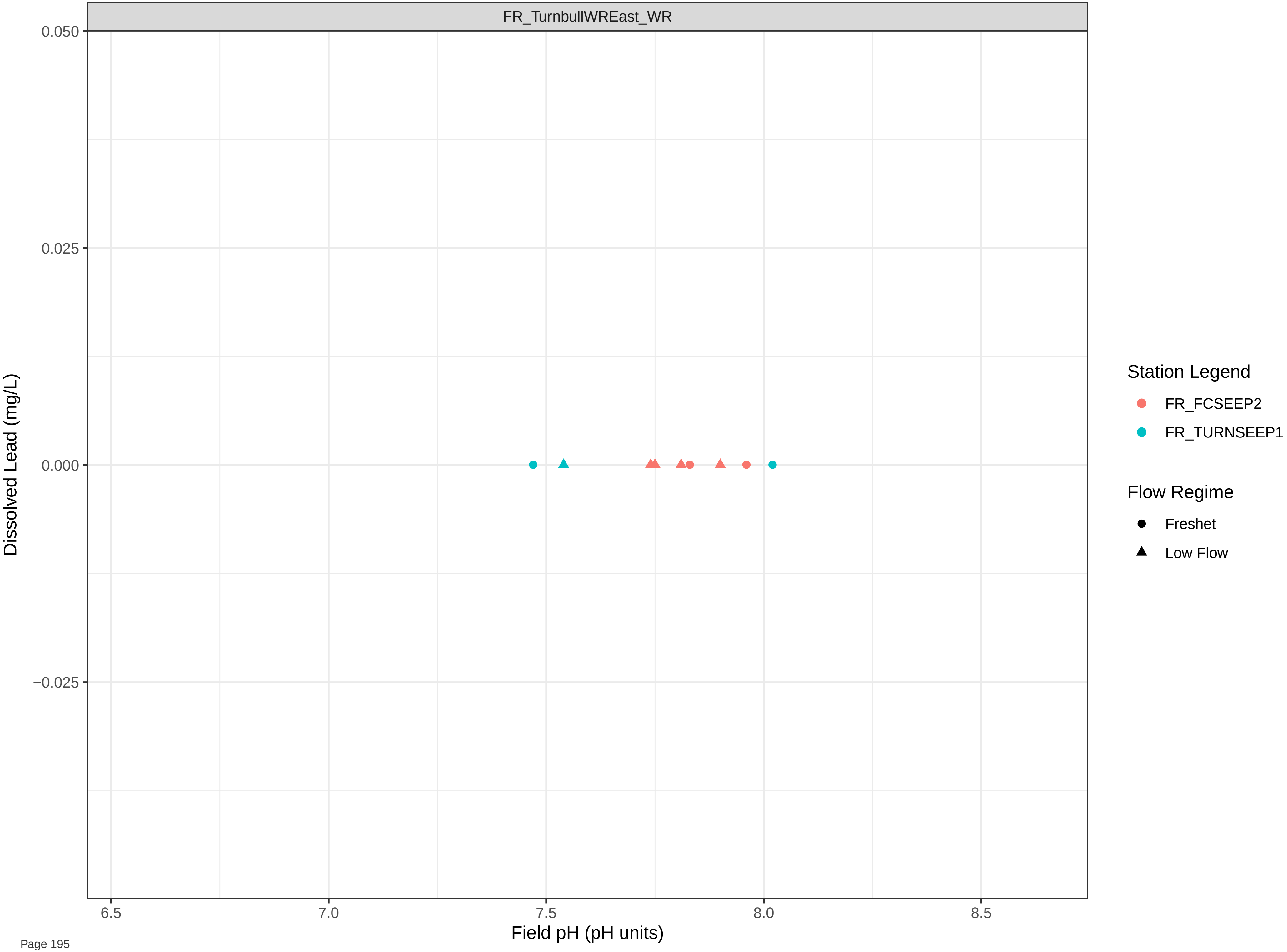

FR_LakeMtn_WR_PITS
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

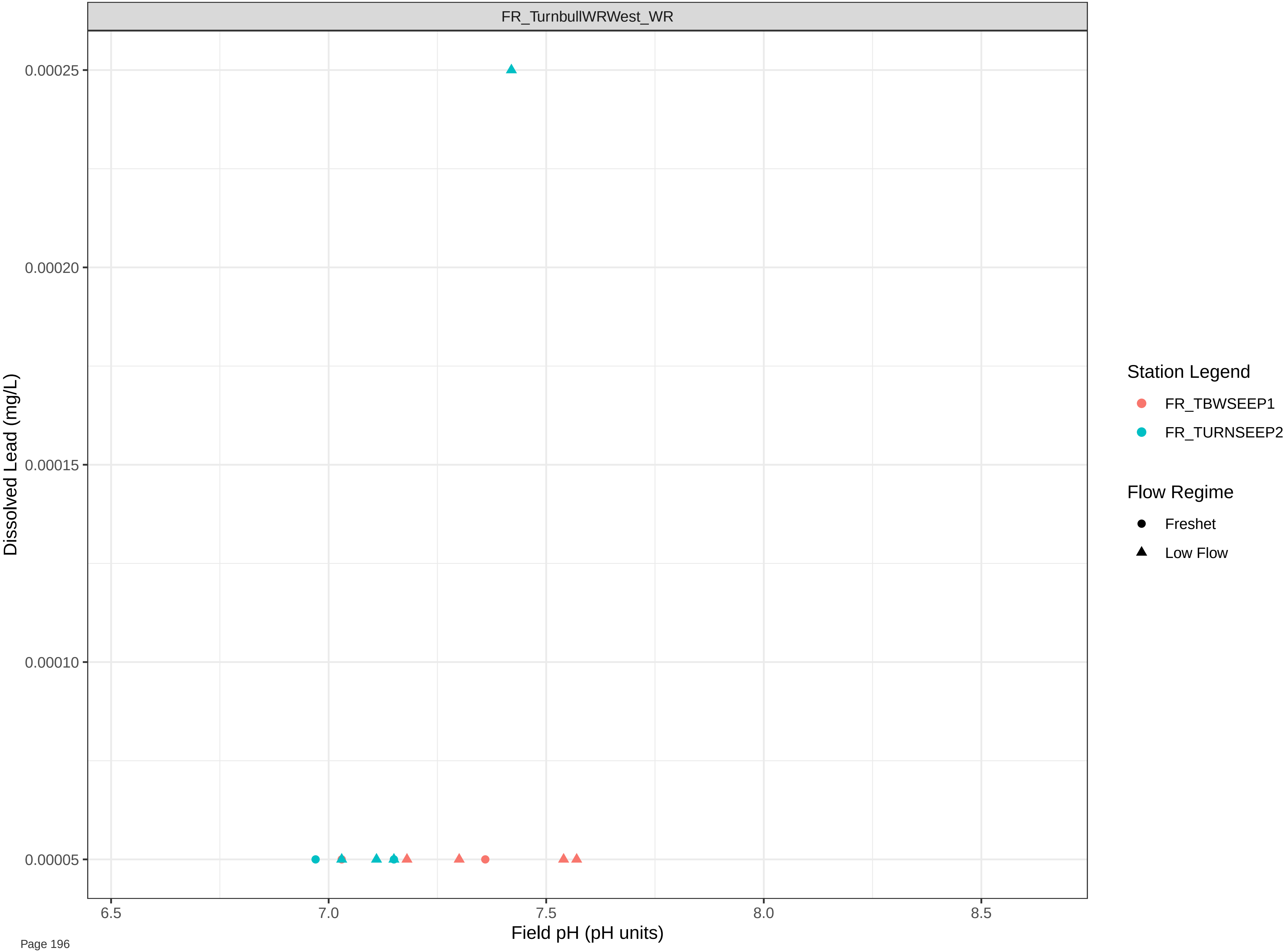

FR_Shandley_WR
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Lead (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

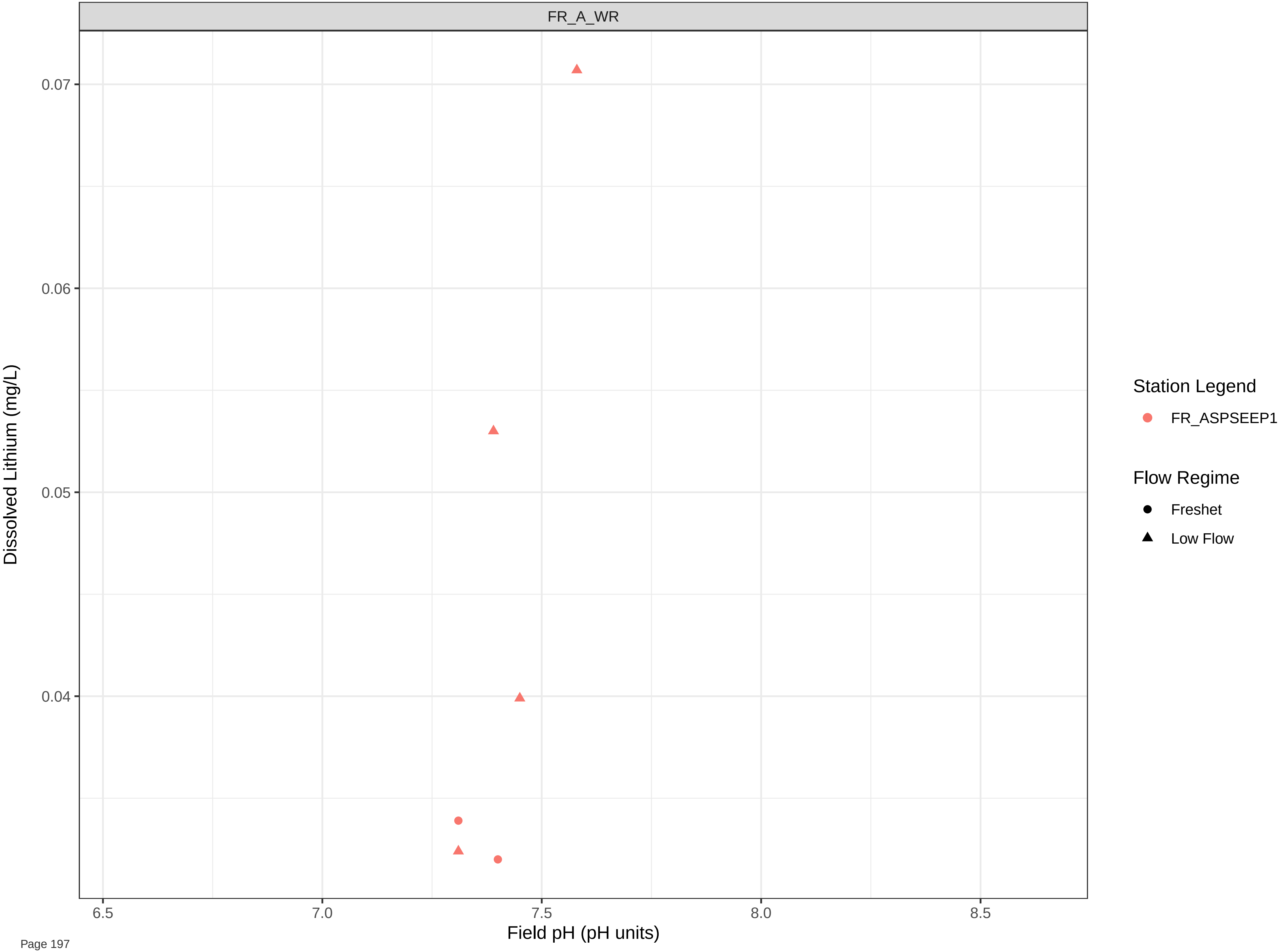

FR_Smith_WR
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

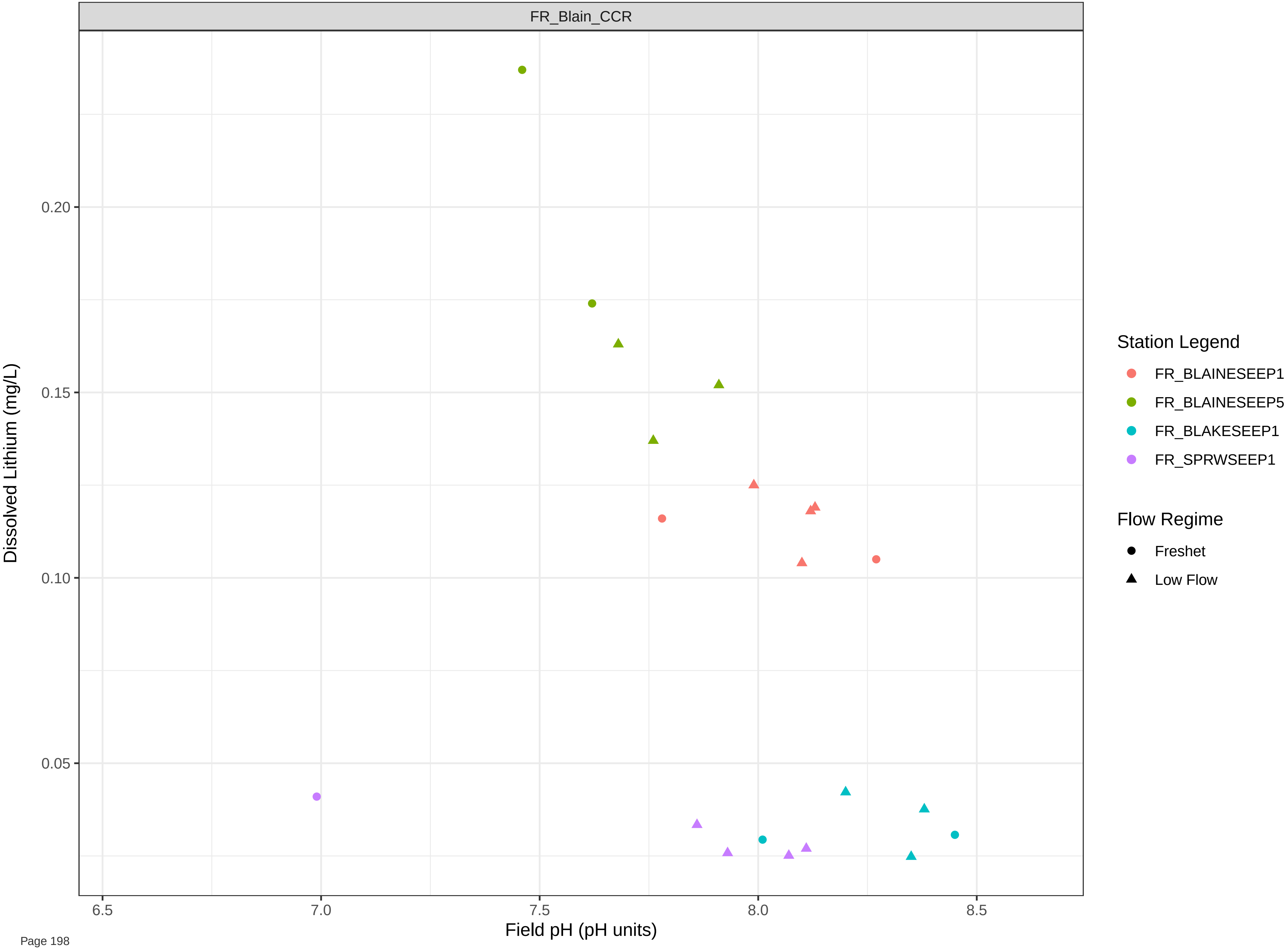

FR_SouthTails_Tailings
Dissolved Lead (mg/L)
0.050
0.025
0.000
−0.025
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

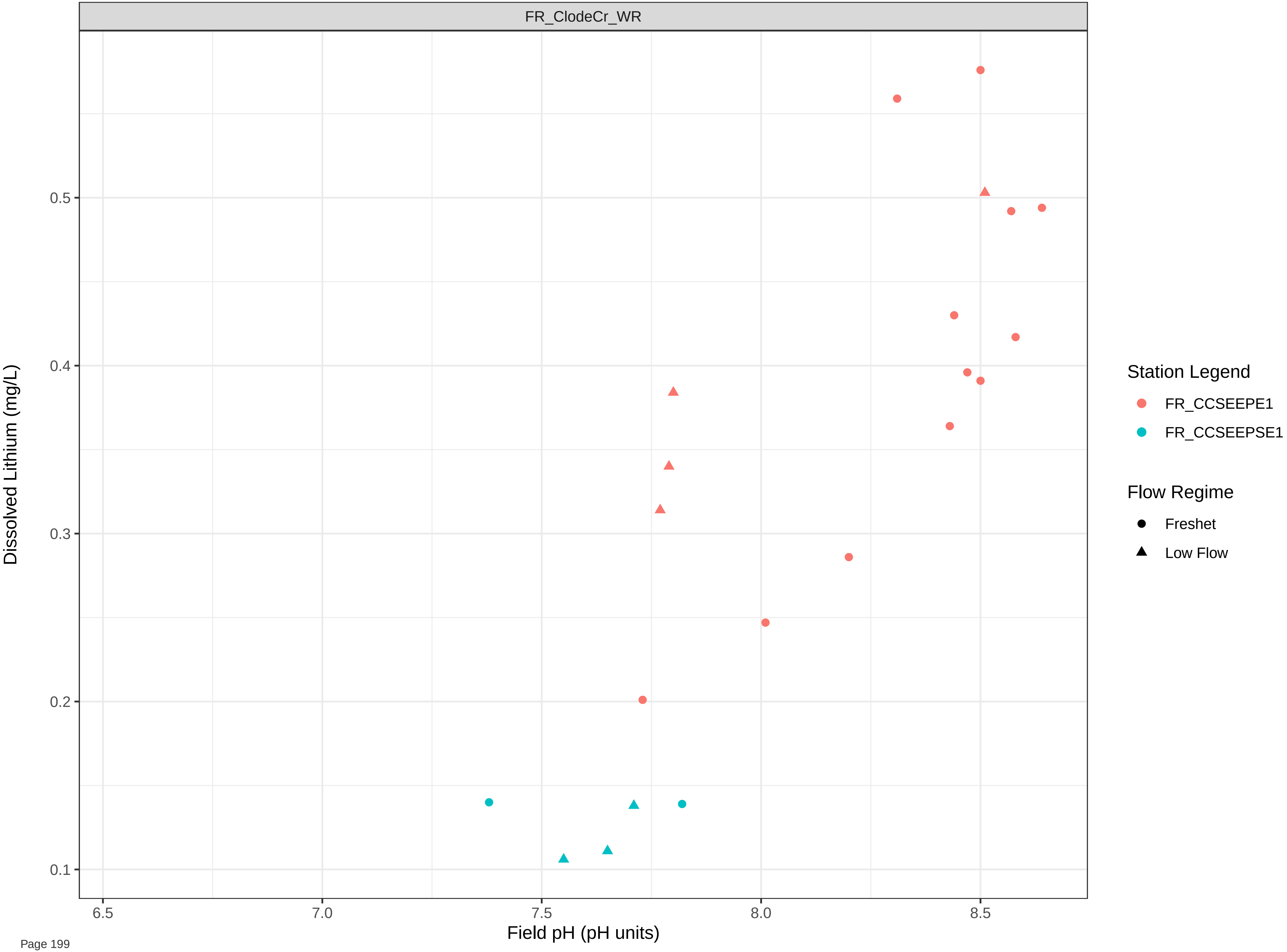

FR_SwiftWR_RockDrain_WR
Dissolved Lead (mg/L)
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

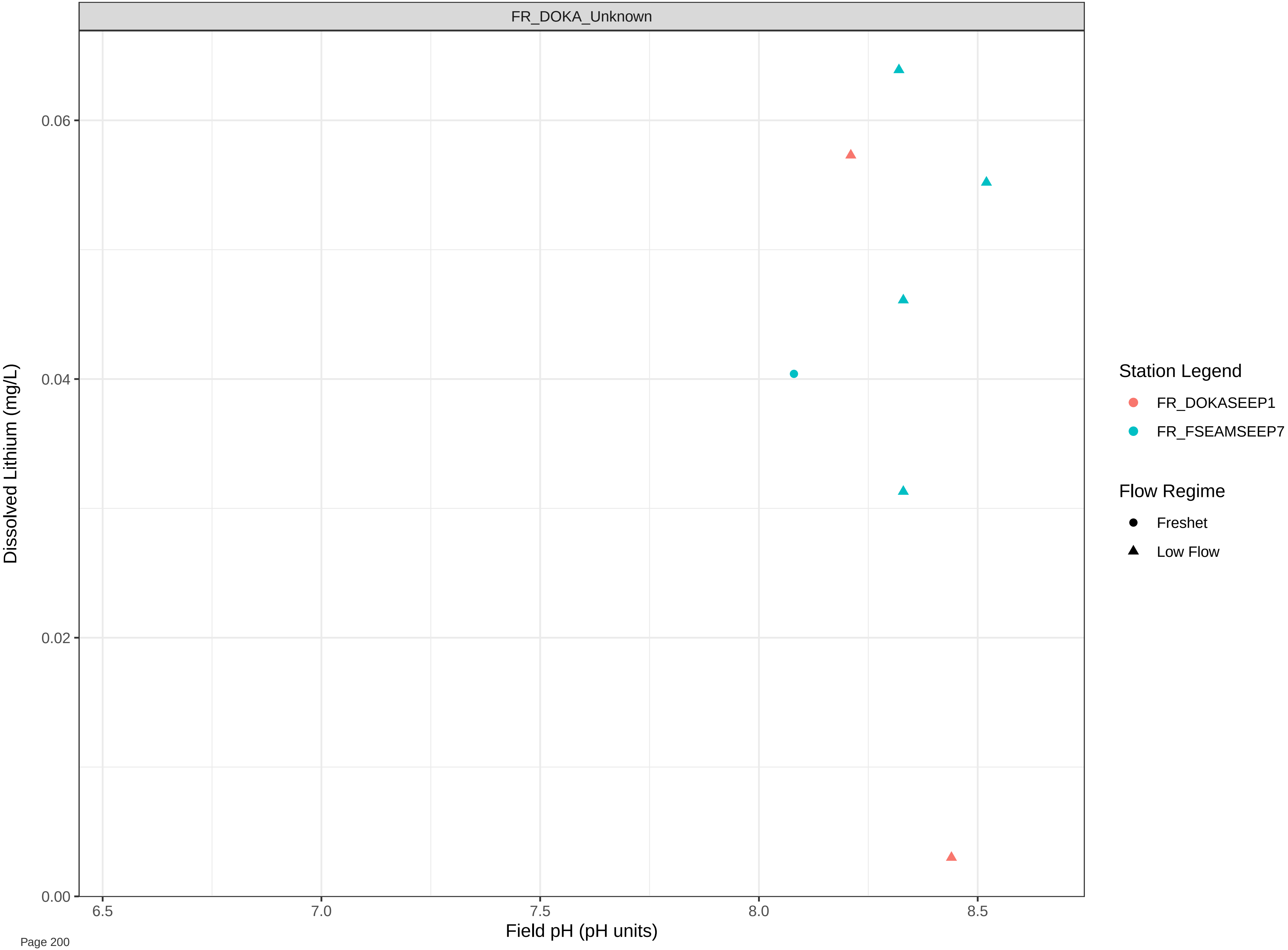

FR_TurnbullWREast_WR
0.050
0.025
0.000
−0.025
Dissolved Lead (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

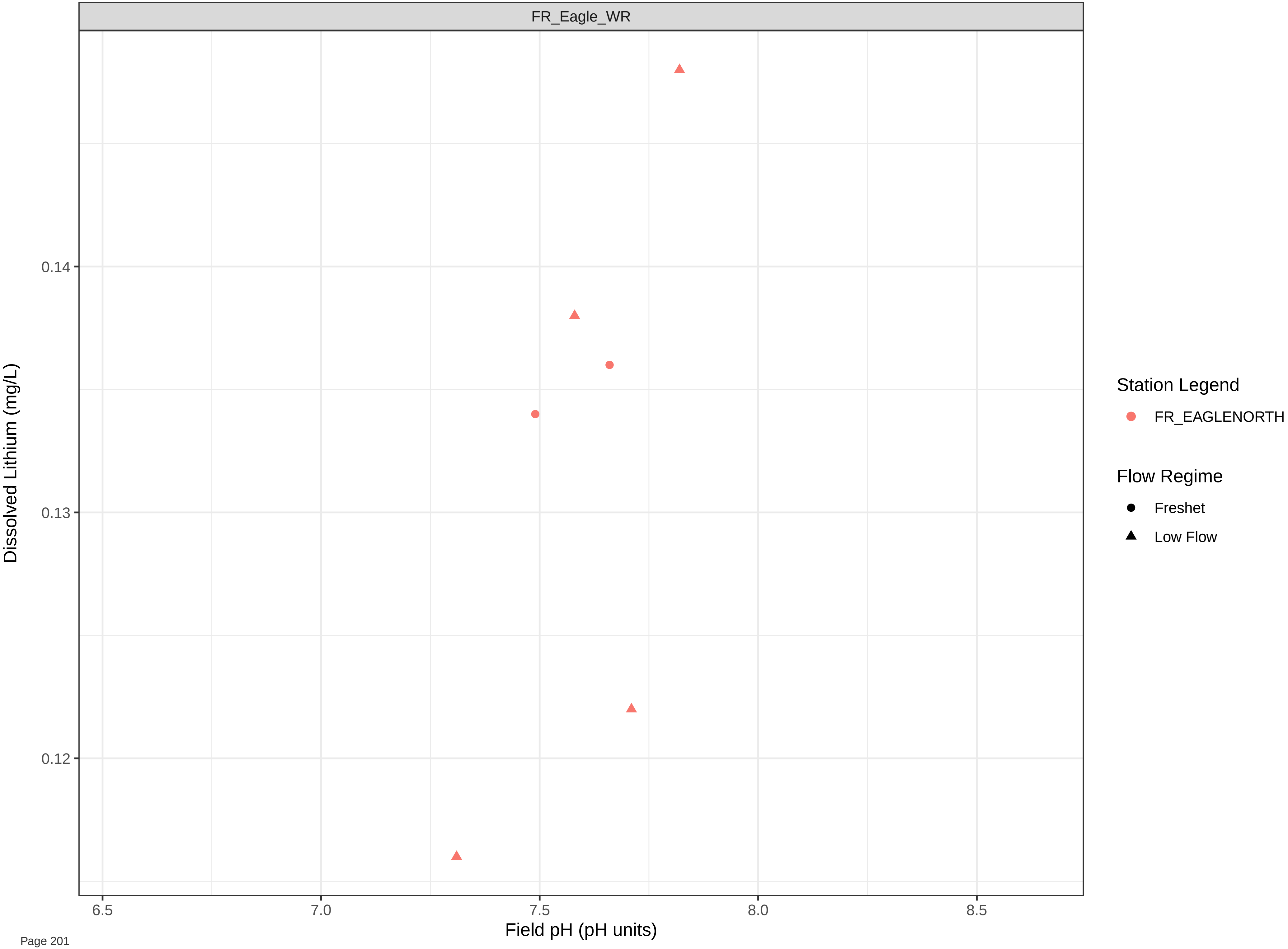

FR_TurnbullWRWest_WR
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

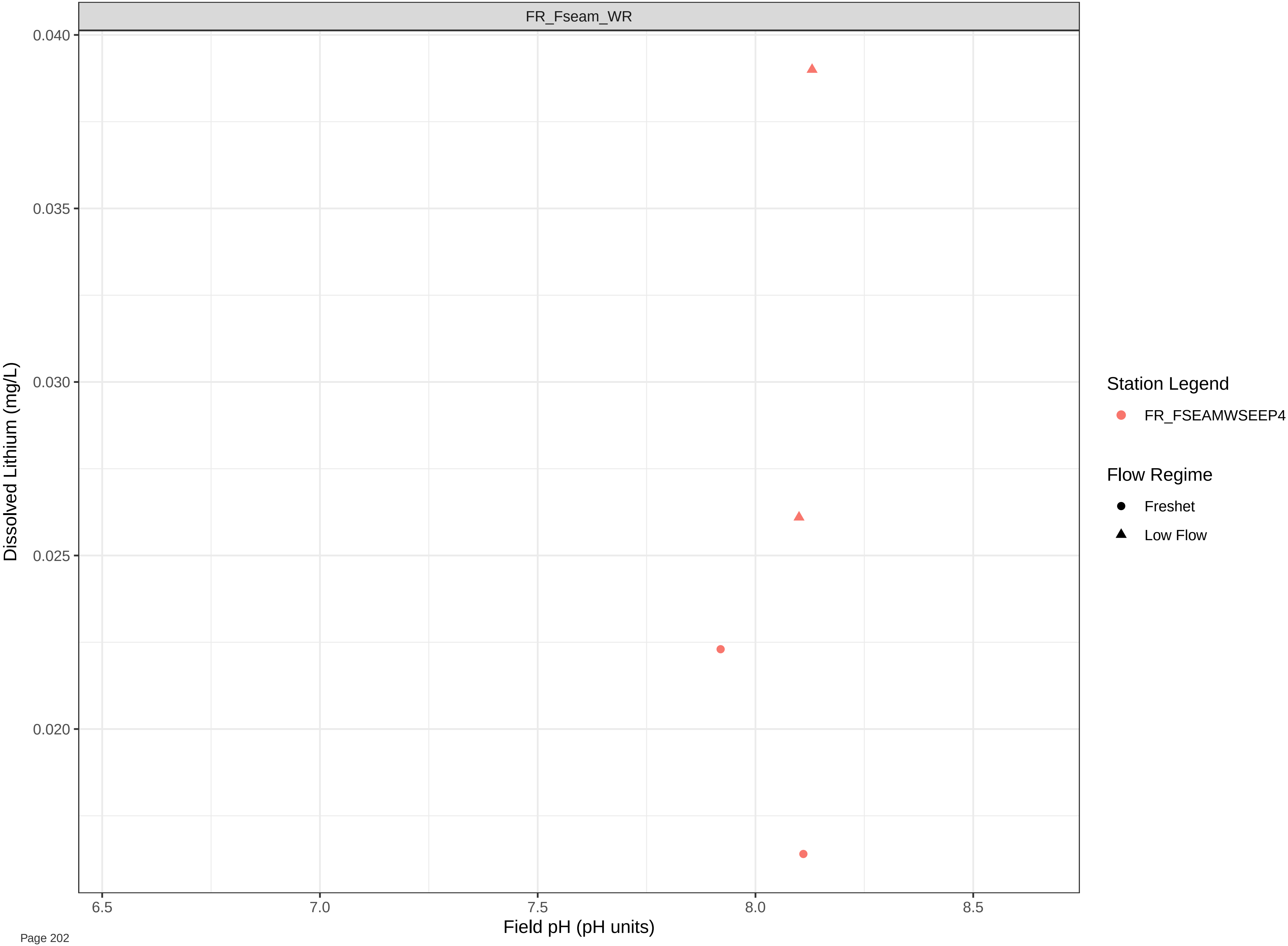

FR_A_WR
Dissolved Lithium (mg/L)
0.07
0.06
0.05
0.04
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

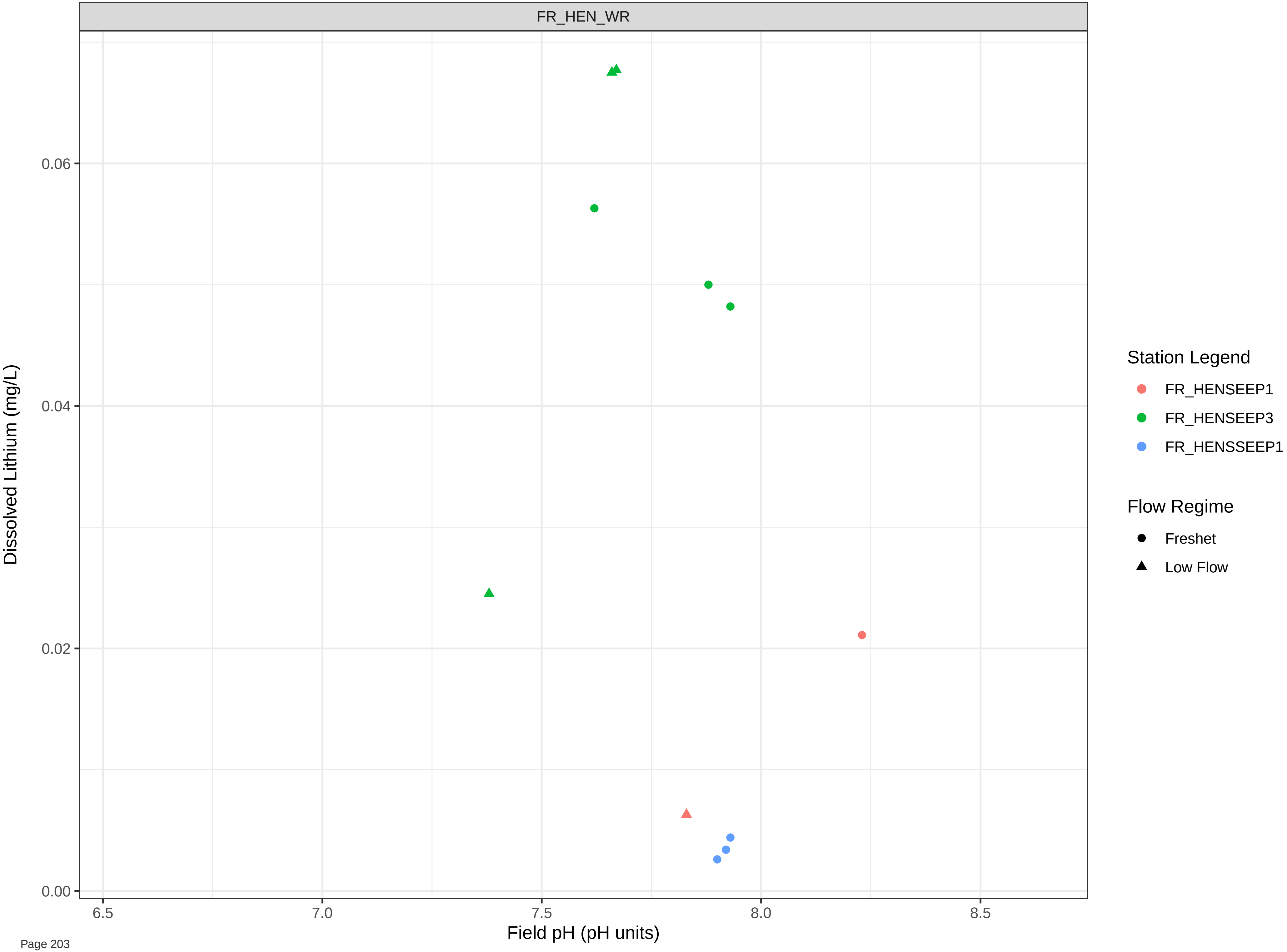

FR_Blain_CCR
Dissolved Lithium (mg/L)
0.20
0.15
0.10
0.05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow

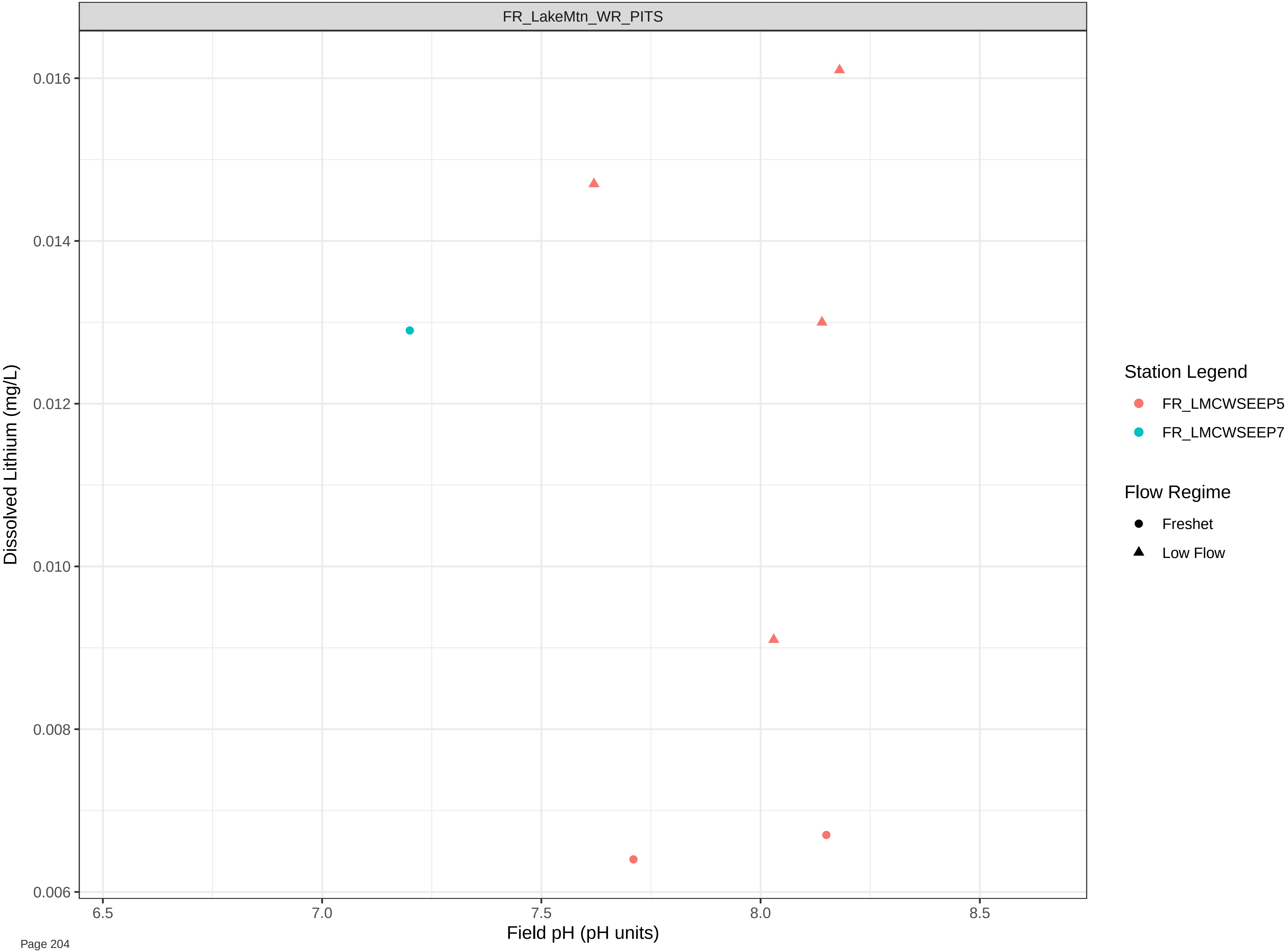

FR_ClodeCr_WR
Dissolved Lithium (mg/L)
0.5
0.4
0.3
0.2
0.1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

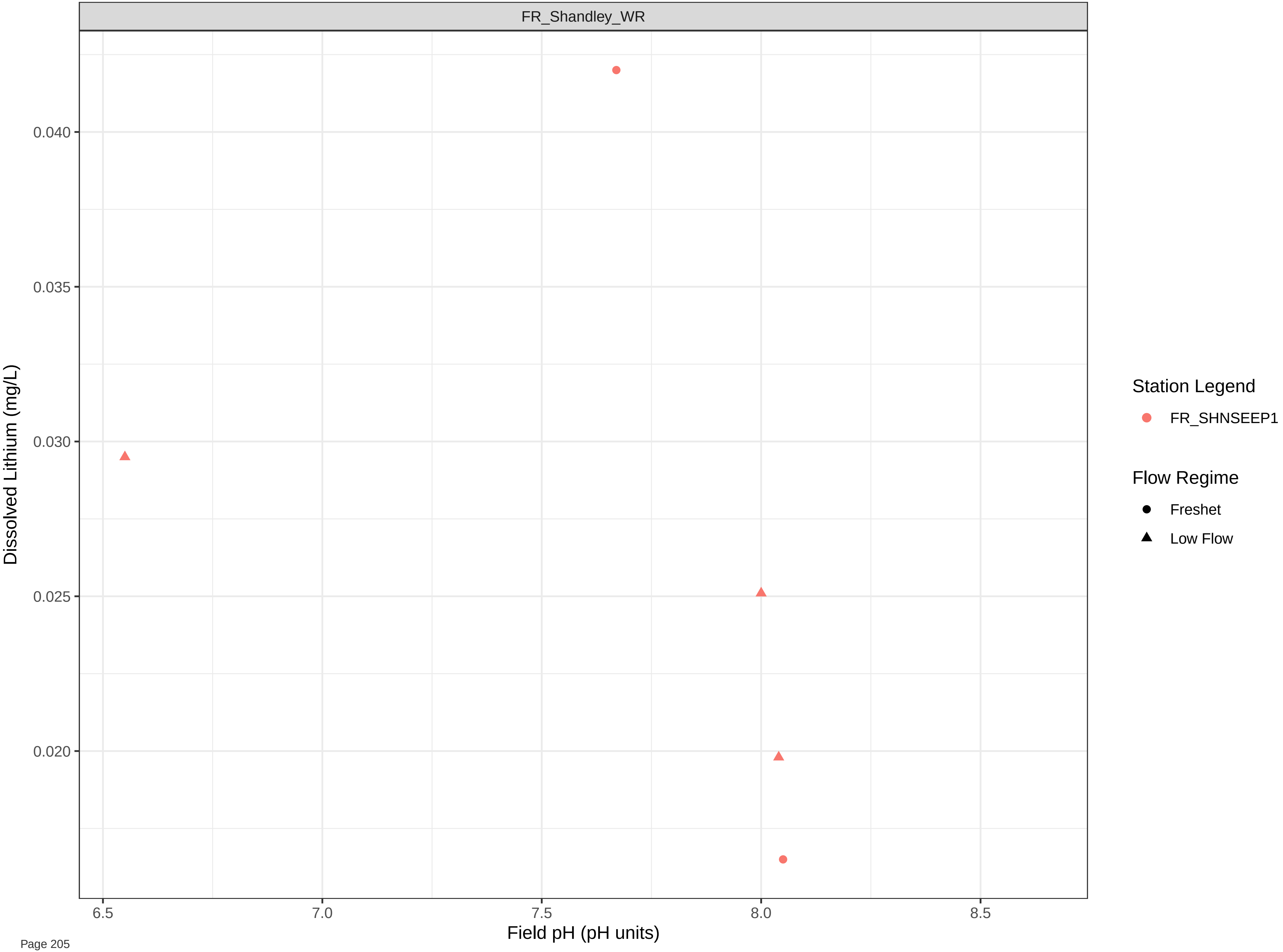

FR_DOKA_Unknown
Dissolved Lithium (mg/L)
0.06
0.04
0.02
0.00
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow

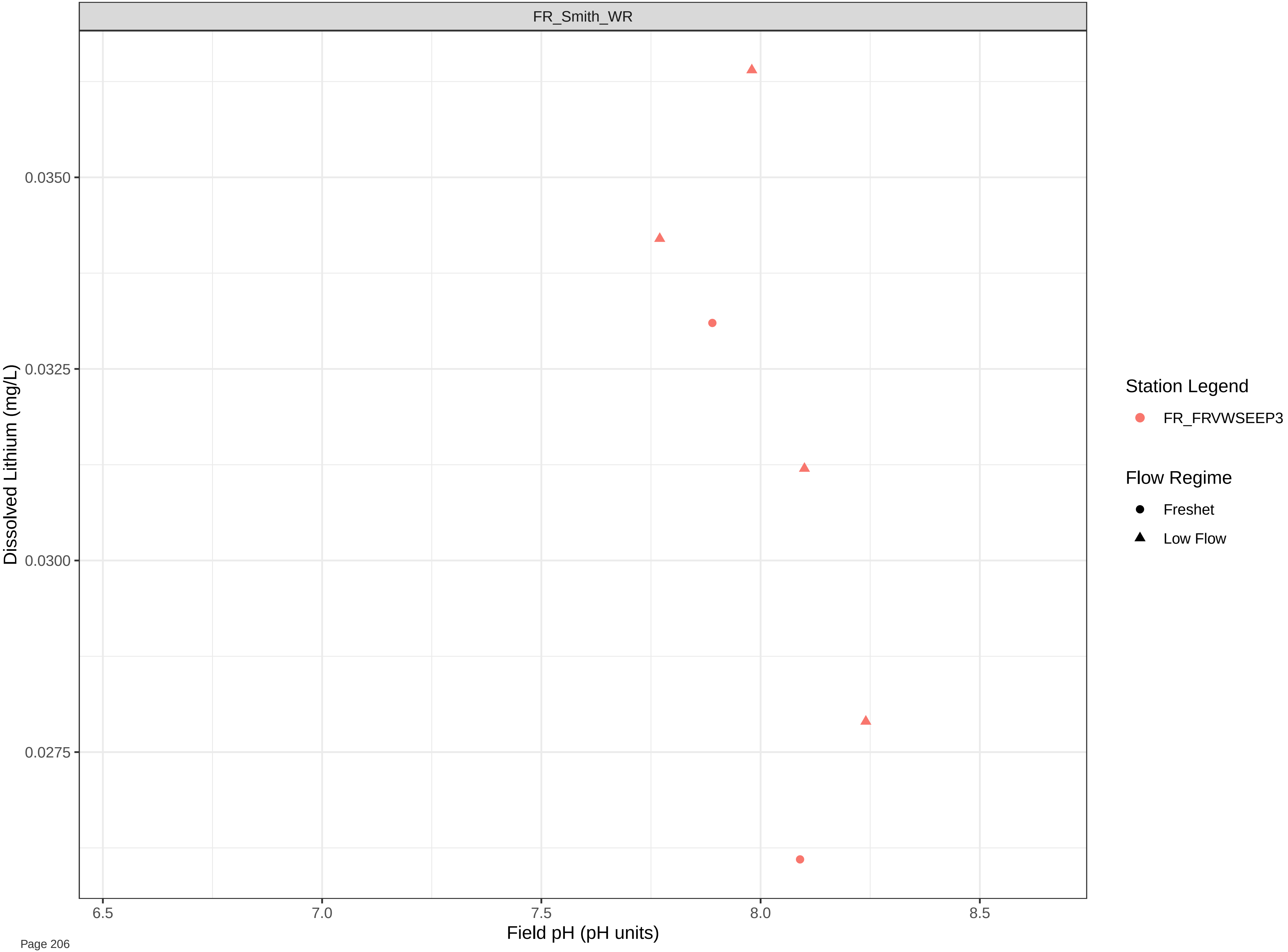

FR_Eagle_WR
Dissolved Lithium (mg/L)
0.14
0.13
0.12
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

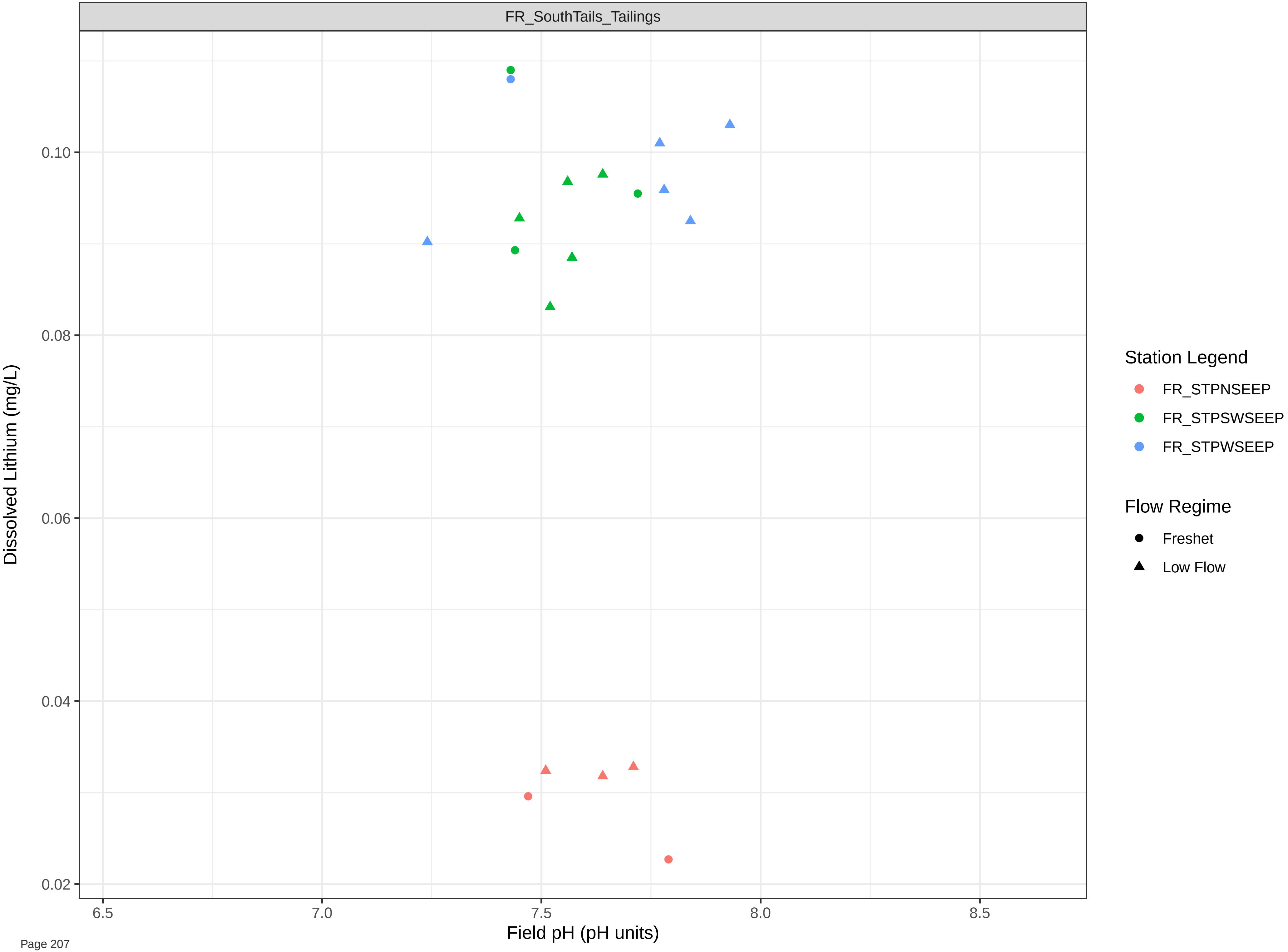

FR_Fseam_WR
Dissolved Lithium (mg/L)
0.040
0.035
0.030
0.025
0.020
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

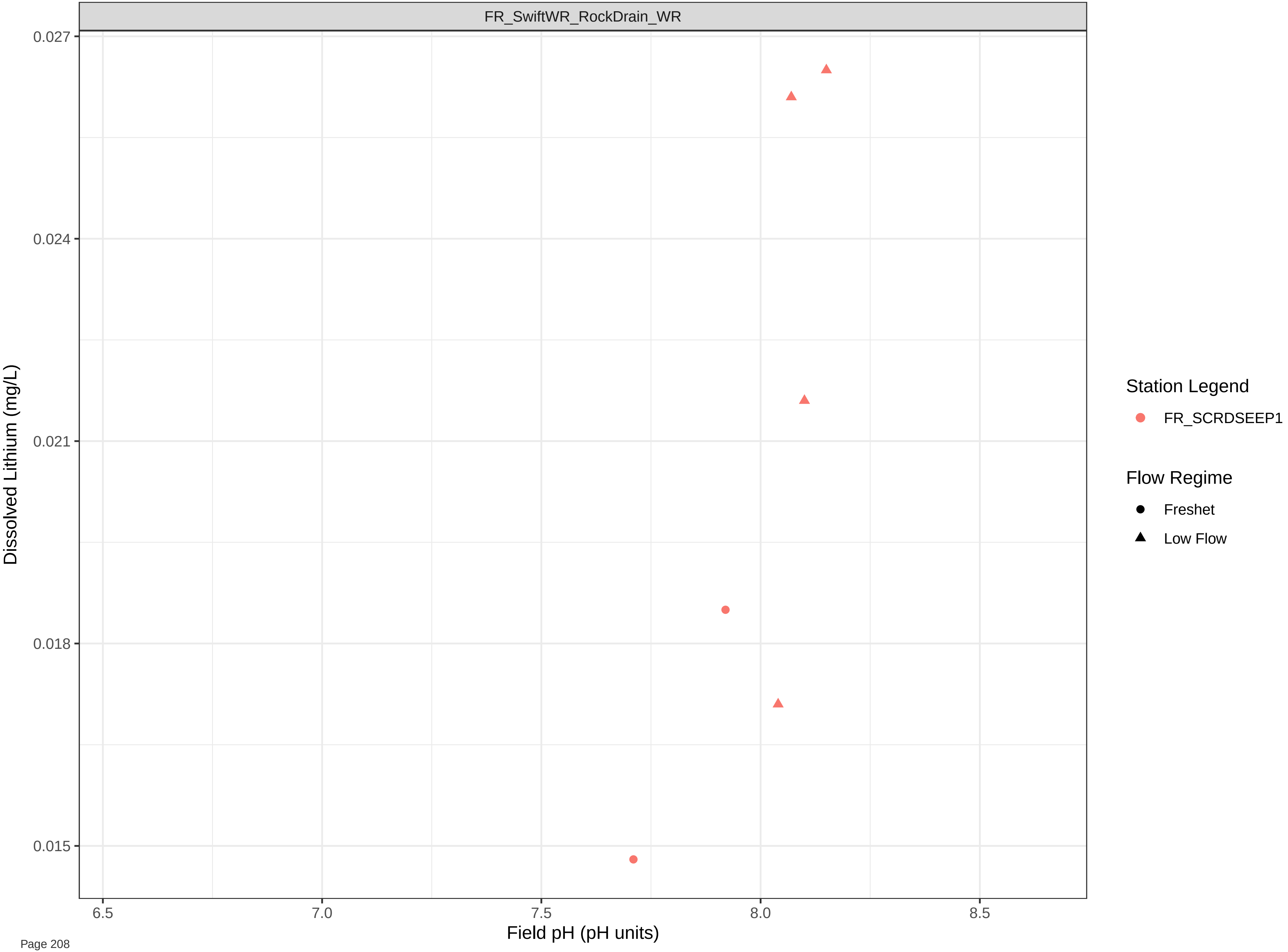

FR_HEN_WR
Dissolved Lithium (mg/L)
0.06
0.04
0.02
0.00
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

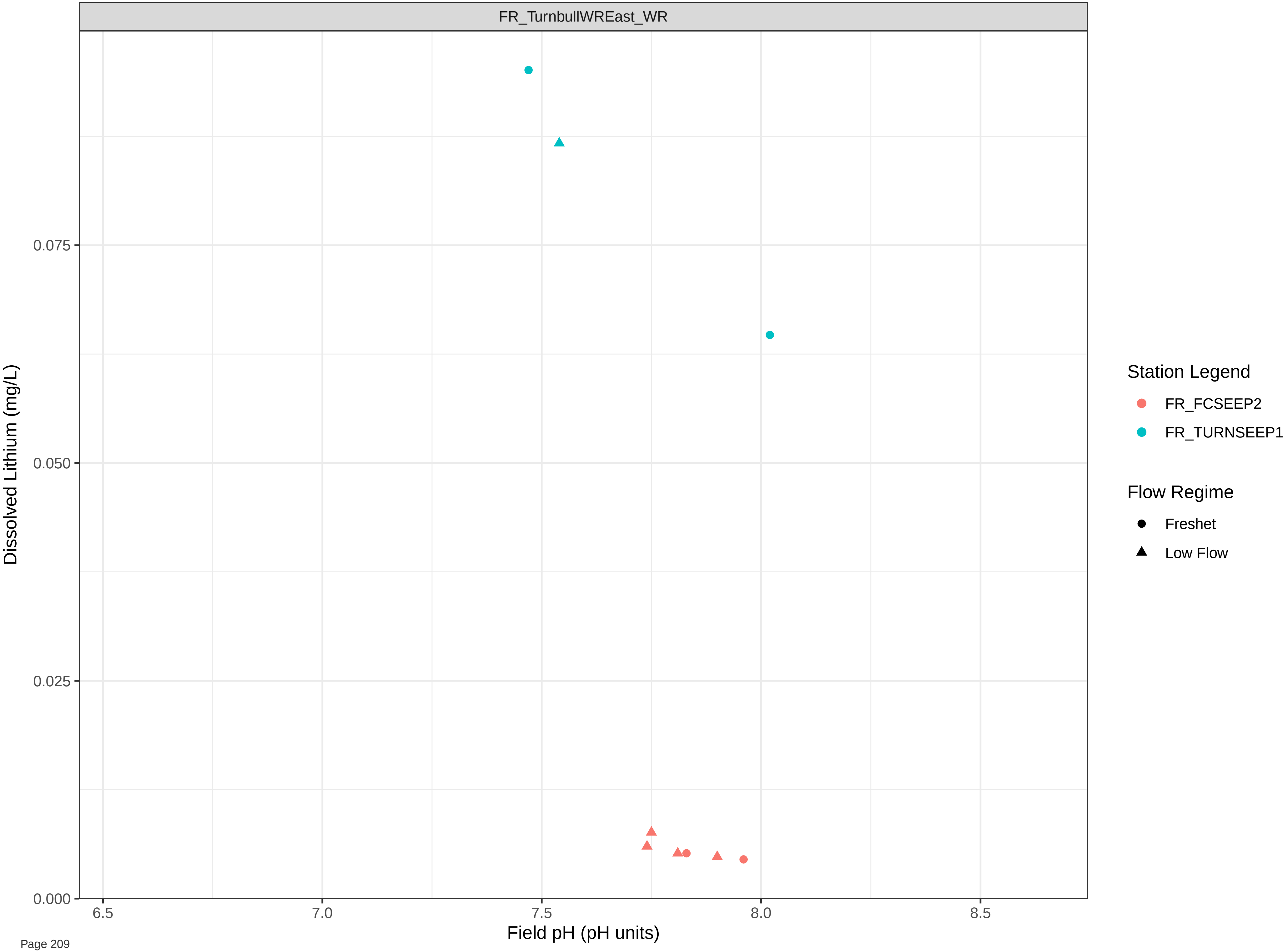

FR_LakeMtn_WR_PITS
Dissolved Lithium (mg/L)
0.016
0.014
0.012
0.010
0.008
0.006
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

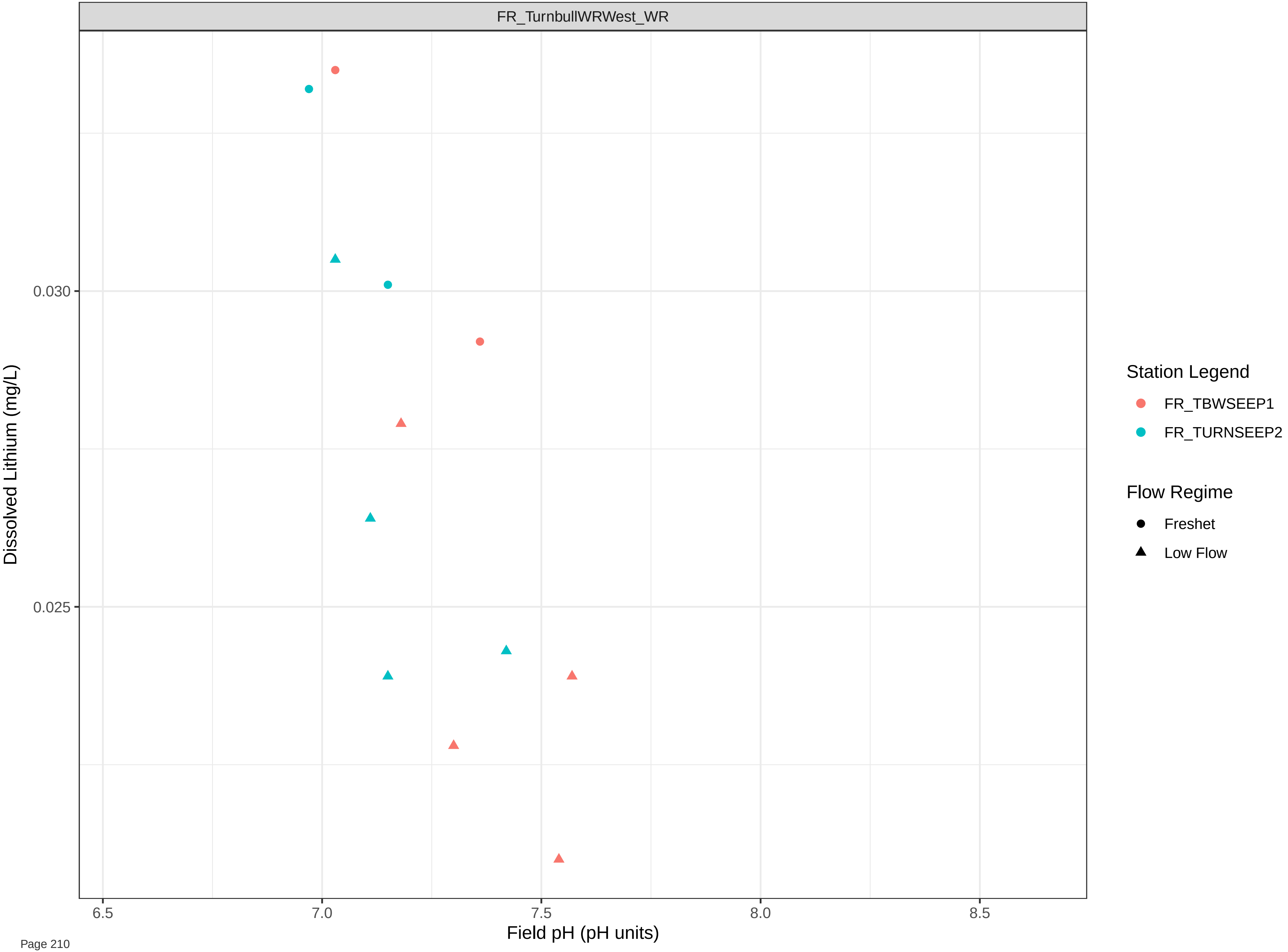

FR_Shandley_WR
Dissolved Lithium (mg/L)
0.040
0.035
0.030
0.025
0.020
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

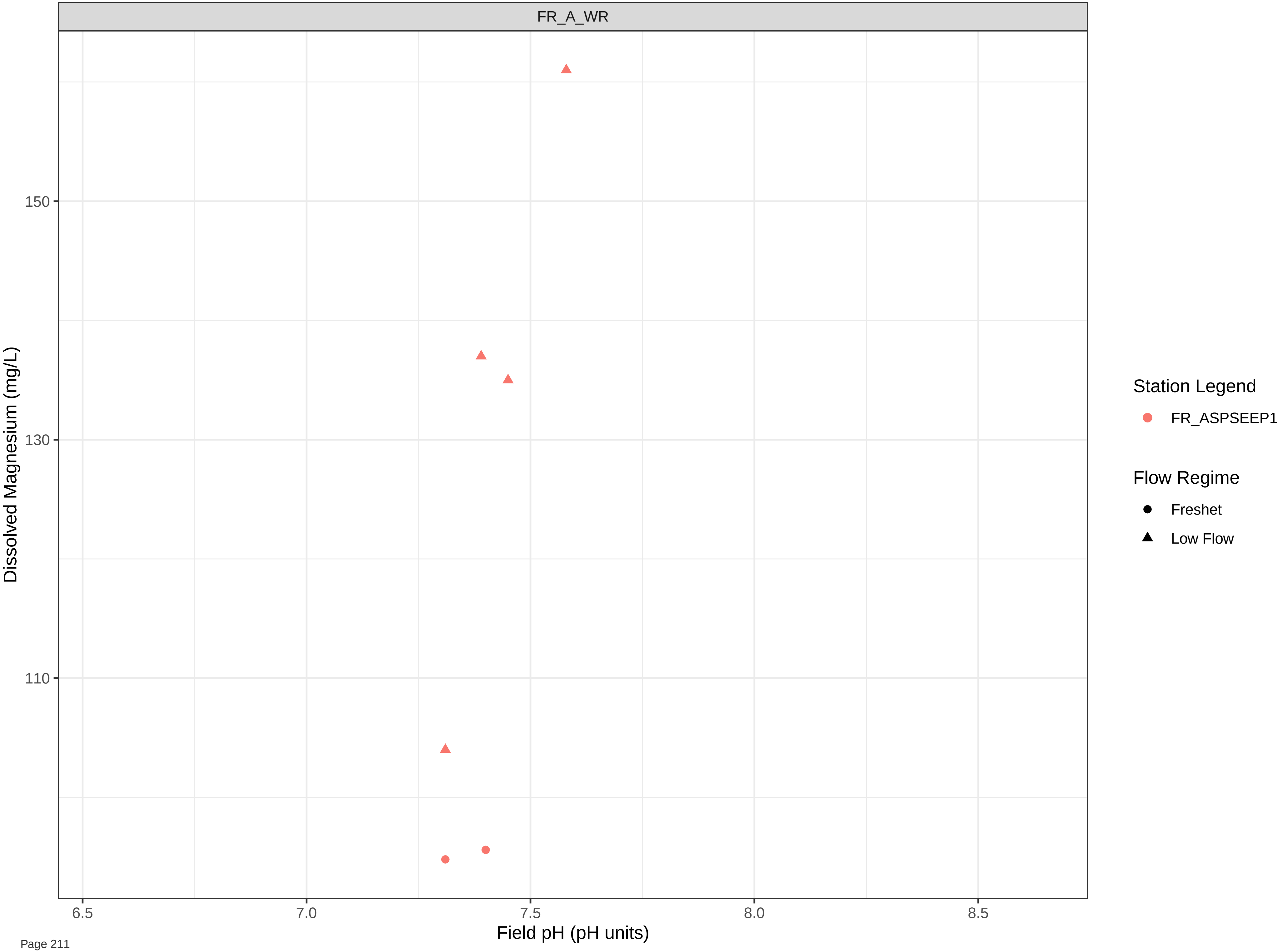

FR_Smith_WR
Dissolved Lithium (mg/L)
0.0350
0.0325
0.0300
0.0275
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

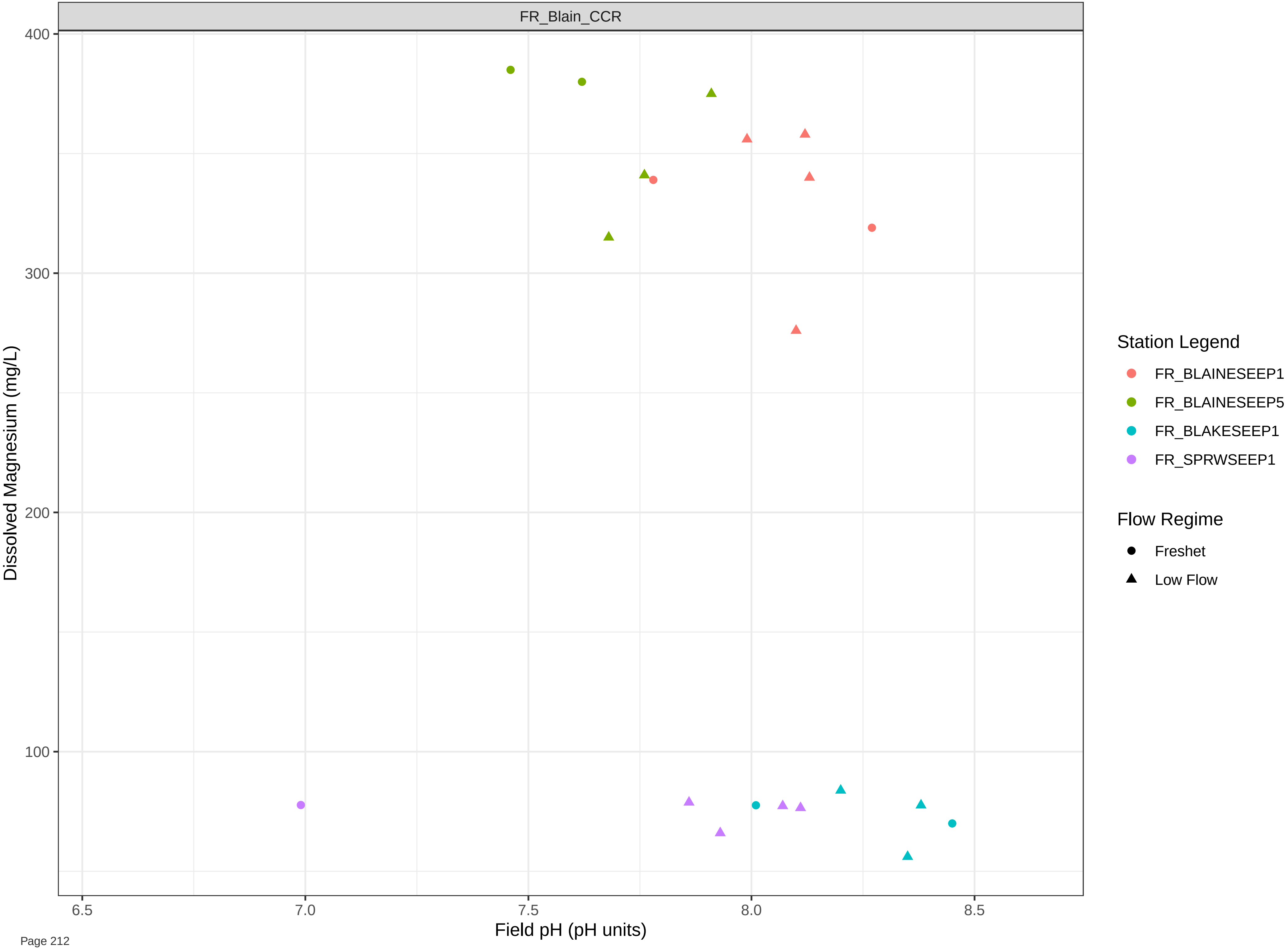

FR_SouthTails_Tailings
Dissolved Lithium (mg/L)
0.10
0.08
0.06
0.04
0.02
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

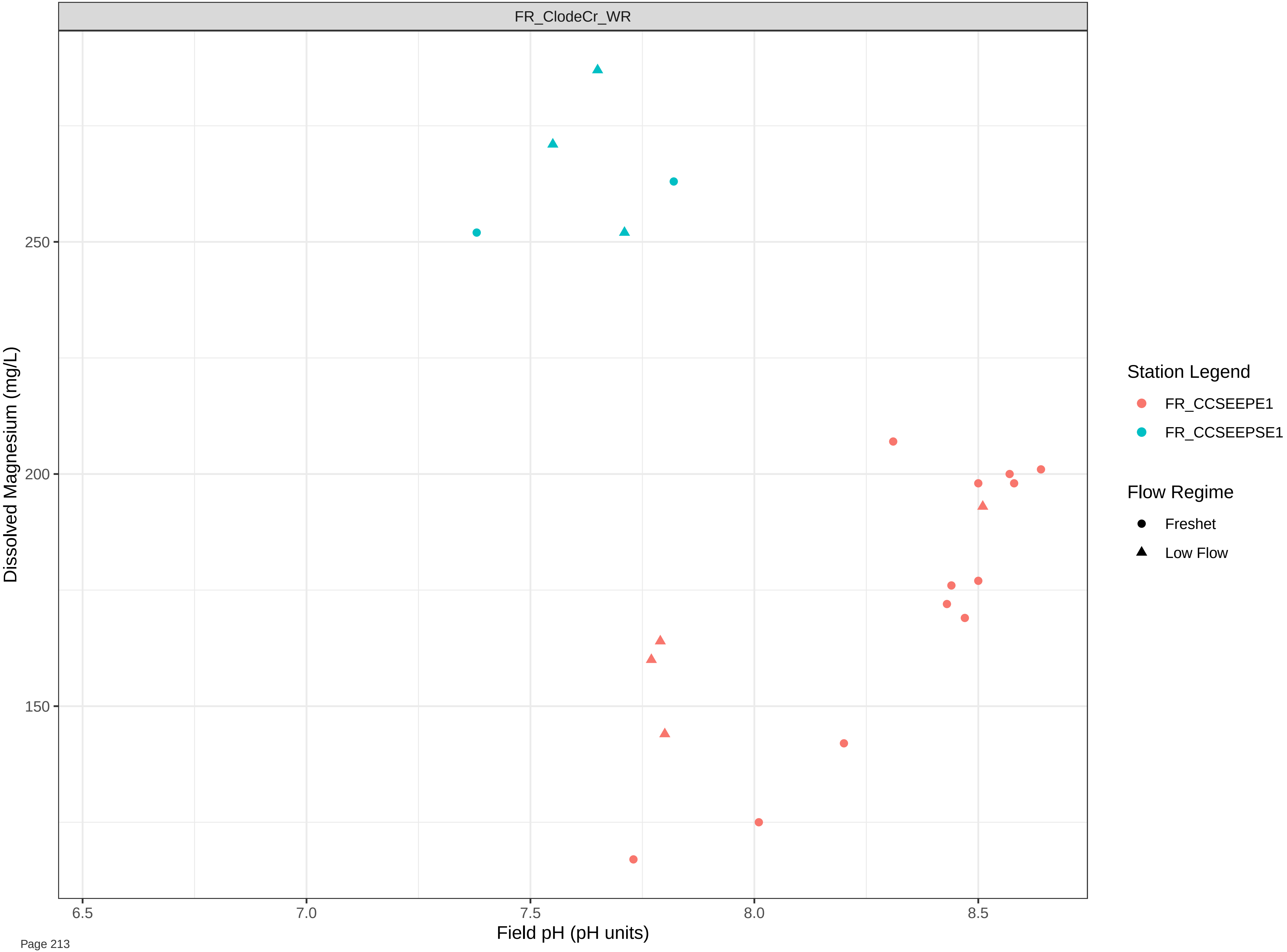

FR_SwiftWR_RockDrain_WR
0.027
0.024
0.021
0.018
0.015
Dissolved Lithium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

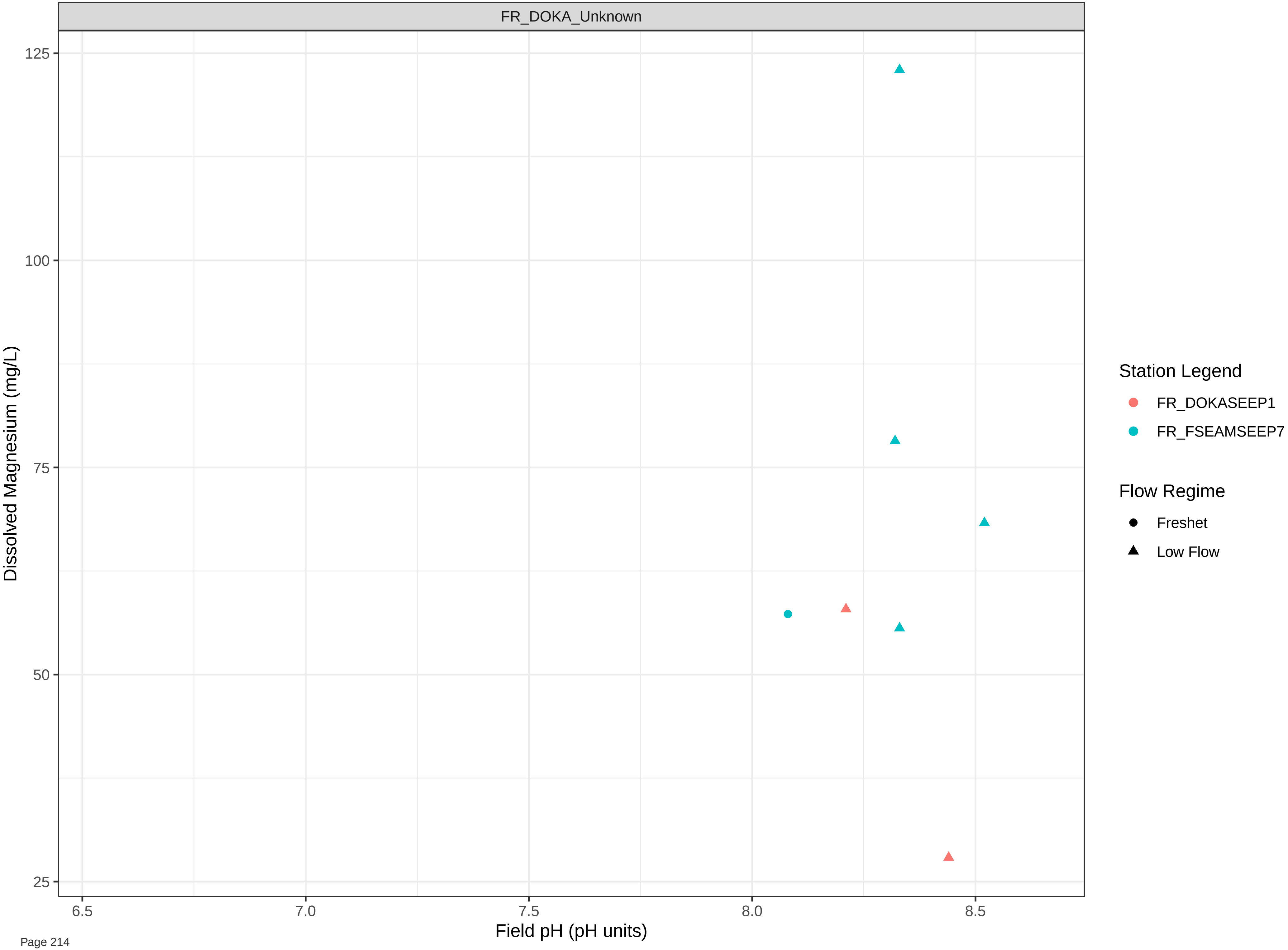

FR_TurnbullWREast_WR
Dissolved Lithium (mg/L)
0.000
0.025
0.050
0.075
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FCSEEP2
● FR_TURNSEEP1
Flow Regime
● Freshet
▲ Low Flow

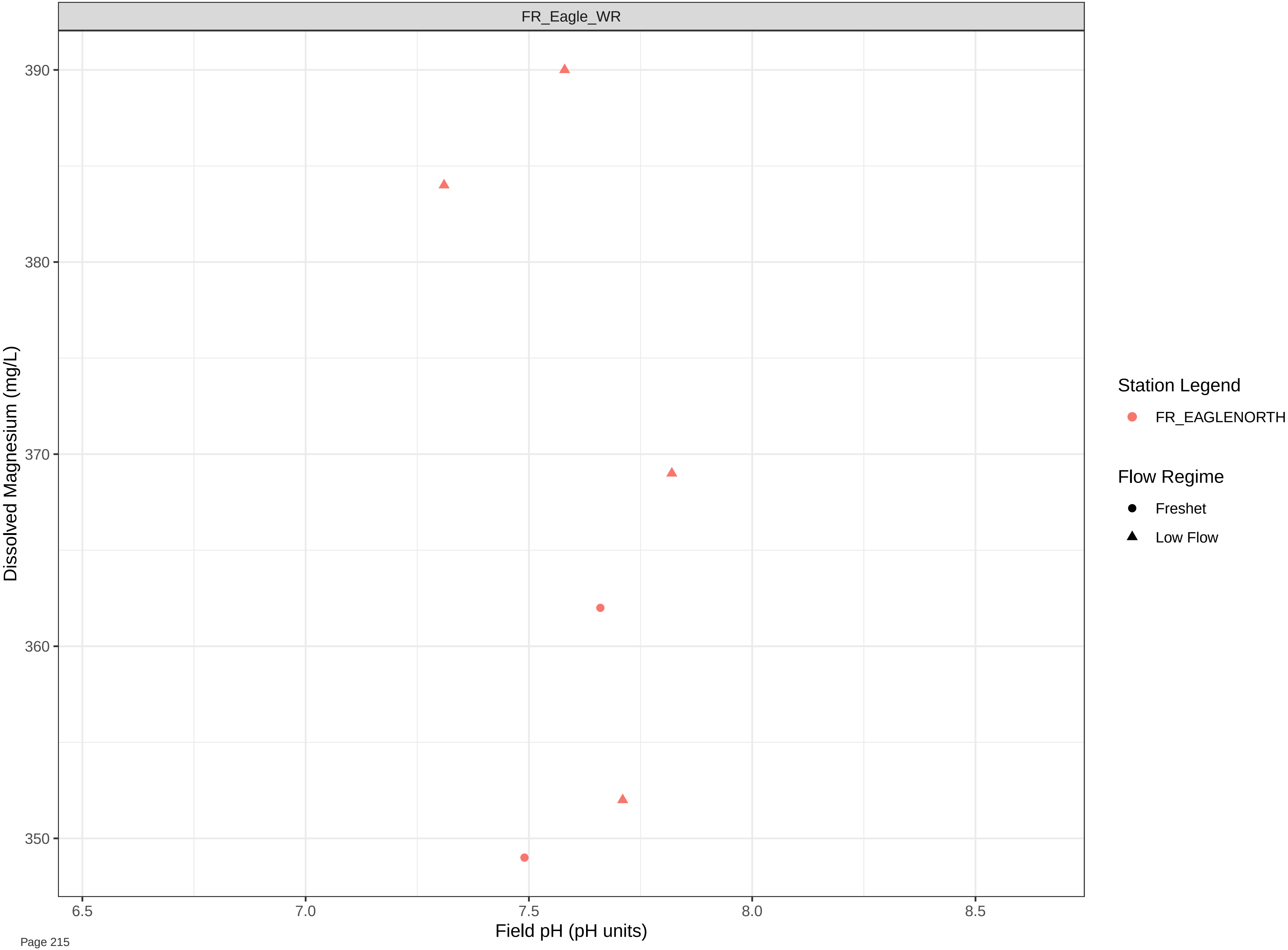

FR_TurnbullWRWest_WR
Dissolved Lithium (mg/L)
0.030
0.025
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_TBWSEEP1
● FR_TURNSEEP2
Flow Regime
● Freshet
▲ Low Flow

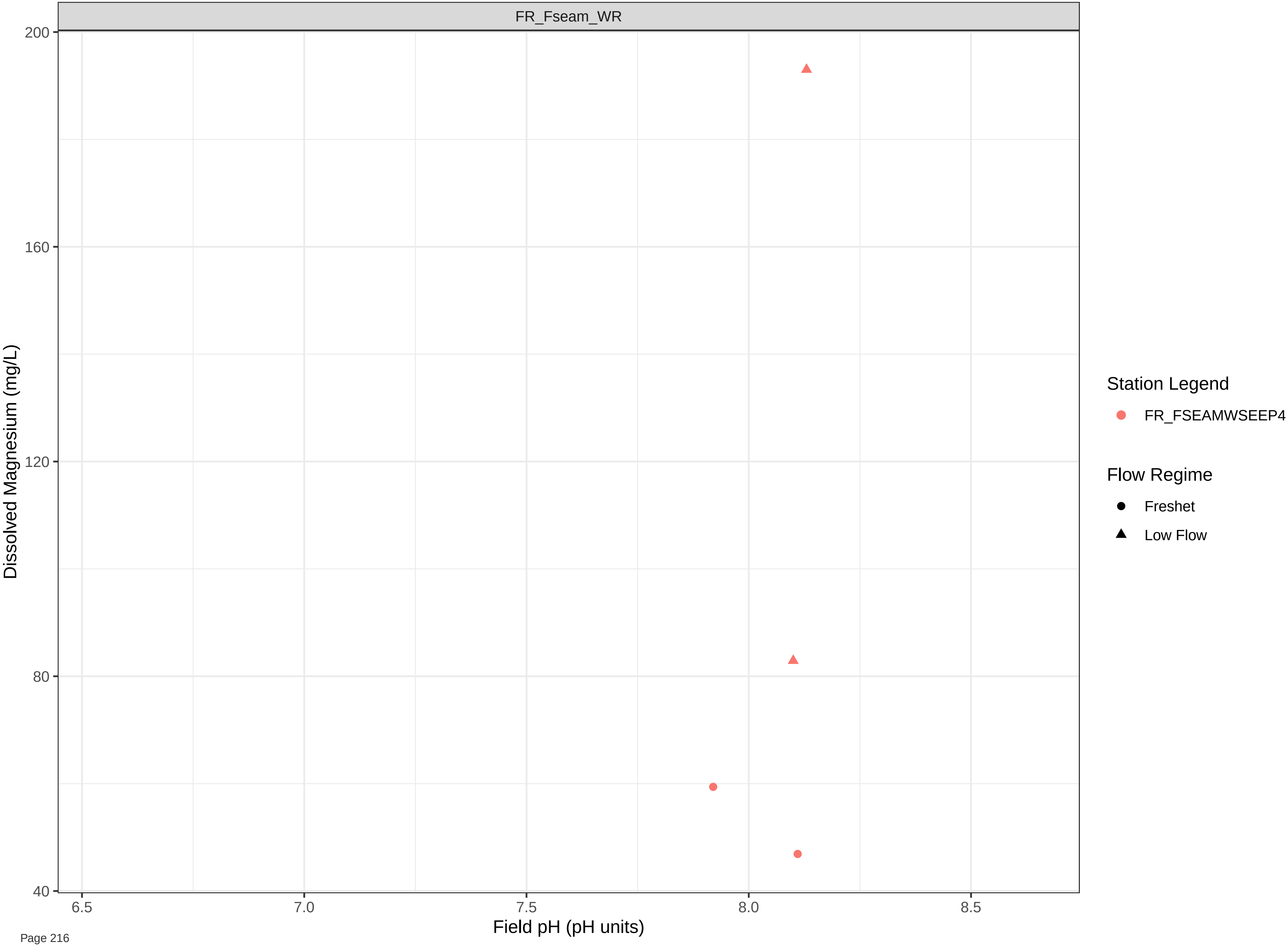

FR_A_WR
Dissolved Magnesium (mg/L)
150
130
110
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

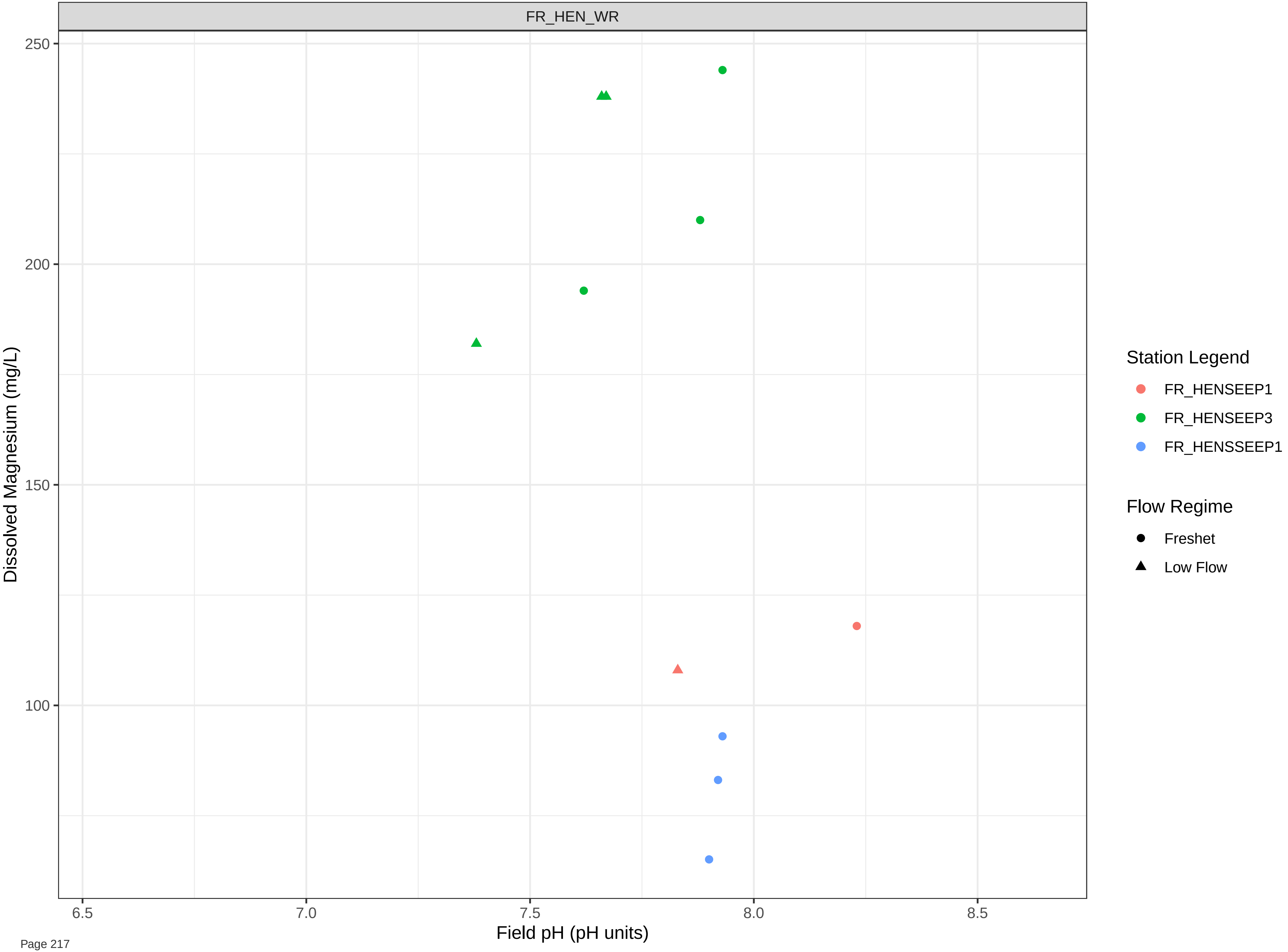

FR_Blain_CCR
Dissolved Magnesium (mg/L)
400
300
200
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

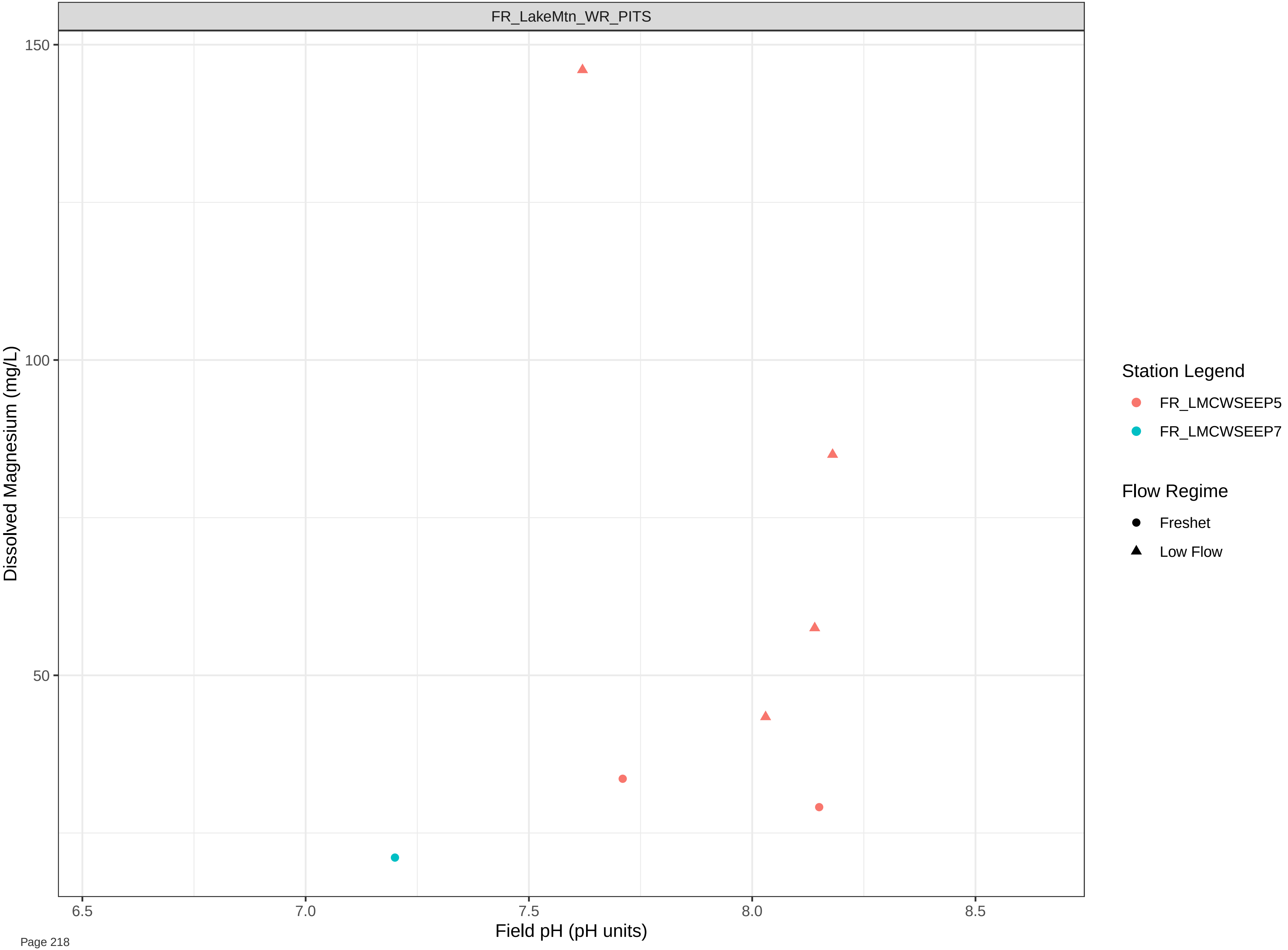

FR_ClodeCr_WR
Dissolved Magnesium (mg/L)
250
200
150
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

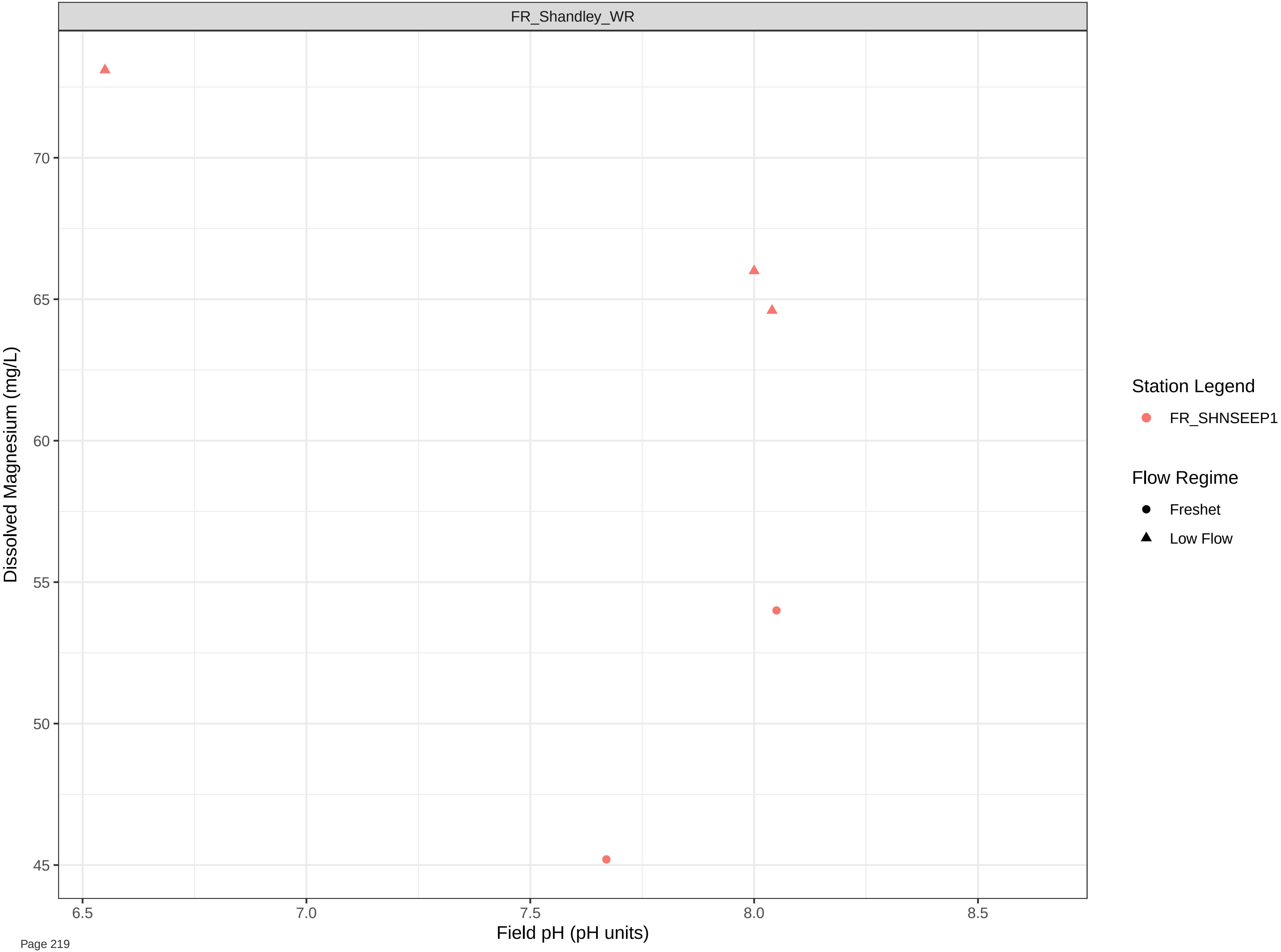

FR_DOKA_Unknown
Dissolved Magnesium (mg/L)
125
100
75
50
25
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

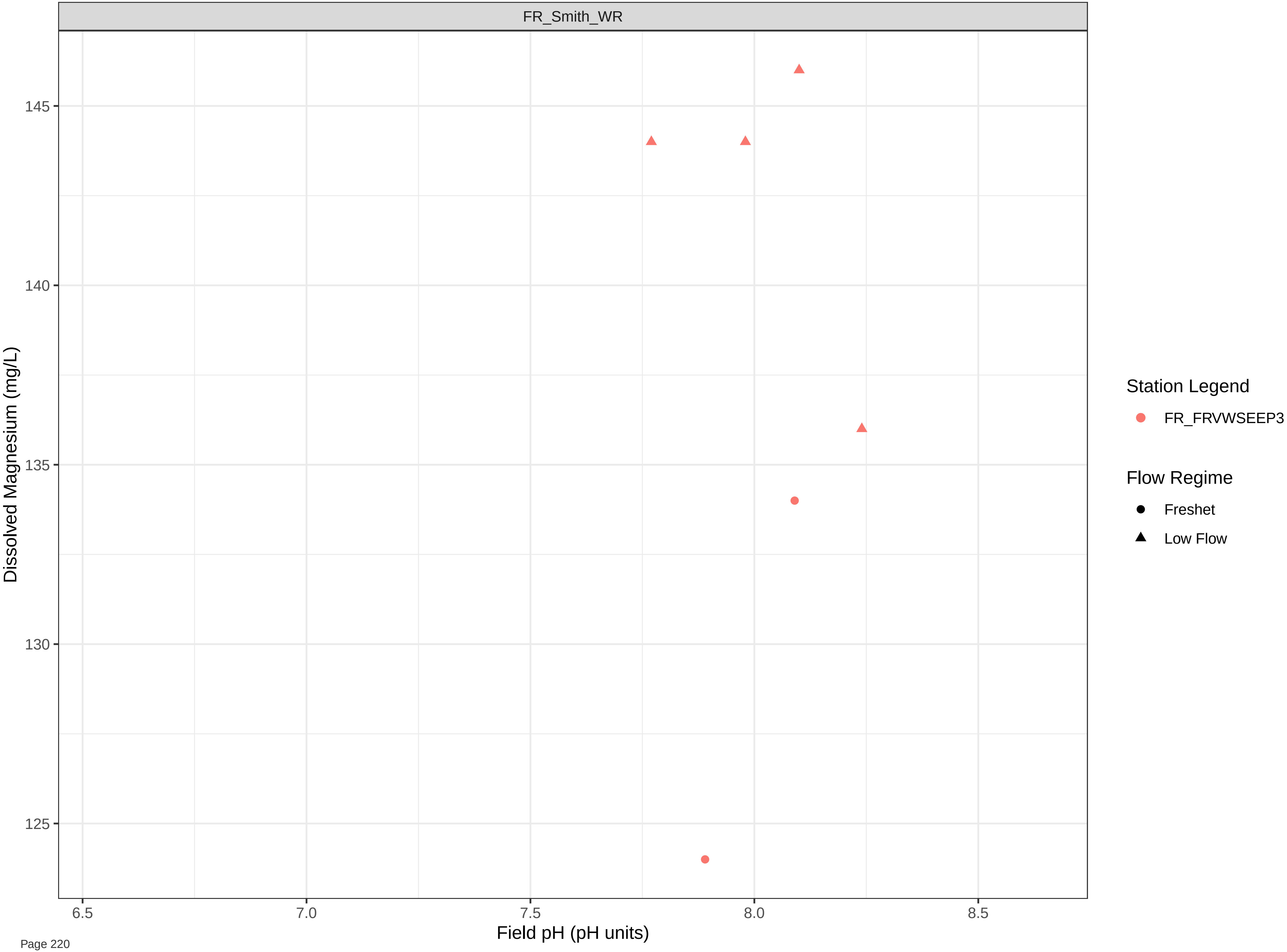

FR_Eagle_WR
Dissolved Magnesium (mg/L)
390
380
370
360
350
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

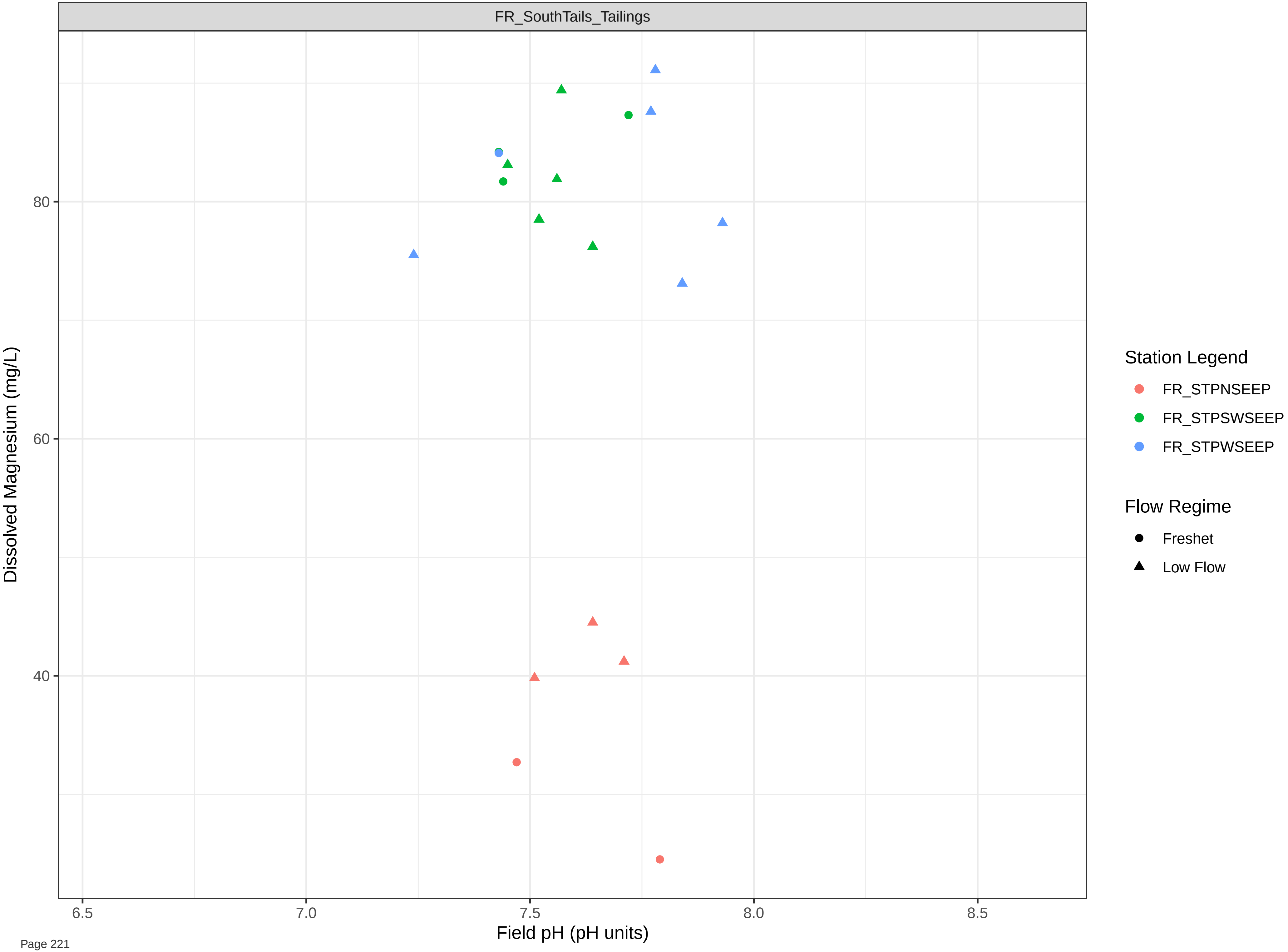

FR_Fseam_WR
Dissolved Magnesium (mg/L)
200
160
120
80
40
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

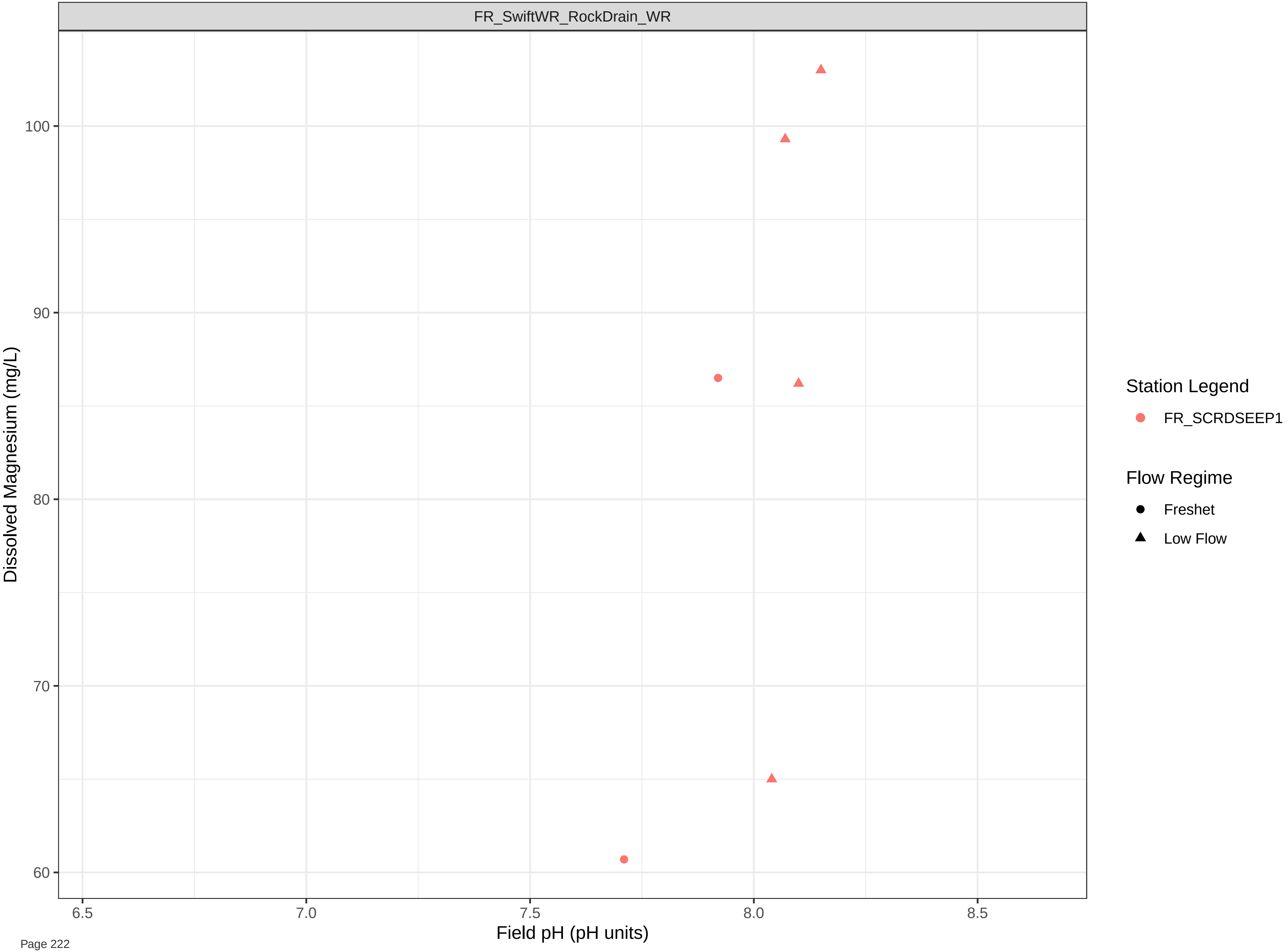

FR_HEN_WR
Dissolved Magnesium (mg/L)
250
200
150
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

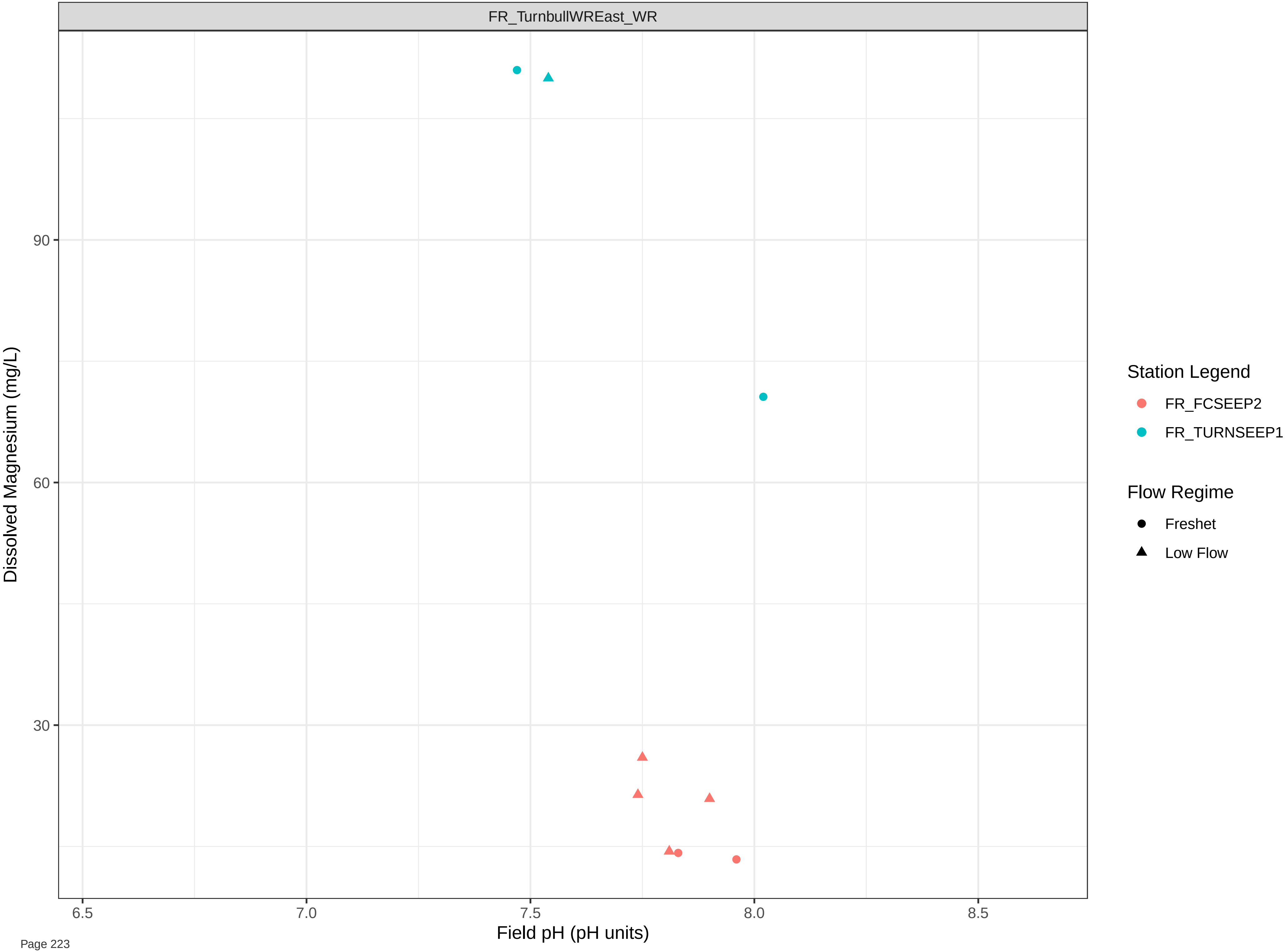

FR_LakeMtn_WR_PITS
150
100
50
Dissolved Magnesium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

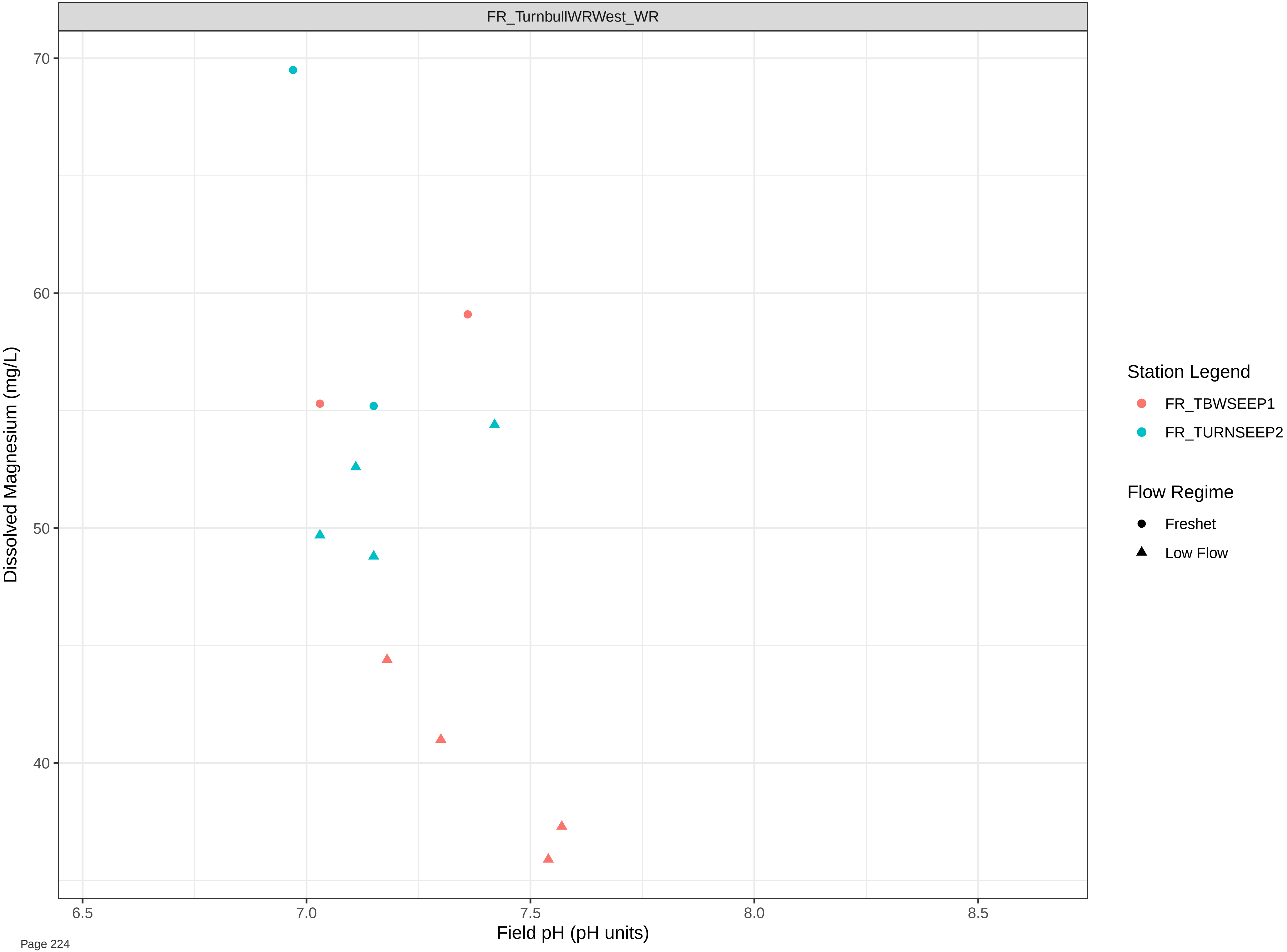

FR_Shandley_WR
Dissolved Magnesium (mg/L)
70
65
60
55
50
45
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

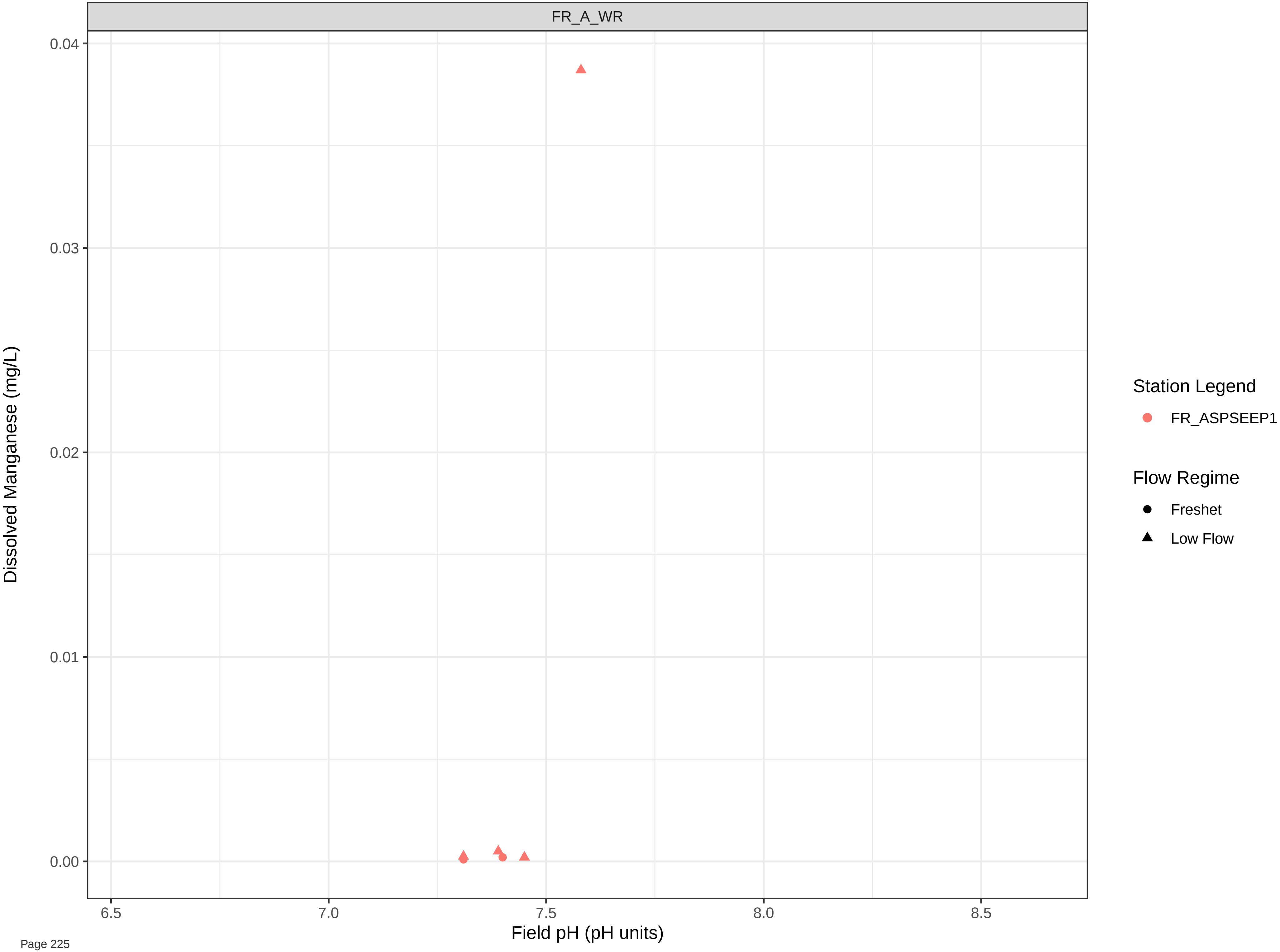

FR_Smith_WR
Dissolved Magnesium (mg/L)
145
140
135
130
125
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

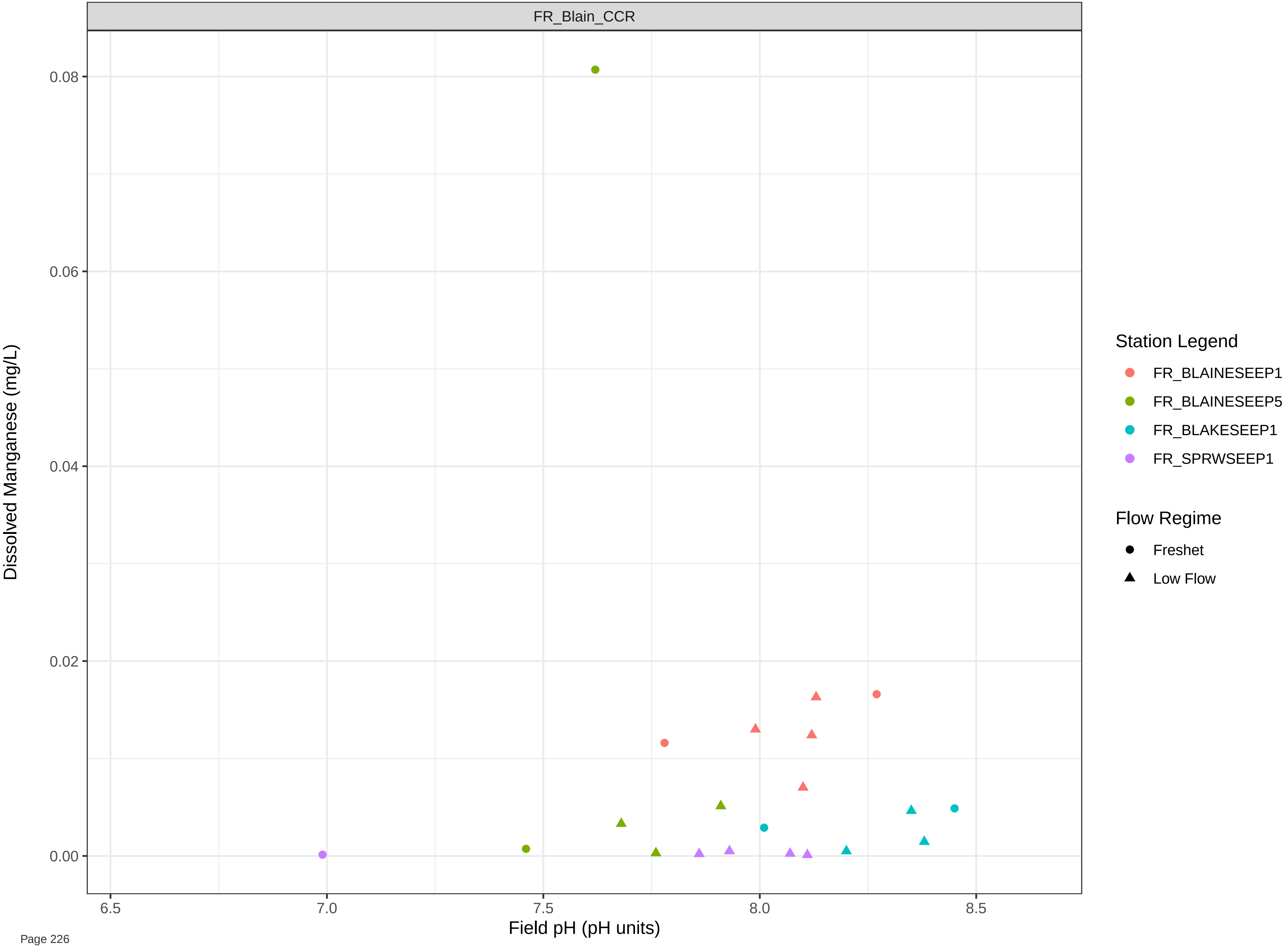

FR_SouthTails_Tailings
Dissolved Magnesium (mg/L)
80
60
40
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

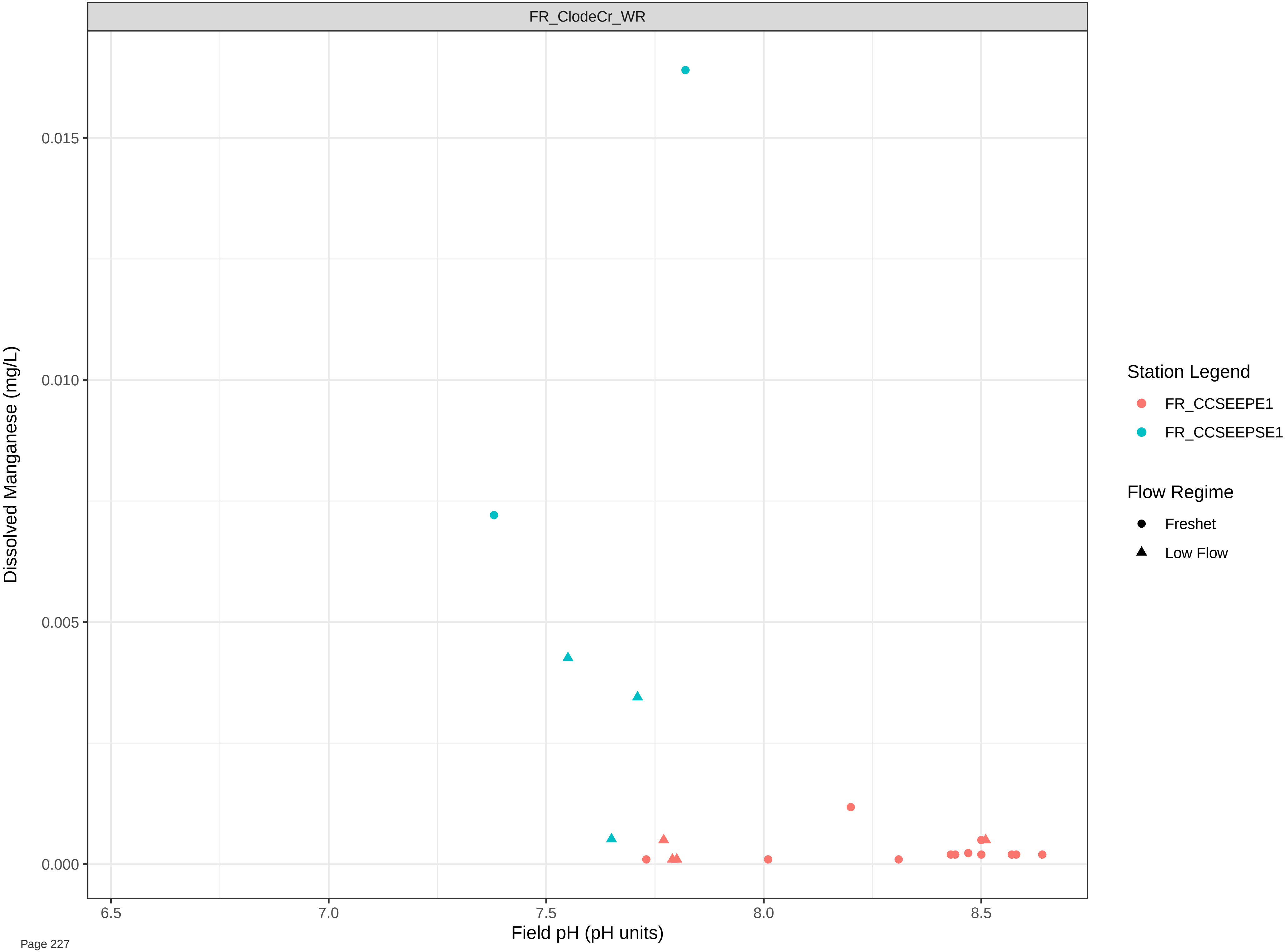

FR_SwiftWR_RockDrain_WR
Dissolved Magnesium (mg/L)
100
90
80
70
60
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

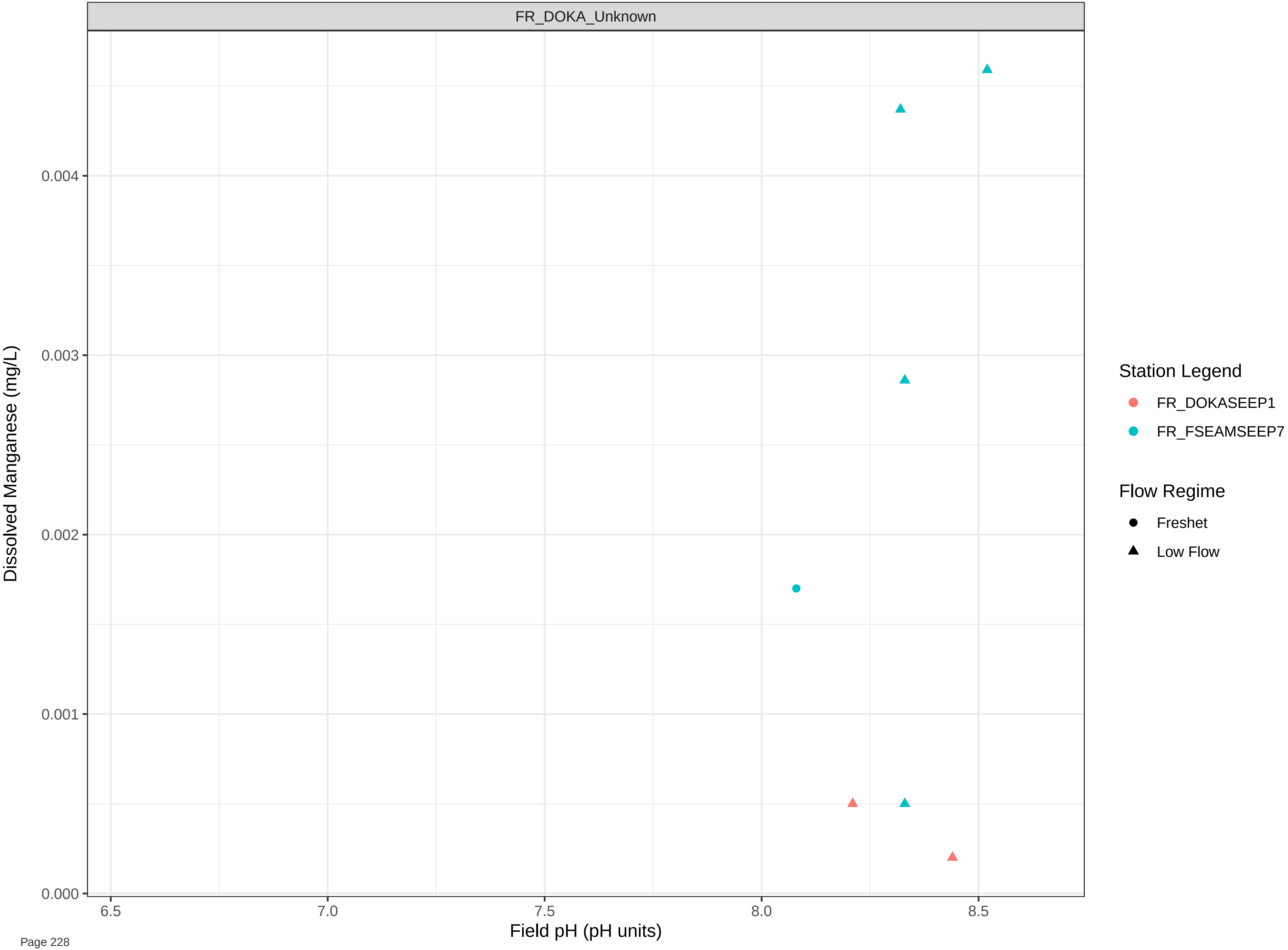

FR_TurnbullWREast_WR
Dissolved Magnesium (mg/L)
90
60
30
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

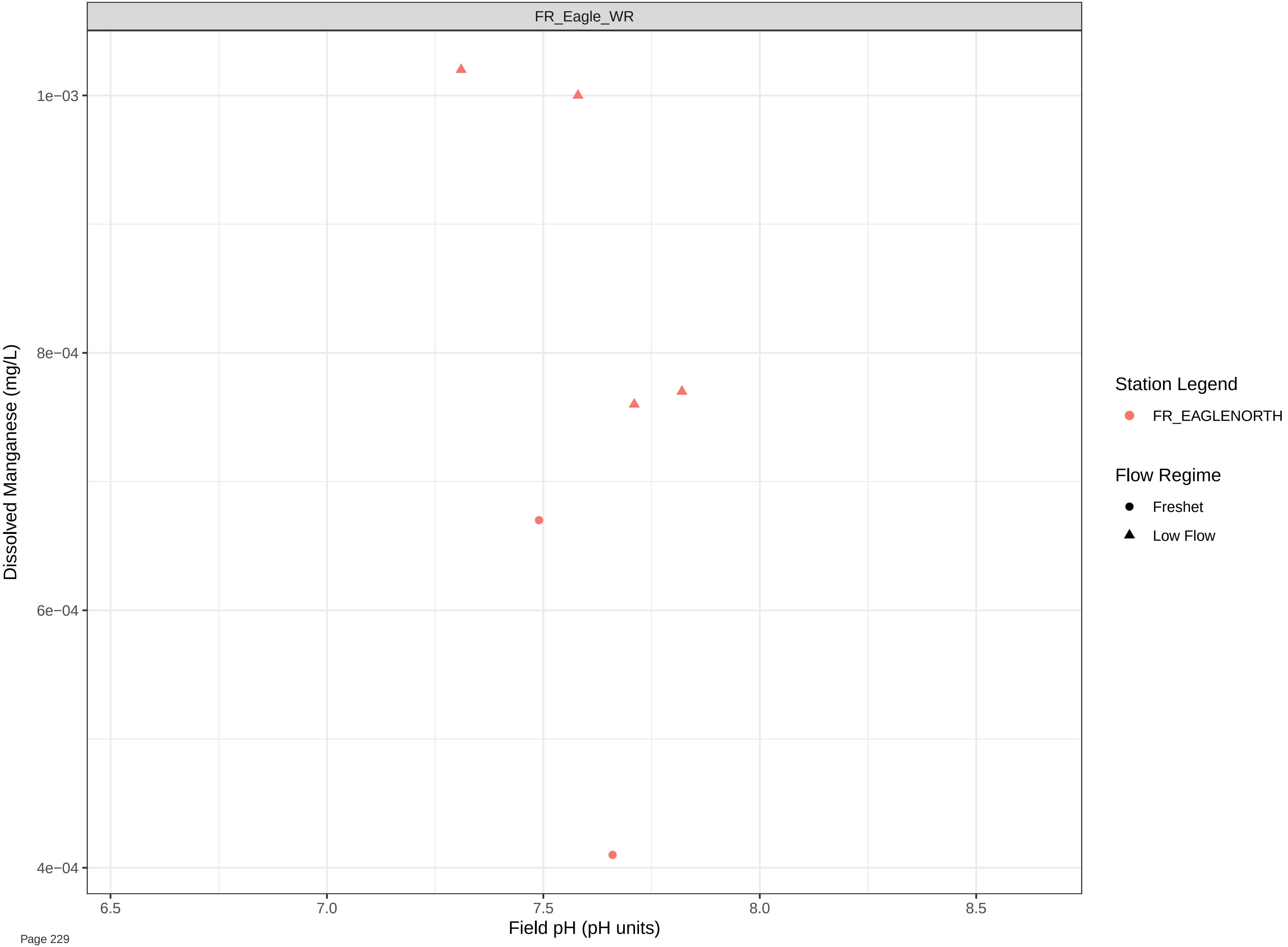

FR_TurnbullWRWest_WR
Dissolved Magnesium (mg/L)
70
60
50
40
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

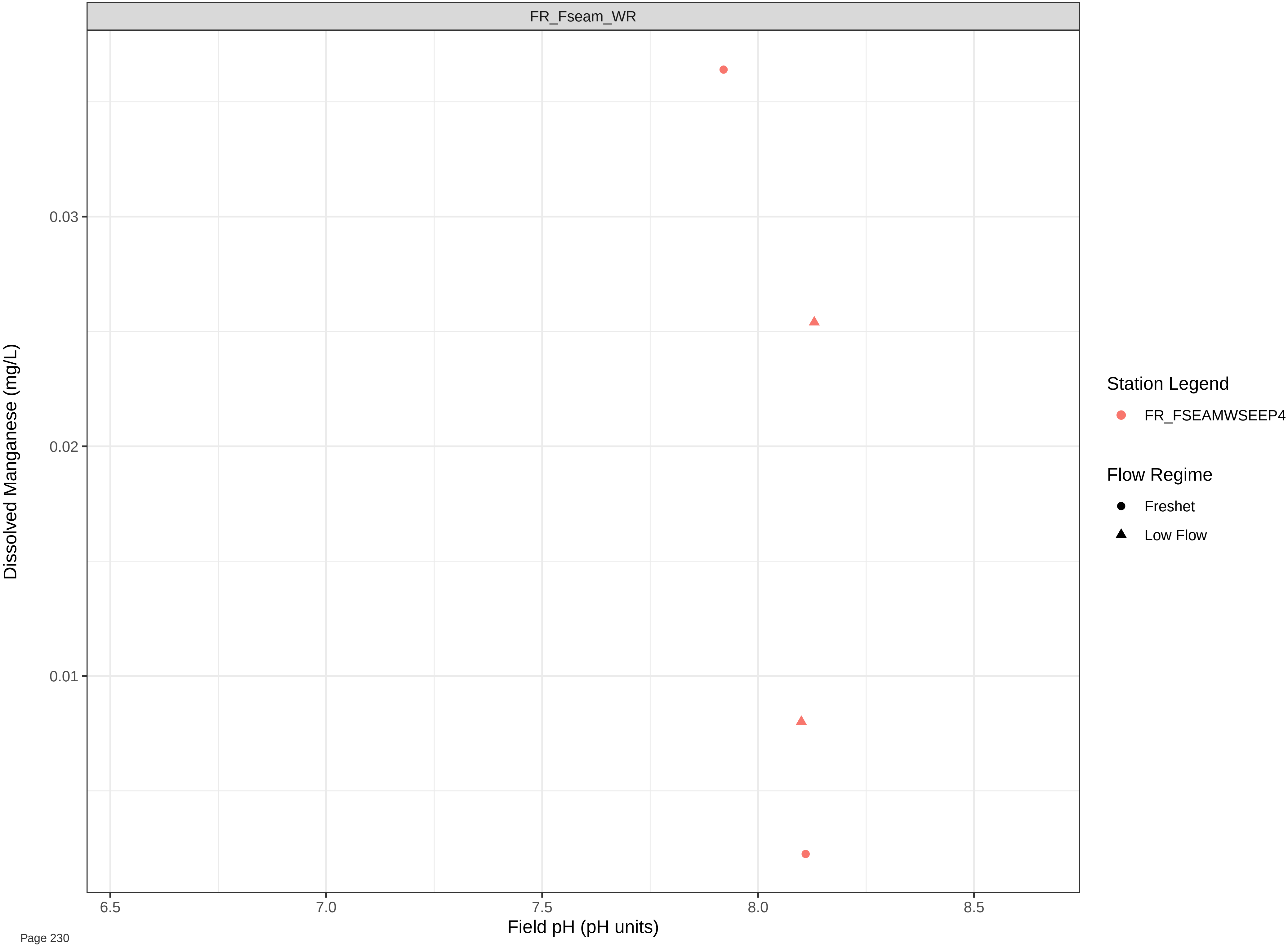

FR_A_WR
0.04
0.03
0.02
0.01
0.00
Dissolved Manganese (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

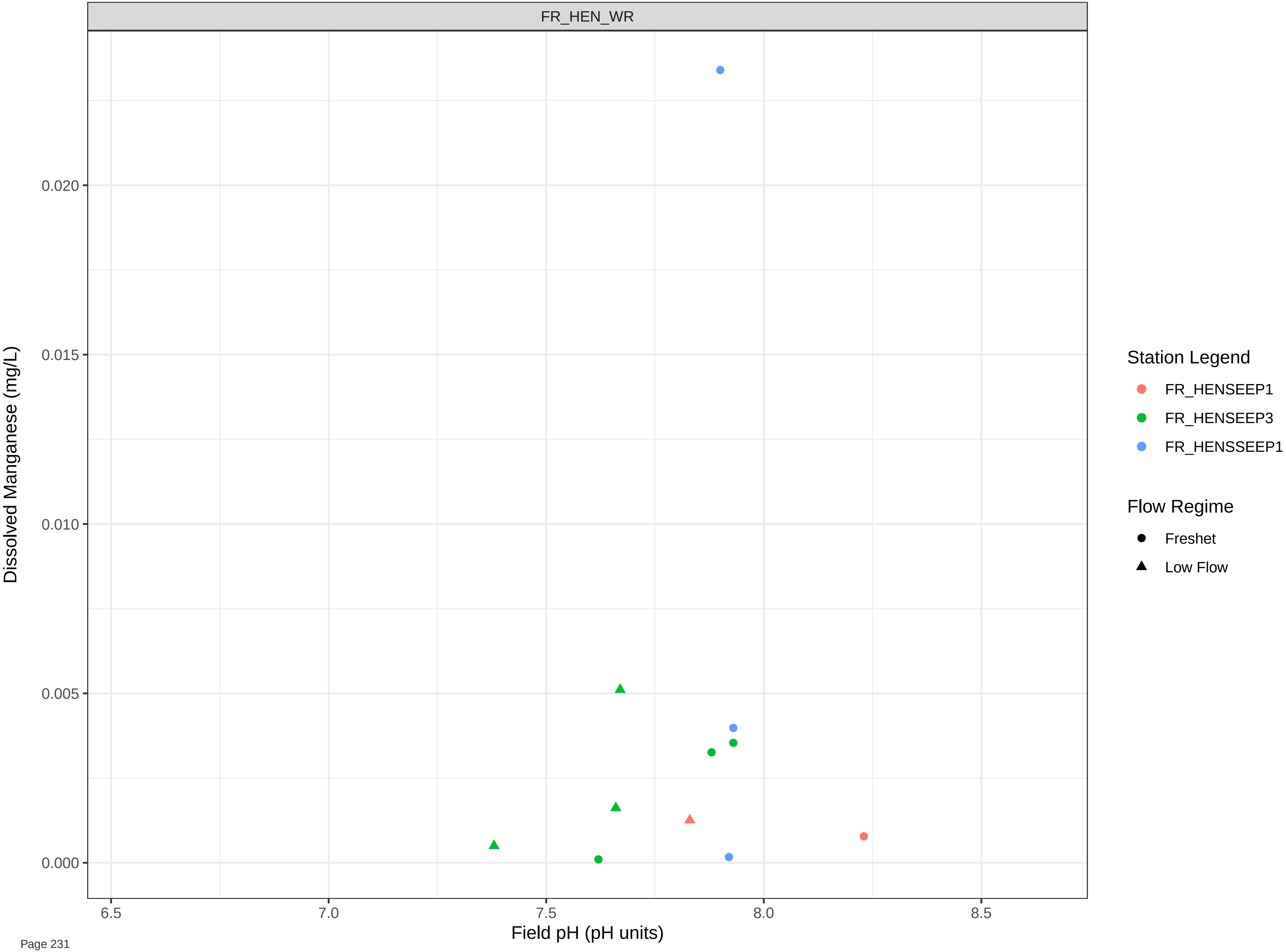

FR_Blain_CCR
Dissolved Manganese (mg/L)
0.08
0.06
0.04
0.02
0.00
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

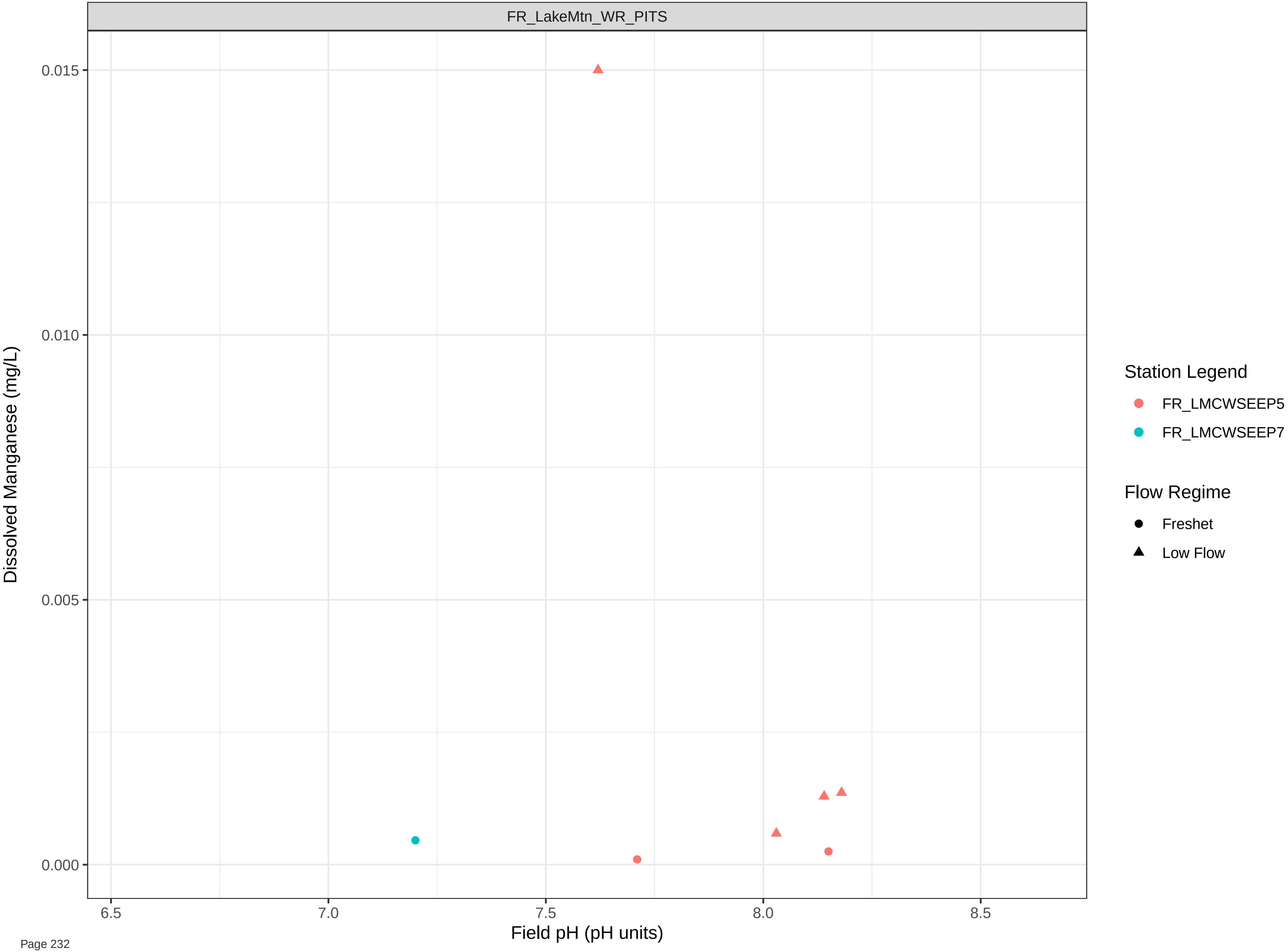

FR_ClodeCr_WR
Dissolved Manganese (mg/L)
0.015
0.010
0.005
0.000
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

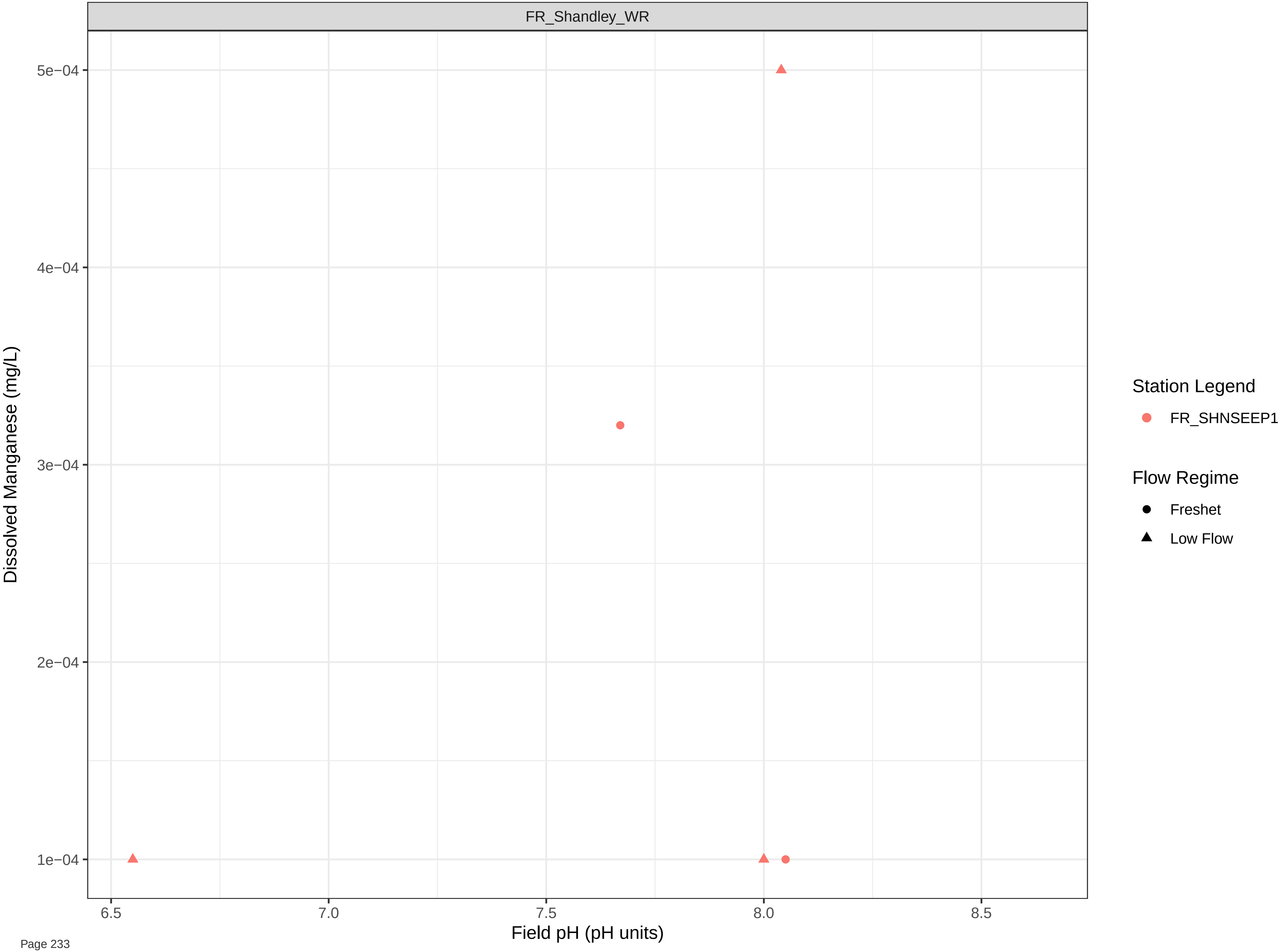

FR_DOKA_Unknown
Dissolved Manganese (mg/L)
0.004
0.003
0.002
0.001
0.000
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

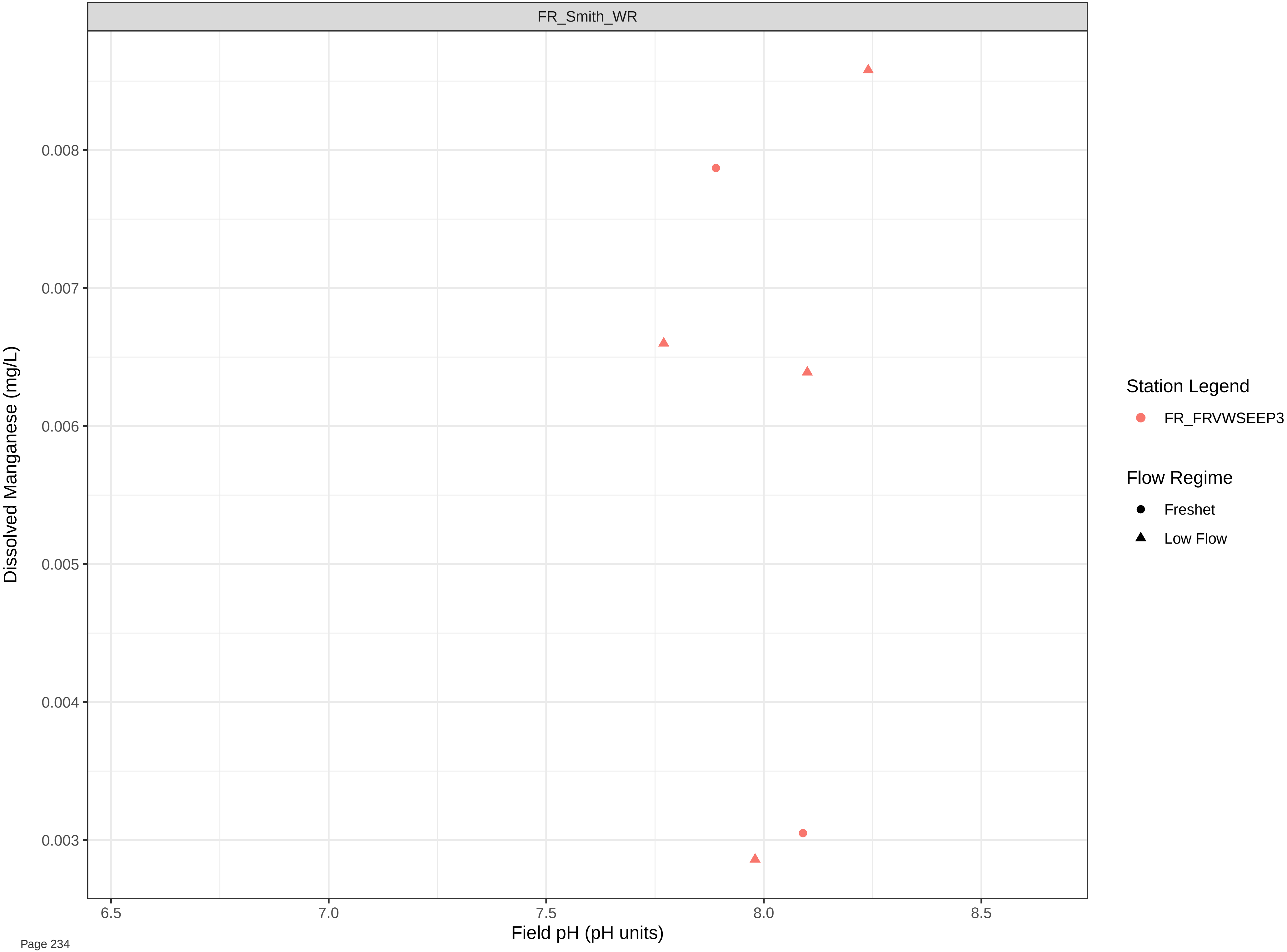

FR_Eagle_WR
Dissolved Manganese (mg/L)
1e−03
8e−04
6e−04
4e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

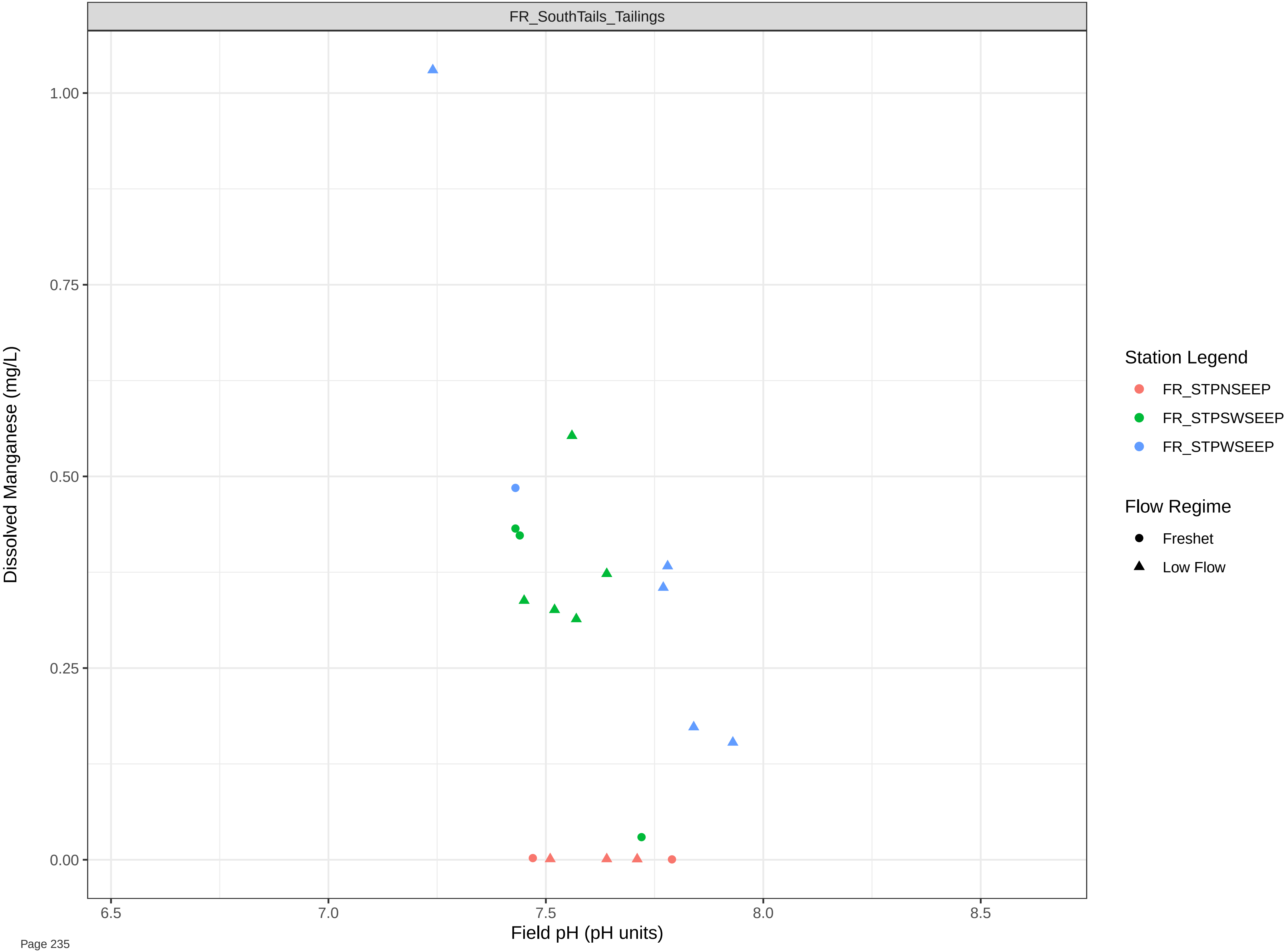

FR_Fseam_WR
Dissolved Manganese (mg/L)
0.03
0.02
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

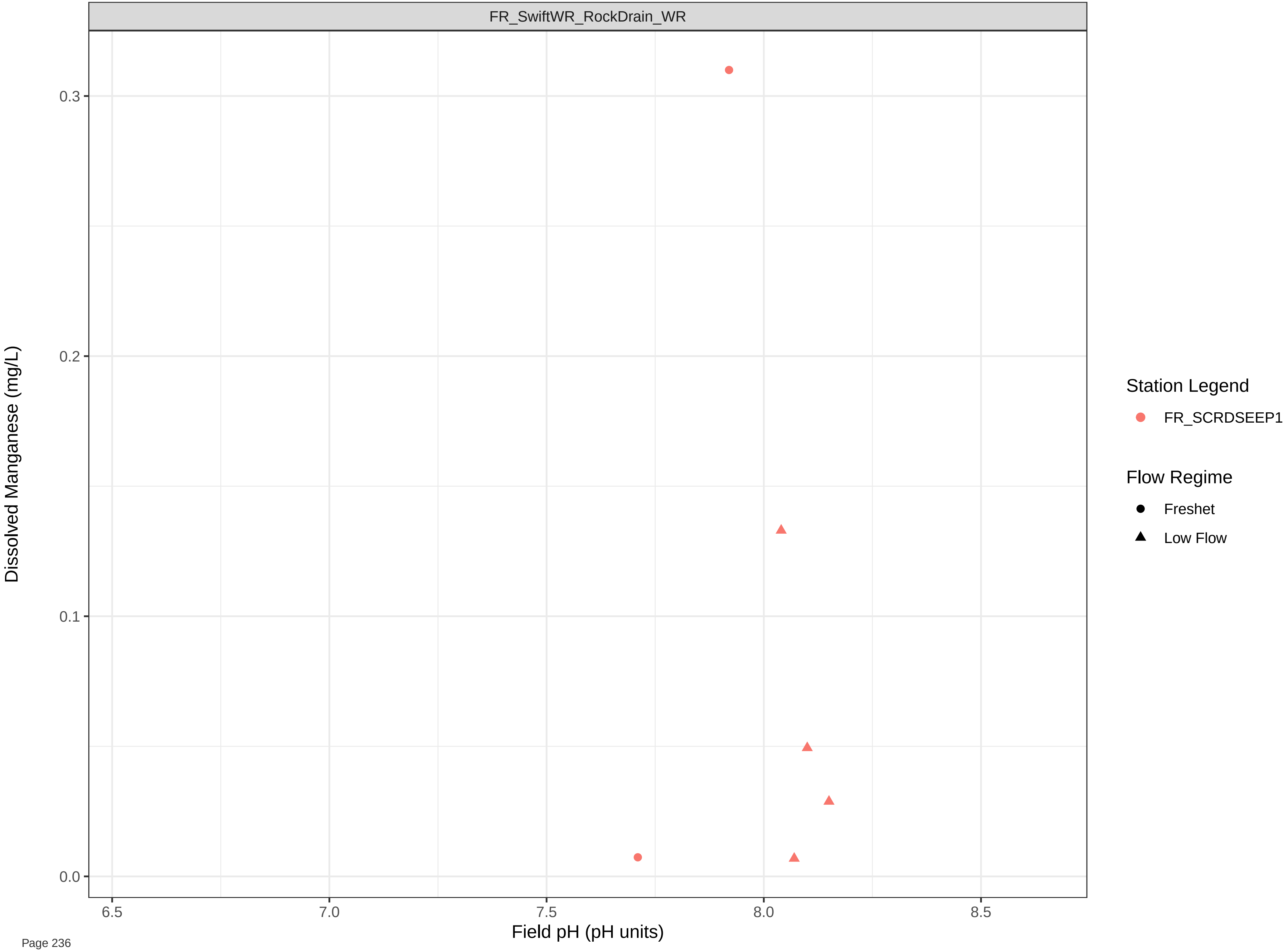

FR_HEN_WR
Dissolved Manganese (mg/L)
0.000
0.005
0.010
0.015
0.020
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

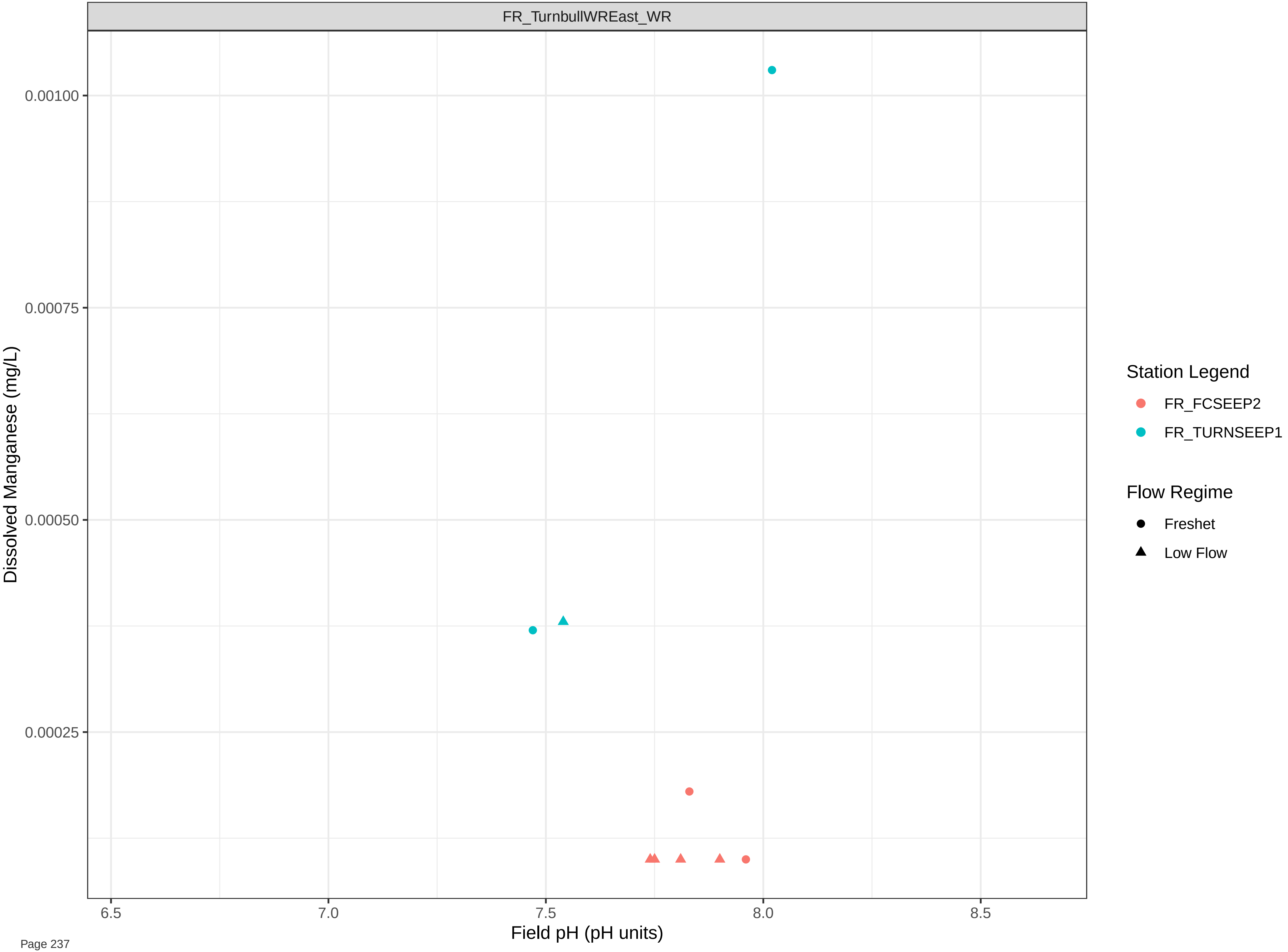

FR_LakeMtn_WR_PITS
Dissolved Manganese (mg/L)
0.015
0.010
0.005
0.000
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

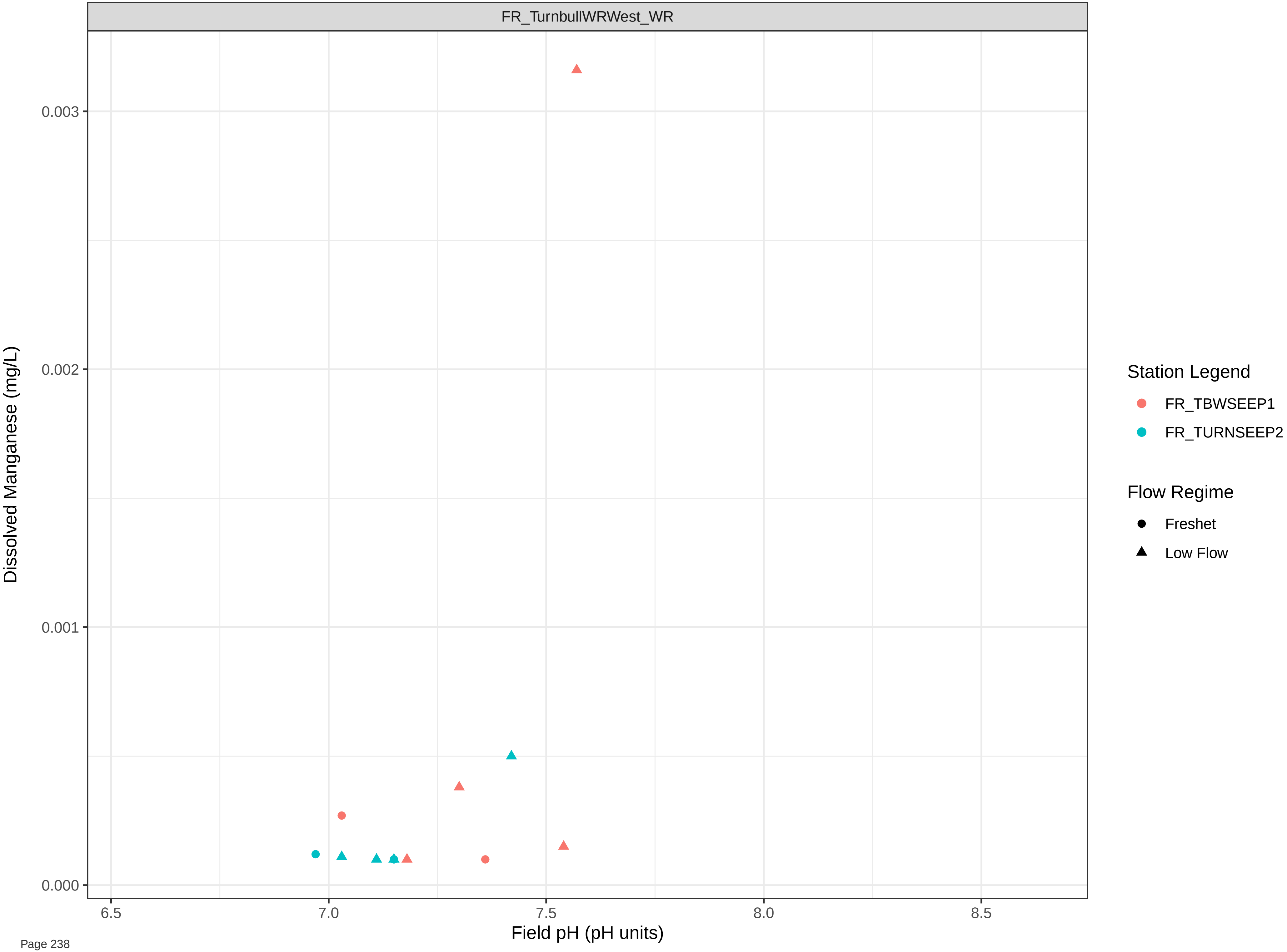

FR_Shandley_WR
Dissolved Manganese (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

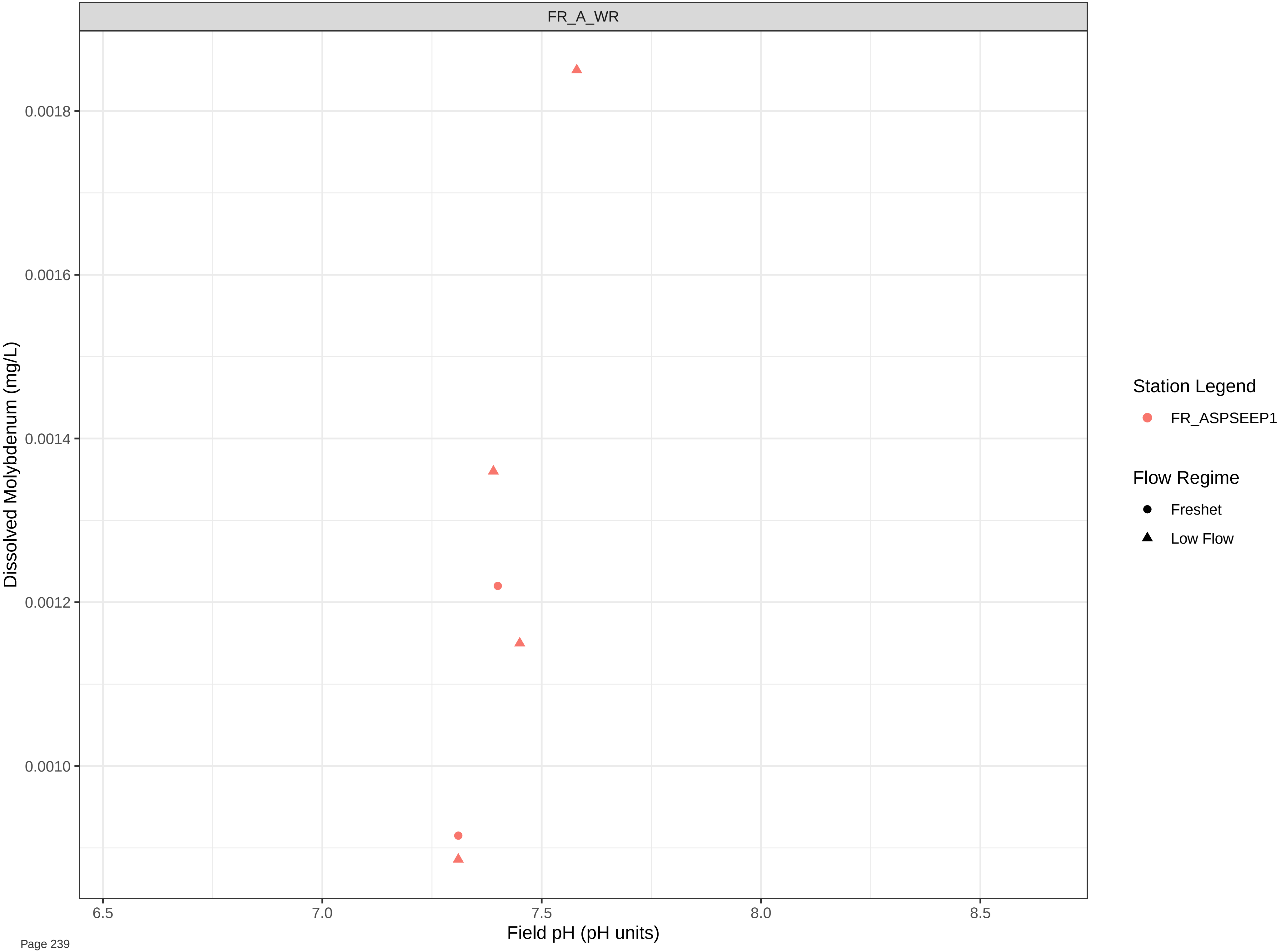

FR_Smith_WR
Dissolved Manganese (mg/L)
0.008
0.007
0.006
0.005
0.004
0.003
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

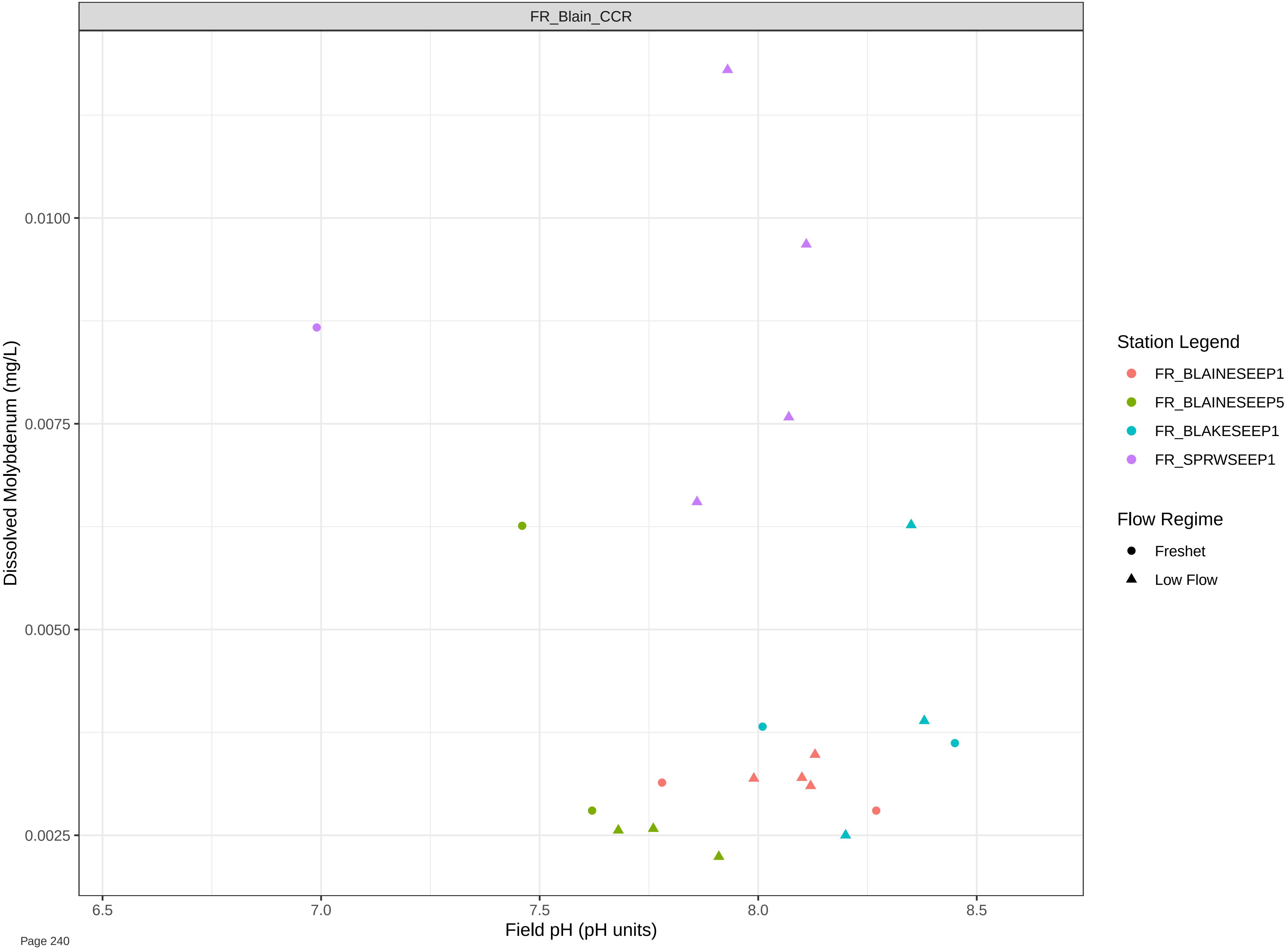

FR_SouthTails_Tailings
Dissolved Manganese (mg/L)
1.00
0.75
0.50
0.25
0.00
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

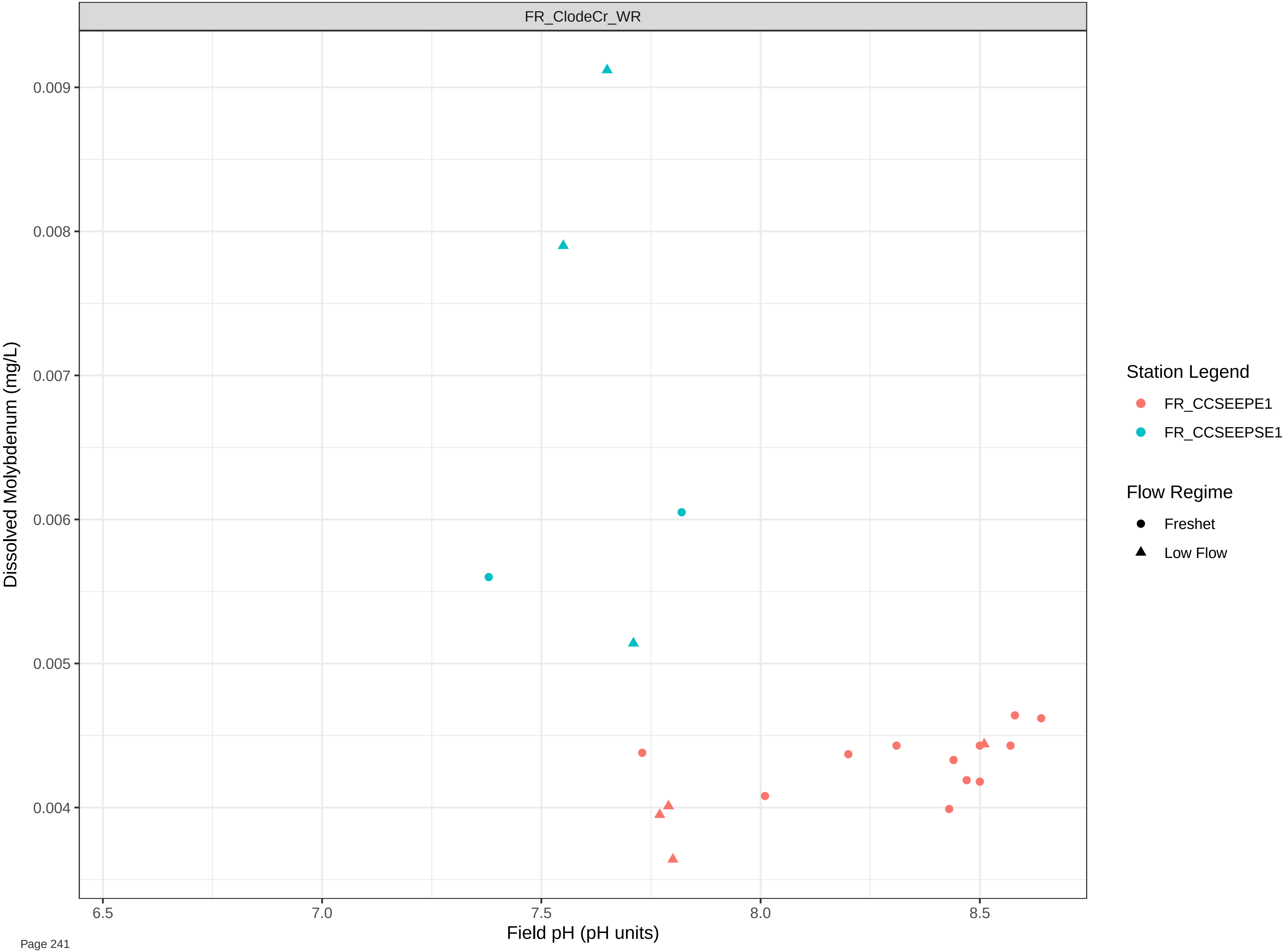

FR_SwiftWR_RockDrain_WR
Dissolved Manganese (mg/L)
0.3
0.2
0.1
0.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

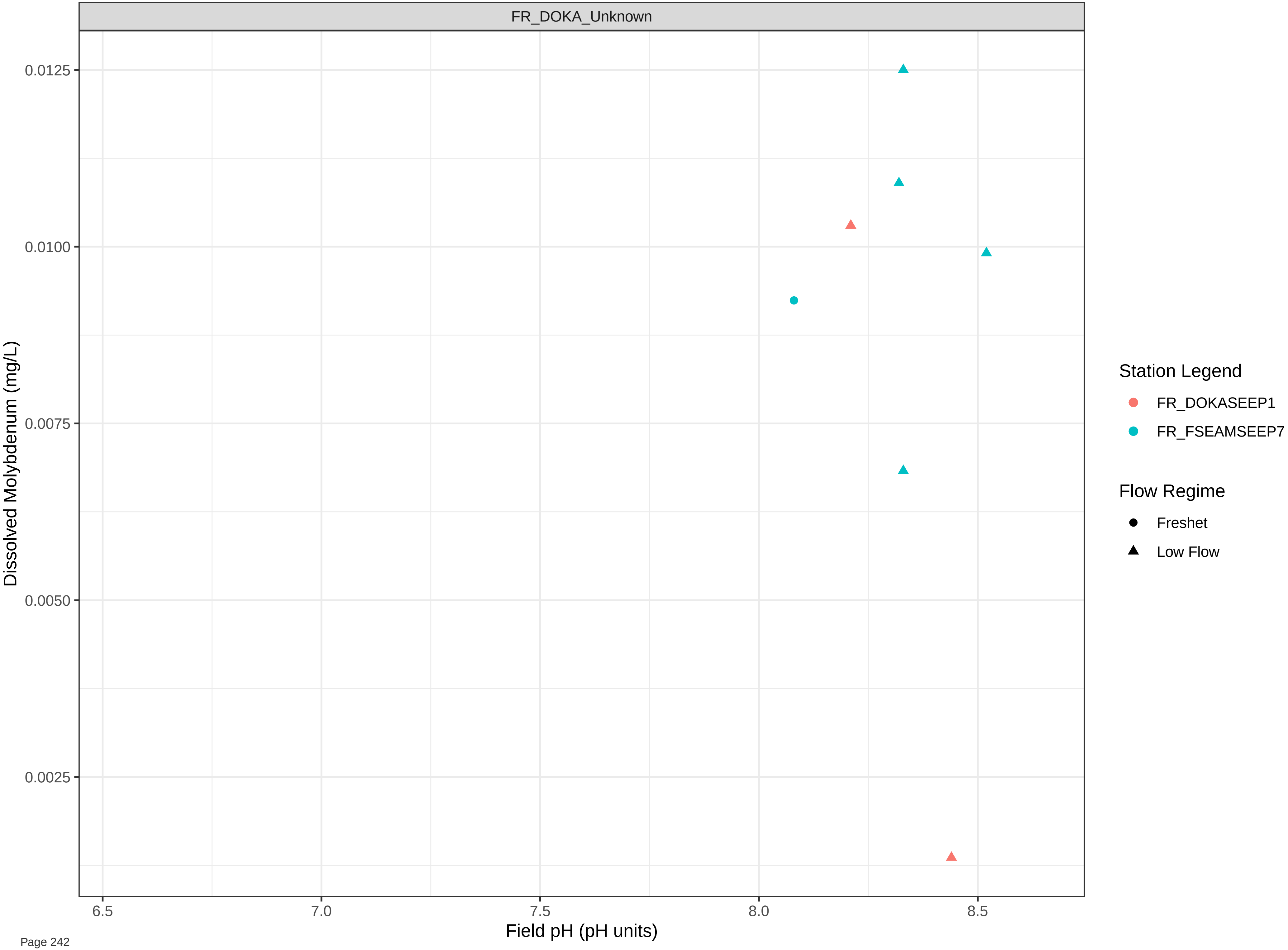

FR_TurnbullWREast_WR
Dissolved Manganese (mg/L)
0.00100
0.00075
0.00050
0.00025
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

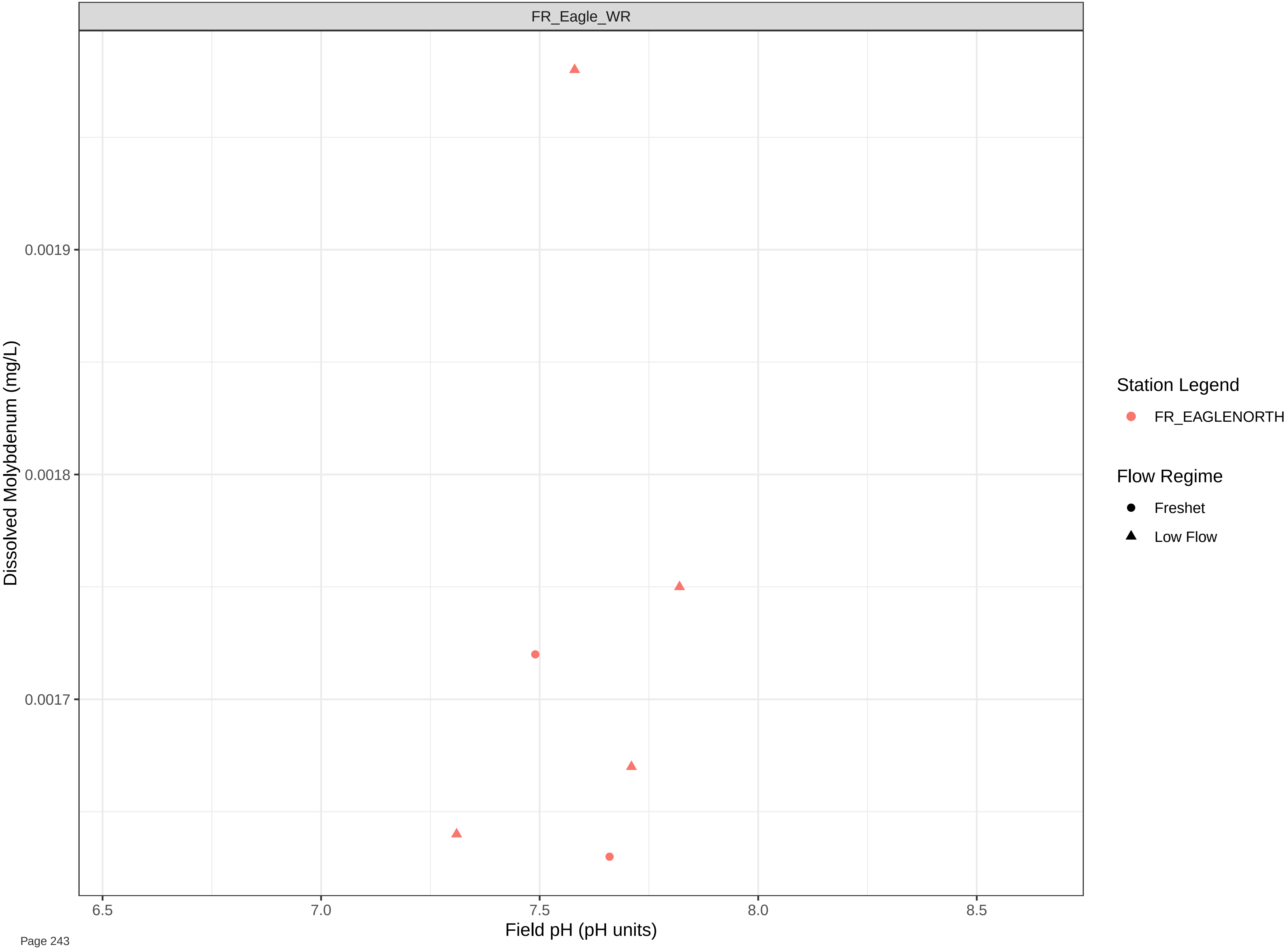

FR_TurnbullWRWest_WR
Dissolved Manganese (mg/L)
0.003
0.002
0.001
0.000
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

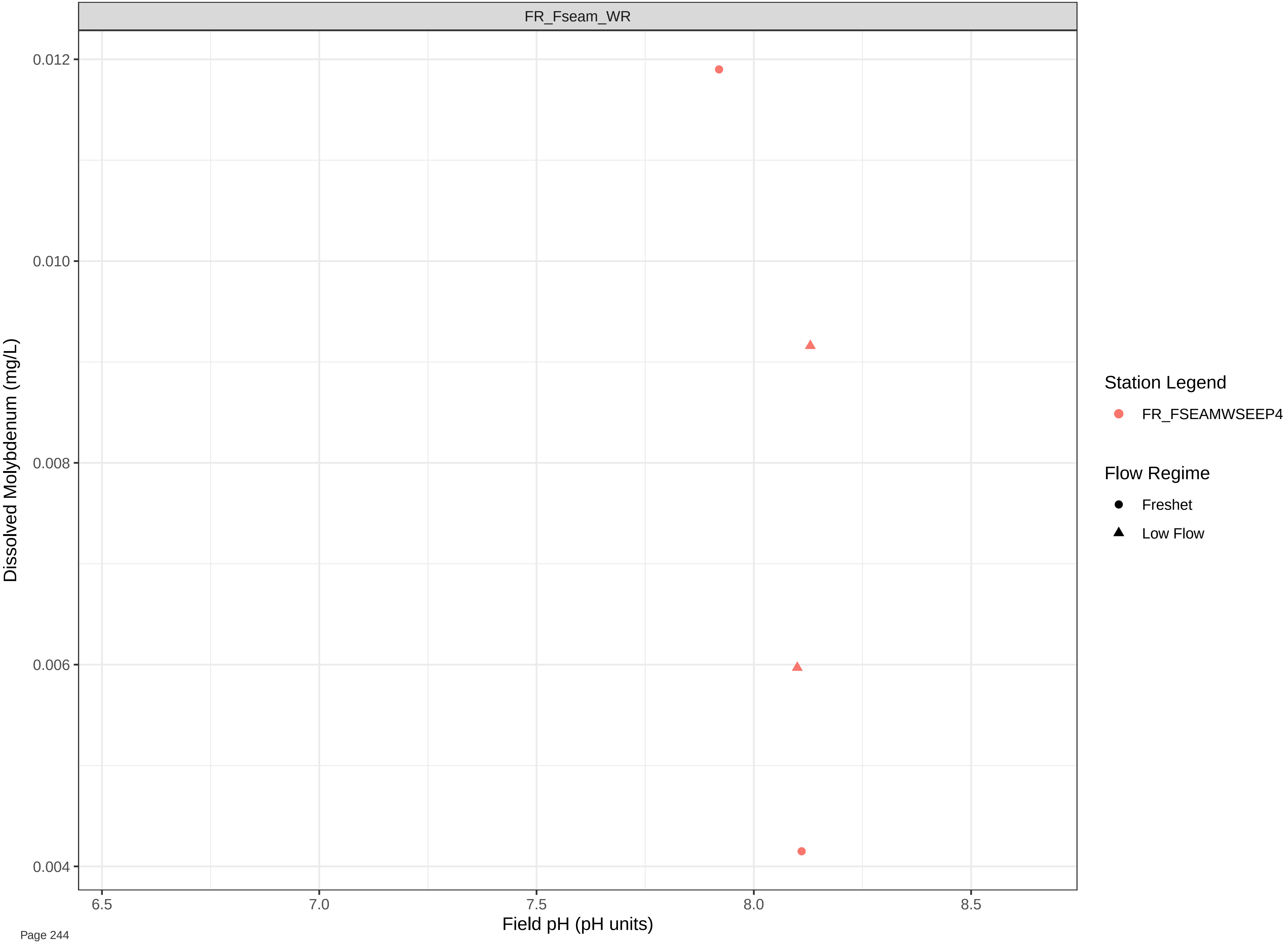

FR_A_WR
Dissolved Molybdenum (mg/L)
0.0018
0.0016
0.0014
0.0012
0.0010
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

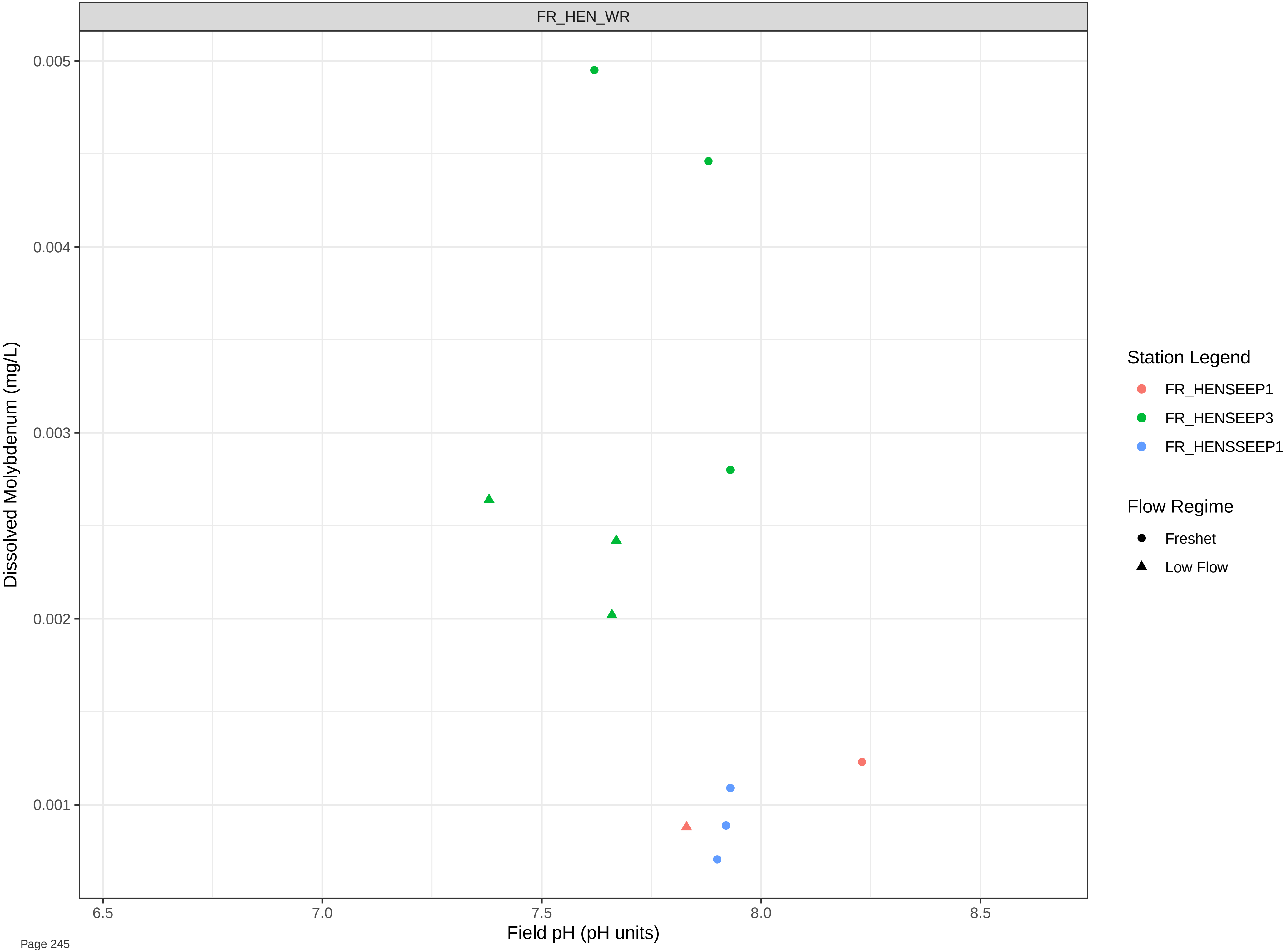

FR_Blain_CCR
Dissolved Molybdenum (mg/L)
0.0100
0.0075
0.0050
0.0025
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

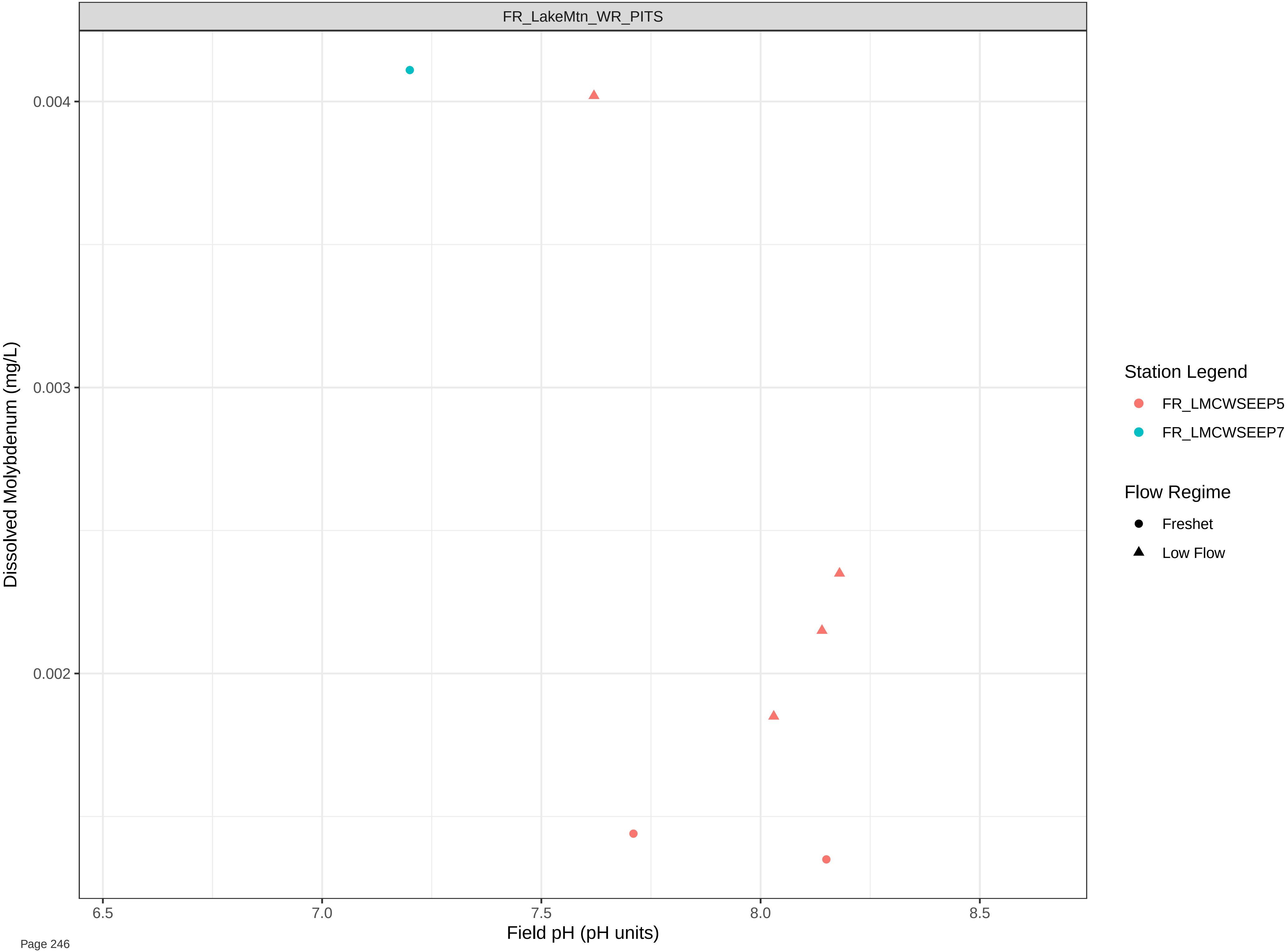

FR_ClodeCr_WR
Dissolved Molybdenum (mg/L)
0.009
0.008
0.007
0.006
0.005
0.004
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

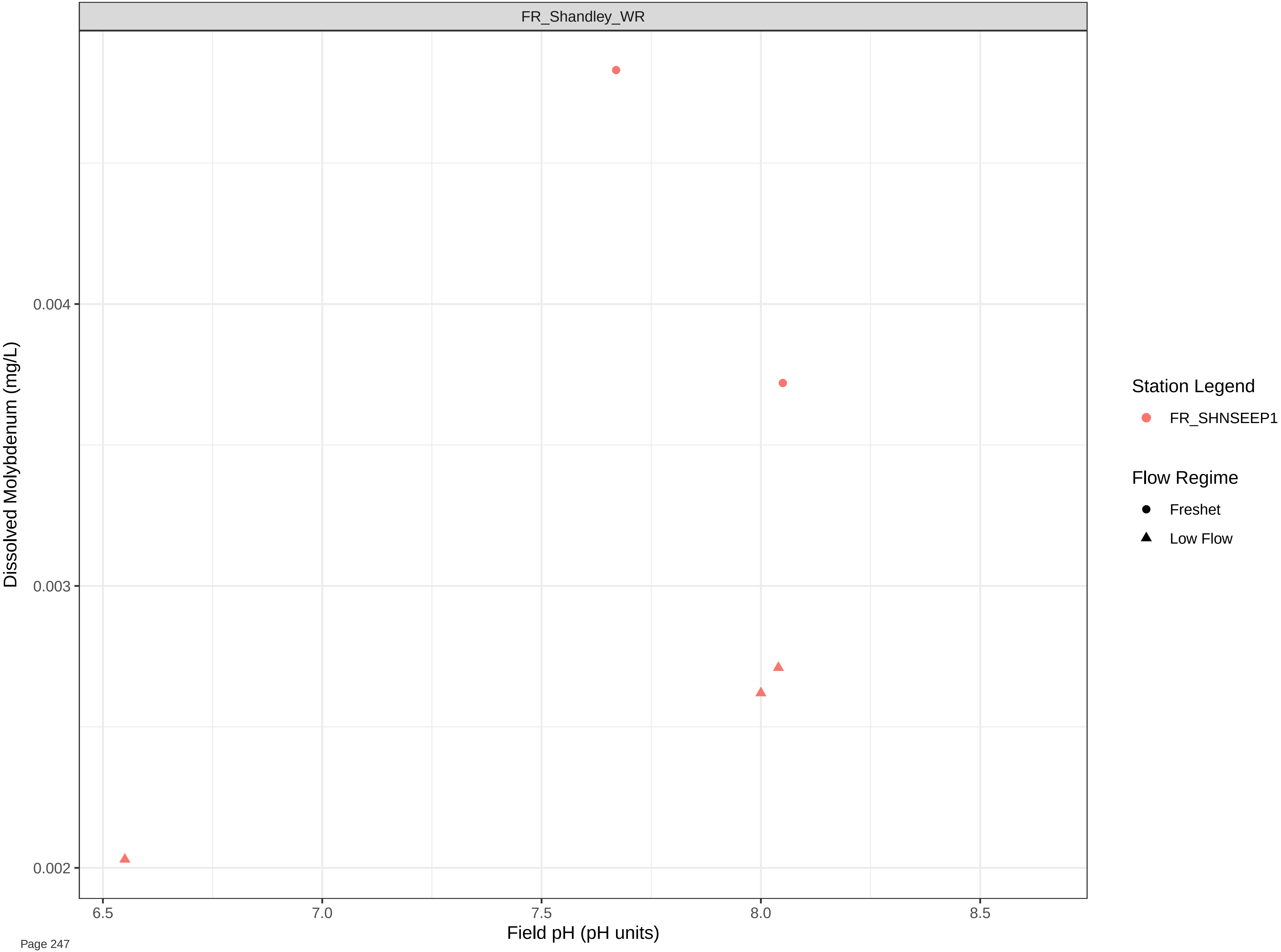

FR_DOKA_Unknown
Dissolved Molybdenum (mg/L)
0.0125
0.0100
0.0075
0.0050
0.0025
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

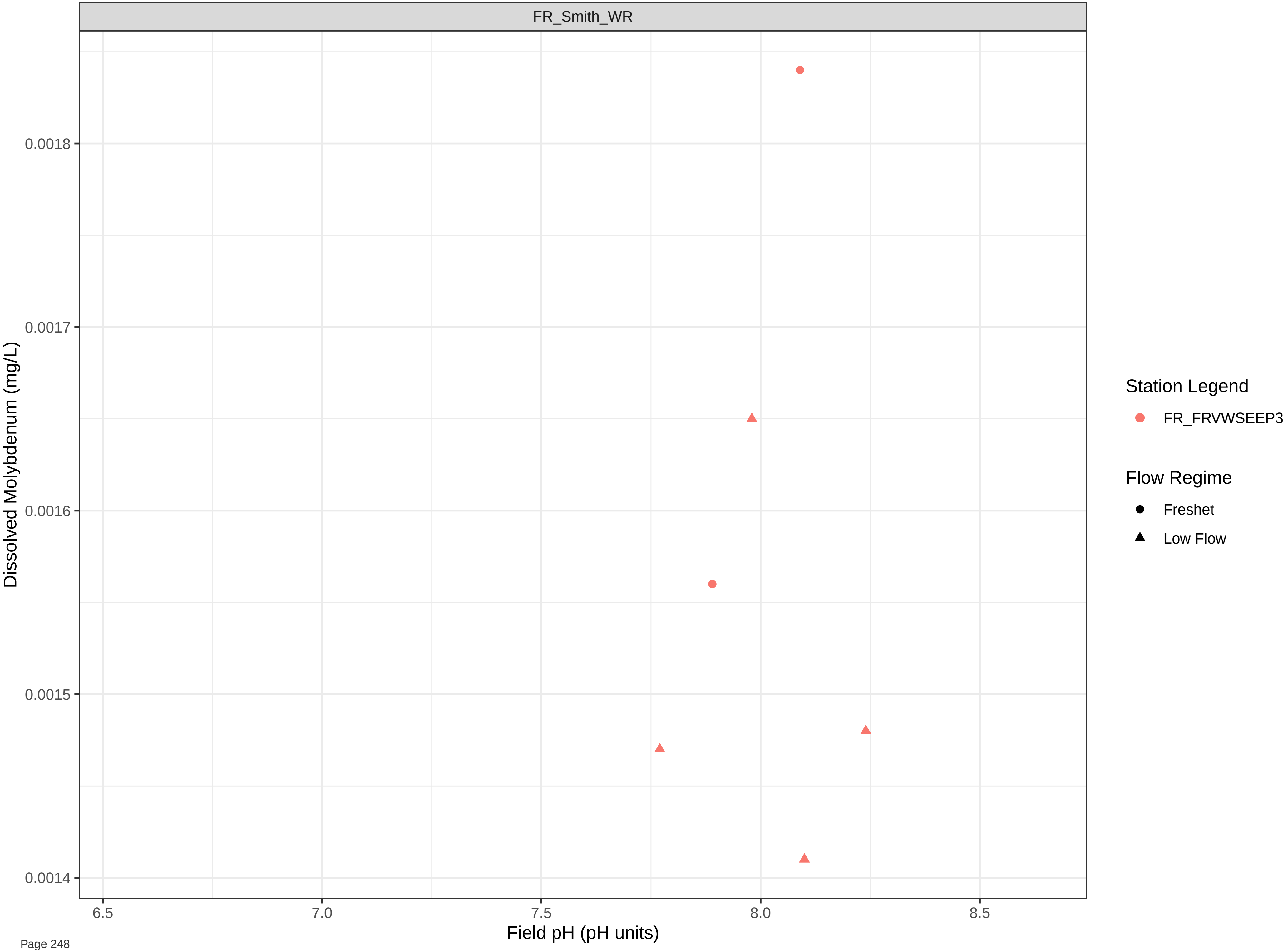

FR_Eagle_WR
Dissolved Molybdenum (mg/L)
0.0019
0.0018
0.0017
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

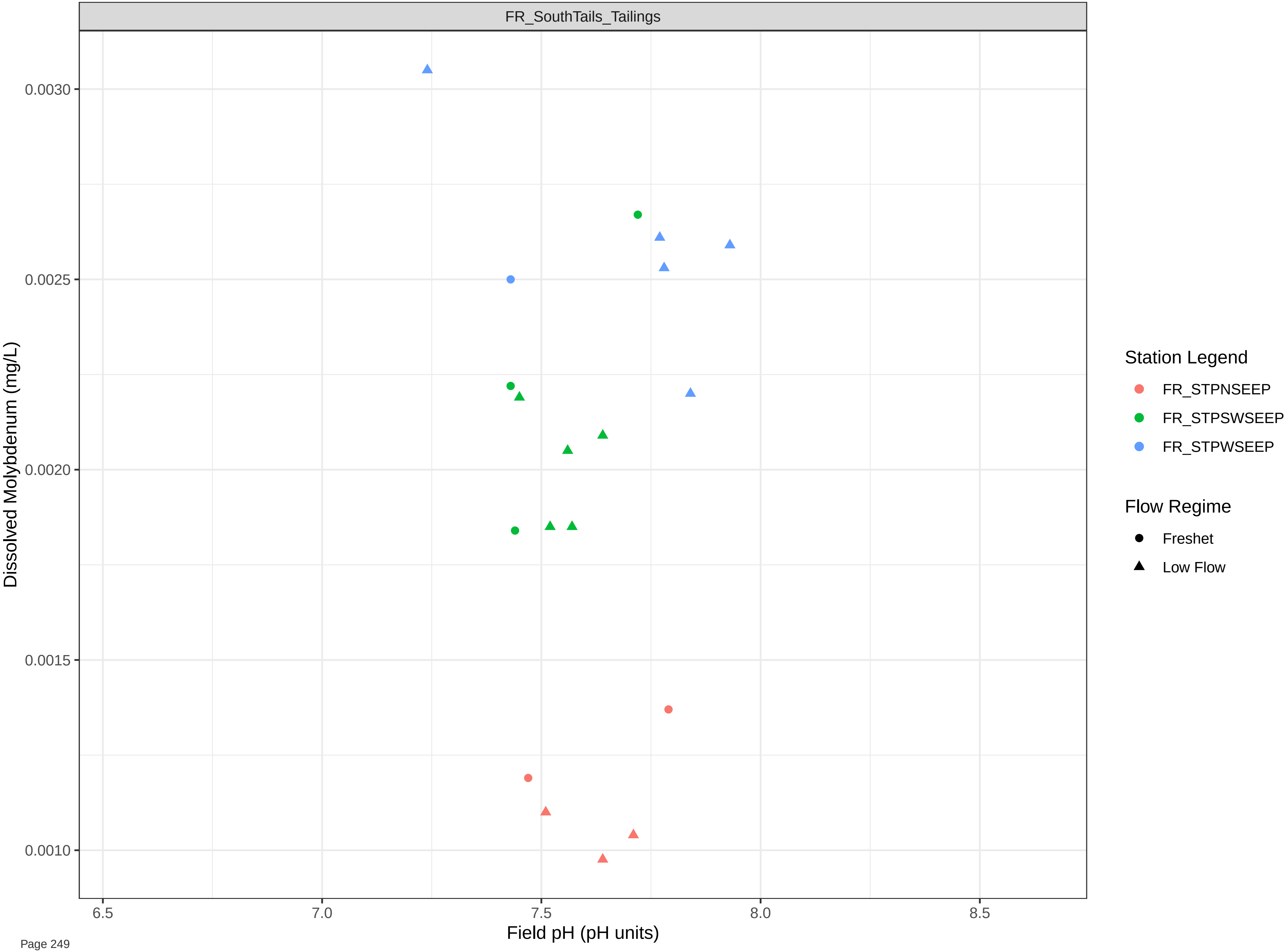

FR_Fseam_WR
Dissolved Molybdenum (mg/L)
0.012
0.010
0.008
0.006
0.004
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

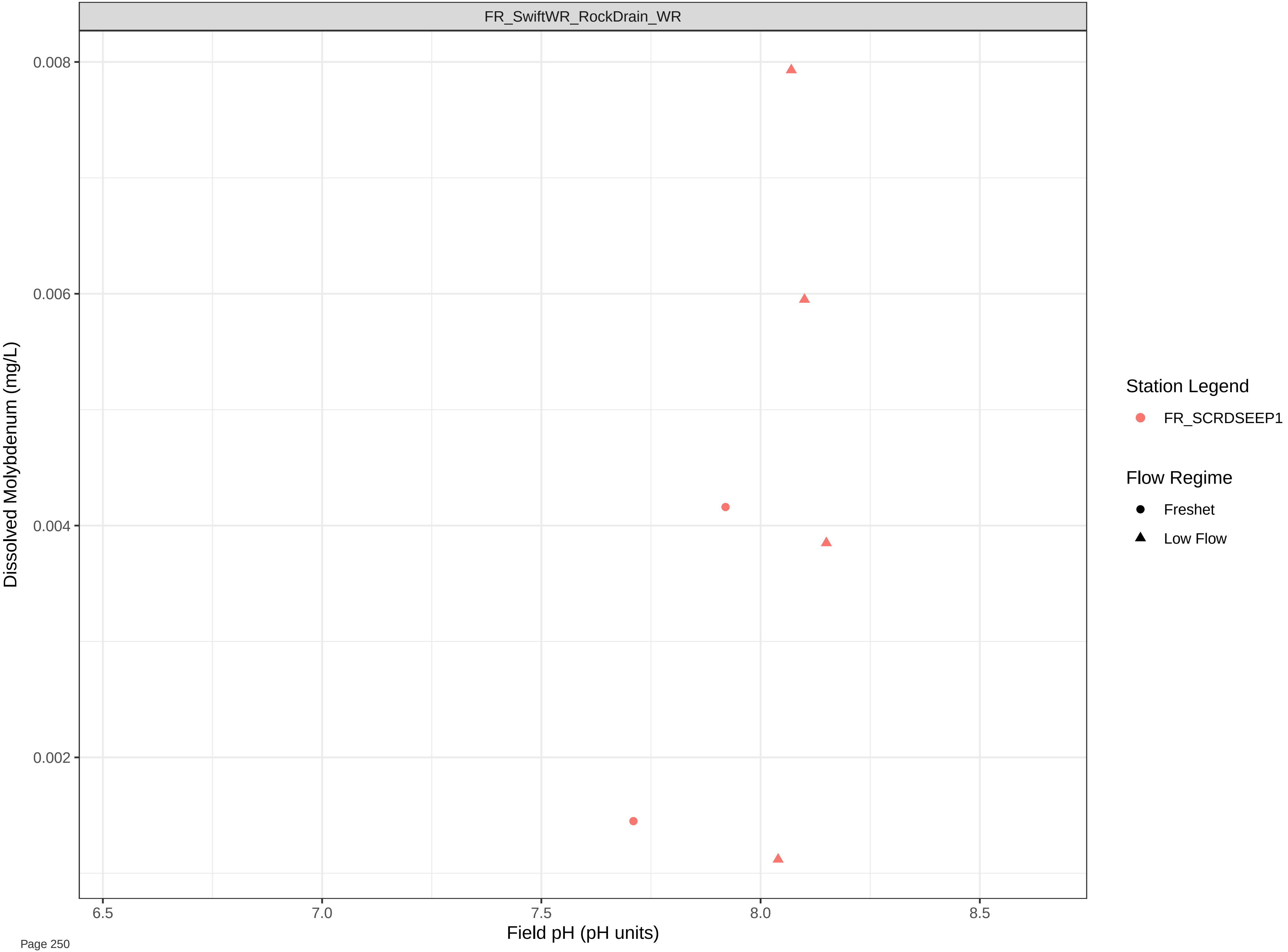

FR_HEN_WR
Dissolved Molybdenum (mg/L)
0.005
0.004
0.003
0.002
0.001
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

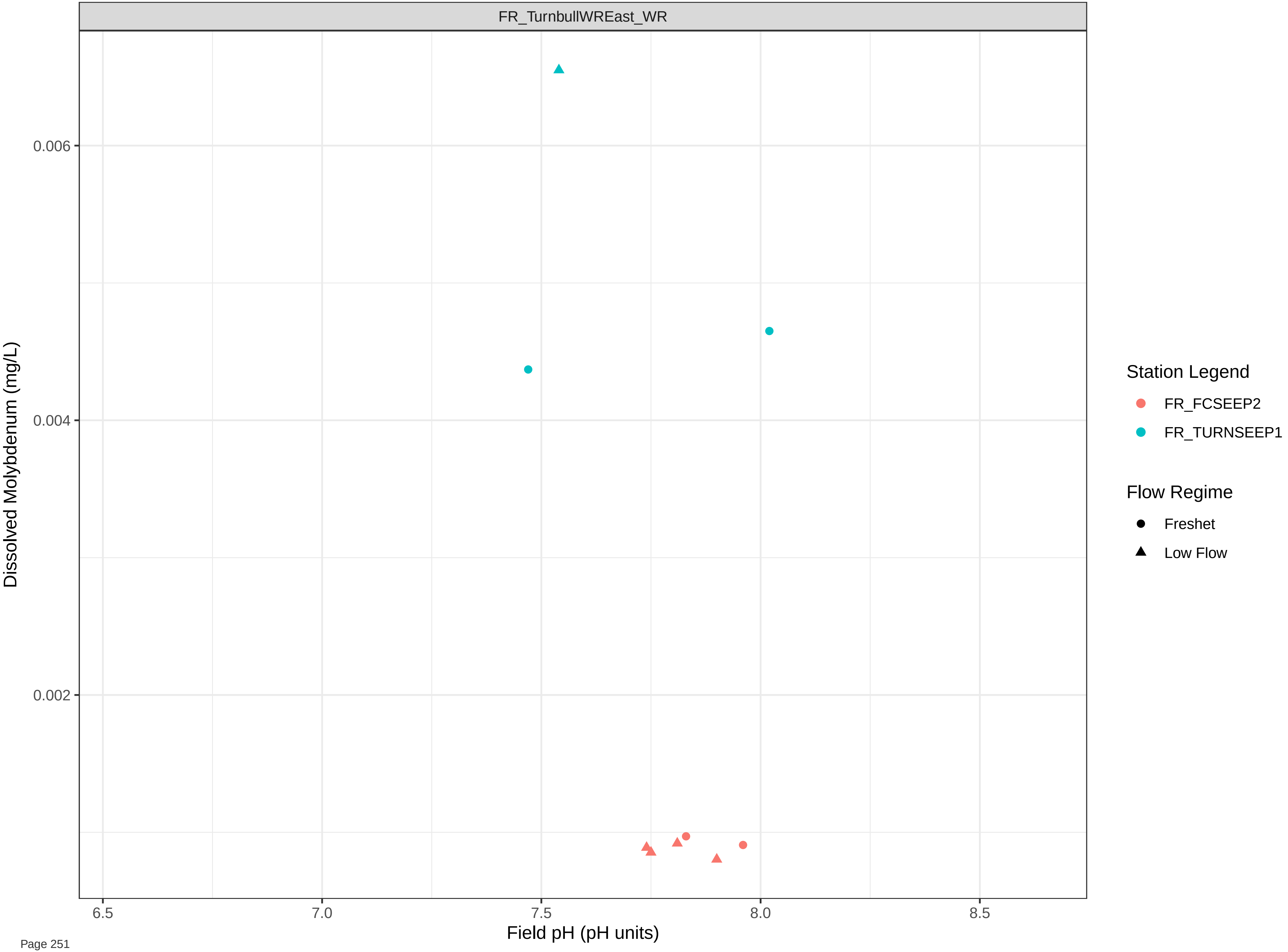

FR_LakeMtn_WR_PITS
Dissolved Molybdenum (mg/L)
0.004
0.003
0.002
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

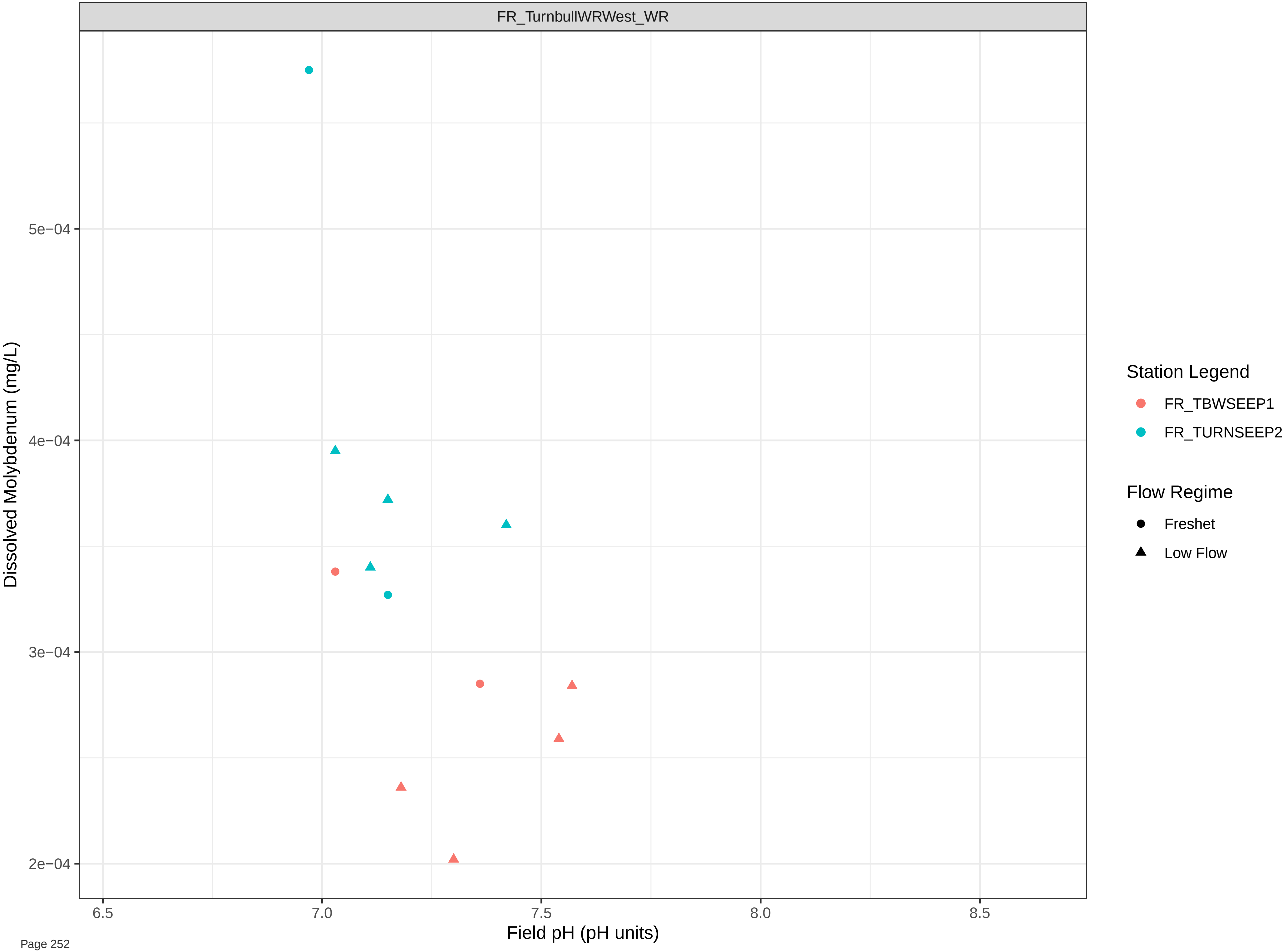

FR_Shandley_WR
Dissolved Molybdenum (mg/L)
0.004
0.003
0.002
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

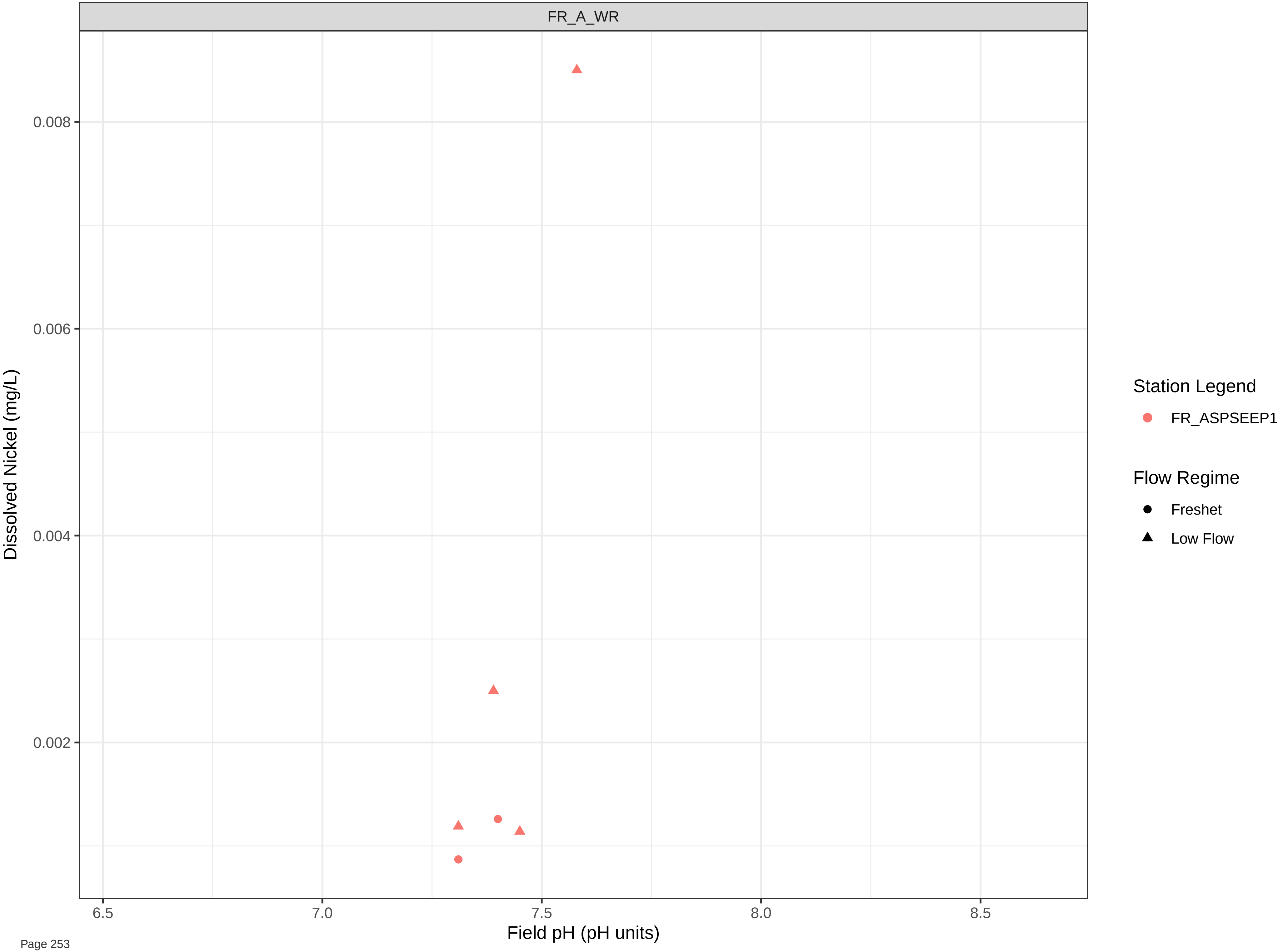

FR_Smith_WR
Dissolved Molybdenum (mg/L)
0.0018
0.0017
0.0016
0.0015
0.0014
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

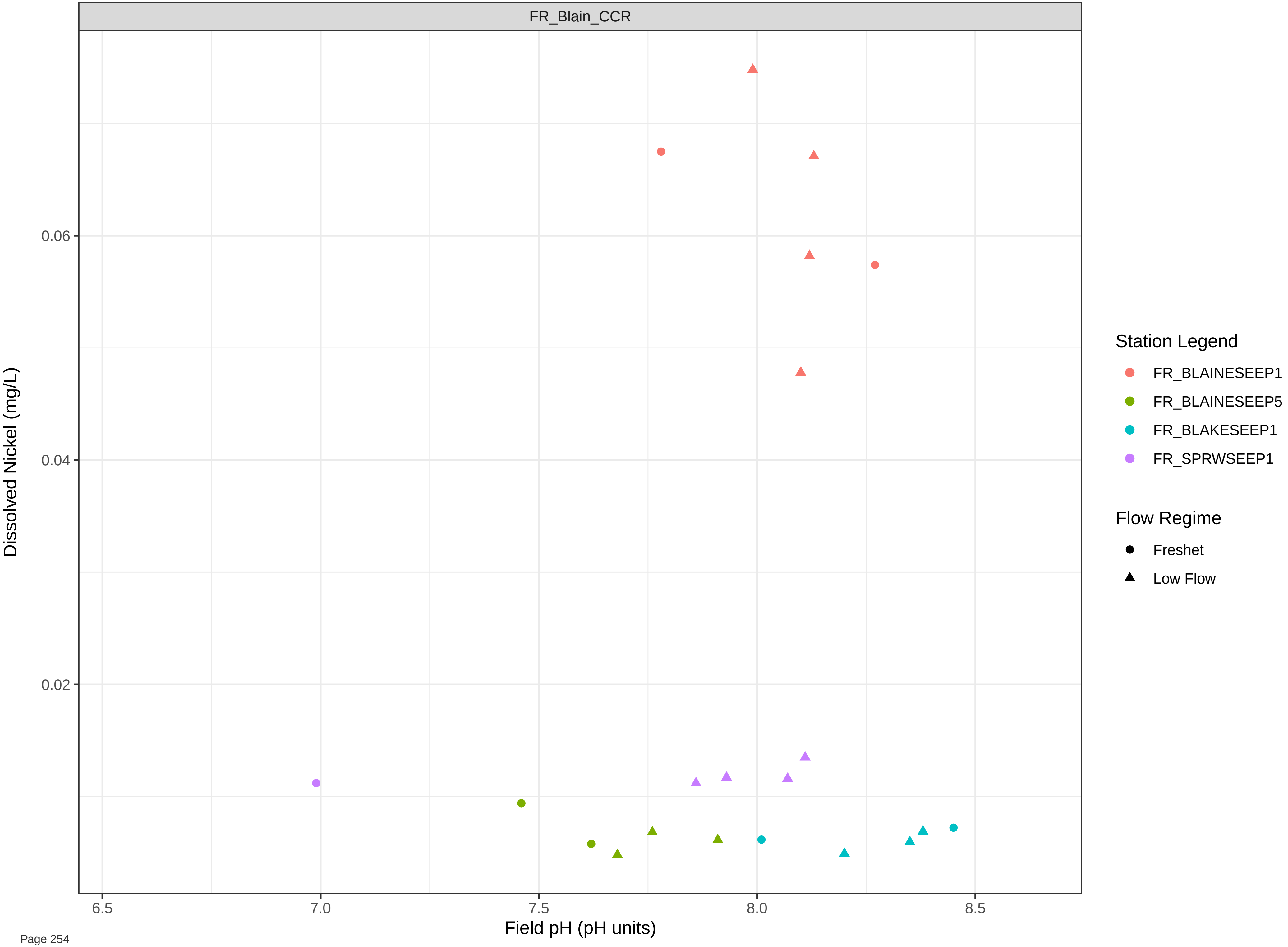

FR_SouthTails_Tailings
Dissolved Molybdenum (mg/L)
0.0030
0.0025
0.0020
0.0015
0.0010
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

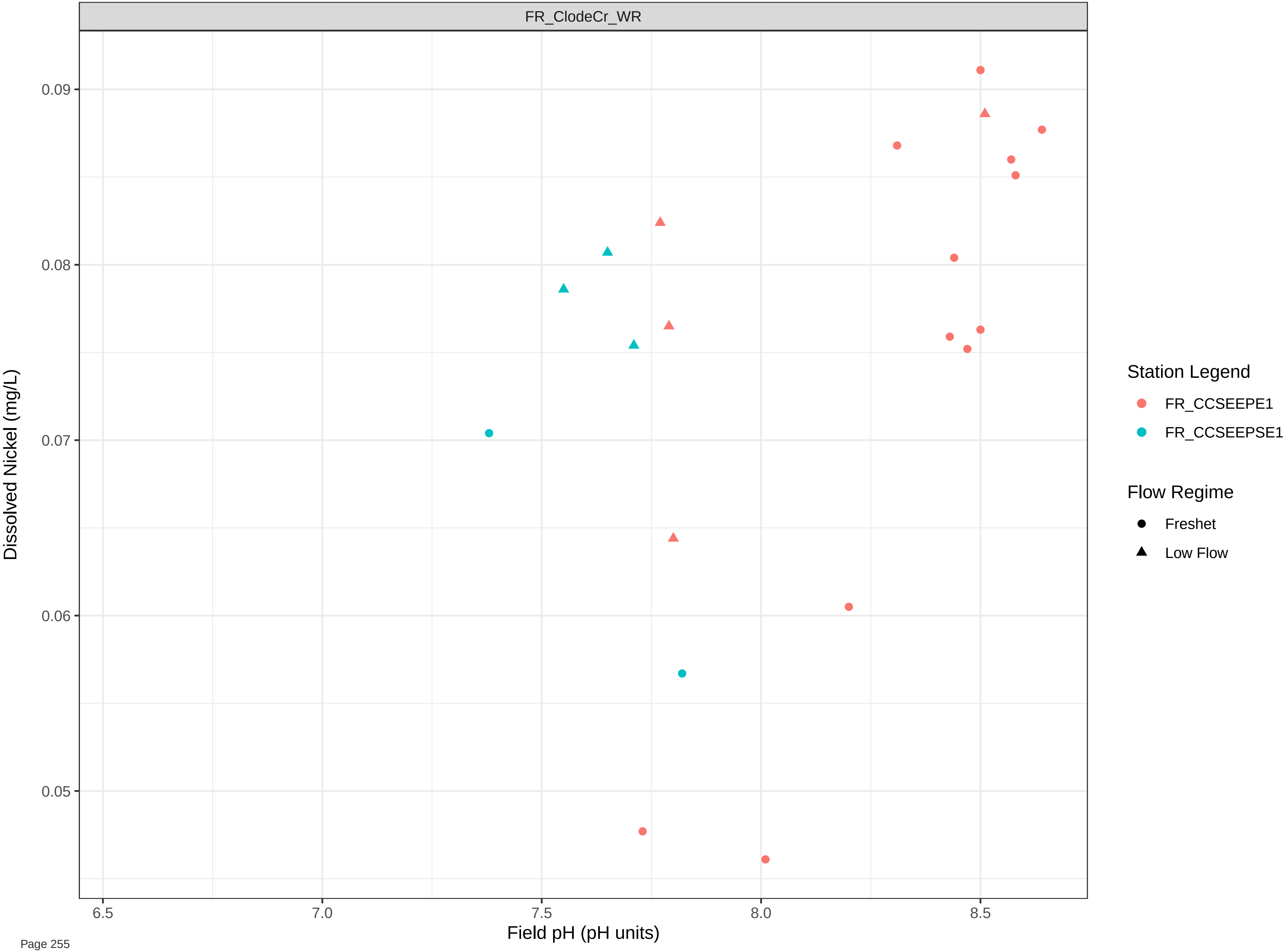

FR_SwiftWR_RockDrain_WR
0.008
0.006
0.004
0.002
Dissolved Molybdenum (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

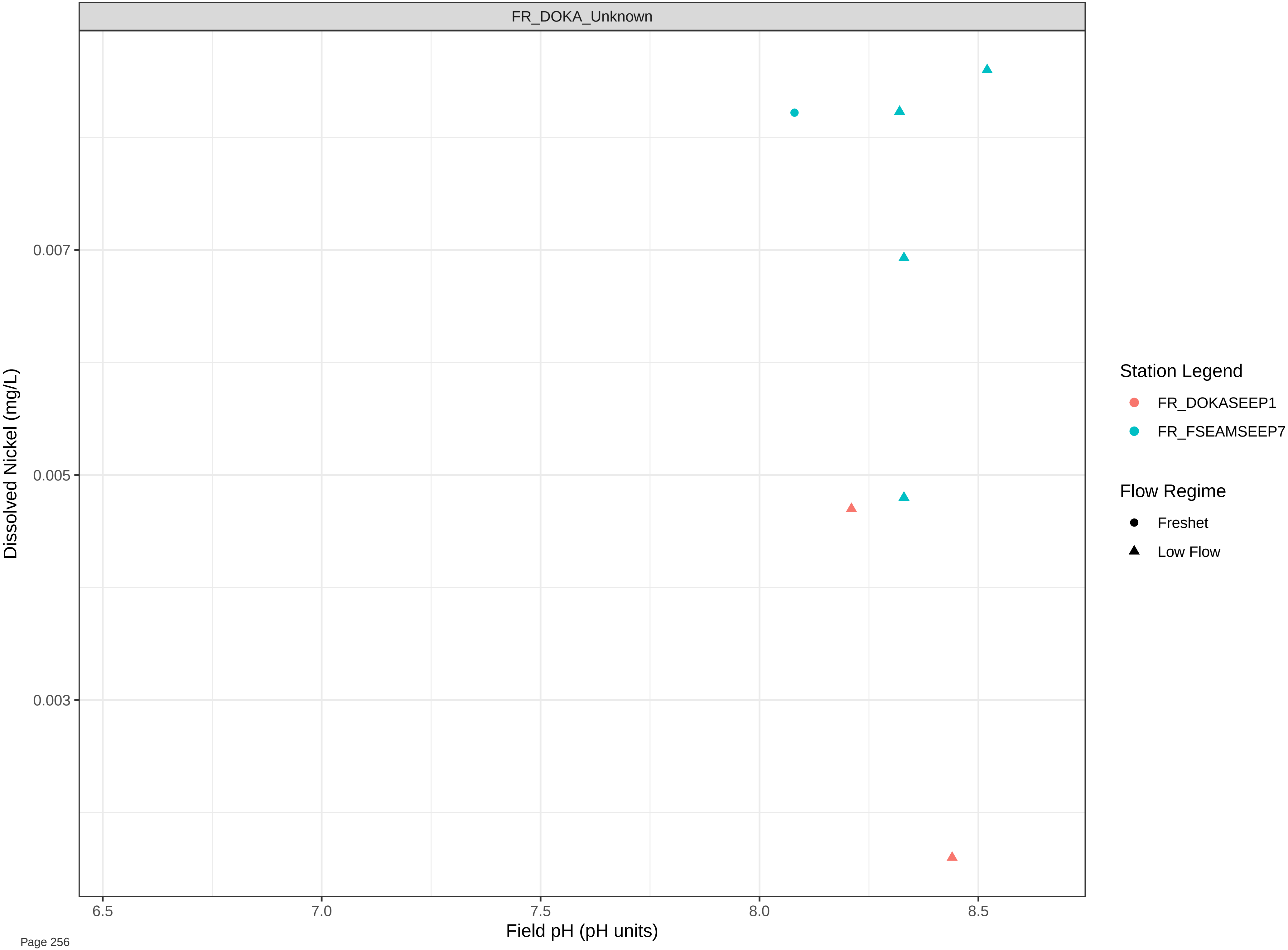

FR_TurnbullWREast_WR
Dissolved Molybdenum (mg/L)
0.006
0.004
0.002
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

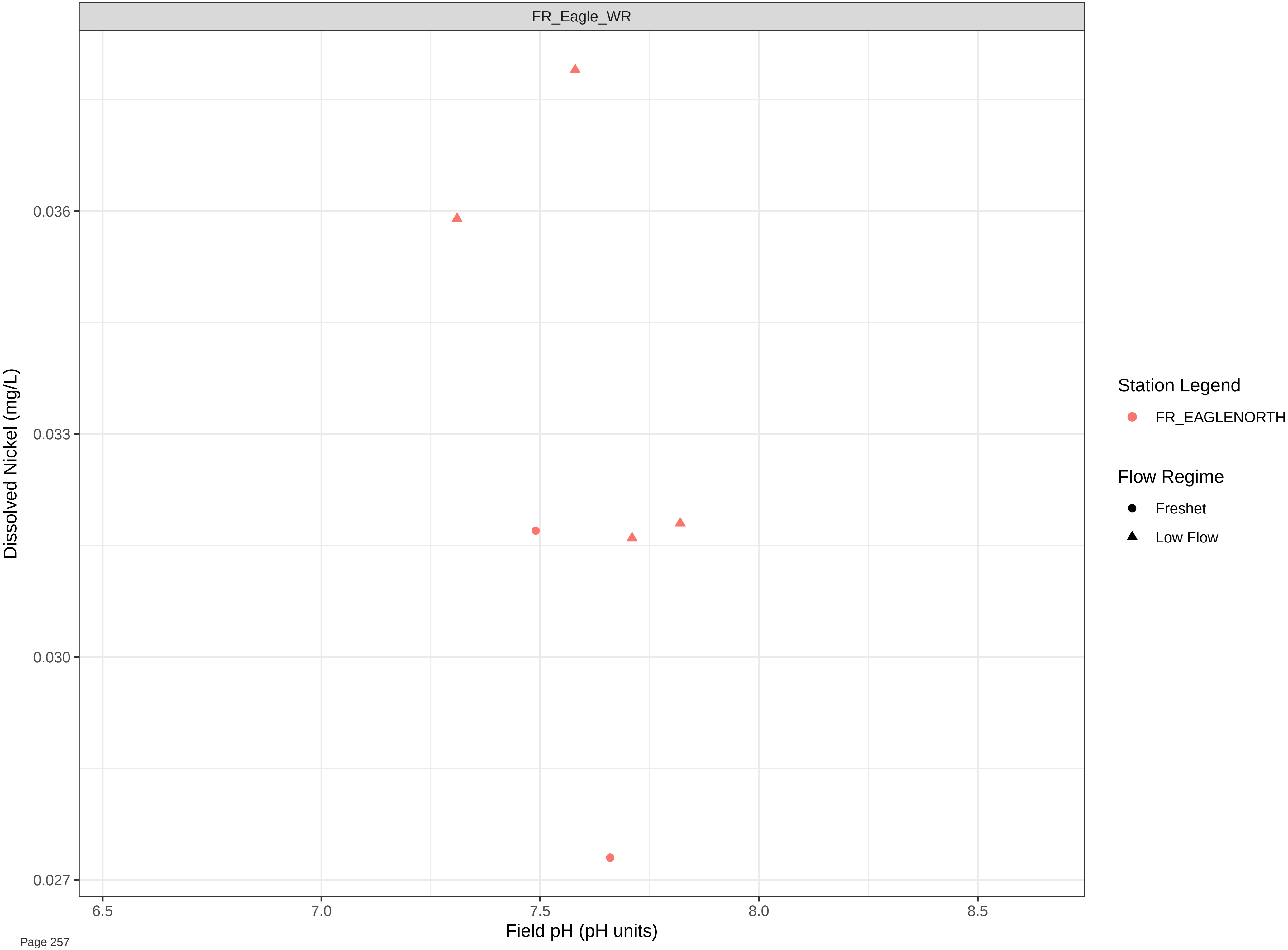

FR_TurnbullWRWest_WR
Dissolved Molybdenum (mg/L)
5e−04
4e−04
3e−04
2e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

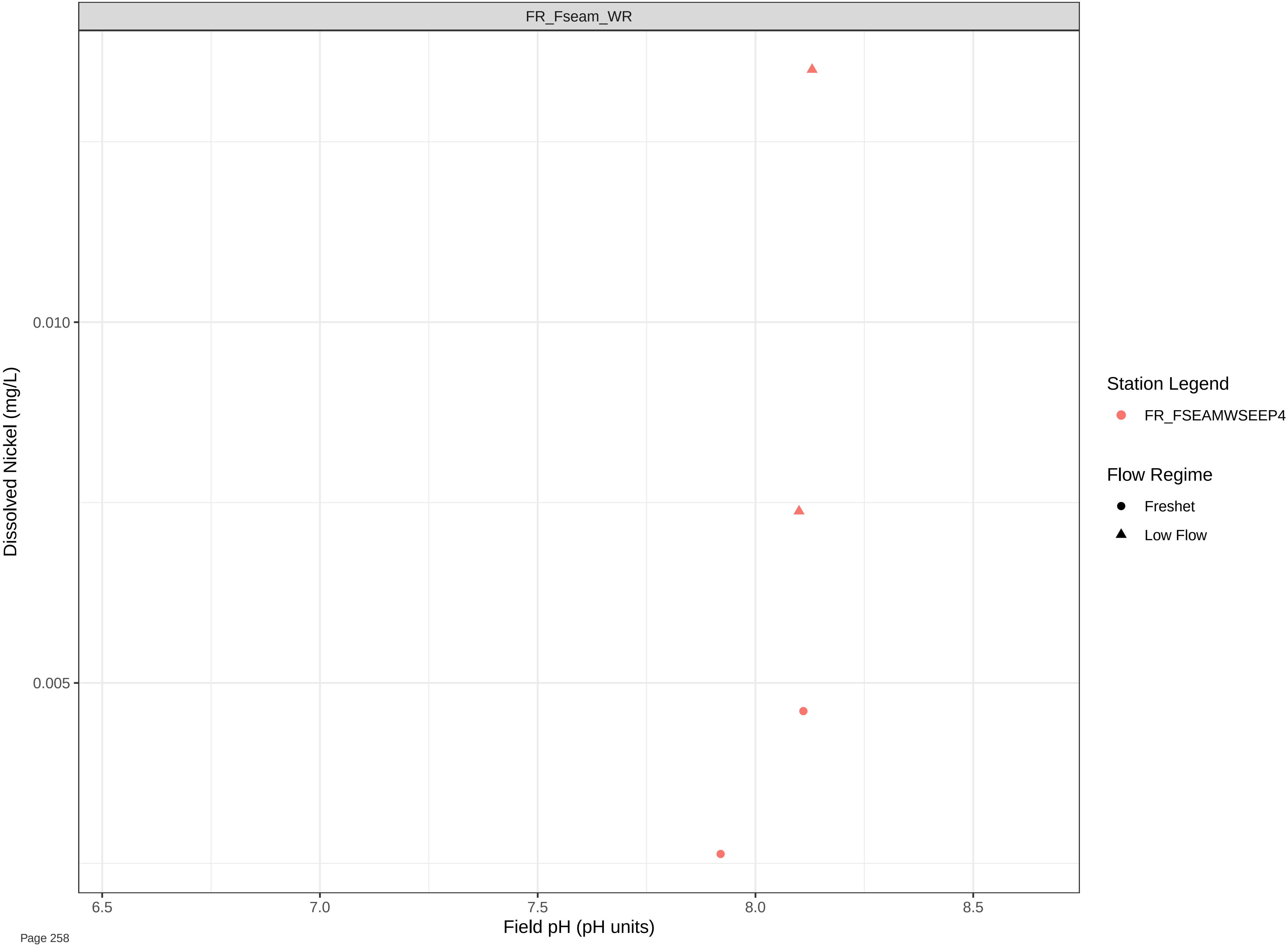

FR_A_WR
0.008
0.006
0.004
0.002
Dissolved Nickel (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

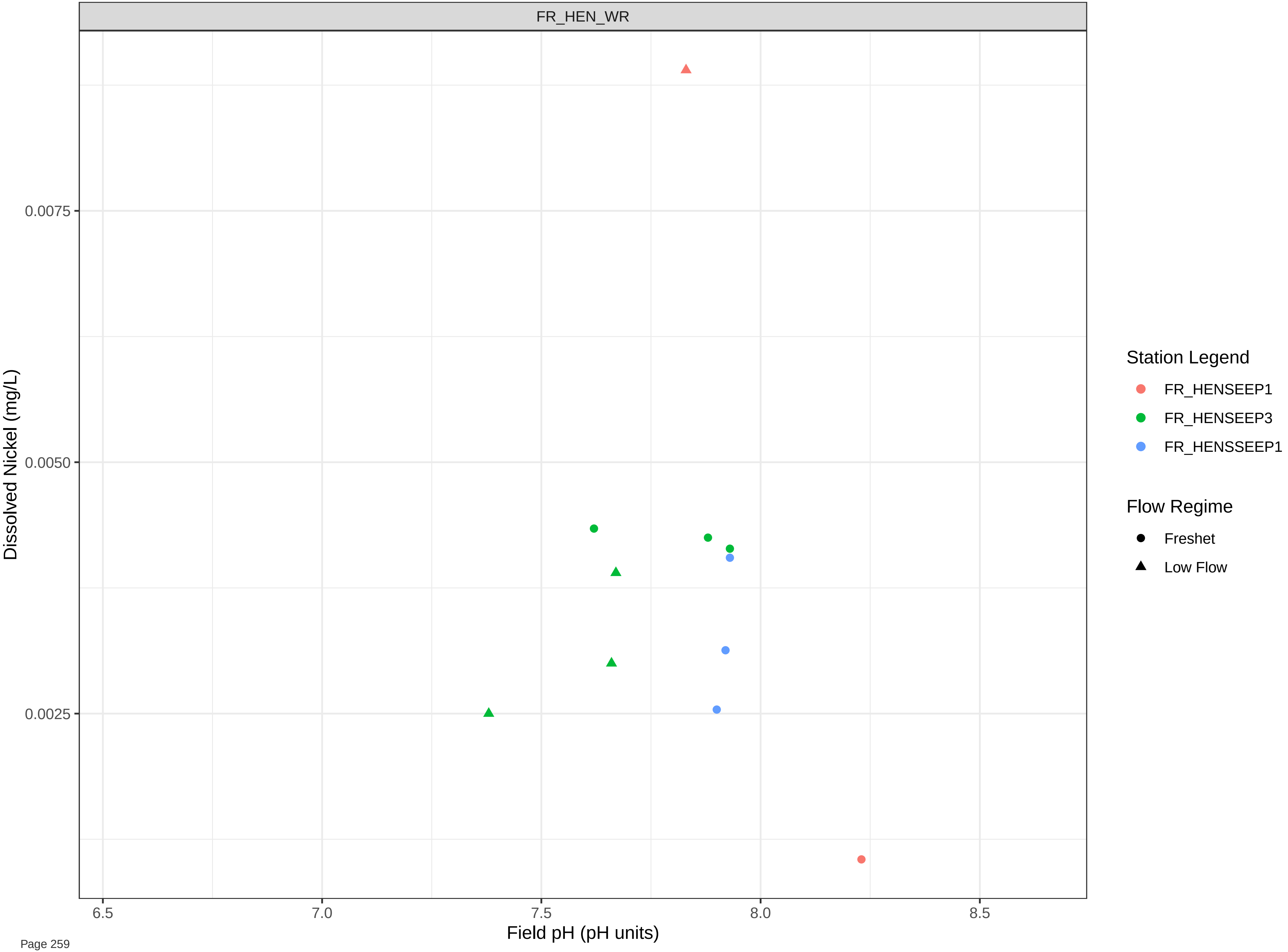

FR_Blain_CCR
Dissolved Nickel (mg/L)
0.02
0.04
0.06
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

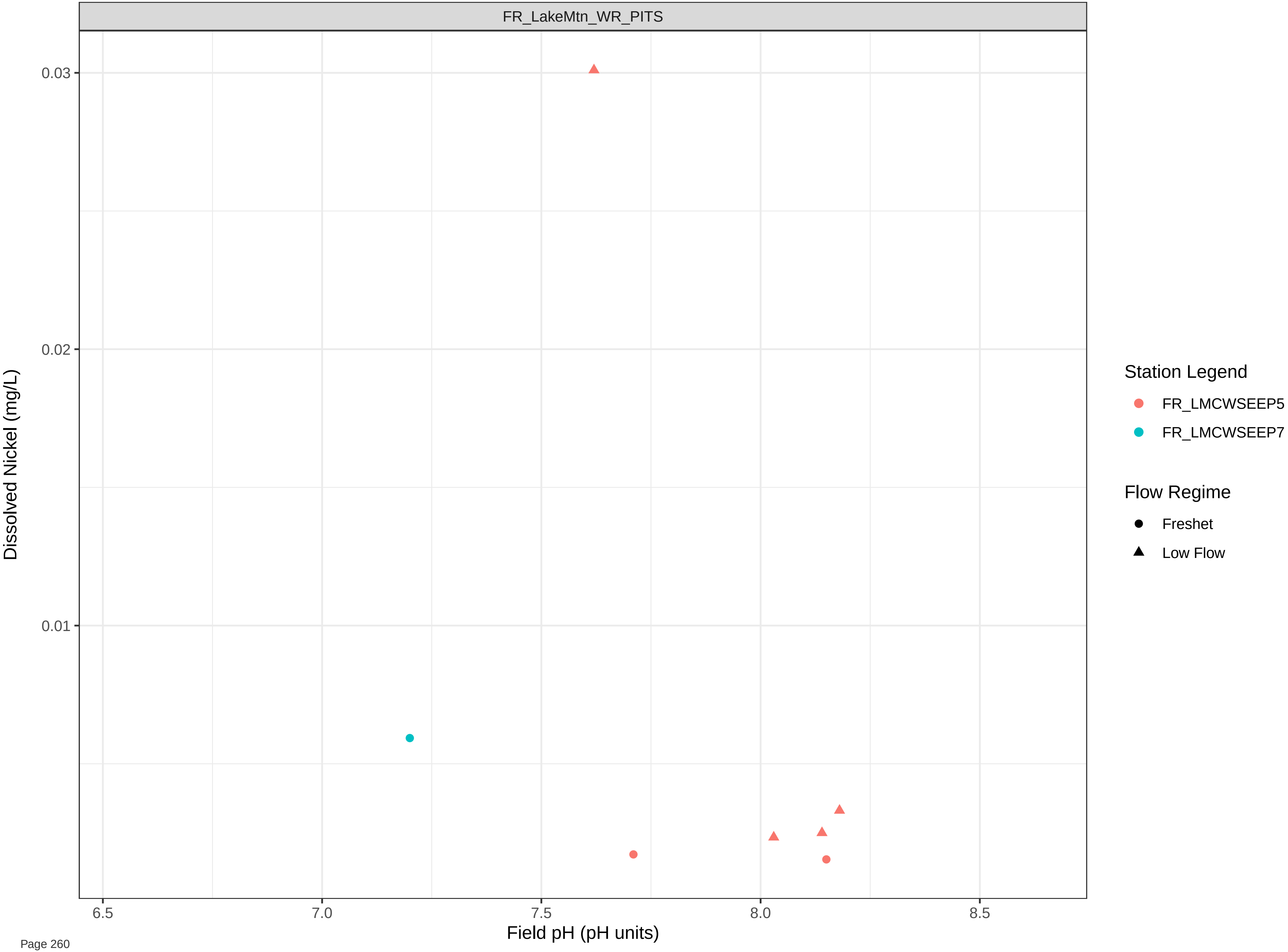

FR_ClodeCr_WR
Dissolved Nickel (mg/L)
0.09
0.08
0.07
0.06
0.05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

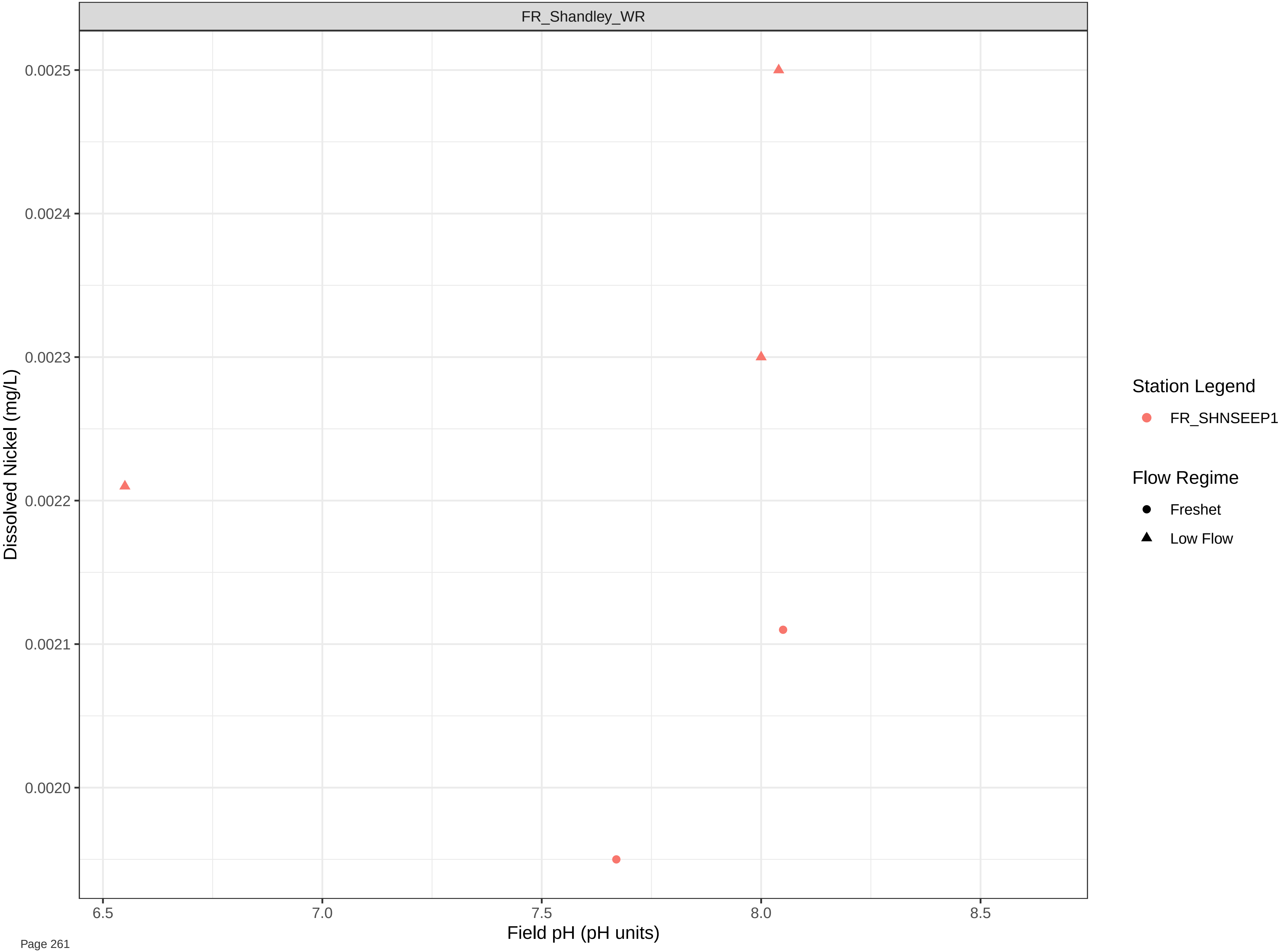

FR_DOKA_Unknown
Dissolved Nickel (mg/L)
0.007
0.005
0.003
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow

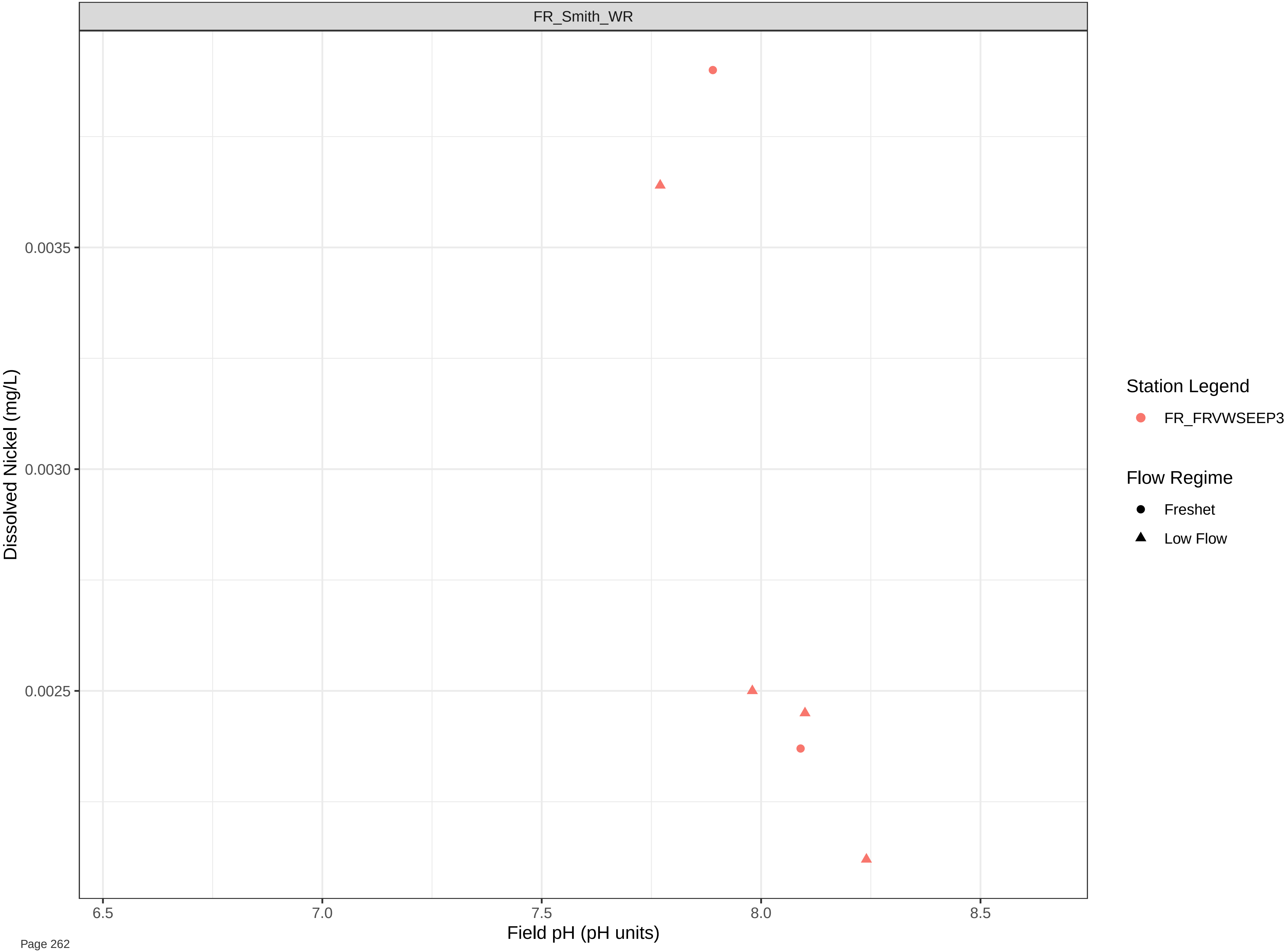

FR_Eagle_WR
Dissolved Nickel (mg/L)
0.036
0.033
0.030
0.027
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

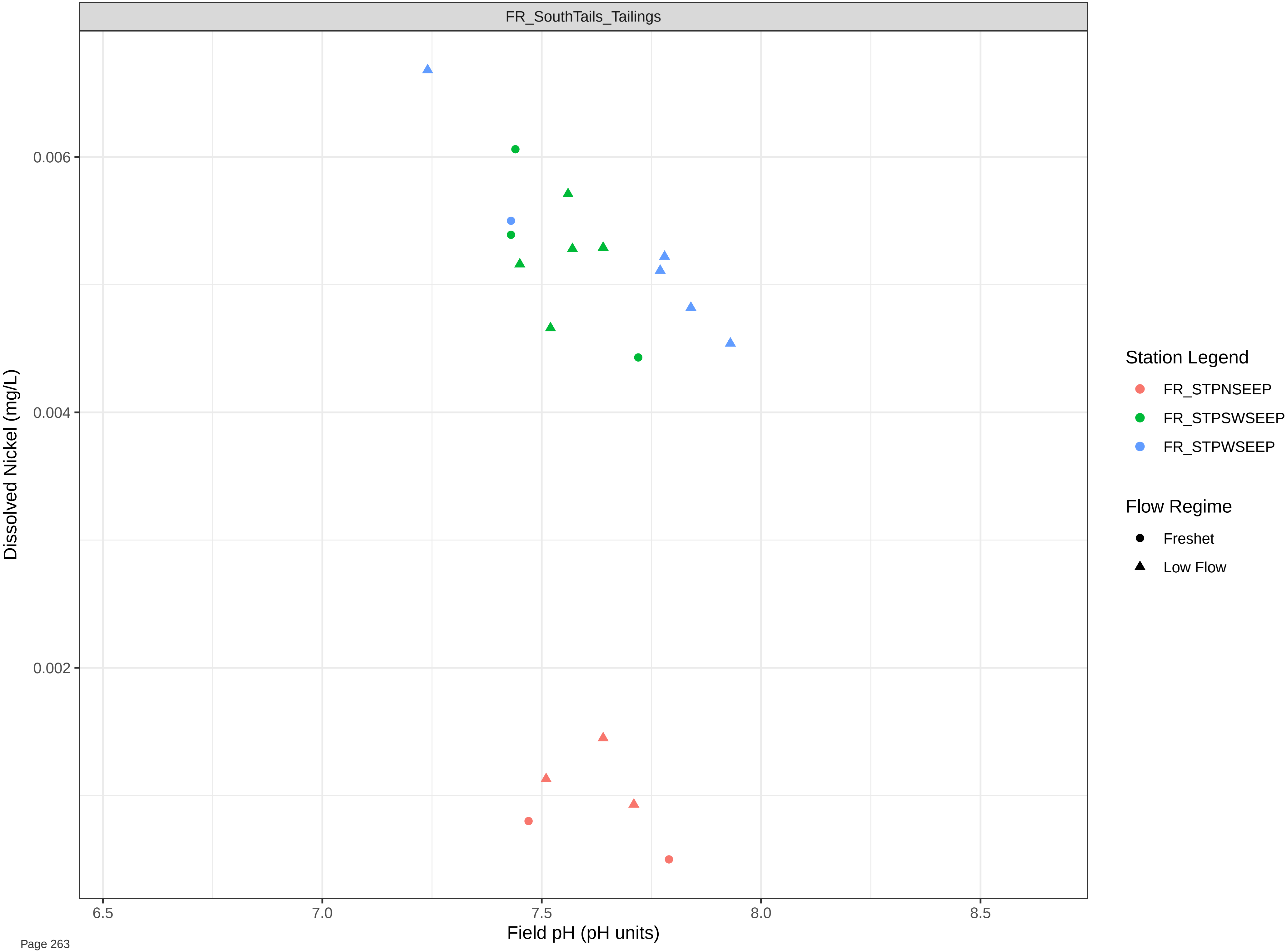

FR_Fseam_WR
Dissolved Nickel (mg/L)
0.010
0.005
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

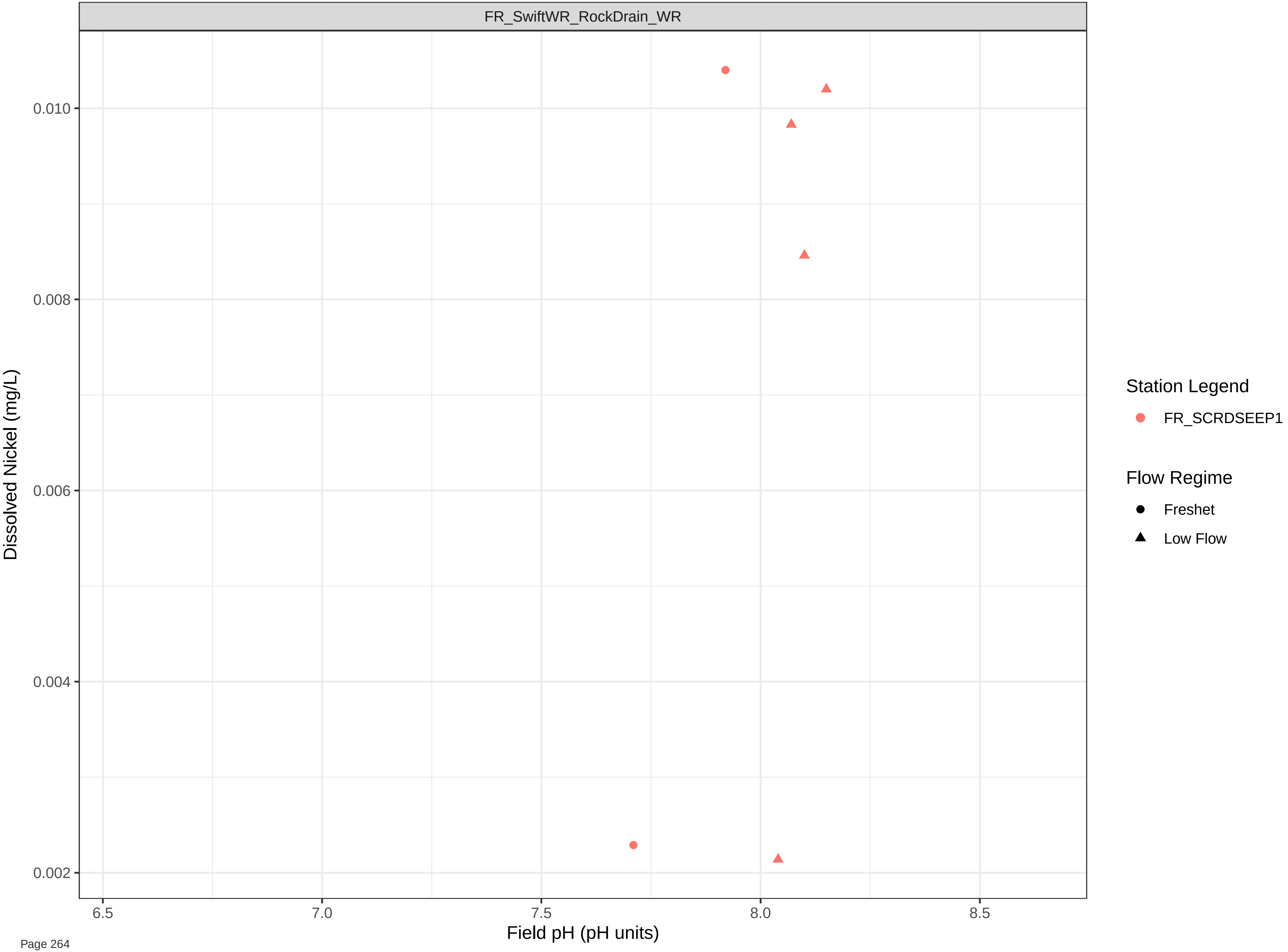

FR_HEN_WR
Dissolved Nickel (mg/L)
0.0075
0.0050
0.0025
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

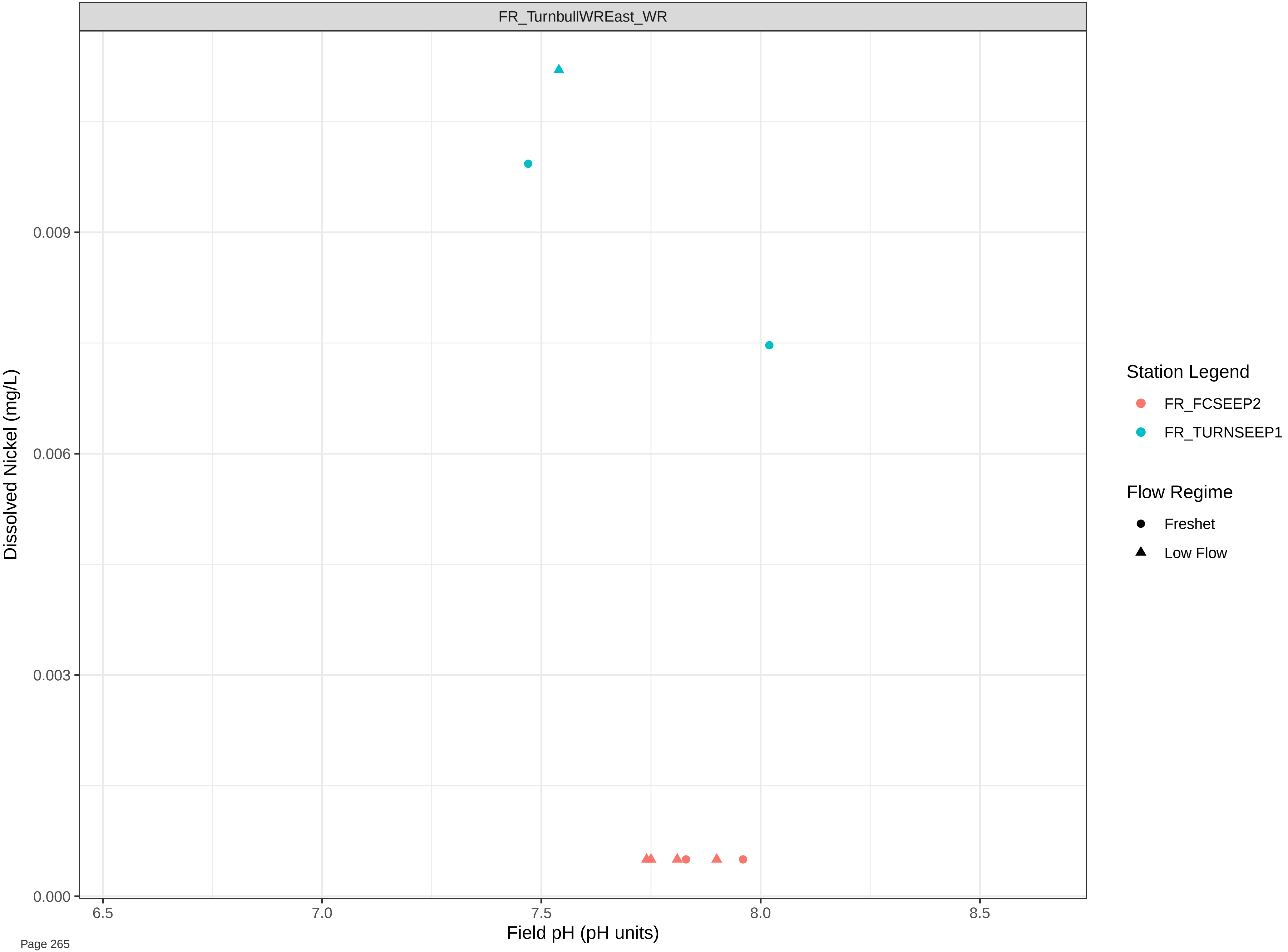

FR_LakeMtn_WR_PITS
Dissolved Nickel (mg/L)
0.03
0.02
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow

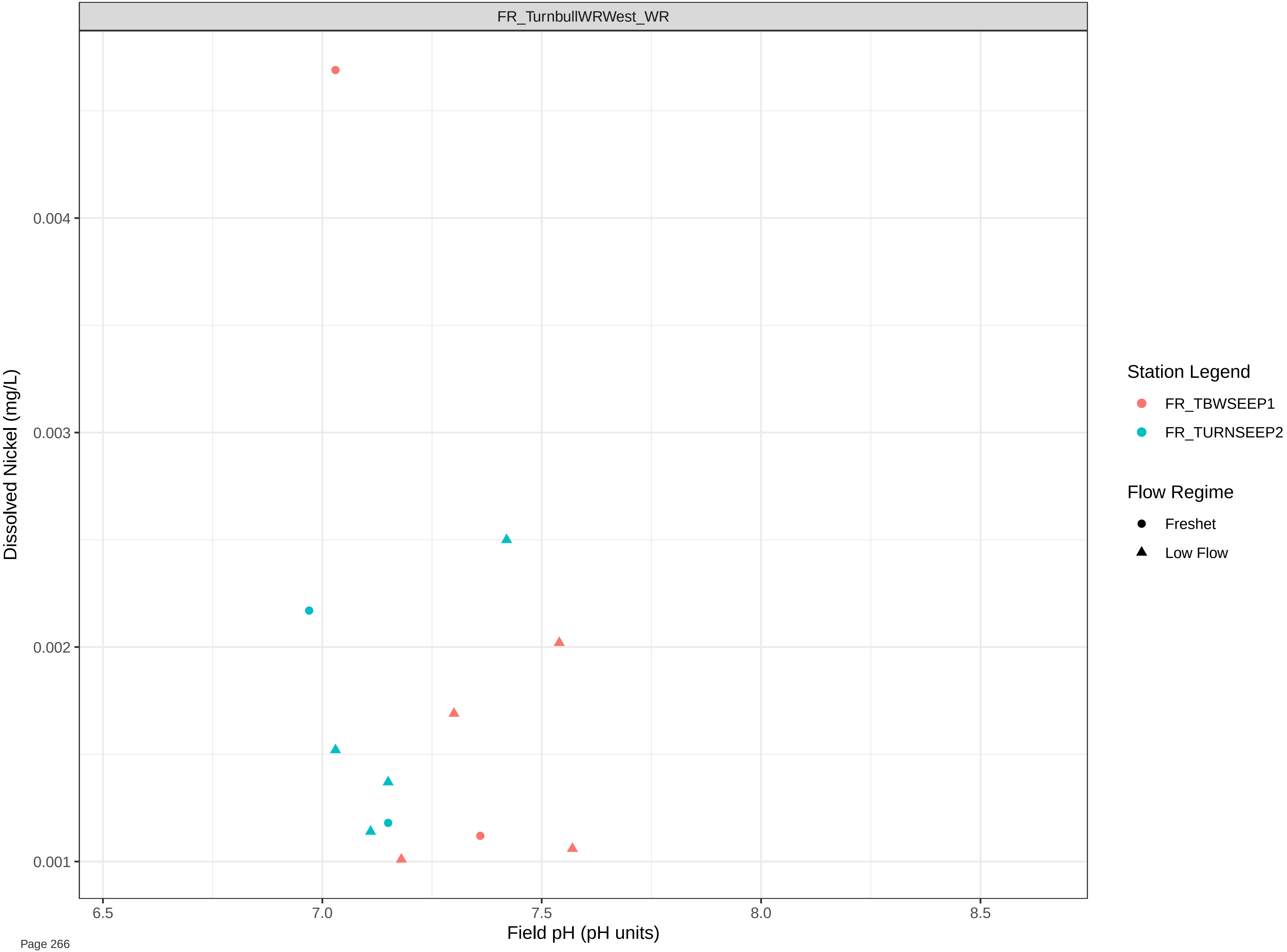

FR_Shandley_WR
Dissolved Nickel (mg/L)
0.0025
0.0024
0.0023
0.0022
0.0021
0.0020
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

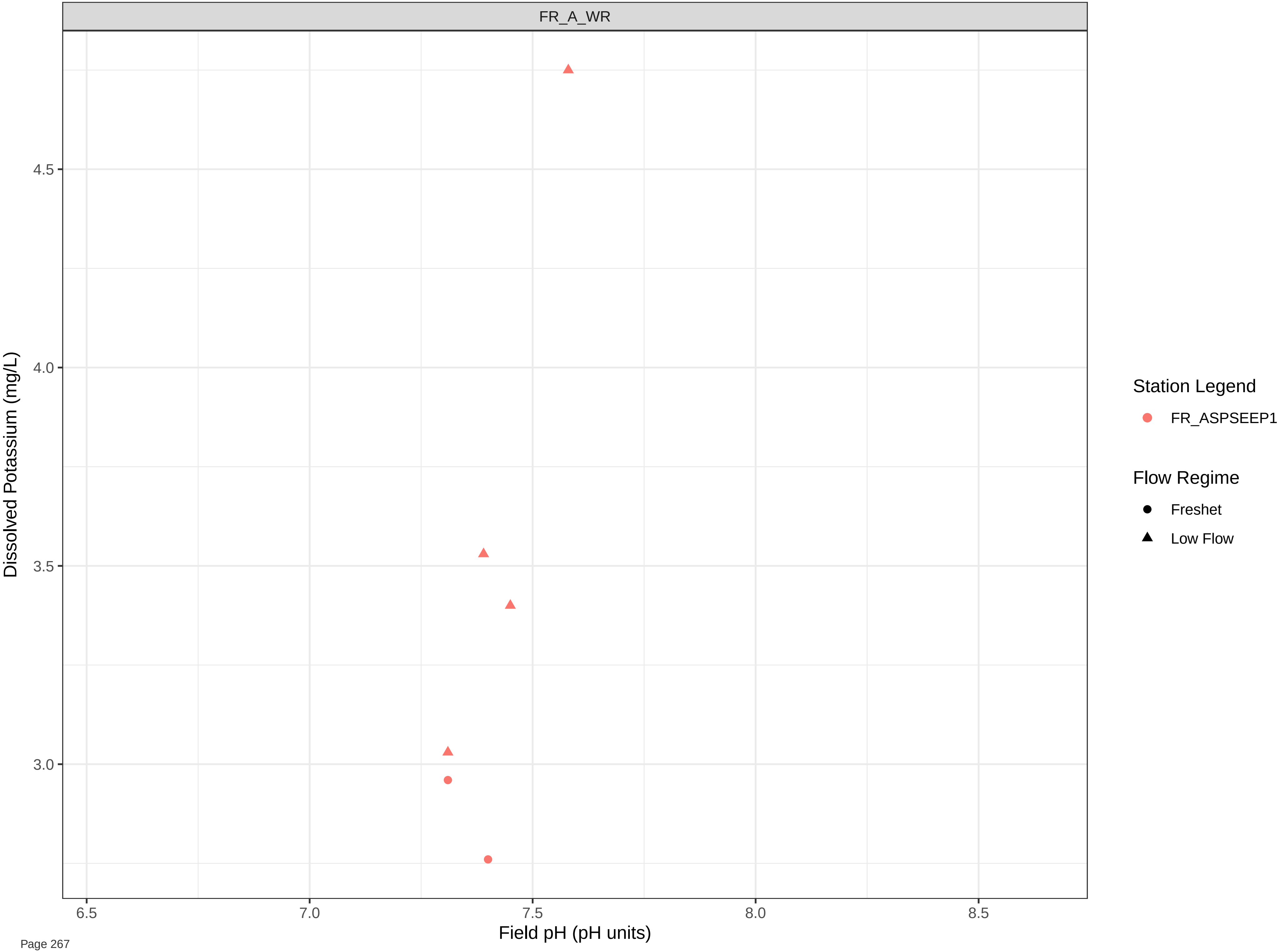

FR_Smith_WR
Dissolved Nickel (mg/L)
0.0035
0.0030
0.0025
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

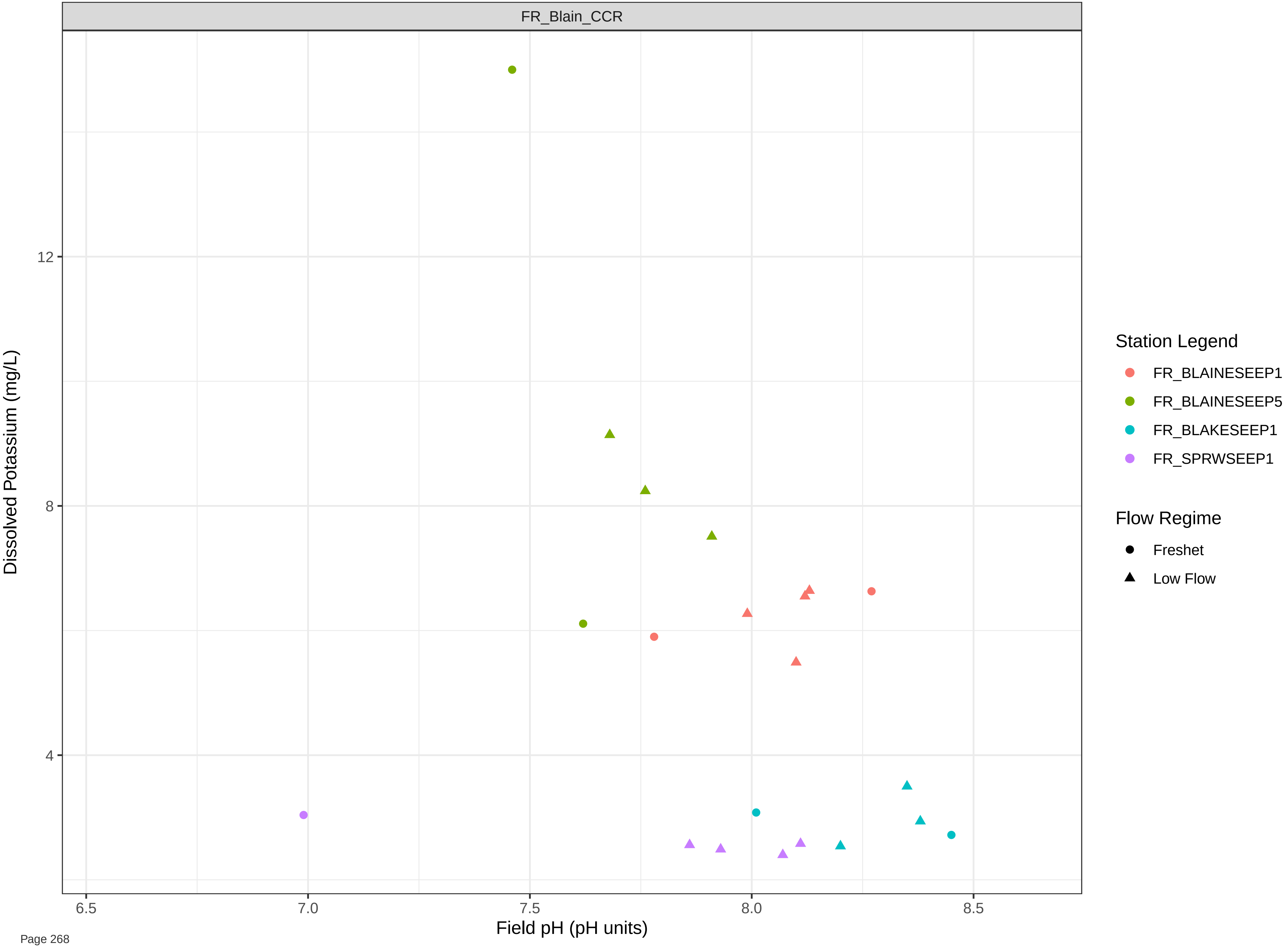

FR_SouthTails_Tailings
Dissolved Nickel (mg/L)
0.006
0.004
0.002
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

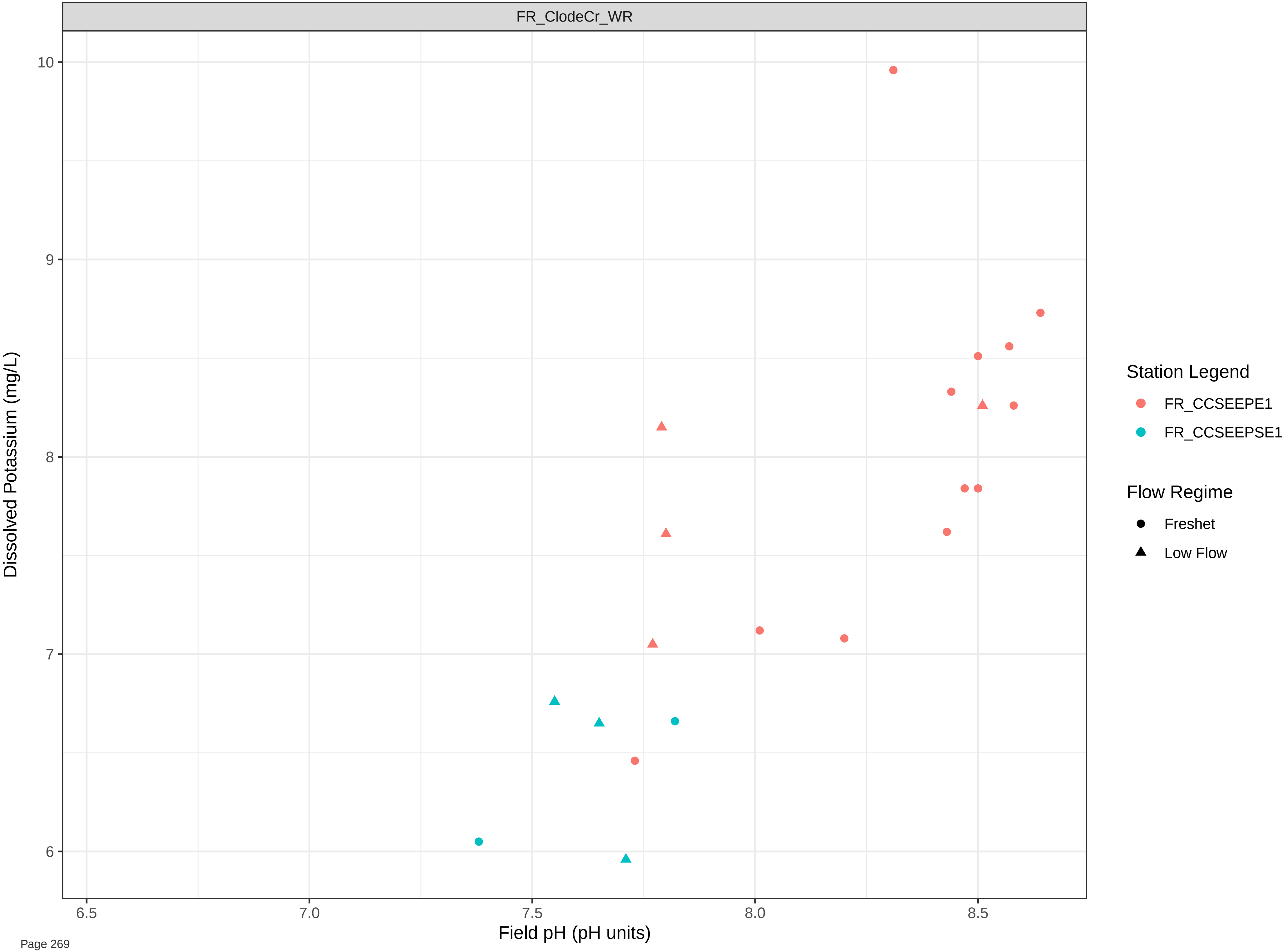

FR_SwiftWR_RockDrain_WR
Dissolved Nickel (mg/L)
0.010
0.008
0.006
0.004
0.002
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

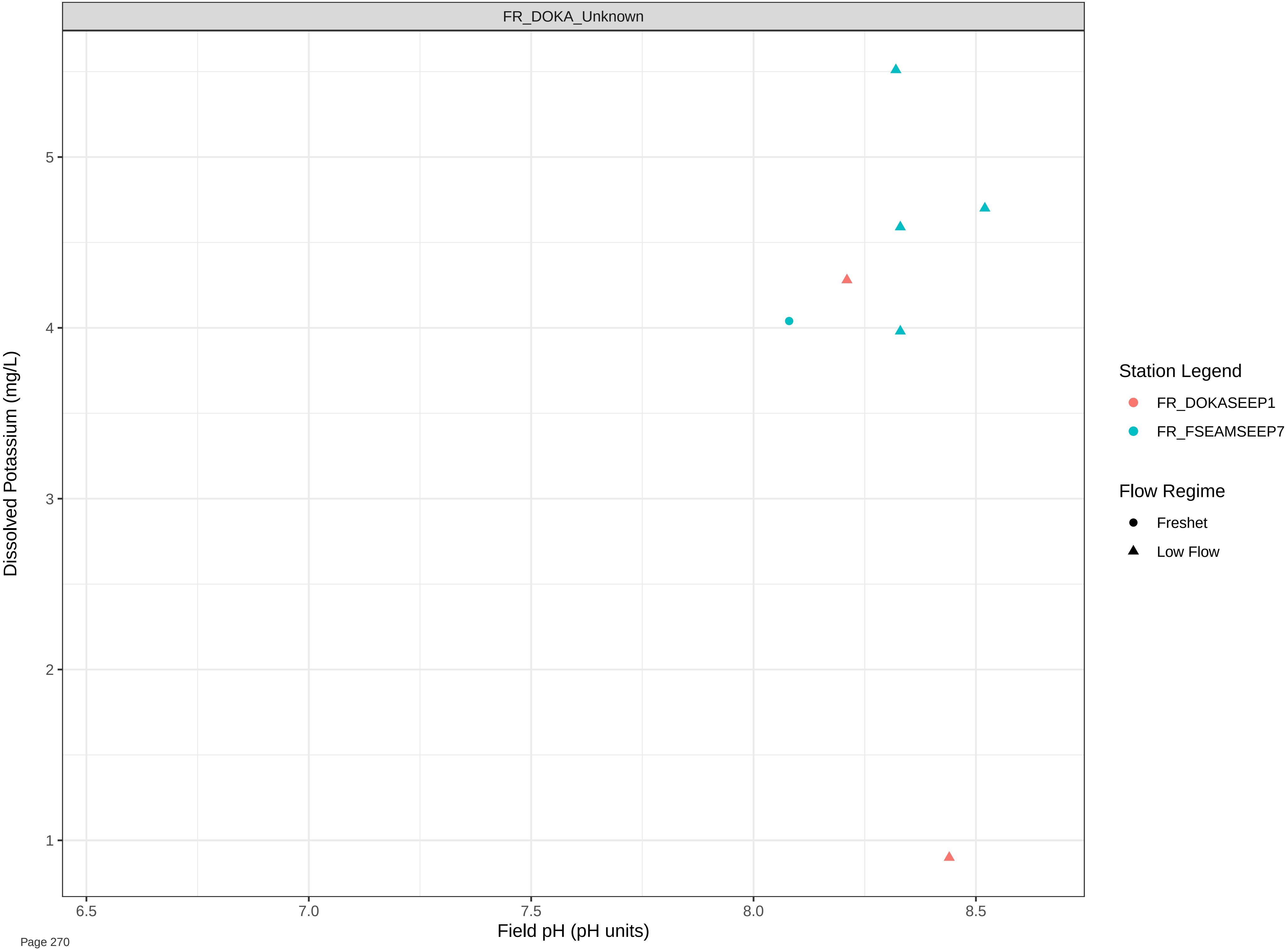

FR_TurnbullWREast_WR
Dissolved Nickel (mg/L)
0.009
0.006
0.003
0.000
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

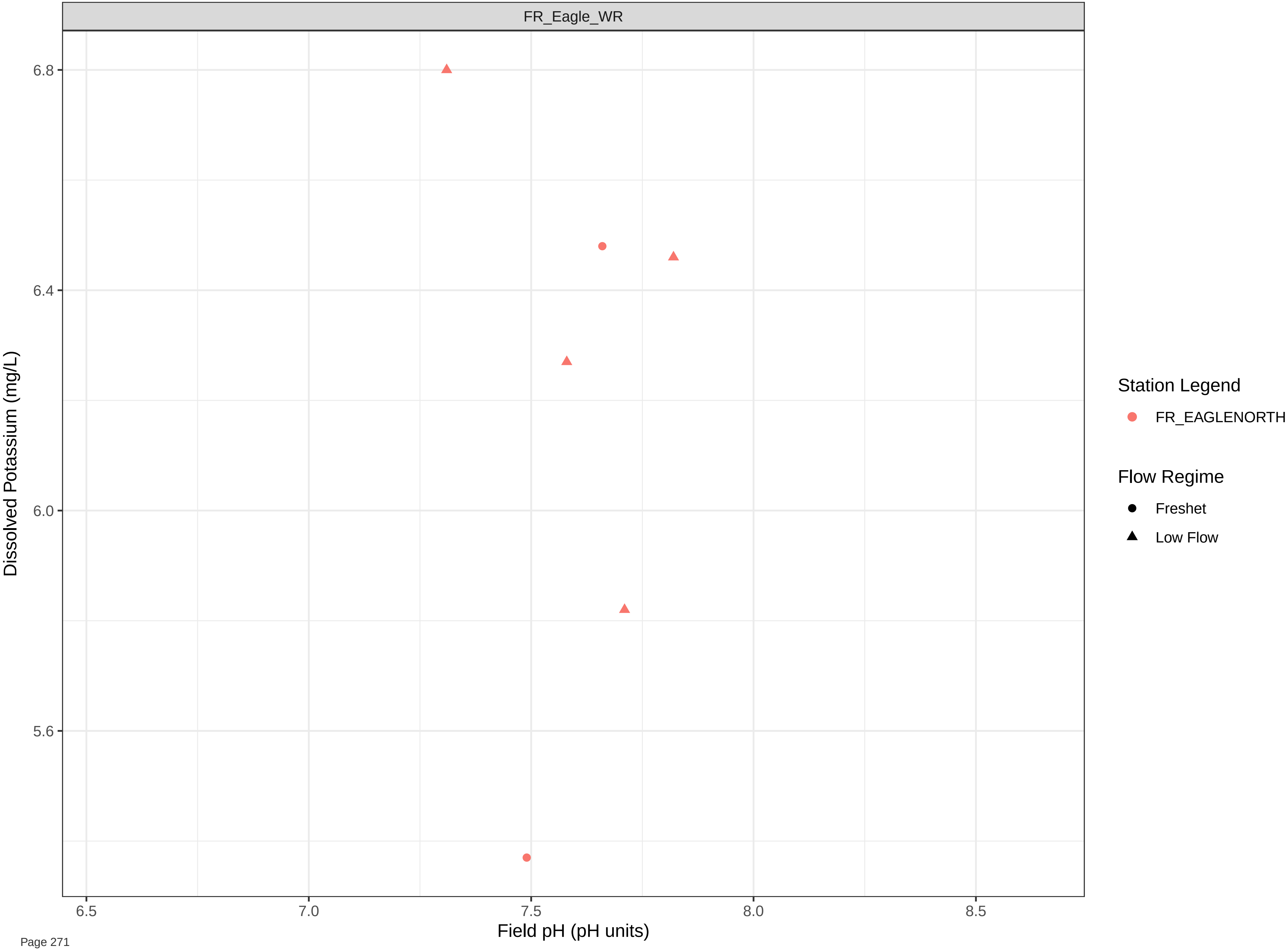

FR_TurnbullWRWest_WR
Dissolved Nickel (mg/L)
0.004
0.003
0.002
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

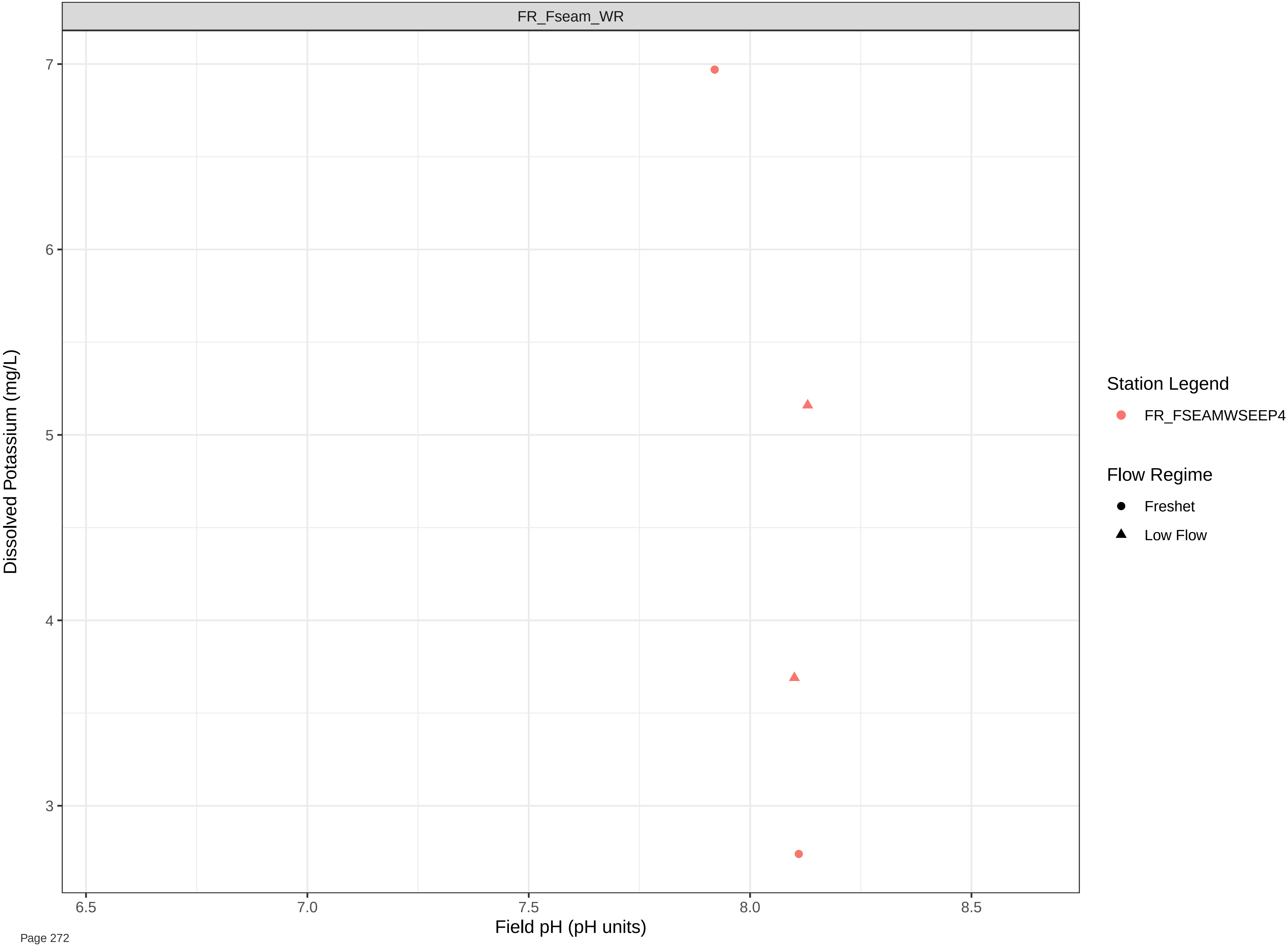

FR_A_WR
Dissolved Potassium (mg/L)
4.5
4.0
3.5
3.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

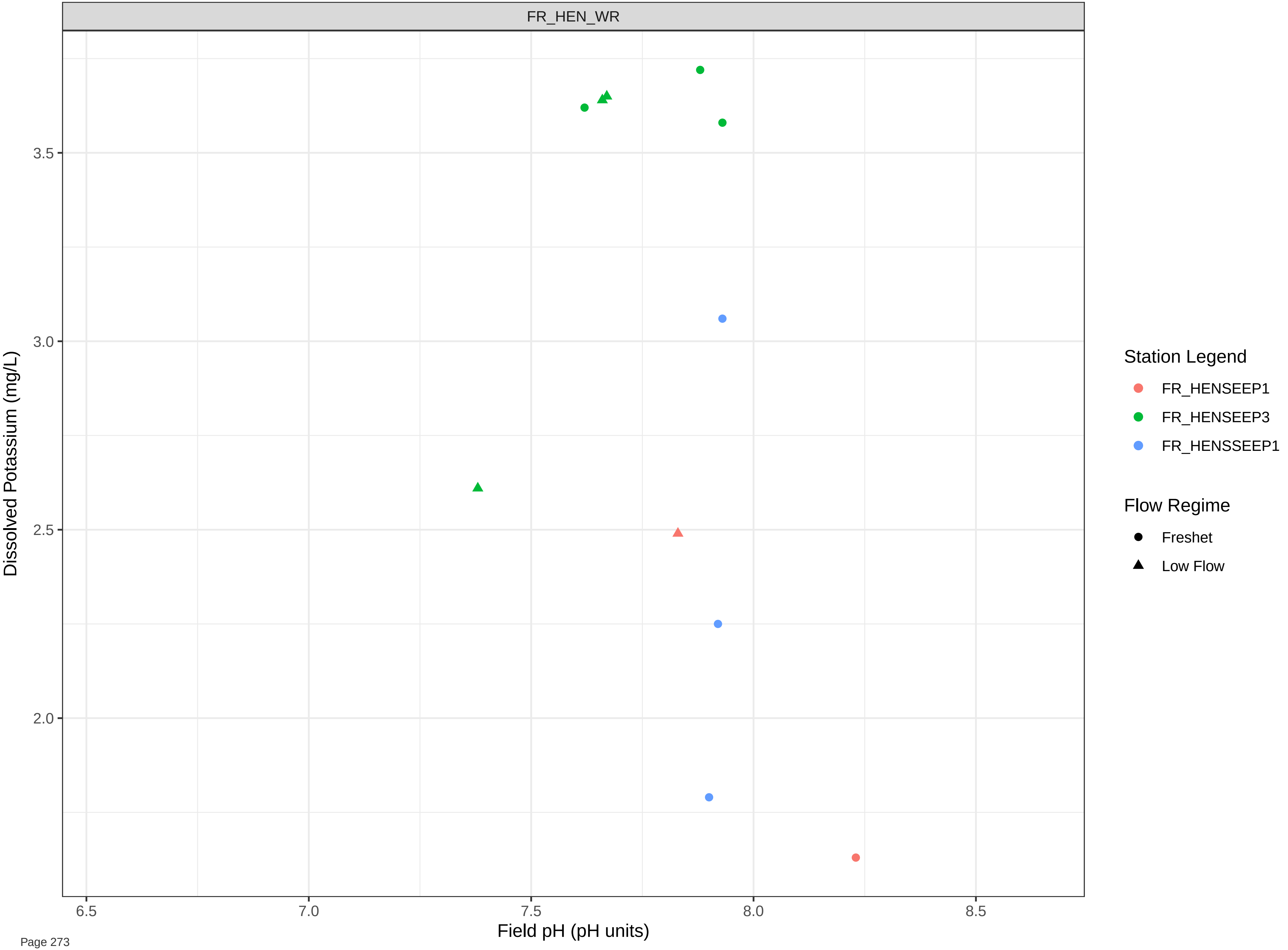

FR_Blain_CCR
Dissolved Potassium (mg/L)
12
8
4
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

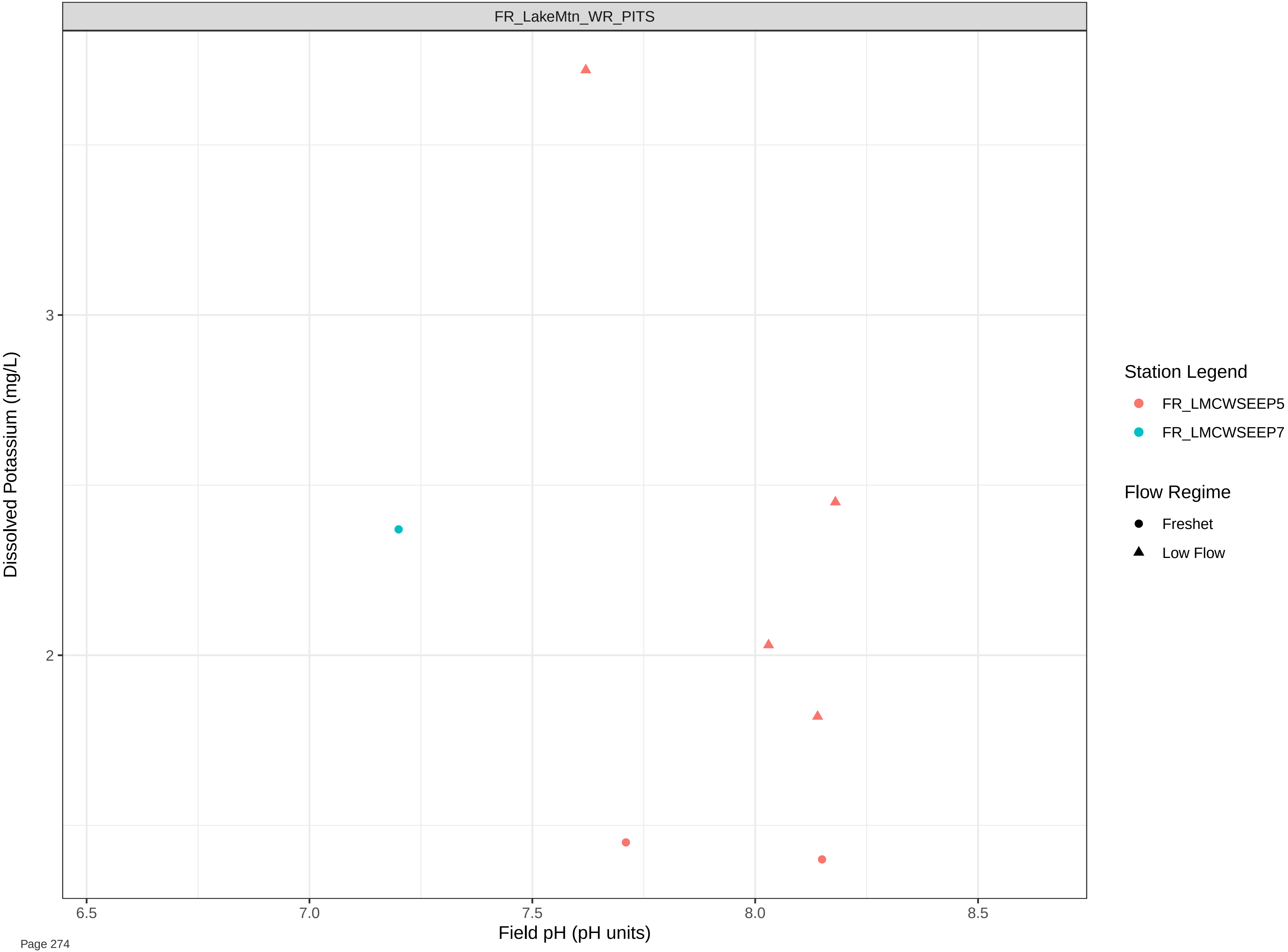

FR_ClodeCr_WR
Dissolved Potassium (mg/L)
10
9
8
7
6
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

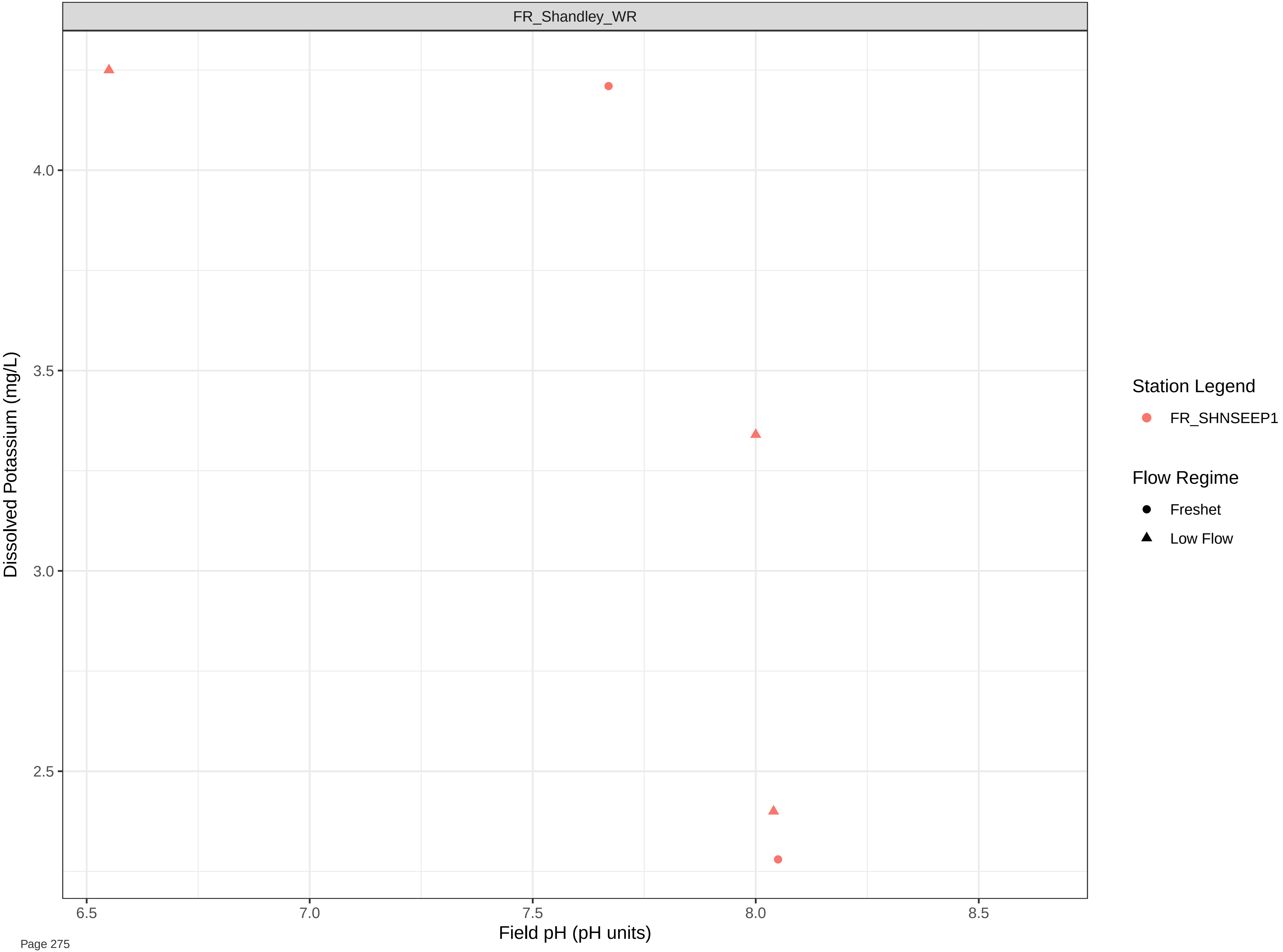

FR_DOKA_Unknown
Dissolved Potassium (mg/L)
5
4
3
2
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow

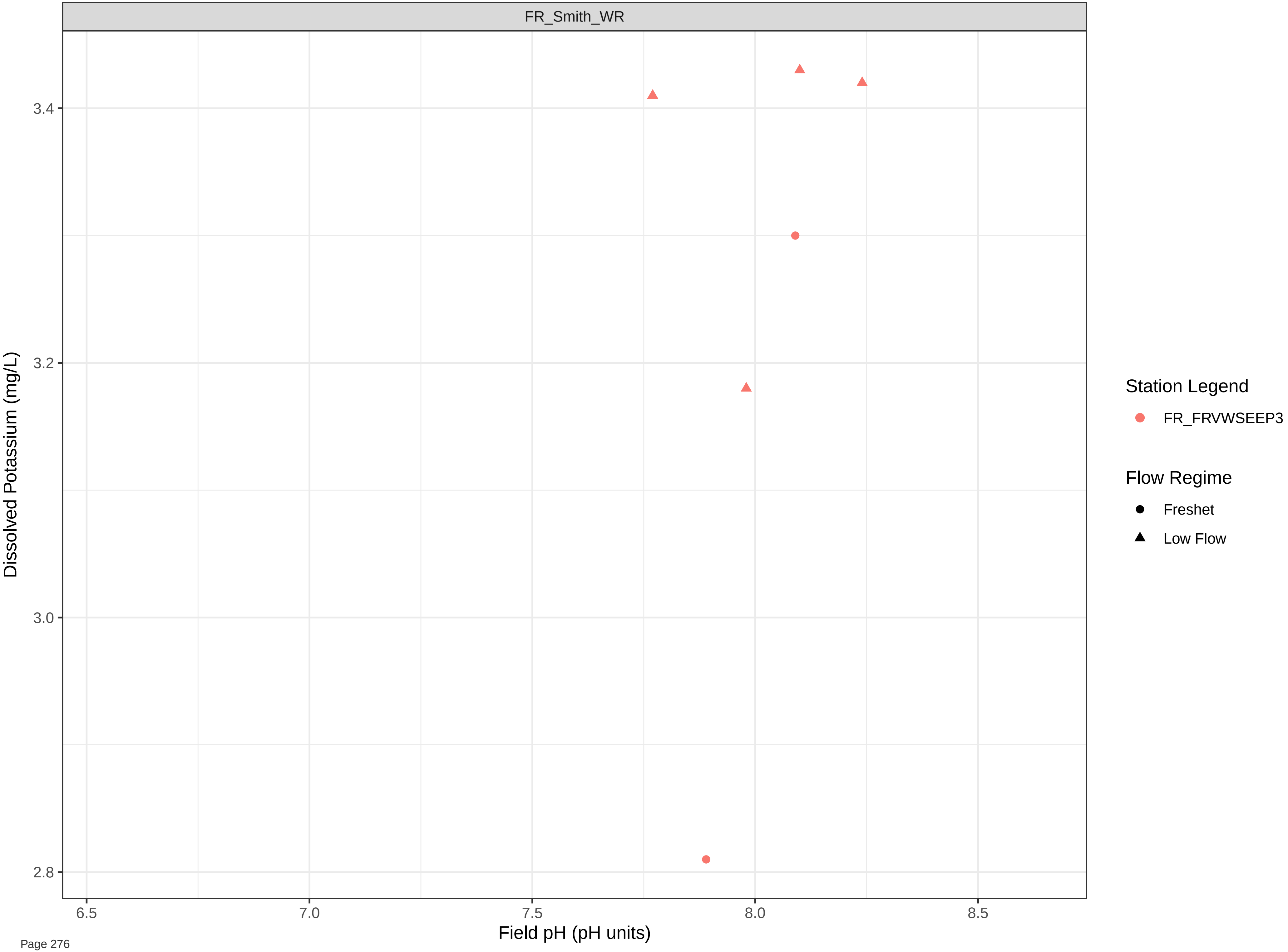

FR_Eagle_WR
Dissolved Potassium (mg/L)
6.8
6.4
6.0
5.6
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

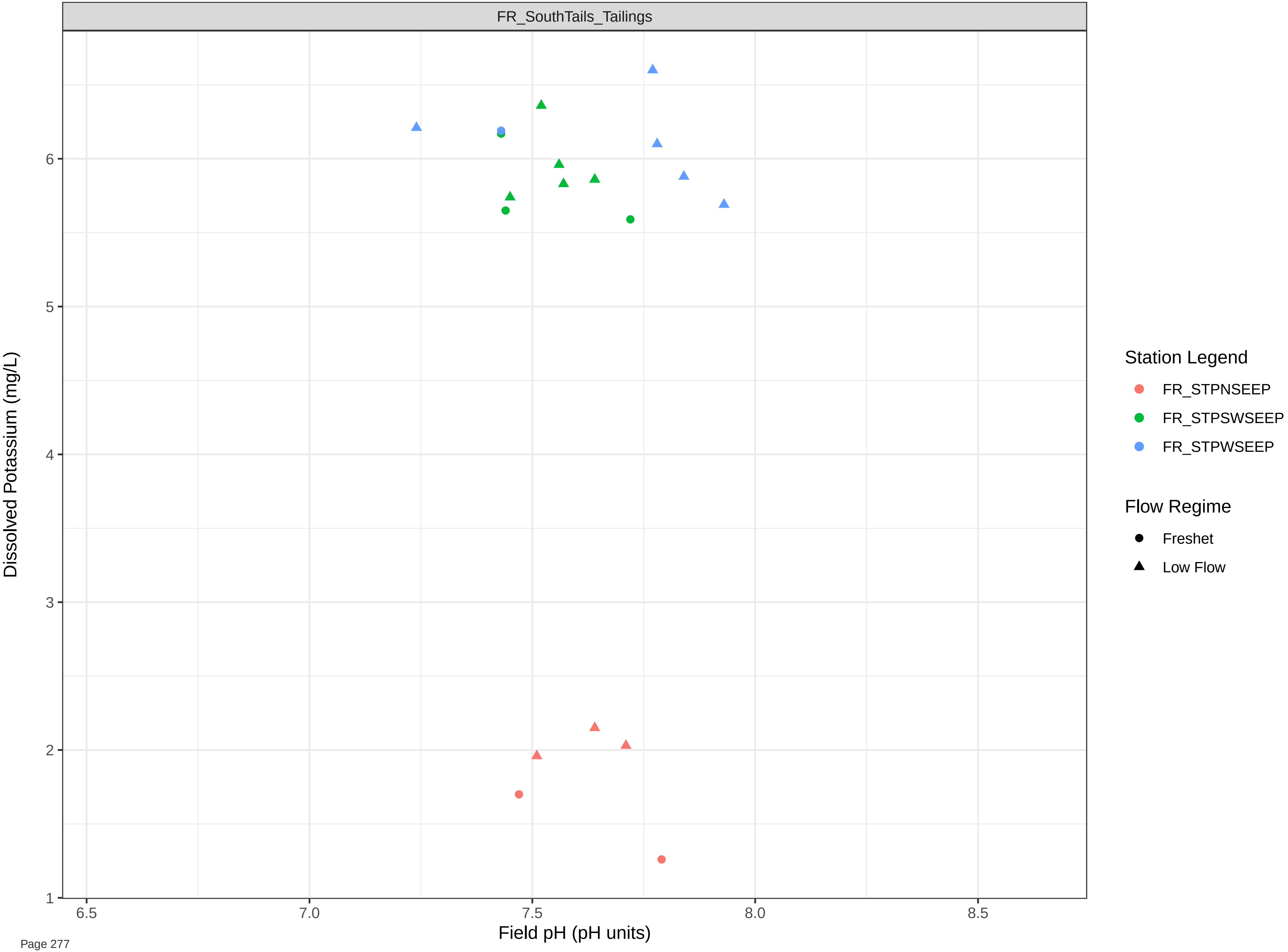

FR_Fseam_WR
Dissolved Potassium (mg/L)
7
6
5
4
3
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

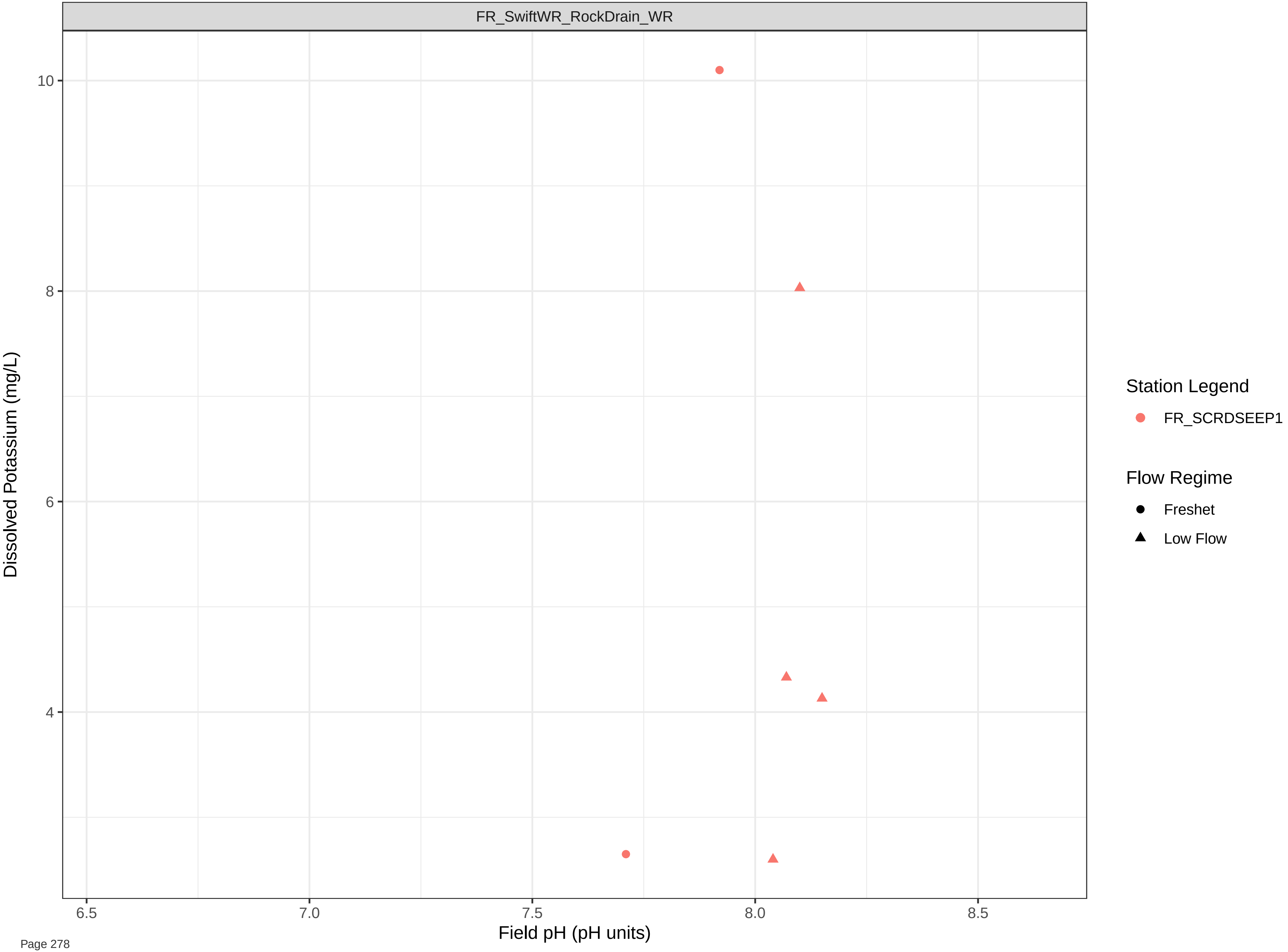

FR_HEN_WR
Dissolved Potassium (mg/L)
3.5
3.0
2.5
2.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

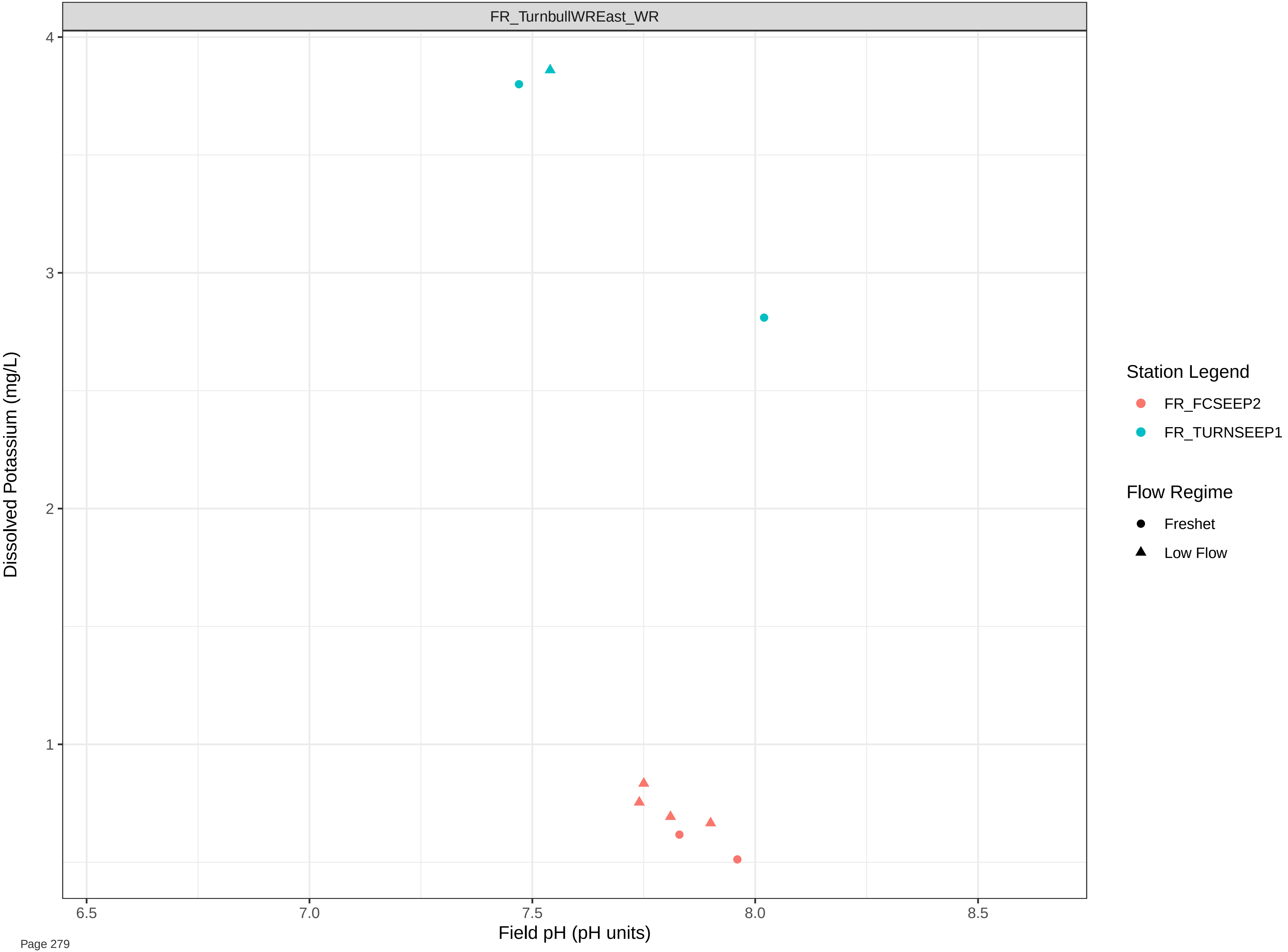

FR_LakeMtn_WR_PITS
Dissolved Potassium (mg/L)
3
2
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow

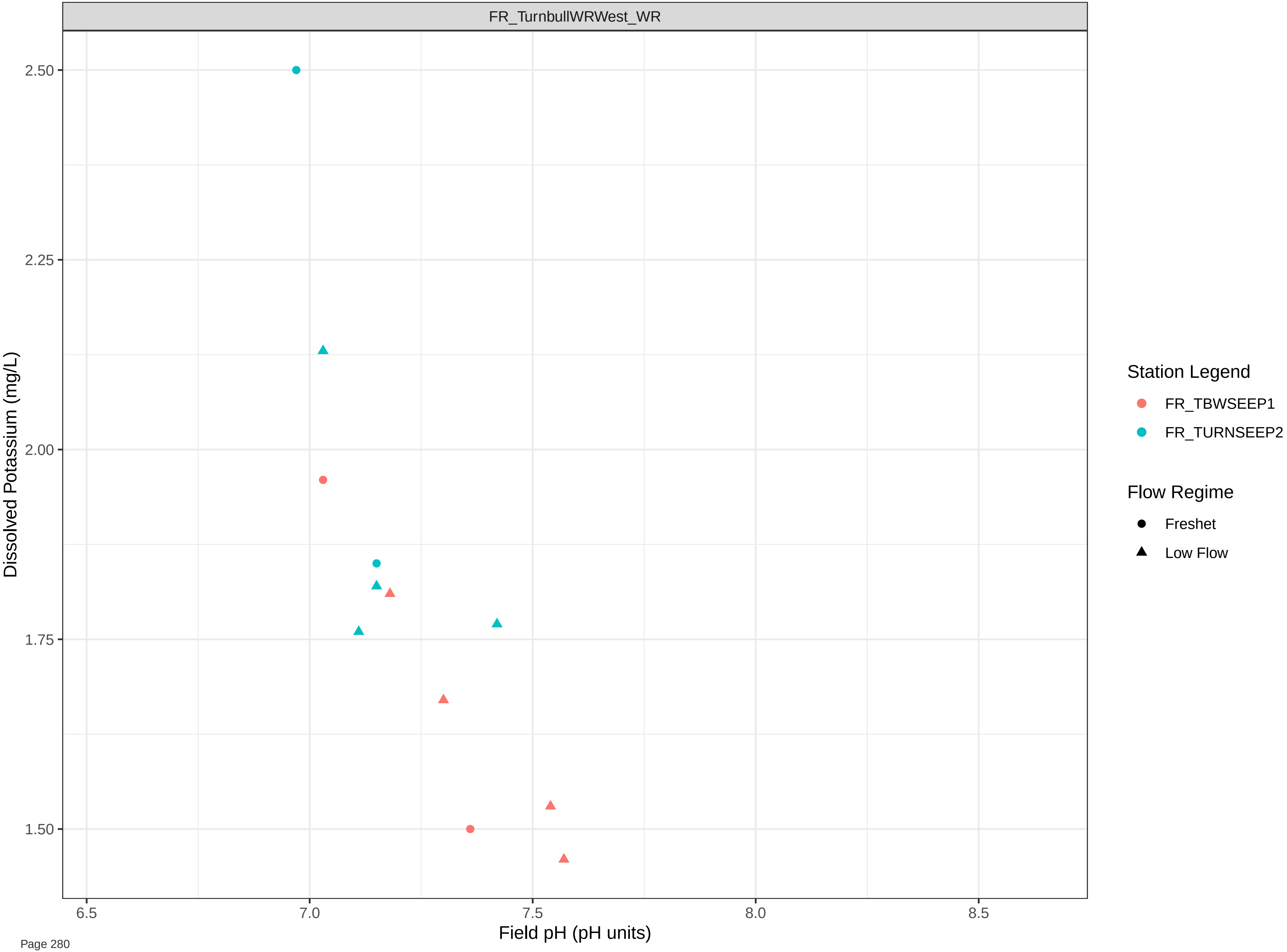

FR_Shandley_WR
Dissolved Potassium (mg/L)
4.0
3.5
3.0
2.5
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

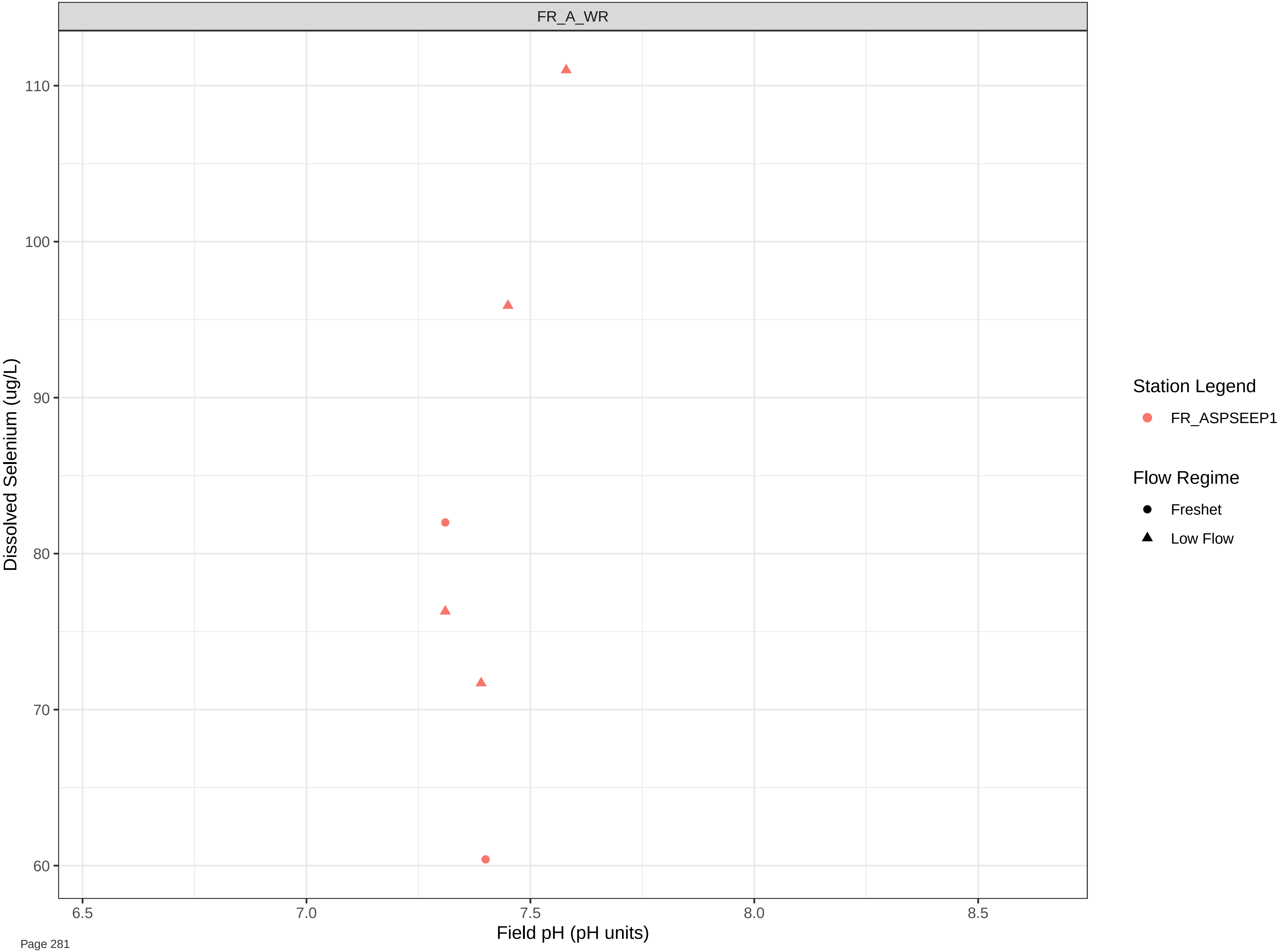

FR_Smith_WR
Dissolved Potassium (mg/L)
3.4
3.2
3.0
2.8
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

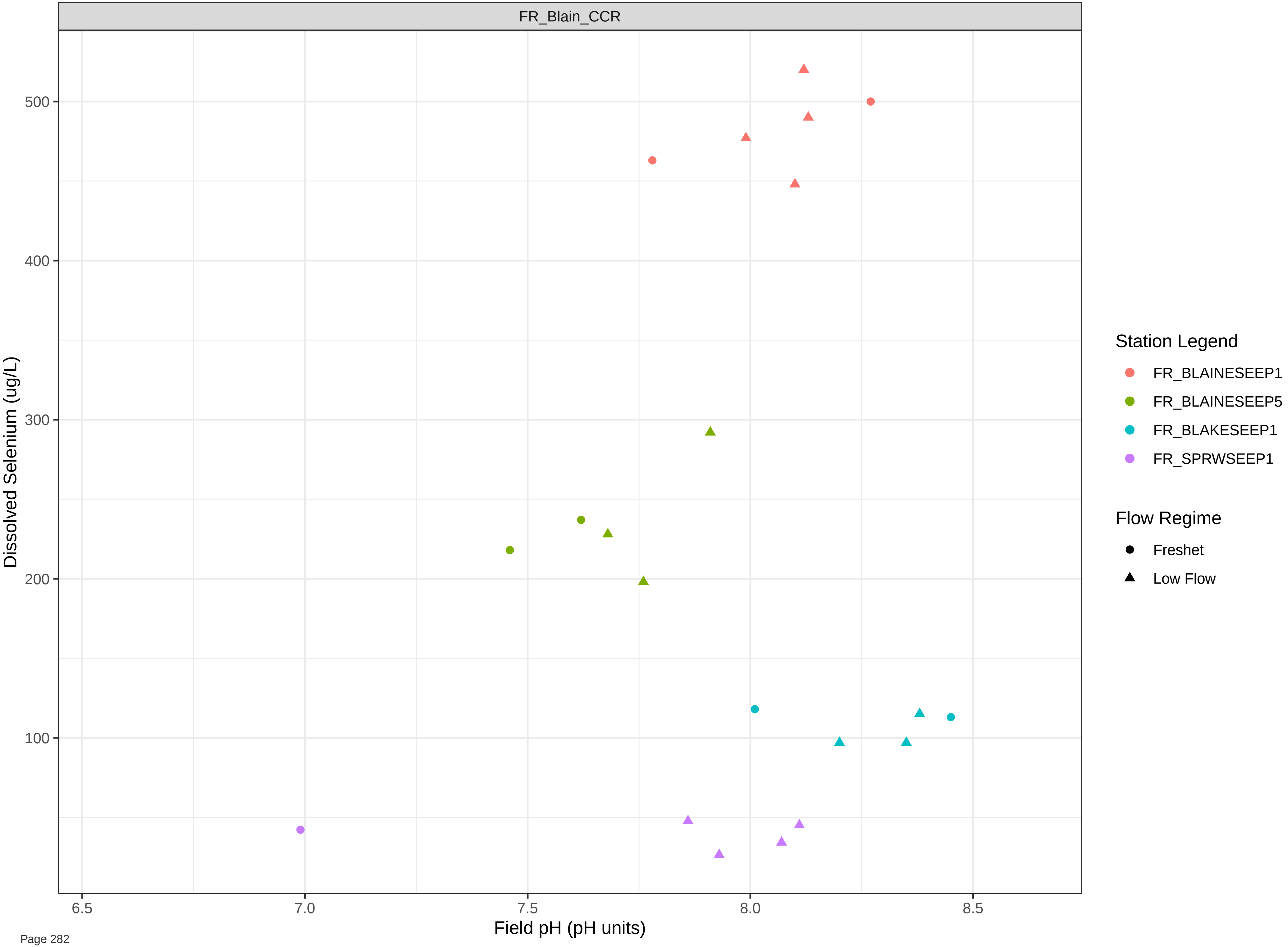

FR_SouthTails_Tailings
Dissolved Potassium (mg/L)
Field pH (pH units)
1
2
3
4
5
6
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

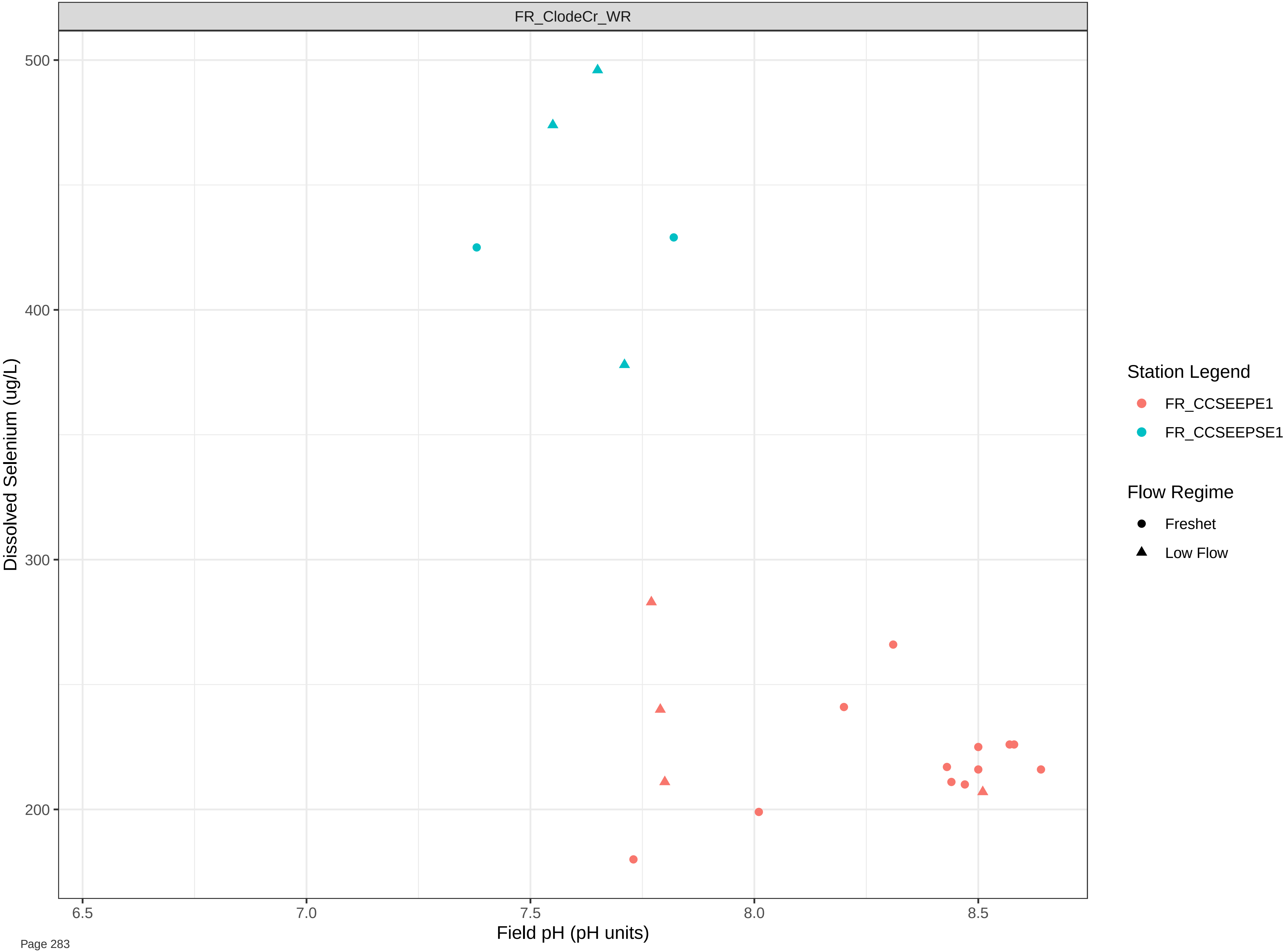

FR_SwiftWR_RockDrain_WR
Dissolved Potassium (mg/L)
10
8
6
4
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

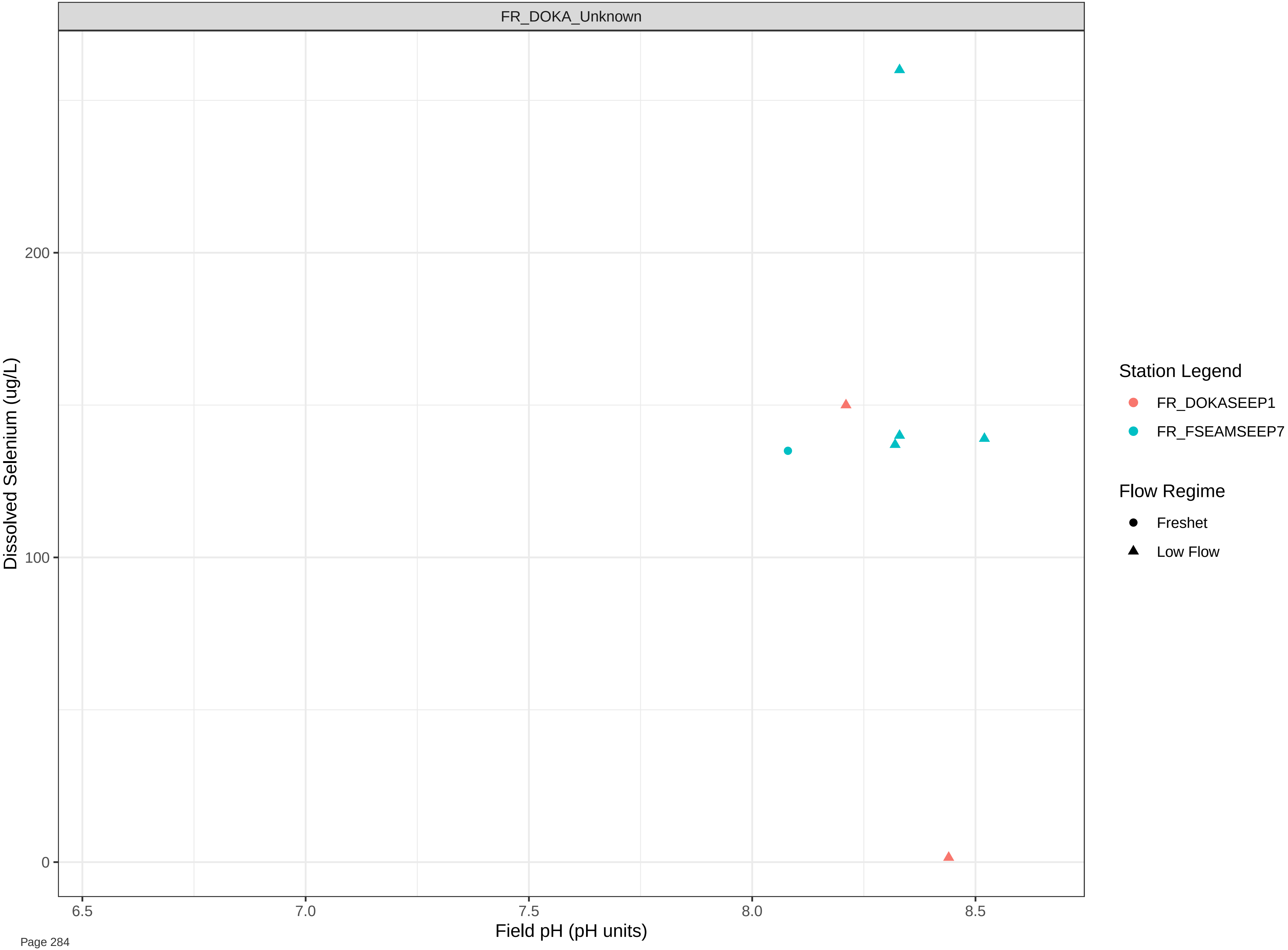

FR_TurnbullWREast_WR
Dissolved Potassium (mg/L)
4
3
2
1
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

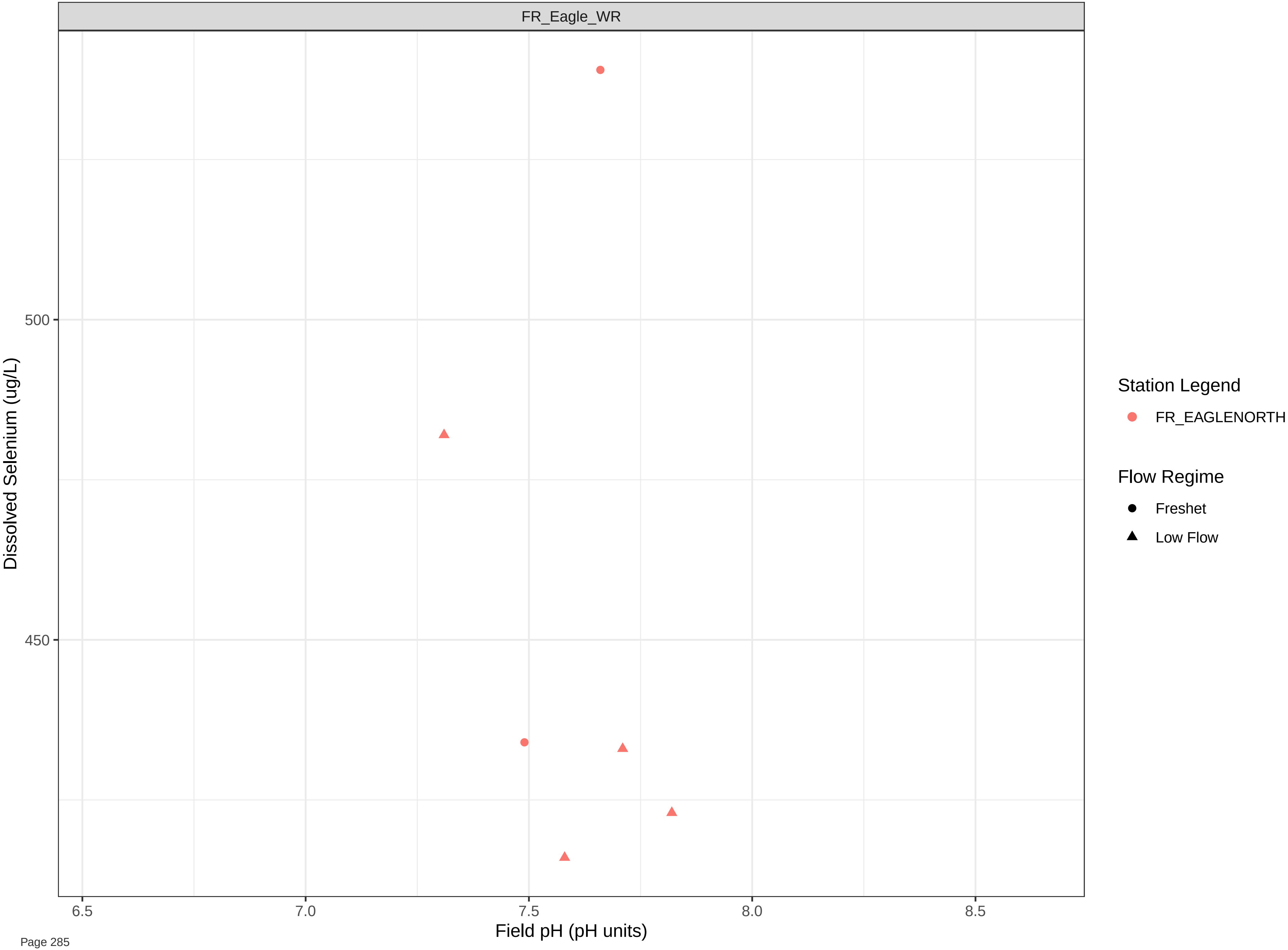

FR_TurnbullWRWest_WR
Dissolved Potassium (mg/L)
2.50
2.25
2.00
1.75
1.50
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

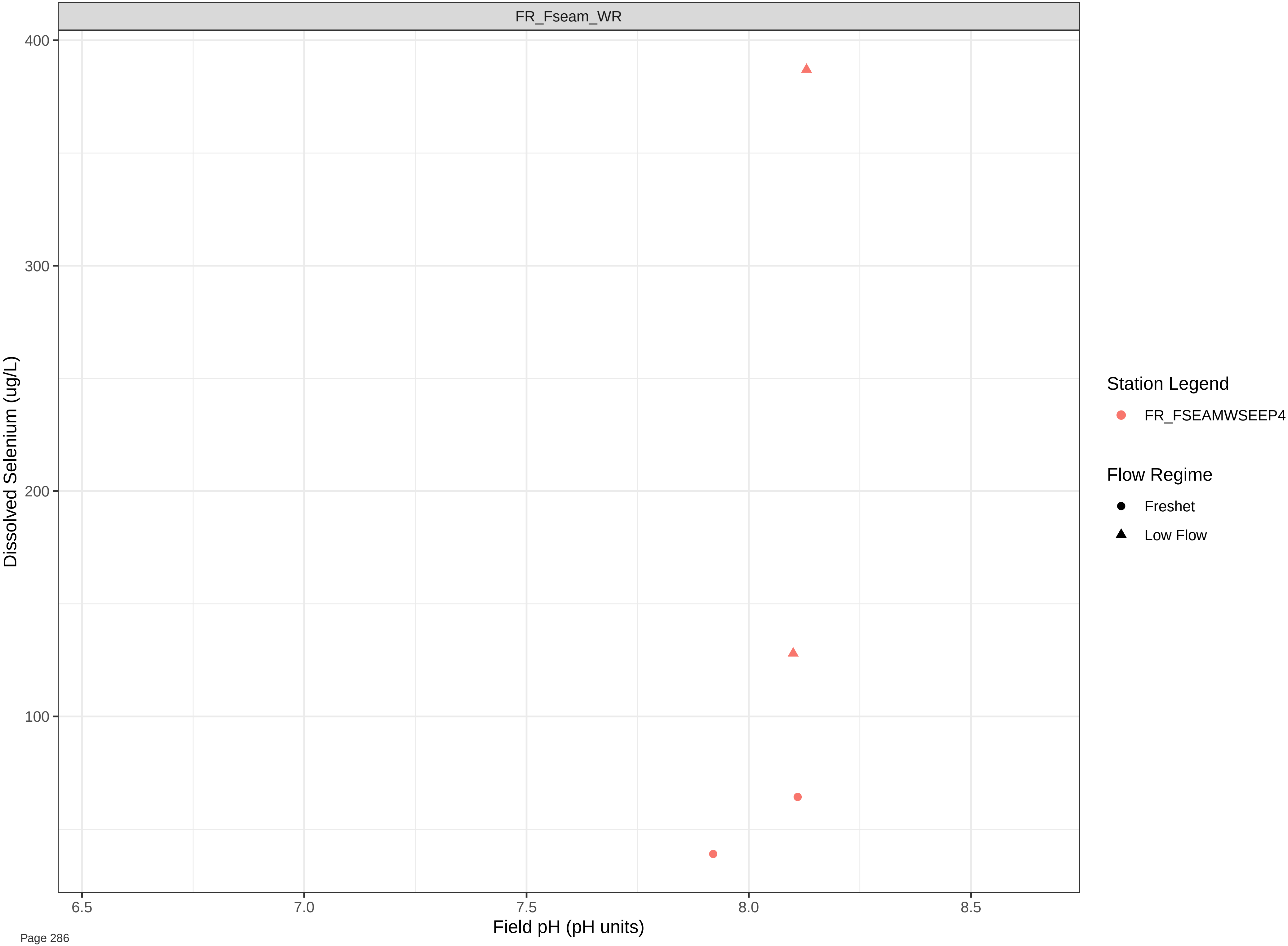

FR_A_WR
Dissolved Selenium (ug/L)
110
100
90
80
70
60
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

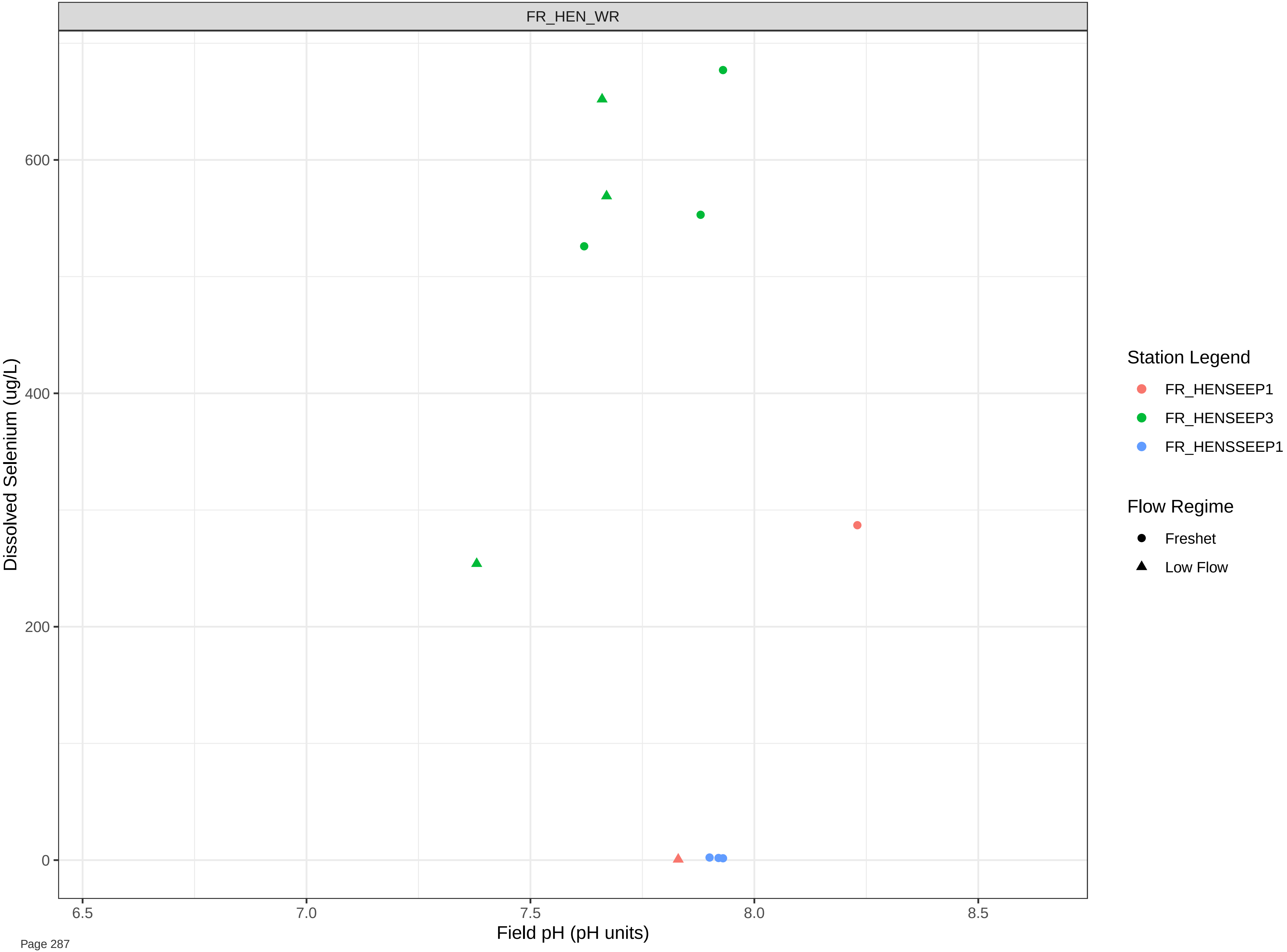

FR_Blain_CCR
Dissolved Selenium (ug/L)
500
400
300
200
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

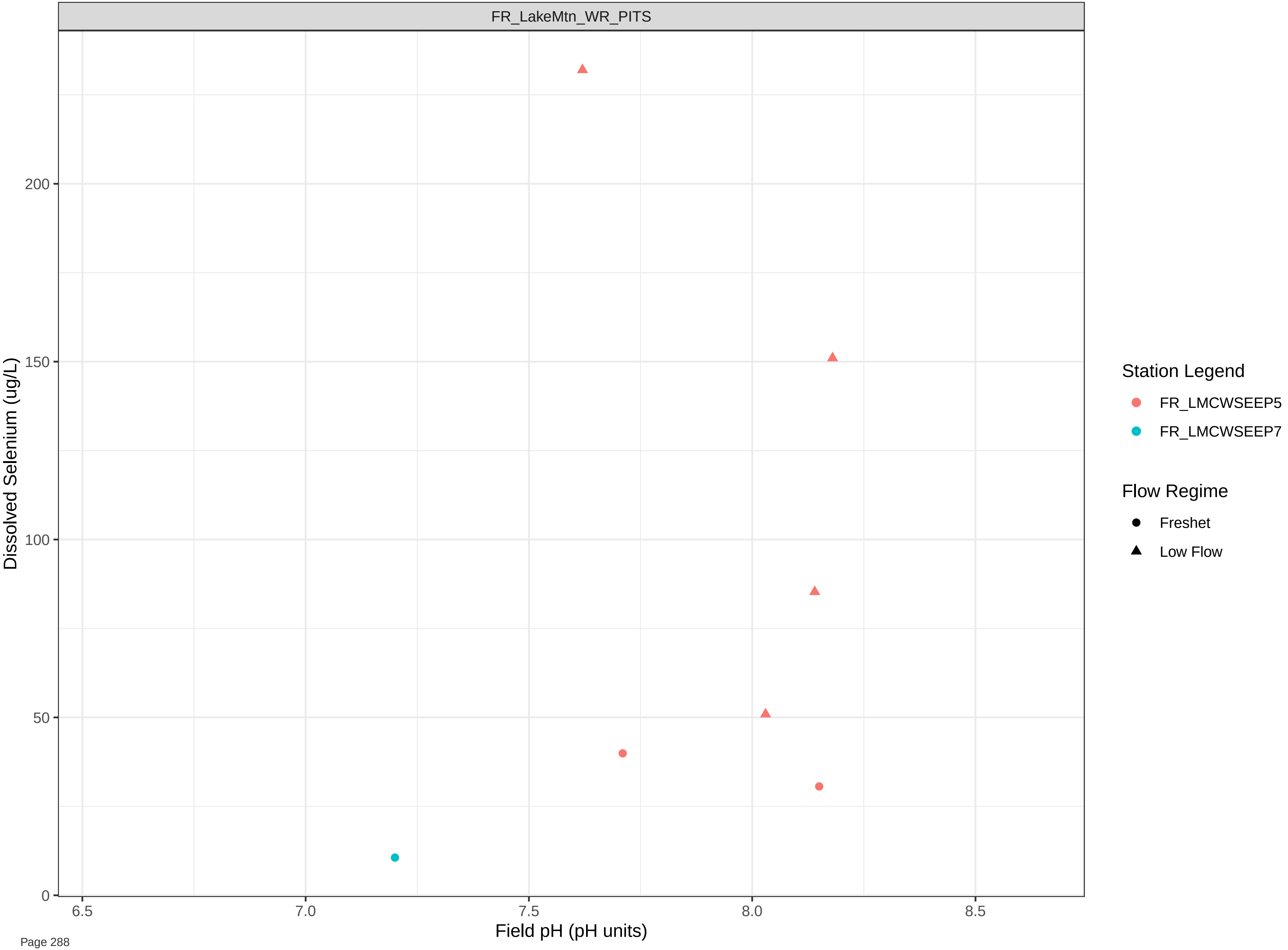

FR_ClodeCr_WR
Dissolved Selenium (ug/L)
500
400
300
200
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

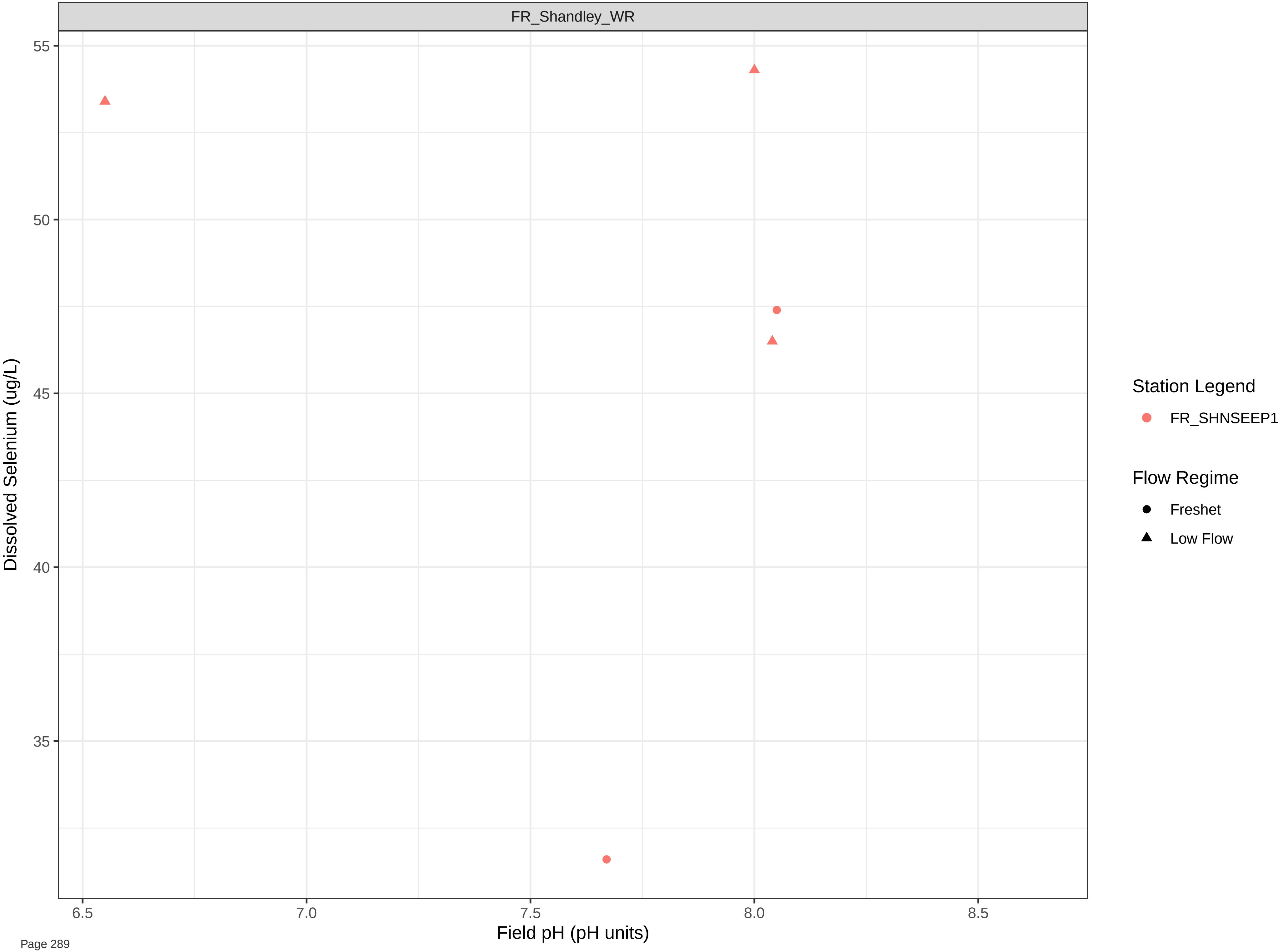

FR_DOKA_Unknown
Dissolved Selenium (ug/L)
200
100
0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow

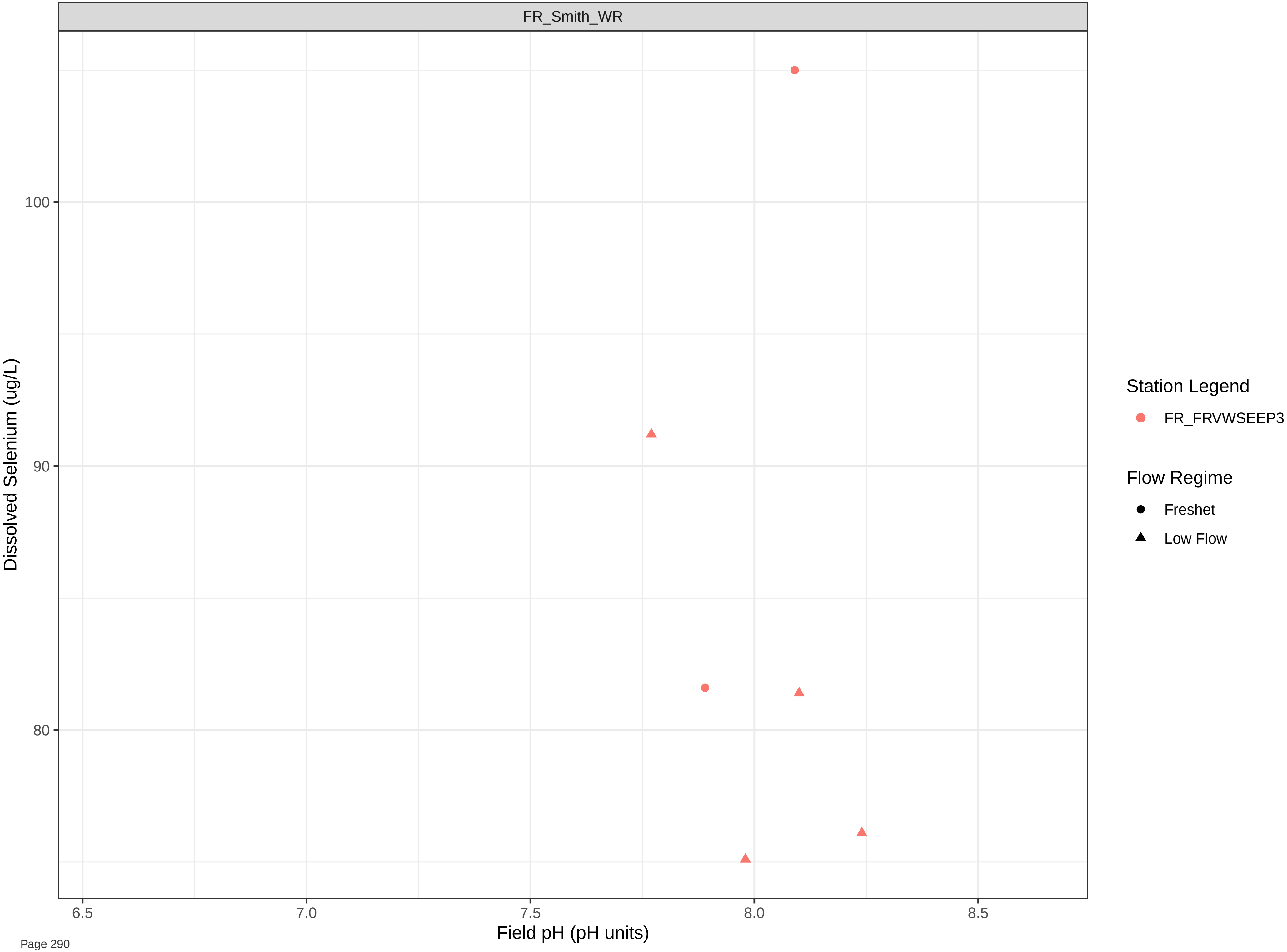

FR_Eagle_WR
Dissolved Selenium (ug/L)
500
450
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

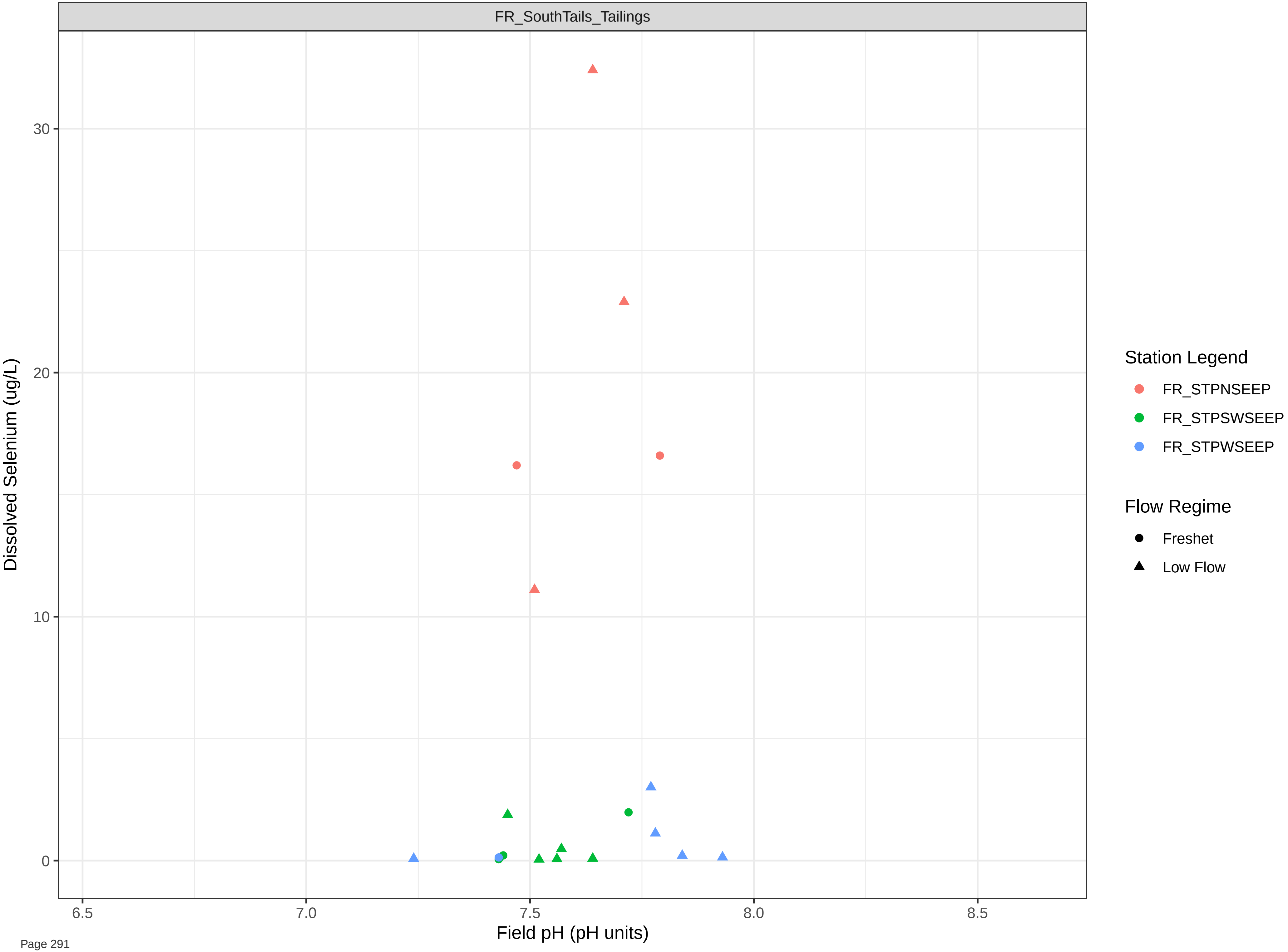

FR_Fseam_WR
Dissolved Selenium (ug/L)
400
300
200
100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

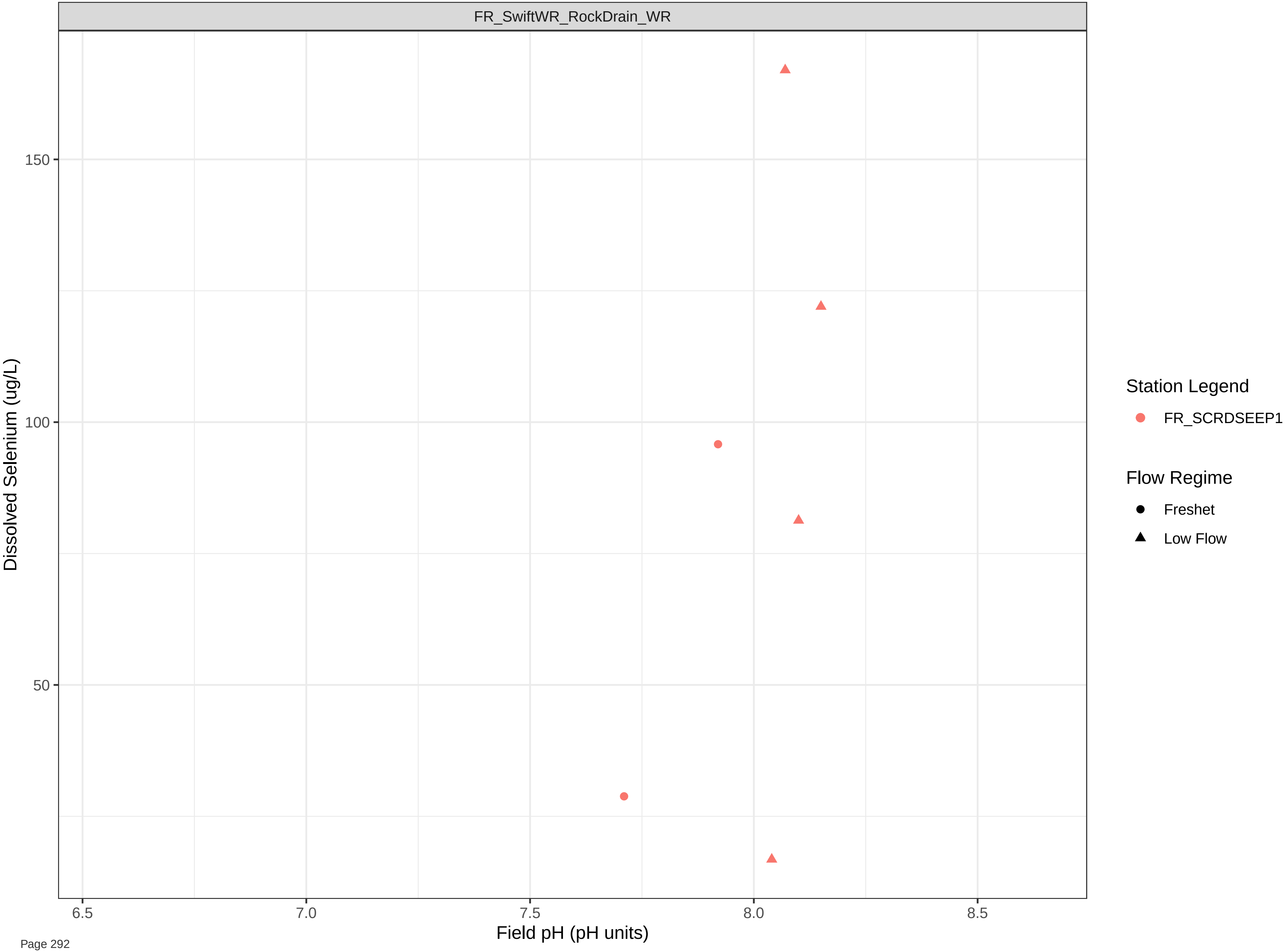

FR_HEN_WR
Dissolved Selenium (ug/L)
600
400
200
0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

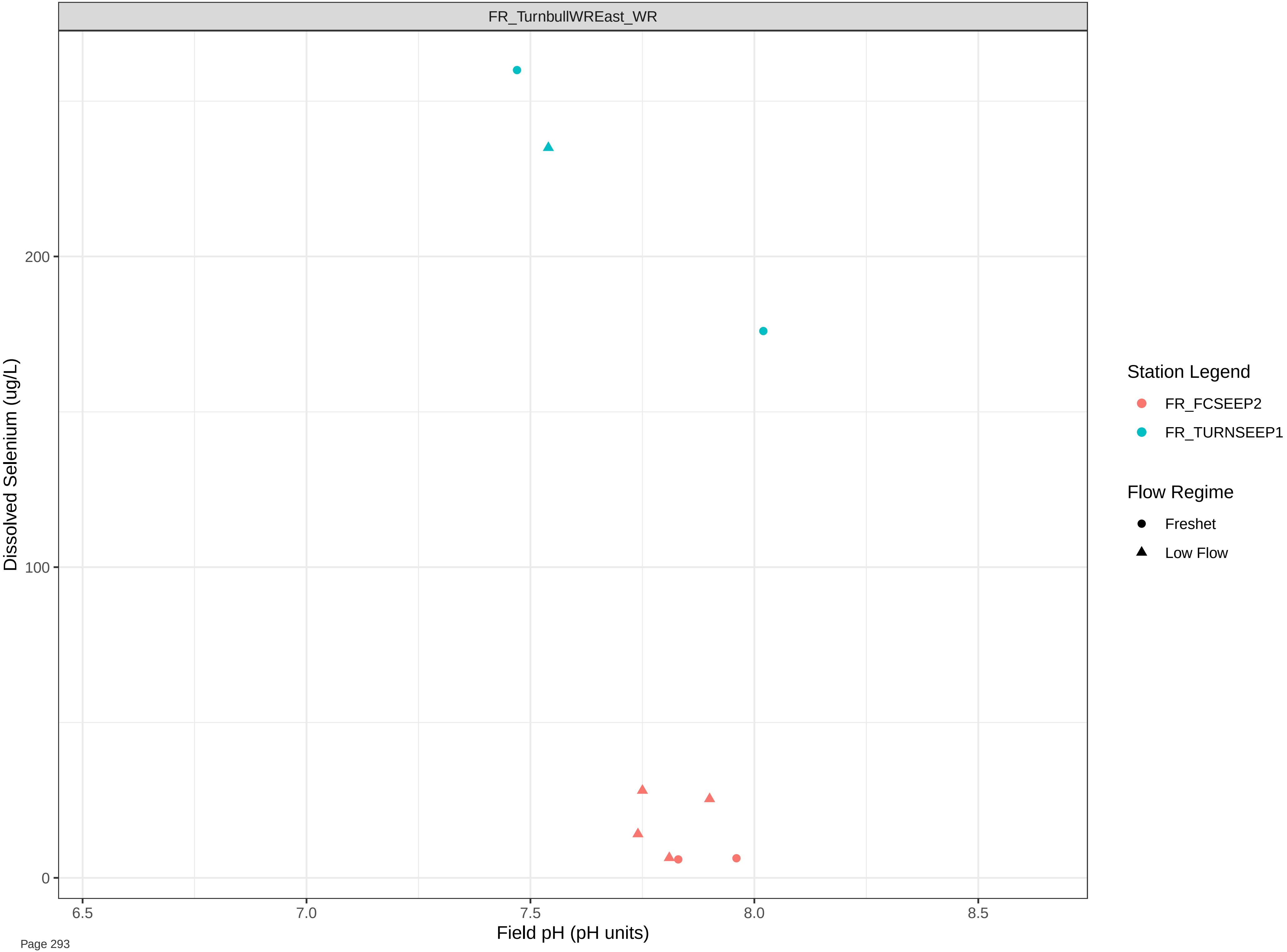

FR_LakeMtn_WR_PITS
Dissolved Selenium (ug/L)
200
150
100
50
0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

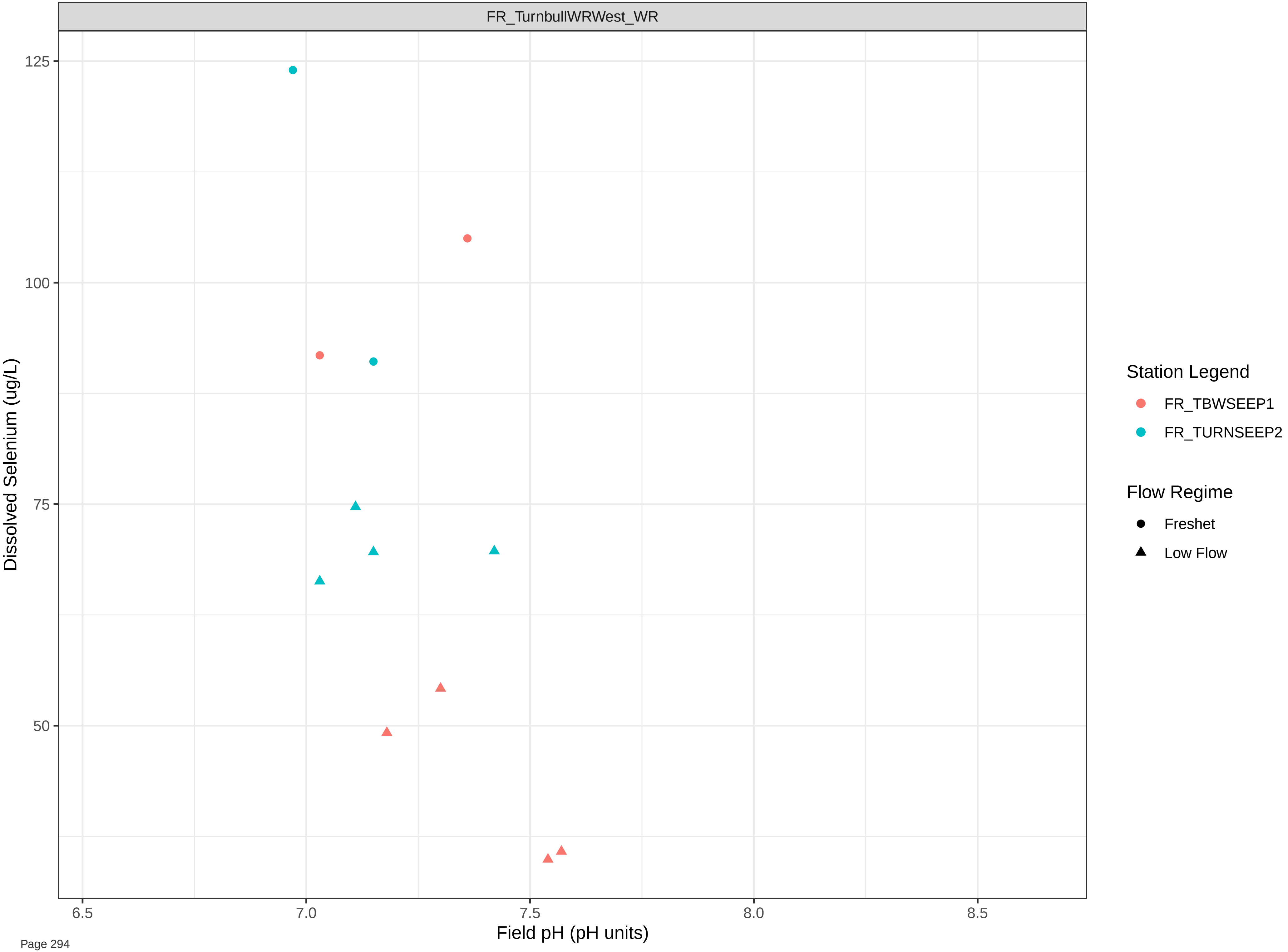

FR_Shandley_WR
Dissolved Selenium (ug/L)
55
50
45
40
35
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

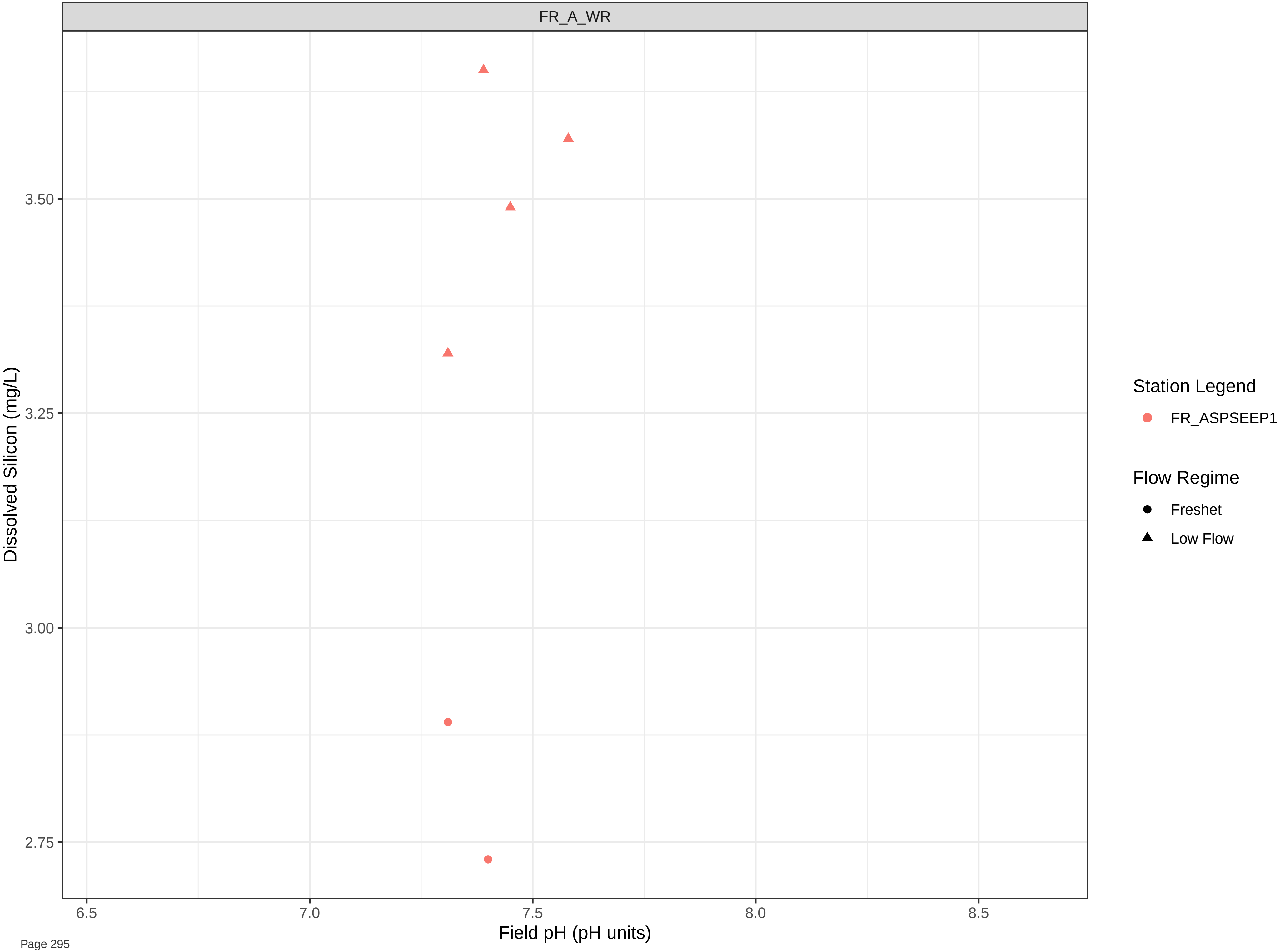

FR_Smith_WR
Dissolved Selenium (ug/L)
100
90
80
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

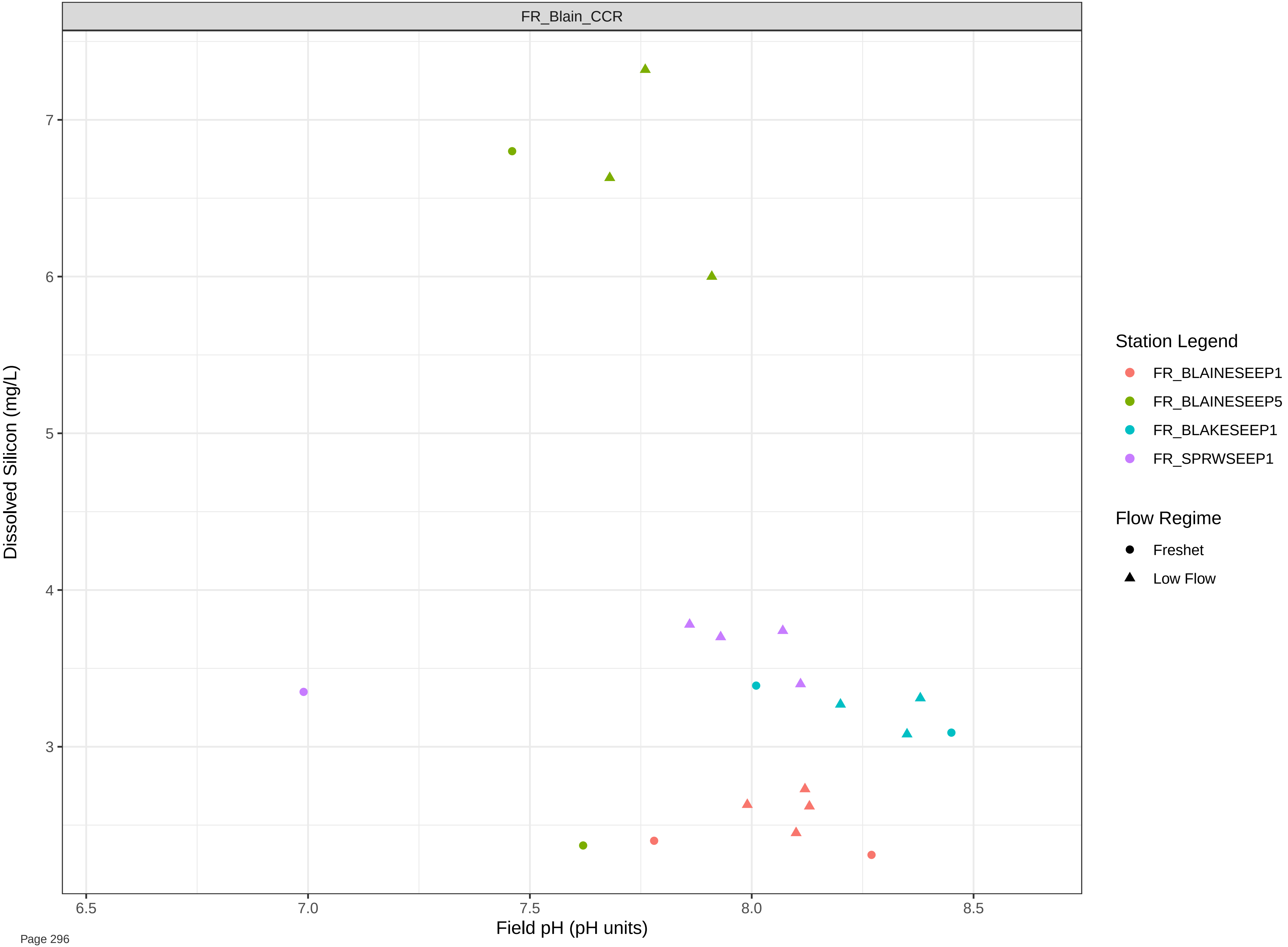

FR_SouthTails_Tailings
Dissolved Selenium (ug/L)
30
20
10
0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

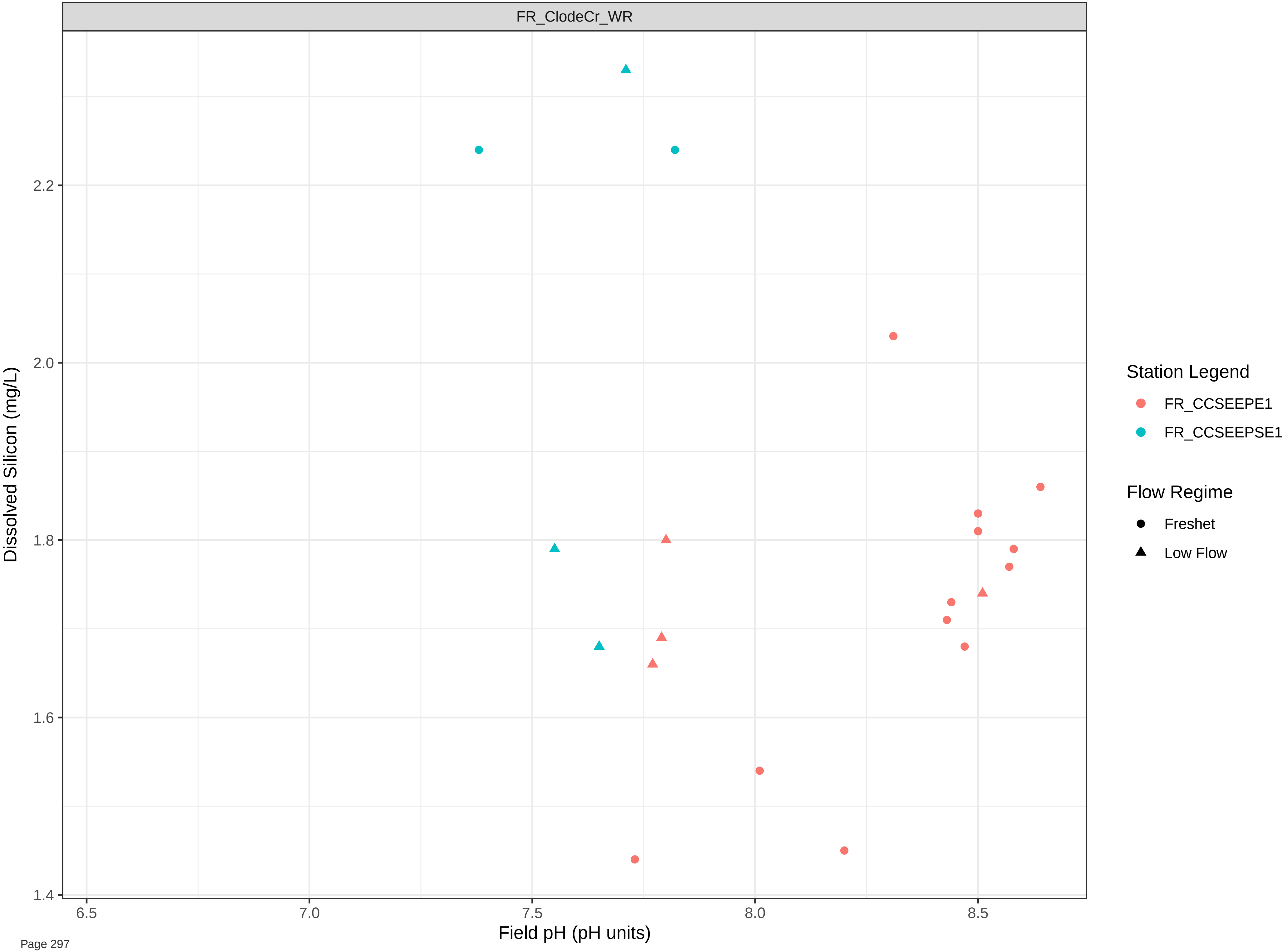

FR_SwiftWR_RockDrain_WR
Dissolved Selenium (ug/L)
150
100
50
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

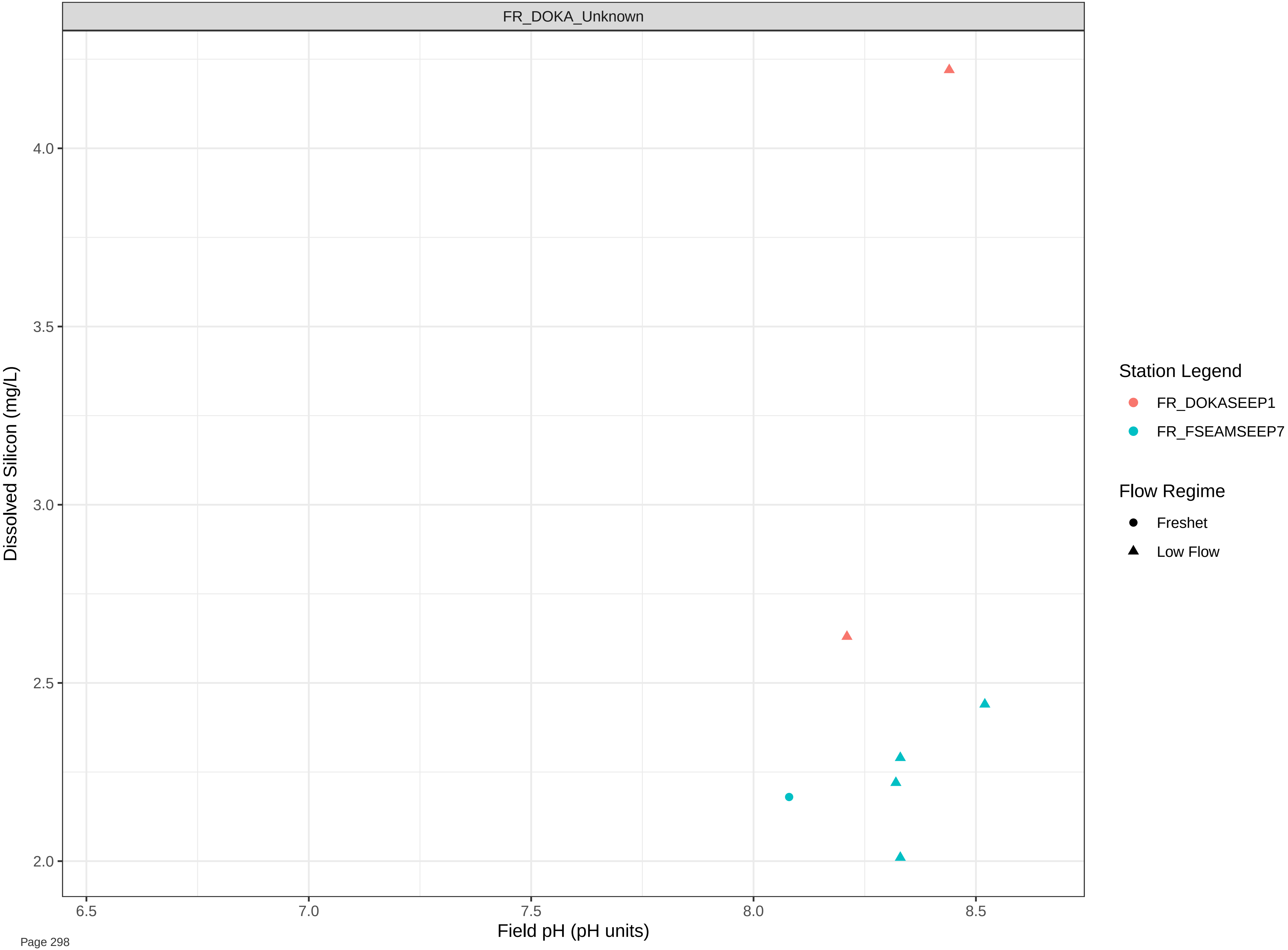

FR_TurnbullWREast_WR
Dissolved Selenium (ug/L)
200
100
0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

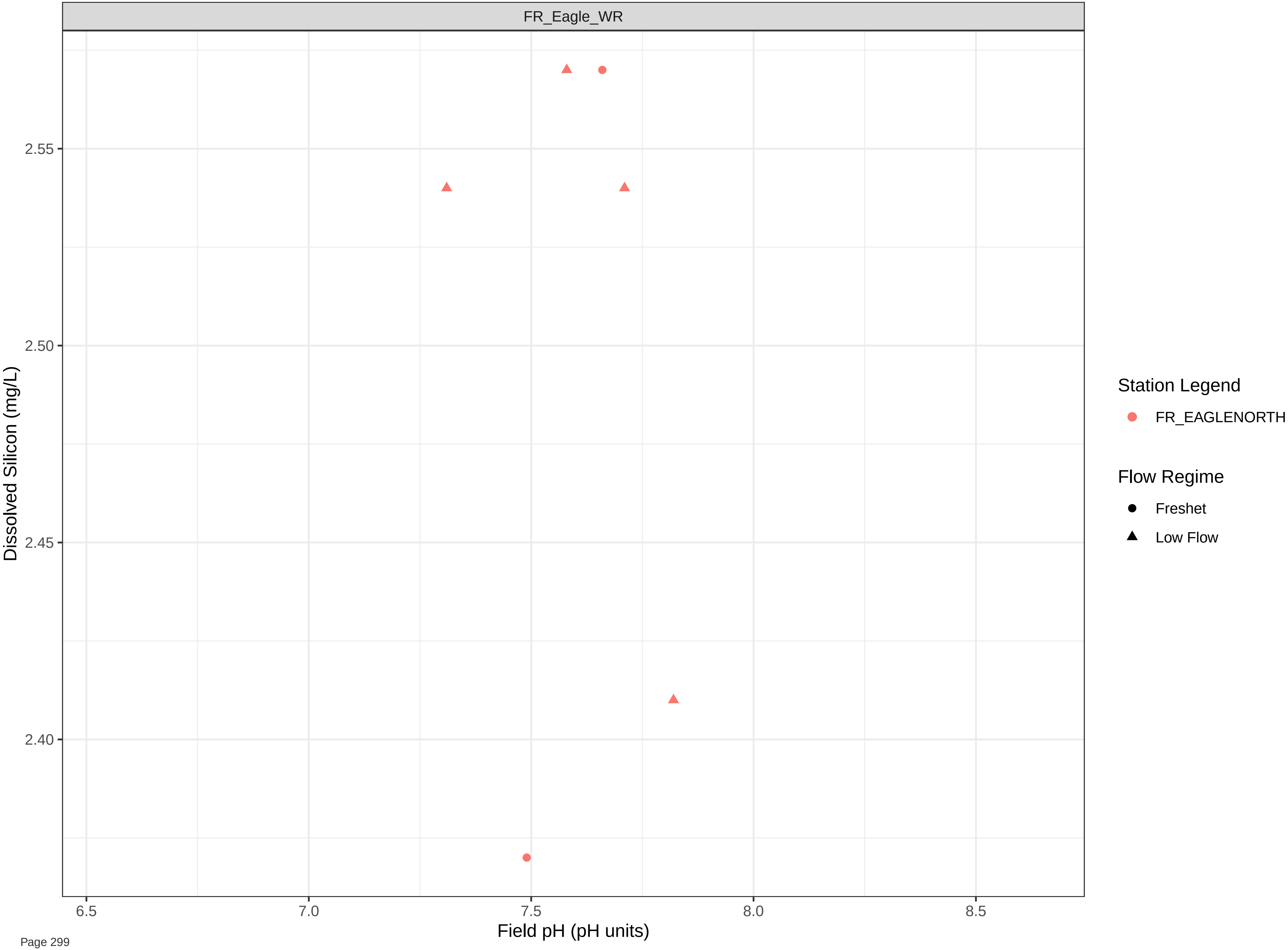

FR_TurnbullWRWest_WR
Dissolved Selenium (ug/L)
125
100
75
50
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_TBWSEEP1
● FR_TURNSEEP2
Flow Regime
● Freshet
▲ Low Flow

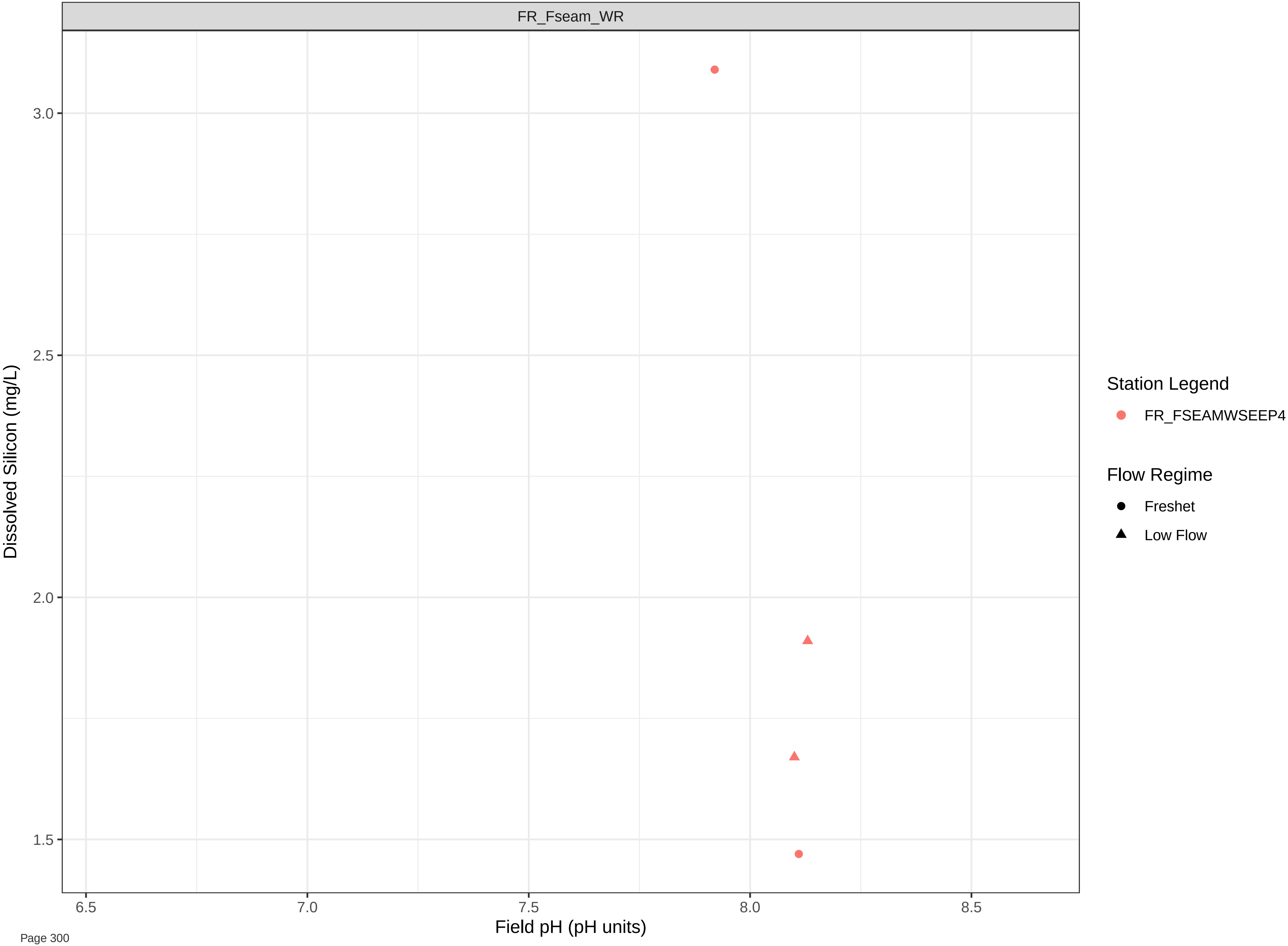

FR_A_WR
Dissolved Silicon (mg/L)
3.50
3.25
3.00
2.75
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

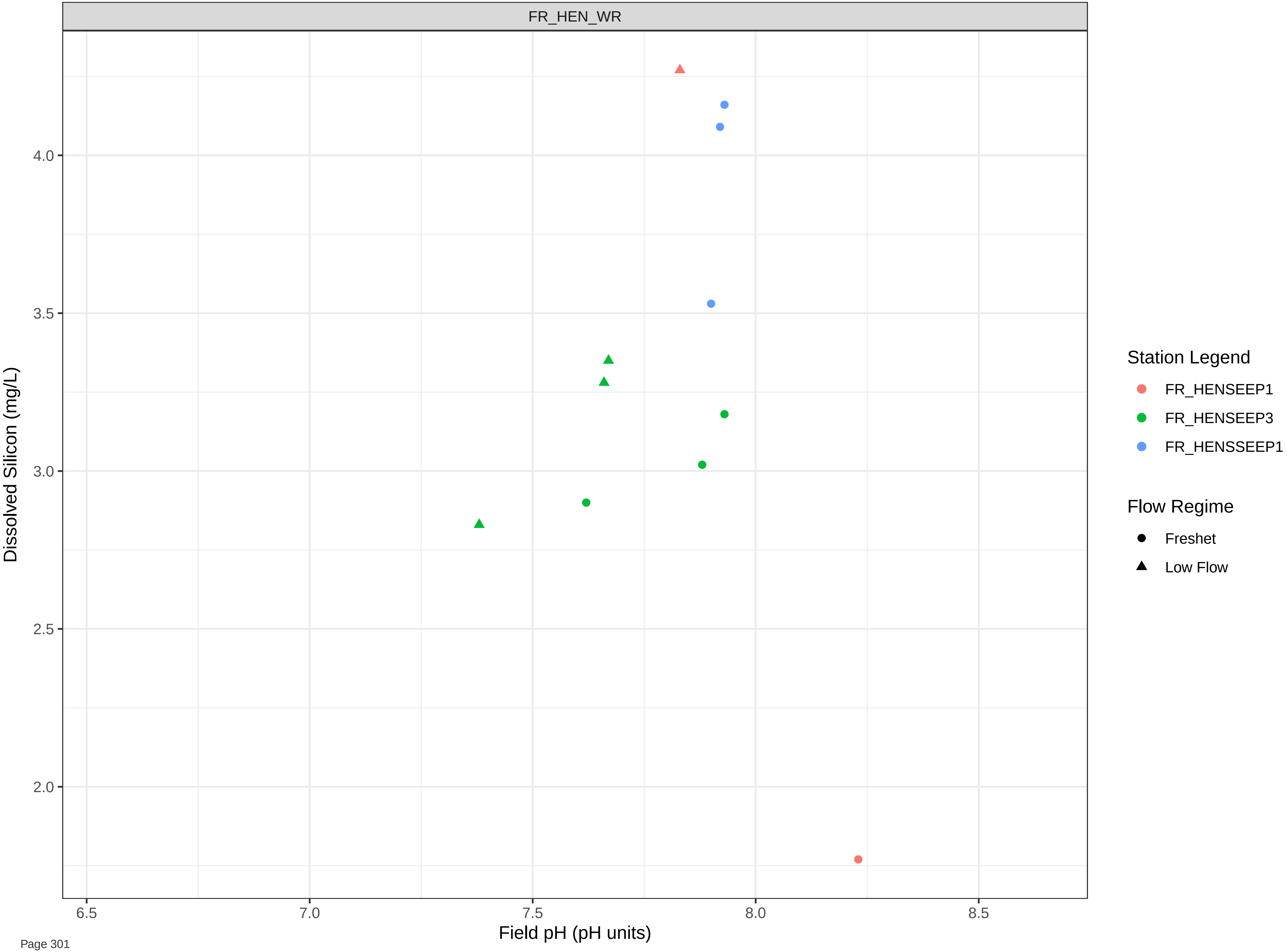

FR_Blain_CCR
Dissolved Silicon (mg/L)
7
6
5
4
3
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

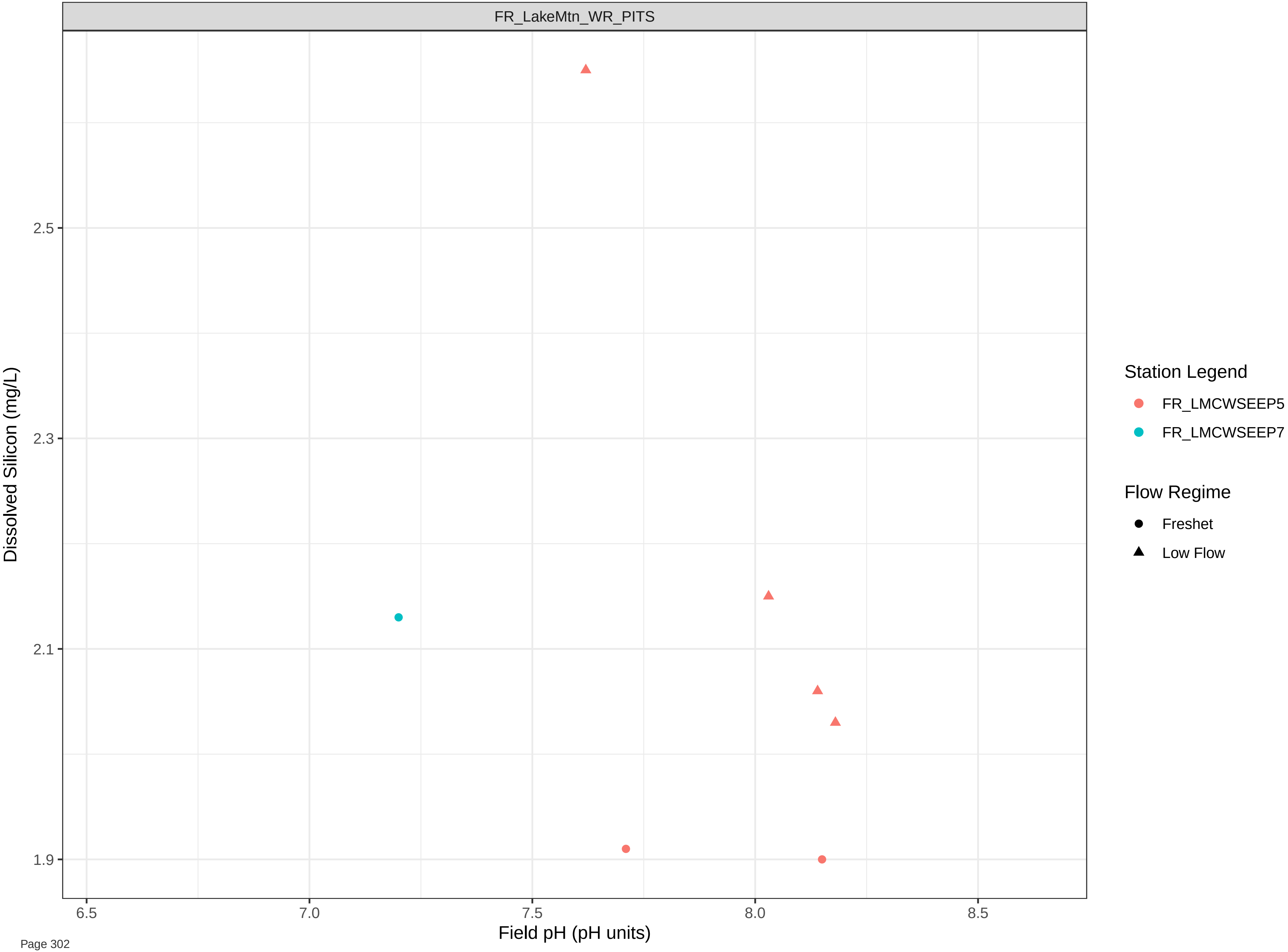

FR_ClodeCr_WR
Dissolved Silicon (mg/L)
2.2
2.0
1.8
1.6
1.4
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

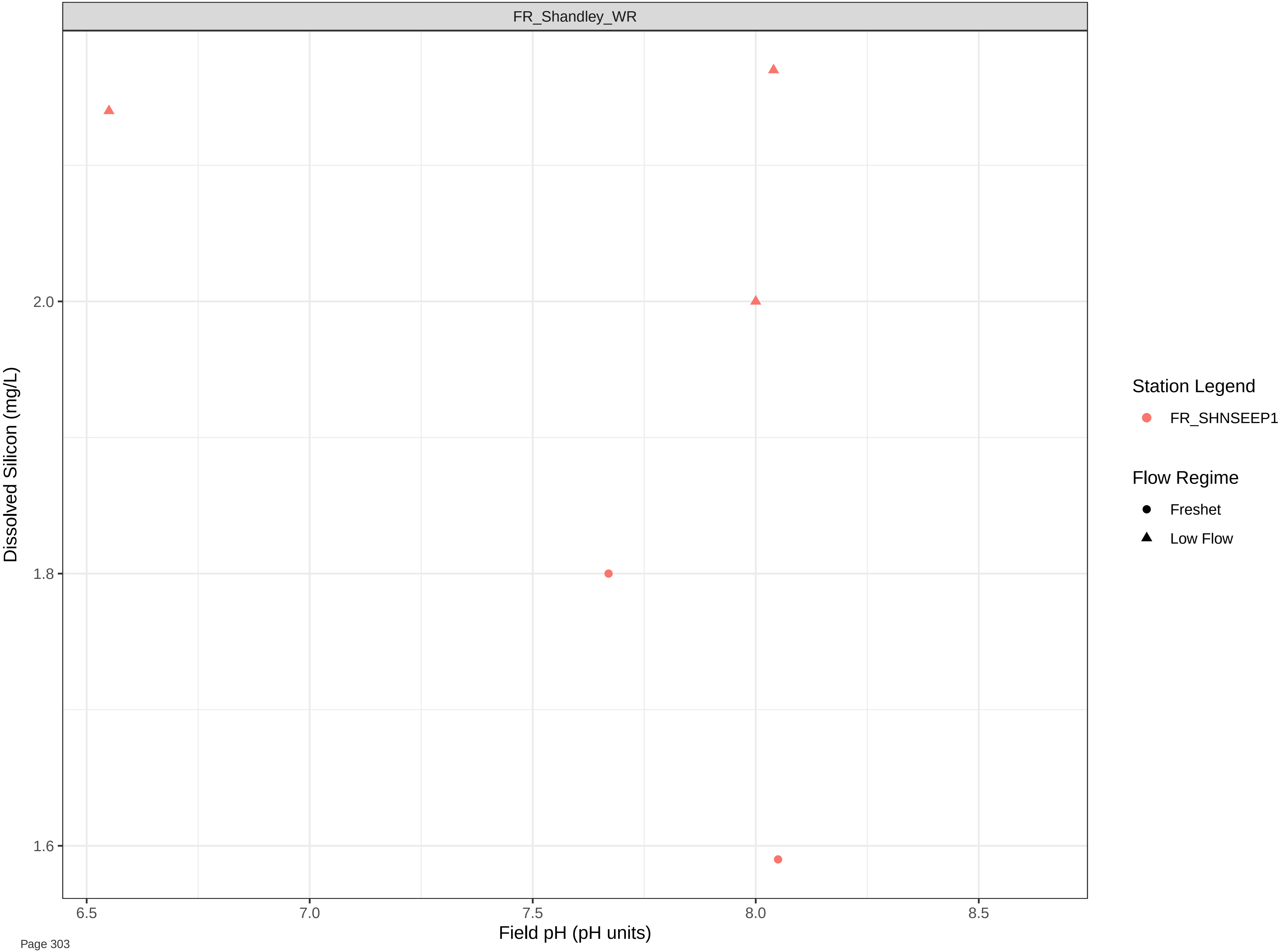

FR_DOKA_Unknown
Dissolved Silicon (mg/L)
4.0
3.5
3.0
2.5
2.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow

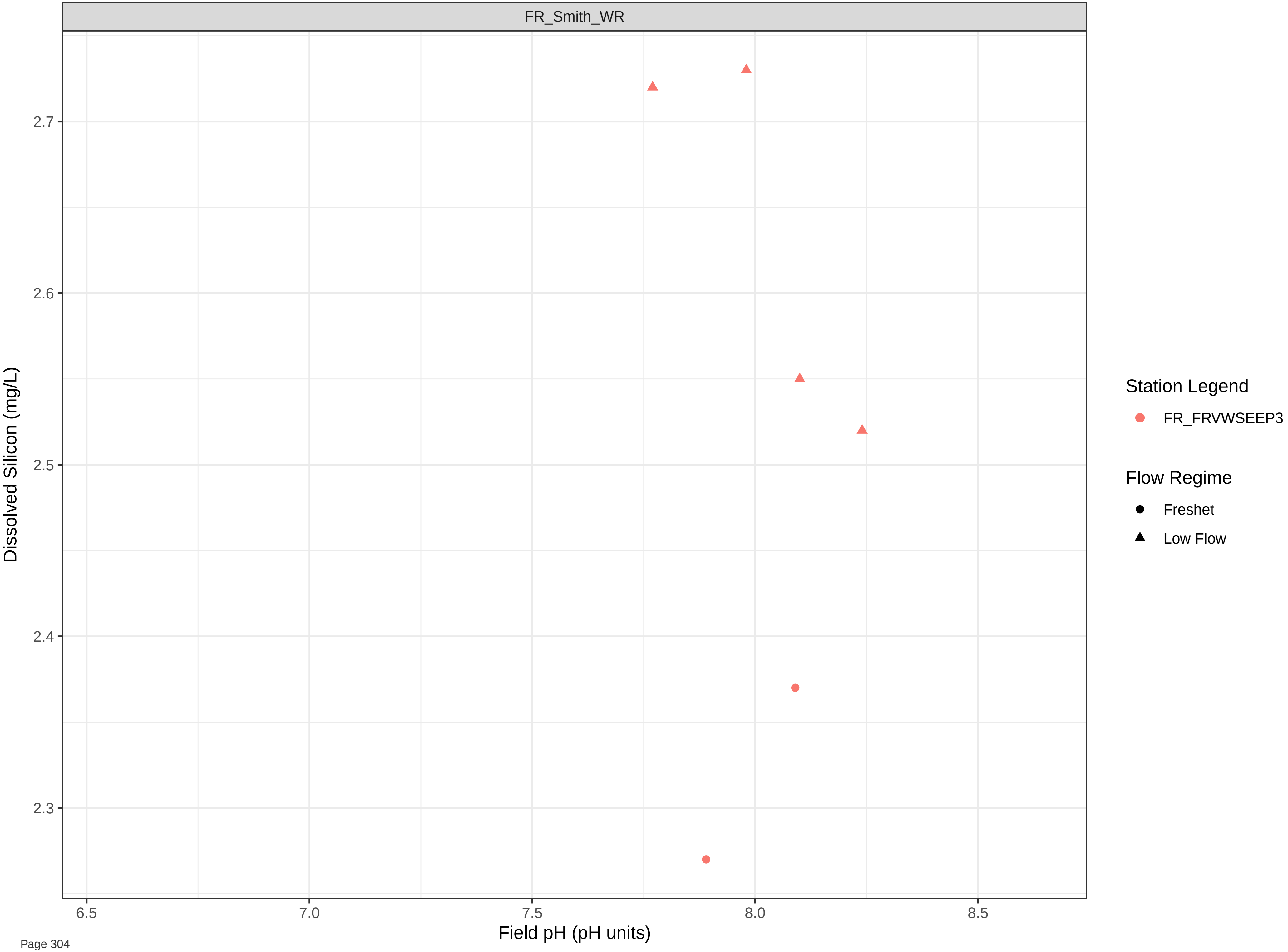

FR_Eagle_WR
Dissolved Silicon (mg/L)
2.55
2.50
2.45
2.40
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

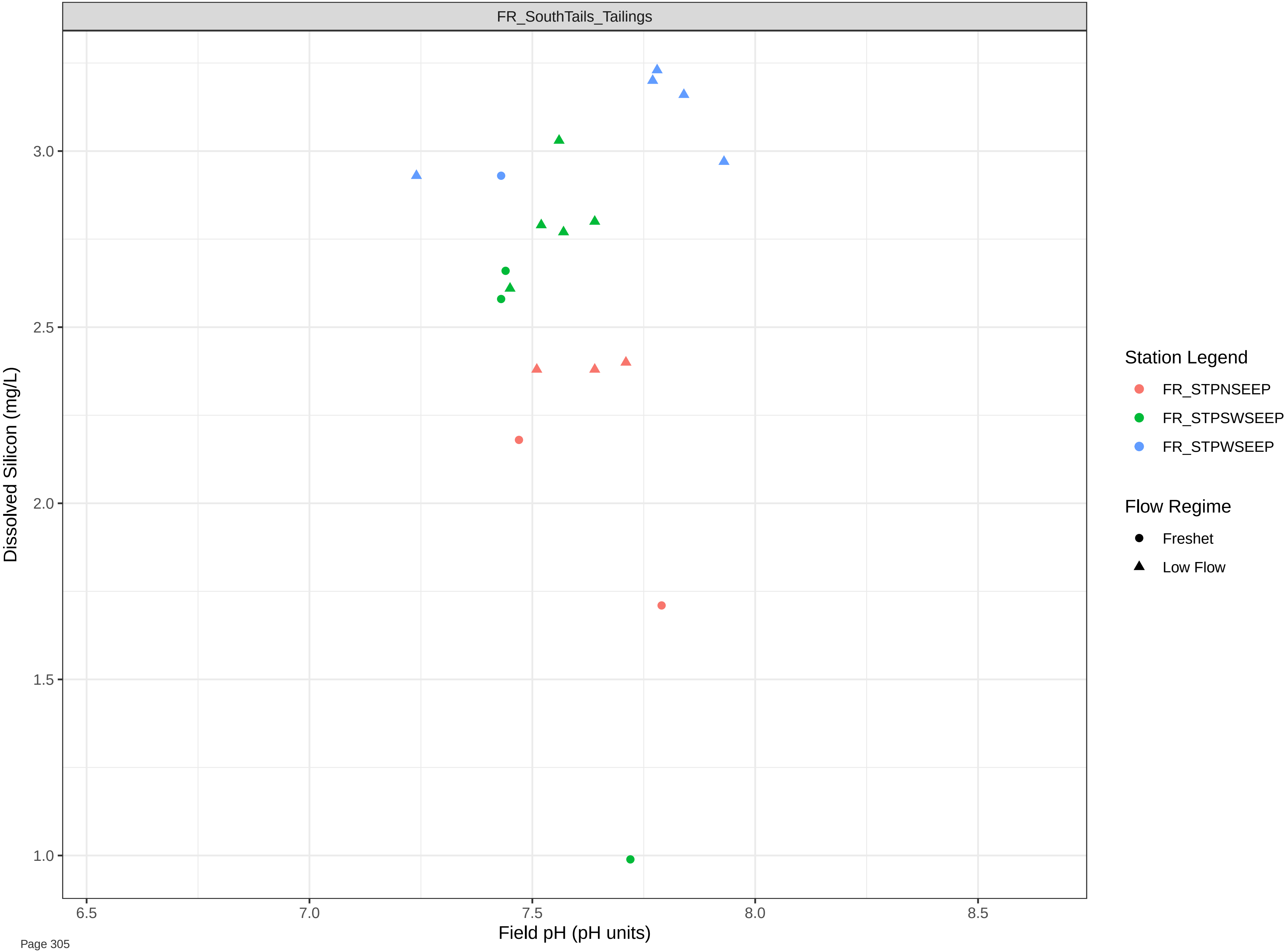

FR_Fseam_WR
Dissolved Silicon (mg/L)
3.0
2.5
2.0
1.5
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

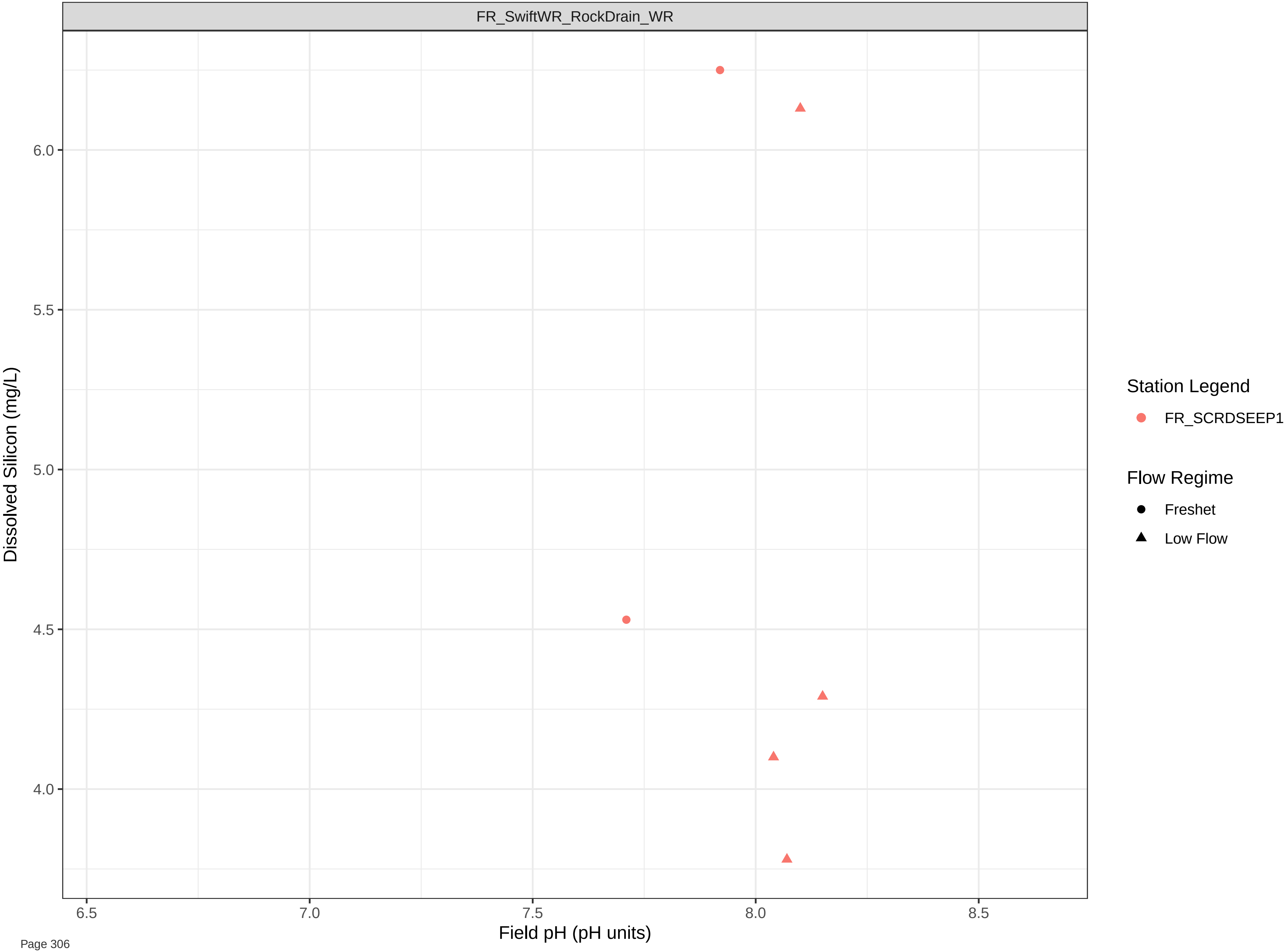

FR_HEN_WR
Dissolved Silicon (mg/L)
4.0
3.5
3.0
2.5
2.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

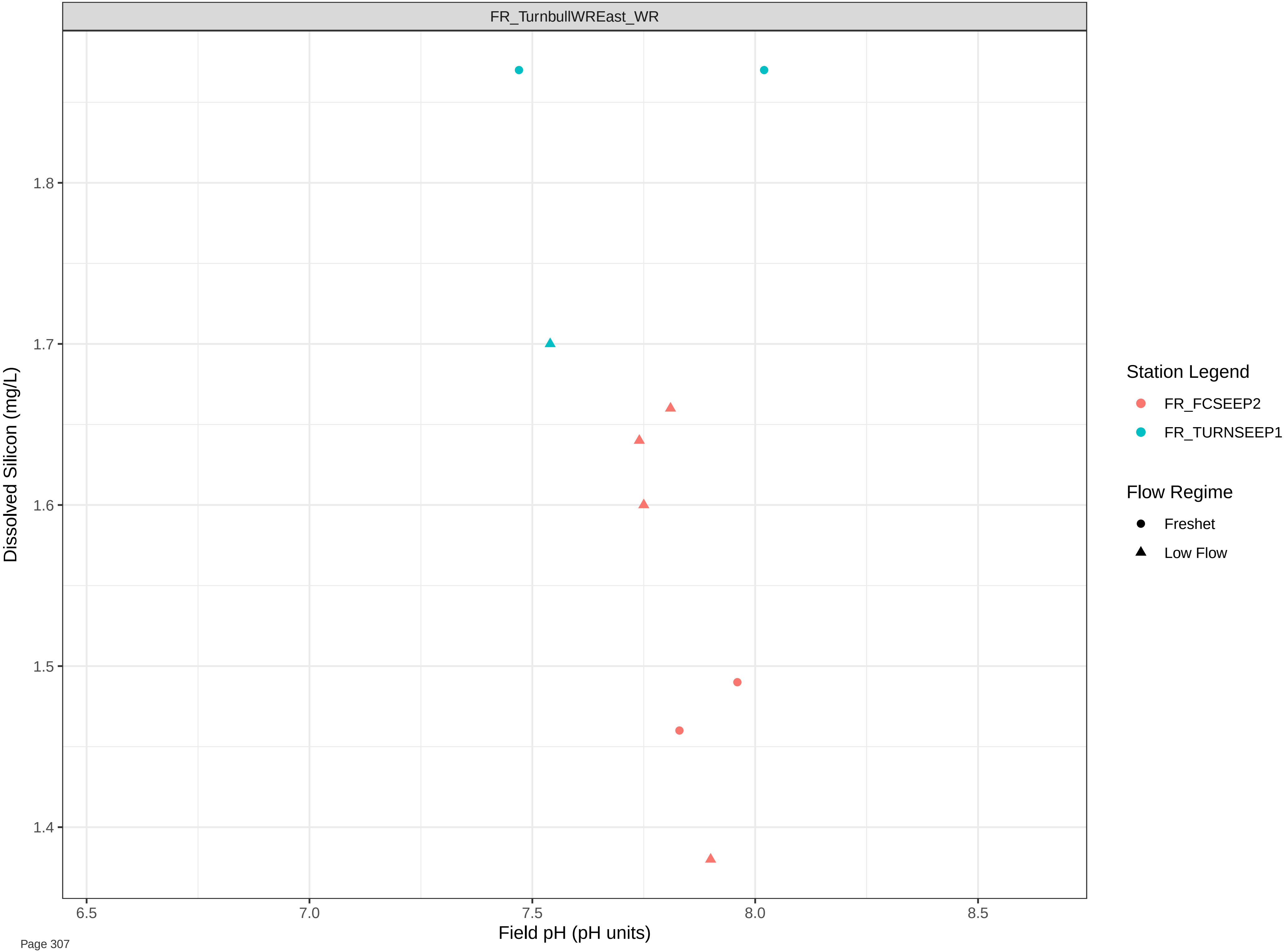

FR_LakeMtn_WR_PITS
Dissolved Silicon (mg/L)
2.5
2.3
2.1
1.9
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow

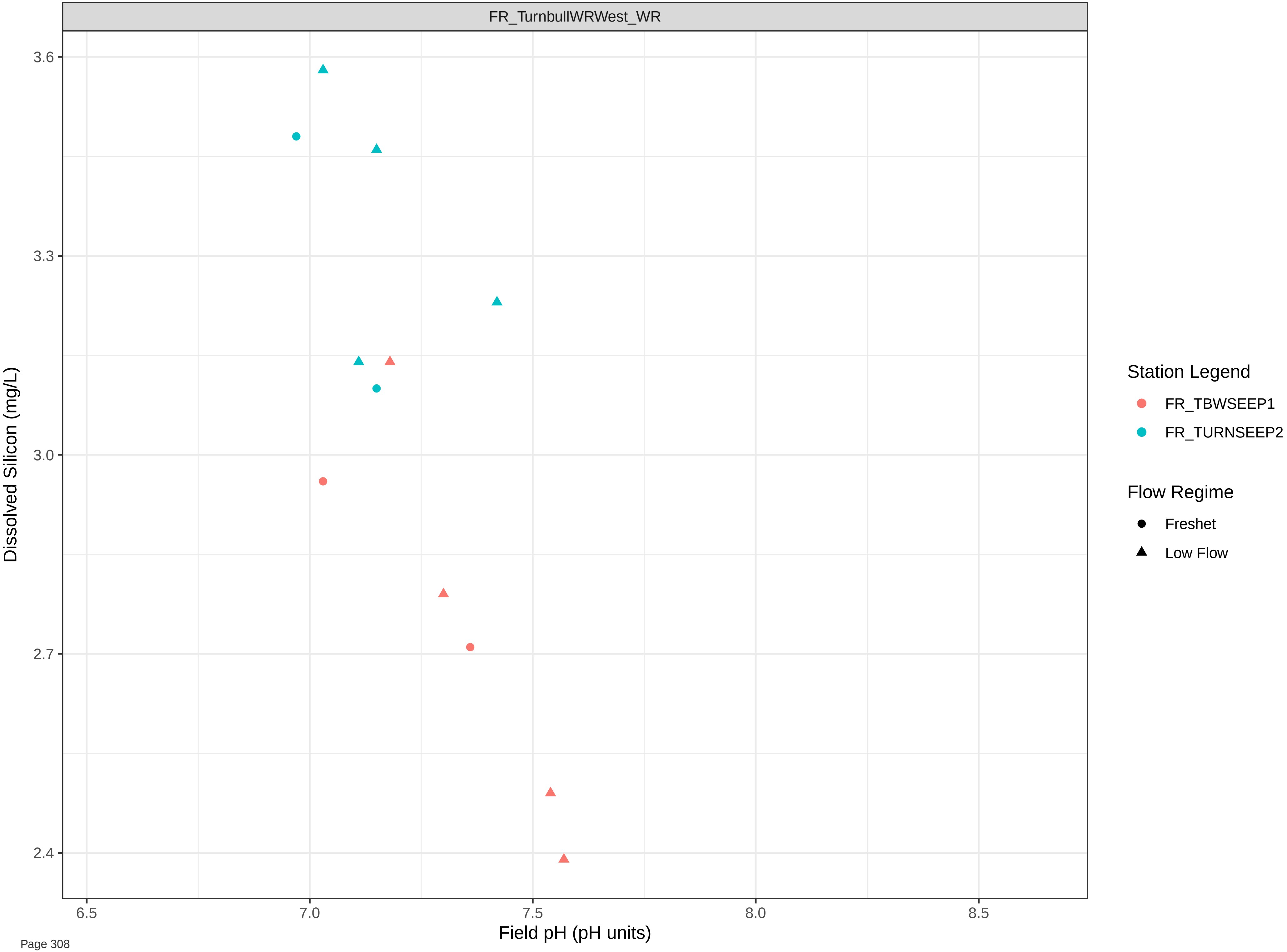

FR_Shandley_WR
Dissolved Silicon (mg/L)
2.0
1.8
1.6
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

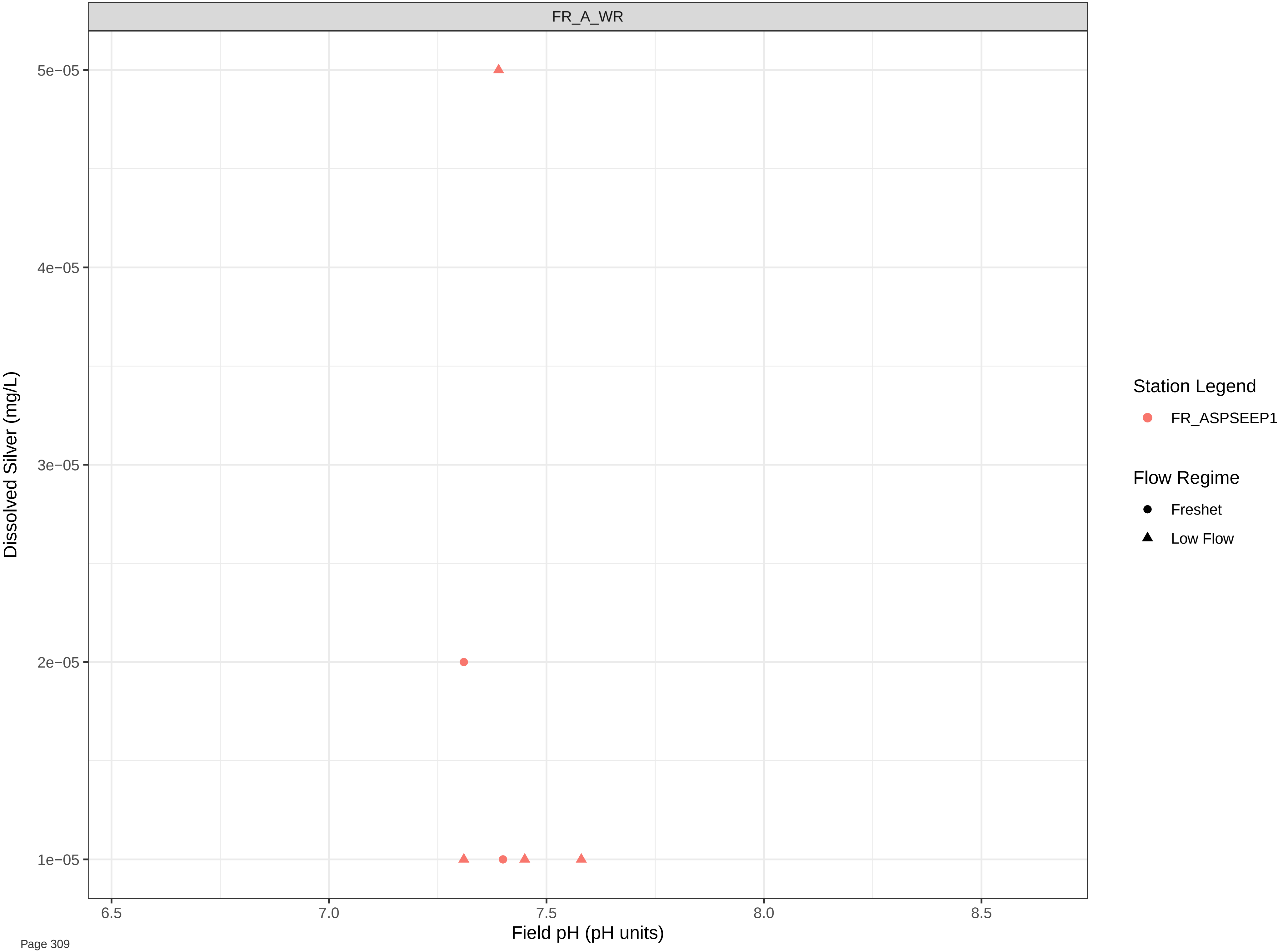

FR_Smith_WR
Dissolved Silicon (mg/L)
2.7
2.6
2.5
2.4
2.3
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

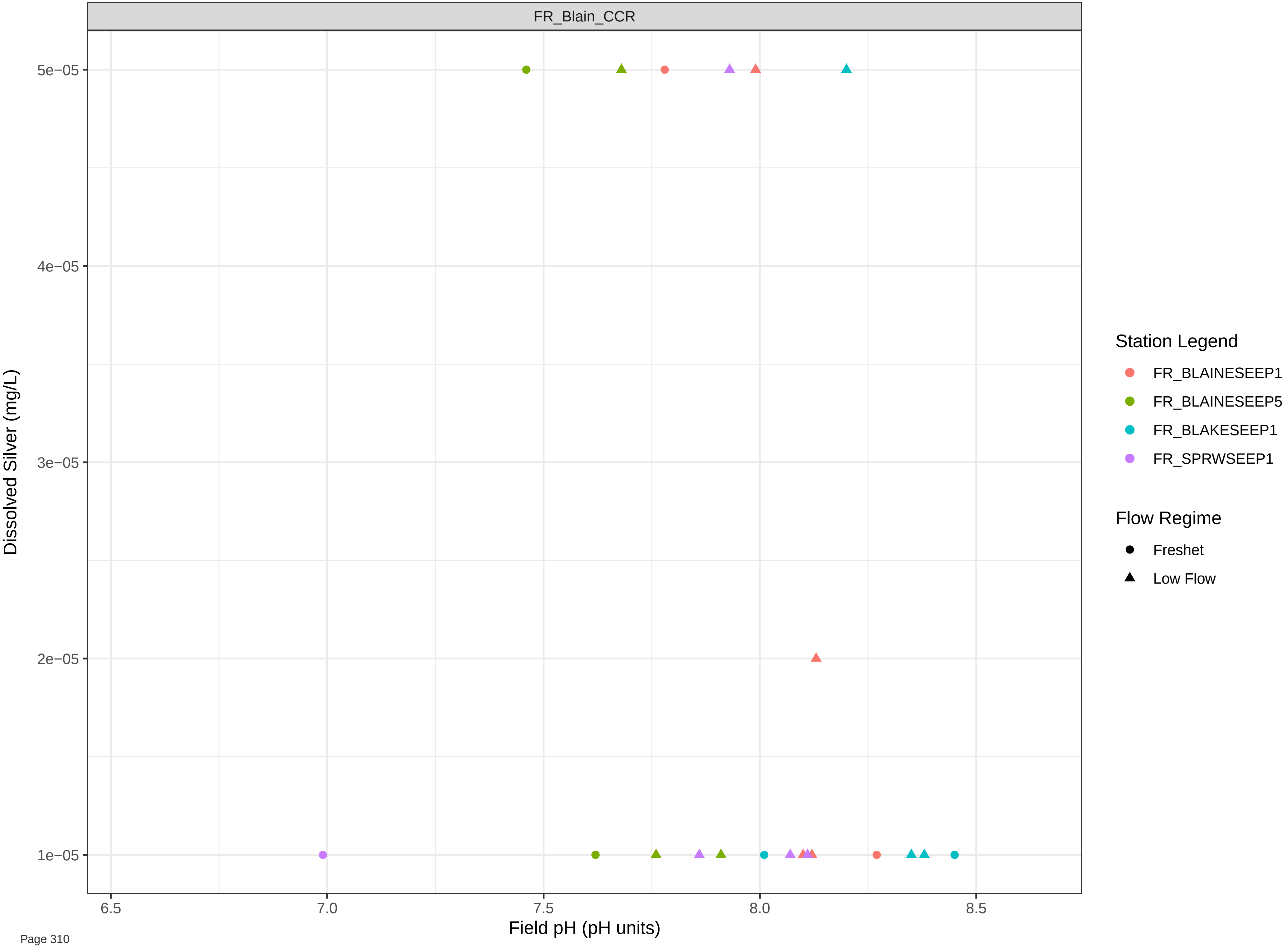

FR_SouthTails_Tailings
Dissolved Silicon (mg/L)
3.0
2.5
2.0
1.5
1.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

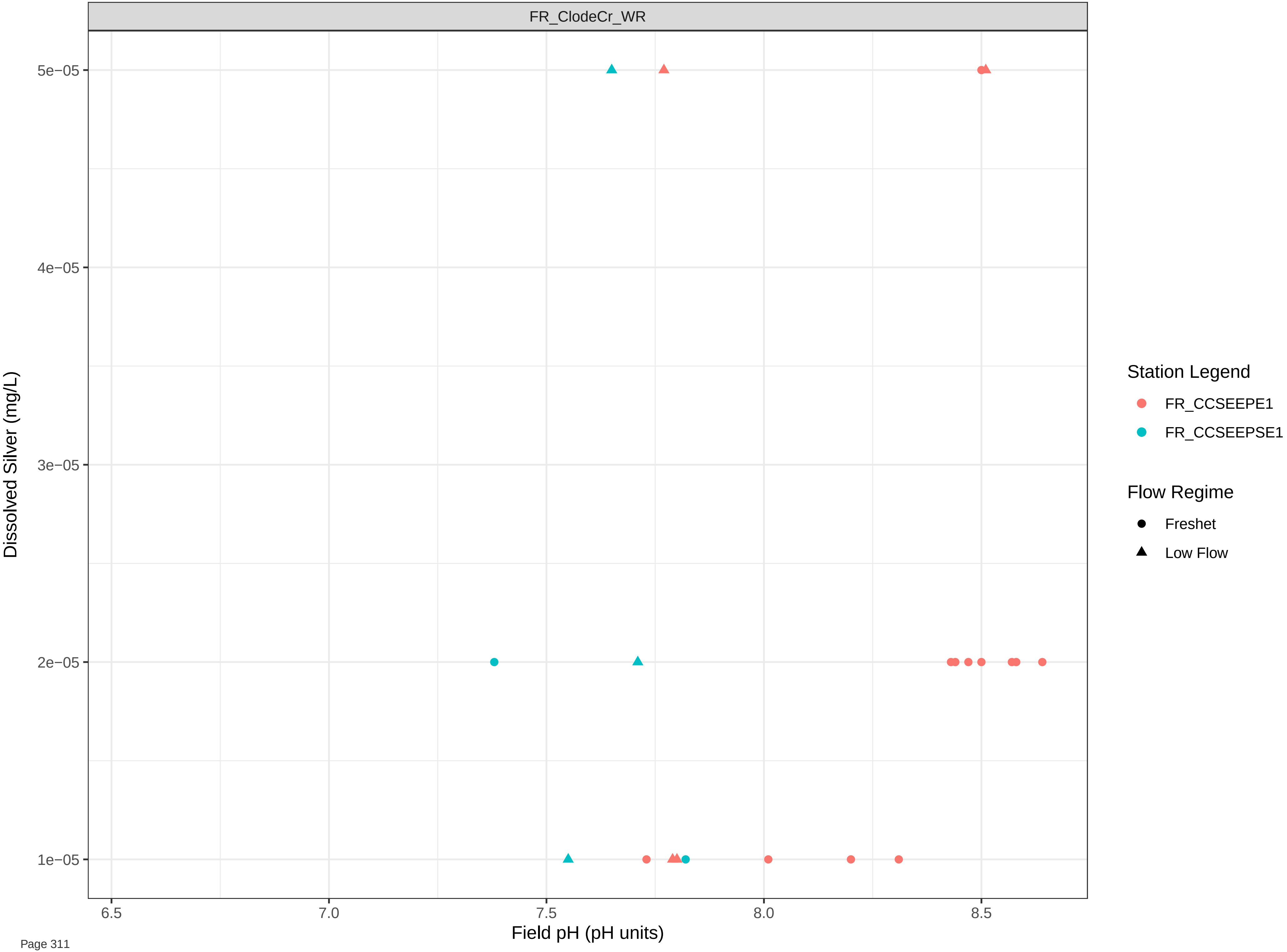

FR_SwiftWR_RockDrain_WR
Dissolved Silicon (mg/L)
6.0
5.5
5.0
4.5
4.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

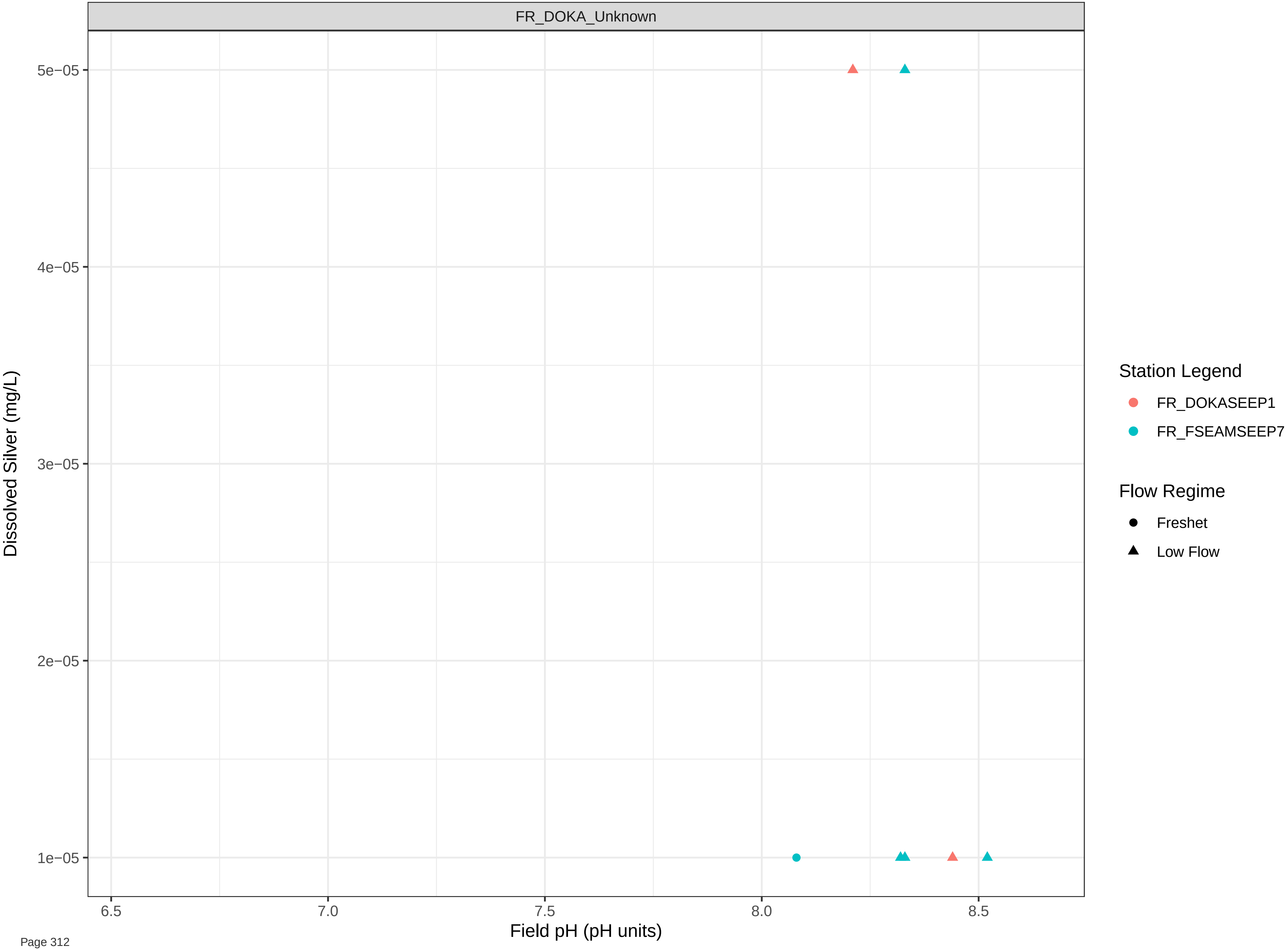

FR_TurnbullWREast_WR
Dissolved Silicon (mg/L)
1.8
1.7
1.6
1.5
1.4
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

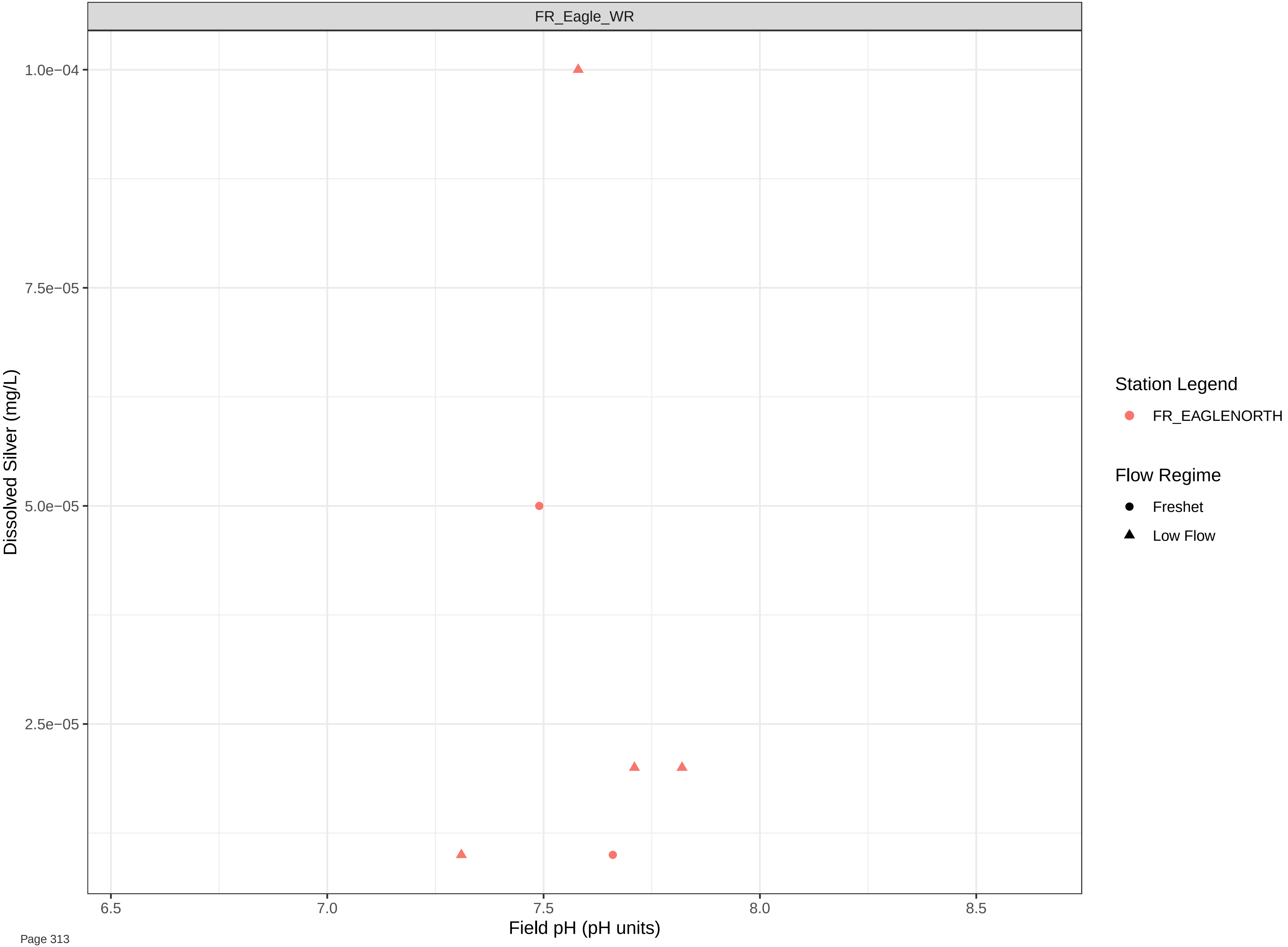

FR_TurnbullWRWest_WR
Dissolved Silicon (mg/L)
3.6
3.3
3.0
2.7
2.4
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

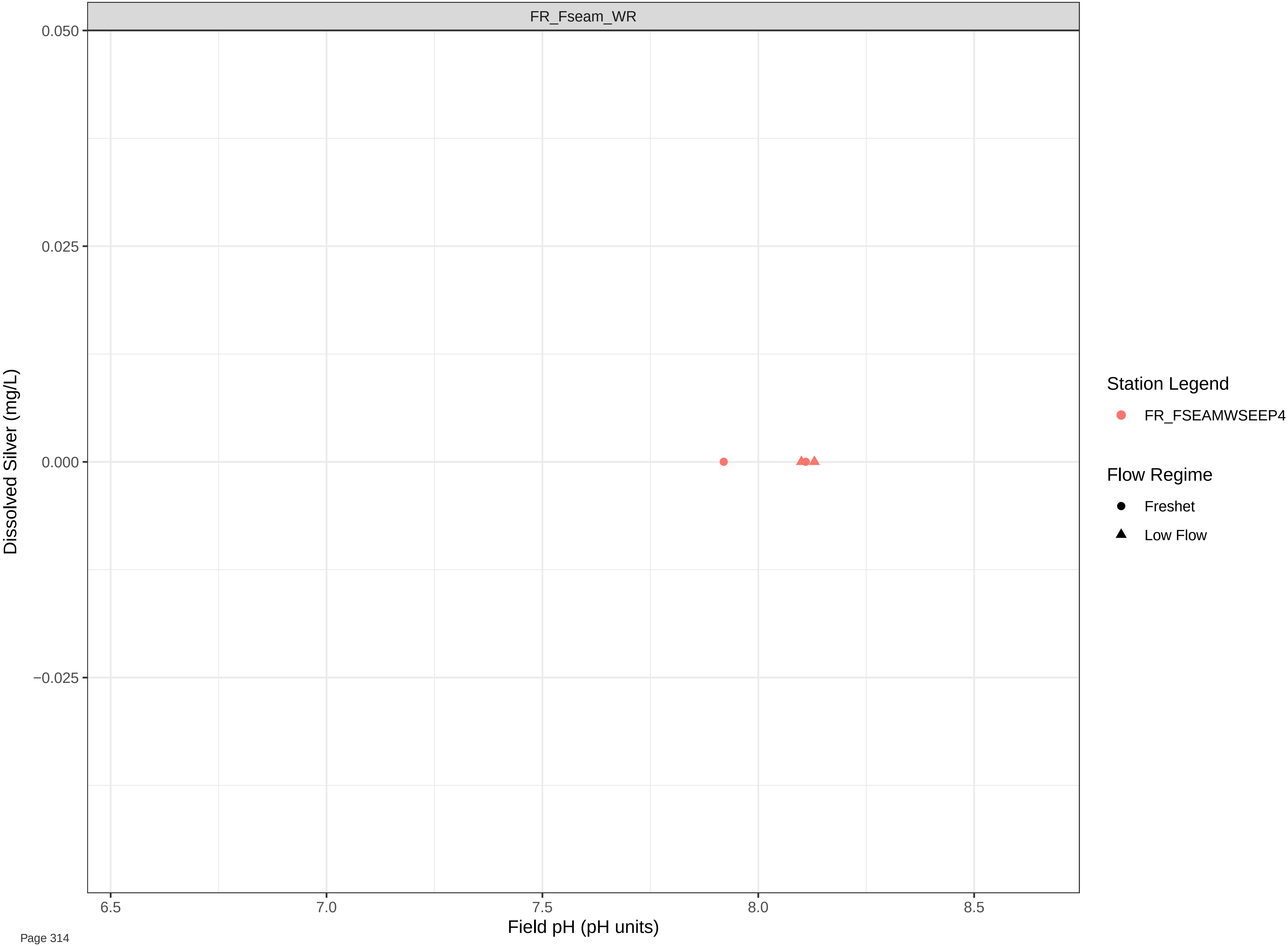

FR_A_WR
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

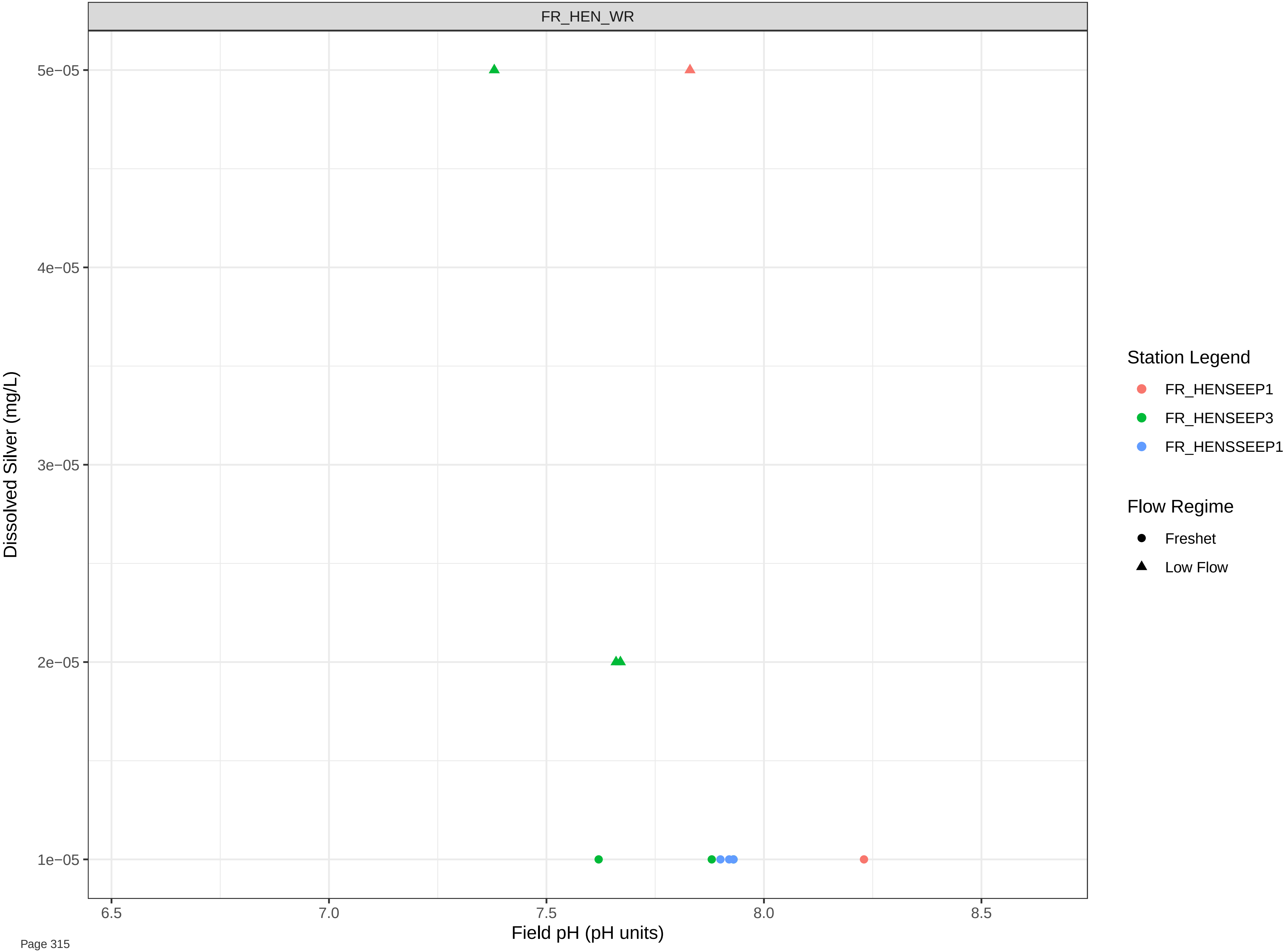

FR_Blain_CCR
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

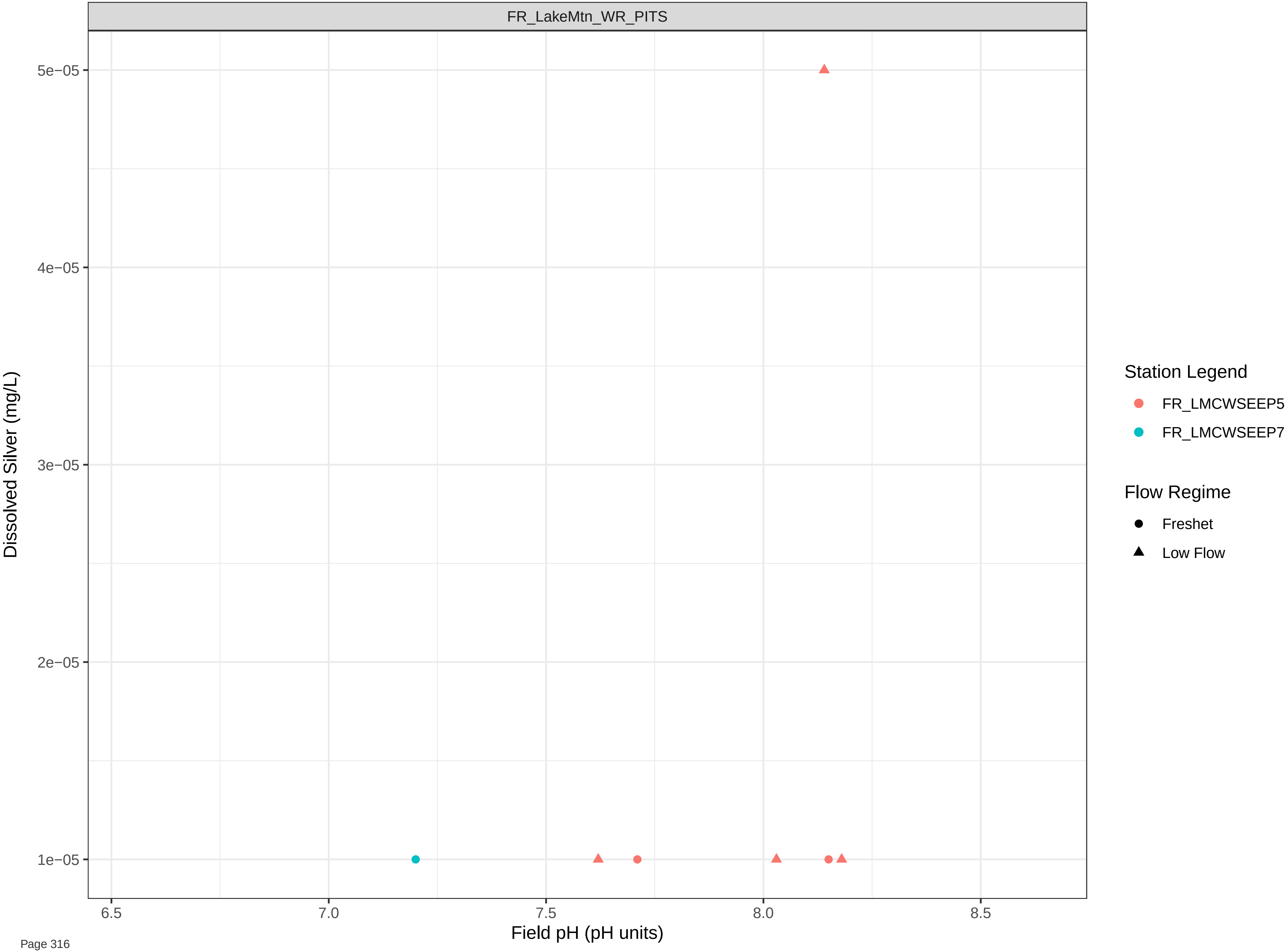

FR_ClodeCr_WR
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

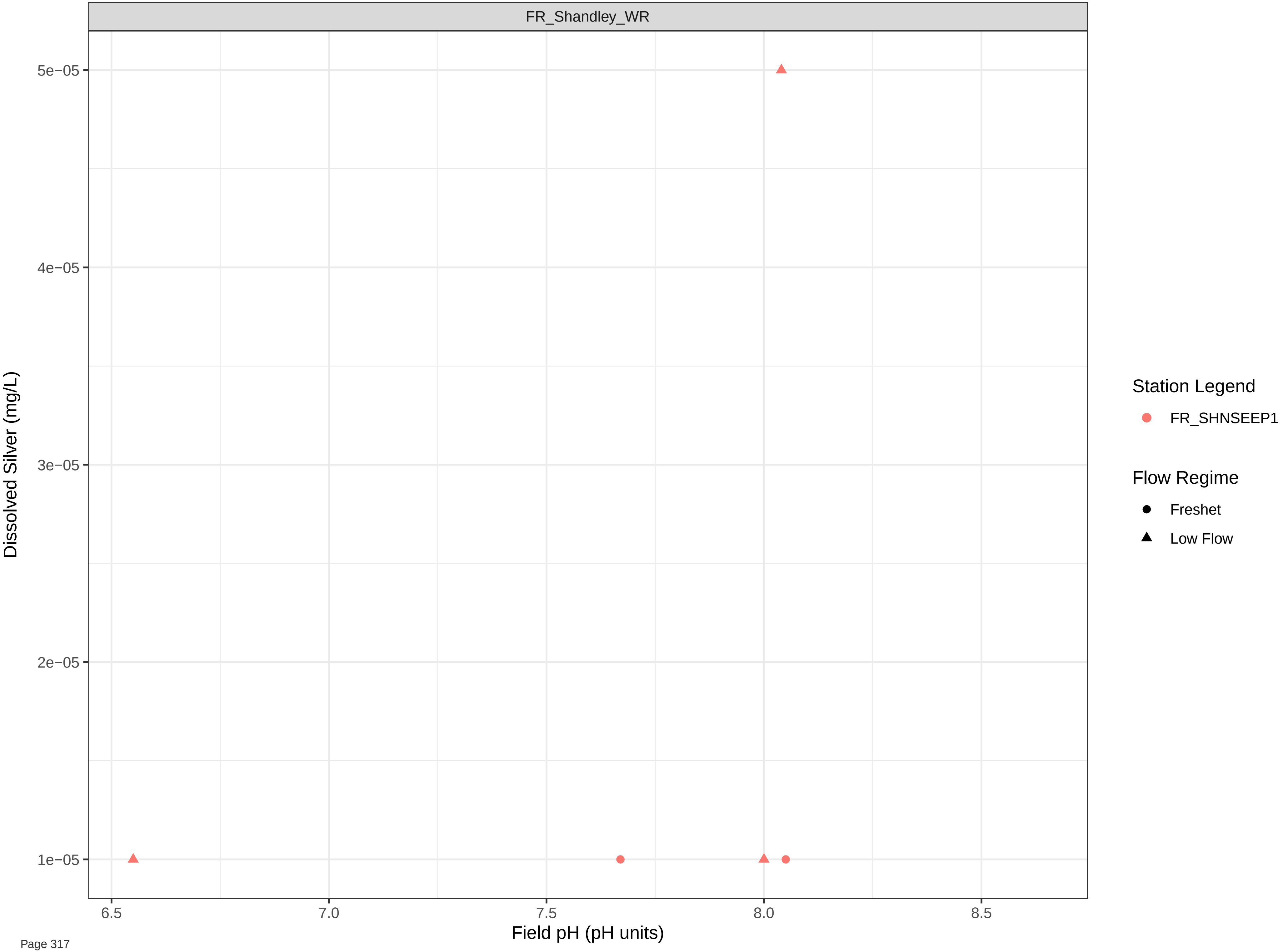

FR_DOKA_Unknown
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

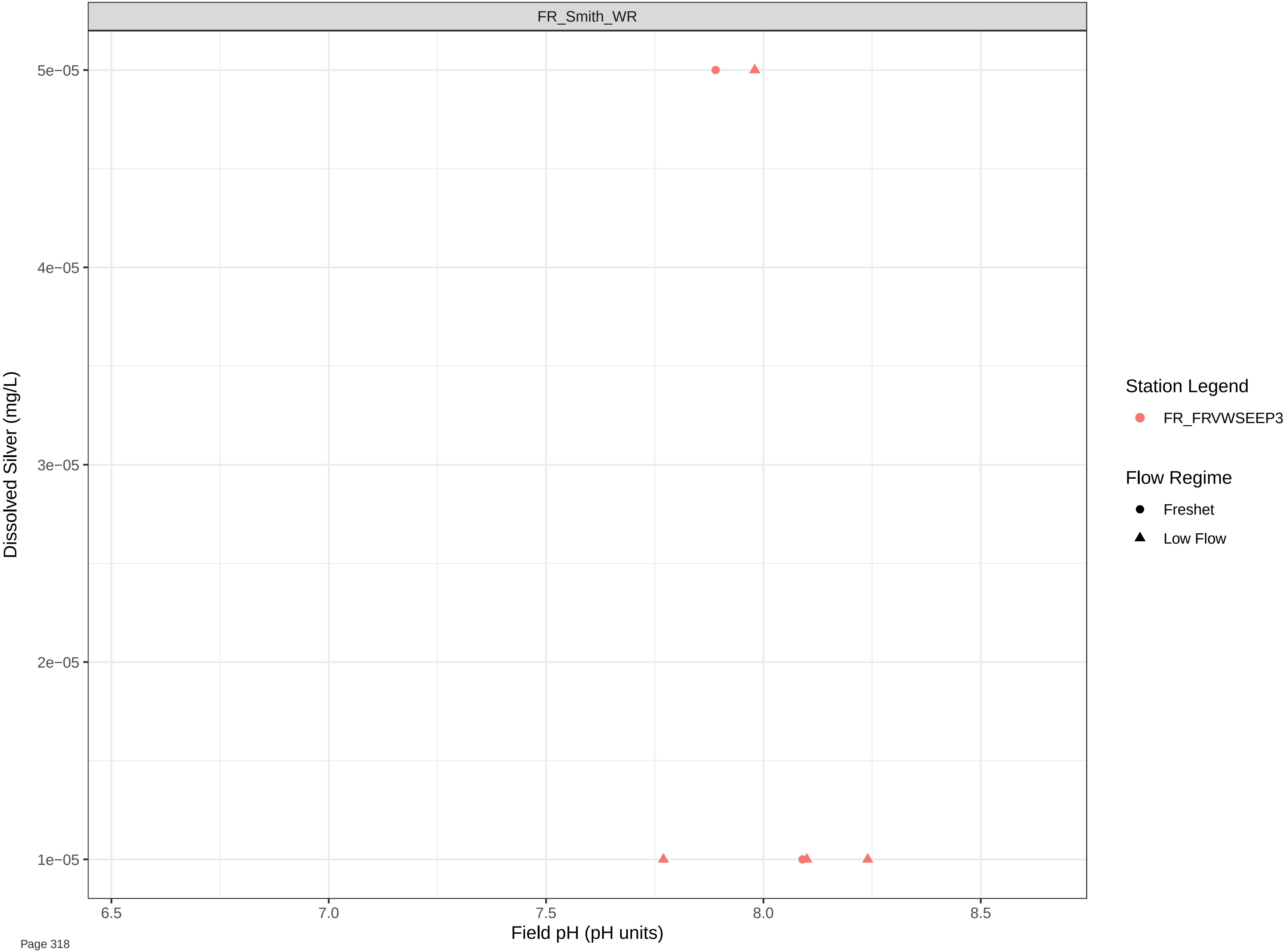

FR_Eagle_WR
Dissolved Silver (mg/L)
1.0e−04
7.5e−05
5.0e−05
2.5e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

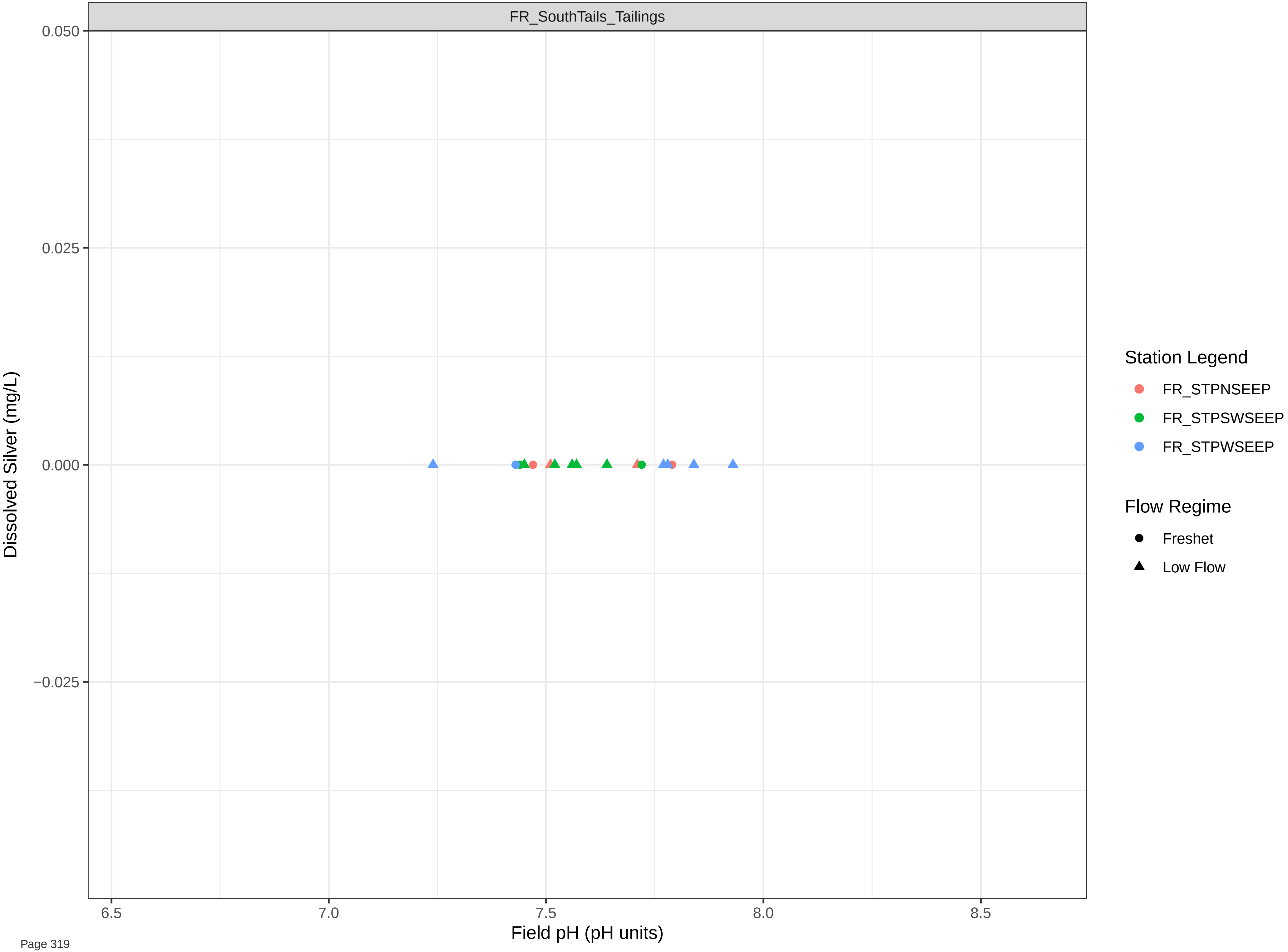

FR_Fseam_WR
Dissolved Silver (mg/L)
0.050
0.025
0.000
−0.025
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

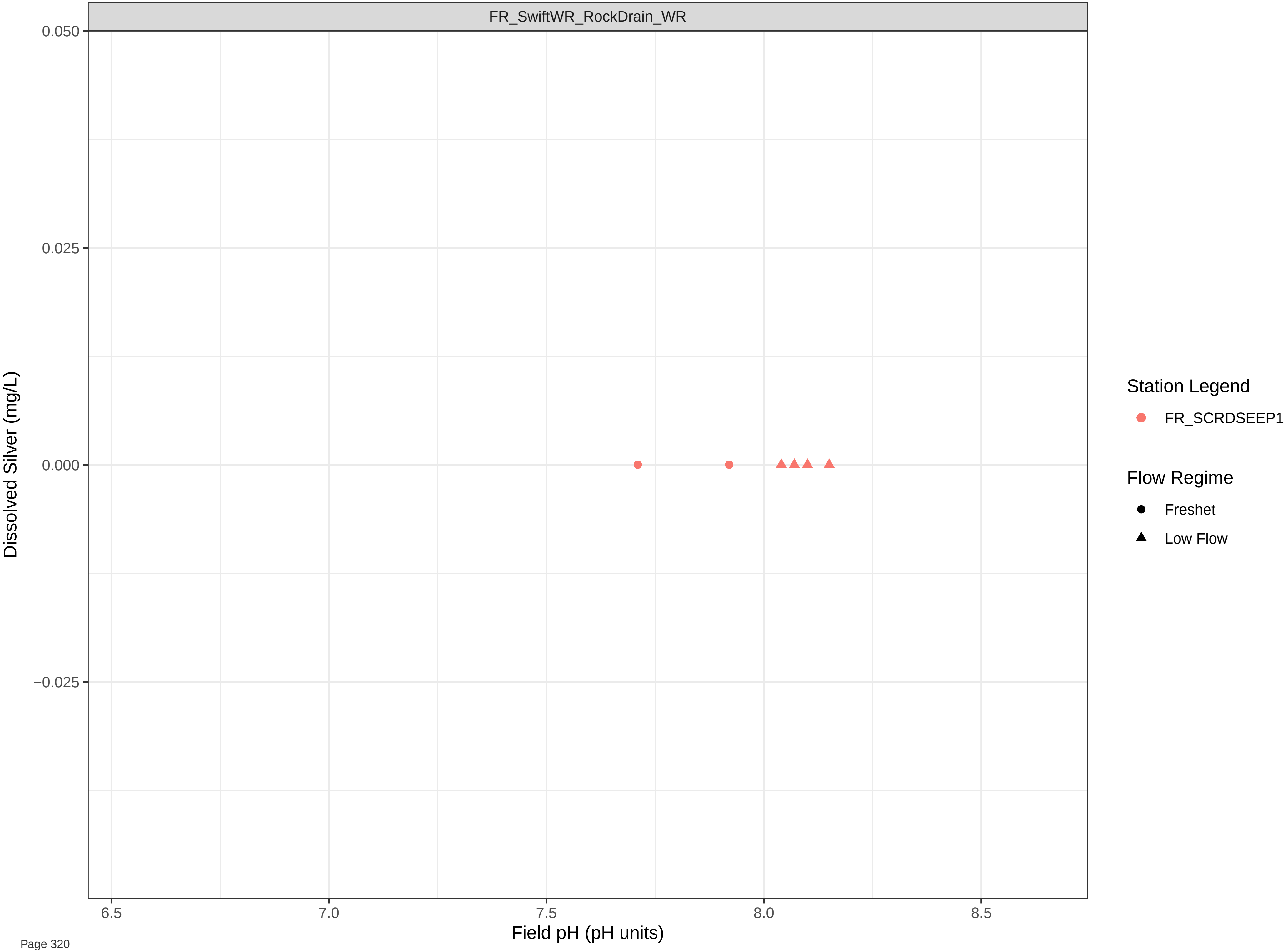

FR_HEN_WR
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

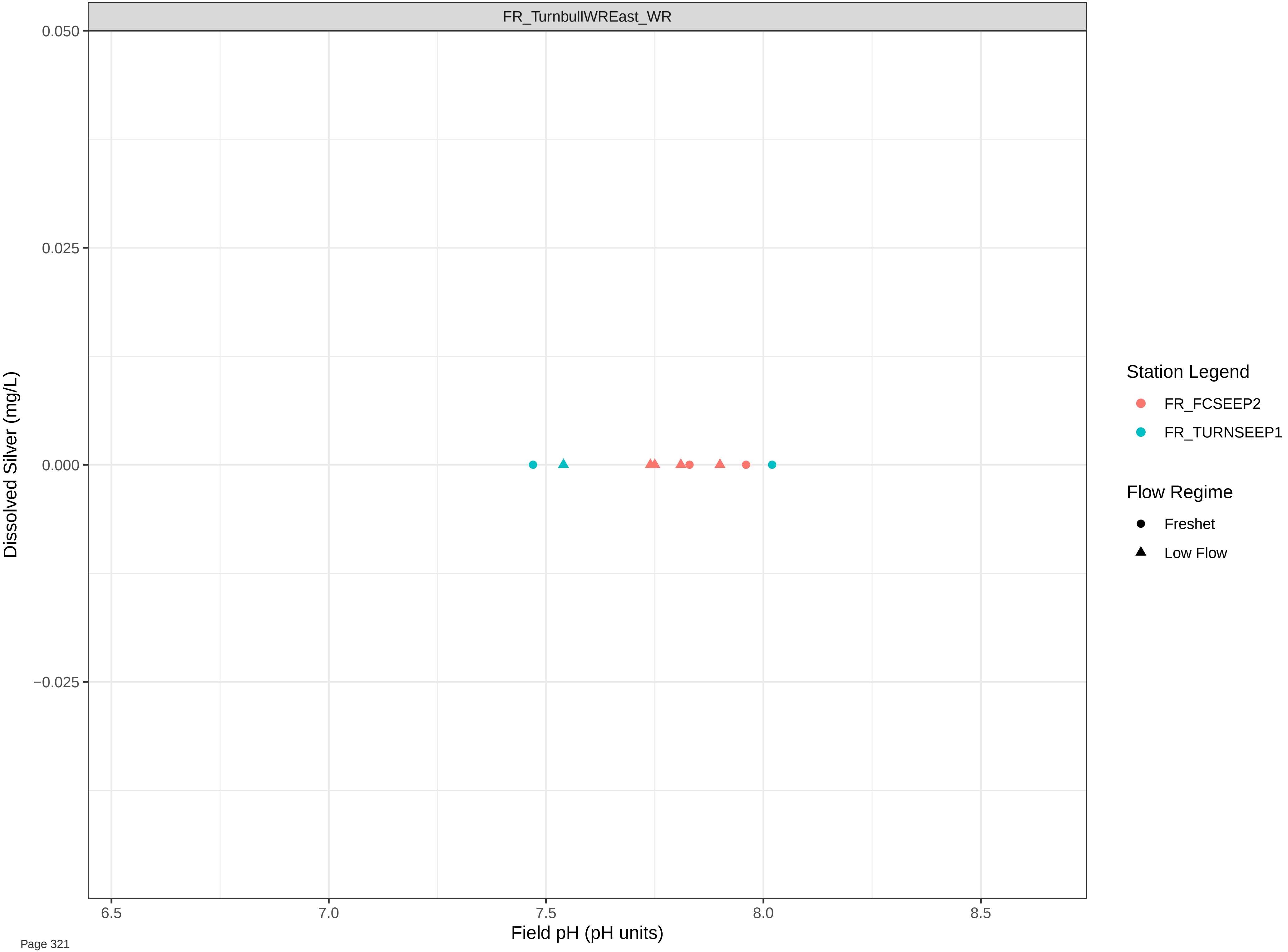

FR_LakeMtn_WR_PITS
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

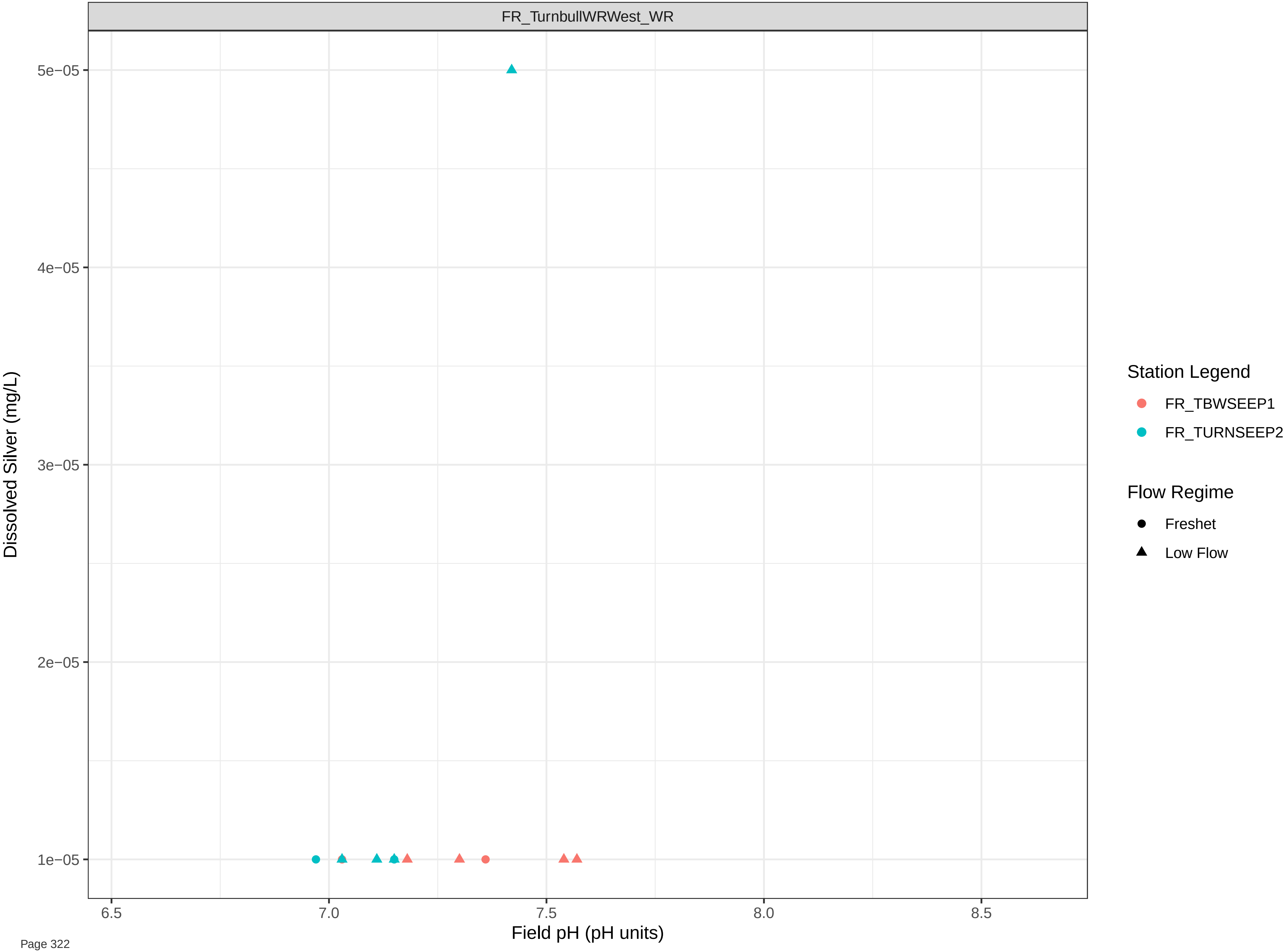

FR_Shandley_WR
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

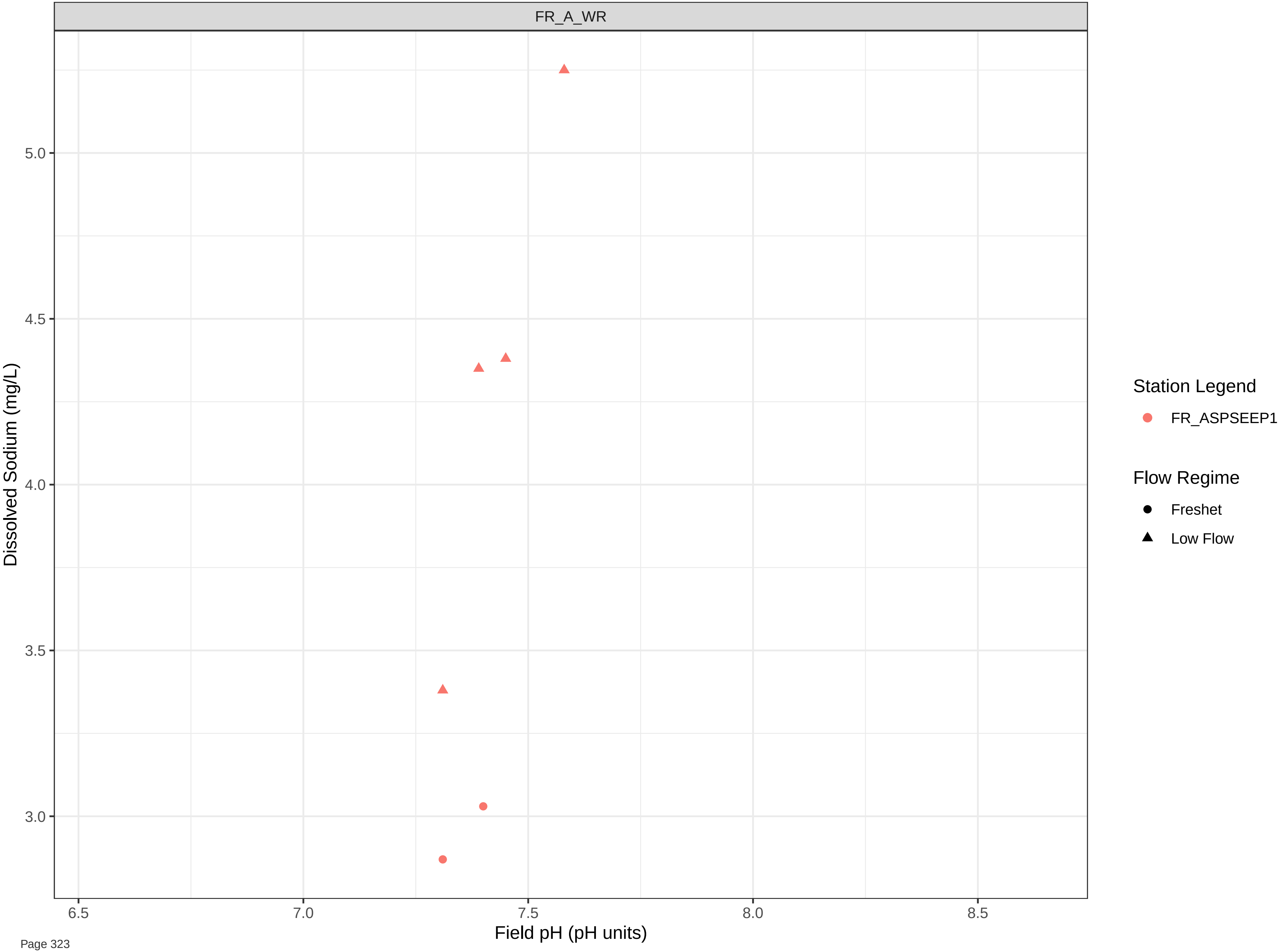

FR_Smith_WR
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

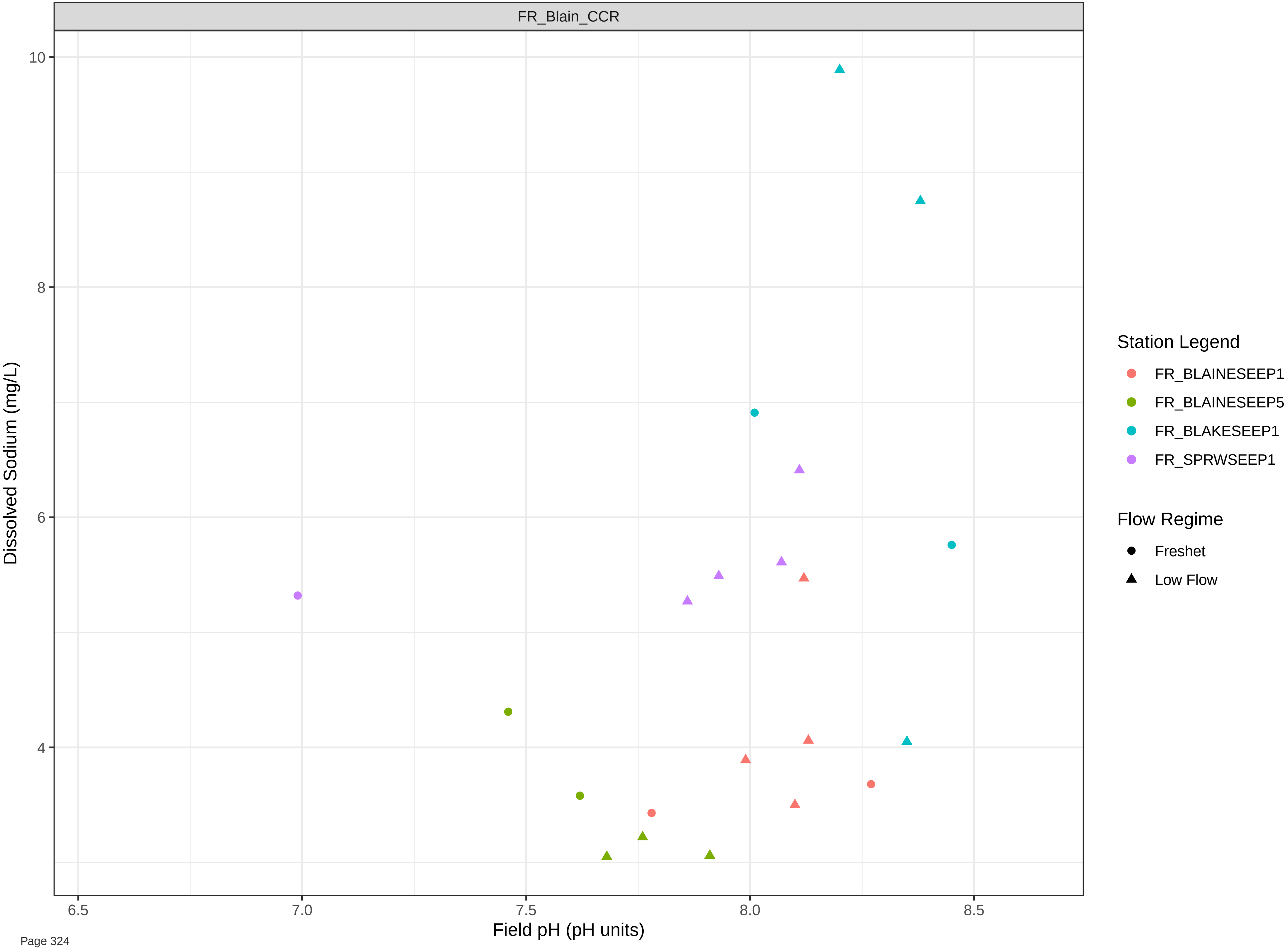

FR_SouthTails_Tailings
0.050
0.025
0.000
−0.025
Dissolved Silver (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

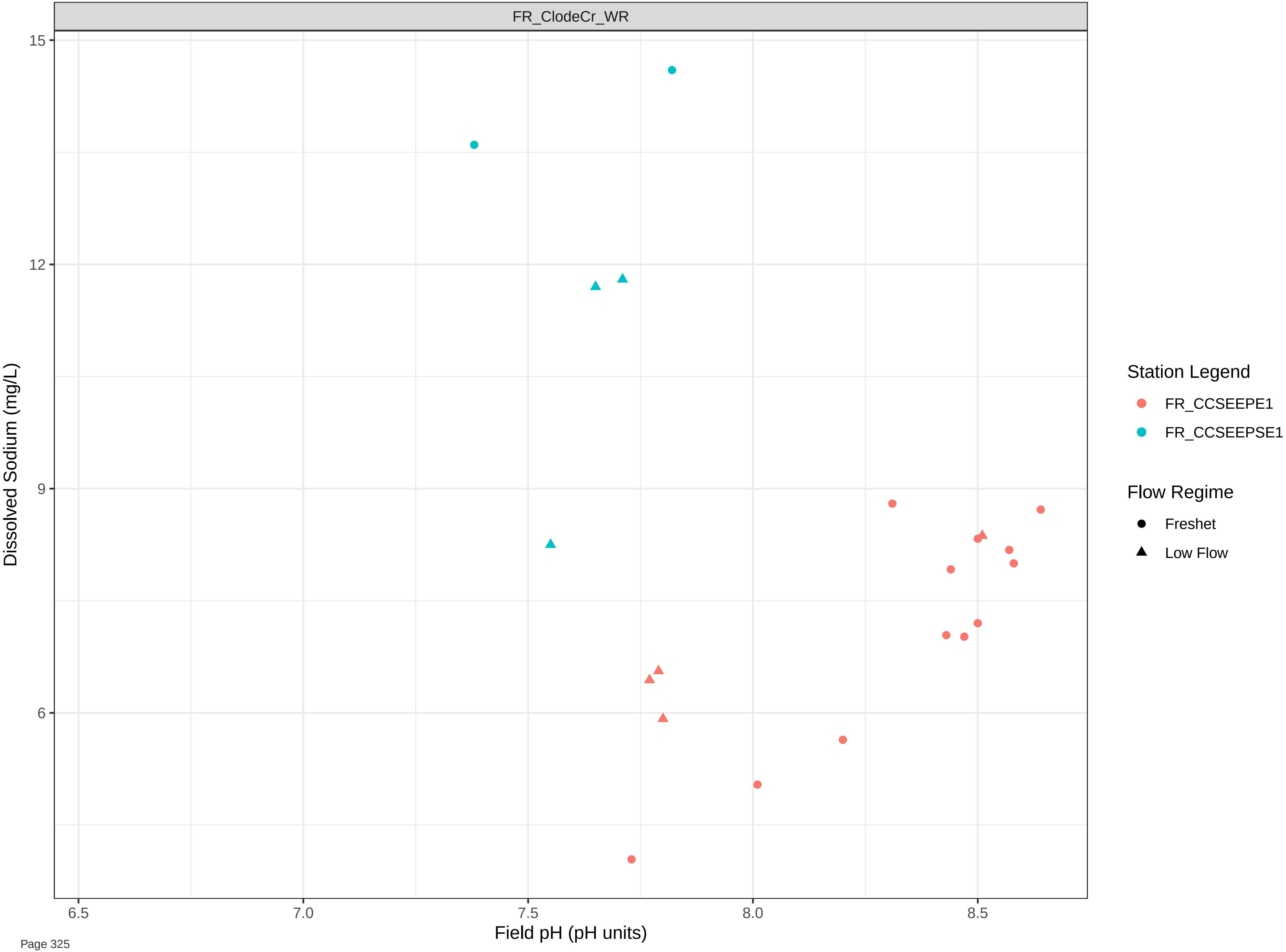

FR_SwiftWR_RockDrain_WR
0.050
0.025
0.000
−0.025
Dissolved Silver (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

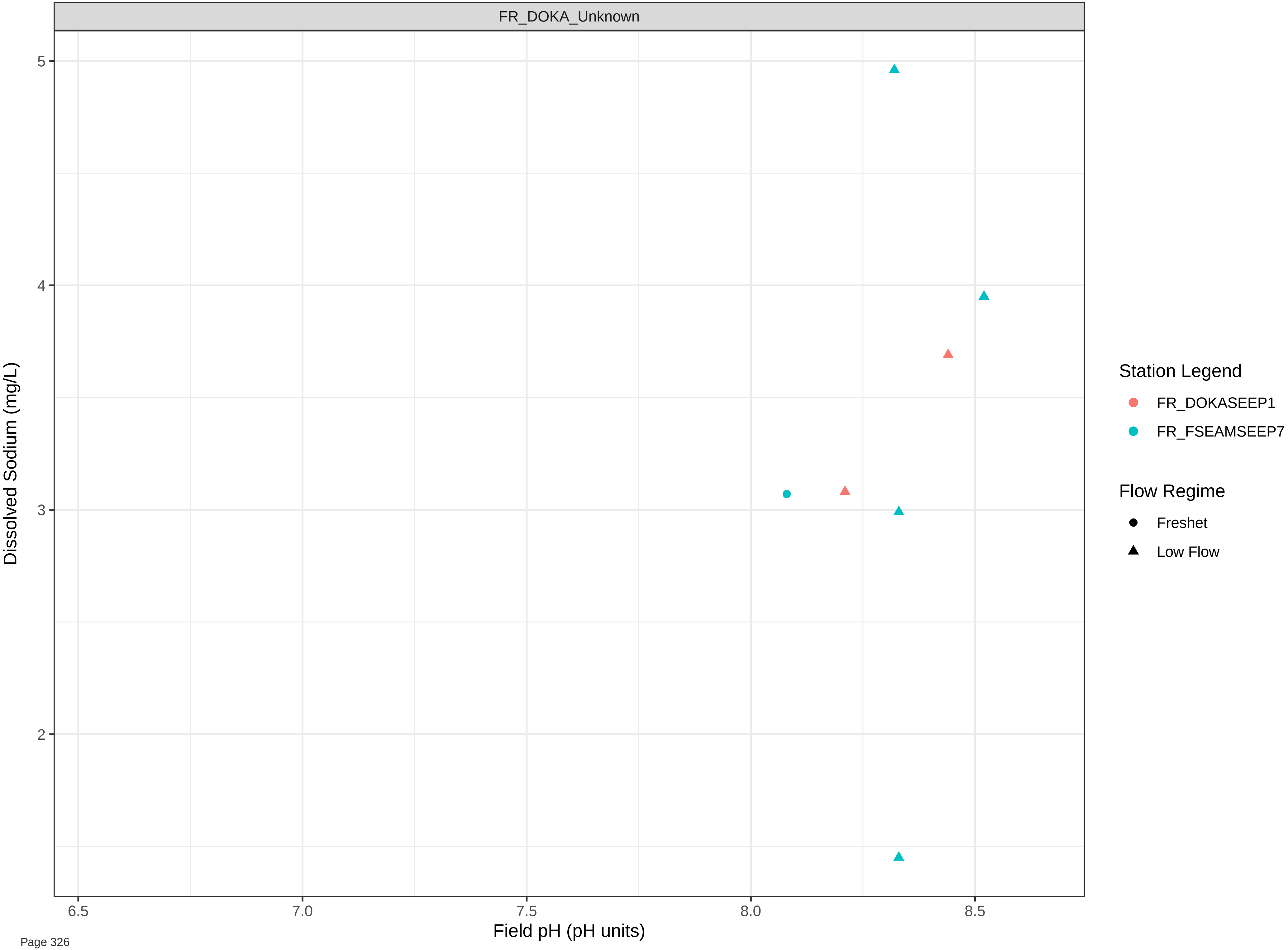

FR_TurnbullWREast_WR
0.050
0.025
0.000
−0.025
Dissolved Silver (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

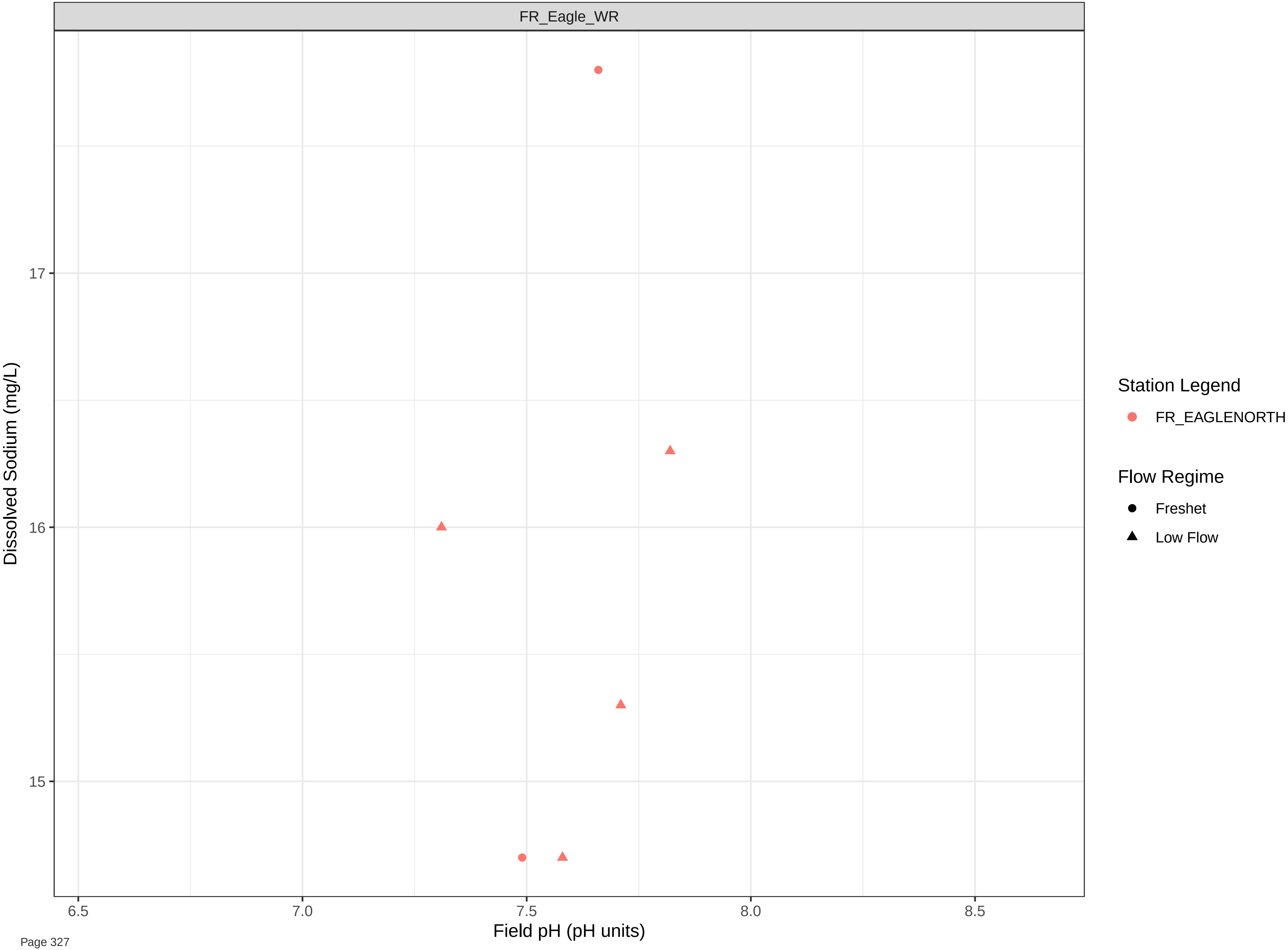

FR_TurnbullWRWest_WR
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

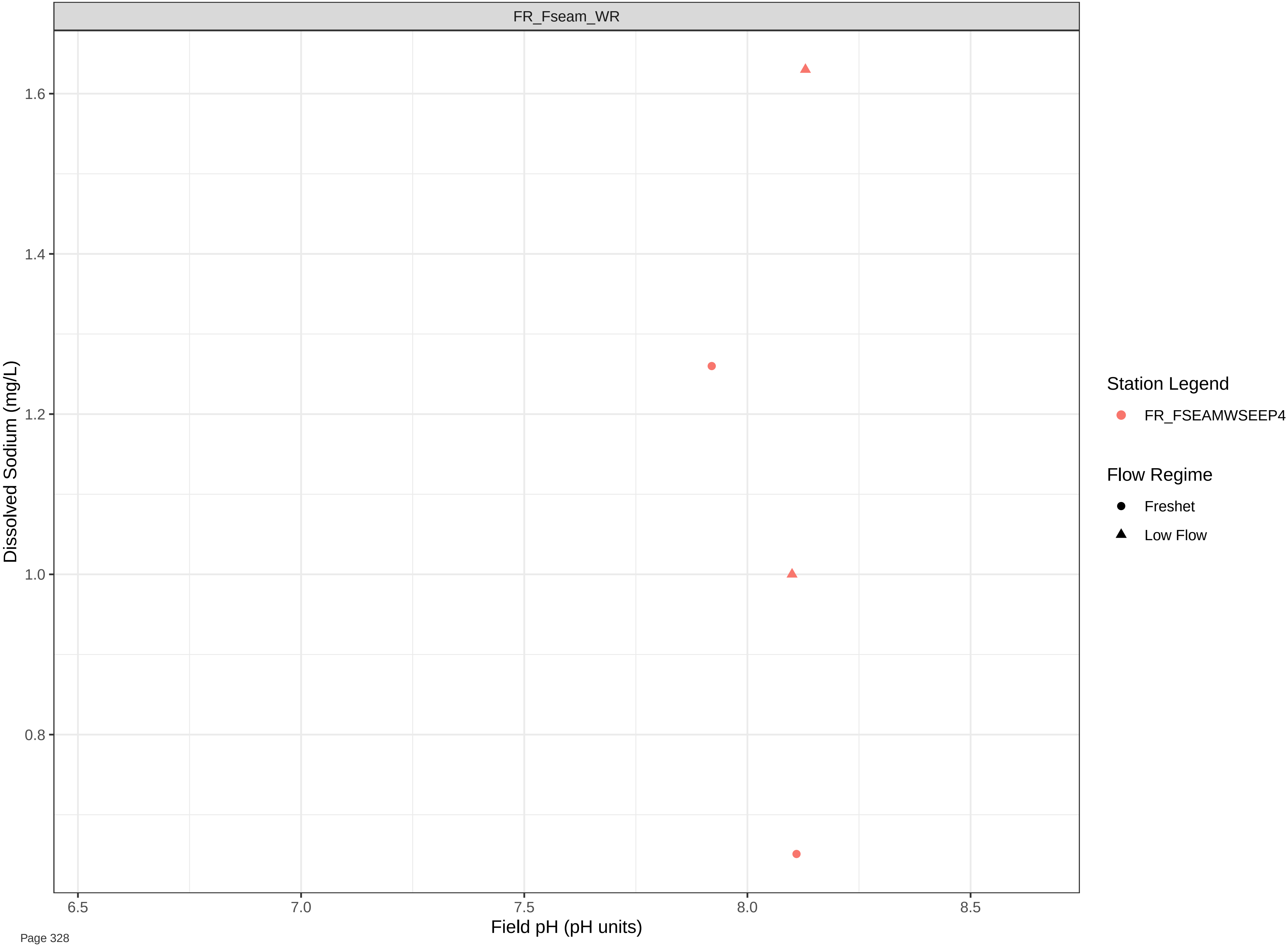

FR_A_WR
Dissolved Sodium (mg/L)
5.0
4.5
4.0
3.5
3.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

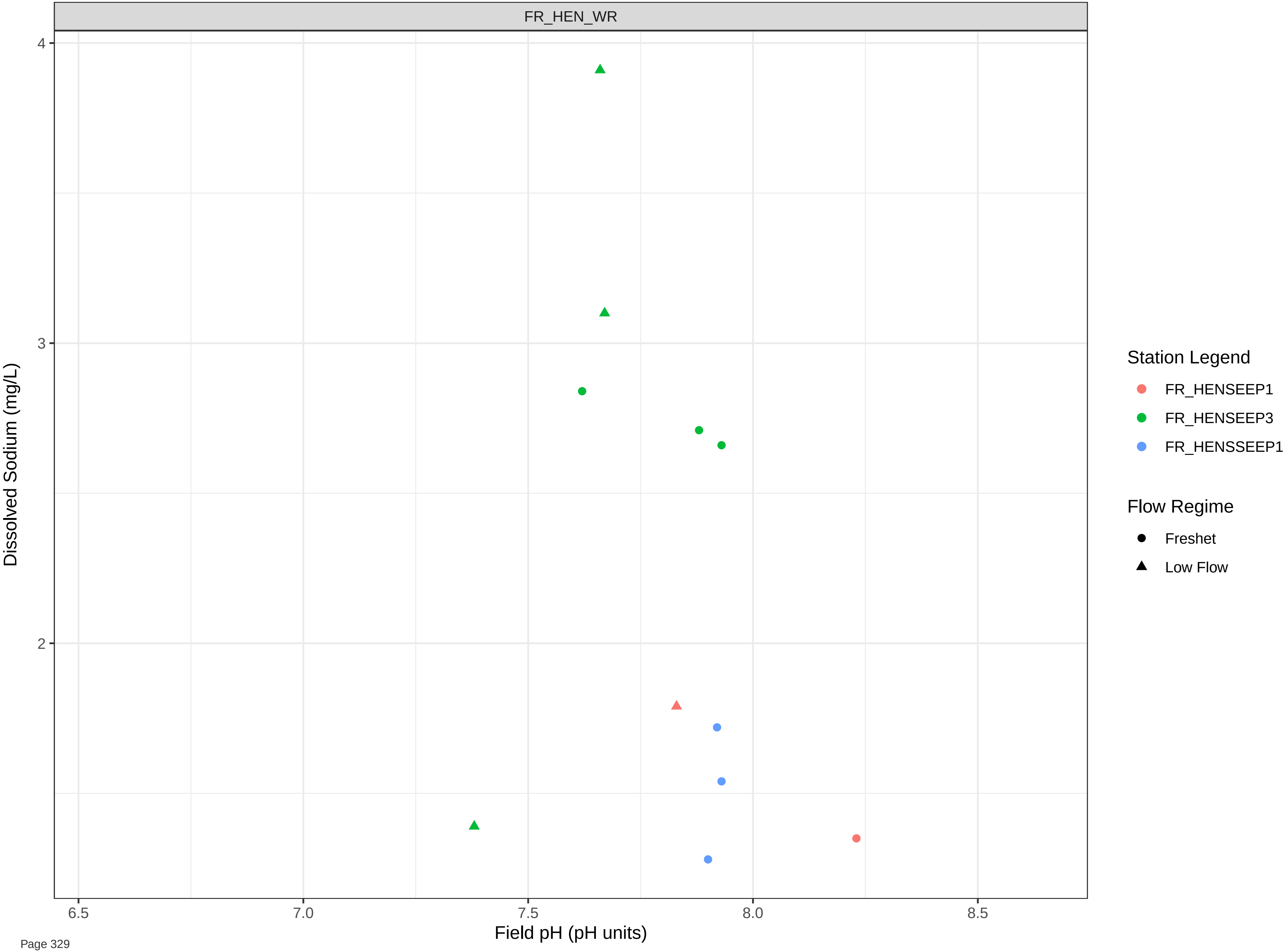

FR_Blain_CCR
Dissolved Sodium (mg/L)
10
8
6
4
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

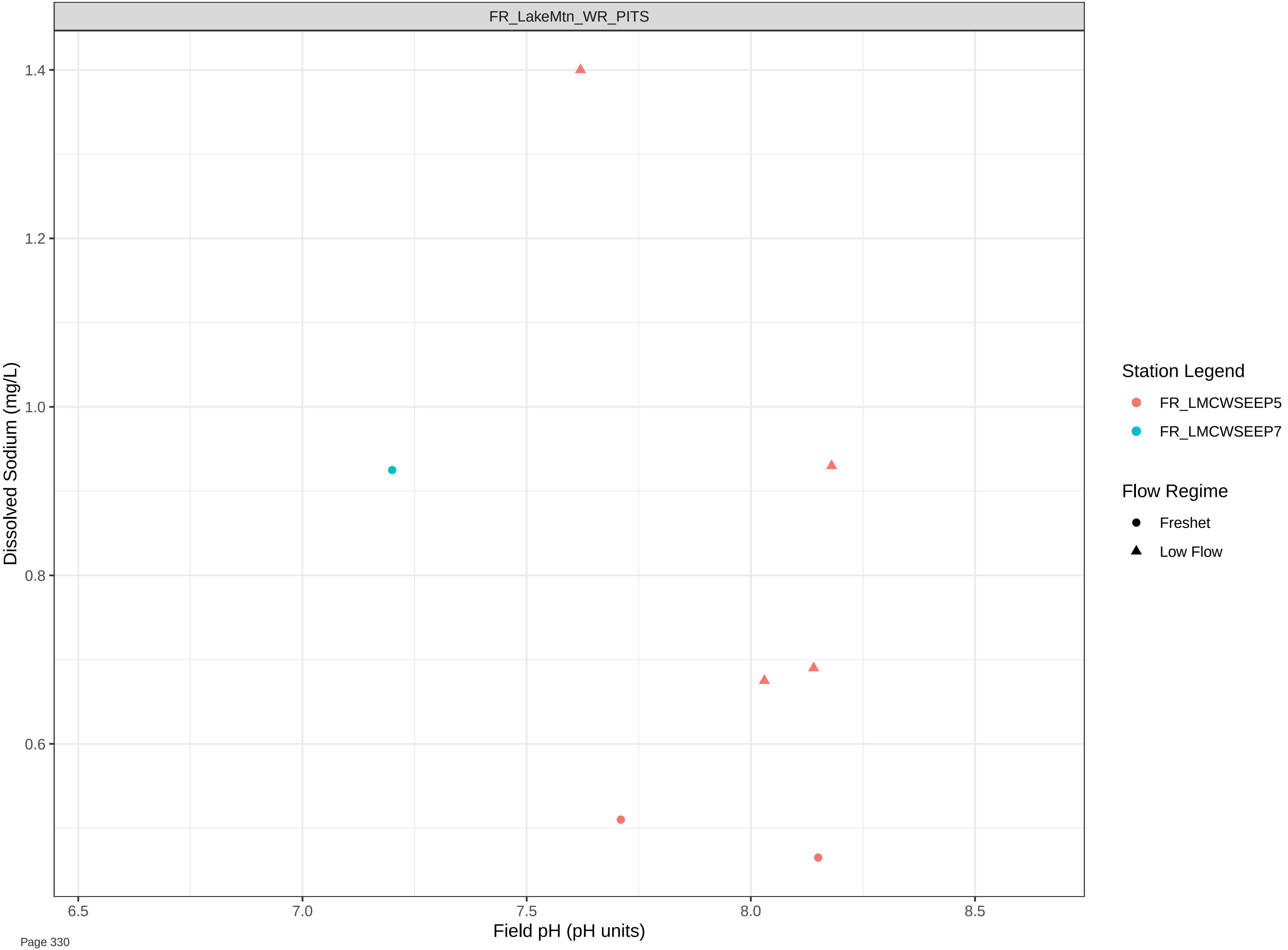

FR_ClodeCr_WR
Dissolved Sodium (mg/L)
15
12
9
6
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

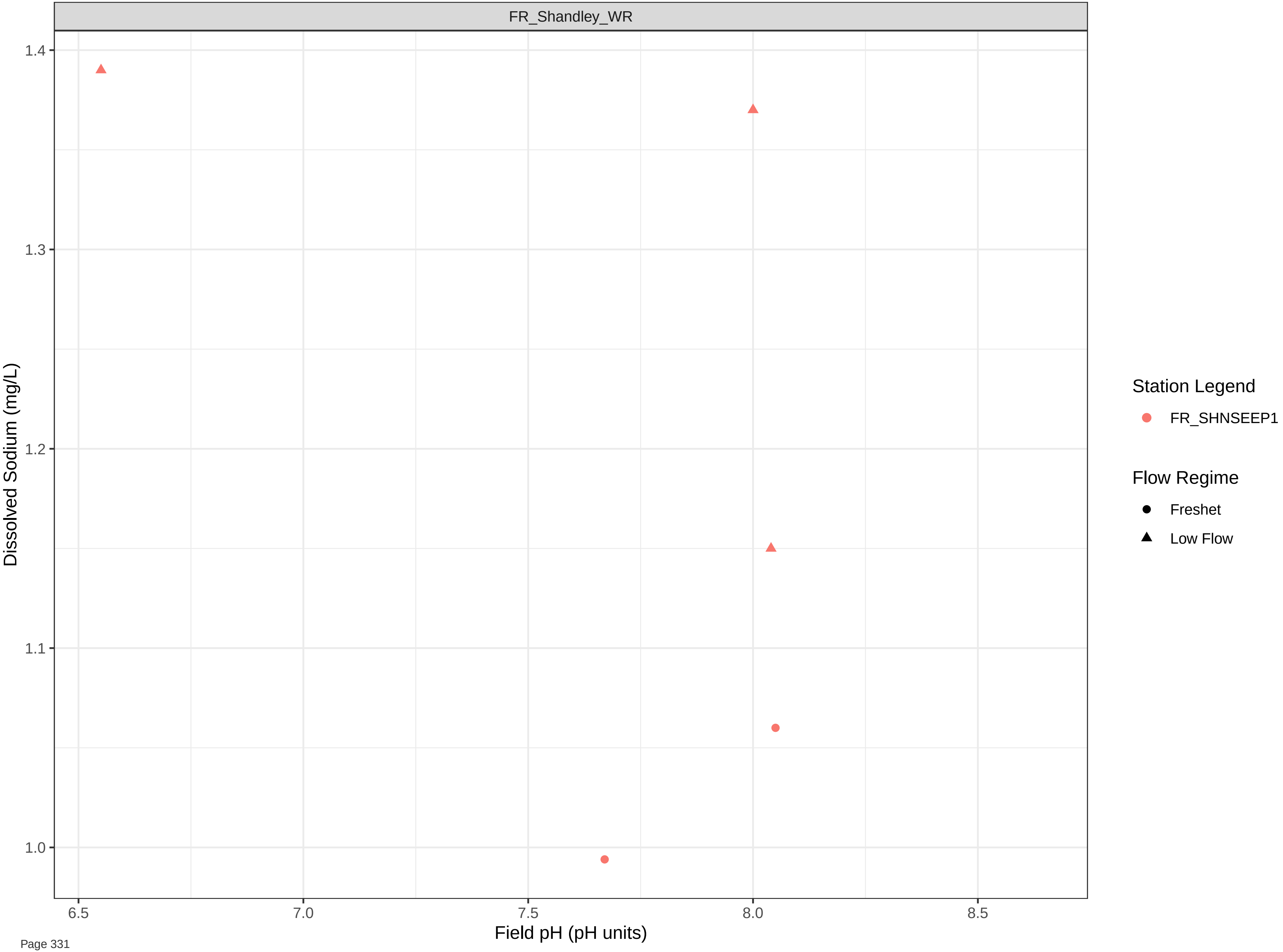

FR_DOKA_Unknown
Dissolved Sodium (mg/L)
5
4
3
2
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow

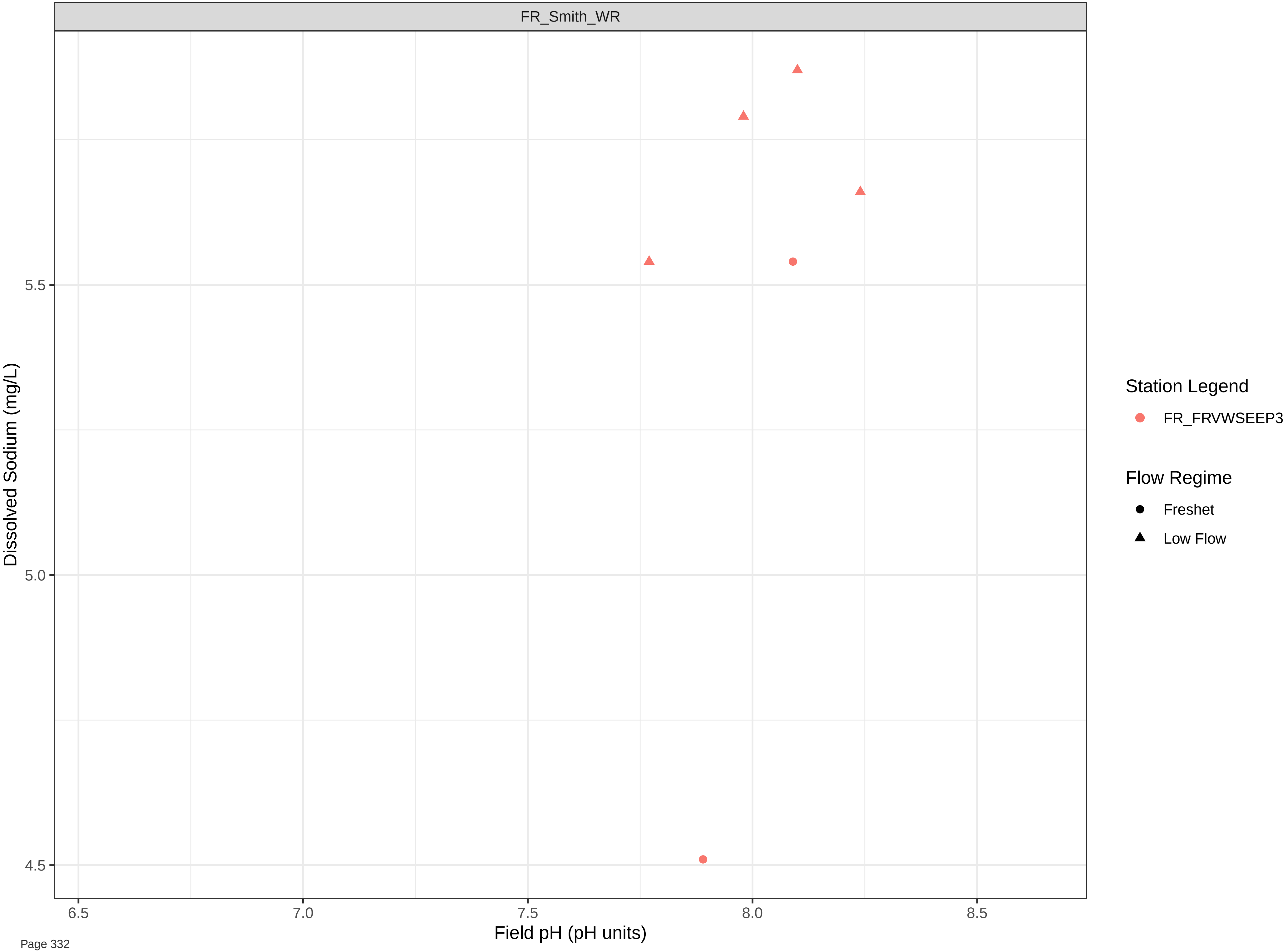

FR_Eagle_WR
Dissolved Sodium (mg/L)
17
16
15
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

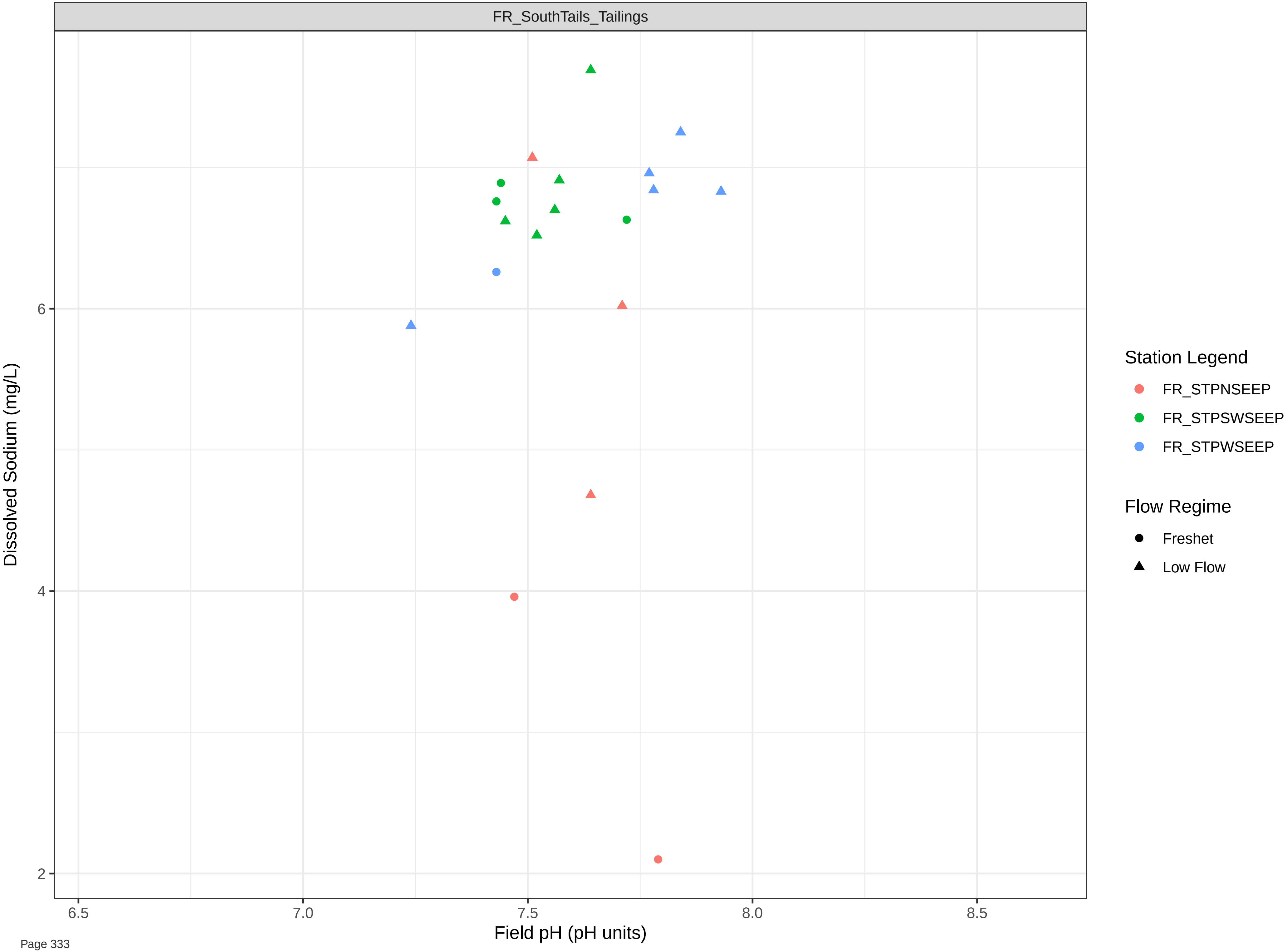

FR_Fseam_WR
Dissolved Sodium (mg/L)
1.6
1.4
1.2
1.0
0.8
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

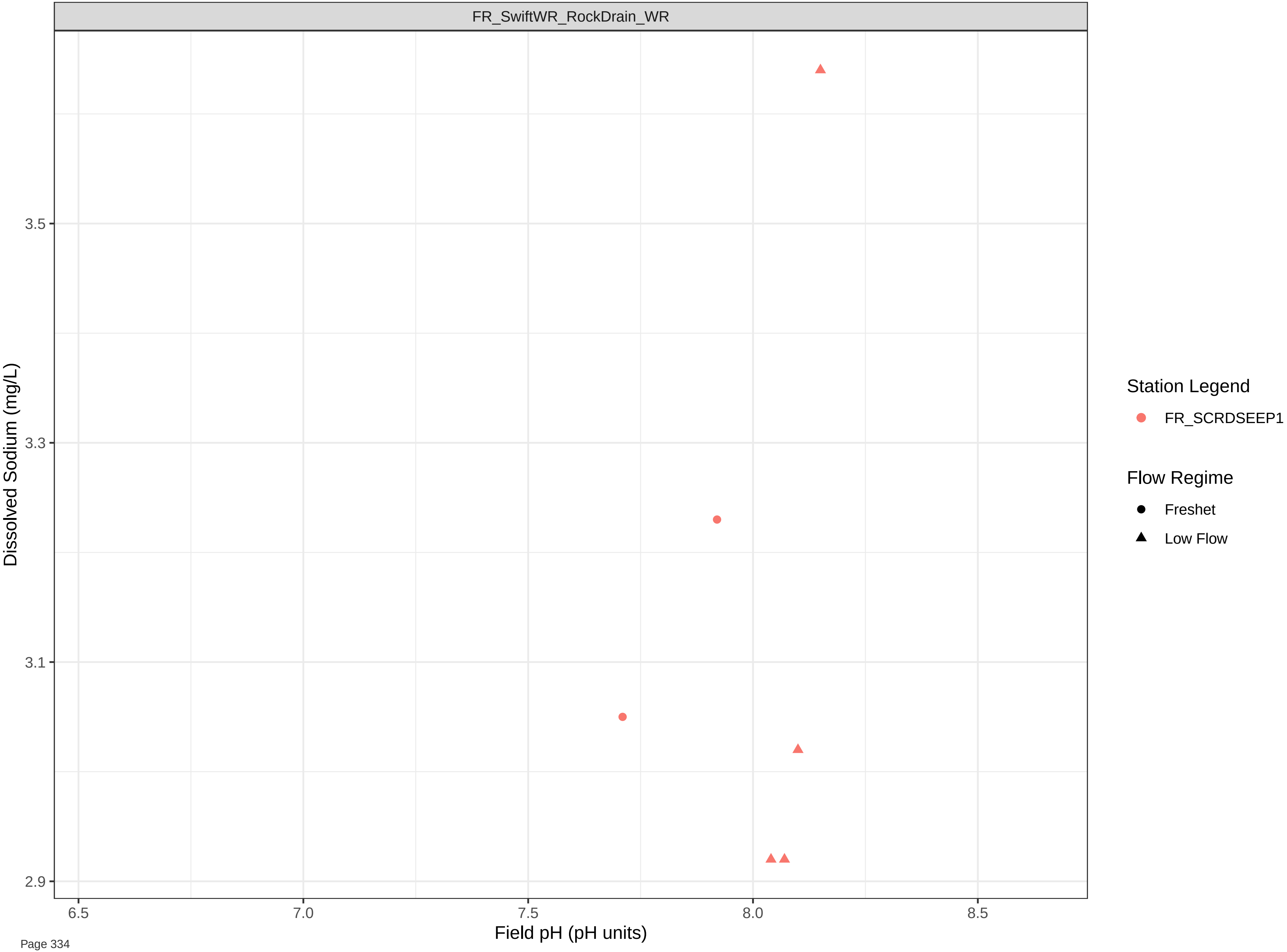

FR_HEN_WR
Dissolved Sodium (mg/L)
4
3
2
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

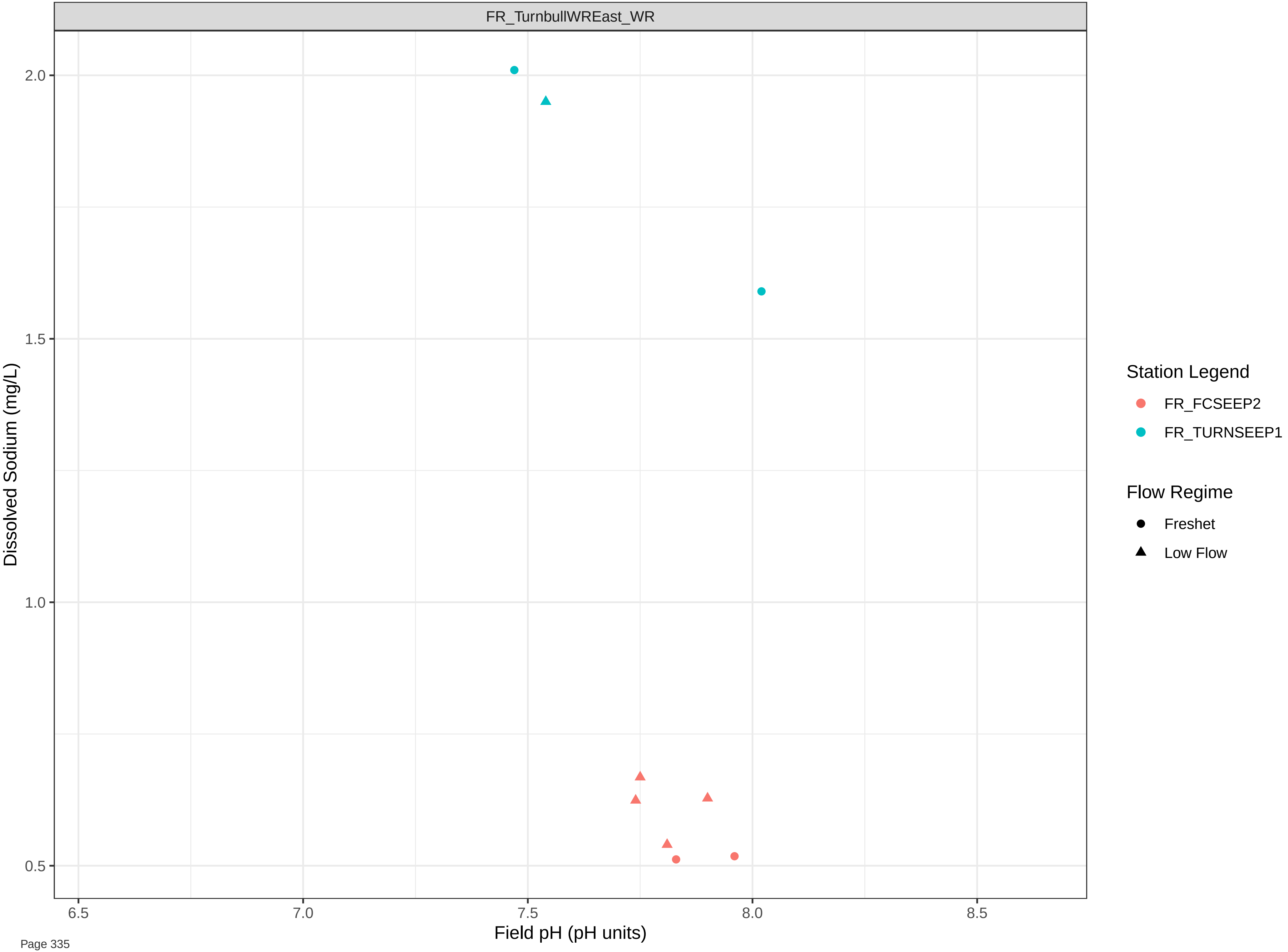

FR_LakeMtn_WR_PITS
Dissolved Sodium (mg/L)
1.4
1.2
1.0
0.8
0.6
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

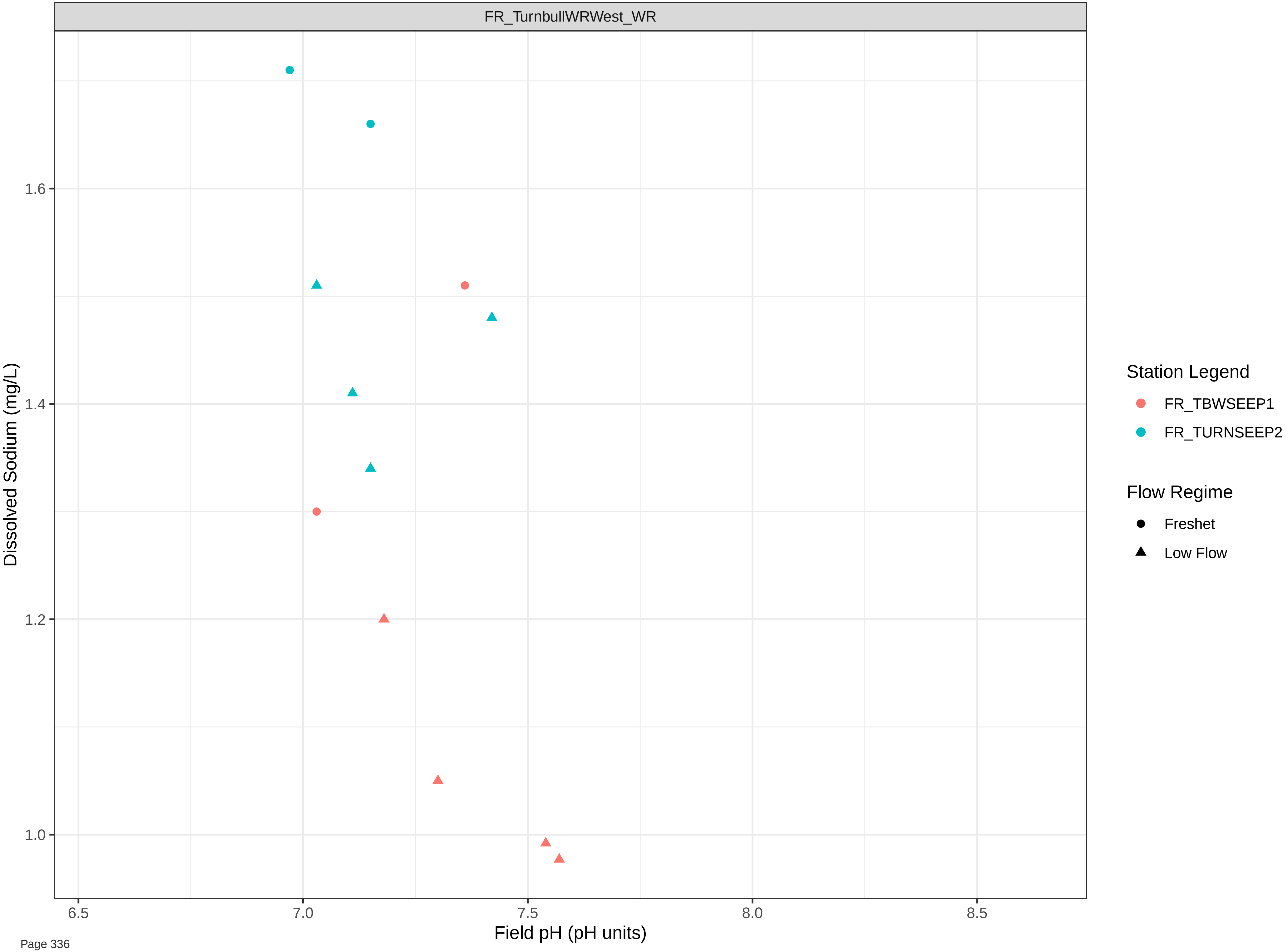

FR_Shandley_WR
Dissolved Sodium (mg/L)
1.4
1.3
1.2
1.1
1.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

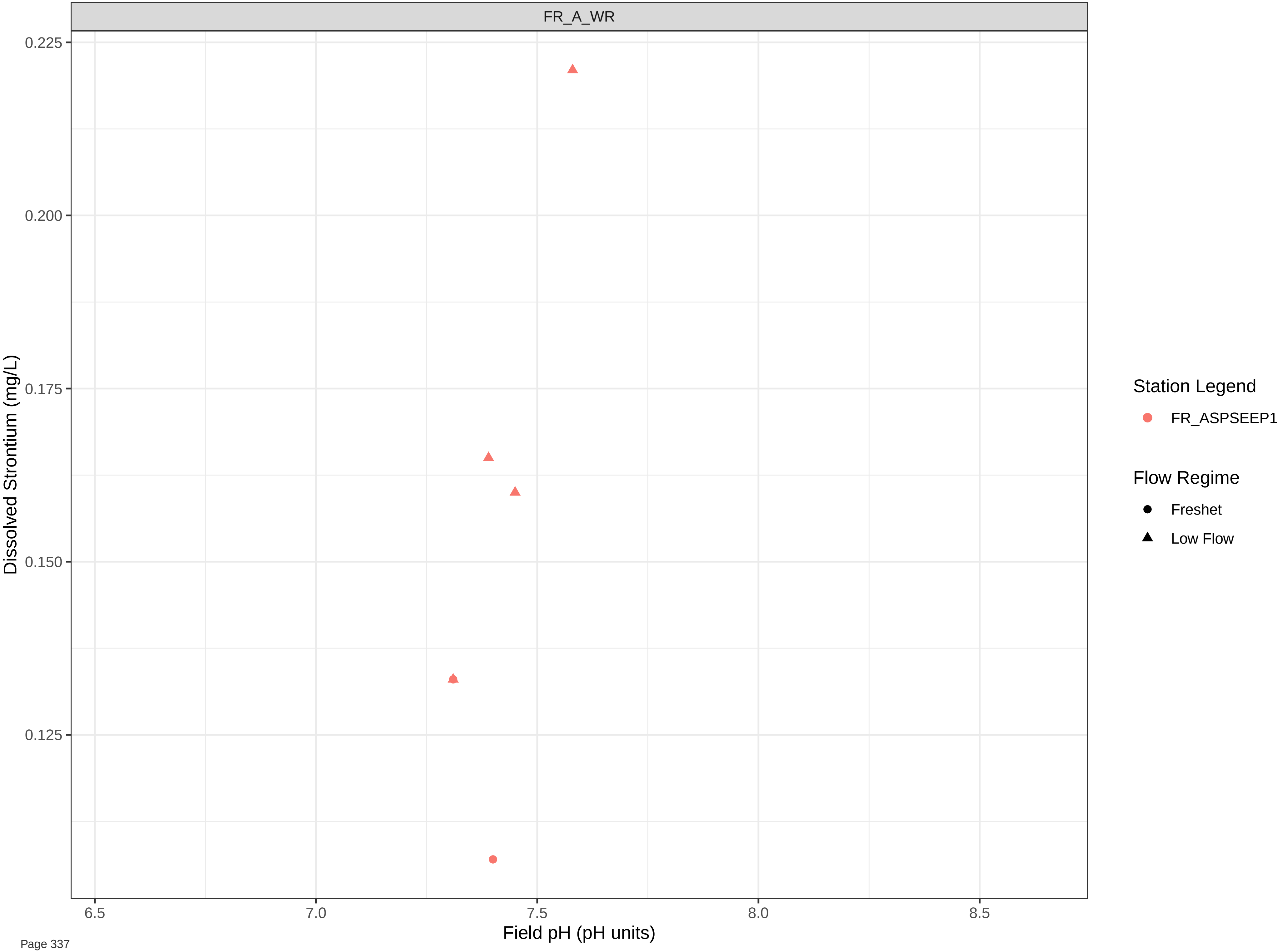

FR_Smith_WR
Dissolved Sodium (mg/L)
5.5
5.0
4.5
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

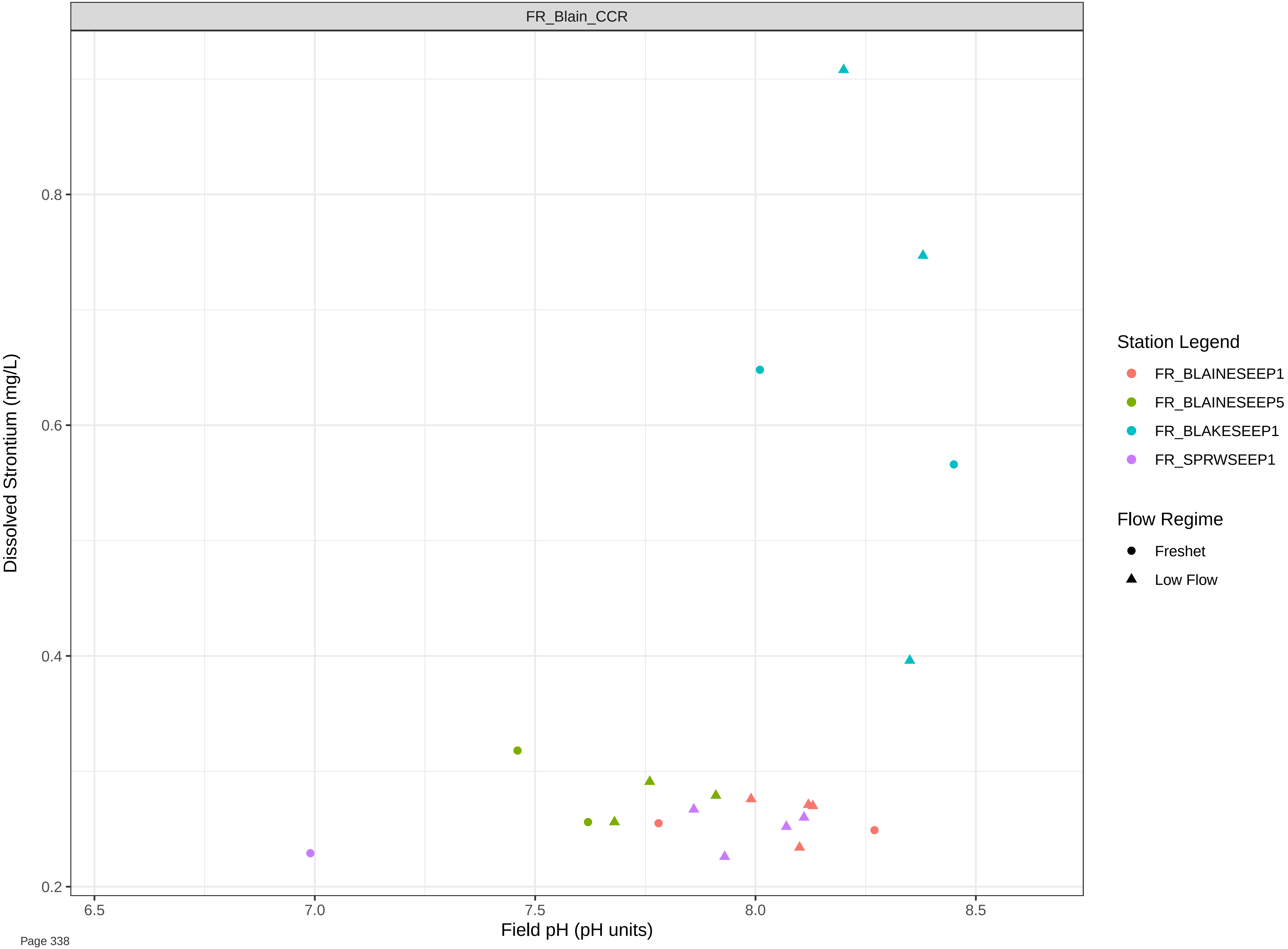

FR_SouthTails_Tailings
Dissolved Sodium (mg/L)
6
4
2
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

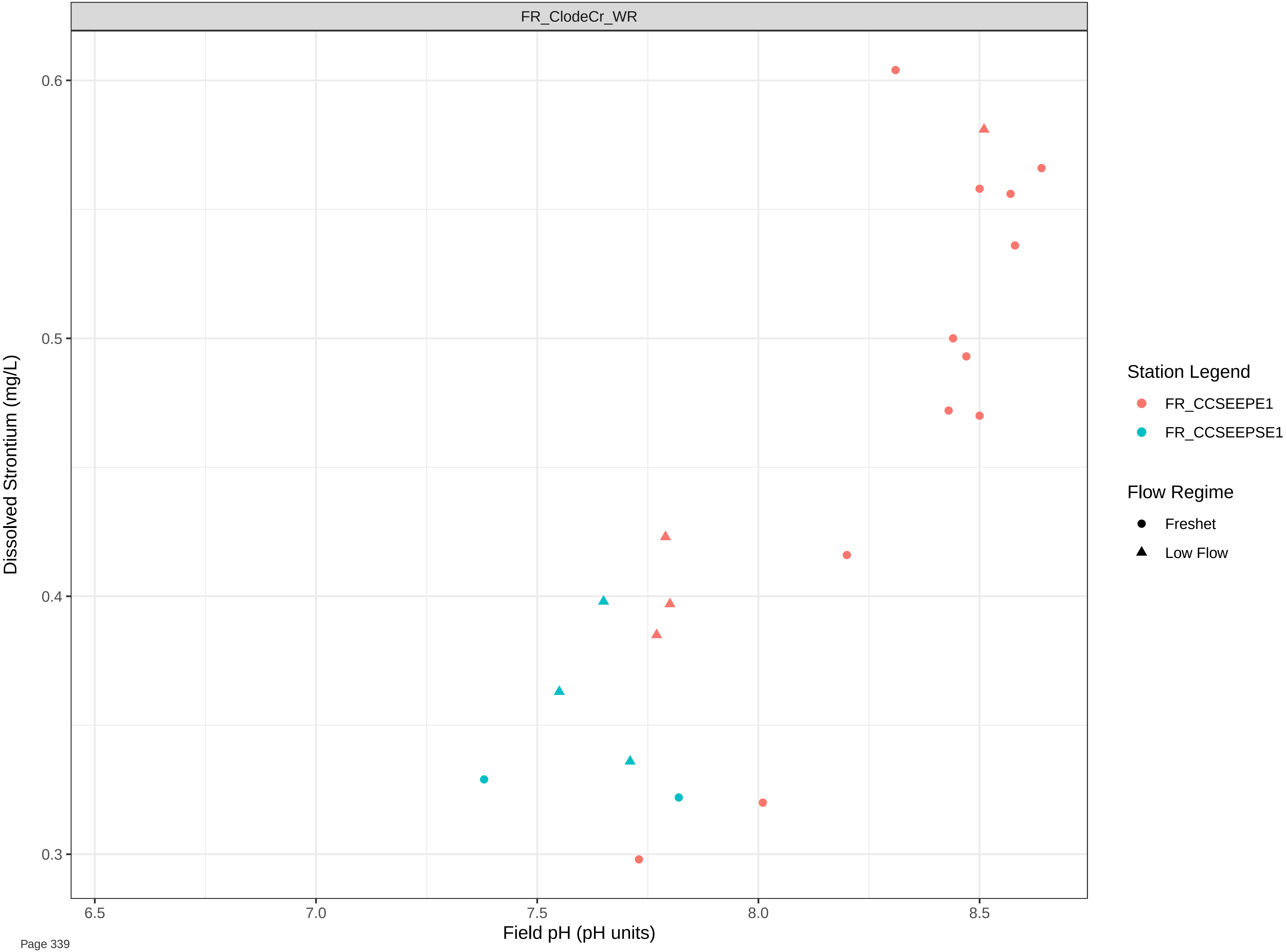

FR_SwiftWR_RockDrain_WR
Dissolved Sodium (mg/L)
3.5
3.3
3.1
2.9
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

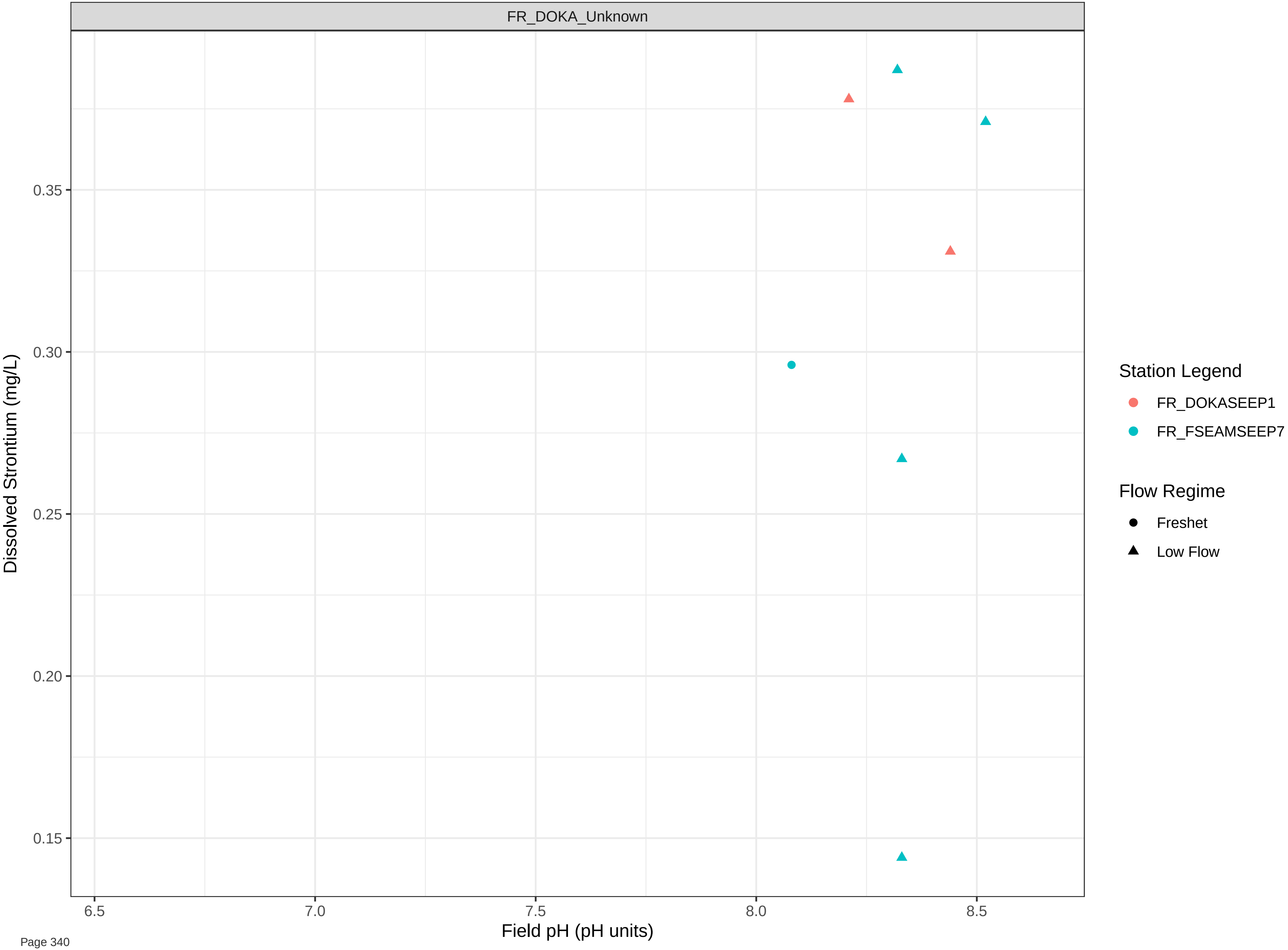

FR_TurnbullWREast_WR
Dissolved Sodium (mg/L)
2.0
1.5
1.0
0.5
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

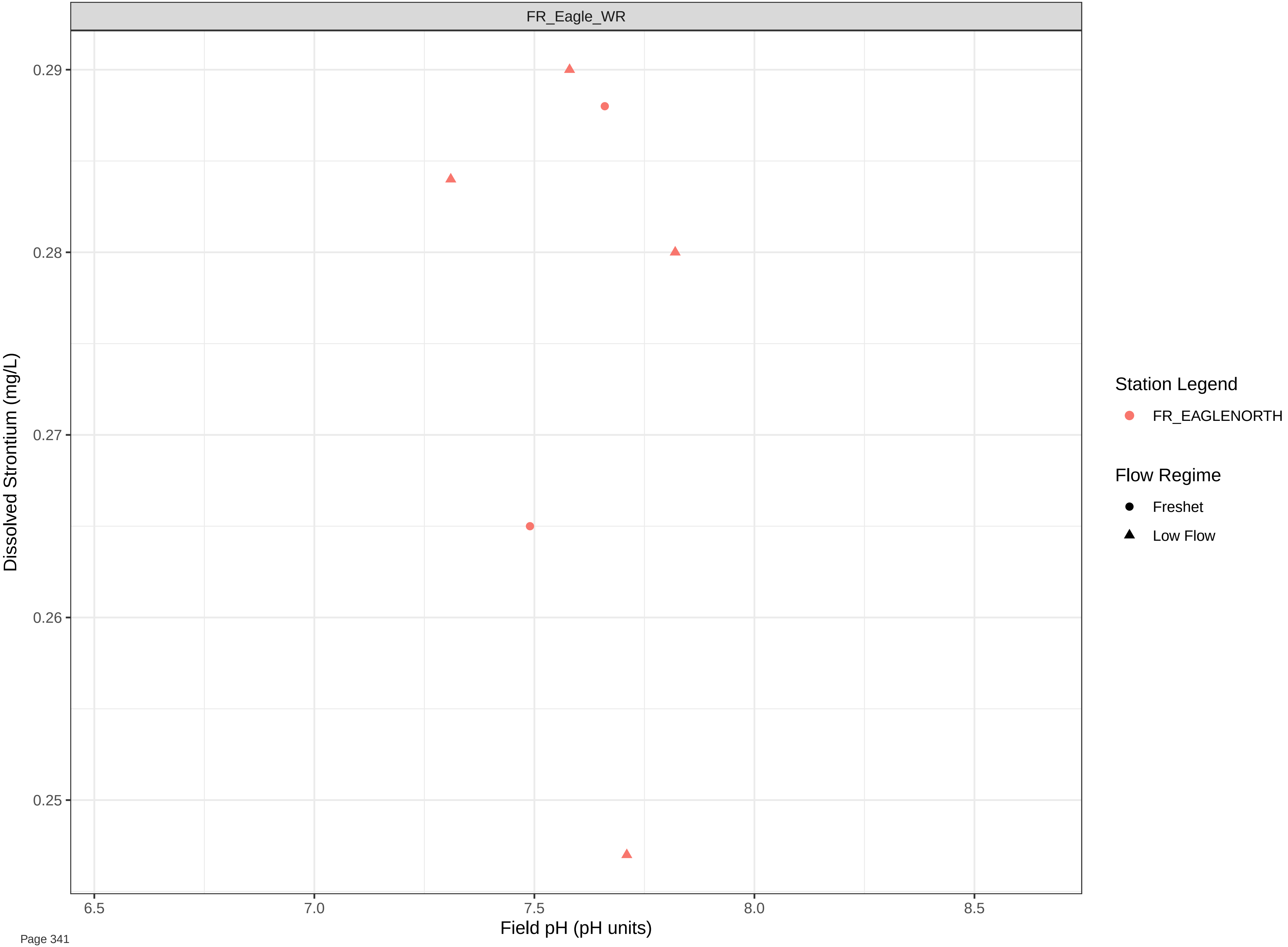

FR_TurnbullWRWest_WR
Dissolved Sodium (mg/L)
1.6
1.4
1.2
1.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_TBWSEEP1
● FR_TURNSEEP2
Flow Regime
● Freshet
▲ Low Flow

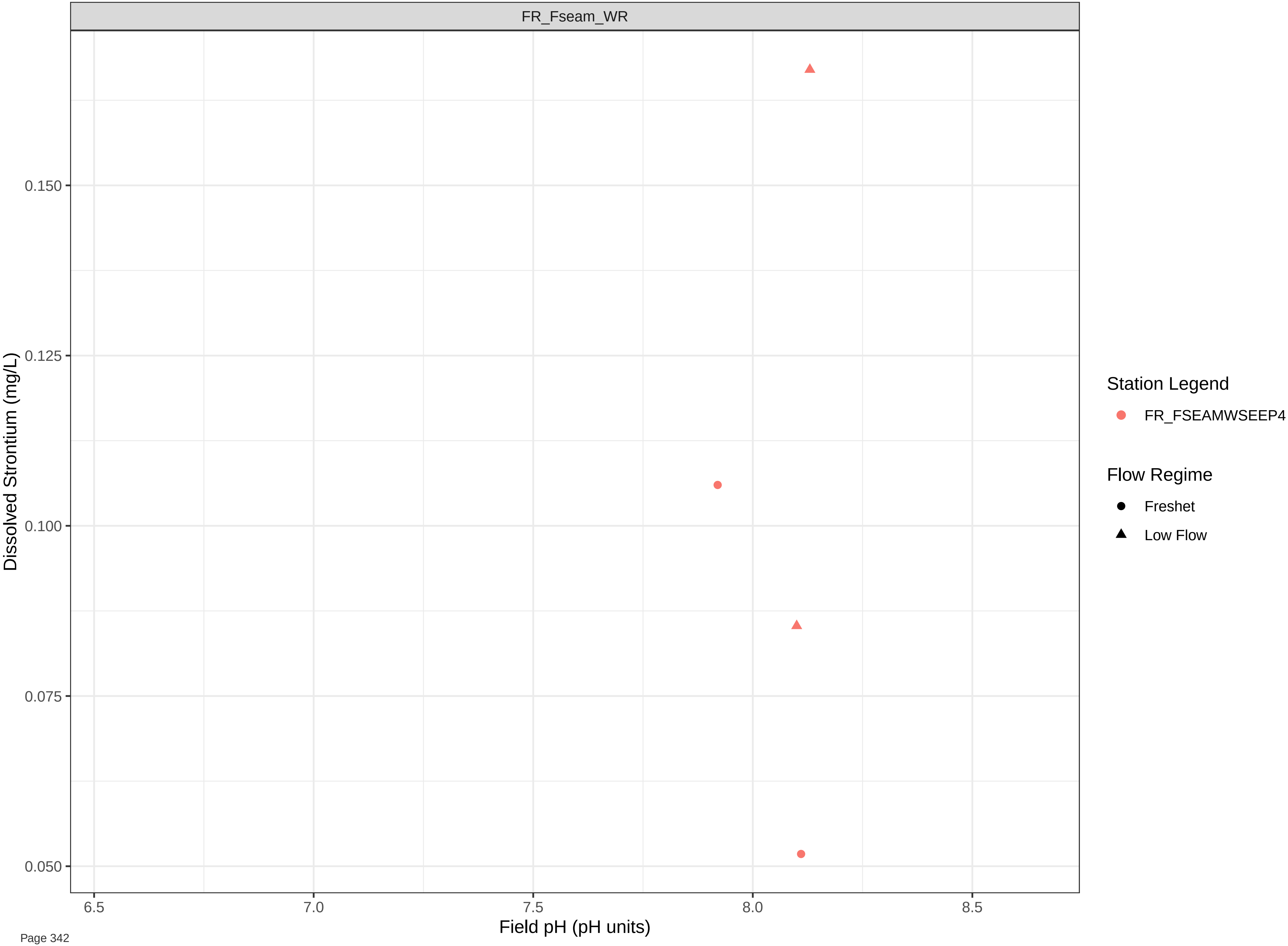

FR_A_WR
Dissolved Strontium (mg/L)
0.225
0.200
0.175
0.150
0.125
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

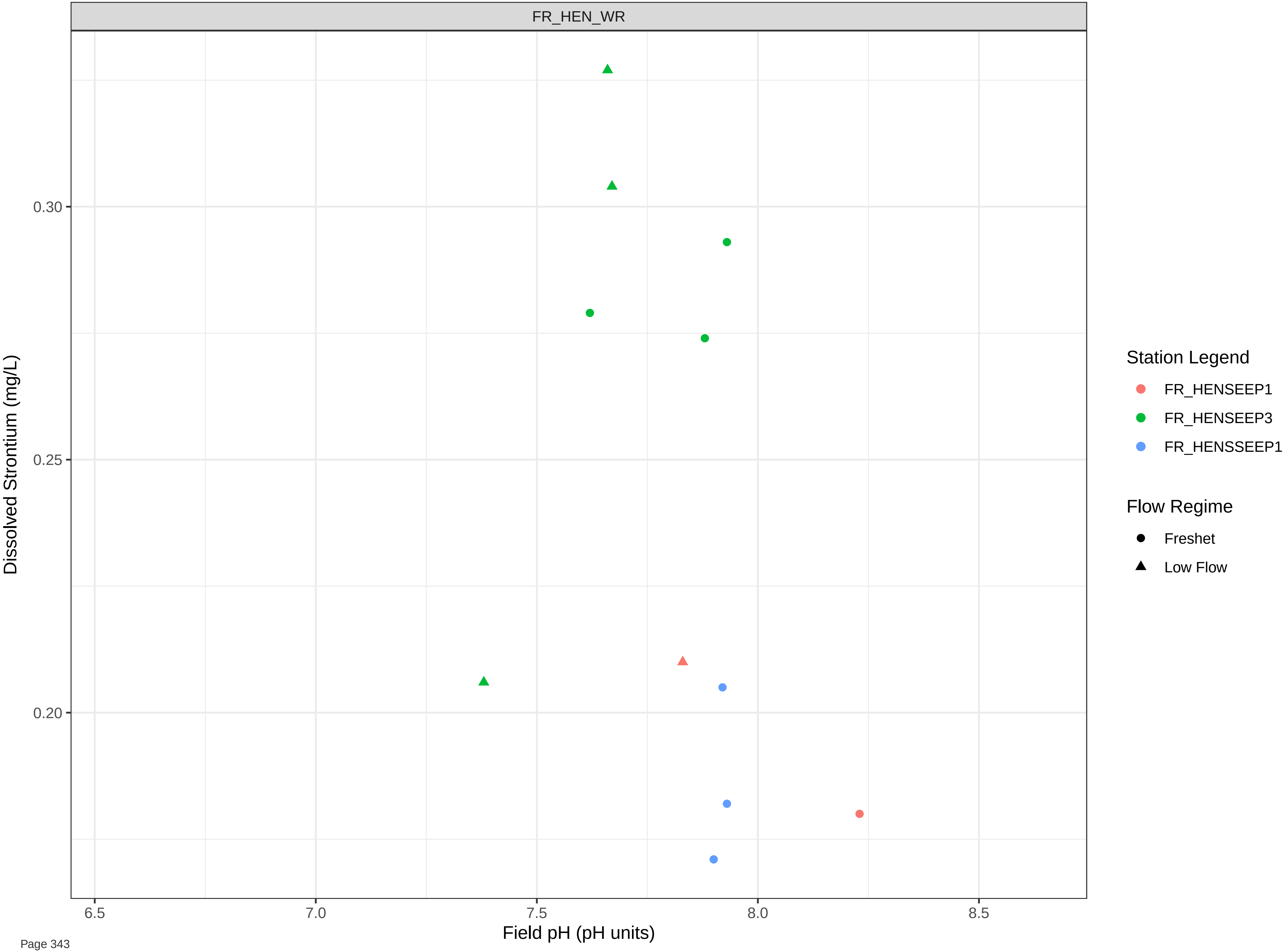

FR_Blain_CCR
Dissolved Strontium (mg/L)
0.2
0.4
0.6
0.8
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

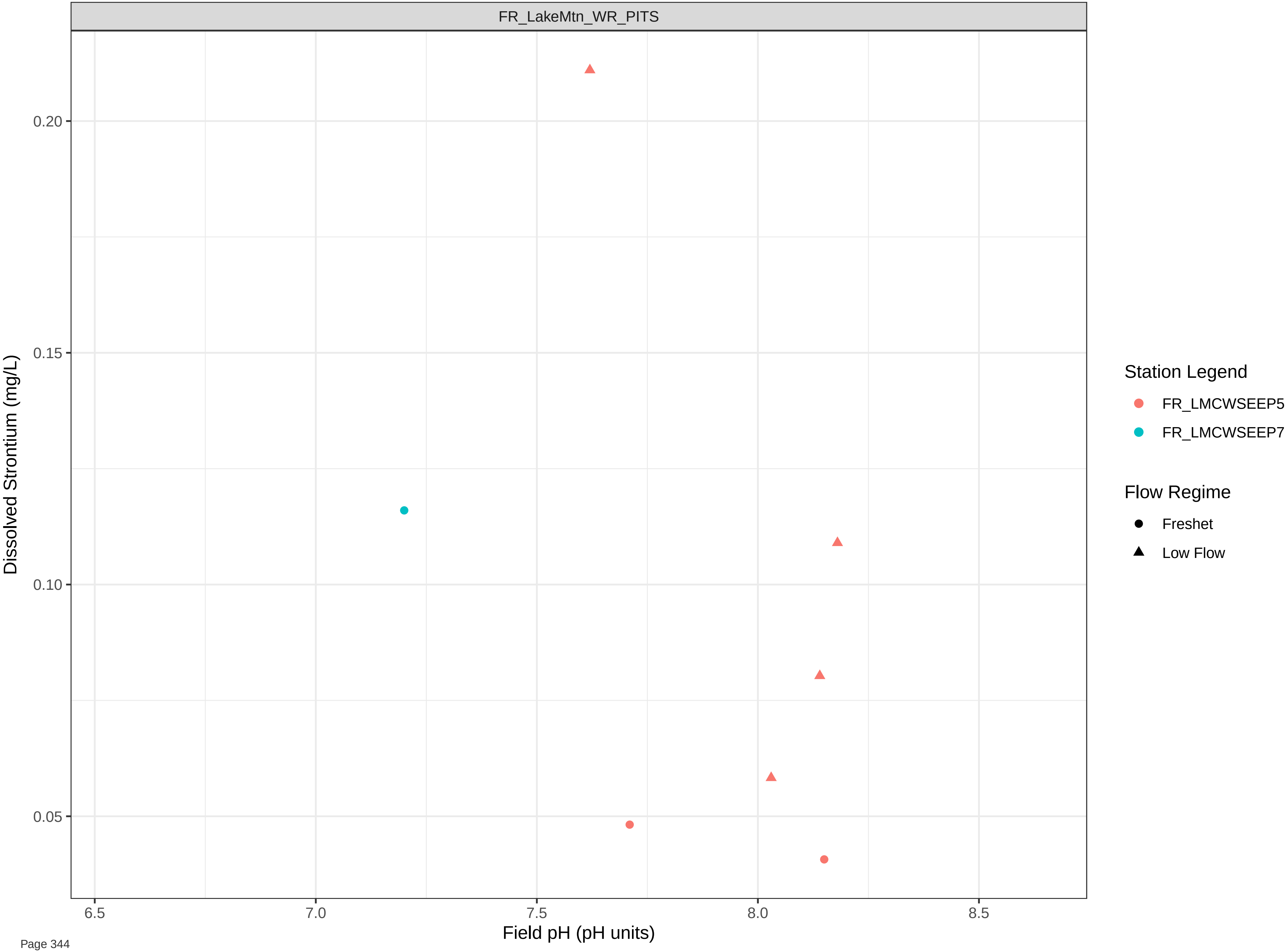

FR_ClodeCr_WR
Dissolved Strontium (mg/L)
0.6
0.5
0.4
0.3
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

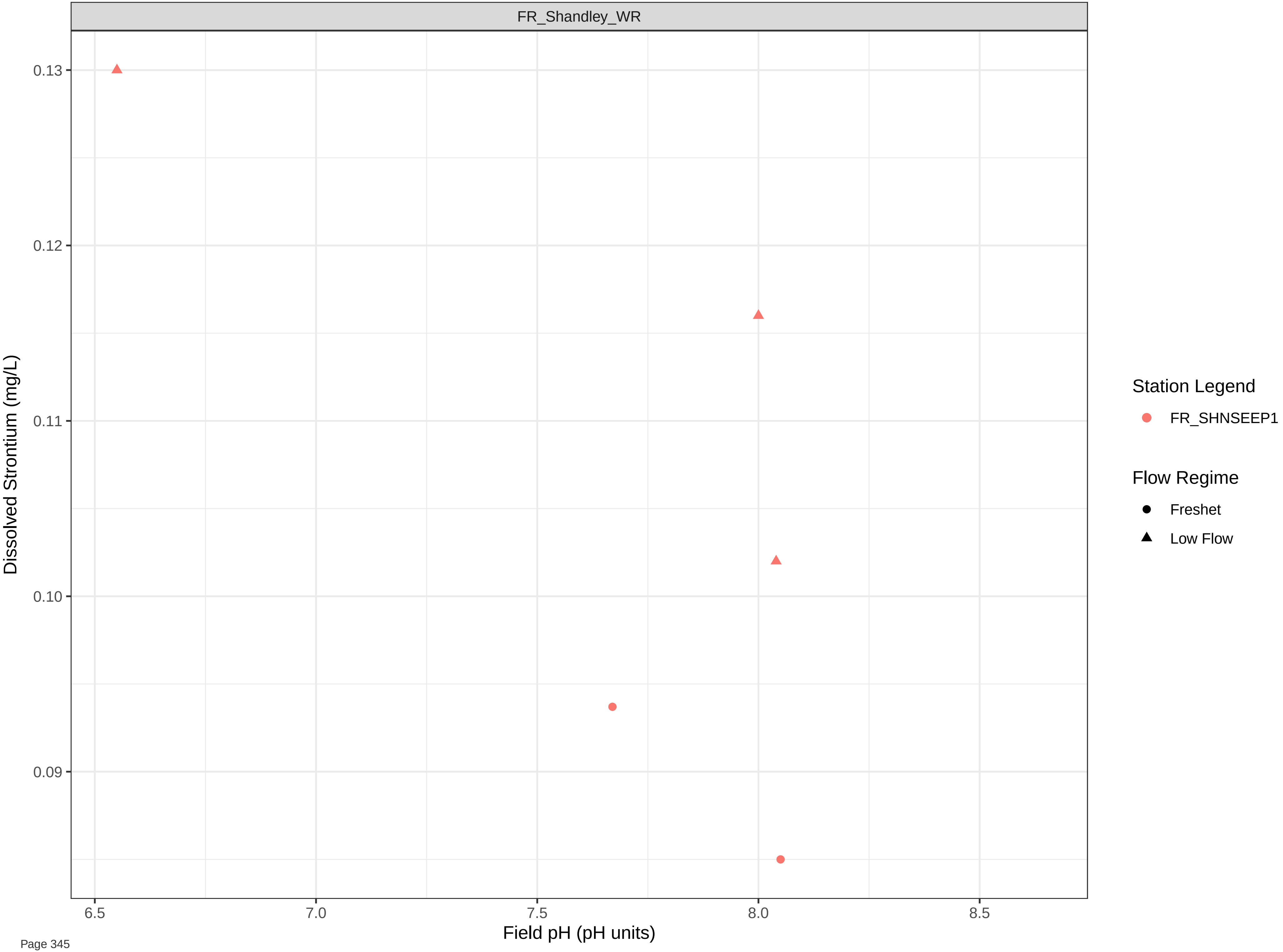

FR_DOKA_Unknown
Dissolved Strontium (mg/L)
0.35
0.30
0.25
0.20
0.15
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

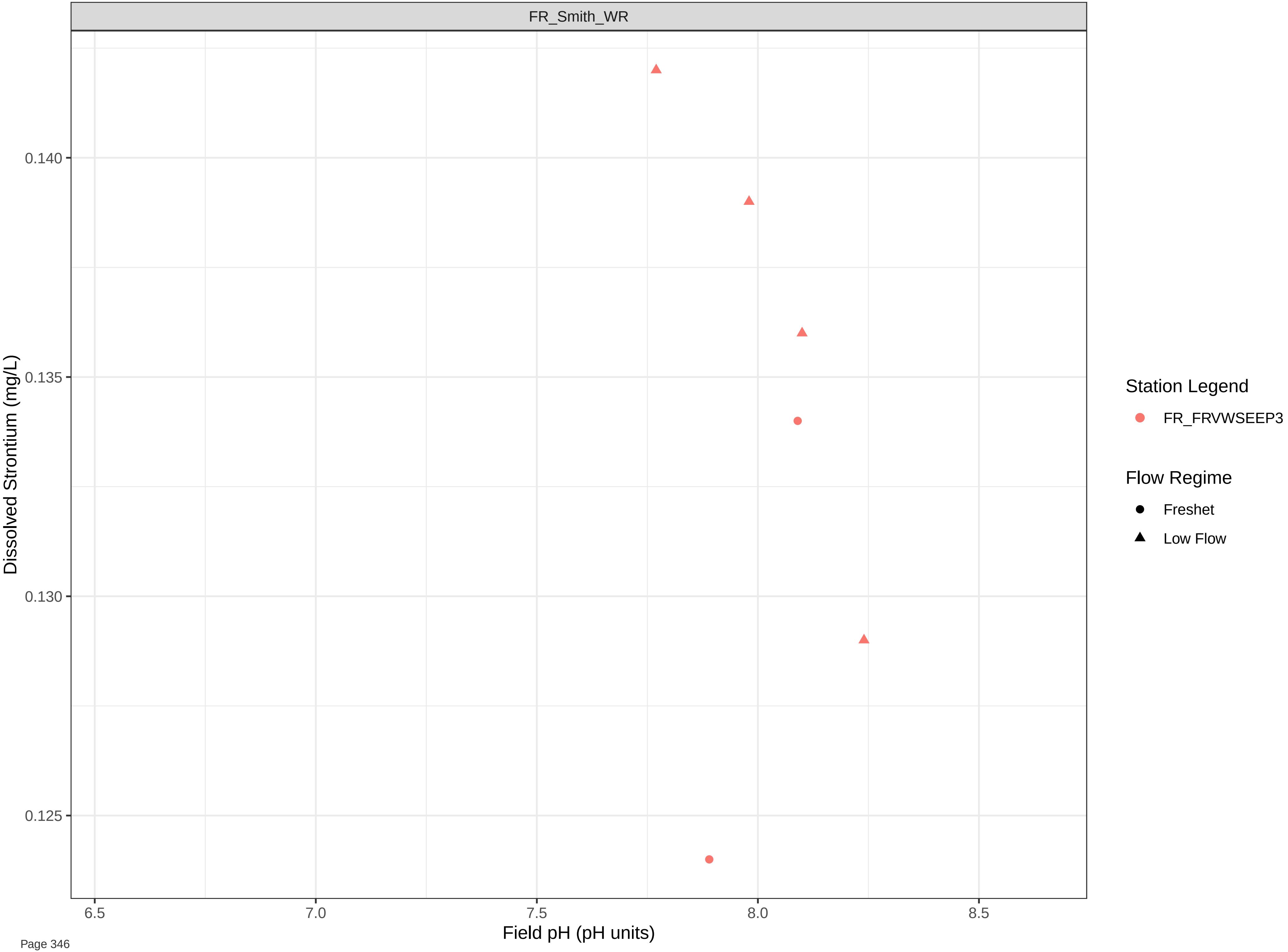

FR_Eagle_WR
Dissolved Strontium (mg/L)
0.29
0.28
0.27
0.26
0.25
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

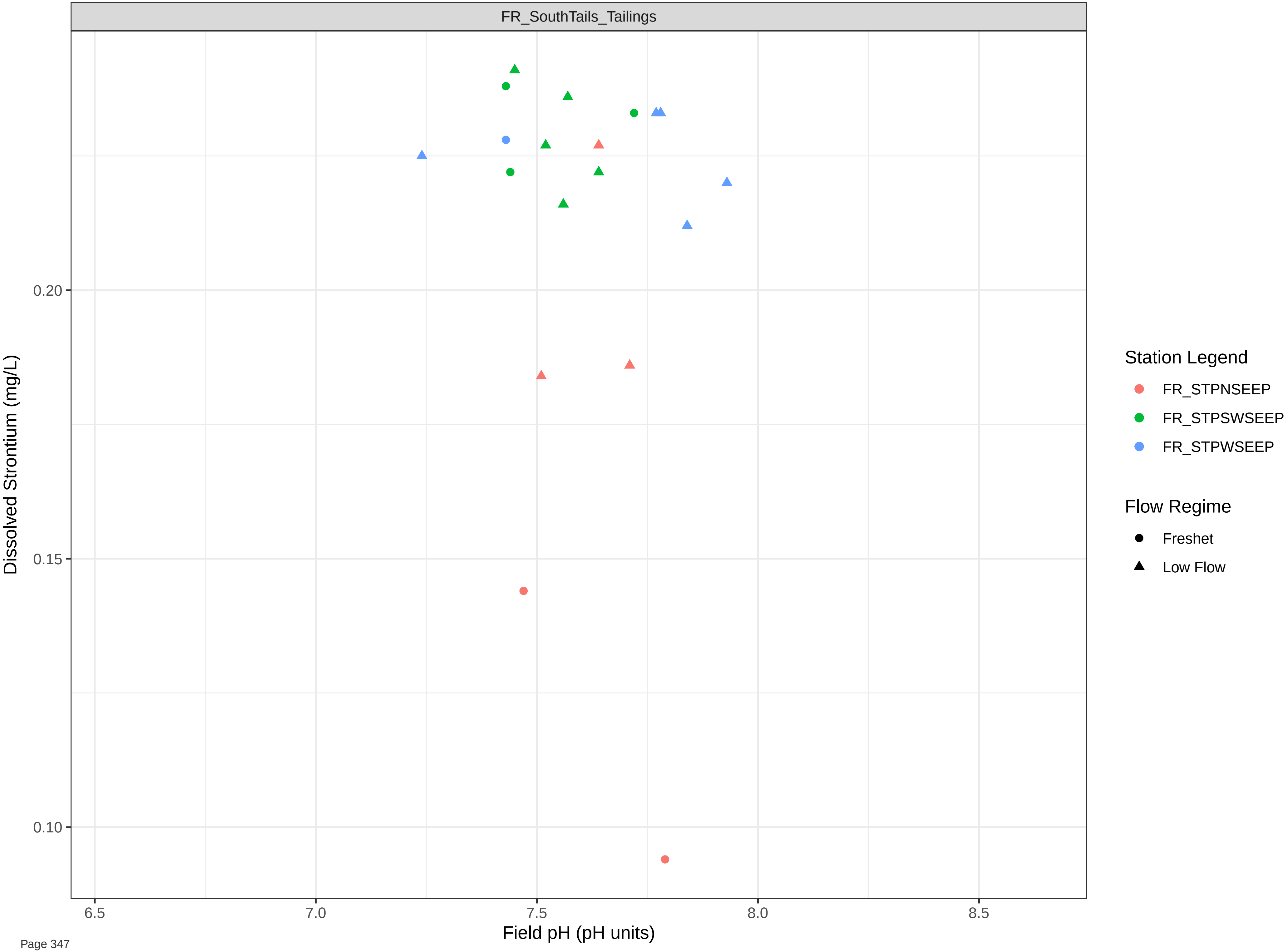

FR_Fseam_WR
Dissolved Strontium (mg/L)
0.150
0.125
0.100
0.075
0.050
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

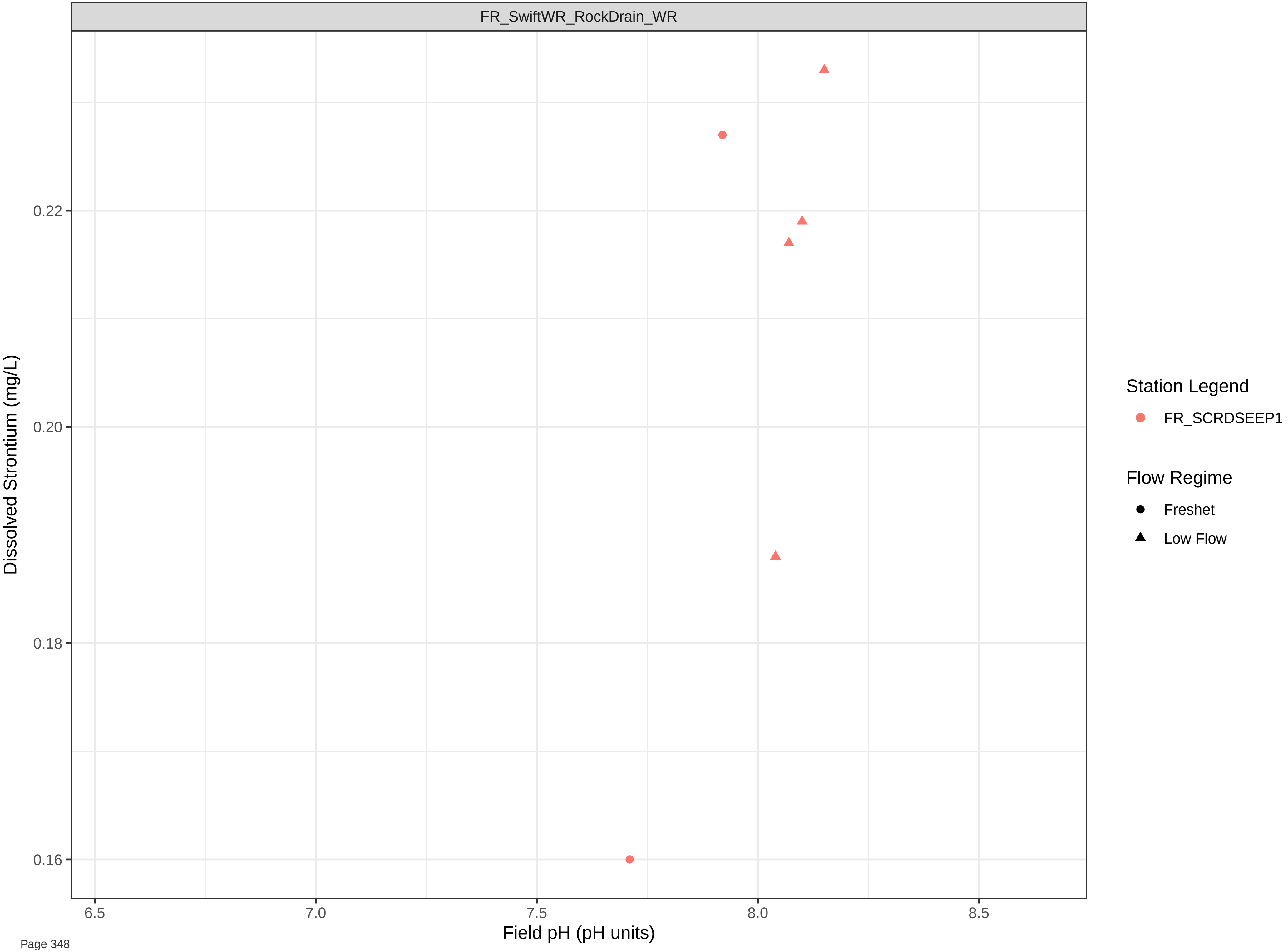

FR_HEN_WR
Dissolved Strontium (mg/L)
0.30
0.25
0.20
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_HENSEEP1
● FR_HENSEEP3
● FR_HENSSEEP1
Flow Regime
● Freshet
▲ Low Flow

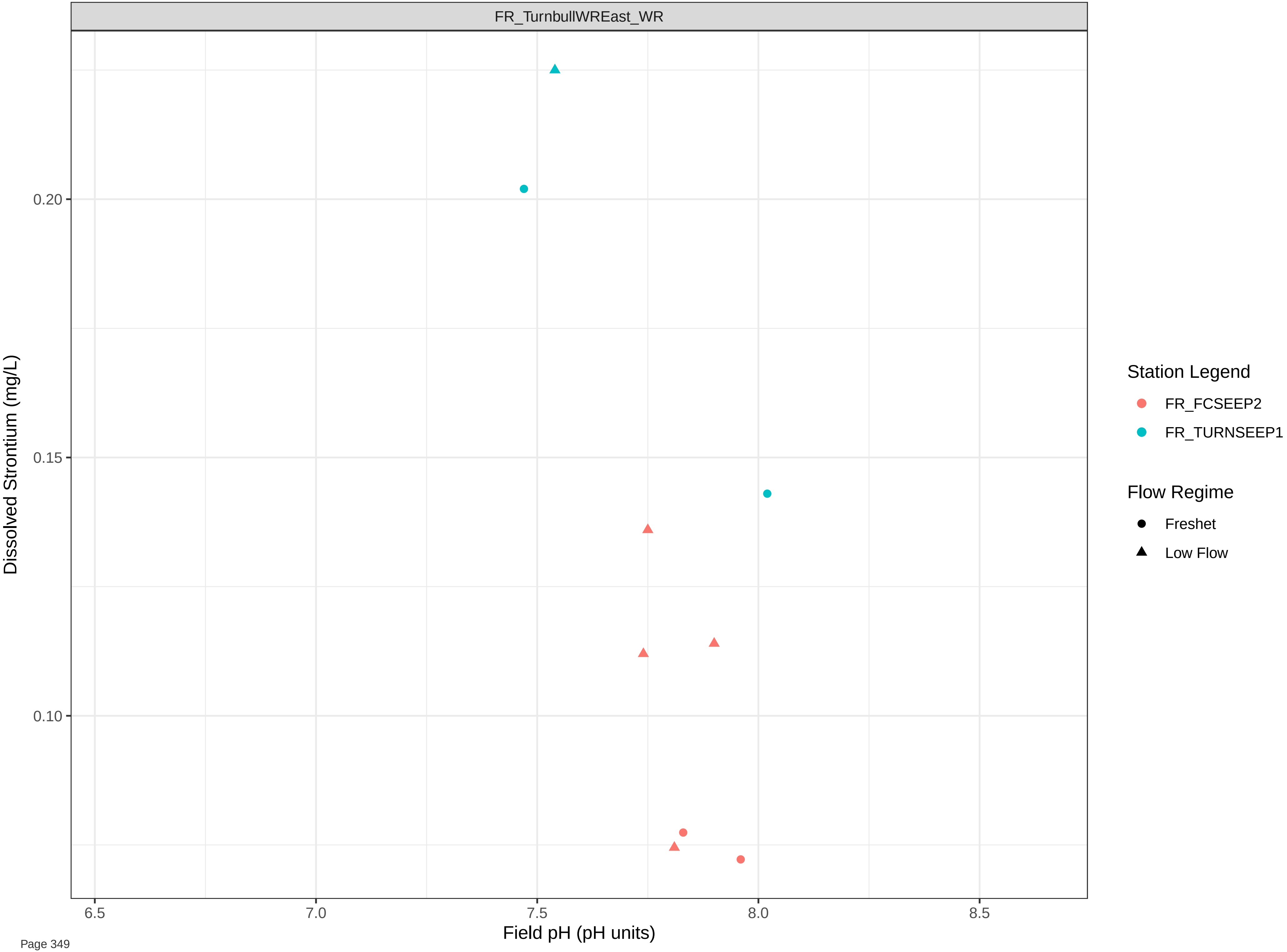

FR_LakeMtn_WR_PITS
Dissolved Strontium (mg/L)
0.20
0.15
0.10
0.05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

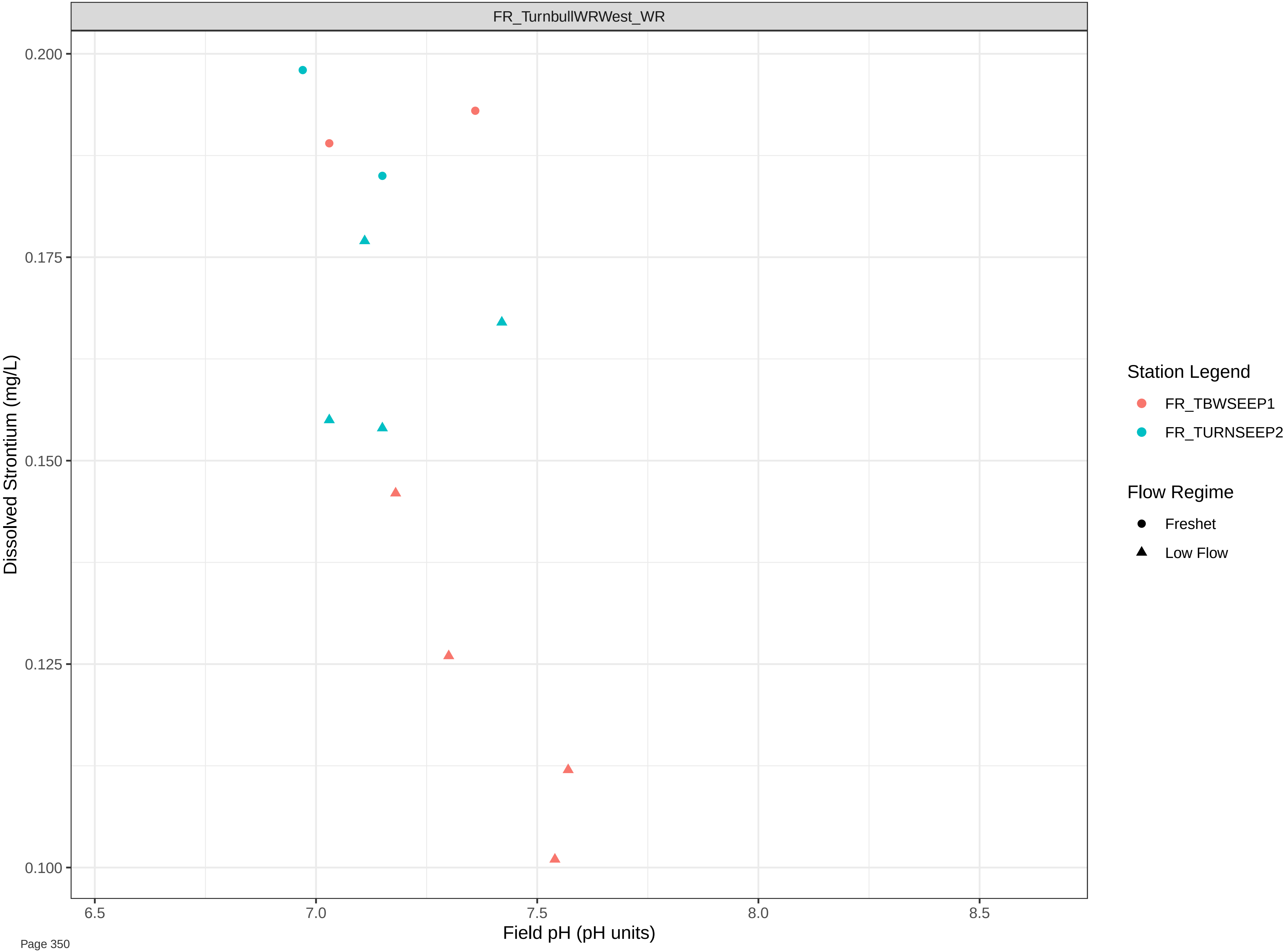

FR_Shandley_WR
Dissolved Strontium (mg/L)
0.13
0.12
0.11
0.10
0.09
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

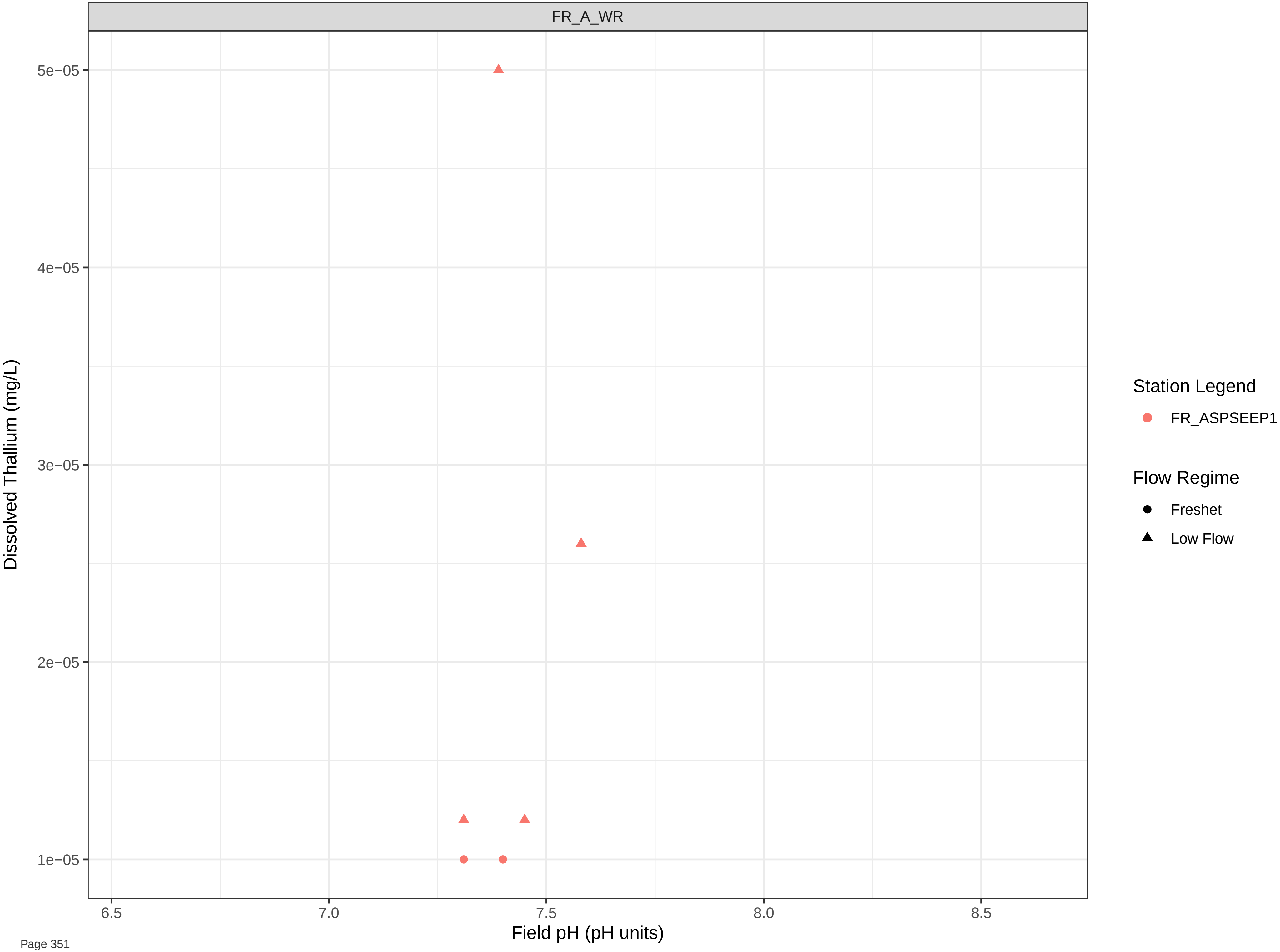

FR_Smith_WR
Dissolved Strontium (mg/L)
0.140
0.135
0.130
0.125
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

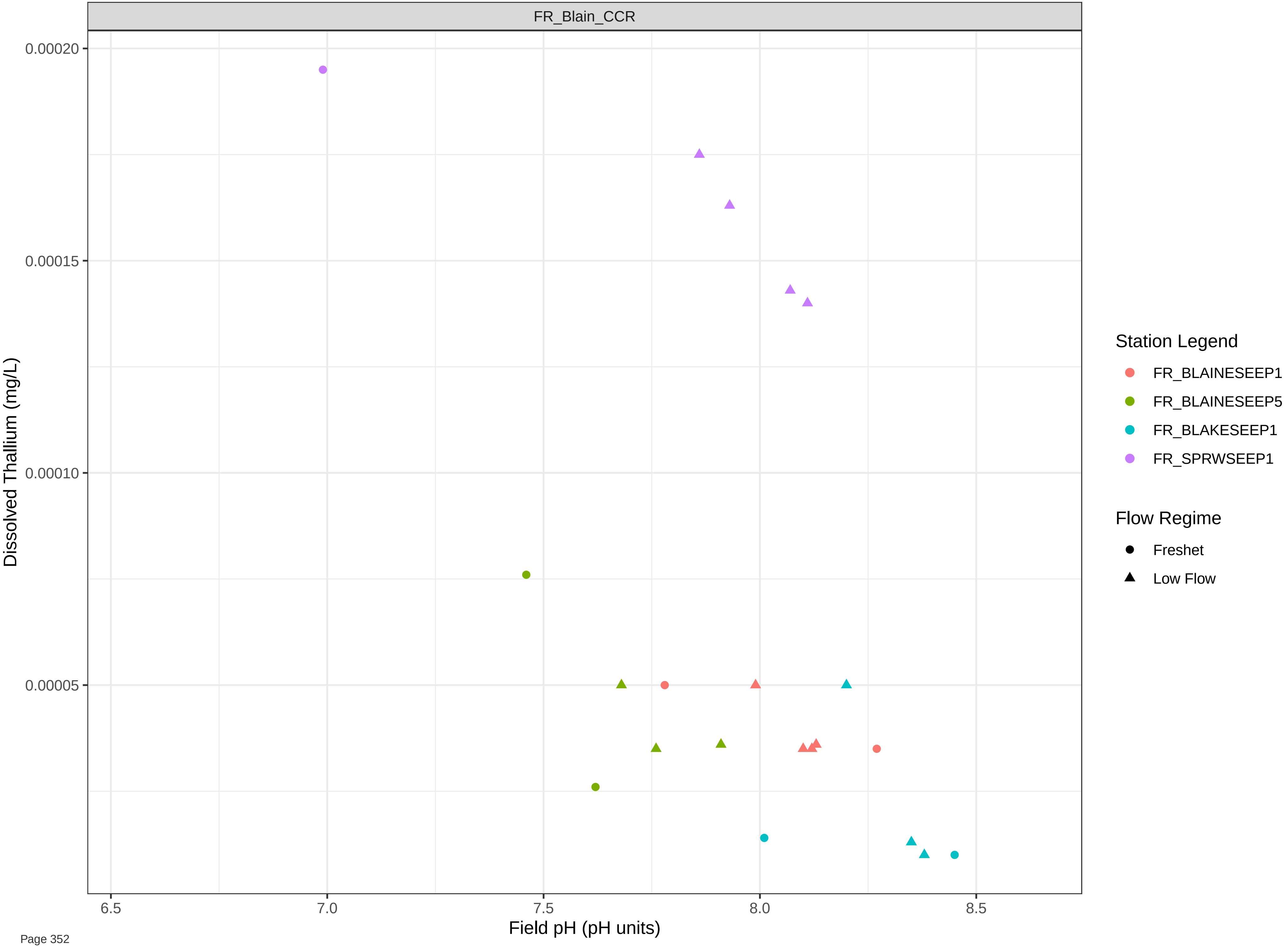

FR_SouthTails_Tailings
Dissolved Strontium (mg/L)
0.20
0.15
0.10
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

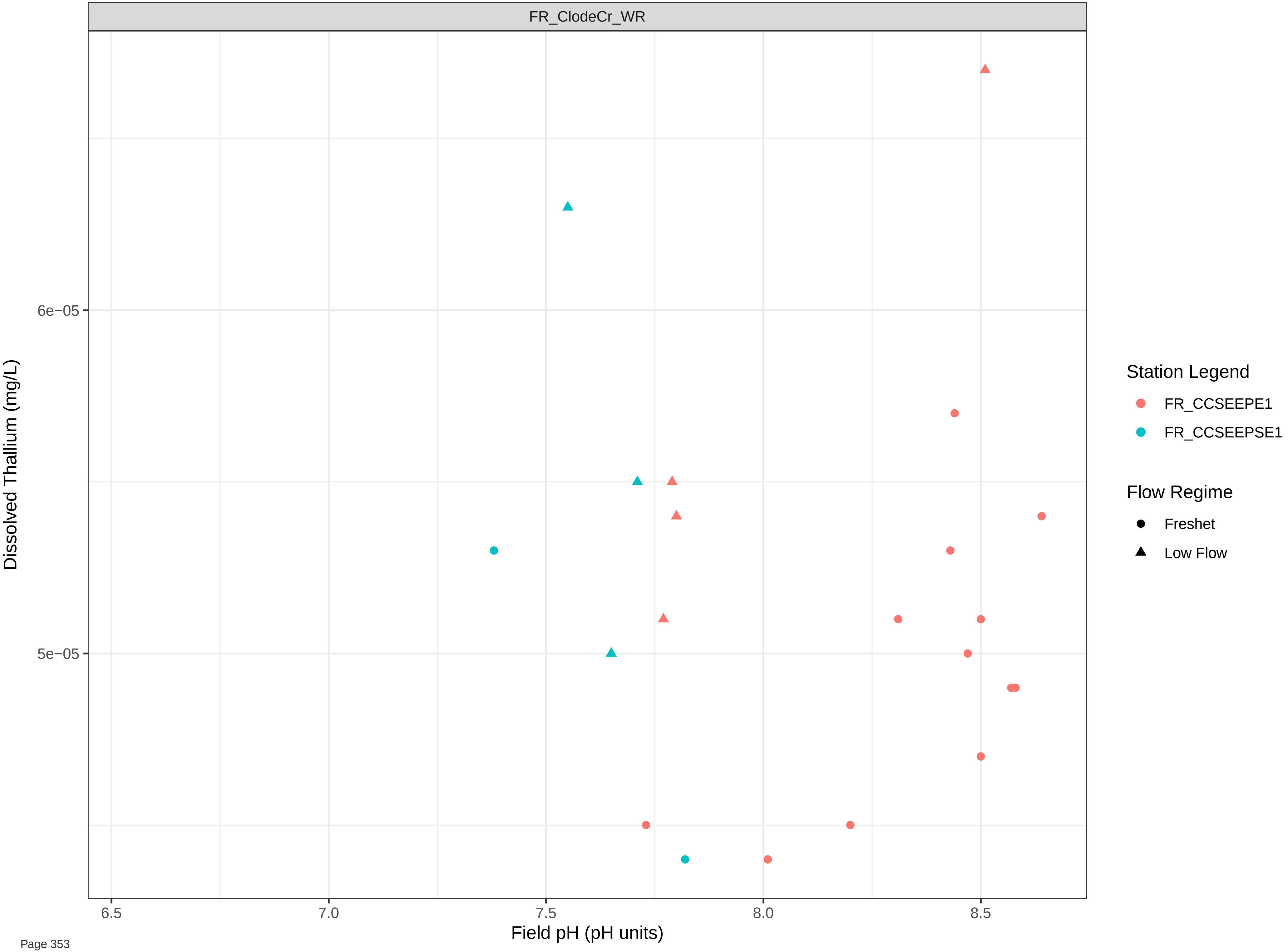

FR_SwiftWR_RockDrain_WR
Dissolved Strontium (mg/L)
0.22
0.20
0.18
0.16
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

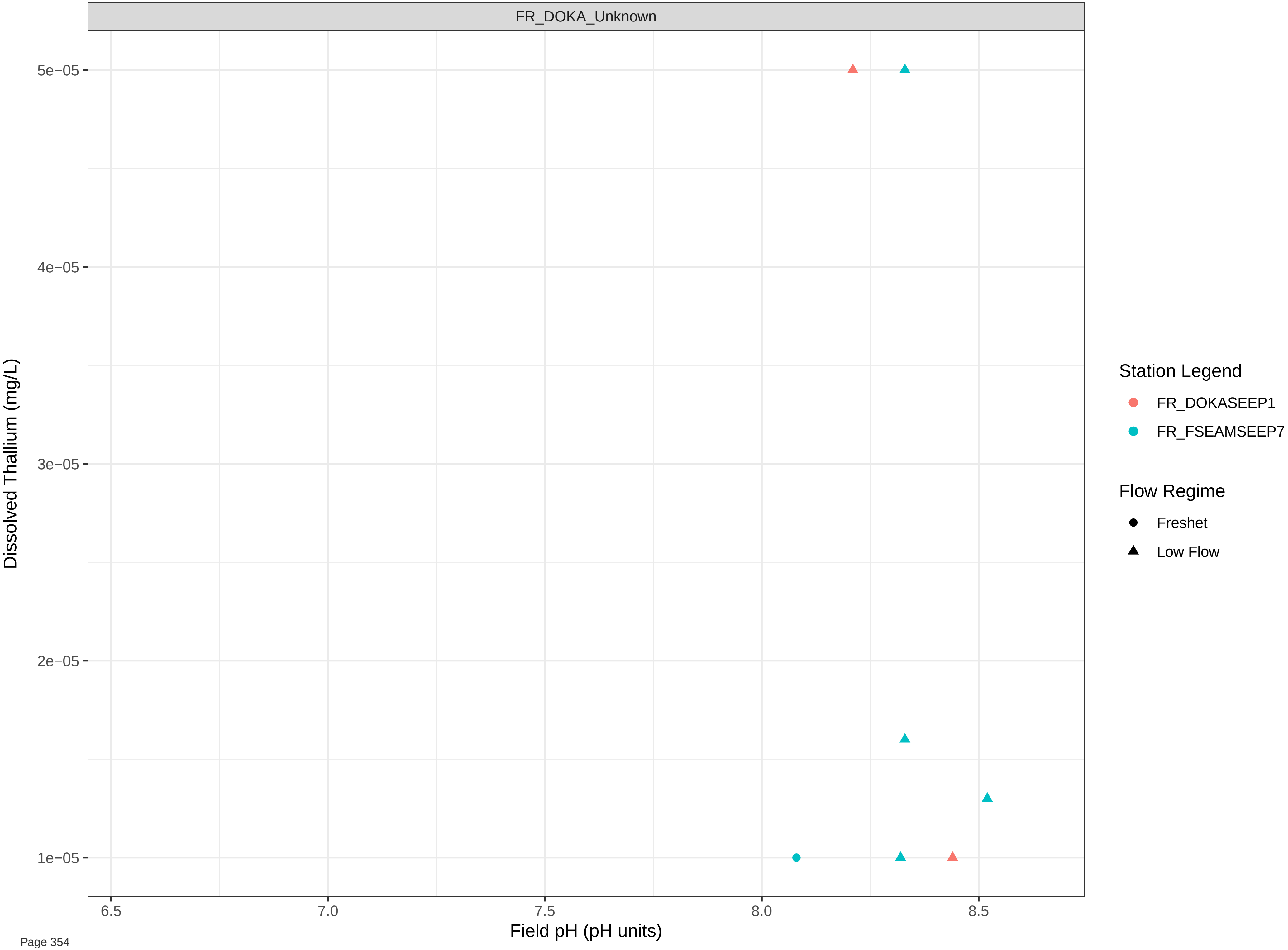

FR_TurnbullWREast_WR
Dissolved Strontium (mg/L)
0.20
0.15
0.10
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_FCSEEP2
● FR_TURNSEEP1
Flow Regime
● Freshet
▲ Low Flow

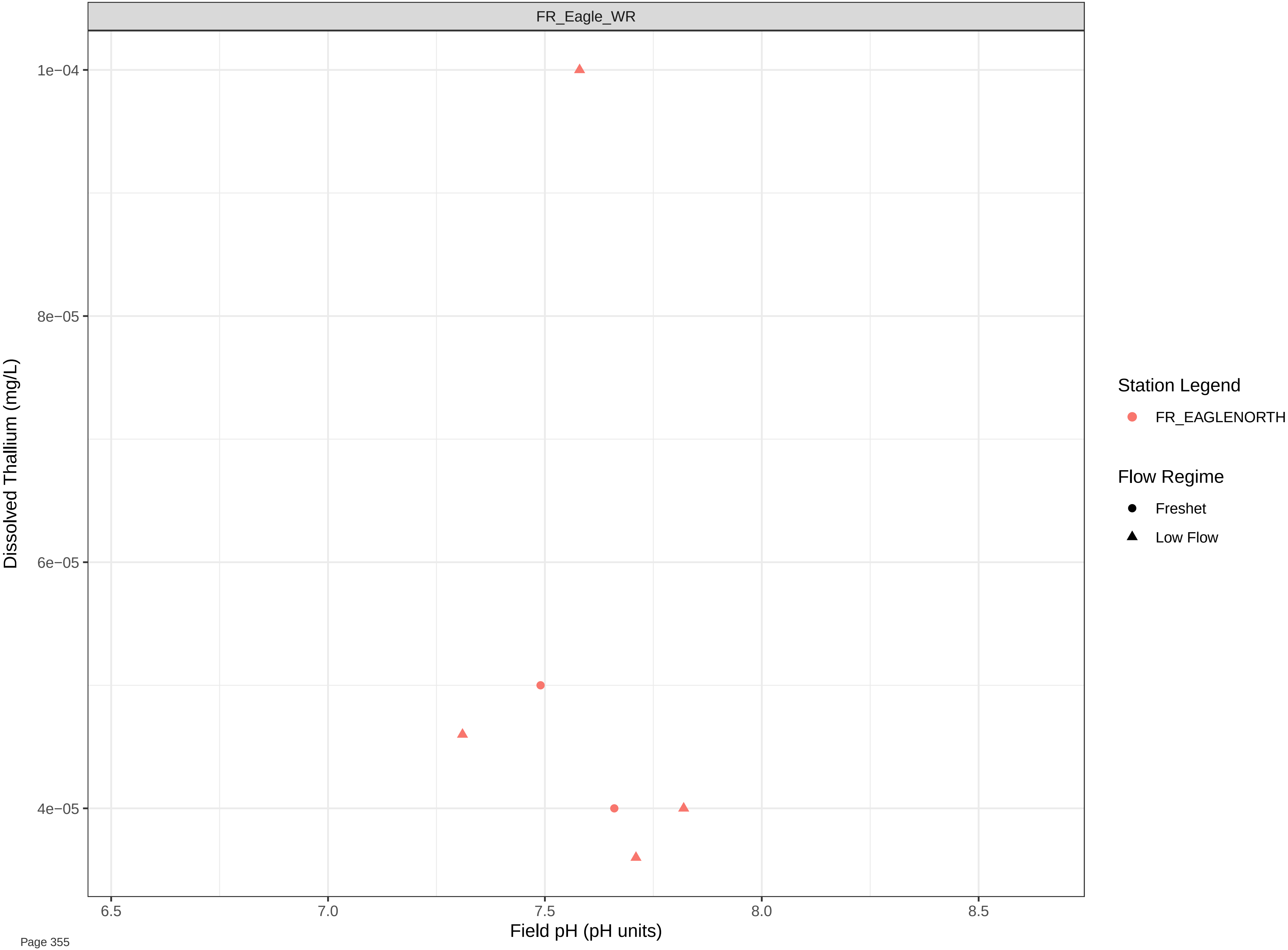

FR_TurnbullWRWest_WR
Dissolved Strontium (mg/L)
0.200
0.175
0.150
0.125
0.100
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

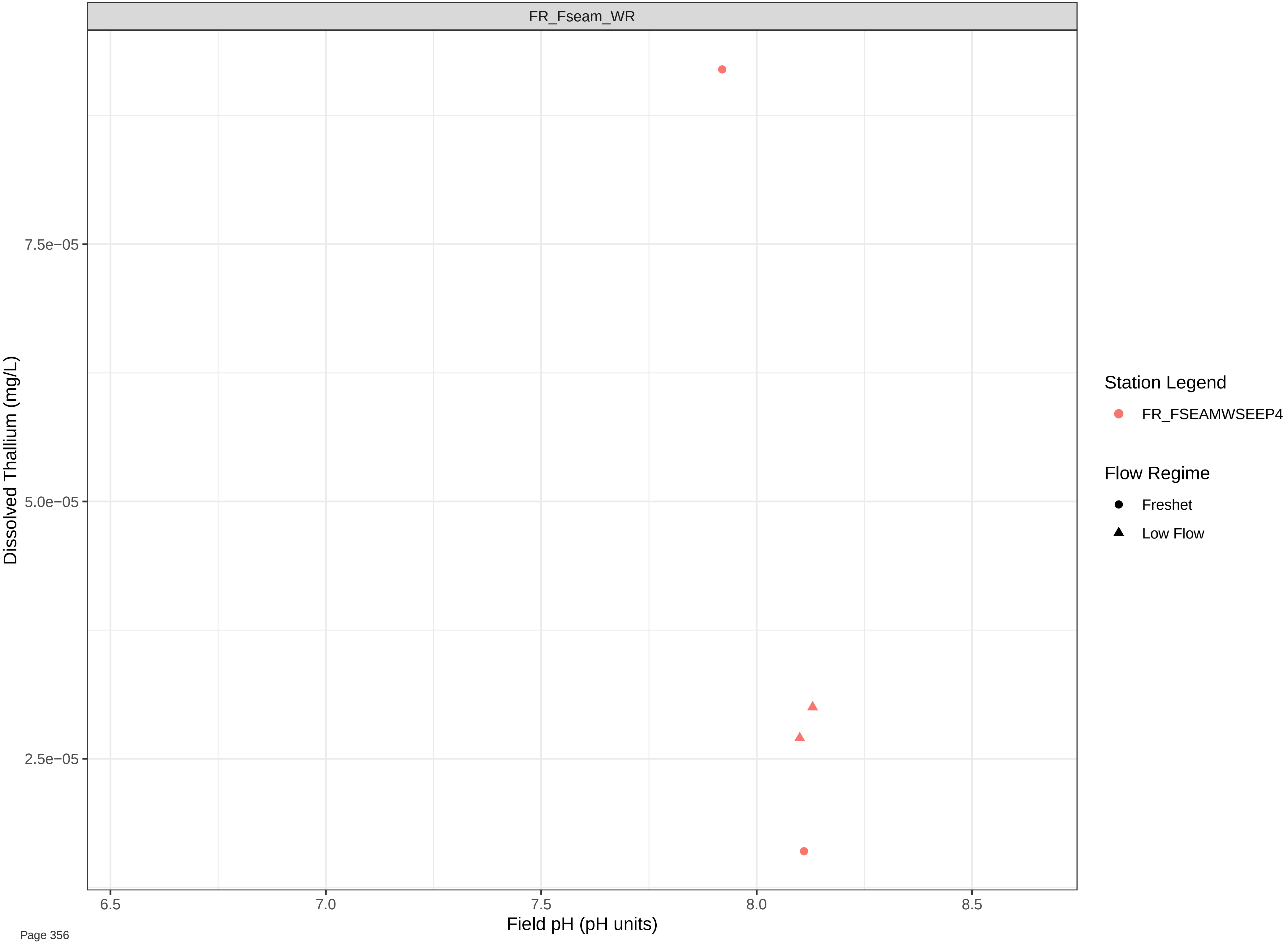

FR_A_WR
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

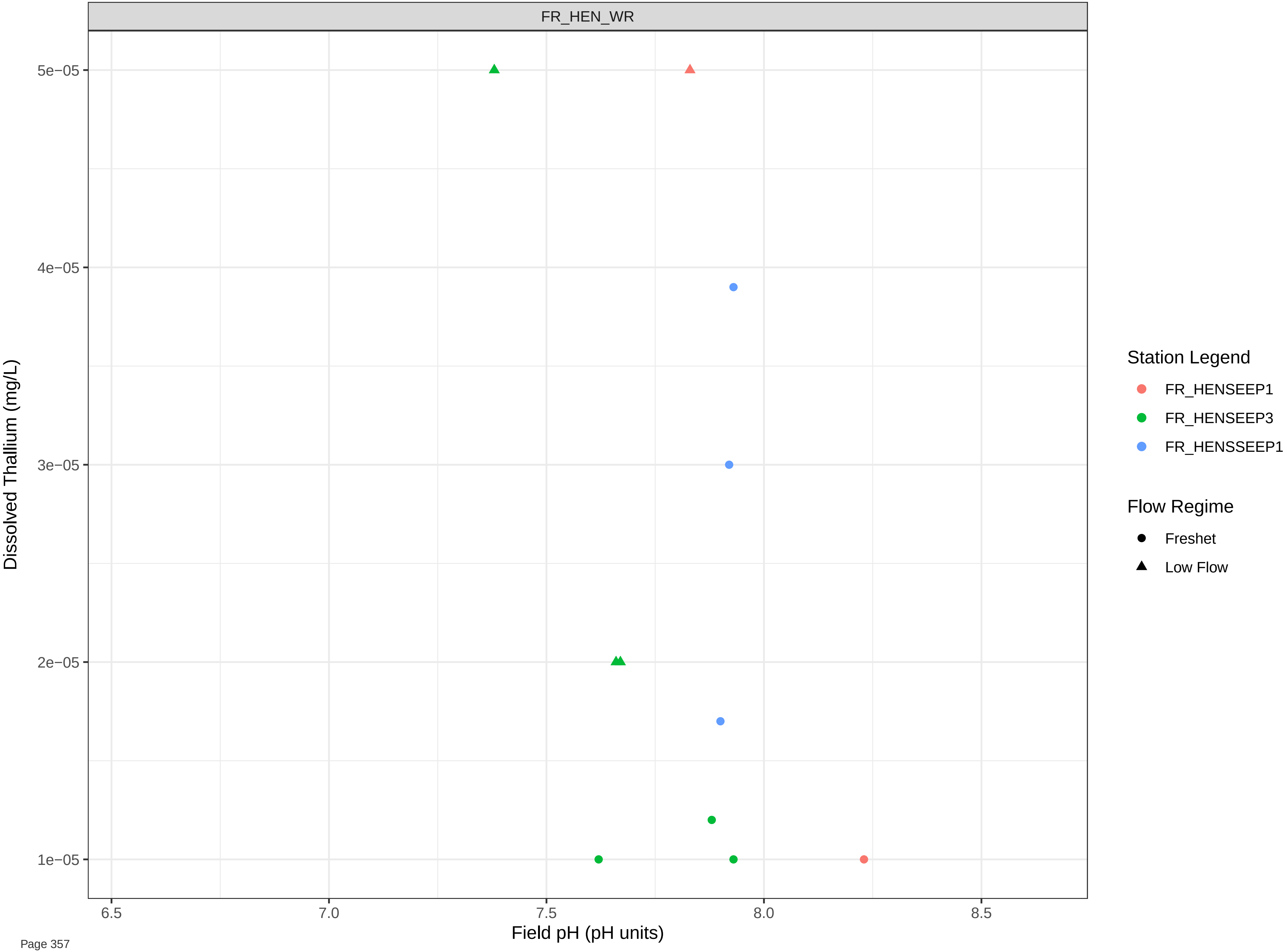

FR_Blain_CCR
Dissolved Thallium (mg/L)
0.00020
0.00015
0.00010
0.00005
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

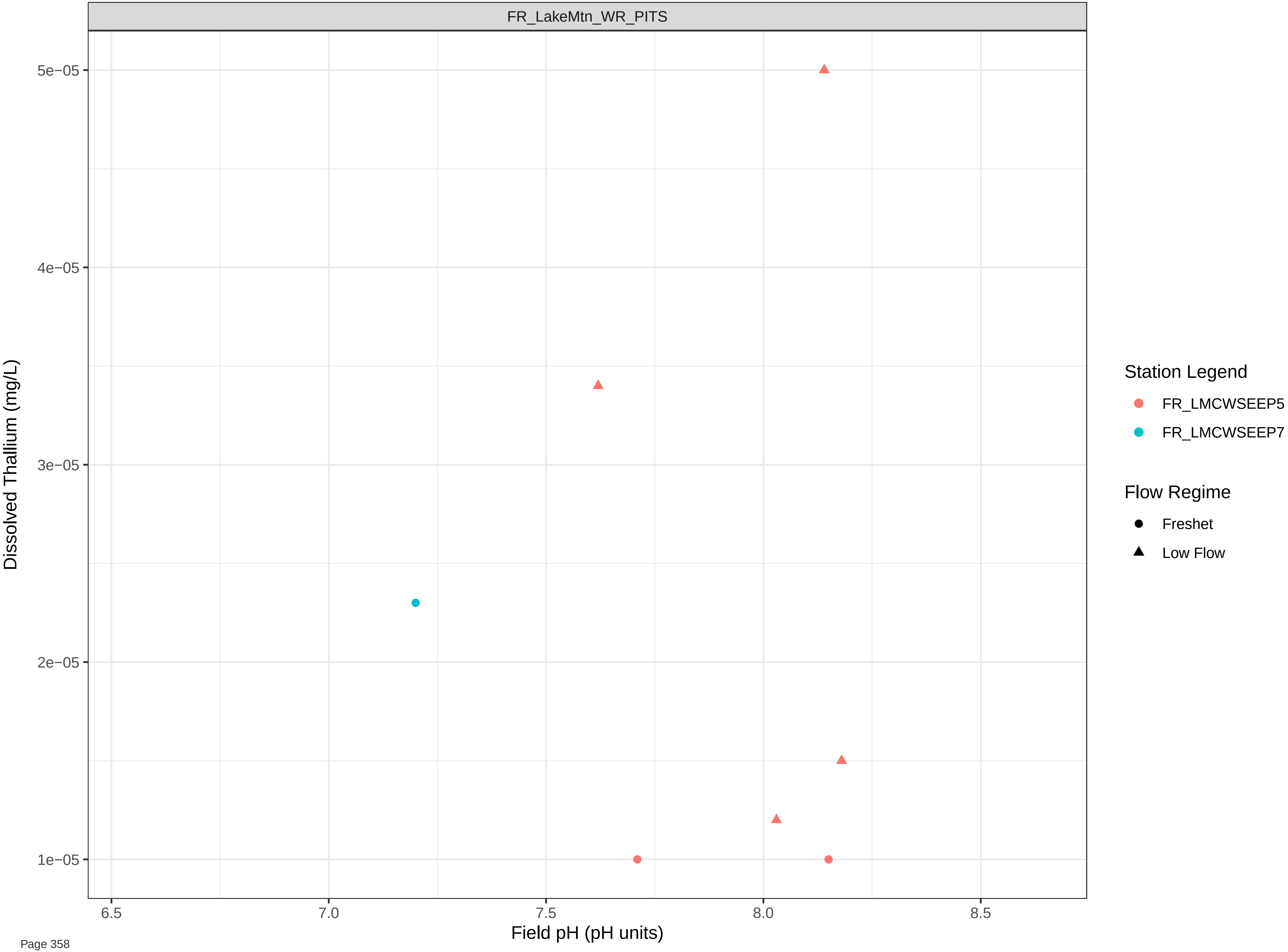

FR_ClodeCr_WR
Dissolved Thallium (mg/L)
6e−05
5e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

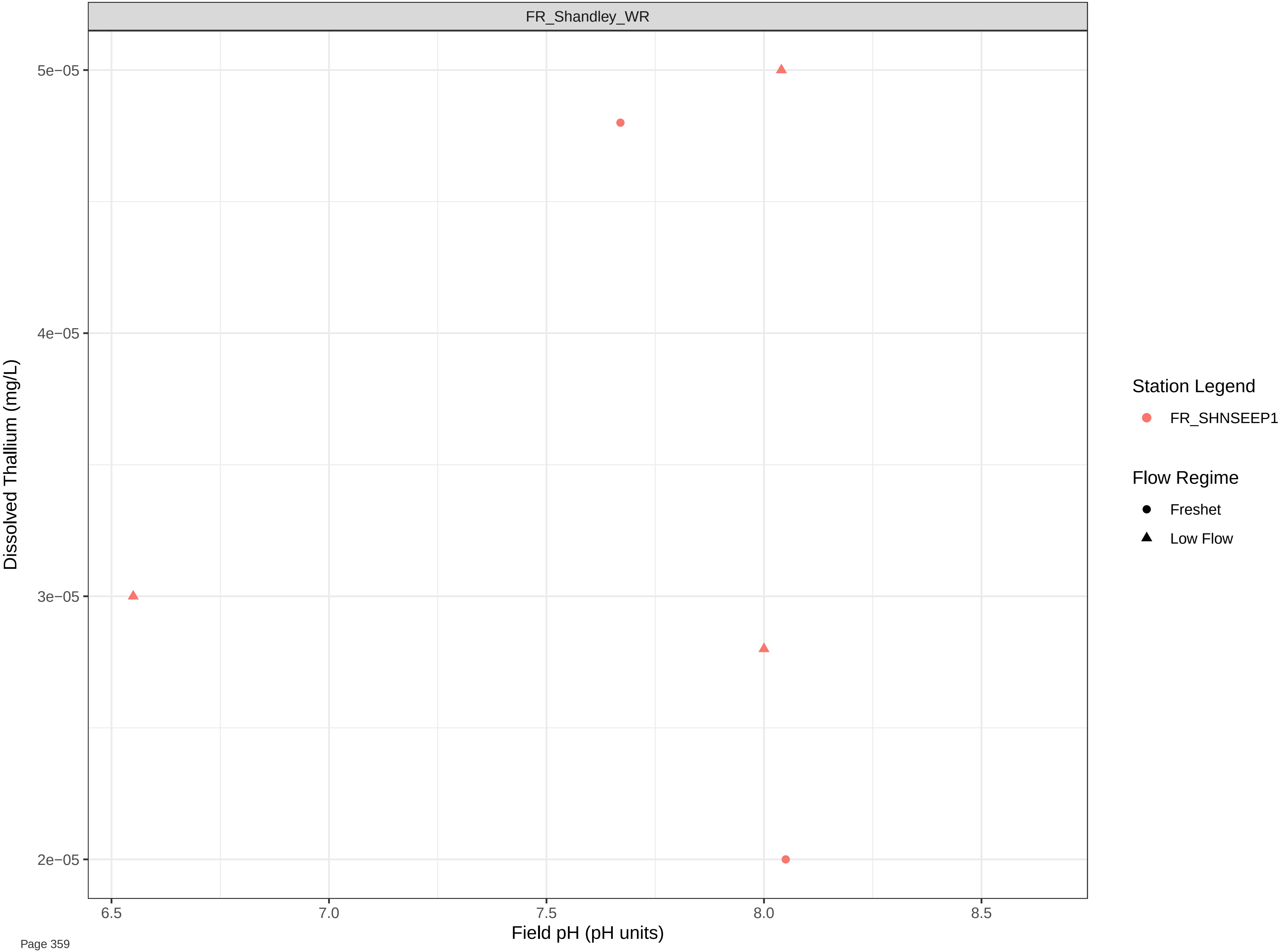

FR_DOKA_Unknown
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

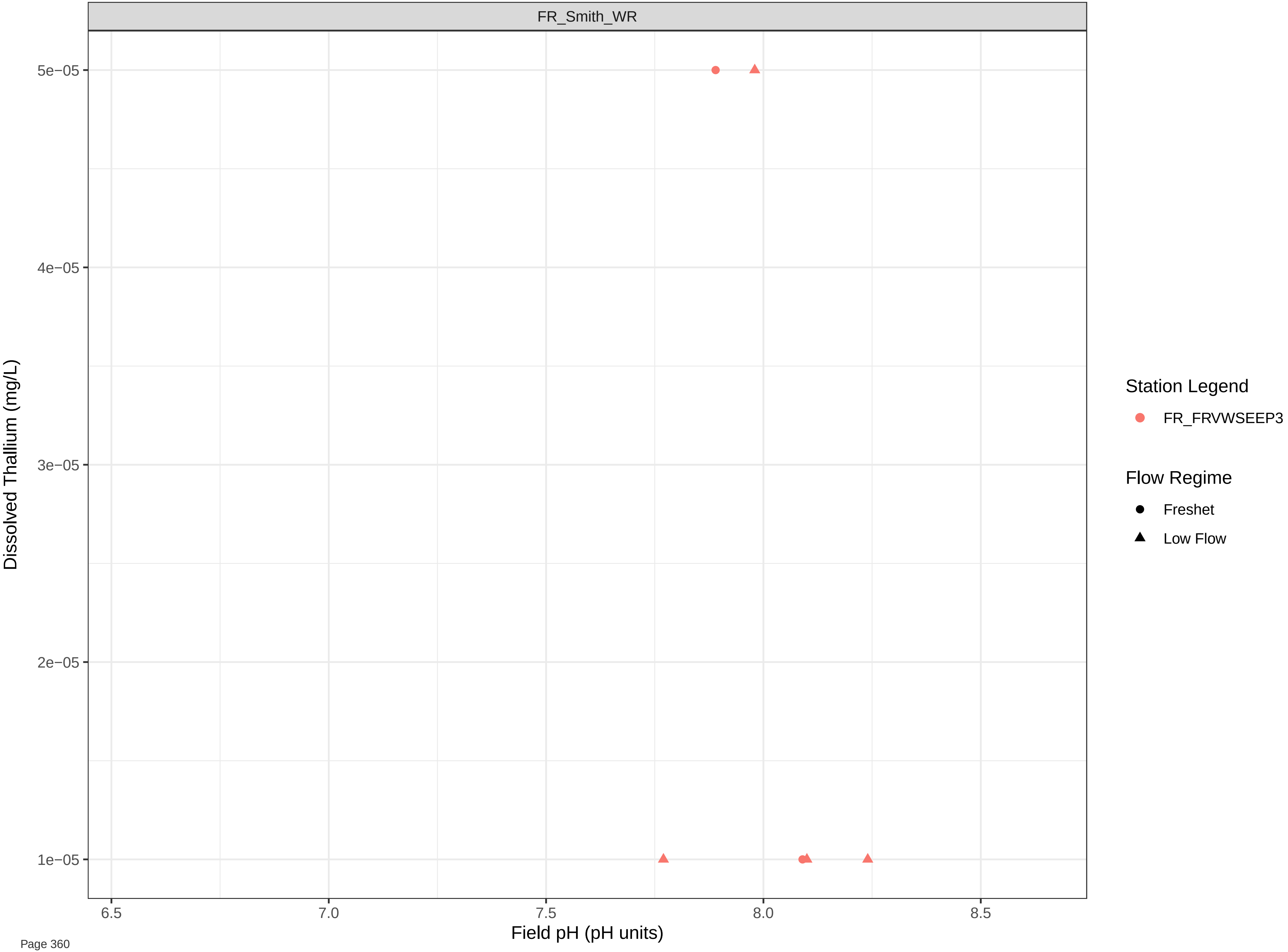

FR_Eagle_WR
Dissolved Thallium (mg/L)
1e−04
8e−05
6e−05
4e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

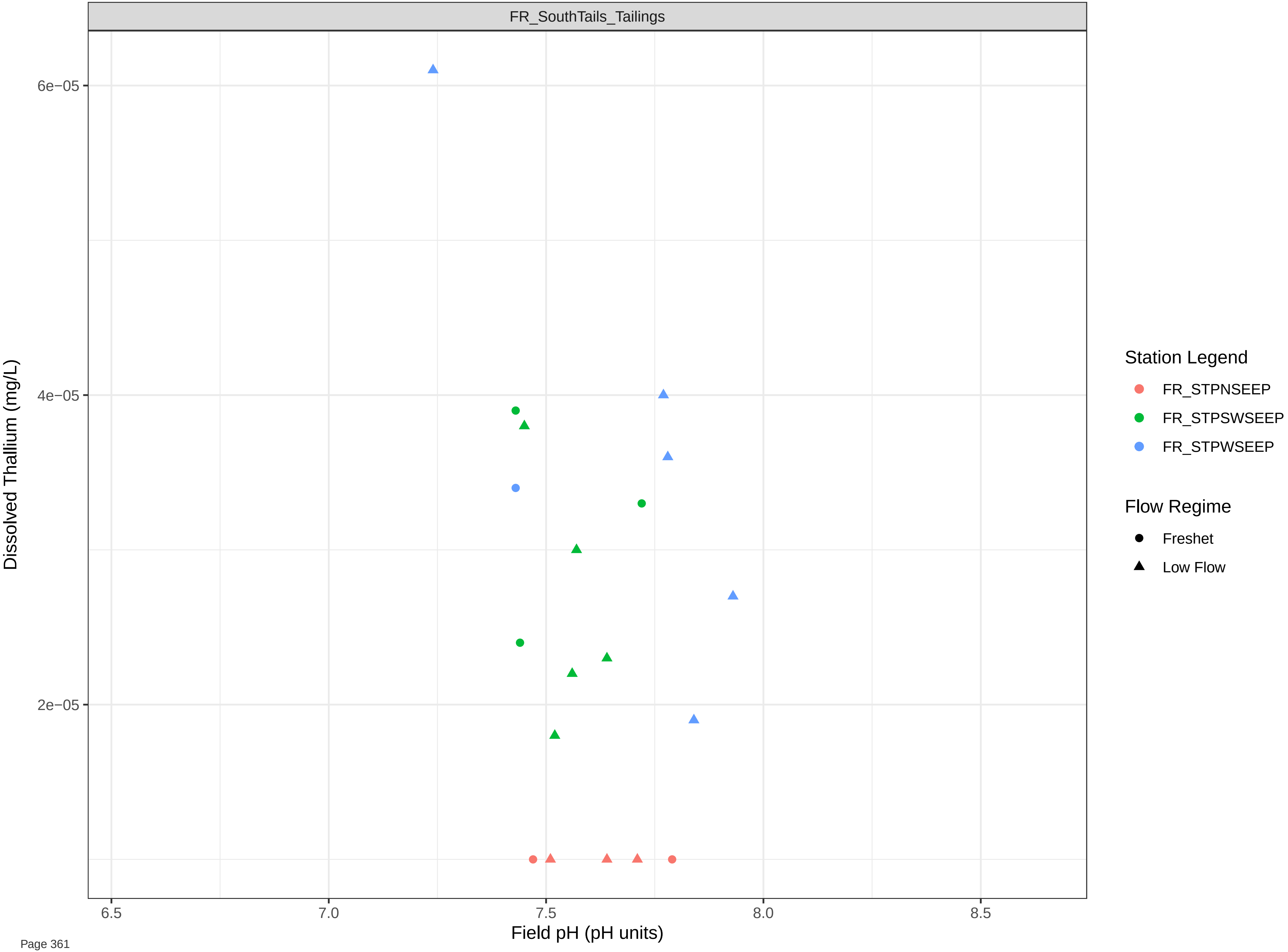

FR_Fseam_WR
Dissolved Thallium (mg/L)
7.5e−05
5.0e−05
2.5e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

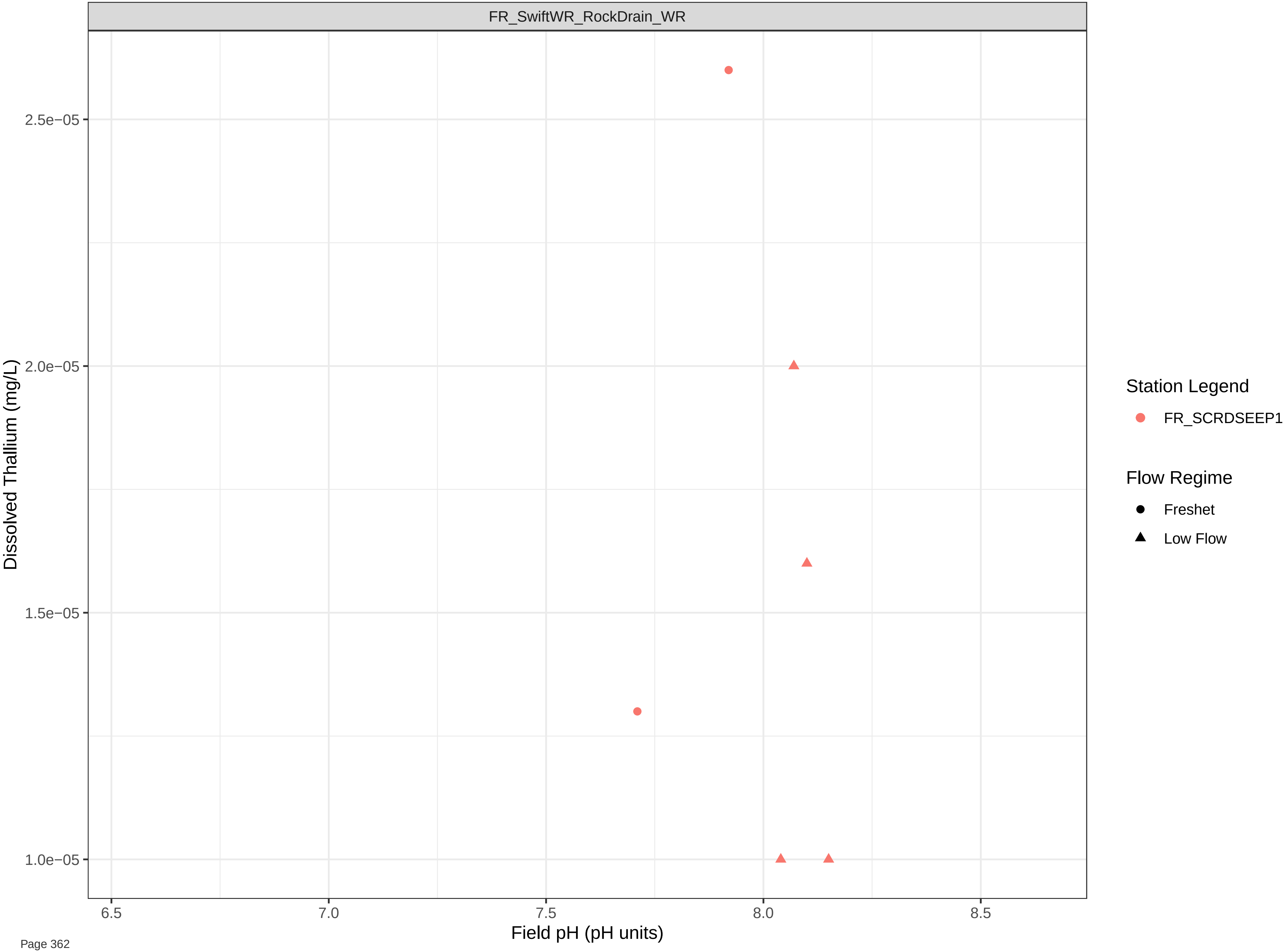

FR_HEN_WR
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

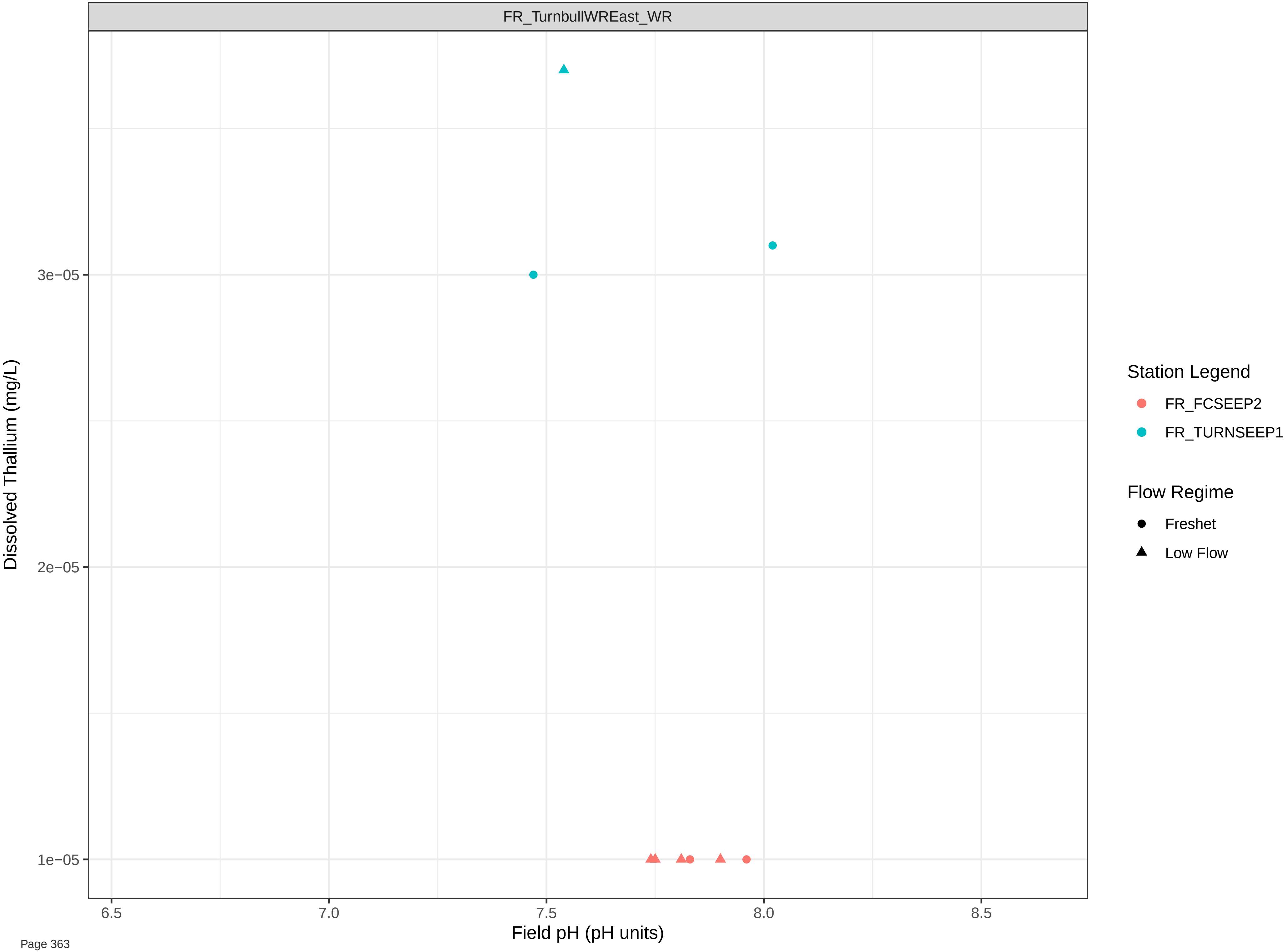

FR_LakeMtn_WR_PITS
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

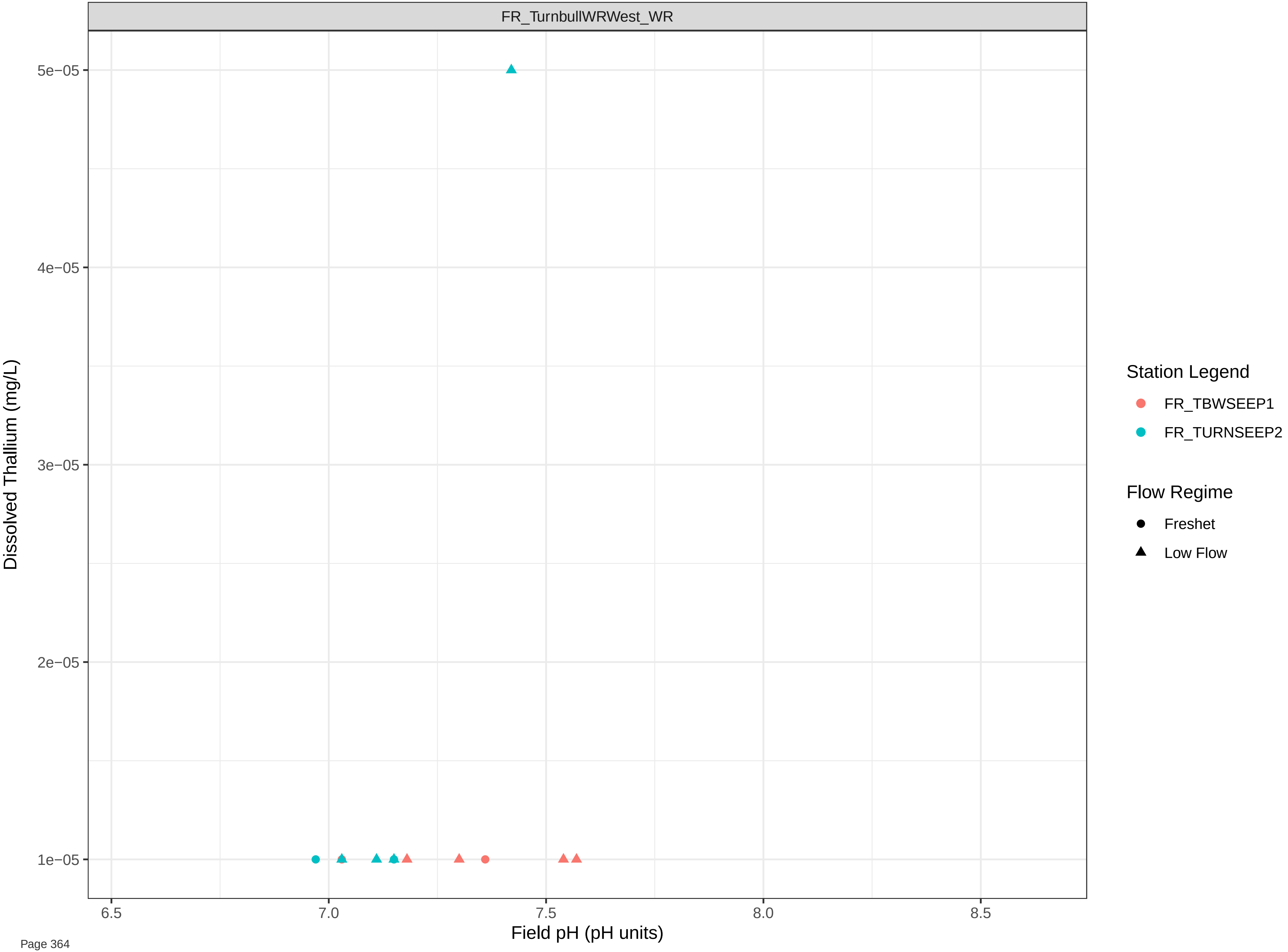

FR_Shandley_WR
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

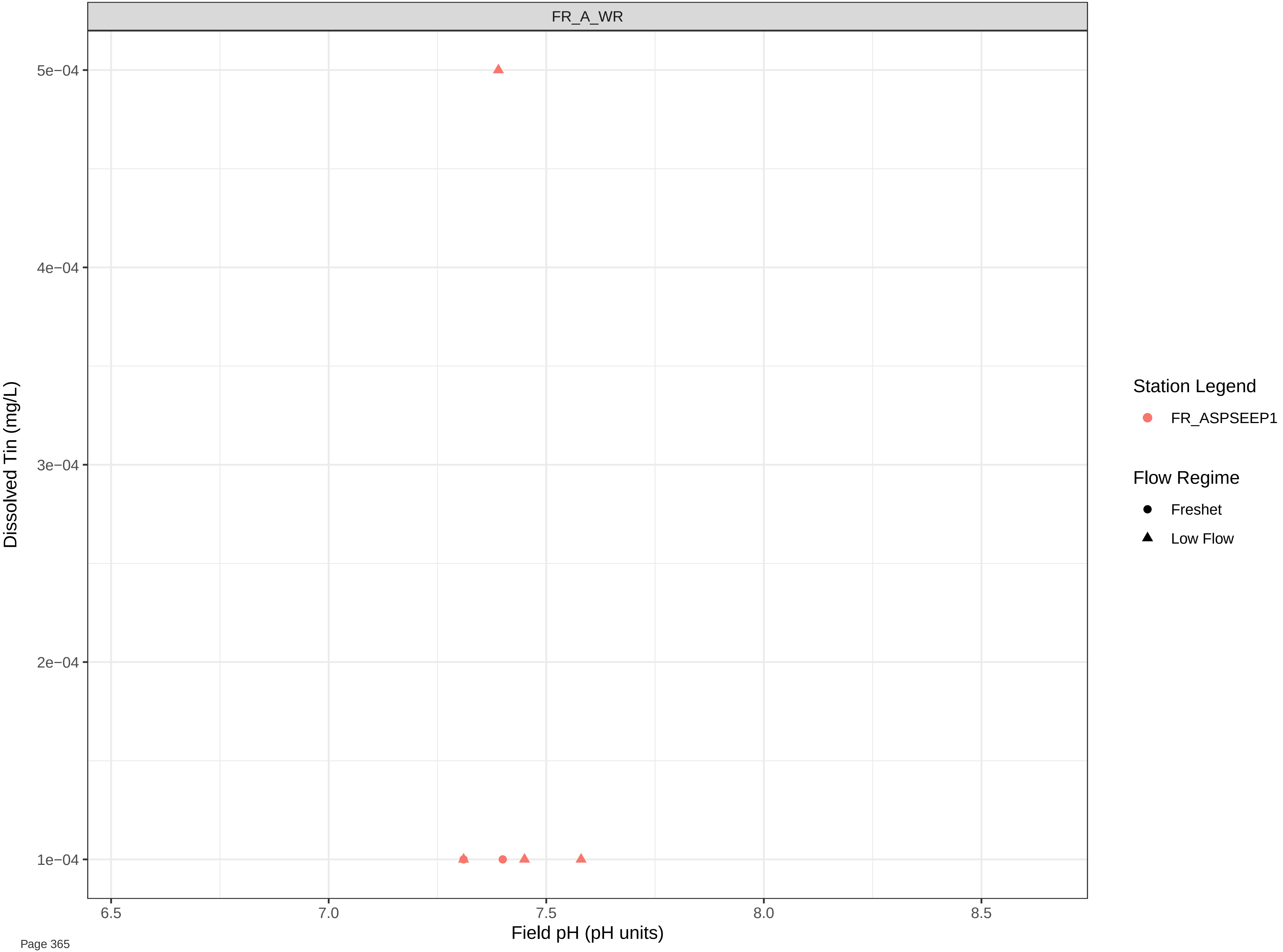

FR_Smith_WR
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

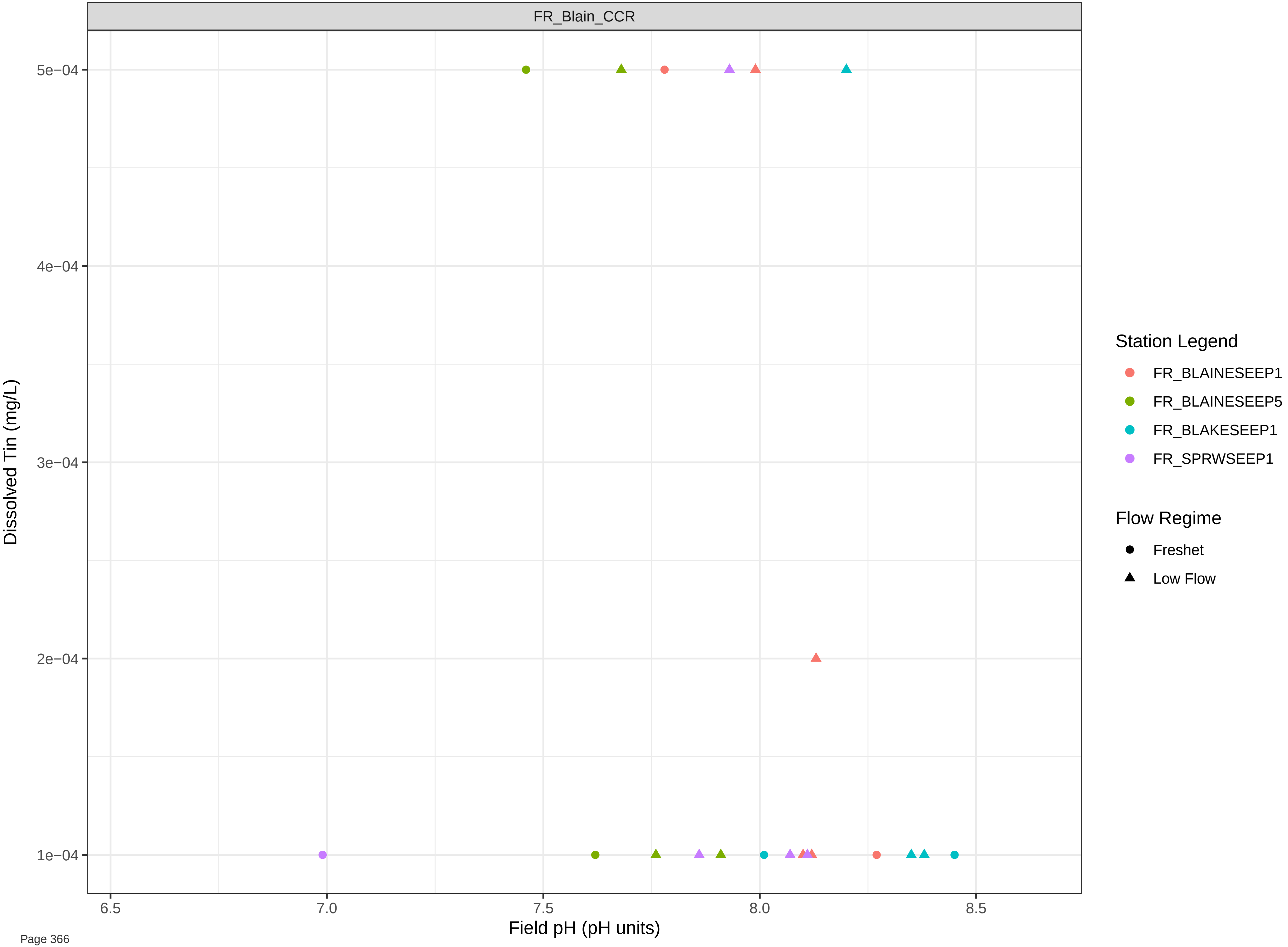

FR_SouthTails_Tailings
Dissolved Thallium (mg/L)
6e−05
4e−05
2e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

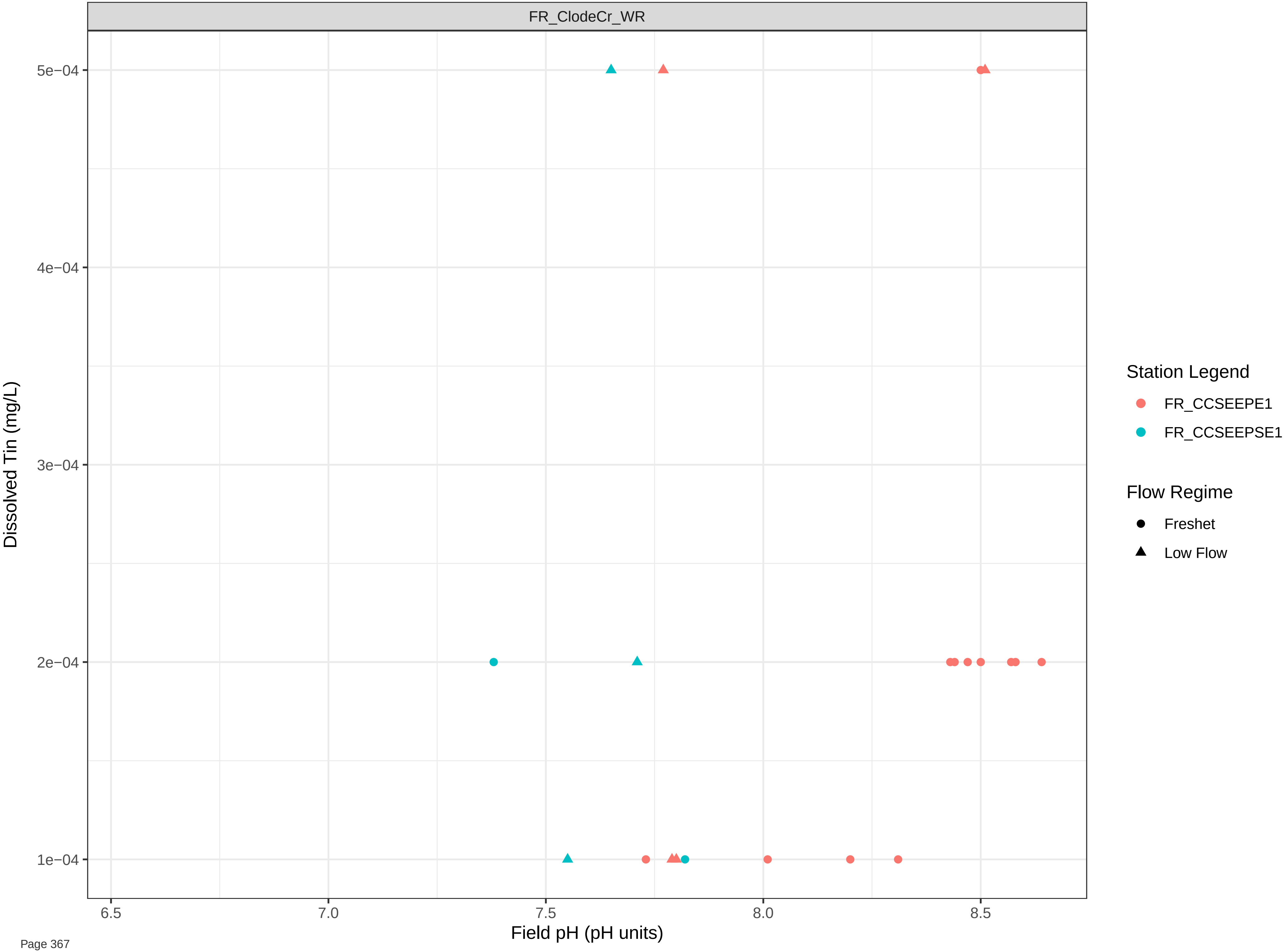

FR_SwiftWR_RockDrain_WR
Dissolved Thallium (mg/L)
2.5e−05
2.0e−05
1.5e−05
1.0e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

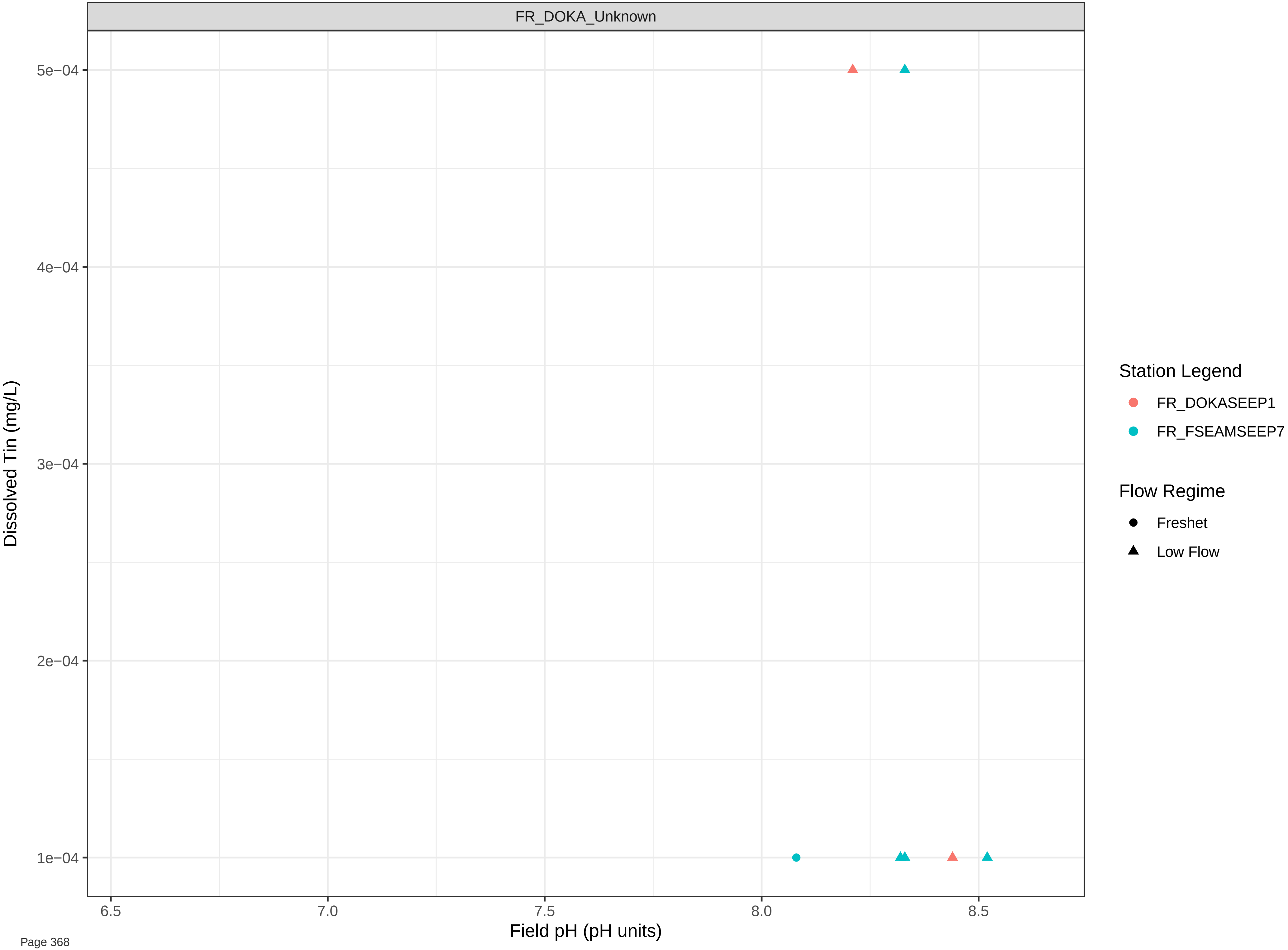

FR_TurnbullWREast_WR
Dissolved Thallium (mg/L)
3e−05
2e−05
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

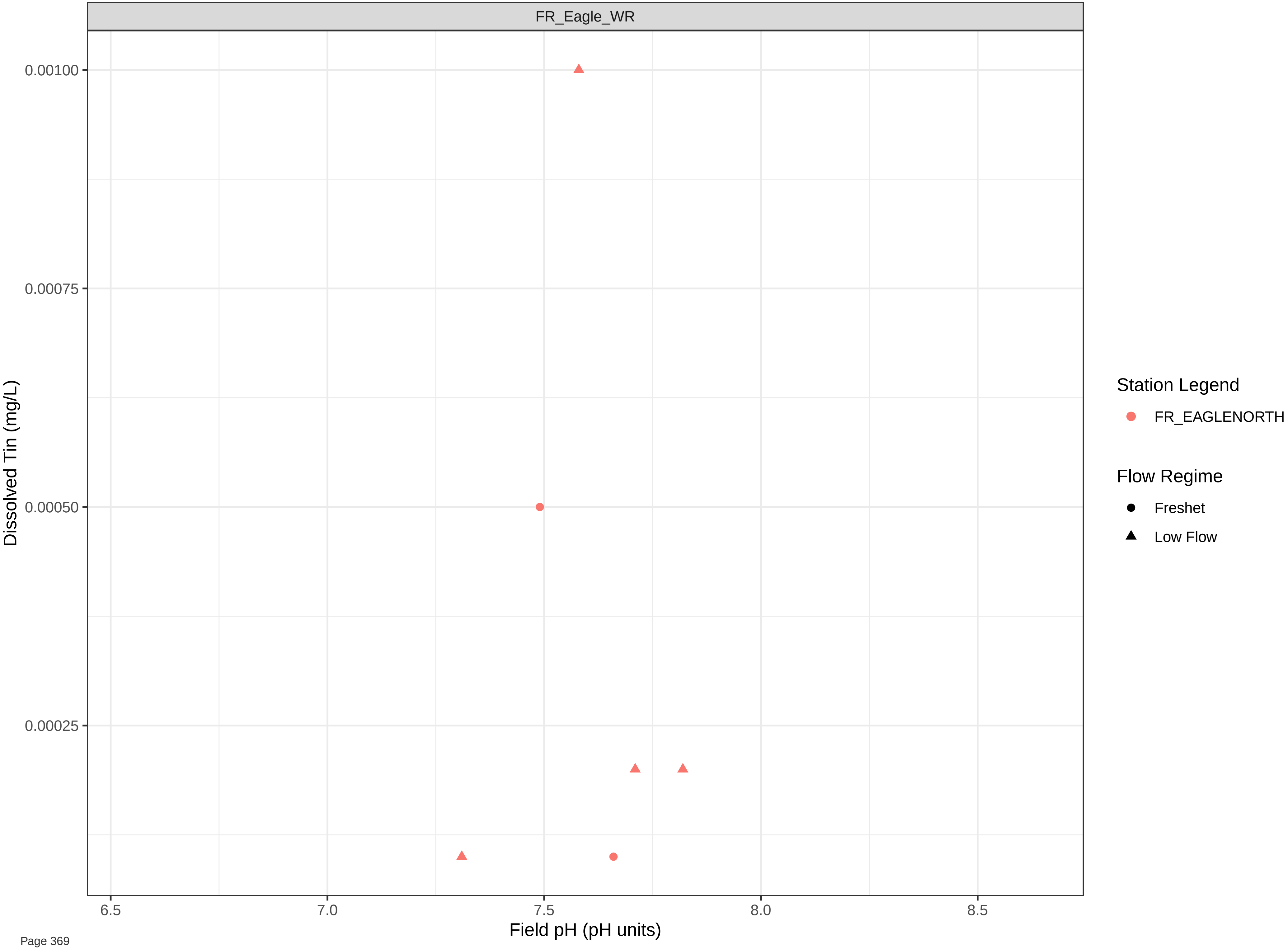

FR_TurnbullWRWest_WR
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

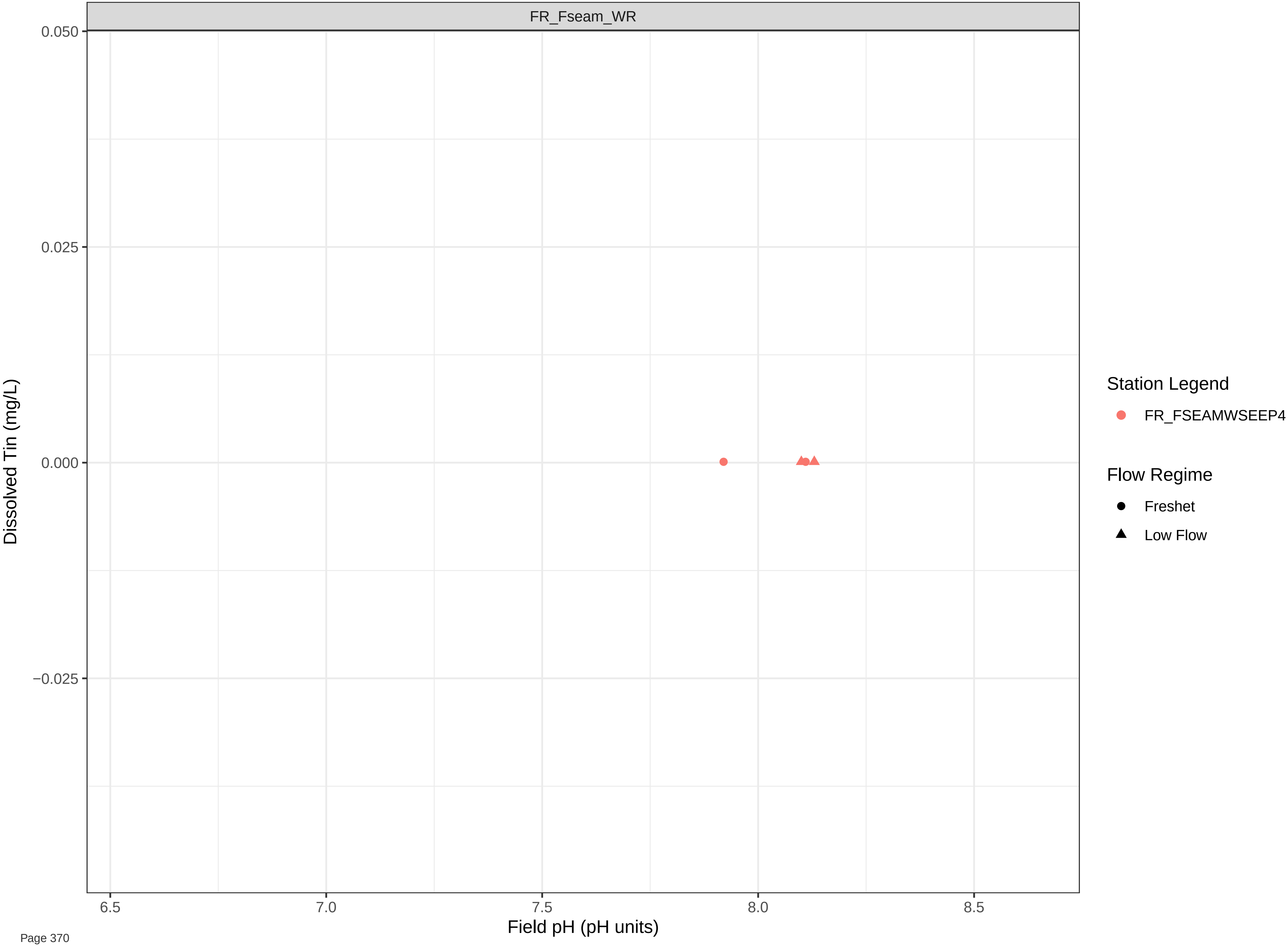

FR_A_WR
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

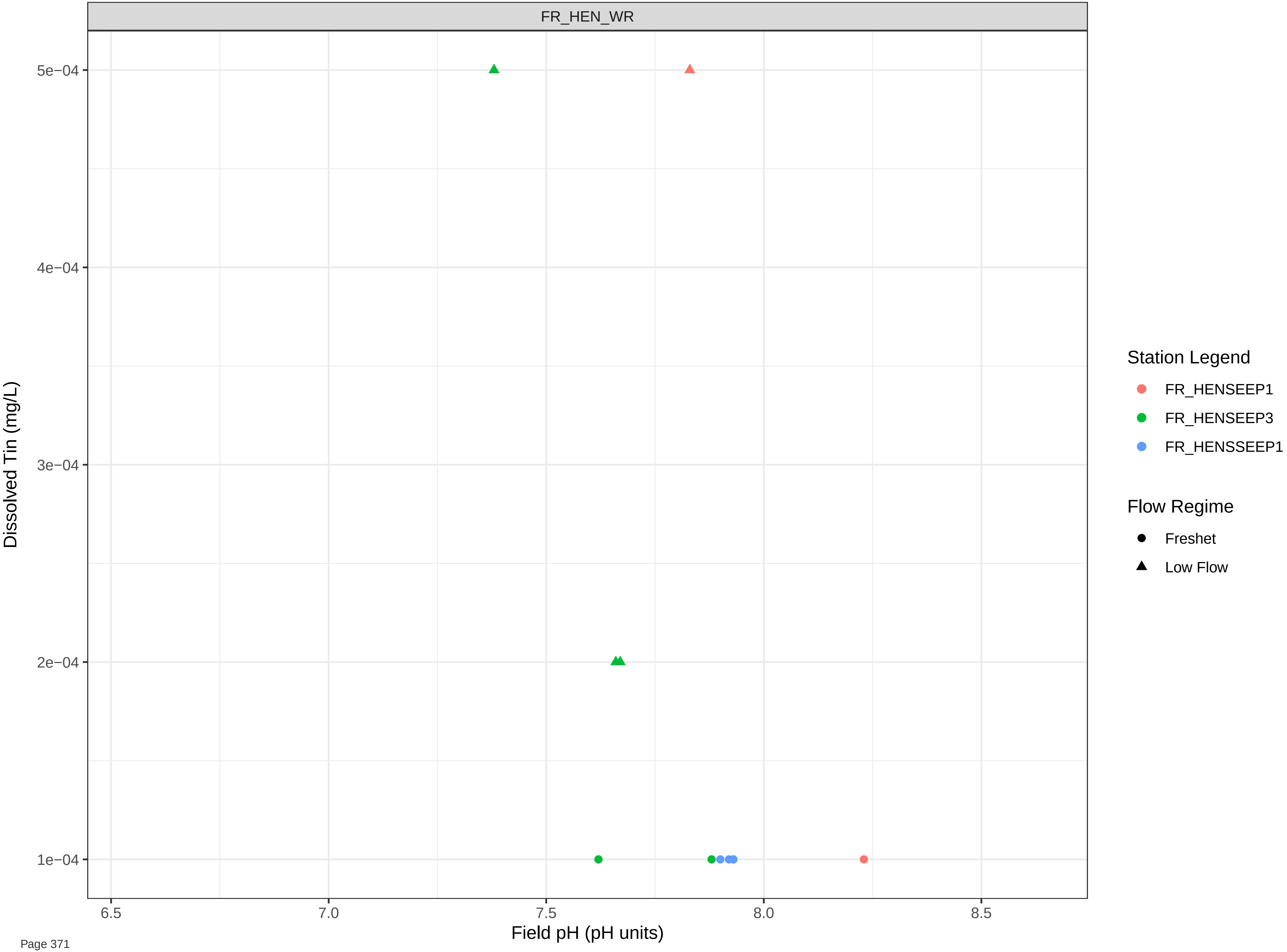

FR_Blain_CCR
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Tin (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

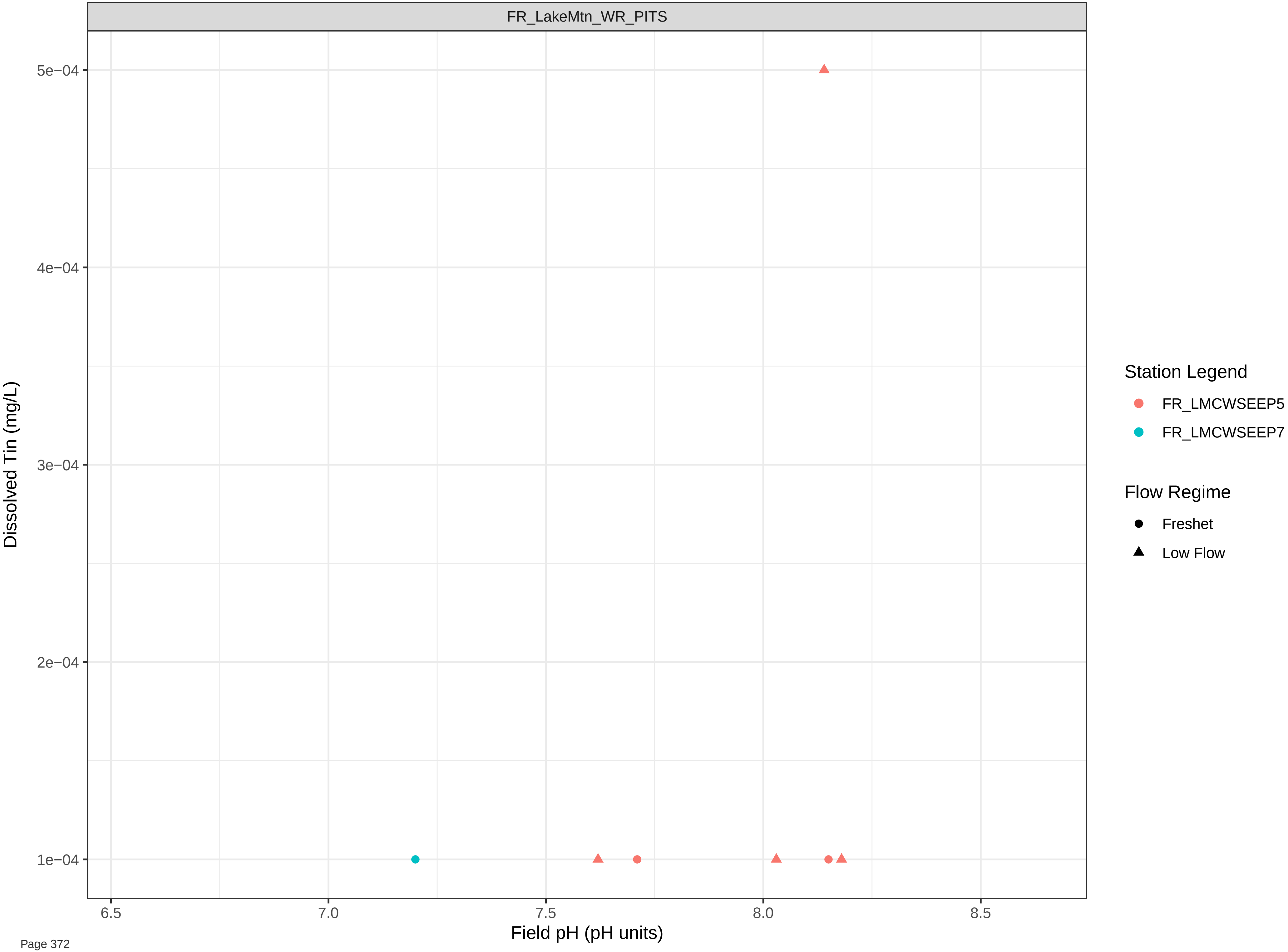

FR_ClodeCr_WR
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

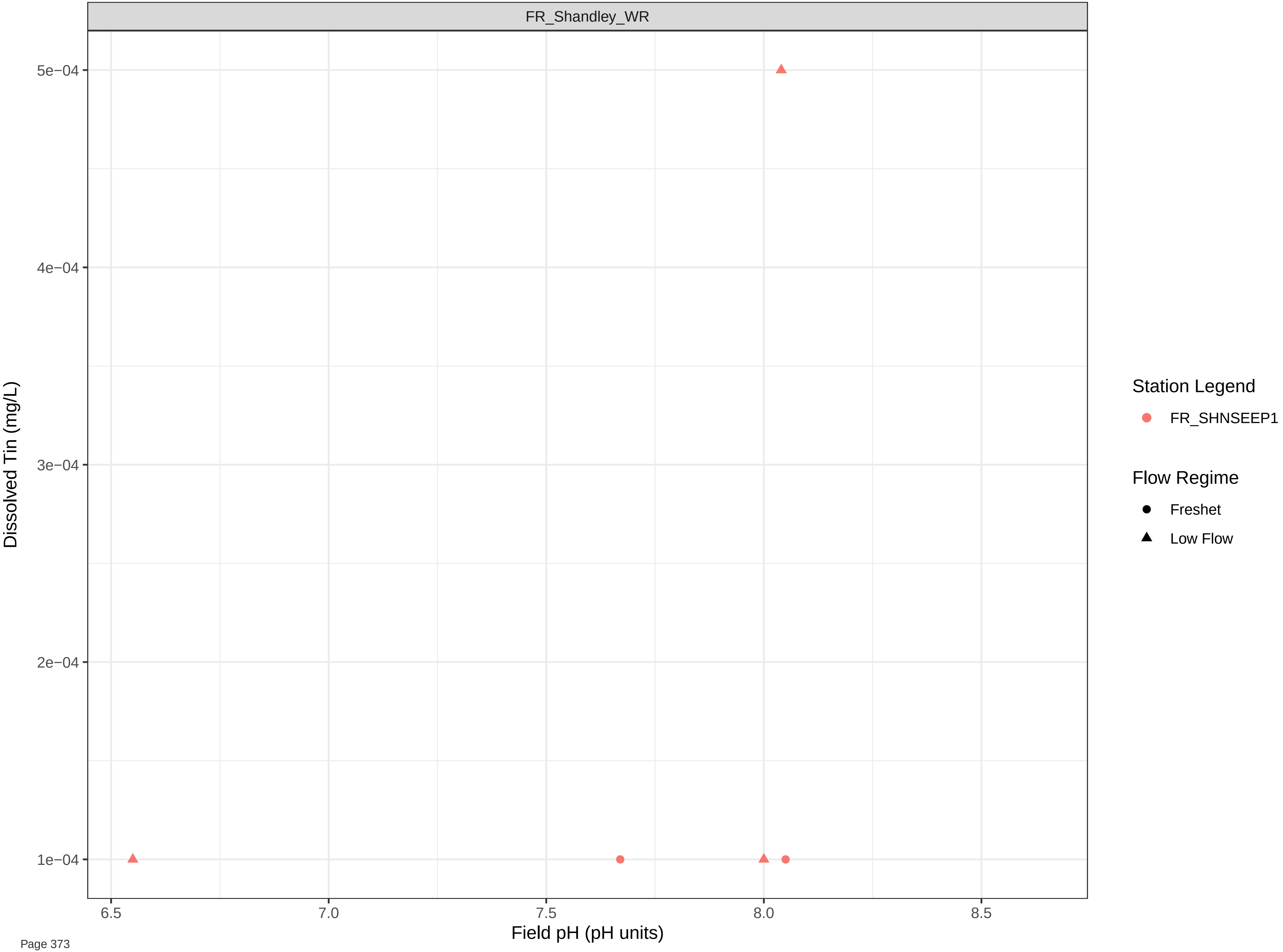

FR_DOKA_Unknown
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

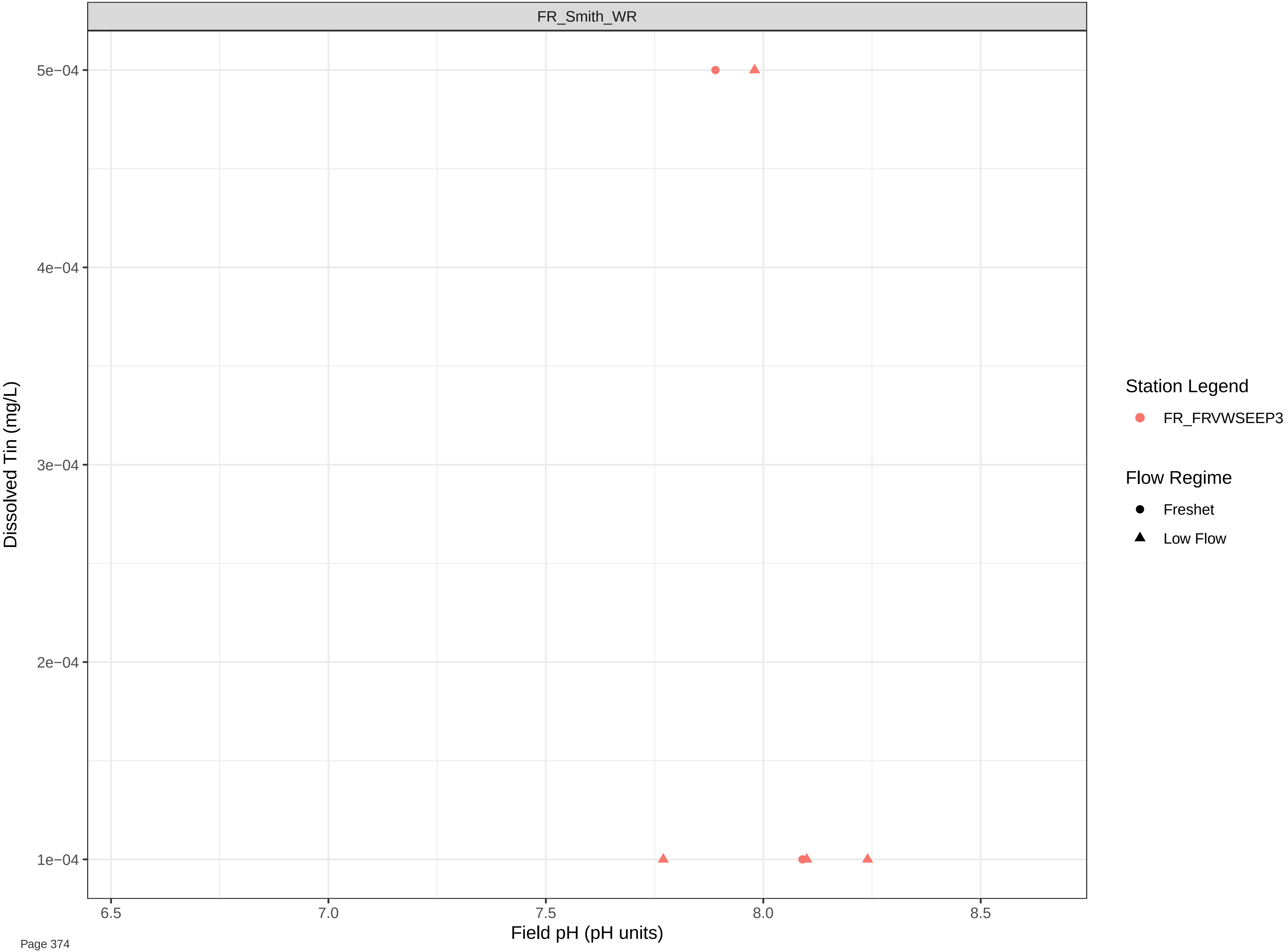

FR_Eagle_WR
Dissolved Tin (mg/L)
0.00100
0.00075
0.00050
0.00025
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

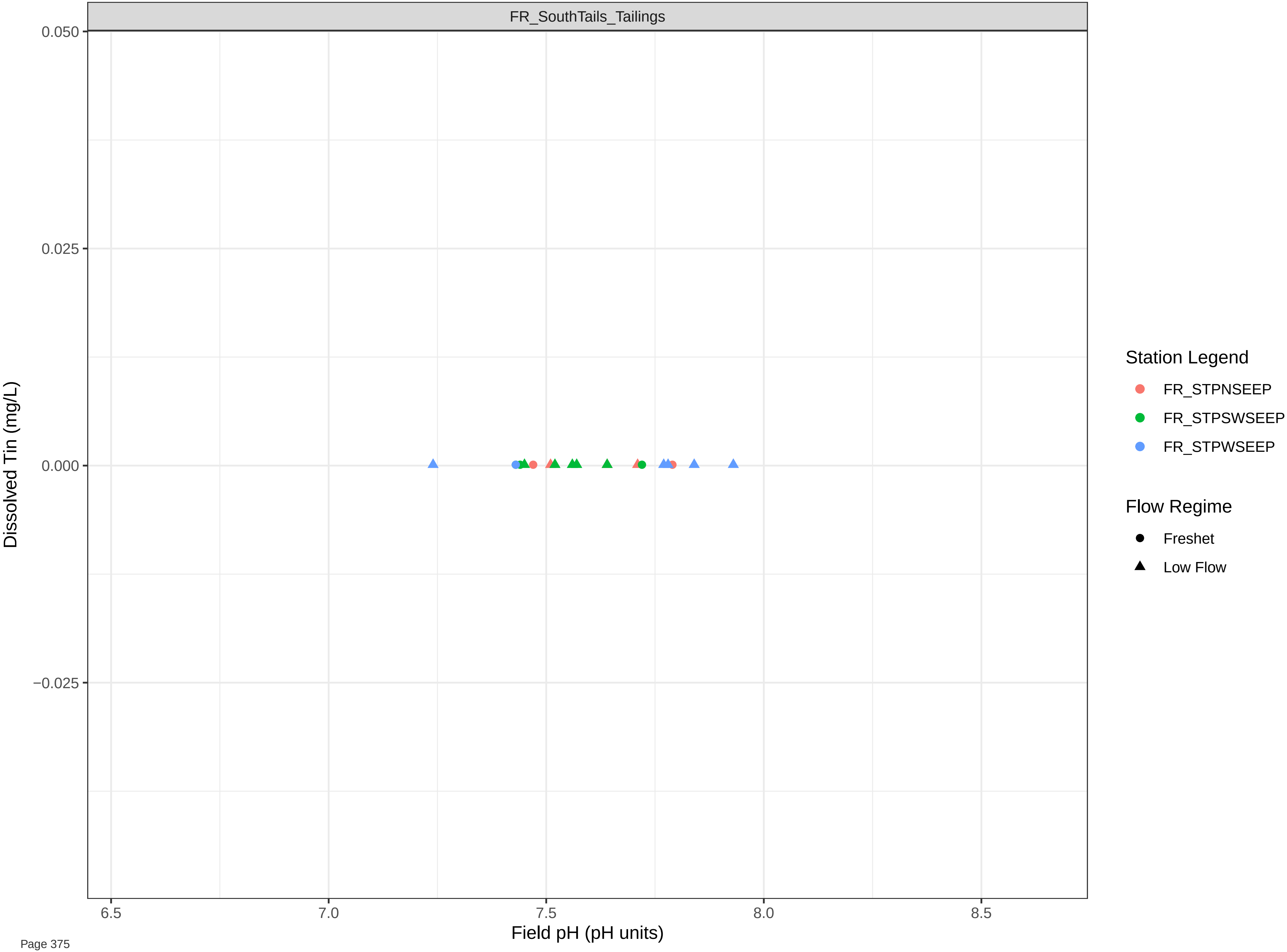

FR_Fseam_WR
Dissolved Tin (mg/L)
0.050
0.025
0.000
−0.025
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

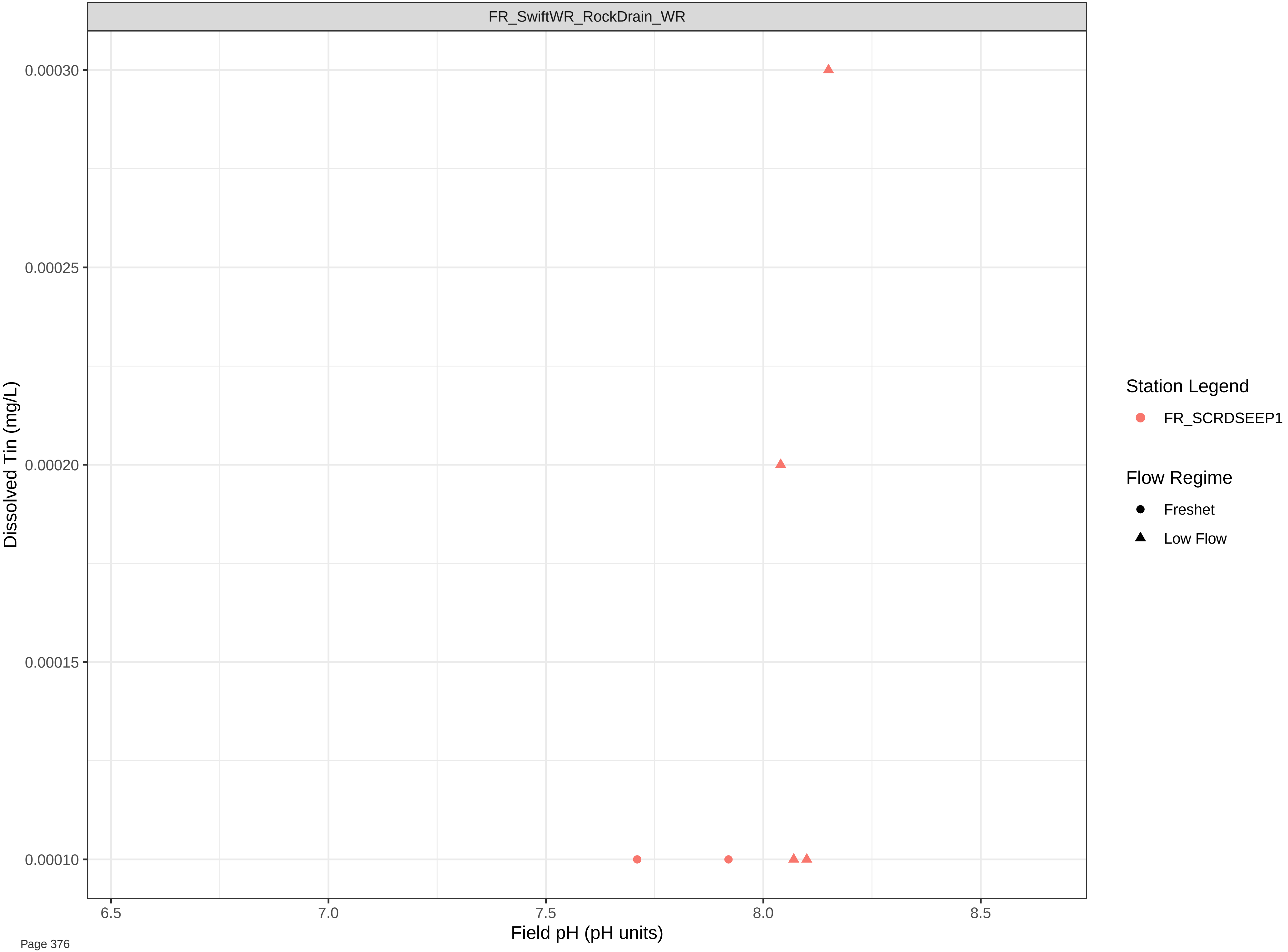

FR_HEN_WR
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

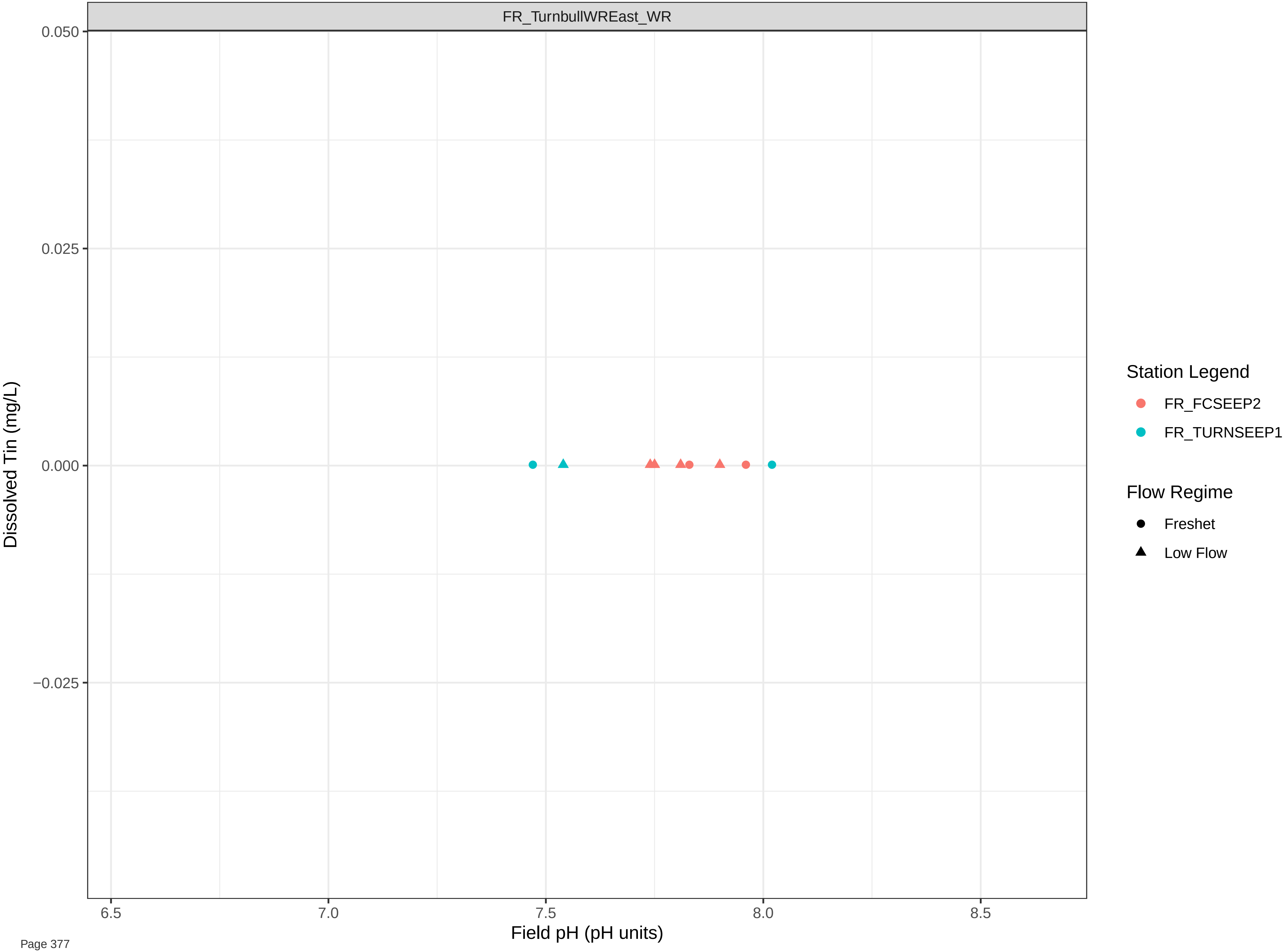

FR_LakeMtn_WR_PITS
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

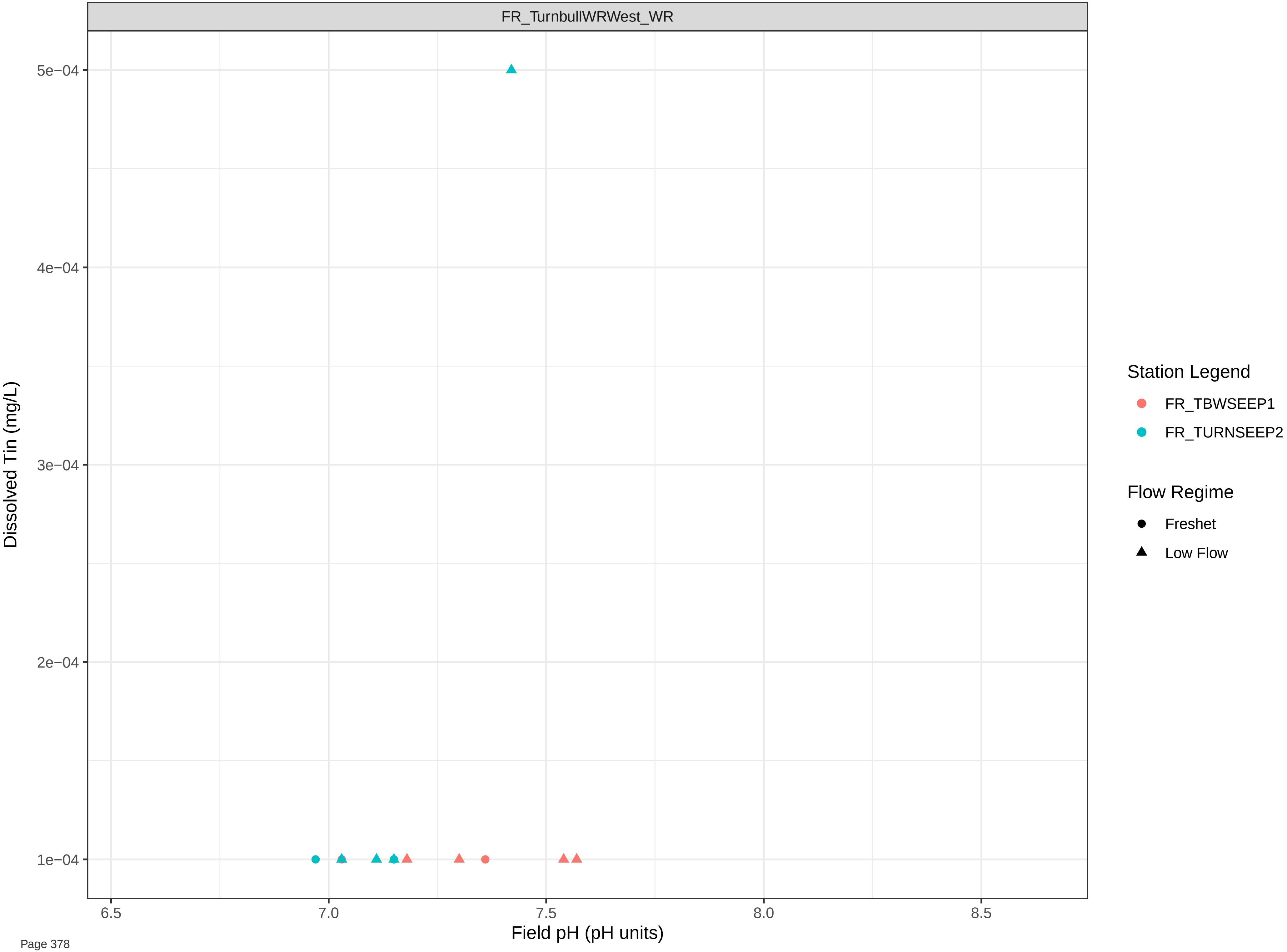

FR_Shandley_WR
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

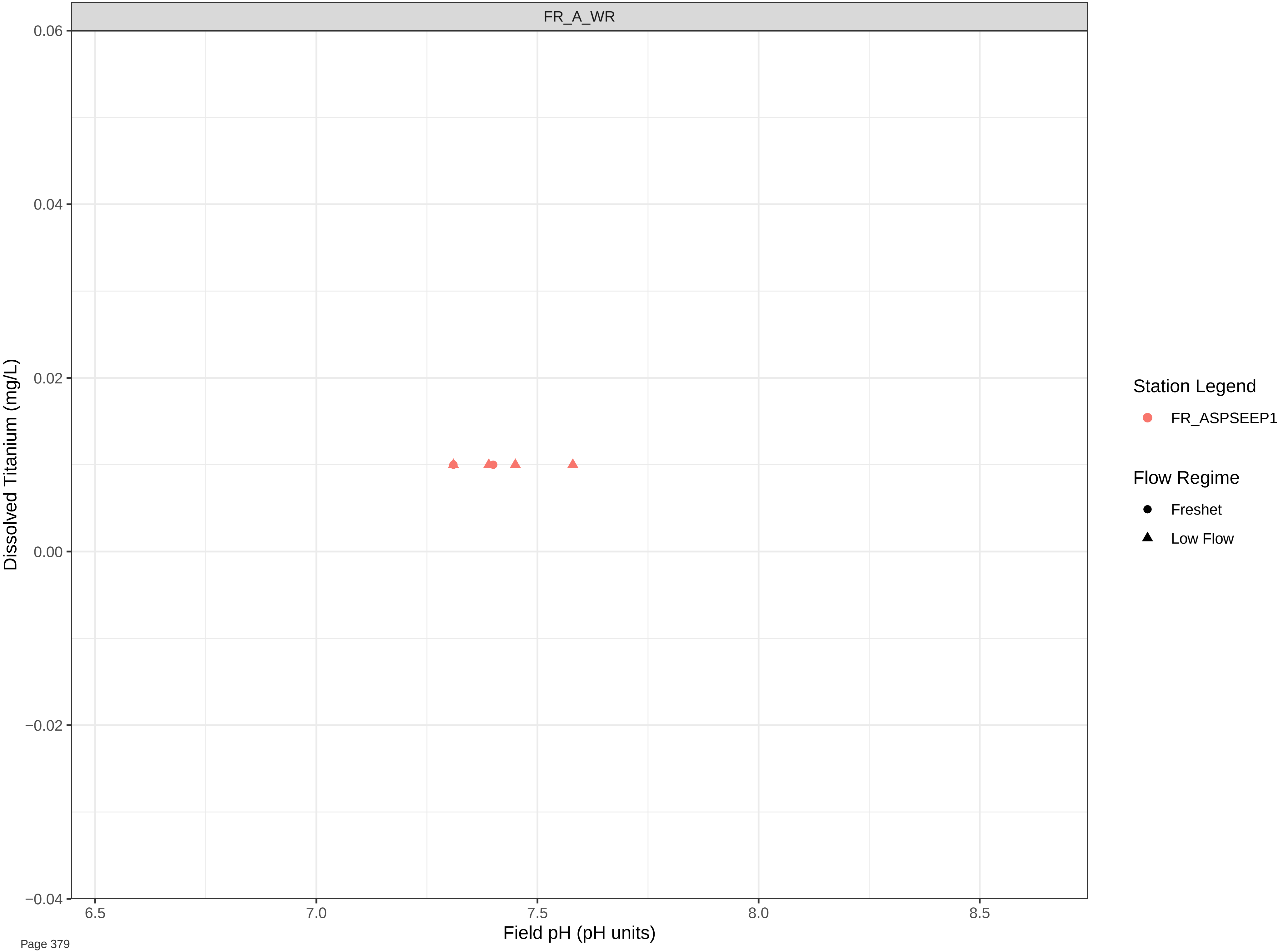

FR_Smith_WR
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

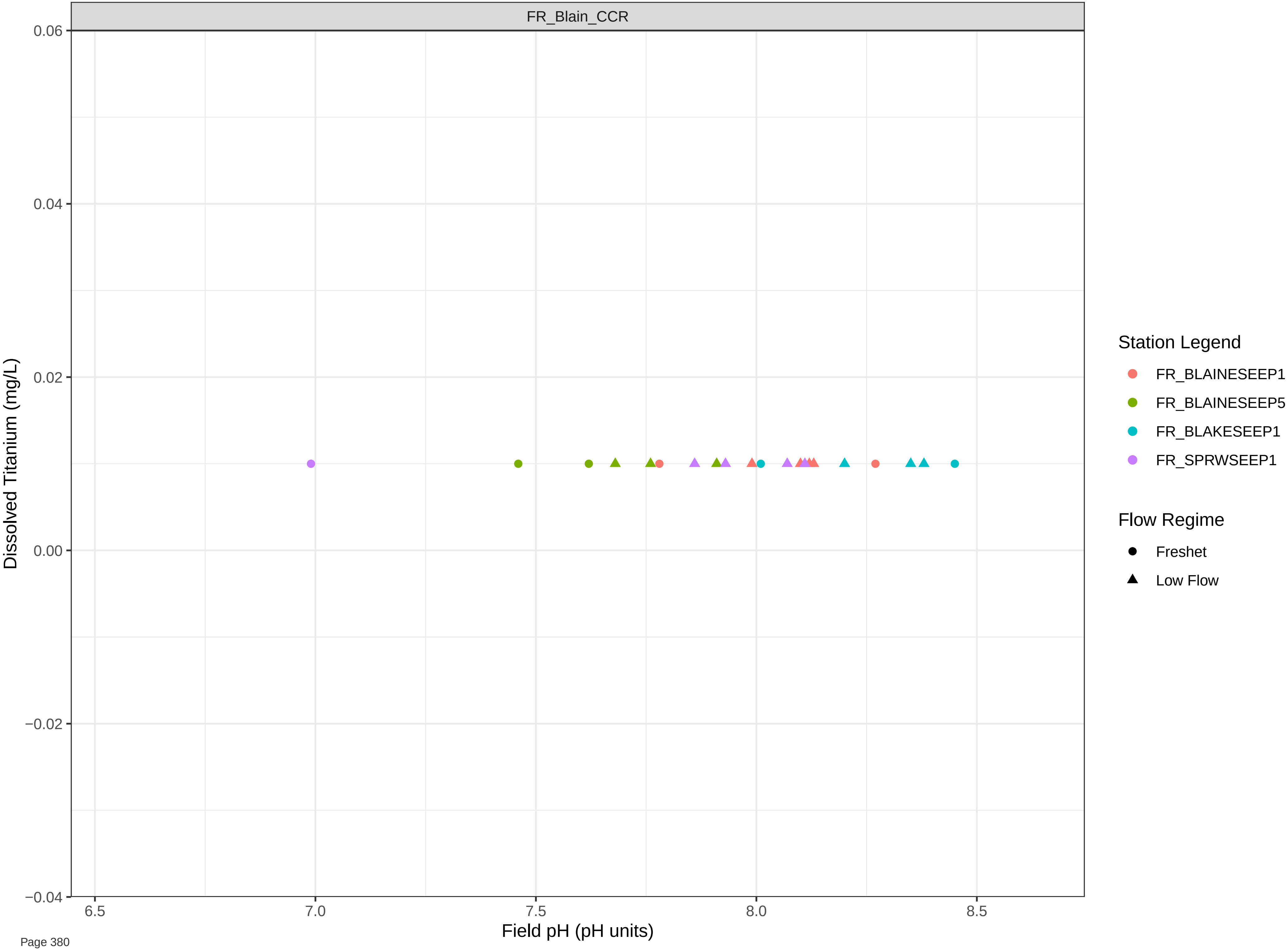

FR_SouthTails_Tailings
0.050
0.025
0.000
−0.025
Dissolved Tin (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

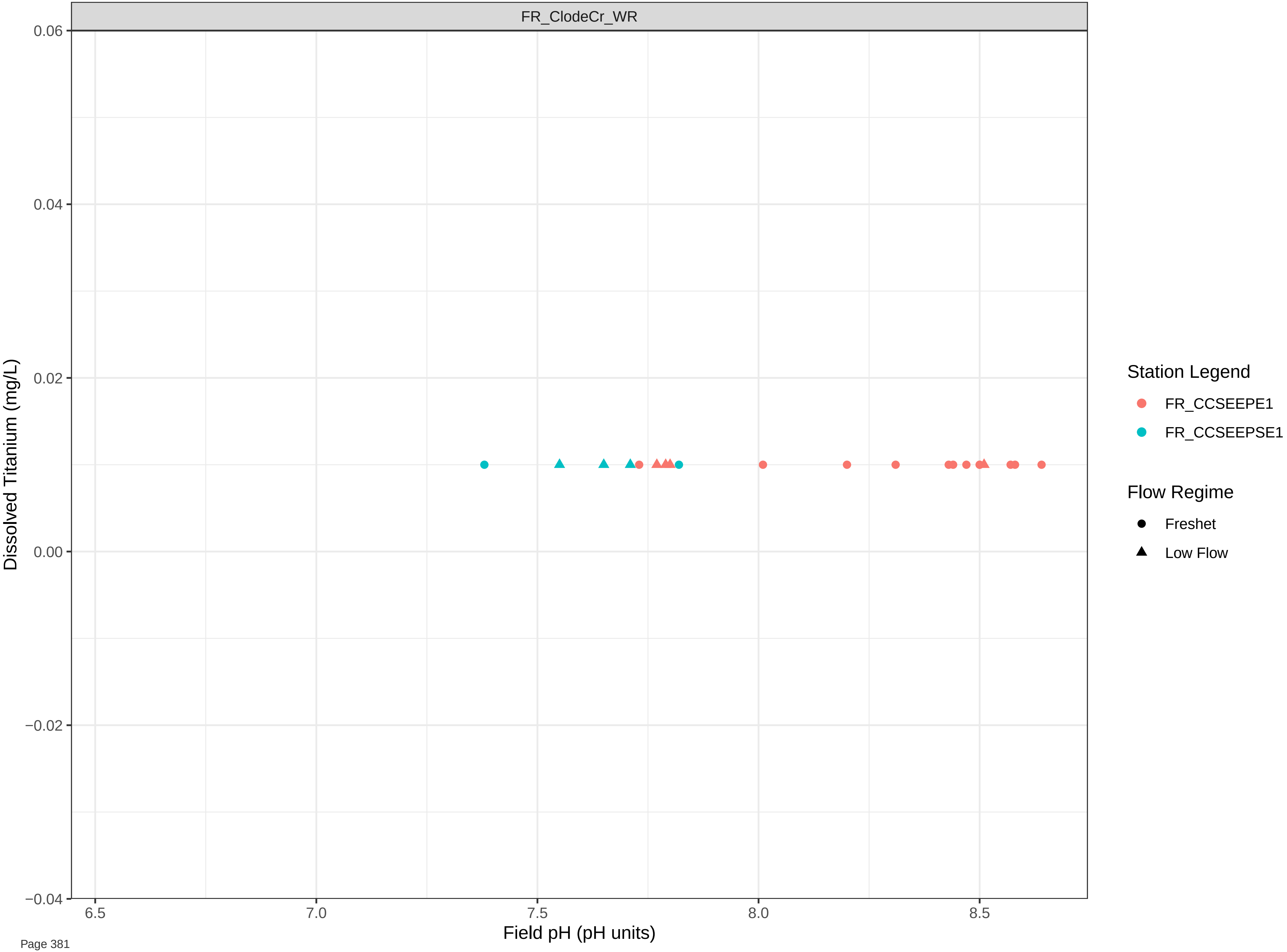

FR_SwiftWR_RockDrain_WR
Dissolved Tin (mg/L)
0.00030
0.00025
0.00020
0.00015
0.00010
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

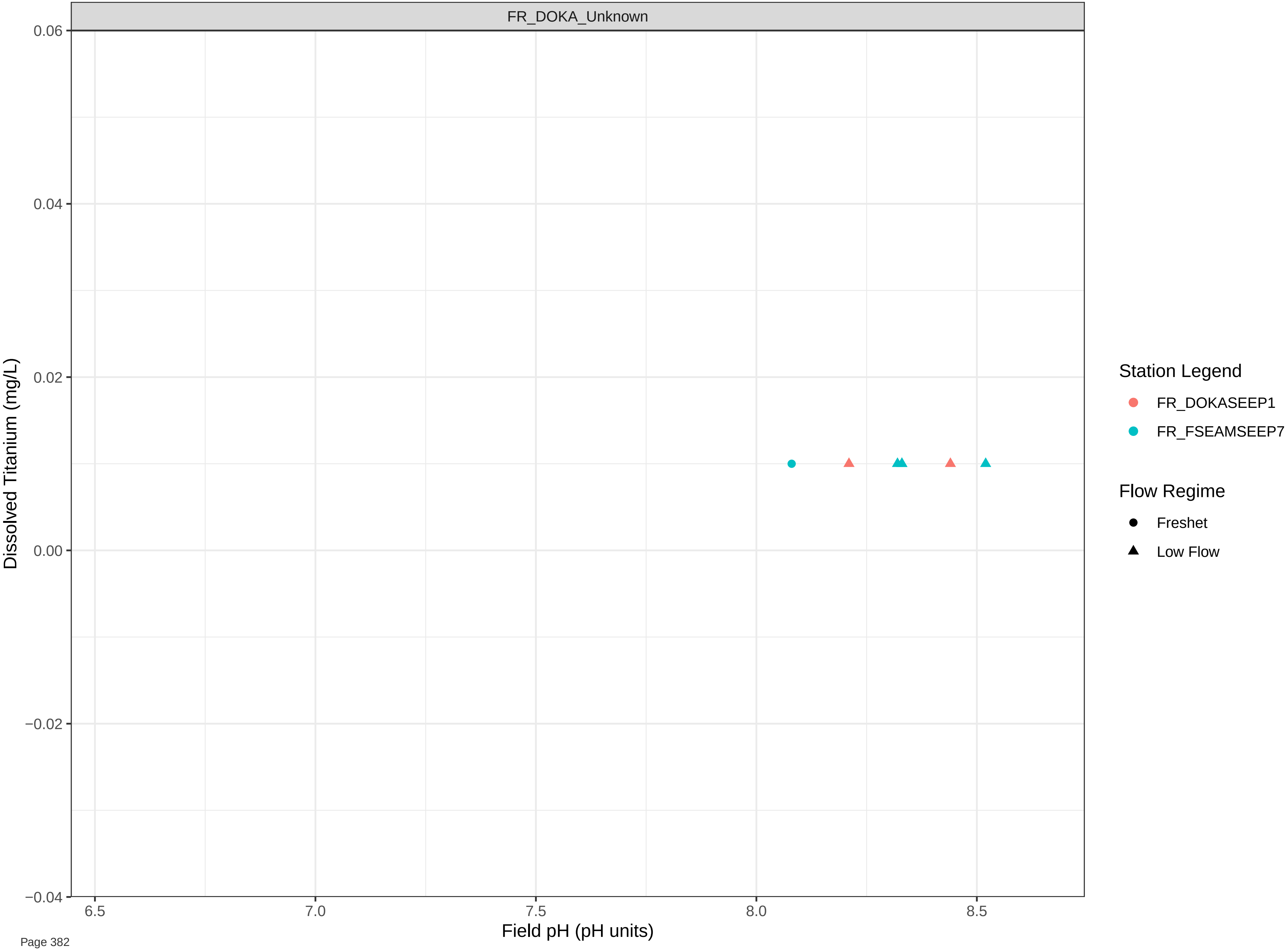

FR_TurnbullWREast_WR
0.050
0.025
0.000
−0.025
Dissolved Tin (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

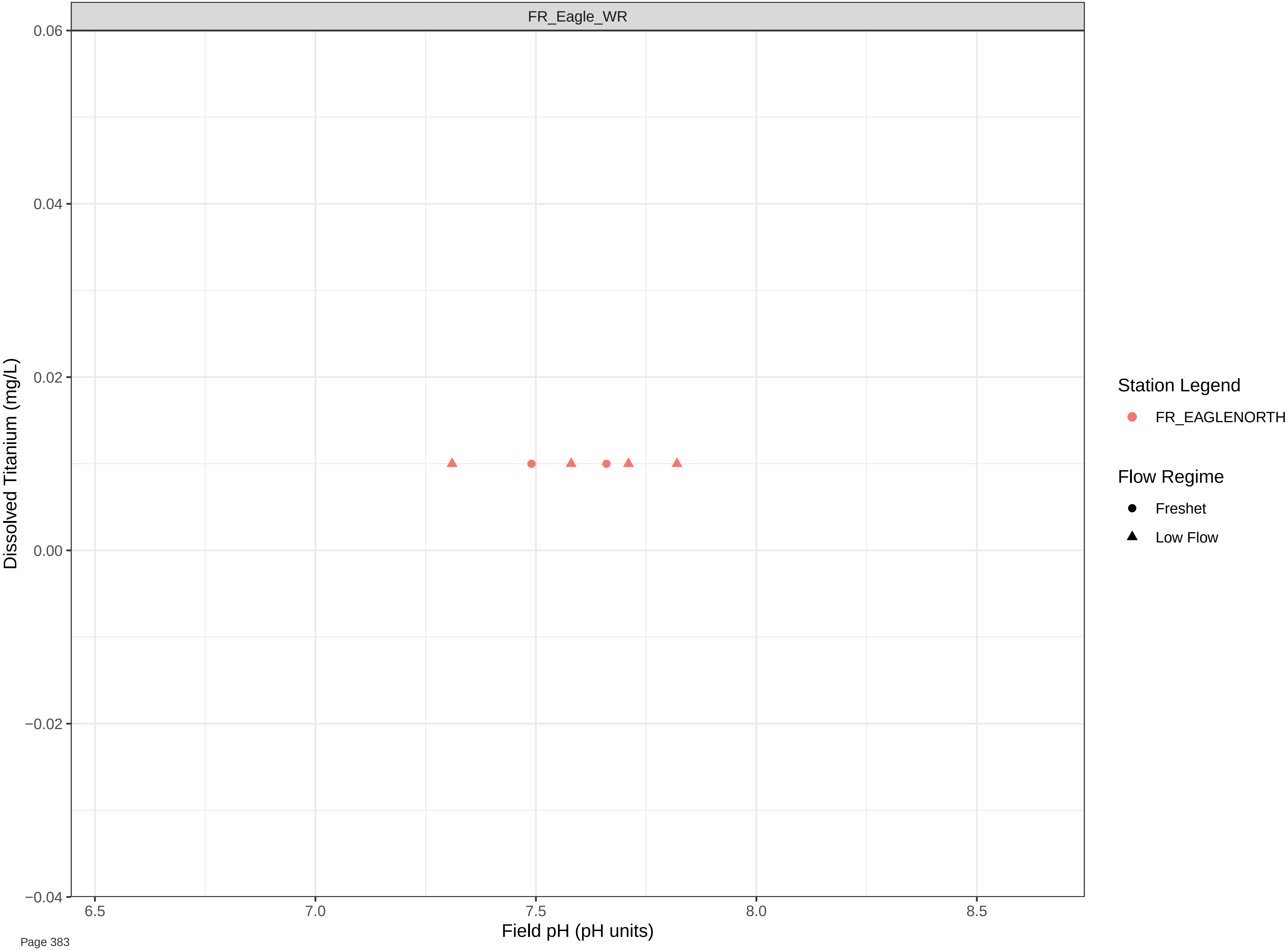

FR_TurnbullWRWest_WR
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

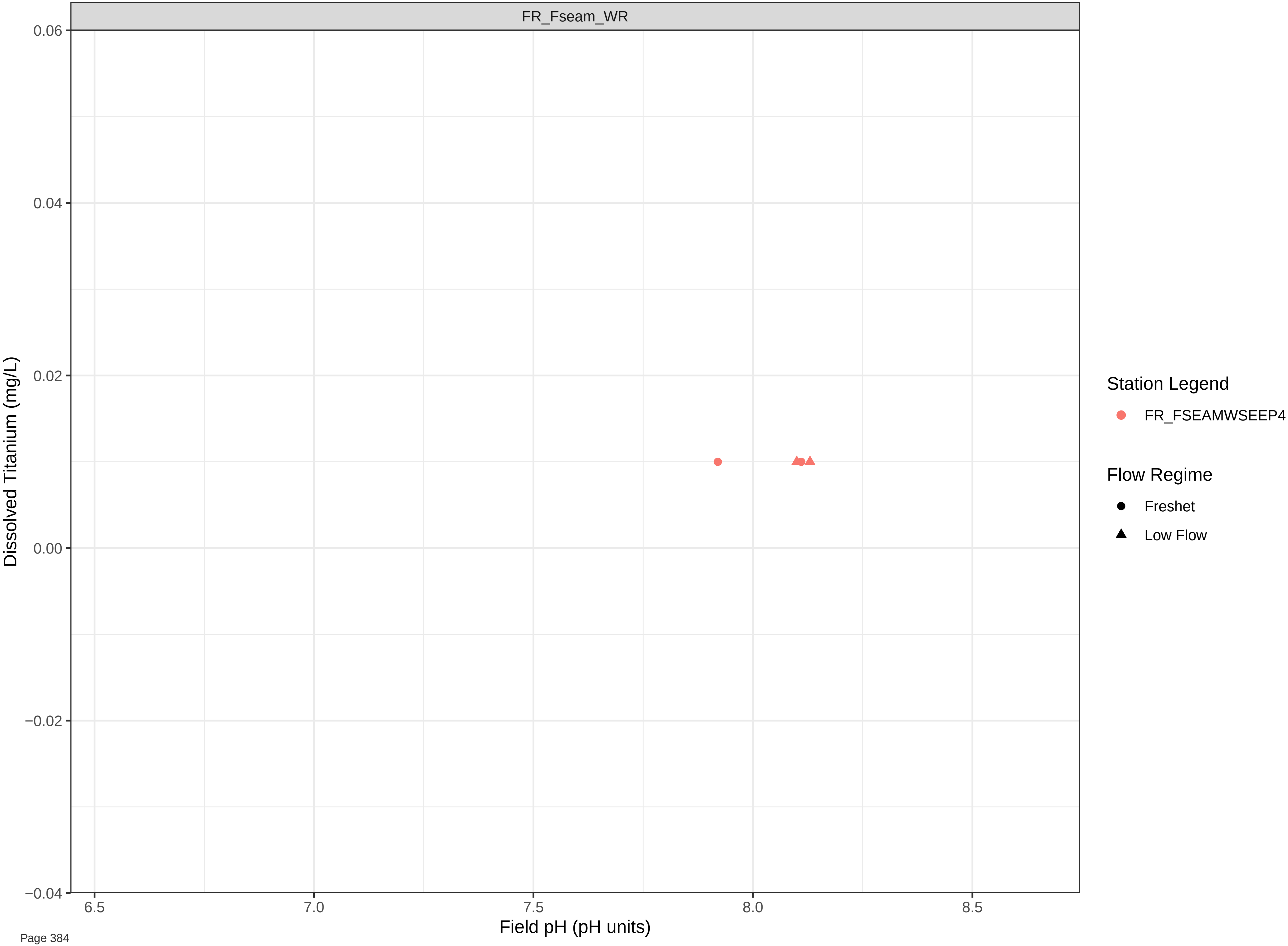

FR_A_WR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

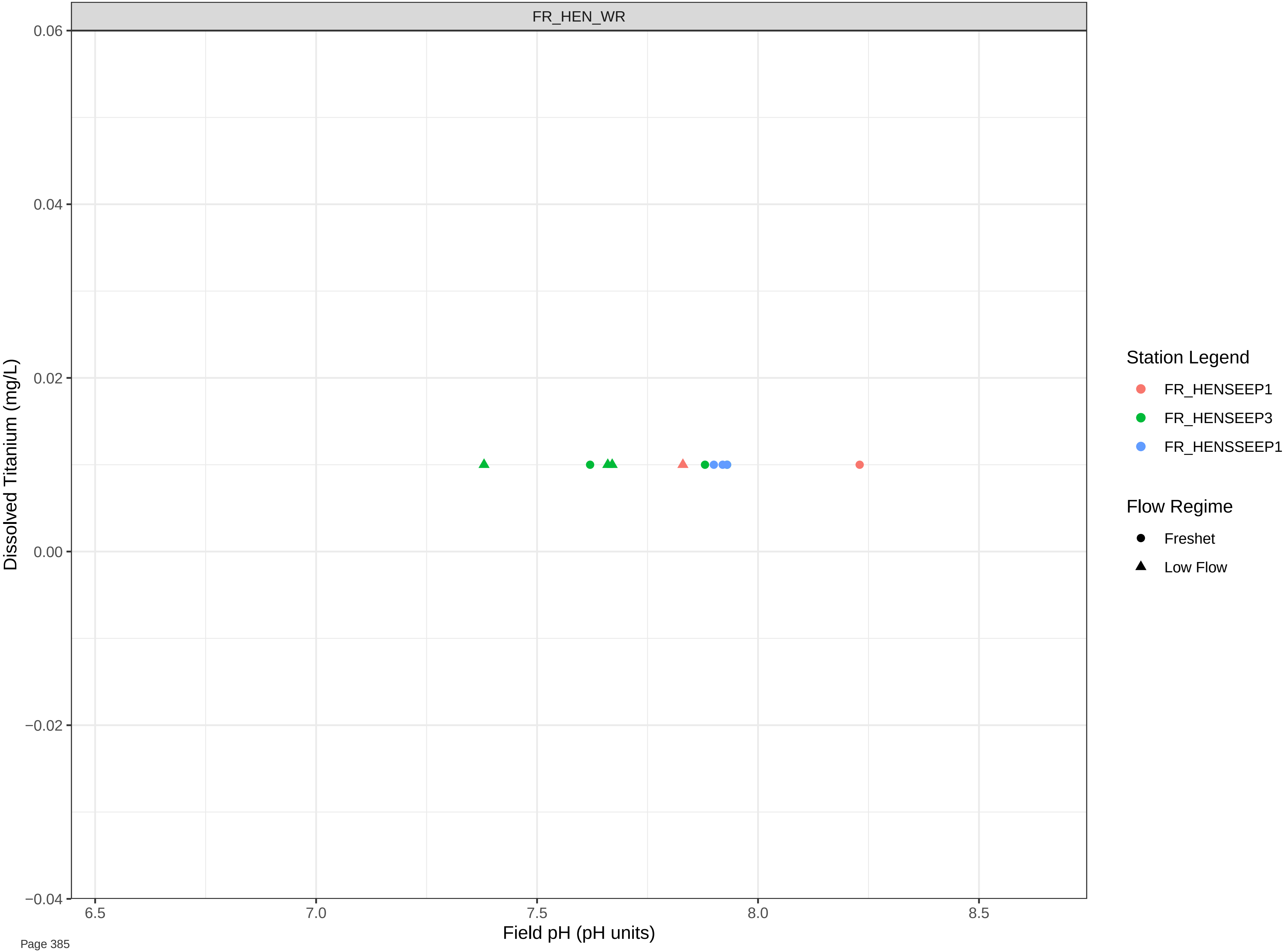

FR_Blain_CCR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

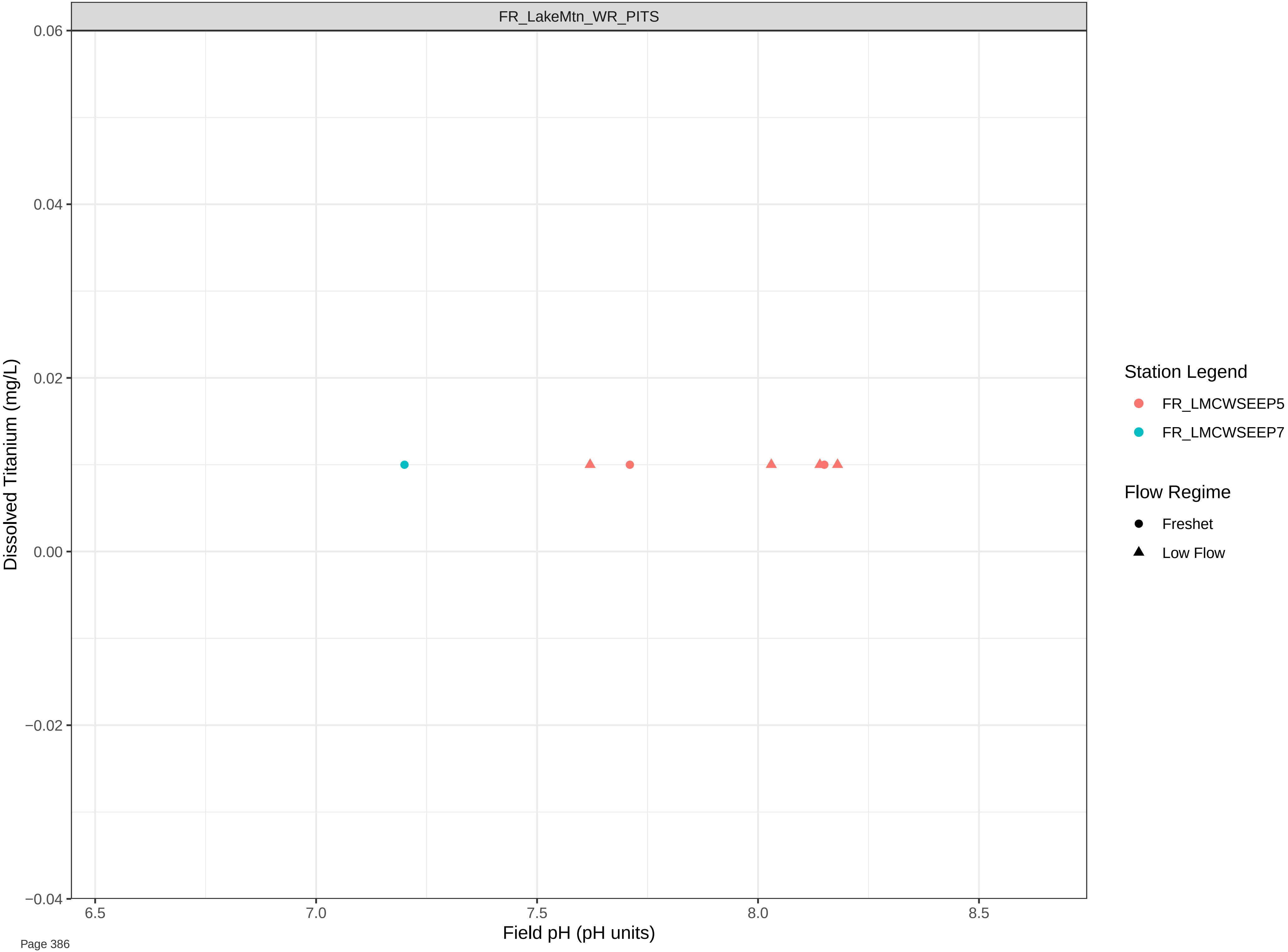

FR_ClodeCr_WR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

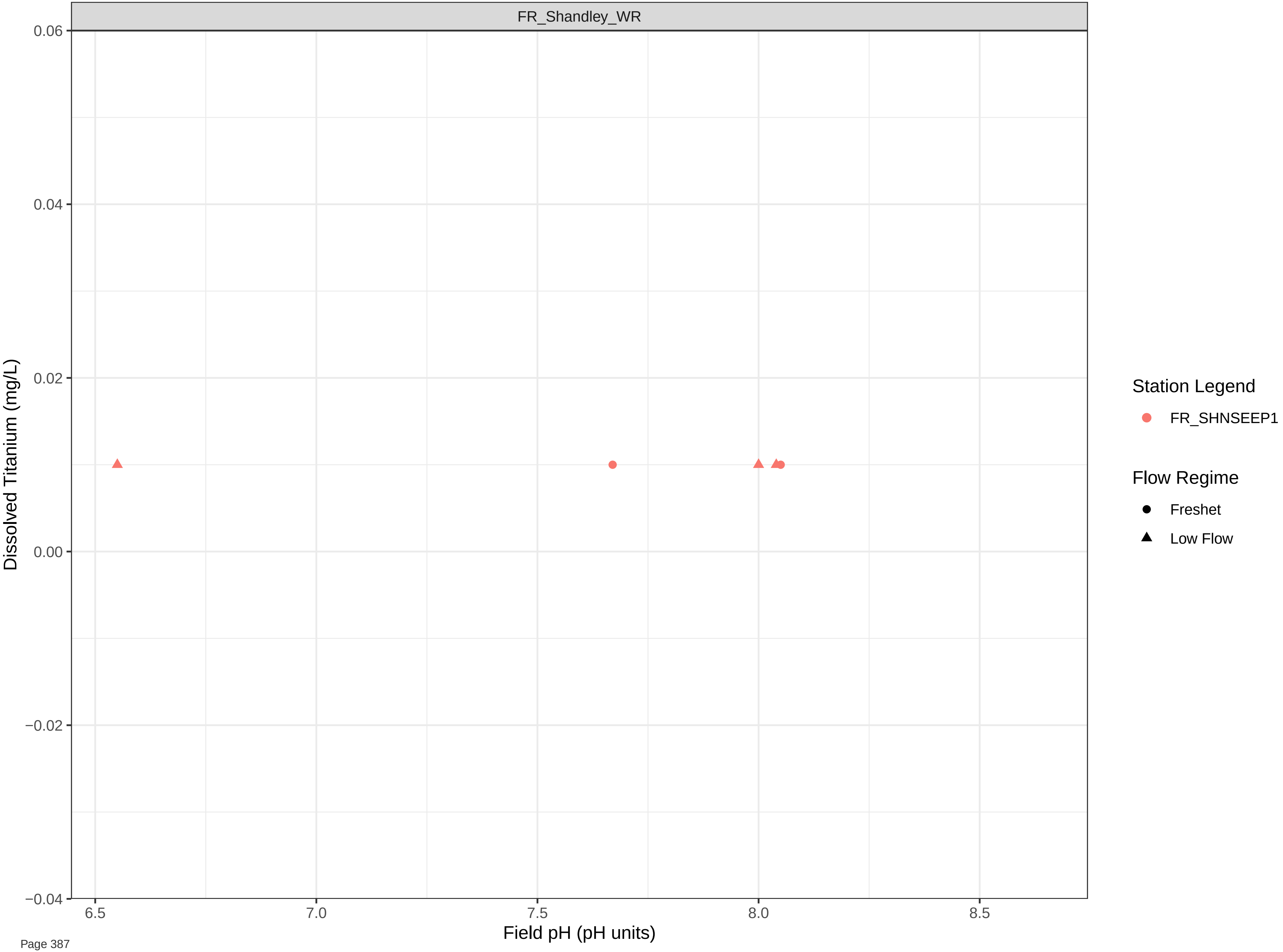

FR_DOKA_Unknown
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

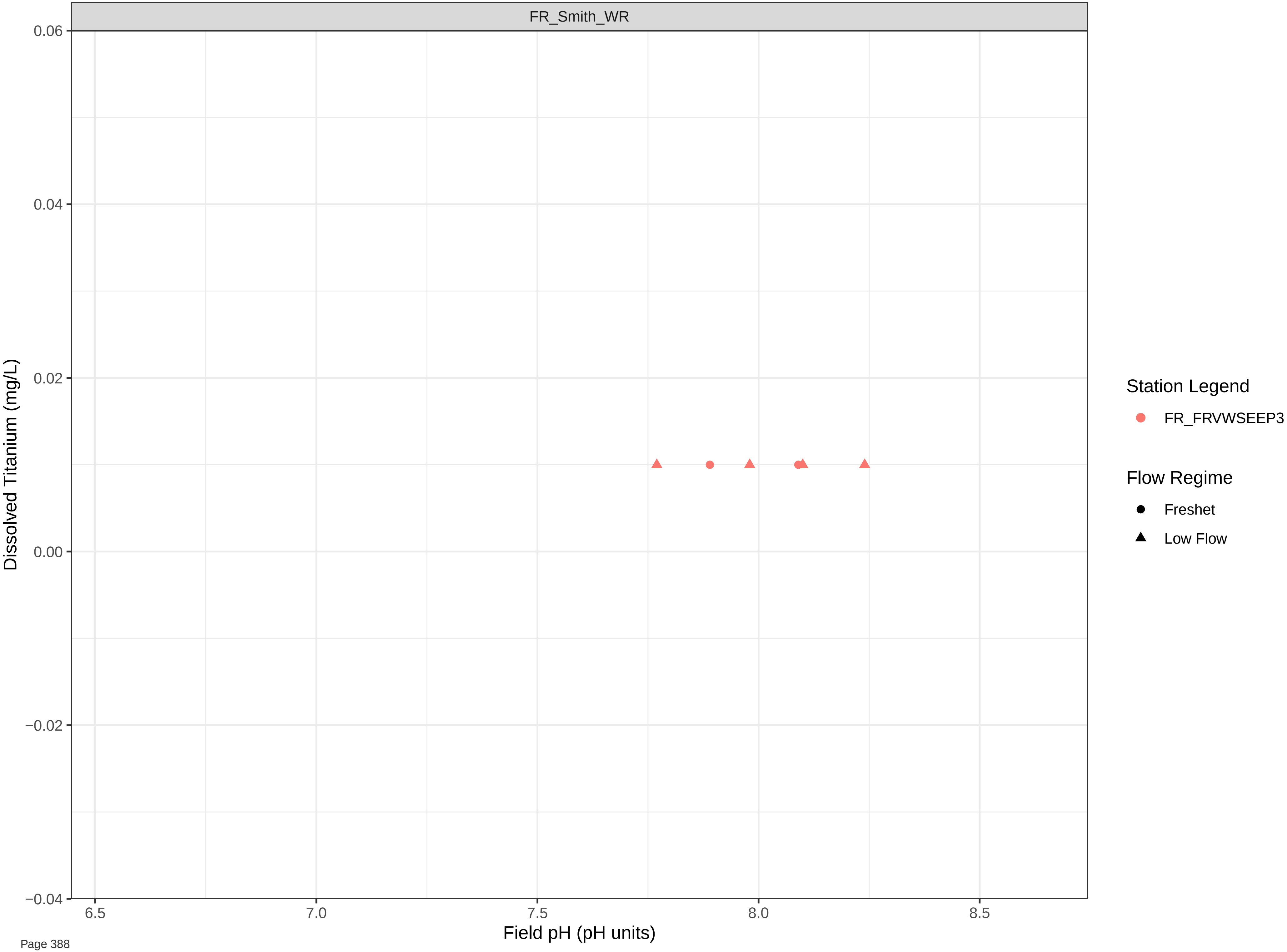

FR_Eagle_WR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

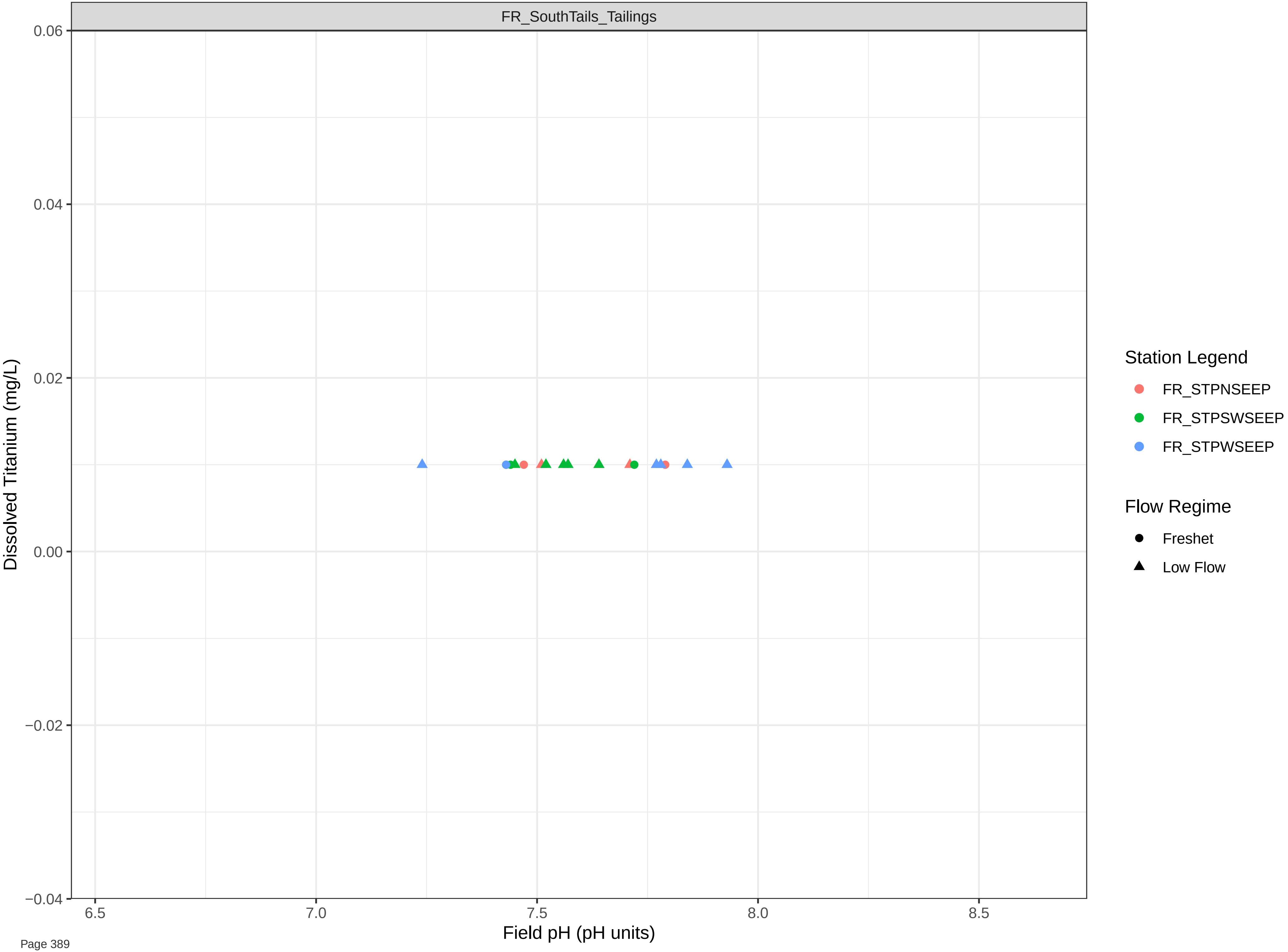

FR_Fseam_WR
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

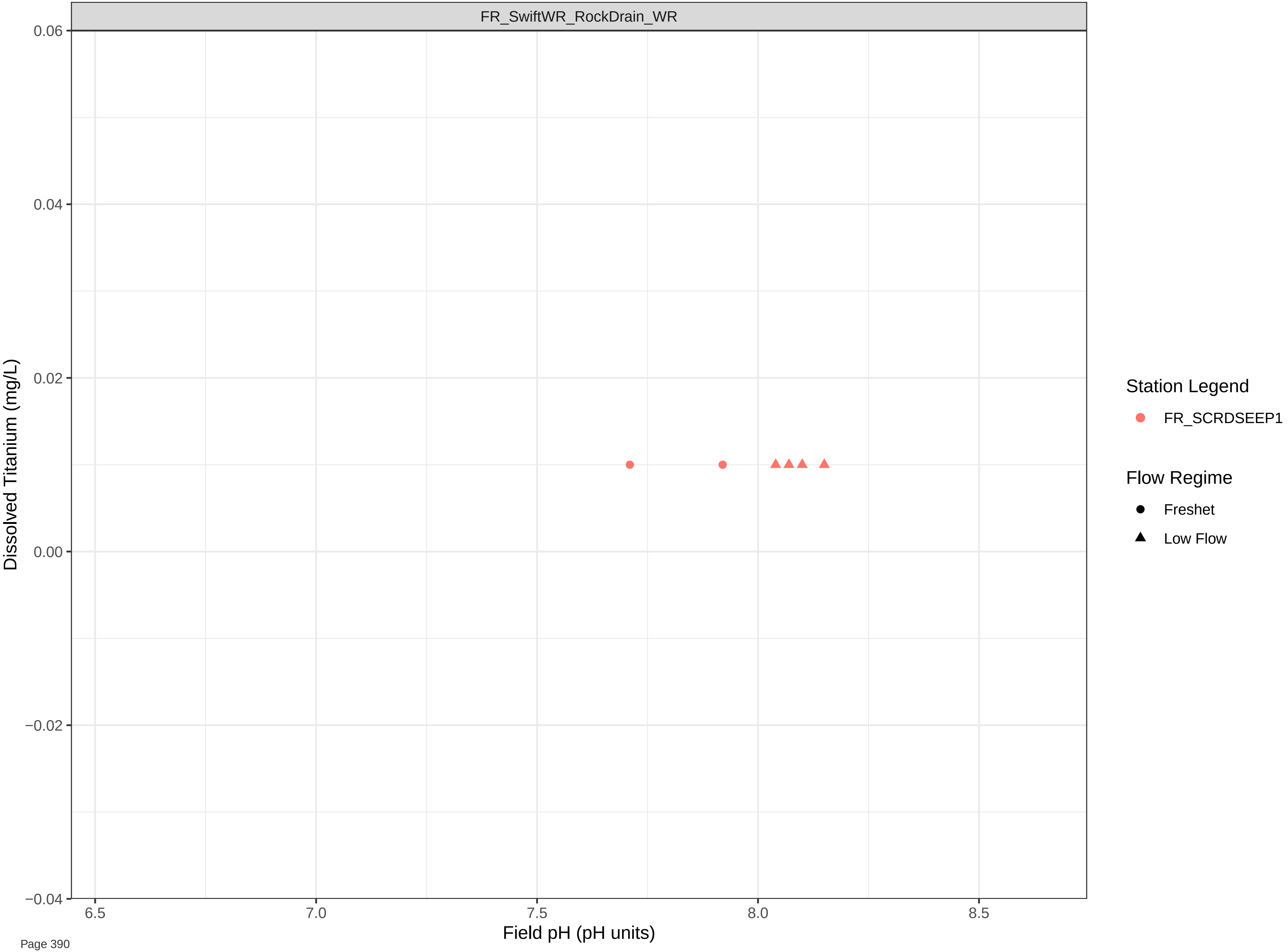

FR_HEN_WR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

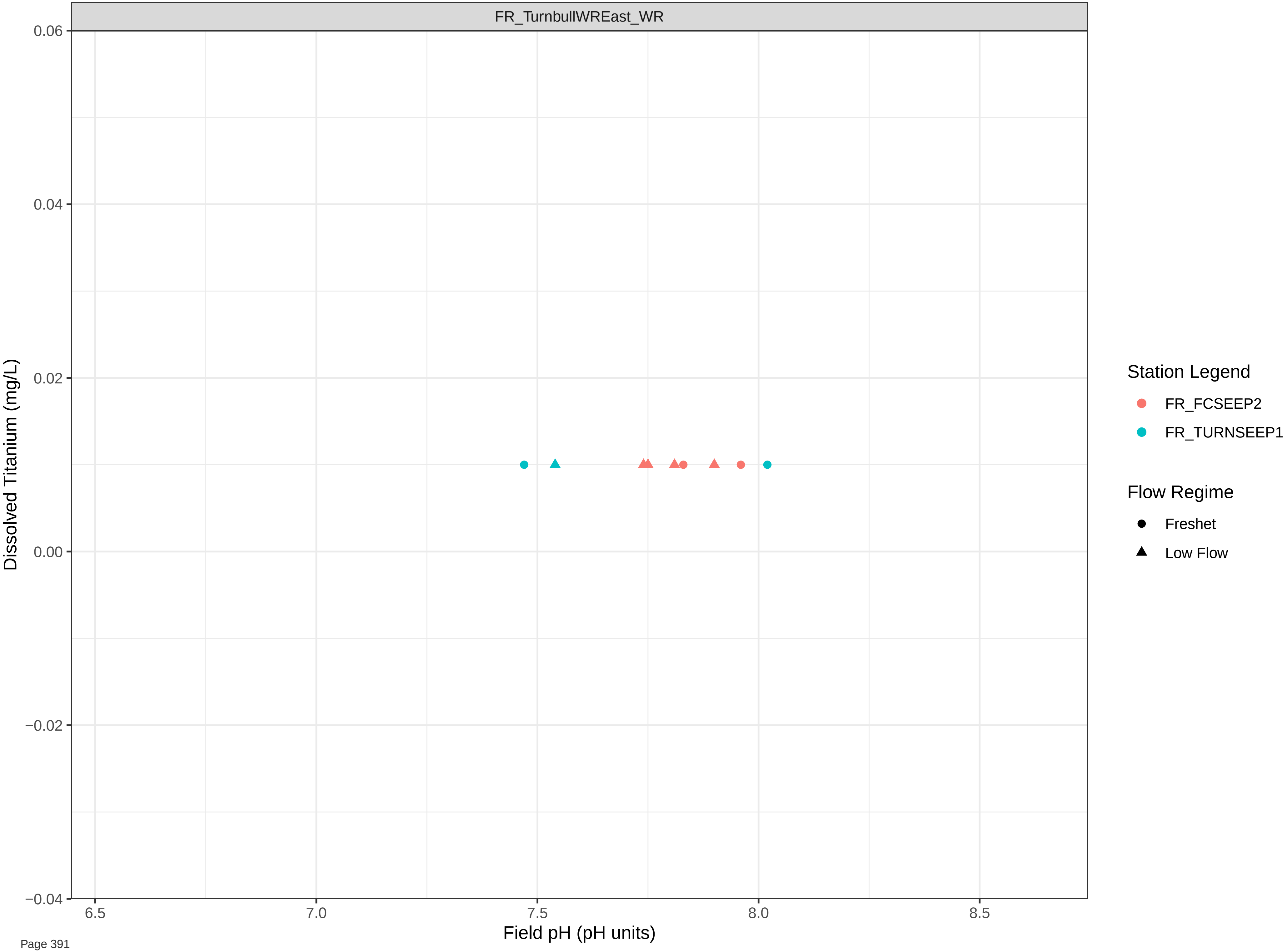

FR_LakeMtn_WR_PITS
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow

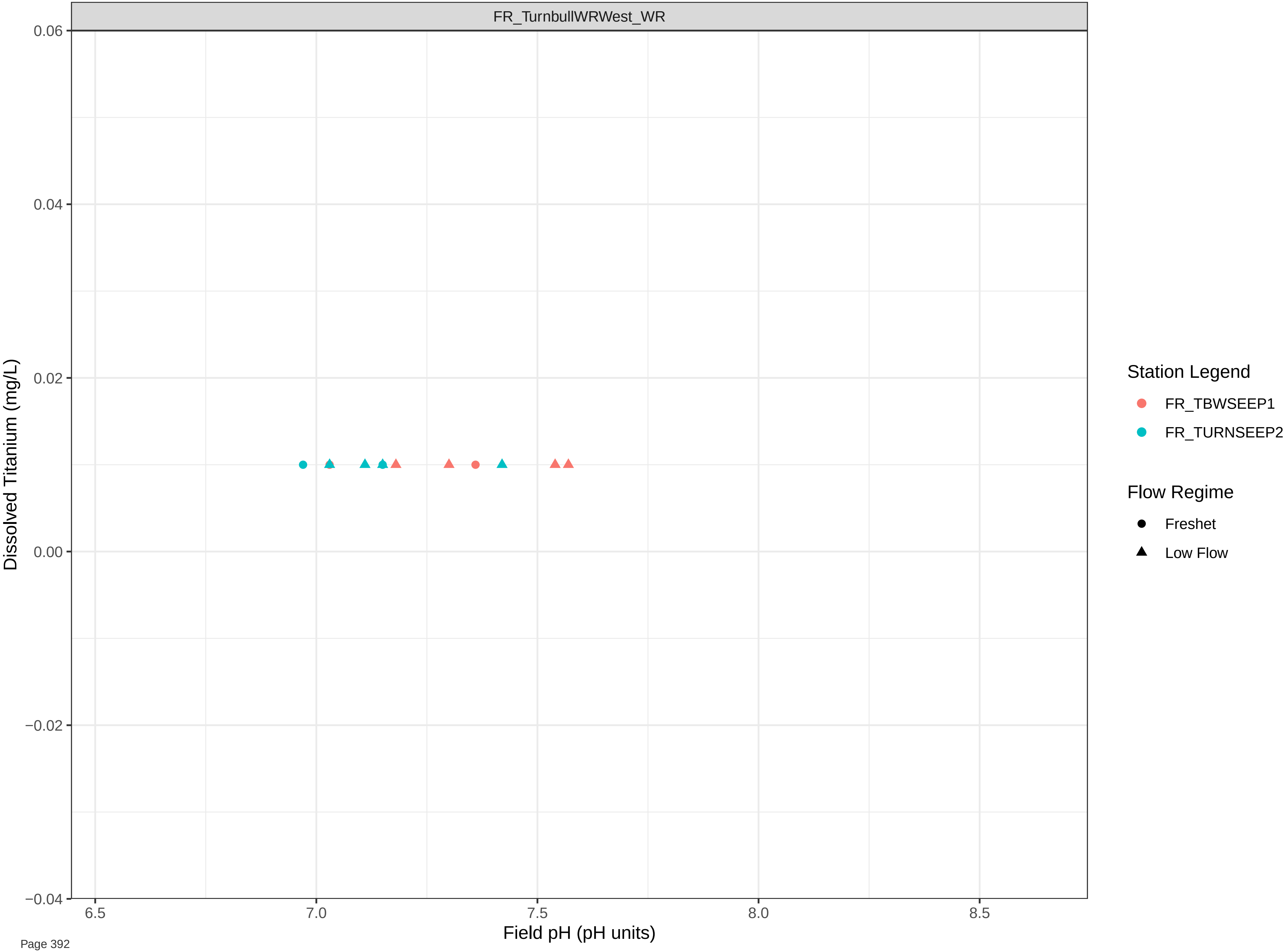

FR_Shandley_WR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

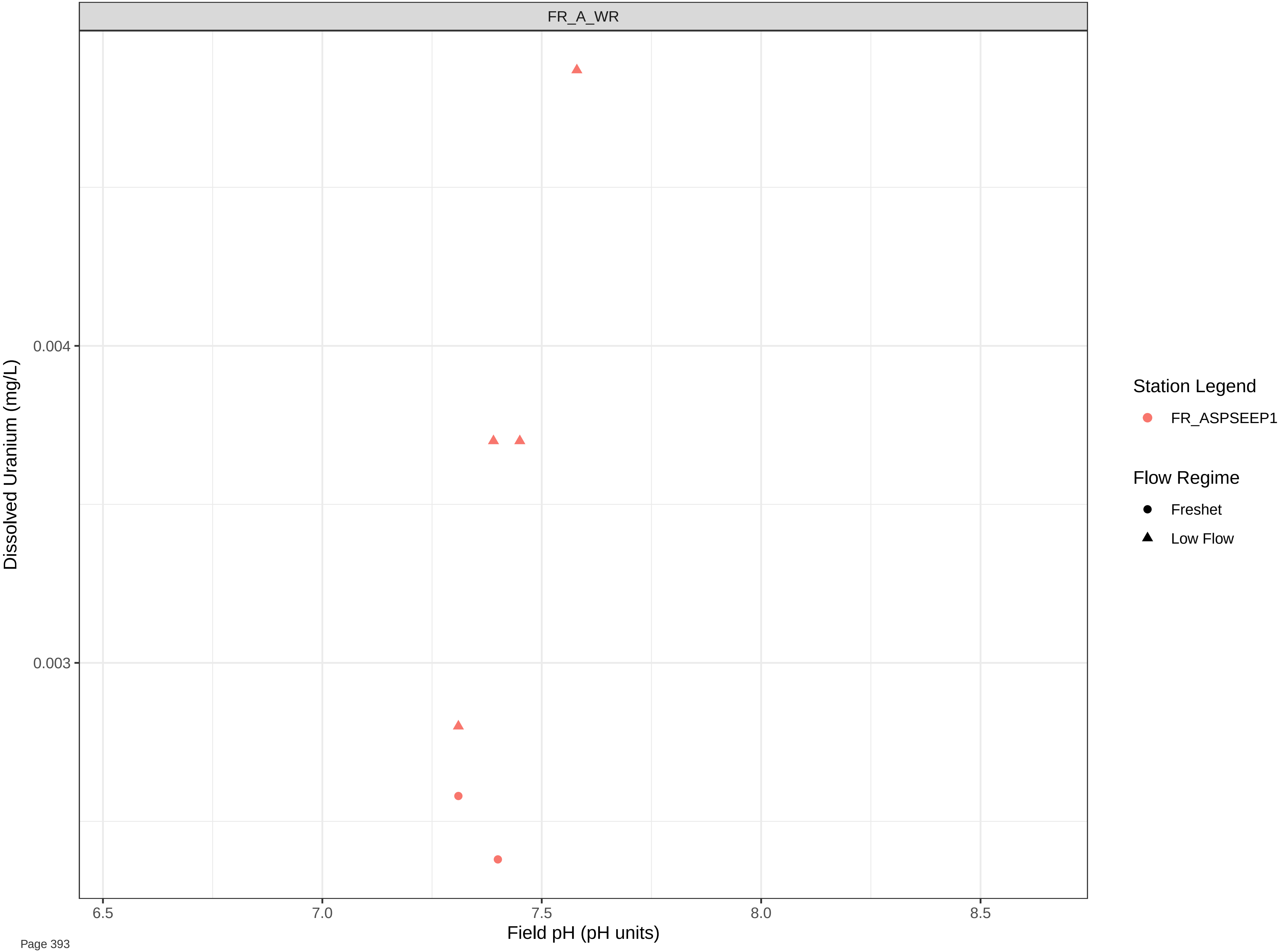

FR_Smith_WR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

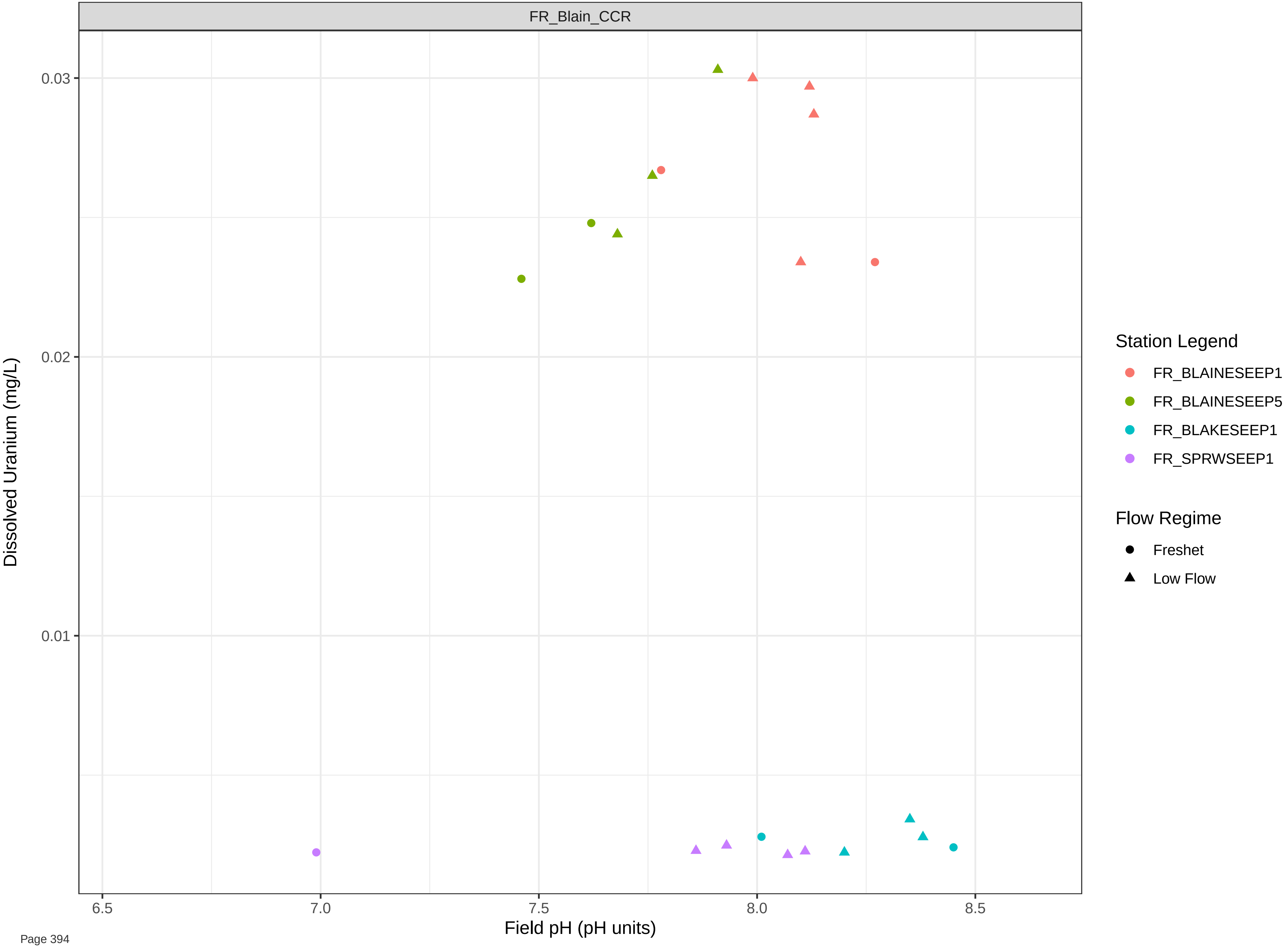

FR_SouthTails_Tailings
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

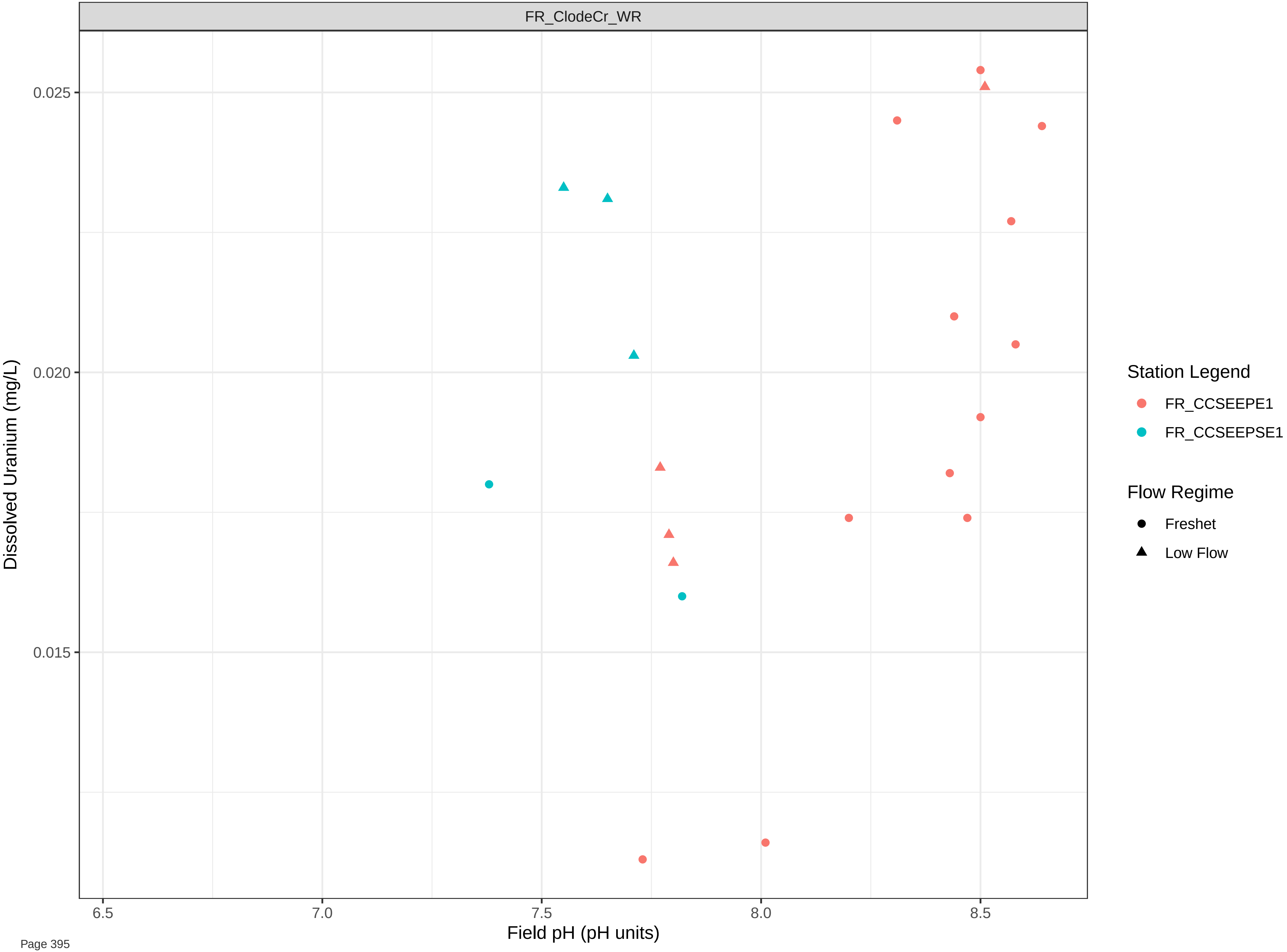

FR_SwiftWR_RockDrain_WR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

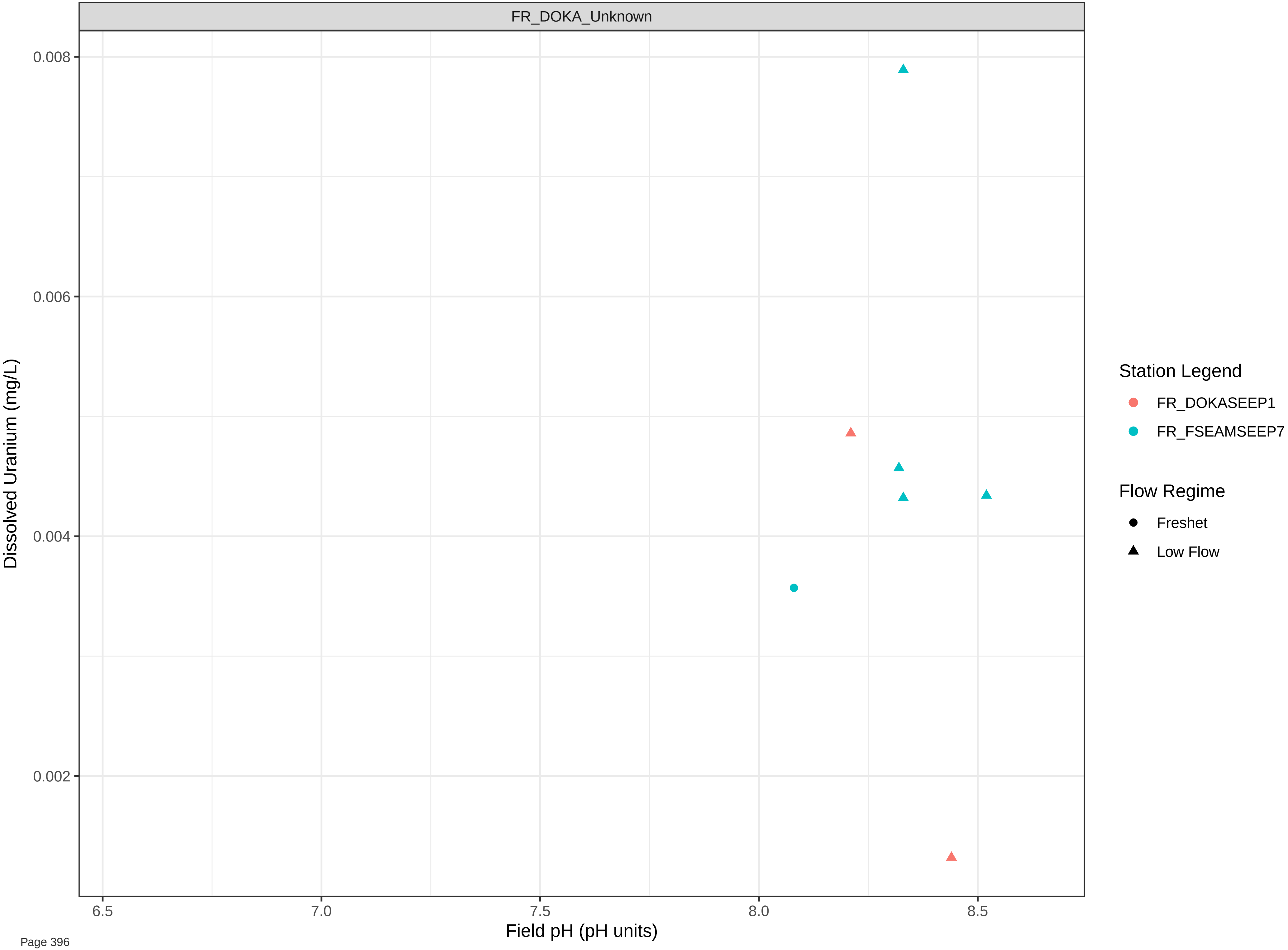

FR_TurnbullWREast_WR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

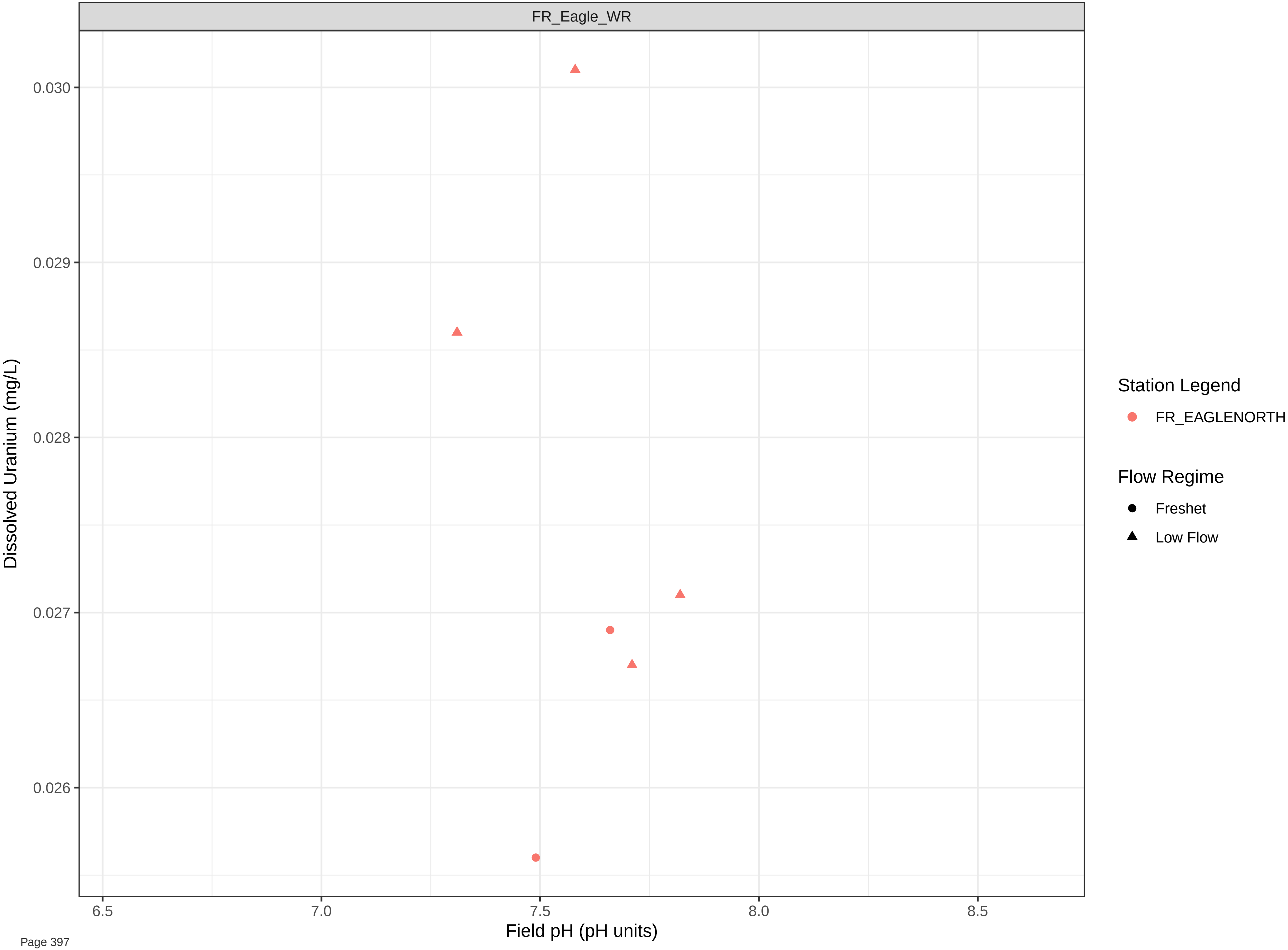

FR_TurnbullWRWest_WR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

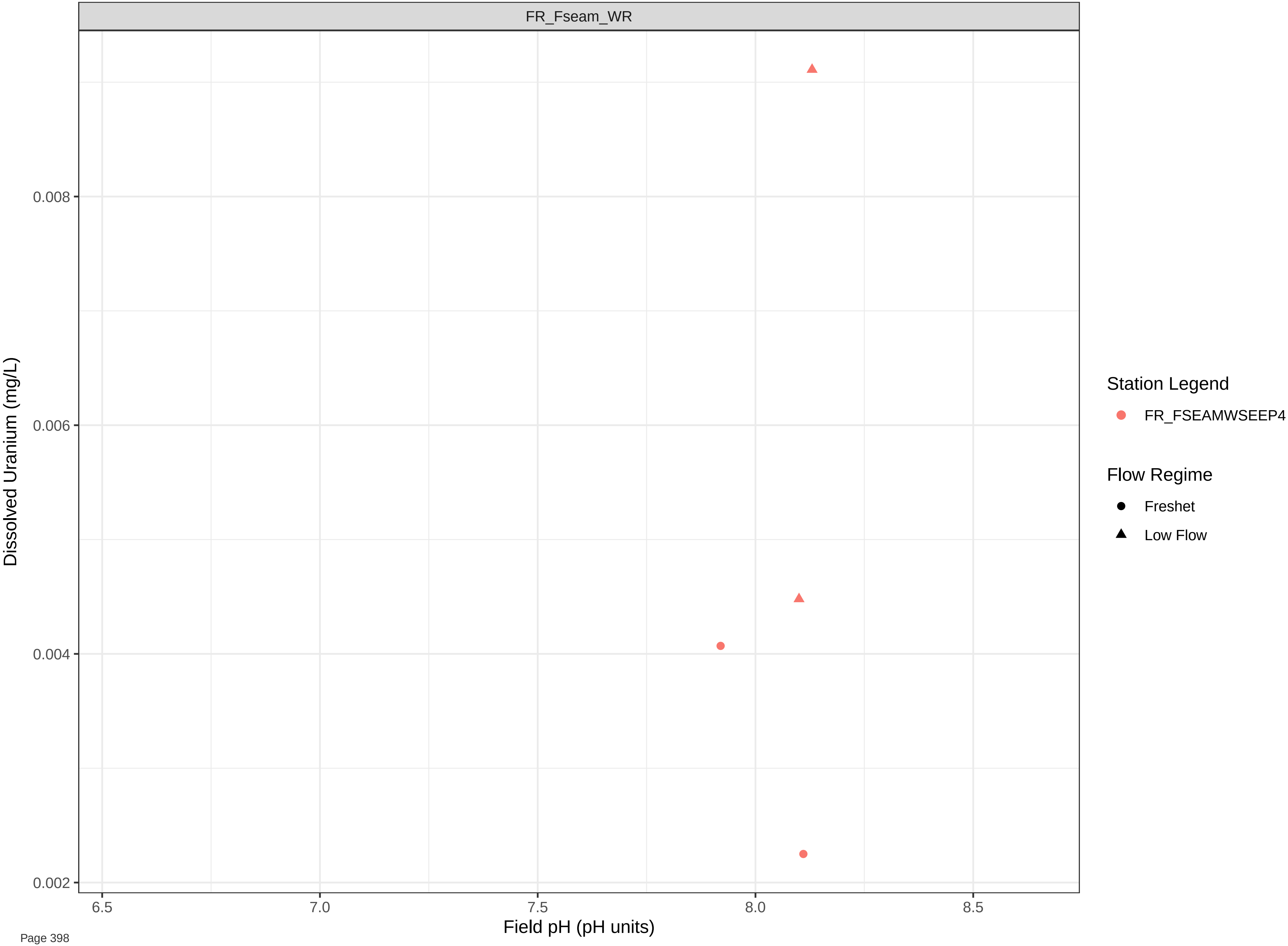

FR_A_WR
Dissolved Uranium (mg/L)
0.004
0.003
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

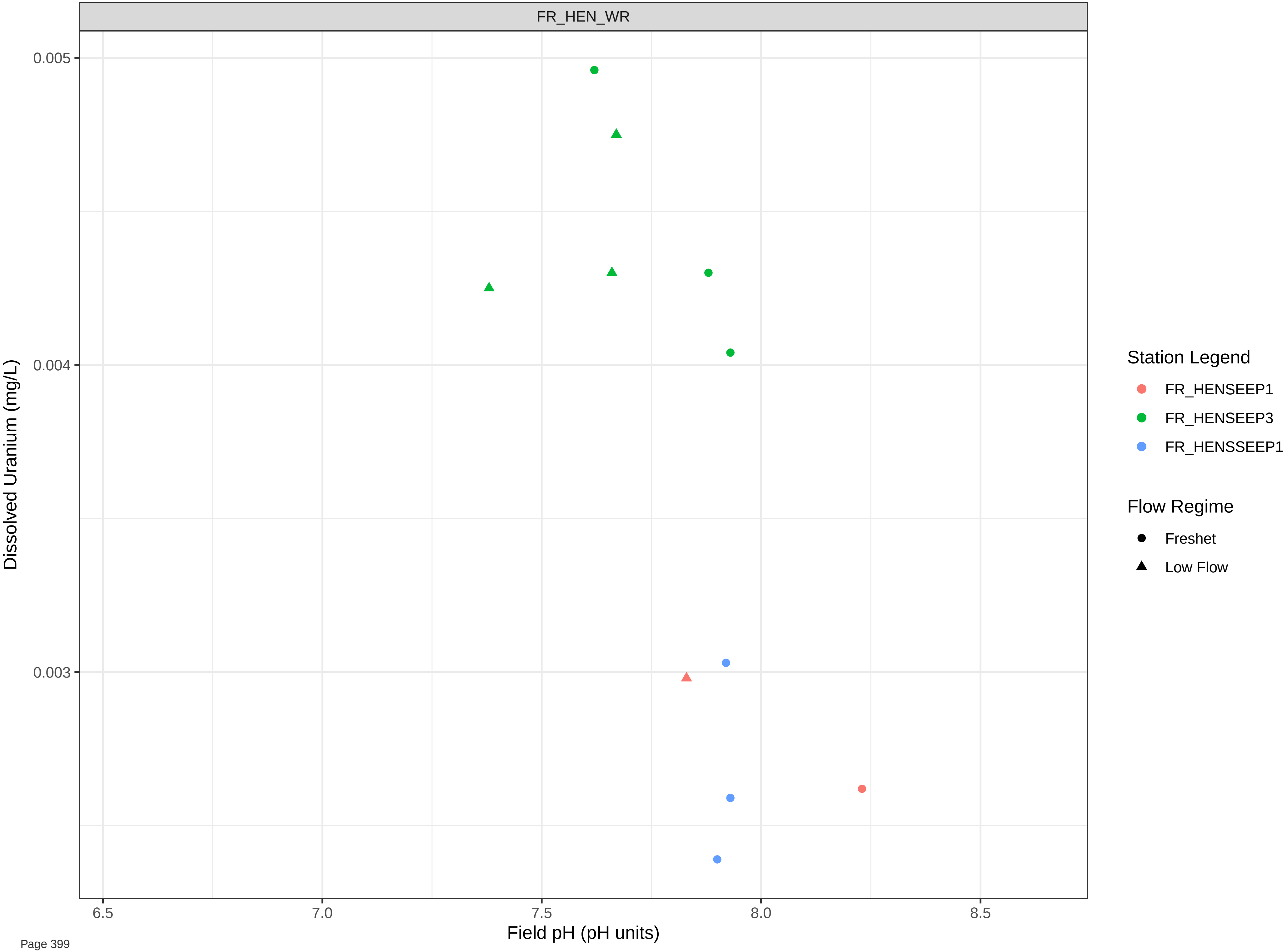

FR_Blain_CCR
Dissolved Uranium (mg/L)
0.03
0.02
0.01
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

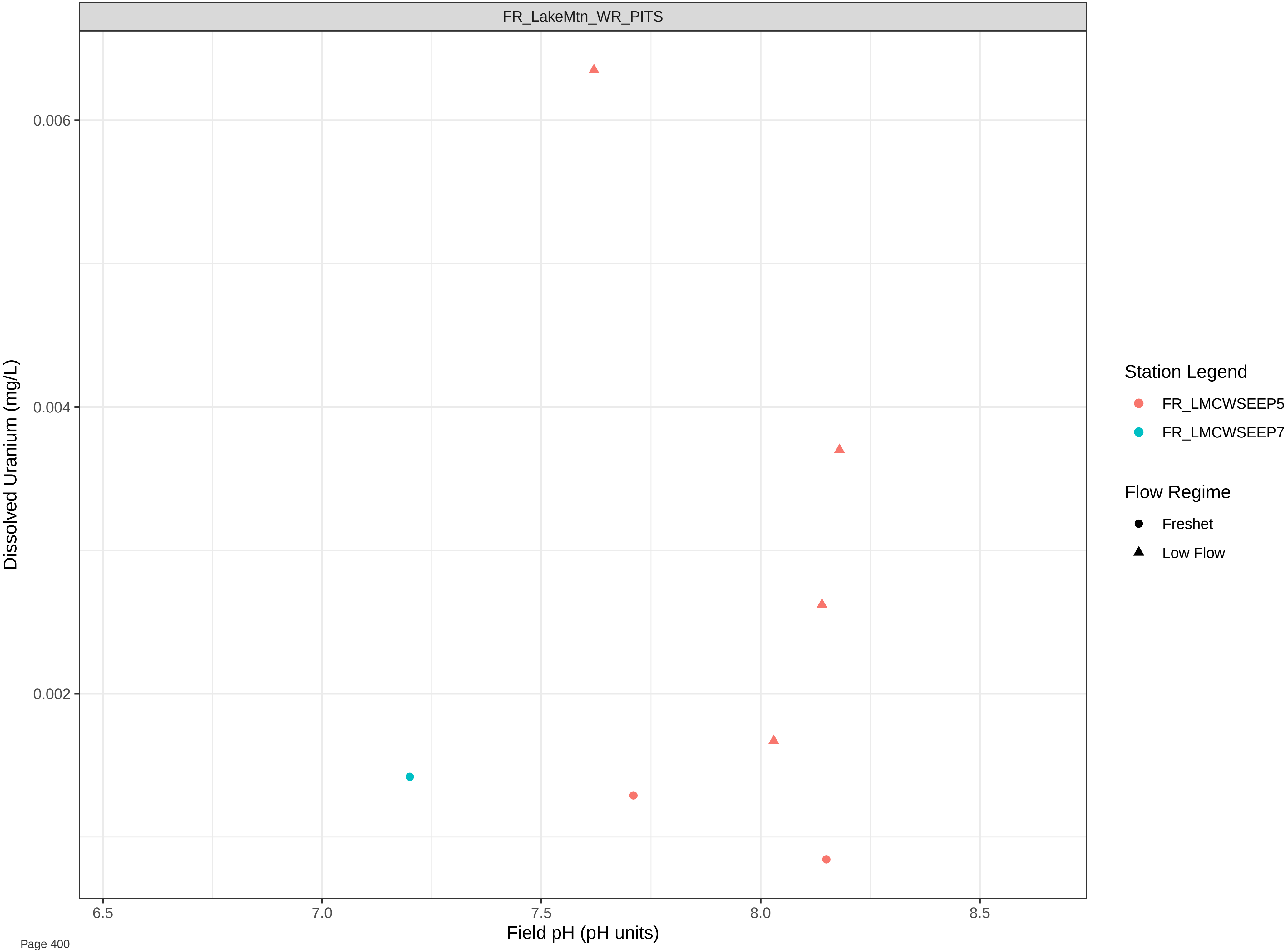

FR_ClodeCr_WR
Dissolved Uranium (mg/L)
0.025
0.020
0.015
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

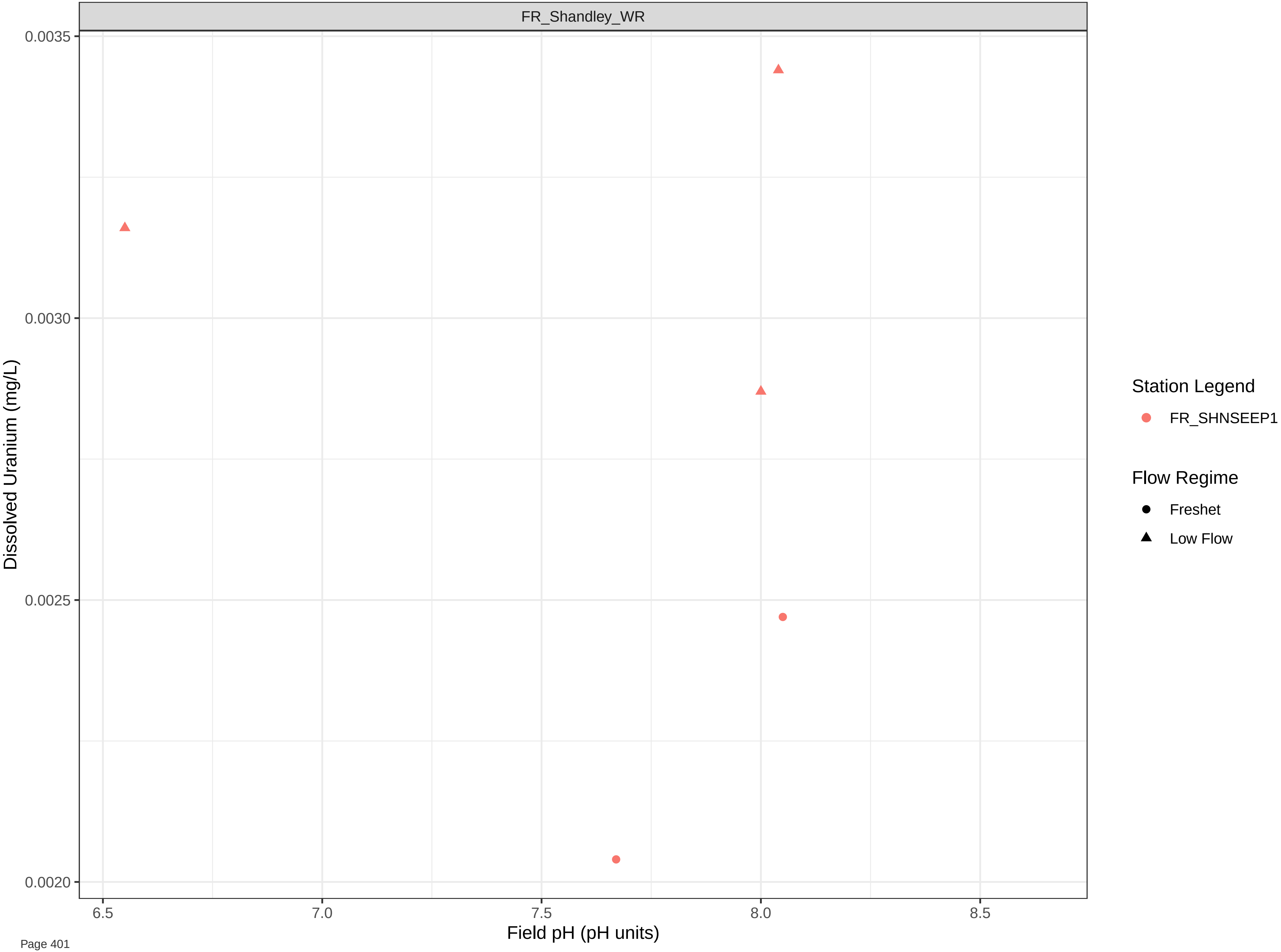

FR_DOKA_Unknown
Dissolved Uranium (mg/L)
0.008
0.006
0.004
0.002
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

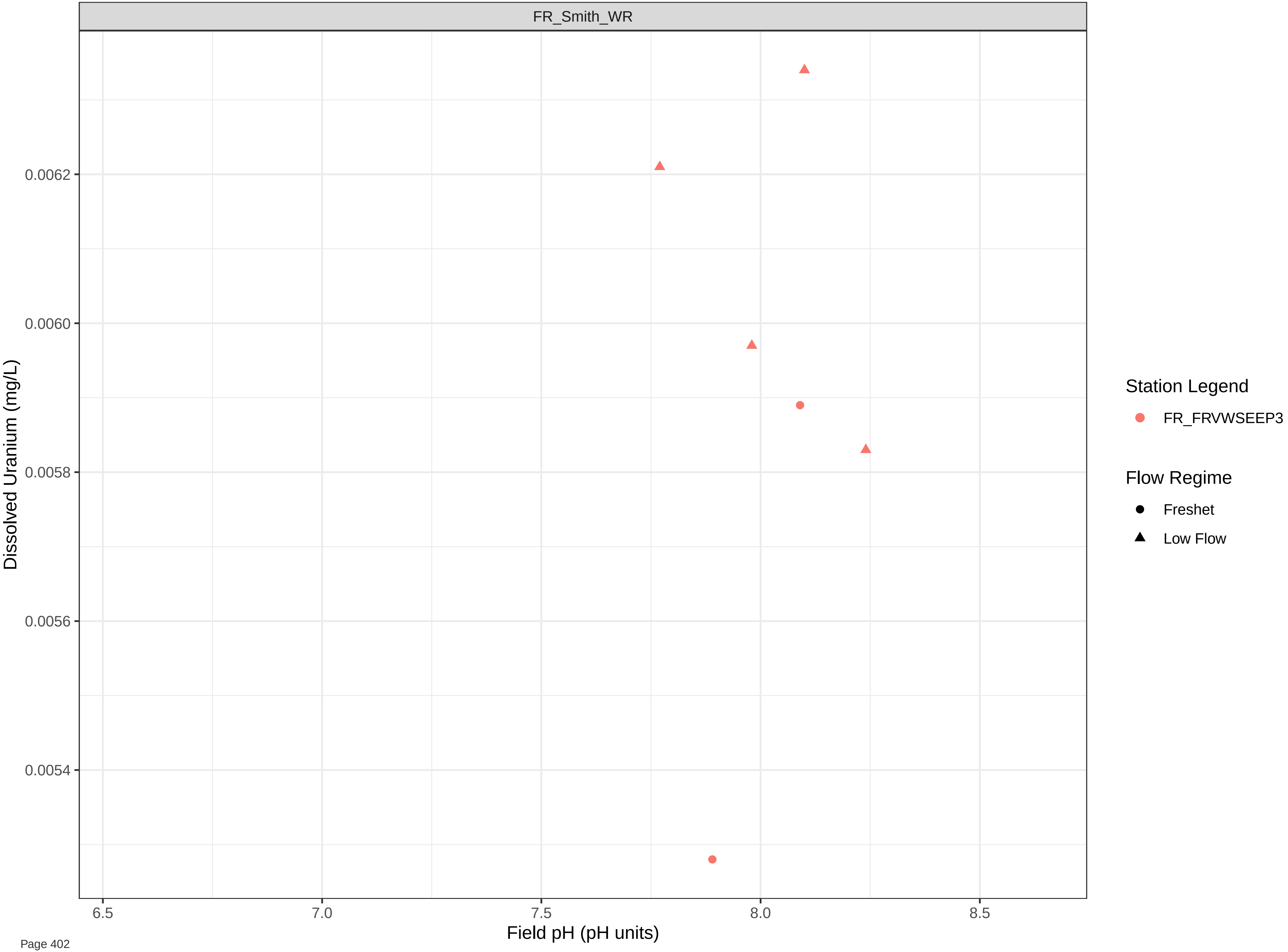

FR_Eagle_WR
Dissolved Uranium (mg/L)
0.030
0.029
0.028
0.027
0.026
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

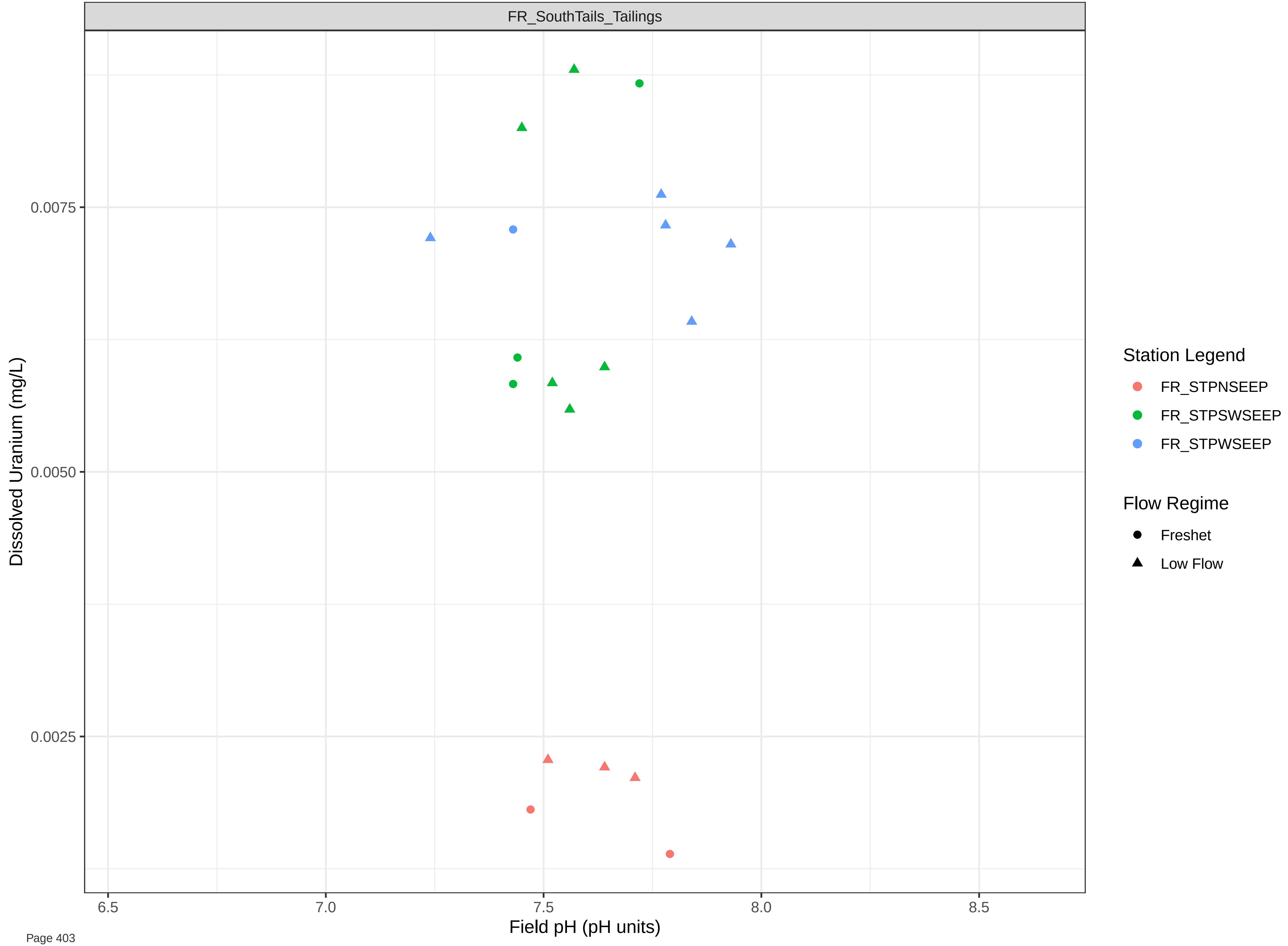

FR_Fseam_WR
Dissolved Uranium (mg/L)
0.008
0.006
0.004
0.002
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

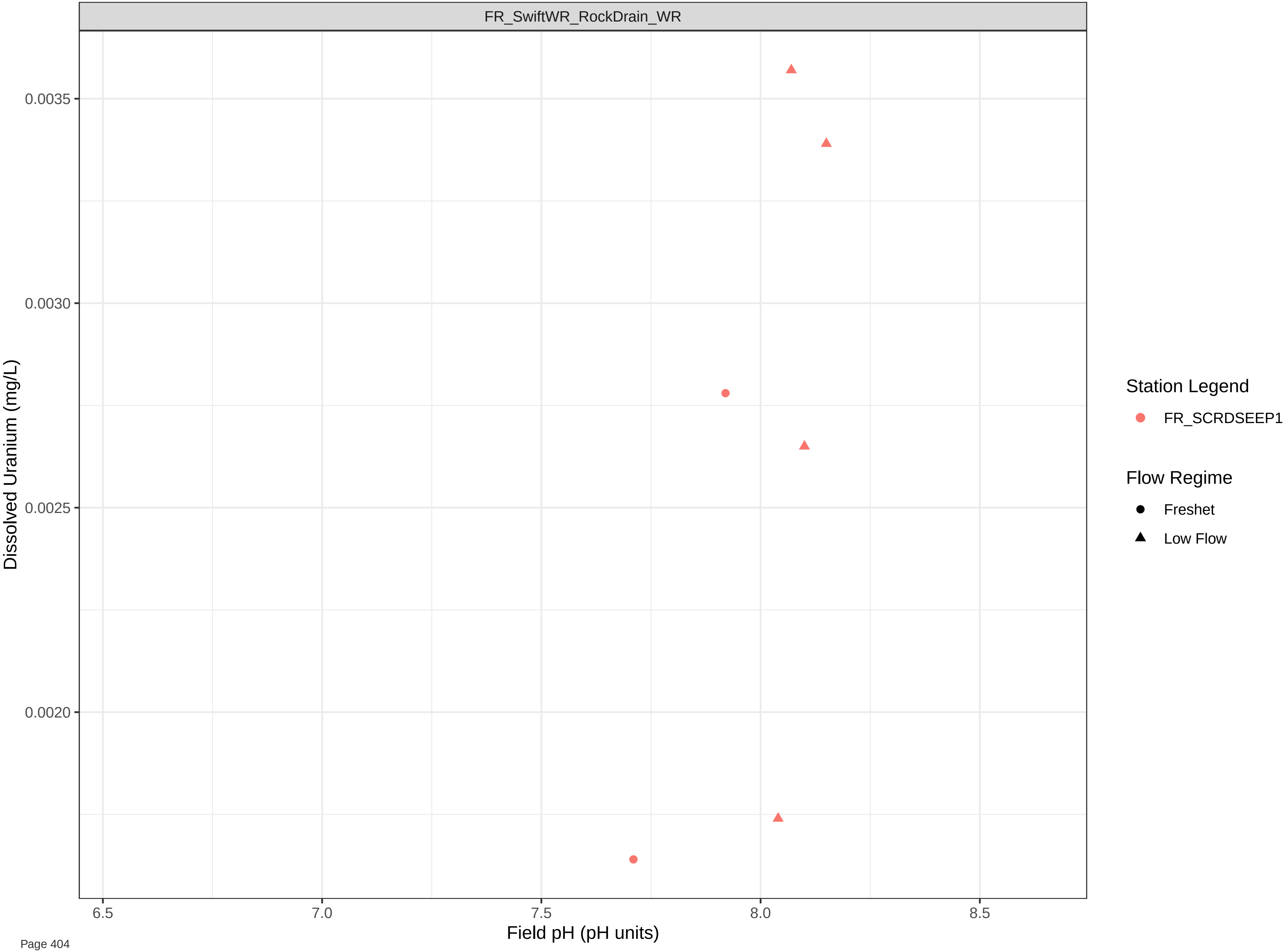

FR_HEN_WR
Dissolved Uranium (mg/L)
0.005
0.004
0.003
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

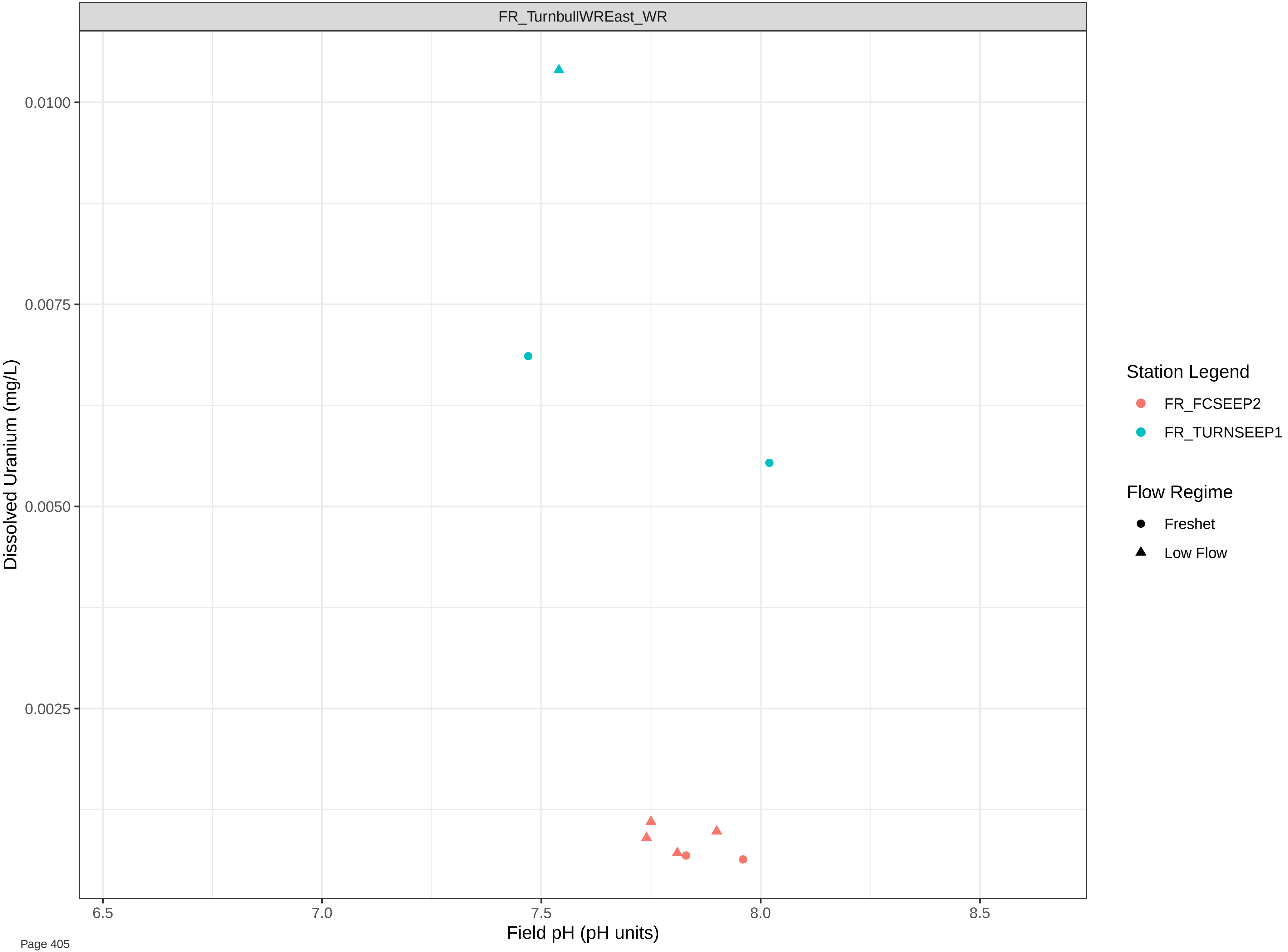

FR_LakeMtn_WR_PITS
Dissolved Uranium (mg/L)
0.006
0.004
0.002
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

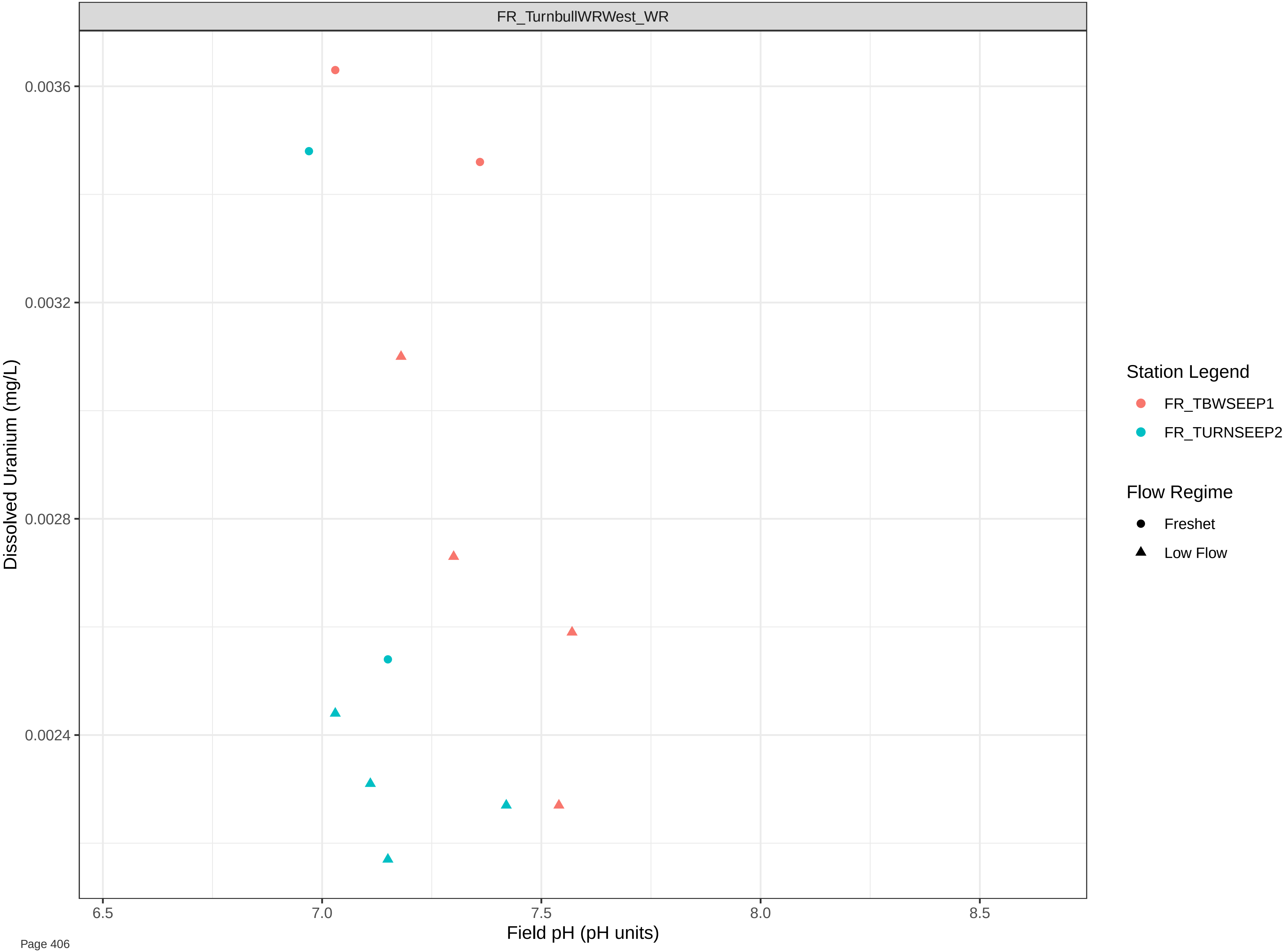

FR_Shandley_WR
Dissolved Uranium (mg/L)
0.0035
0.0030
0.0025
0.0020
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

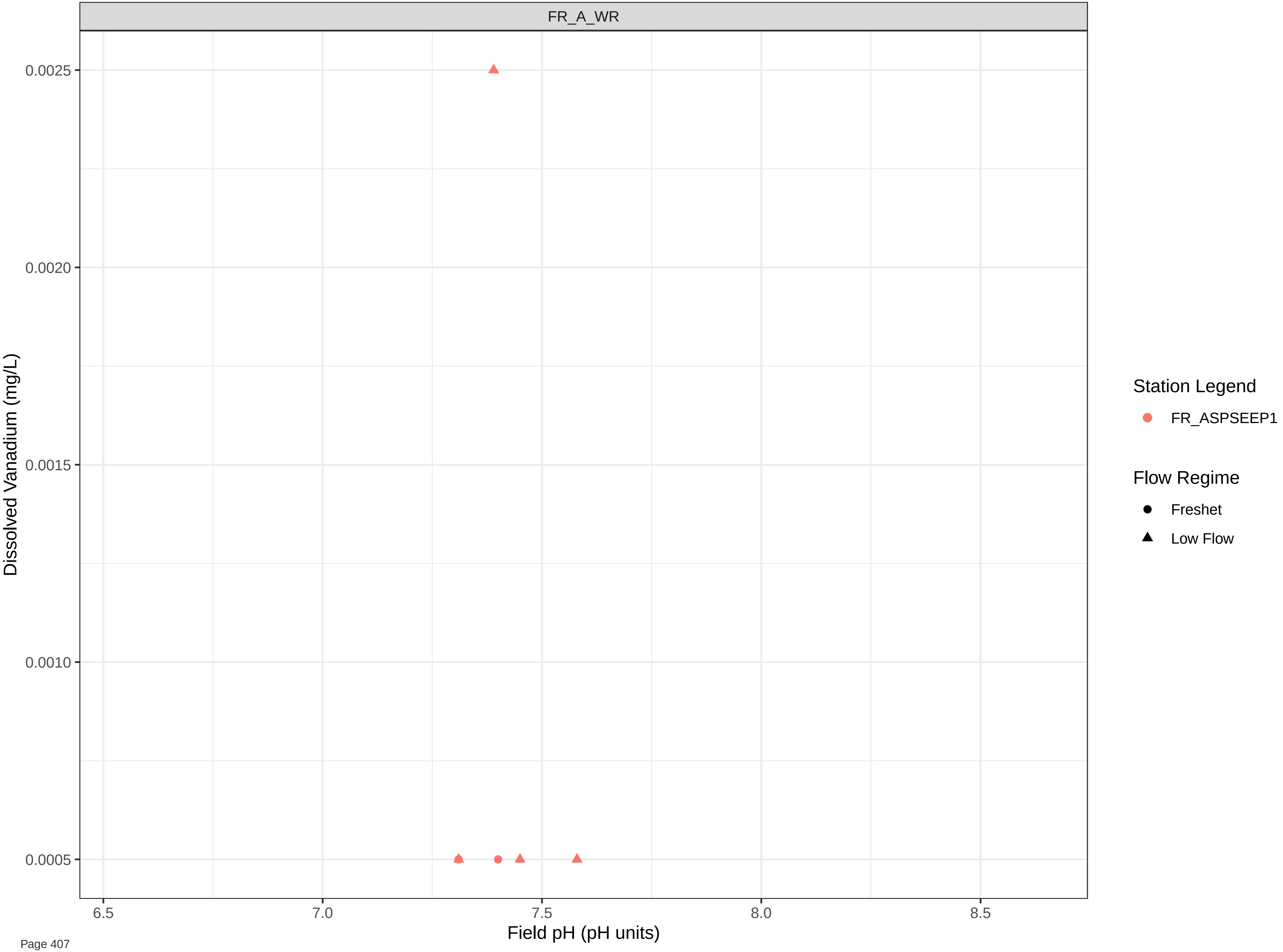

FR_Smith_WR
Dissolved Uranium (mg/L)
0.0062
0.0060
0.0058
0.0056
0.0054
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

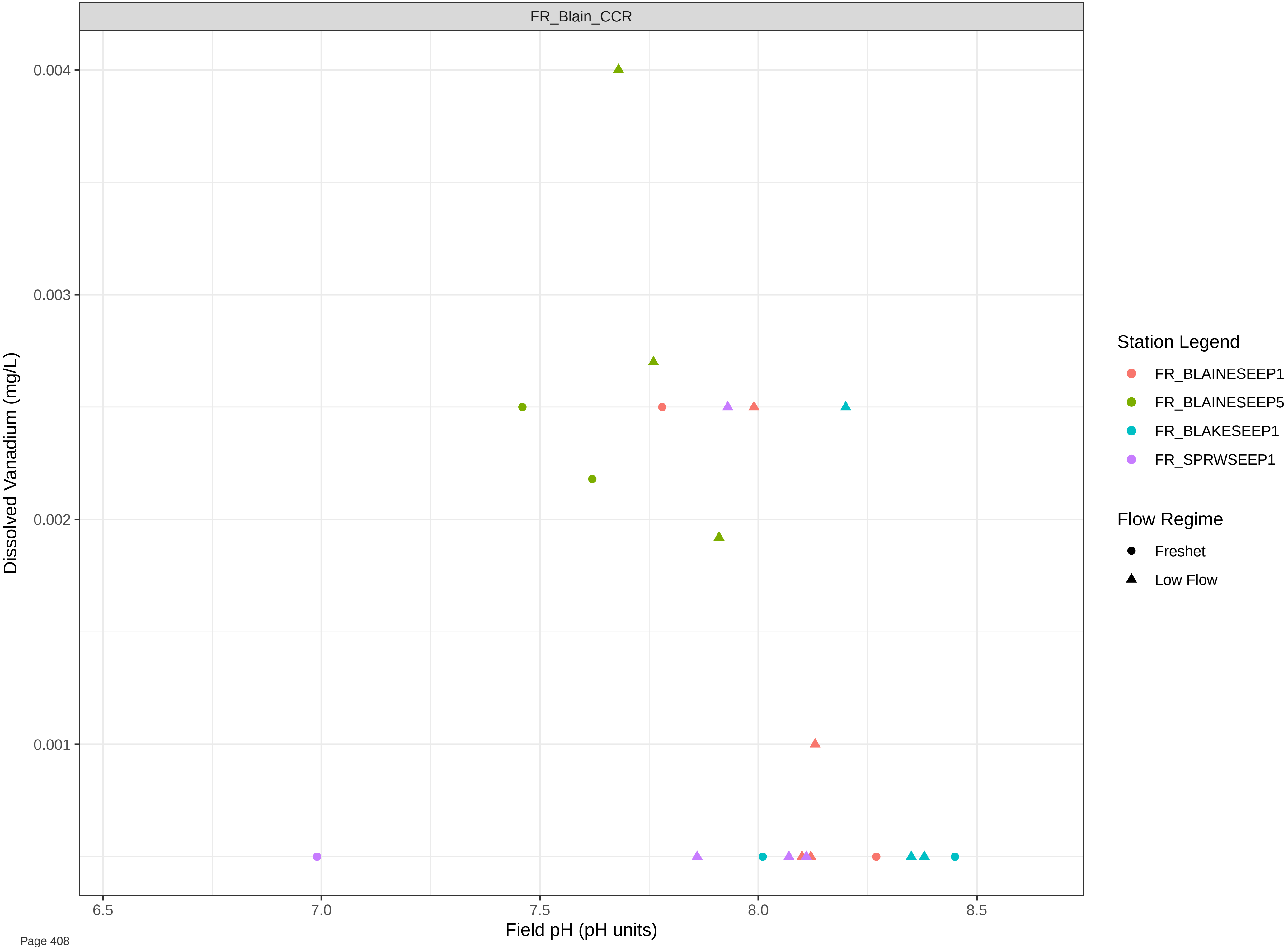

FR_SouthTails_Tailings
Dissolved Uranium (mg/L)
0.0075
0.0050
0.0025
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

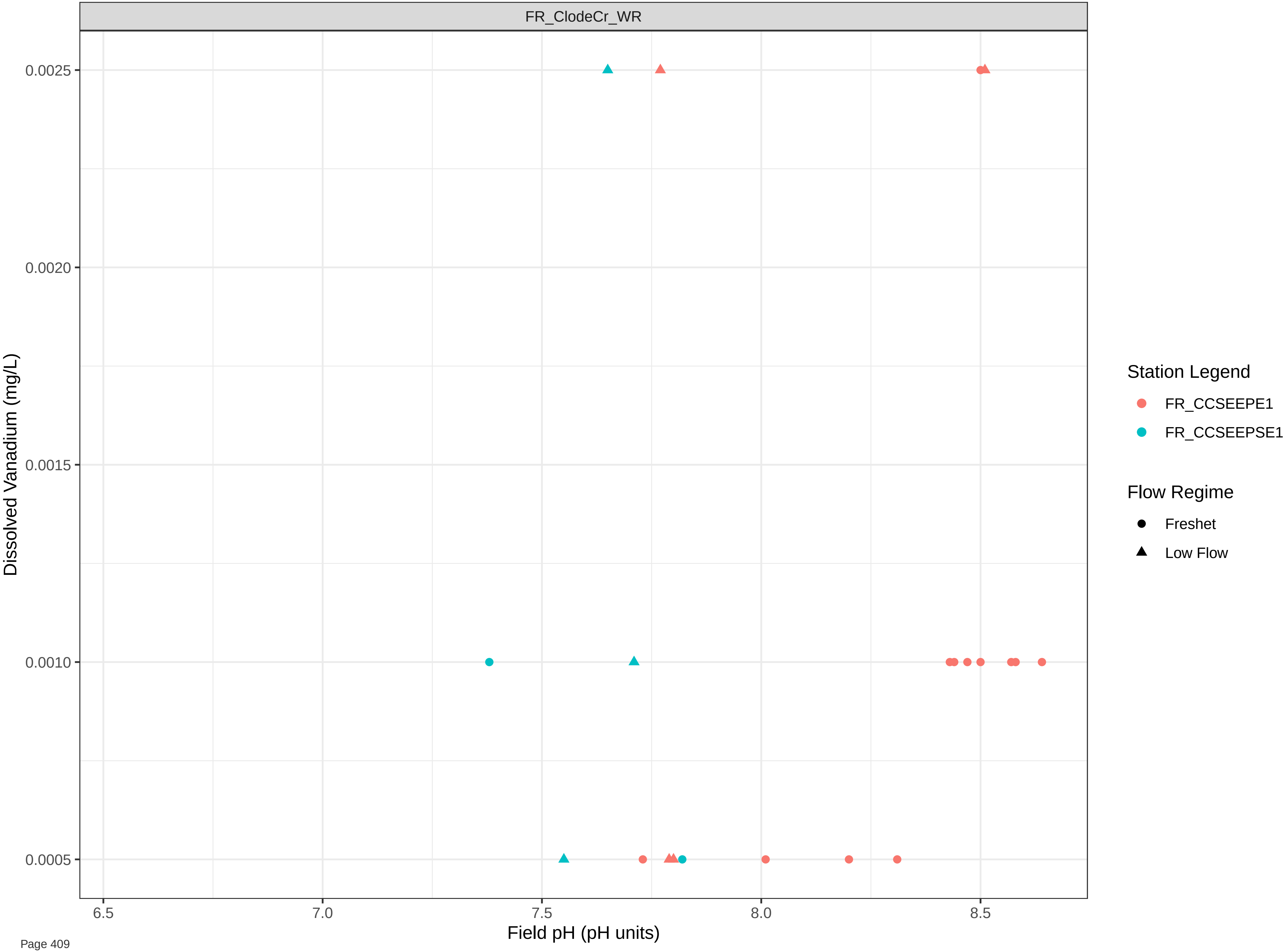

FR_SwiftWR_RockDrain_WR
Dissolved Uranium (mg/L)
0.0035
0.0030
0.0025
0.0020
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

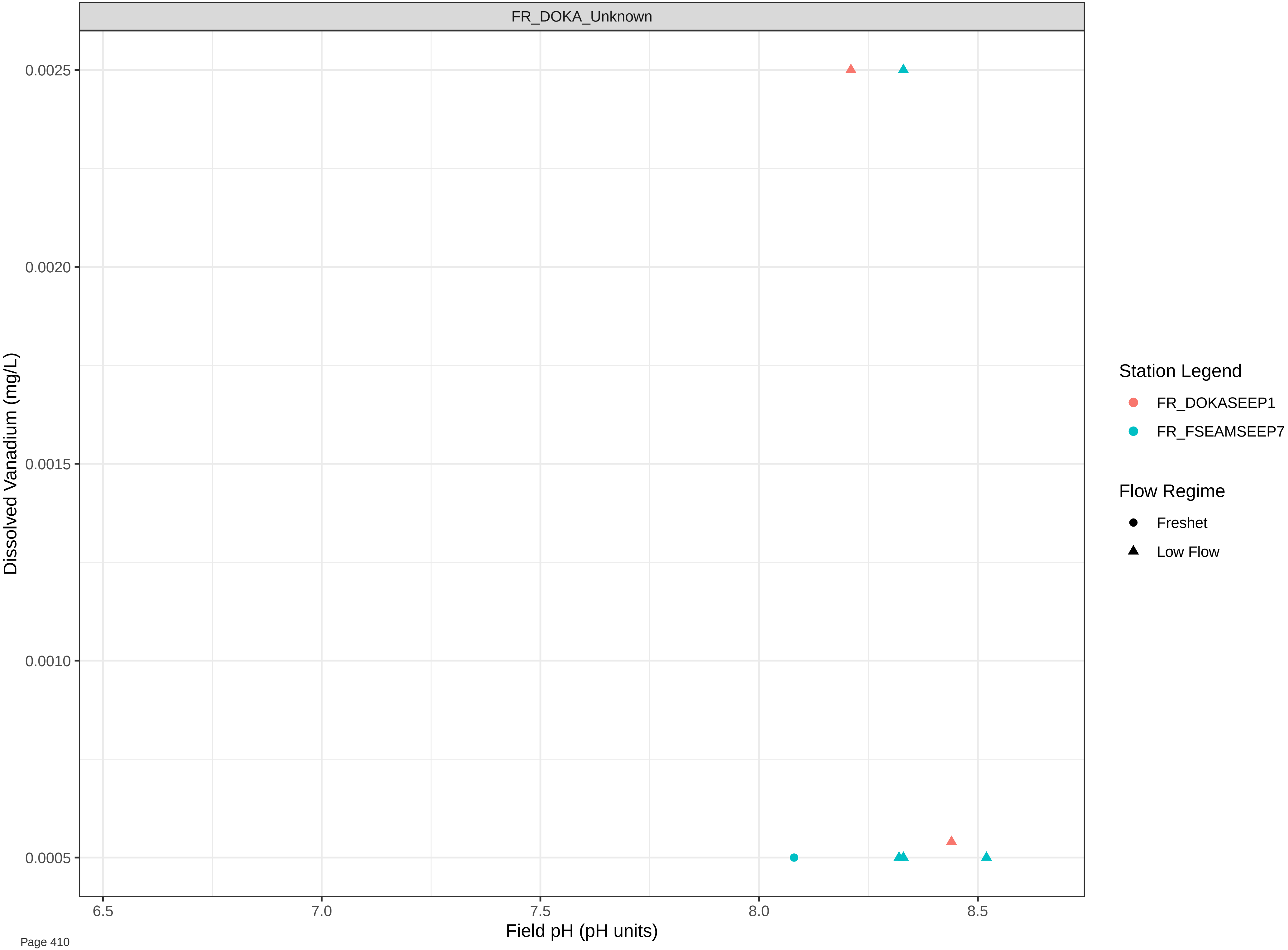

FR_TurnbullWREast_WR
Dissolved Uranium (mg/L)
0.0100
0.0075
0.0050
0.0025
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

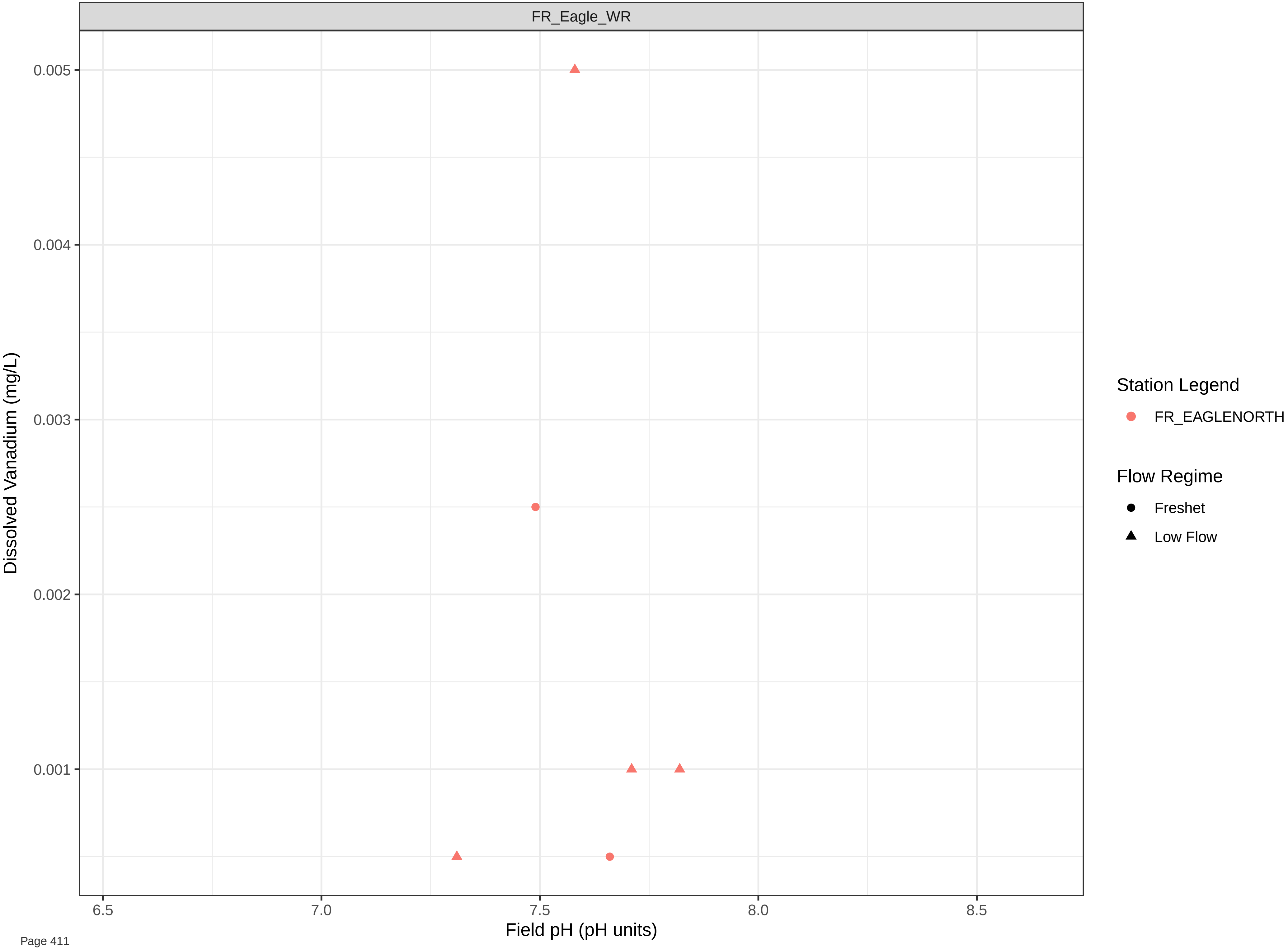

FR_TurnbullWRWest_WR
Dissolved Uranium (mg/L)
0.0036
0.0032
0.0028
0.0024
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_TBWSEEP1
● FR_TURNSEEP2
Flow Regime
● Freshet
▲ Low Flow

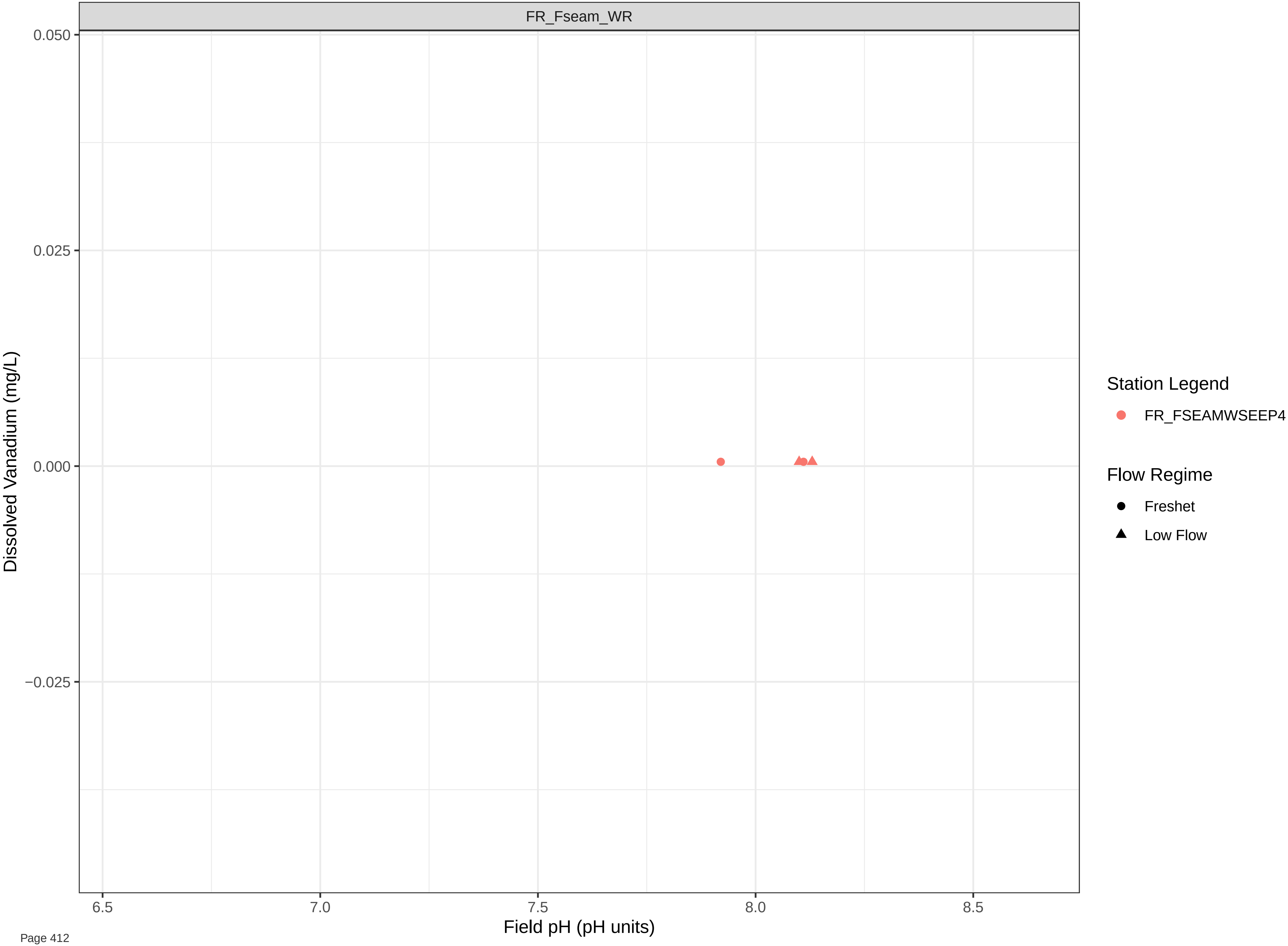

FR_A_WR
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

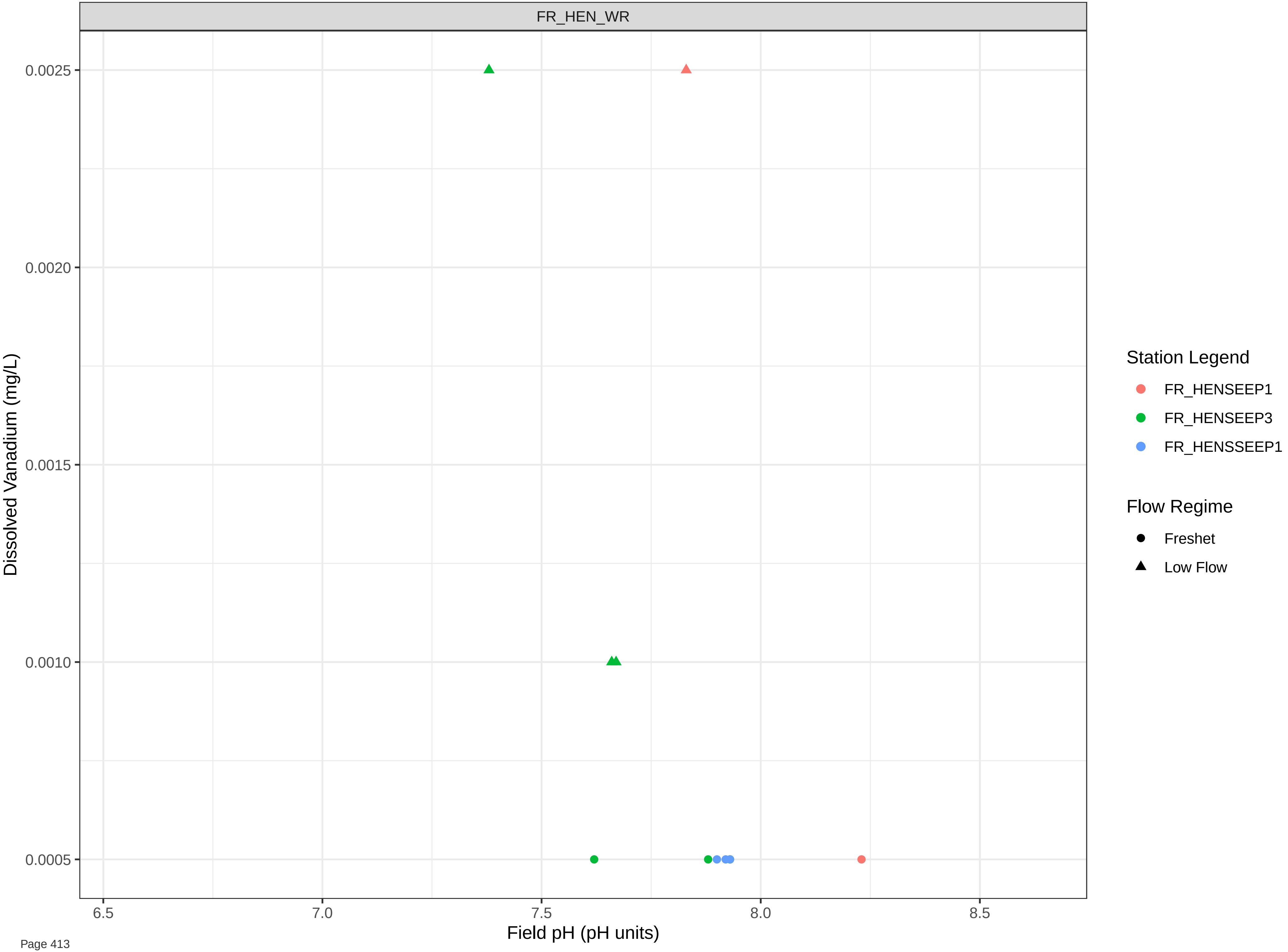

FR_Blain_CCR
Dissolved Vanadium (mg/L)
0.004
0.003
0.002
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

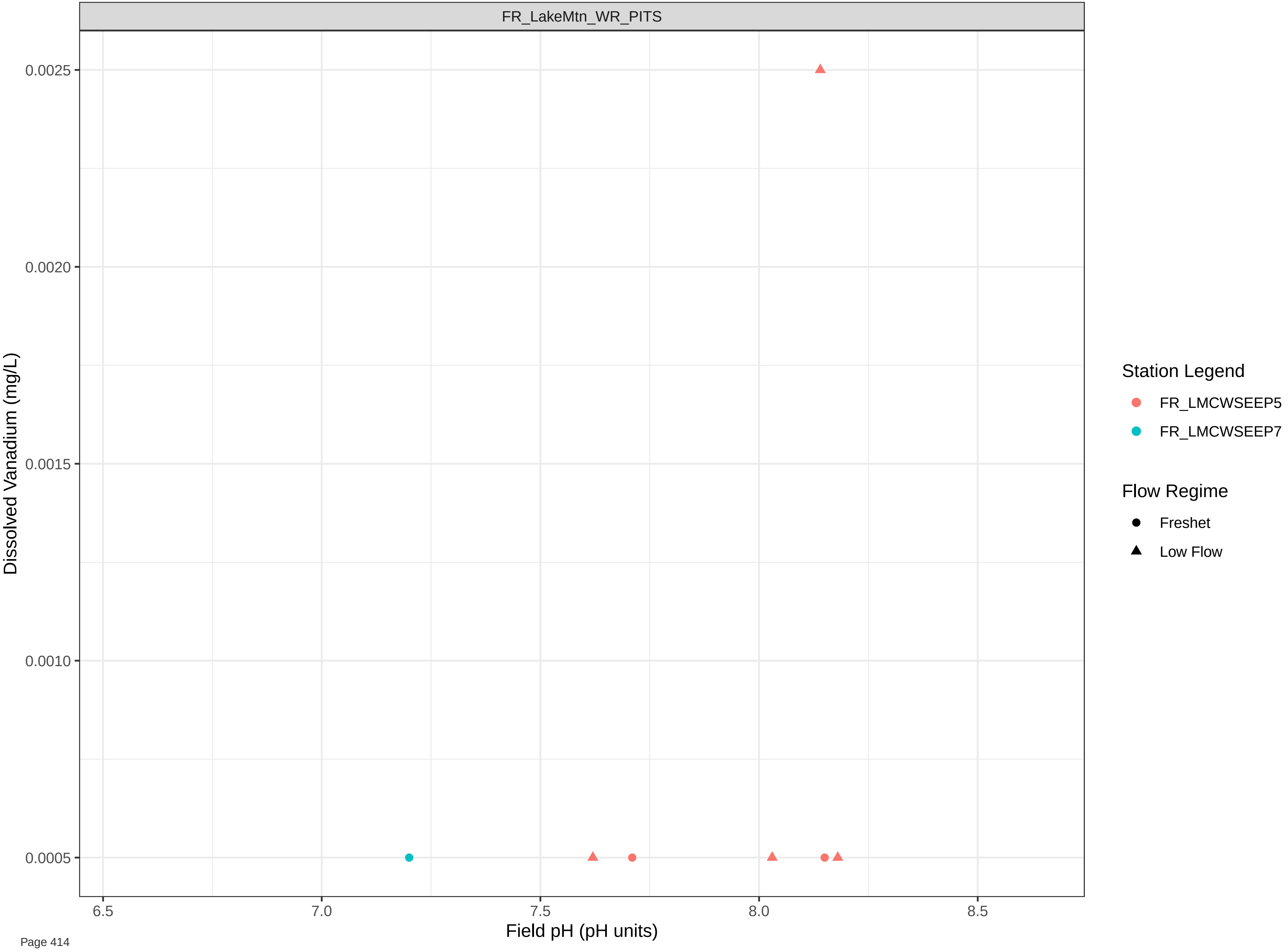

FR_ClodeCr_WR
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

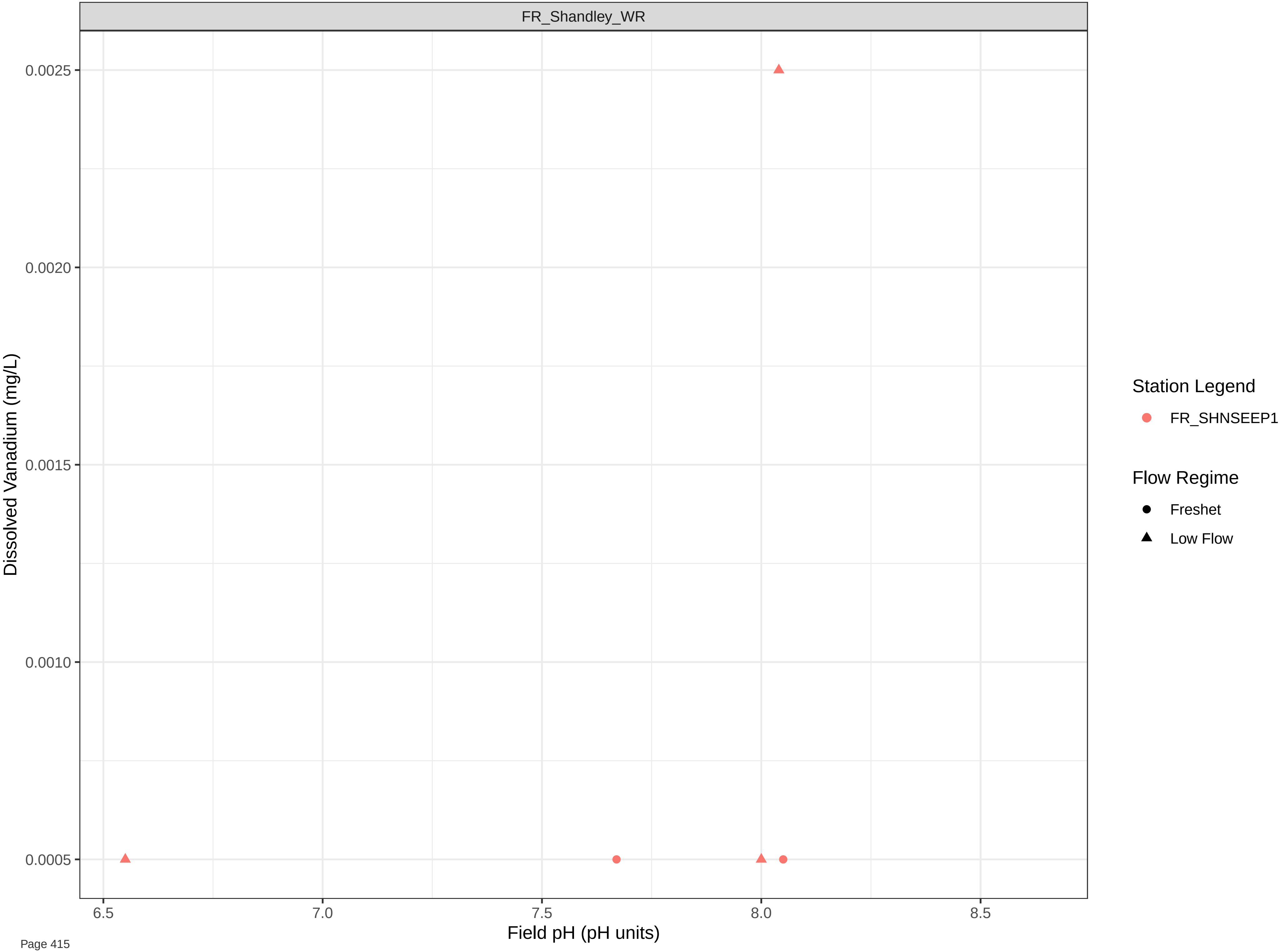

FR_DOKA_Unknown
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

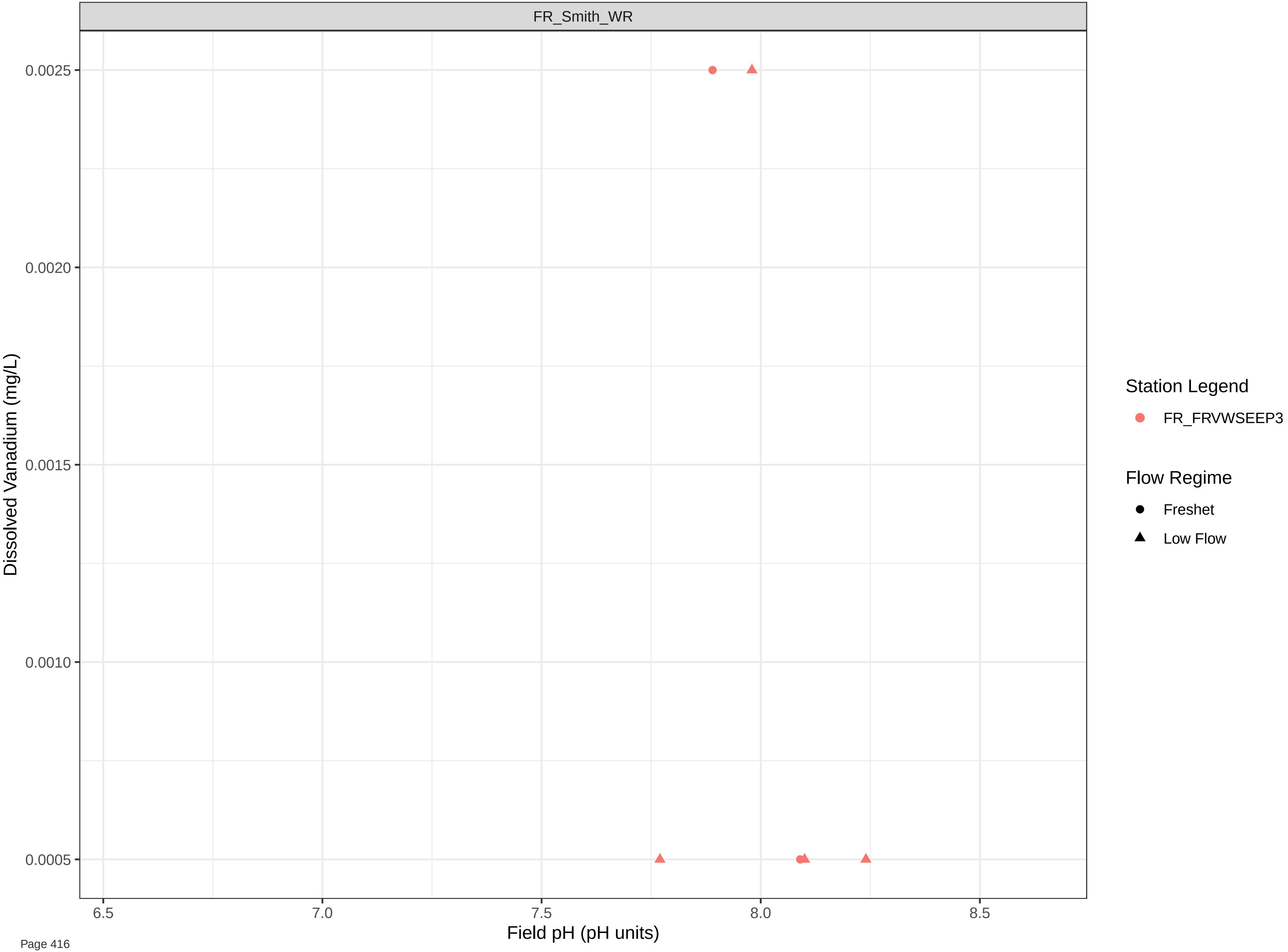

FR_Eagle_WR
Dissolved Vanadium (mg/L)
0.005
0.004
0.003
0.002
0.001
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

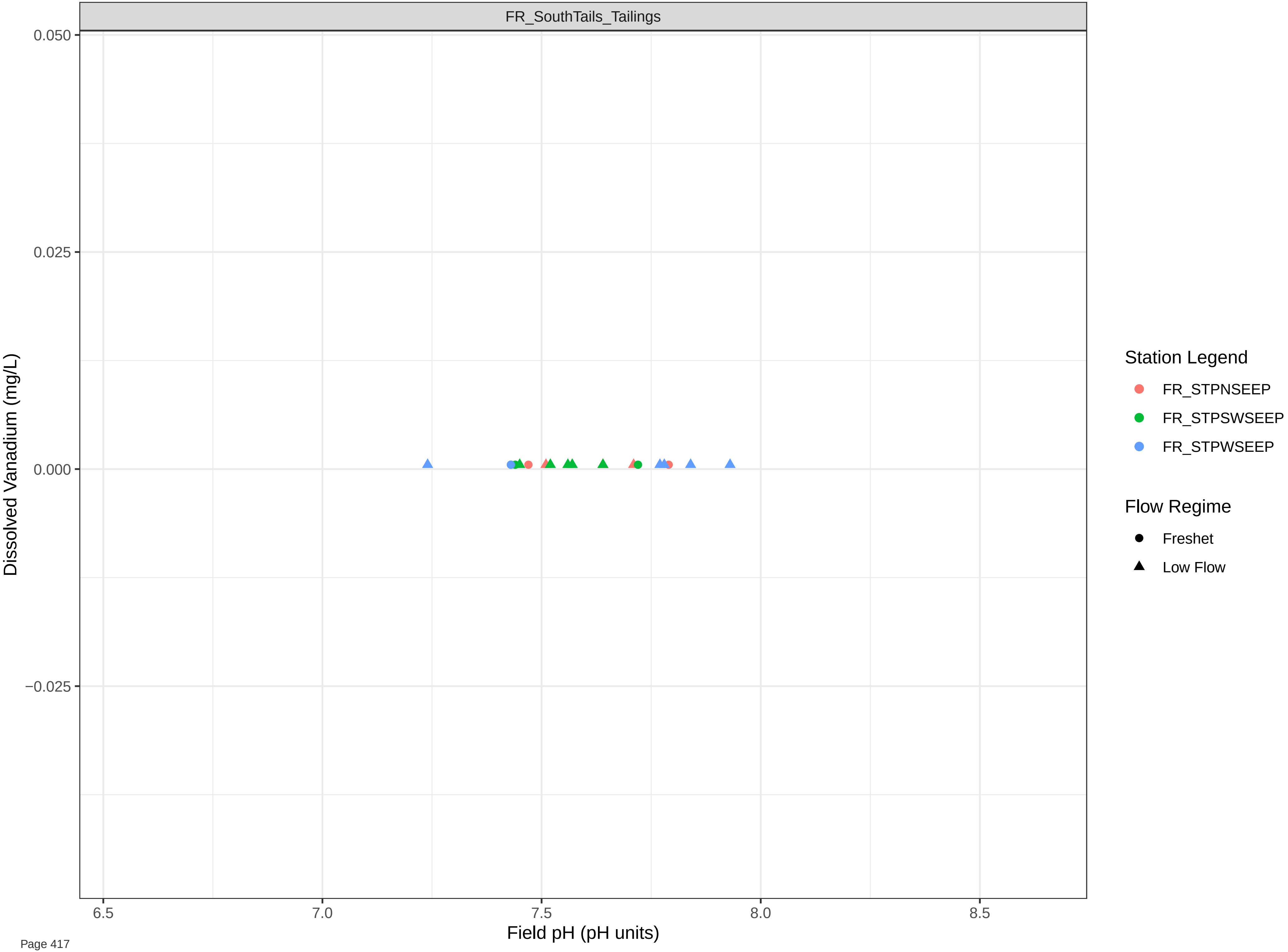

FR_Fseam_WR
Dissolved Vanadium (mg/L)
0.050
0.025
0.000
−0.025
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

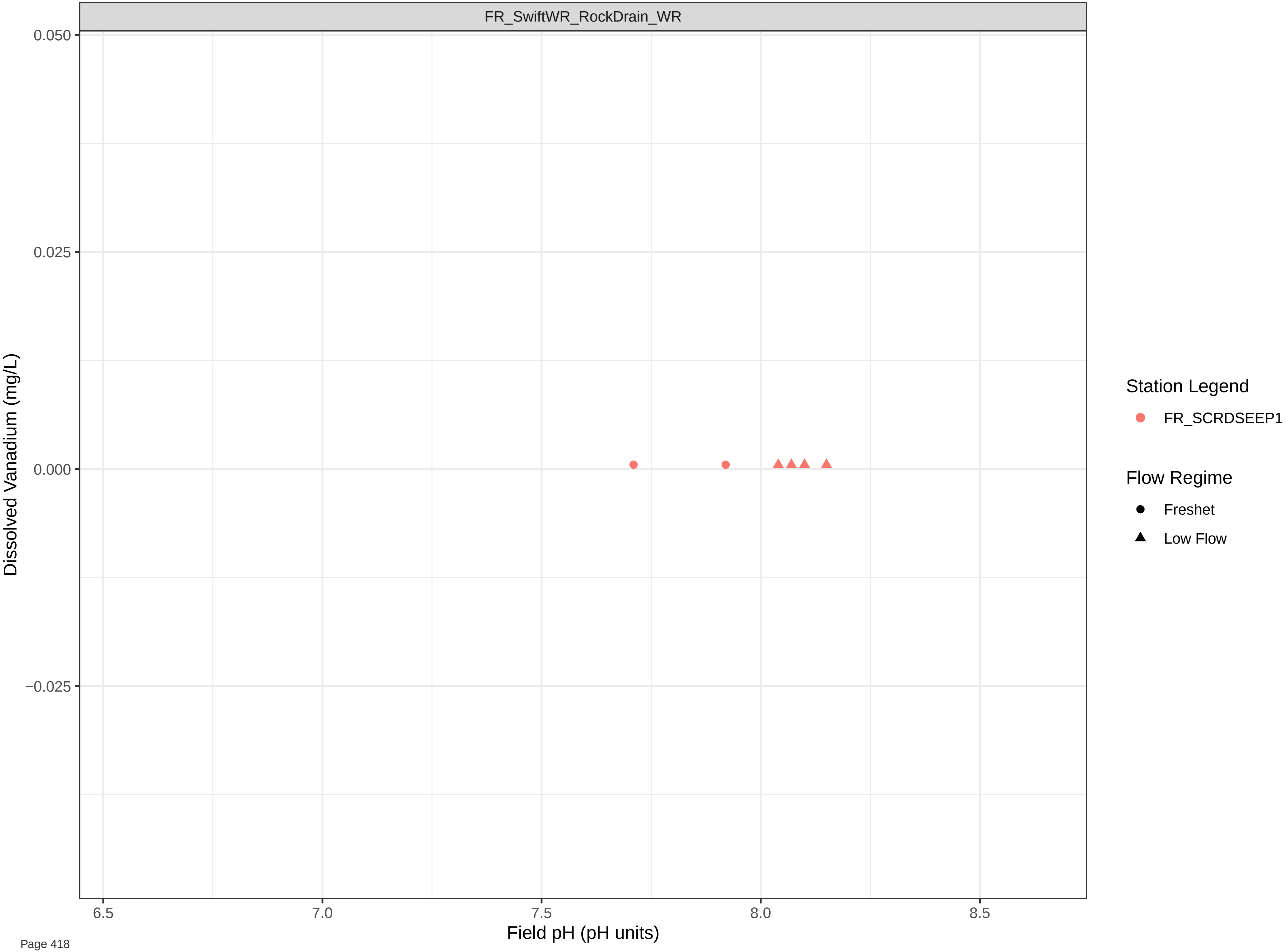

FR_HEN_WR
0.0025
0.0020
0.0015
0.0010
0.0005
Dissolved Vanadium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

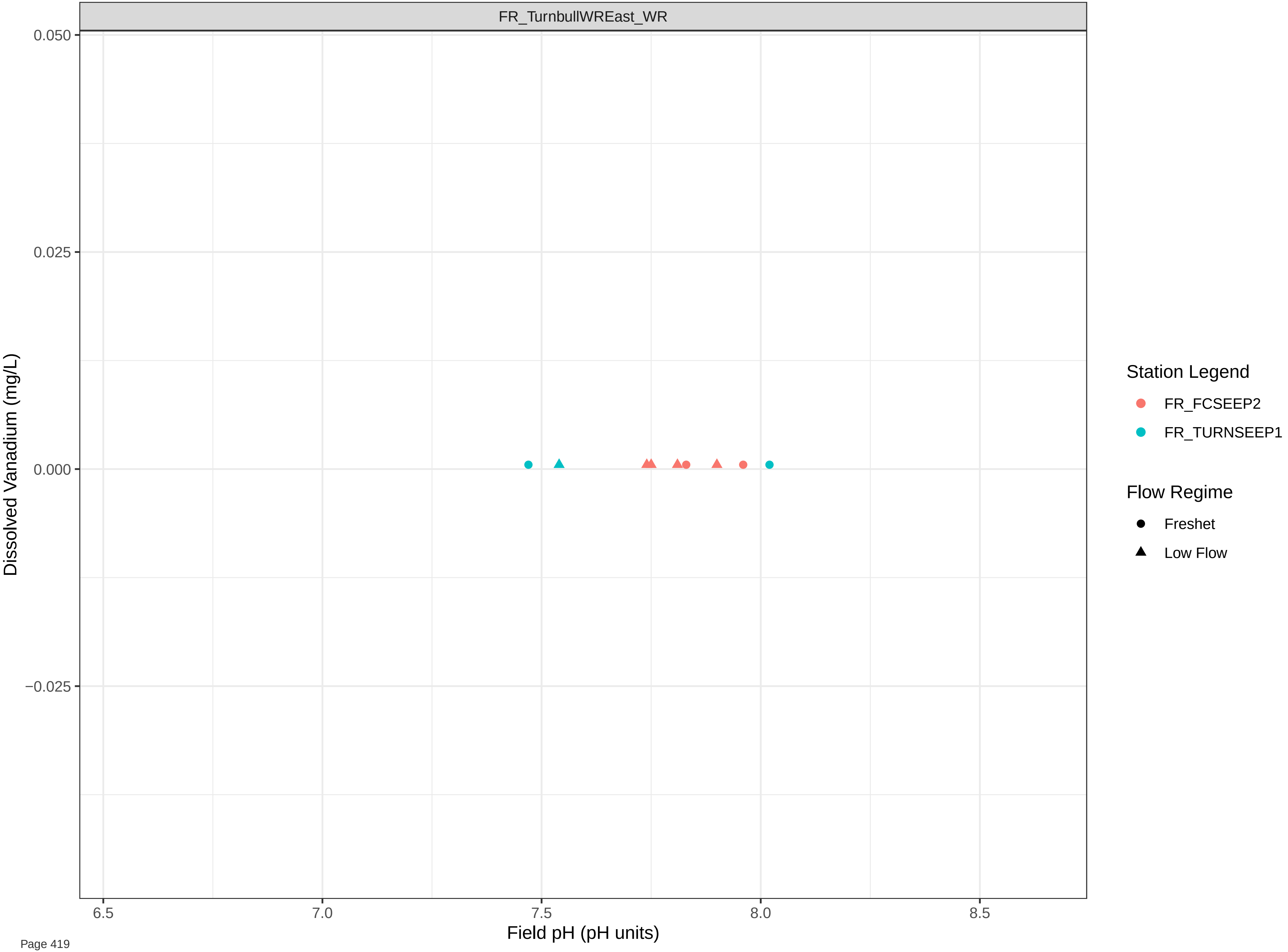

FR_LakeMtn_WR_PITS
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

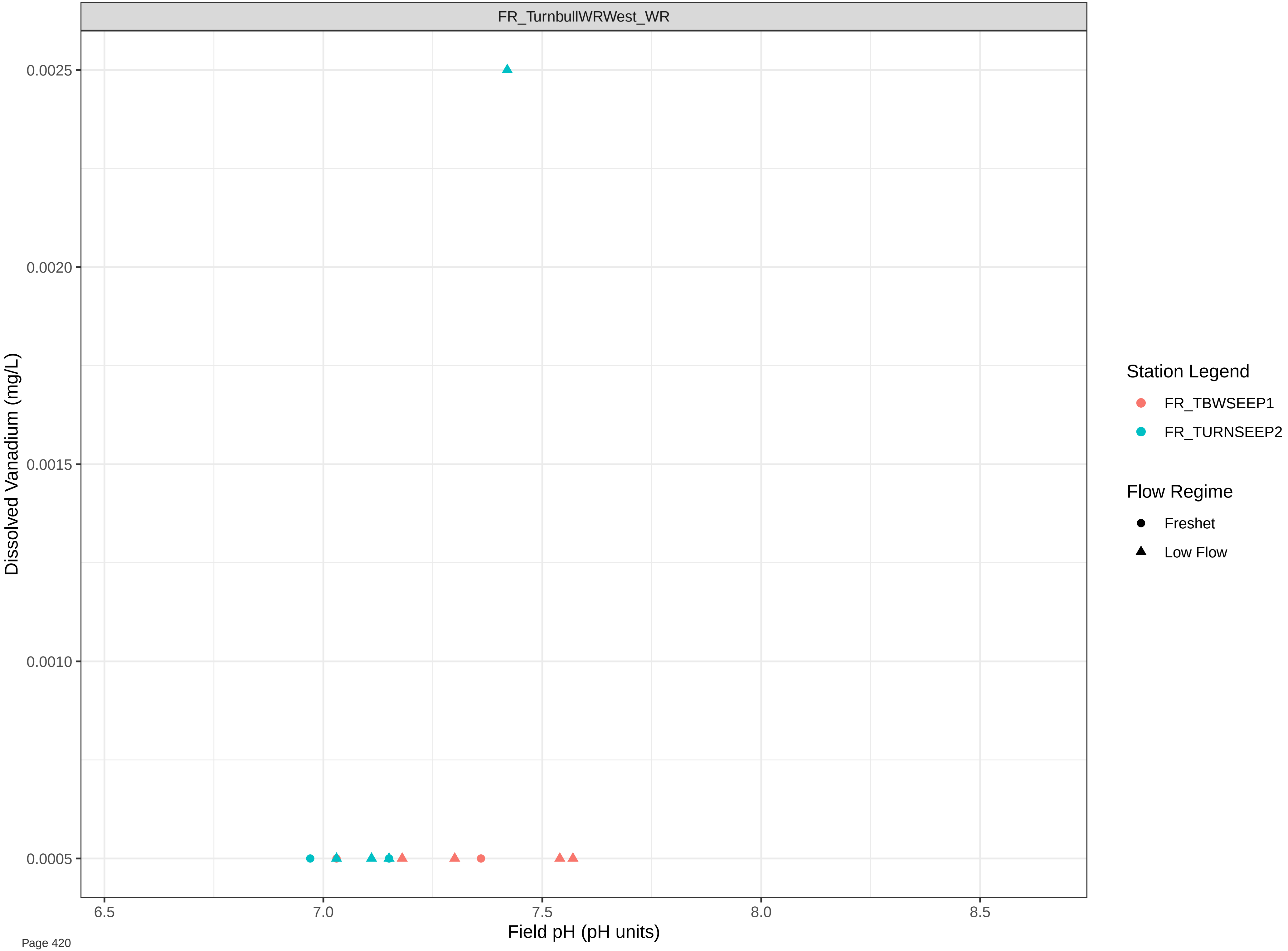

FR_Shandley_WR
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

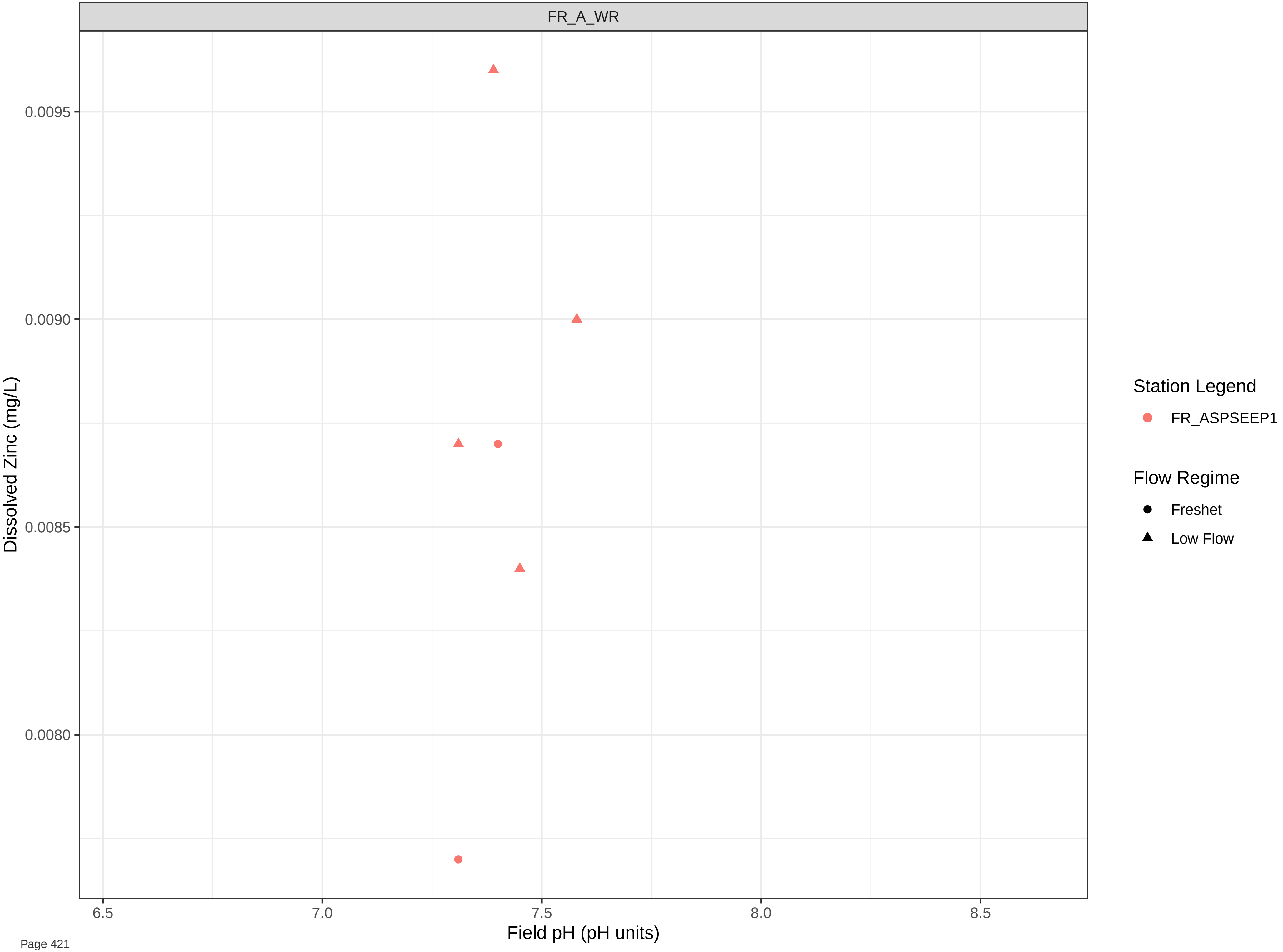

FR_Smith_WR
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

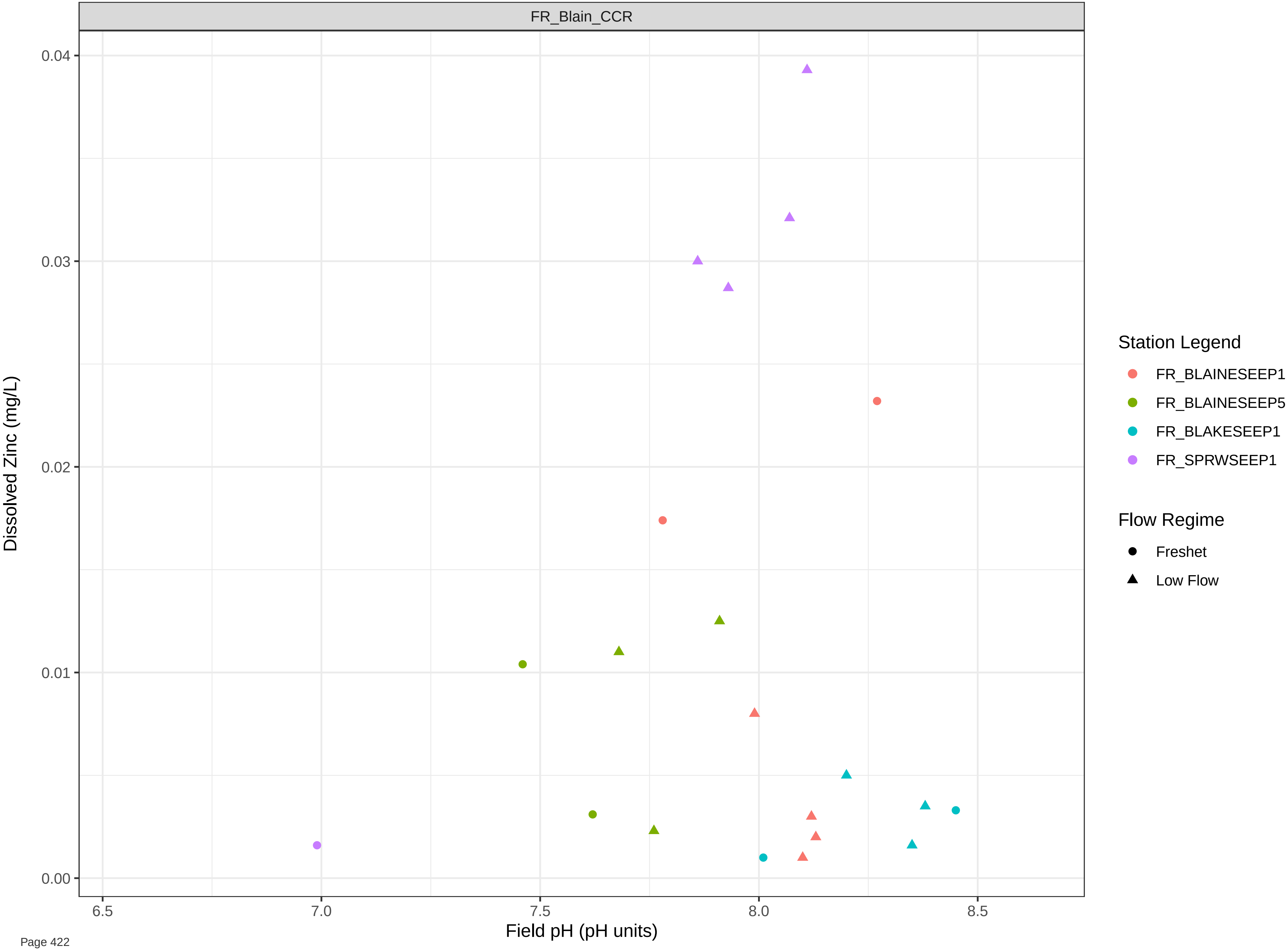

FR_SouthTails_Tailings
Dissolved Vanadium (mg/L)
0.050
0.025
0.000
−0.025
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_STPNSEEP
● FR_STPSWSEEP
● FR_STPWSEEP
Flow Regime
● Freshet
▲ Low Flow

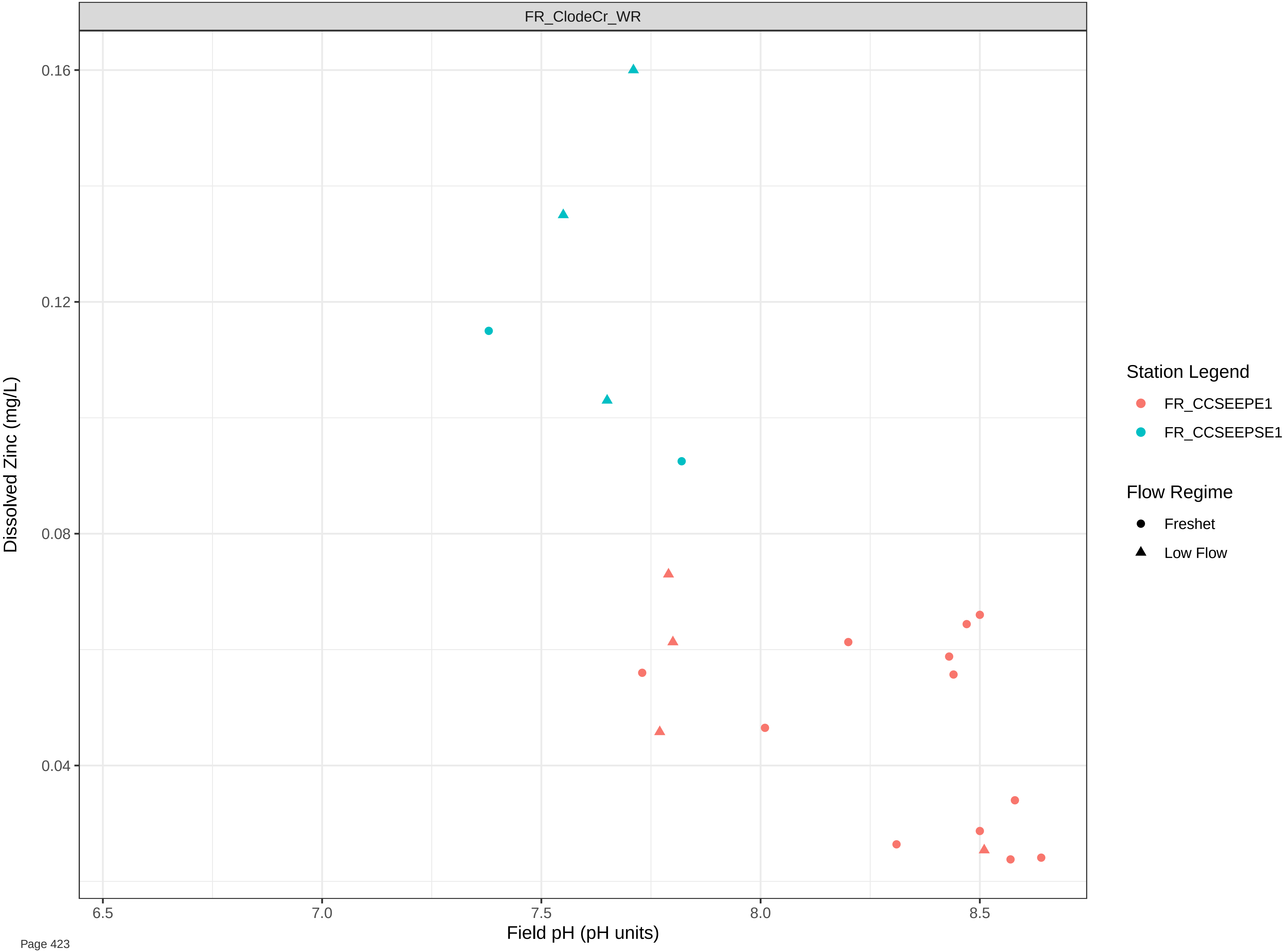

FR_SwiftWR_RockDrain_WR
0.050
0.025
0.000
−0.025
Dissolved Vanadium (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

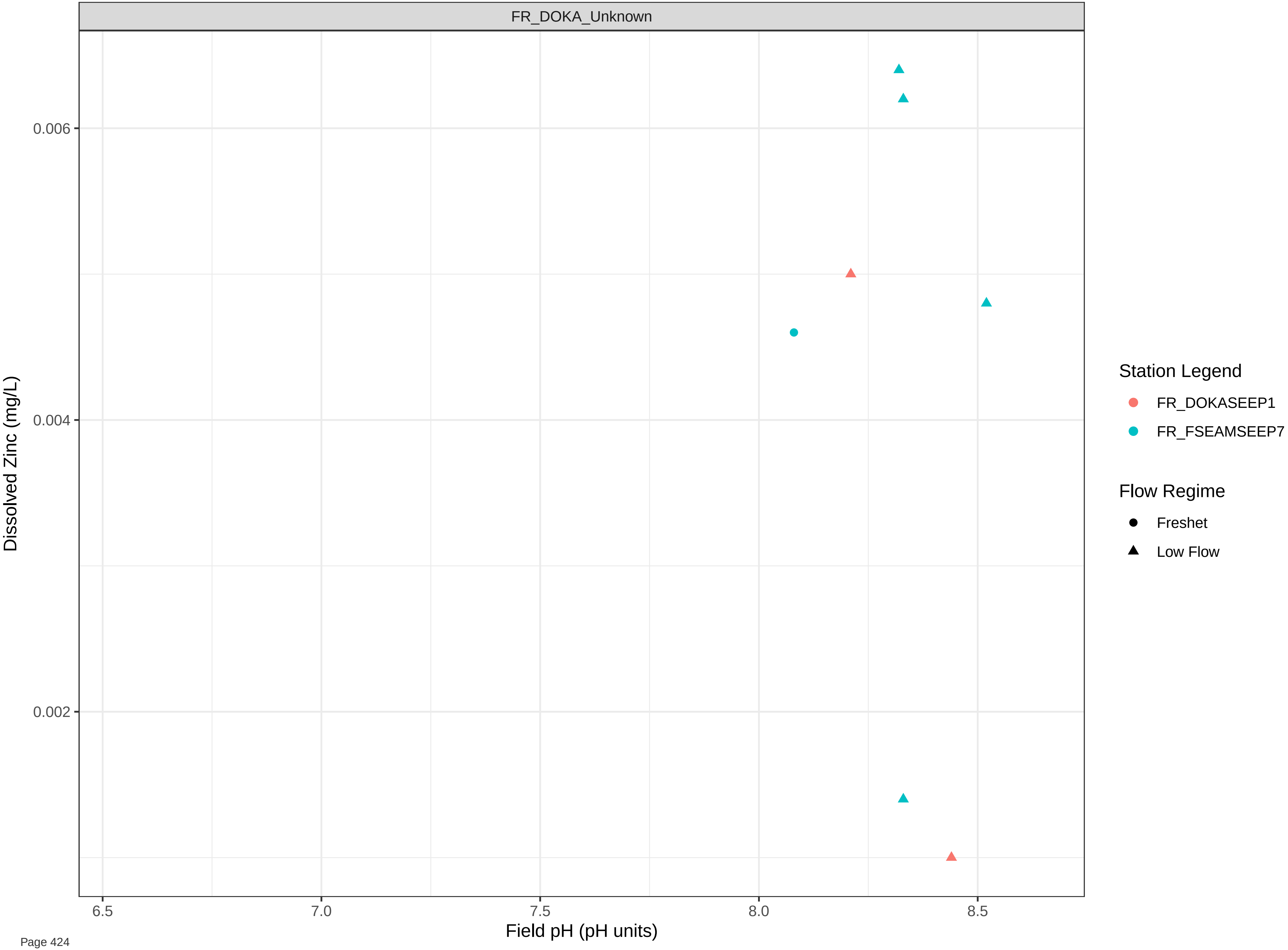

FR_TurnbullWREast_WR
Dissolved Vanadium (mg/L)
0.050
0.025
0.000
−0.025
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

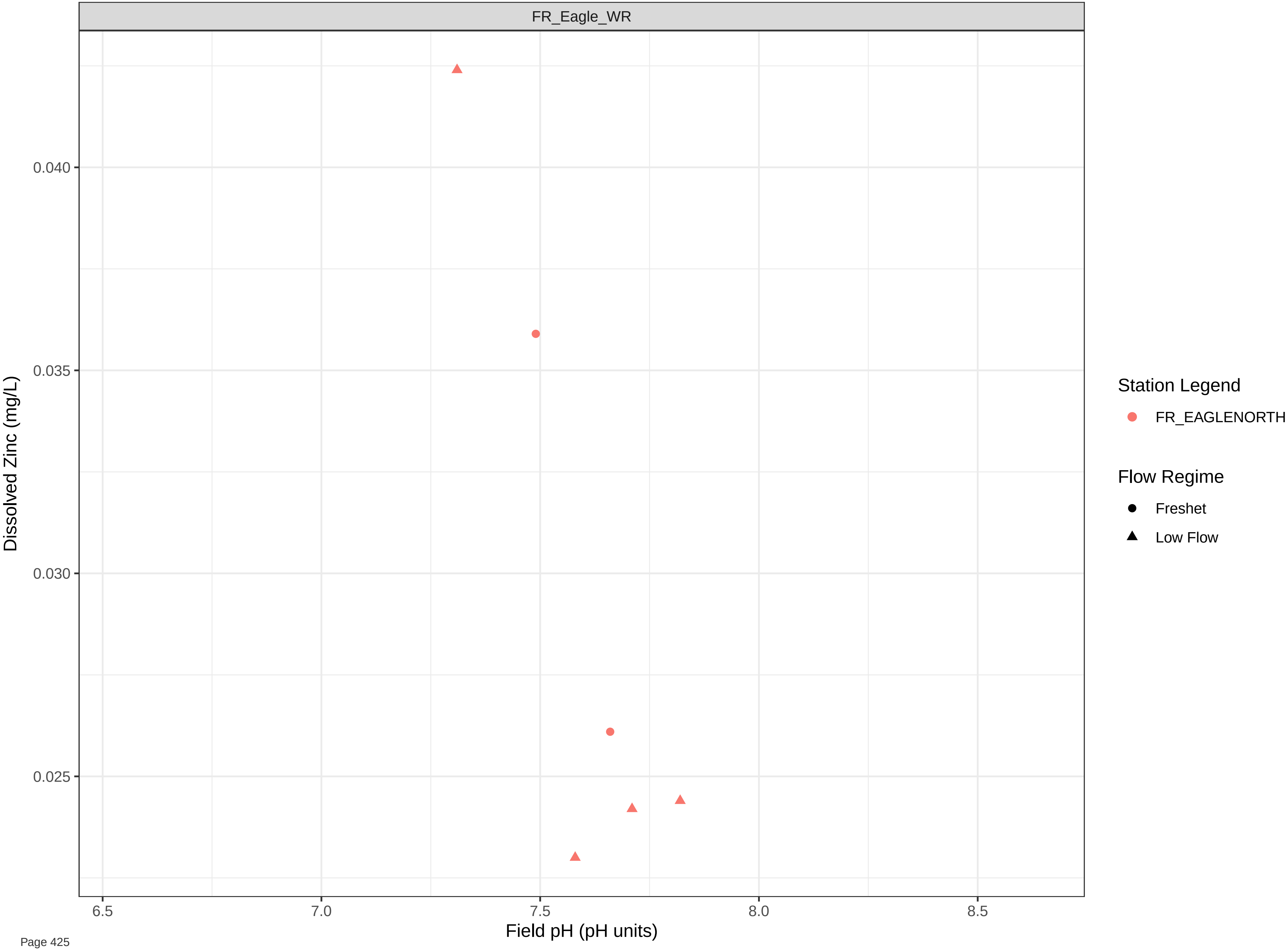

FR_TurnbullWRWest_WR
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

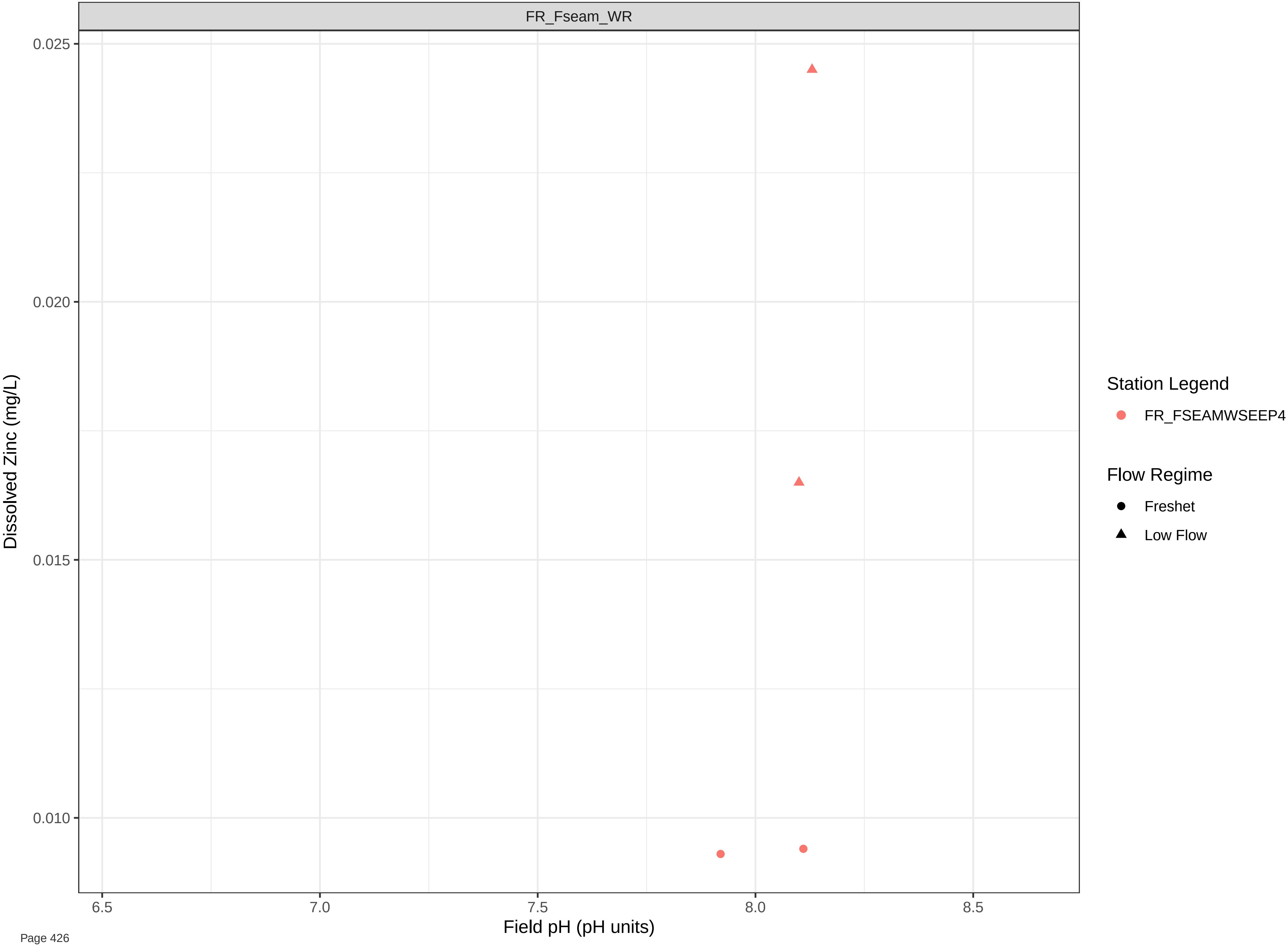

FR_A_WR
Dissolved Zinc (mg/L)
0.0095
0.0090
0.0085
0.0080
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

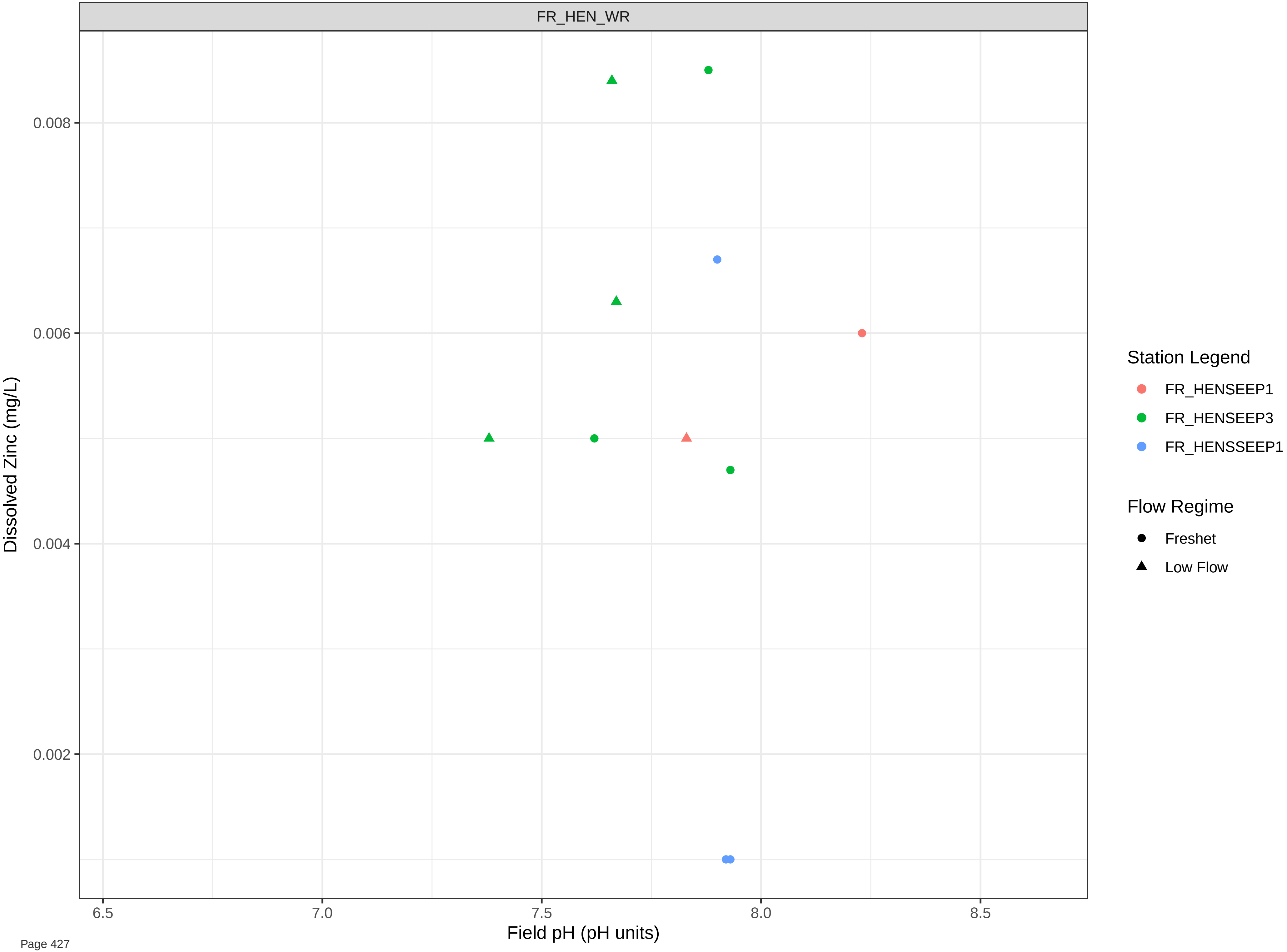

FR_Blain_CCR
Dissolved Zinc (mg/L)
0.04
0.03
0.02
0.01
0.00
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow

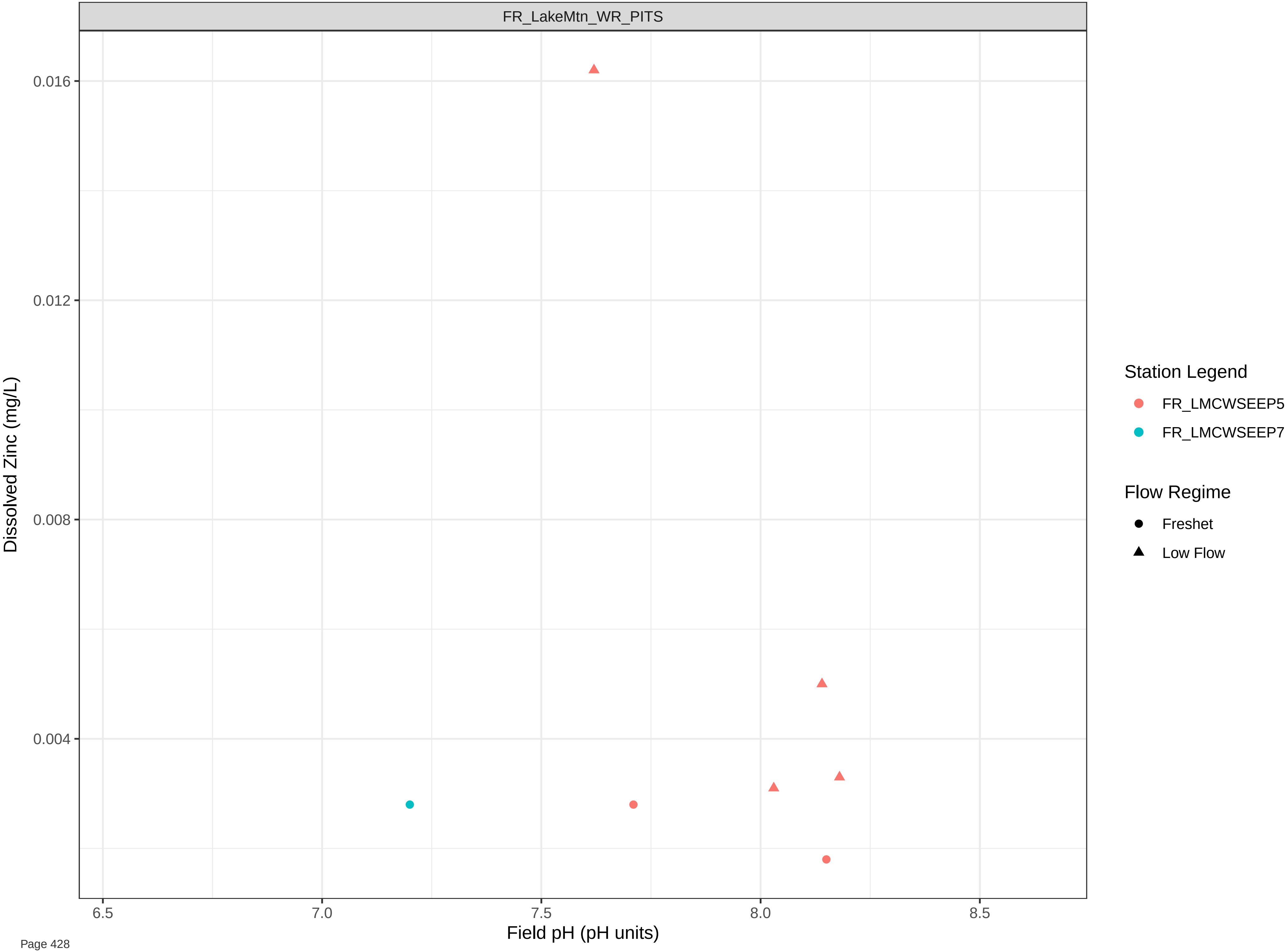

FR_ClodeCr_WR
Dissolved Zinc (mg/L)
0.16
0.12
0.08
0.04
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

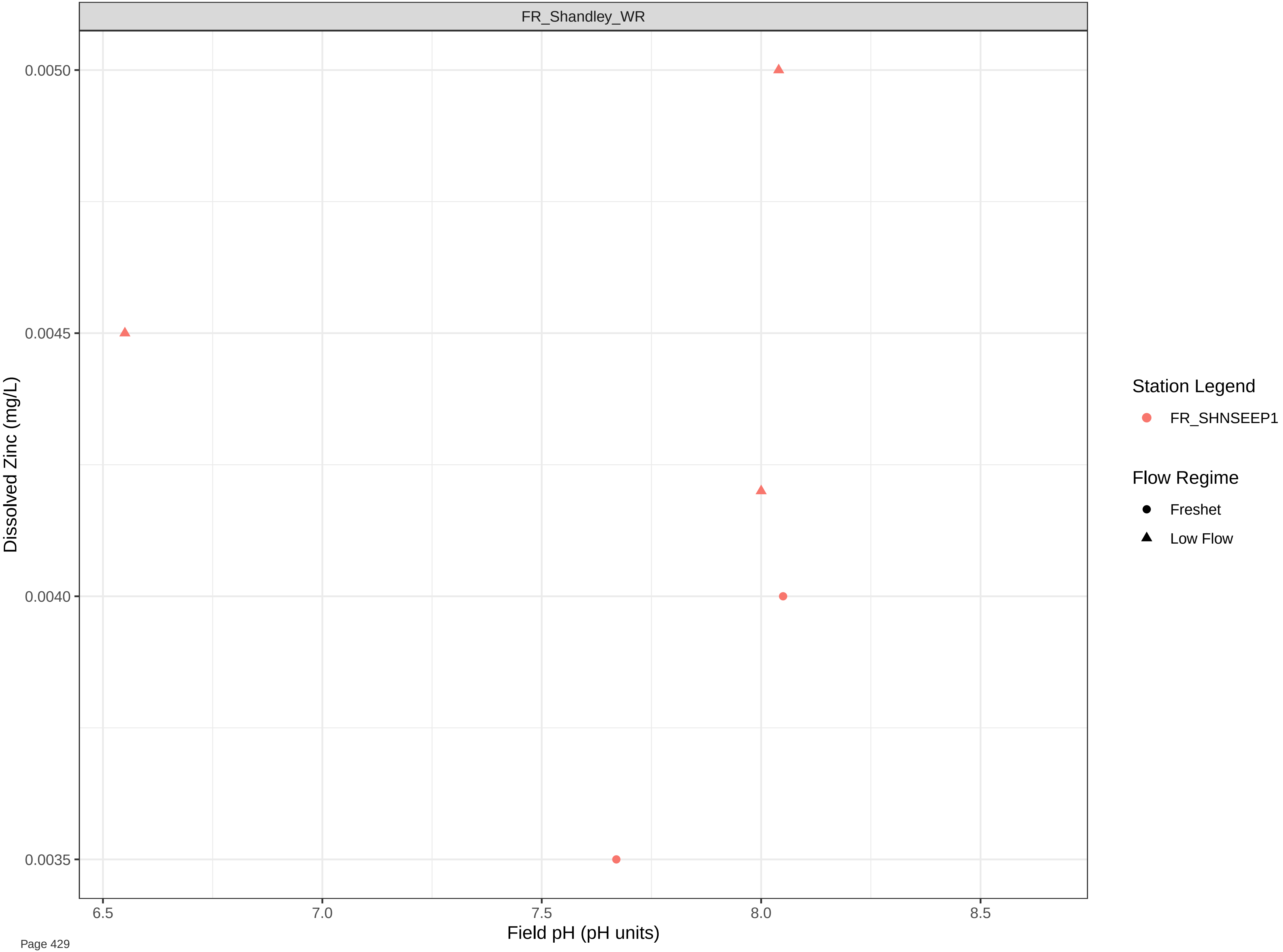

FR_DOKA_Unknown
Dissolved Zinc (mg/L)
0.006
0.004
0.002
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow

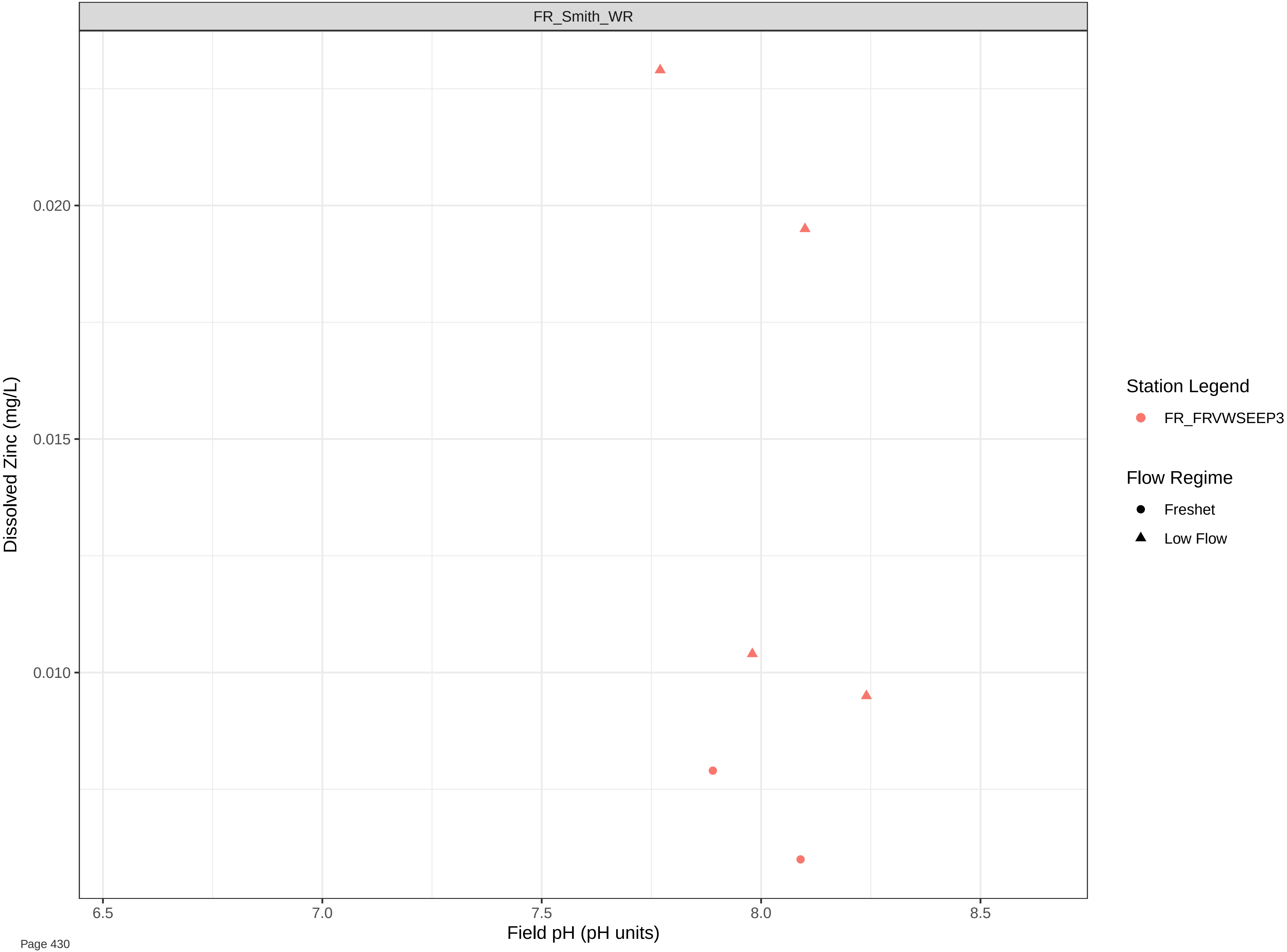

FR_Eagle_WR
Dissolved Zinc (mg/L)
0.040
0.035
0.030
0.025
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

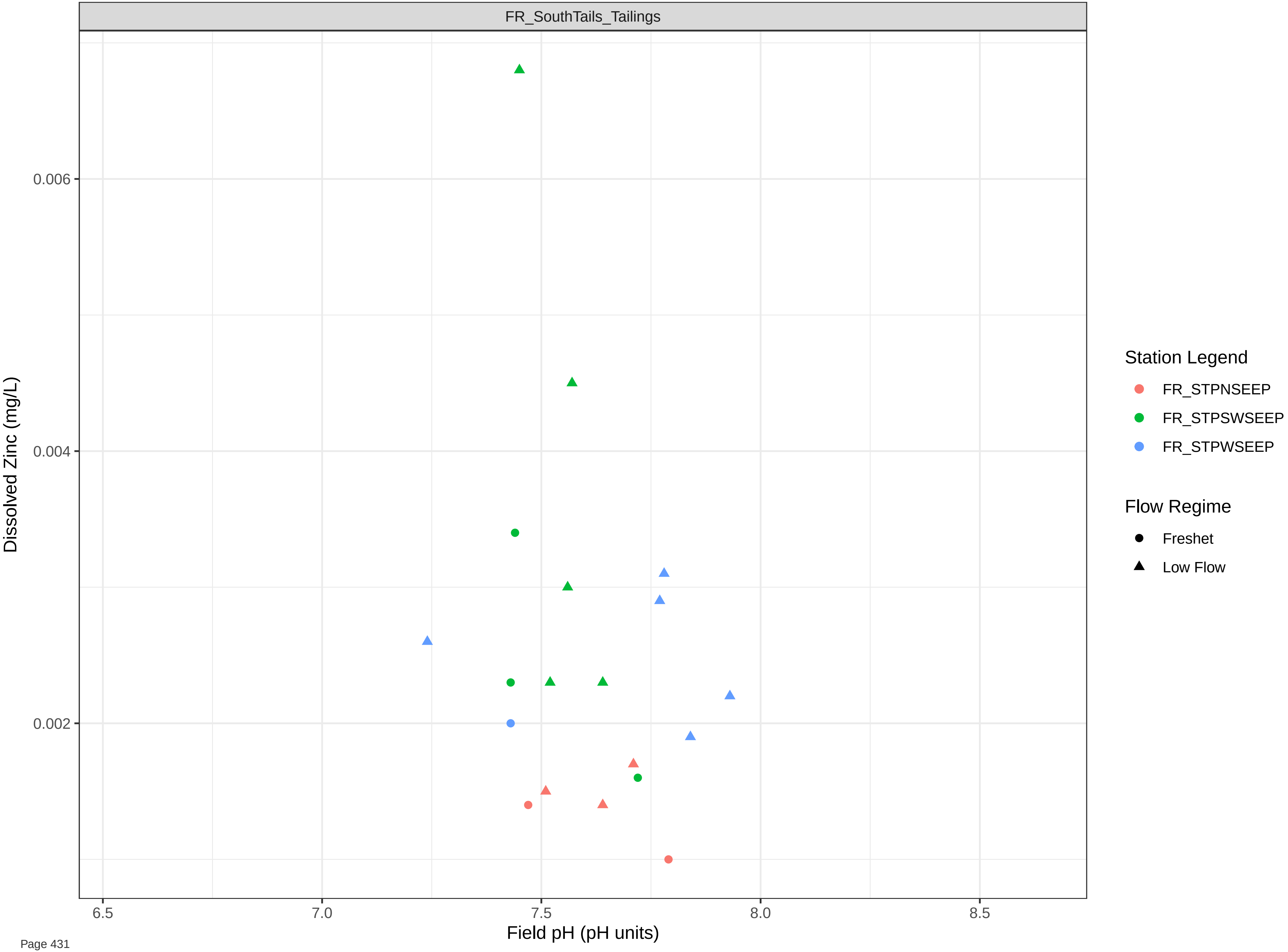

FR_Fseam_WR
Dissolved Zinc (mg/L)
0.025
0.020
0.015
0.010
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

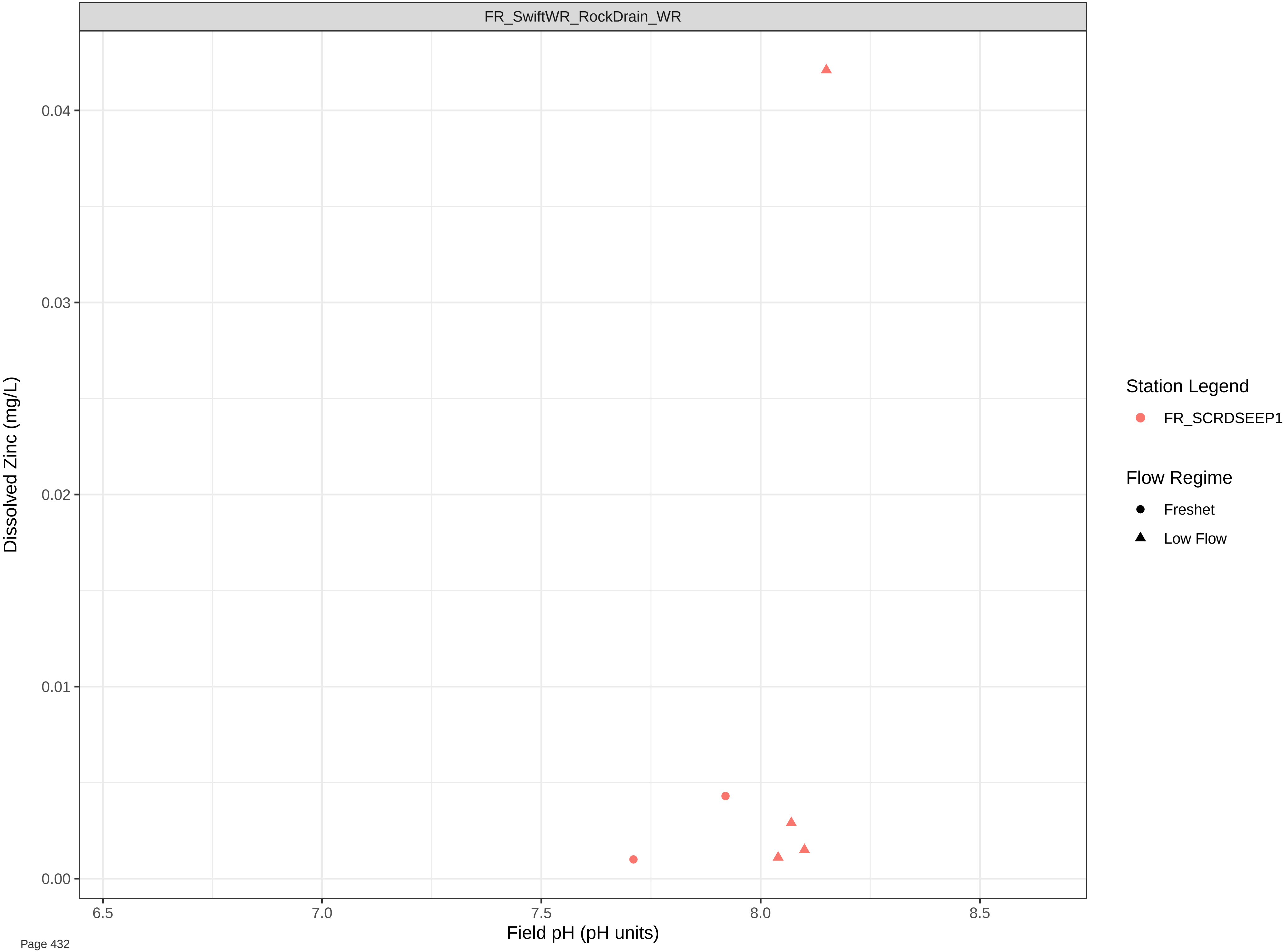

FR_HEN_WR
Dissolved Zinc (mg/L)
0.008
0.006
0.004
0.002
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

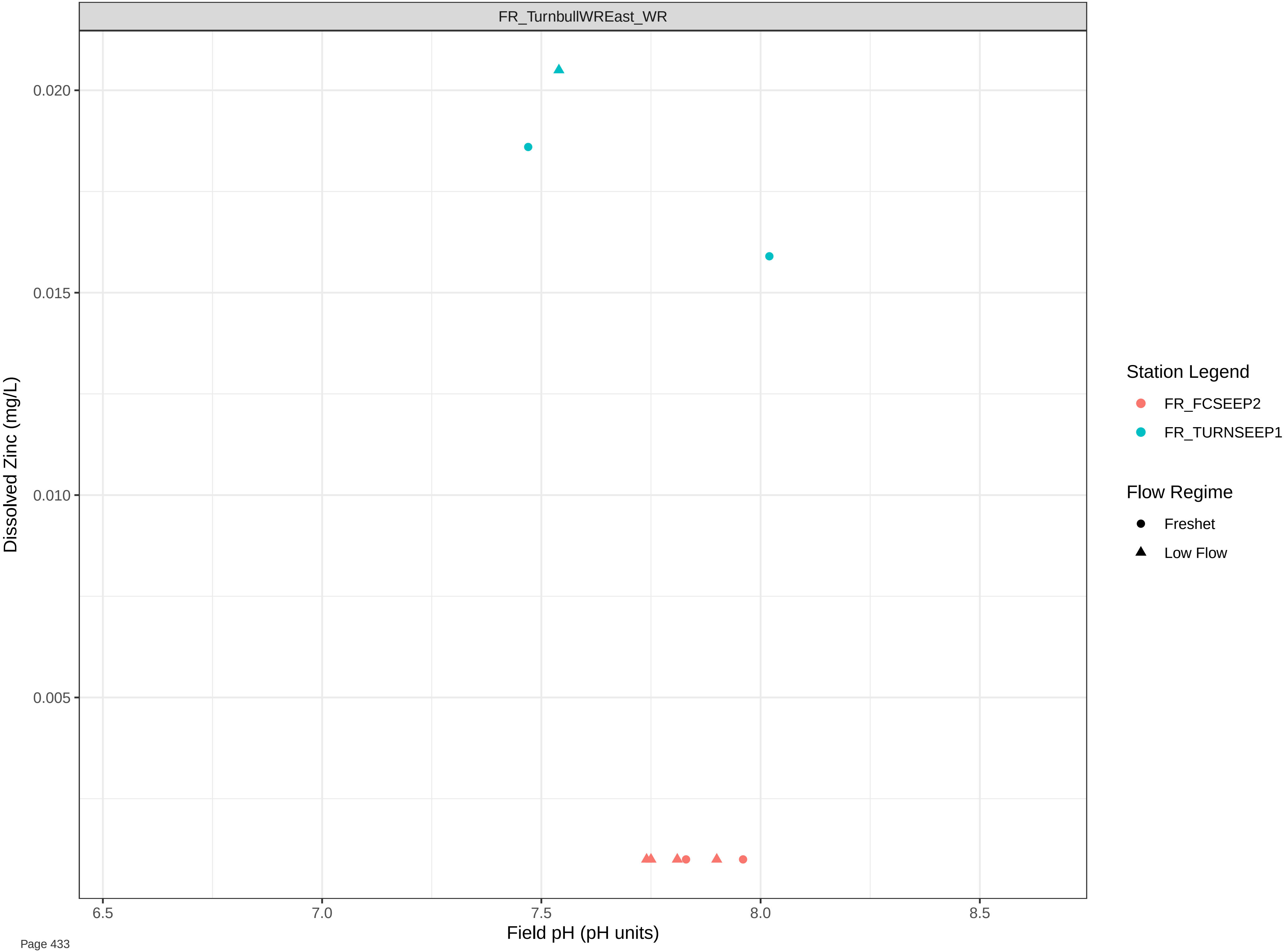

FR_LakeMtn_WR_PITS
Dissolved Zinc (mg/L)
0.016
0.012
0.008
0.004
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow

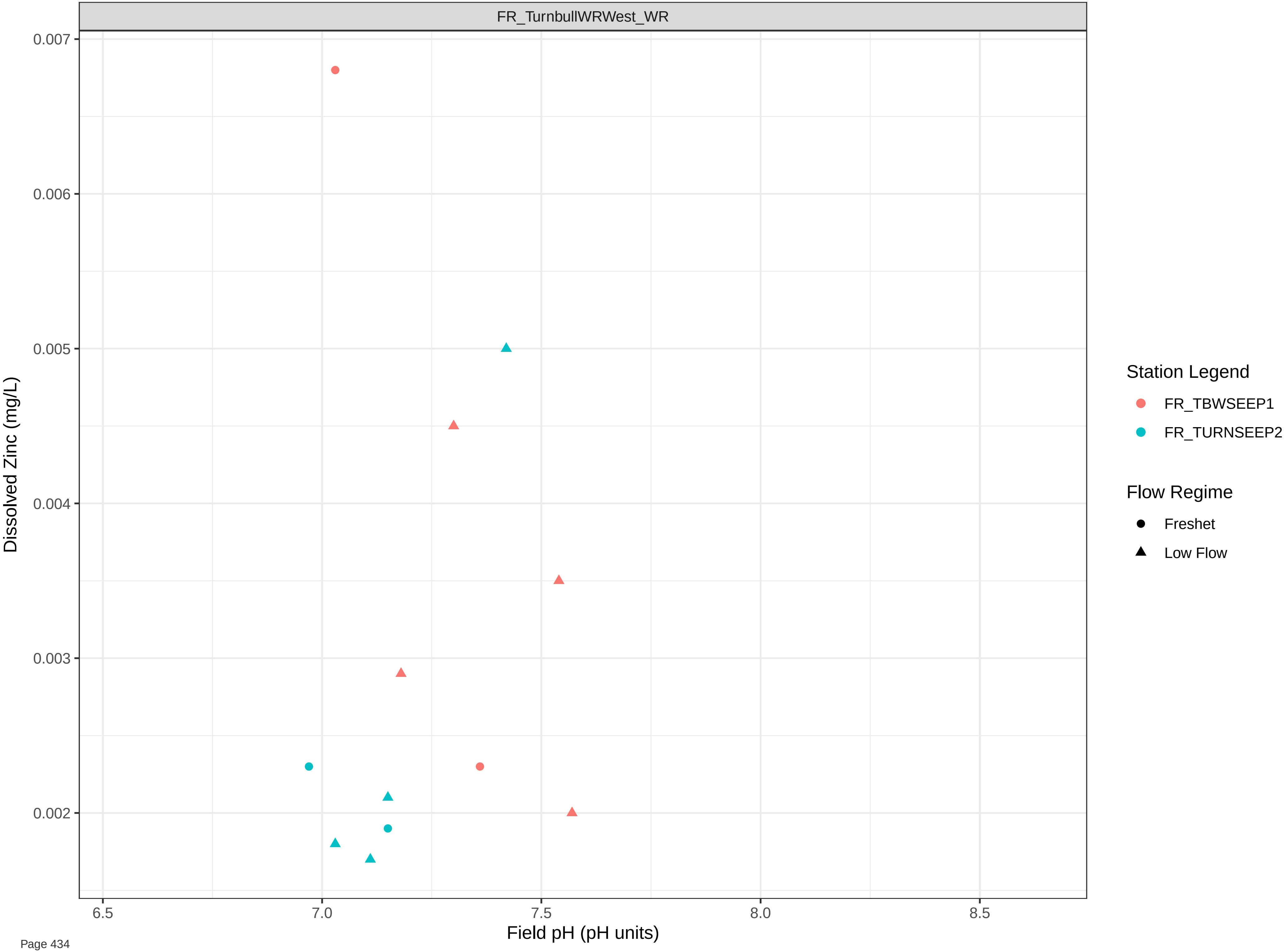

FR_Shandley_WR
Dissolved Zinc (mg/L)
0.0050
0.0045
0.0040
0.0035
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

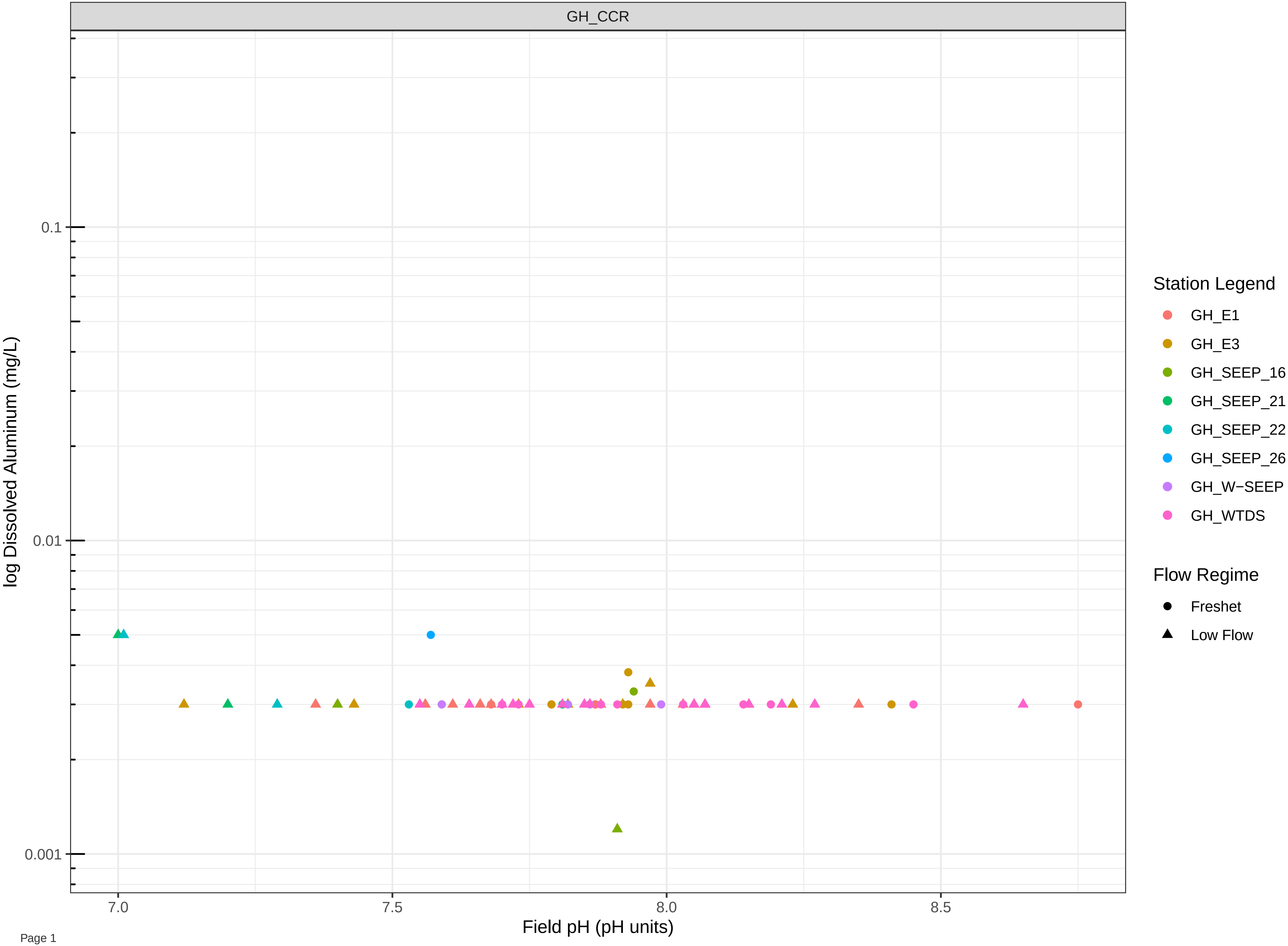

FR_Smith_WR
Dissolved Zinc (mg/L)
0.020
0.015
0.010
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

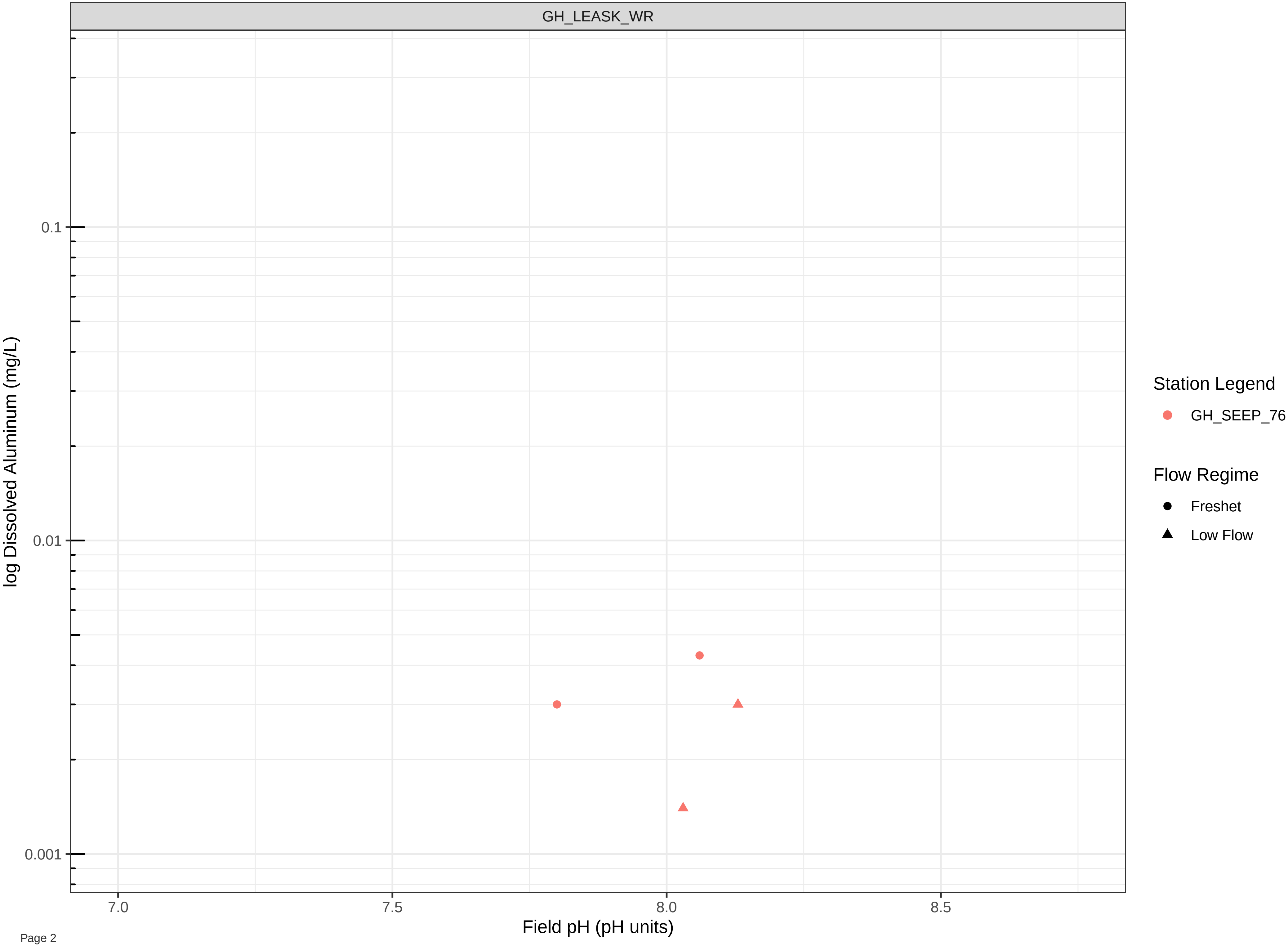

FR_SouthTails_Tailings
Dissolved Zinc (mg/L)
0.006
0.004
0.002
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

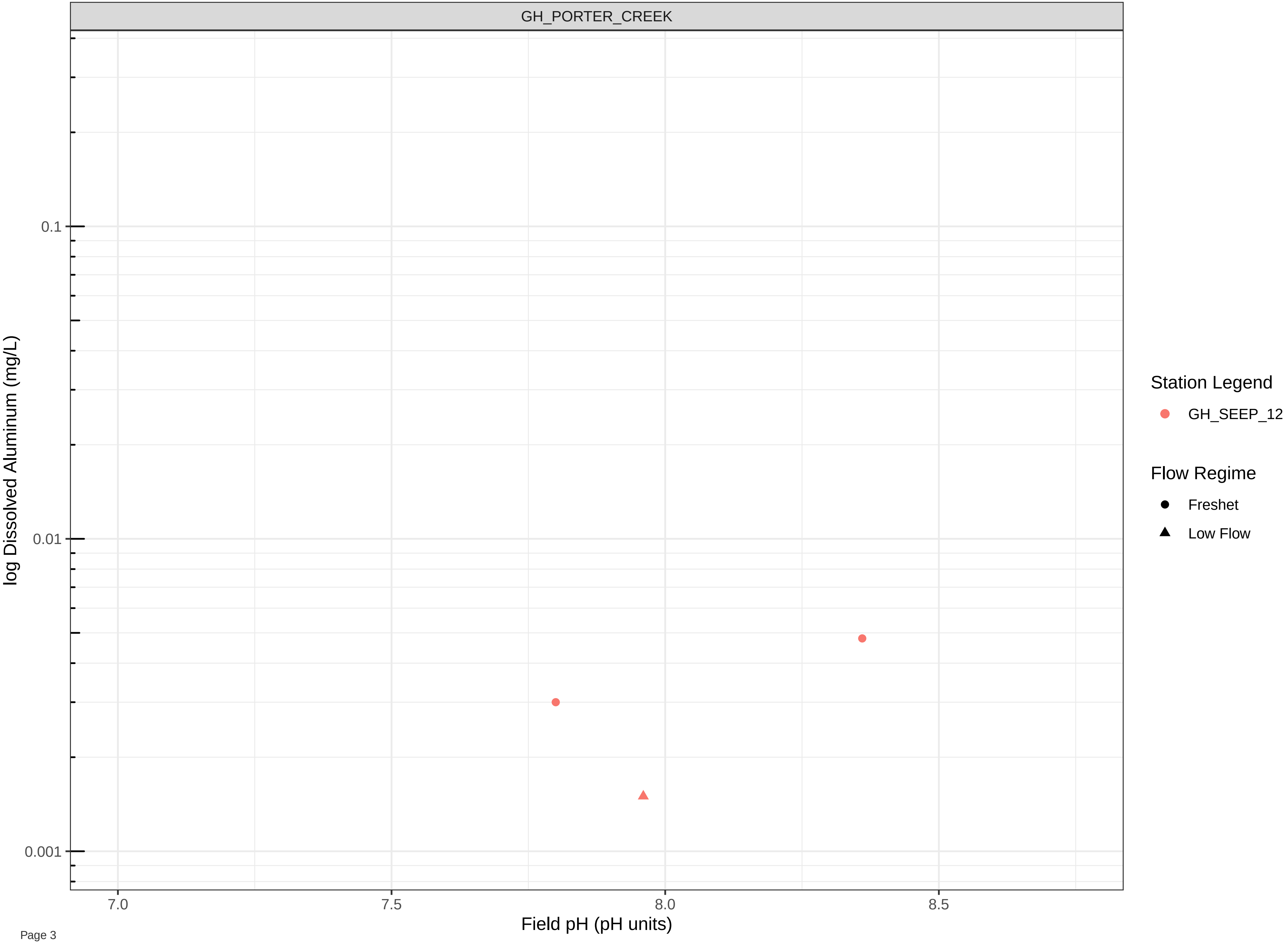

FR_SwiftWR_RockDrain_WR
Dissolved Zinc (mg/L)
0.04
0.03
0.02
0.01
0.00
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

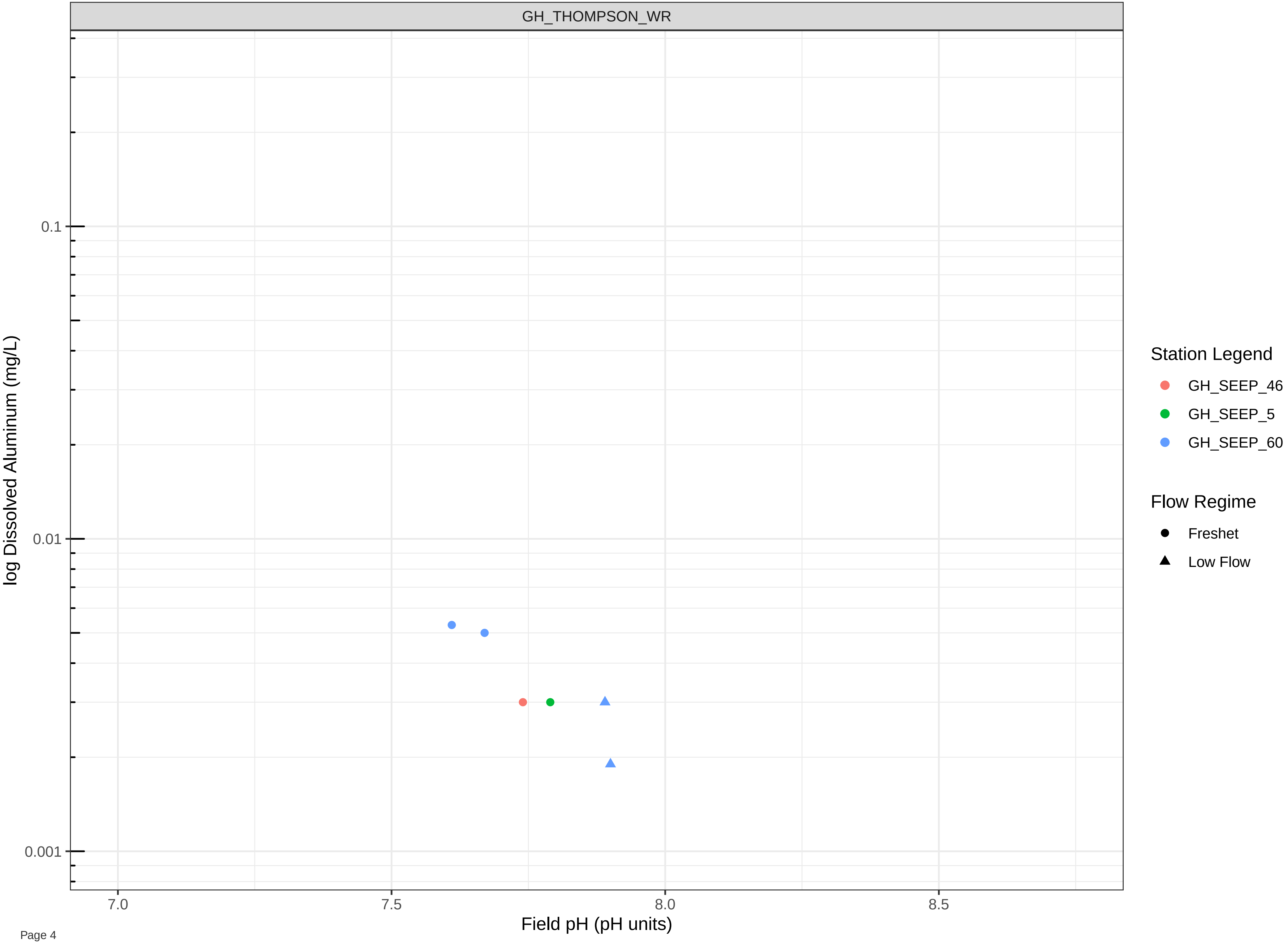

FR_TurnbullWREast_WR
0.020
0.015
0.010
0.005
Dissolved Zinc (mg/L)
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

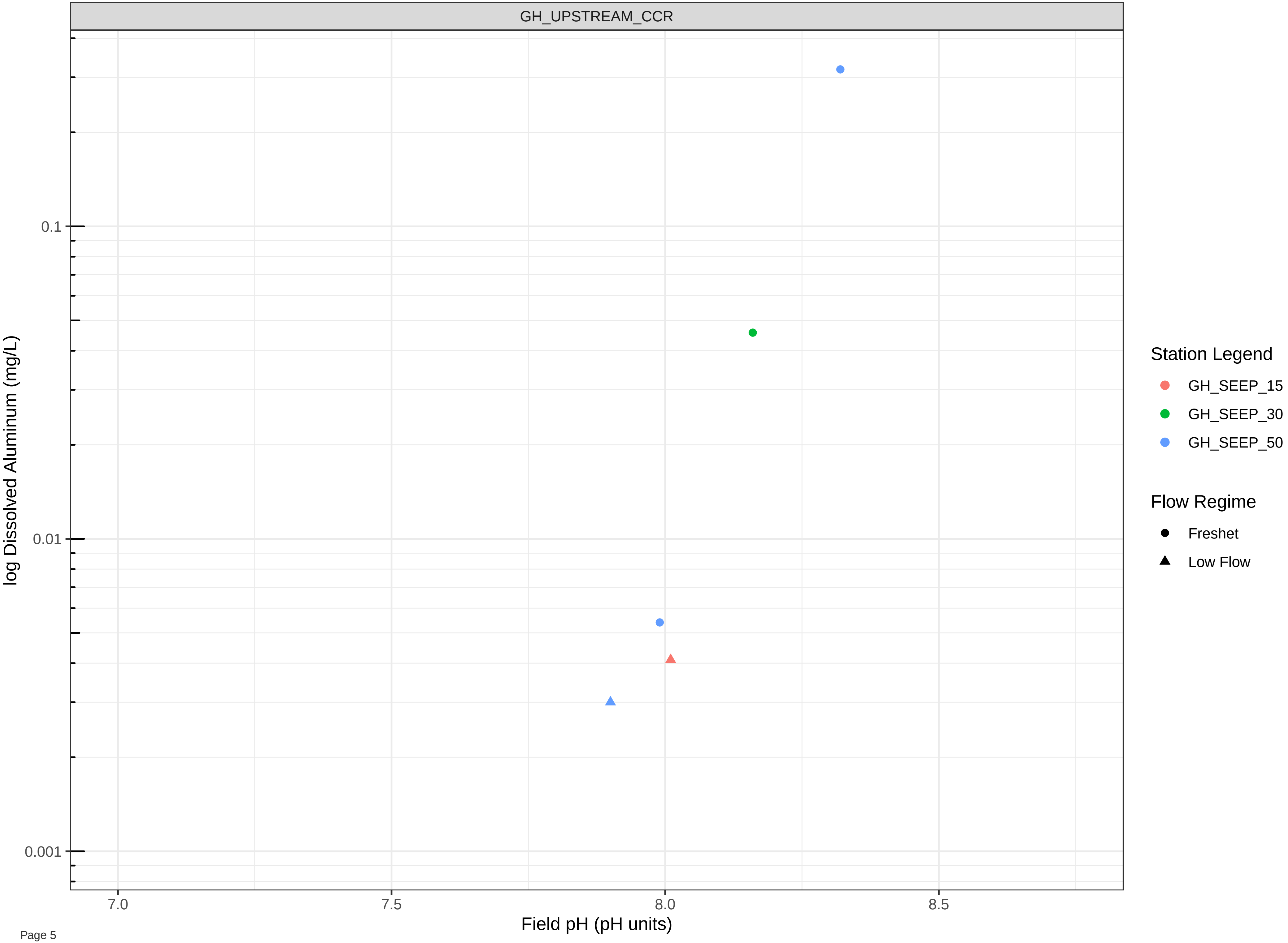

FR_TurnbullWRWest_WR
Dissolved Zinc (mg/L)
0.007
0.006
0.005
0.004
0.003
0.002
Field pH (pH units)
6.5
7.0
7.5
8.0
8.5
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

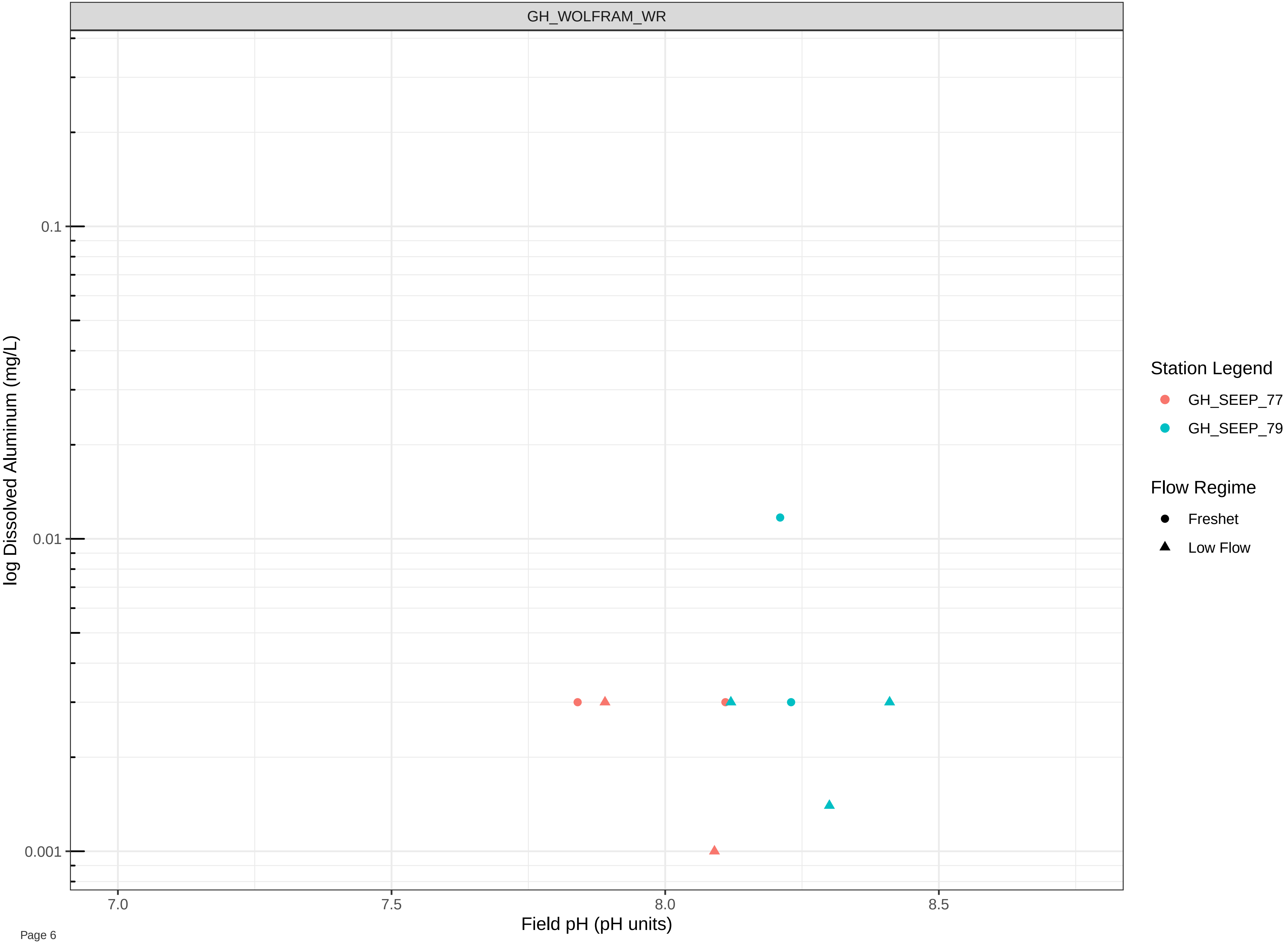

GH_CCR
log Dissolved Aluminum (mg/L)
0.1
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

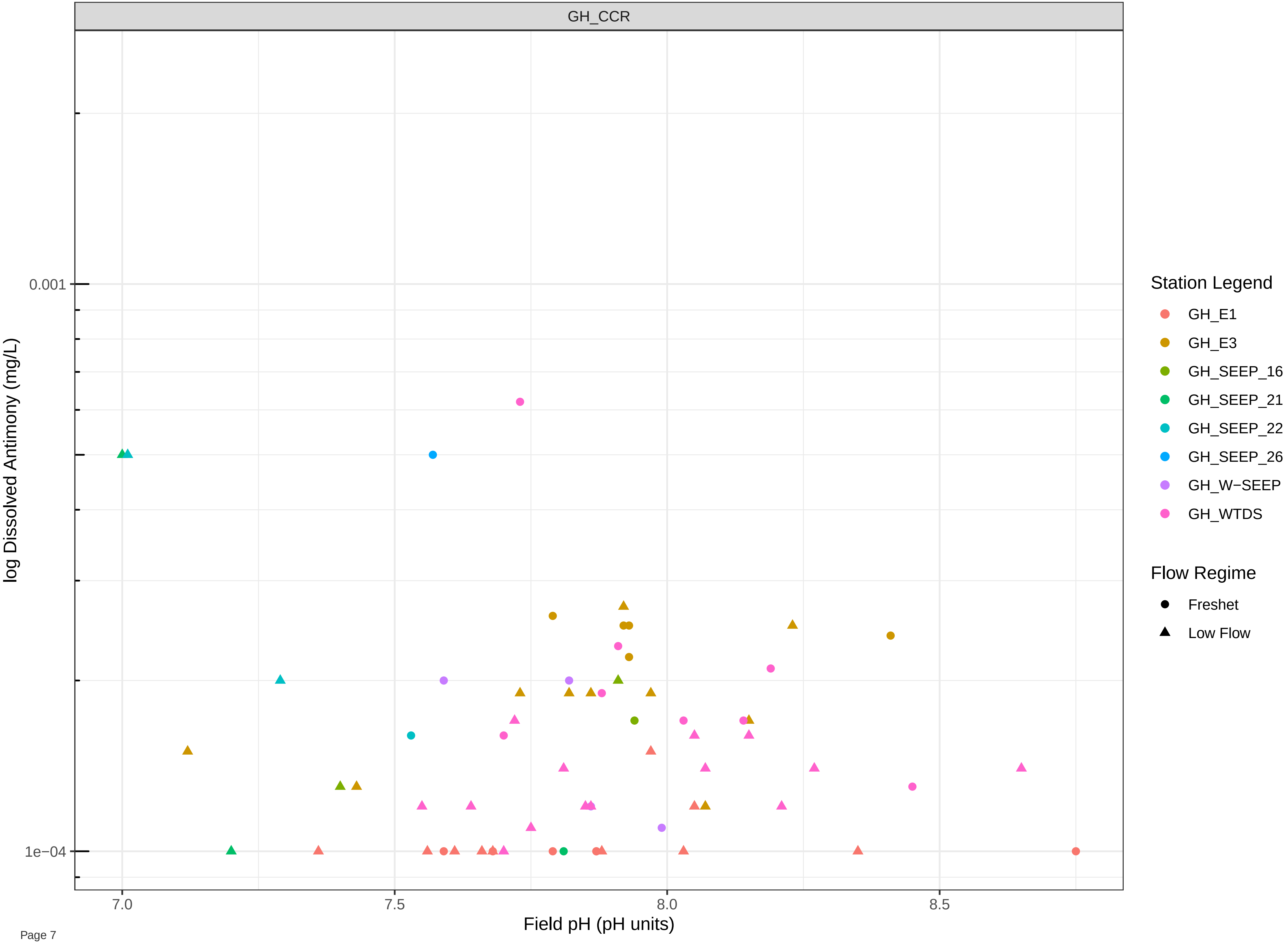

GH_LEASK_WR
log Dissolved Aluminum (mg/L)
0.1
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

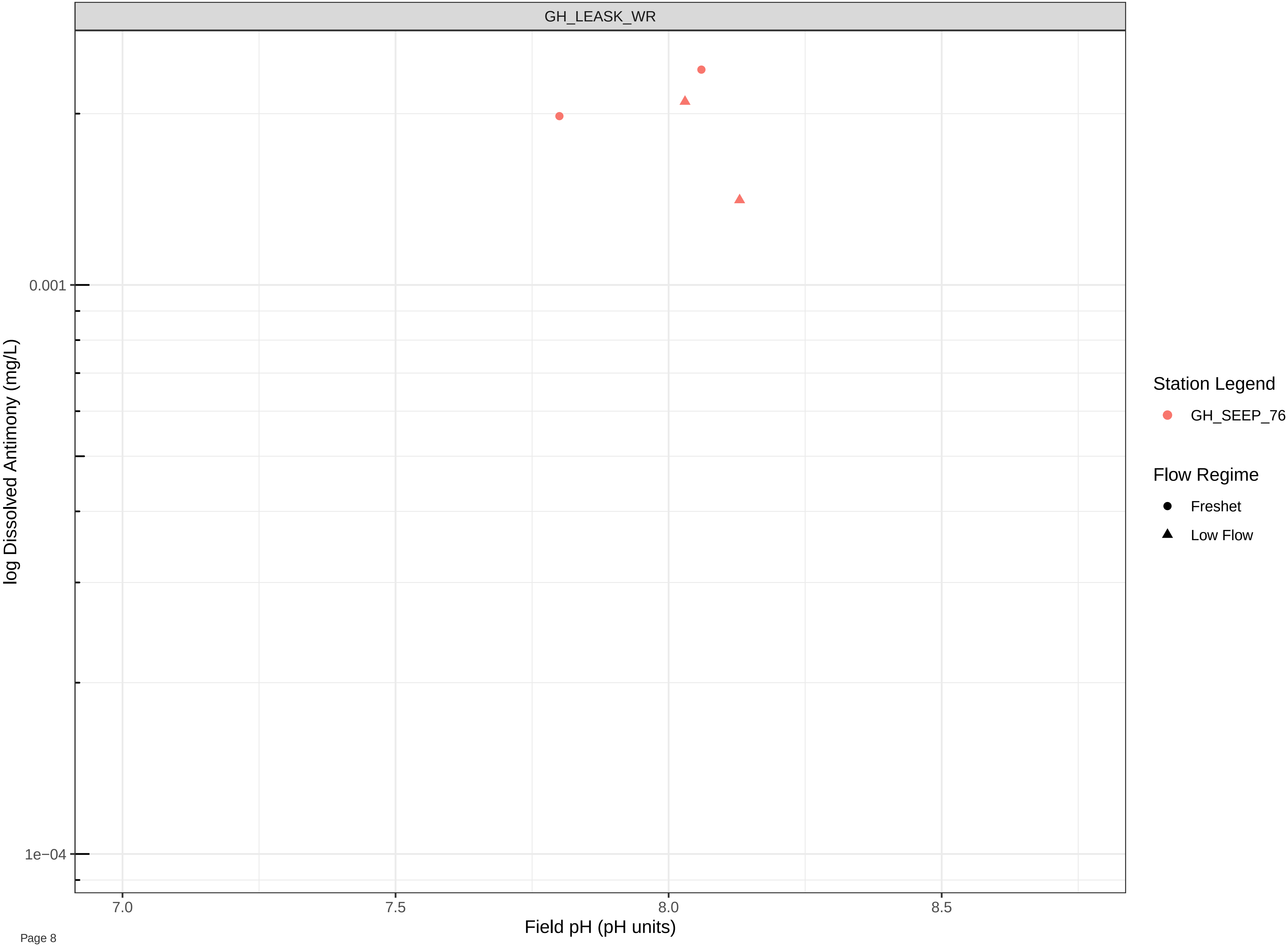

GH_PORTER_CREEK
log Dissolved Aluminum (mg/L)
0.1
0.01
0.001
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow


GH_THOMPSON_WR
log Dissolved Aluminum (mg/L)
0.1
0.01
0.001
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow


GH_UPSTREAM_CCR
log Dissolved Aluminum (mg/L)
0.1
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow


GH_WOLFRAM_WR
log Dissolved Aluminum (mg/L)
0.1
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow


GH_CCR
log Dissolved Antimony (mg/L)
0.001
1e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow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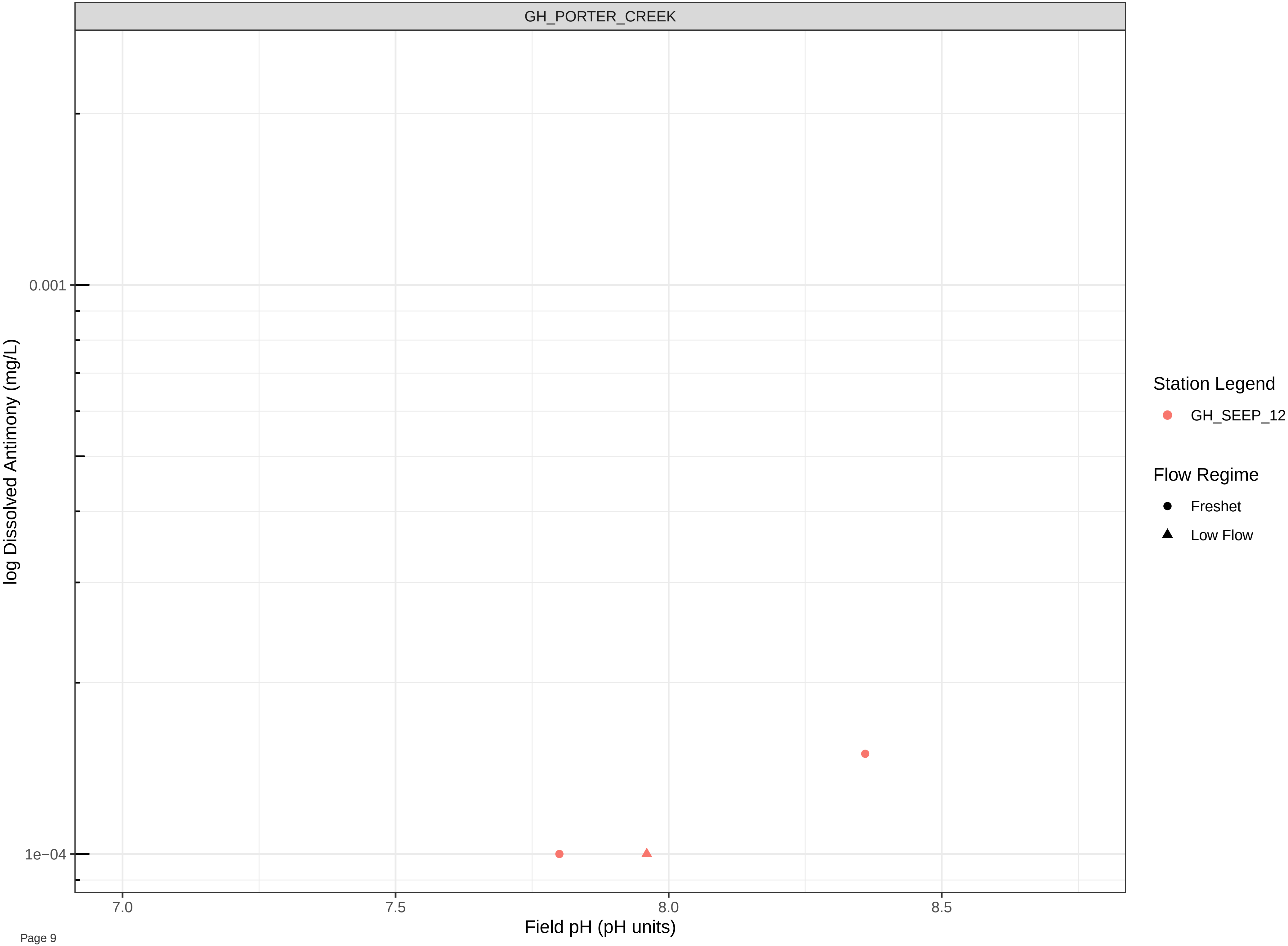
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow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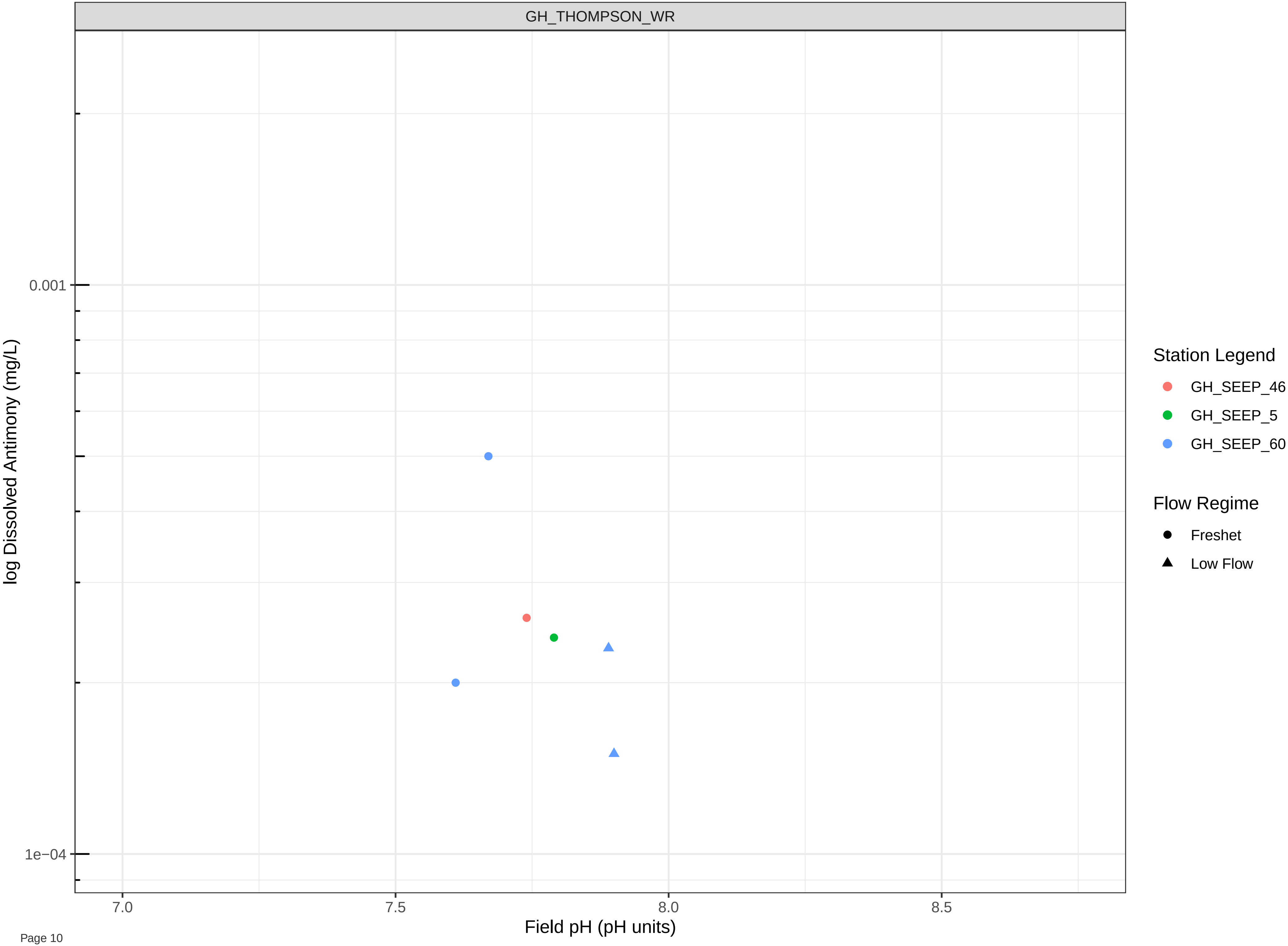
Field pH (pH units)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow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Station Legend
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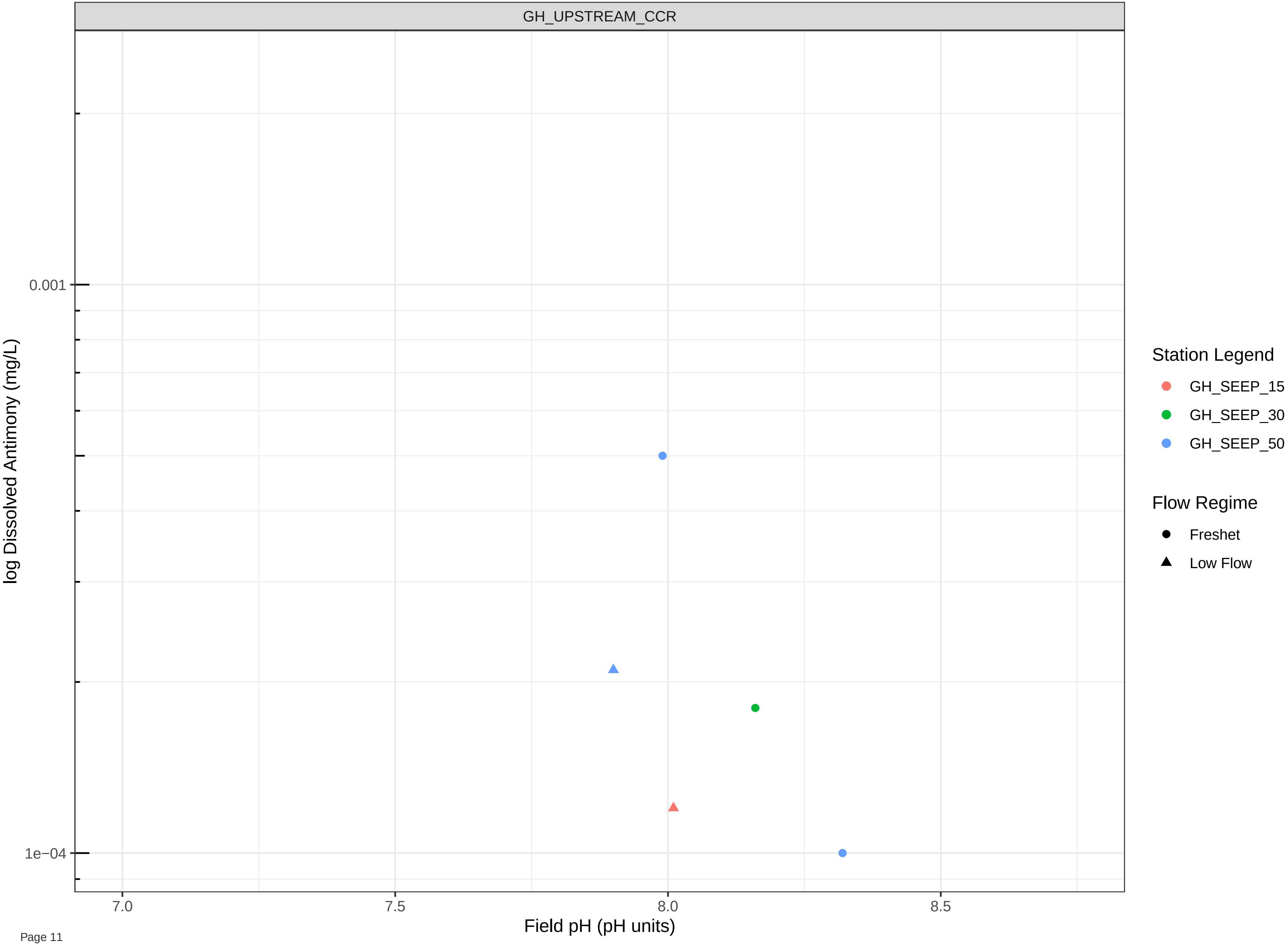
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow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Station Legend
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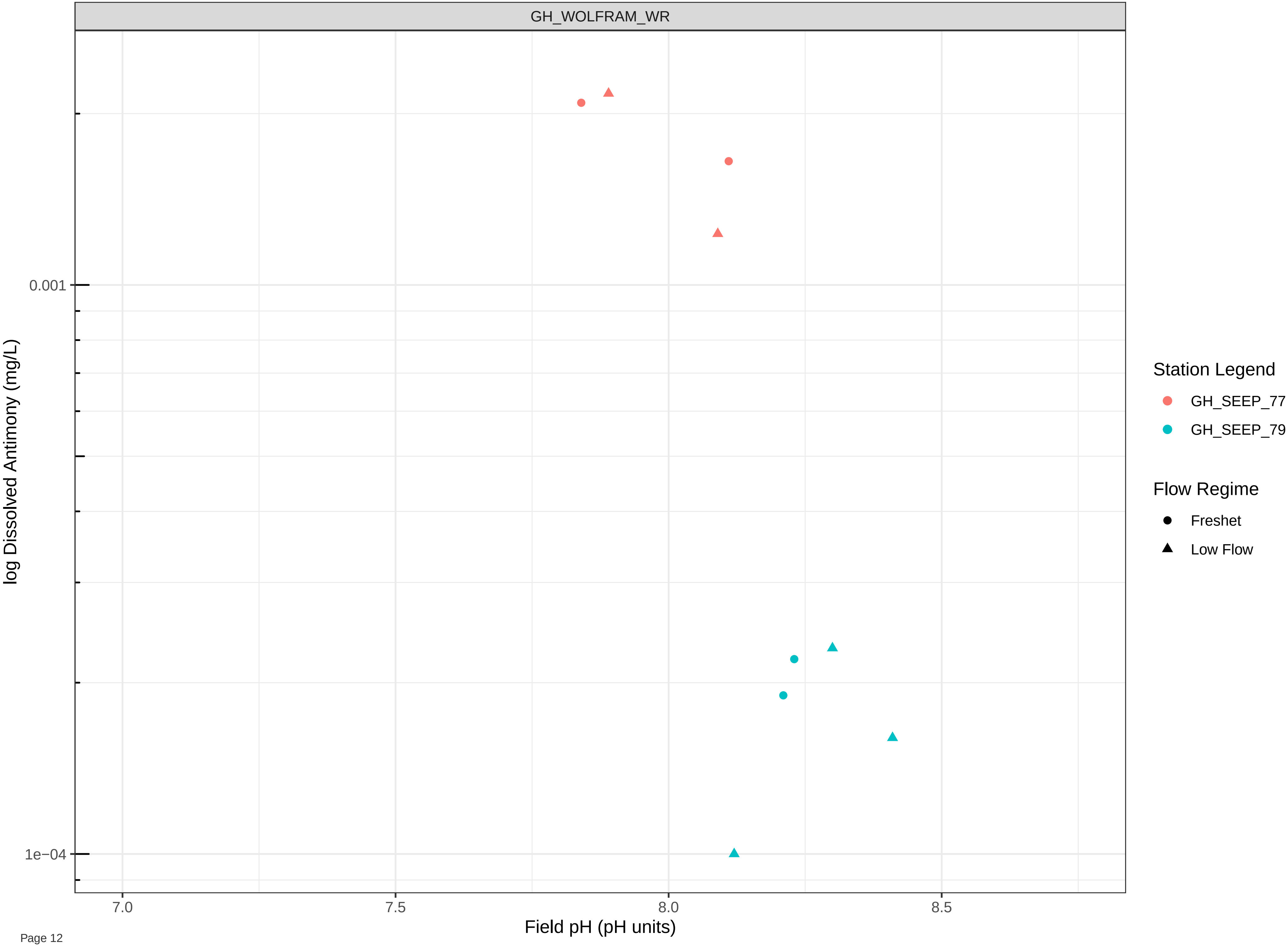
Flow Regime
Freshet
Low Flow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8.5
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Station Legend
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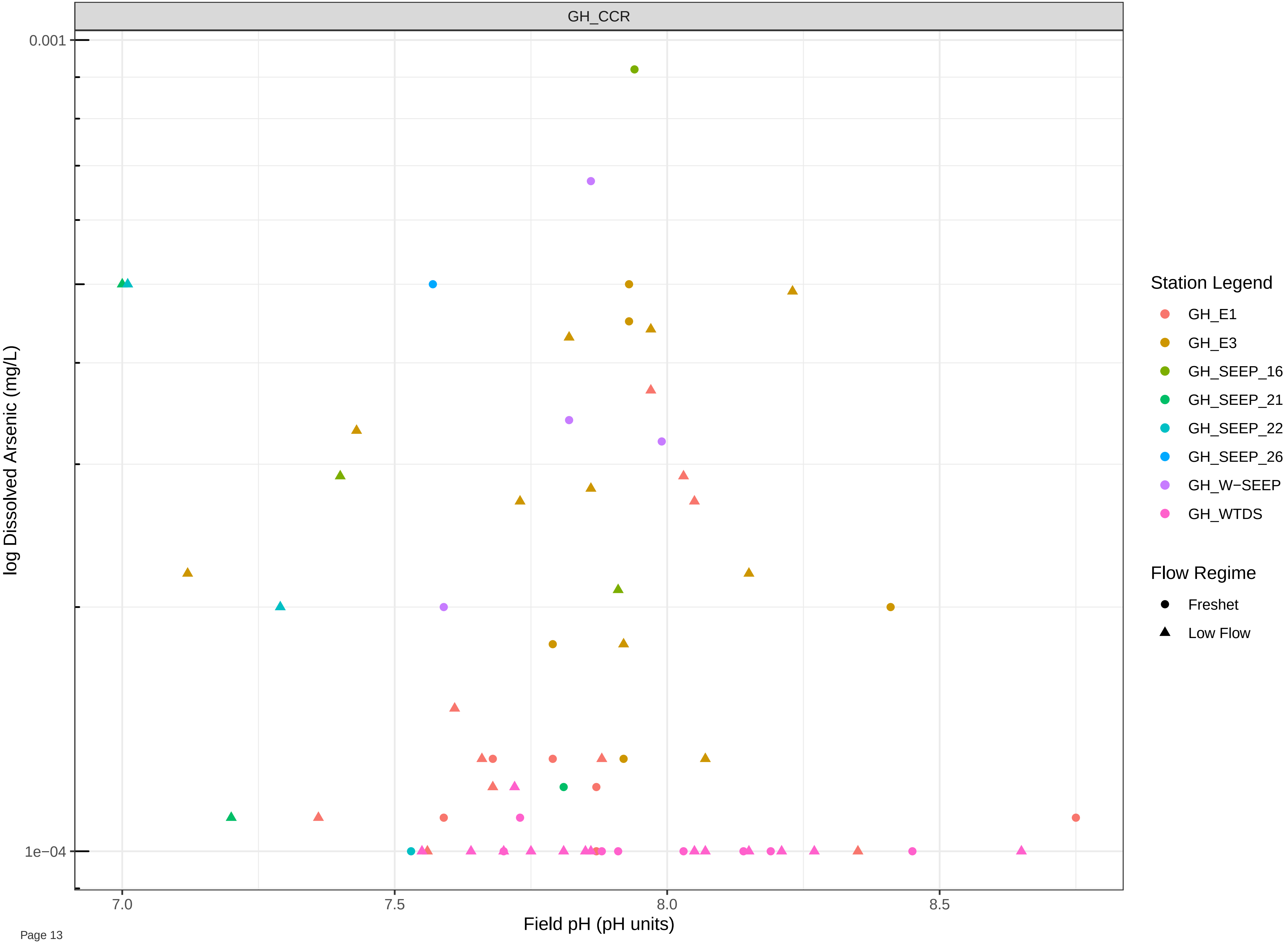
GH_SEEP_79
Flow Regime
Freshet
Low Flow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8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
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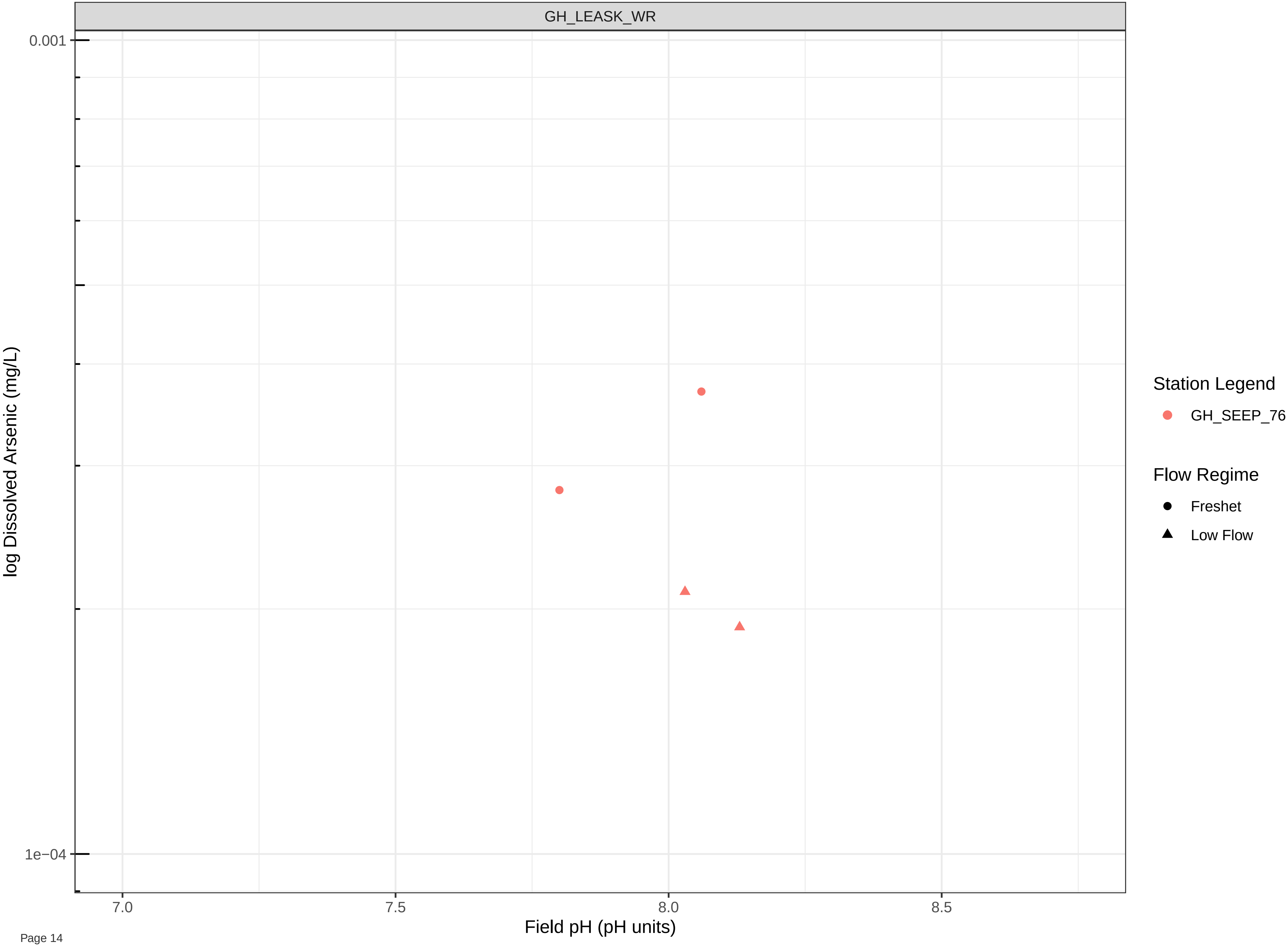
Flow Regime
Freshet
Low Flow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Station Legend
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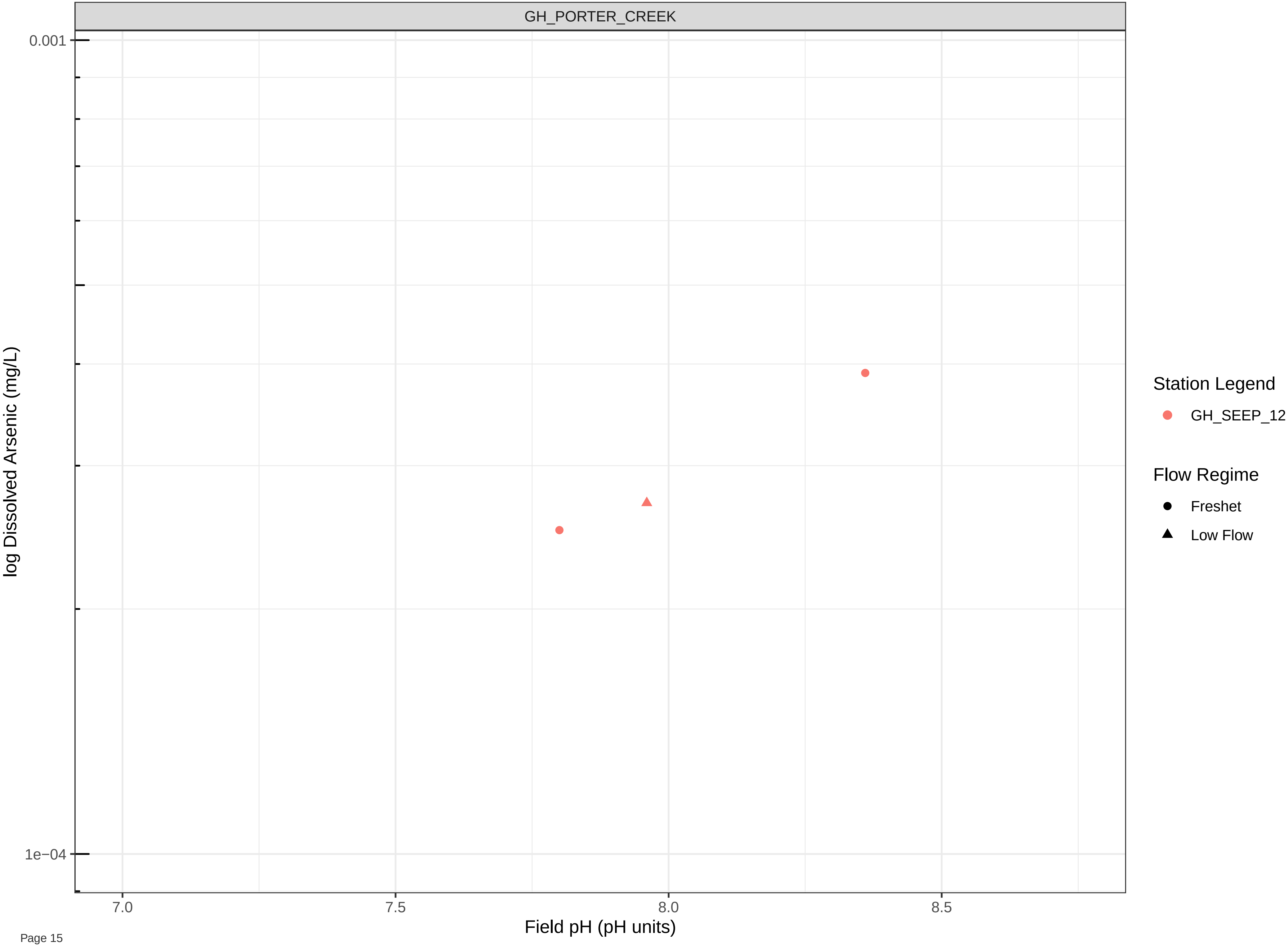
Flow Regime
Freshet
Low Flow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Field pH (pH units)
Station Legend
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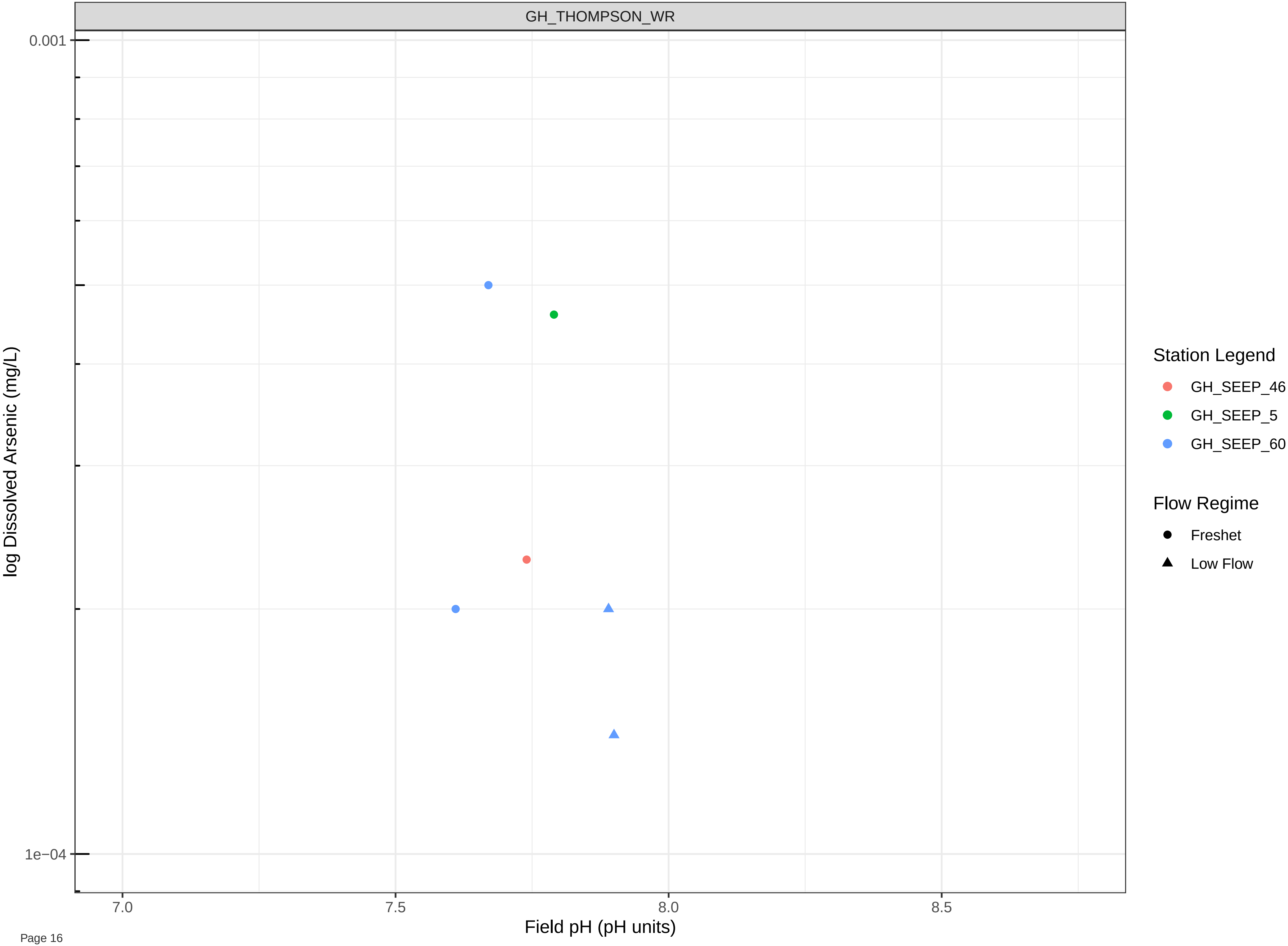
Flow Regime
Freshet
Low Flow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Station Legend
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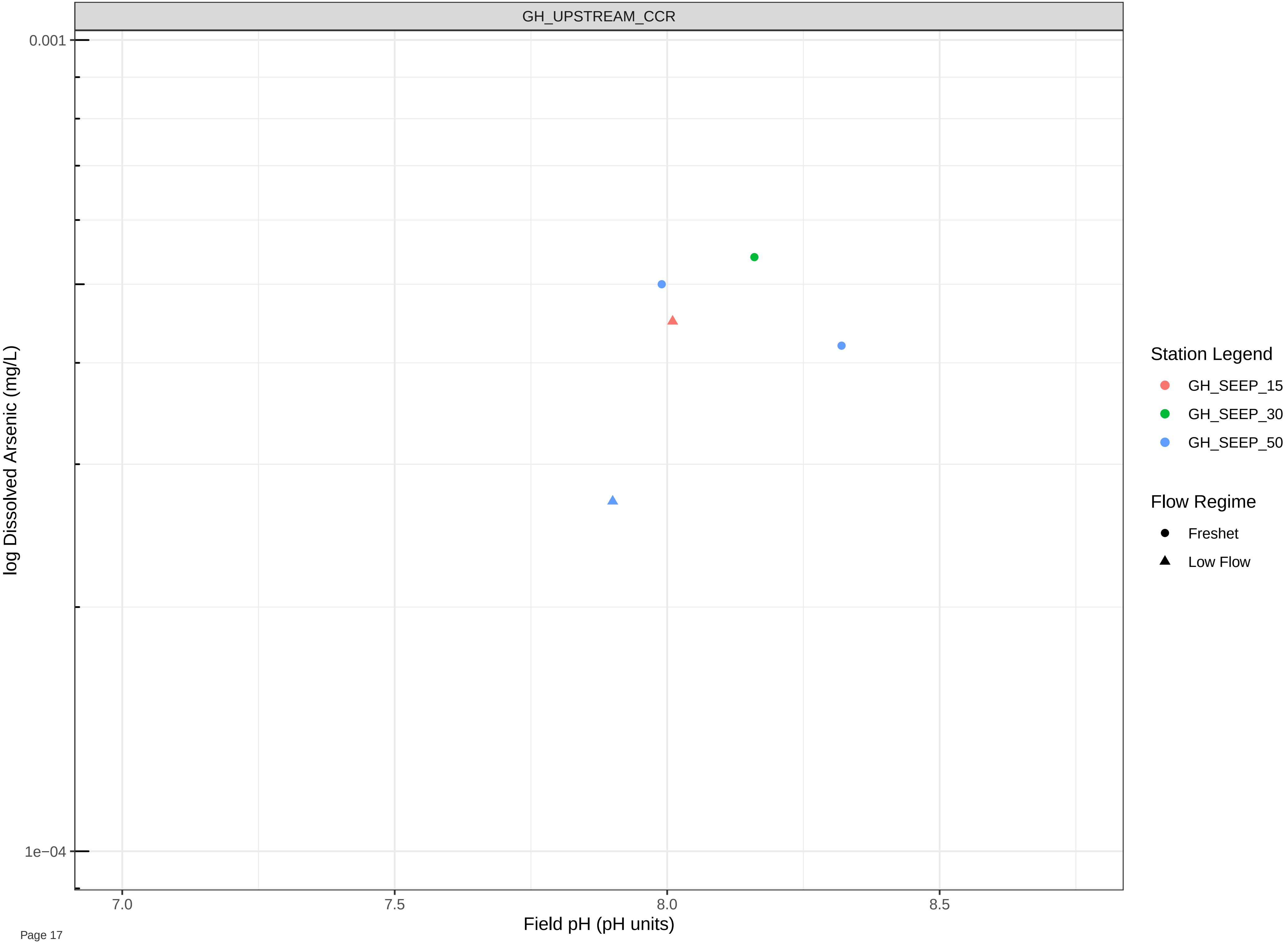
Flow Regime
Freshet
Low Flow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Station Legend
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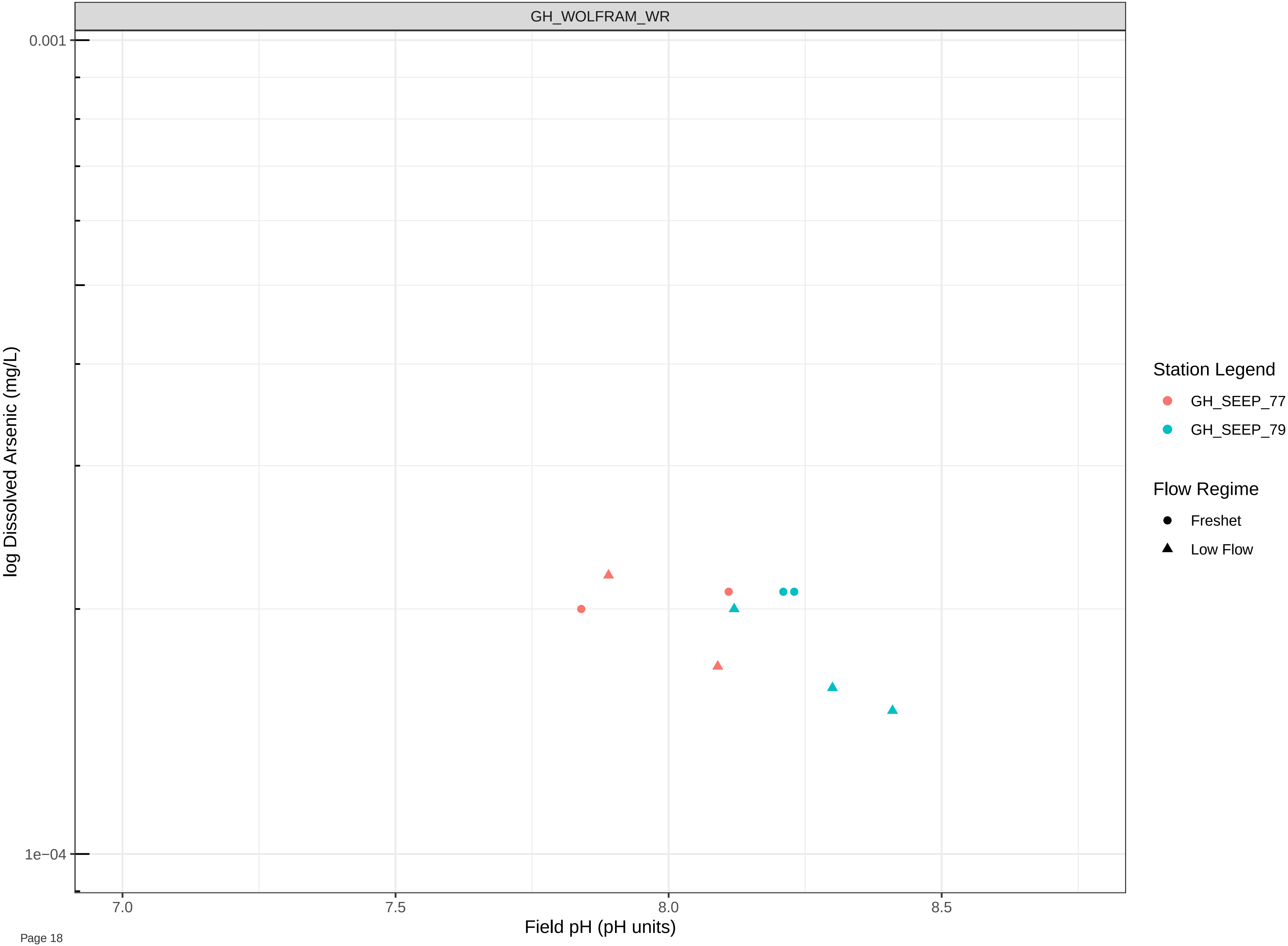
Flow Regime
Freshet
Low Flow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GH_SEEP_79
Flow Regime
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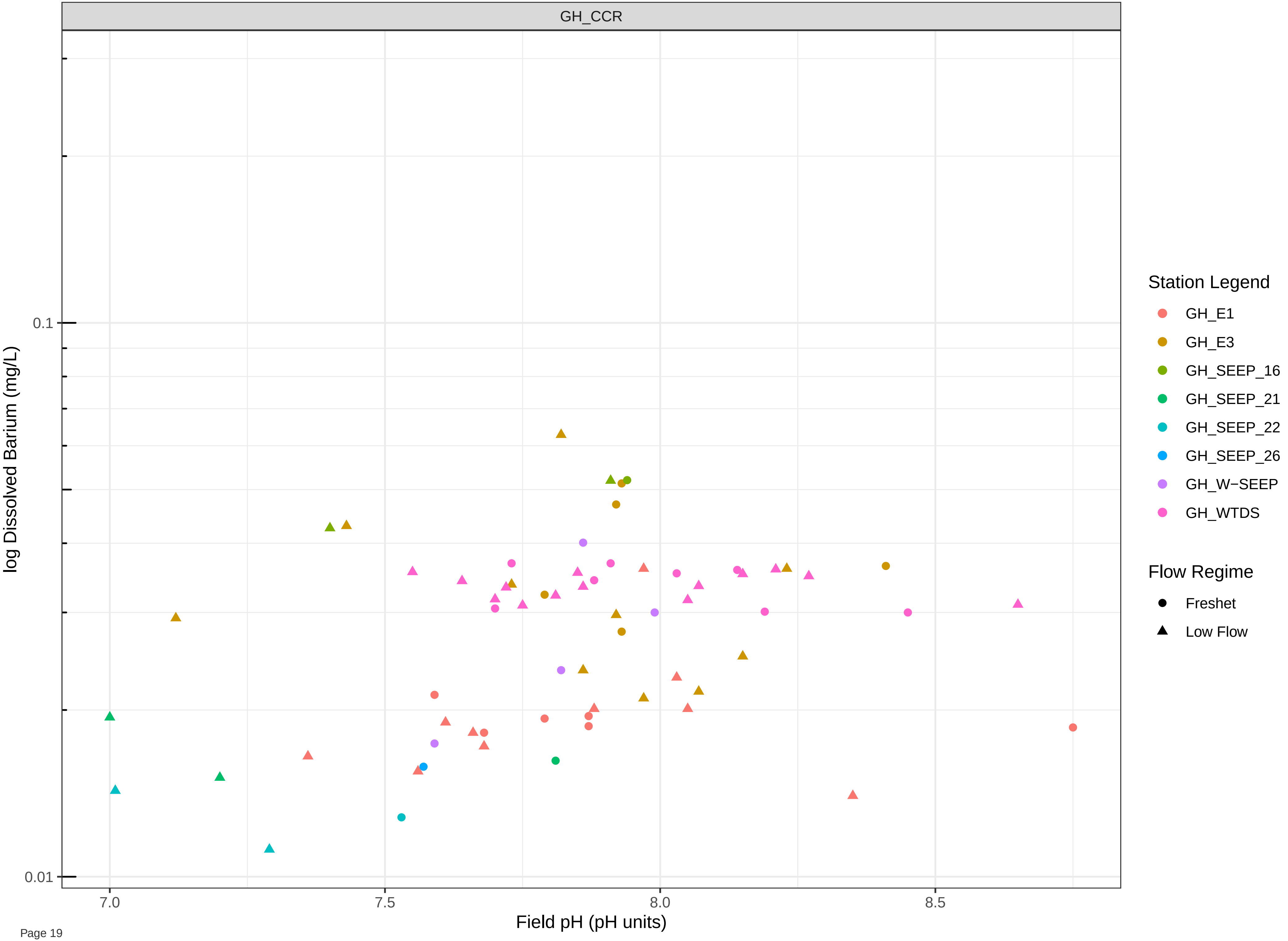
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Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
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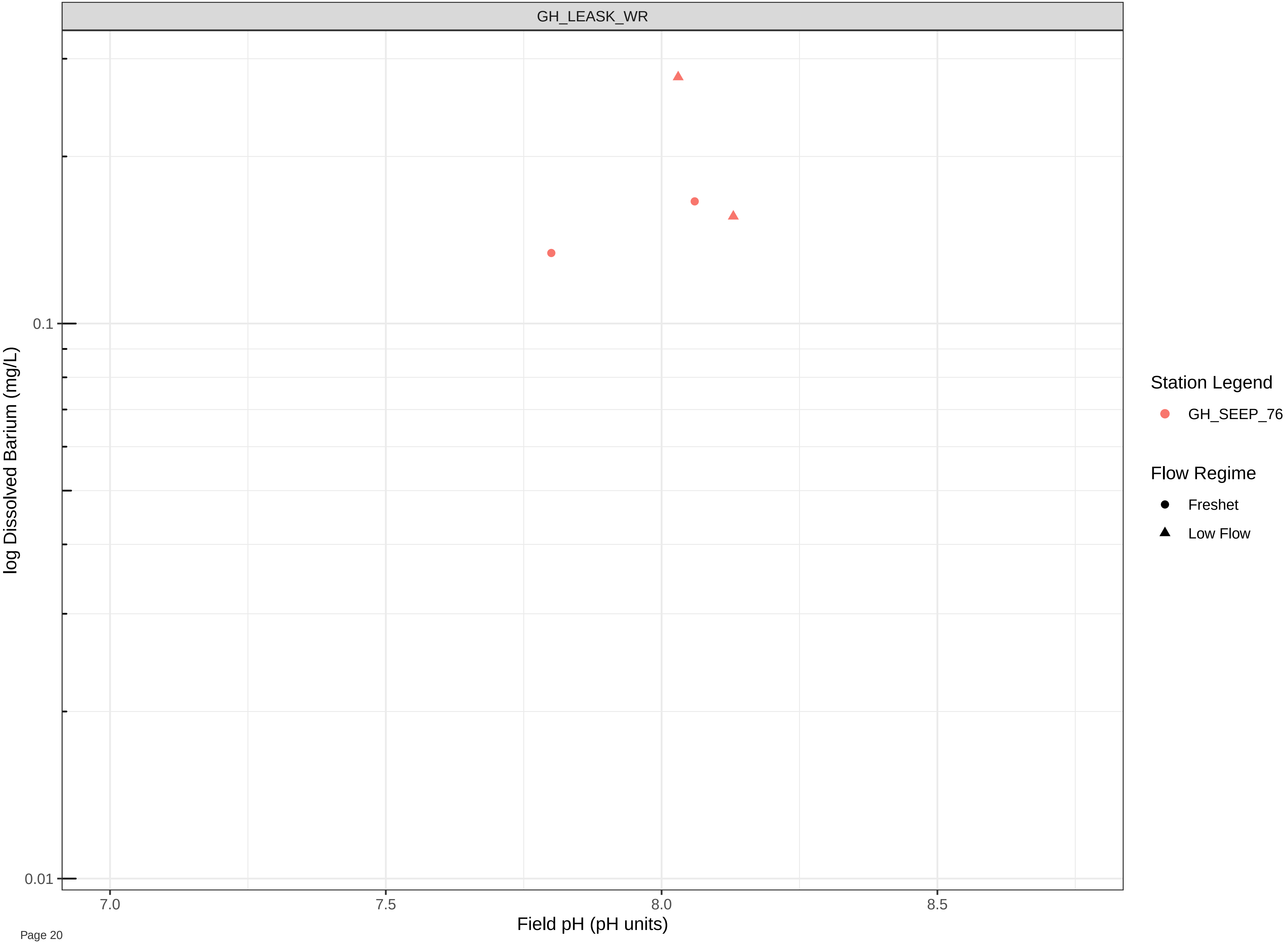
GH_WTDS
Flow Regime
Freshet
Low Flow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Station Legend
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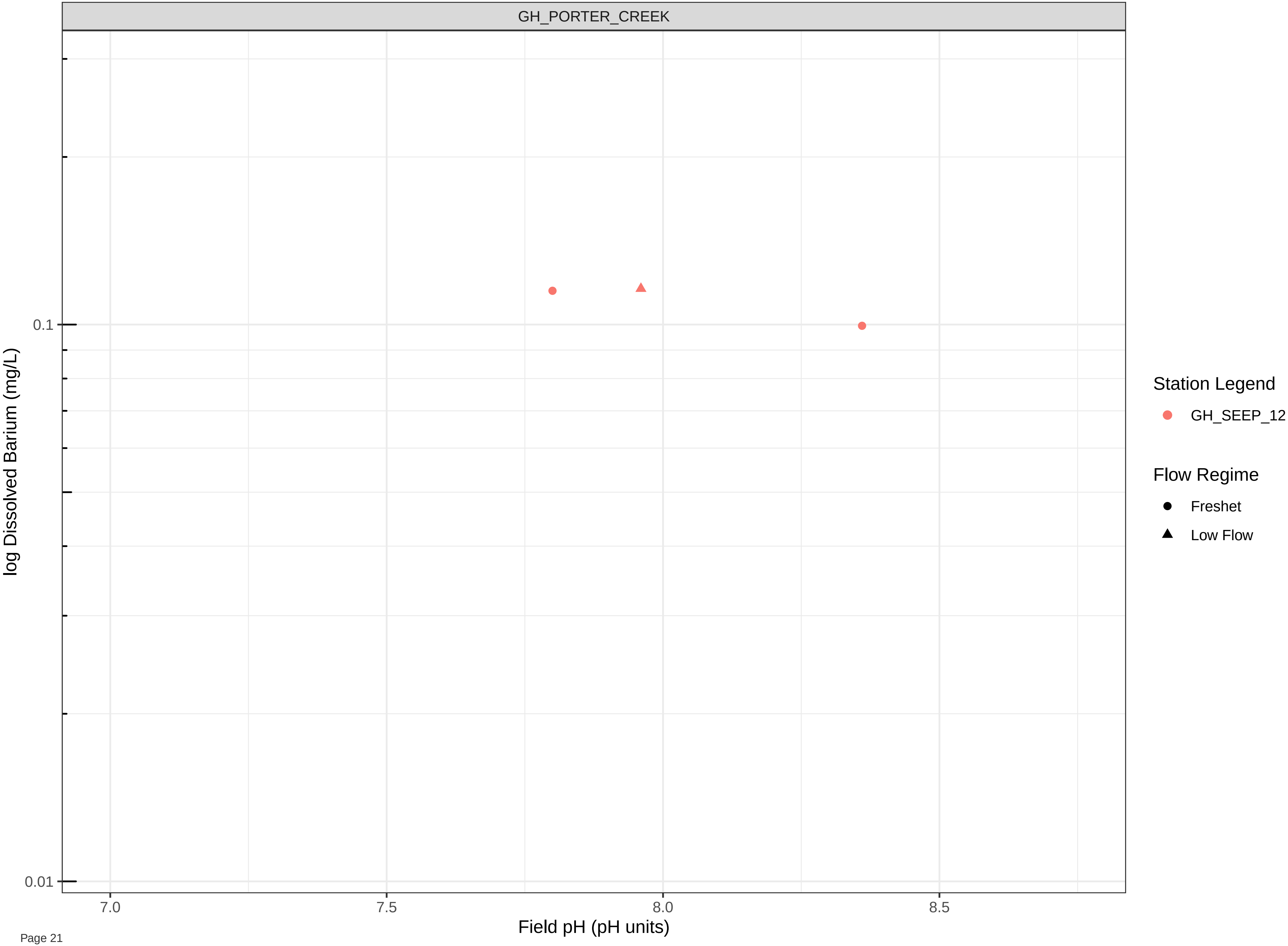
Flow Regime
Freshet
Low Flow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Field pH (pH units)
Station Legend
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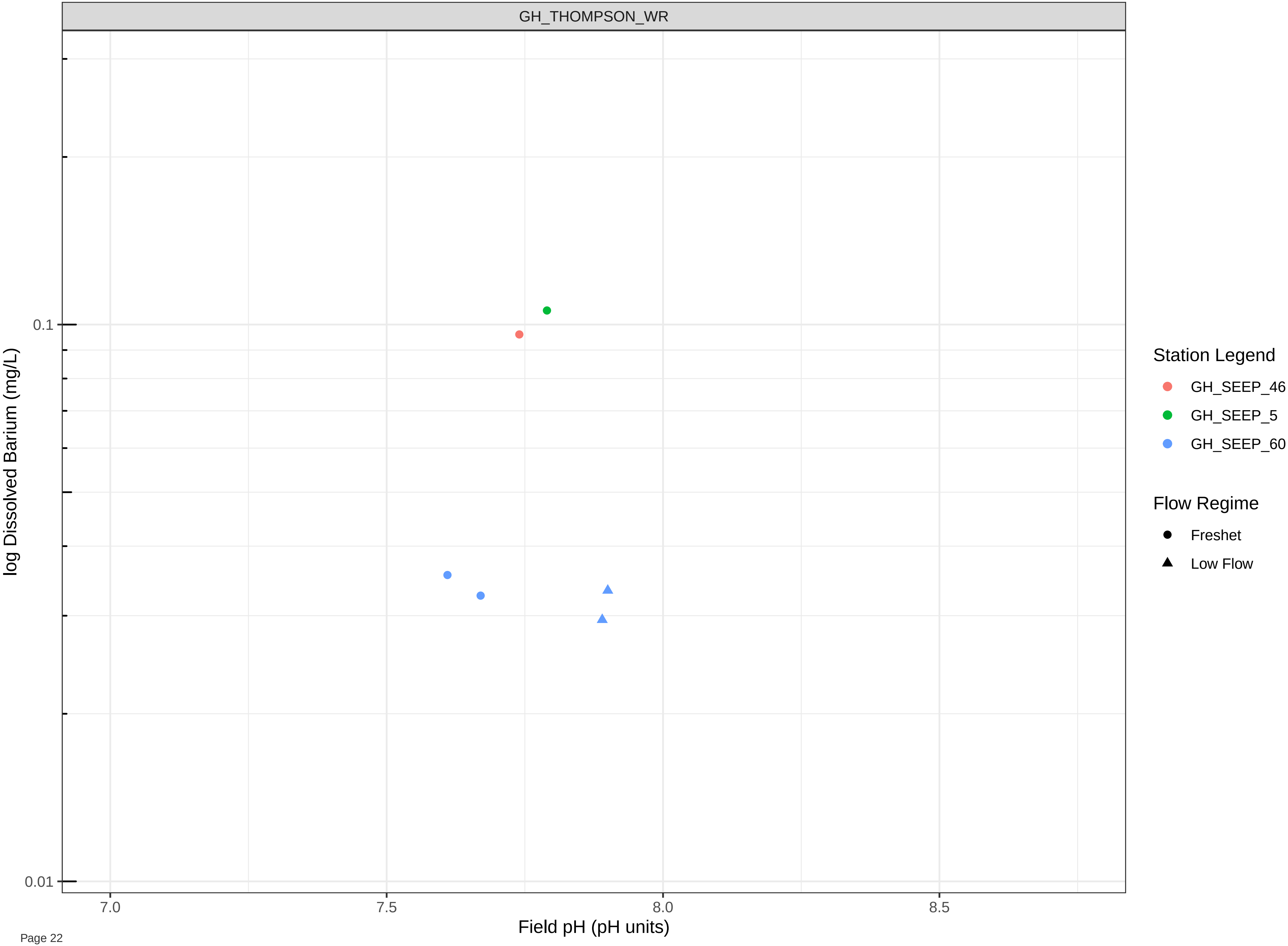
Flow Regime
Freshet
Low Flow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Station Legend
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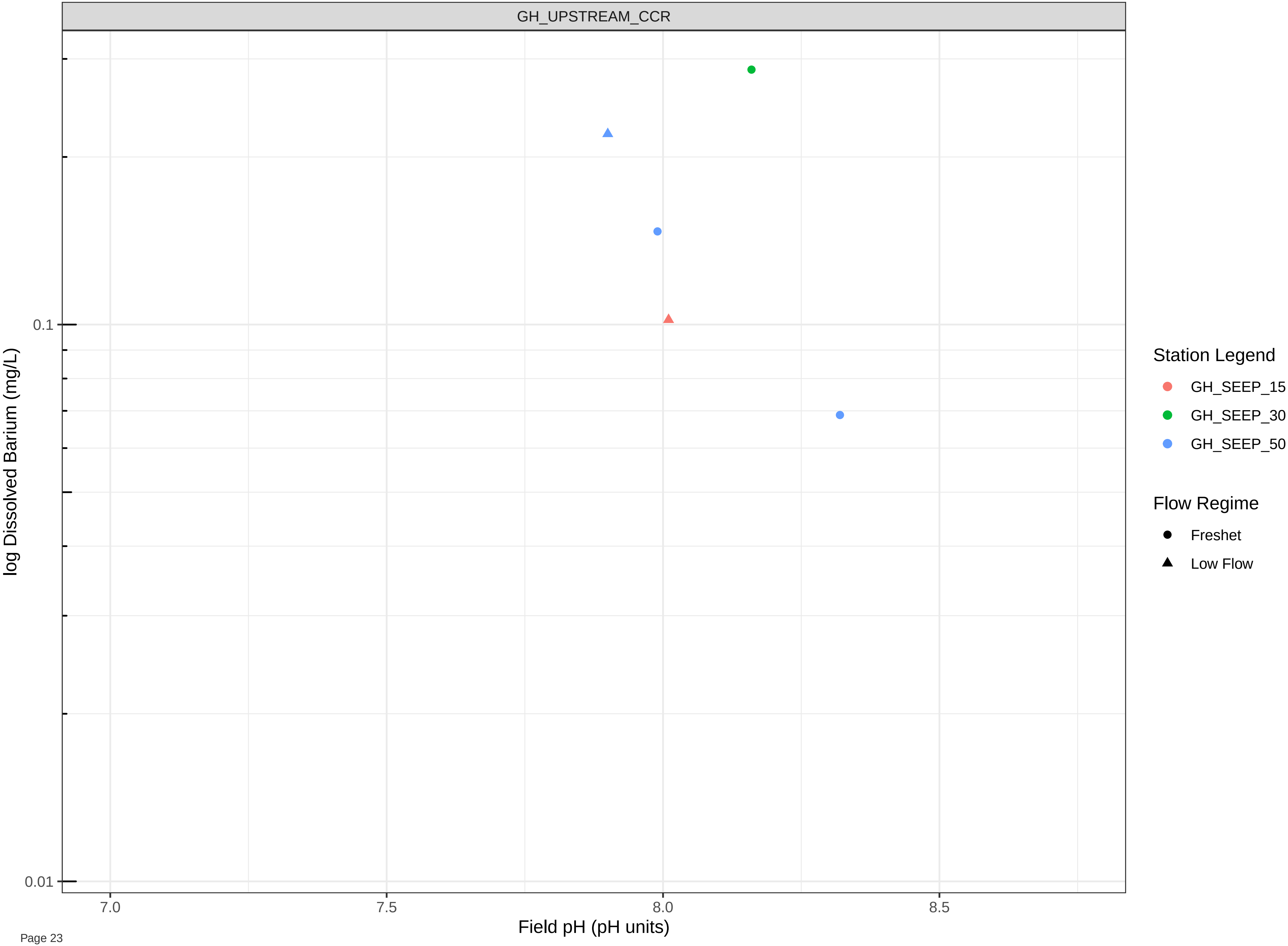
GH_SEEP_60
Flow Regime
Freshet
Low Flow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Station Legend
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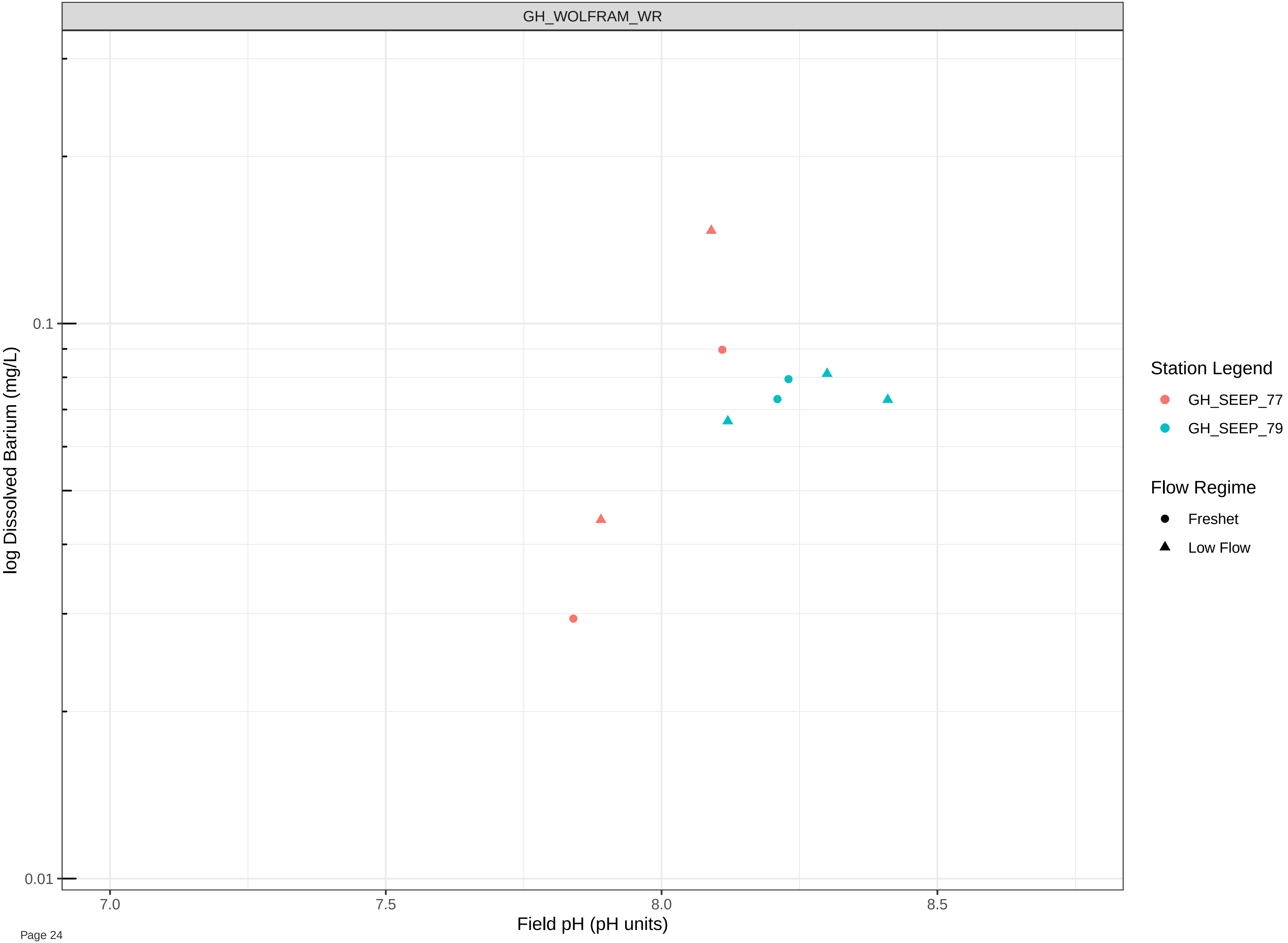
Flow Regime
Freshet
Low Flow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Field pH (pH units)
Station Legend
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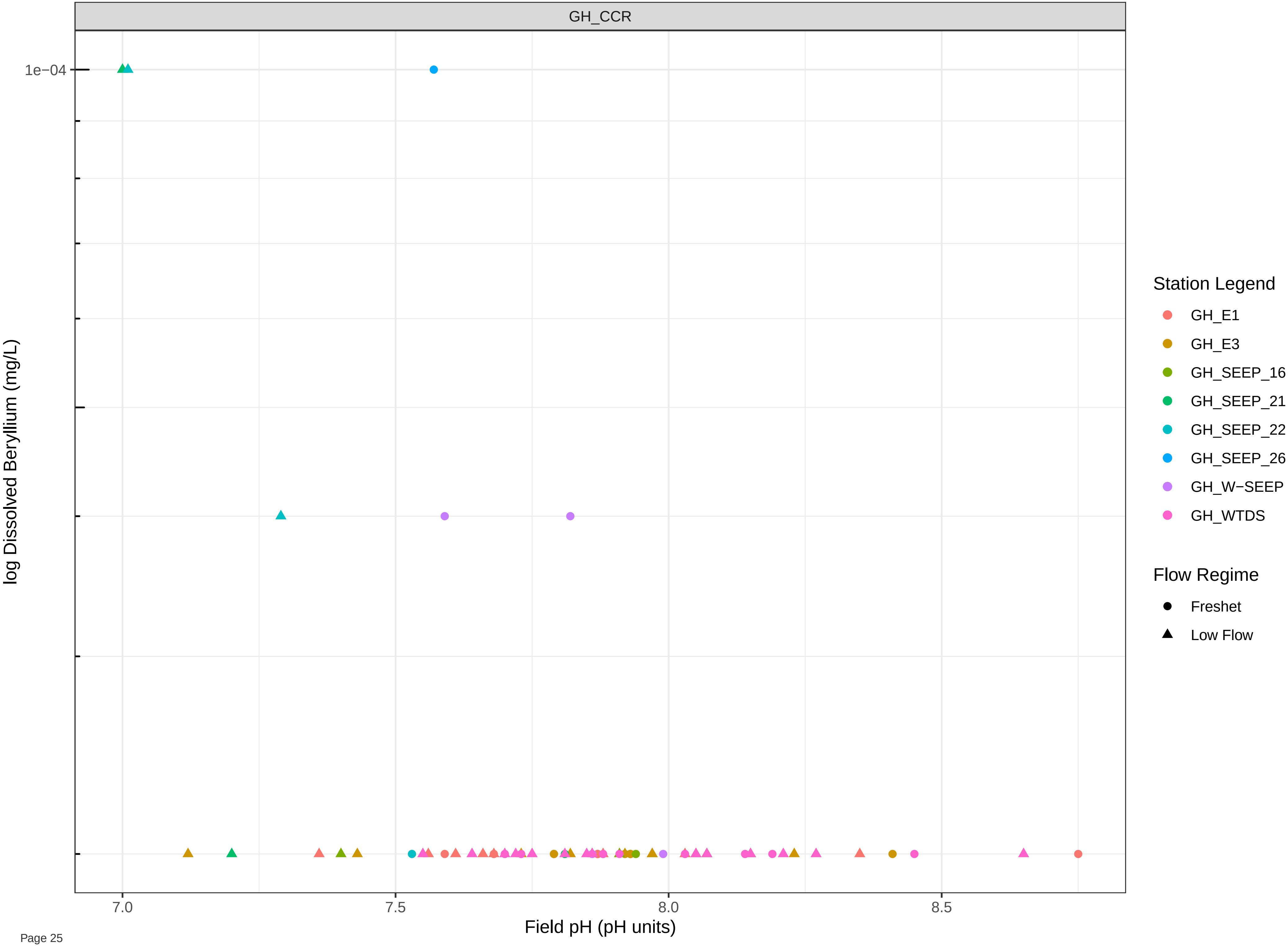
GH_SEEP_79
Flow Regime
Freshet
Low Flow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Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
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GH_WTDS
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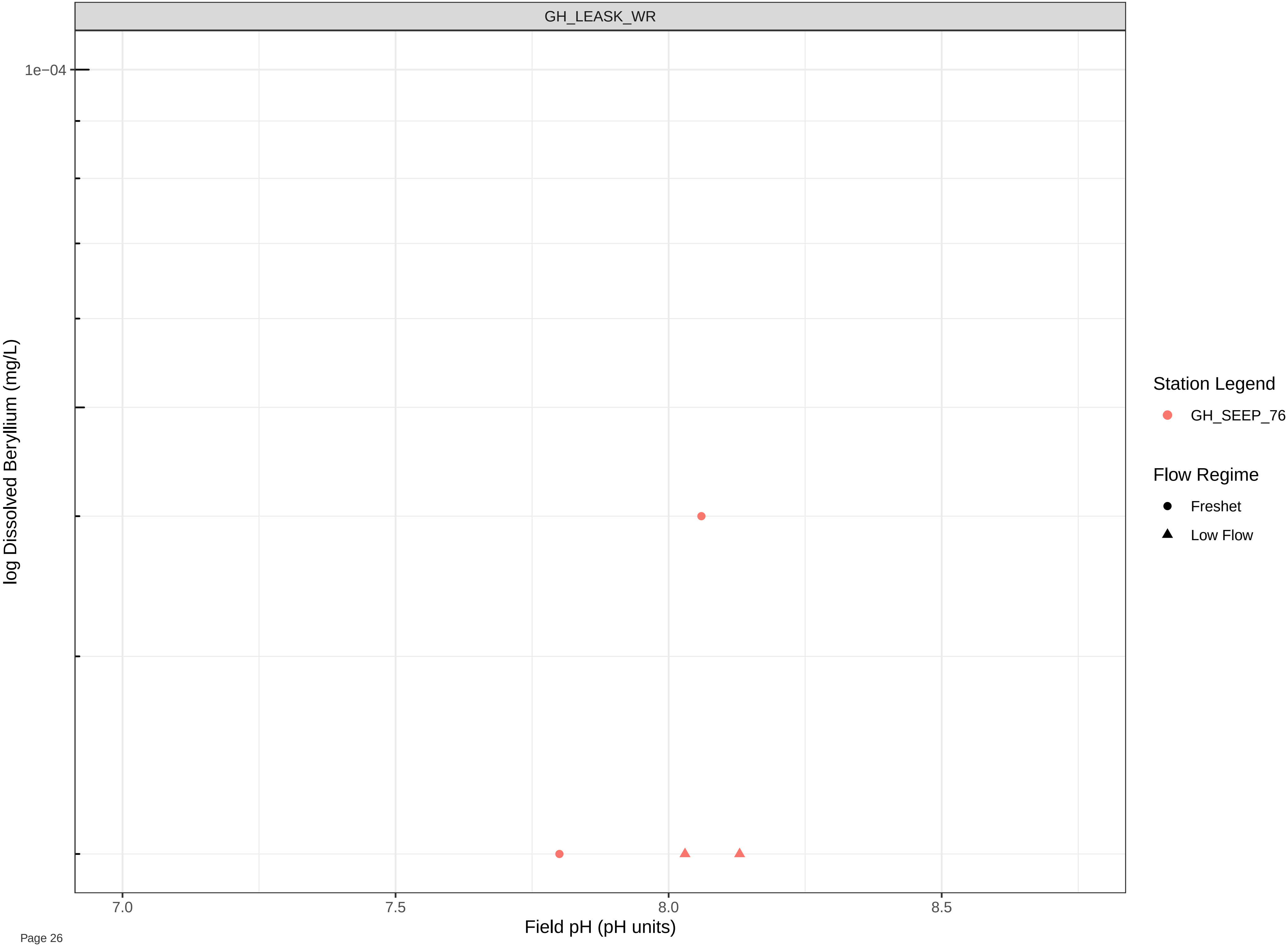
Freshet
Low Flow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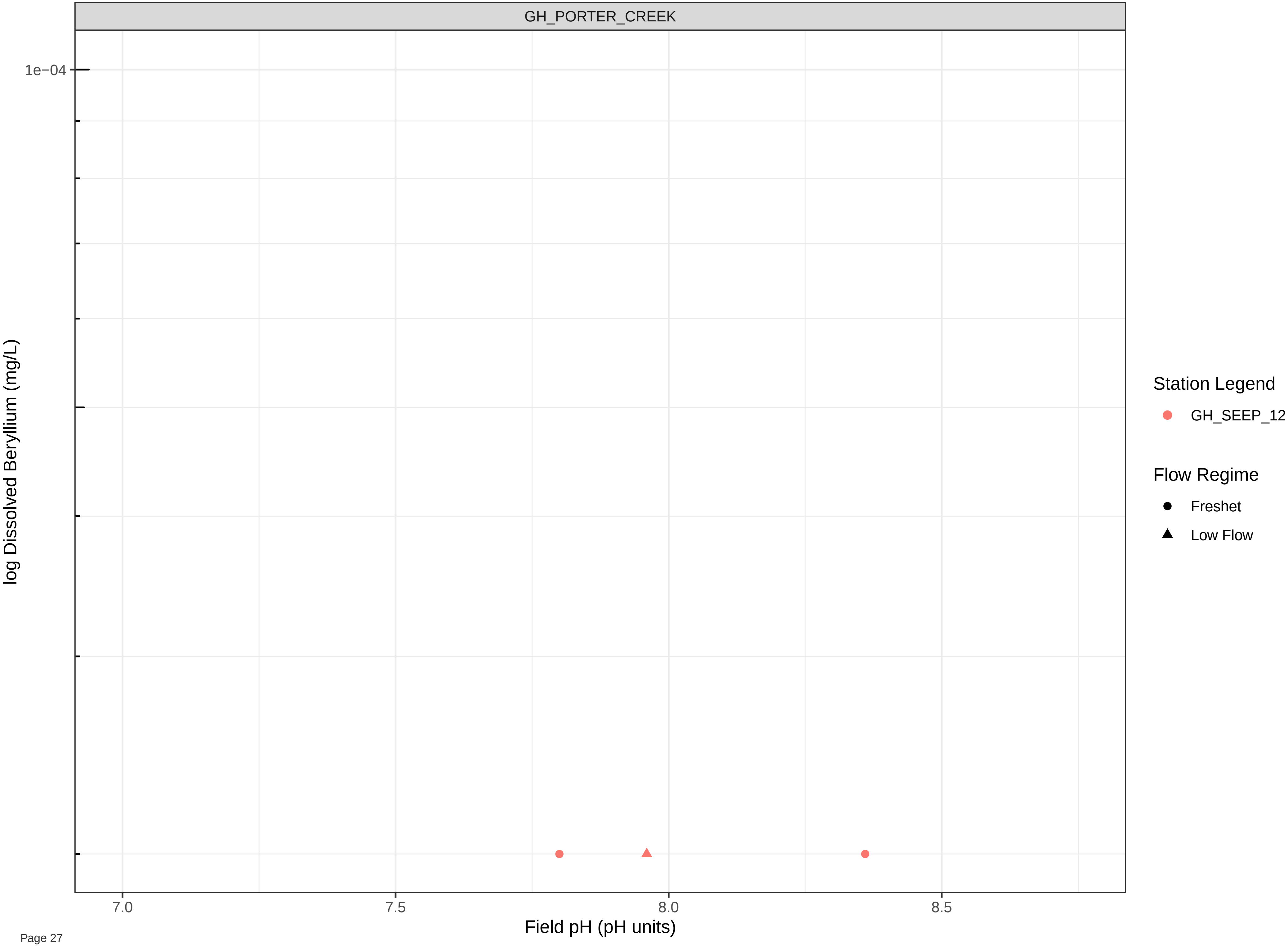
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow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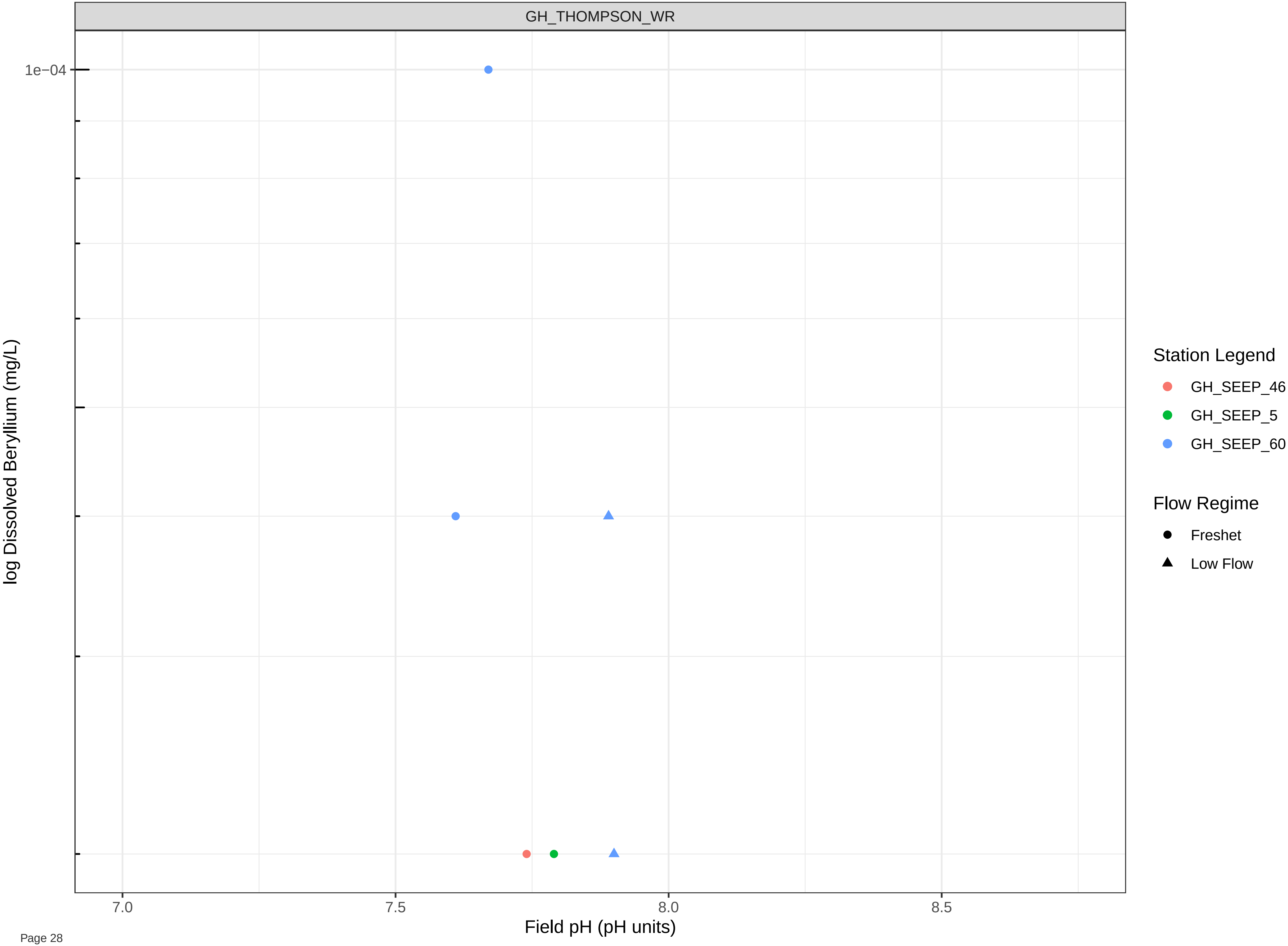
Flow Regime
Freshet
Low Flow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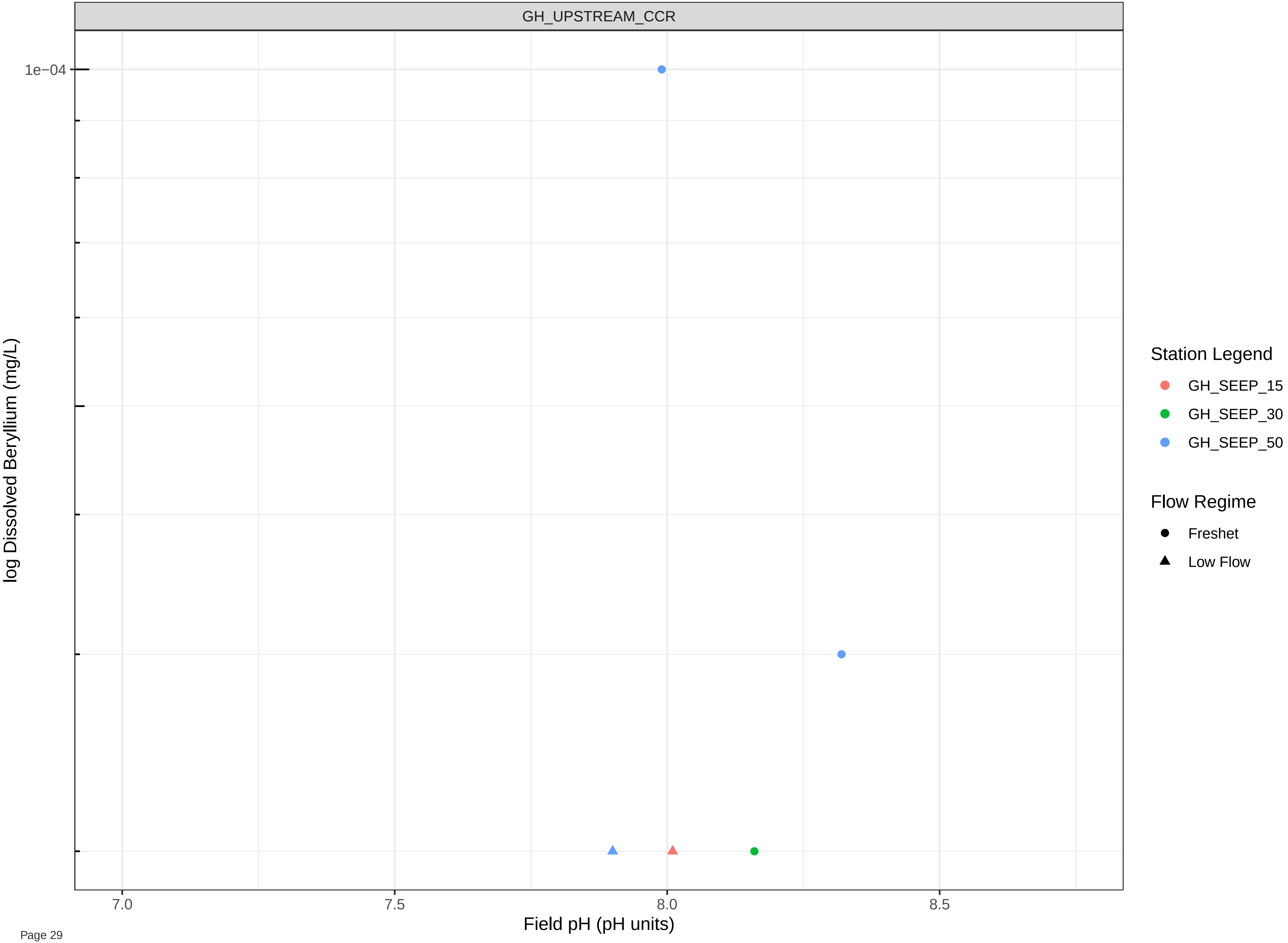
Flow Regime
Freshet
Low Flow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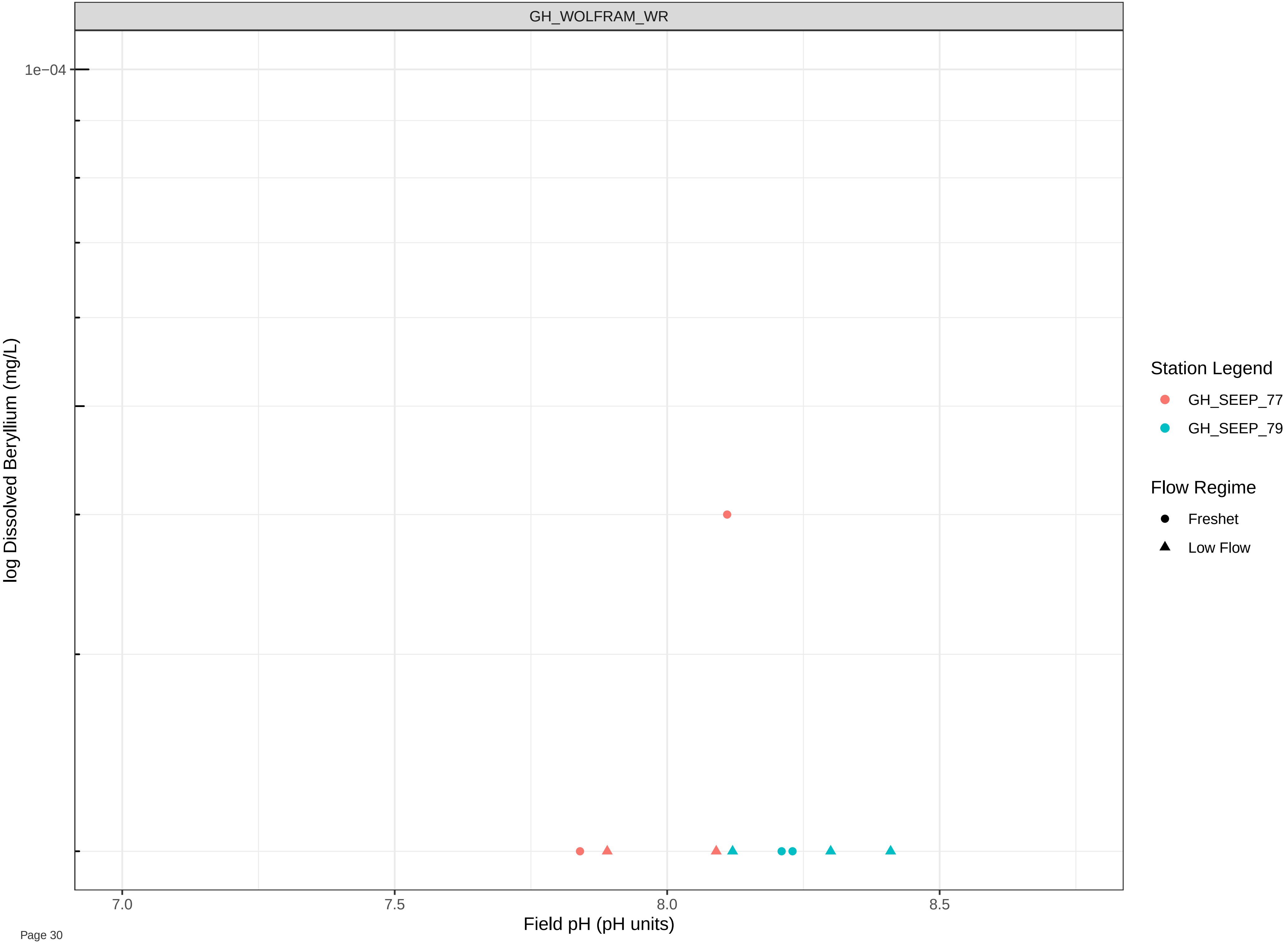
Flow Regime
Freshet
Low Flow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Field pH (pH units)
Station Legend
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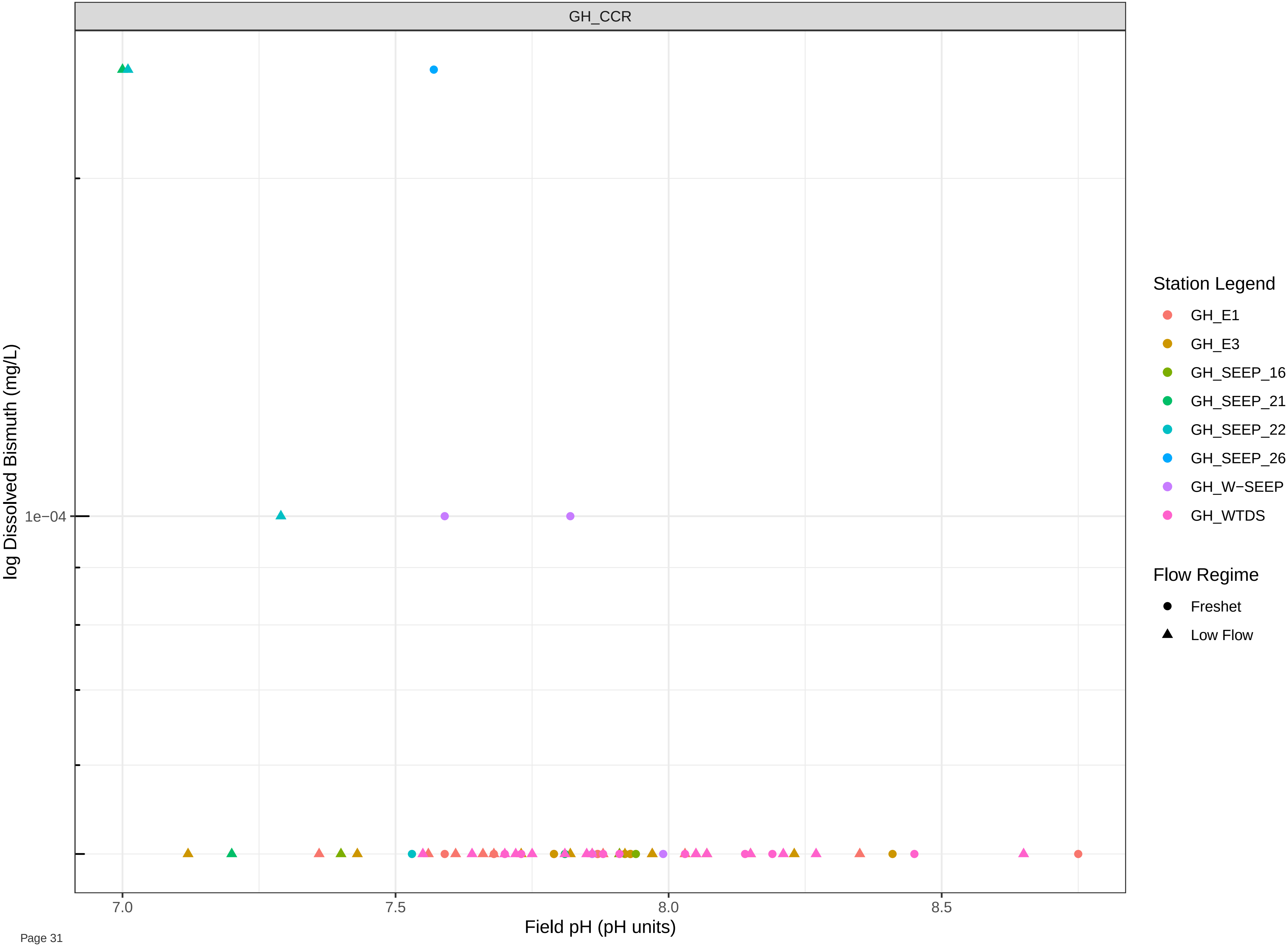
Flow Regime
Freshet
Low Flow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Field pH (pH units)
Station Legend
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GH_E3
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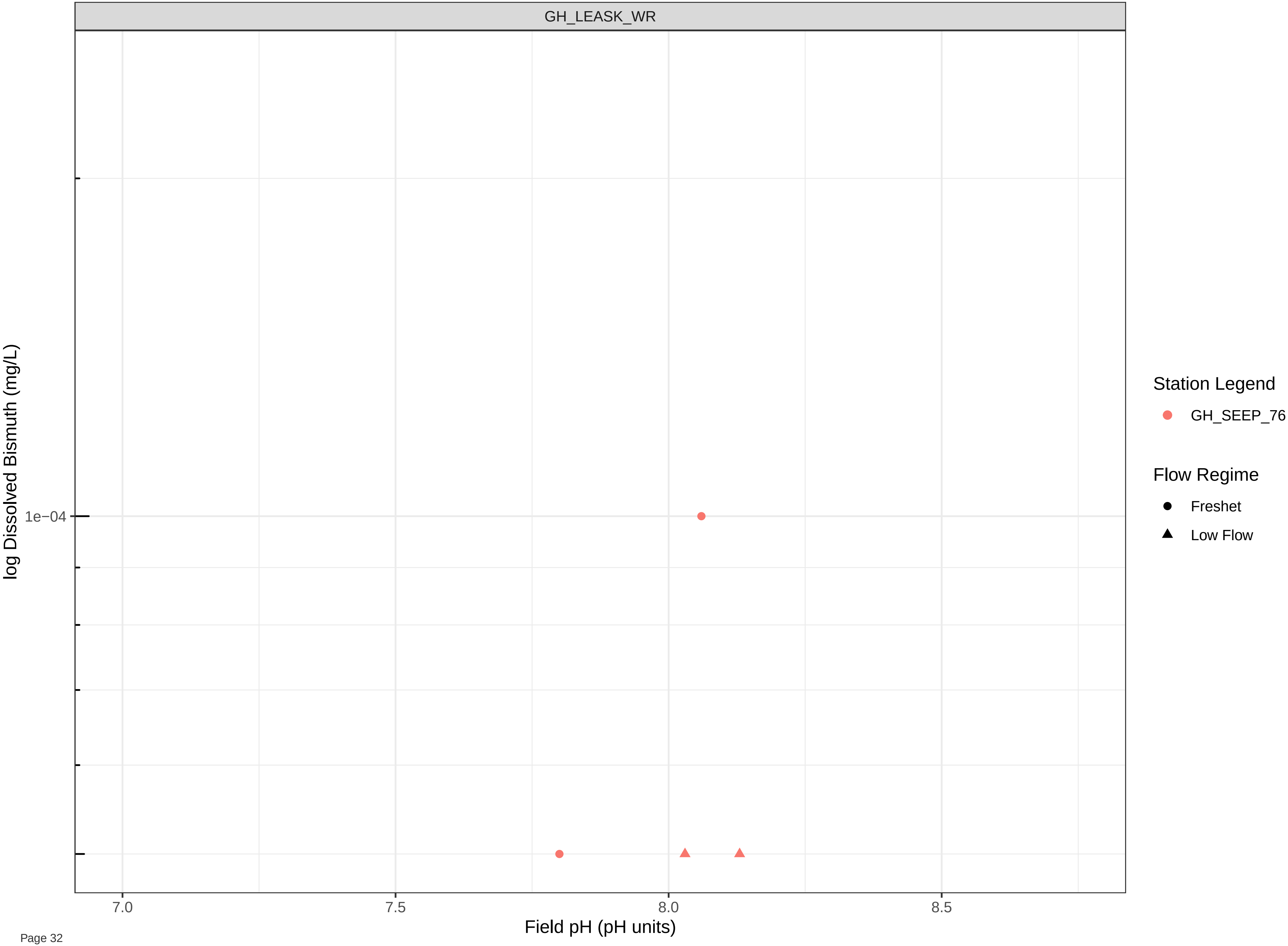
Flow Regime
Freshet
Low Flow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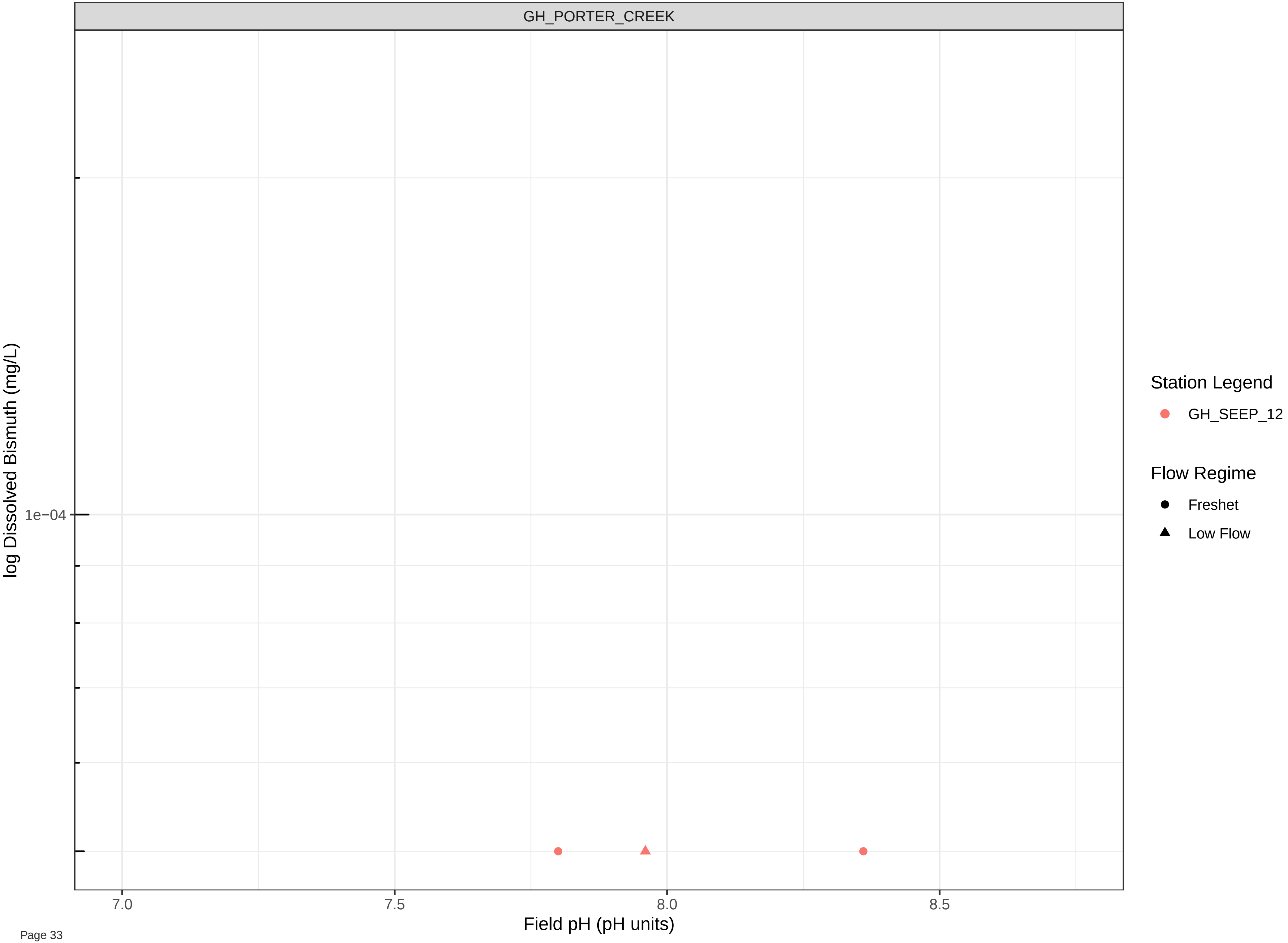
Flow Regime
Freshet
Low Flow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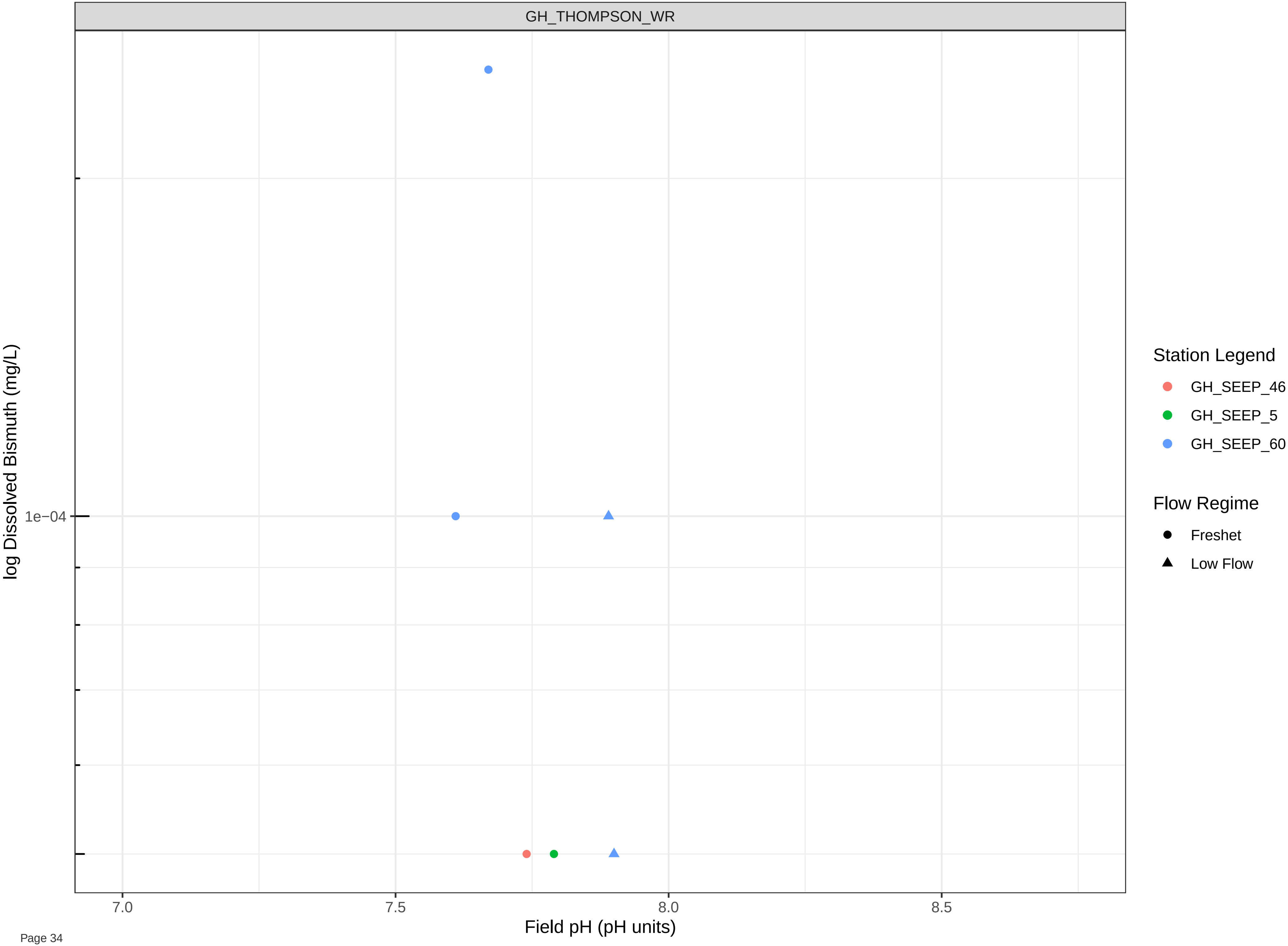
Flow Regime
Freshet
Low Flow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Field pH (pH units)
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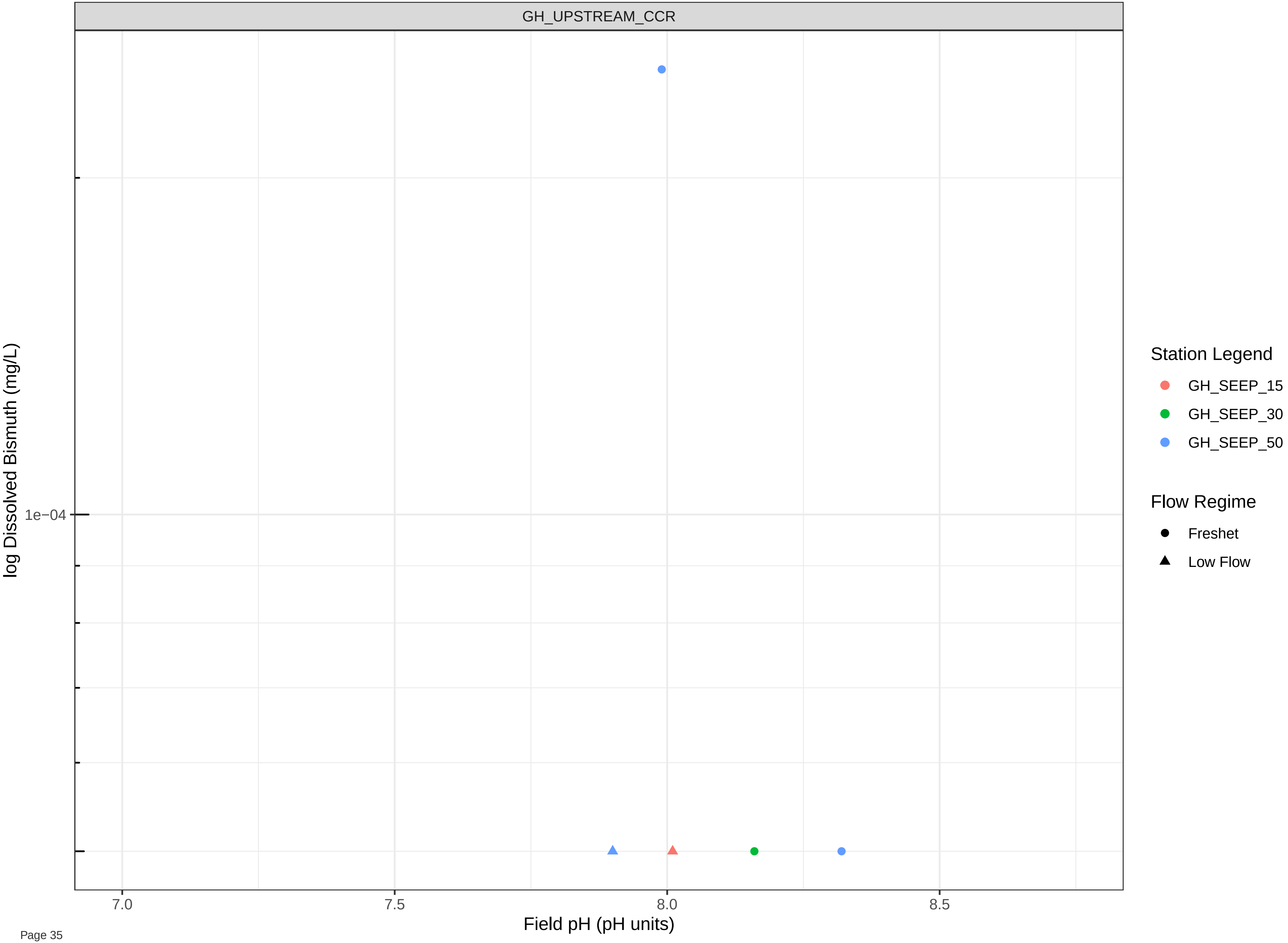
Flow Regime
Freshet
Low Flow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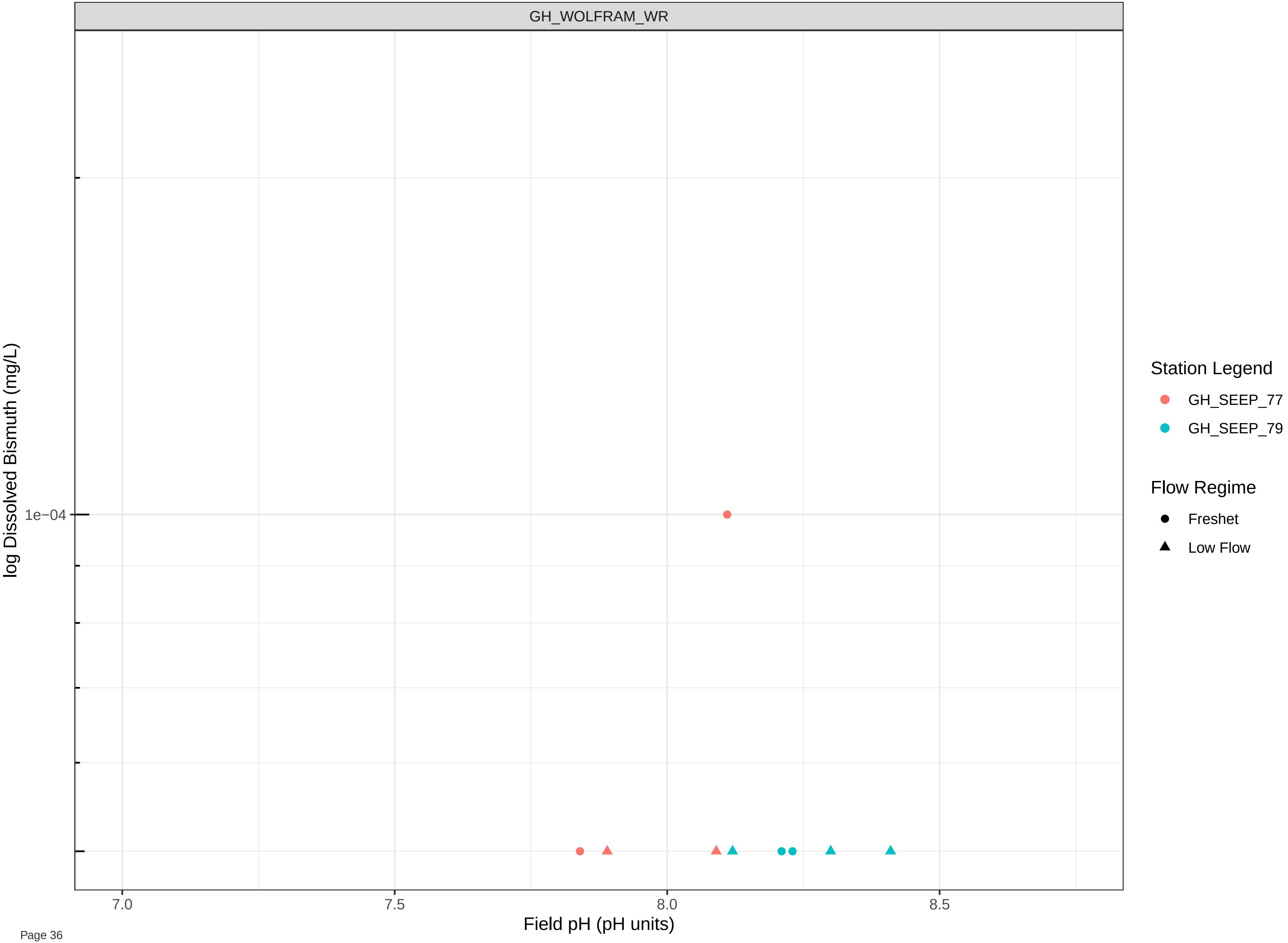
Flow Regime
Freshet
Low Flow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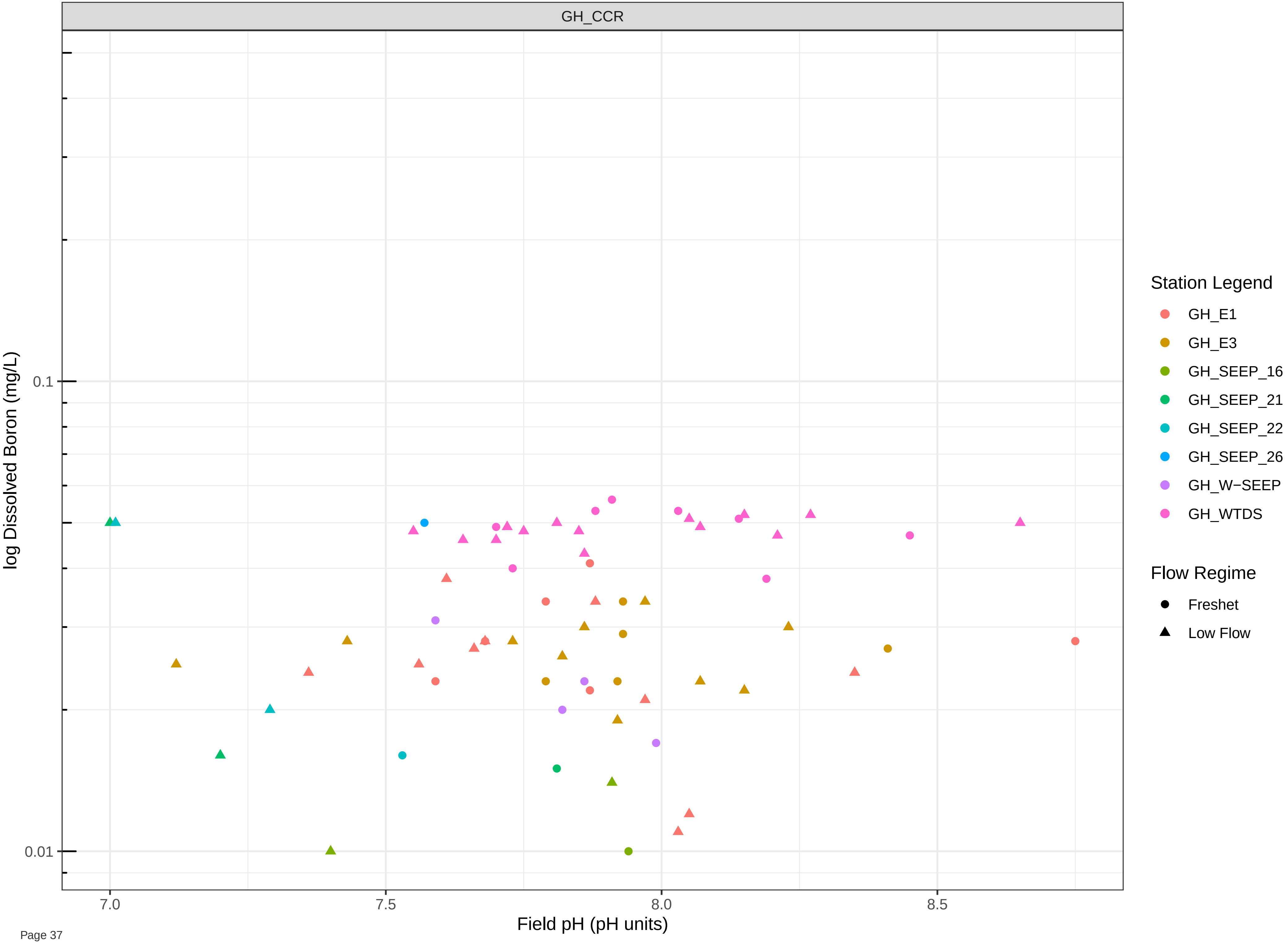
Field pH (pH units)
Station Legend
● GH_SEEP_77
● GH_SEEP_79
Flow Regime
● Freshet
▲ Low Flow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8.5
Field pH (pH units)
Station Legend
● GH_E1
● GH_E3
● GH_SEEP_16
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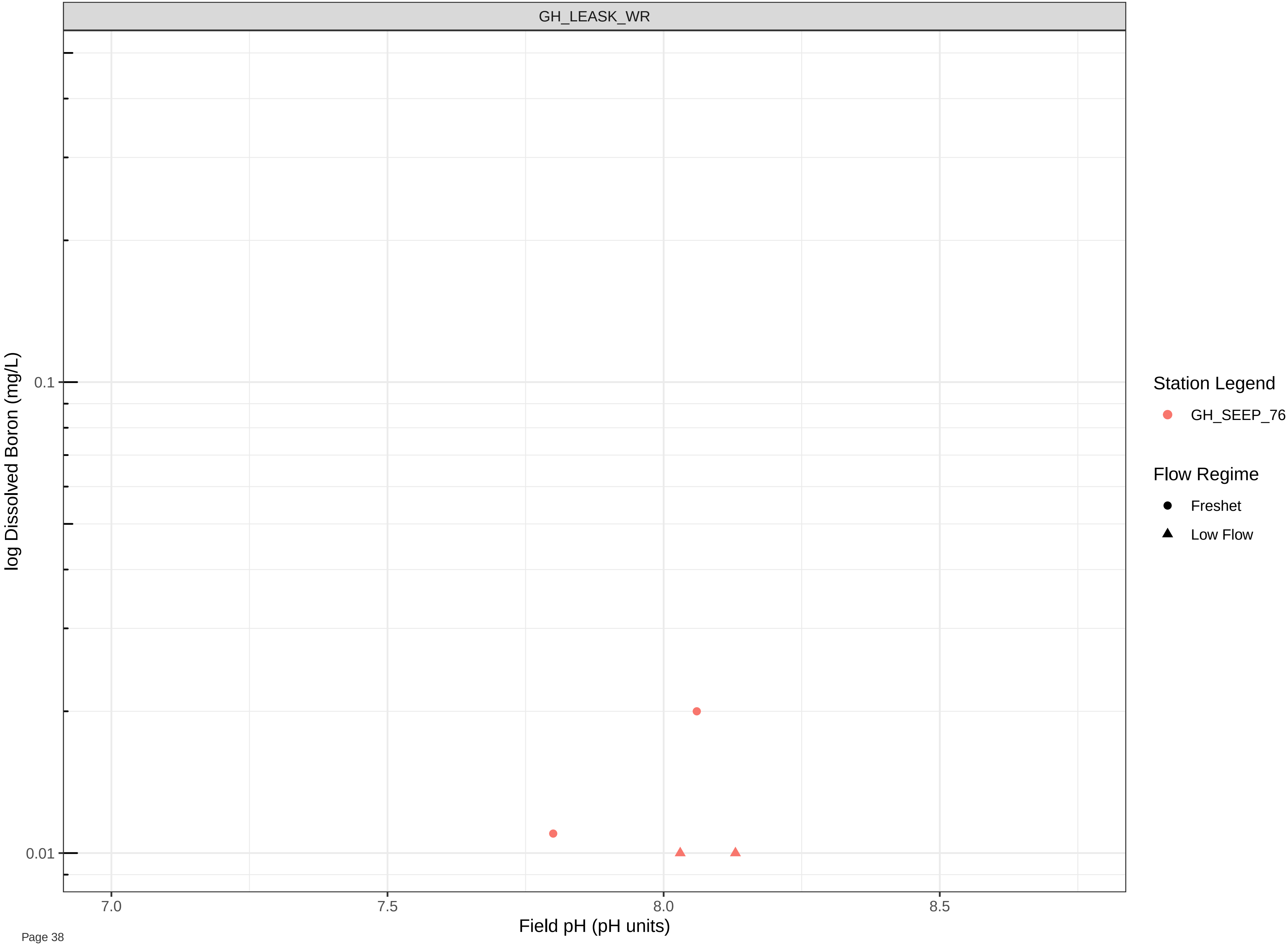
Flow Regime
● Freshet
▲ Low Flow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Field pH (pH units)
Station Legend
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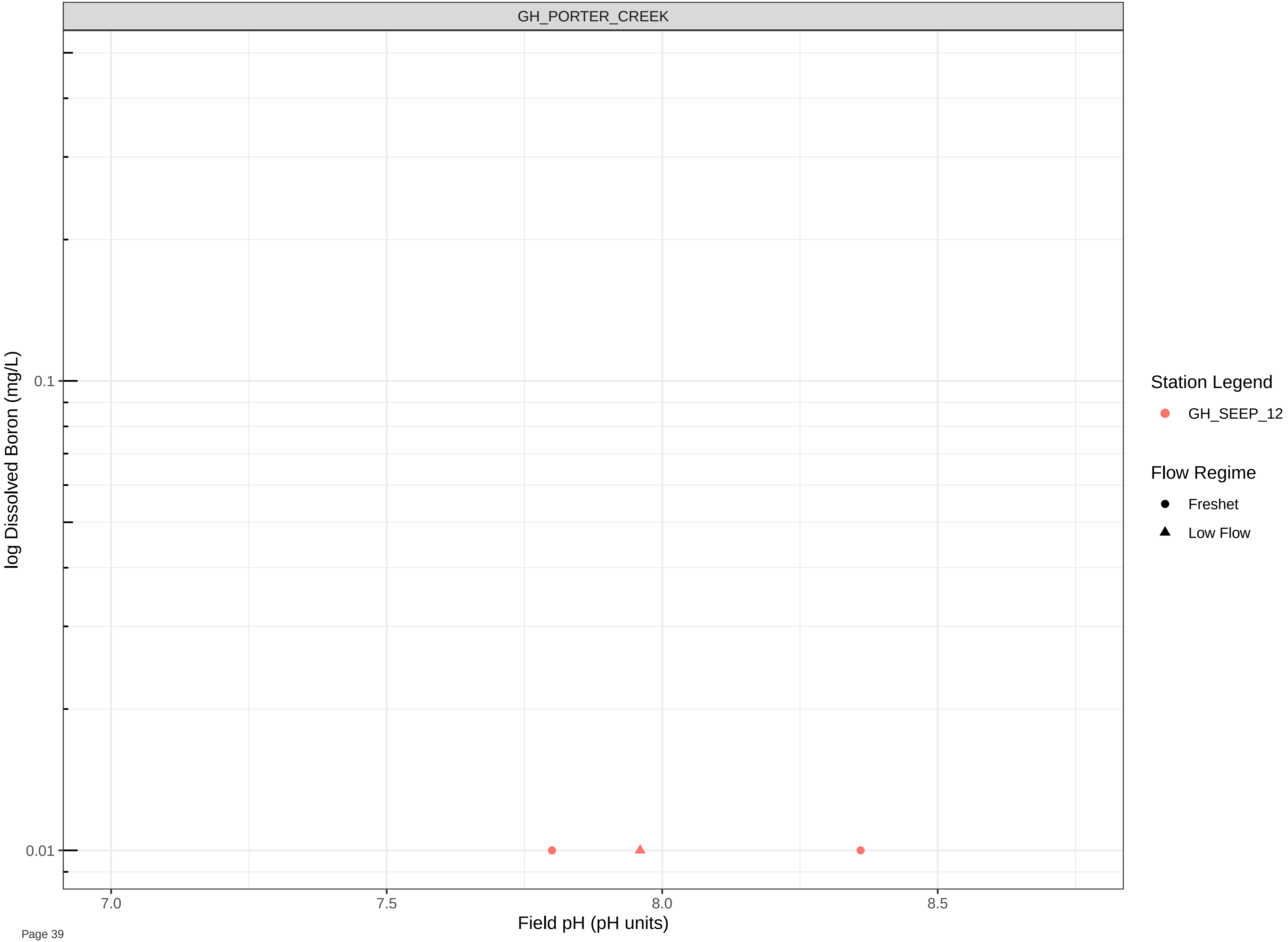
Flow Regime
● Freshet
▲ Low Flow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Field pH (pH units)
Station Legend
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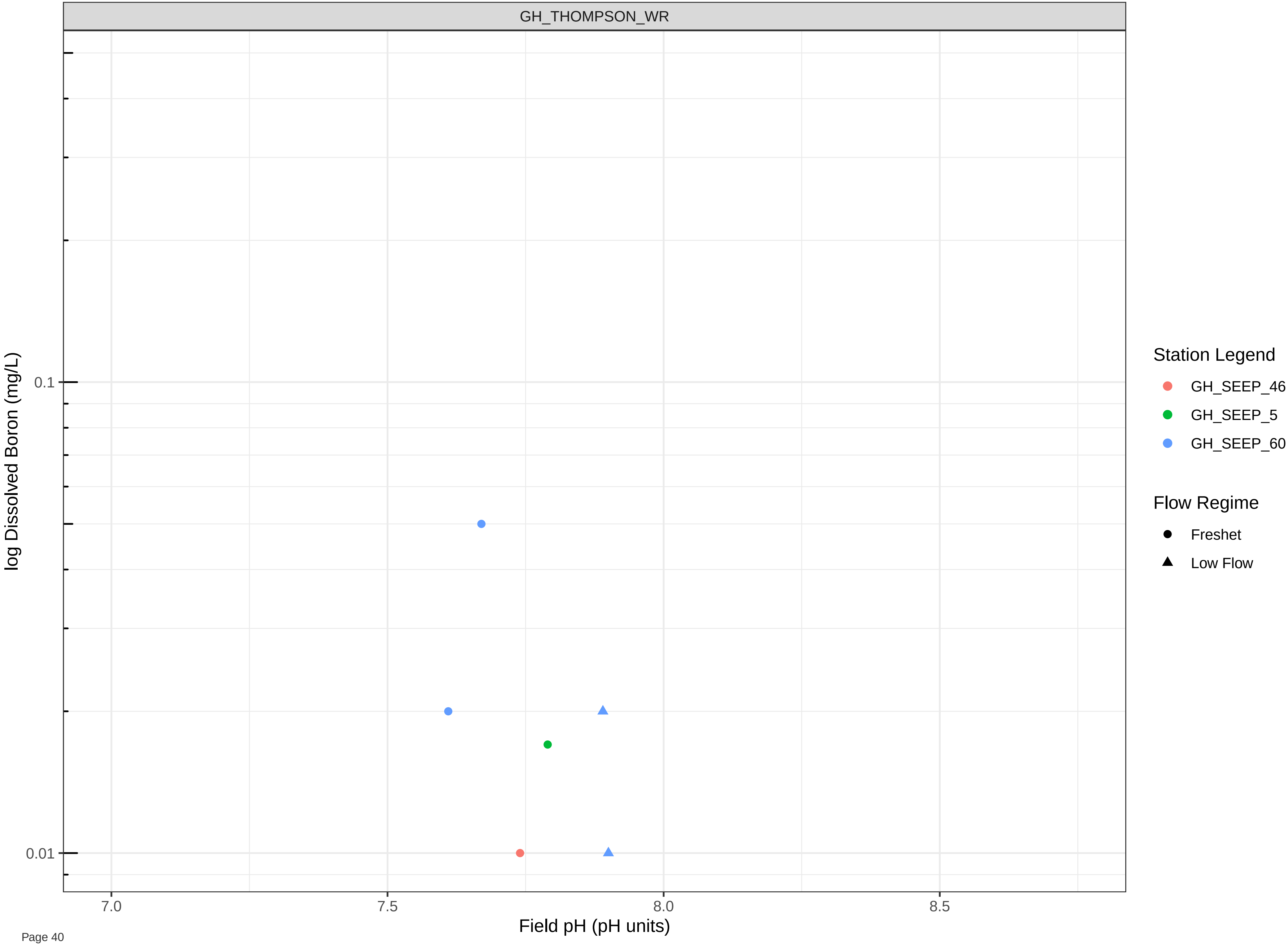
Flow Regime
● Freshet
▲ Low Flow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0.01
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
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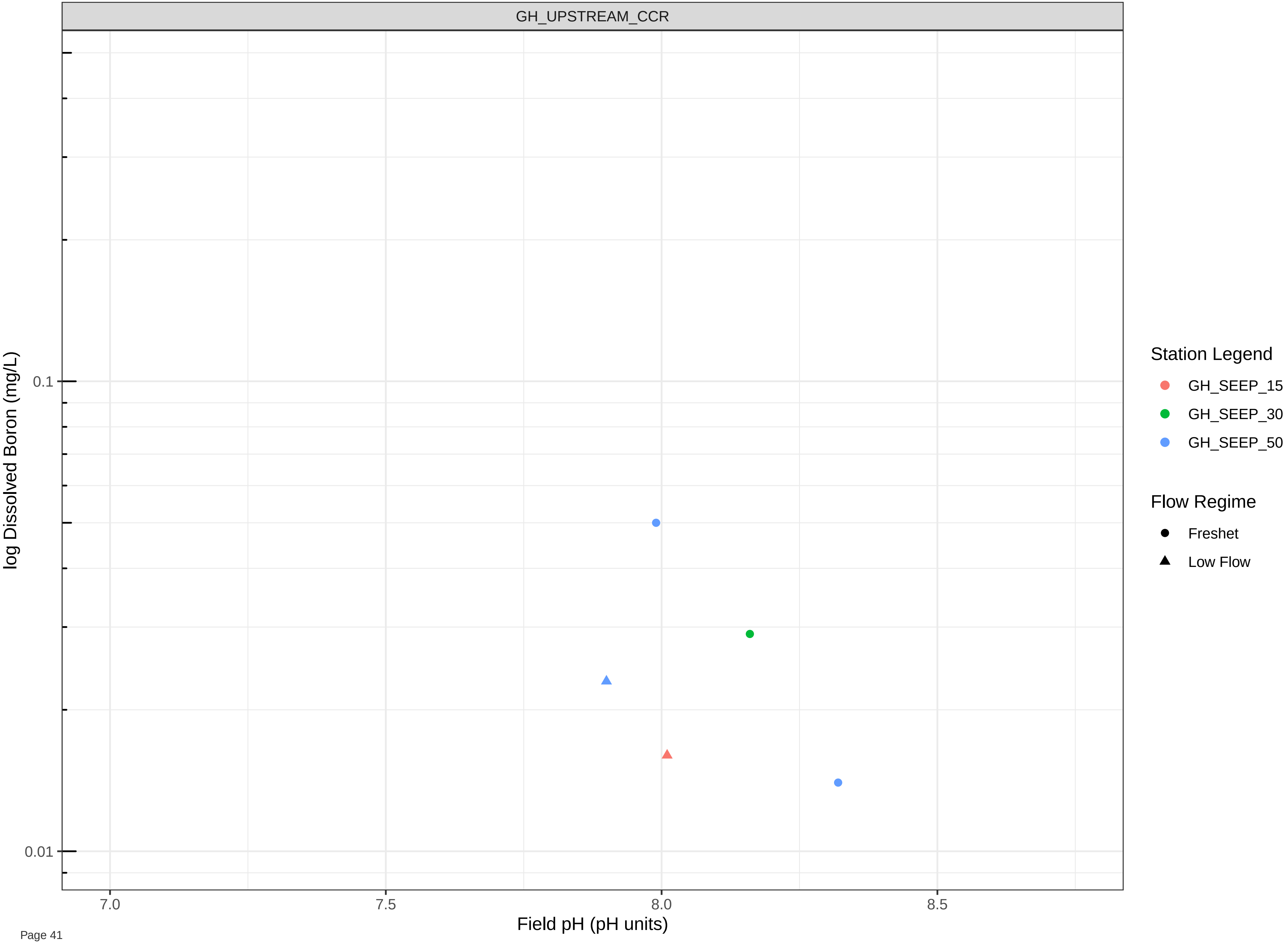
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow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Field pH (pH units)
Station Legend
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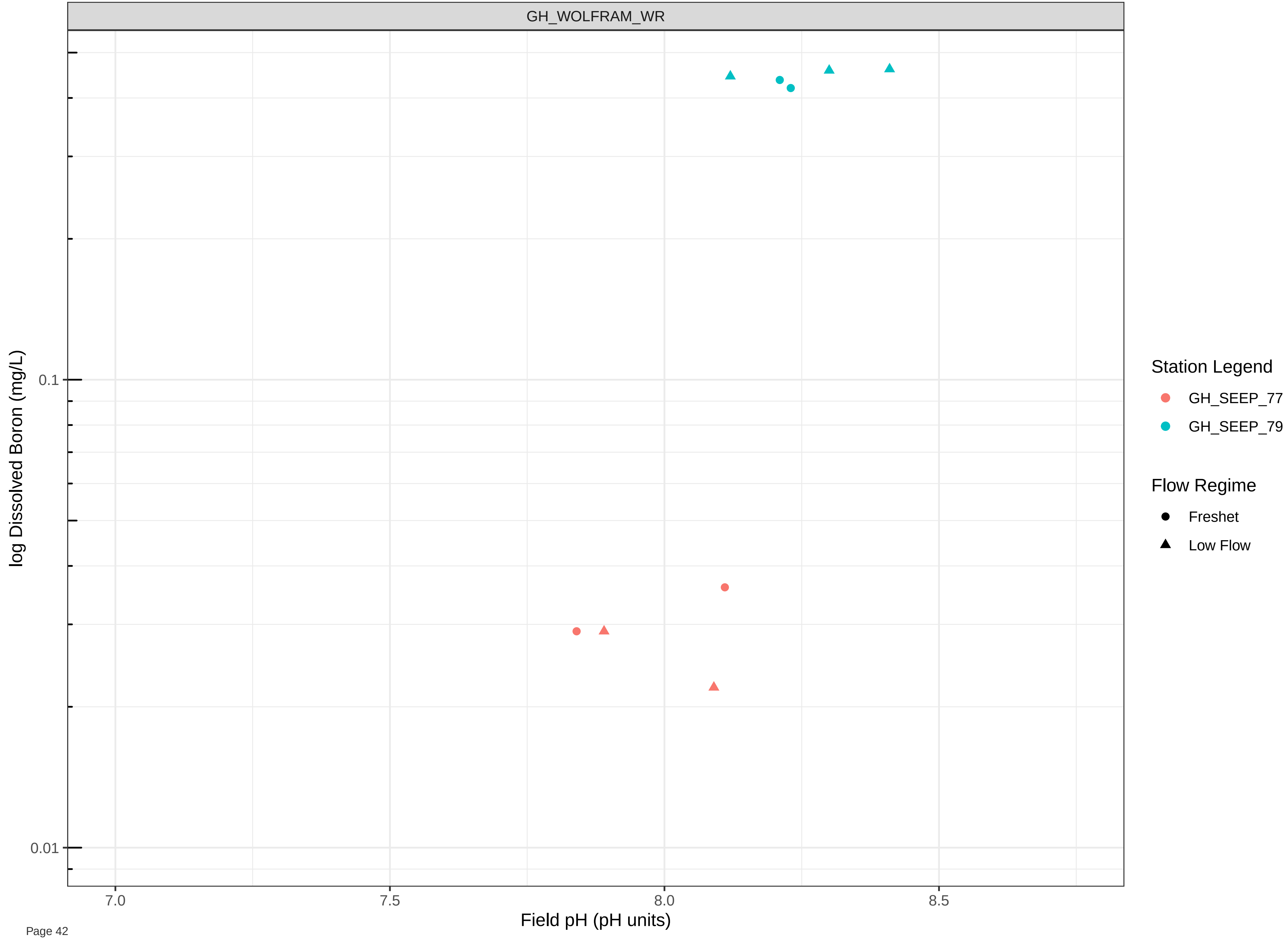
Flow Regime
Freshet
Low Flow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Station Legend
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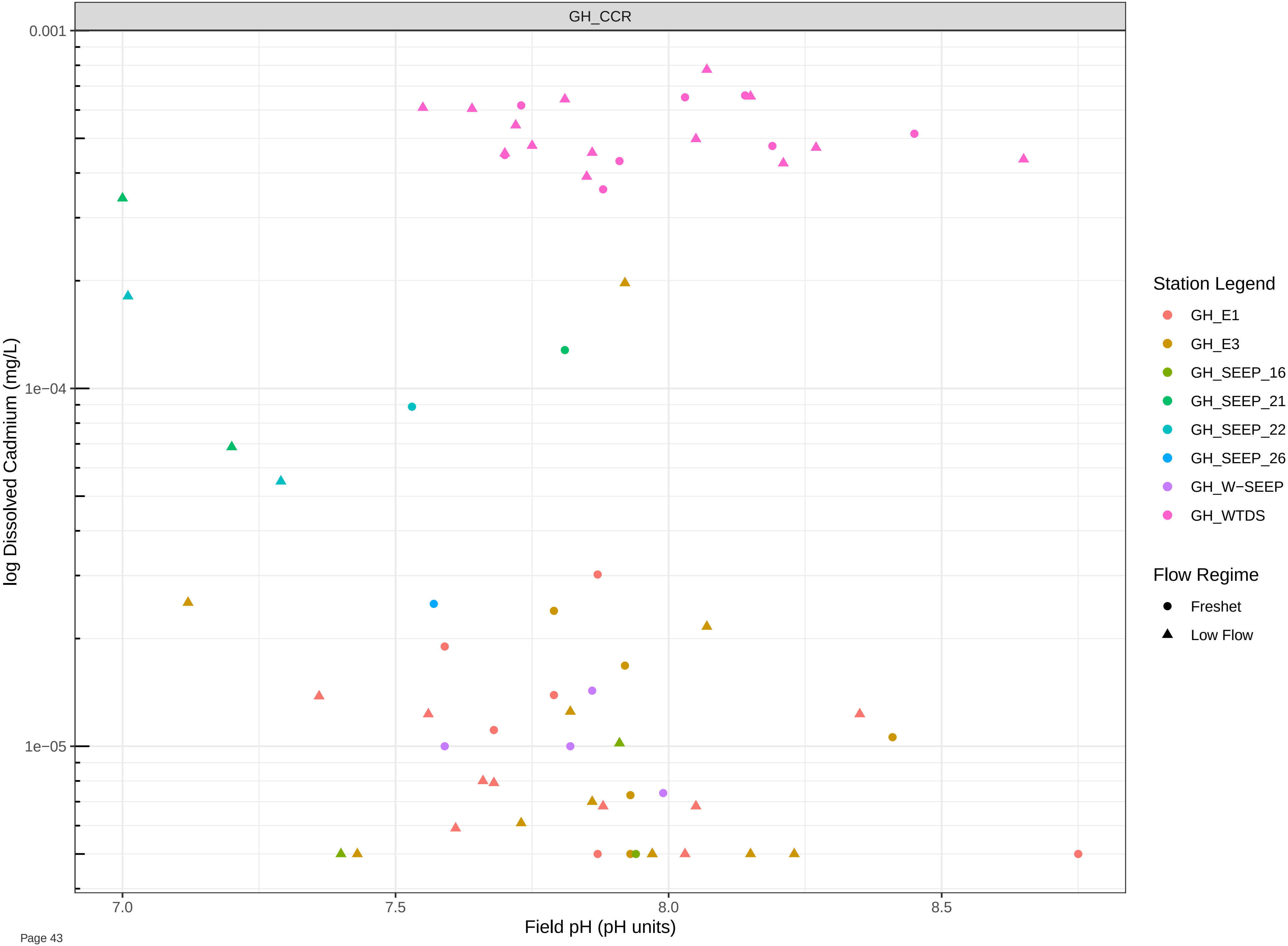
Flow Regime
Freshet
Low Flow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1e−05
Field pH (pH units)
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7.5
8.0
8.5
Station Legend
GH_E1
GH_E3
GH_SEEP_16
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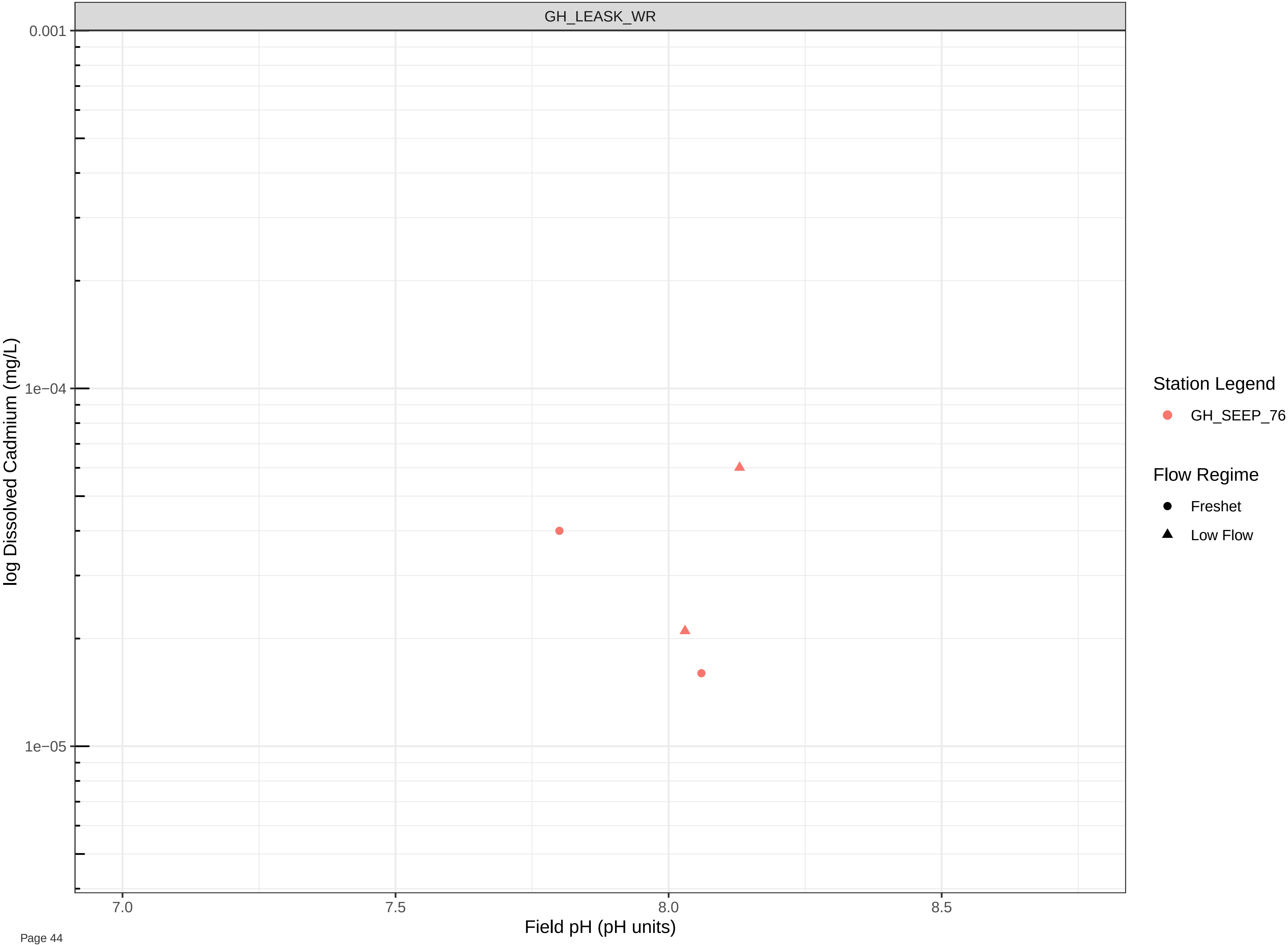
Flow Regime
Freshet
Low Flow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Flow Regime
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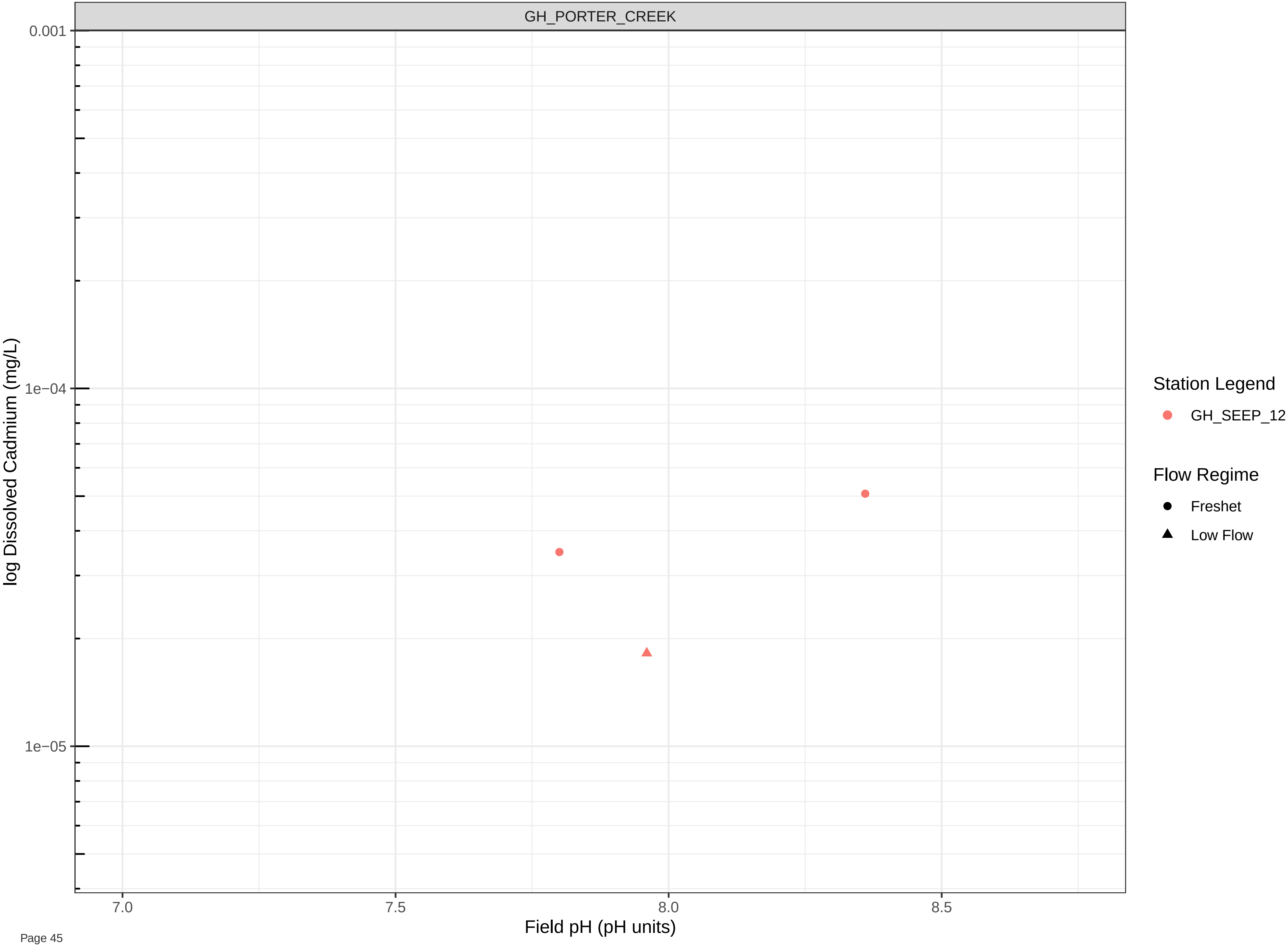
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Station Legend
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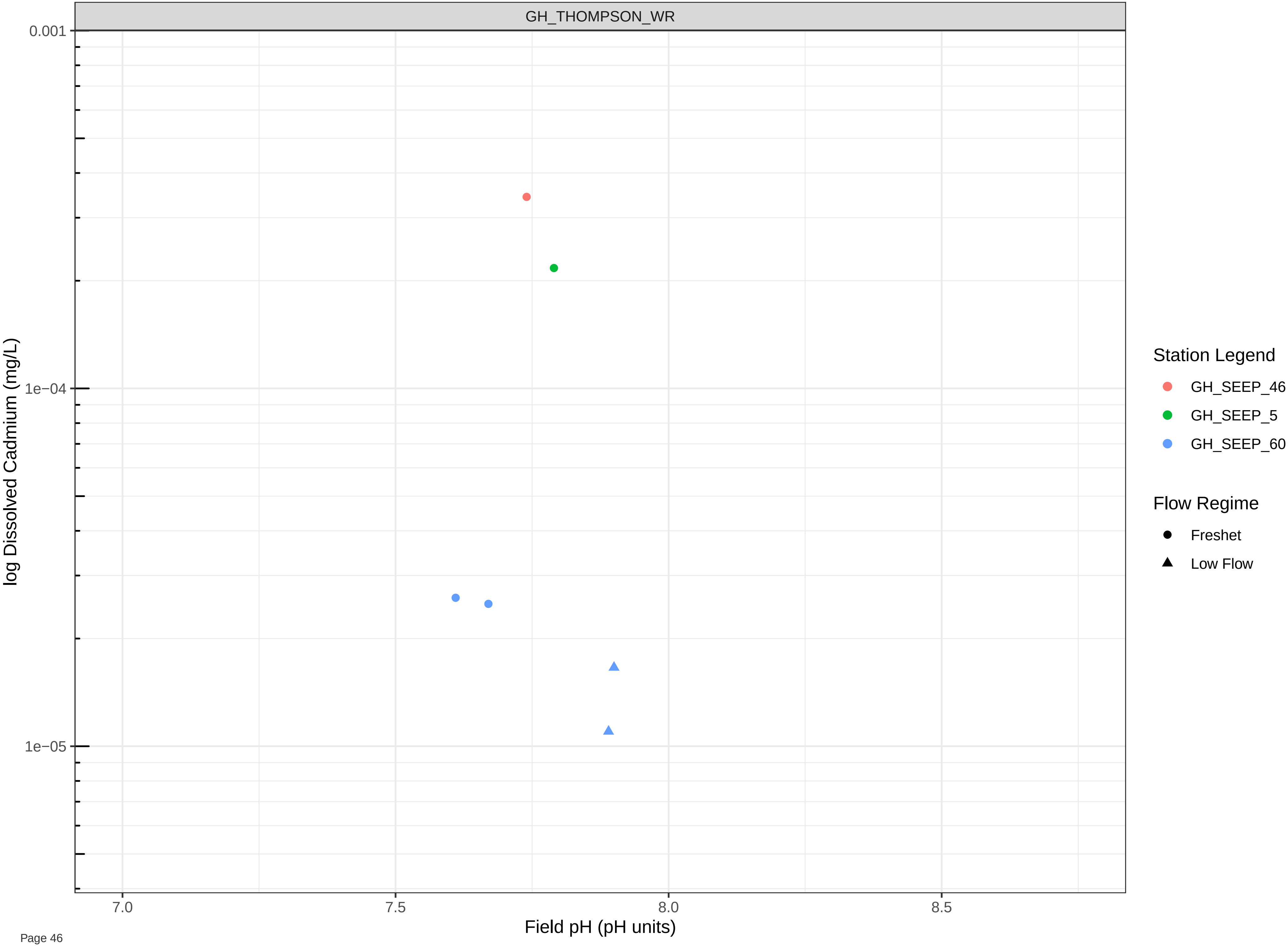
Flow Regime
● Freshet
▲ Low Flow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Field pH (pH units)
Station Legend
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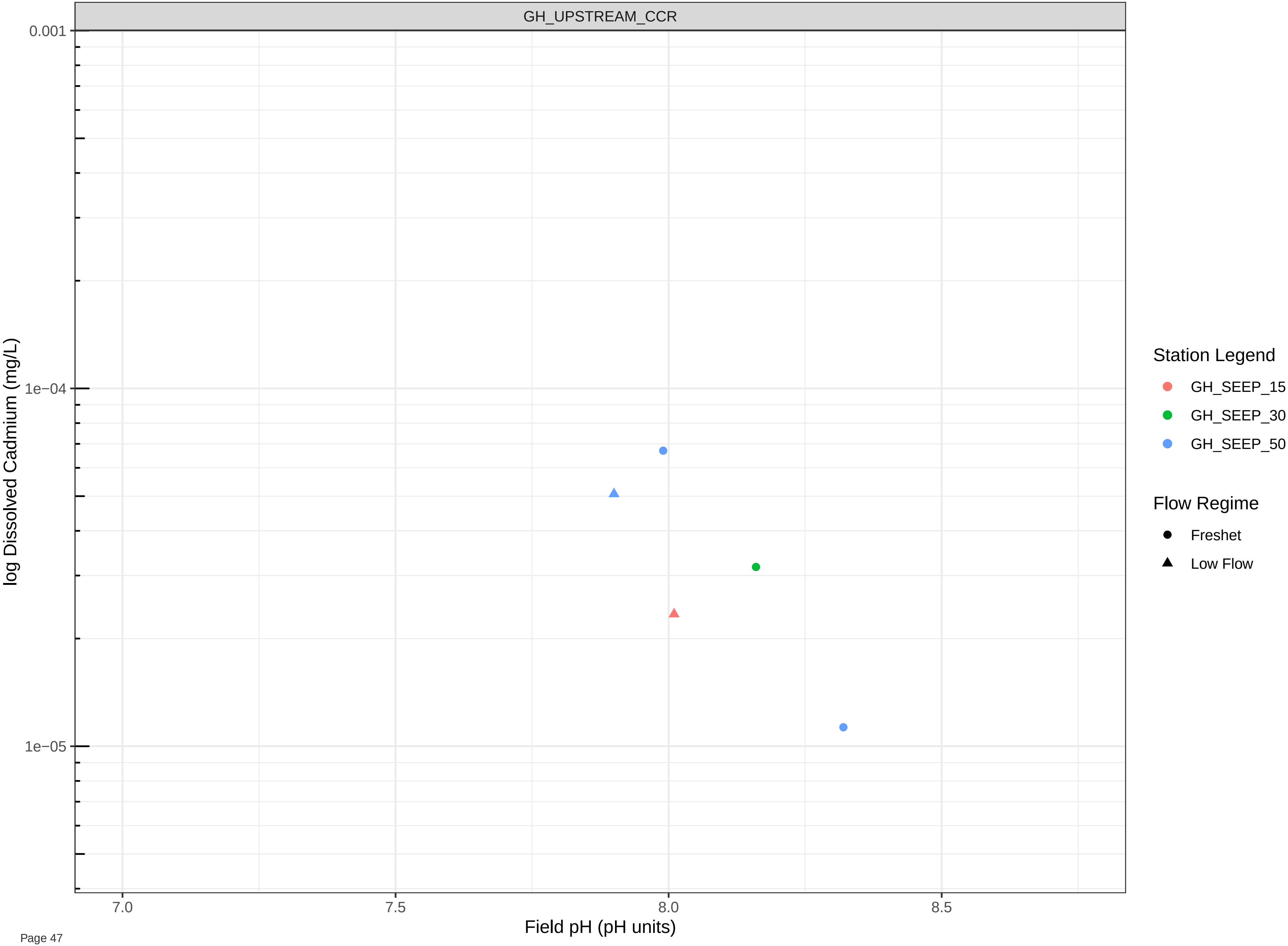
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow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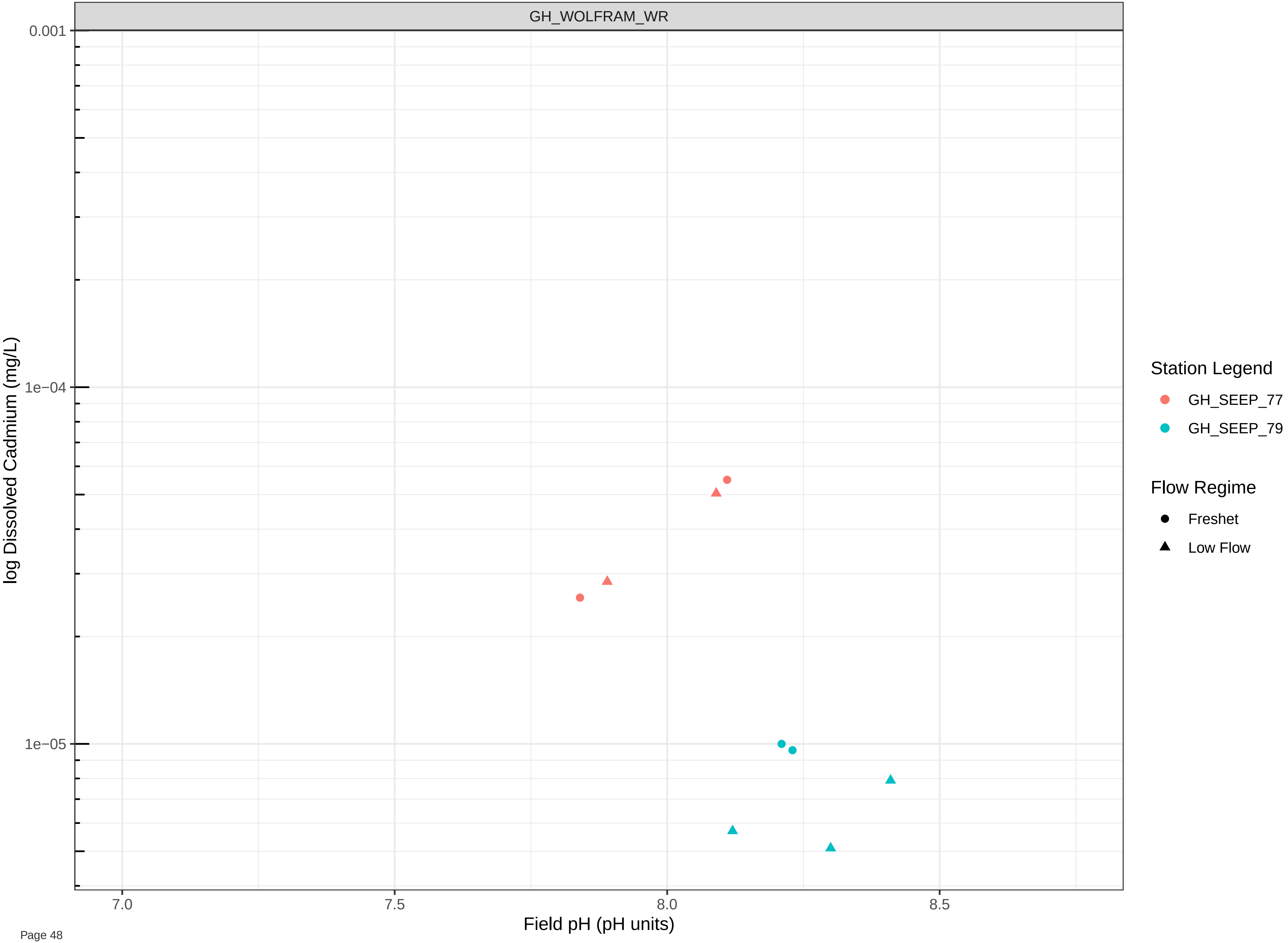
1e−05
log Dissolved Cadmium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow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7.0
7.5
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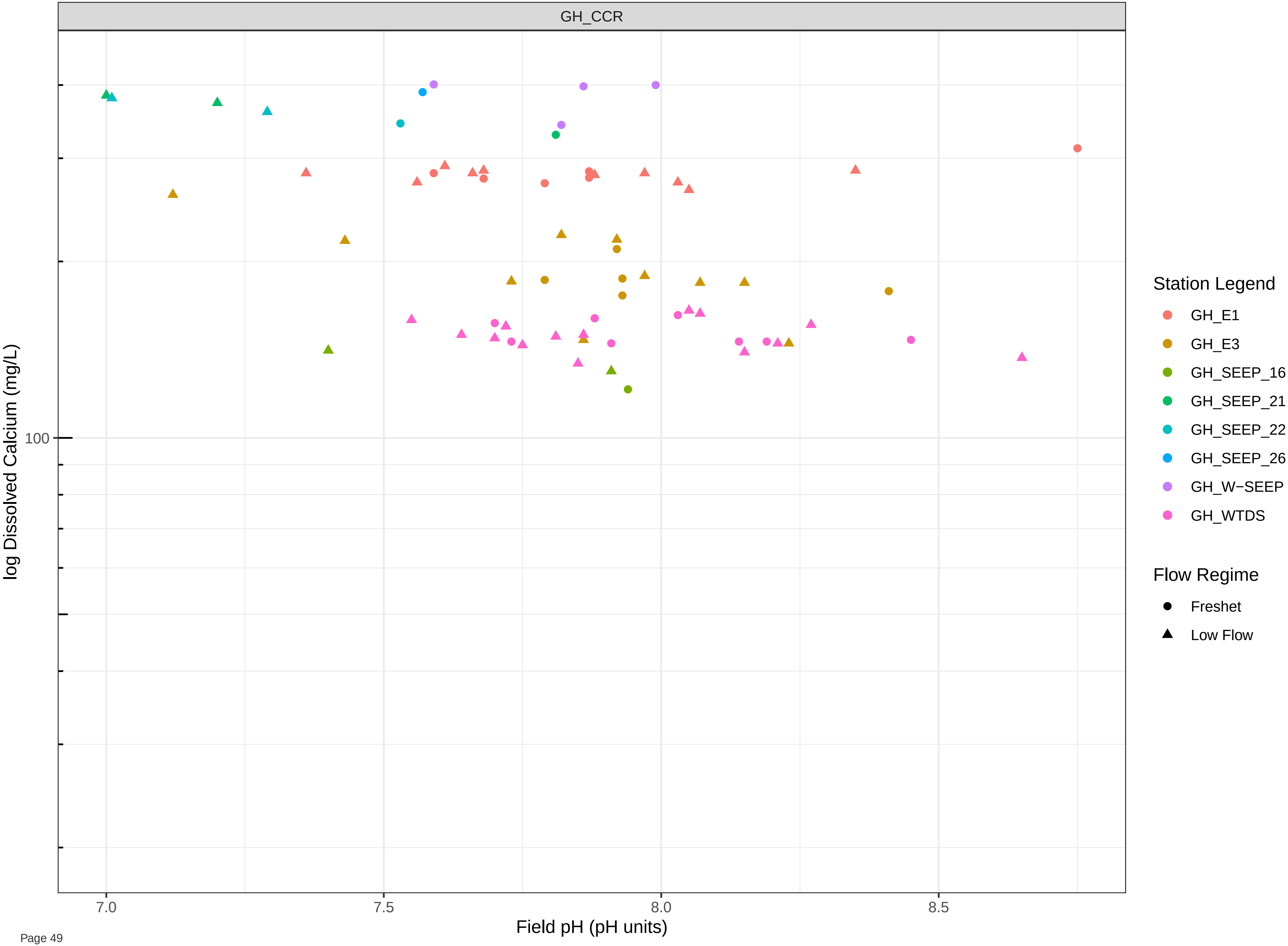
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow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Field pH (pH units)
Station Legend
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GH_E3
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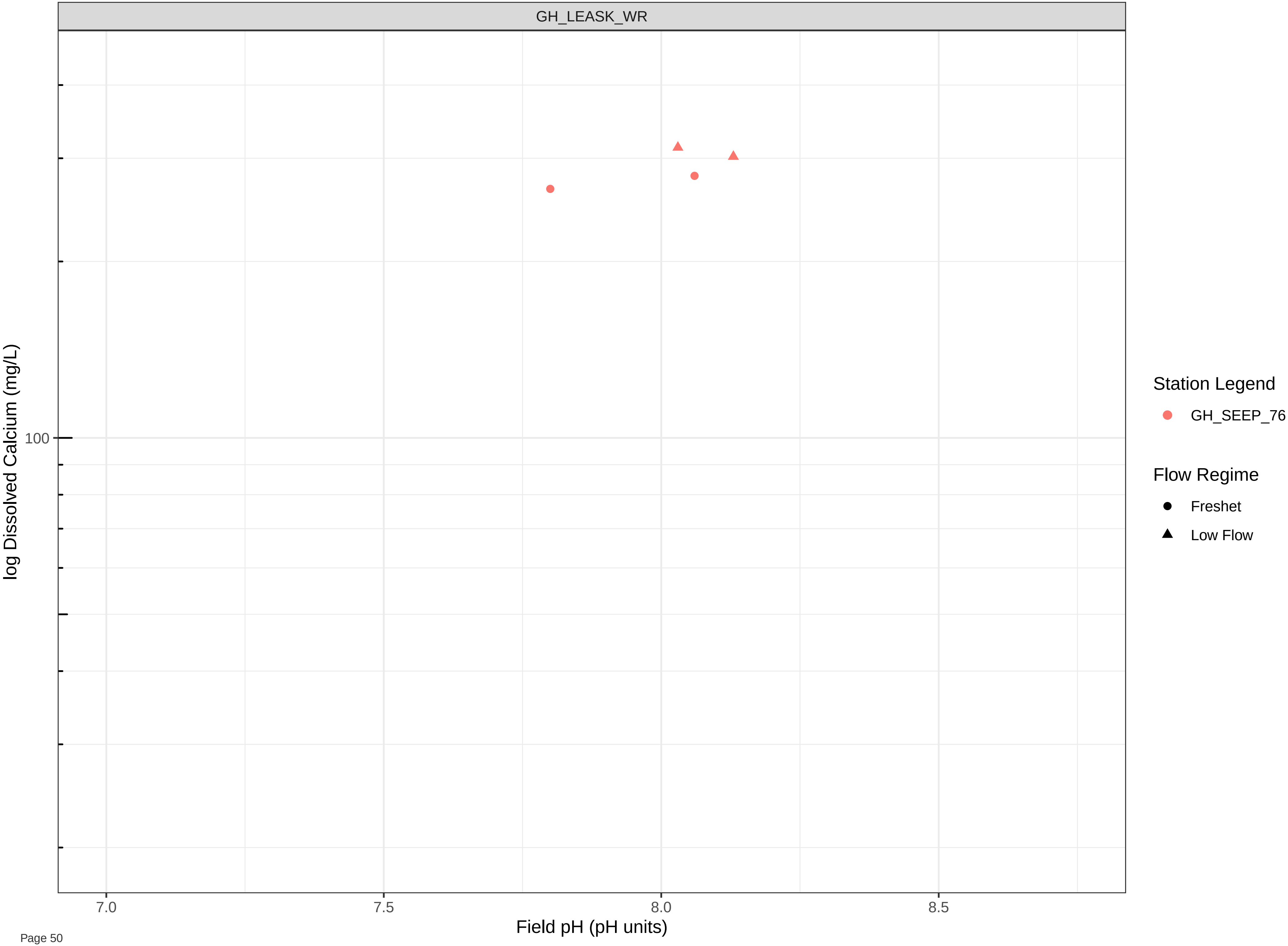
GH_WTDS
Flow Regime
Freshet
Low Flow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8.5
Field pH (pH units)
Station Legend
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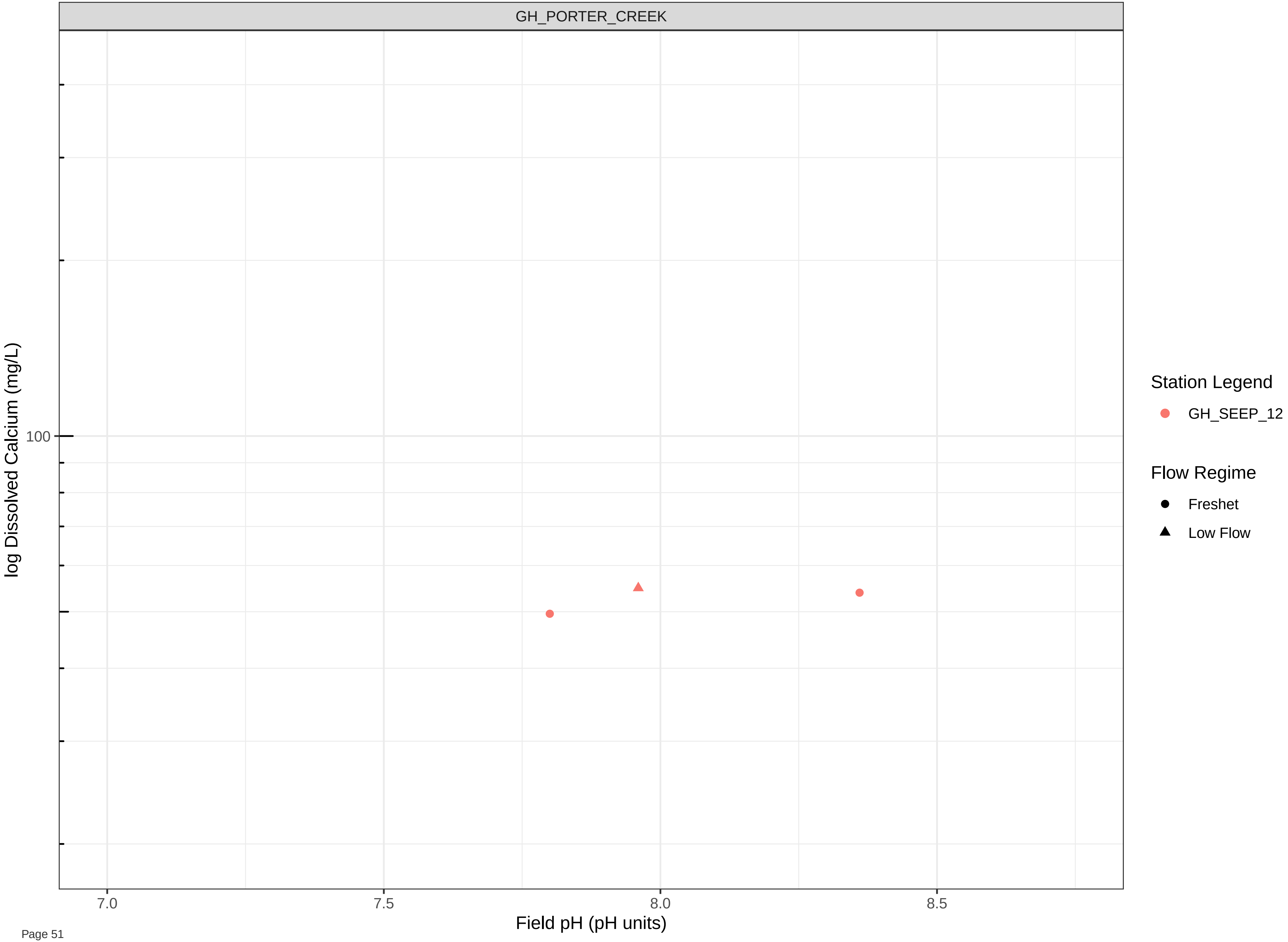
Flow Regime
● Freshet
▲ Low Flow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Field pH (pH units)
Station Legend
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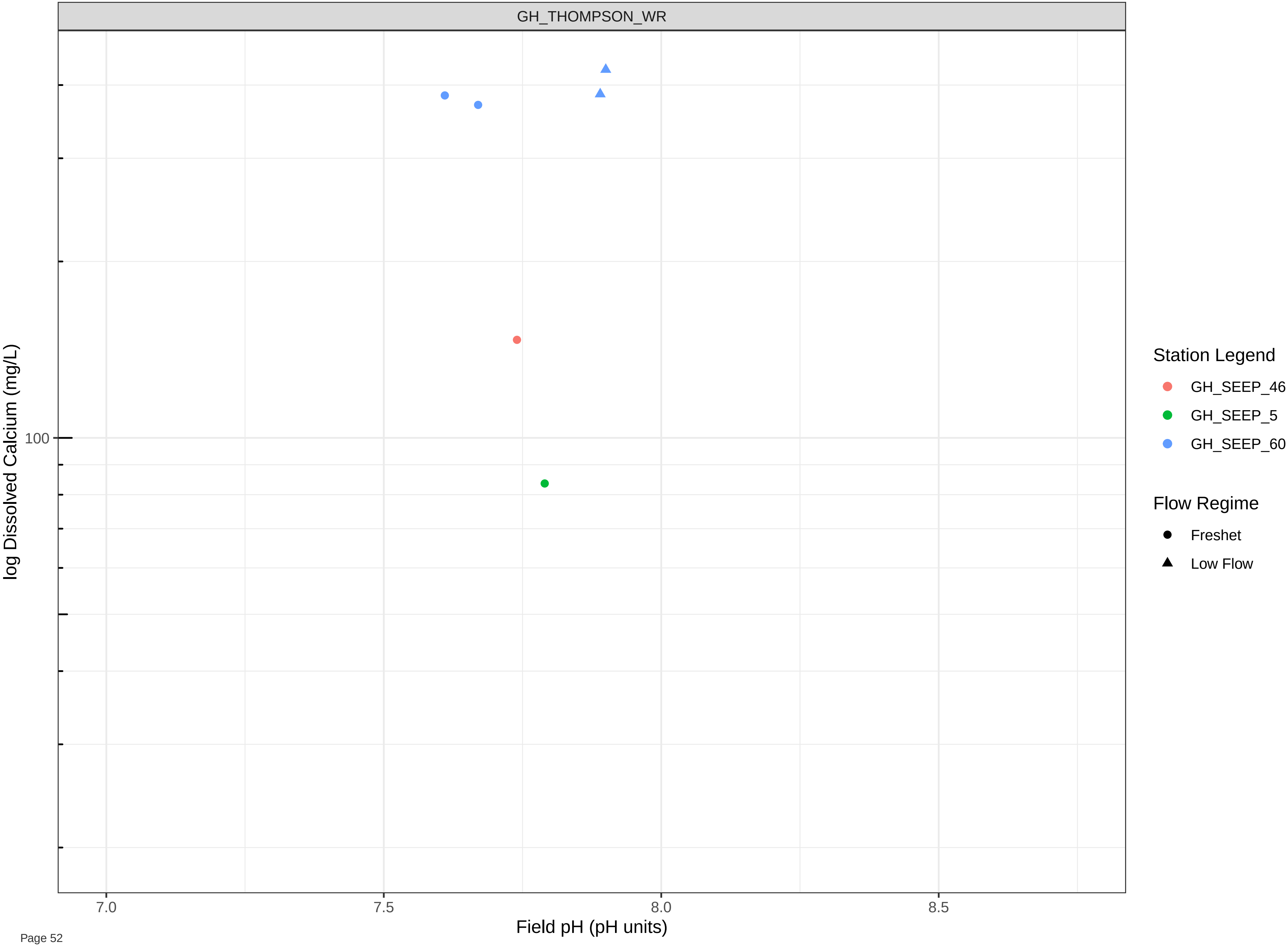
Flow Regime
Freshet
Low Flow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Field pH (pH units)
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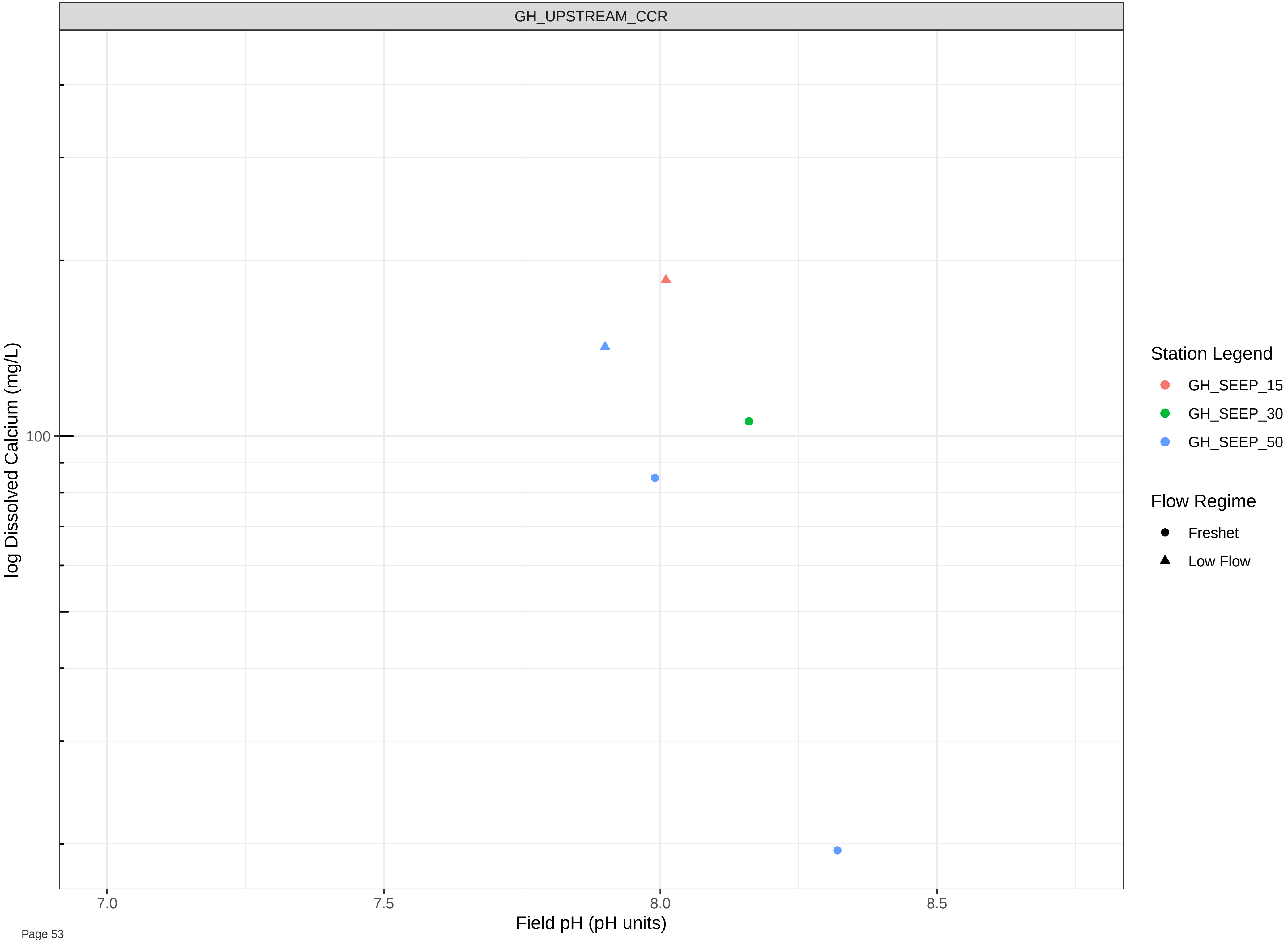
Flow Regime
Freshet
Low Flow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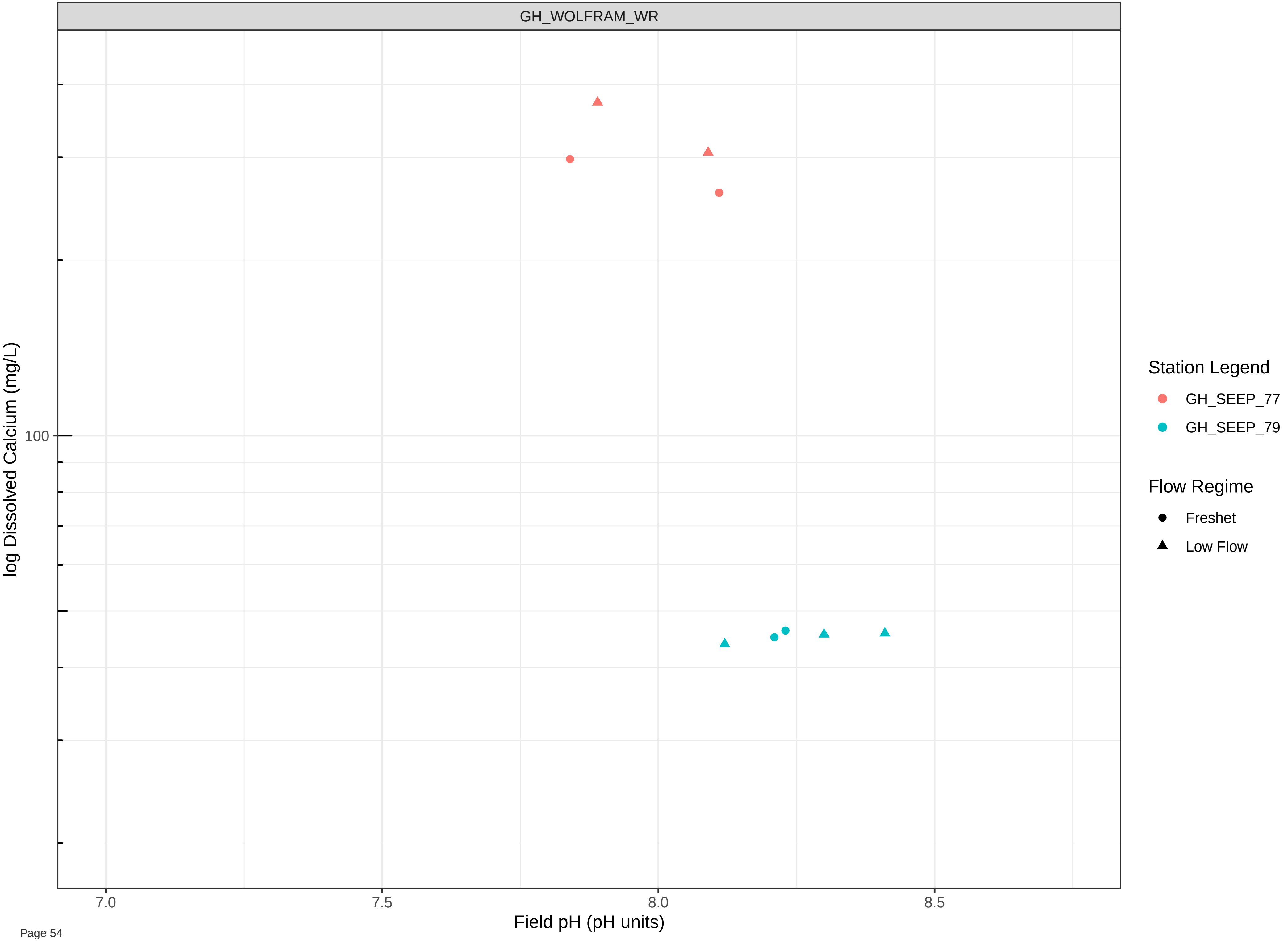
Flow Regime
Freshet
Low Flow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Field pH (pH units)
Station Legend
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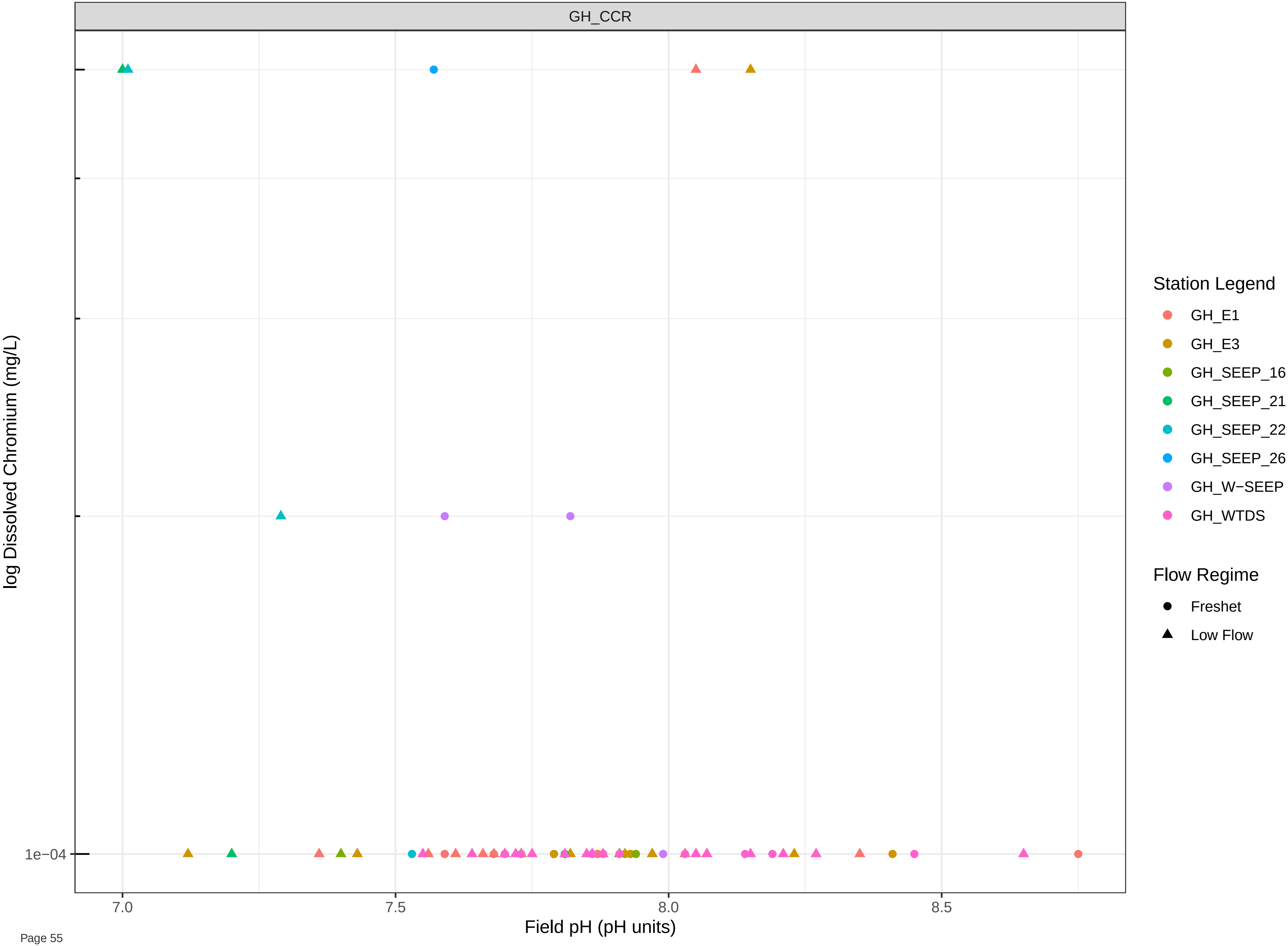
● GH_SEEP_79
Flow Regime
● Freshet
▲ Low Flow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Station Legend
GH_E1
GH_E3
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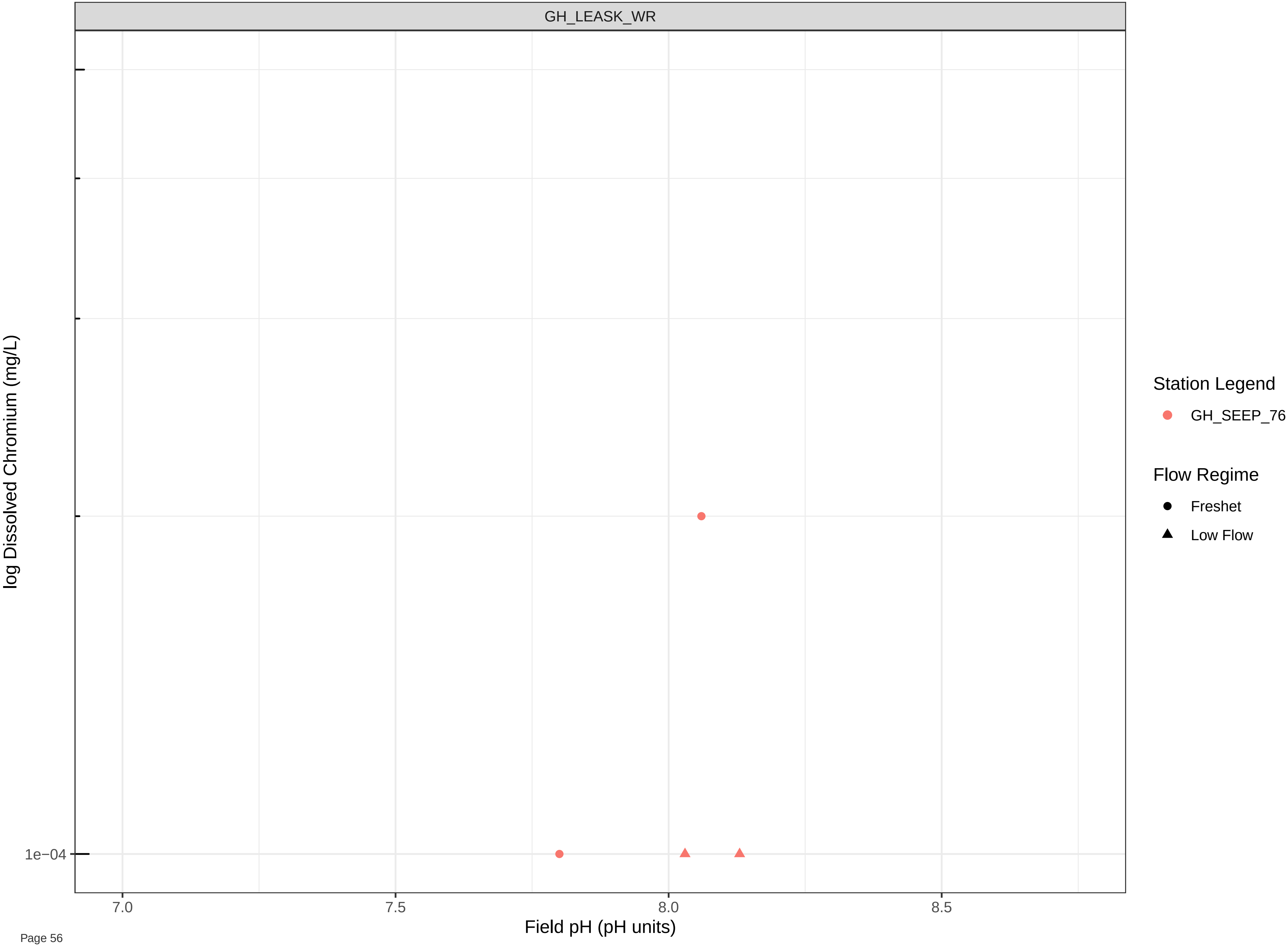
Freshet
Low Flow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Field pH (pH units)
Station Legend
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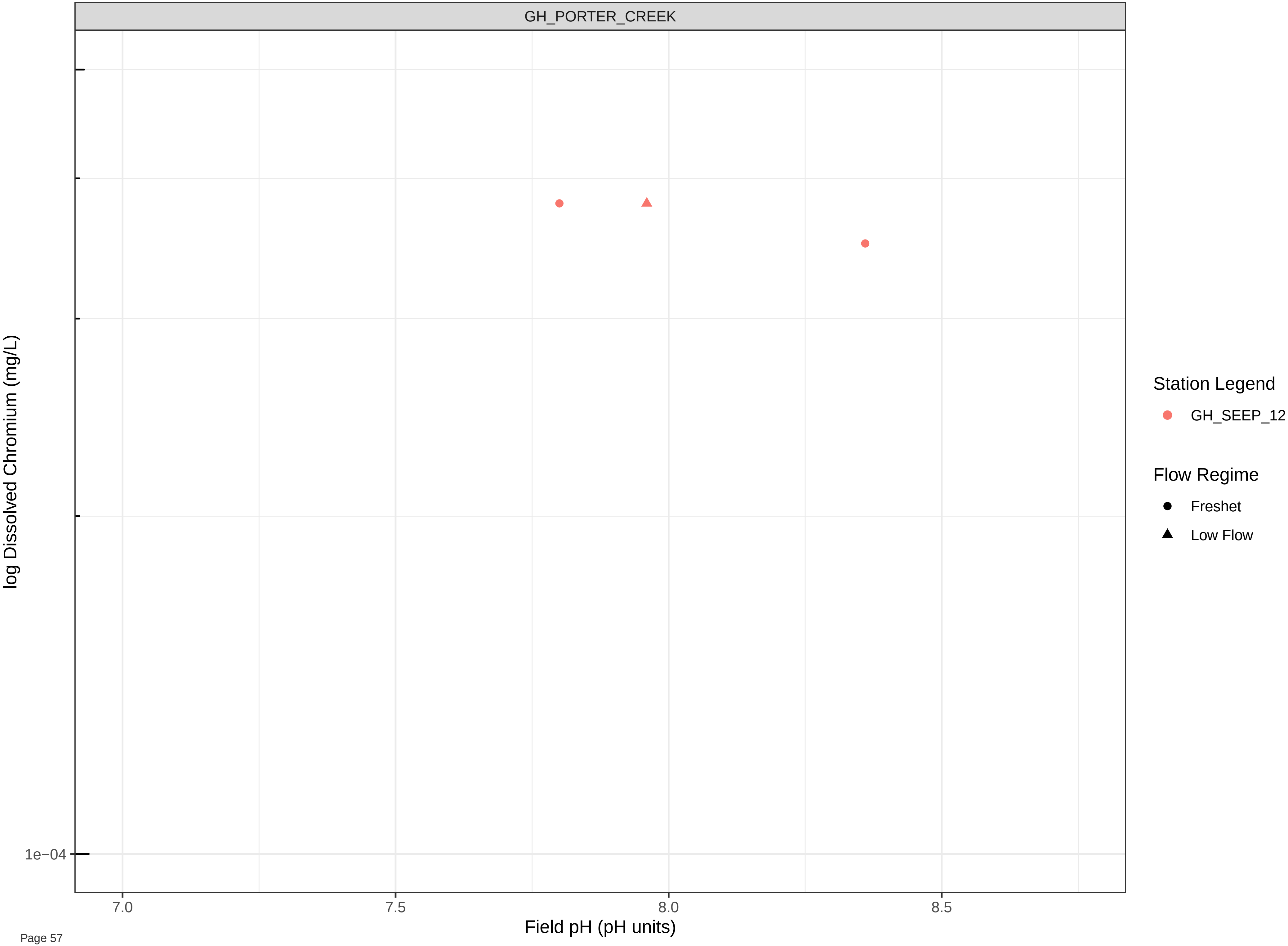
Flow Regime
● Freshet
▲ Low Flow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Field pH (pH units)
Station Legend
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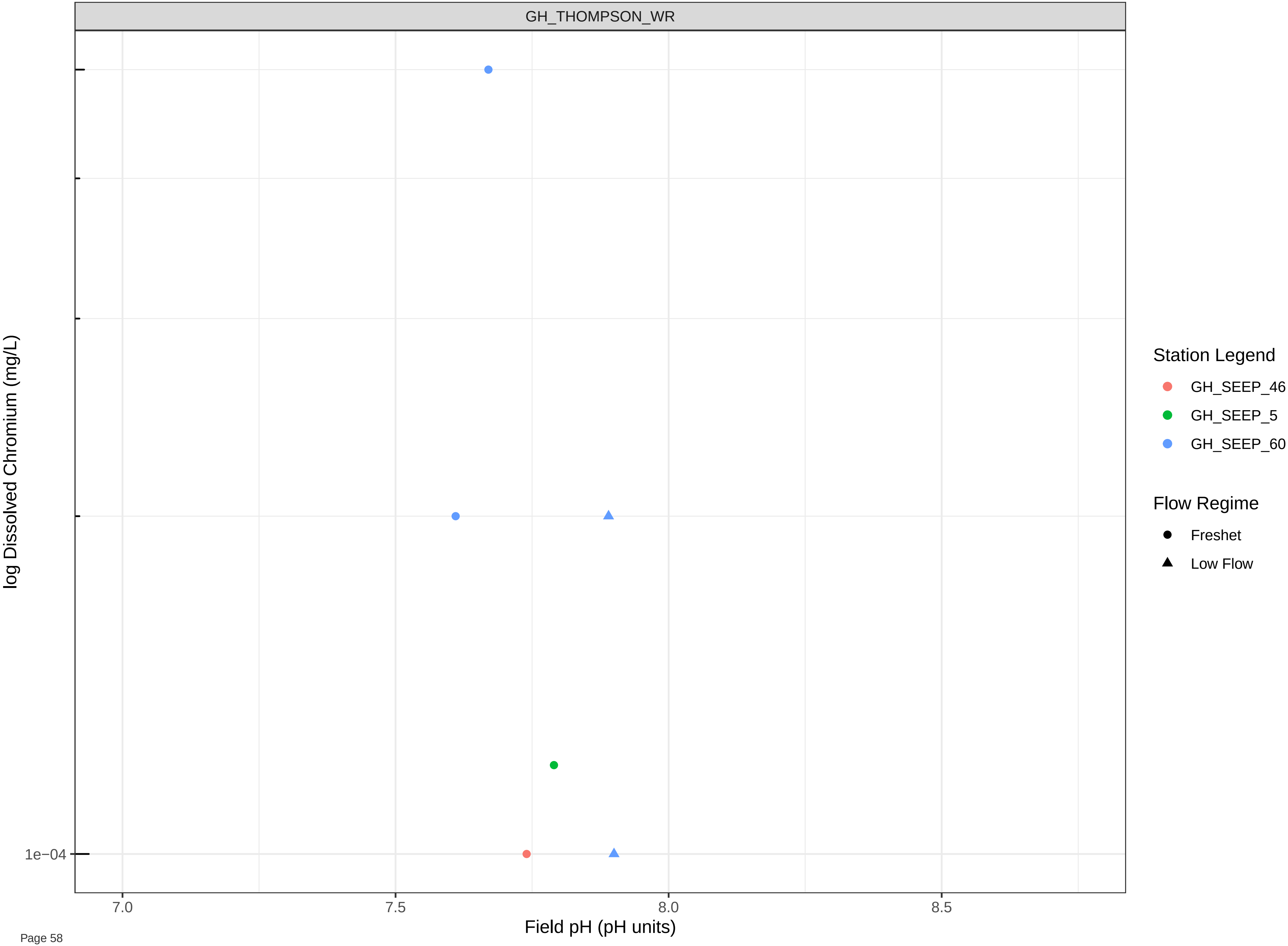
Flow Regime
● Freshet
▲ Low Flow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Field pH (pH units)
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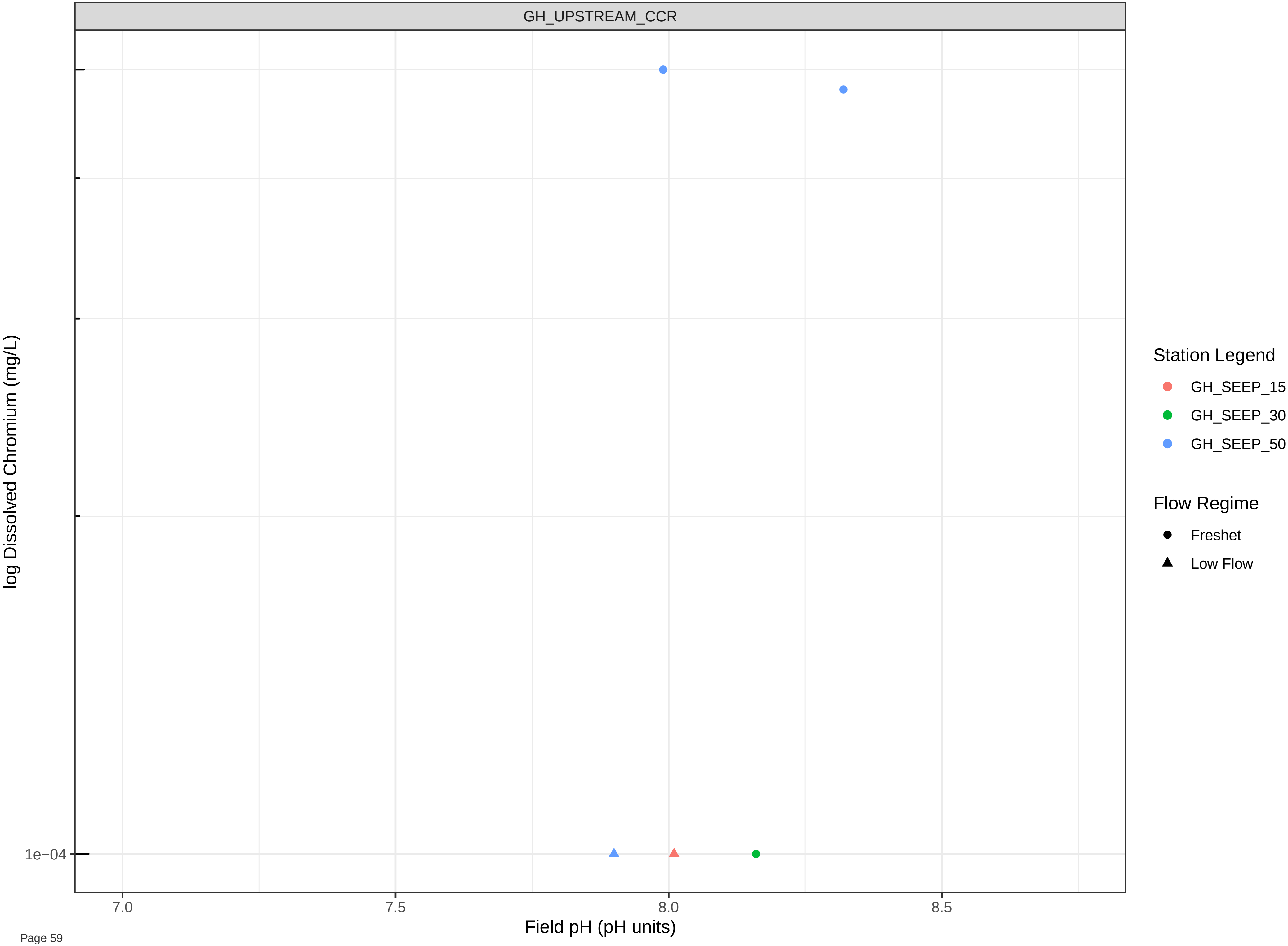
● GH_SEEP_60
Flow Regime
● Freshet
▲ Low Flow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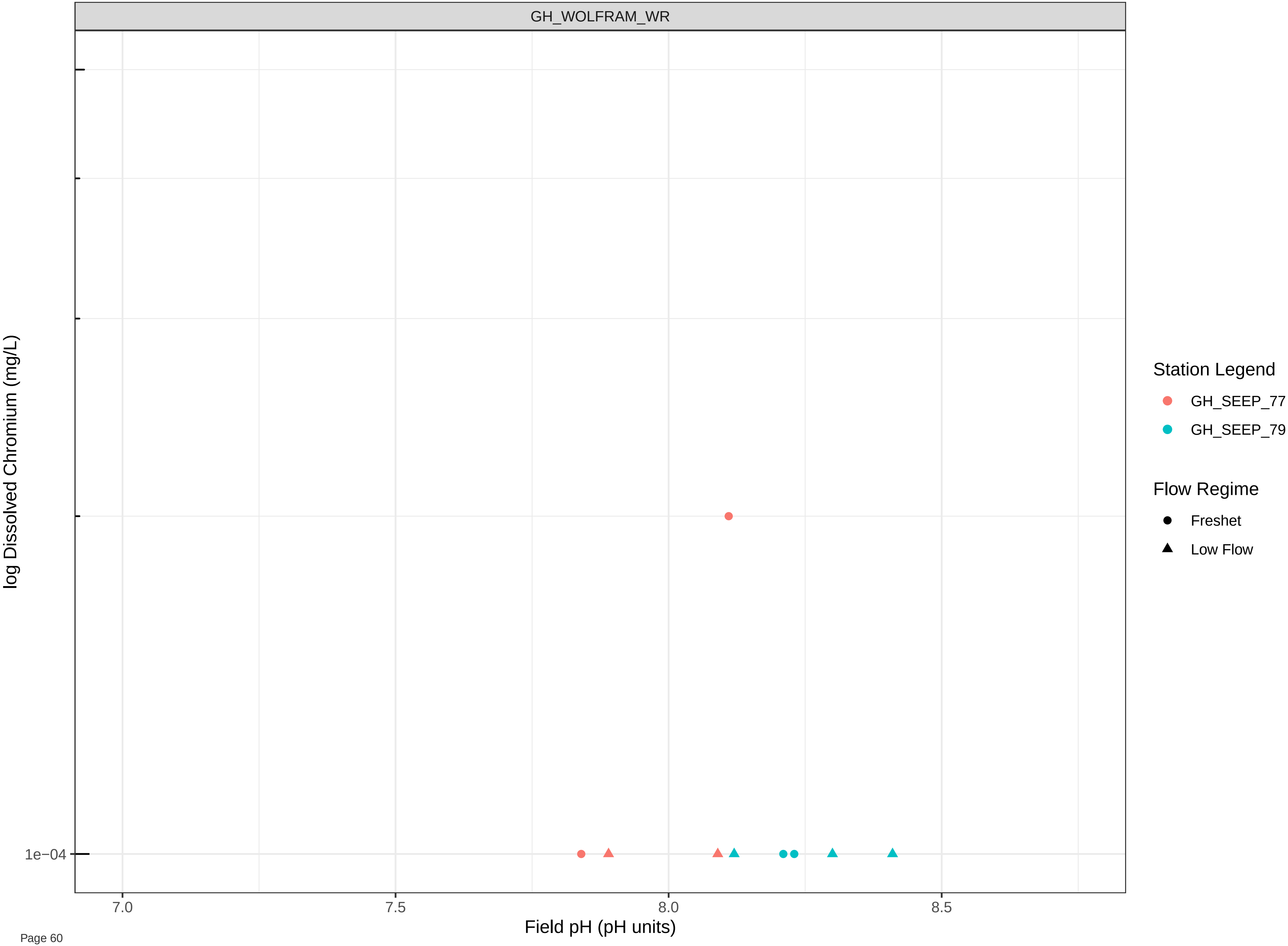
Flow Regime
Freshet
Low Flow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Field pH (pH units)
Station Legend
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GH_SEEP_79
Flow Regime
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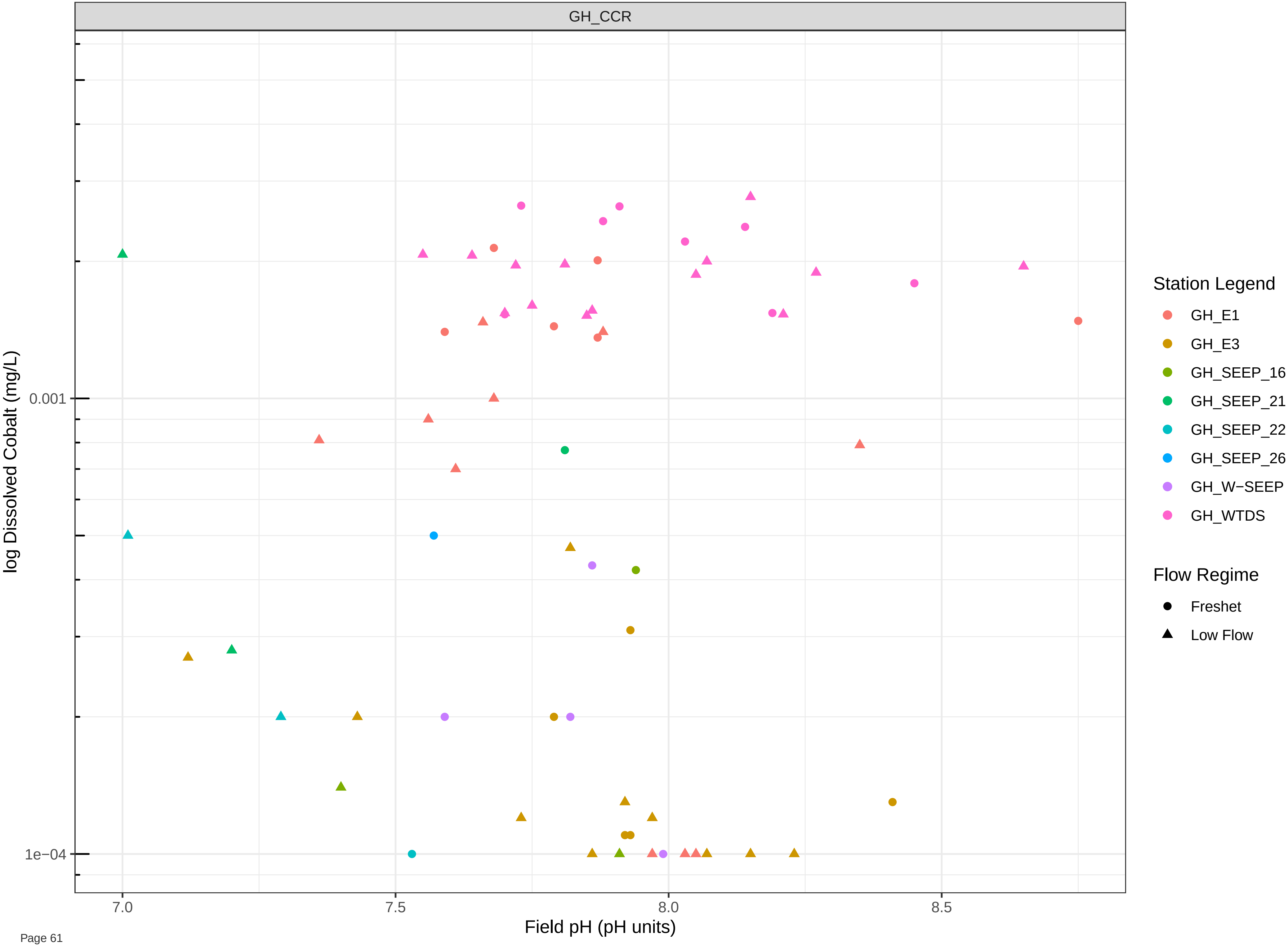
Low Flow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8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
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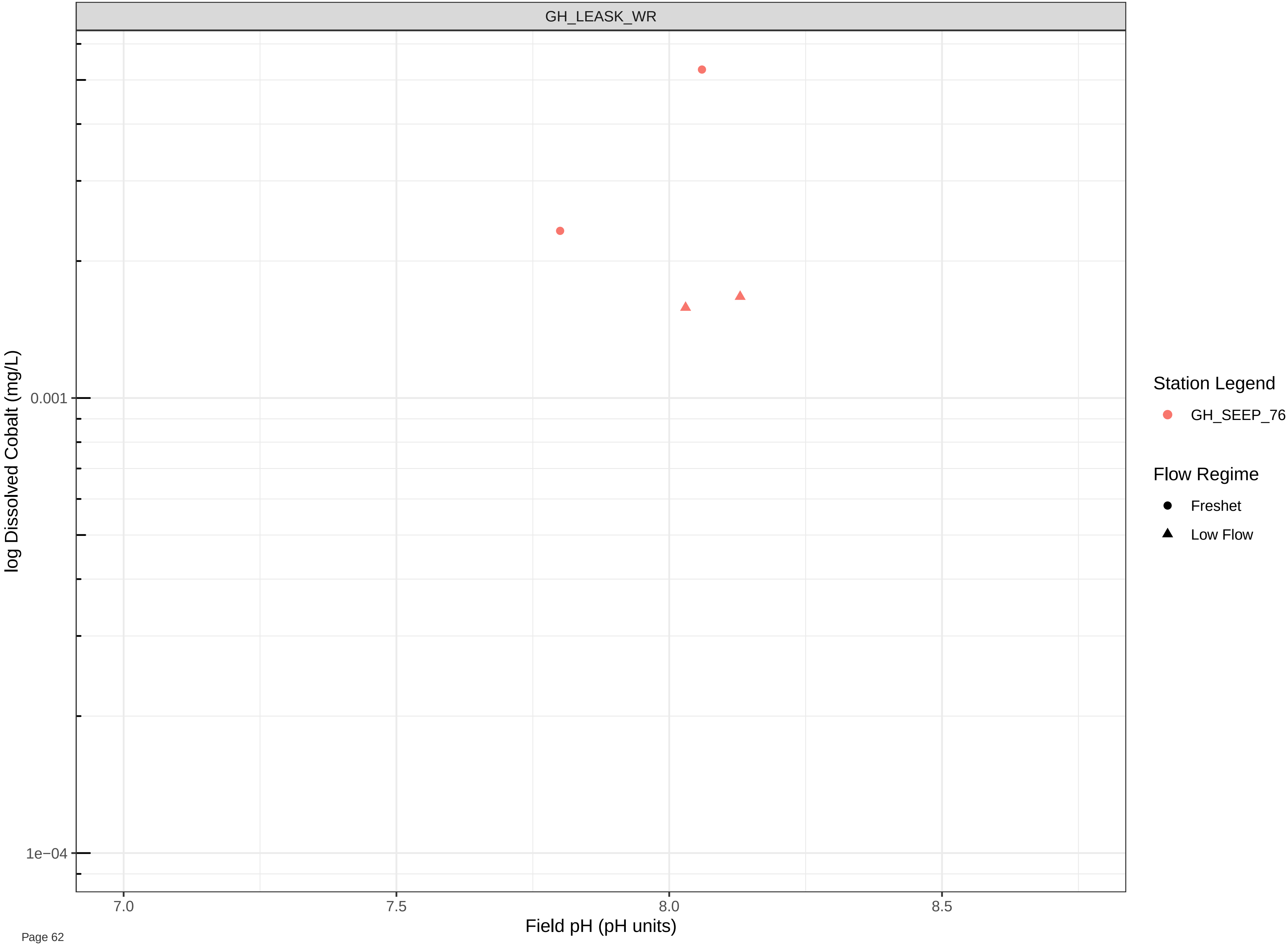
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Station Legend
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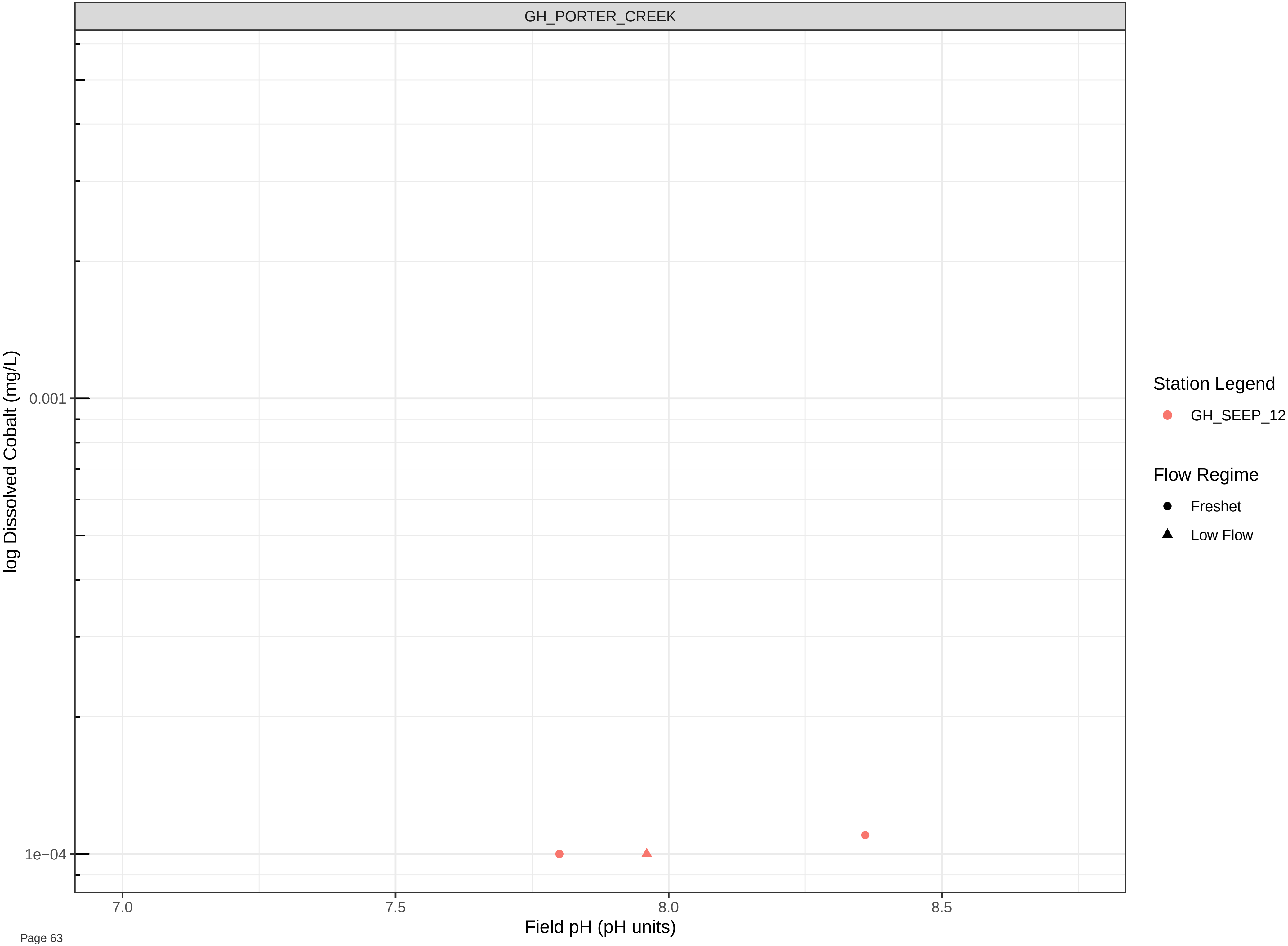
Flow Regime
● Freshet
▲ Low Flow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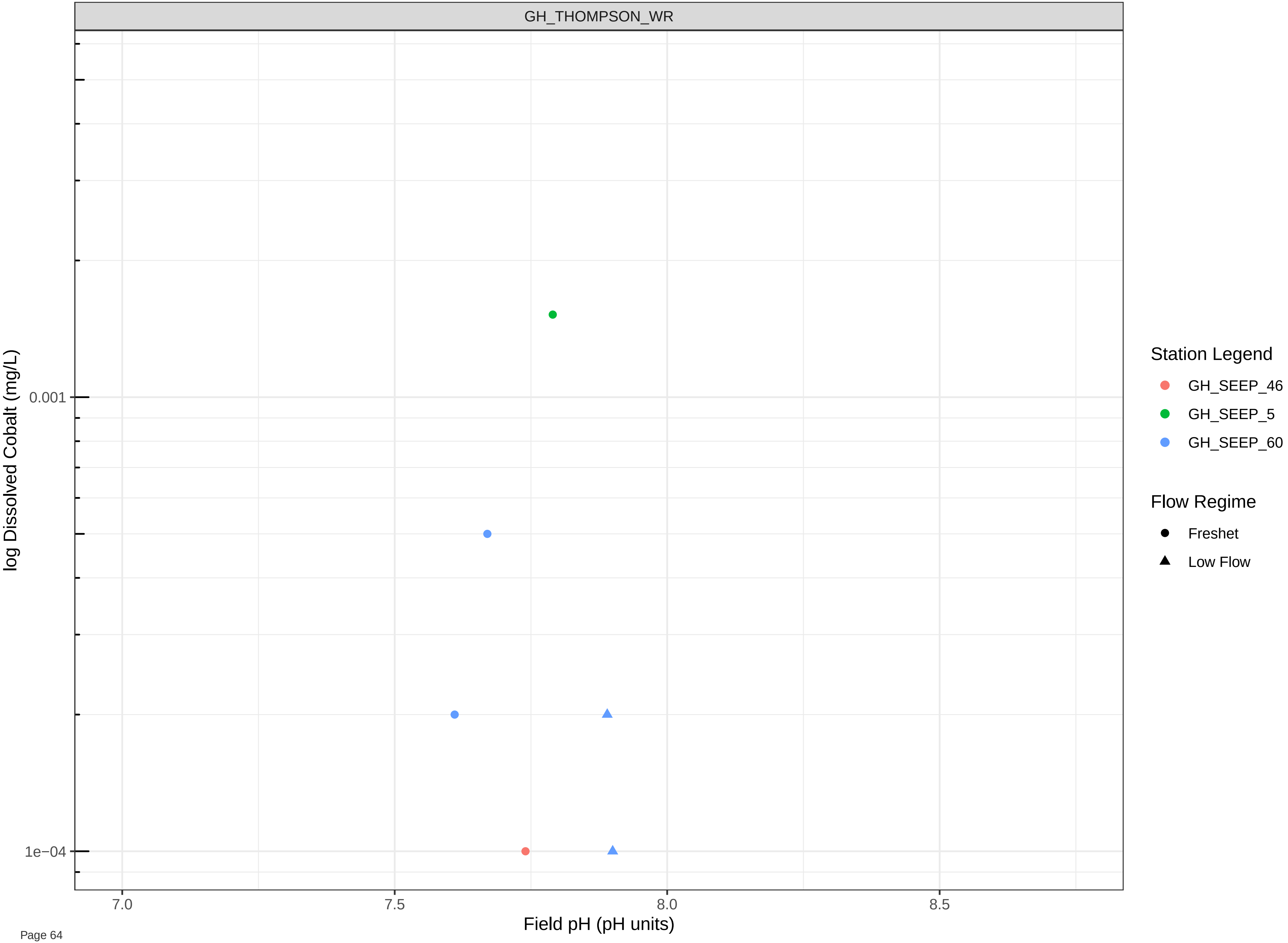
Freshet
Low Flow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Station Legend
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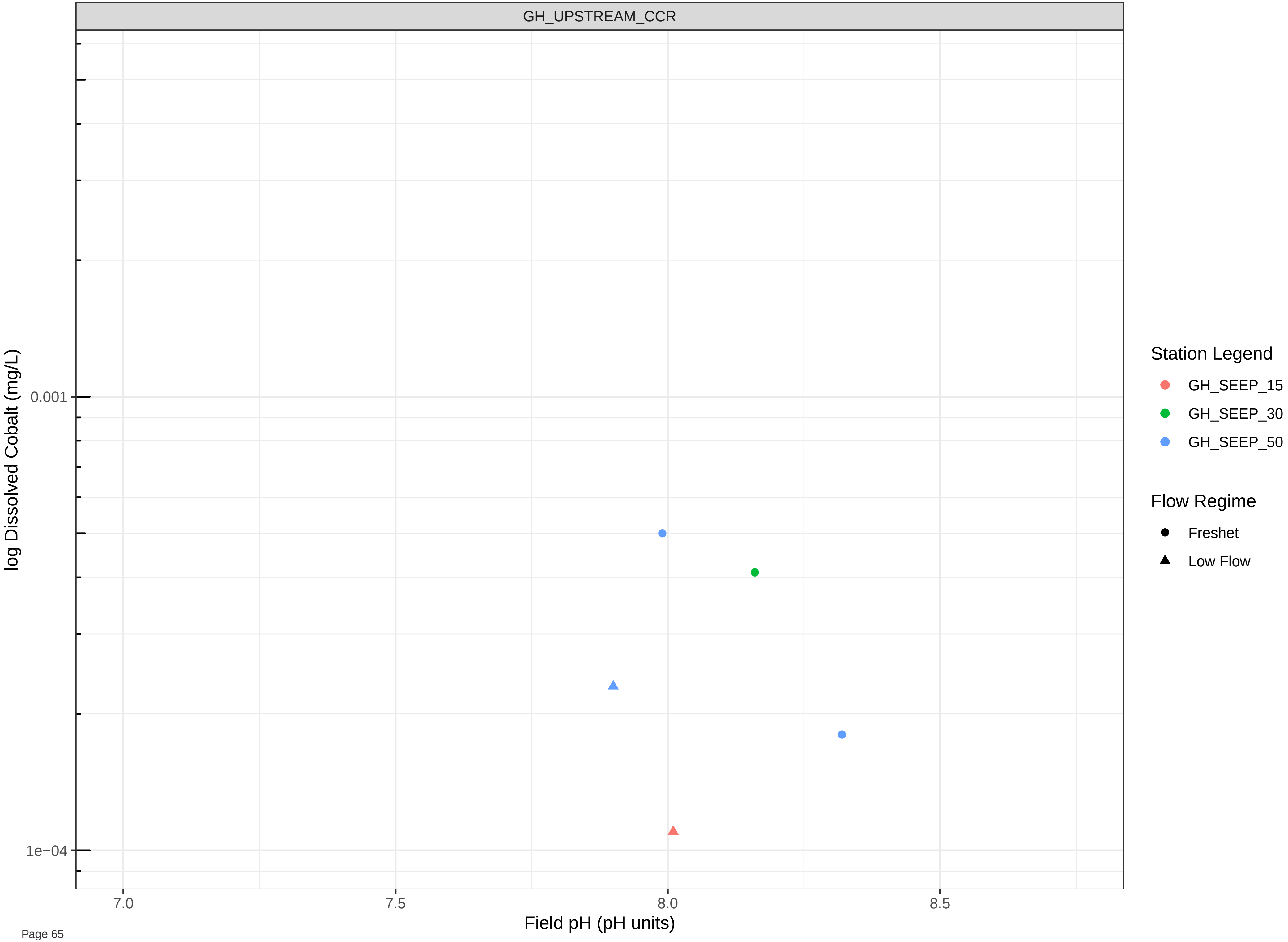
Freshet
Low Flow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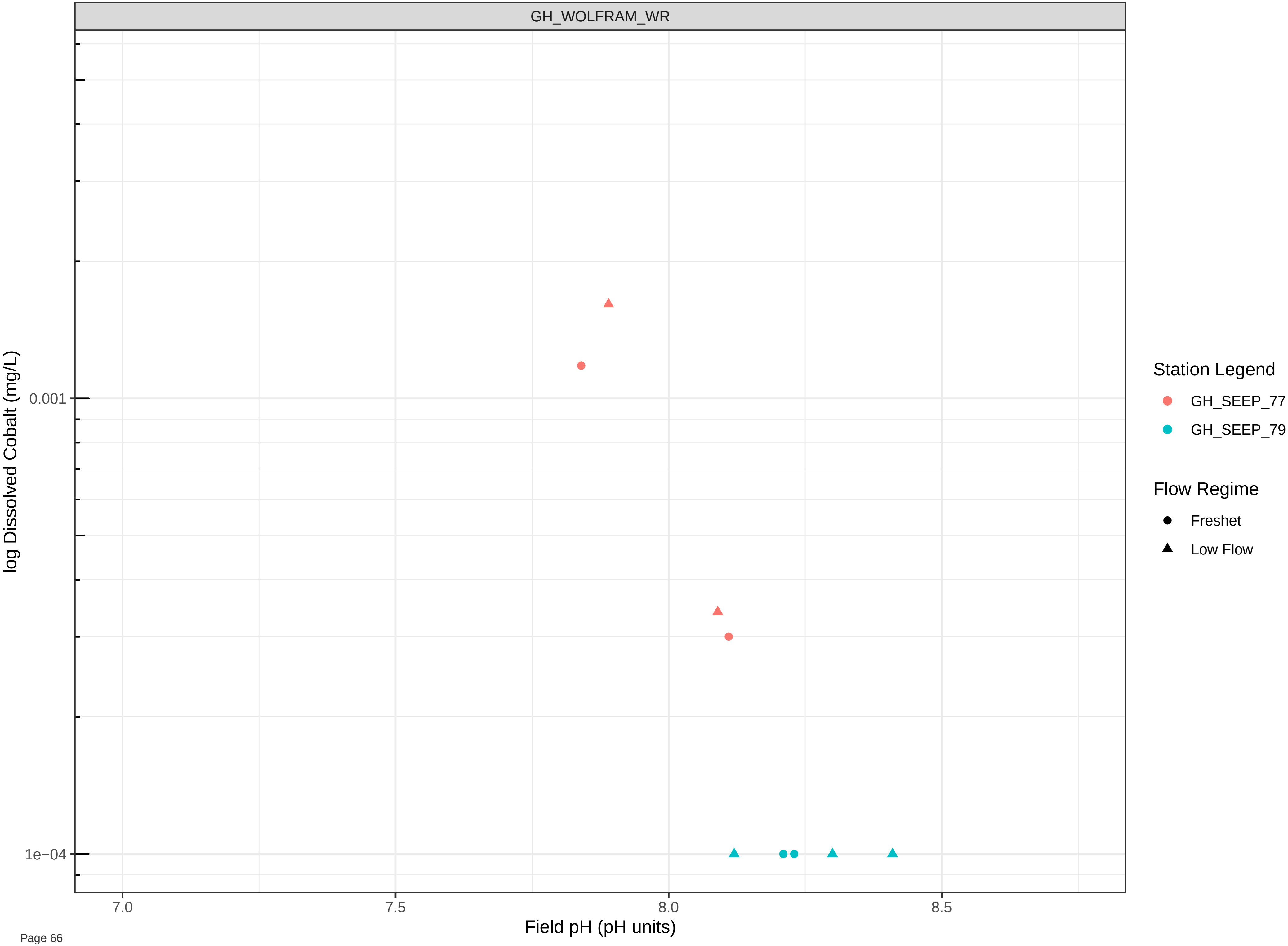
Low Flow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Flow Regime
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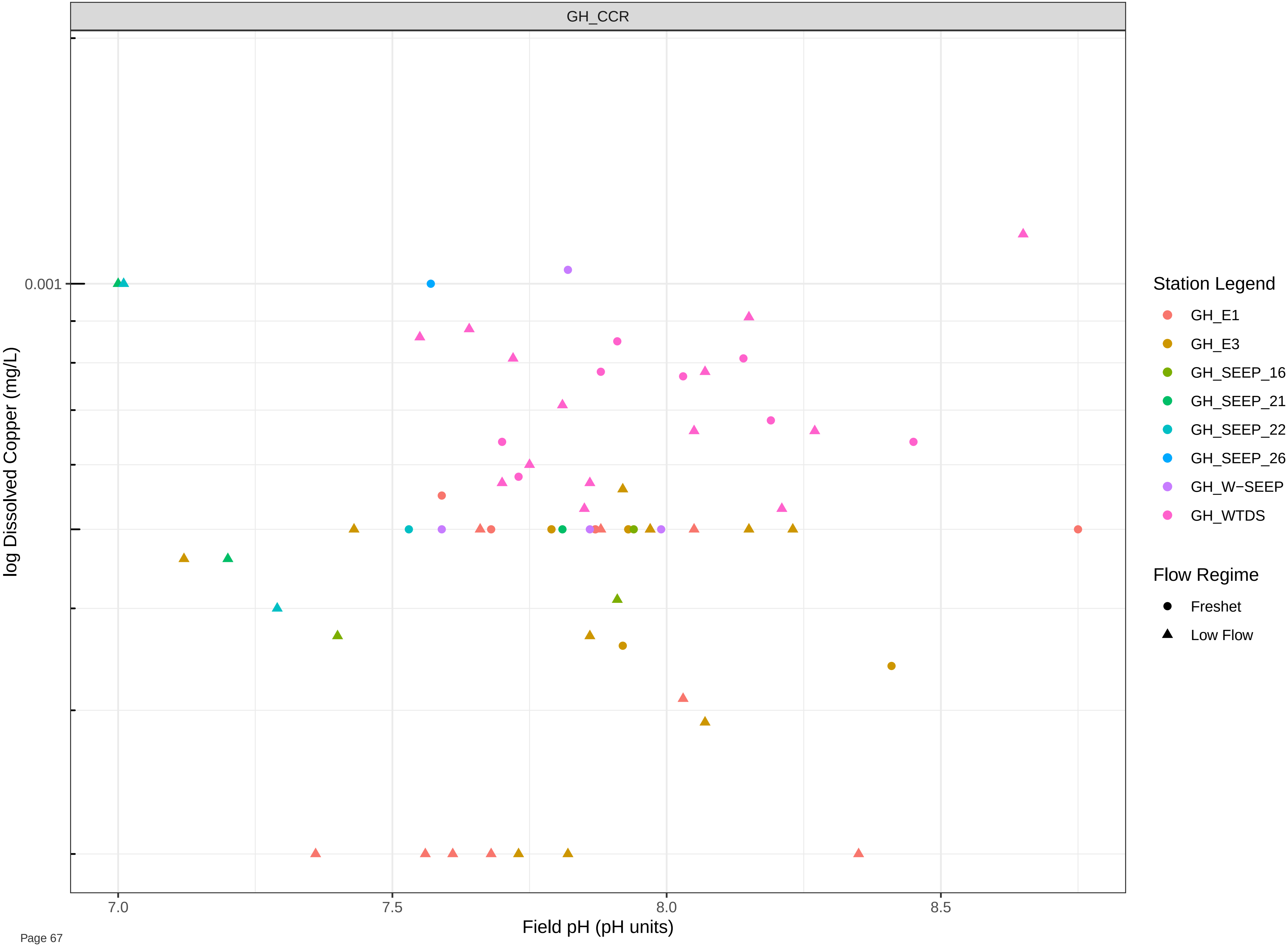
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Field pH (pH units)
Station Legend
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GH_E3
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Flow Regime
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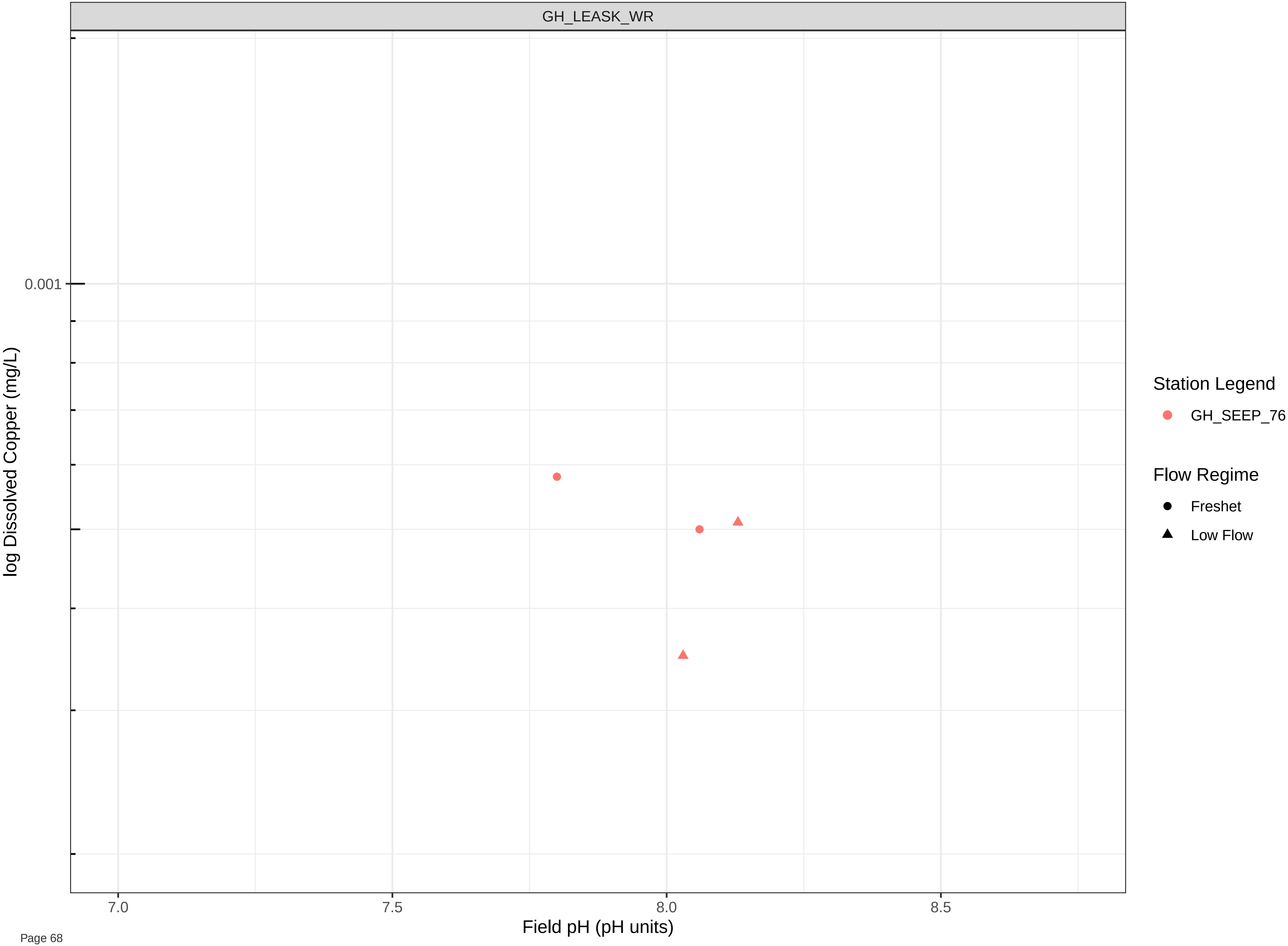
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Field pH (pH units)
Station Legend
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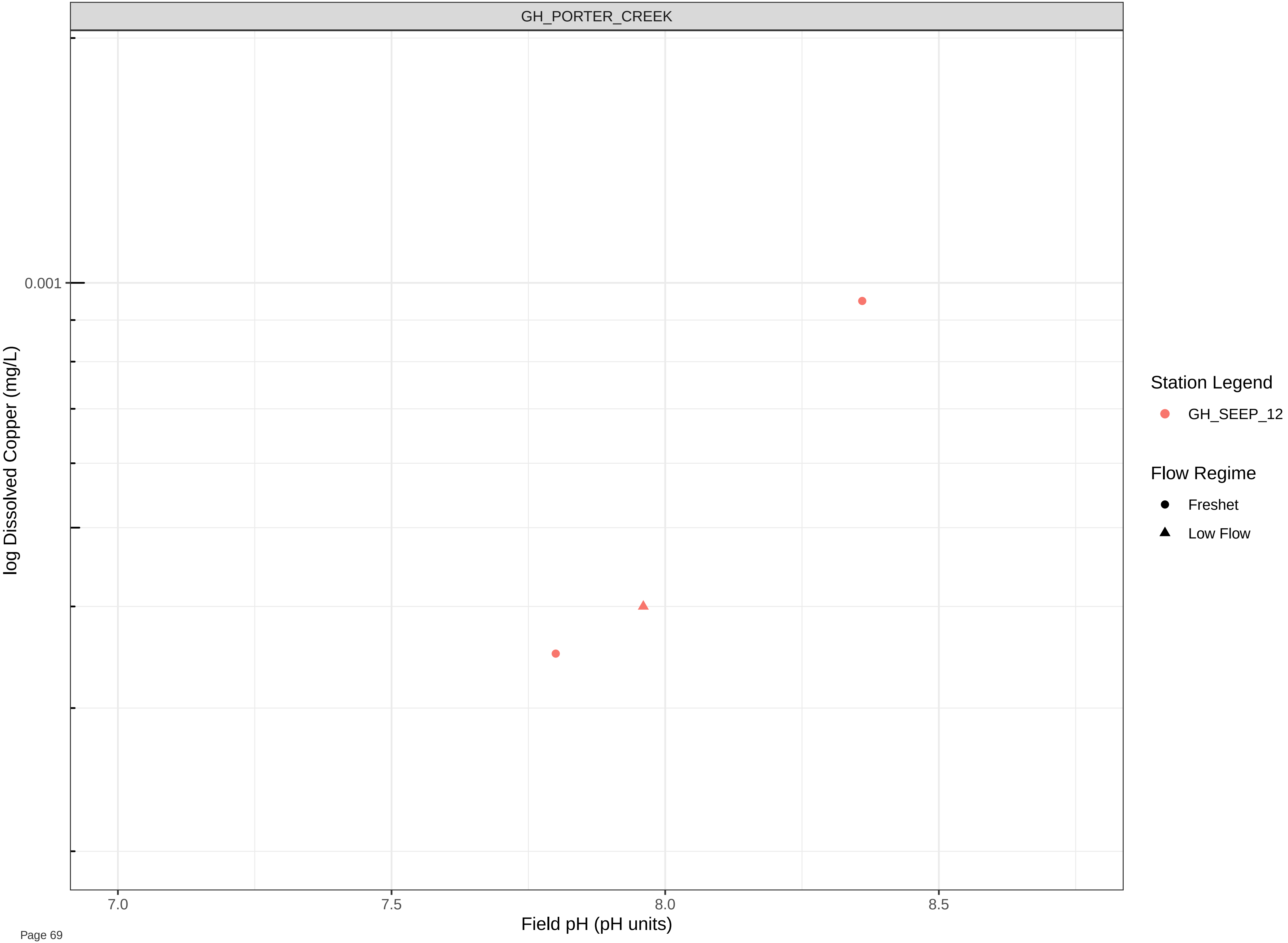
Flow Regime
● Freshet
▲ Low Flow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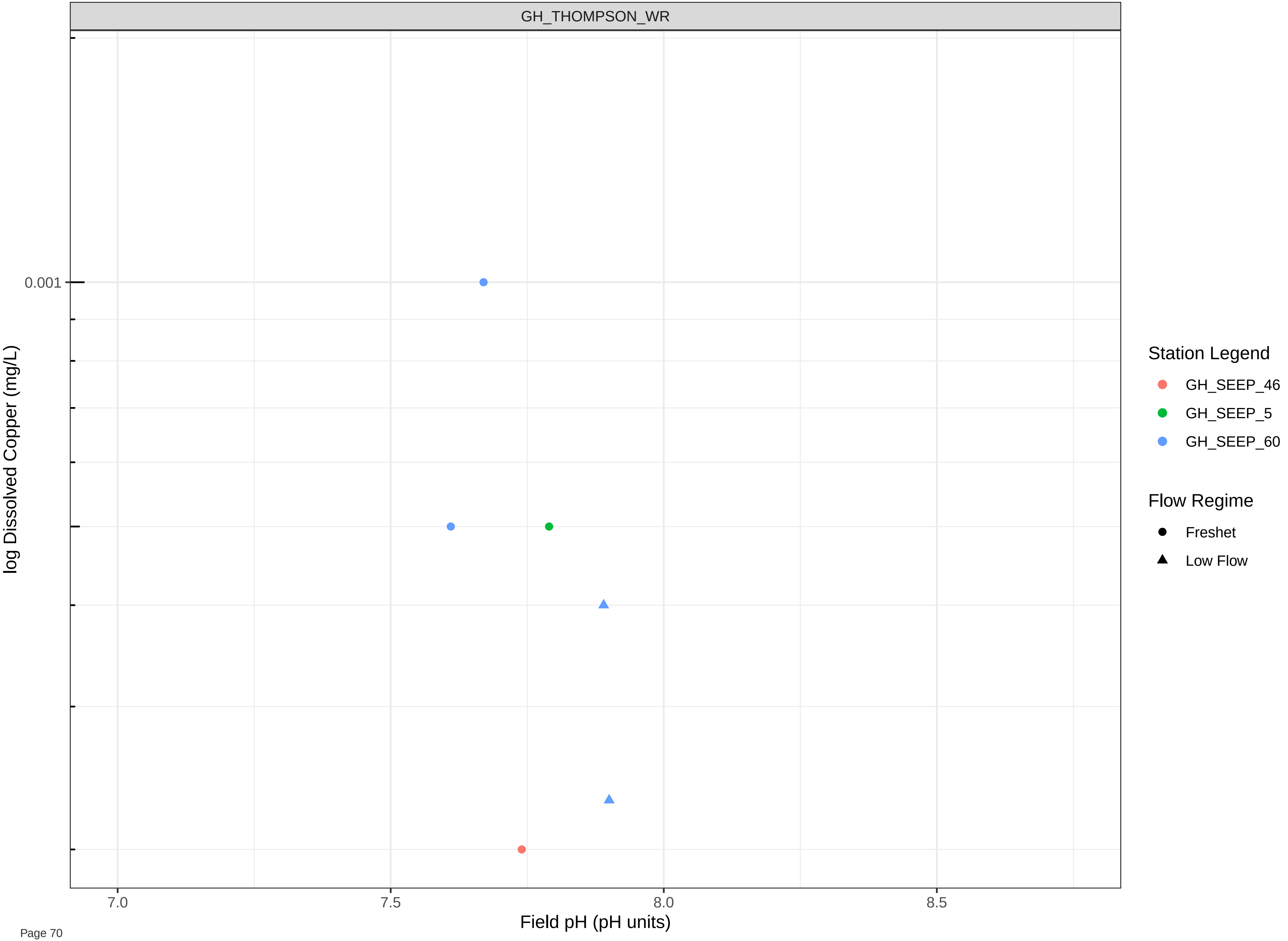
Freshet
Low Flow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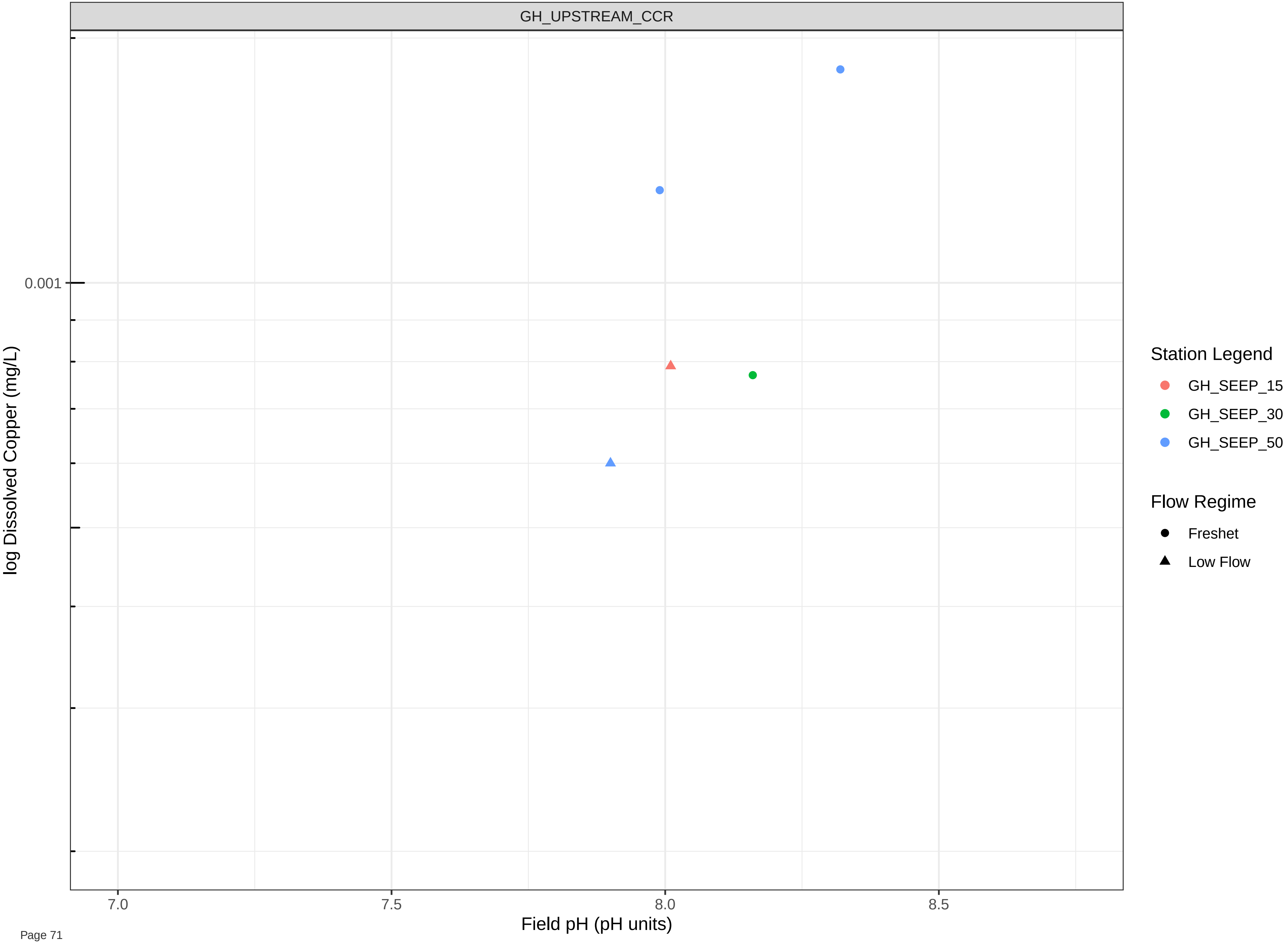
Flow Regime
Freshet
Low Flow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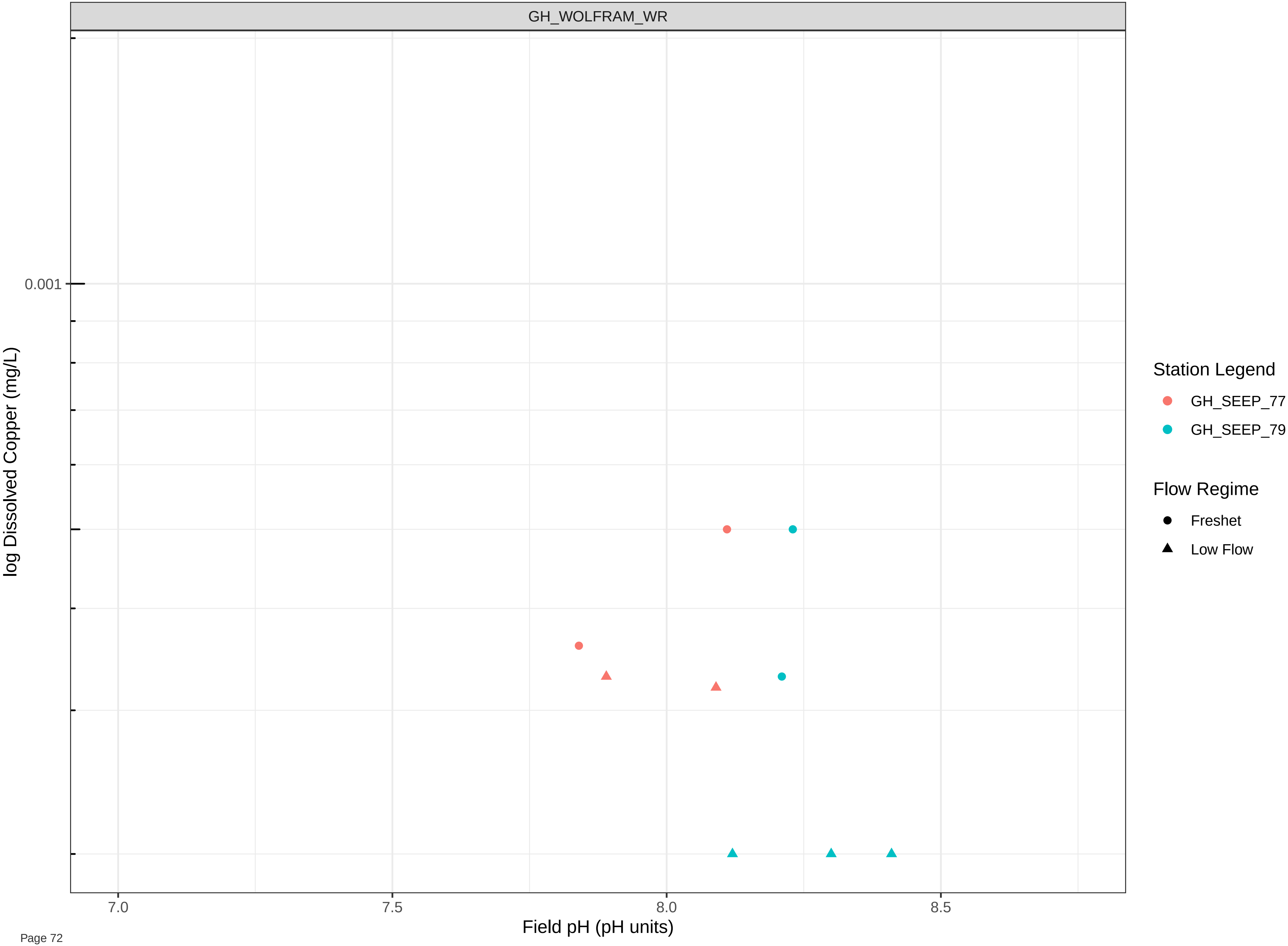
Freshet
Low Flow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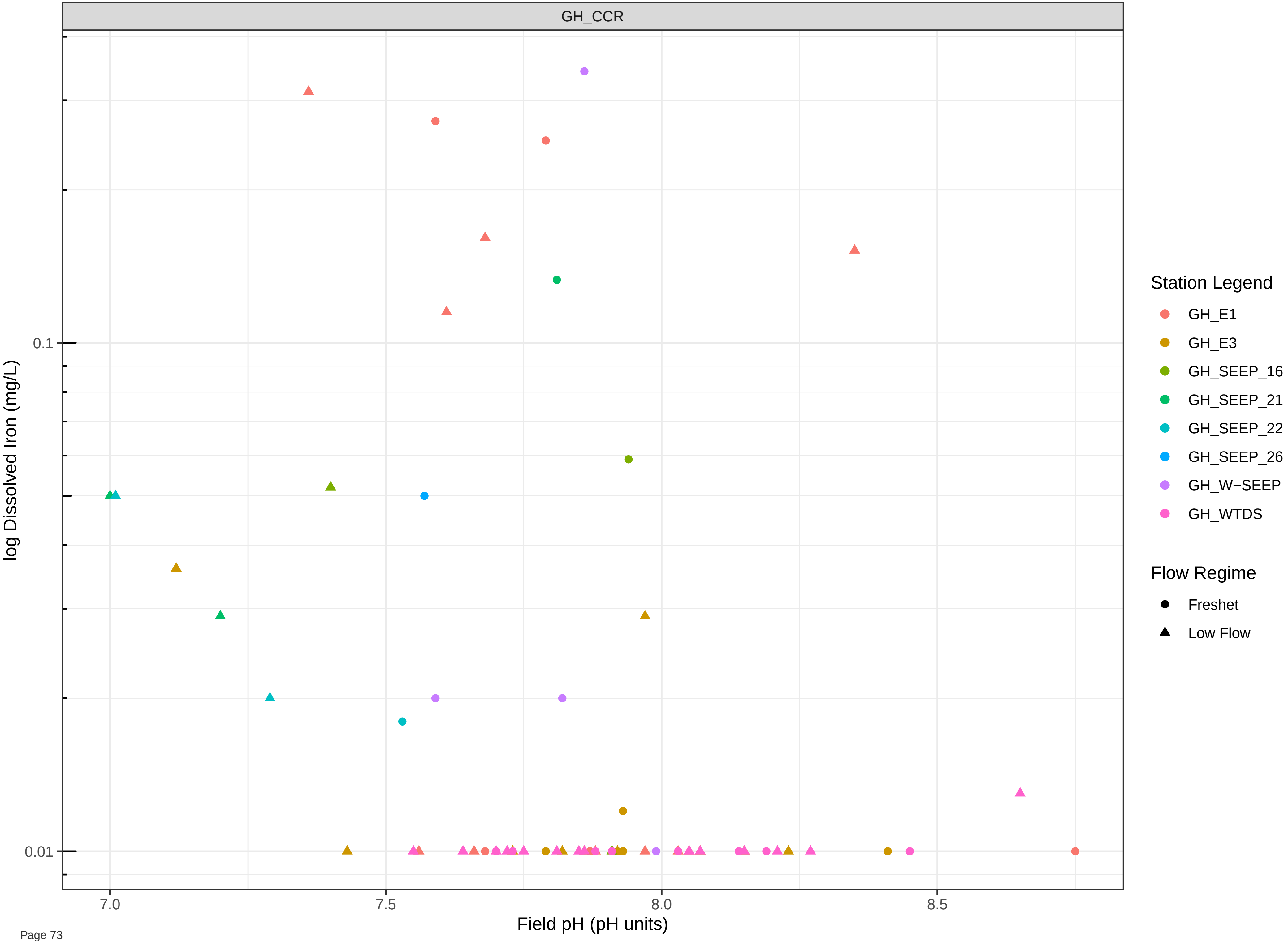
Flow Regime
Freshet
Low Flow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8.0
8.5
Field pH (pH units)
Station Legend
● GH_E1
● GH_E3
● GH_SEEP_16
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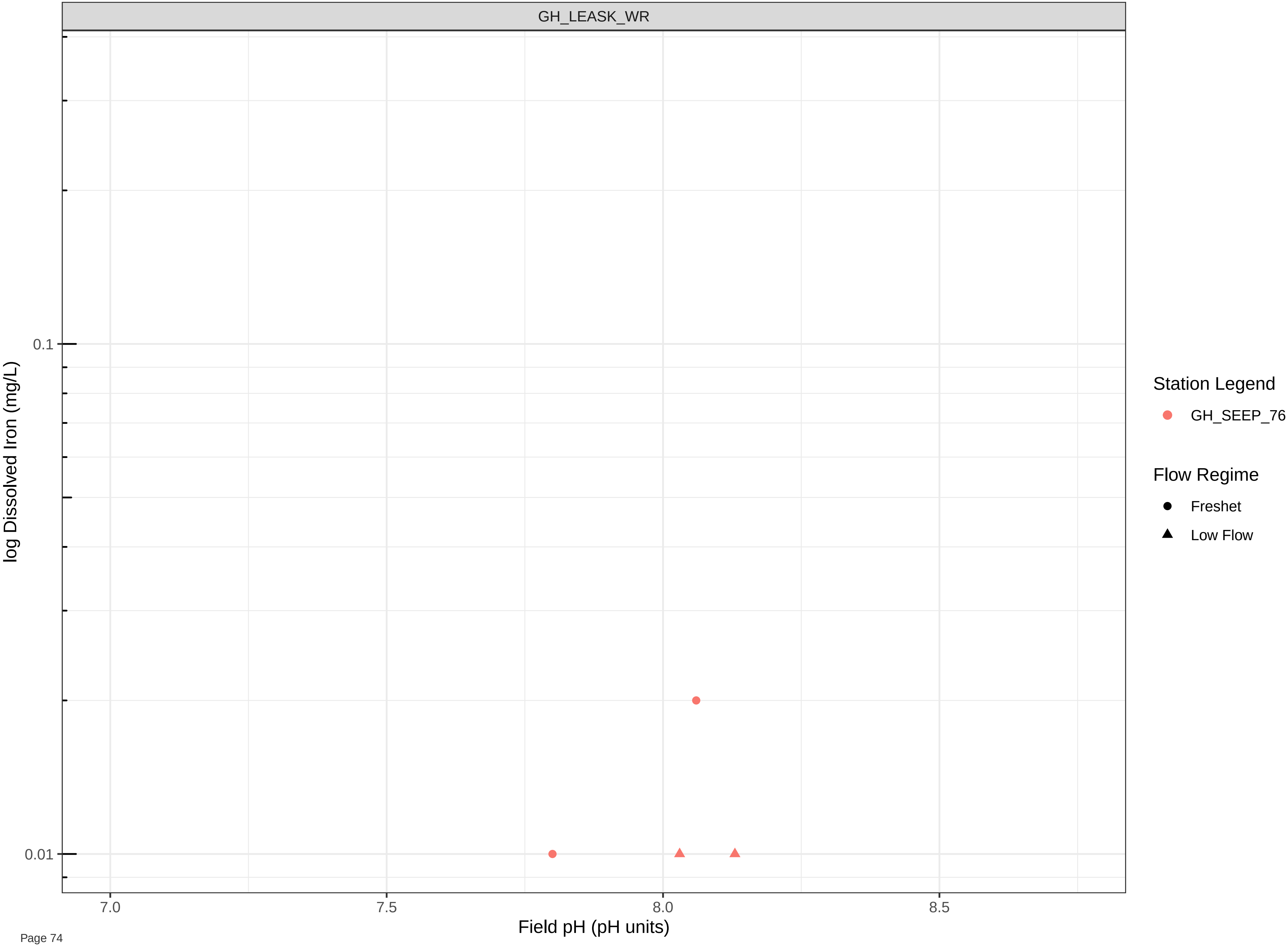
Flow Regime
● Freshet
▲ Low Flow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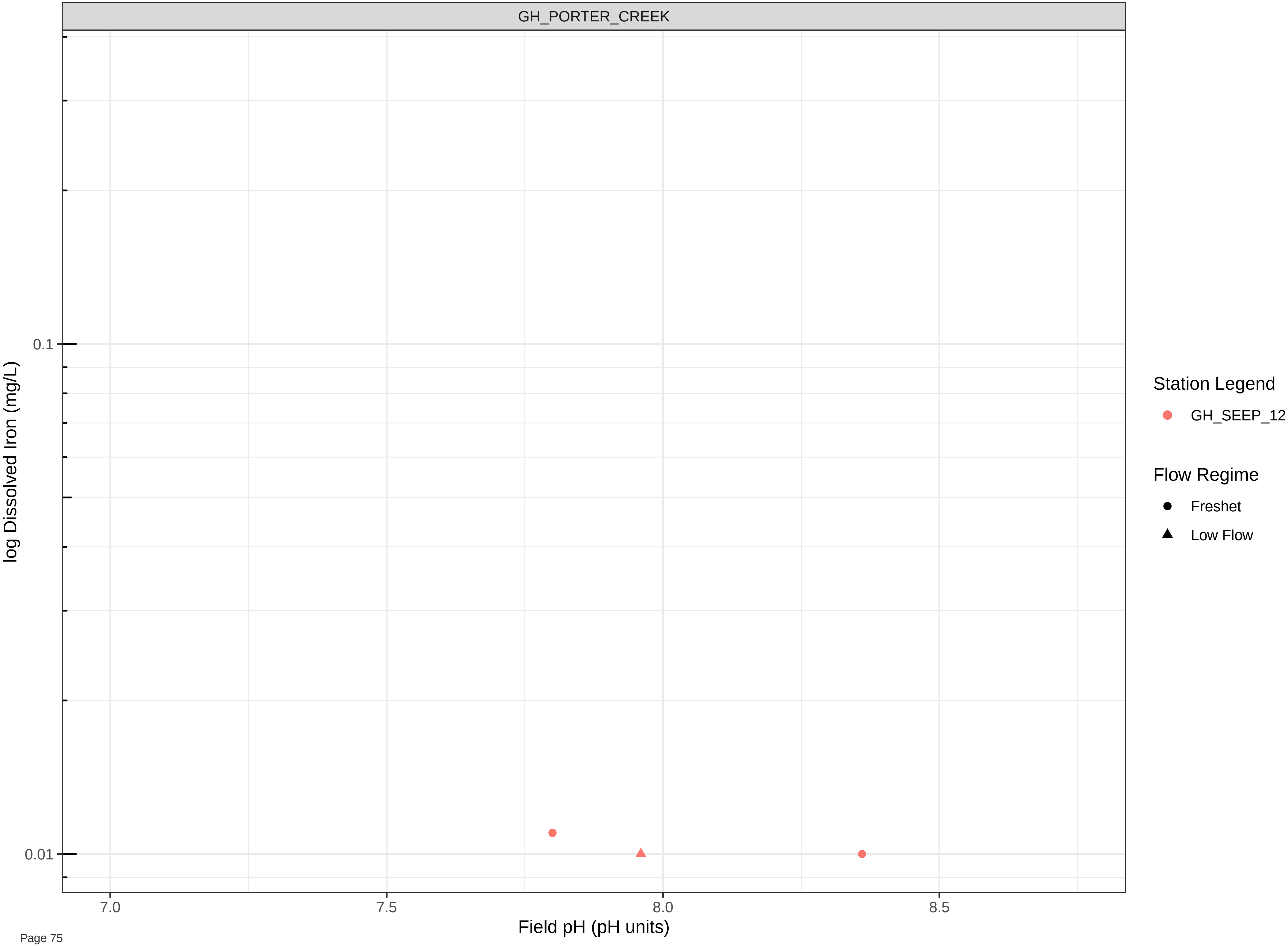
Flow Regime
Freshet
Low Flow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Field pH (pH units)
Station Legend
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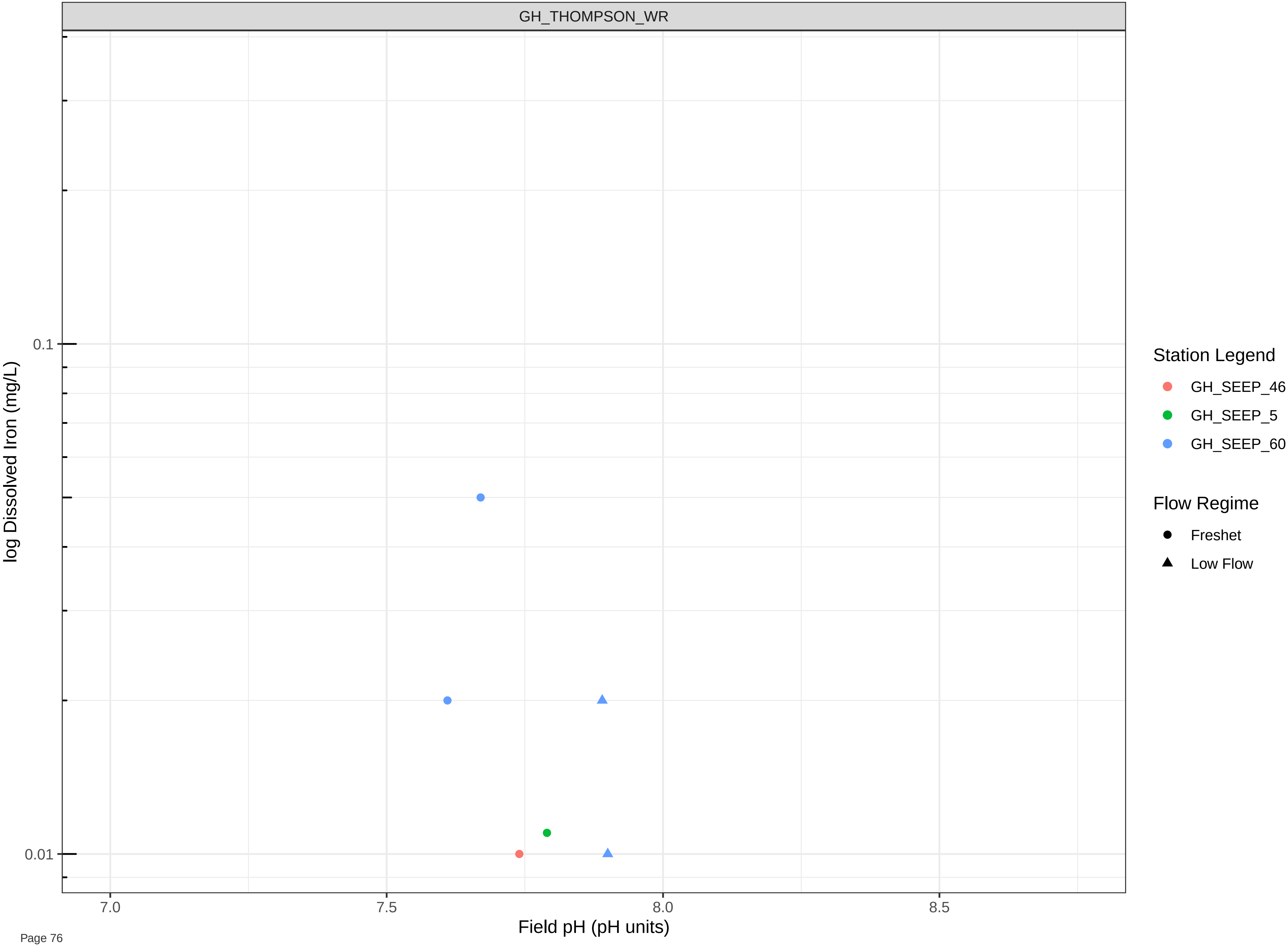
Flow Regime
Freshet
Low Flow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Station Legend
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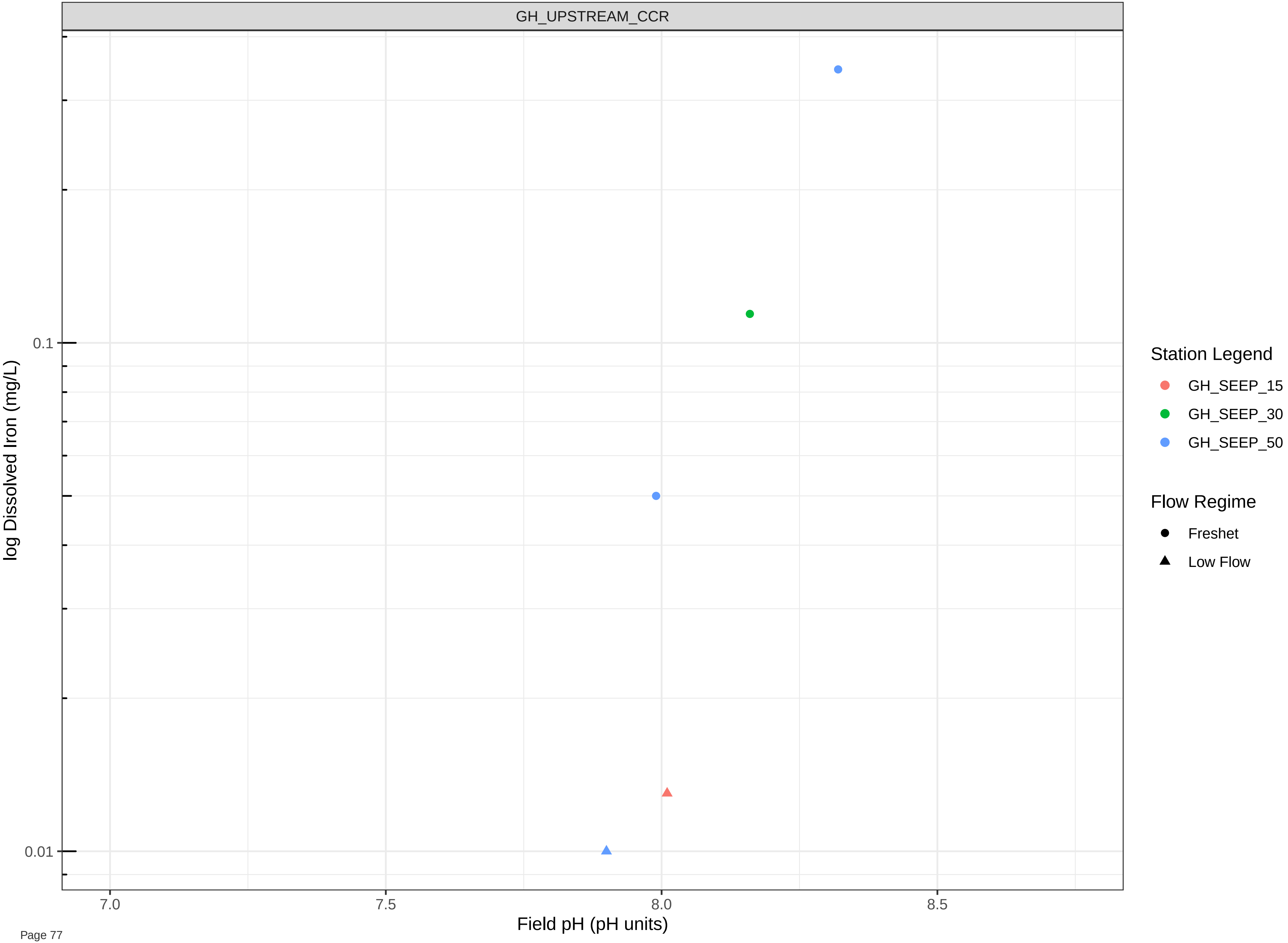
Freshet
Low Flow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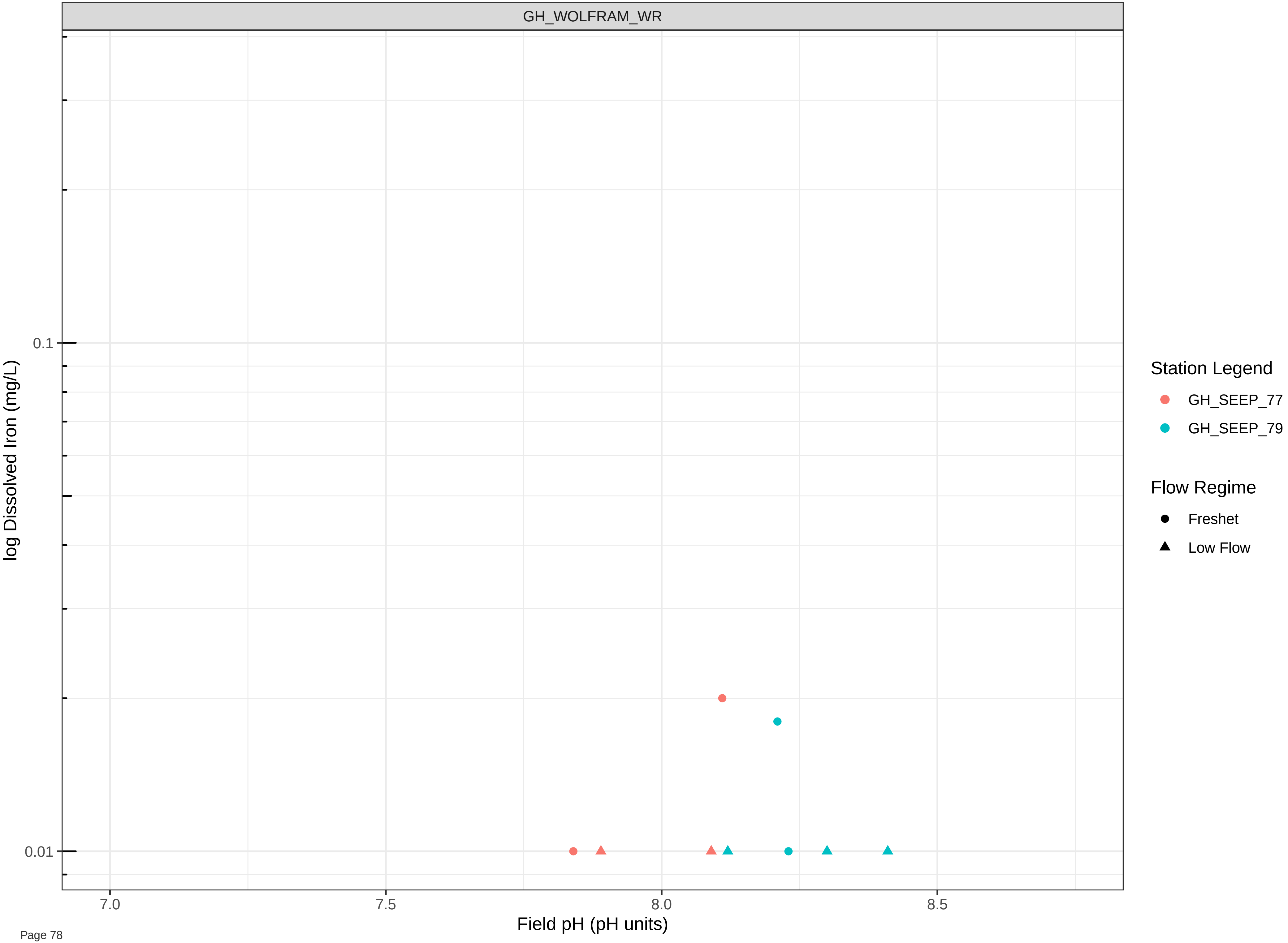
Freshet
Low Flow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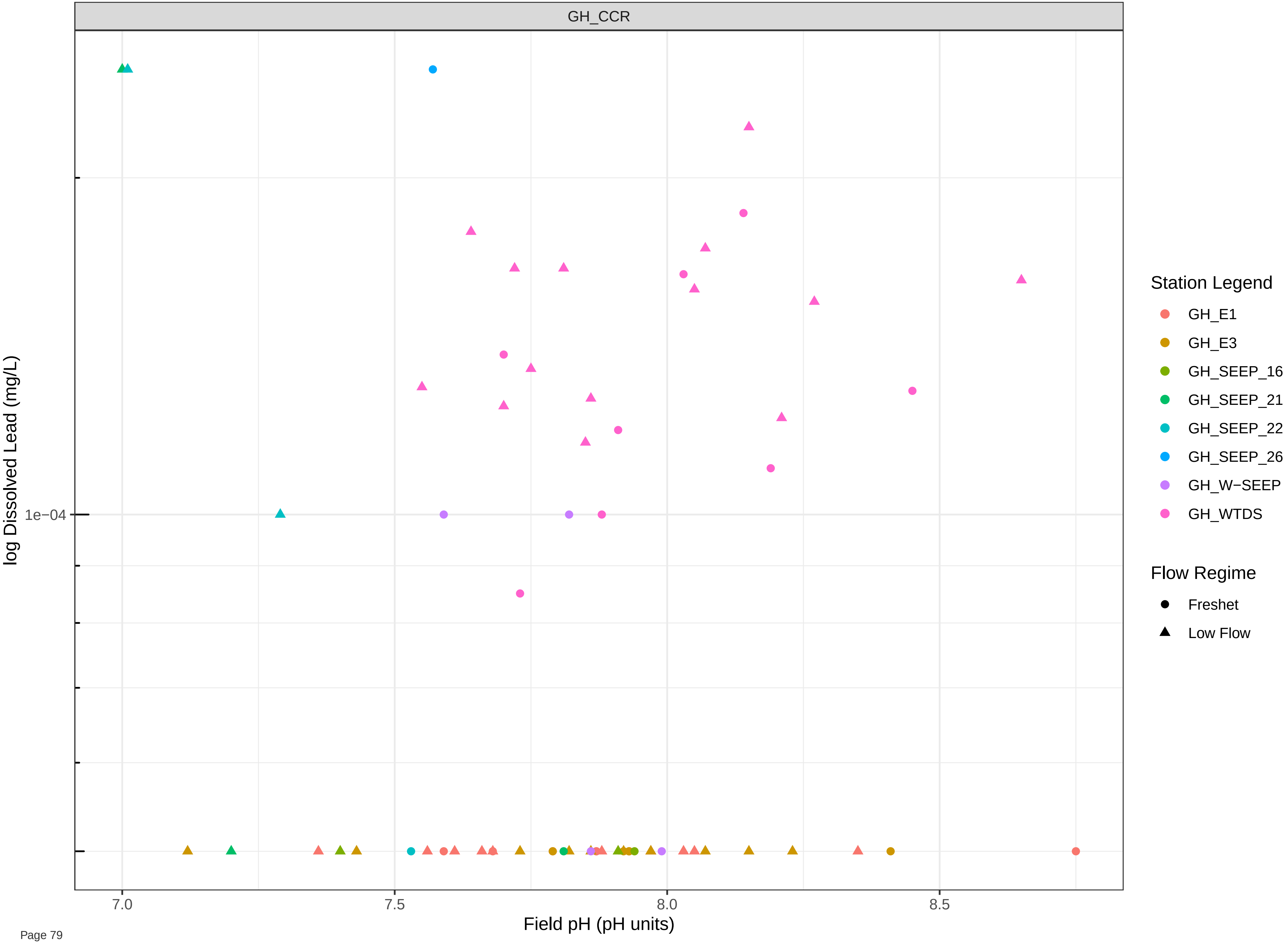
Field pH (pH units)
Station Legend
● GH_SEEP_77
● GH_SEEP_79
Flow Regime
● Freshet
▲ Low Flow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Field pH (pH units)
Station Legend
GH_E1
GH_E3
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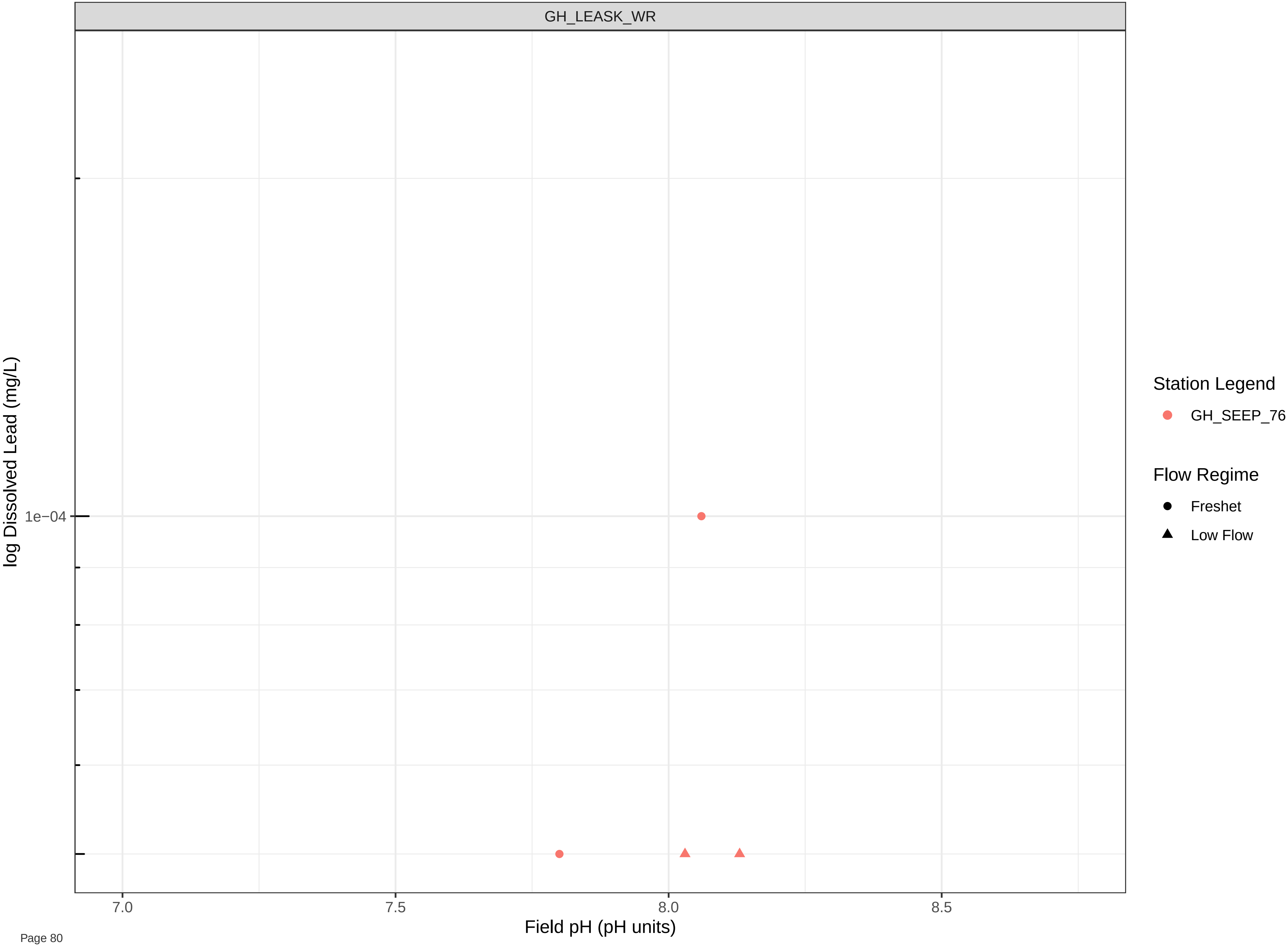
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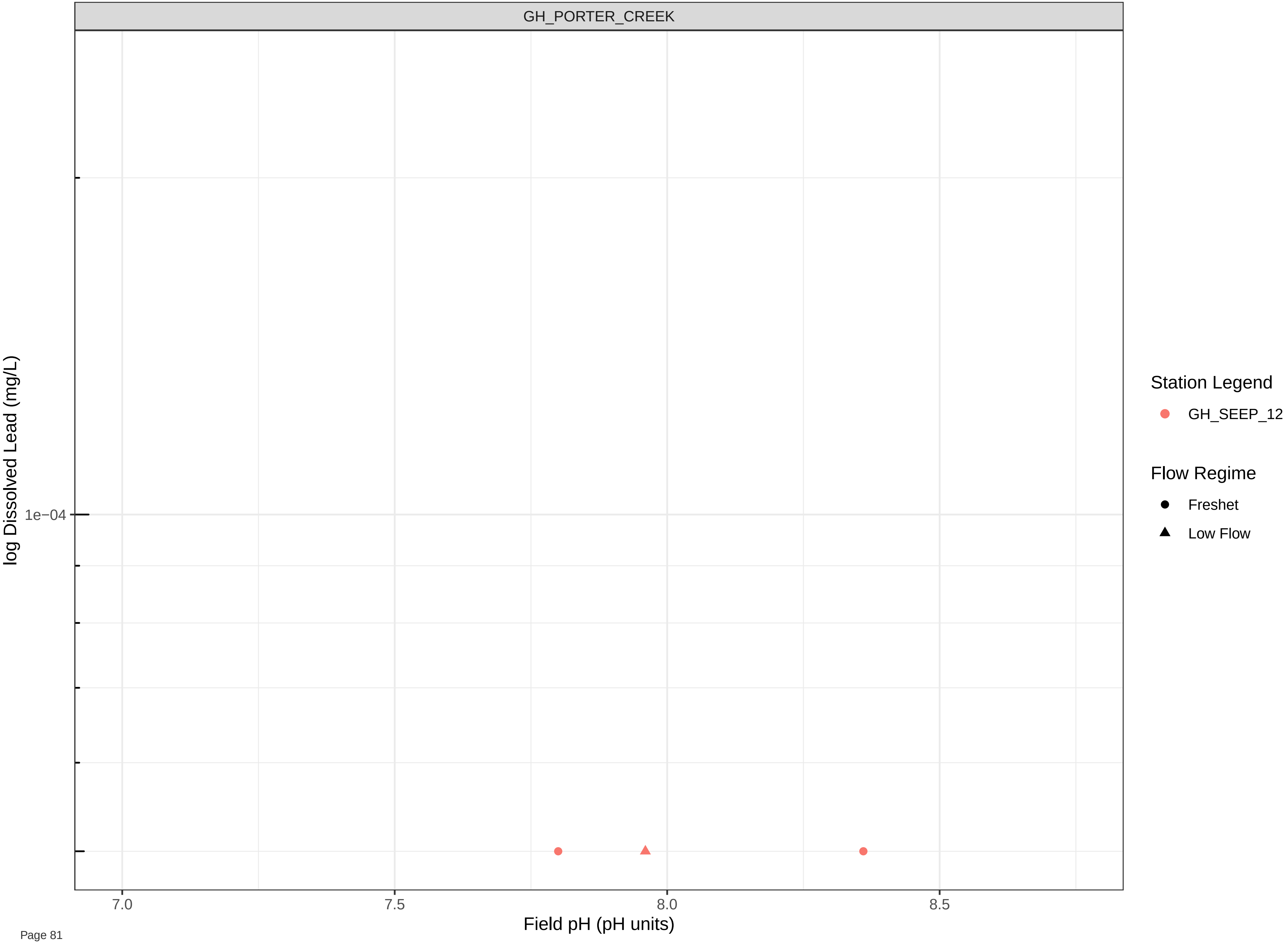
Flow Regime
● Freshet
▲ Low Flow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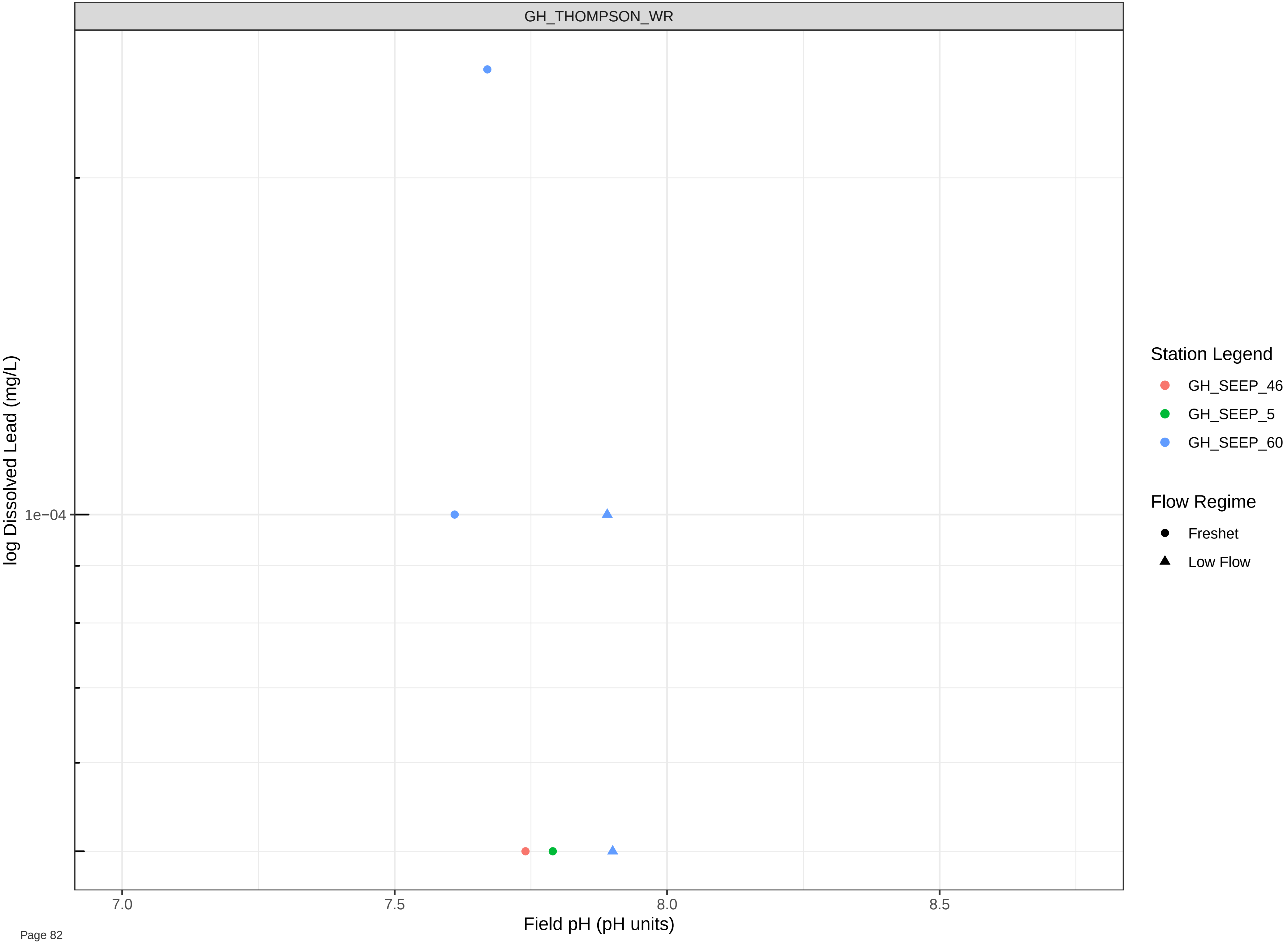
Flow Regime
● Freshet
▲ Low Flow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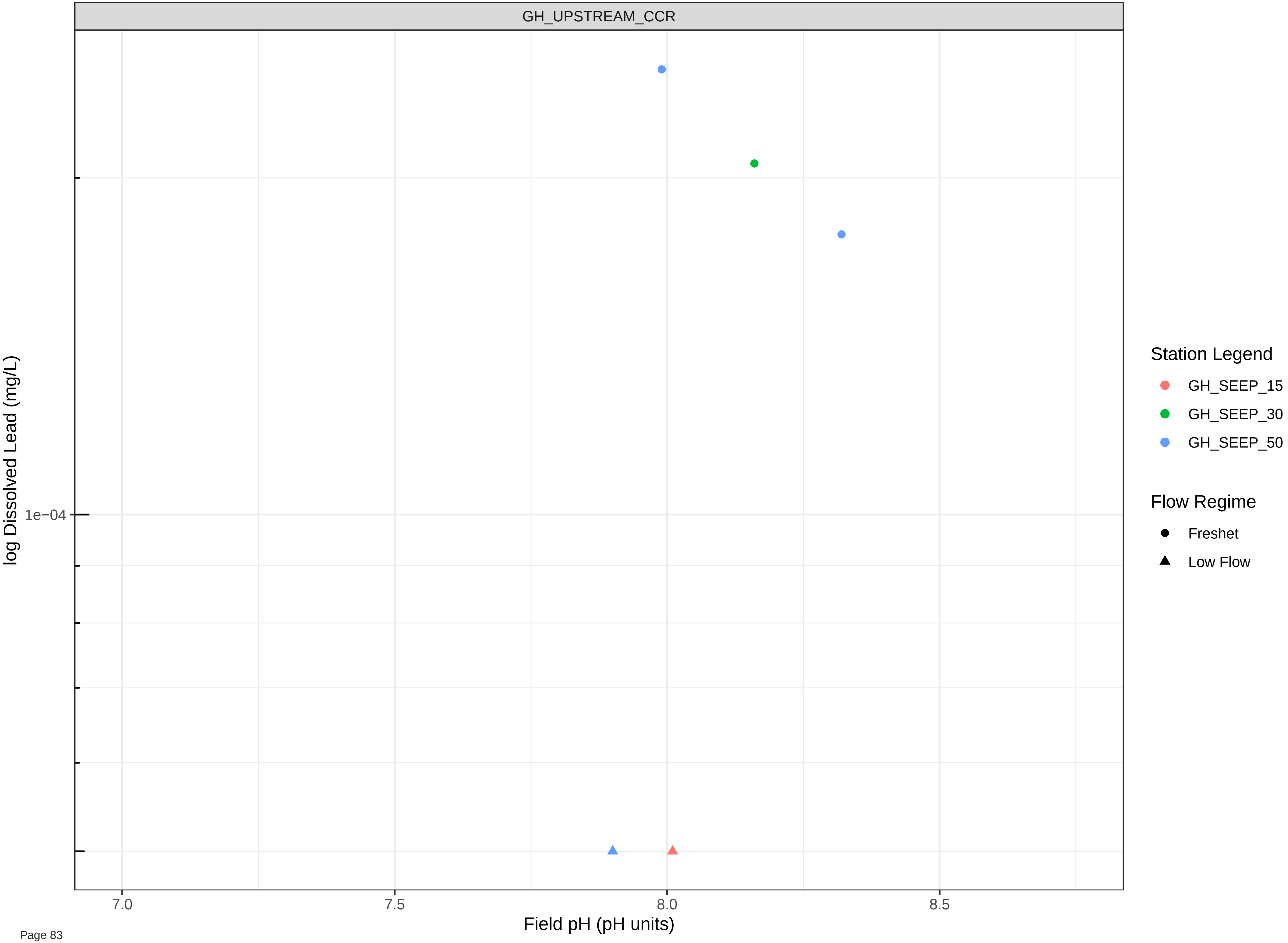
Low Flow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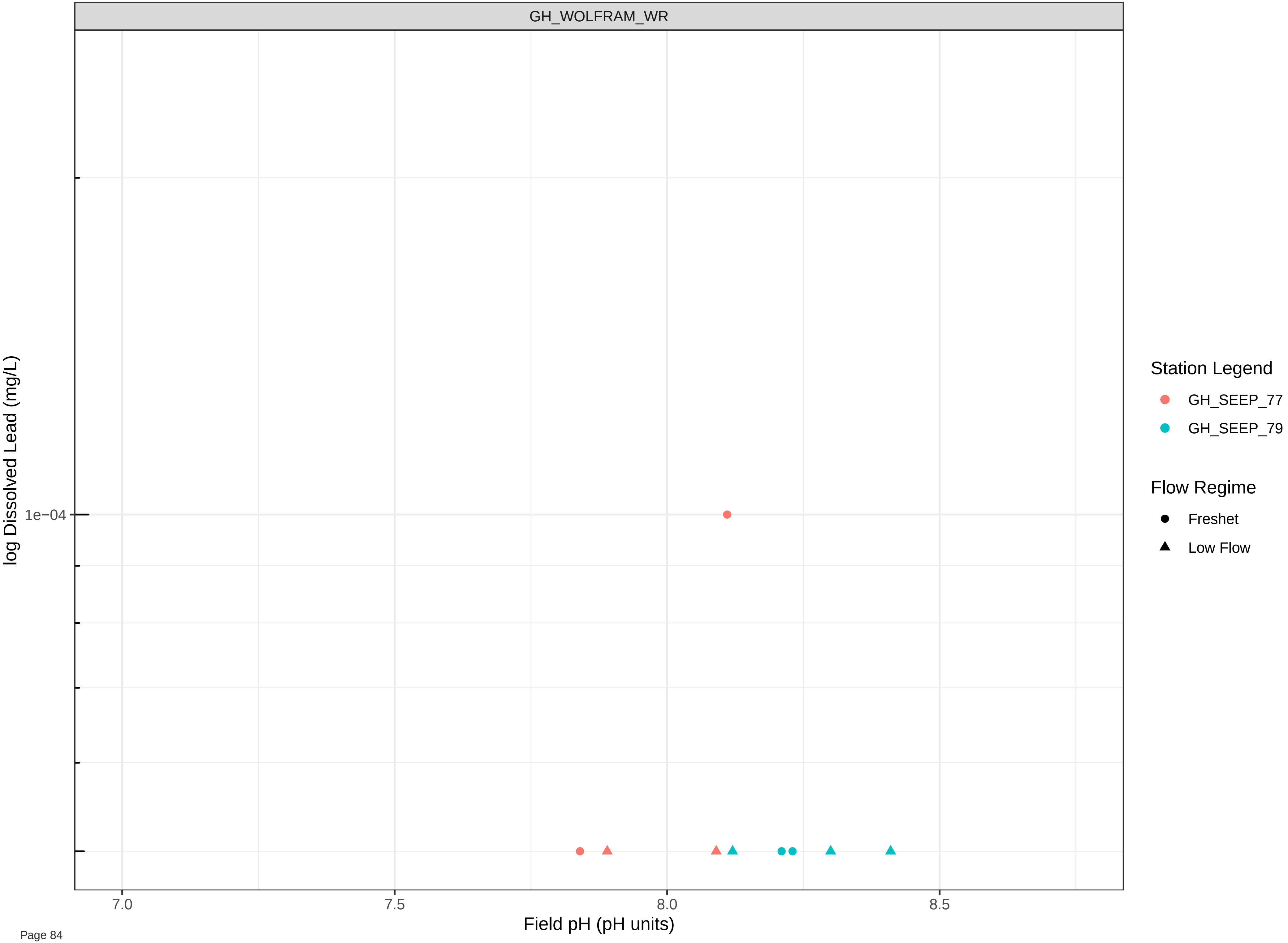
Freshet
Low Flow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Freshet
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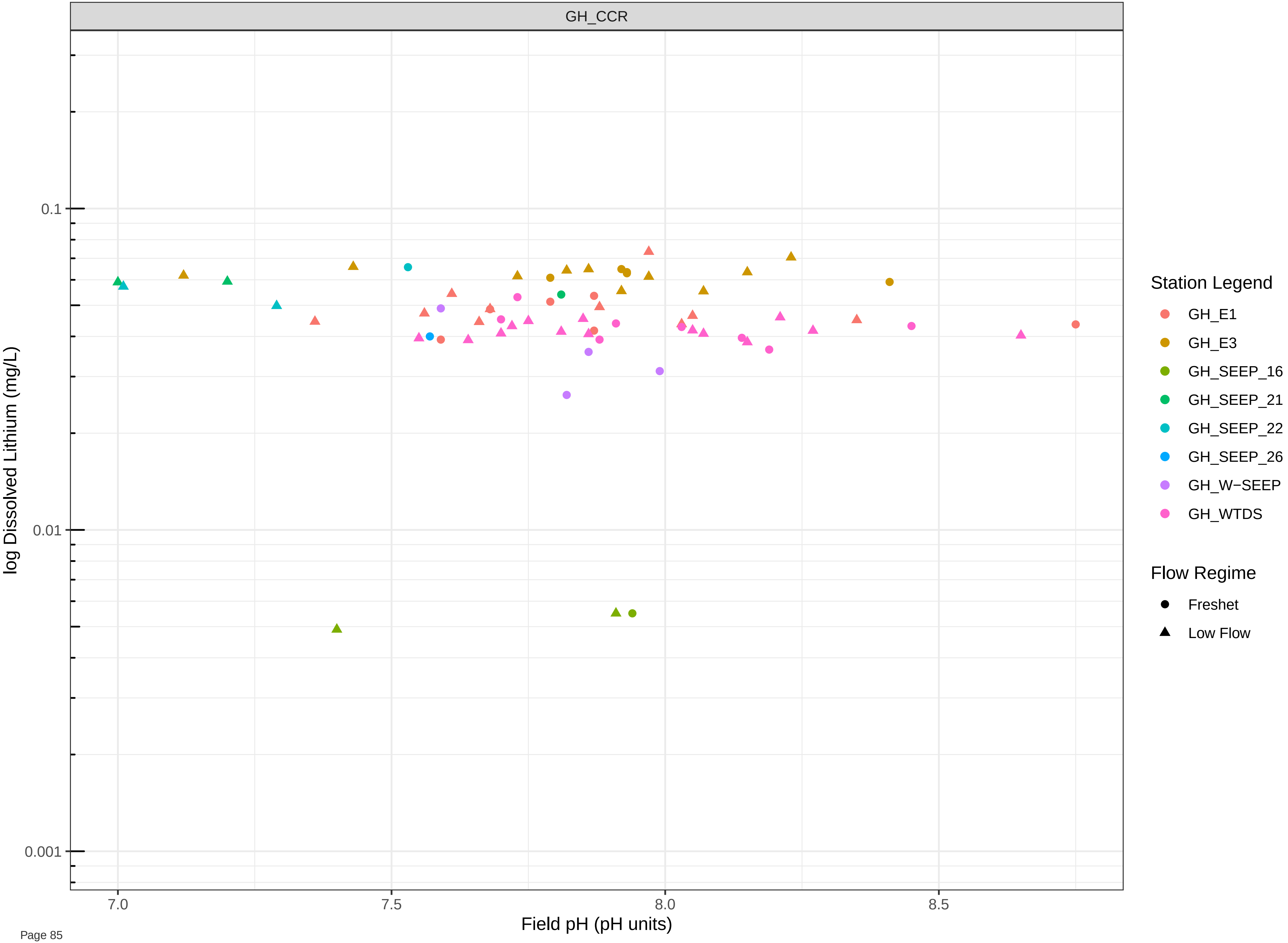
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8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
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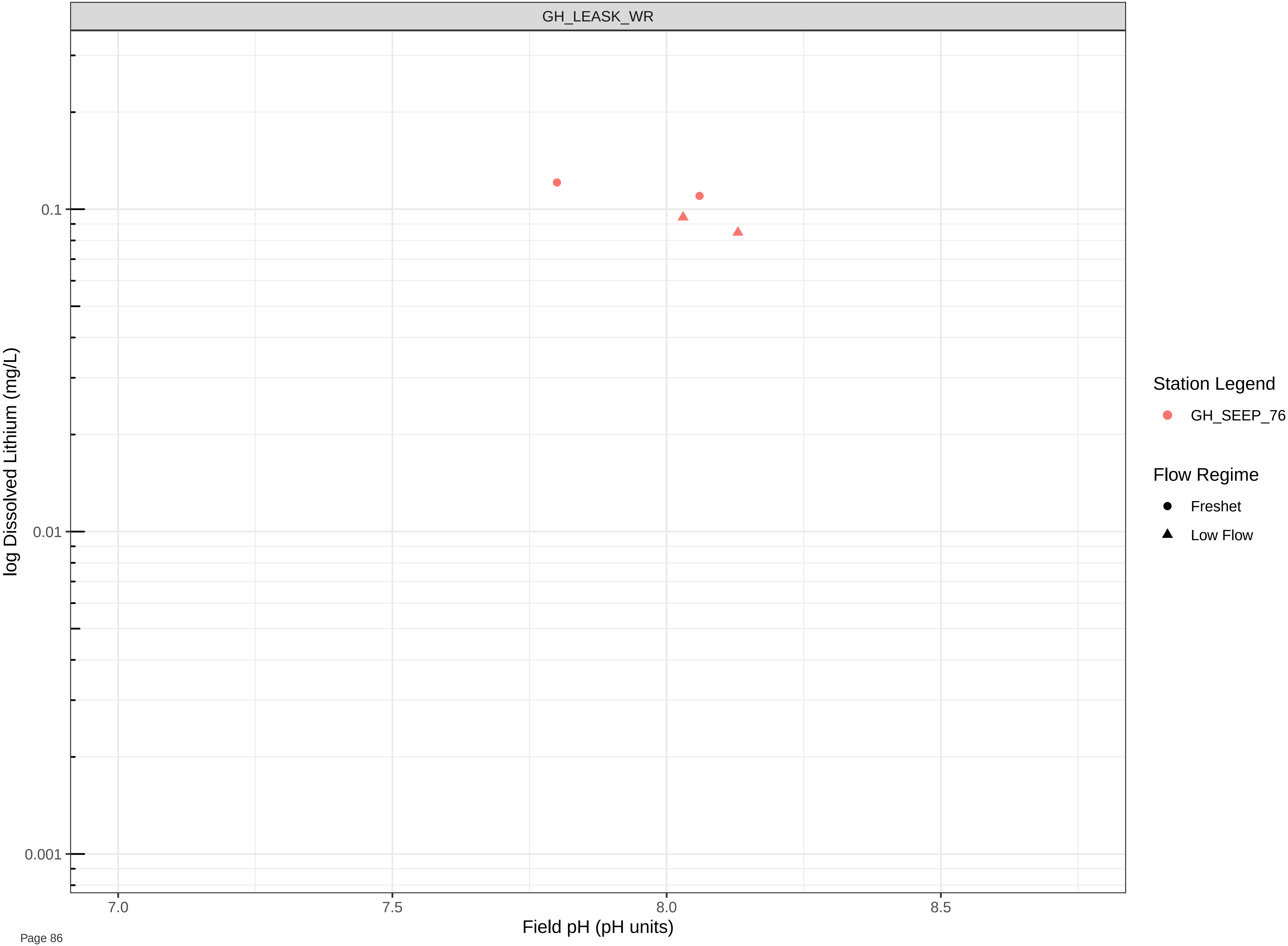
Low Flow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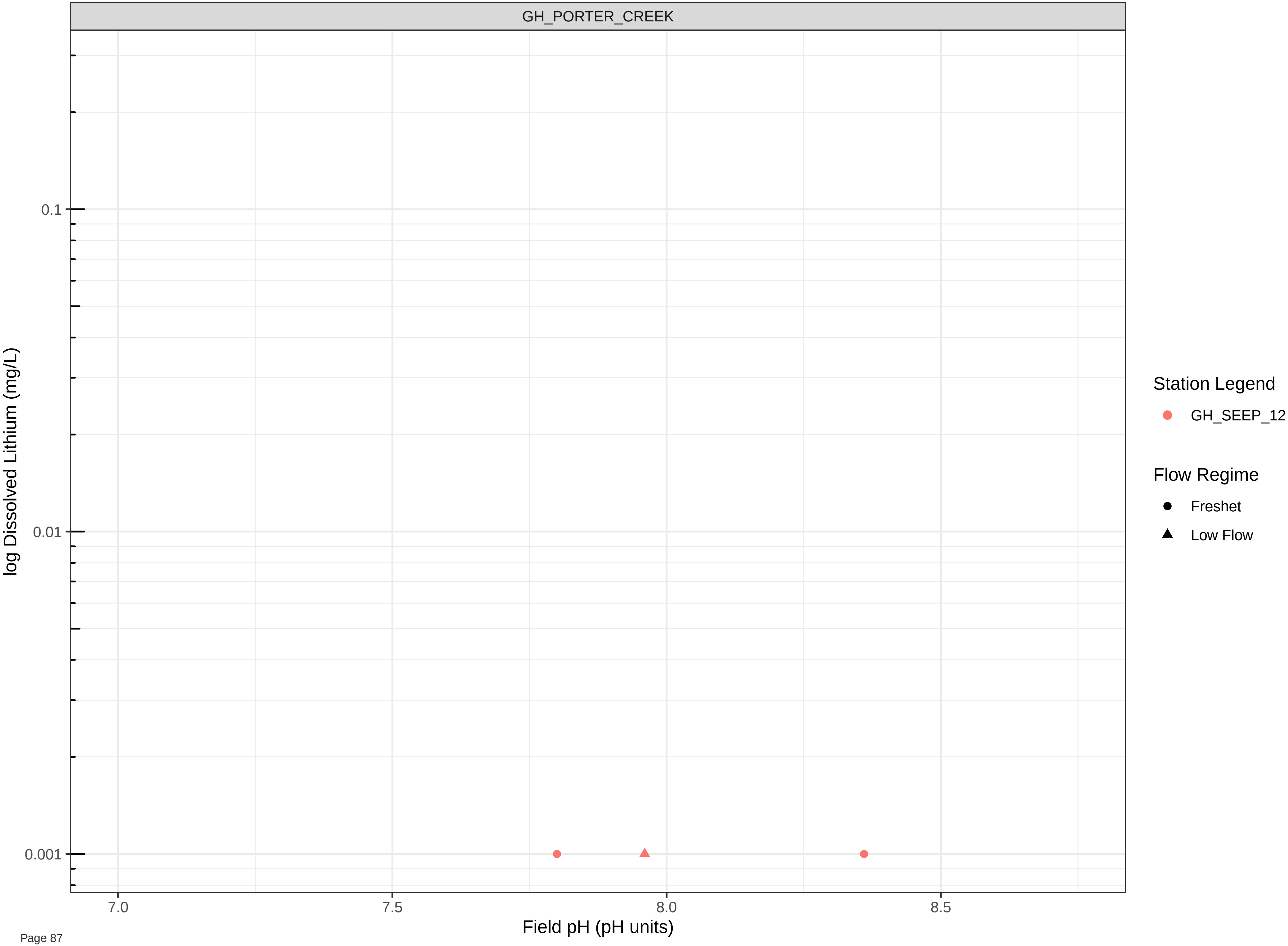
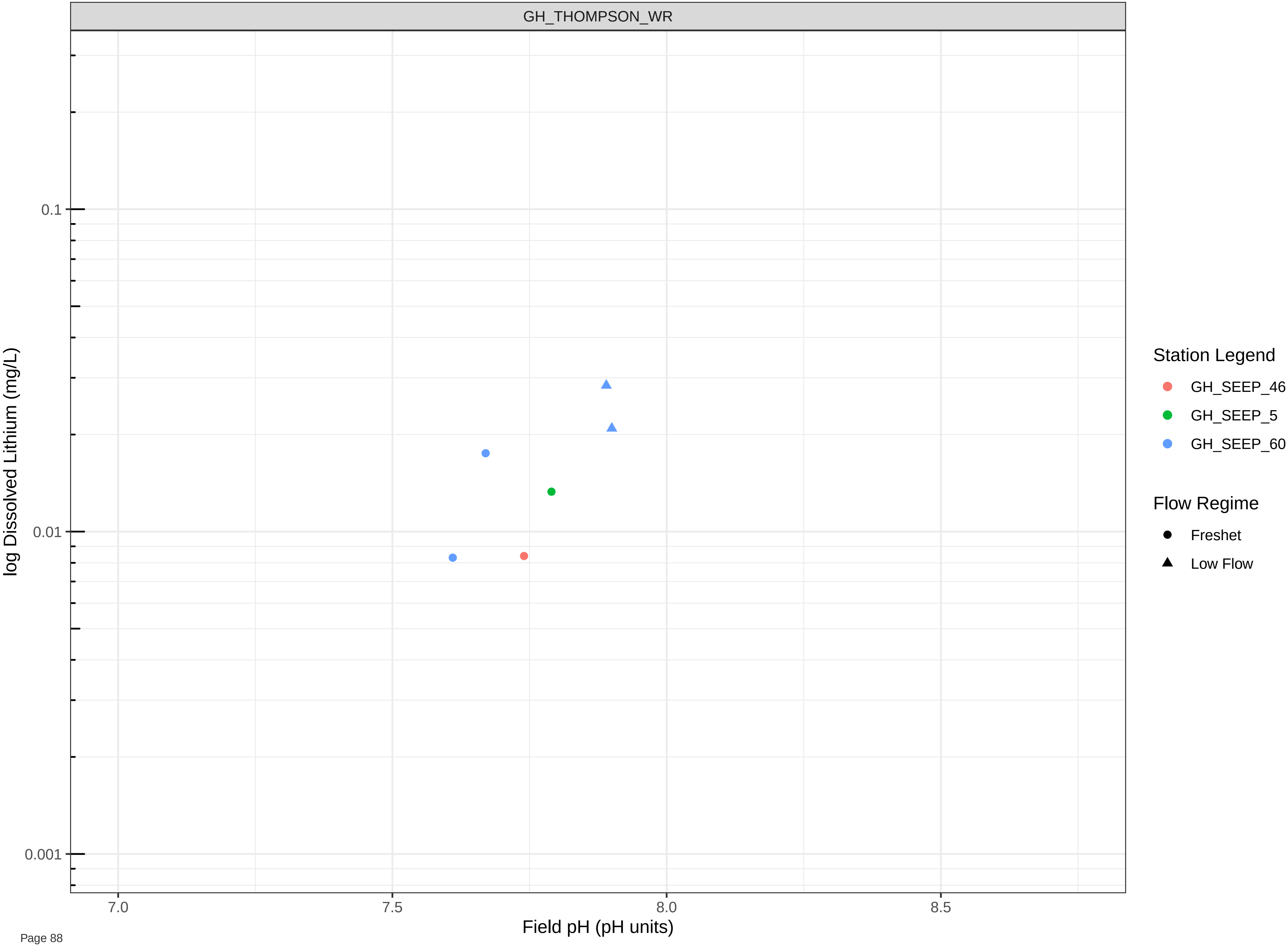
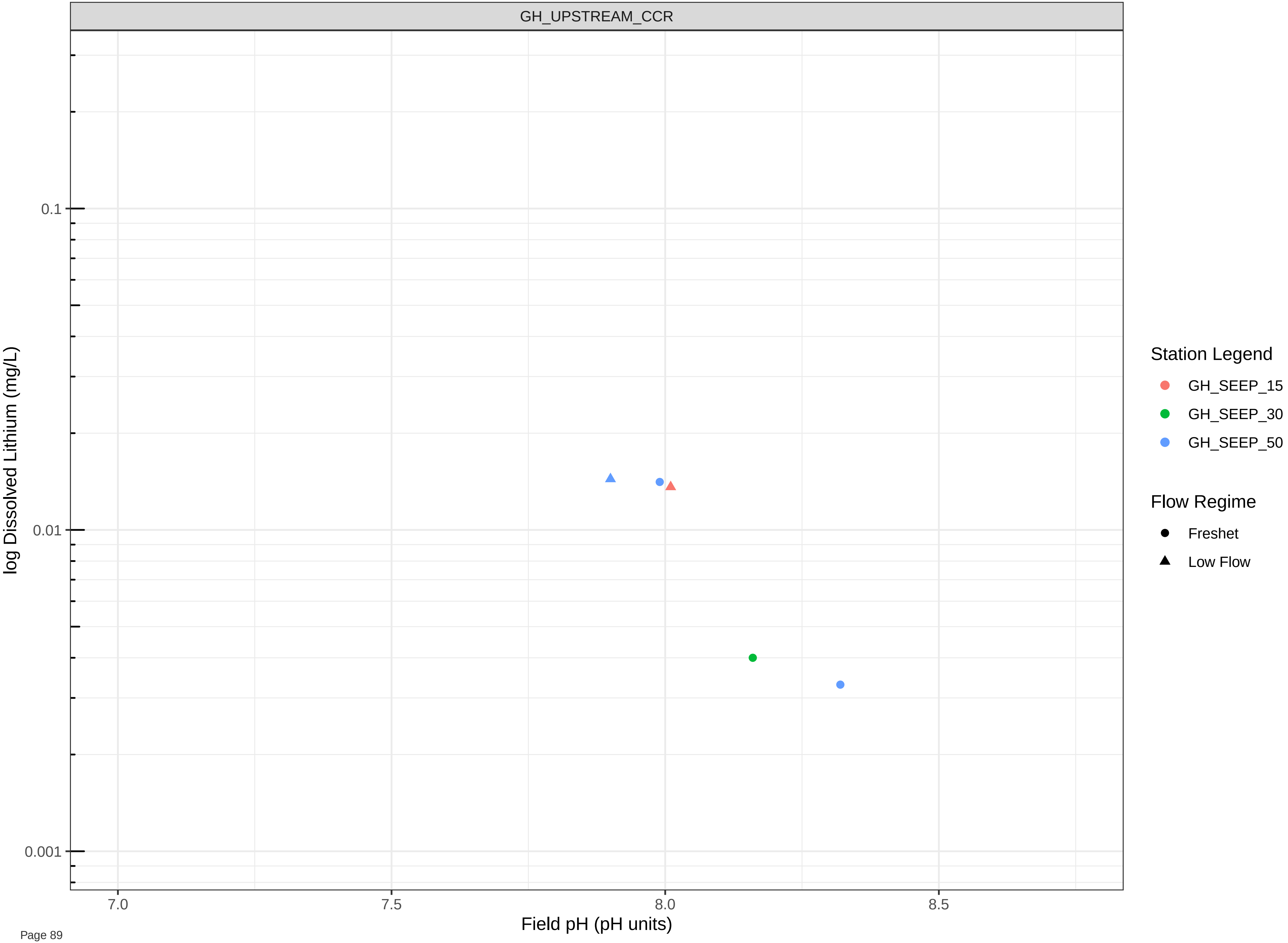
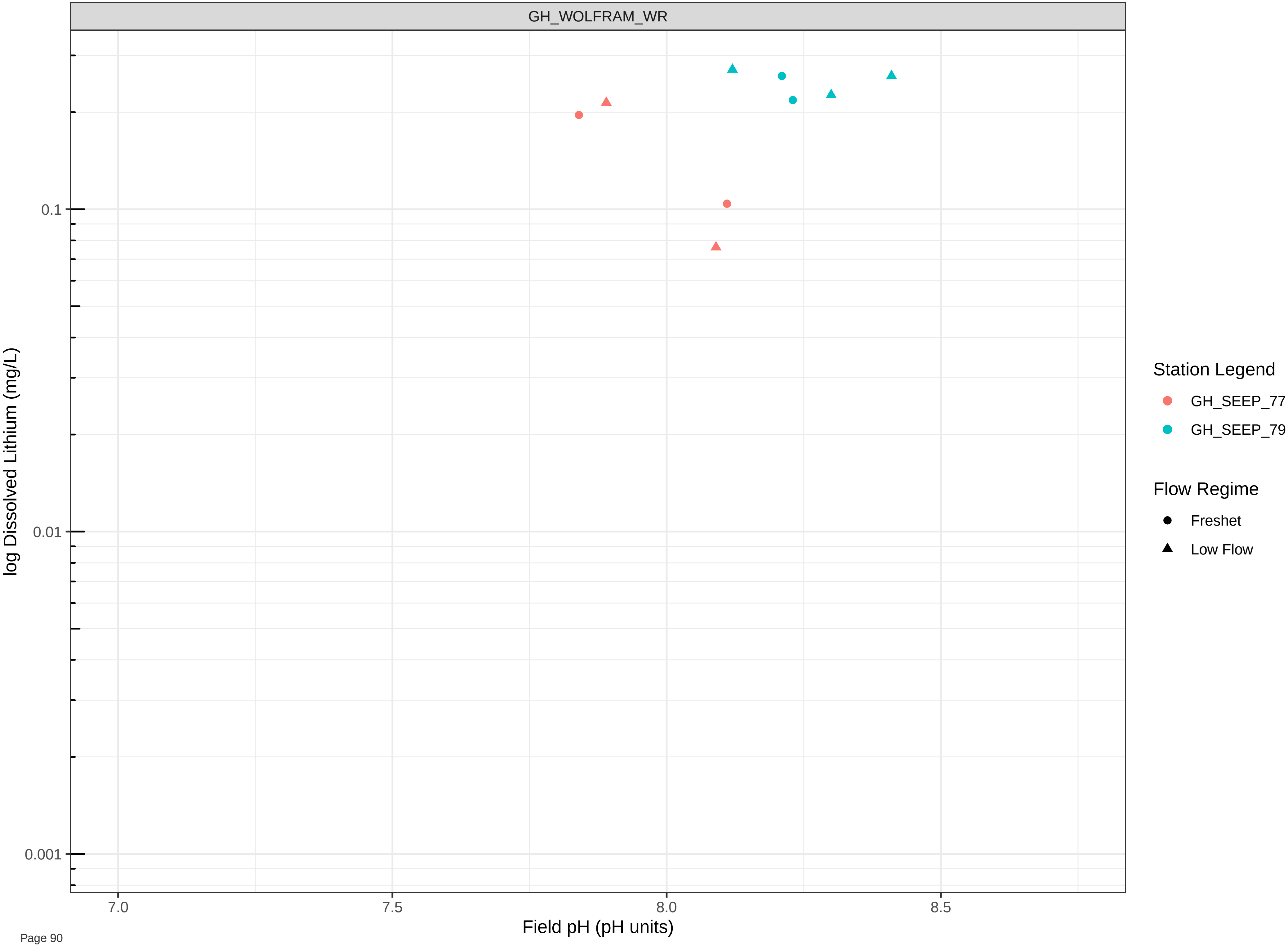
● Freshet
▲ Low Flow


GH_PORTER_CREEK
log Dissolved Lithium (mg/L)
0.1
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow


GH_THOMPSON_WR
log Dissolved Lithium (mg/L)
0.1
0.01
0.001
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow


GH_UPSTREAM_CCR
log Dissolved Lithium (mg/L)
0.1
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow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log Dissolved Lithium (mg/L)
0.1
0.01
0.001
Field pH (pH units)
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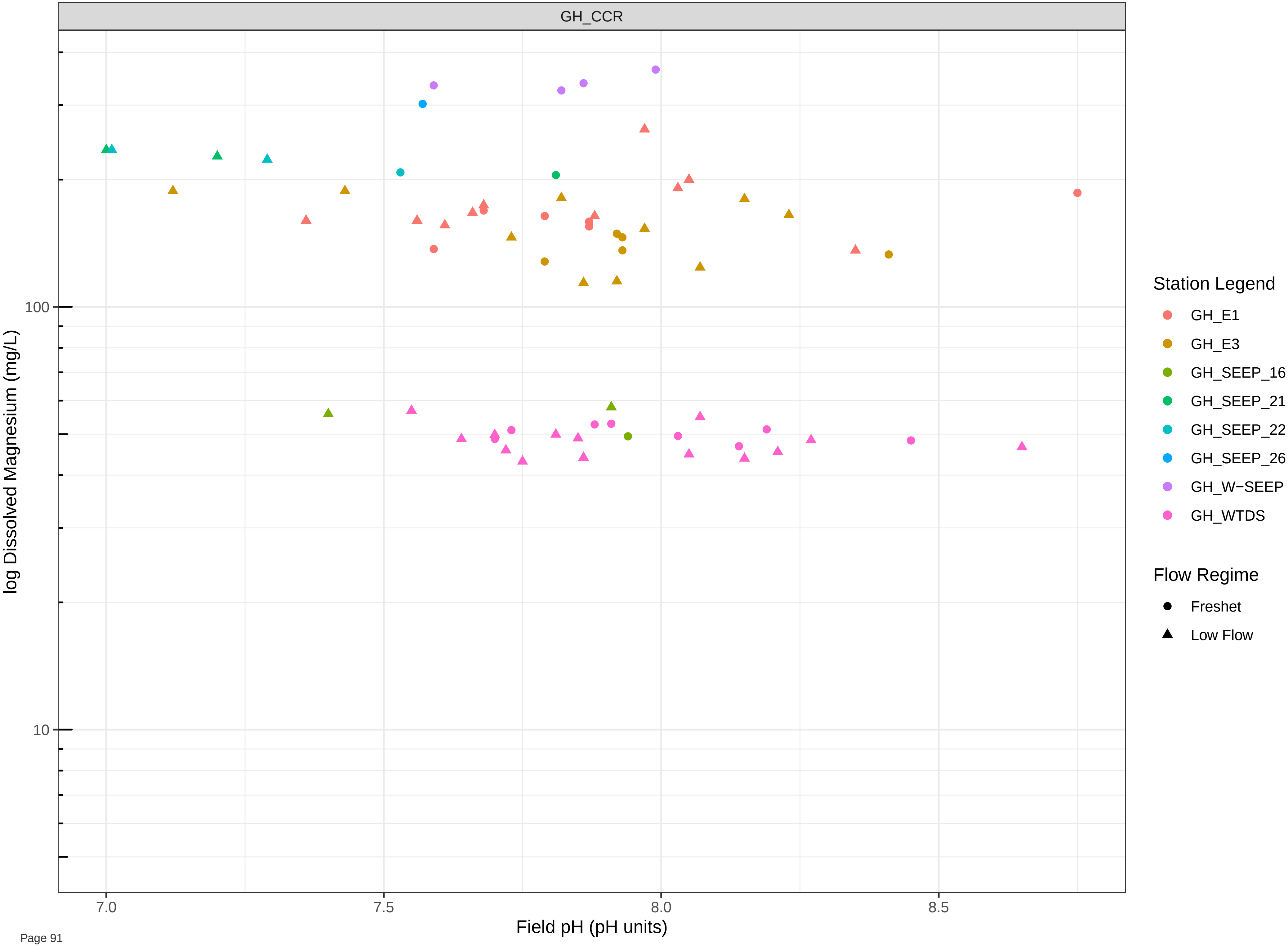
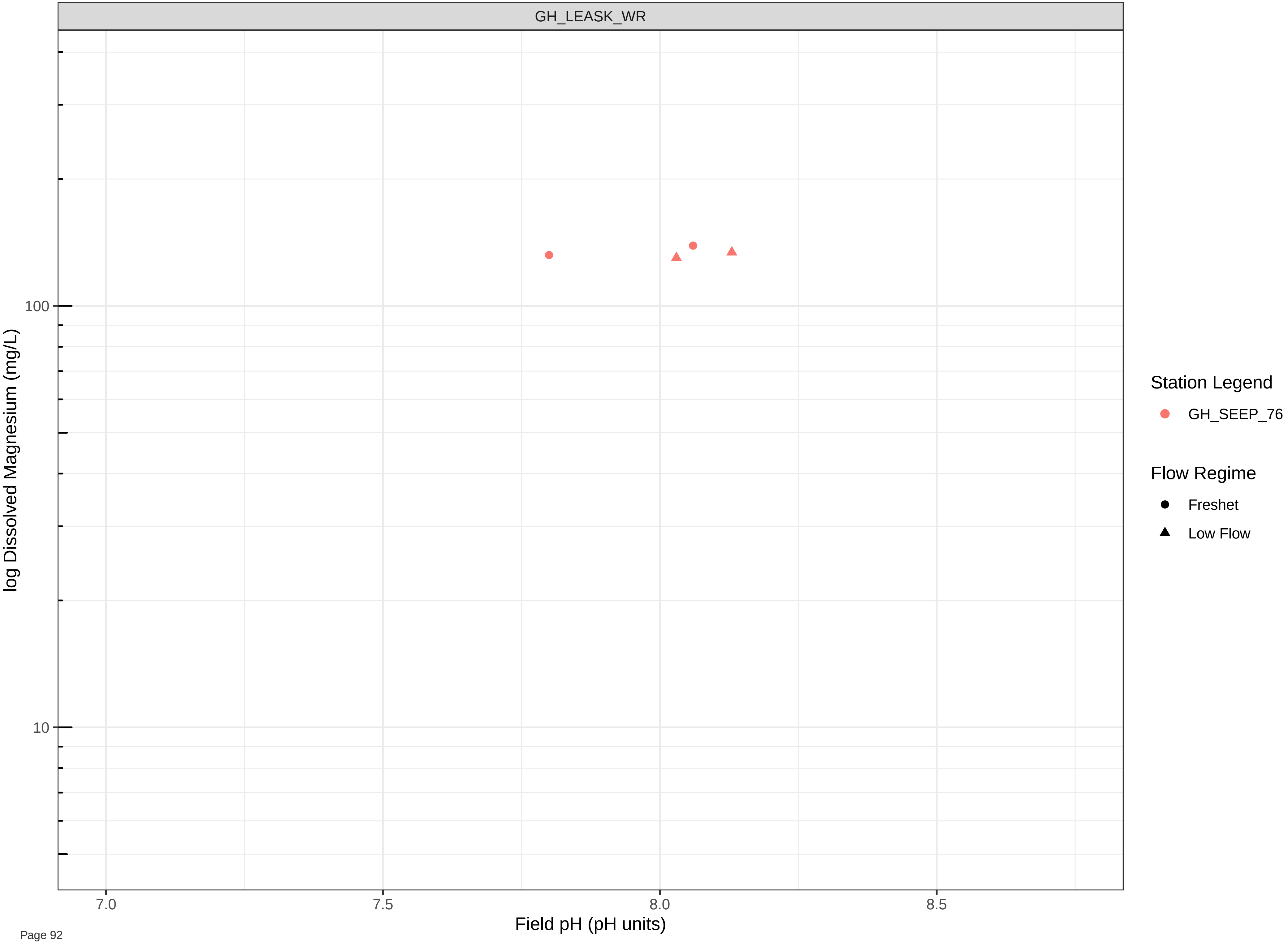
7.5
8.0
8.5
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow


GH_CCR
log Dissolved Magnesium (mg/L)
100
10
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow


GH_LEASK_WR
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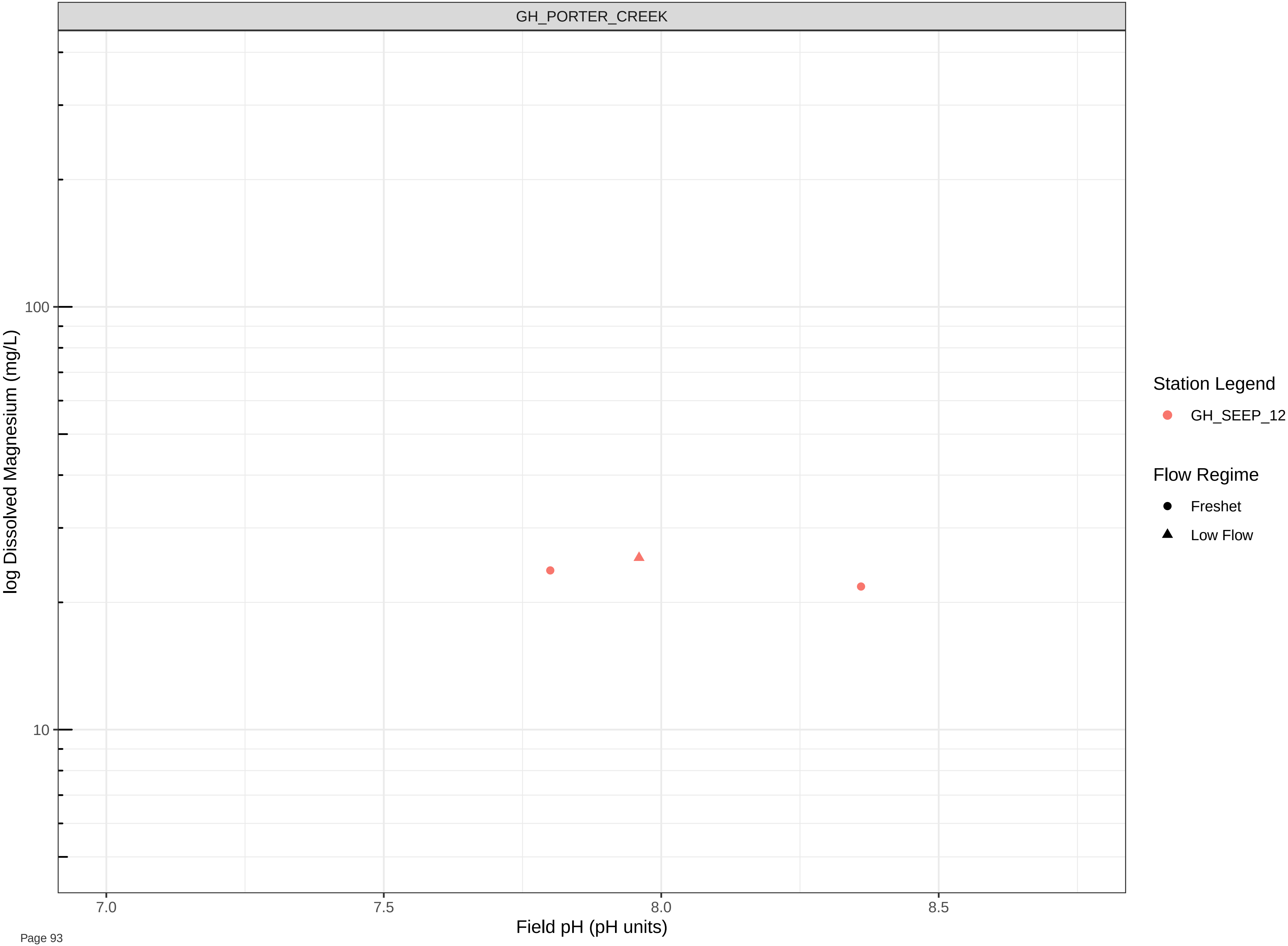
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow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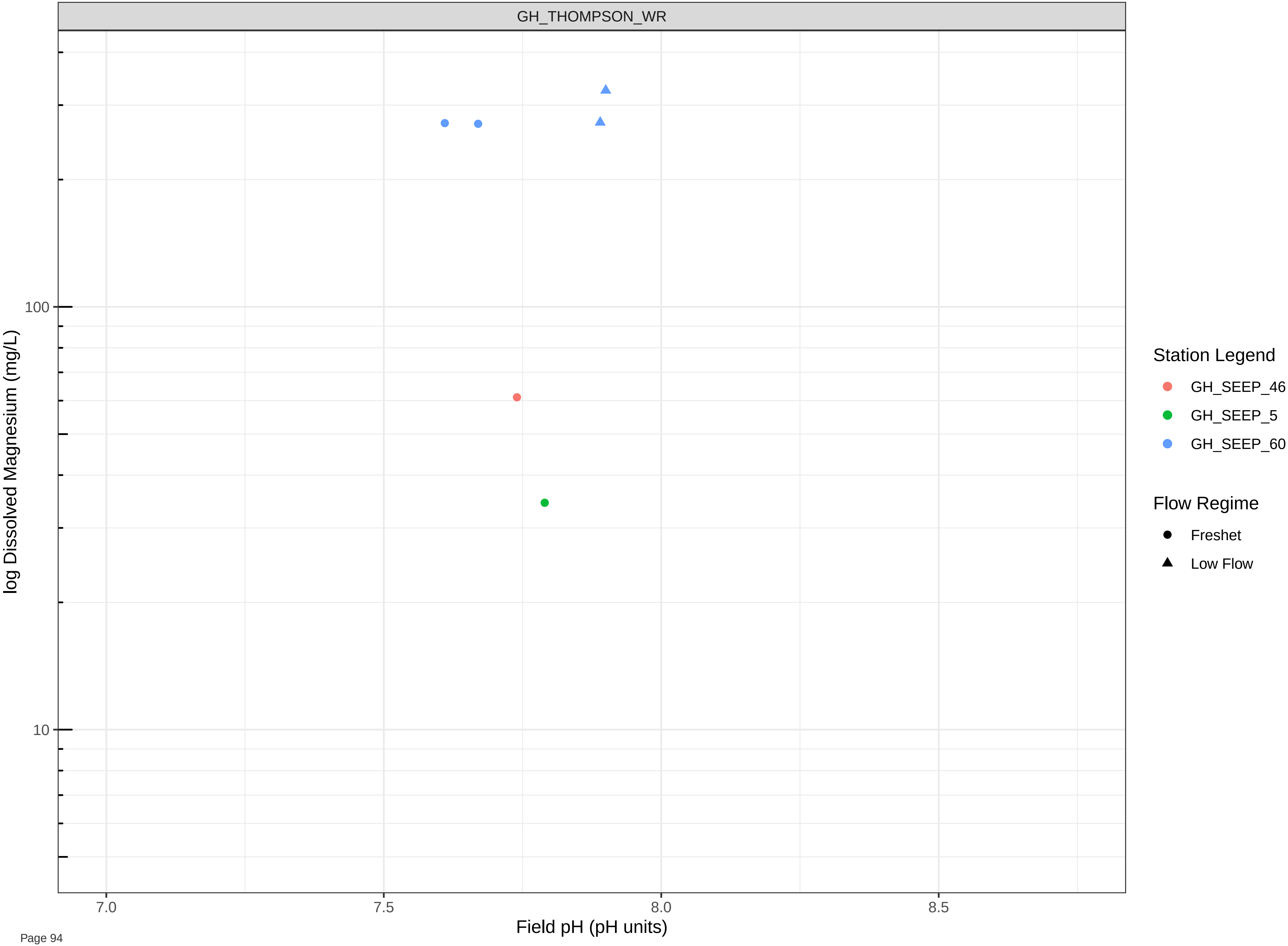
10
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow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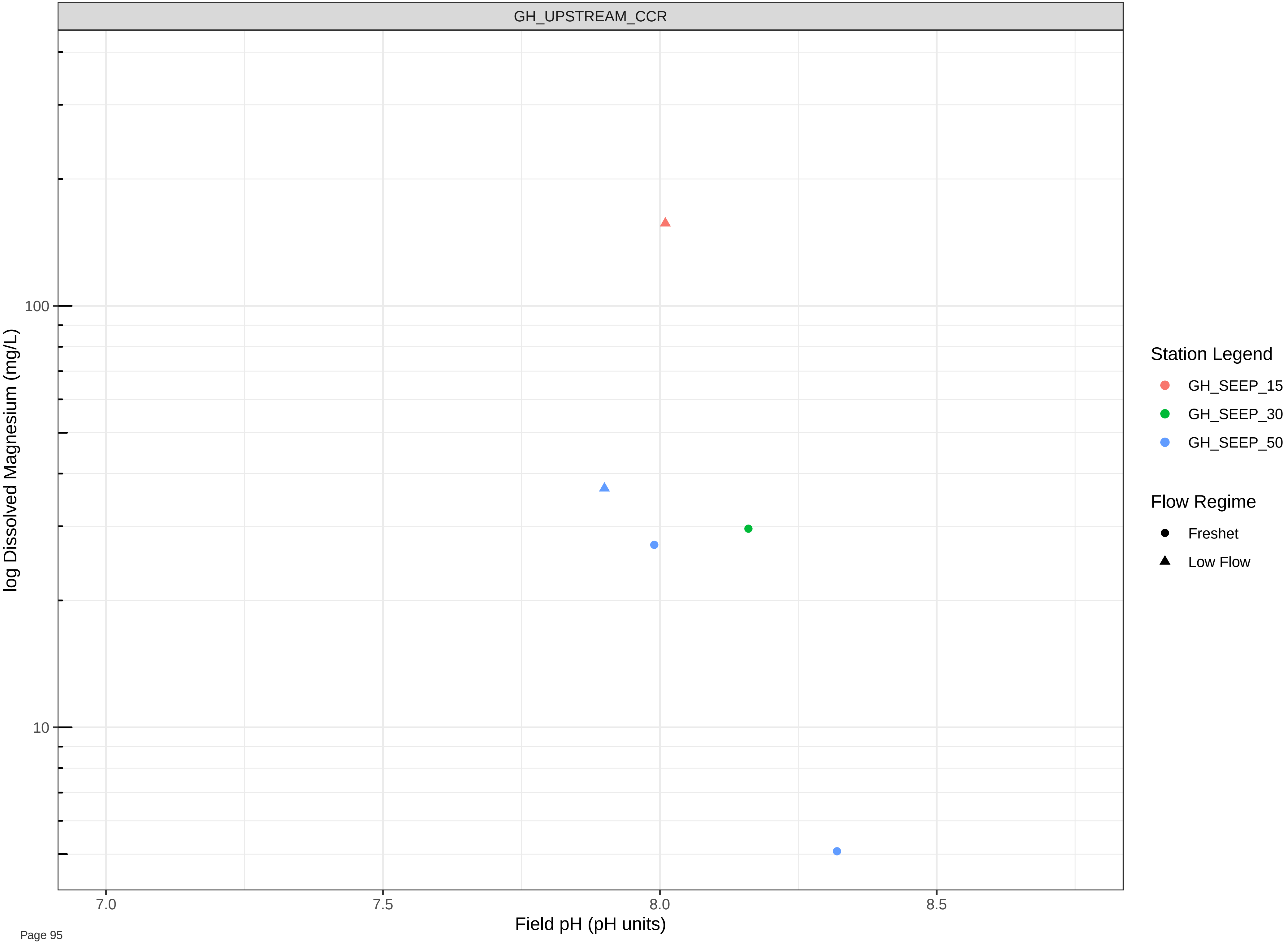
100
10
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow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100
10
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
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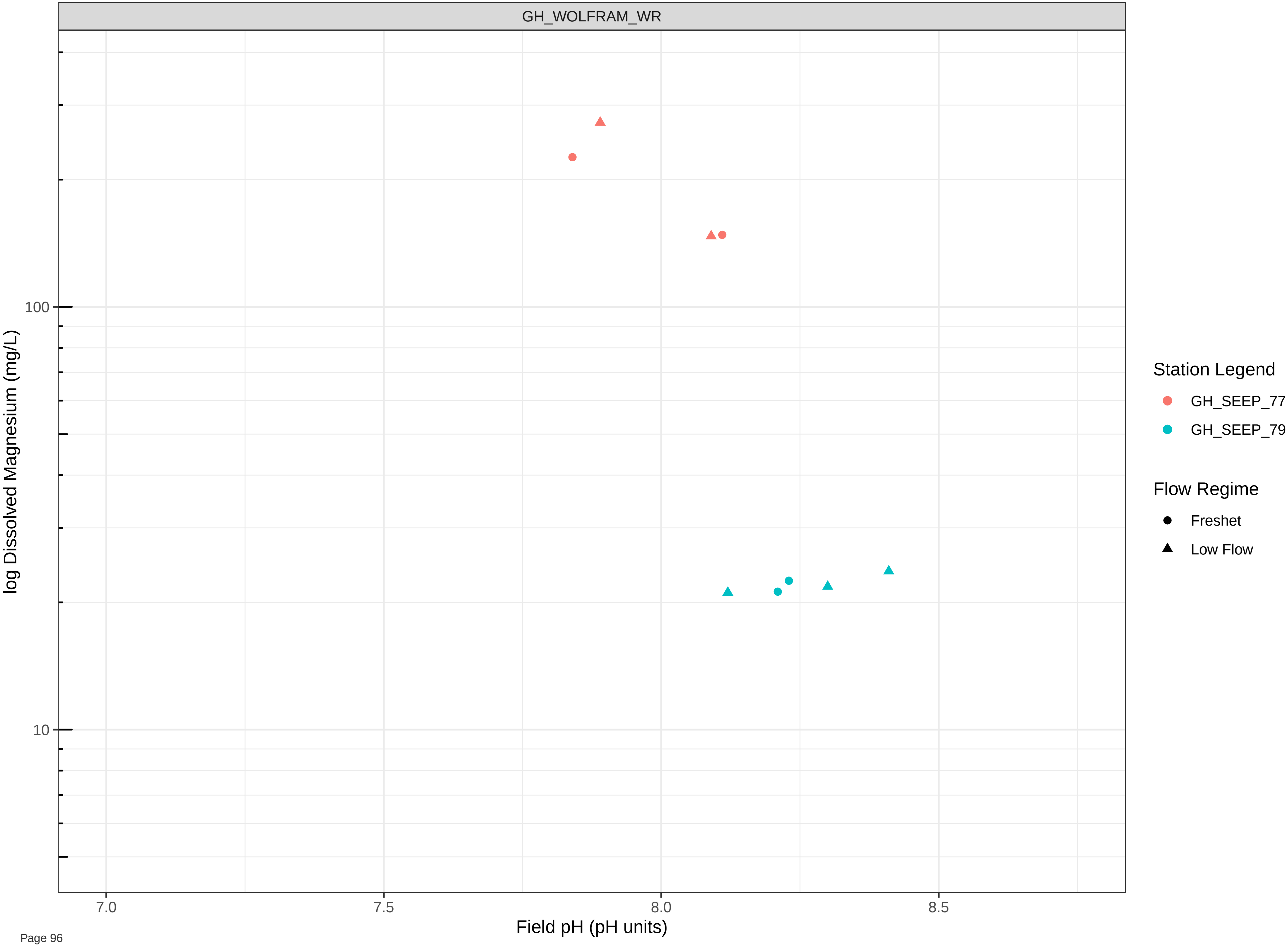
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow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log Dissolved Magnesium (mg/L)
100
10
7.0
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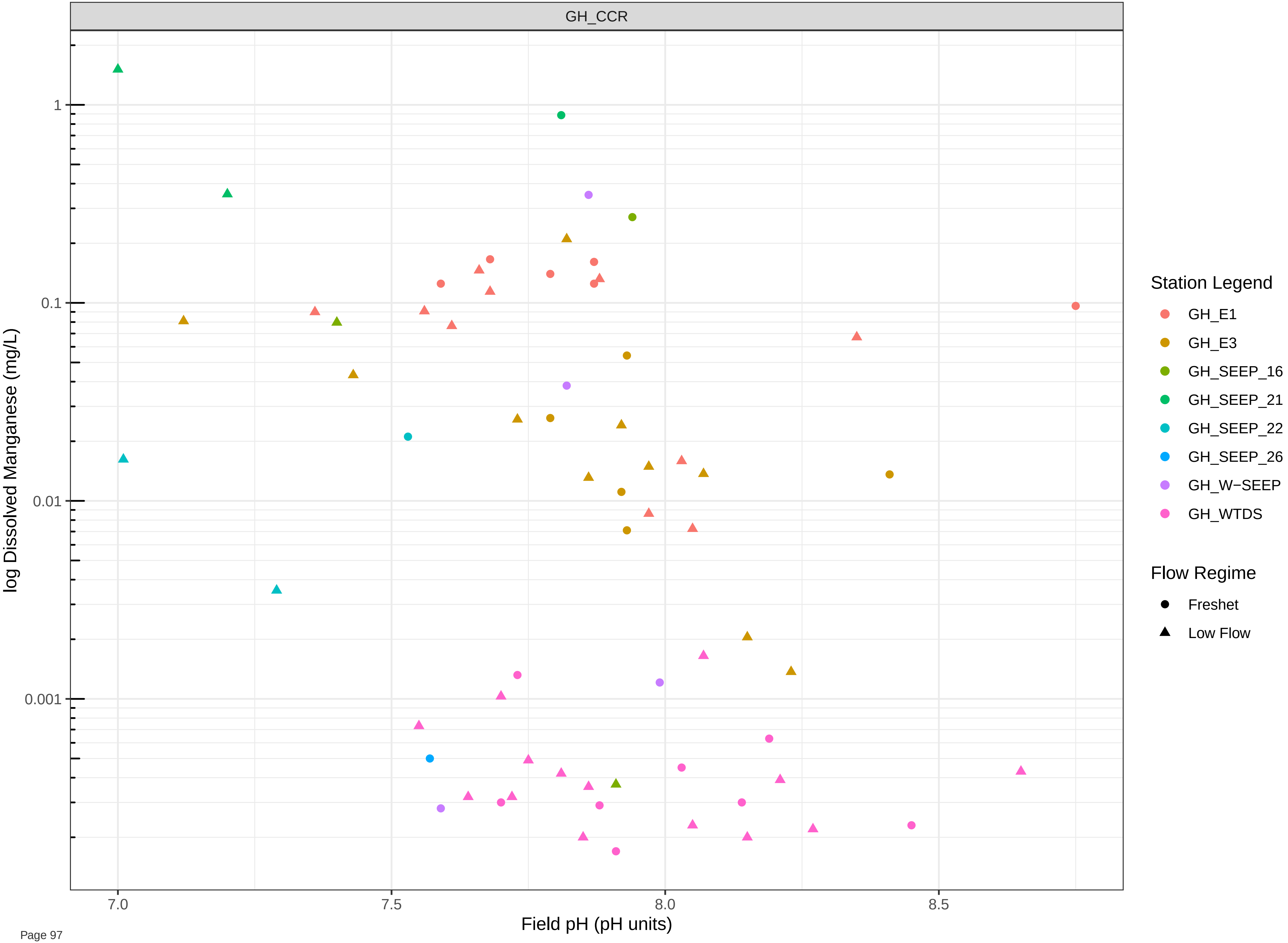
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow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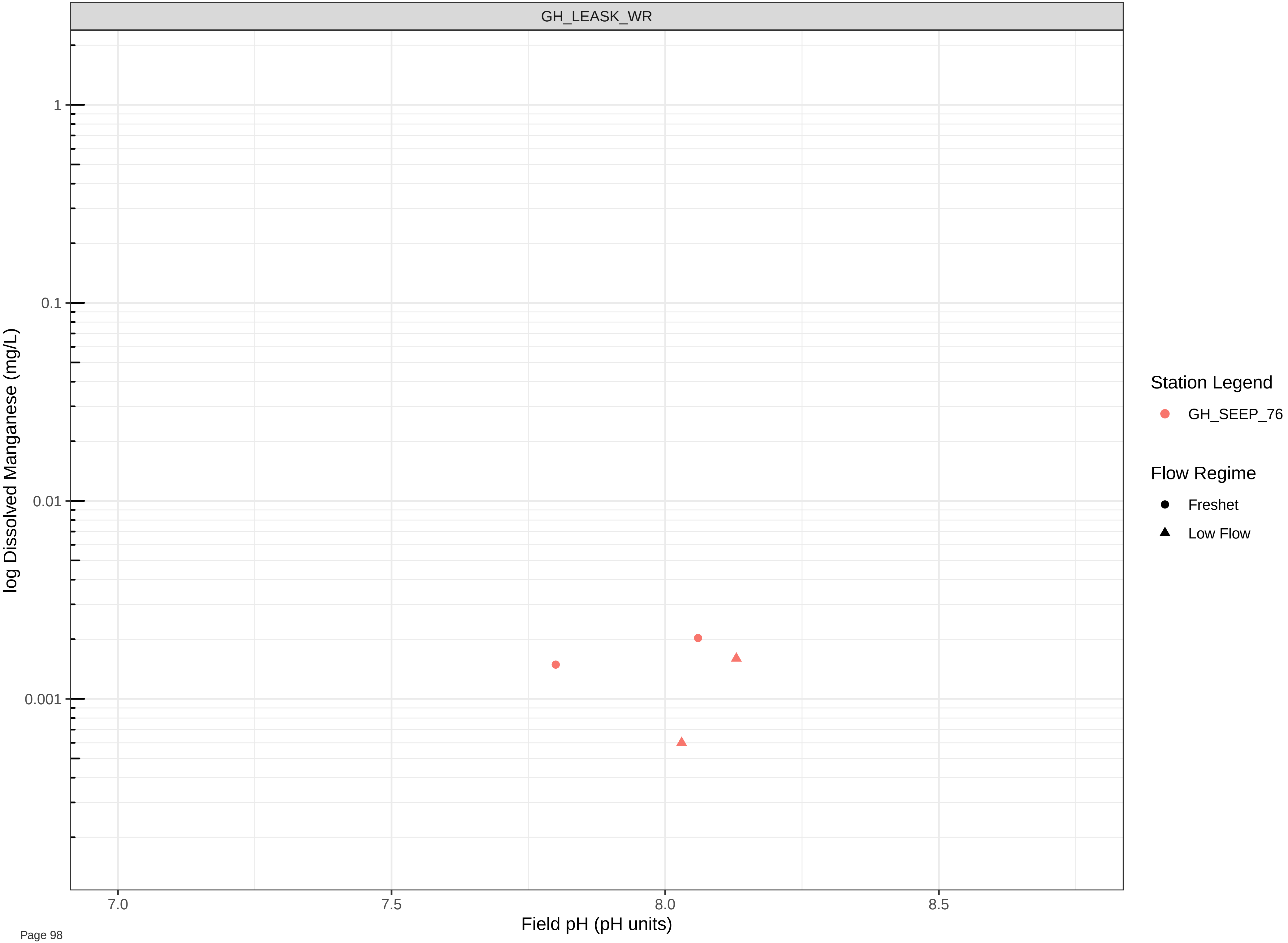
0.01
0.001
log Dissolved Manganese (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow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0.01
0.001
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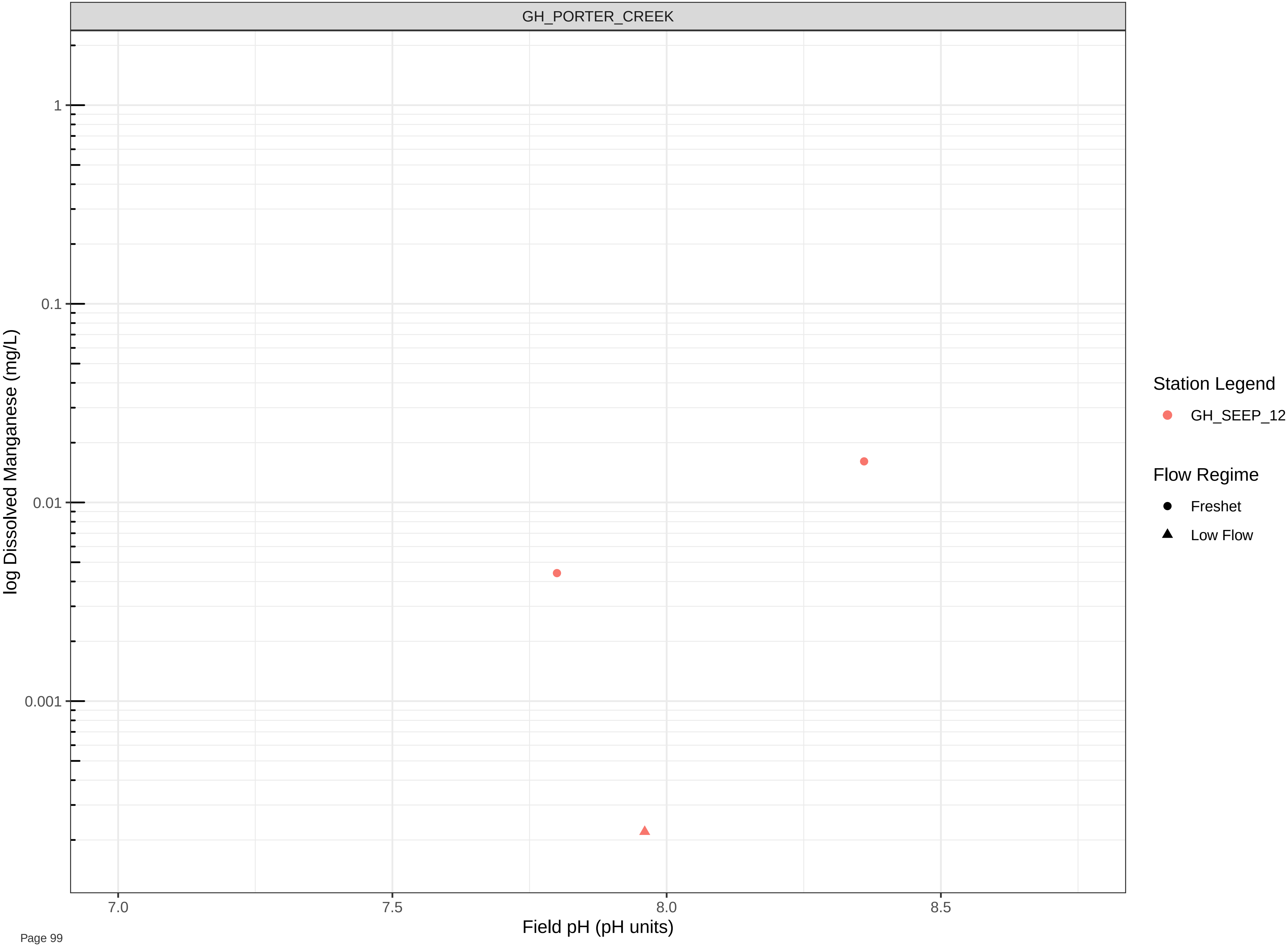
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow


GH_PORTER_CREEK
log Dissolved Manganese (mg/L)
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0.1
0.01
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8.0
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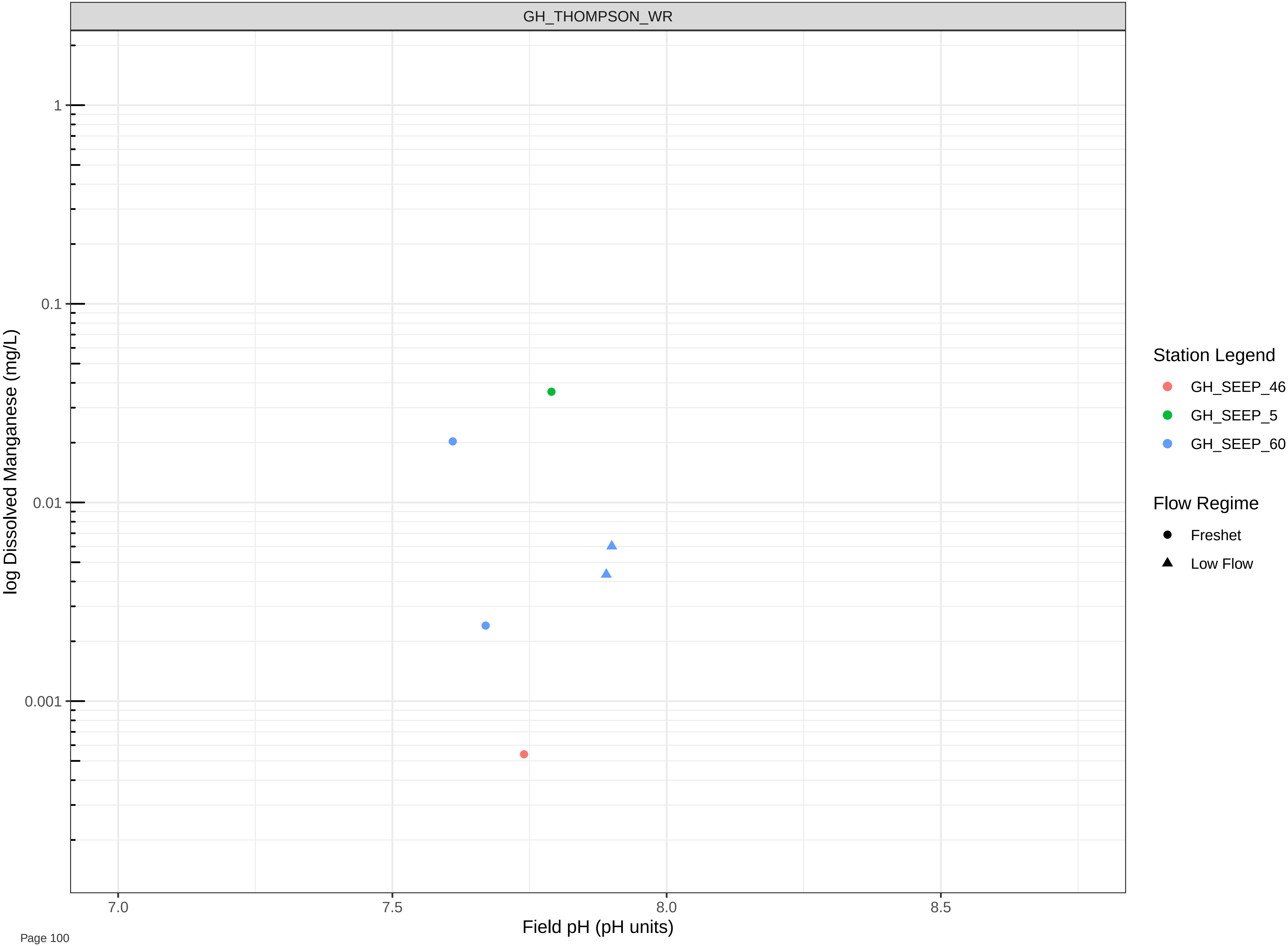
Field pH (pH units)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow


GH_THOMPSON_WR
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0.1
0.01
0.001
7.0
7.5
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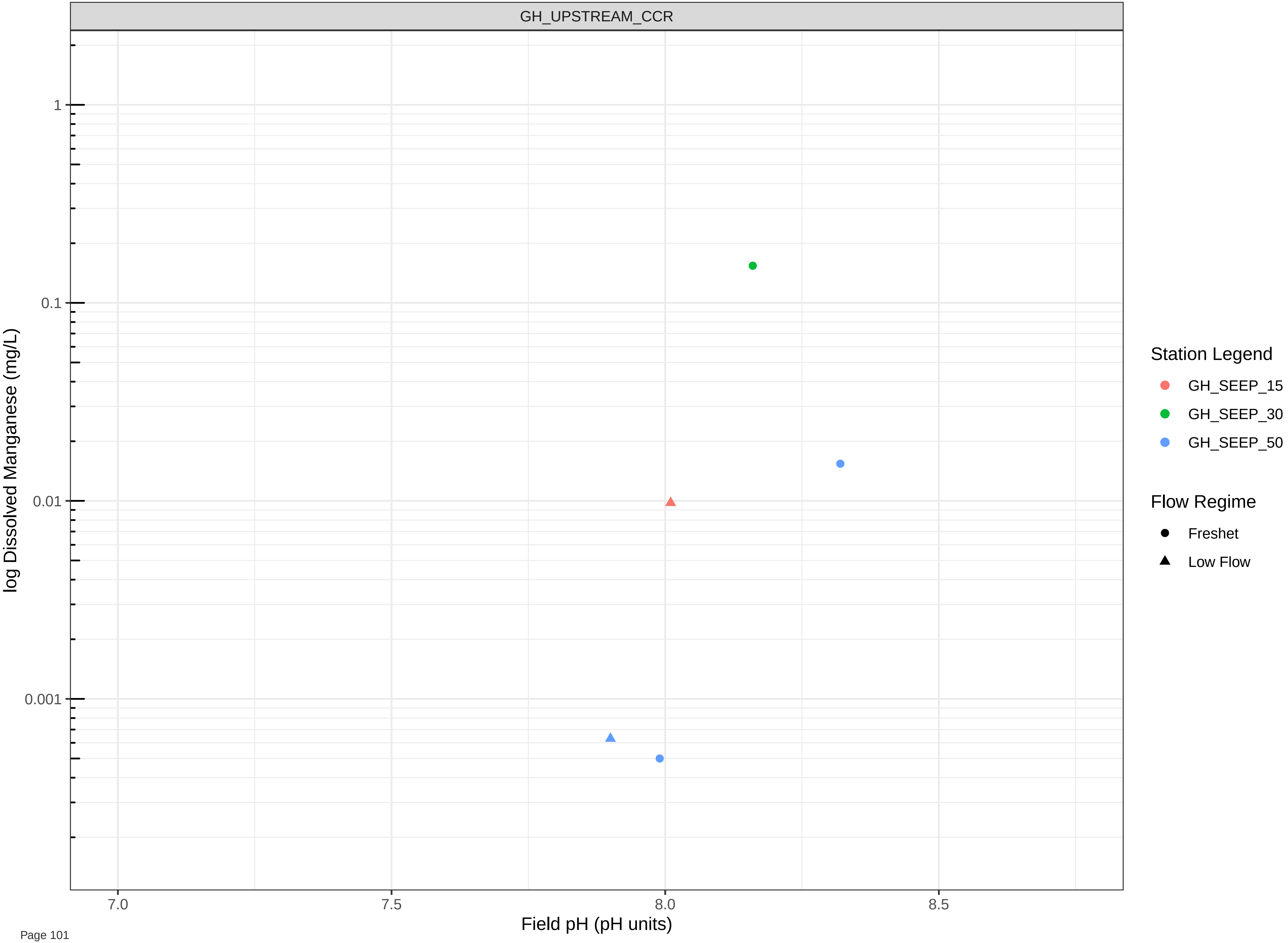
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow


GH_UPSTREAM_CCR
log Dissolved Manganese (mg/L)
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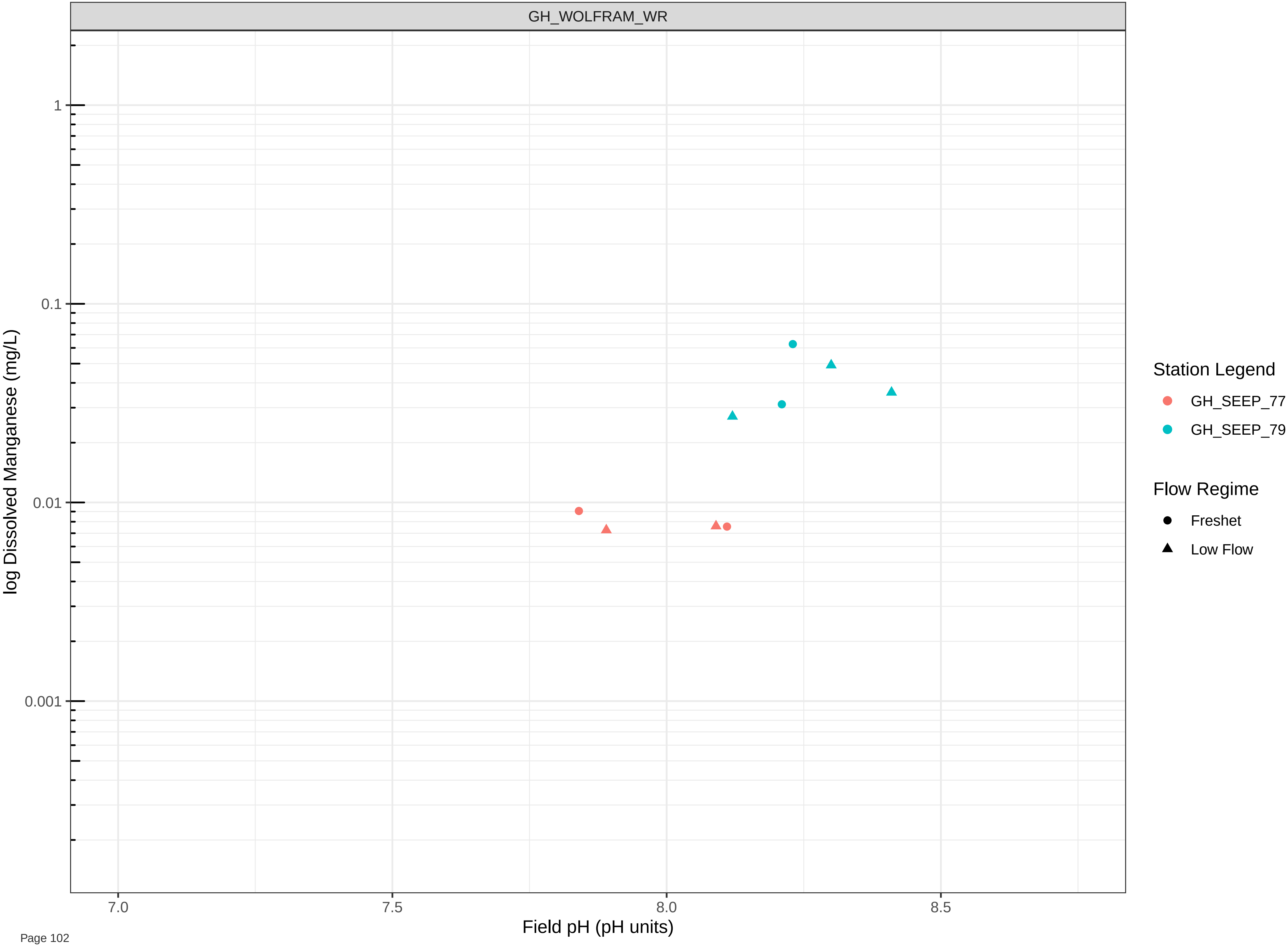
0.1
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_15
● GH_SEEP_30
● GH_SEEP_50
Flow Regime
● Freshet
▲ Low Flow


GH_WOLFRAM_WR
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1
0.1
0.01
0.001
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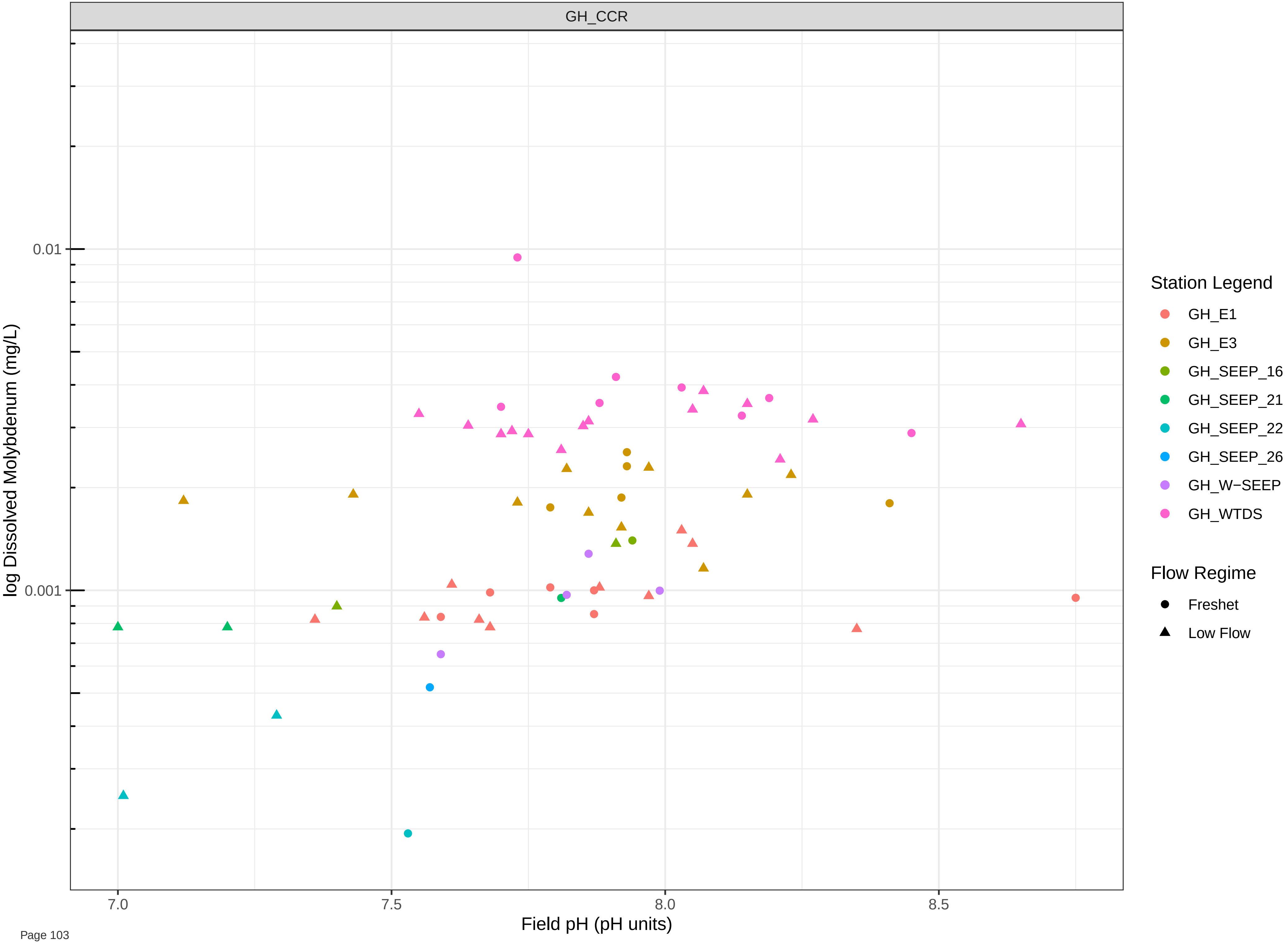
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow


GH_CCR
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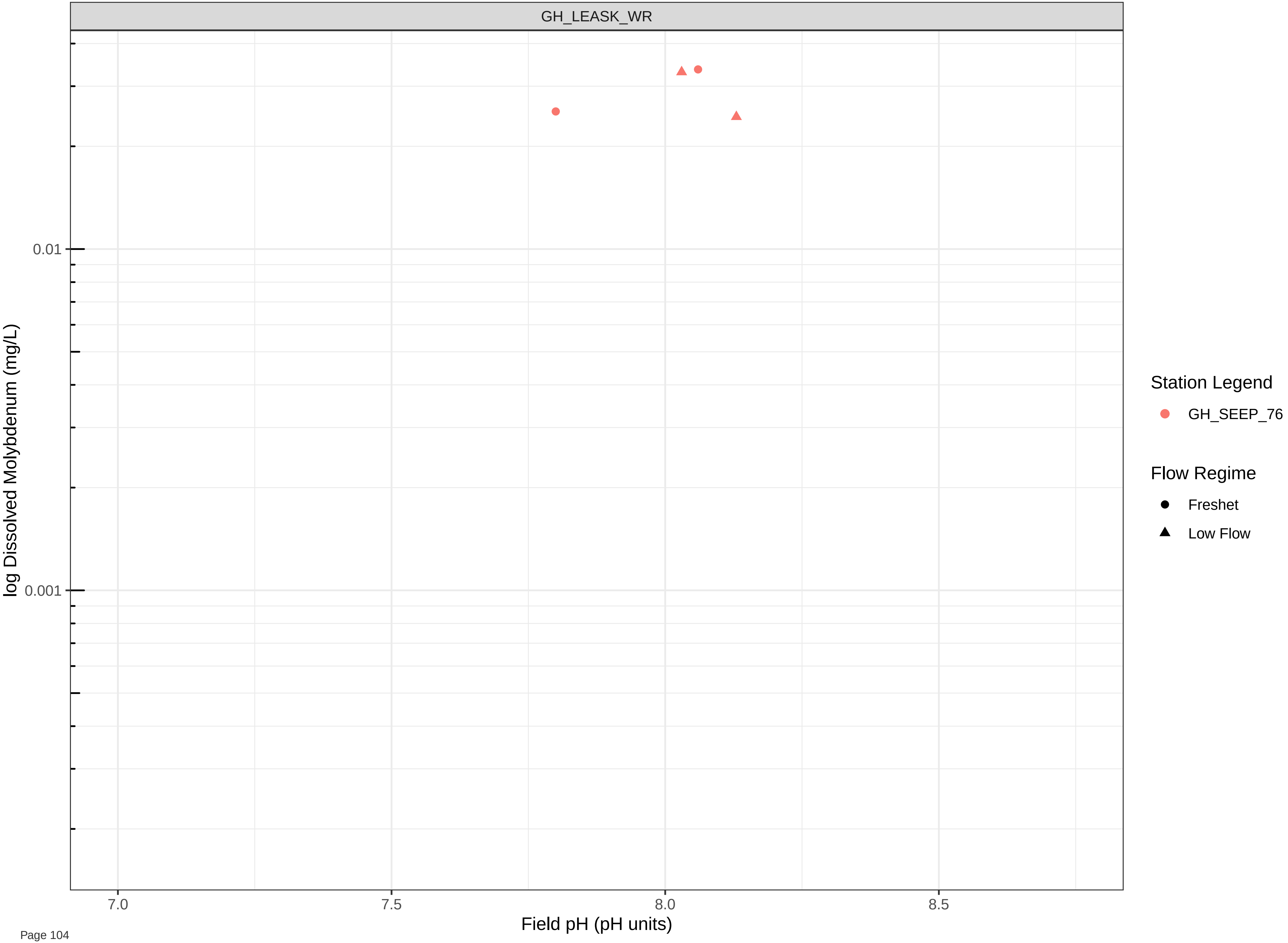
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow


GH_LEASK_WR
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0.01
0.001
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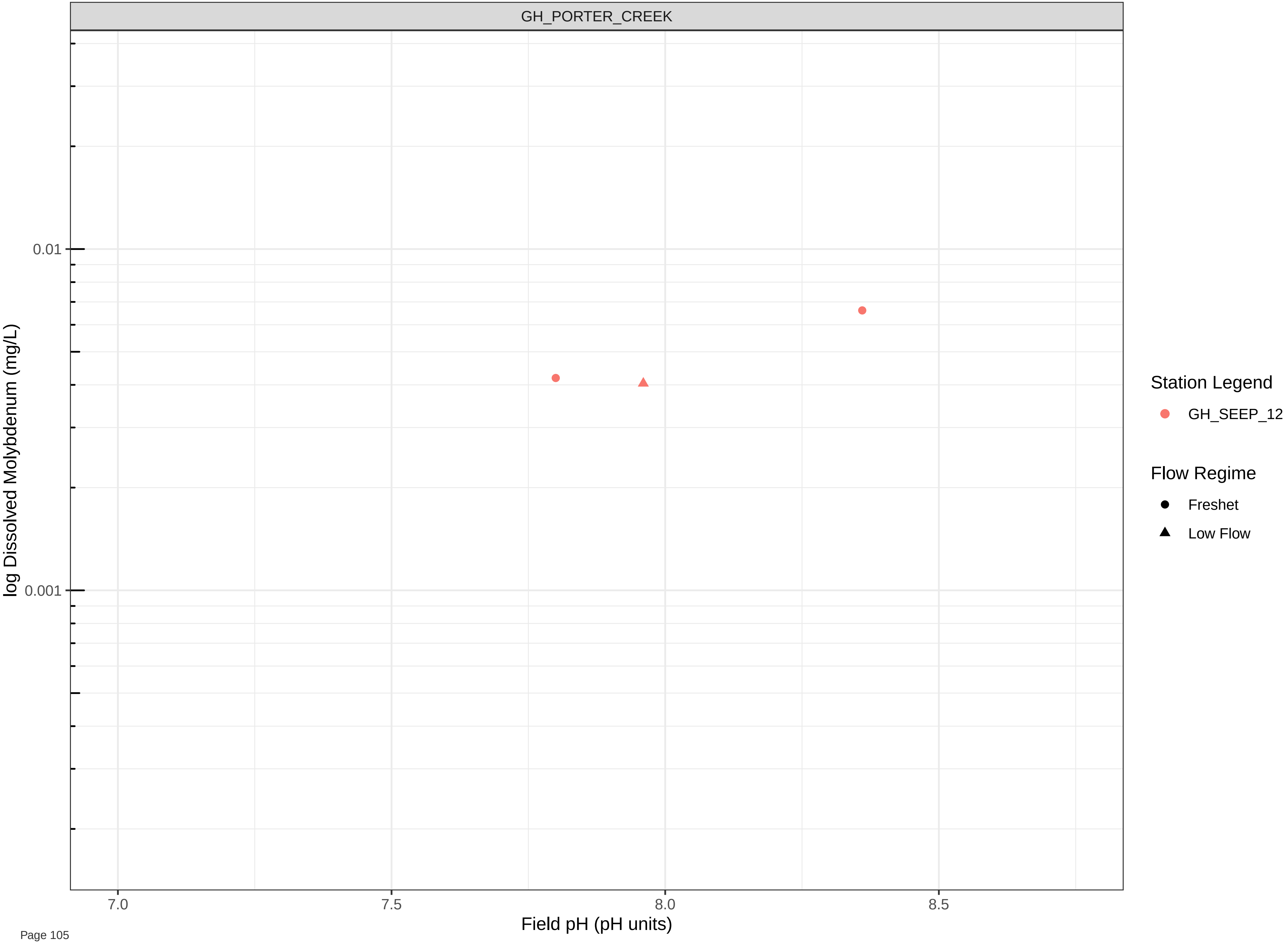
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow


GH_PORTER_CREEK
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0.01
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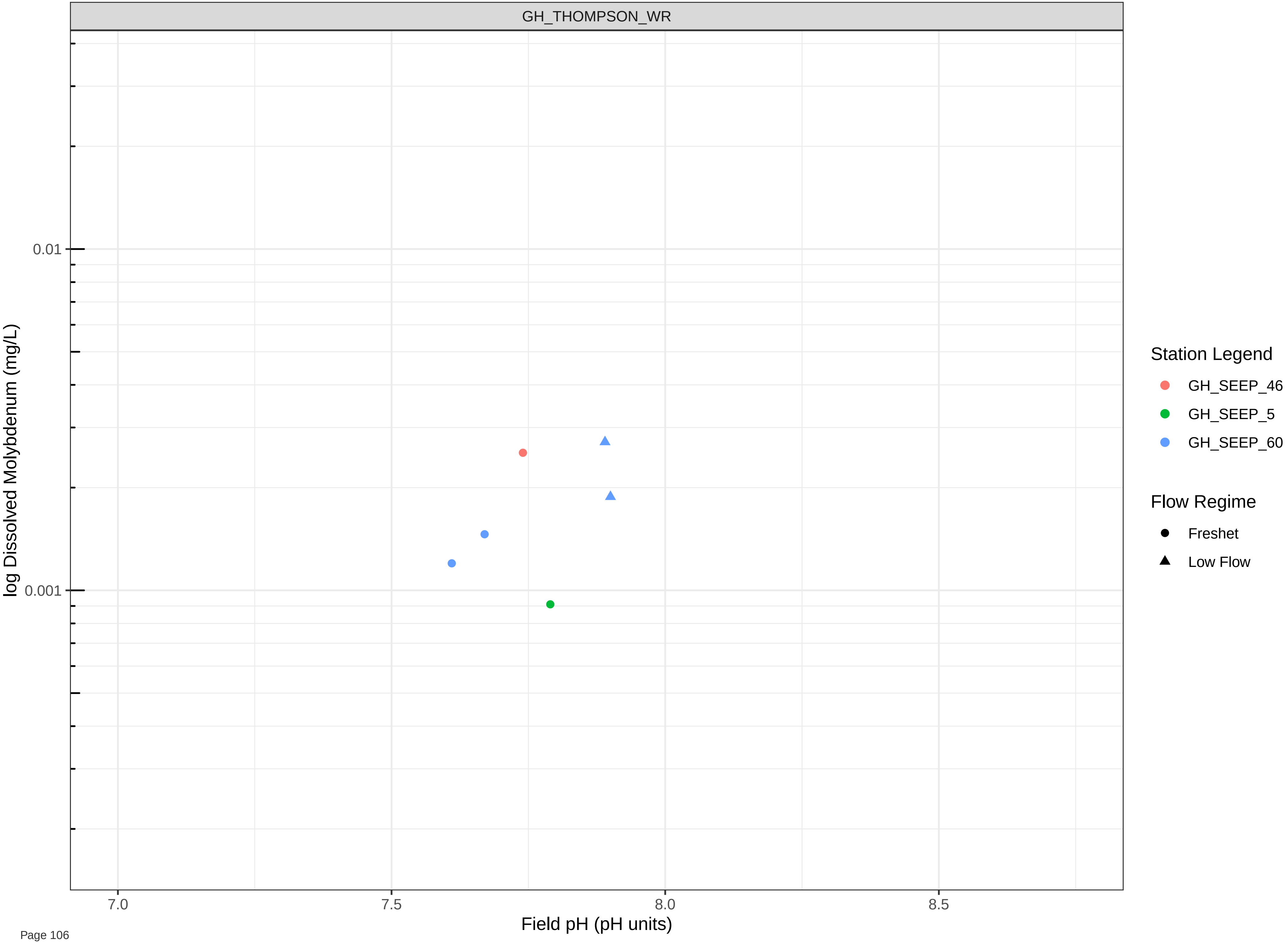
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow


GH_THOMPSON_WR
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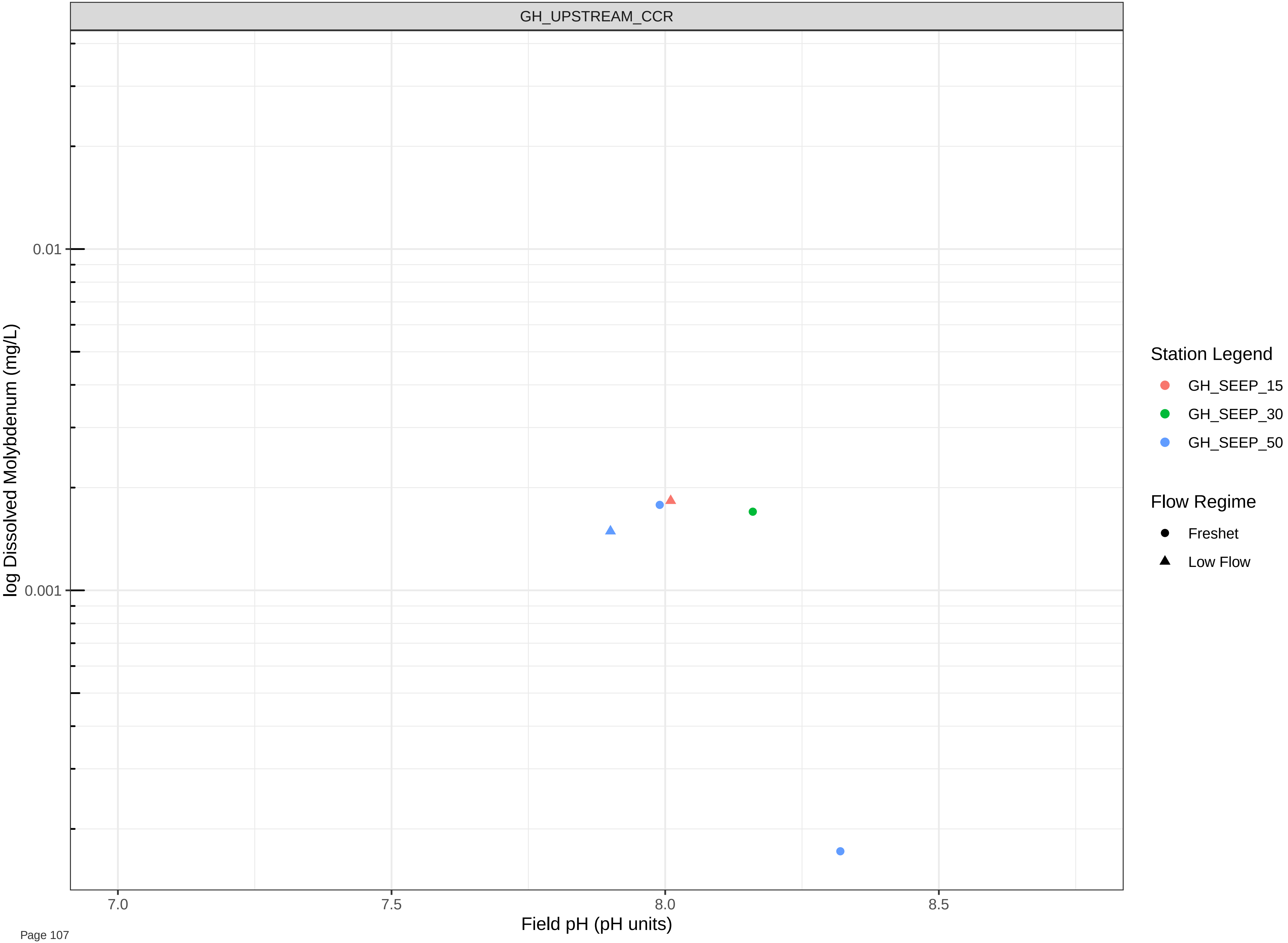
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow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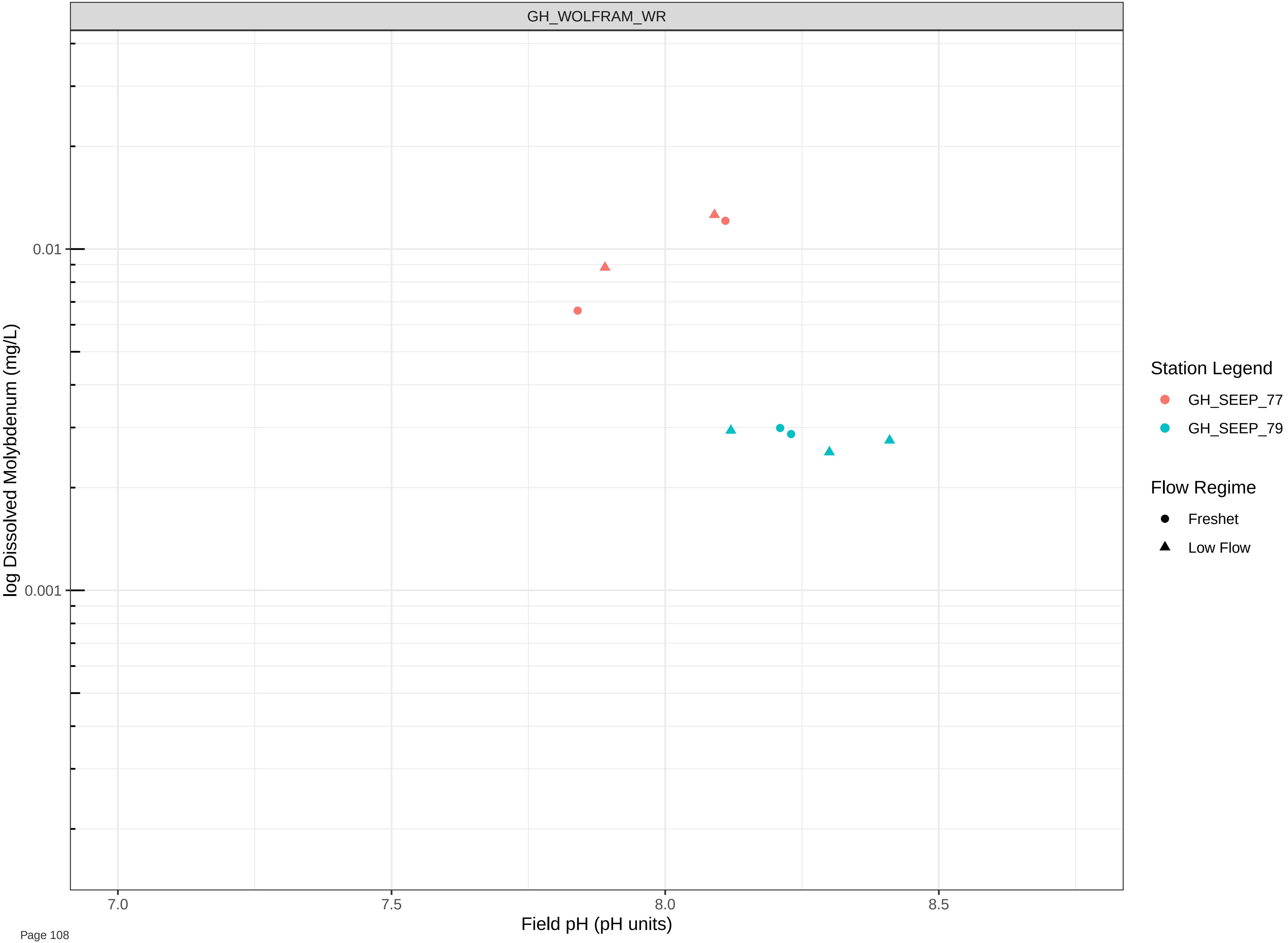
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow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0.001
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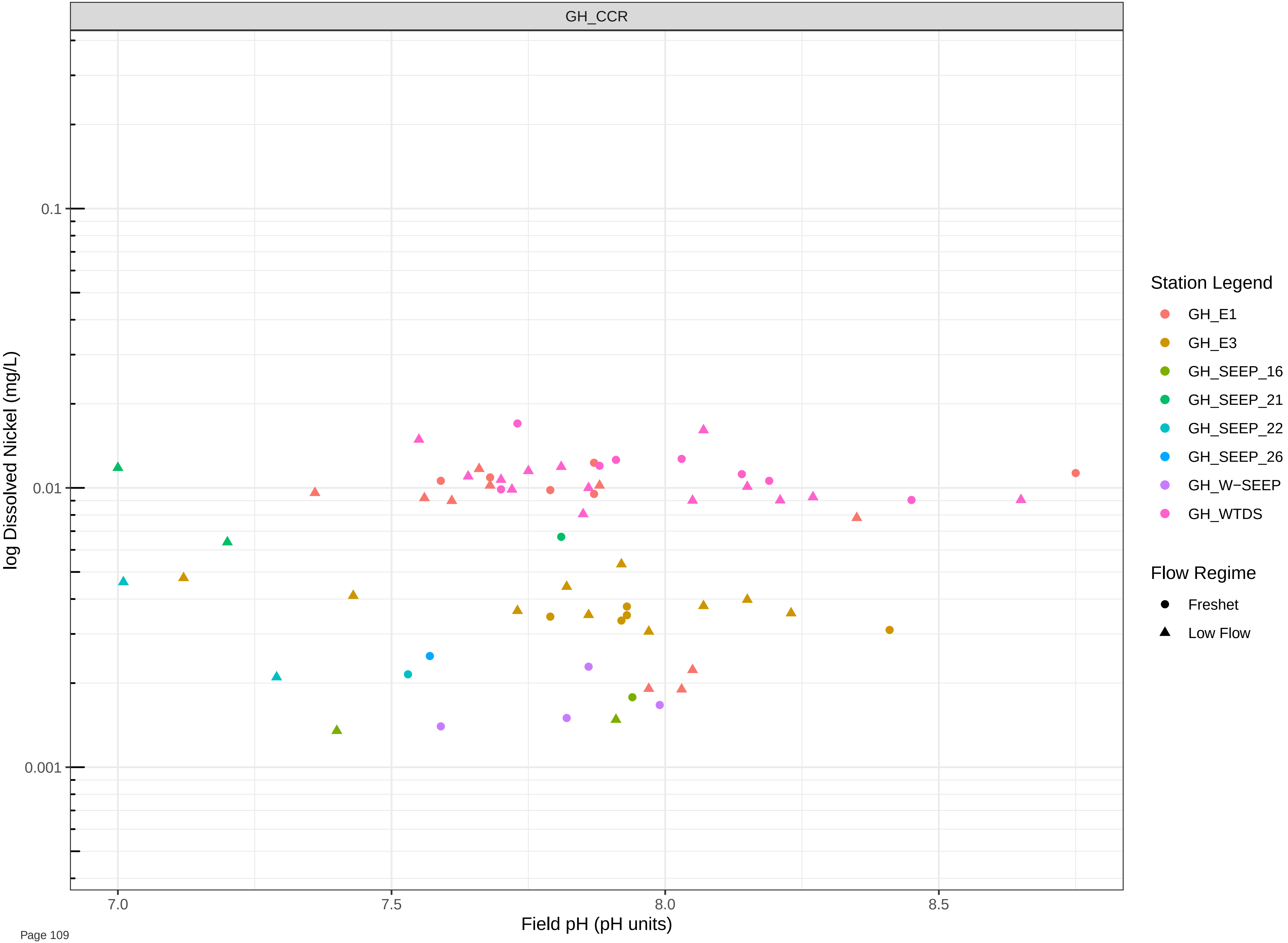
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow


GH_CCR
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0.01
0.001
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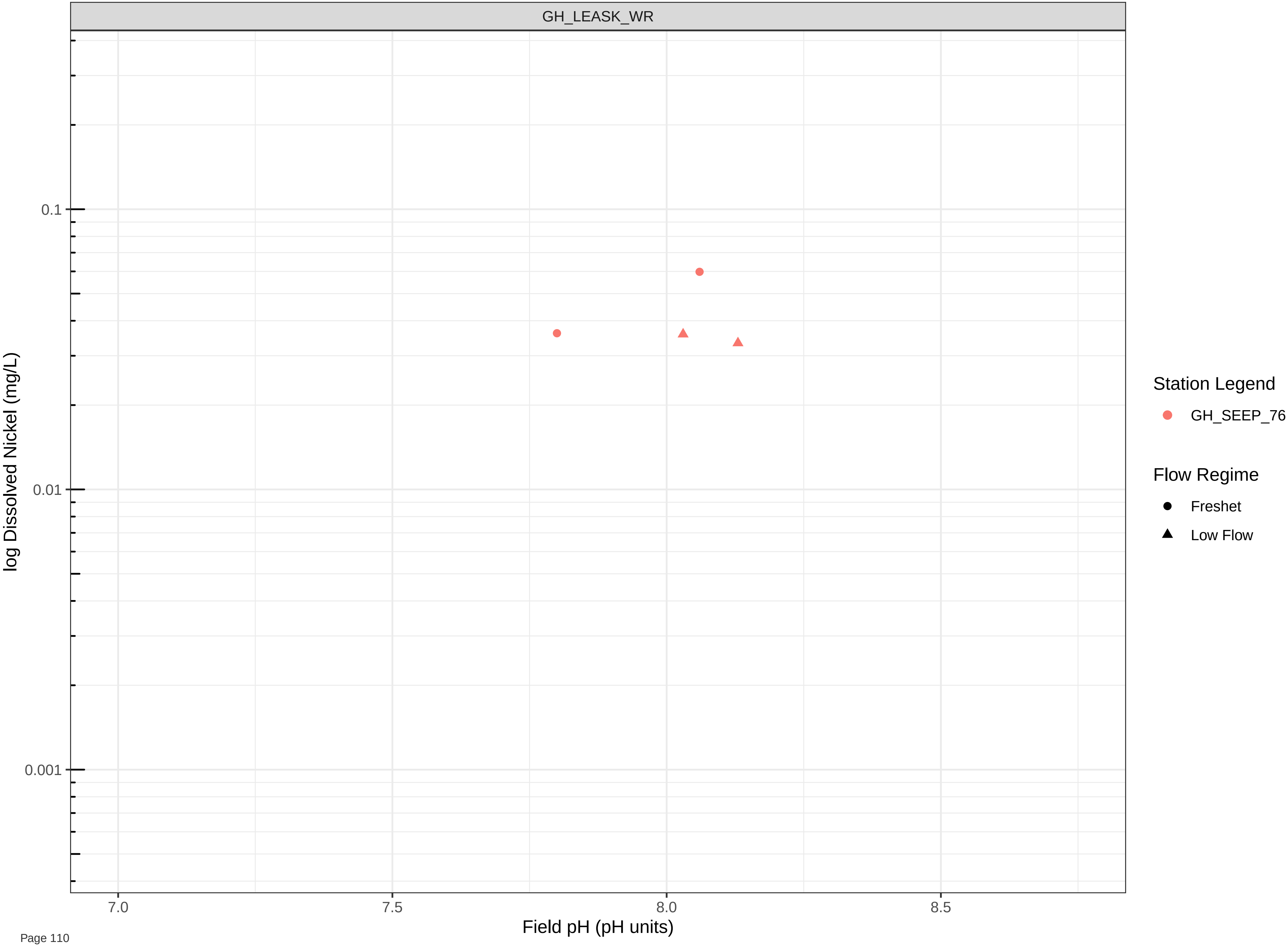
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_E1
● GH_E3
● GH_SEEP_16
● GH_SEEP_21
● GH_SEEP_22
● GH_SEEP_26
● GH_W−SEEP
● GH_WTDS
Flow Regime
● Freshet
▲ Low Flow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0.01
0.001
Field pH (pH units)
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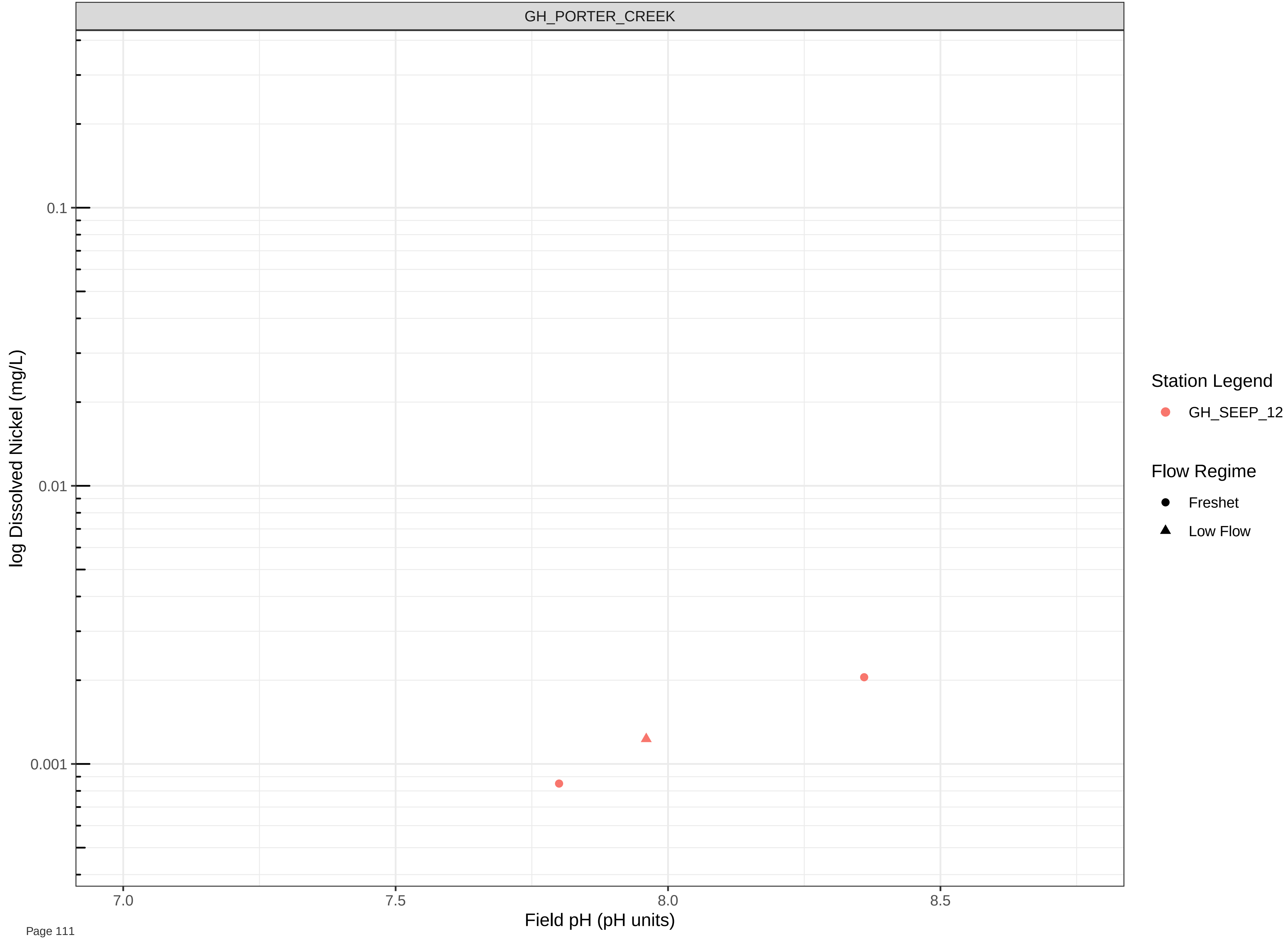
7.5
8.0
8.5
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow


GH_PORTER_CREEK
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0.01
0.001
7.0
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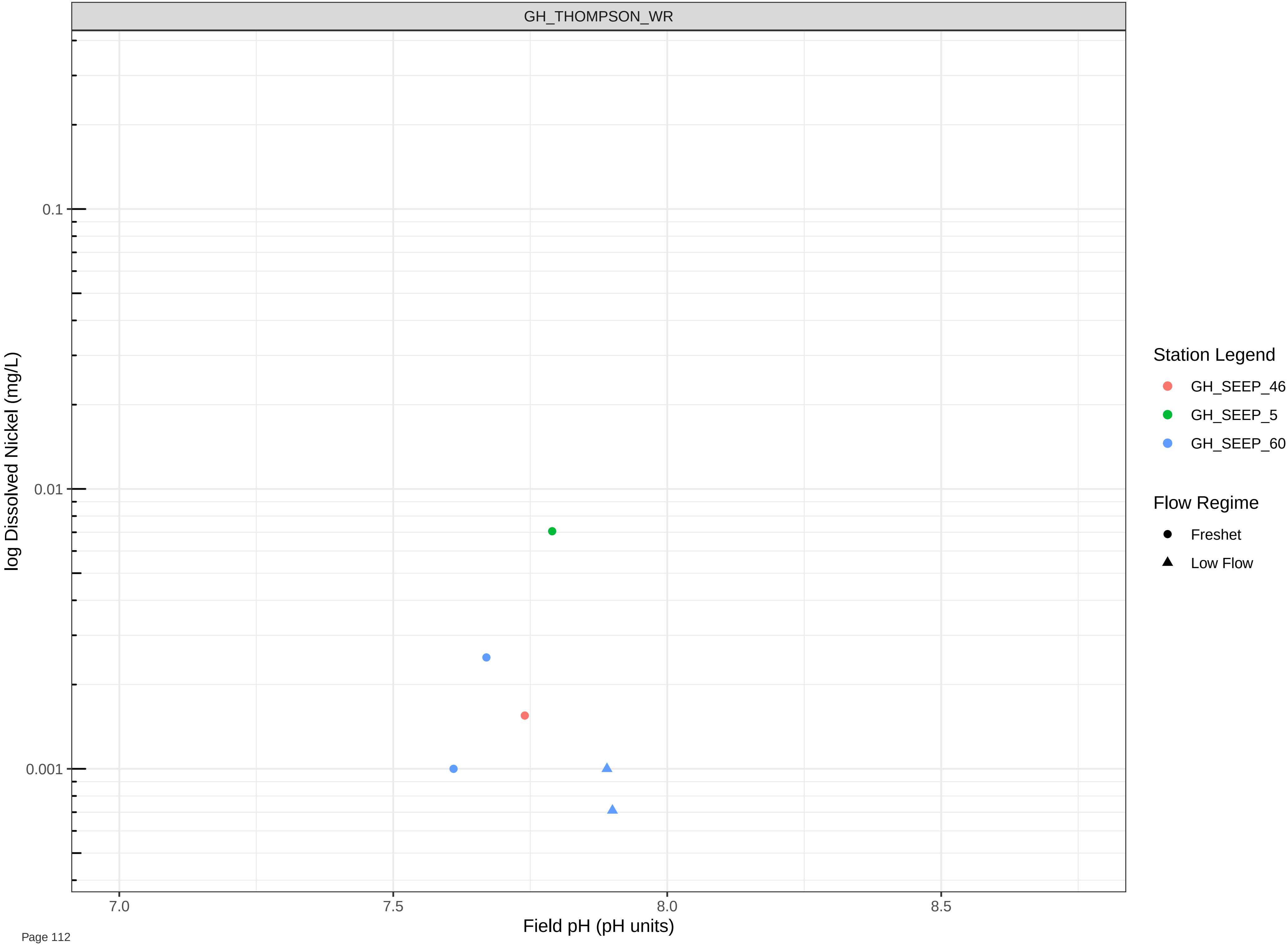
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow


GH_THOMPSON_WR
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
7.0
7.5
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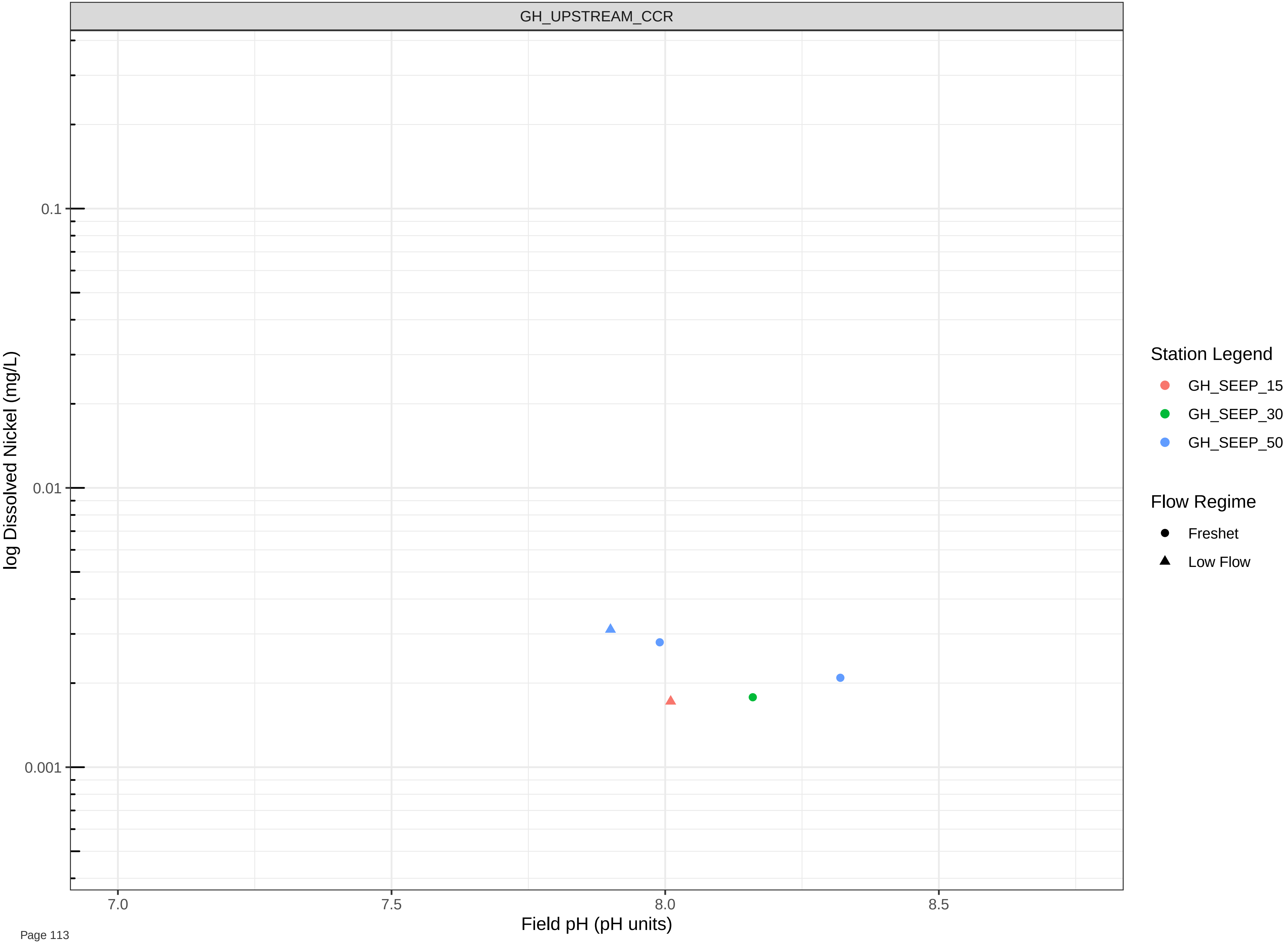
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow


GH_UPSTREAM_CCR
log Dissolved Nickel (mg/L)
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0.001
Field pH (pH units)
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Station Legend
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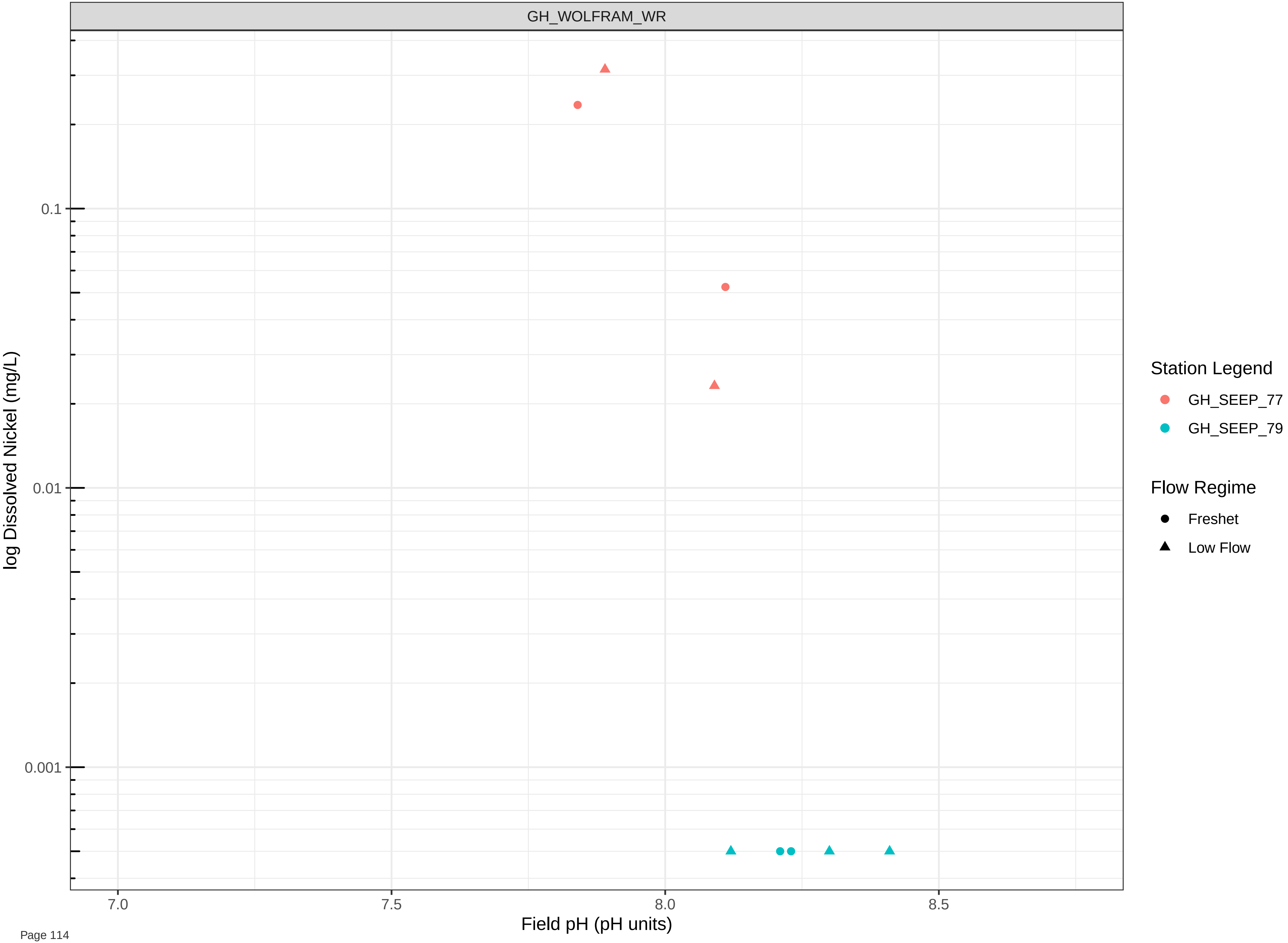
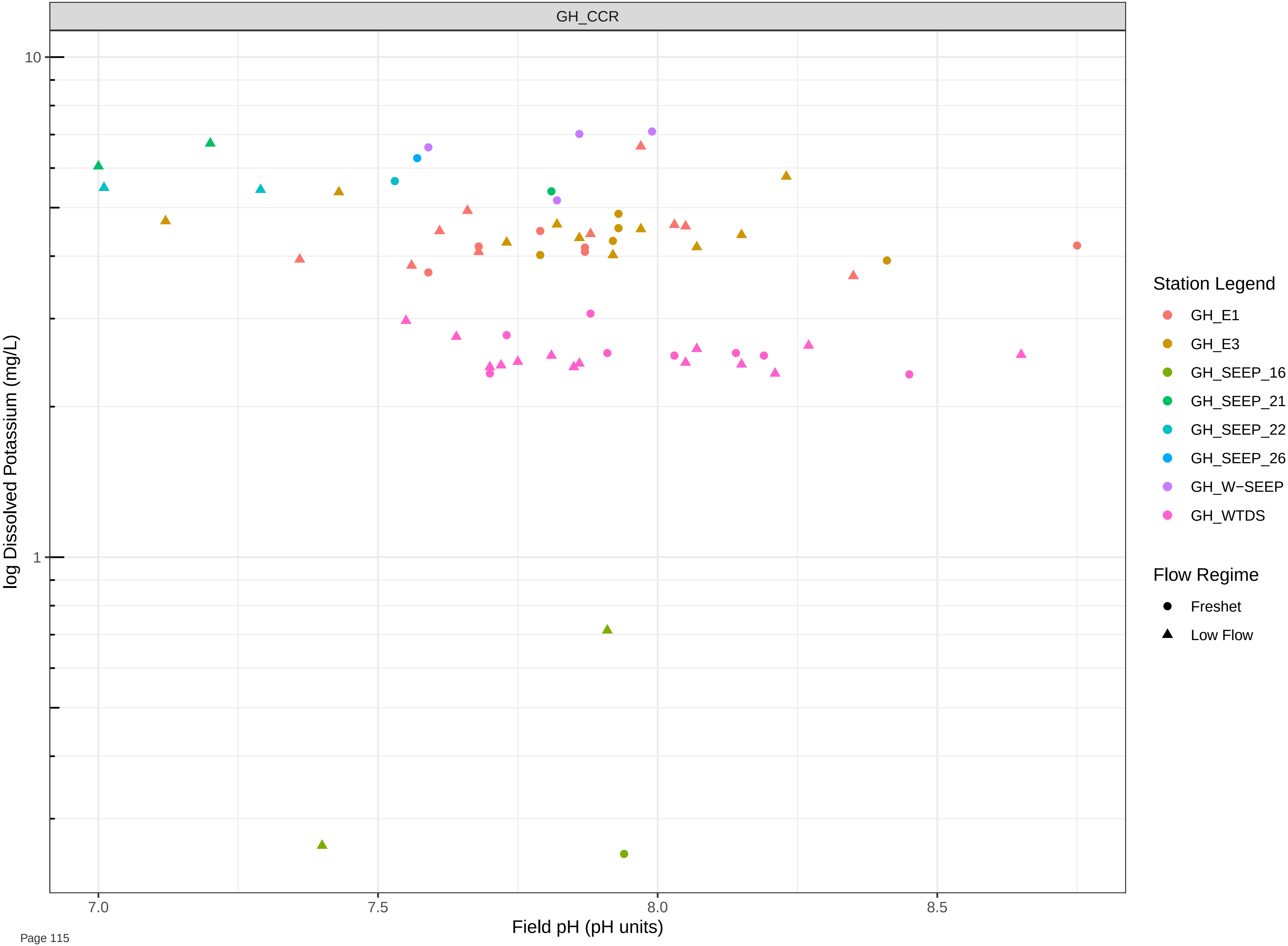
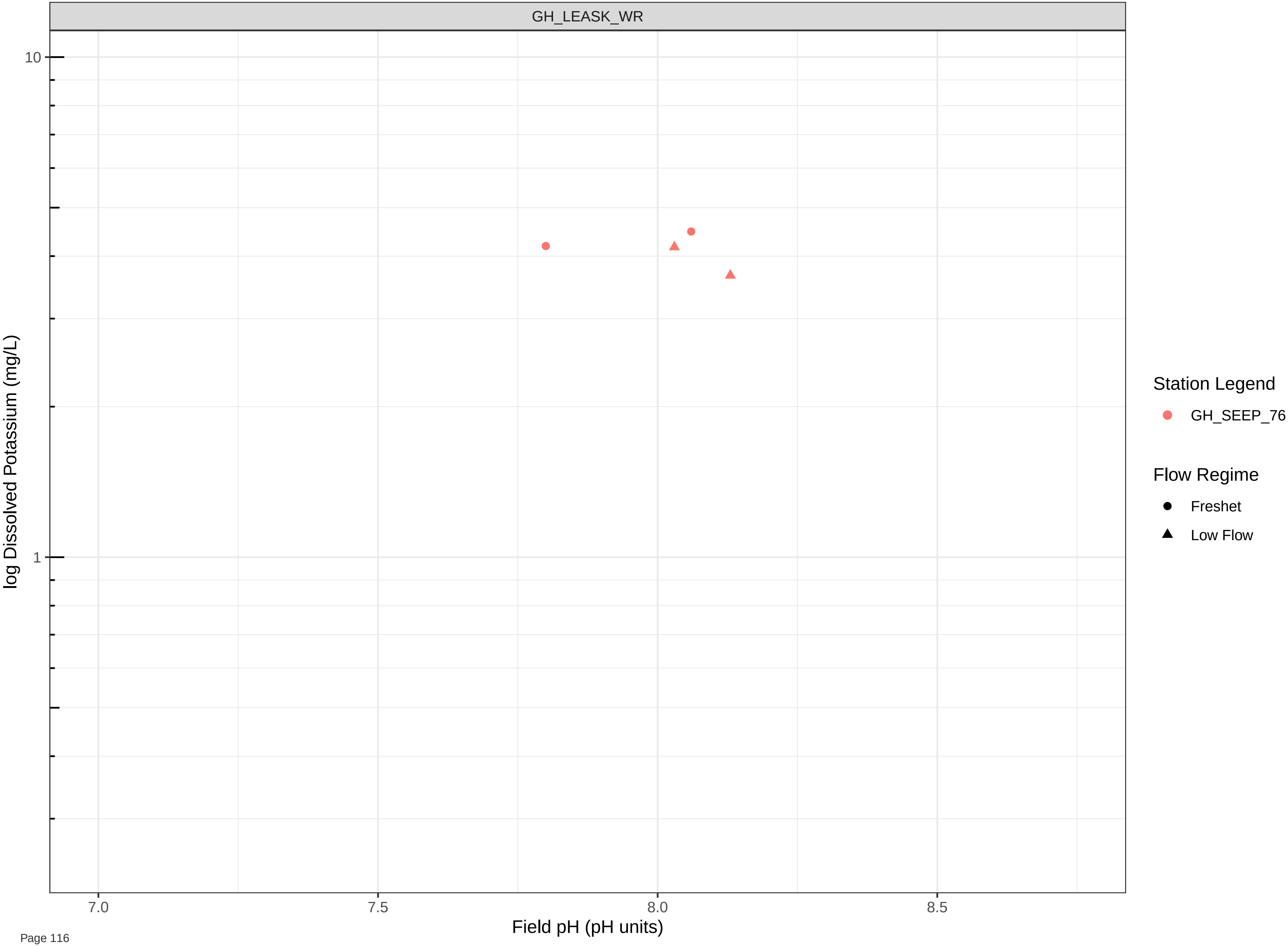
Flow Regime
Freshet
Low Flow


GH_WOLFRAM_WR
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow


GH_CCR
log Dissolved Potassium (mg/L)
10
1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow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Field pH (pH units)
Station Legend
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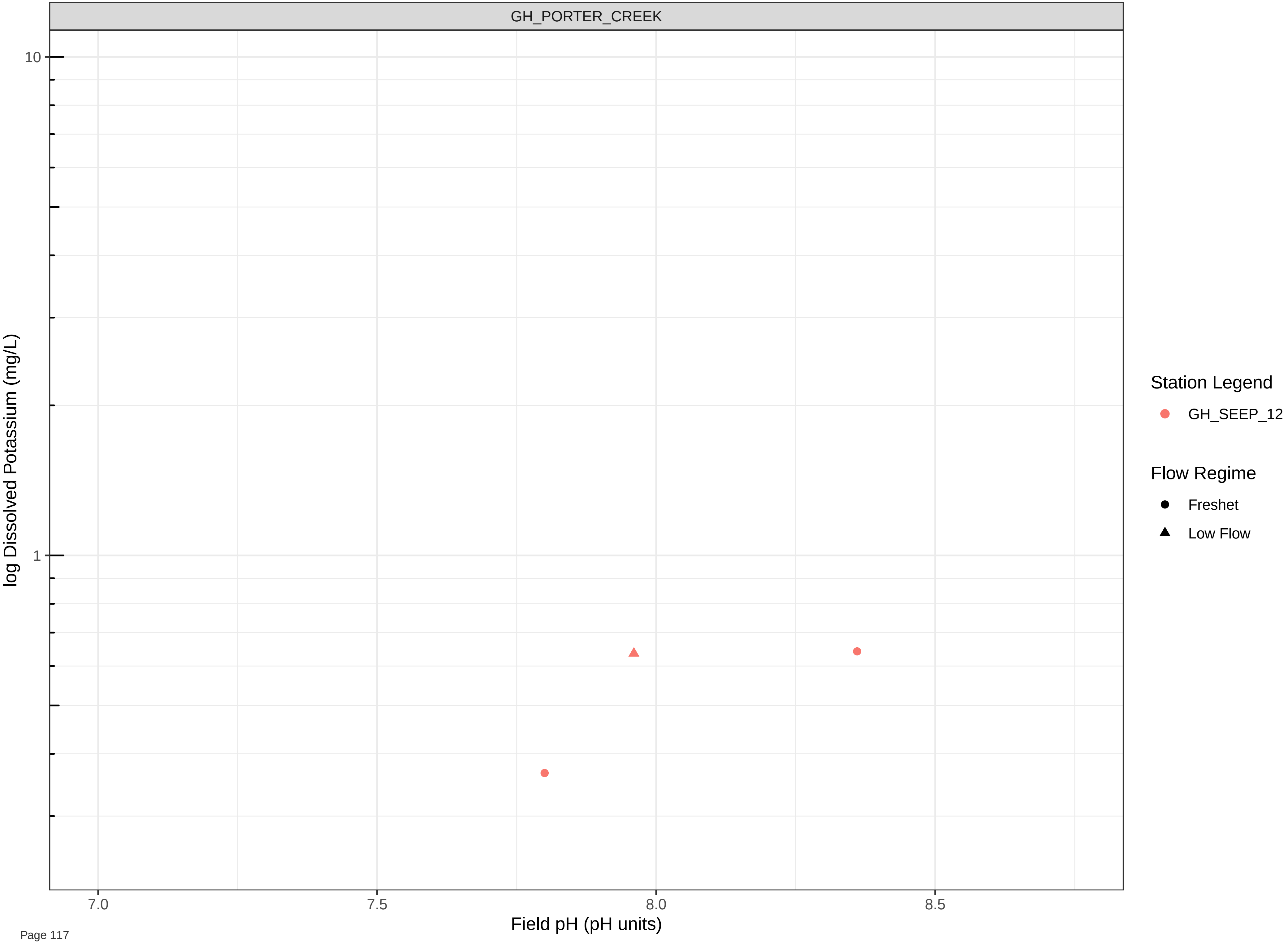
Flow Regime
Freshet
Low Flow


GH_PORTER_CREEK
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log Dissolved Potassium (mg/L)
7.0
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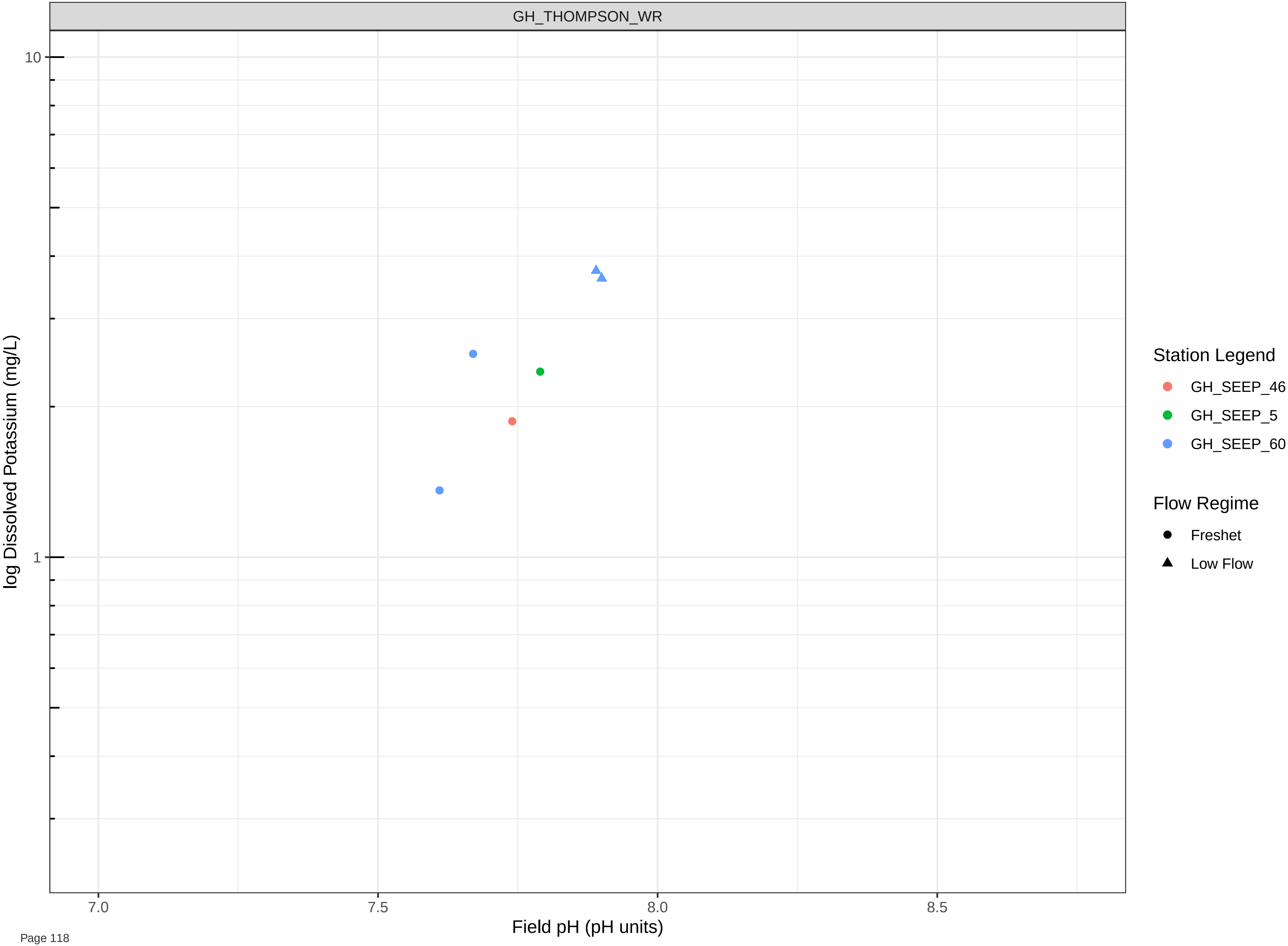
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow


GH_THOMPSON_WR
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10
1
7.0
7.5
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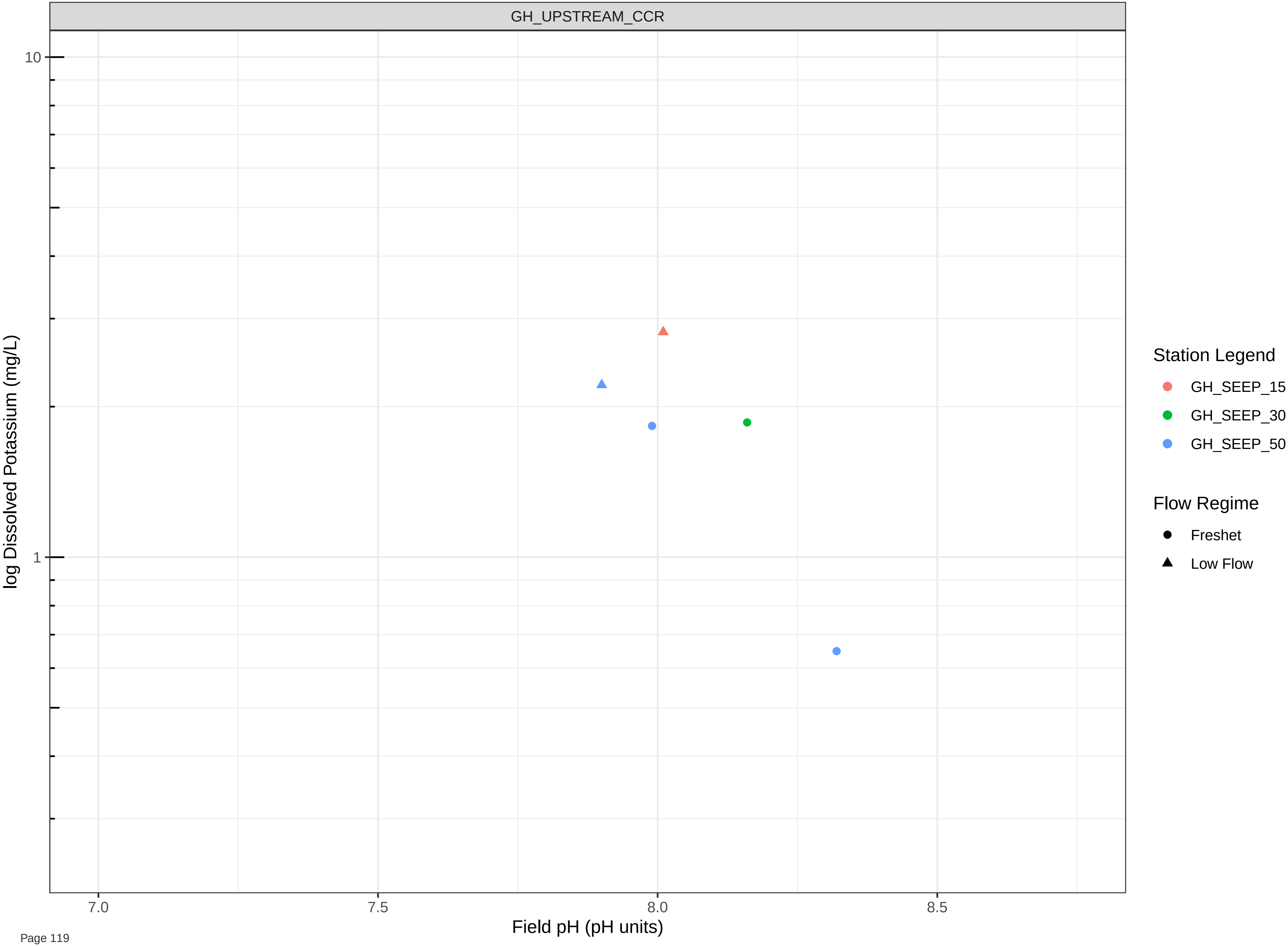
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow


GH_UPSTREAM_CCR
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1
log Dissolved Potassium (mg/L)
7.0
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Field pH (pH units)
Station Legend
GH_SEEP_15
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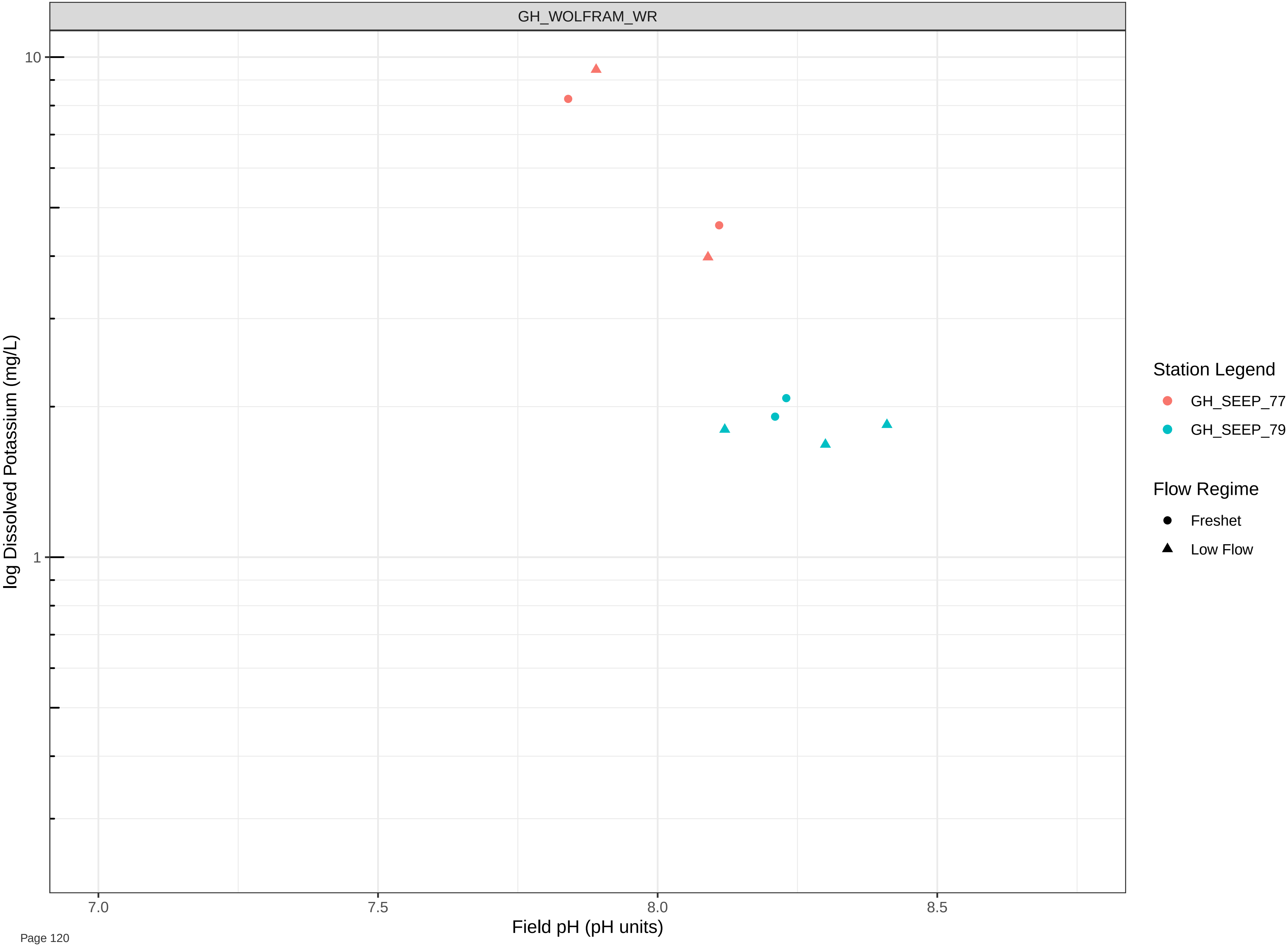
GH_SEEP_50
Flow Regime
Freshet
Low Flow


GH_WOLFRAM_WR
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1
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Field pH (pH units)
Station Legend
GH_SEEP_77
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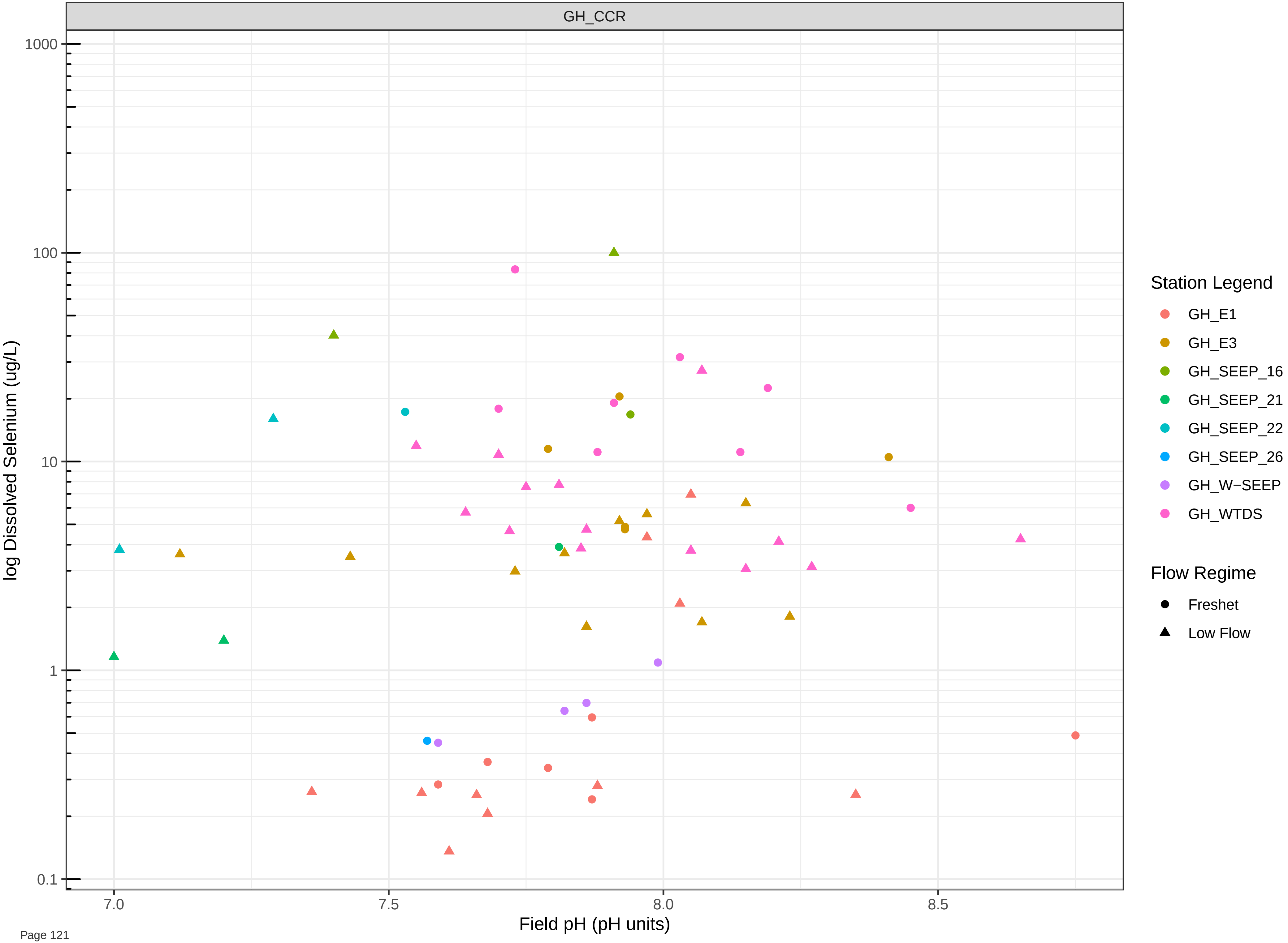
Flow Regime
Freshet
Low Flow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100
10
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0.1
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8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
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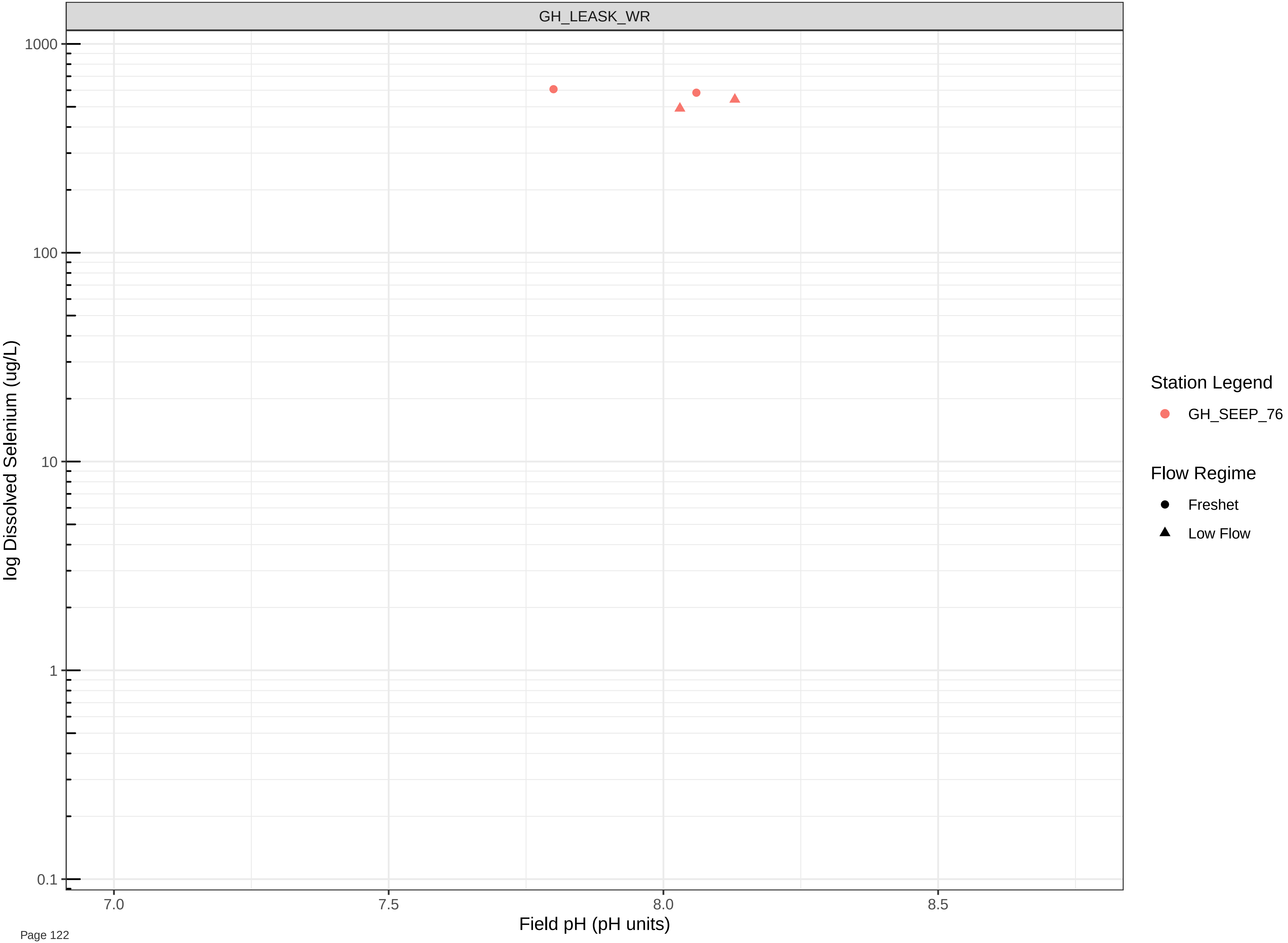
Flow Regime
Freshet
Low Flow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0.1
log Dissolved Selenium (ug/L)
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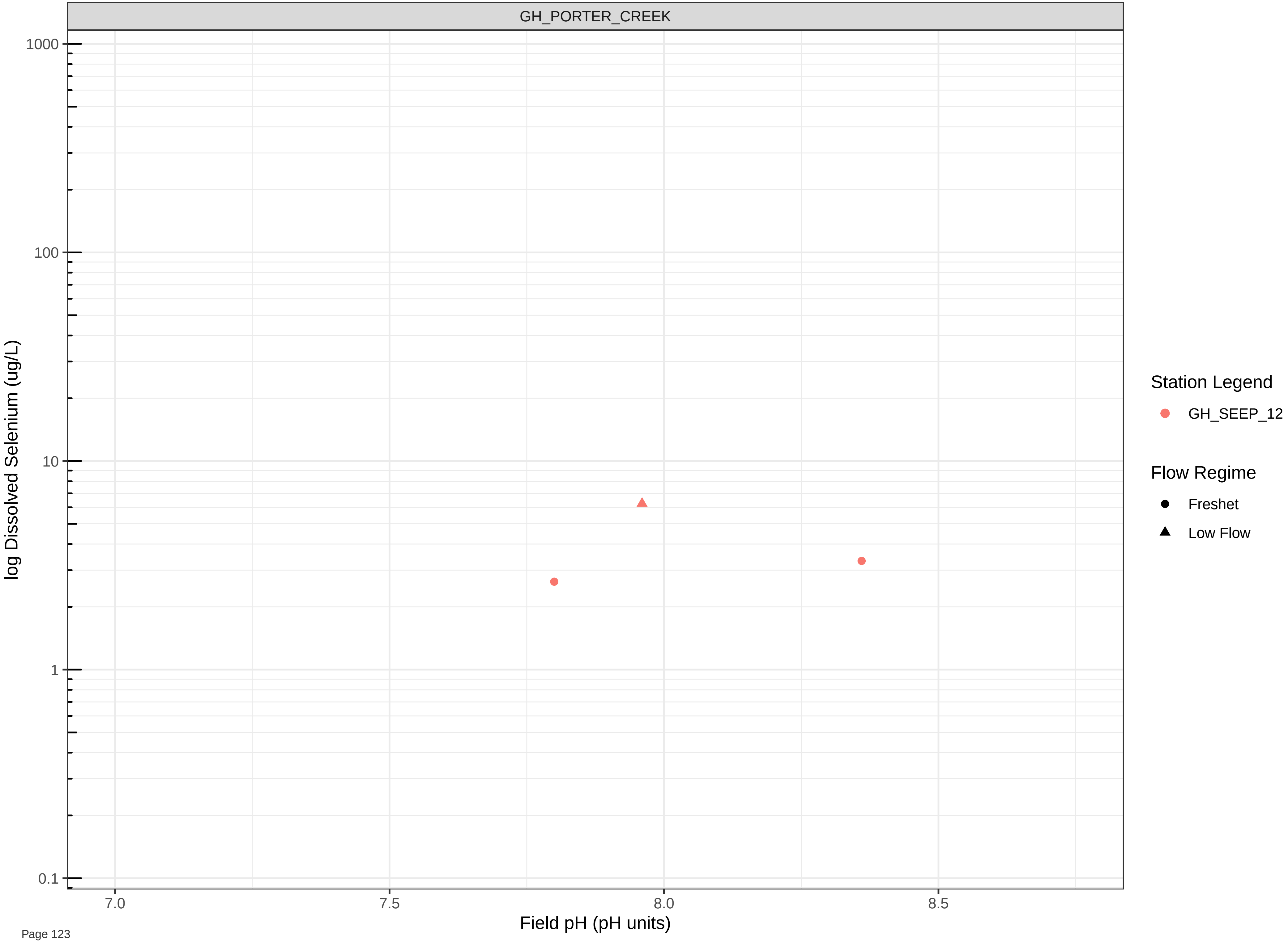
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow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1
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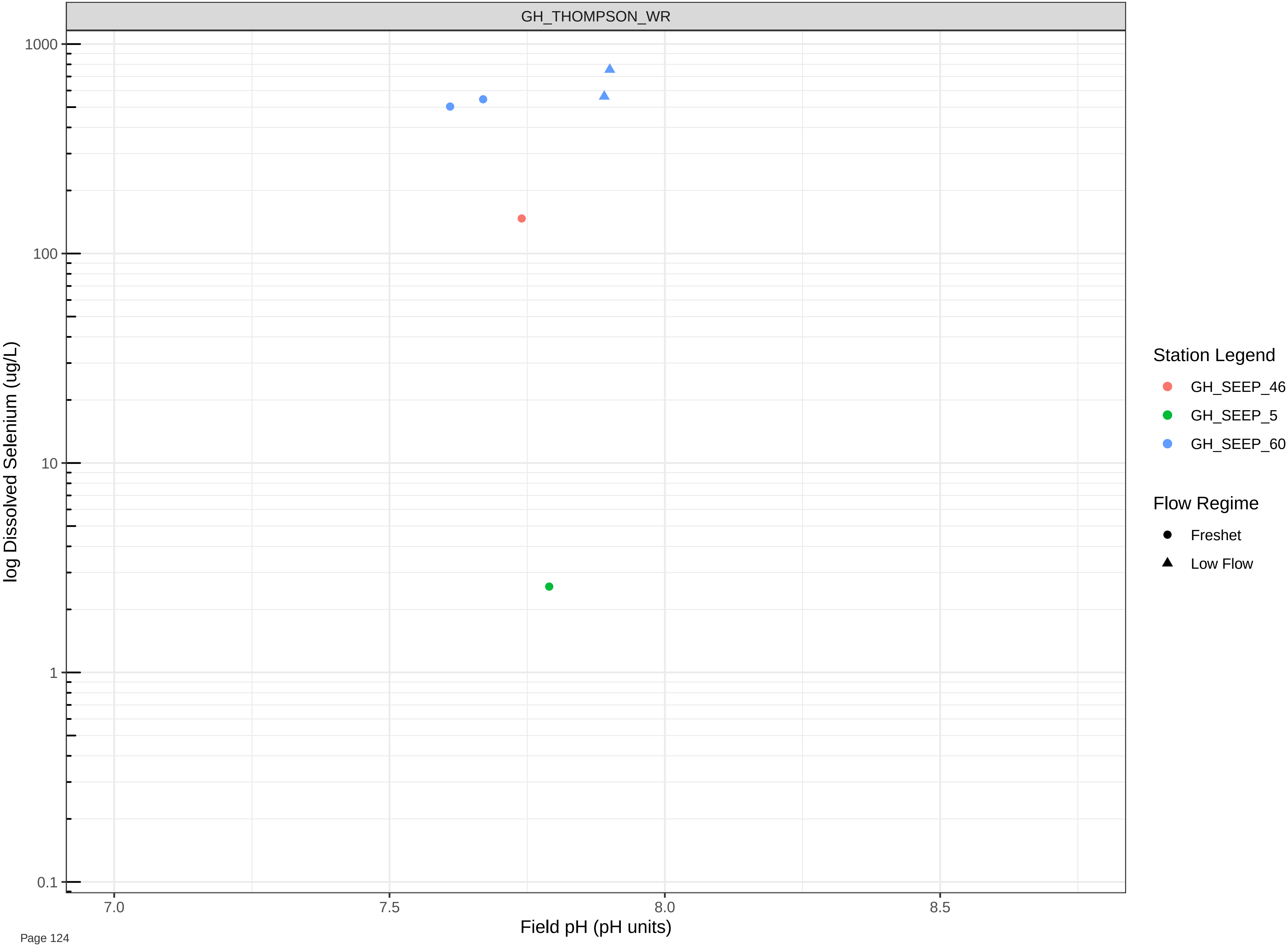
Field pH (pH units)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow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0.1
log Dissolved Selenium (ug/L)
7.0
7.5
8.0
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Field pH (pH units)
Station Legend
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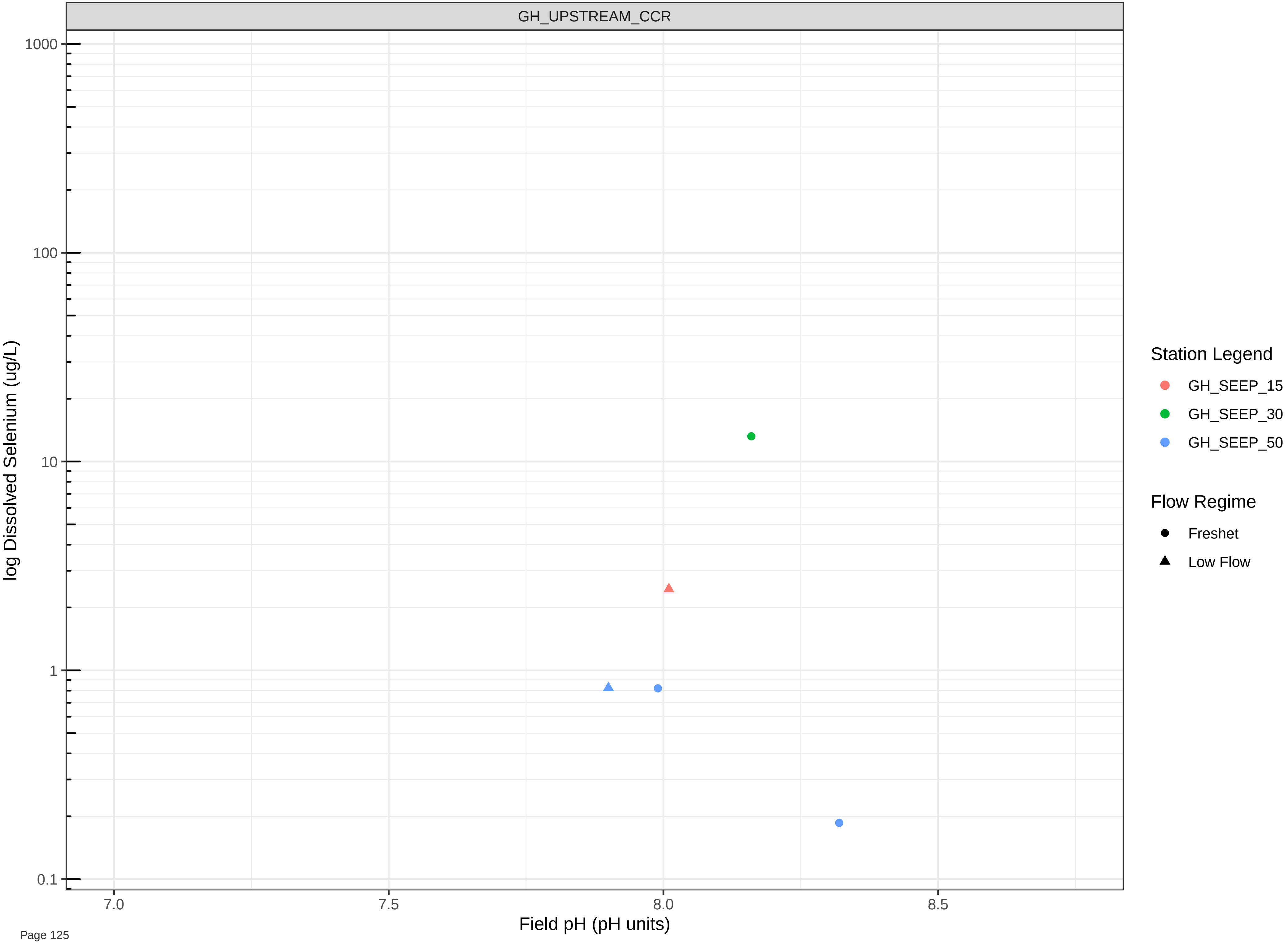
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow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0.1
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Field pH (pH units)
Station Legend
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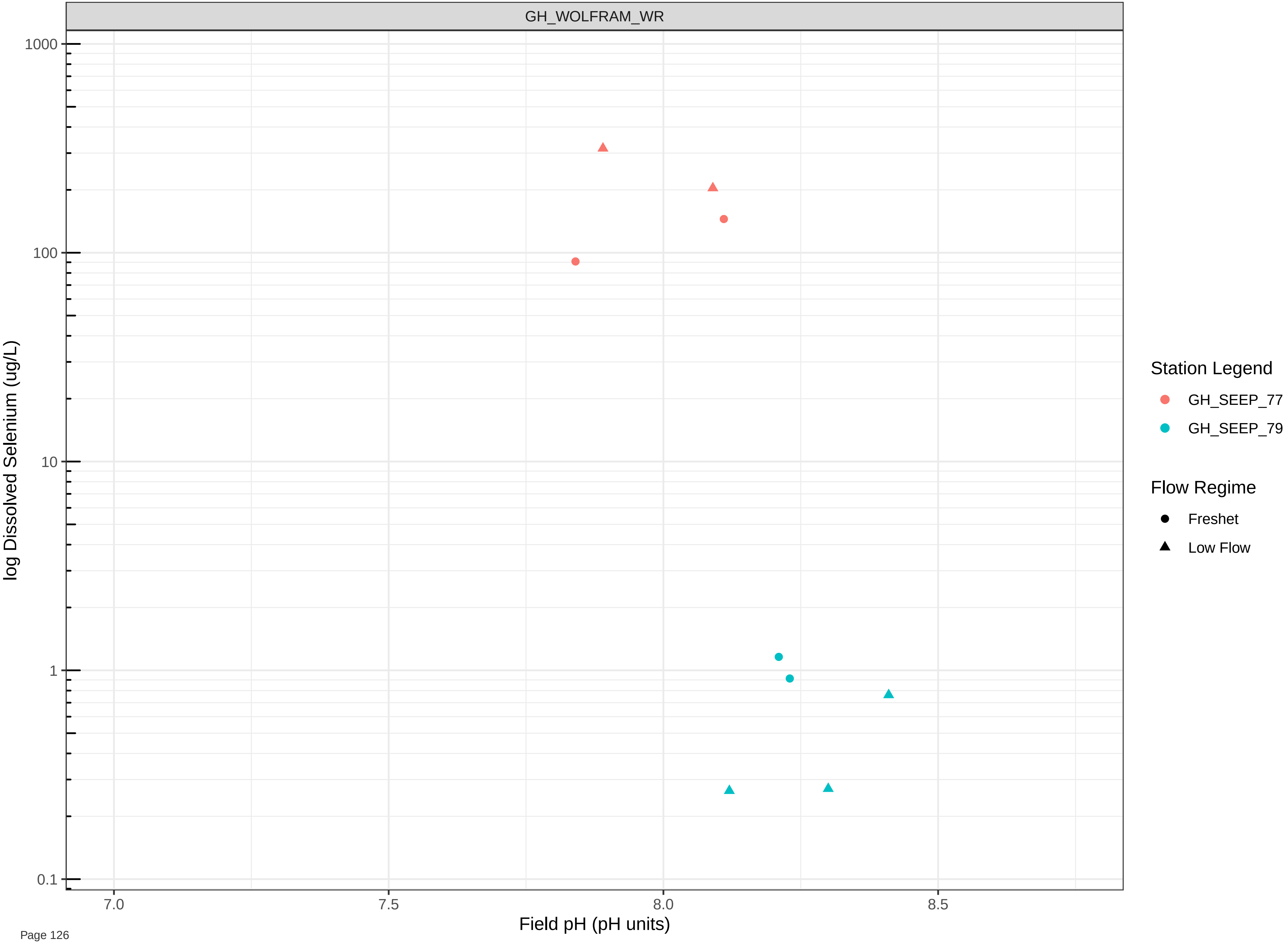
Flow Regime
Freshet
Low Flow


GH_WOLFRAM_WR
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100
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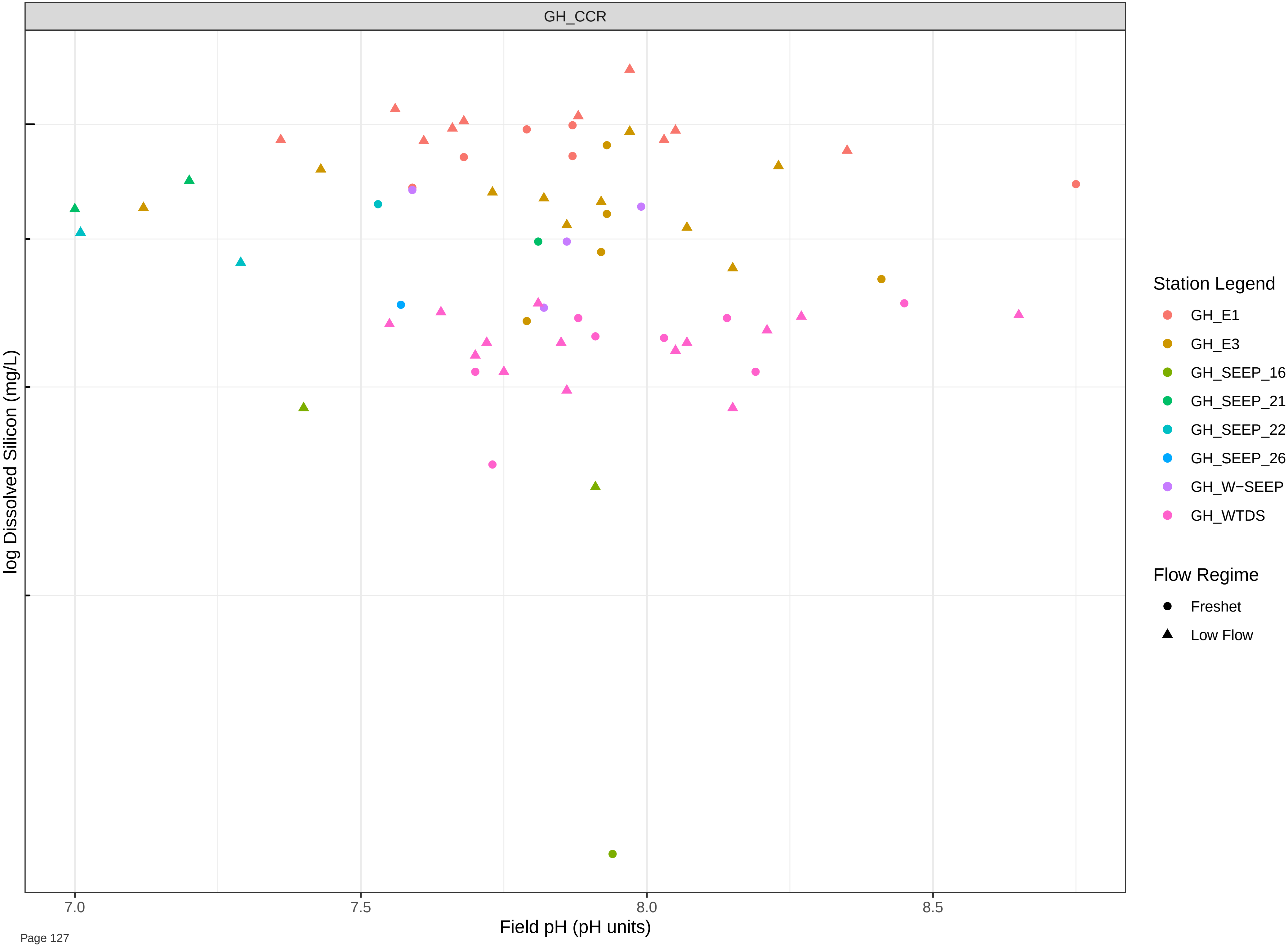
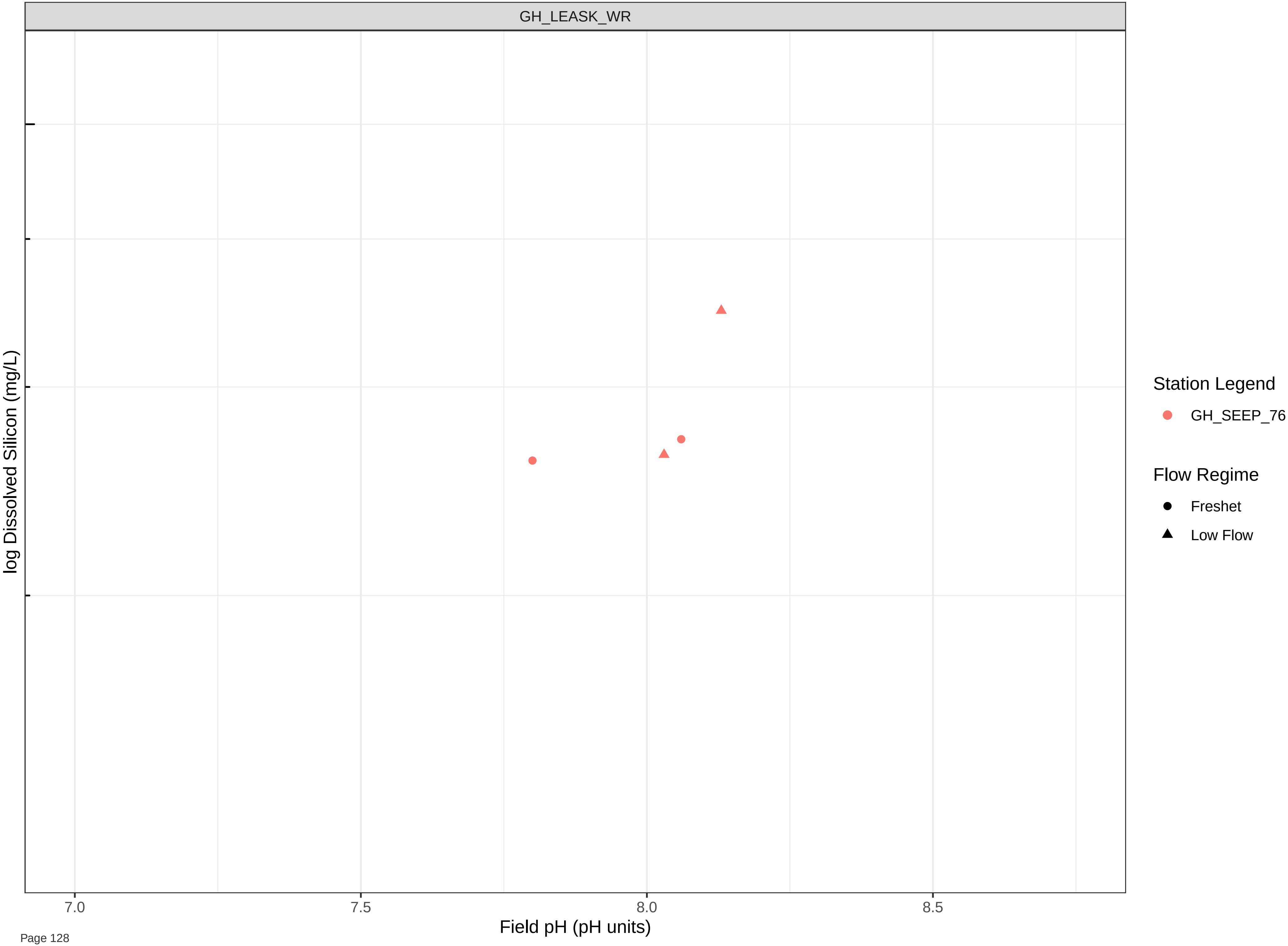
log Dissolved Selenium (ug/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow


GH_CCR
log Dissolved Silicon (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow


GH_LEASK_WR
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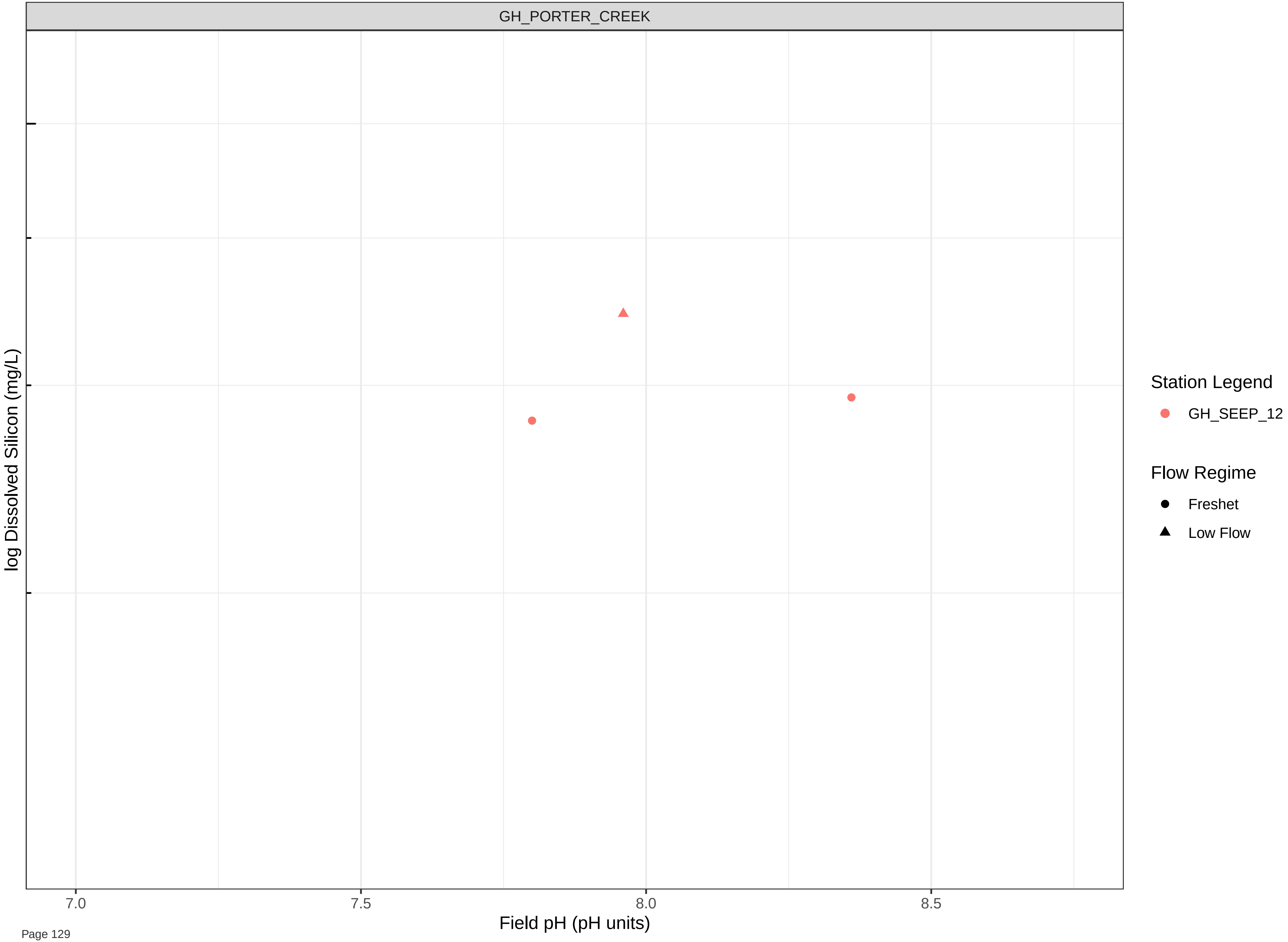
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow


GH_PORTER_CREEK
log Dissolved Silicon (mg/L)
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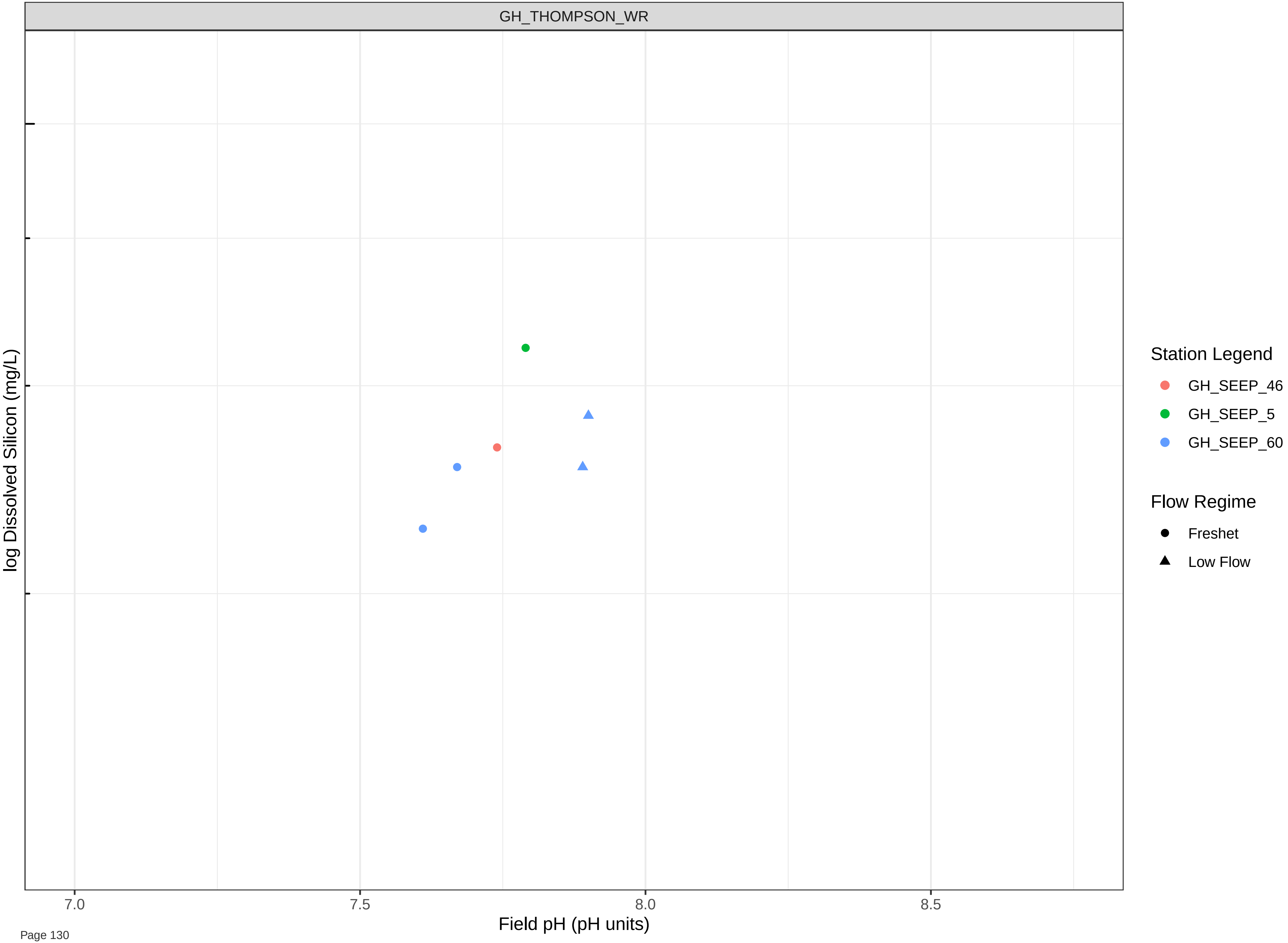
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow


GH_THOMPSON_WR
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7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
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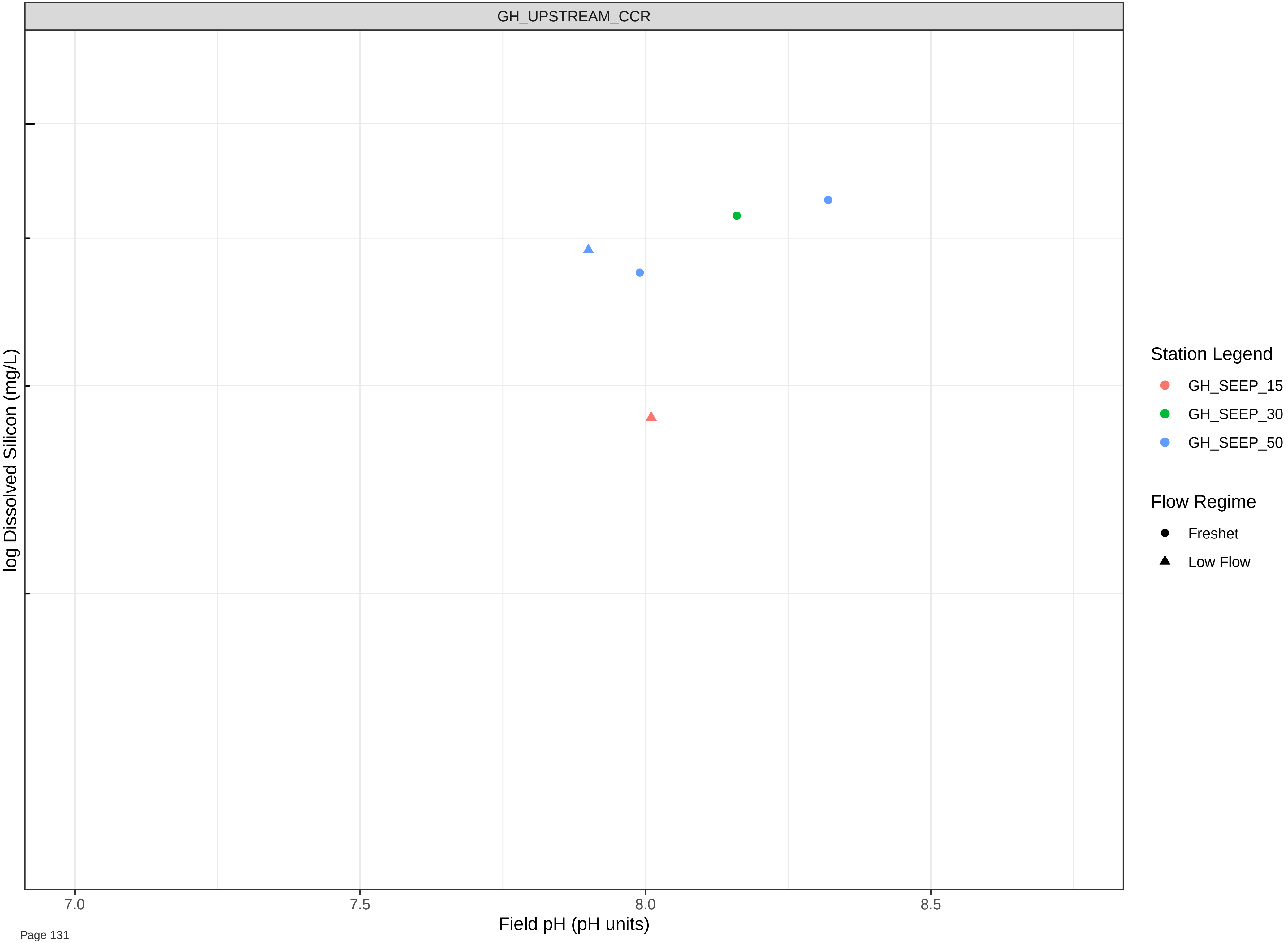
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow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Field pH (pH units)
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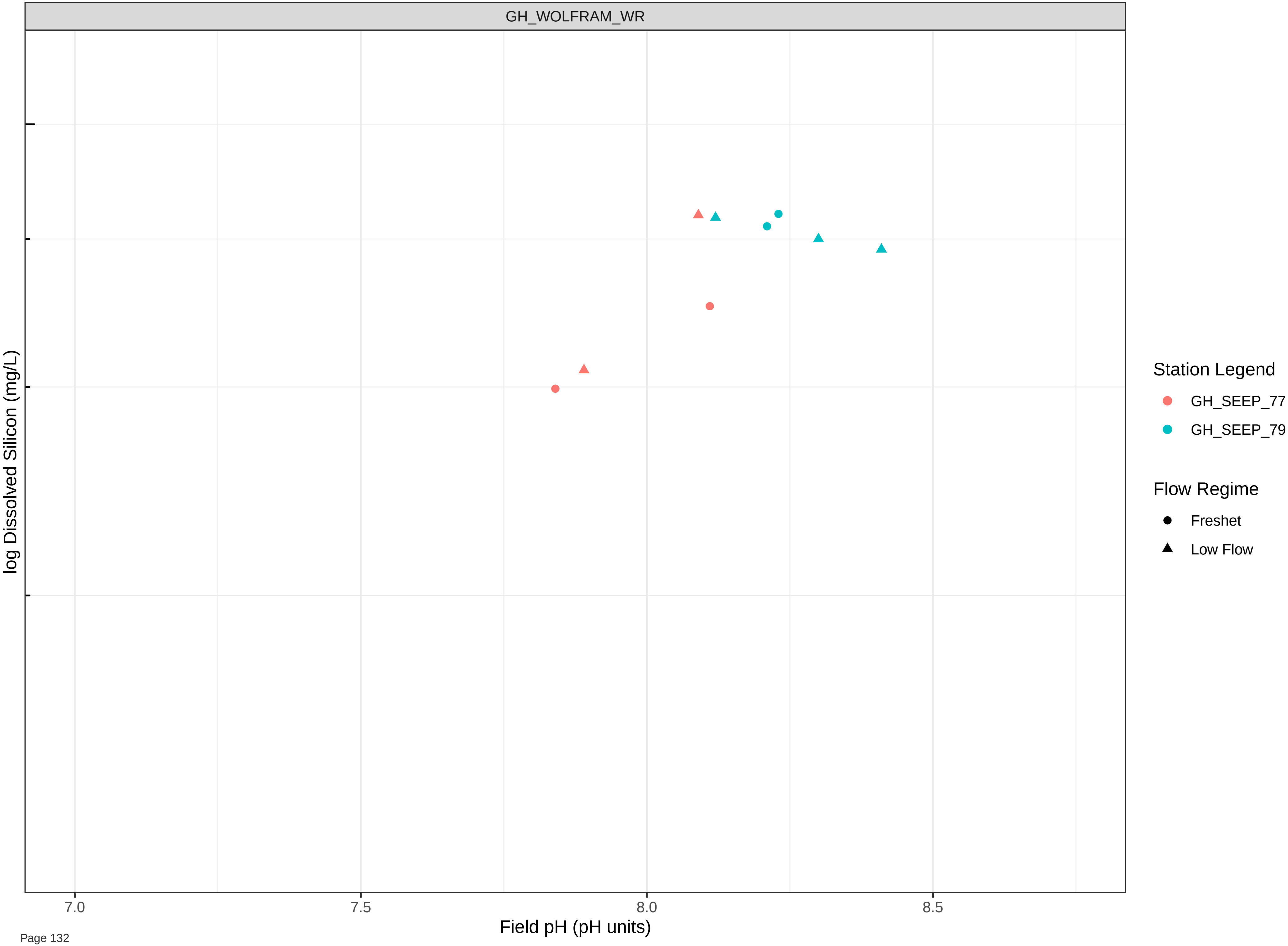
7.5
8.0
8.5
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow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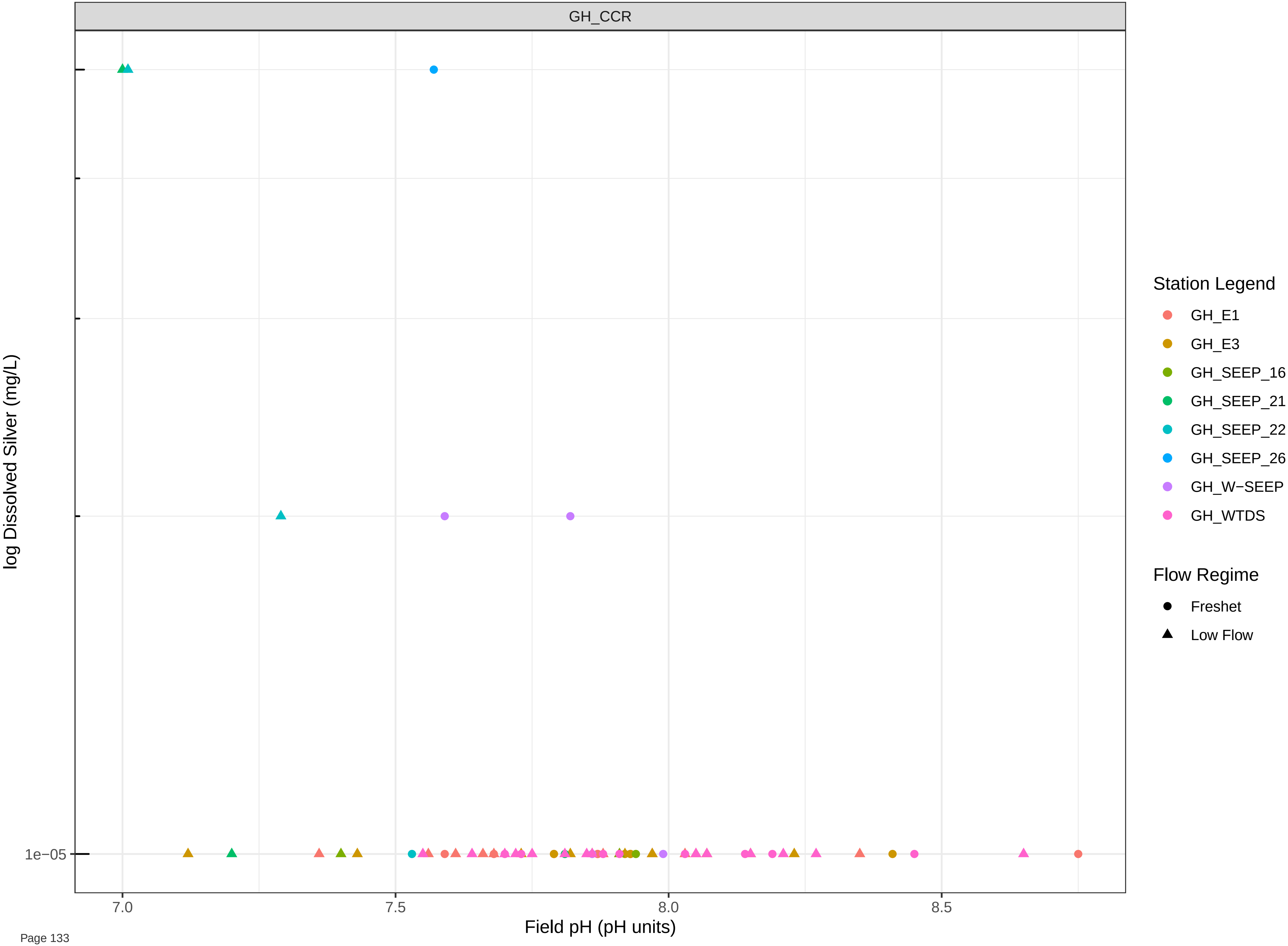
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_77
● GH_SEEP_79
Flow Regime
● Freshet
▲ Low Flow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1e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
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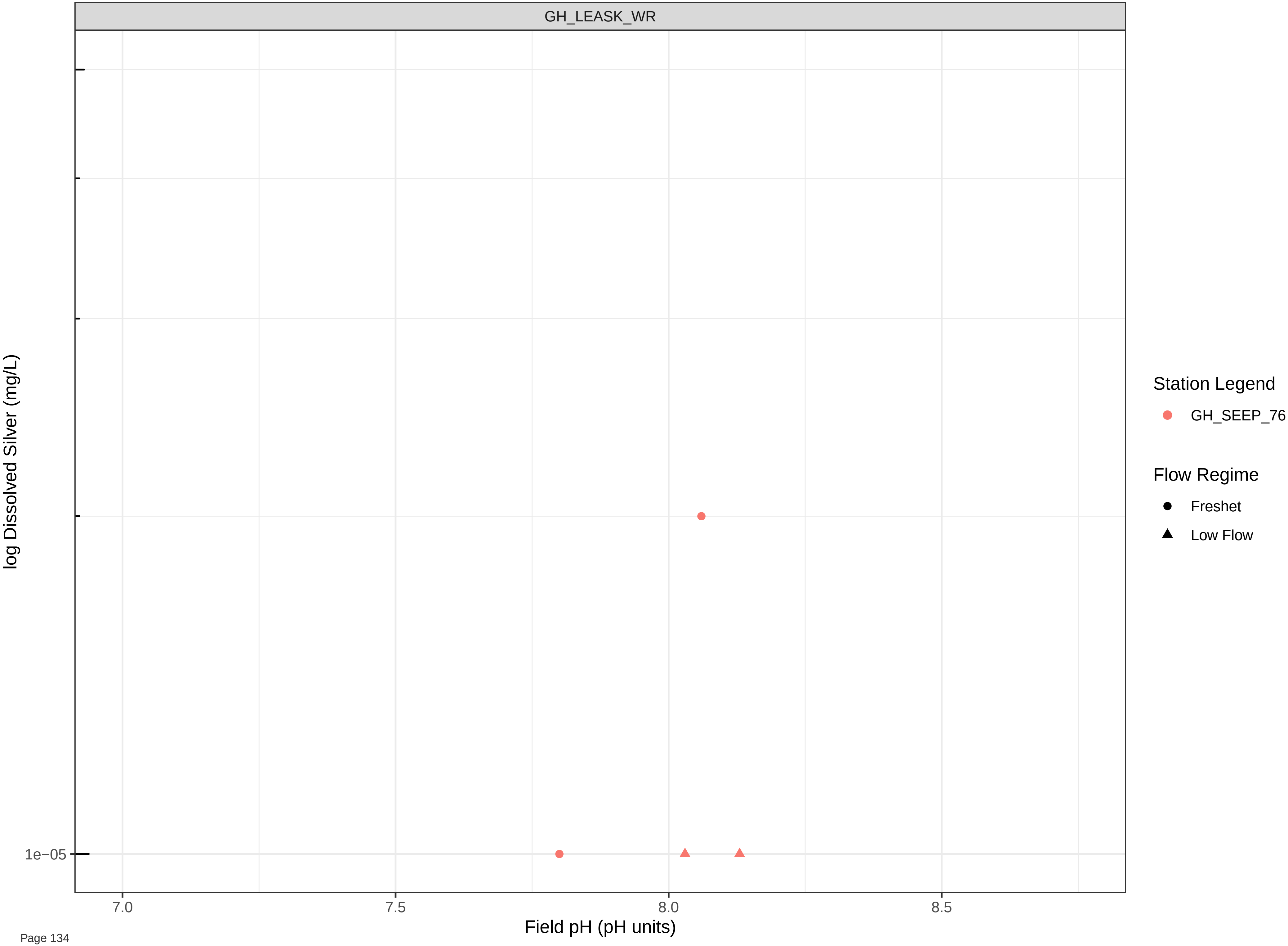
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow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Field pH (pH units)
Station Legend
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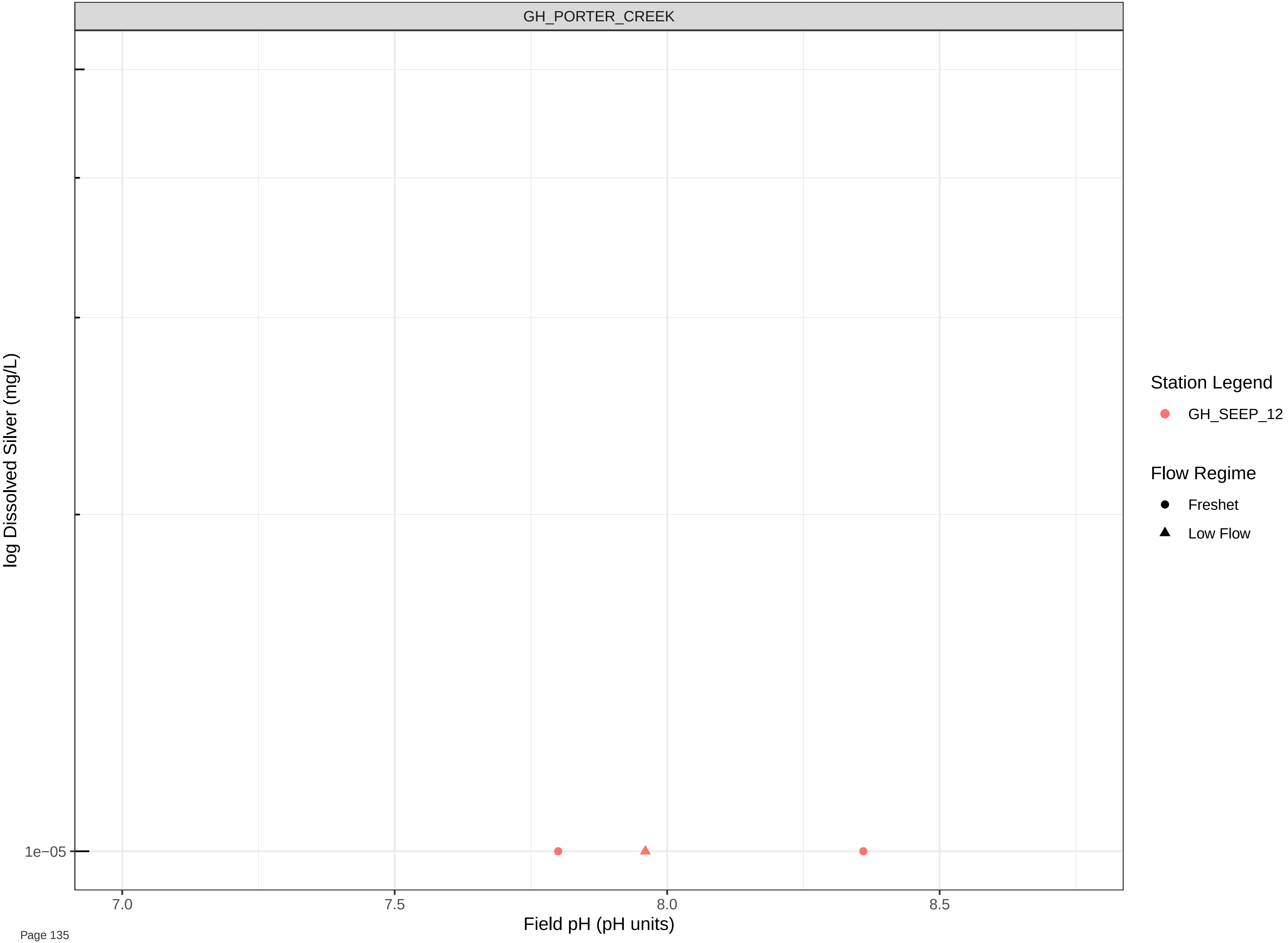
Flow Regime
Freshet
Low Flow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8.0
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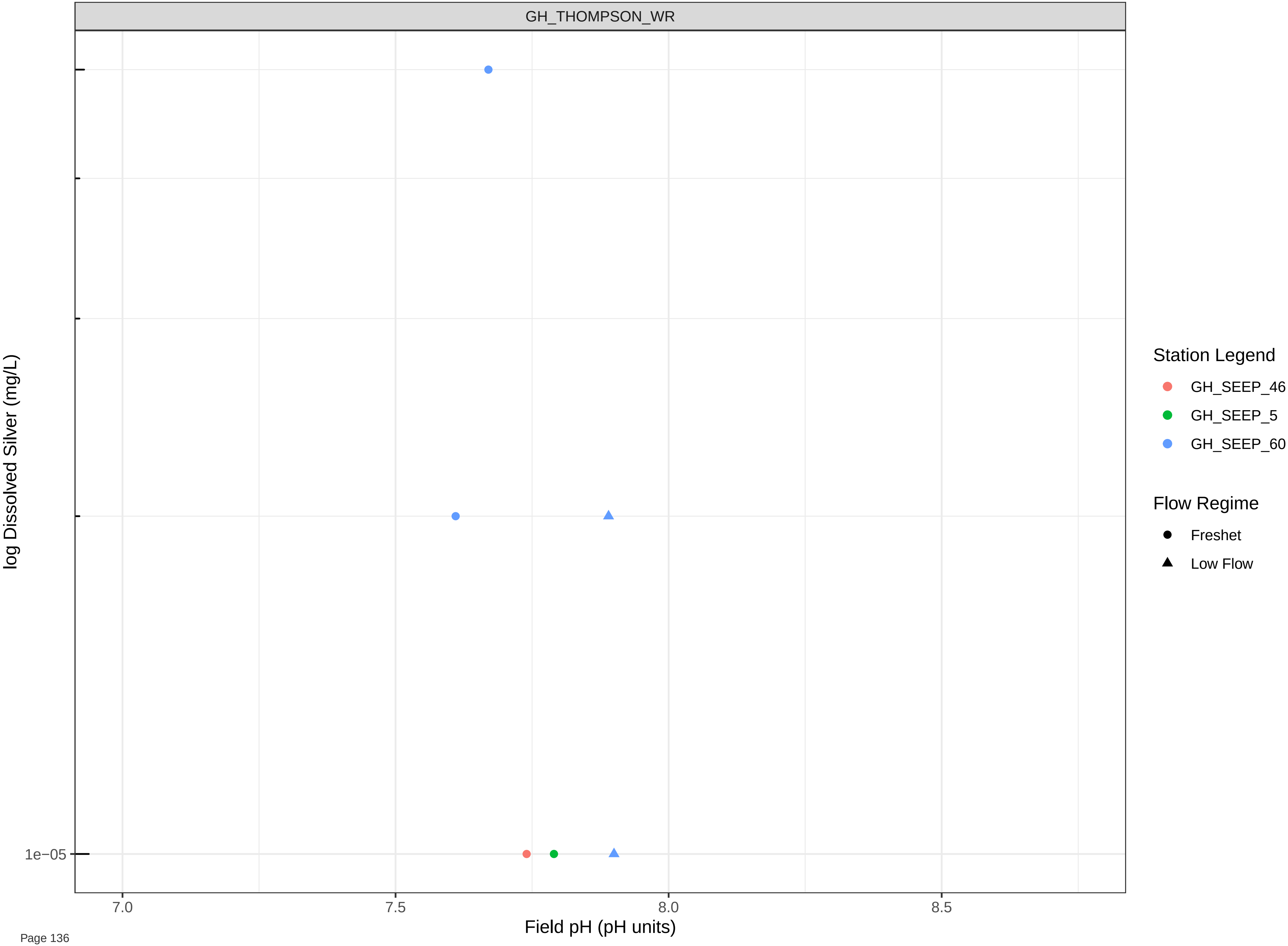
Field pH (pH units)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow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7.5
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Field pH (pH units)
Station Legend
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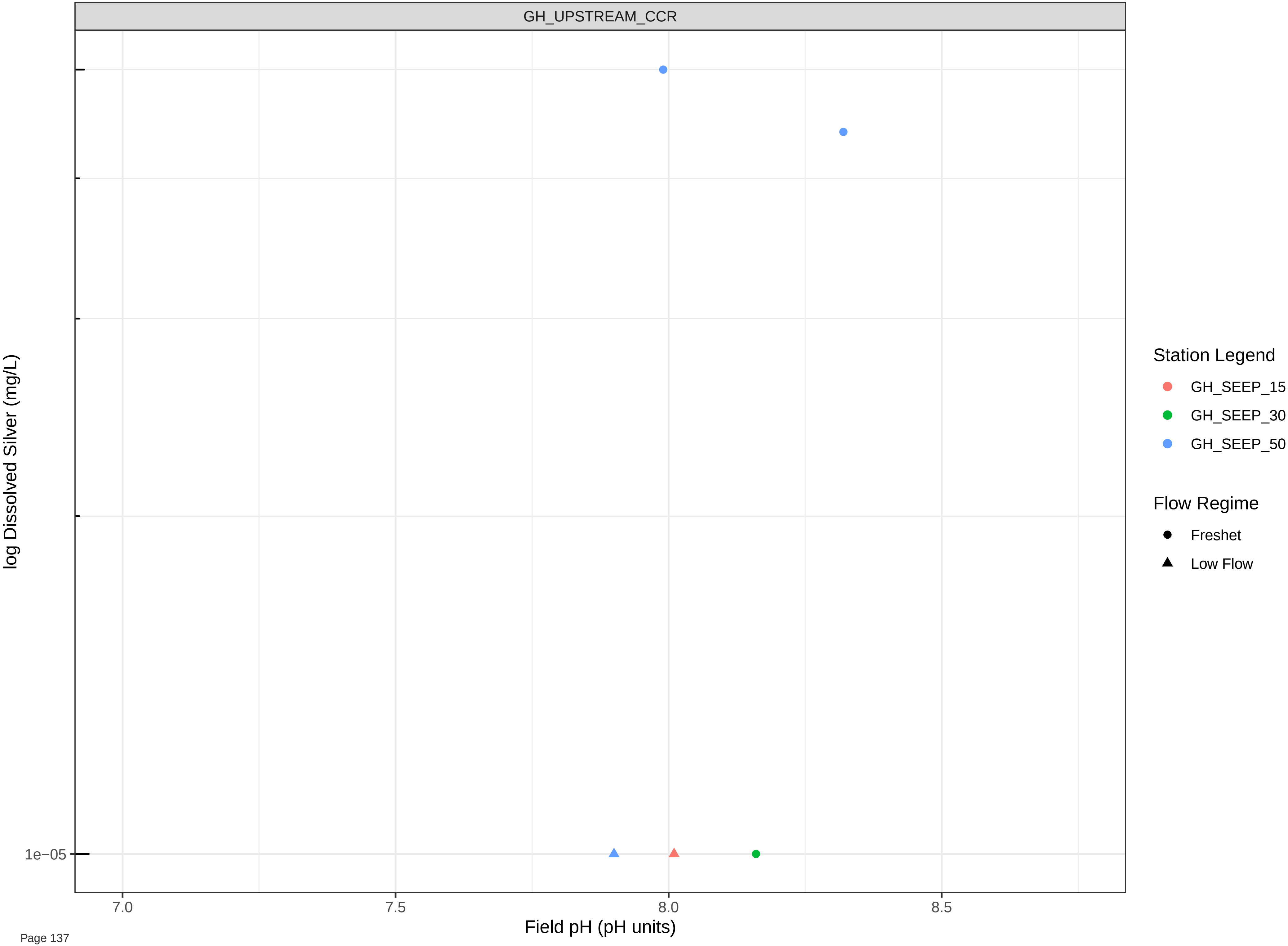
GH_SEEP_60
Flow Regime
Freshet
Low Flow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Field pH (pH units)
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8.0
8.5
Station Legend
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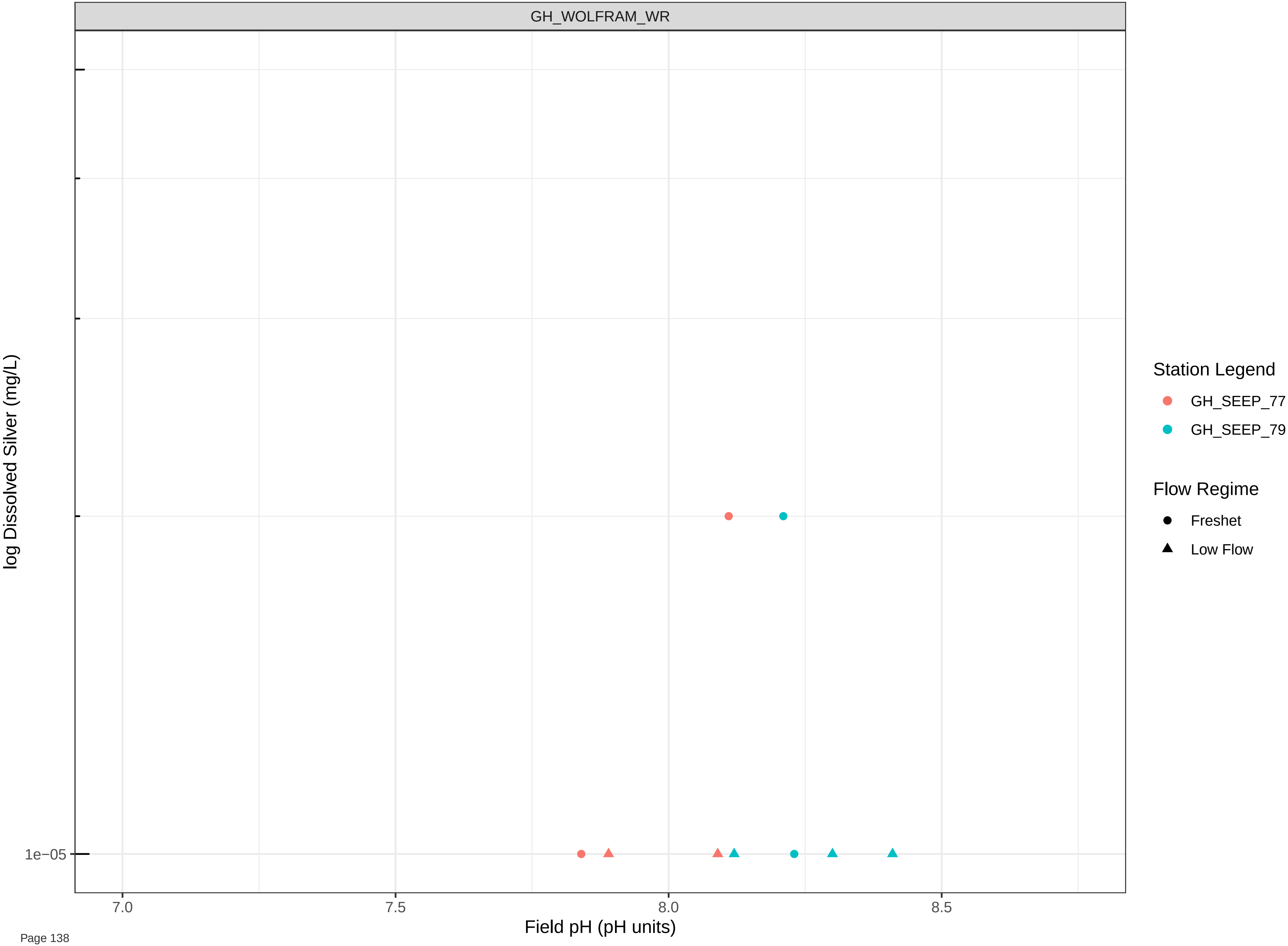
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow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7.5
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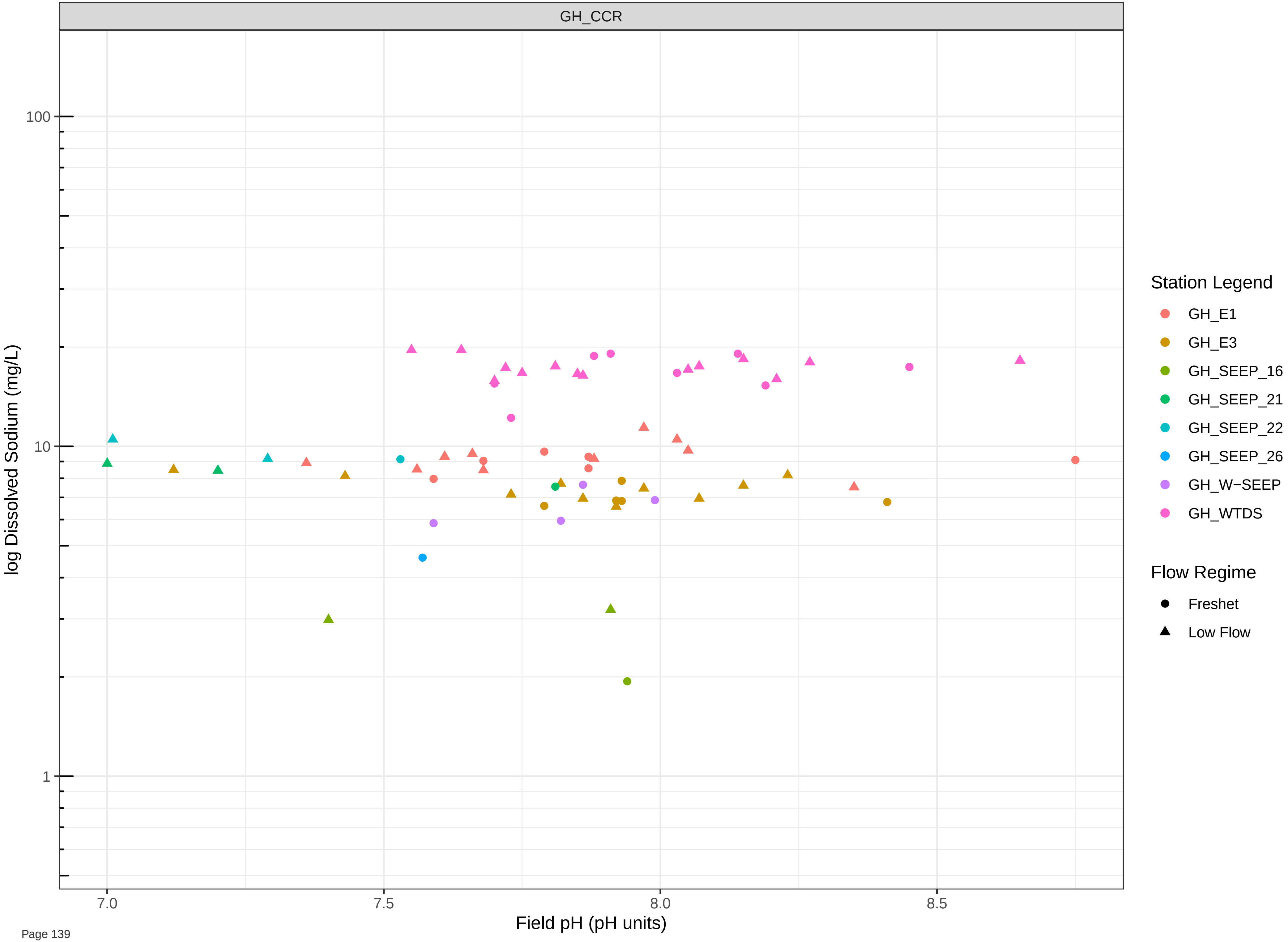
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow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log Dissolved Sodium (mg/L)
100
10
1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
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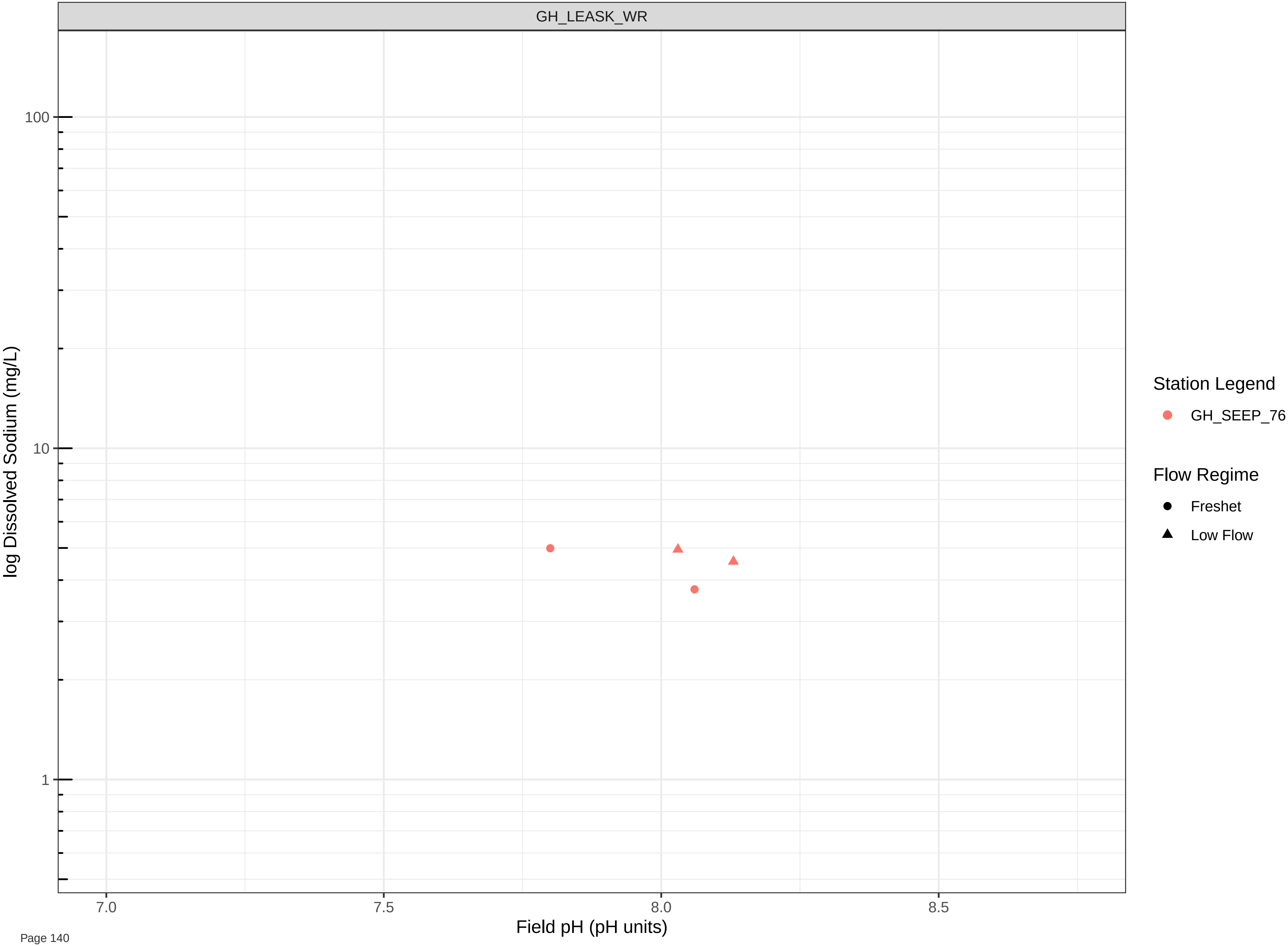
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow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1
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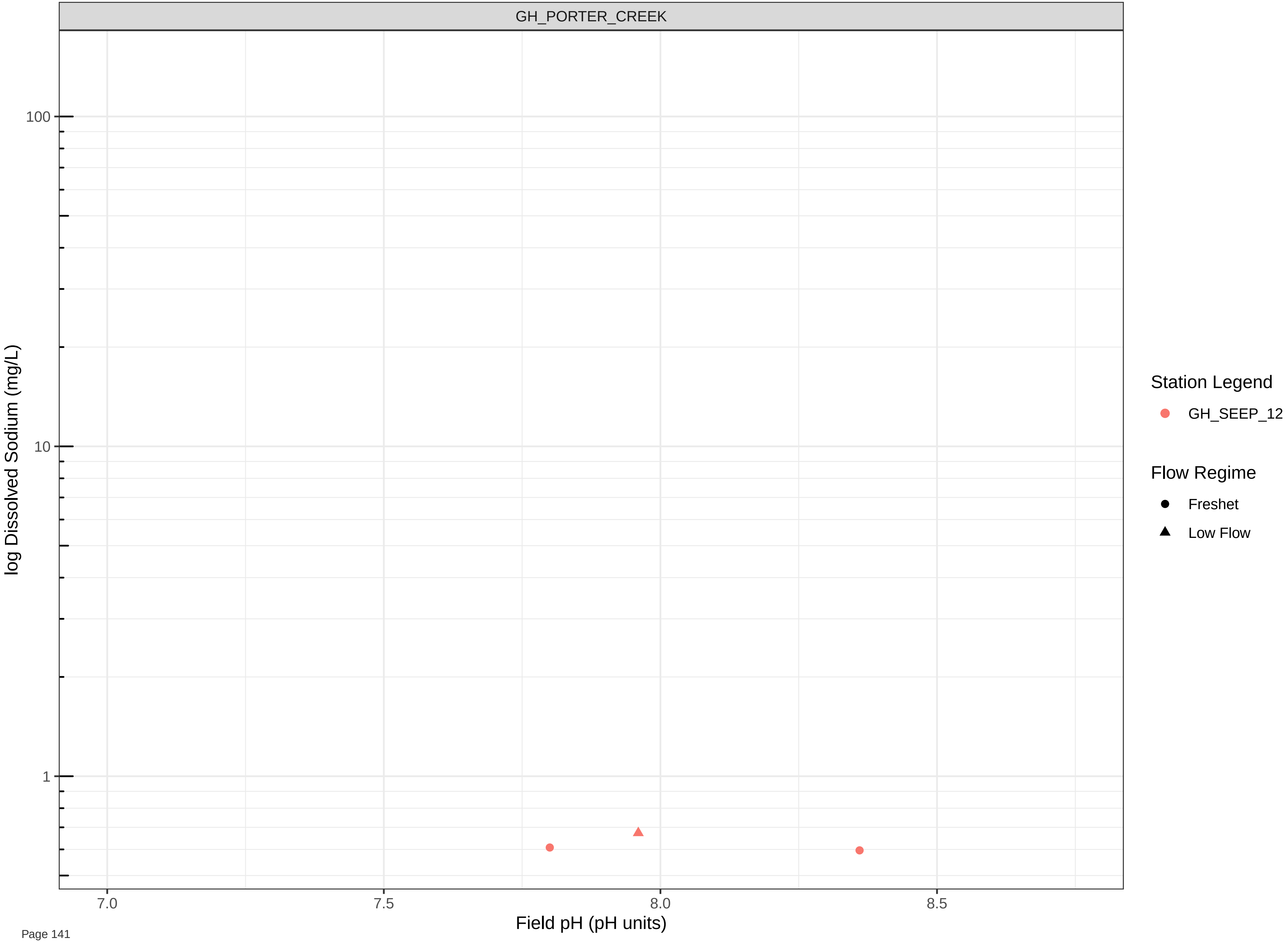
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow


GH_PORTER_CREEK
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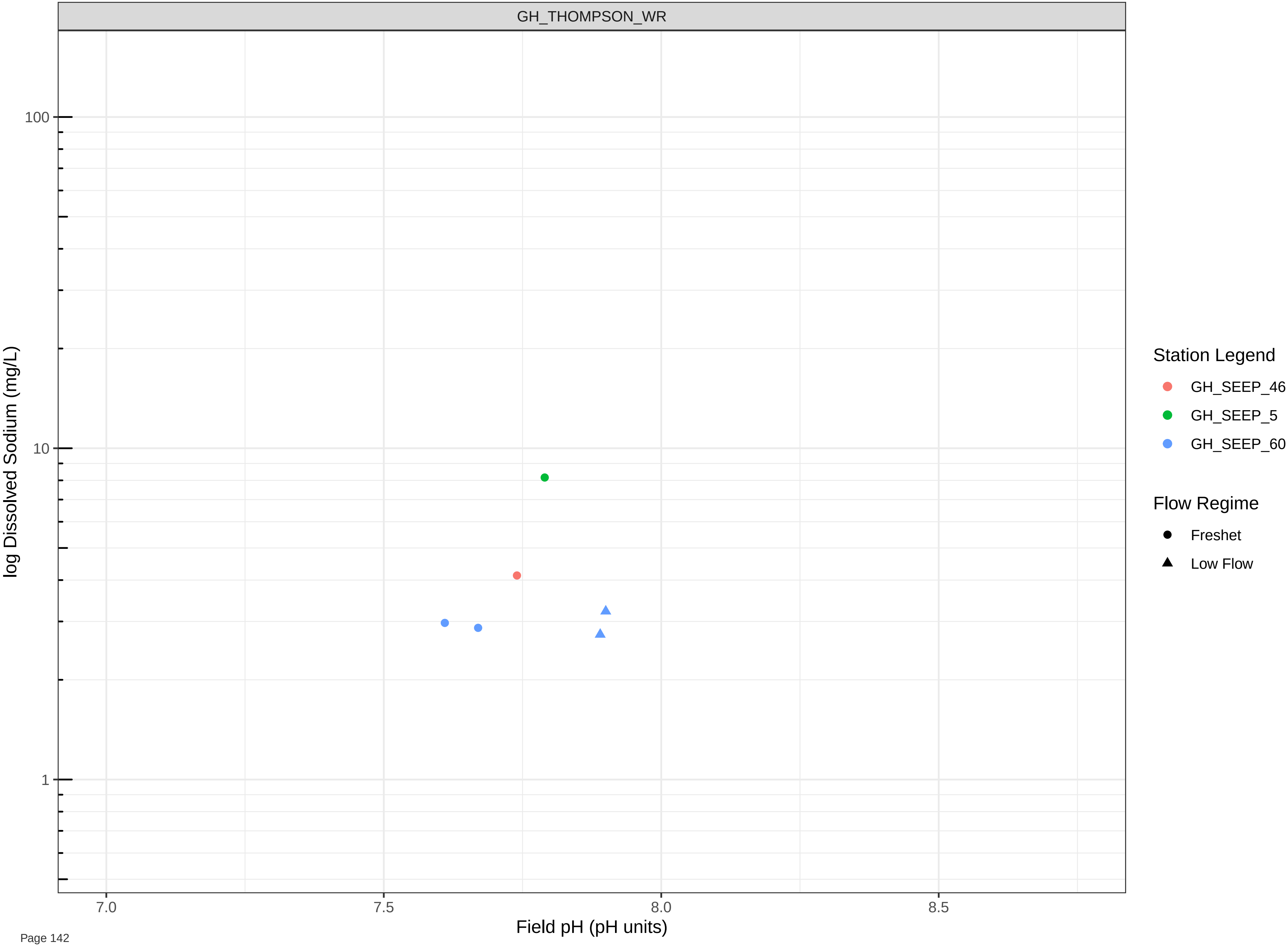
100
10
1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow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100
10
1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
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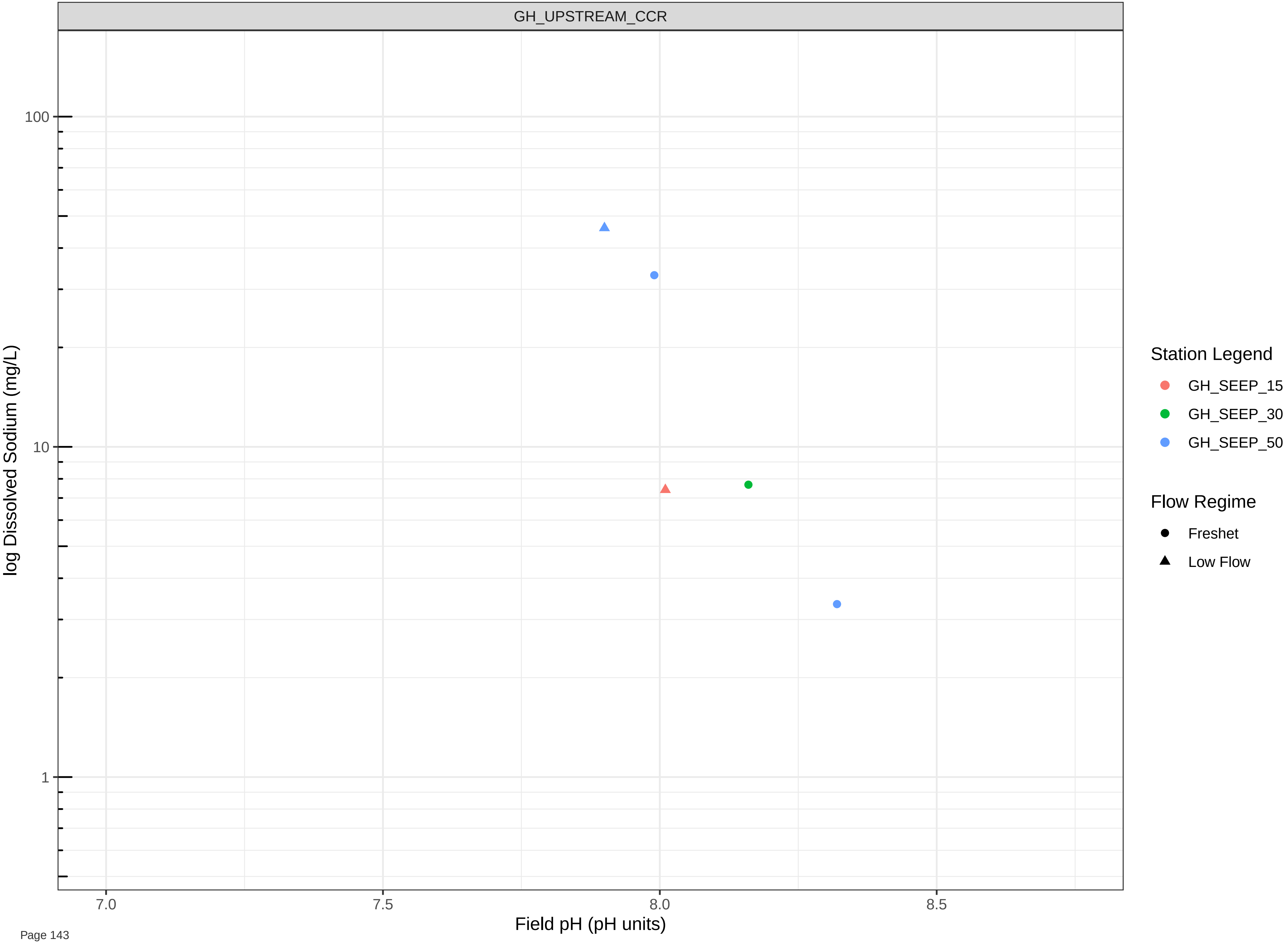
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow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10
1
7.0
7.5
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Field pH (pH units)
Station Legend
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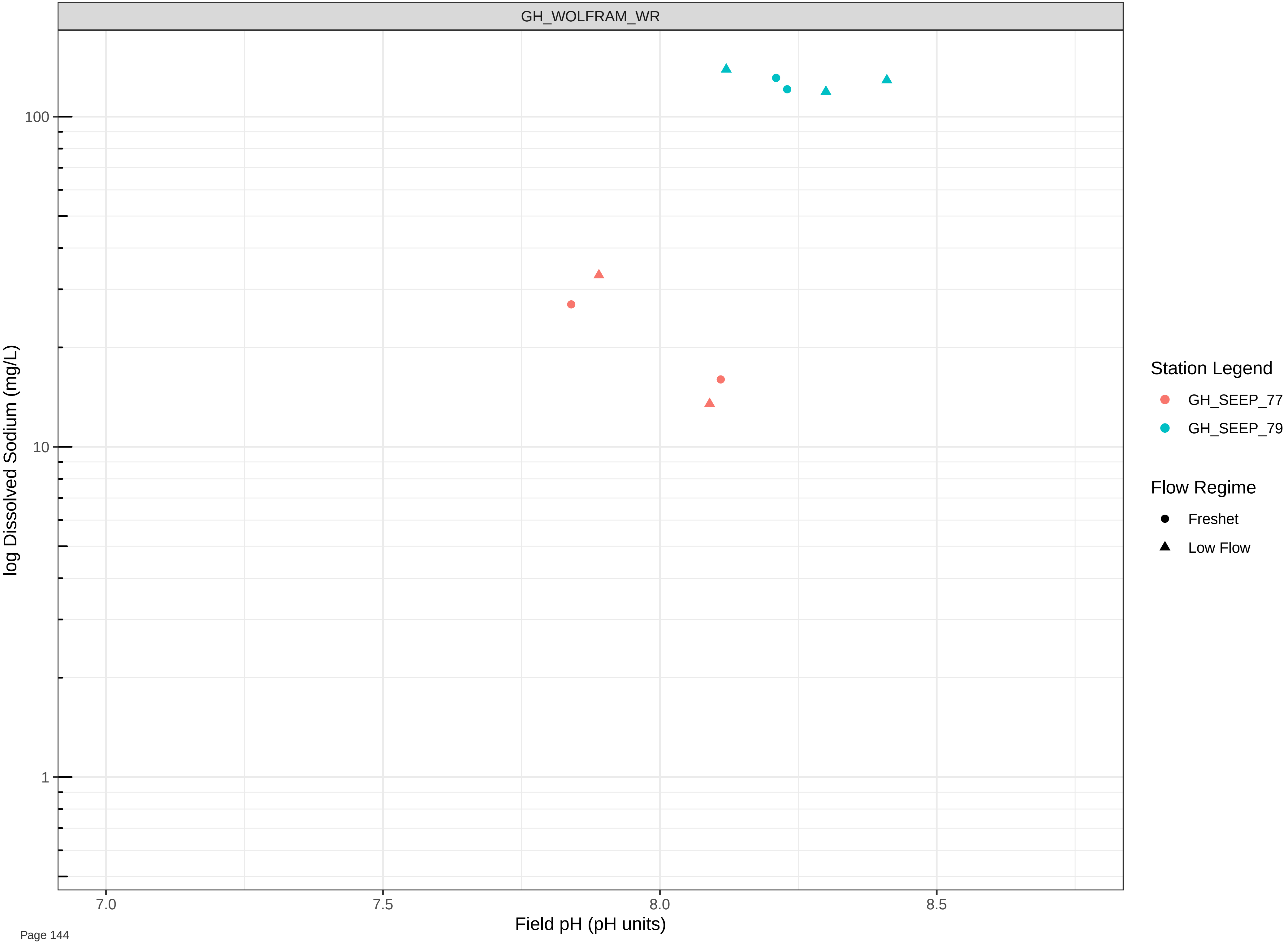
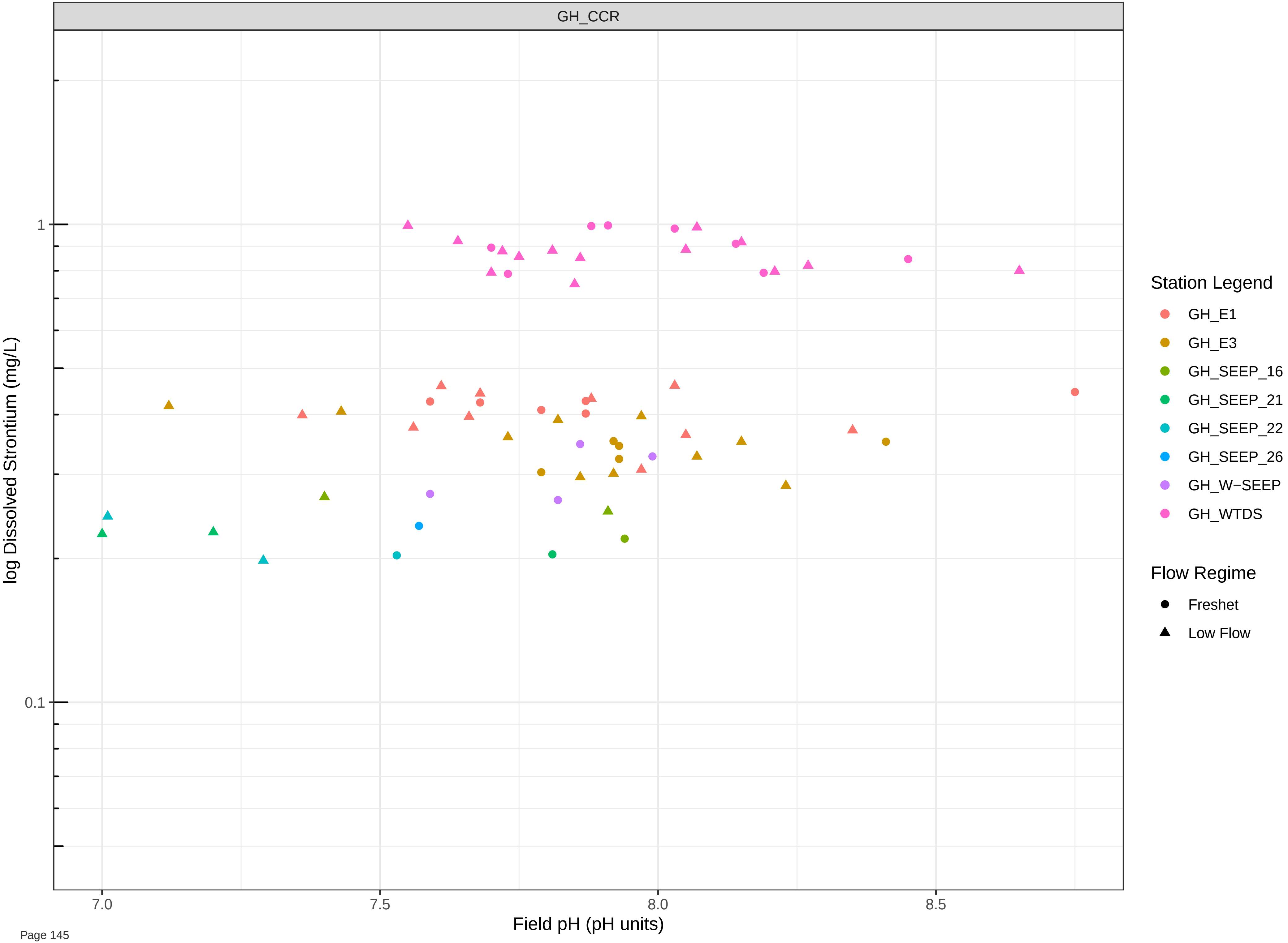
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow


GH_WOLFRAM_WR
log Dissolved Sodium (mg/L)
100
10
1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow


GH_CCR
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1
0.1
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
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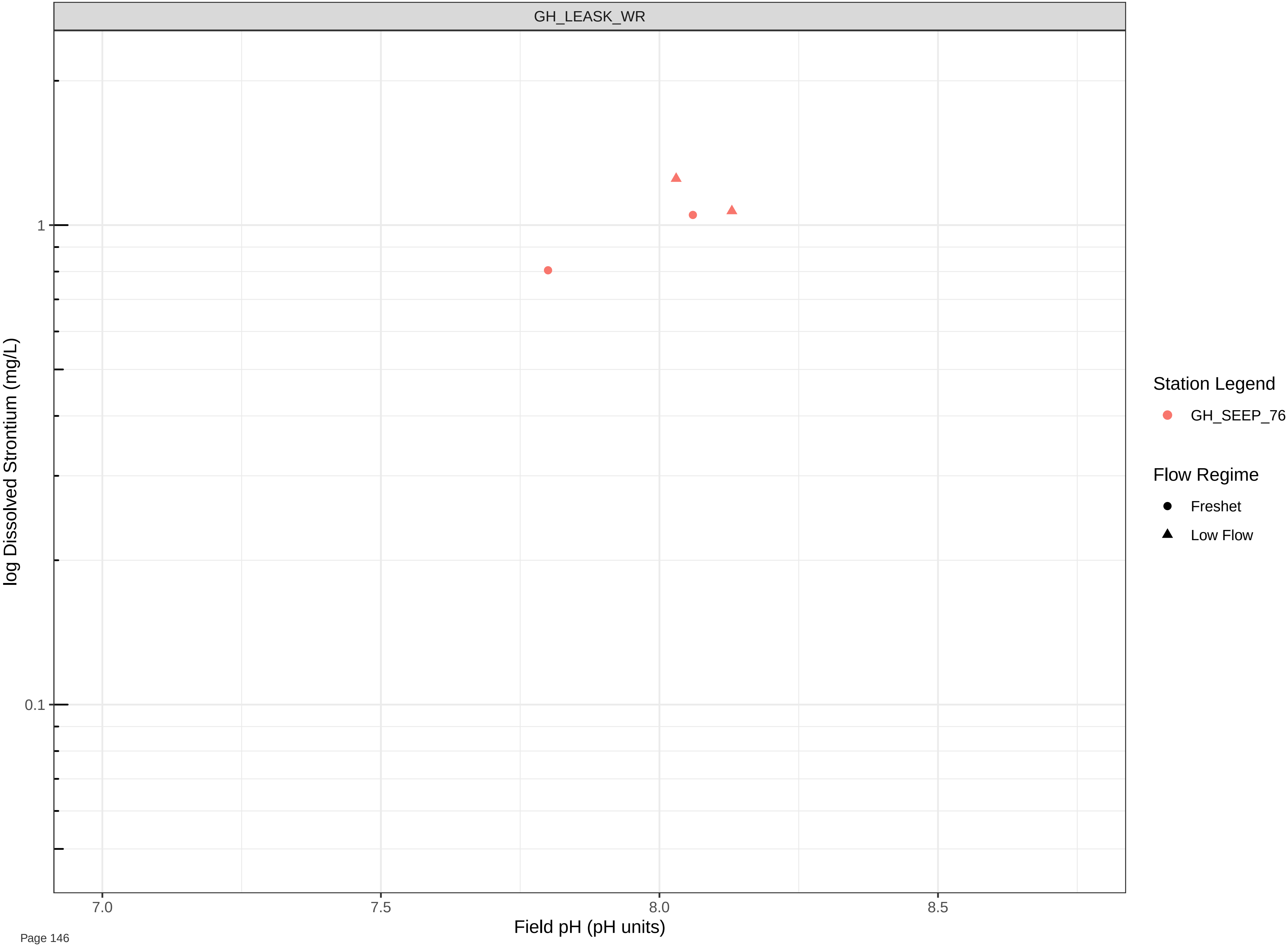
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow


GH_LEASK_WR
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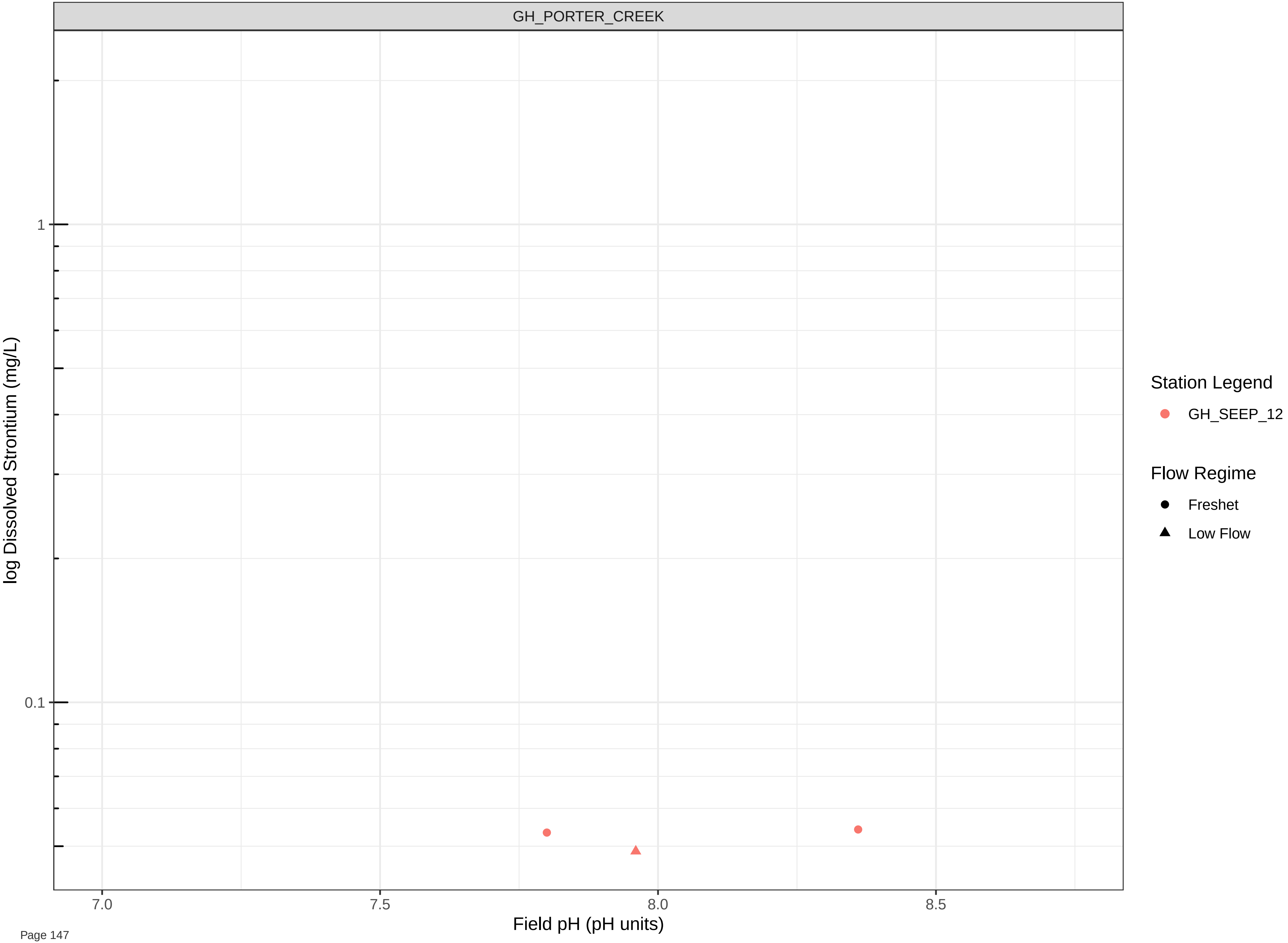
0.1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow


GH_PORTER_CREEK
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1
0.1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
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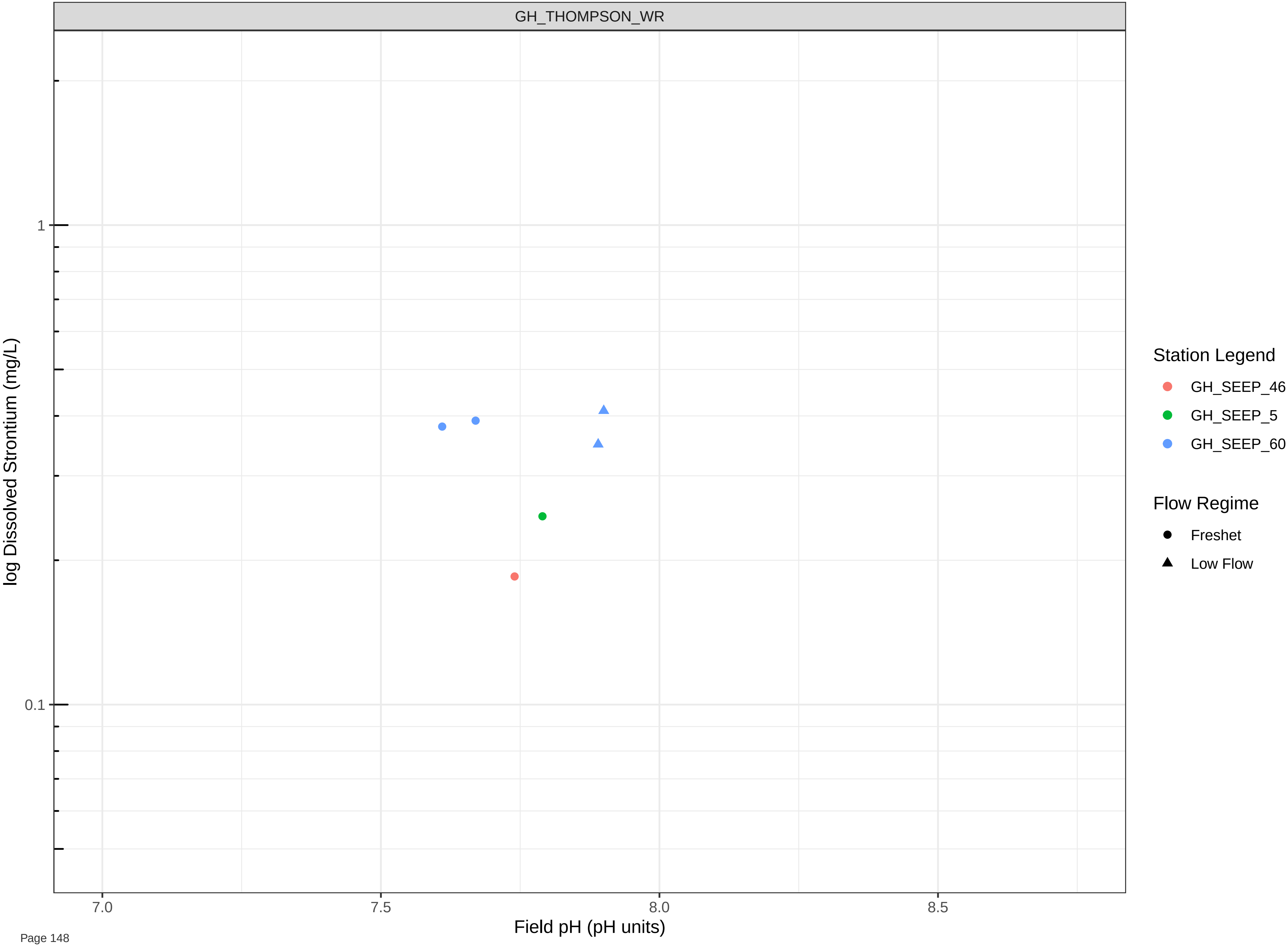
Flow Regime
● Freshet
▲ Low Flow


GH_THOMPSON_WR
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1
0.1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
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GH_SEEP_5
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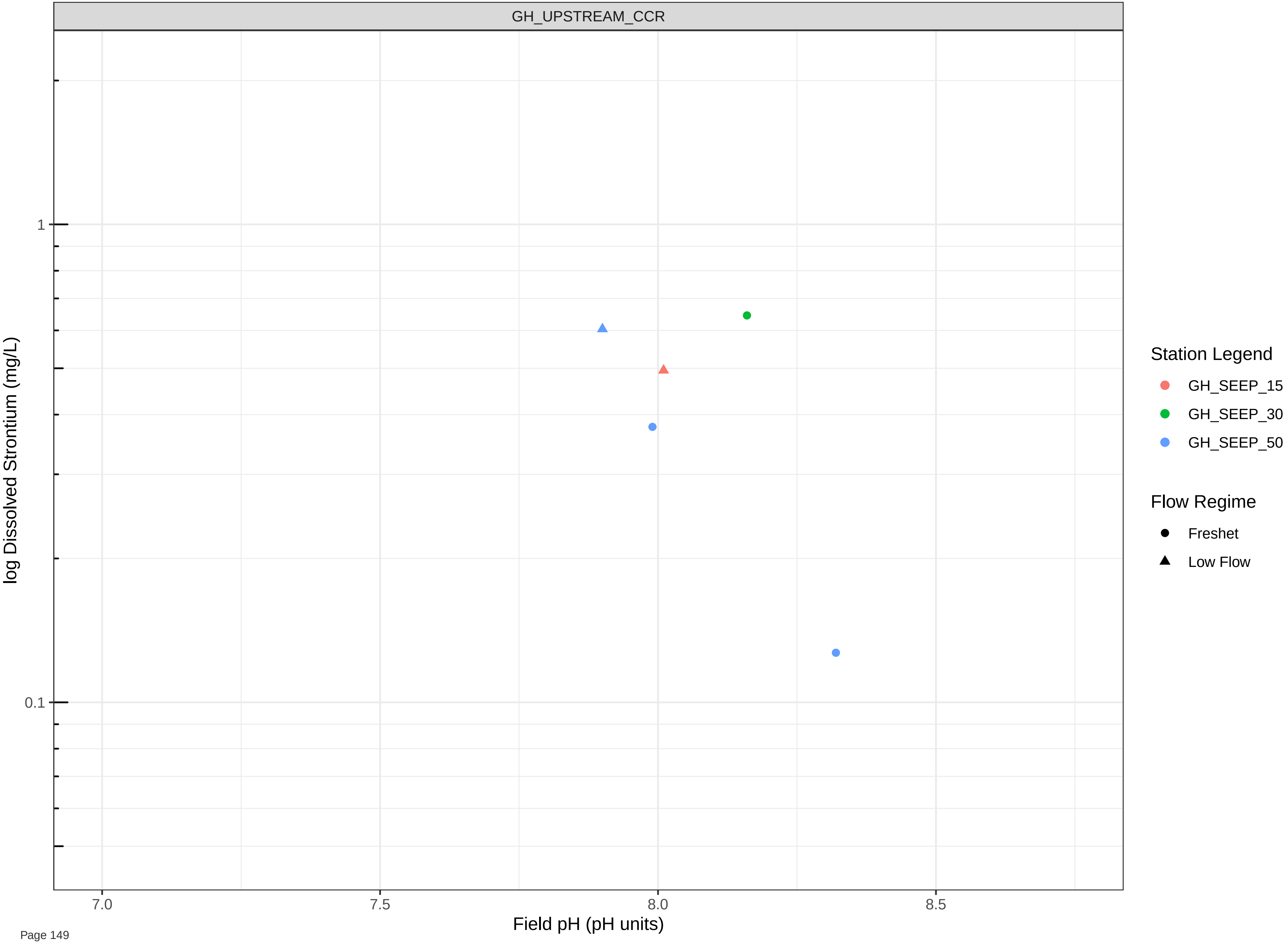
Flow Regime
Freshet
Low Flow


GH_UPSTREAM_CCR
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0.1
log Dissolved Strontium (mg/L)
7.0
7.5
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8.5
Field pH (pH units)
Station Legend
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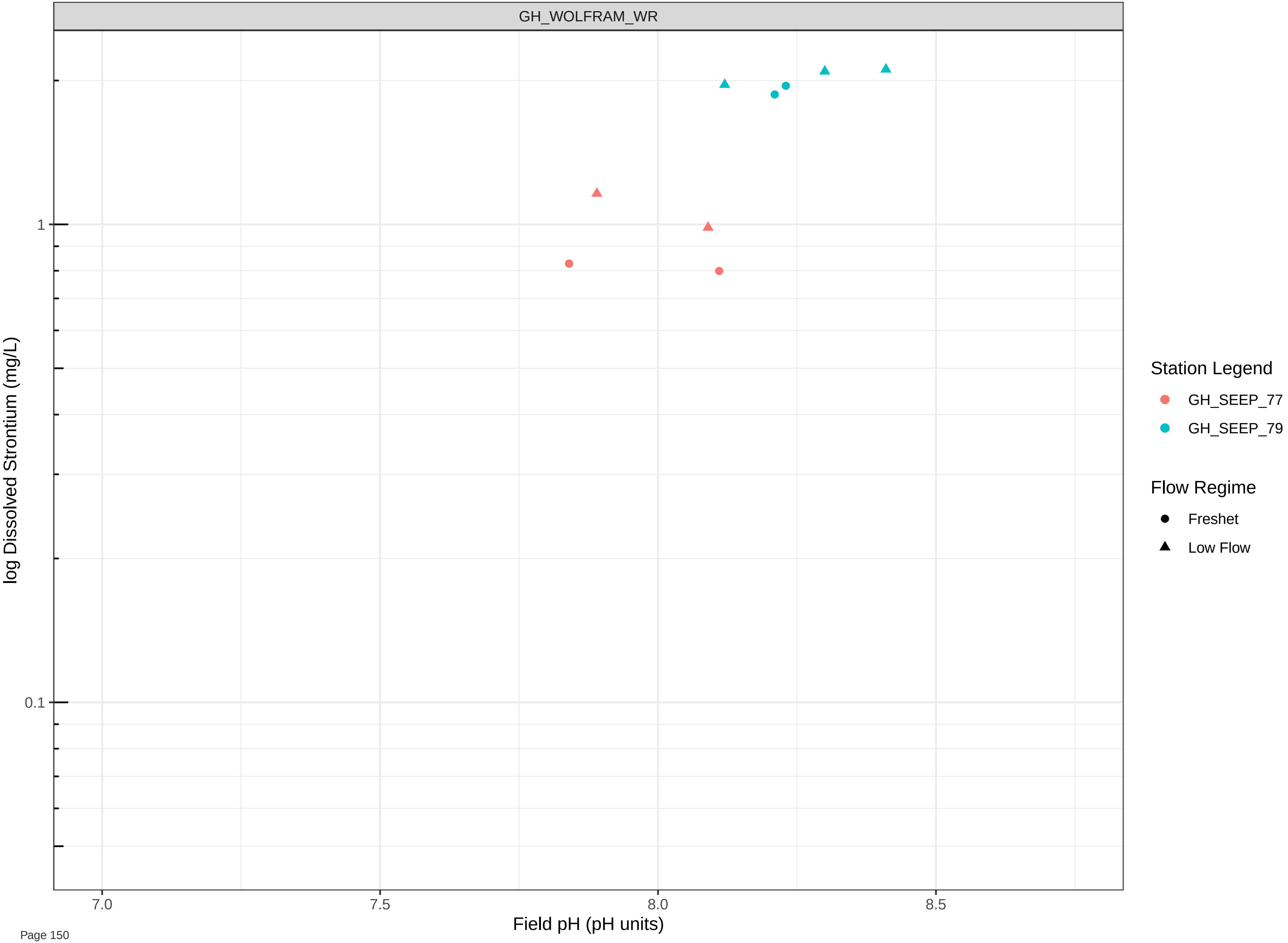
Flow Regime
Freshet
Low Flow


GH_WOLFRAM_WR
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1
0.1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow


GH_CCR
log Dissolved Thallium (mg/L)
1e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
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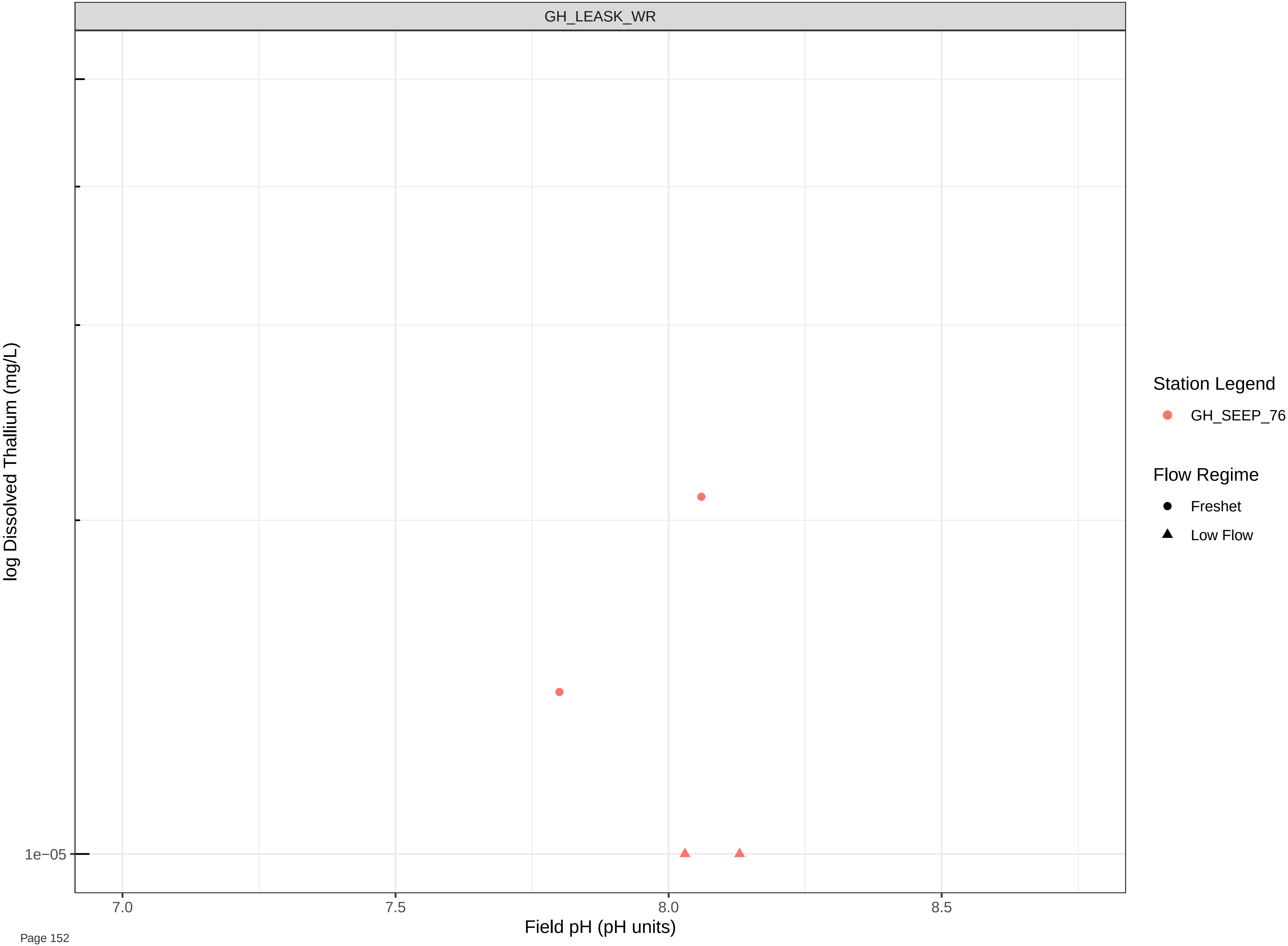
GH_WTDS
Flow Regime
Freshet
Low Flow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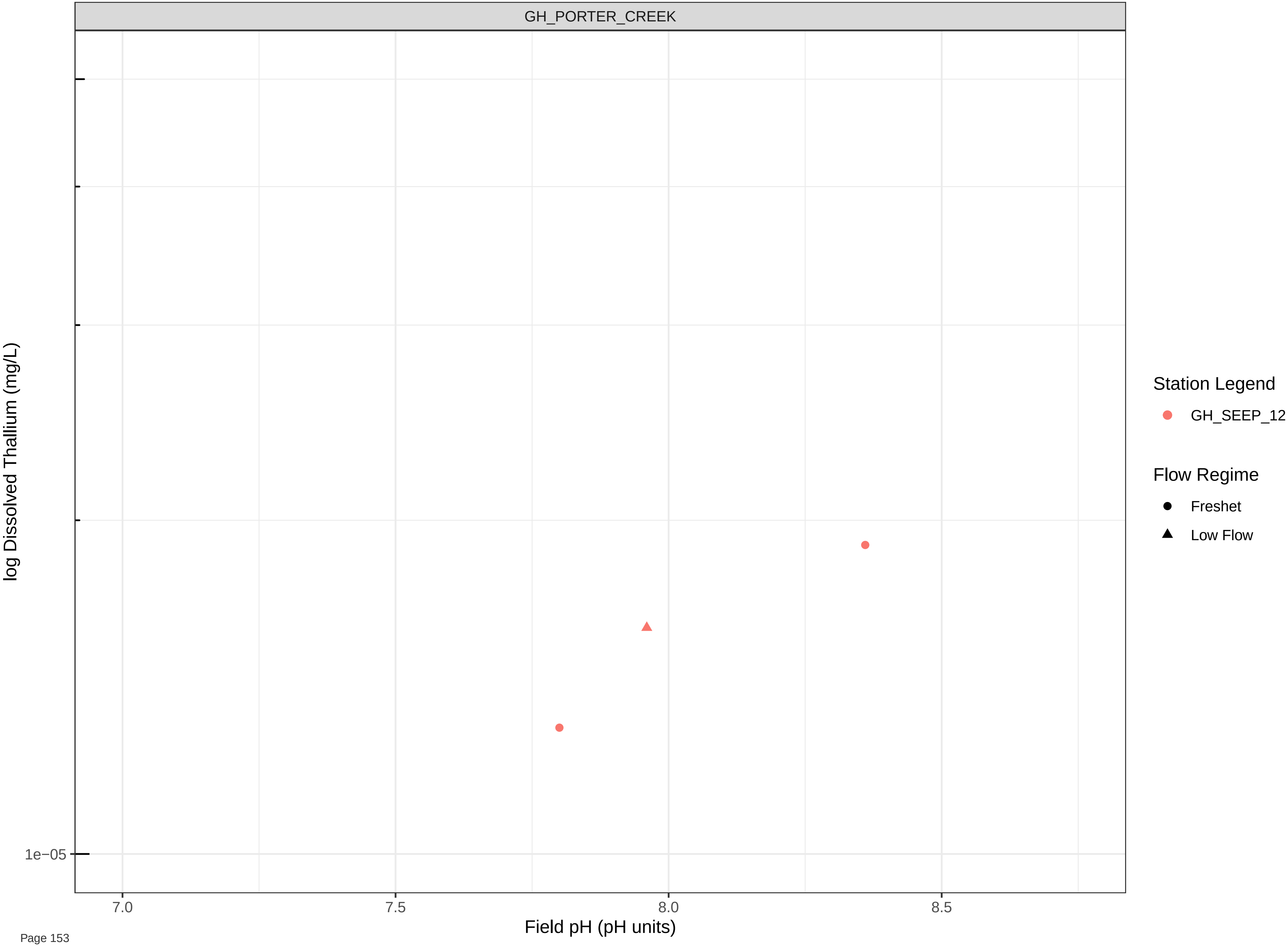
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow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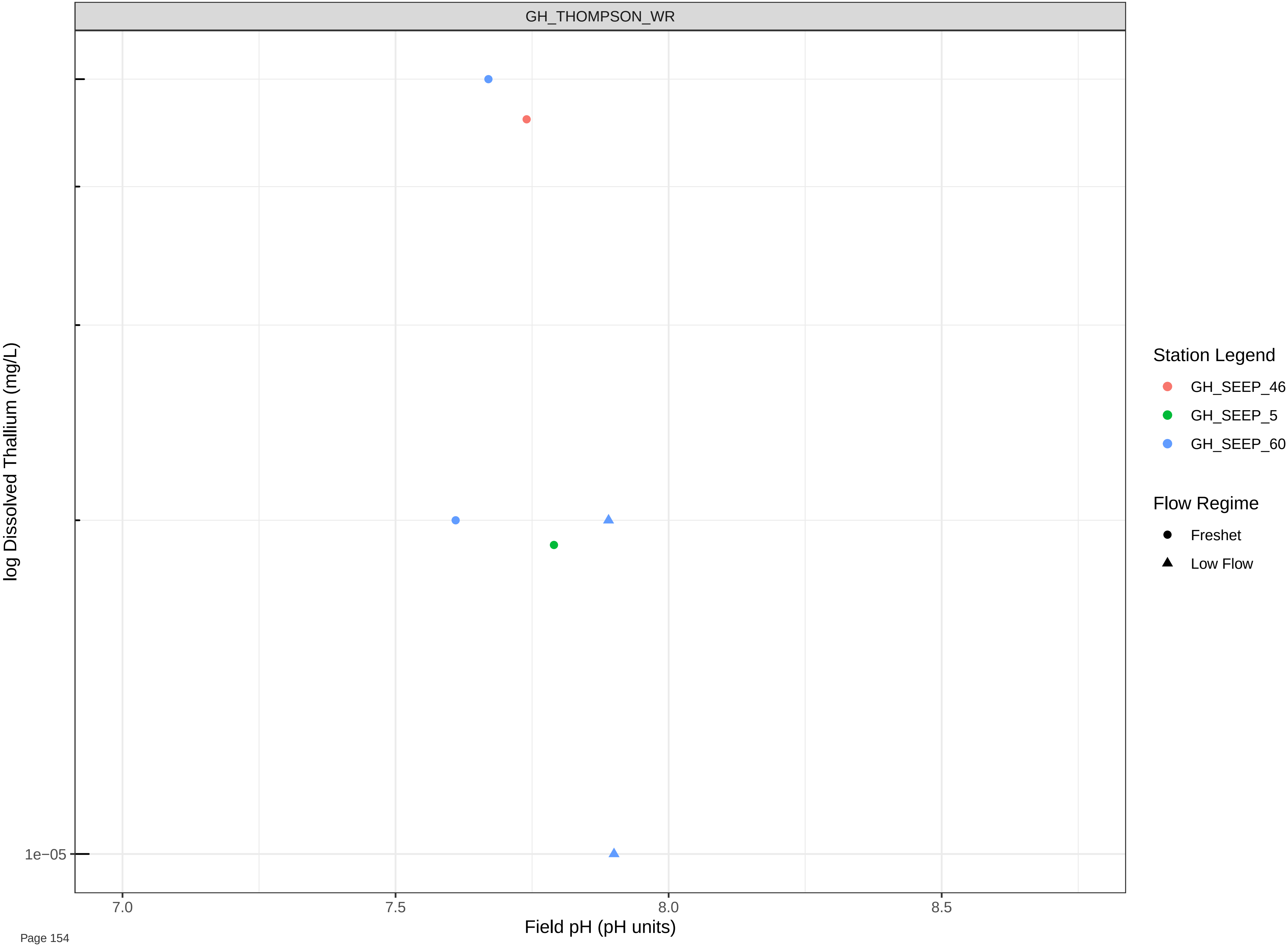
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow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7.0
7.5
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Field pH (pH units)
Station Legend
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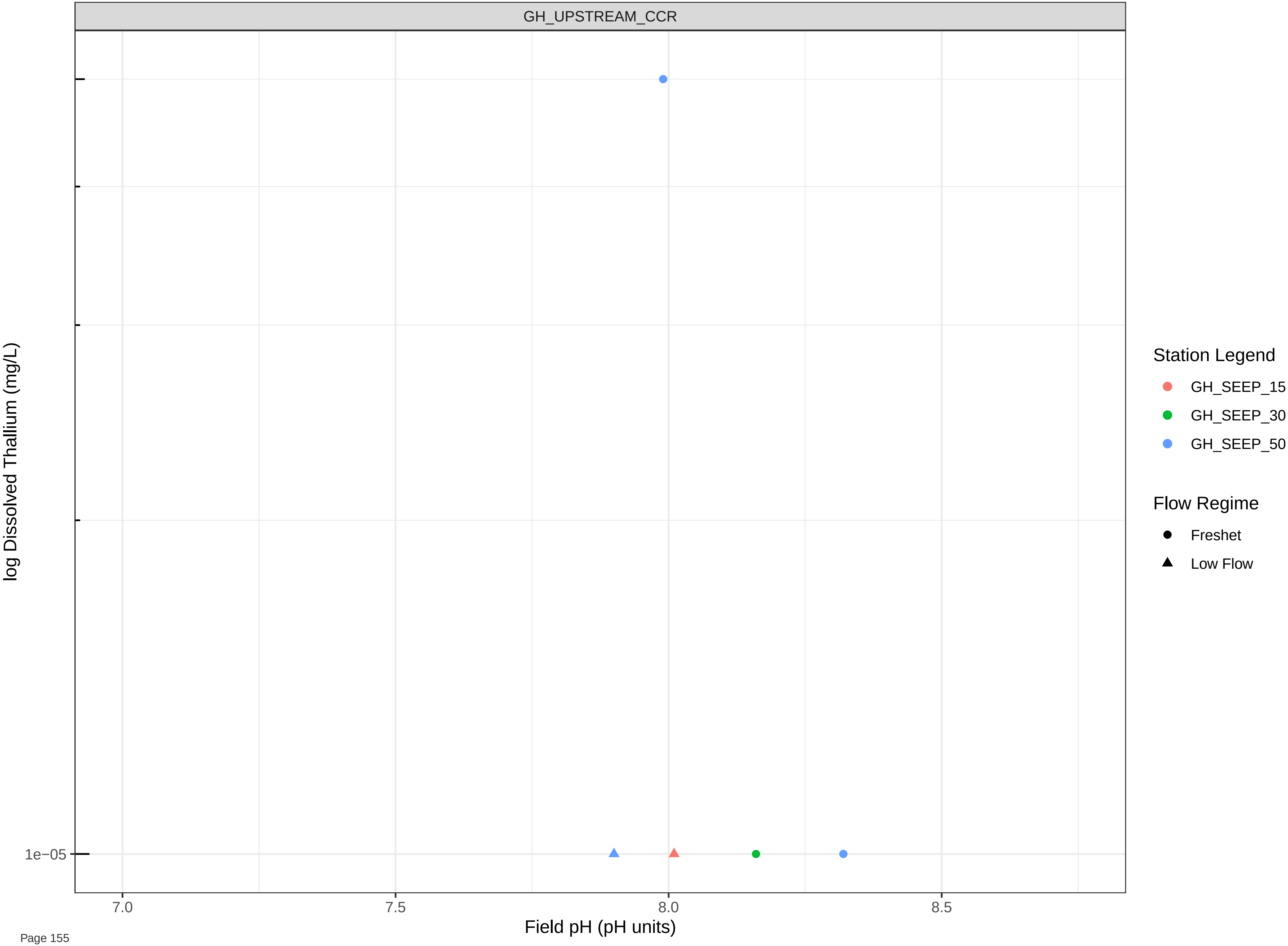
Flow Regime
Freshet
Low Flow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1e−05
7.0
7.5
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Field pH (pH units)
Station Legend
GH_SEEP_15
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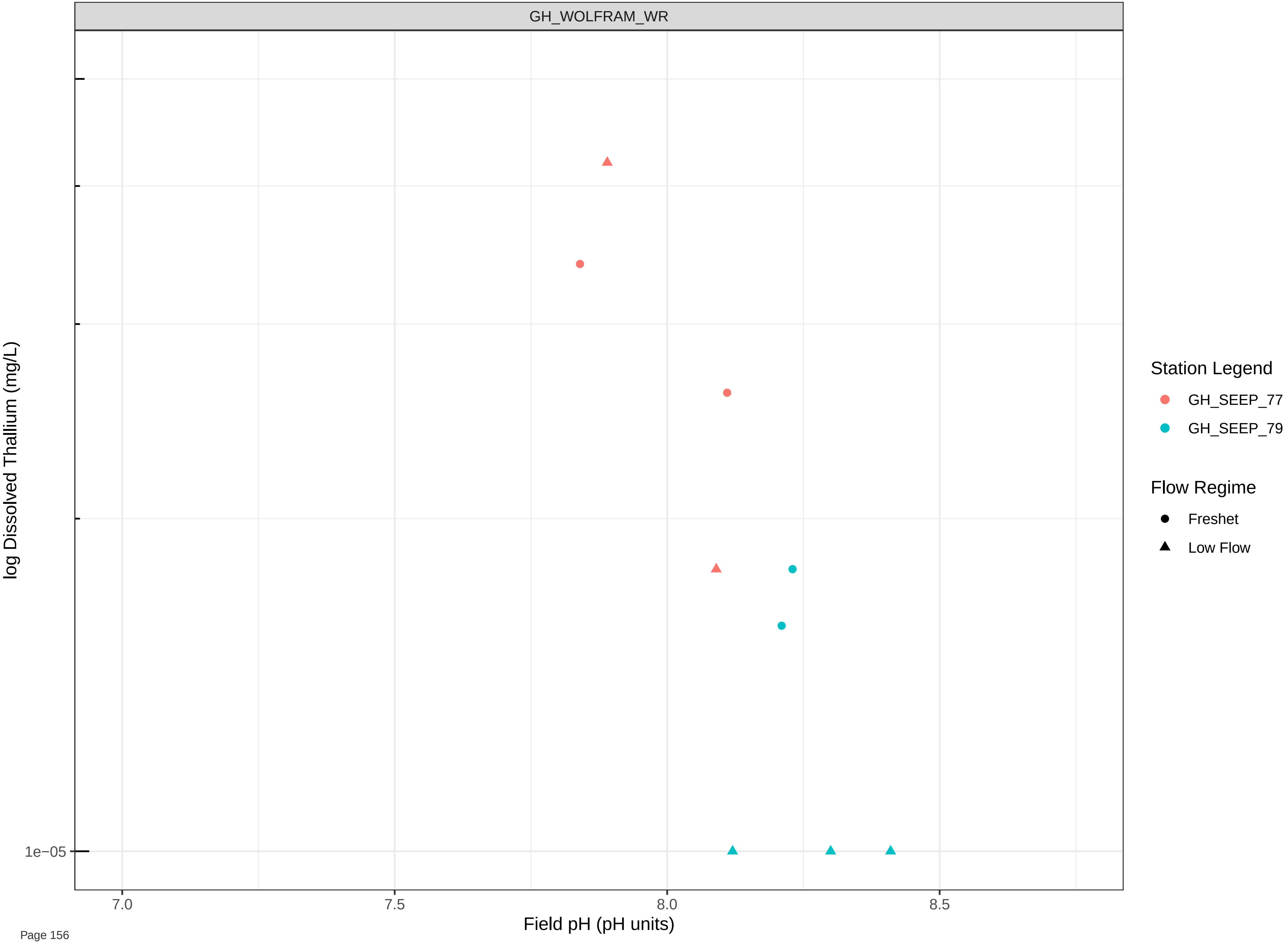
Flow Regime
Freshet
Low Flow


GH_WOLFRAM_WR
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1e−05
7.0
7.5
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8.5
Field pH (pH units)
Station Legend
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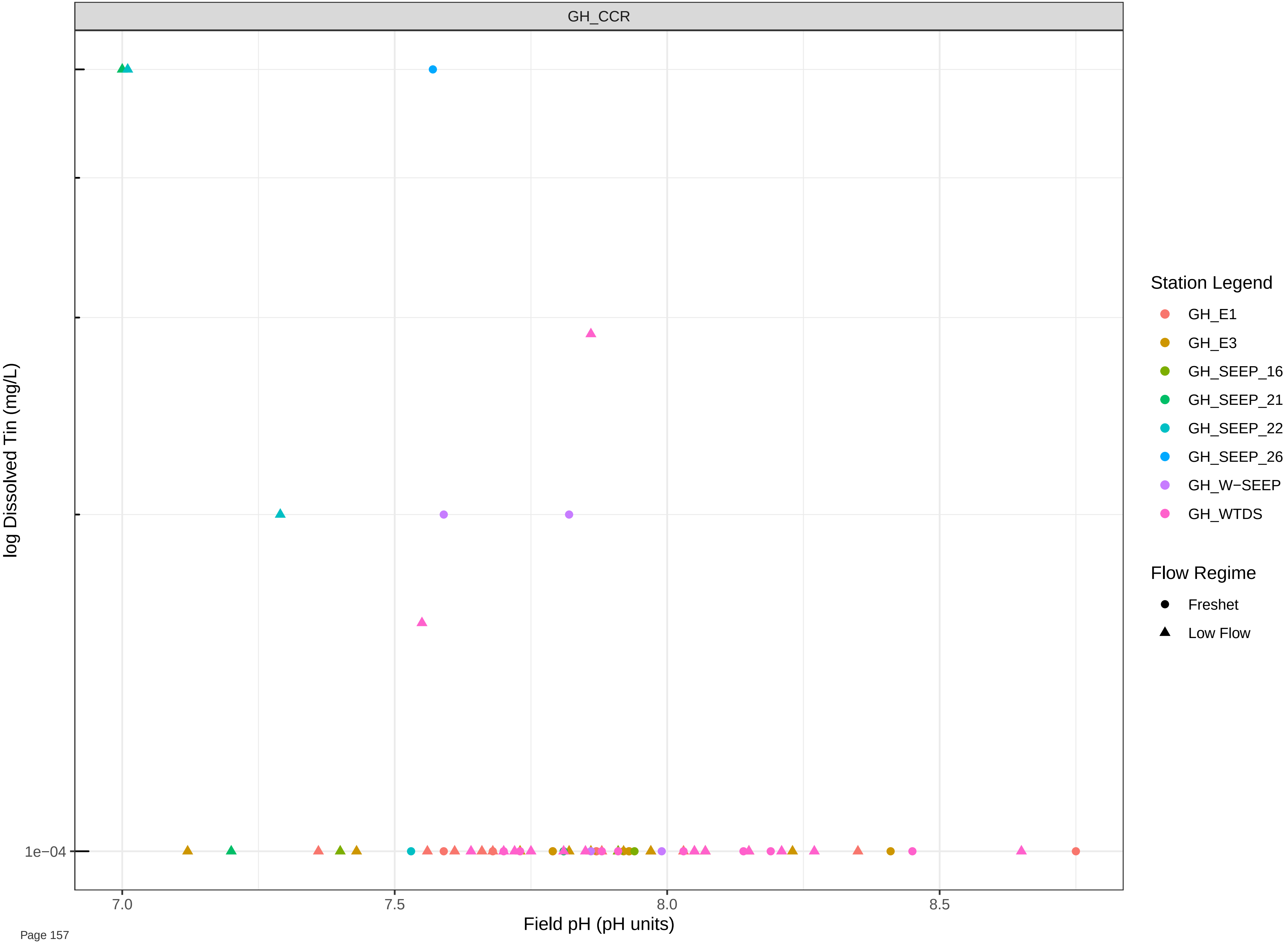
GH_SEEP_79
Flow Regime
Freshet
Low Flow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7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
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GH_SEEP_22
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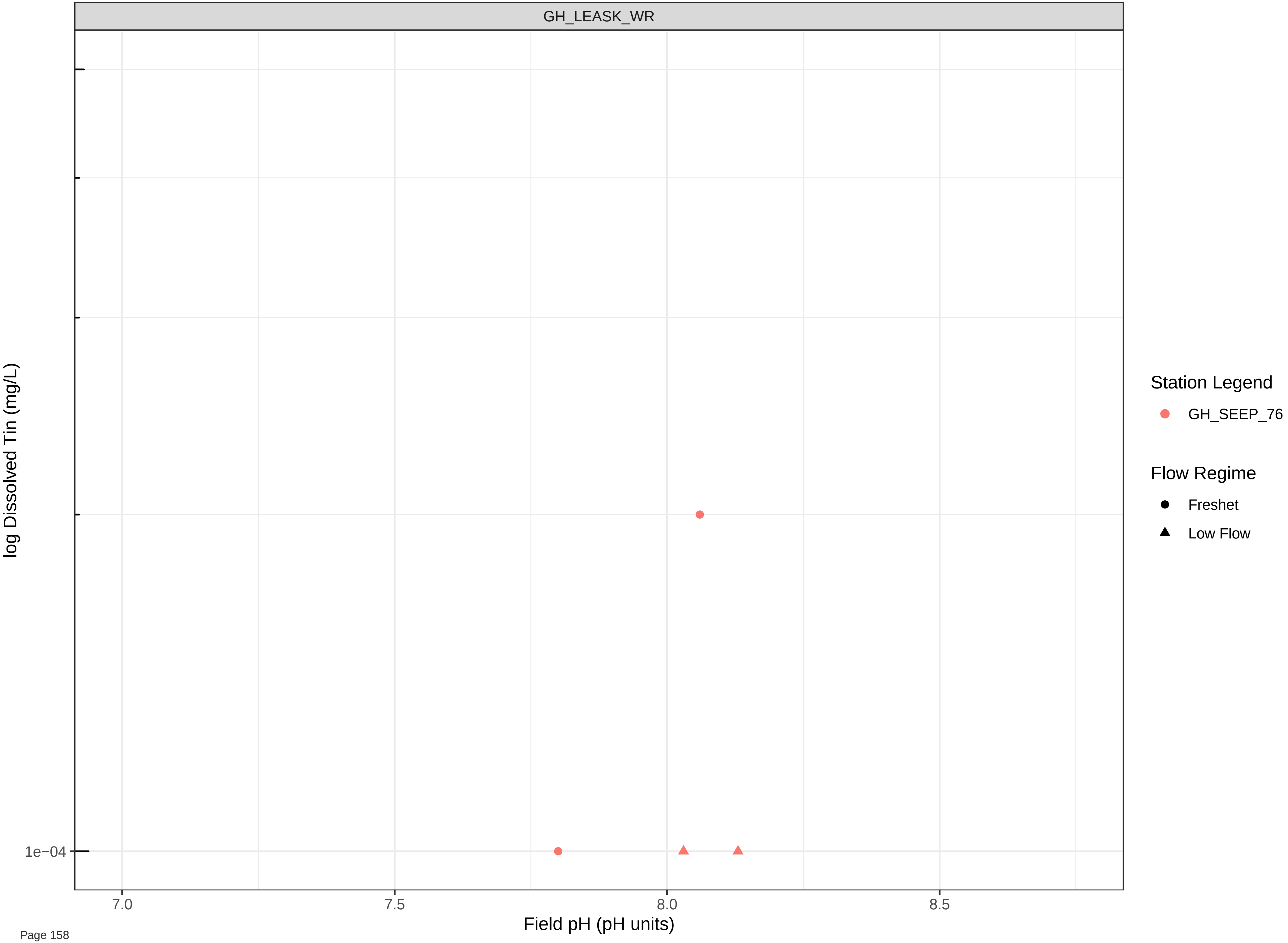
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow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Field pH (pH units)
Station Legend
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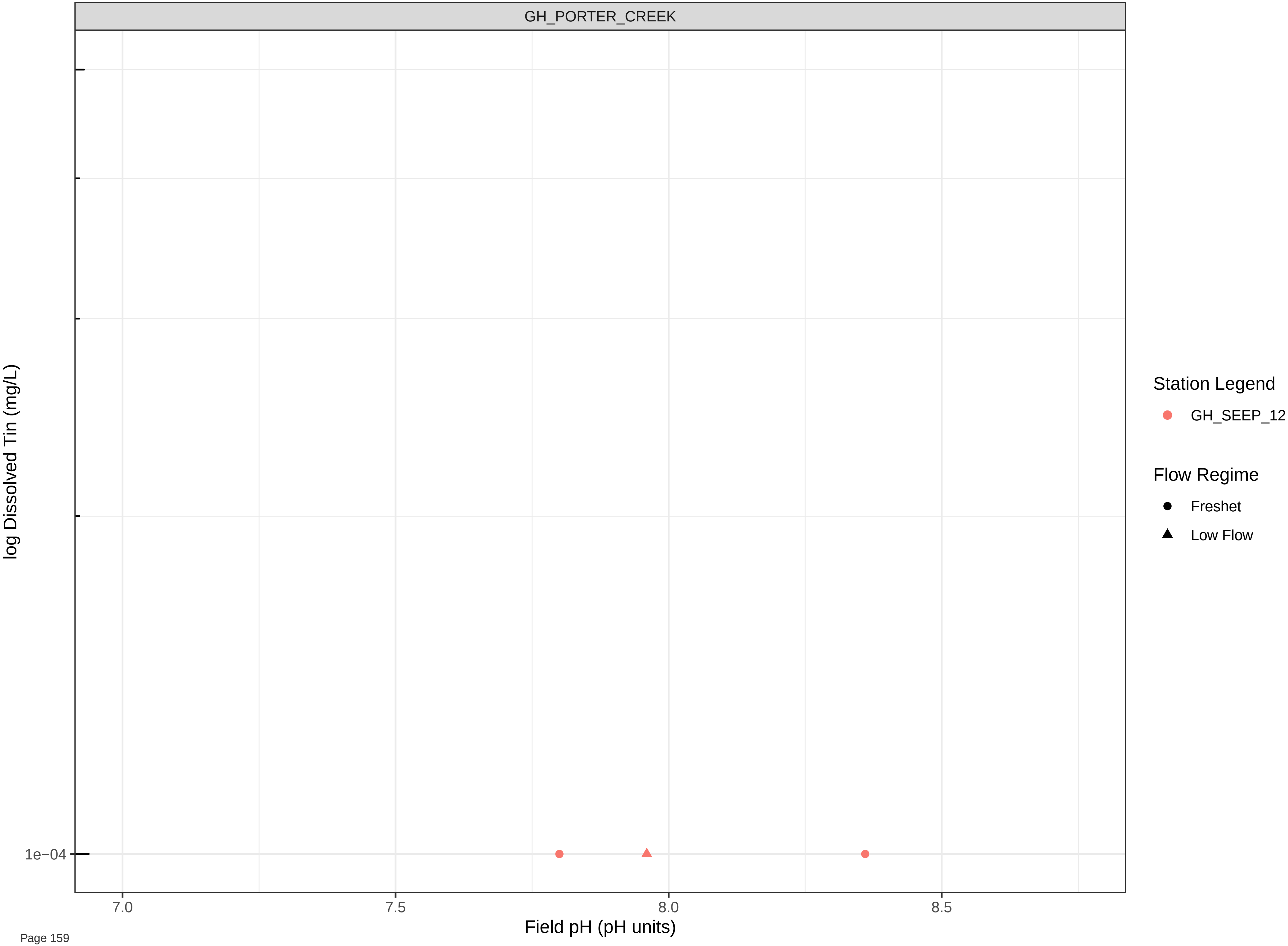
Flow Regime
● Freshet
▲ Low Flow



GH_PORTER_CREEK
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8.0
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Field pH (pH units)
Station Legend
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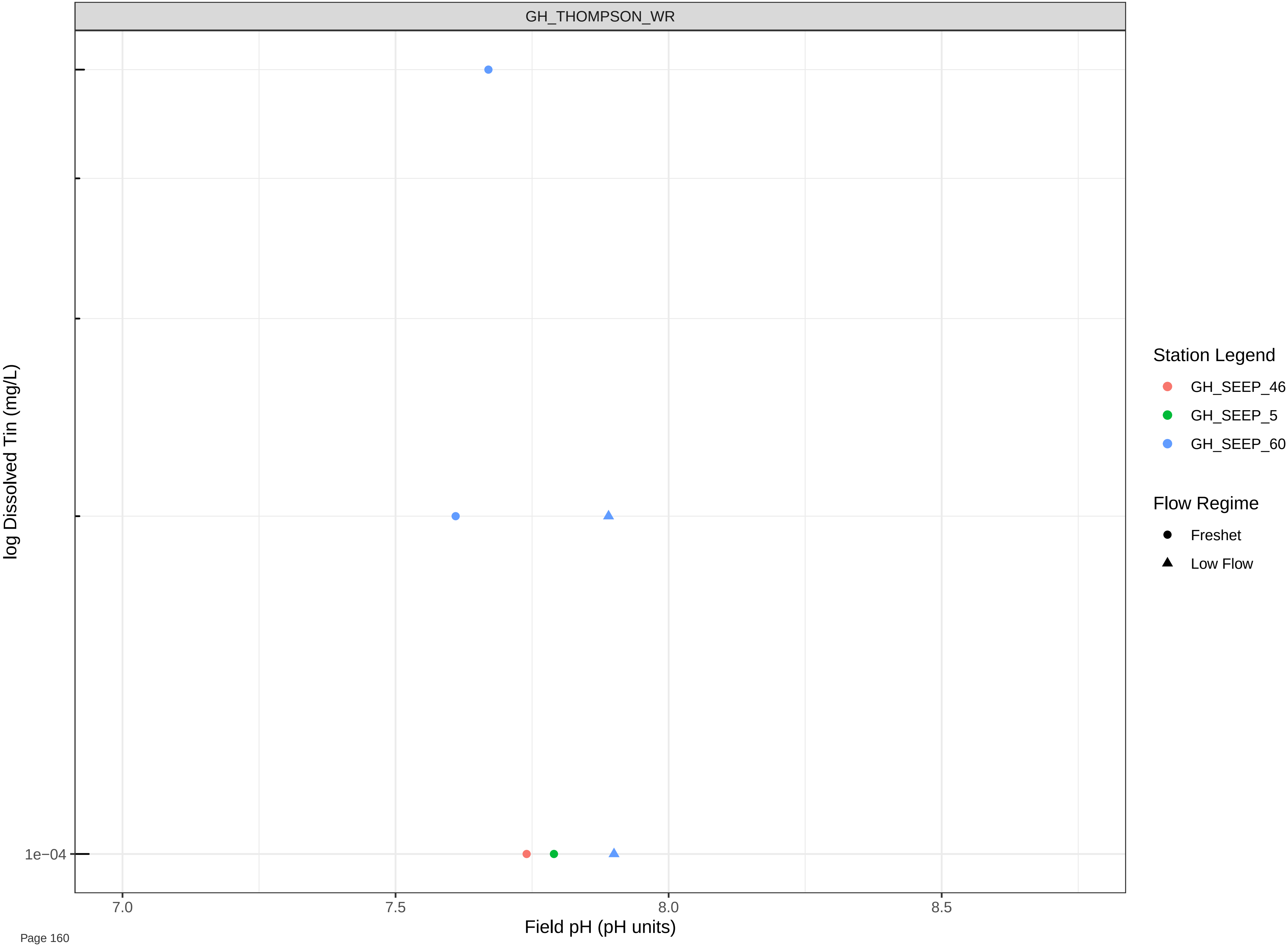
Flow Regime
● Freshet
▲ Low Flow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7.0
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Field pH (pH units)
Station Legend
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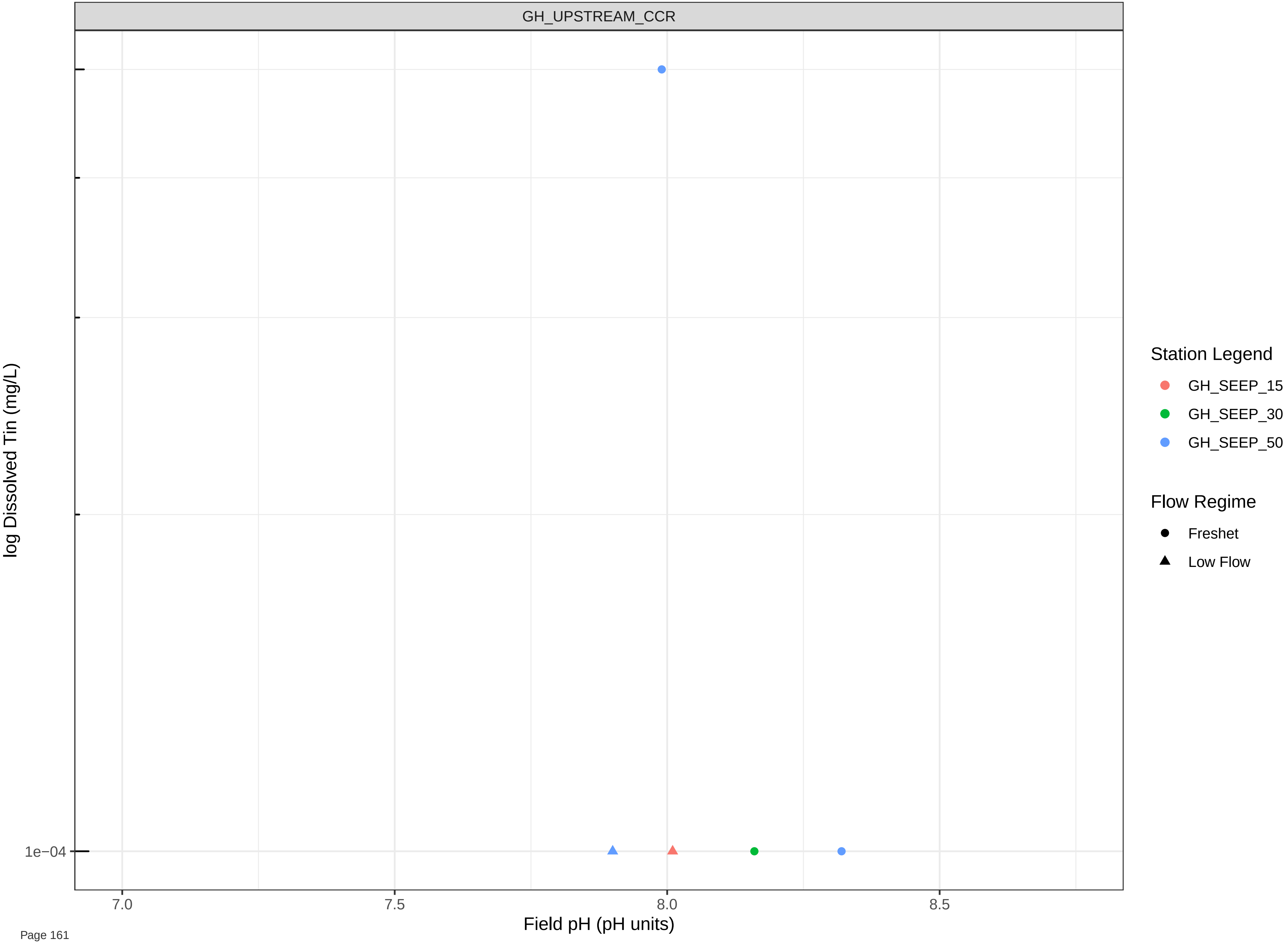
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow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7.5
8.0
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Field pH (pH units)
Station Legend
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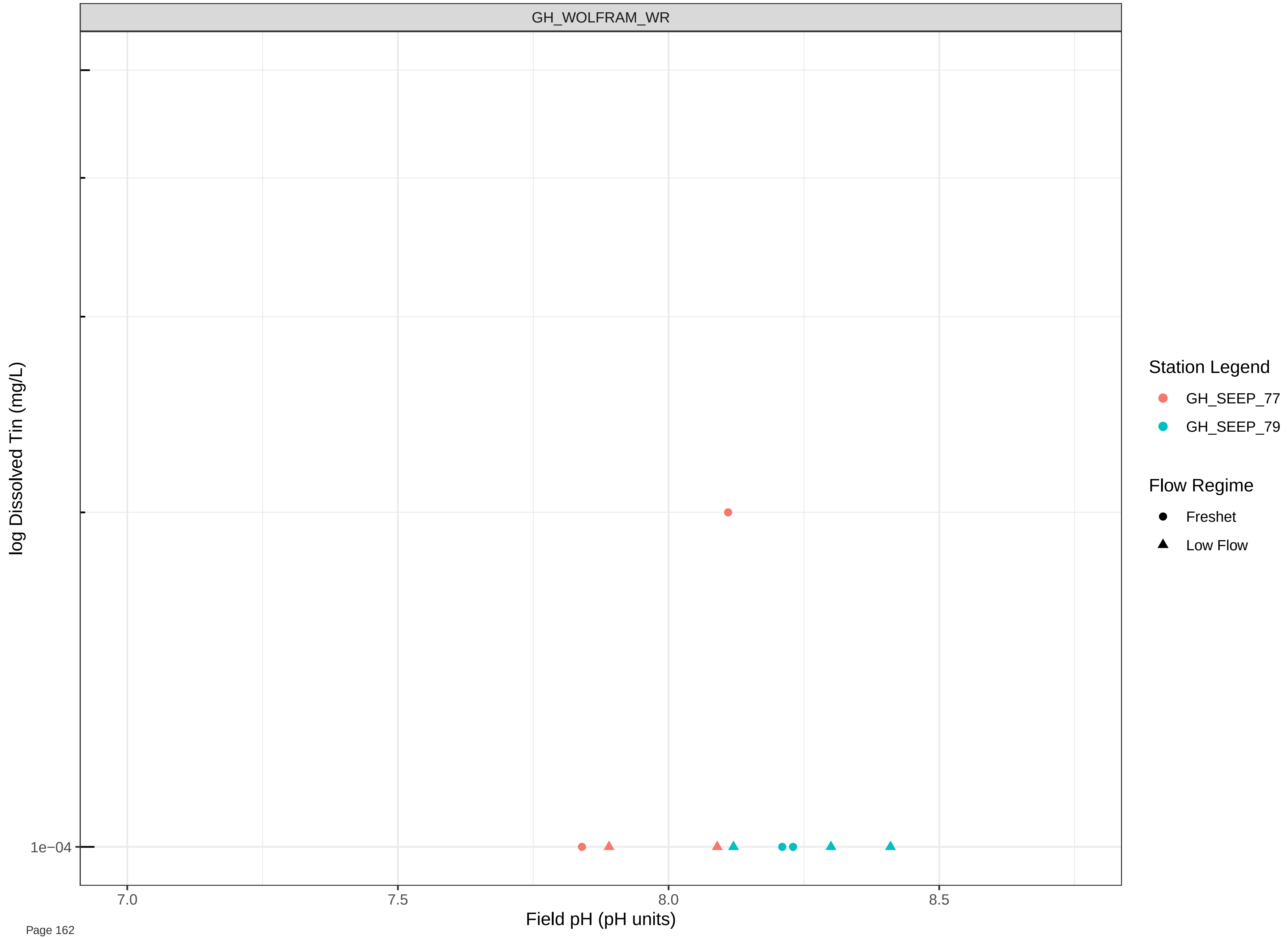
● GH_SEEP_30
● GH_SEEP_50
Flow Regime
● Freshet
▲ Low Flow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Field pH (pH units)
Station Legend
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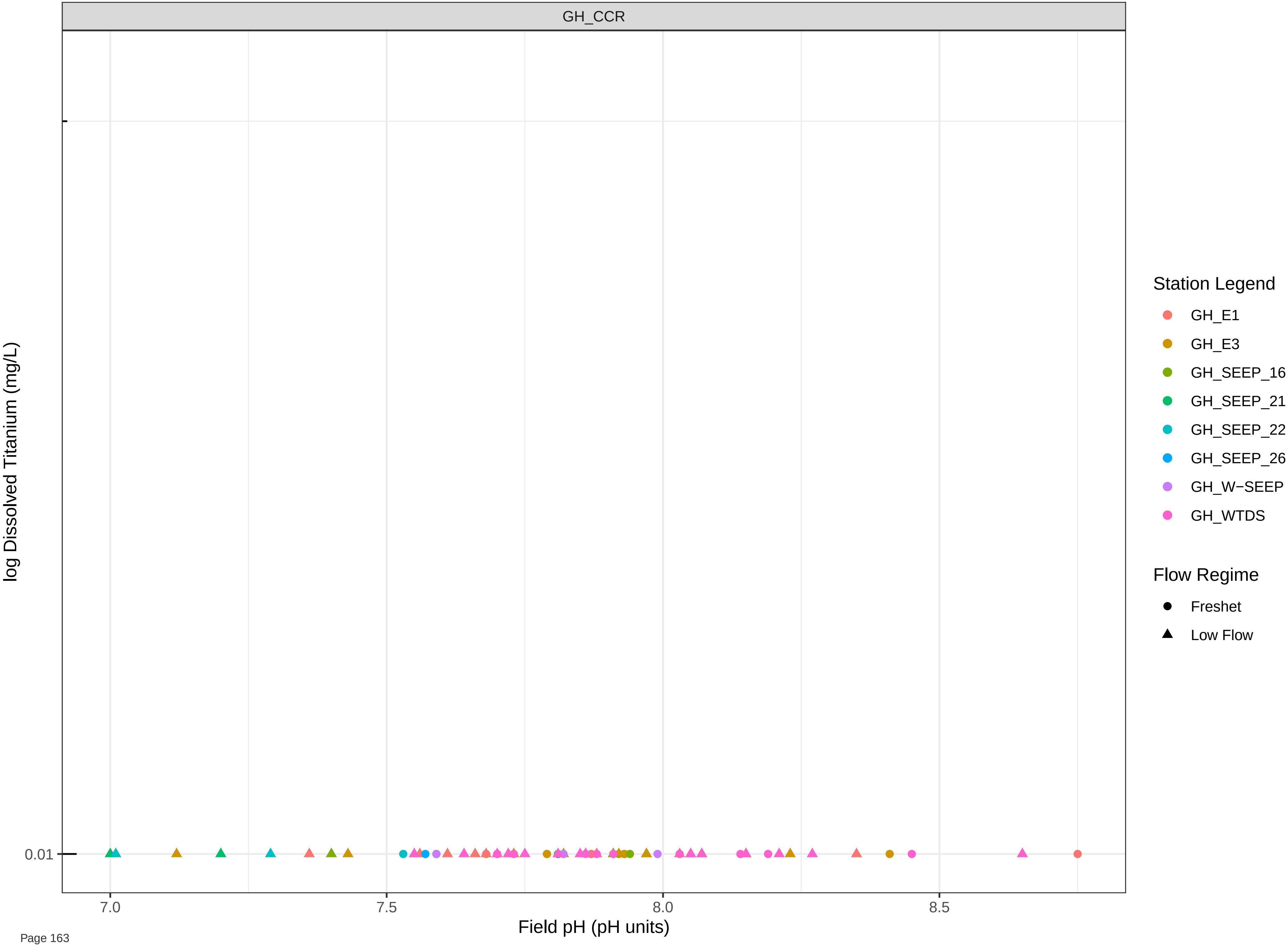
Flow Regime
Freshet
Low Flow


GH_CCR
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8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
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GH_SEEP_21
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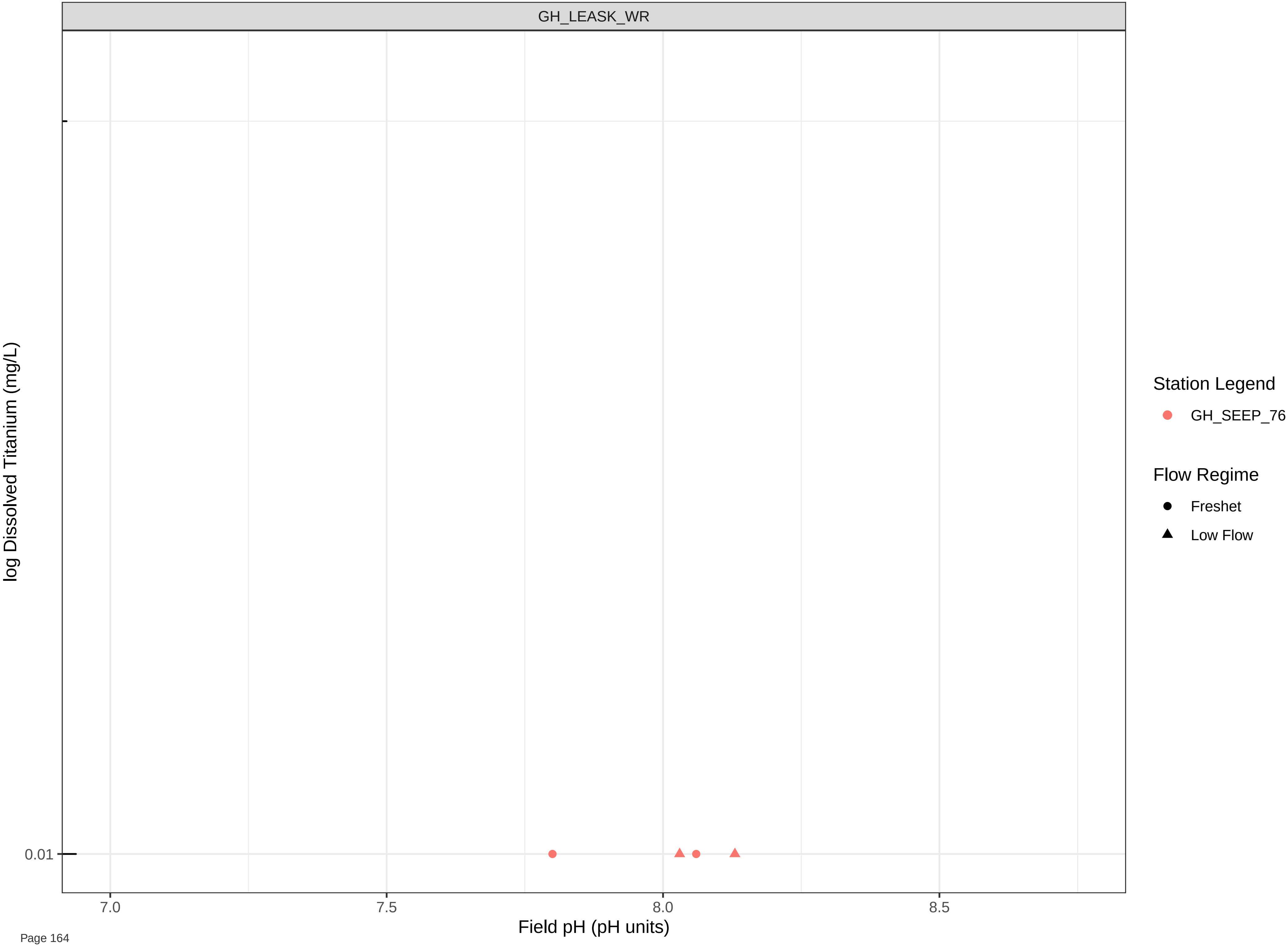
GH_WTDS
Flow Regime
Freshet
Low Flow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Field pH (pH units)
Station Legend
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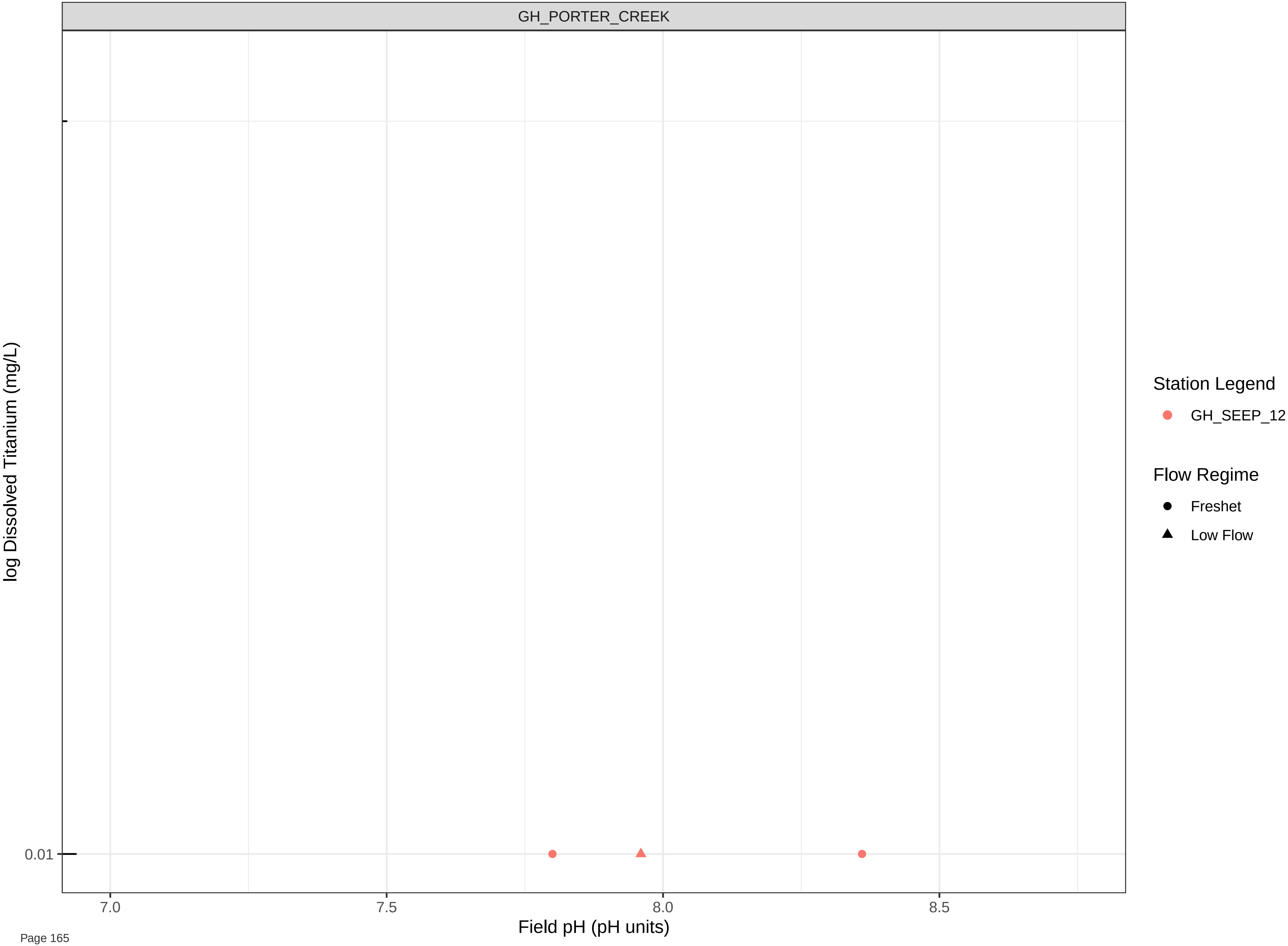
Flow Regime
Freshet
Low Flow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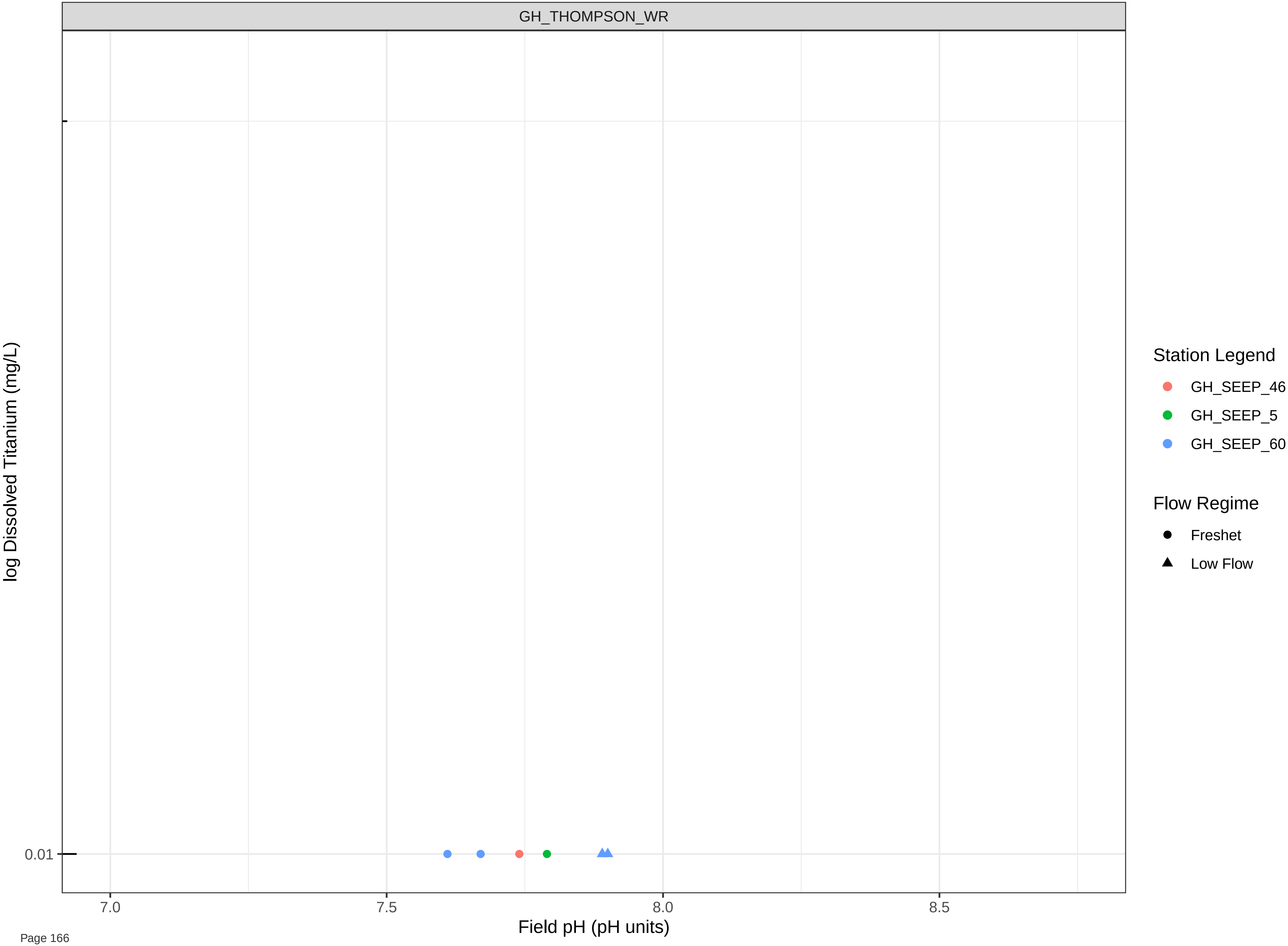
Flow Regime
Freshet
Low Flow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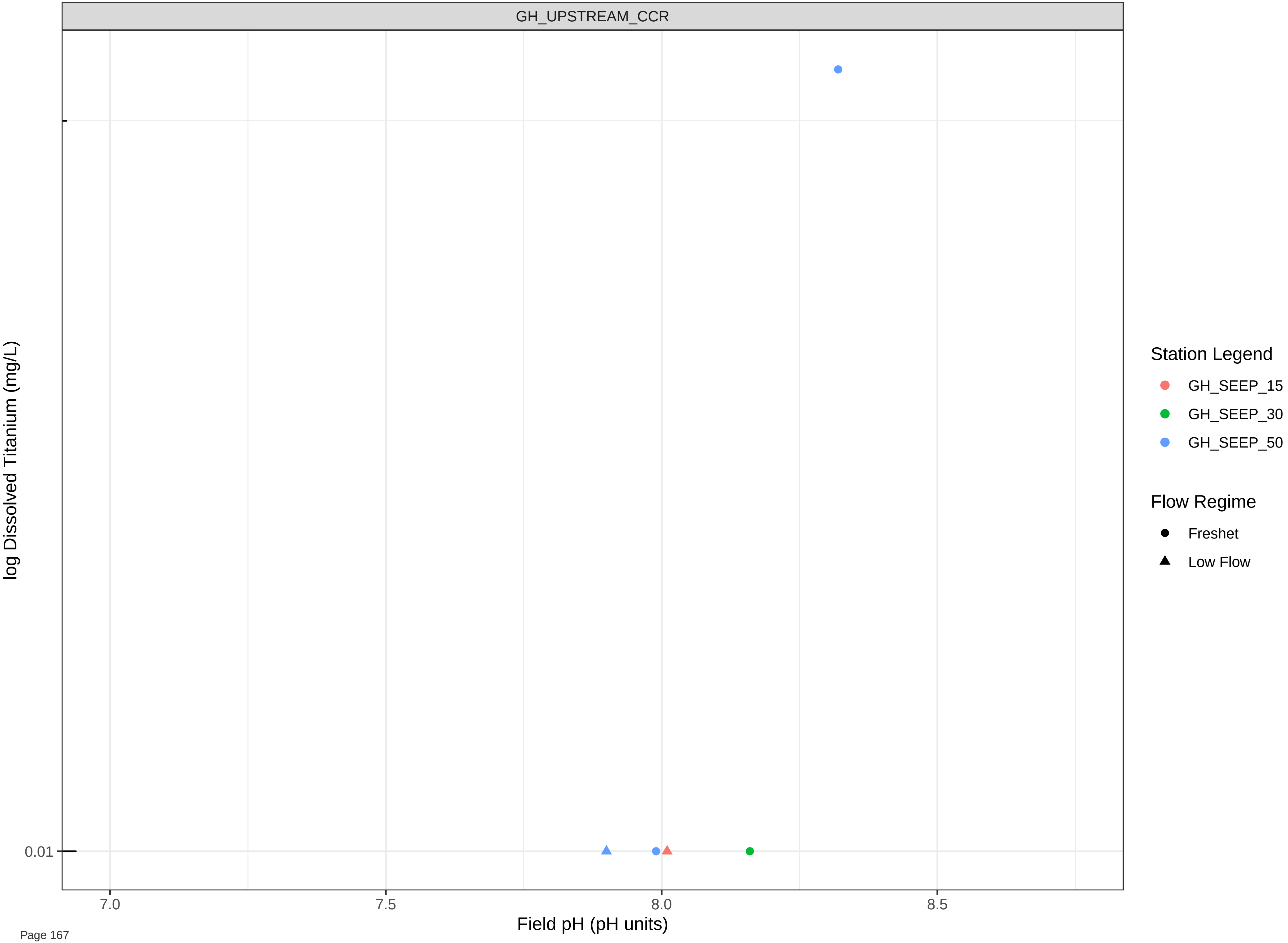
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_46
● GH_SEEP_5
● GH_SEEP_60
Flow Regime
● Freshet
▲ Low Flow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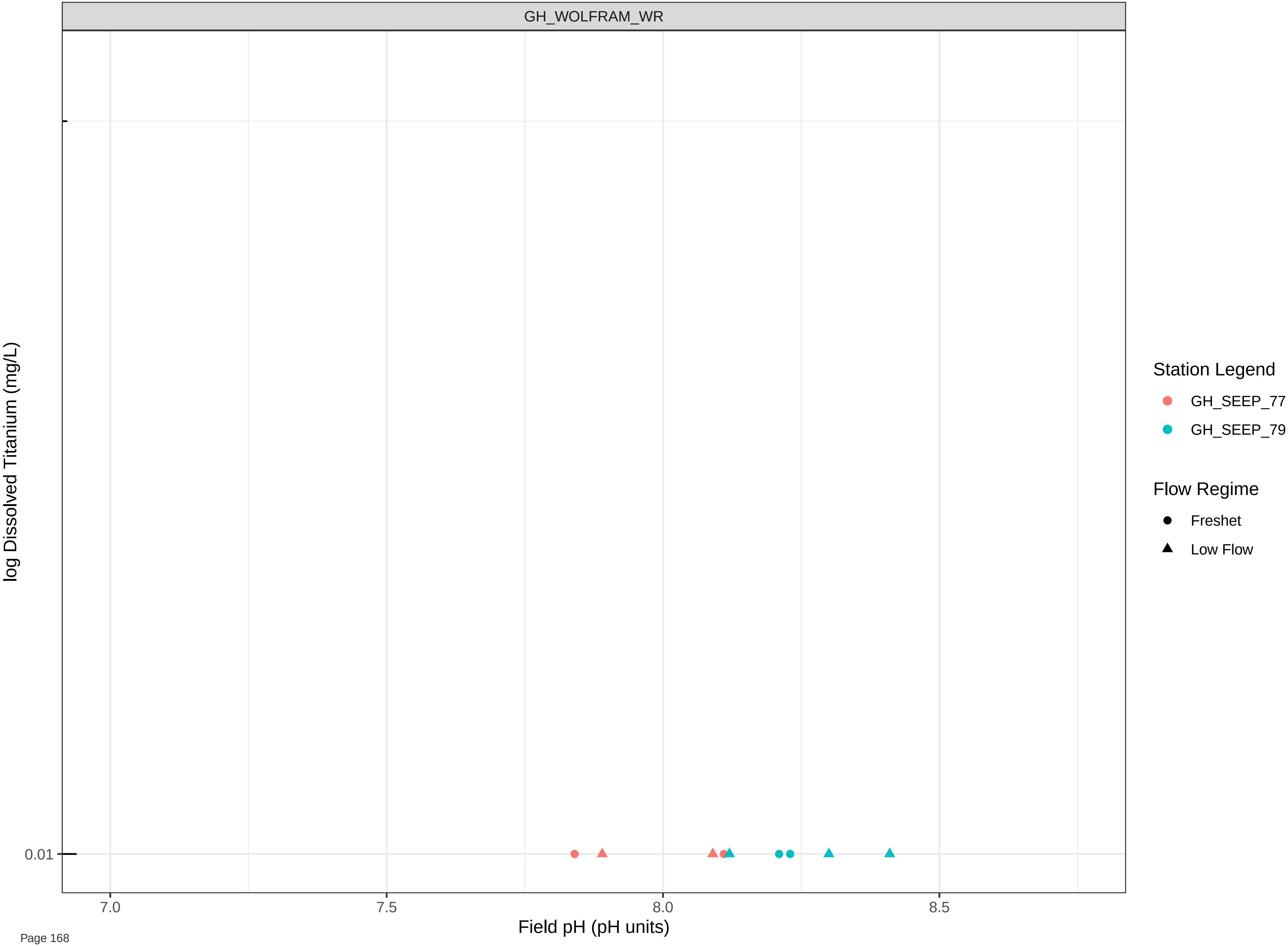
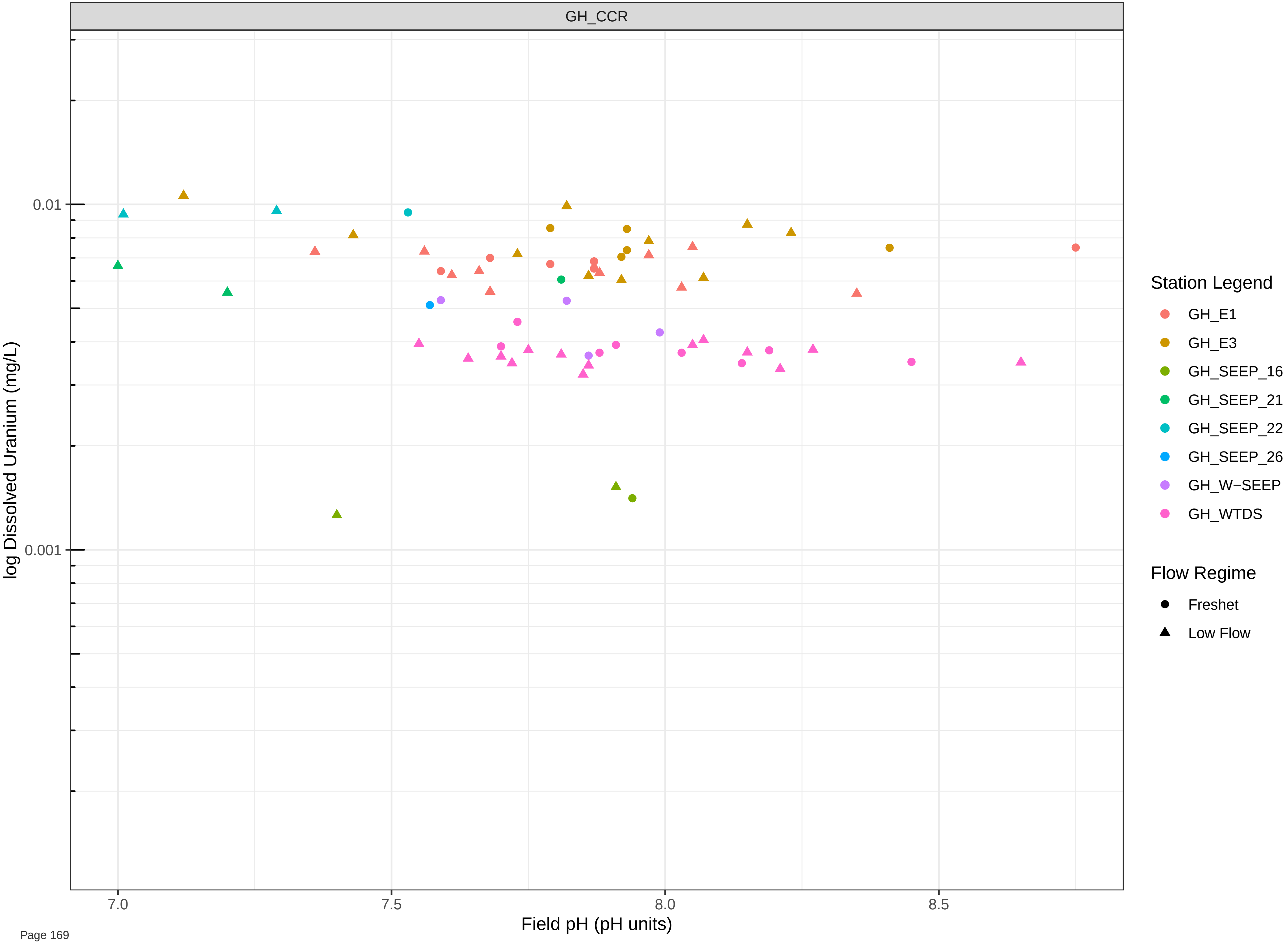
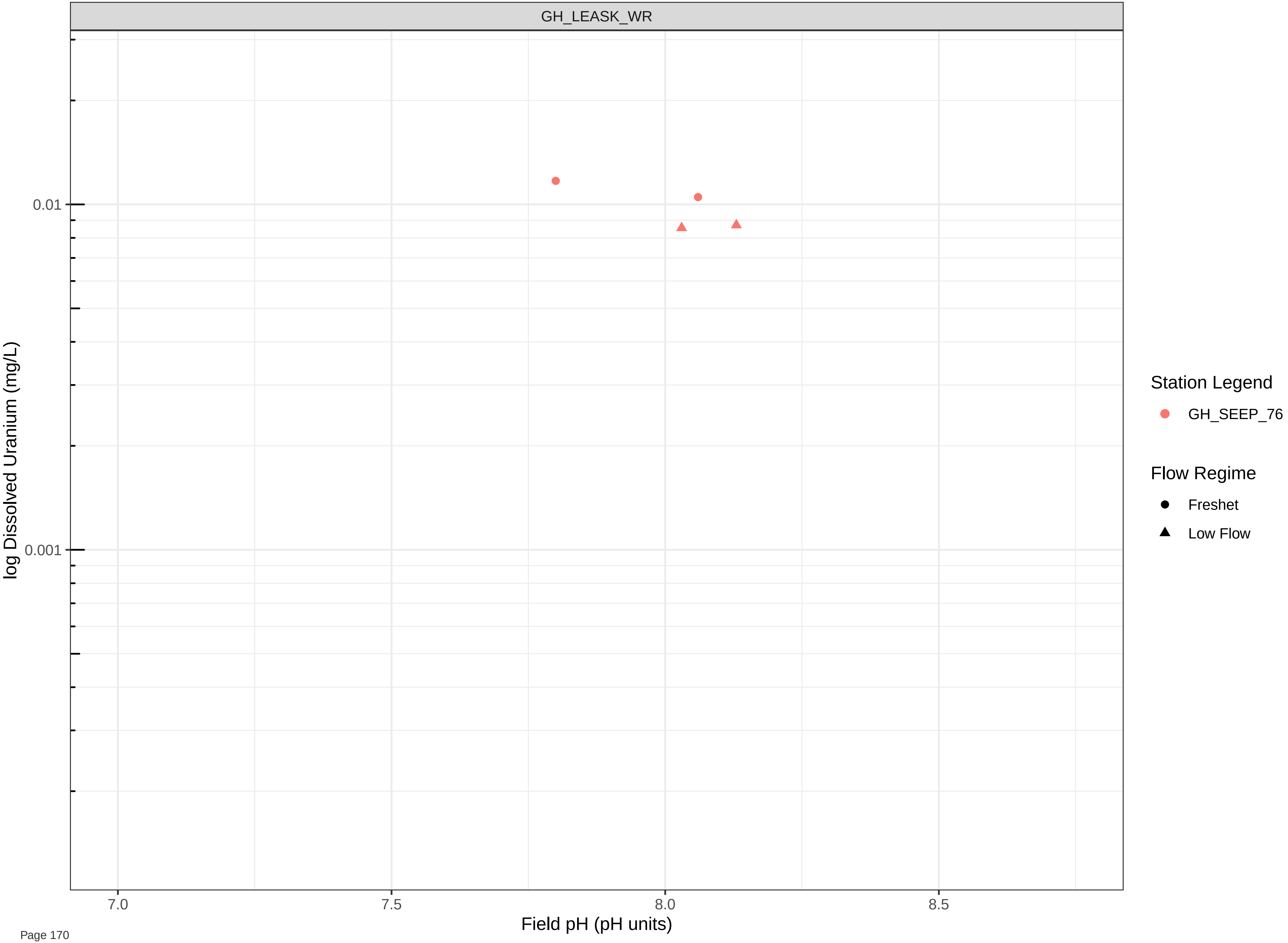
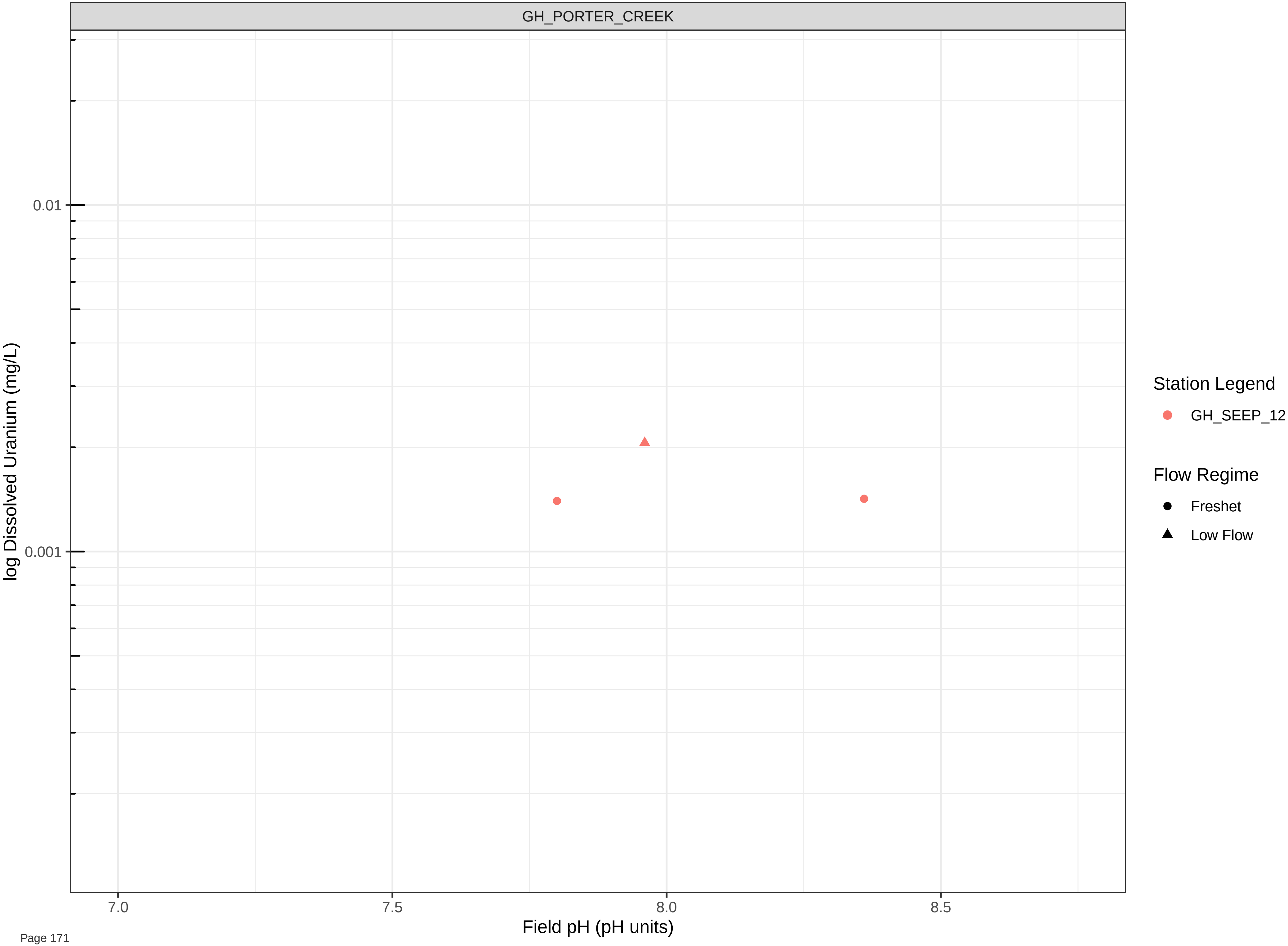
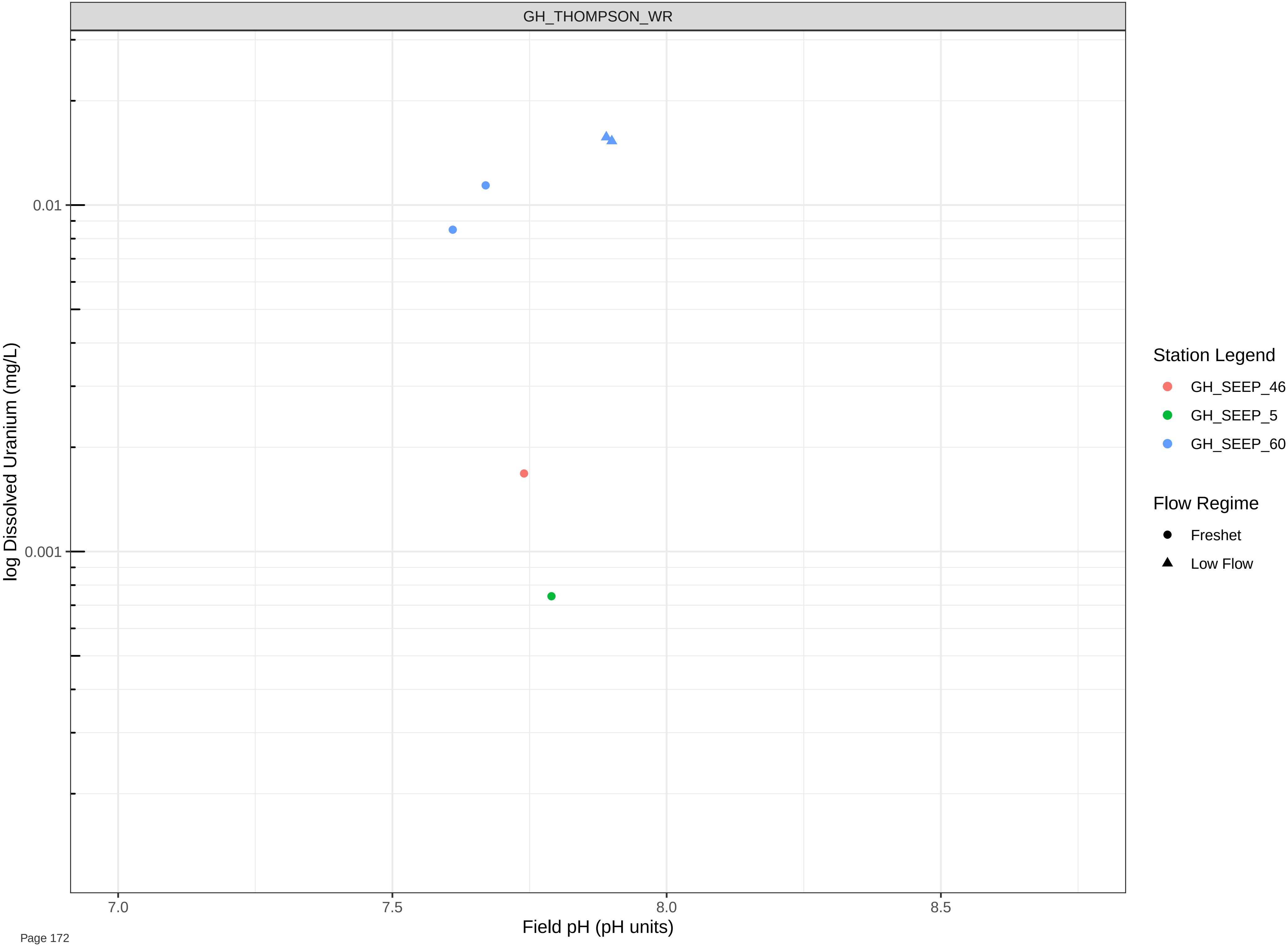
log Dissolved Titanium (mg/L)
0.01
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

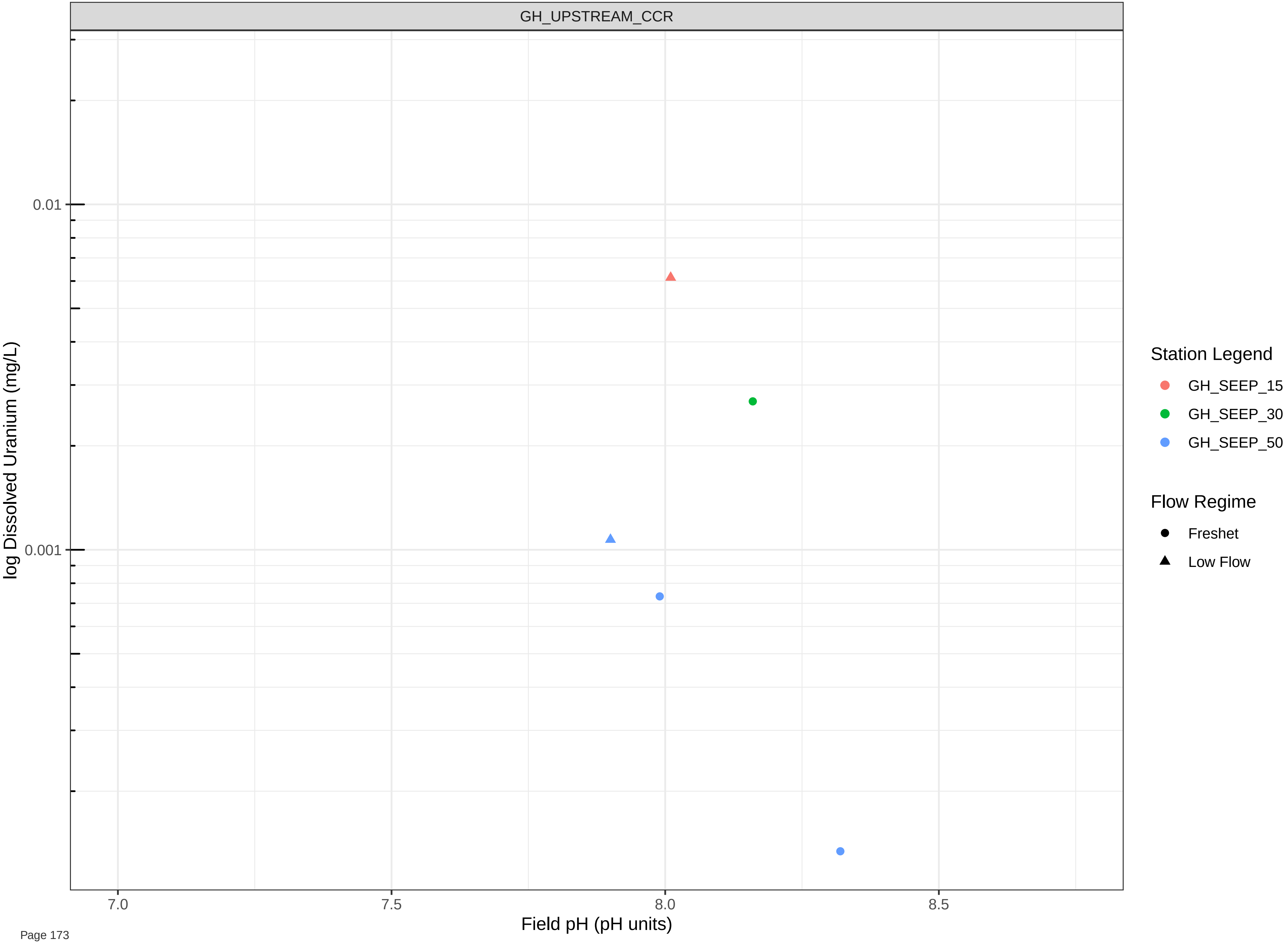

GH_WOLFRAM_WR
log Dissolved Titanium (mg/L)
0.01
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

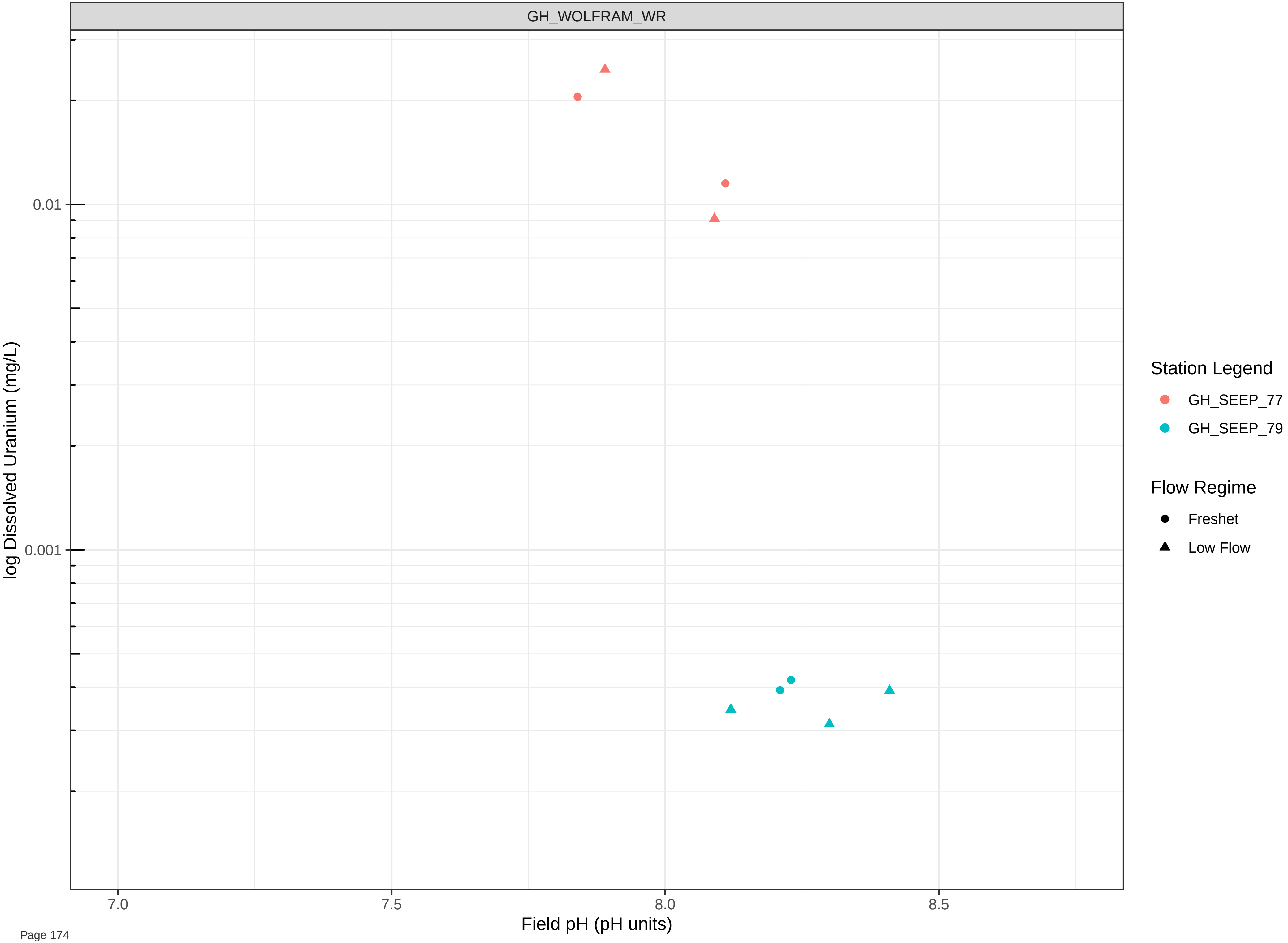

GH_CCR
log Dissolved Uranium (mg/L)
0.01
0.001
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

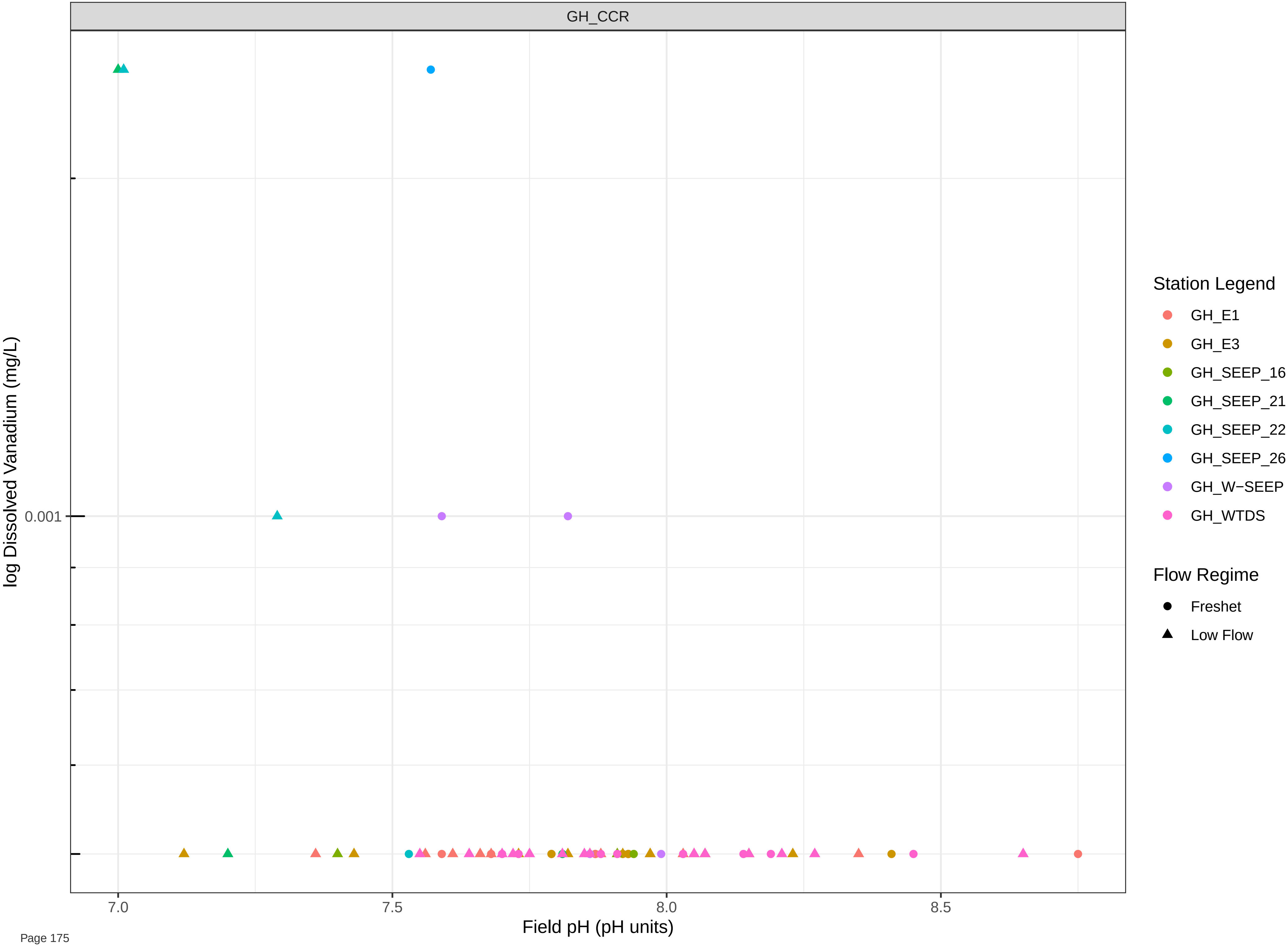

GH_LEASK_WR
0.01
0.001
log Dissolved Uranium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow

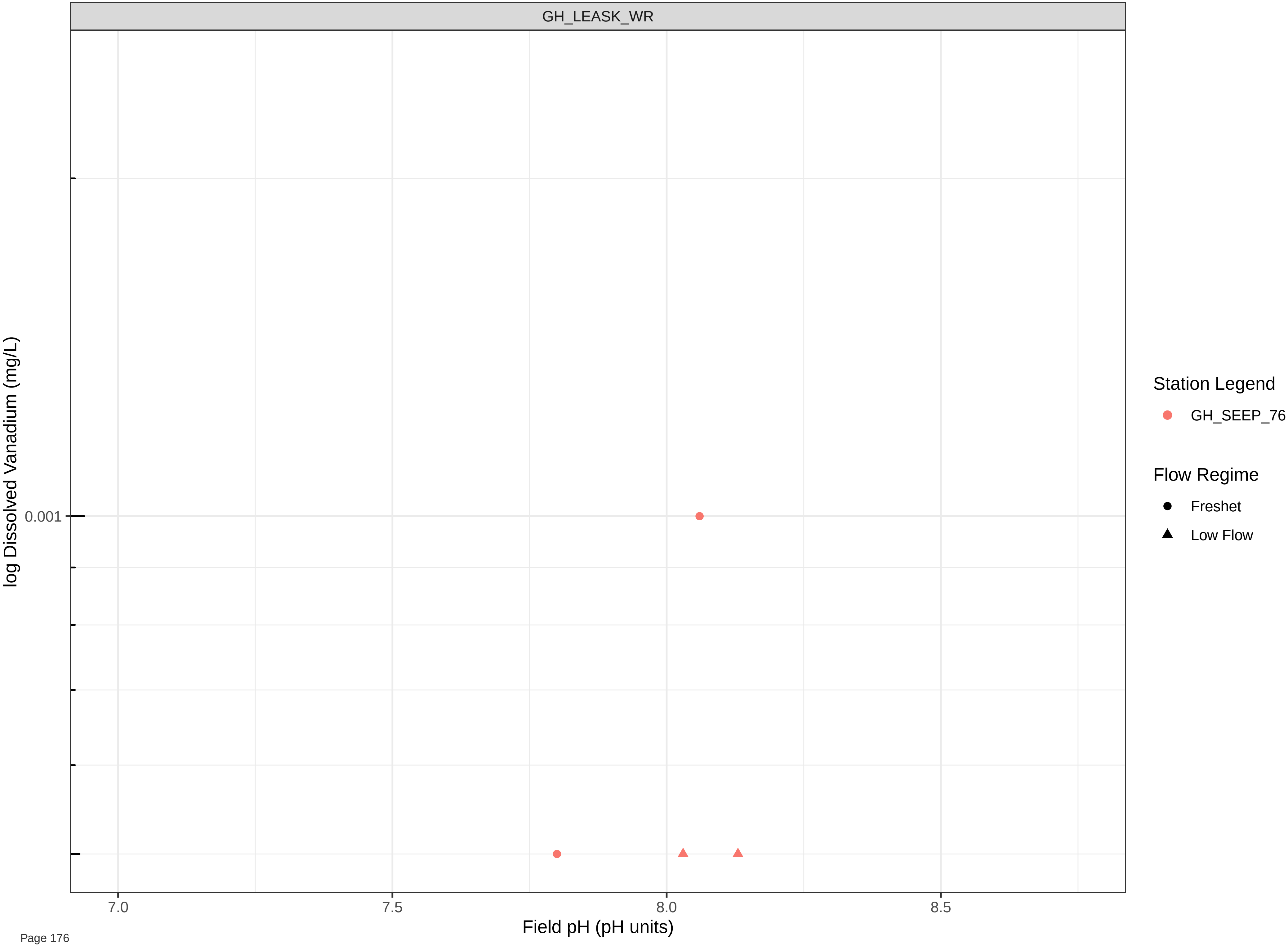

GH_PORTER_CREEK
0.01
0.001
log Dissolved Uranium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

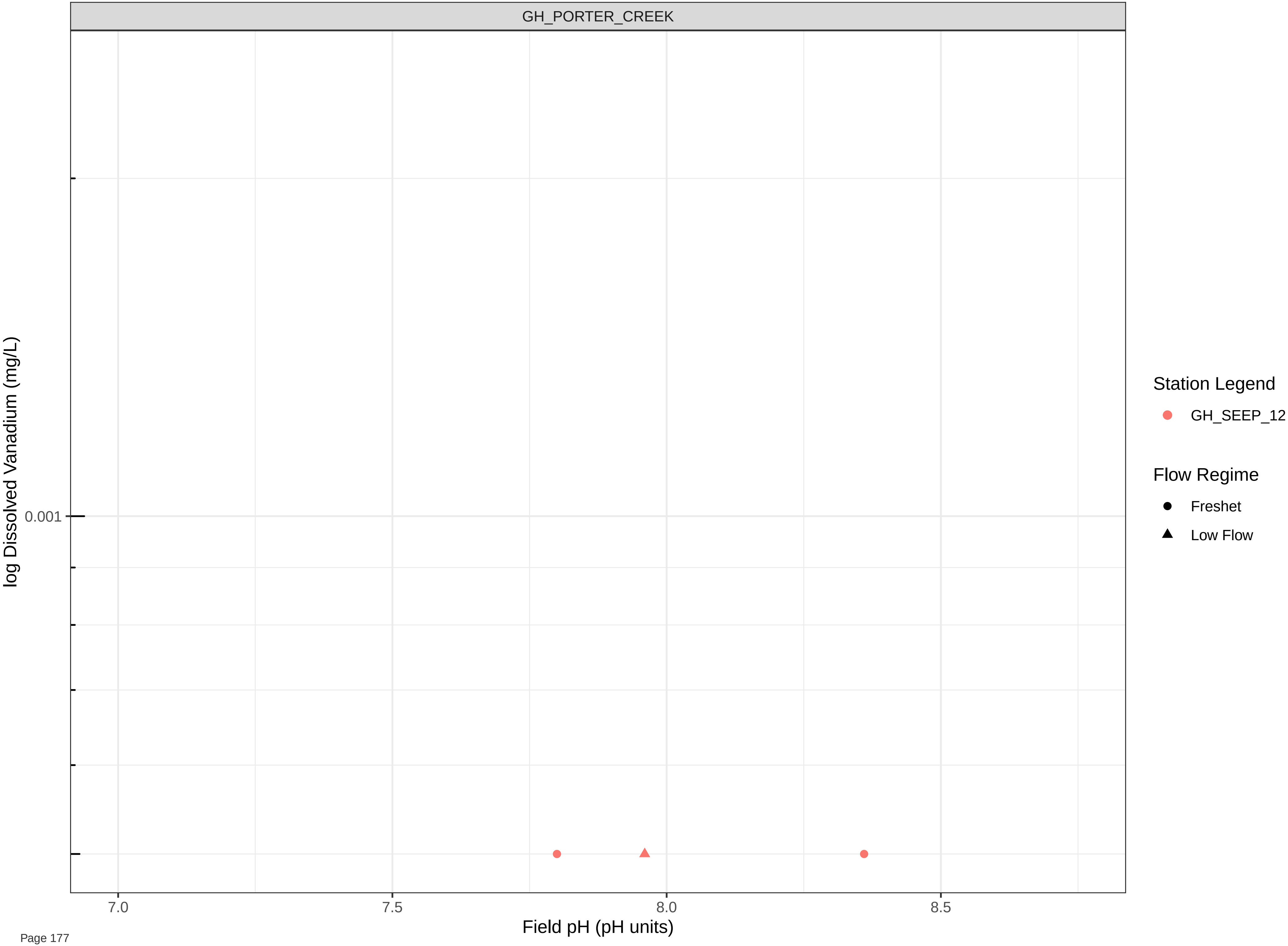

GH_THOMPSON_WR
0.01
0.001
log Dissolved Uranium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

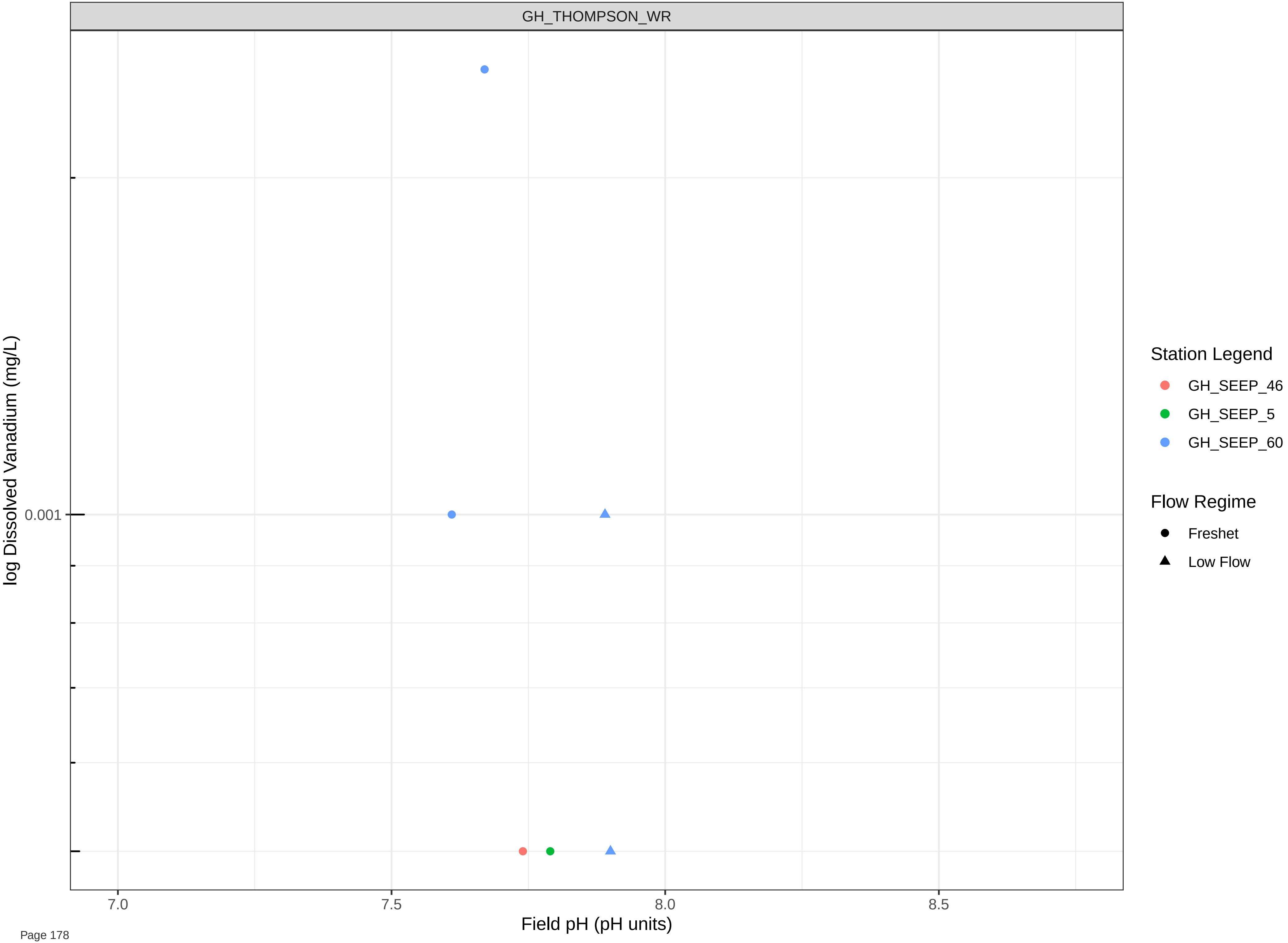

GH_UPSTREAM_CCR
0.01
0.001
log Dissolved Uranium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

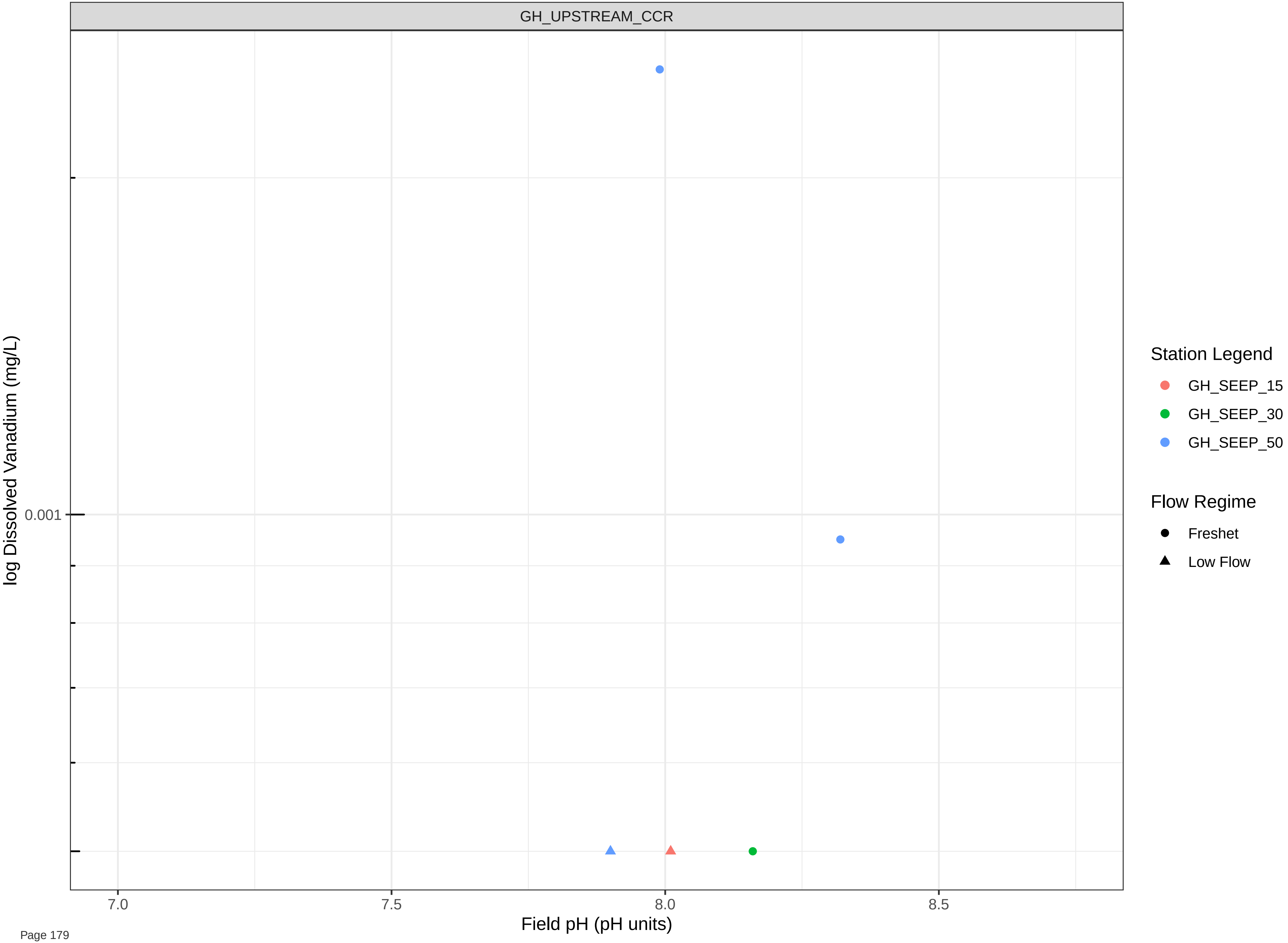

GH_WOLFRAM_WR
log Dissolved Uranium (mg/L)
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

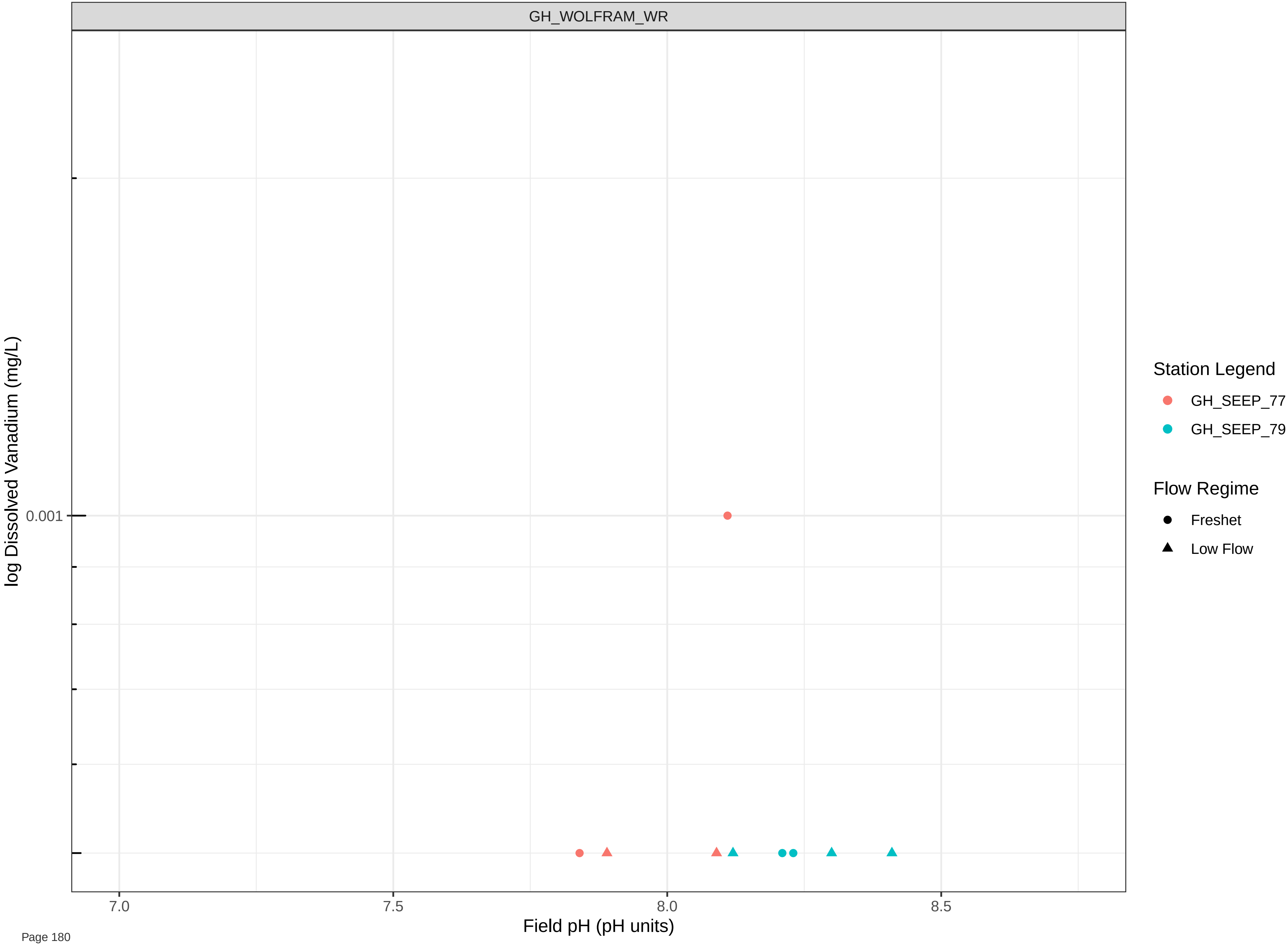

GH_CCR
log Dissolved Vanadium (mg/L)
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

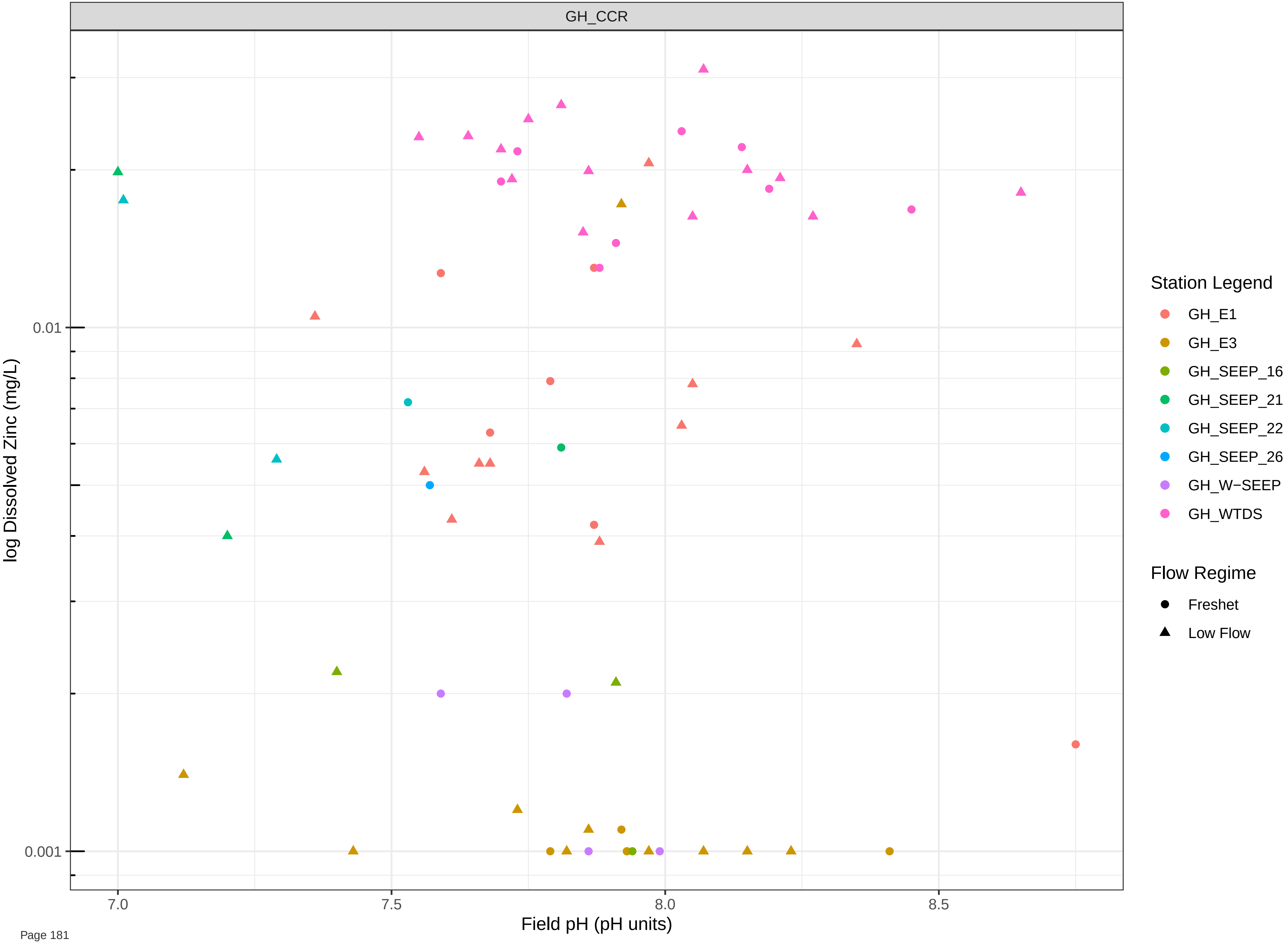

GH_LEASK_WR
log Dissolved Vanadium (mg/L)
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

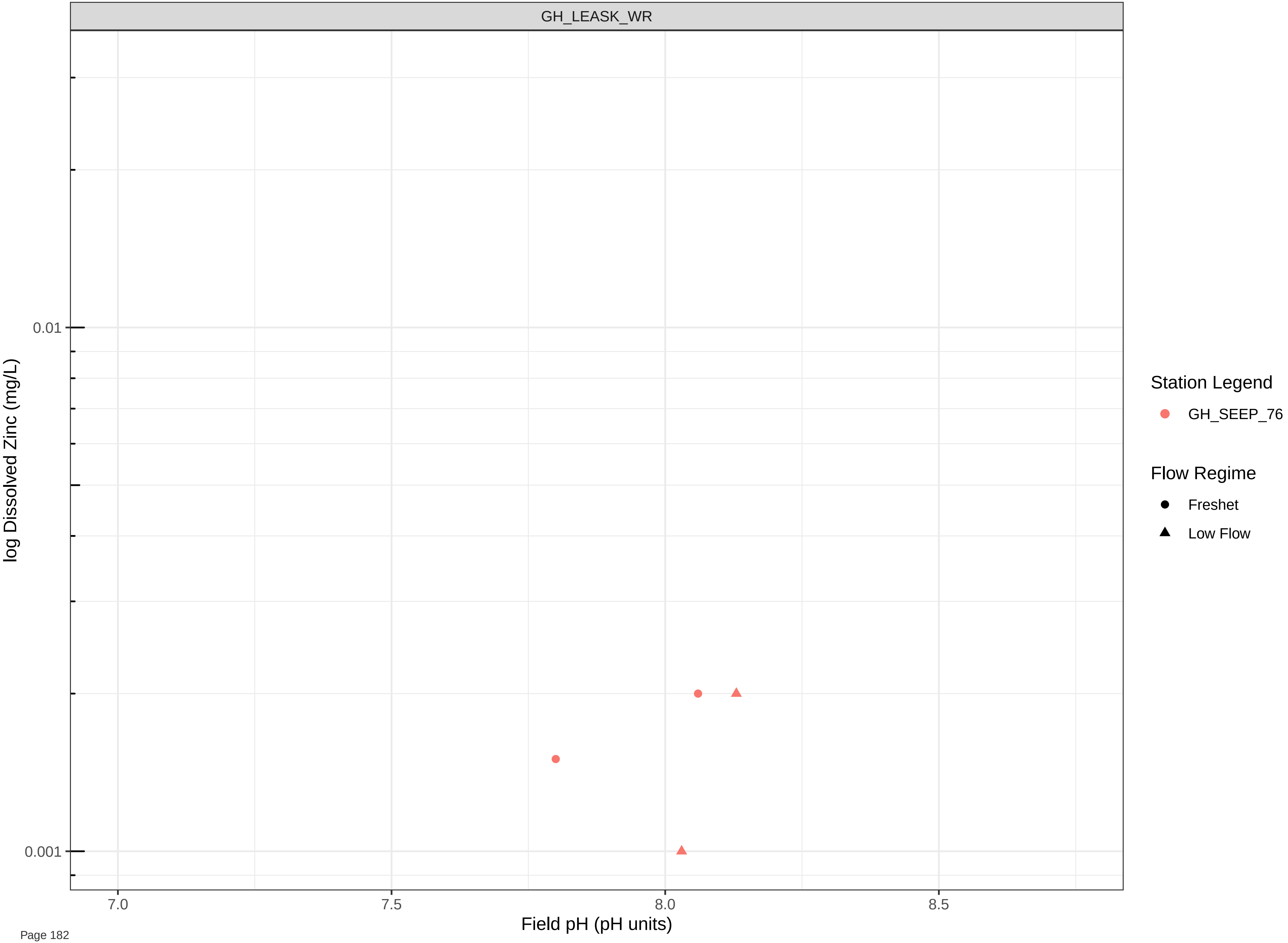

GH_PORTER_CREEK
log Dissolved Vanadium (mg/L)
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

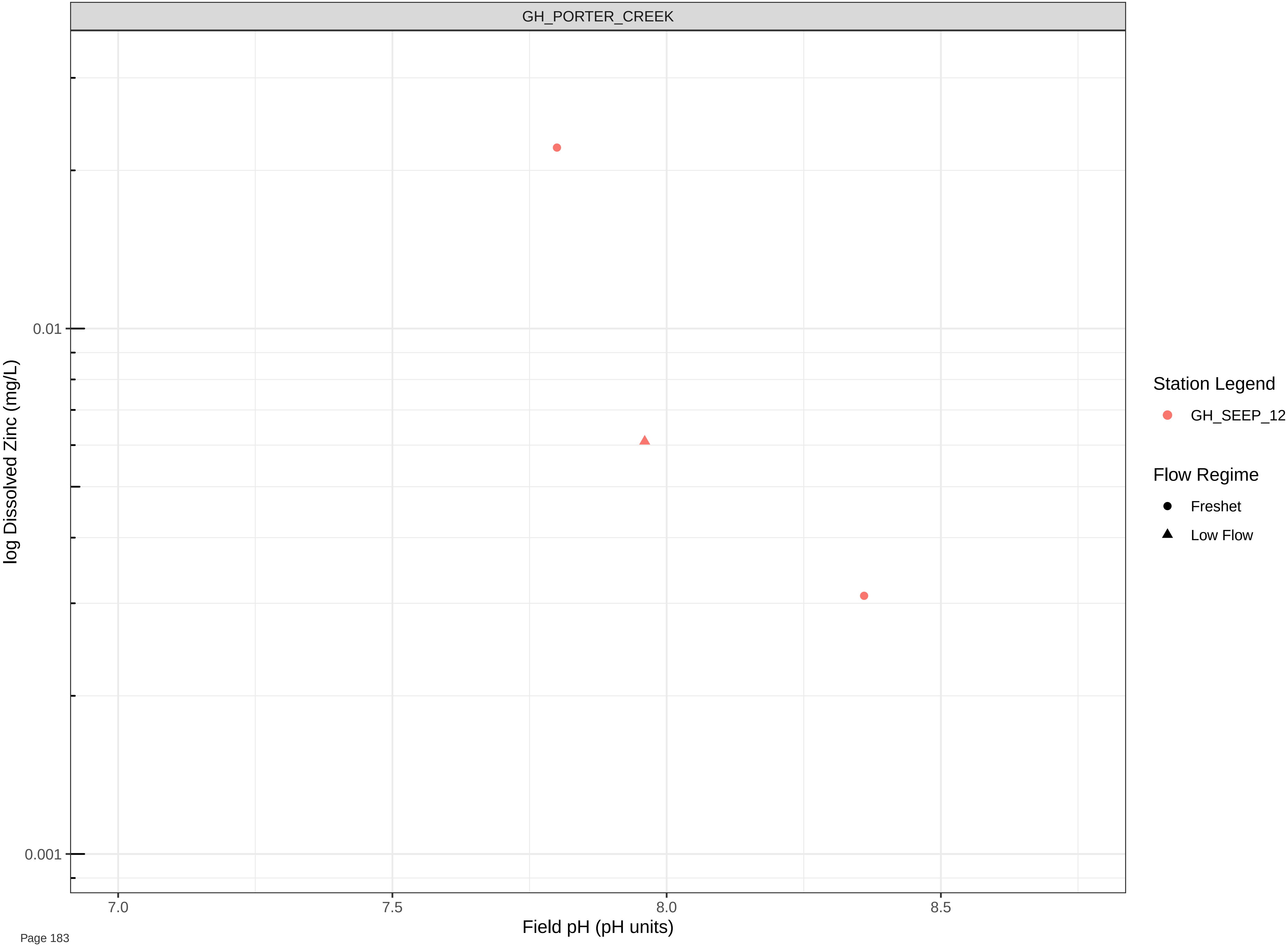

GH_THOMPSON_WR
log Dissolved Vanadium (mg/L)
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

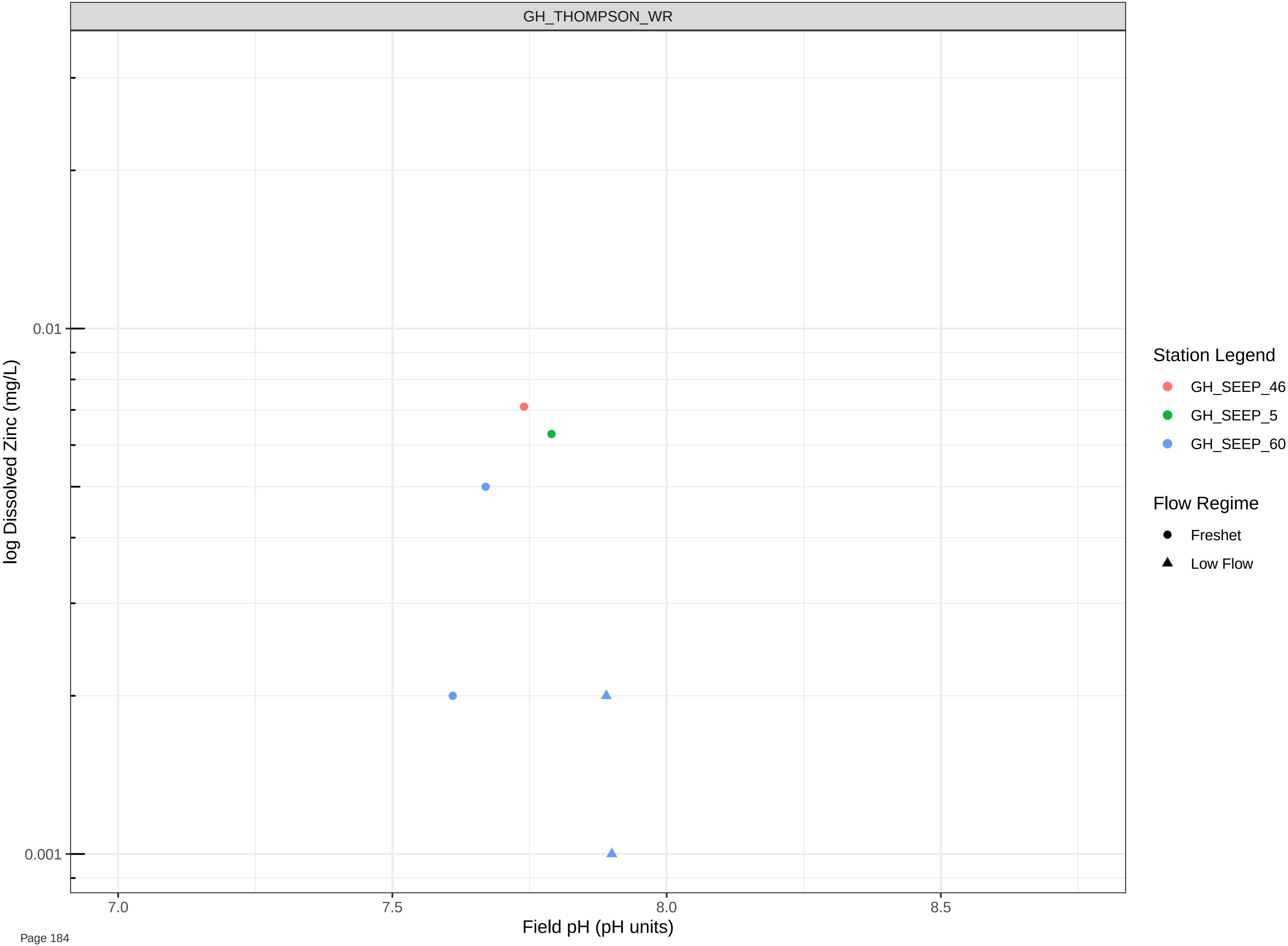

GH_UPSTREAM_CCR
log Dissolved Vanadium (mg/L)
0.001
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

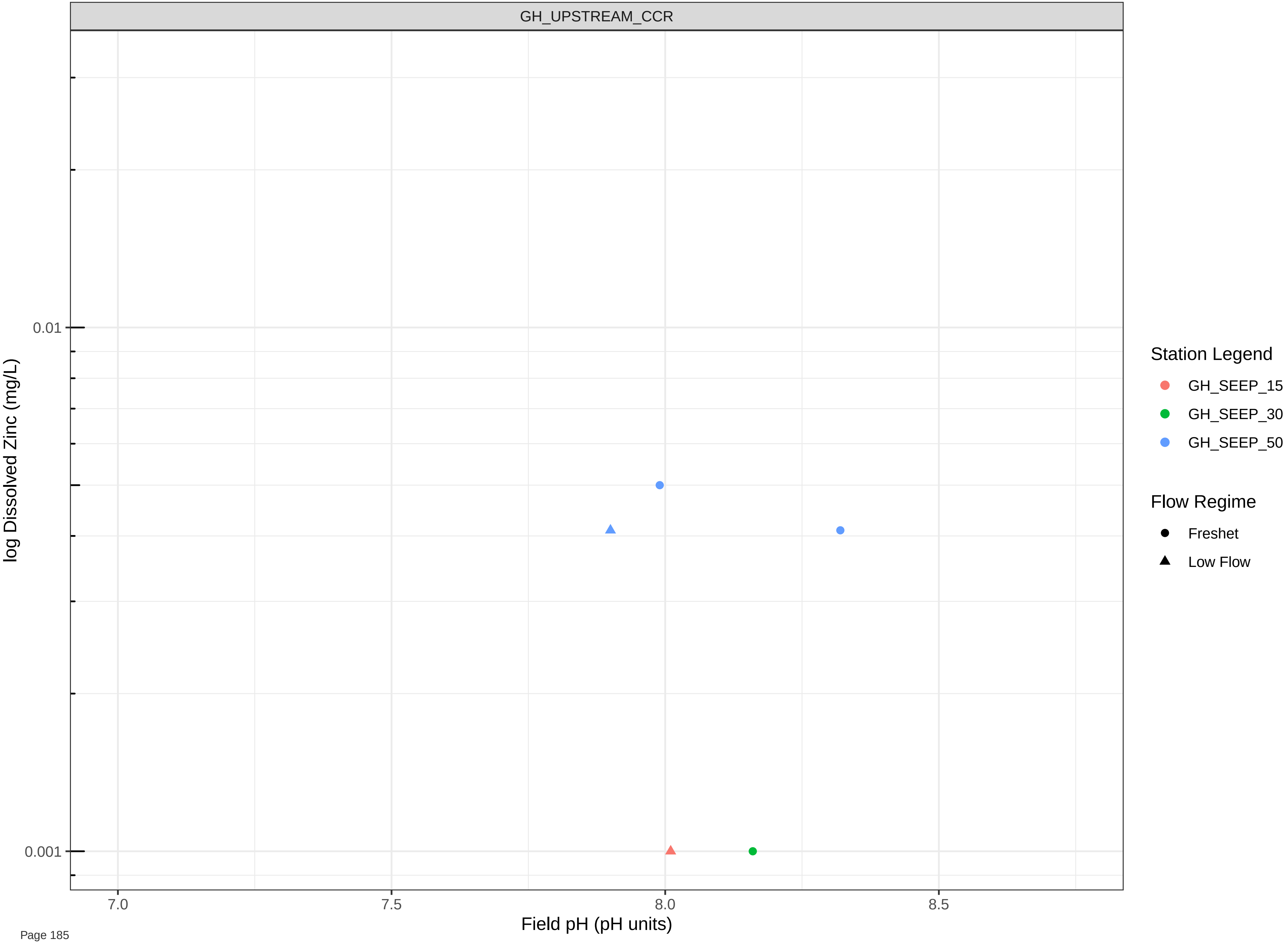

GH_WOLFRAM_WR
log Dissolved Vanadium (mg/L)
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

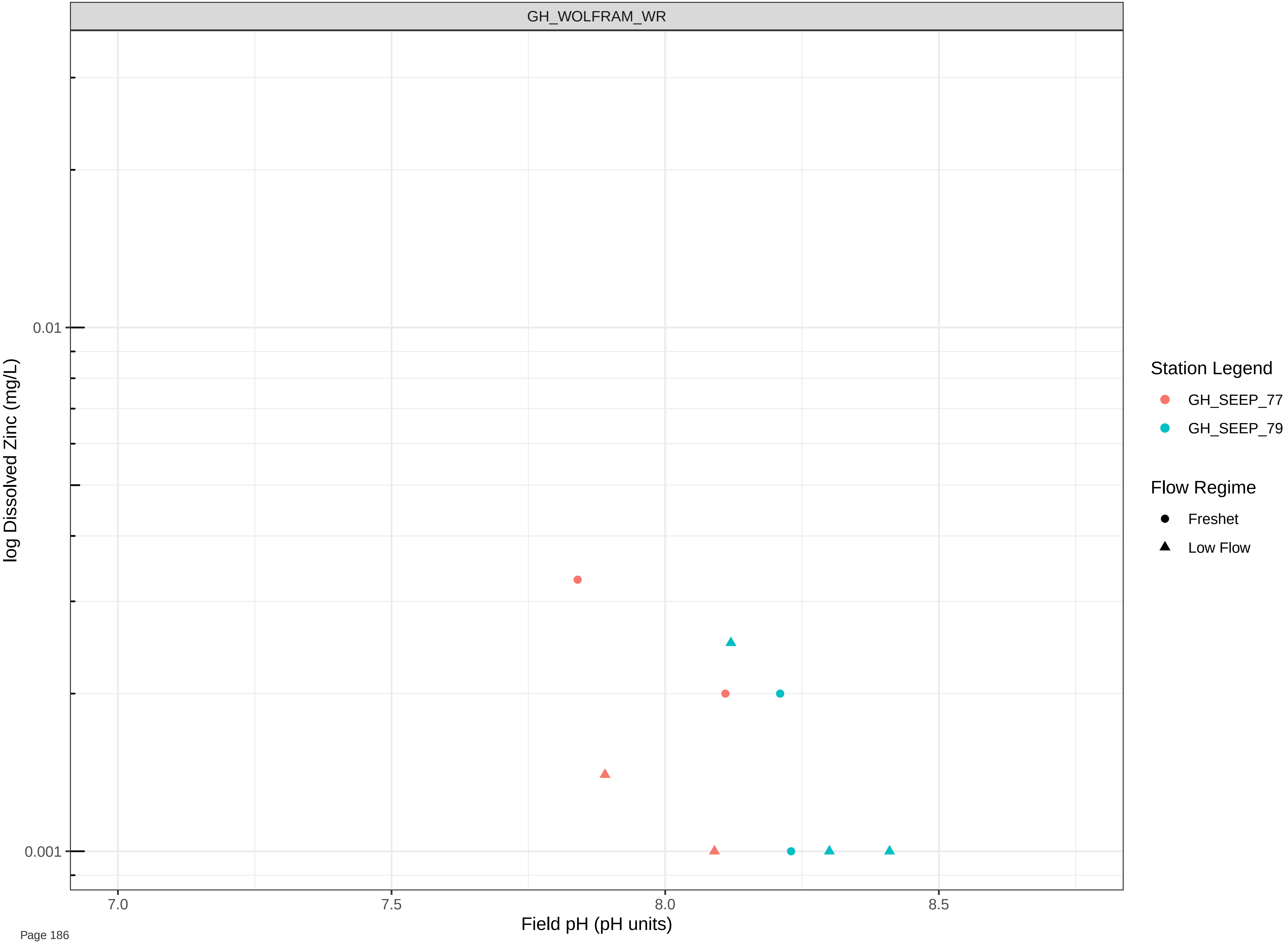

GH_CCR
log Dissolved Zinc (mg/L)
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

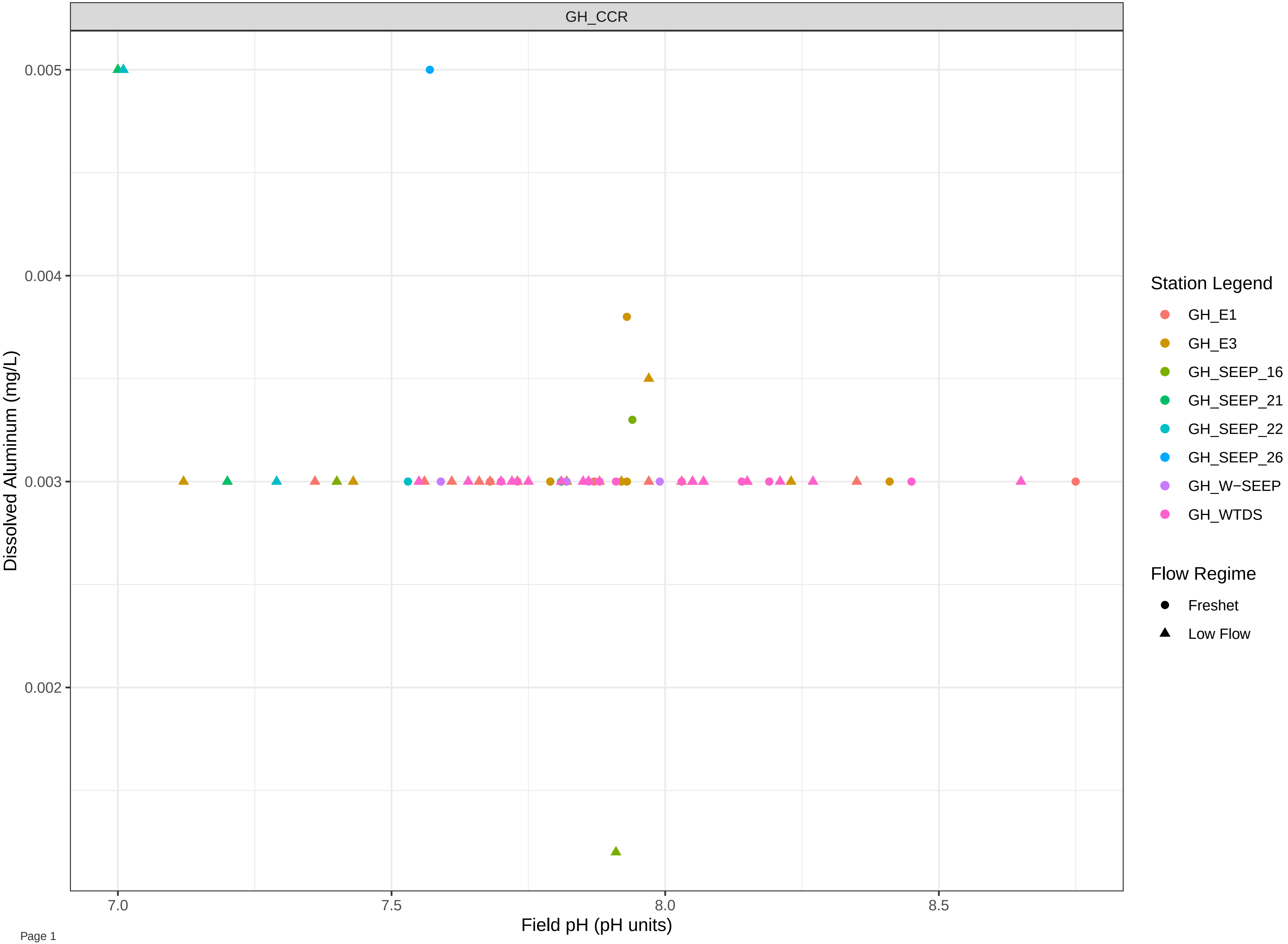

GH_LEASK_WR
log Dissolved Zinc (mg/L)
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow

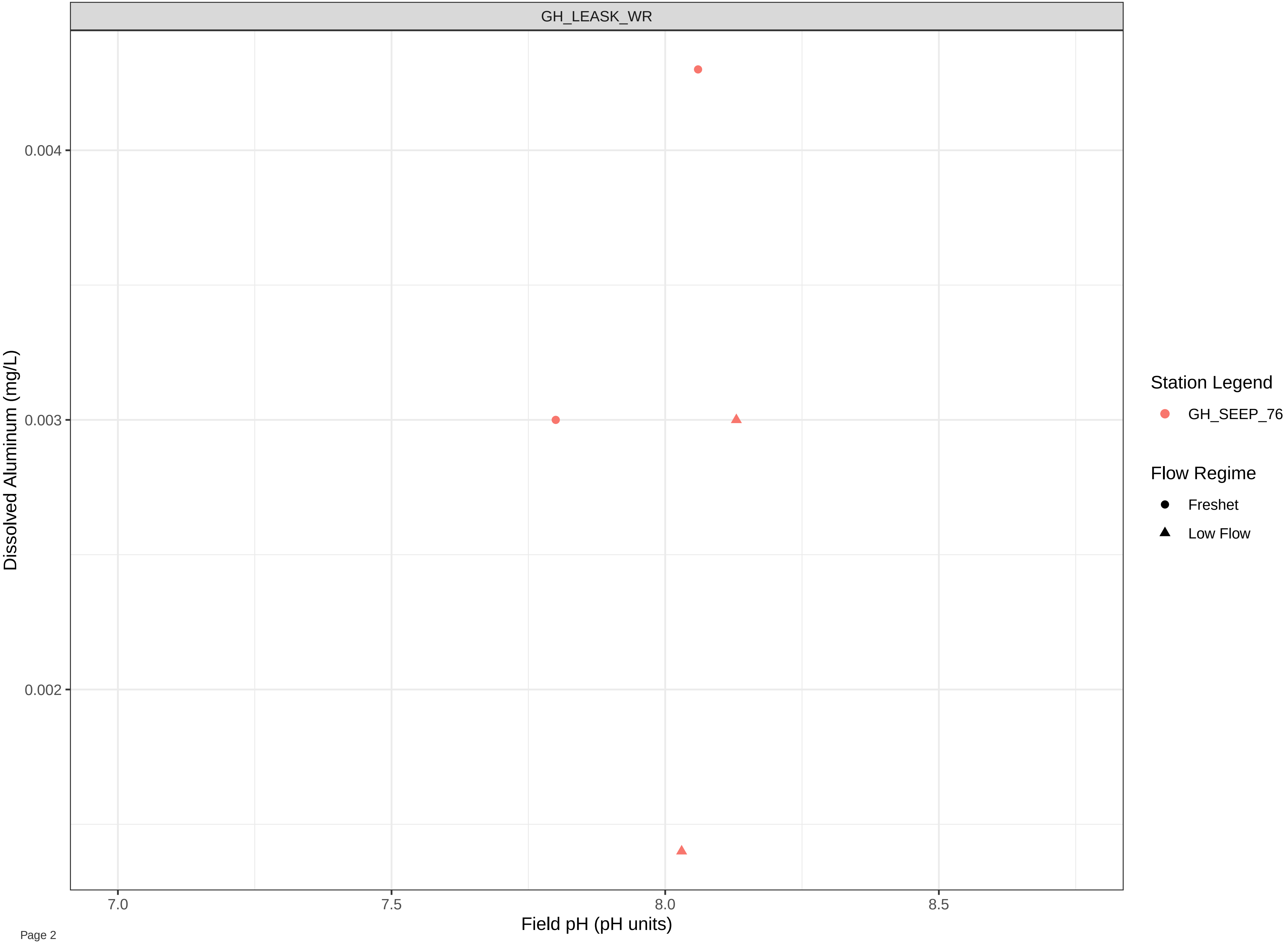

GH_PORTER_CREEK
log Dissolved Zinc (mg/L)
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

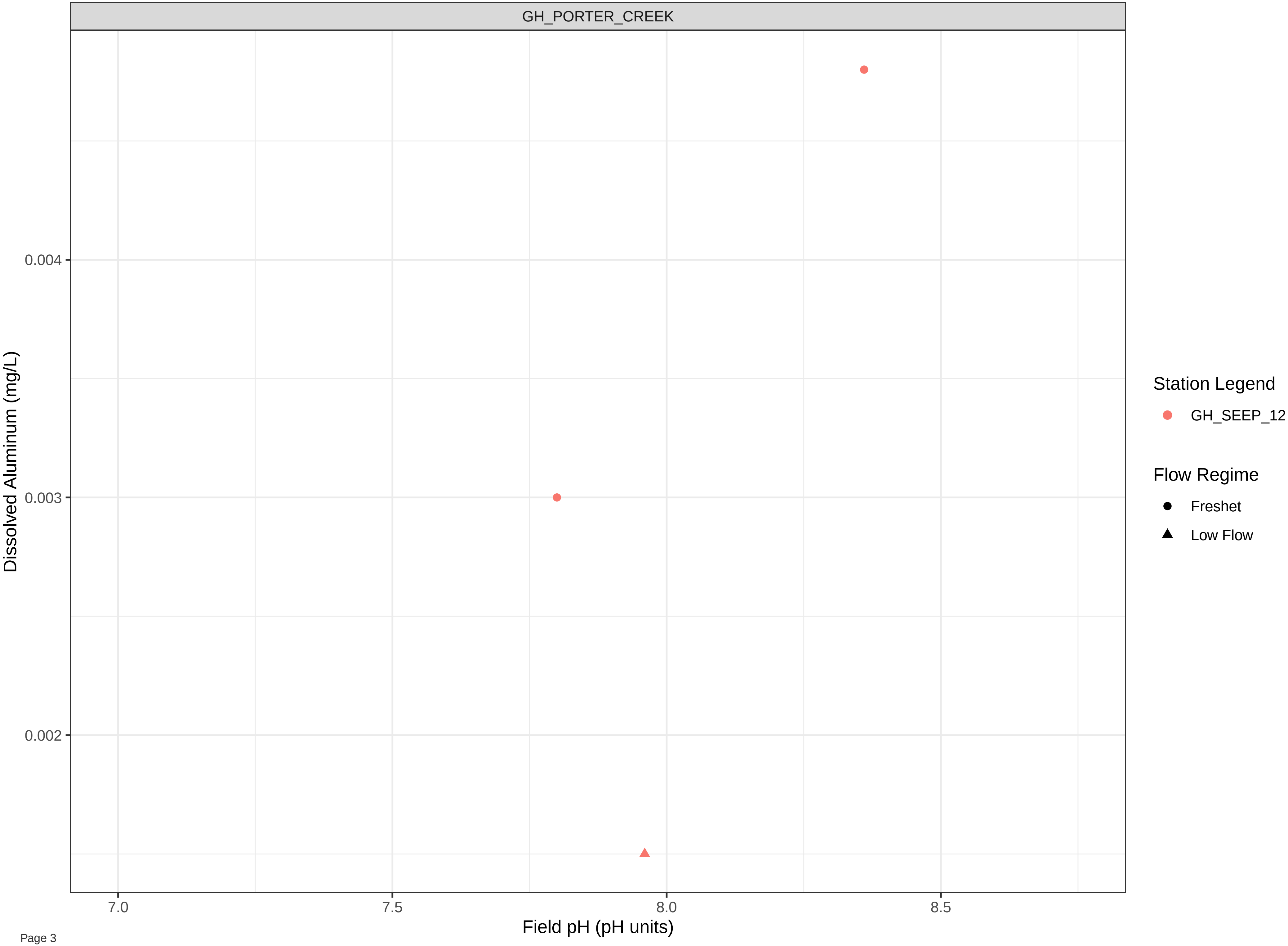

GH_THOMPSON_WR
log Dissolved Zinc (mg/L)
0.01
0.001
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

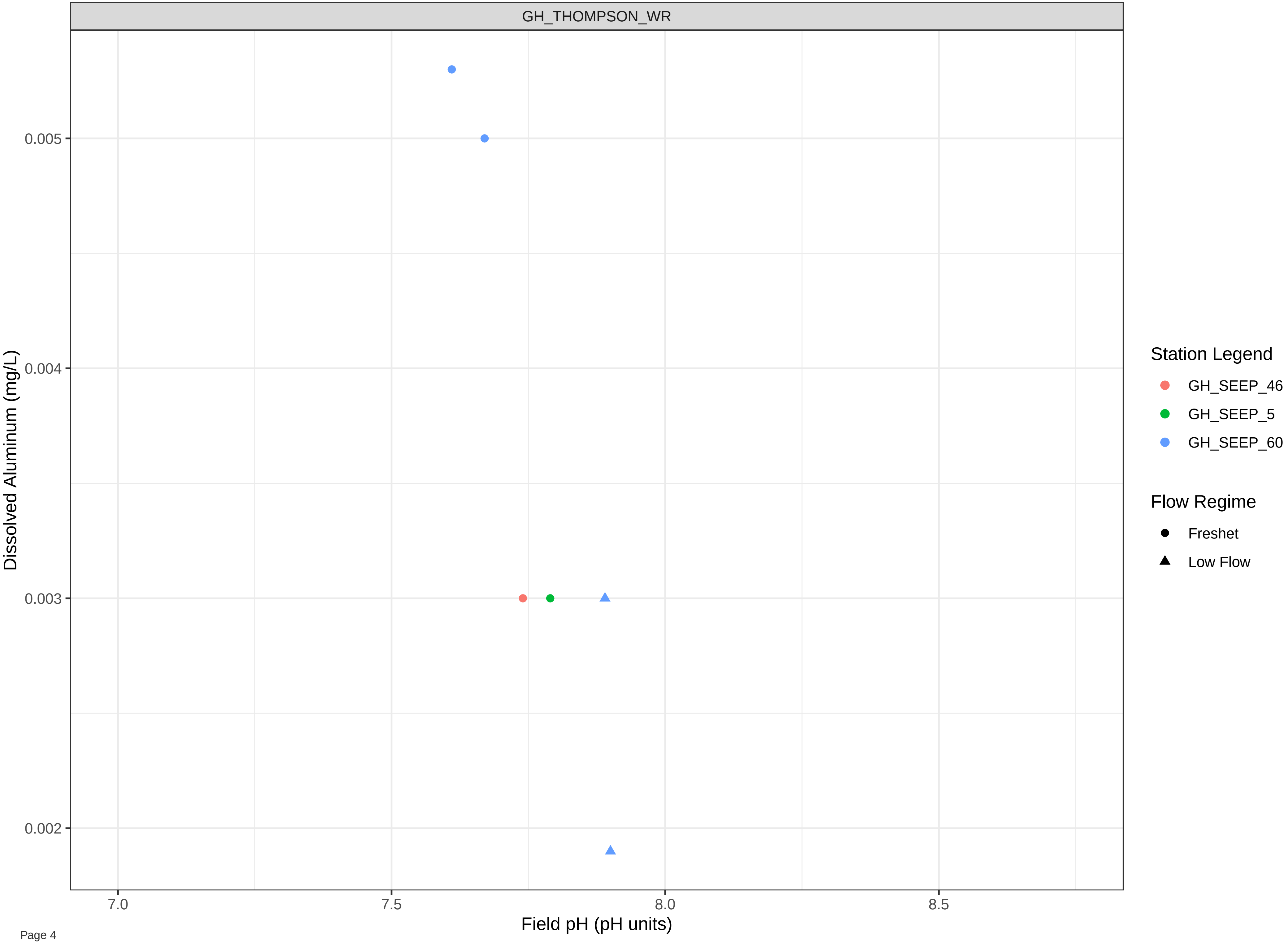

GH_UPSTREAM_CCR
log Dissolved Zinc (mg/L)
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

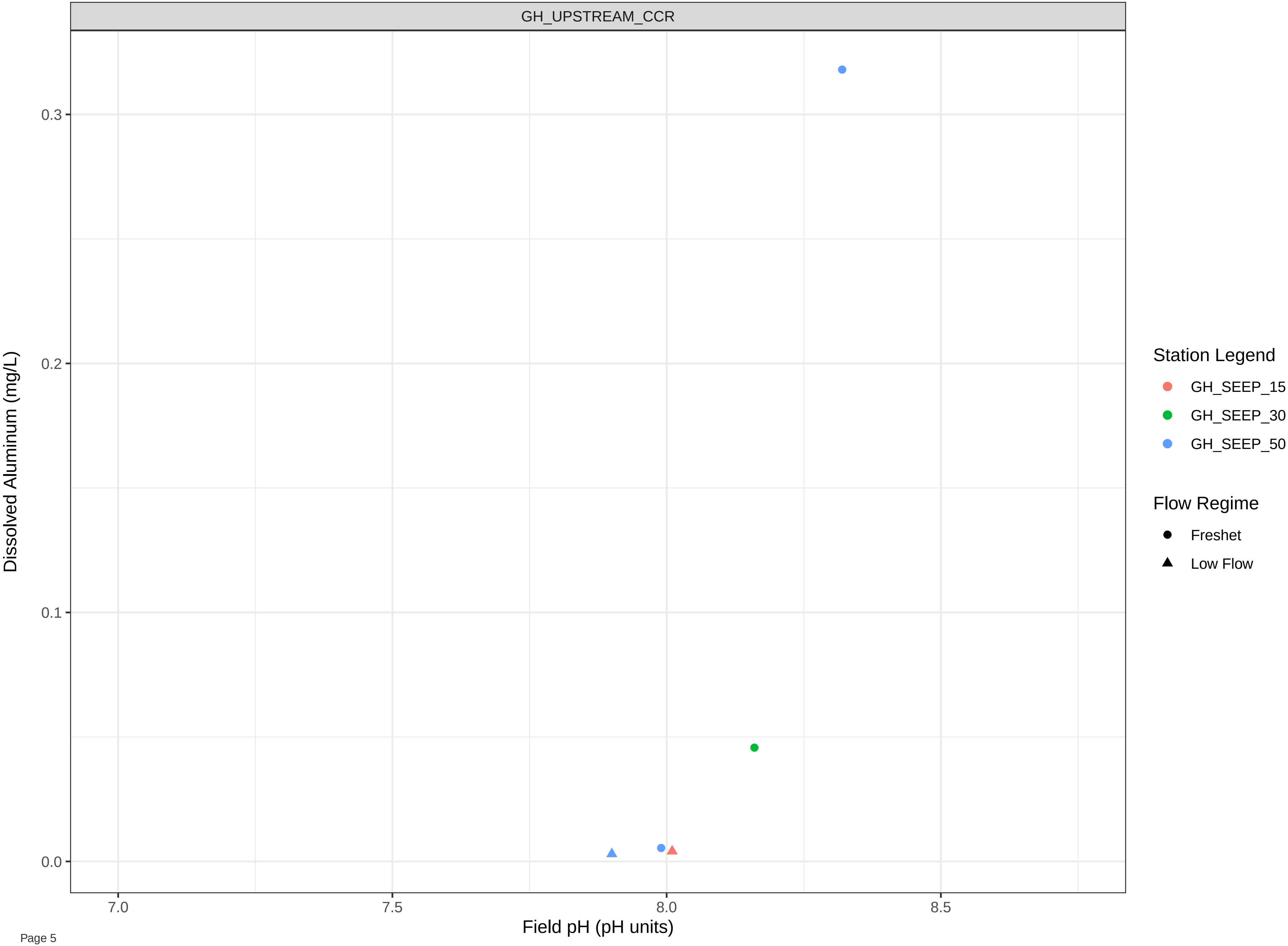

GH_WOLFRAM_WR
log Dissolved Zinc (mg/L)
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

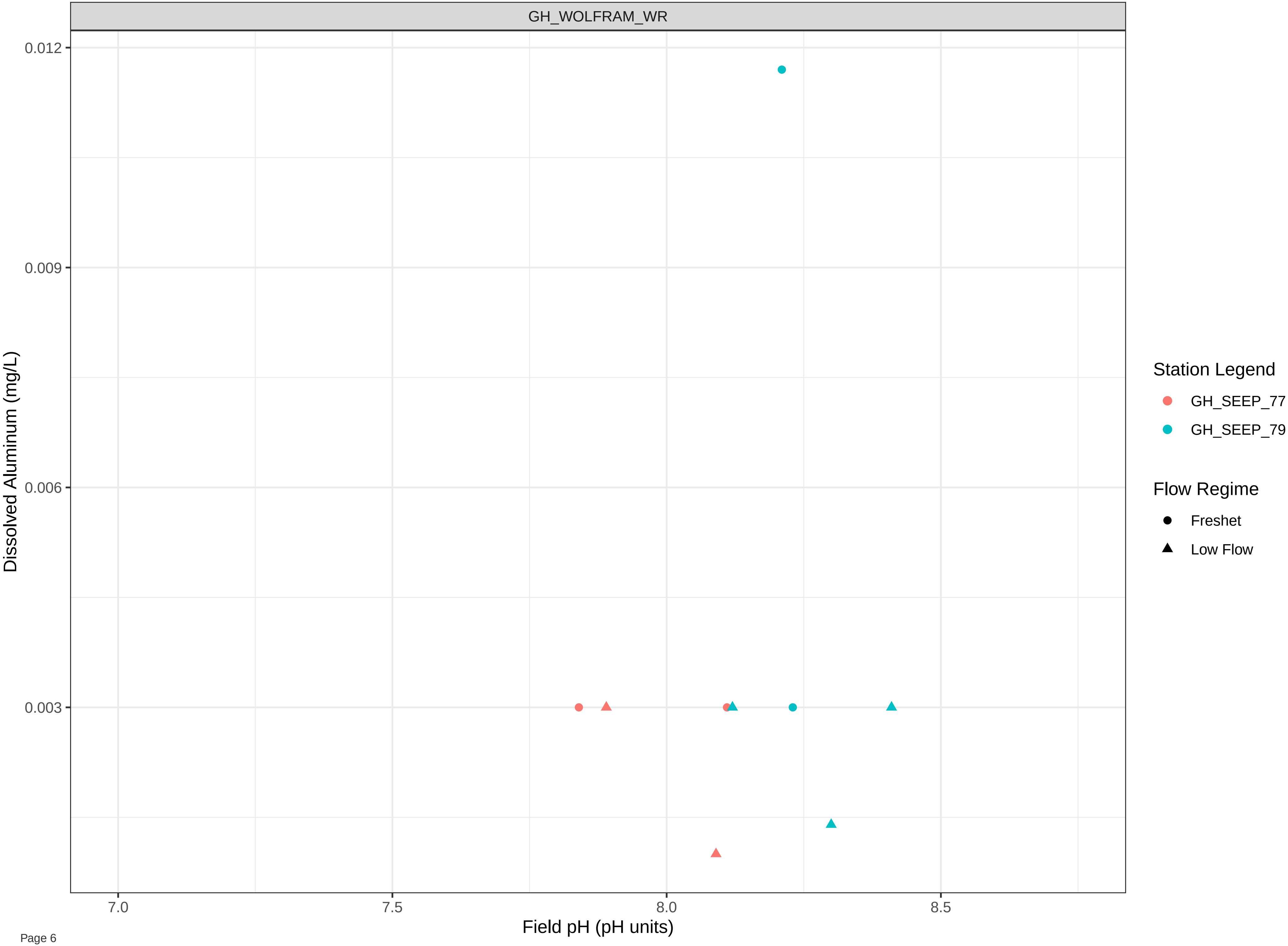

GH_CCR
Dissolved Aluminum (mg/L)
0.005
0.004
0.003
0.002
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

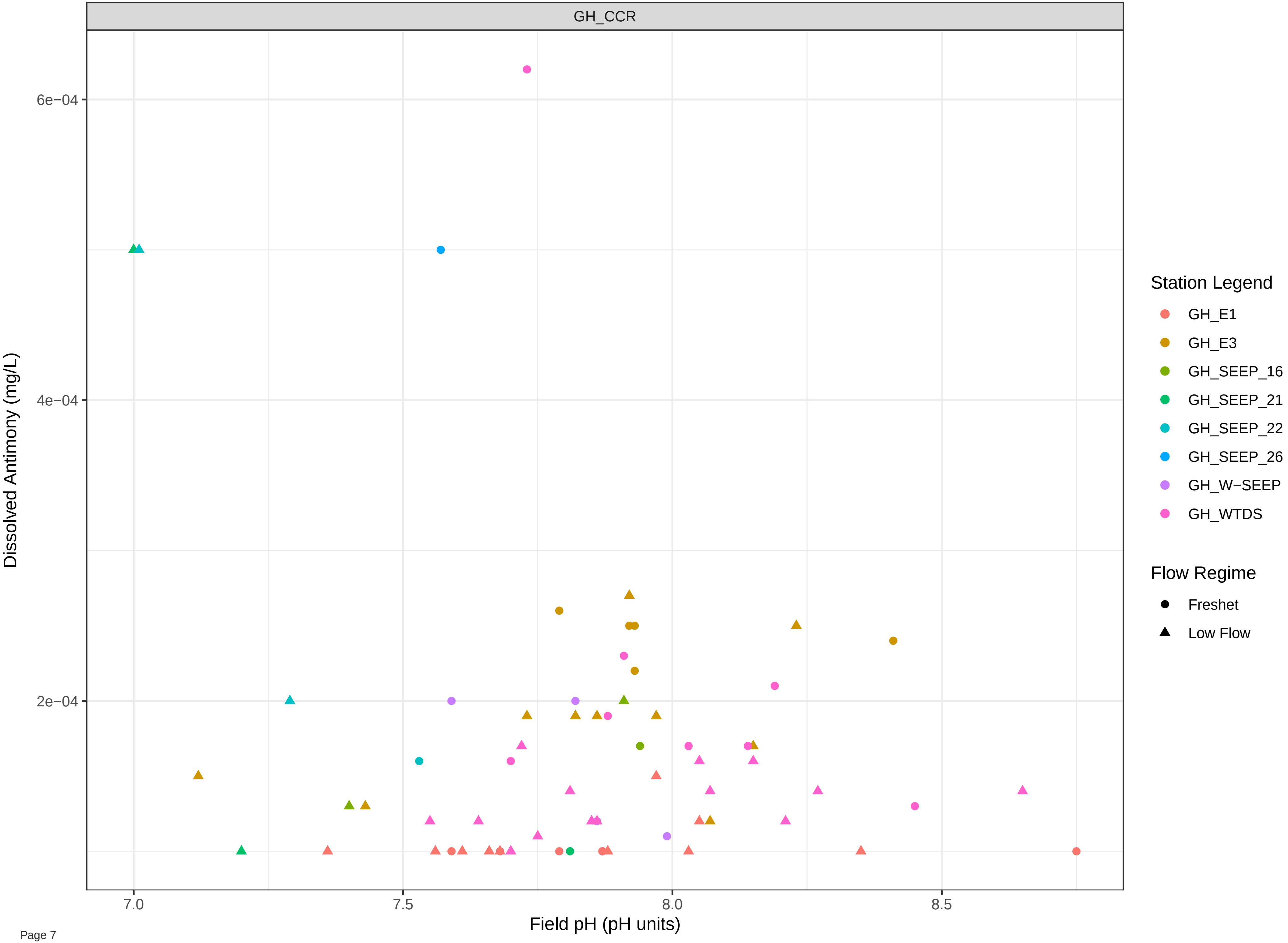

GH_LEASK_WR
0.004
0.003
0.002
Dissolved Aluminum (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow

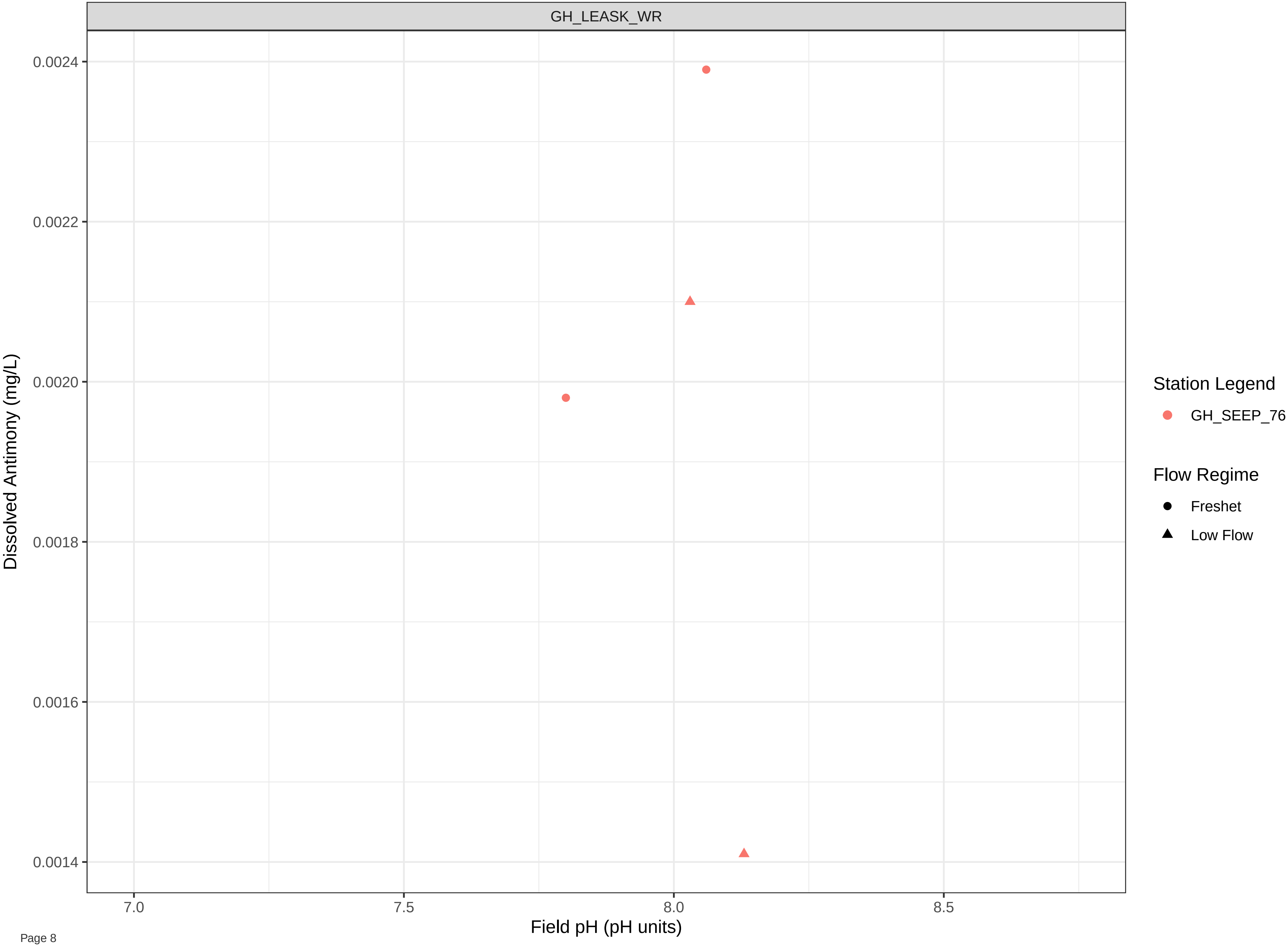

GH_PORTER_CREEK
Dissolved Aluminum (mg/L)
0.004
0.003
0.002
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

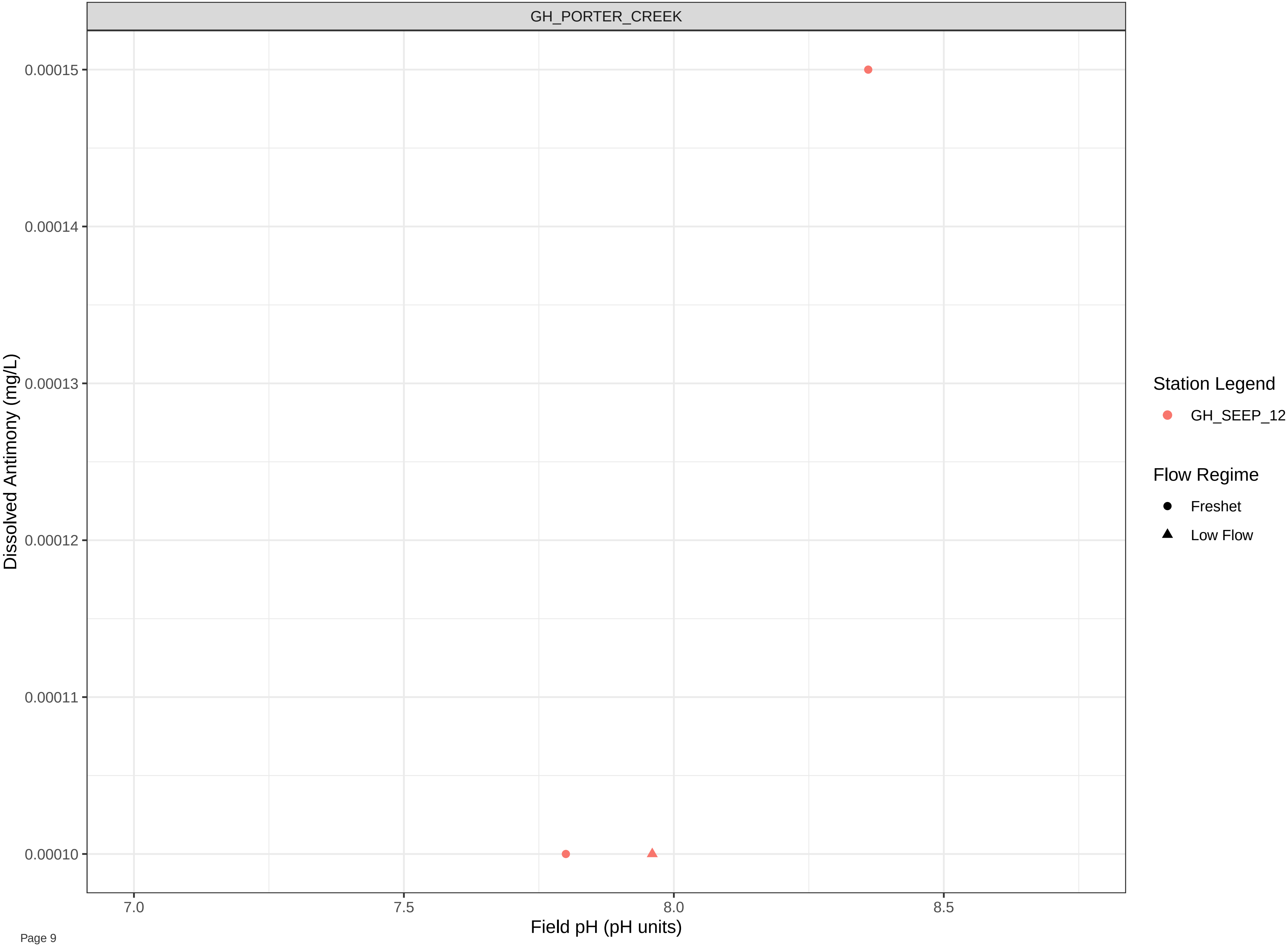

GH_THOMPSON_WR
Dissolved Aluminum (mg/L)
0.005
0.004
0.003
0.002
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_46
● GH_SEEP_5
● GH_SEEP_60
Flow Regime
● Freshet
▲ Low Flow

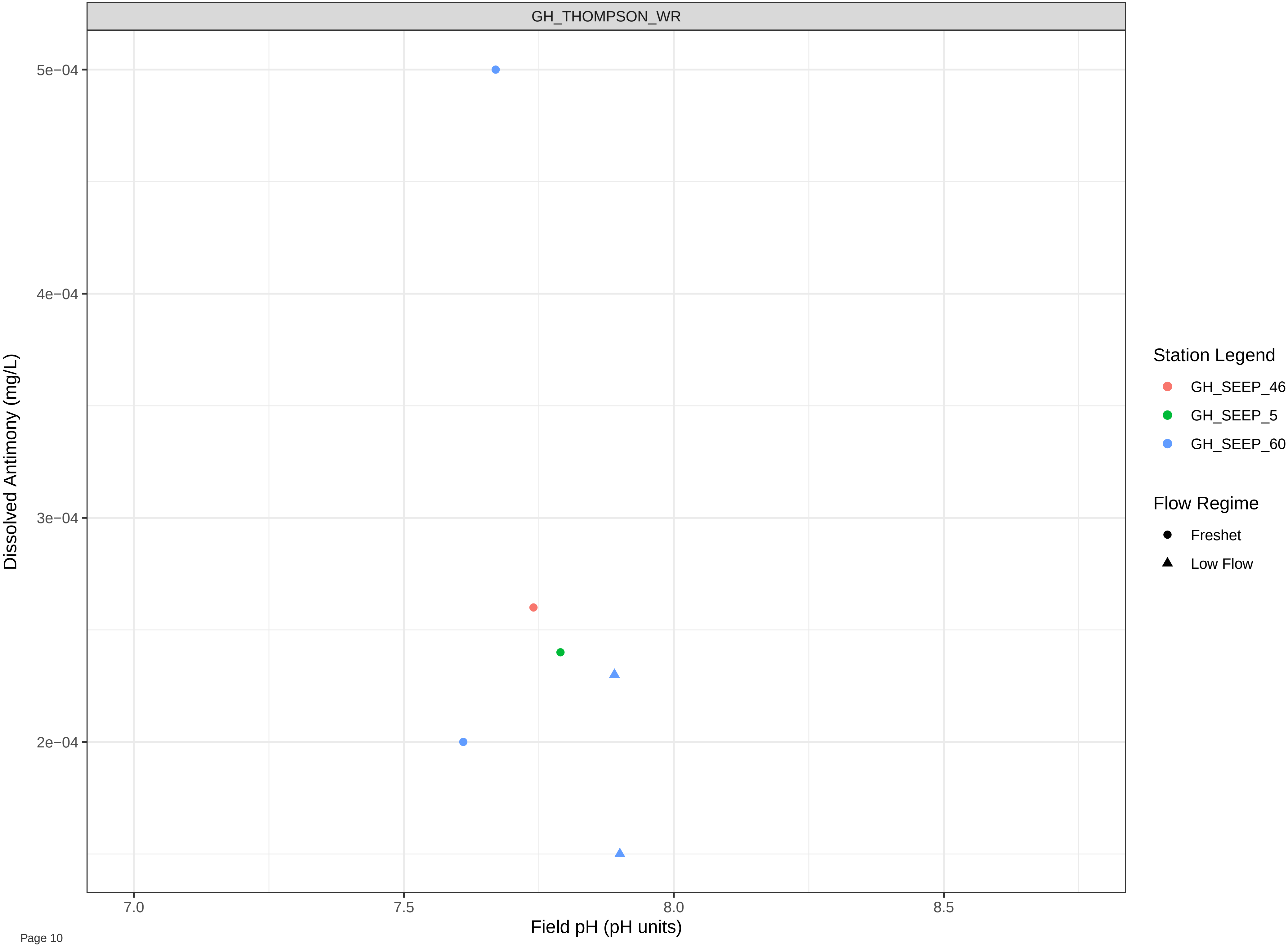

GH_UPSTREAM_CCR
Dissolved Aluminum (mg/L)
0.3
0.2
0.1
0.0
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

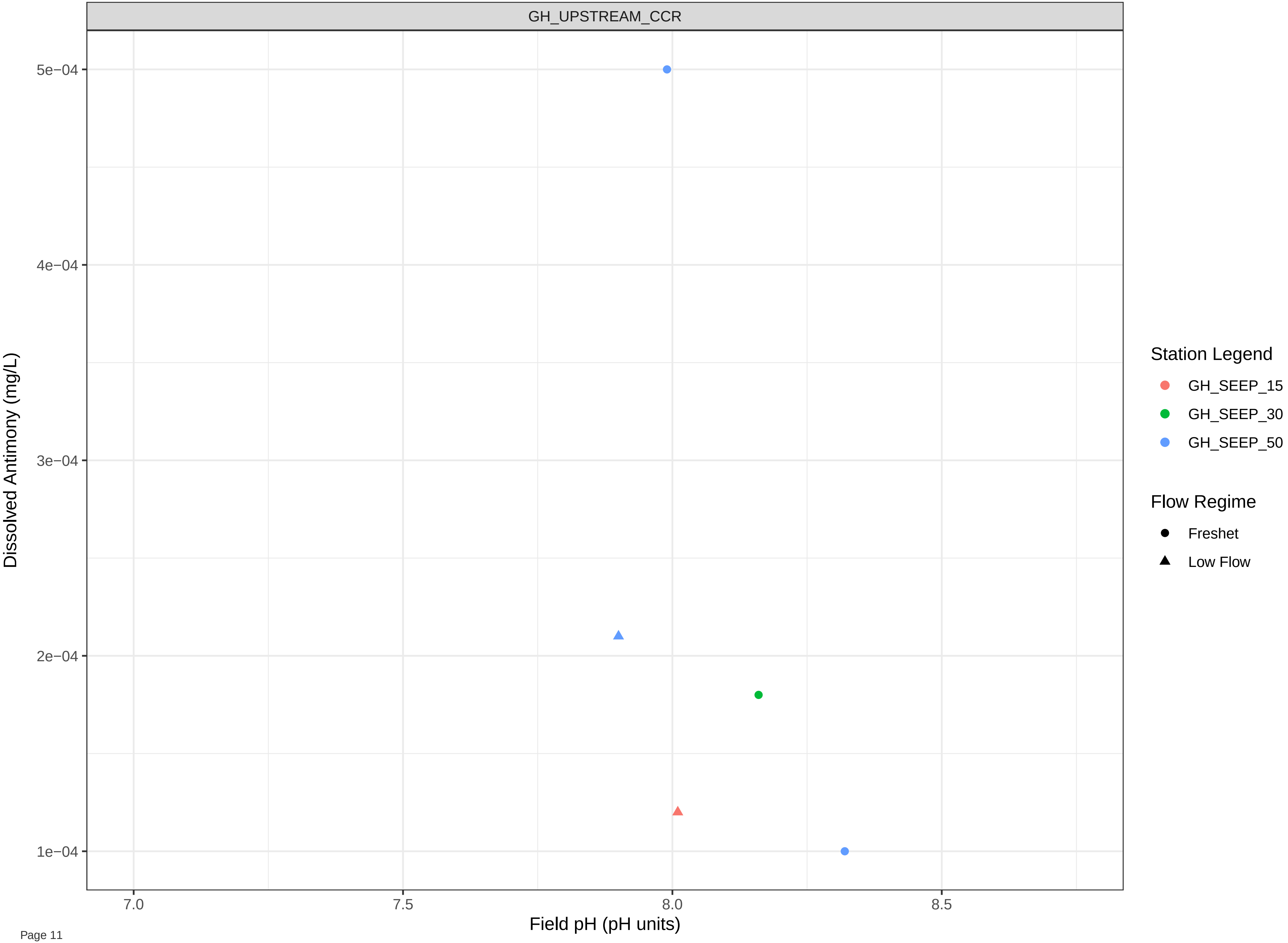

GH_WOLFRAM_WR
0.012
0.009
0.006
0.003
Dissolved Aluminum (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

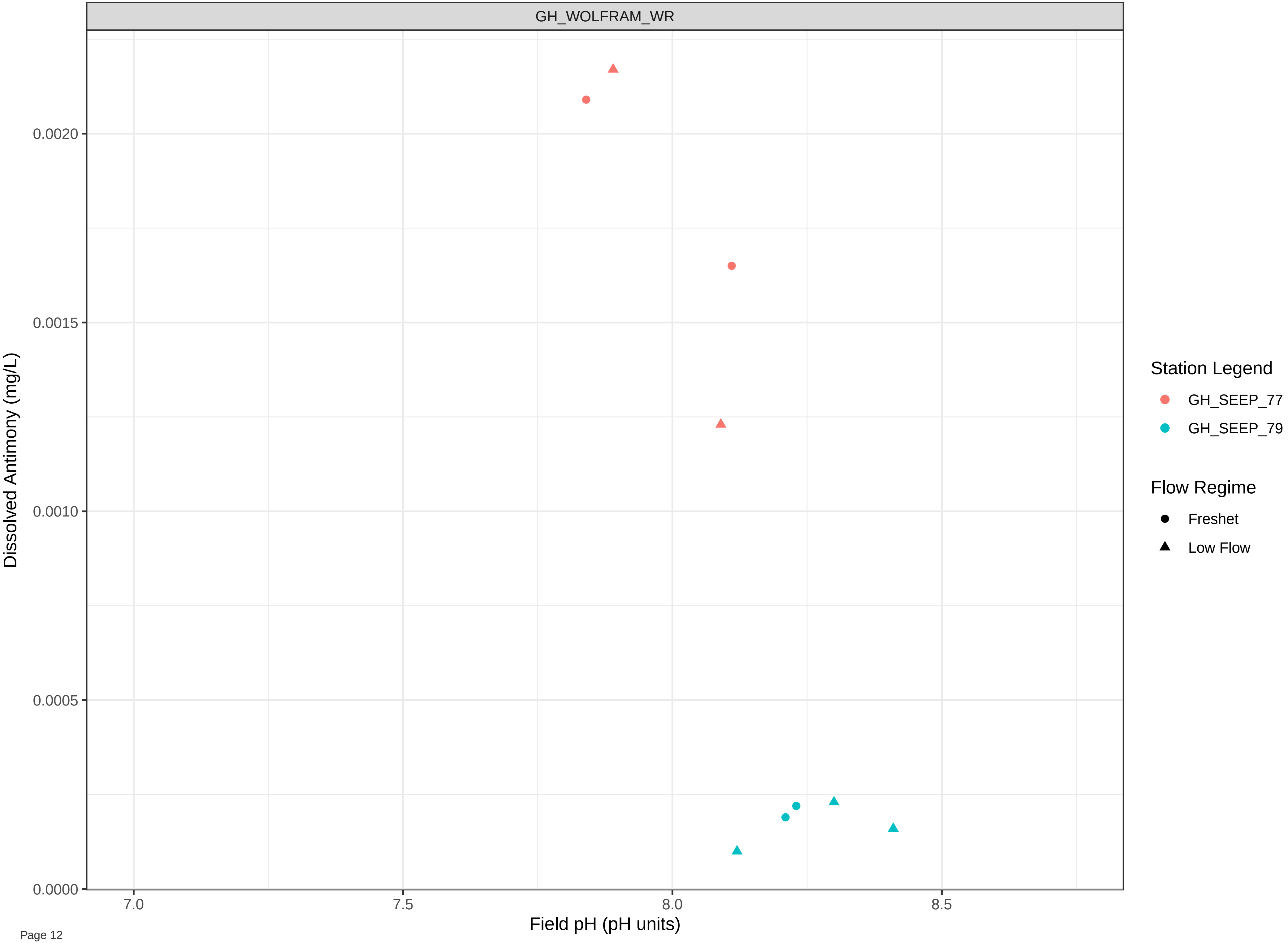

GH_CCR
Dissolved Antimony (mg/L)
6e−04
4e−04
2e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

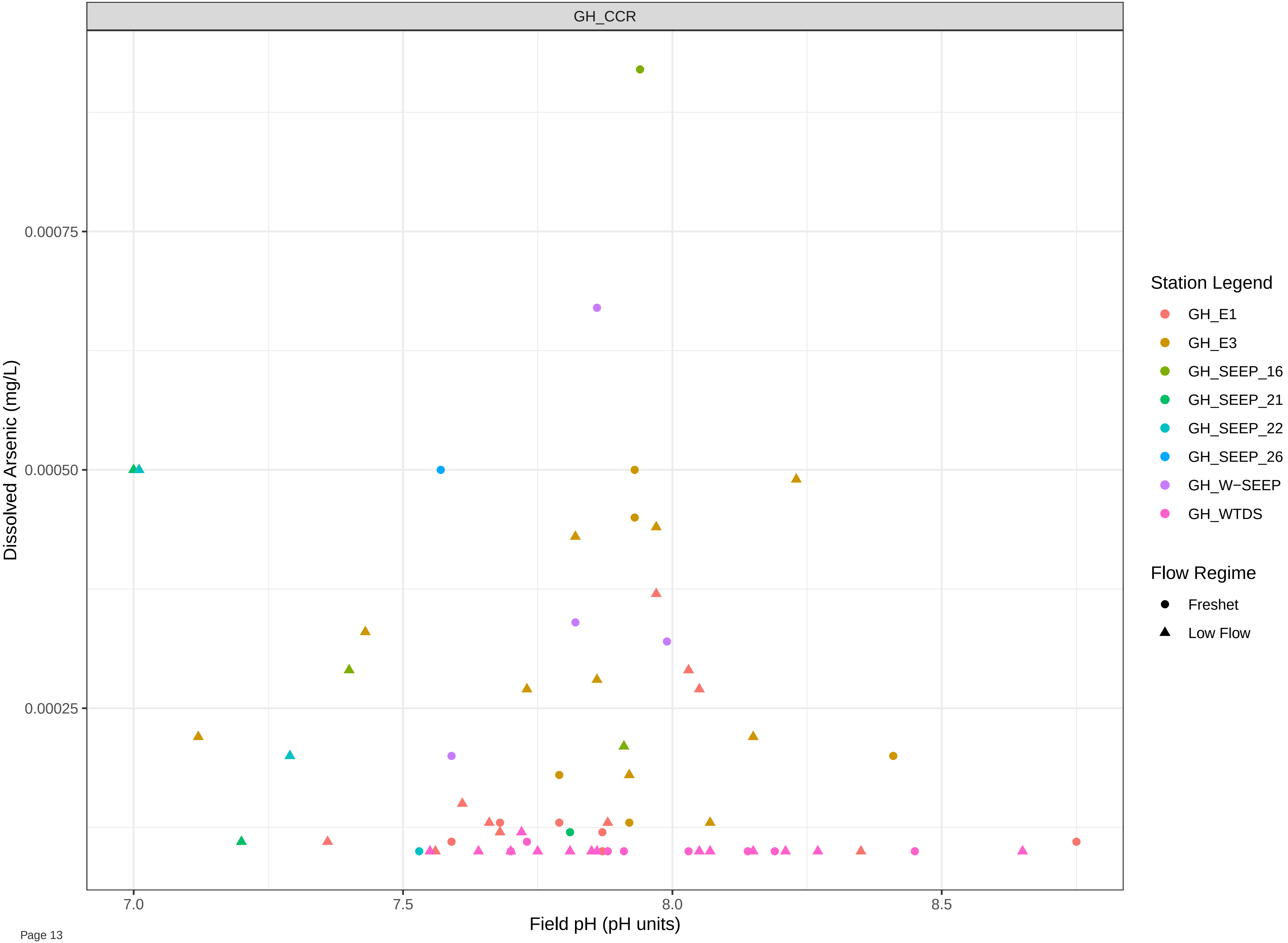

GH_LEASK_WR
Dissolved Antimony (mg/L)
0.0024
0.0022
0.0020
0.0018
0.0016
0.0014
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow

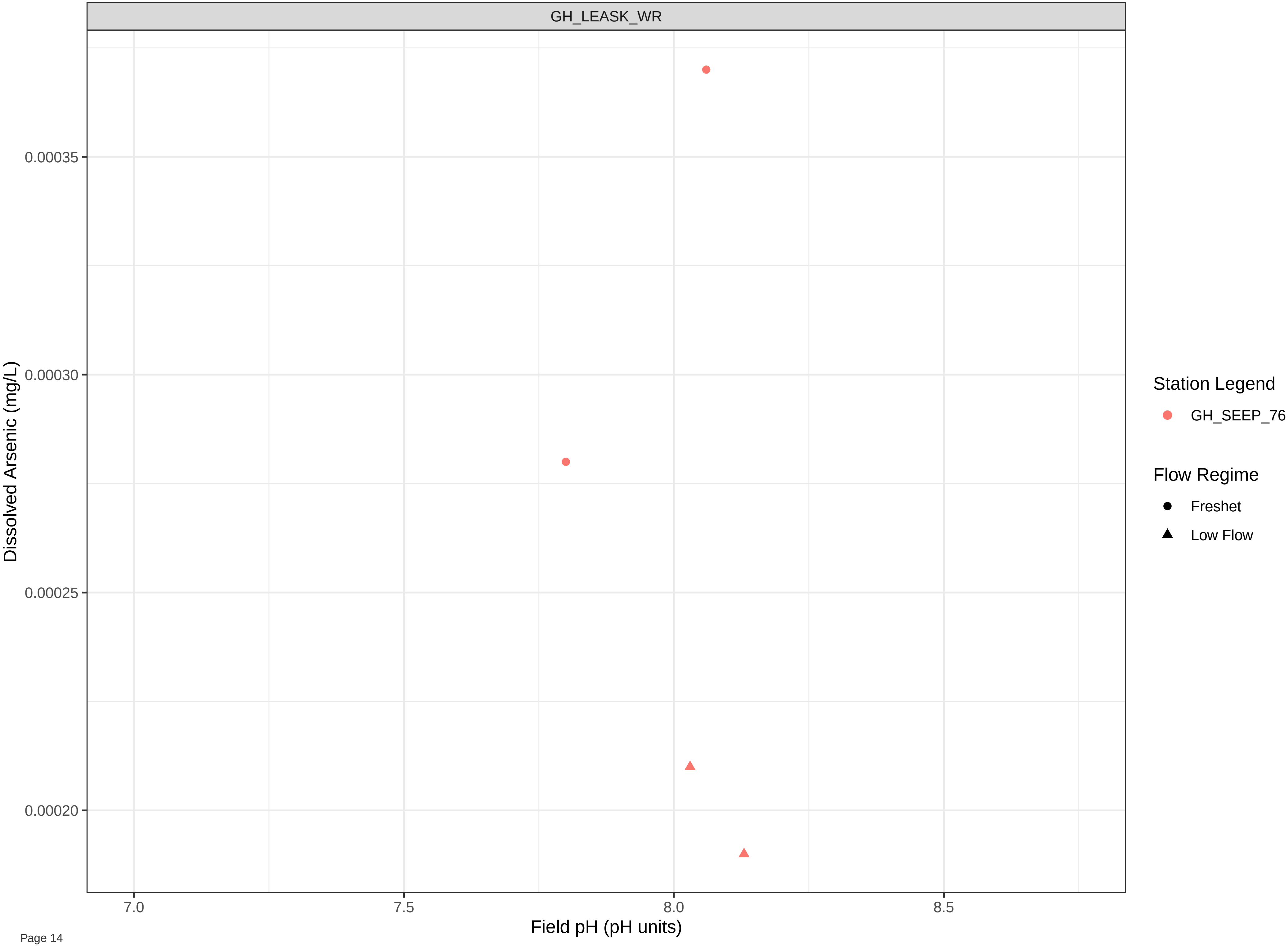

GH_PORTER_CREEK
Dissolved Antimony (mg/L)
0.00015
0.00014
0.00013
0.00012
0.00011
0.00010
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

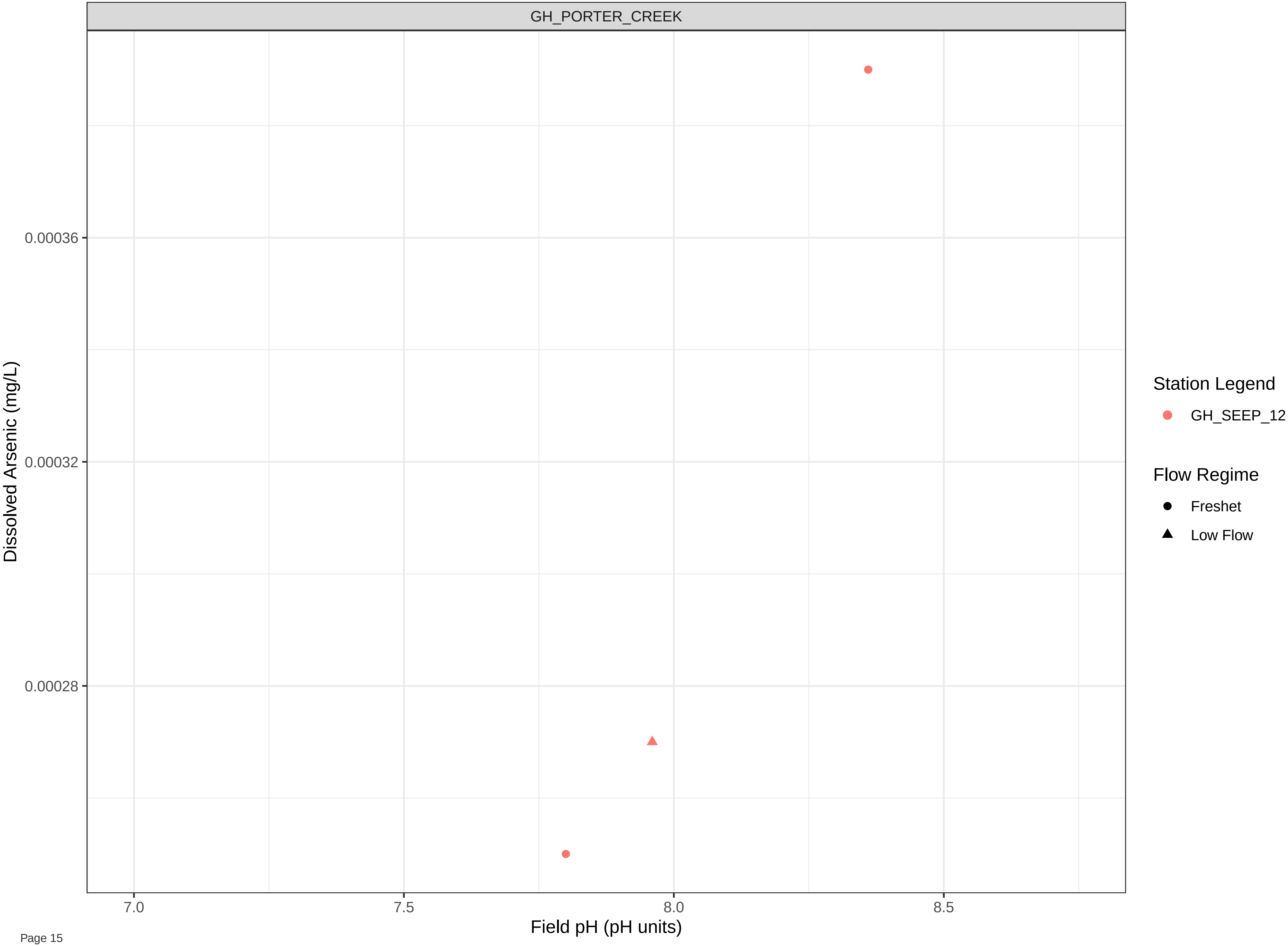

GH_THOMPSON_WR
Dissolved Antimony (mg/L)
5e−04
4e−04
3e−04
2e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

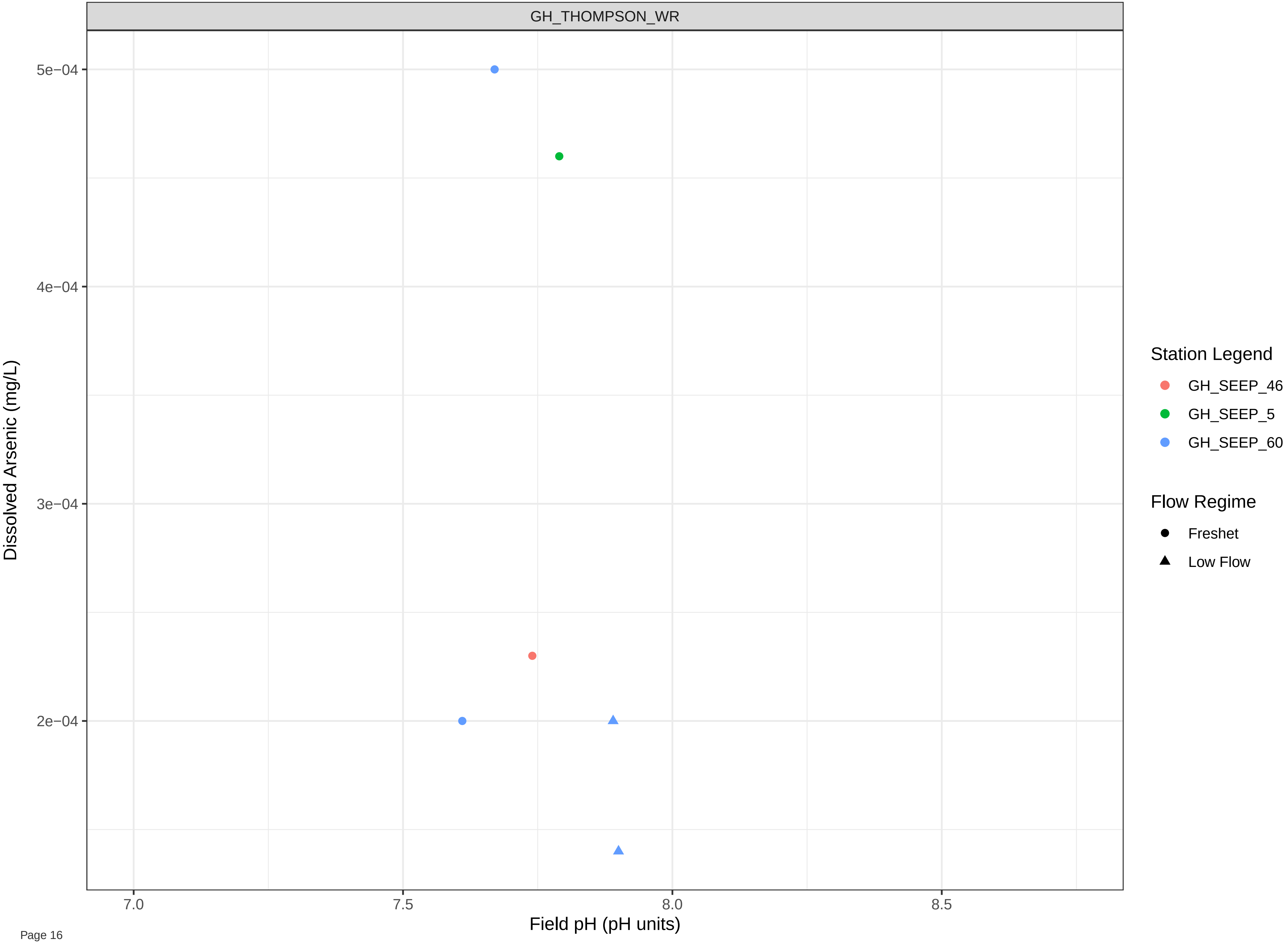

GH_UPSTREAM_CCR
Dissolved Antimony (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

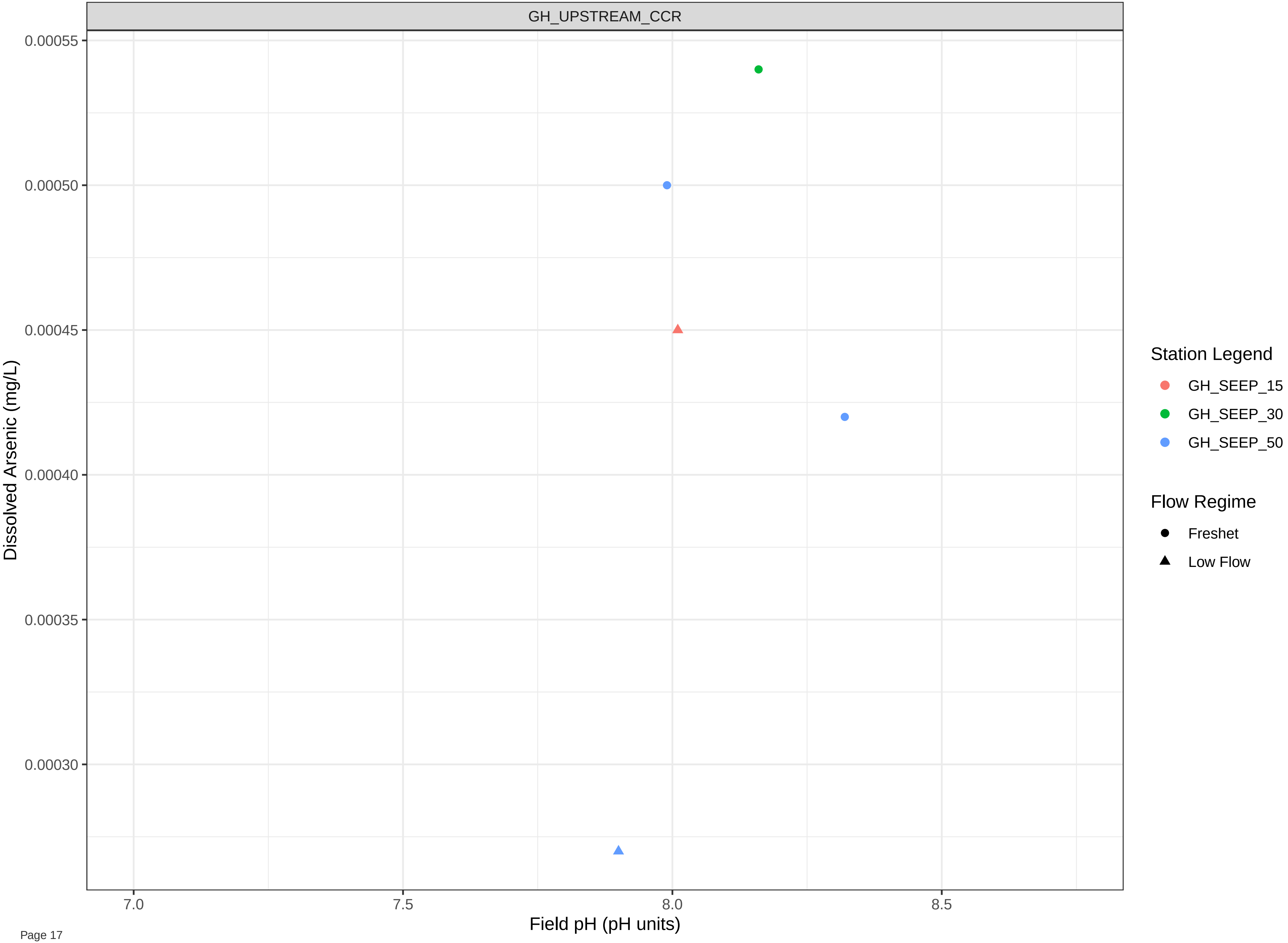

GH_WOLFRAM_WR
Dissolved Antimony (mg/L)
0.0020
0.0015
0.0010
0.0005
0.0000
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

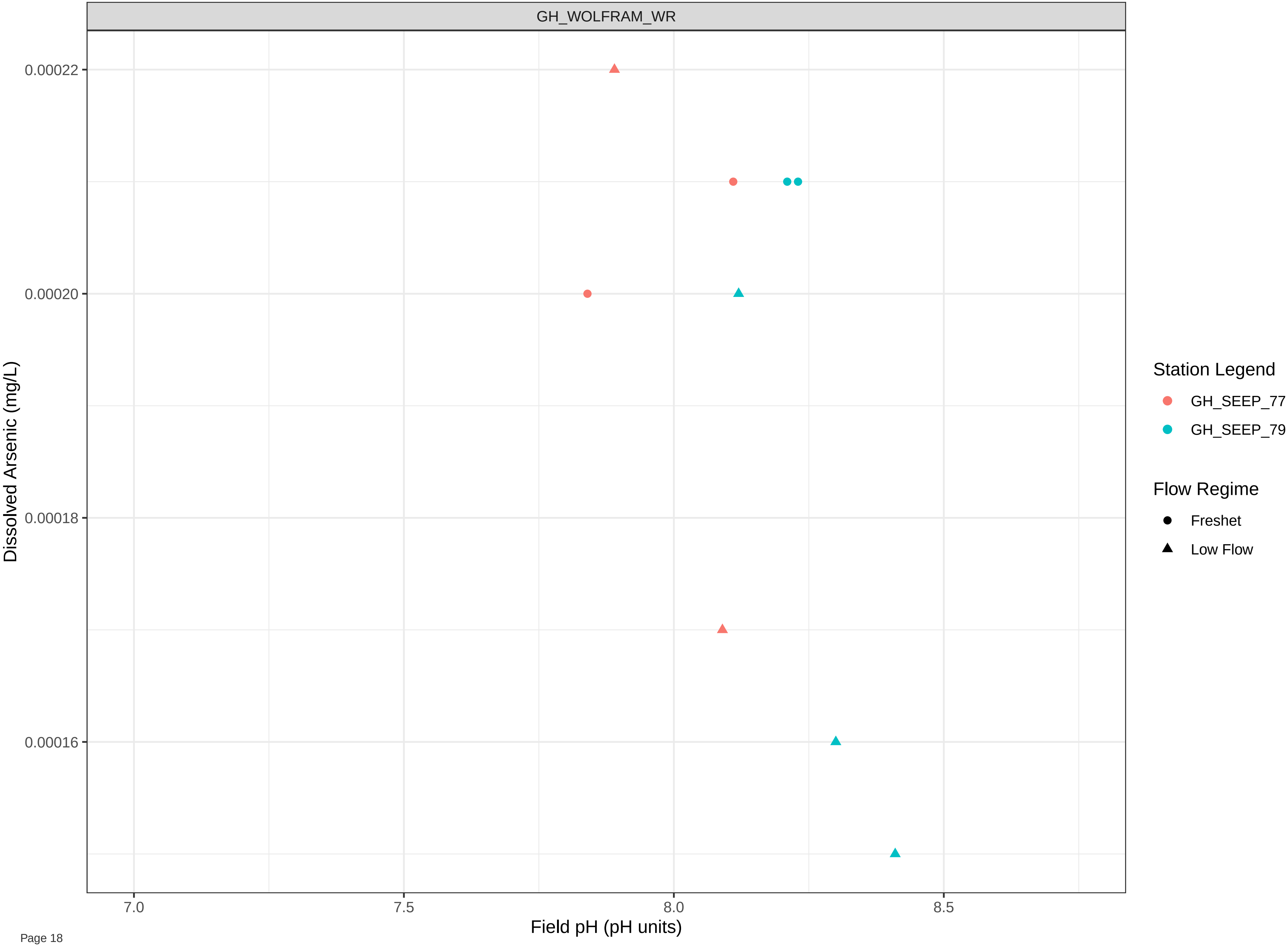

GH_CCR
Dissolved Arsenic (mg/L)
0.00075
0.00050
0.00025
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

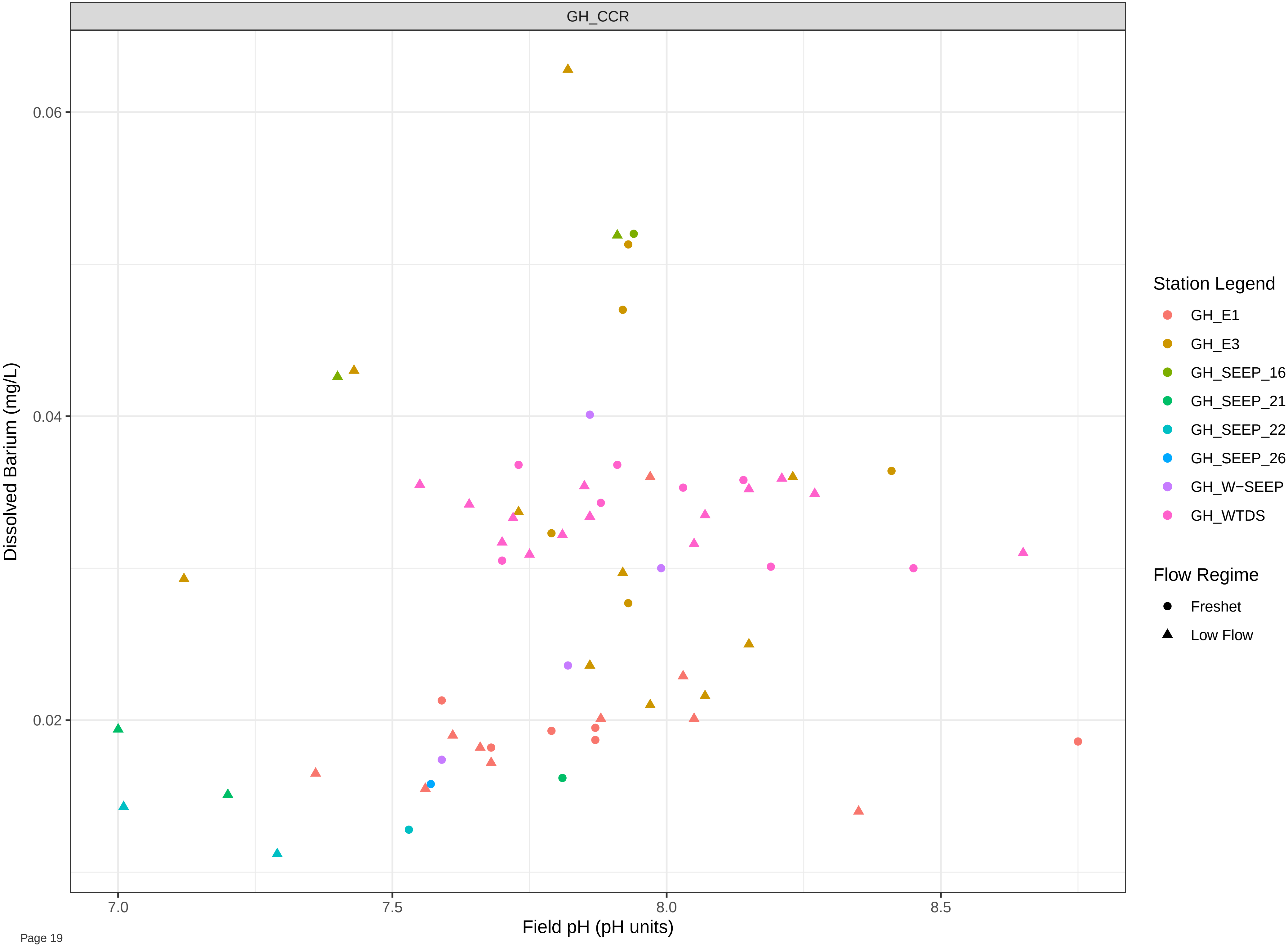

GH_LEASK_WR
Dissolved Arsenic (mg/L)
0.00035
0.00030
0.00025
0.00020
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow

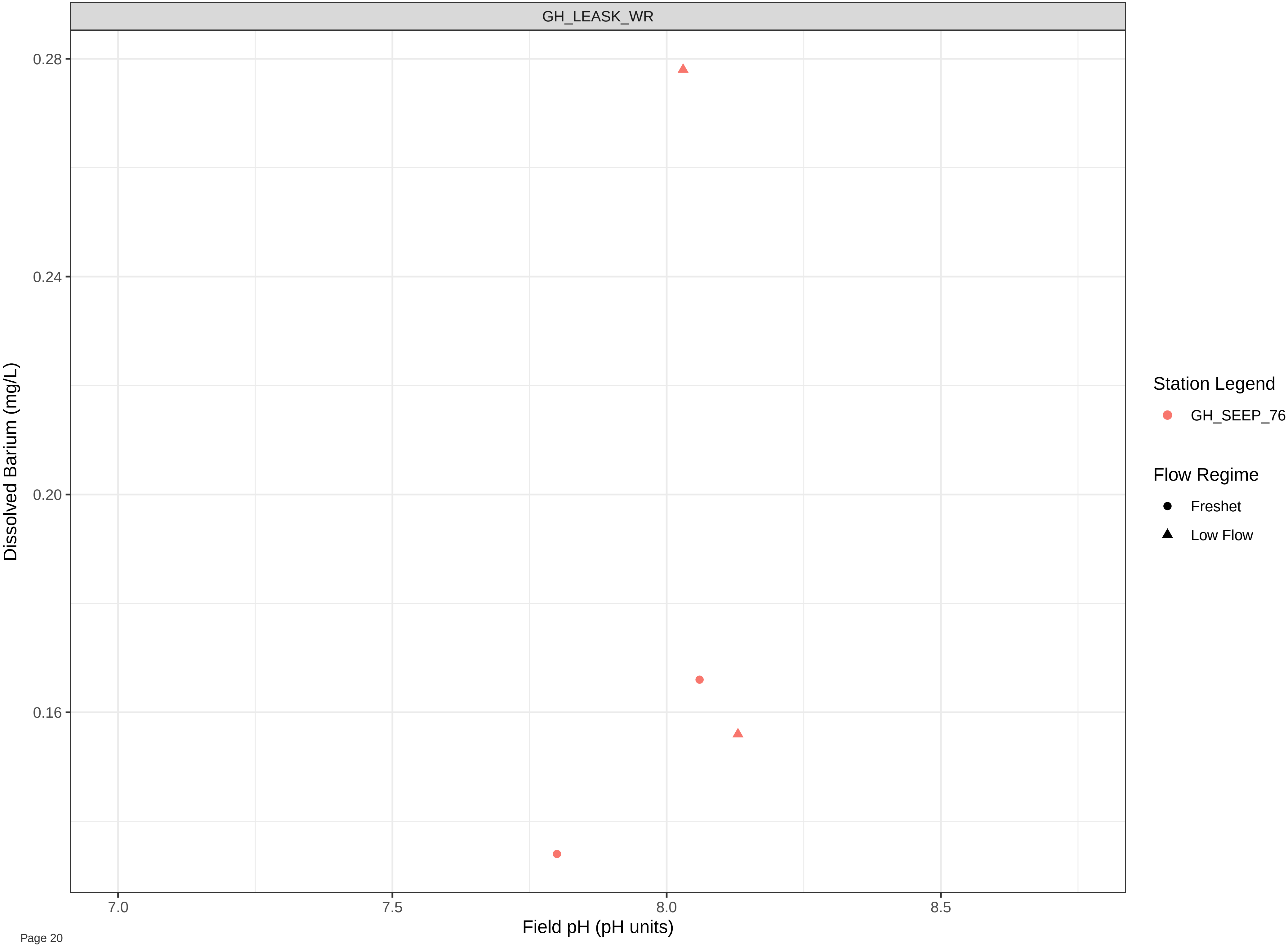

GH_PORTER_CREEK
Dissolved Arsenic (mg/L)
0.00036
0.00032
0.00028
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

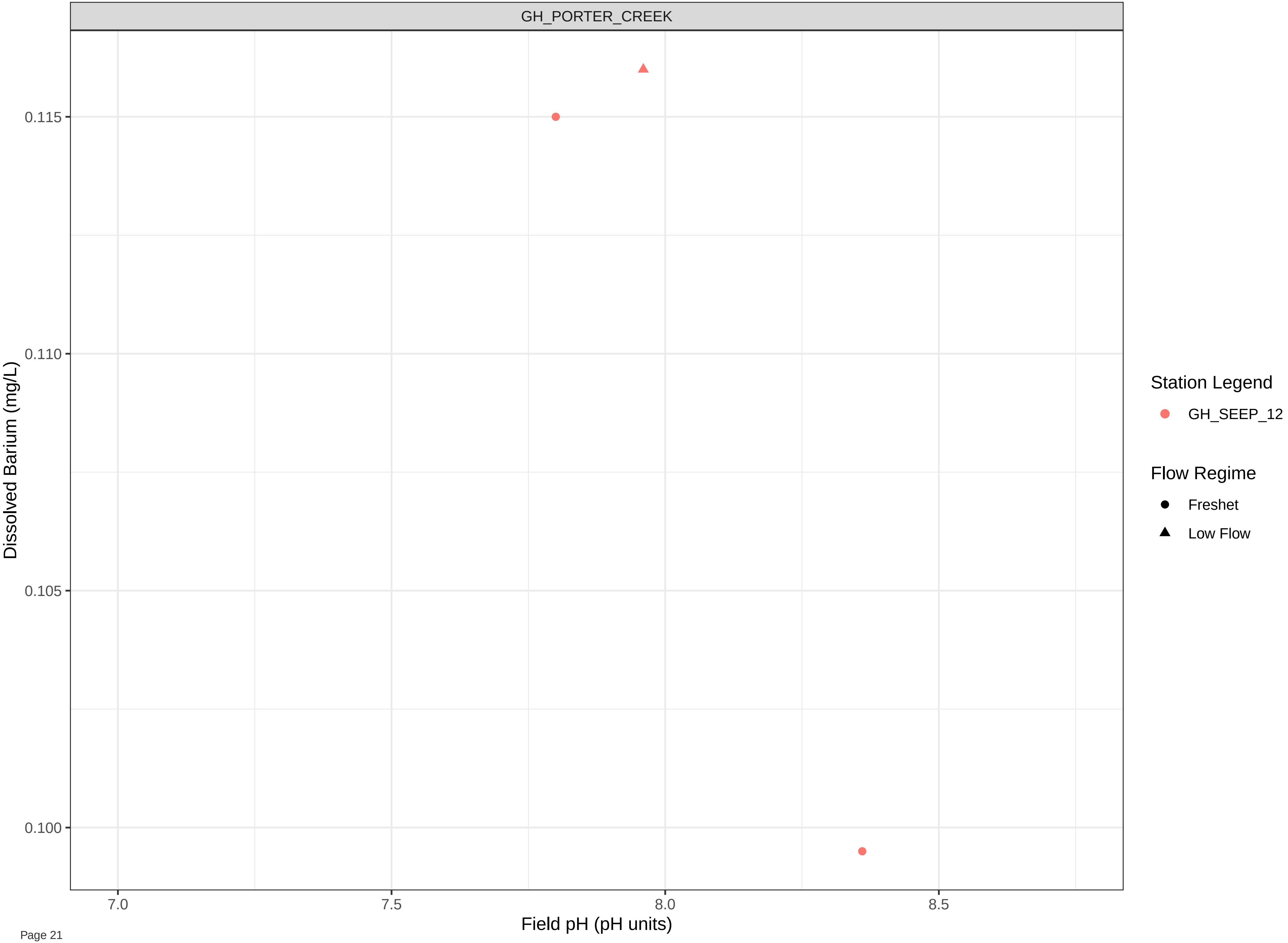

GH_THOMPSON_WR
Dissolved Arsenic (mg/L)
5e−04
4e−04
3e−04
2e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

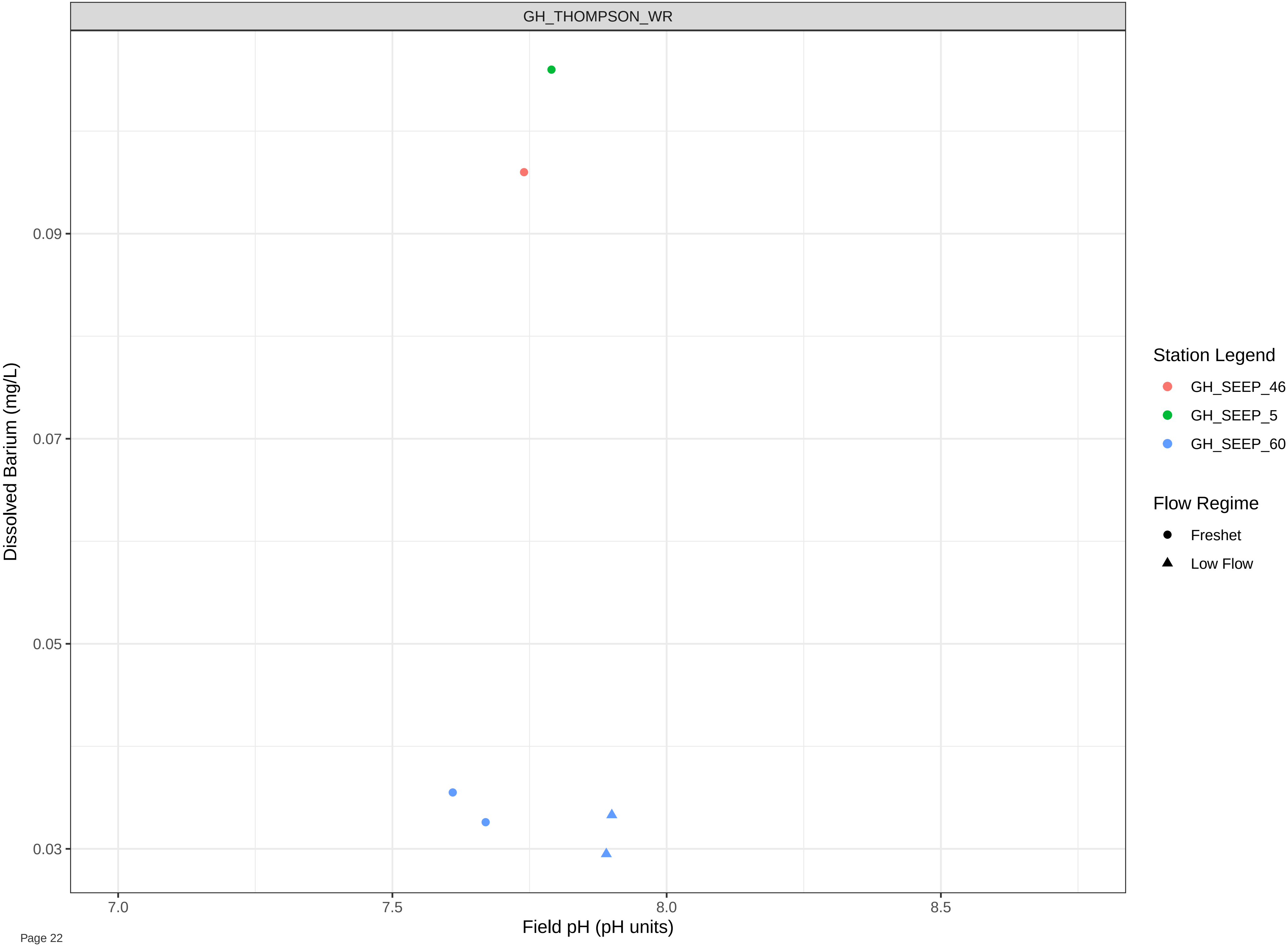

GH_UPSTREAM_CCR
Dissolved Arsenic (mg/L)
0.00055
0.00050
0.00045
0.00040
0.00035
0.00030
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

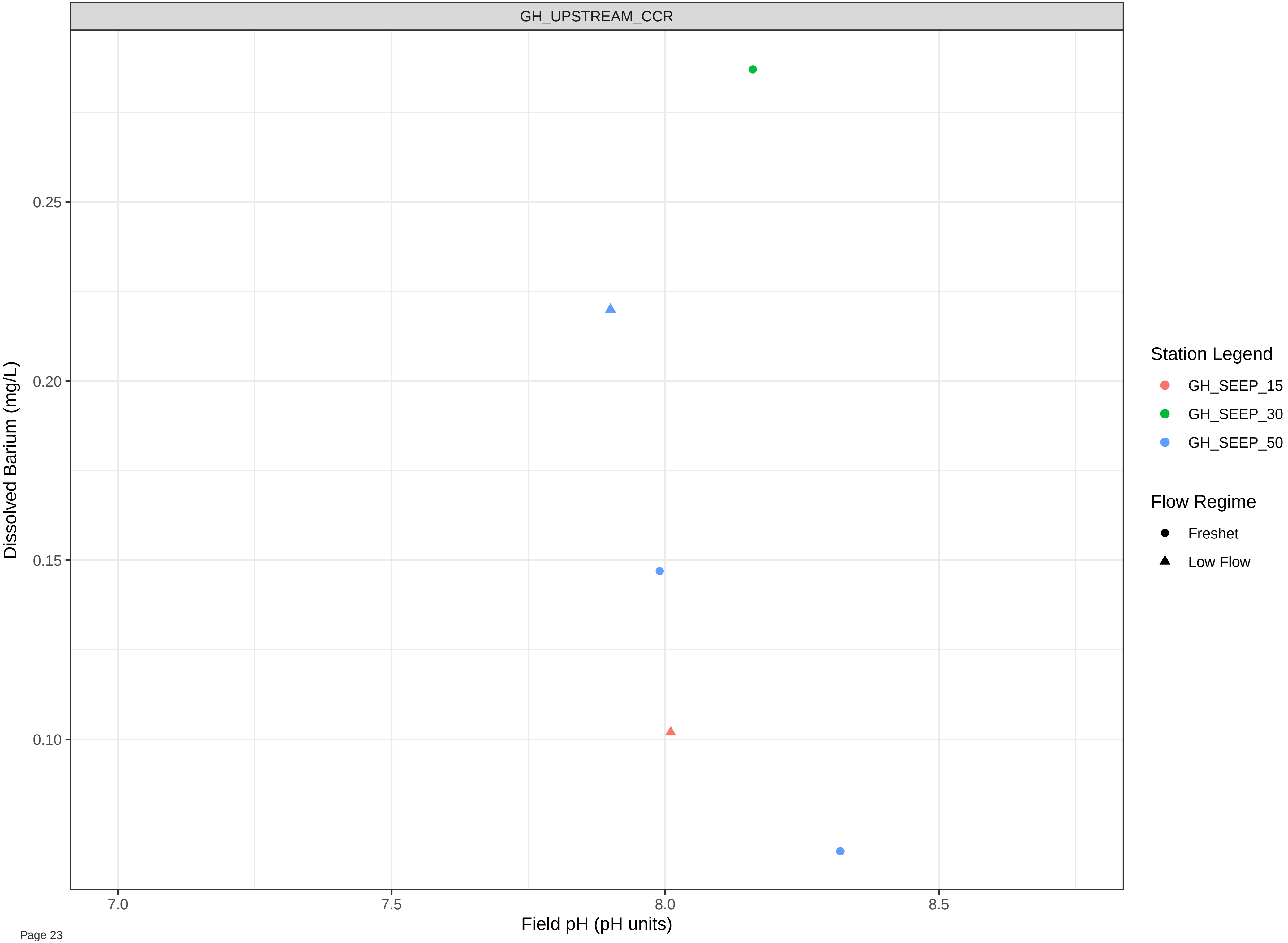

GH_WOLFRAM_WR
Dissolved Arsenic (mg/L)
0.00022
0.00020
0.00018
0.00016
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

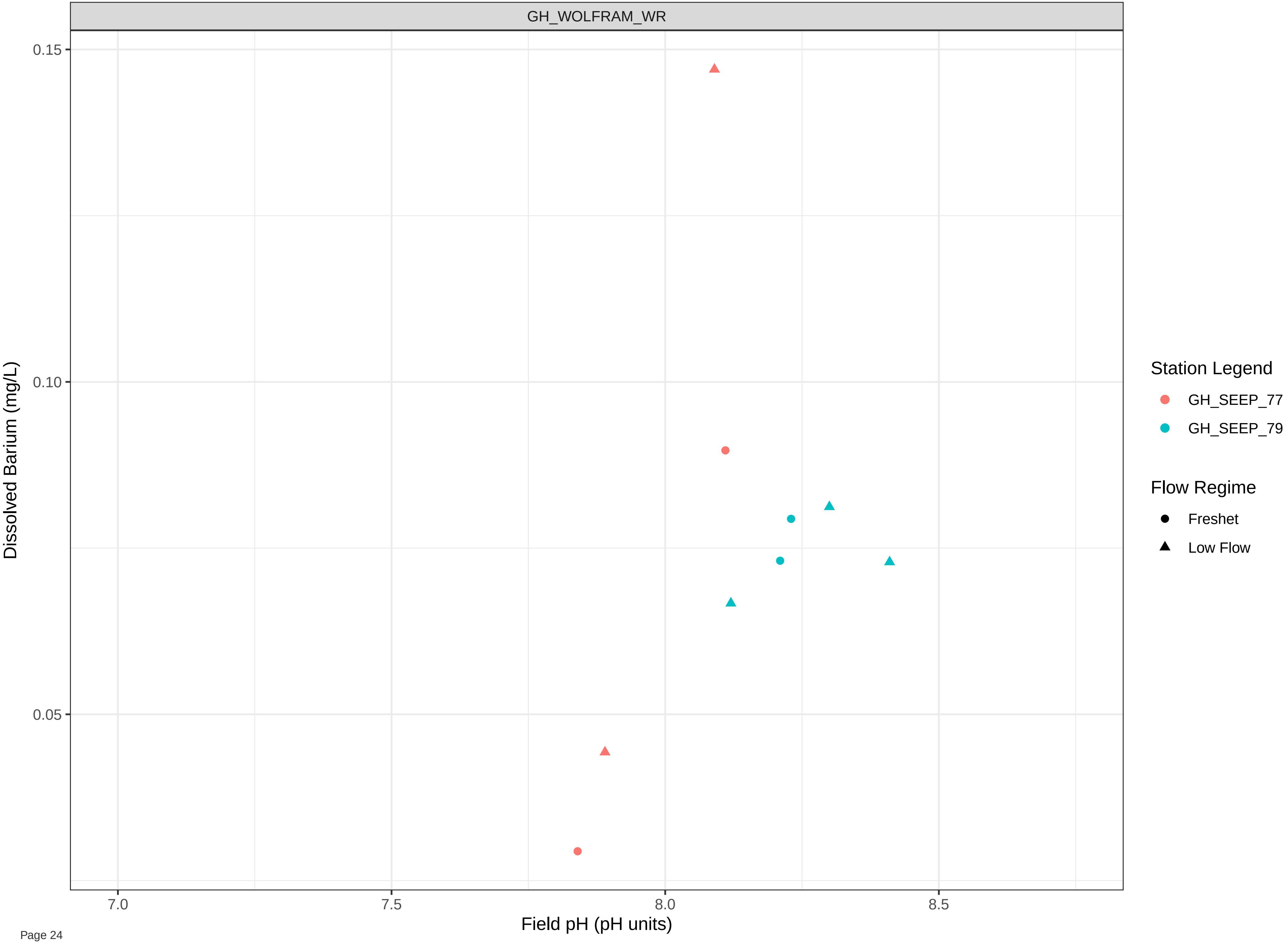

GH_CCR
Dissolved Barium (mg/L)
0.06
0.04
0.02
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

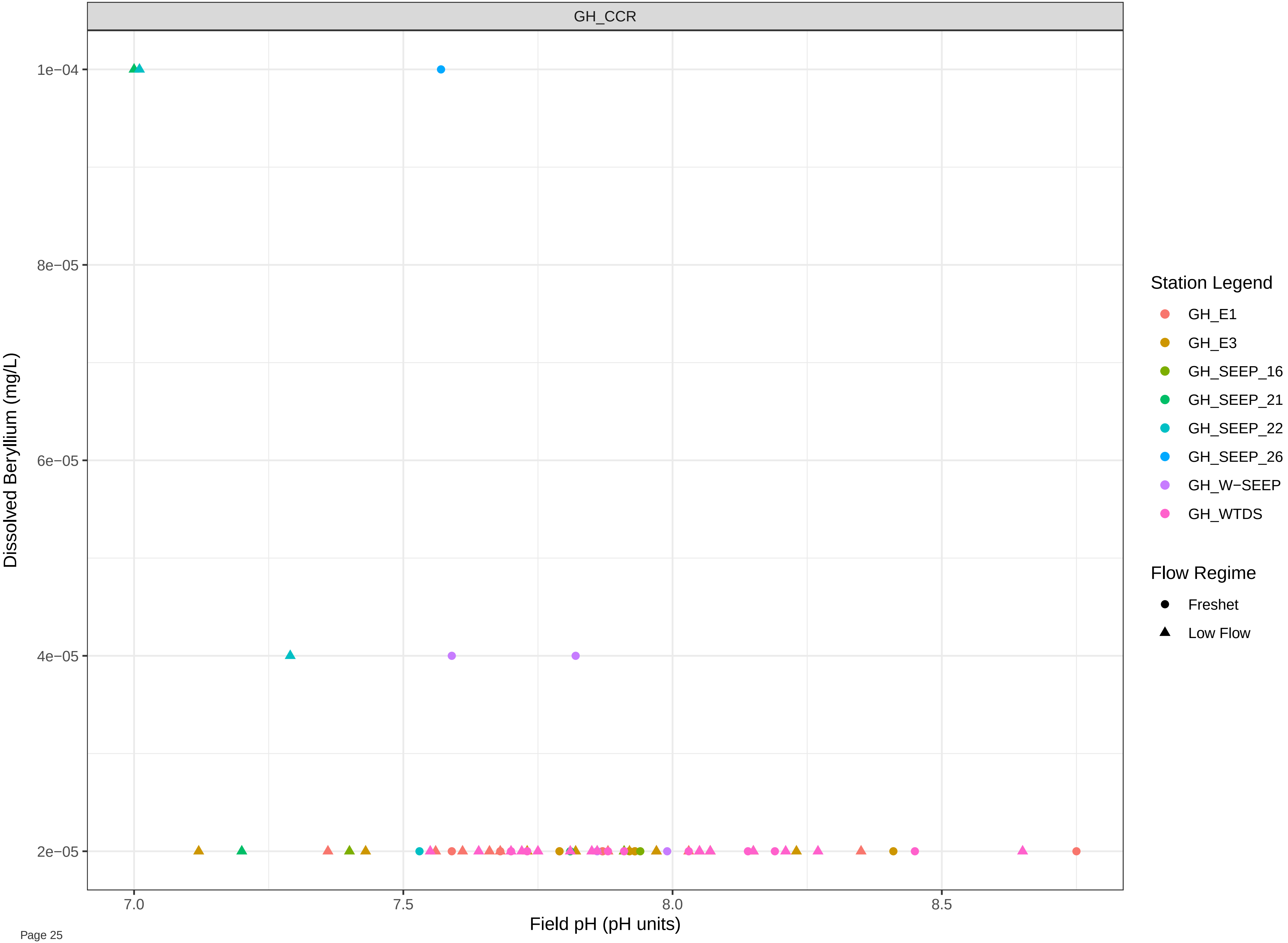

GH_LEASK_WR
Dissolved Barium (mg/L)
0.28
0.24
0.20
0.16
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

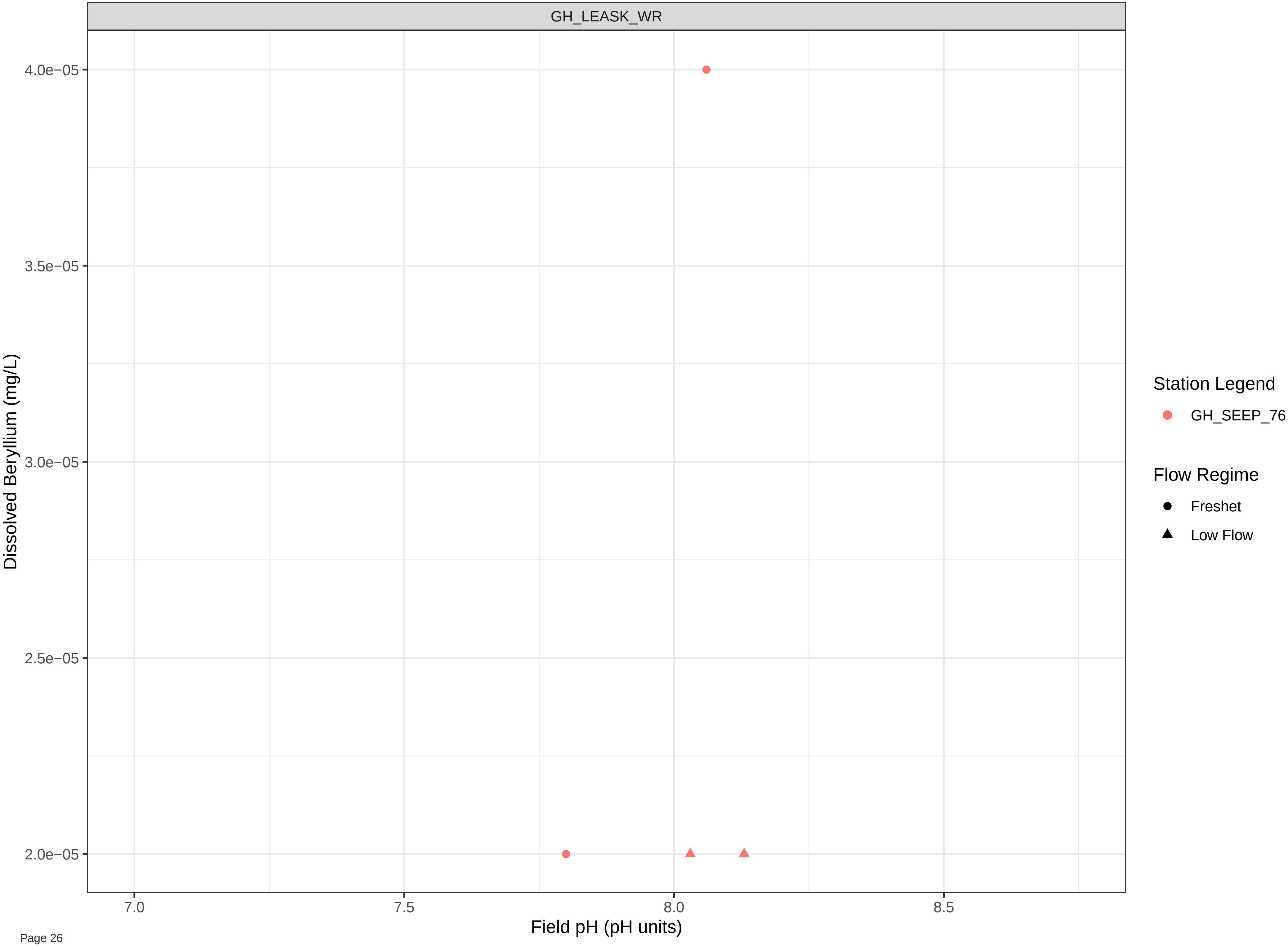

GH_PORTER_CREEK
Dissolved Barium (mg/L)
0.115
0.110
0.105
0.100
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

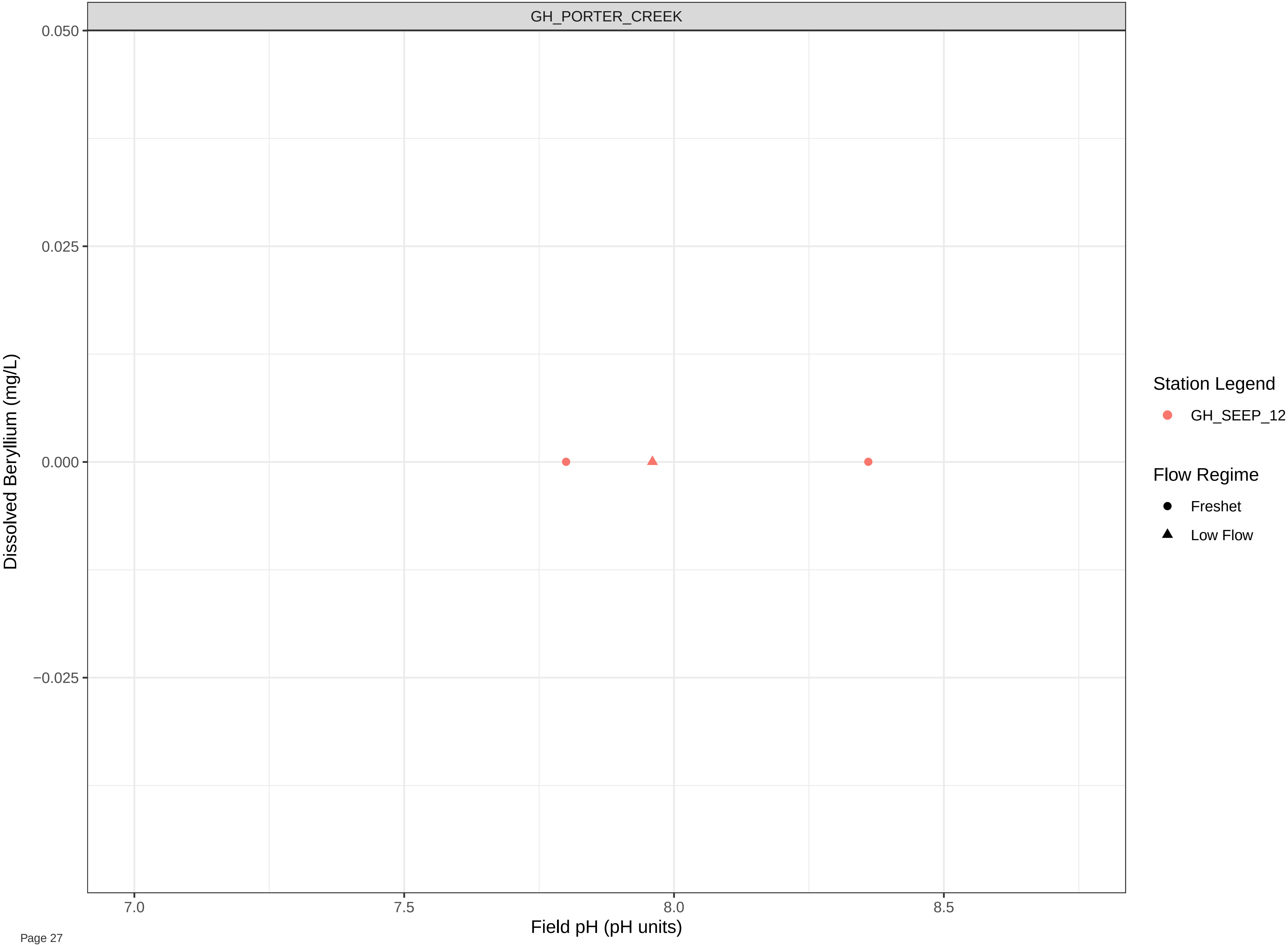

GH_THOMPSON_WR
Dissolved Barium (mg/L)
0.09
0.07
0.05
0.03
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

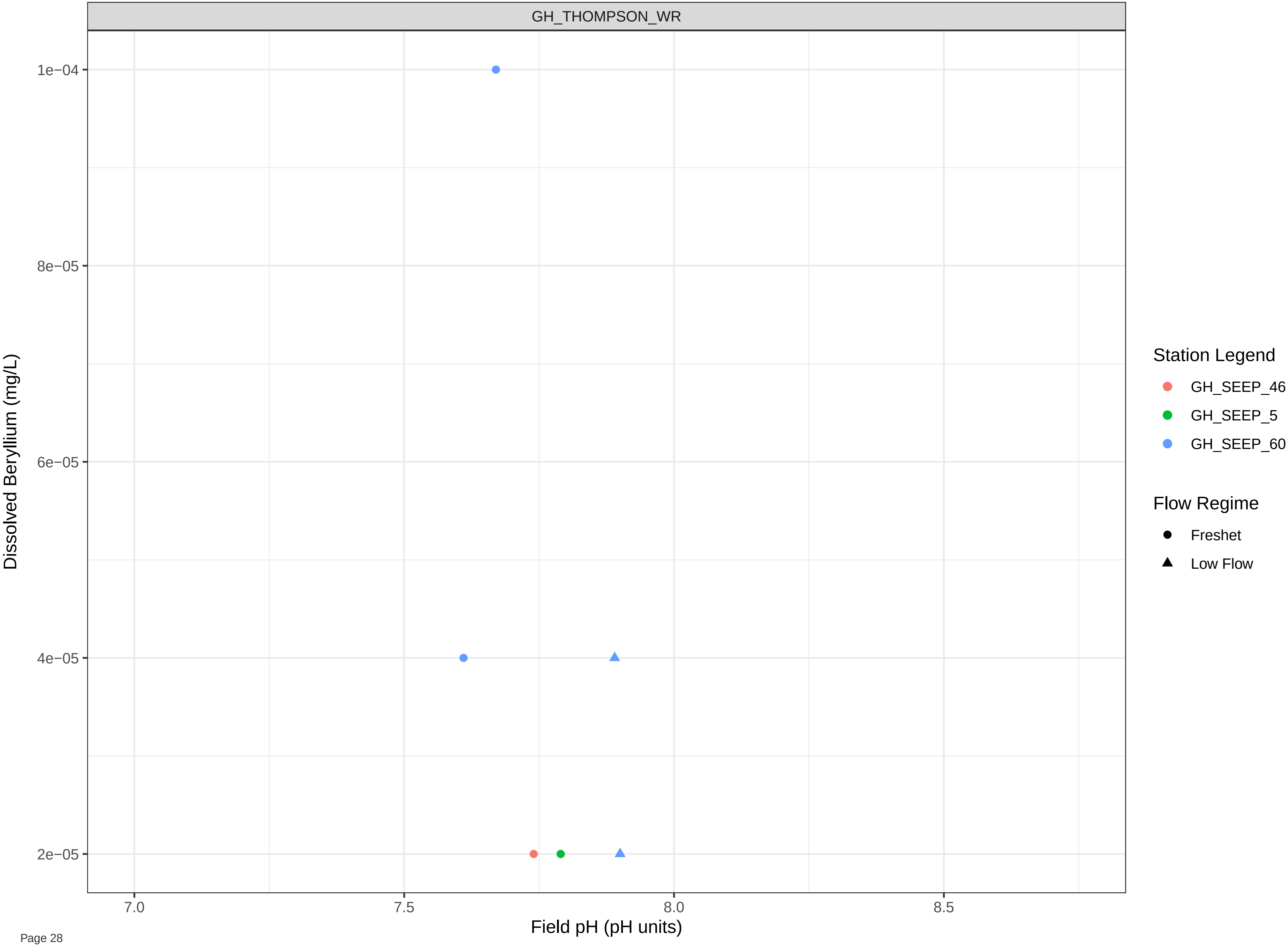

GH_UPSTREAM_CCR
Dissolved Barium (mg/L)
0.25
0.20
0.15
0.10
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

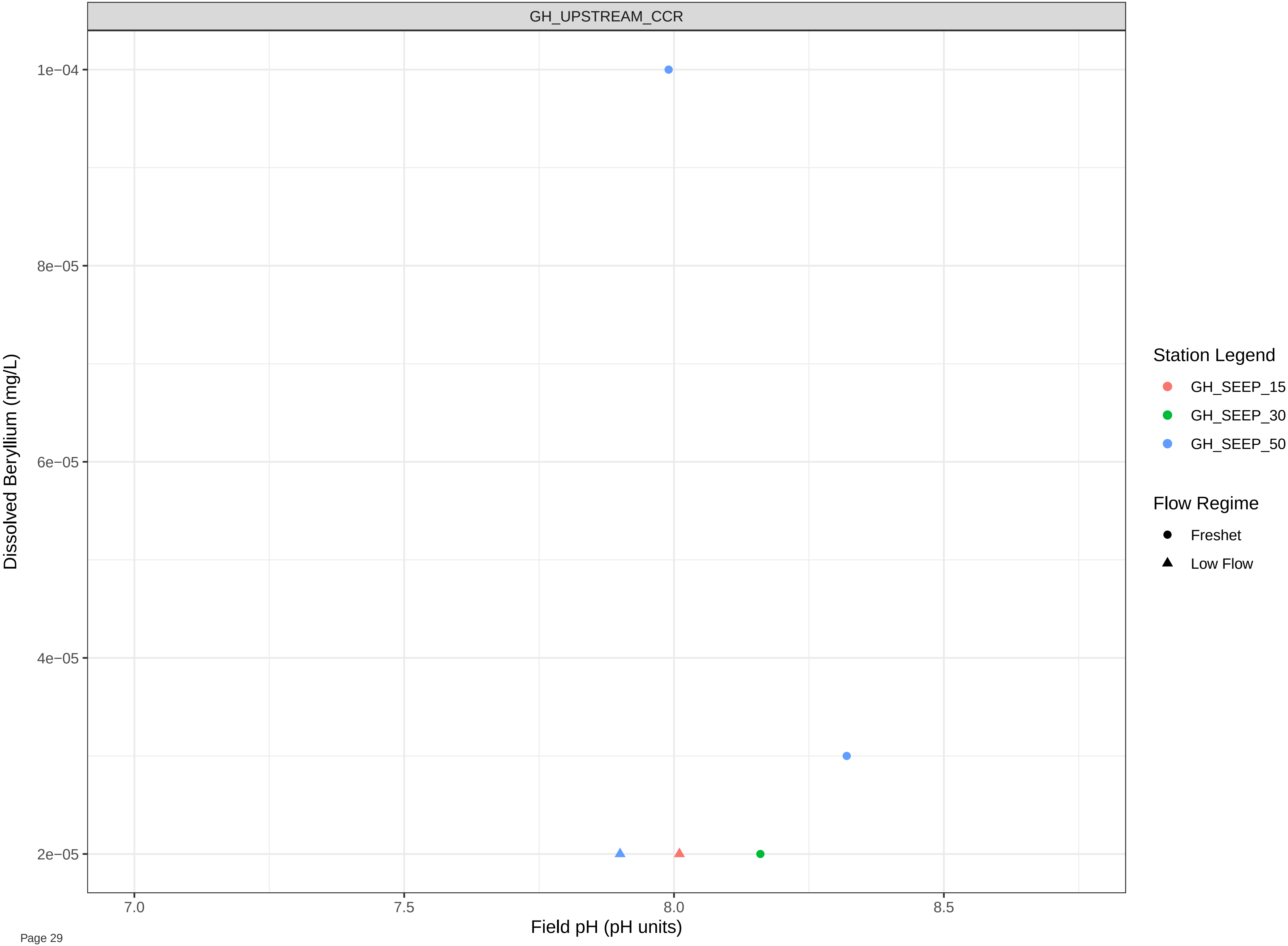

GH_WOLFRAM_WR
Dissolved Barium (mg/L)
0.15
0.10
0.05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

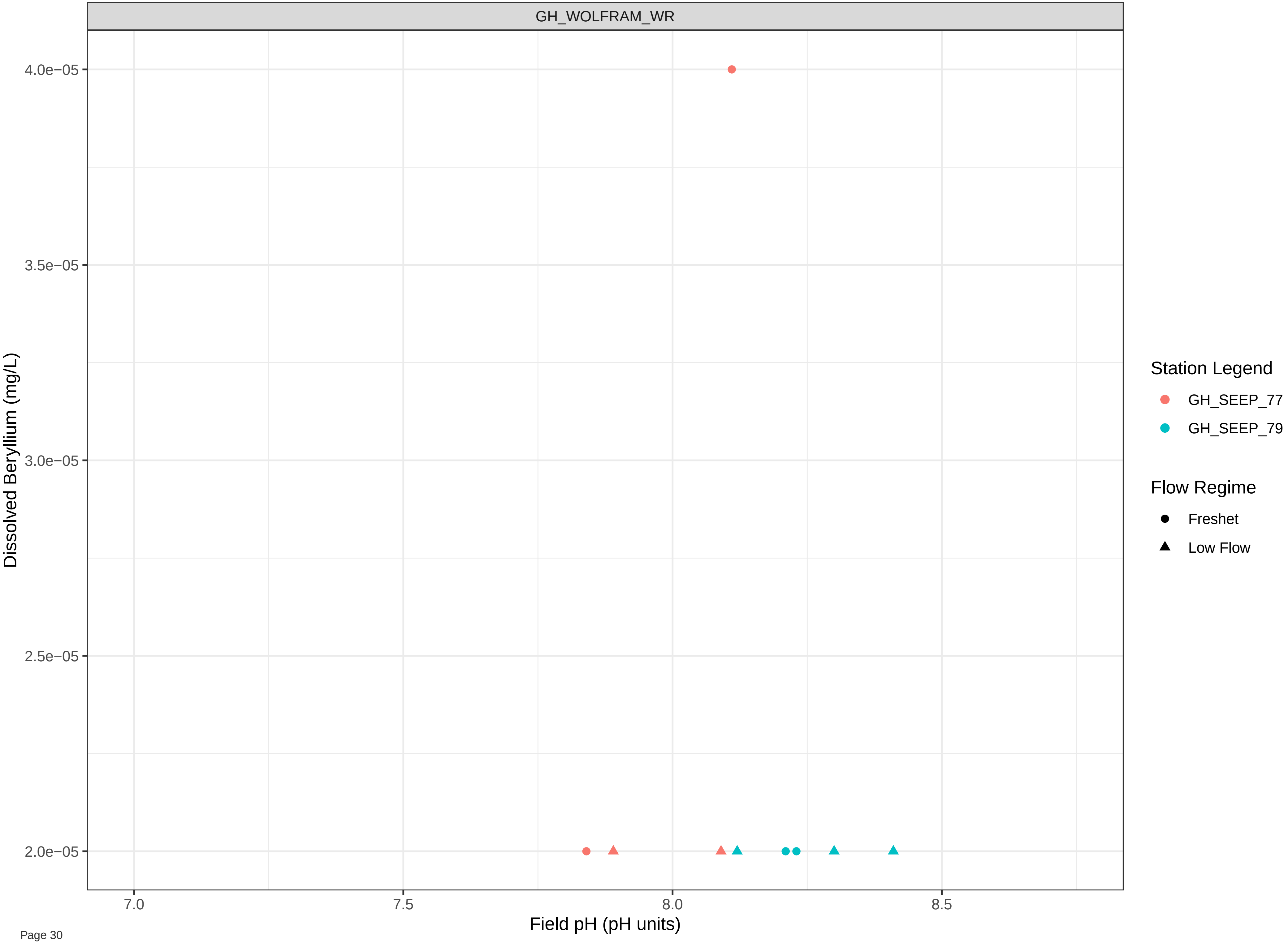

GH_CCR
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

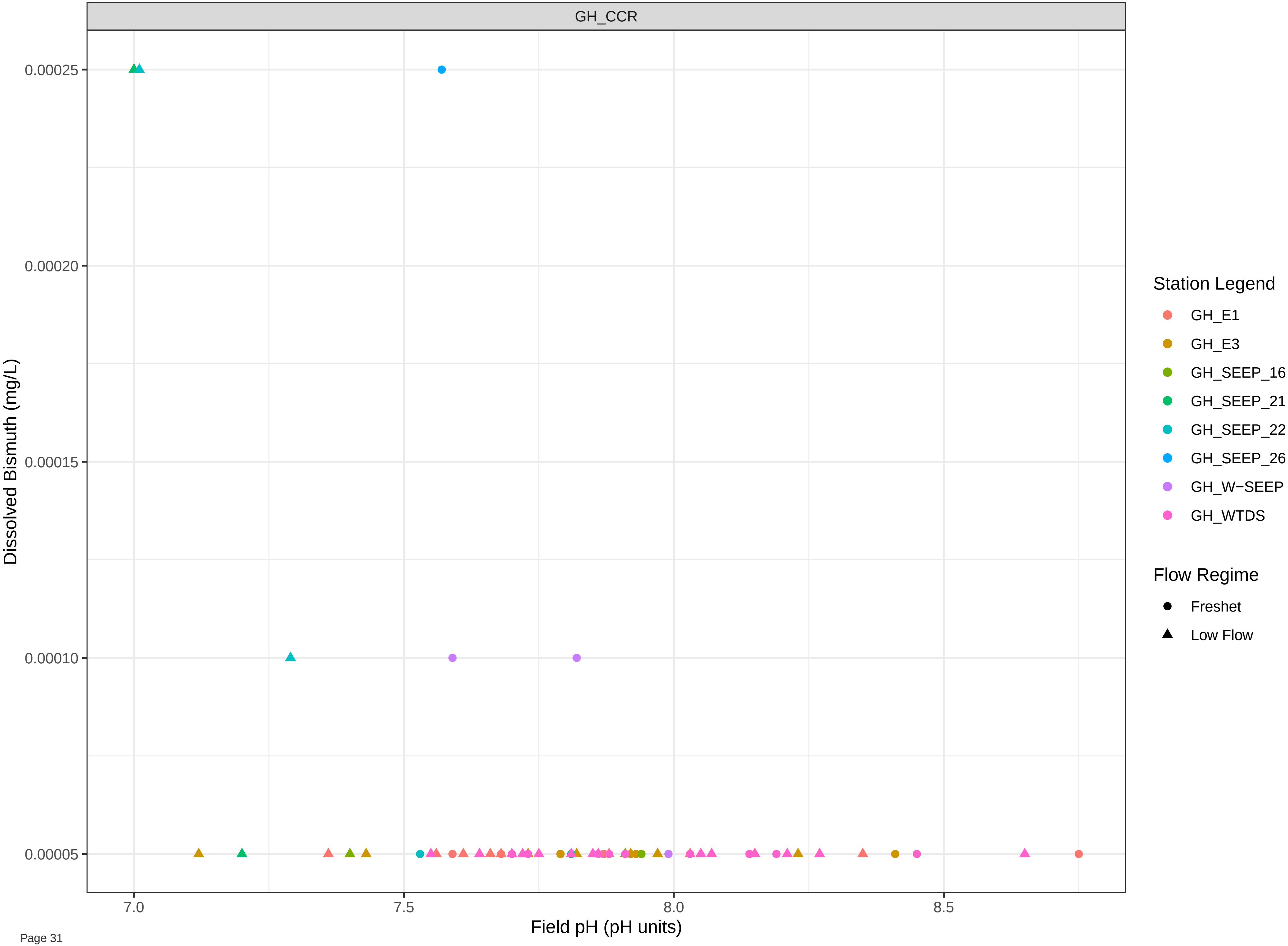

GH_LEASK_WR
Dissolved Beryllium (mg/L)
4.0e−05
3.5e−05
3.0e−05
2.5e−05
2.0e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

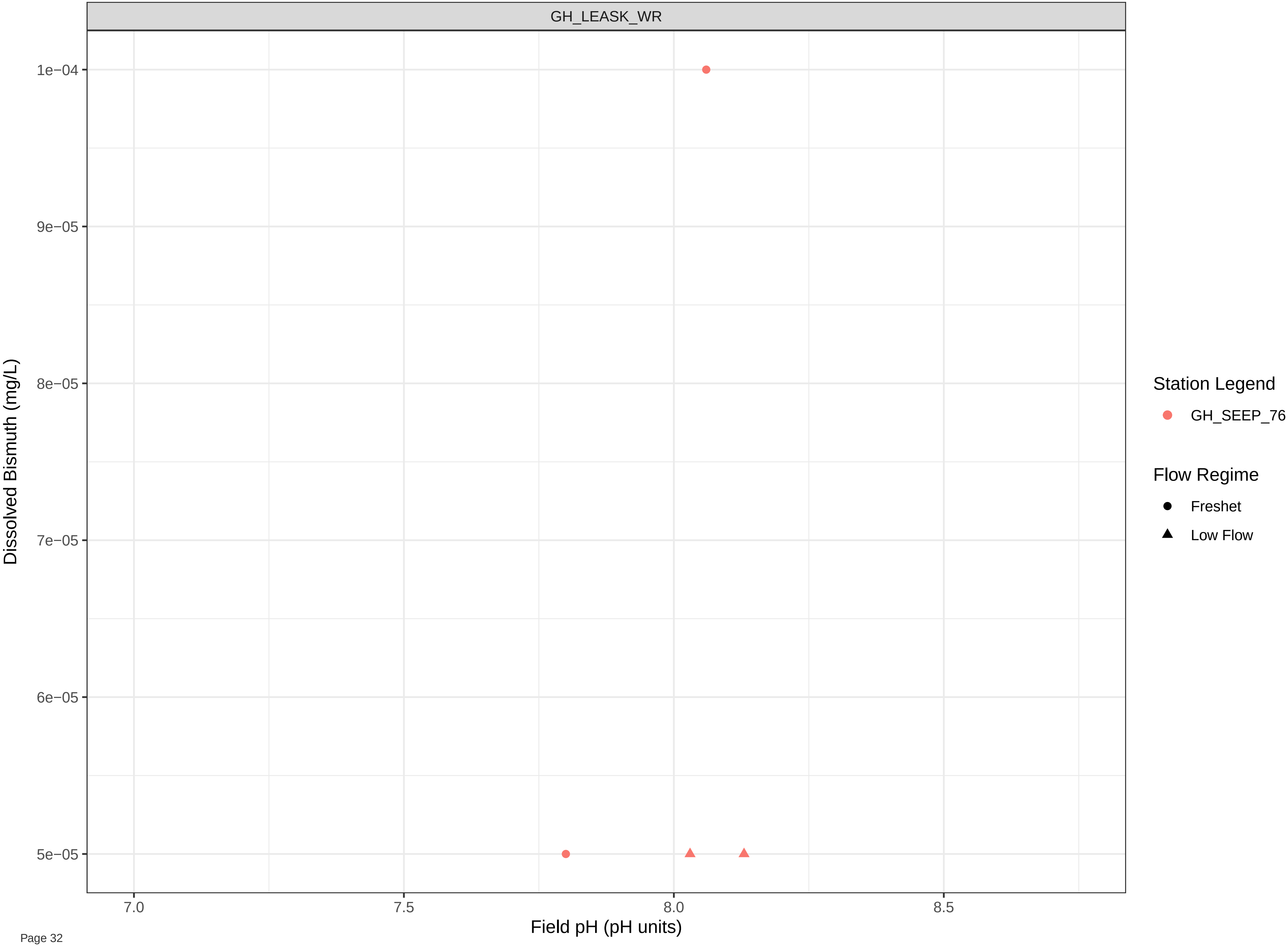

GH_PORTER_CREEK
0.050
0.025
0.000
−0.025
Dissolved Beryllium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

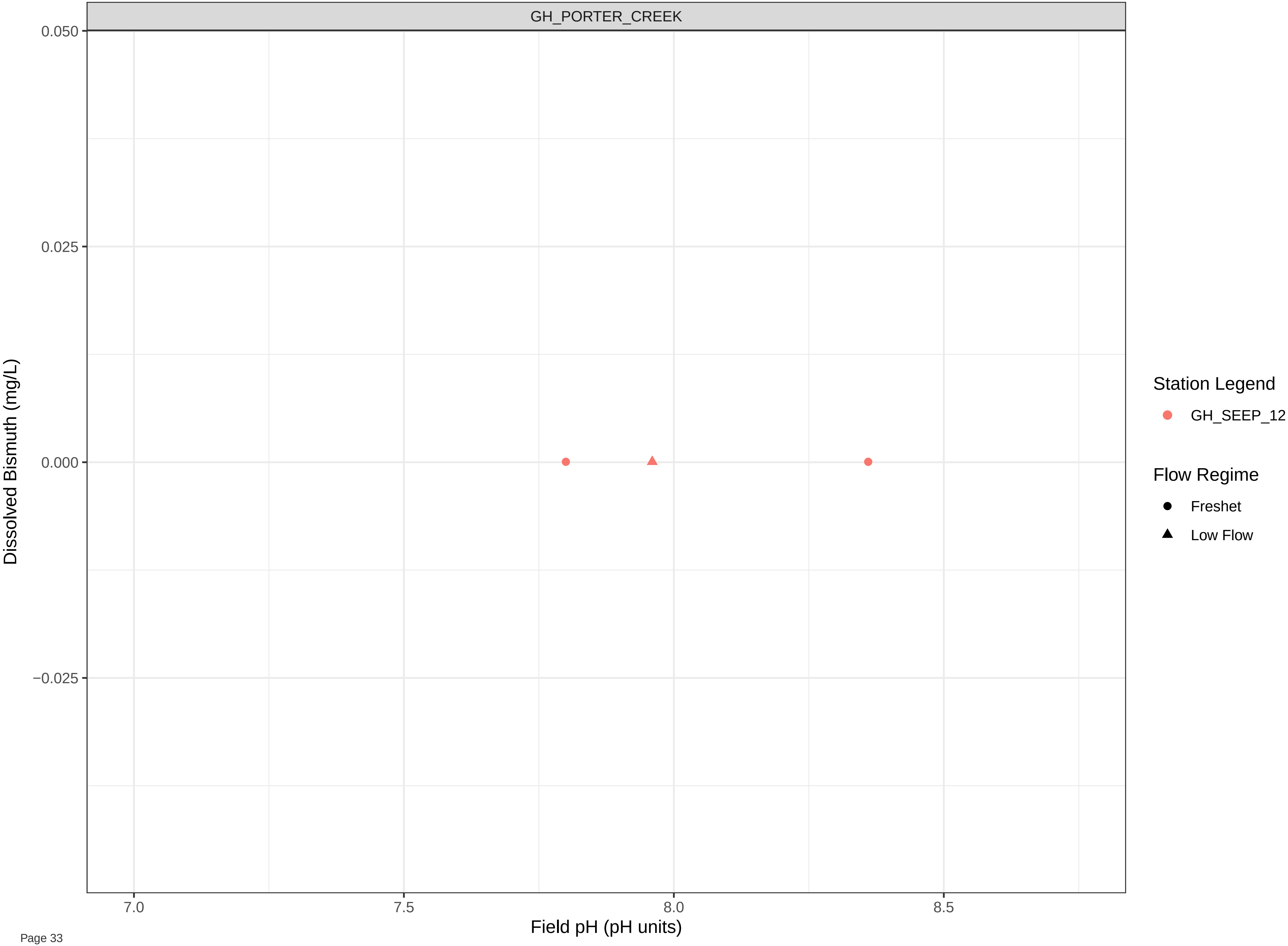

GH_THOMPSON_WR
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

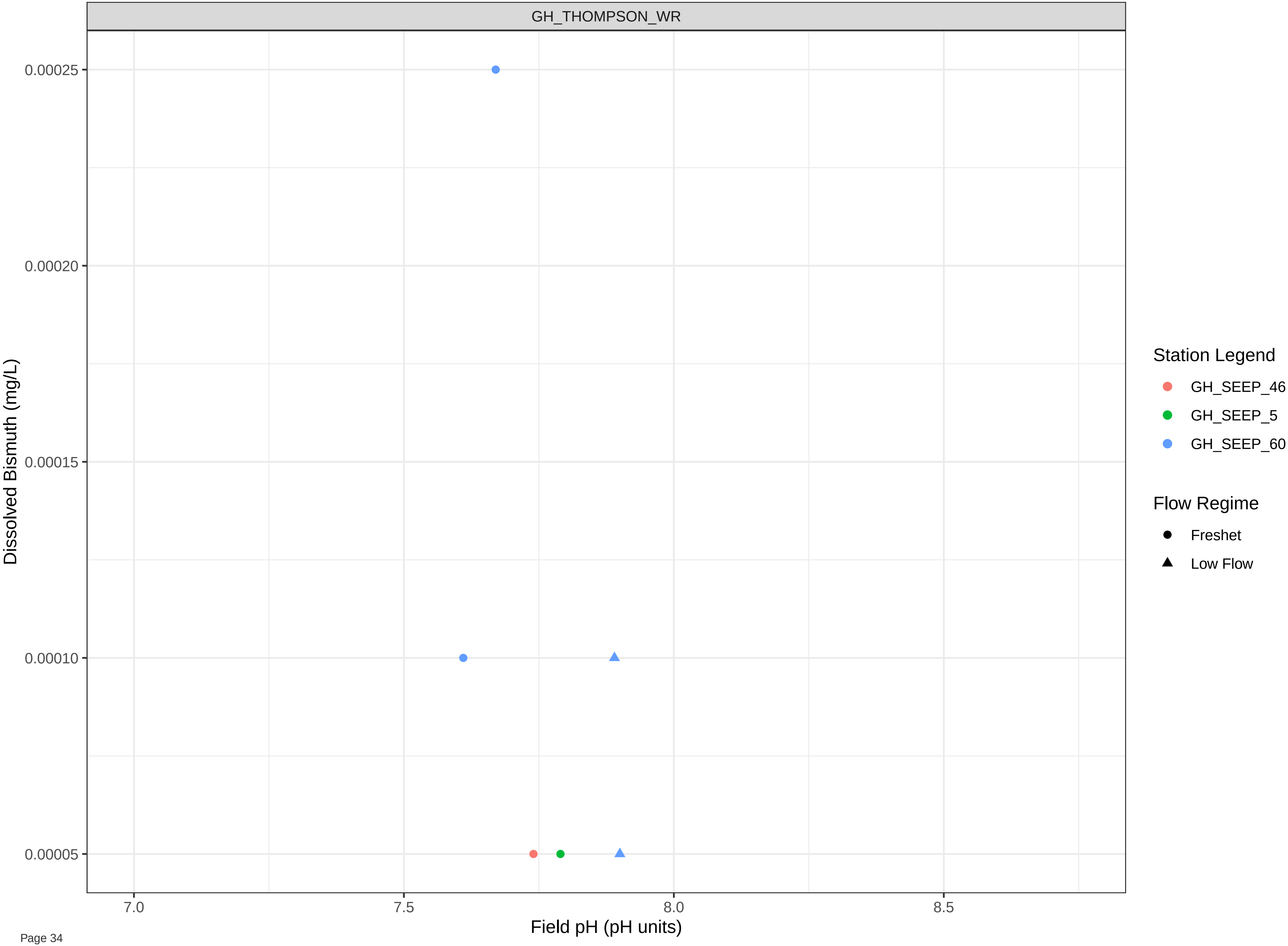

GH_UPSTREAM_CCR
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

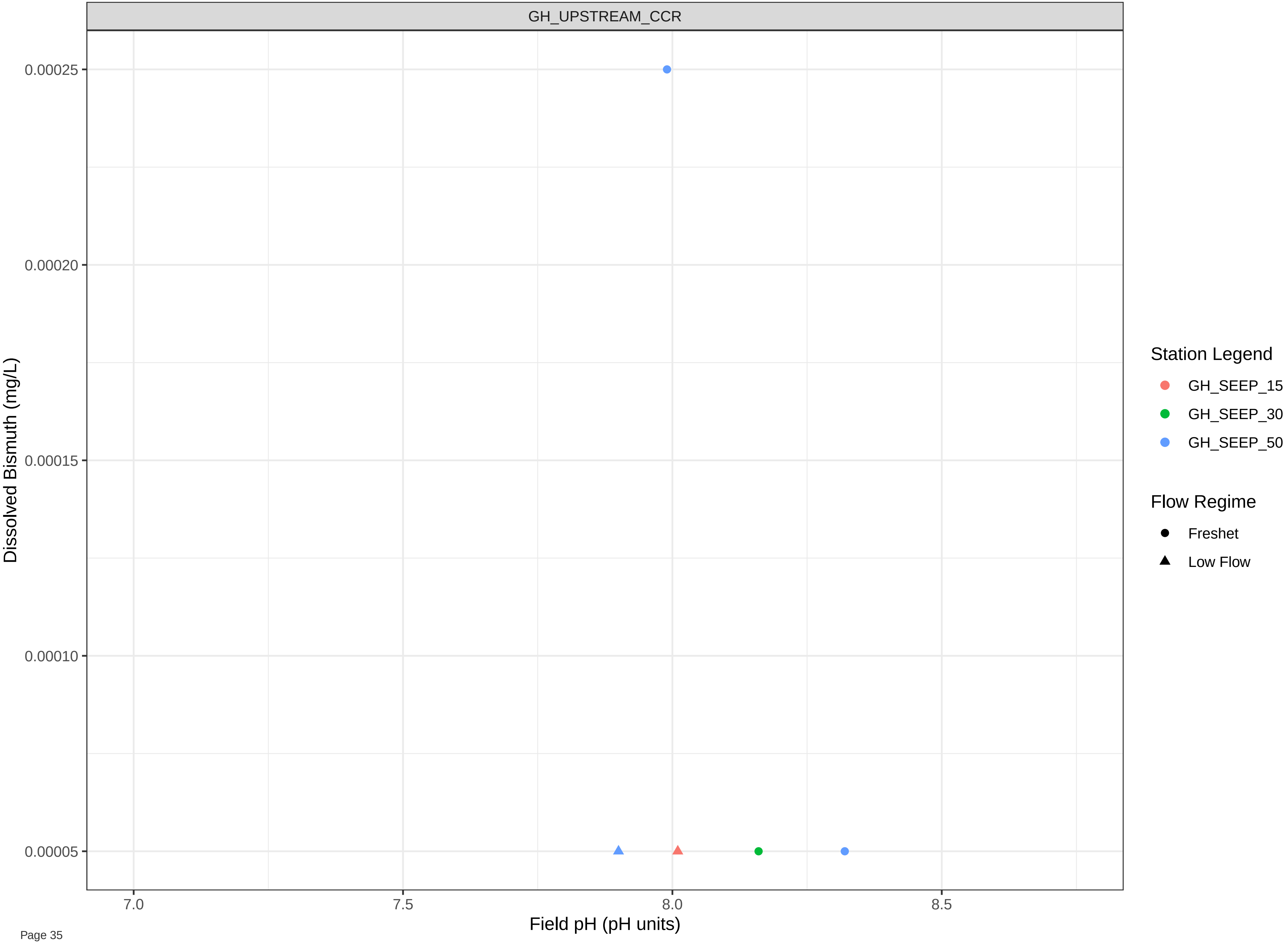

GH_WOLFRAM_WR
Dissolved Beryllium (mg/L)
4.0e−05
3.5e−05
3.0e−05
2.5e−05
2.0e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

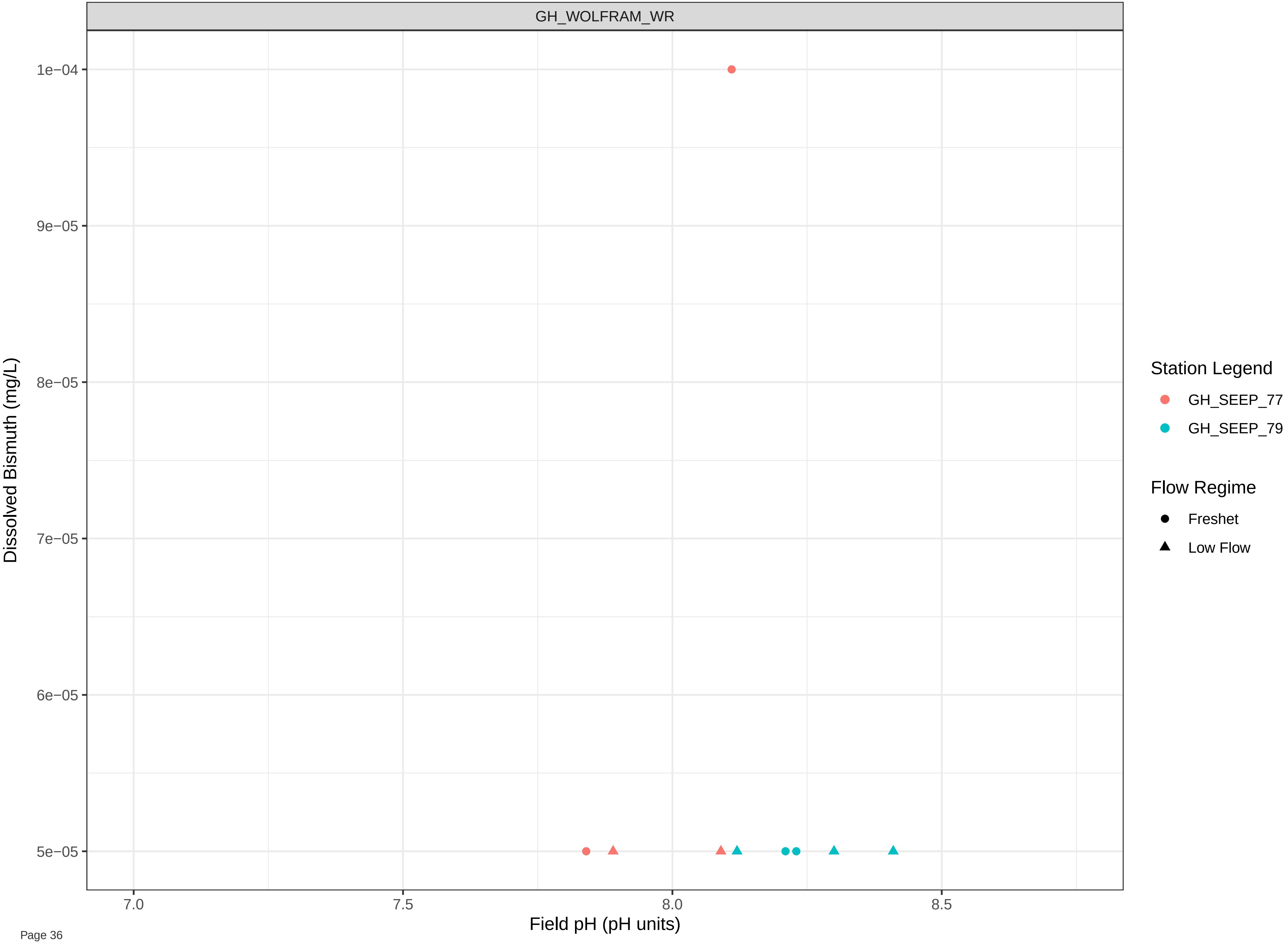

GH_CCR
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

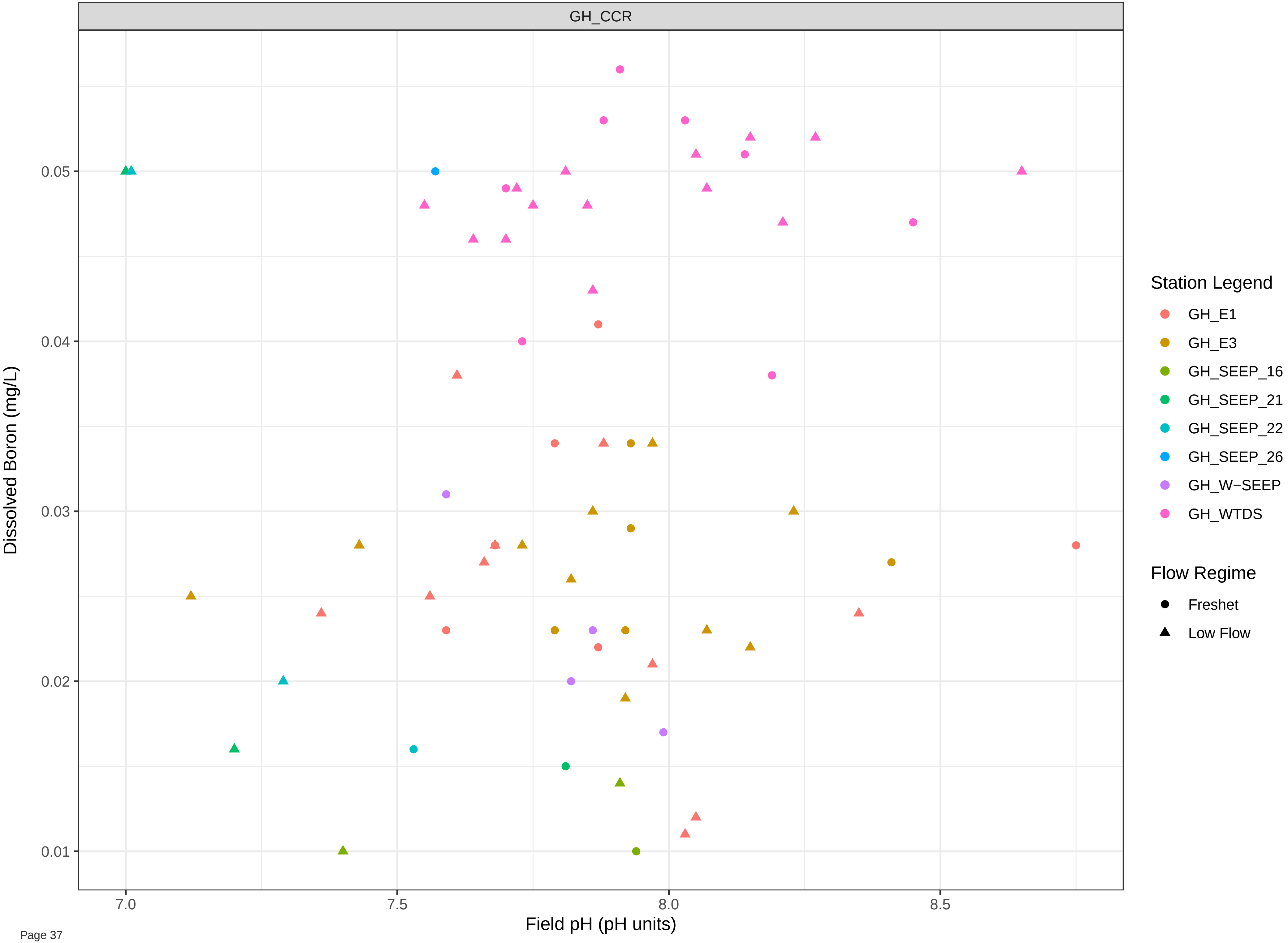

GH_LEASK_WR
1e−04
9e−05
8e−05
7e−05
6e−05
5e−05
Dissolved Bismuth (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

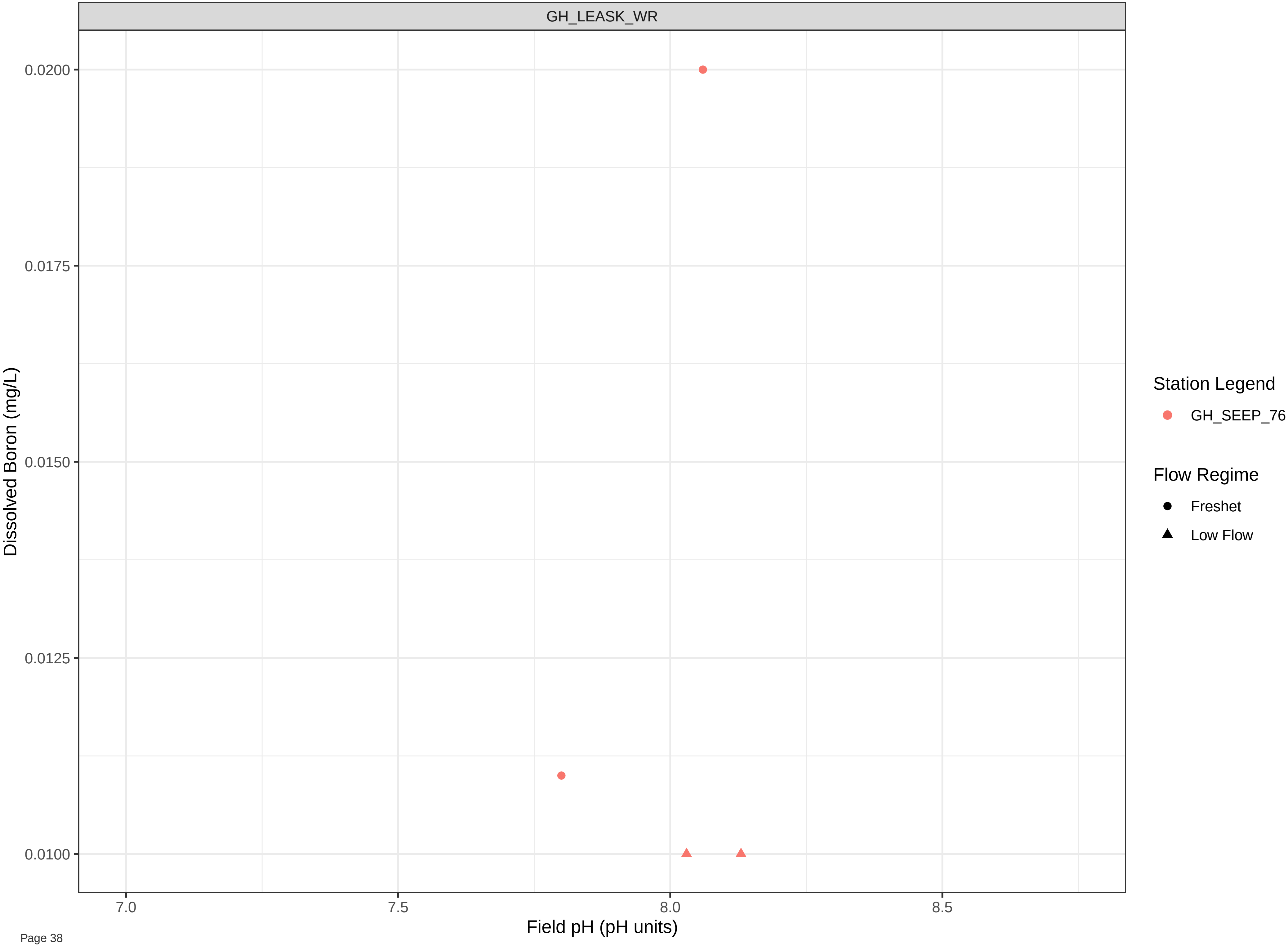

GH_PORTER_CREEK
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

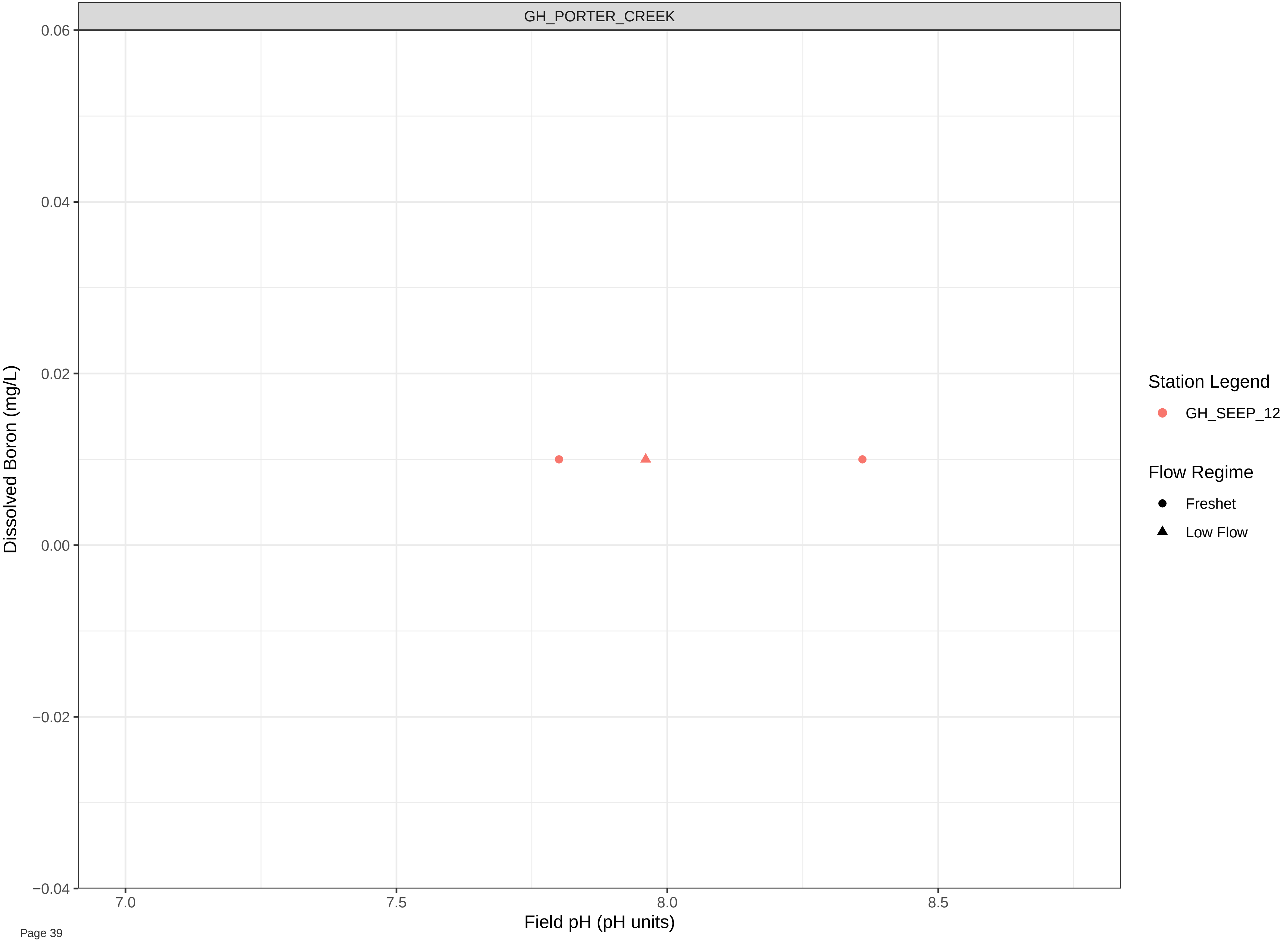

GH_THOMPSON_WR
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

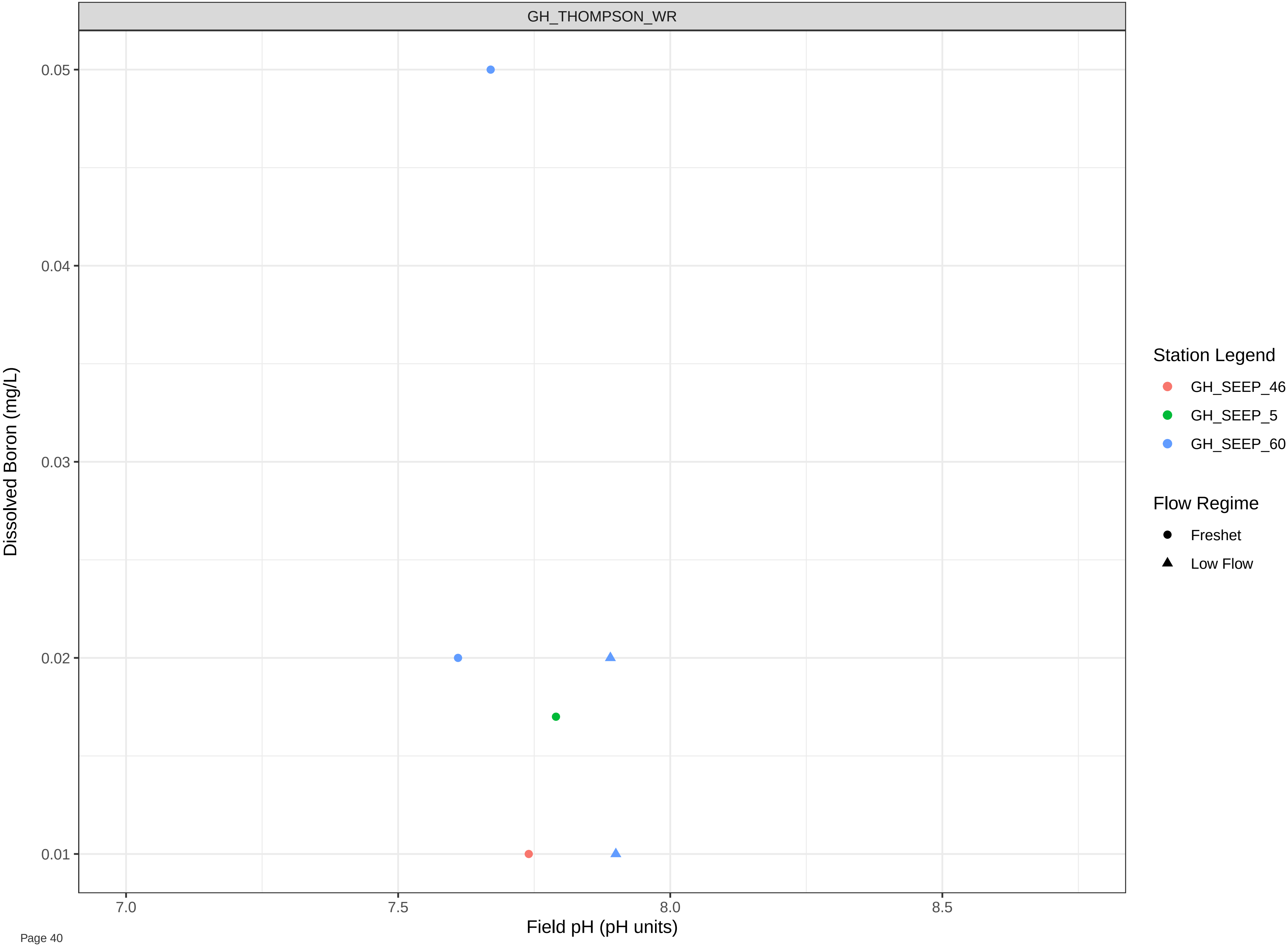

GH_UPSTREAM_CCR
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

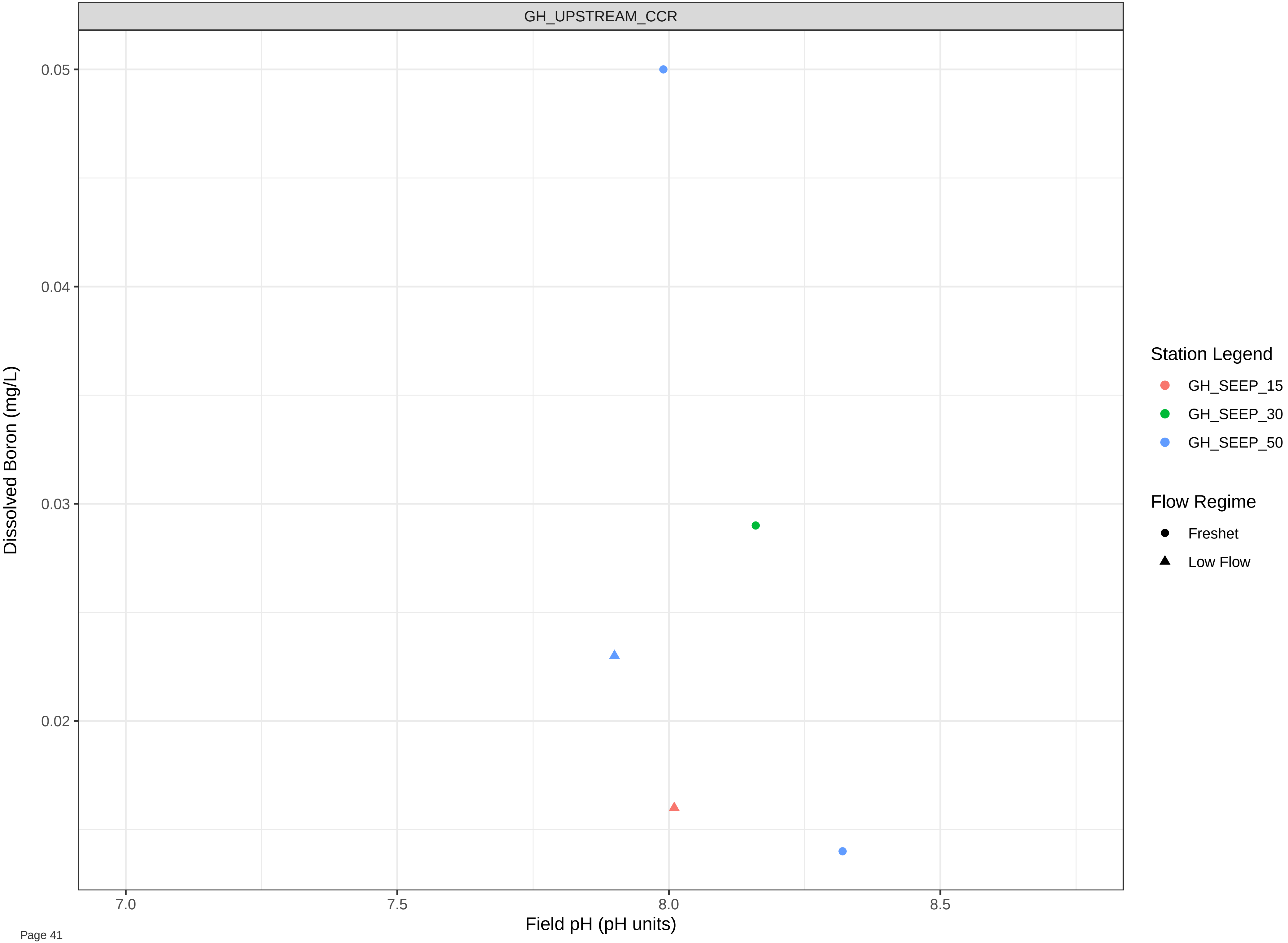

GH_WOLFRAM_WR
1e−04
9e−05
8e−05
7e−05
6e−05
5e−05
Dissolved Bismuth (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

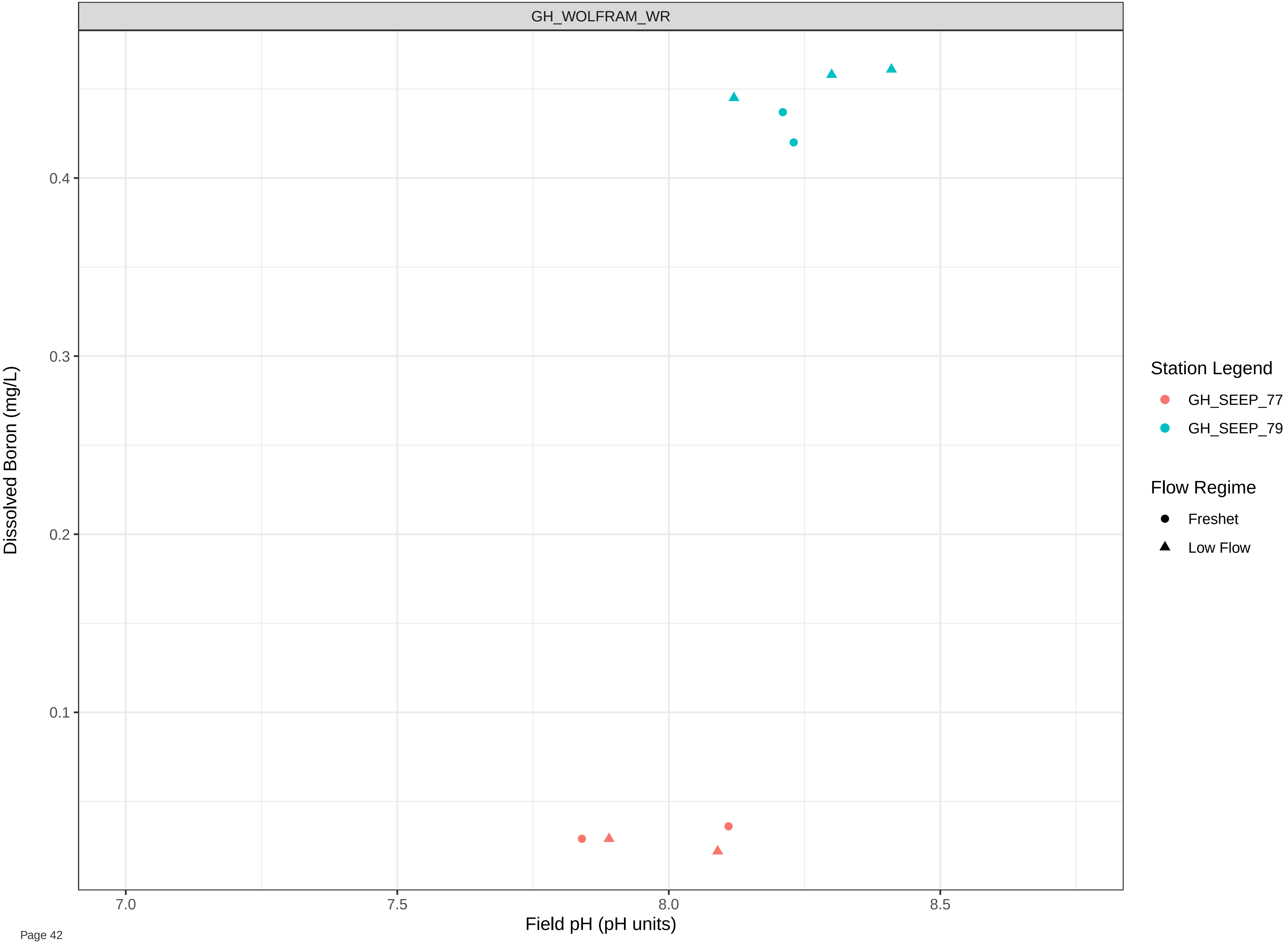

GH_CCR
Dissolved Boron (mg/L)
0.05
0.04
0.03
0.02
0.01
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

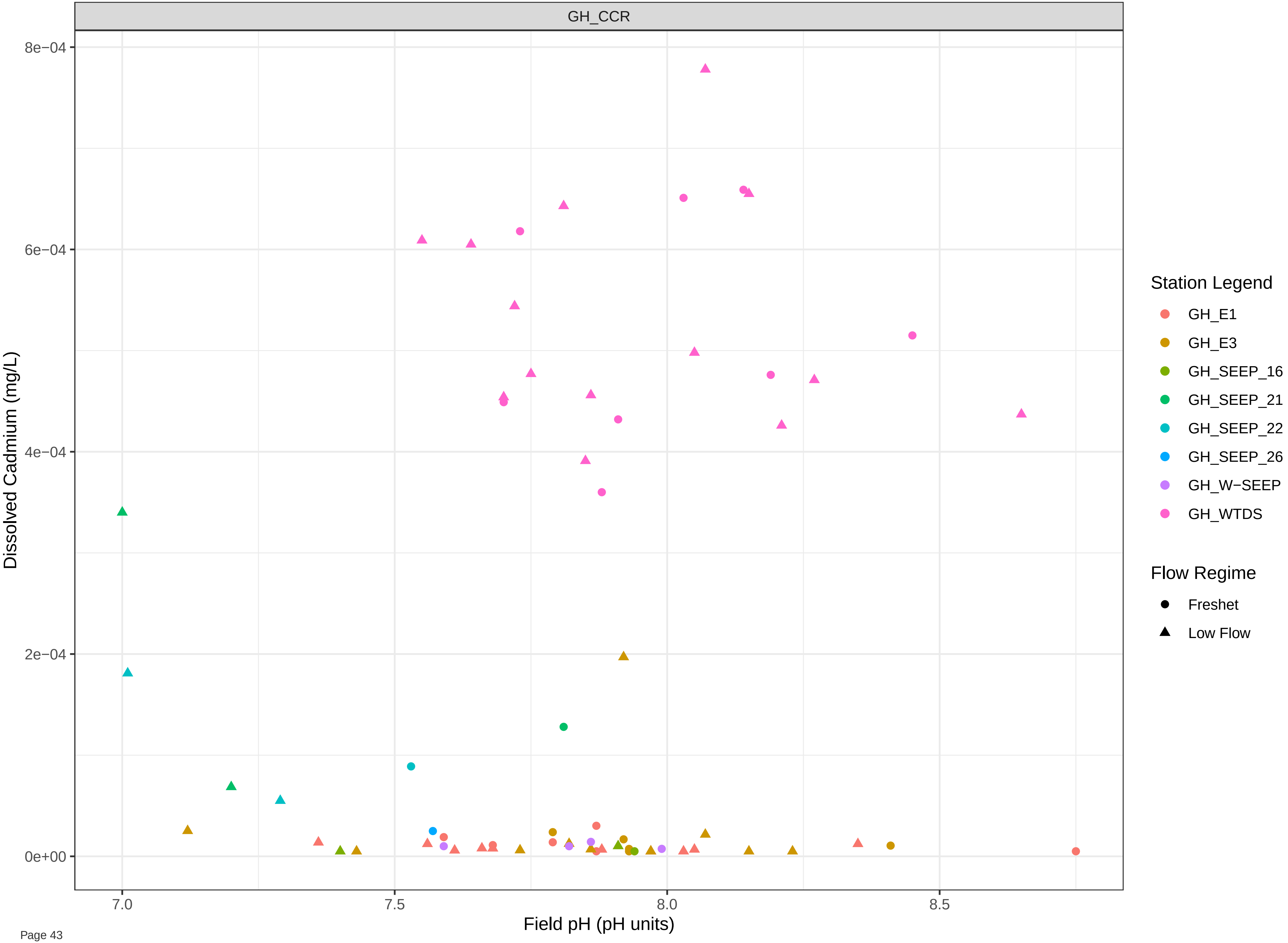

GH_LEASK_WR
0.0200
0.0175
0.0150
0.0125
0.0100
Dissolved Boron (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

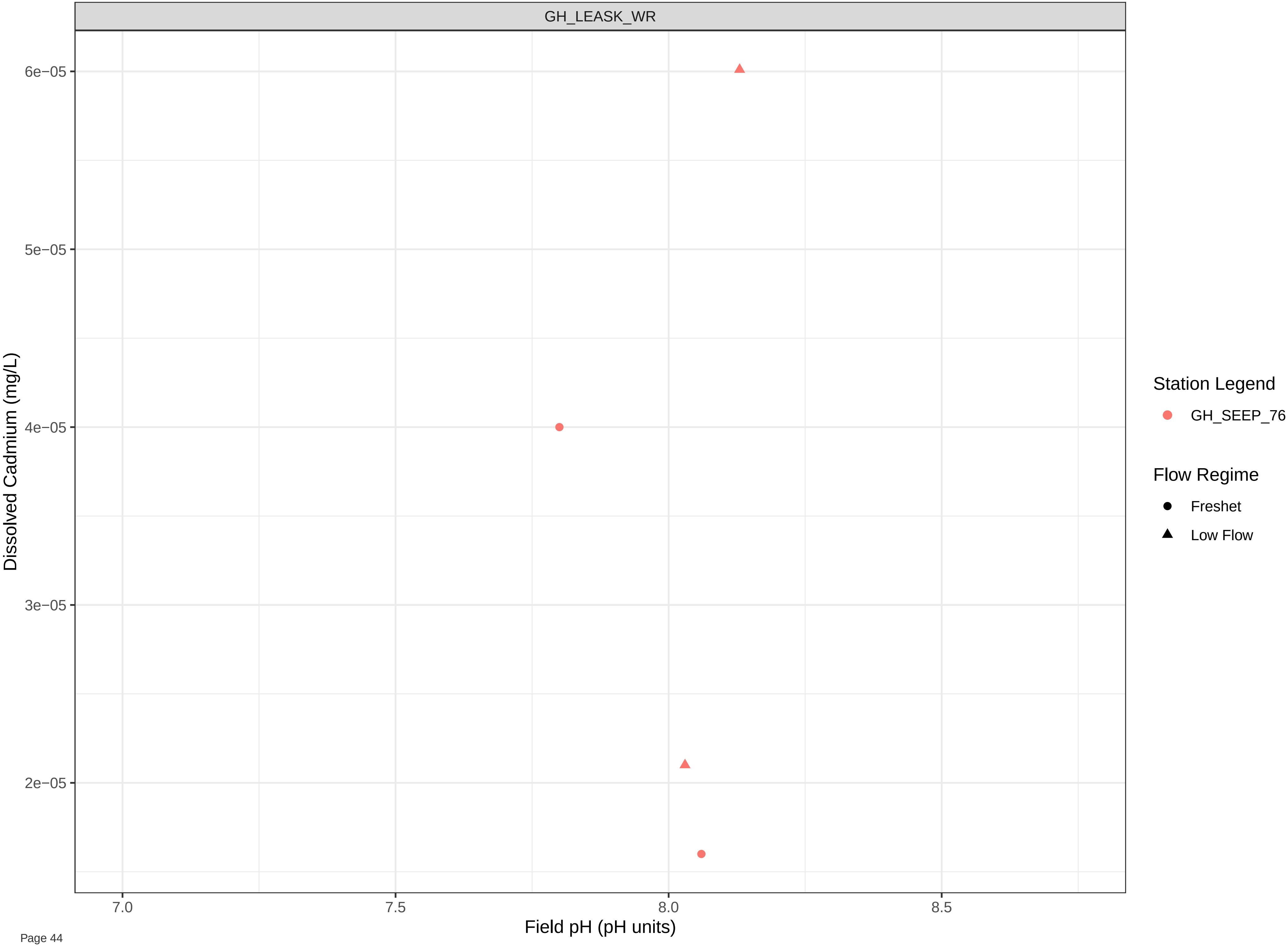

GH_PORTER_CREEK
Dissolved Boron (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

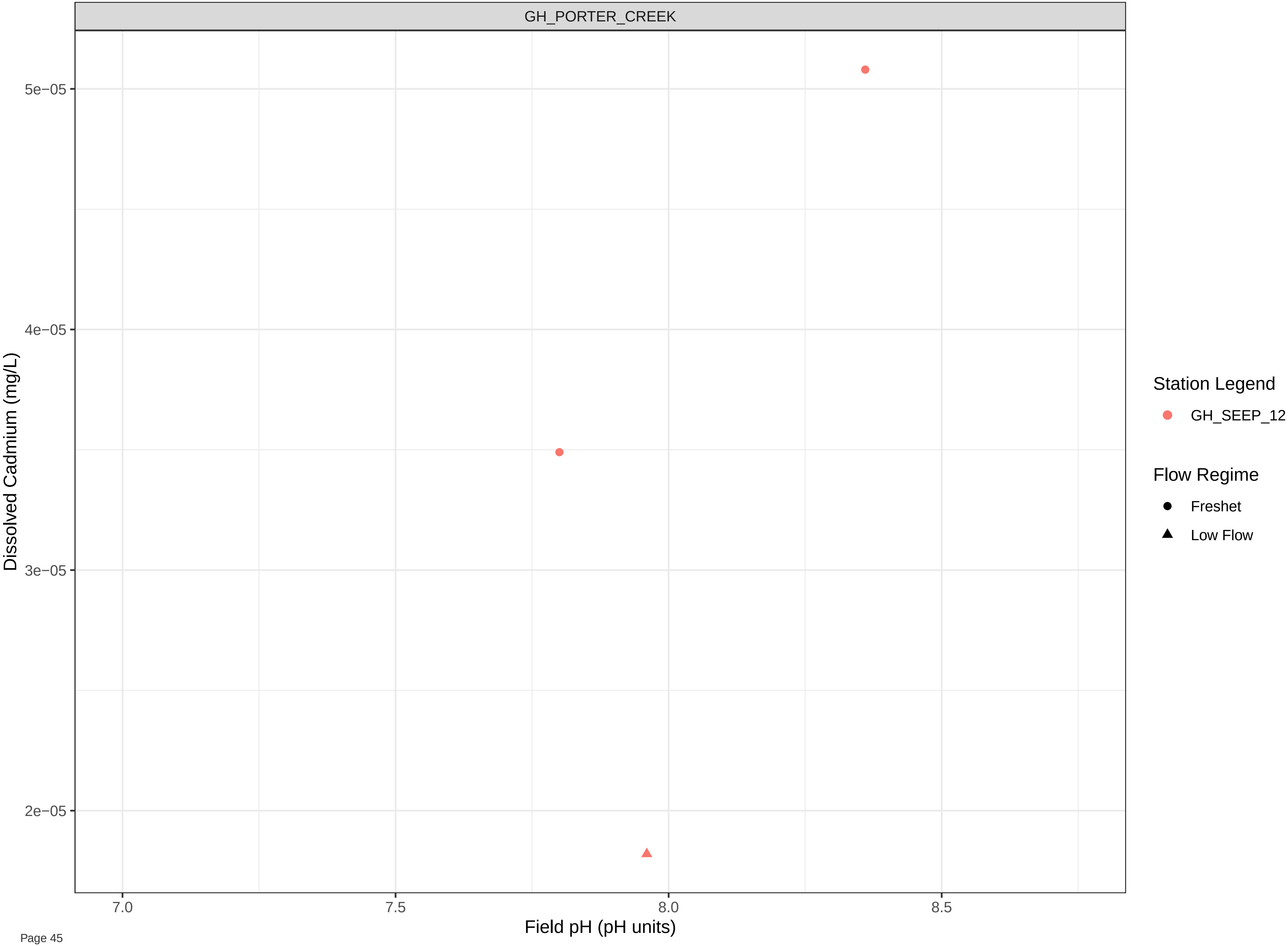

GH_THOMPSON_WR
Dissolved Boron (mg/L)
0.05
0.04
0.03
0.02
0.01
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

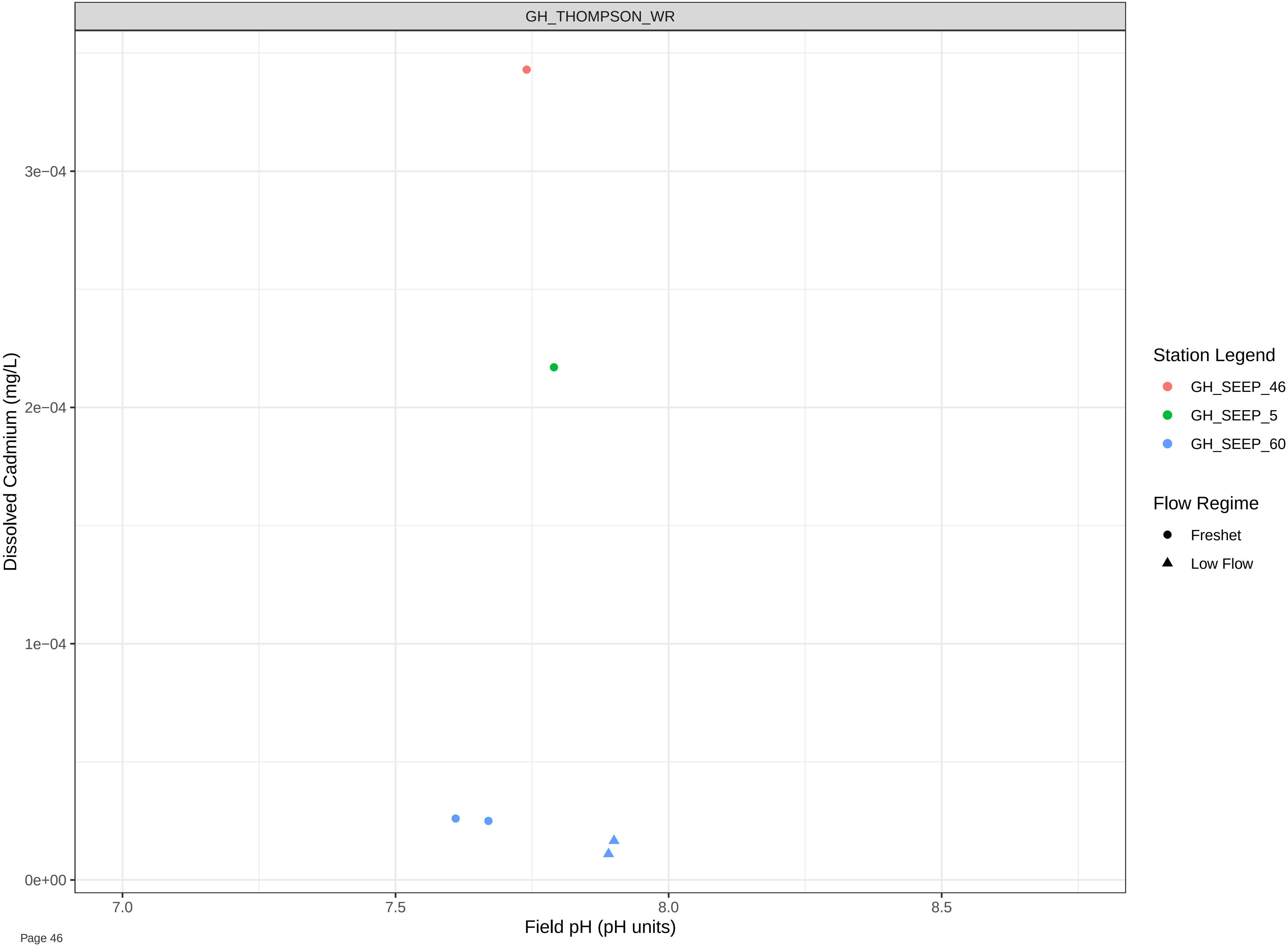

GH_UPSTREAM_CCR
Dissolved Boron (mg/L)
0.05
0.04
0.03
0.02
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

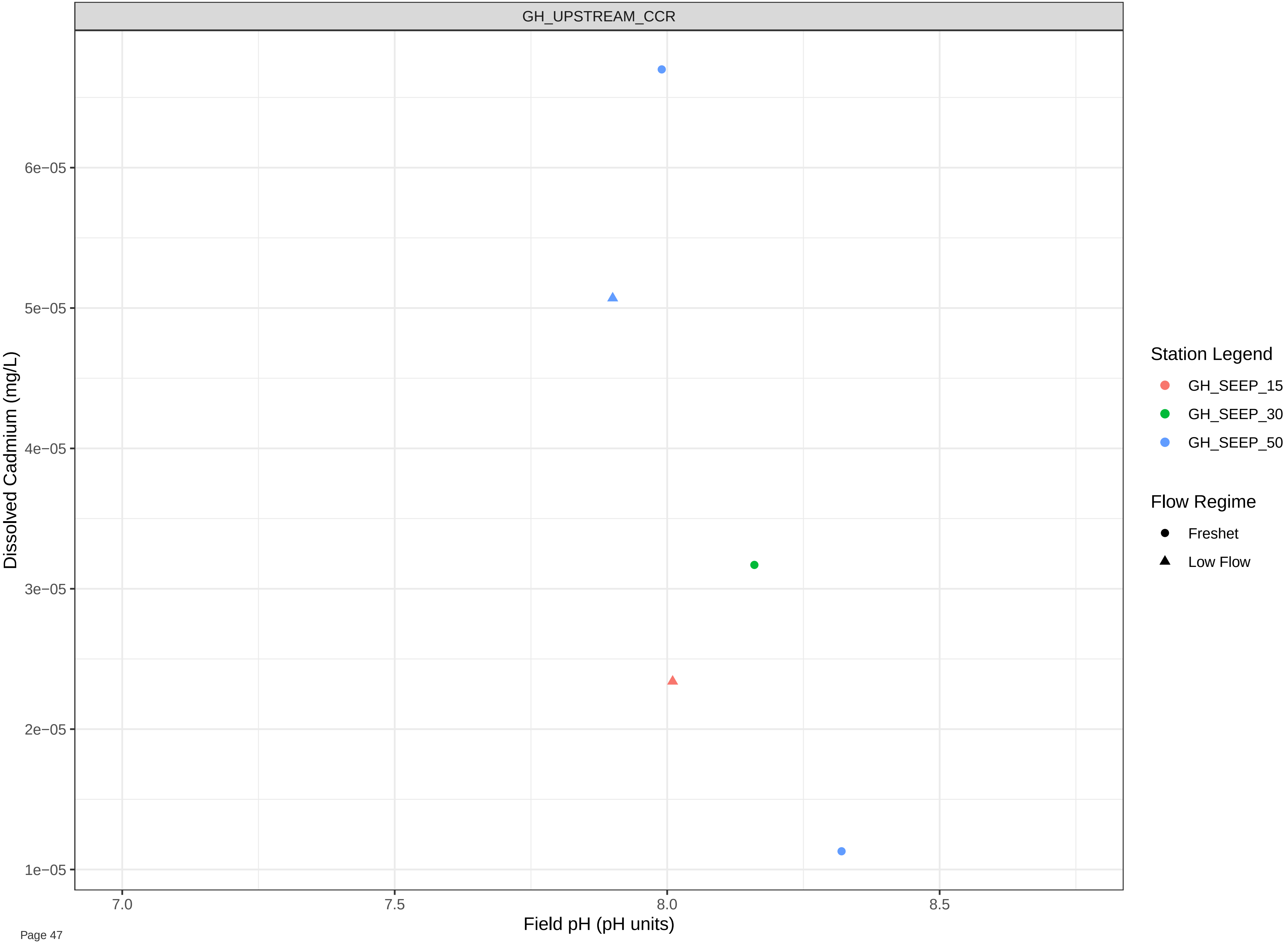

GH_WOLFRAM_WR
Dissolved Boron (mg/L)
0.4
0.3
0.2
0.1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

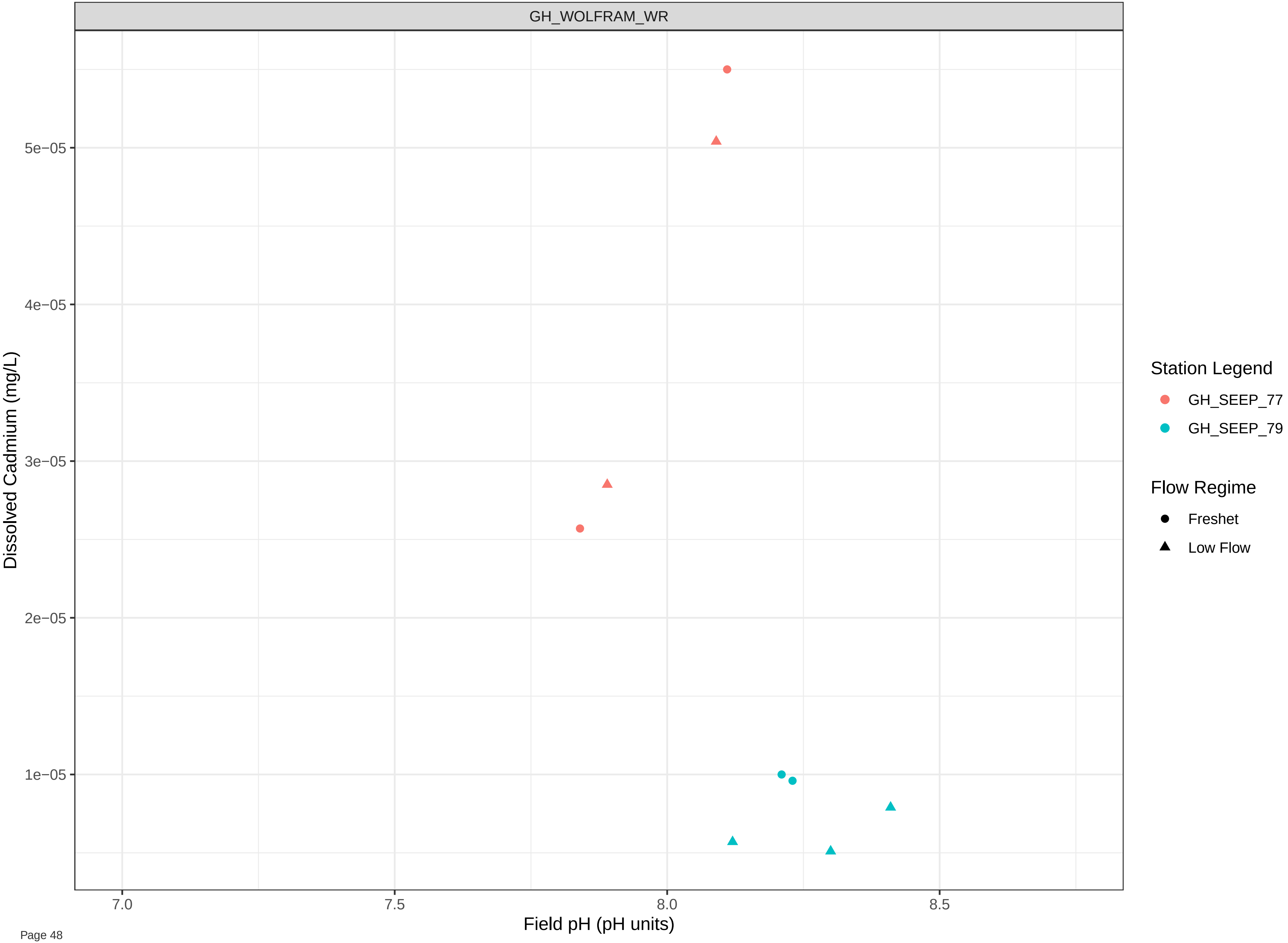

GH_CCR
Dissolved Cadmium (mg/L)
8e−04
6e−04
4e−04
2e−04
0e+00
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

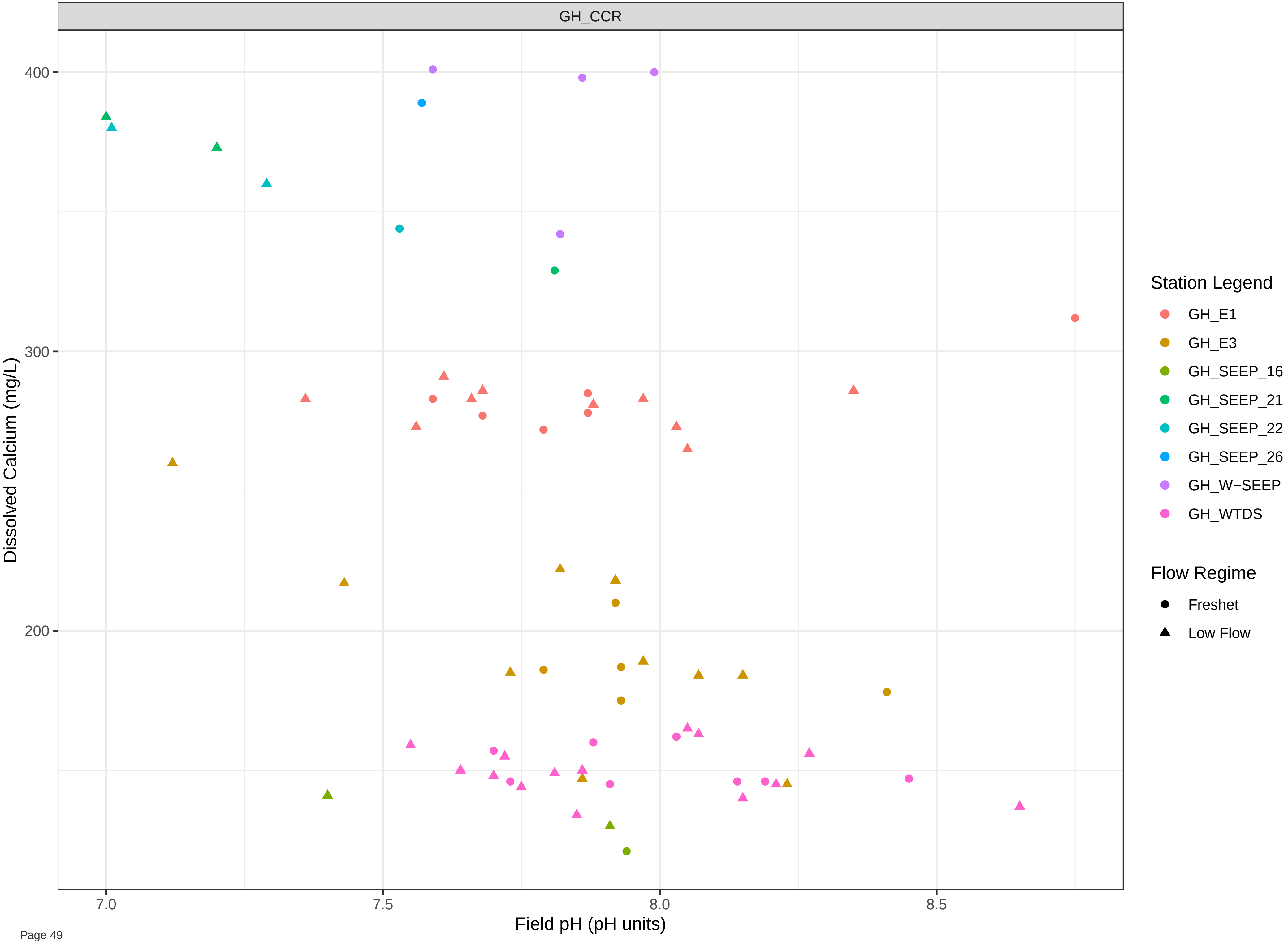

GH_LEASK_WR
6e−05
5e−05
4e−05
3e−05
2e−05
Dissolved Cadmium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow

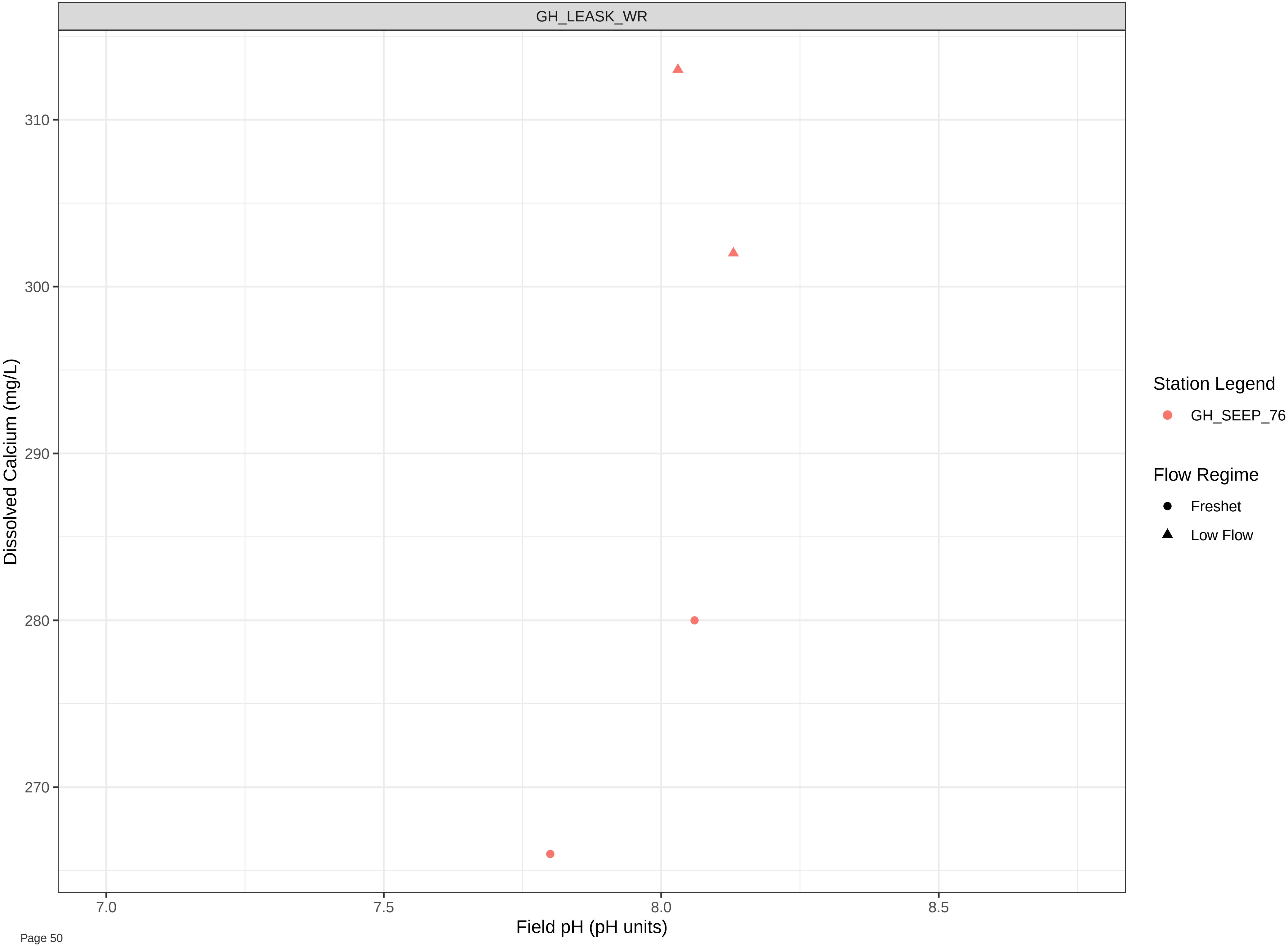

GH_PORTER_CREEK
Dissolved Cadmium (mg/L)
5e−05
4e−05
3e−05
2e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

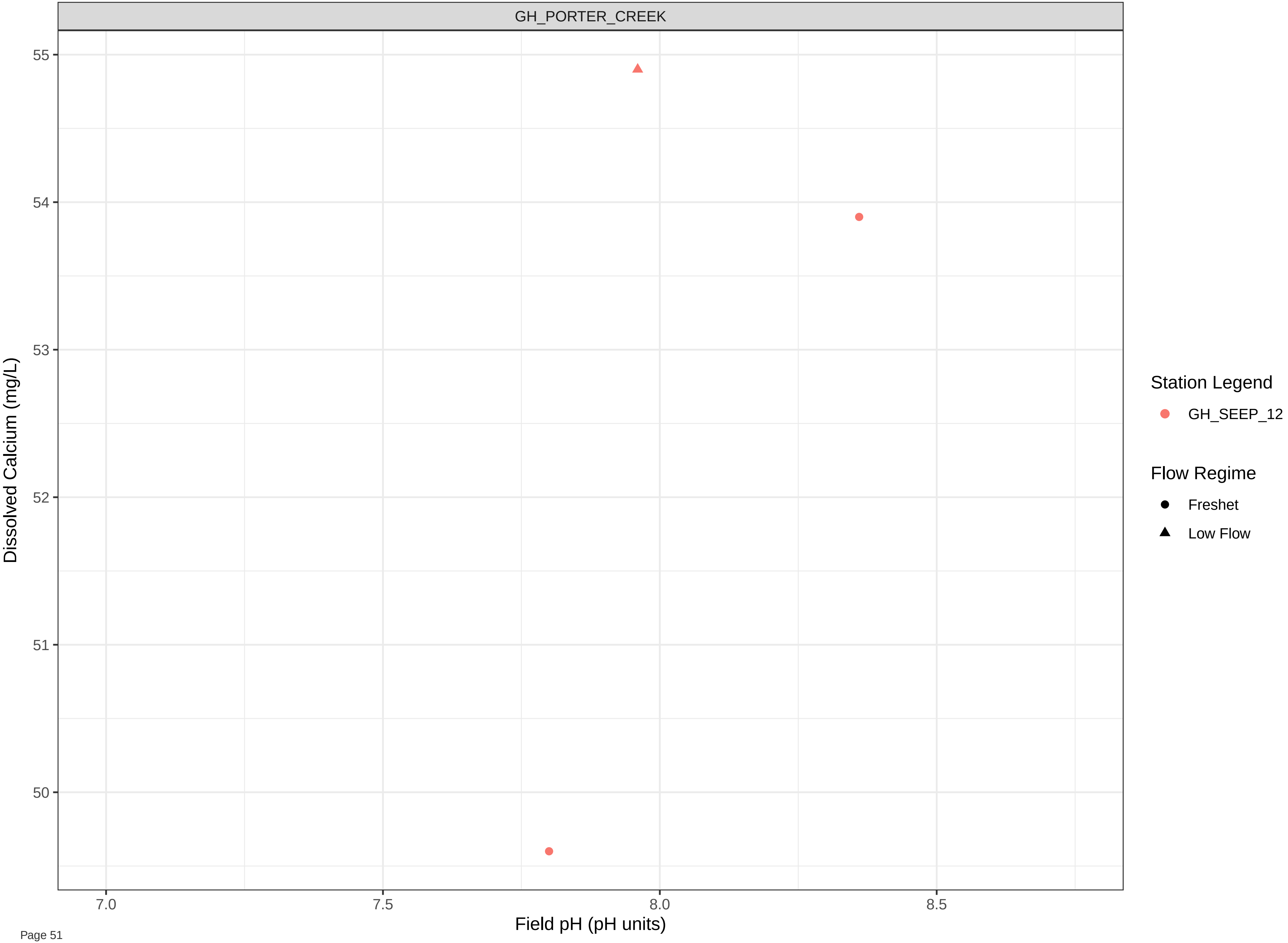

GH_THOMPSON_WR
Dissolved Cadmium (mg/L)
3e−04
2e−04
1e−04
0e+00
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_46
● GH_SEEP_5
● GH_SEEP_60
Flow Regime
● Freshet
▲ Low Flow

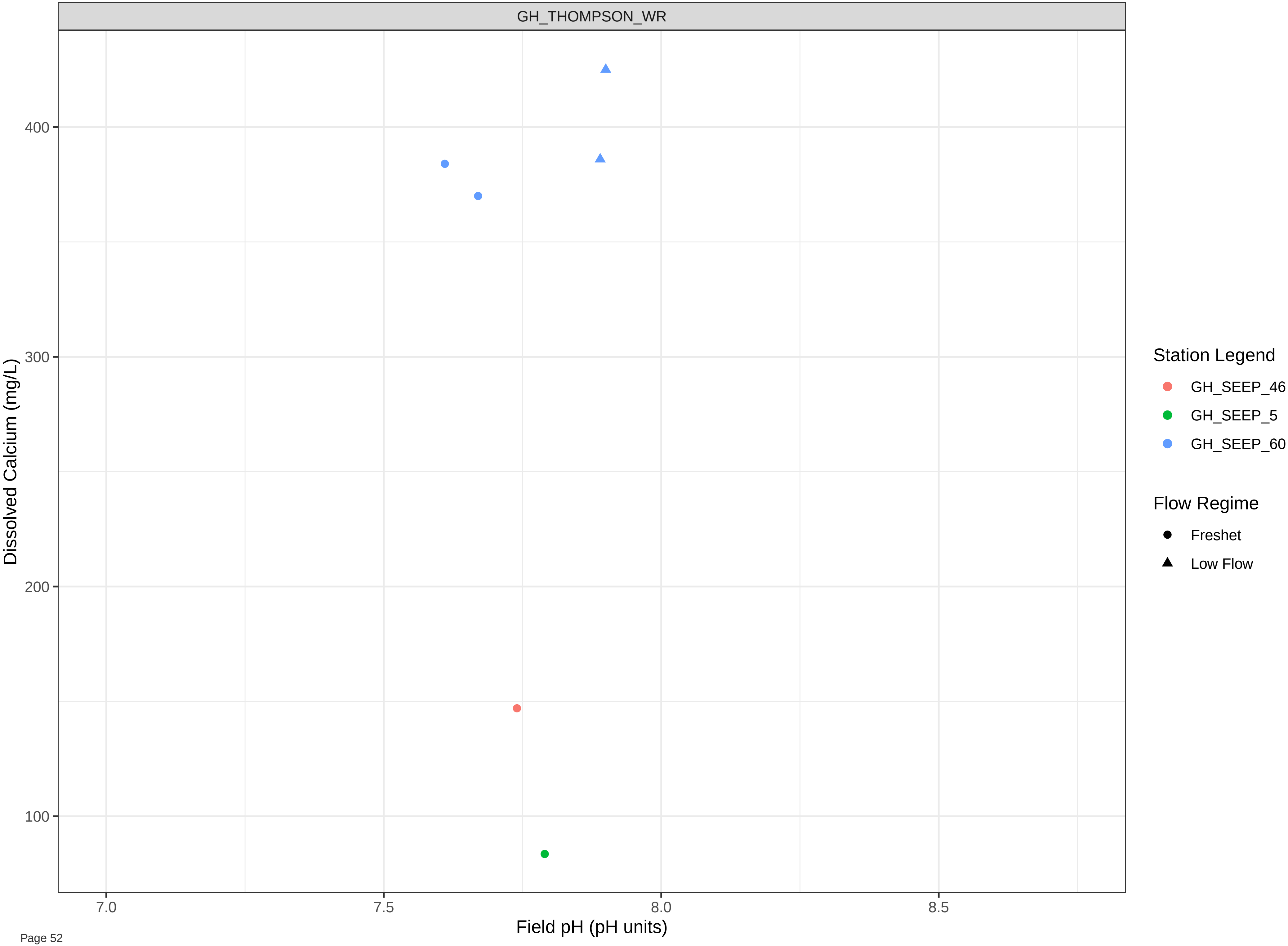

GH_UPSTREAM_CCR
Dissolved Cadmium (mg/L)
6e−05
5e−05
4e−05
3e−05
2e−05
1e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

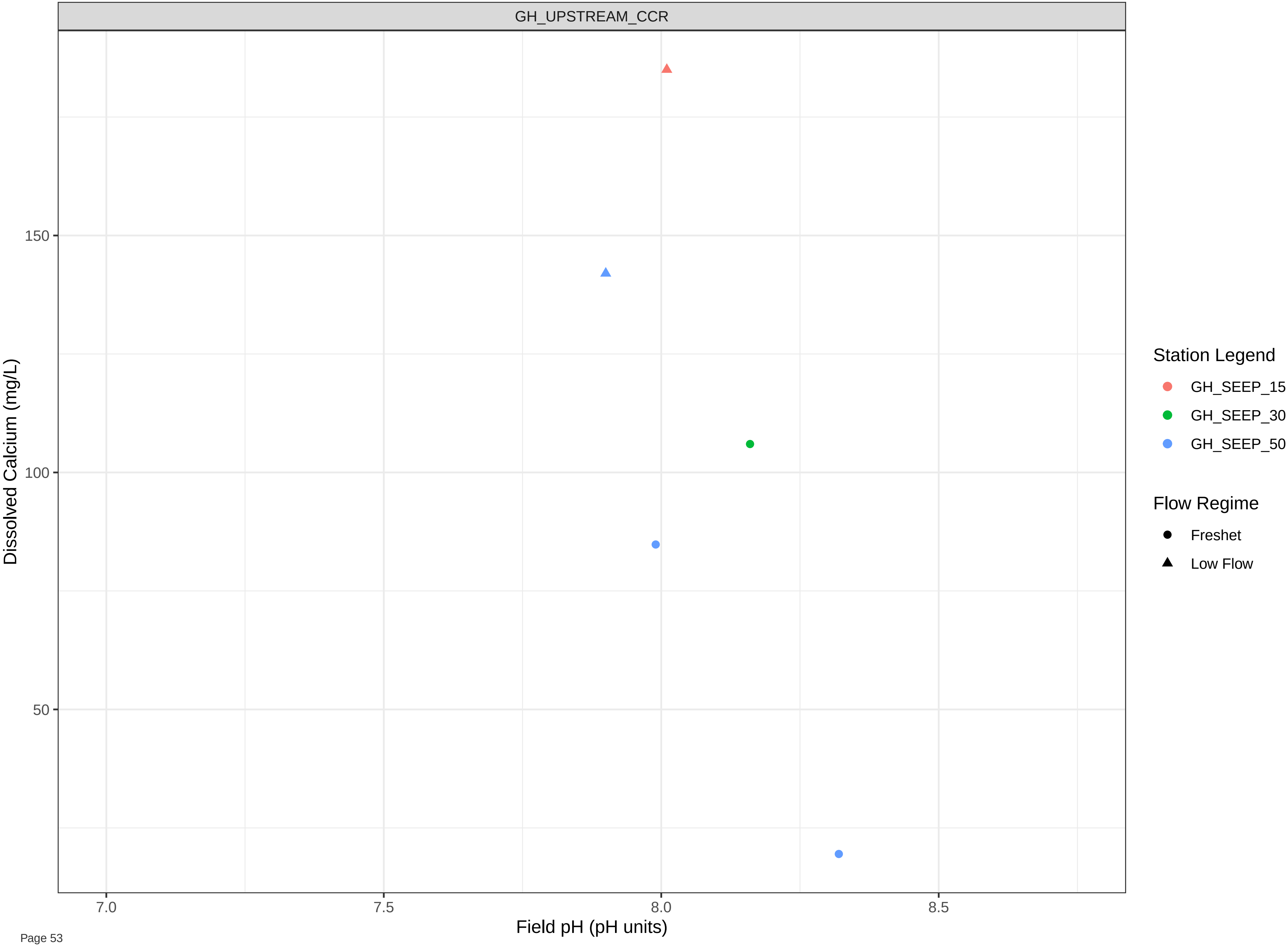

GH_WOLFRAM_WR
Dissolved Cadmium (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

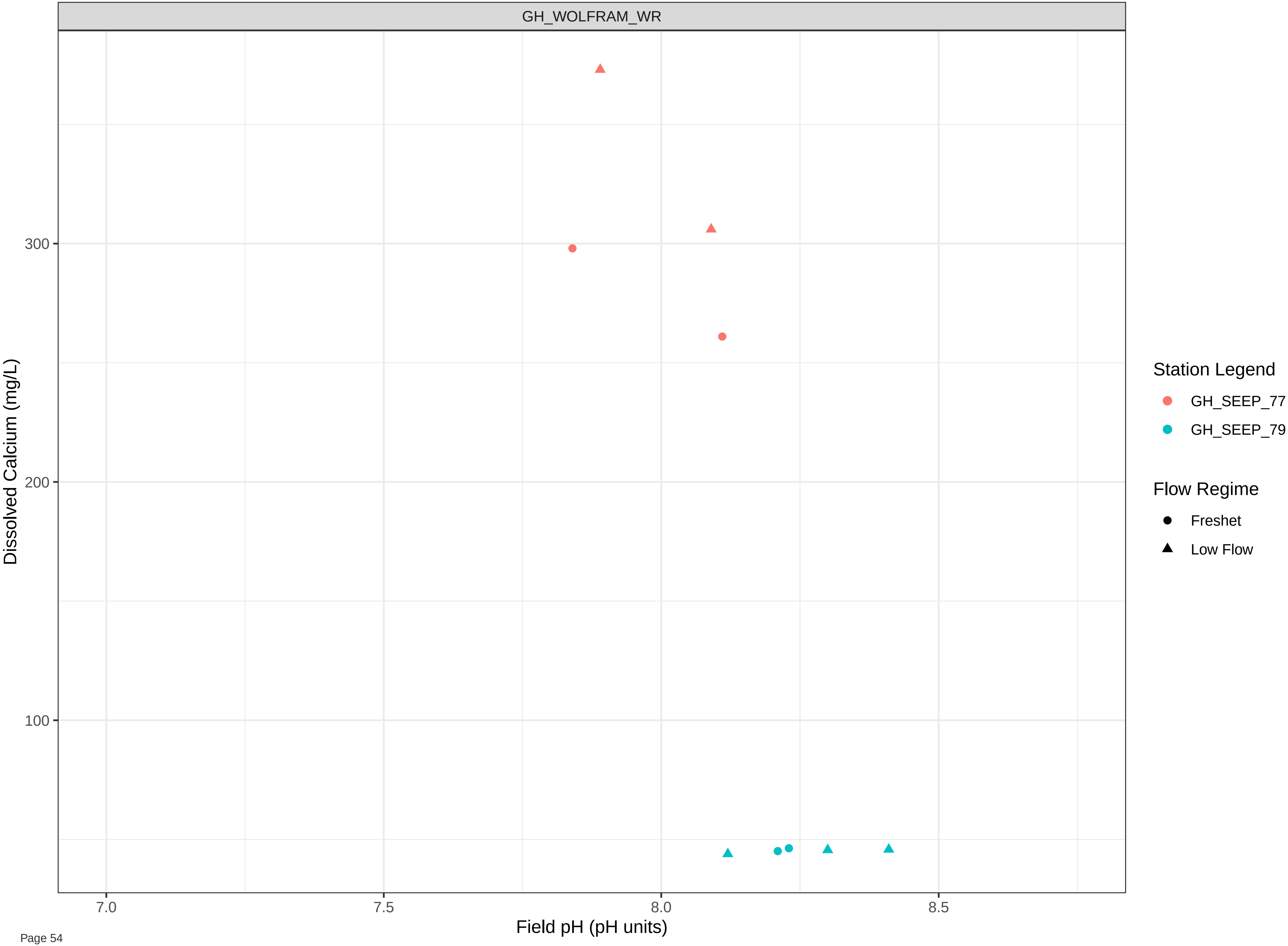

GH_CCR
Dissolved Calcium (mg/L)
400
300
200
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

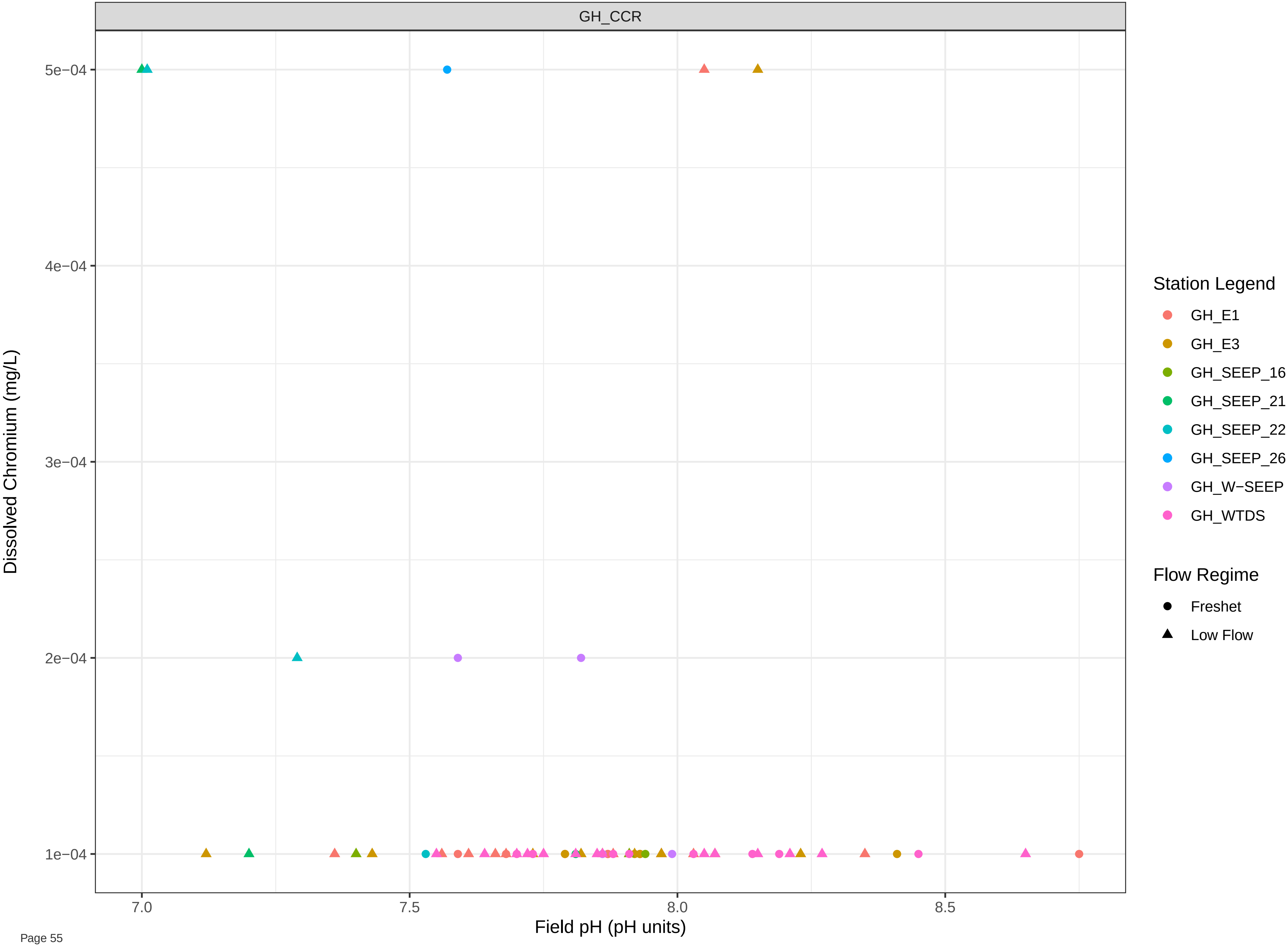

GH_LEASK_WR
Dissolved Calcium (mg/L)
310
300
290
280
270
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

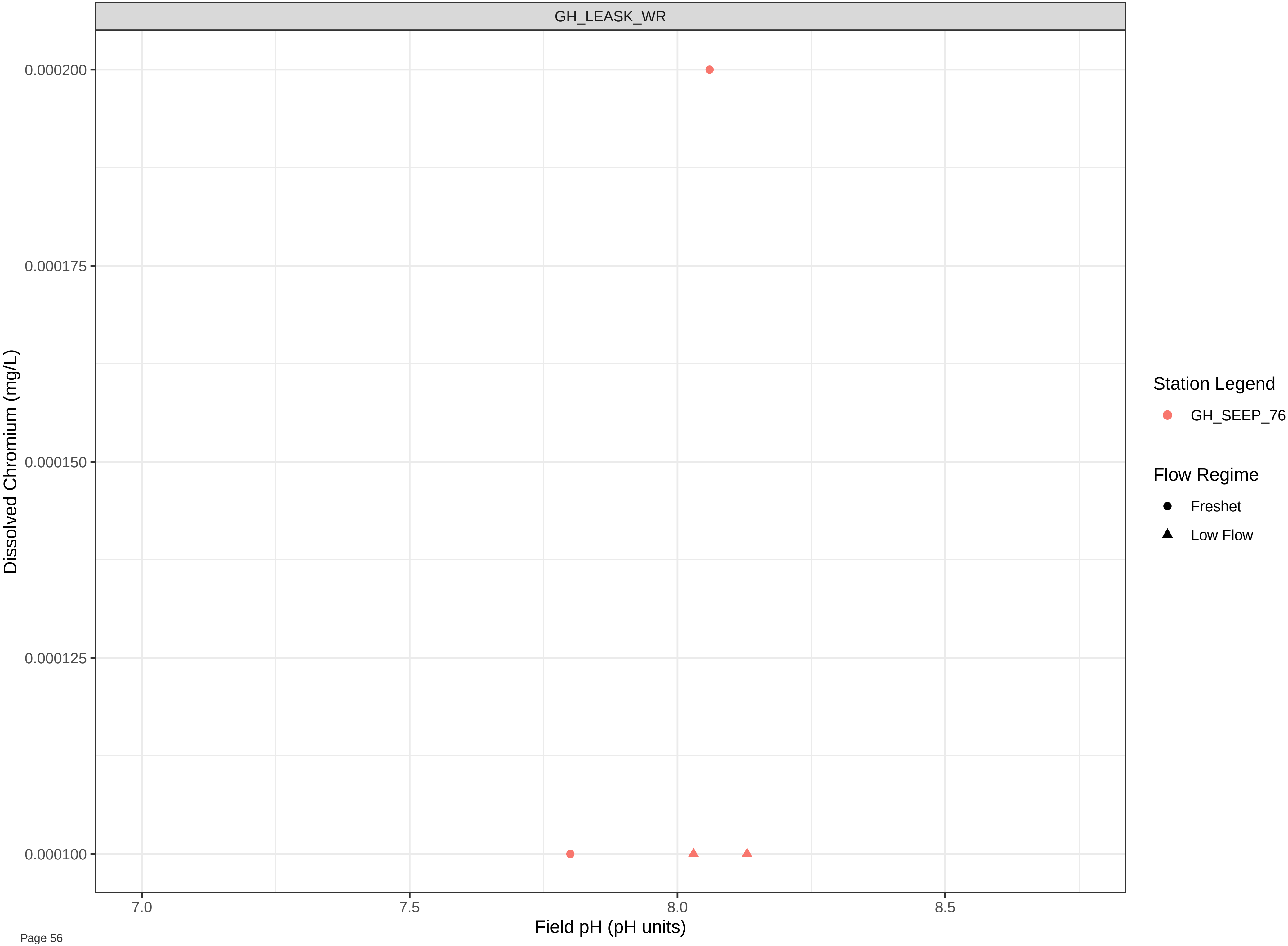

GH_PORTER_CREEK
Dissolved Calcium (mg/L)
55
54
53
52
51
50
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

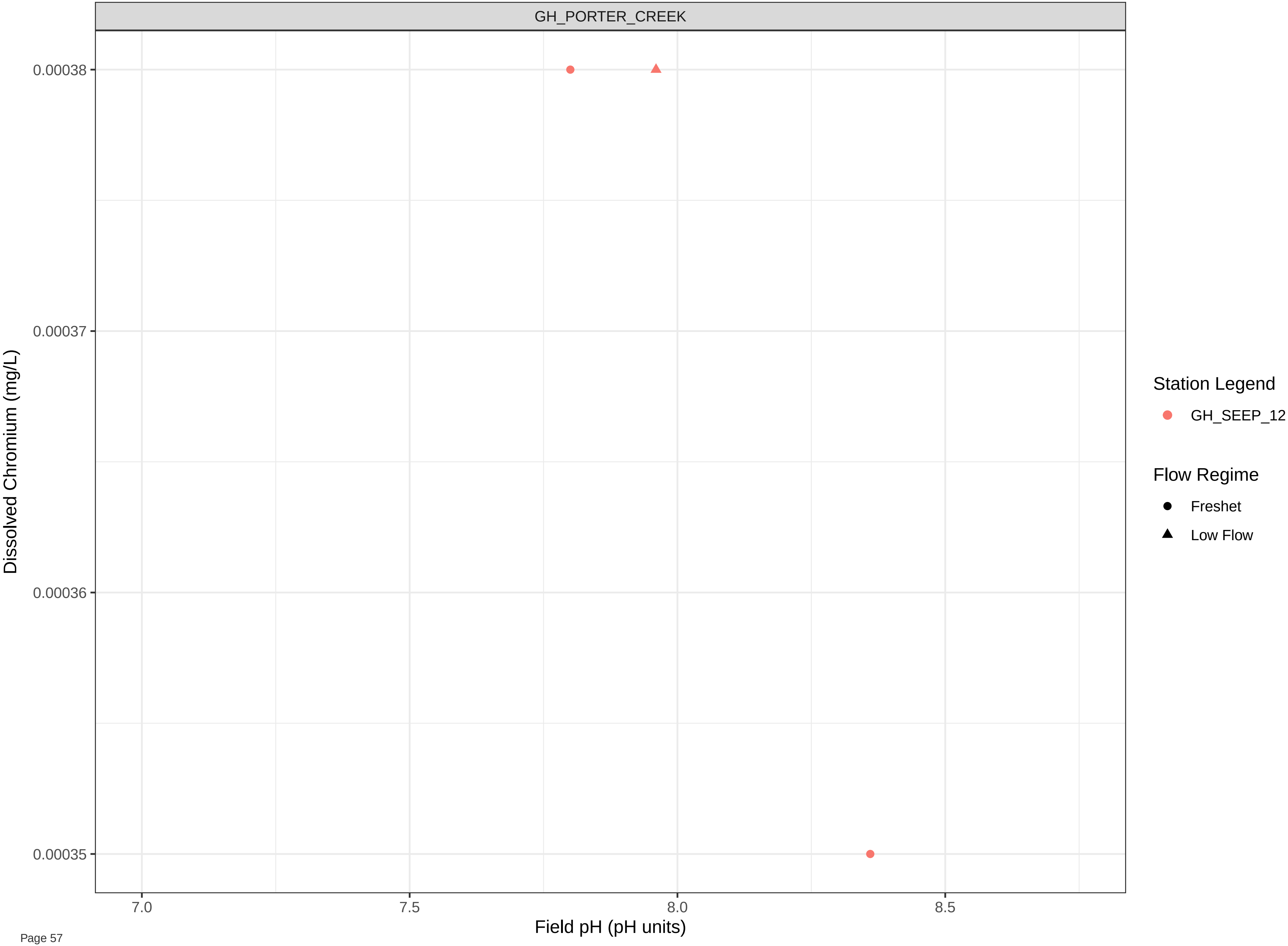

GH_THOMPSON_WR
Dissolved Calcium (mg/L)
400
300
200
100
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

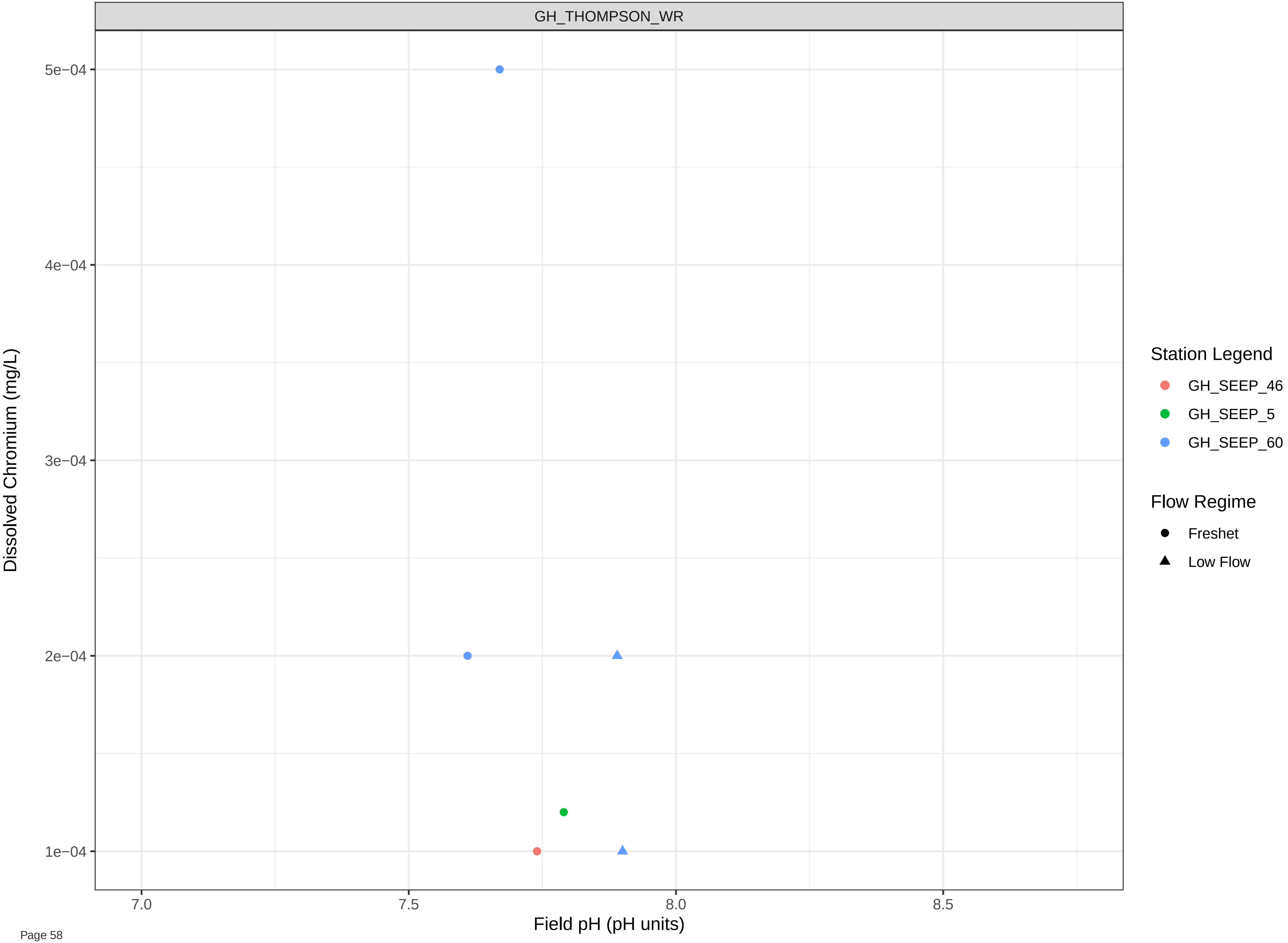

GH_UPSTREAM_CCR
Dissolved Calcium (mg/L)
150
100
50
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

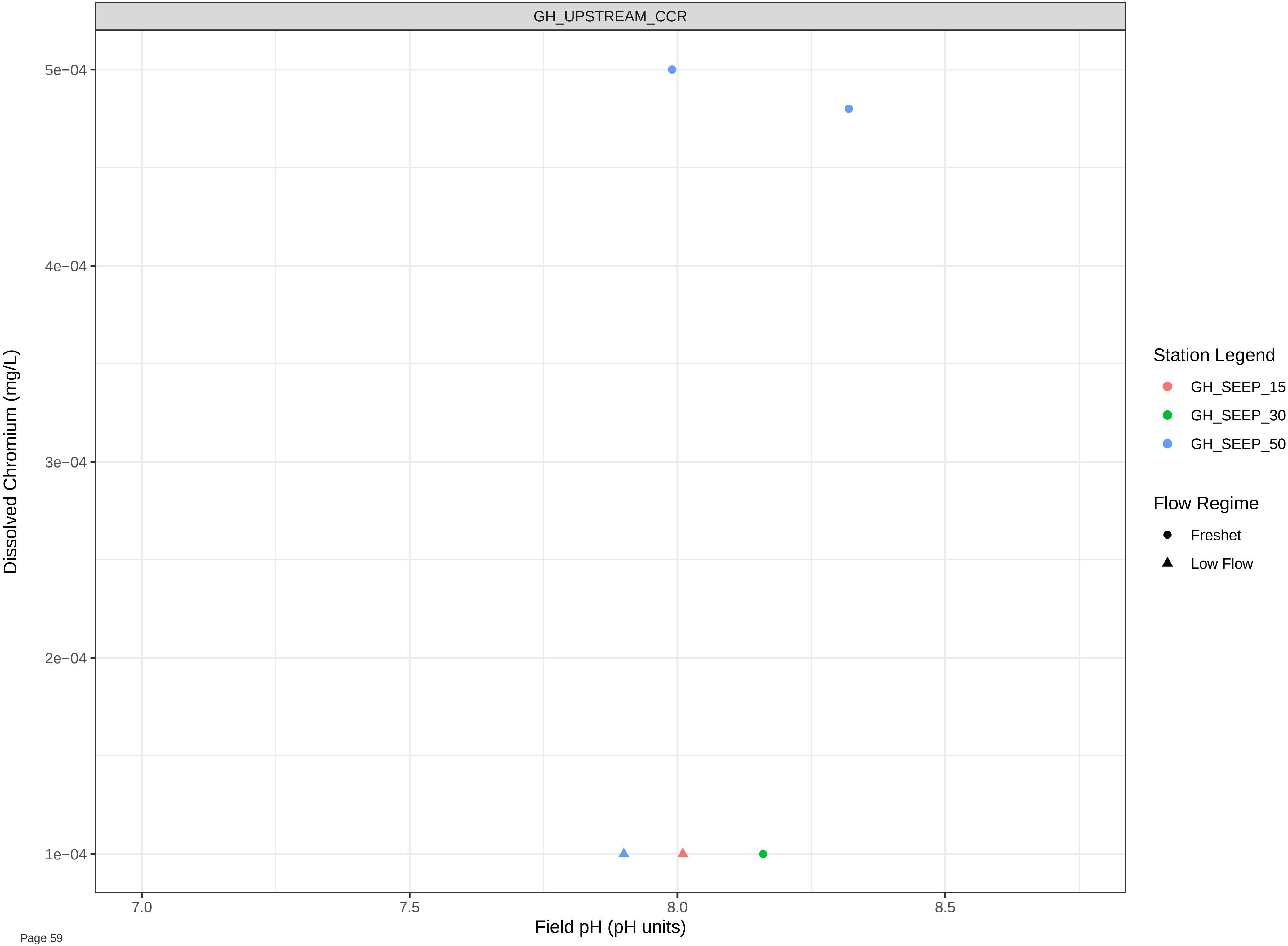

GH_WOLFRAM_WR
Dissolved Calcium (mg/L)
300
200
100
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_77
● GH_SEEP_79
Flow Regime
● Freshet
▲ Low Flow

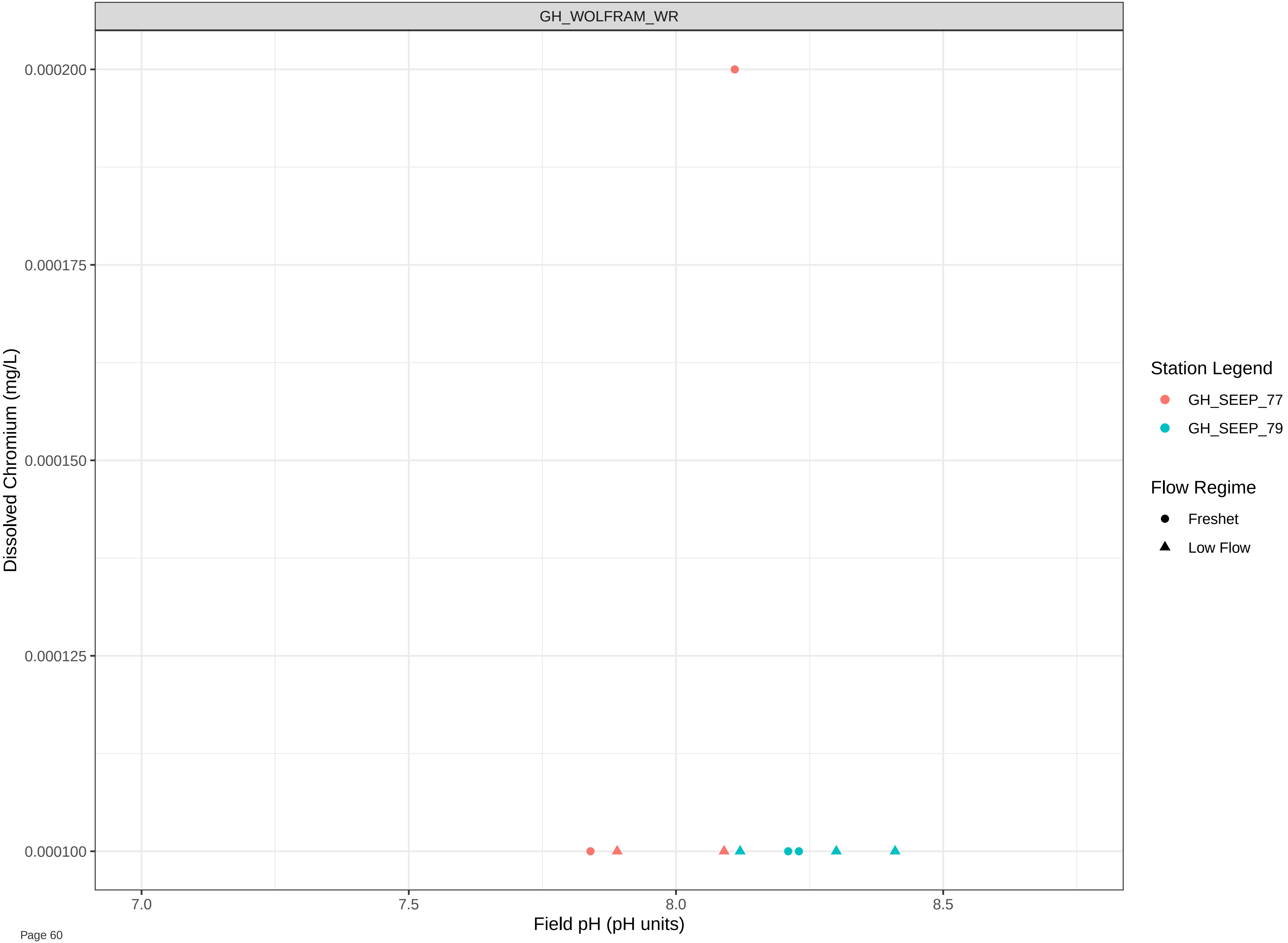

GH_CCR
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

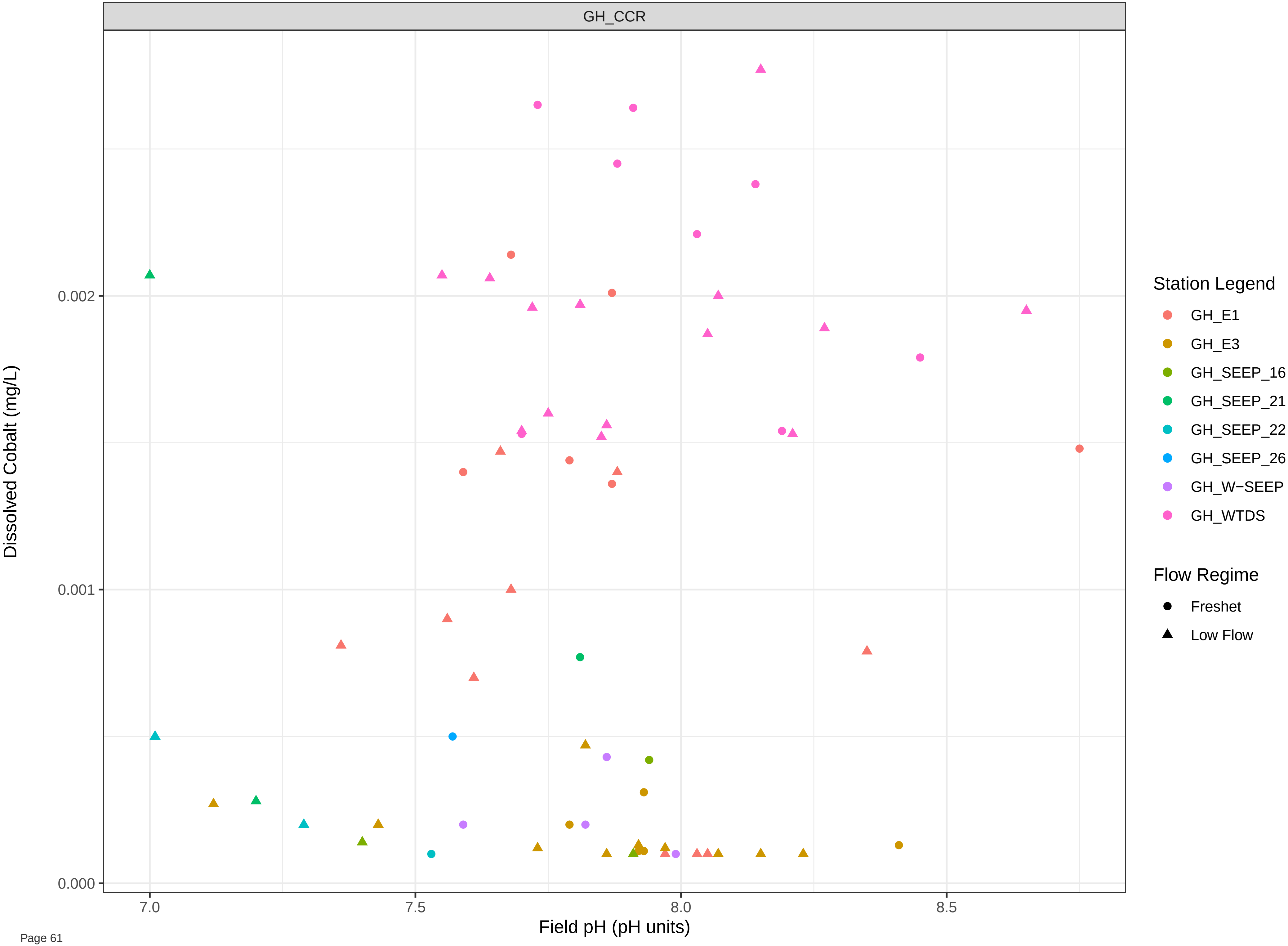

GH_LEASK_WR
Dissolved Chromium (mg/L)
0.000200
0.000175
0.000150
0.000125
0.000100
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow


GH_PORTER_CREEK
Dissolved Chromium (mg/L)
0.00038
0.00037
0.00036
0.00035
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

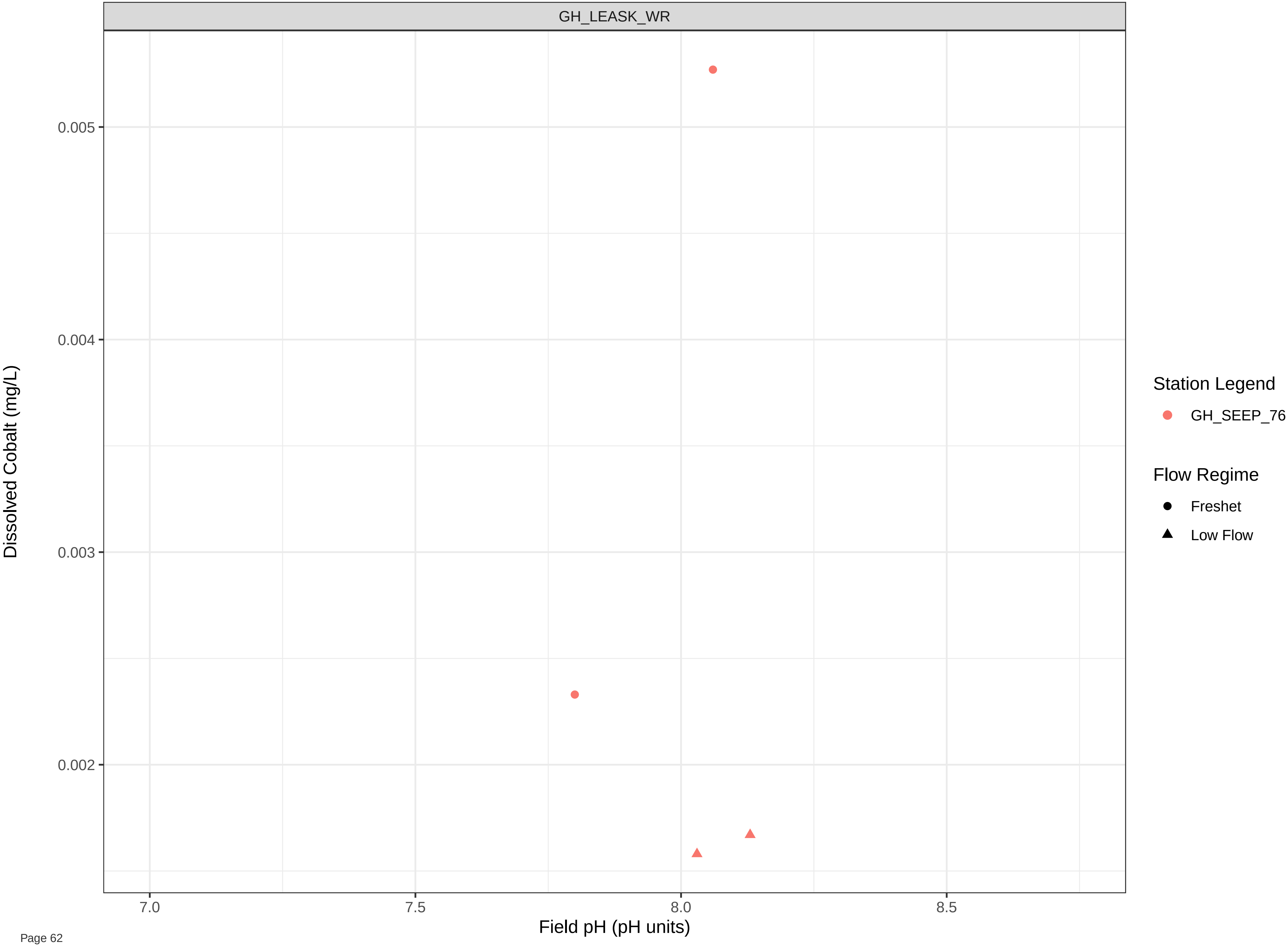

GH_THOMPSON_WR
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

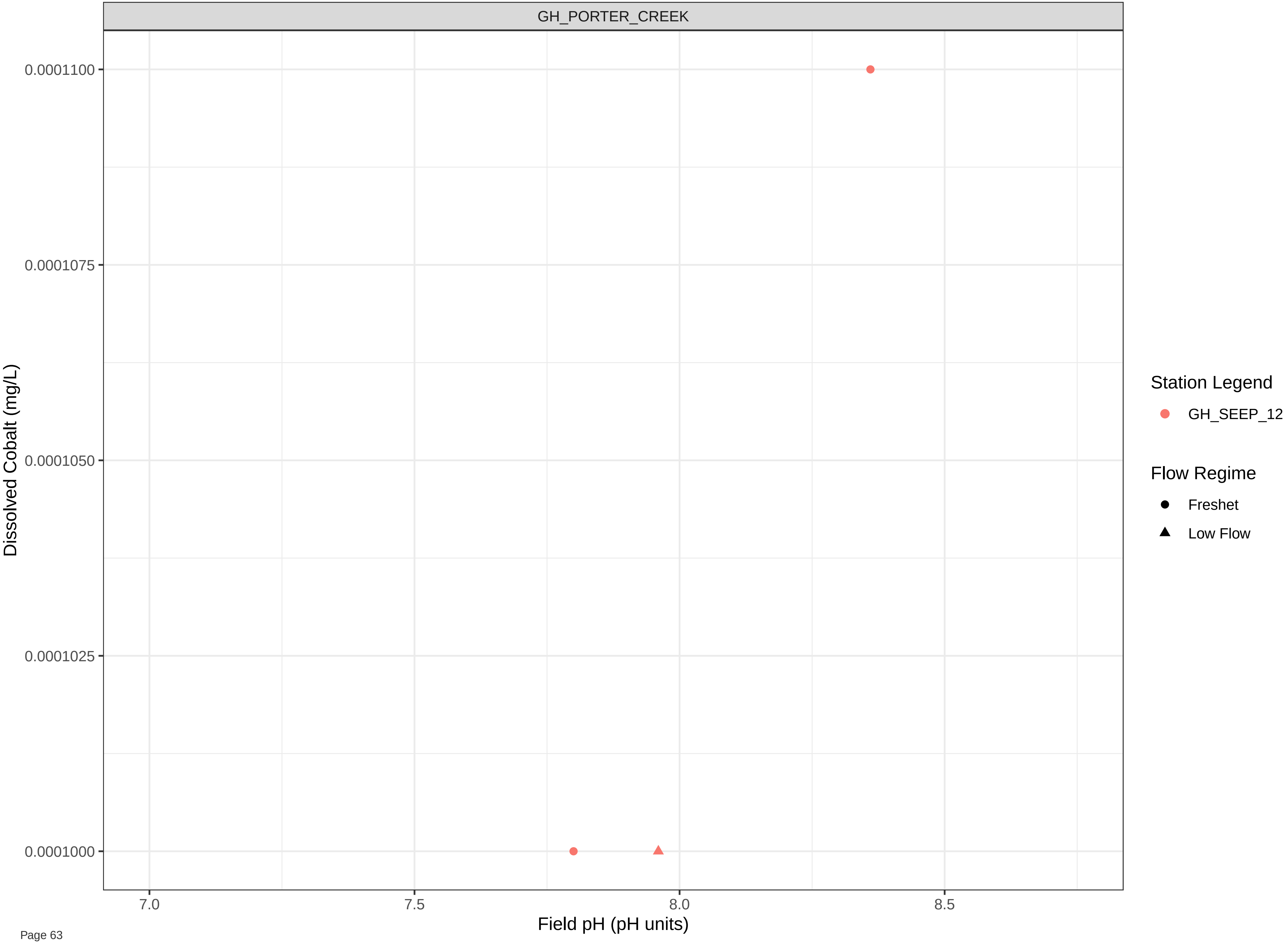

GH_UPSTREAM_CCR
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

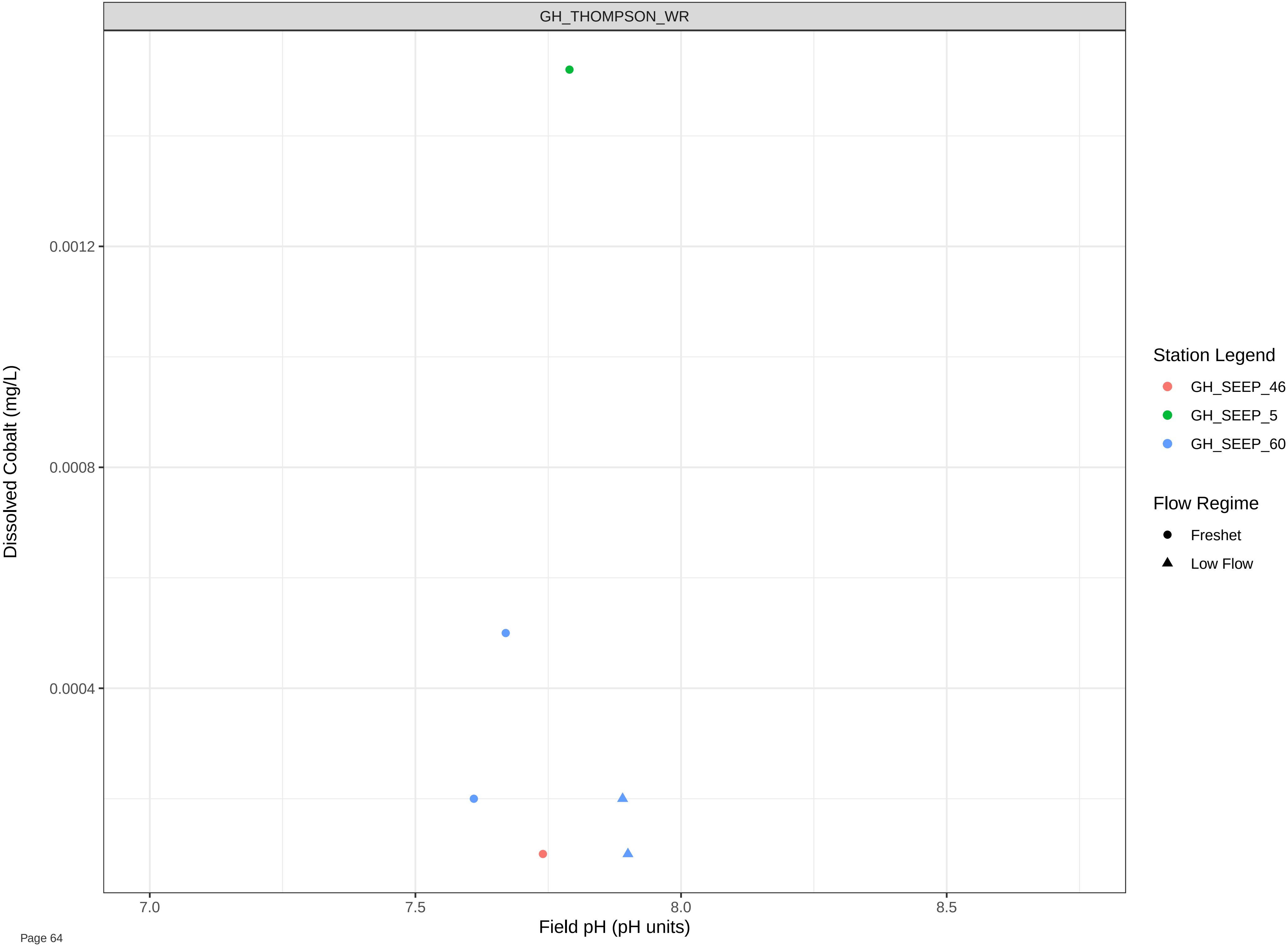

GH_WOLFRAM_WR
Dissolved Chromium (mg/L)
0.000200
0.000175
0.000150
0.000125
0.000100
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

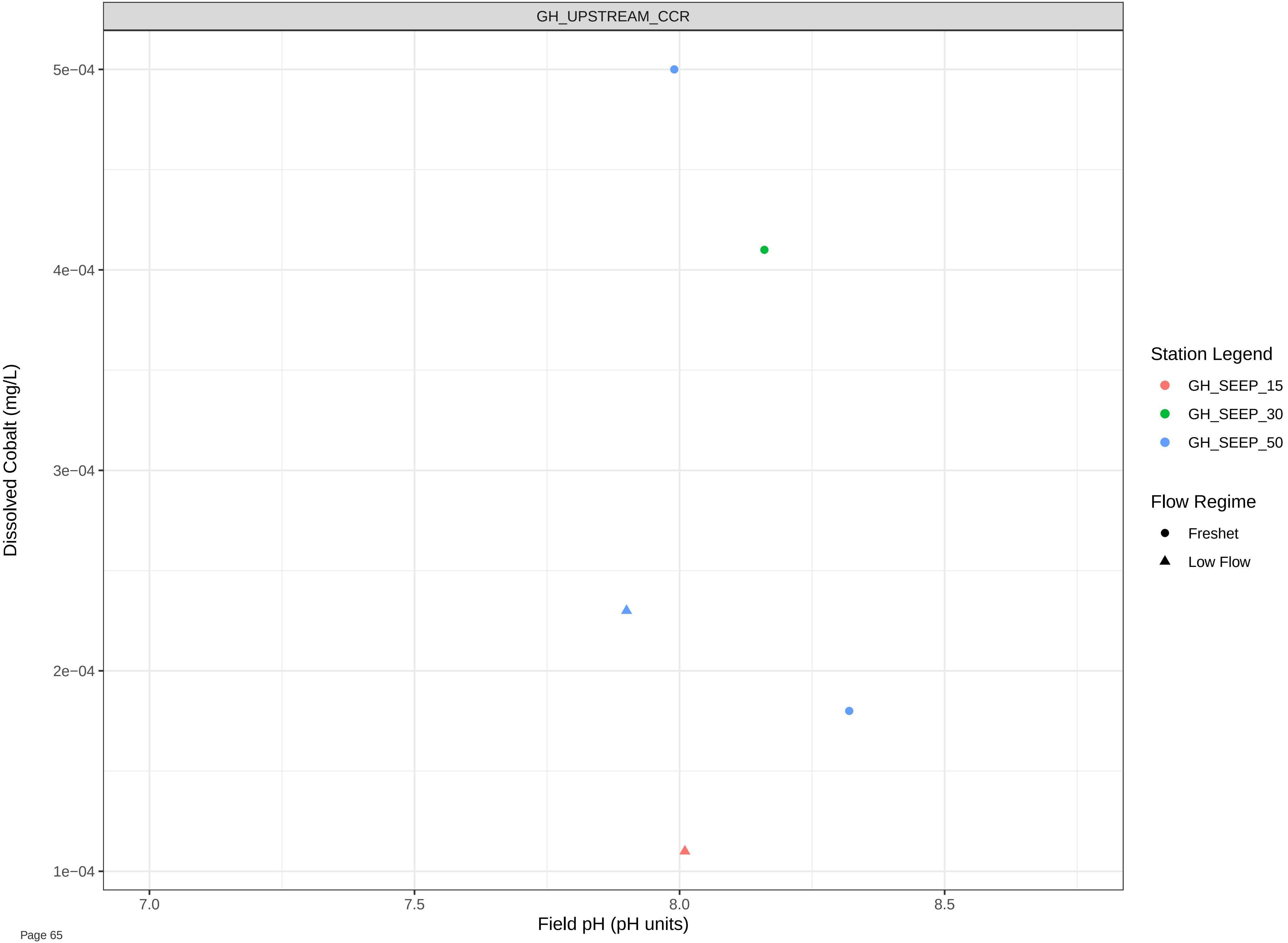


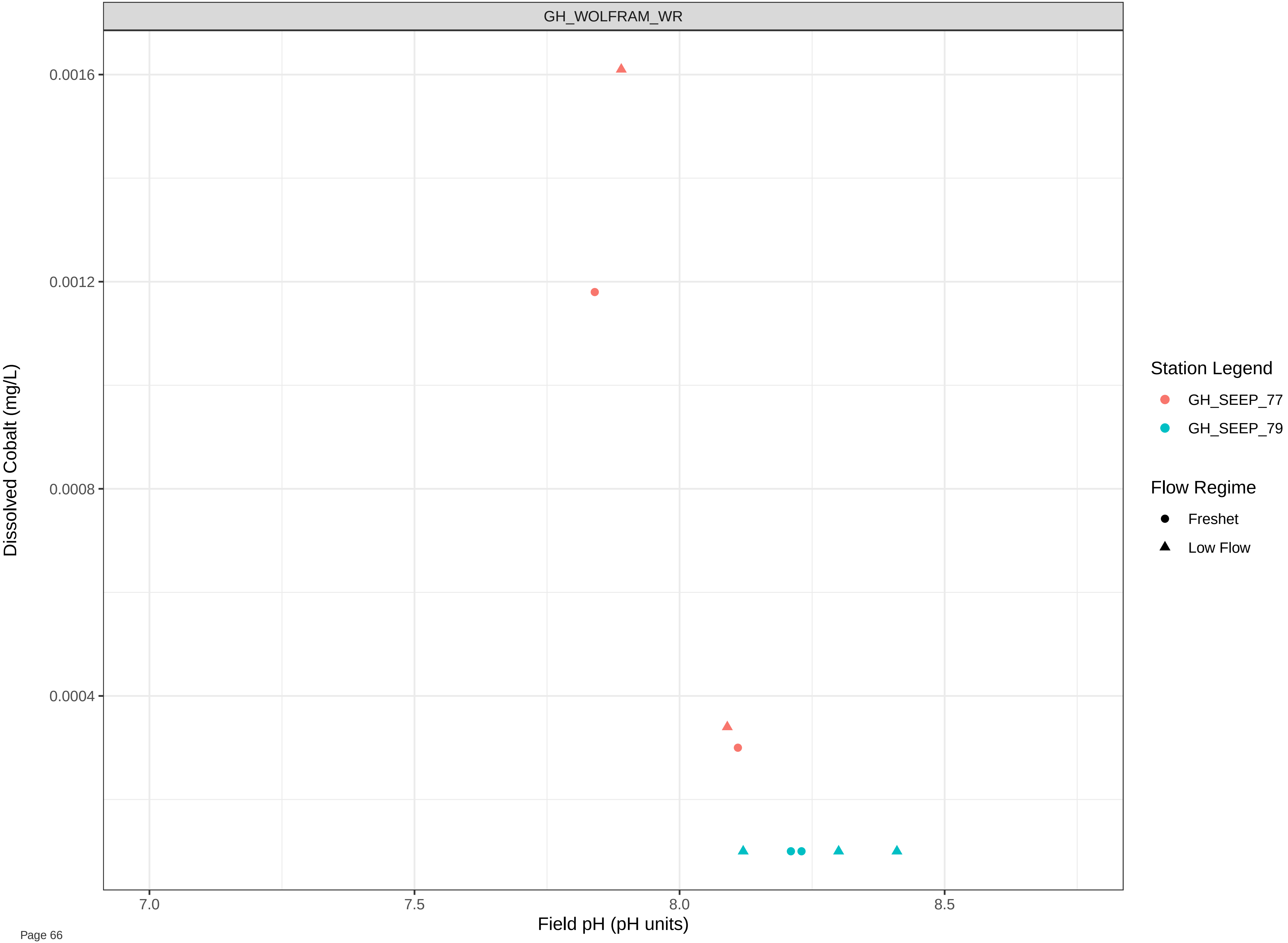
GH_CCR
Dissolved Cobalt (mg/L)
0.000
0.001
0.002
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

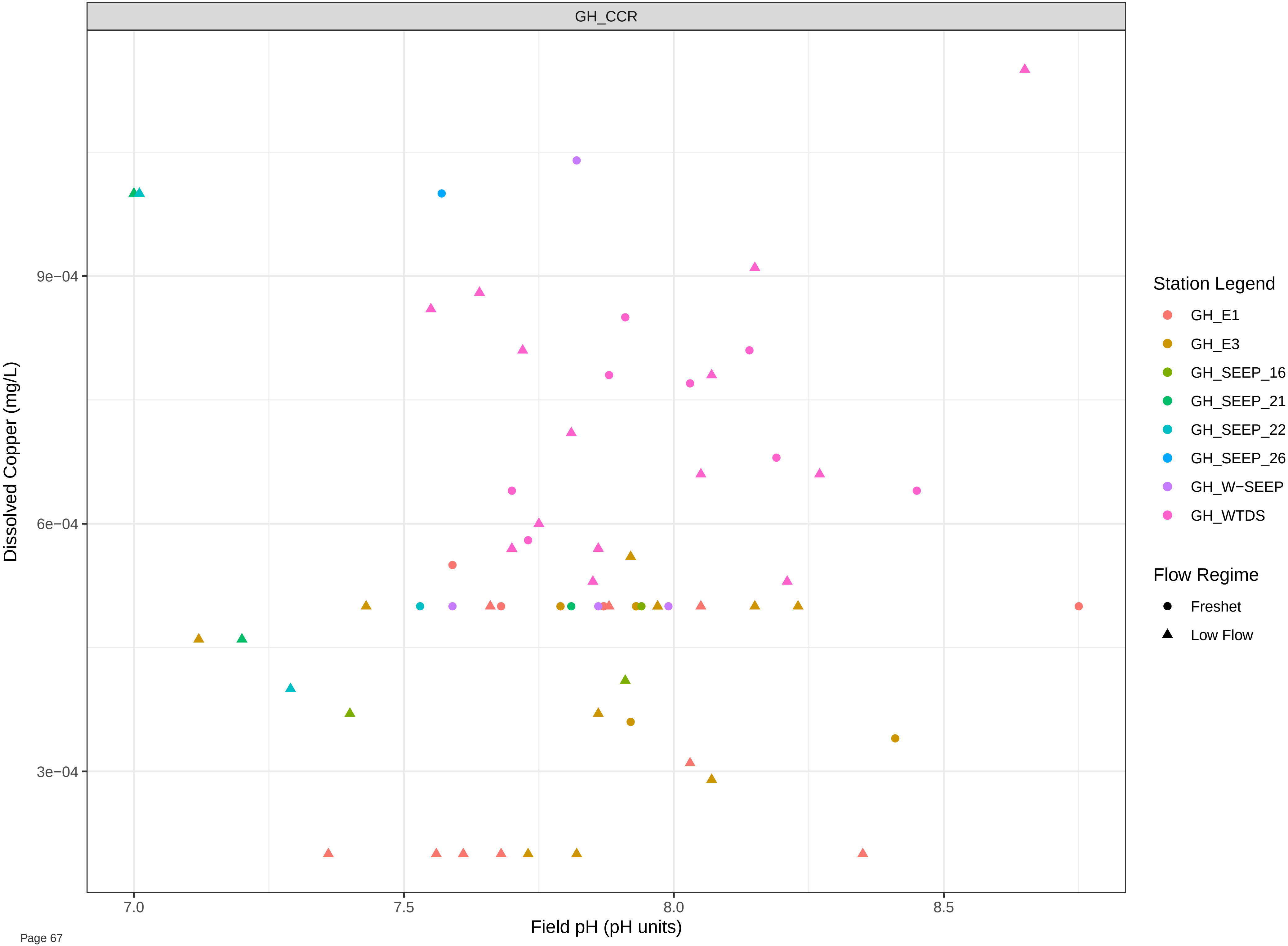

GH_LEASK_WR
Dissolved Cobalt (mg/L)
0.005
0.004
0.003
0.002
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

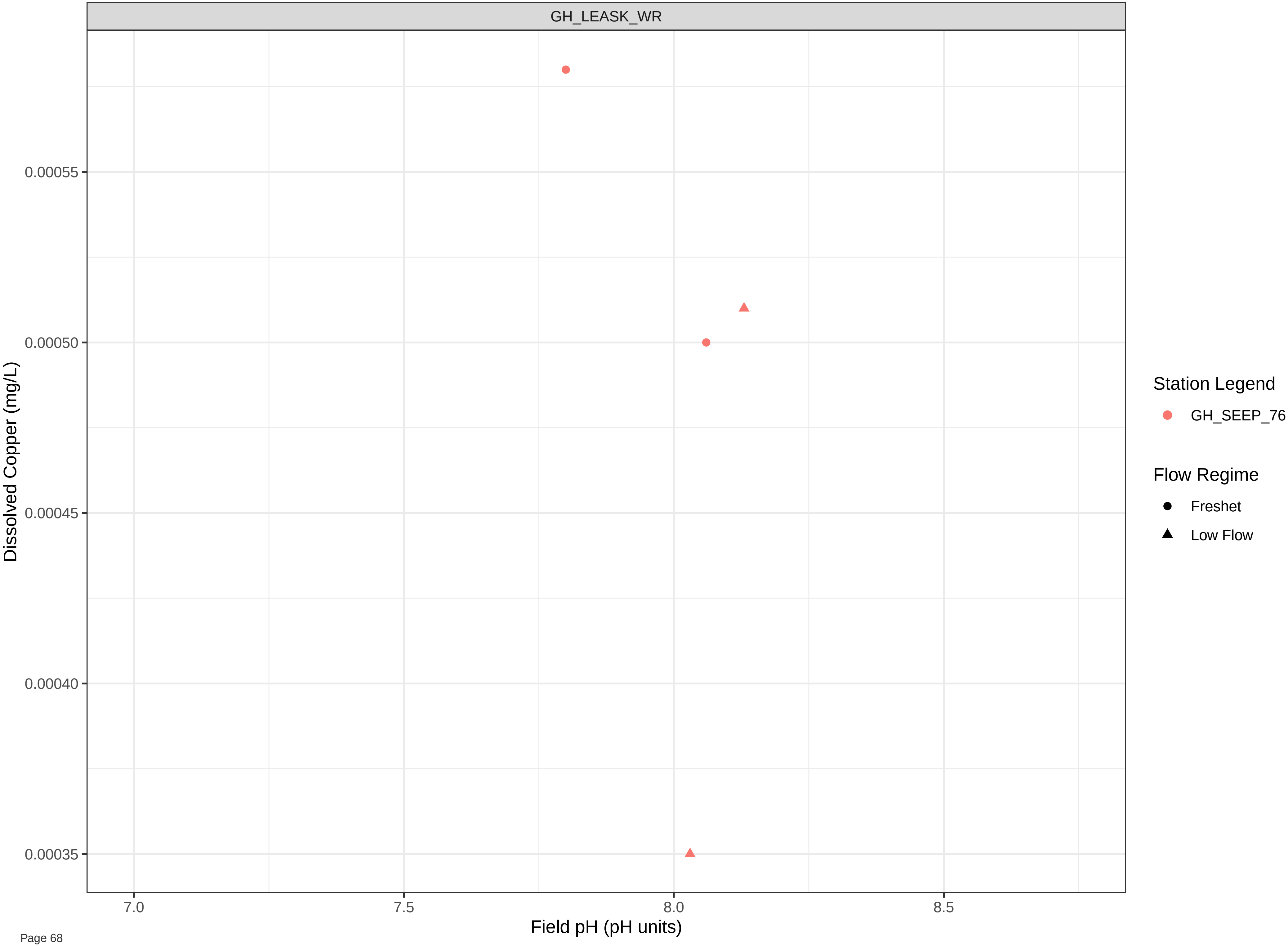

GH_PORTER_CREEK
Dissolved Cobalt (mg/L)
0.0001100
0.0001075
0.0001050
0.0001025
0.0001000
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

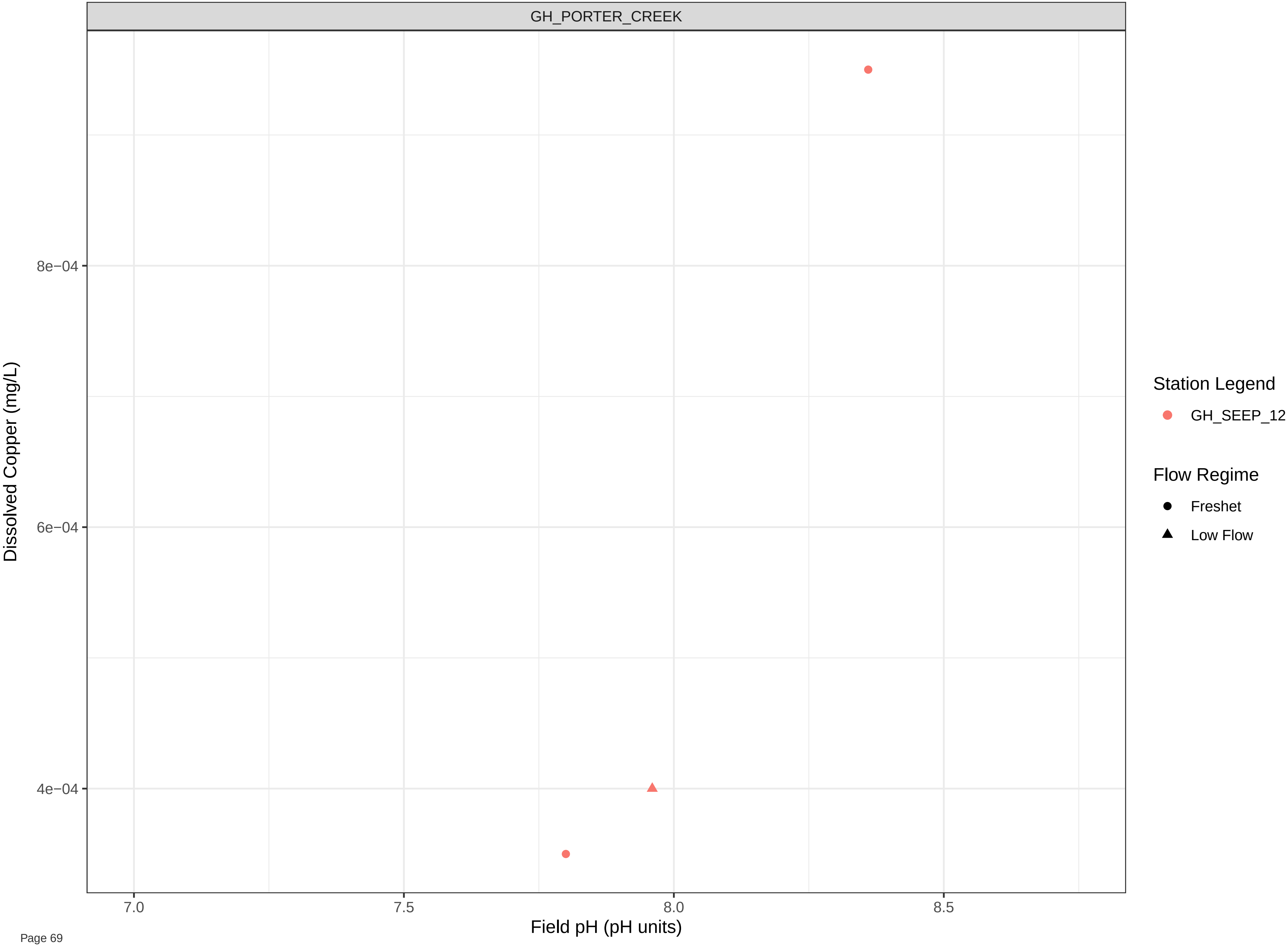

GH_THOMPSON_WR
Dissolved Cobalt (mg/L)
0.0012
0.0008
0.0004
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

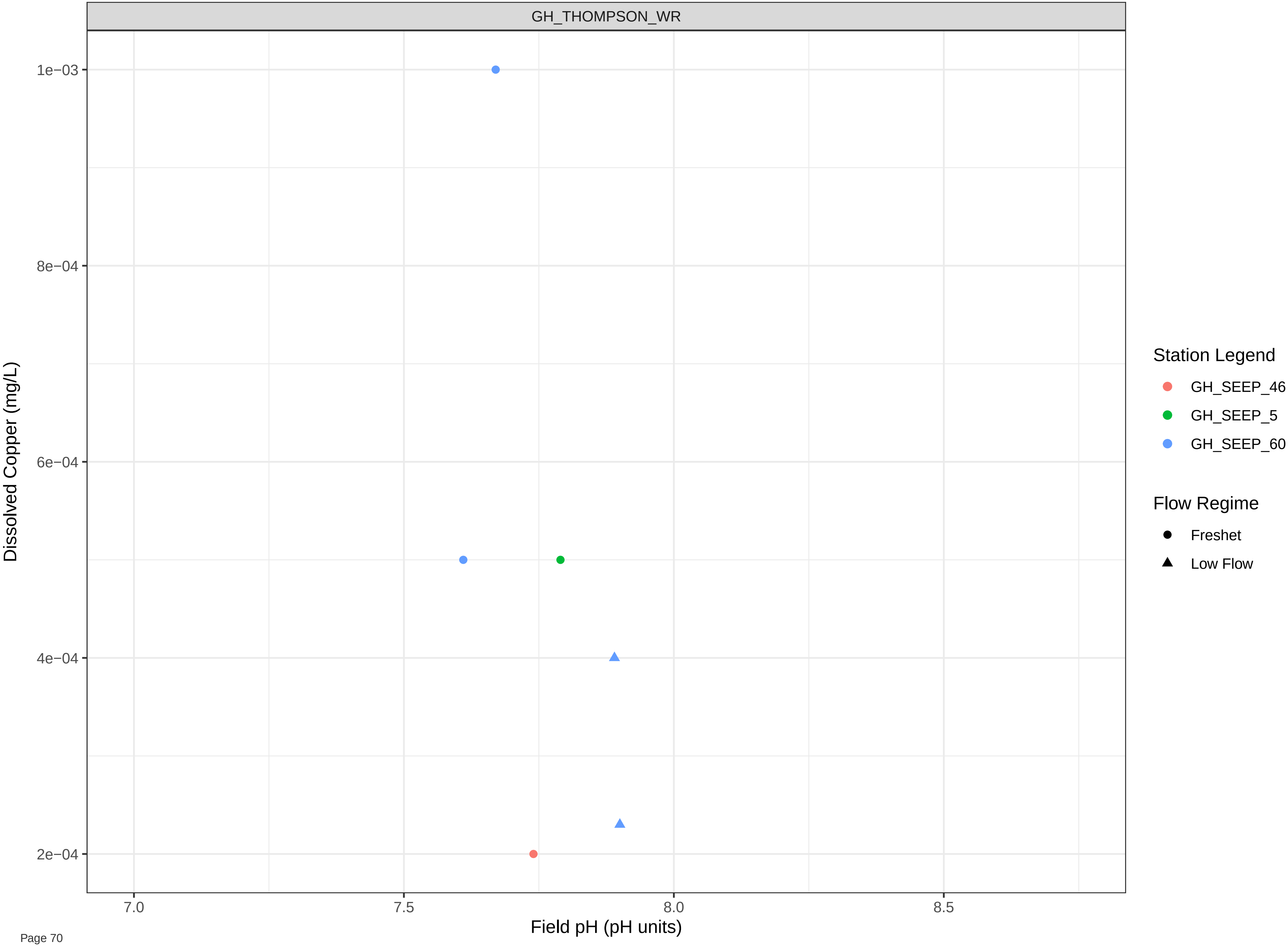

GH_UPSTREAM_CCR
Dissolved Cobalt (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

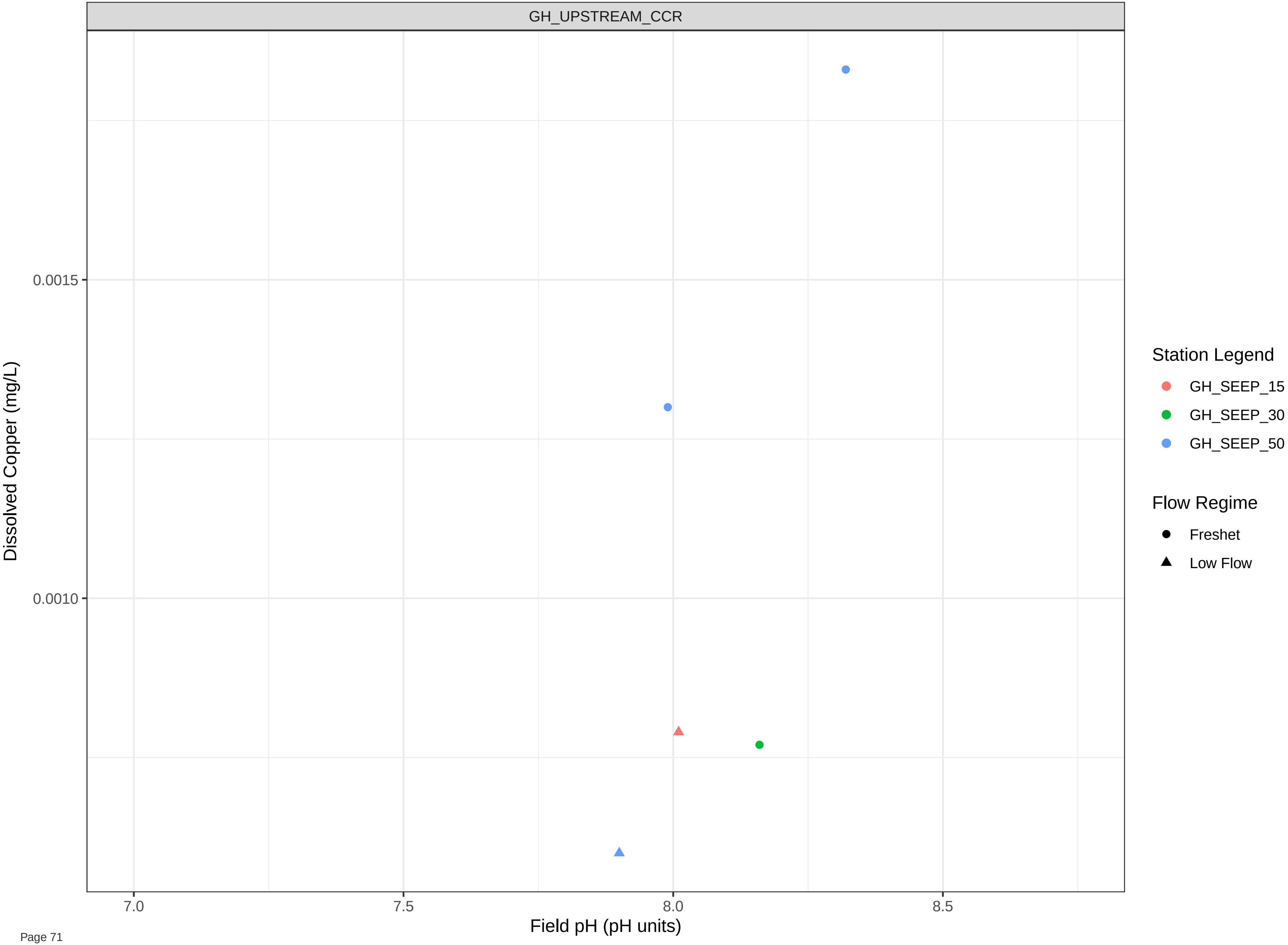

GH_WOLFRAM_WR
Dissolved Cobalt (mg/L)
0.0016
0.0012
0.0008
0.0004
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

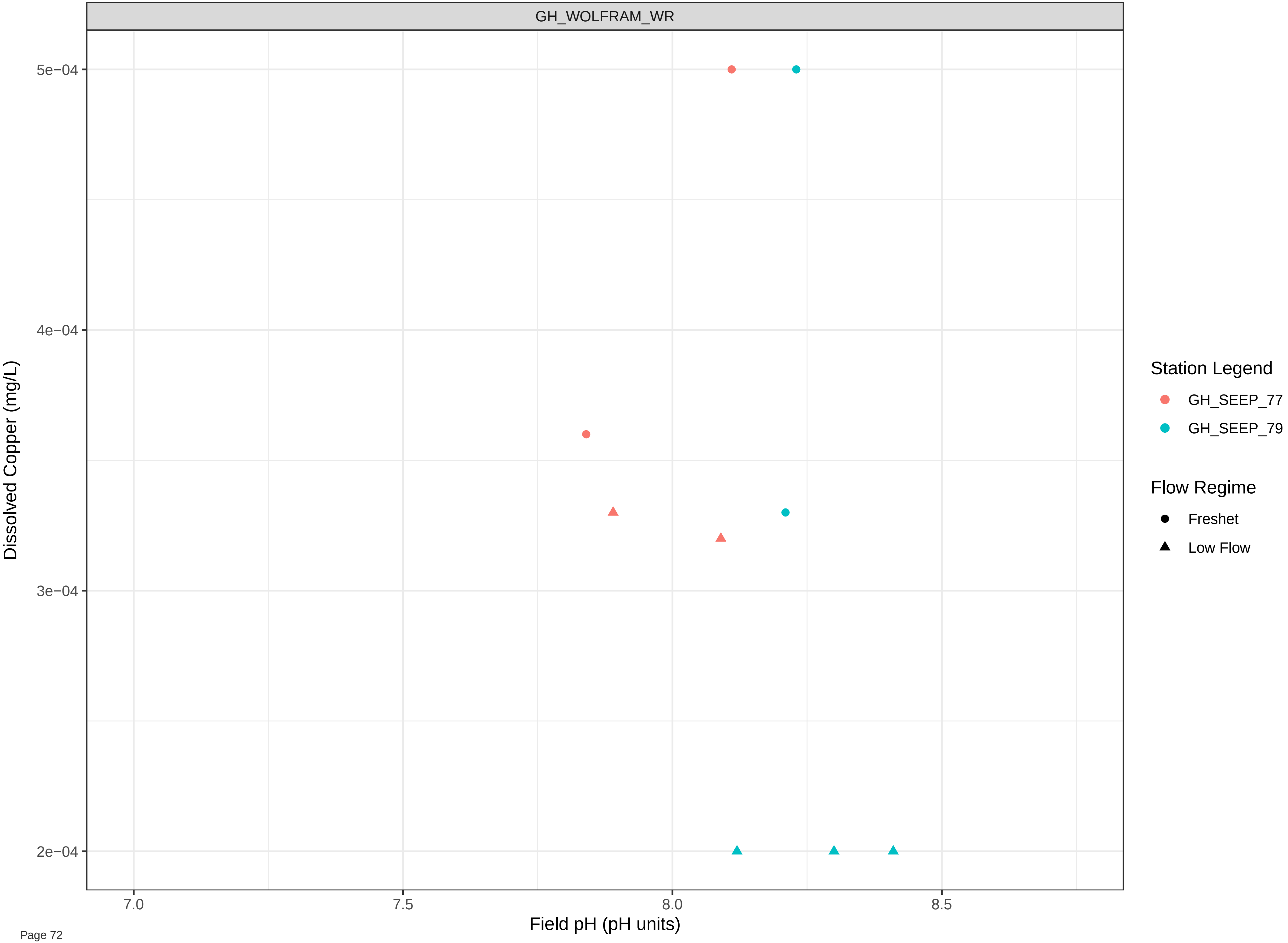

GH_CCR
Dissolved Copper (mg/L)
9e−04
6e−04
3e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

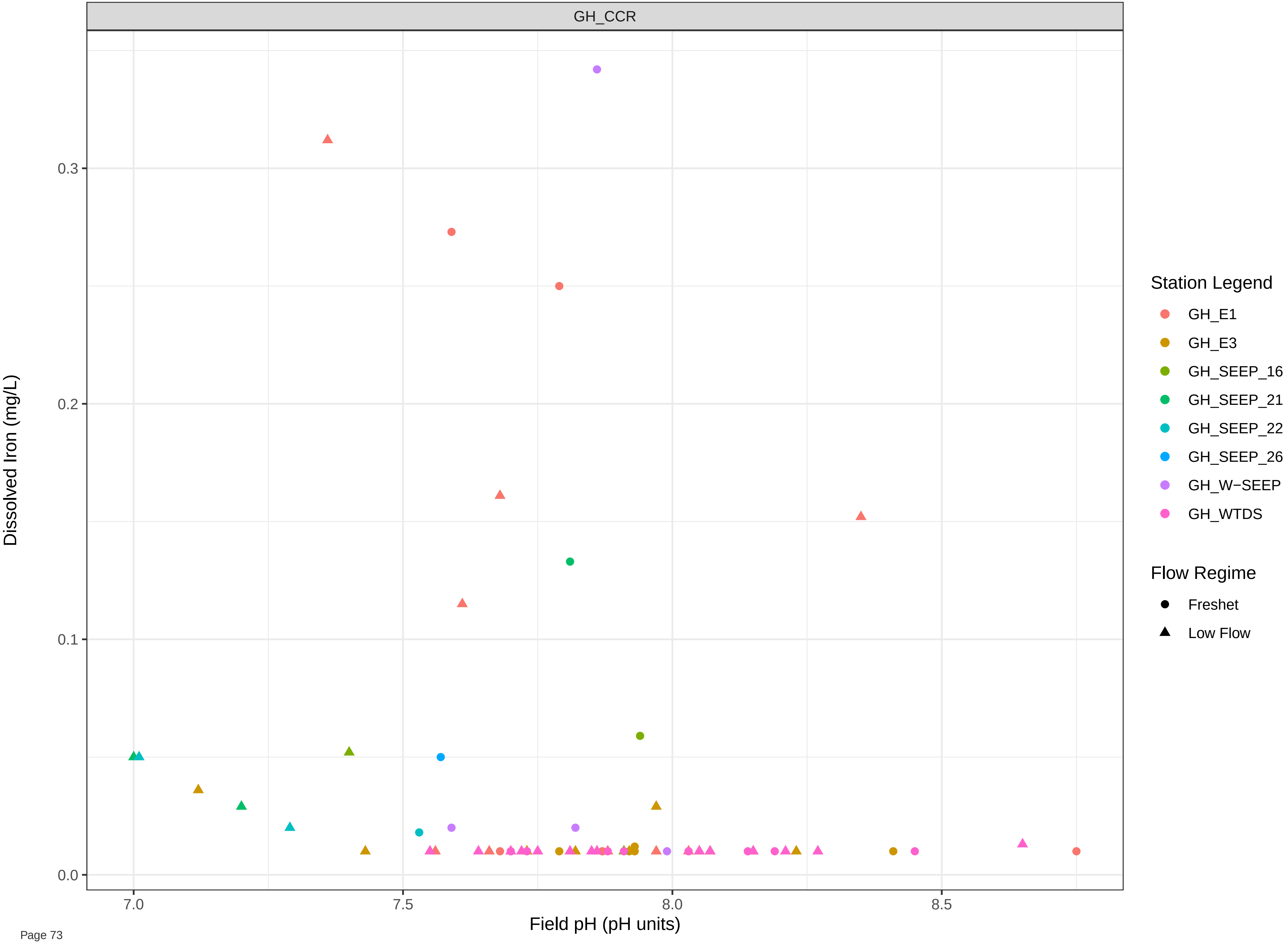

GH_LEASK_WR
Dissolved Copper (mg/L)
0.00055
0.00050
0.00045
0.00040
0.00035
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow

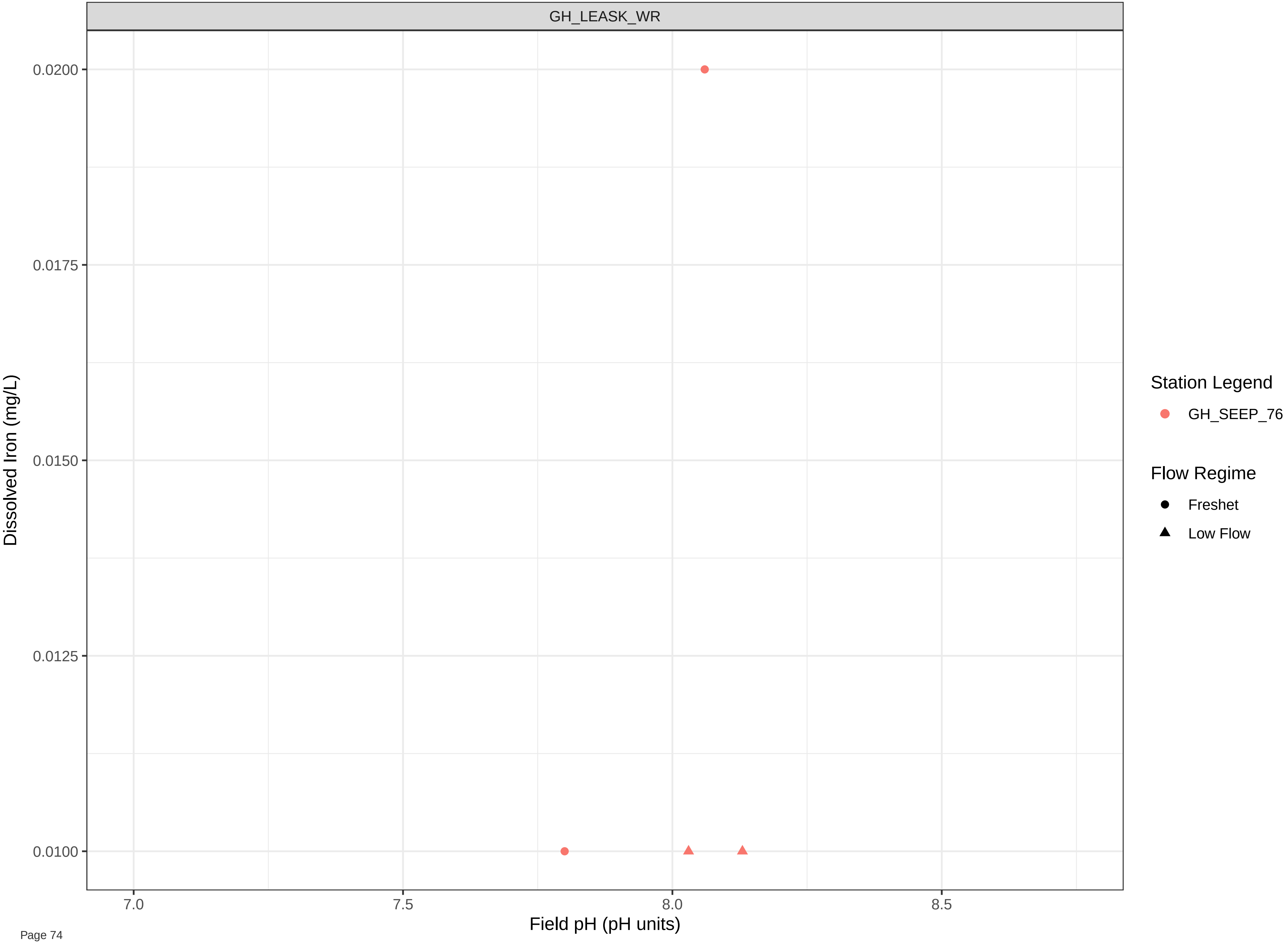

GH_PORTER_CREEK
Dissolved Copper (mg/L)
8e−04
6e−04
4e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

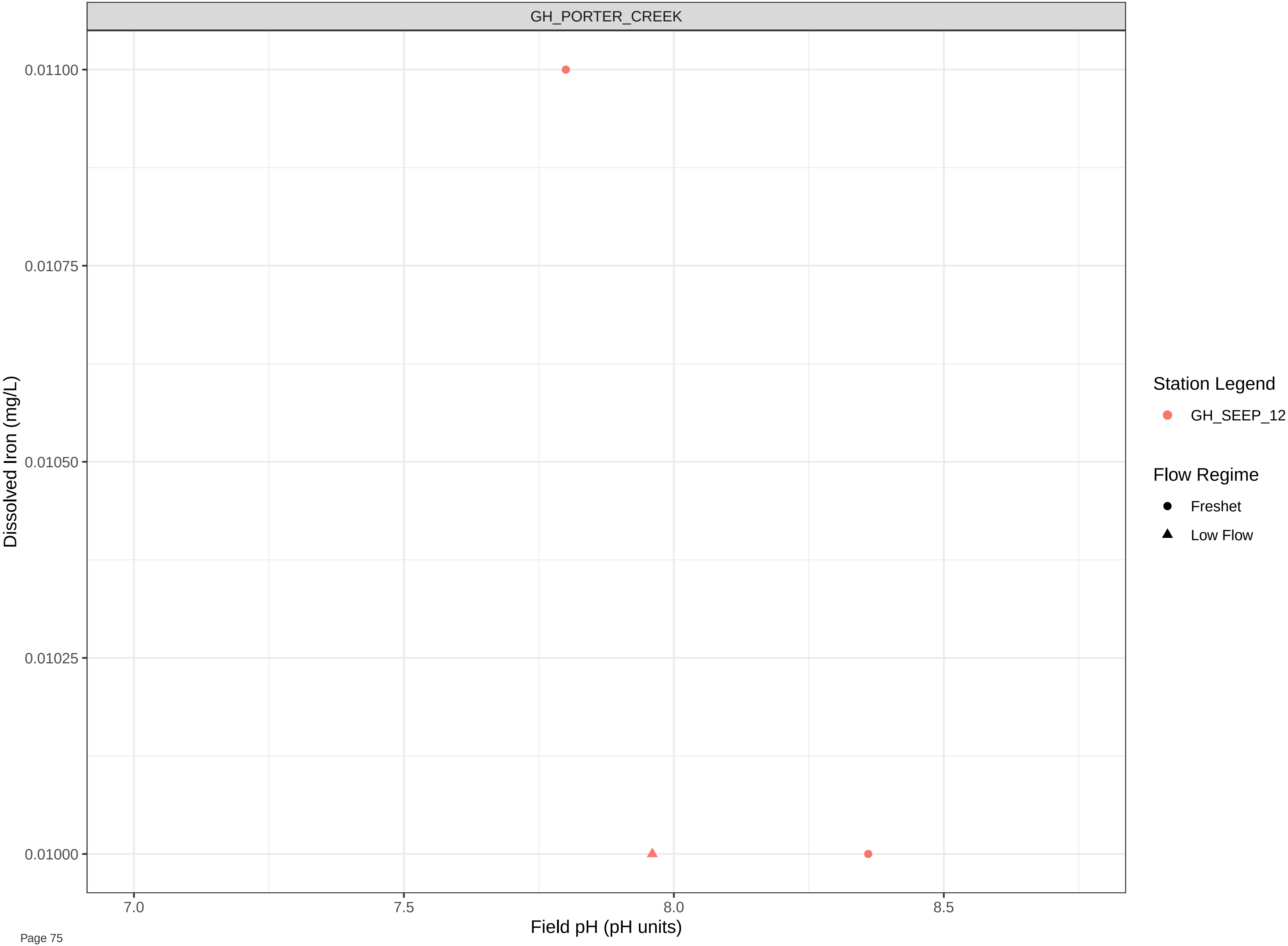

GH_THOMPSON_WR
Dissolved Copper (mg/L)
1e−03
8e−04
6e−04
4e−04
2e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

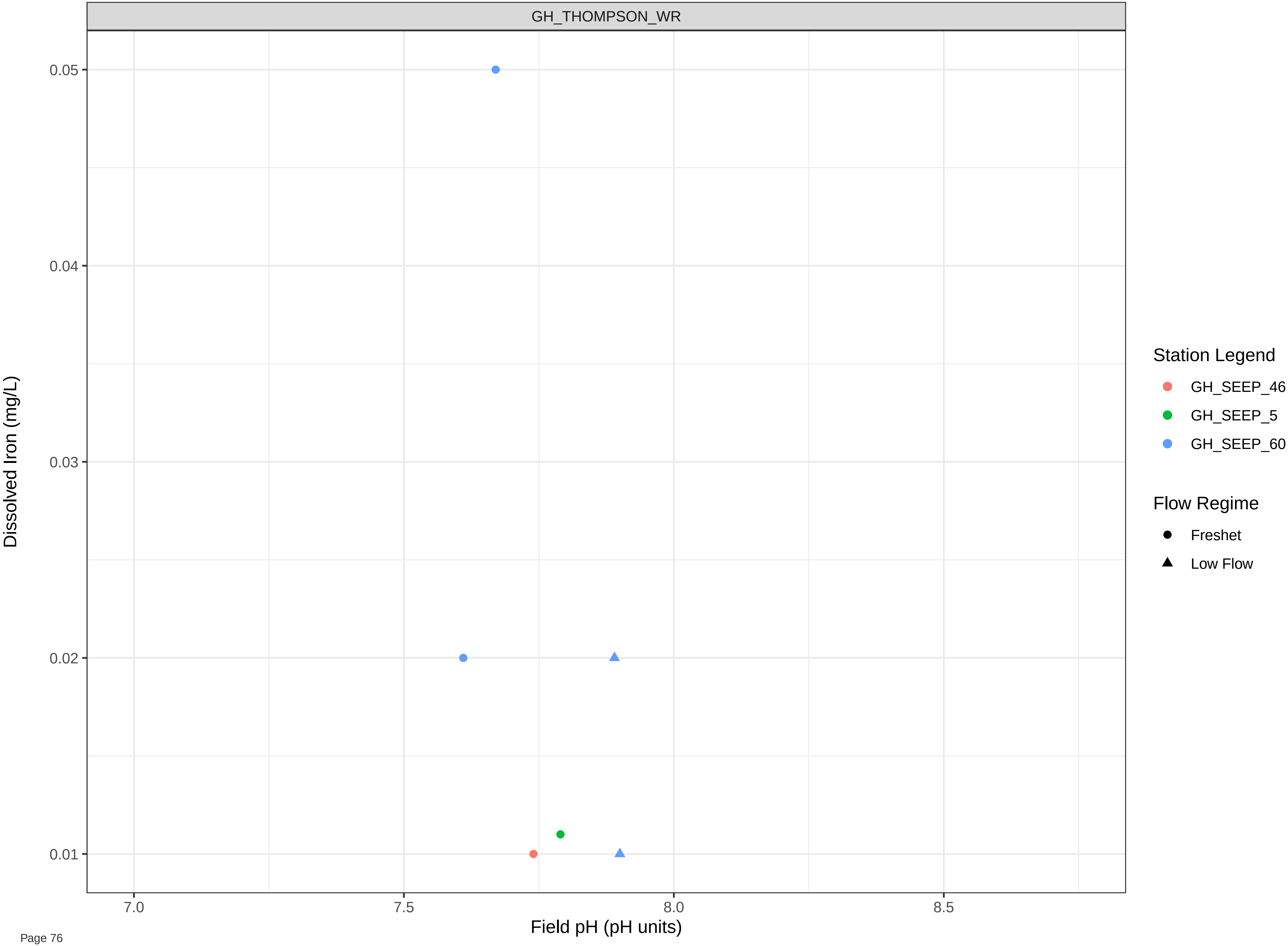

GH_UPSTREAM_CCR
Dissolved Copper (mg/L)
0.0015
0.0010
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

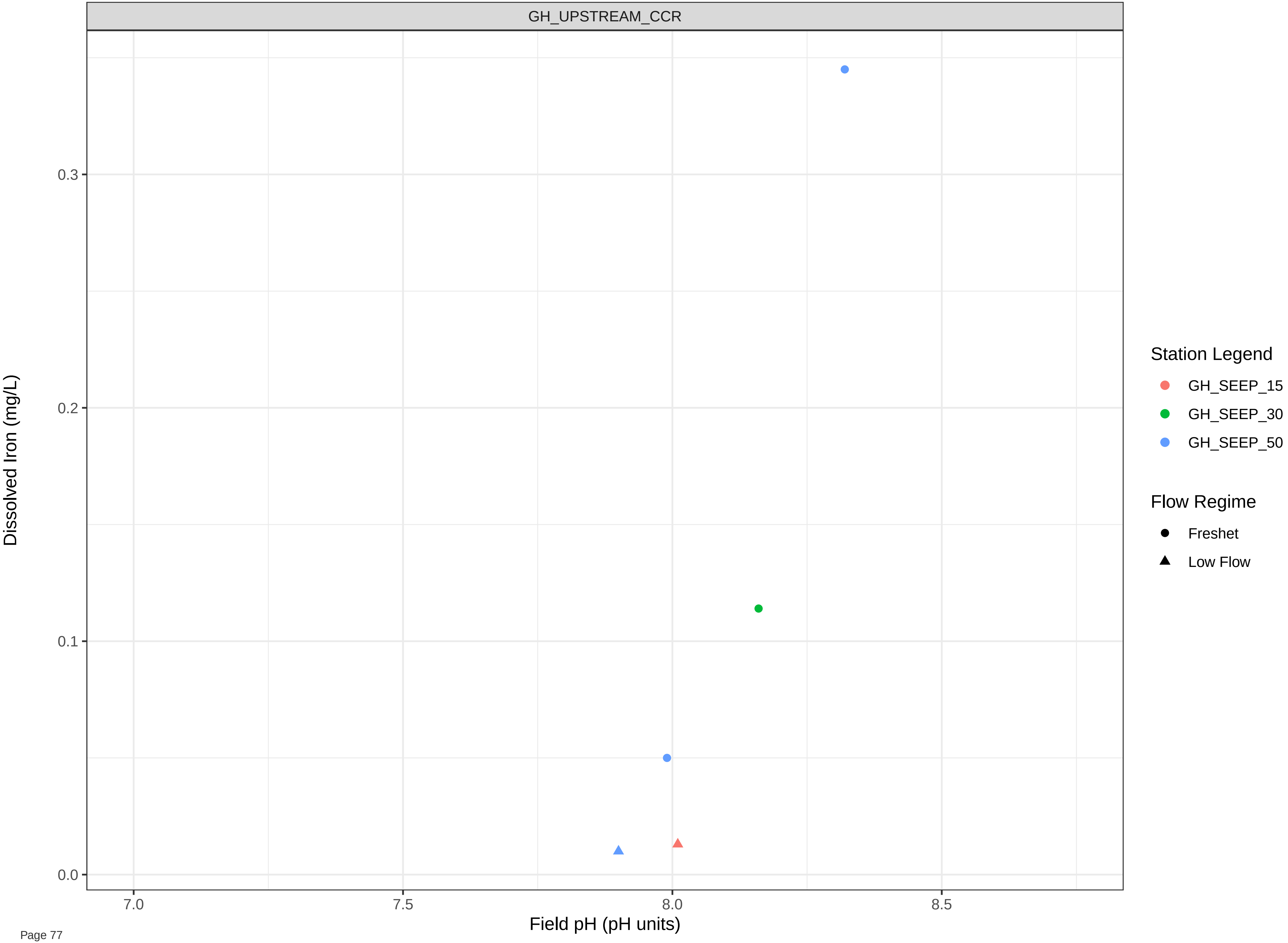

GH_WOLFRAM_WR
Dissolved Copper (mg/L)
5e−04
4e−04
3e−04
2e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

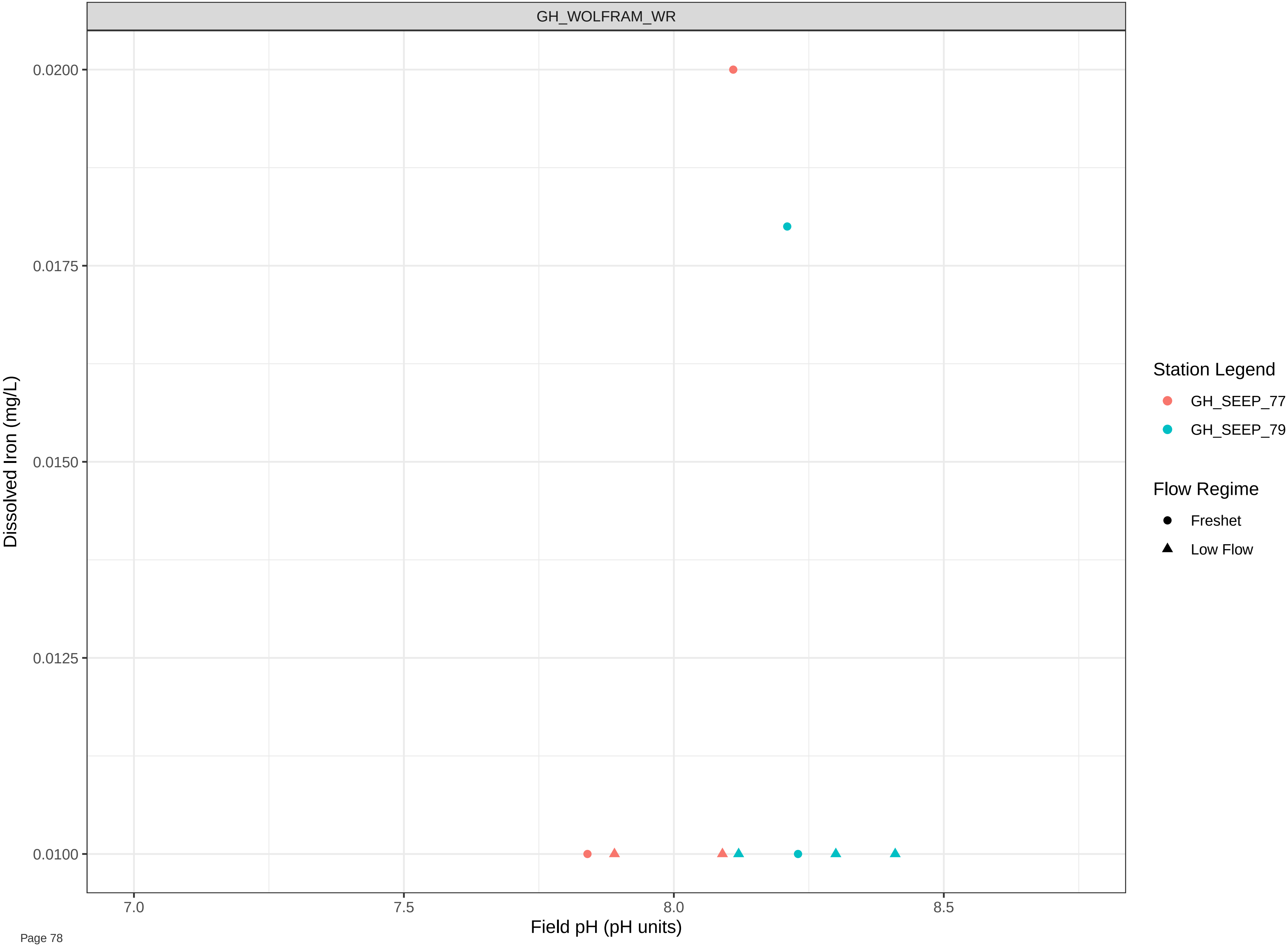

GH_CCR
Dissolved Iron (mg/L)
0.0
0.1
0.2
0.3
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

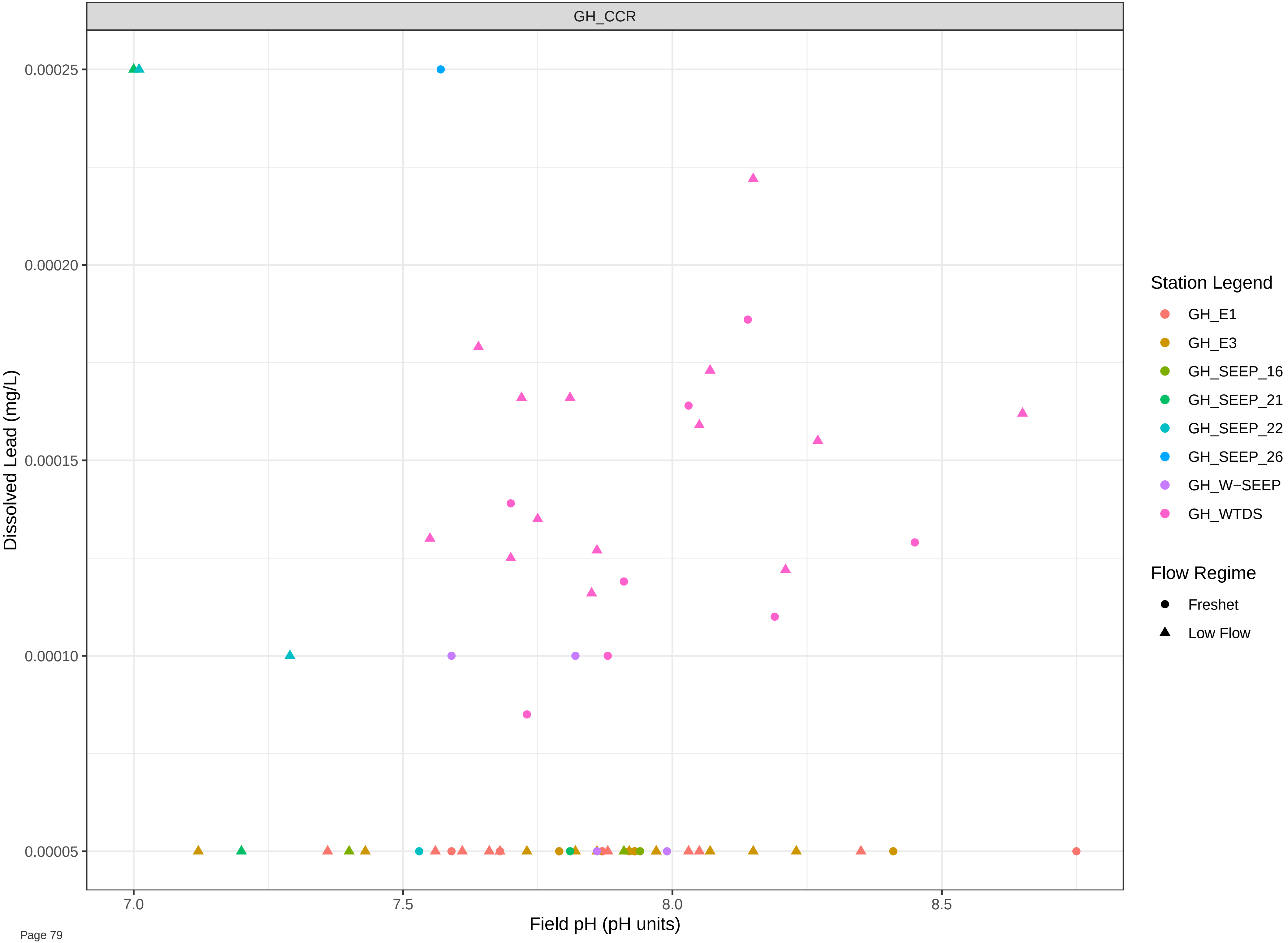

GH_LEASK_WR
Dissolved Iron (mg/L)
0.0200
0.0175
0.0150
0.0125
0.0100
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

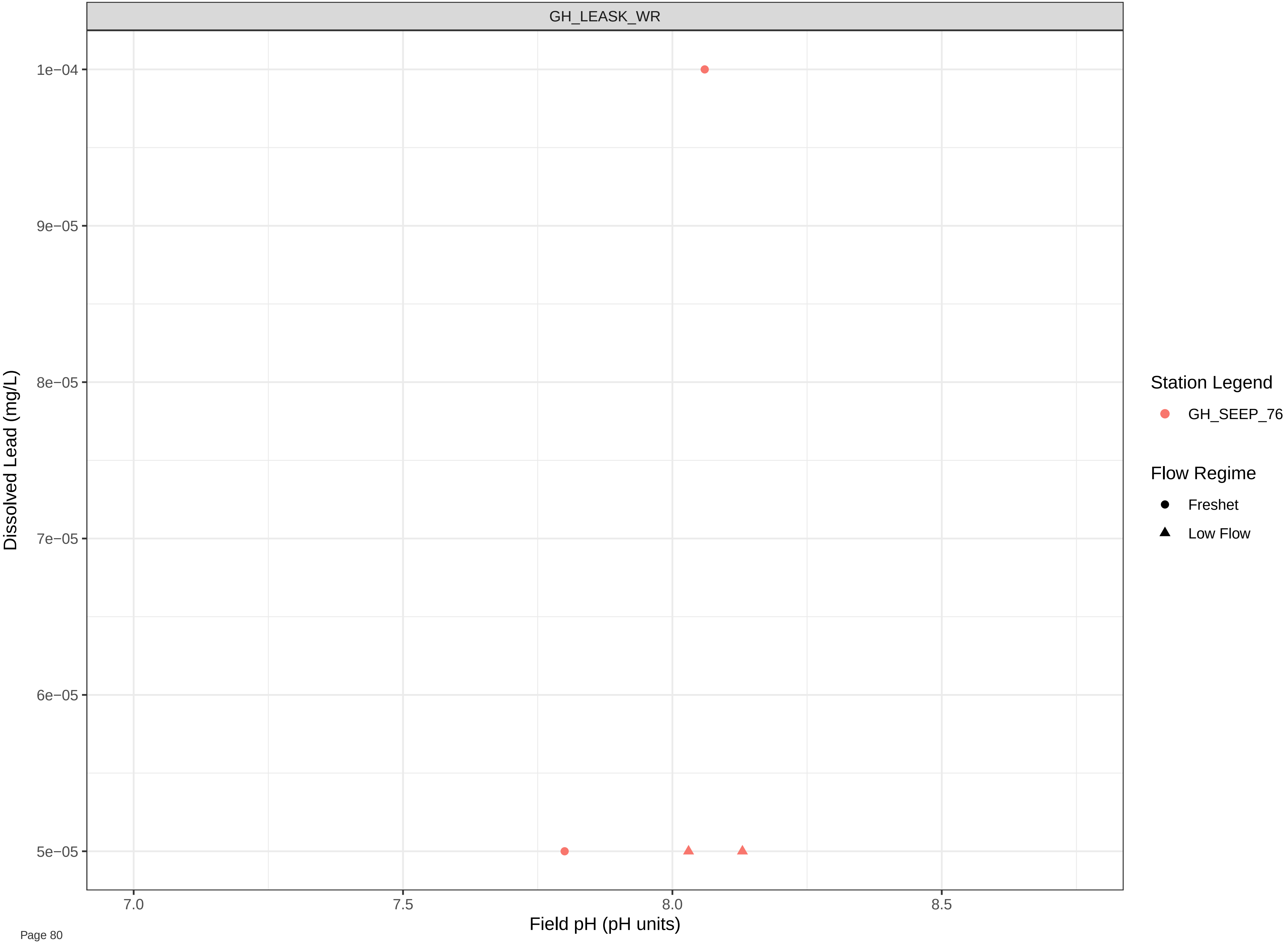

GH_PORTER_CREEK
0.01100
0.01075
0.01050
0.01025
0.01000
Dissolved Iron (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

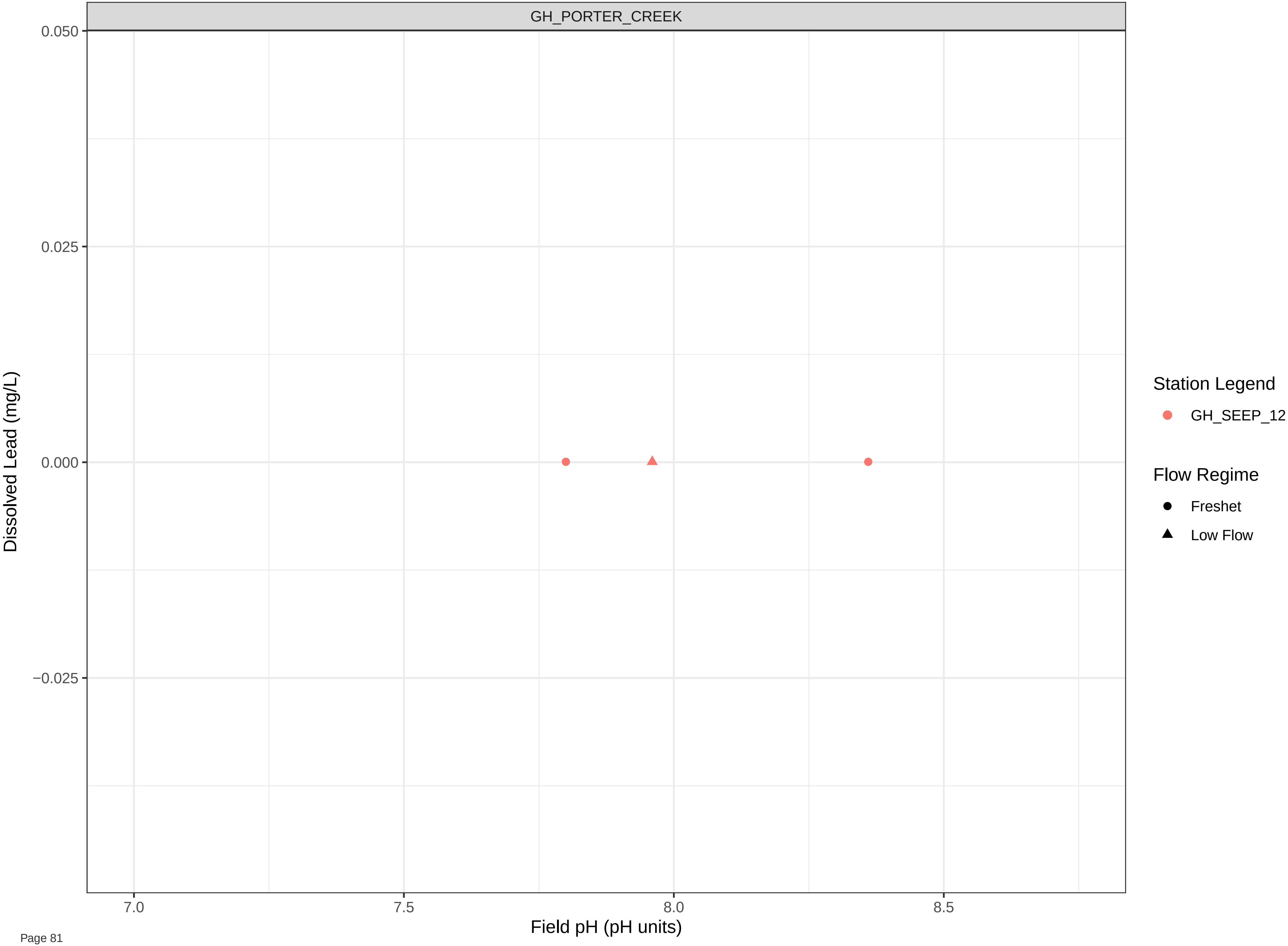

GH_THOMPSON_WR
Dissolved Iron (mg/L)
0.05
0.04
0.03
0.02
0.01
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

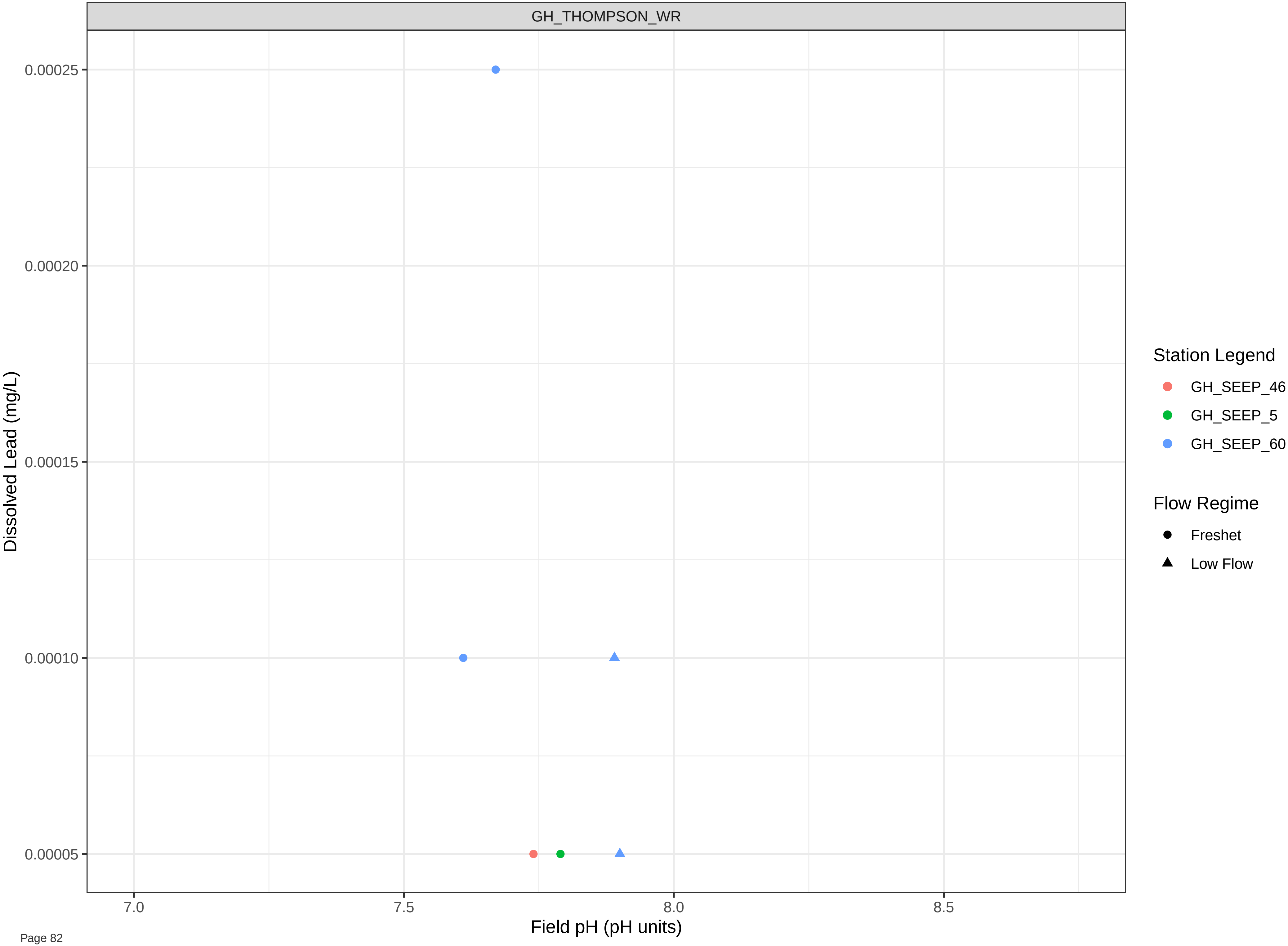

GH_UPSTREAM_CCR
Dissolved Iron (mg/L)
0.0
0.1
0.2
0.3
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

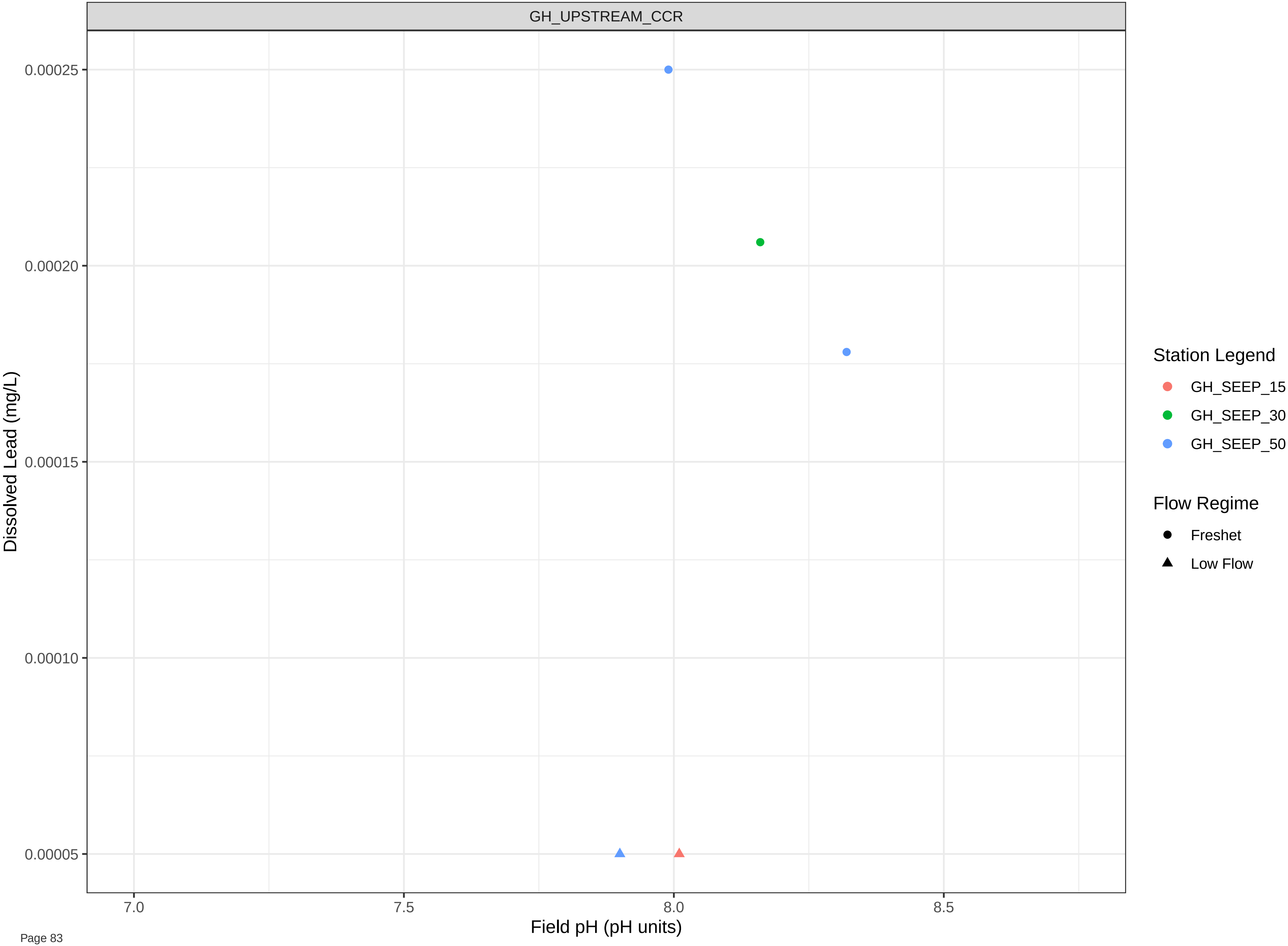

GH_WOLFRAM_WR
Dissolved Iron (mg/L)
0.0200
0.0175
0.0150
0.0125
0.0100
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

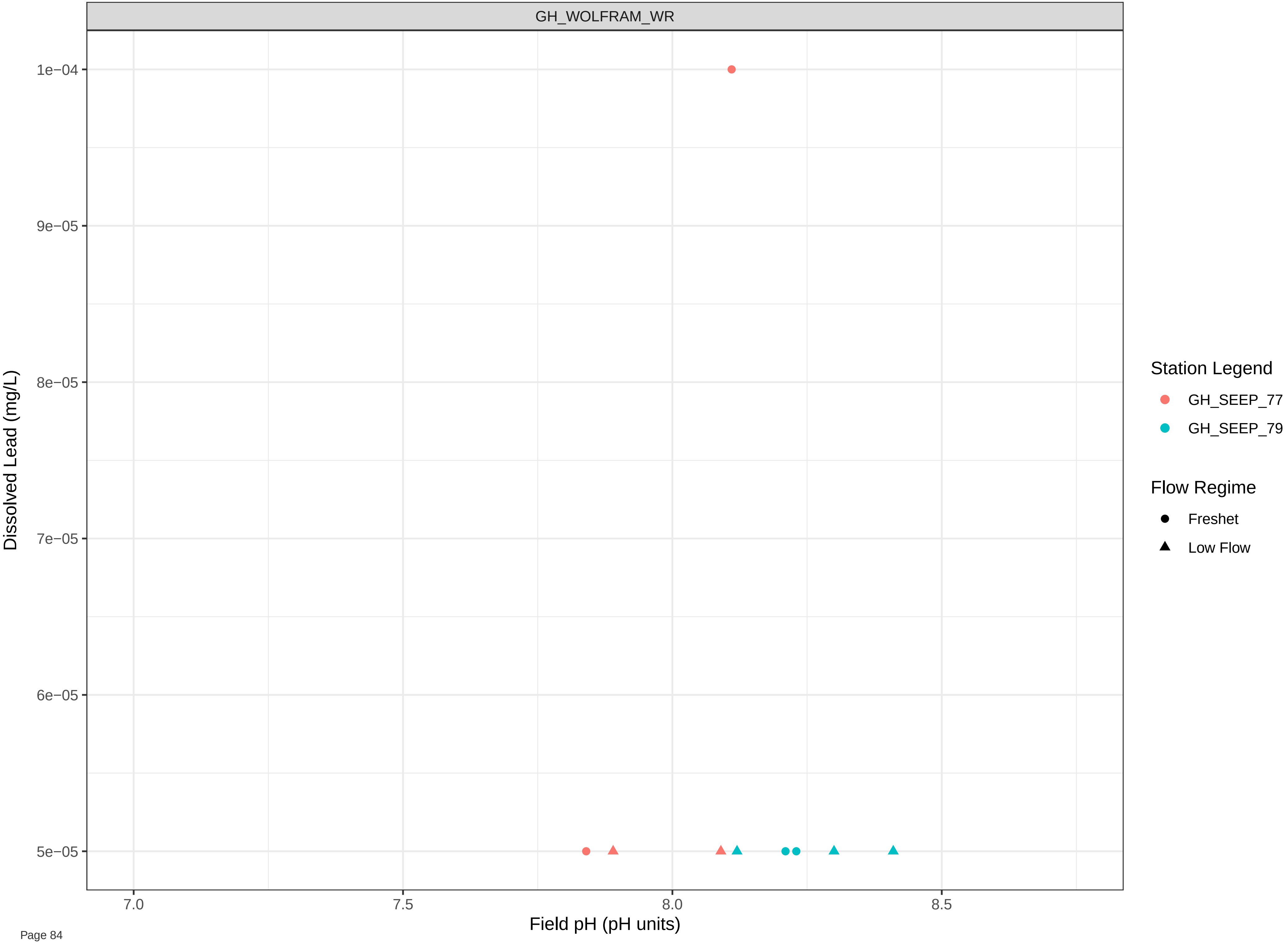

GH_CCR
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

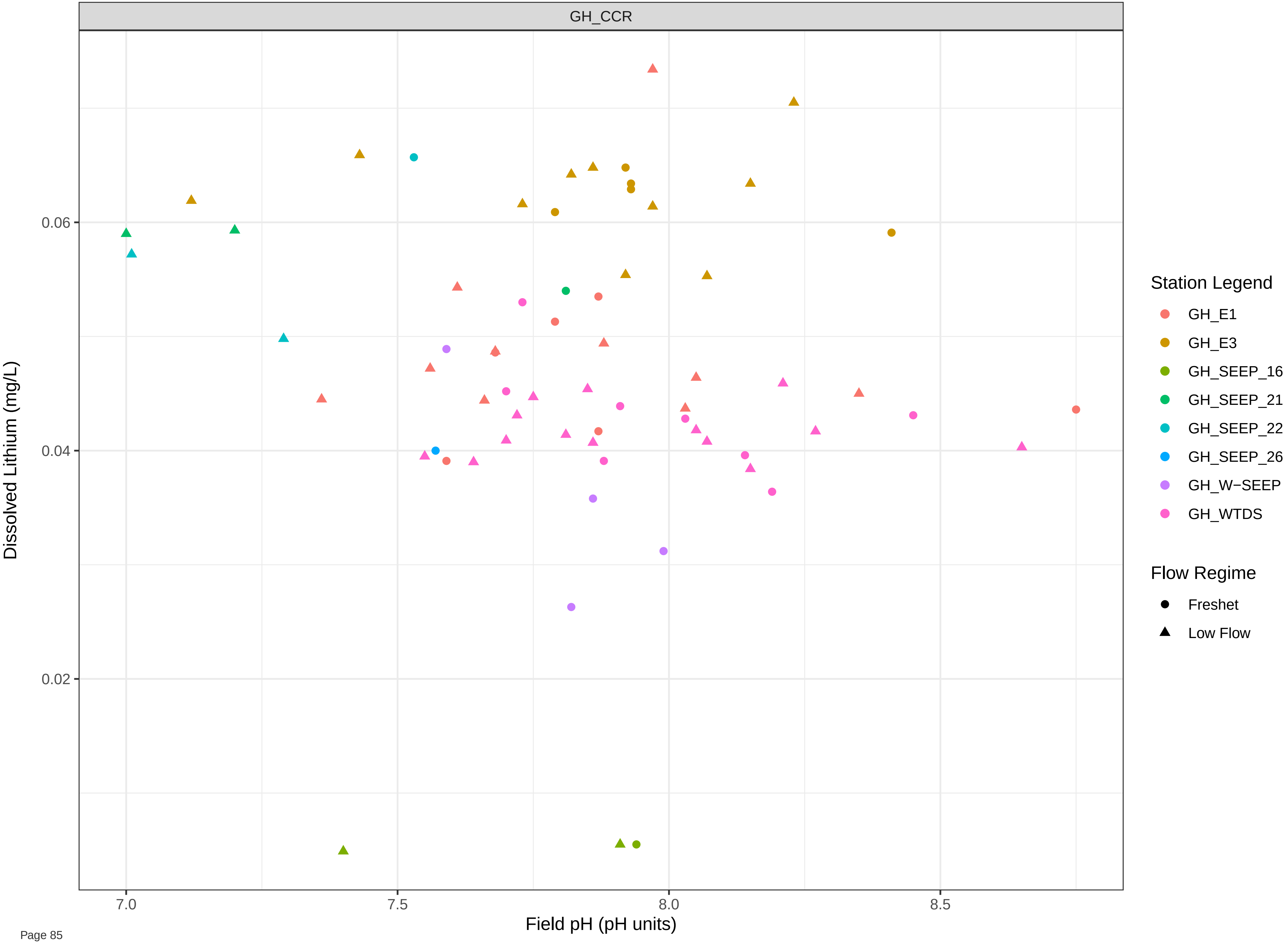

GH_LEASK_WR
Dissolved Lead (mg/L)
1e−04
9e−05
8e−05
7e−05
6e−05
5e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

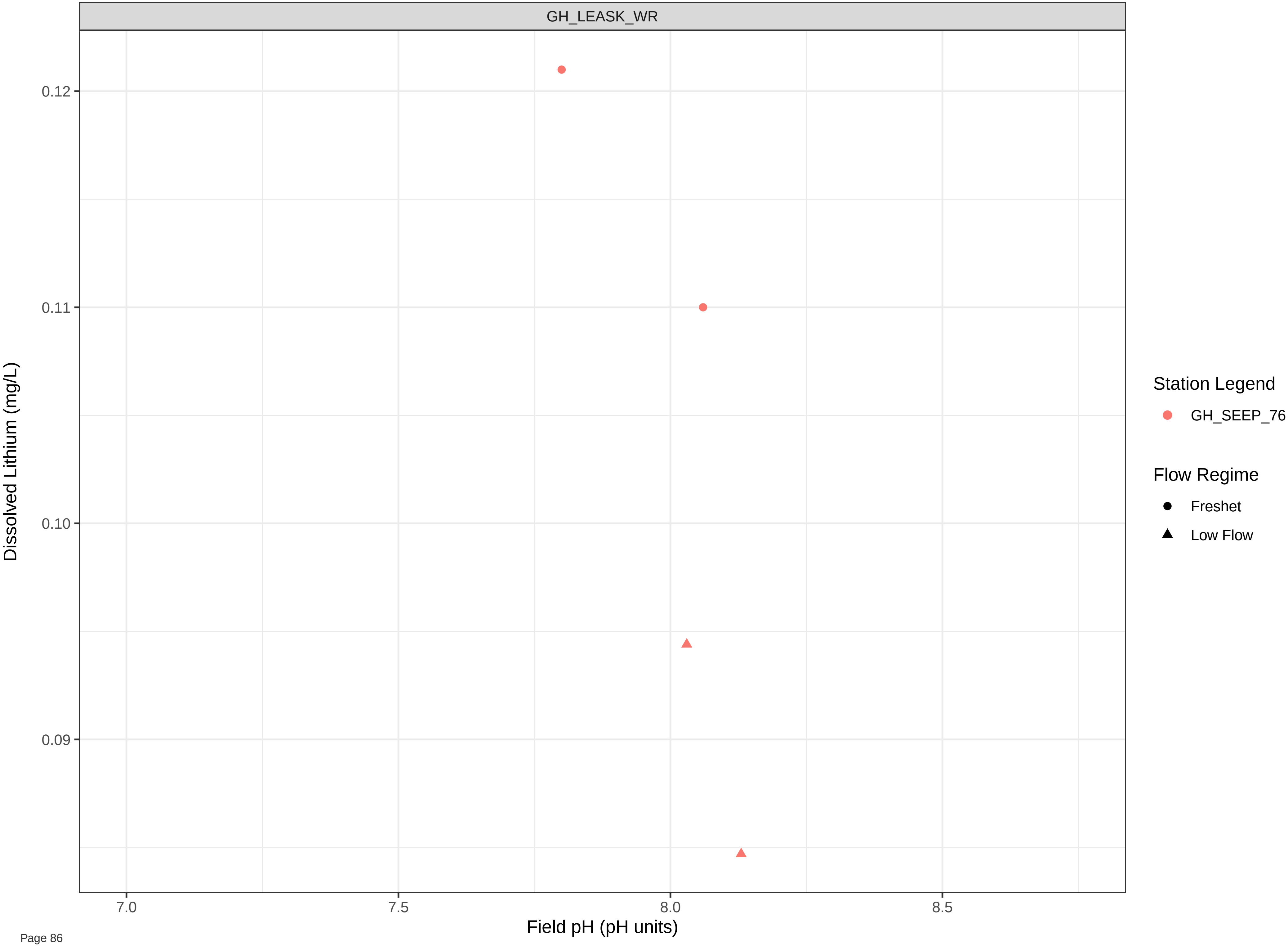

GH_PORTER_CREEK
Dissolved Lead (mg/L)
0.050
0.025
0.000
−0.025
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

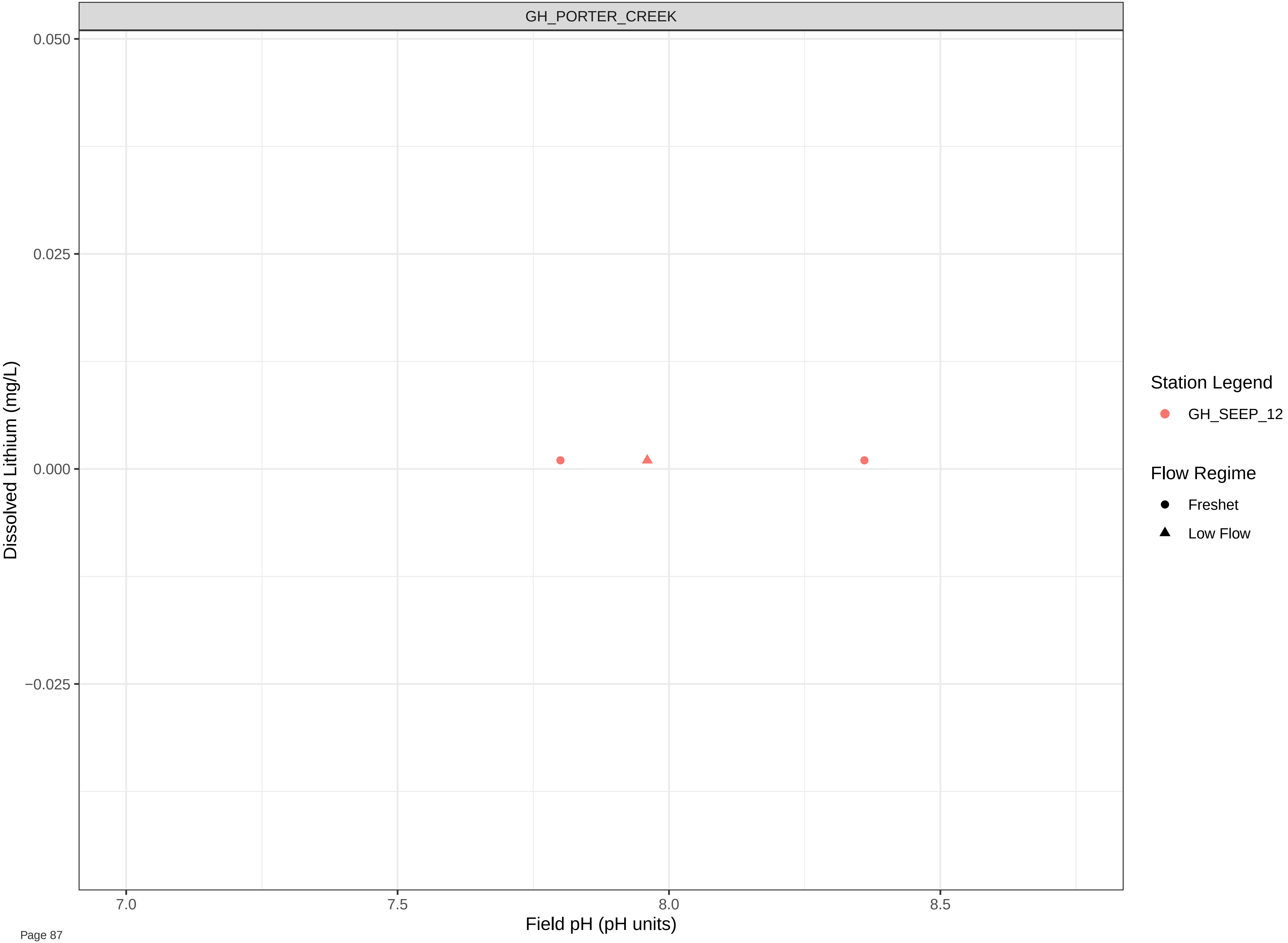

GH_THOMPSON_WR
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

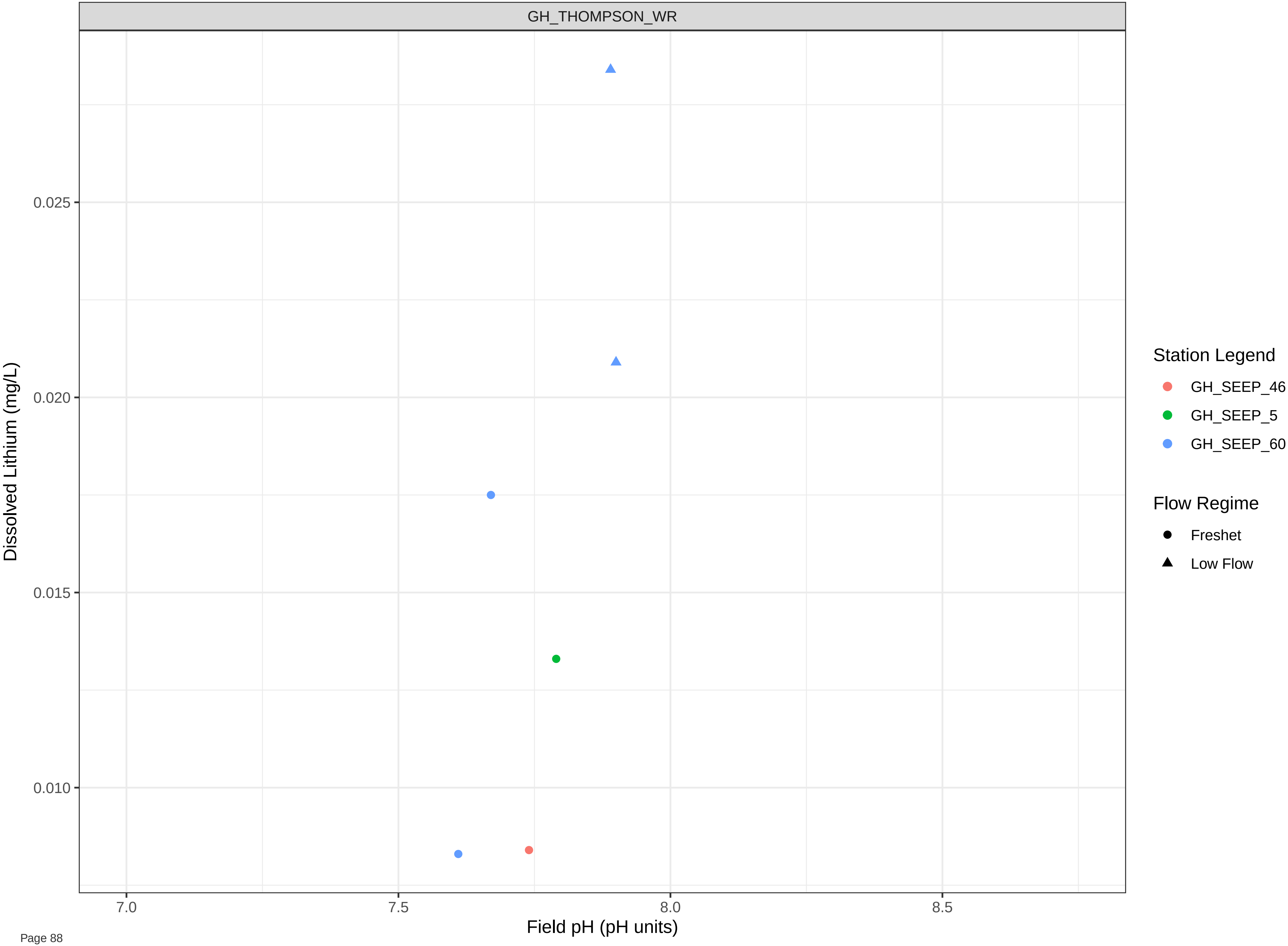

GH_UPSTREAM_CCR
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

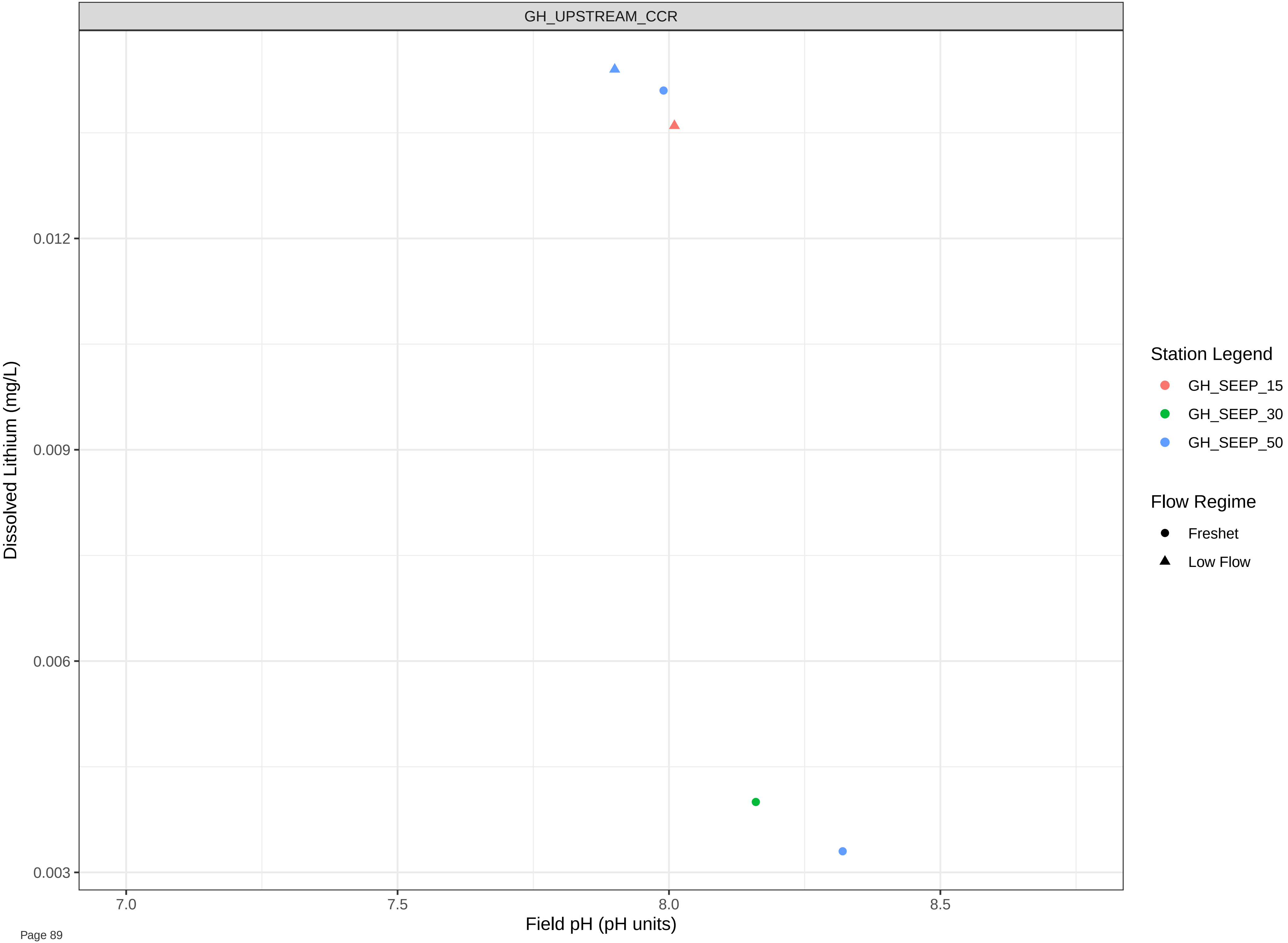

GH_WOLFRAM_WR
1e−04
9e−05
8e−05
7e−05
6e−05
5e−05
Dissolved Lead (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

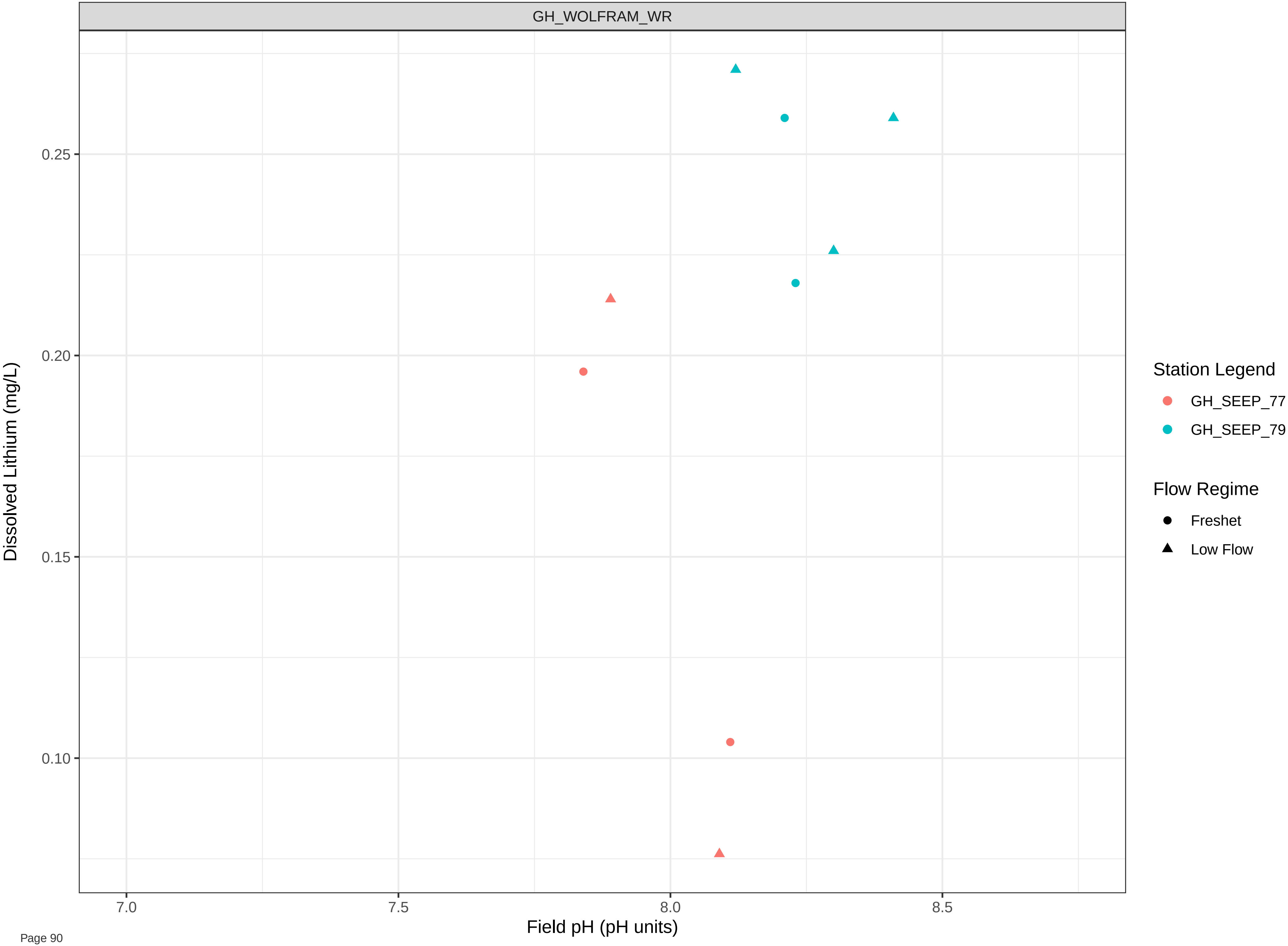

GH_CCR
Dissolved Lithium (mg/L)
0.06
0.04
0.02
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

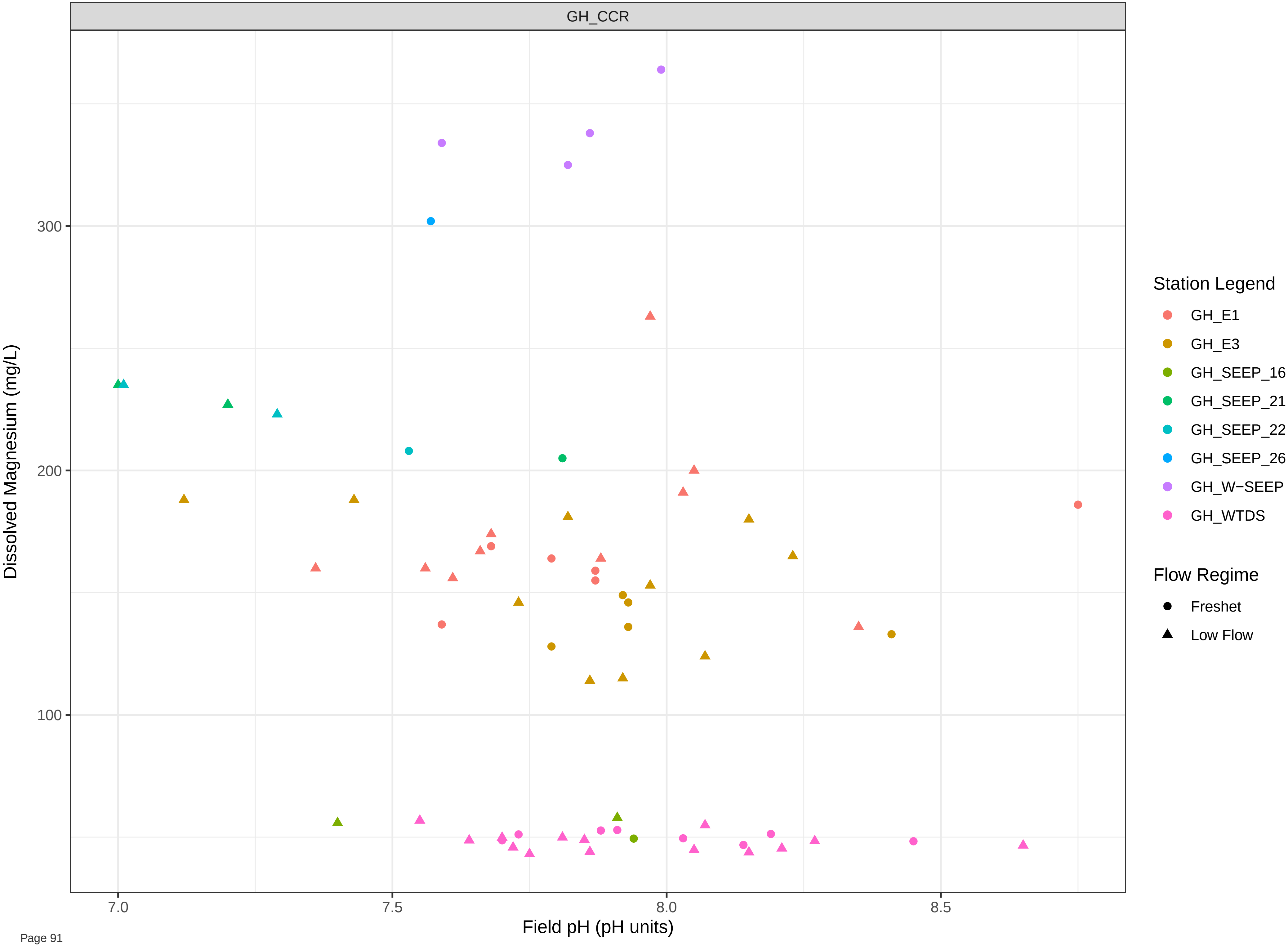

GH_LEASK_WR
Dissolved Lithium (mg/L)
0.12
0.11
0.10
0.09
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

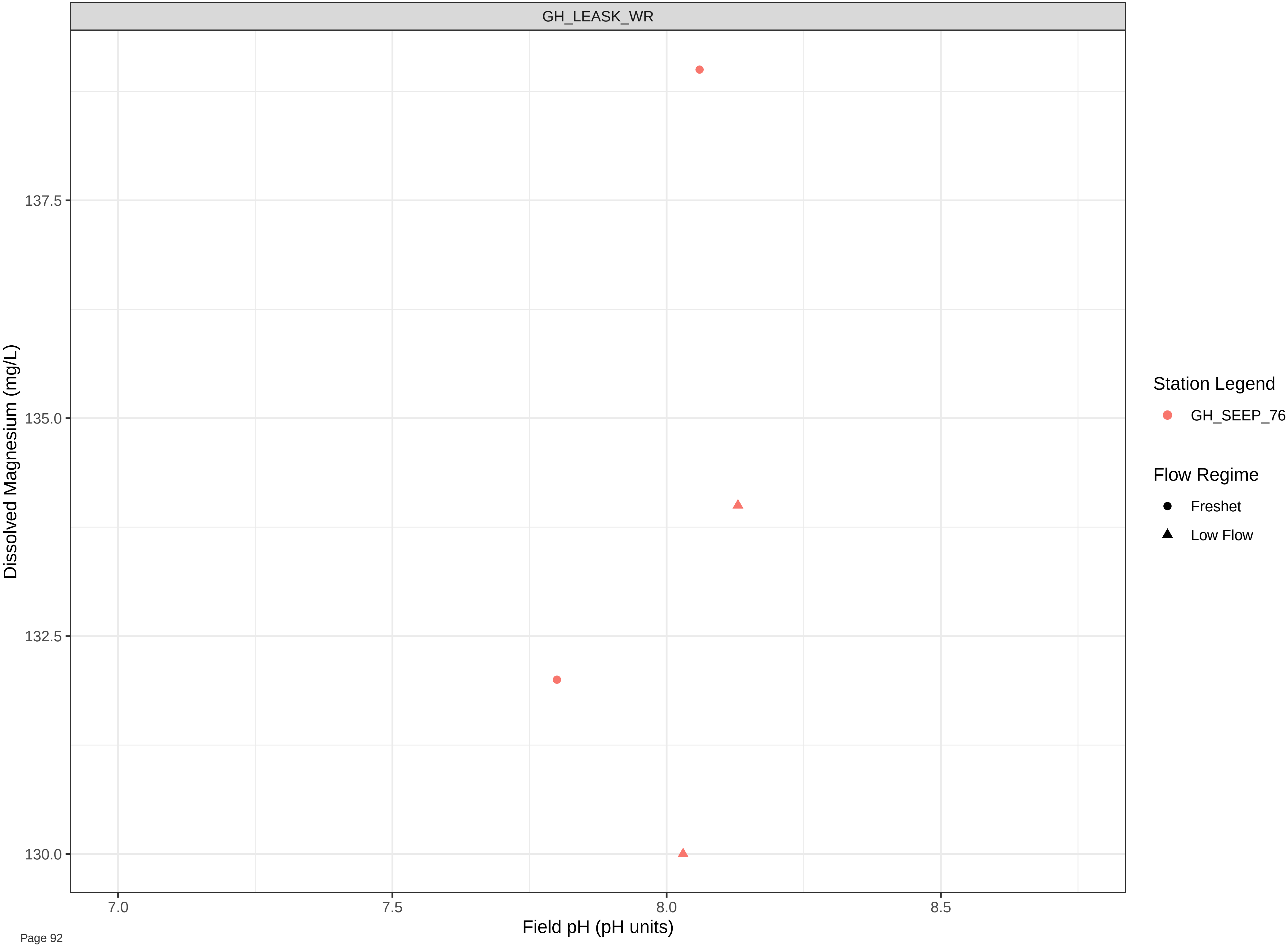

GH_PORTER_CREEK
0.050
0.025
0.000
−0.025
Dissolved Lithium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

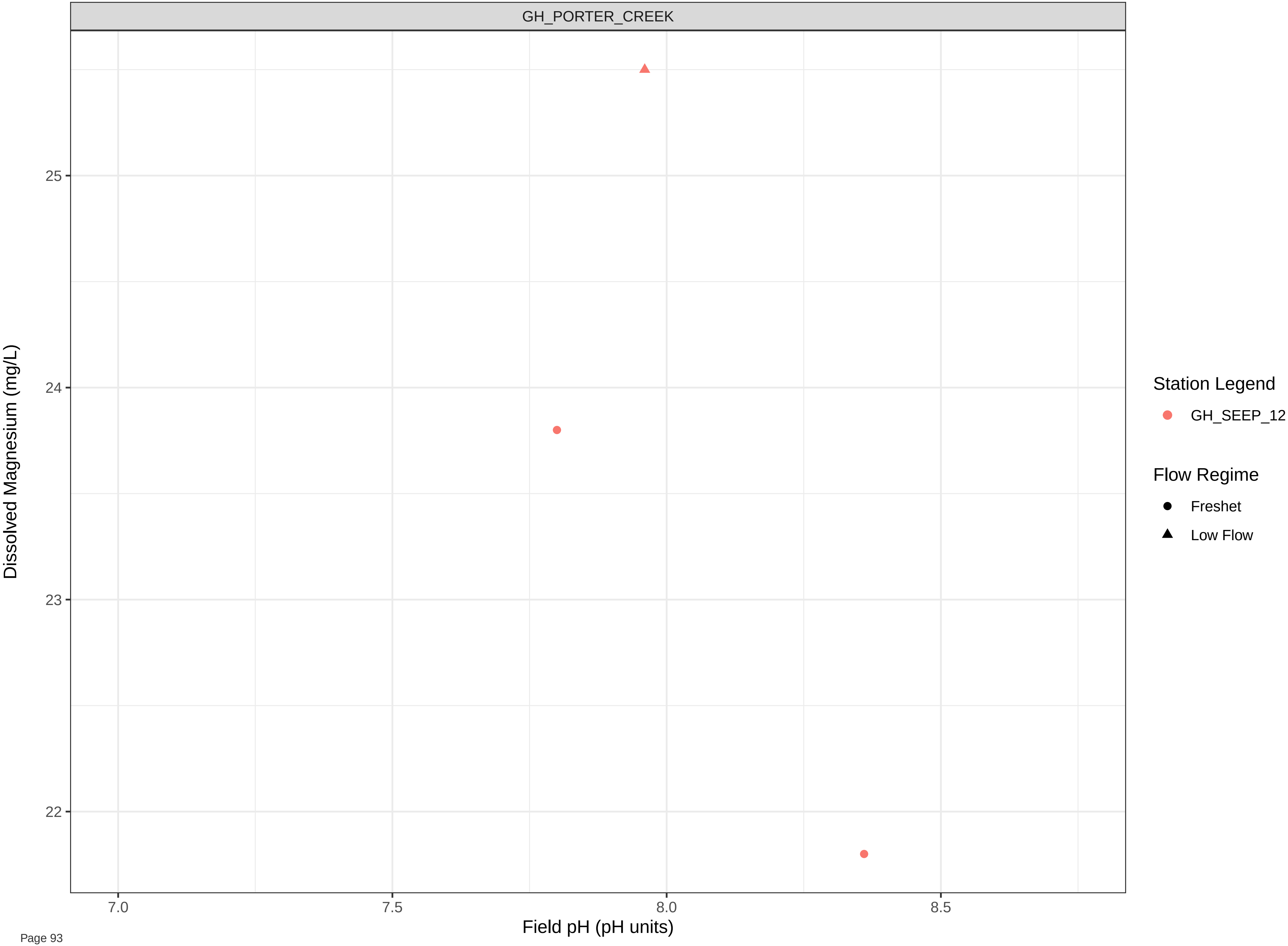

GH_THOMPSON_WR
Dissolved Lithium (mg/L)
0.025
0.020
0.015
0.010
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

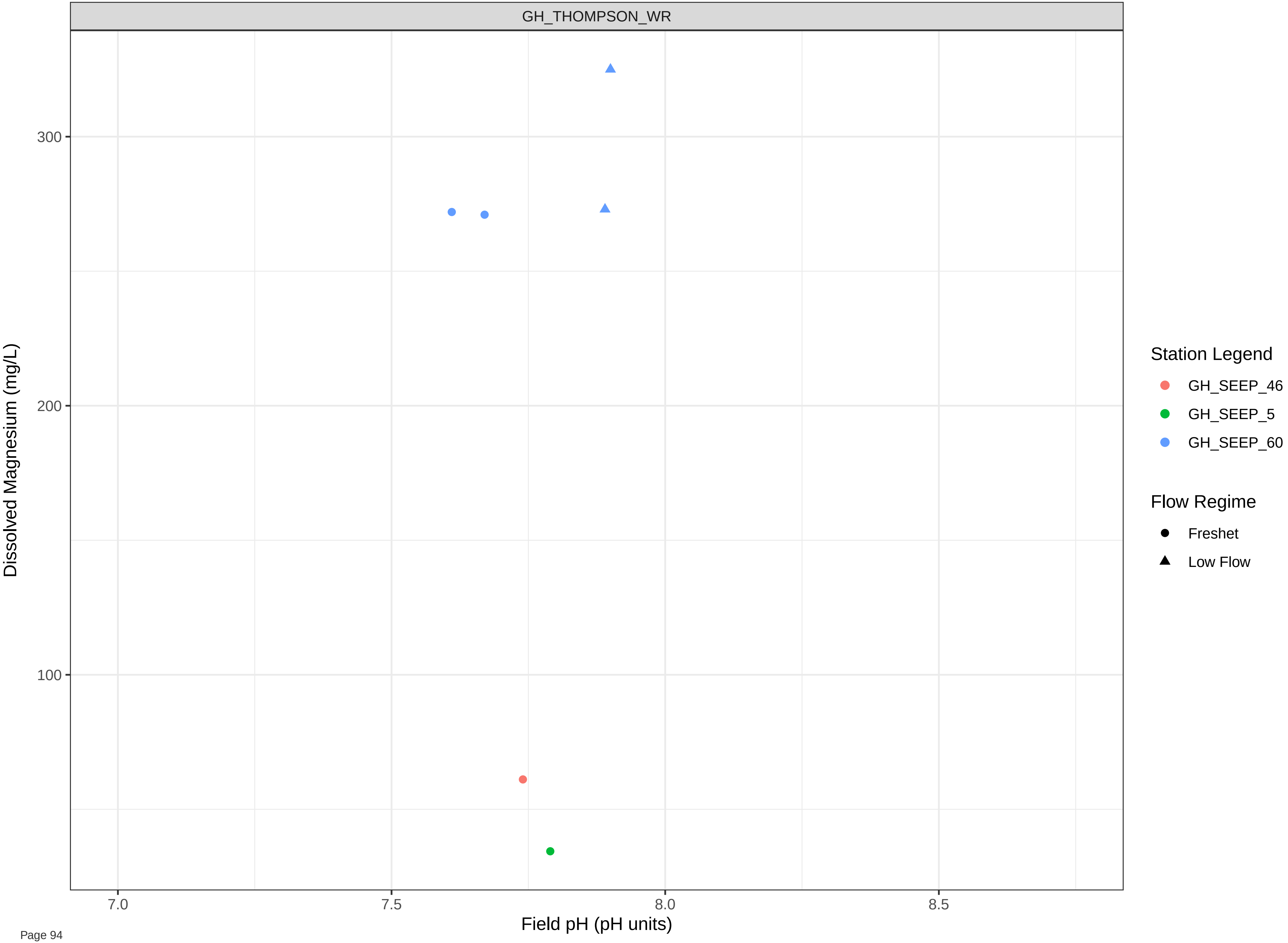

GH_UPSTREAM_CCR
Dissolved Lithium (mg/L)
0.012
0.009
0.006
0.003
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

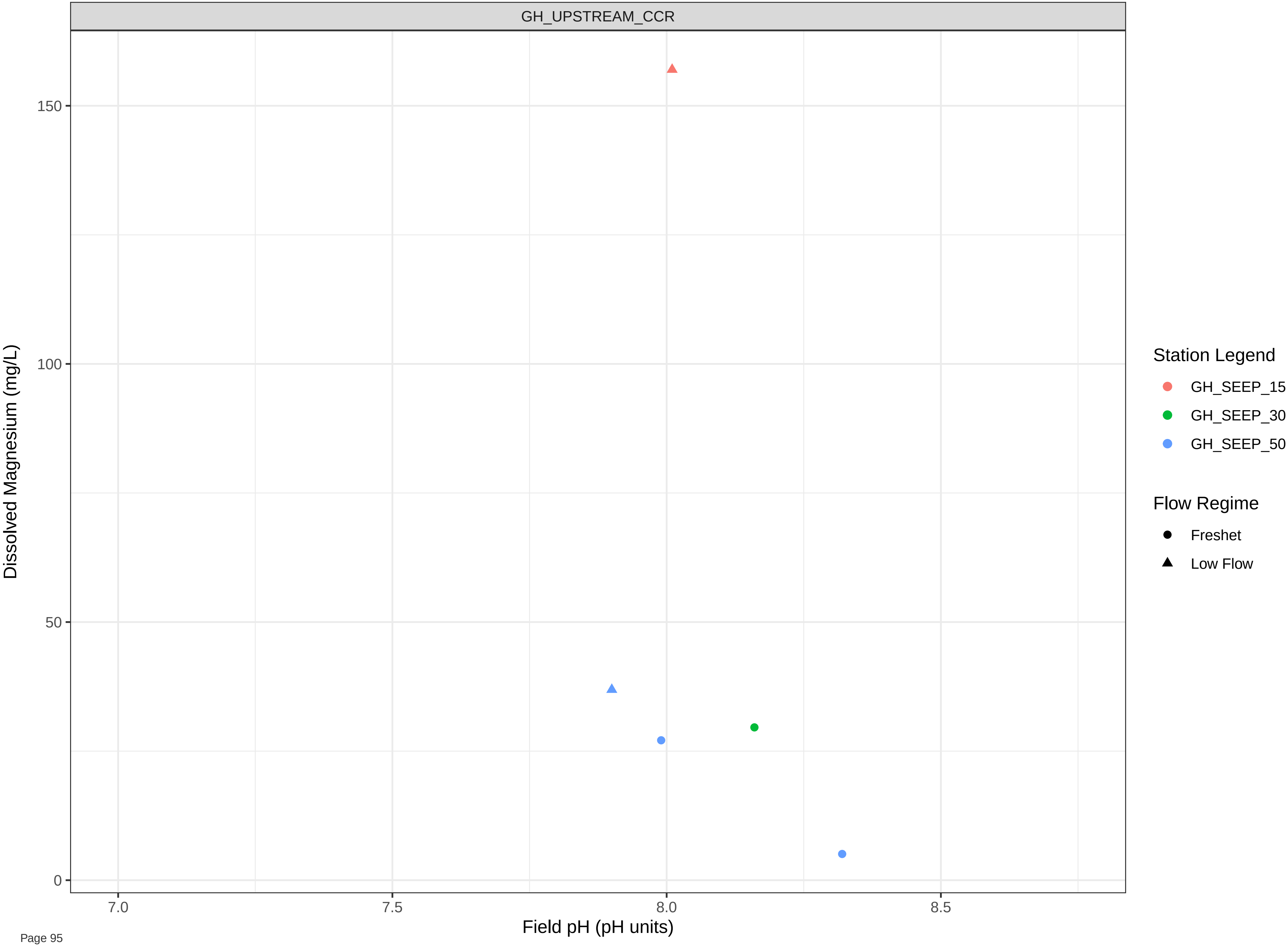

GH_WOLFRAM_WR
Dissolved Lithium (mg/L)
0.25
0.20
0.15
0.10
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

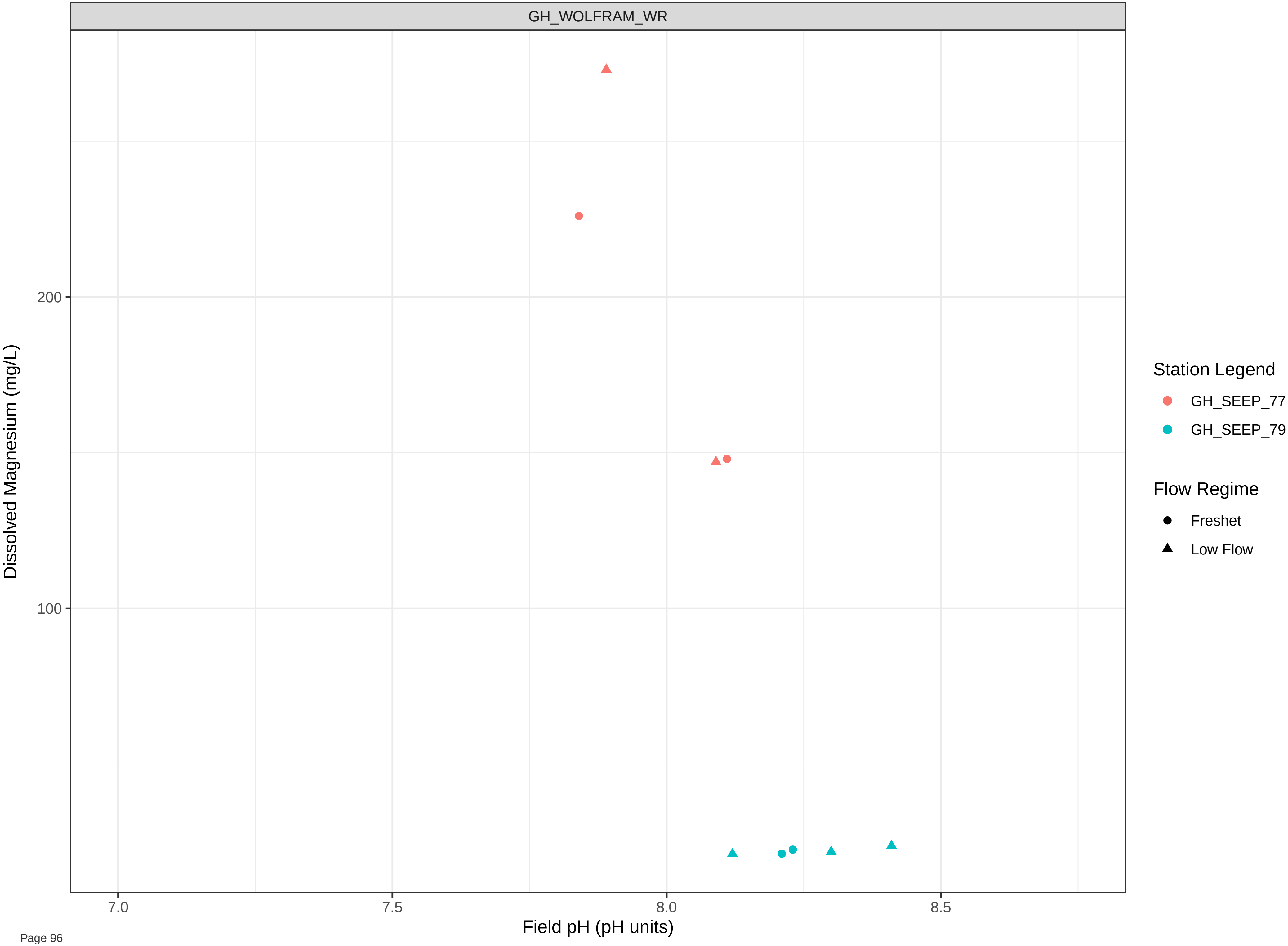

GH_CCR
Dissolved Magnesium (mg/L)
300
200
100
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

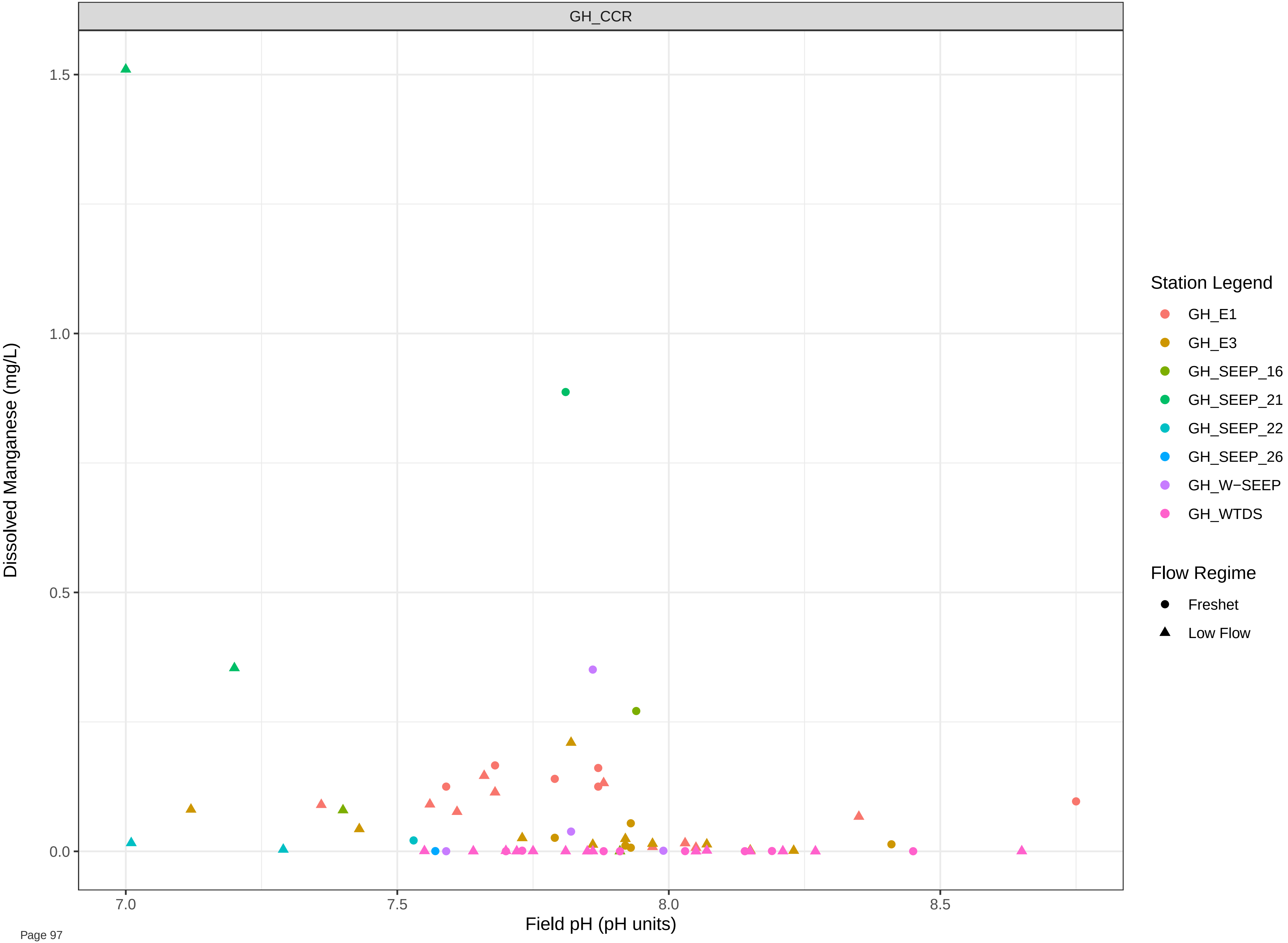

GH_LEASK_WR
Dissolved Magnesium (mg/L)
137.5
135.0
132.5
130.0
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

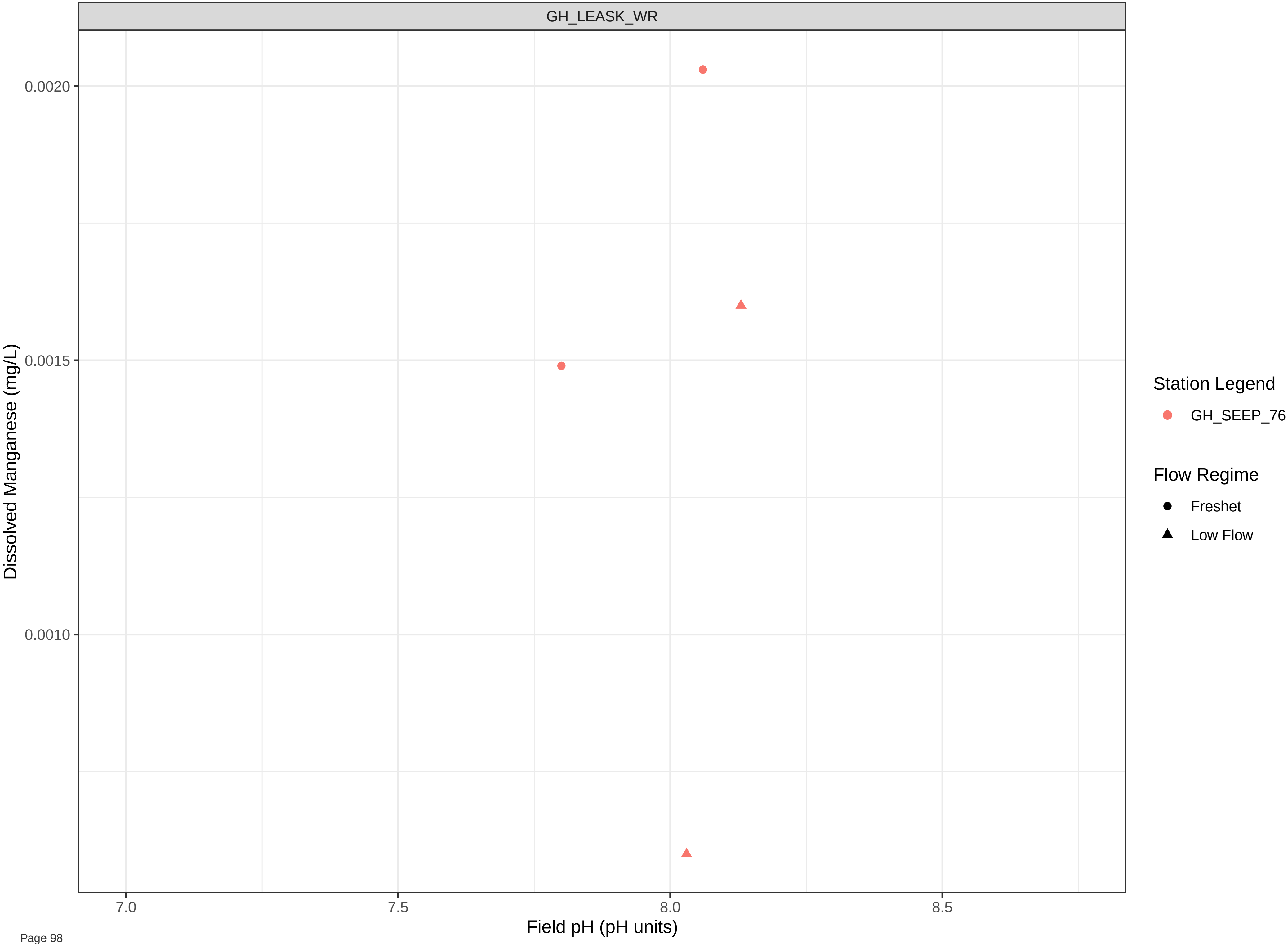

GH_PORTER_CREEK
Dissolved Magnesium (mg/L)
25
24
23
22
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

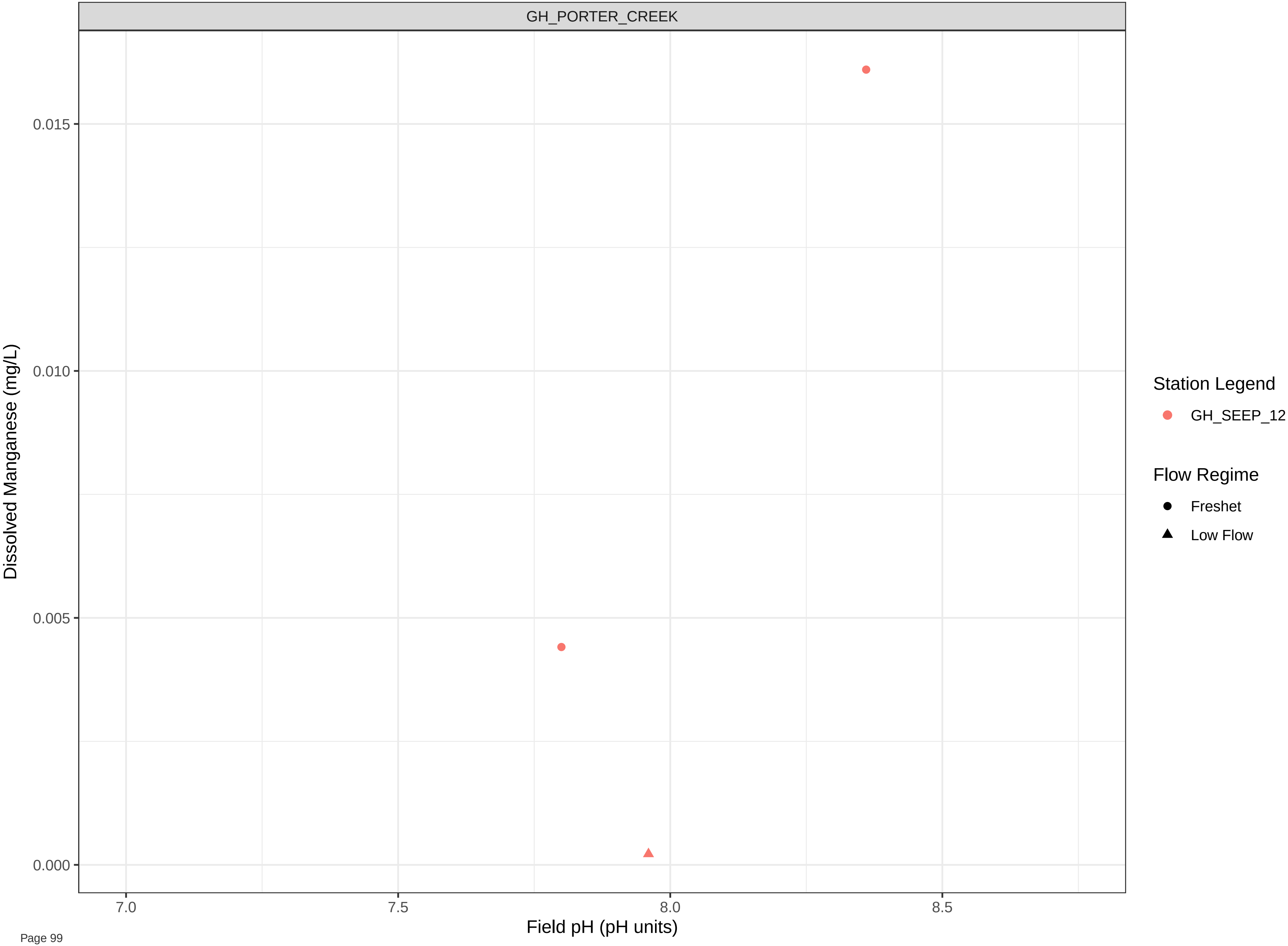

GH_THOMPSON_WR
Dissolved Magnesium (mg/L)
300
200
100
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

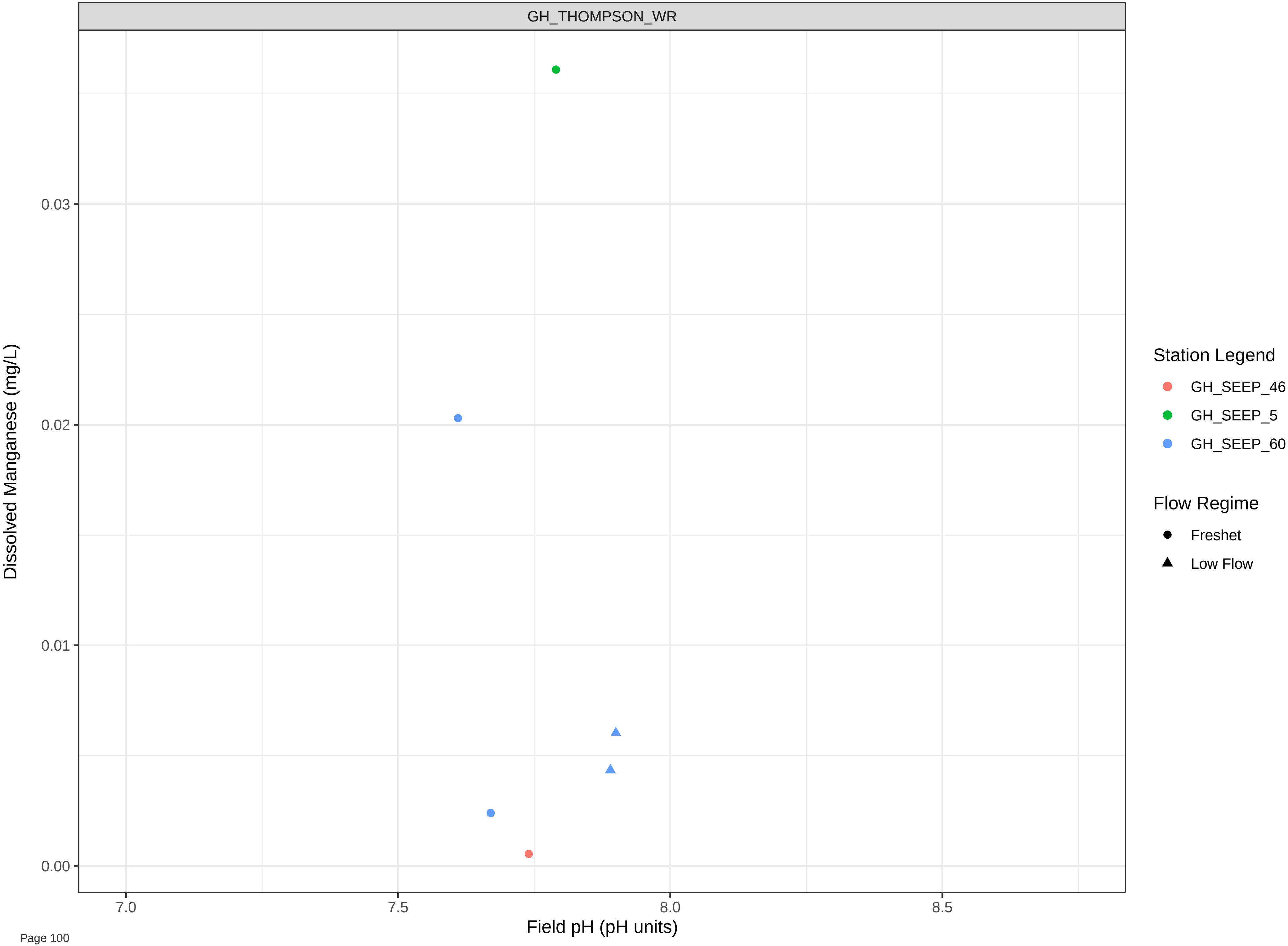

GH_UPSTREAM_CCR
Dissolved Magnesium (mg/L)
0
50
100
150
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

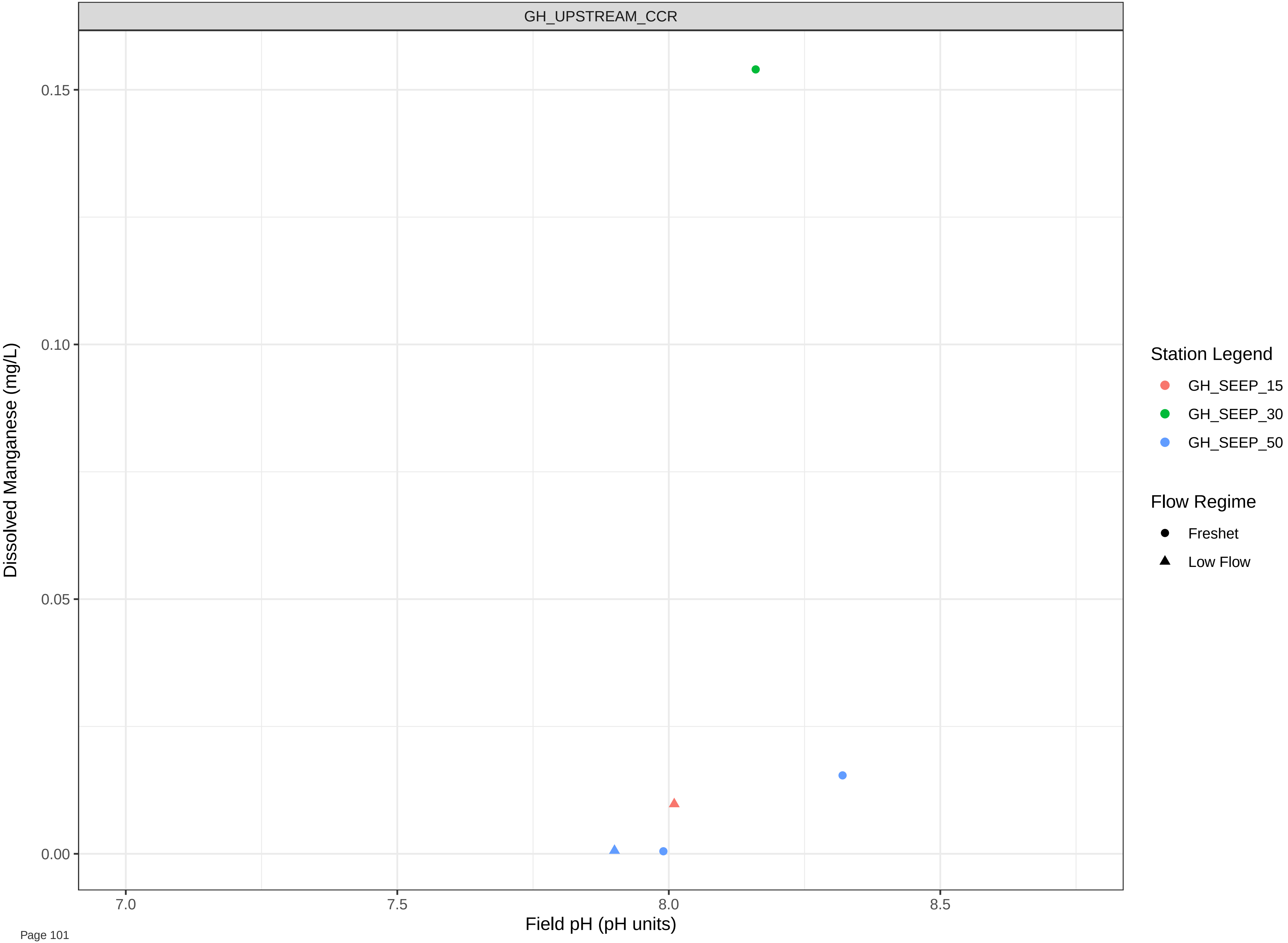

GH_WOLFRAM_WR
200
100
Dissolved Magnesium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

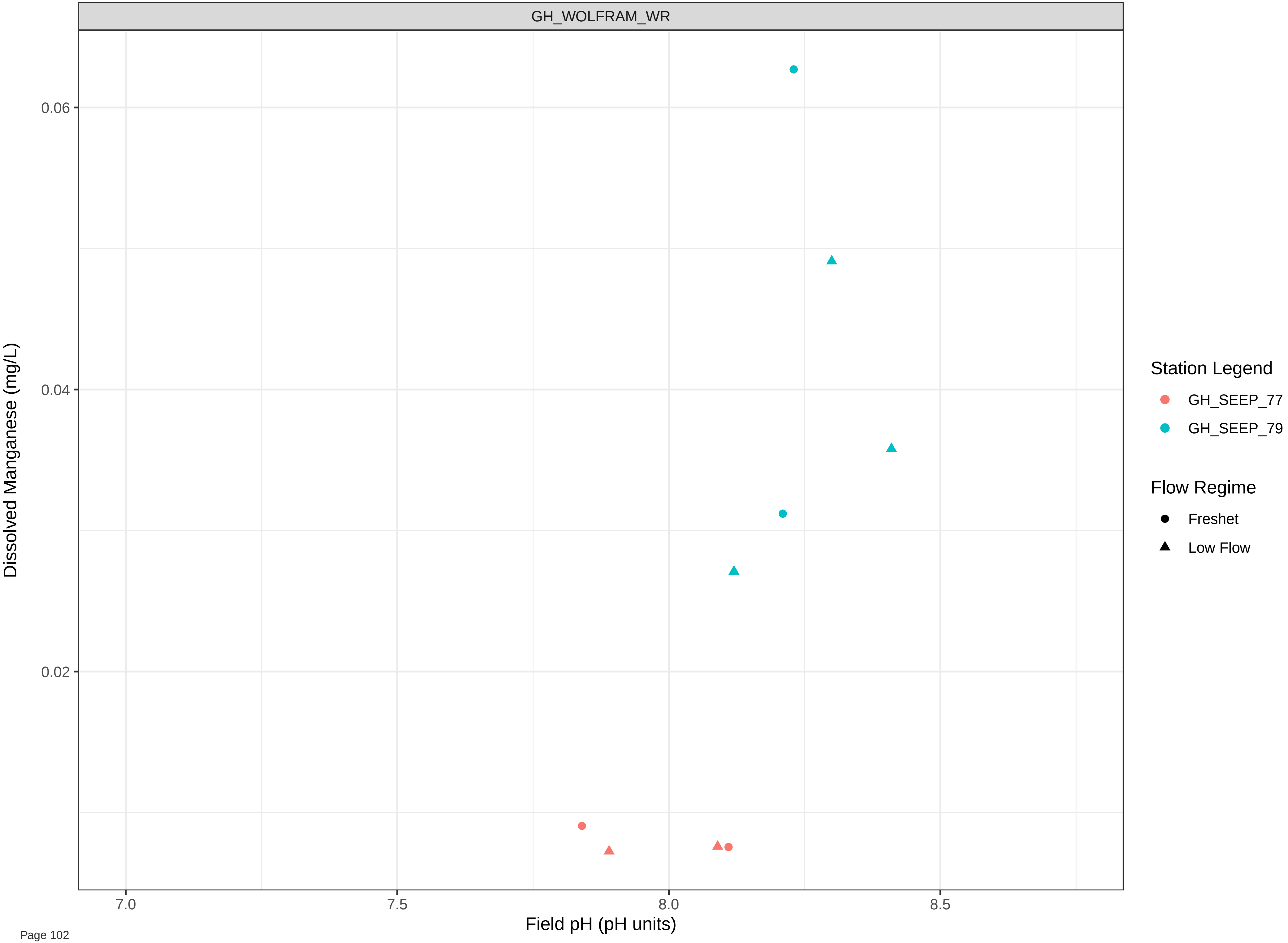

GH_CCR
Dissolved Manganese (mg/L)
1.5
1.0
0.5
0.0
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

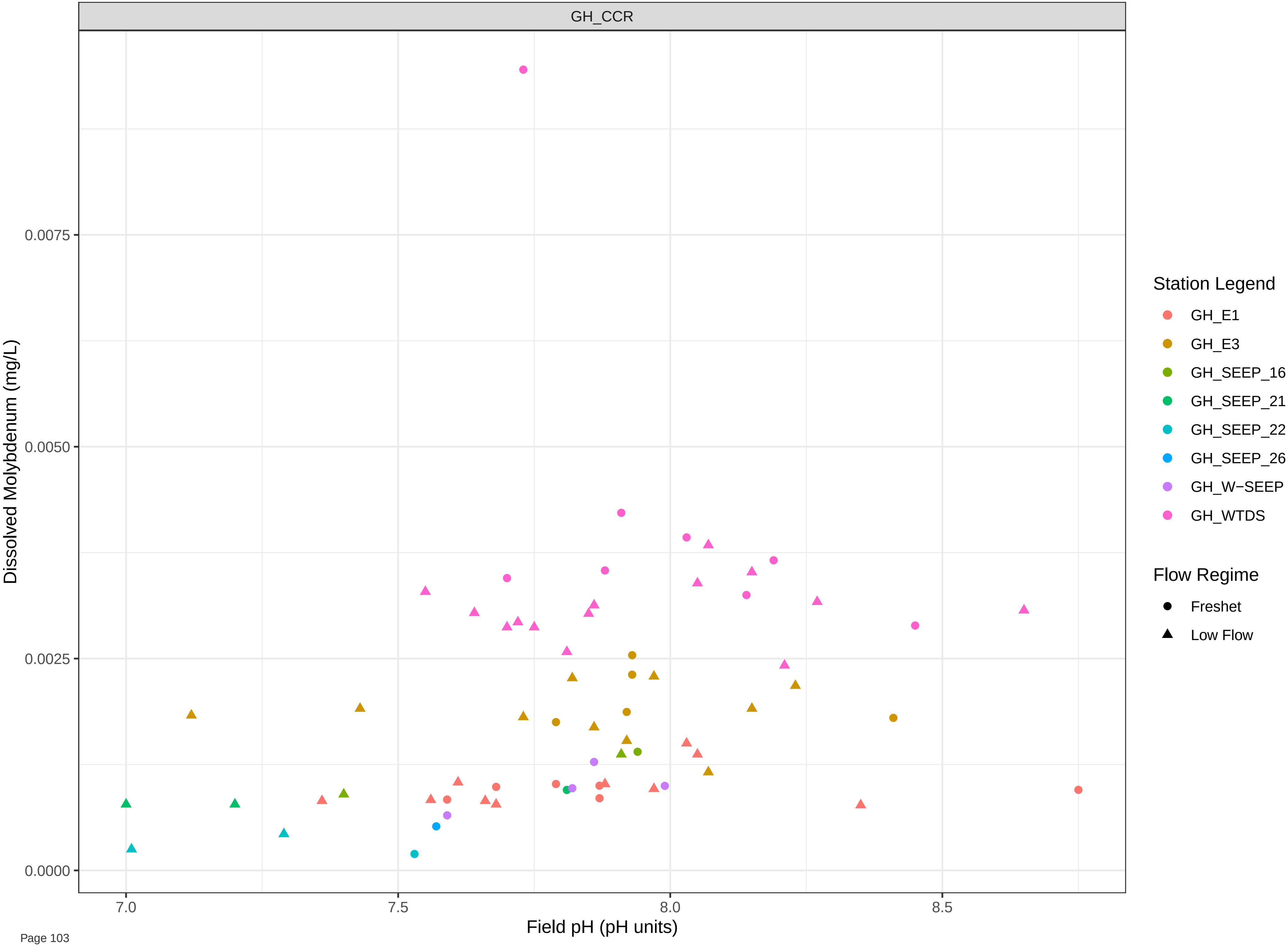

GH_LEASK_WR
Dissolved Manganese (mg/L)
0.0020
0.0015
0.0010
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

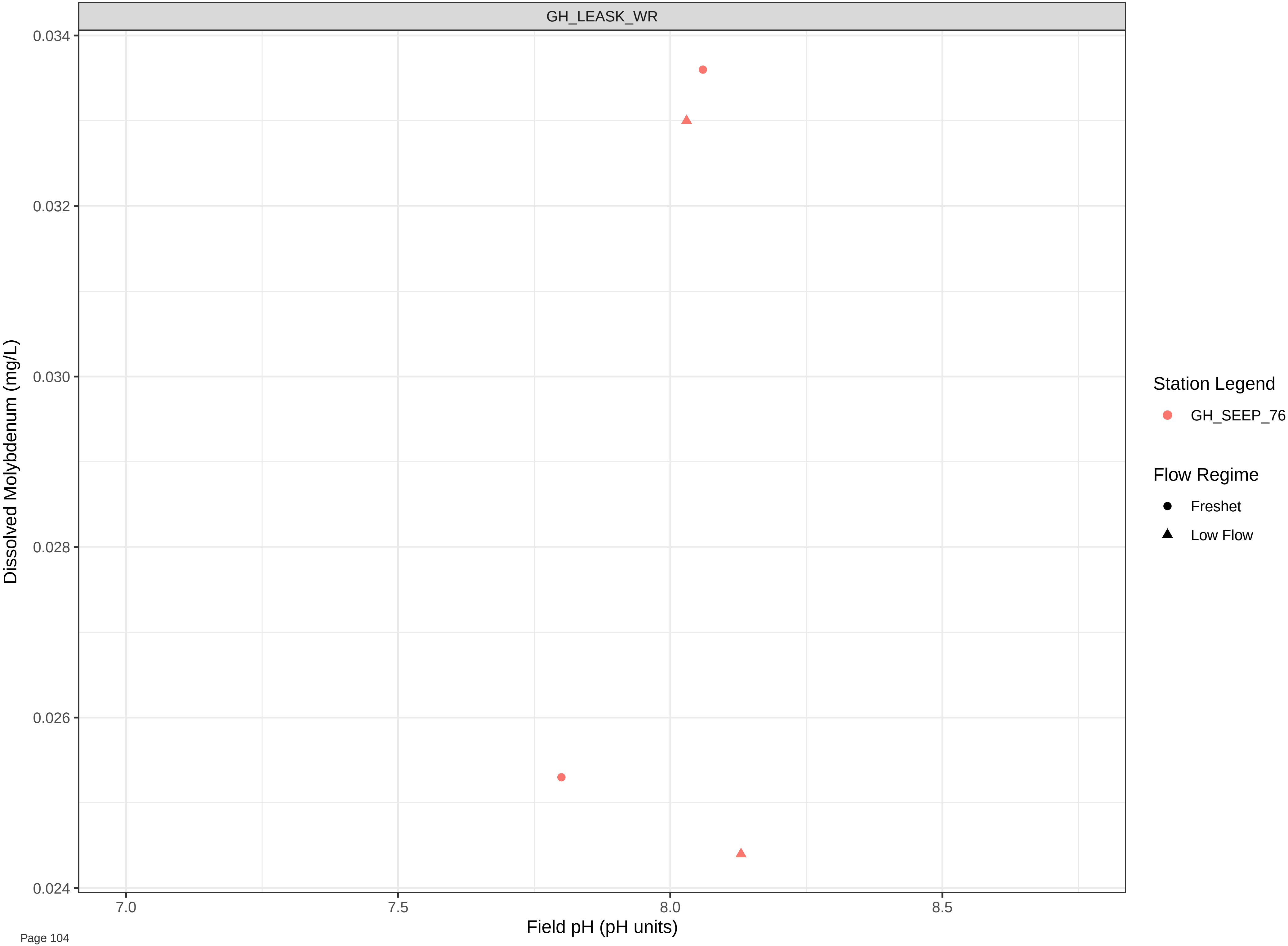

GH_PORTER_CREEK
Dissolved Manganese (mg/L)
0.015
0.010
0.005
0.000
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

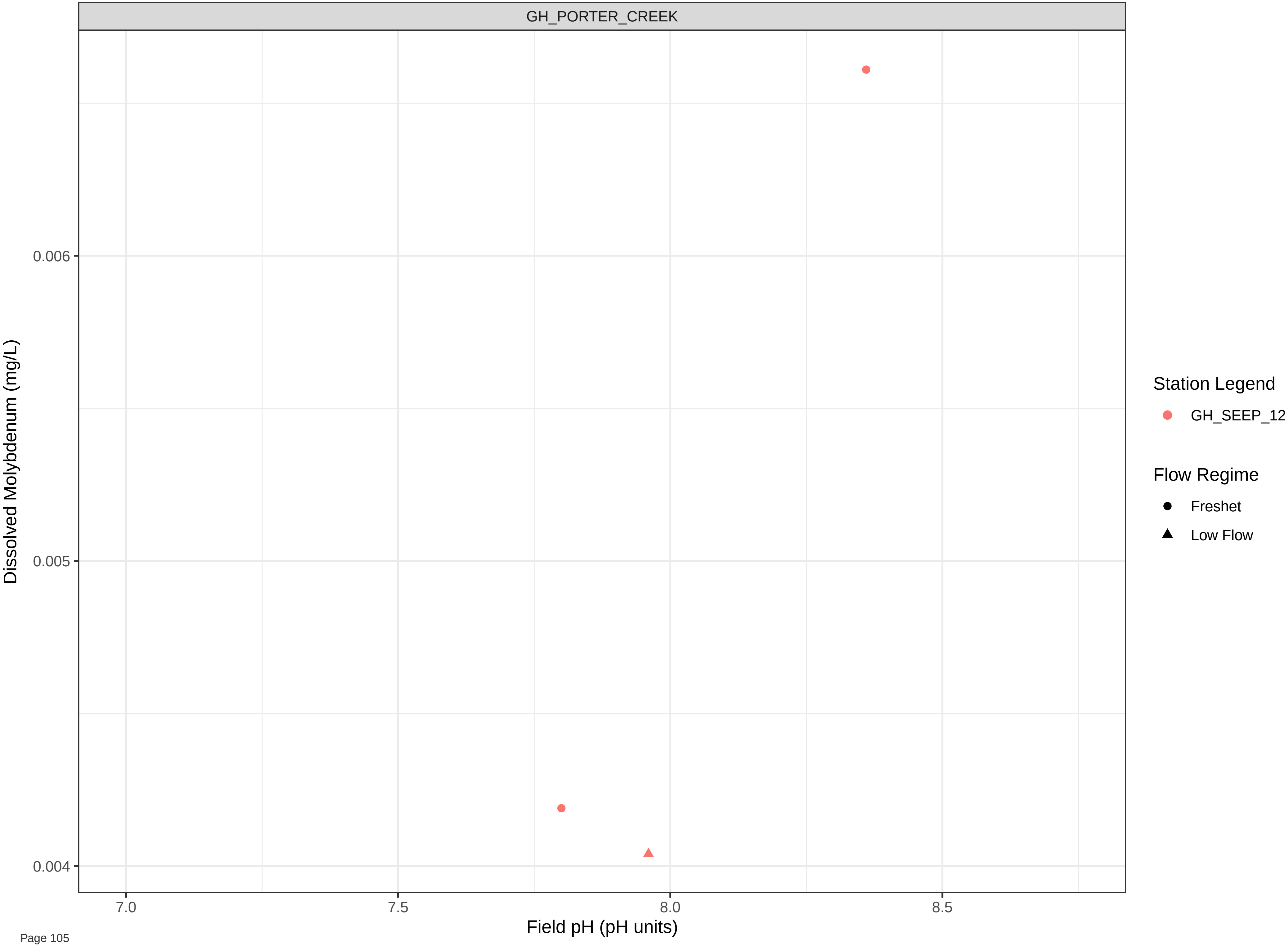

GH_THOMPSON_WR
Dissolved Manganese (mg/L)
0.00
0.01
0.02
0.03
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

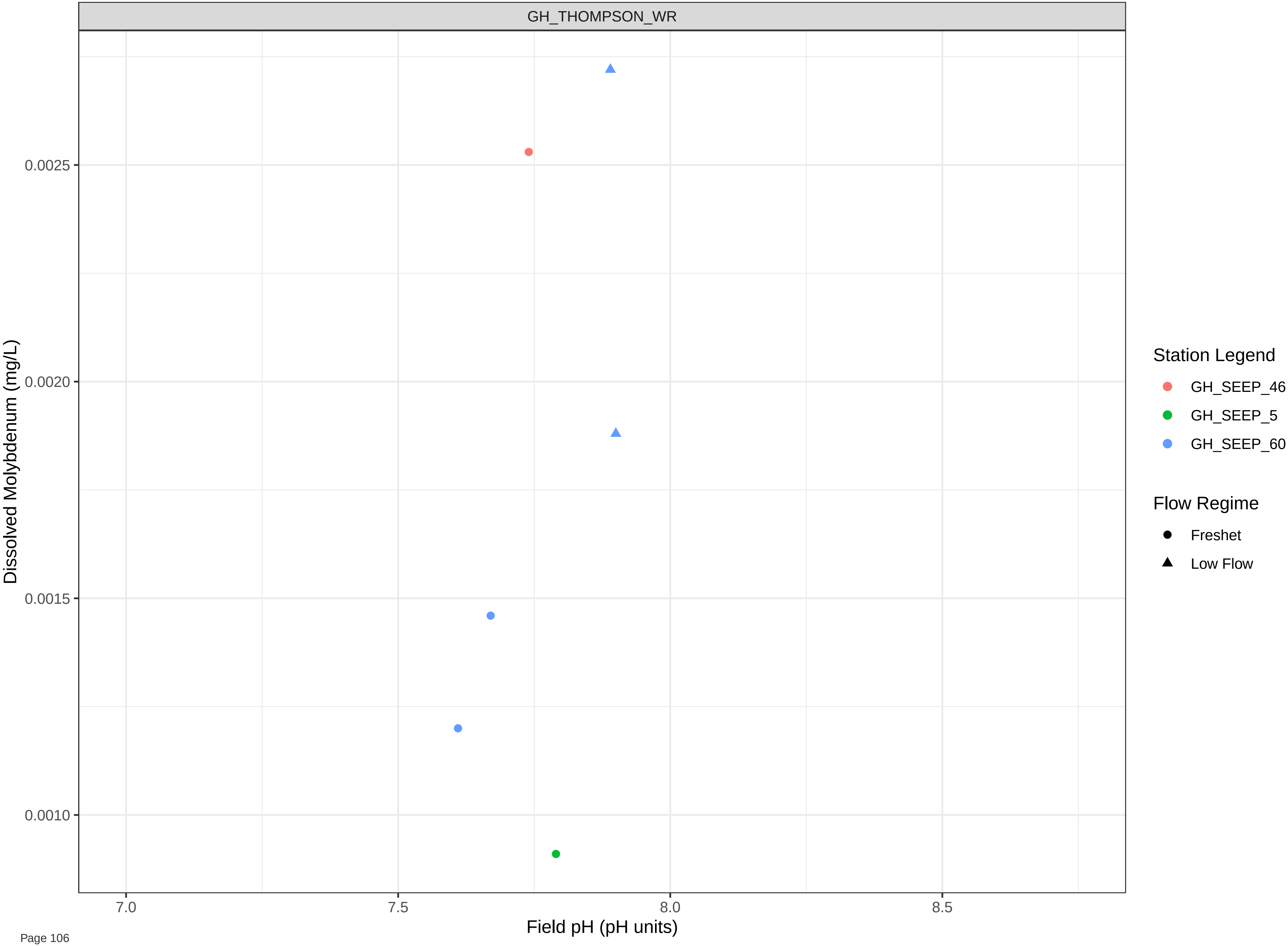

GH_UPSTREAM_CCR
Dissolved Manganese (mg/L)
0.15
0.10
0.05
0.00
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

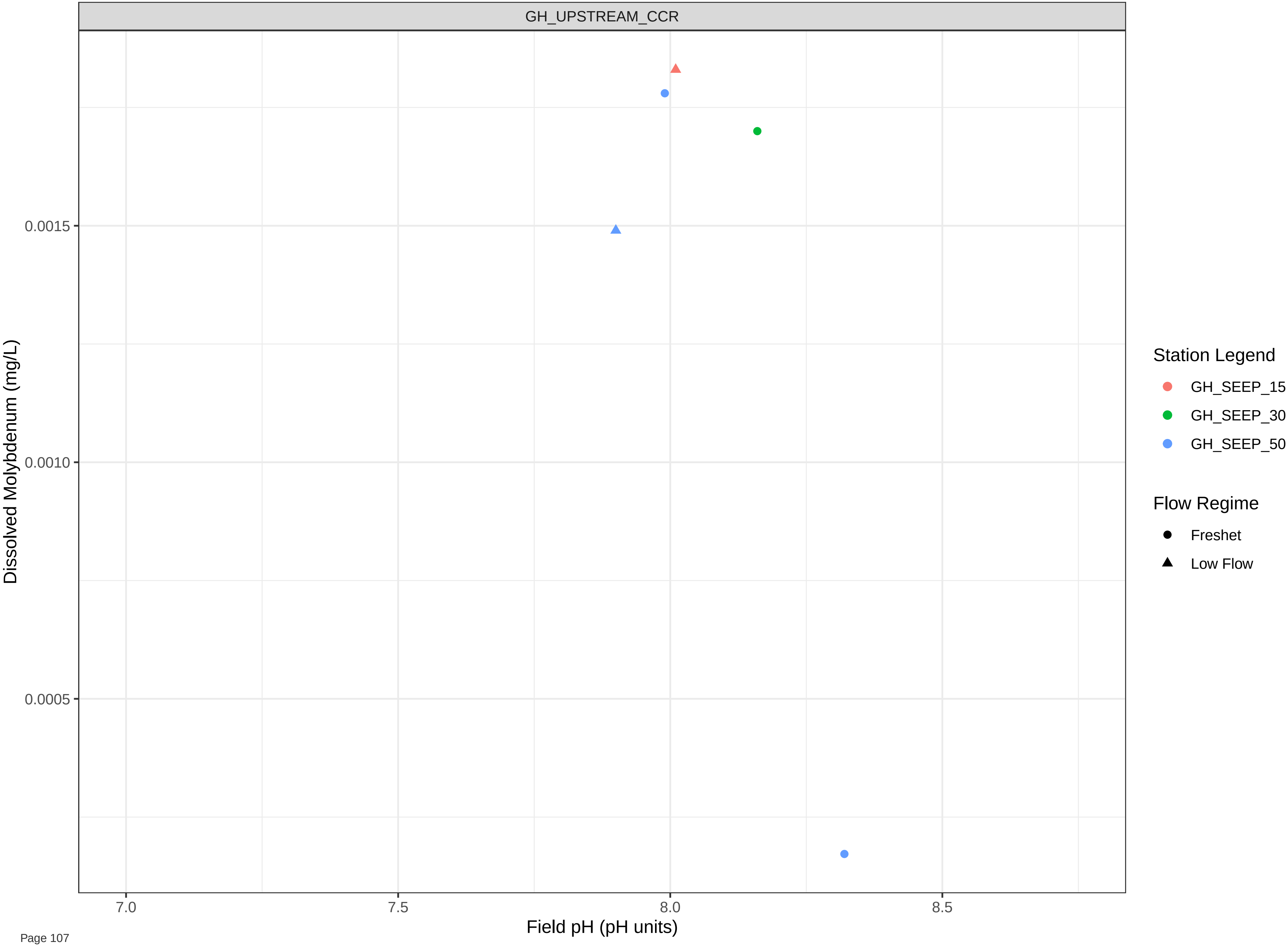

GH_WOLFRAM_WR
Dissolved Manganese (mg/L)
0.06
0.04
0.02
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

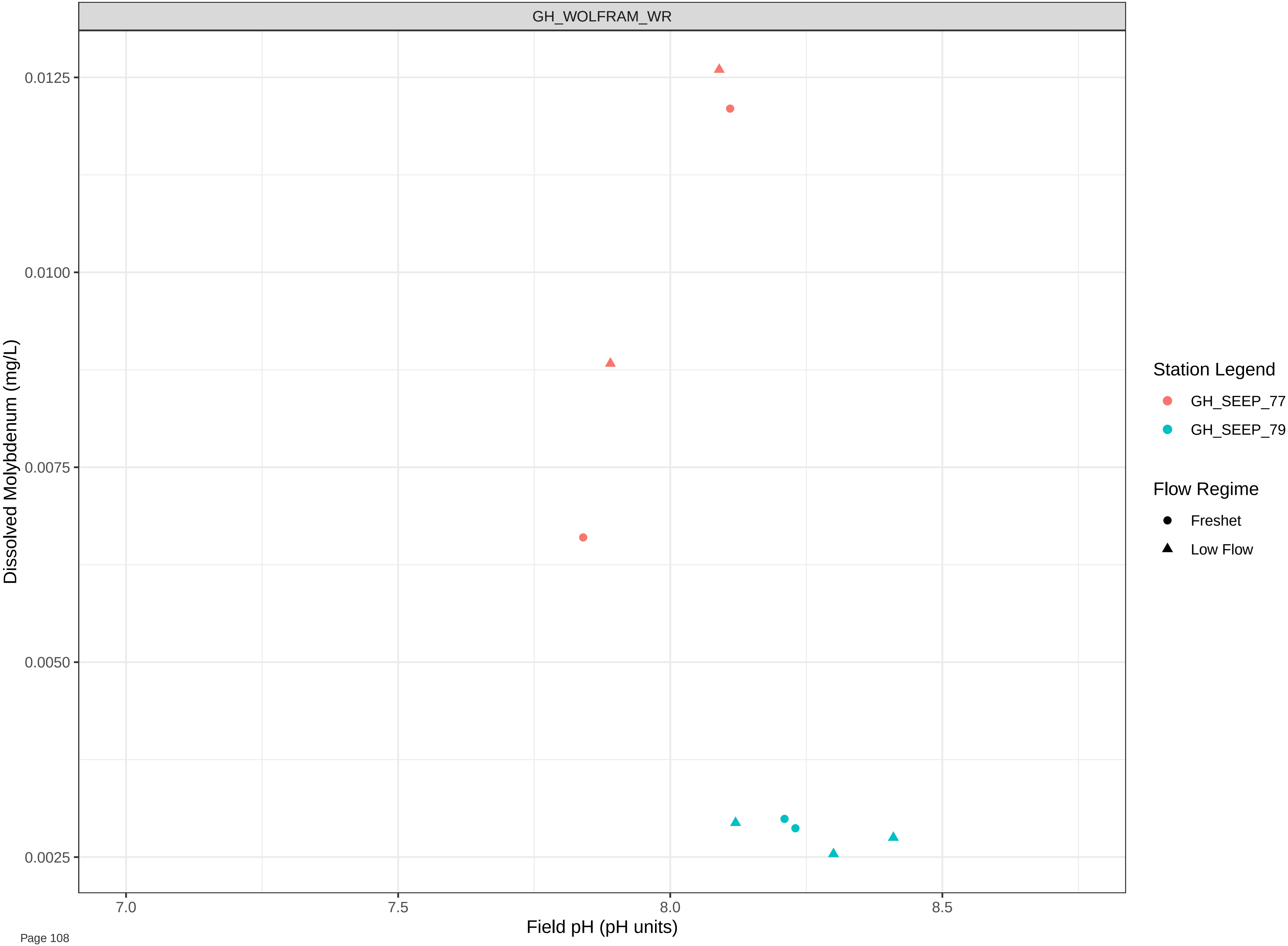

GH_CCR
Dissolved Molybdenum (mg/L)
0.0075
0.0050
0.0025
0.0000
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

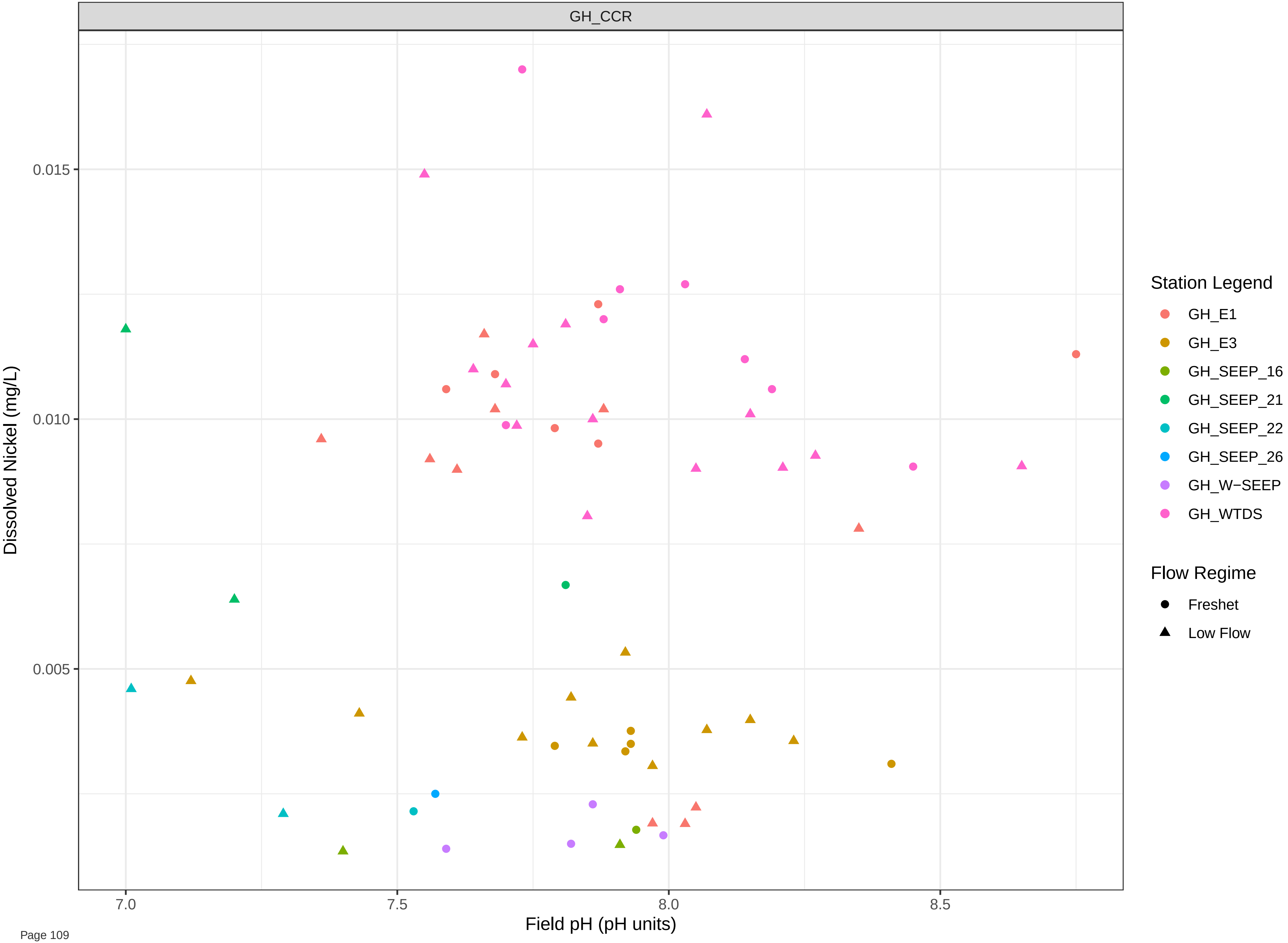

GH_LEASK_WR
Dissolved Molybdenum (mg/L)
0.034
0.032
0.030
0.028
0.026
0.024
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

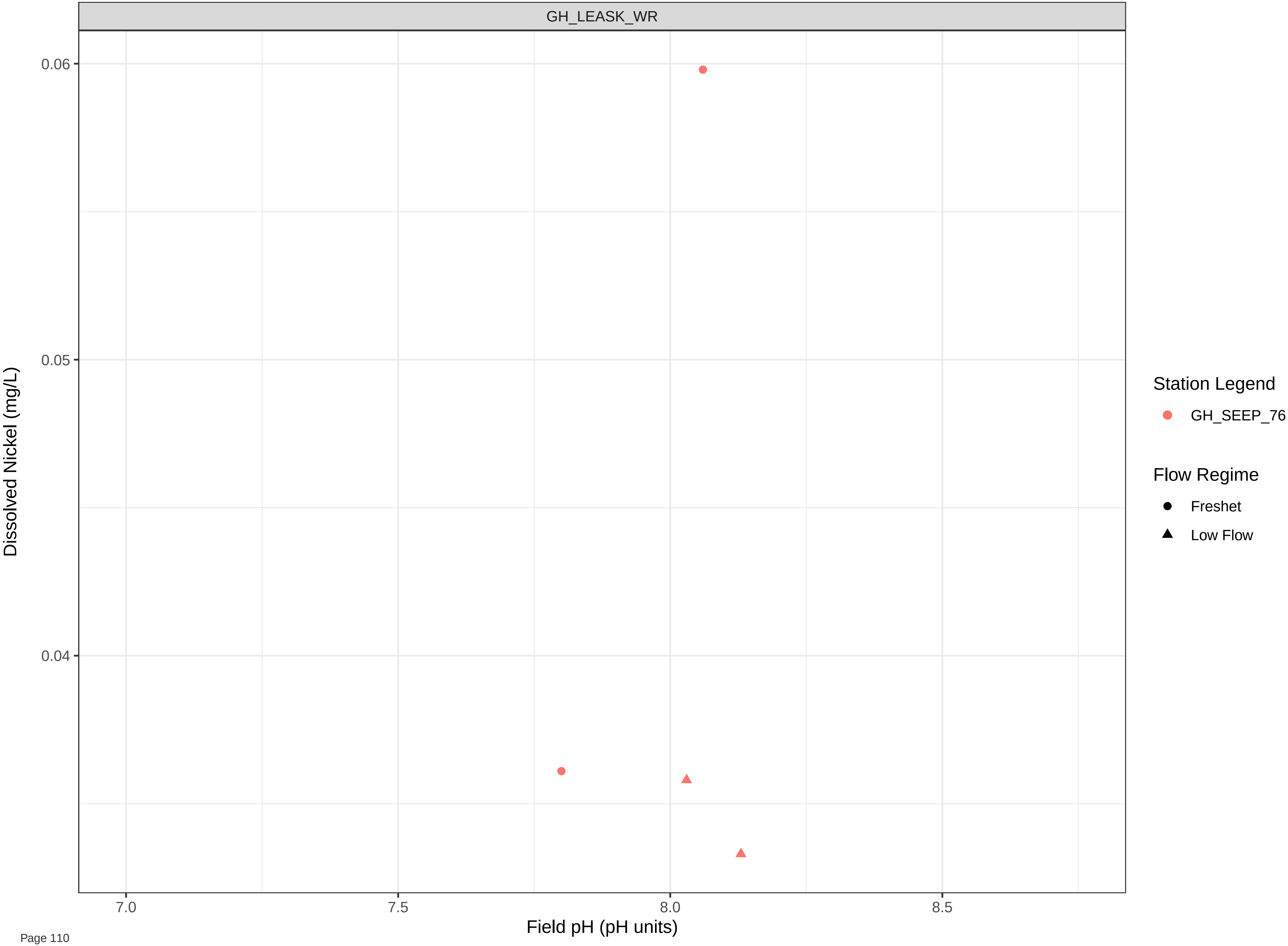

GH_PORTER_CREEK
Dissolved Molybdenum (mg/L)
0.006
0.005
0.004
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

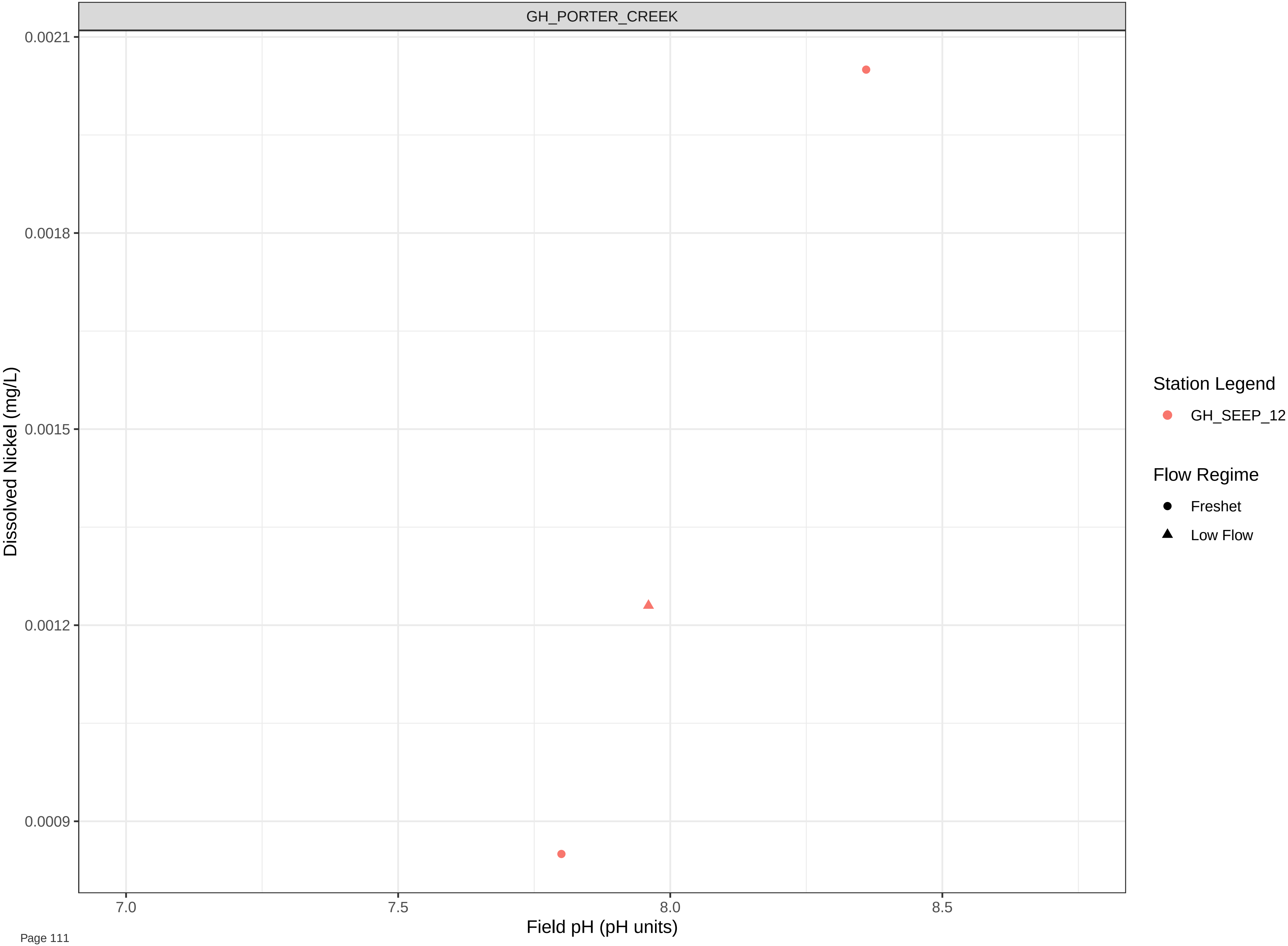

GH_THOMPSON_WR
Dissolved Molybdenum (mg/L)
0.0025
0.0020
0.0015
0.0010
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

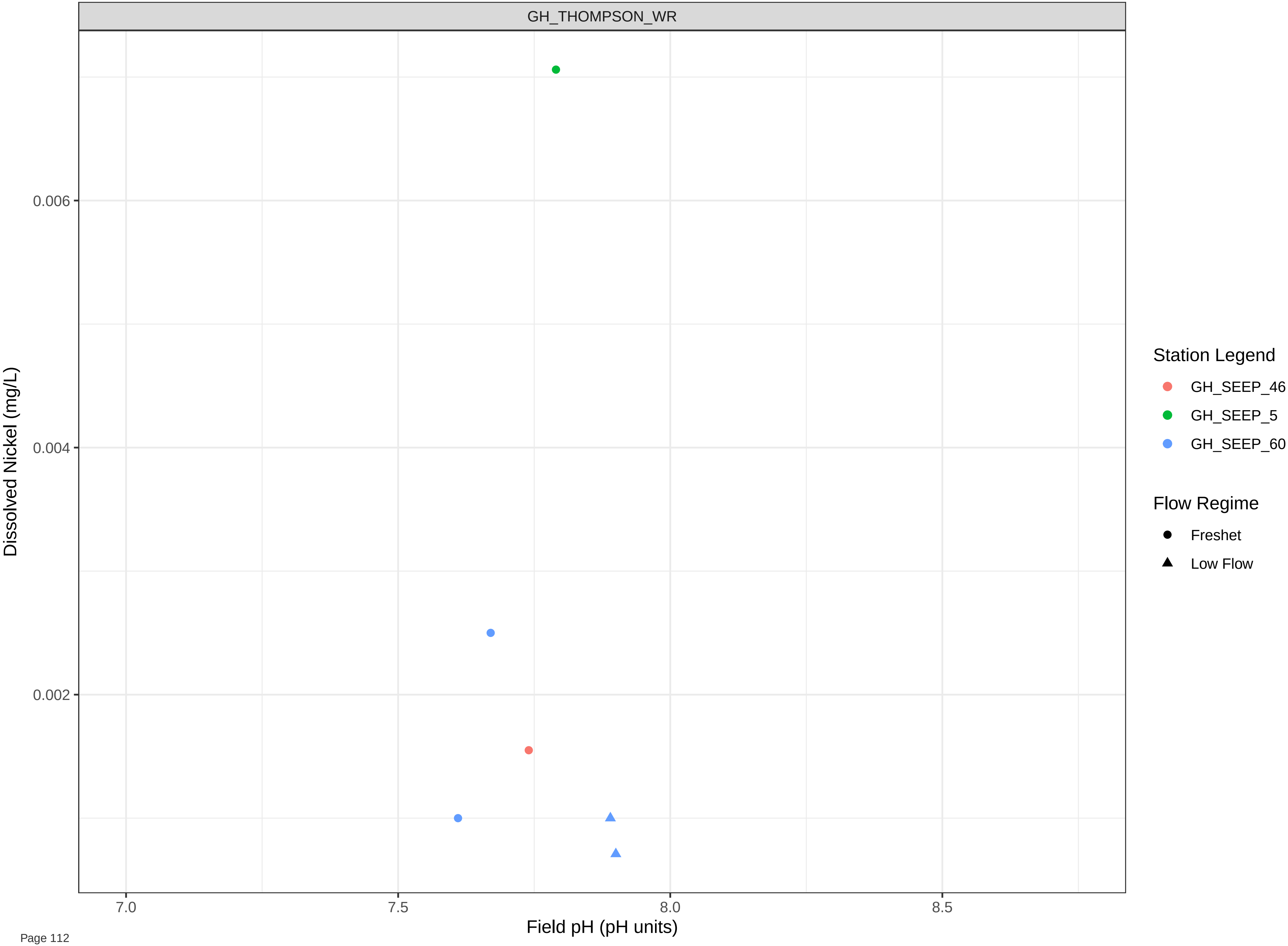

GH_UPSTREAM_CCR
Dissolved Molybdenum (mg/L)
0.0015
0.0010
0.0005
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

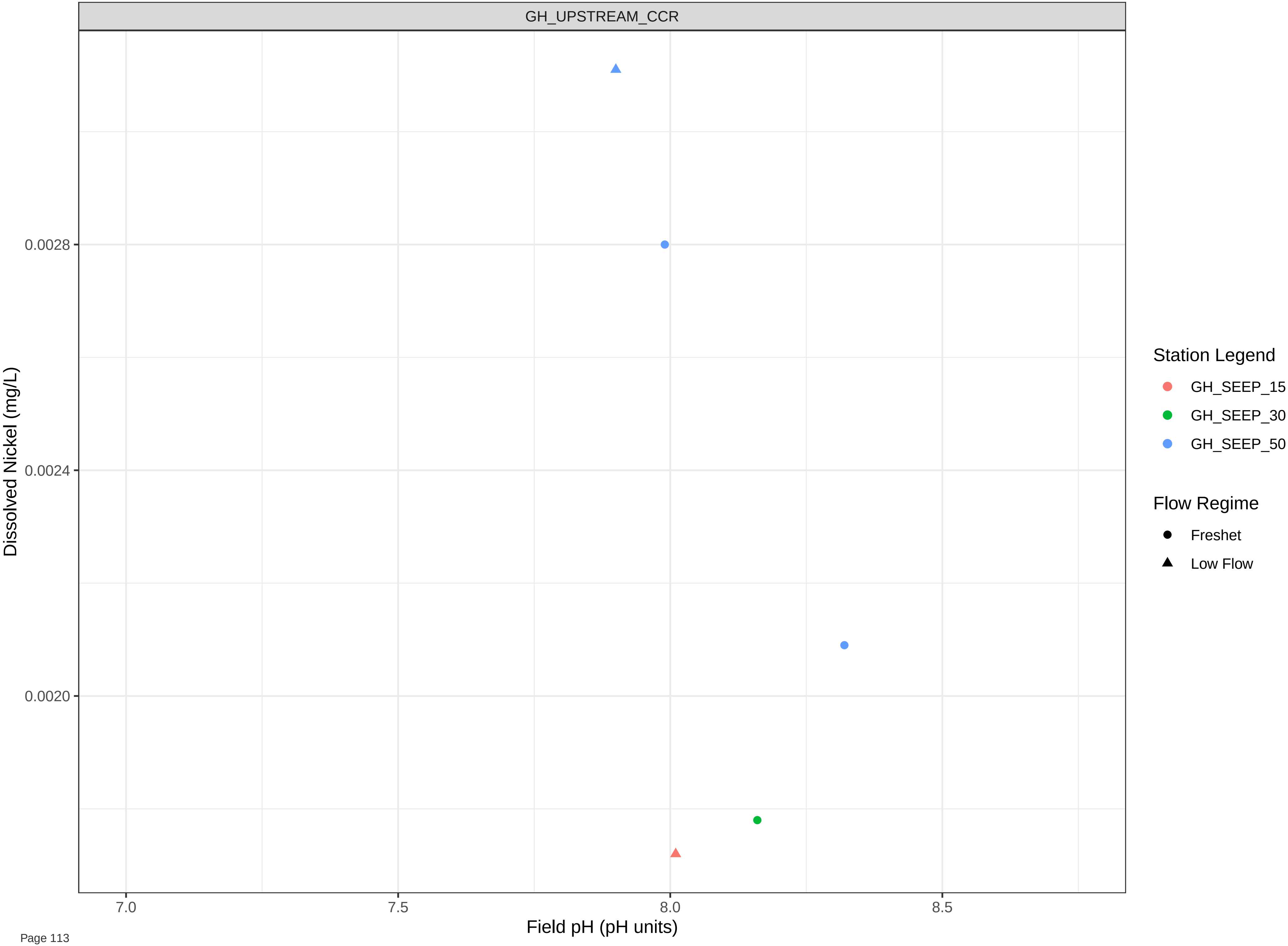

GH_WOLFRAM_WR
Dissolved Molybdenum (mg/L)
0.0125
0.0100
0.0075
0.0050
0.0025
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

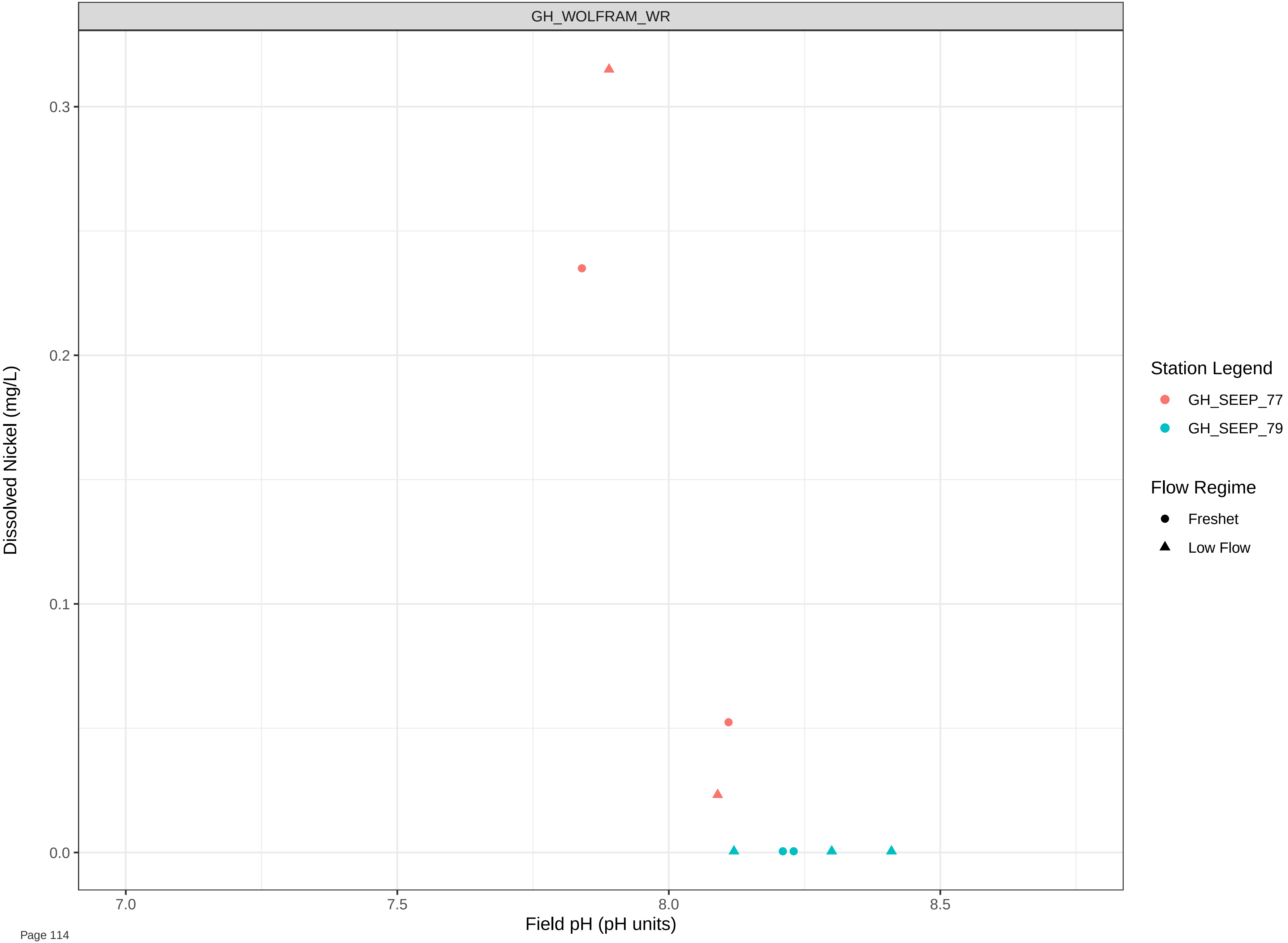

GH_CCR
Dissolved Nickel (mg/L)
0.015
0.010
0.005
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

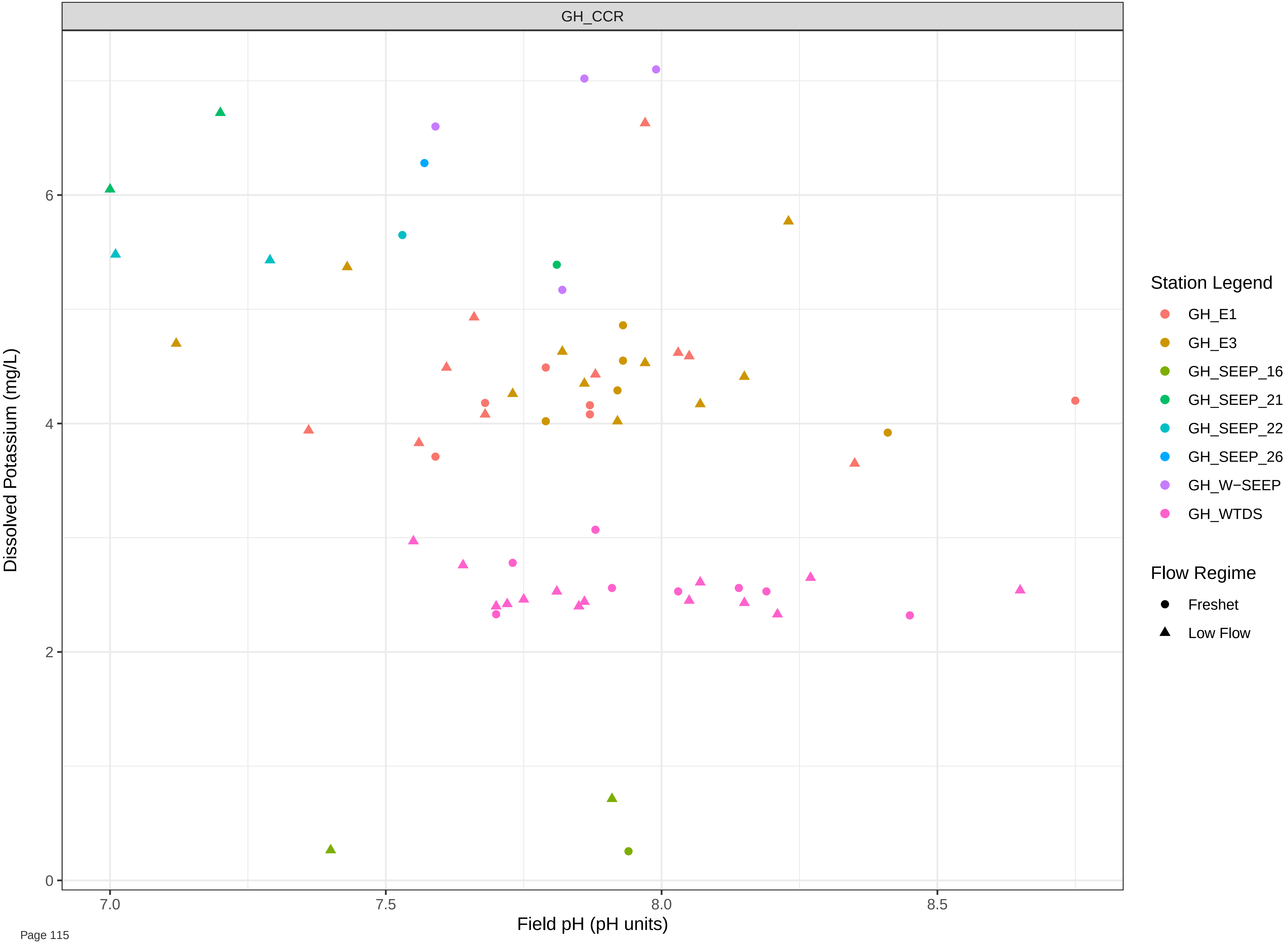

GH_LEASK_WR
Dissolved Nickel (mg/L)
0.06
0.05
0.04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

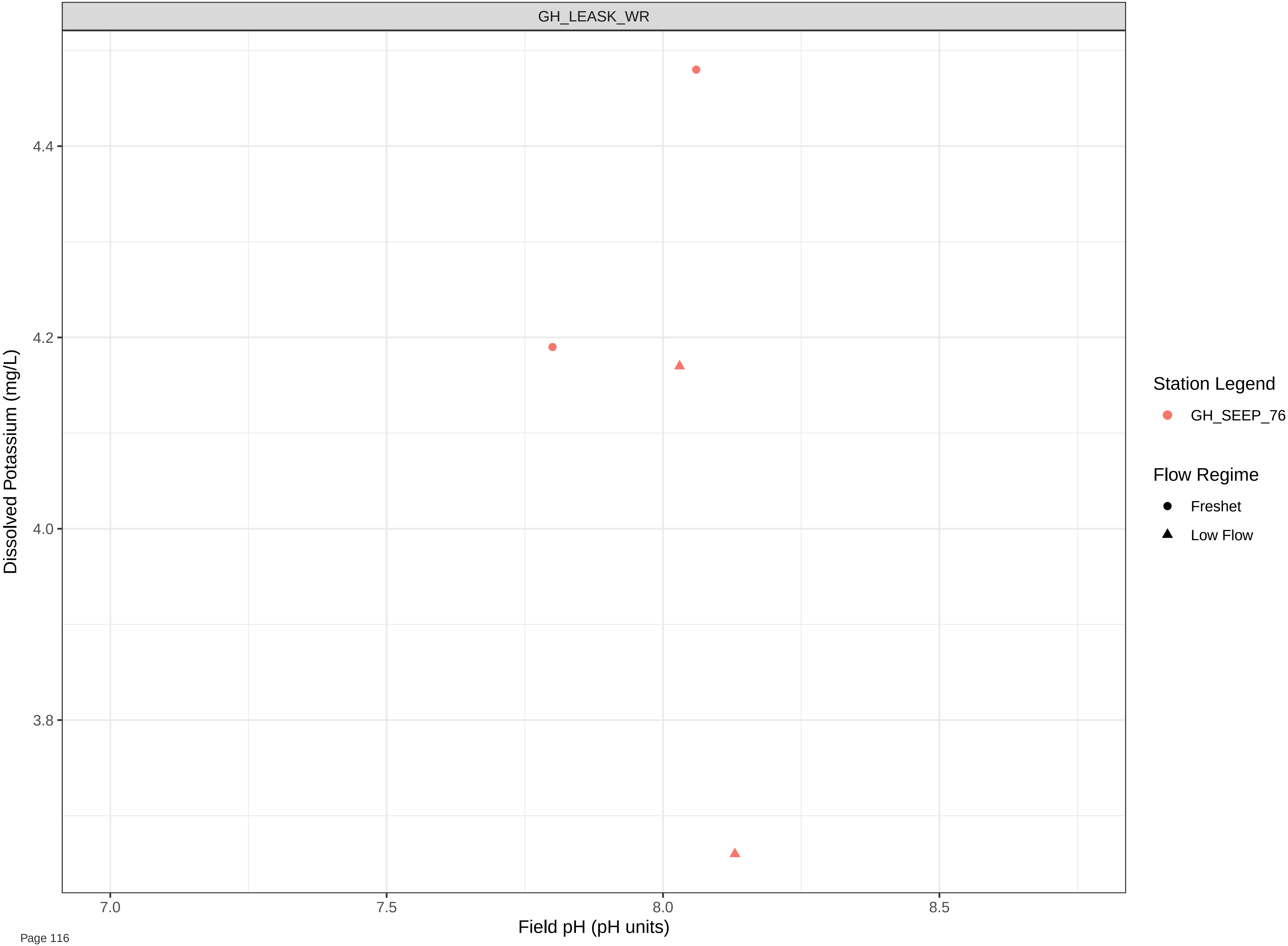

GH_PORTER_CREEK
0.0021
0.0018
0.0015
0.0012
0.0009
Dissolved Nickel (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

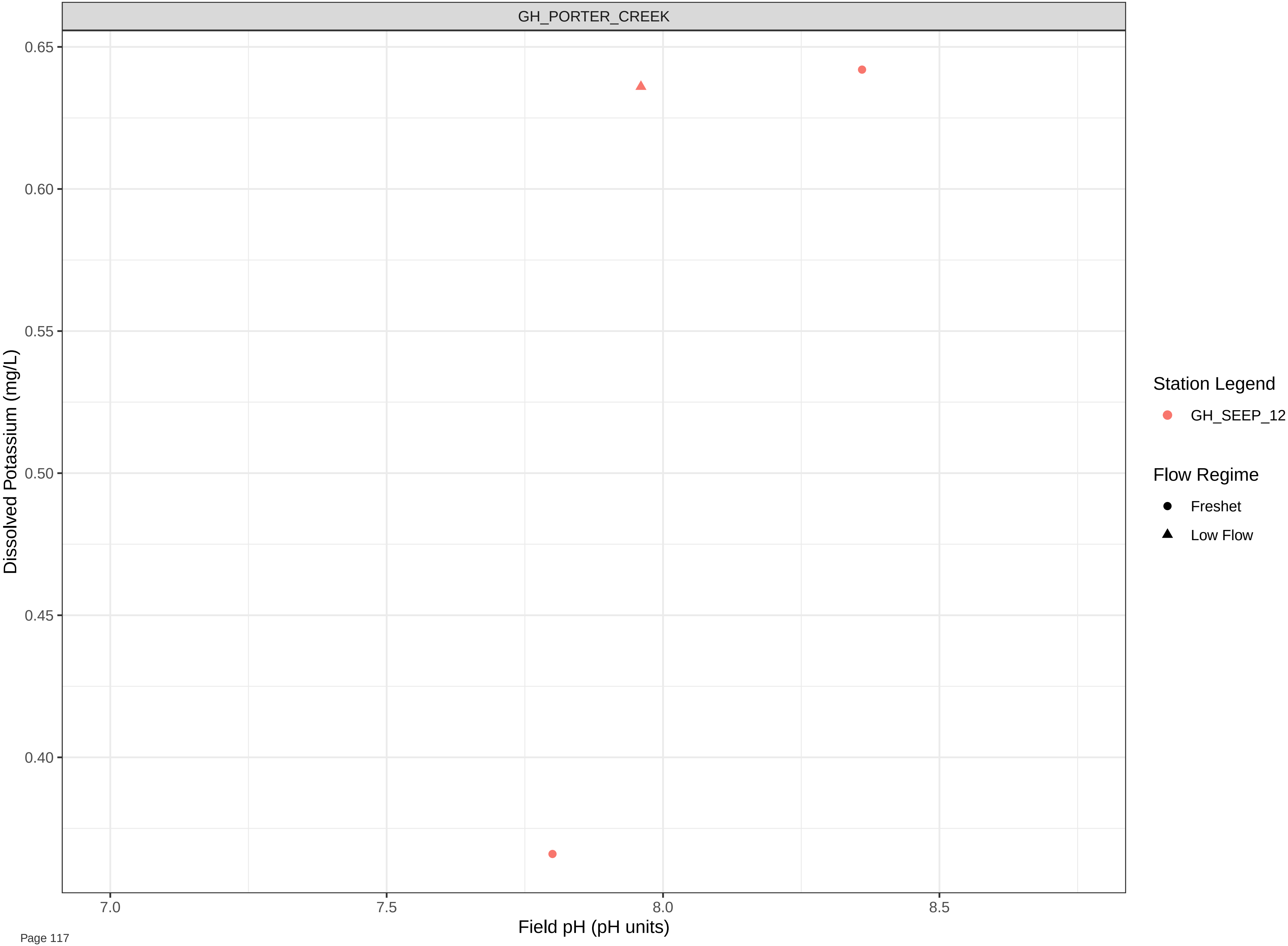

GH_THOMPSON_WR
Dissolved Nickel (mg/L)
0.006
0.004
0.002
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

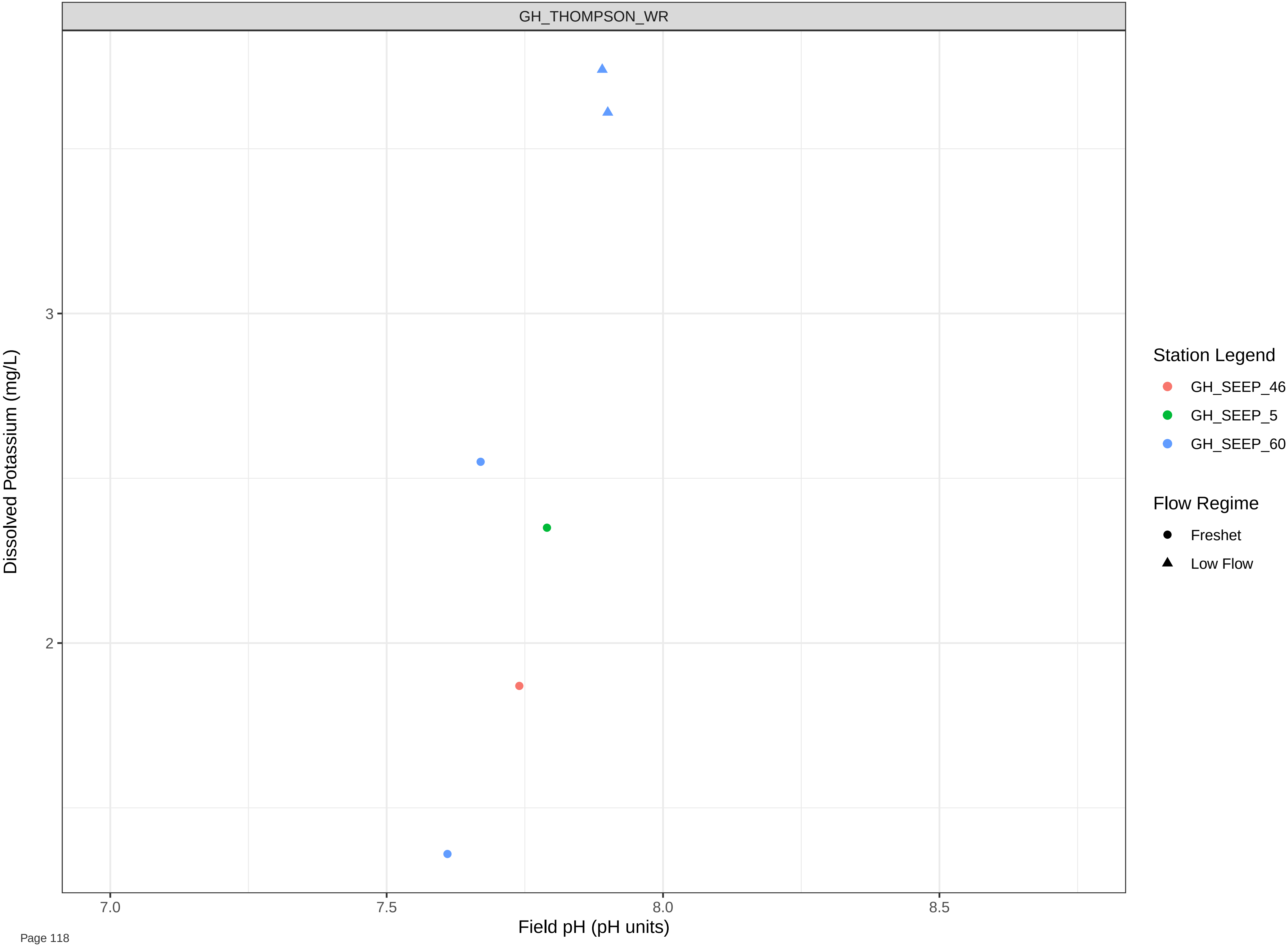

GH_UPSTREAM_CCR
Dissolved Nickel (mg/L)
0.0028
0.0024
0.0020
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

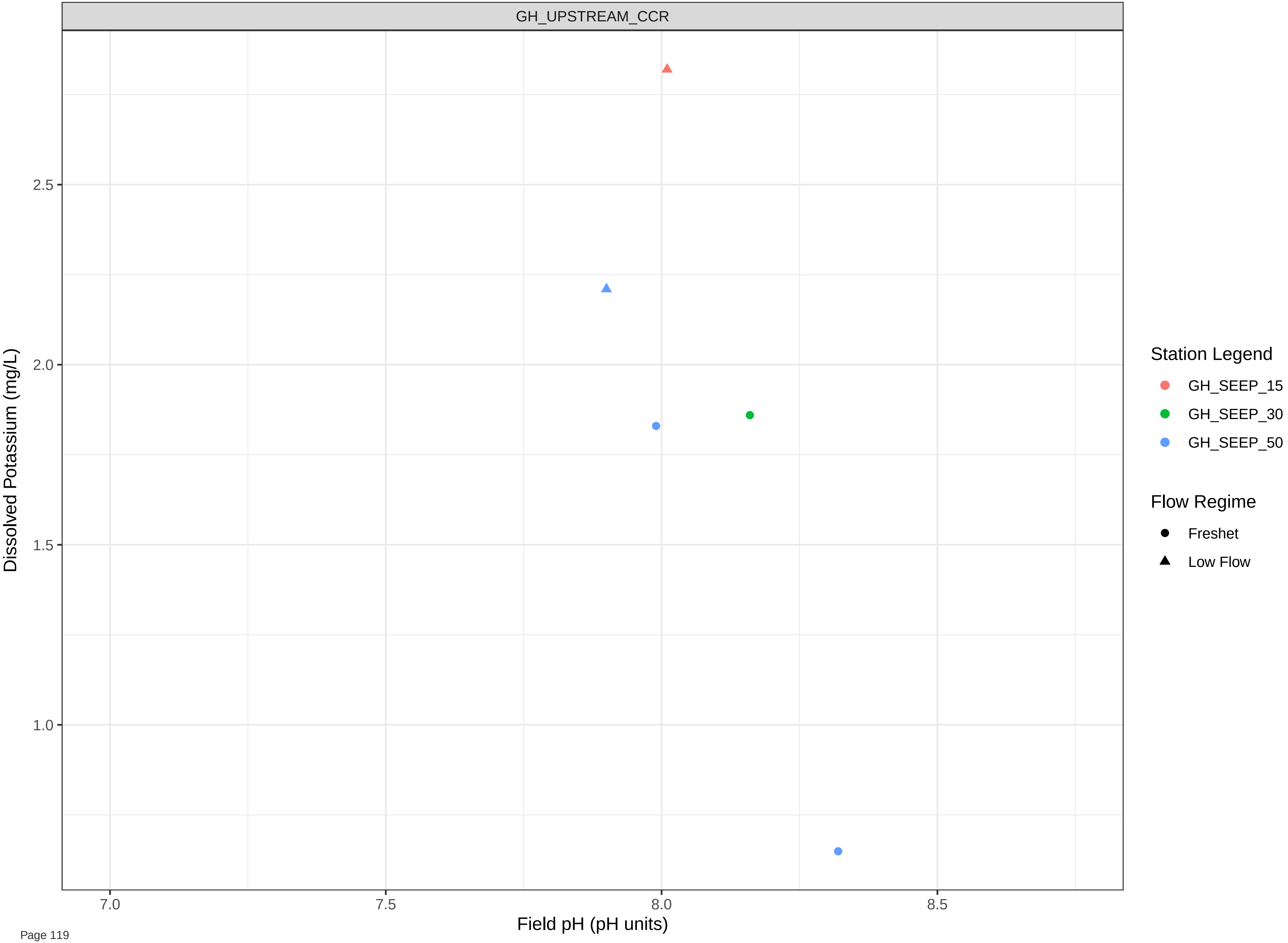

GH_WOLFRAM_WR
Dissolved Nickel (mg/L)
0.3
0.2
0.1
0.0
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

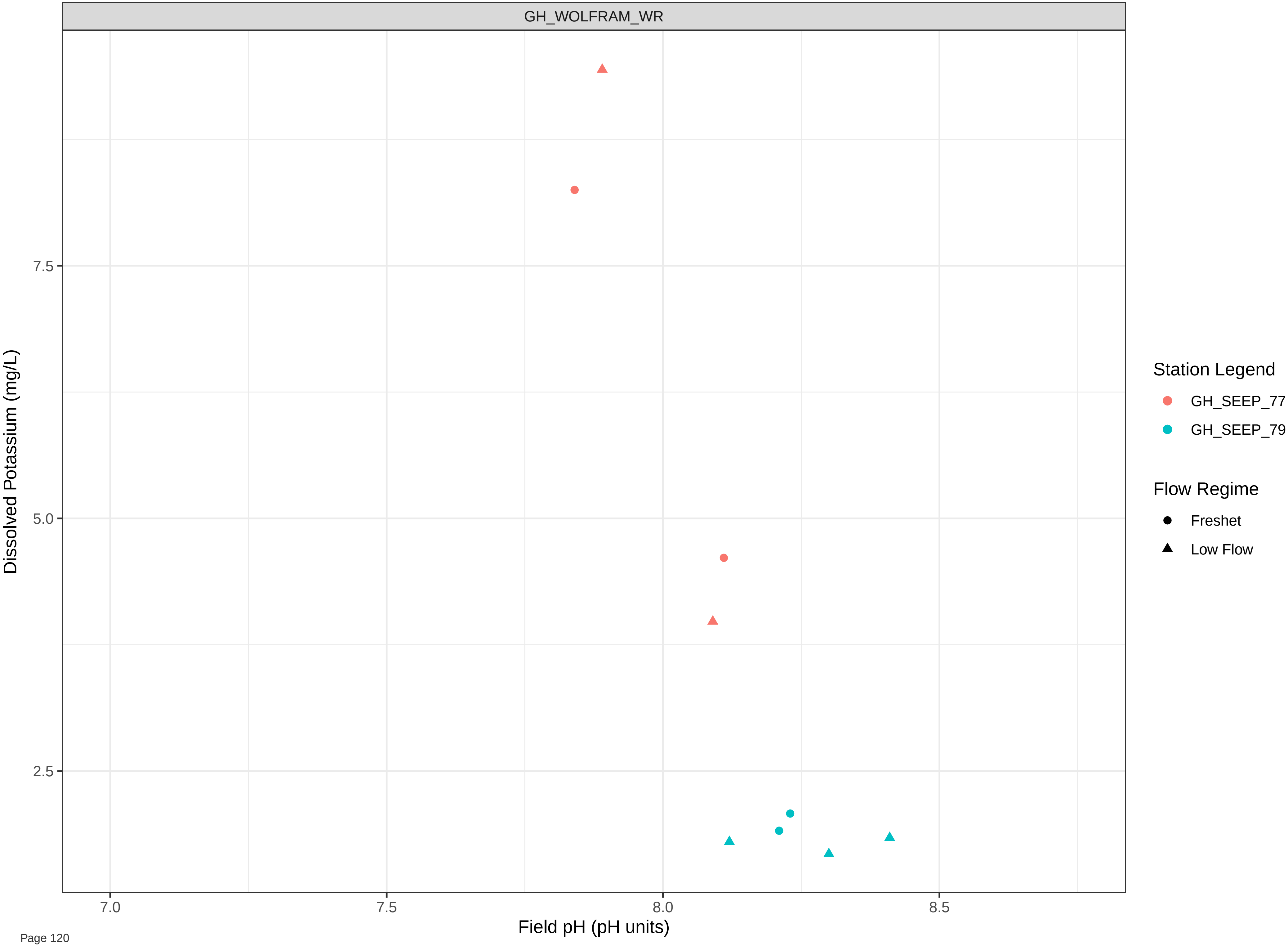

GH_CCR
Dissolved Potassium (mg/L)
0
2
4
6
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

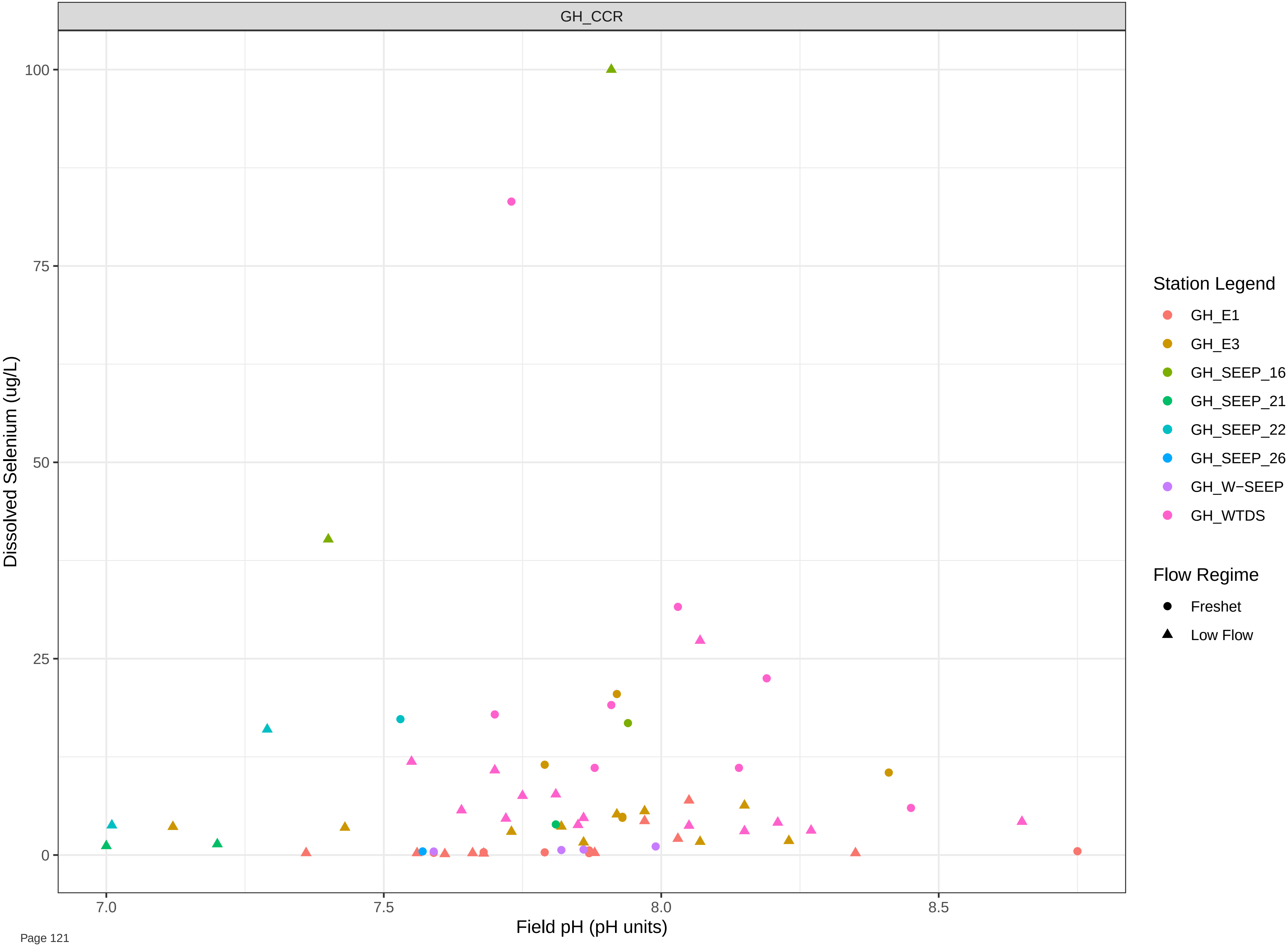

GH_LEASK_WR
Dissolved Potassium (mg/L)
4.4
4.2
4.0
3.8
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

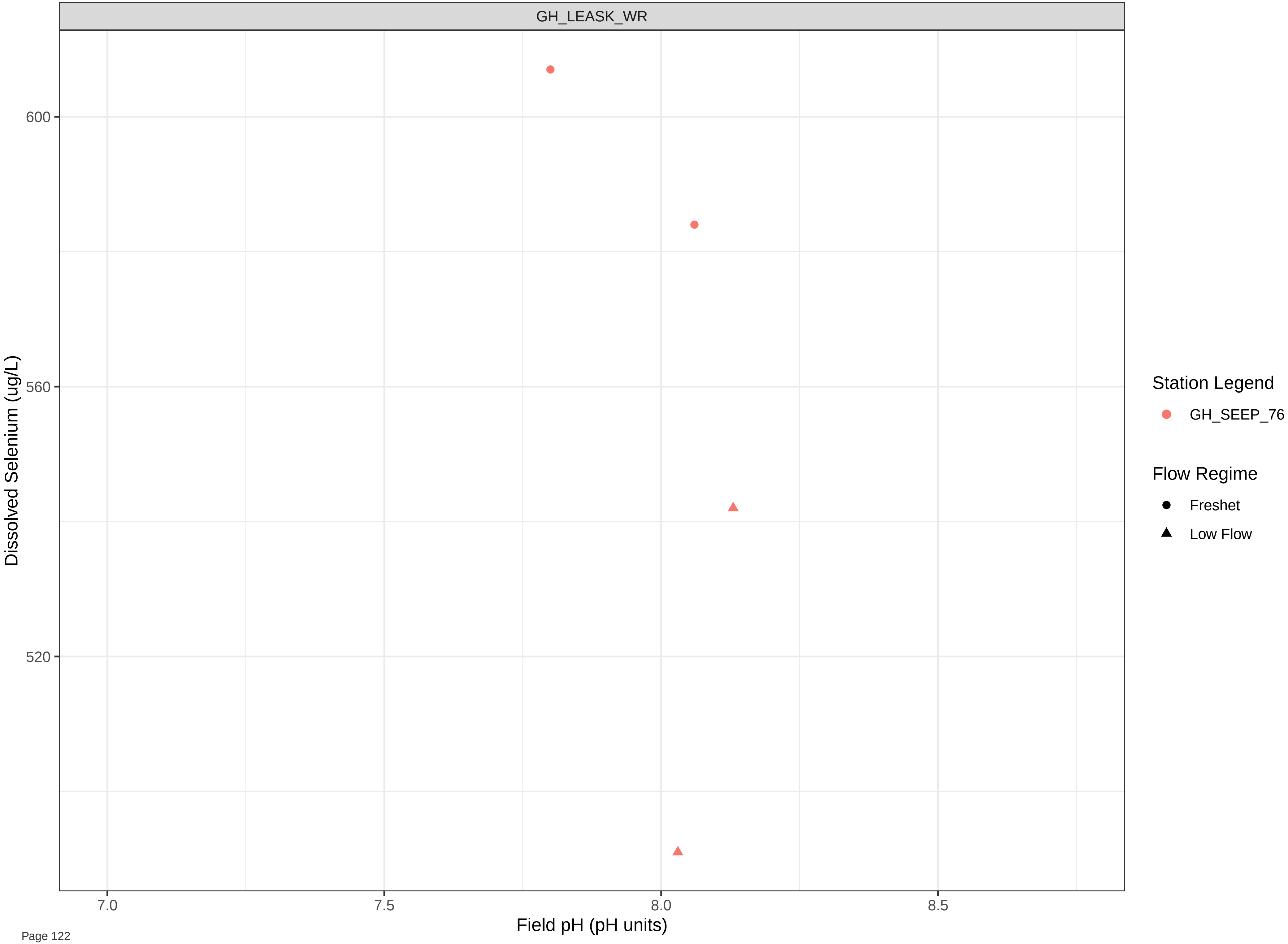

GH_PORTER_CREEK
Dissolved Potassium (mg/L)
0.65
0.60
0.55
0.50
0.45
0.40
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

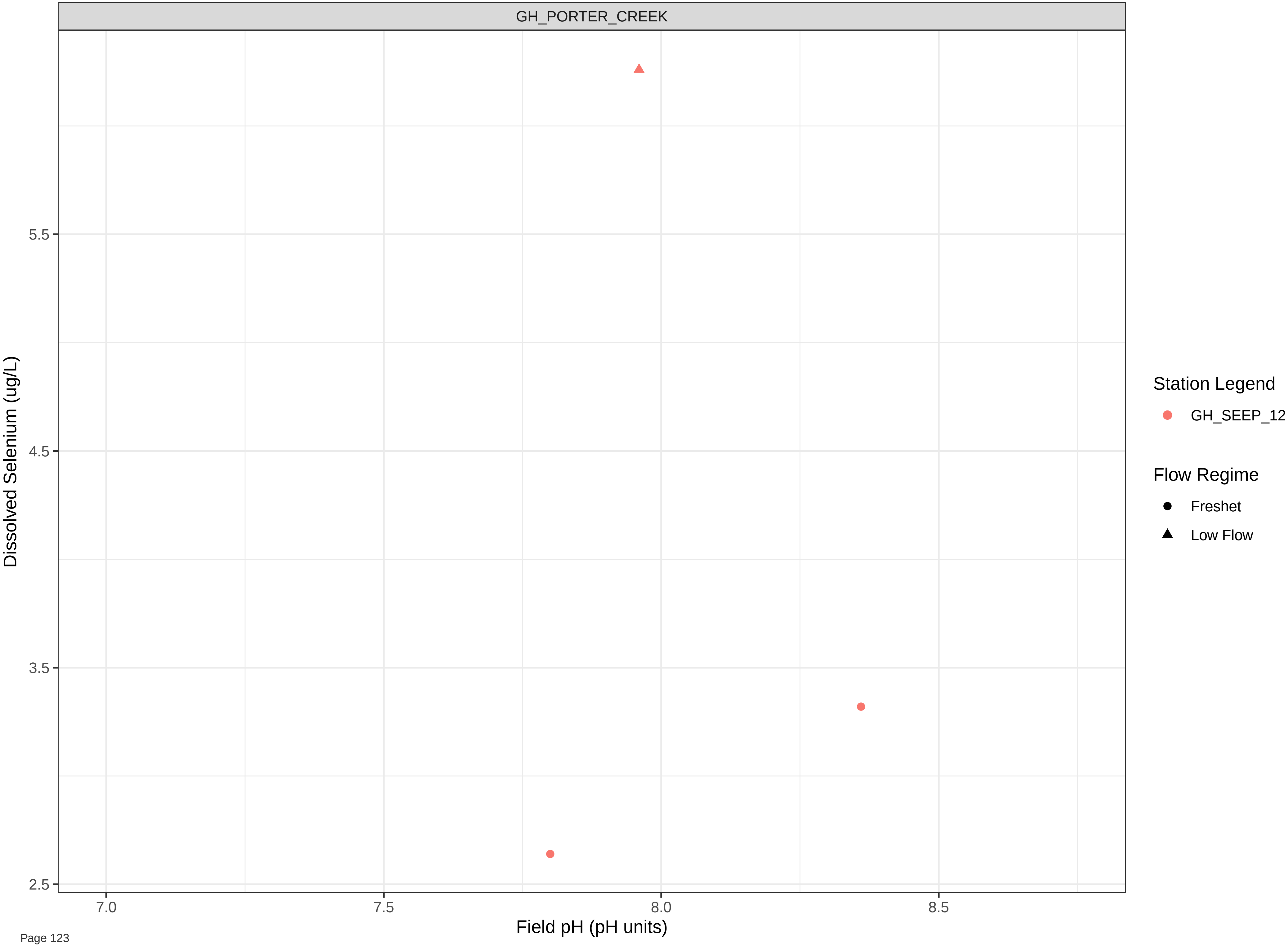

GH_THOMPSON_WR
Dissolved Potassium (mg/L)
3
2
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

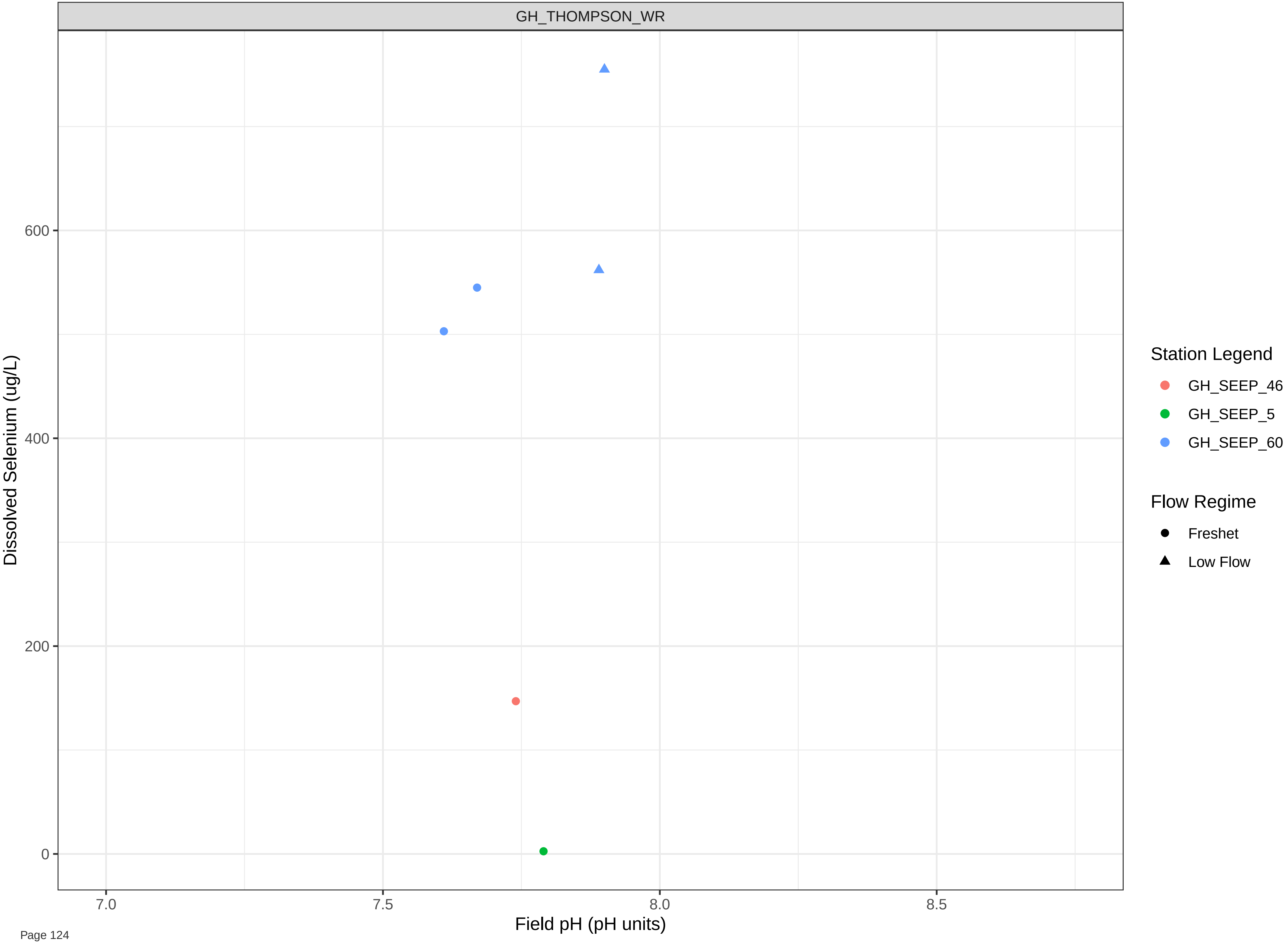

GH_UPSTREAM_CCR
Dissolved Potassium (mg/L)
2.5
2.0
1.5
1.0
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

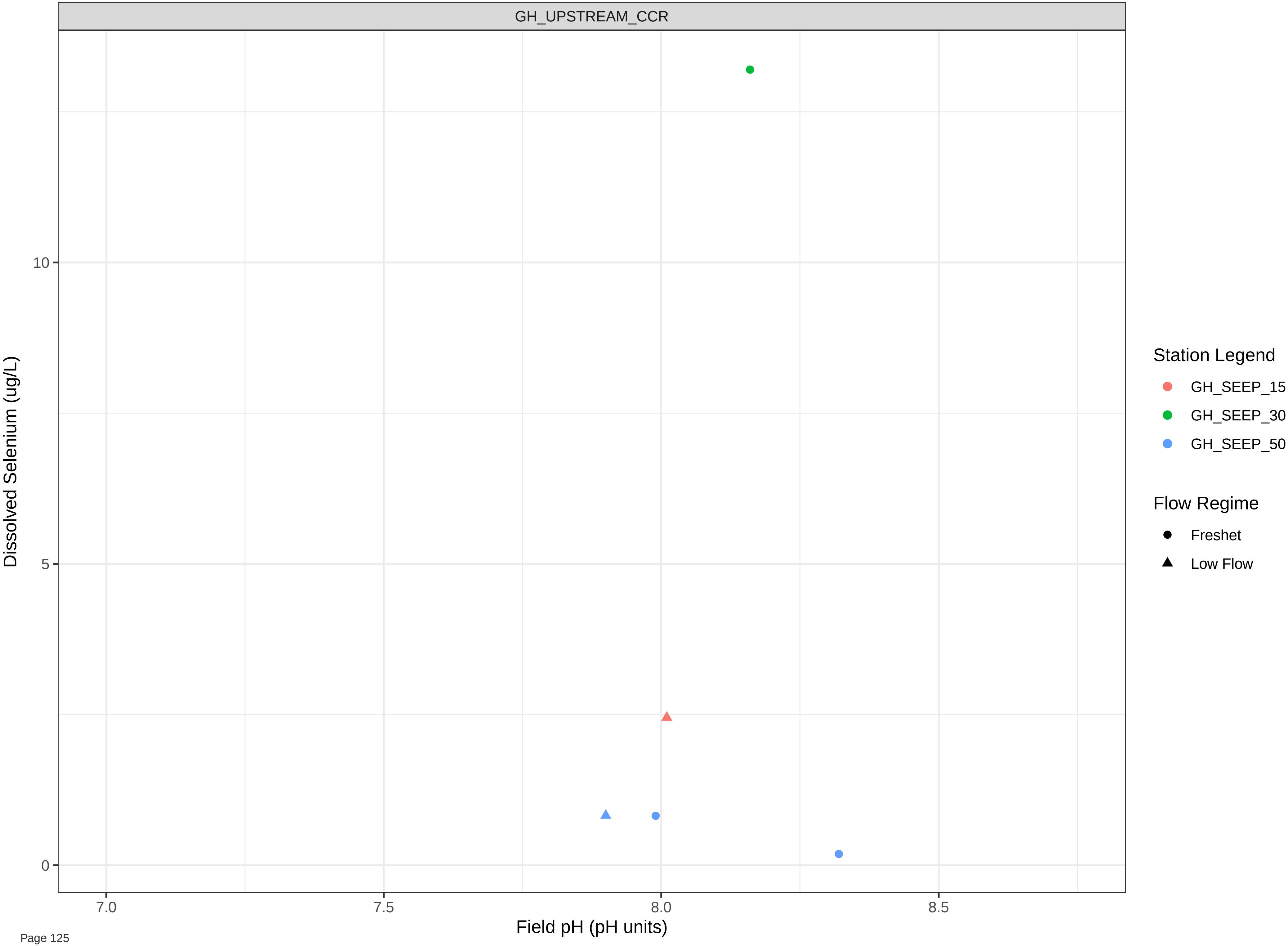

GH_WOLFRAM_WR
Dissolved Potassium (mg/L)
7.5
5.0
2.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

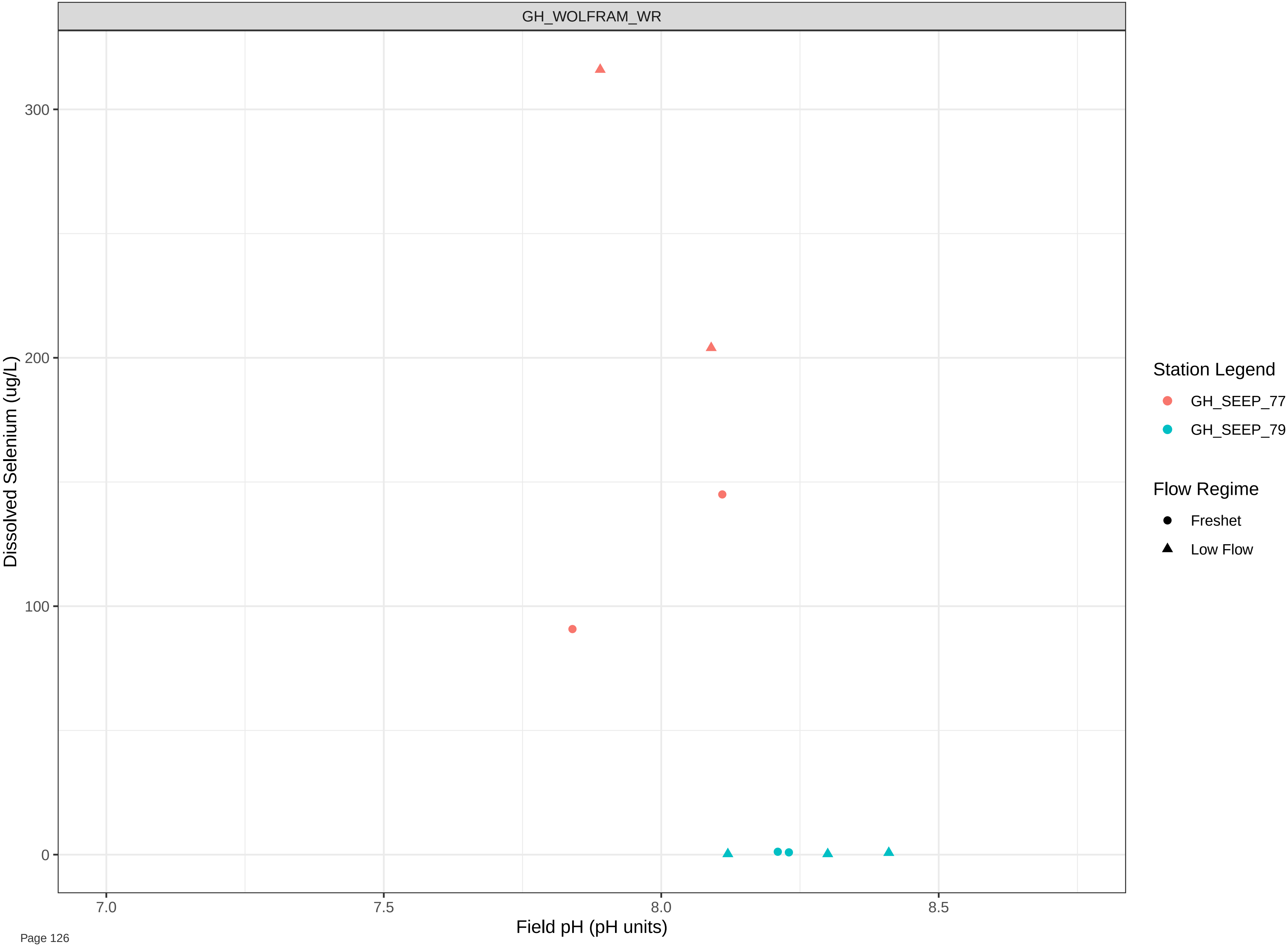

GH_CCR
Dissolved Selenium (ug/L)
100
75
50
25
0
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

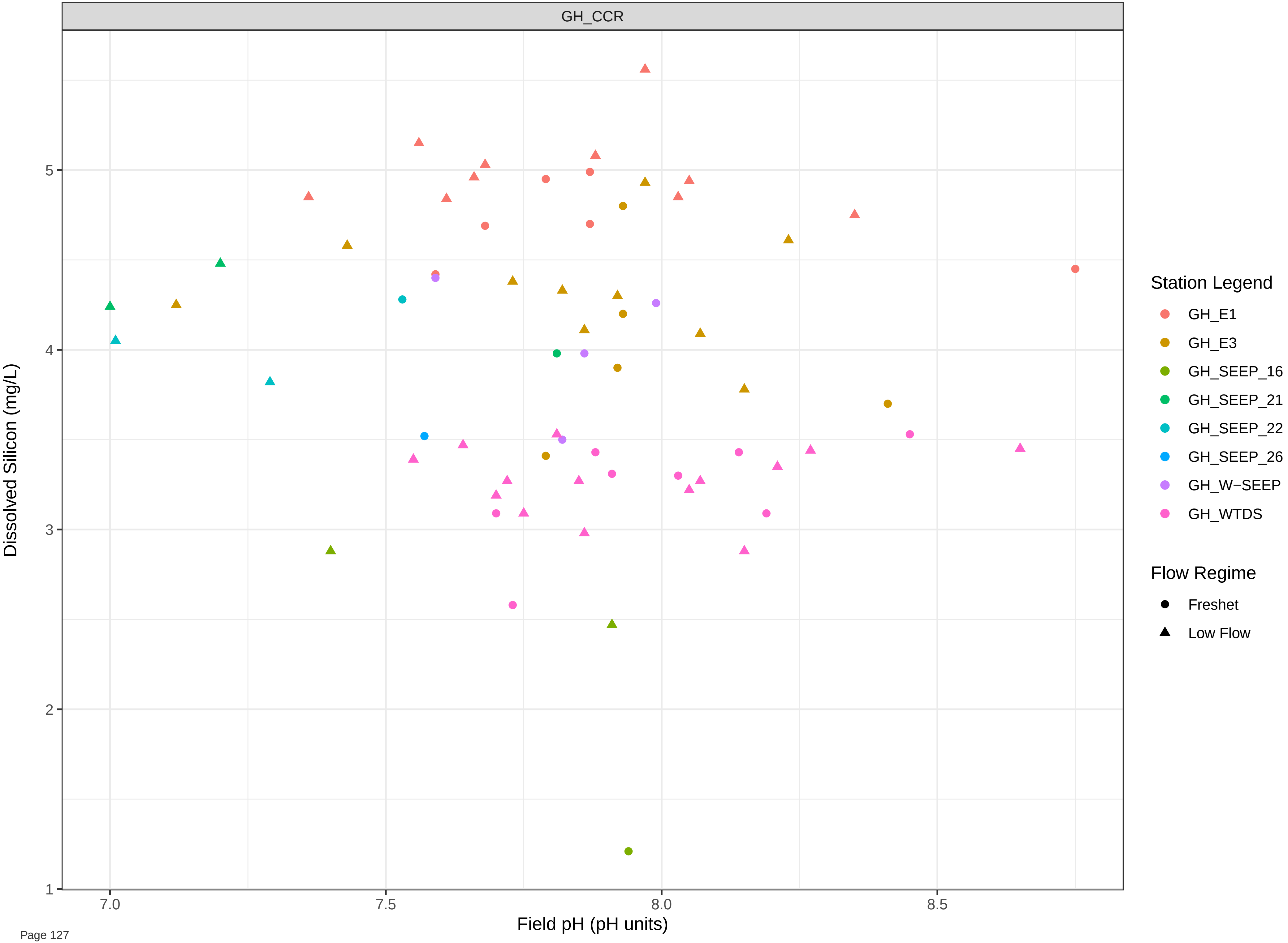

GH_LEASK_WR
Dissolved Selenium (ug/L)
600
560
520
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

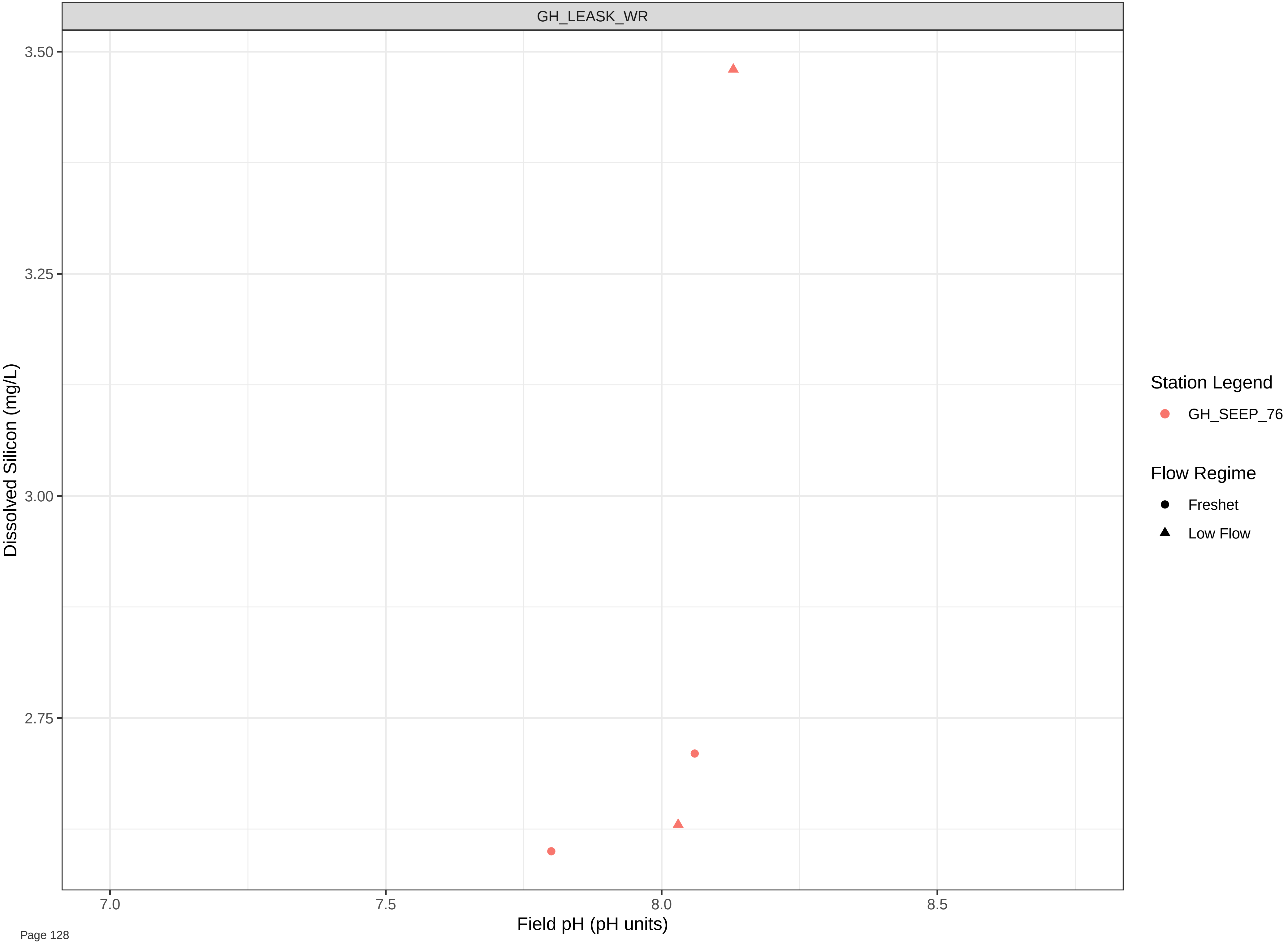

GH_PORTER_CREEK
Dissolved Selenium (ug/L)
5.5
4.5
3.5
2.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

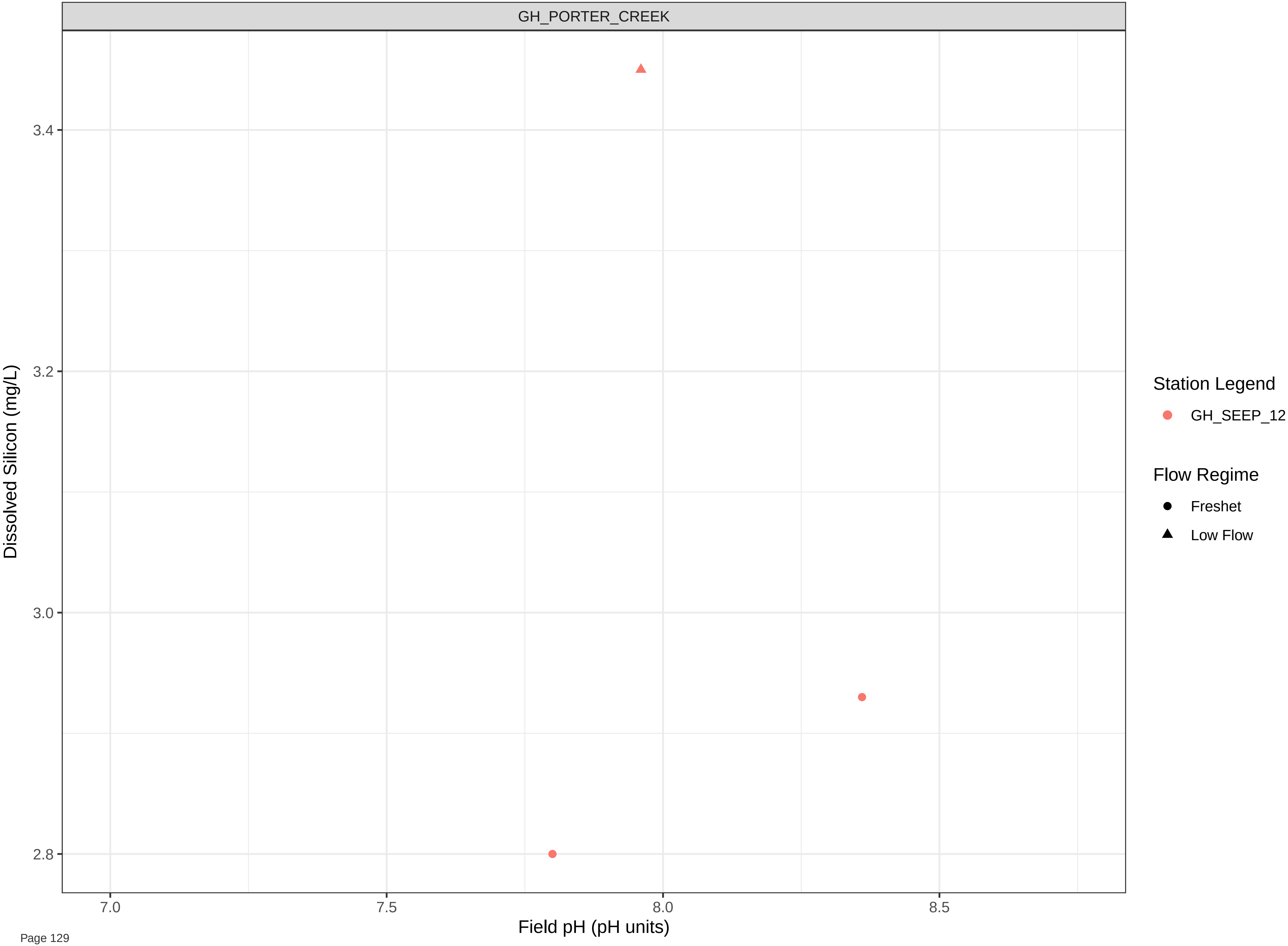

GH_THOMPSON_WR
Dissolved Selenium (ug/L)
600
400
200
0
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

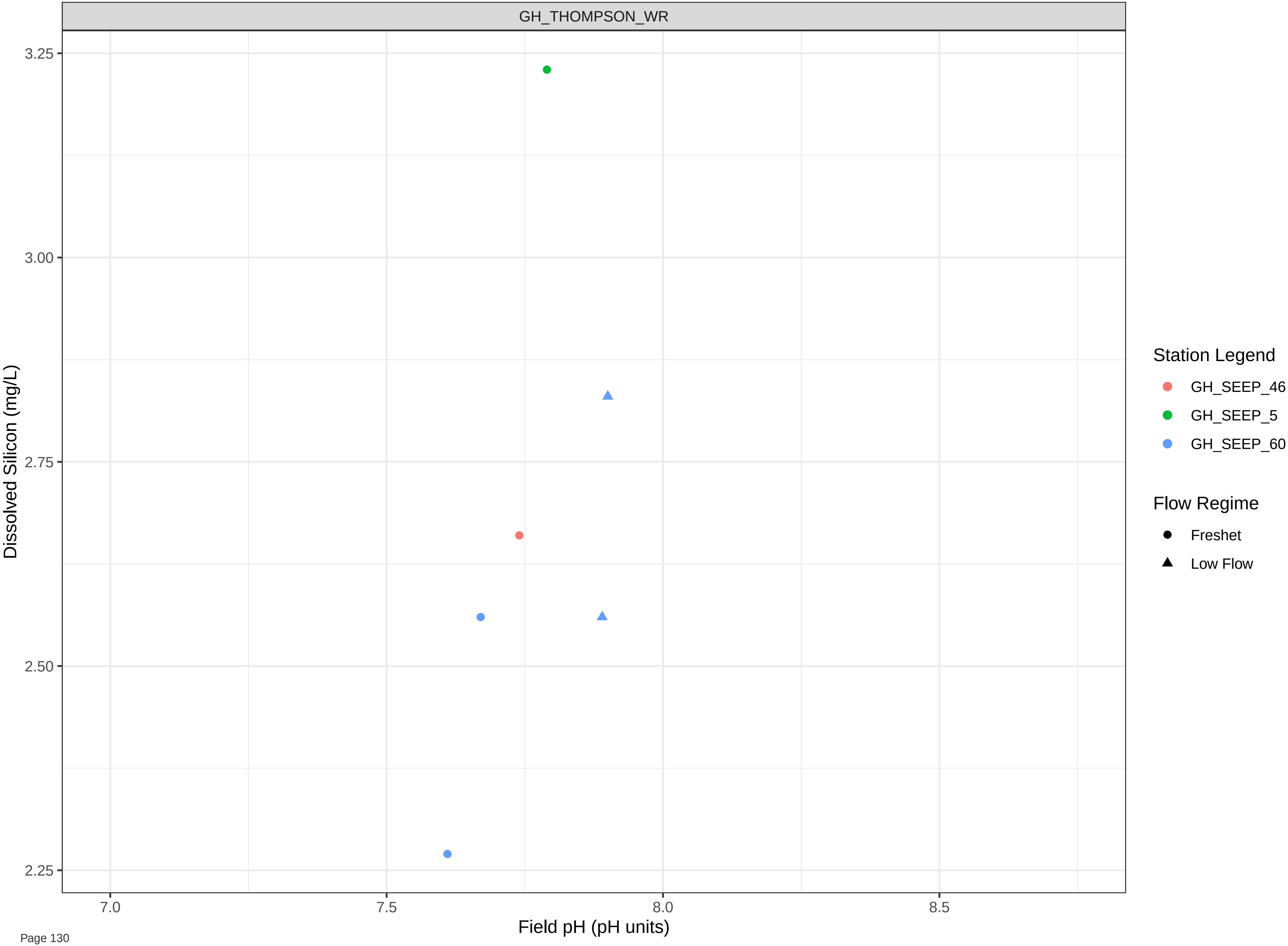

GH_UPSTREAM_CCR
Dissolved Selenium (ug/L)
10
5
0
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

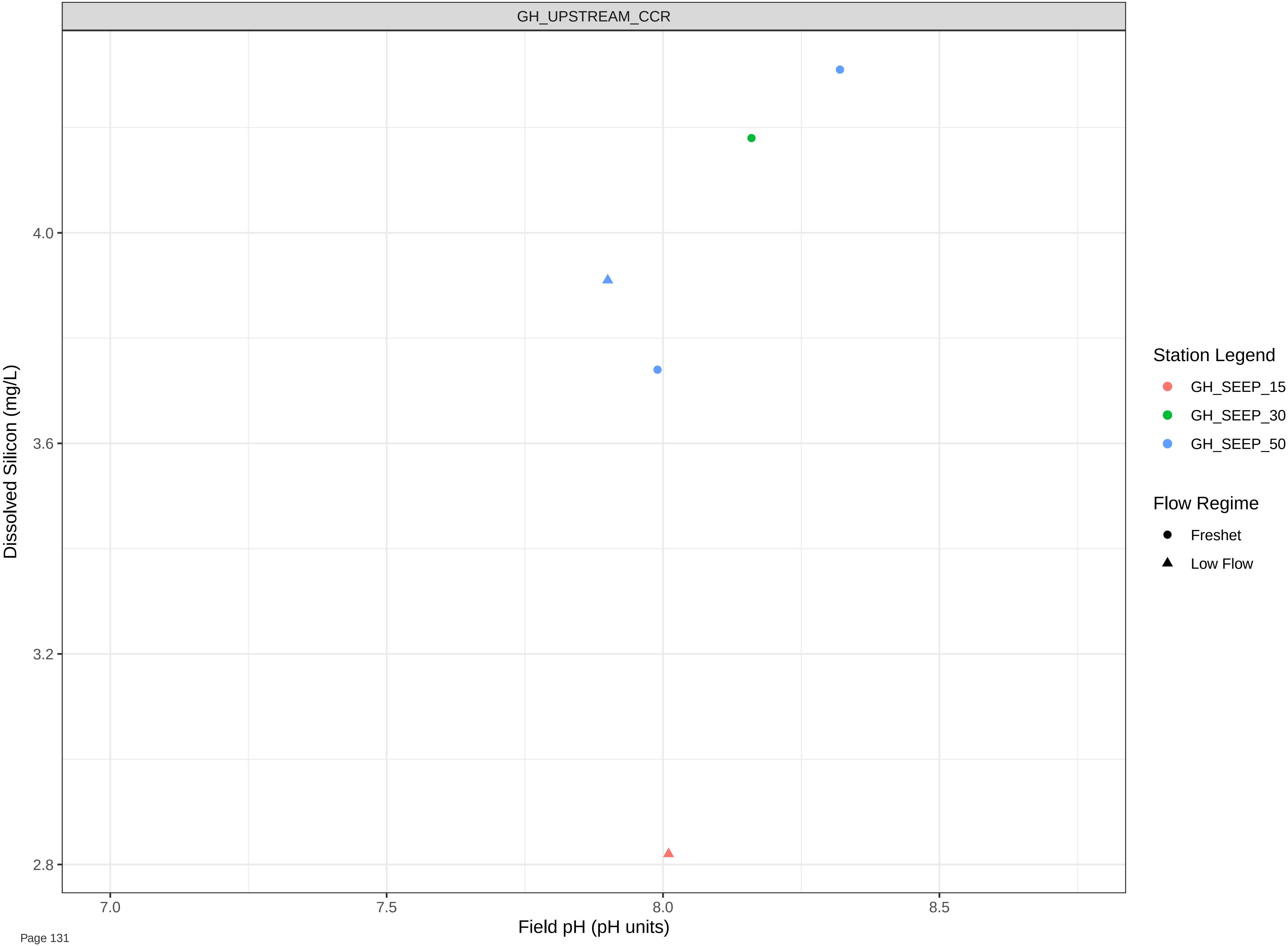

GH_WOLFRAM_WR
Dissolved Selenium (ug/L)
300
200
100
0
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

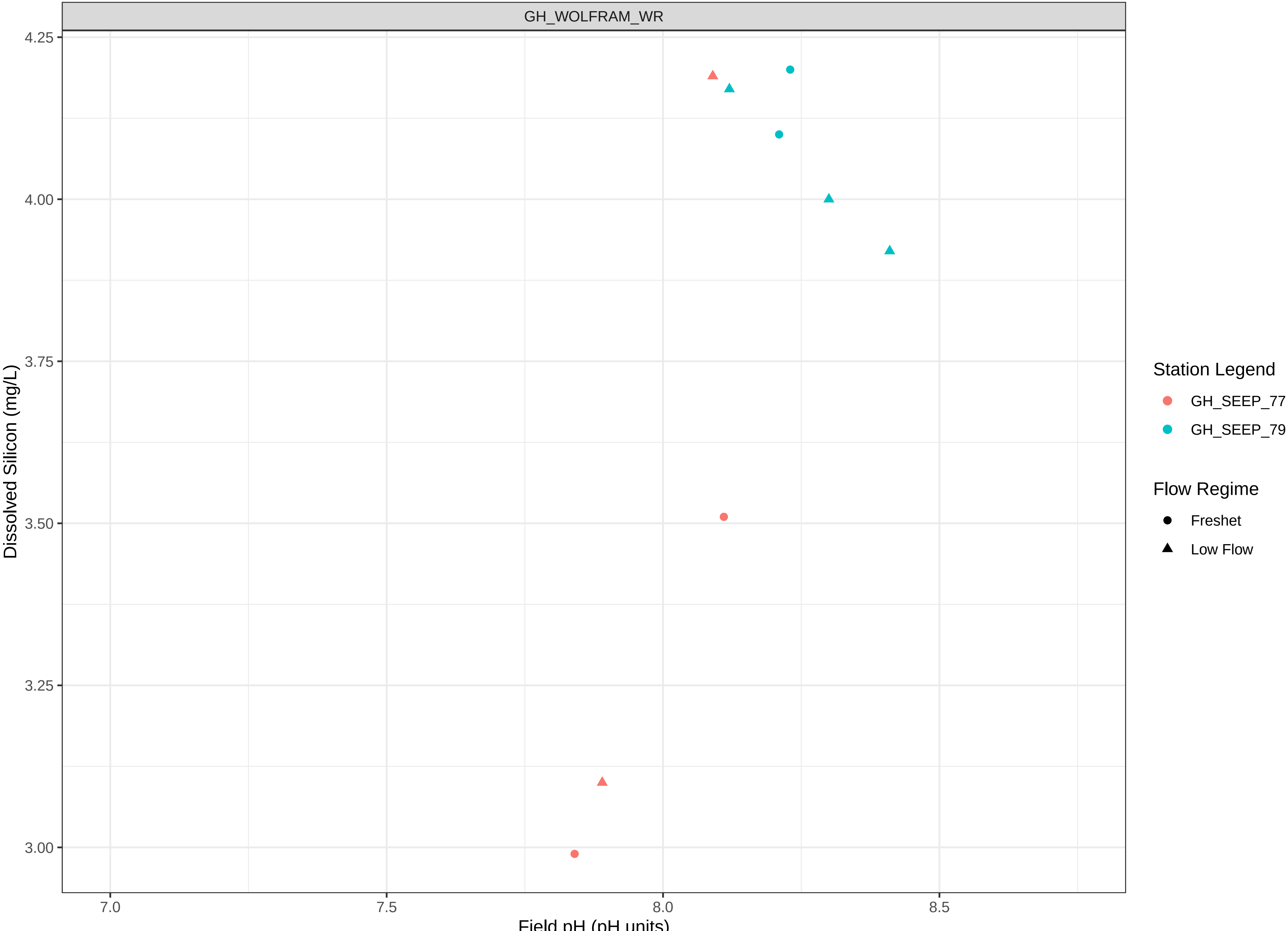

GH_CCR
Dissolved Silicon (mg/L)
5
4
3
2
1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

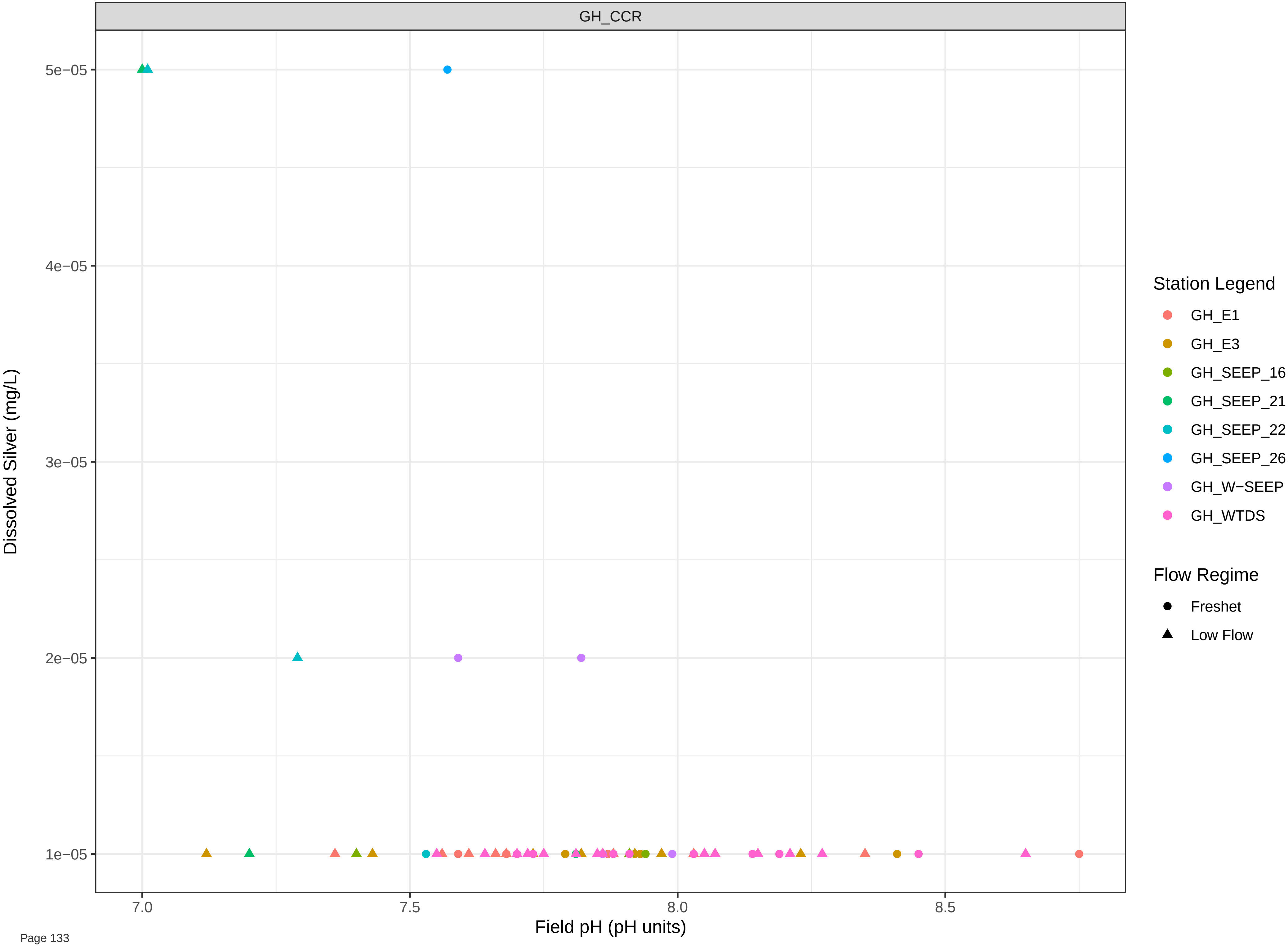

GH_LEASK_WR
Dissolved Silicon (mg/L)
3.50
3.25
3.00
2.75
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow

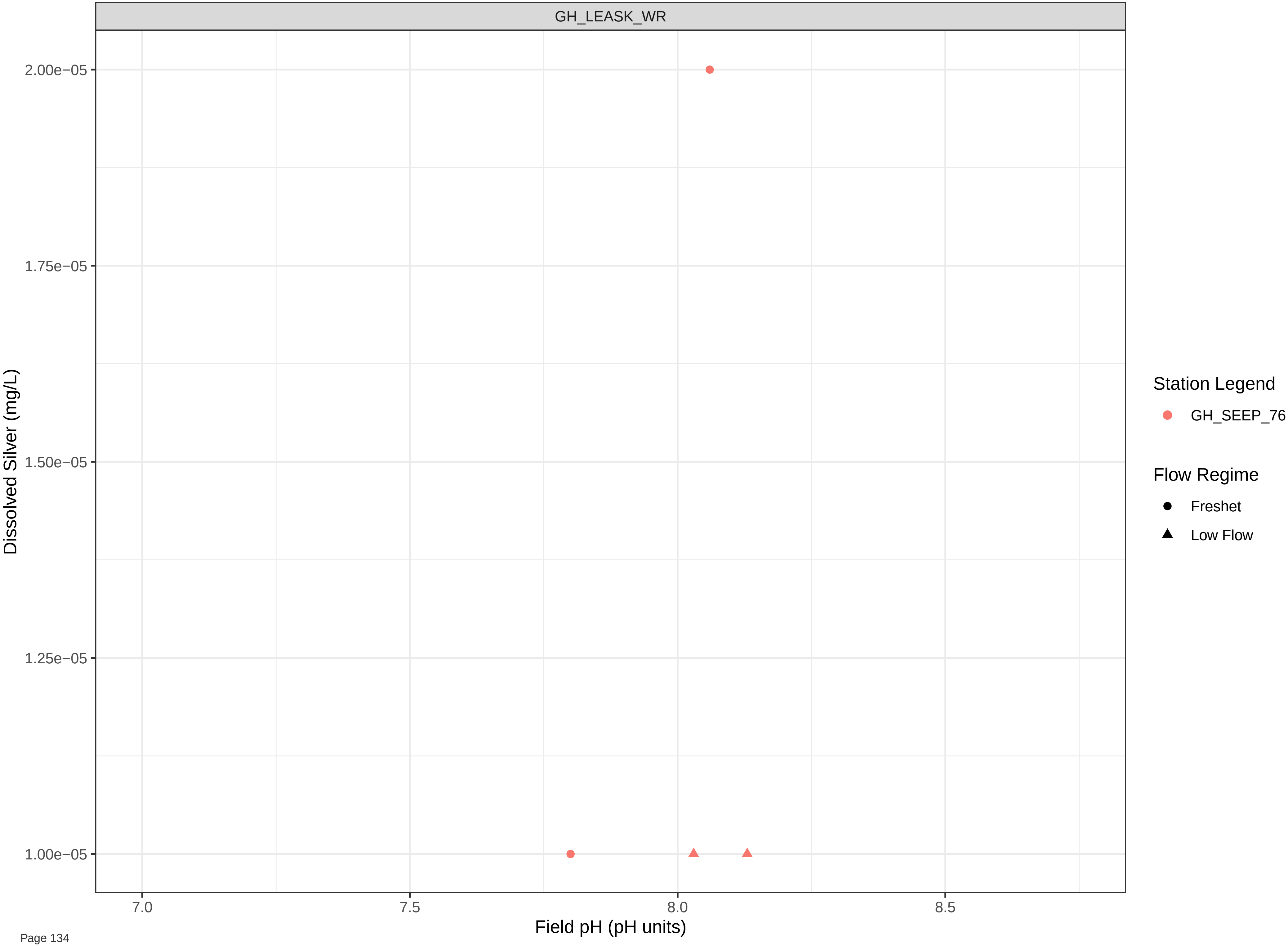

GH_PORTER_CREEK
Dissolved Silicon (mg/L)
3.4
3.2
3.0
2.8
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

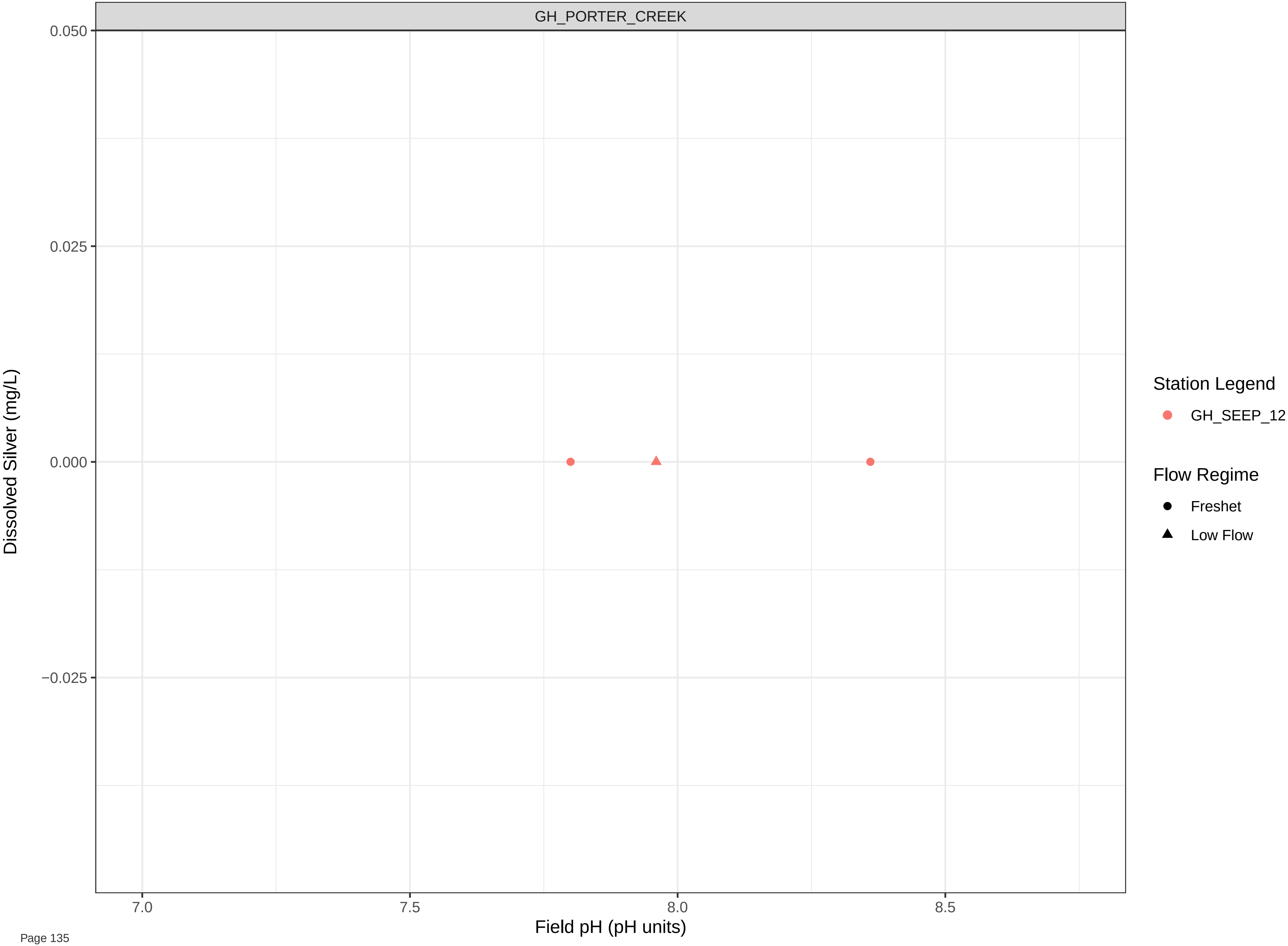

GH_THOMPSON_WR
Dissolved Silicon (mg/L)
3.25
3.00
2.75
2.50
2.25
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

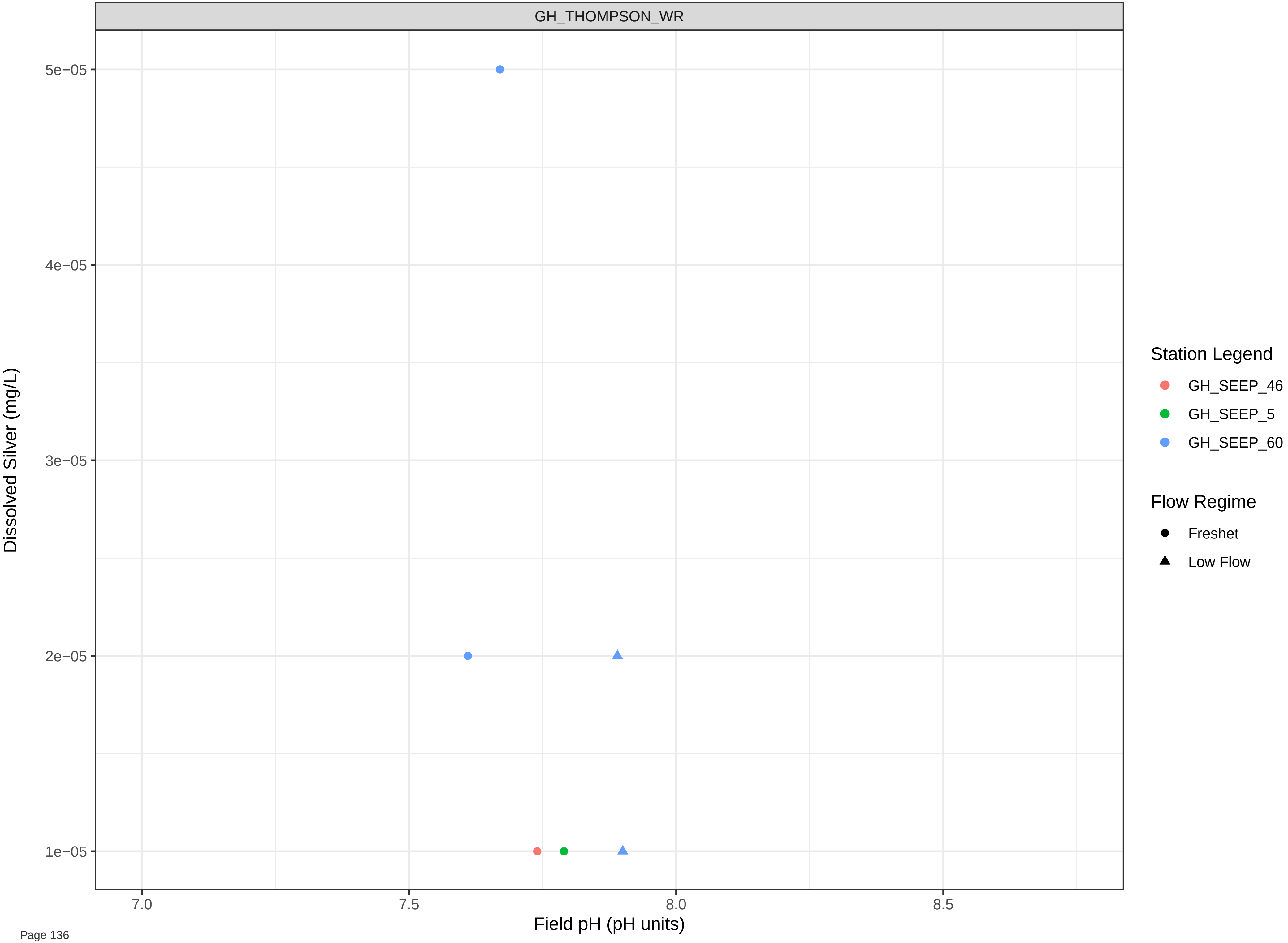

GH_UPSTREAM_CCR
Dissolved Silicon (mg/L)
4.0
3.6
3.2
2.8
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

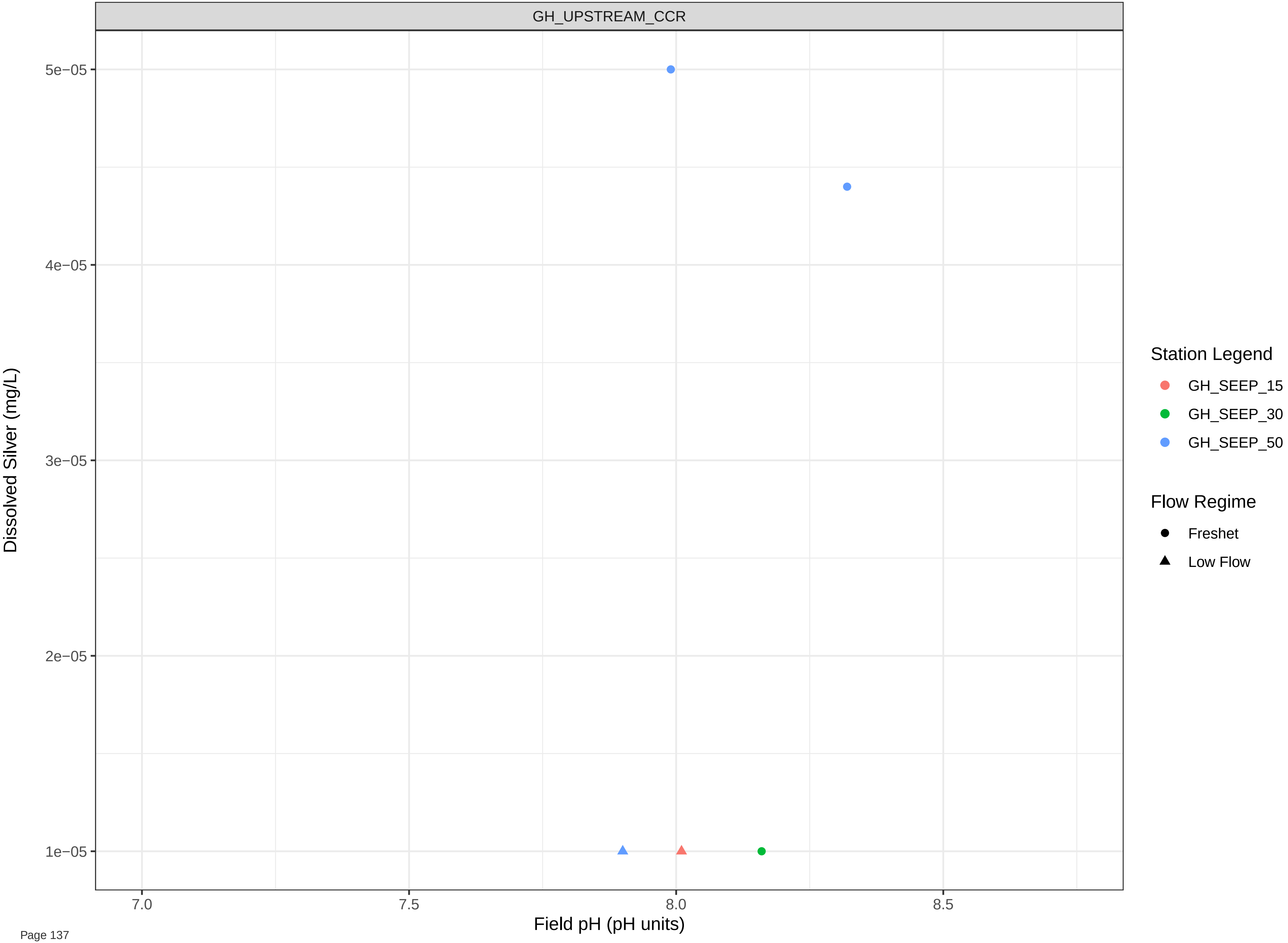

GH_WOLFRAM_WR
Dissolved Silicon (mg/L)
4.25
4.00
3.75
3.50
3.25
3.00
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

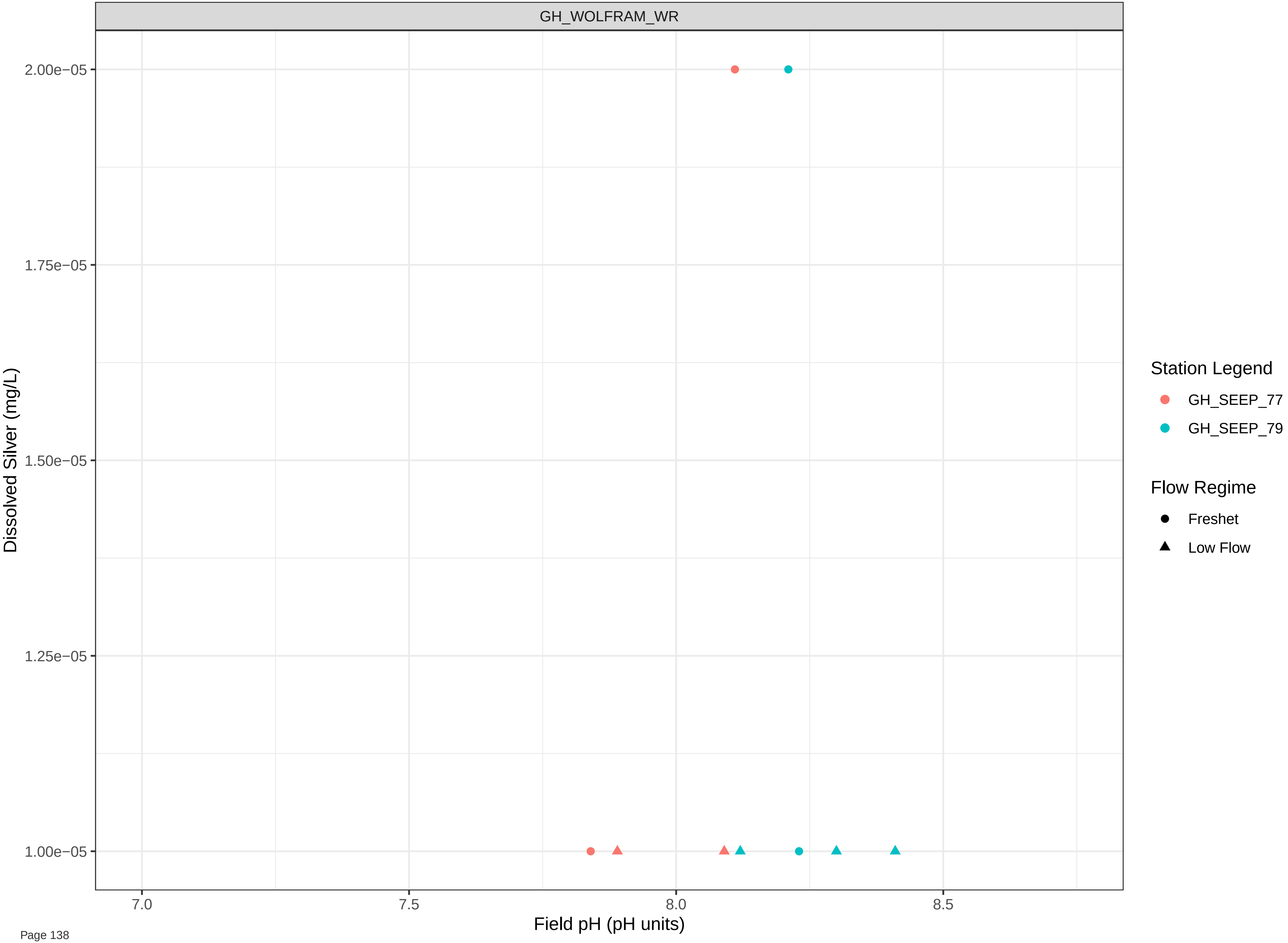

GH_CCR
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

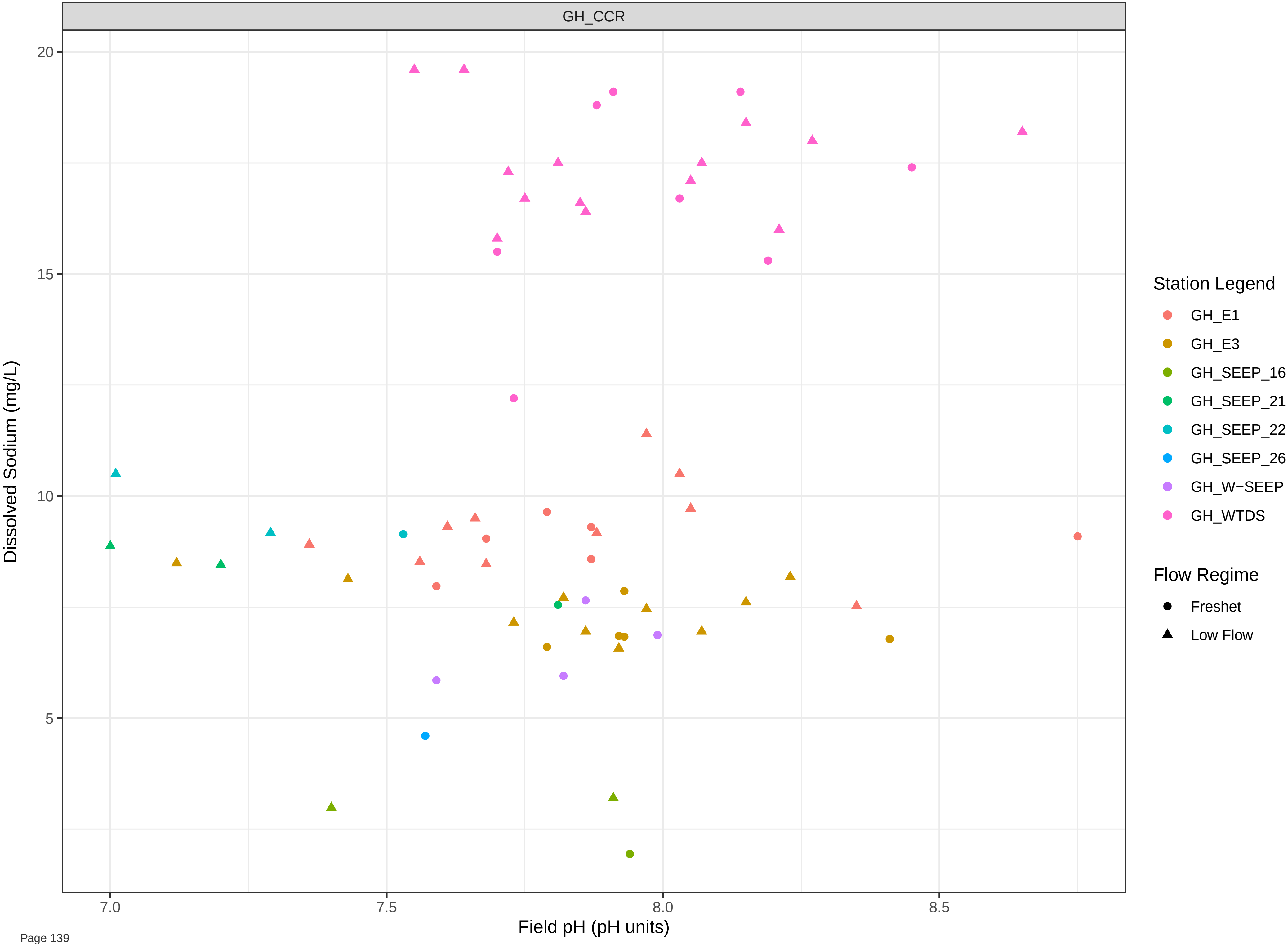

GH_LEASK_WR
Dissolved Silver (mg/L)
2.00e−05
1.75e−05
1.50e−05
1.25e−05
1.00e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

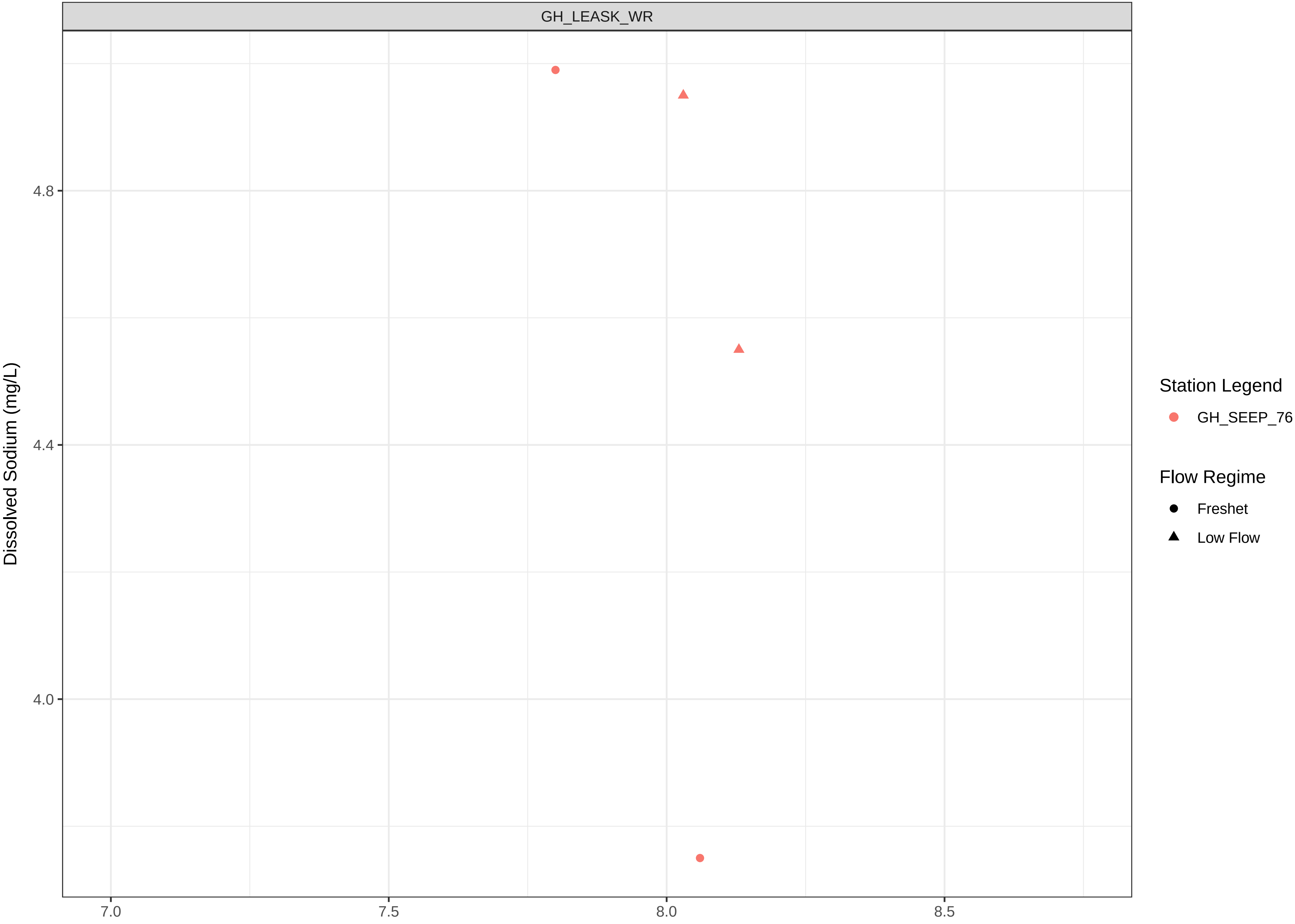

GH_PORTER_CREEK
Dissolved Silver (mg/L)
0.050
0.025
0.000
−0.025
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

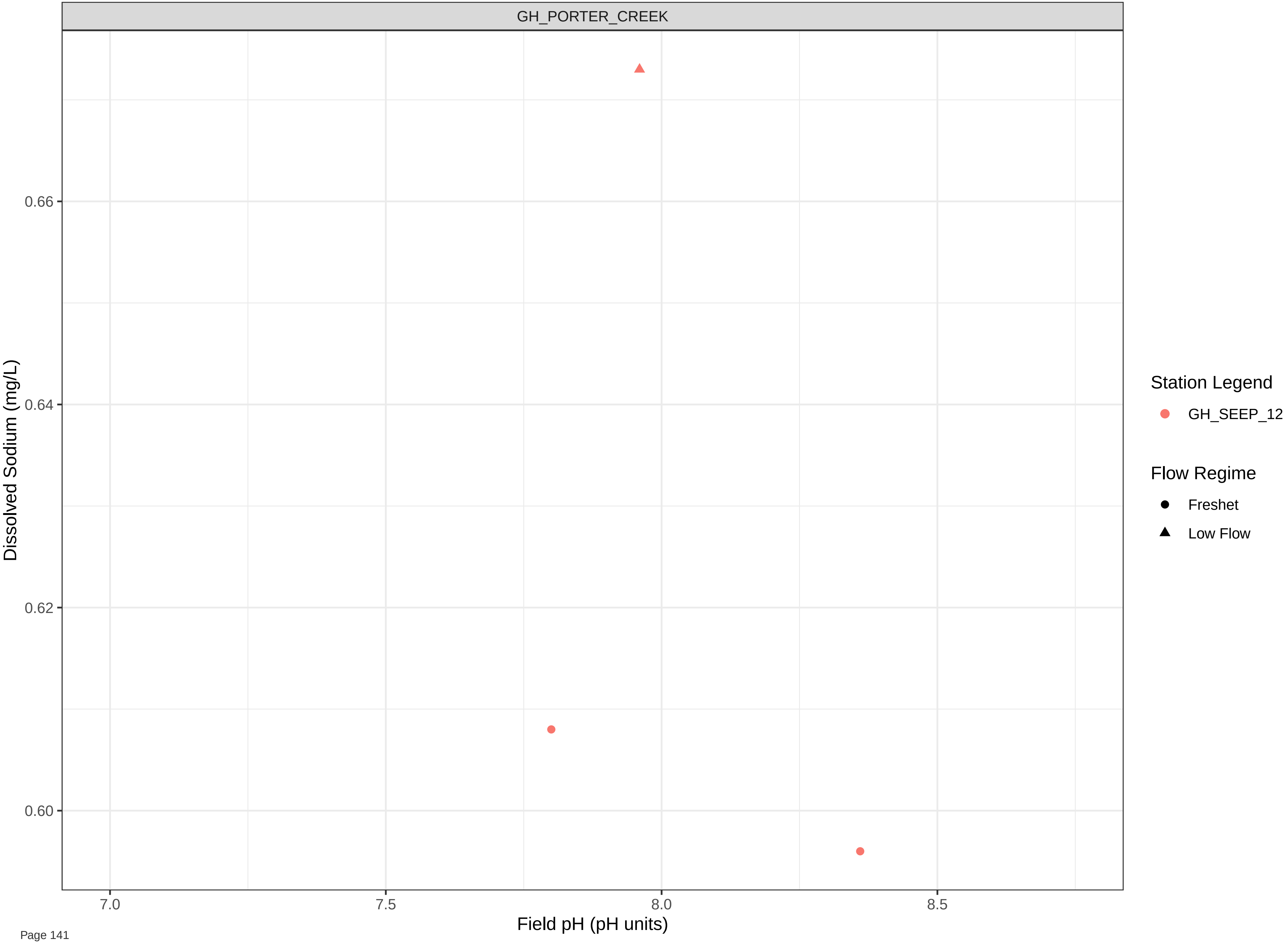

GH_THOMPSON_WR
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

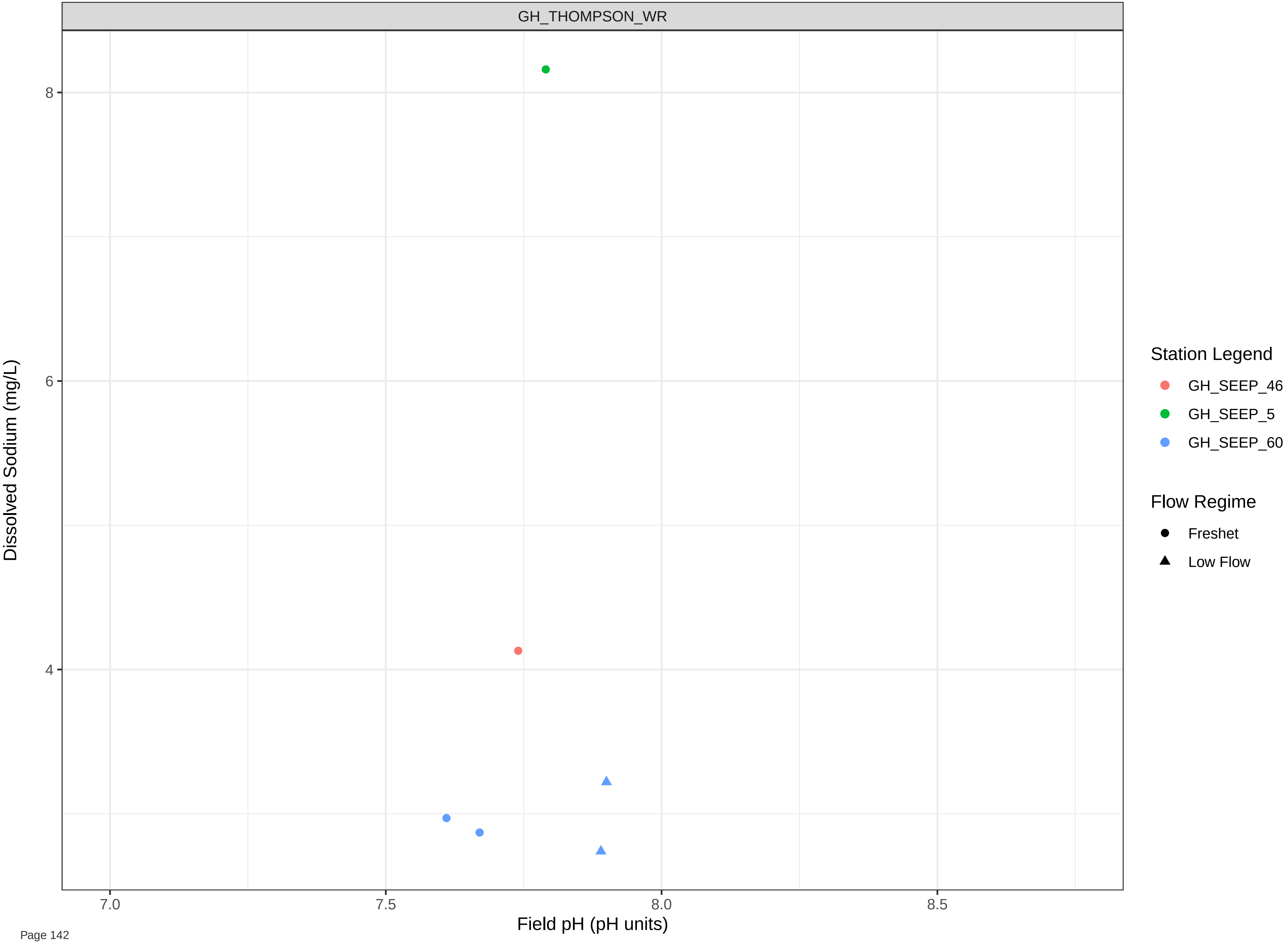

GH_UPSTREAM_CCR
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

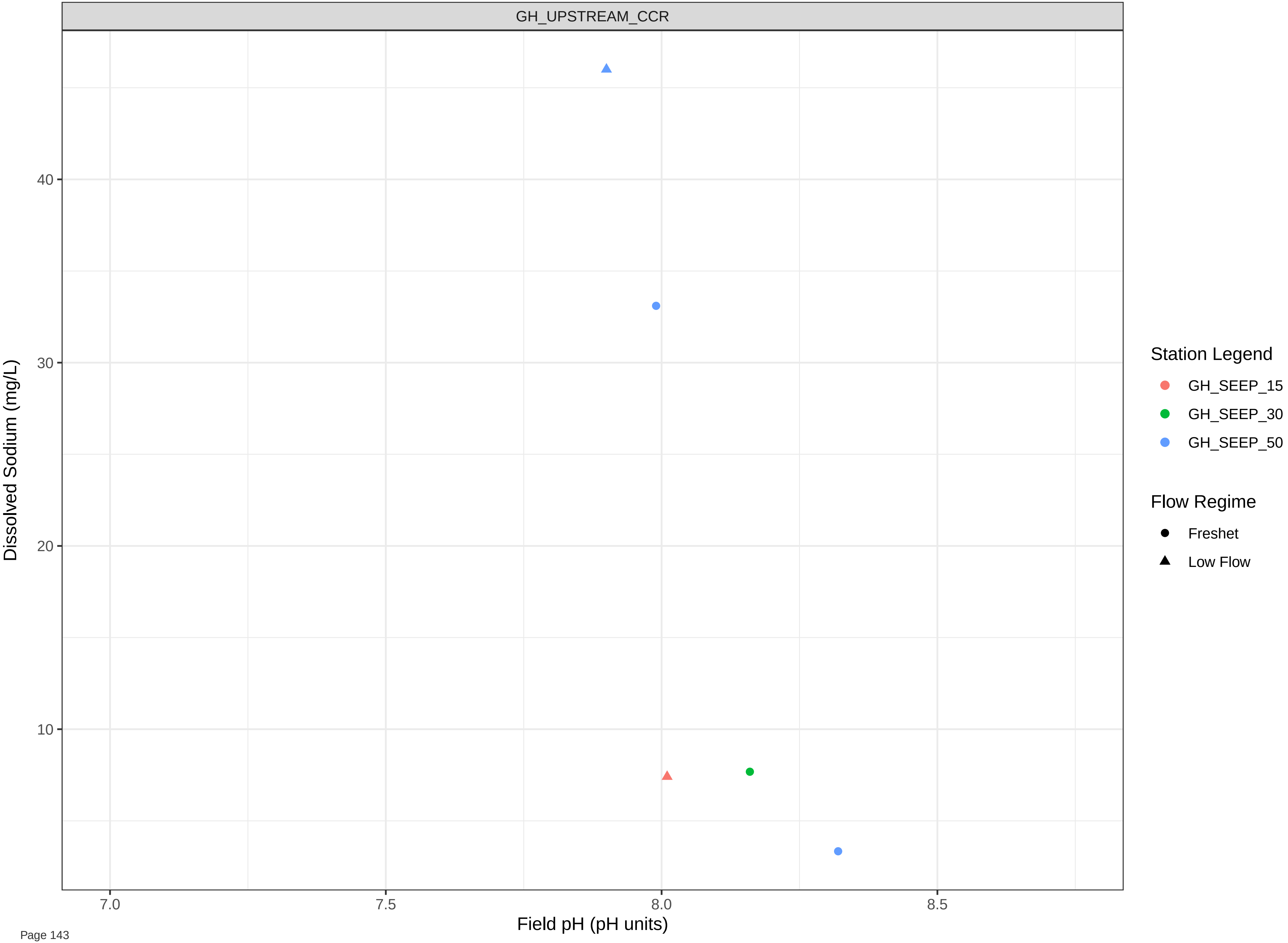

GH_WOLFRAM_WR
Dissolved Silver (mg/L)
2.00e−05
1.75e−05
1.50e−05
1.25e−05
1.00e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

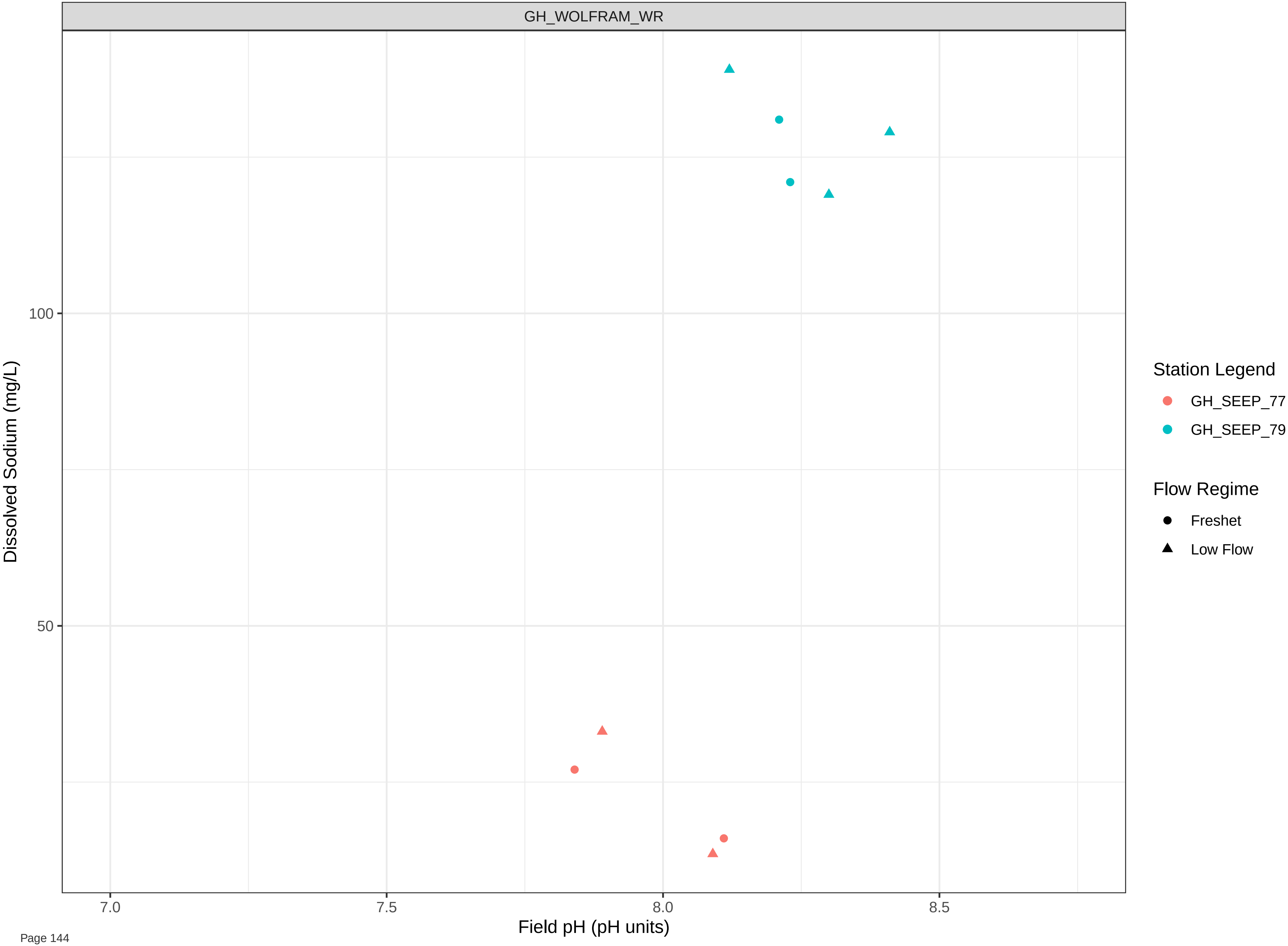

GH_CCR
Dissolved Sodium (mg/L)
20
15
10
5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

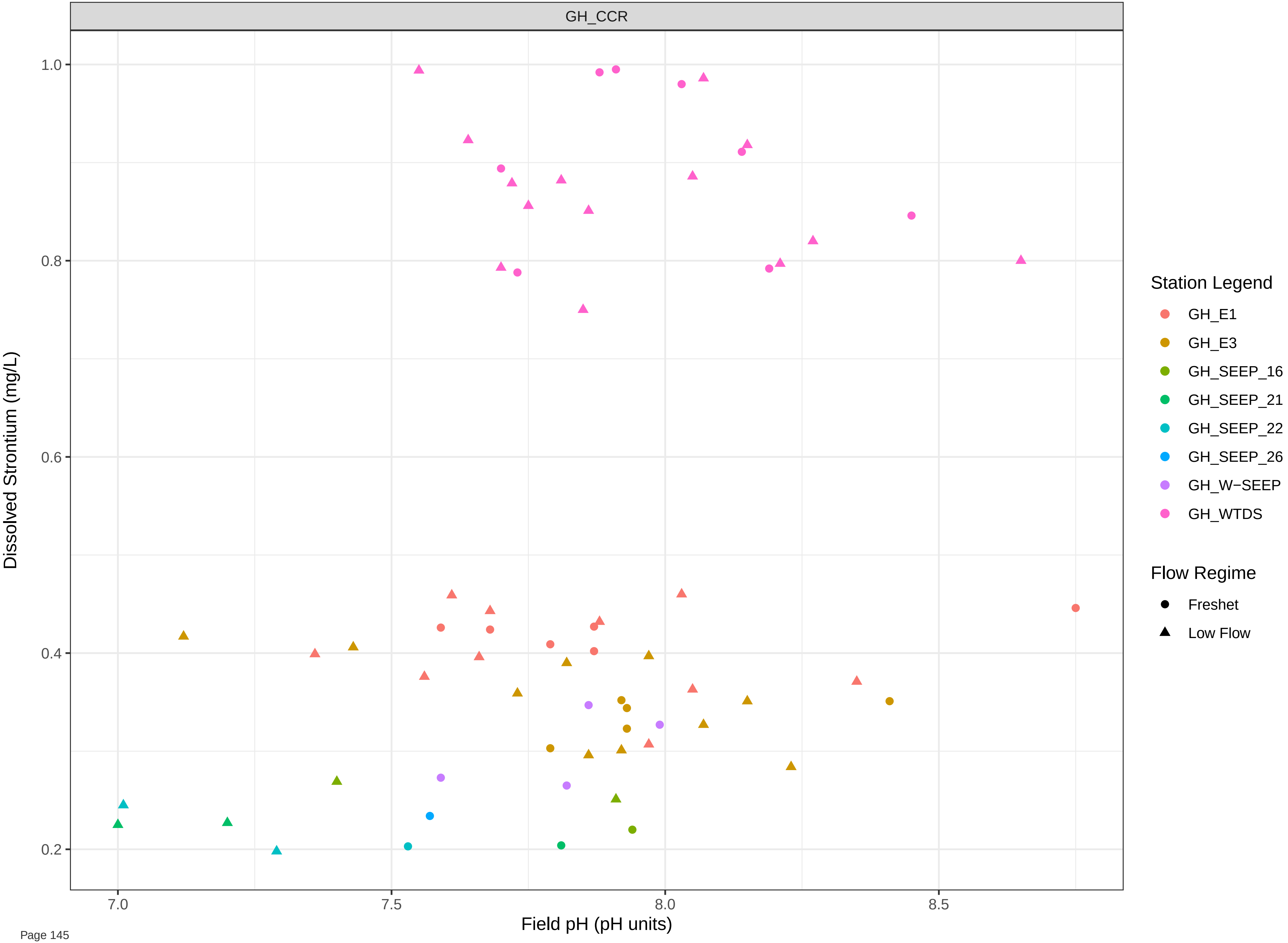

GH_LEASK_WR
Dissolved Sodium (mg/L)
4.8
4.4
4.0
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

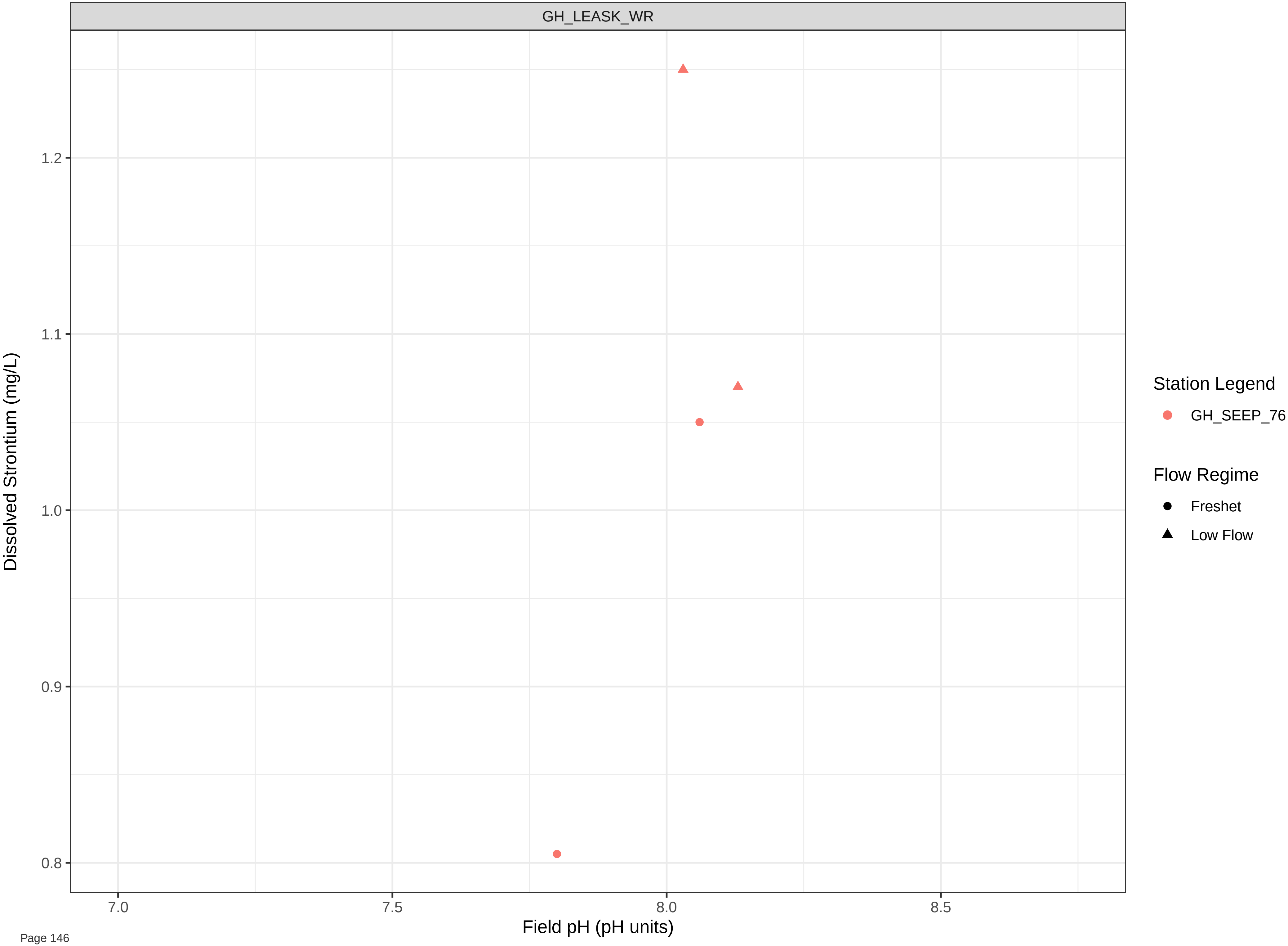

GH_PORTER_CREEK
Dissolved Sodium (mg/L)
0.66
0.64
0.62
0.60
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

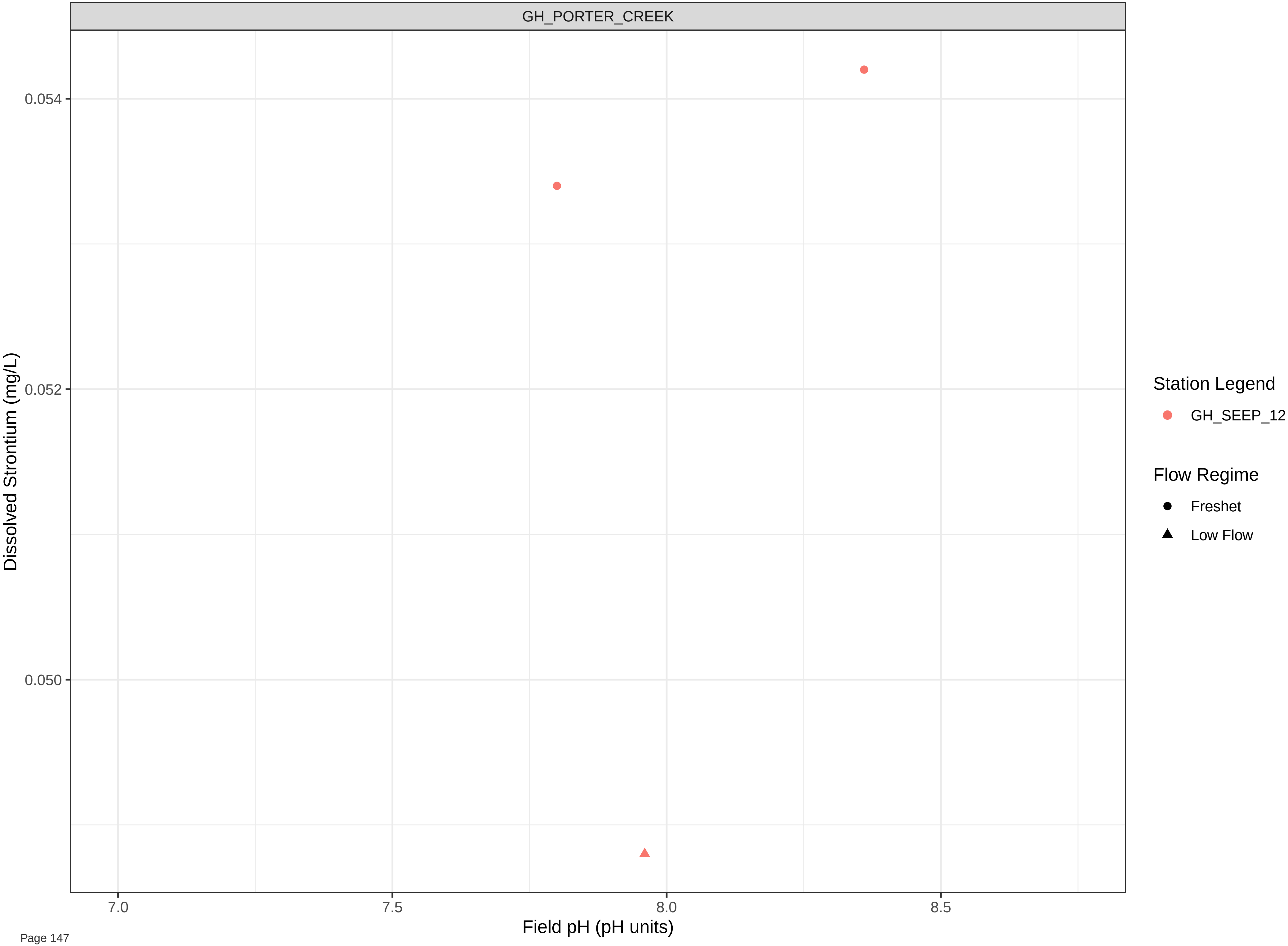

GH_THOMPSON_WR
Dissolved Sodium (mg/L)
8
6
4
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

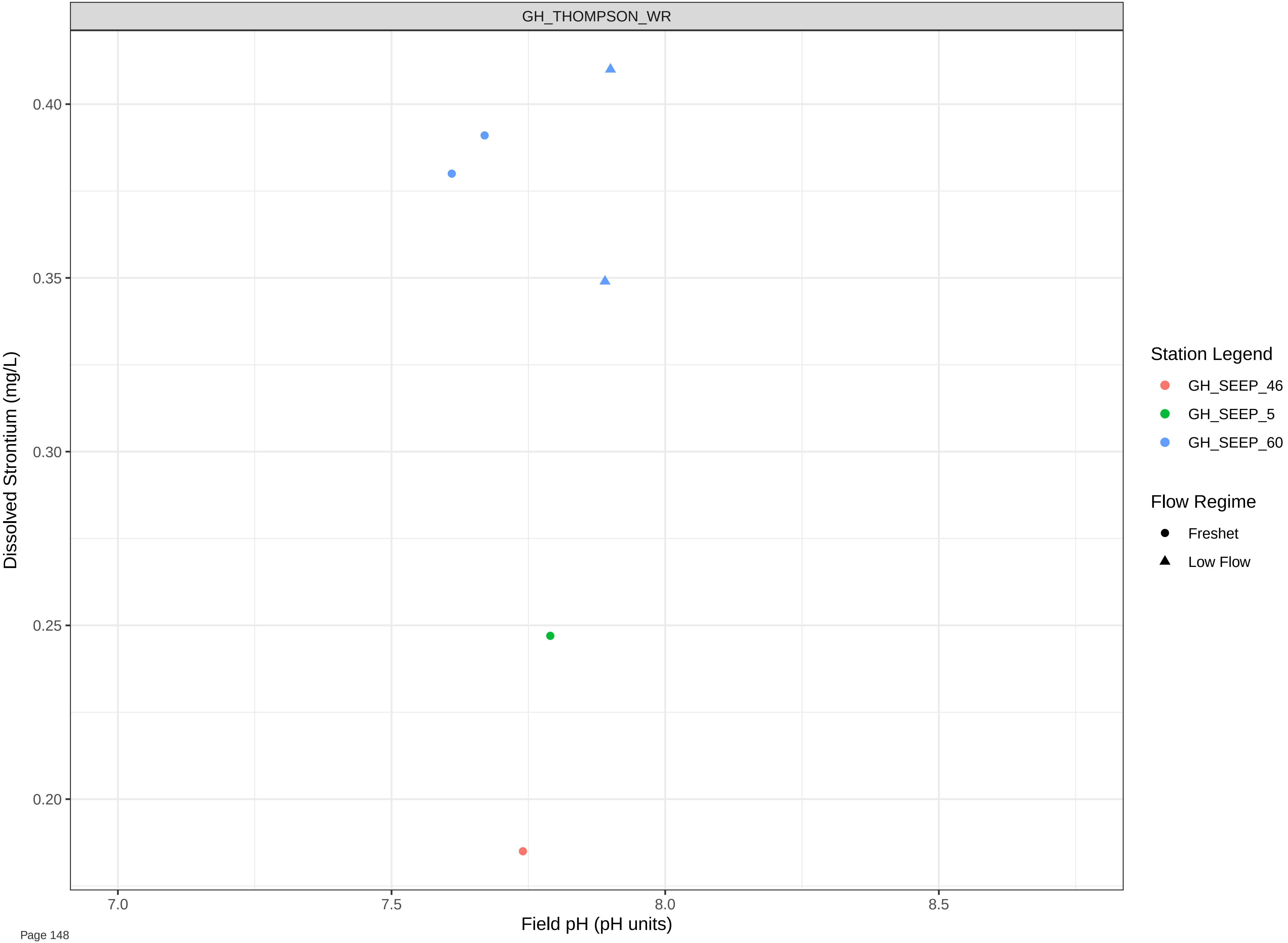

GH_UPSTREAM_CCR
Dissolved Sodium (mg/L)
40
30
20
10
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

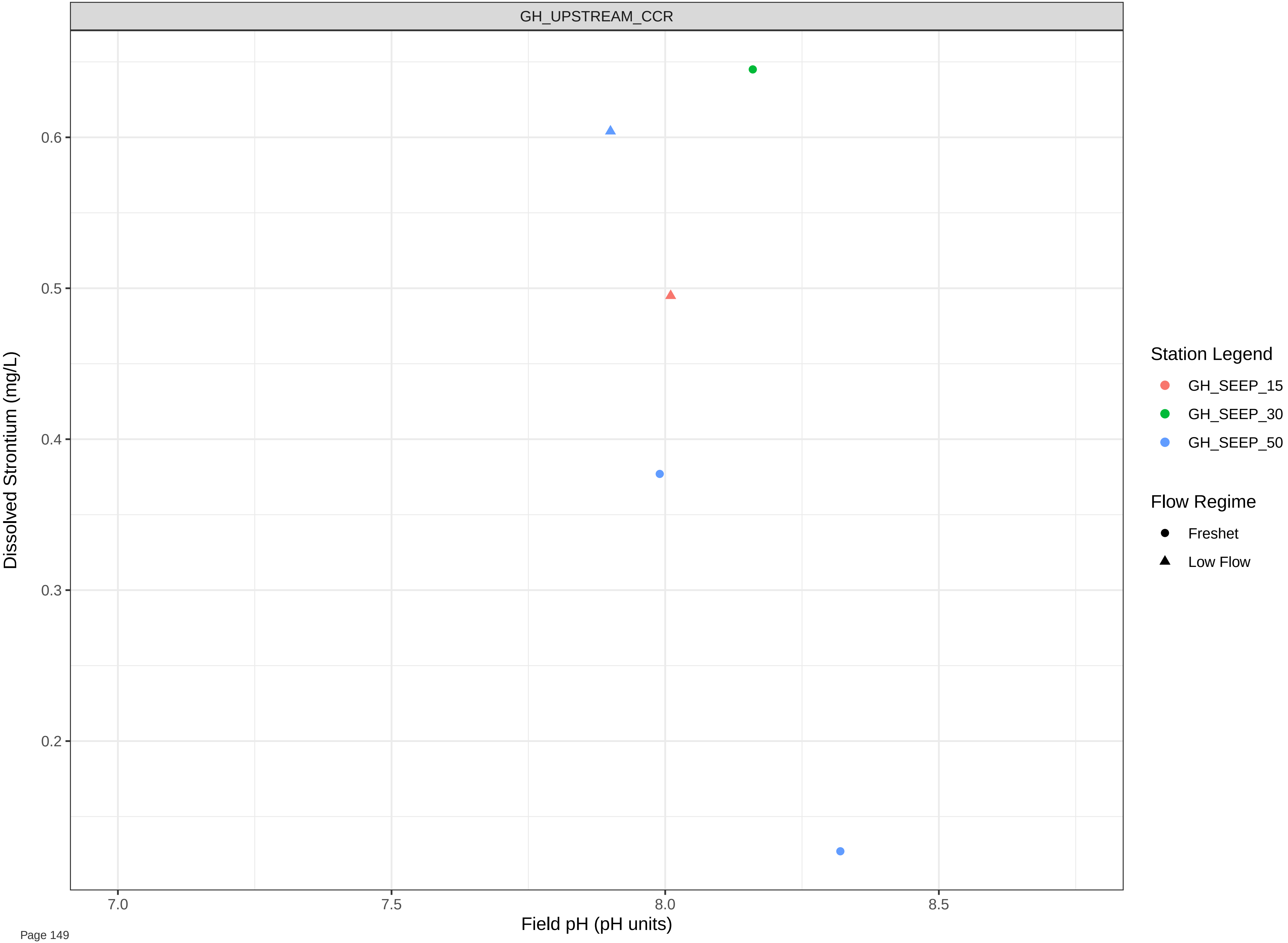

GH_WOLFRAM_WR
Dissolved Sodium (mg/L)
100
50
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

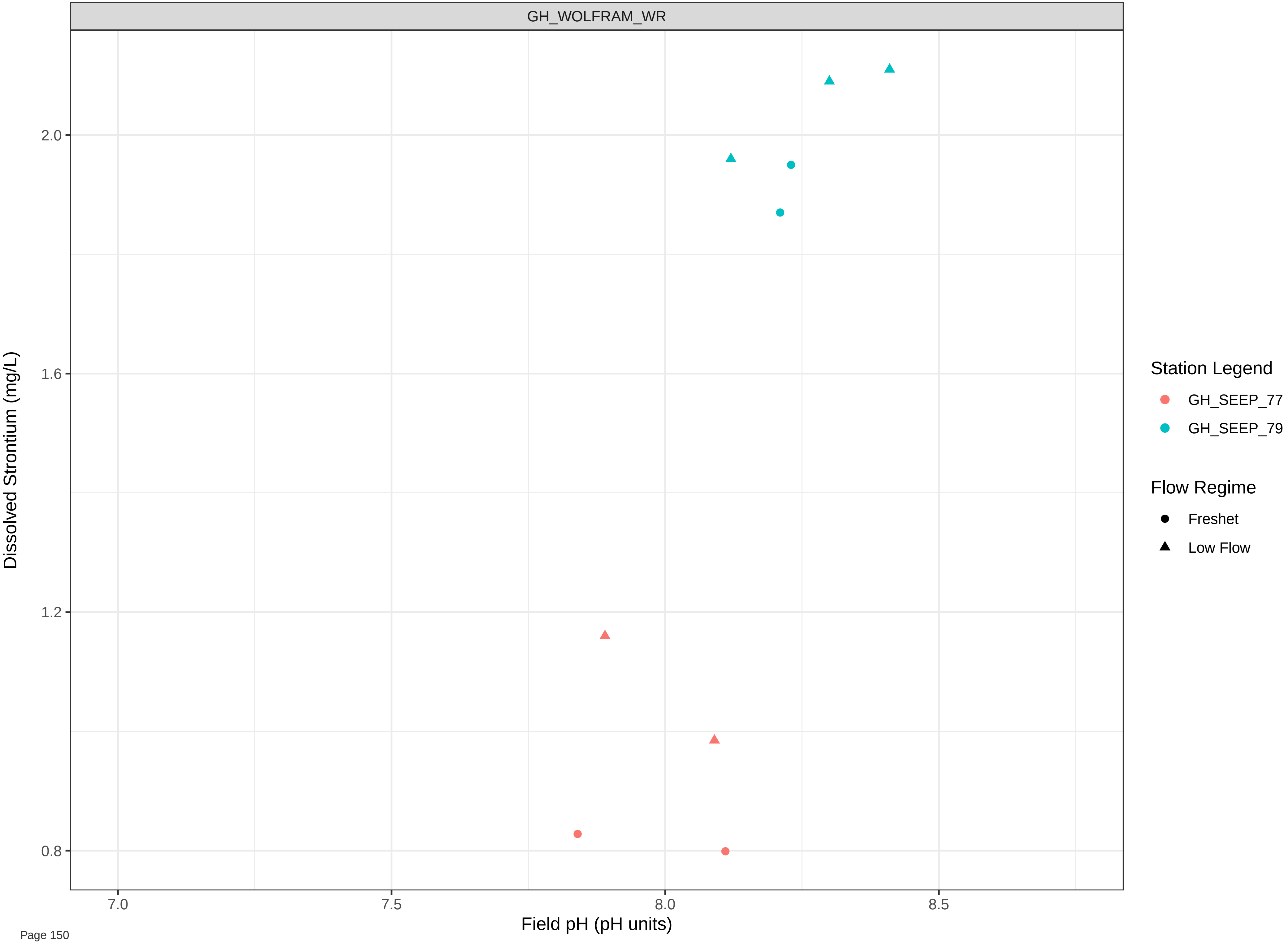

GH_CCR
Dissolved Strontium (mg/L)
1.0
0.8
0.6
0.4
0.2
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

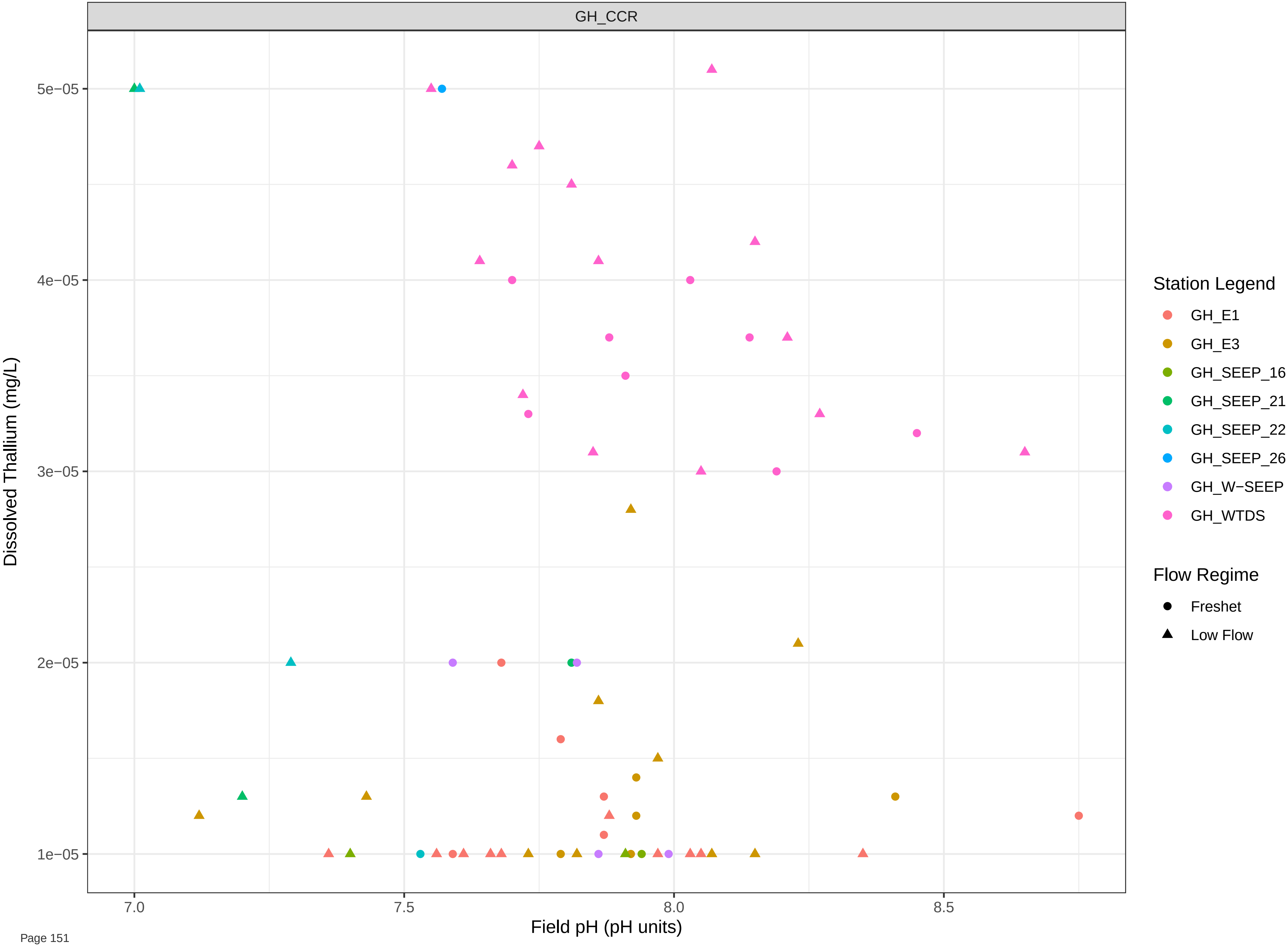

GH_LEASK_WR
Dissolved Strontium (mg/L)
1.2
1.1
1.0
0.9
0.8
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

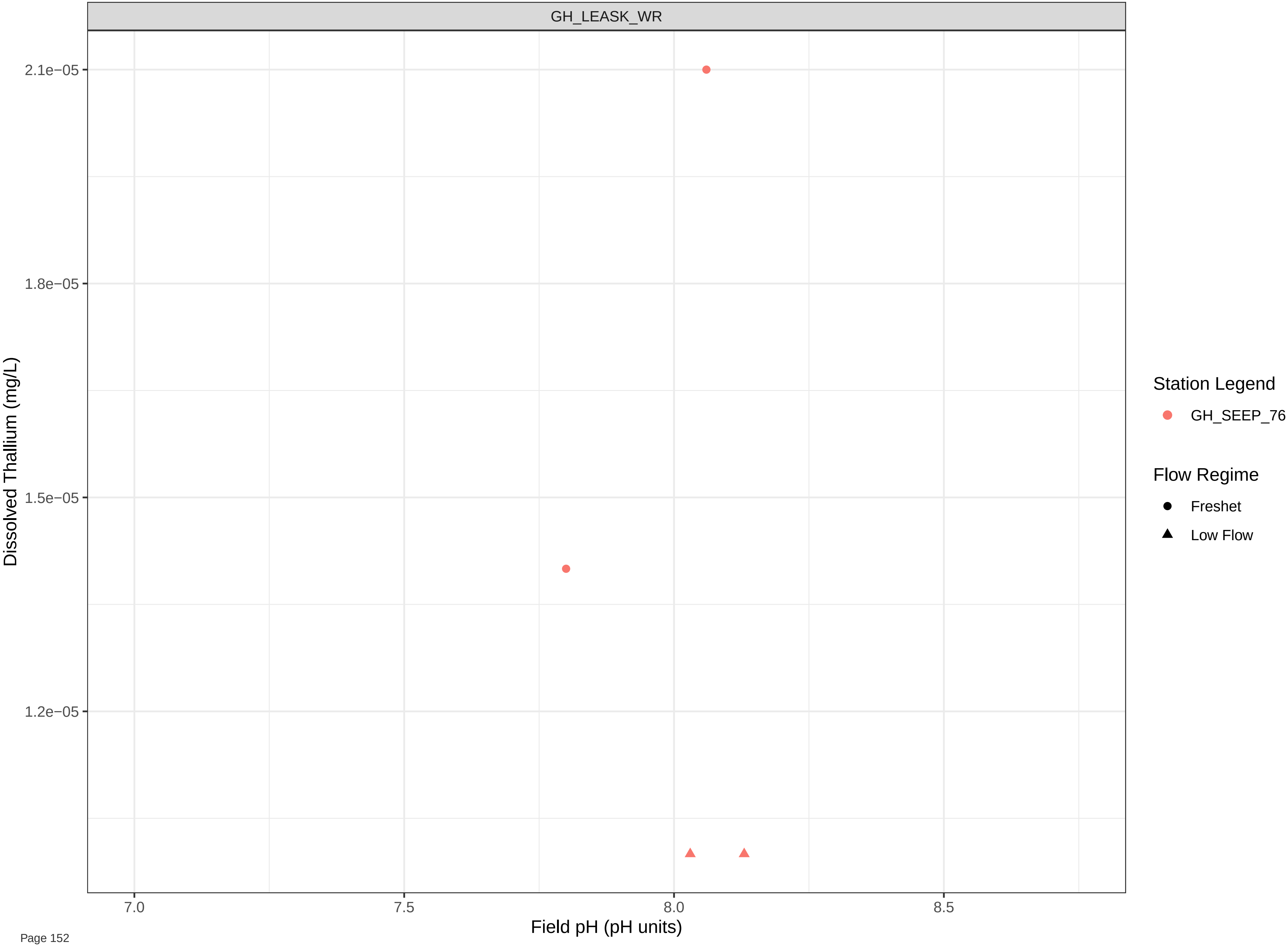

GH_PORTER_CREEK
Dissolved Strontium (mg/L)
0.054
0.052
0.050
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

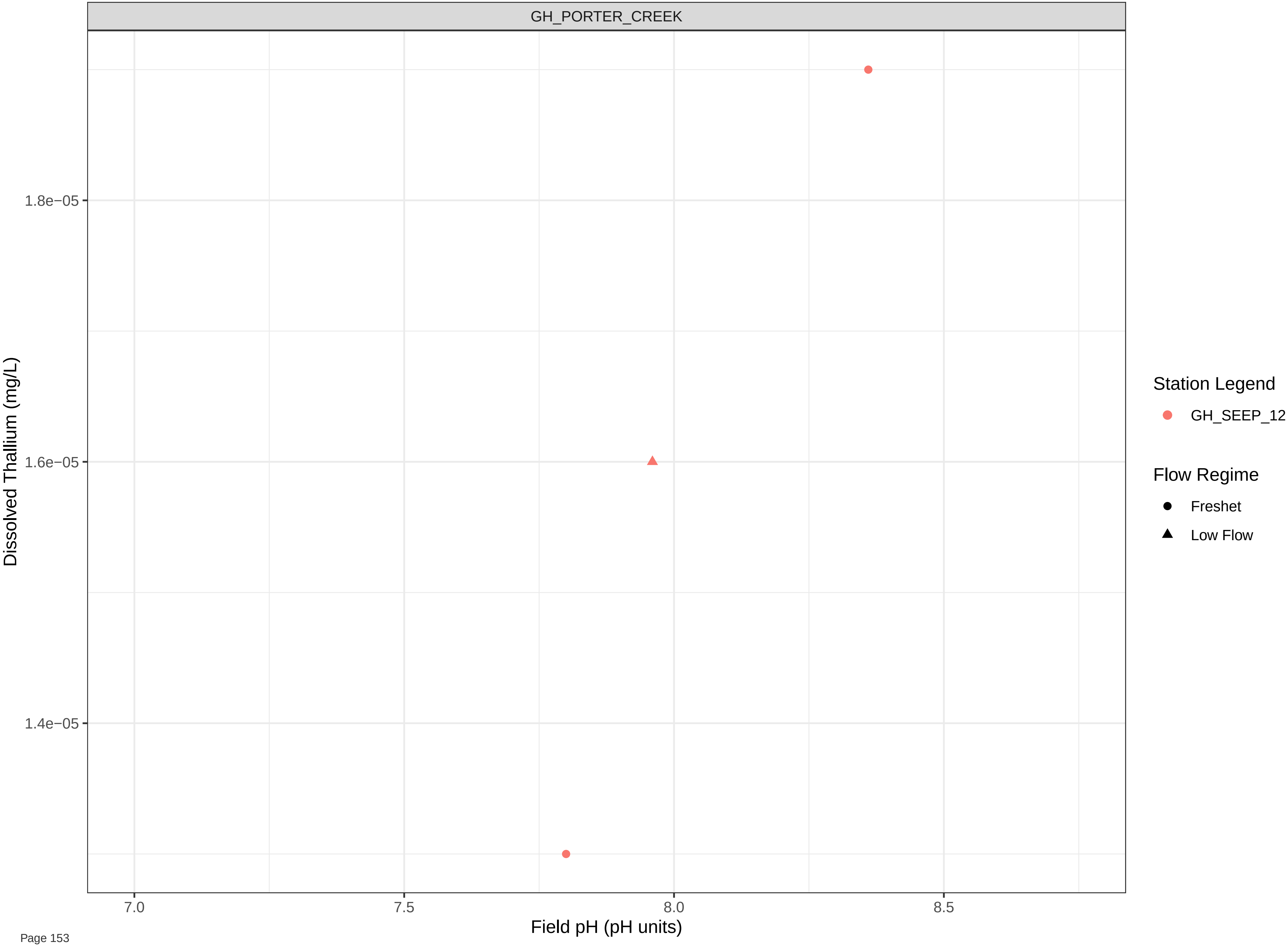

GH_THOMPSON_WR
Dissolved Strontium (mg/L)
0.40
0.35
0.30
0.25
0.20
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

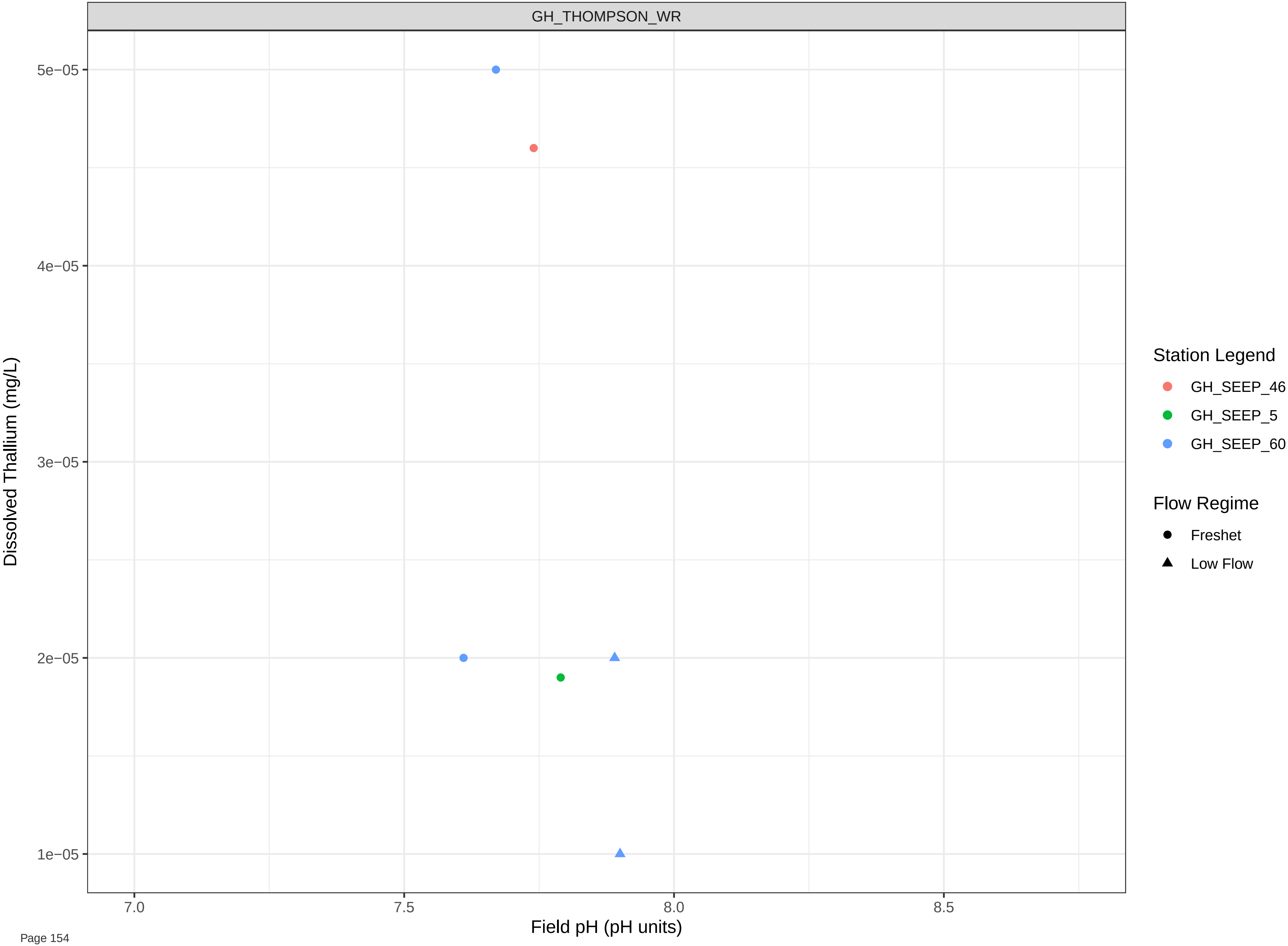

GH_UPSTREAM_CCR
Dissolved Strontium (mg/L)
0.6
0.5
0.4
0.3
0.2
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

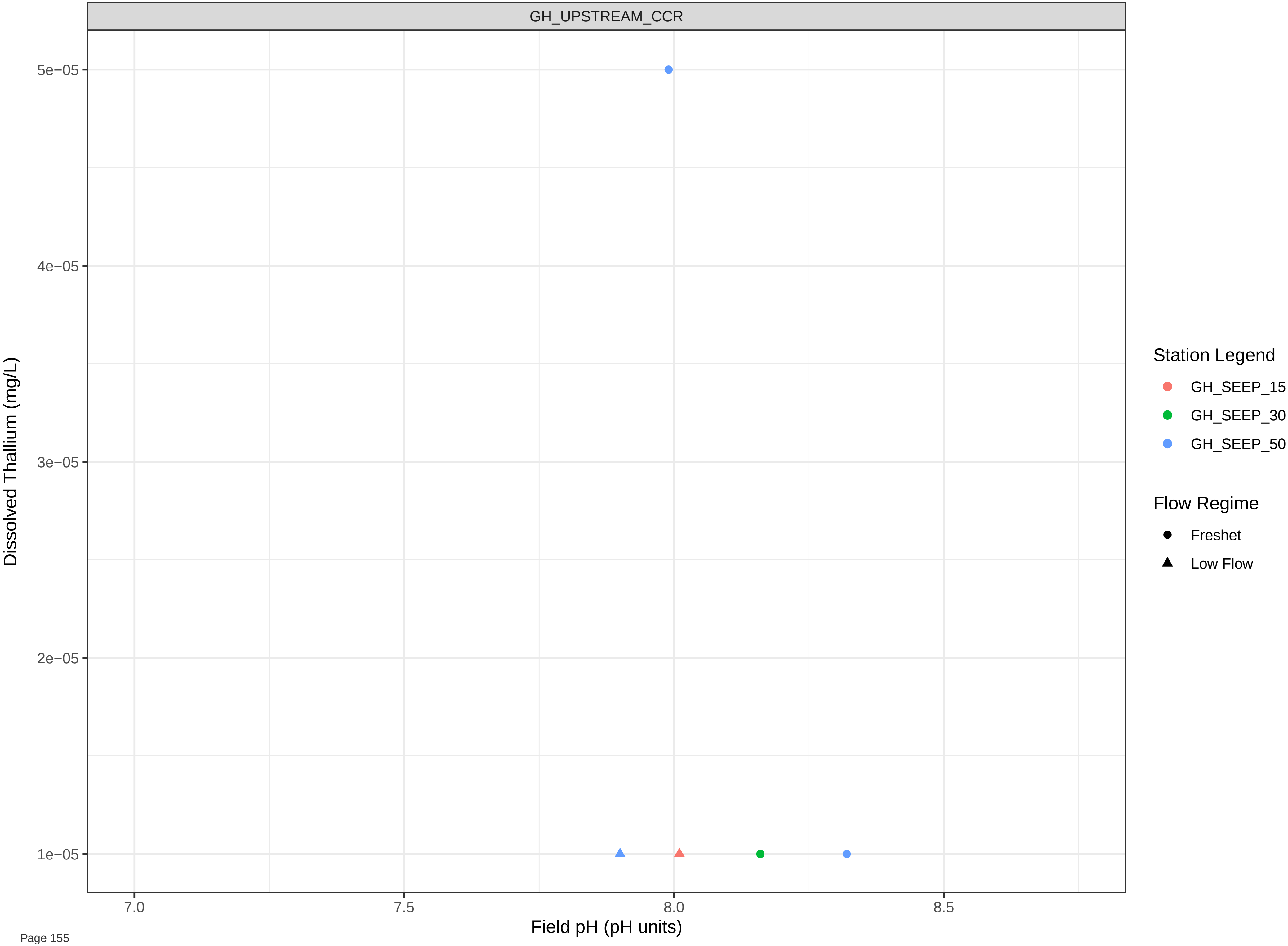

GH_WOLFRAM_WR
Dissolved Strontium (mg/L)
2.0
1.6
1.2
0.8
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

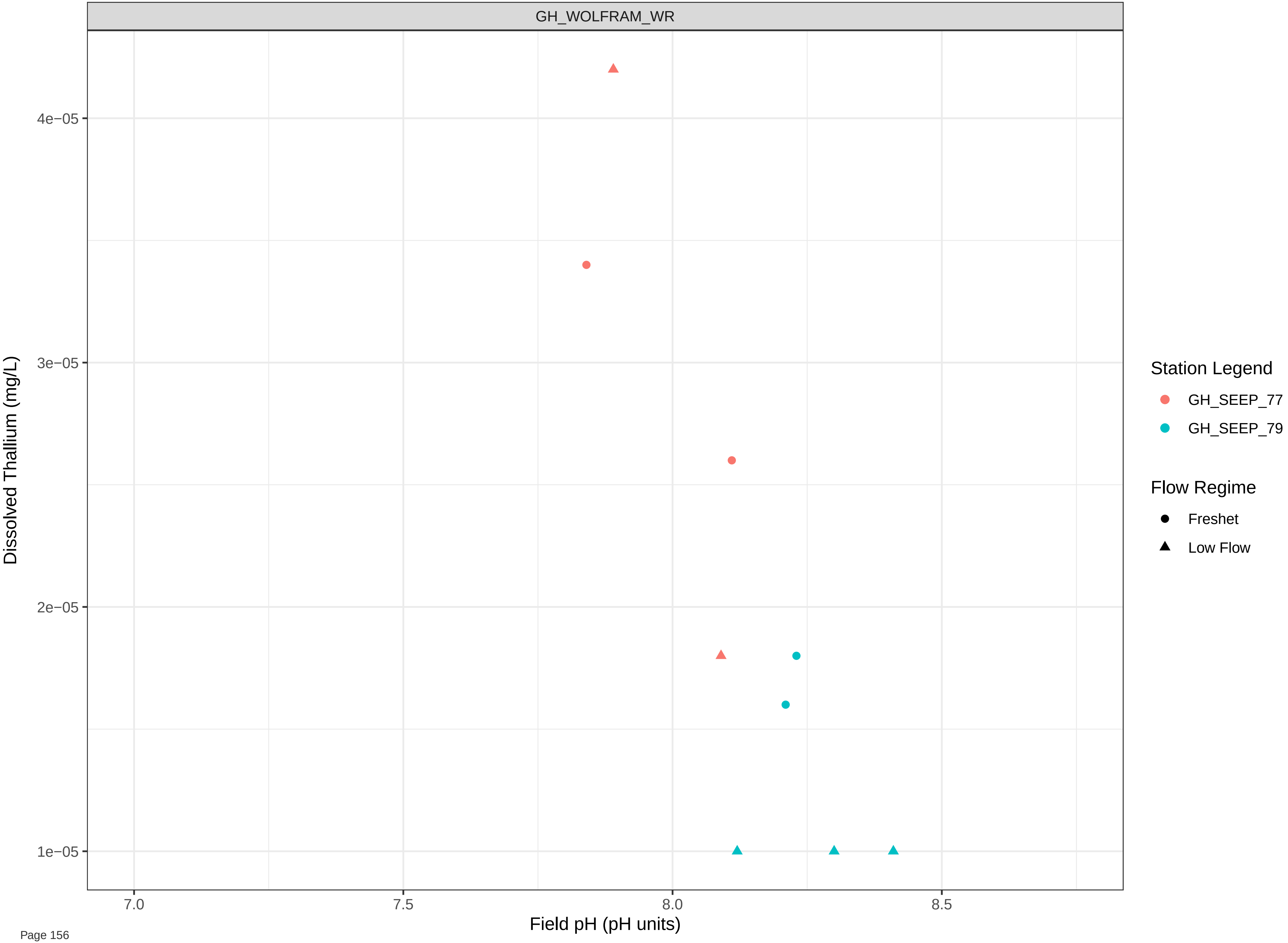

GH_CCR
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

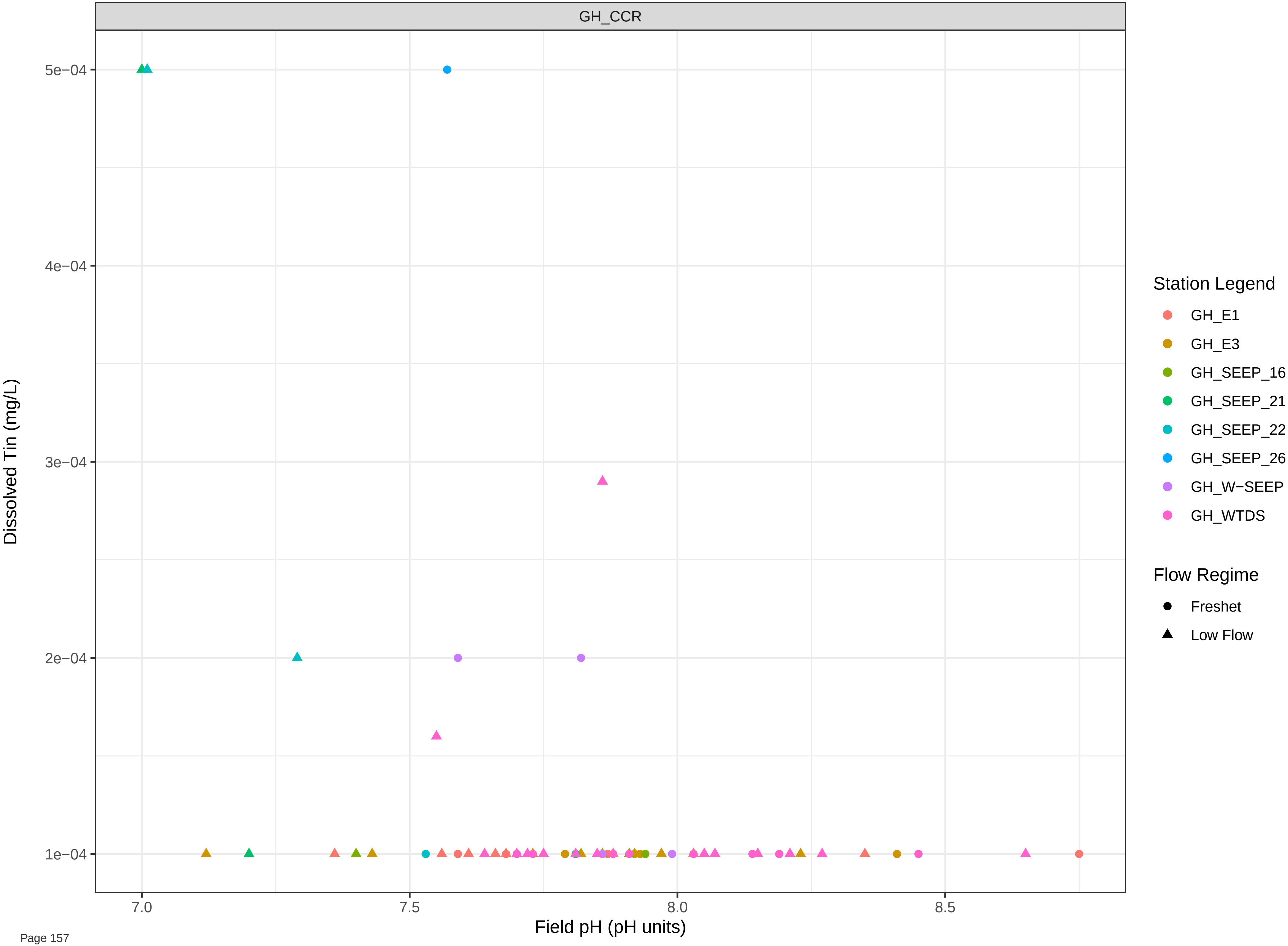

GH_LEASK_WR
2.1e−05
1.8e−05
1.5e−05
1.2e−05
Dissolved Thallium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

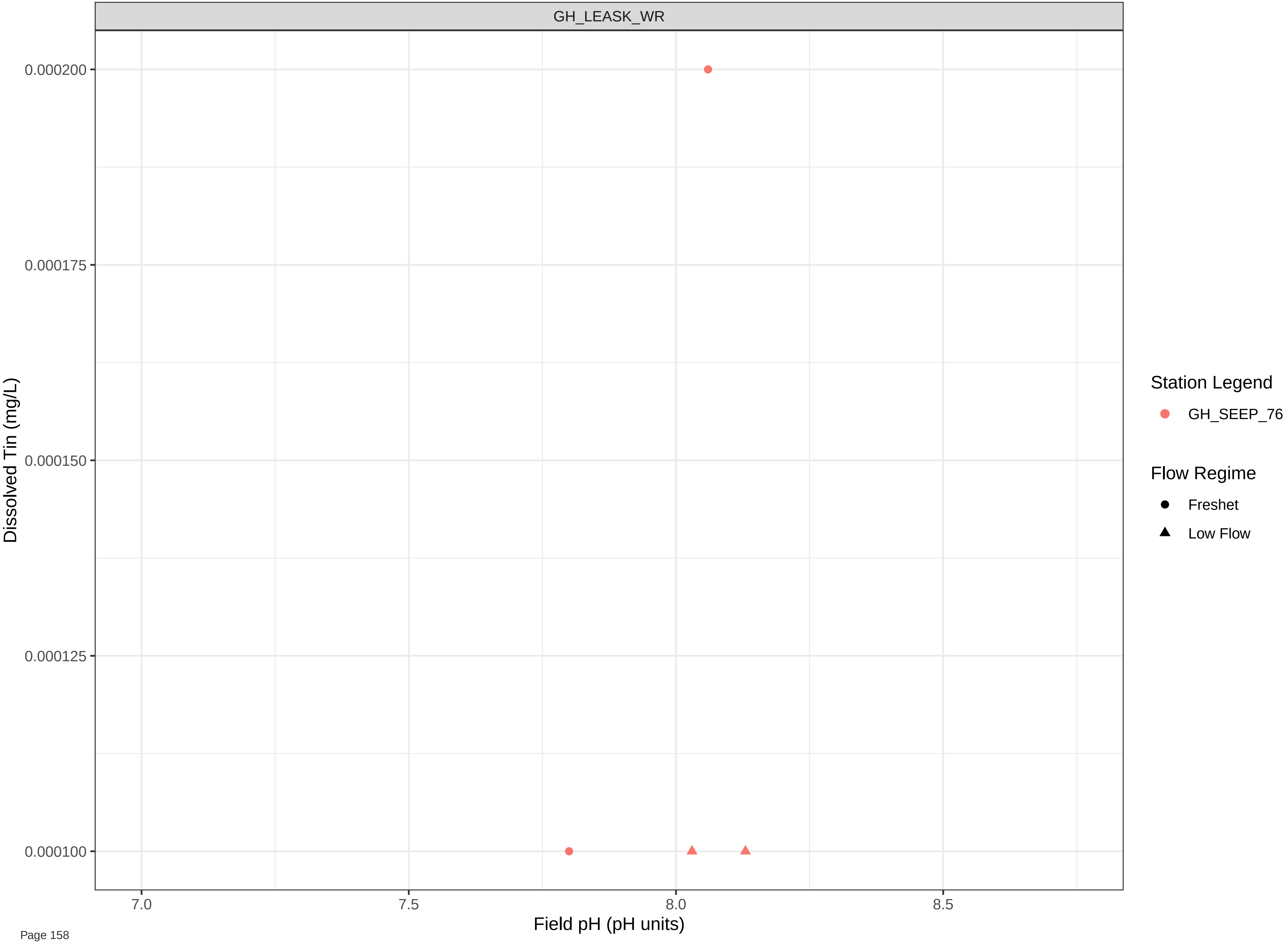

GH_PORTER_CREEK
Dissolved Thallium (mg/L)
1.8e−05
1.6e−05
1.4e−05
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

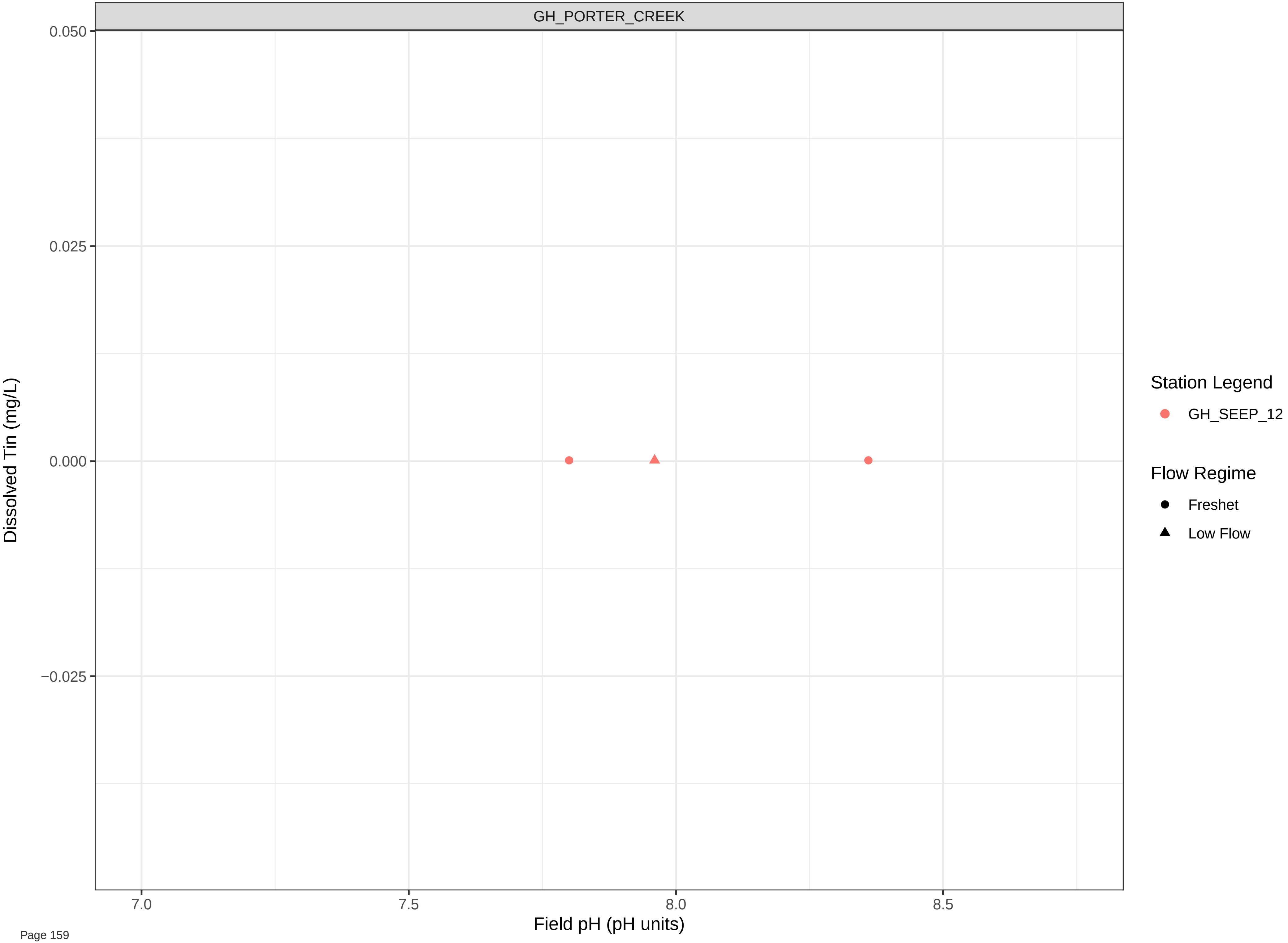

GH_THOMPSON_WR
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

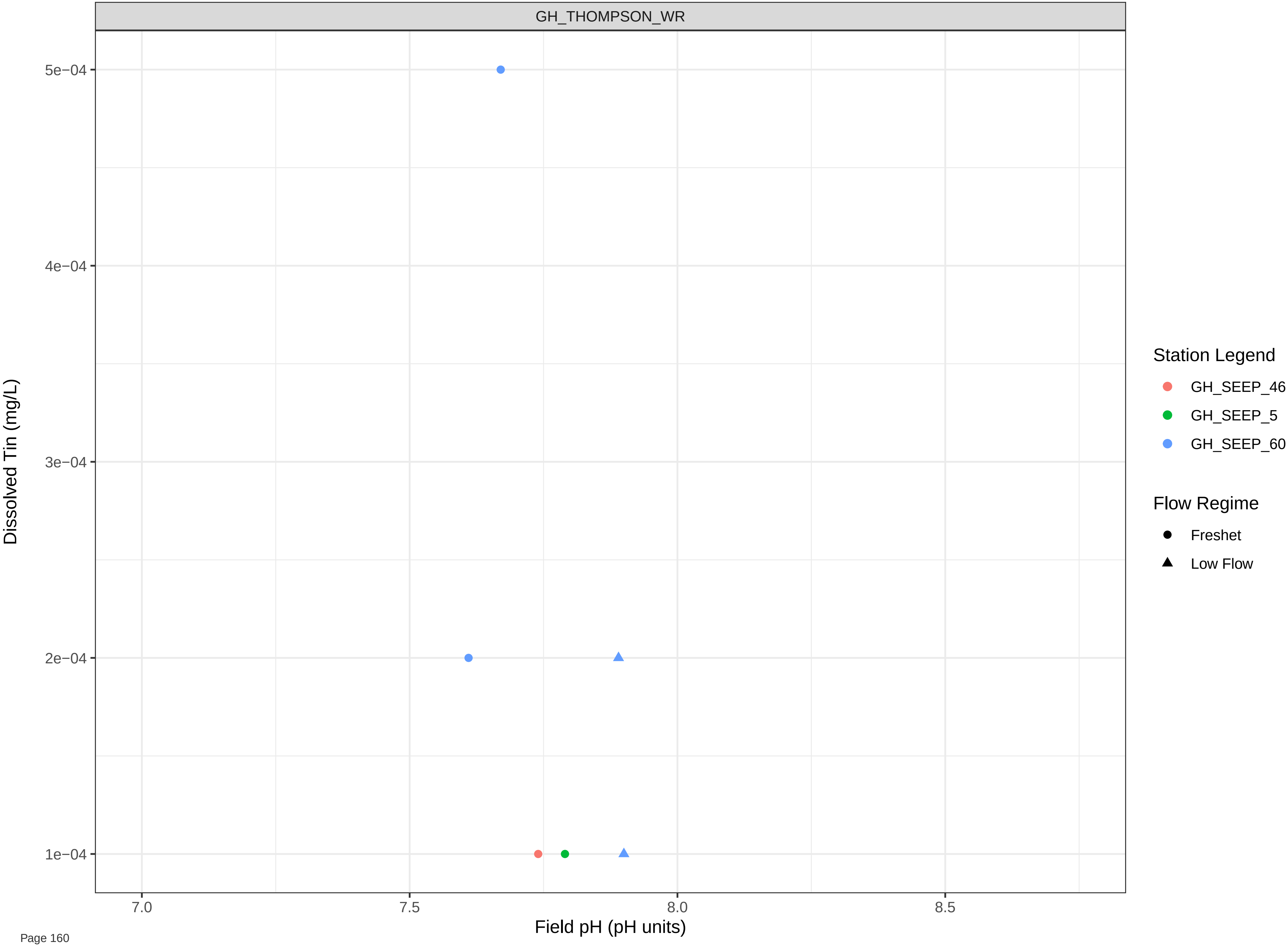

GH_UPSTREAM_CCR
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

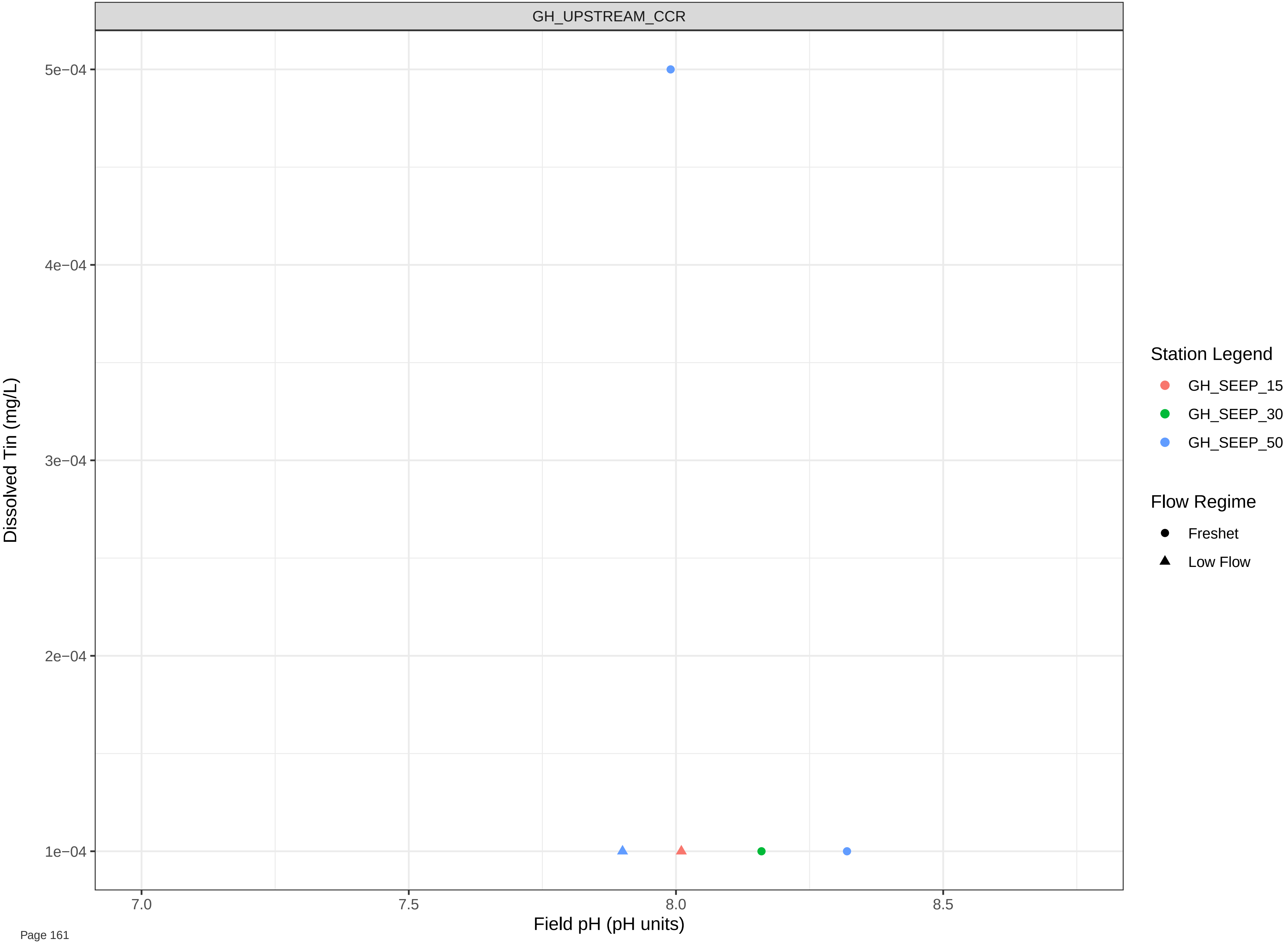

GH_WOLFRAM_WR
Dissolved Thallium (mg/L)
4e−05
3e−05
2e−05
1e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

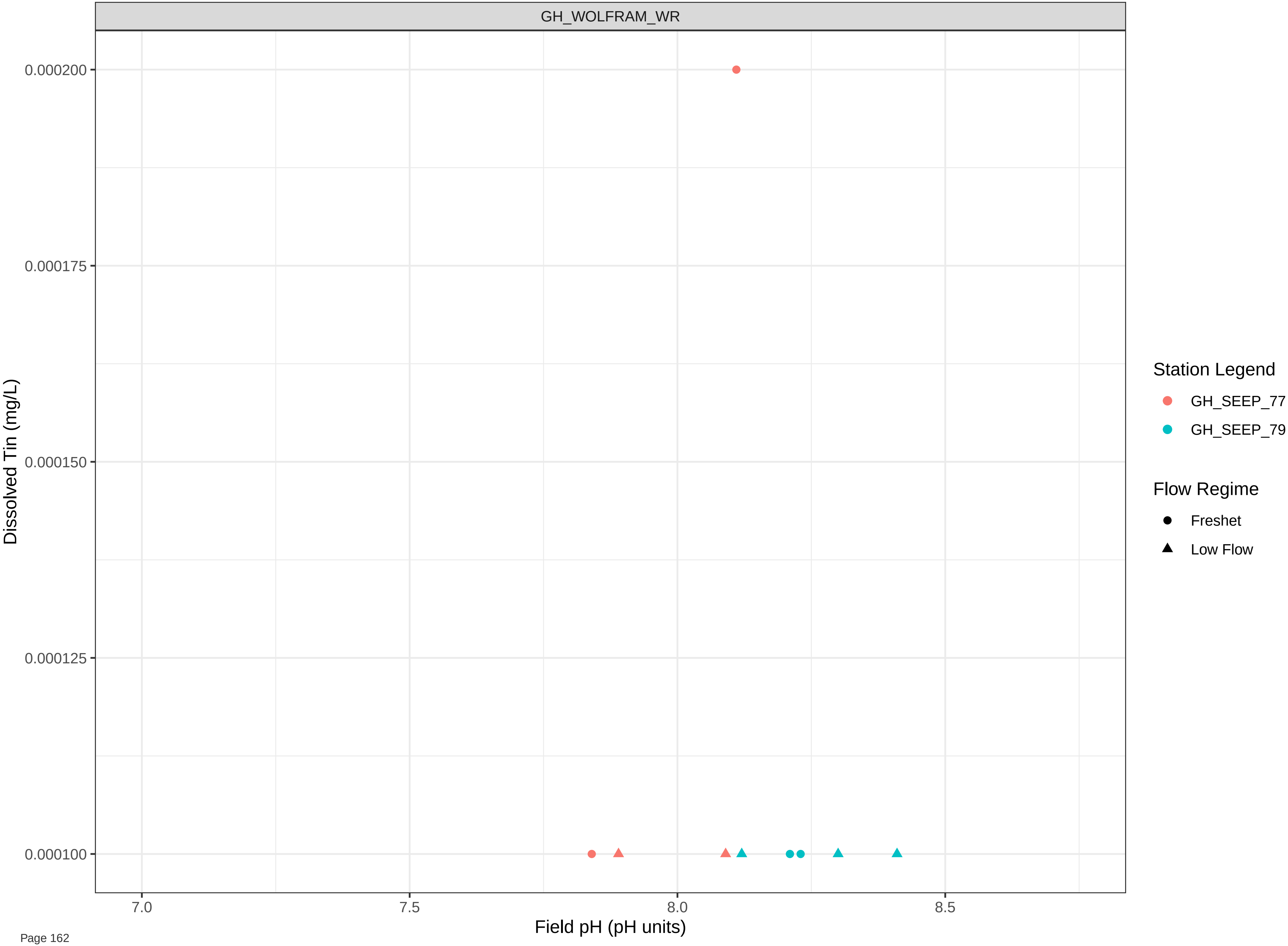

GH_CCR
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

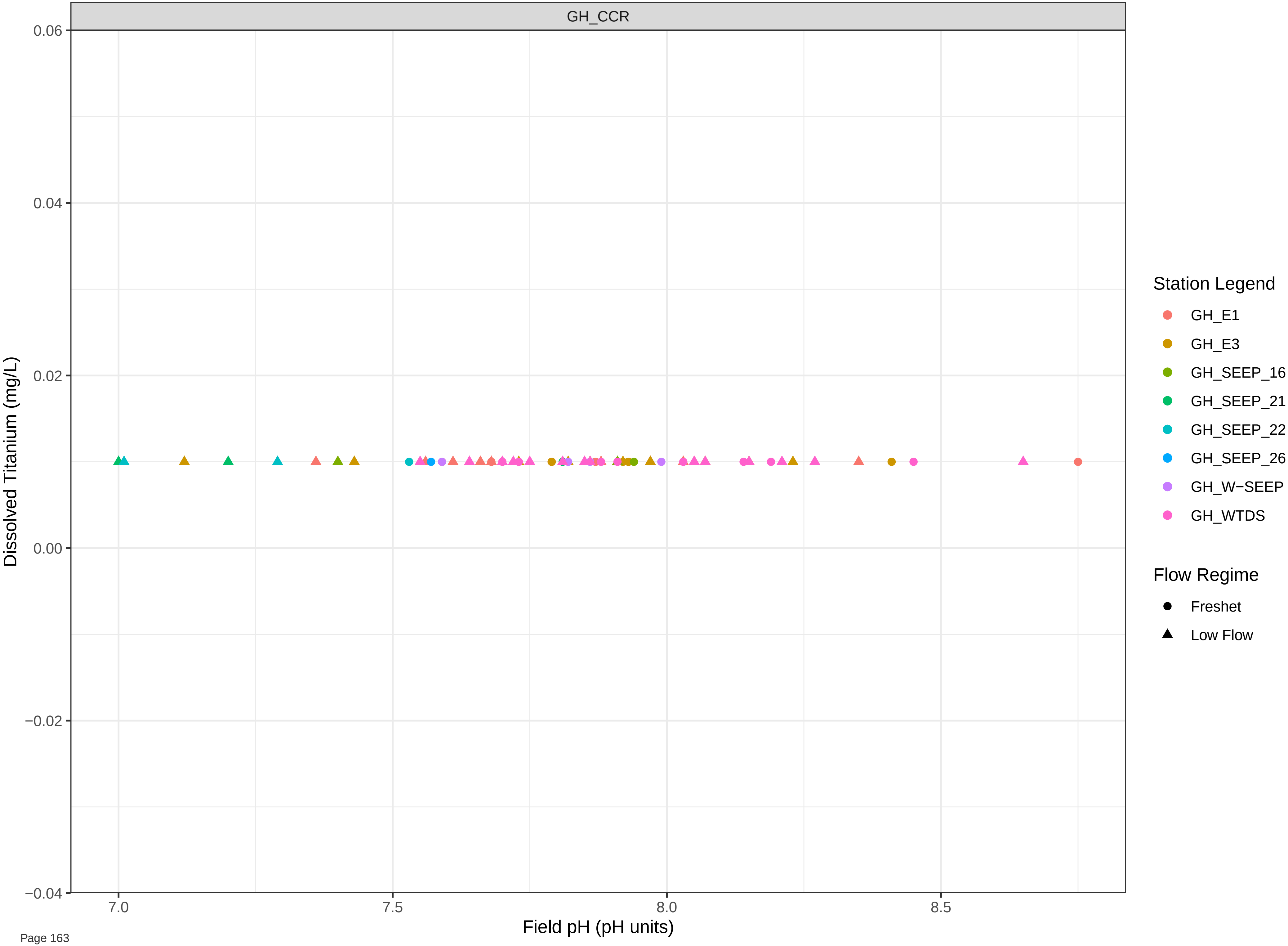

GH_LEASK_WR
Dissolved Tin (mg/L)
0.000200
0.000175
0.000150
0.000125
0.000100
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

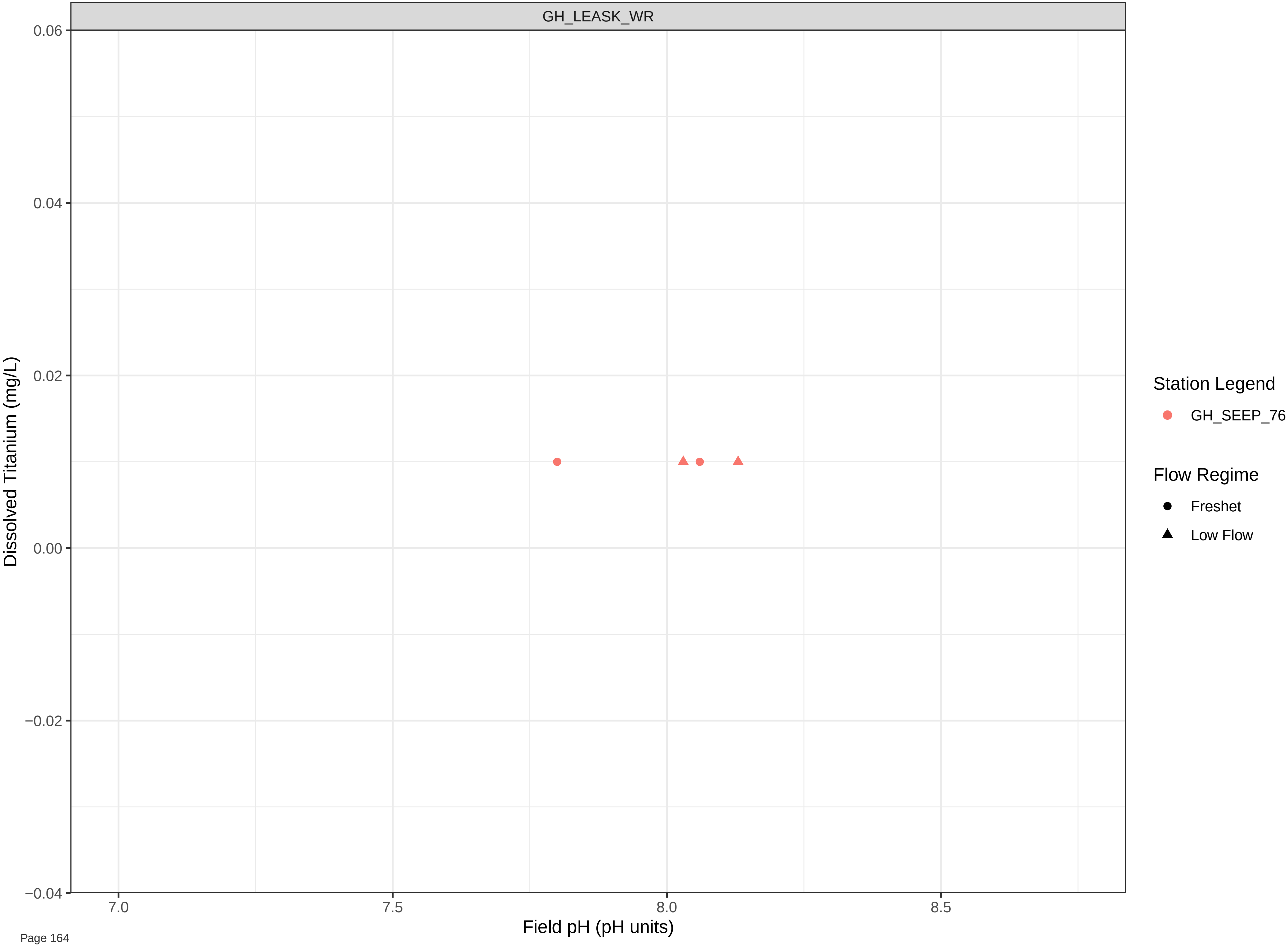

GH_PORTER_CREEK
0.050
0.025
0.000
−0.025
Dissolved Tin (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

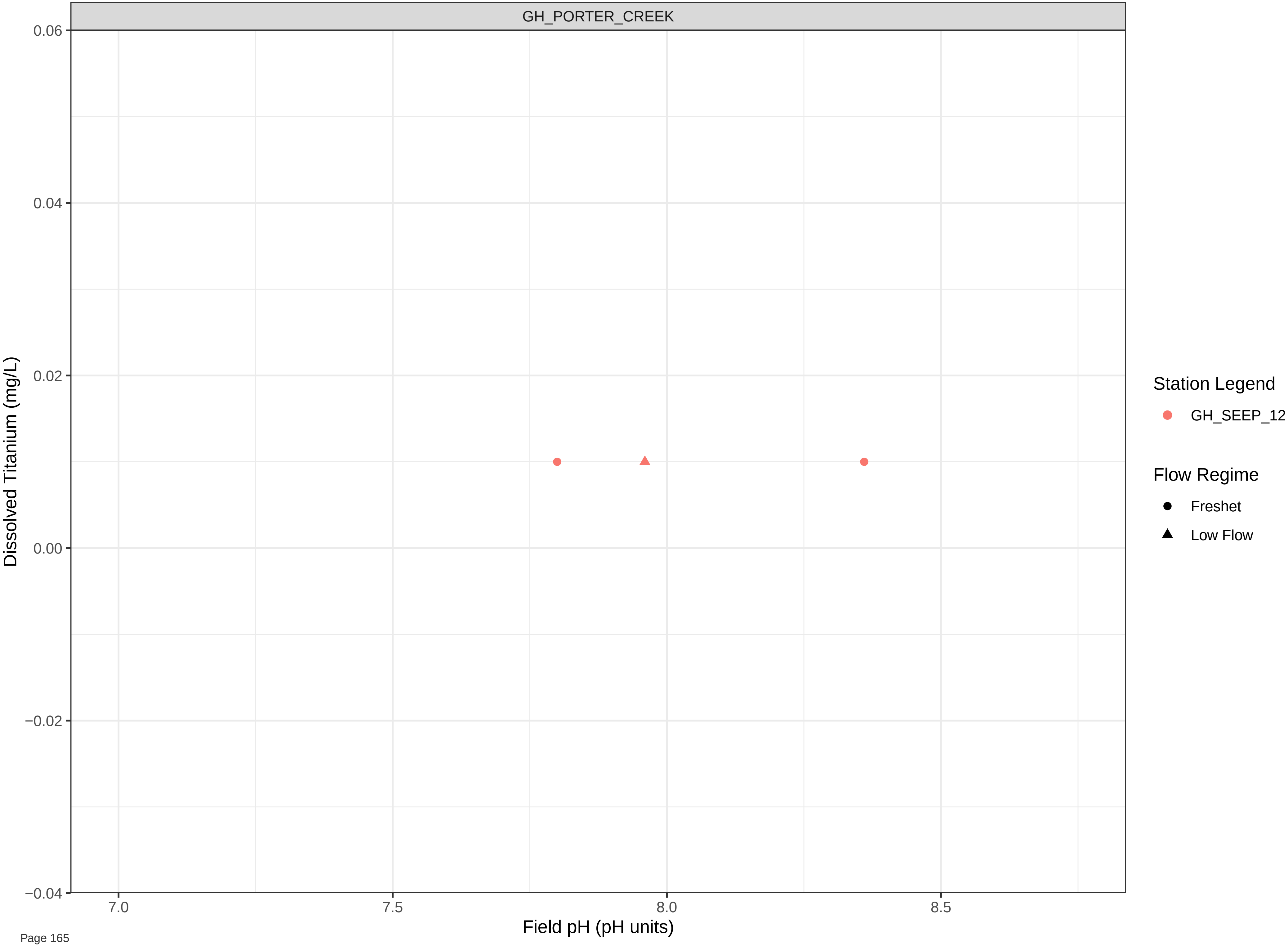

GH_THOMPSON_WR
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

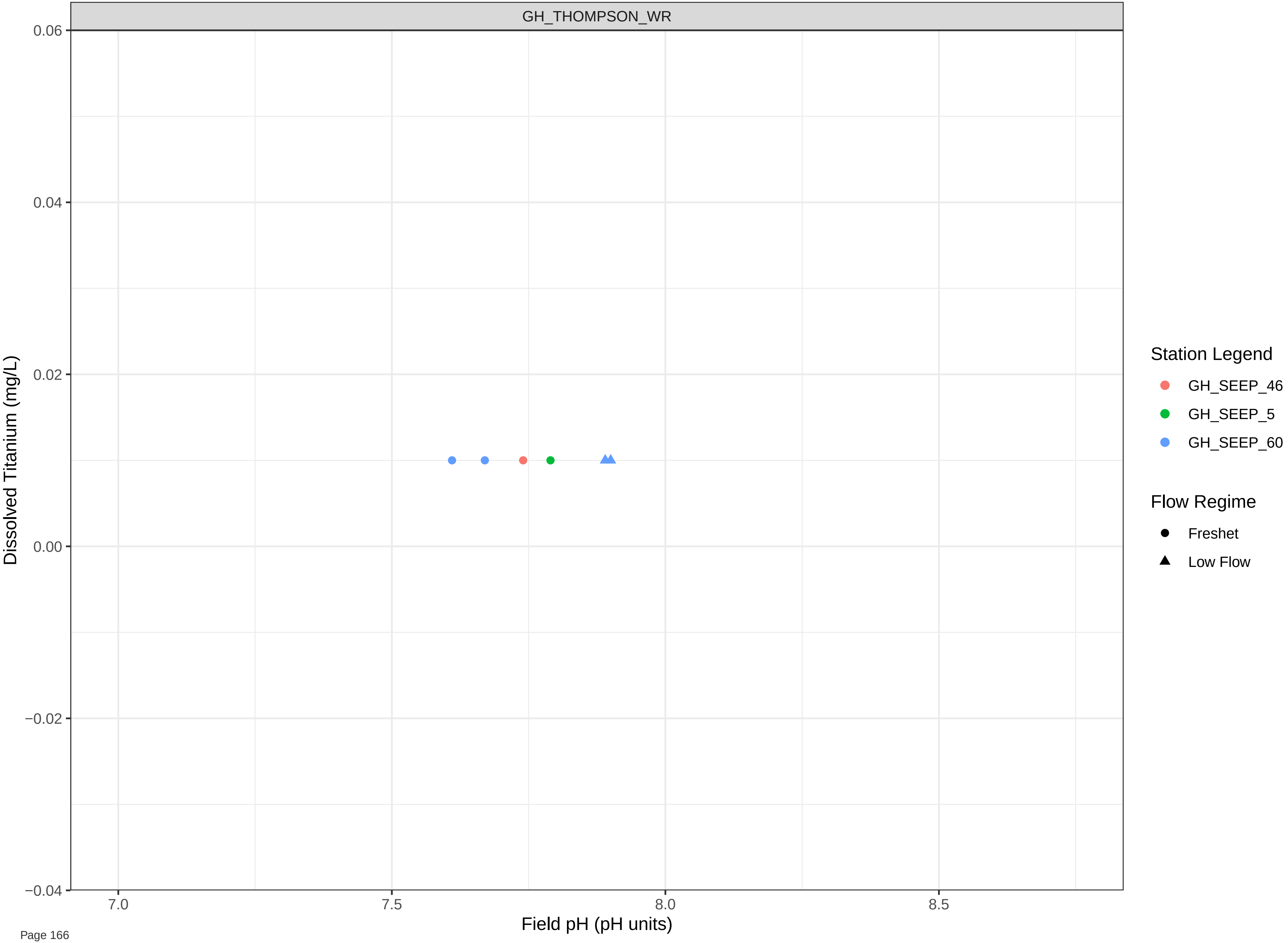

GH_UPSTREAM_CCR
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

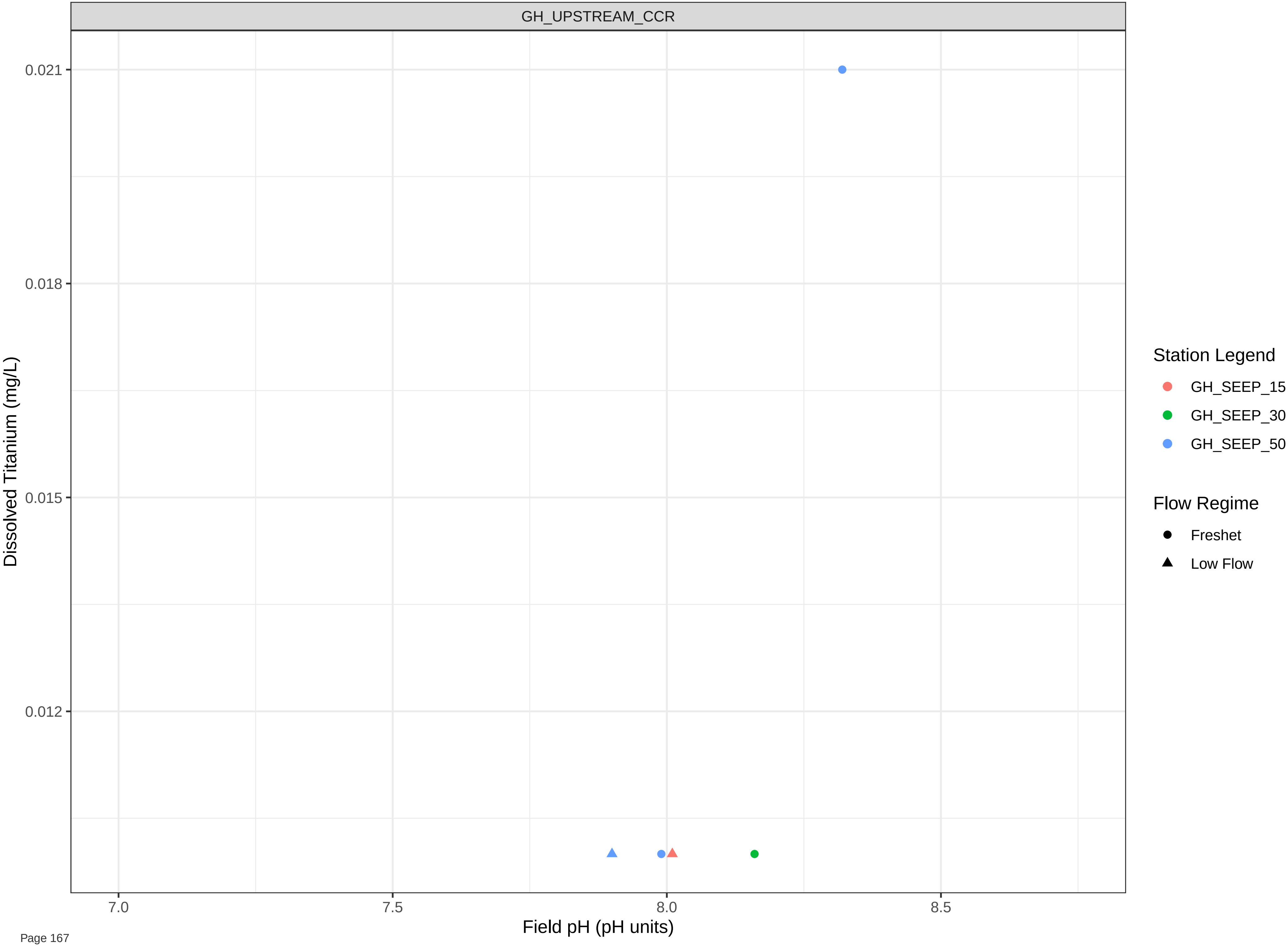

GH_WOLFRAM_WR
Dissolved Tin (mg/L)
0.000200
0.000175
0.000150
0.000125
0.000100
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

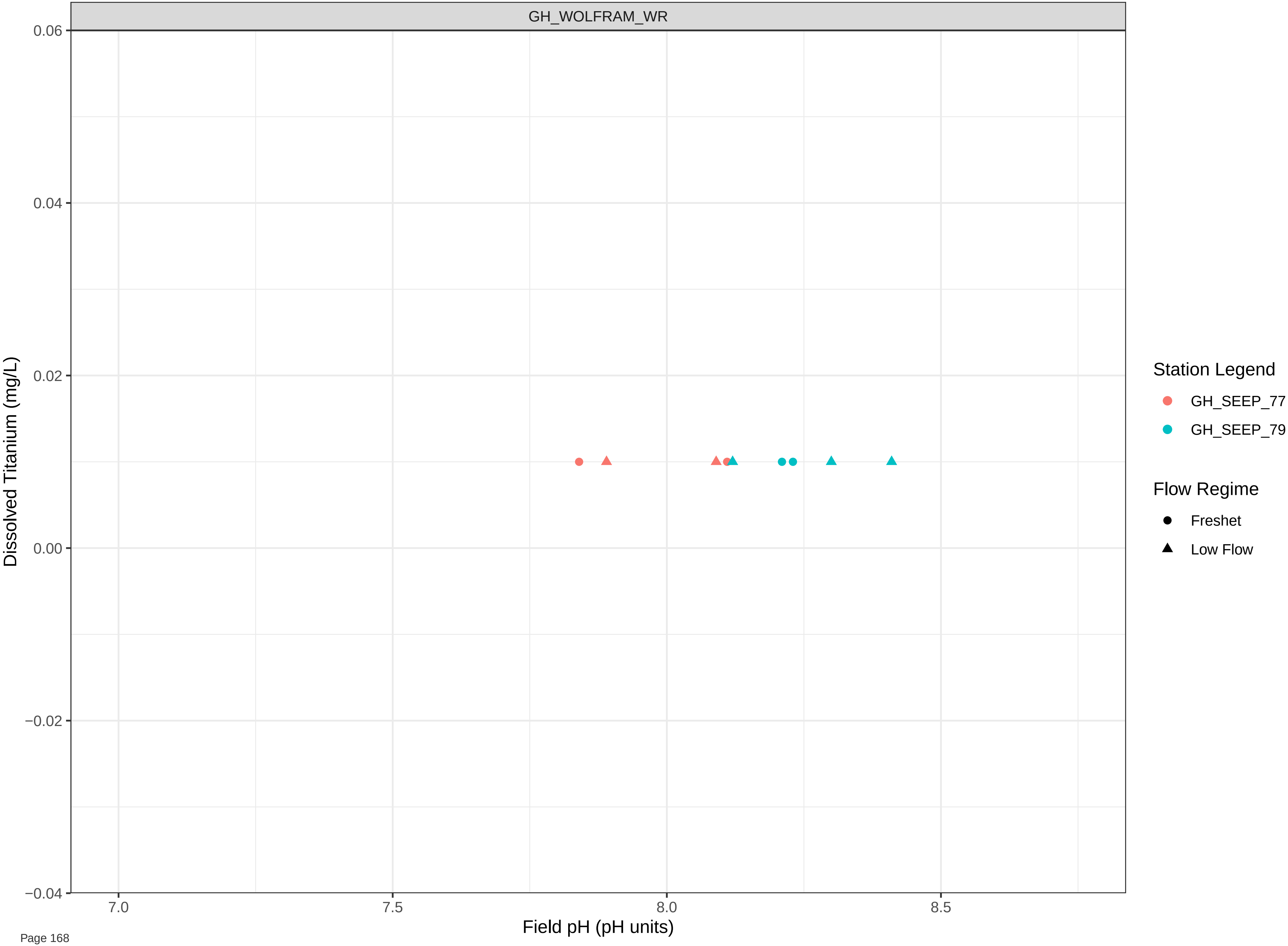

GH_CCR
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

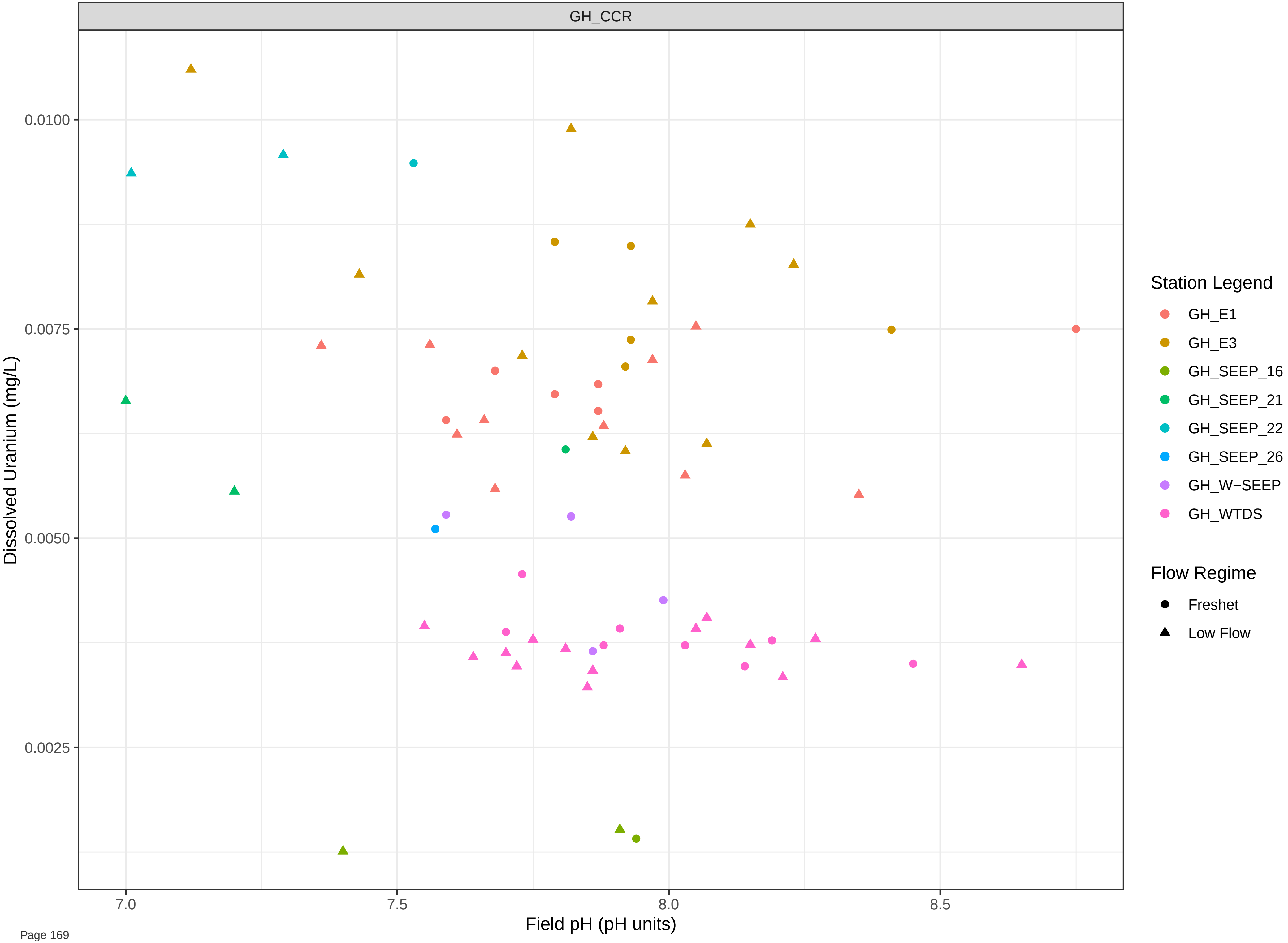

GH_LEASK_WR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

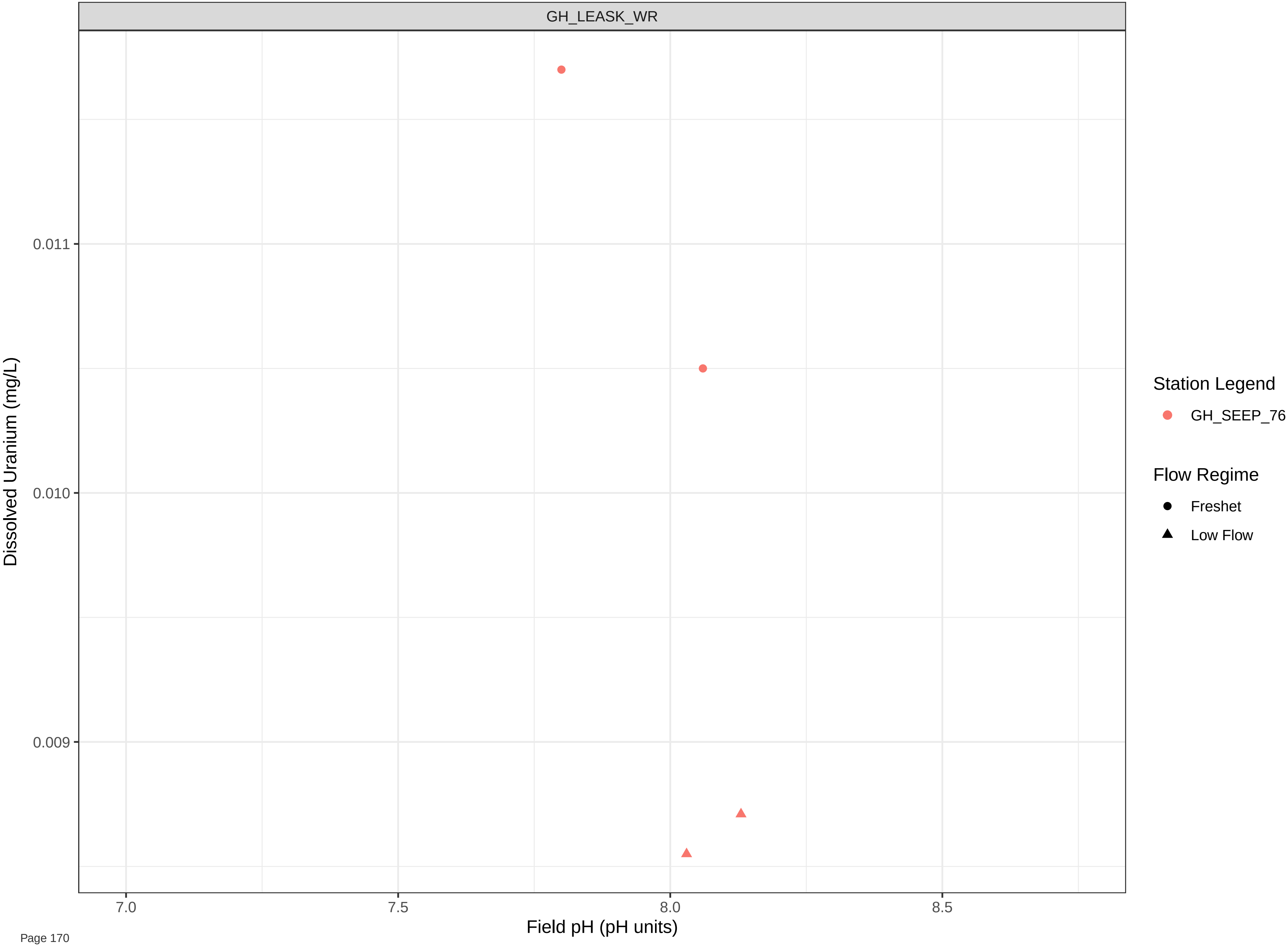

GH_PORTER_CREEK
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

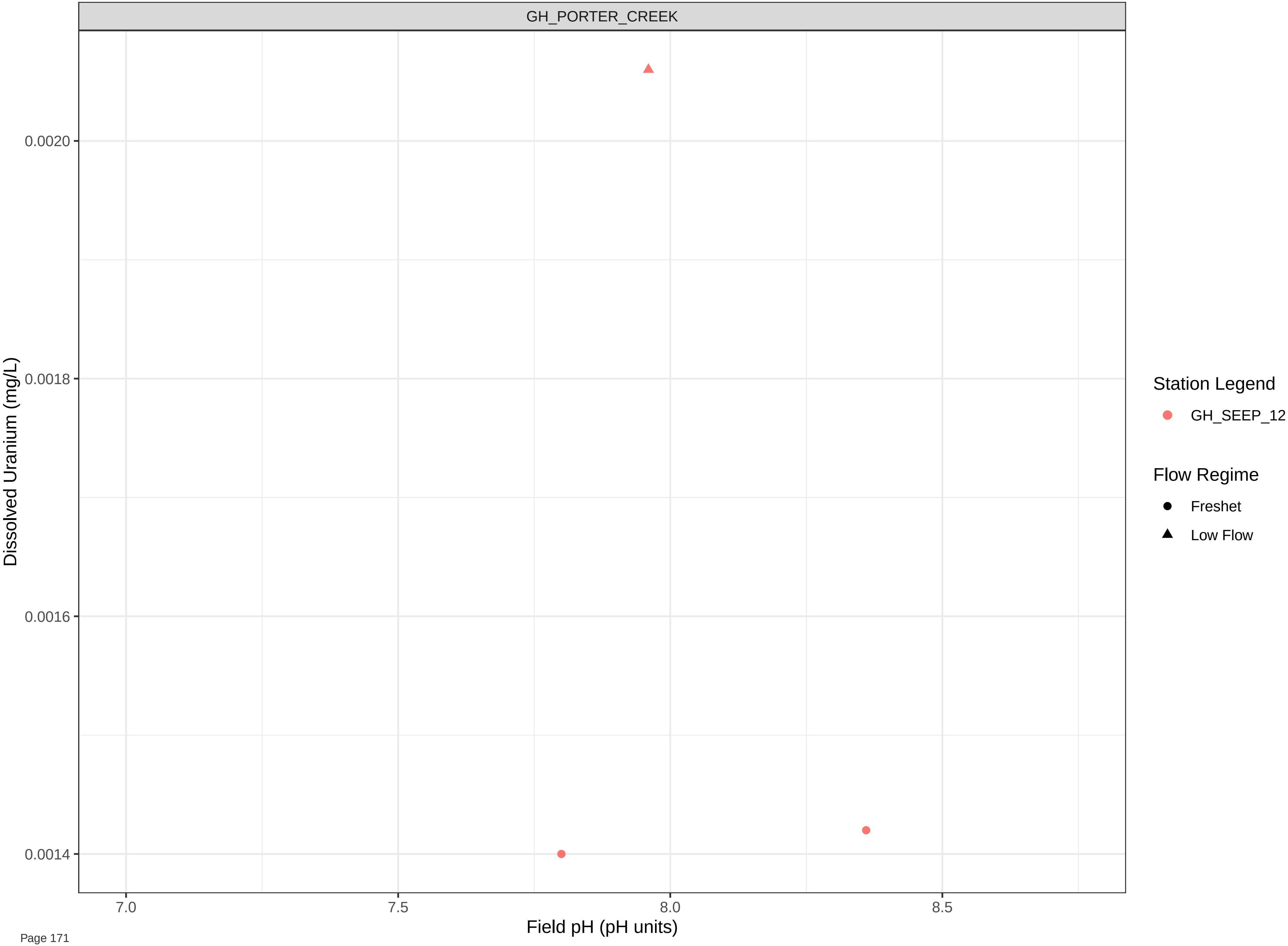

GH_THOMPSON_WR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

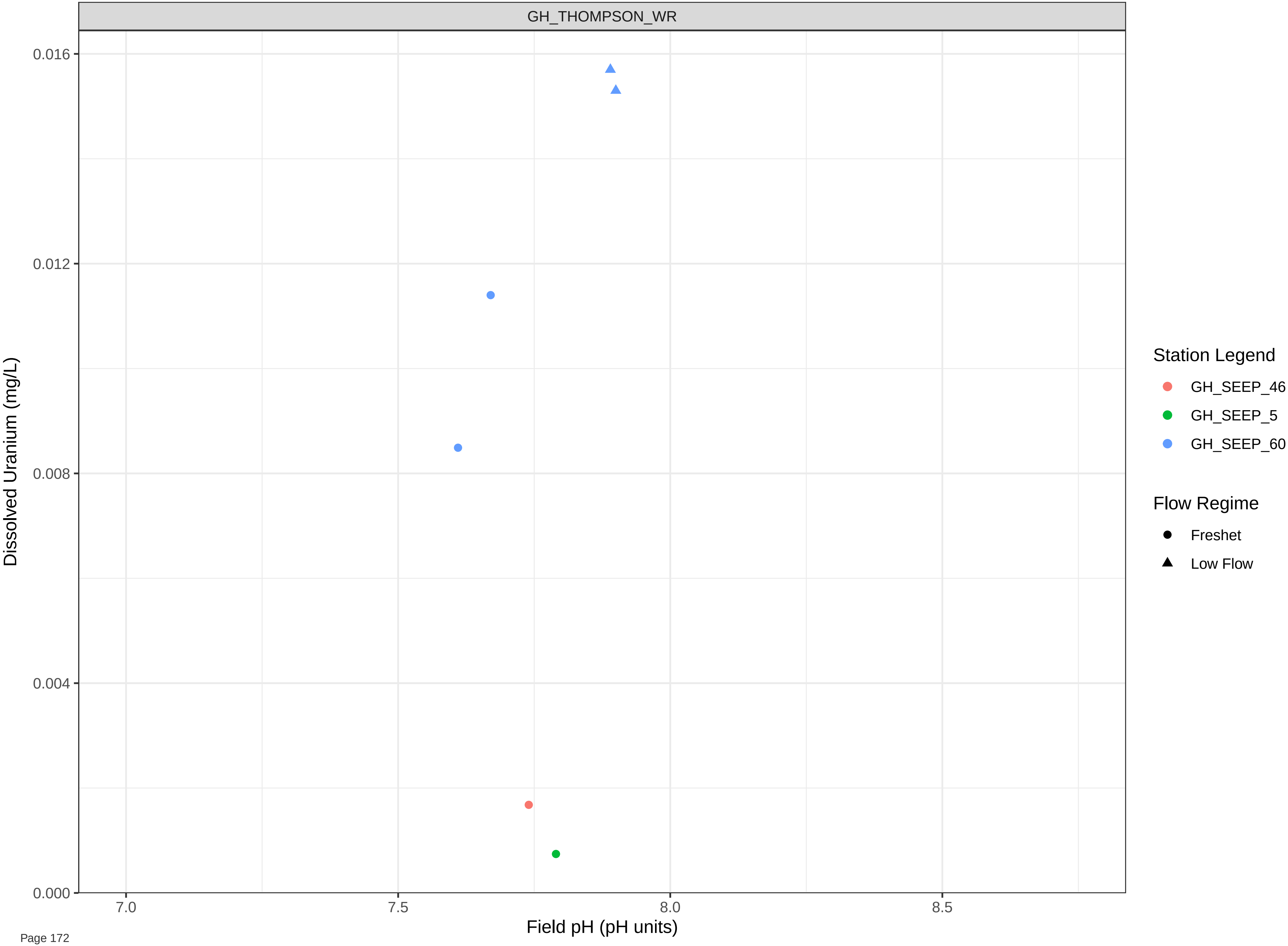

GH_UPSTREAM_CCR
Dissolved Titanium (mg/L)
0.021
0.018
0.015
0.012
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

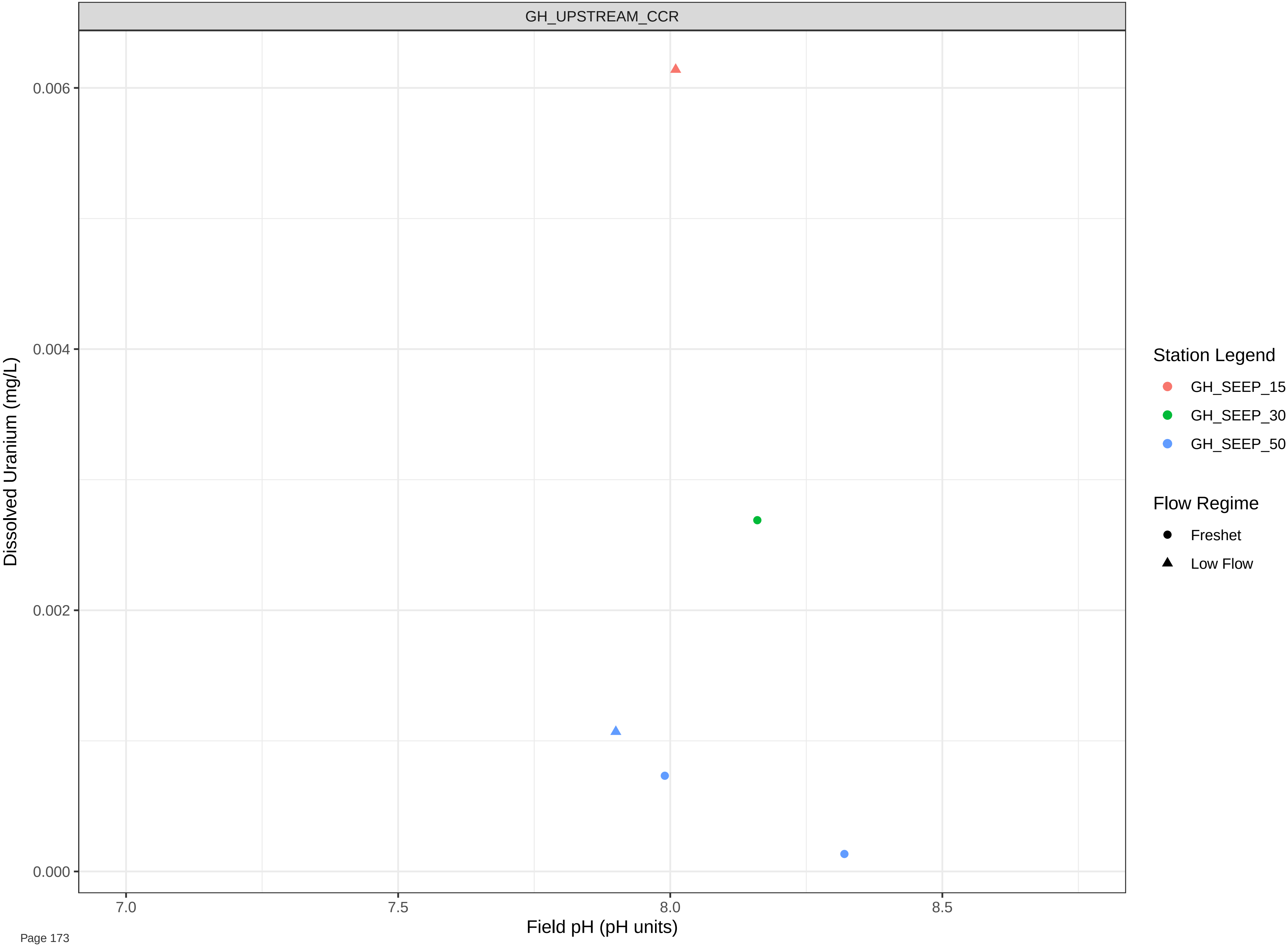

GH_WOLFRAM_WR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

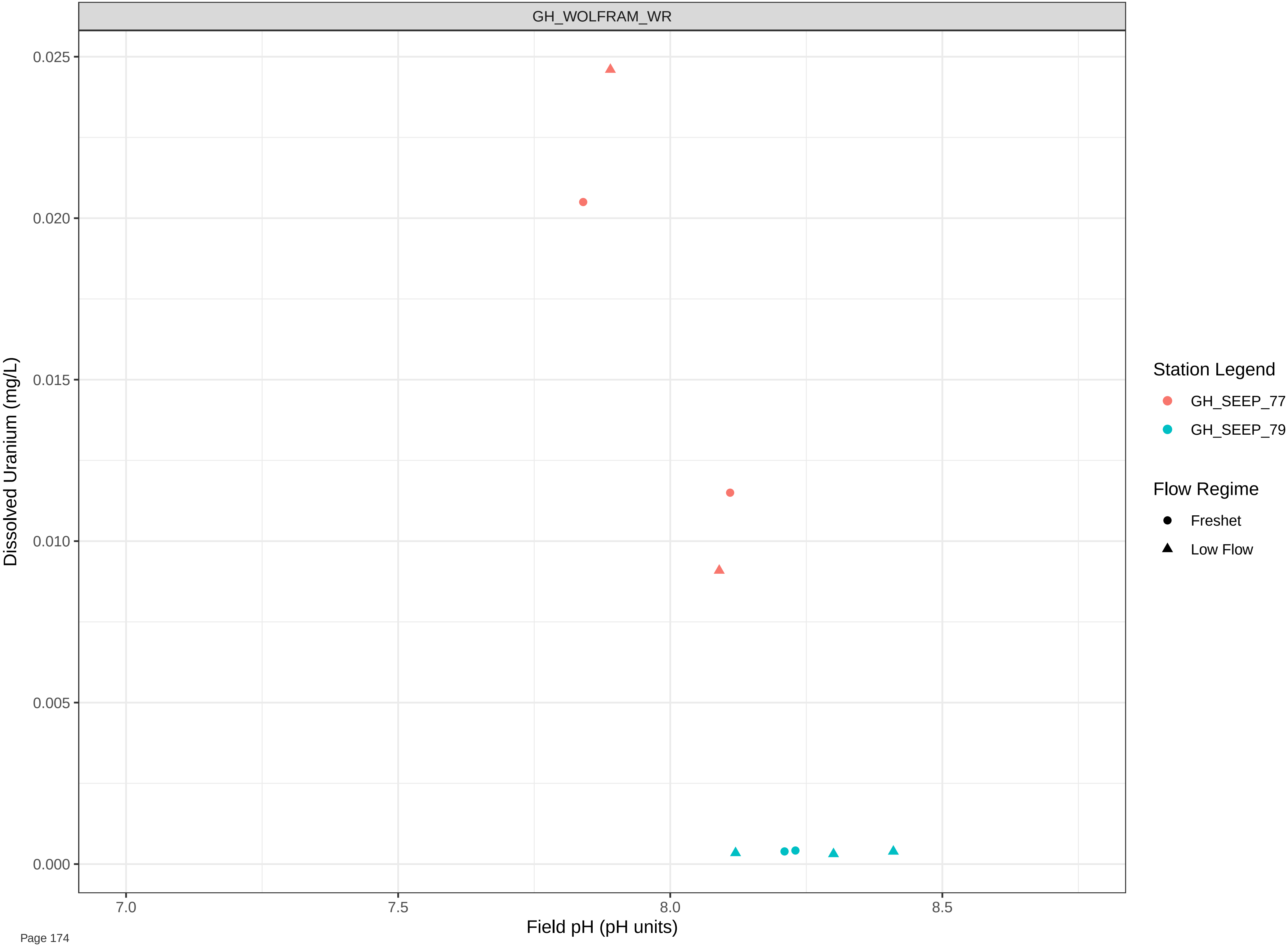

GH_CCR
Dissolved Uranium (mg/L)
0.0100
0.0075
0.0050
0.0025
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

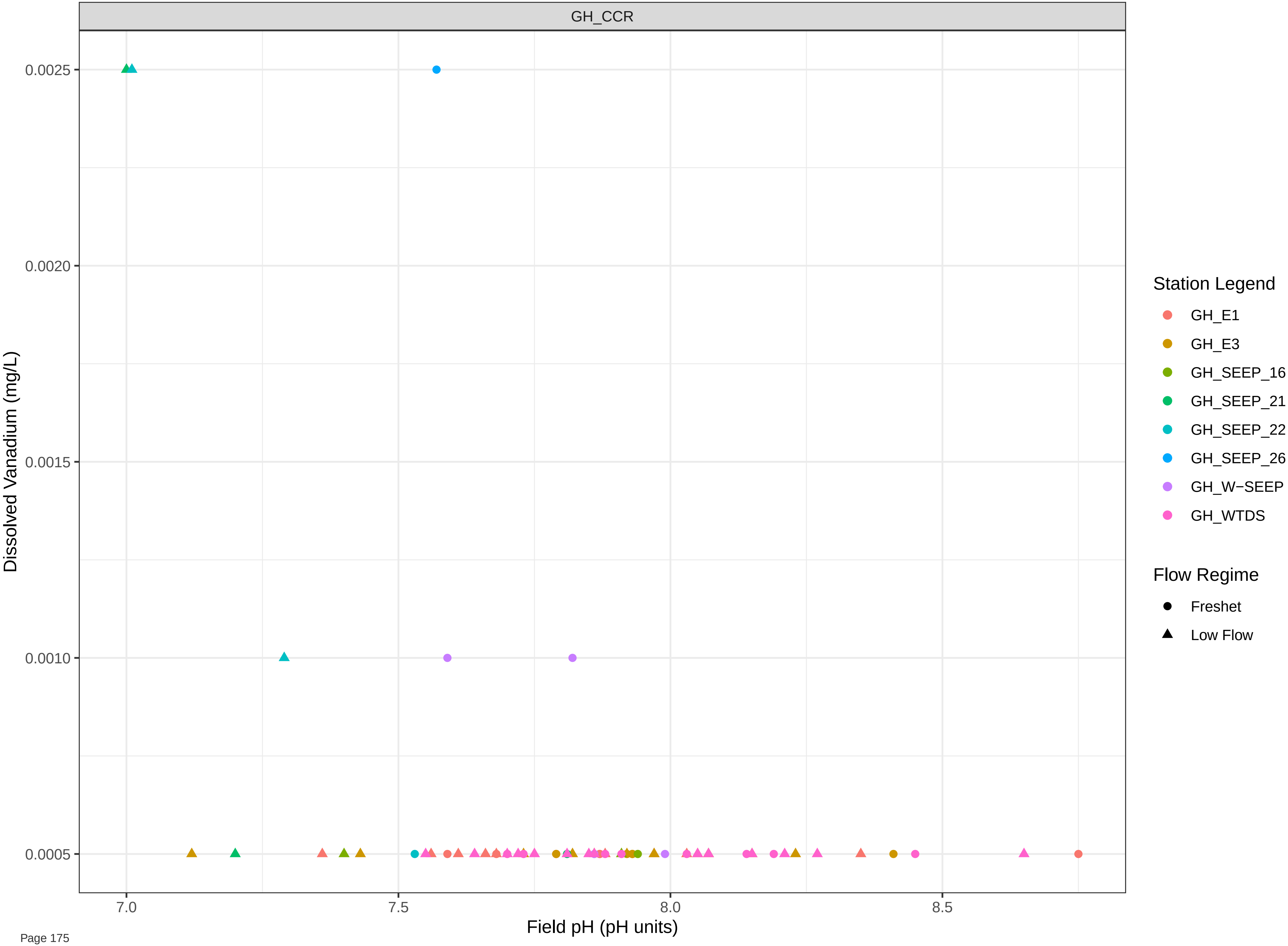

GH_LEASK_WR
Dissolved Uranium (mg/L)
0.011
0.010
0.009
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow

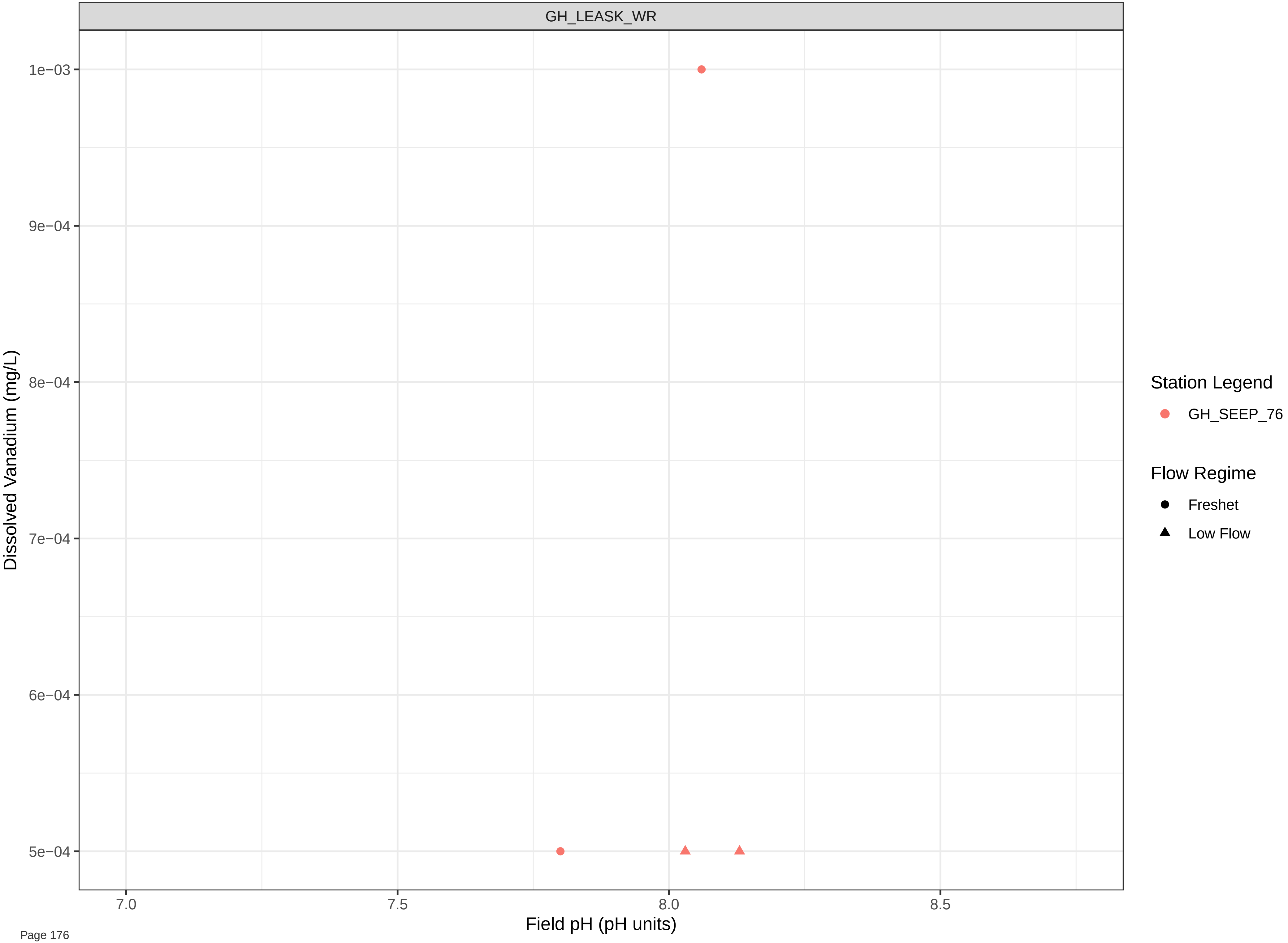

GH_PORTER_CREEK
Dissolved Uranium (mg/L)
0.0020
0.0018
0.0016
0.0014
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

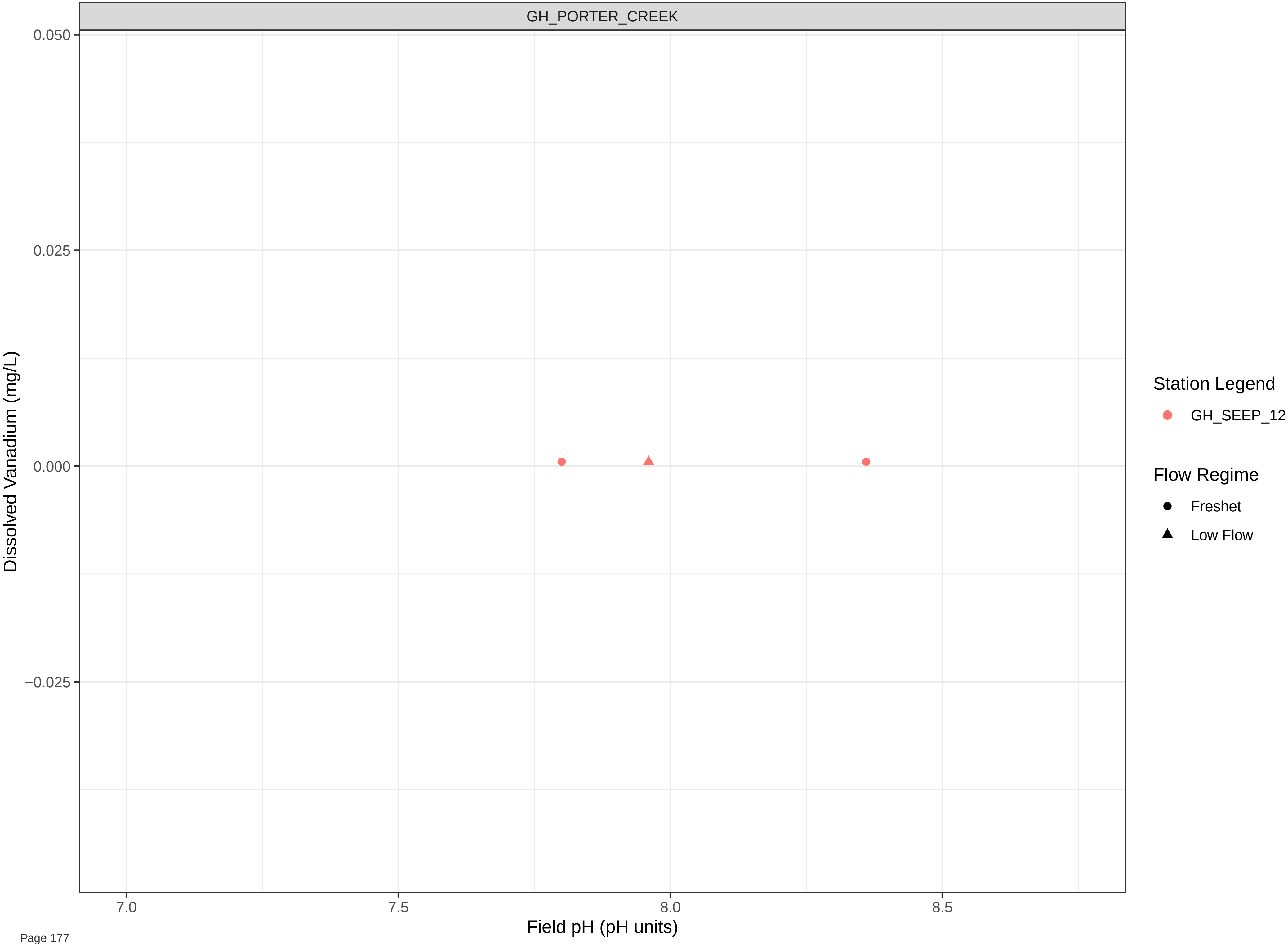

GH_THOMPSON_WR
Dissolved Uranium (mg/L)
0.016
0.012
0.008
0.004
0.000
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

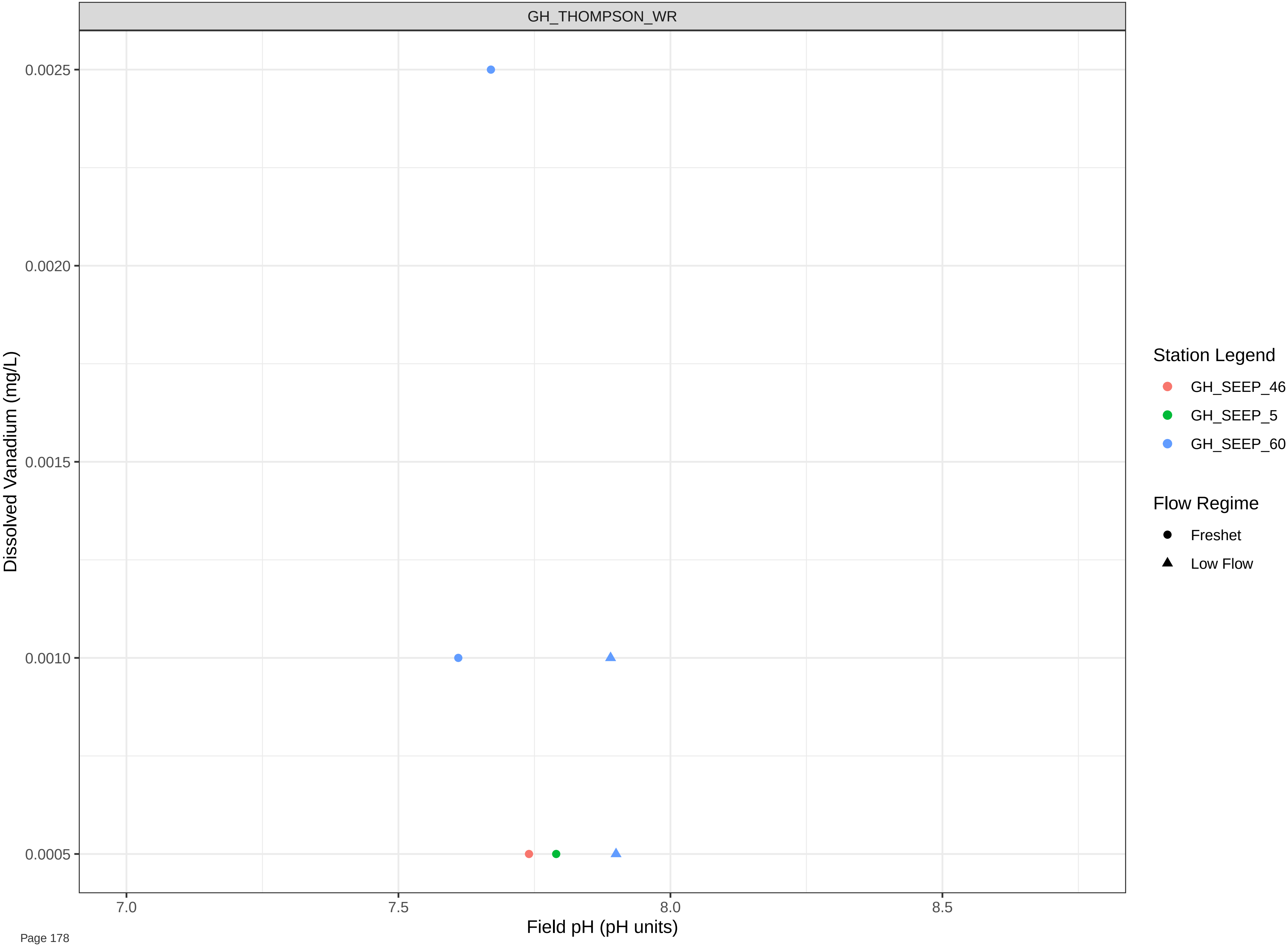

GH_UPSTREAM_CCR
Dissolved Uranium (mg/L)
0.006
0.004
0.002
0.000
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
● GH_SEEP_15
● GH_SEEP_30
● GH_SEEP_50
Flow Regime
● Freshet
▲ Low Flow

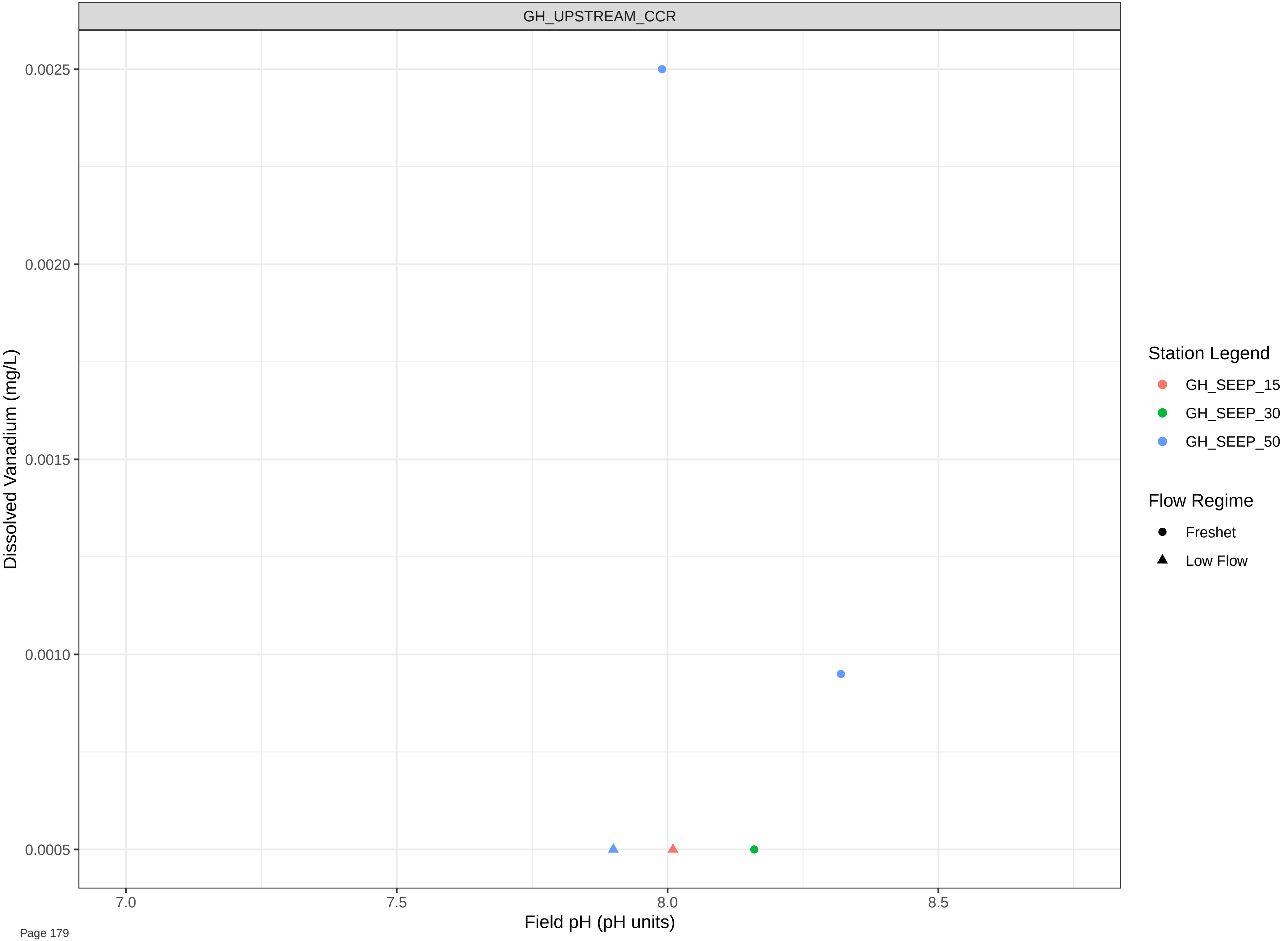

GH_WOLFRAM_WR
Dissolved Uranium (mg/L)
0.025
0.020
0.015
0.010
0.005
0.000
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

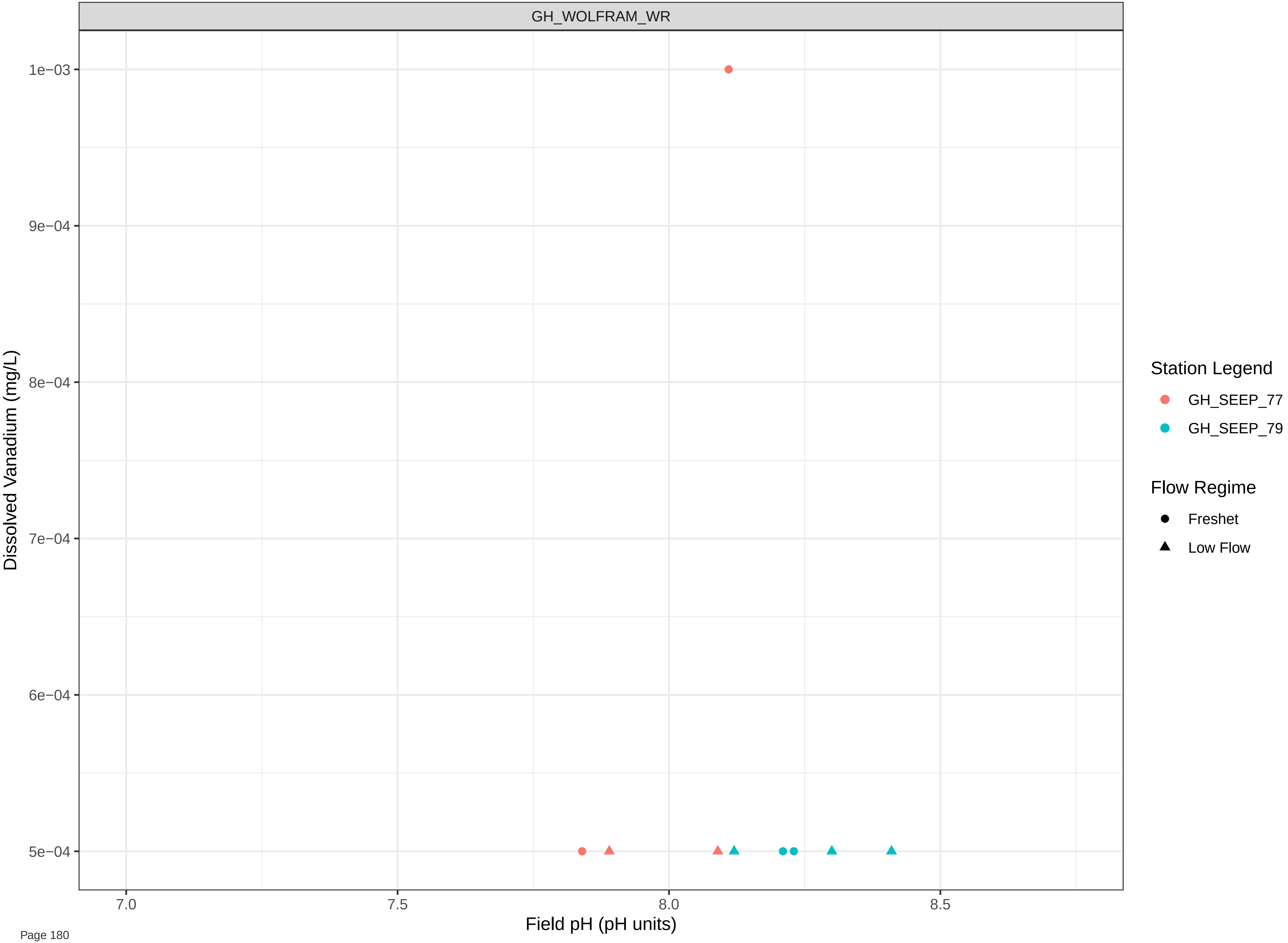

GH_CCR
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

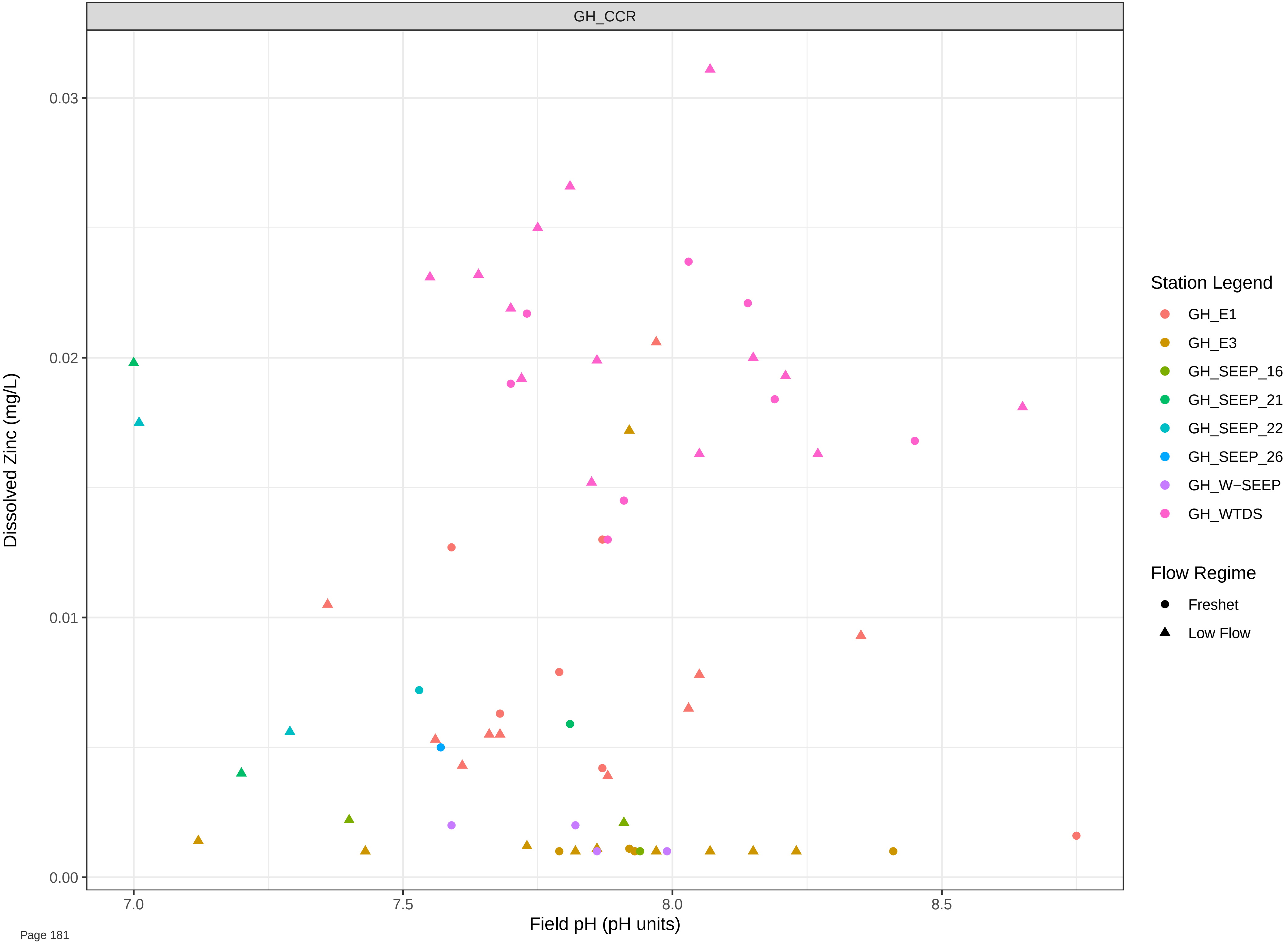

GH_LEASK_WR
Dissolved Vanadium (mg/L)
1e−03
9e−04
8e−04
7e−04
6e−04
5e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

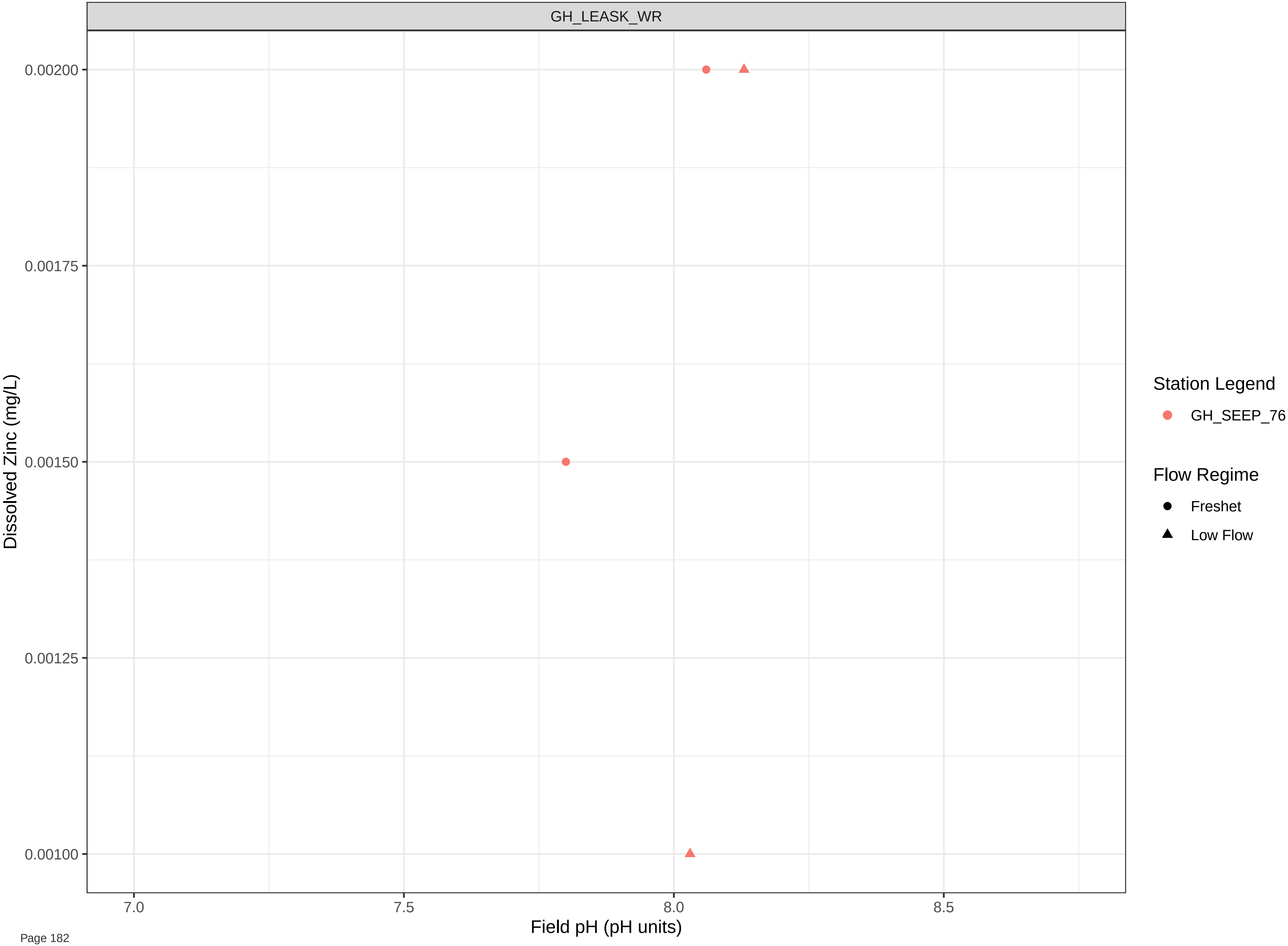

GH_PORTER_CREEK
0.050
0.025
0.000
−0.025
Dissolved Vanadium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

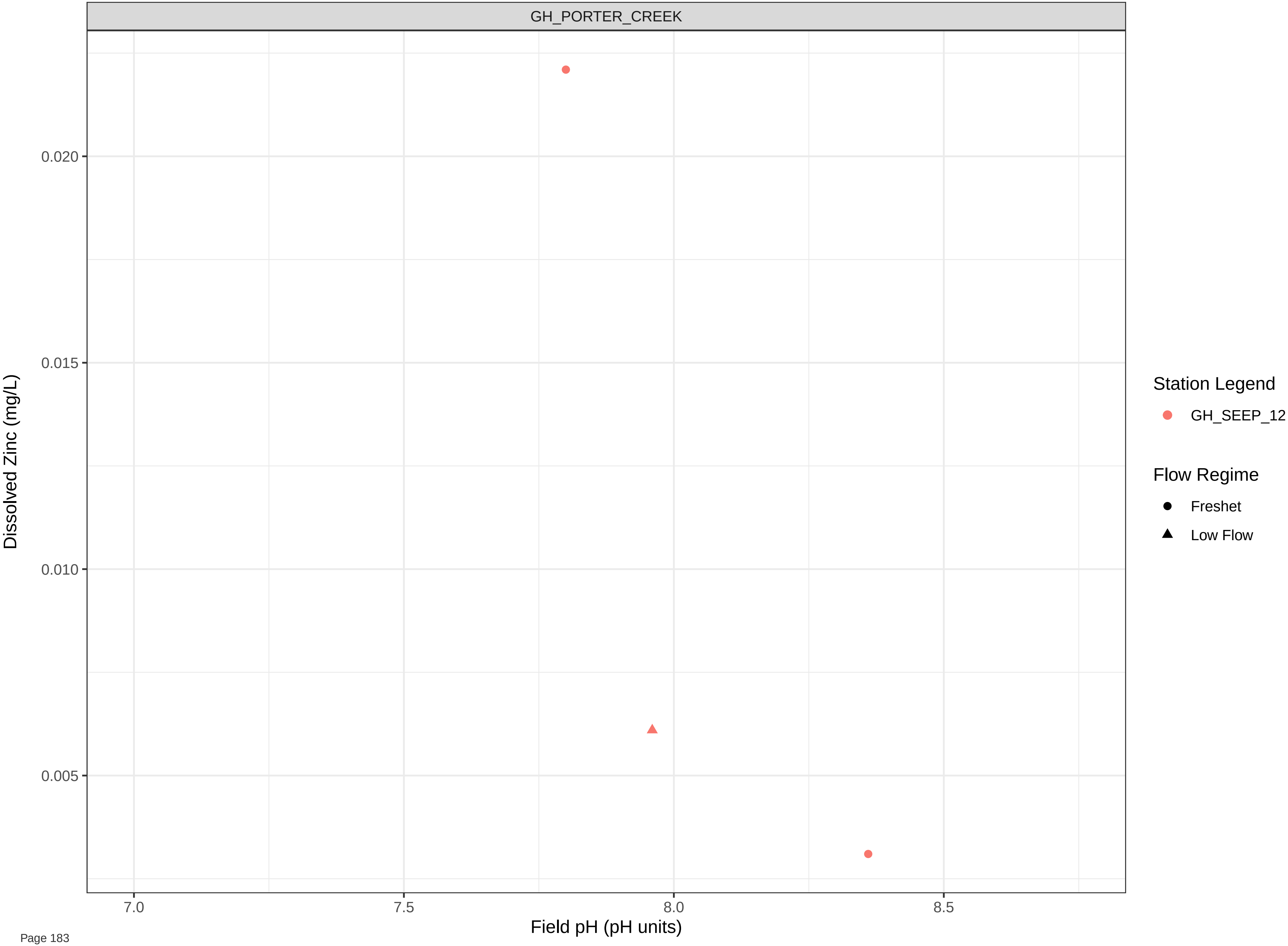

GH_THOMPSON_WR
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

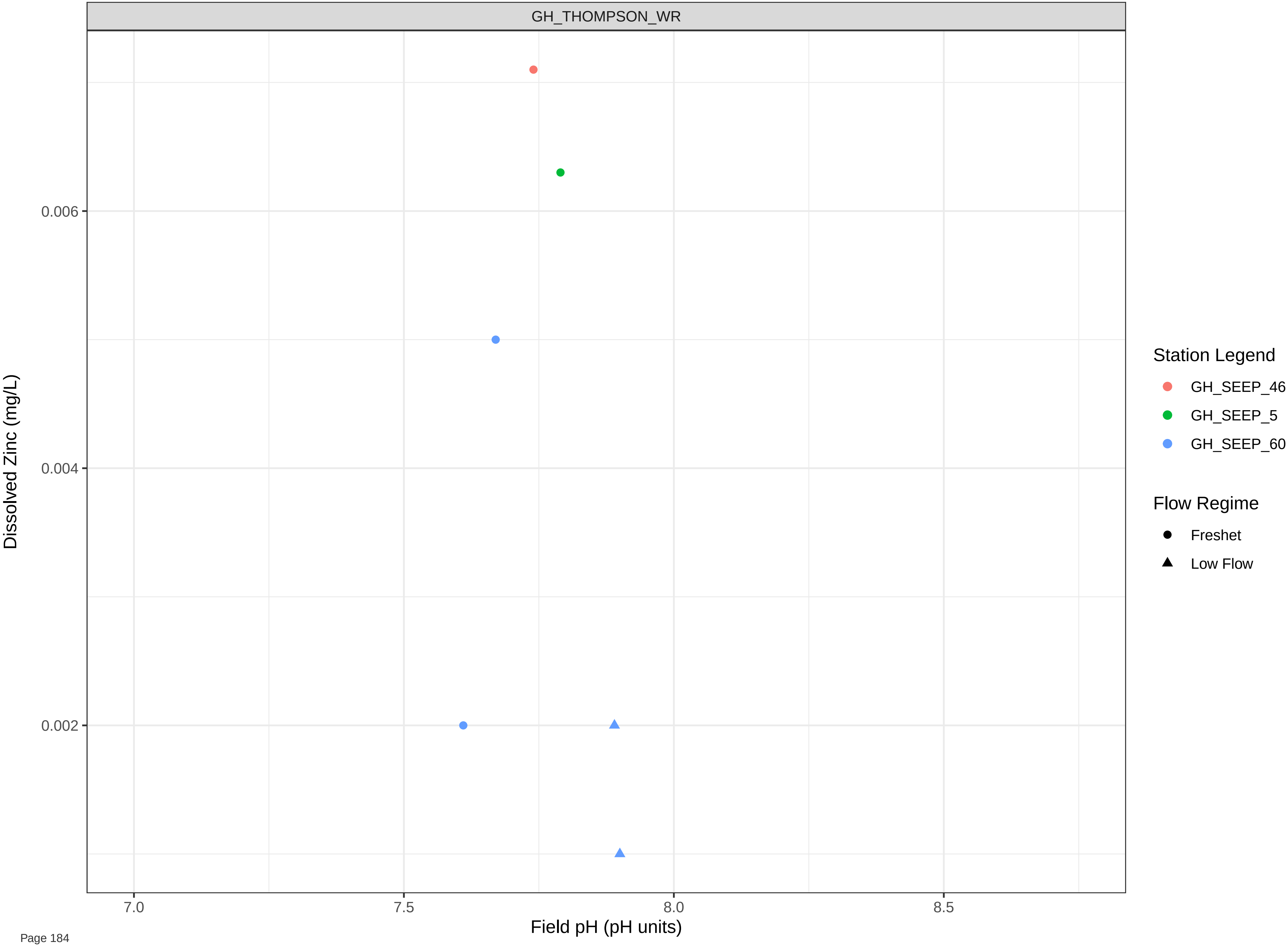

GH_UPSTREAM_CCR
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

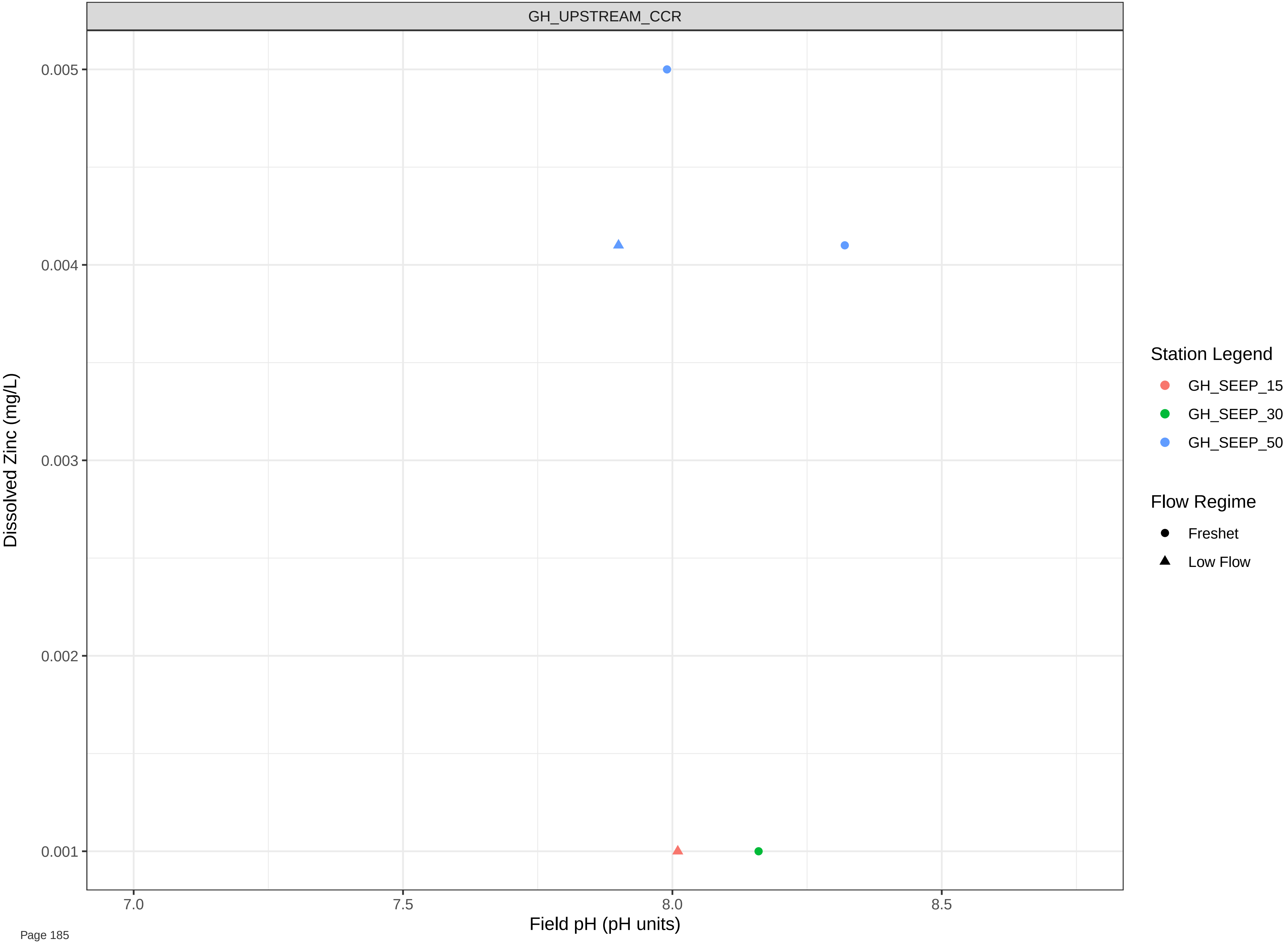

GH_WOLFRAM_WR
Dissolved Vanadium (mg/L)
1e−03
9e−04
8e−04
7e−04
6e−04
5e−04
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

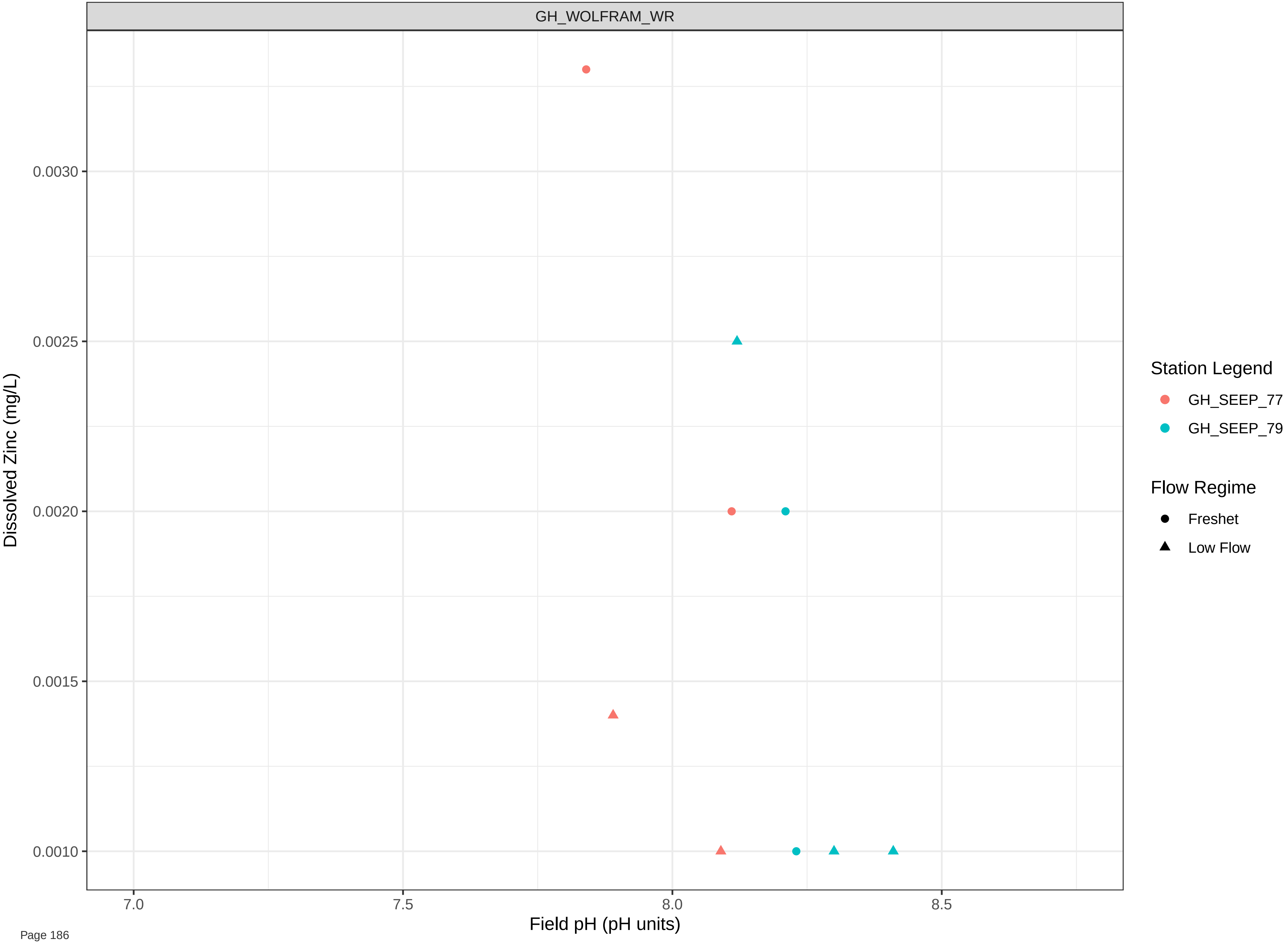

GH_CCR
Dissolved Zinc (mg/L)
0.03
0.02
0.01
0.00
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

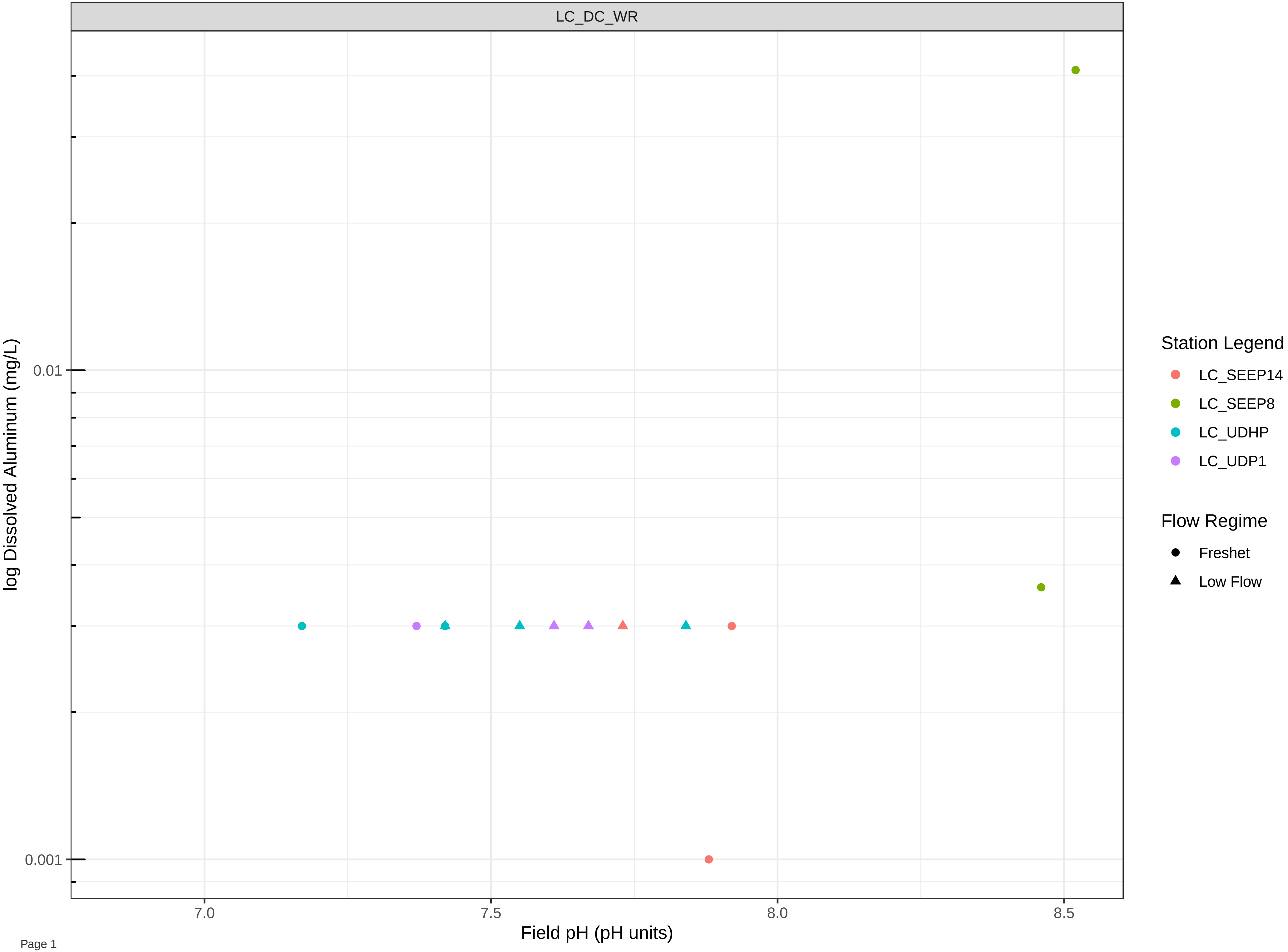

GH_LEASK_WR
0.00200
0.00175
0.00150
0.00125
0.00100
Dissolved Zinc (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

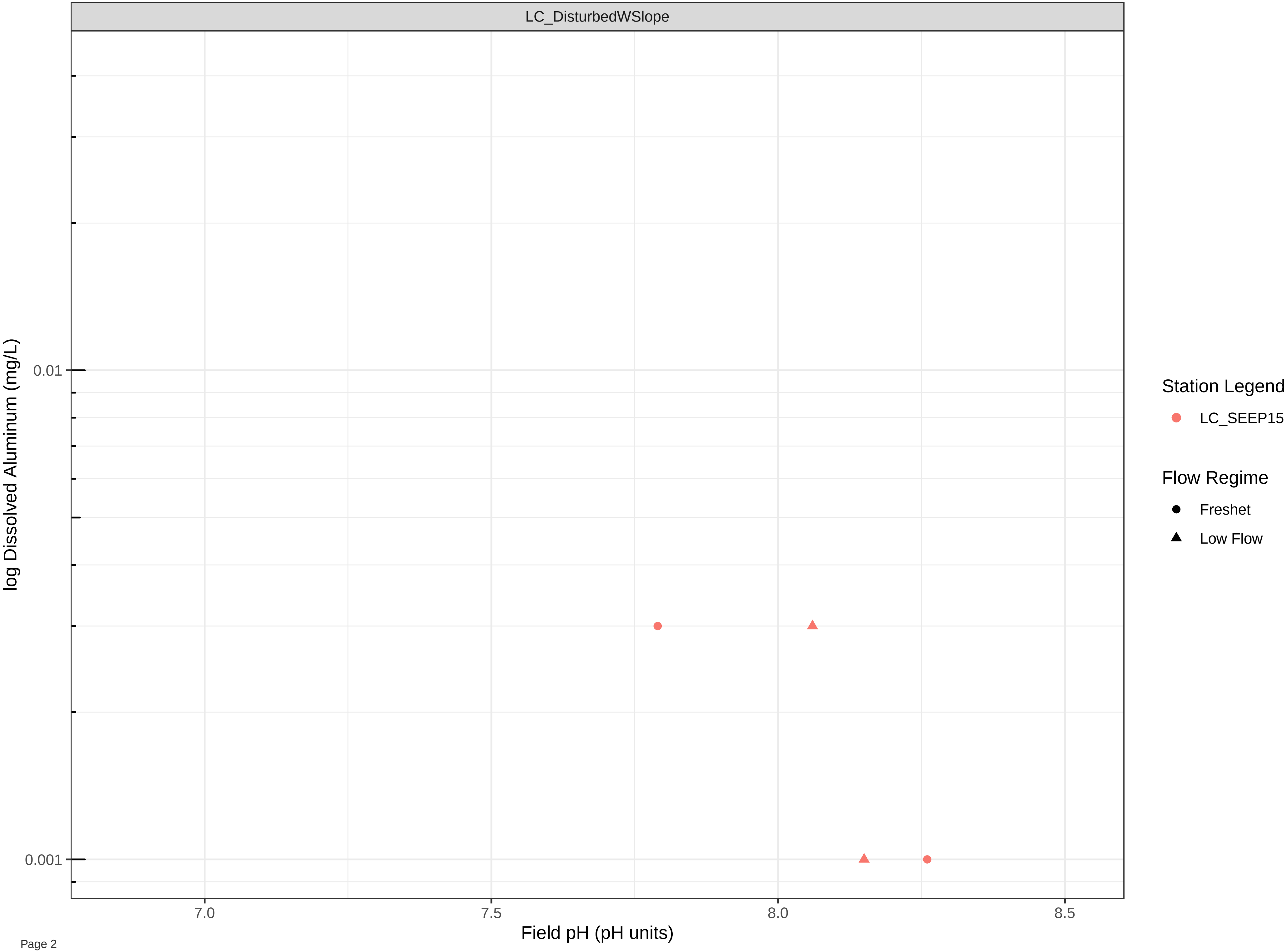

GH_PORTER_CREEK
Dissolved Zinc (mg/L)
0.020
0.015
0.010
0.005
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

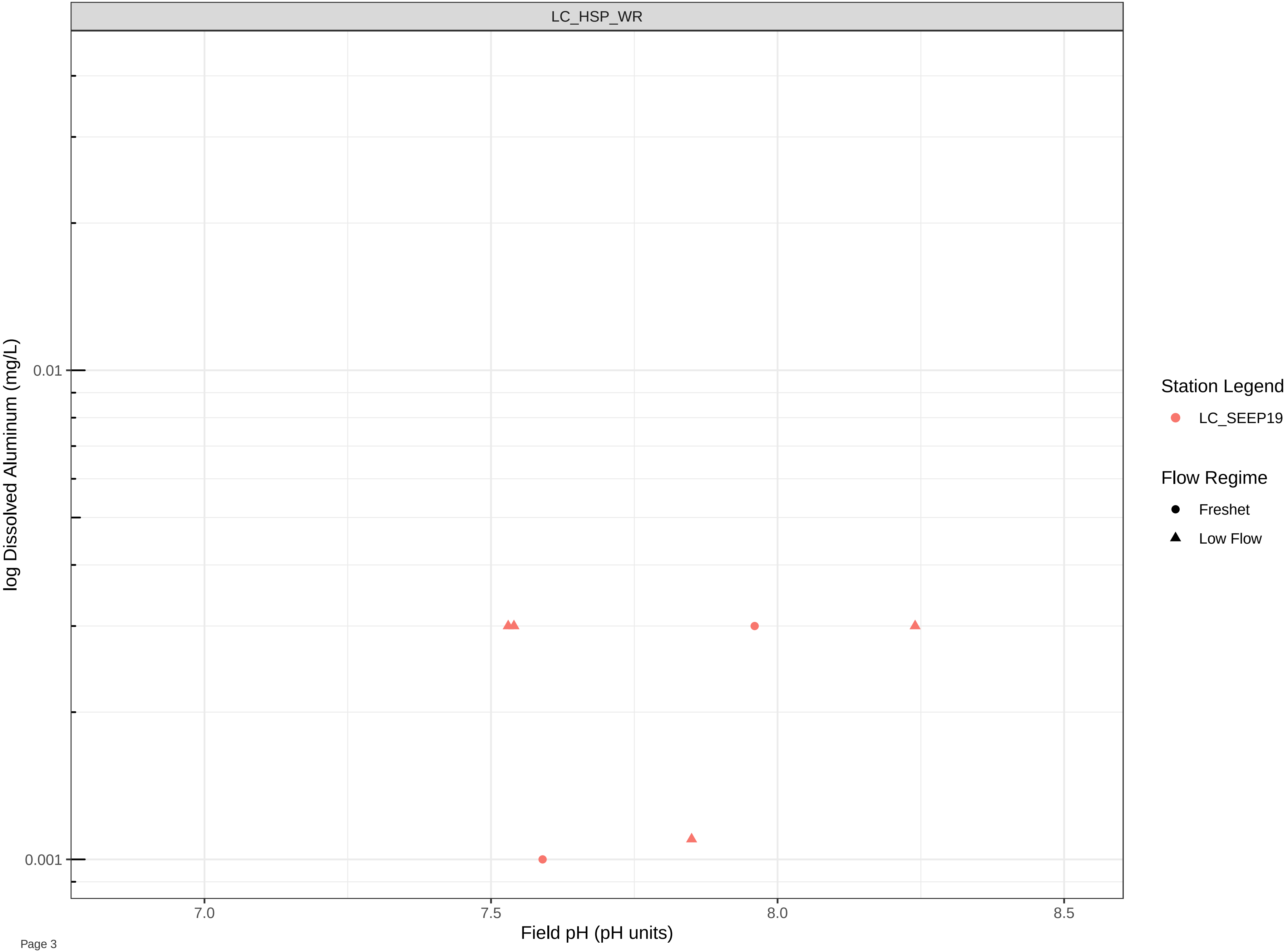

GH_THOMPSON_WR
Dissolved Zinc (mg/L)
0.006
0.004
0.002
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
● GH_SEEP_46
● GH_SEEP_5
● GH_SEEP_60
Flow Regime
● Freshet
▲ Low Flow

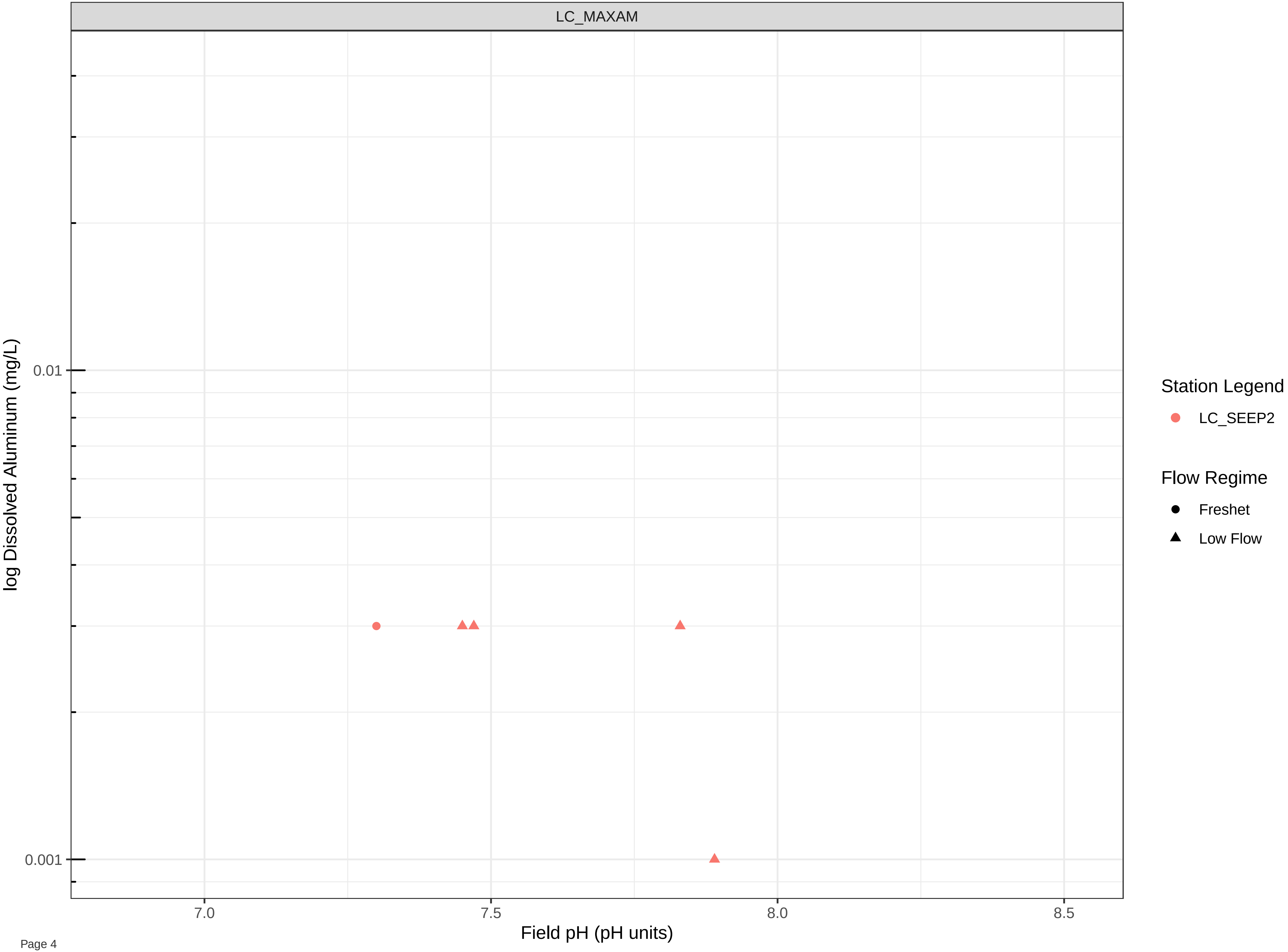

GH_UPSTREAM_CCR
Dissolved Zinc (mg/L)
0.005
0.004
0.003
0.002
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

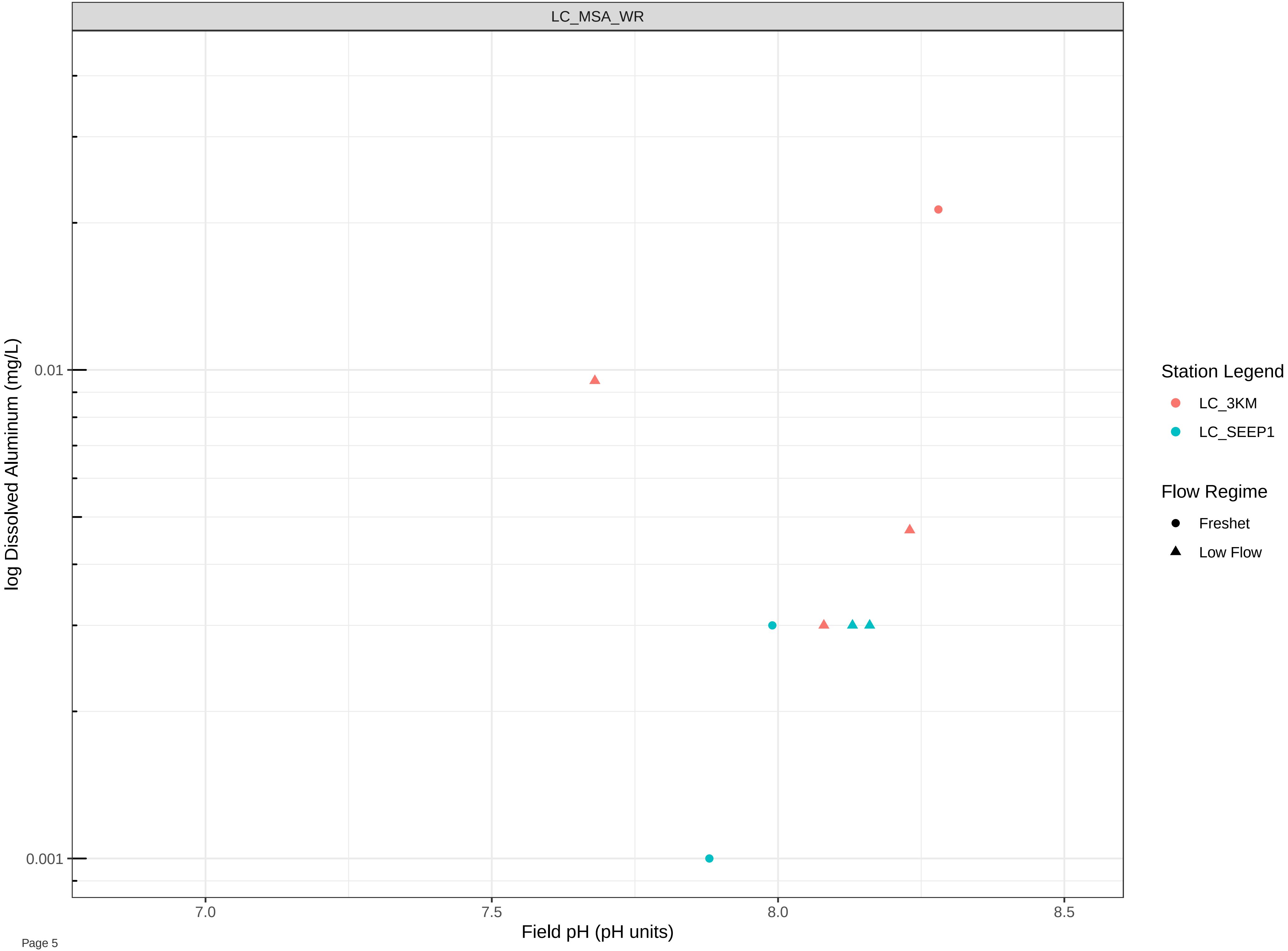

GH_WOLFRAM_WR
Dissolved Zinc (mg/L)
0.0030
0.0025
0.0020
0.0015
0.0010
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

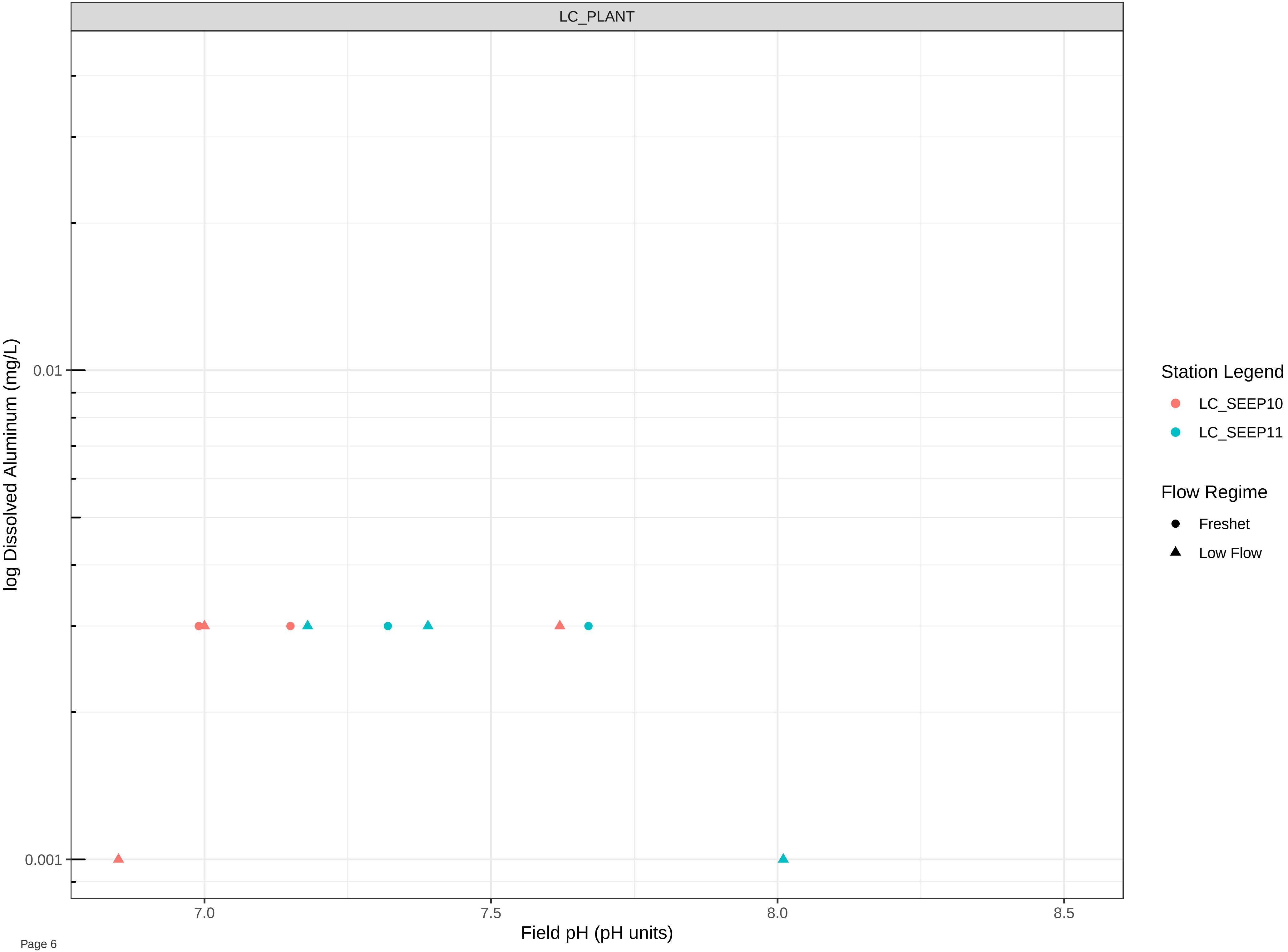

LC_DC_WR
log Dissolved Aluminum (mg/L)
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP14
● LC_SEEP8
● LC_UDHP
● LC_UDP1
Flow Regime
● Freshet
▲ Low Flow

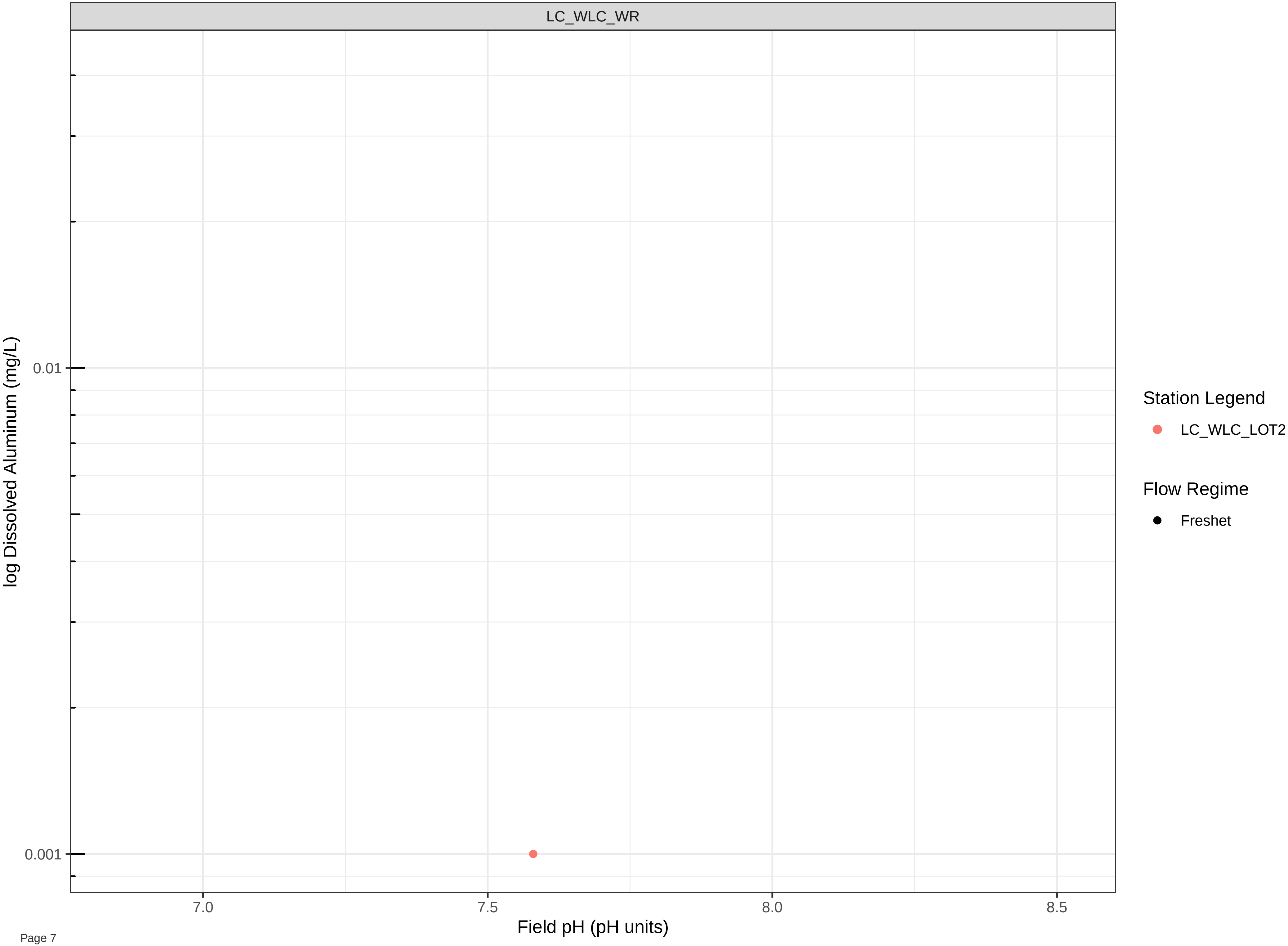

LC_DisturbedWSlope
log Dissolved Aluminum (mg/L)
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow

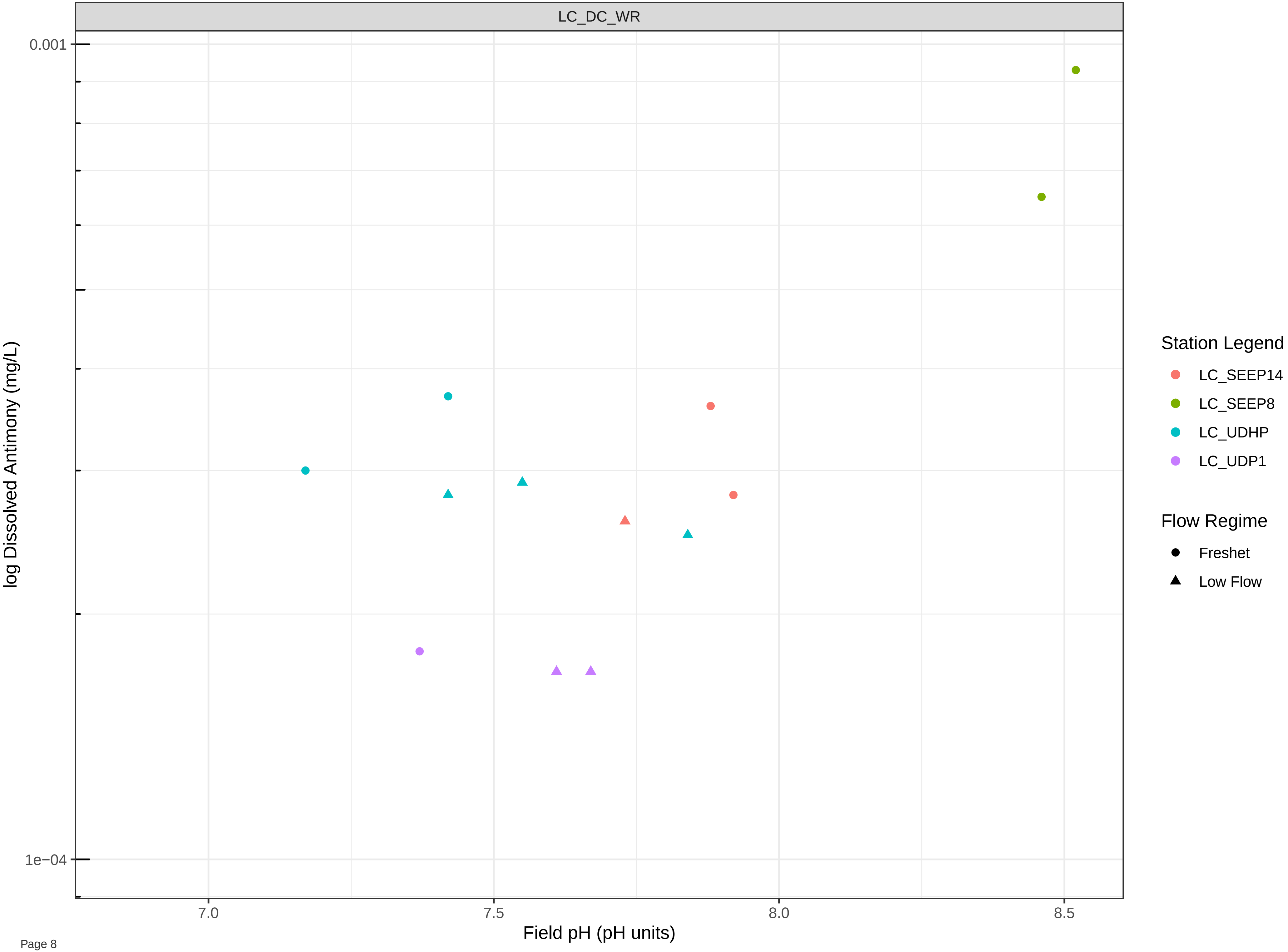

LC_HSP_WR
log Dissolved Aluminum (mg/L)
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

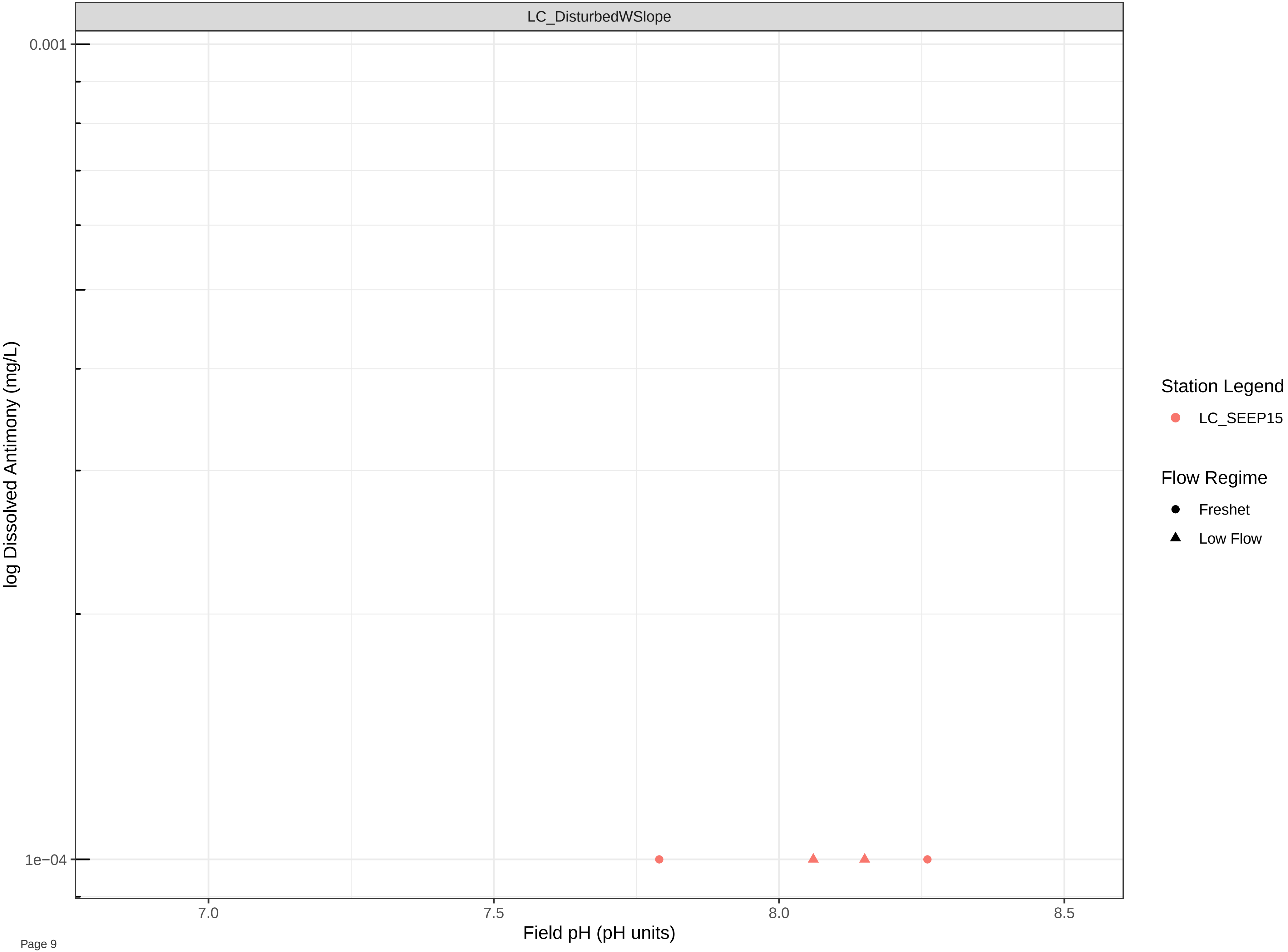

LC_MAXAM
log Dissolved Aluminum (mg/L)
0.01
0.001
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

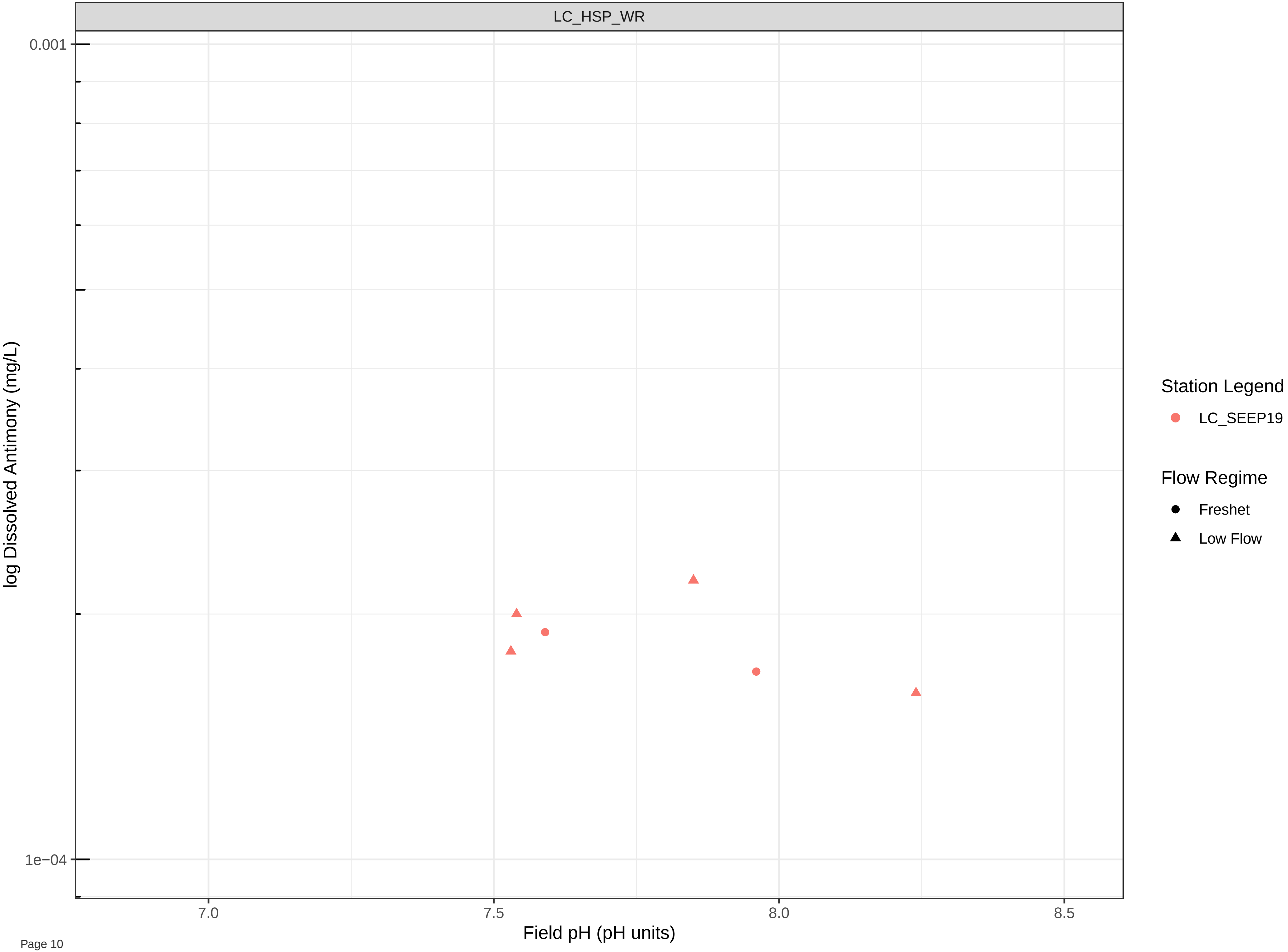

LC_MSA_WR
log Dissolved Aluminum (mg/L)
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

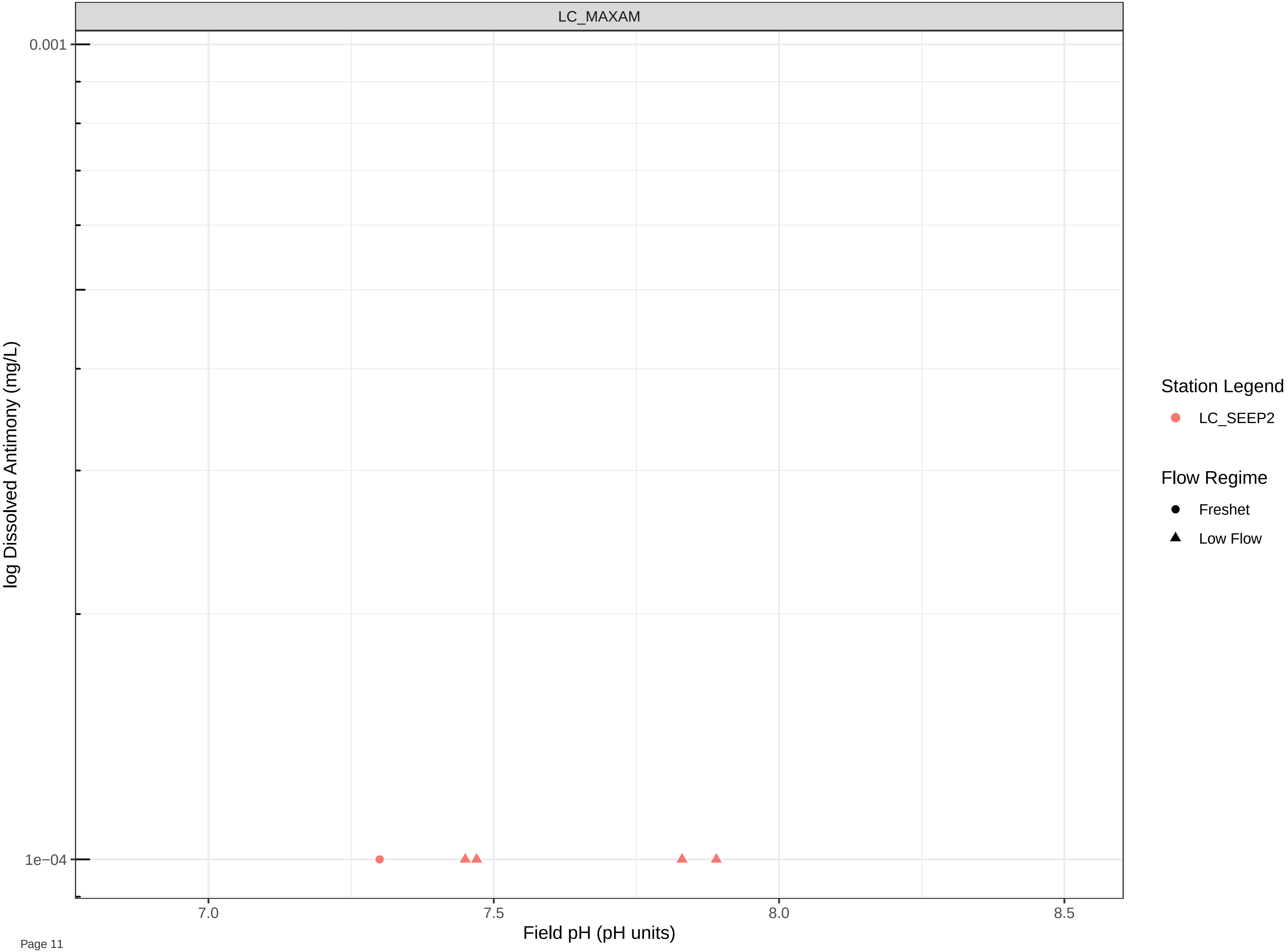

LC_PLANT
log Dissolved Aluminum (mg/L)
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

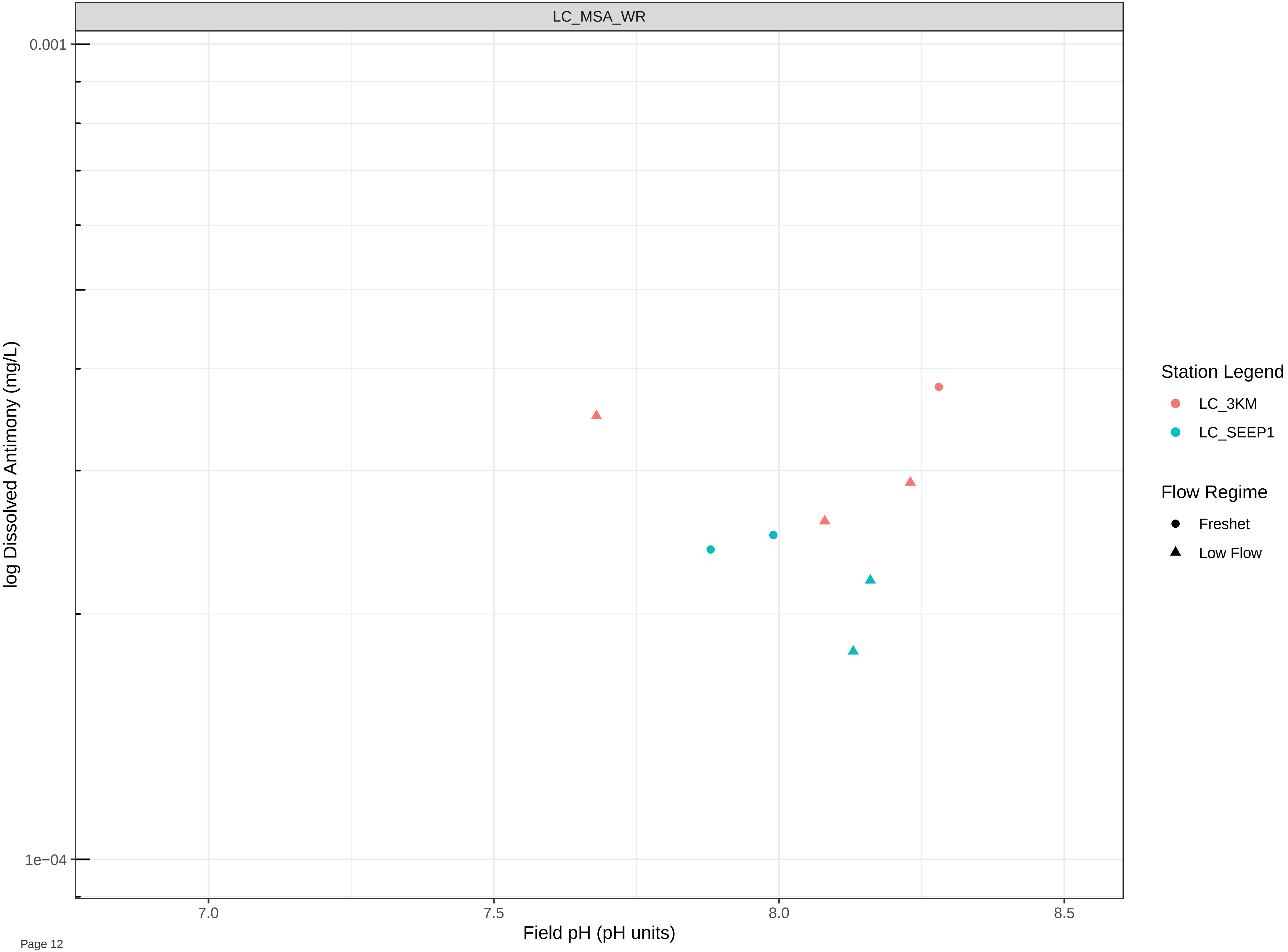

LC_WLC_WR
log Dissolved Aluminum (mg/L)
0.01
0.001
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

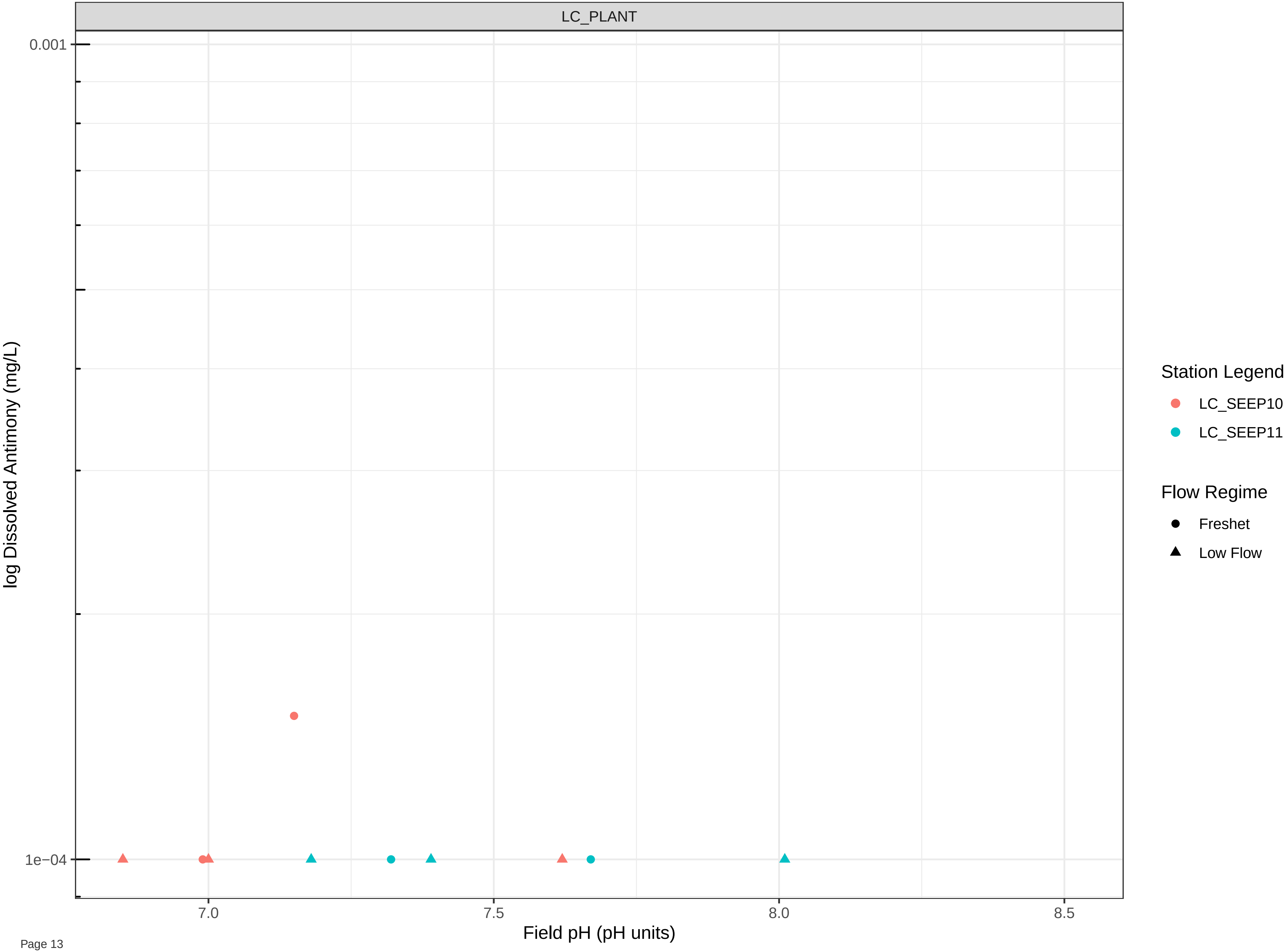

LC_DC_WR
0.001
1e−04
log Dissolved Antimony (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

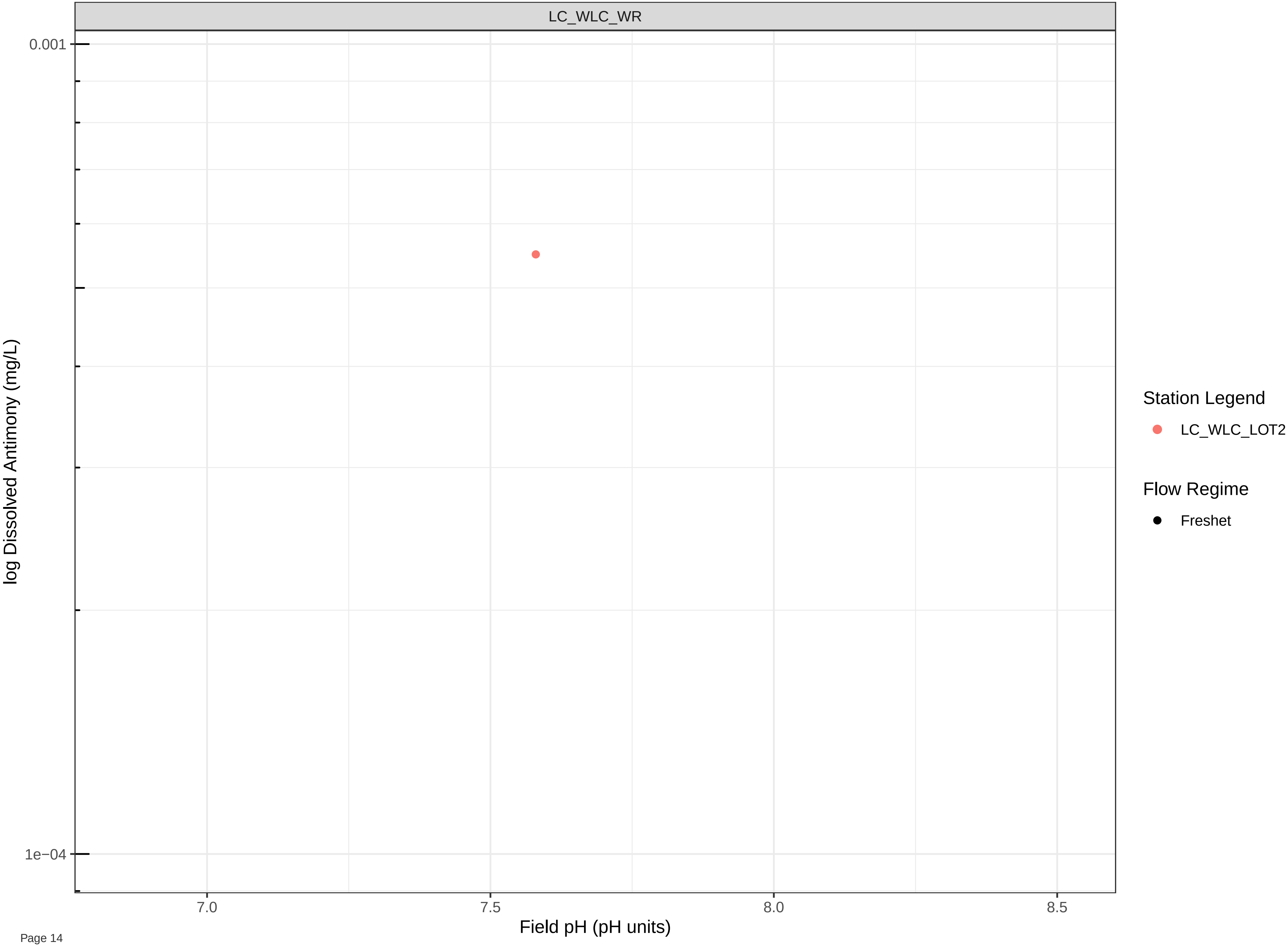

LC_DisturbedWSlope
0.001
1e−04
log Dissolved Antimony (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

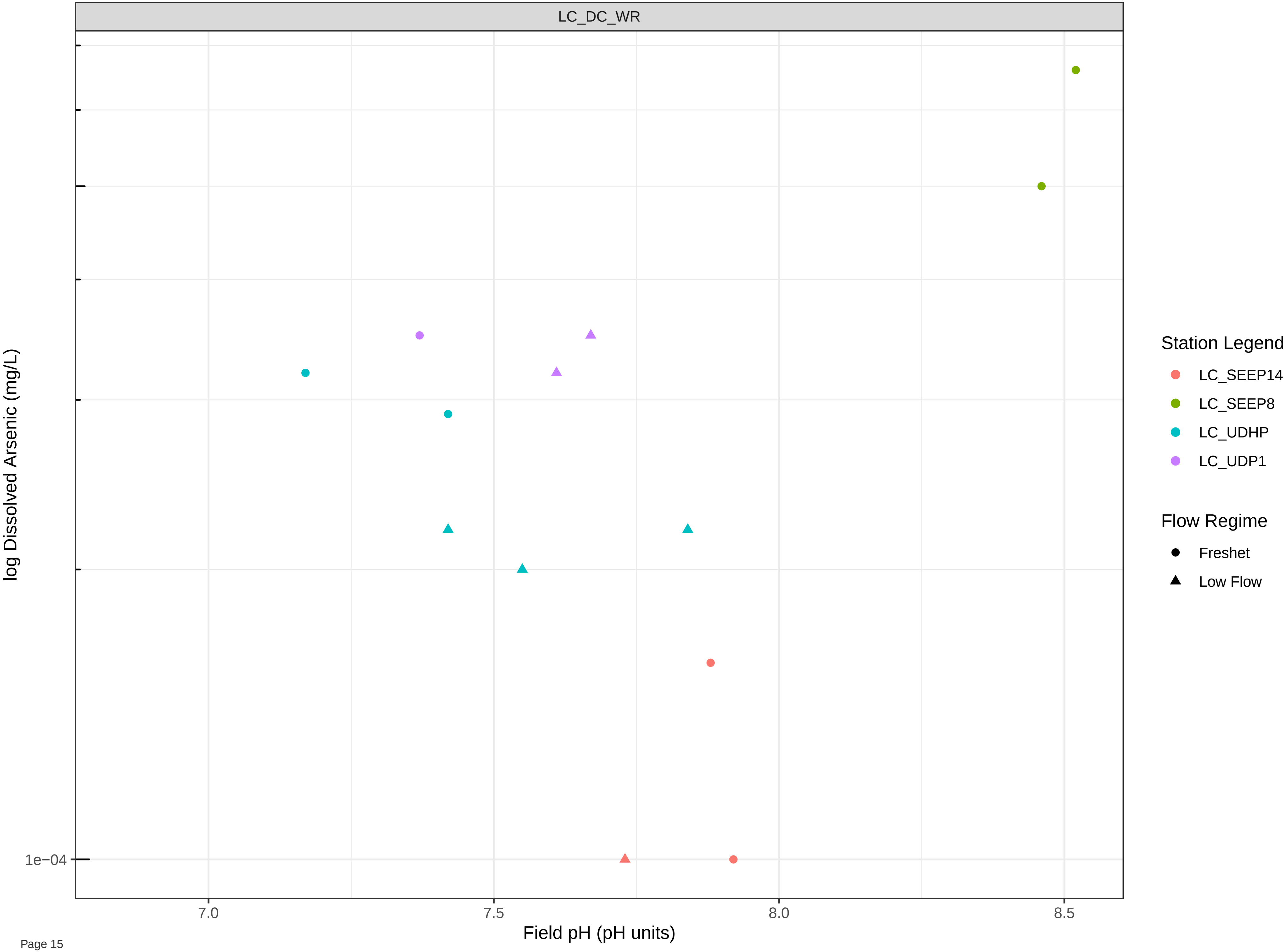

LC_HSP_WR
0.001
1e−04
log Dissolved Antimony (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

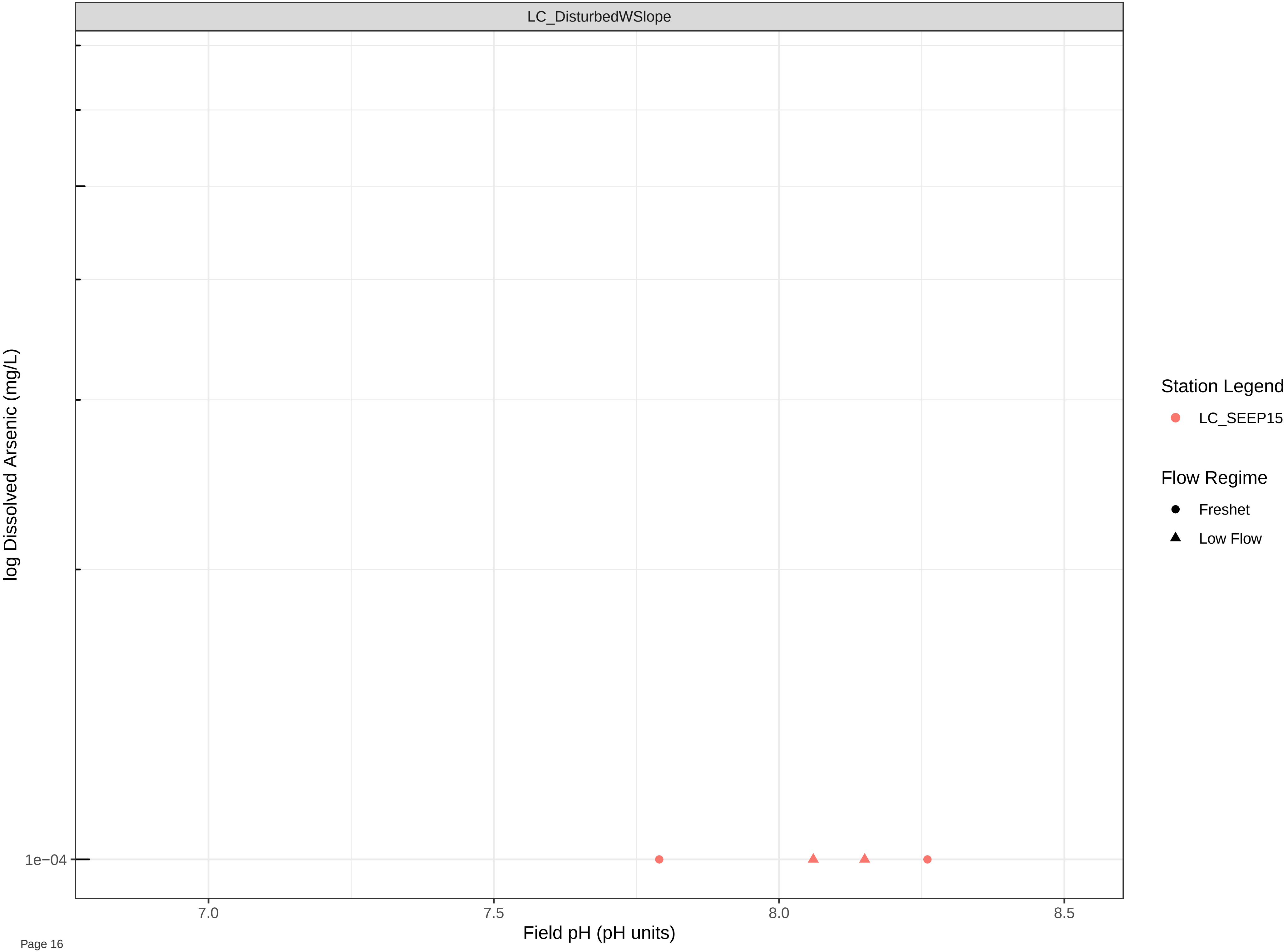

LC_MAXAM
0.001
1e−04
log Dissolved Antimony (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow

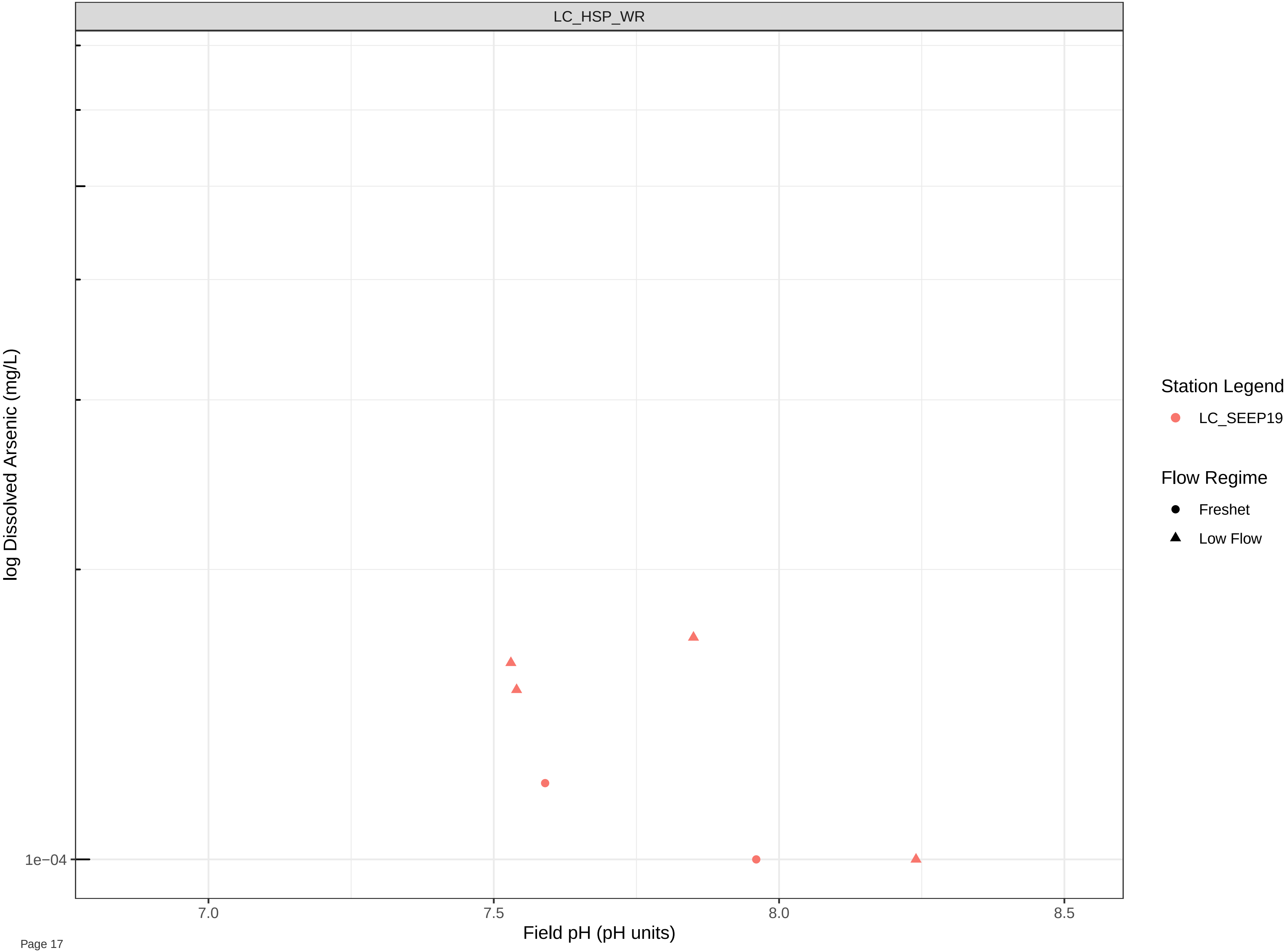

LC_MSA_WR
0.001
1e−04
log Dissolved Antimony (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

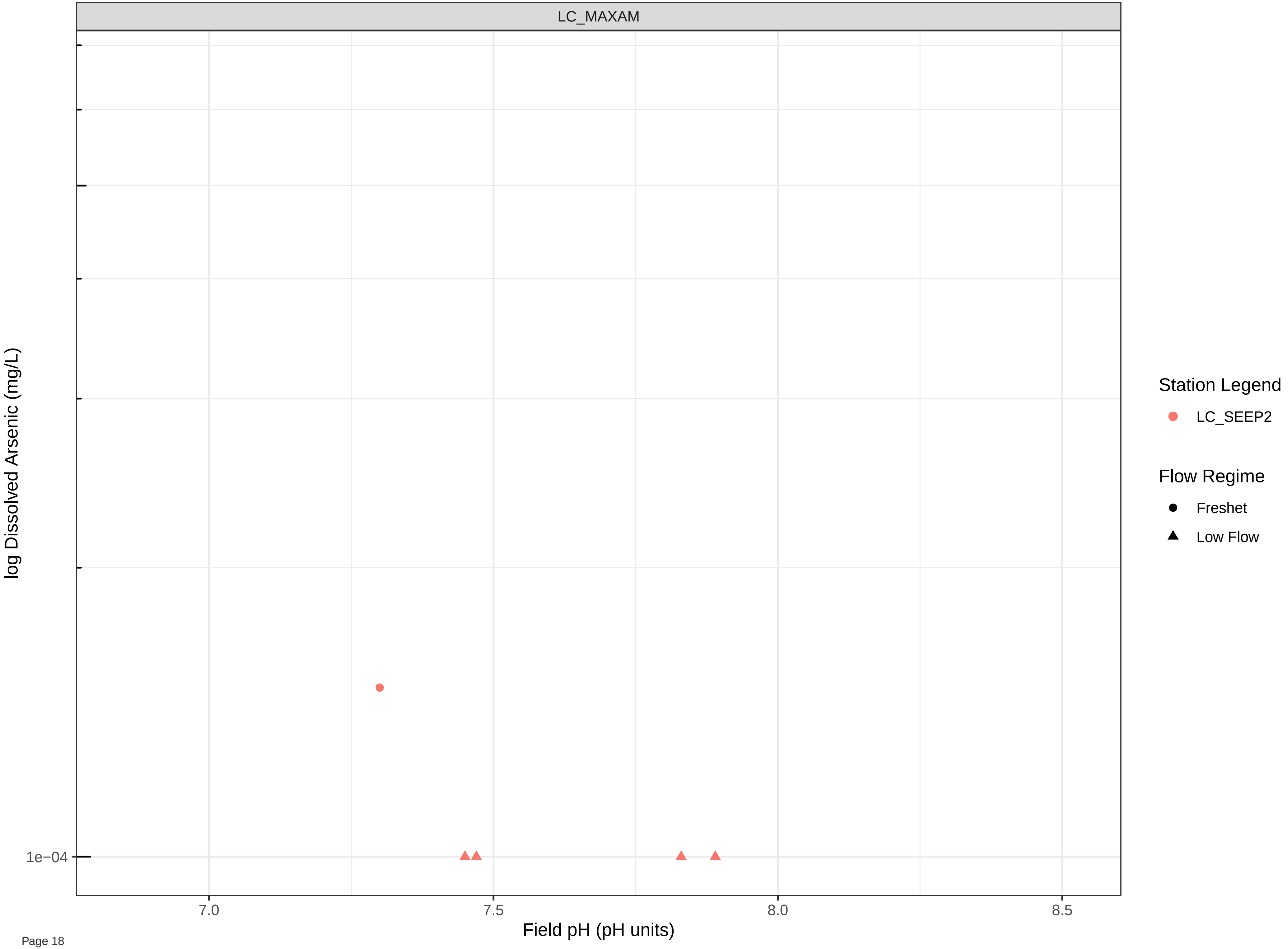

LC_PLANT
0.001
1e−04
log Dissolved Antimony (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

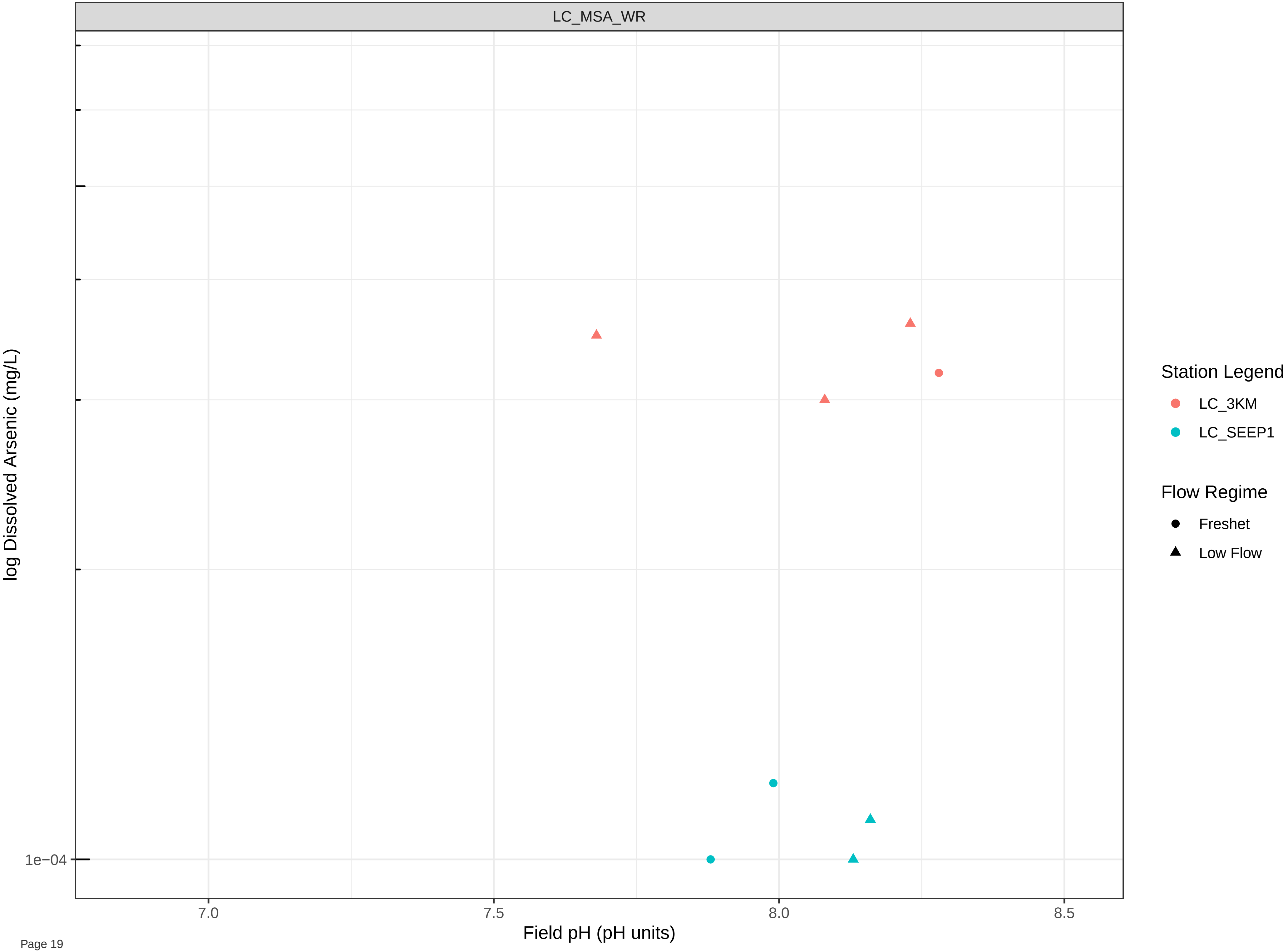

LC_WLC_WR
0.001
1e−04
log Dissolved Antimony (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet


LC_DC_WR
log Dissolved Arsenic (mg/L)
1e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

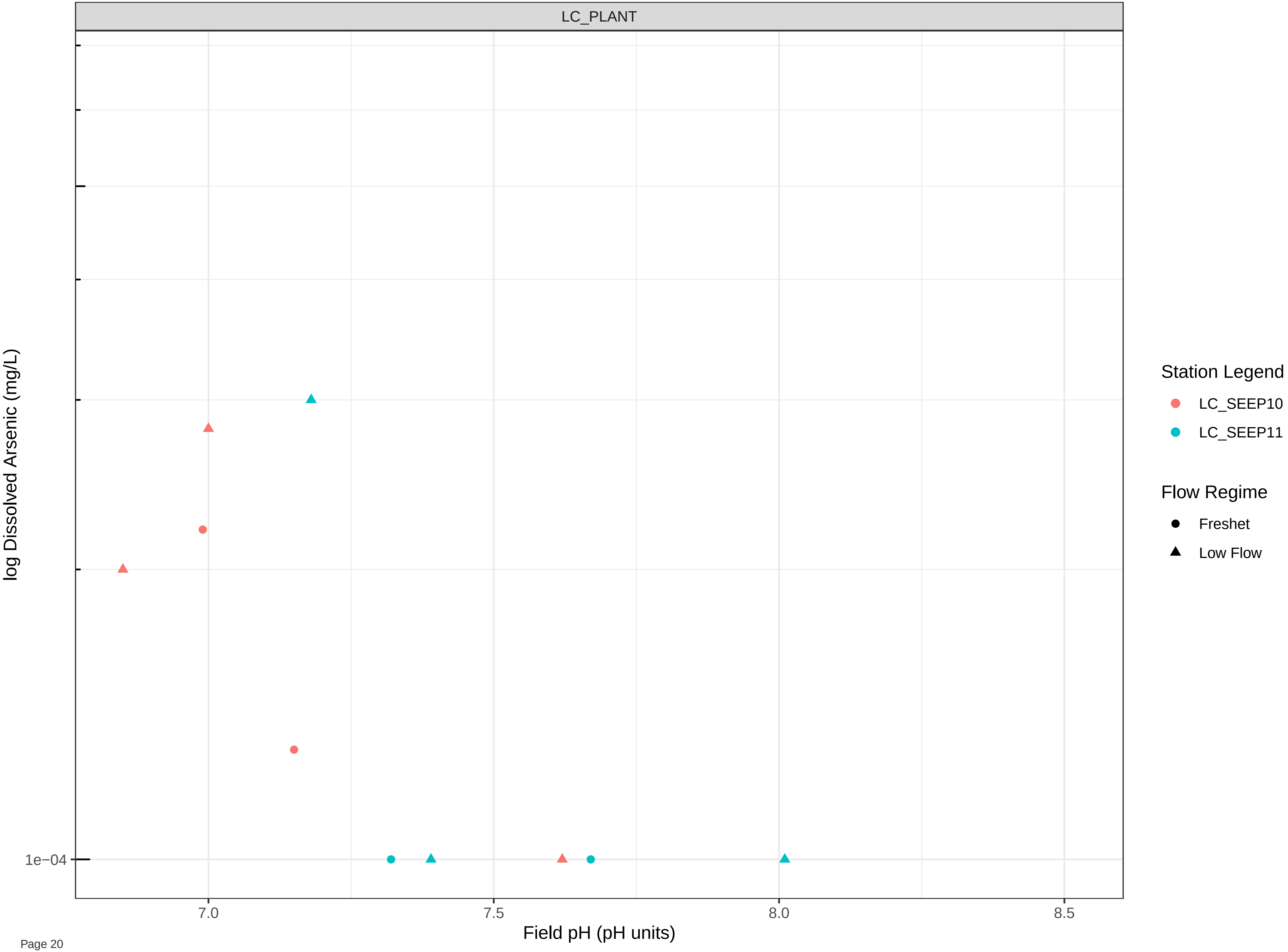

LC_DisturbedWSlope
log Dissolved Arsenic (mg/L)
1e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow

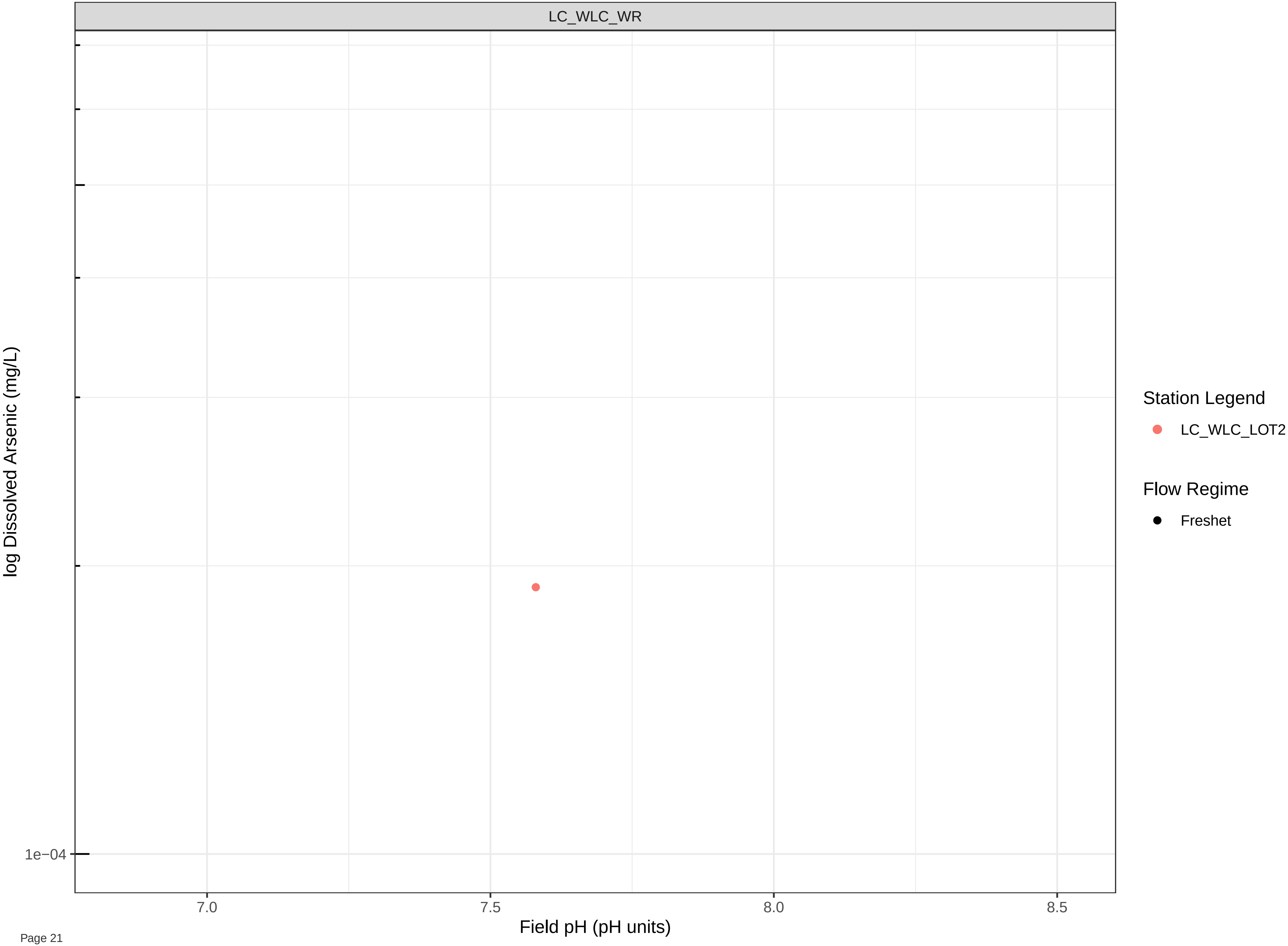

LC_HSP_WR
log Dissolved Arsenic (mg/L)
1e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

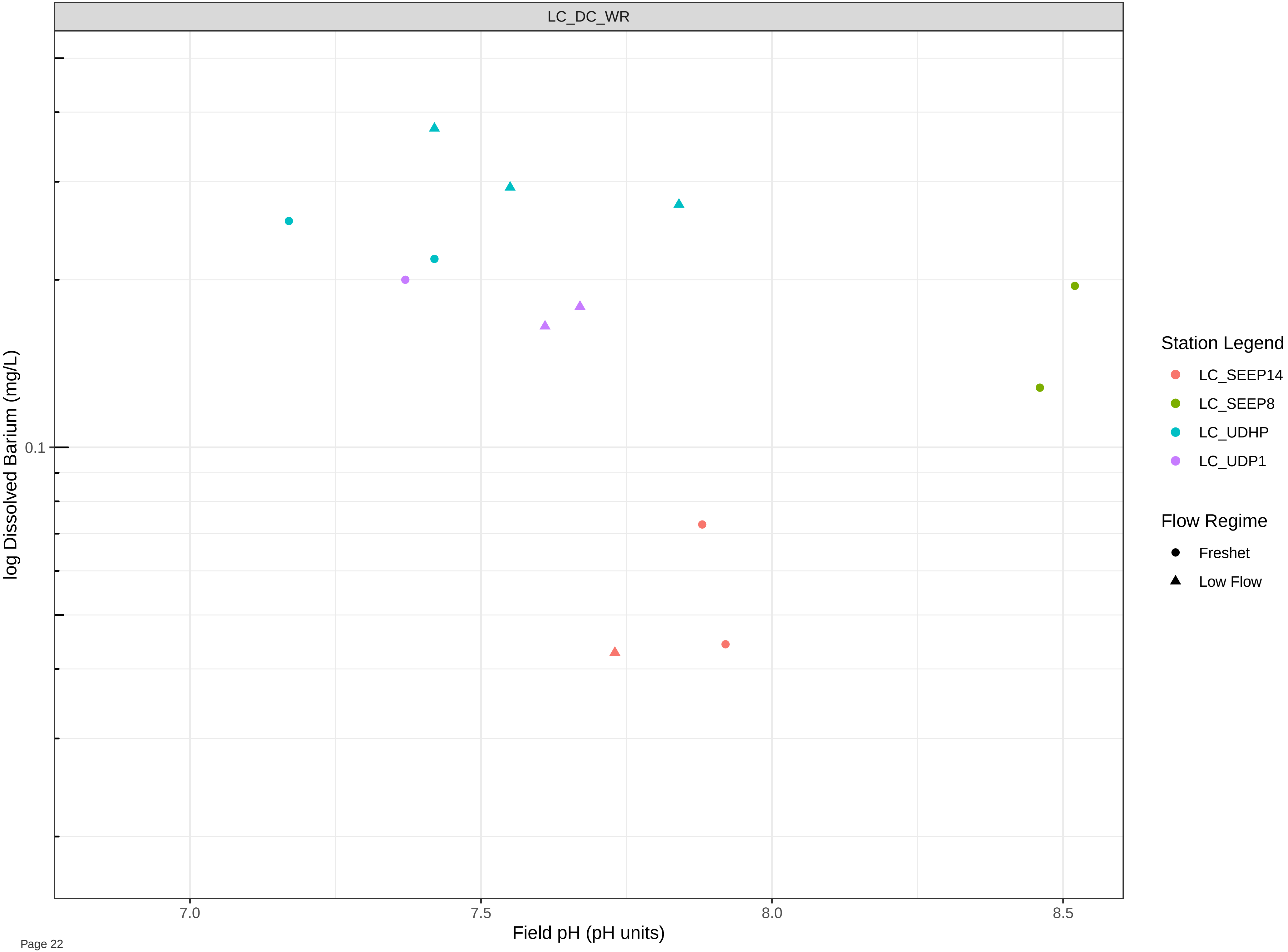

LC_MAXAM
log Dissolved Arsenic (mg/L)
1e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

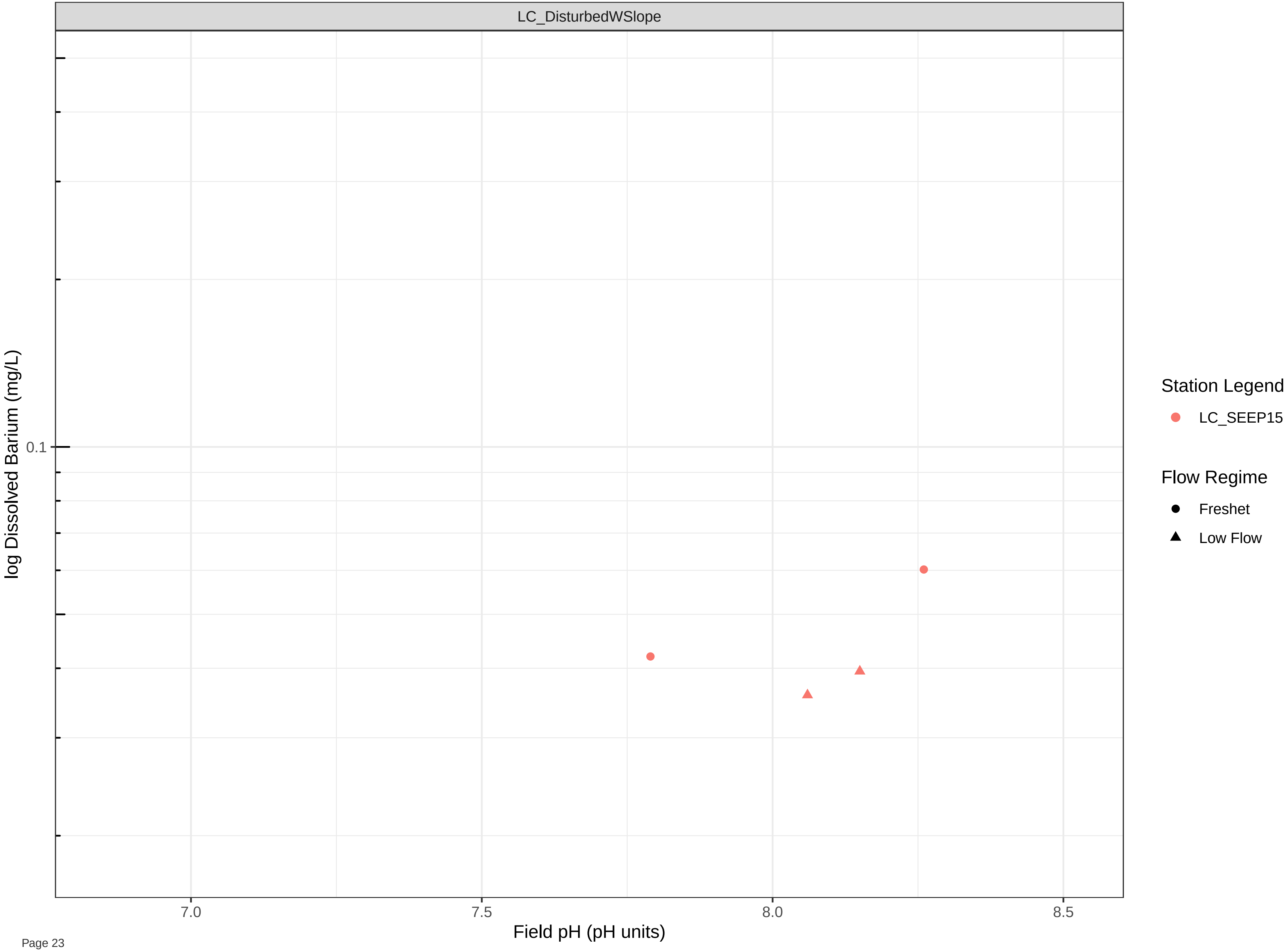


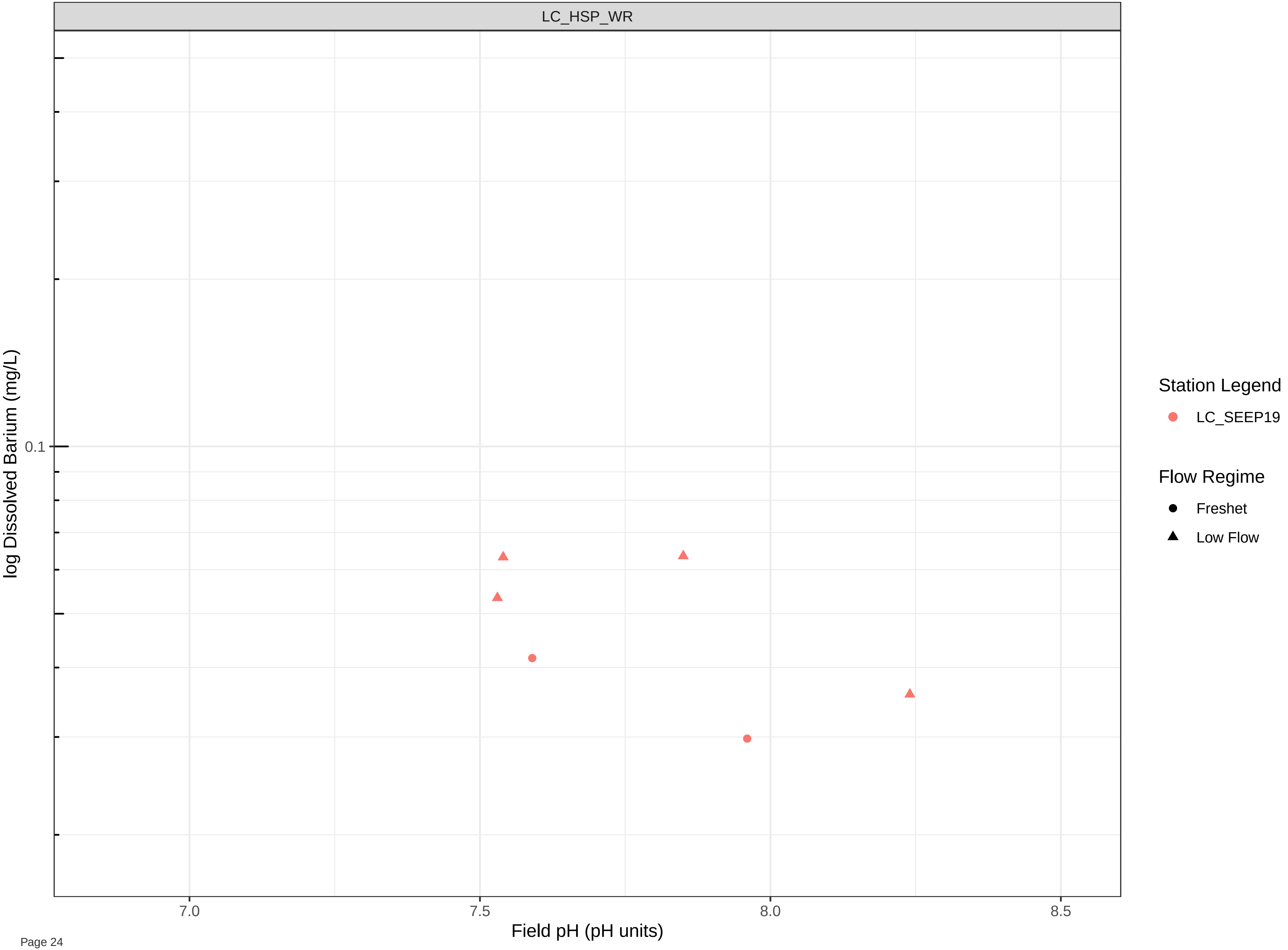
LC_MSA_WR
log Dissolved Arsenic (mg/L)
1e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

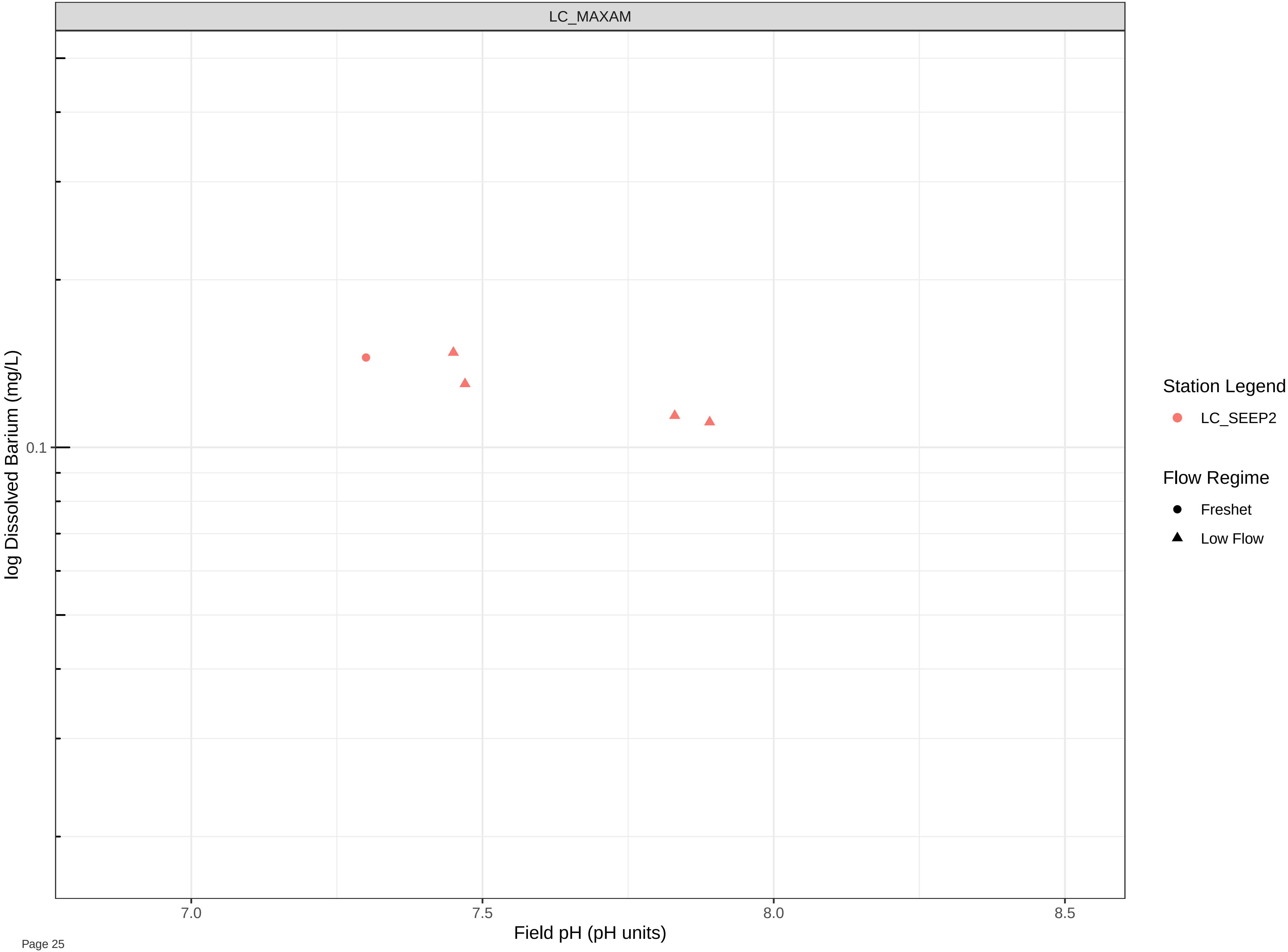

LC_PLANT
log Dissolved Arsenic (mg/L)
1e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

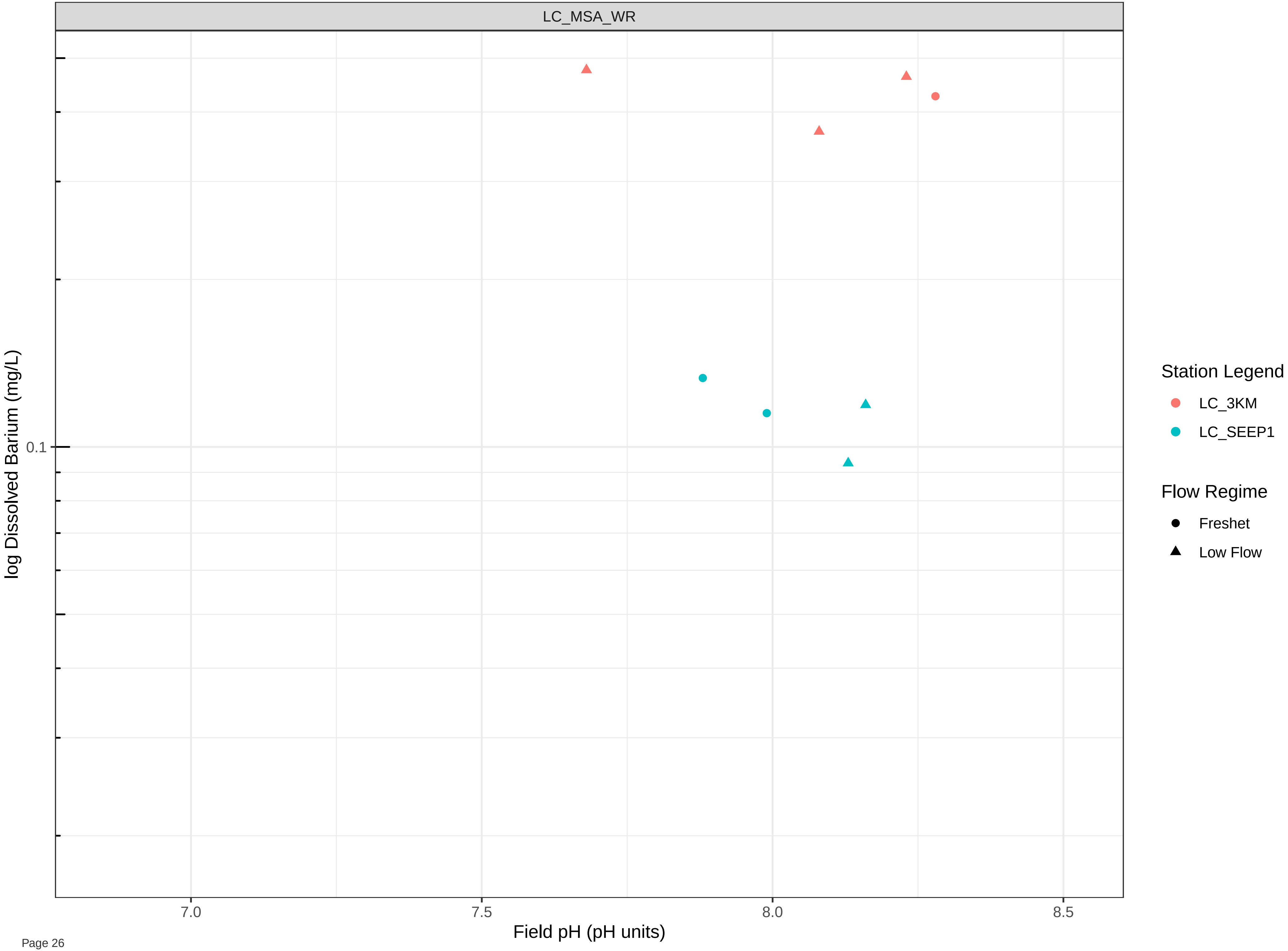

LC_WLC_WR
log Dissolved Arsenic (mg/L)
1e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

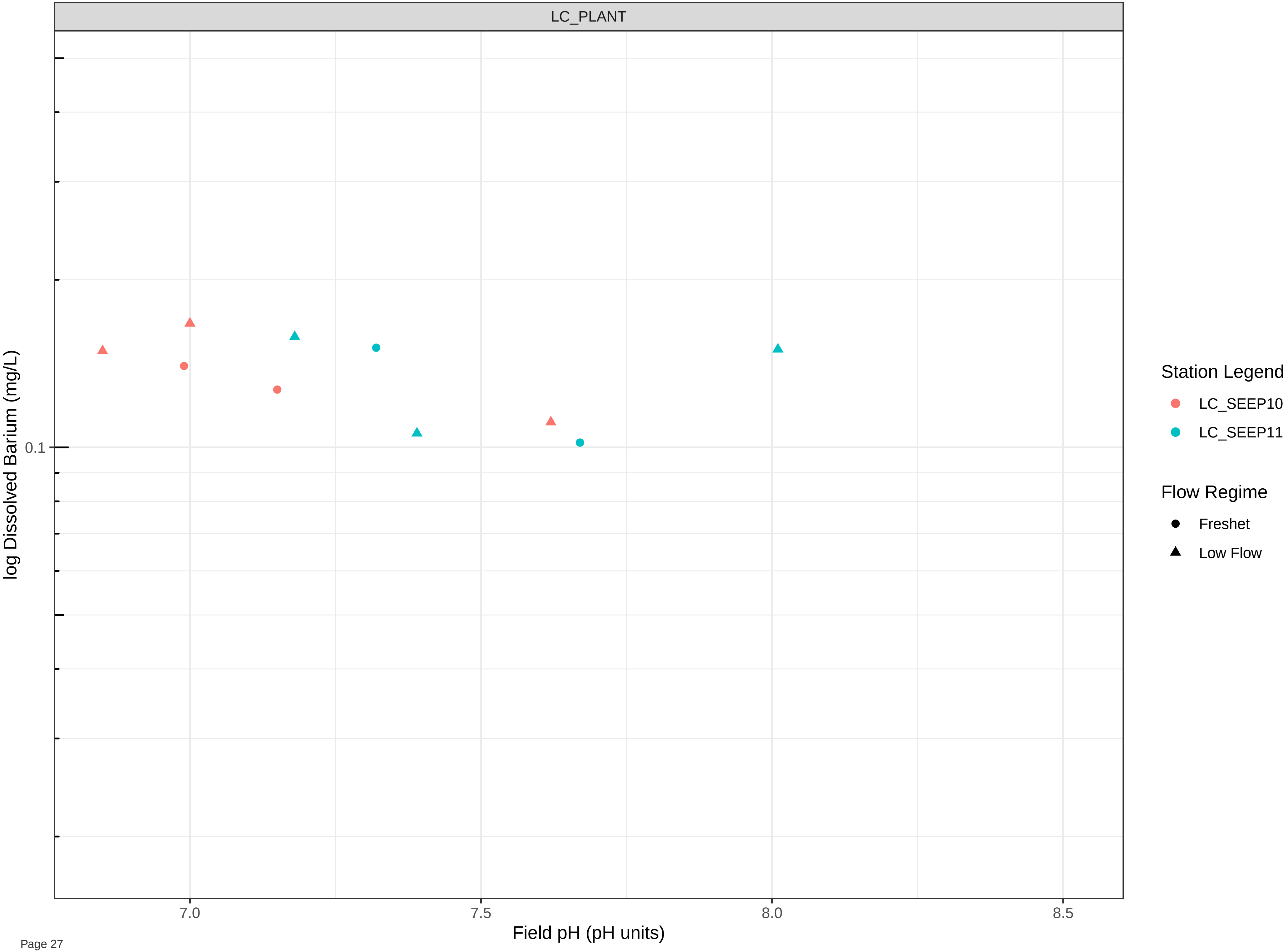

LC_DC_WR
log Dissolved Barium (mg/L)
0.1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

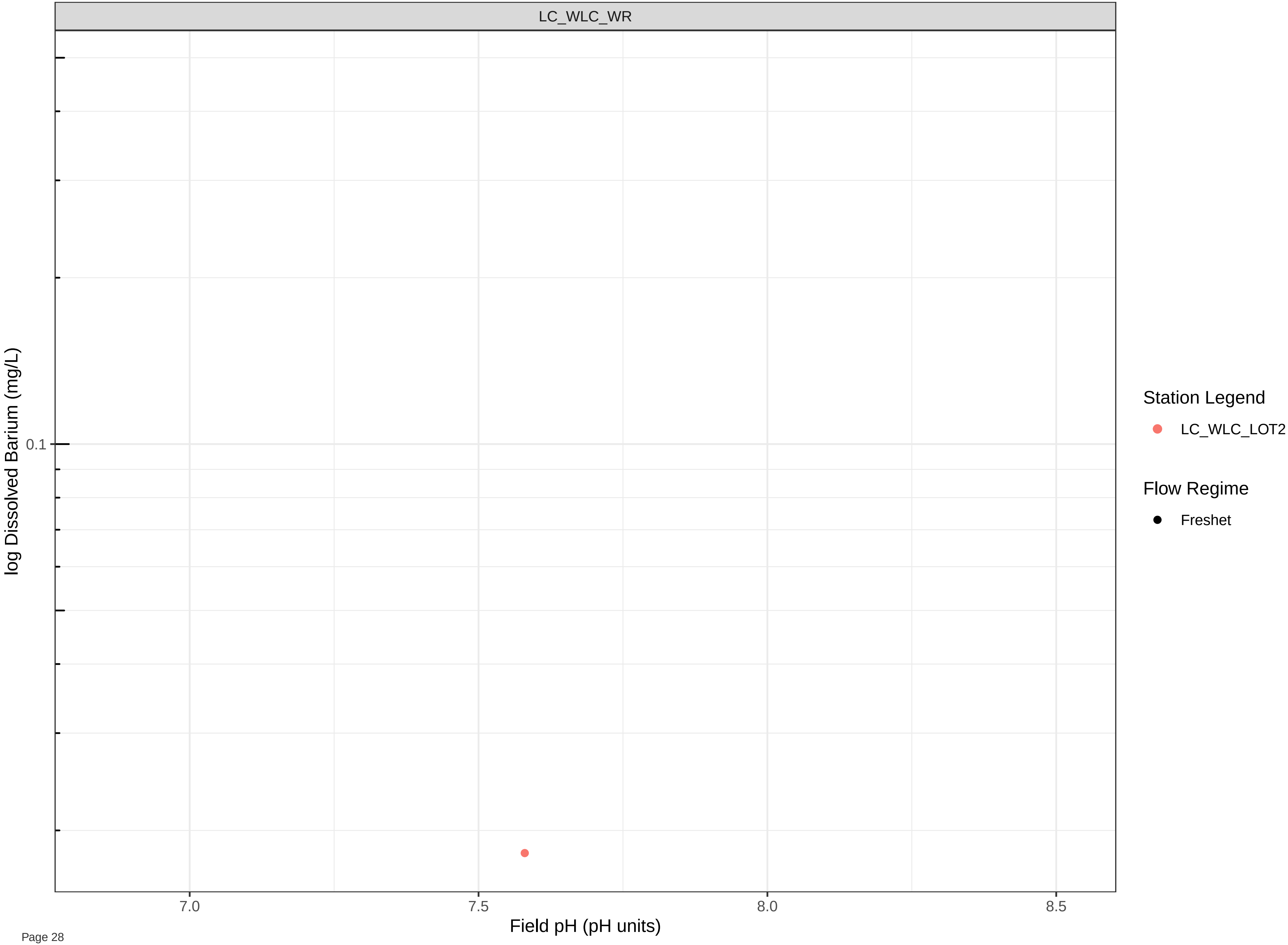

LC_DisturbedWSlope
log Dissolved Barium (mg/L)
0.1
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow

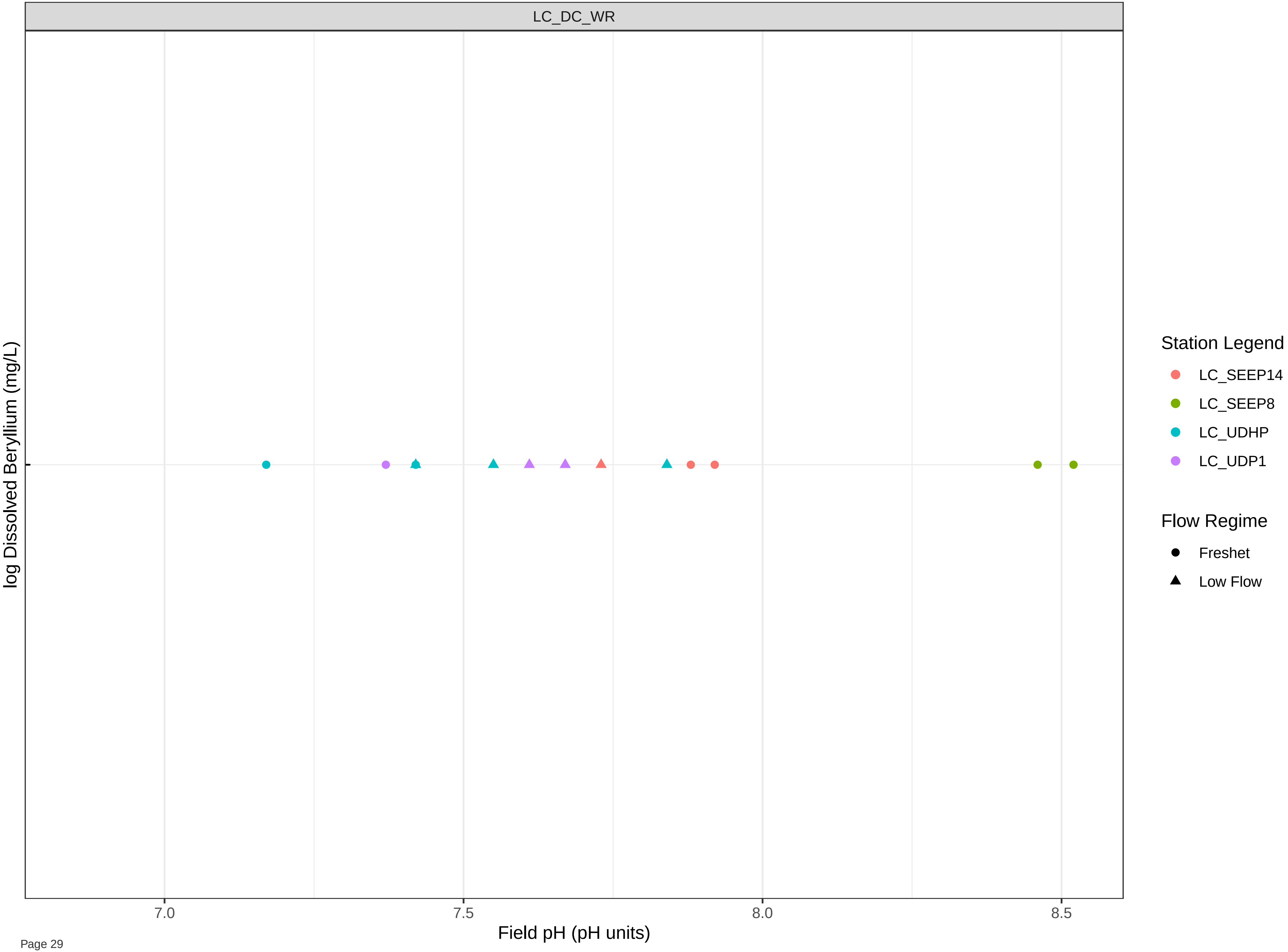

LC_HSP_WR
log Dissolved Barium (mg/L)
0.1
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

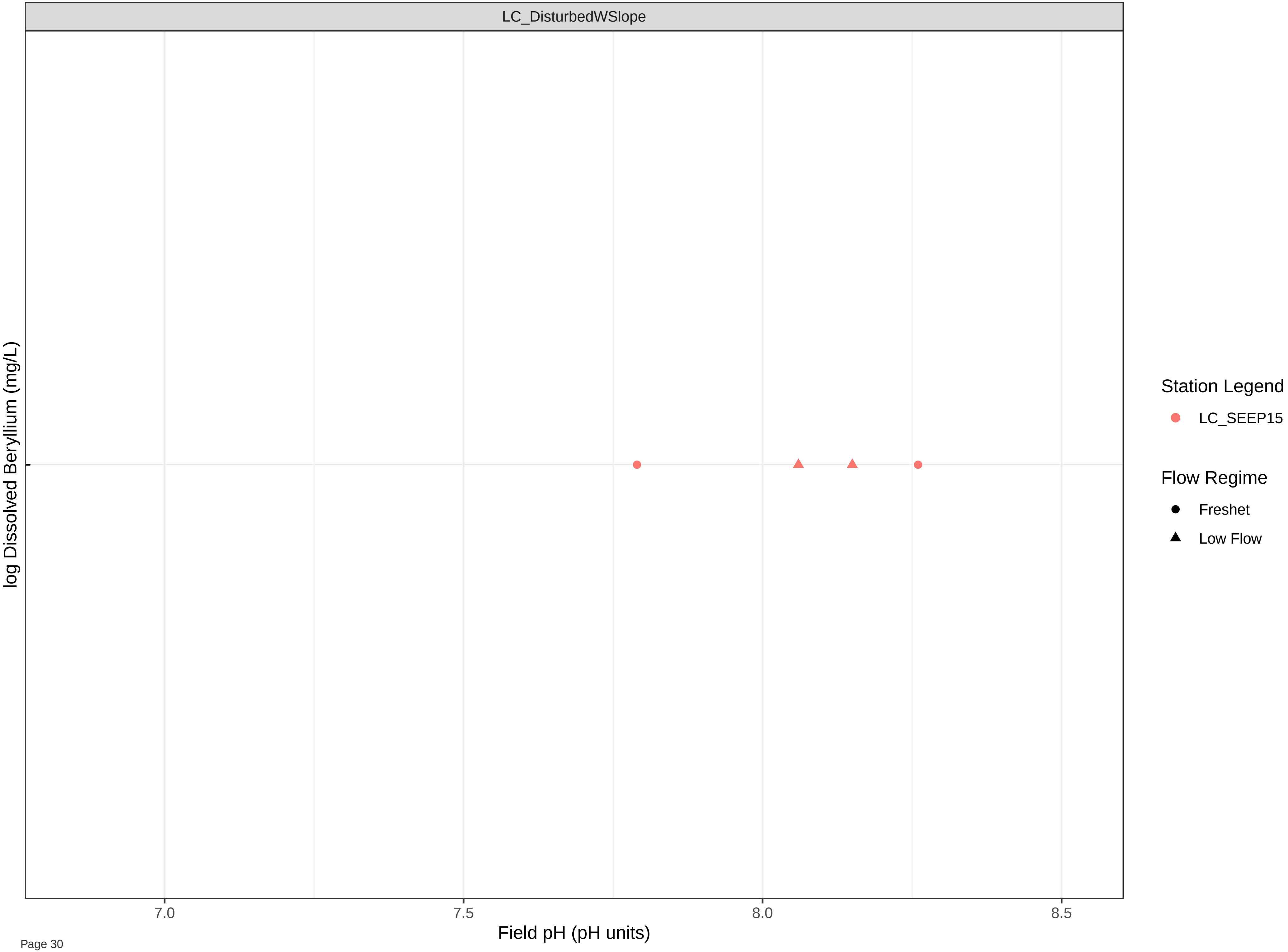

LC_MAXAM
log Dissolved Barium (mg/L)
0.1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow

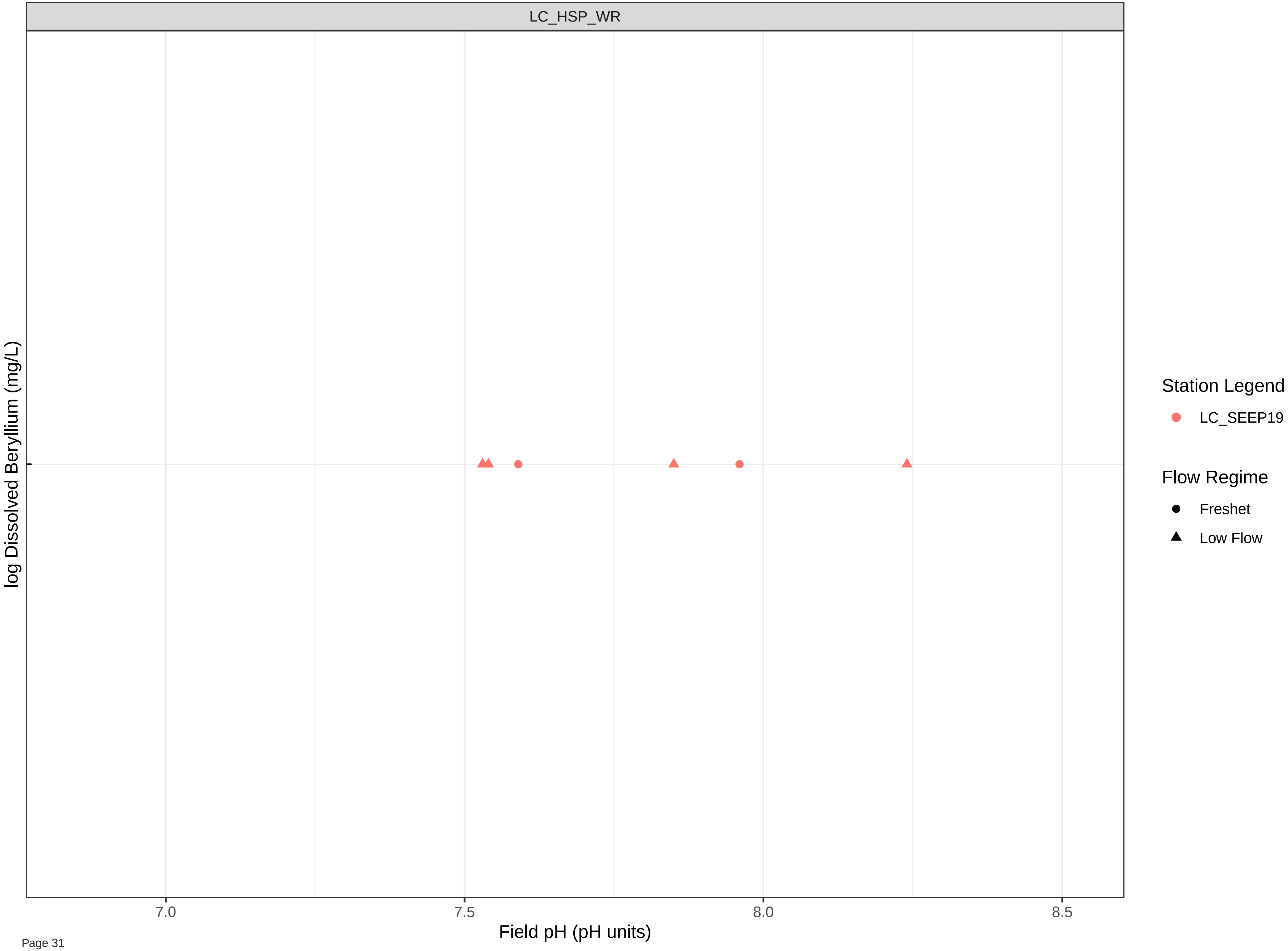

LC_MSA_WR
log Dissolved Barium (mg/L)
0.1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

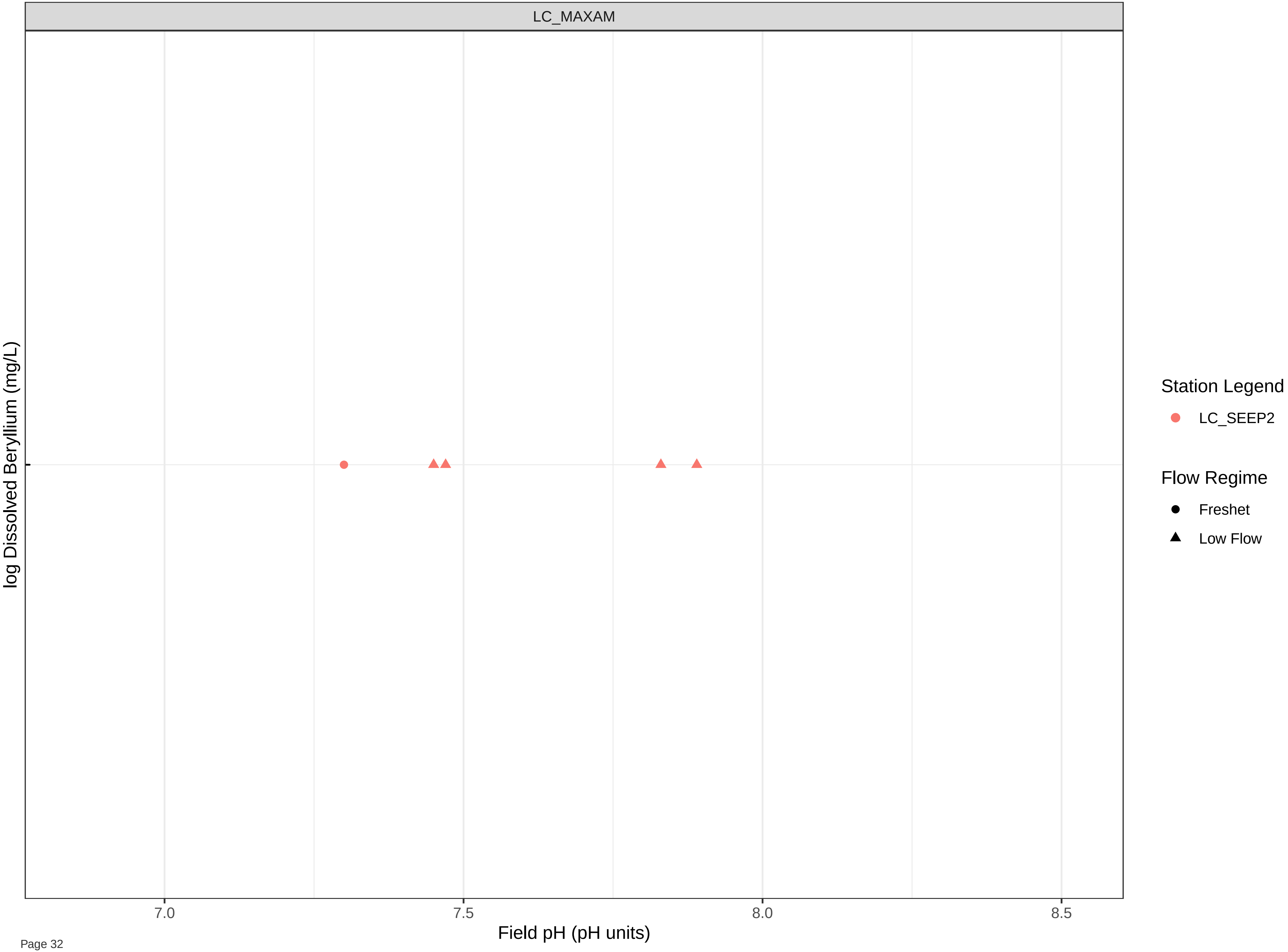

LC_PLANT
log Dissolved Barium (mg/L)
0.1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

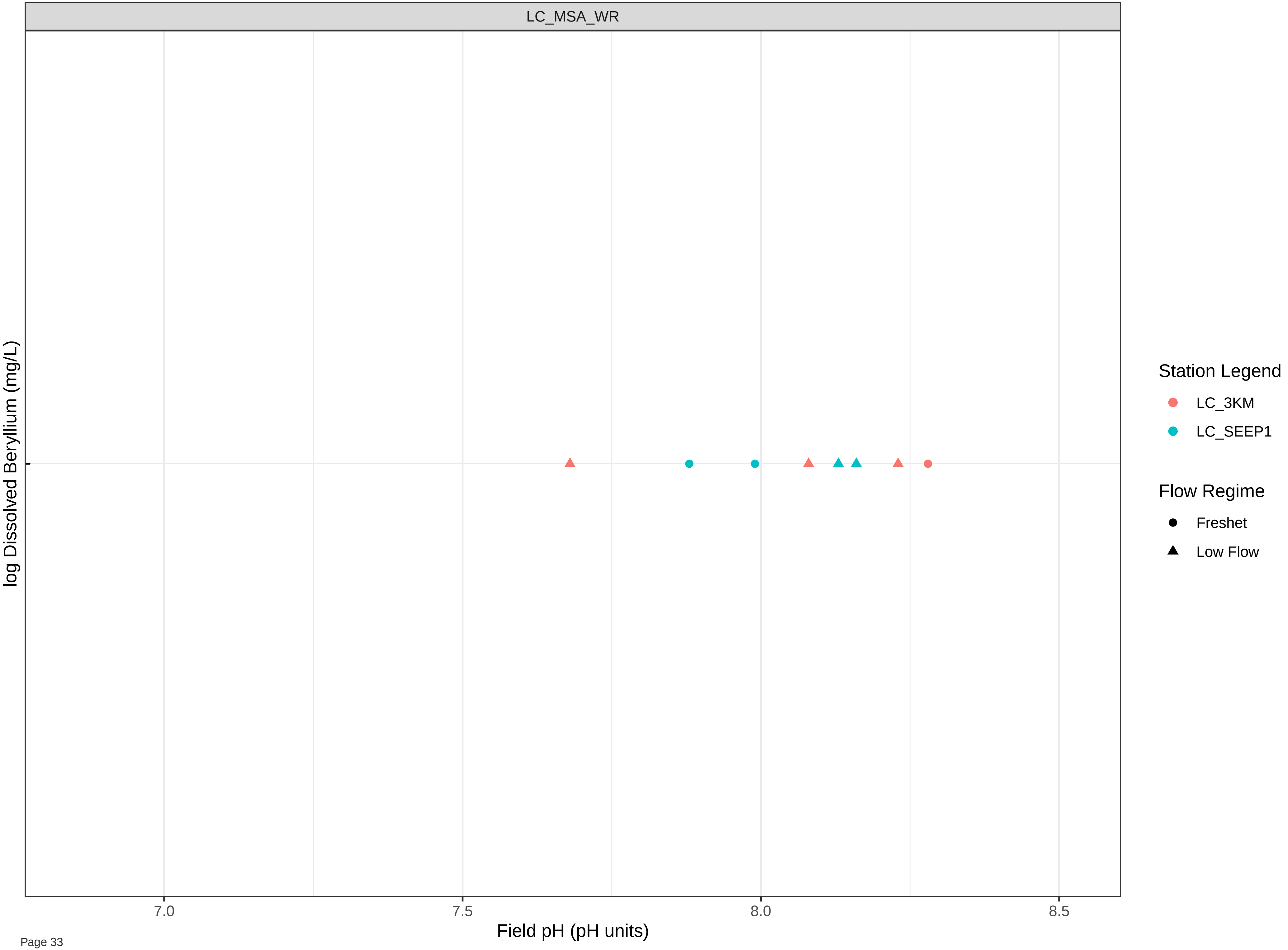

LC_WLC_WR
log Dissolved Barium (mg/L)
0.1
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

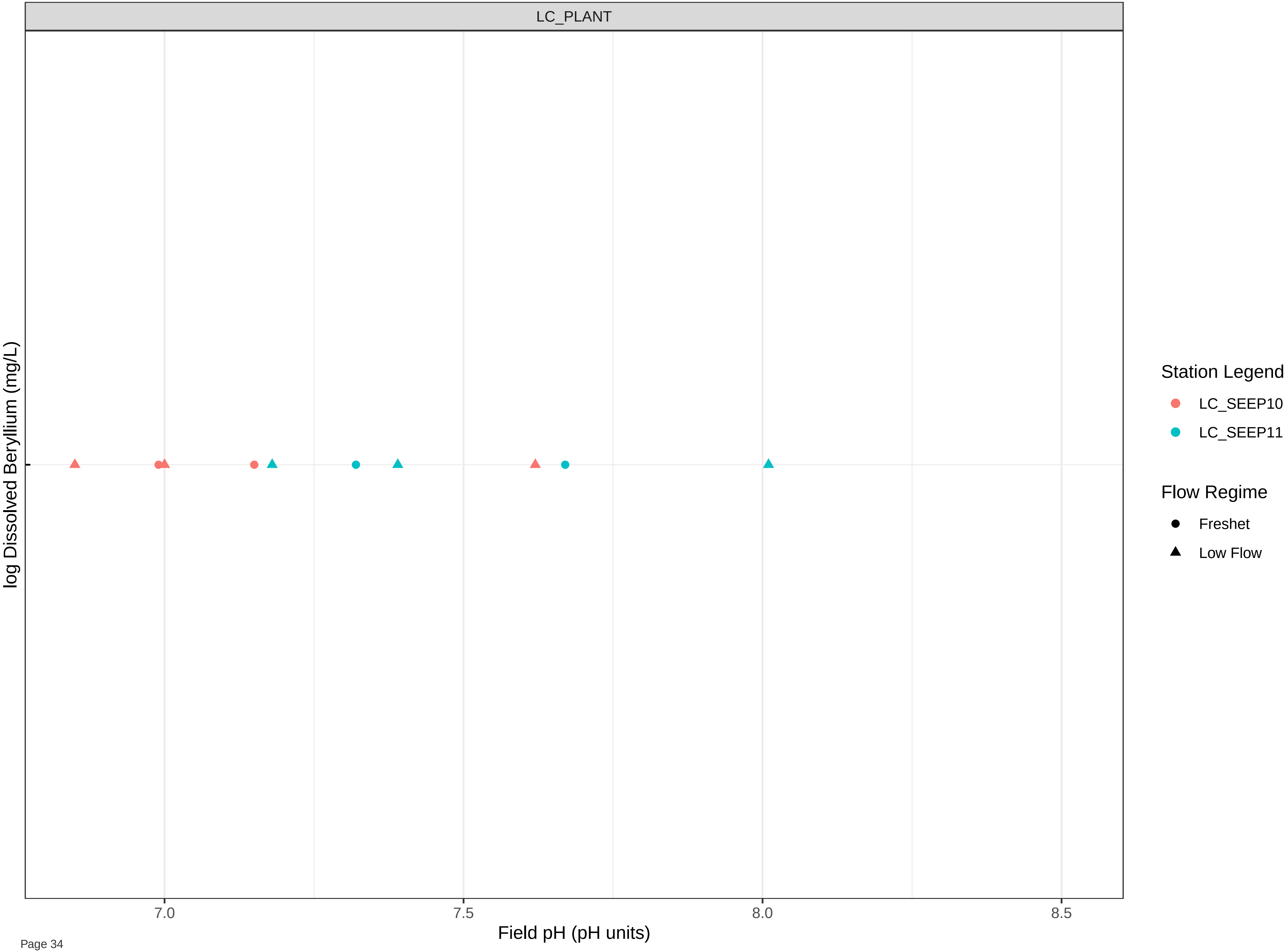

LC_DC_WR
log Dissolved Beryllium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

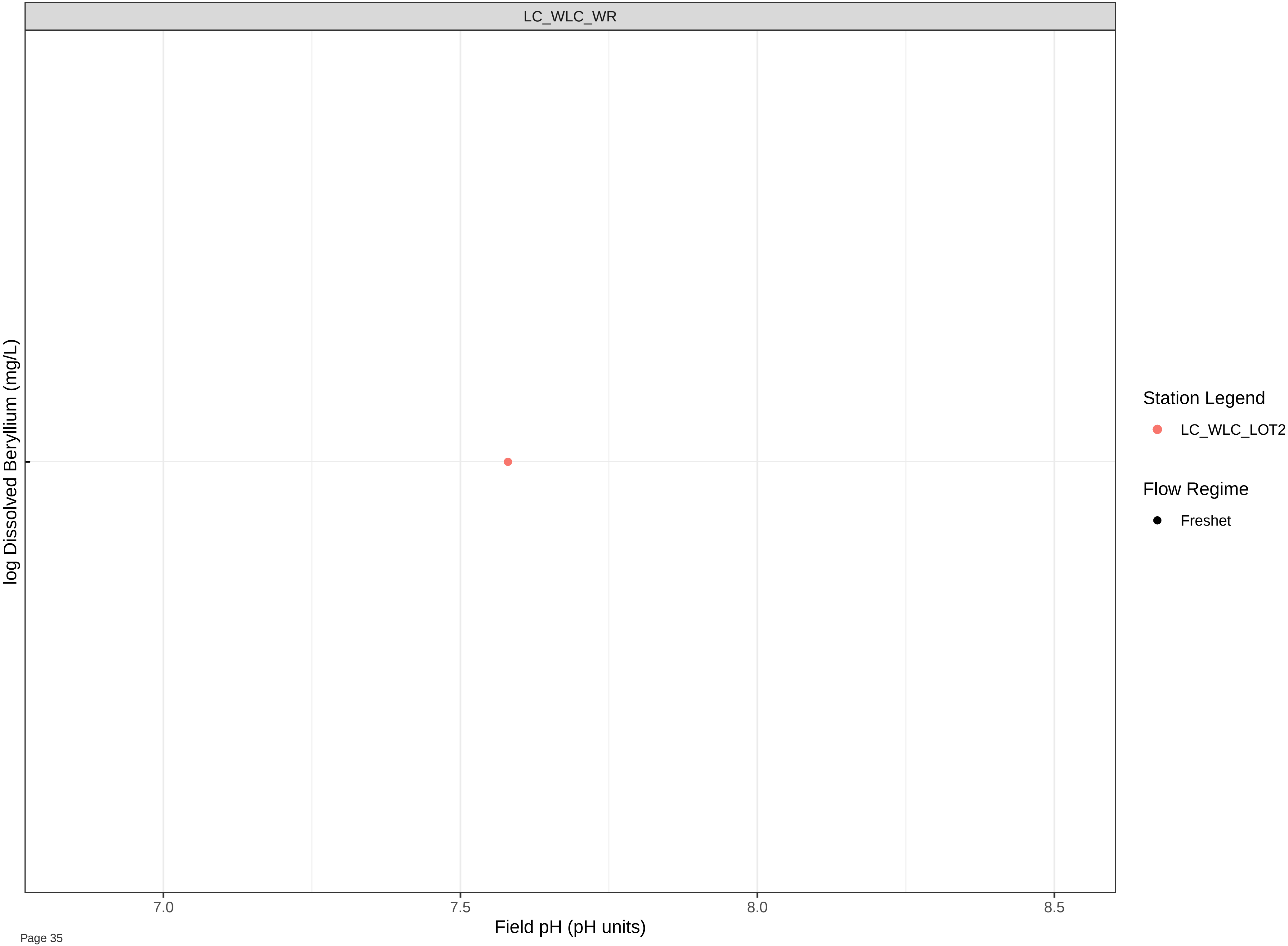

LC_DisturbedWSlope
log Dissolved Beryllium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

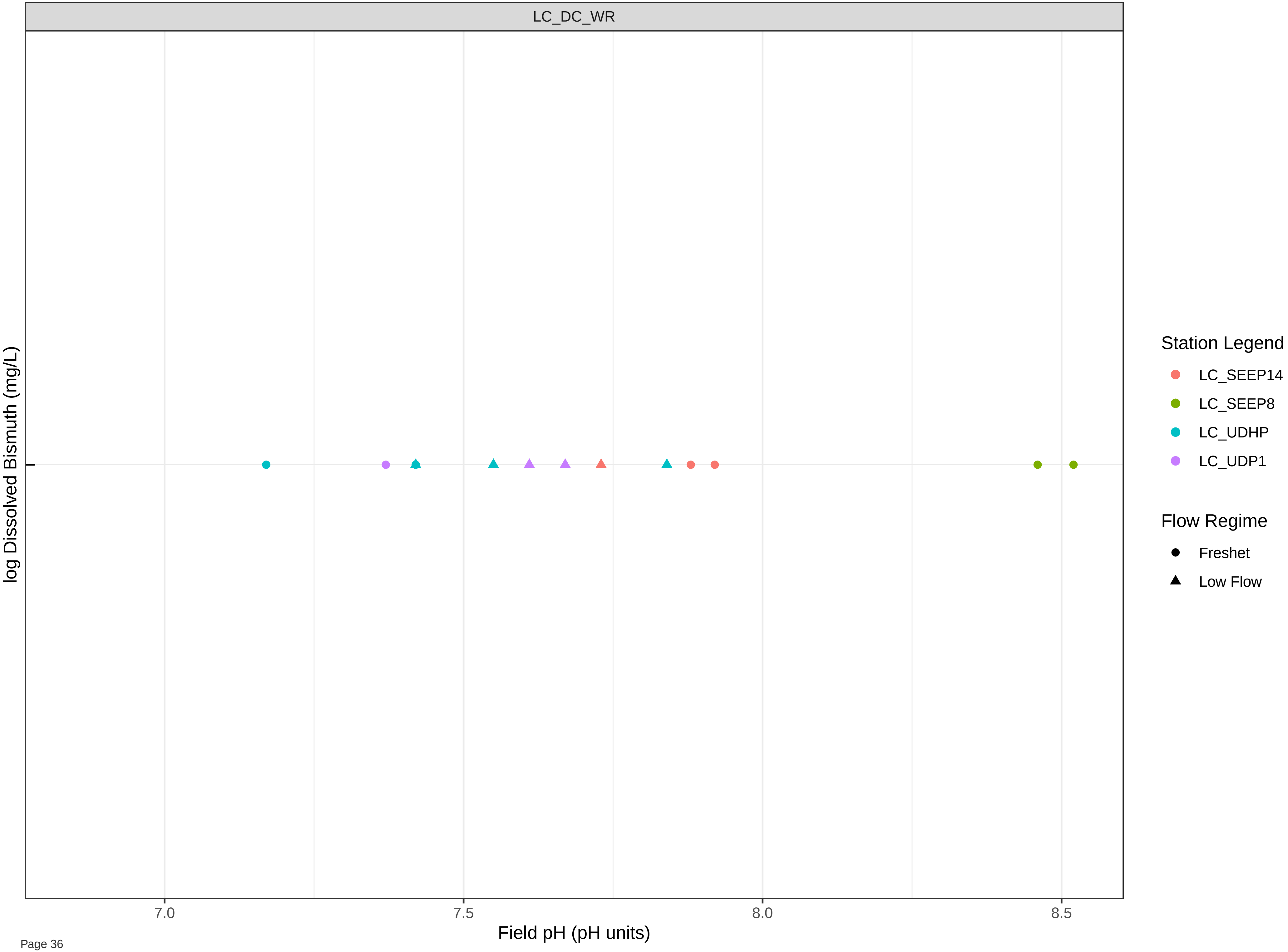

LC_HSP_WR
log Dissolved Beryllium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

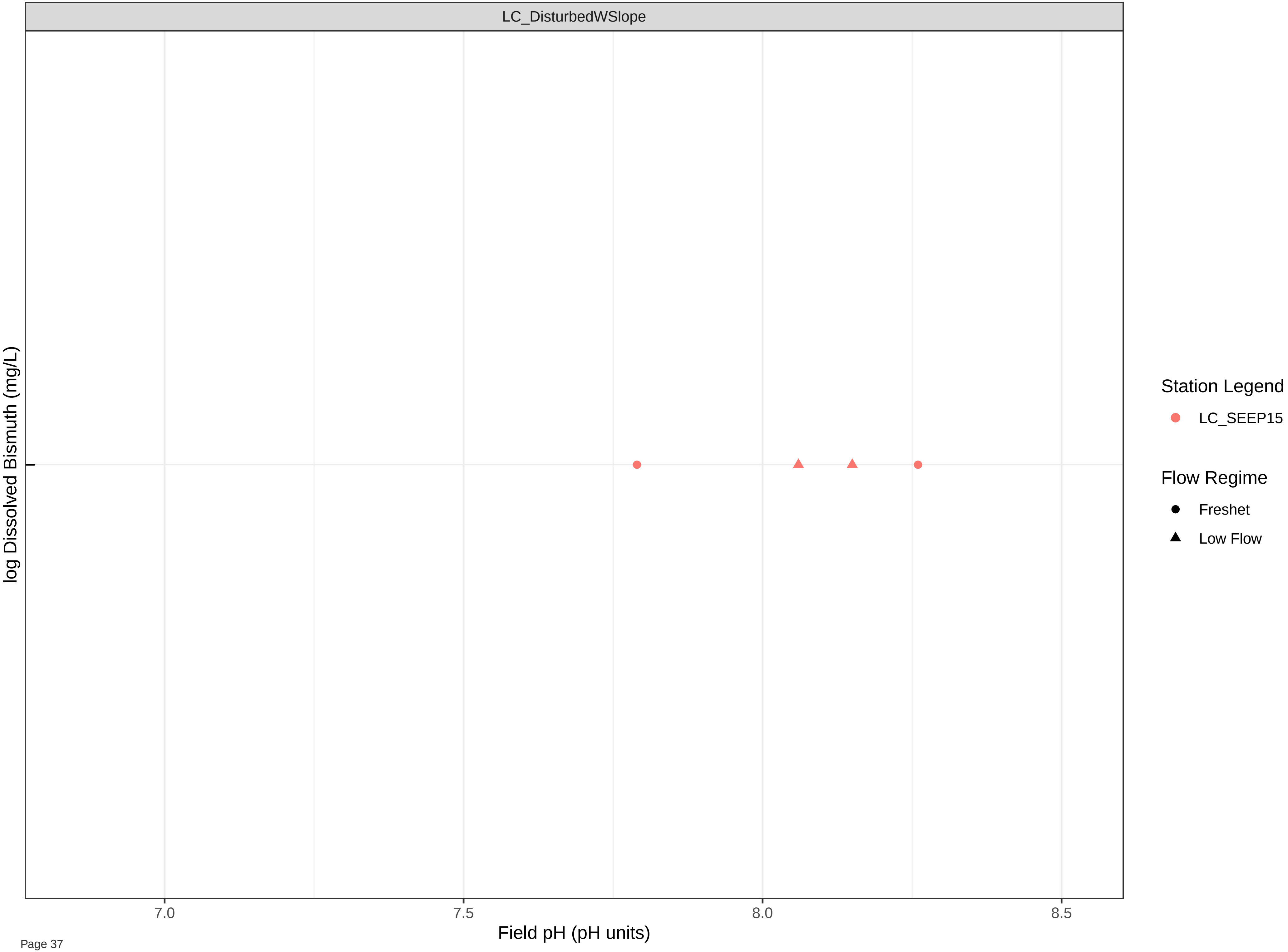

LC_MAXAM
log Dissolved Beryllium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

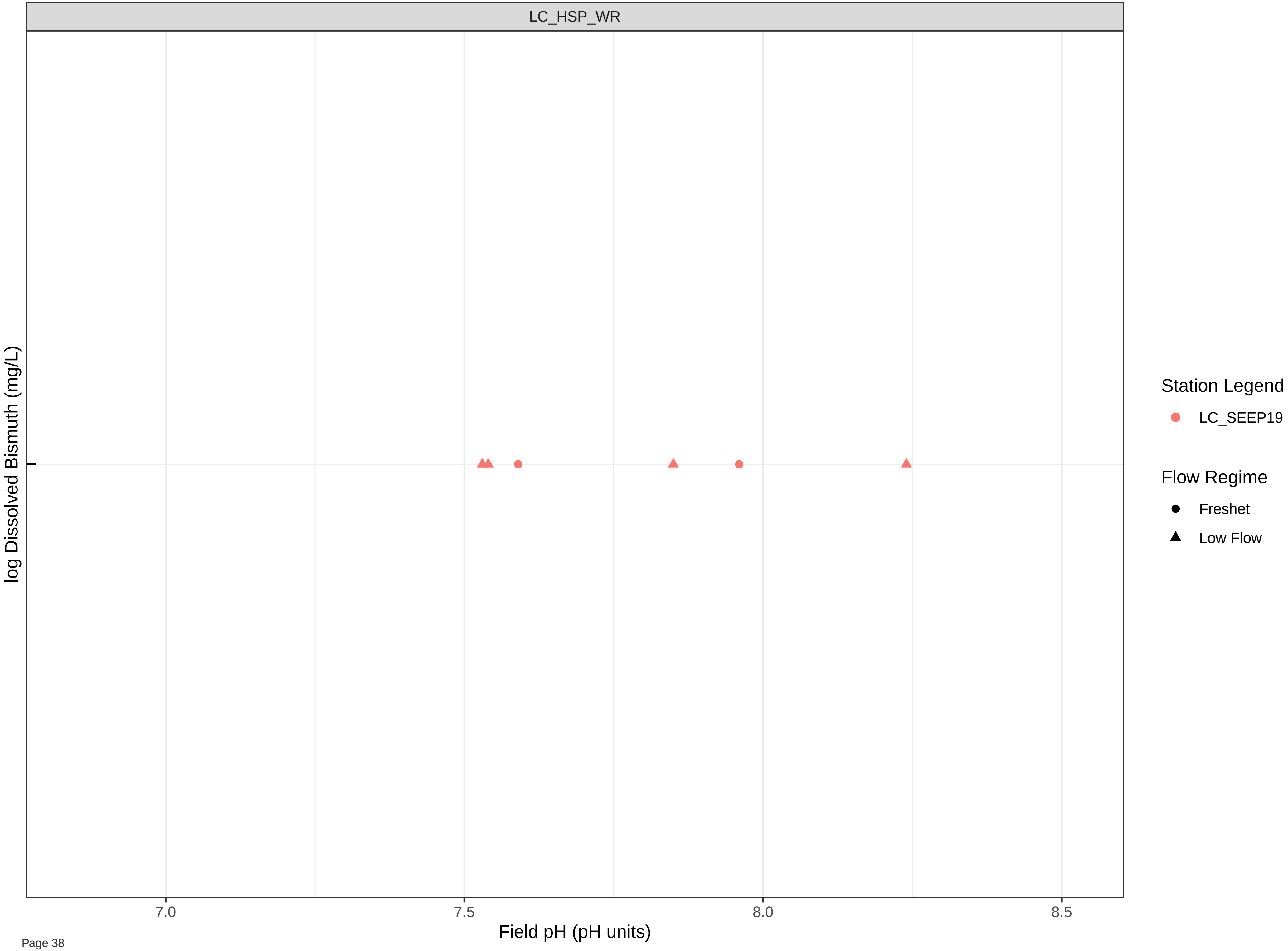

LC_MSA_WR
log Dissolved Beryllium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

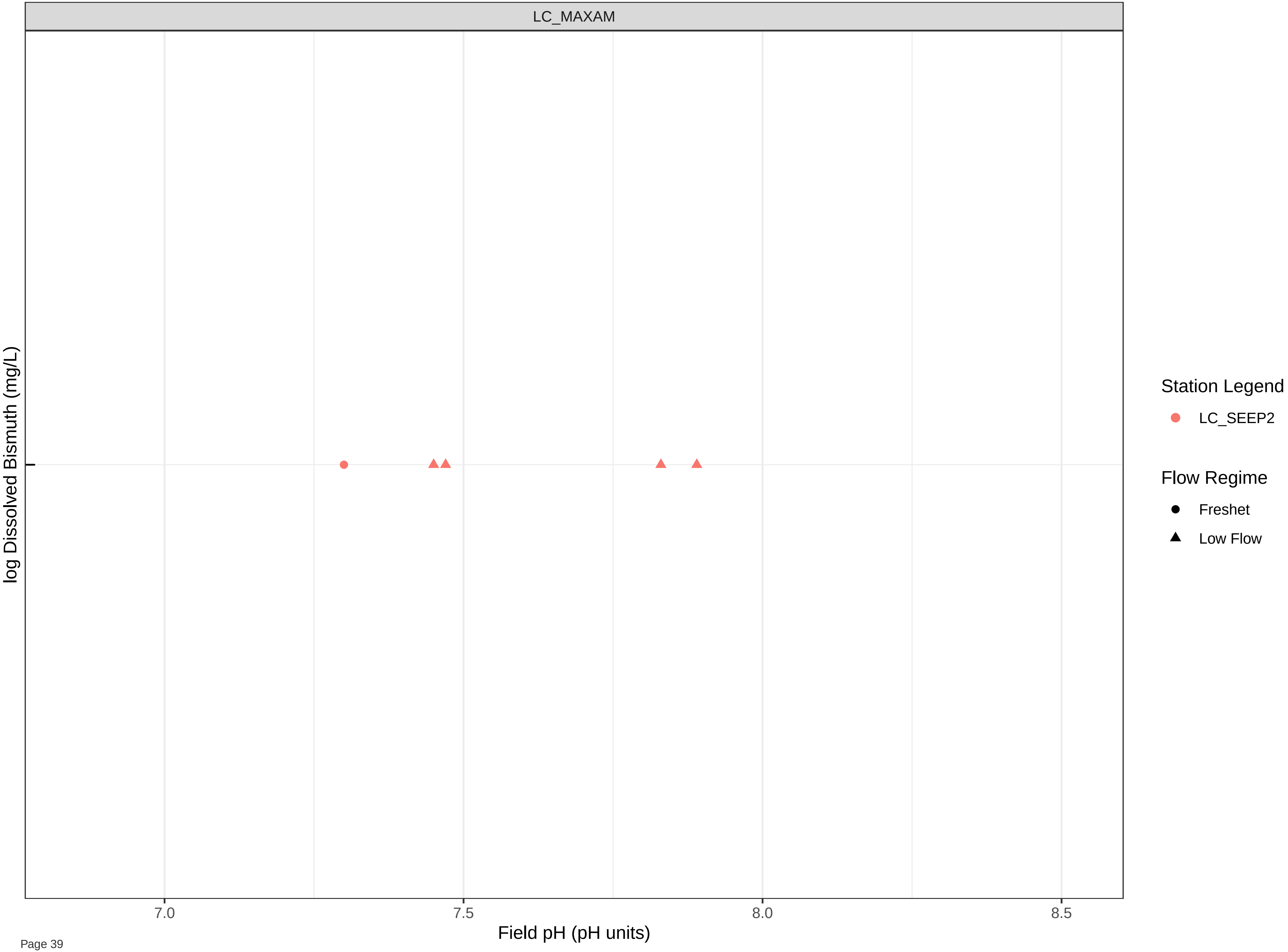

LC_PLANT
log Dissolved Beryllium (mg/L)
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

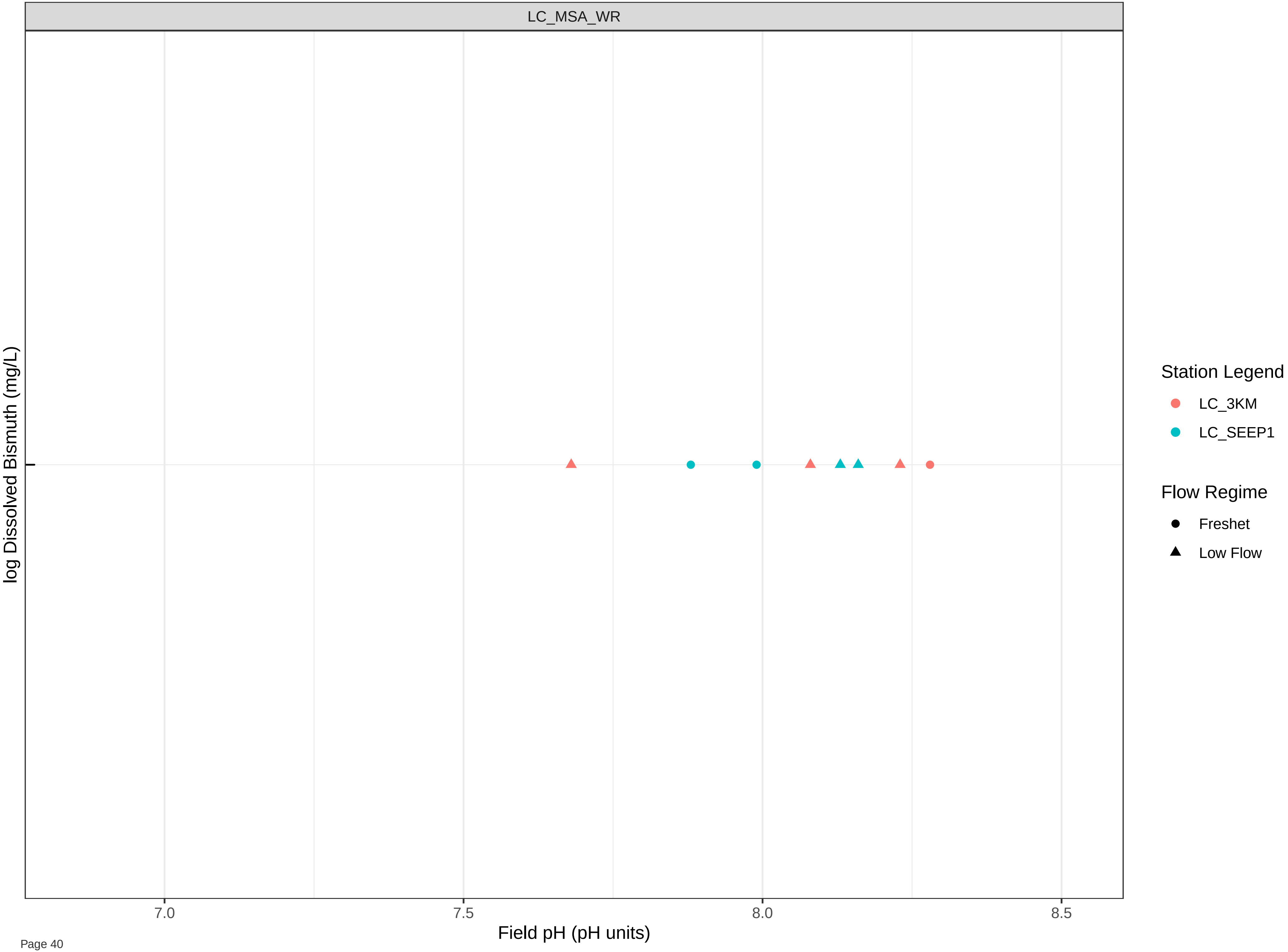

LC_WLC_WR
log Dissolved Beryllium (mg/L)
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet

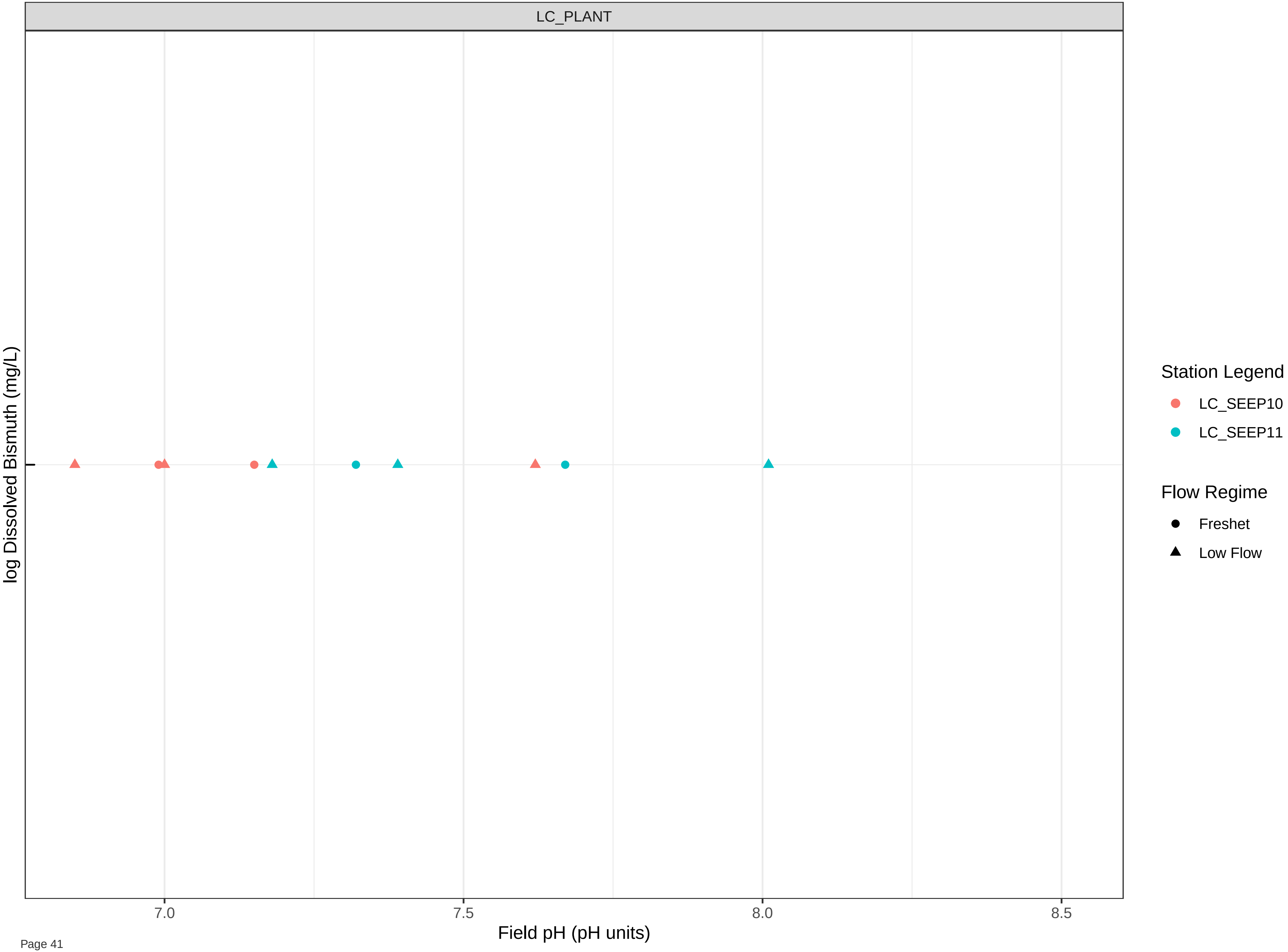

LC_DC_WR
log Dissolved Bismuth (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

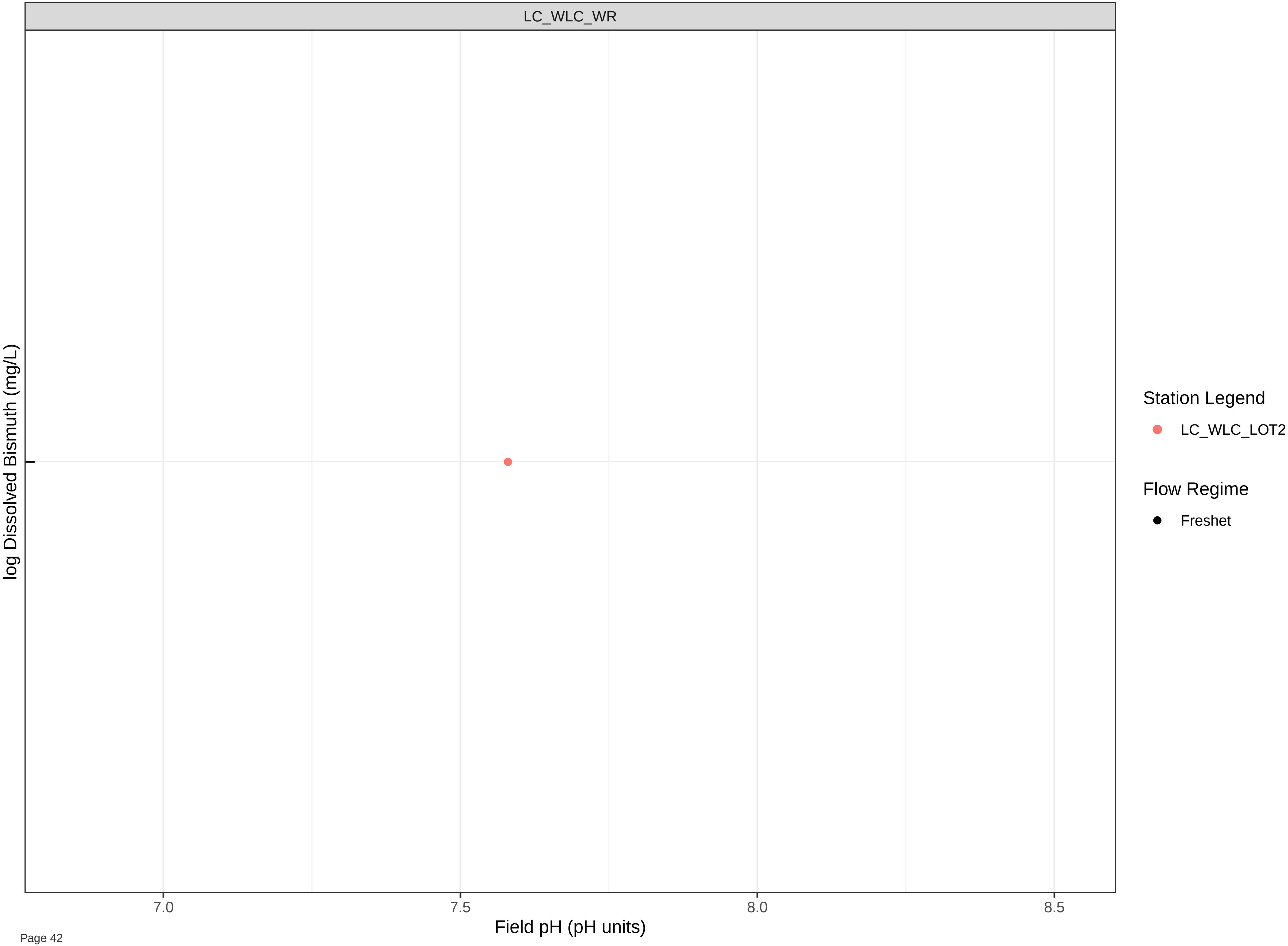

LC_DisturbedWSlope
log Dissolved Bismuth (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow

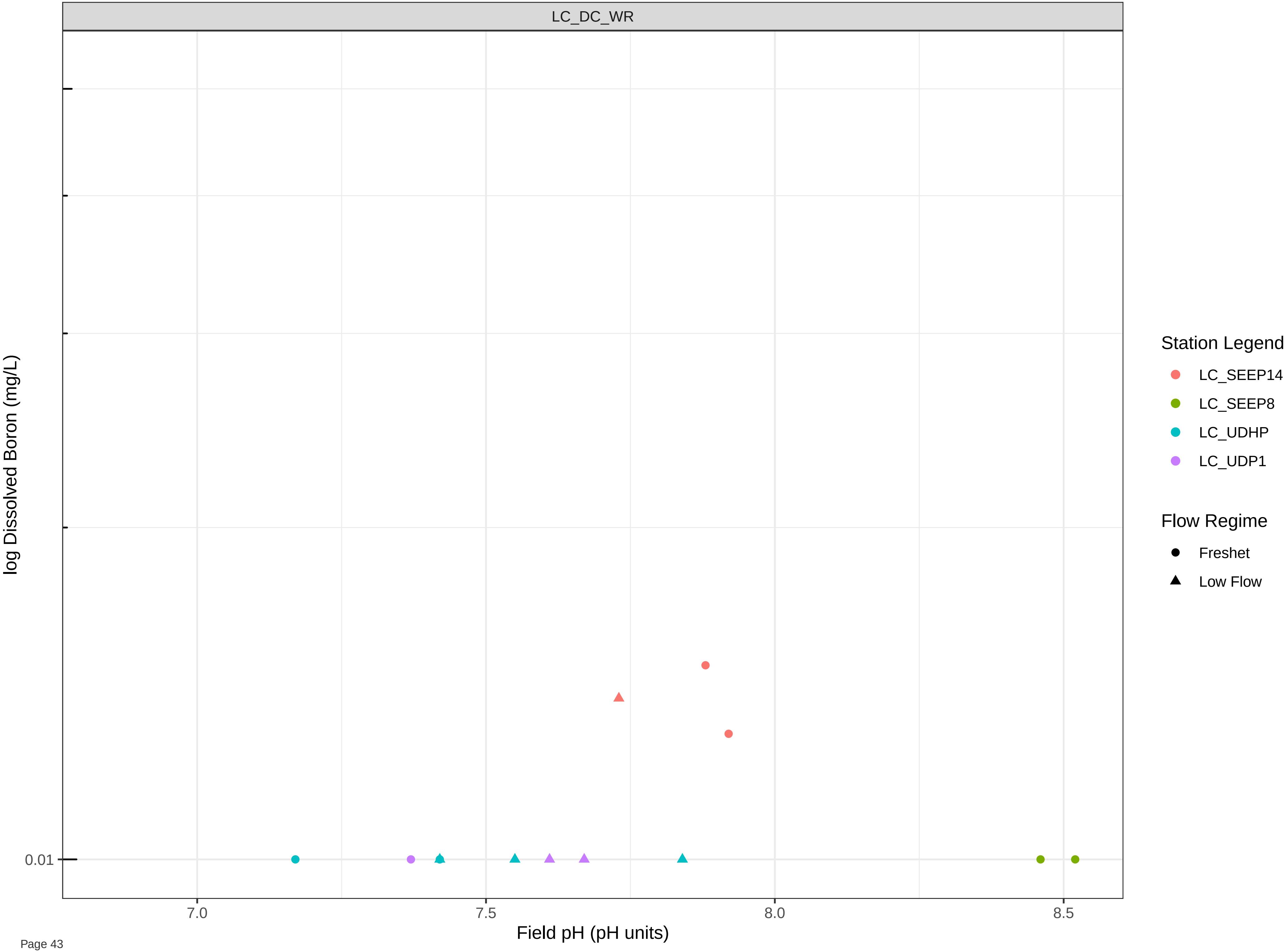

LC_HSP_WR
log Dissolved Bismuth (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow


LC_MAXAM
log Dissolved Bismuth (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow

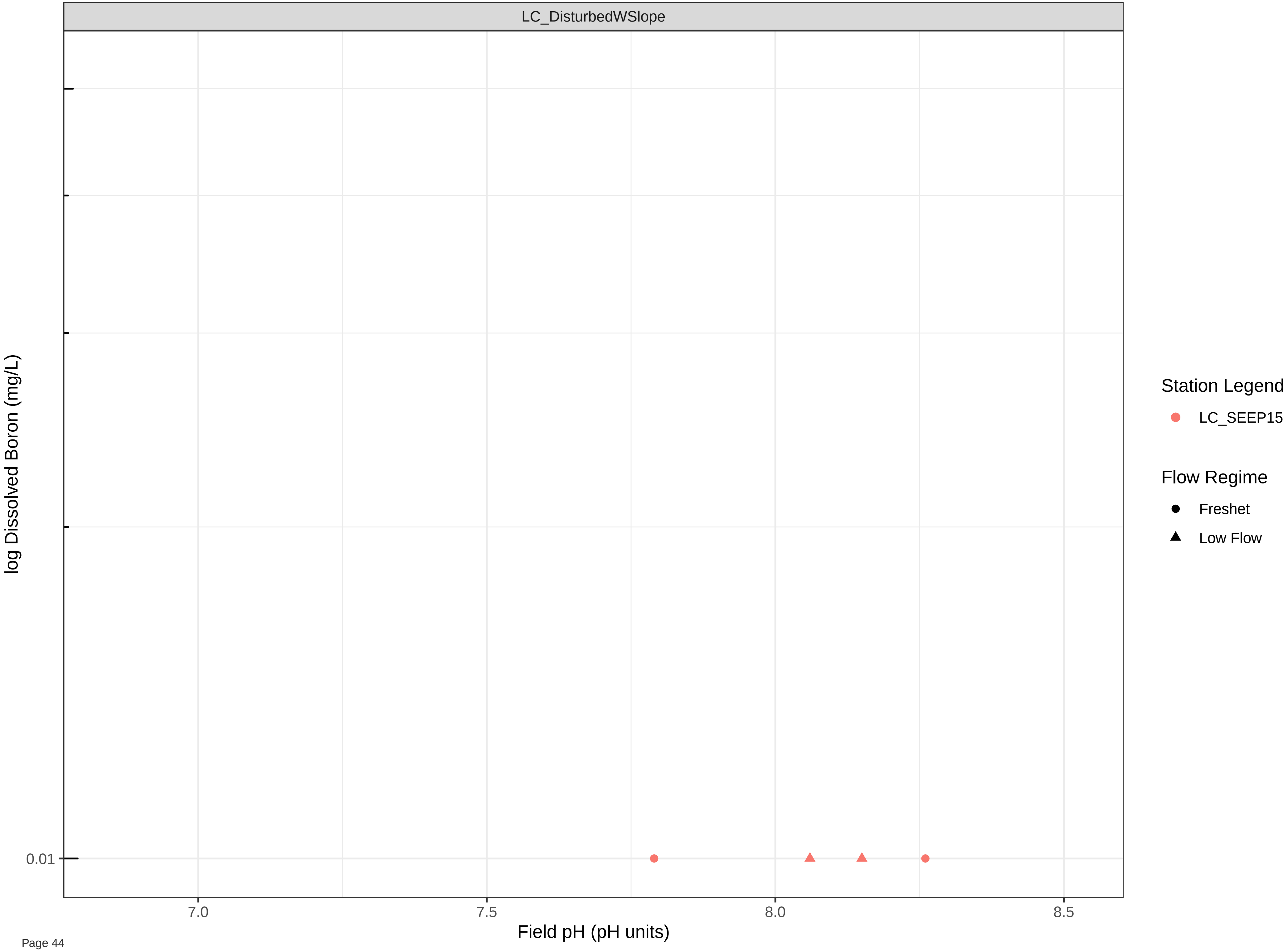

LC_MSA_WR
log Dissolved Bismuth (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

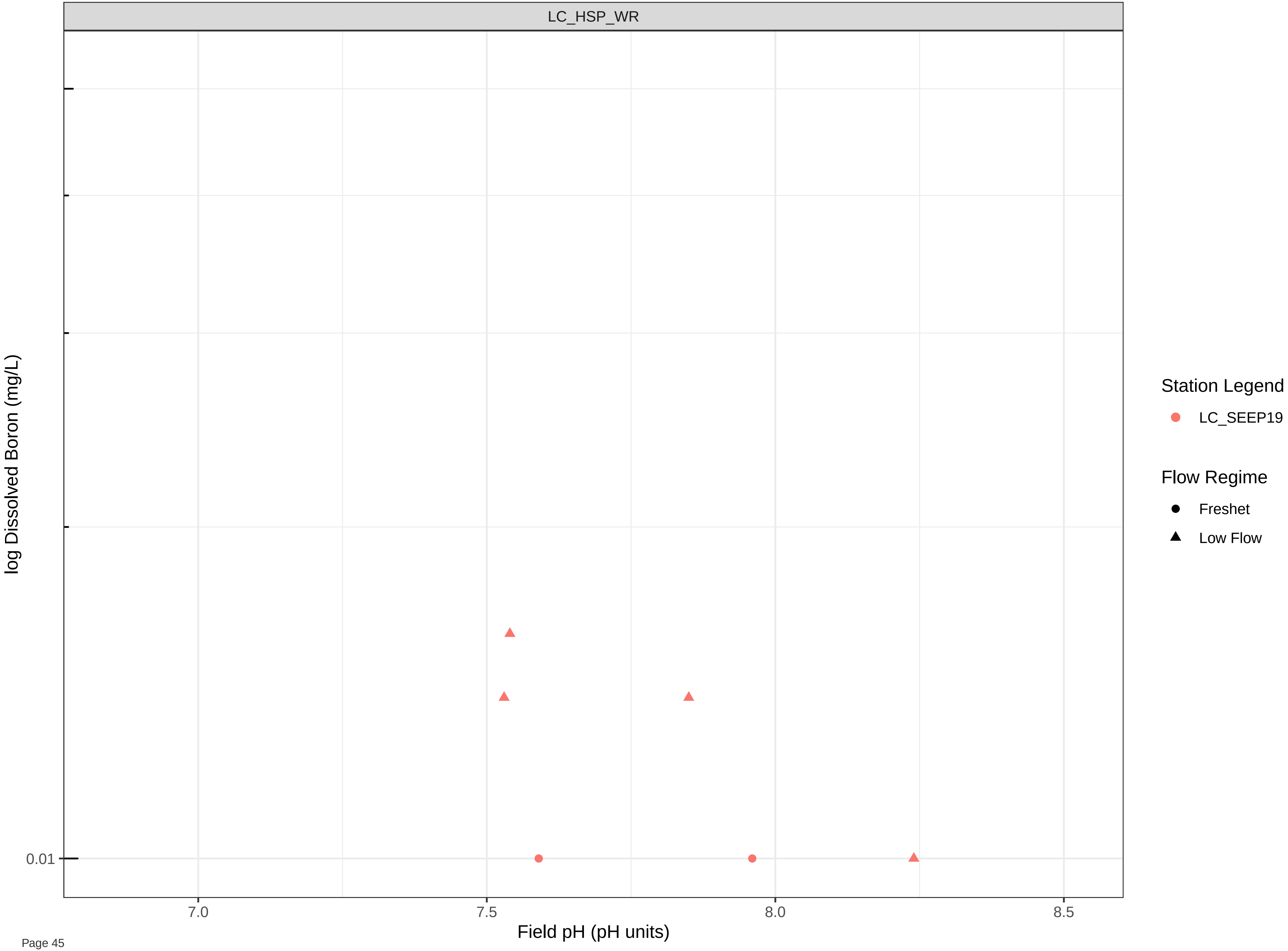

LC_PLANT
log Dissolved Bismuth (mg/L)
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

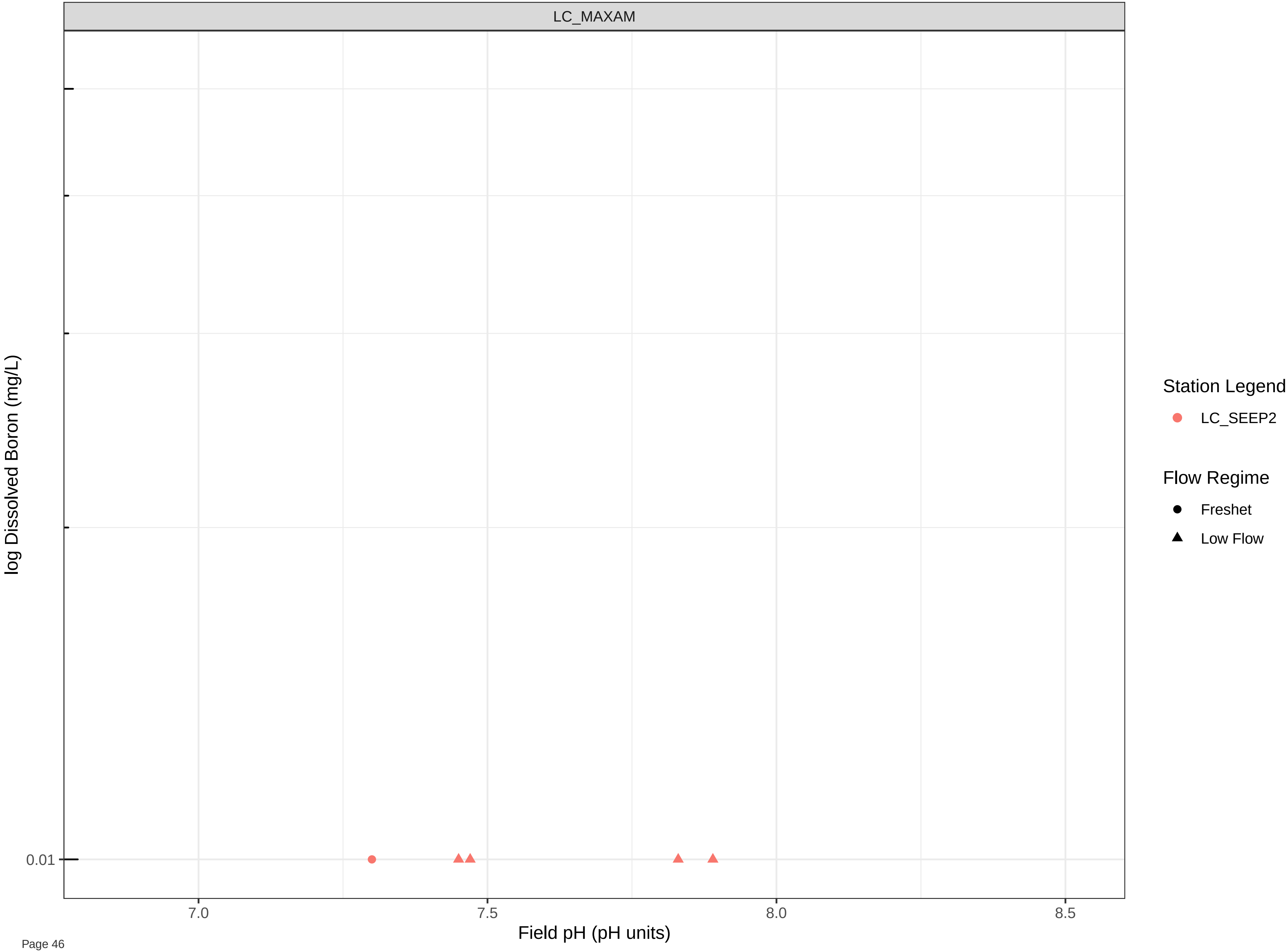

LC_WLC_WR
log Dissolved Bismuth (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

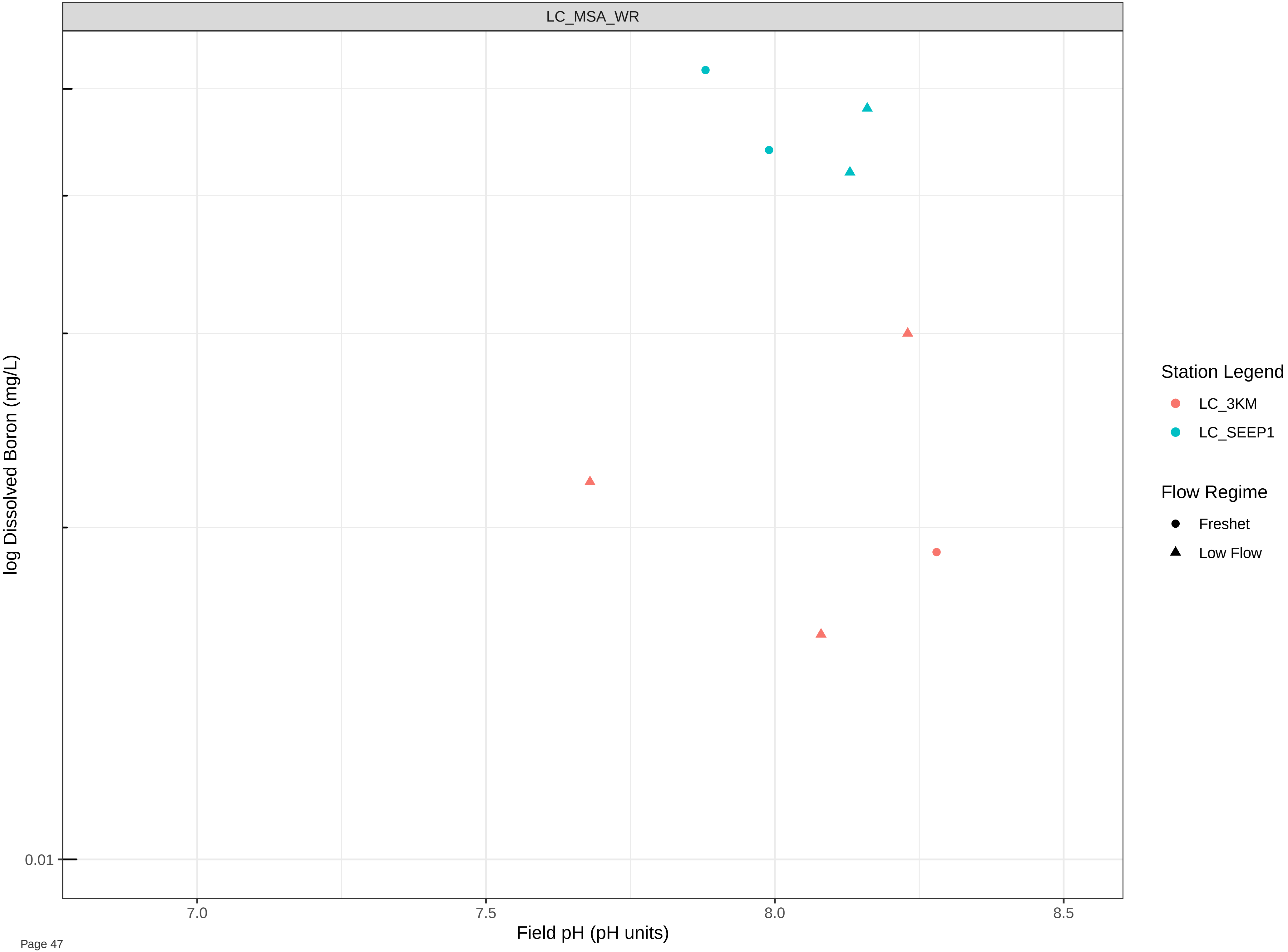


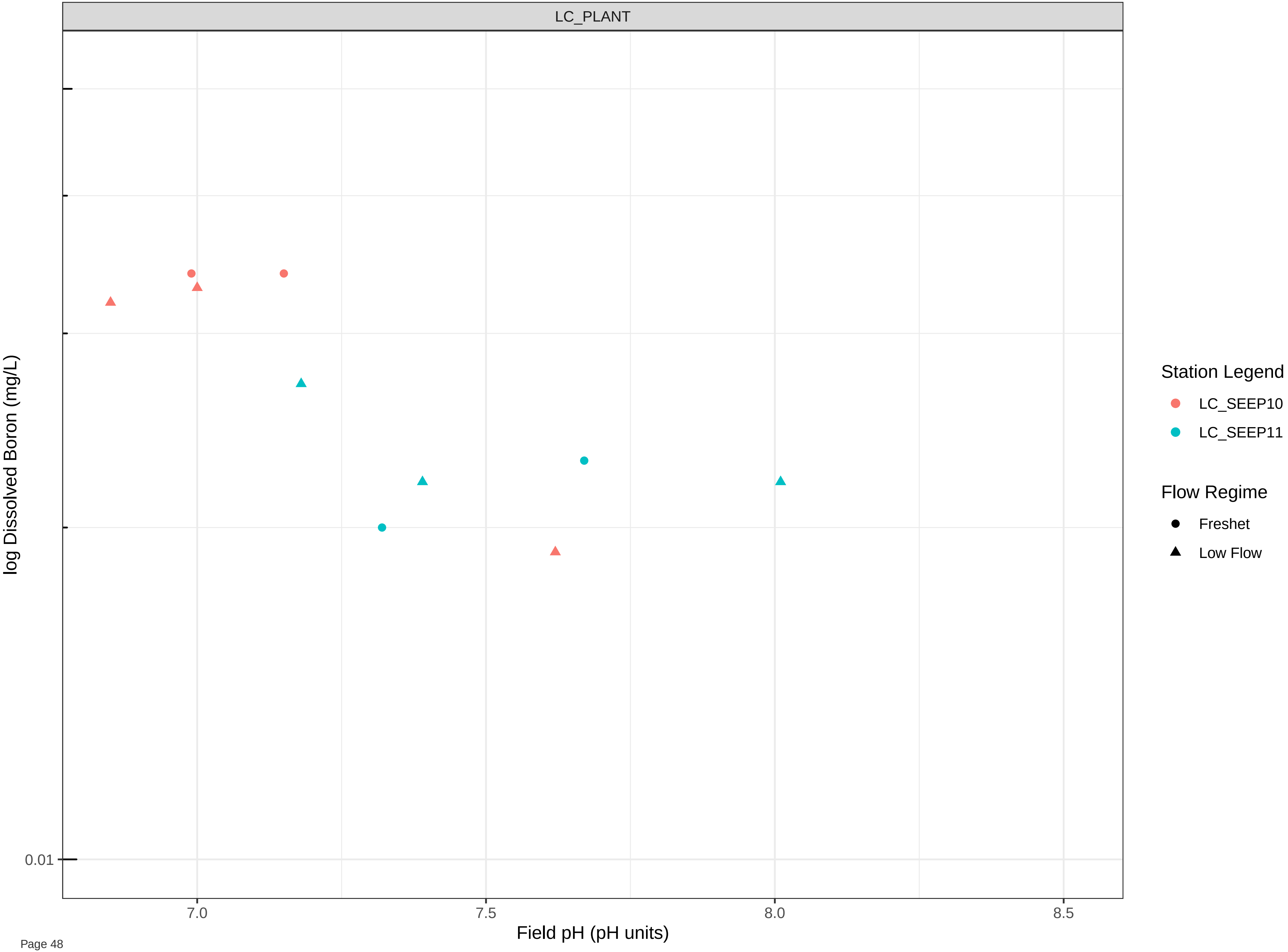
LC_DC_WR
log Dissolved Boron (mg/L)
0.01
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

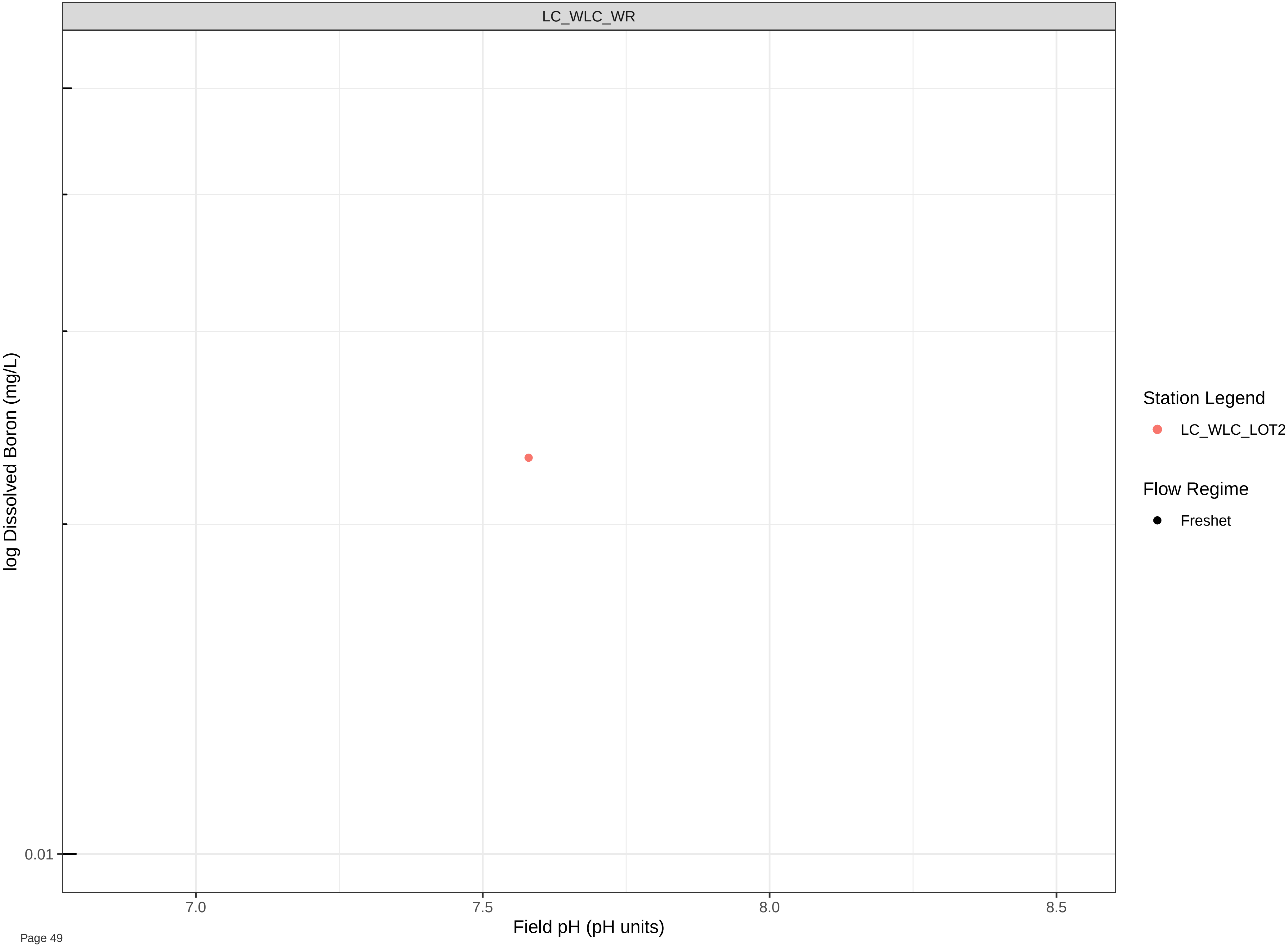

LC_DisturbedWSlope
log Dissolved Boron (mg/L)
0.01
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

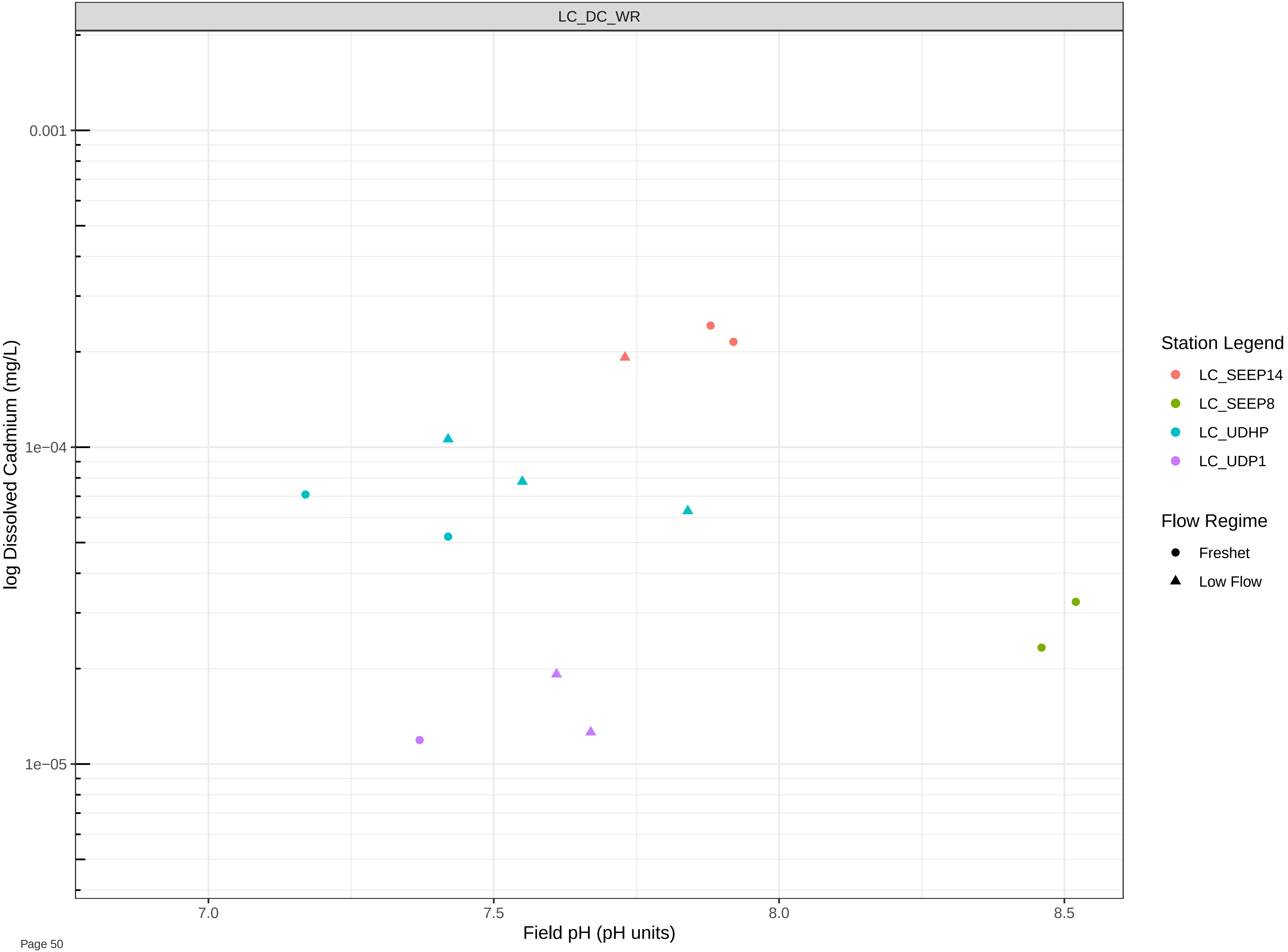

LC_HSP_WR
log Dissolved Boron (mg/L)
0.01
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

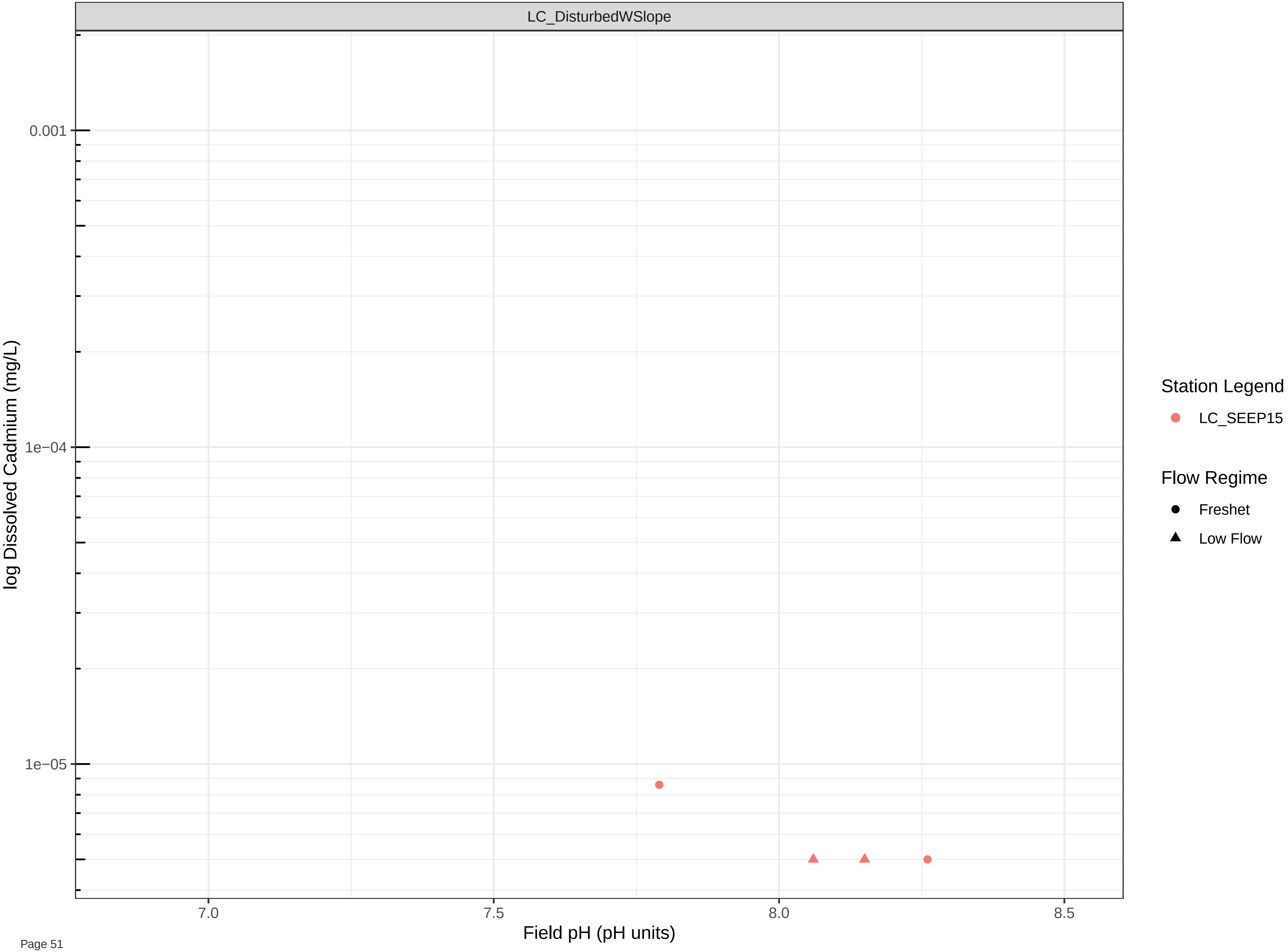

LC_MAXAM
log Dissolved Boron (mg/L)
0.01
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

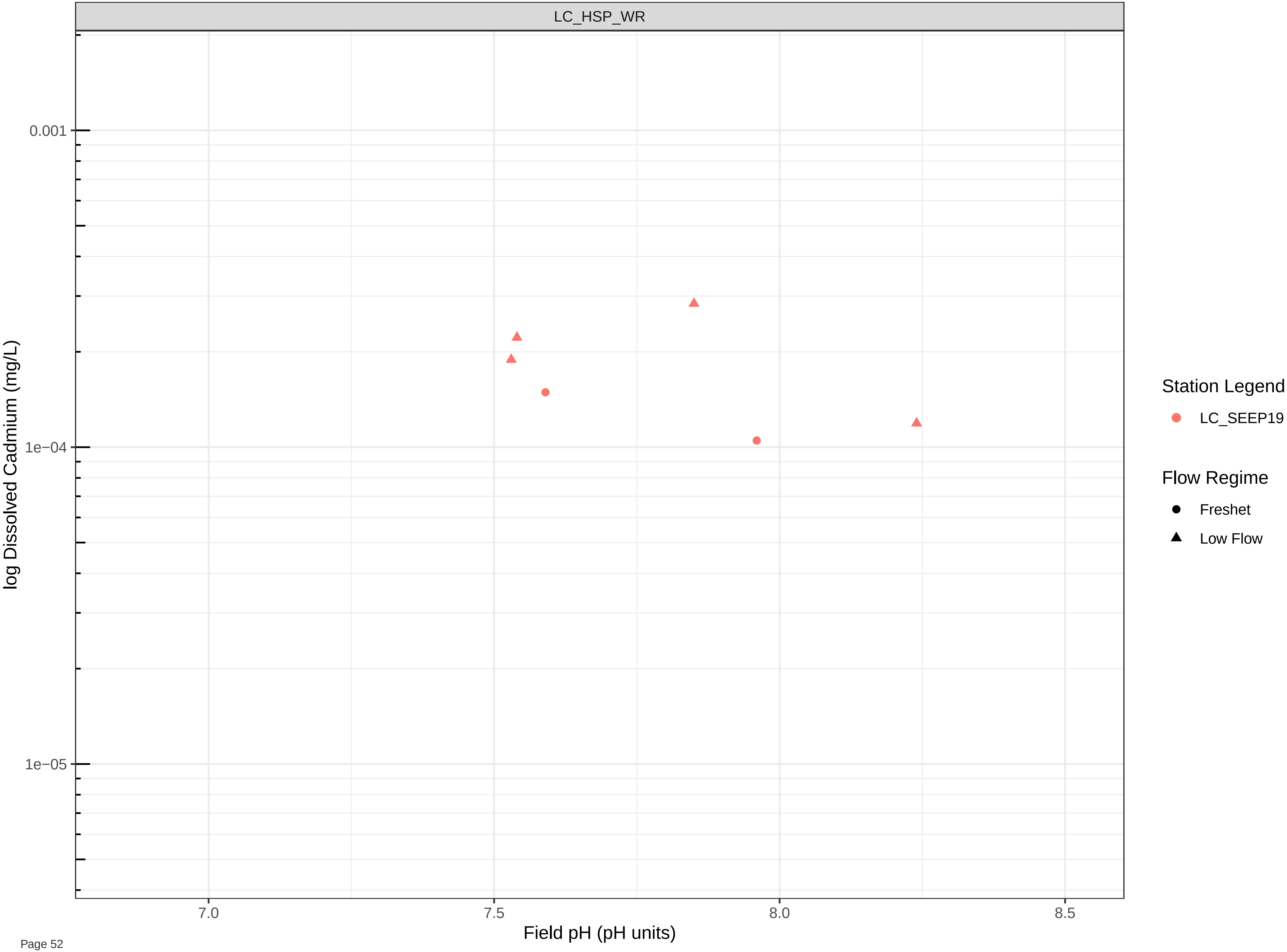

LC_MSA_WR
log Dissolved Boron (mg/L)
0.01
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

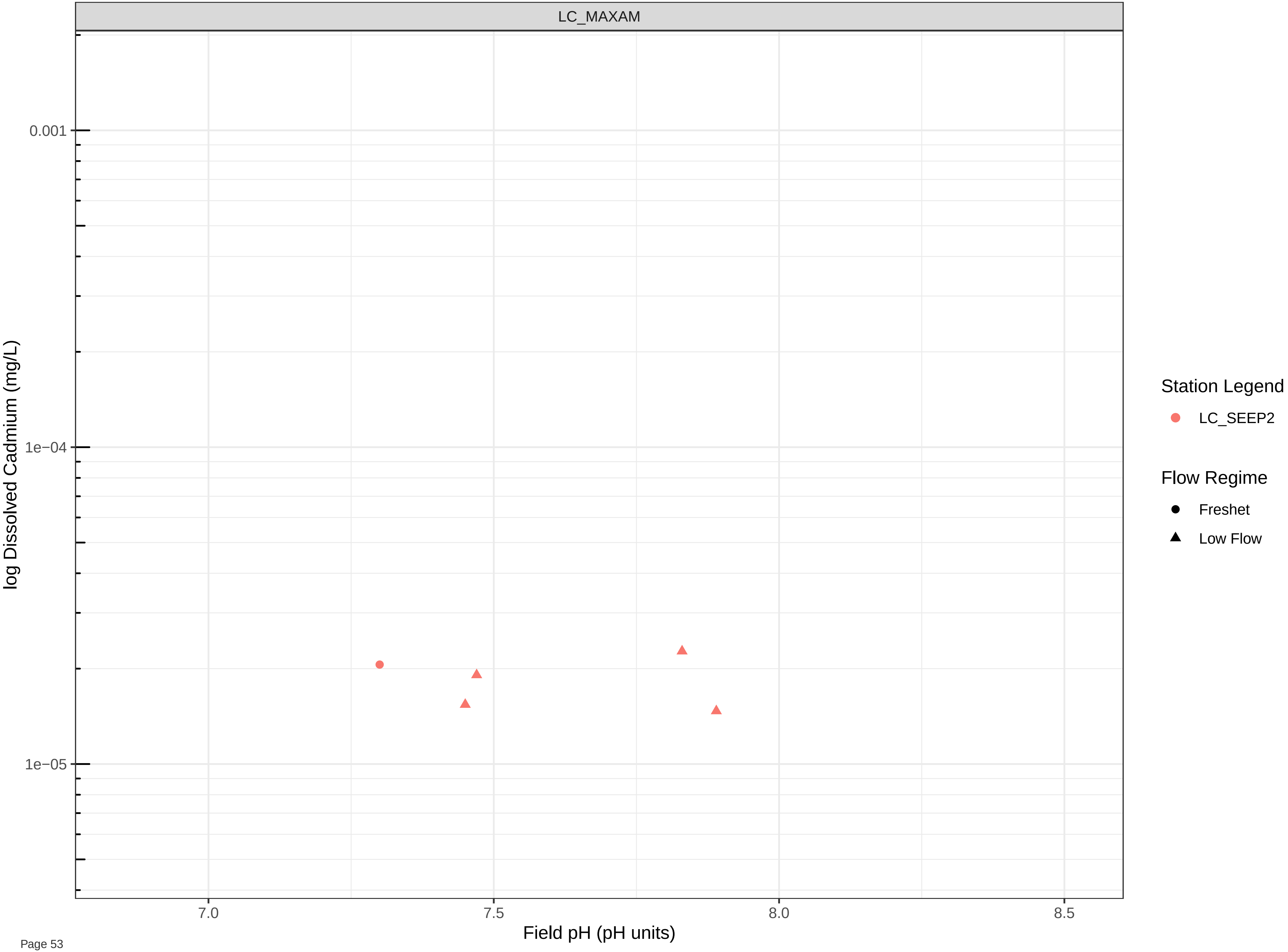

LC_PLANT
log Dissolved Boron (mg/L)
0.01
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

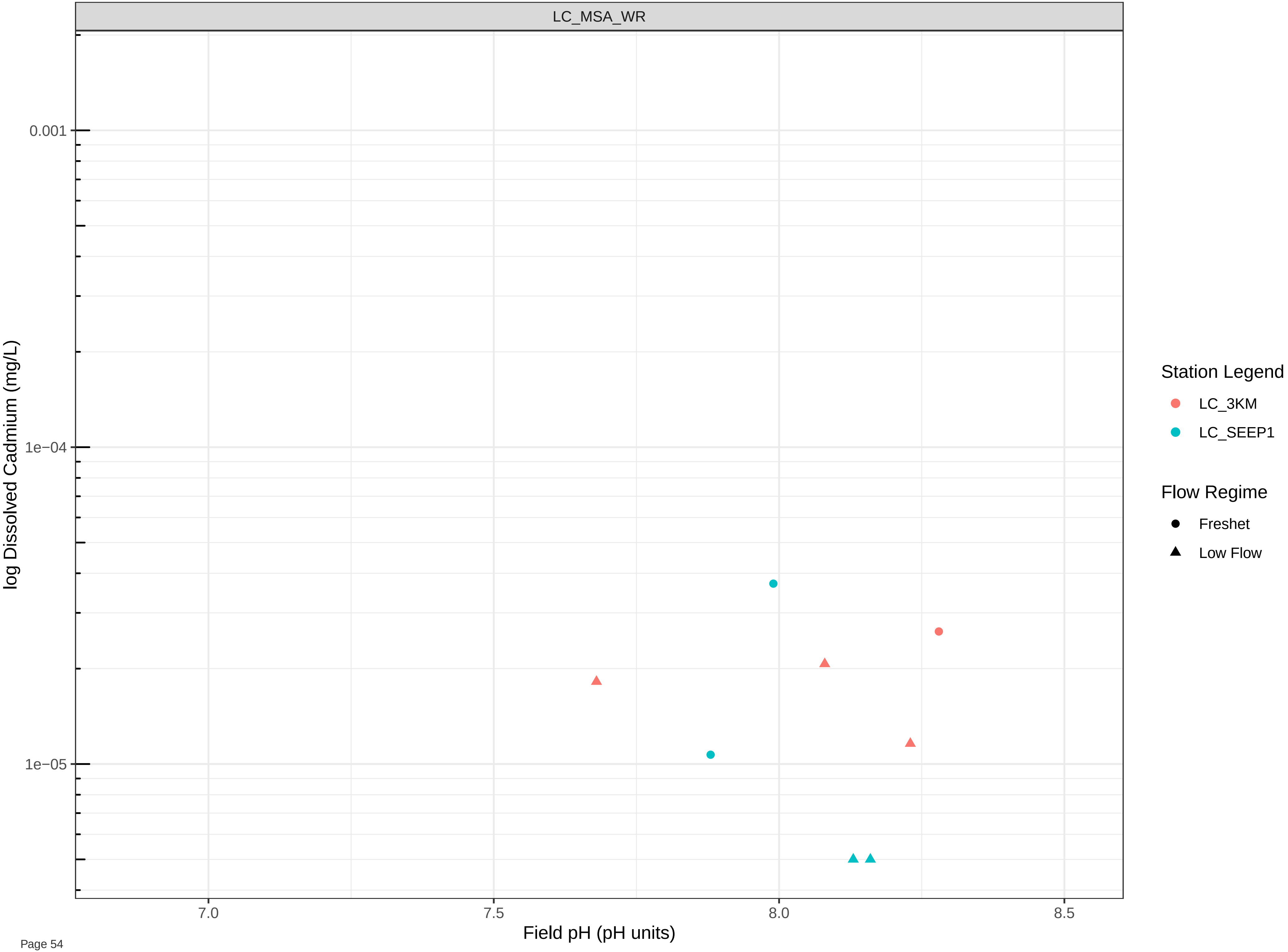

LC_WLC_WR
log Dissolved Boron (mg/L)
0.01
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

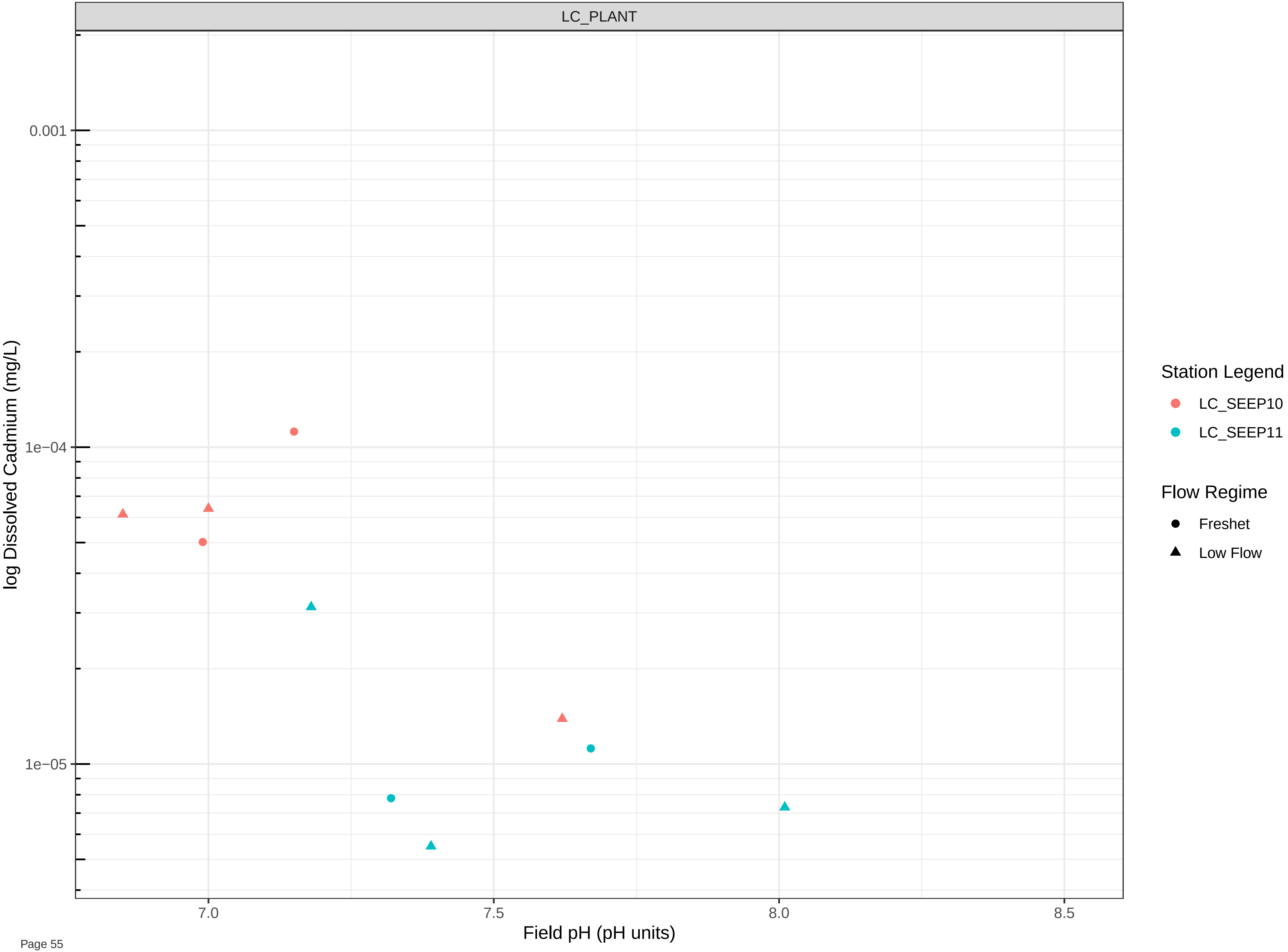

LC_DC_WR
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

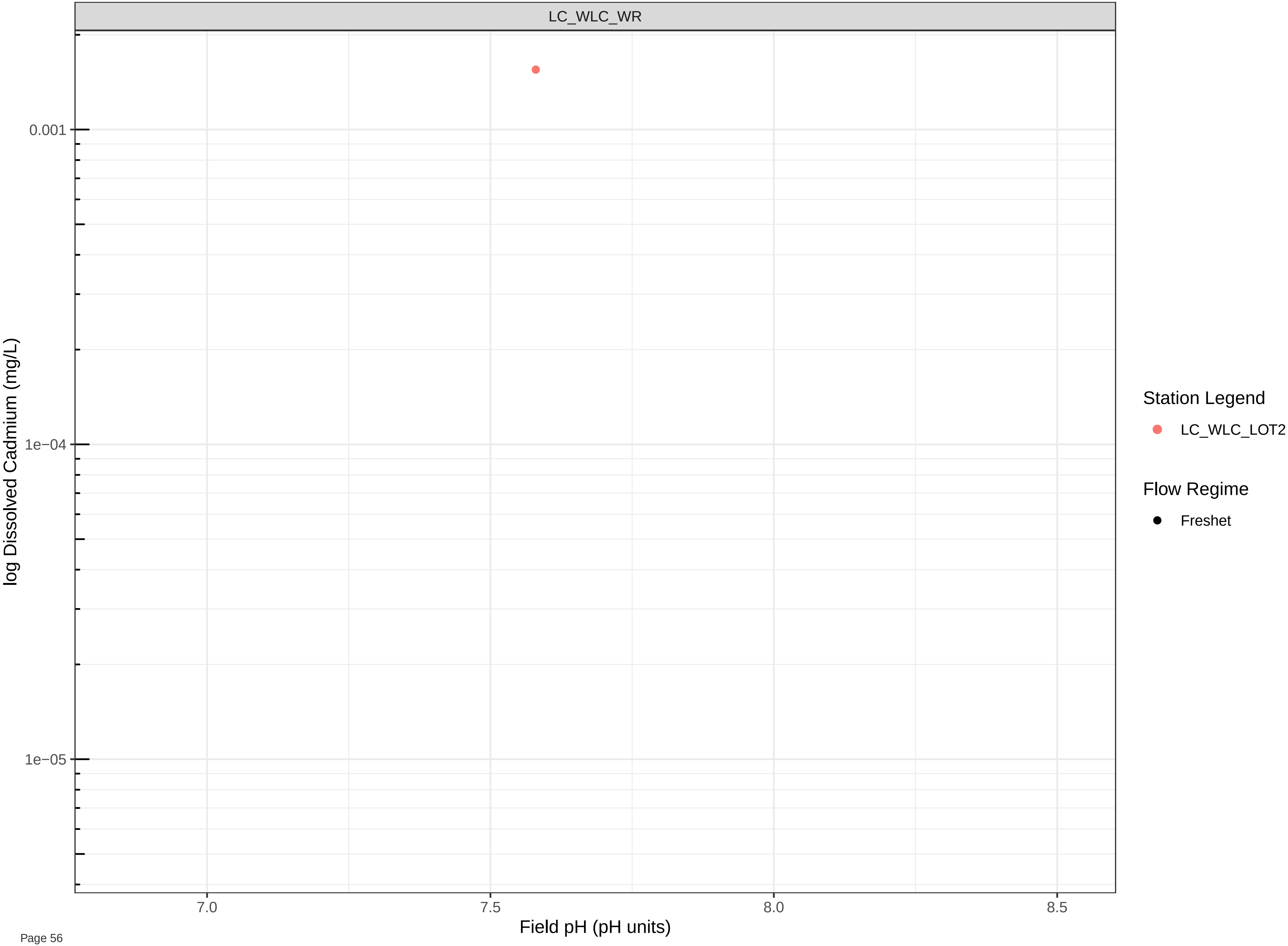

LC_DisturbedWSlope
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

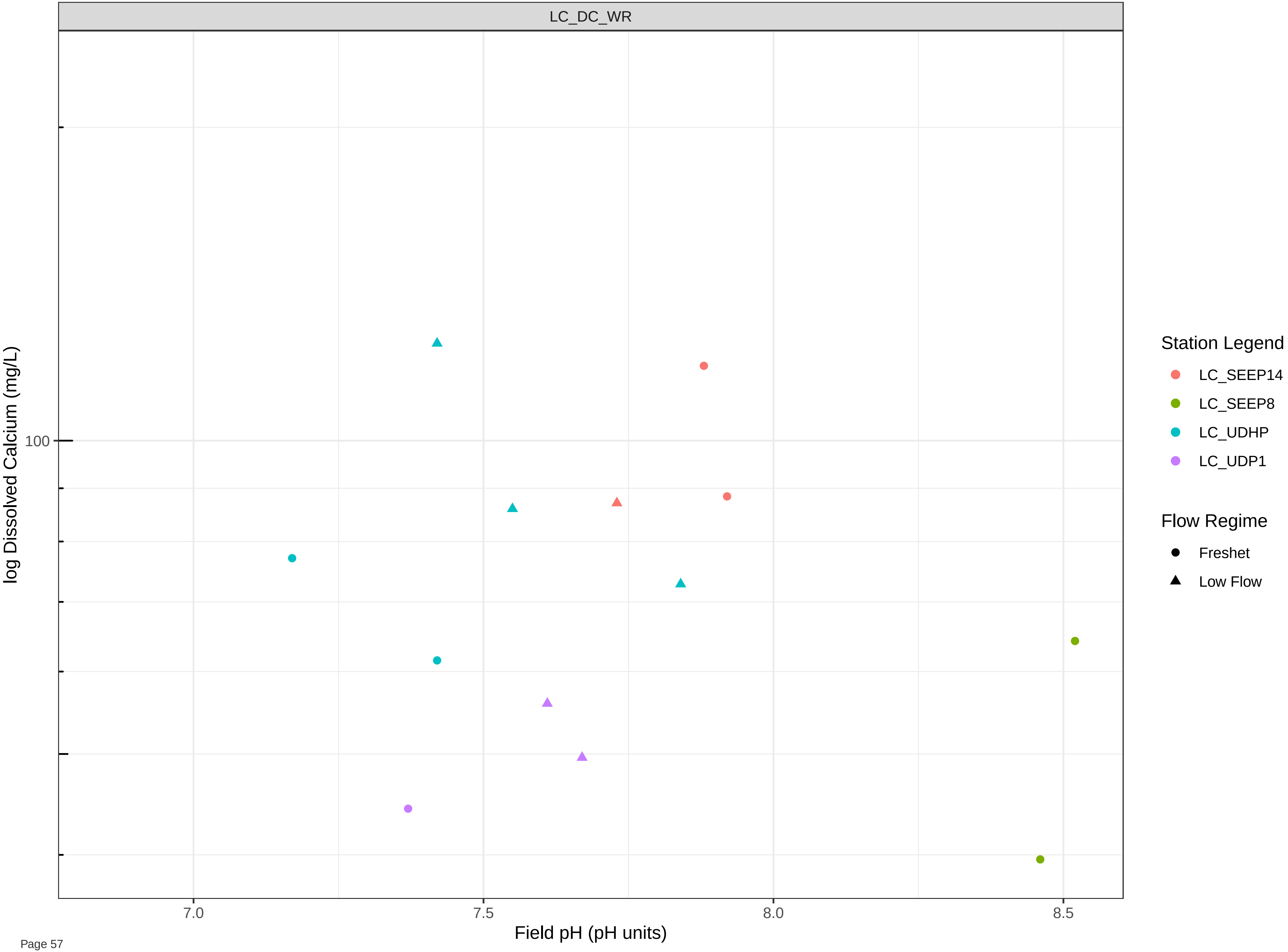

LC_HSP_WR
0.001
1e−04
1e−05
log Dissolved Cadmium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

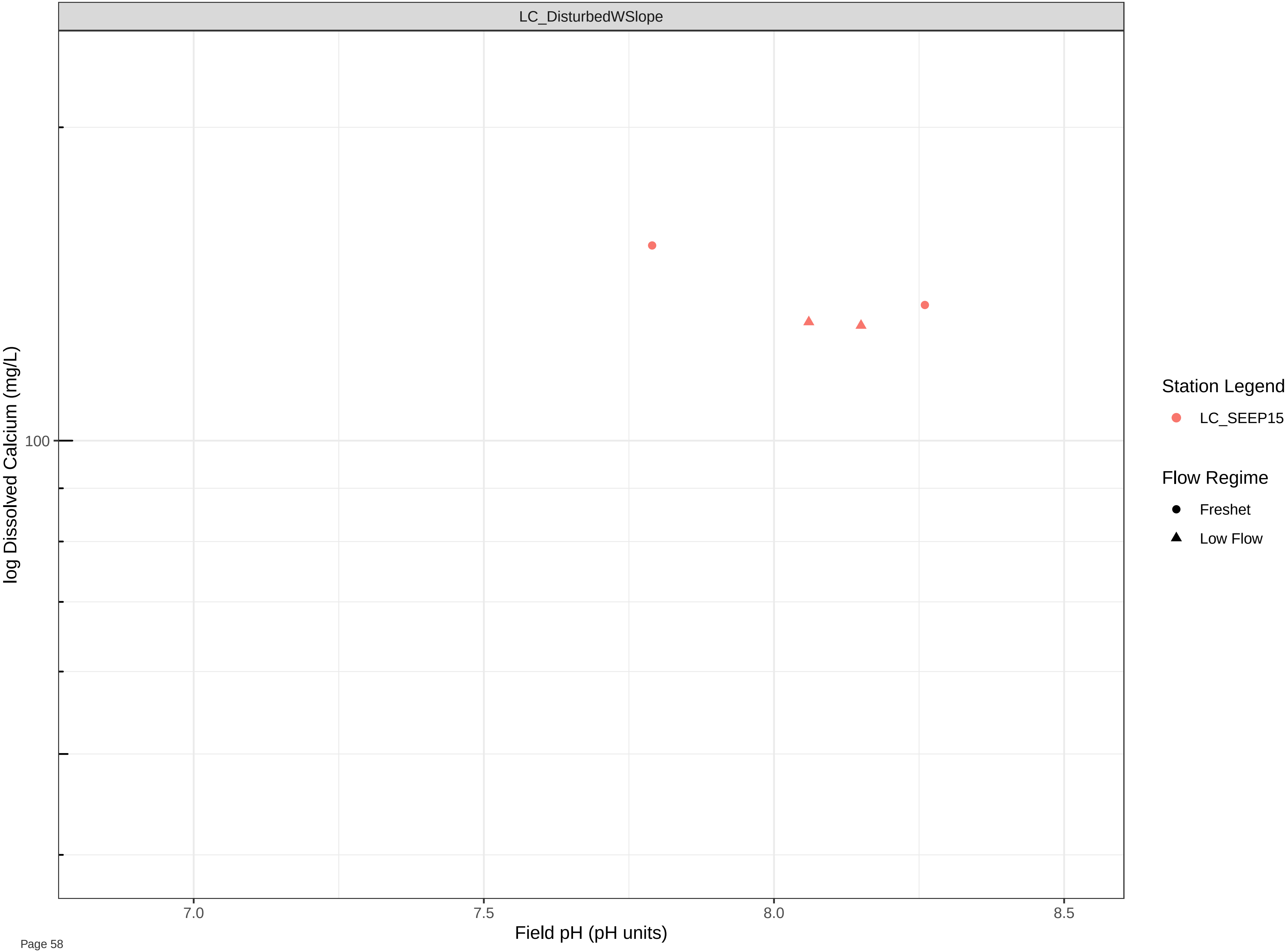

LC_MAXAM
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

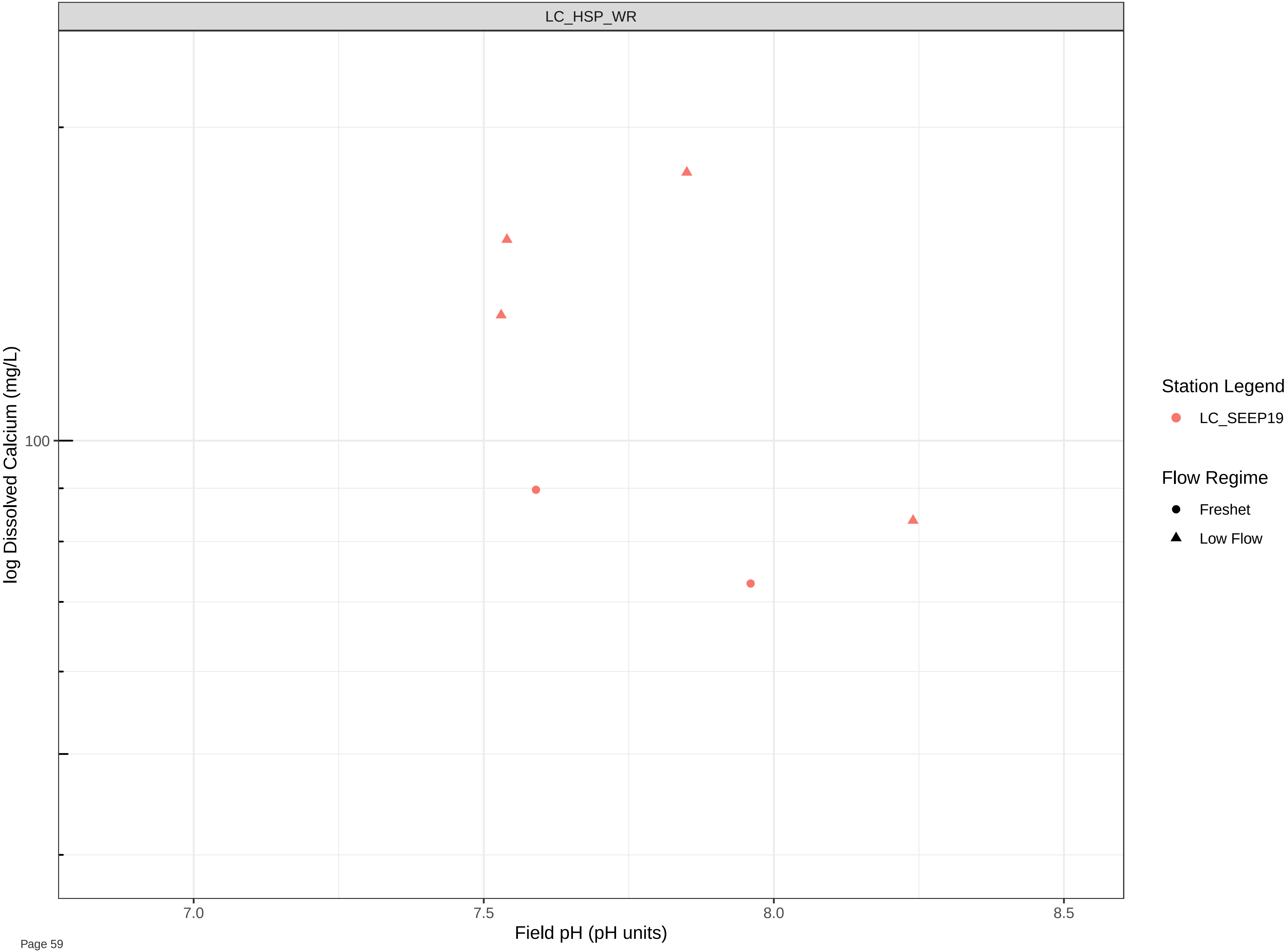

LC_MSA_WR
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

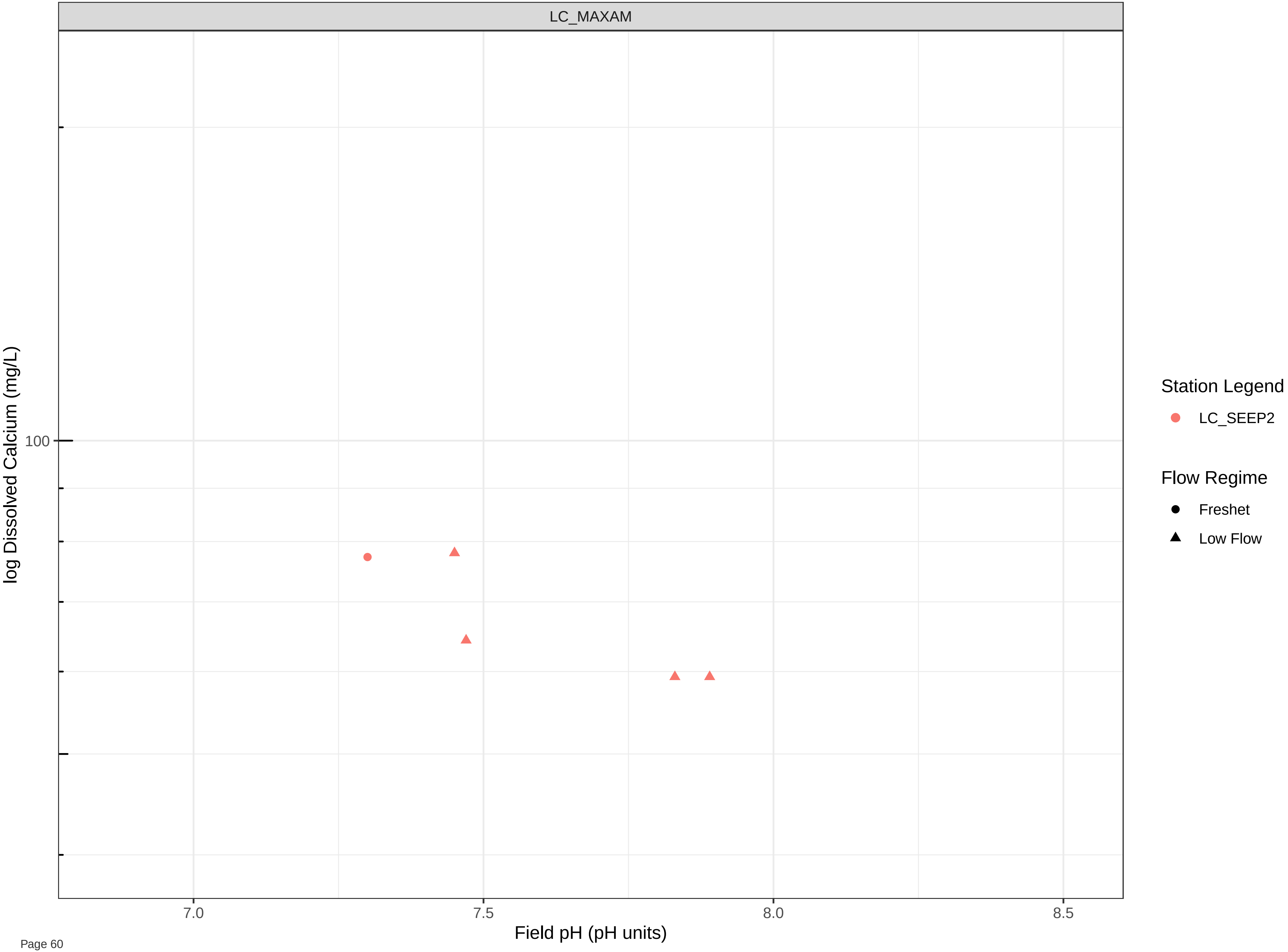

LC_PLANT
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

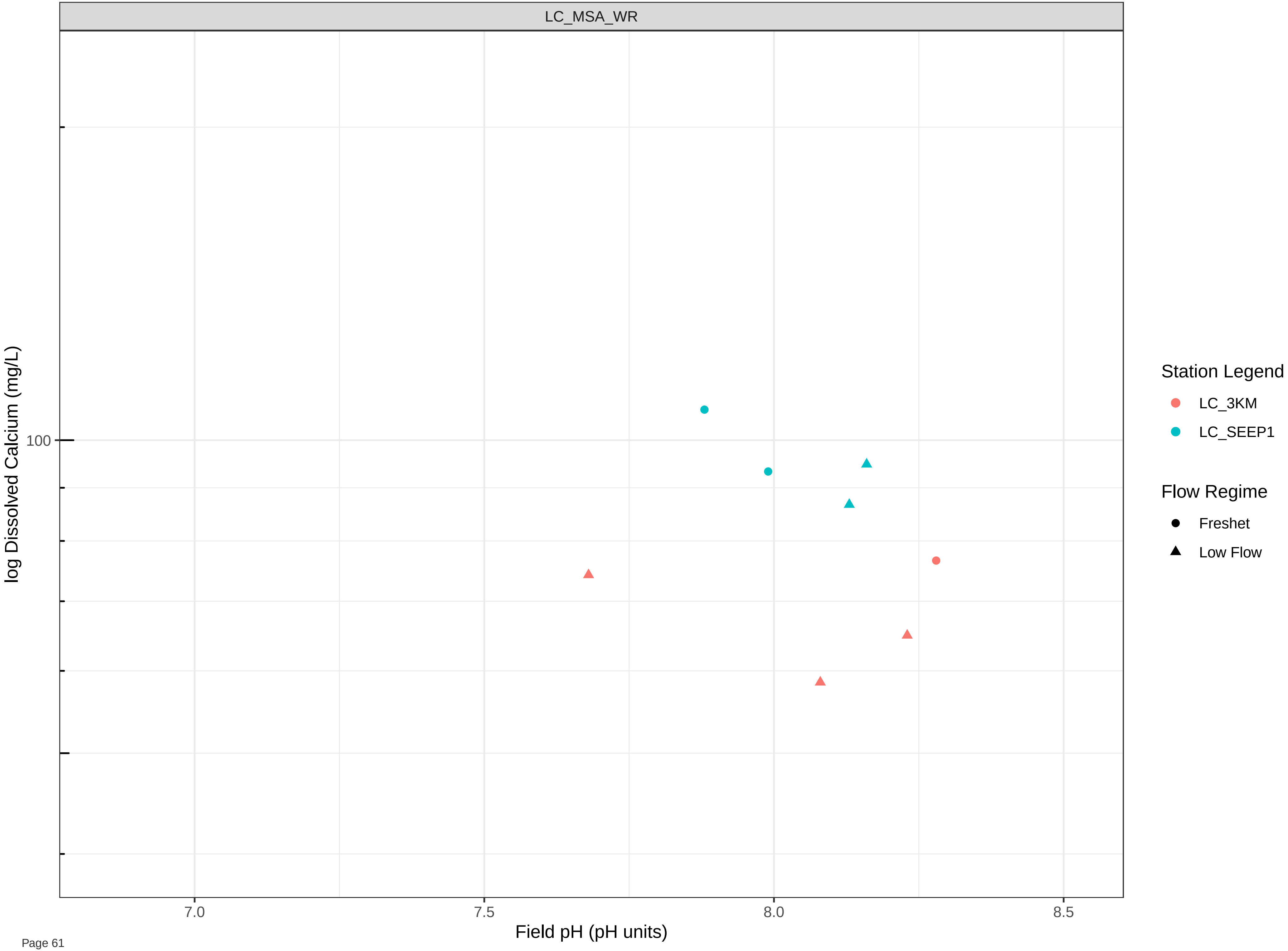

LC_WLC_WR
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

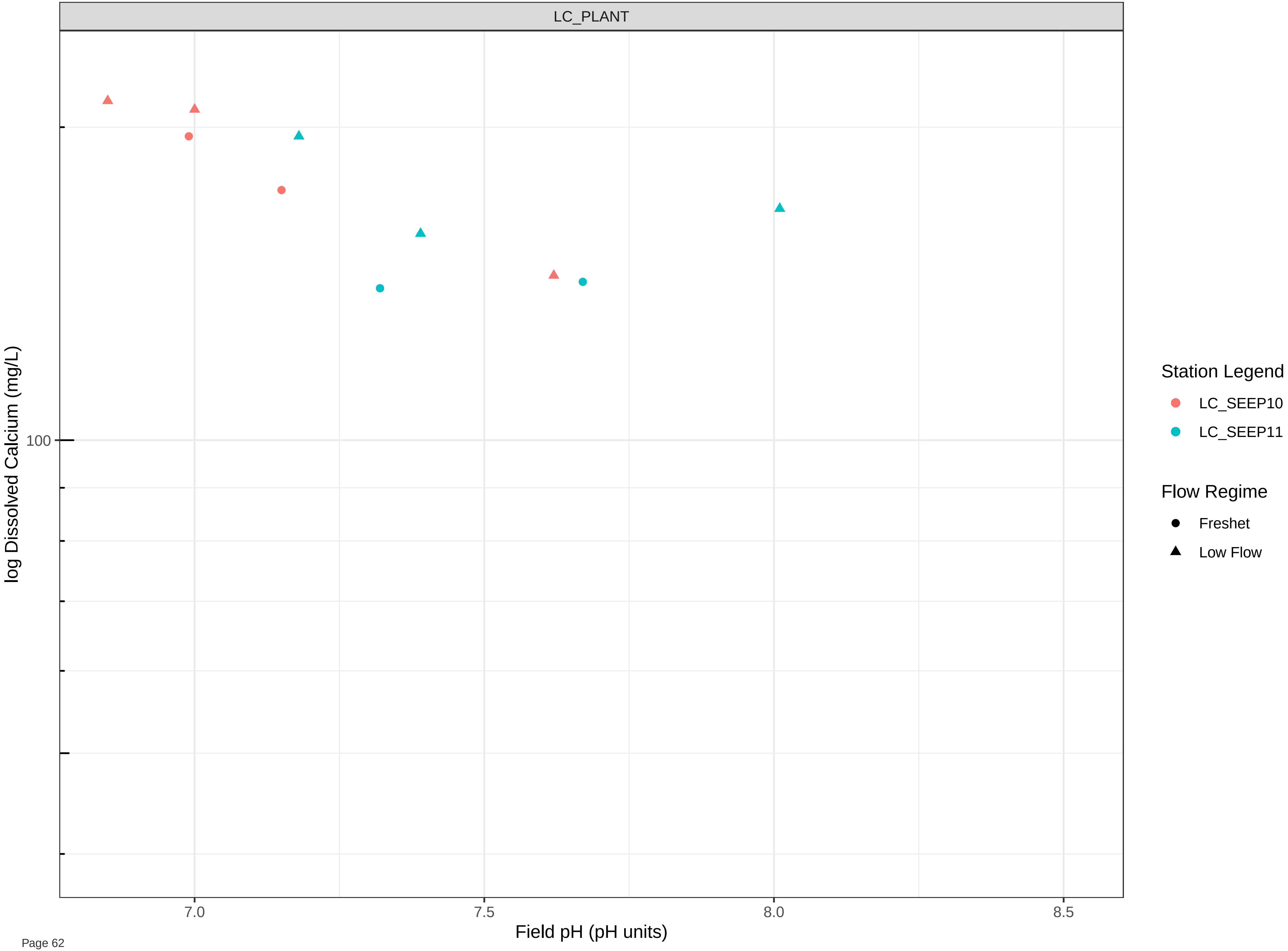

LC_DC_WR
log Dissolved Calcium (mg/L)
100
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
● LC_SEEP14
● LC_SEEP8
● LC_UDHP
● LC_UDP1
Flow Regime
● Freshet
▲ Low Flow

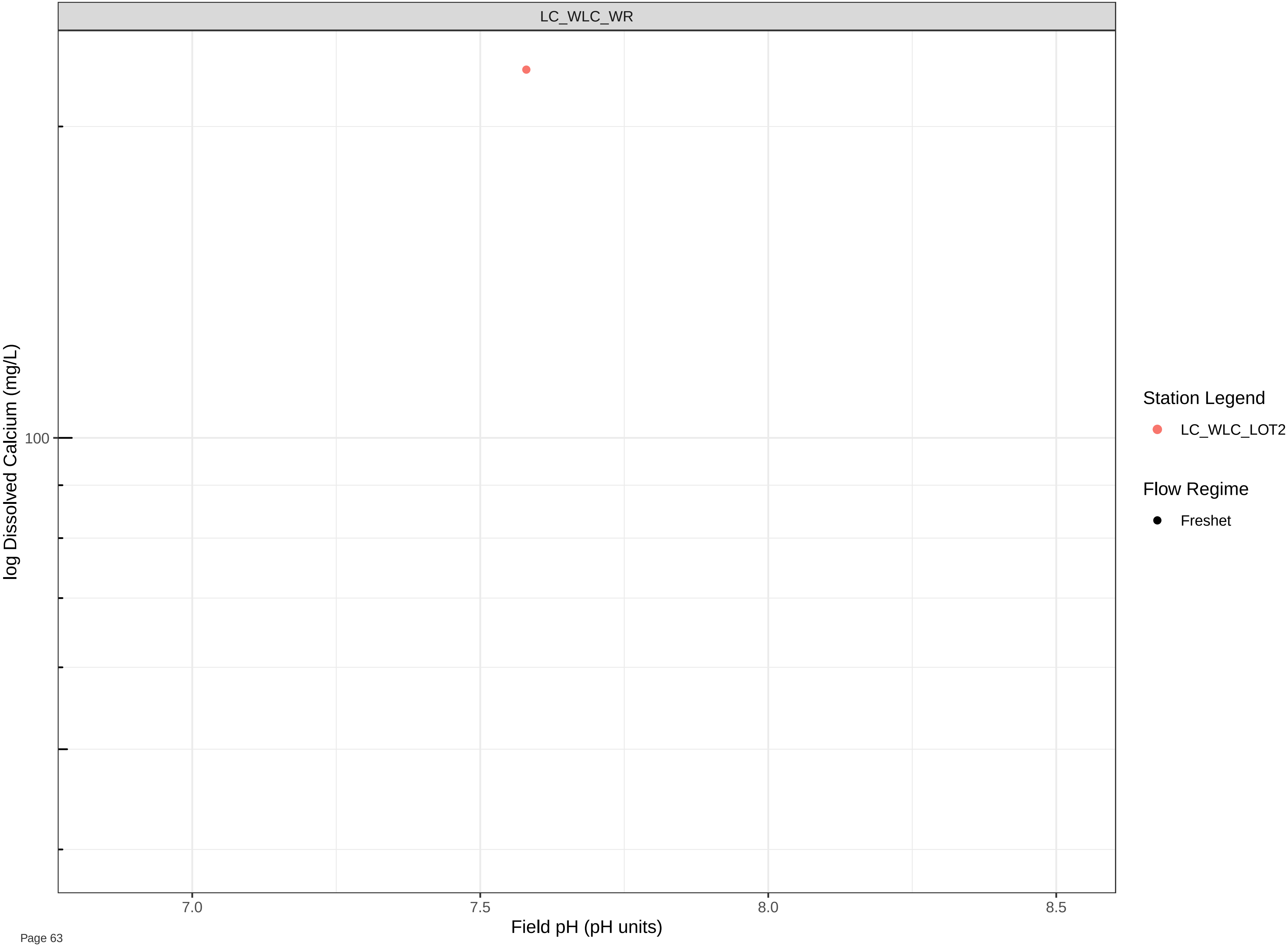

LC_DisturbedWSlope
log Dissolved Calcium (mg/L)
100
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow

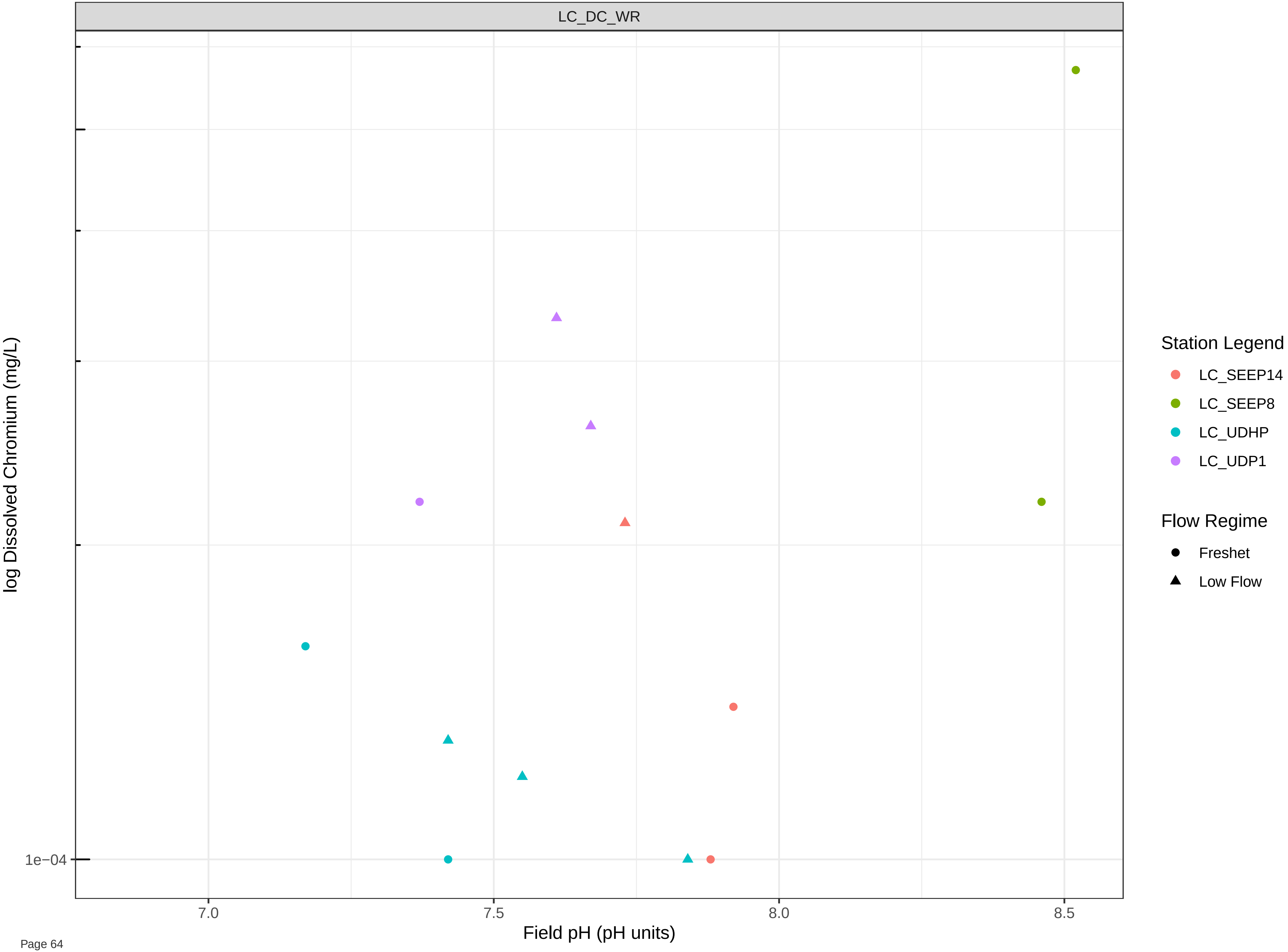

LC_HSP_WR
log Dissolved Calcium (mg/L)
100
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

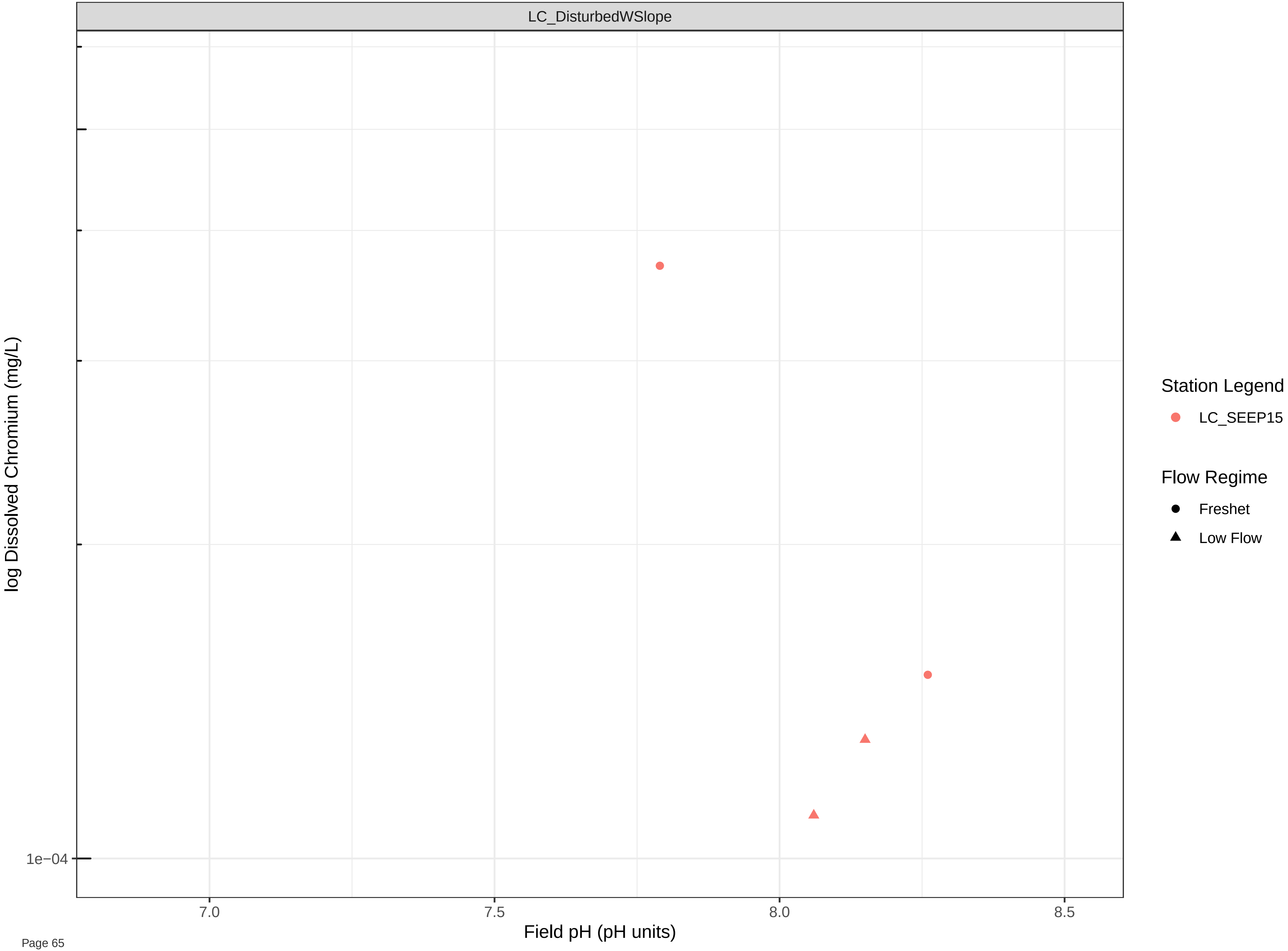

LC_MAXAM
log Dissolved Calcium (mg/L)
100
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow


LC_MSA_WR
log Dissolved Calcium (mg/L)
100
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
● LC_3KM
● LC_SEEP1
Flow Regime
● Freshet
▲ Low Flow


LC_PLANT
log Dissolved Calcium (mg/L)
100
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow


LC_WLC_WR
log Dissolved Calcium (mg/L)
100
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet


LC_DC_WR
log Dissolved Chromium (mg/L)
1e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
log Dissolved Chromium (mg/L)
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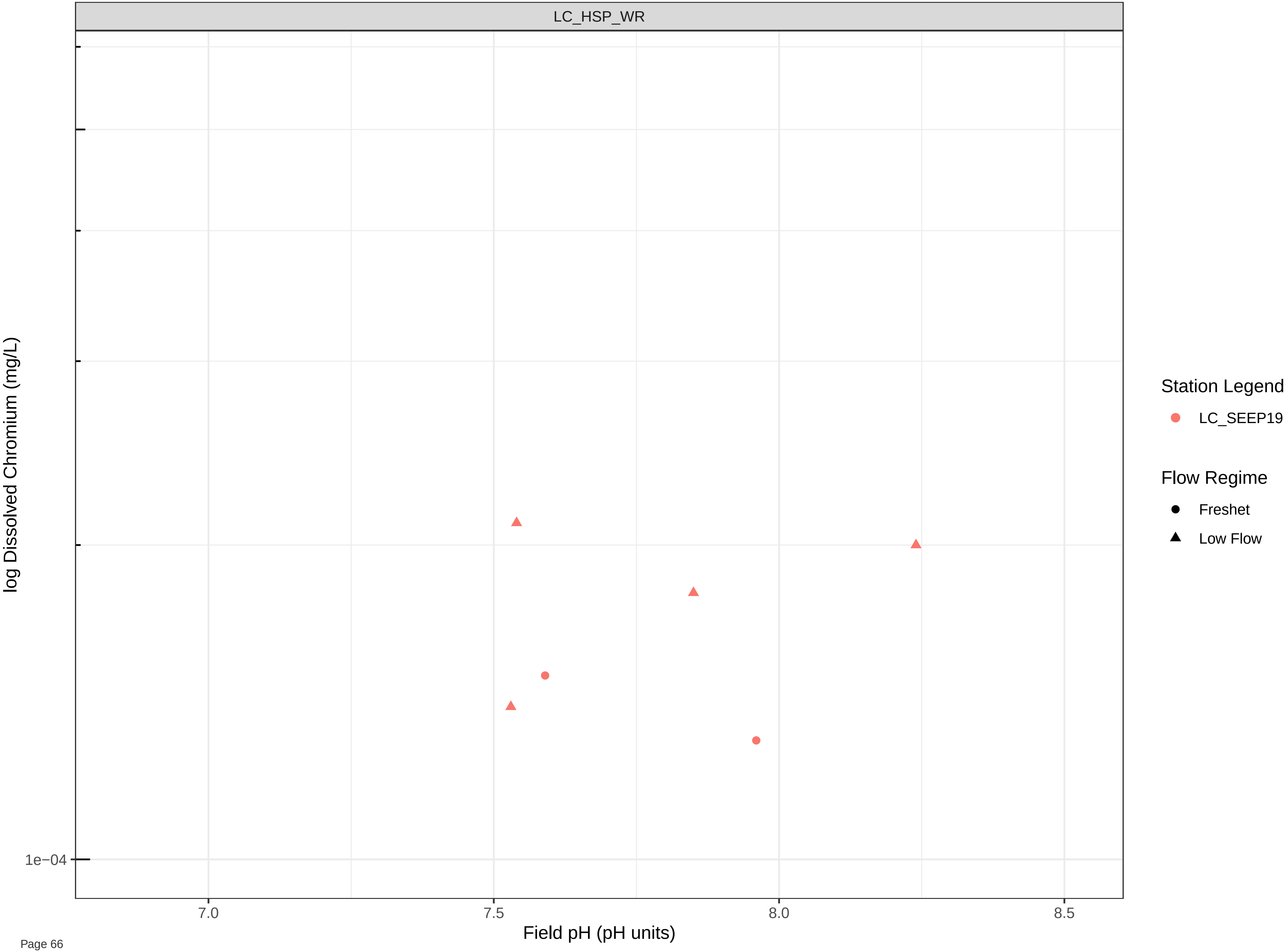
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow


LC_HSP_WR
log Dissolved Chromium (mg/L)
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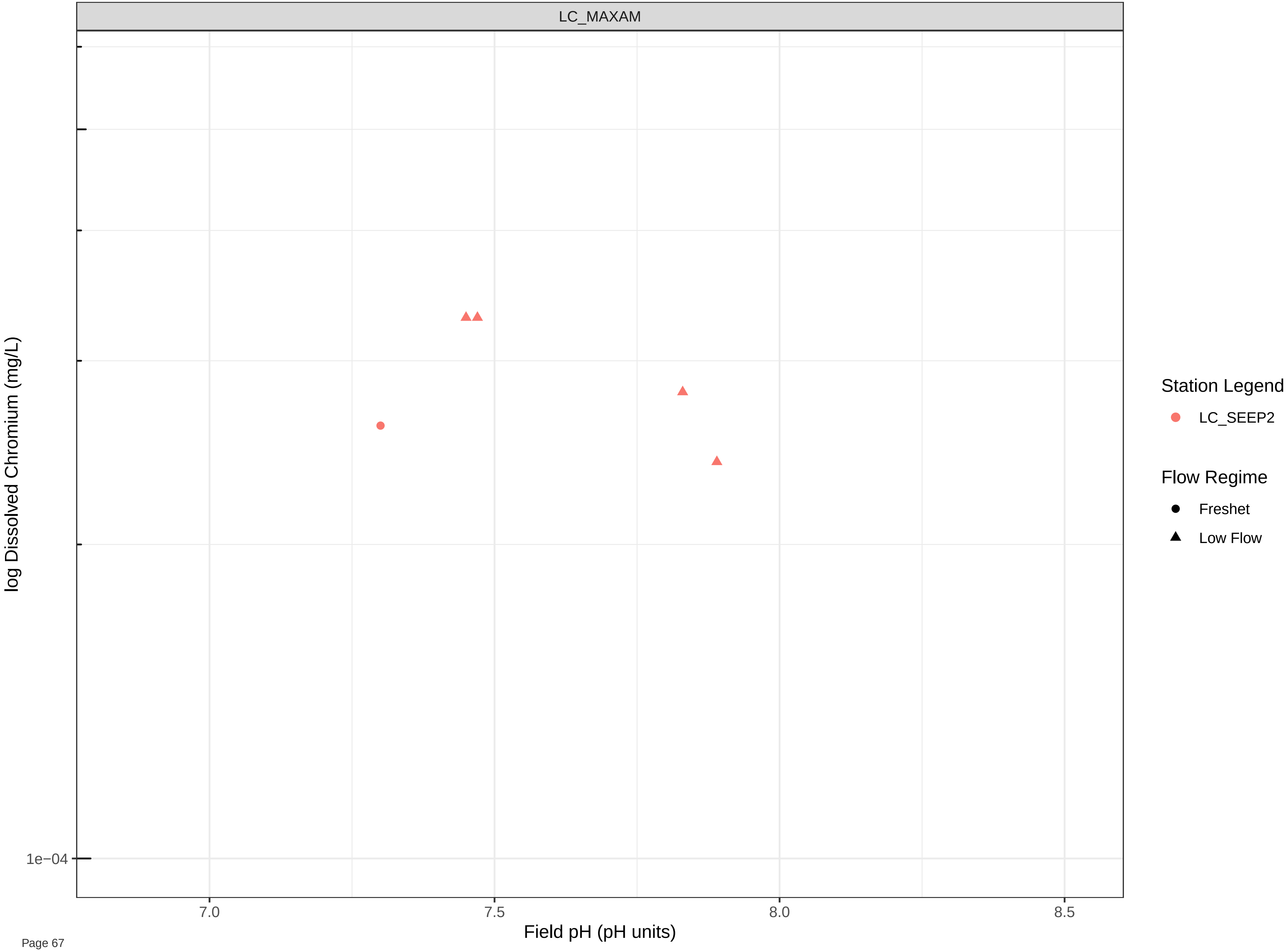
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow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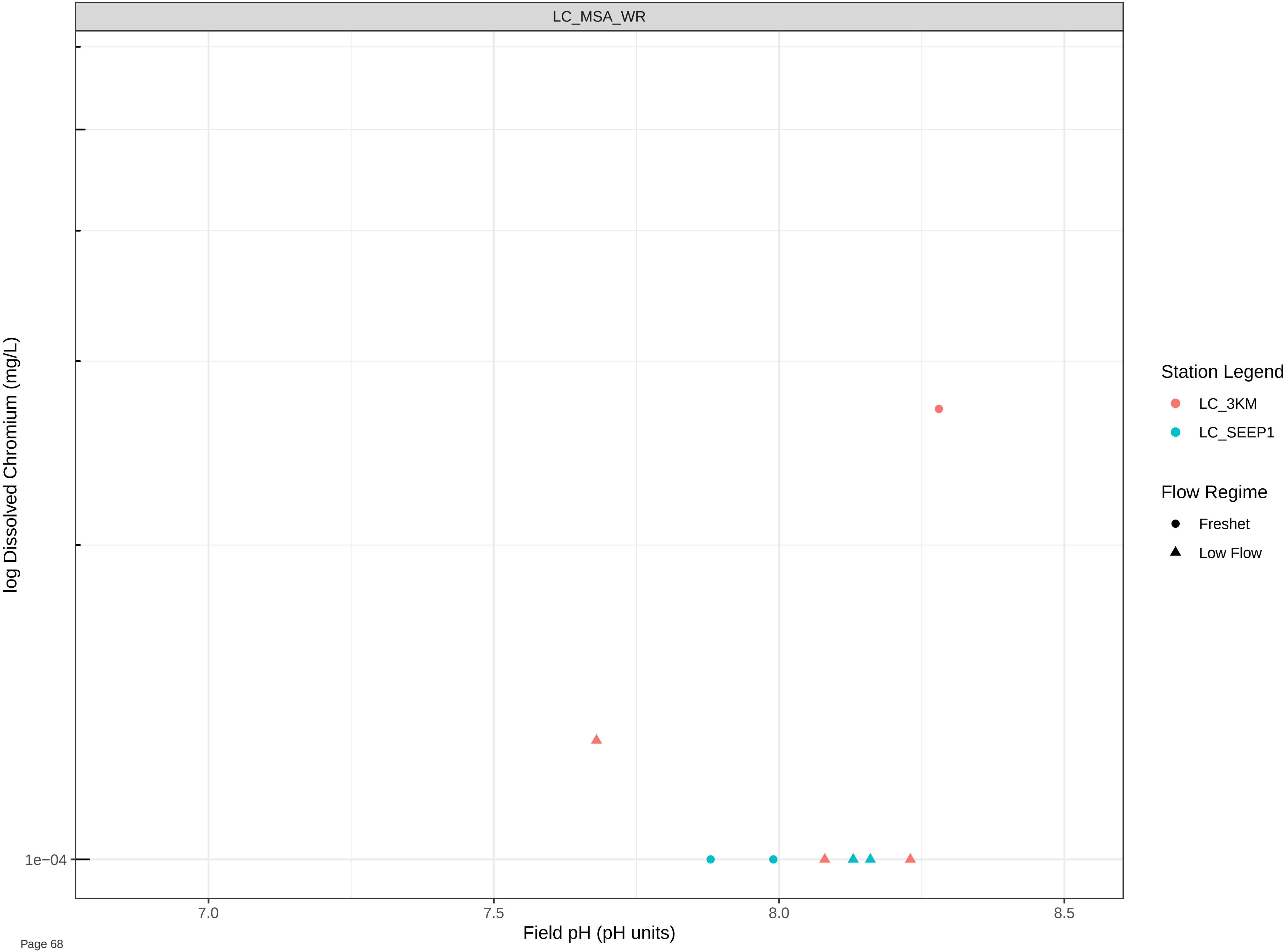
Field pH (pH units)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow


LC_MSA_WR
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1e−04
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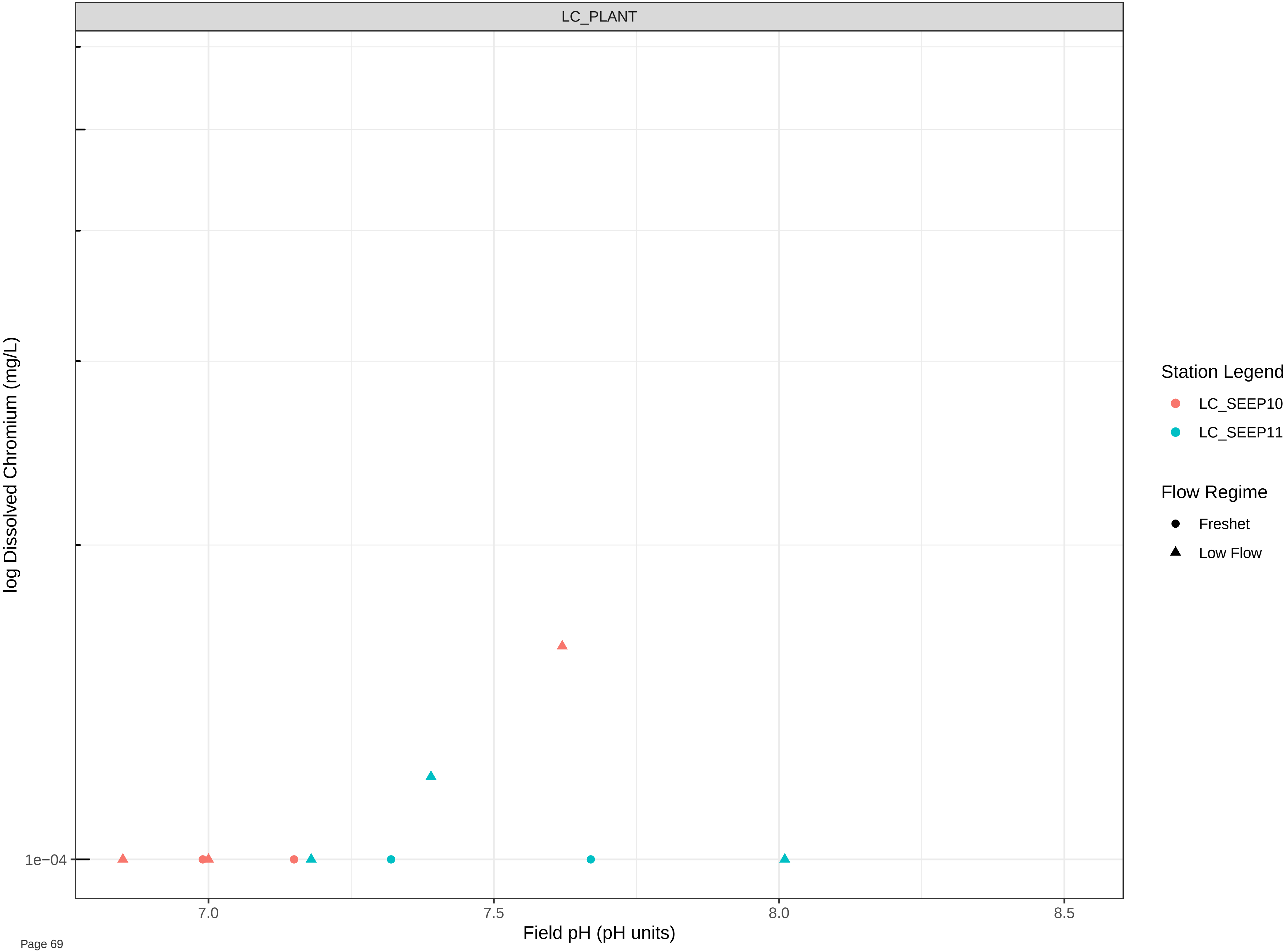
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow


LC_PLANT
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1e−04
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Field pH (pH units)
Station Legend
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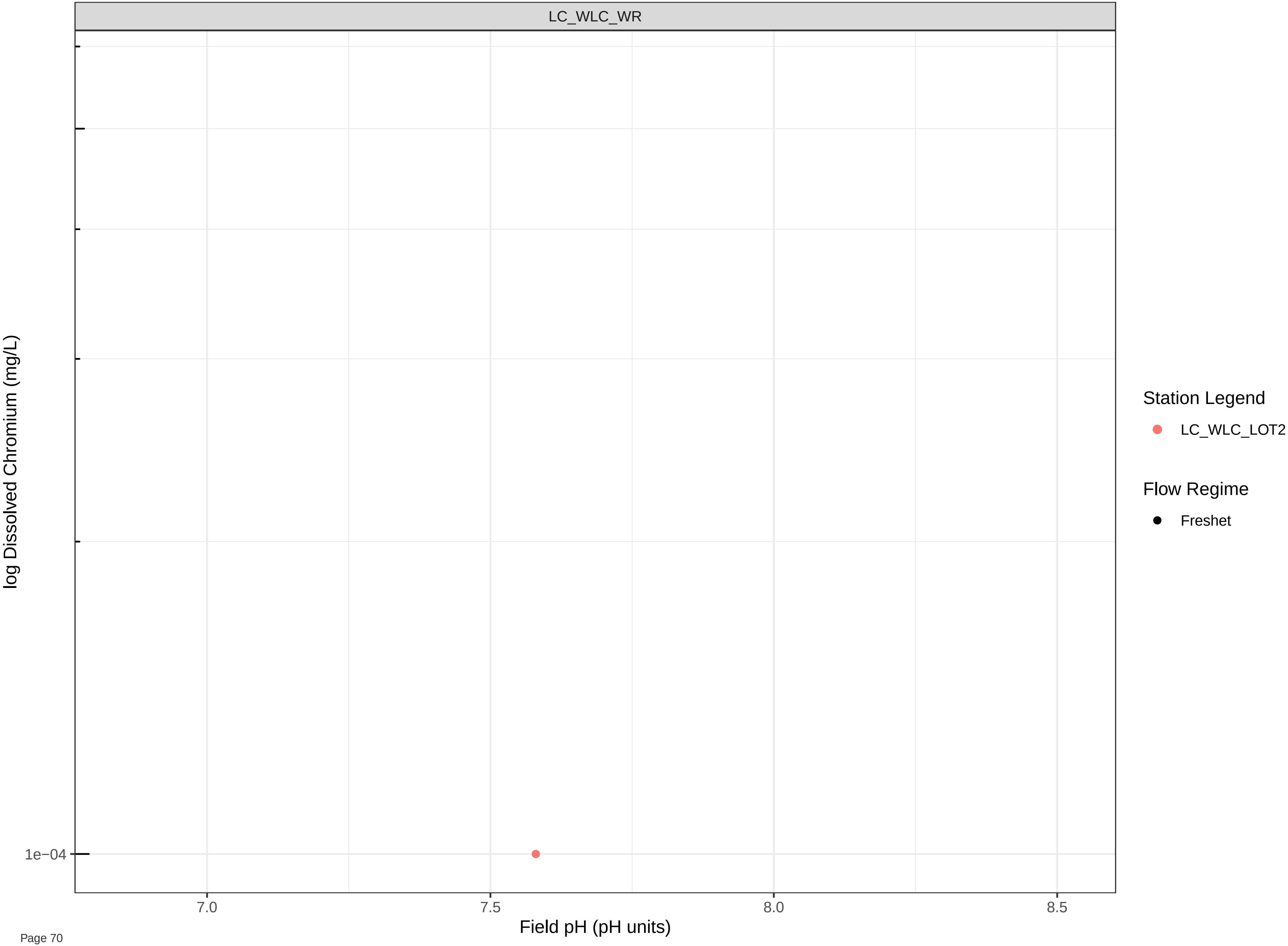
LC_SEEP11
Flow Regime
Freshet
Low Flow


LC_WLC_WR
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8.0
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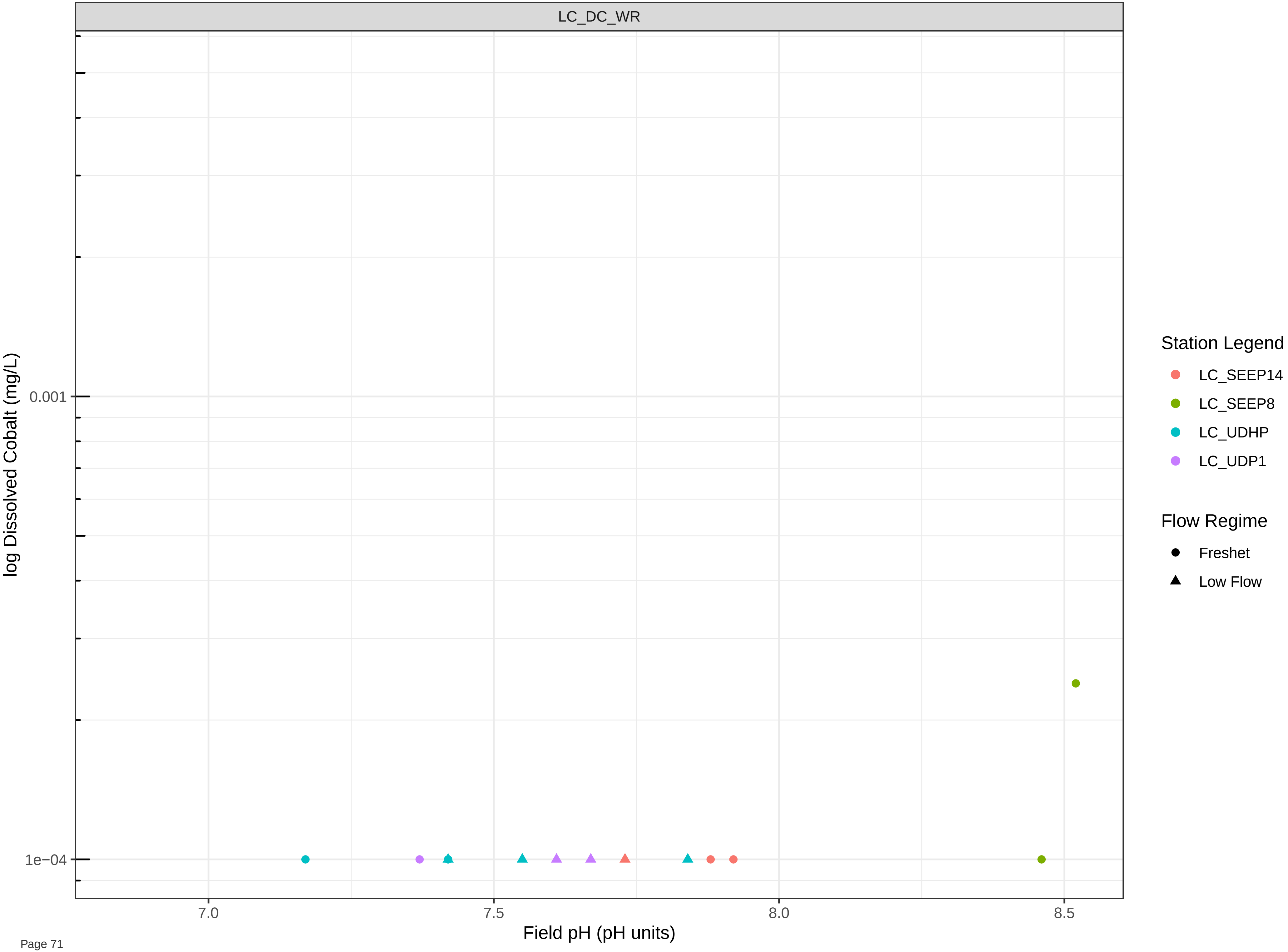
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet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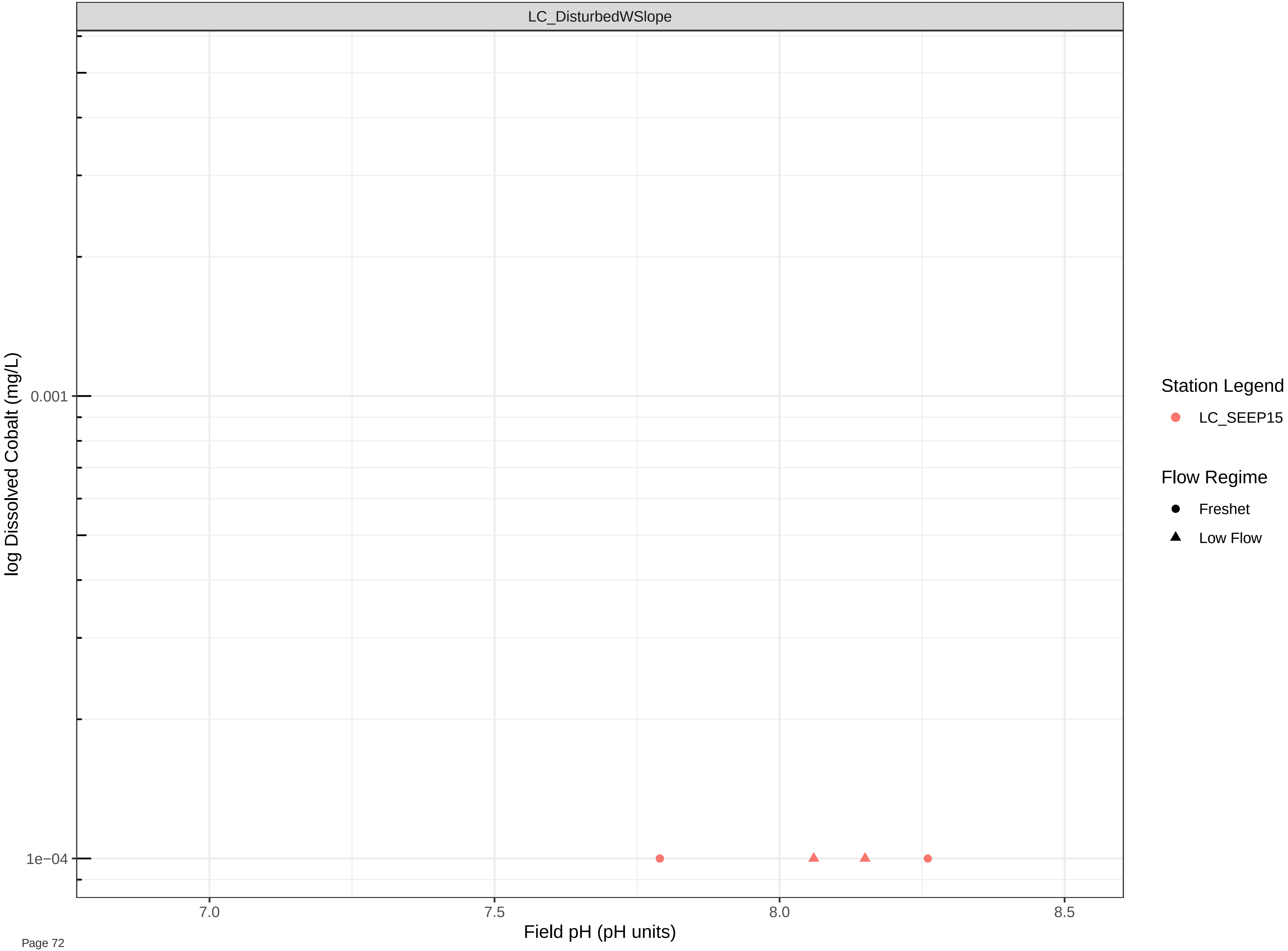
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow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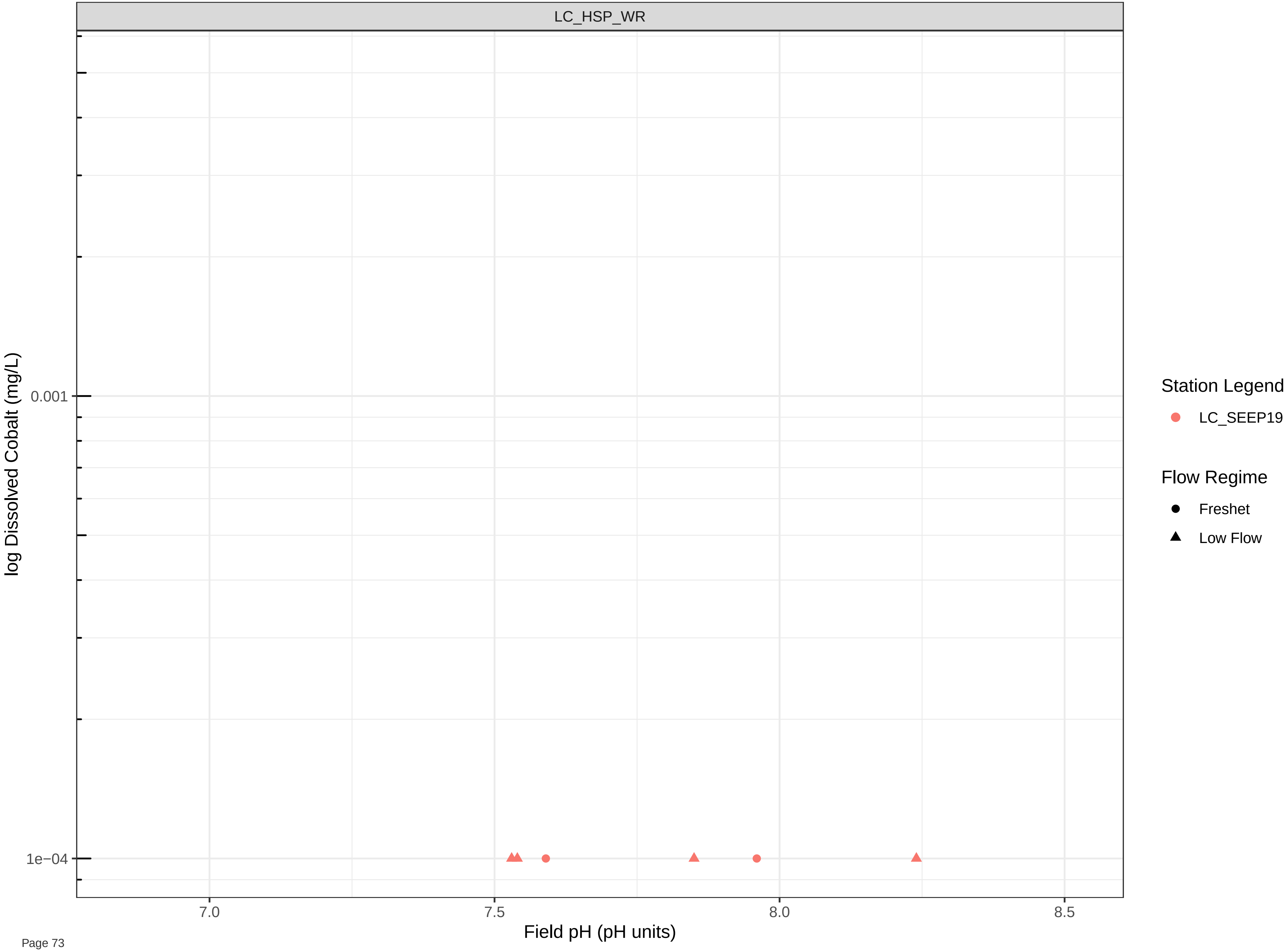
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow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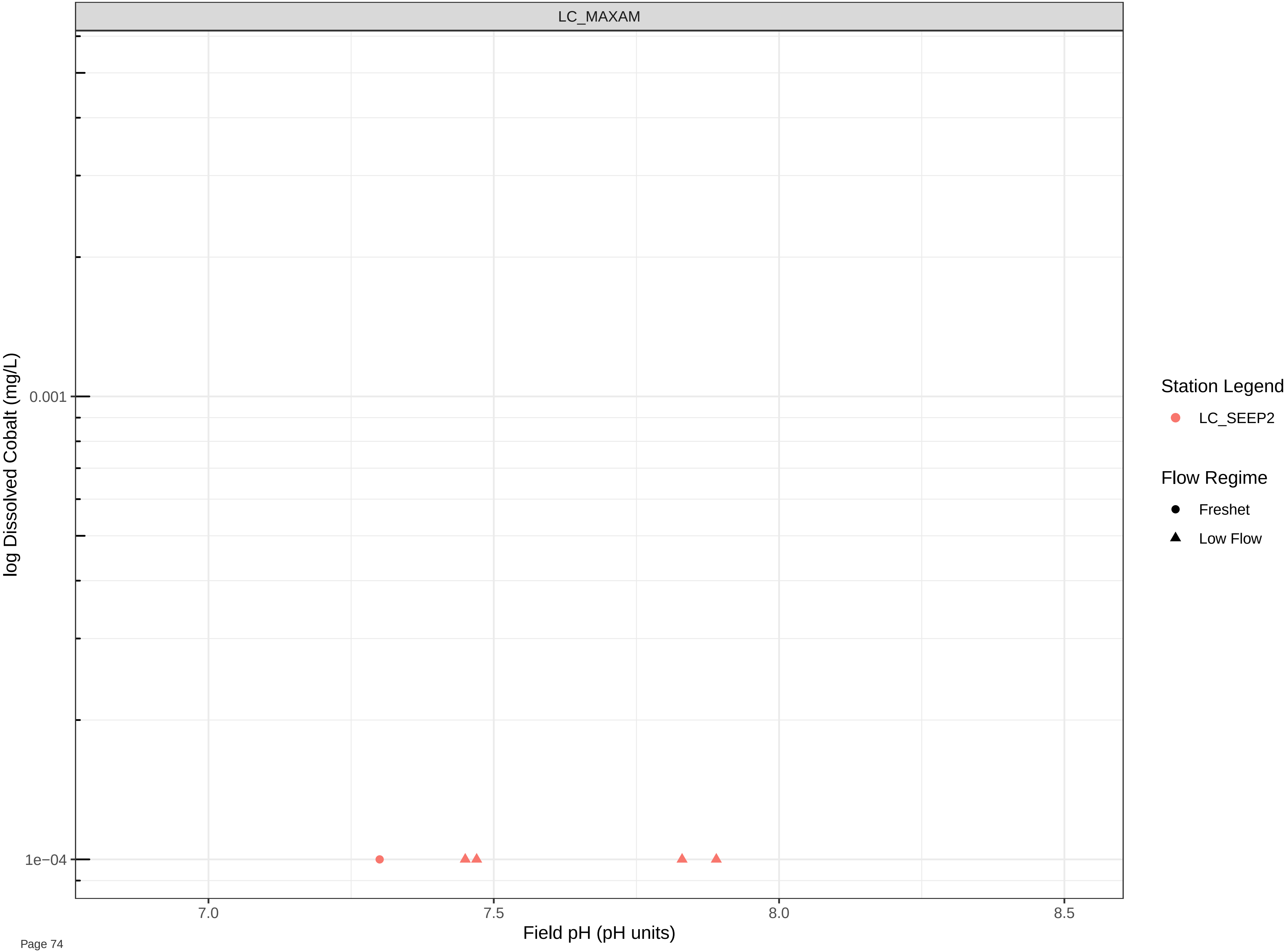
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow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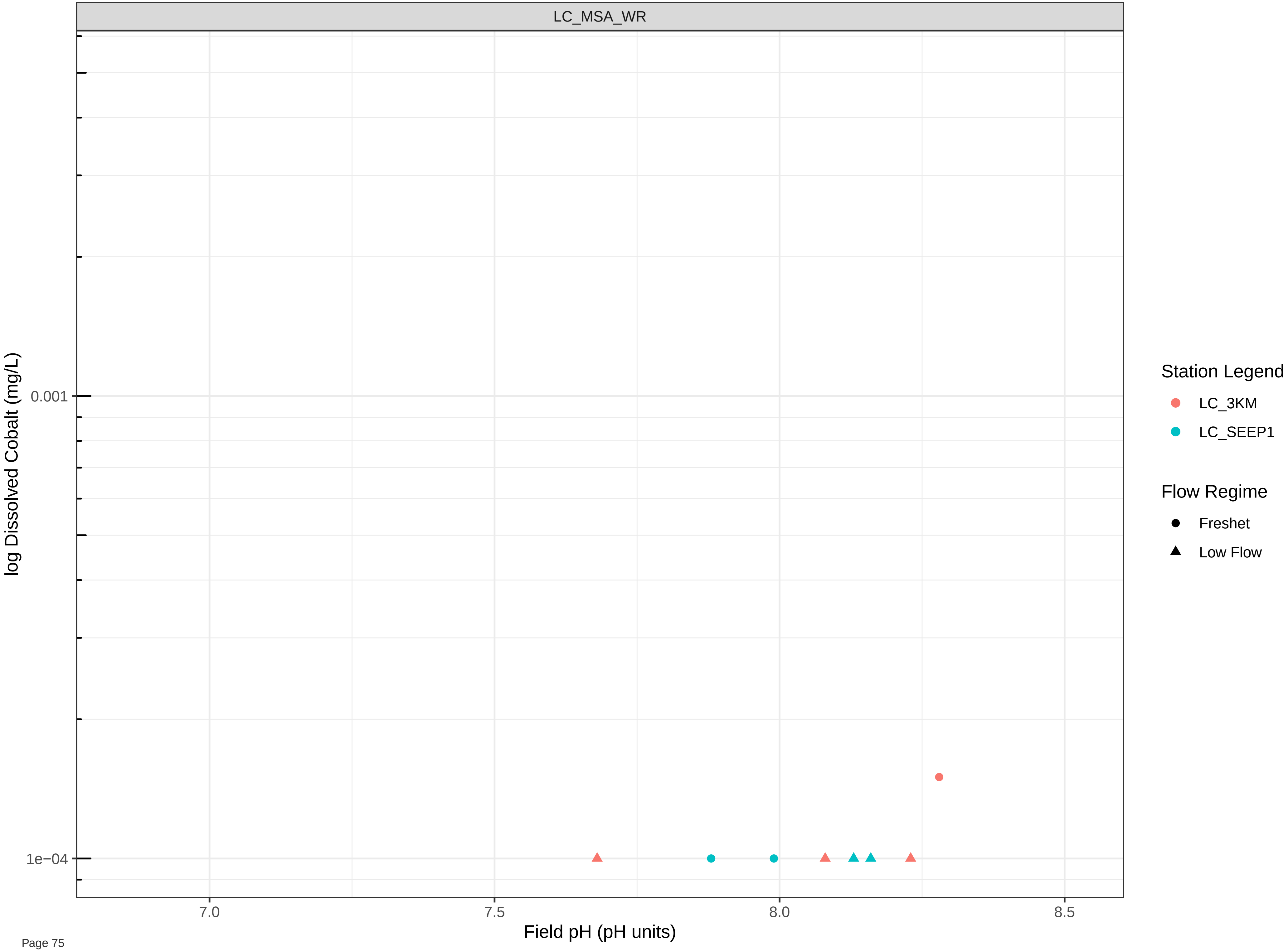
8.5
Field pH (pH units)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow


LC_MSA_WR
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1e−04
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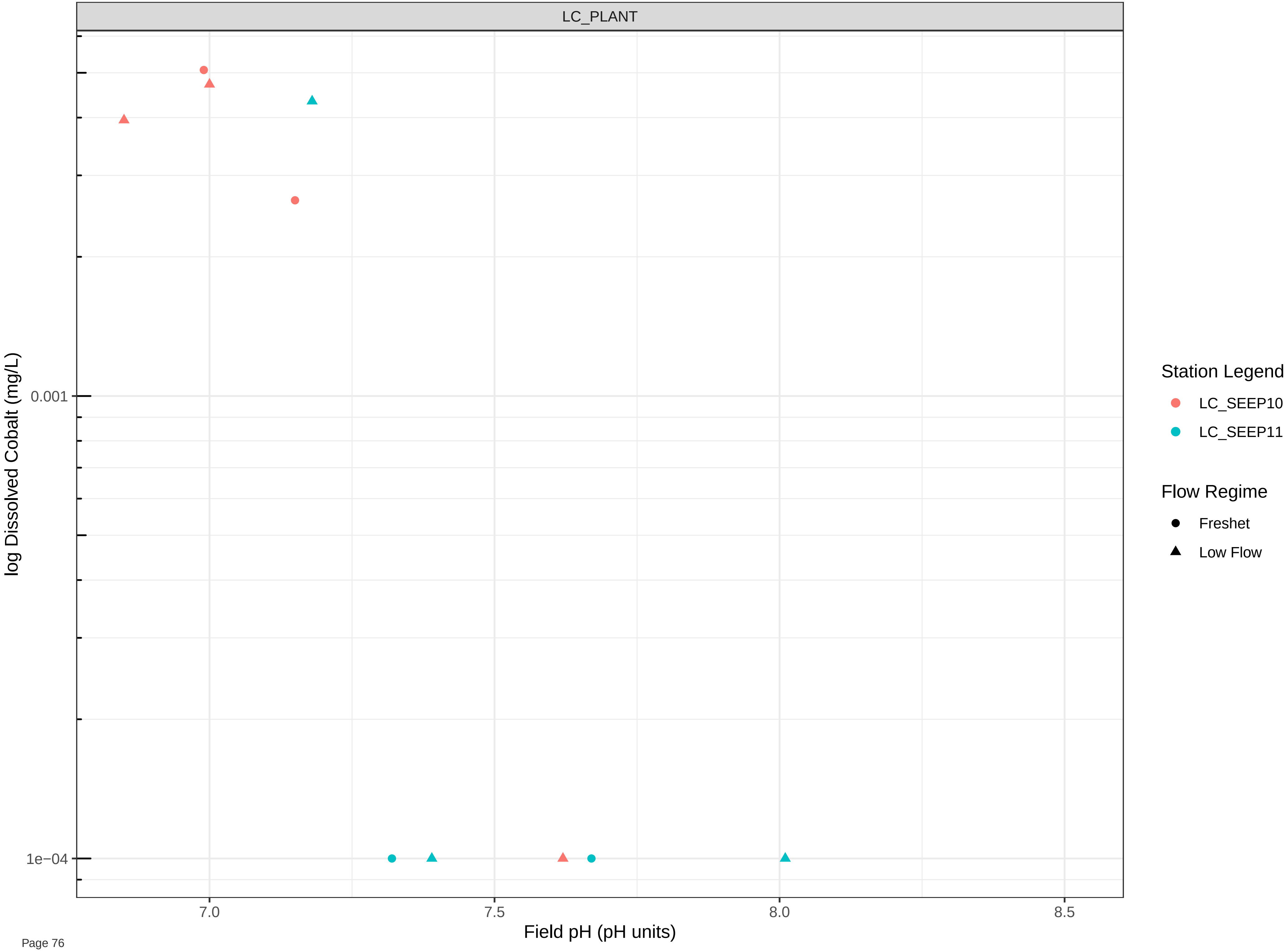
8.5
Field pH (pH units)
Station Legend
● LC_3KM
● LC_SEEP1
Flow Regime
● Freshet
▲ Low Flow


LC_PLANT
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1e−04
7.0
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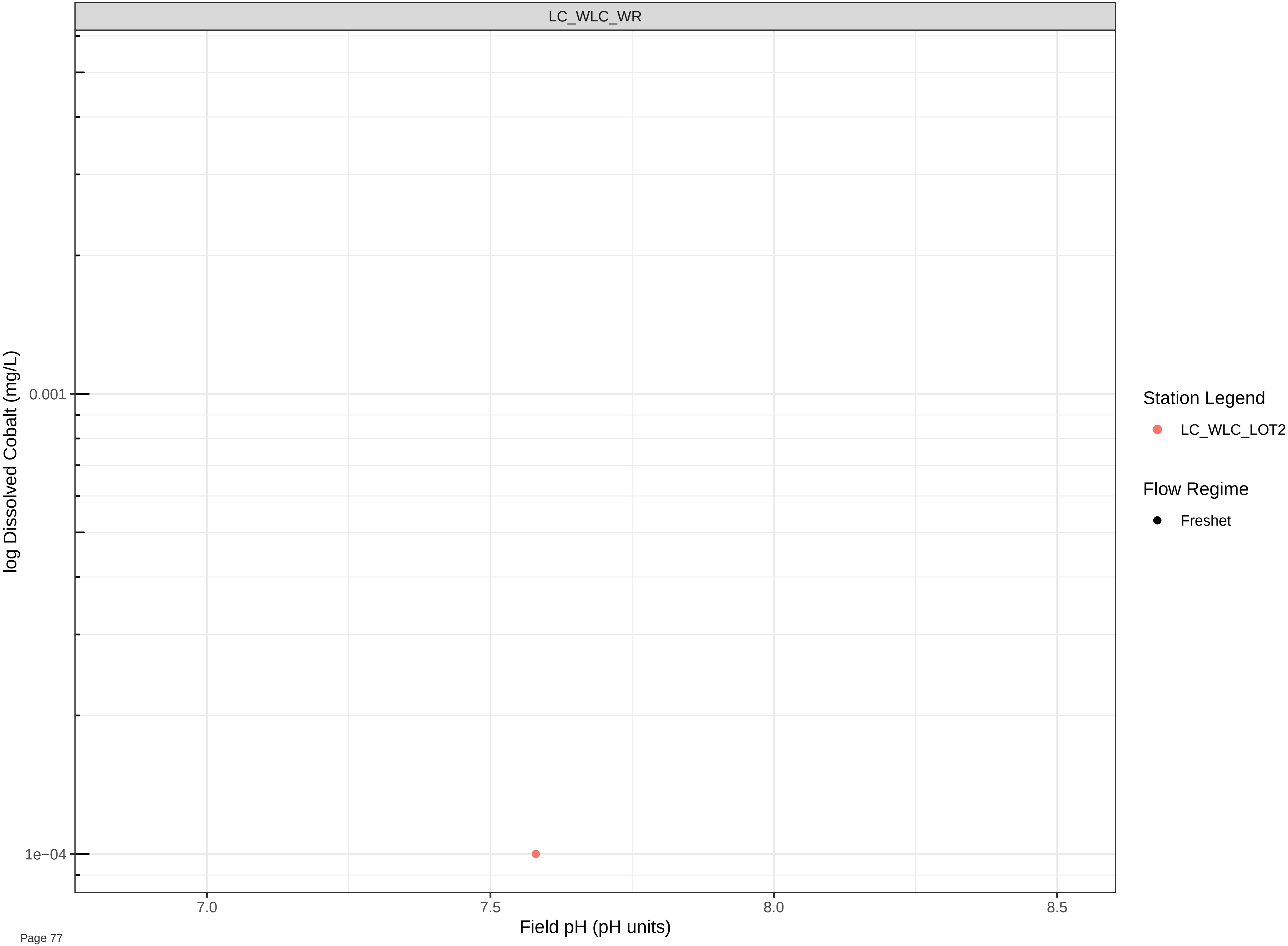
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow


LC_WLC_WR
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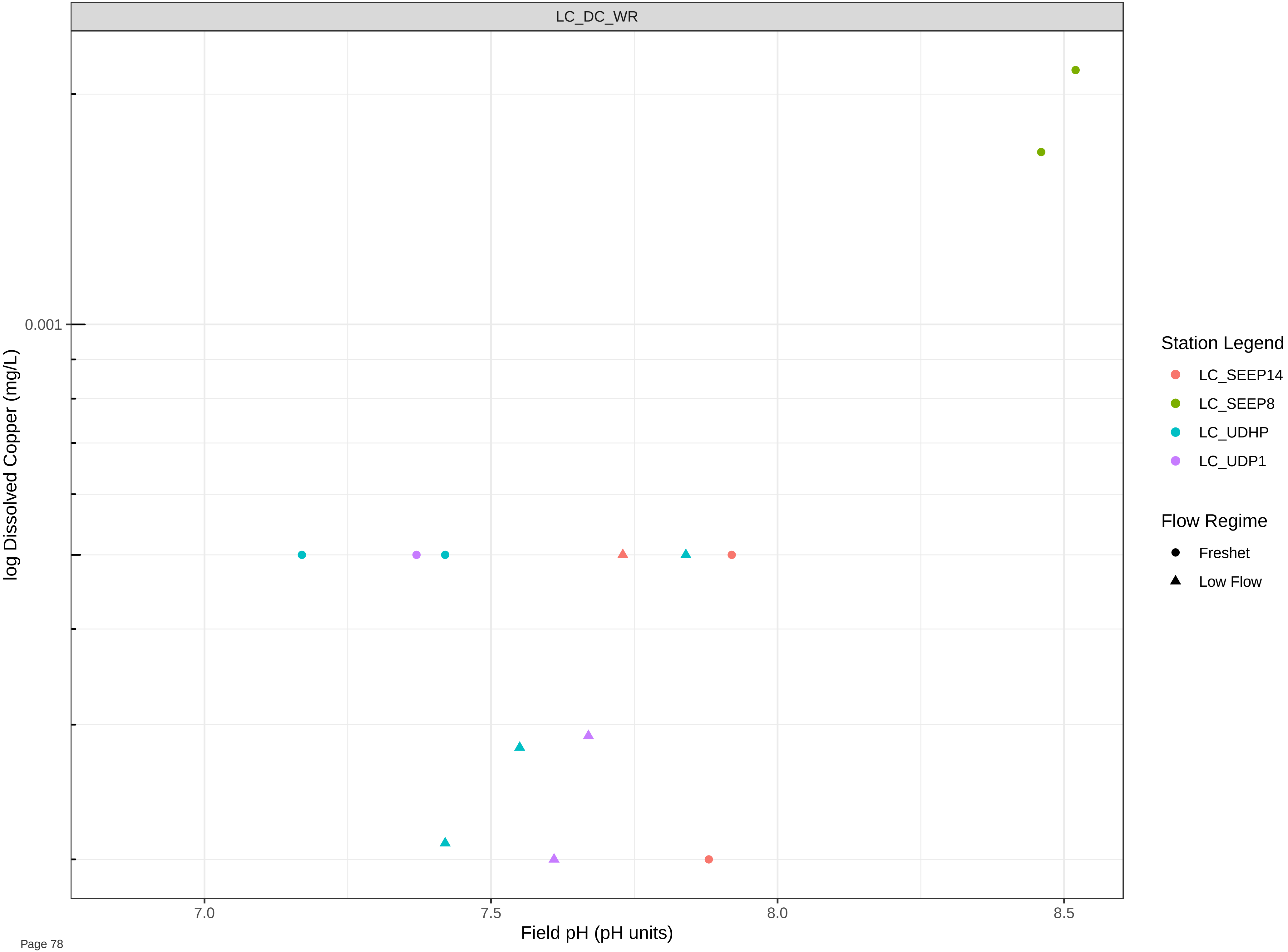
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet


LC_DC_WR
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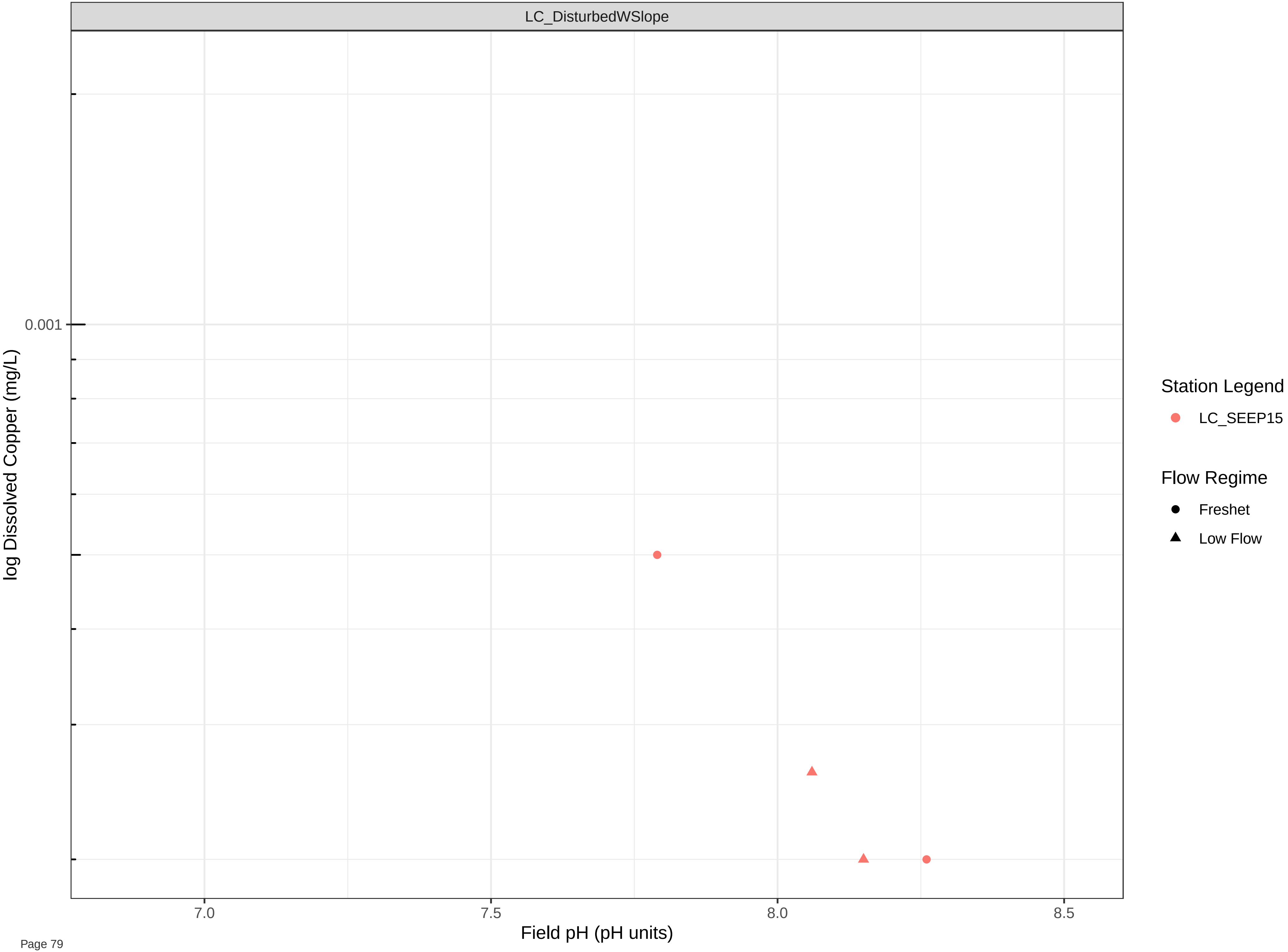
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
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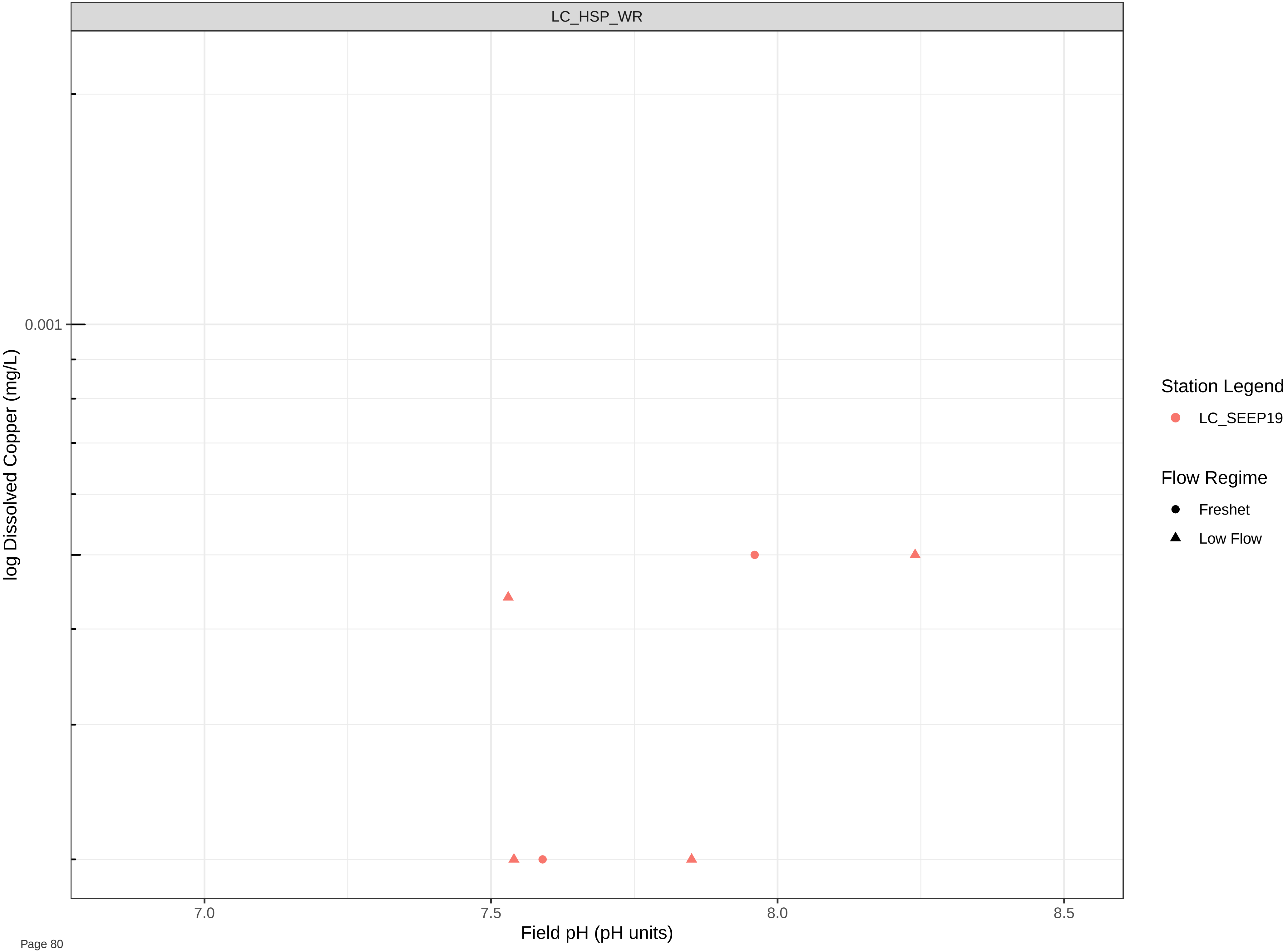
Field pH (pH units)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow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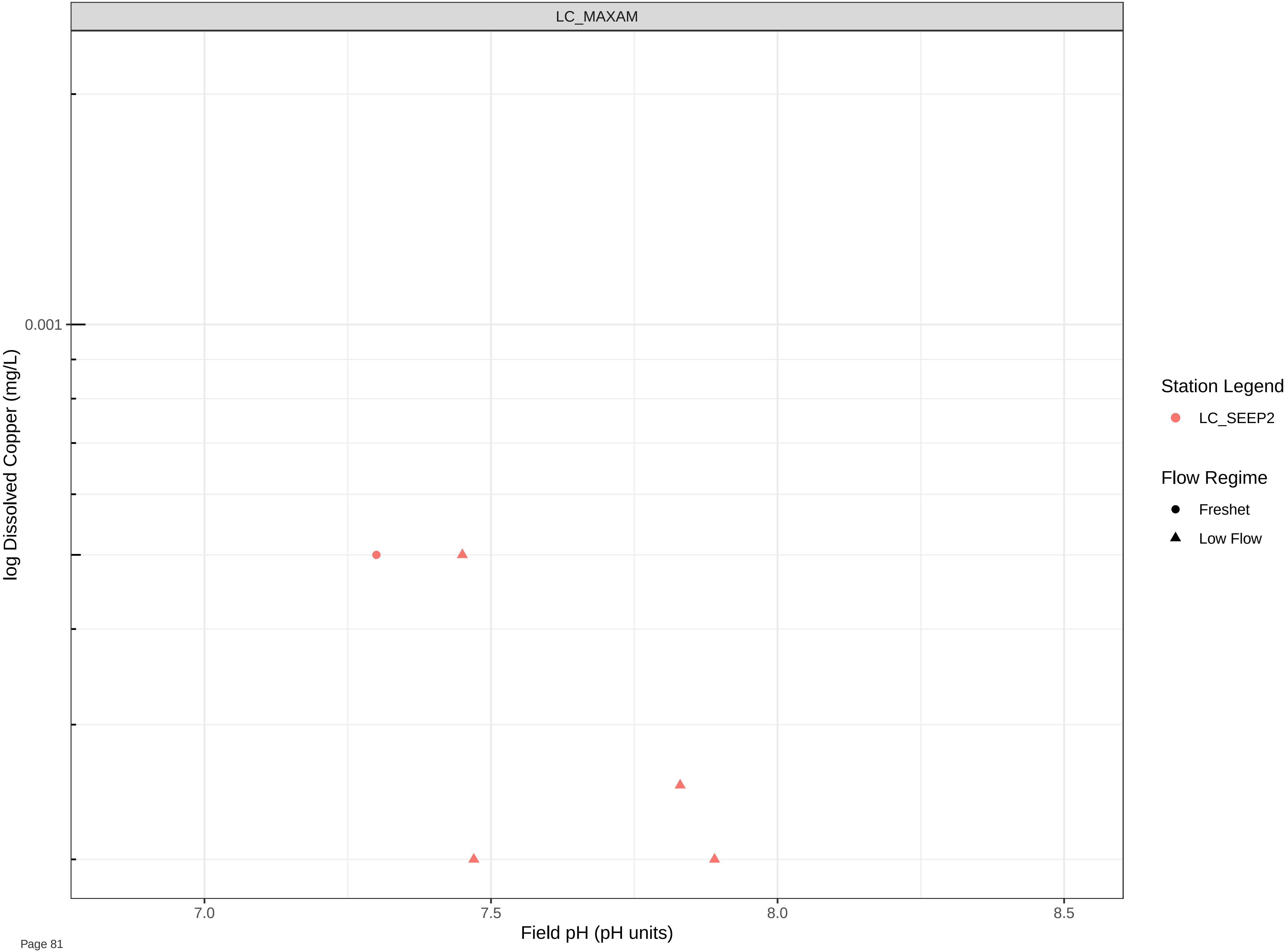
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow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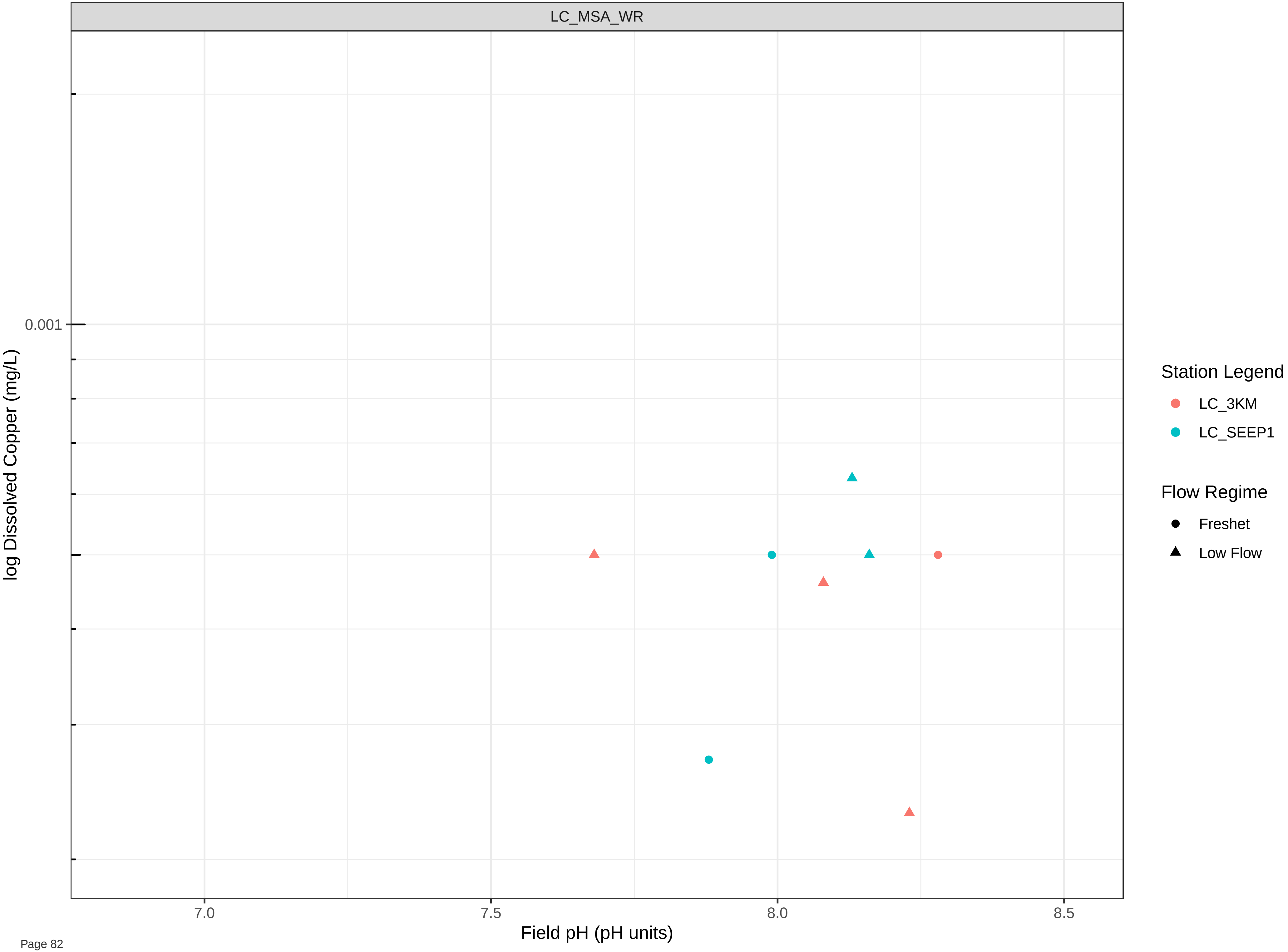
8.5
Field pH (pH units)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow


LC_MSA_WR
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Field pH (pH units)
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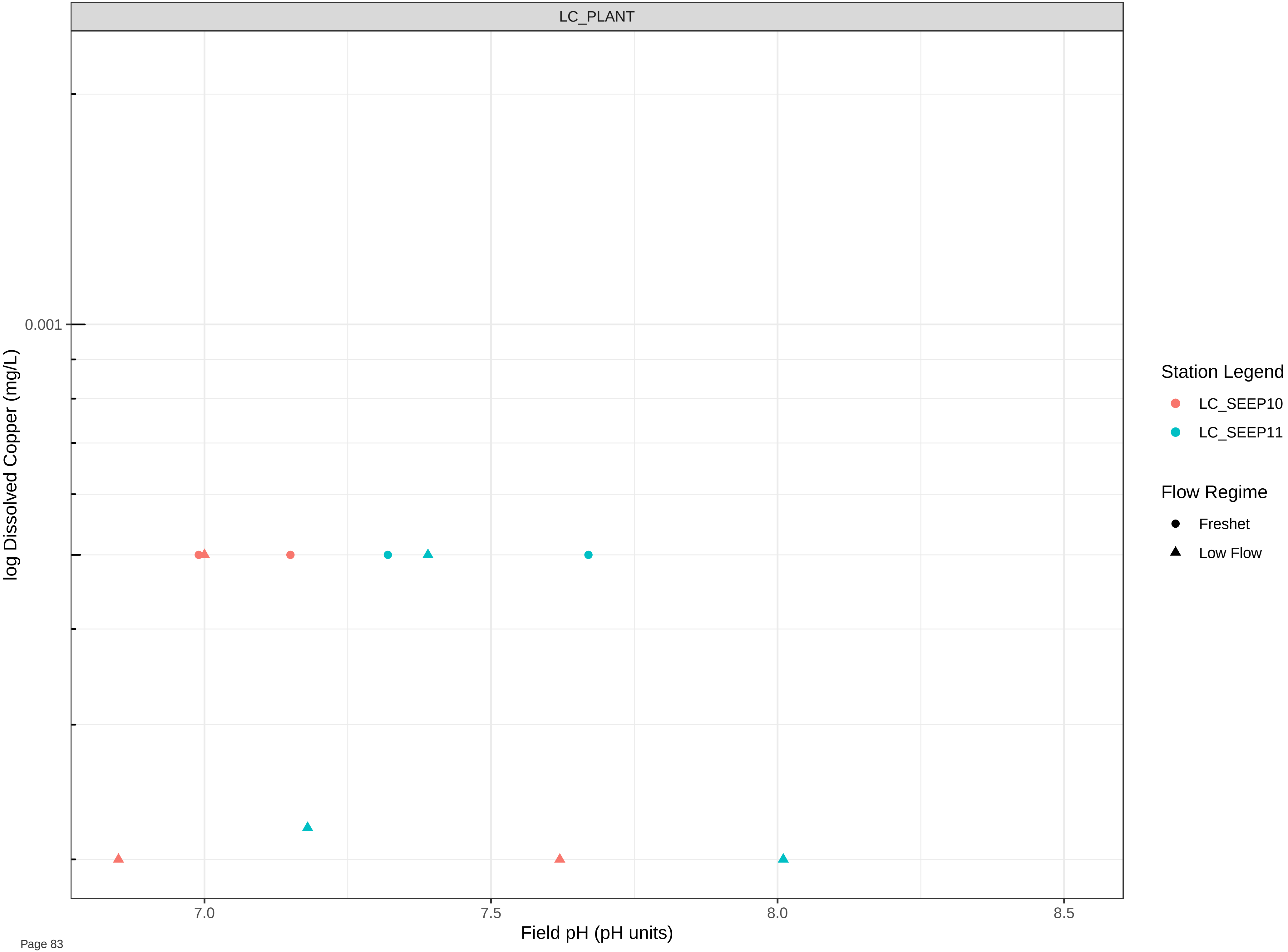
8.5
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow


LC_PLANT
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log Dissolved Copper (mg/L)
7.0
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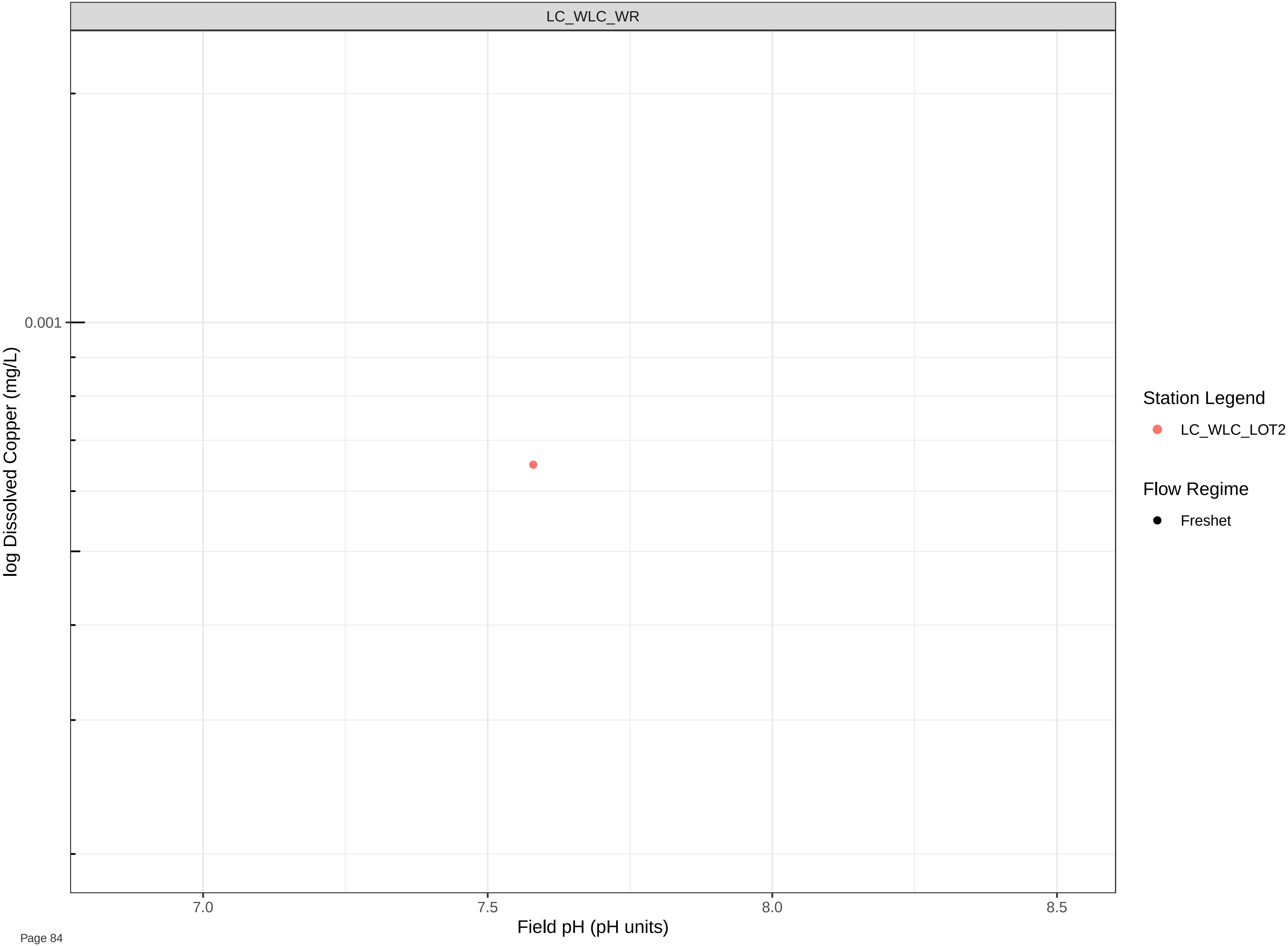
8.5
Field pH (pH units)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow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log Dissolved Copper (mg/L)
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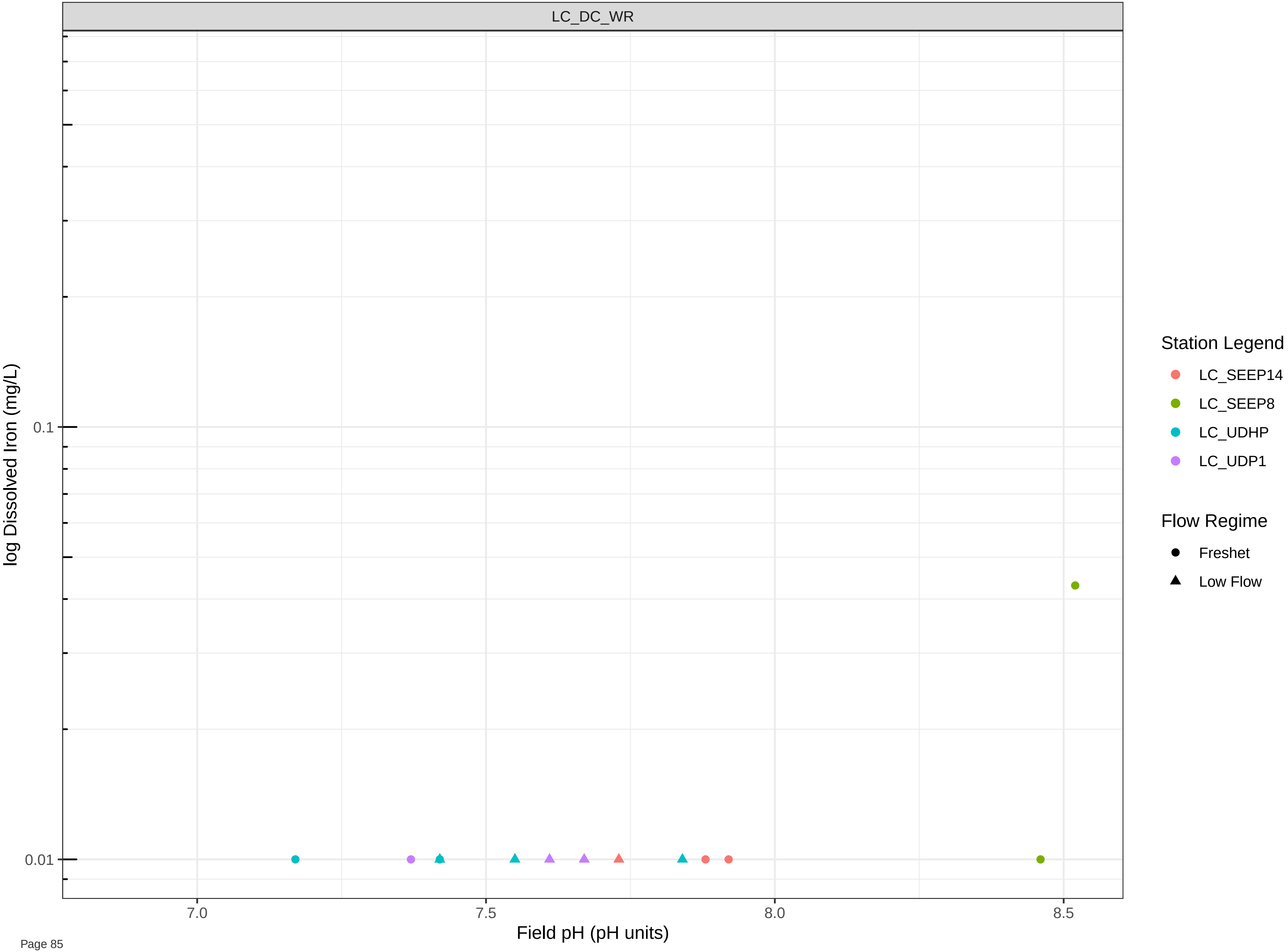
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet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7.0
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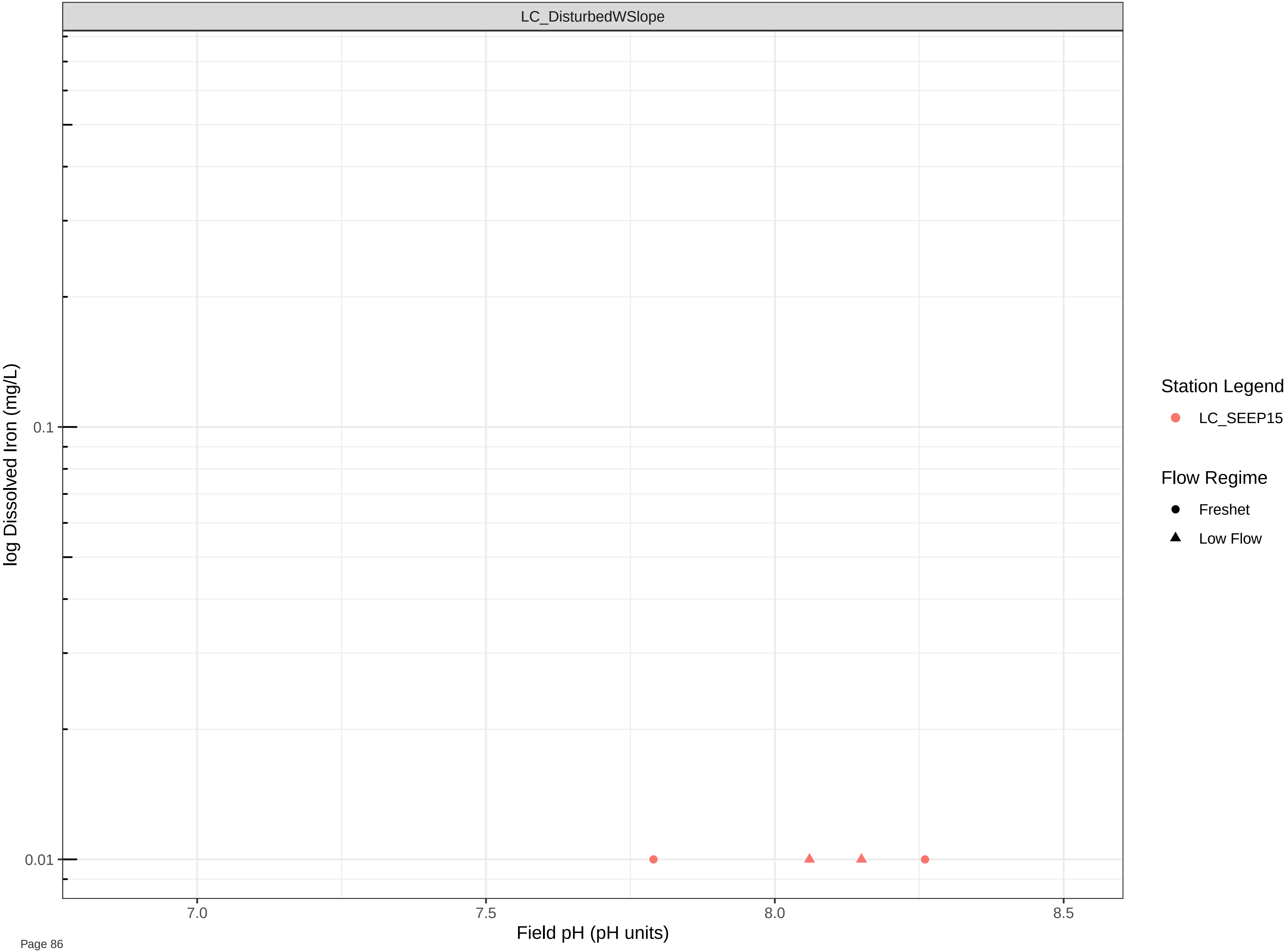
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
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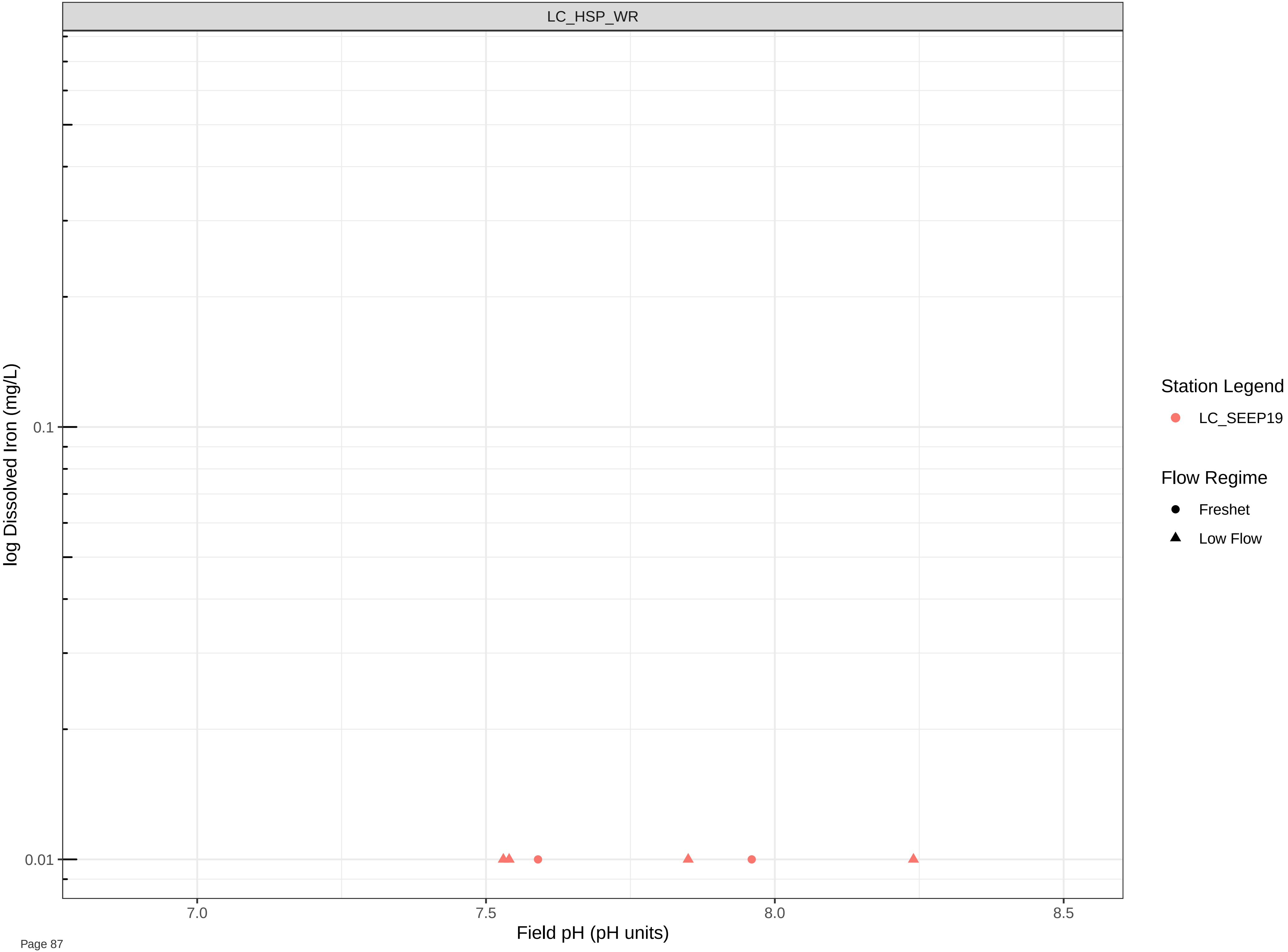
8.5
Field pH (pH units)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow


LC_HSP_WR
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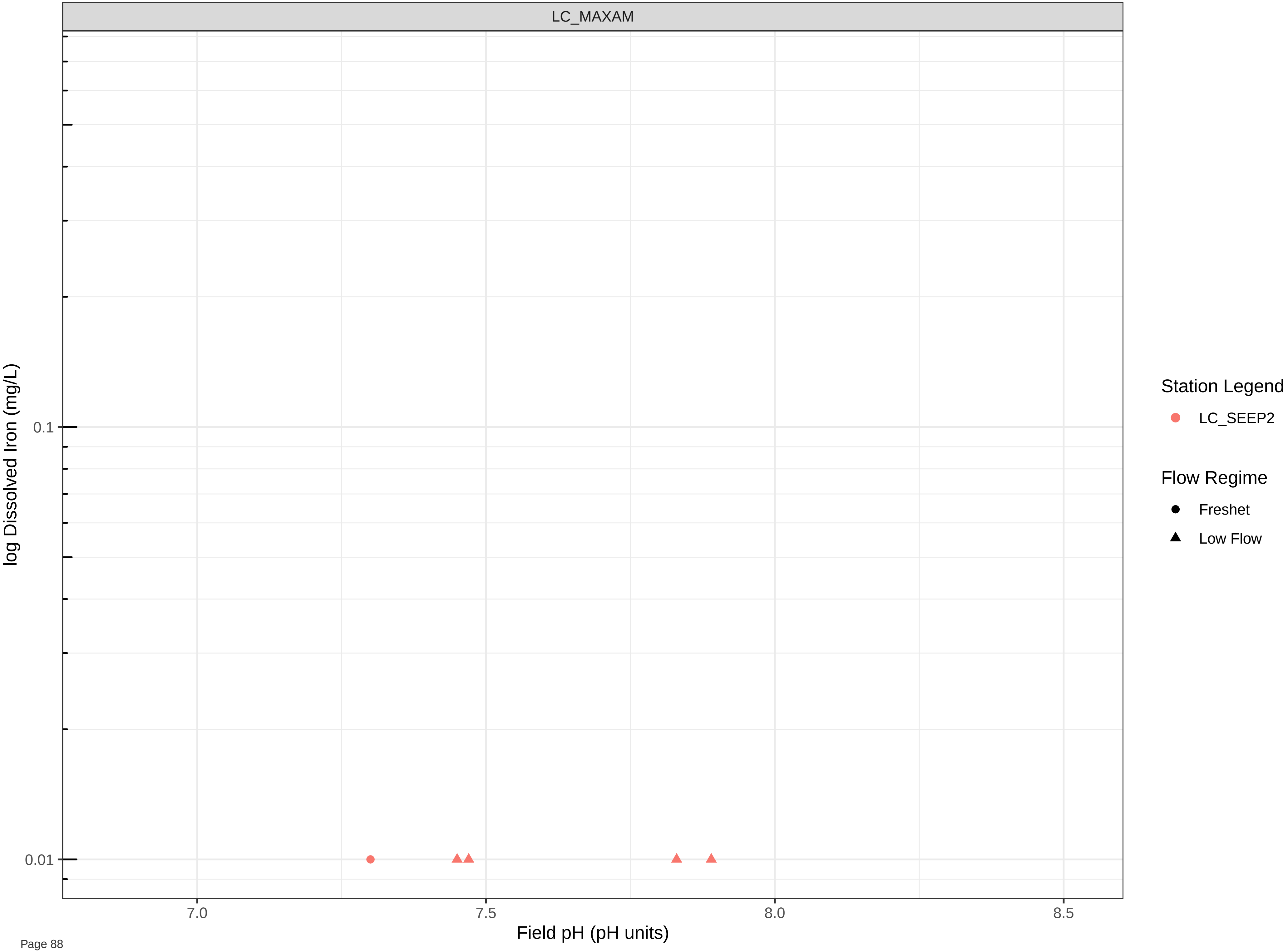
8.5
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow


LC_MAXAM
log Dissolved Iron (mg/L)
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0.01
7.0
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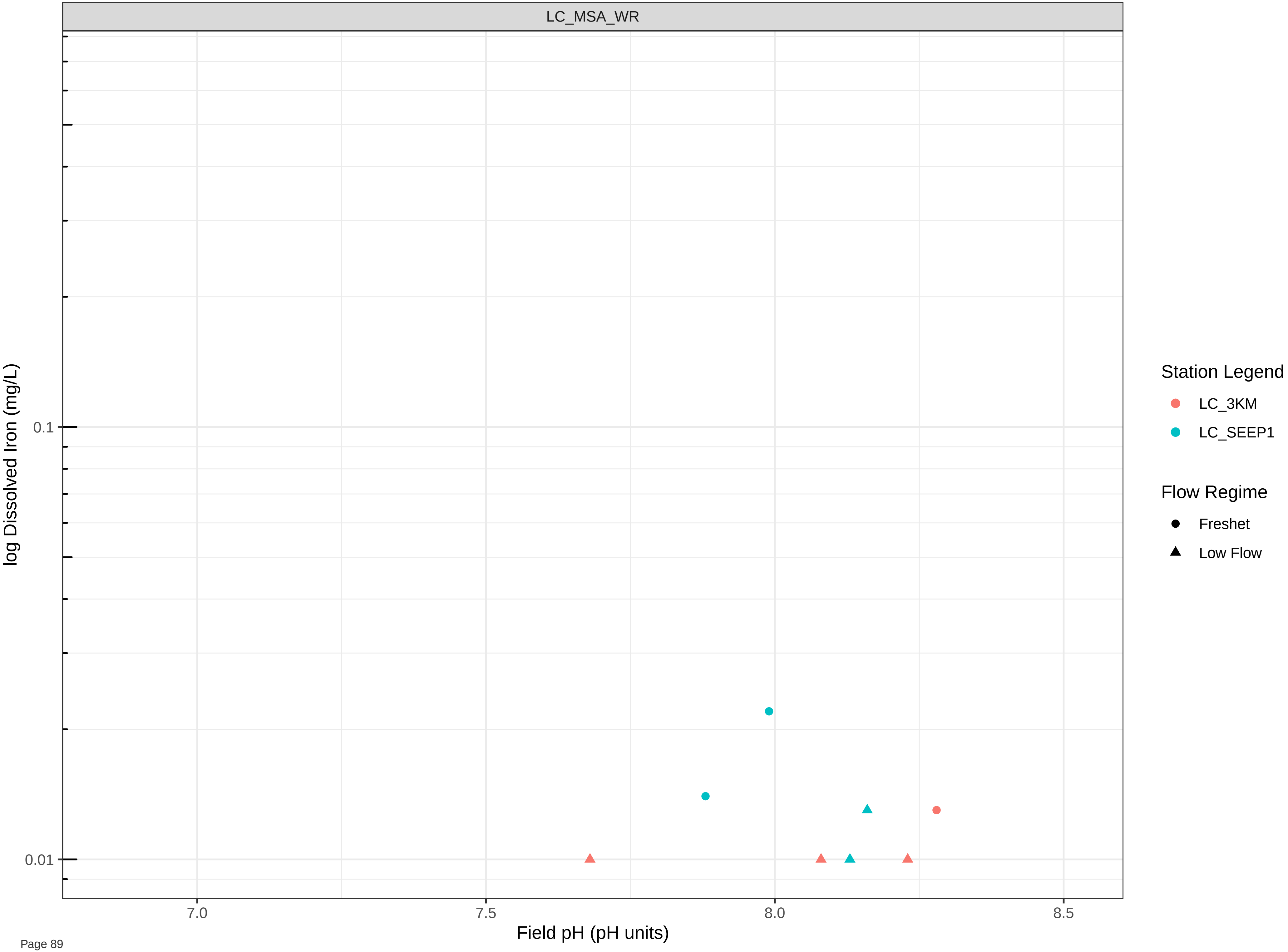
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow


LC_MSA_WR
log Dissolved Iron (mg/L)
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0.01
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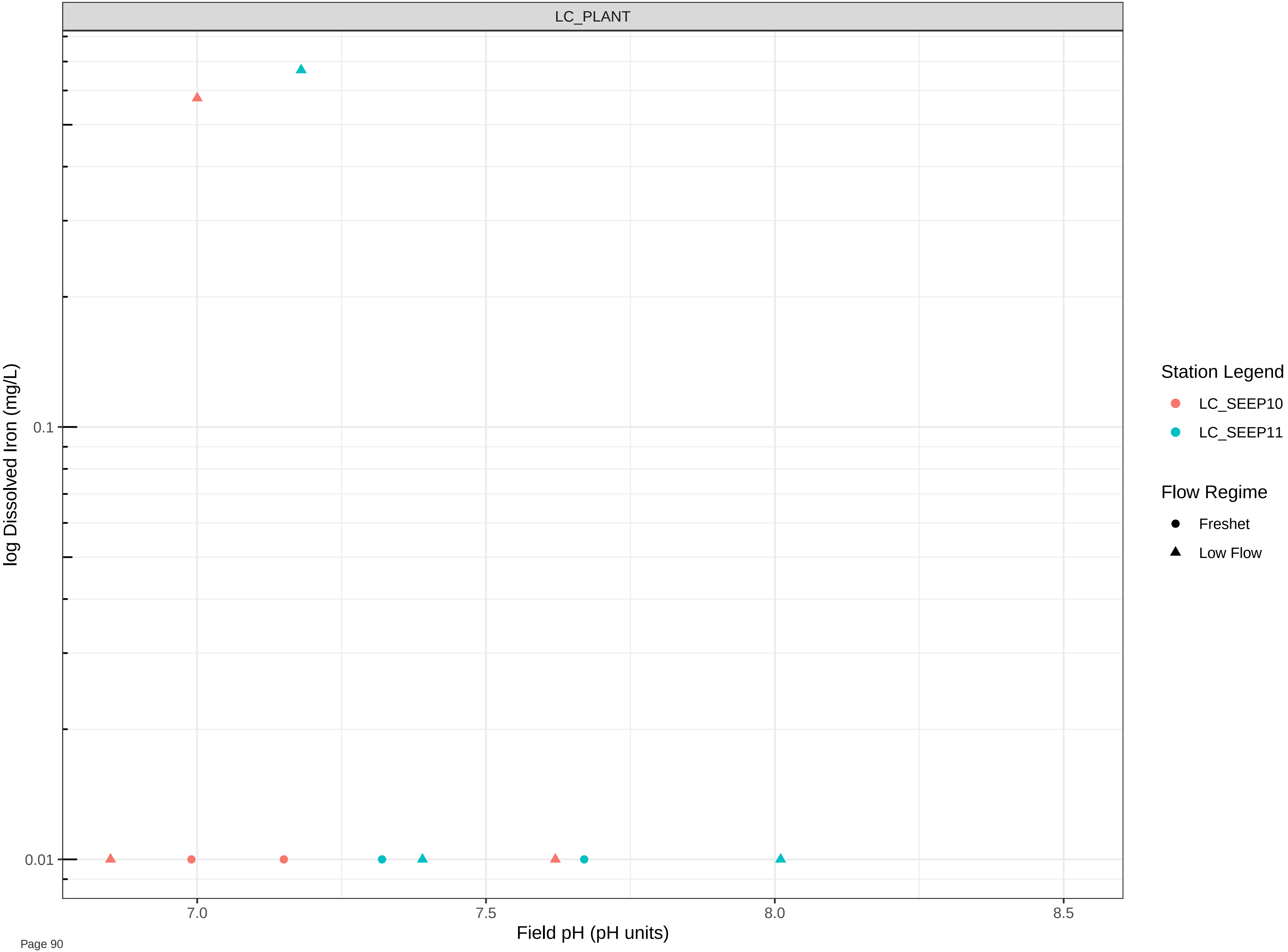
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow


LC_PLANT
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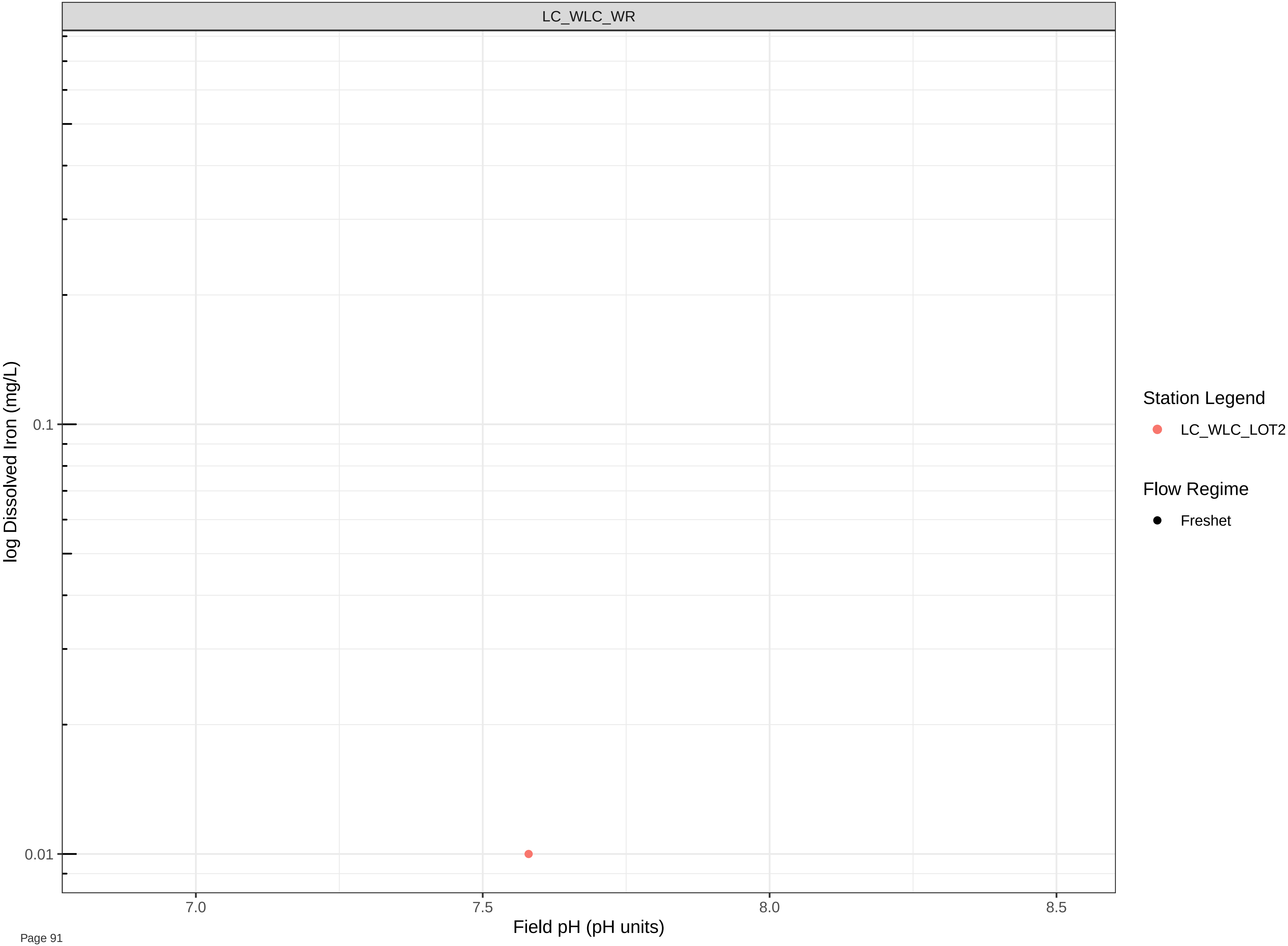
8.5
Field pH (pH units)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow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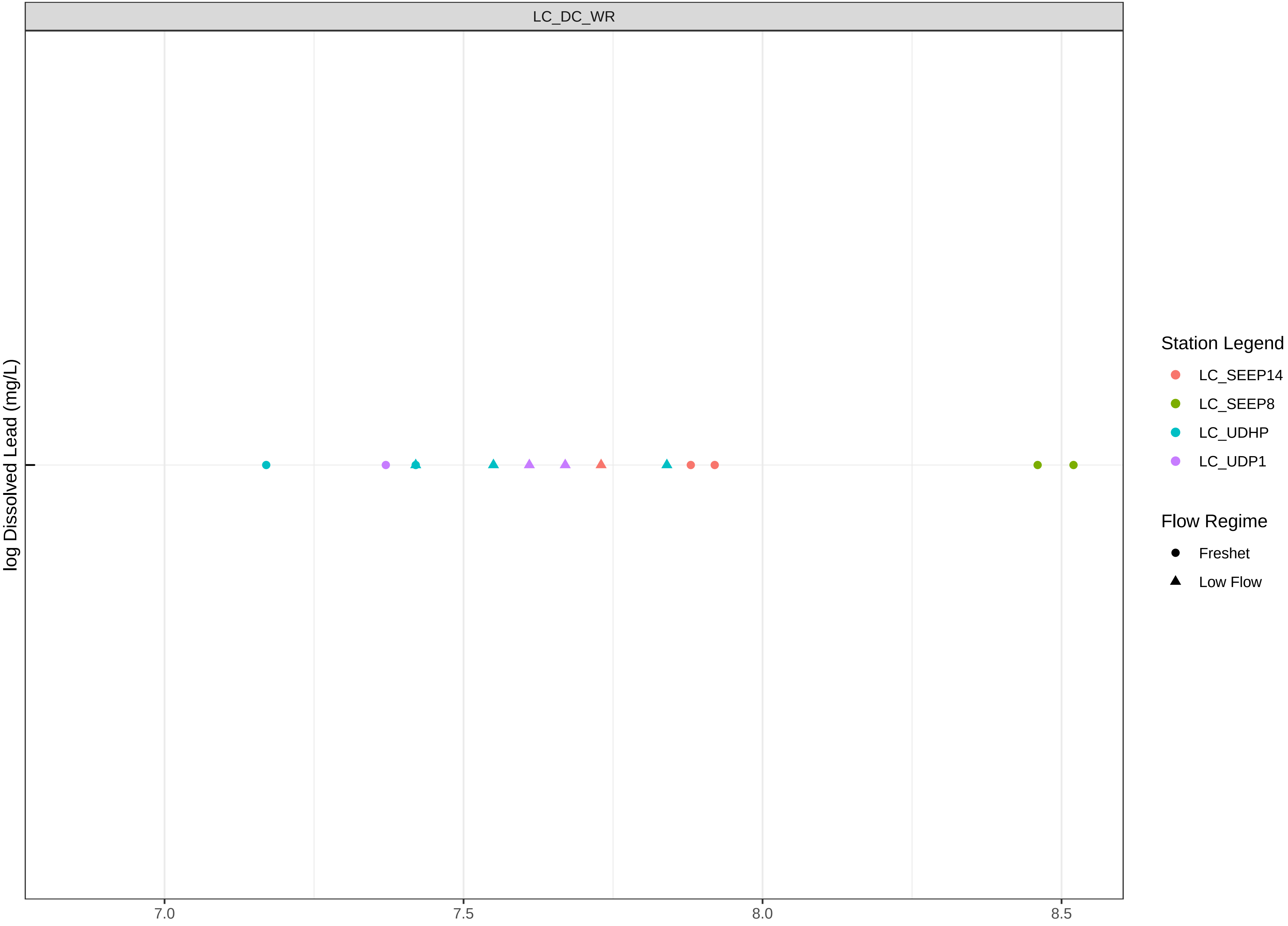
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet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log Dissolved Lead (mg/L)
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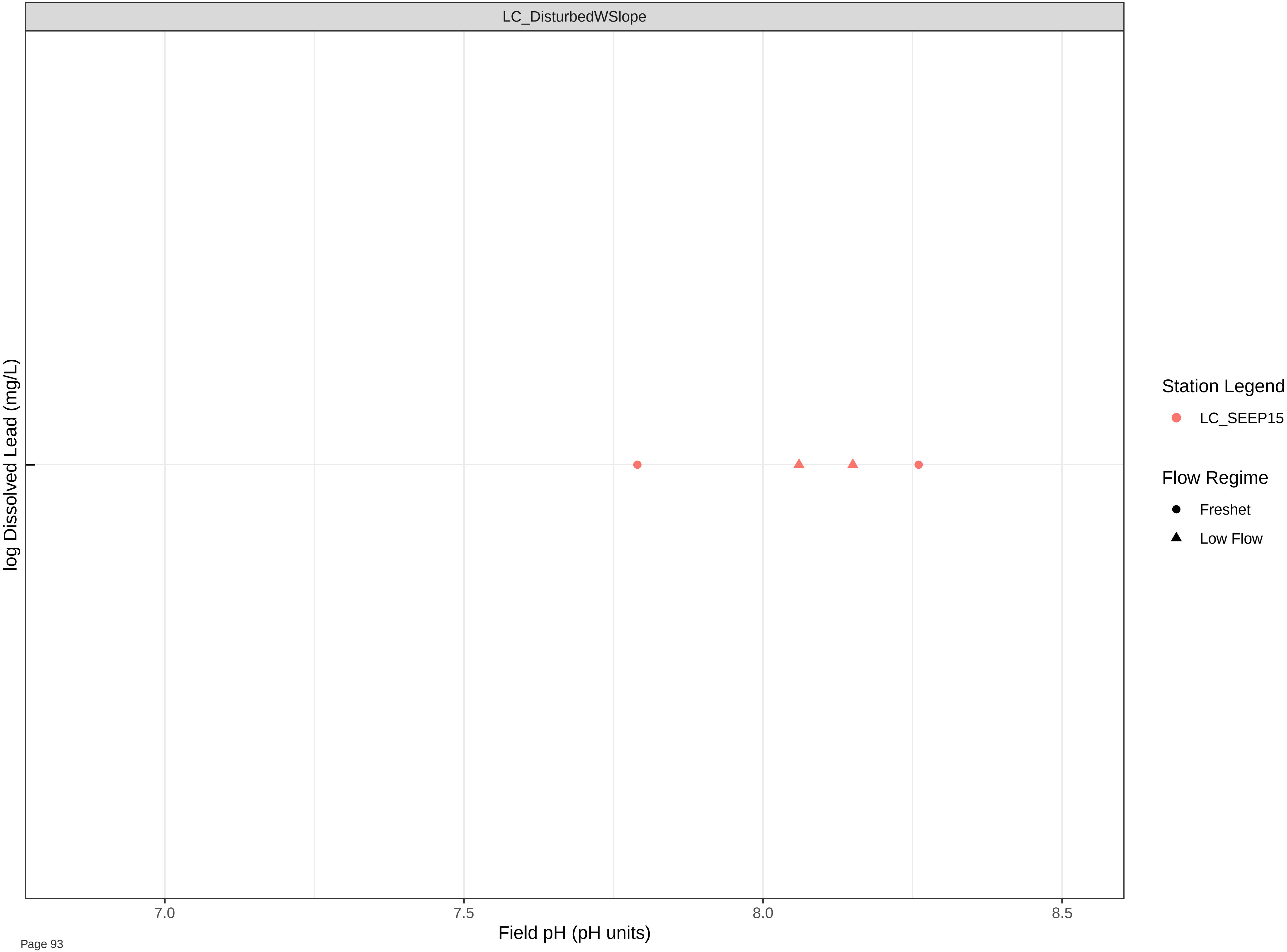
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
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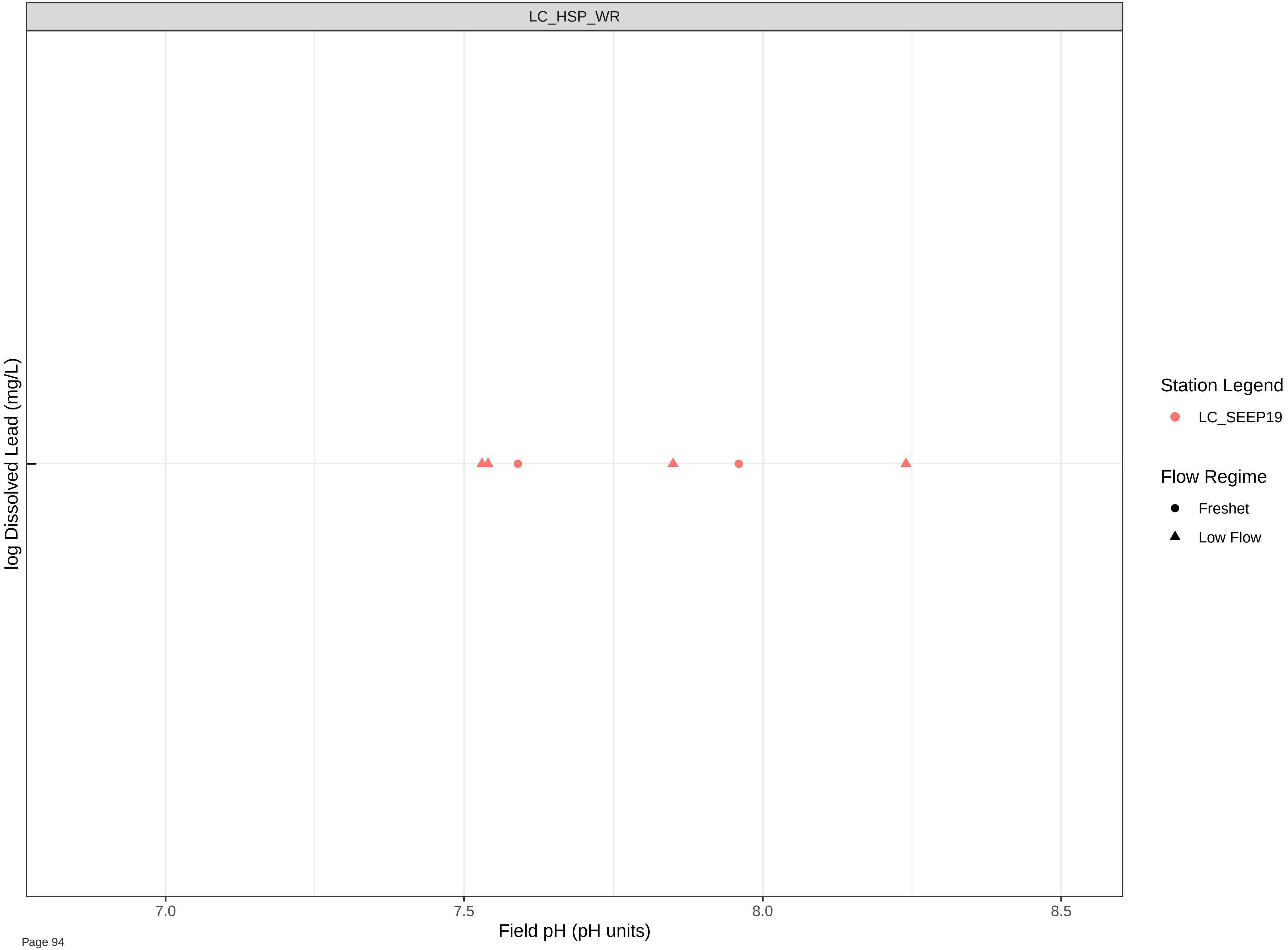
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow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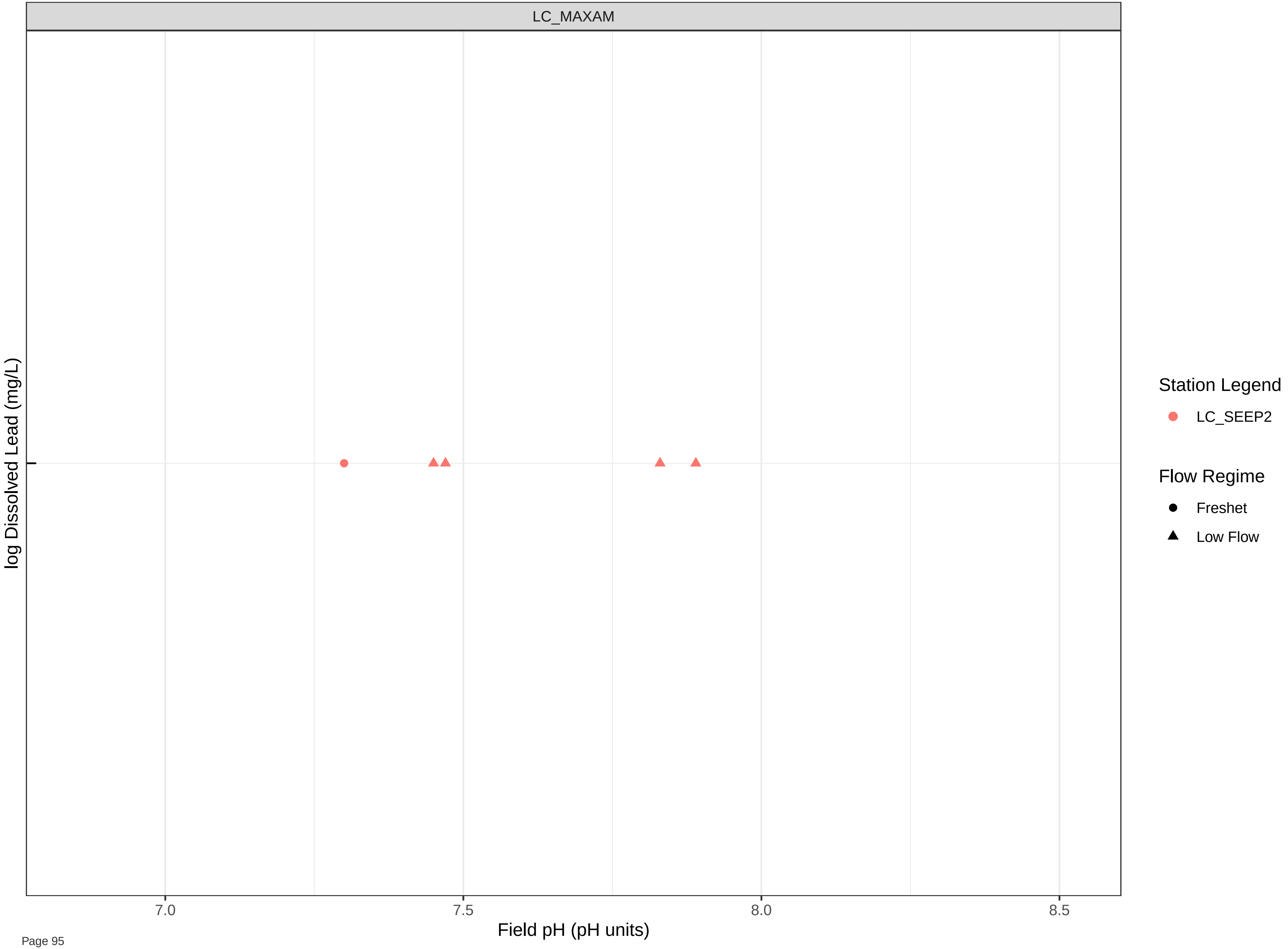
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow


LC_MAXAM
log Dissolved Lead (mg/L)
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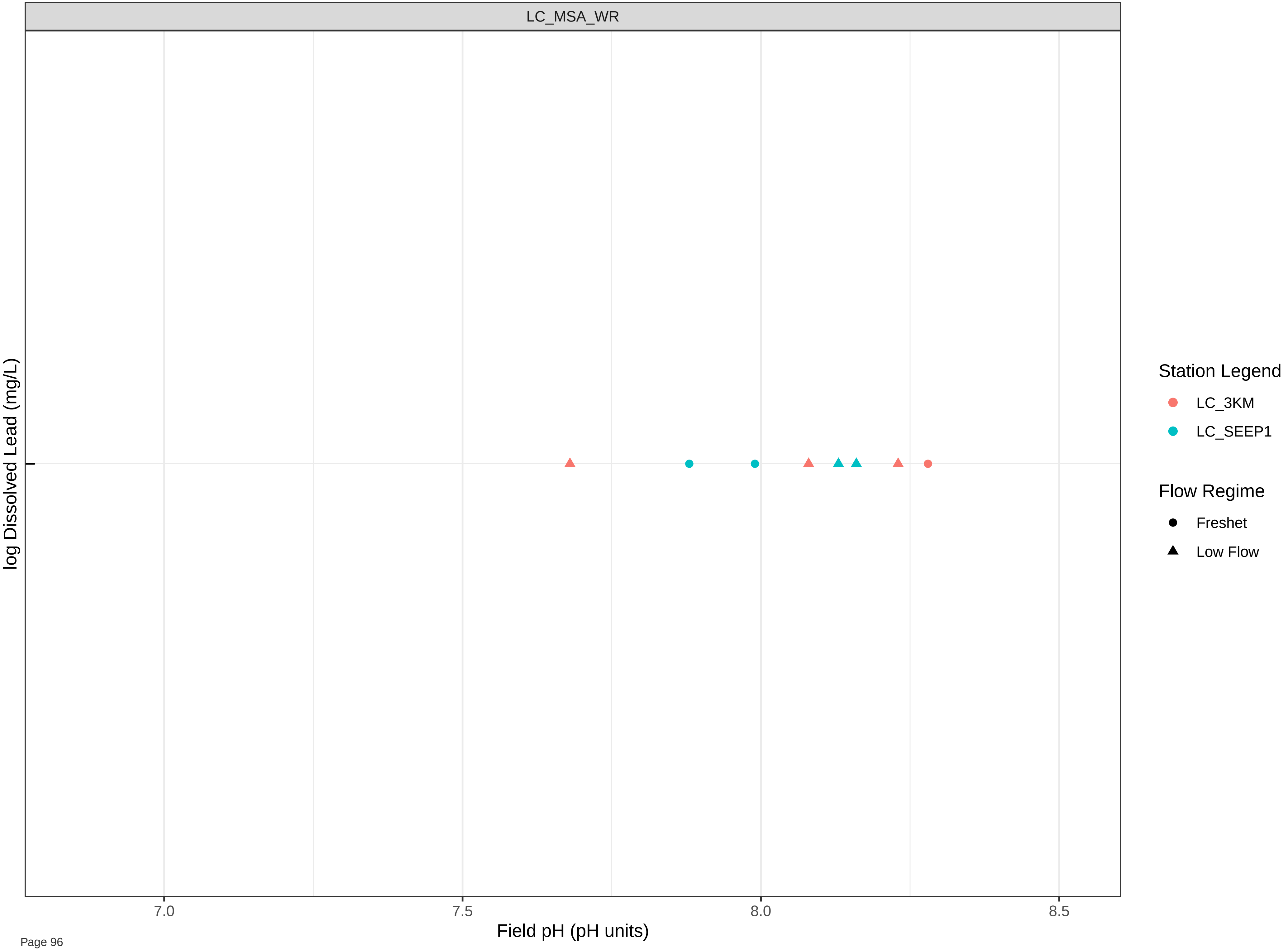
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow


LC_MSA_WR
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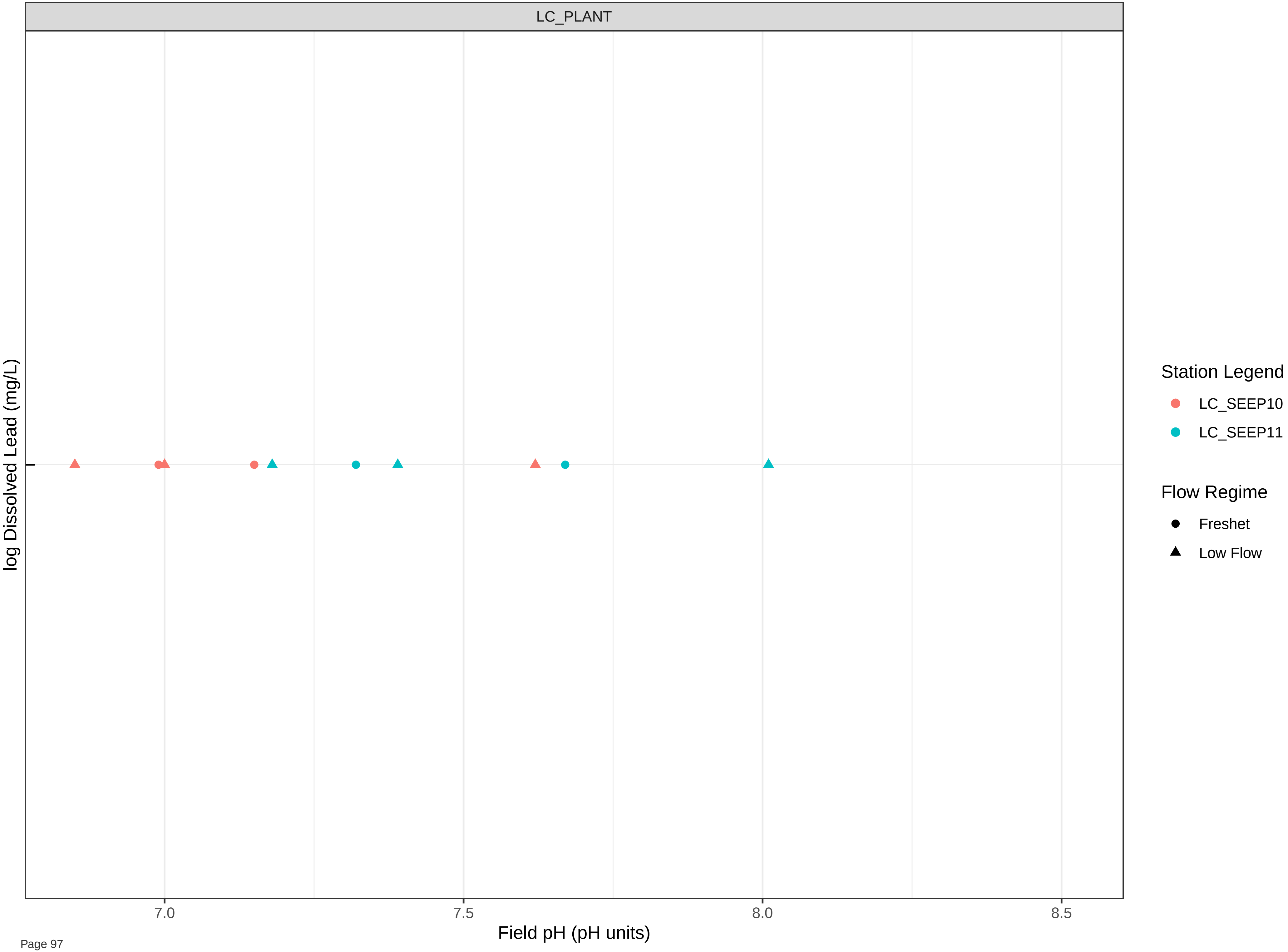
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow


LC_PLANT
log Dissolved Lead (mg/L)
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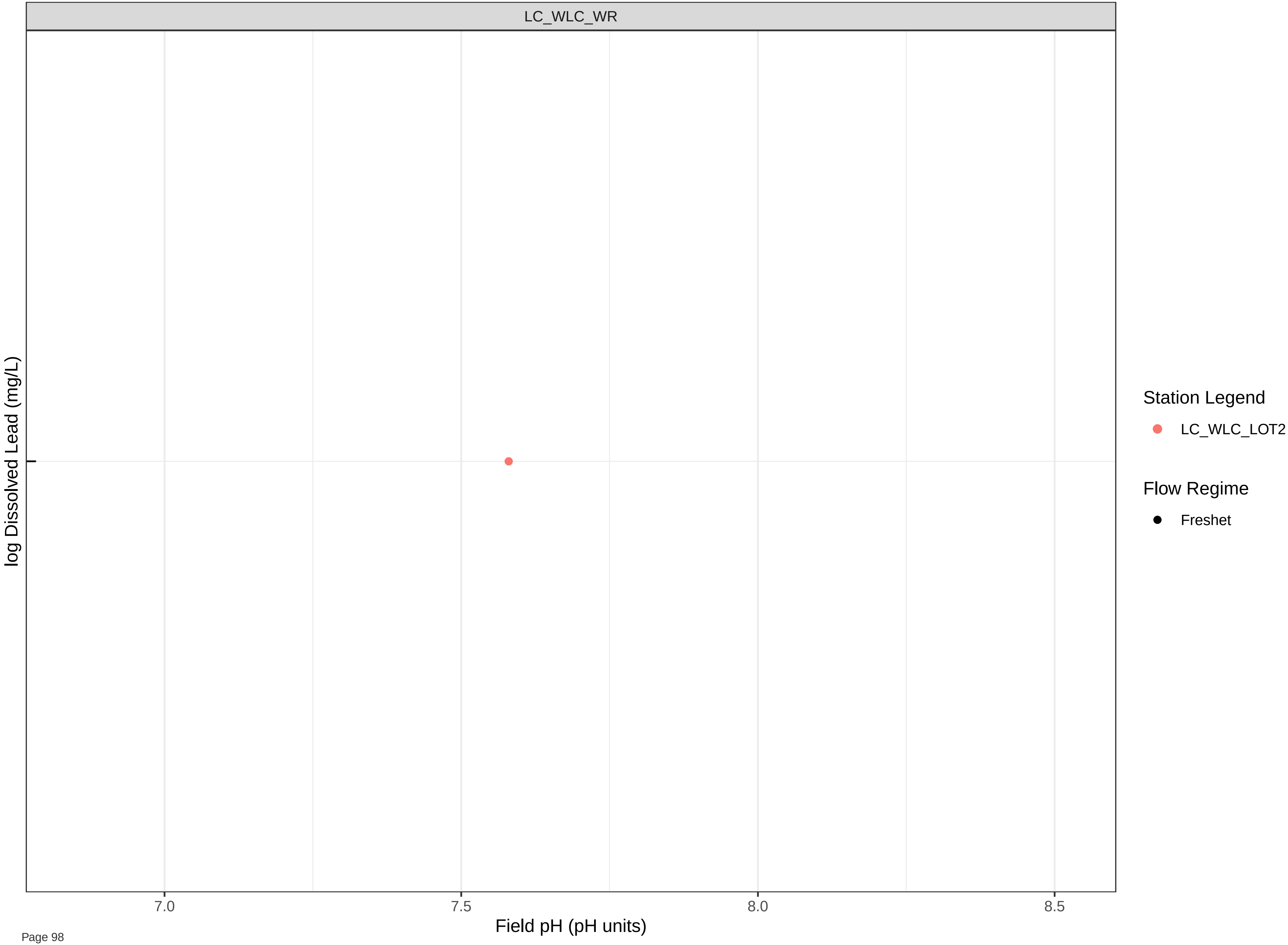
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow


LC_WLC_WR
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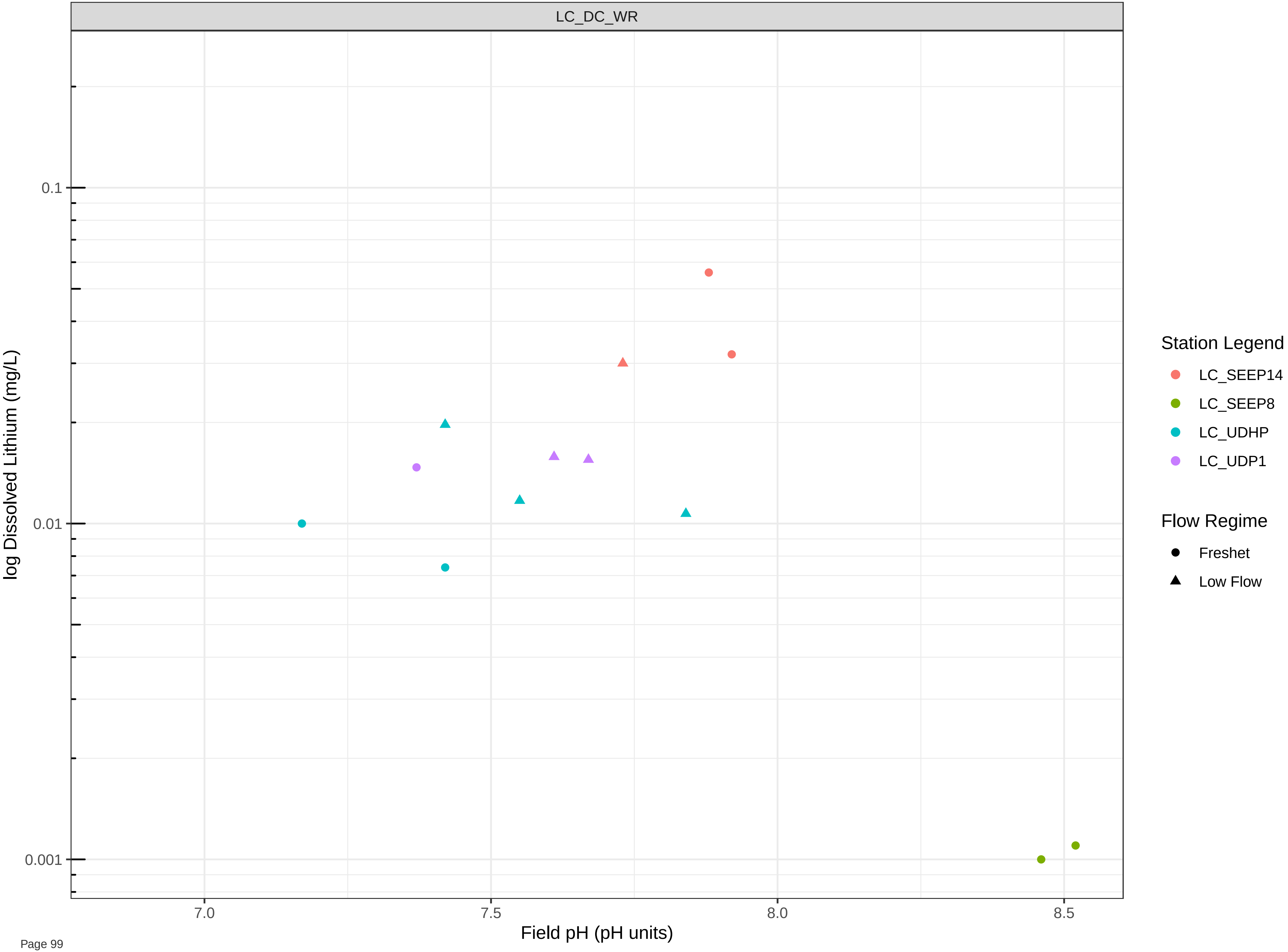
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet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0.01
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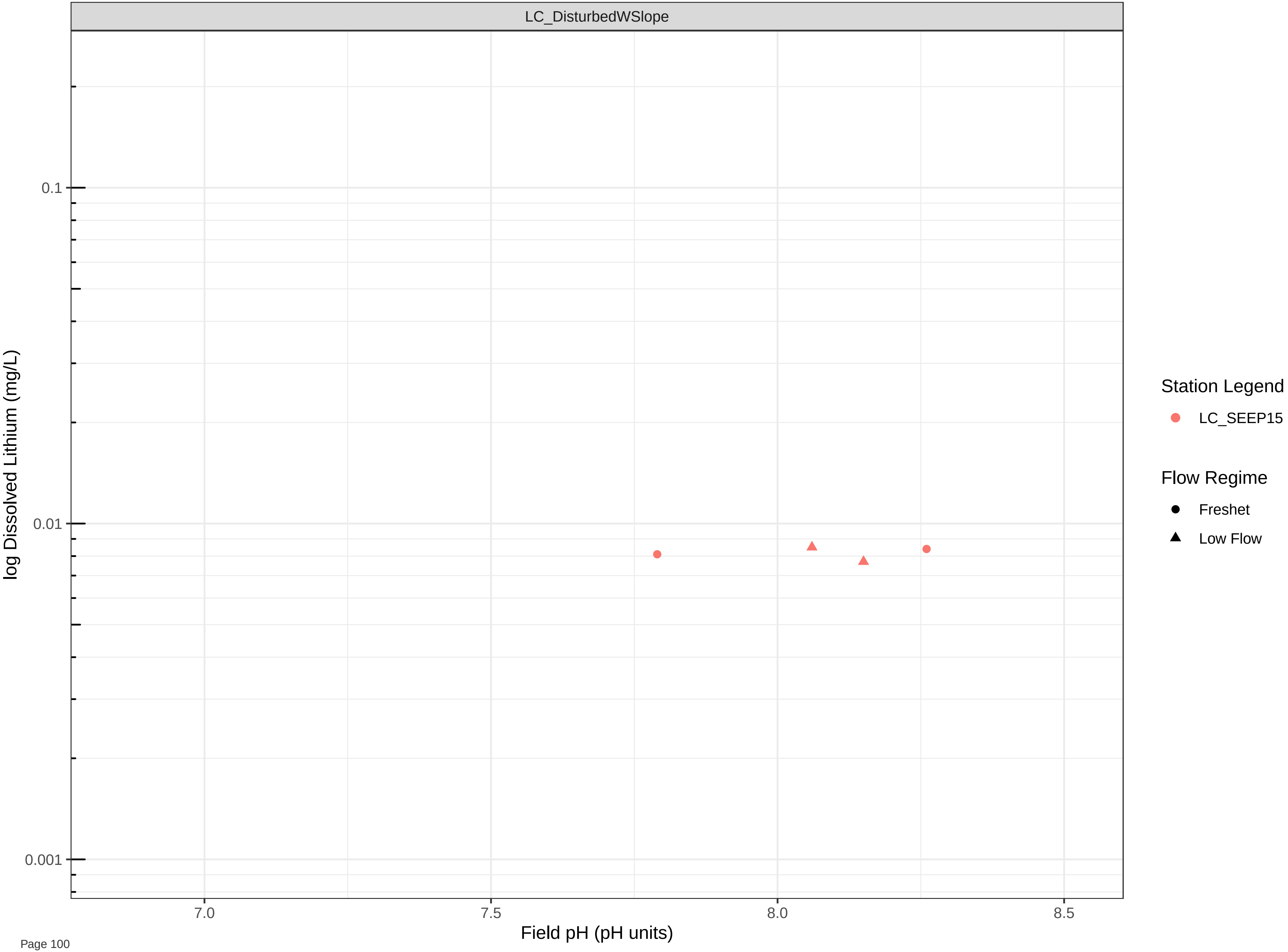
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
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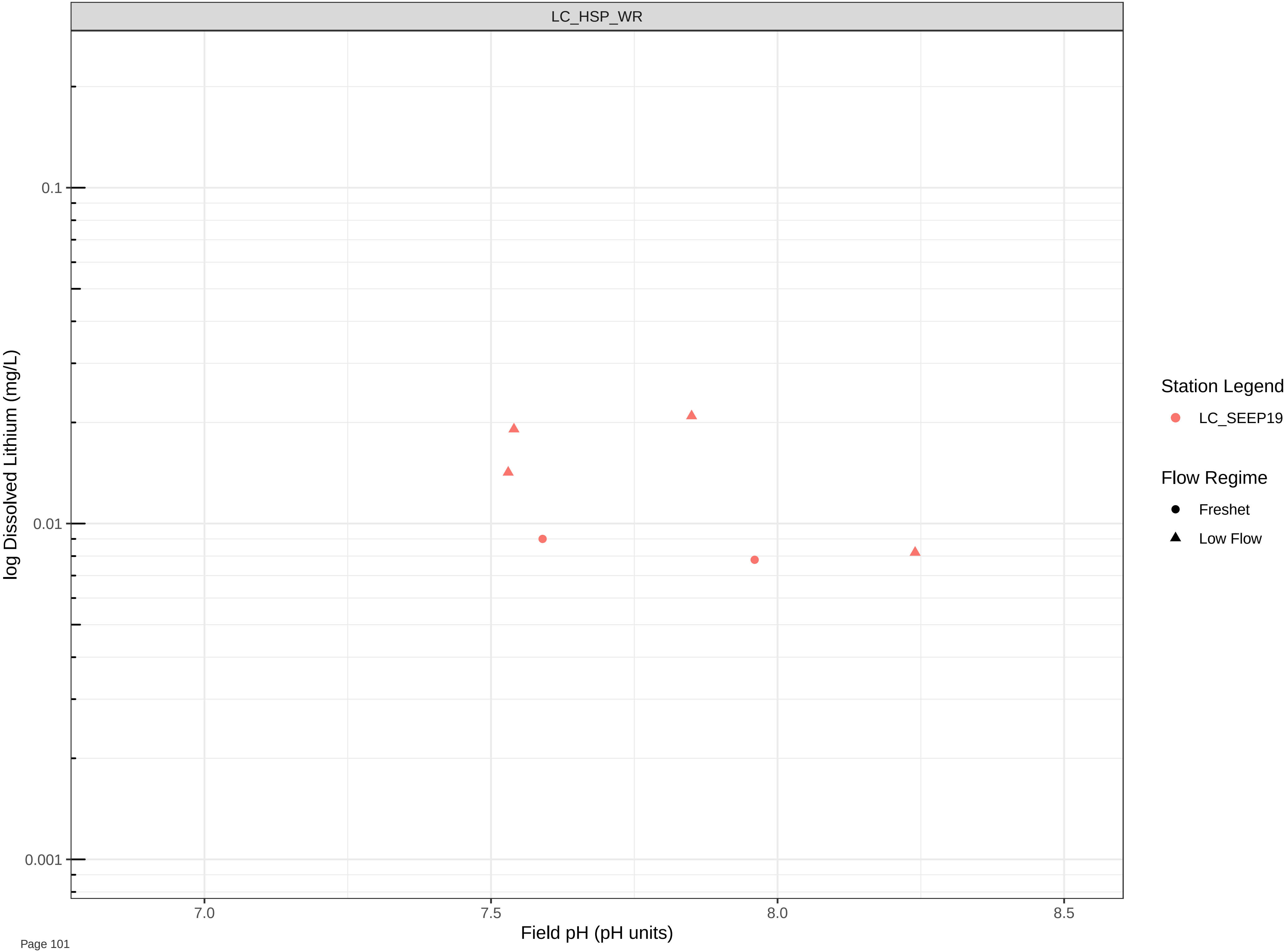
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow


LC_HSP_WR
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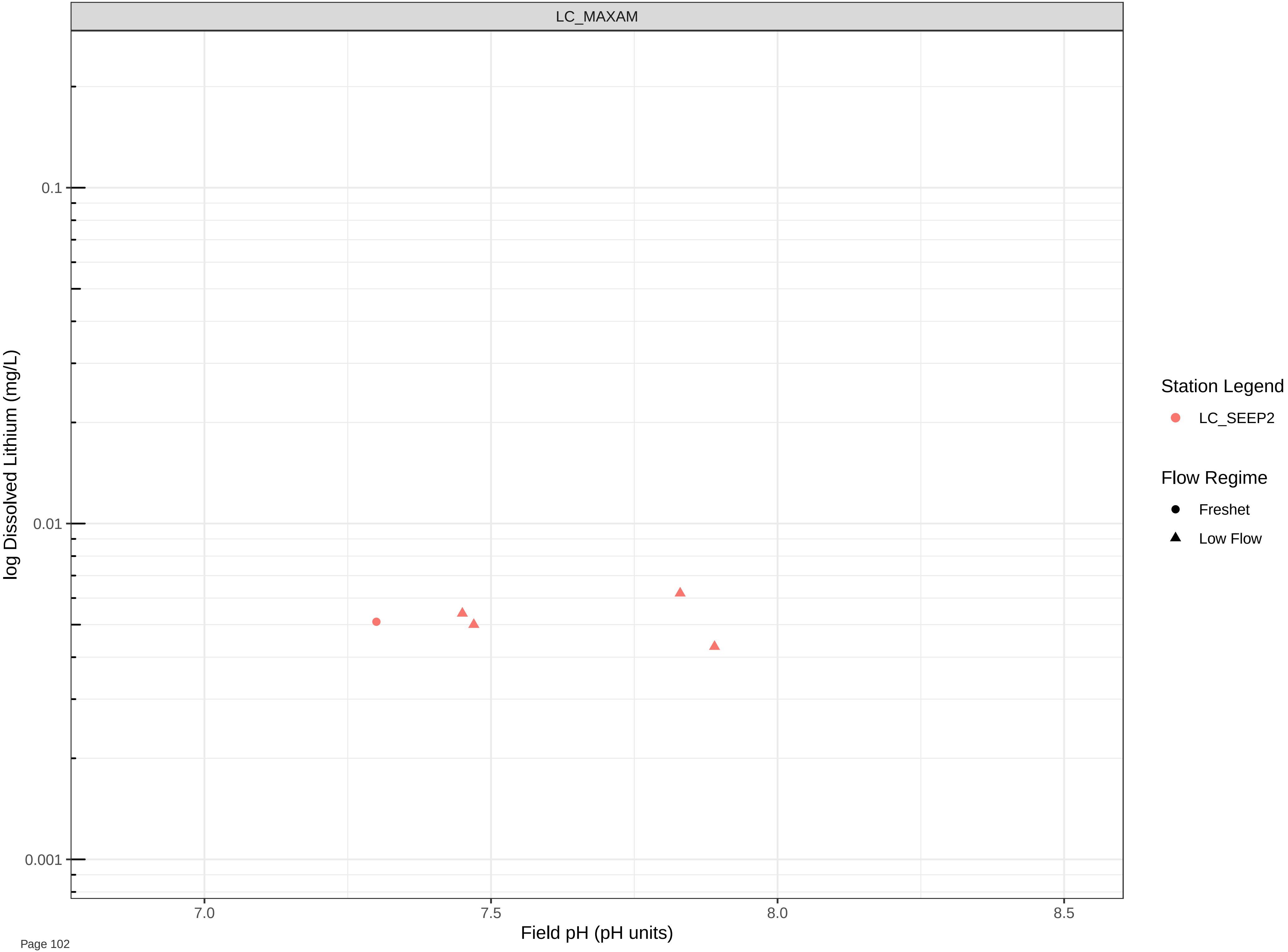
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow


LC_MAXAM
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0.001
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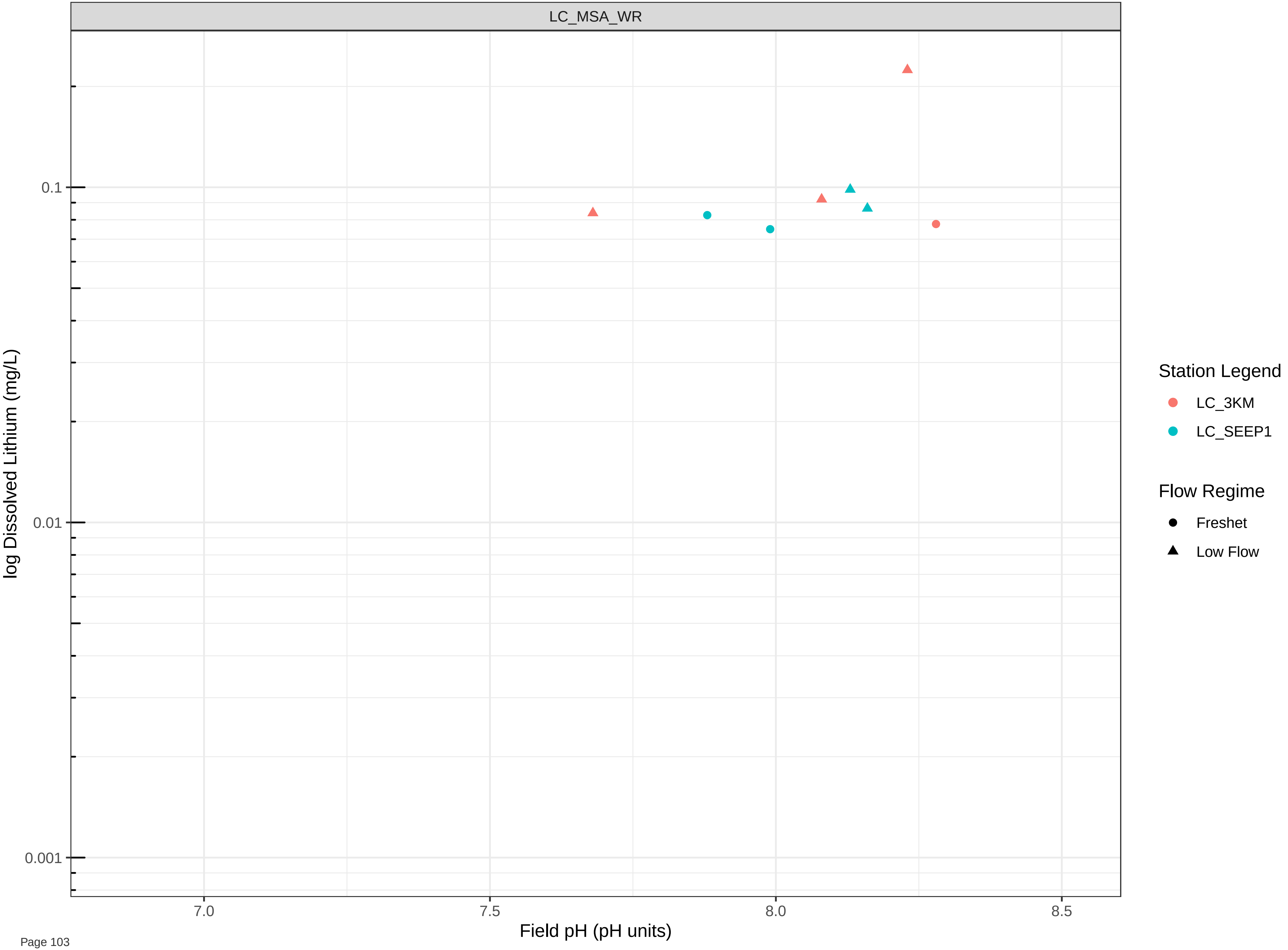
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow


LC_MSA_WR
log Dissolved Lithium (mg/L)
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0.01
0.001
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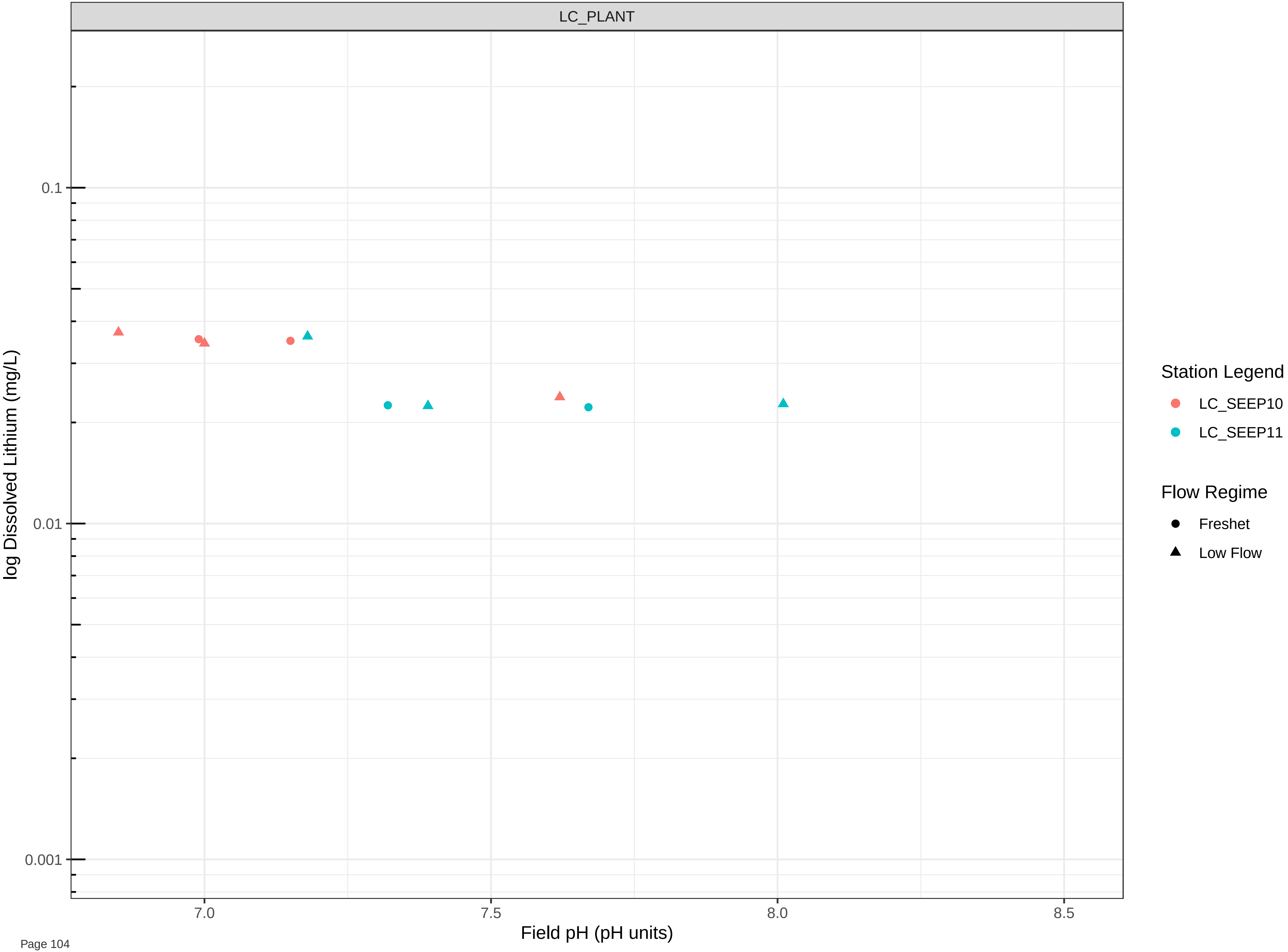
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow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0.01
0.001
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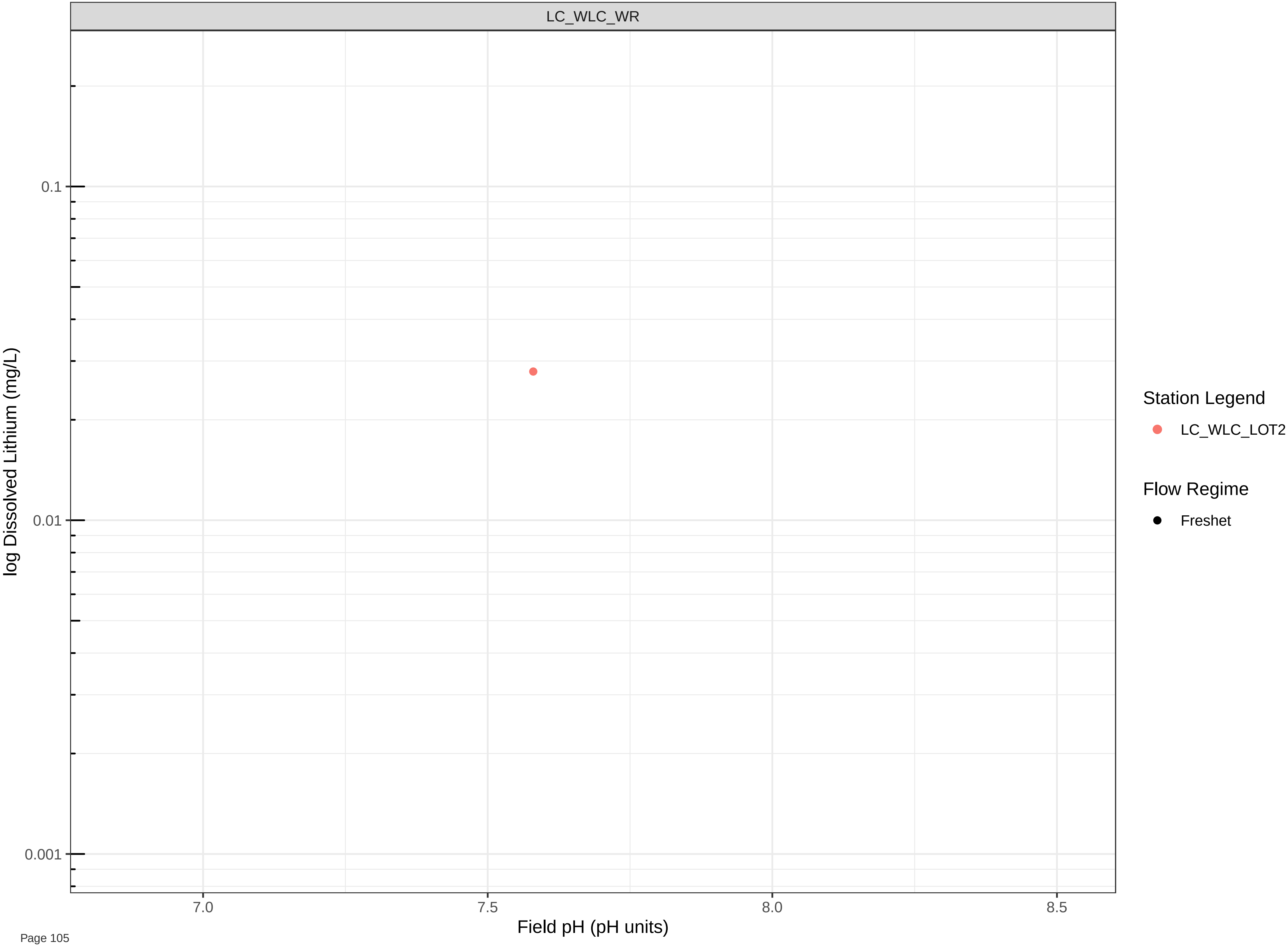
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow


LC_WLC_WR
log Dissolved Lithium (mg/L)
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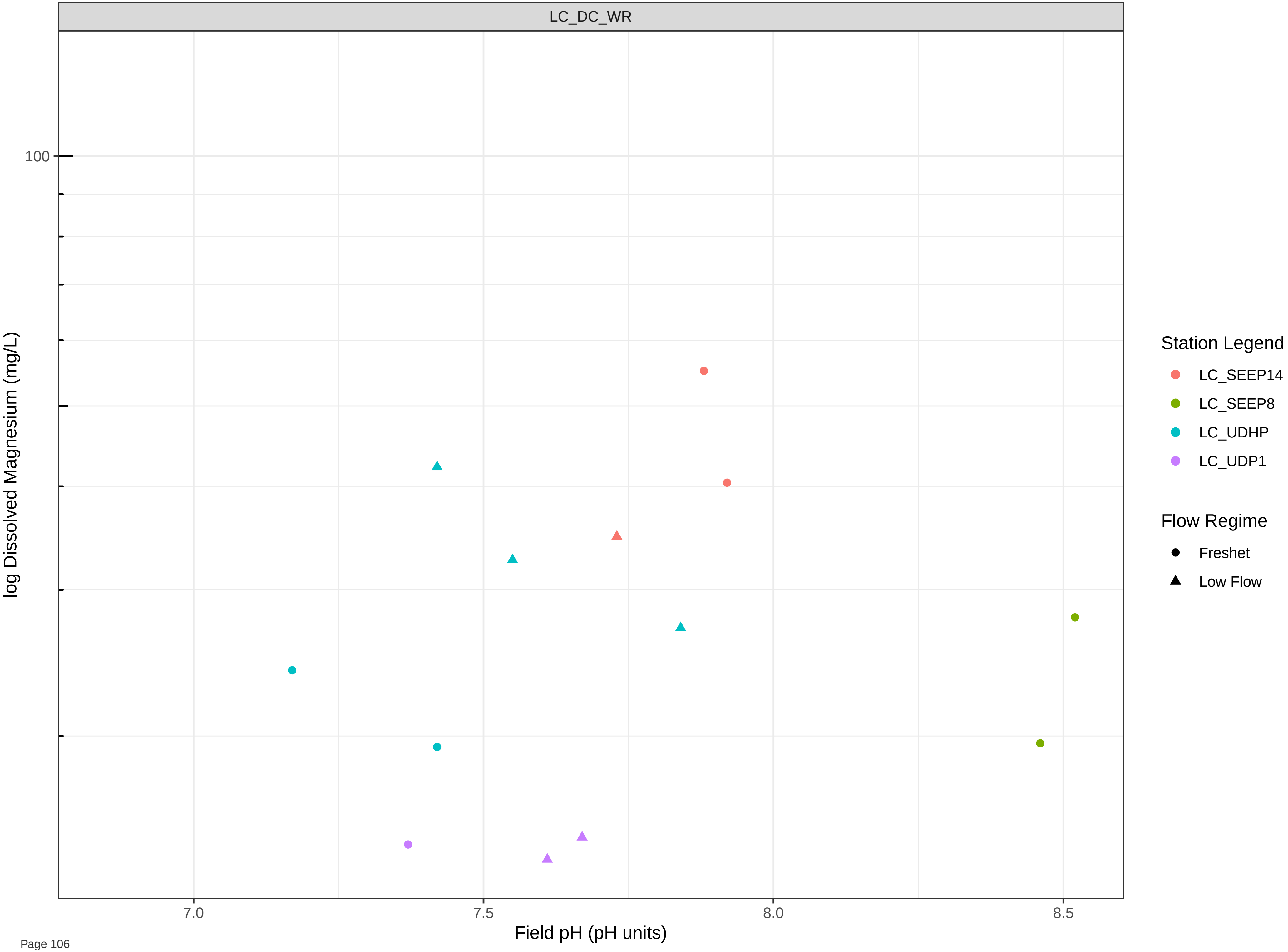
0.01
0.001
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet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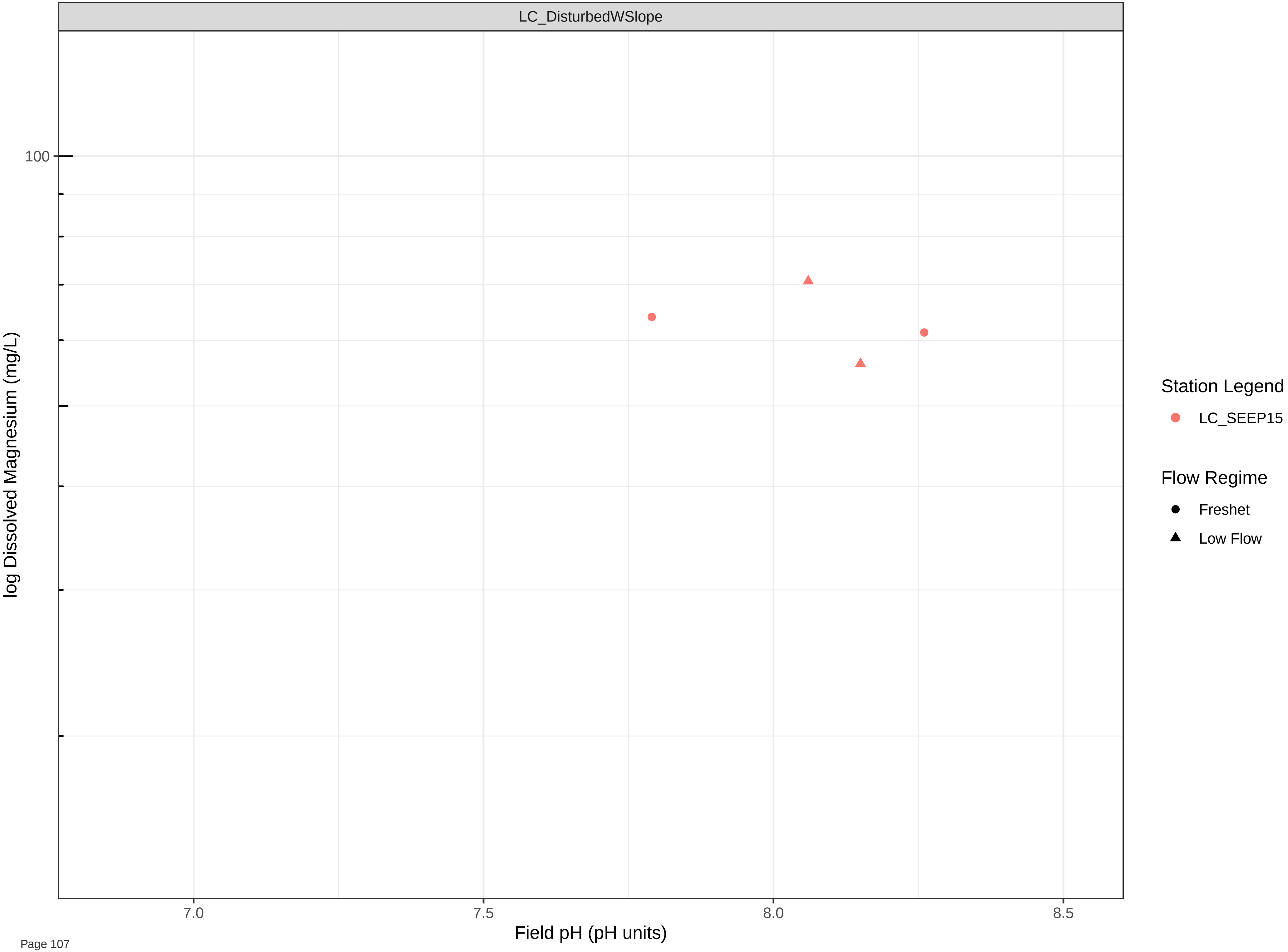
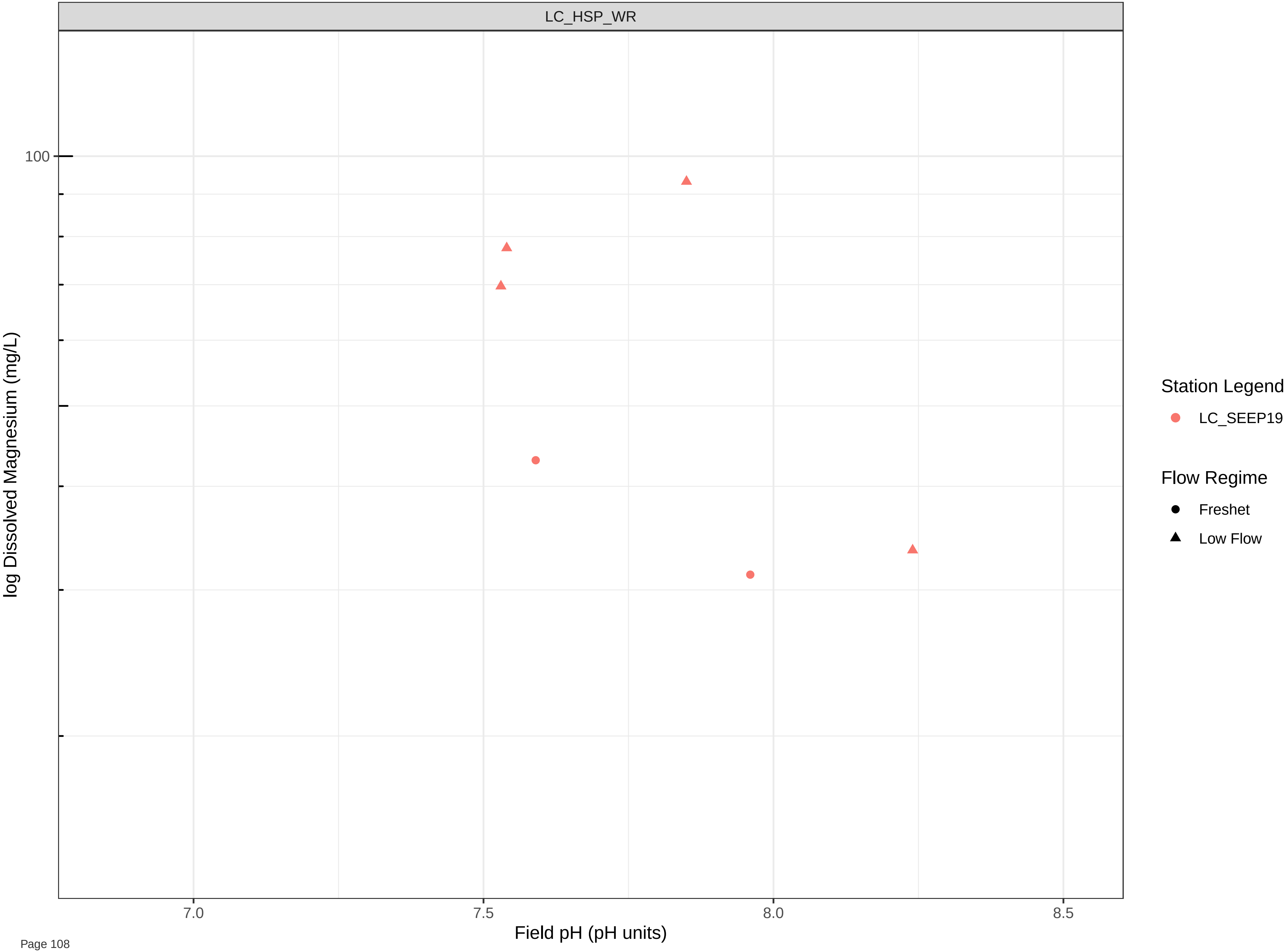
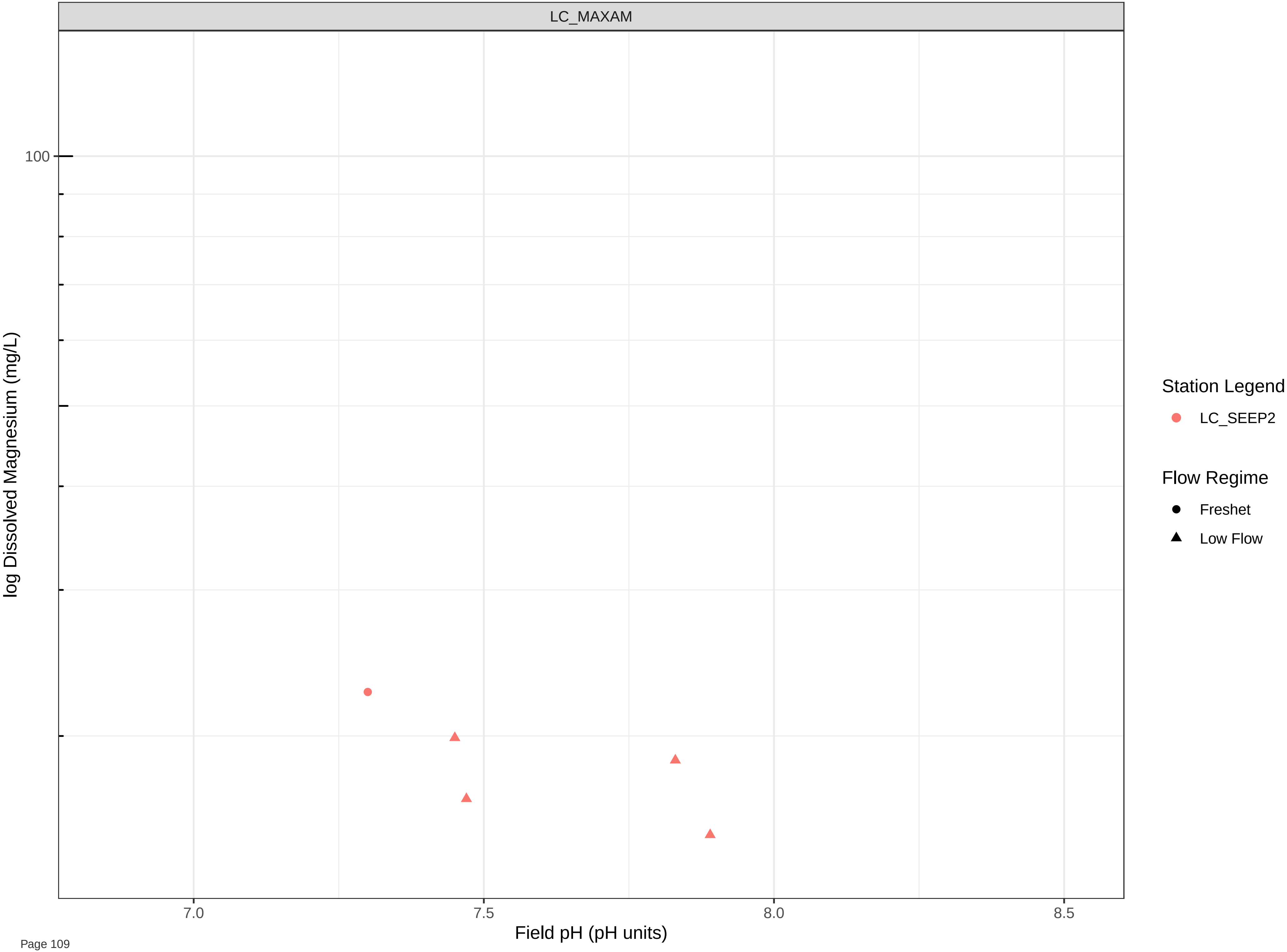
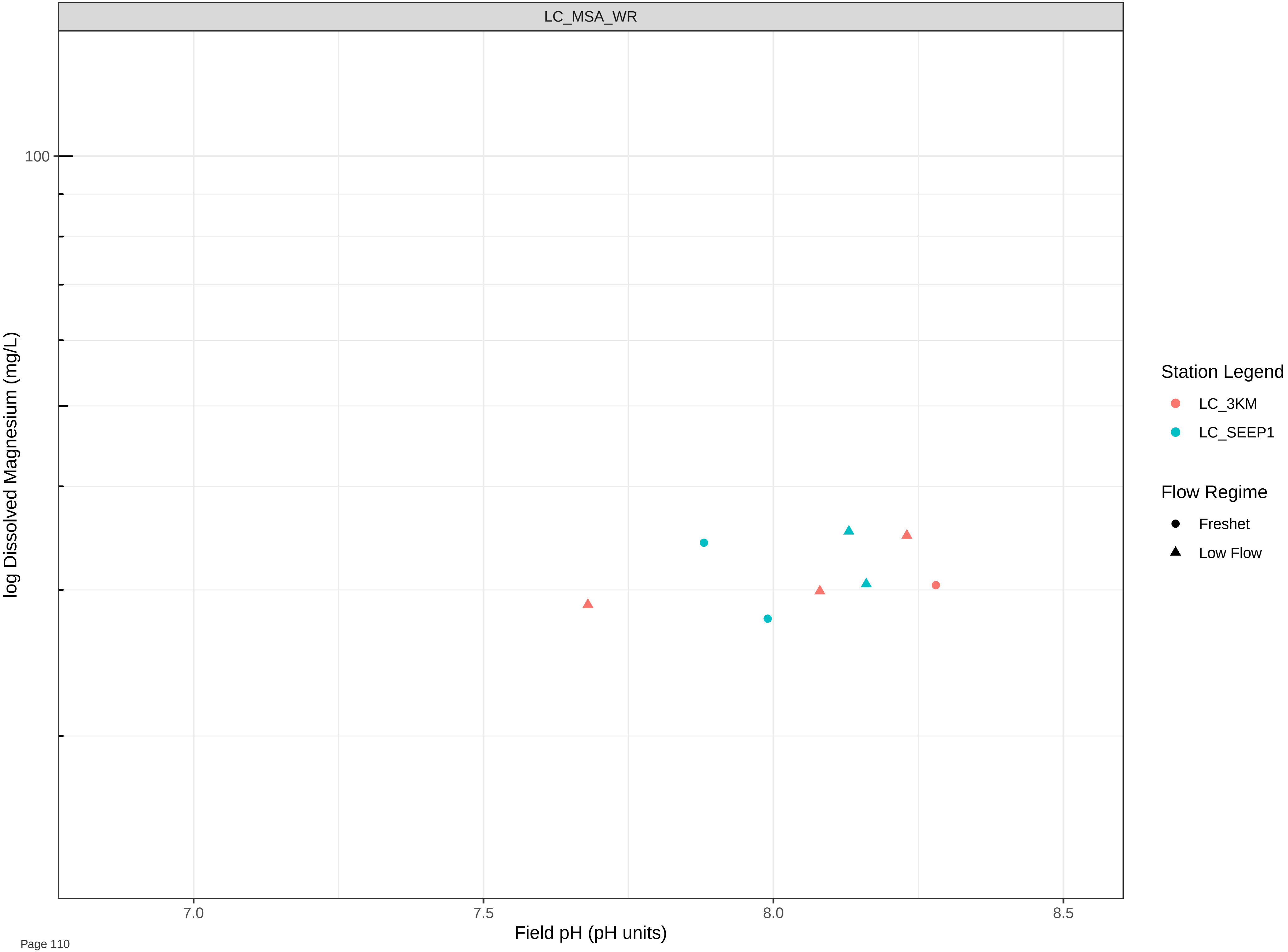
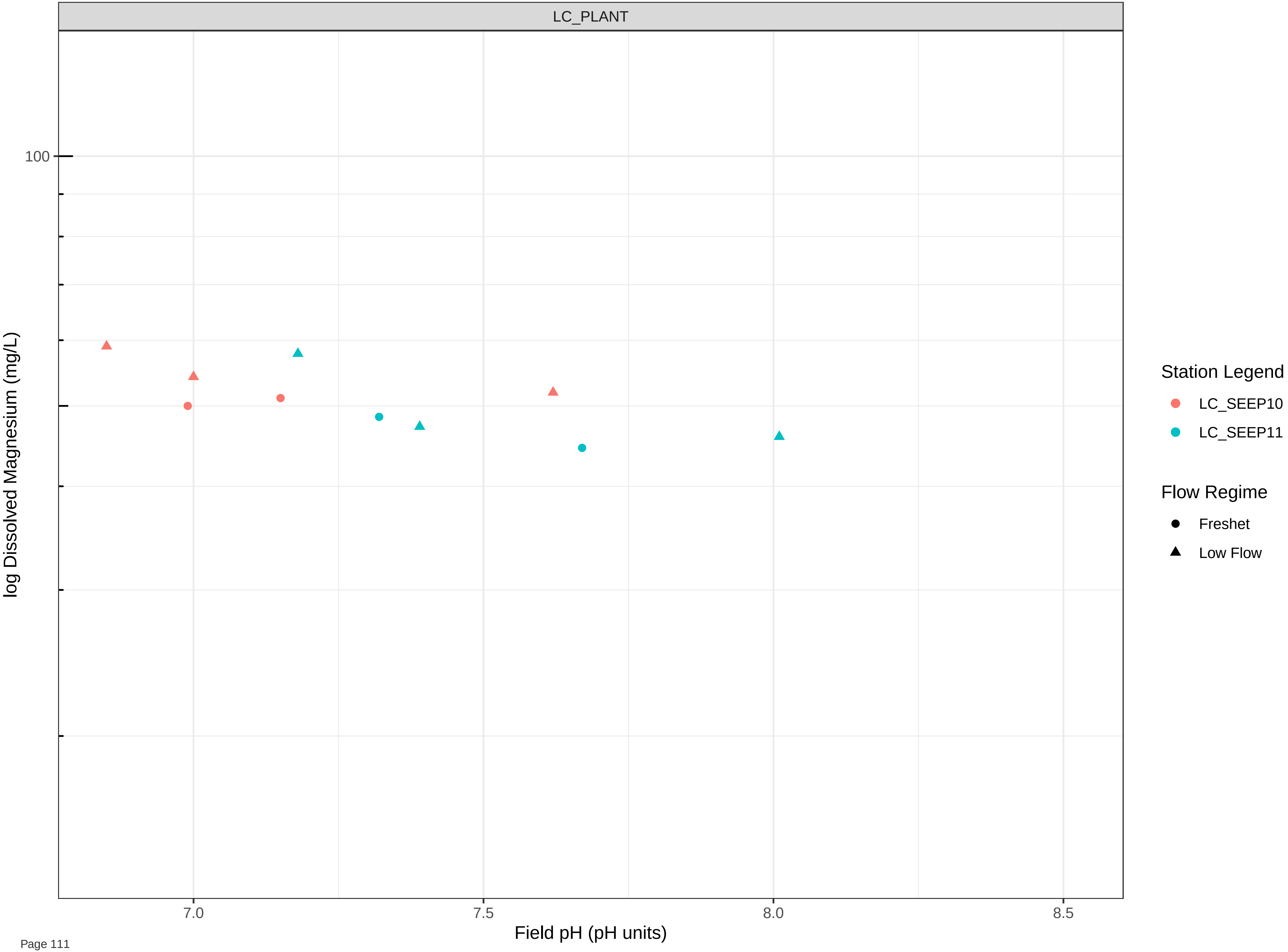
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
log Dissolved Magnesium (mg/L)
100
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow


LC_HSP_WR
100
log Dissolved Magnesium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow


LC_MAXAM
100
log Dissolved Magnesium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow


LC_MSA_WR
100
log Dissolved Magnesium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow


LC_PLANT
100
log Dissolved Magnesium (mg/L)
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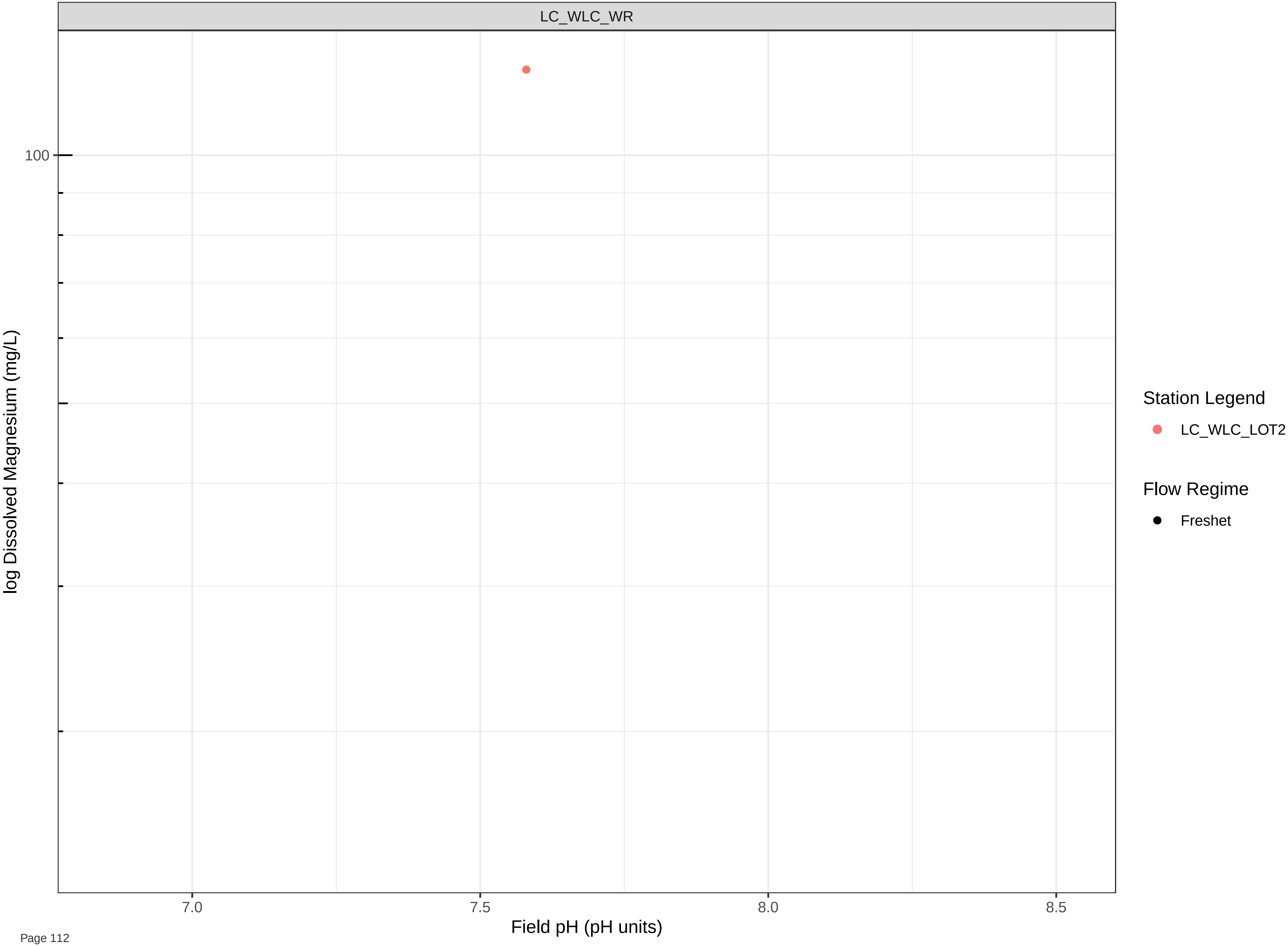
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow


LC_WLC_WR
100
log Dissolved Magnesium (mg/L)
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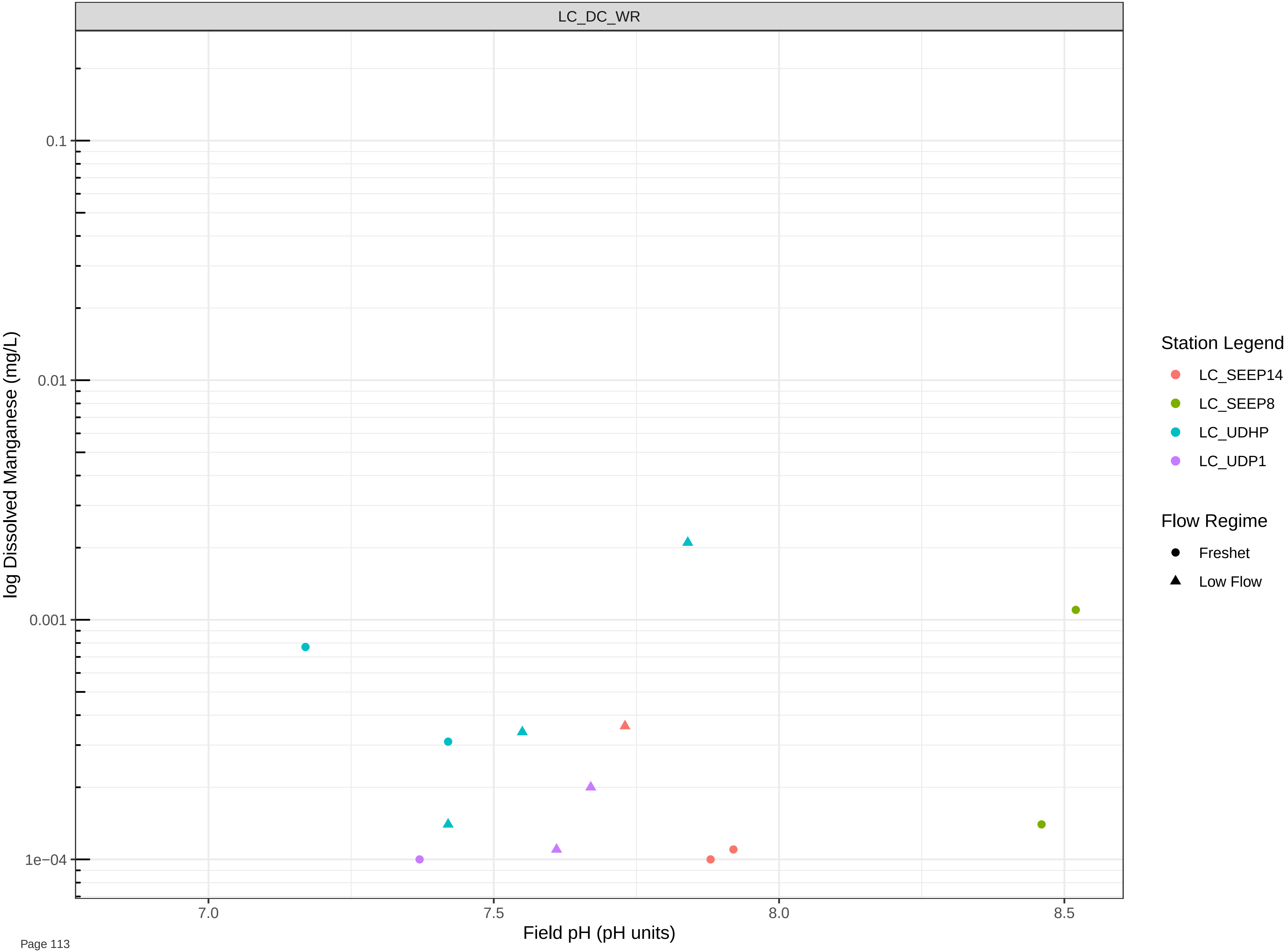
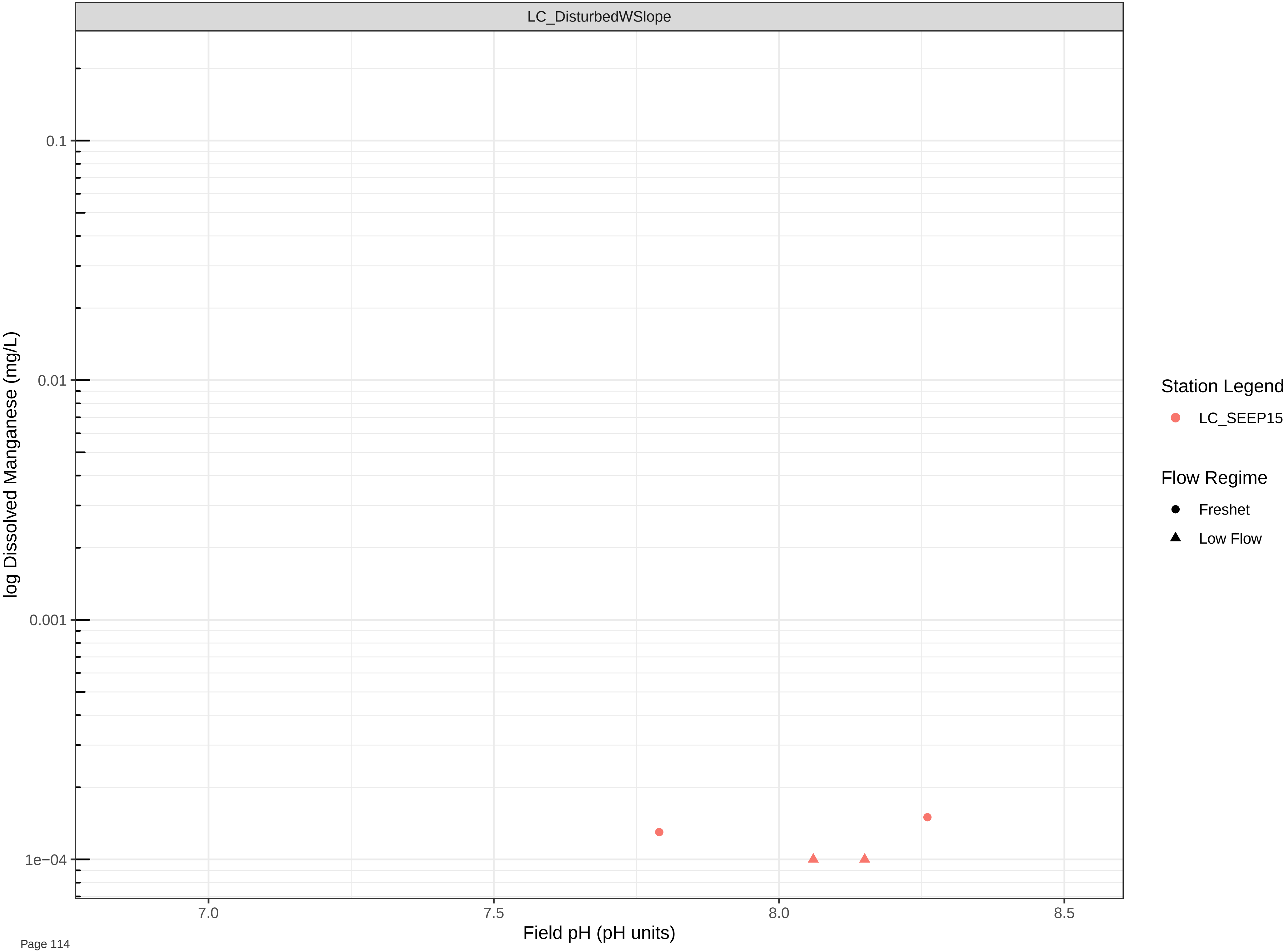
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet


LC_DC_WR
log Dissolved Manganese (mg/L)
0.1
0.01
0.001
1e−04
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
log Dissolved Manganese (mg/L)
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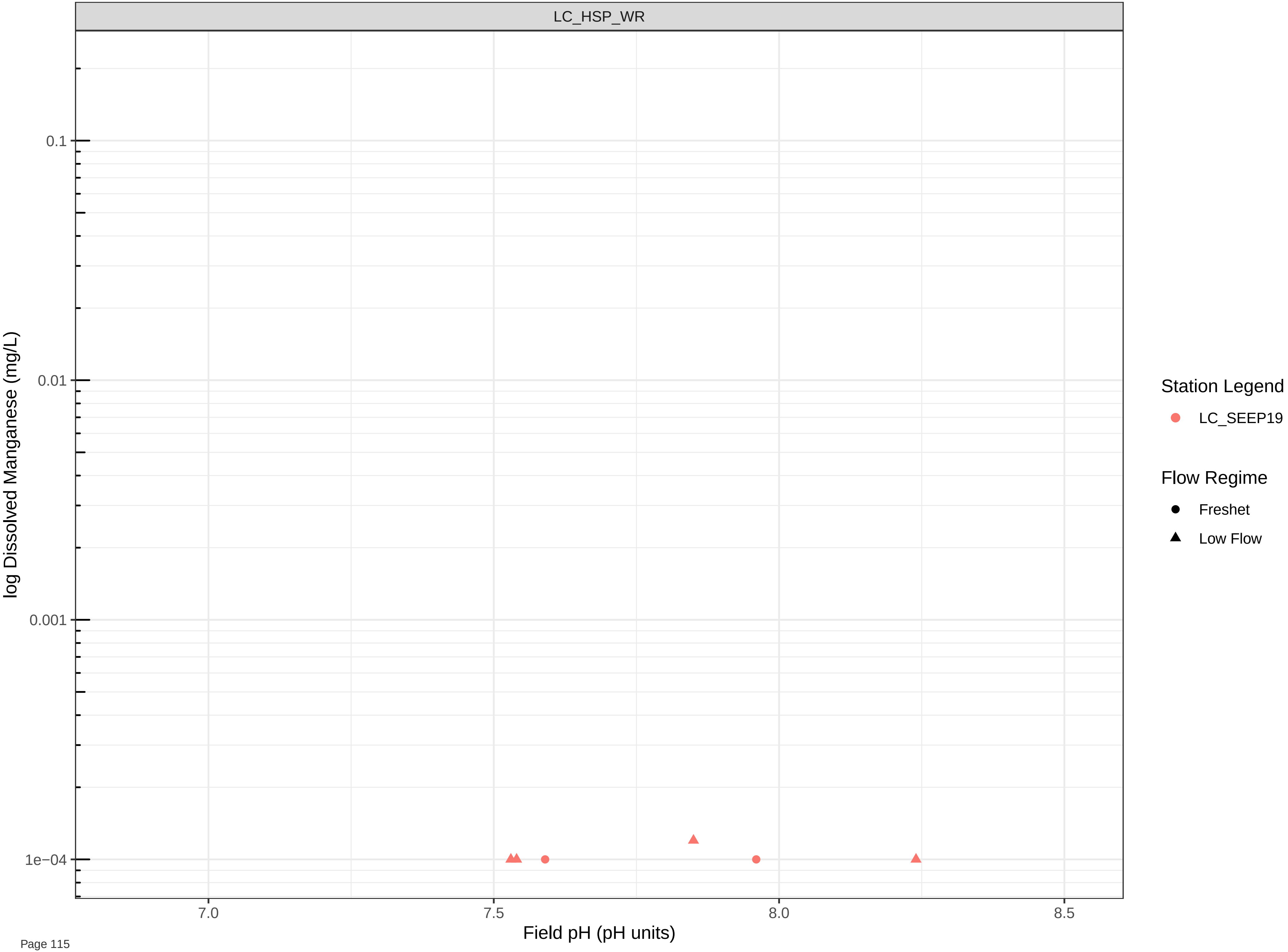
0.01
0.001
1e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow


LC_HSP_WR
log Dissolved Manganese (mg/L)
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0.01
0.001
1e−04
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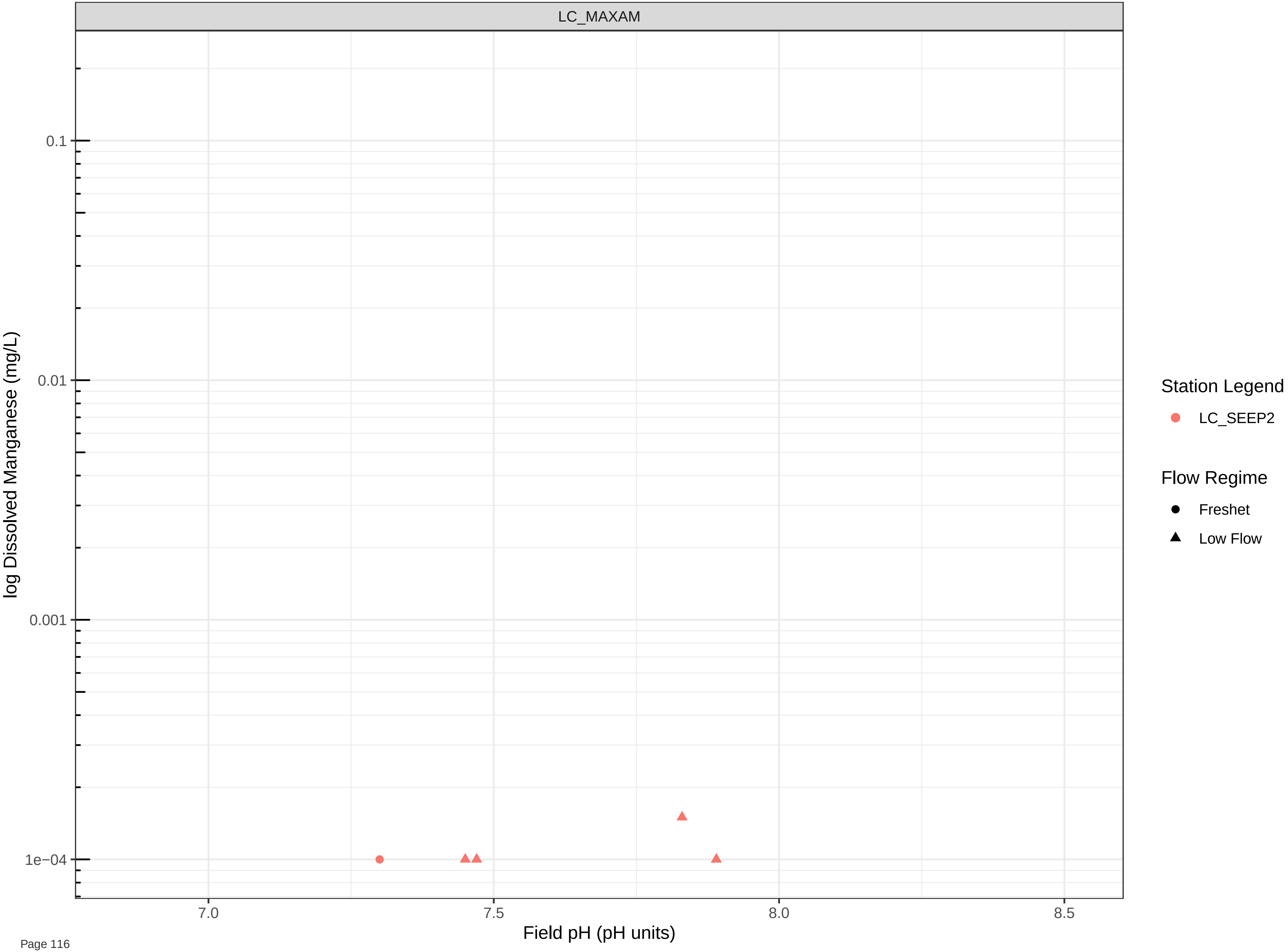
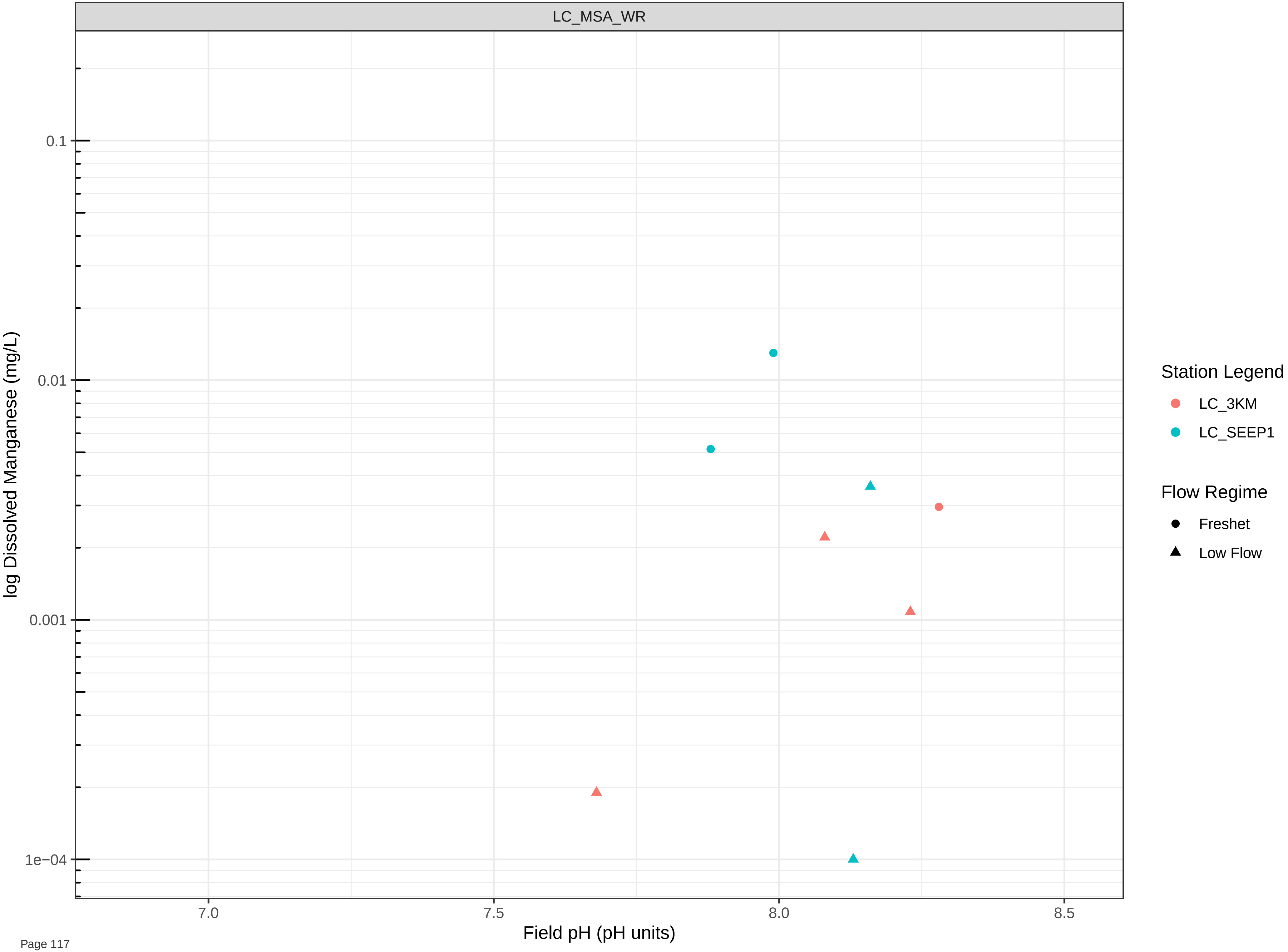
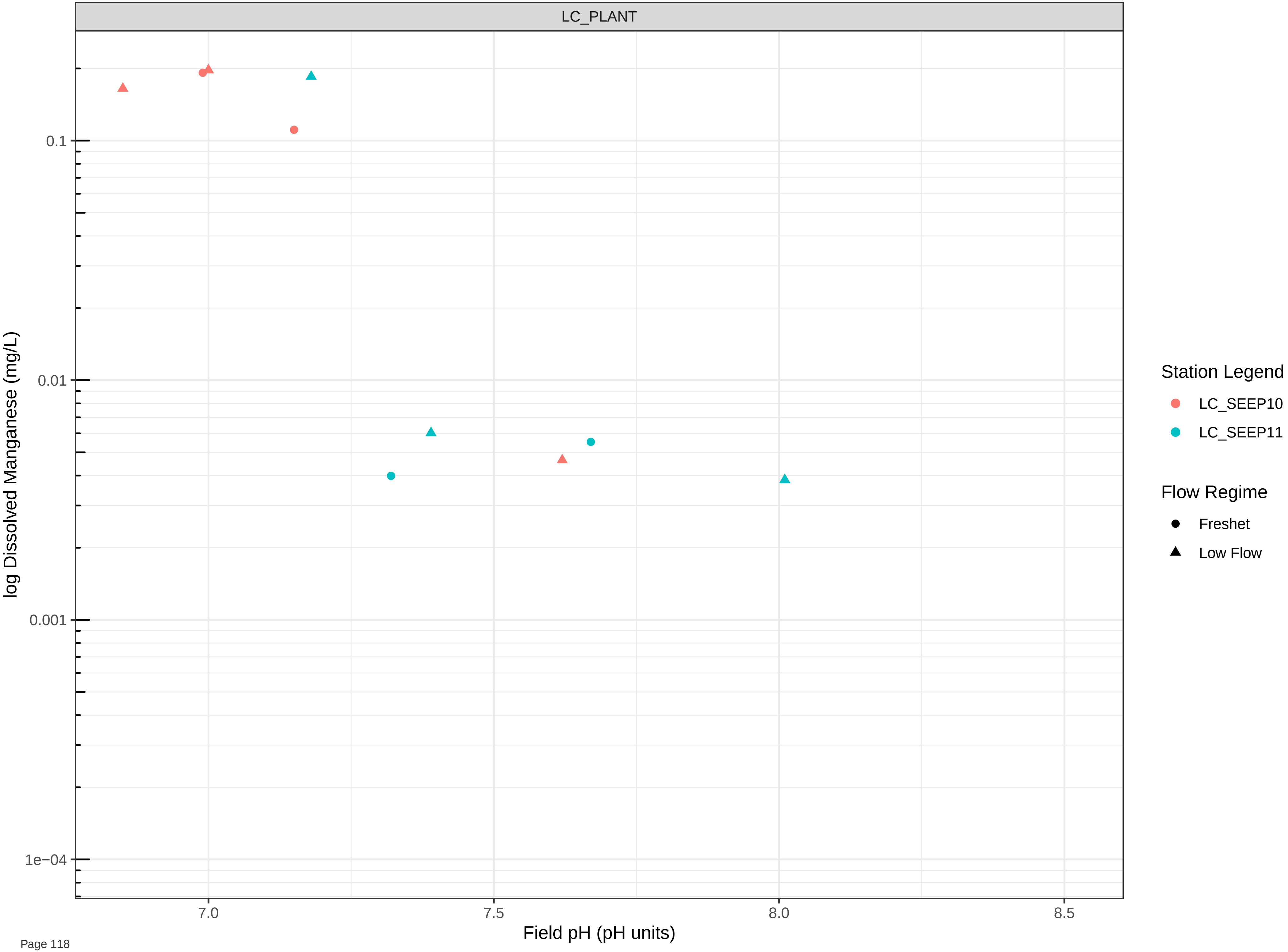
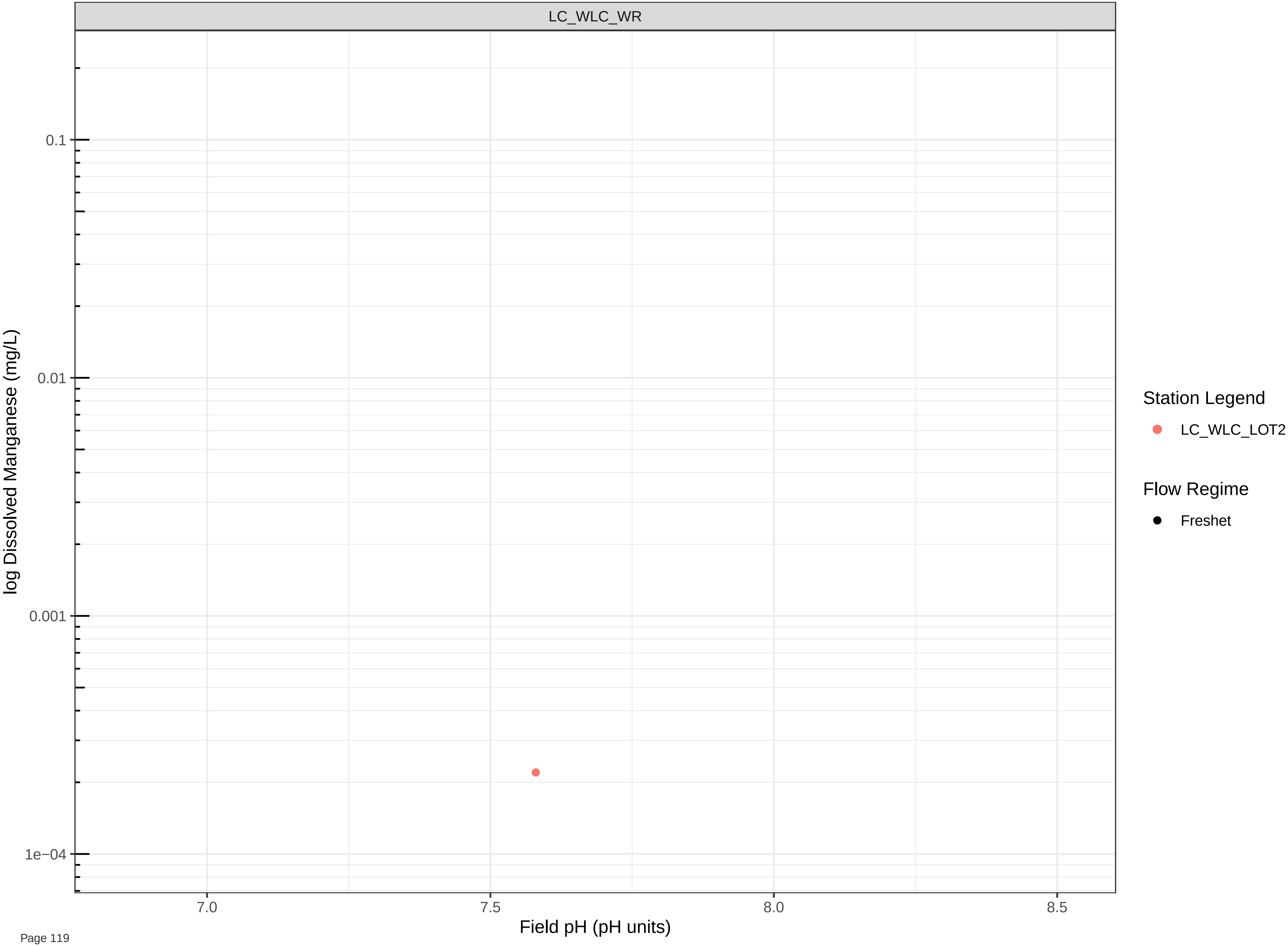
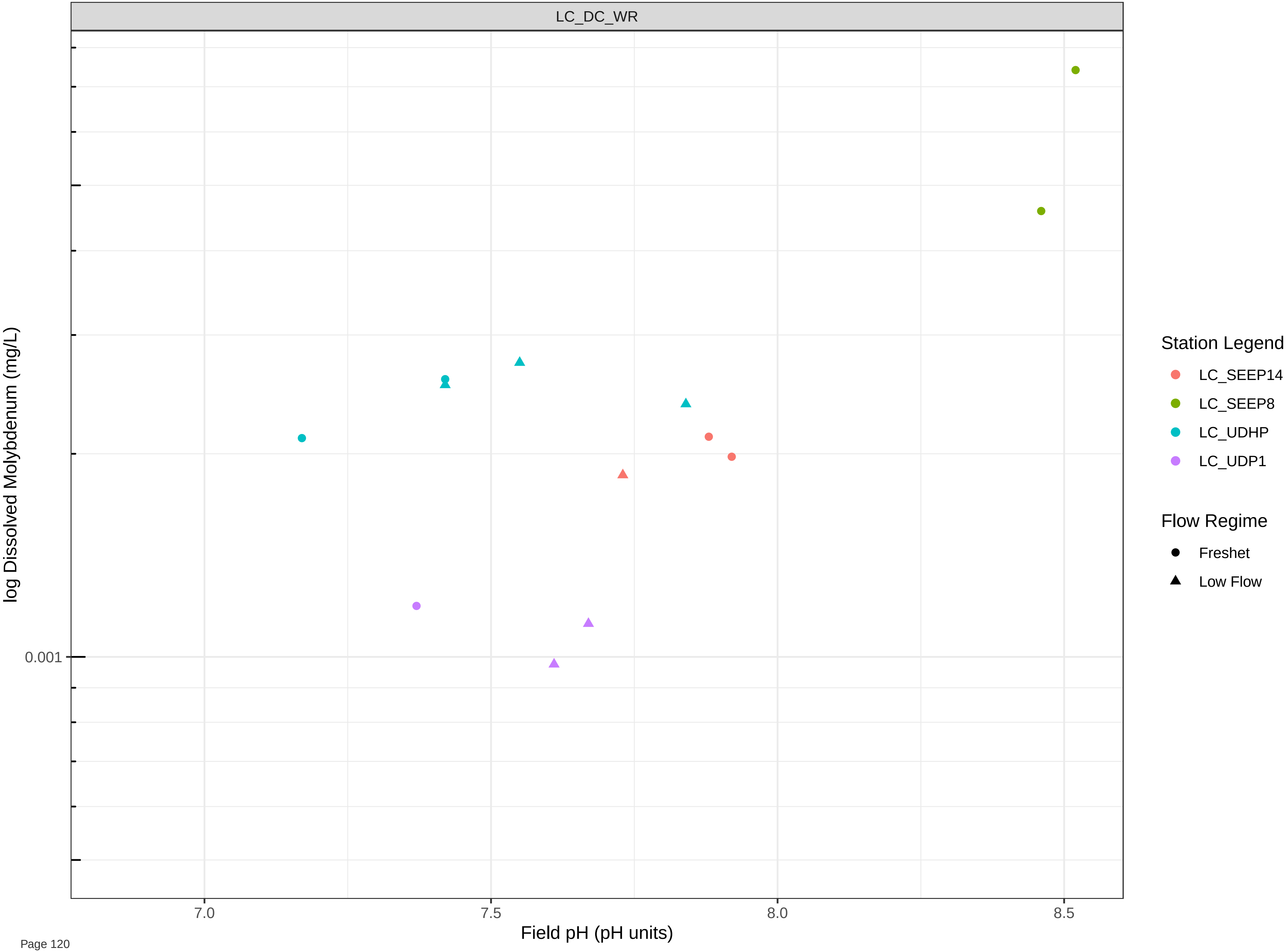
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

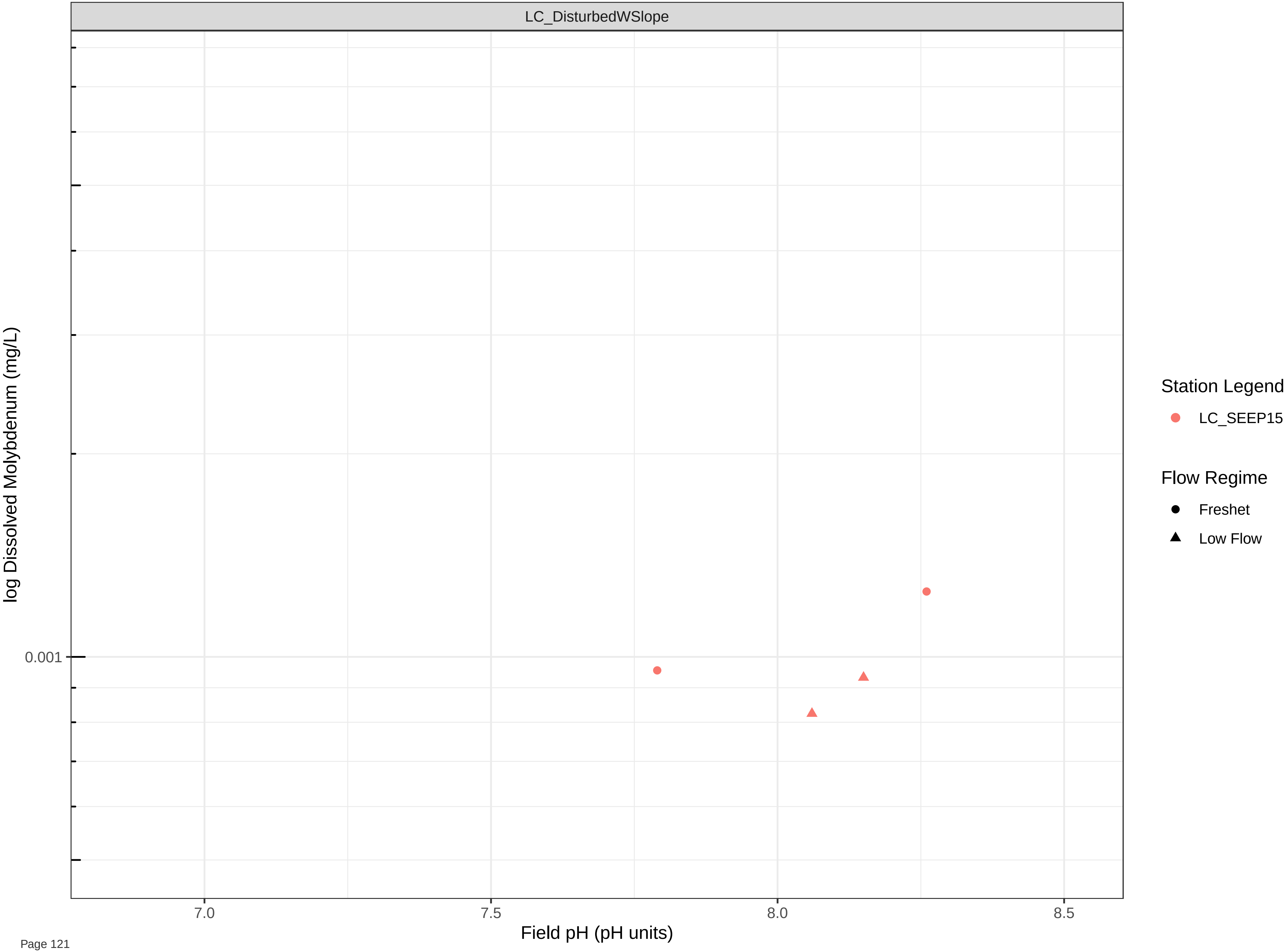

LC_MAXAM
0.1
0.01
0.001
1e−04
log Dissolved Manganese (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow


LC_MSA_WR
log Dissolved Manganese (mg/L)
0.1
0.01
0.001
1e−04
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
● LC_3KM
● LC_SEEP1
Flow Regime
● Freshet
▲ Low Flow


LC_PLANT
log Dissolved Manganese (mg/L)
0.1
0.01
0.001
1e−04
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow


LC_WLC_WR
log Dissolved Manganese (mg/L)
0.1
0.01
0.001
1e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet


LC_DC_WR
log Dissolved Molybdenum (mg/L)
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
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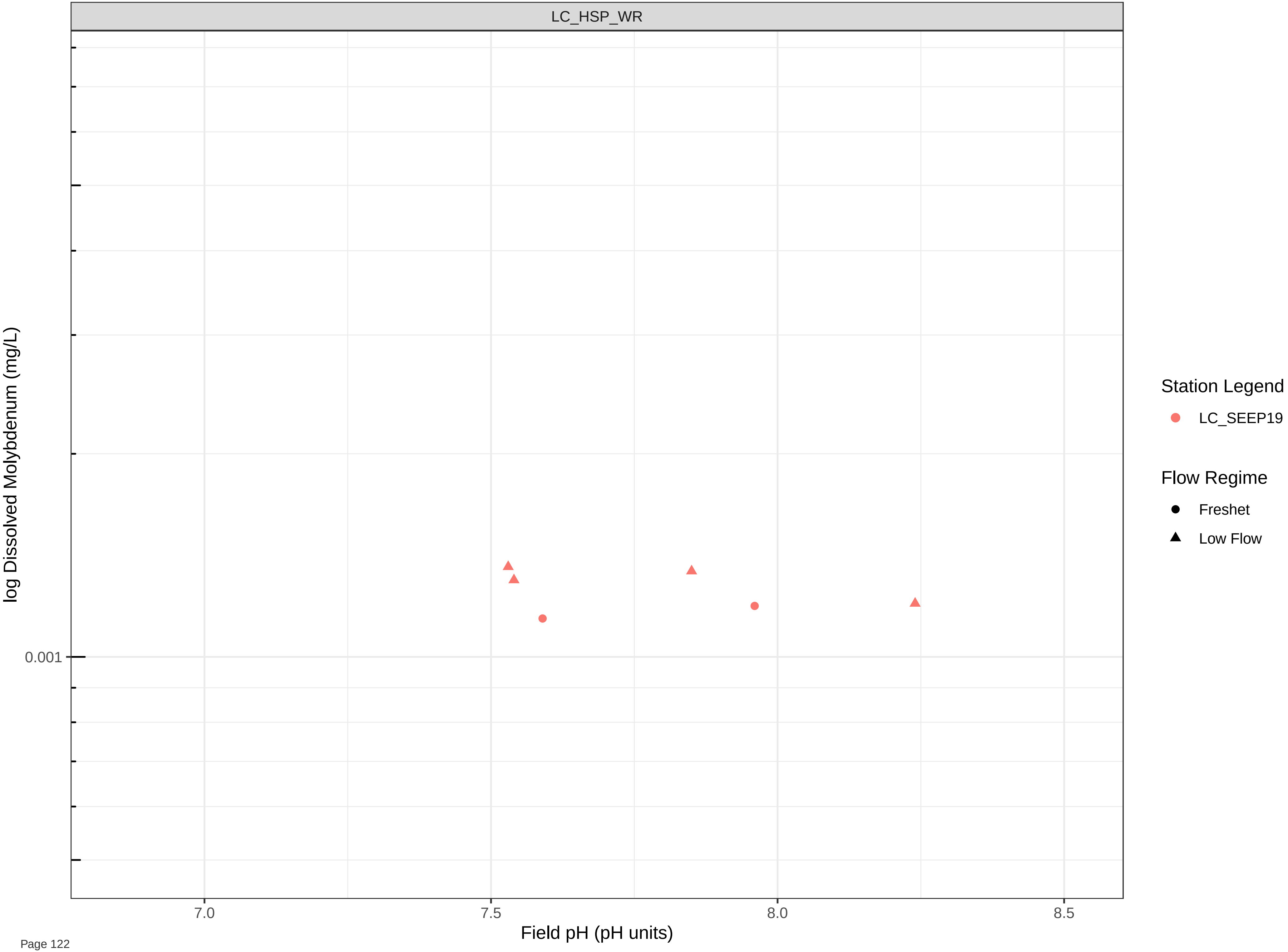
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow


LC_HSP_WR
log Dissolved Molybdenum (mg/L)
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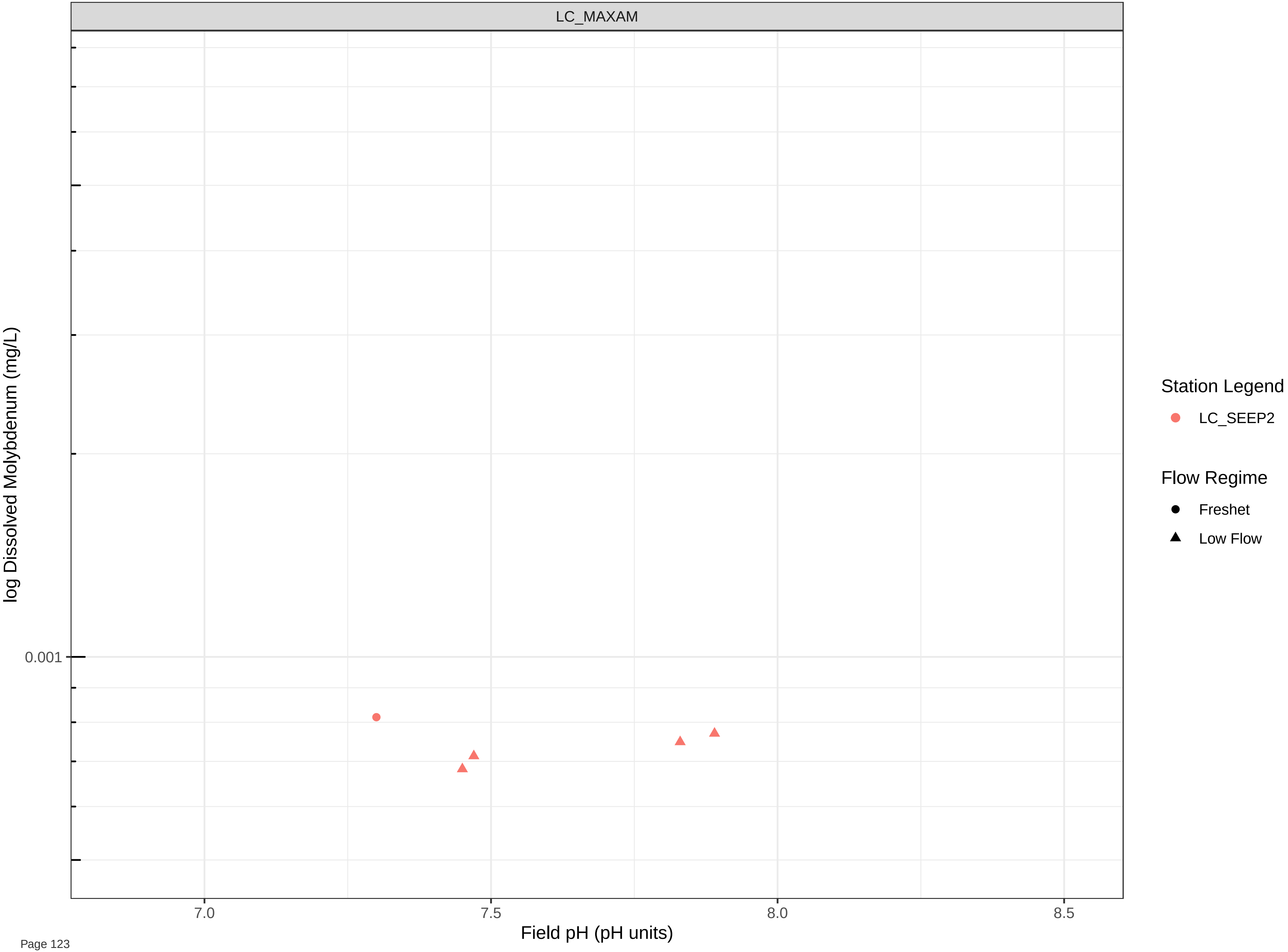
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow


LC_MAXAM
log Dissolved Molybdenum (mg/L)
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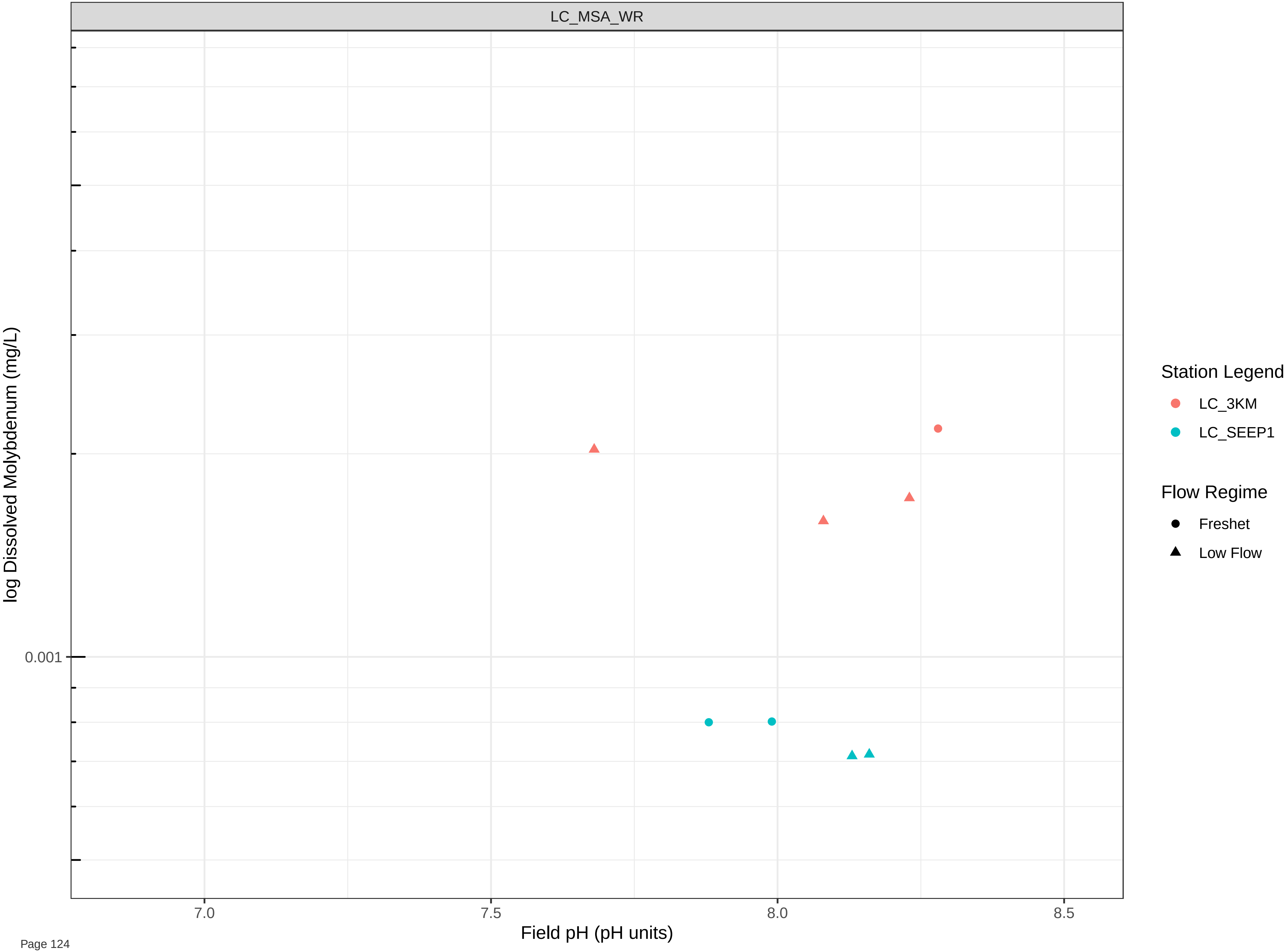
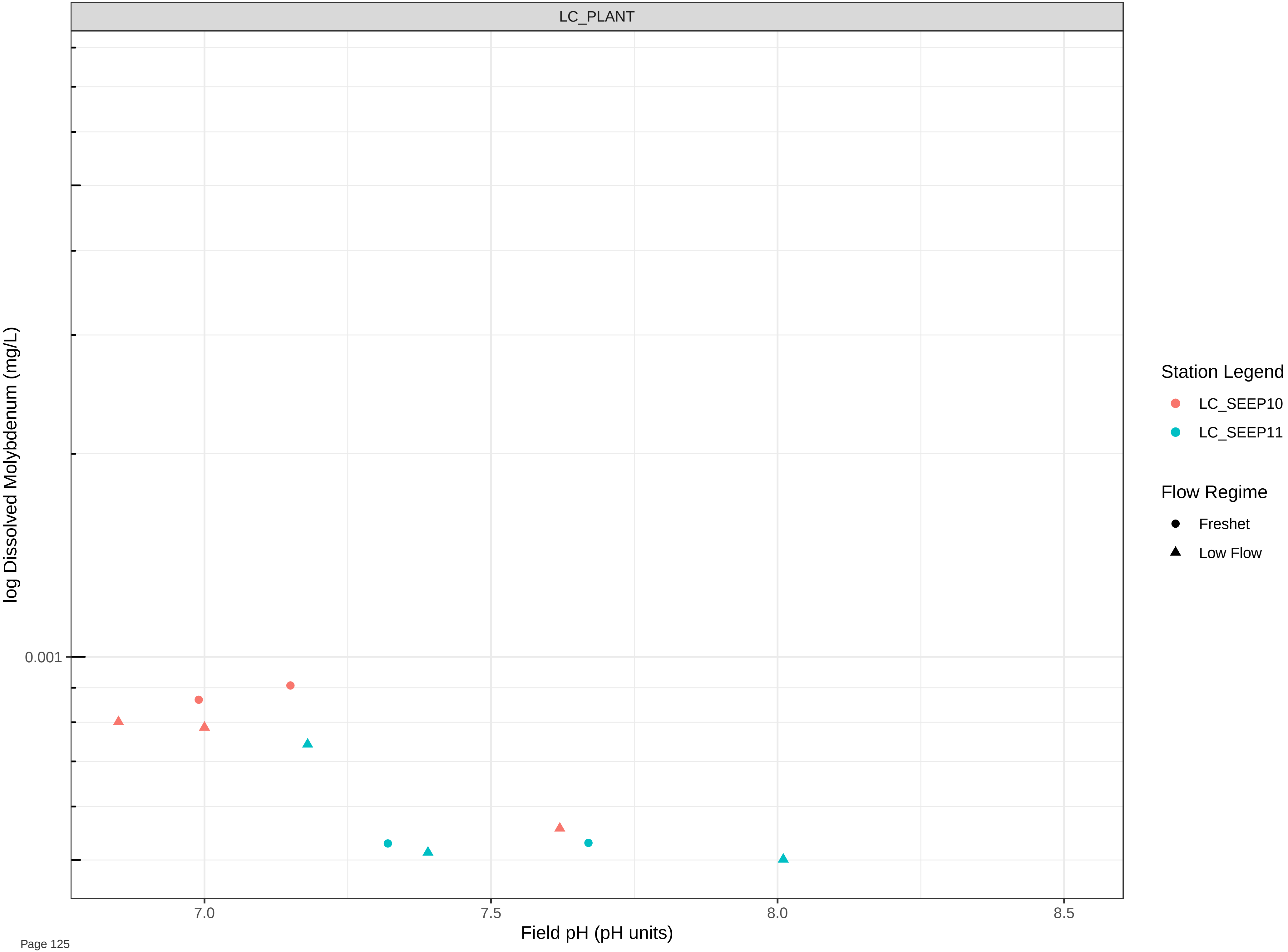
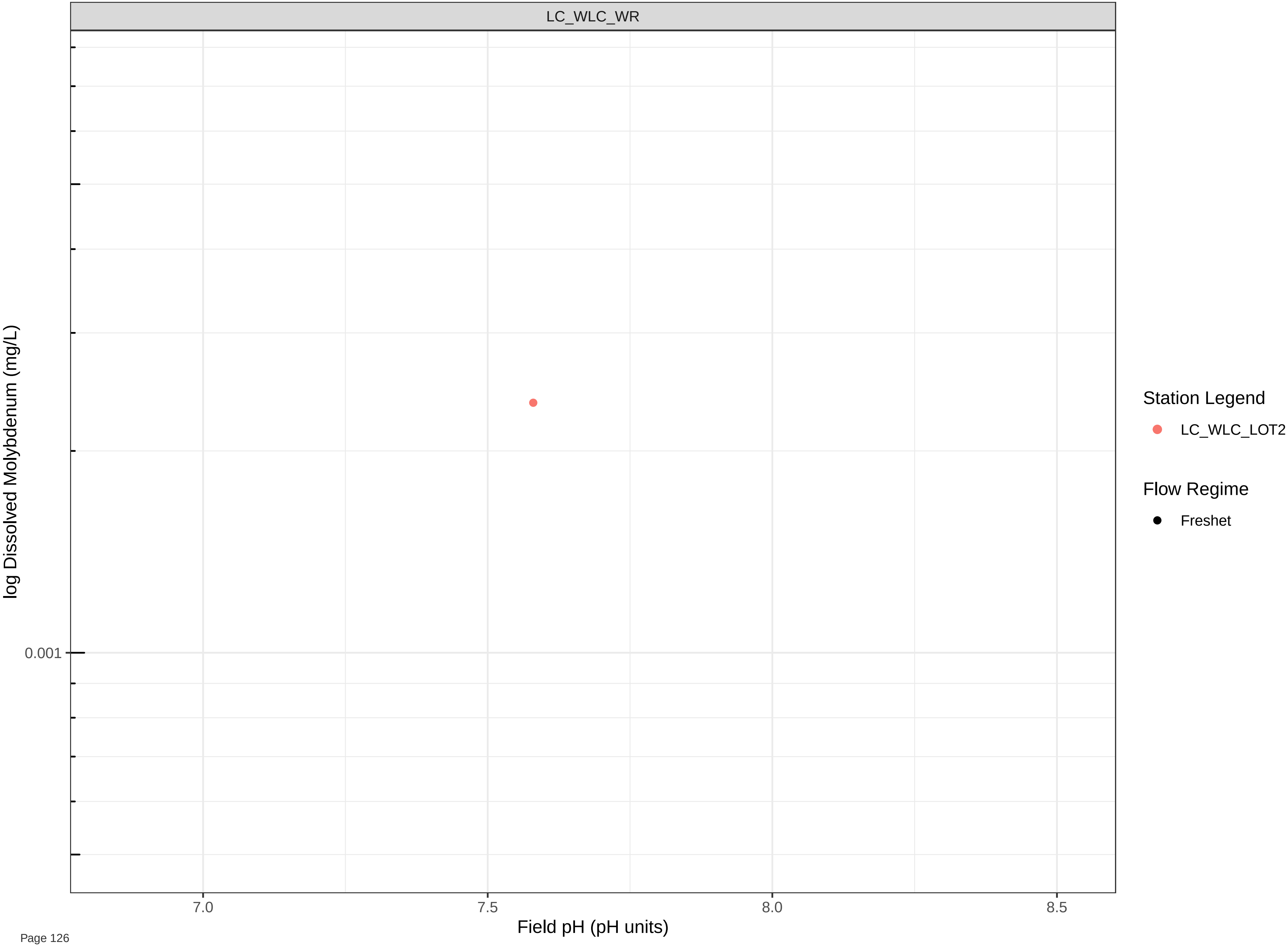
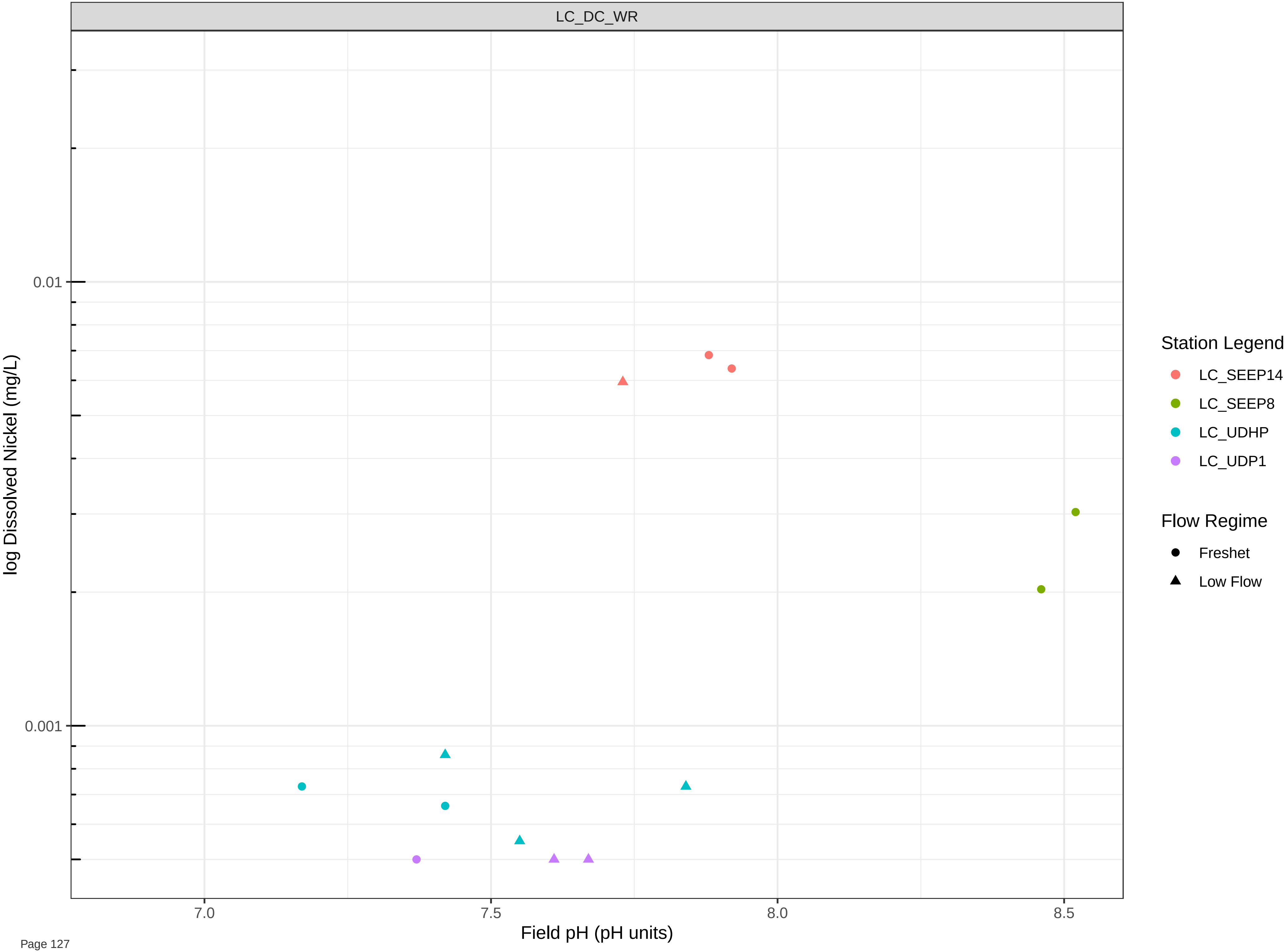
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow


LC_MSA_WR
log Dissolved Molybdenum (mg/L)
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow


LC_PLANT
log Dissolved Molybdenum (mg/L)
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow


LC_WLC_WR
log Dissolved Molybdenum (mg/L)
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet


LC_DC_WR
log Dissolved Nickel (mg/L)
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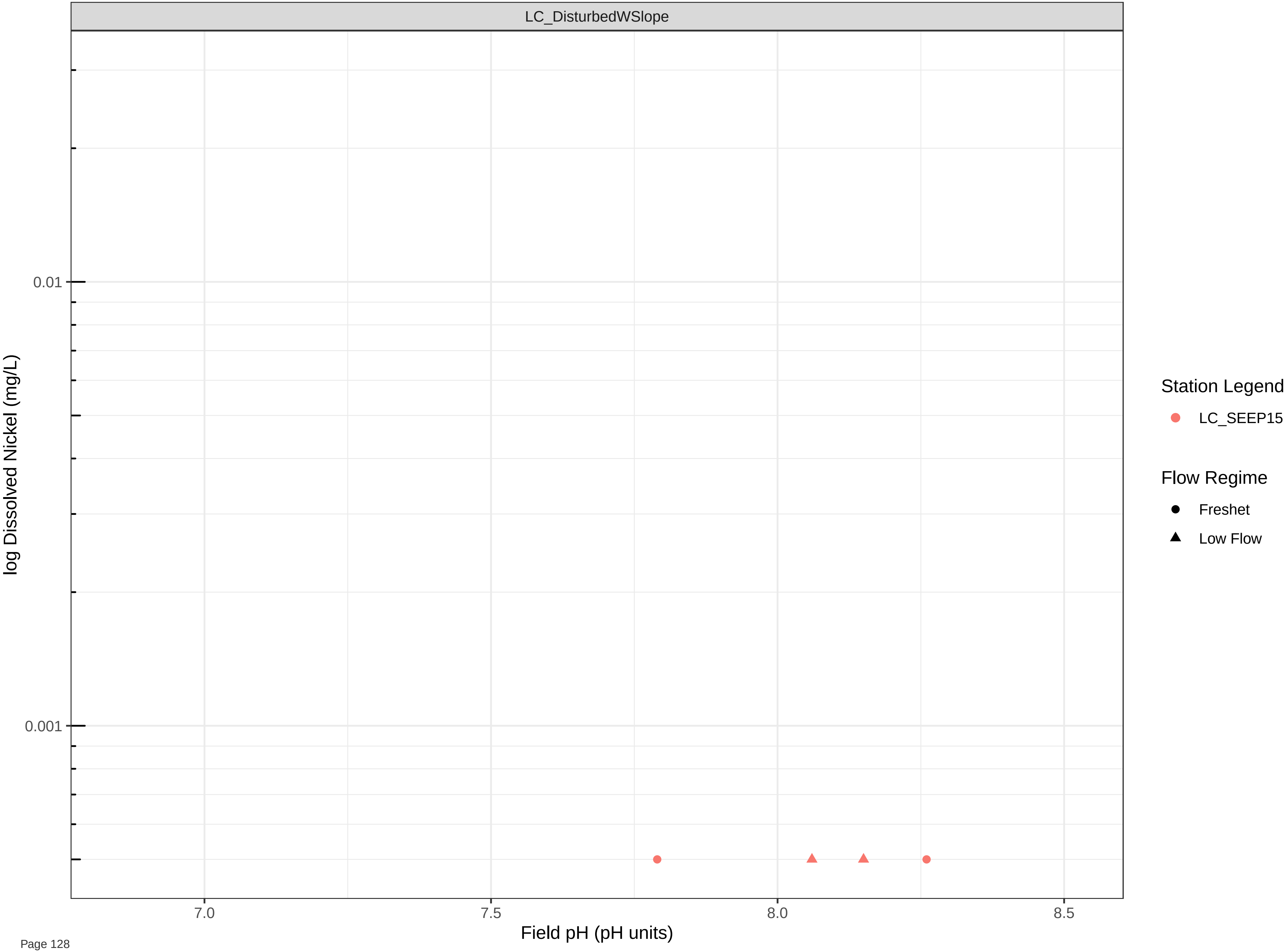
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
log Dissolved Nickel (mg/L)
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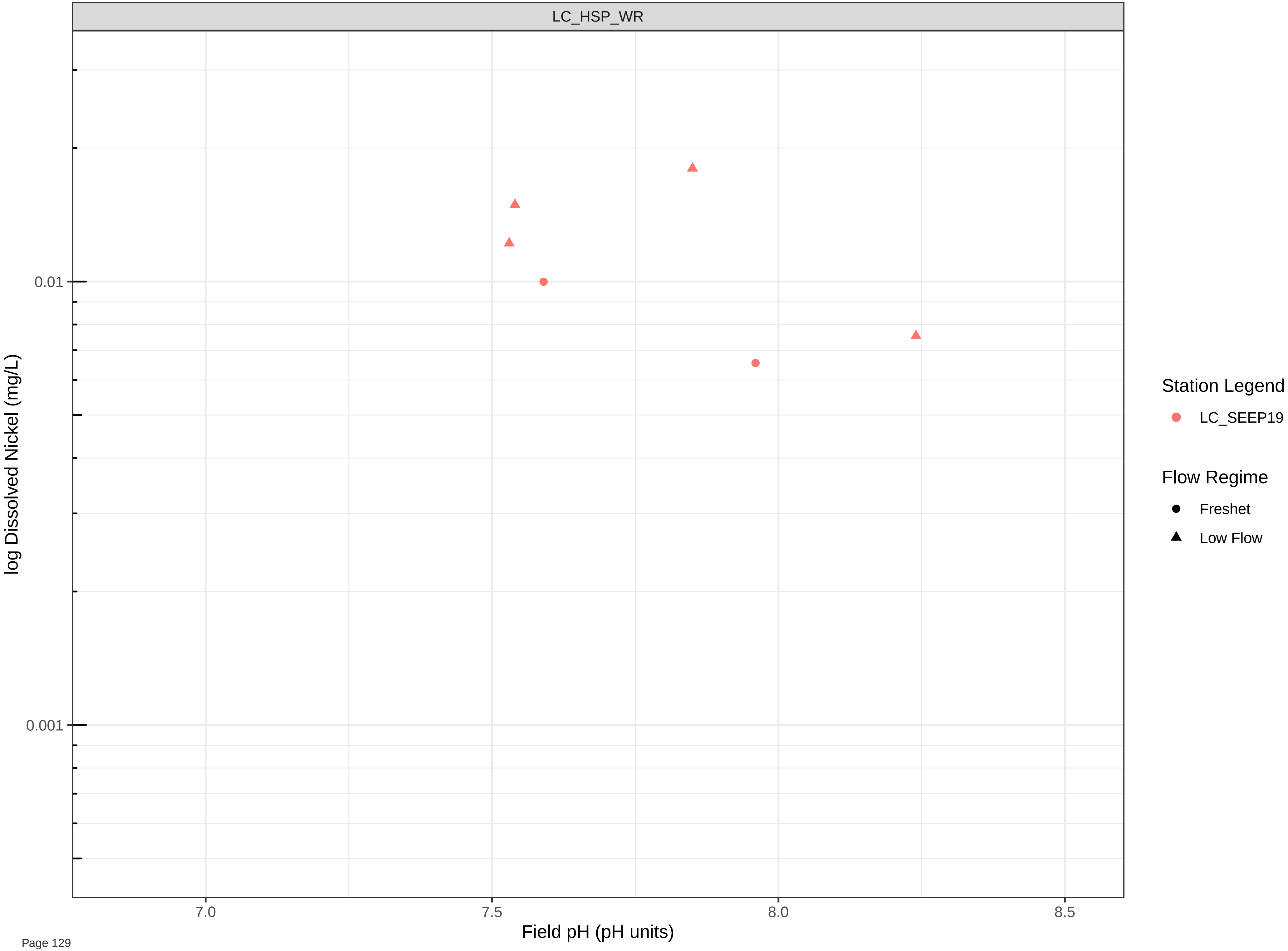
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow


LC_HSP_WR
log Dissolved Nickel (mg/L)
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Field pH (pH units)
7.0
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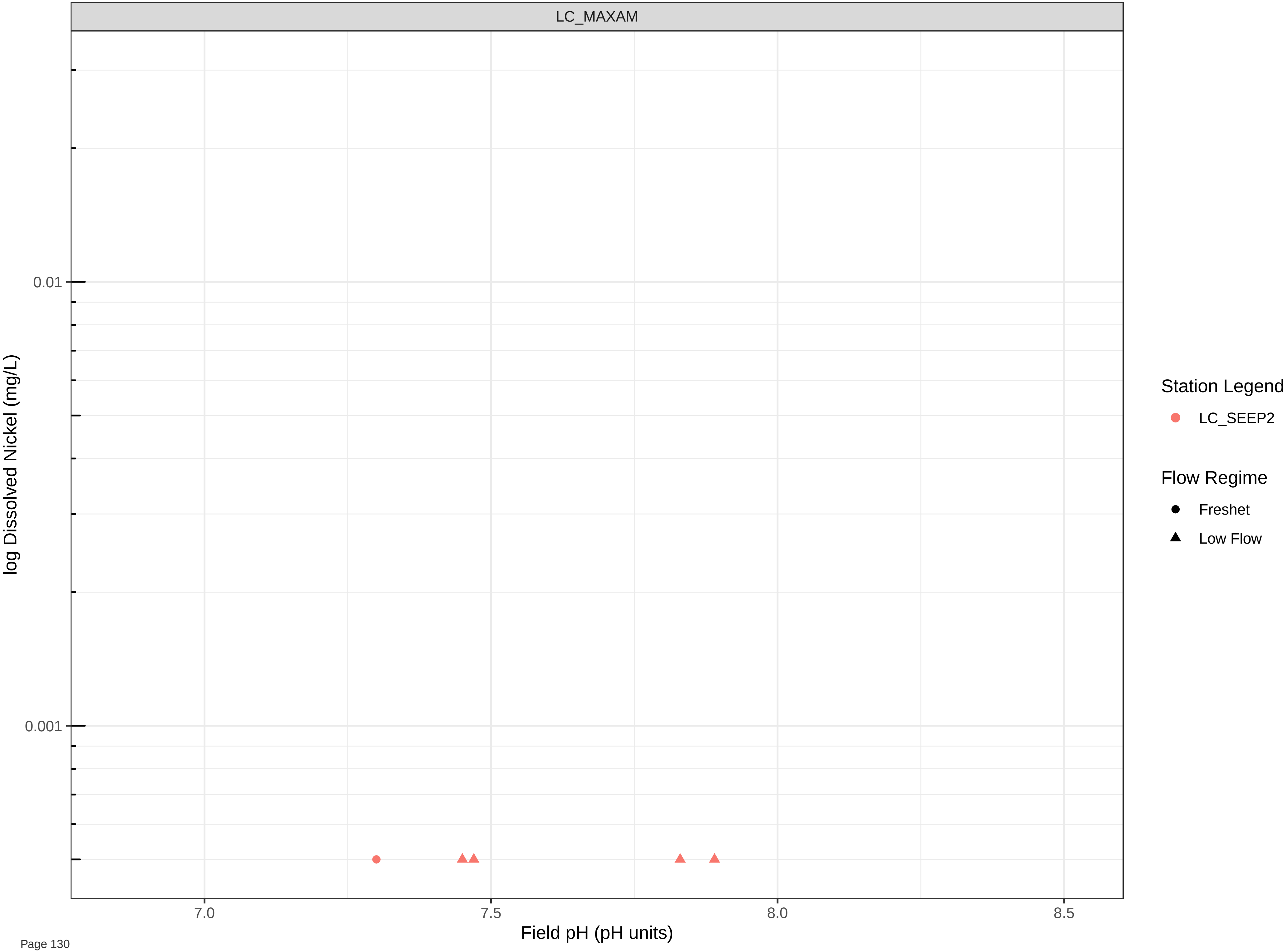
8.0
8.5
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow


LC_MAXAM
log Dissolved Nickel (mg/L)
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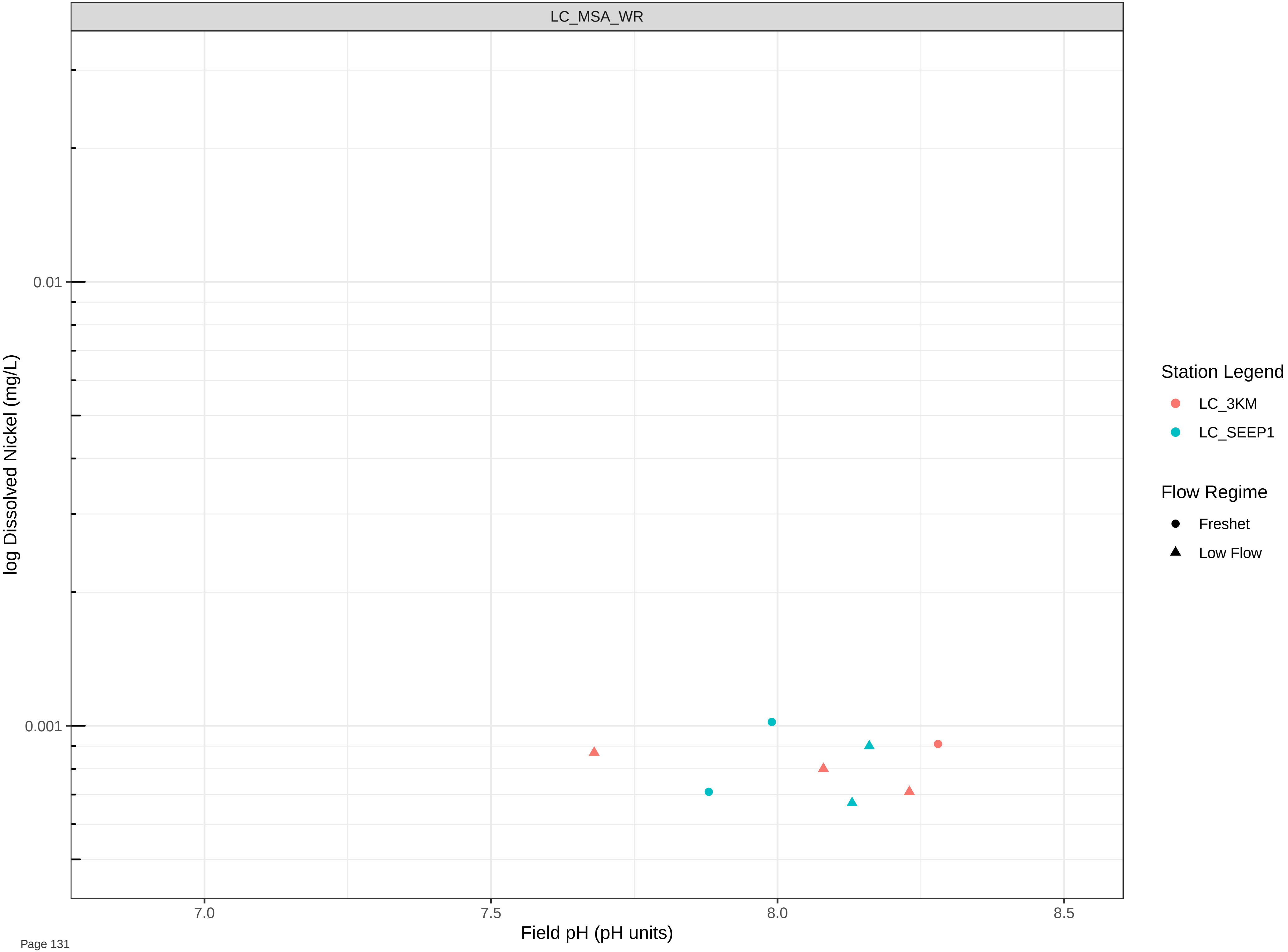
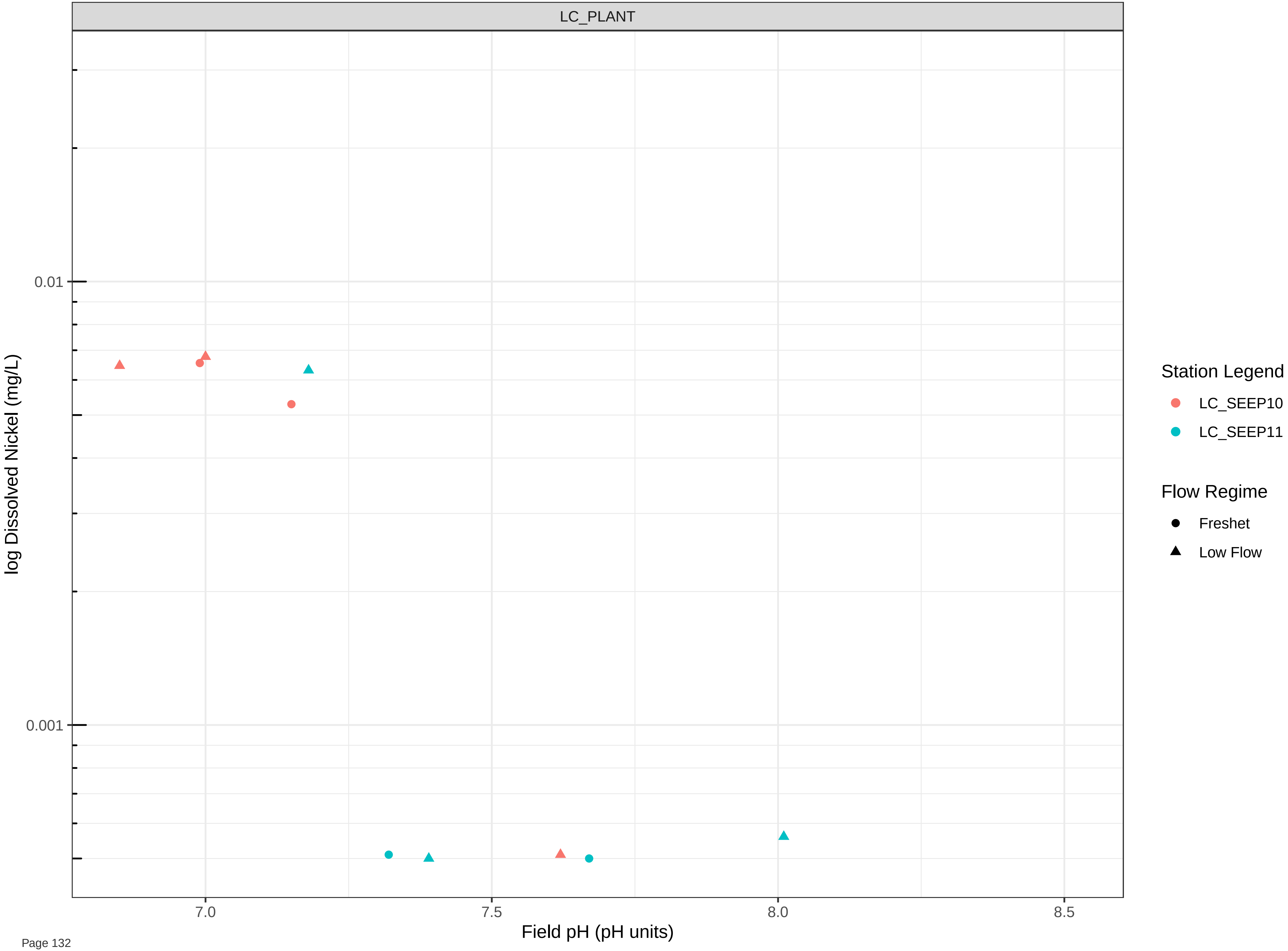
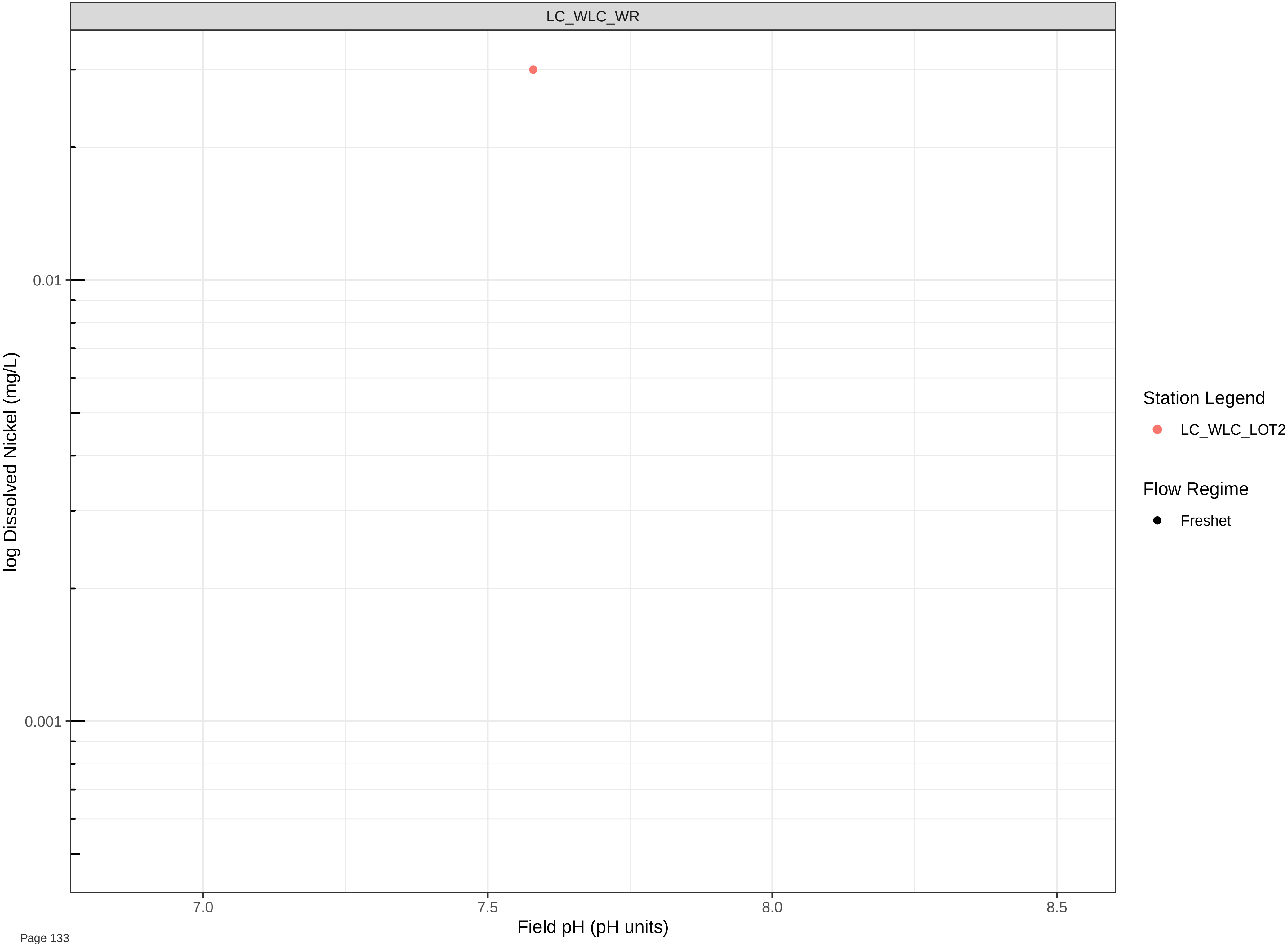
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow


LC_MSA_WR
0.01
0.001
log Dissolved Nickel (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow


LC_PLANT
log Dissolved Nickel (mg/L)
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow


LC_WLC_WR
log Dissolved Nickel (mg/L)
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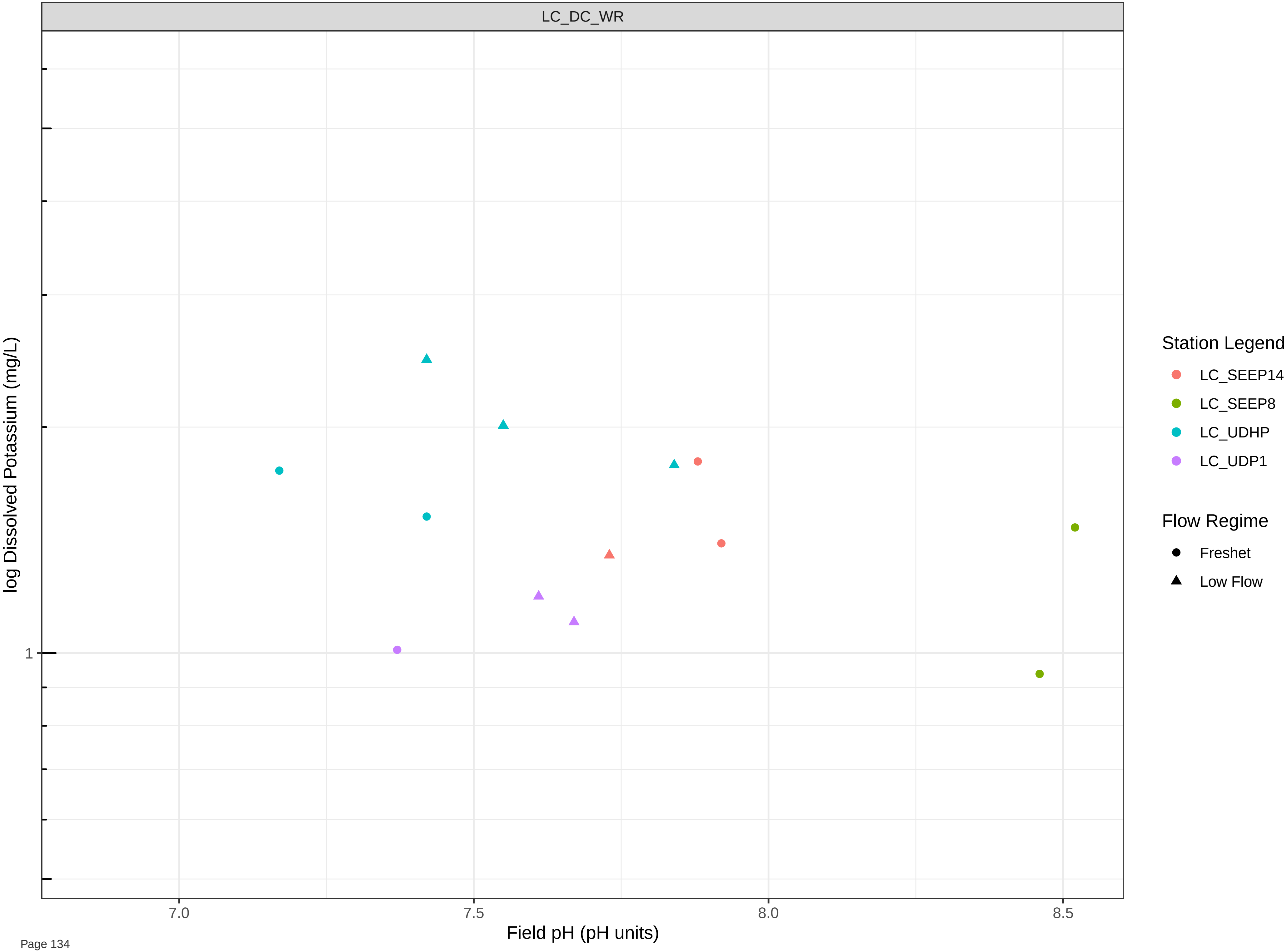
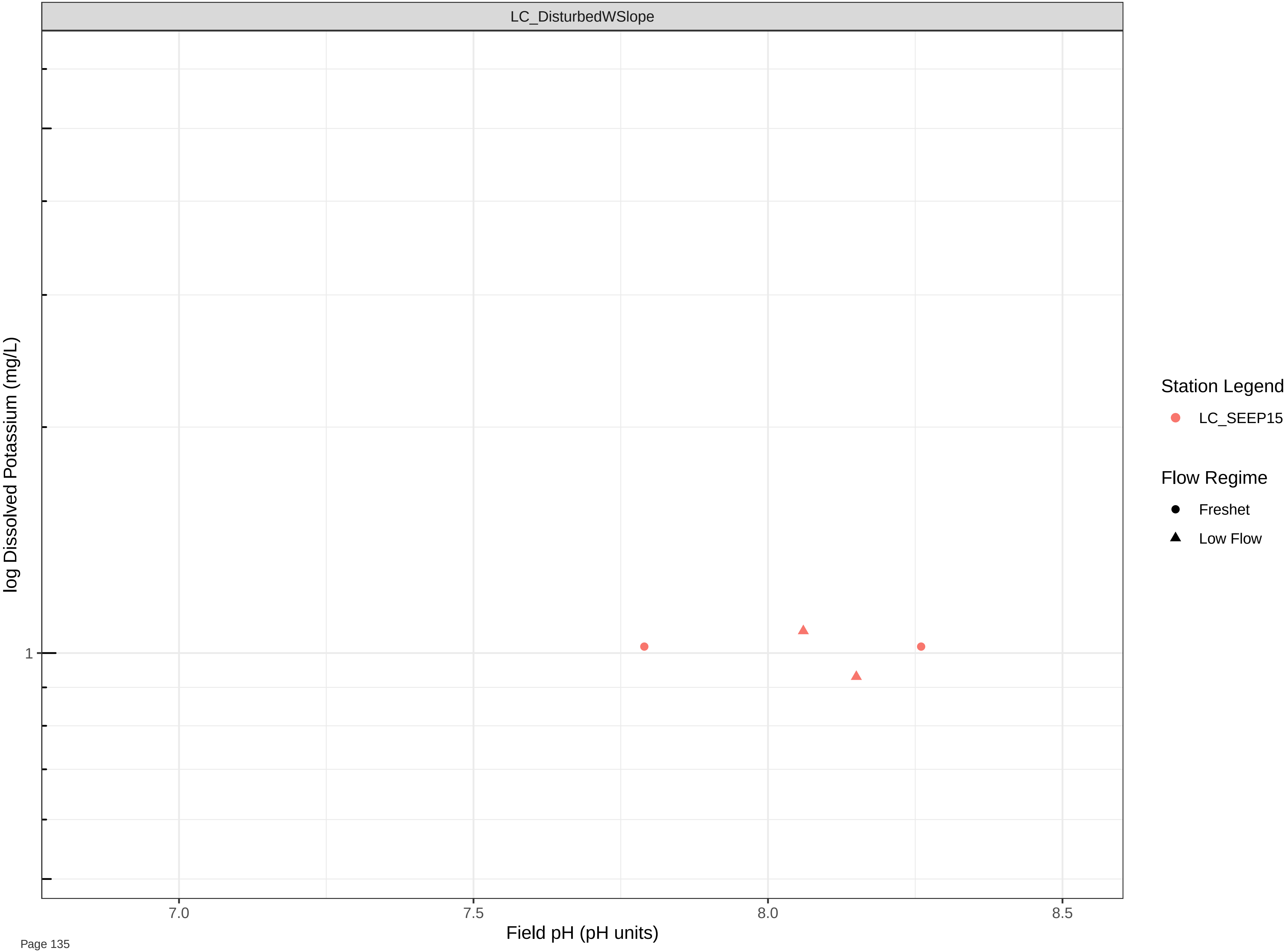
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet


LC_DC_WR
log Dissolved Potassium (mg/L)
1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP14
● LC_SEEP8
● LC_UDHP
● LC_UDP1
Flow Regime
● Freshet
▲ Low Flow


LC_DisturbedWSlope
log Dissolved Potassium (mg/L)
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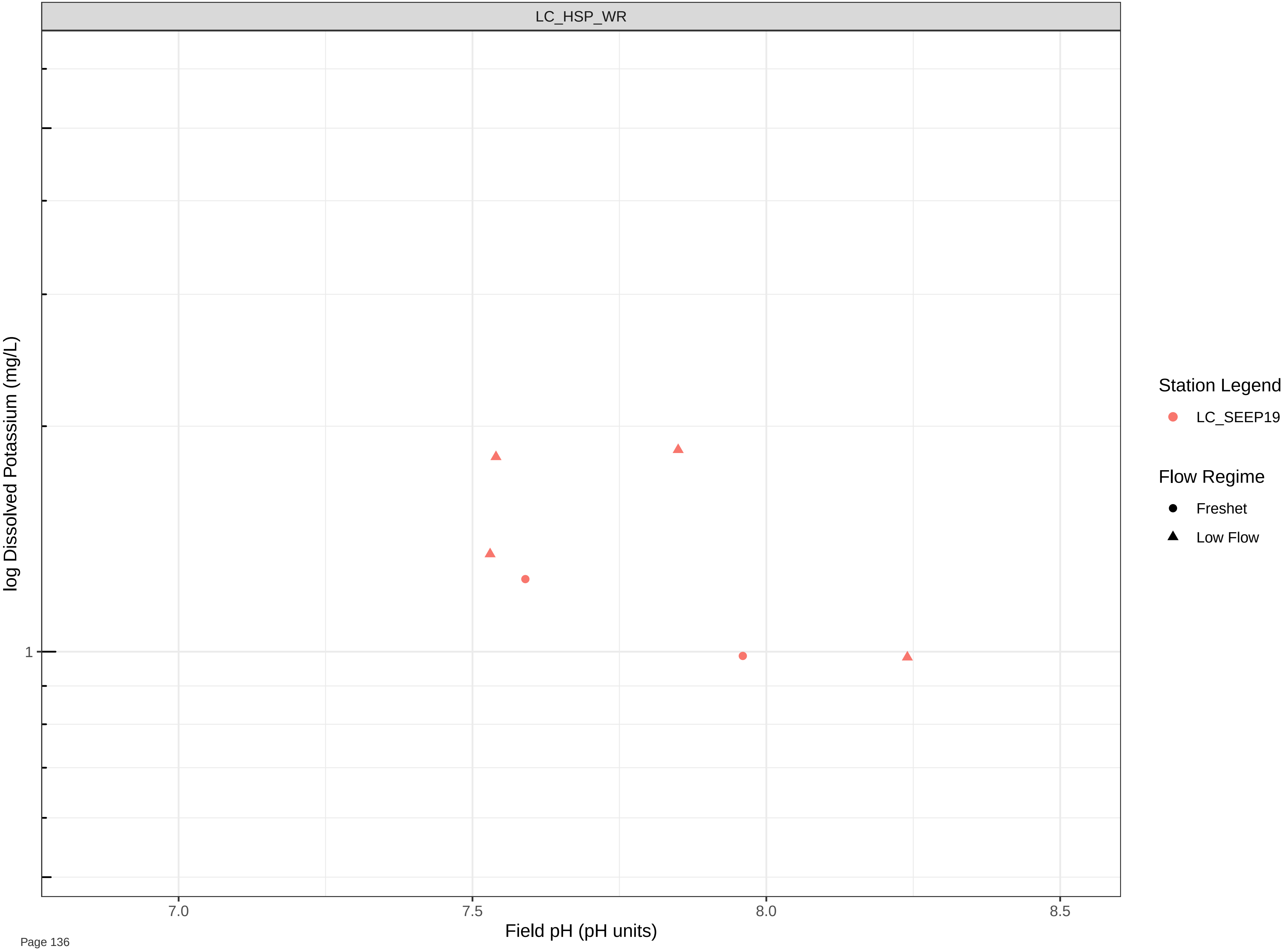
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow


LC_HSP_WR
log Dissolved Potassium (mg/L)
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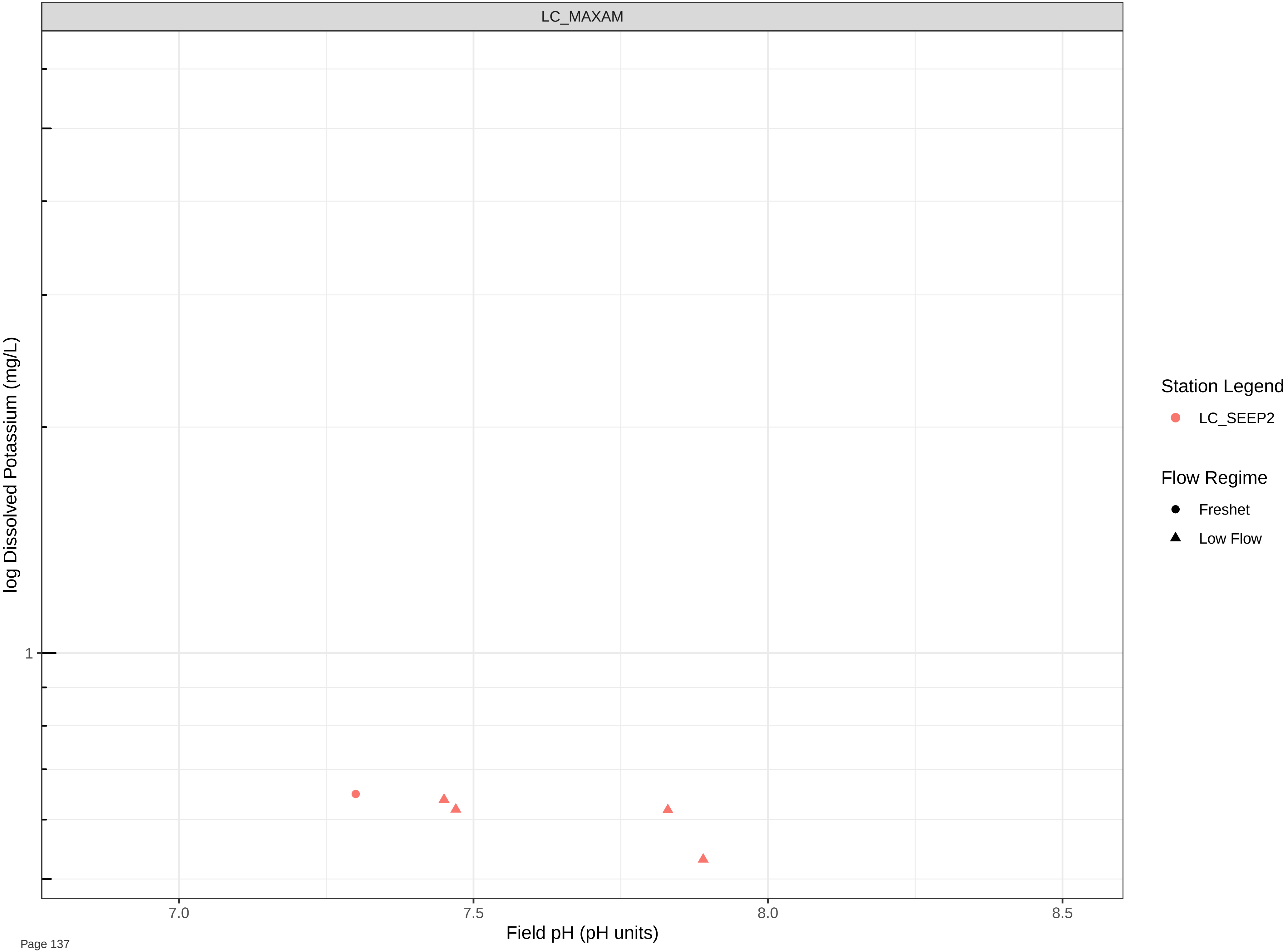
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow


LC_MAXAM
log Dissolved Potassium (mg/L)
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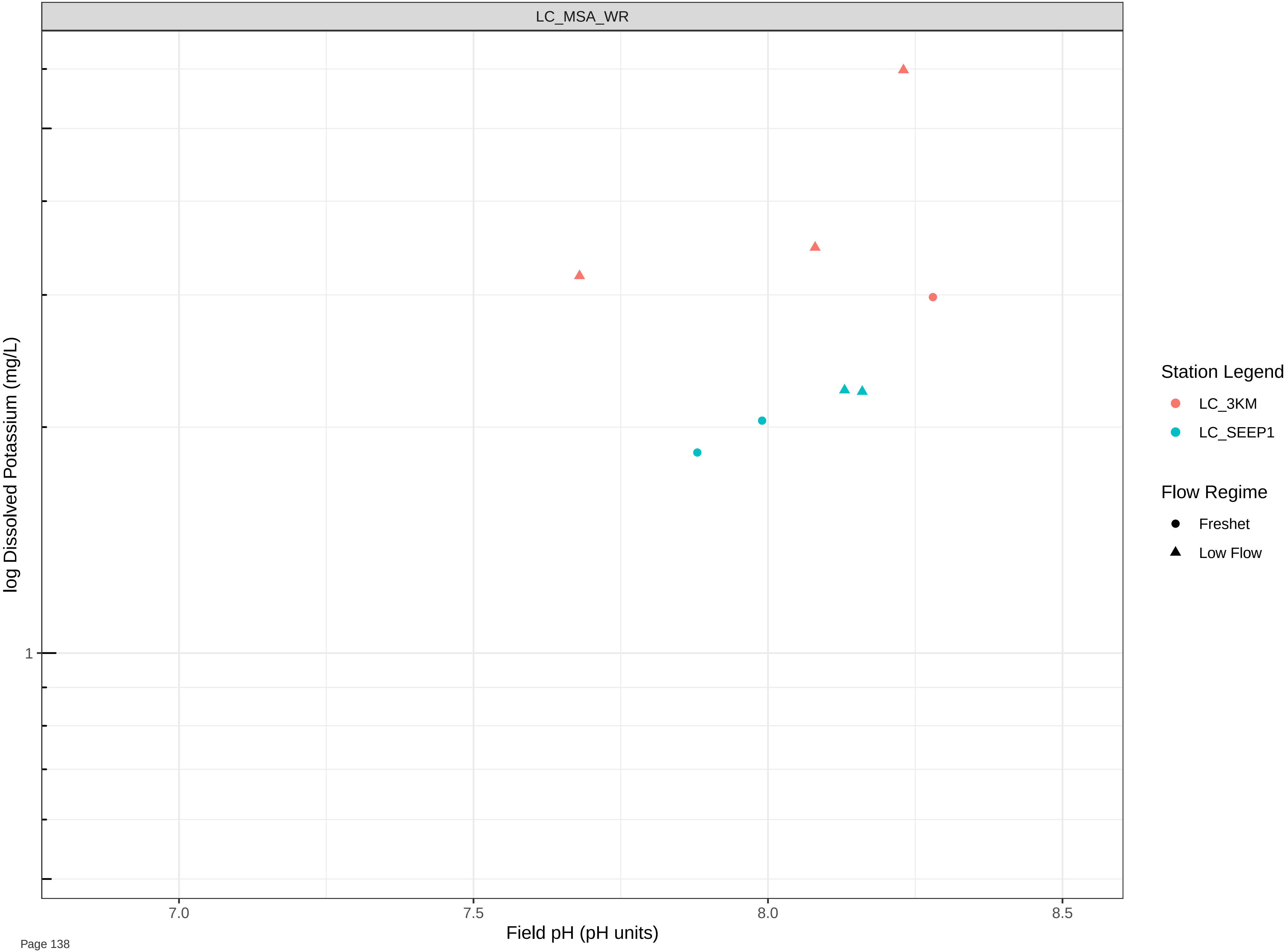
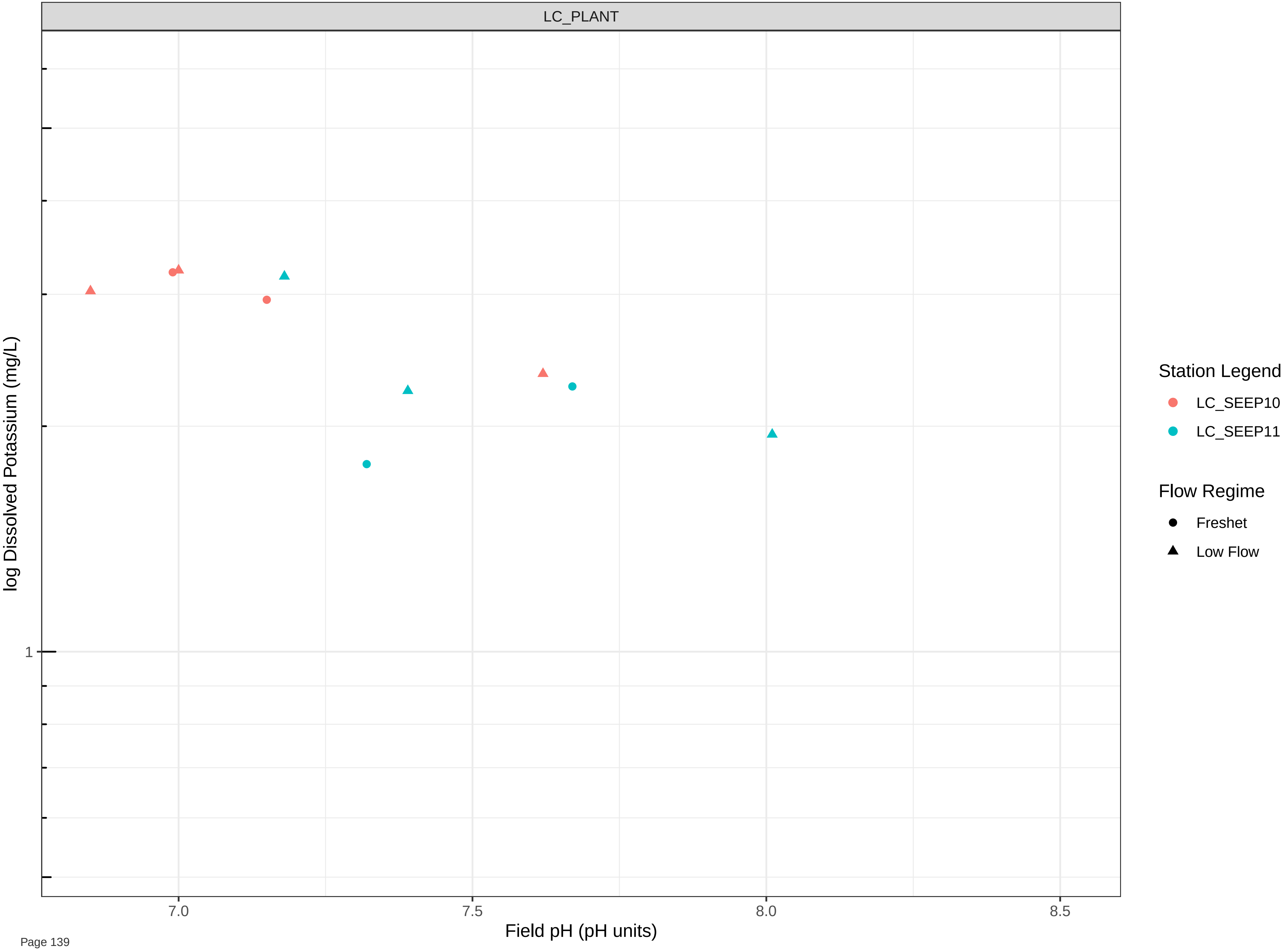
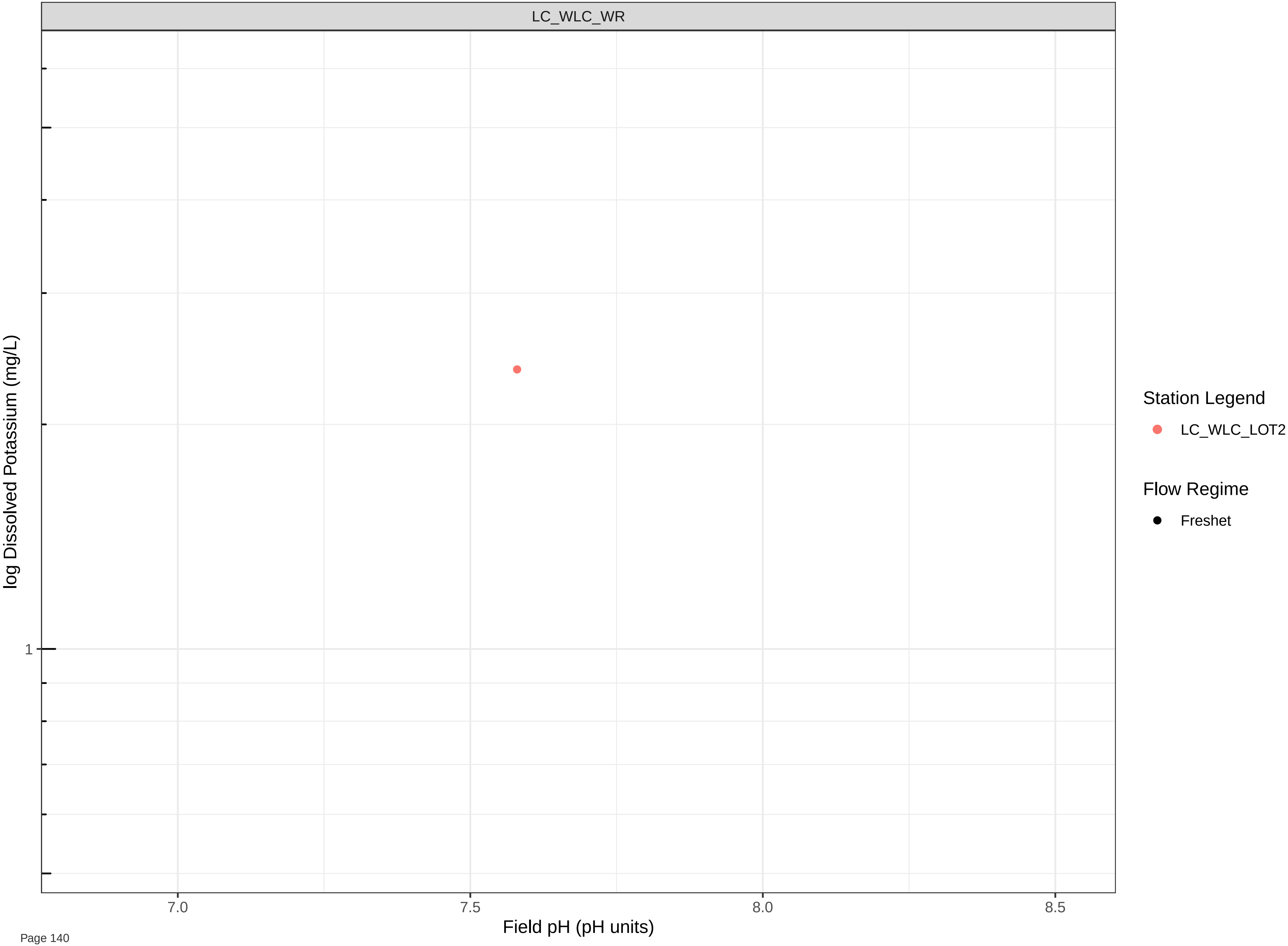
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow


LC_MSA_WR
log Dissolved Potassium (mg/L)
1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_3KM
● LC_SEEP1
Flow Regime
● Freshet
▲ Low Flow


LC_PLANT
log Dissolved Potassium (mg/L)
1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow


LC_WLC_WR
log Dissolved Potassium (mg/L)
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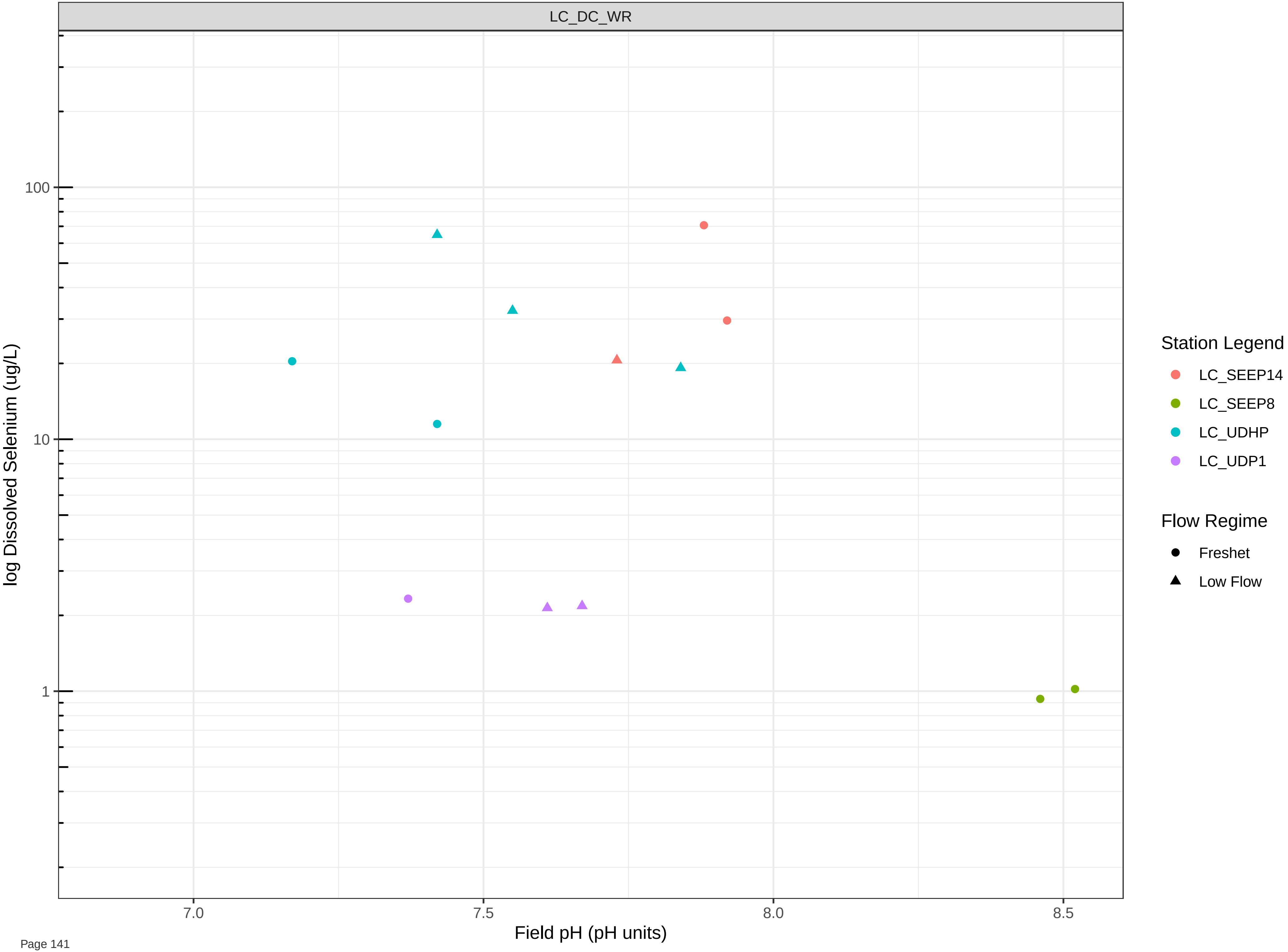
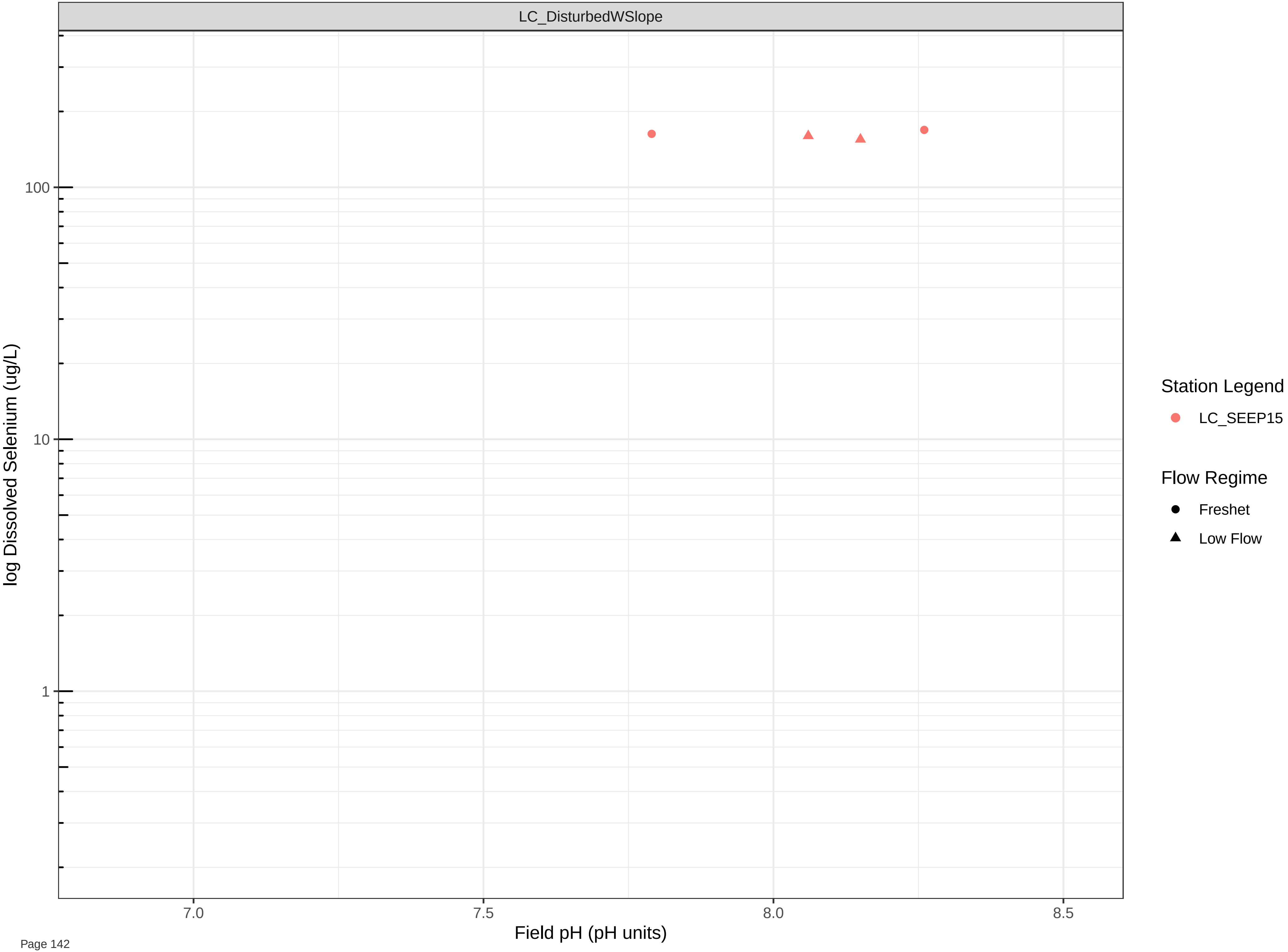
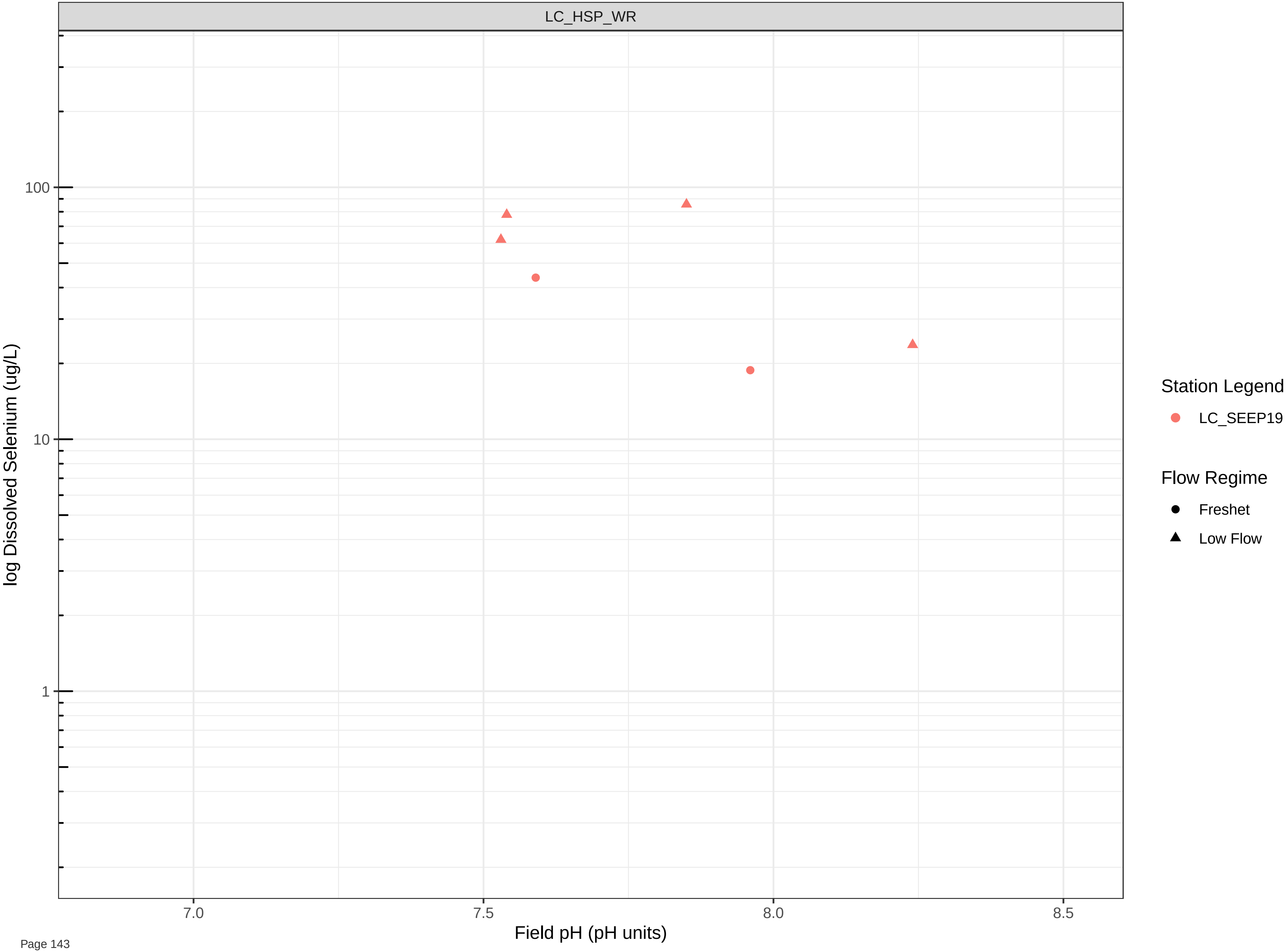
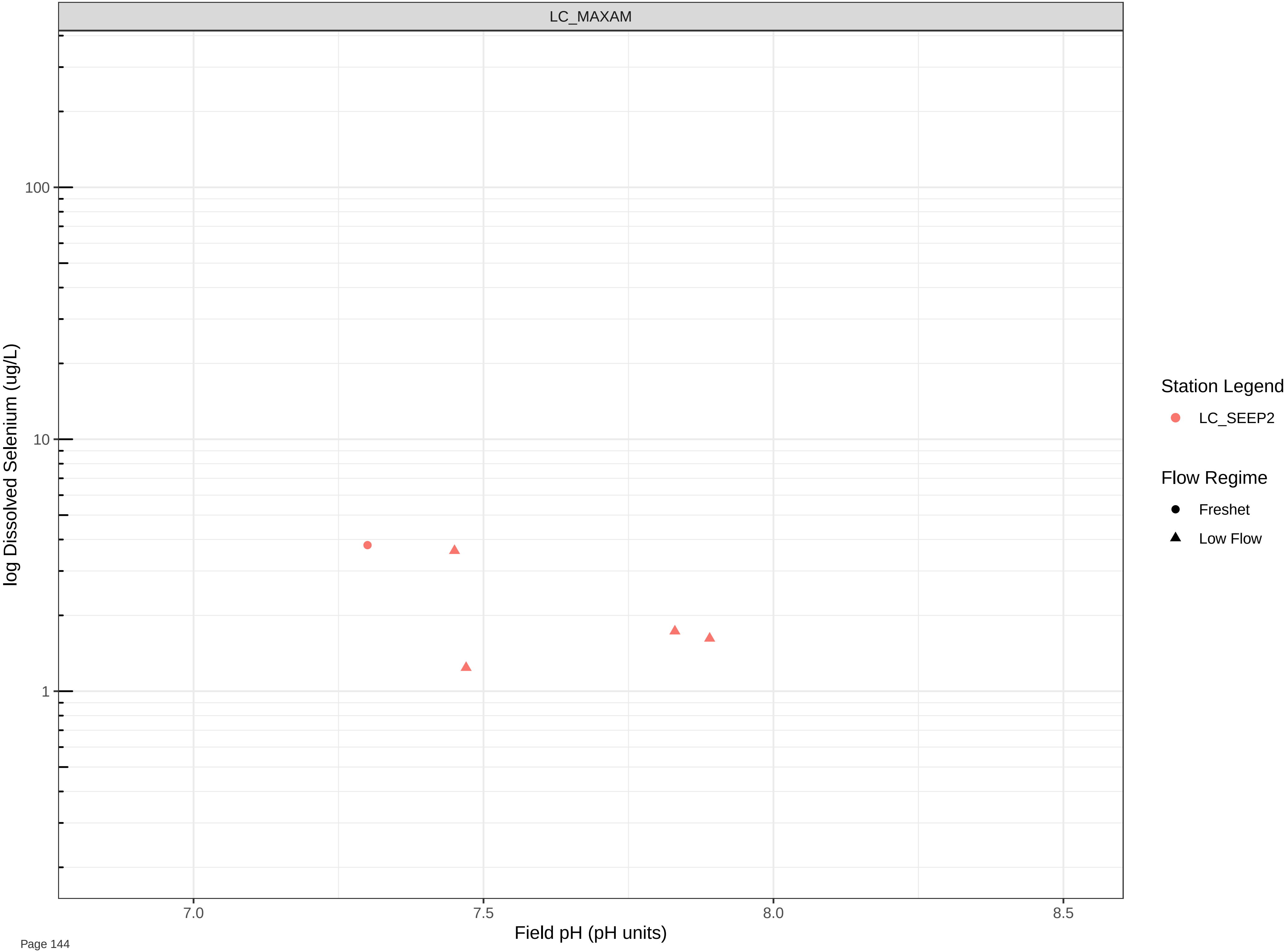
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet

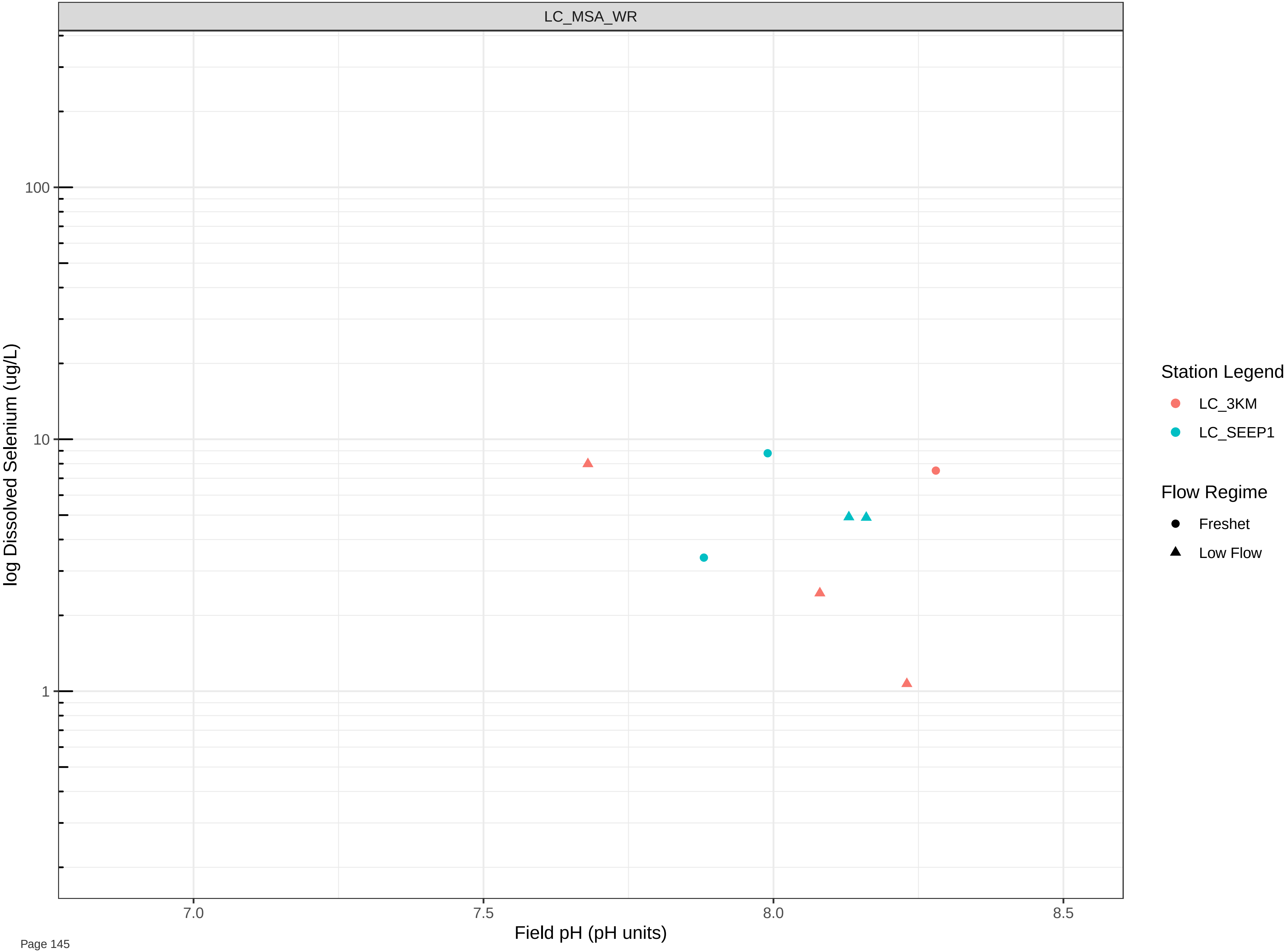


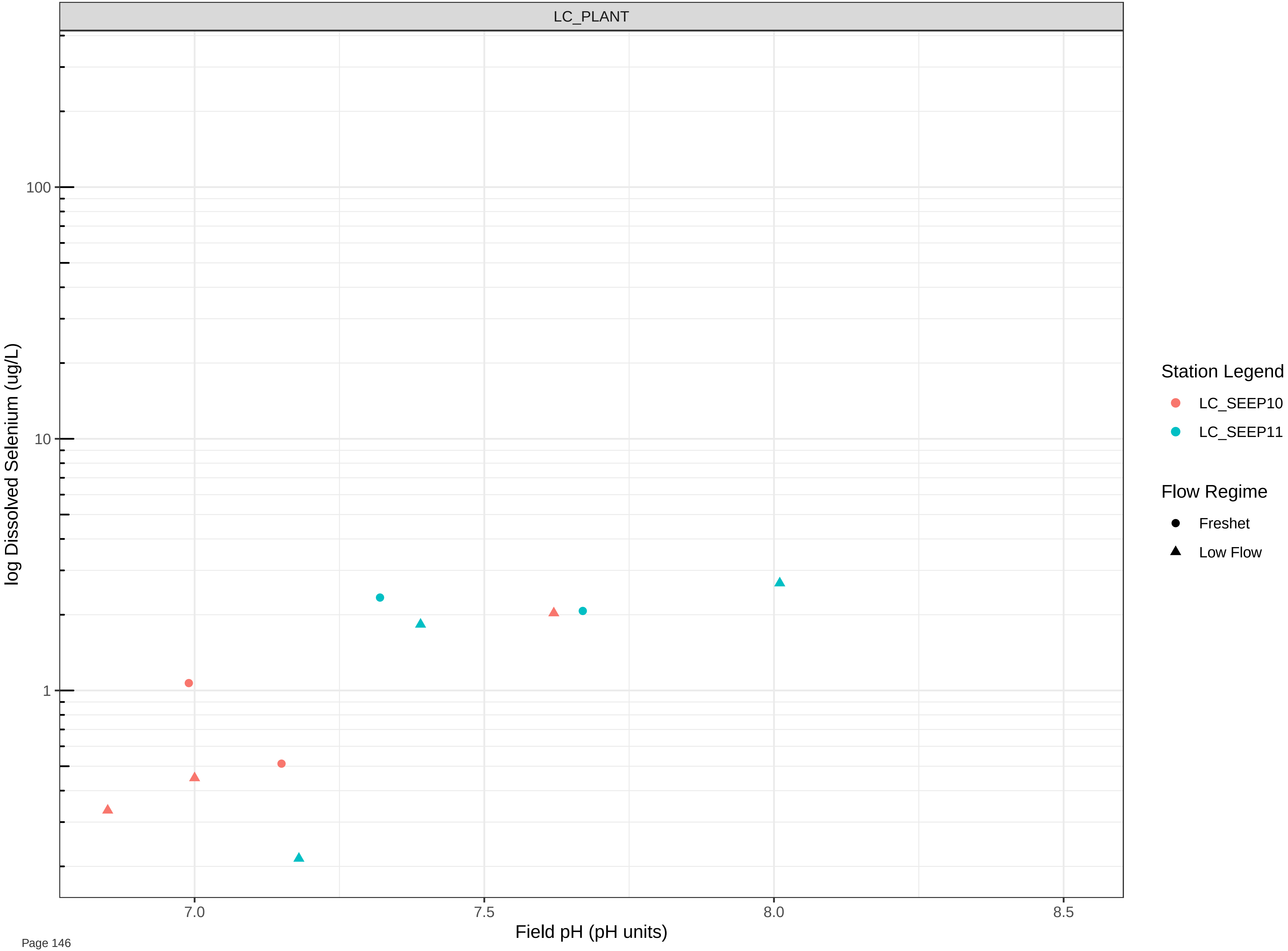
LC_DC_WR
log Dissolved Selenium (ug/L)
100
10
1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

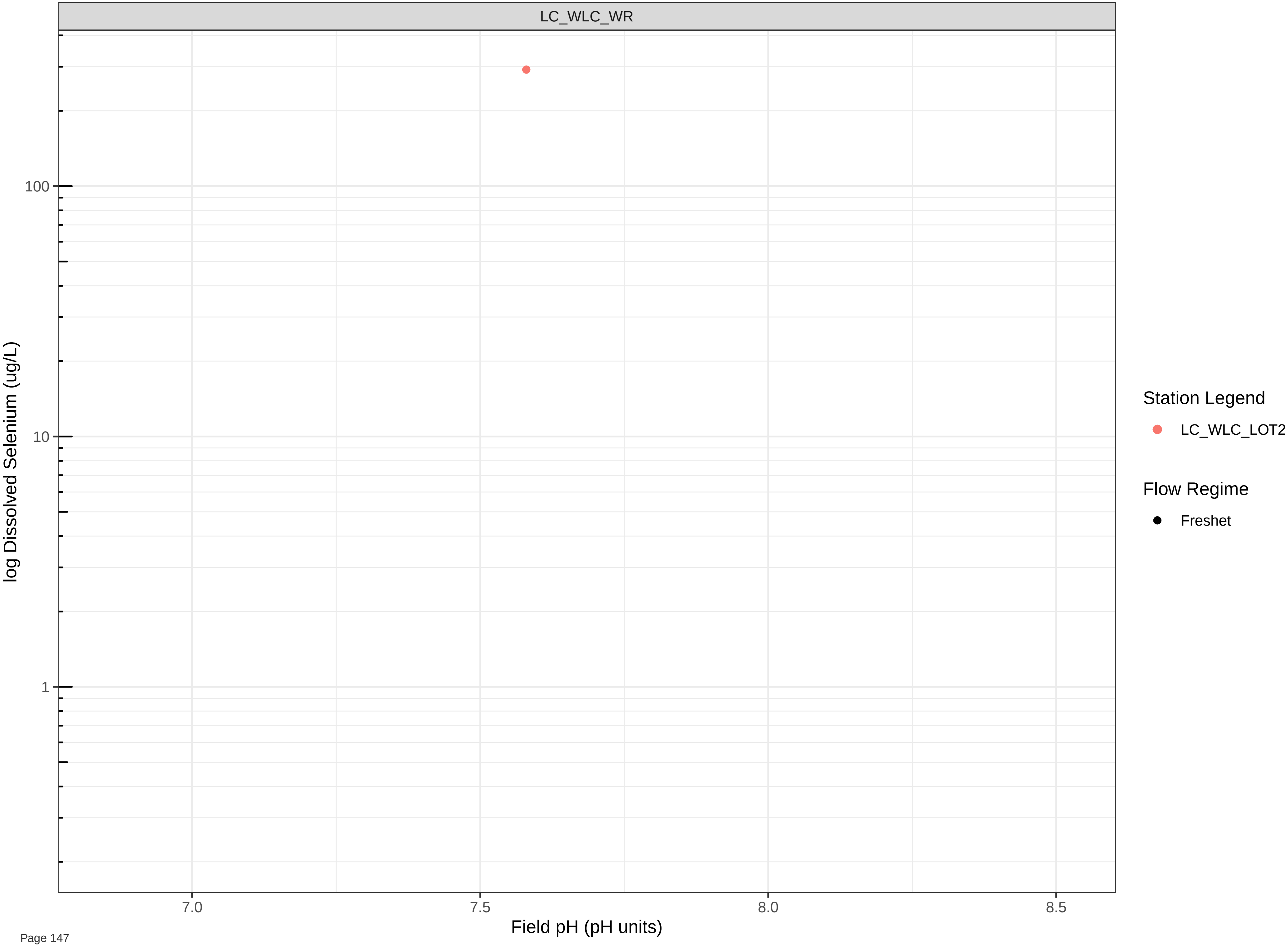

LC_DisturbedWSlope
log Dissolved Selenium (ug/L)
100
10
1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow

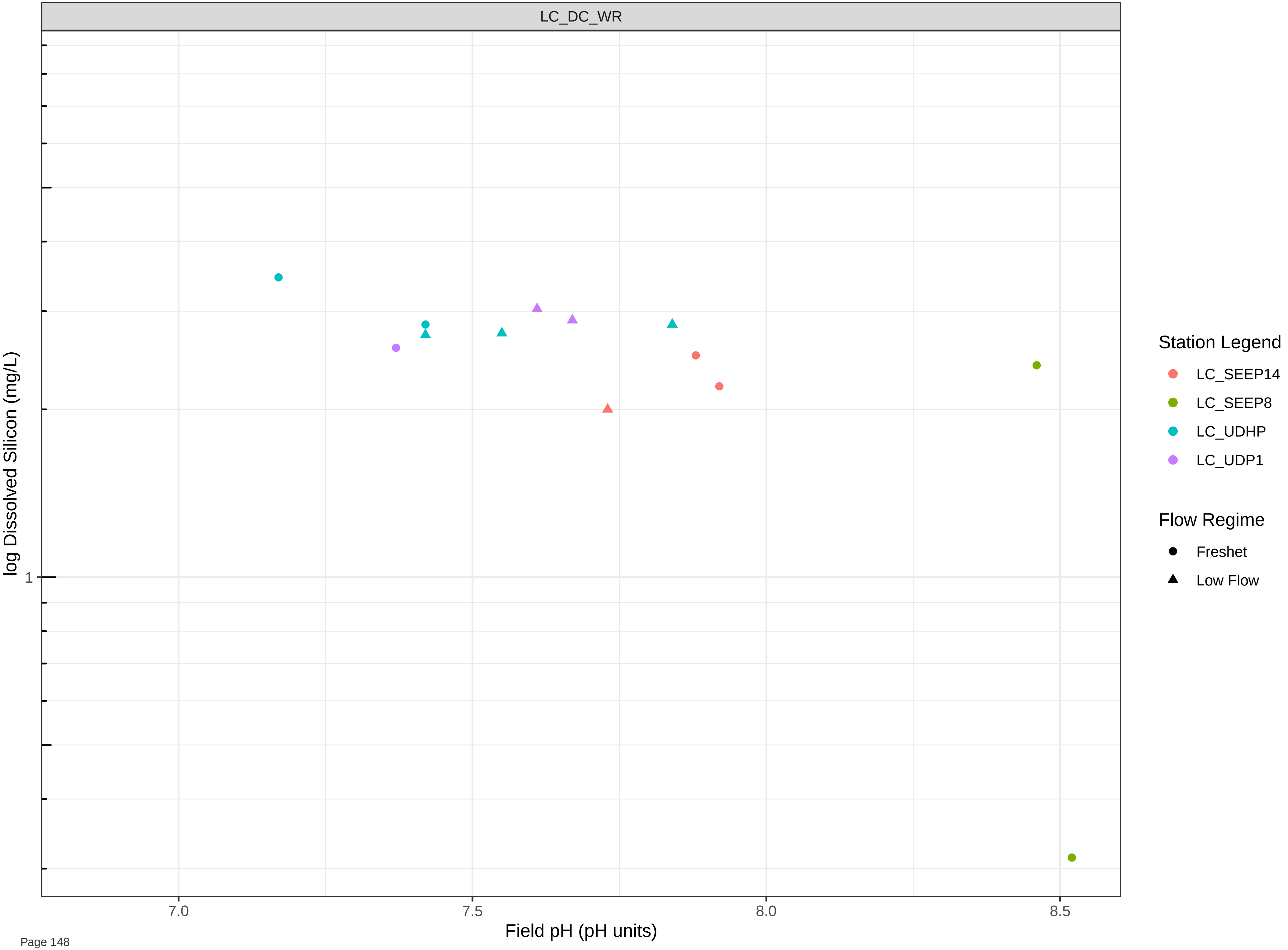

LC_HSP_WR
100
10
1
7.0
7.5
8.0
8.5
log Dissolved Selenium (ug/L)
Field pH (pH units)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

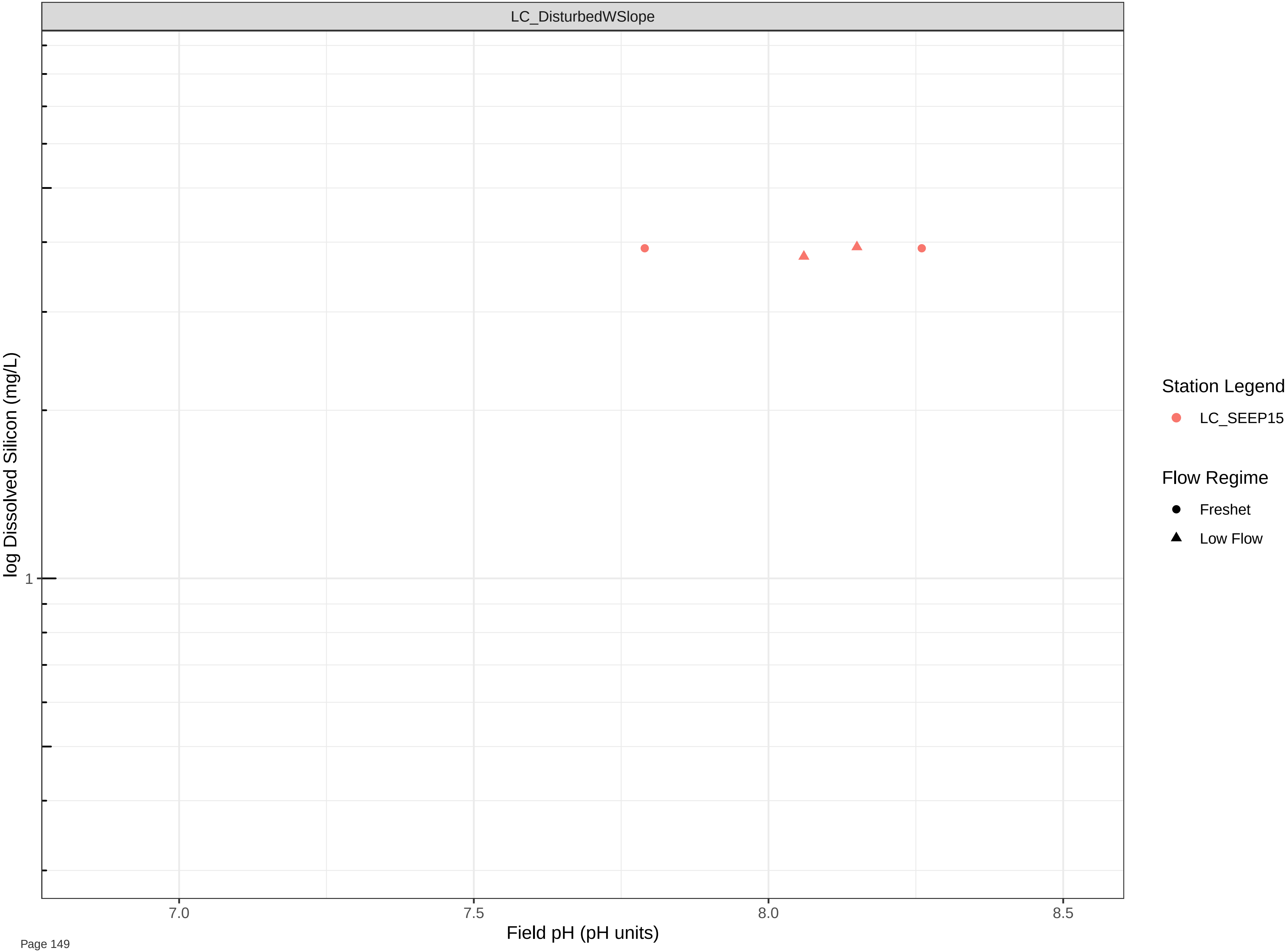

LC_MAXAM
log Dissolved Selenium (ug/L)
100
10
1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

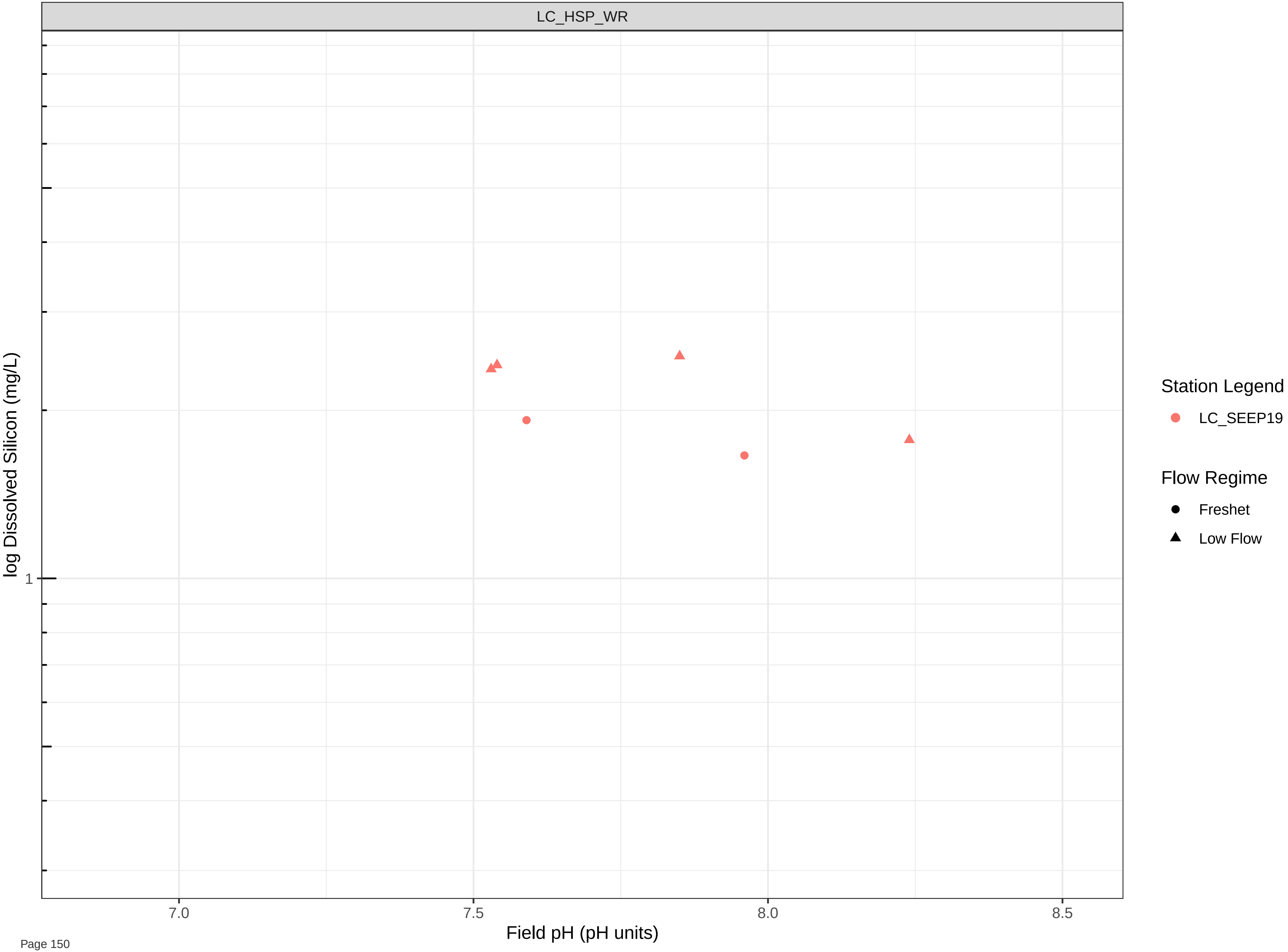

LC_MSA_WR
100
10
1
log Dissolved Selenium (ug/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow


LC_PLANT
log Dissolved Selenium (ug/L)
100
10
1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow


LC_WLC_WR
log Dissolved Selenium (ug/L)
100
10
1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet


LC_DC_WR
log Dissolved Silicon (mg/L)
1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
log Dissolved Silicon (mg/L)
1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow


LC_HSP_WR
log Dissolved Silicon (mg/L)
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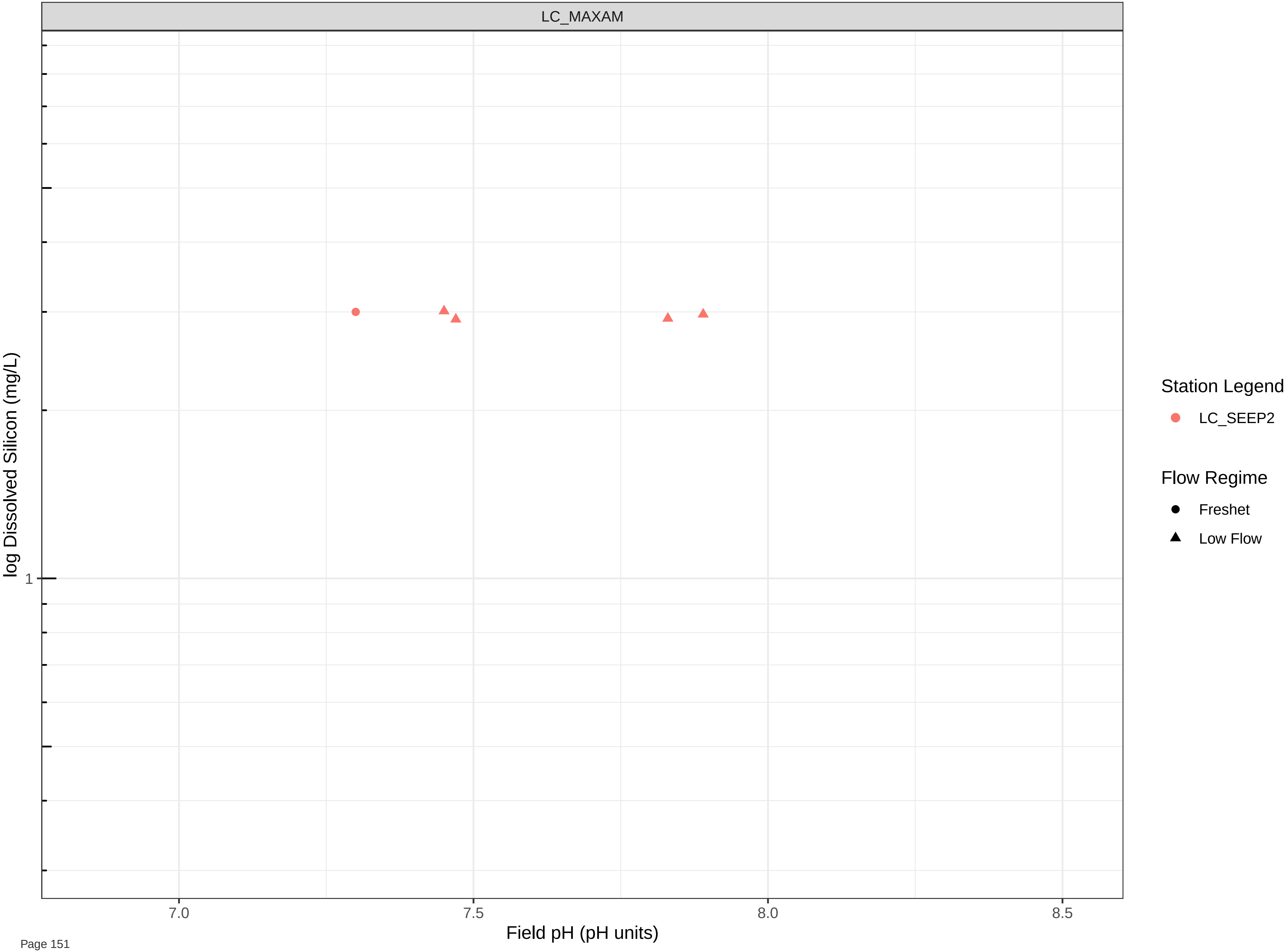
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow



LC_MAXAM
log Dissolved Silicon (mg/L)
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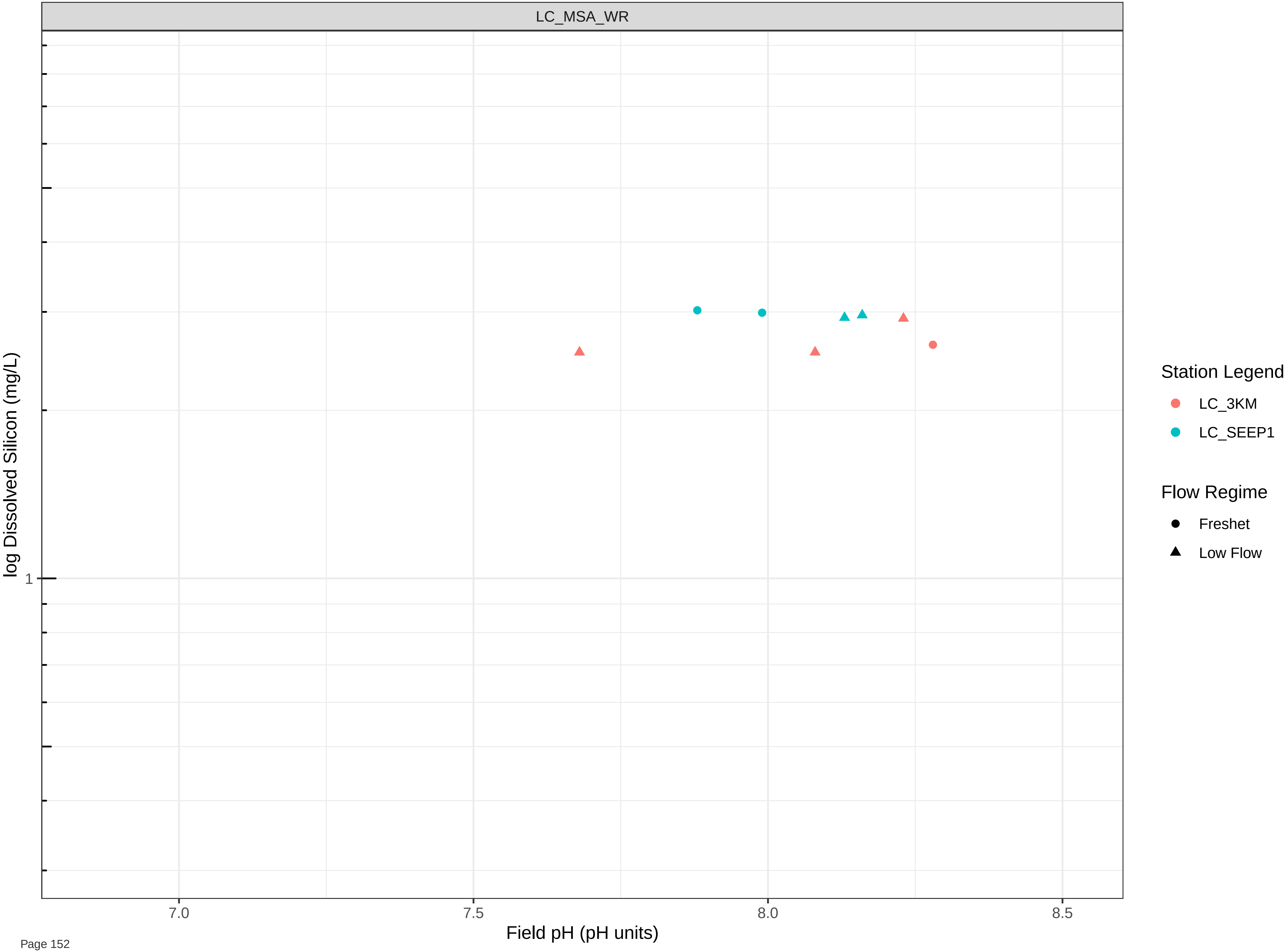
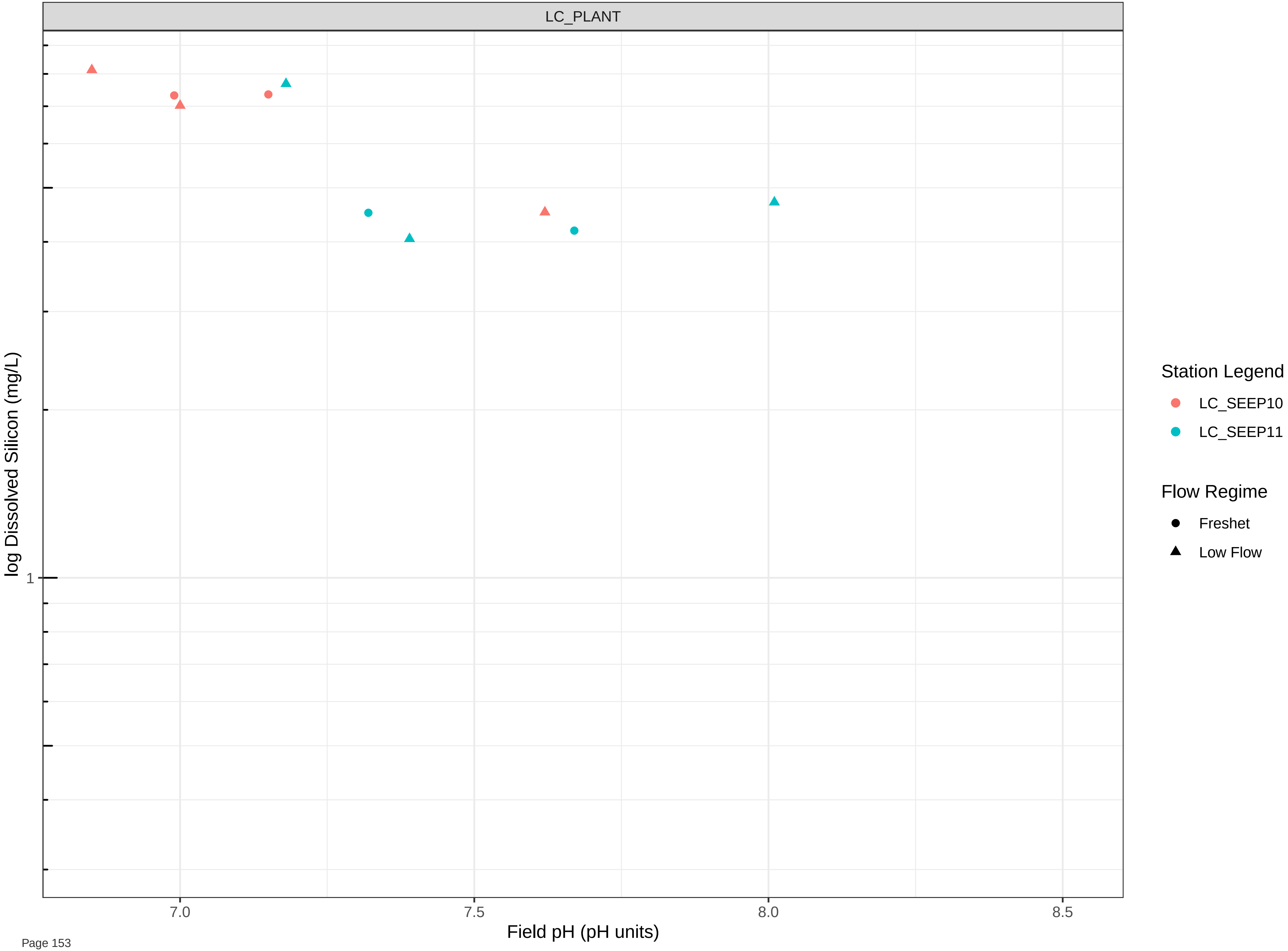
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow


LC_MSA_WR
log Dissolved Silicon (mg/L)
1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow


LC_PLANT
log Dissolved Silicon (mg/L)
1
Field pH (pH units)
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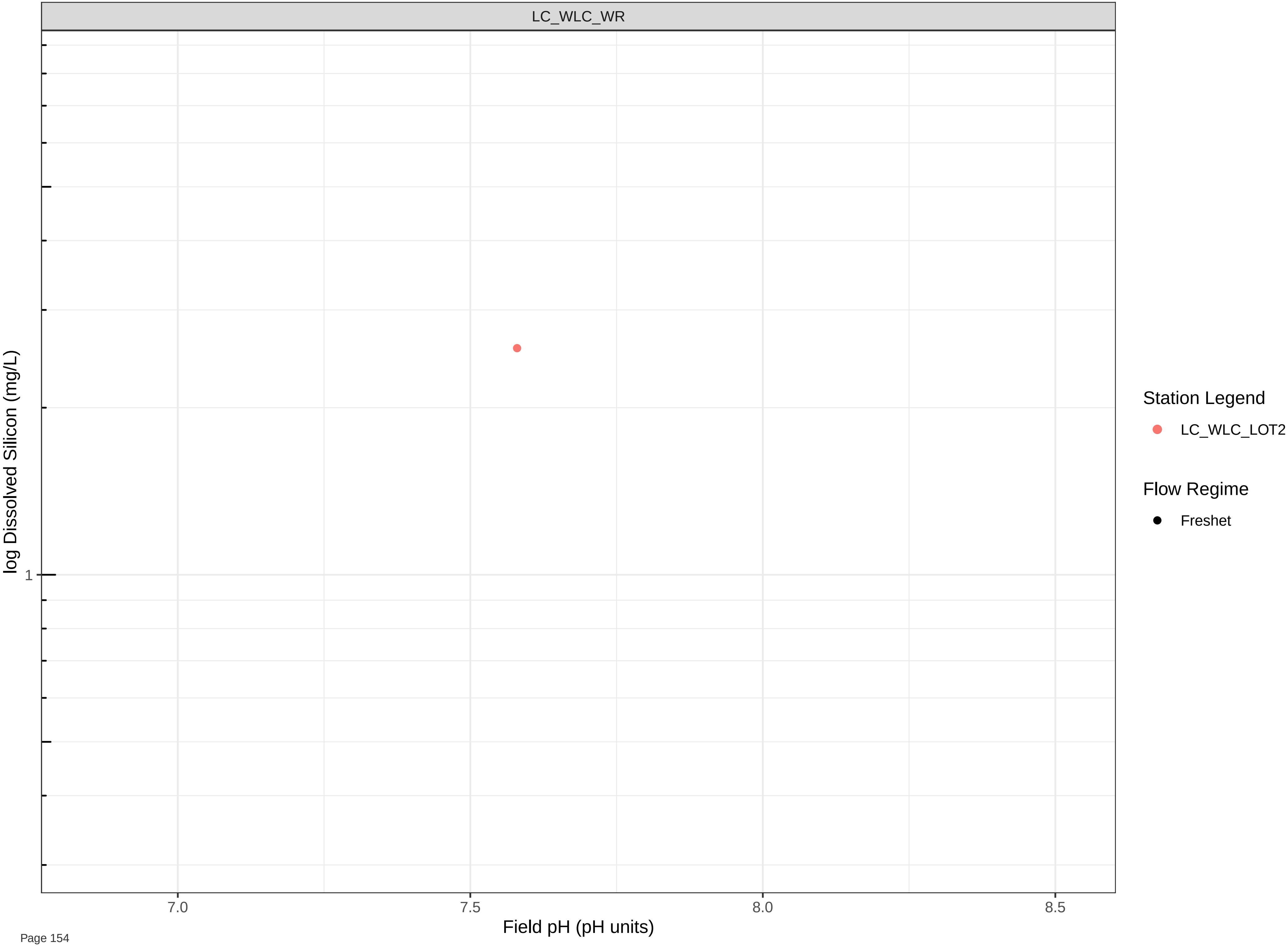
7.5
8.0
8.5
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow


LC_WLC_WR
log Dissolved Silicon (mg/L)
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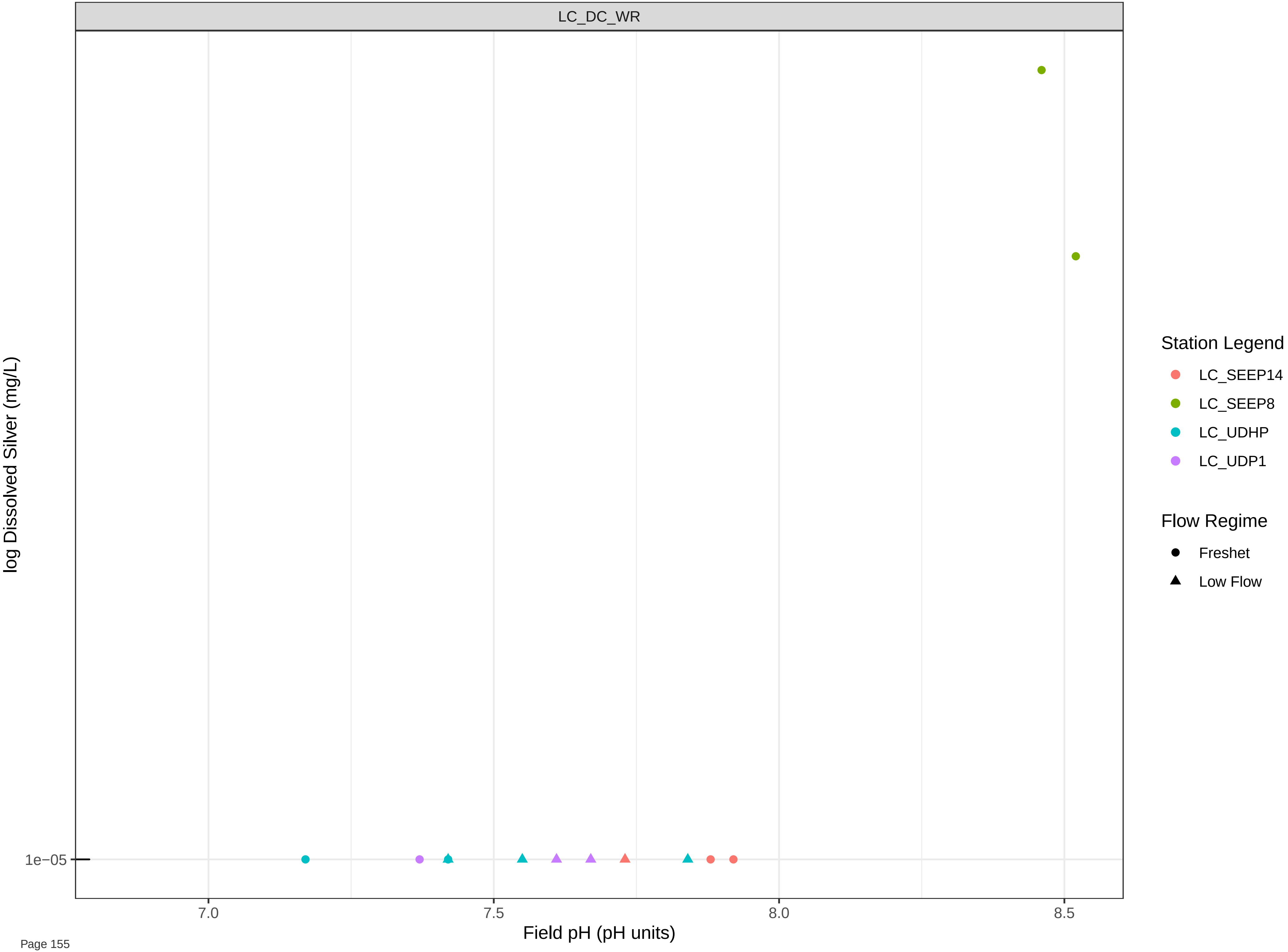
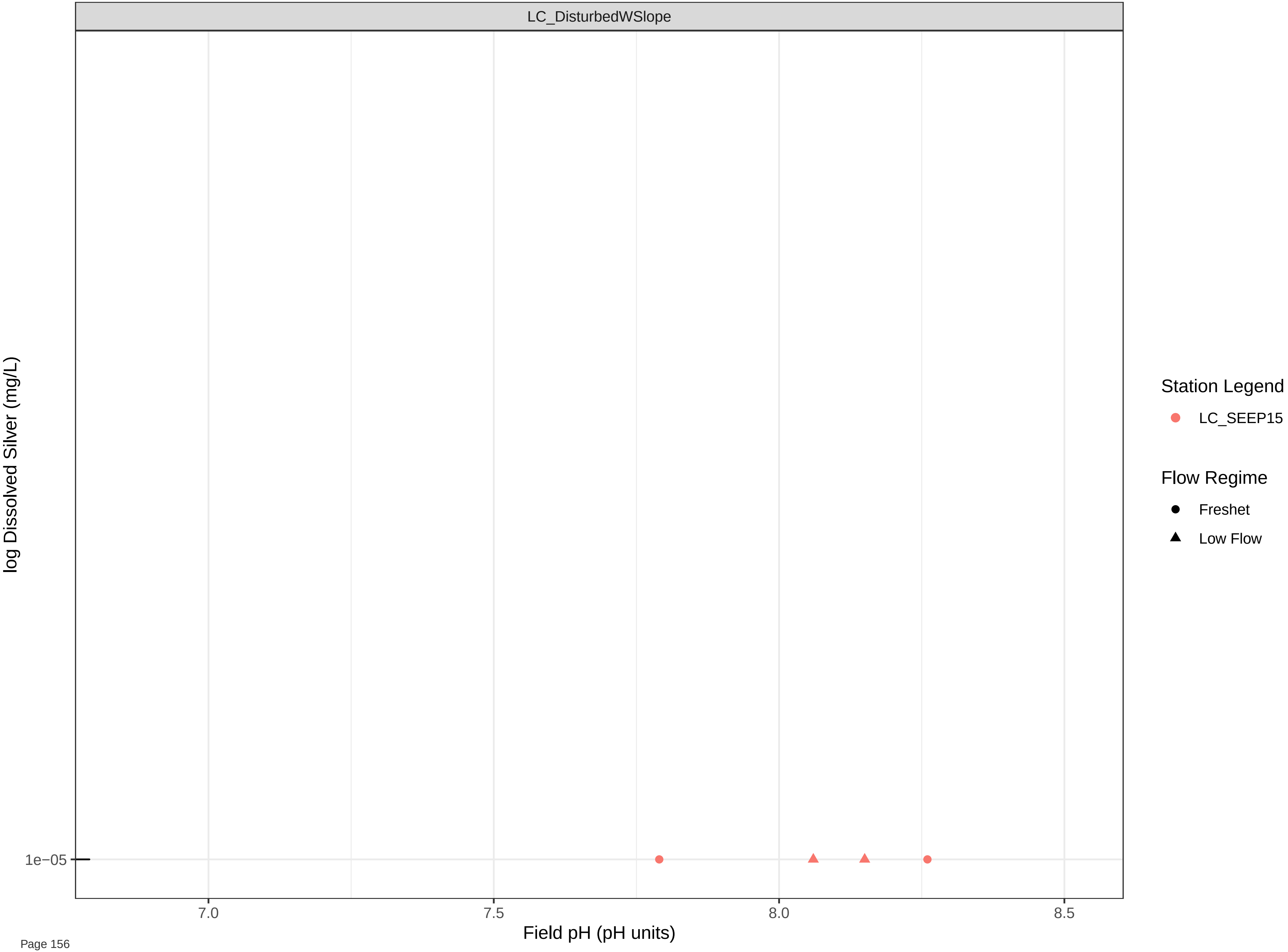
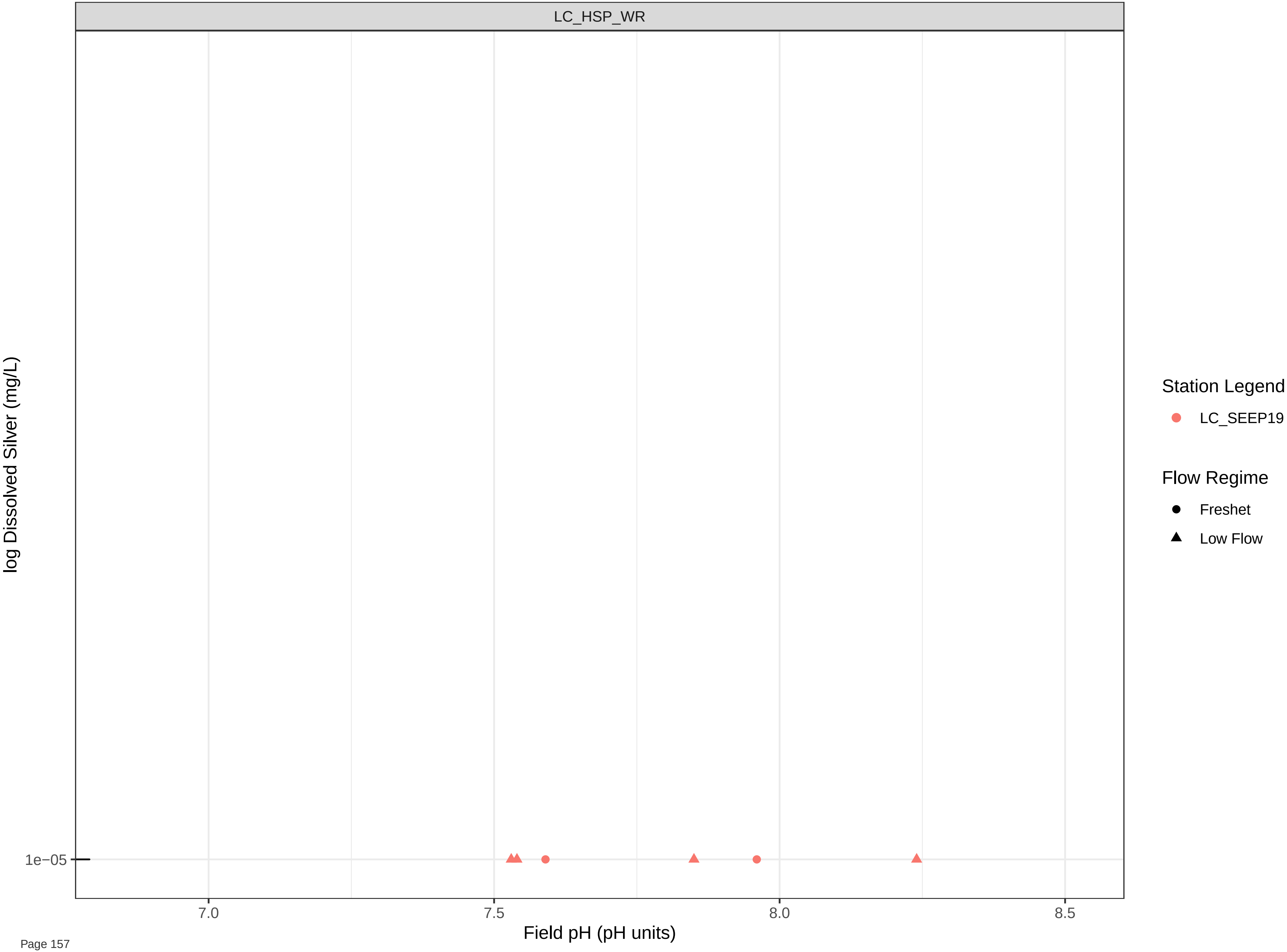
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet


LC_DC_WR
log Dissolved Silver (mg/L)
1e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
log Dissolved Silver (mg/L)
1e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow


LC_HSP_WR
log Dissolved Silver (mg/L)
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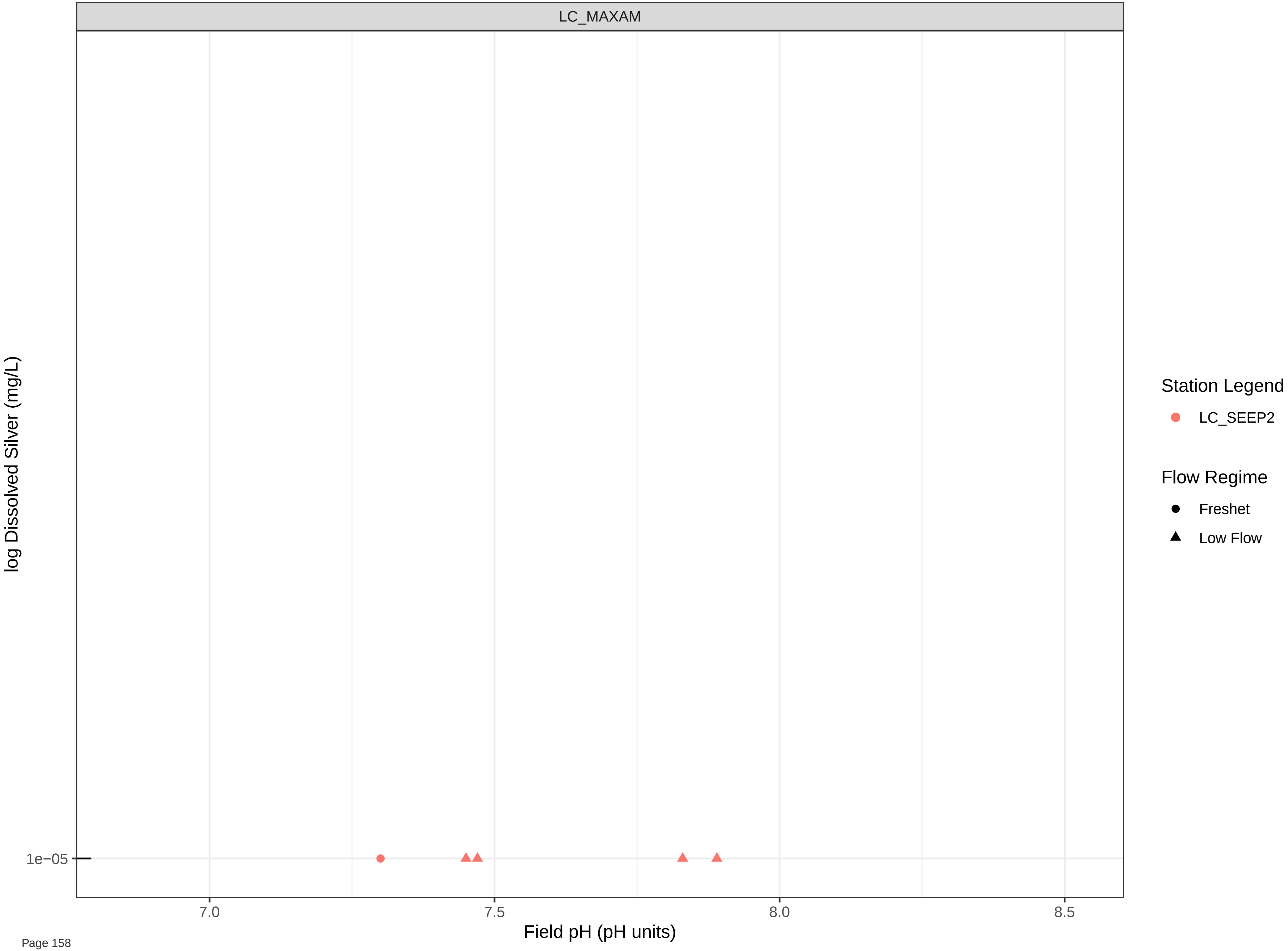
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow


LC_MAXAM
log Dissolved Silver (mg/L)
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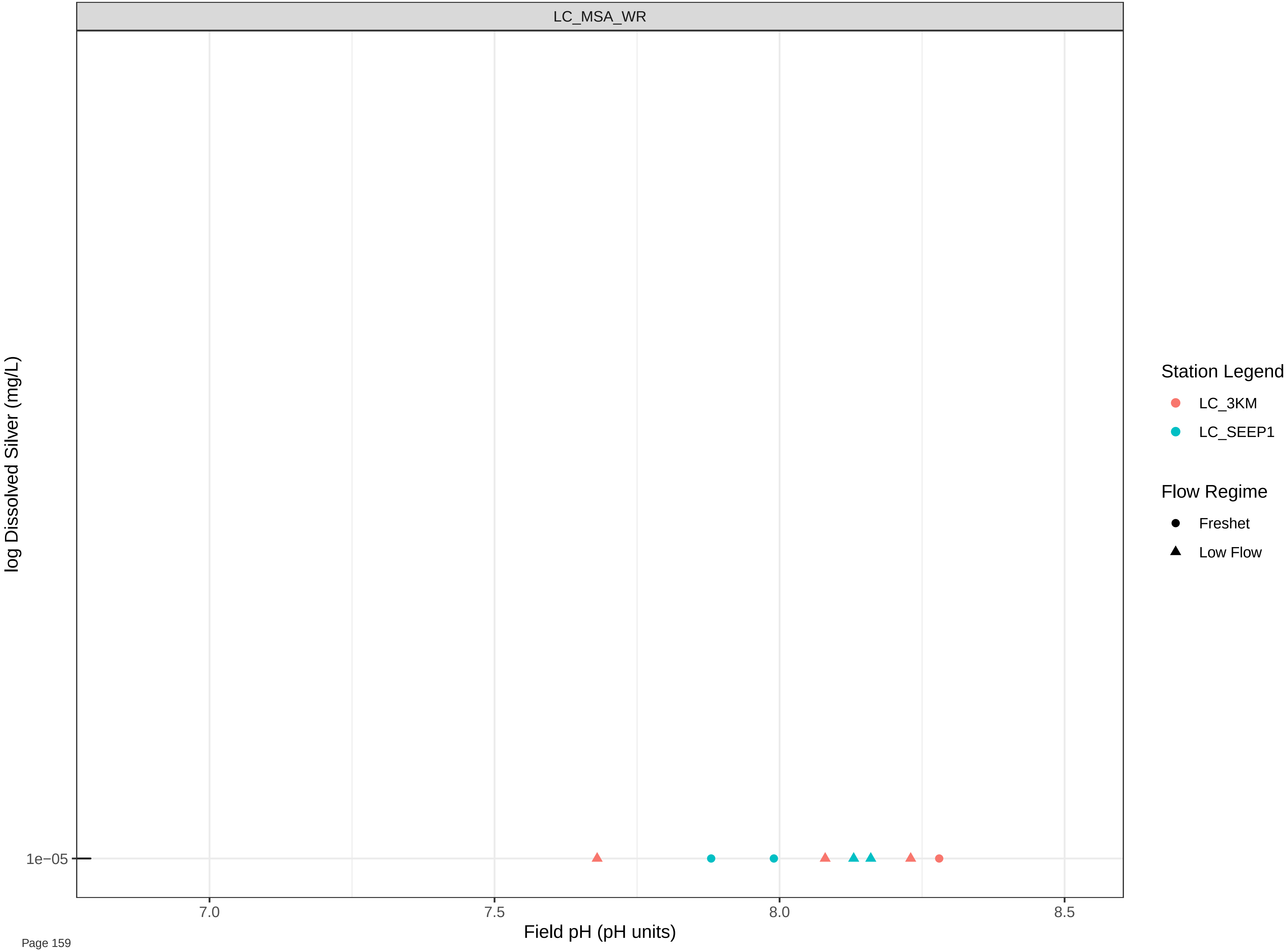
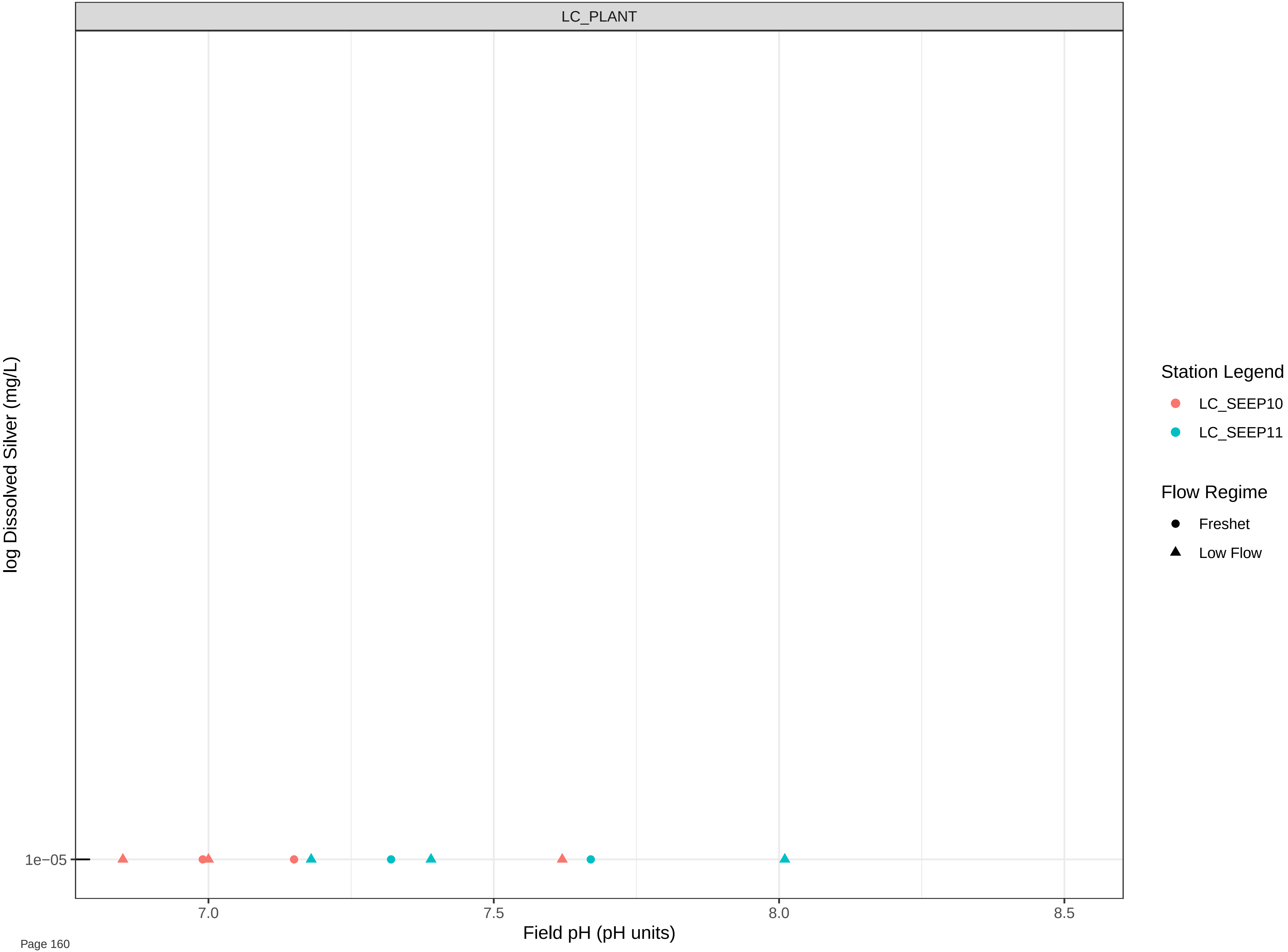
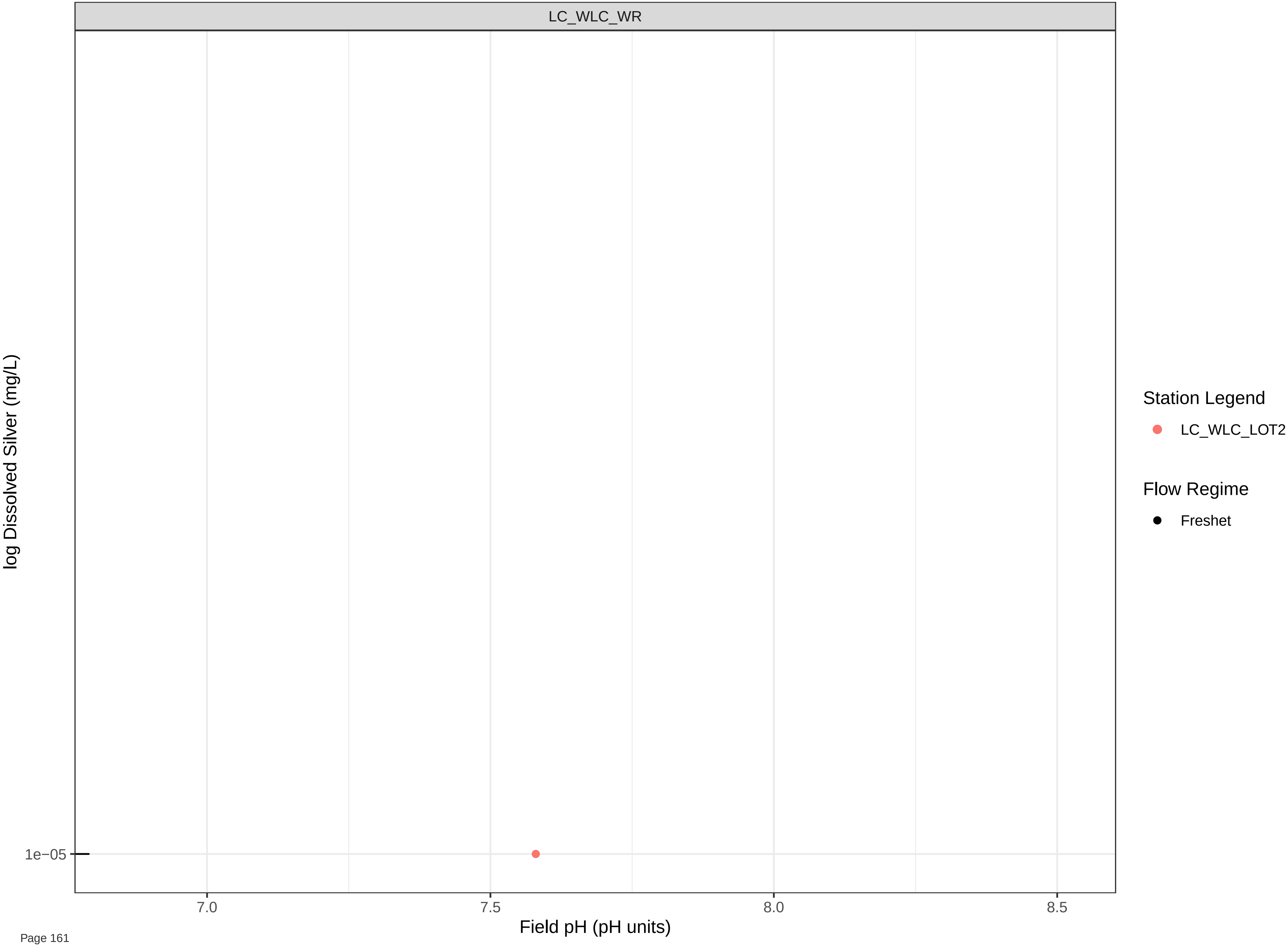
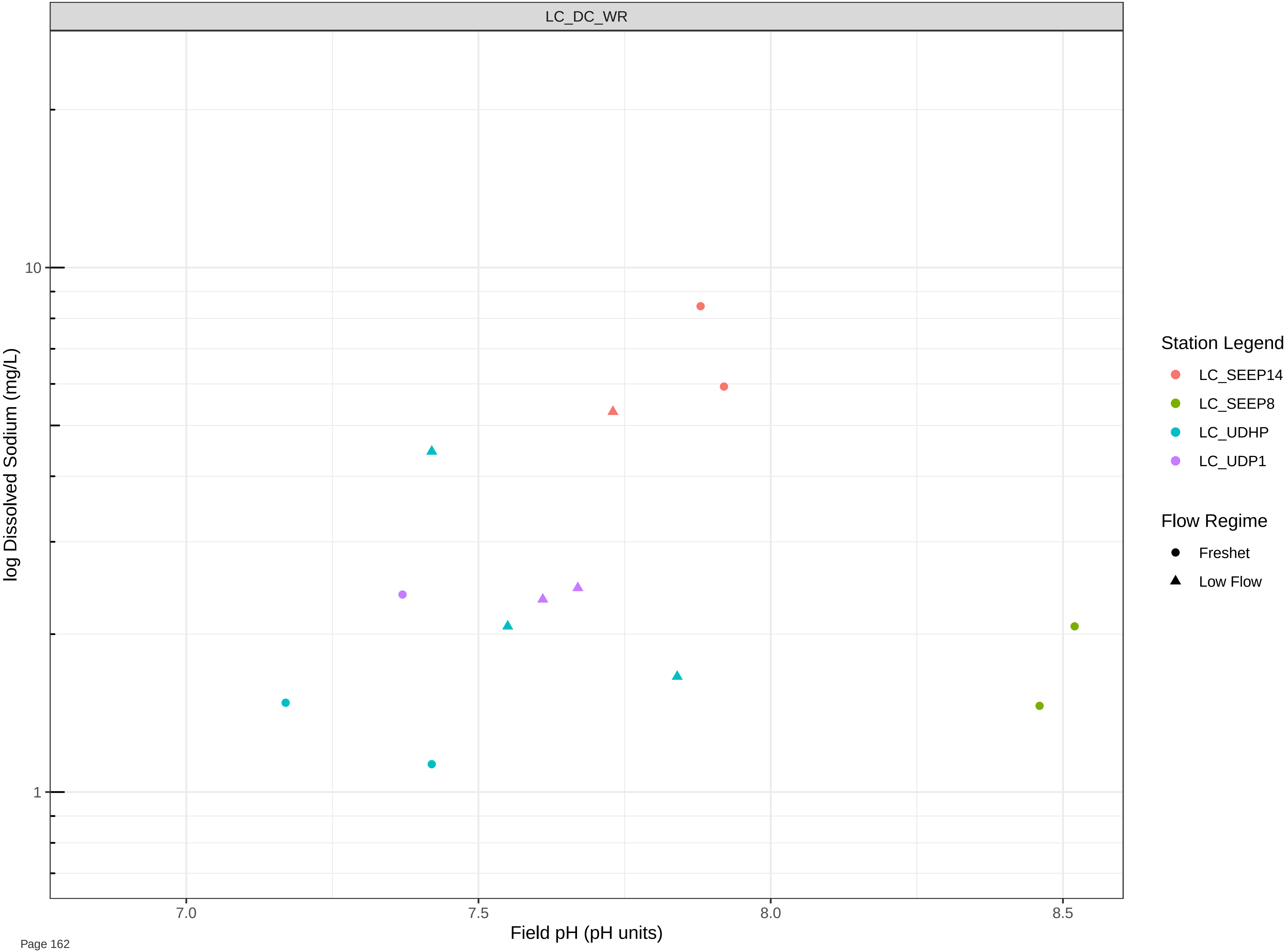
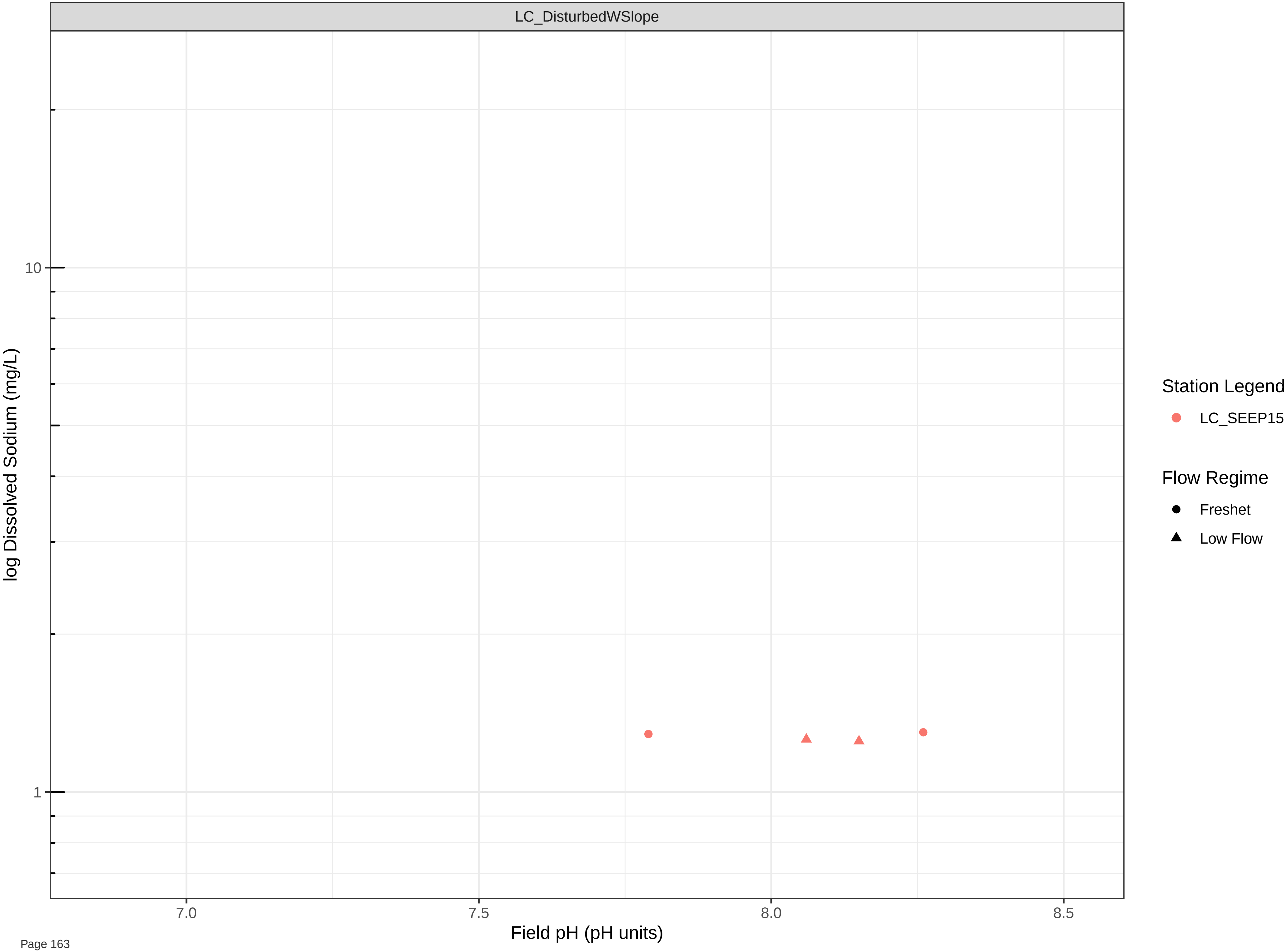
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow


LC_MSA_WR
log Dissolved Silver (mg/L)
1e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow


LC_PLANT
log Dissolved Silver (mg/L)
1e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow


LC_WLC_WR
log Dissolved Silver (mg/L)
1e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet


LC_DC_WR
log Dissolved Sodium (mg/L)
10
1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
log Dissolved Sodium (mg/L)
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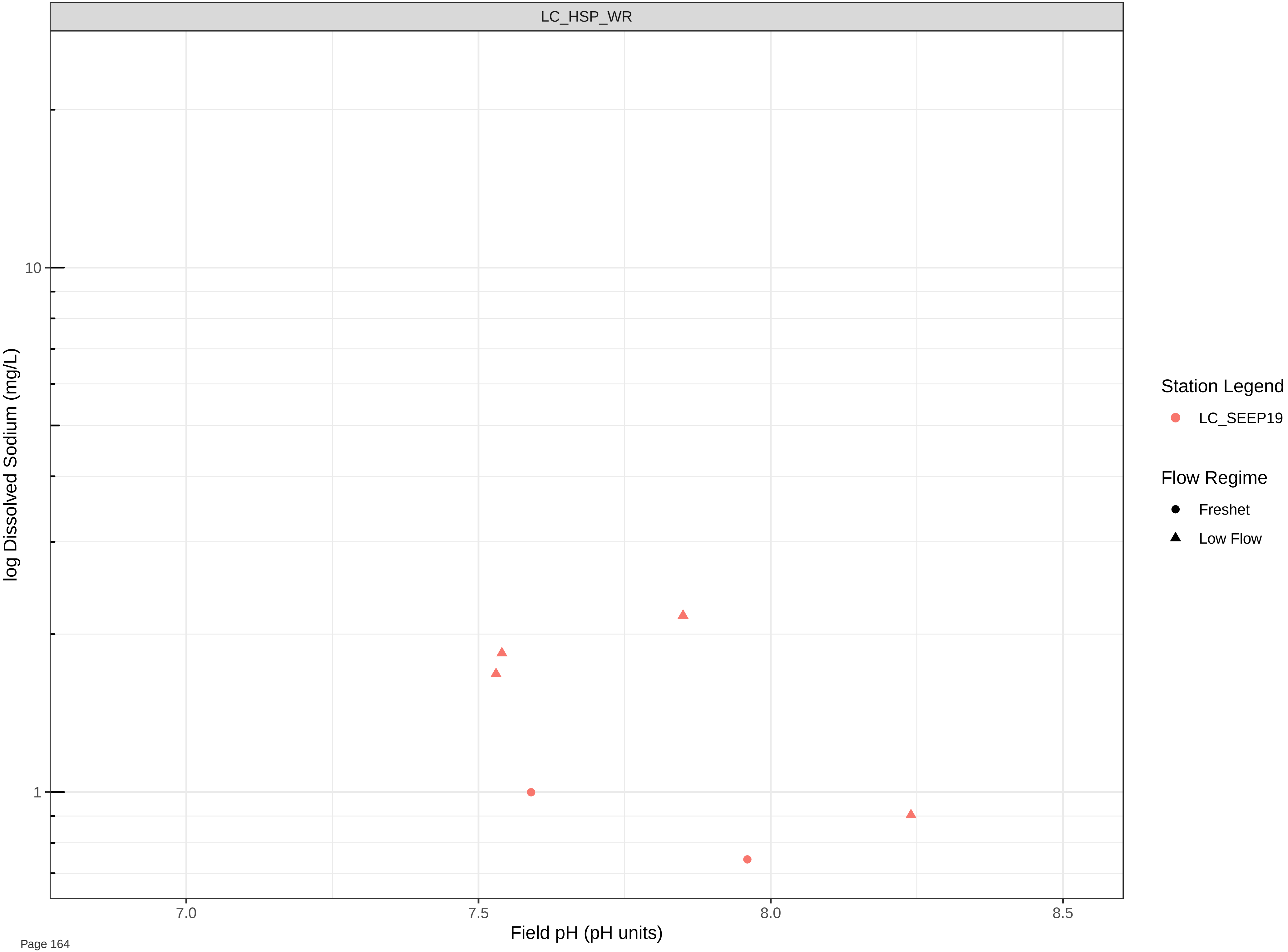
1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow


LC_HSP_WR
log Dissolved Sodium (mg/L)
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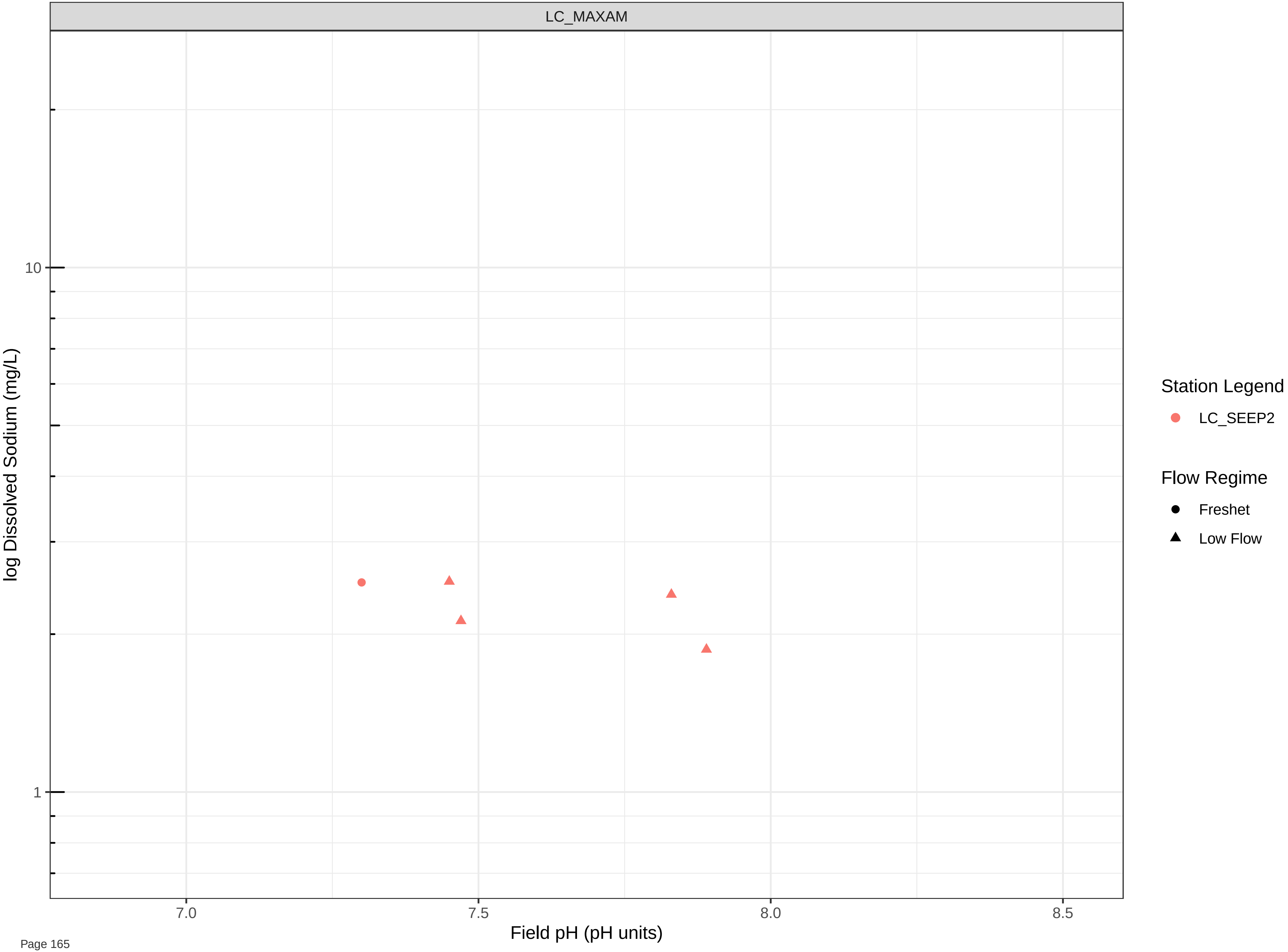
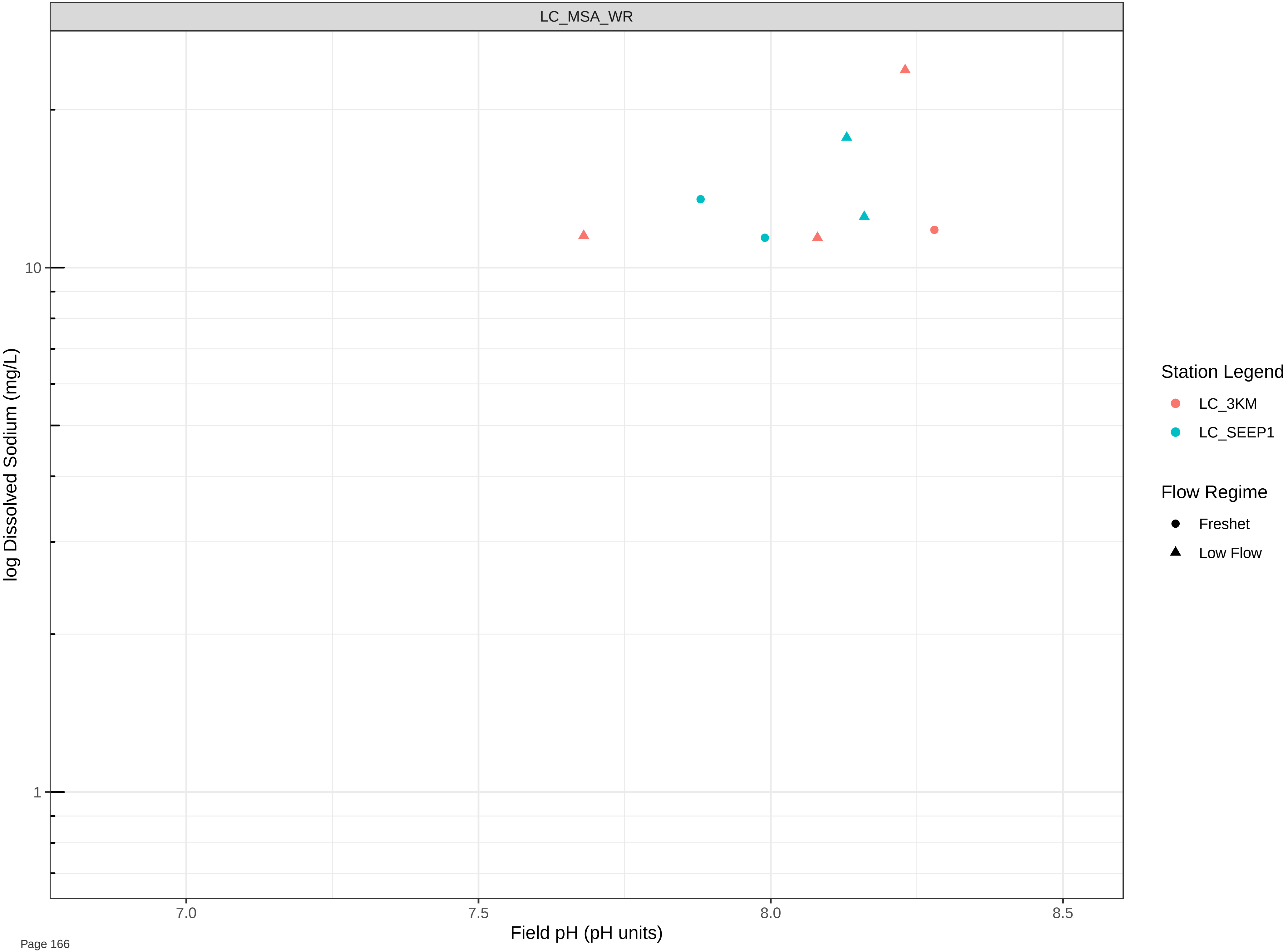
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow


LC_MAXAM
log Dissolved Sodium (mg/L)
10
1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow


LC_MSA_WR
log Dissolved Sodium (mg/L)
10
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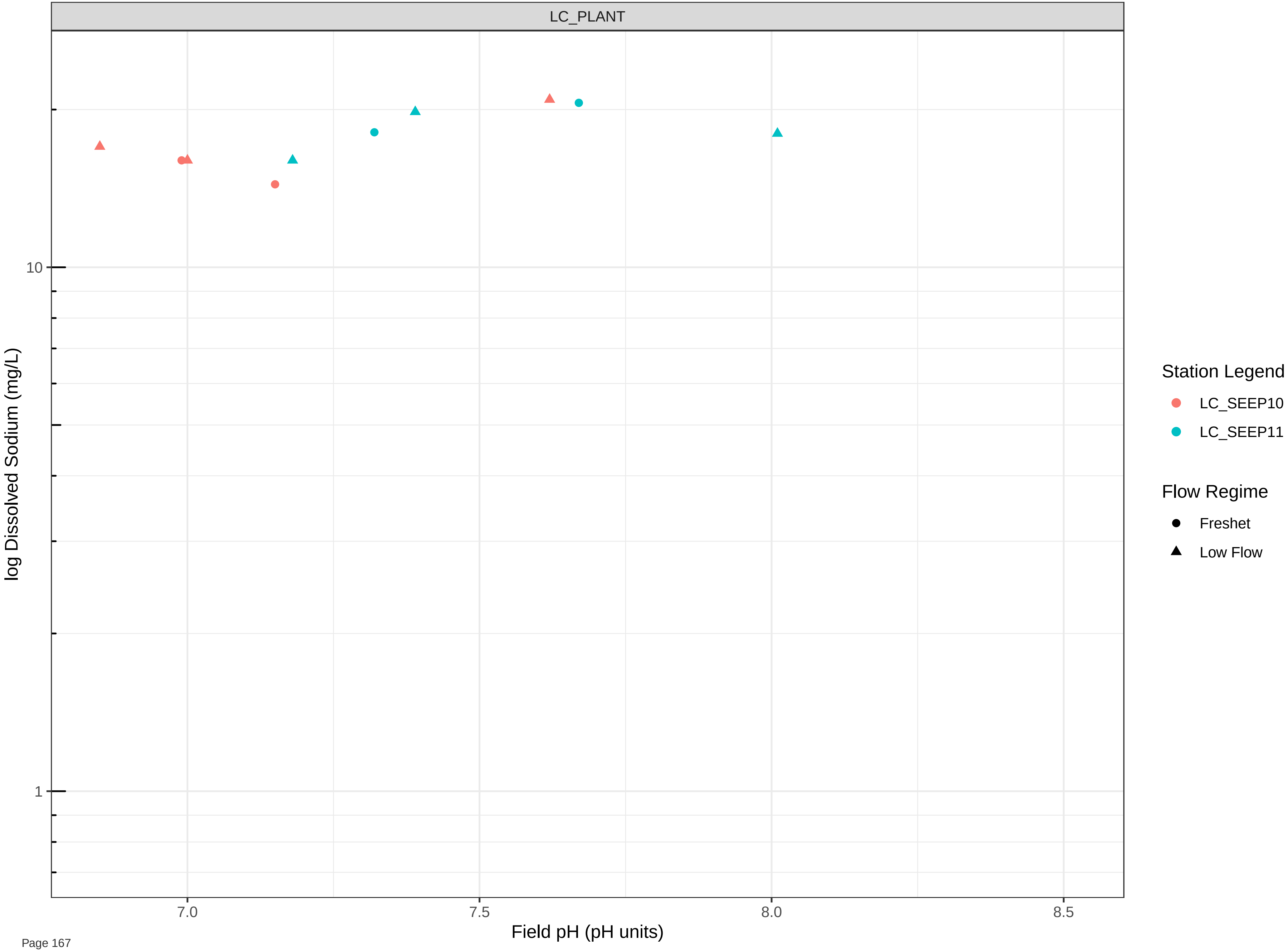
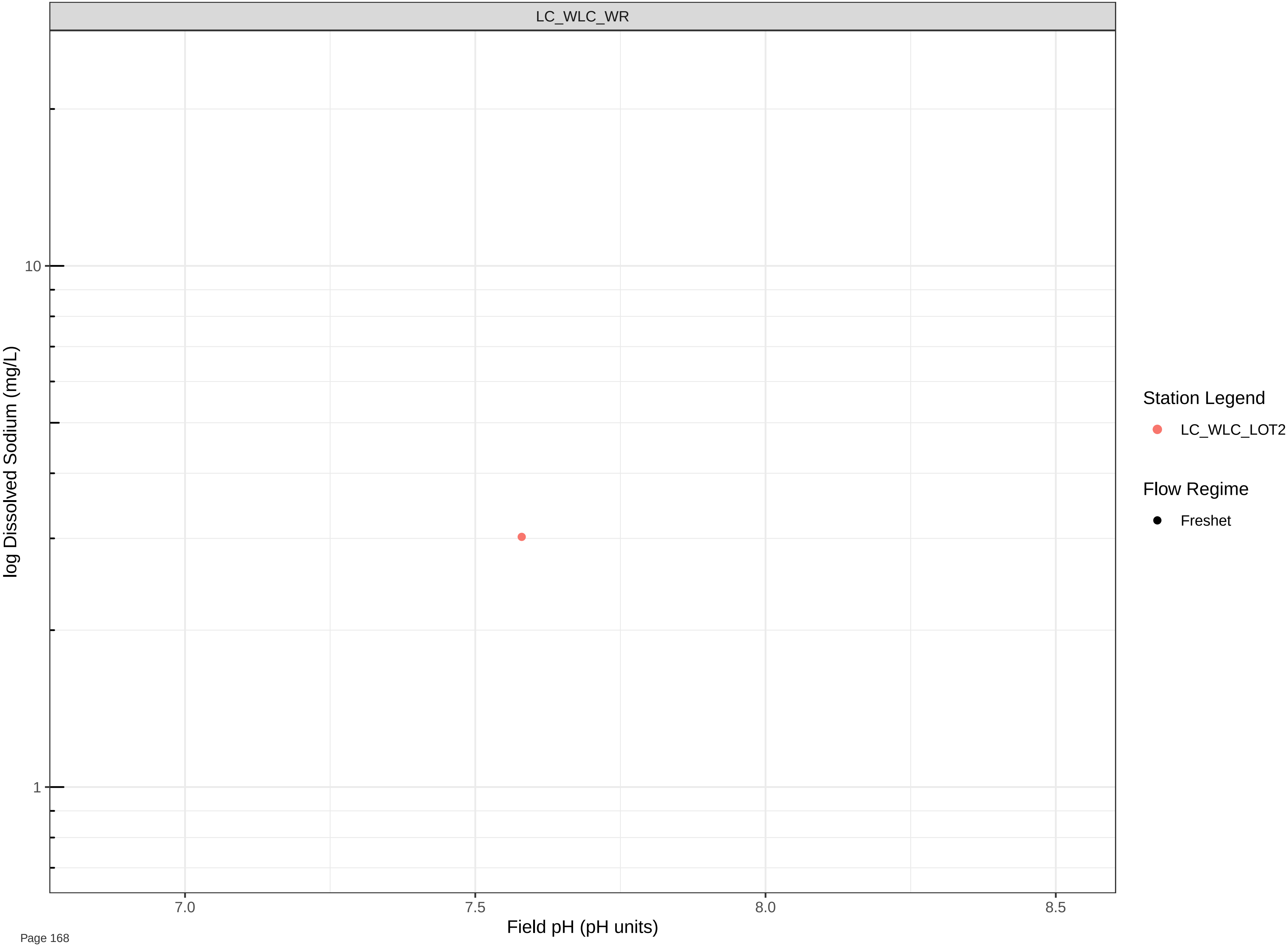
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow


LC_PLANT
log Dissolved Sodium (mg/L)
10
1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow


LC_WLC_WR
log Dissolved Sodium (mg/L)
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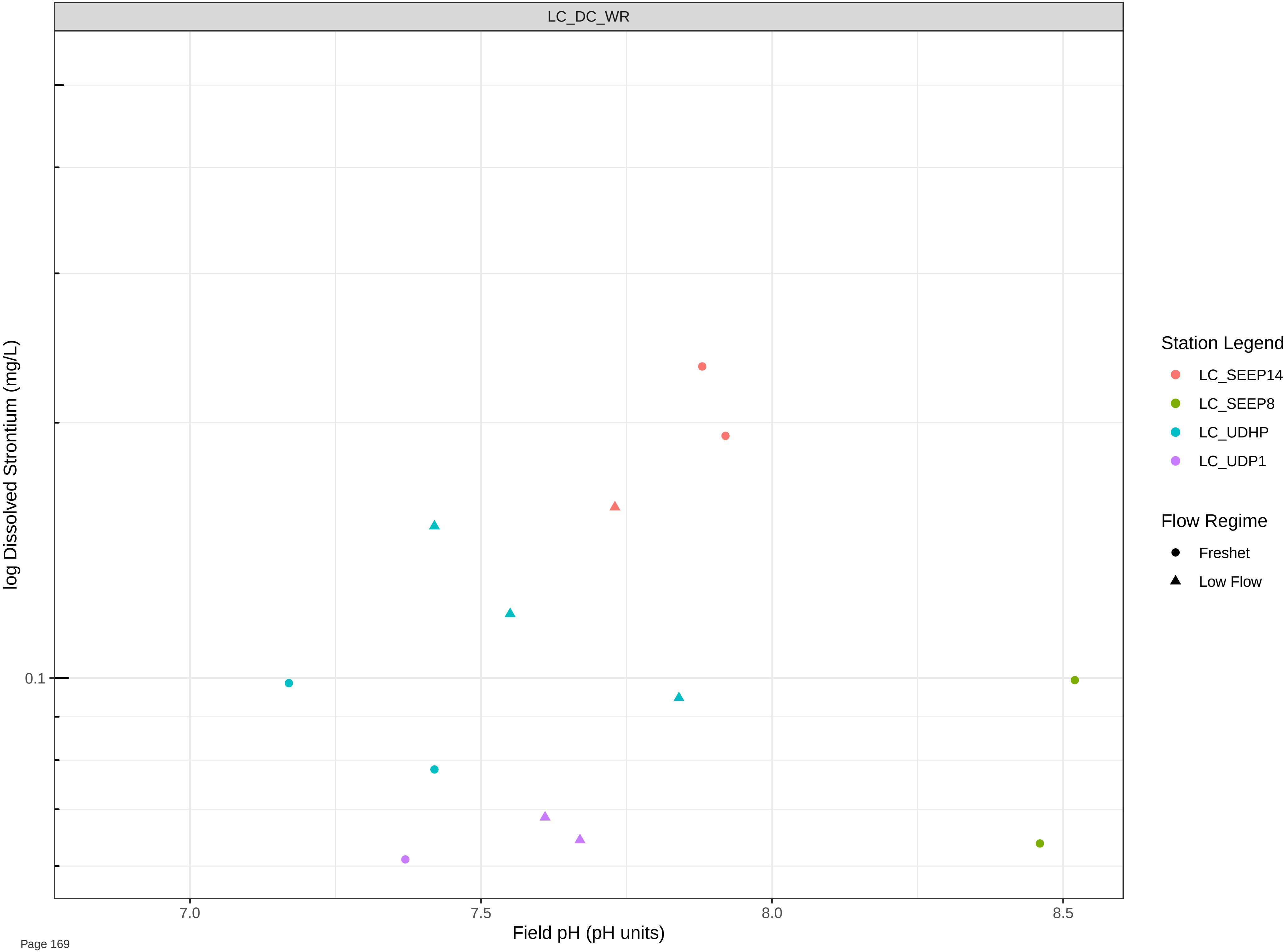
1
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet


LC_DC_WR
log Dissolved Strontium (mg/L)
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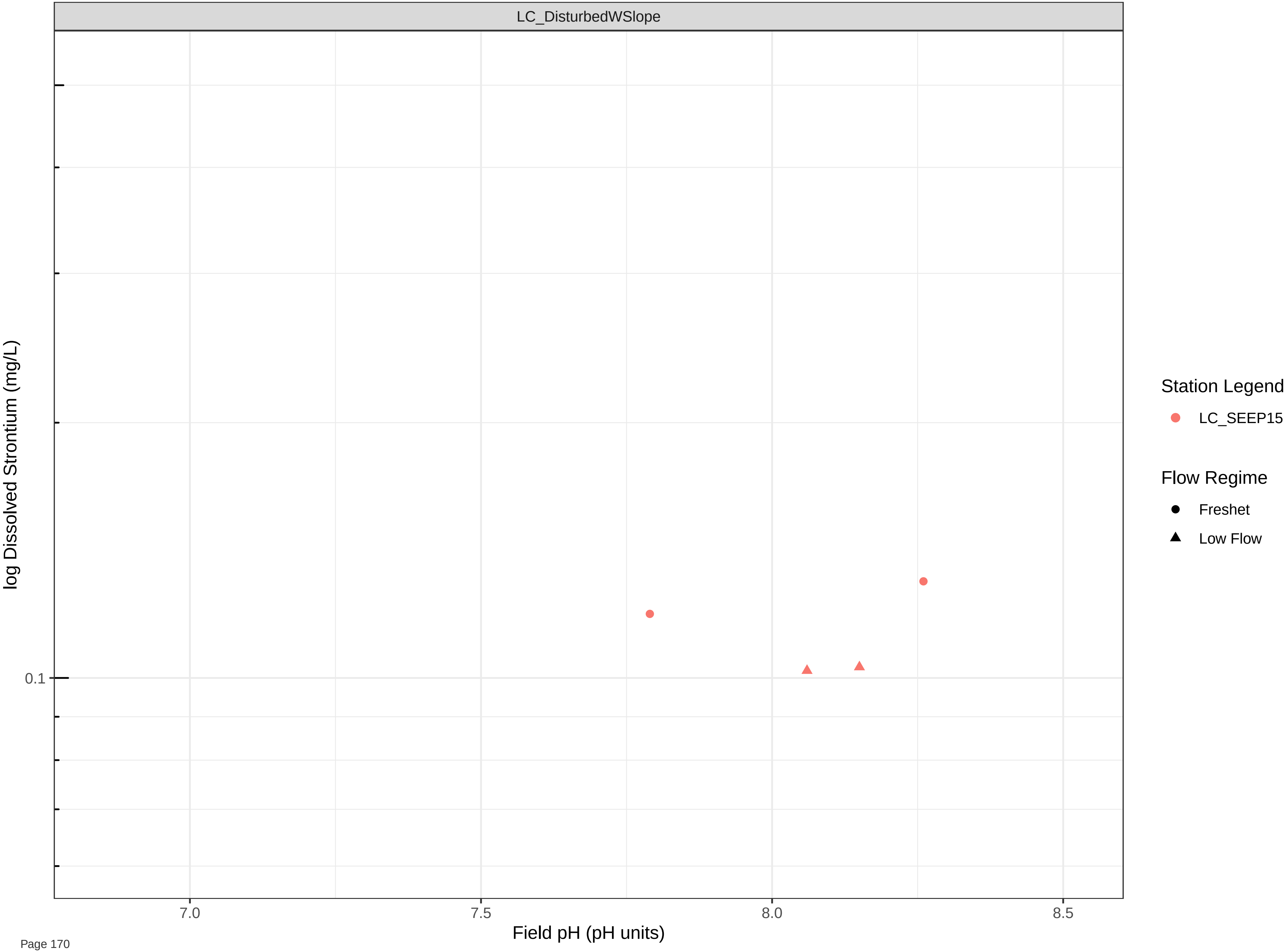
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
log Dissolved Strontium (mg/L)
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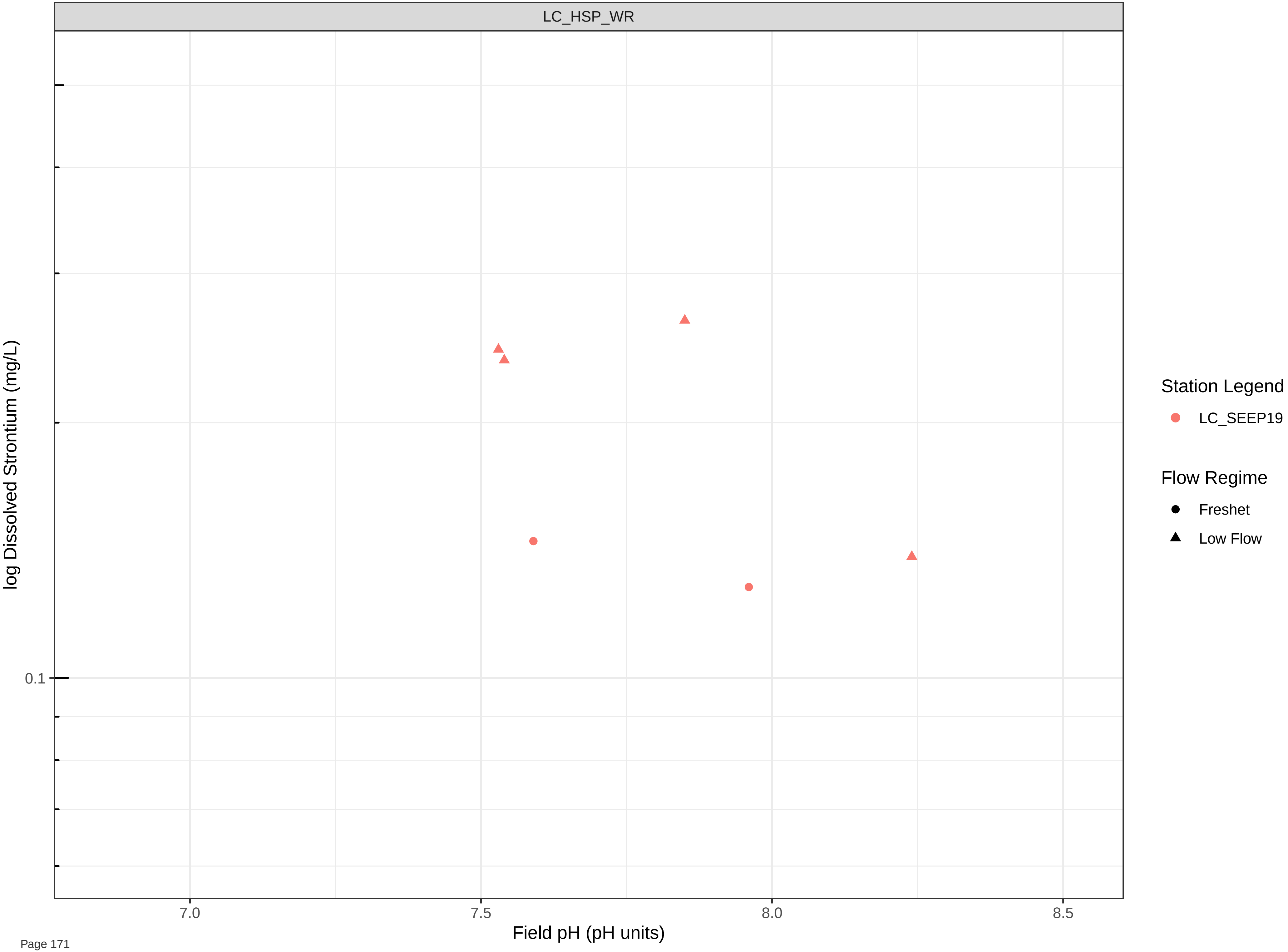
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow


LC_HSP_WR
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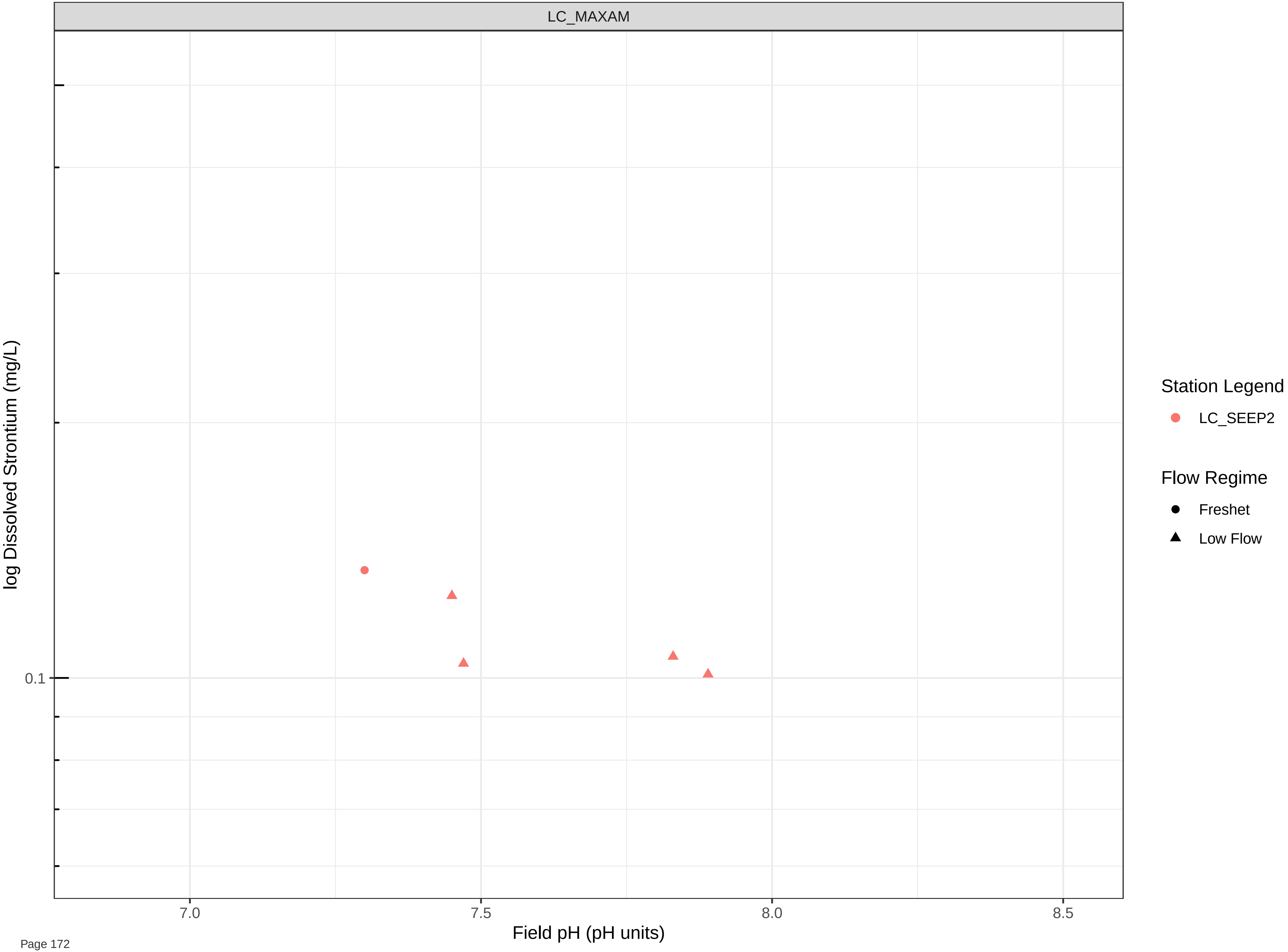
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow


LC_MAXAM
log Dissolved Strontium (mg/L)
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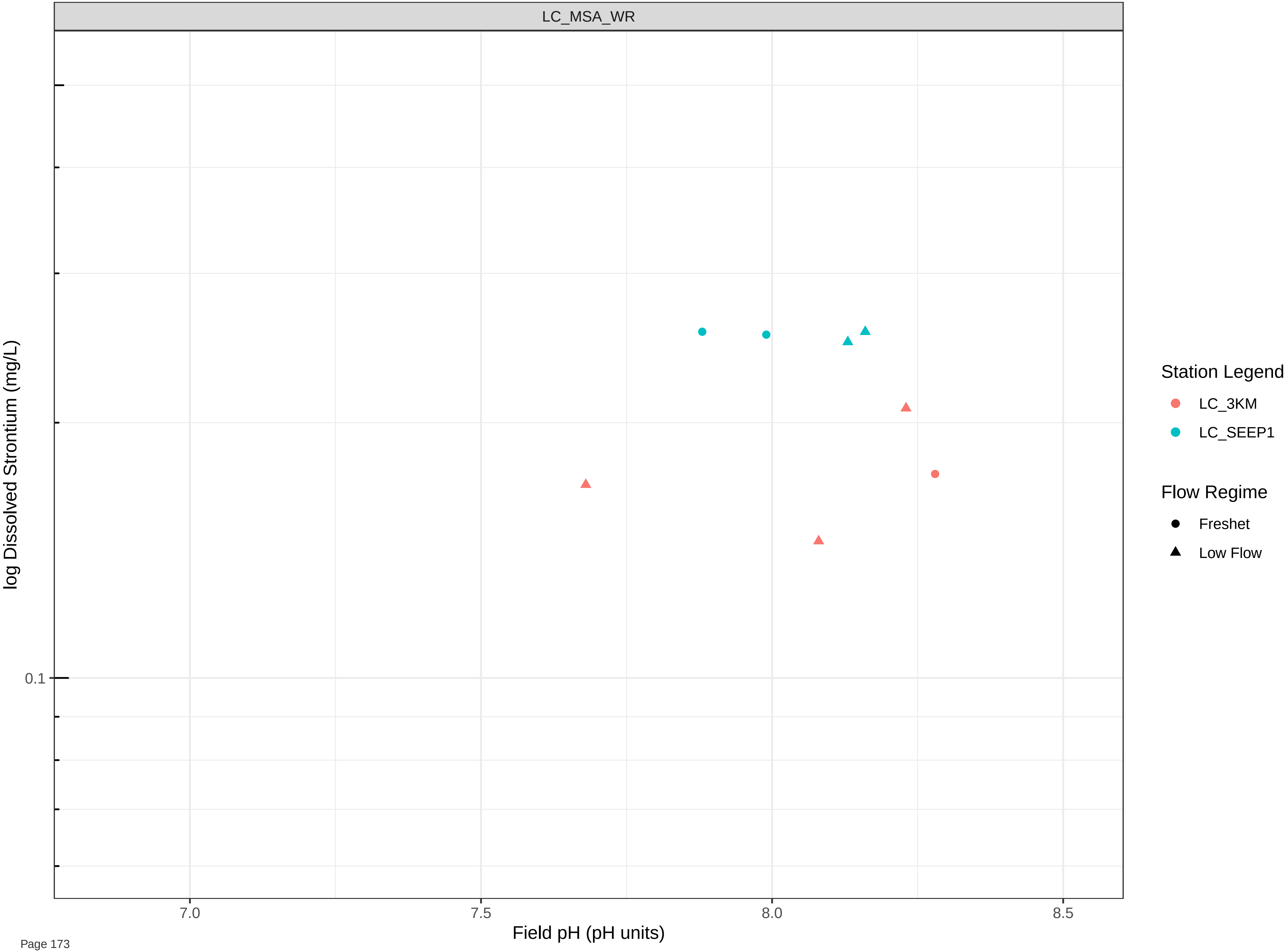
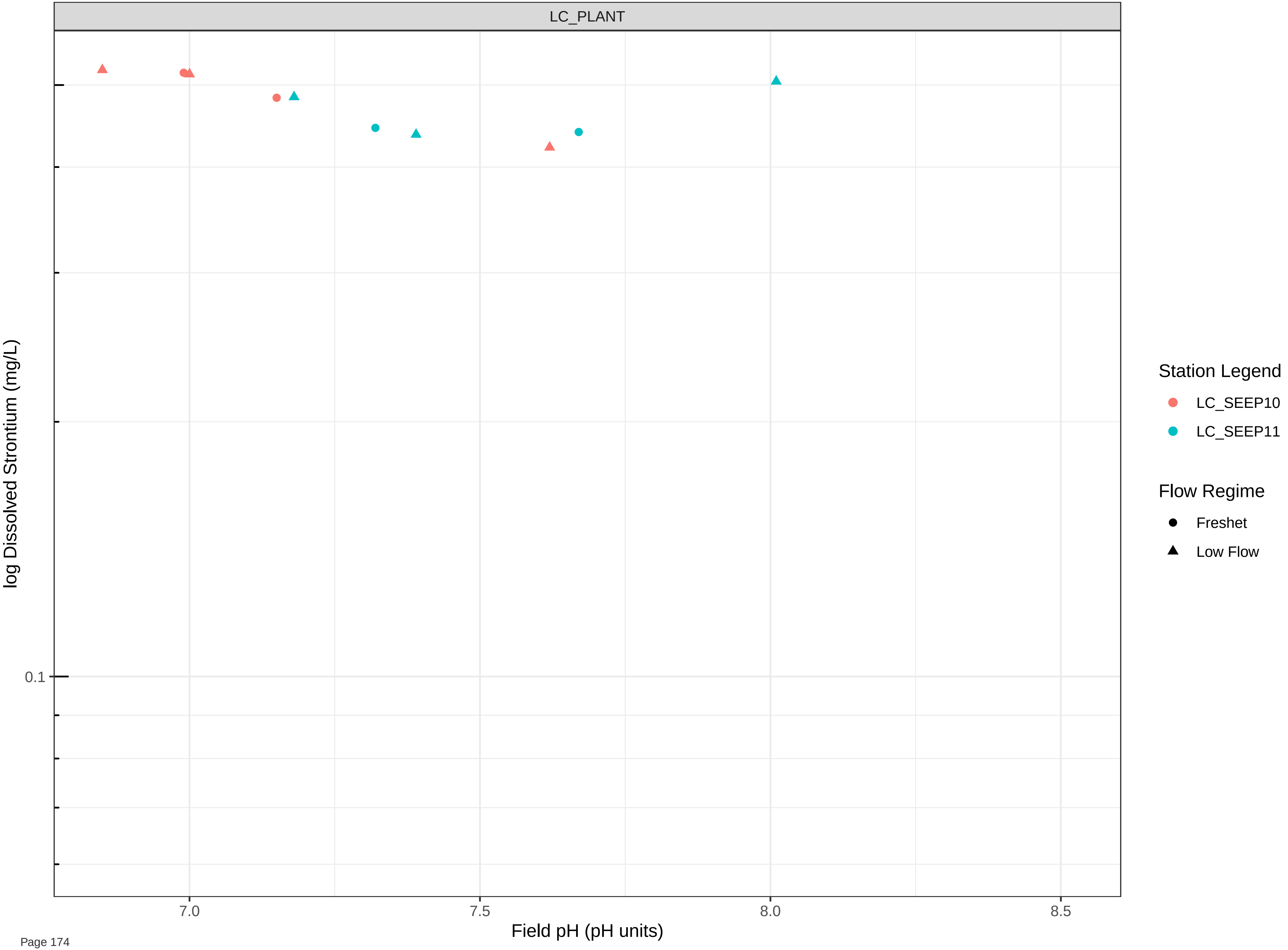
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow


LC_MSA_WR
log Dissolved Strontium (mg/L)
0.1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_3KM
● LC_SEEP1
Flow Regime
● Freshet
▲ Low Flow


LC_PLANT
log Dissolved Strontium (mg/L)
0.1
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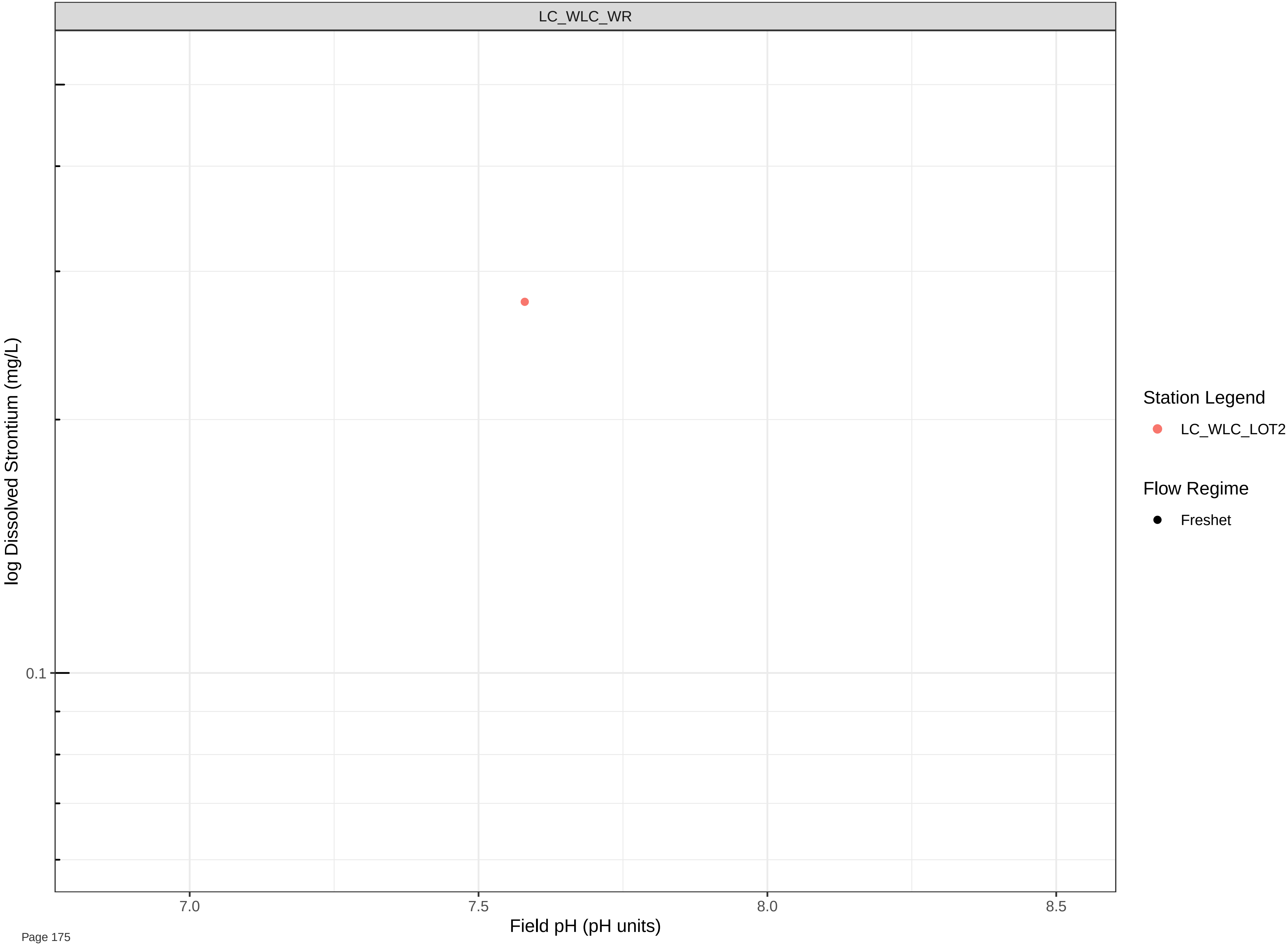
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow



LC_WLC_WR
log Dissolved Strontium (mg/L)
0.1
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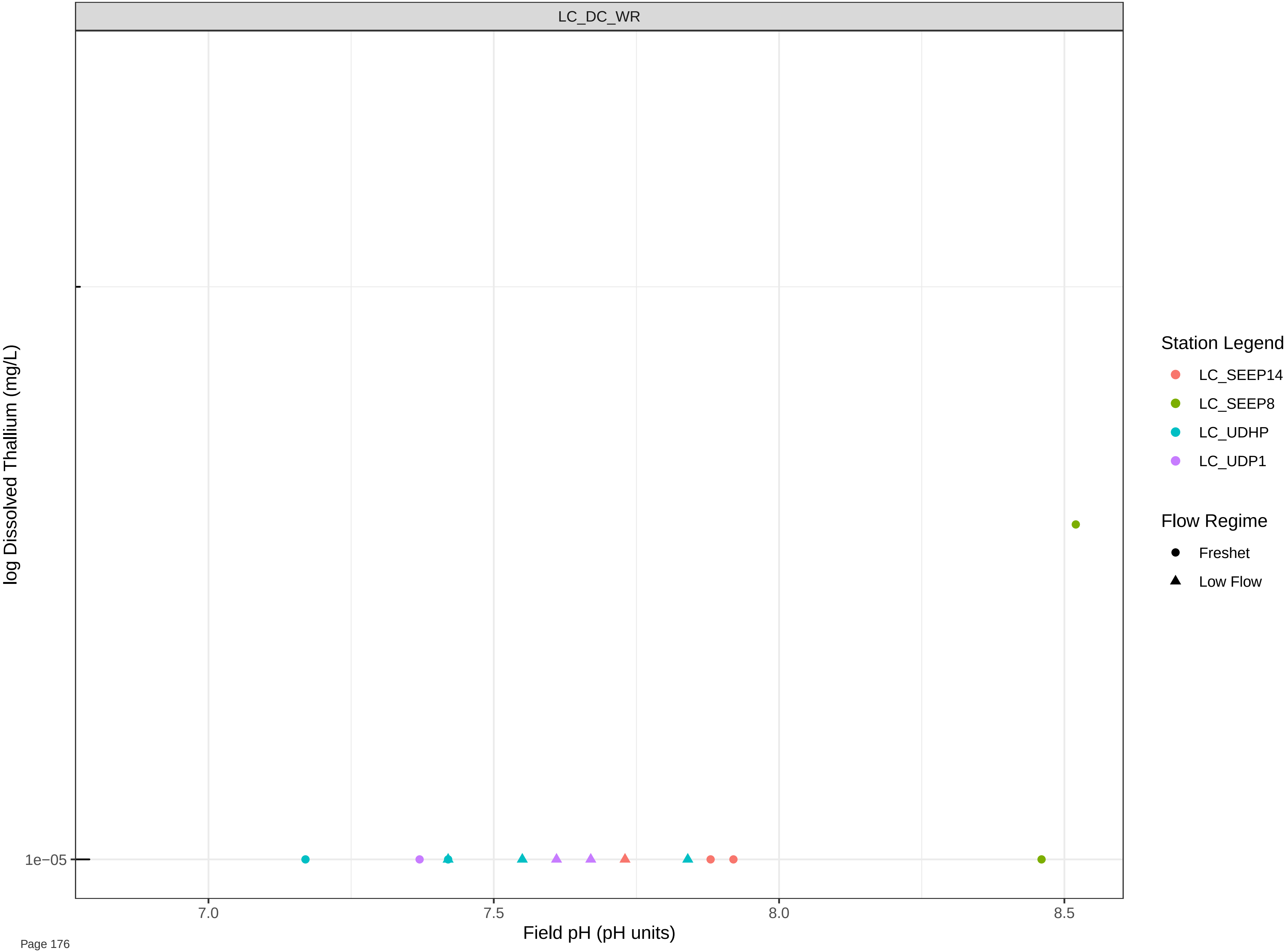
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet


LC_DC_WR
log Dissolved Thallium (mg/L)
1e−05
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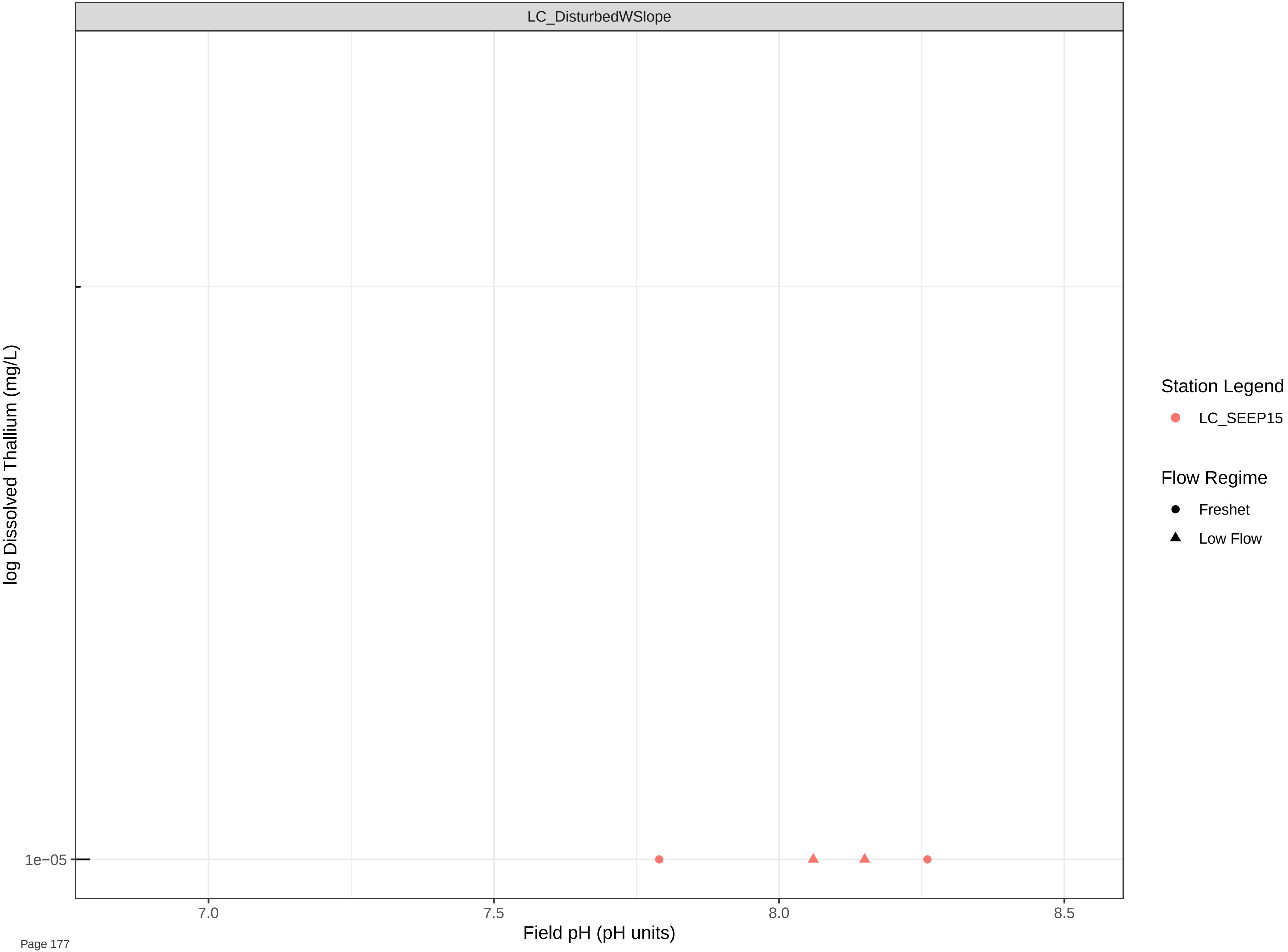
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
log Dissolved Thallium (mg/L)
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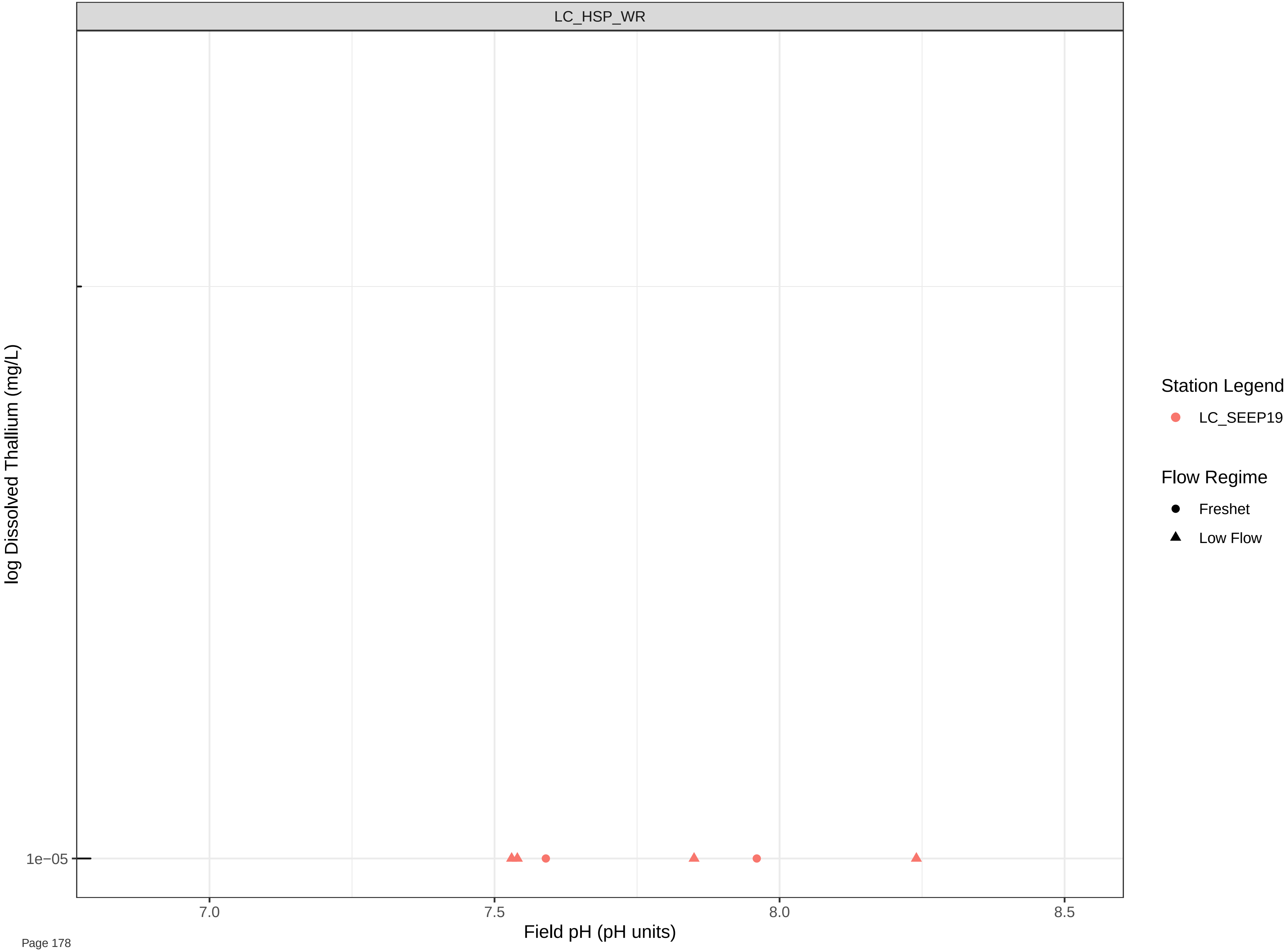
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow


LC_HSP_WR
log Dissolved Thallium (mg/L)
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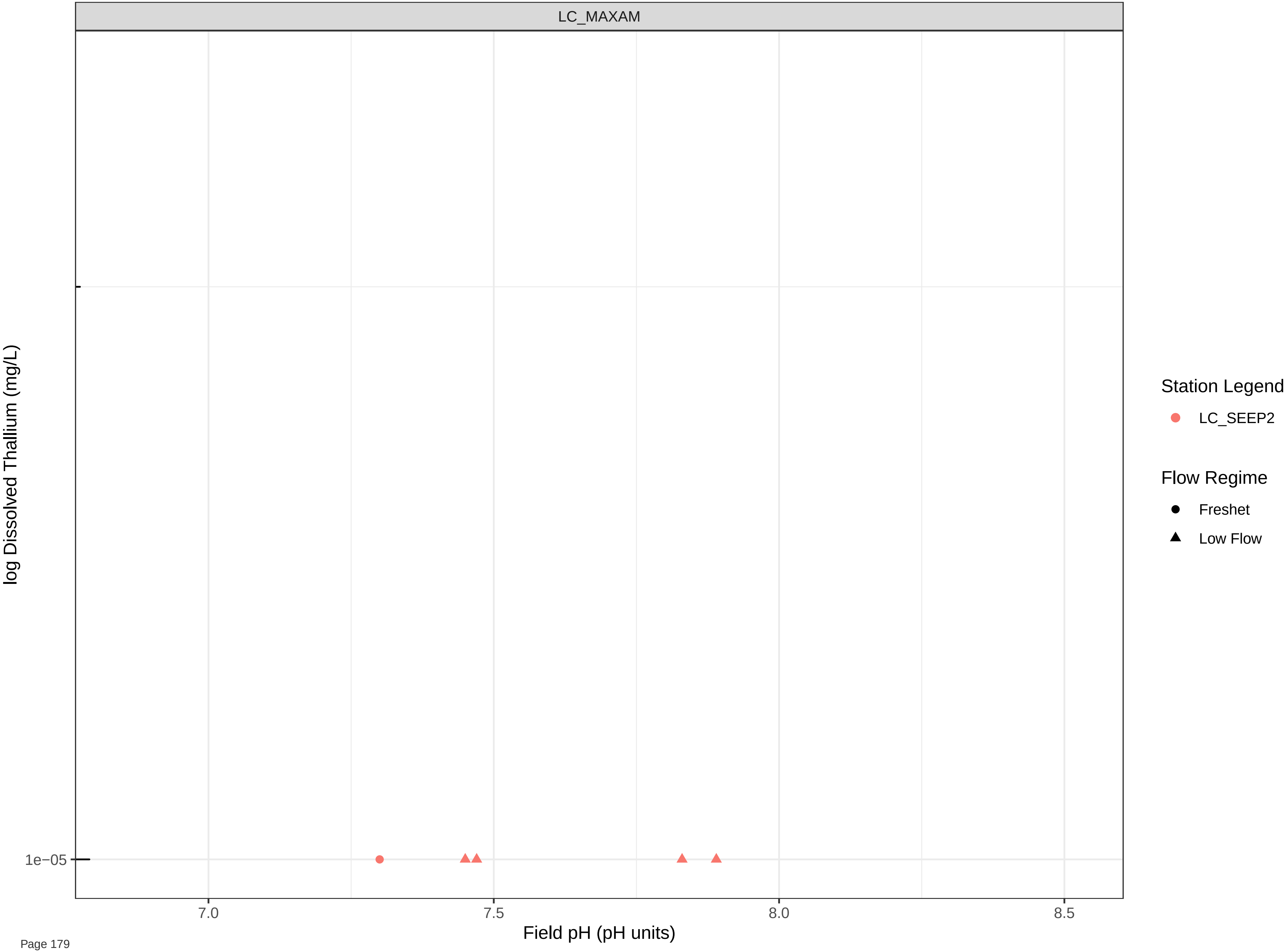
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow


LC_MAXAM
log Dissolved Thallium (mg/L)
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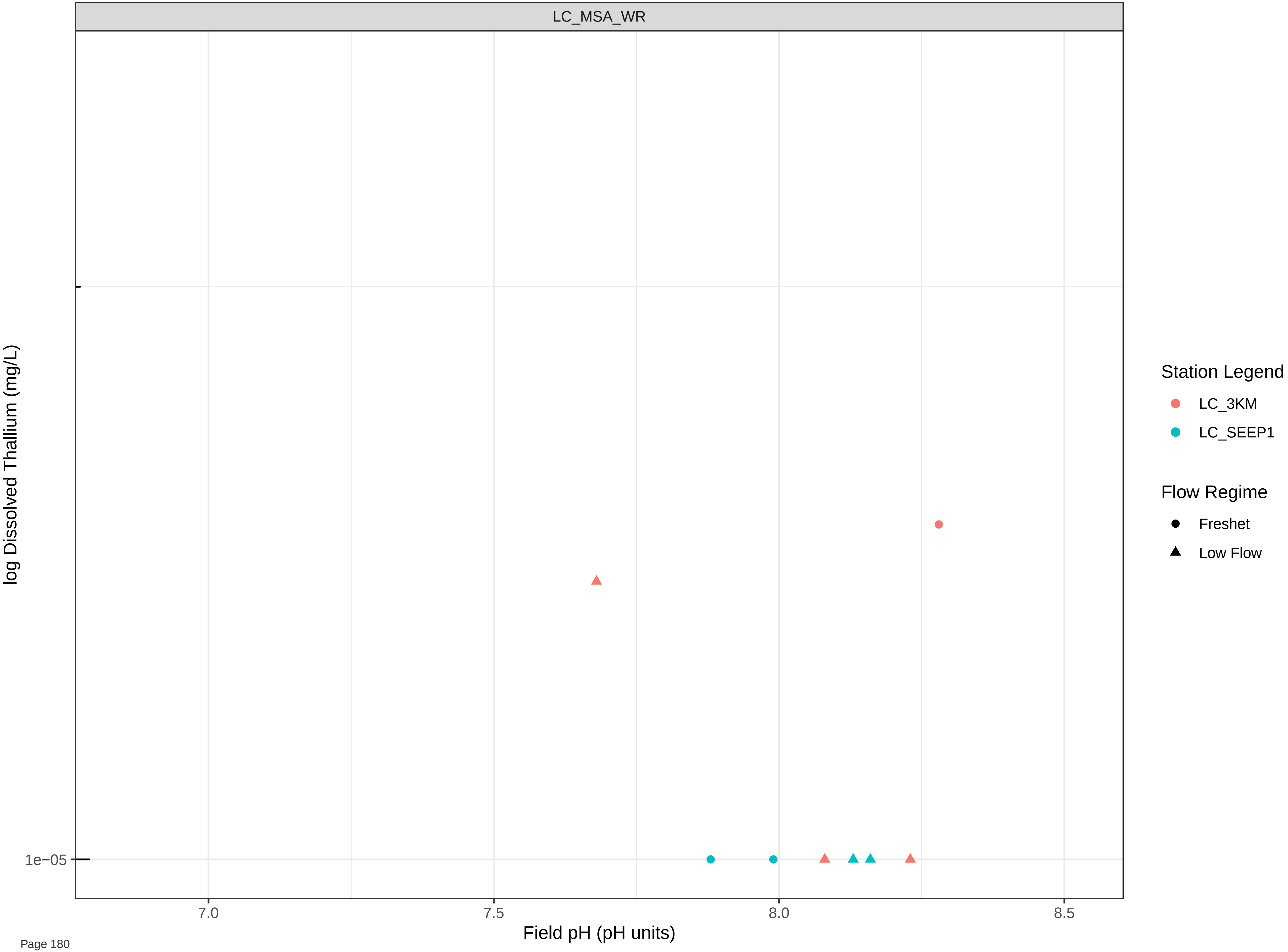
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow


LC_MSA_WR
log Dissolved Thallium (mg/L)
1e−05
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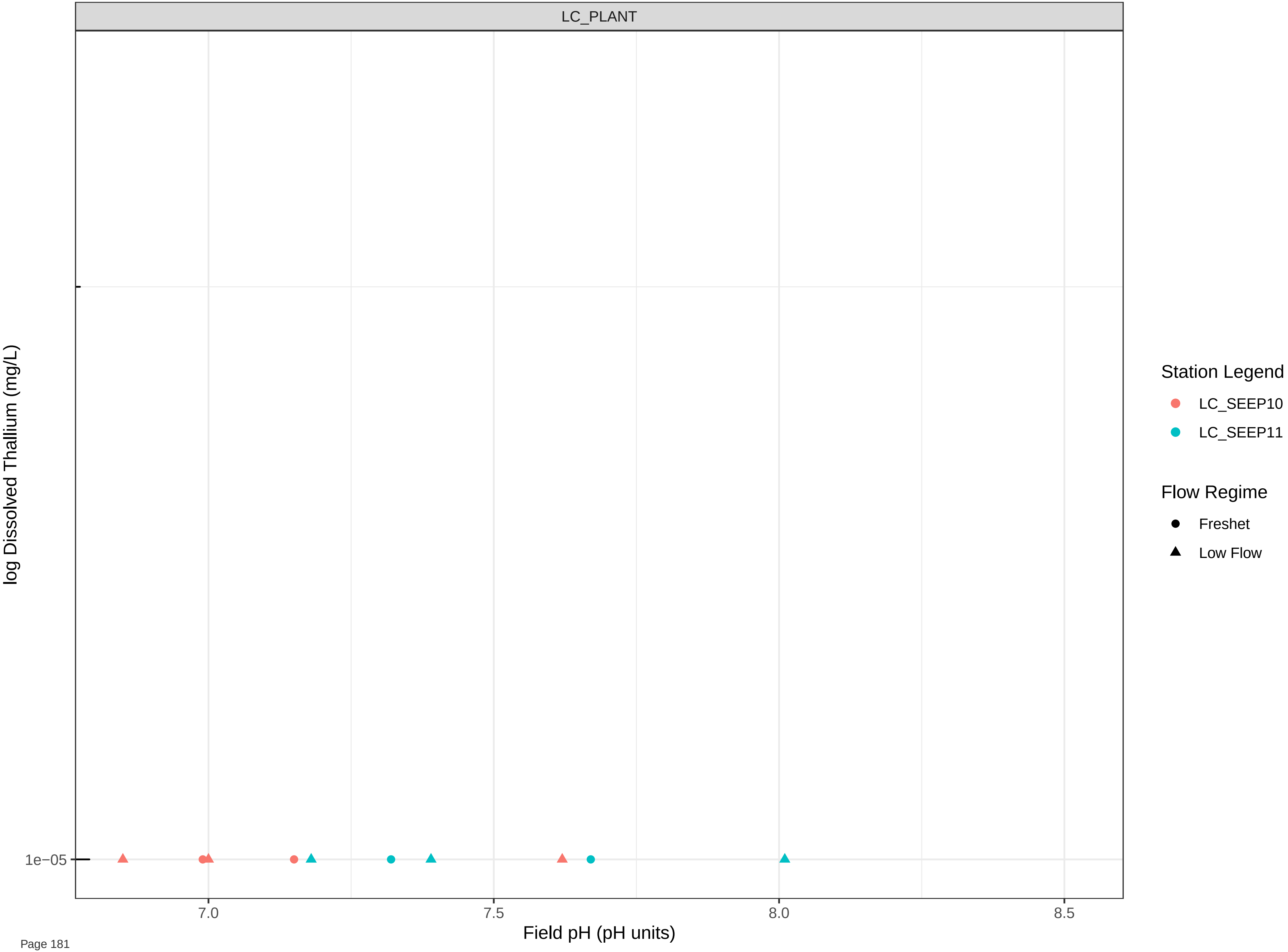
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow


LC_PLANT
log Dissolved Thallium (mg/L)
1e−05
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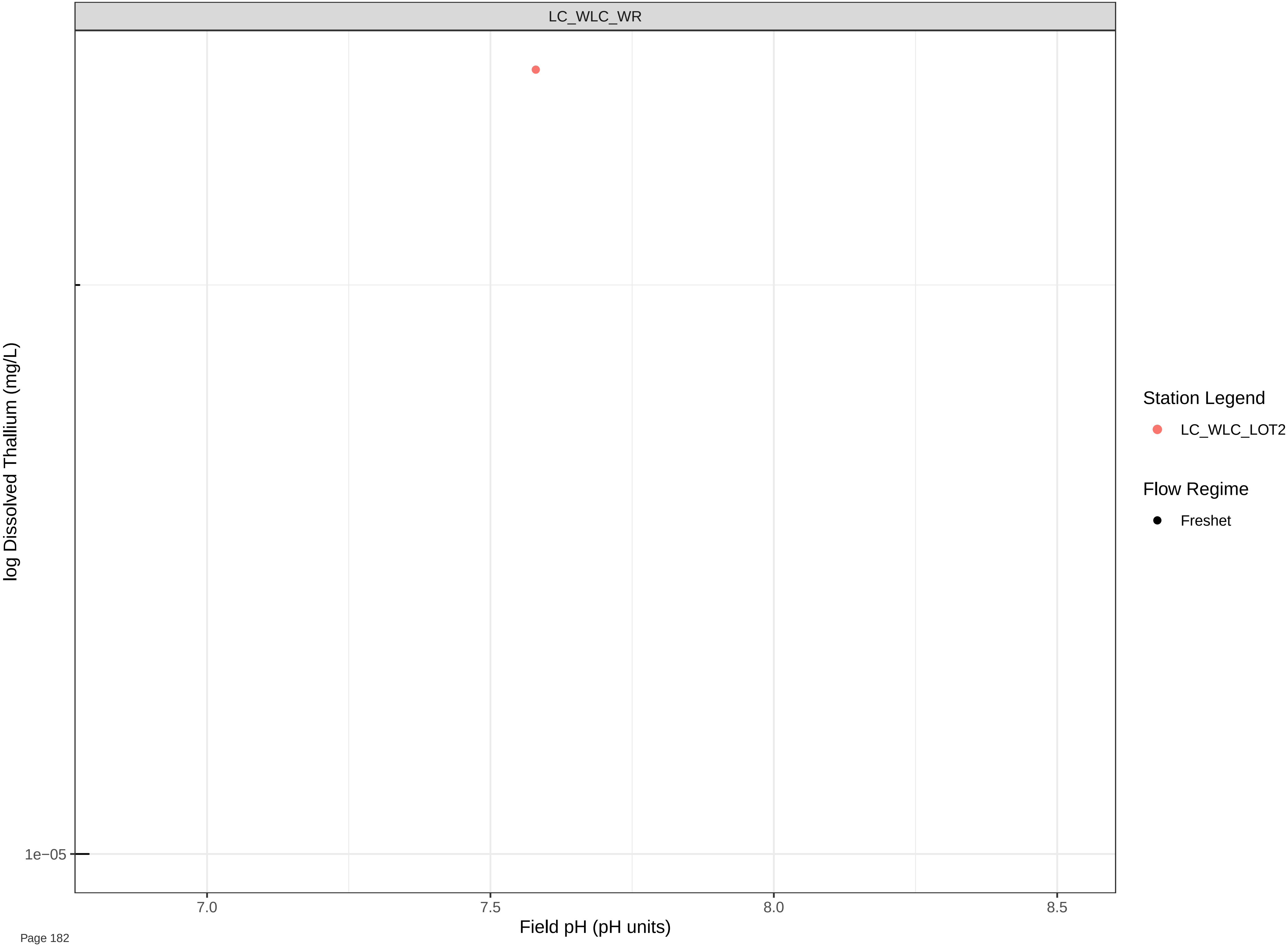
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow


LC_WLC_WR
log Dissolved Thallium (mg/L)
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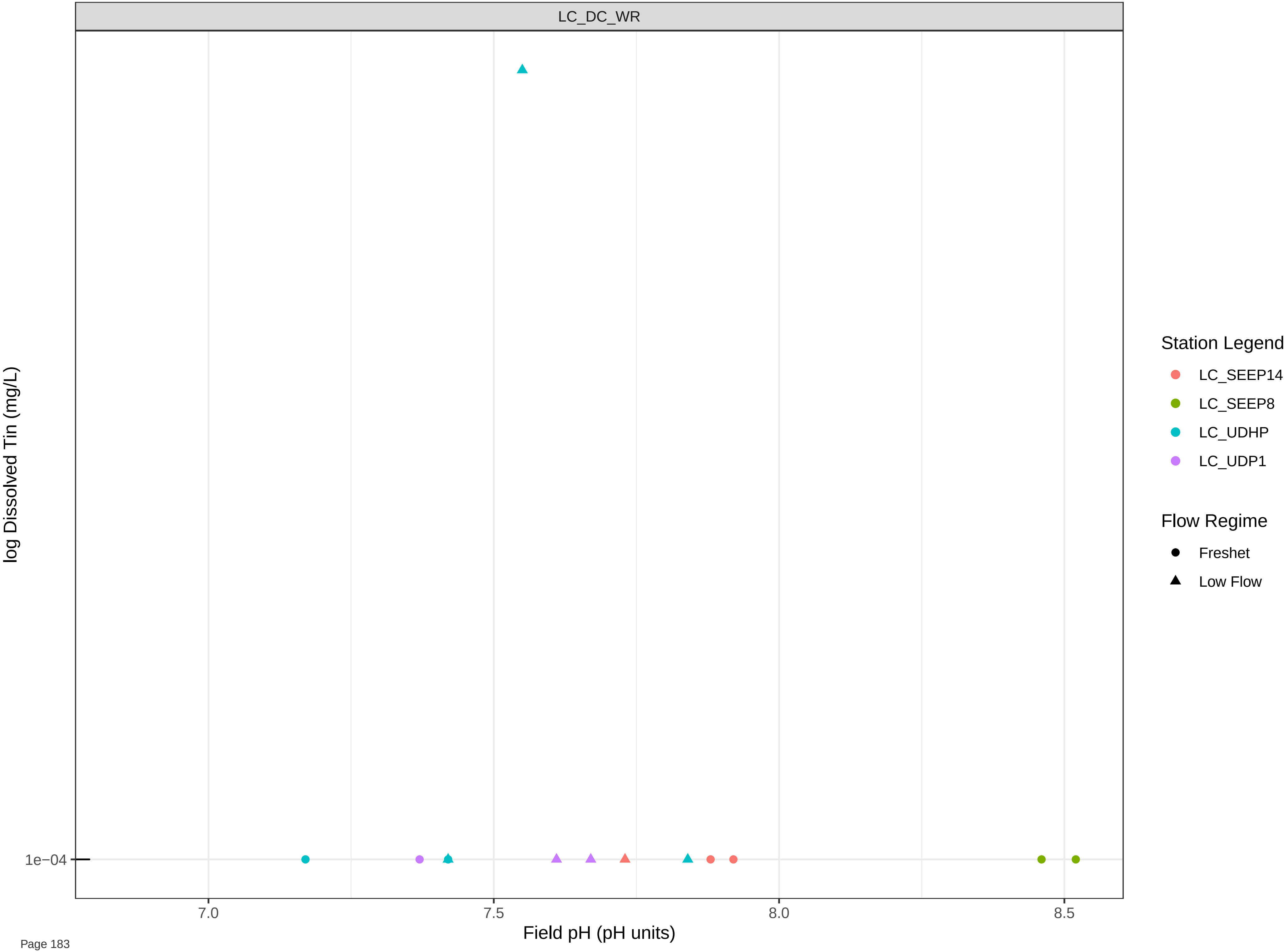
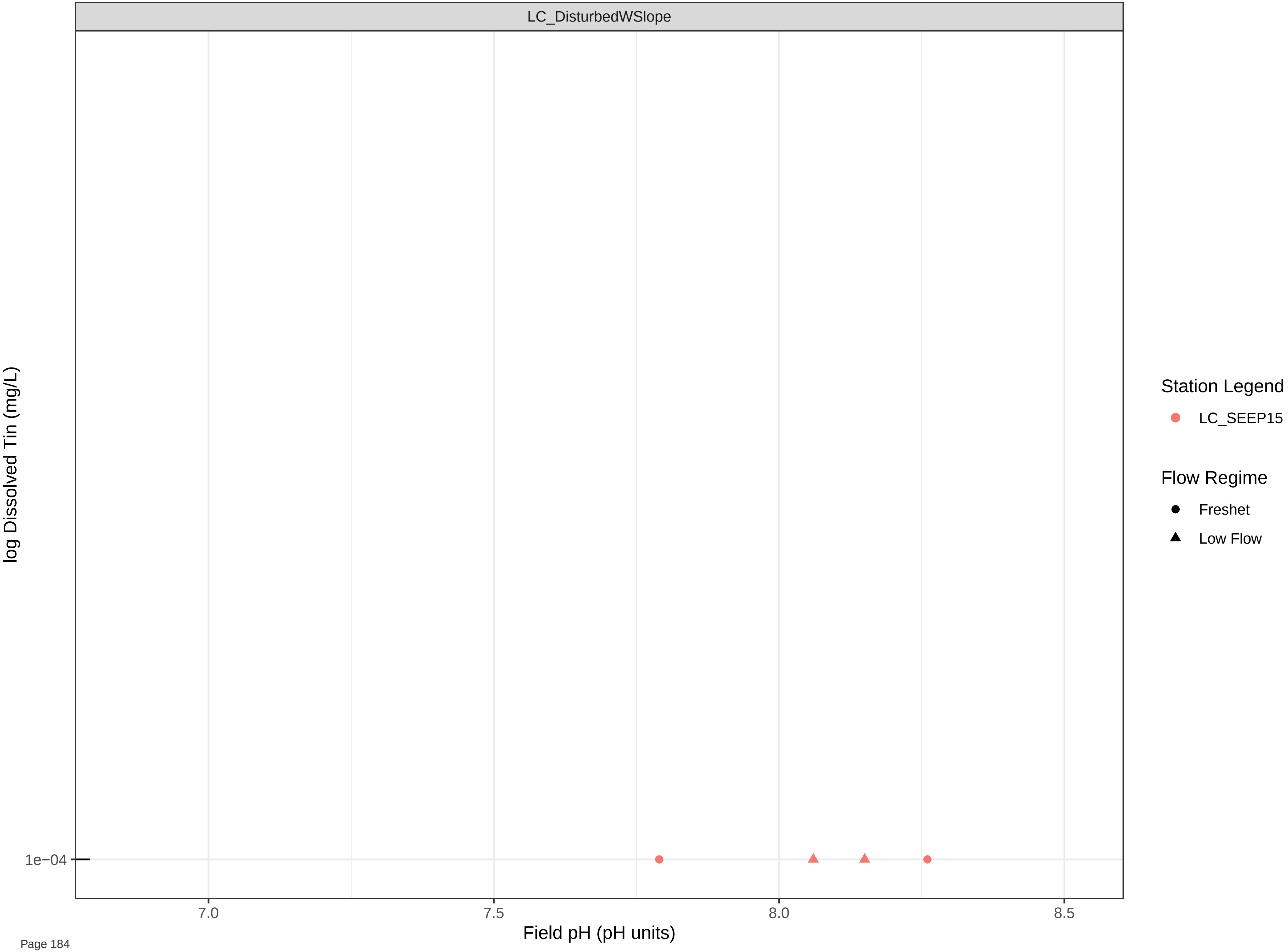
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet


LC_DC_WR
log Dissolved Tin (mg/L)
1e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
log Dissolved Tin (mg/L)
1e−04
7.0
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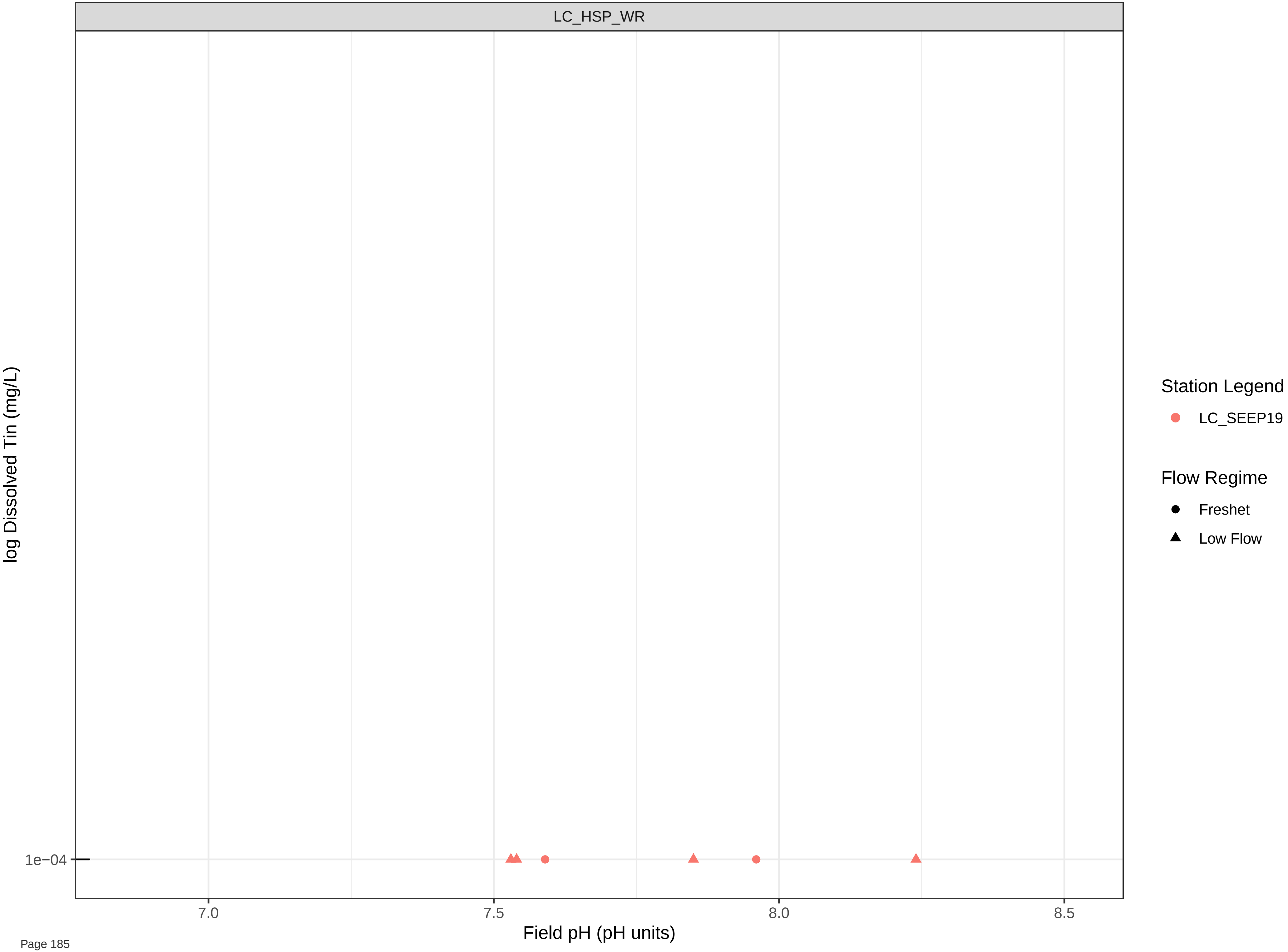
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow


LC_HSP_WR
log Dissolved Tin (mg/L)
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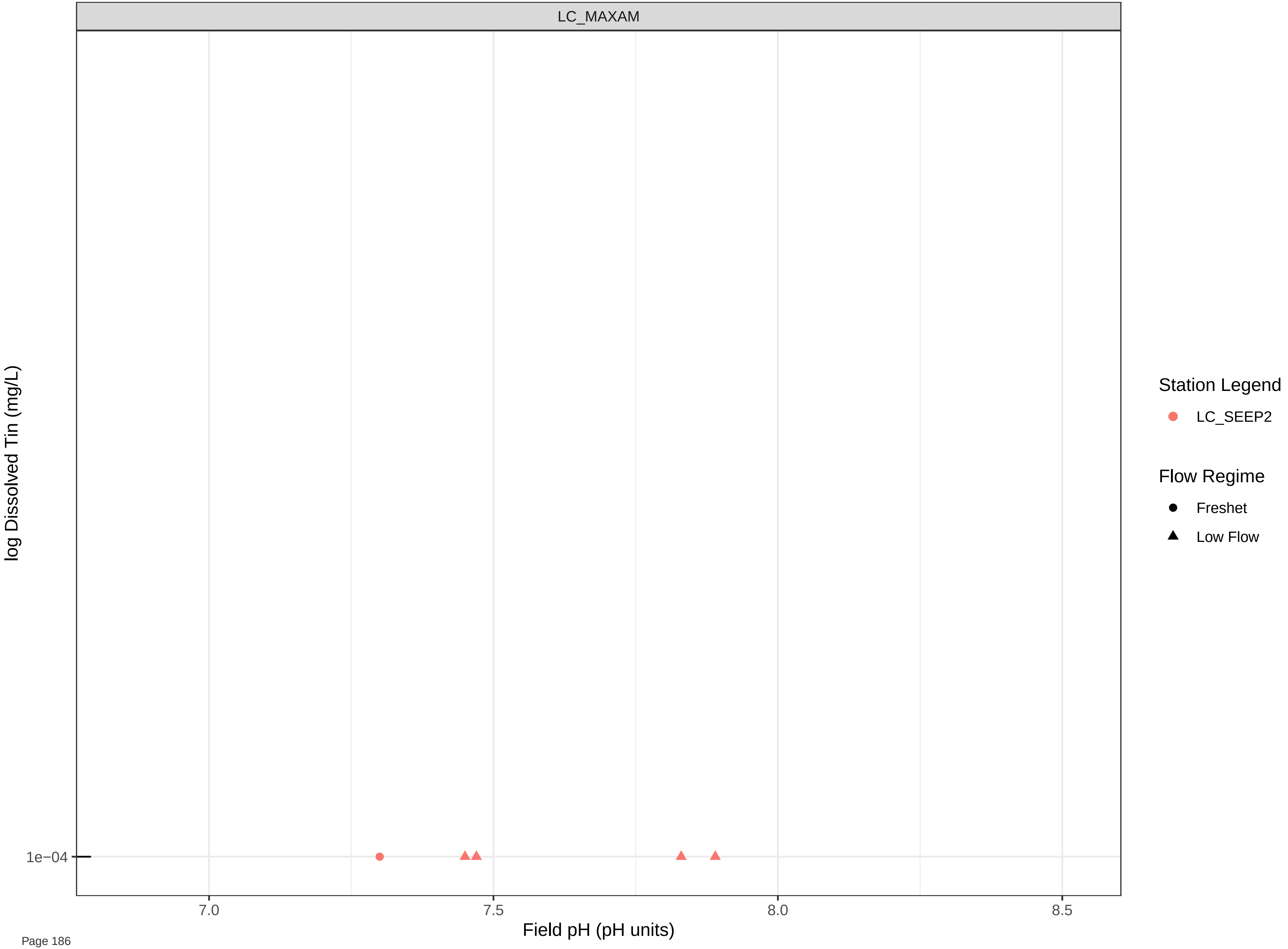
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow


LC_MAXAM
log Dissolved Tin (mg/L)
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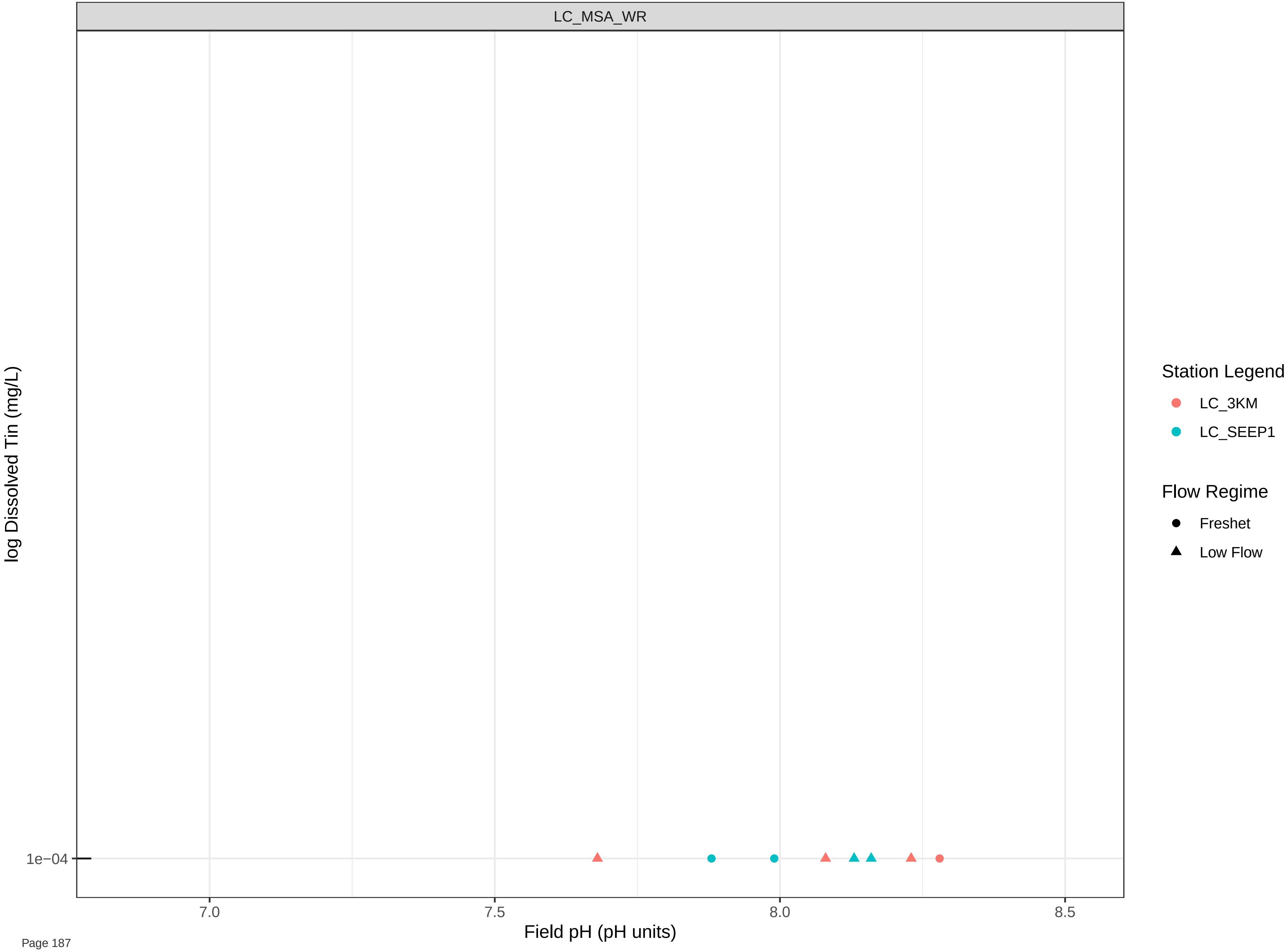
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow


LC_MSA_WR
log Dissolved Tin (mg/L)
1e−04
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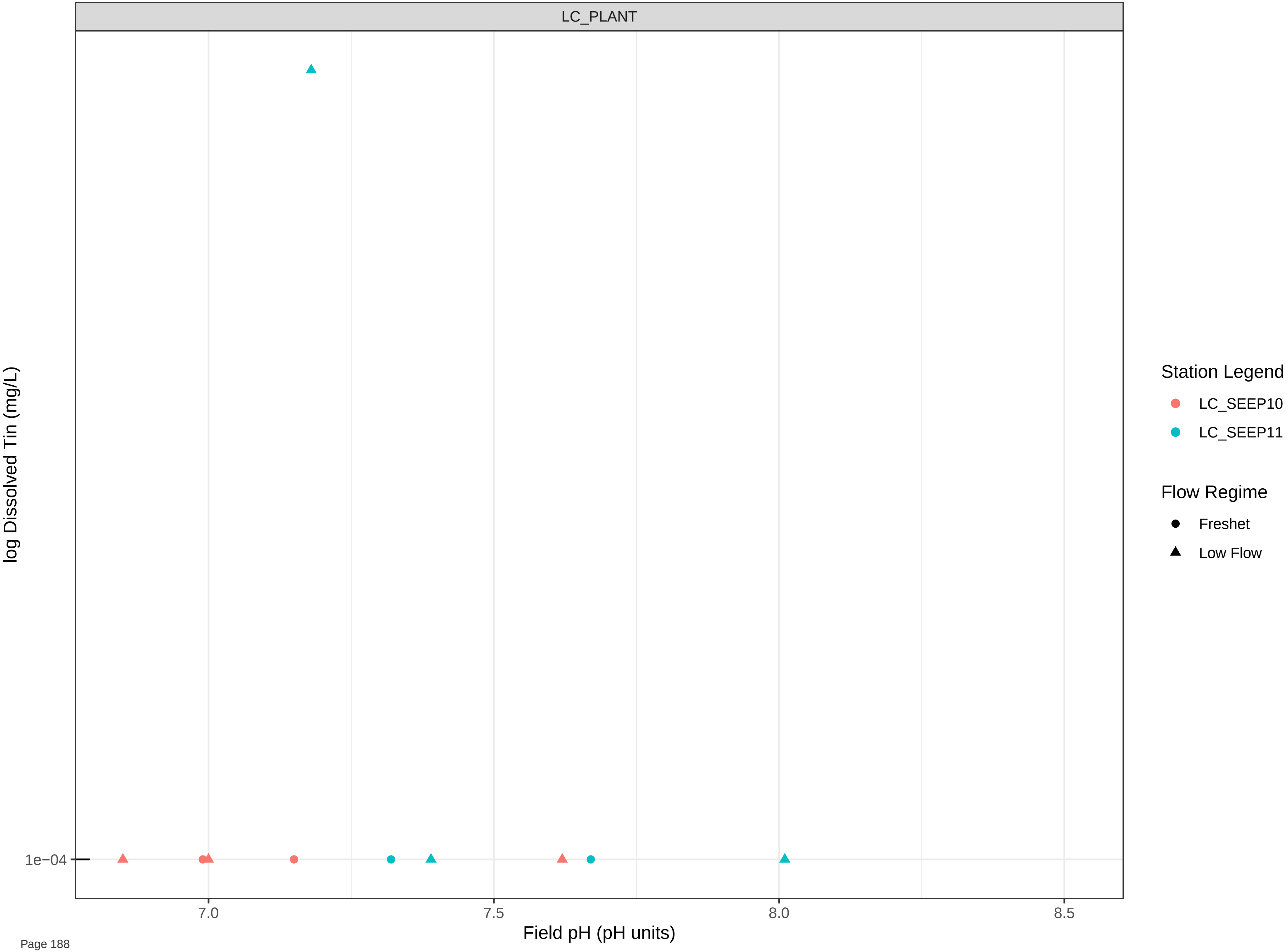
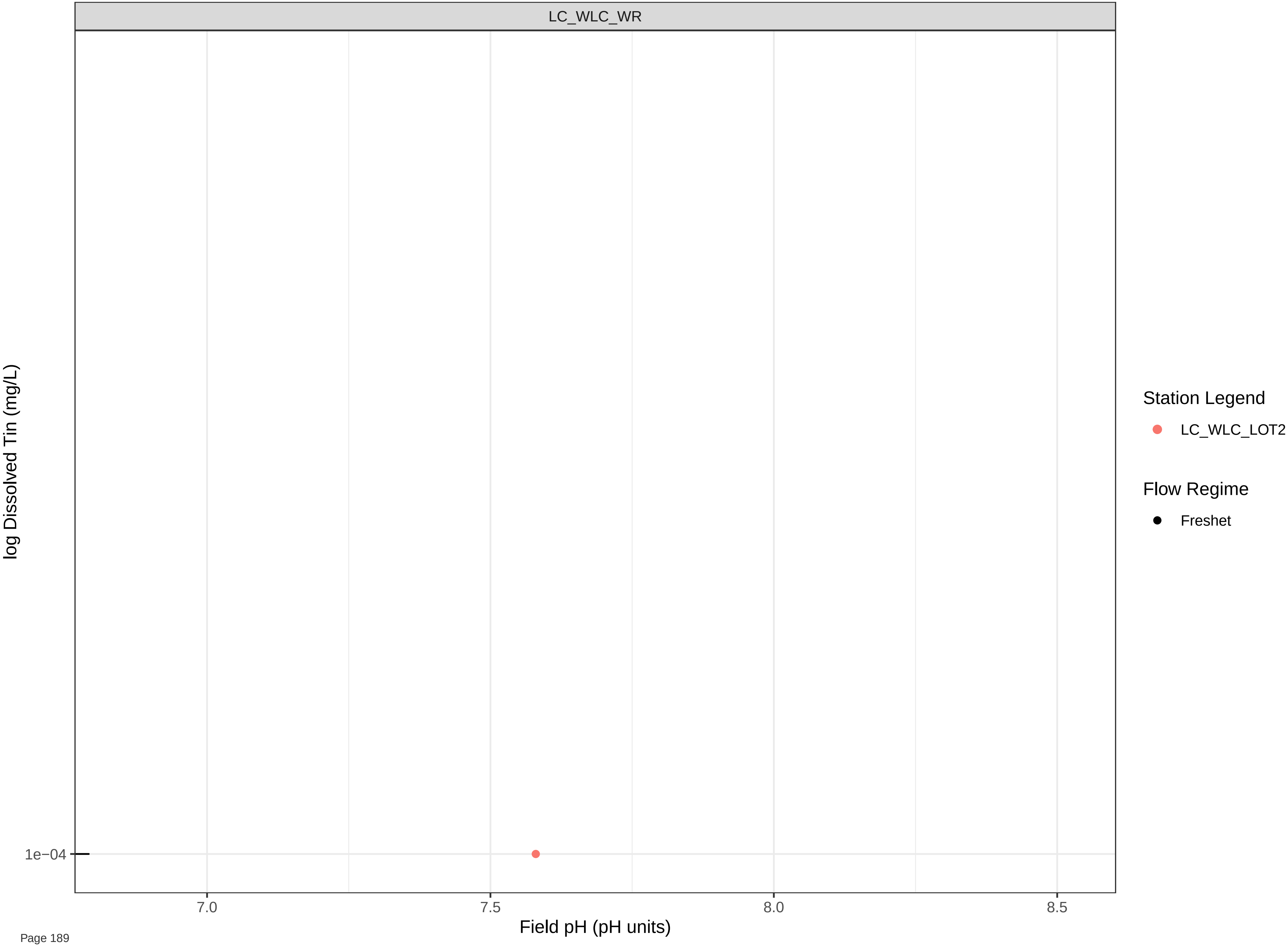
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_3KM
● LC_SEEP1
Flow Regime
● Freshet
▲ Low Flow


LC_PLANT
log Dissolved Tin (mg/L)
1e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow


LC_WLC_WR
log Dissolved Tin (mg/L)
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8.0
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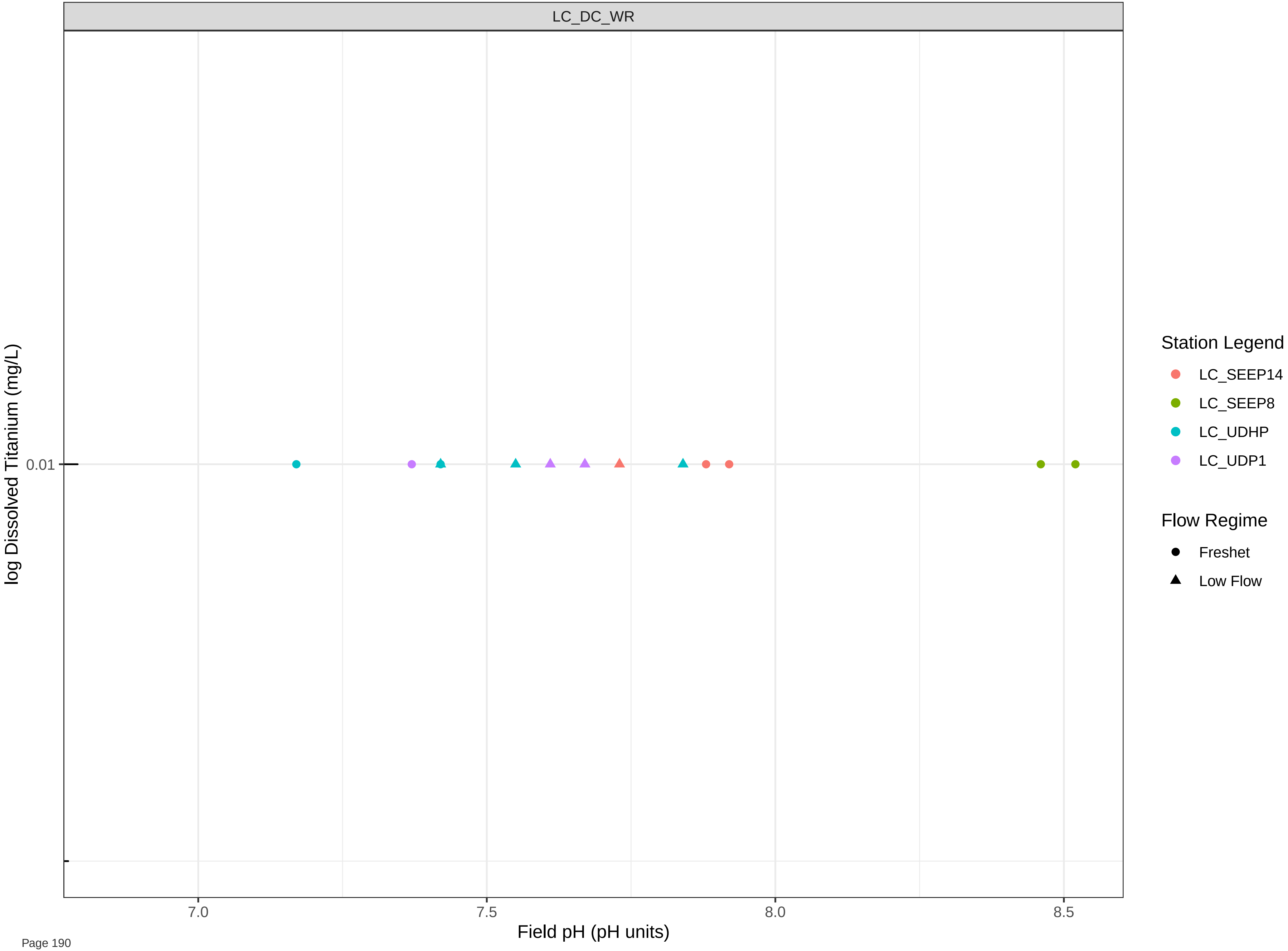
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet


LC_DC_WR
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7.0
7.5
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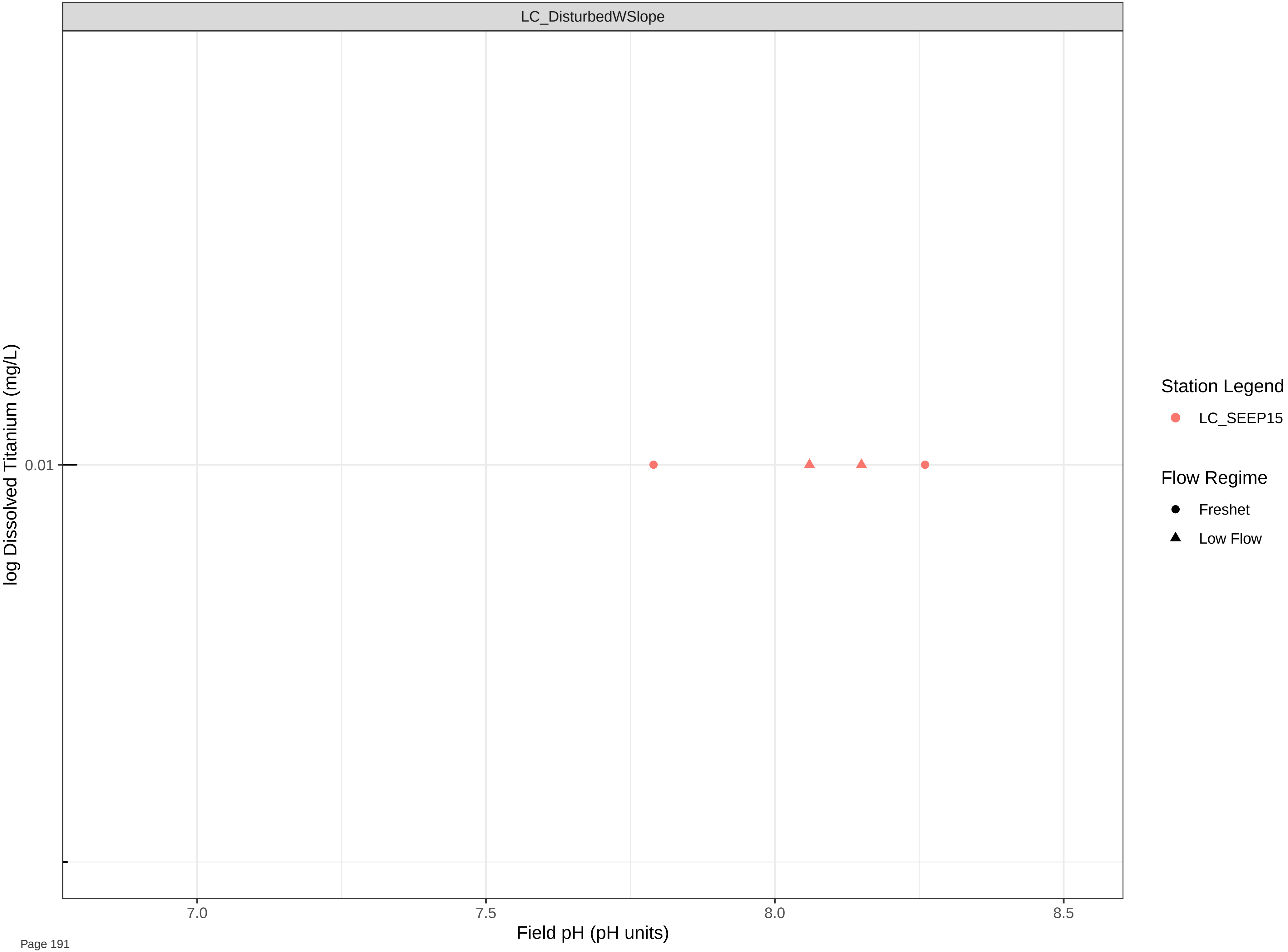
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
log Dissolved Titanium (mg/L)
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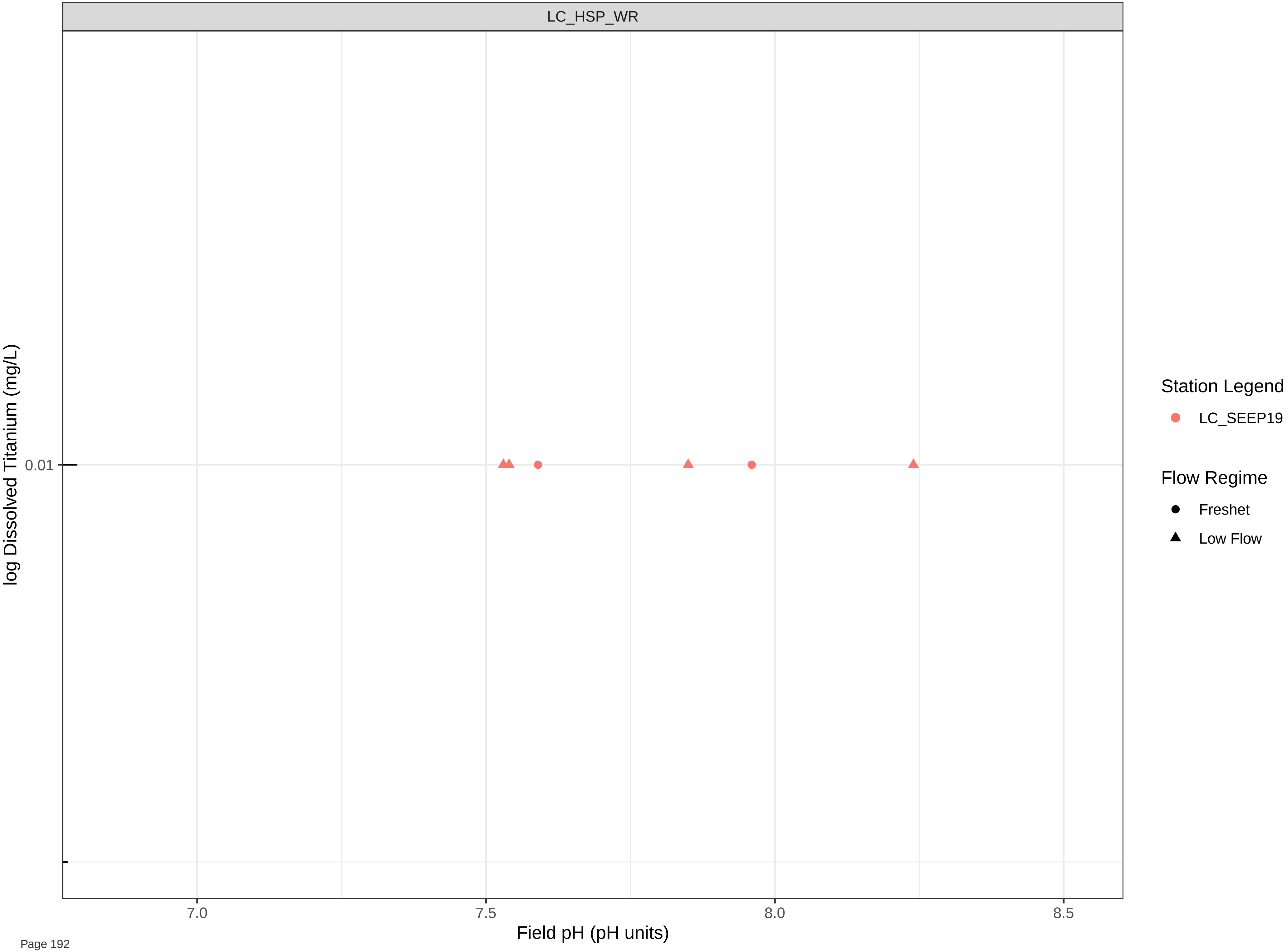
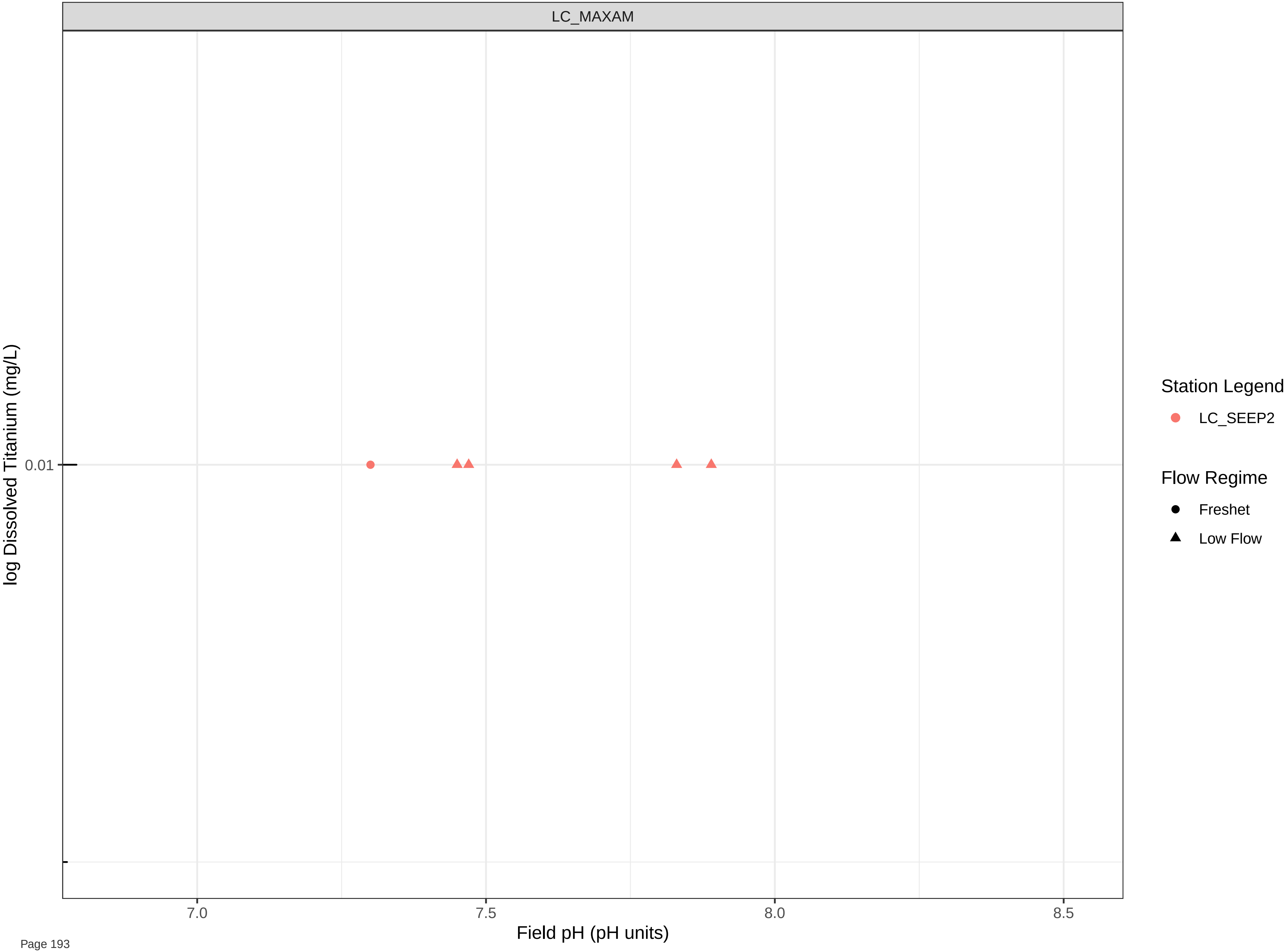
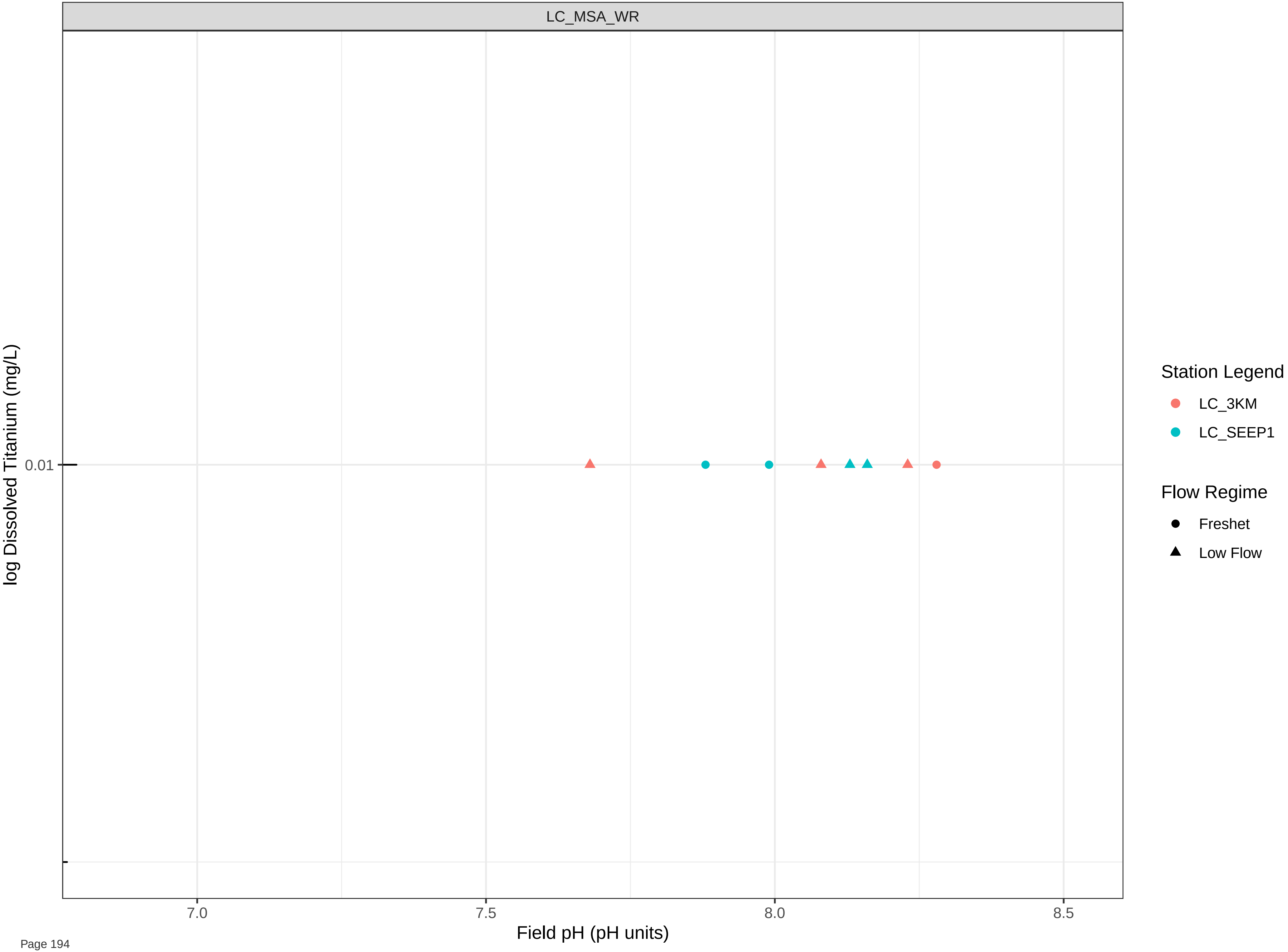
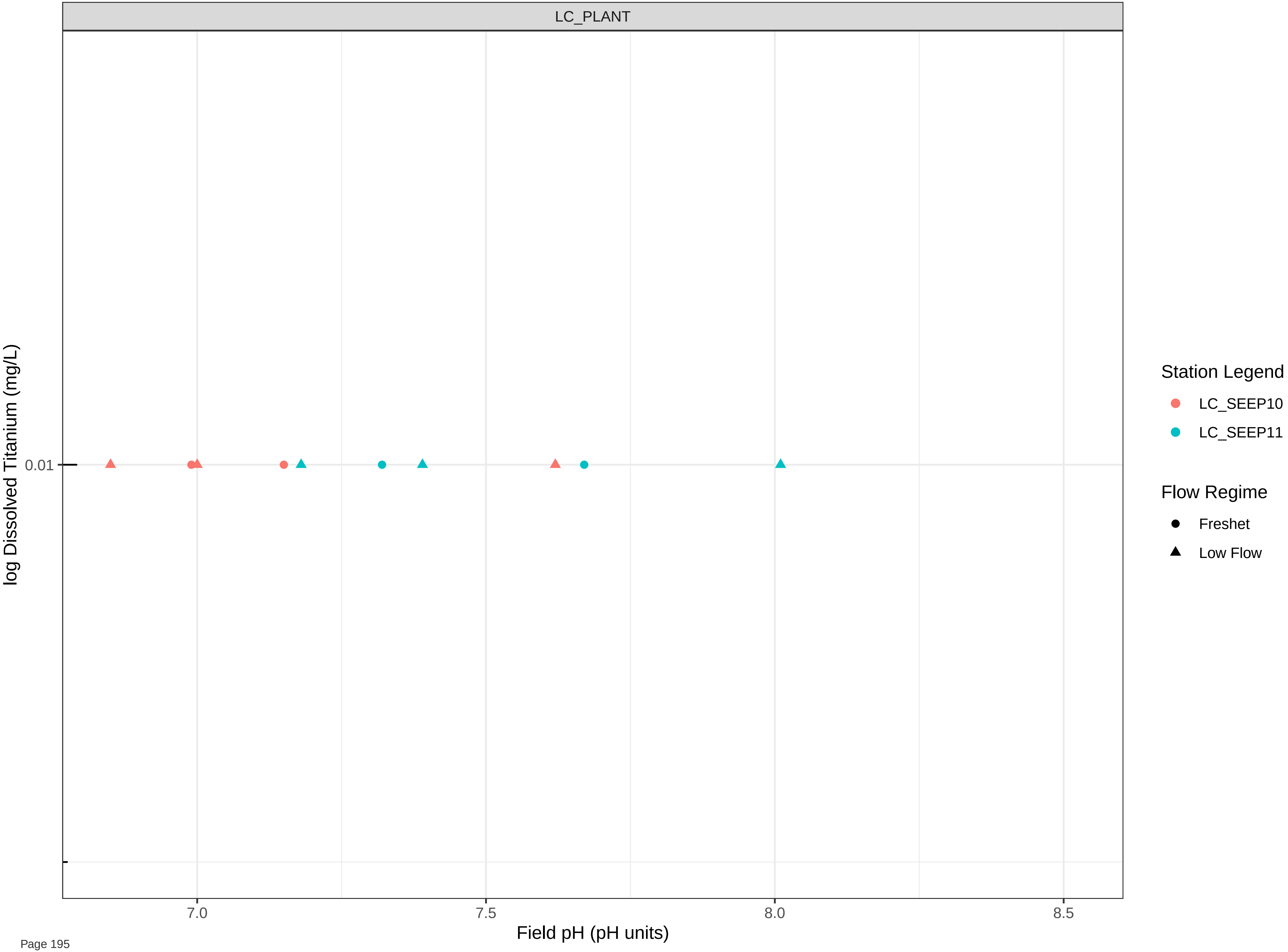
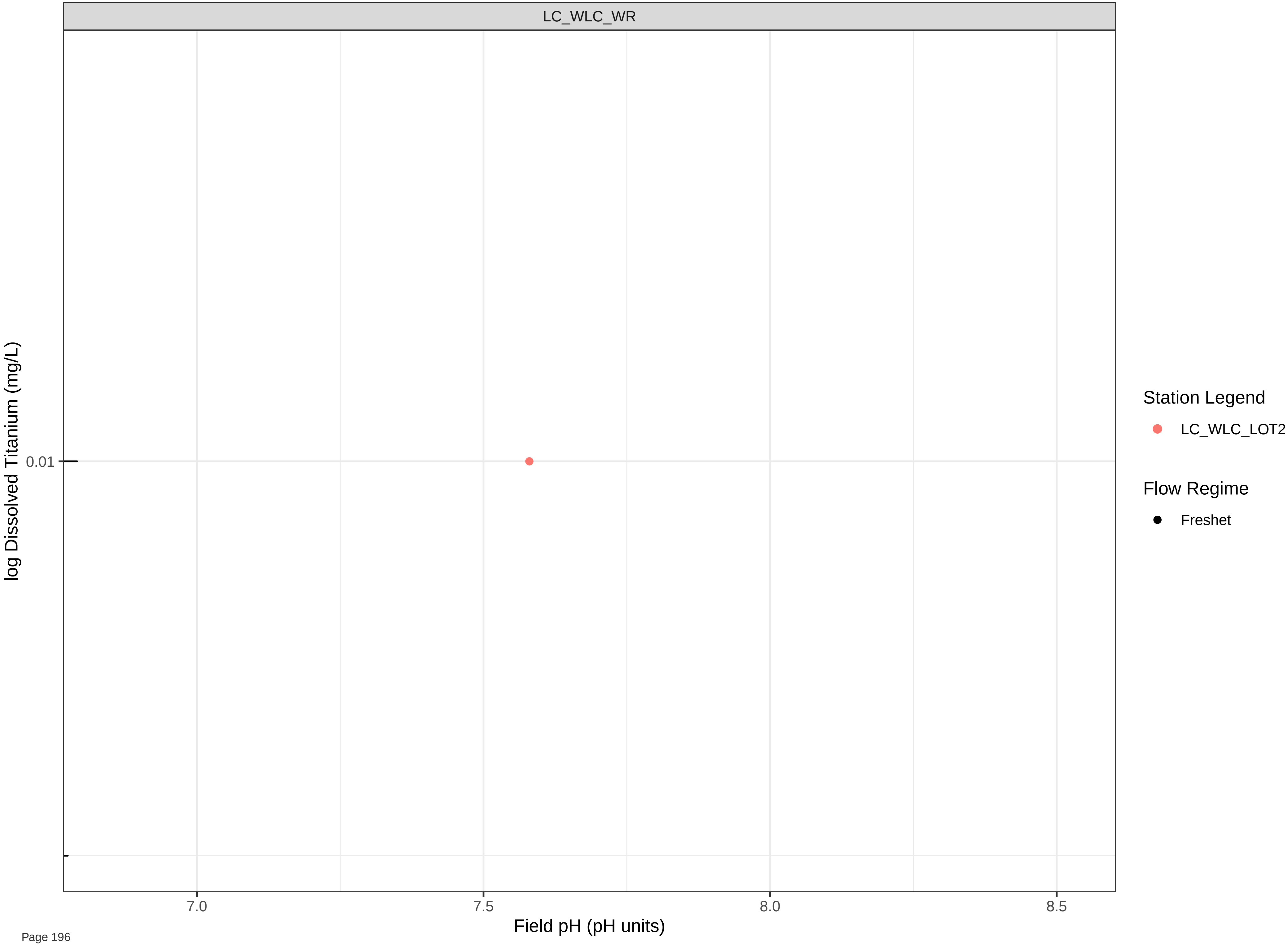
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

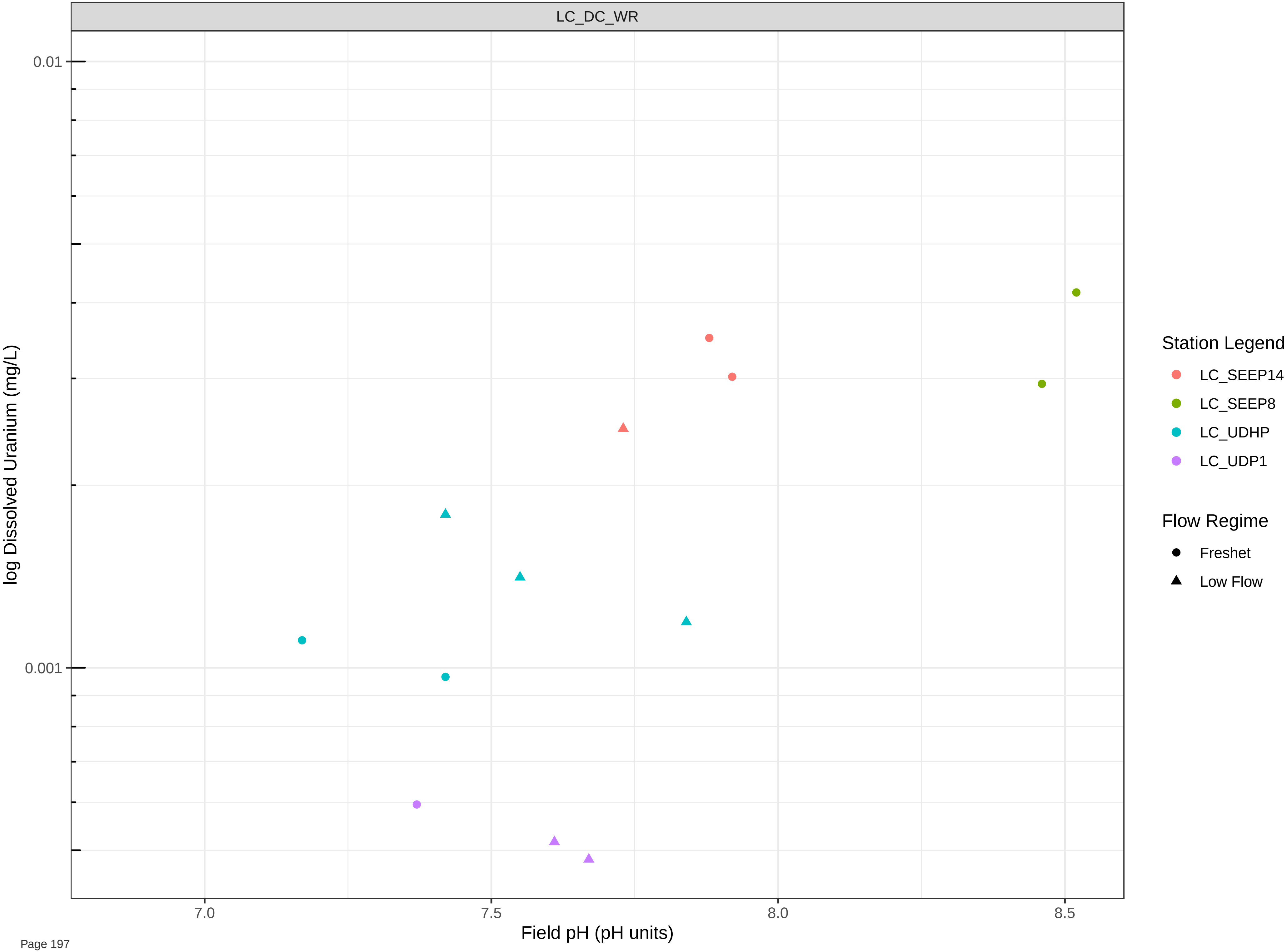

LC_HSP_WR
log Dissolved Titanium (mg/L)
0.01
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

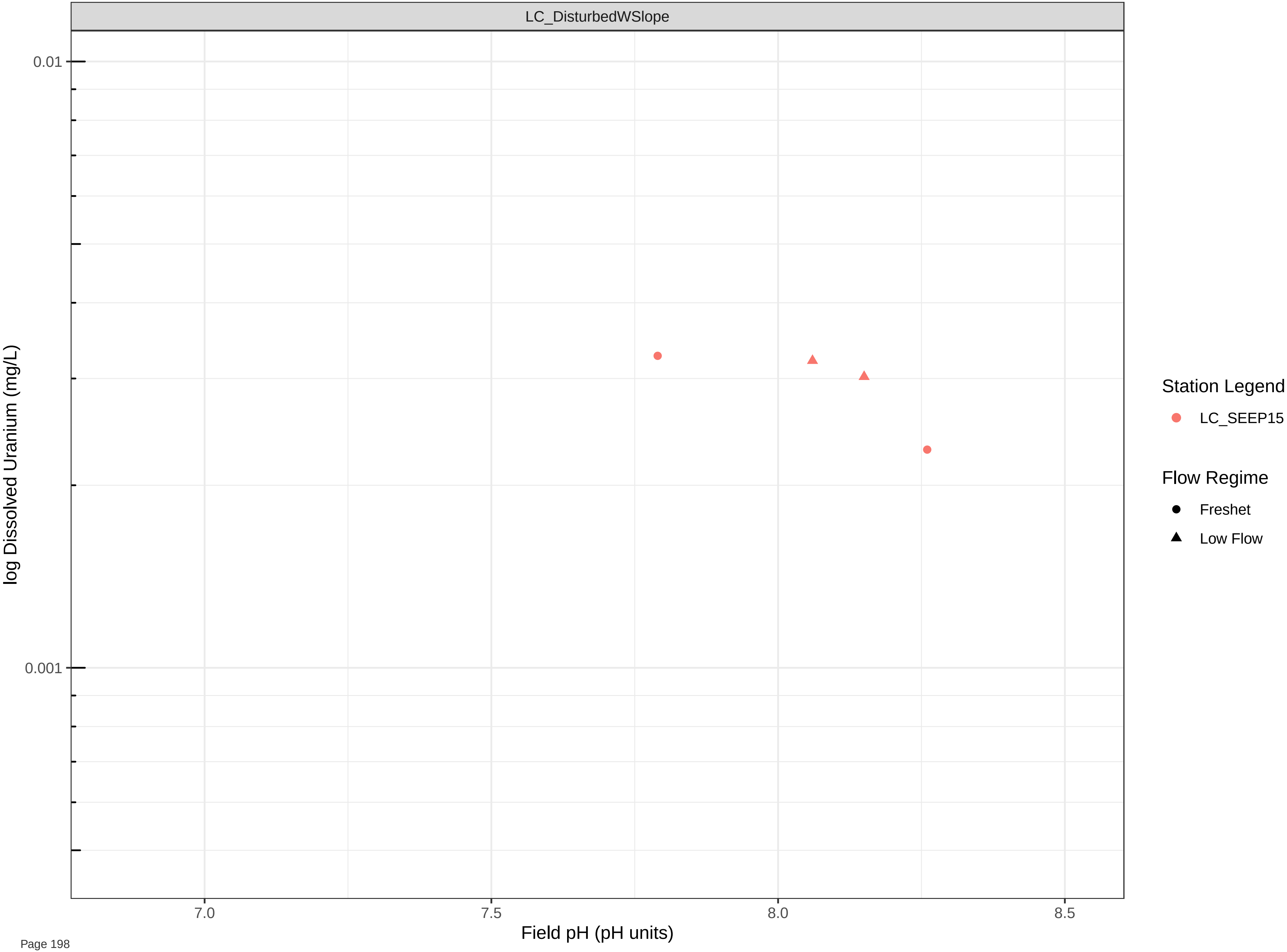

LC_MAXAM
log Dissolved Titanium (mg/L)
0.01
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

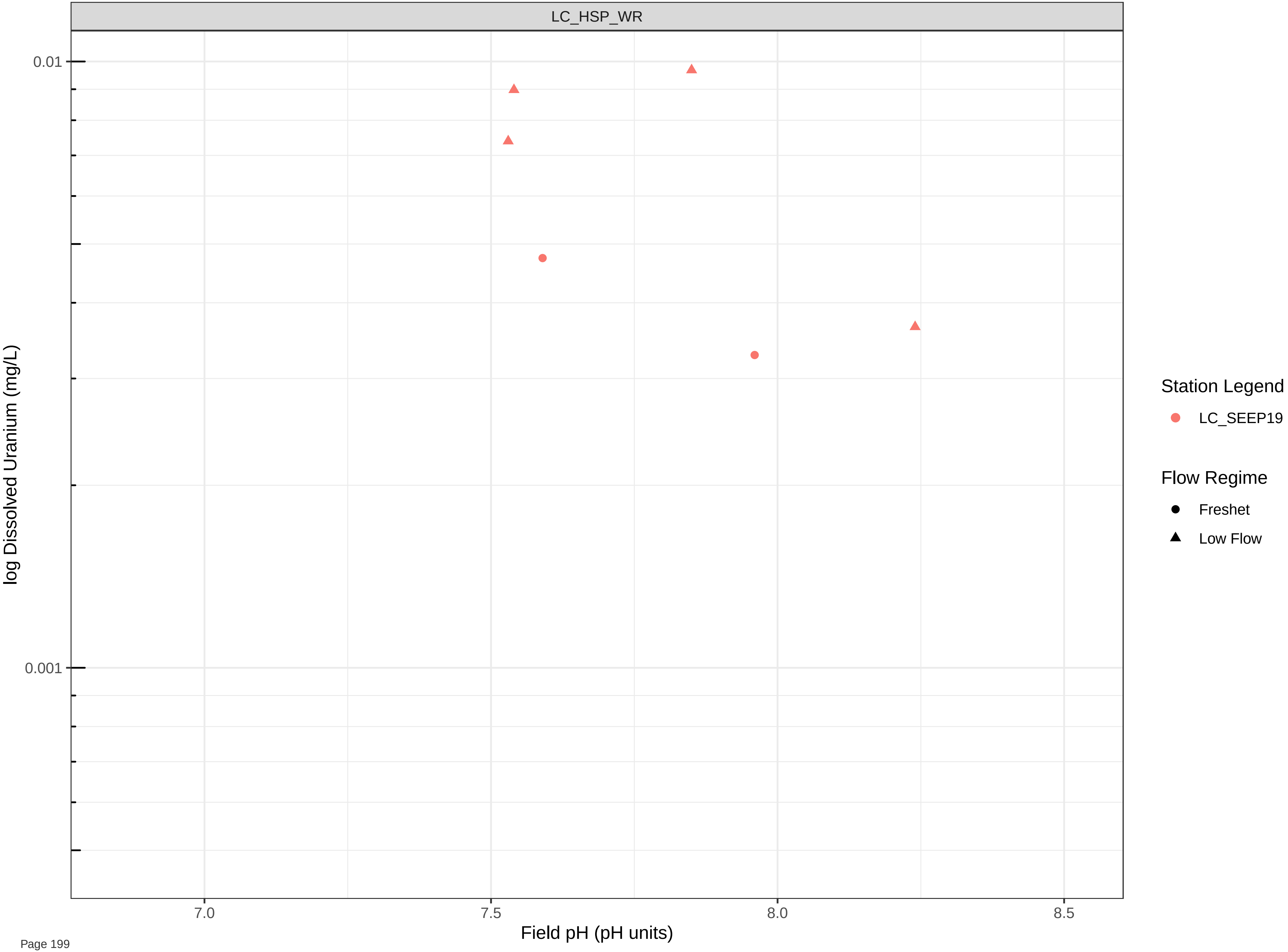

LC_MSA_WR
log Dissolved Titanium (mg/L)
0.01
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_3KM
● LC_SEEP1
Flow Regime
● Freshet
▲ Low Flow

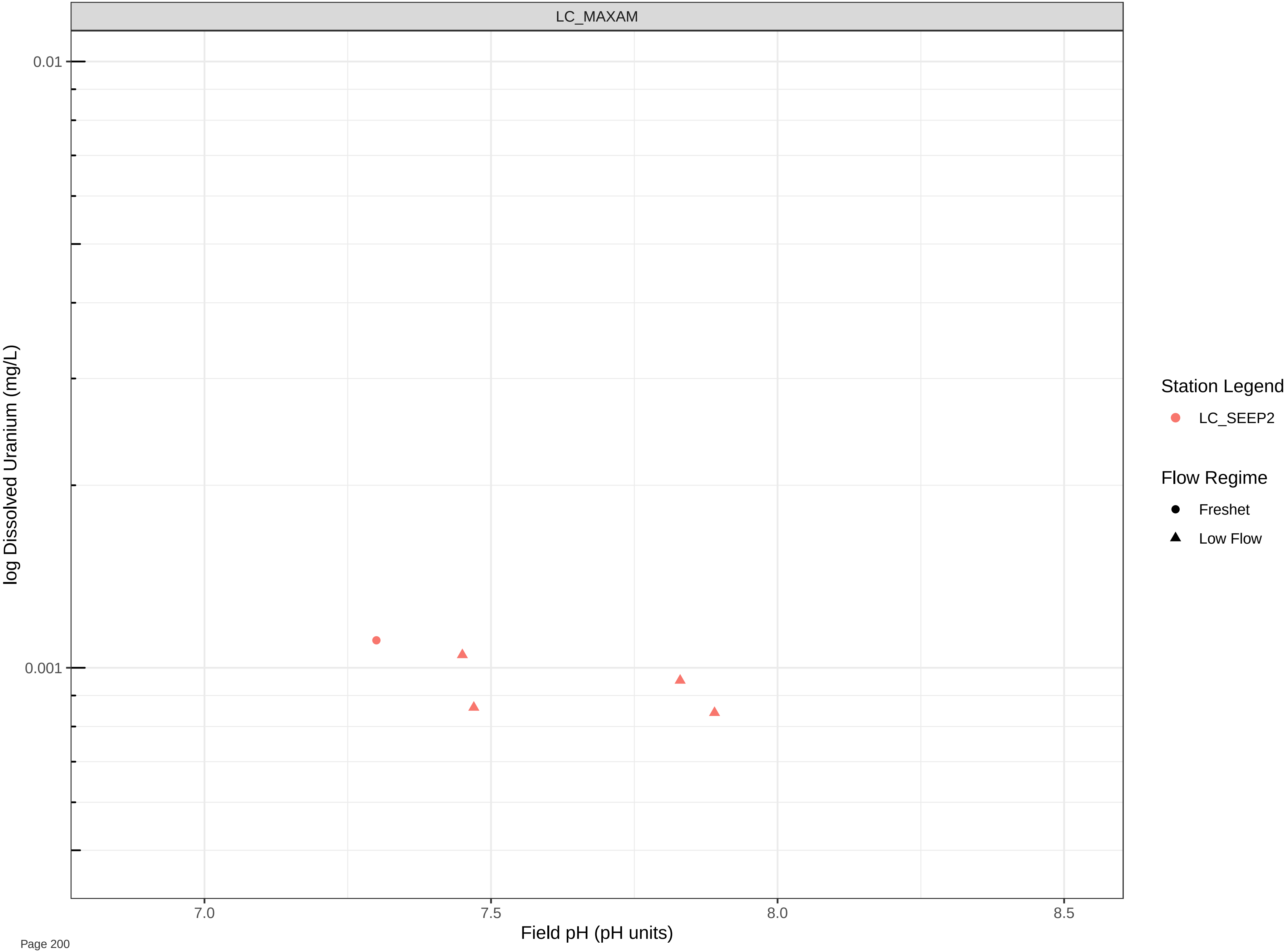

LC_PLANT
log Dissolved Titanium (mg/L)
0.01
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

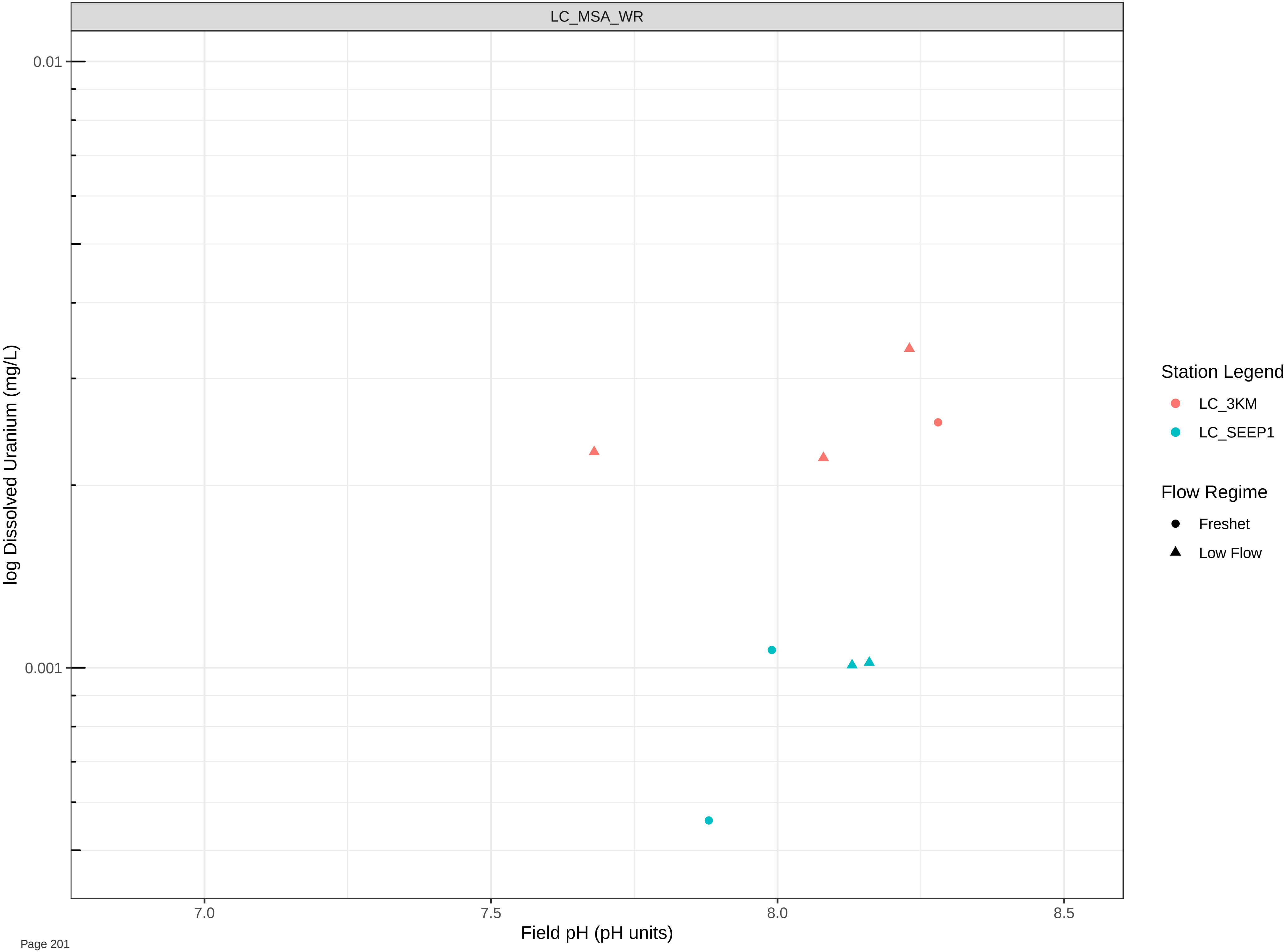

LC_WLC_WR
log Dissolved Titanium (mg/L)
0.01
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

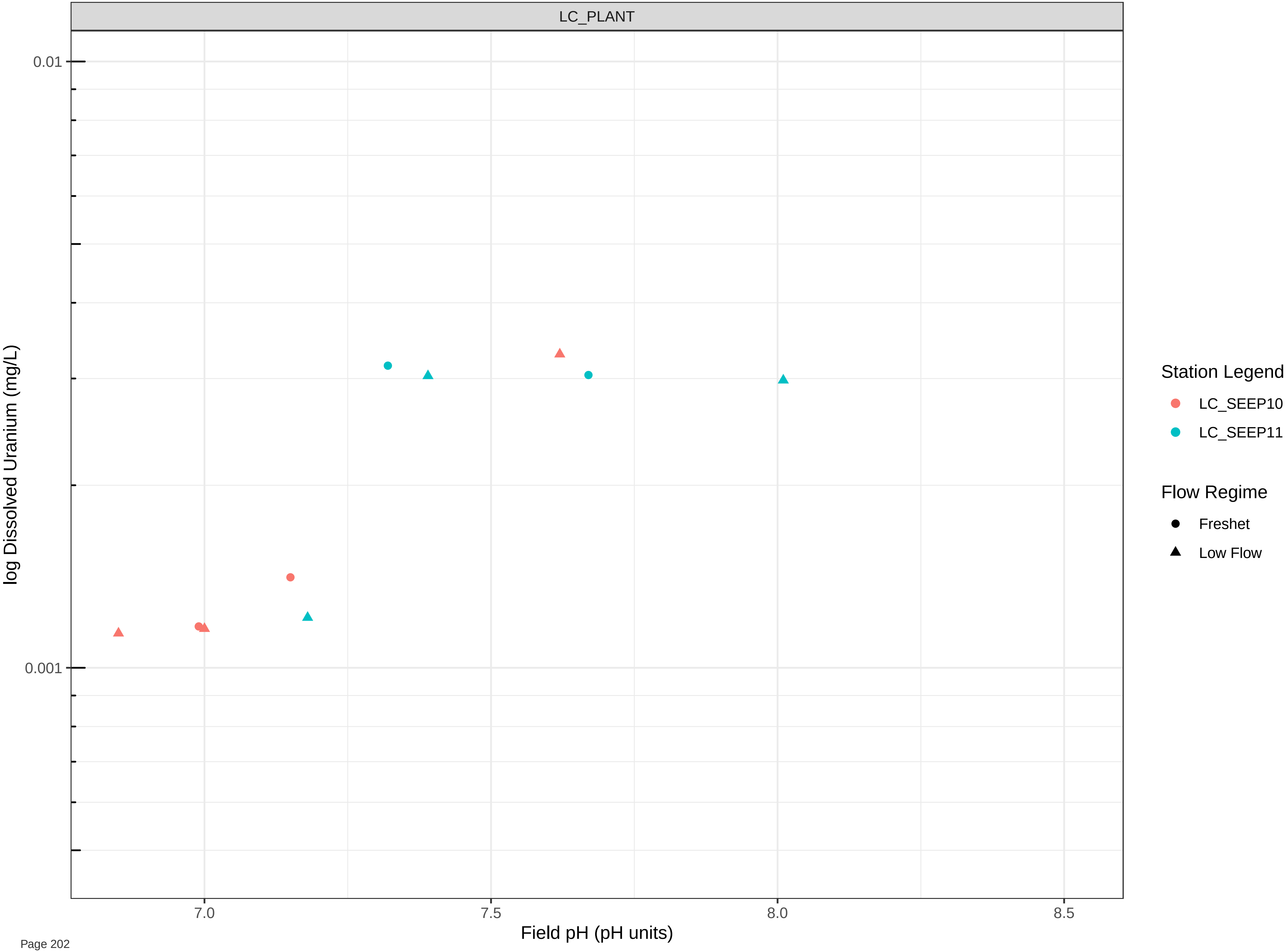

LC_DC_WR
0.01
0.001
log Dissolved Uranium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

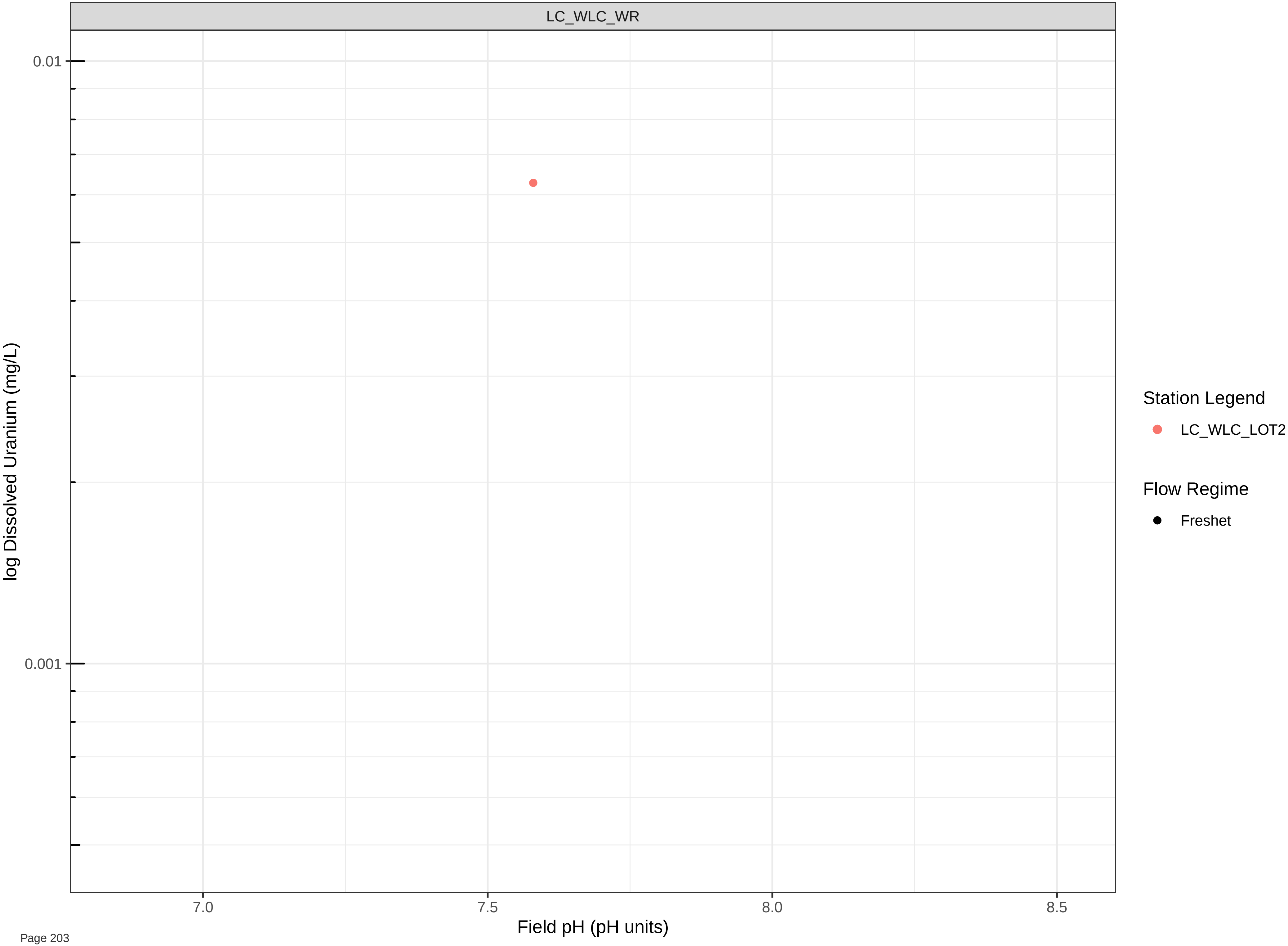

LC_DisturbedWSlope
0.01
0.001
log Dissolved Uranium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow

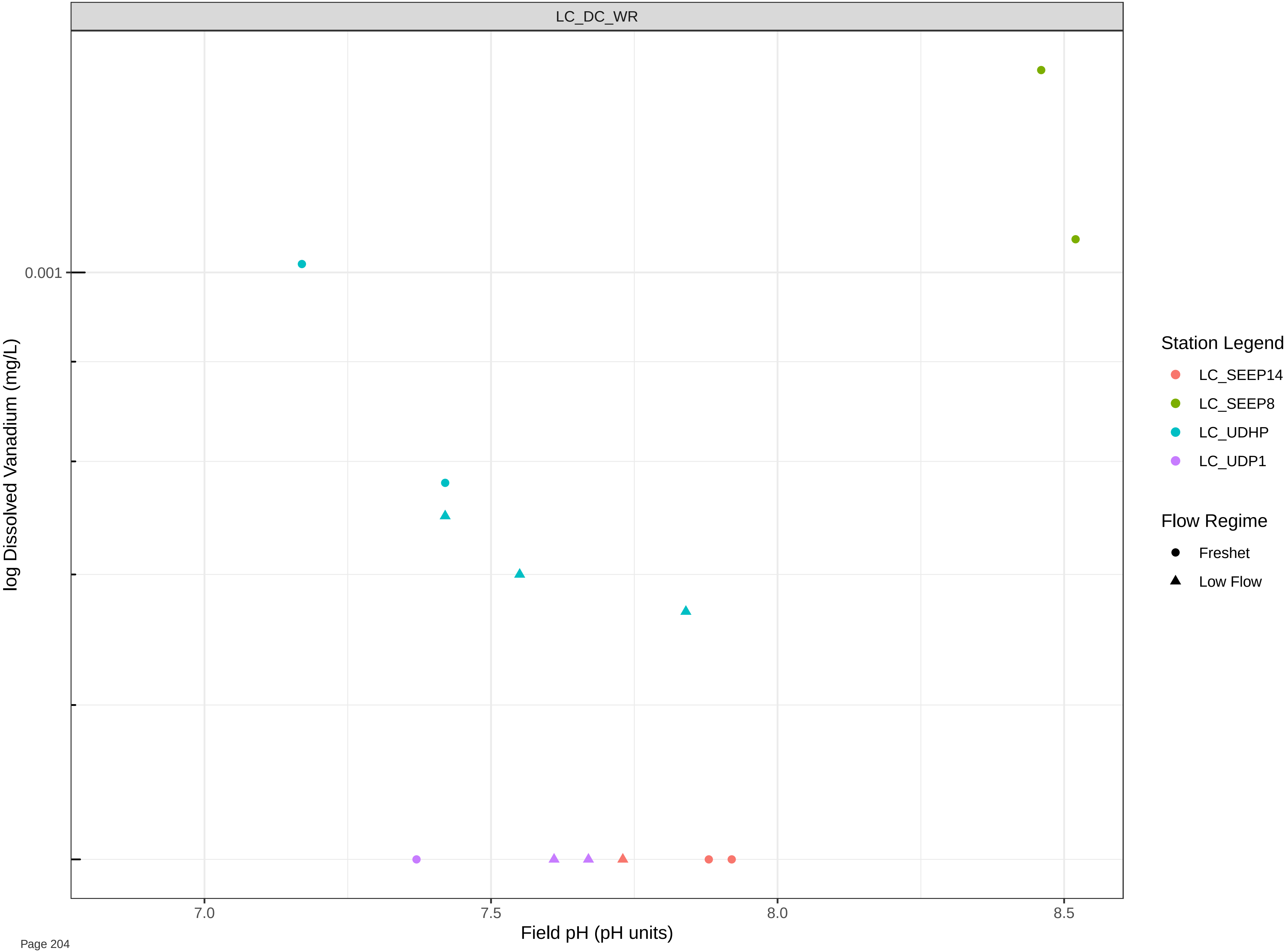

LC_HSP_WR
0.01
0.001
log Dissolved Uranium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

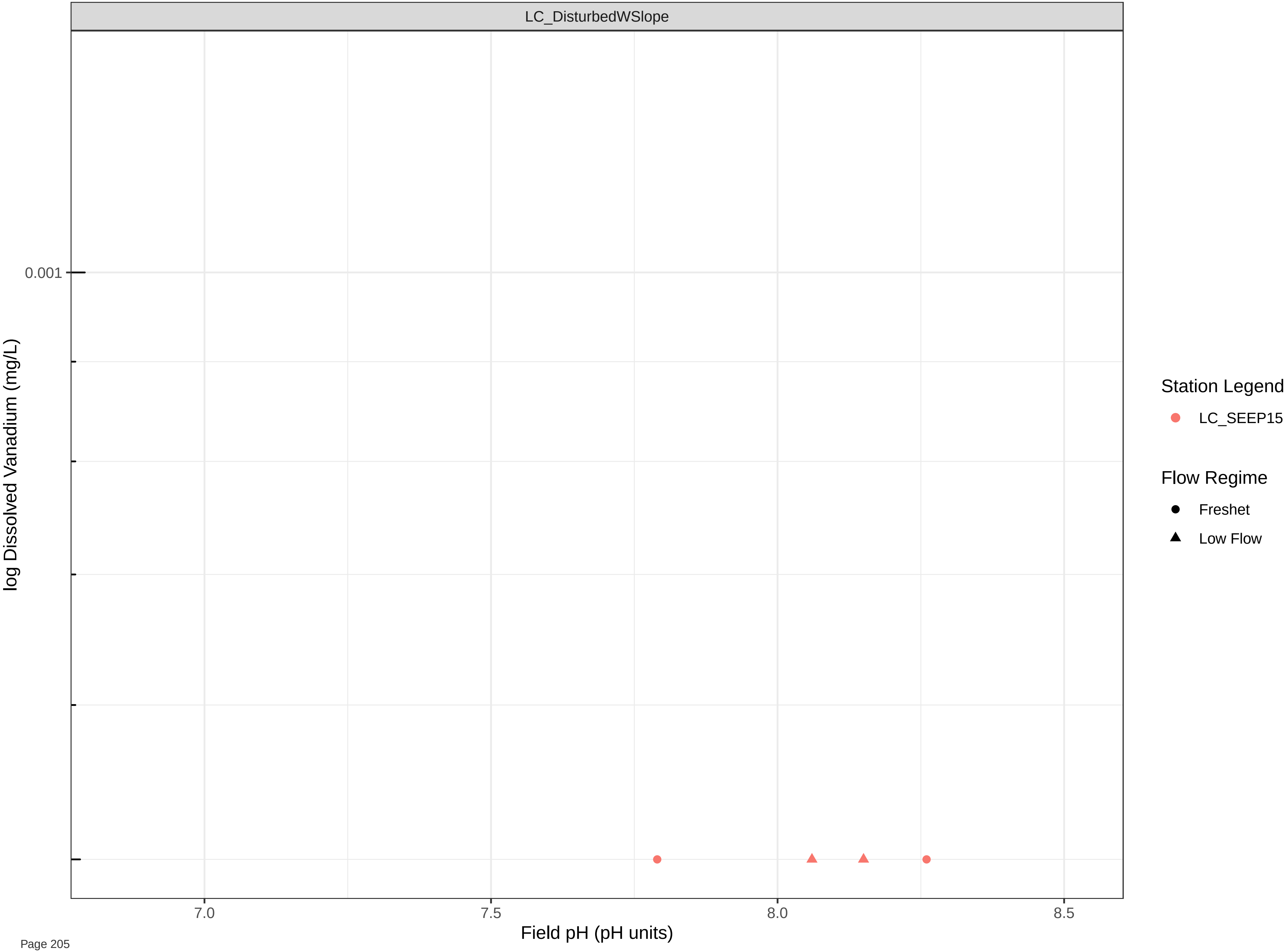

LC_MAXAM
0.01
0.001
log Dissolved Uranium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

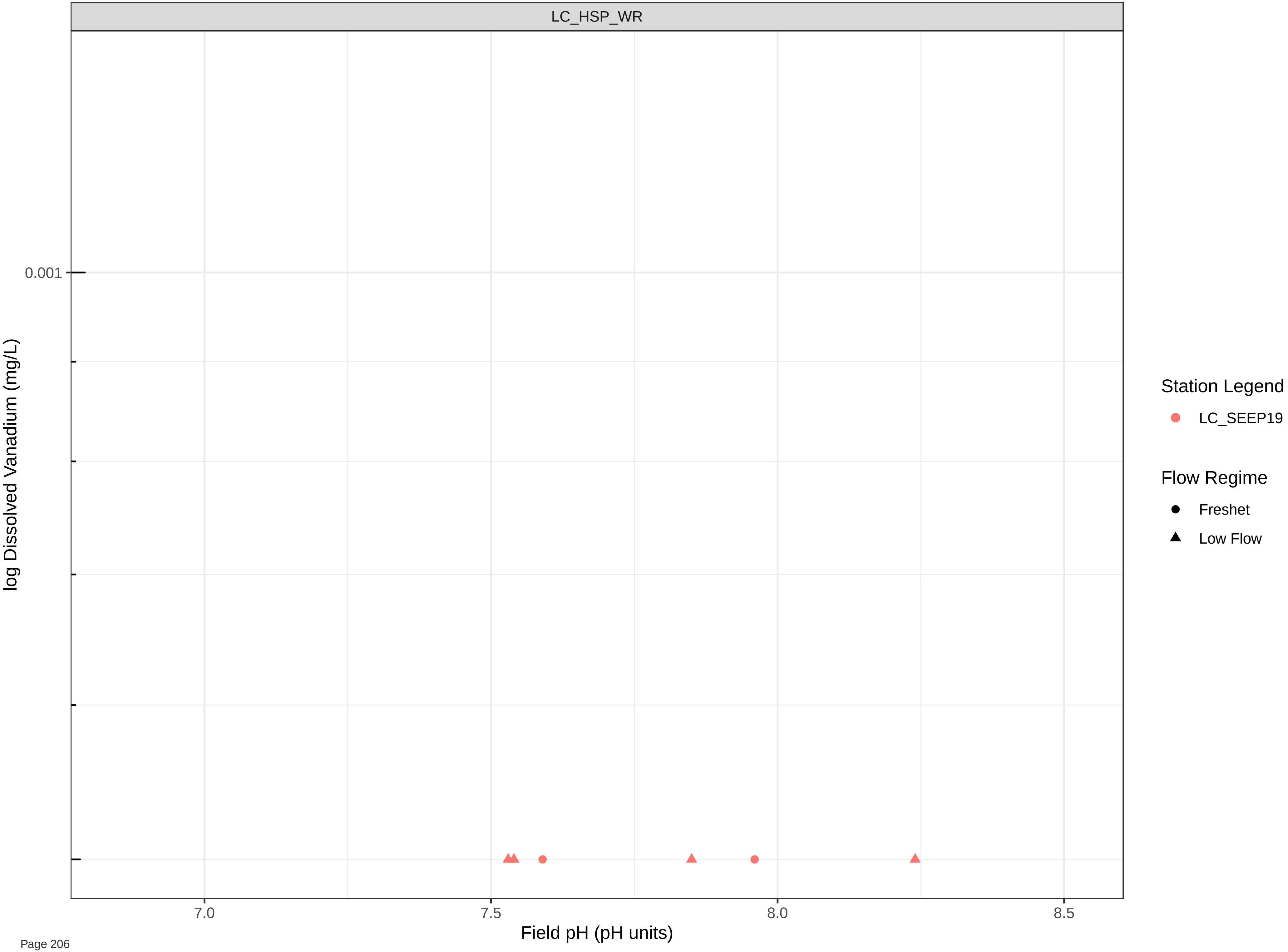

LC_MSA_WR
0.01
0.001
log Dissolved Uranium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow


LC_PLANT
0.01
0.001
log Dissolved Uranium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow


LC_WLC_WR
0.01
0.001
log Dissolved Uranium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet


LC_DC_WR
log Dissolved Vanadium (mg/L)
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
0.001
log Dissolved Vanadium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow


LC_HSP_WR
0.001
log Dissolved Vanadium (mg/L)
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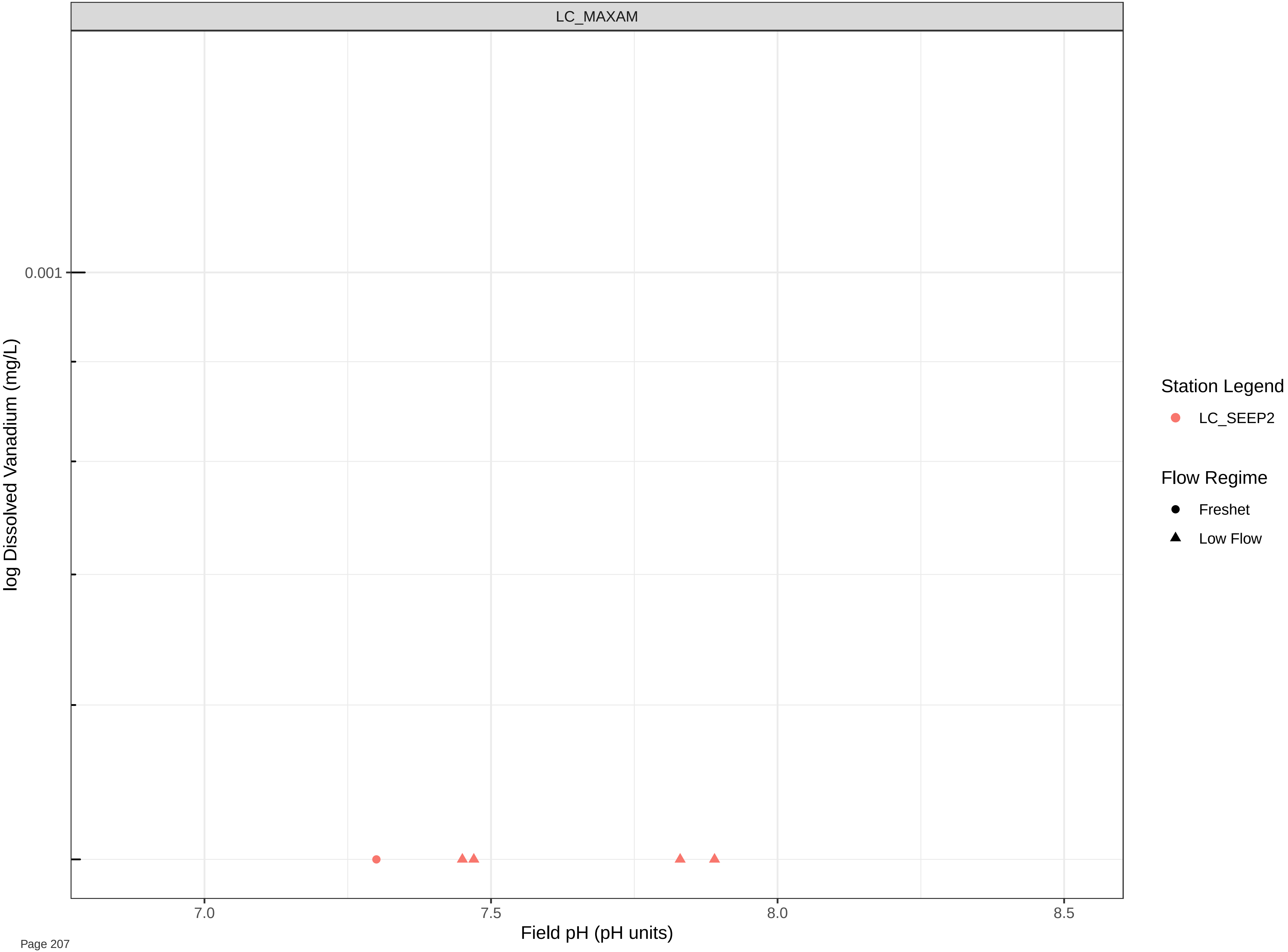
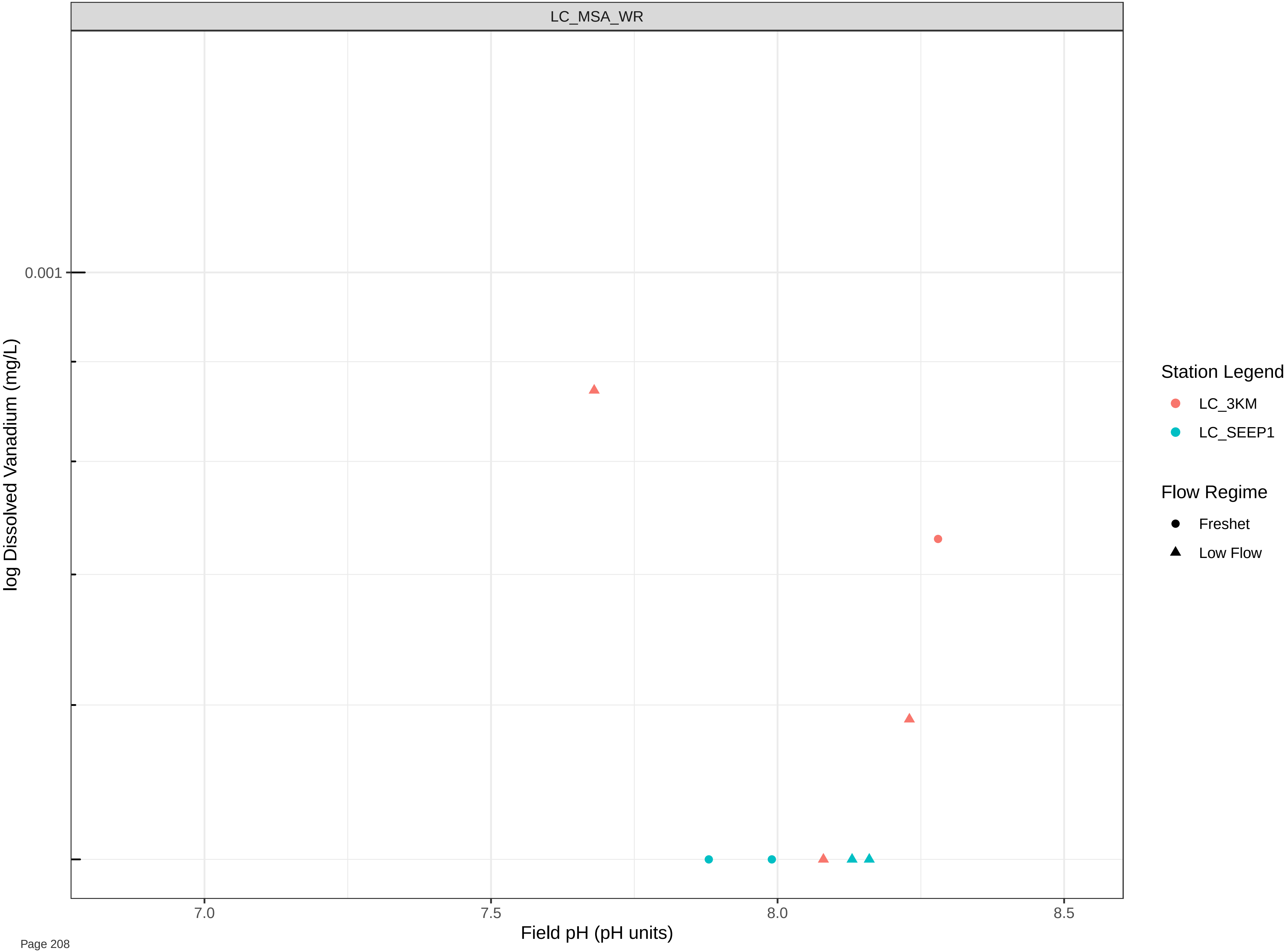
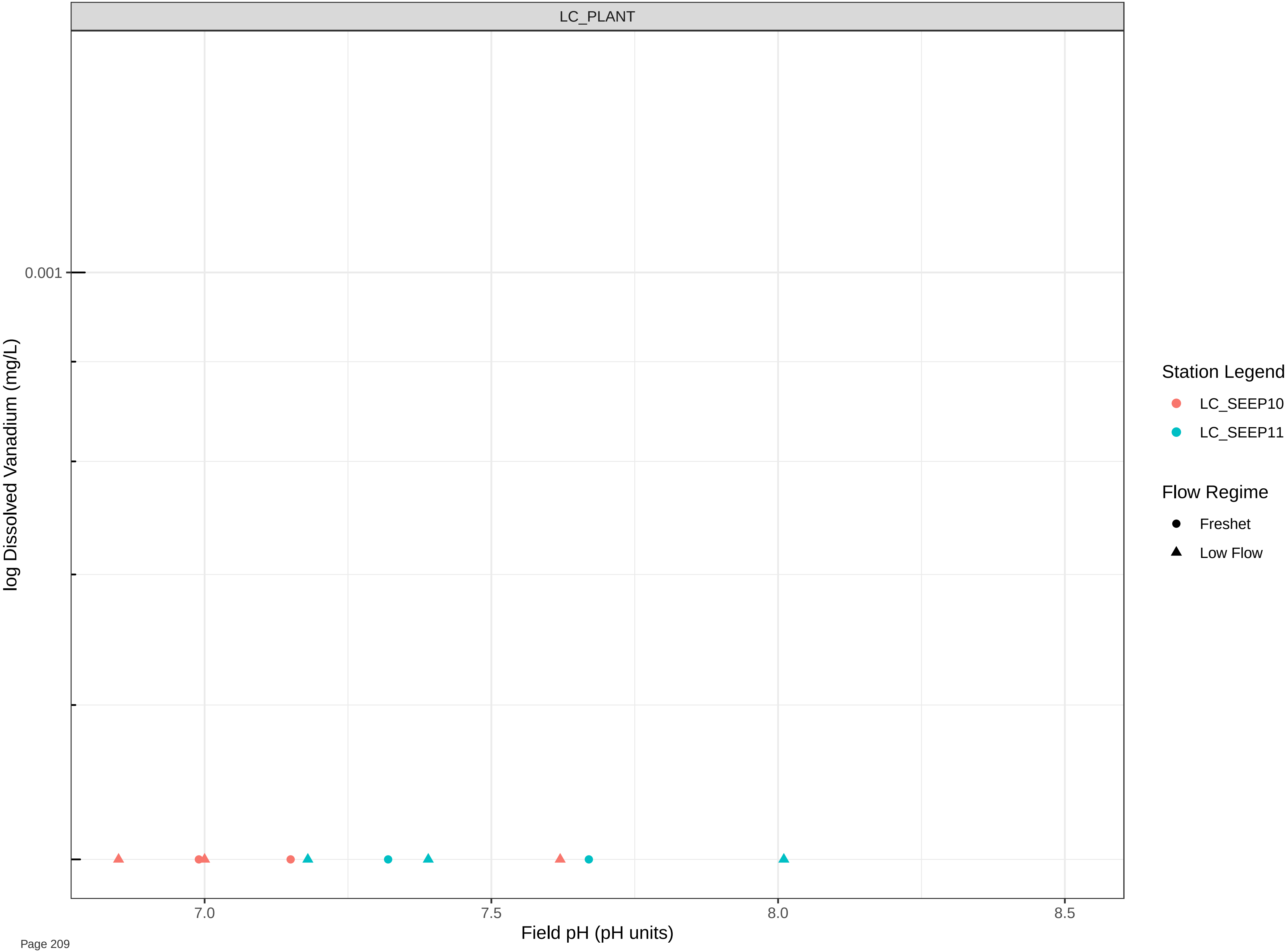
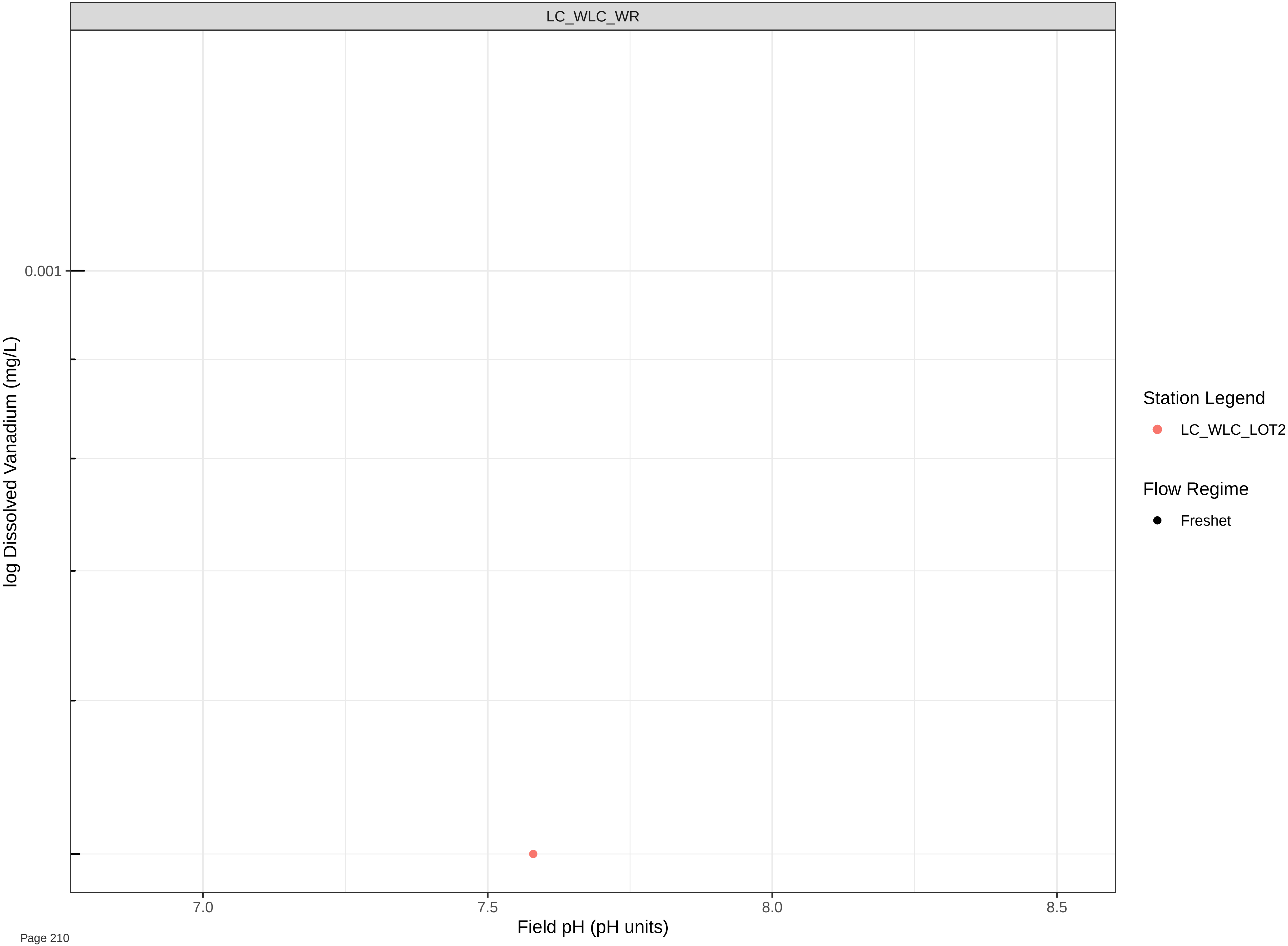
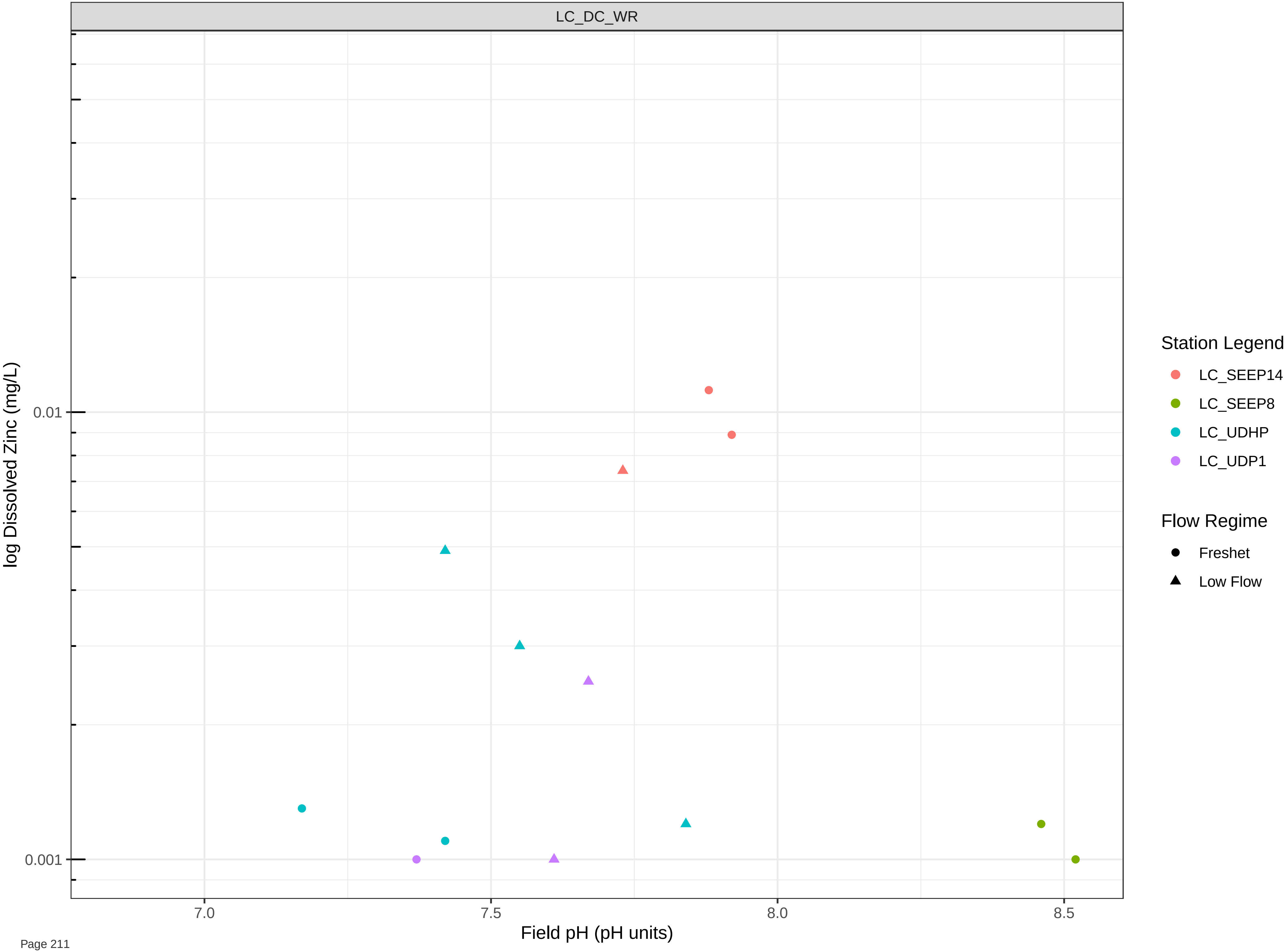
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

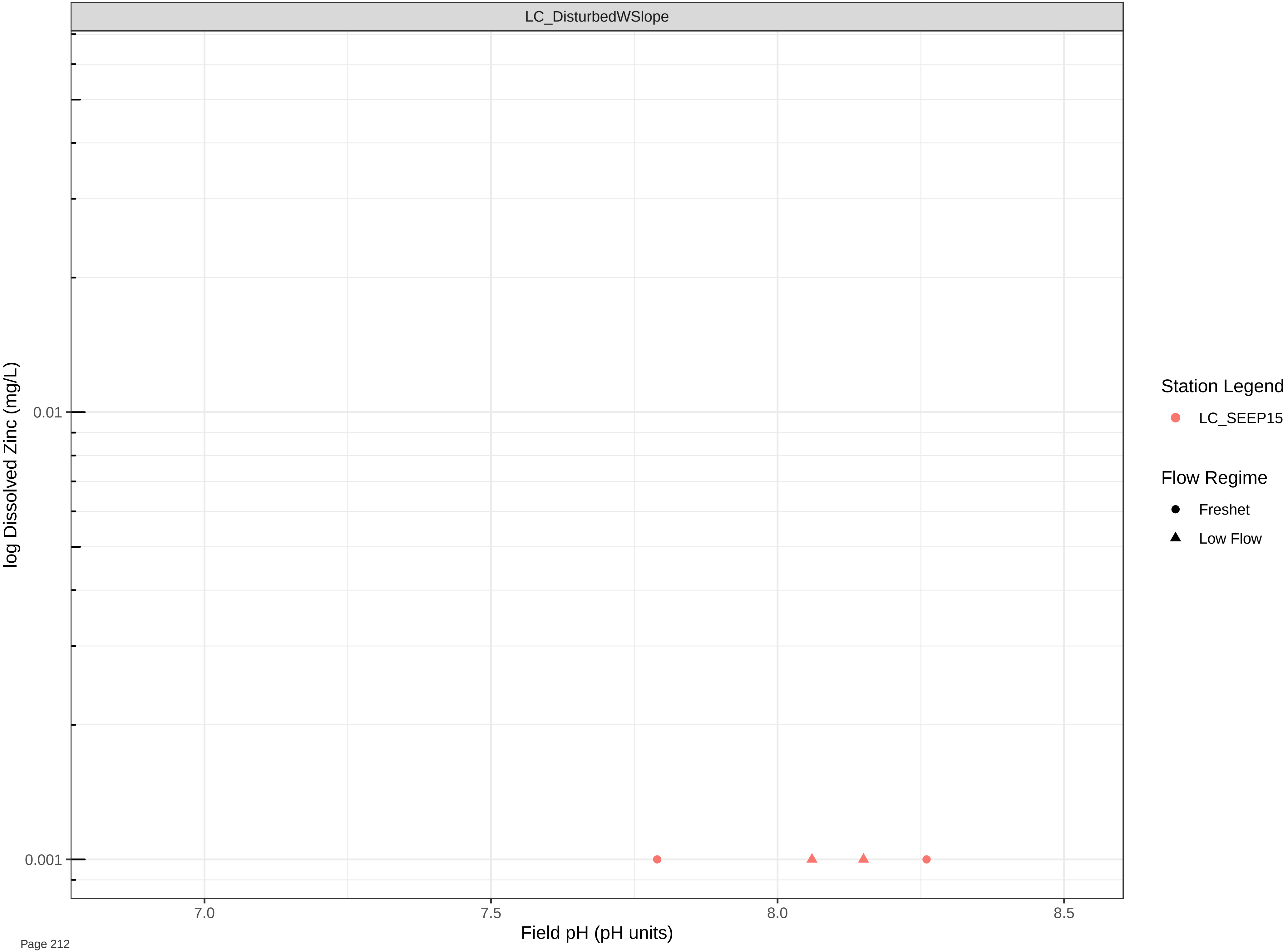

LC_MAXAM
0.001
log Dissolved Vanadium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

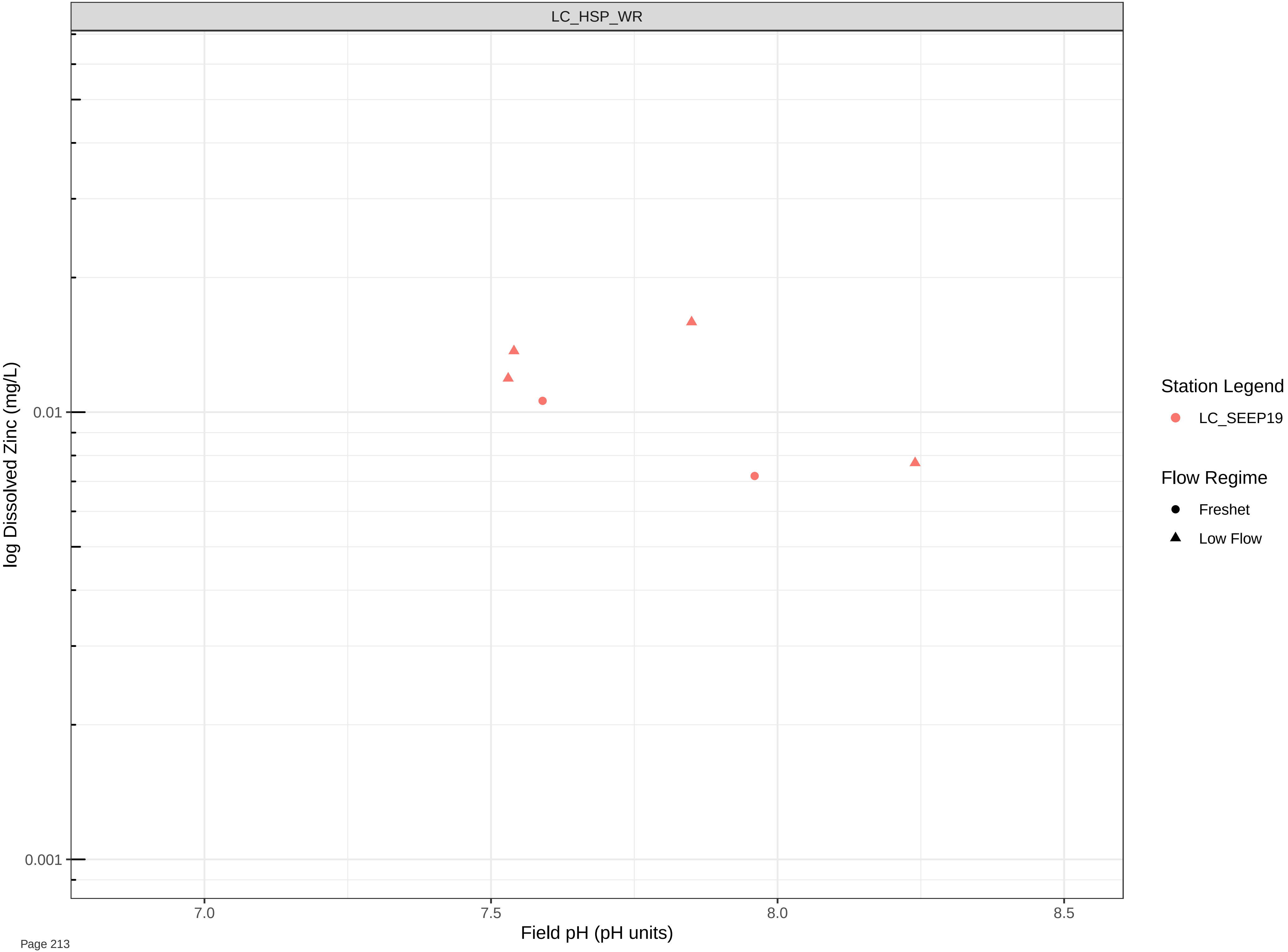

LC_MSA_WR
0.001
log Dissolved Vanadium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

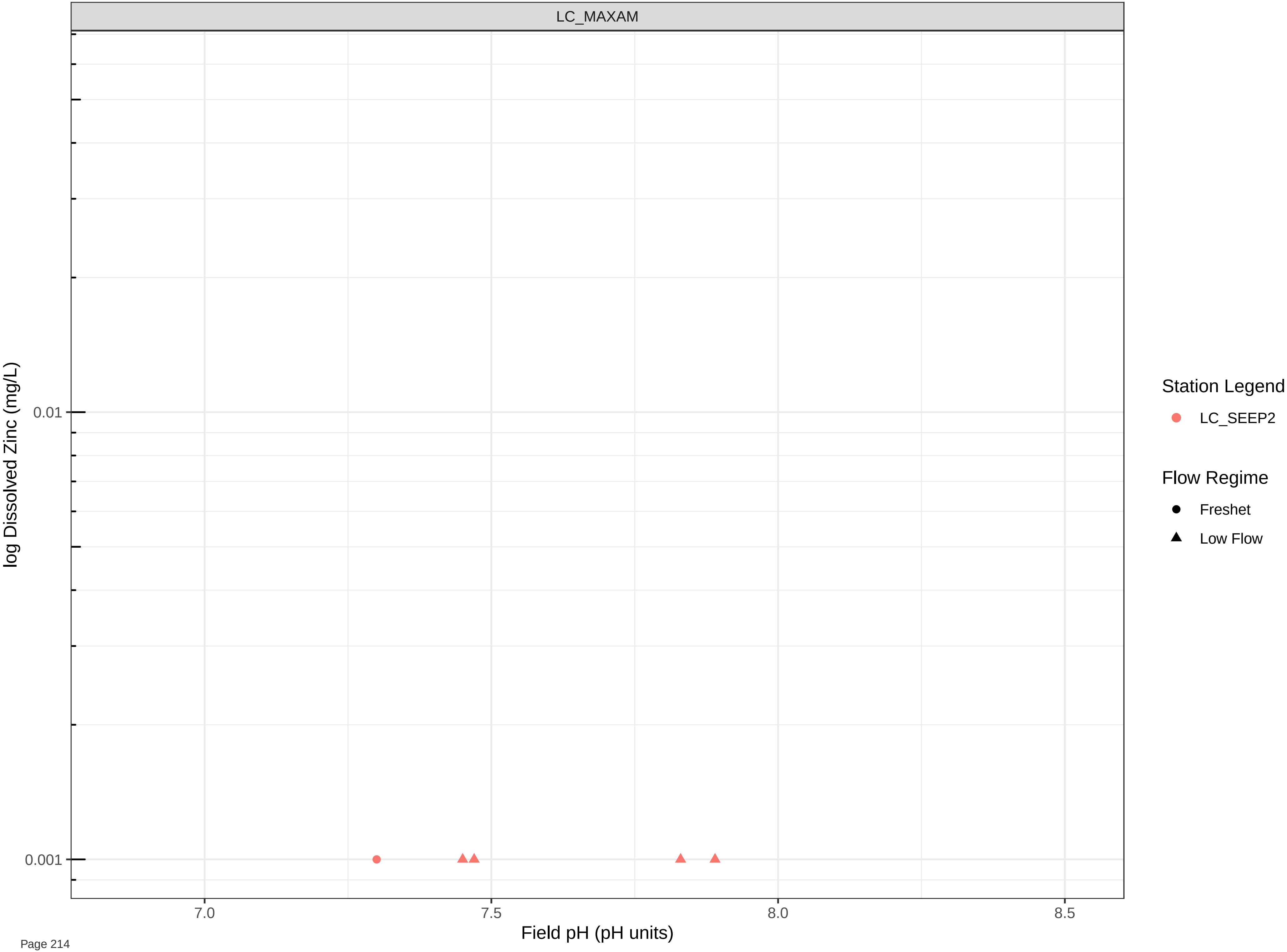

LC_PLANT
0.001
log Dissolved Vanadium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

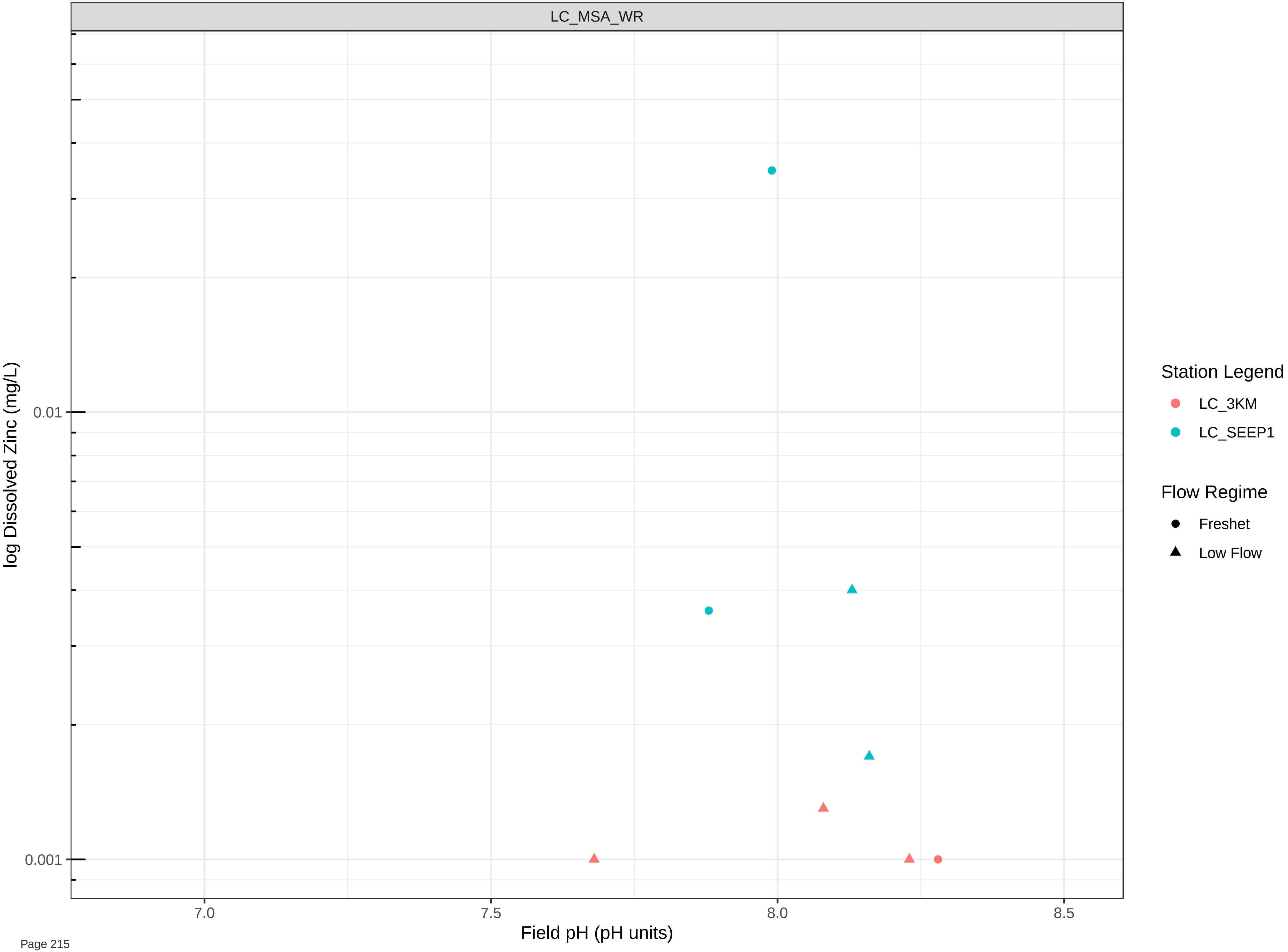

LC_WLC_WR
0.001
log Dissolved Vanadium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet

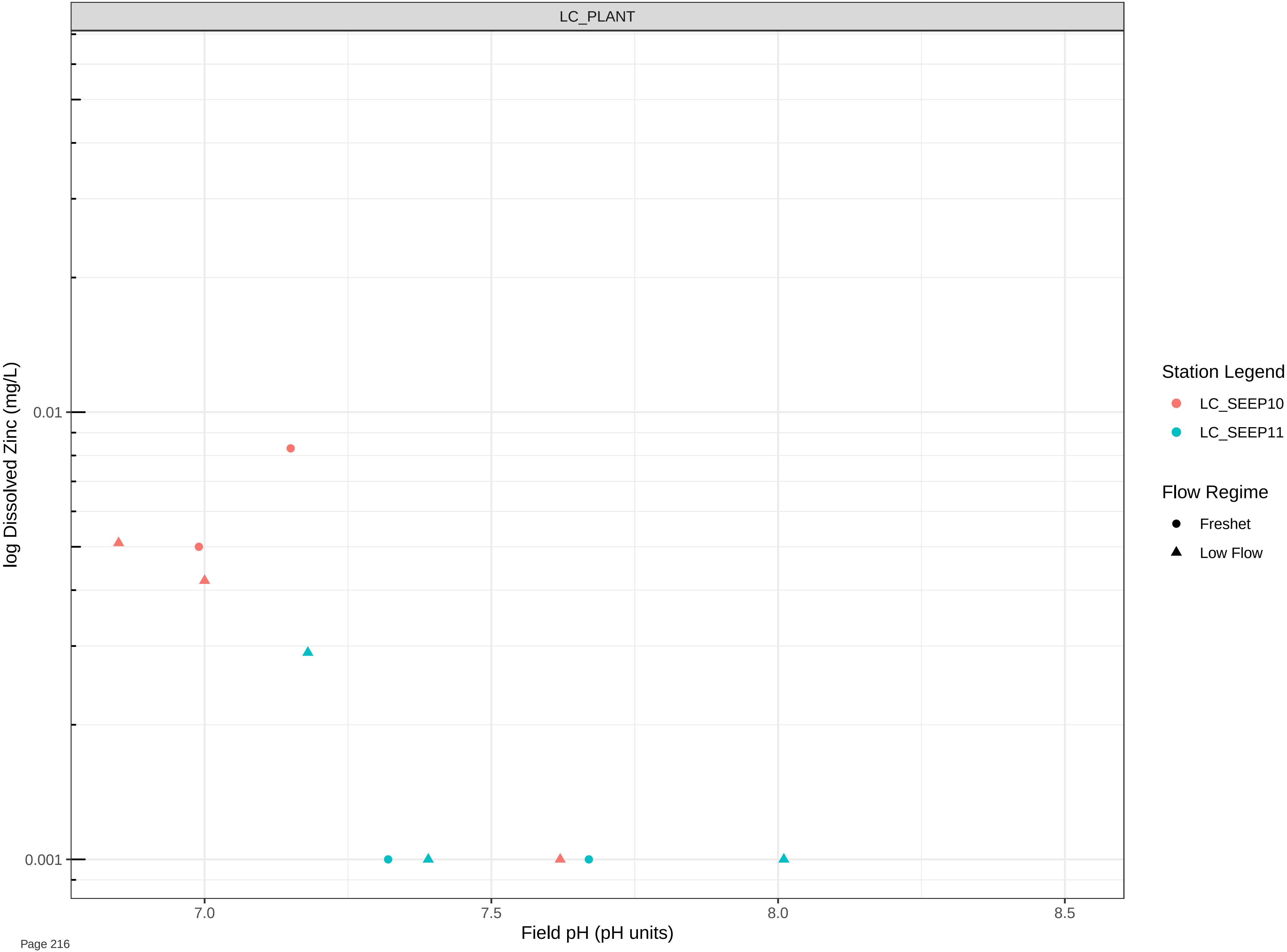

LC_DC_WR
log Dissolved Zinc (mg/L)
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

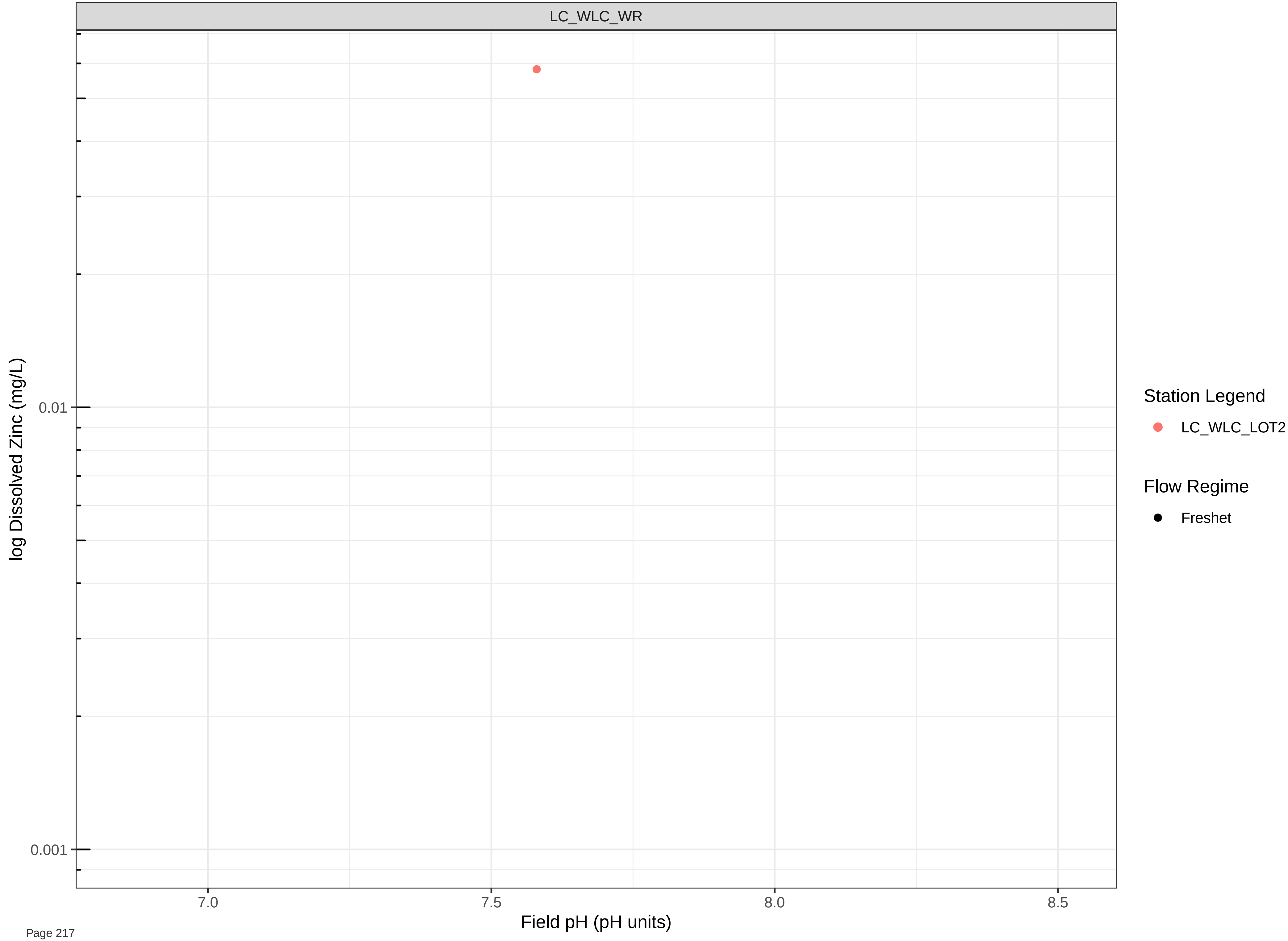

LC_DisturbedWSlope
log Dissolved Zinc (mg/L)
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

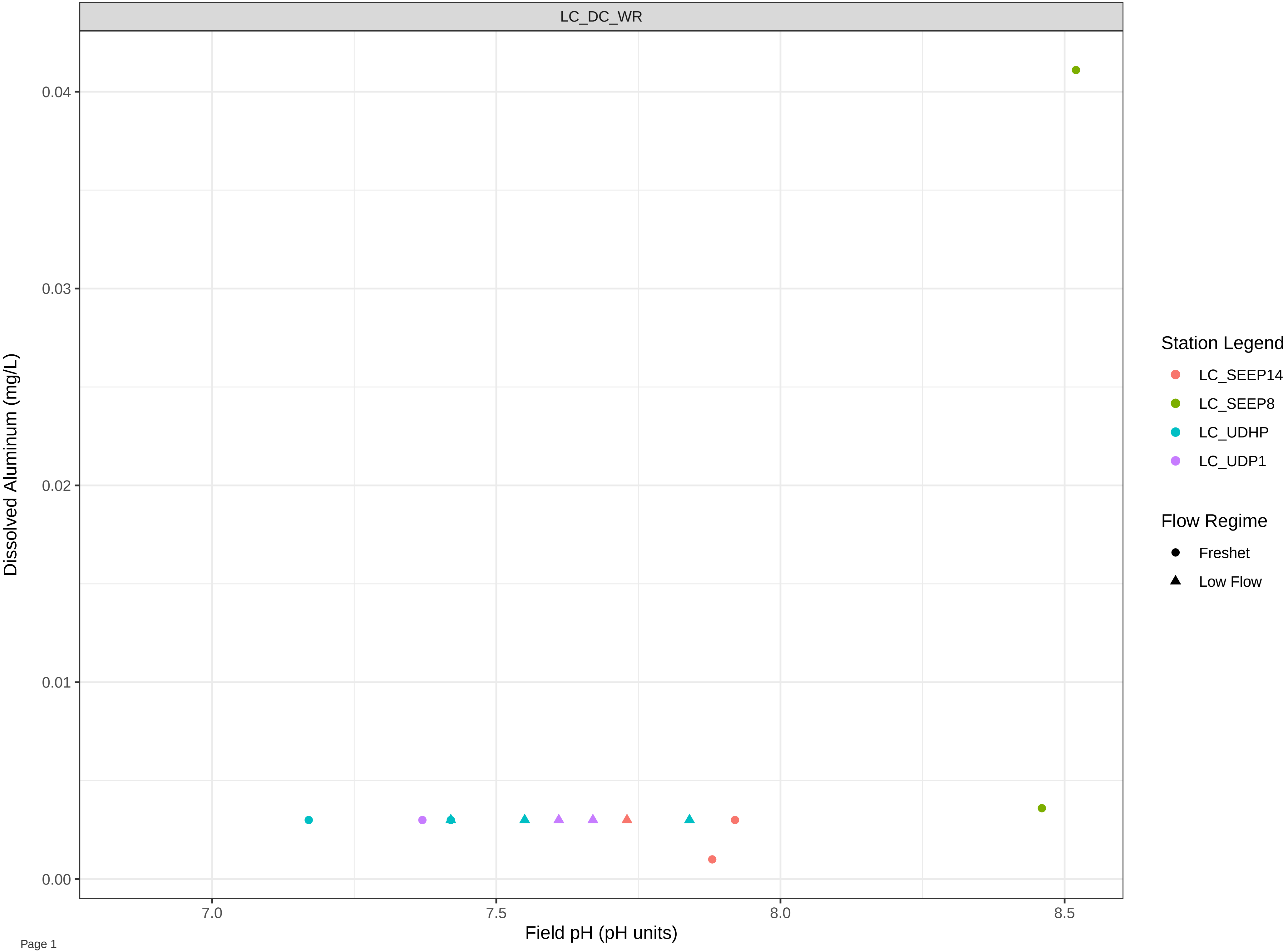

LC_HSP_WR
log Dissolved Zinc (mg/L)
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow


LC_MAXAM
log Dissolved Zinc (mg/L)
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow

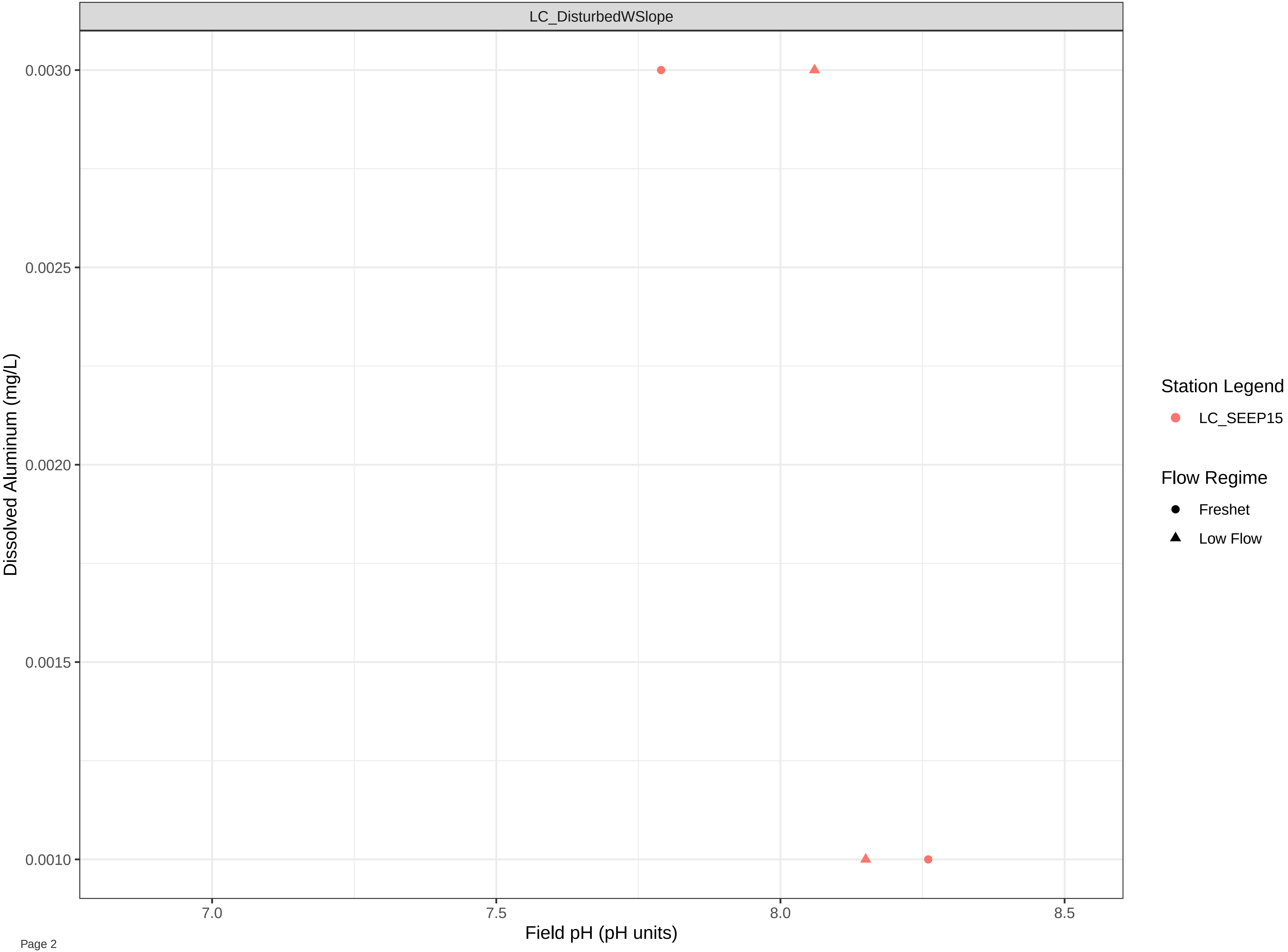

LC_MSA_WR
log Dissolved Zinc (mg/L)
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

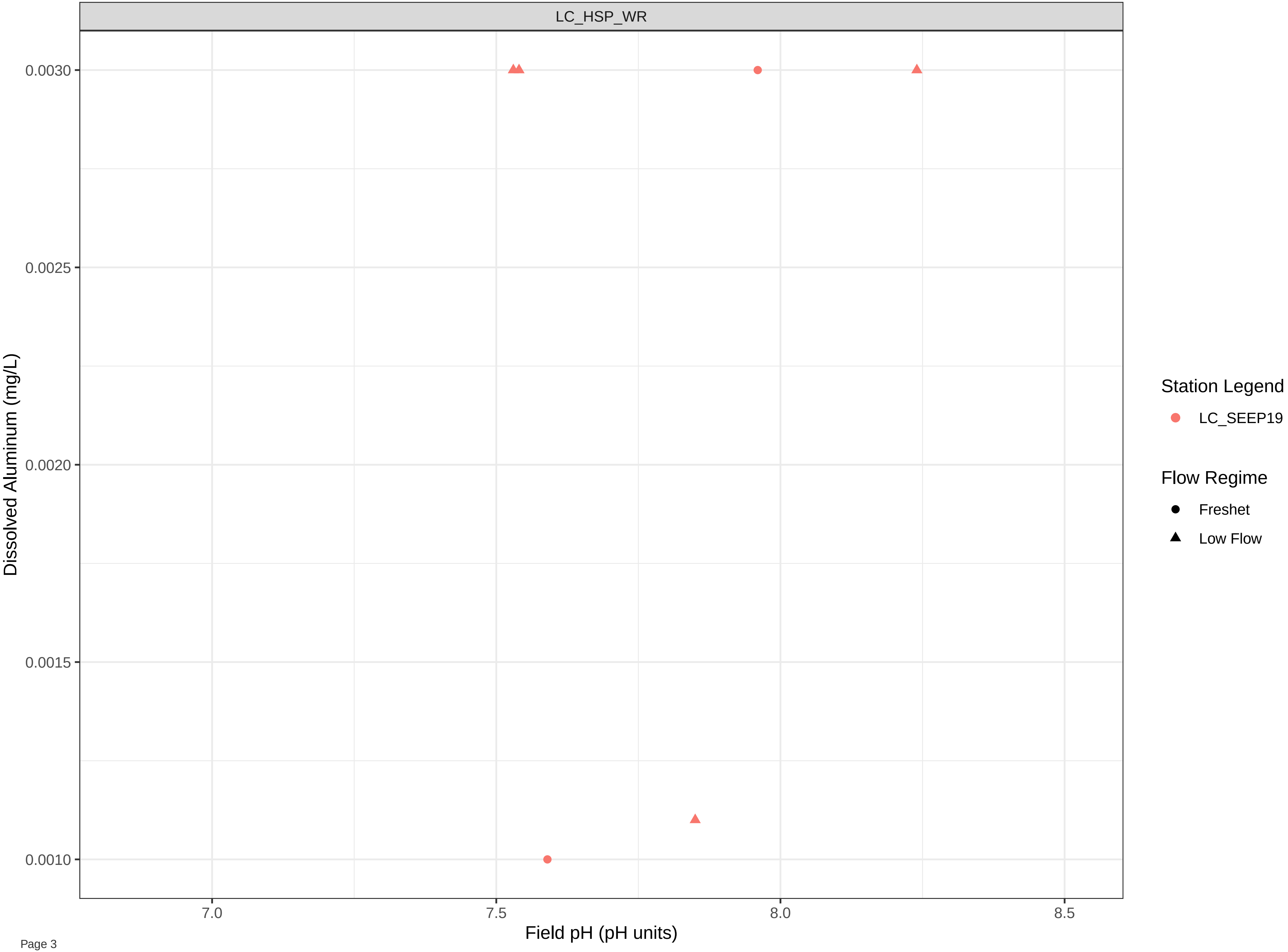

LC_PLANT
log Dissolved Zinc (mg/L)
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

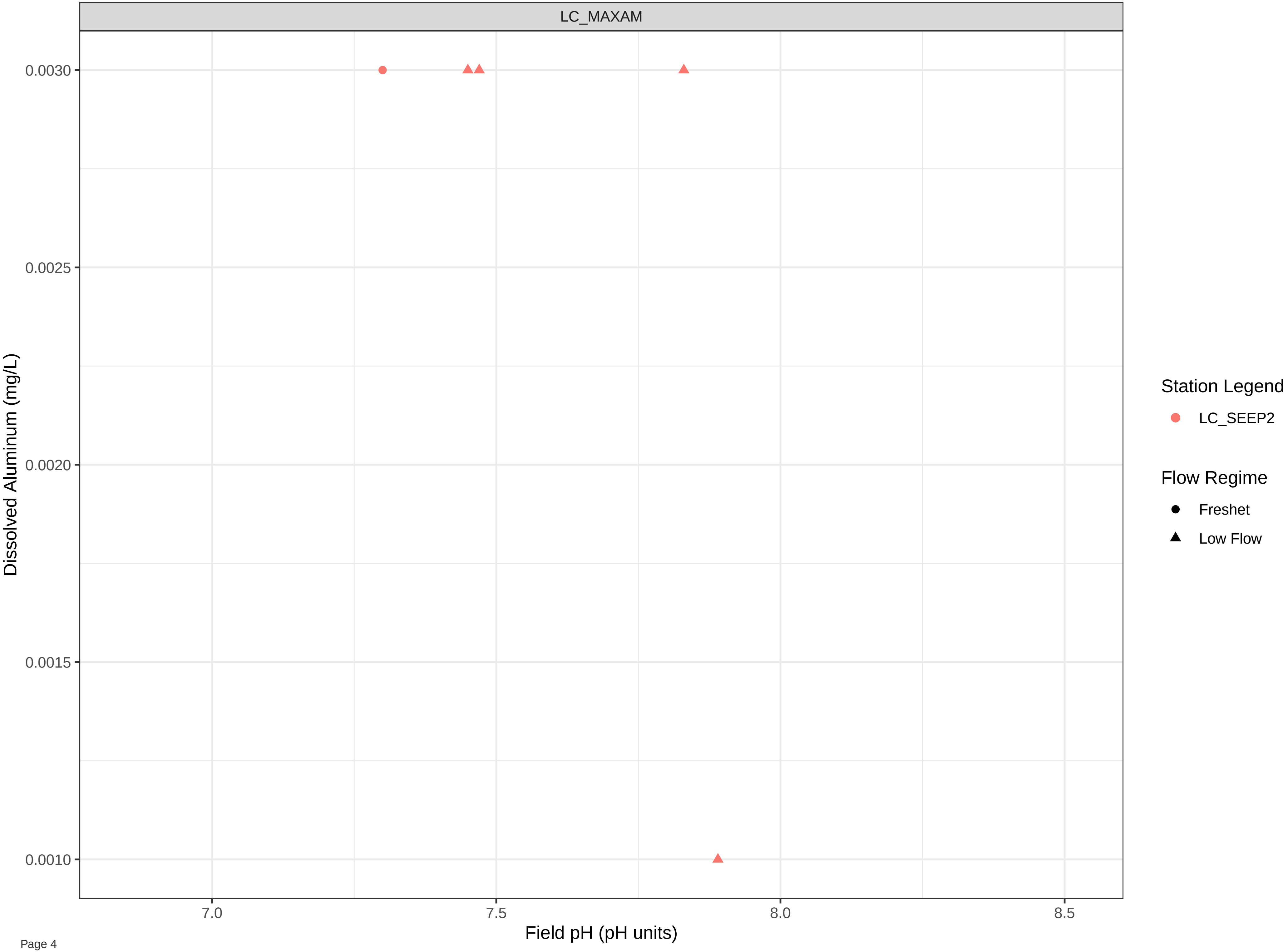

LC_WLC_WR
log Dissolved Zinc (mg/L)
0.01
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

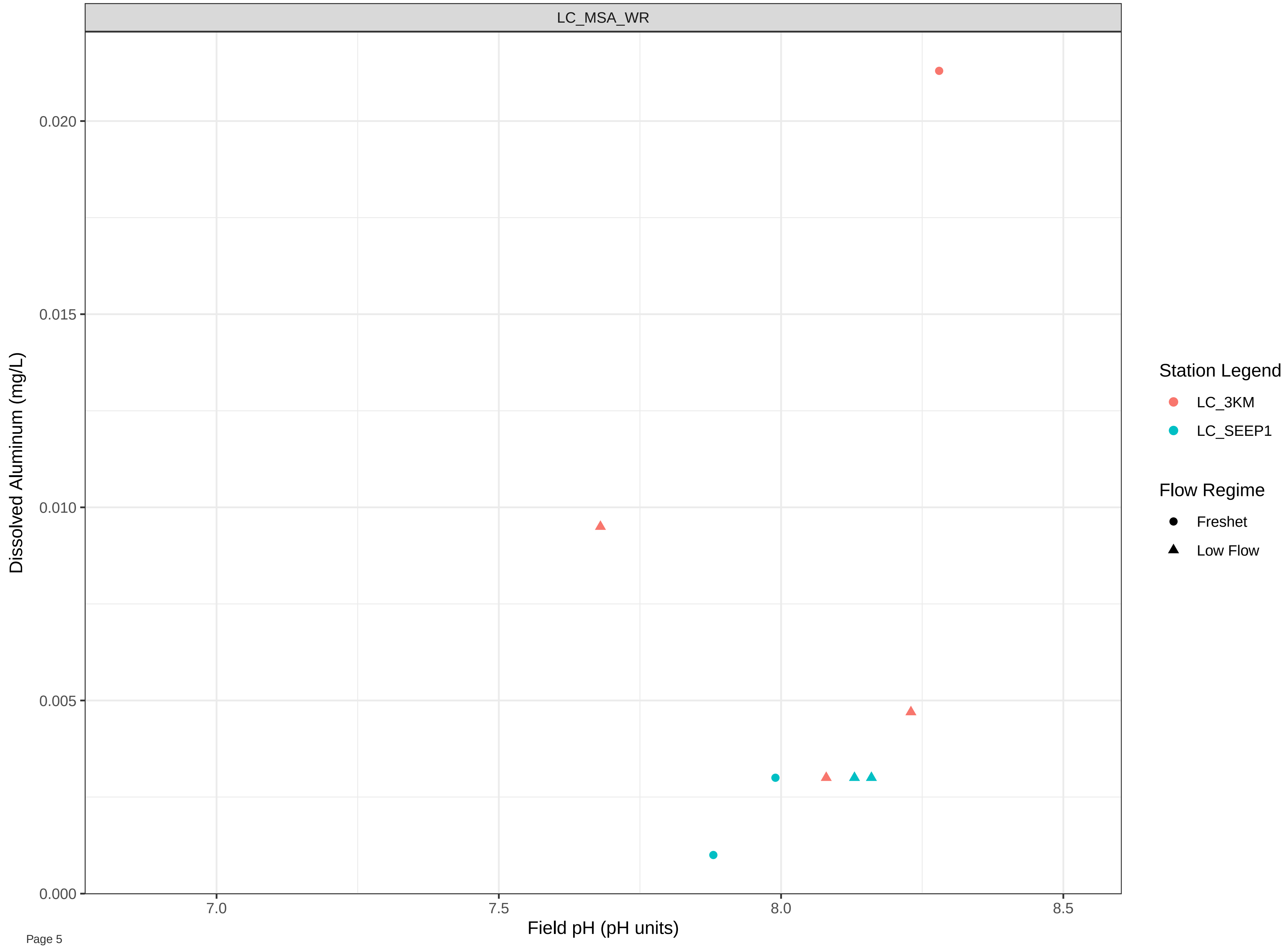


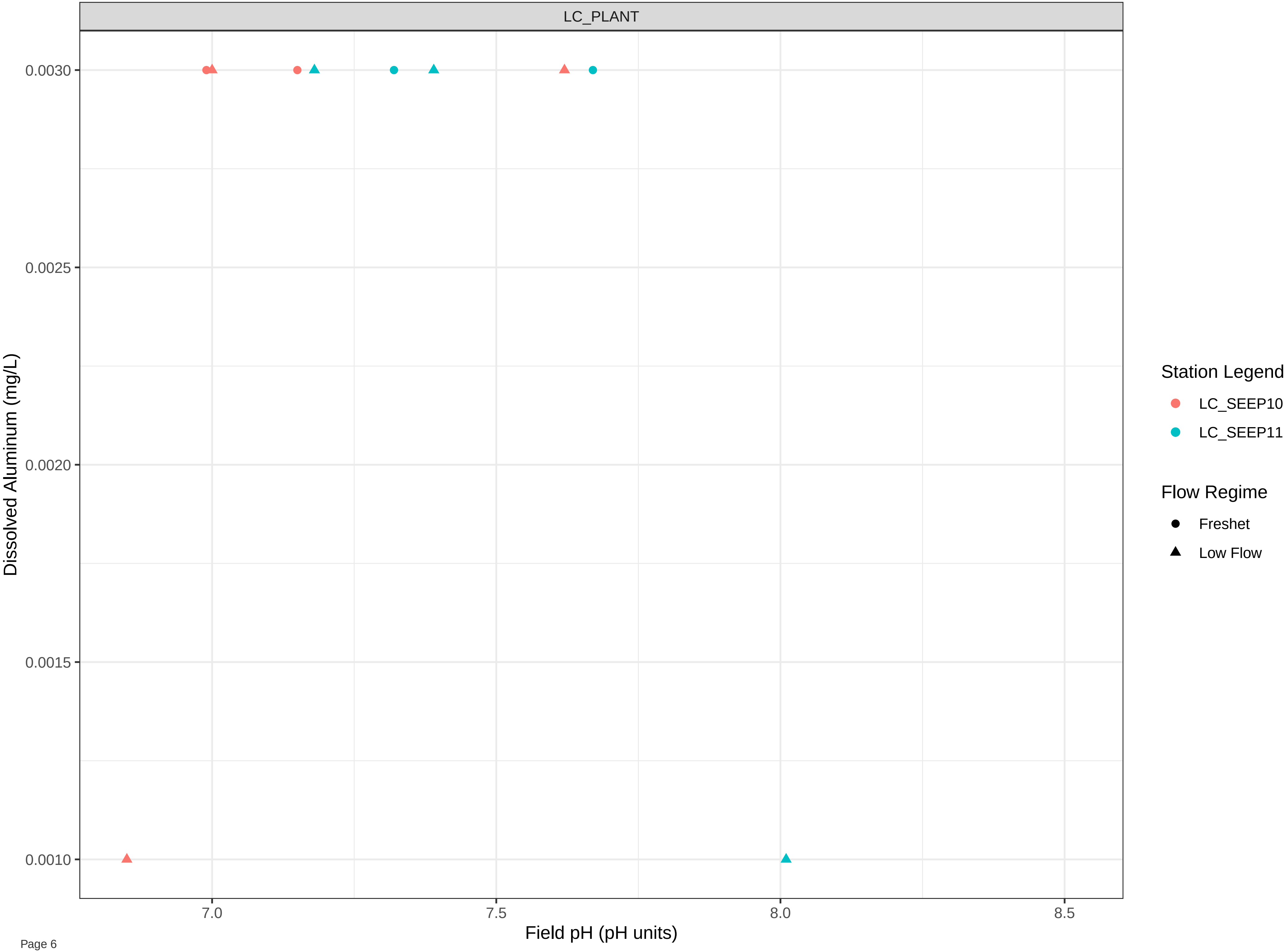
LC_DC_WR
Dissolved Aluminum (mg/L)
0.04
0.03
0.02
0.01
0.00
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP14
● LC_SEEP8
● LC_UDHP
● LC_UDP1
Flow Regime
● Freshet
▲ Low Flow

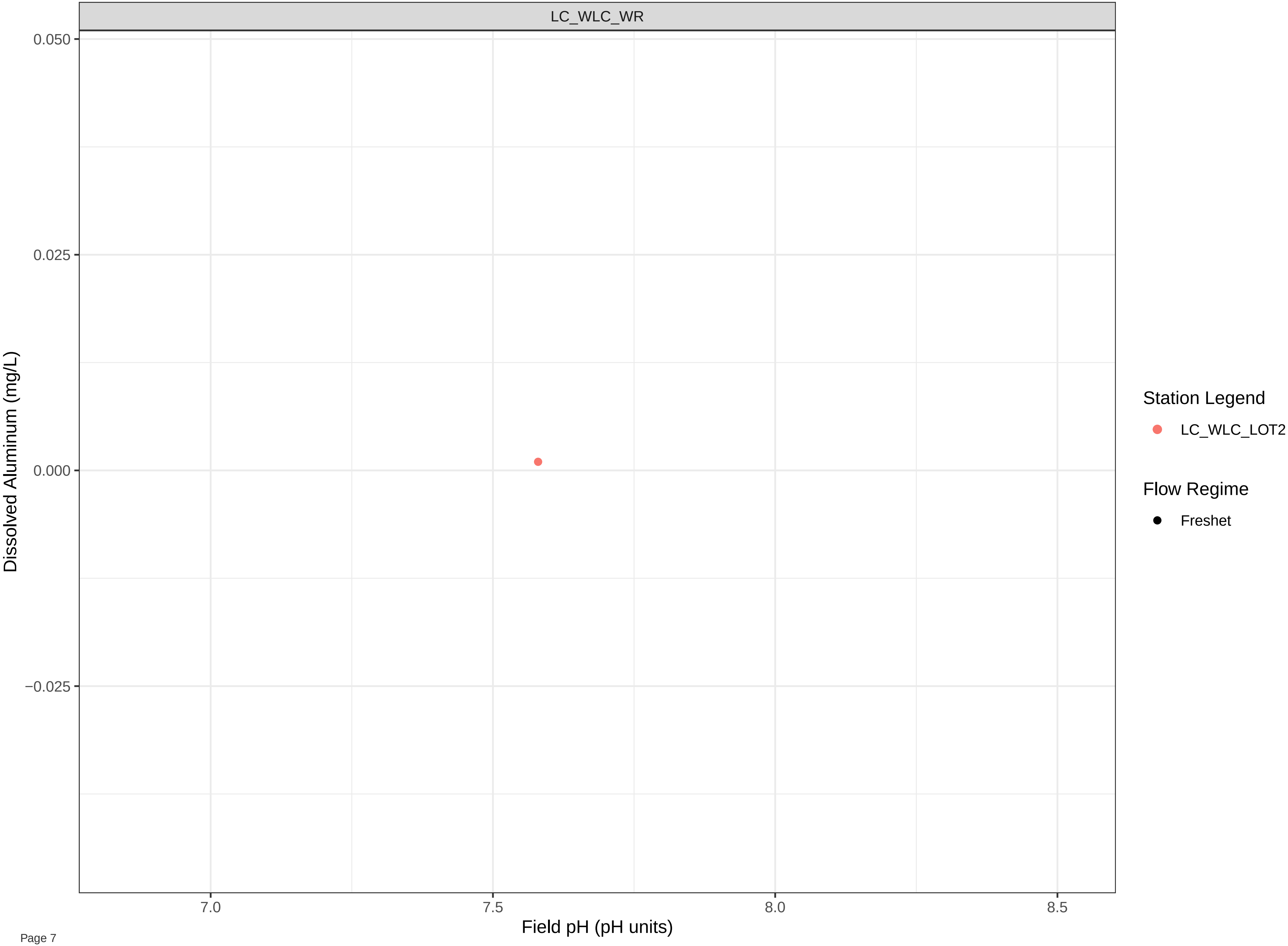

LC_DisturbedWSlope
Dissolved Aluminum (mg/L)
0.0030
0.0025
0.0020
0.0015
0.0010
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow

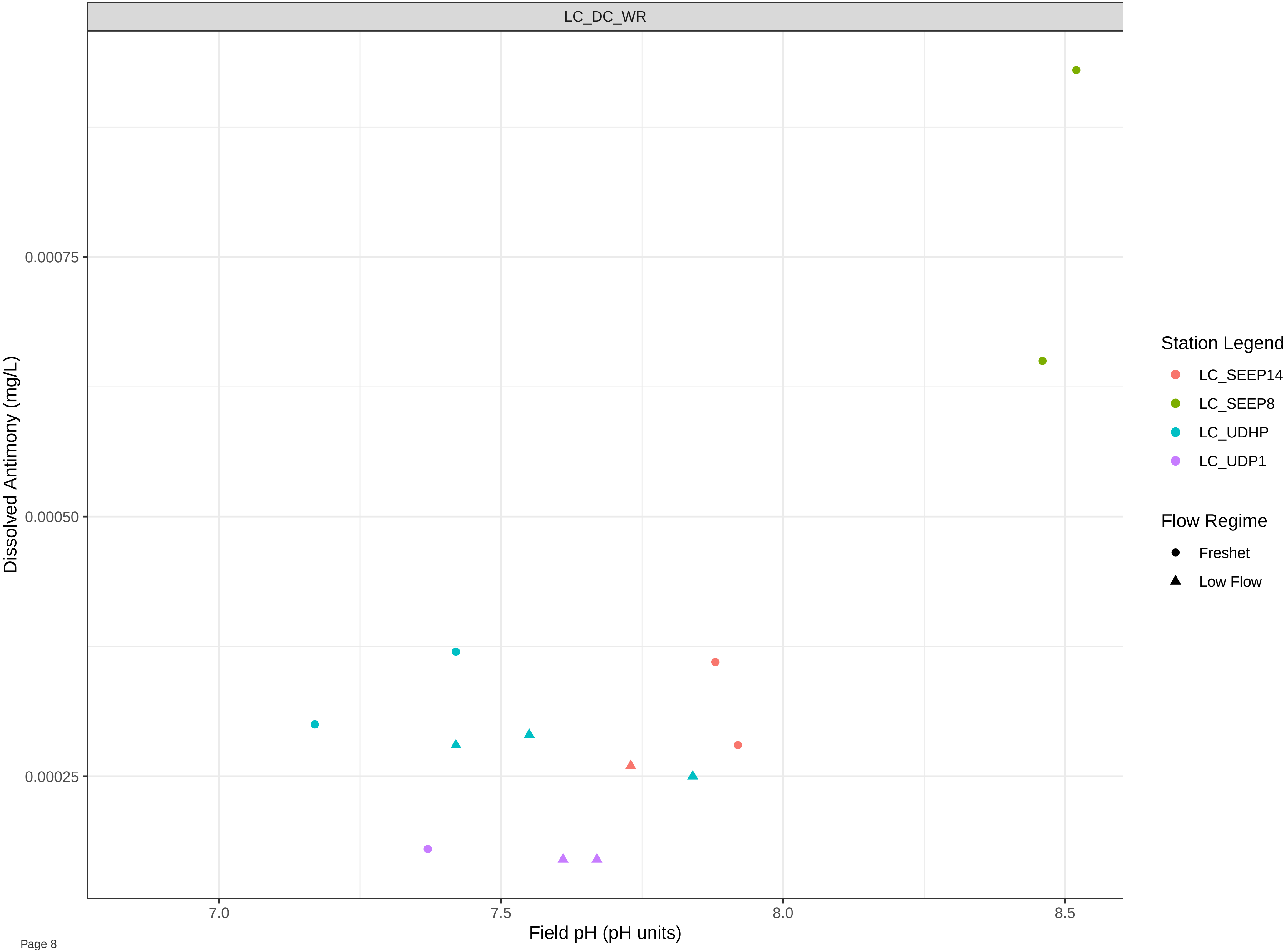

LC_HSP_WR
Dissolved Aluminum (mg/L)
0.0030
0.0025
0.0020
0.0015
0.0010
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

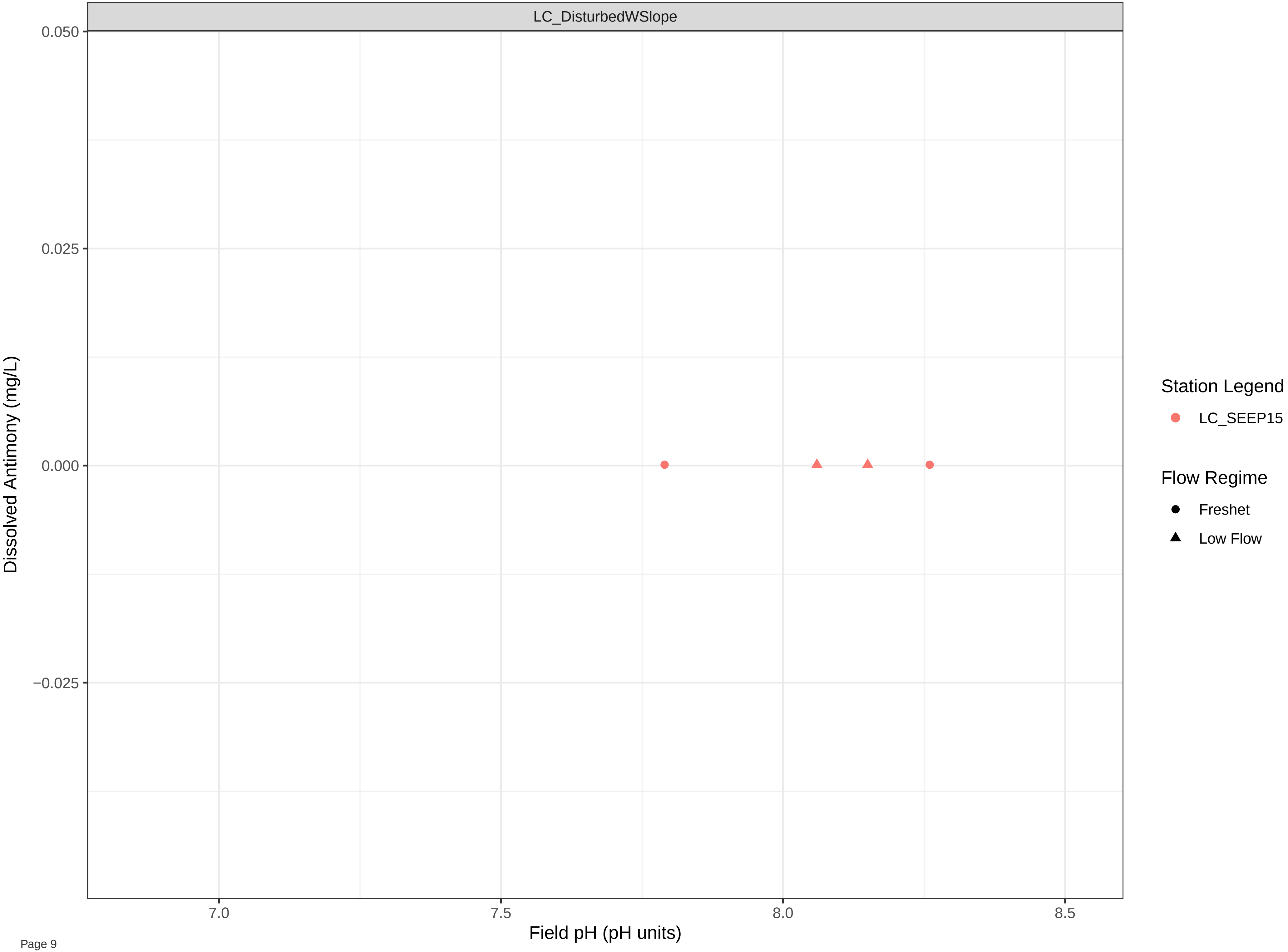

LC_MAXAM
0.0030
0.0025
0.0020
0.0015
0.0010
Dissolved Aluminum (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

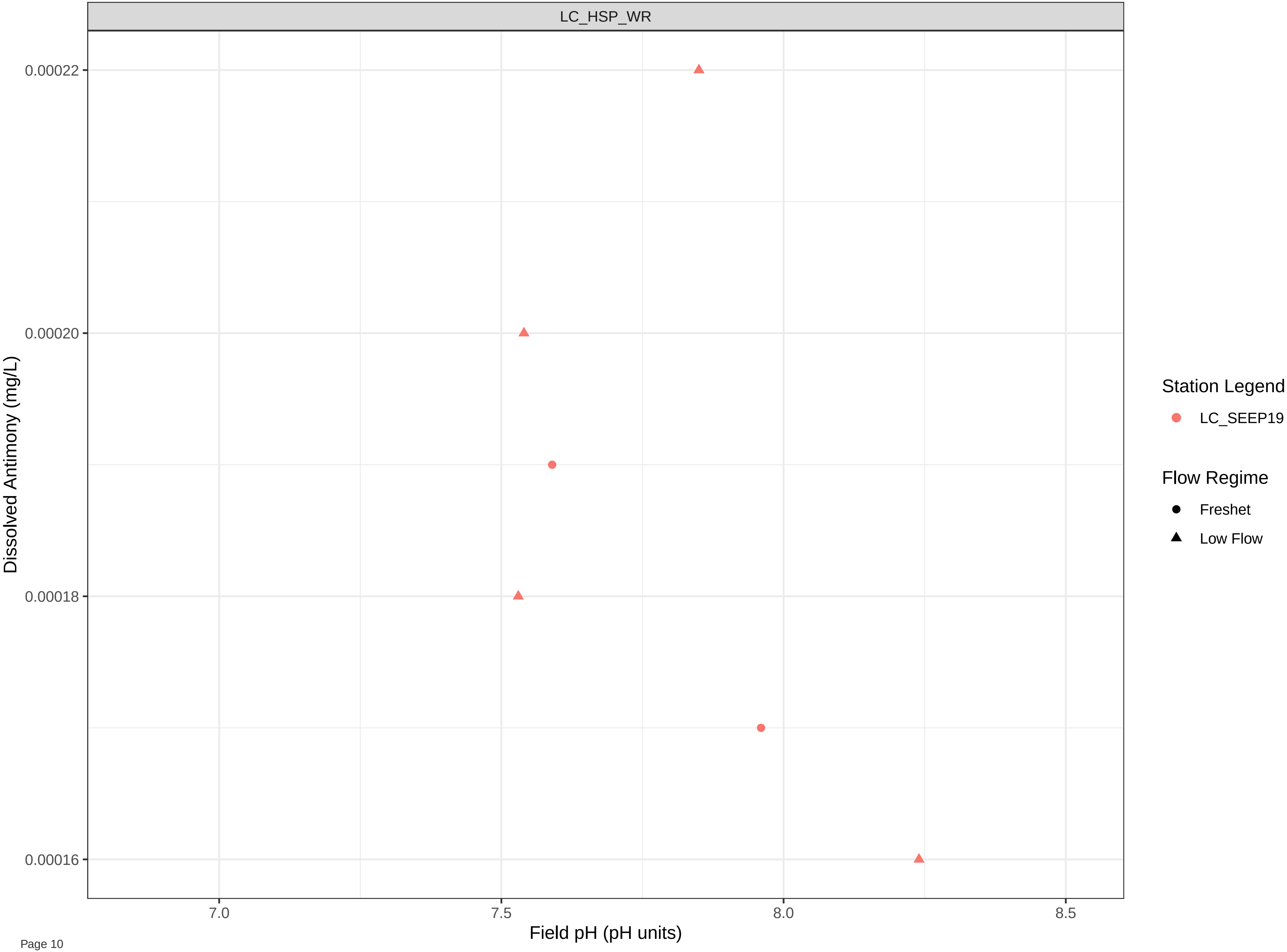

LC_MSA_WR
Dissolved Aluminum (mg/L)
0.020
0.015
0.010
0.005
0.000
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_3KM
● LC_SEEP1
Flow Regime
● Freshet
▲ Low Flow

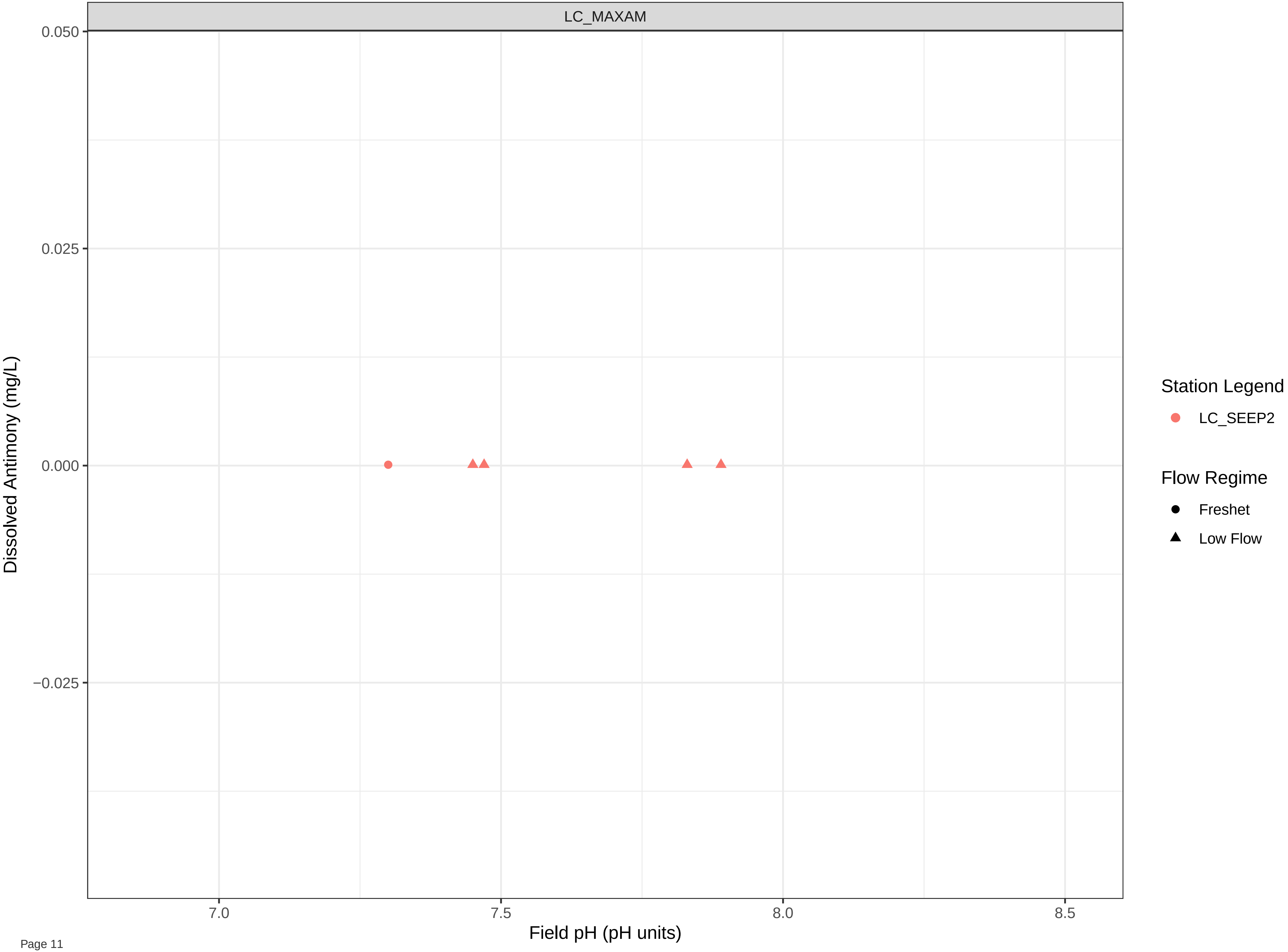

LC_PLANT
Dissolved Aluminum (mg/L)
0.0030
0.0025
0.0020
0.0015
0.0010
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

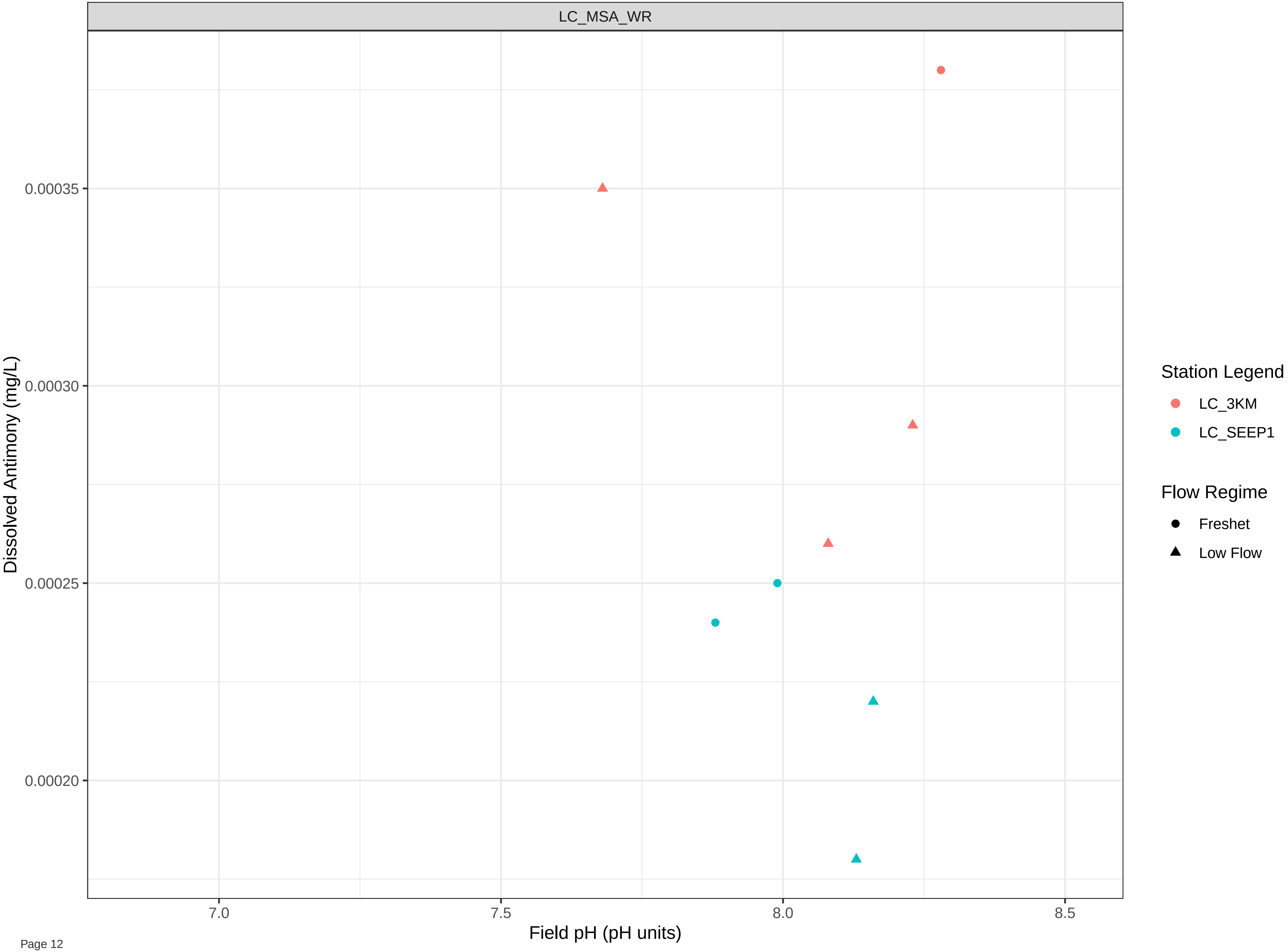

LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Aluminum (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

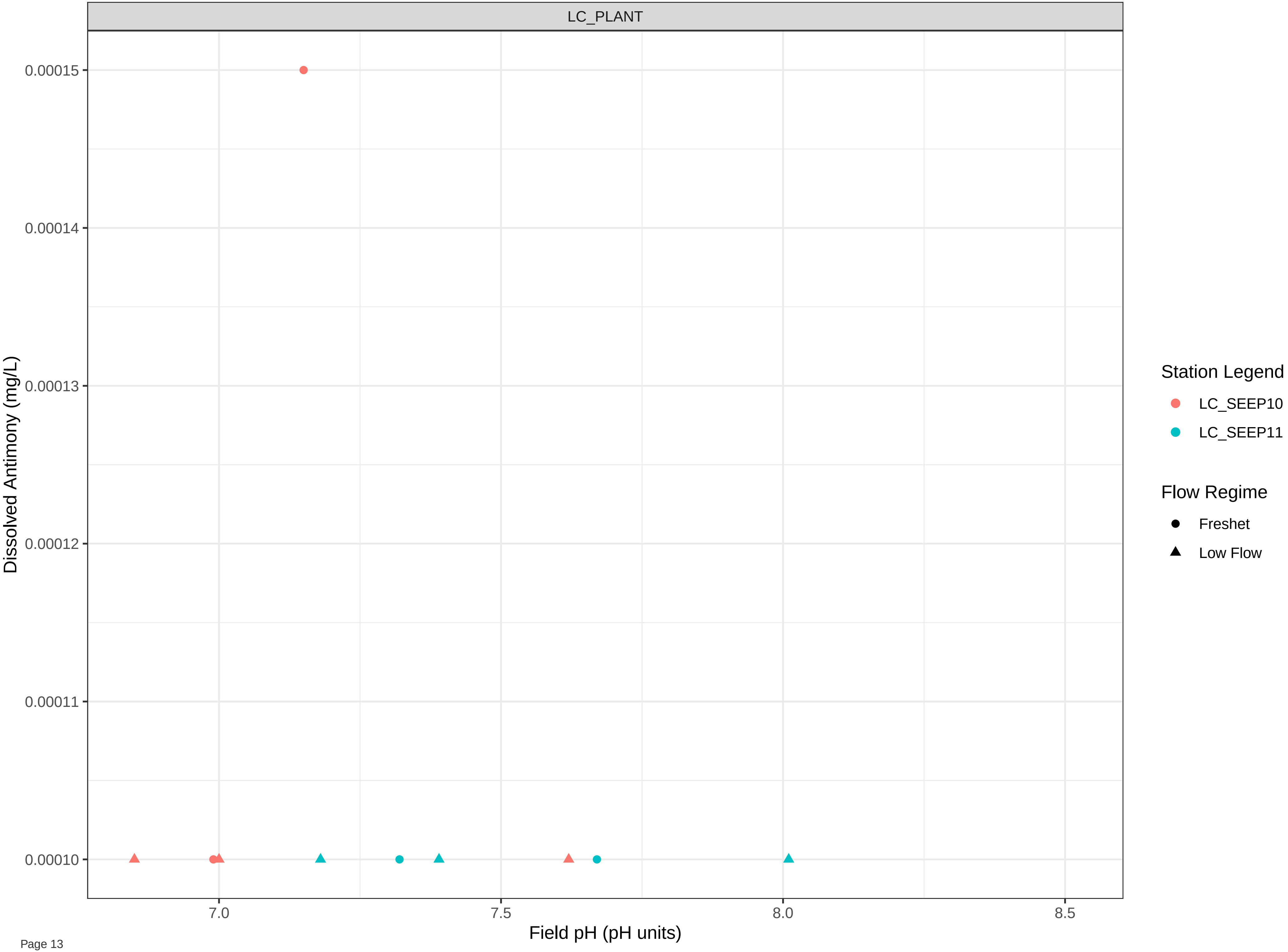

LC_DC_WR
Dissolved Antimony (mg/L)
0.00075
0.00050
0.00025
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
0.050
0.025
0.000
−0.025
Dissolved Antimony (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

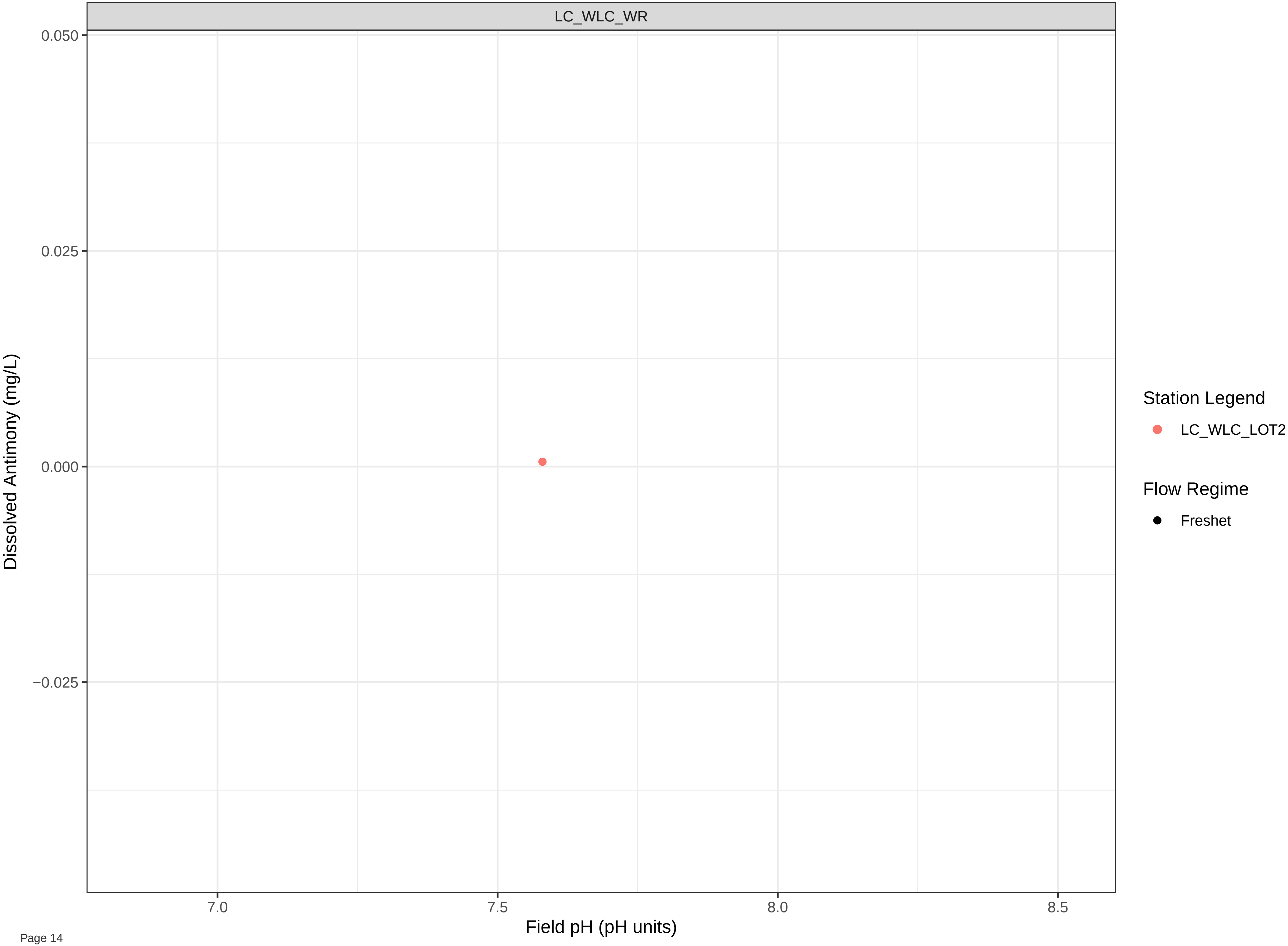

LC_HSP_WR
Dissolved Antimony (mg/L)
0.00022
0.00020
0.00018
0.00016
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

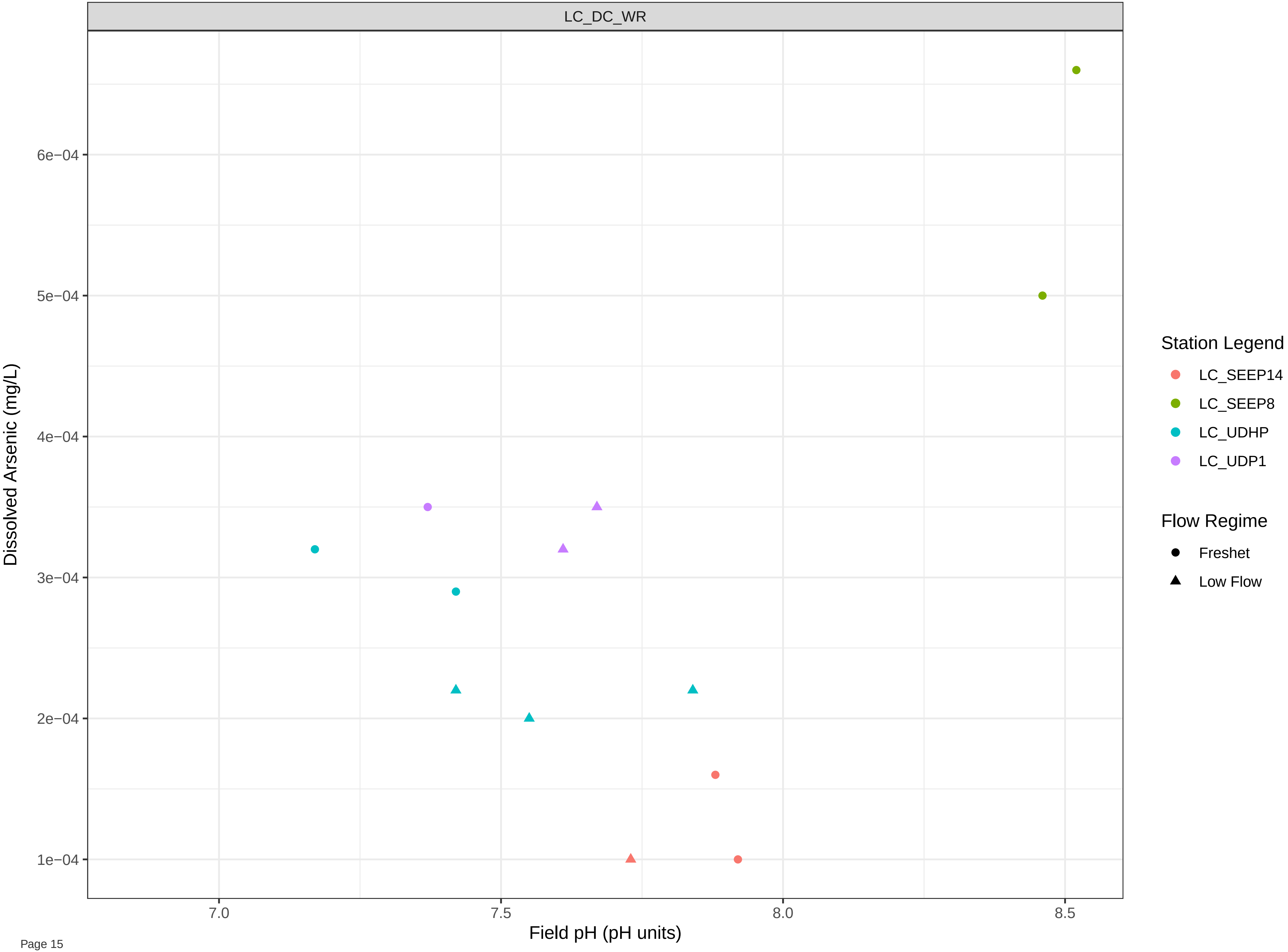

LC_MAXAM
0.050
0.025
0.000
−0.025
Dissolved Antimony (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

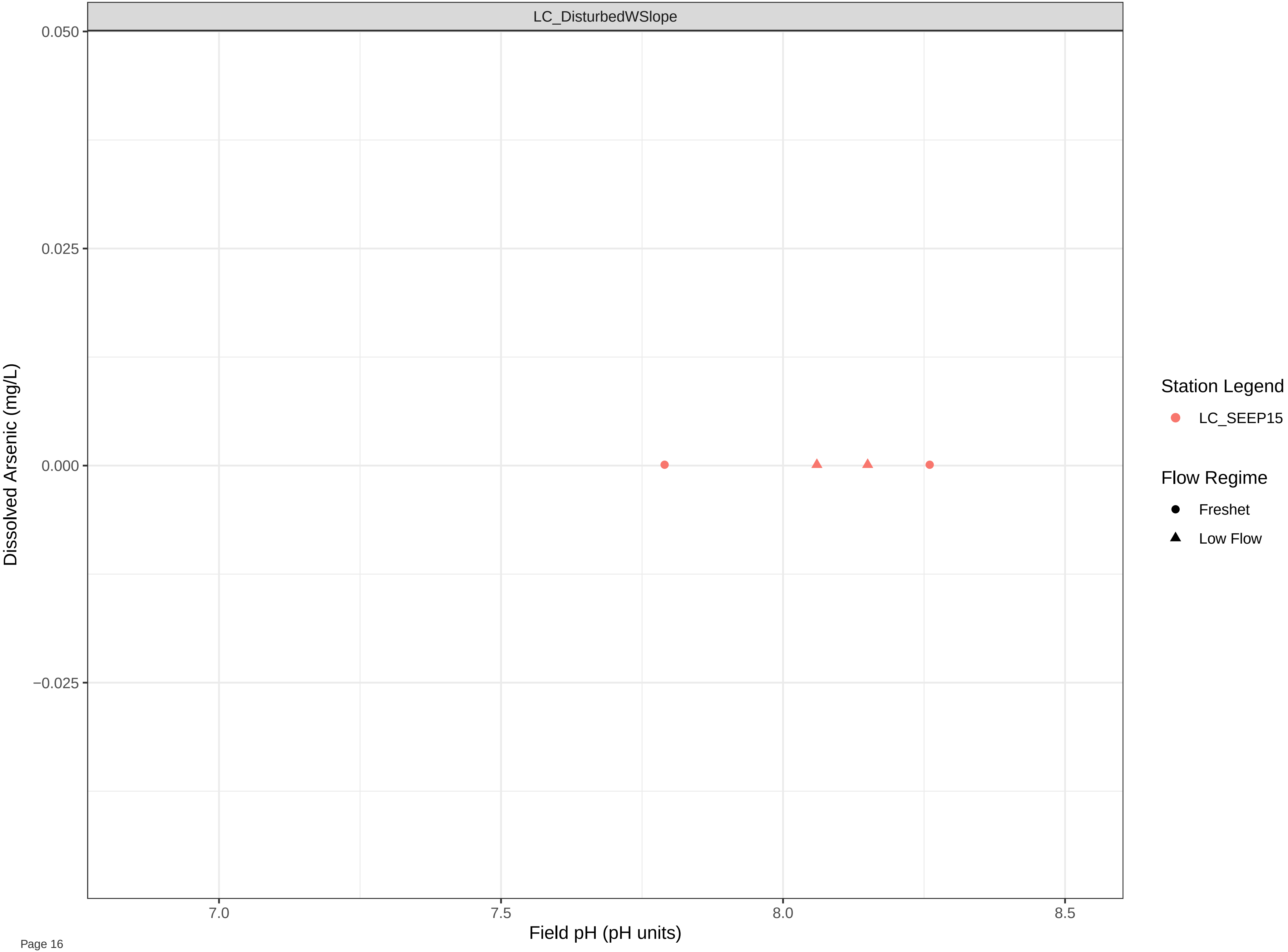

LC_MSA_WR
Dissolved Antimony (mg/L)
0.00035
0.00030
0.00025
0.00020
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_3KM
● LC_SEEP1
Flow Regime
● Freshet
▲ Low Flow

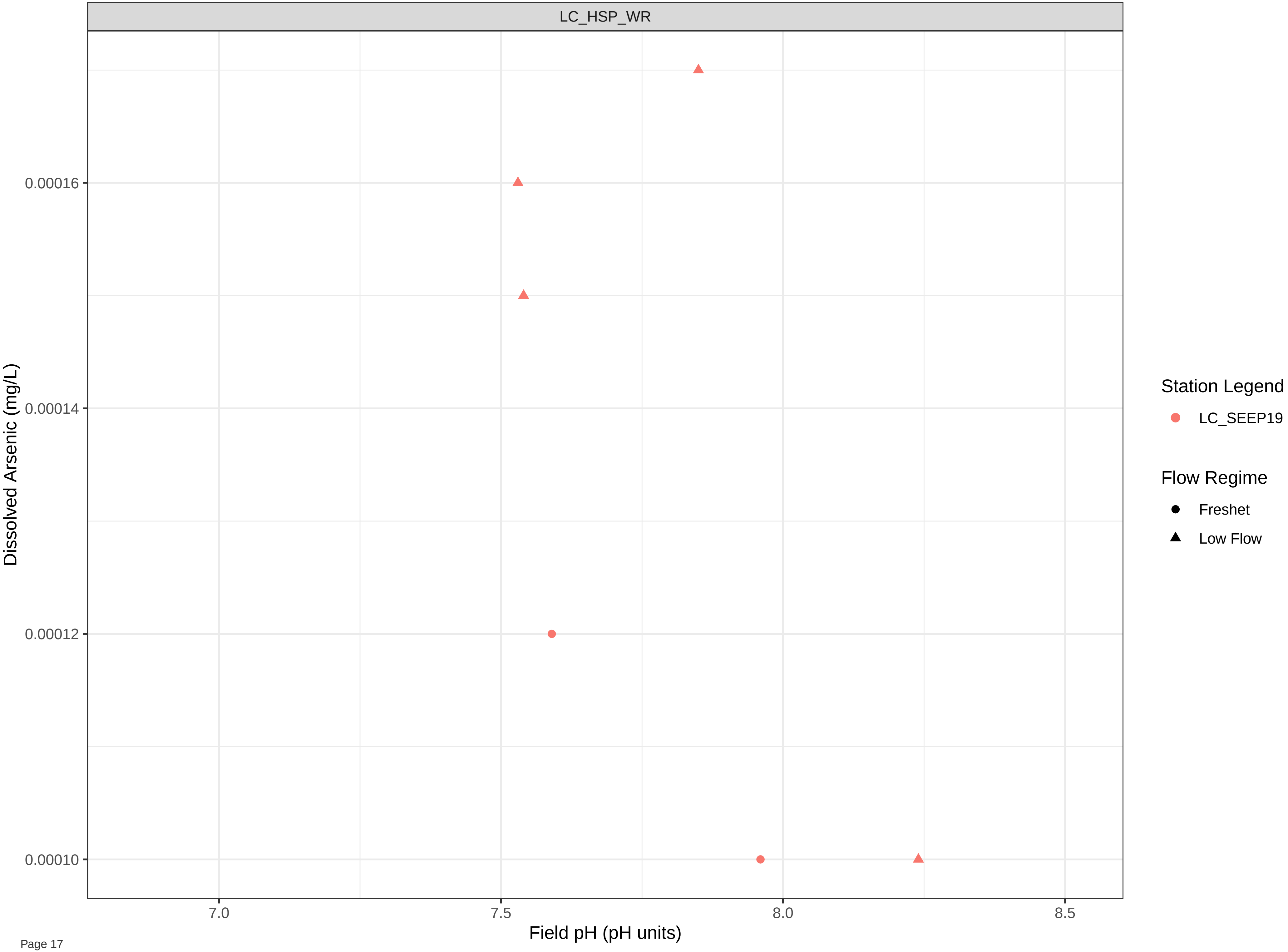


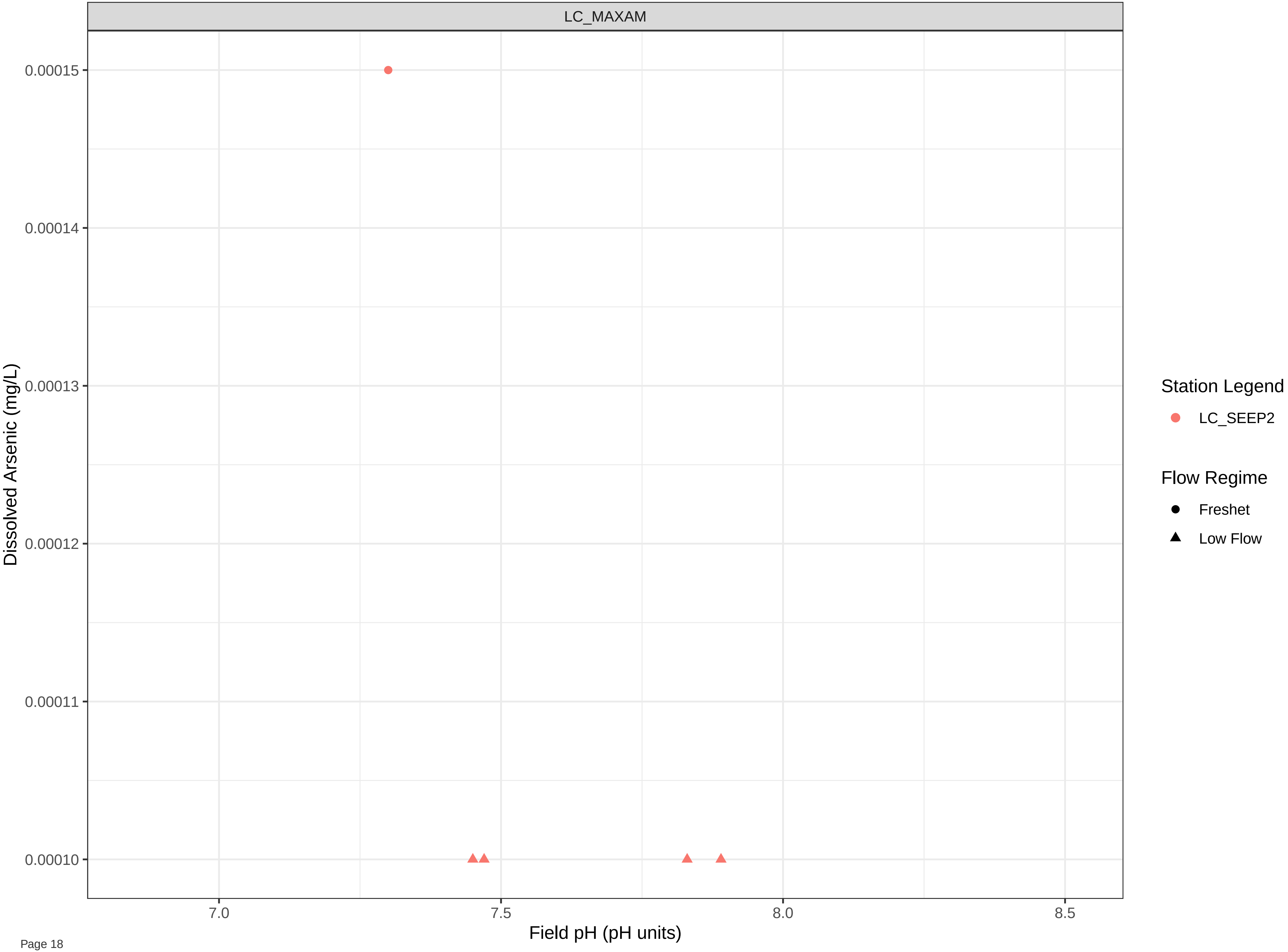
LC_PLANT
0.00015
0.00014
0.00013
0.00012
0.00011
0.00010
Dissolved Antimony (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

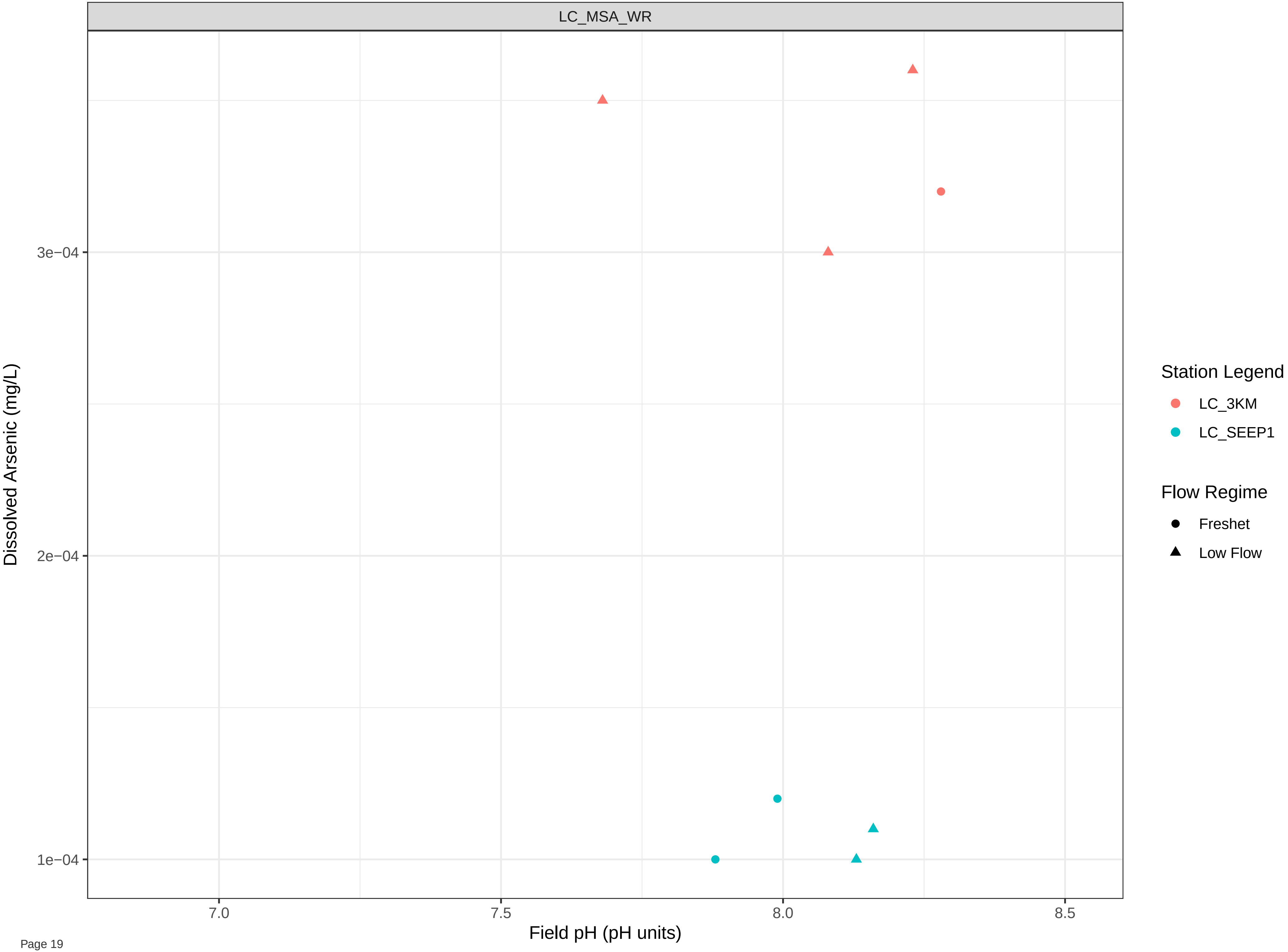

LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Antimony (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

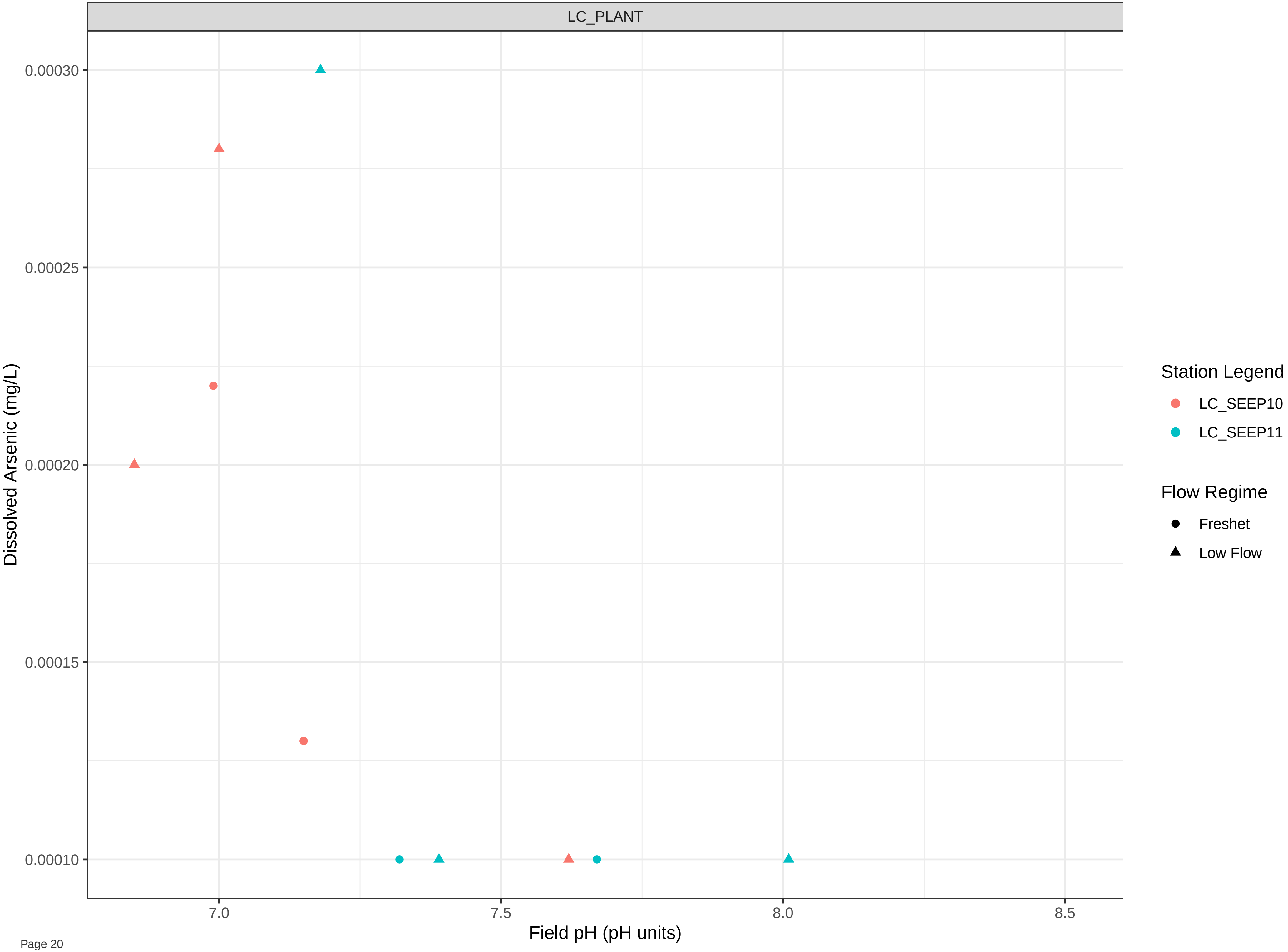

LC_DC_WR
Dissolved Arsenic (mg/L)
6e−04
5e−04
4e−04
3e−04
2e−04
1e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

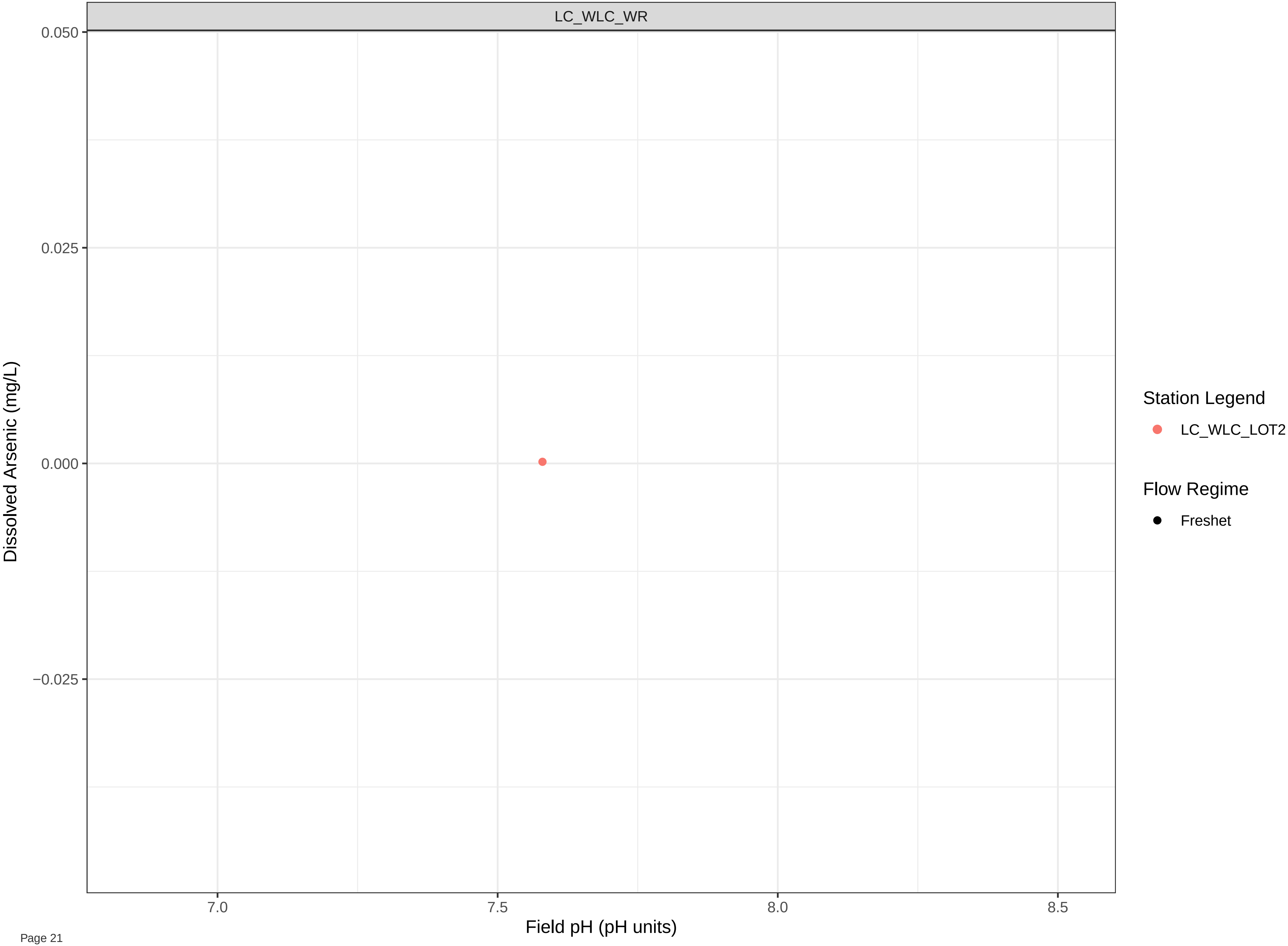

LC_DisturbedWSlope
Dissolved Arsenic (mg/L)
0.050
0.025
0.000
−0.025
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

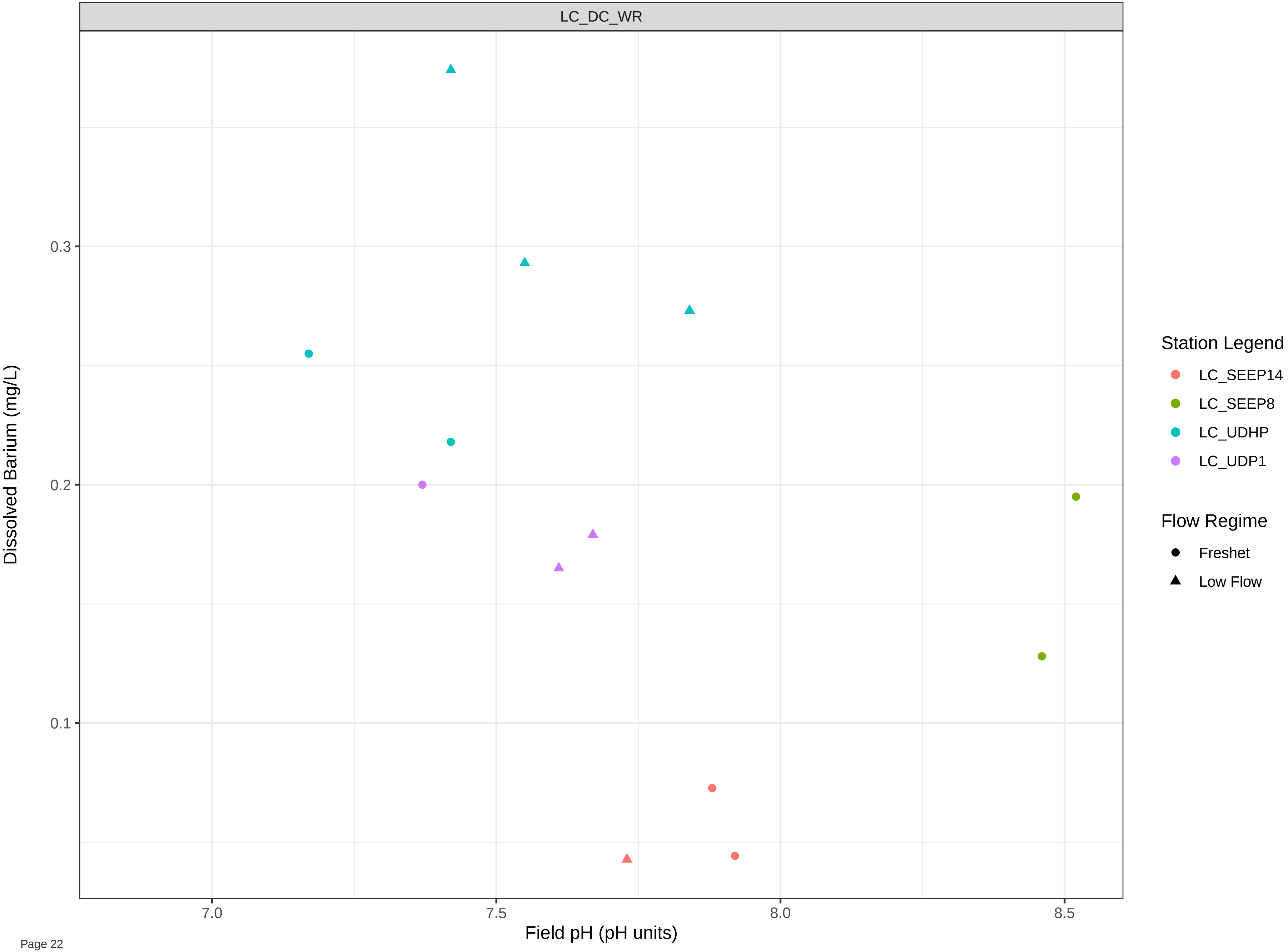

LC_HSP_WR
Dissolved Arsenic (mg/L)
0.00016
0.00014
0.00012
0.00010
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

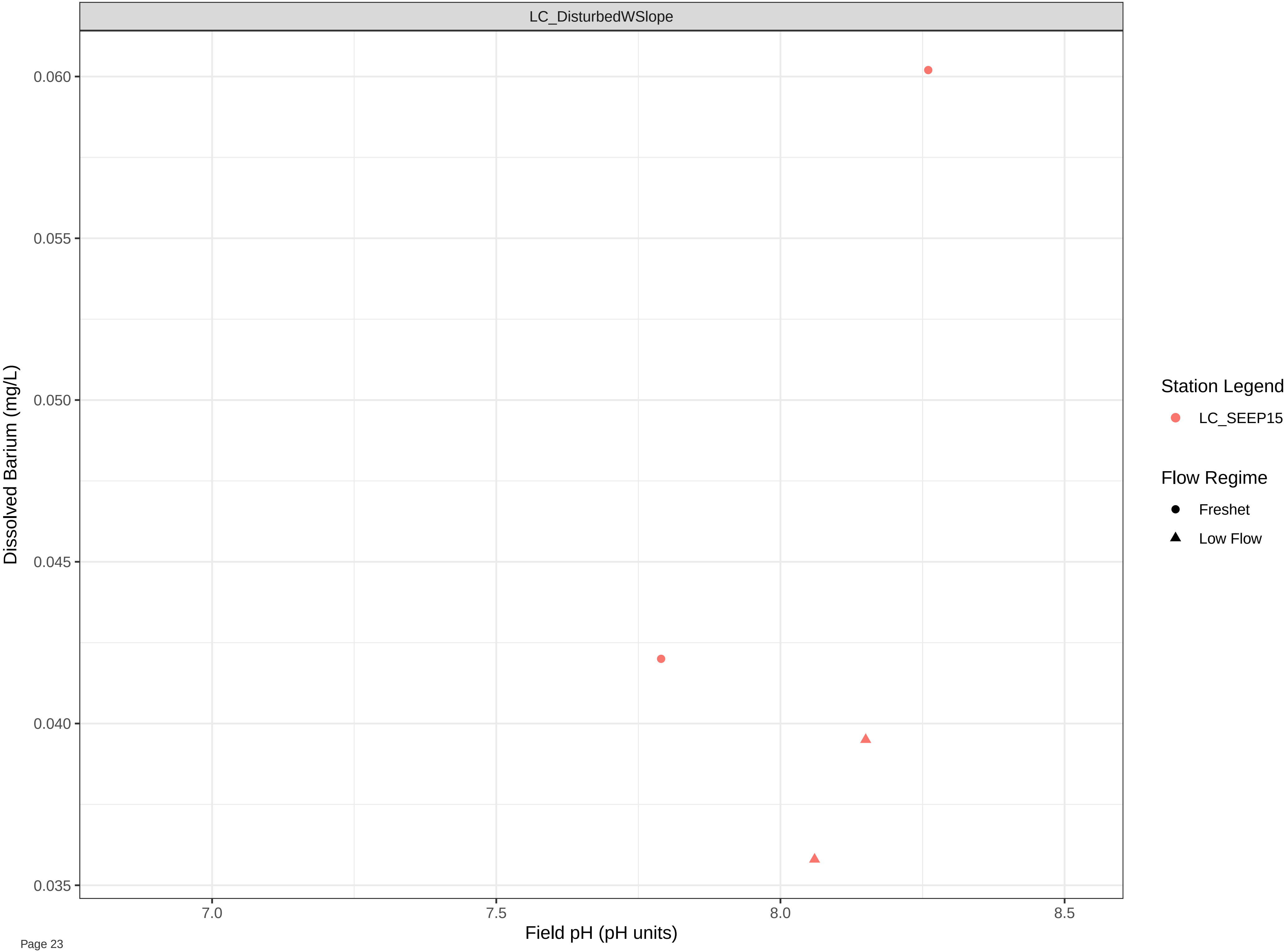

LC_MAXAM
Dissolved Arsenic (mg/L)
0.00015
0.00014
0.00013
0.00012
0.00011
0.00010
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

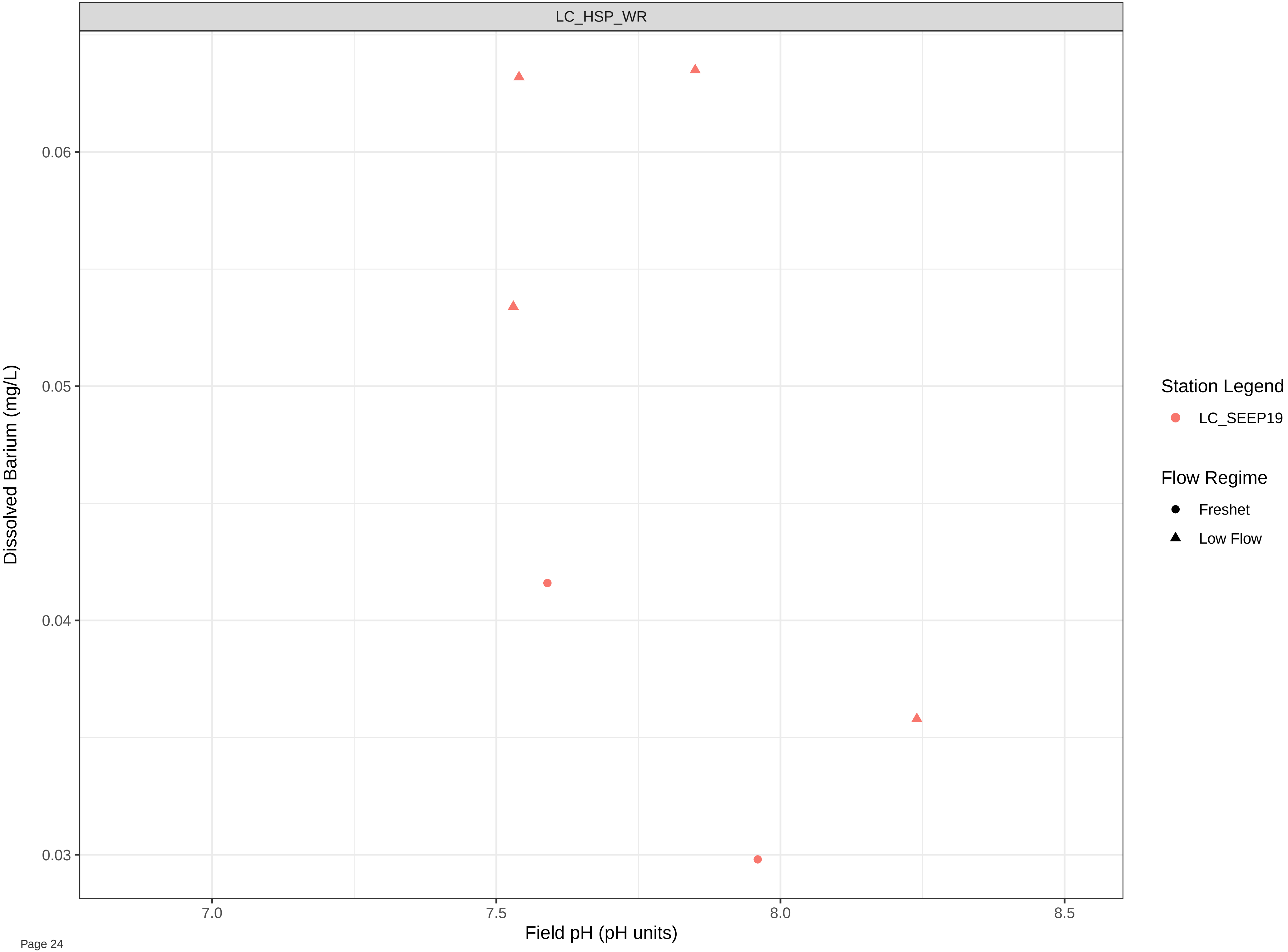

LC_MSA_WR
Dissolved Arsenic (mg/L)
3e−04
2e−04
1e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

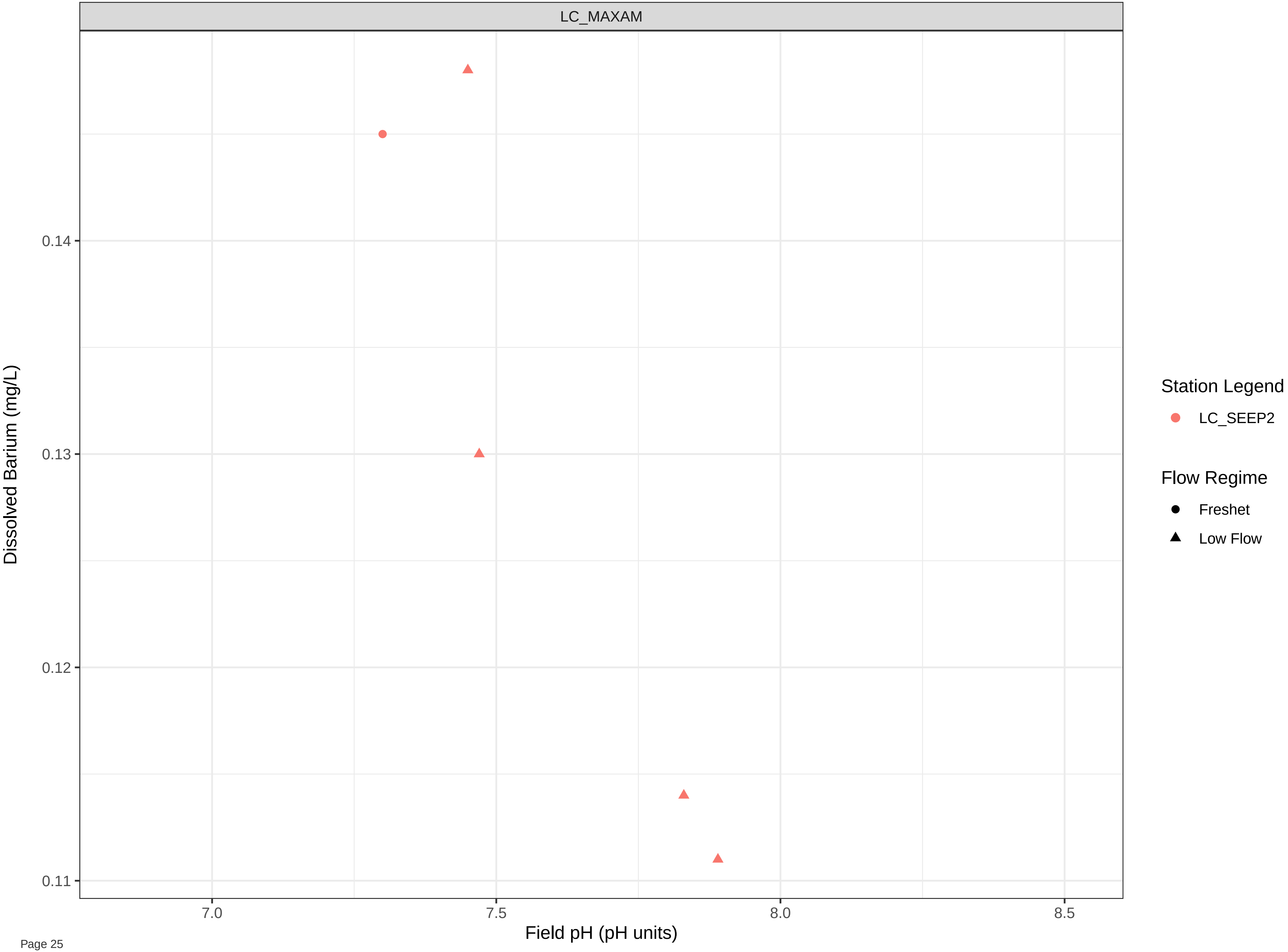

LC_PLANT
Dissolved Arsenic (mg/L)
0.00030
0.00025
0.00020
0.00015
0.00010
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

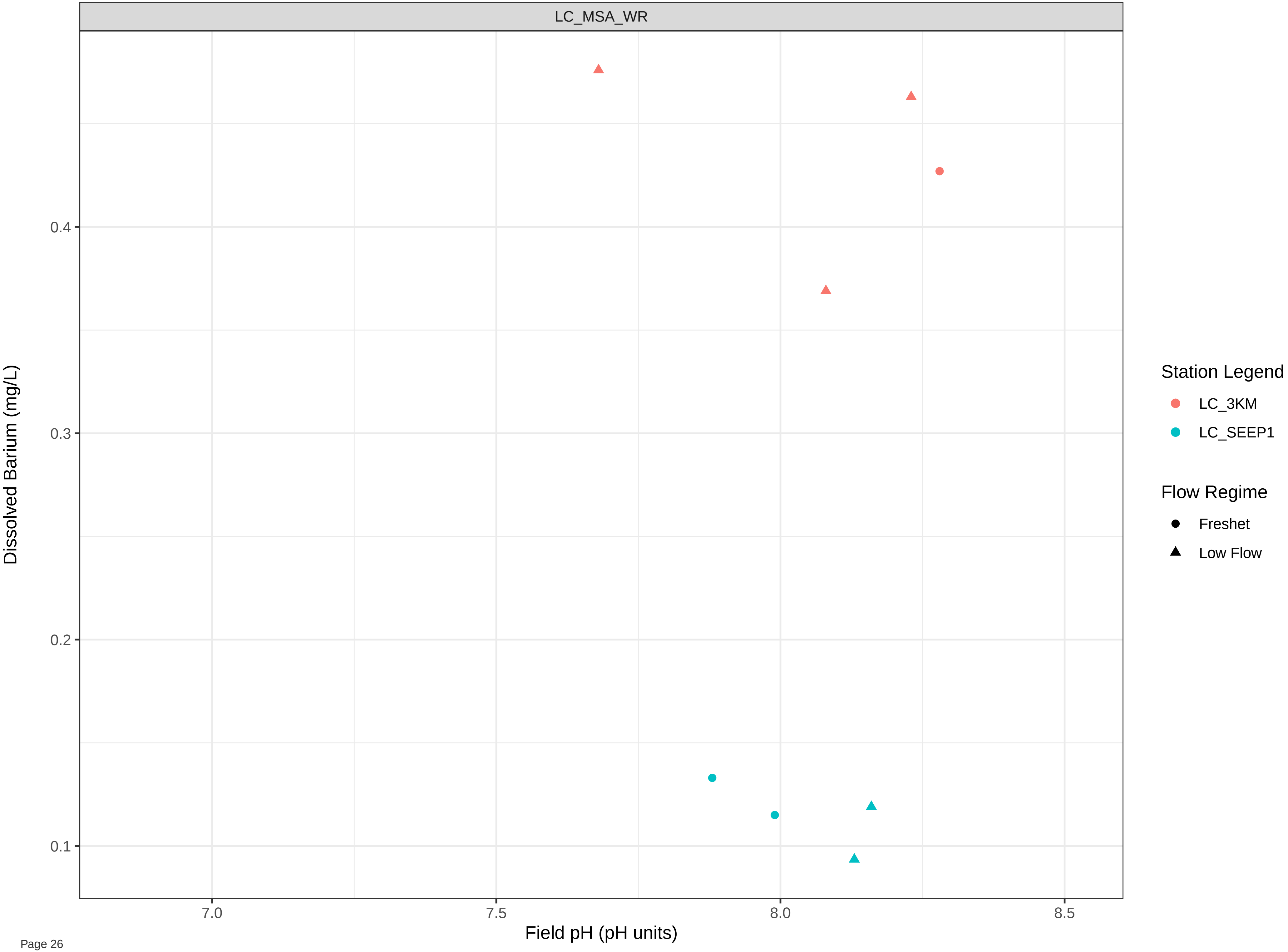

LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Arsenic (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

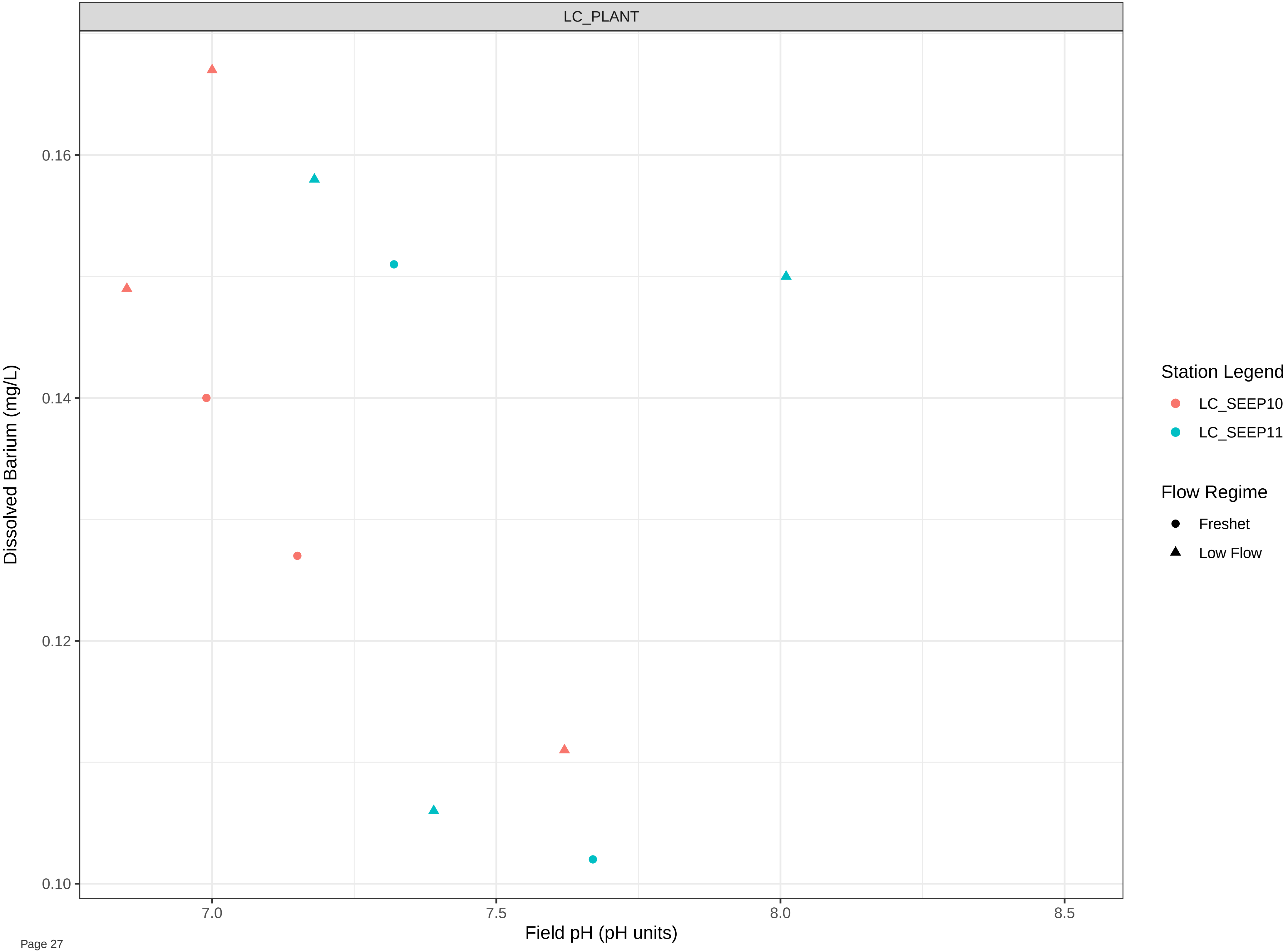

LC_DC_WR
Dissolved Barium (mg/L)
0.3
0.2
0.1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

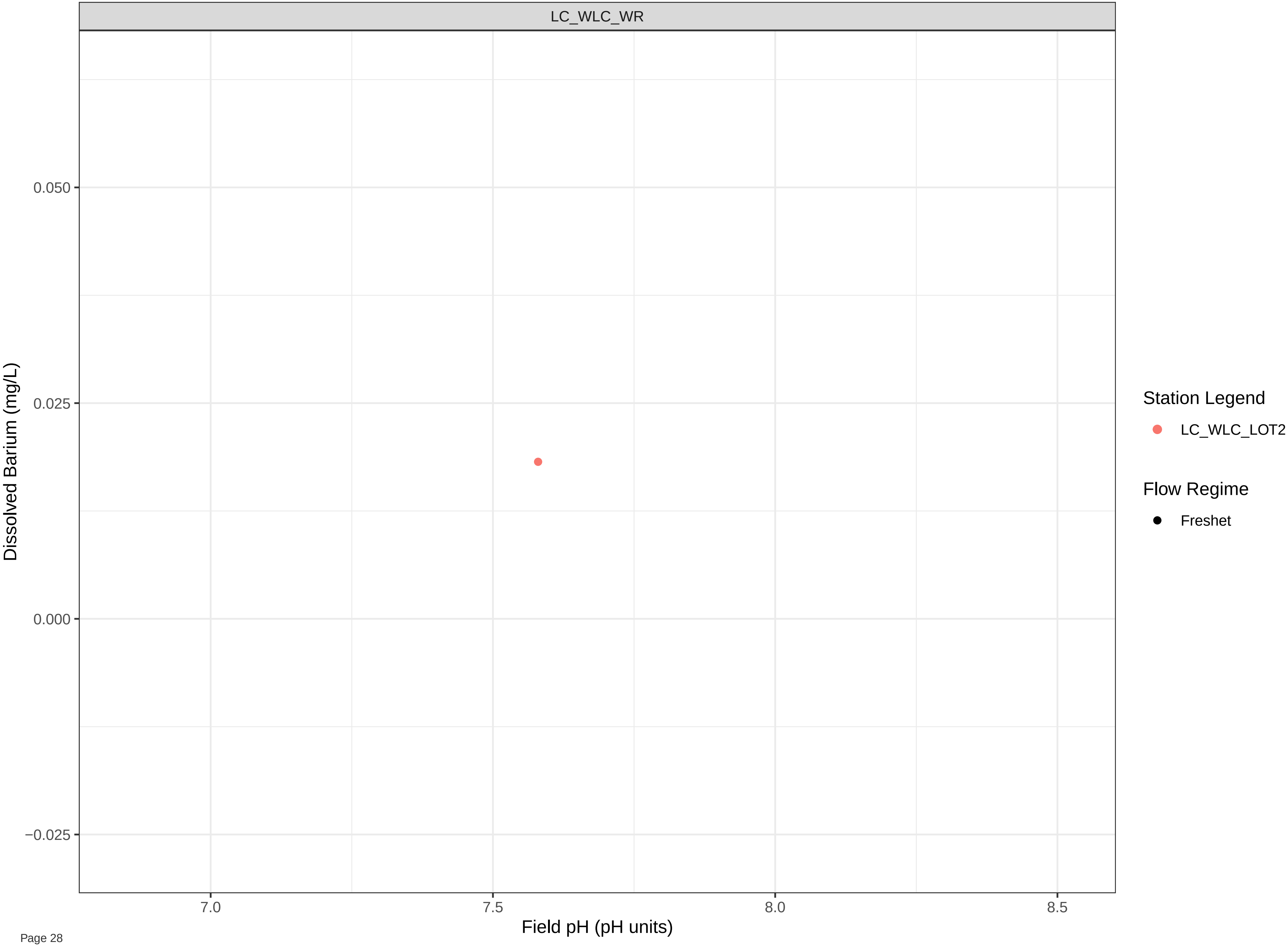

LC_DisturbedWSlope
Dissolved Barium (mg/L)
0.060
0.055
0.050
0.045
0.040
0.035
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

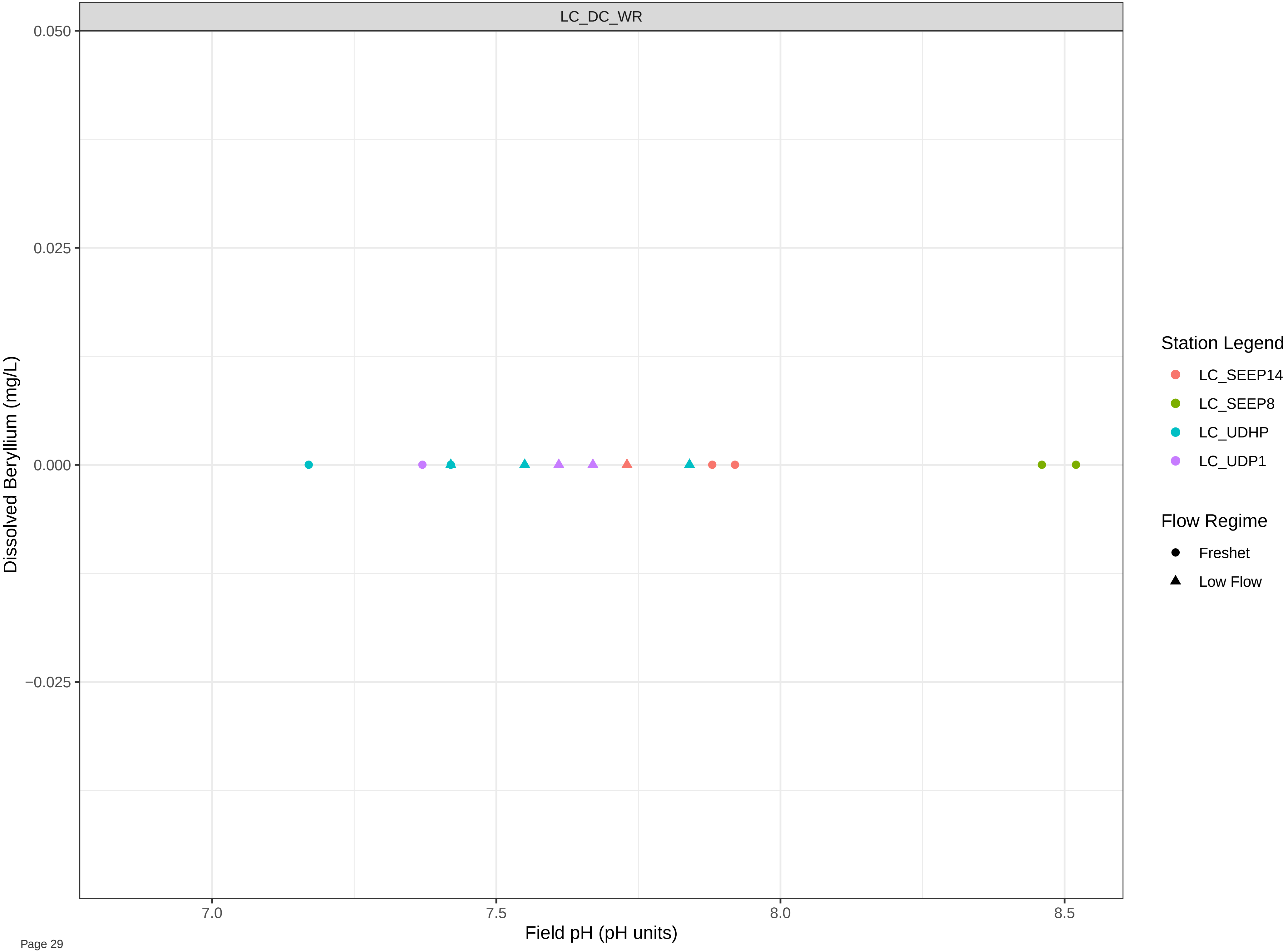

LC_HSP_WR
Dissolved Barium (mg/L)
0.06
0.05
0.04
0.03
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

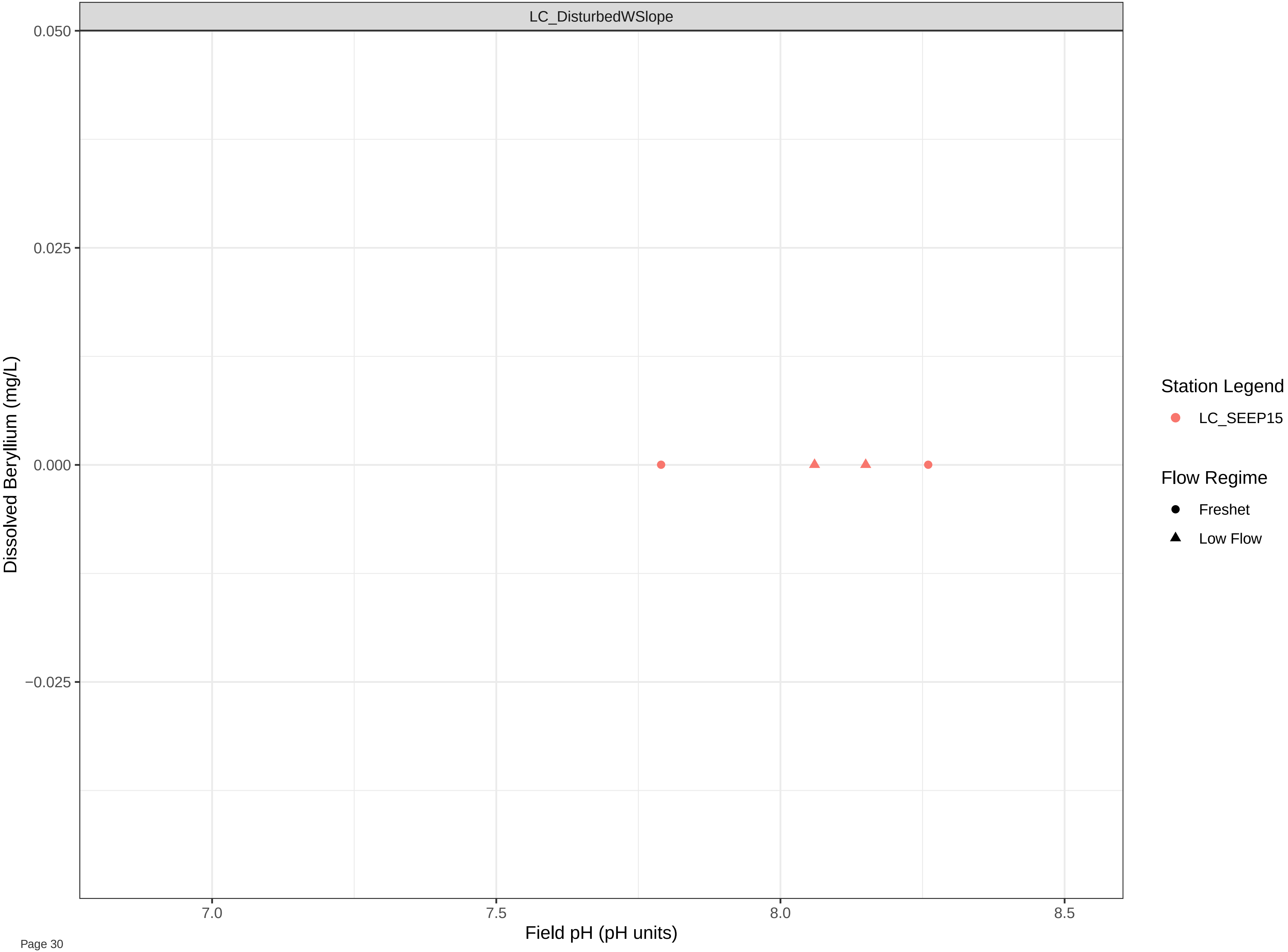

LC_MAXAM
Dissolved Barium (mg/L)
0.14
0.13
0.12
0.11
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

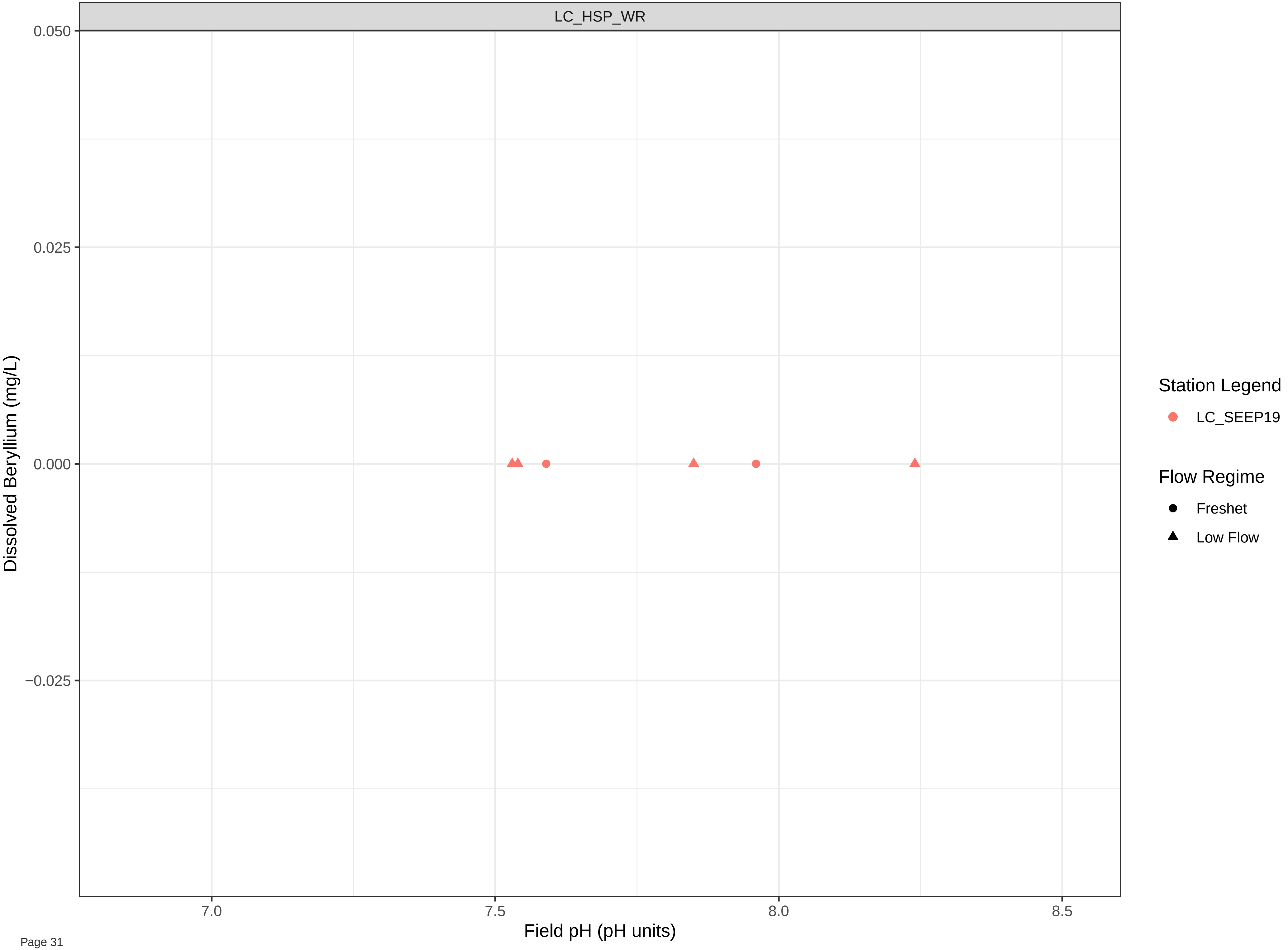

LC_MSA_WR
Dissolved Barium (mg/L)
0.4
0.3
0.2
0.1
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
● LC_3KM
● LC_SEEP1
Flow Regime
● Freshet
▲ Low Flow

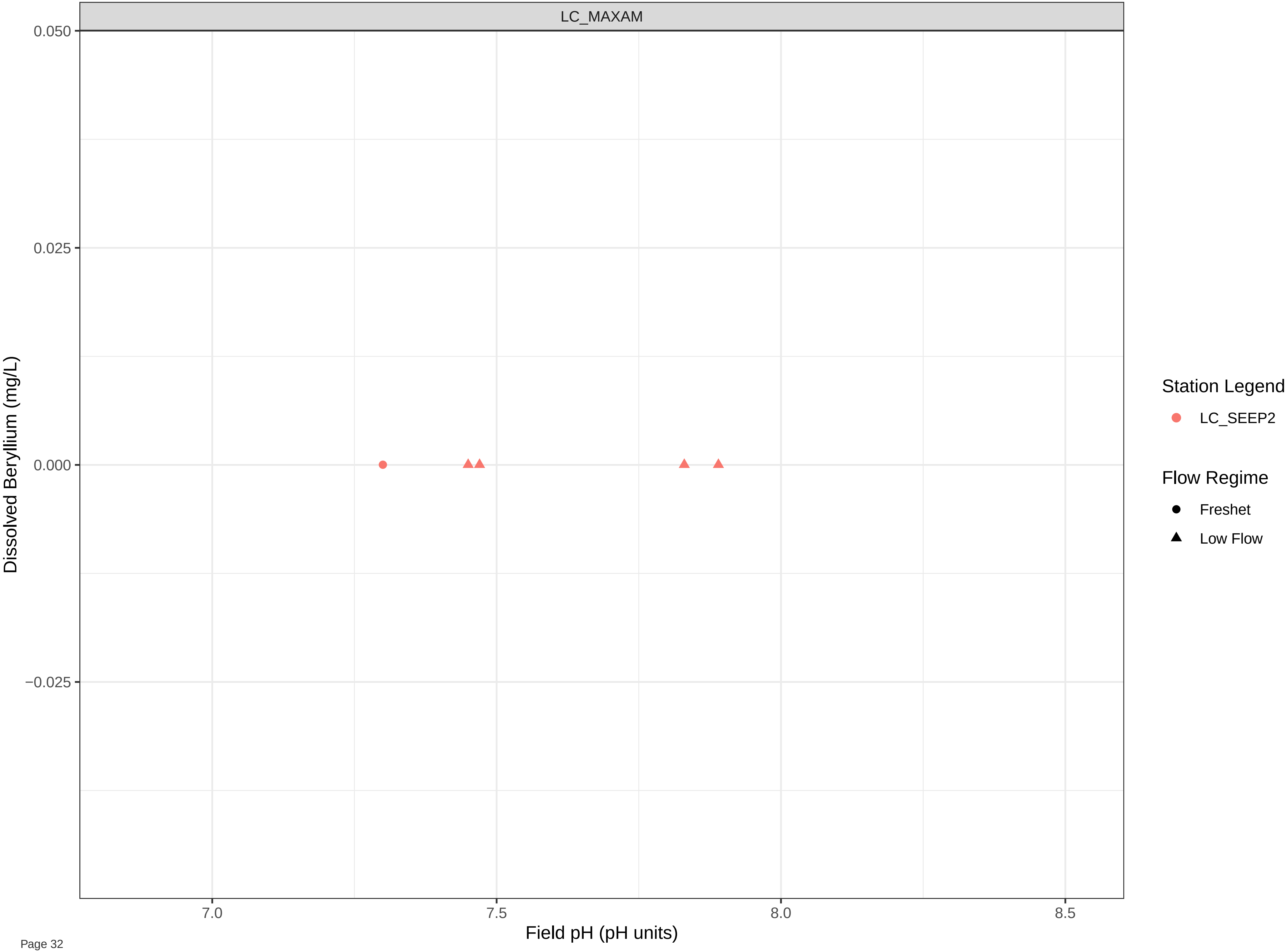

LC_PLANT
Dissolved Barium (mg/L)
0.16
0.14
0.12
0.10
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

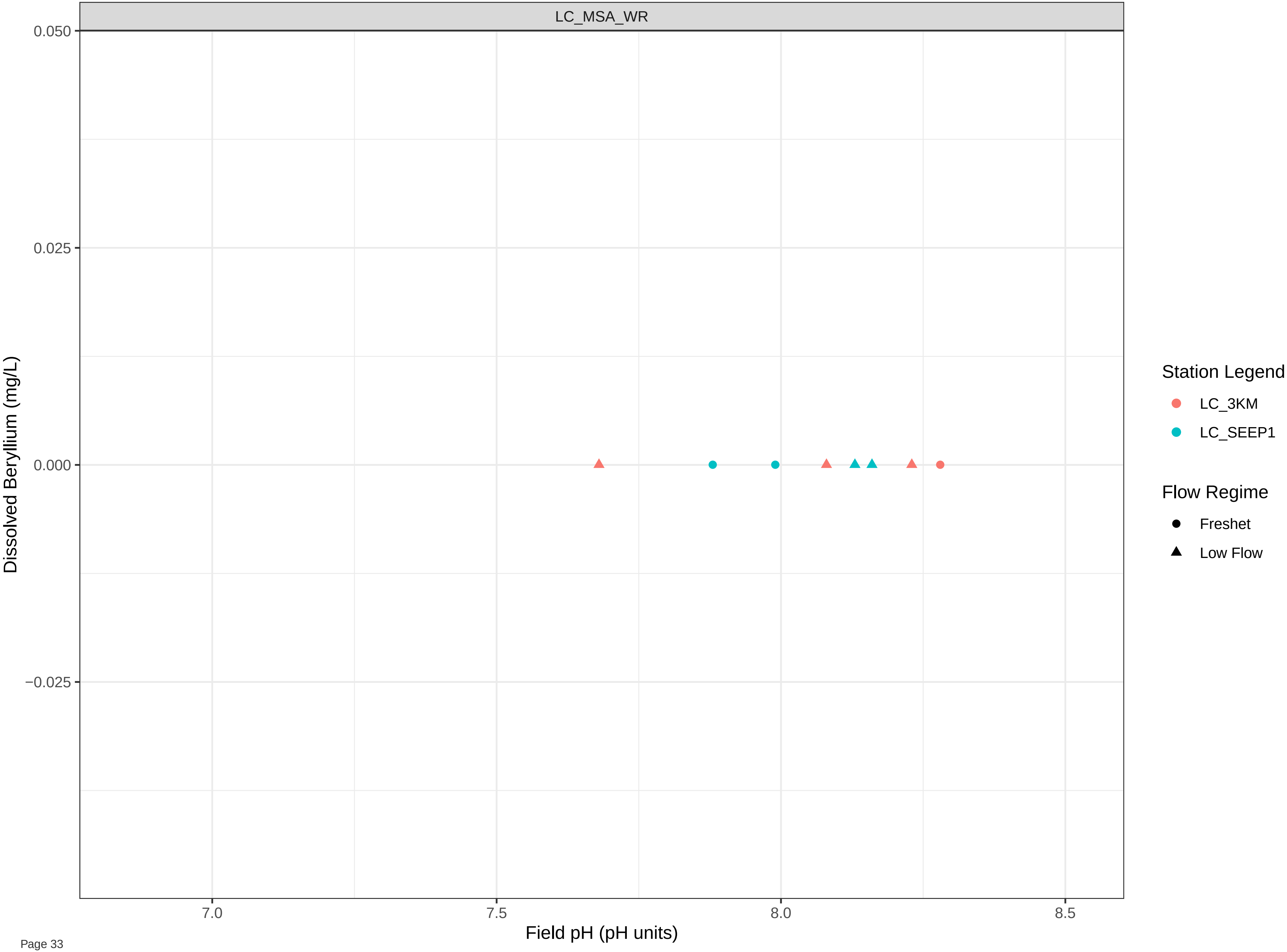

LC_WLC_WR
Dissolved Barium (mg/L)
0.050
0.025
0.000
−0.025
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet

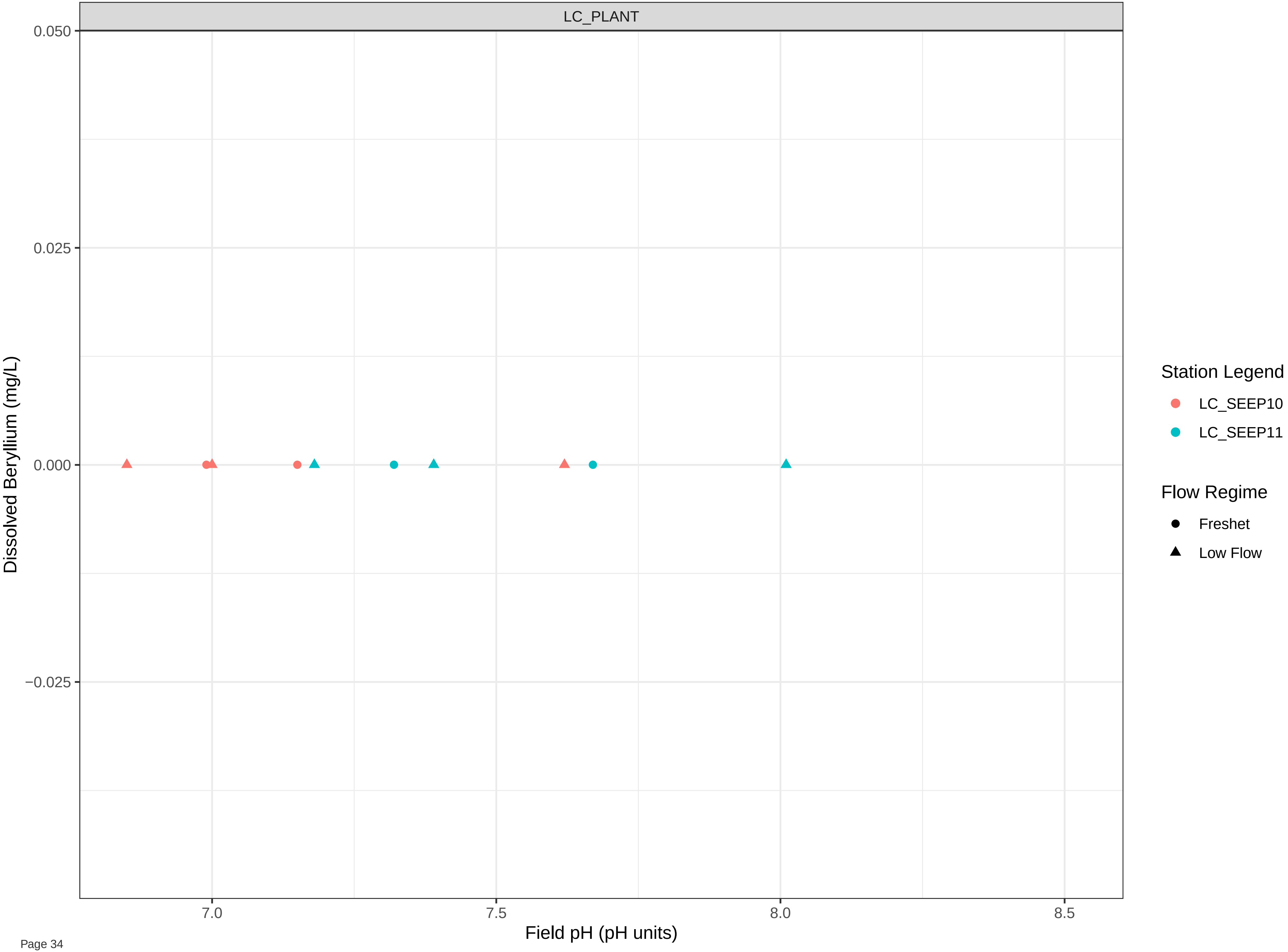

LC_DC_WR
0.050
0.025
0.000
−0.025
Dissolved Beryllium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

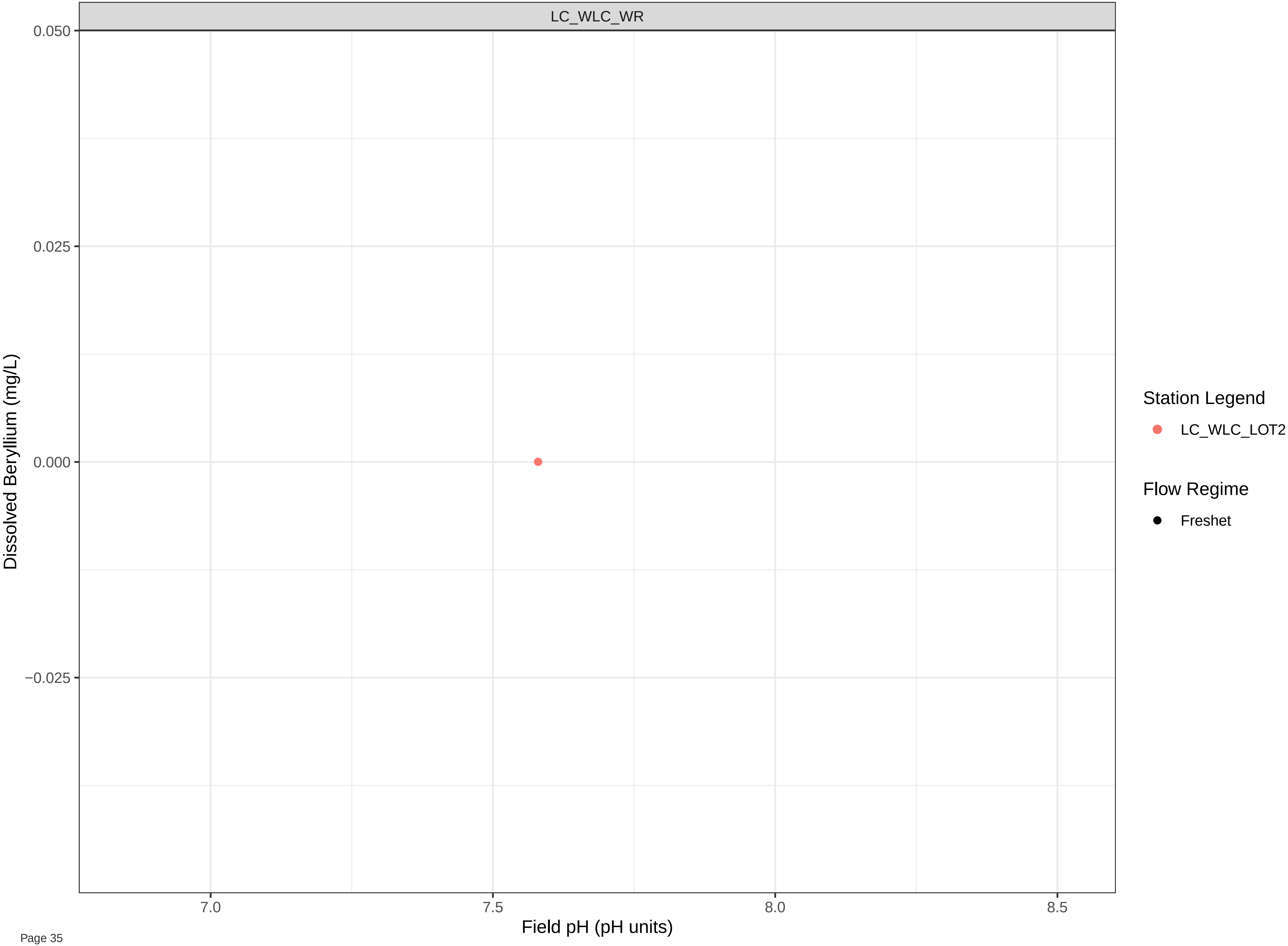

LC_DisturbedWSlope
0.050
0.025
0.000
−0.025
Dissolved Beryllium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

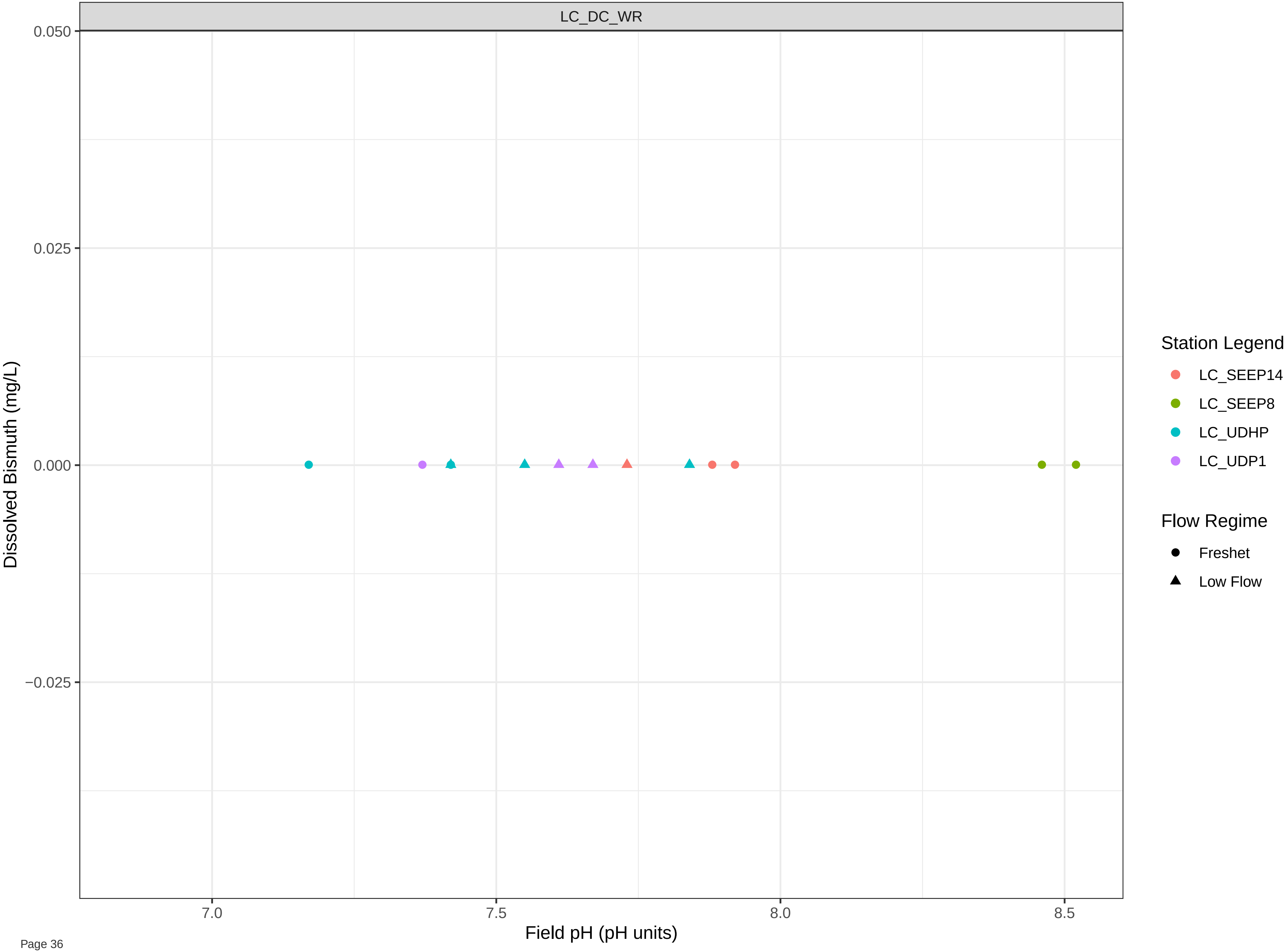

LC_HSP_WR
0.050
0.025
0.000
−0.025
Dissolved Beryllium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

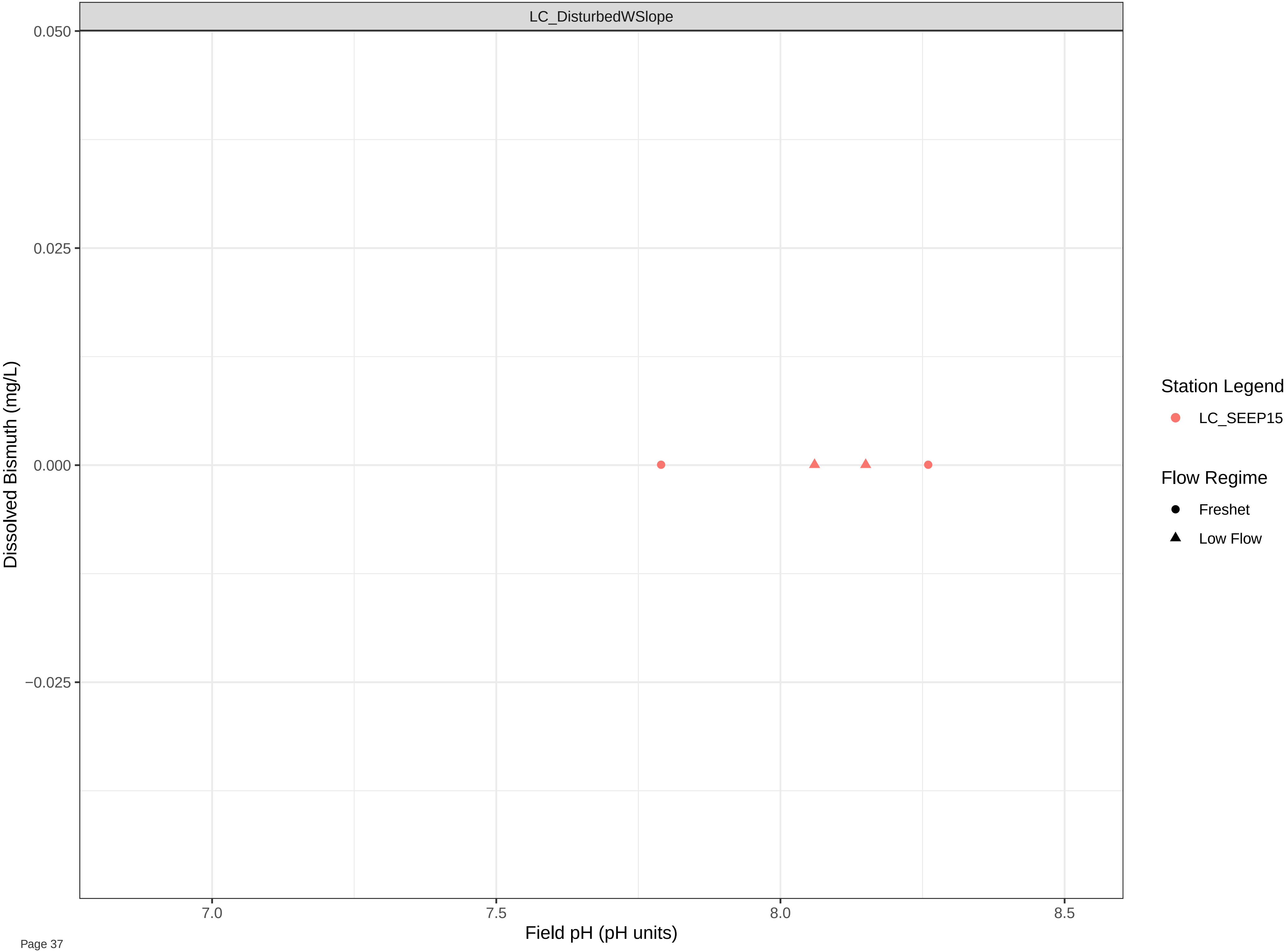

LC_MAXAM
0.050
0.025
0.000
−0.025
Dissolved Beryllium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

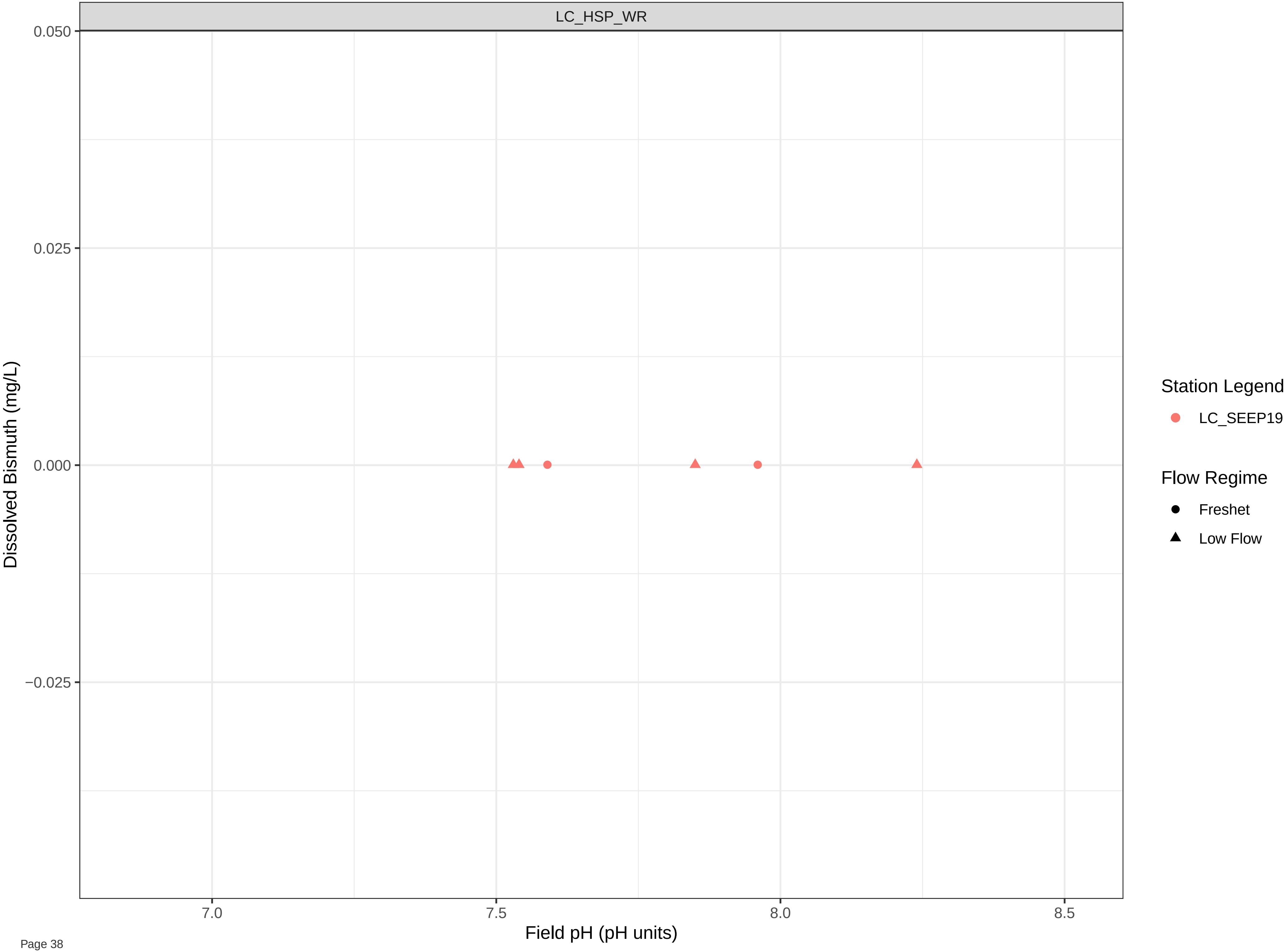

LC_MSA_WR
0.050
0.025
0.000
−0.025
Dissolved Beryllium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

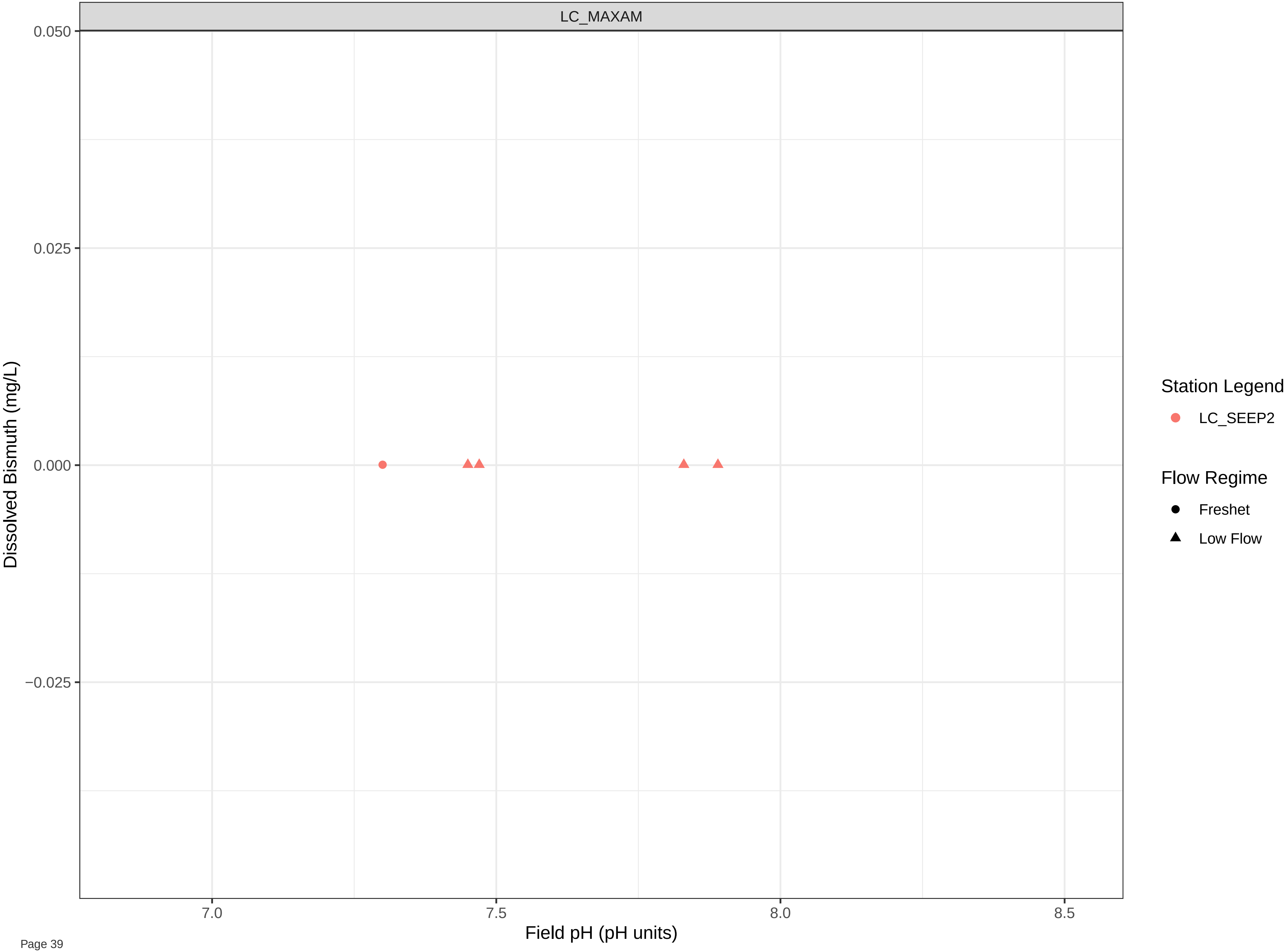

LC_PLANT
0.050
0.025
0.000
−0.025
Dissolved Beryllium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

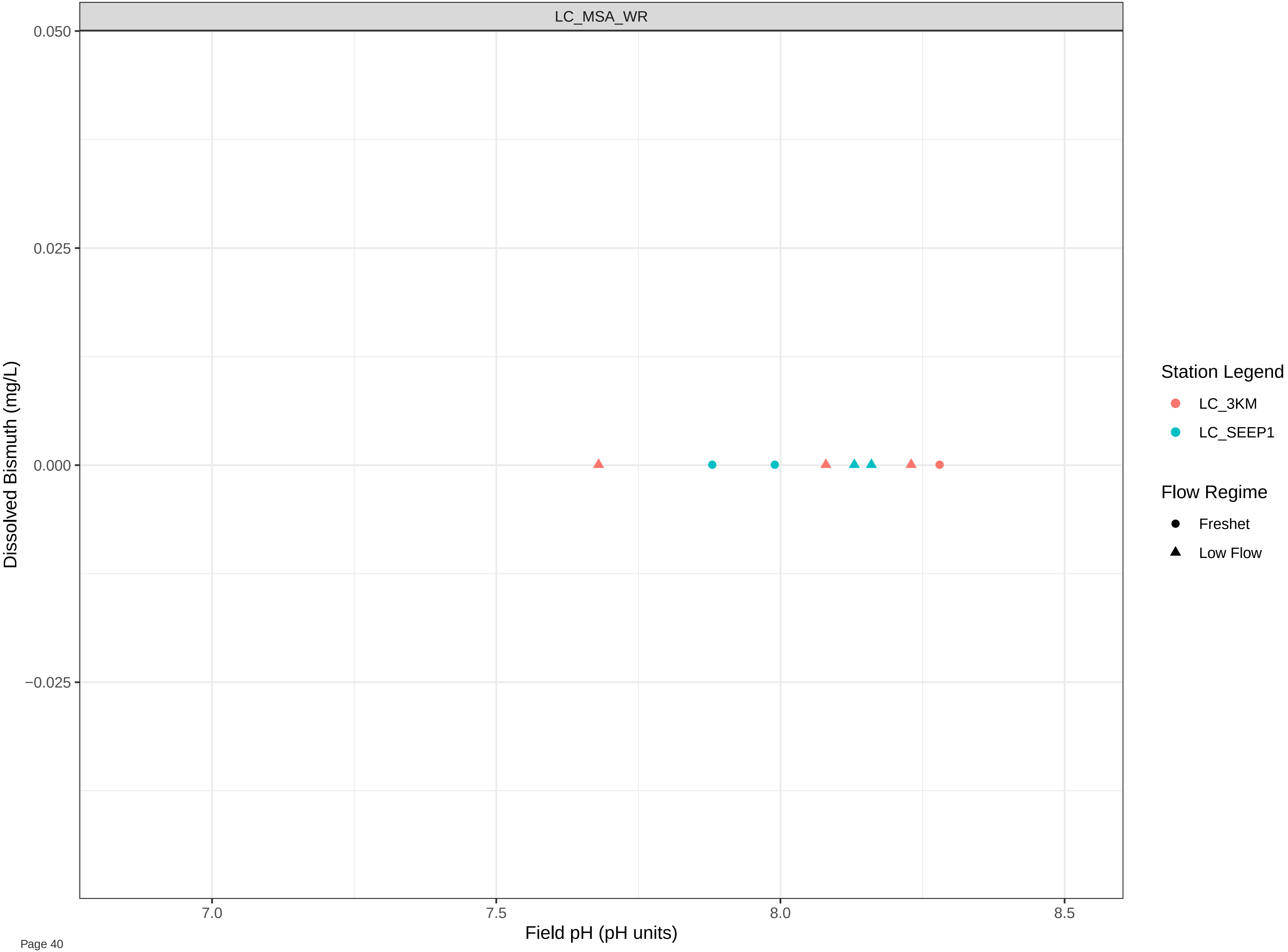

LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Beryllium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

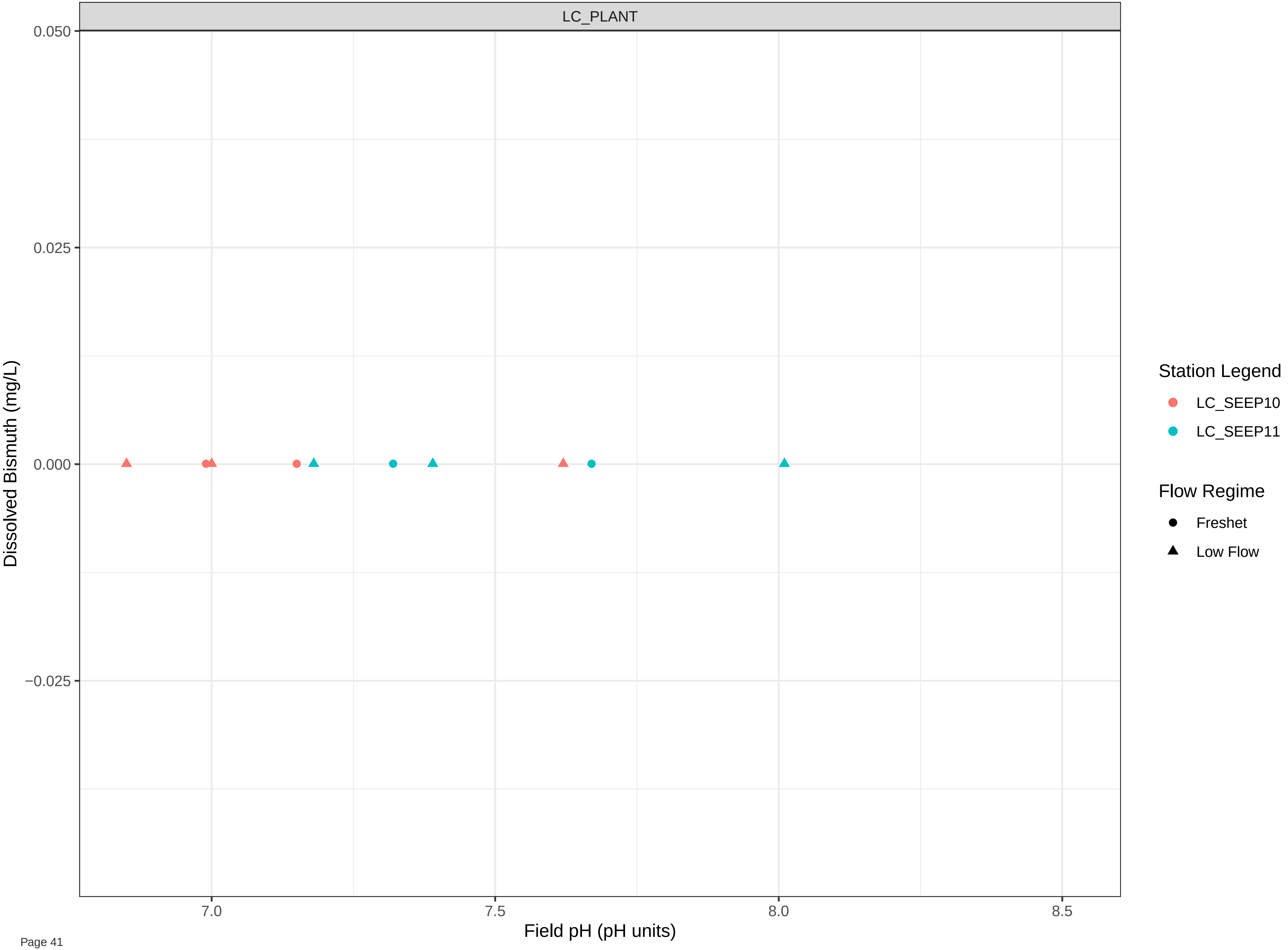

LC_DC_WR
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

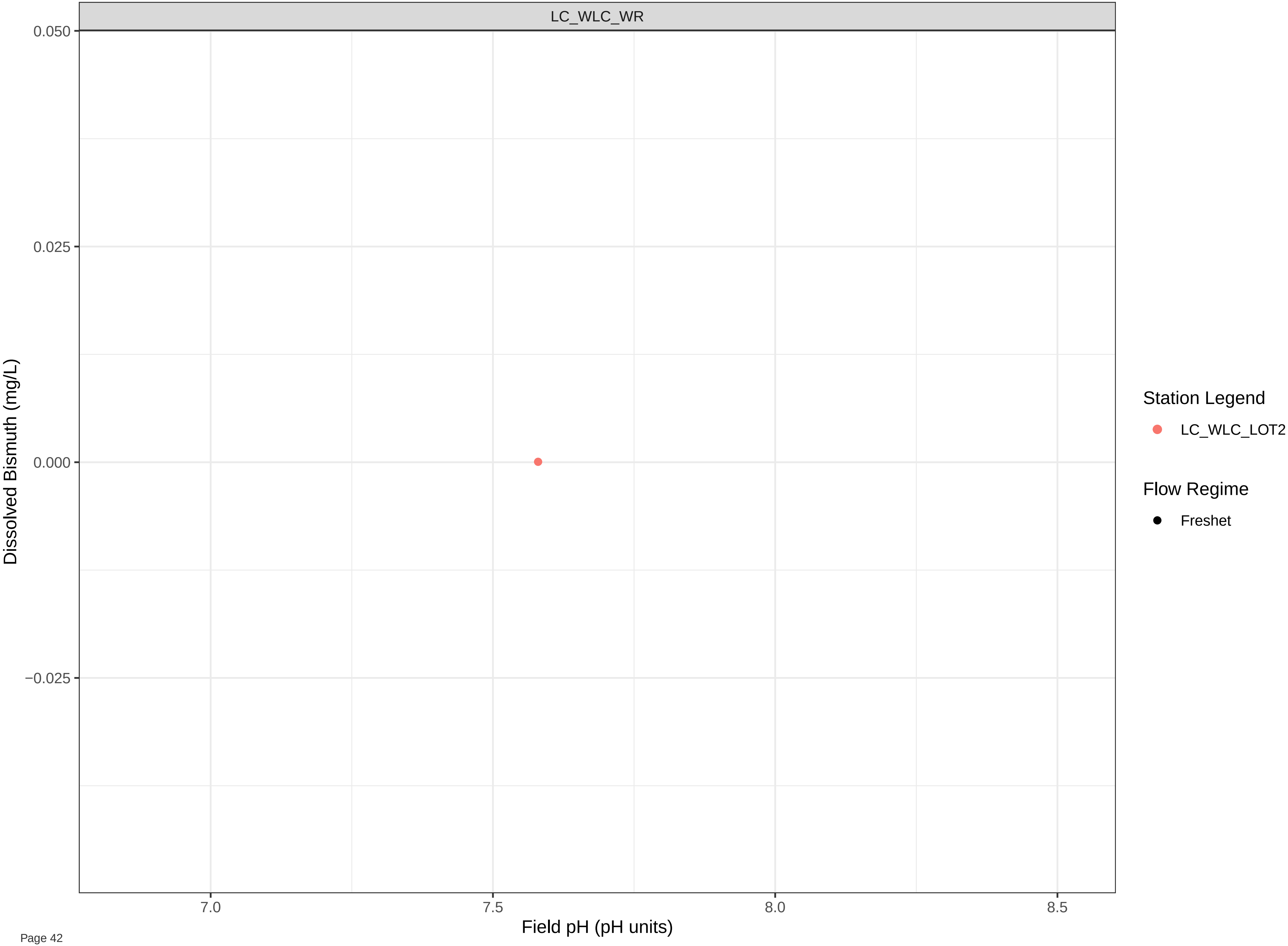

LC_DisturbedWSlope
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

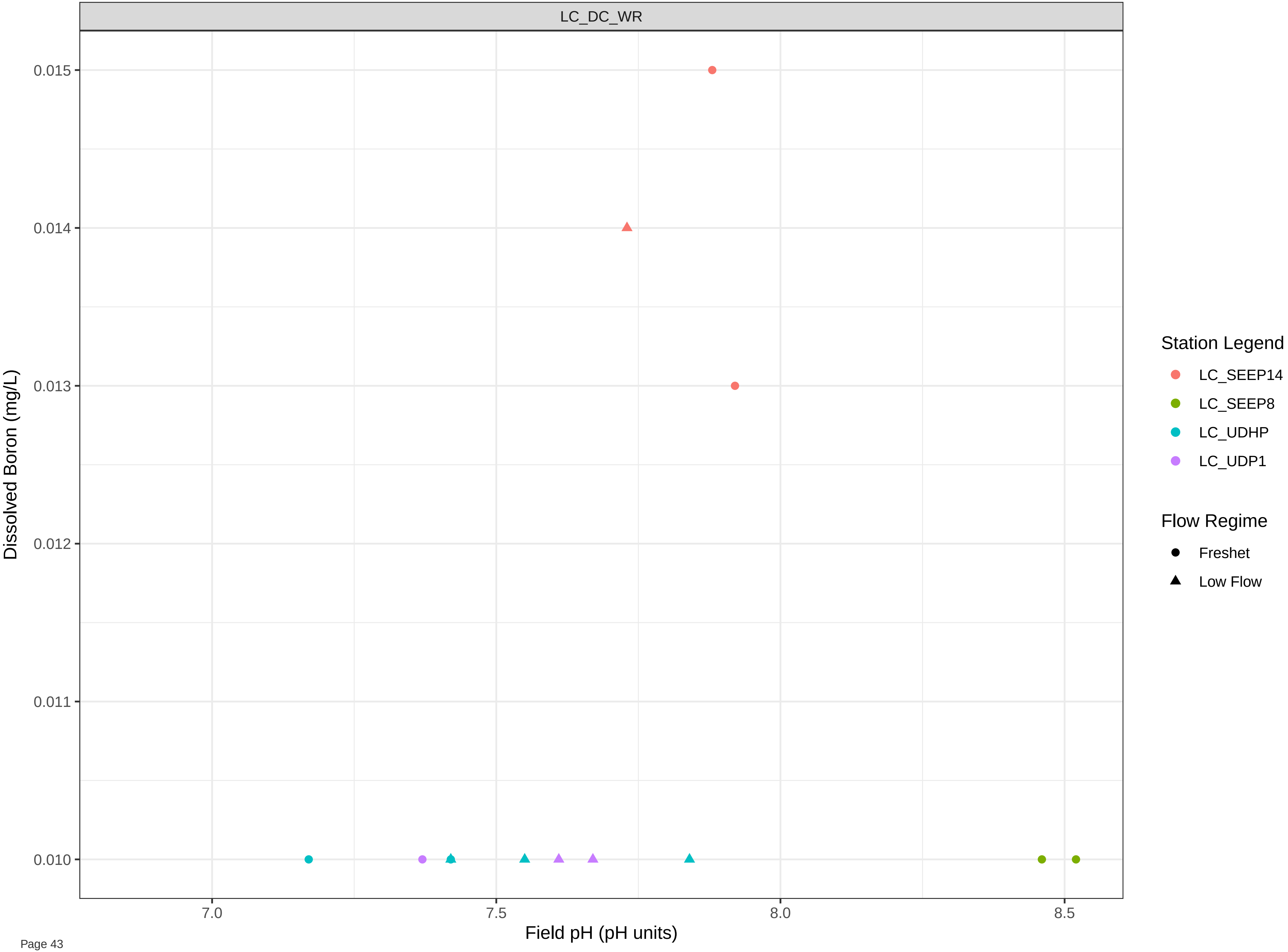

LC_HSP_WR
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

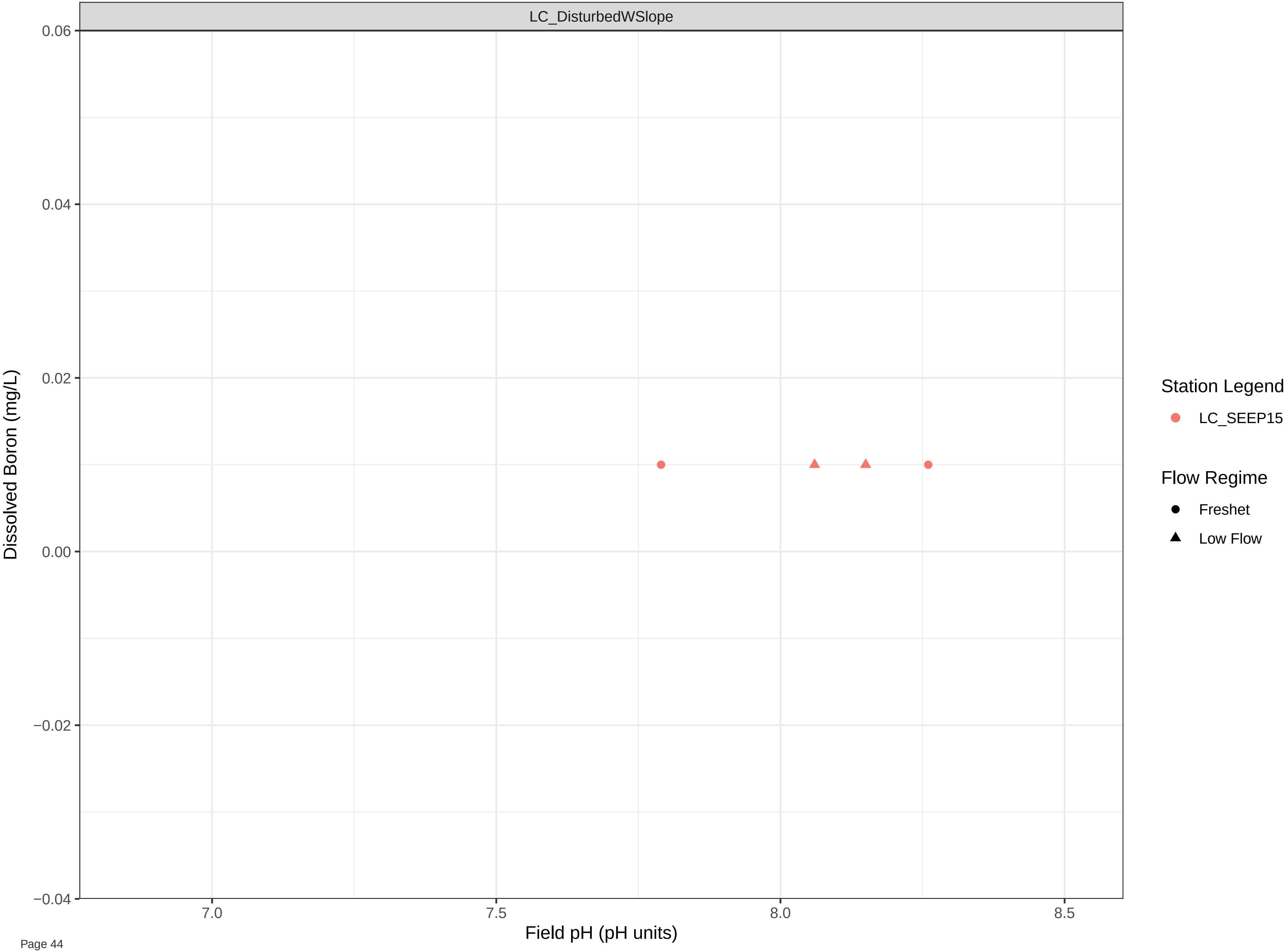

LC_MAXAM
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow

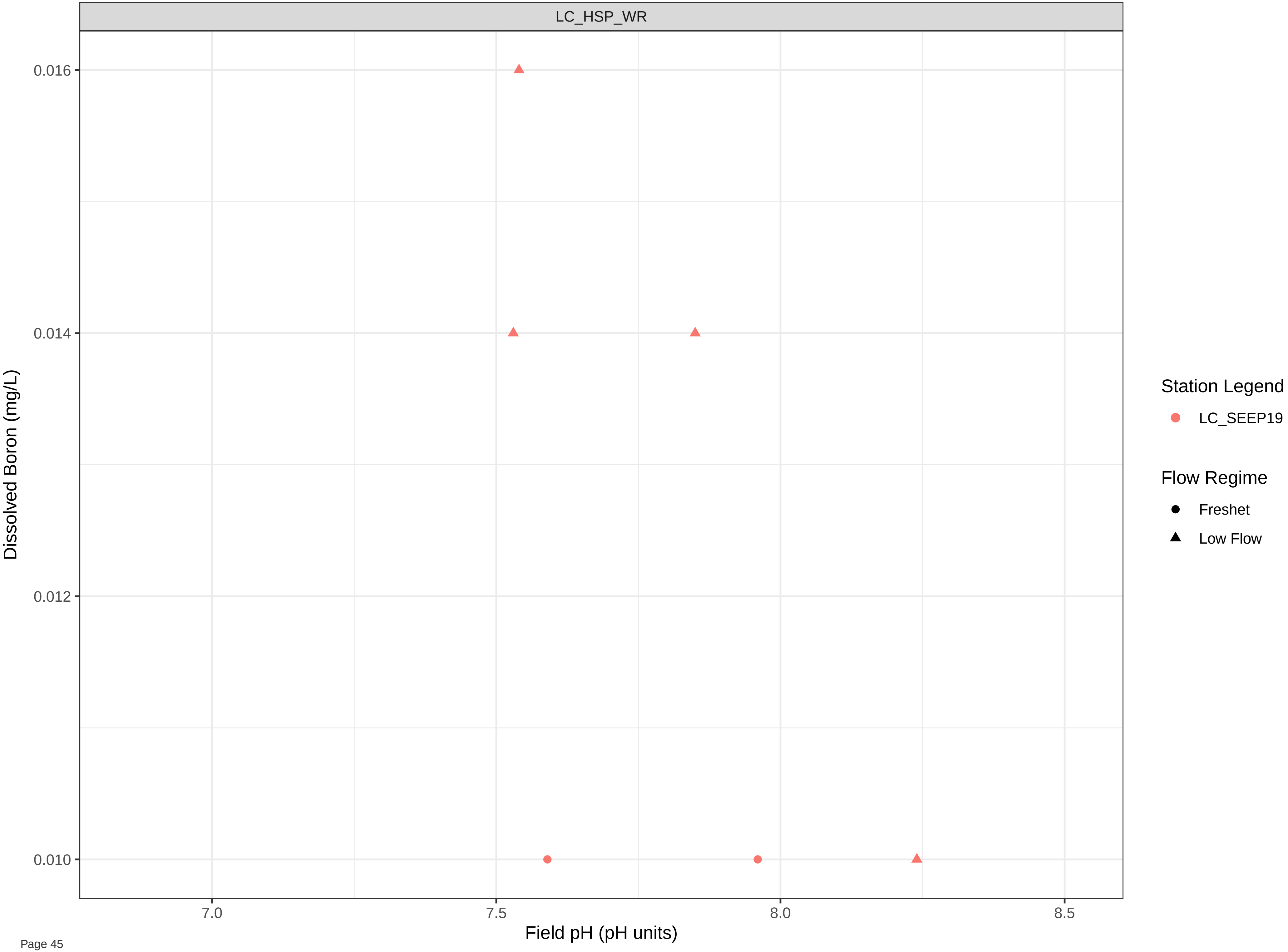

LC_MSA_WR
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

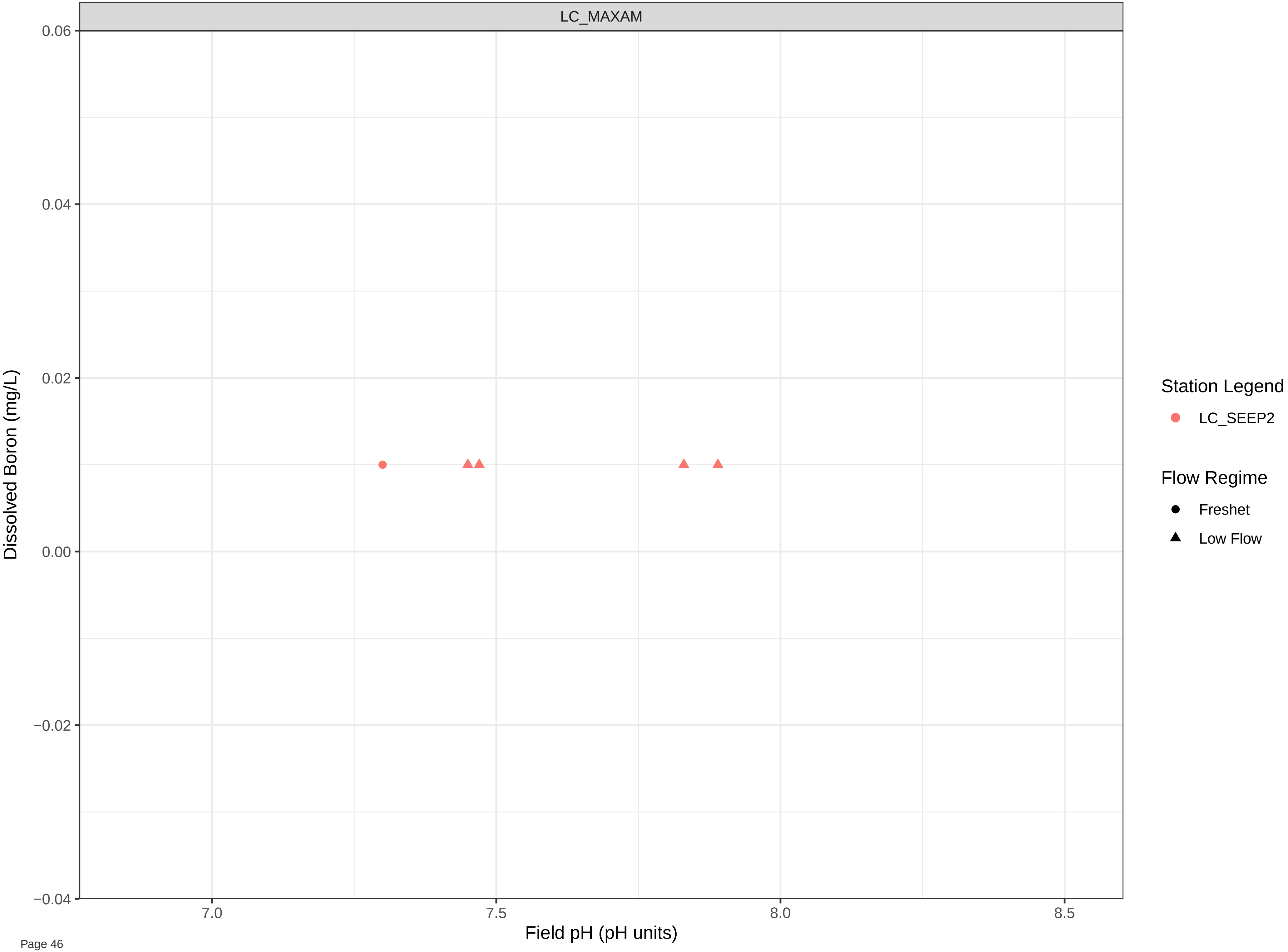

LC_PLANT
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

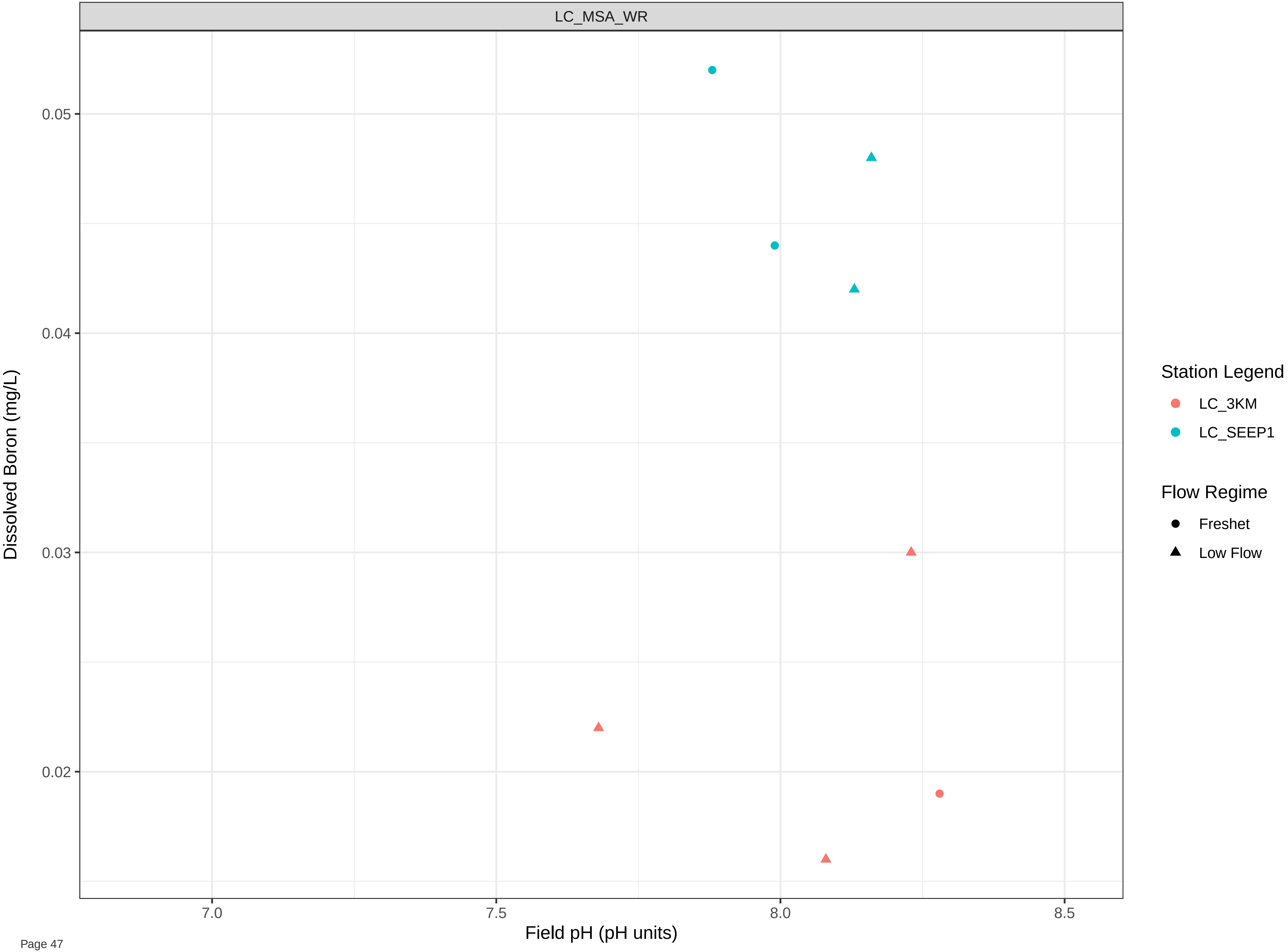

LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

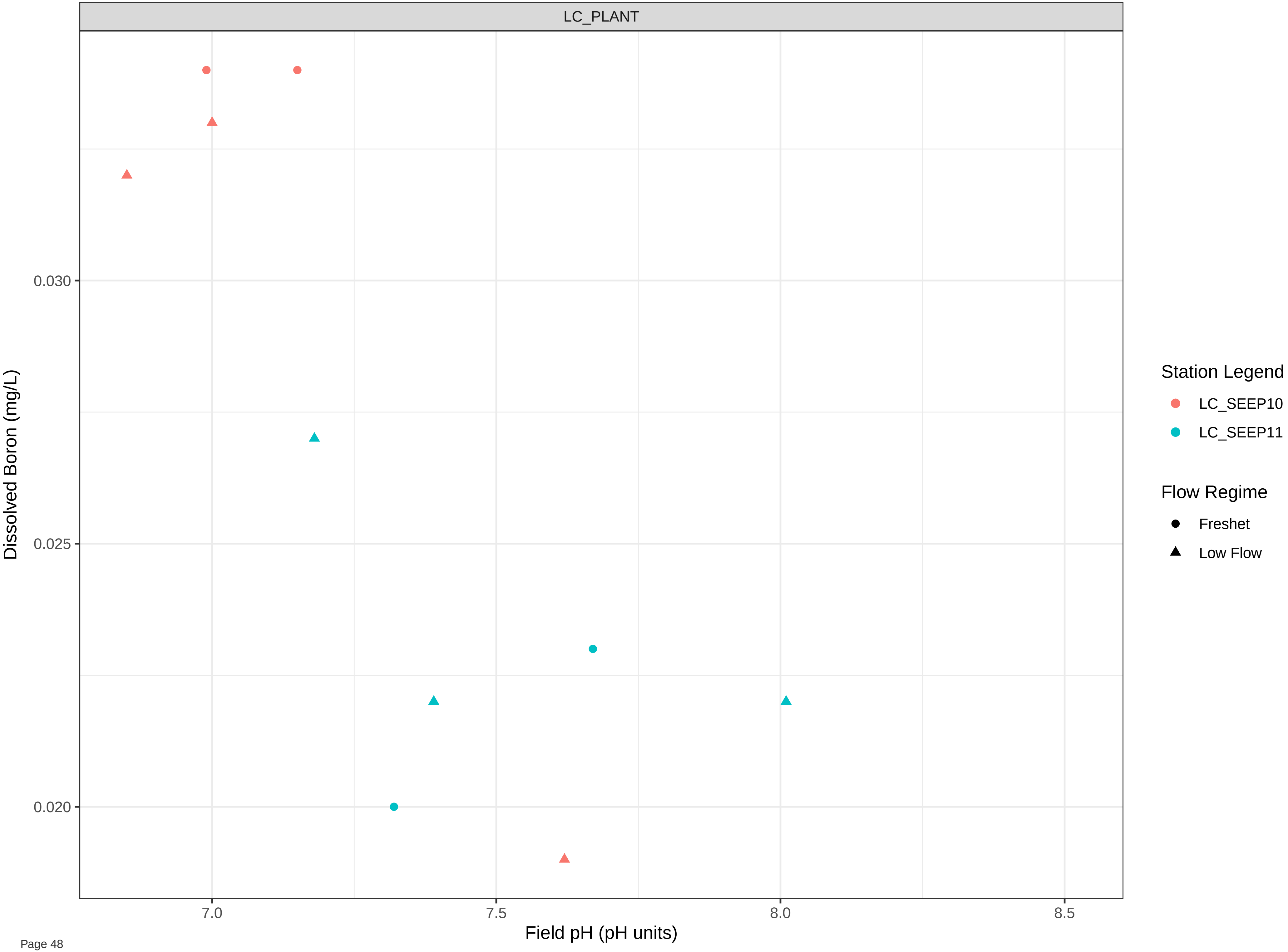

LC_DC_WR
Dissolved Boron (mg/L)
0.015
0.014
0.013
0.012
0.011
0.010
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

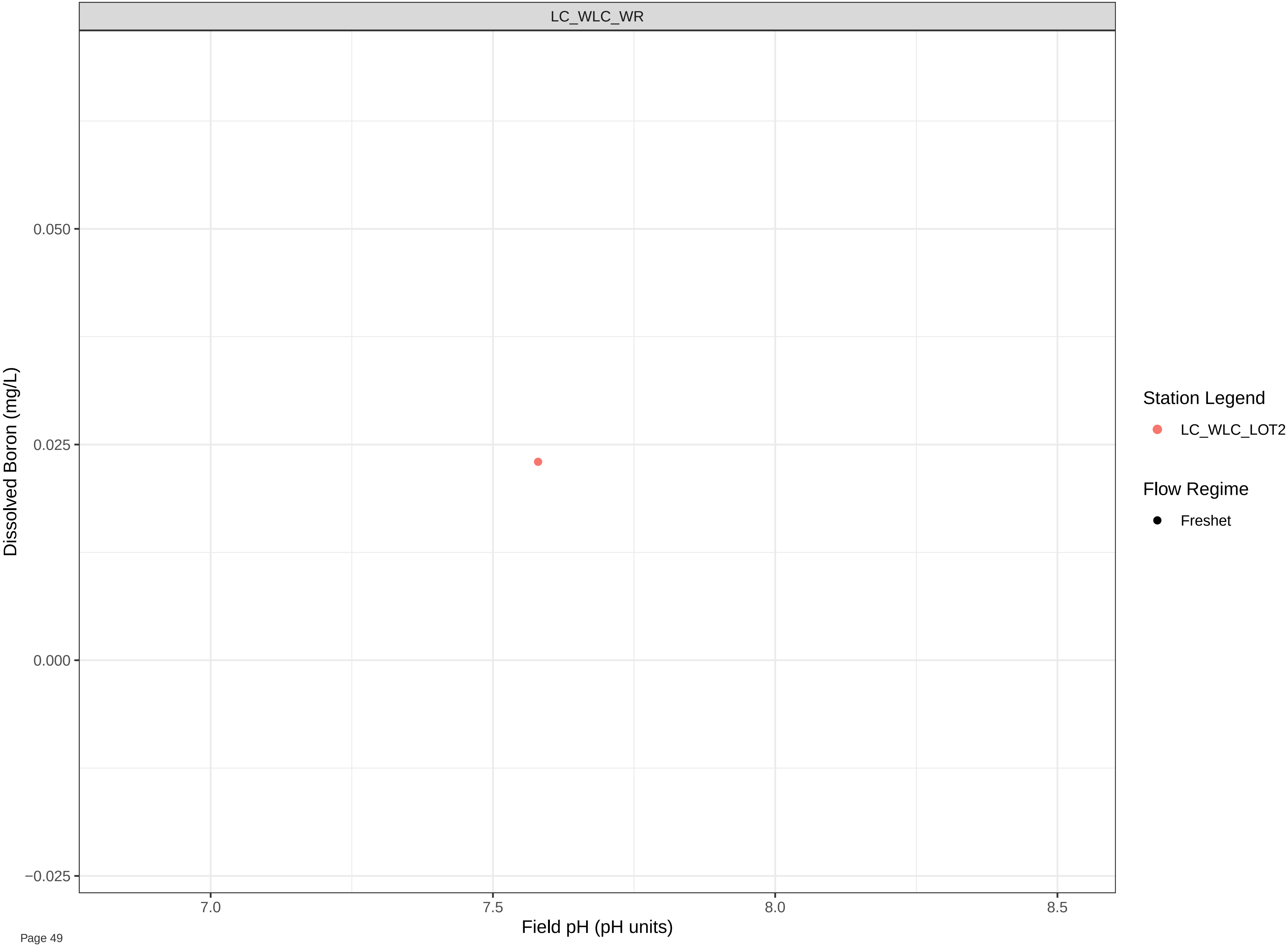

LC_DisturbedWSlope
Dissolved Boron (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

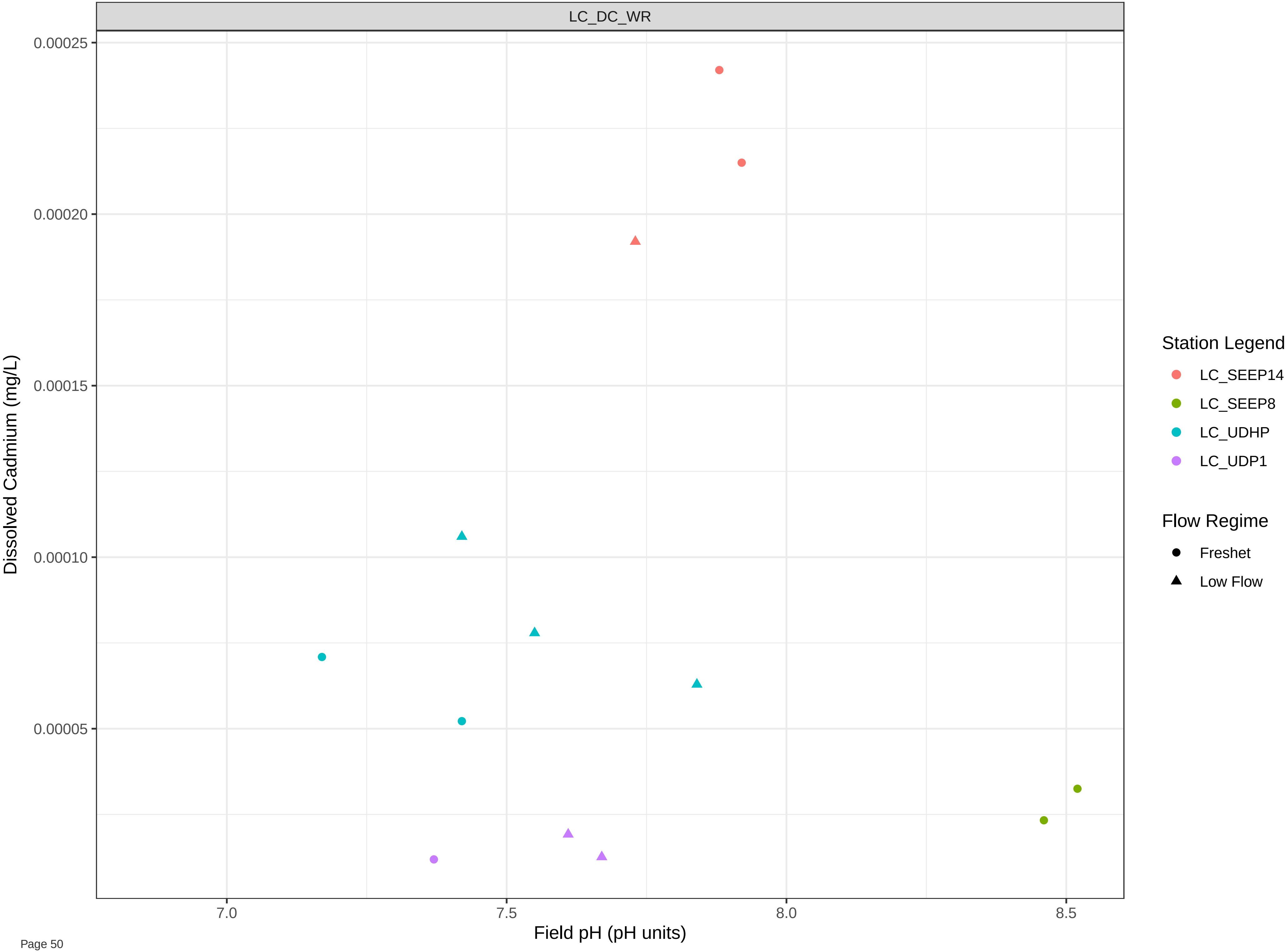

LC_HSP_WR
Dissolved Boron (mg/L)
0.016
0.014
0.012
0.010
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

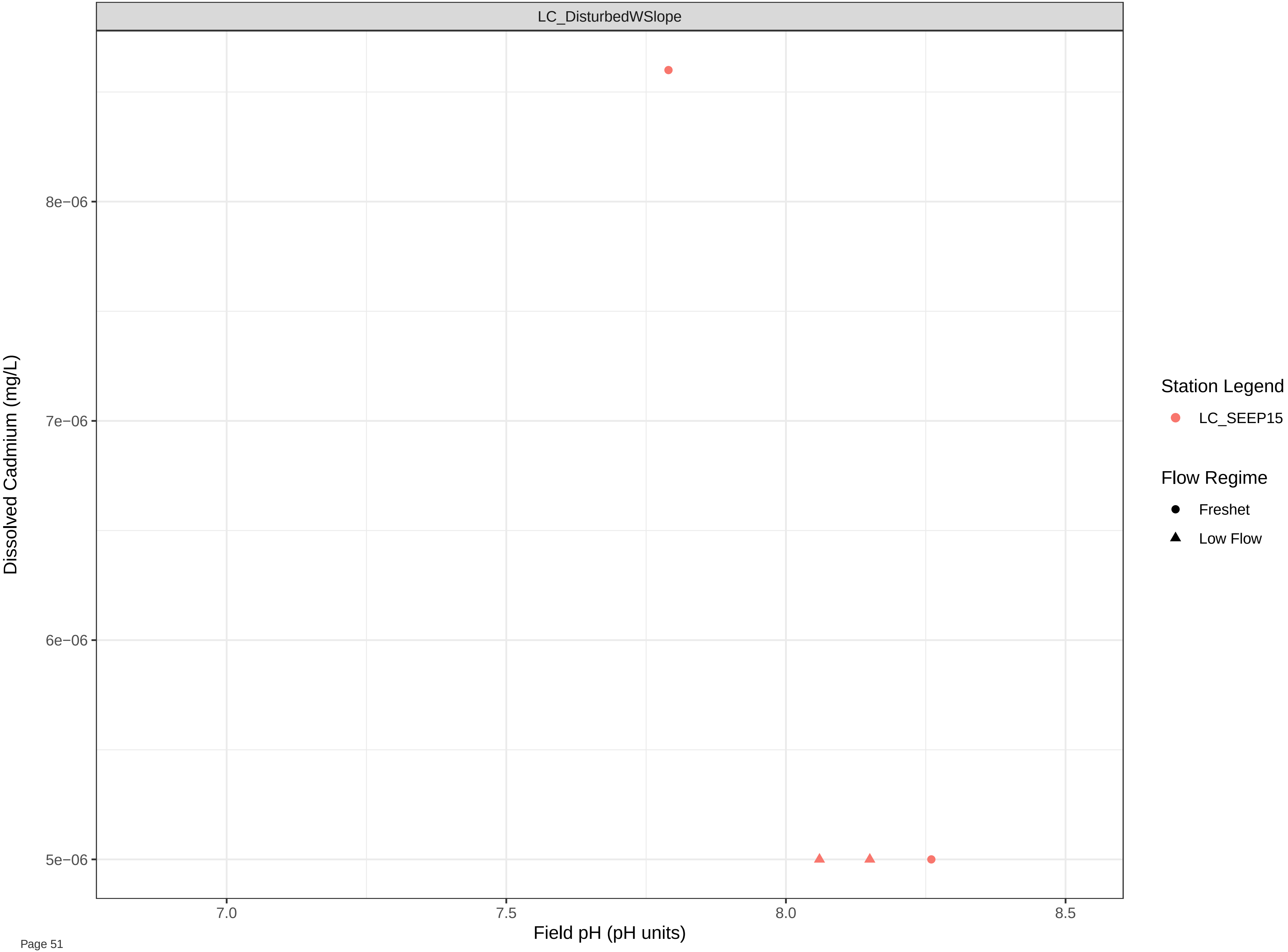

LC_MAXAM
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Boron (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow

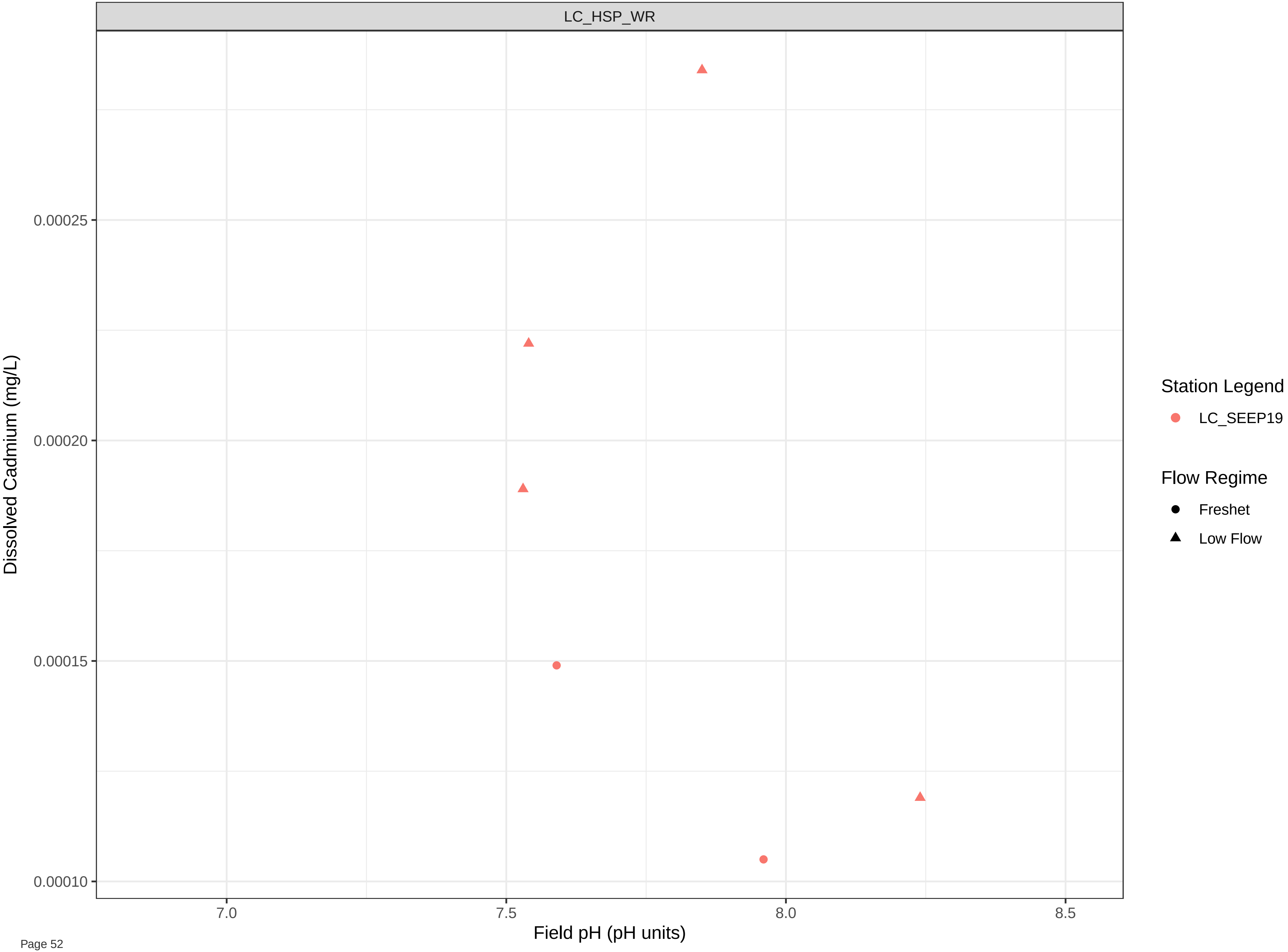

LC_MSA_WR
Dissolved Boron (mg/L)
0.05
0.04
0.03
0.02
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

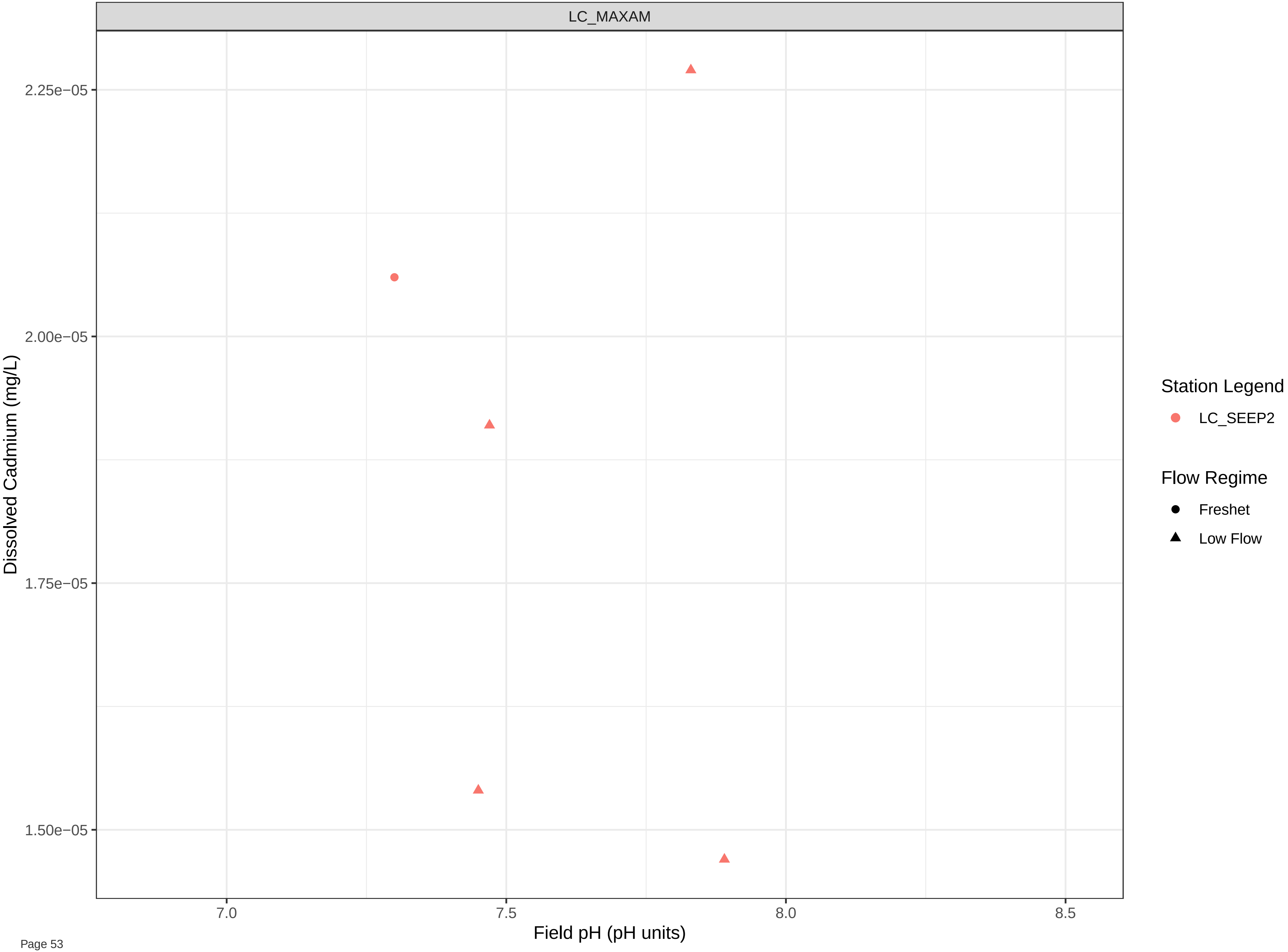

LC_PLANT
Dissolved Boron (mg/L)
0.030
0.025
0.020
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

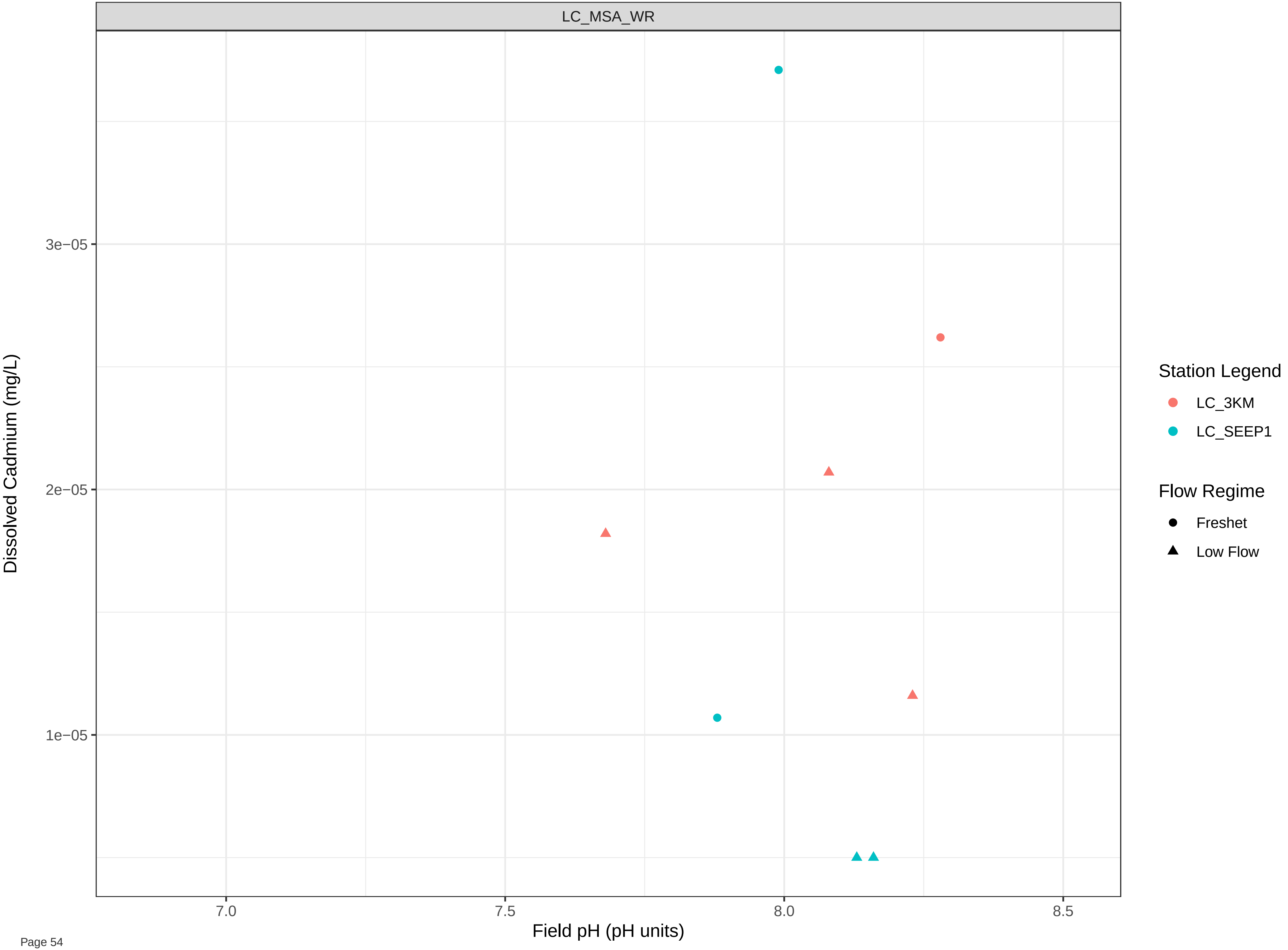

LC_WLC_WR
Dissolved Boron (mg/L)
0.050
0.025
0.000
−0.025
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet

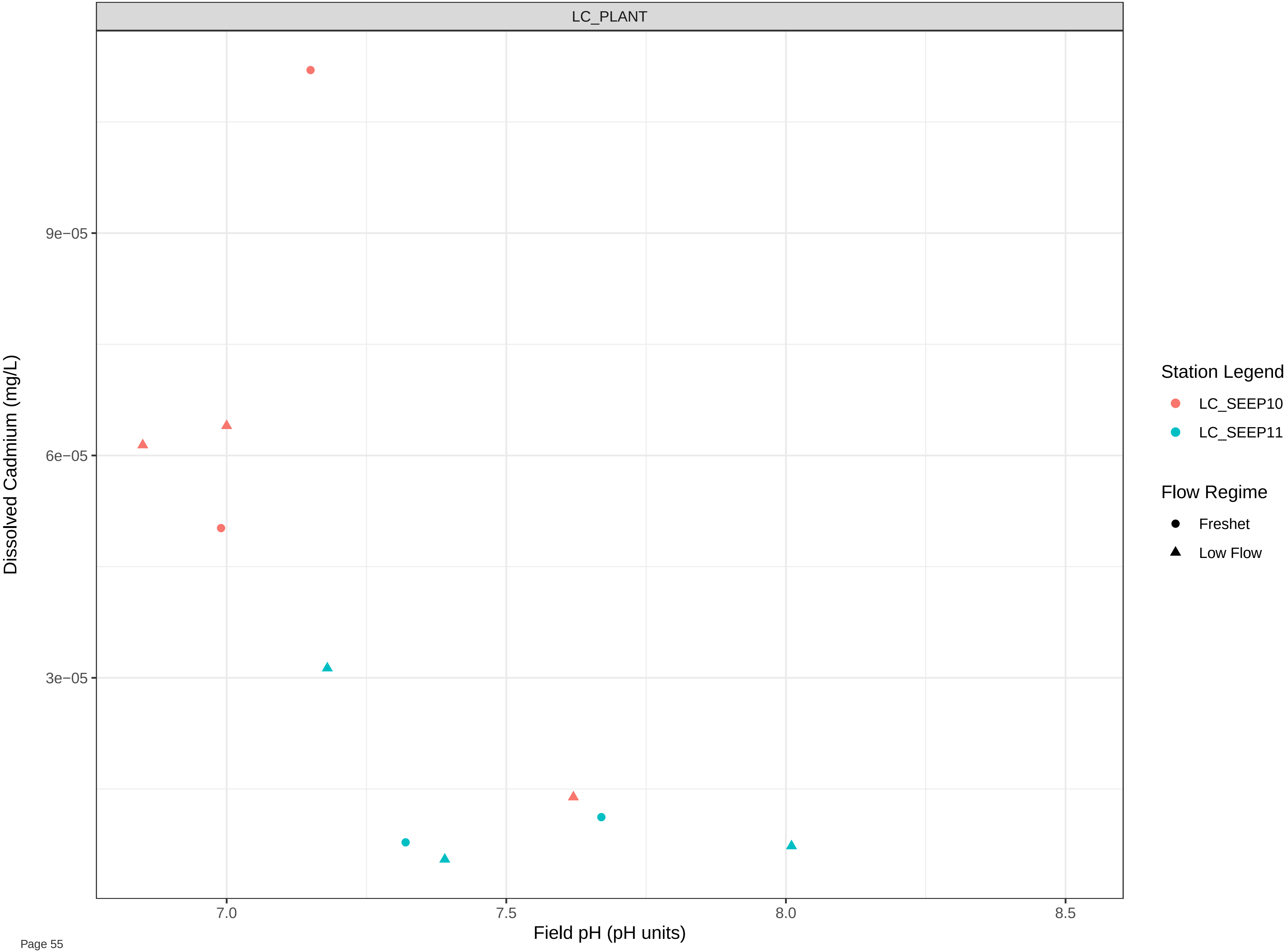

LC_DC_WR
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Cadmium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

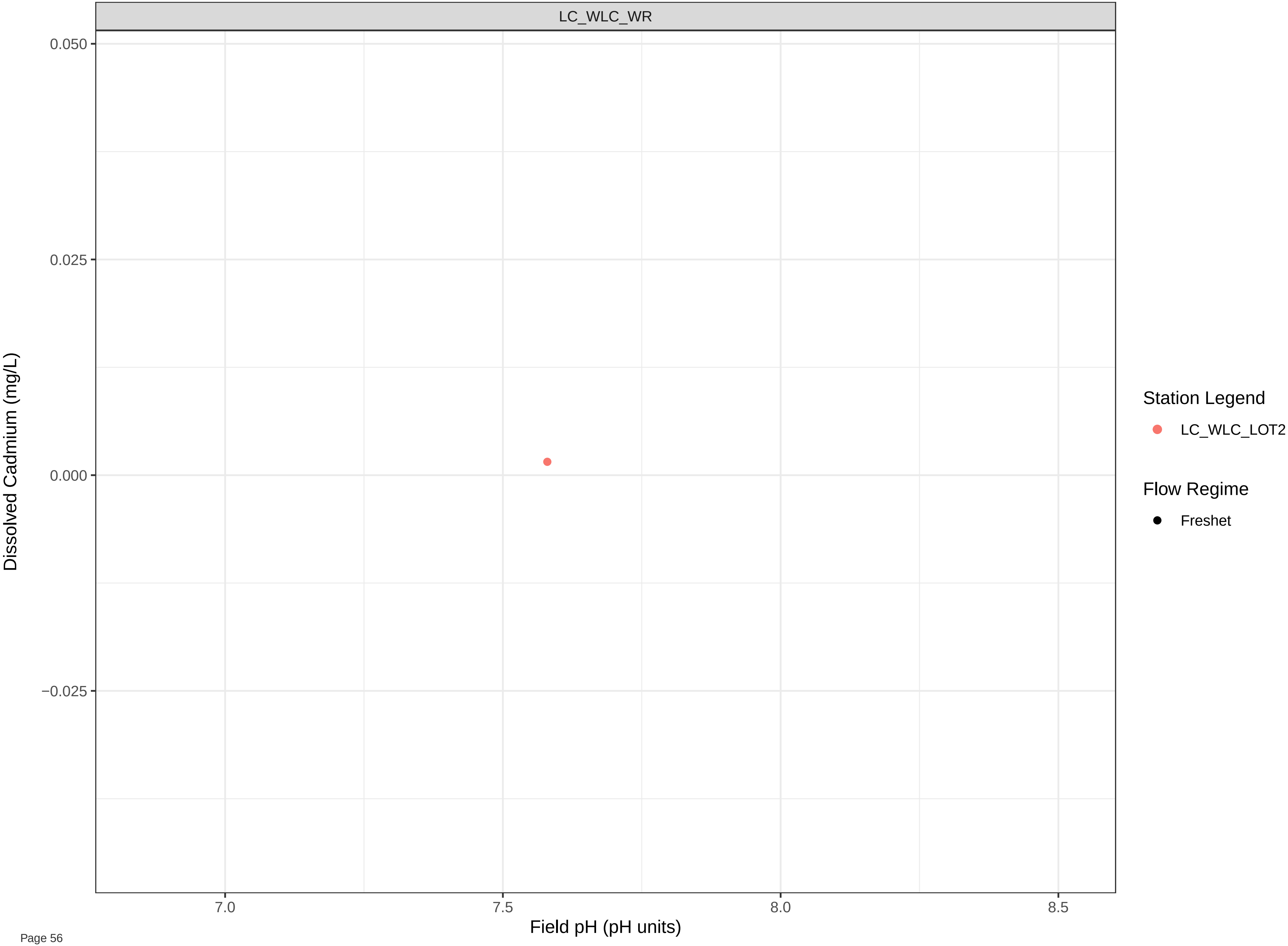

LC_DisturbedWSlope
Dissolved Cadmium (mg/L)
8e−06
7e−06
6e−06
5e−06
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

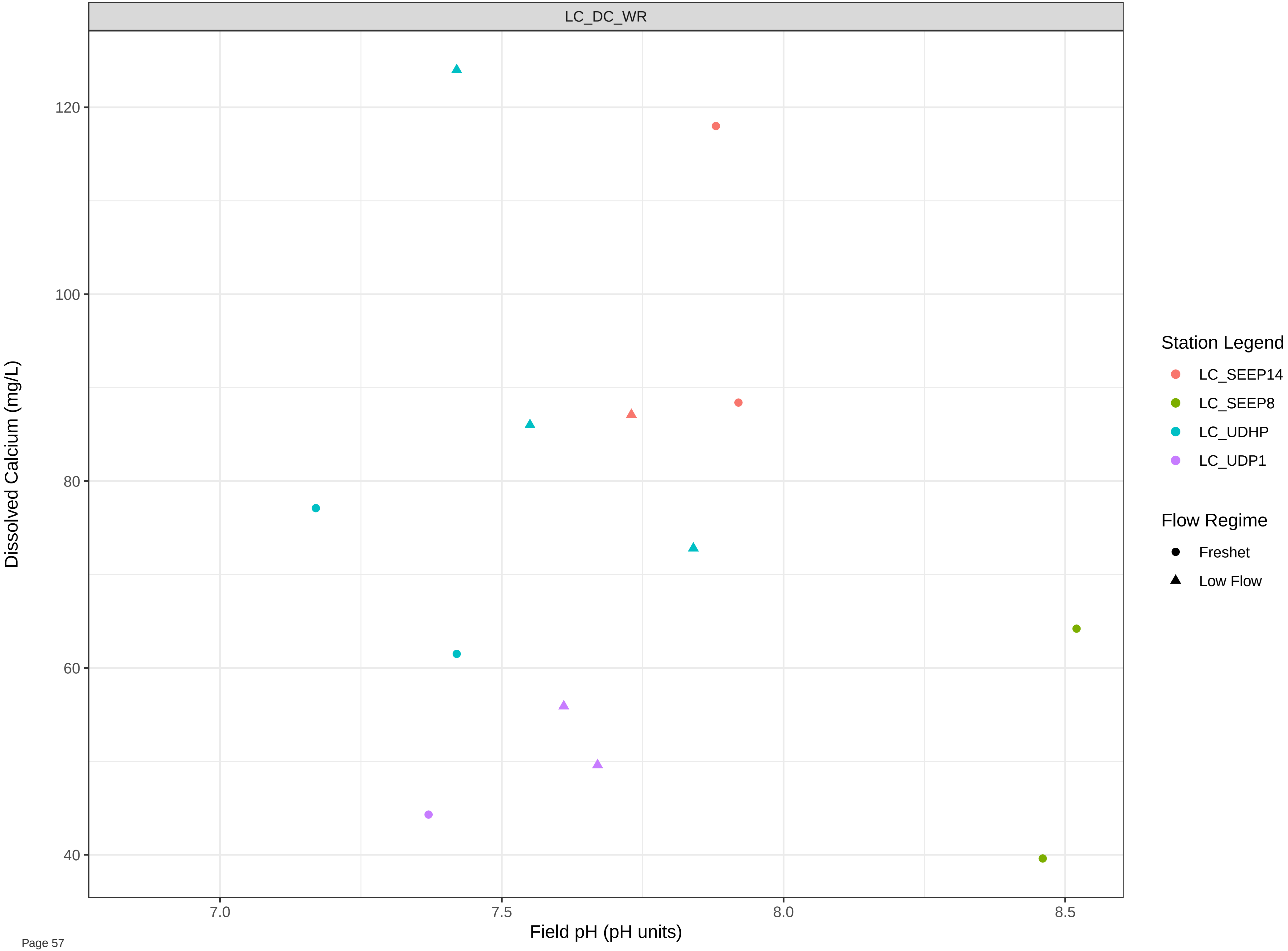

LC_HSP_WR
Dissolved Cadmium (mg/L)
0.00025
0.00020
0.00015
0.00010
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

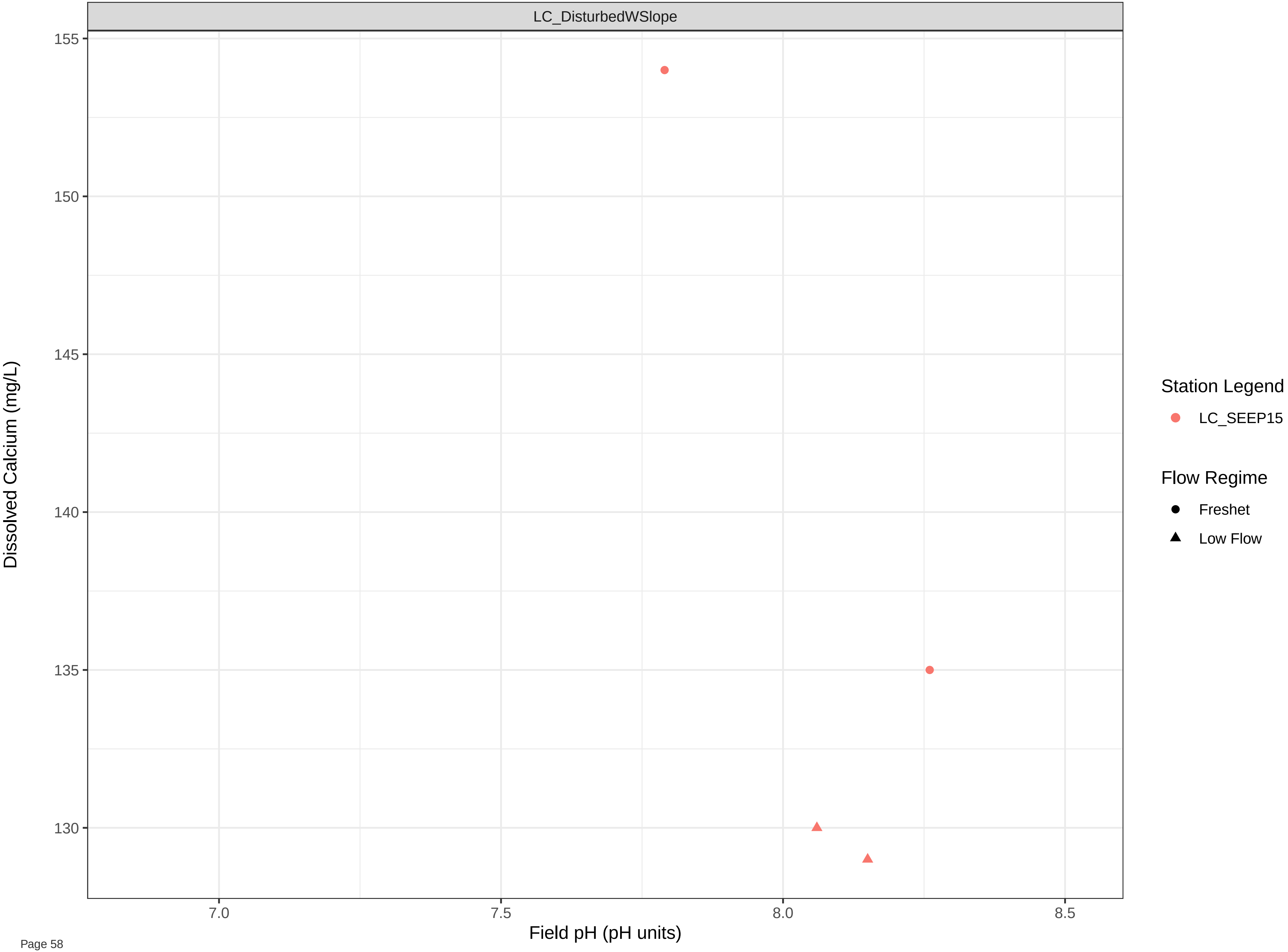

LC_MAXAM
Dissolved Cadmium (mg/L)
2.25e−05
2.00e−05
1.75e−05
1.50e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow

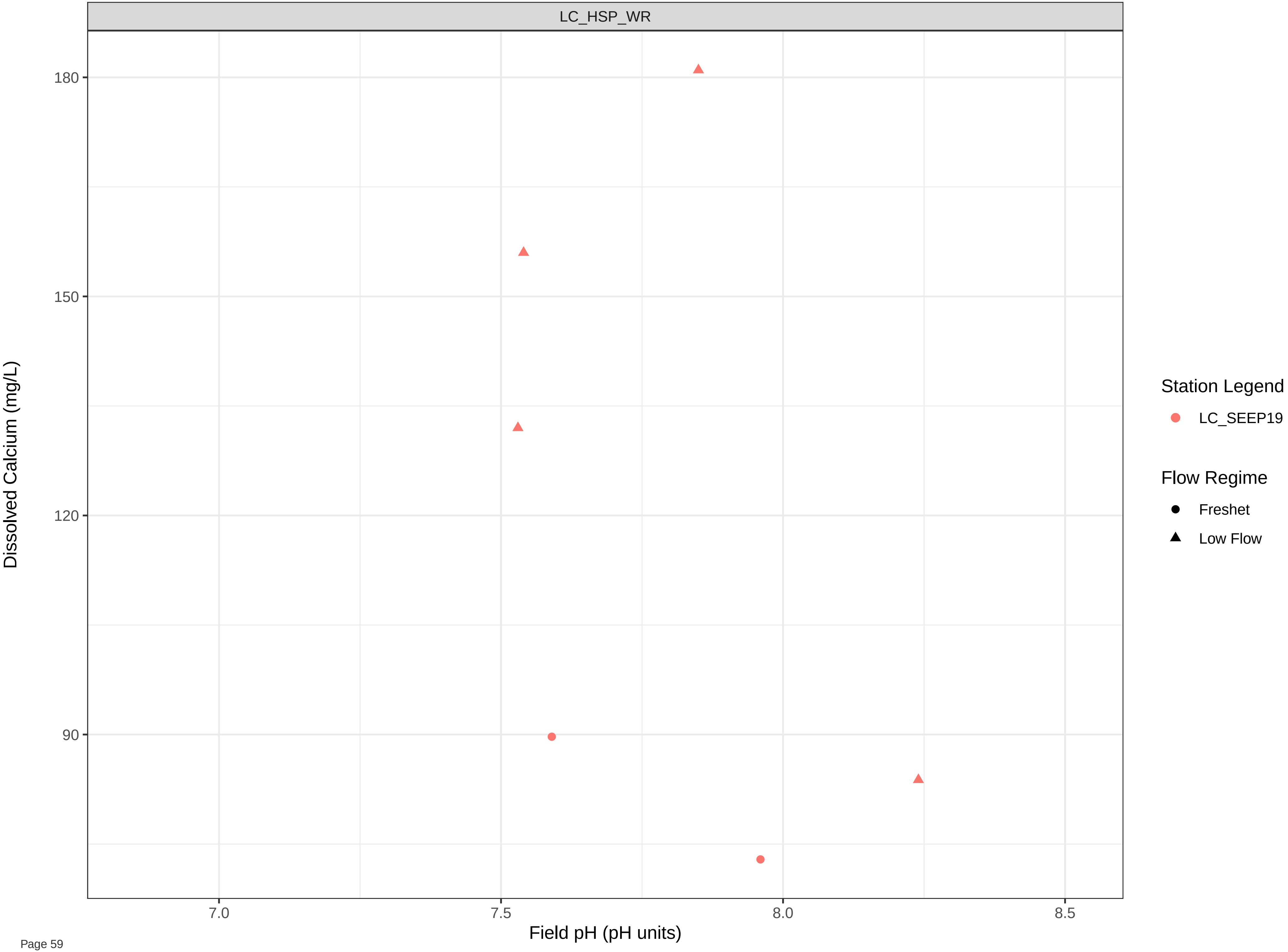

LC_MSA_WR
Dissolved Cadmium (mg/L)
3e−05
2e−05
1e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

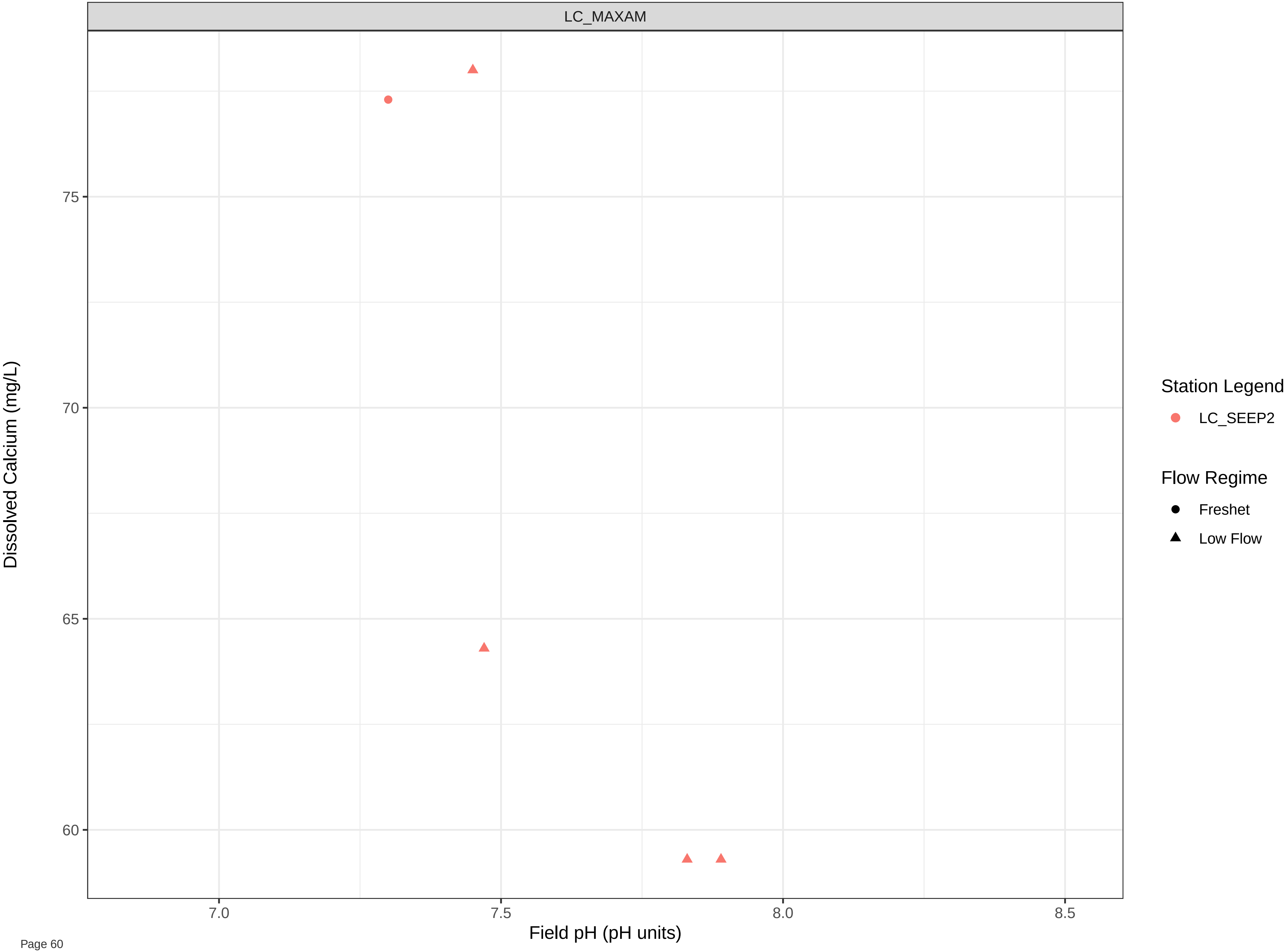

LC_PLANT
9e−05
6e−05
3e−05
Dissolved Cadmium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

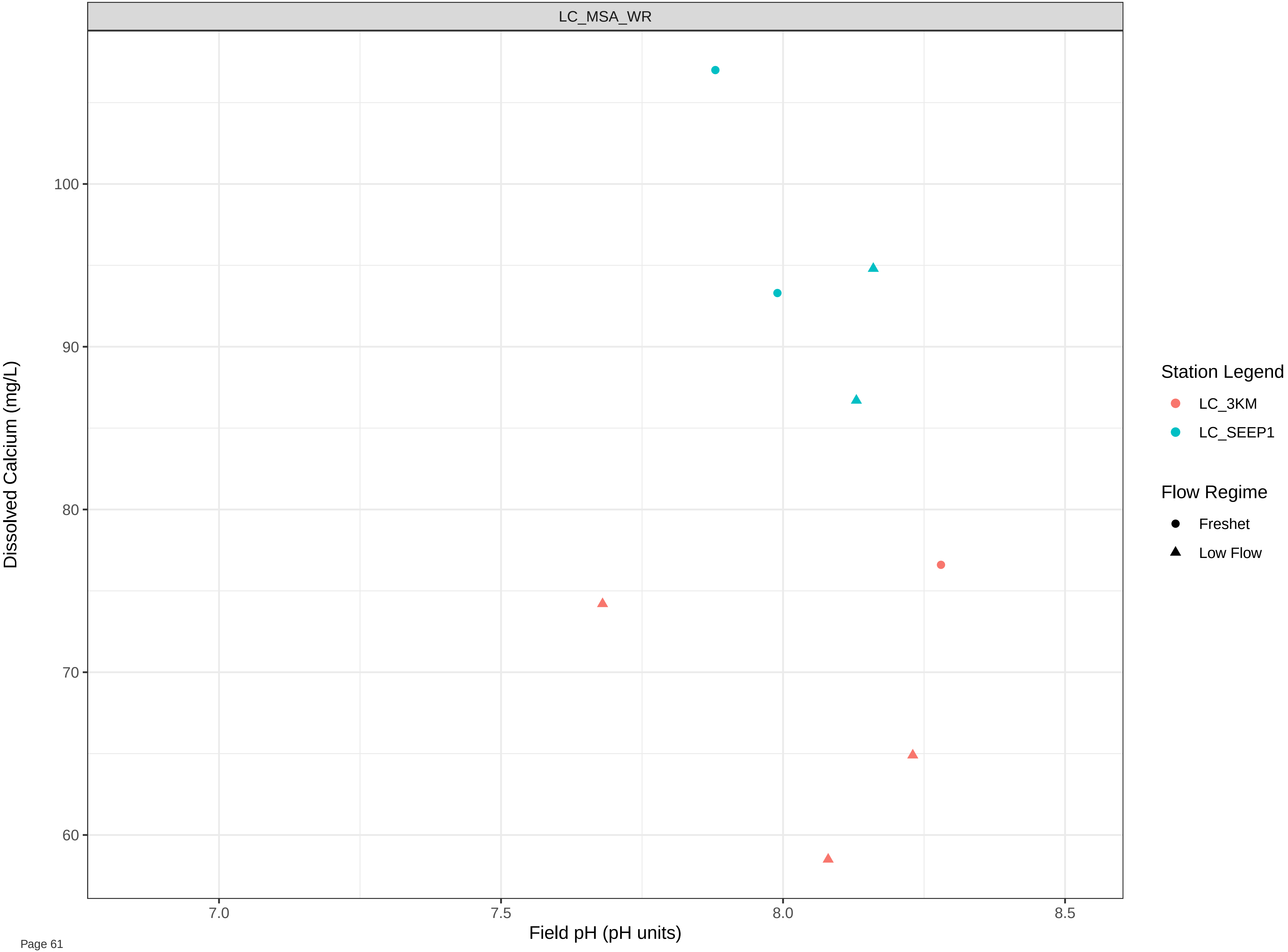

LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Cadmium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

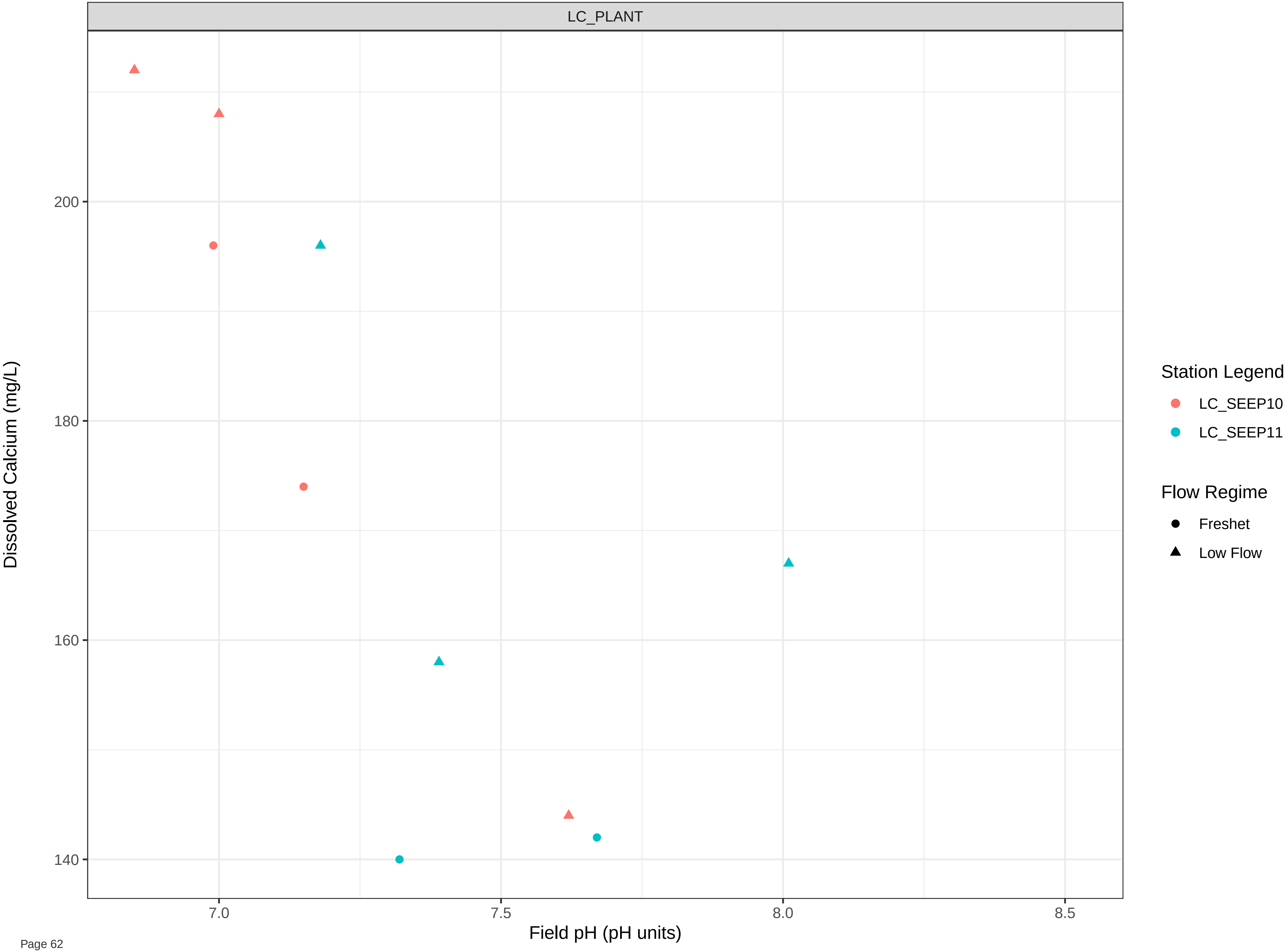

LC_DC_WR
Dissolved Calcium (mg/L)
120
100
80
60
40
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP14
● LC_SEEP8
● LC_UDHP
● LC_UDP1
Flow Regime
● Freshet
▲ Low Flow

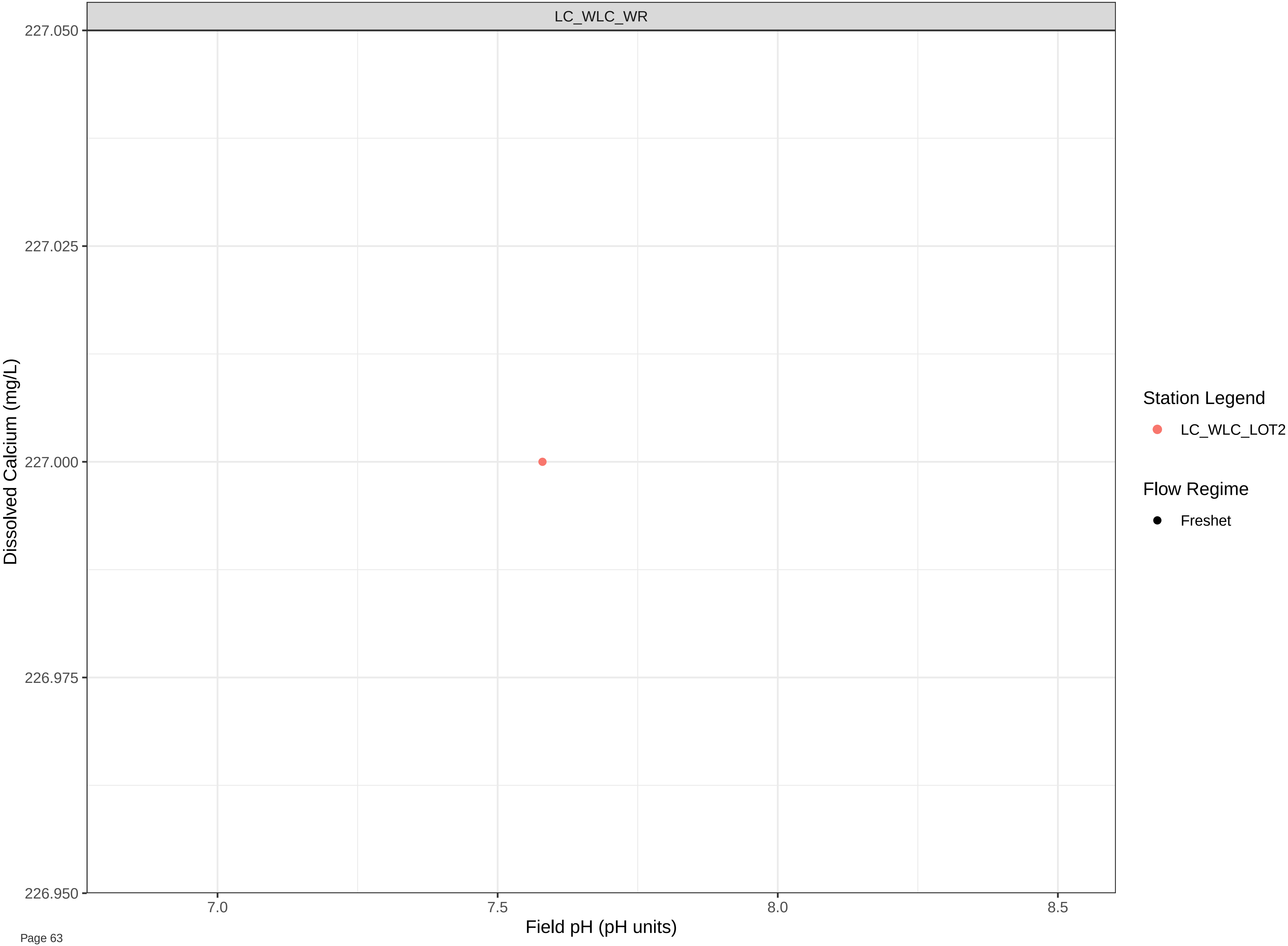

LC_DisturbedWSlope
Dissolved Calcium (mg/L)
155
150
145
140
135
130
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

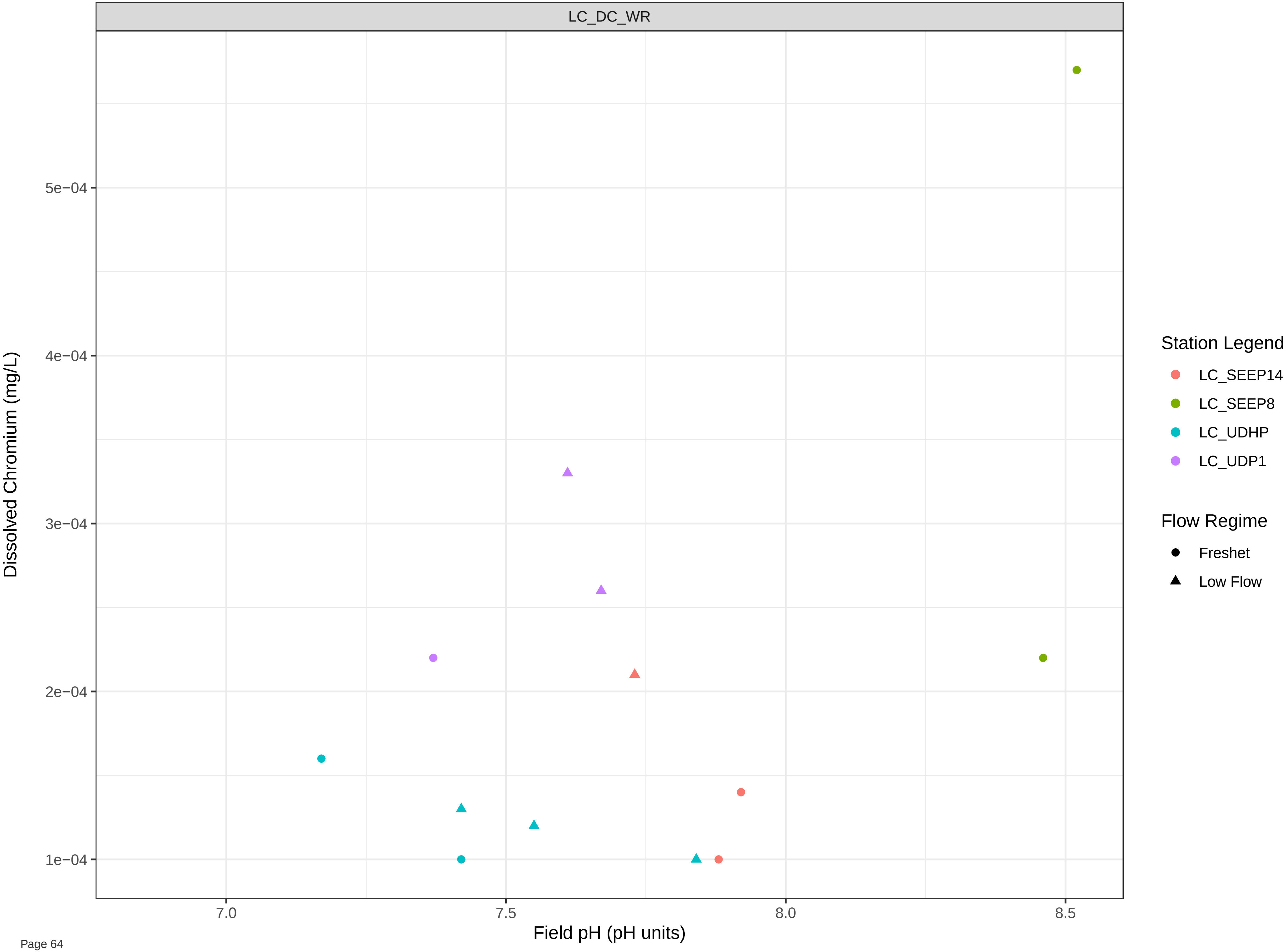

LC_HSP_WR
180
150
120
90
Dissolved Calcium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

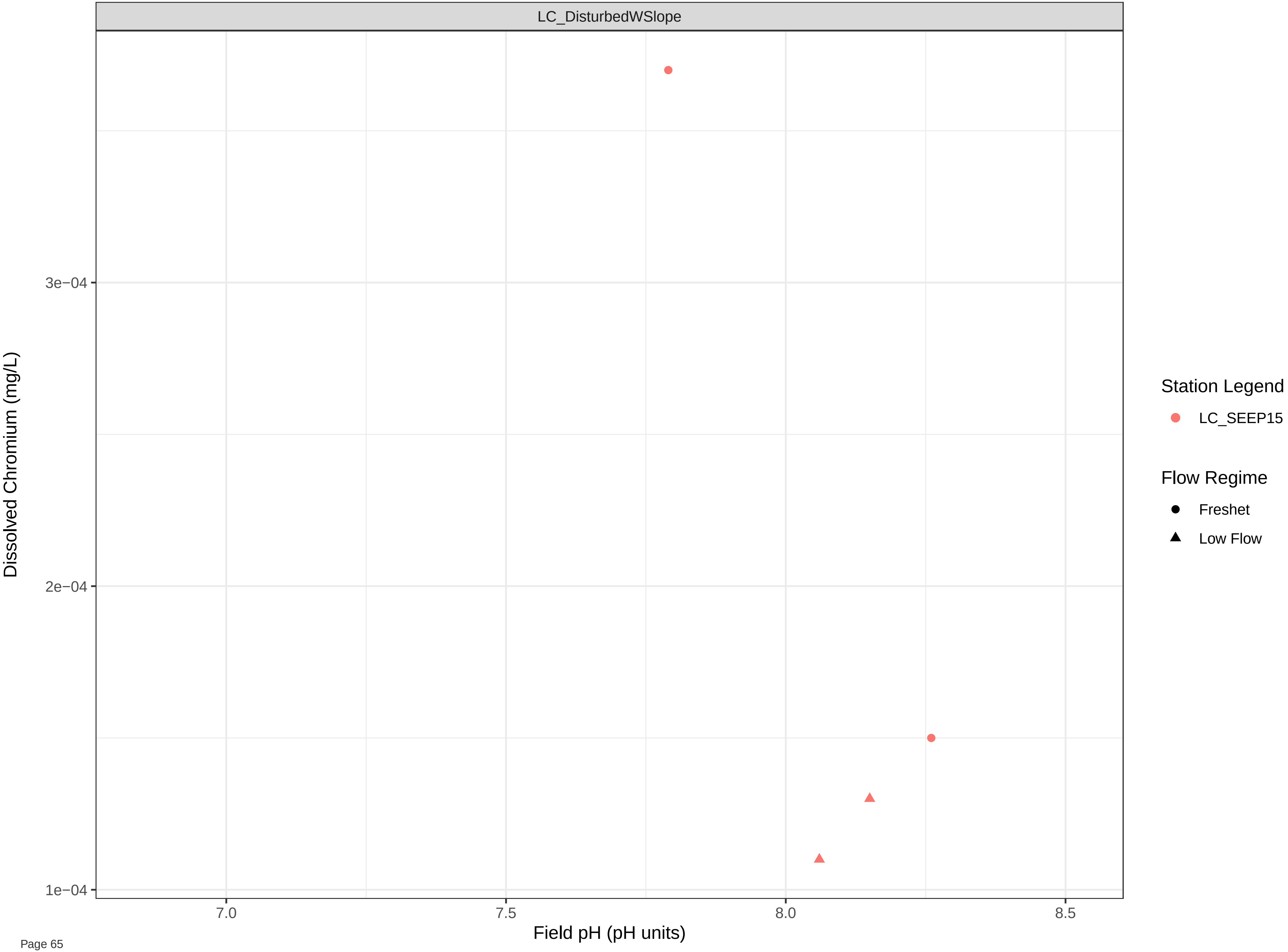

LC_MAXAM
Dissolved Calcium (mg/L)
75
70
65
60
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow

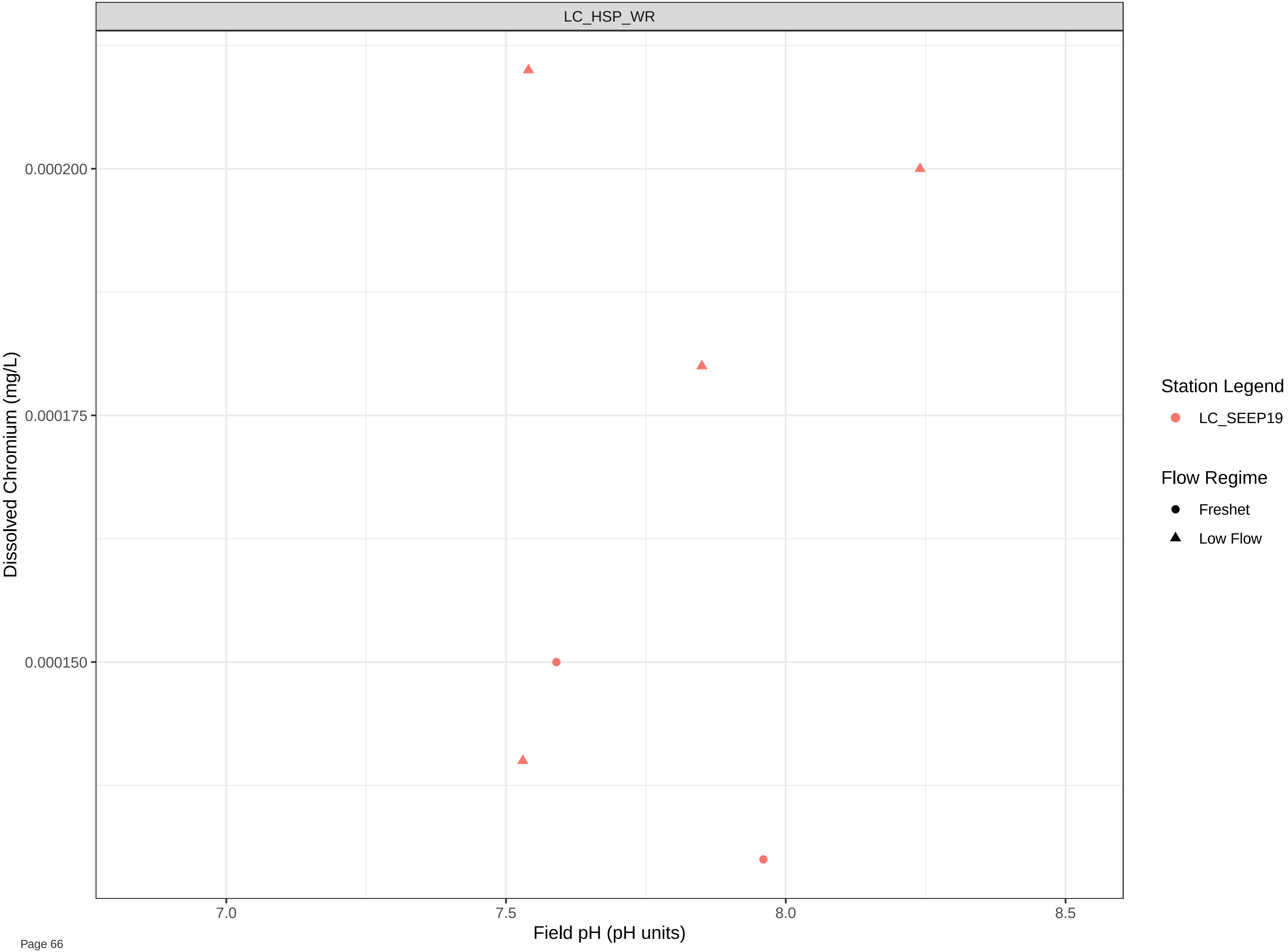

LC_MSA_WR
Dissolved Calcium (mg/L)
100
90
80
70
60
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_3KM
● LC_SEEP1
Flow Regime
● Freshet
▲ Low Flow

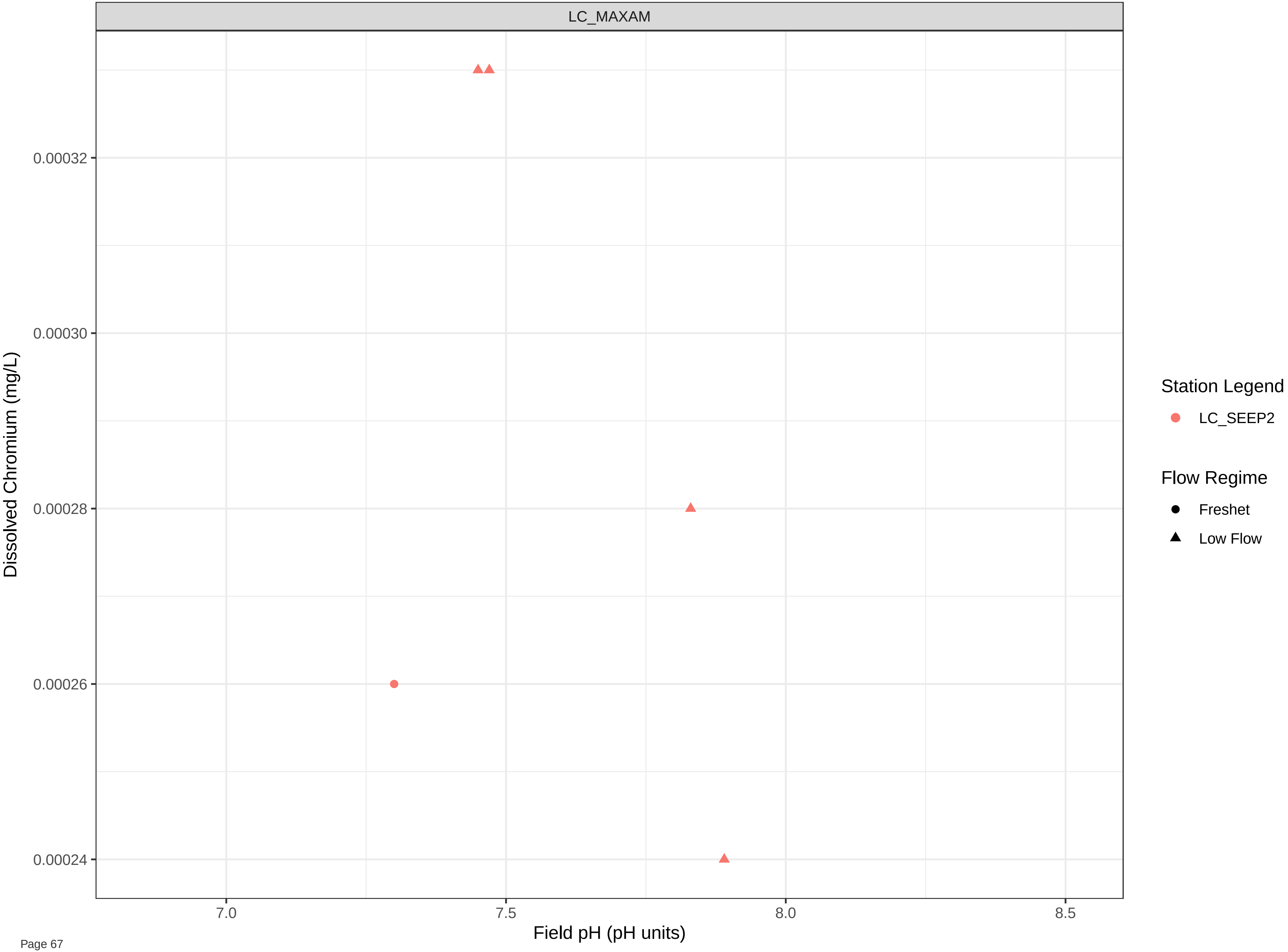

LC_PLANT
Dissolved Calcium (mg/L)
200
180
160
140
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

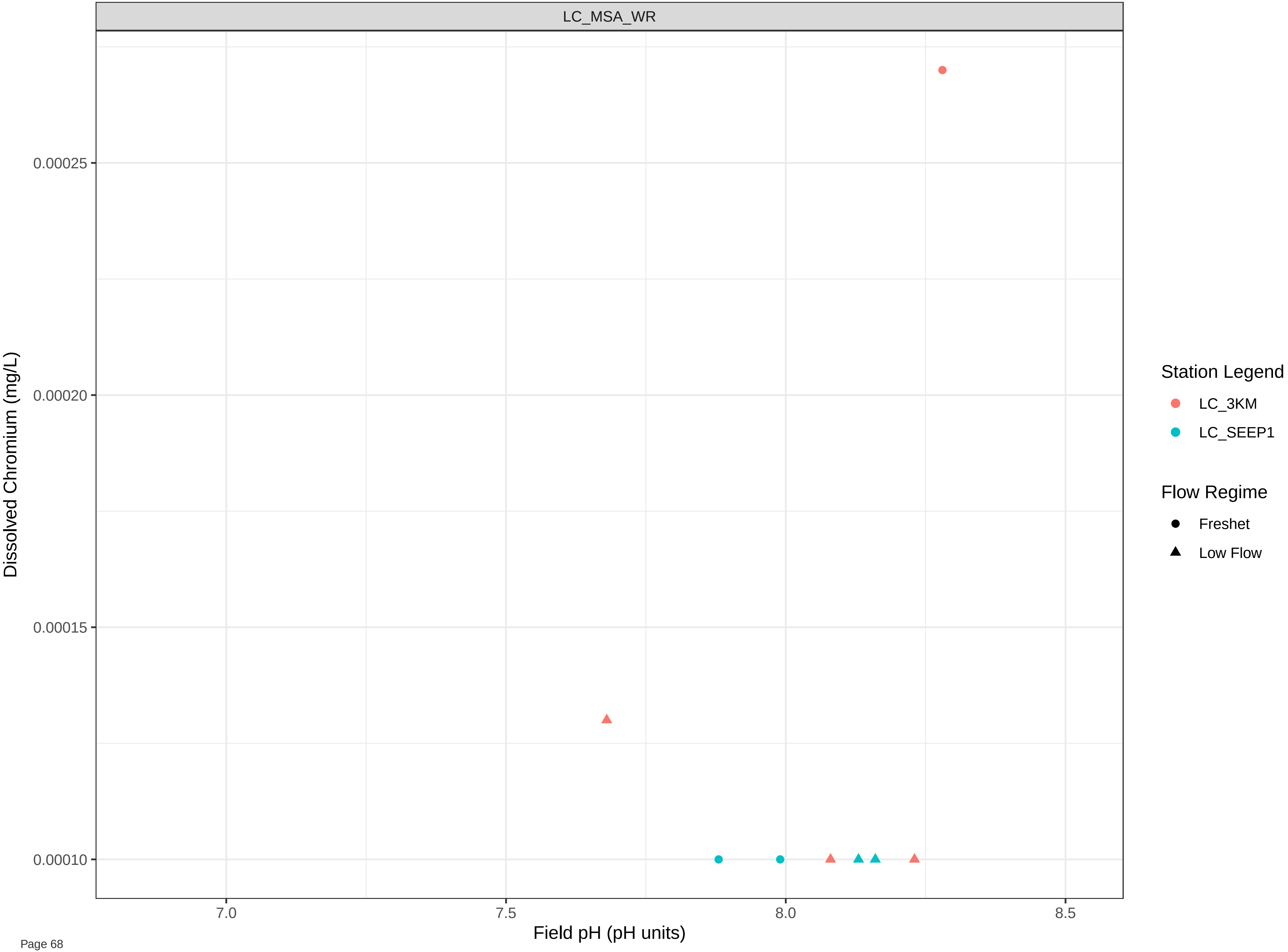

LC_WLC_WR
Dissolved Calcium (mg/L)
227.050
227.025
227.000
226.975
226.950
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

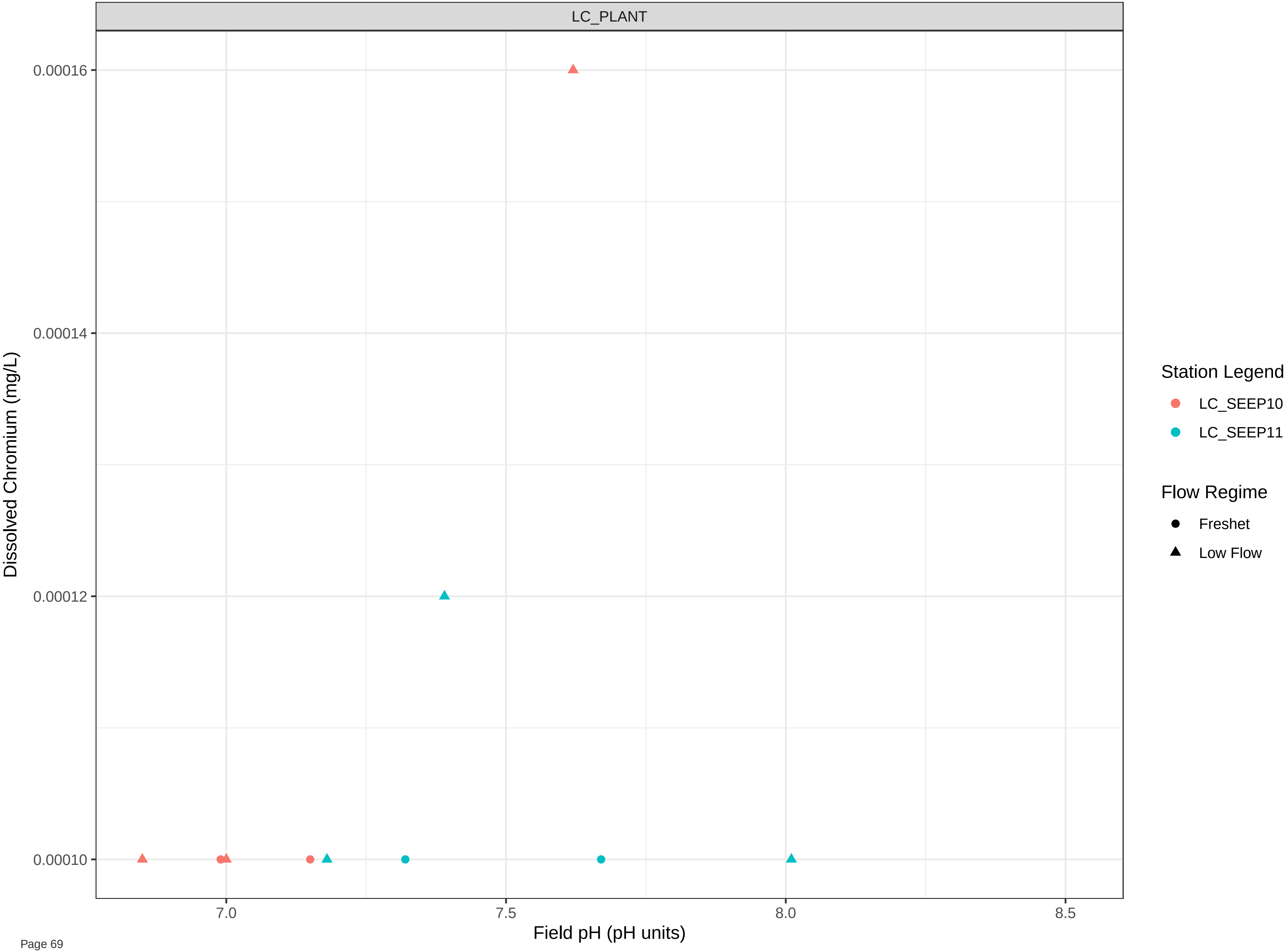

LC_DC_WR
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

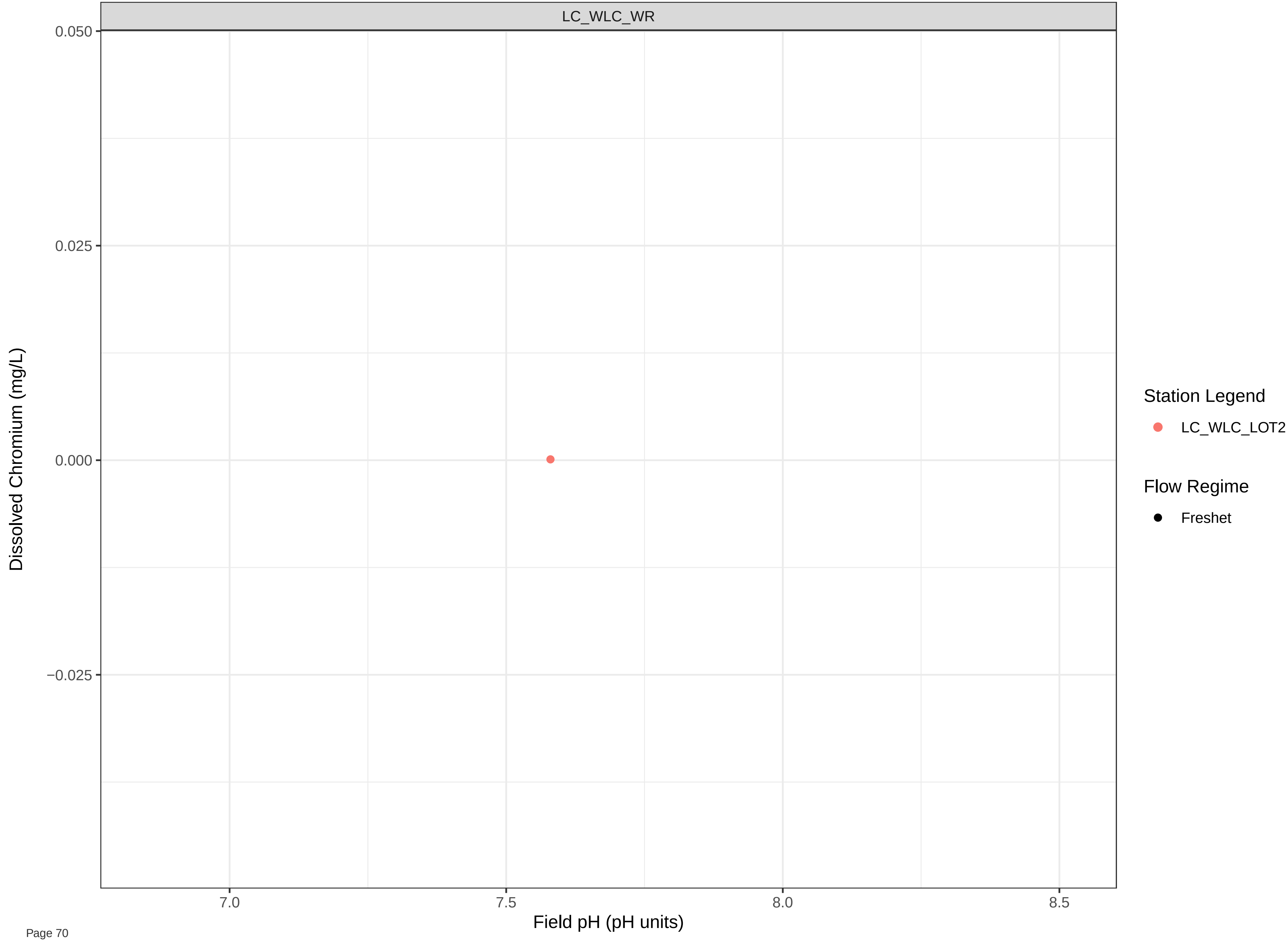

LC_DisturbedWSlope
Dissolved Chromium (mg/L)
3e−04
2e−04
1e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

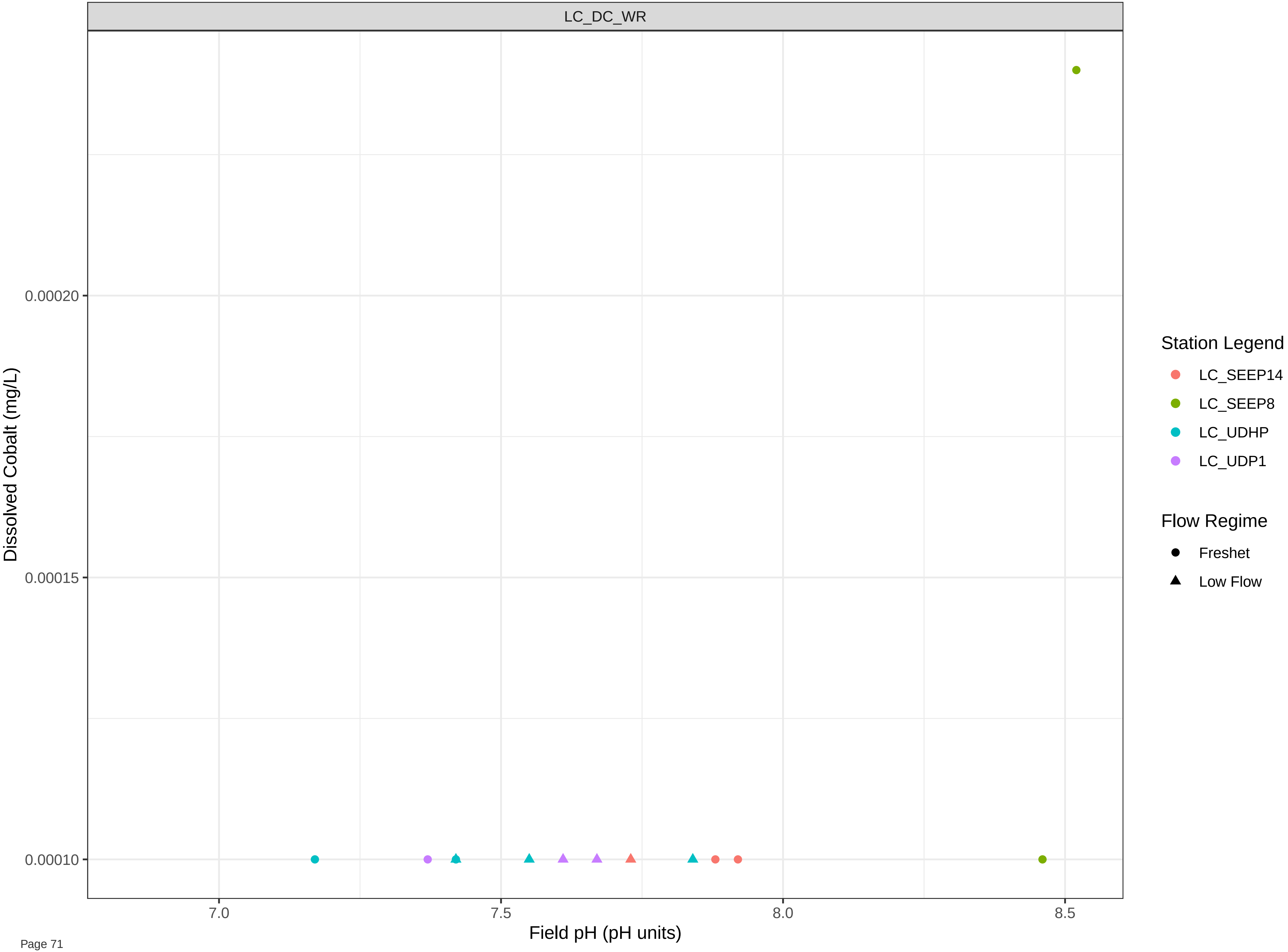

LC_HSP_WR
Dissolved Chromium (mg/L)
0.000200
0.000175
0.000150
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

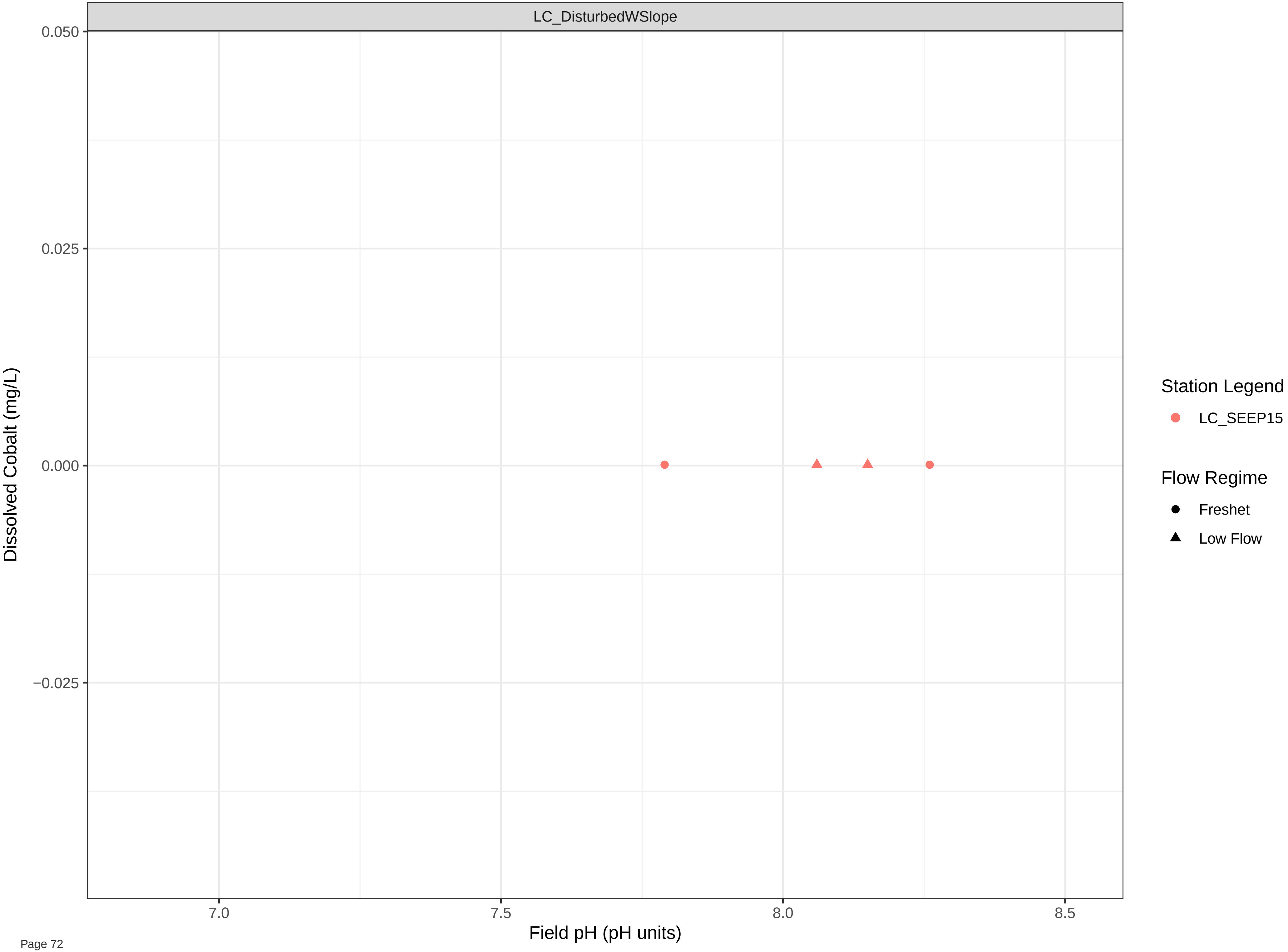

LC_MAXAM
Dissolved Chromium (mg/L)
0.00032
0.00030
0.00028
0.00026
0.00024
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

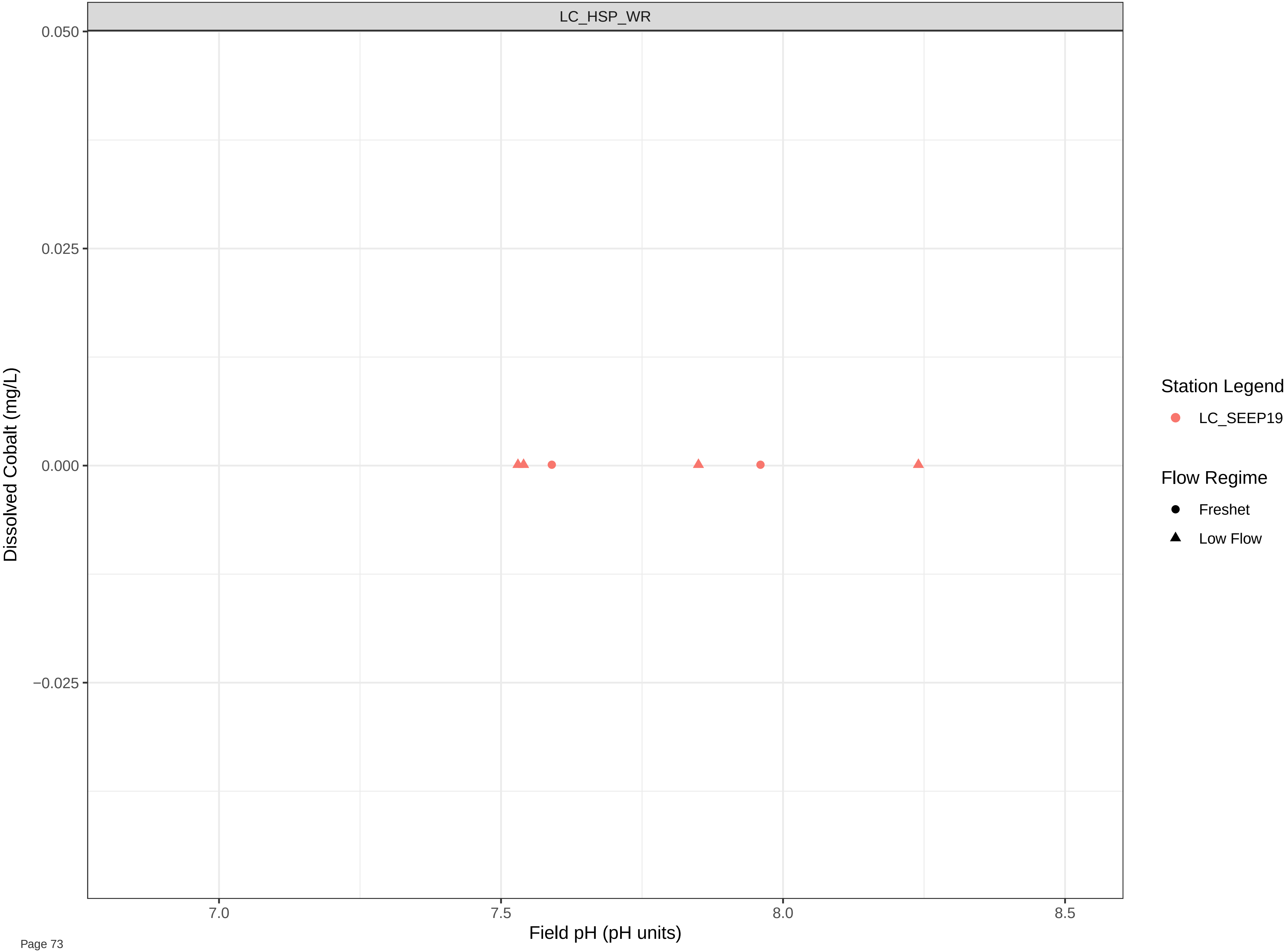

LC_MSA_WR
Dissolved Chromium (mg/L)
0.00025
0.00020
0.00015
0.00010
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

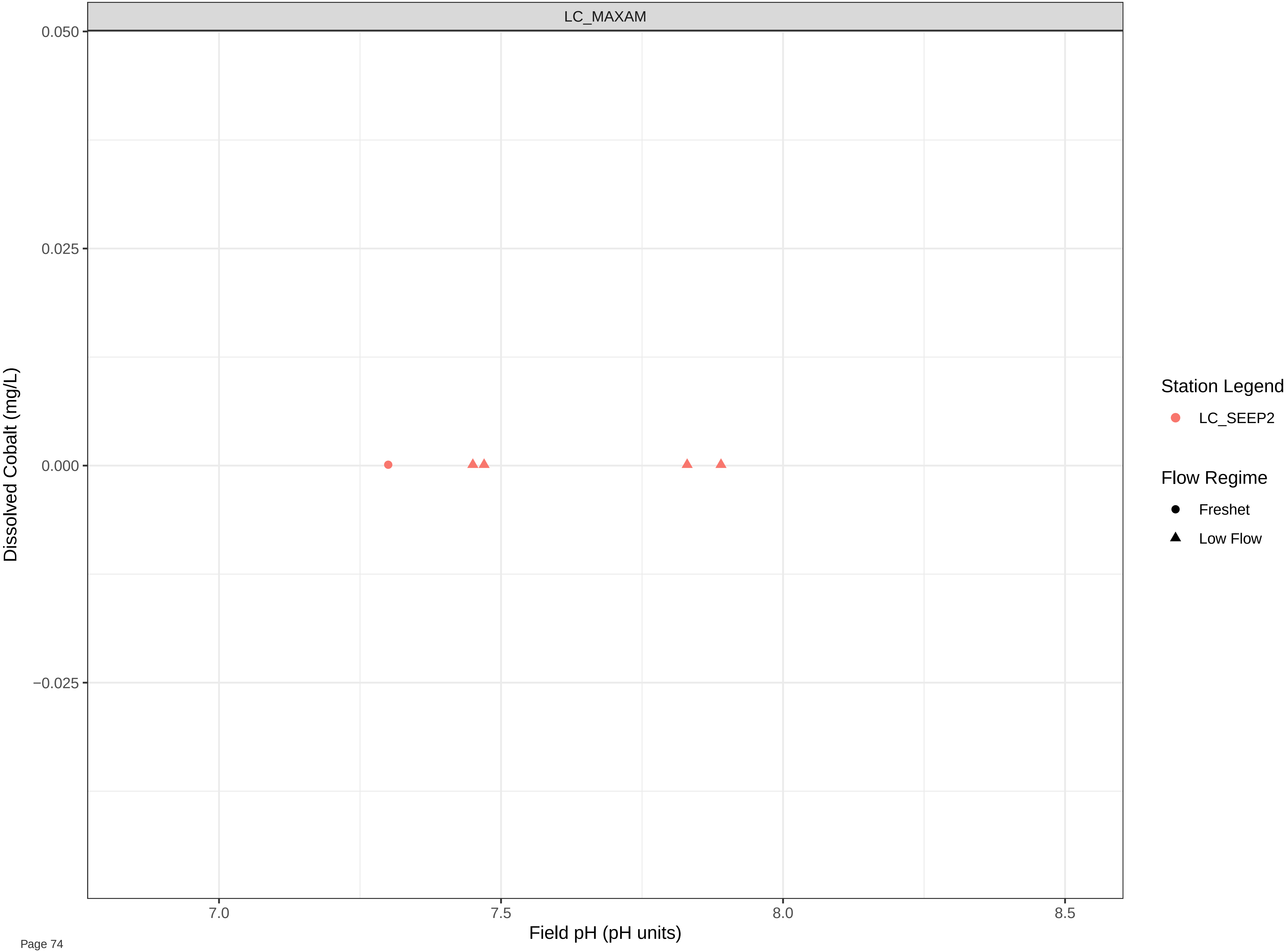

LC_PLANT
Dissolved Chromium (mg/L)
0.00016
0.00014
0.00012
0.00010
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow


LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Chromium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

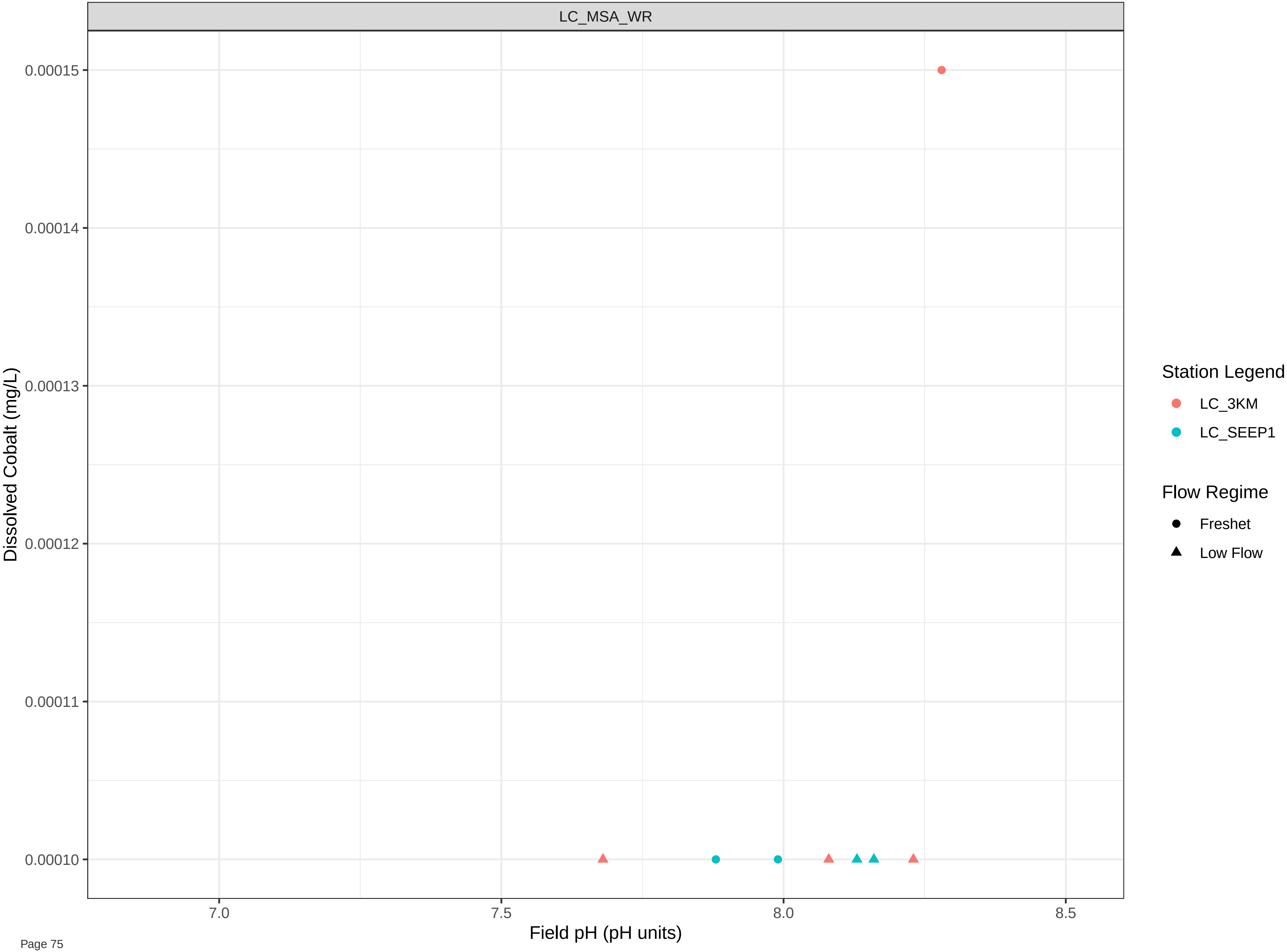

LC_DC_WR
Dissolved Cobalt (mg/L)
0.00020
0.00015
0.00010
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

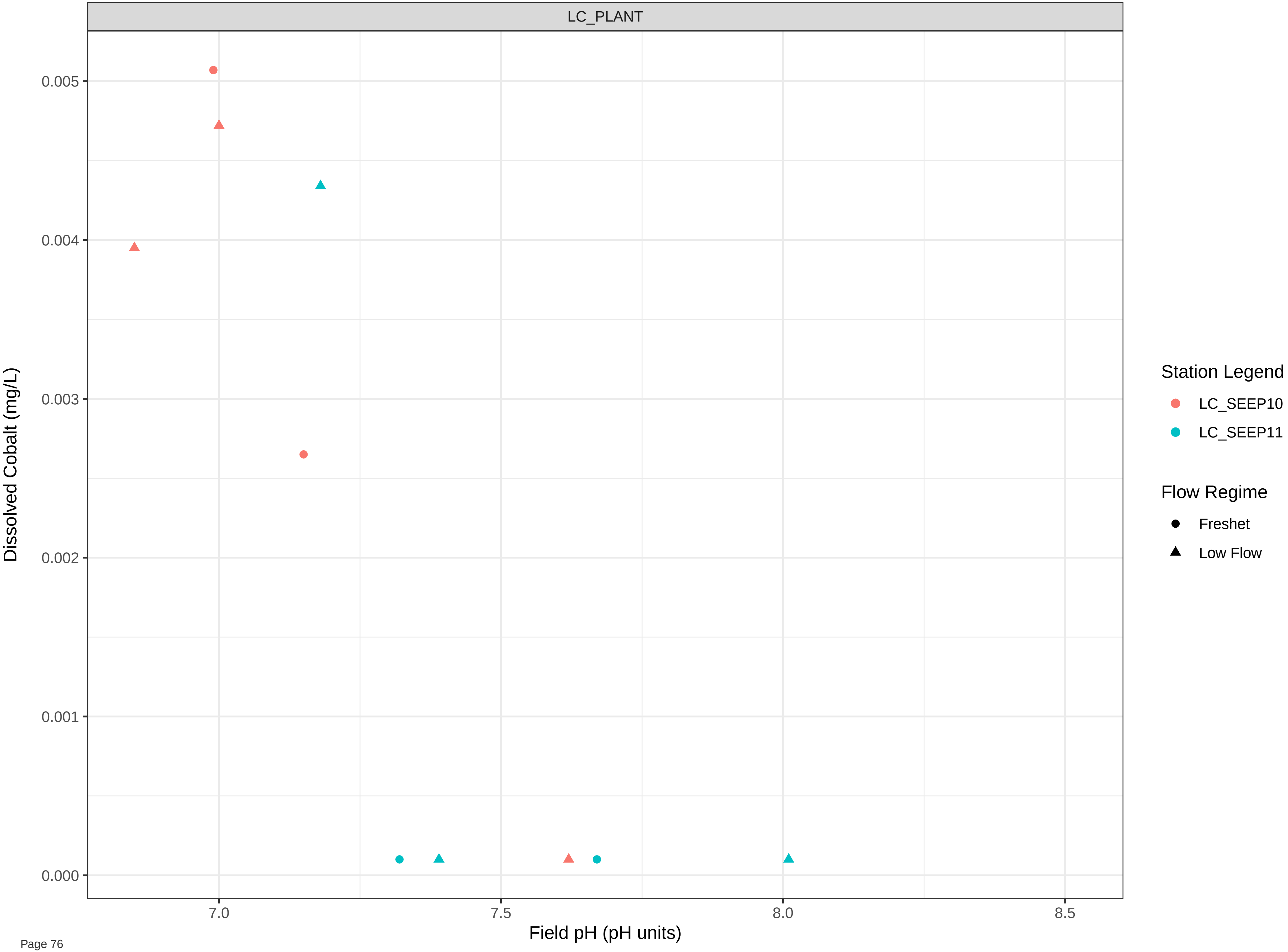

LC_DisturbedWSlope
0.050
0.025
0.000
−0.025
Dissolved Cobalt (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

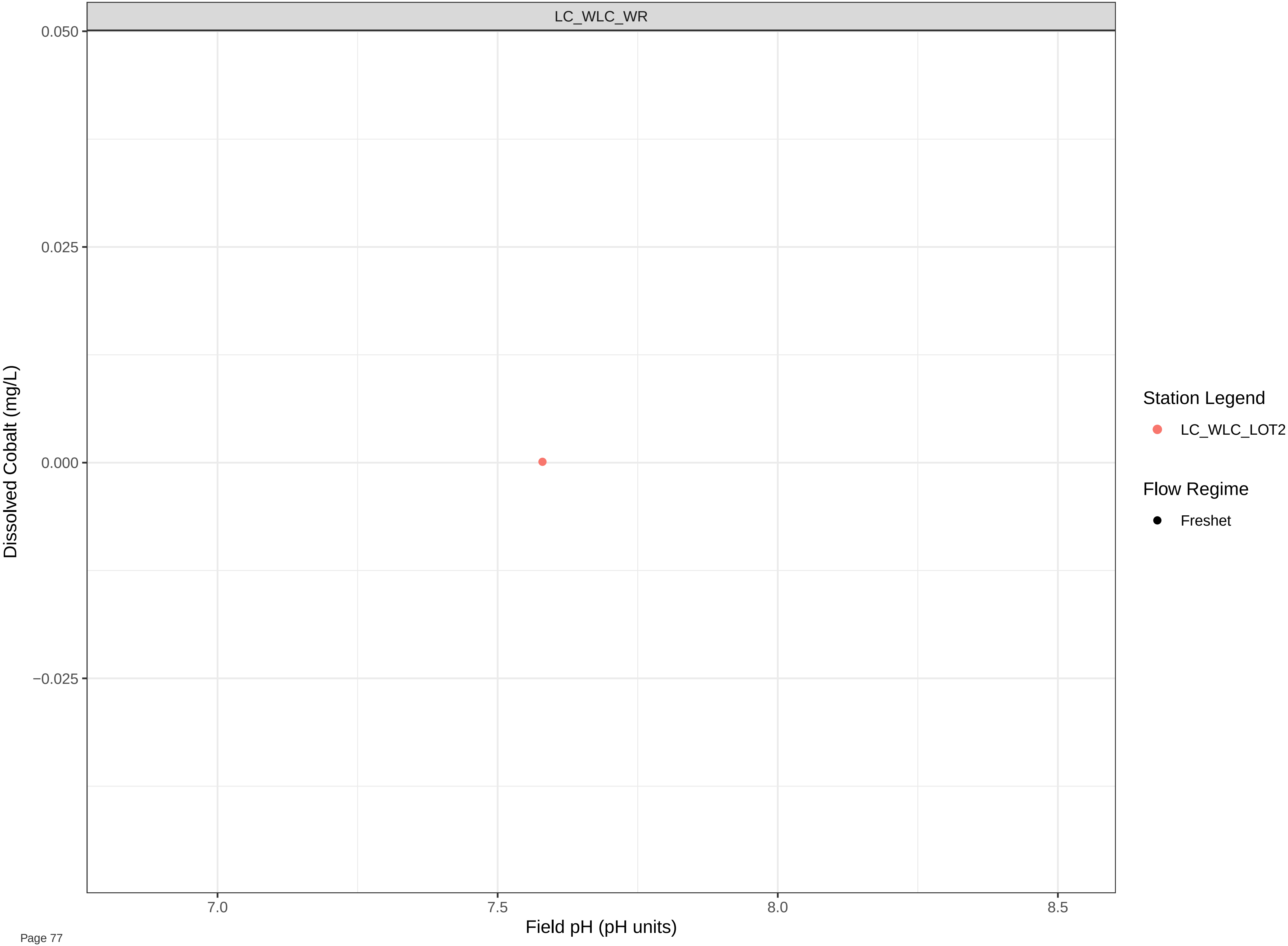

LC_HSP_WR
Dissolved Cobalt (mg/L)
0.050
0.025
0.000
−0.025
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow



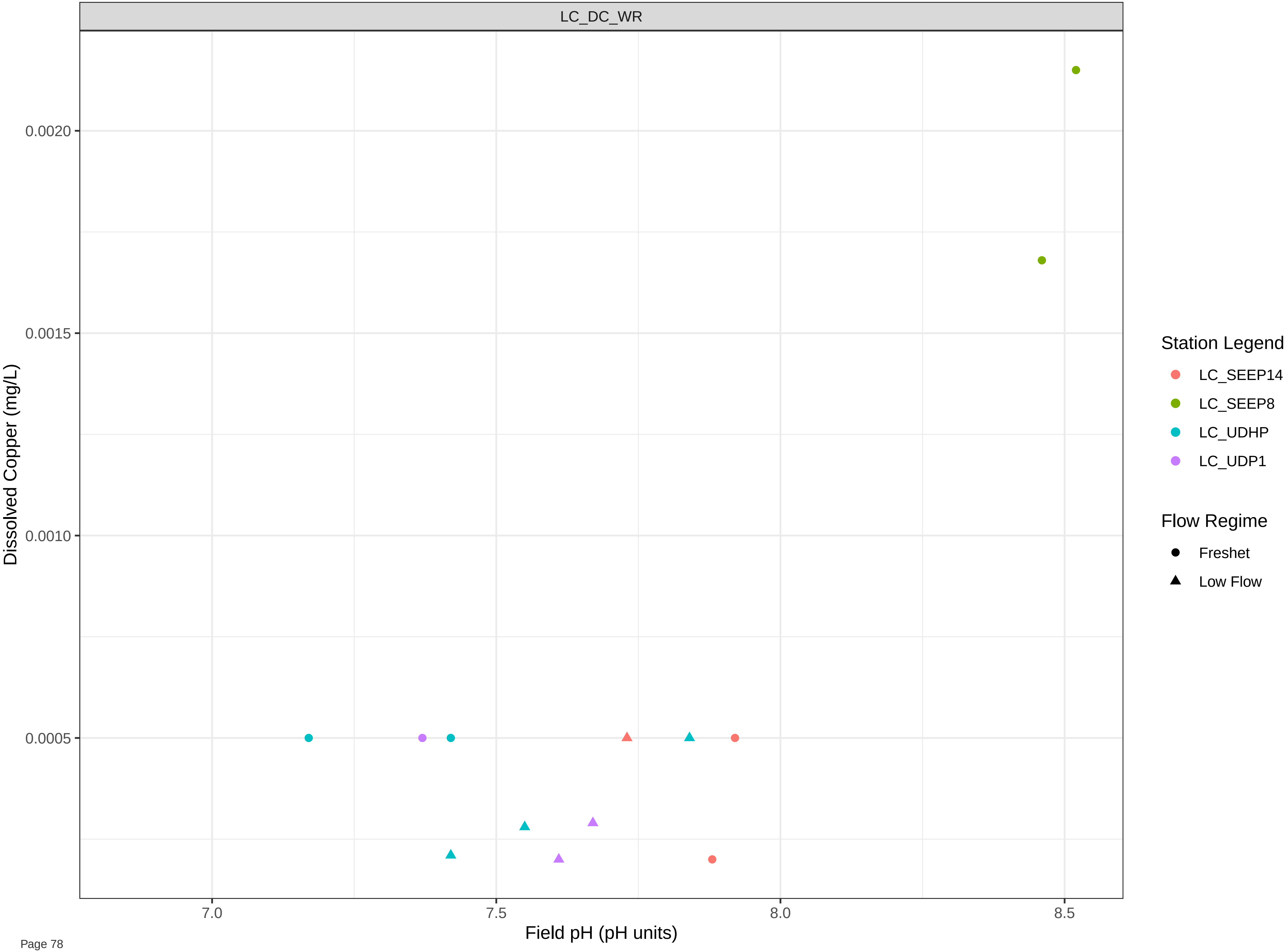
LC_MAXAM
0.050
0.025
0.000
−0.025
Dissolved Cobalt (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow

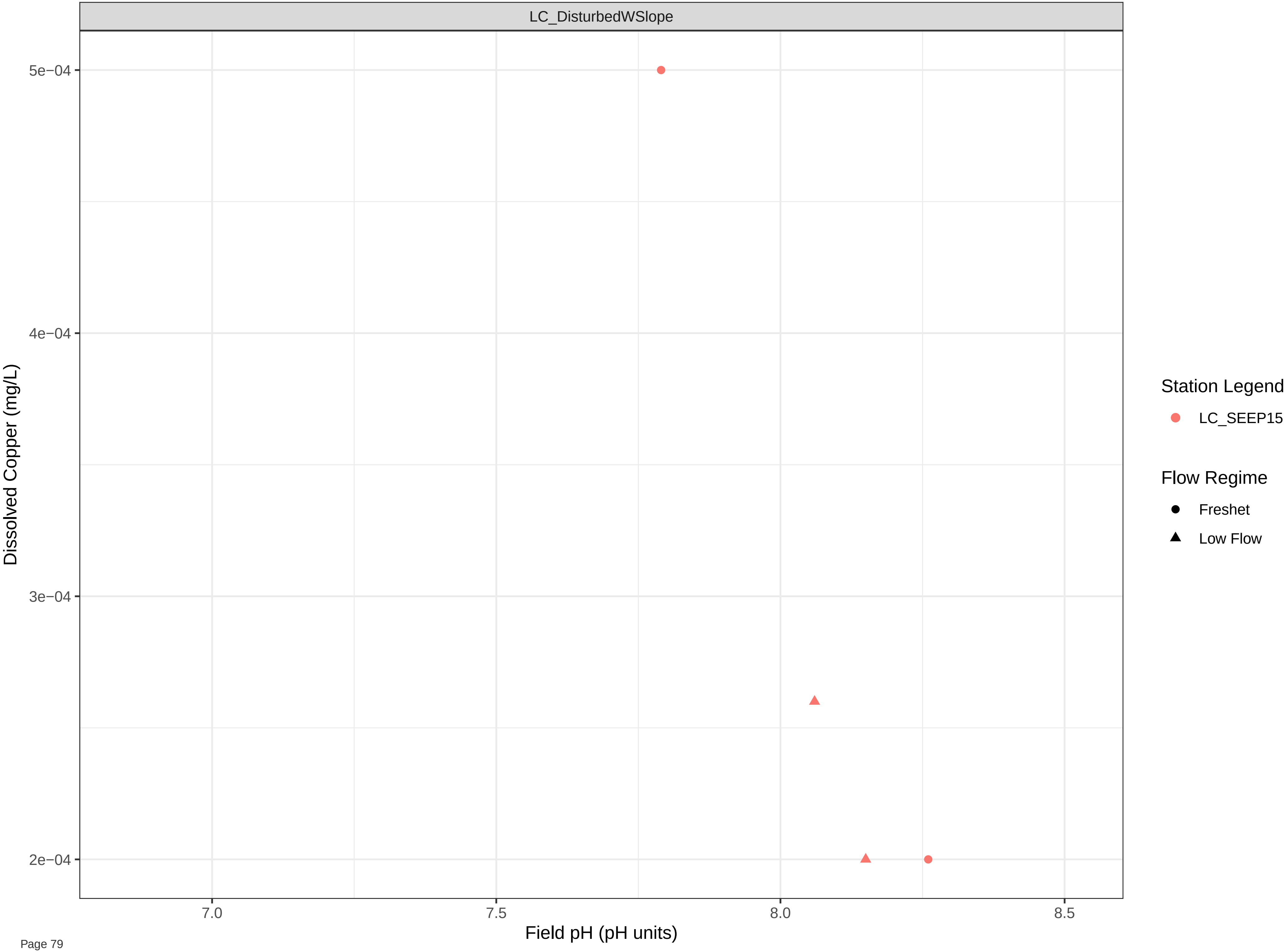

LC_MSA_WR
Dissolved Cobalt (mg/L)
0.00015
0.00014
0.00013
0.00012
0.00011
0.00010
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

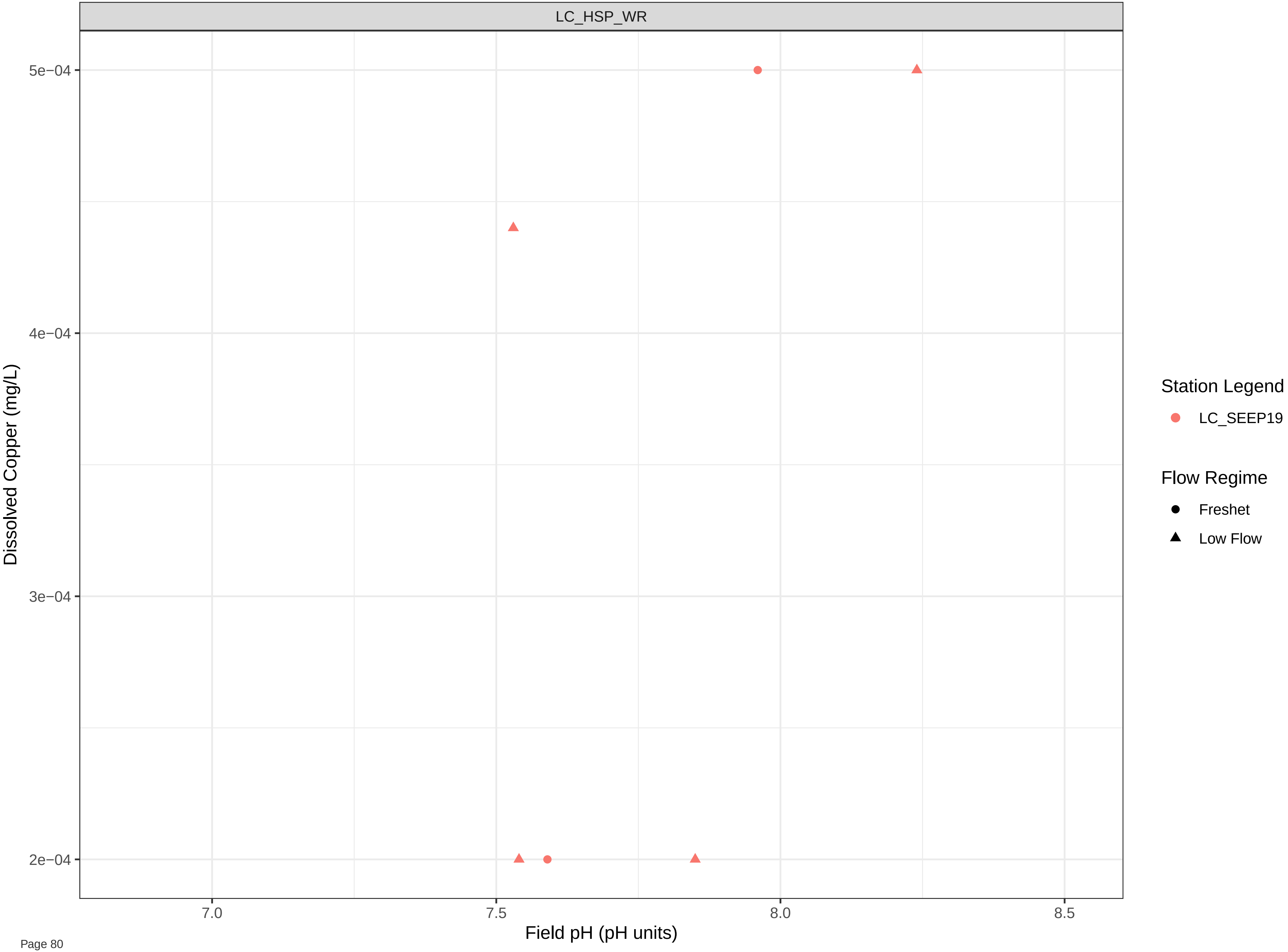

LC_PLANT
Dissolved Cobalt (mg/L)
0.005
0.004
0.003
0.002
0.001
0.000
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

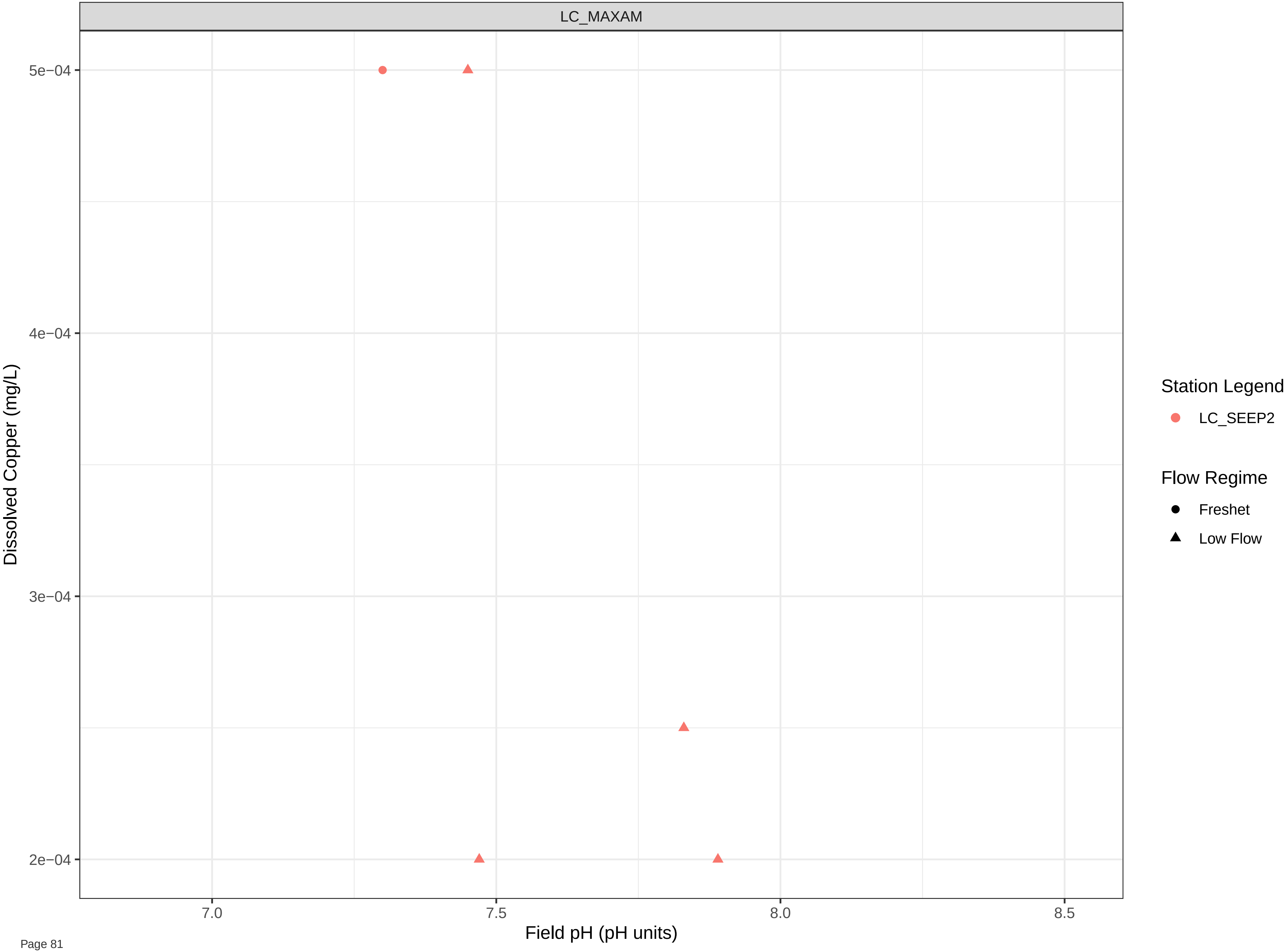


LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Cobalt (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

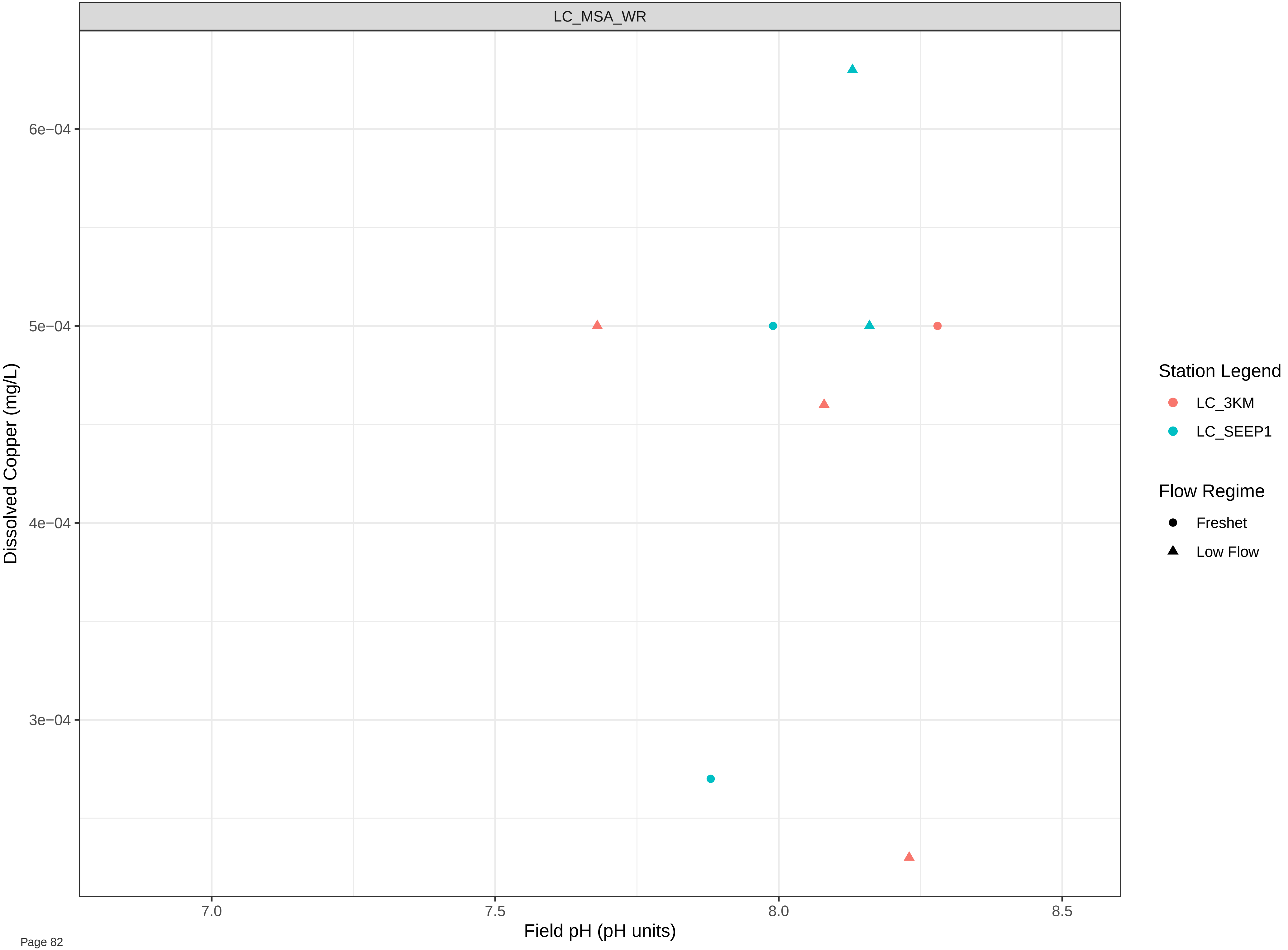

LC_DC_WR
Dissolved Copper (mg/L)
0.0020
0.0015
0.0010
0.0005
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

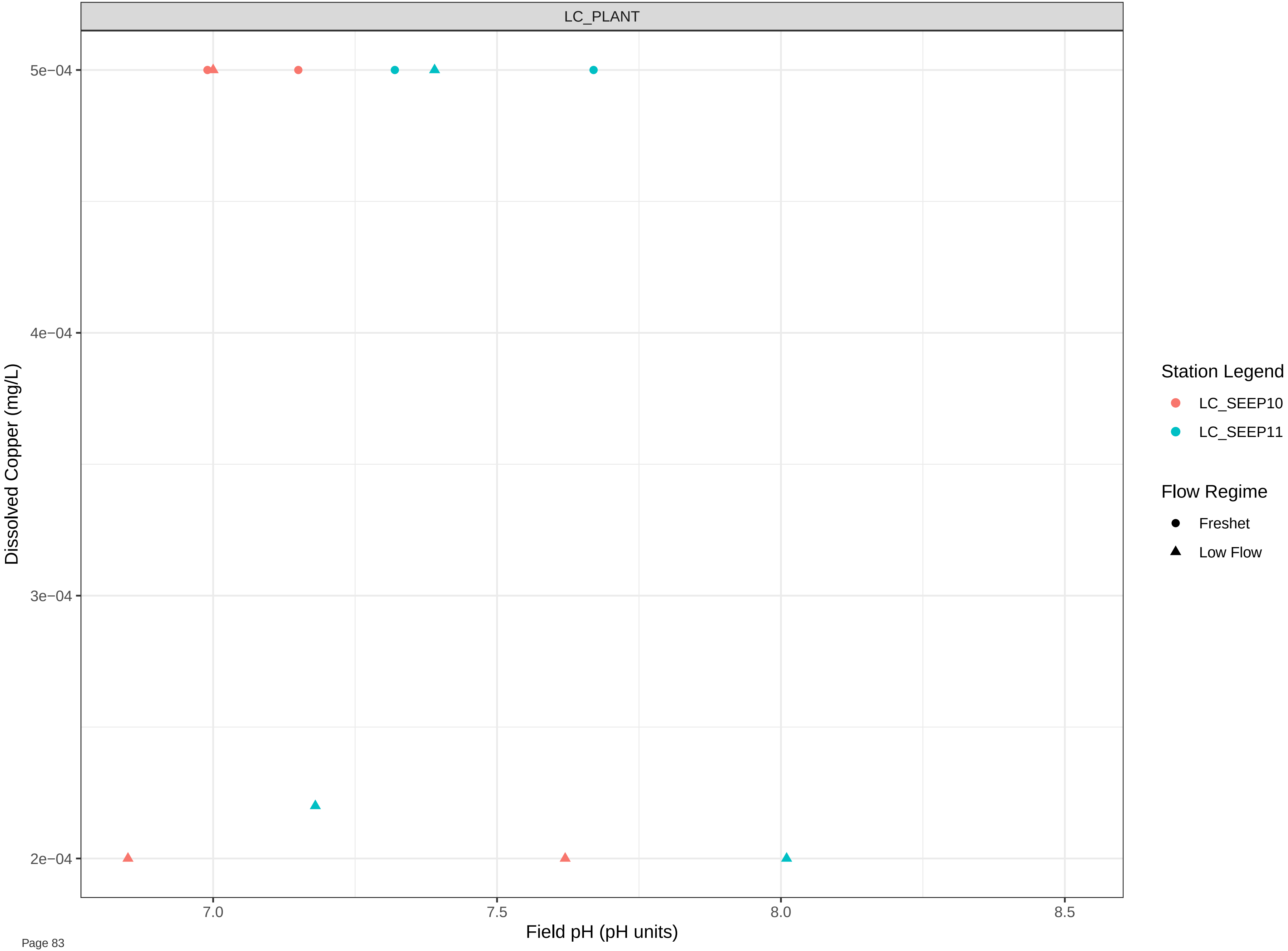

LC_DisturbedWSlope
Dissolved Copper (mg/L)
5e−04
4e−04
3e−04
2e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

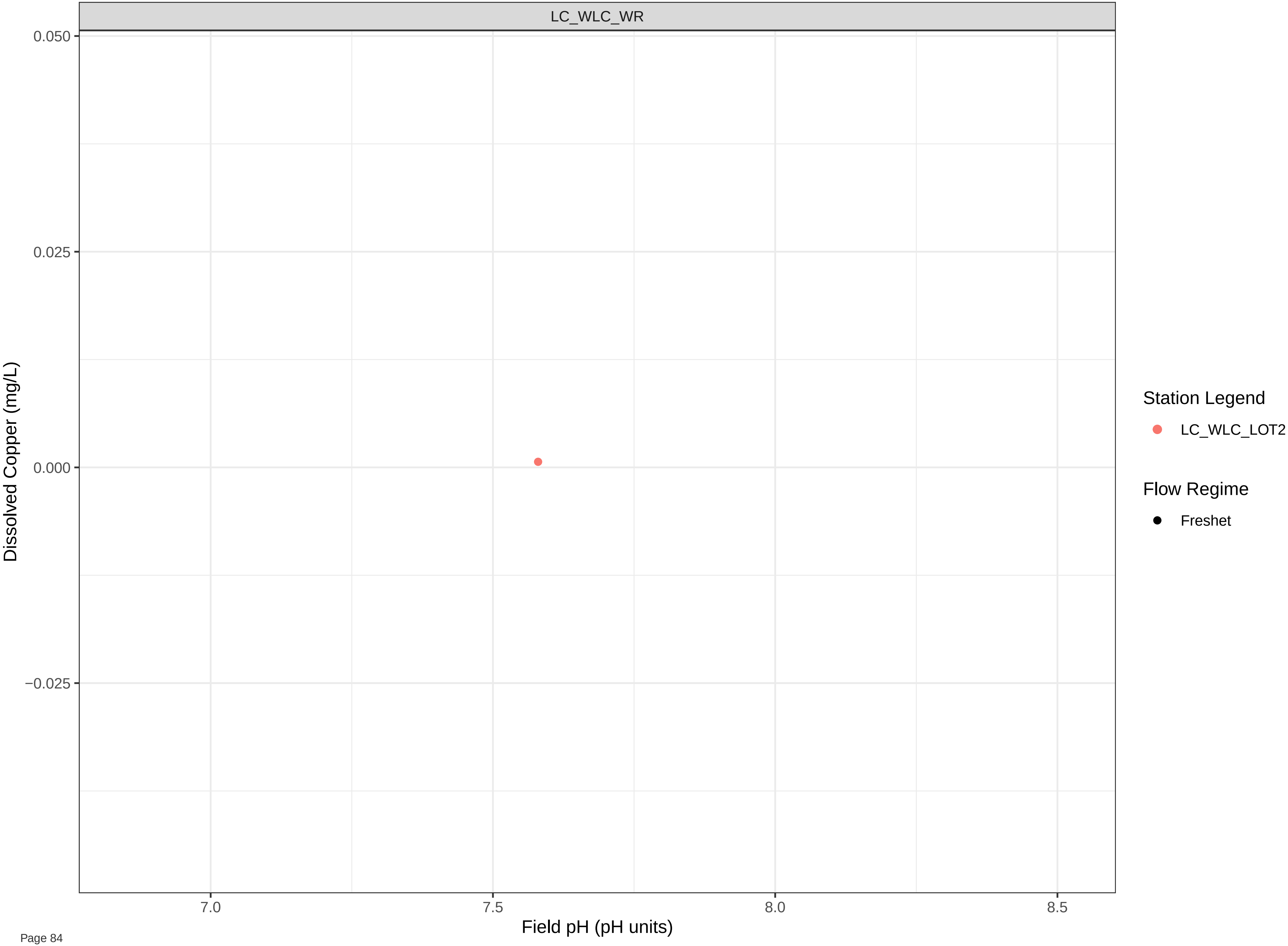

LC_HSP_WR
Dissolved Copper (mg/L)
5e−04
4e−04
3e−04
2e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

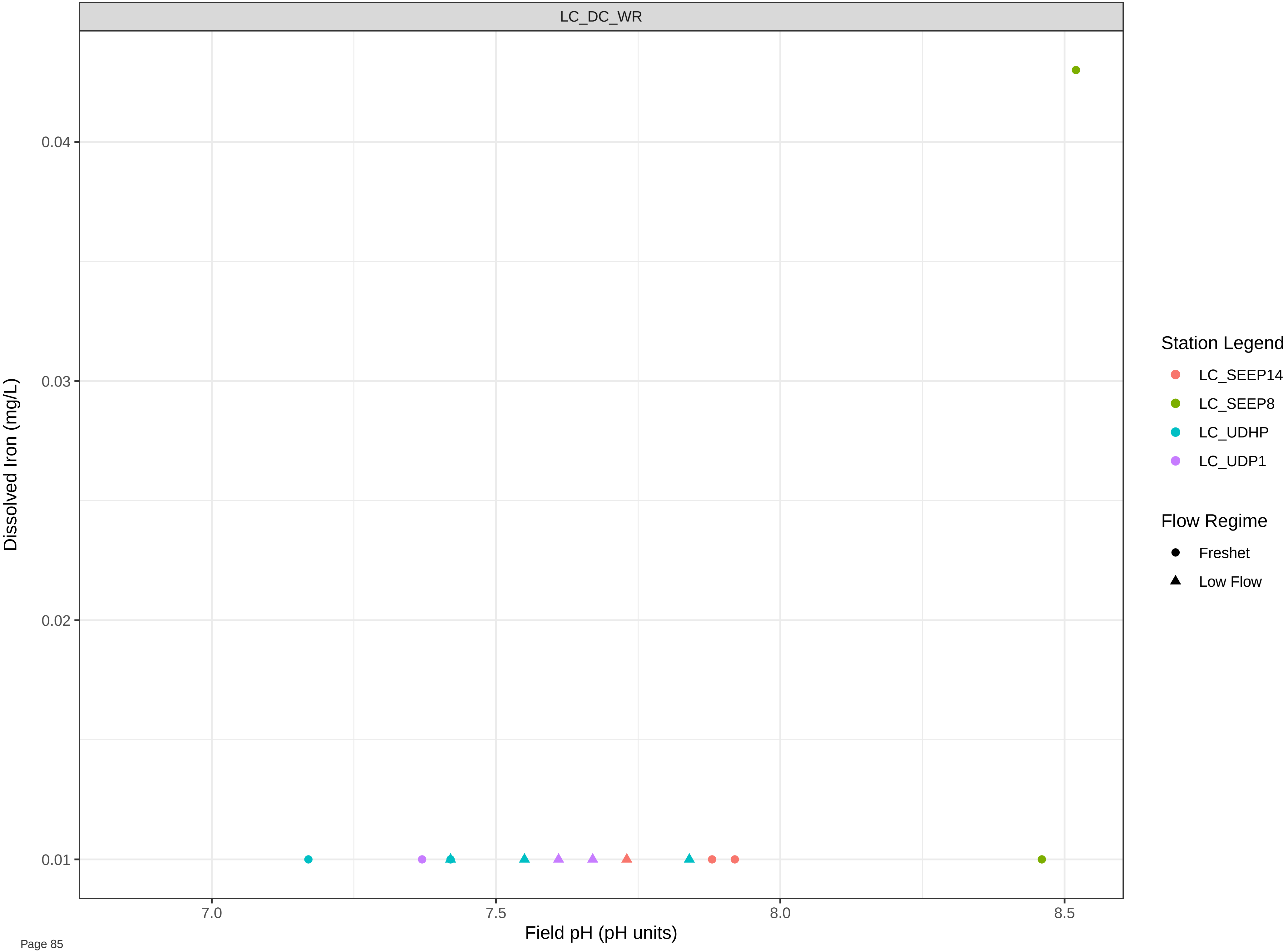


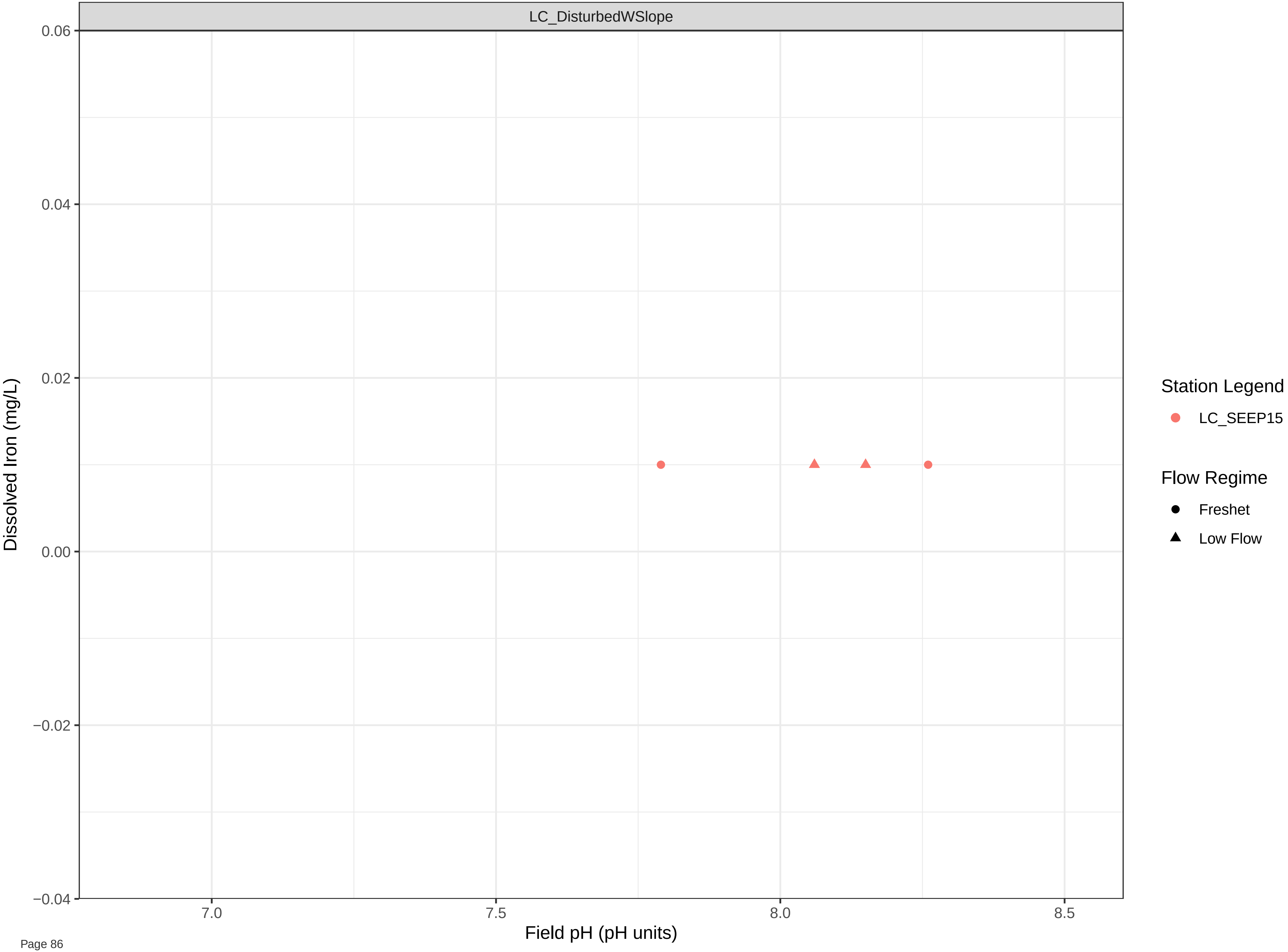
LC_MAXAM
Dissolved Copper (mg/L)
5e−04
4e−04
3e−04
2e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow

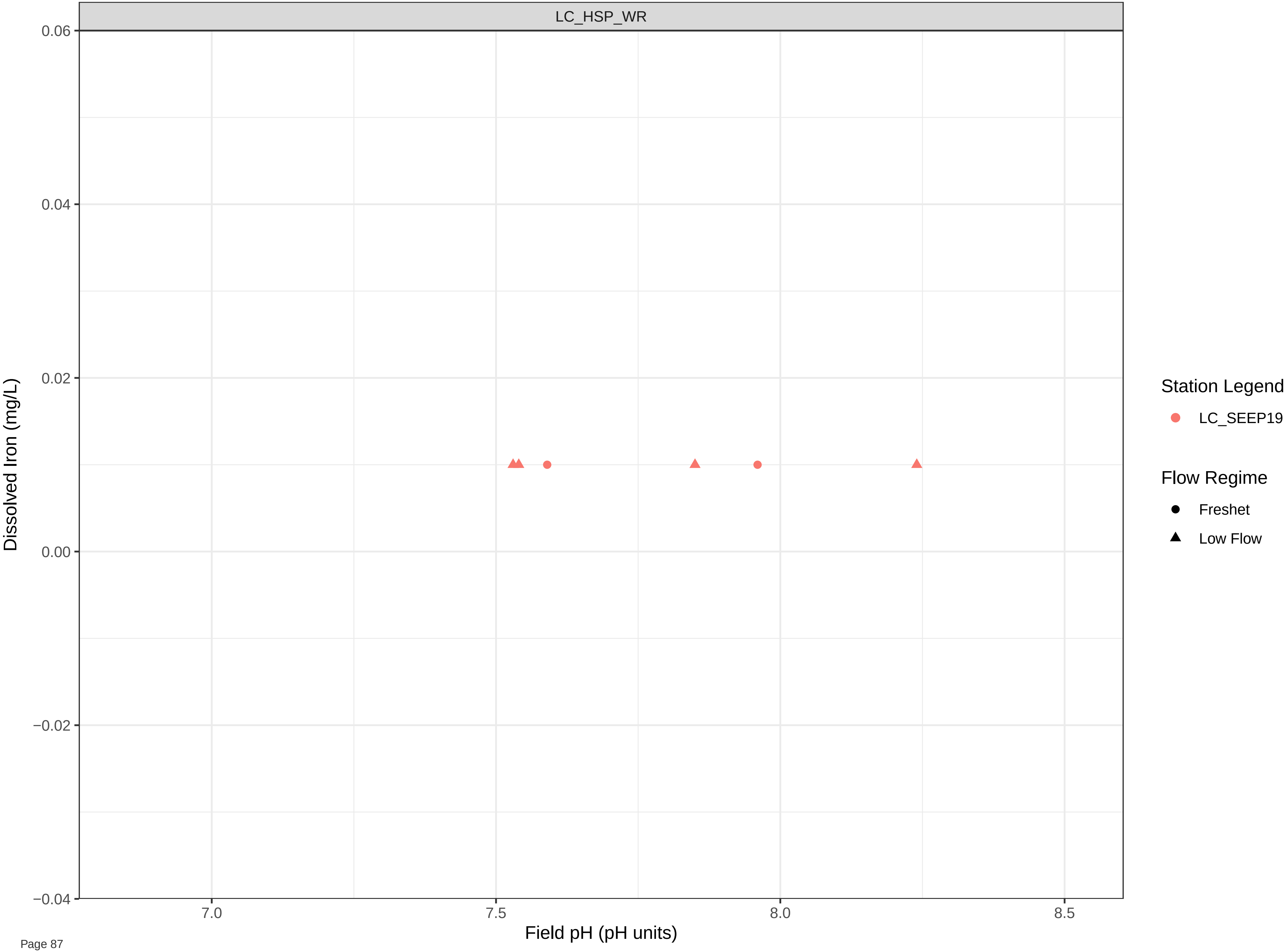

LC_MSA_WR
6e−04
5e−04
4e−04
3e−04
Dissolved Copper (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

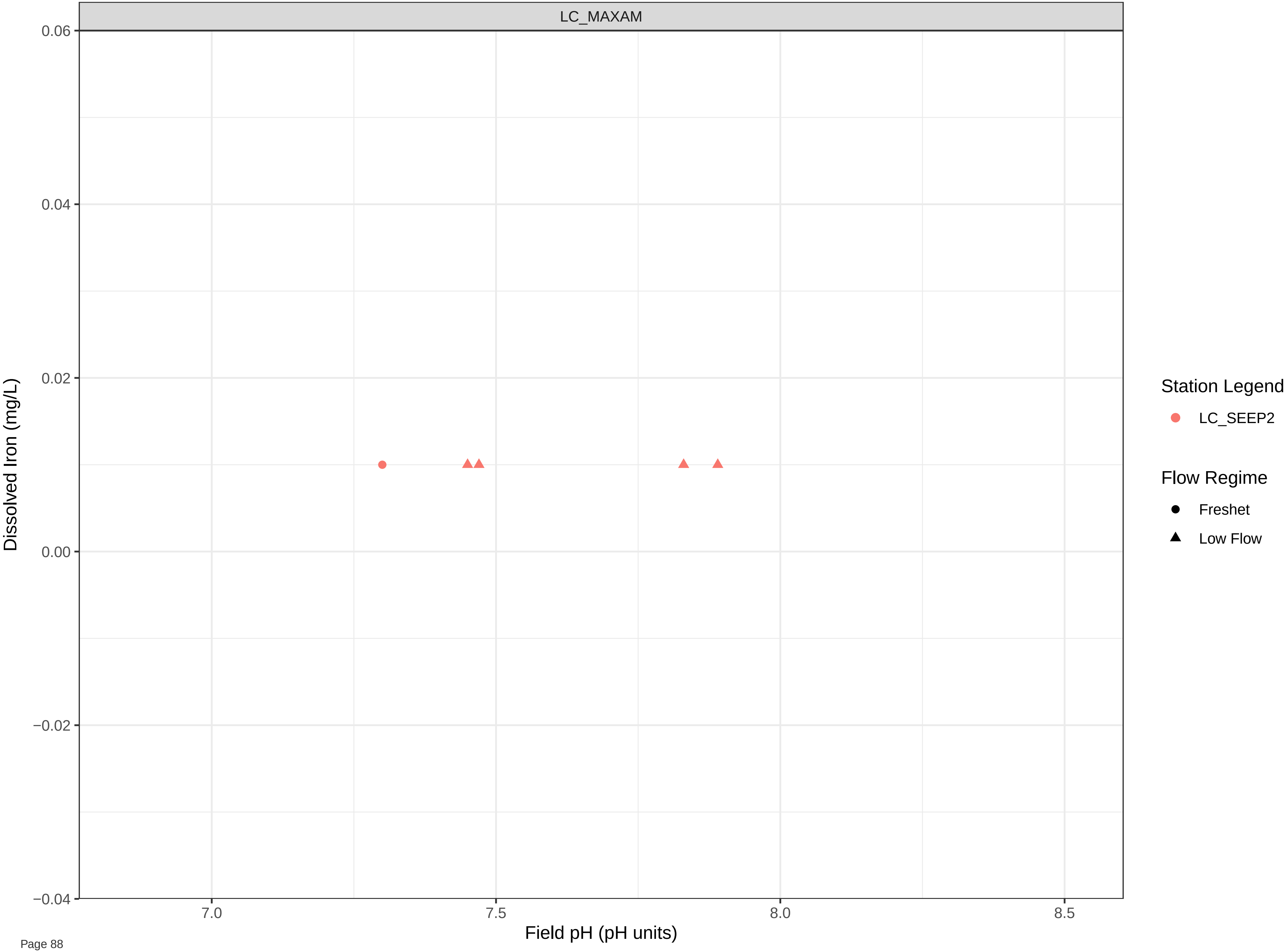

LC_PLANT
Dissolved Copper (mg/L)
5e−04
4e−04
3e−04
2e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

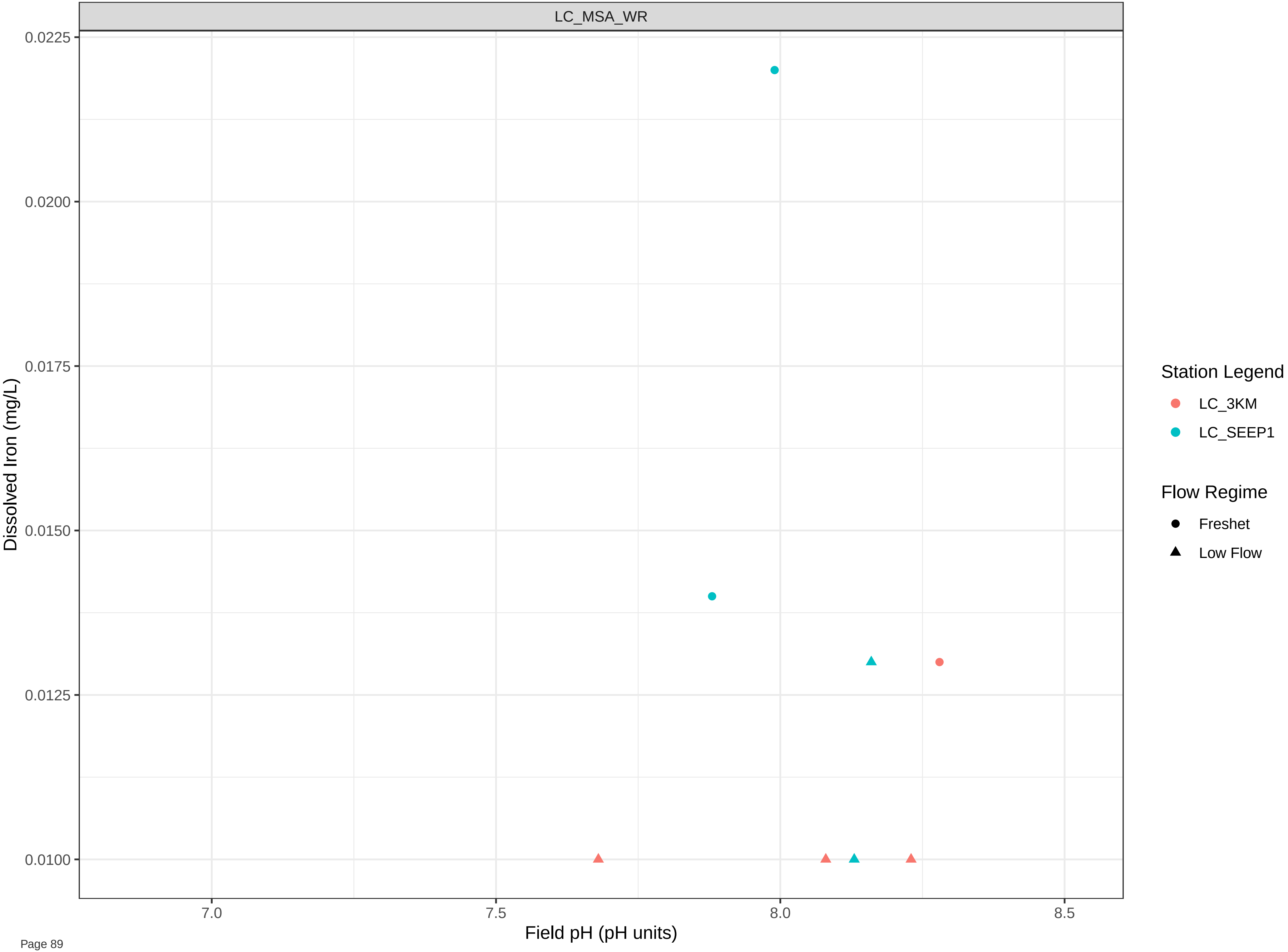

LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Copper (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

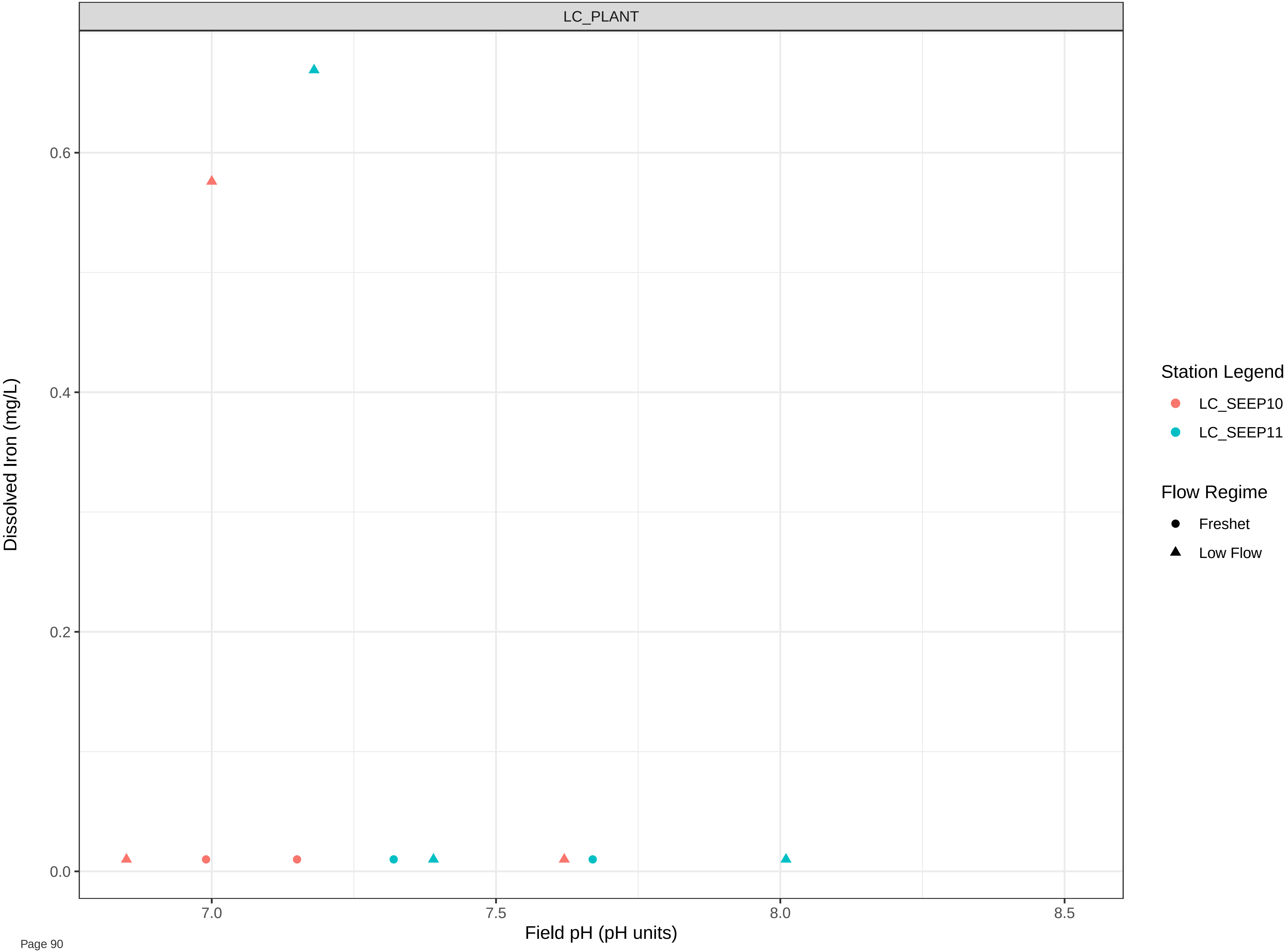

LC_DC_WR
Dissolved Iron (mg/L)
0.04
0.03
0.02
0.01
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

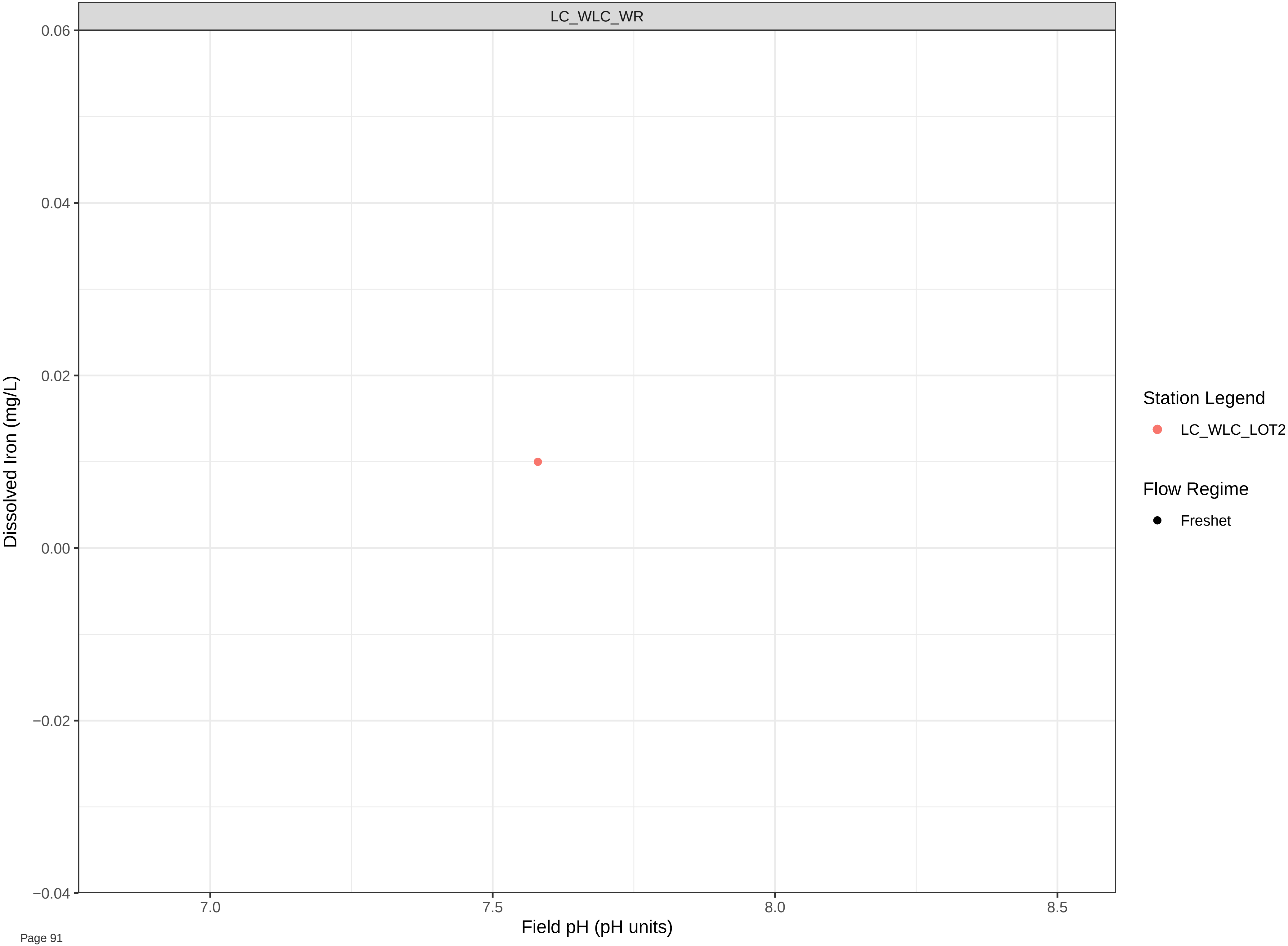

LC_DisturbedWSlope
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Iron (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow

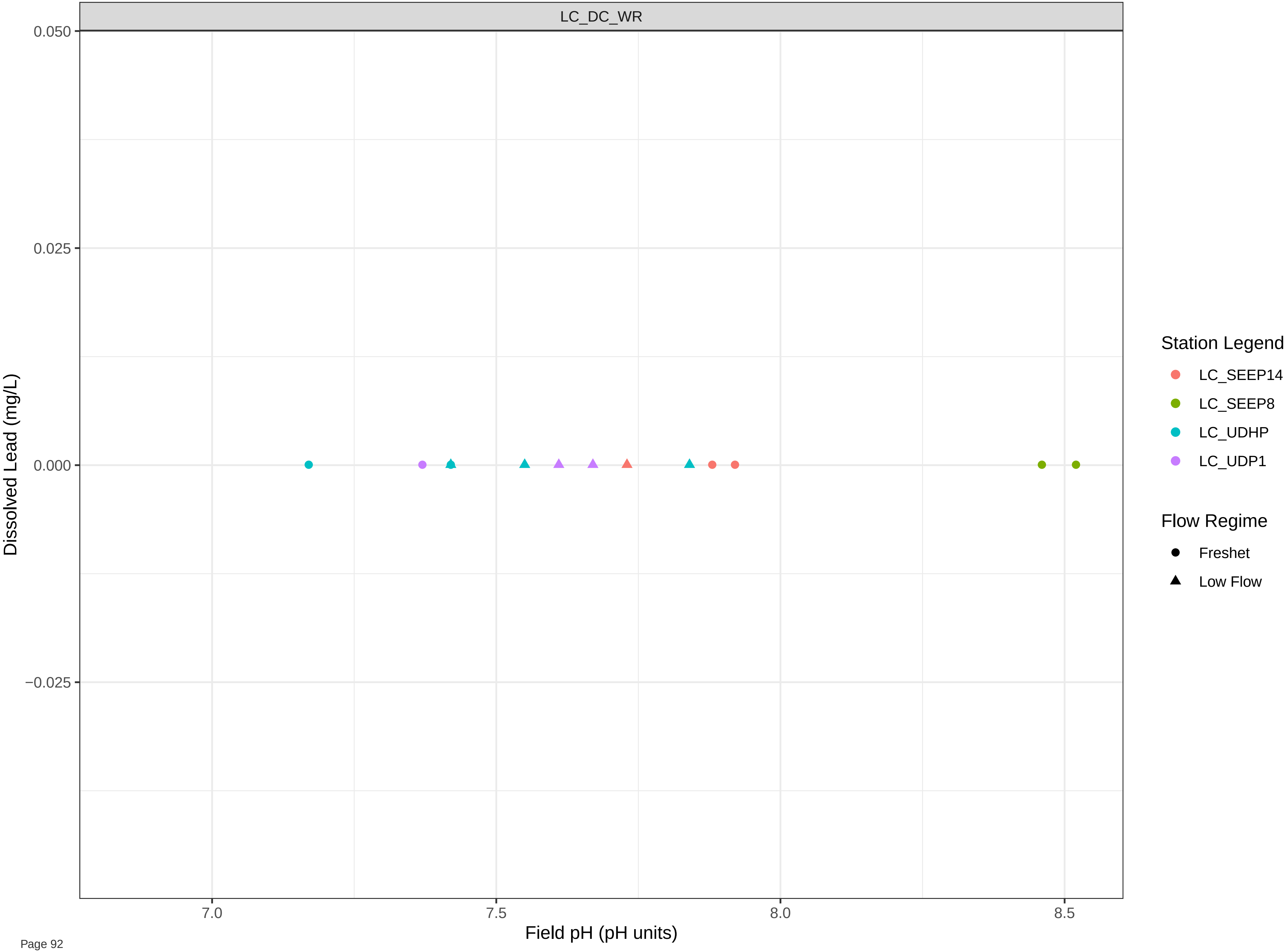

LC_HSP_WR
Dissolved Iron (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

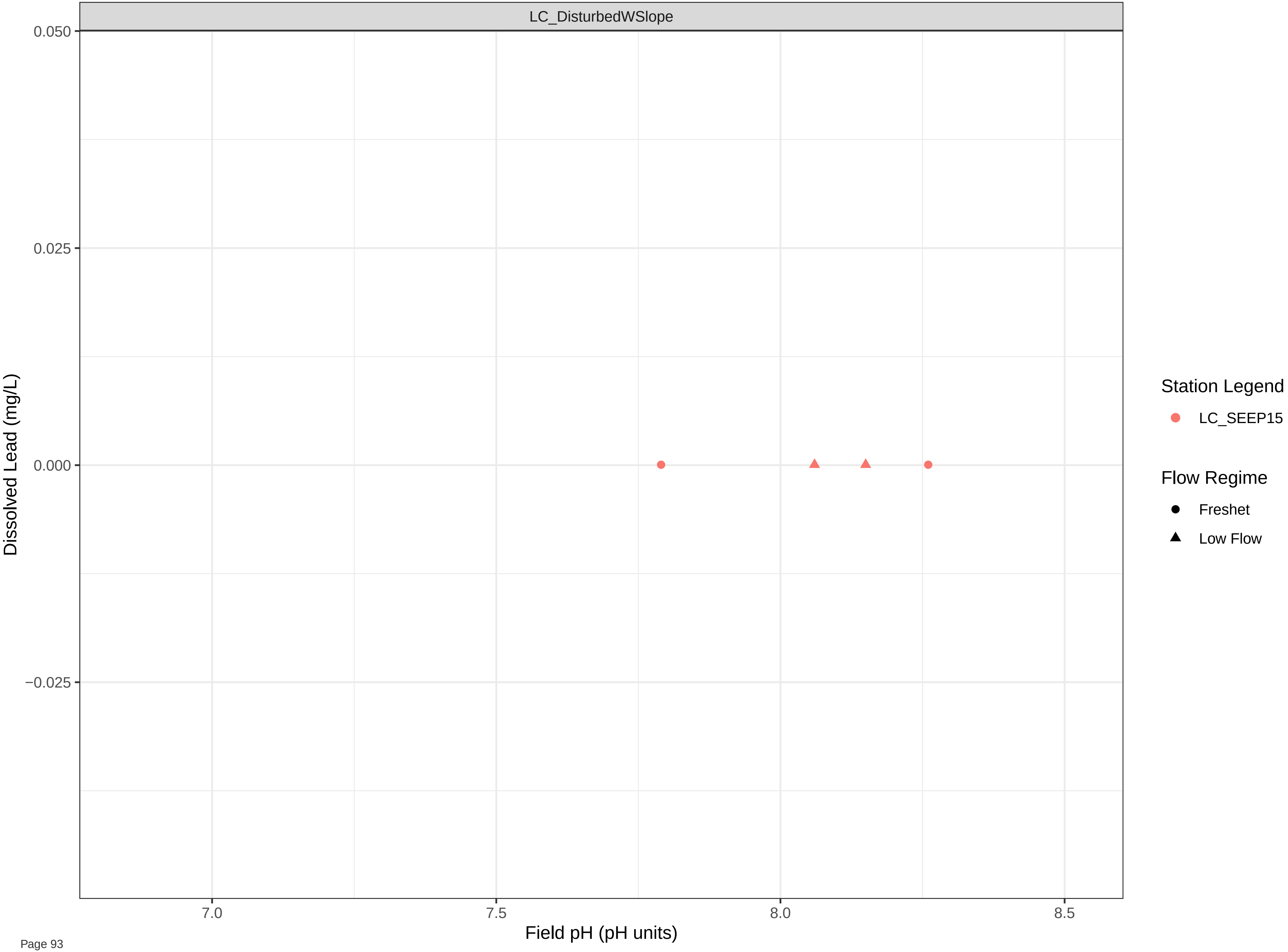

LC_MAXAM
Dissolved Iron (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

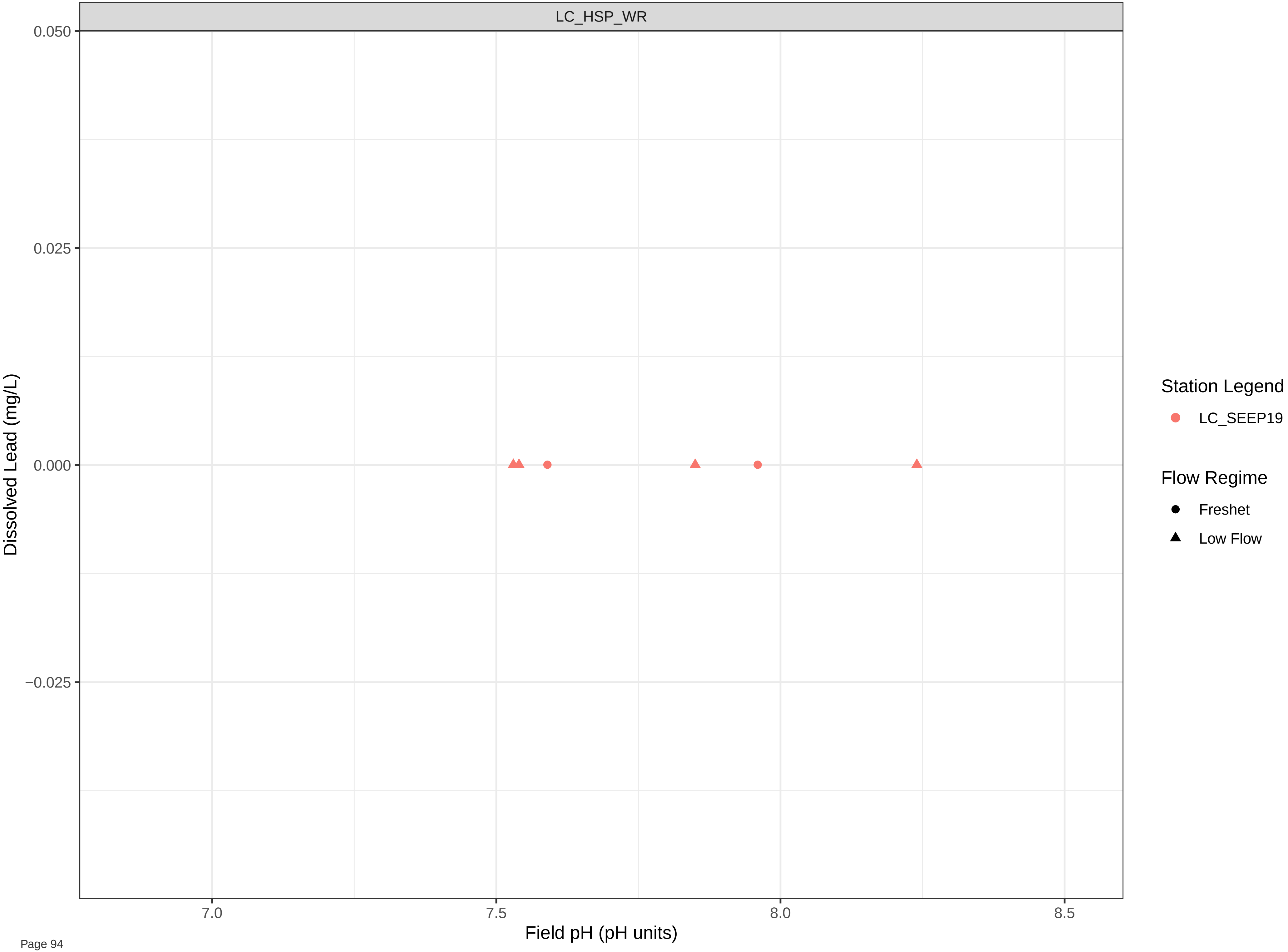

LC_MSA_WR
0.0225
0.0200
0.0175
0.0150
0.0125
0.0100
Dissolved Iron (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow


LC_PLANT
Dissolved Iron (mg/L)
0.6
0.4
0.2
0.0
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

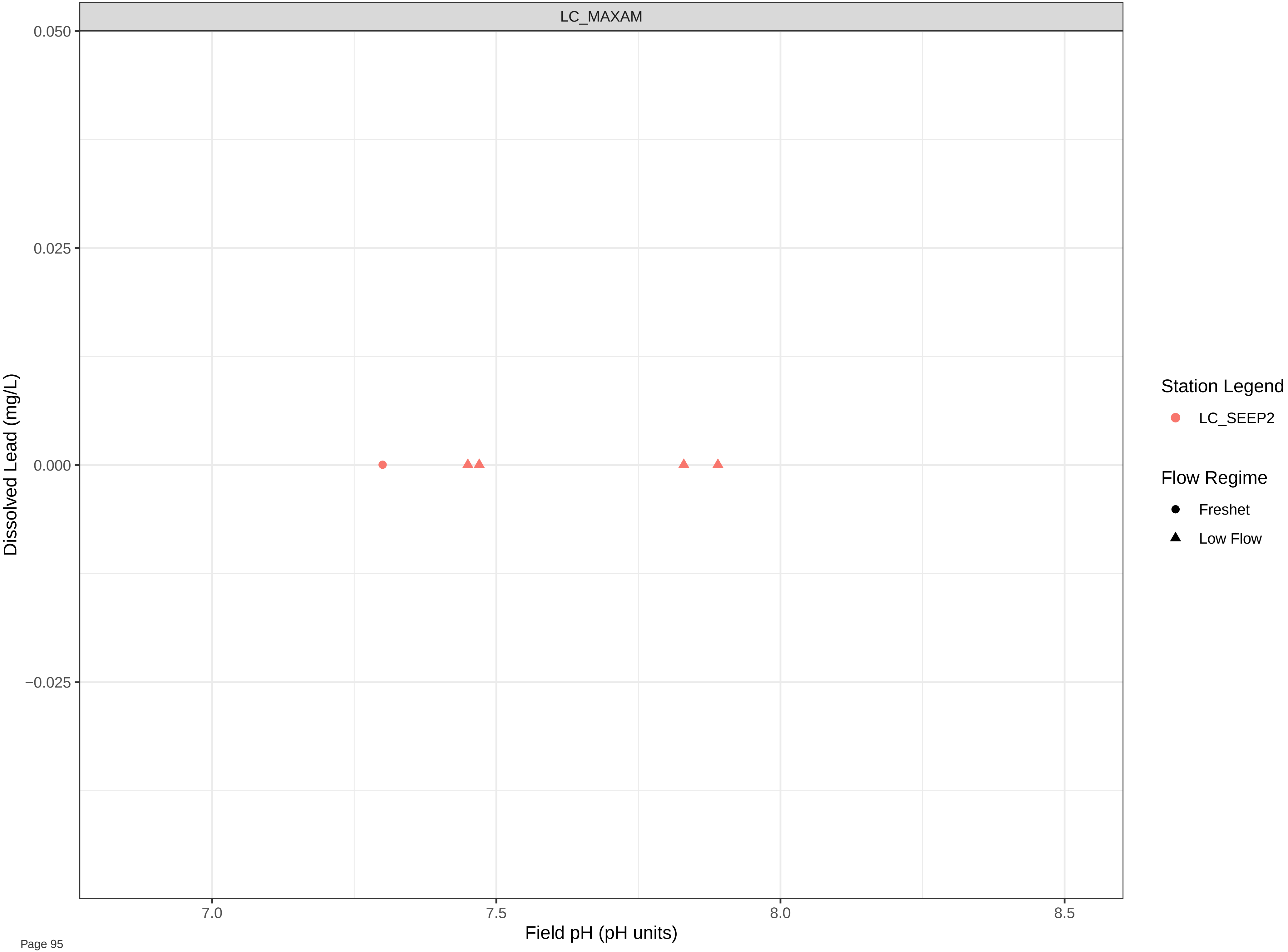

LC_WLC_WR
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Iron (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet

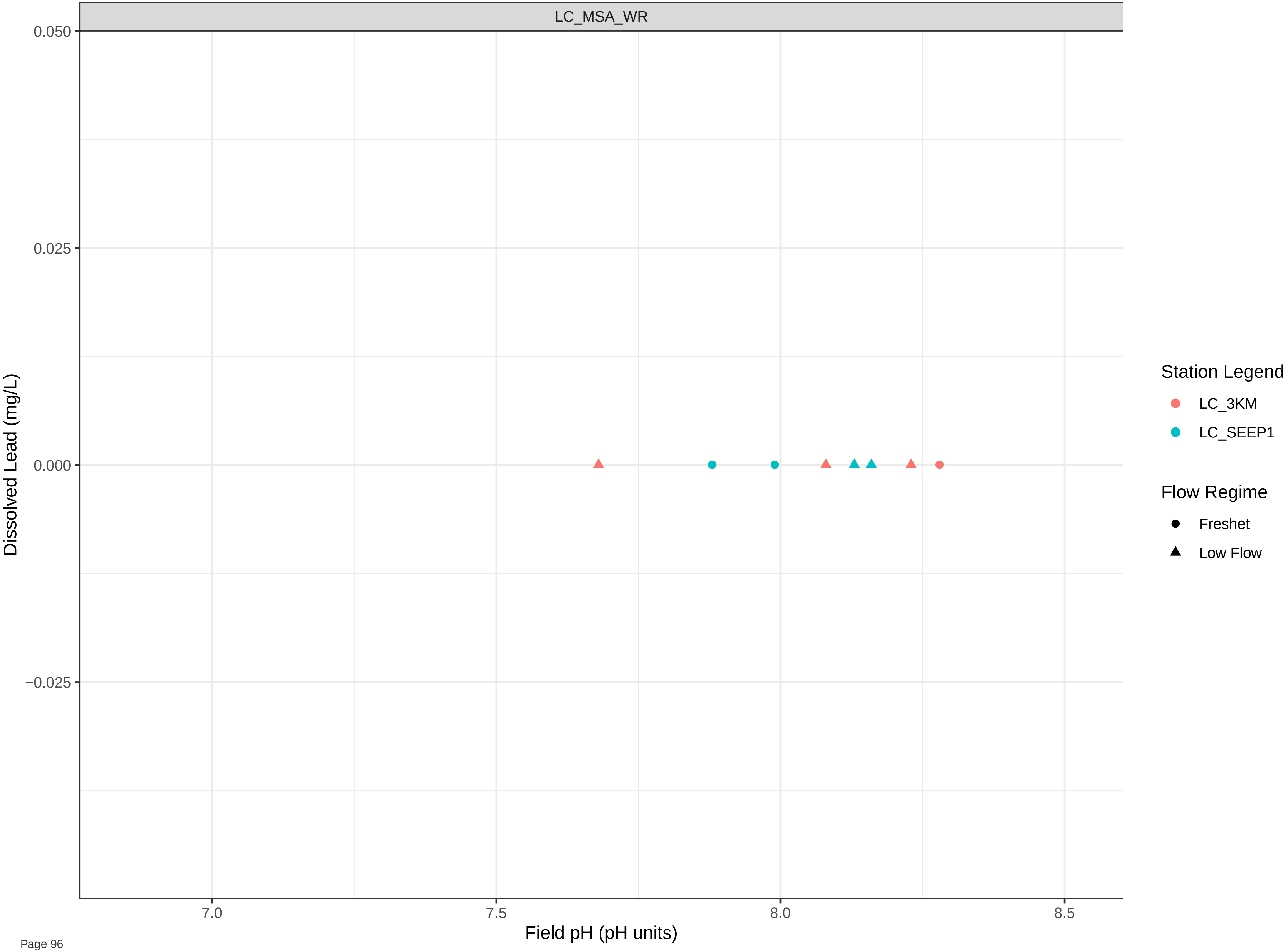

LC_DC_WR
Dissolved Lead (mg/L)
0.050
0.025
0.000
−0.025
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

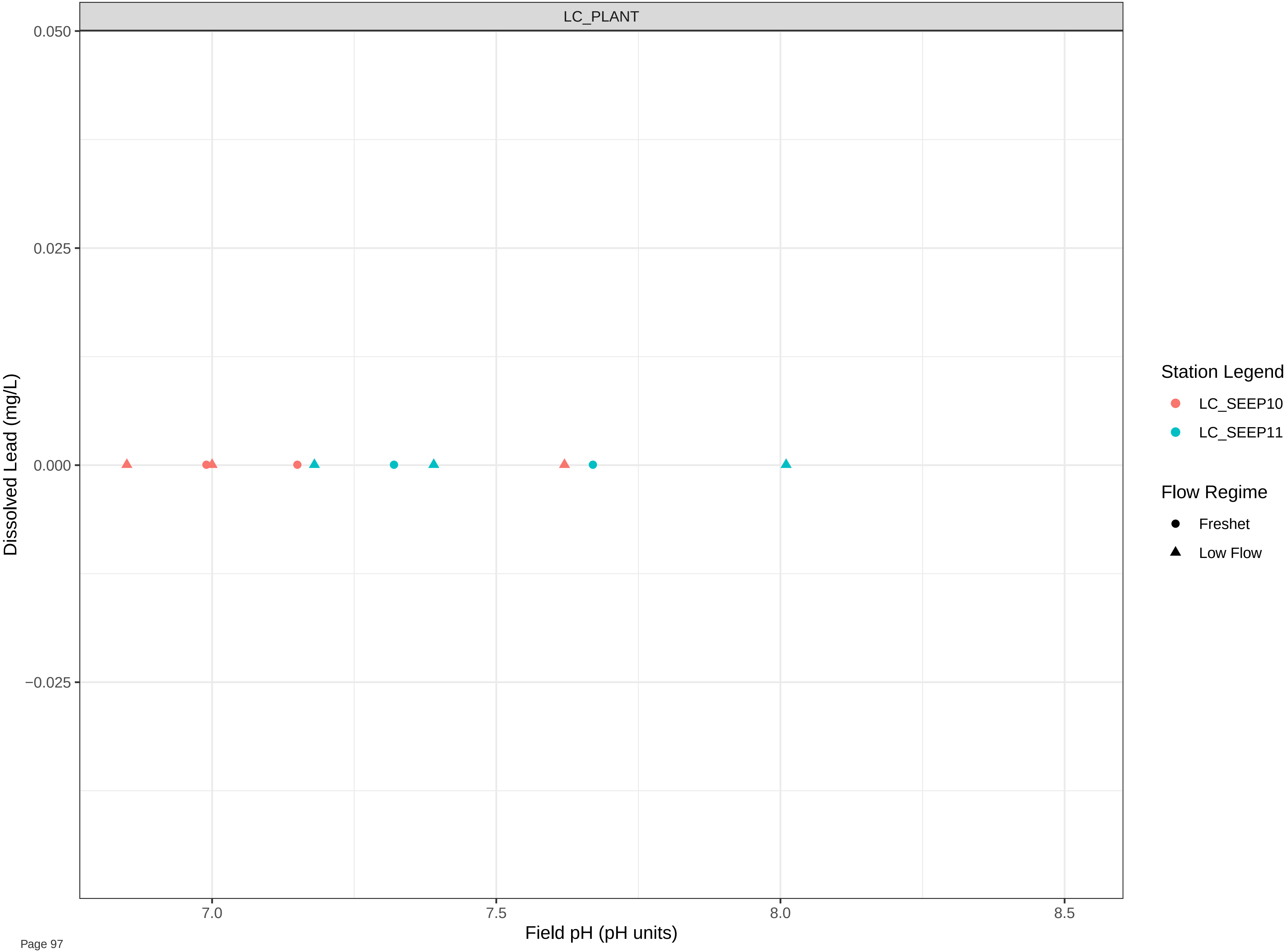

LC_DisturbedWSlope
Dissolved Lead (mg/L)
0.050
0.025
0.000
−0.025
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

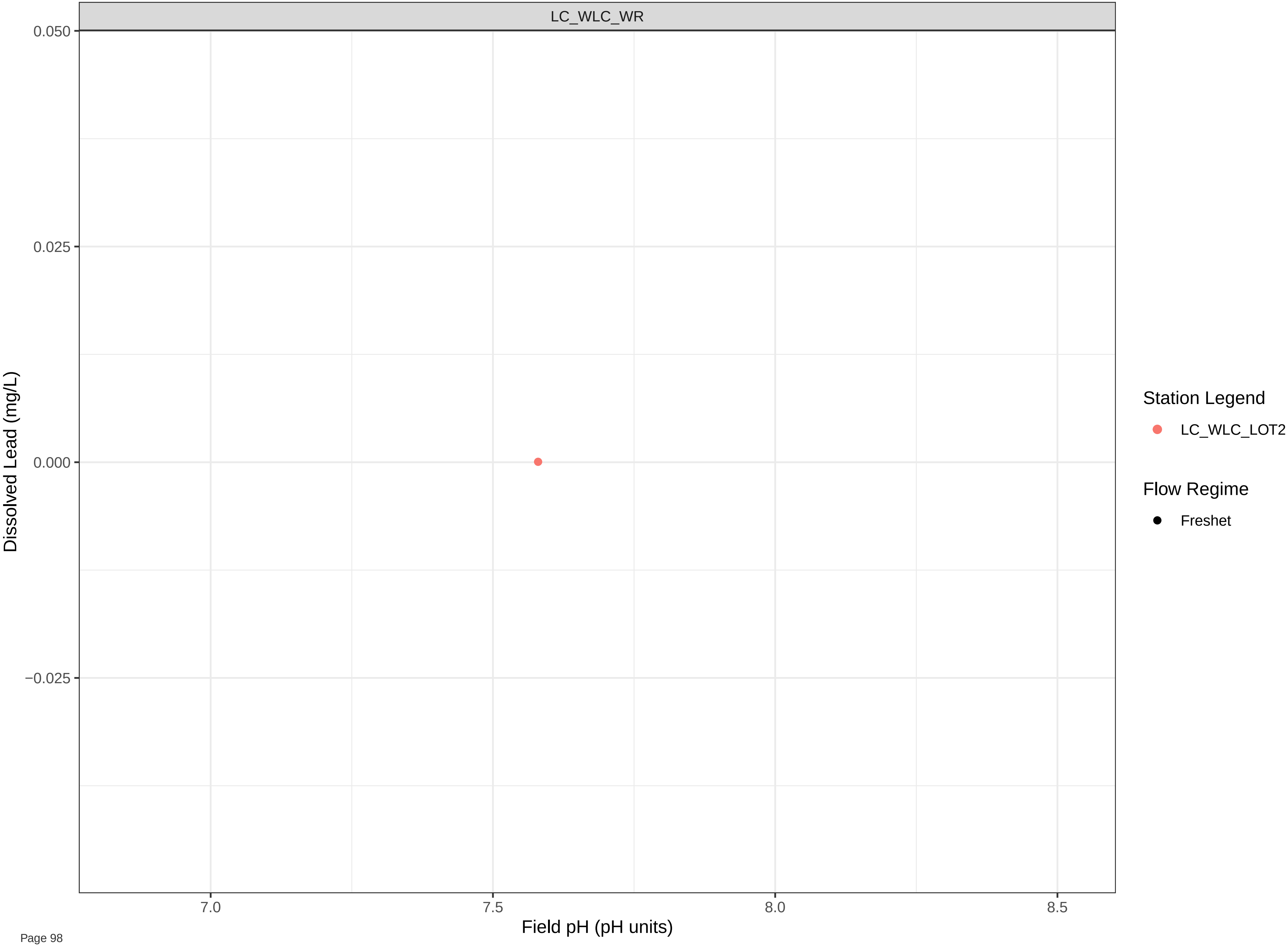


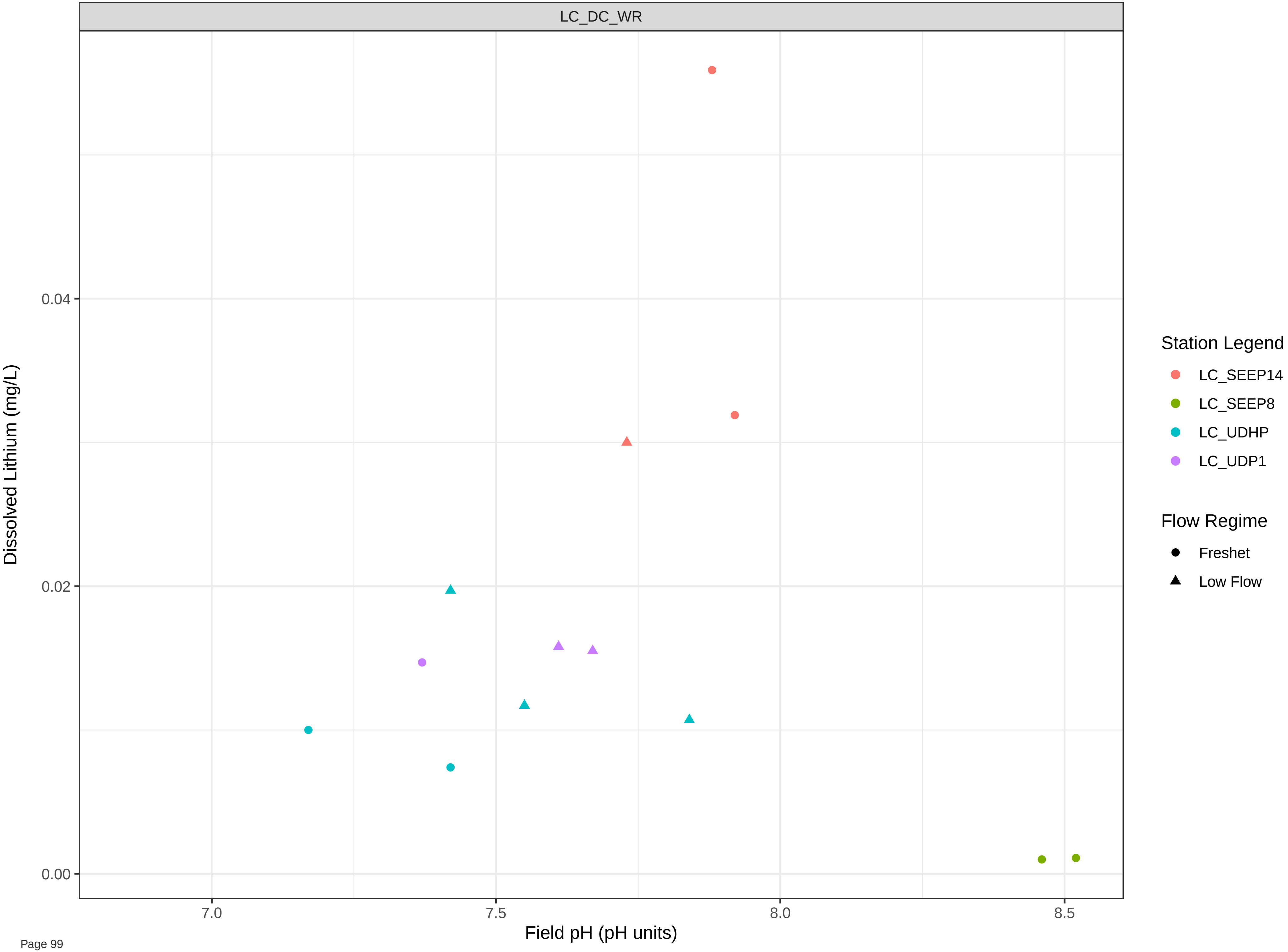
LC_HSP_WR
0.050
0.025
0.000
−0.025
Dissolved Lead (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

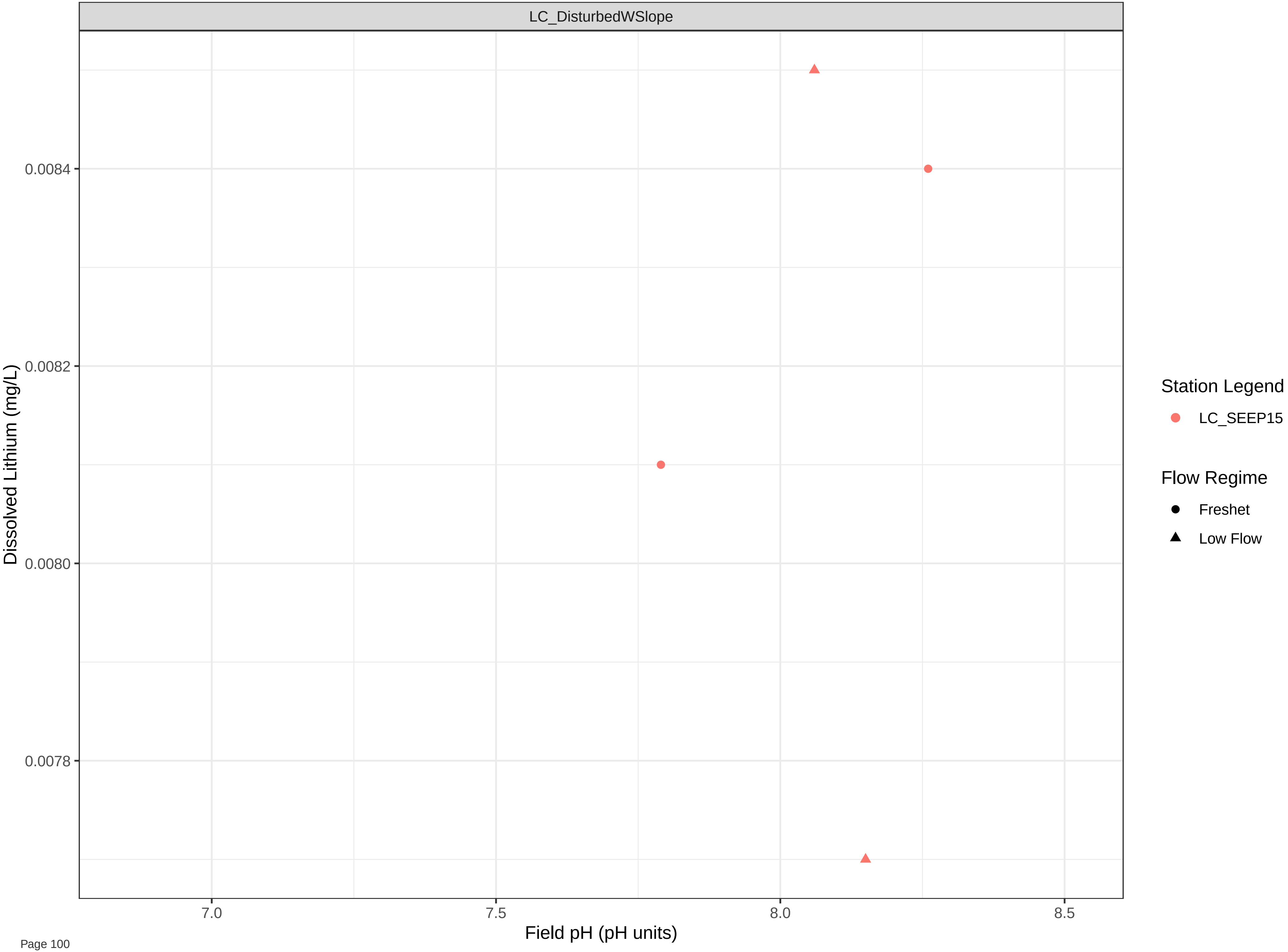

LC_MAXAM
0.050
0.025
0.000
−0.025
Dissolved Lead (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

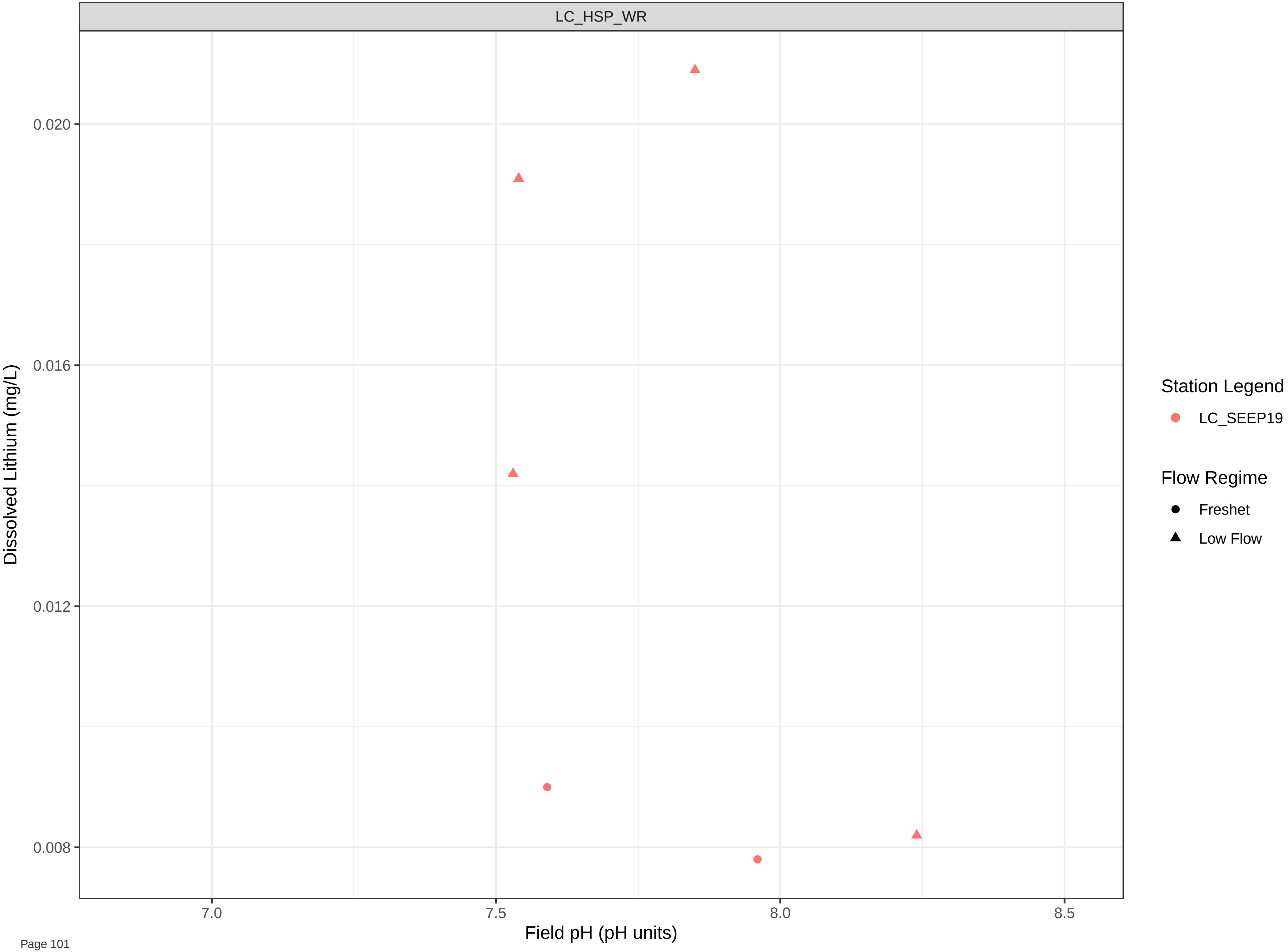

LC_MSA_WR
0.050
0.025
0.000
−0.025
Dissolved Lead (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

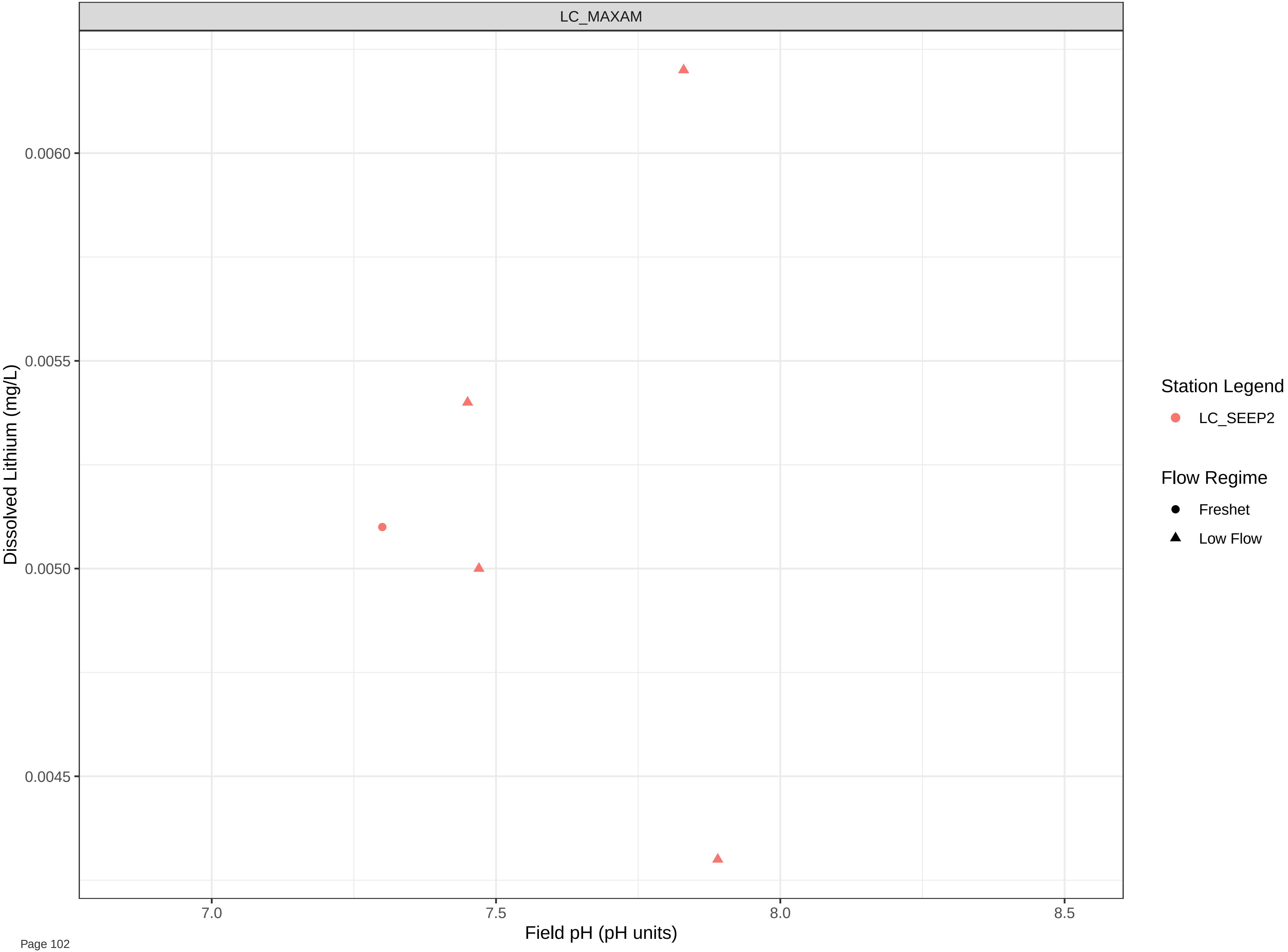

LC_PLANT
0.050
0.025
0.000
−0.025
Dissolved Lead (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

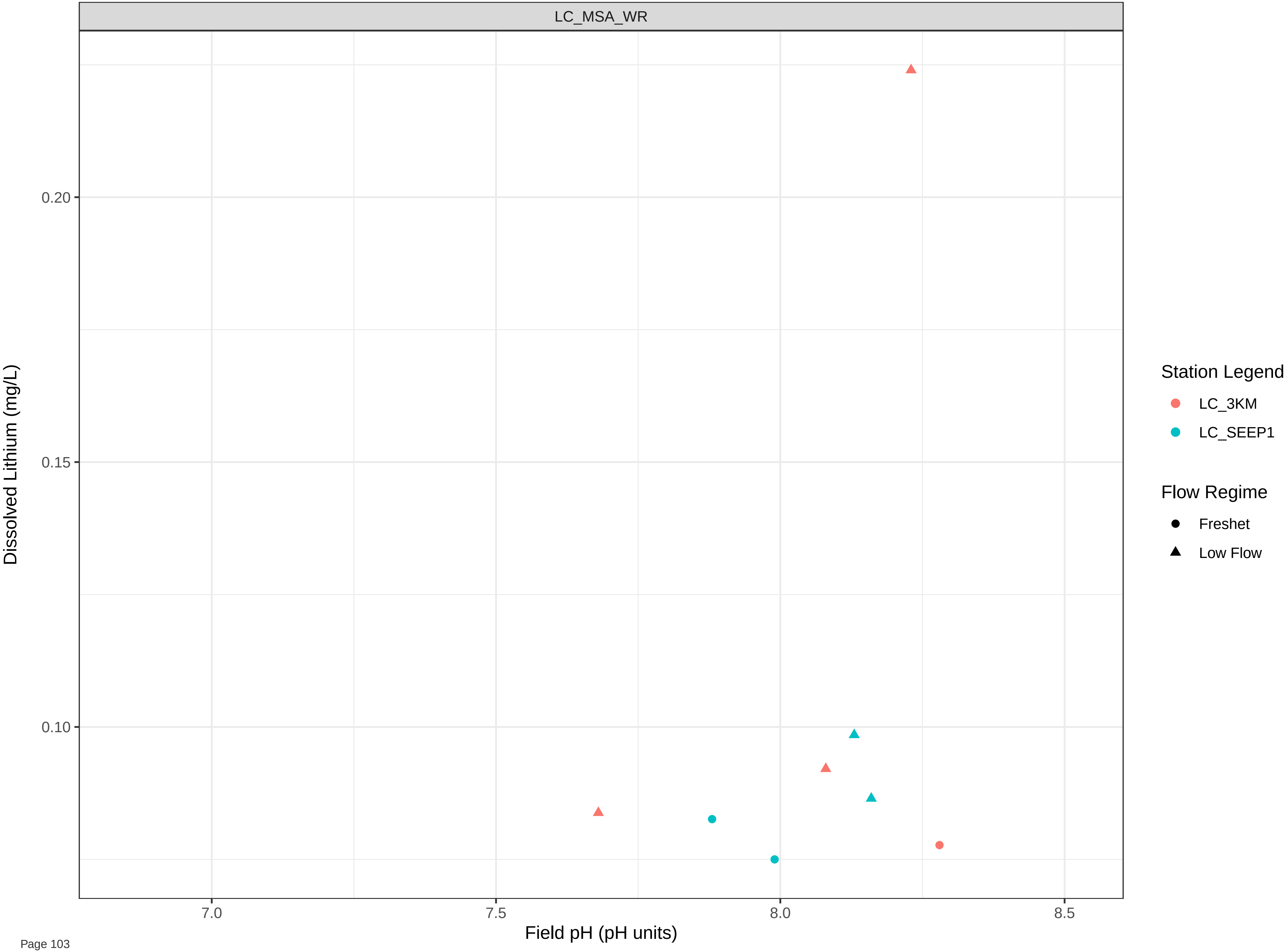

LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Lead (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

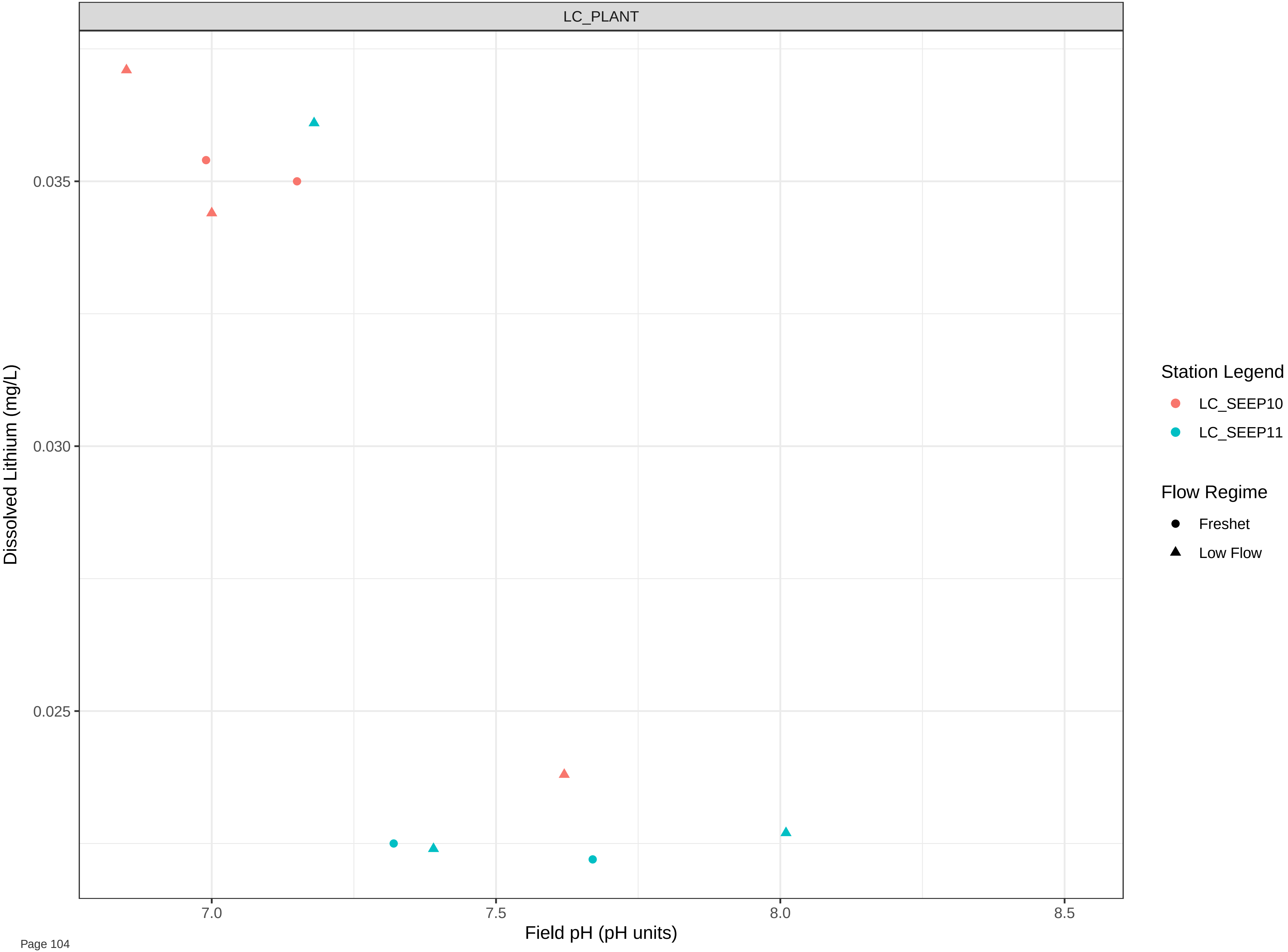

LC_DC_WR
Dissolved Lithium (mg/L)
0.04
0.02
0.00
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

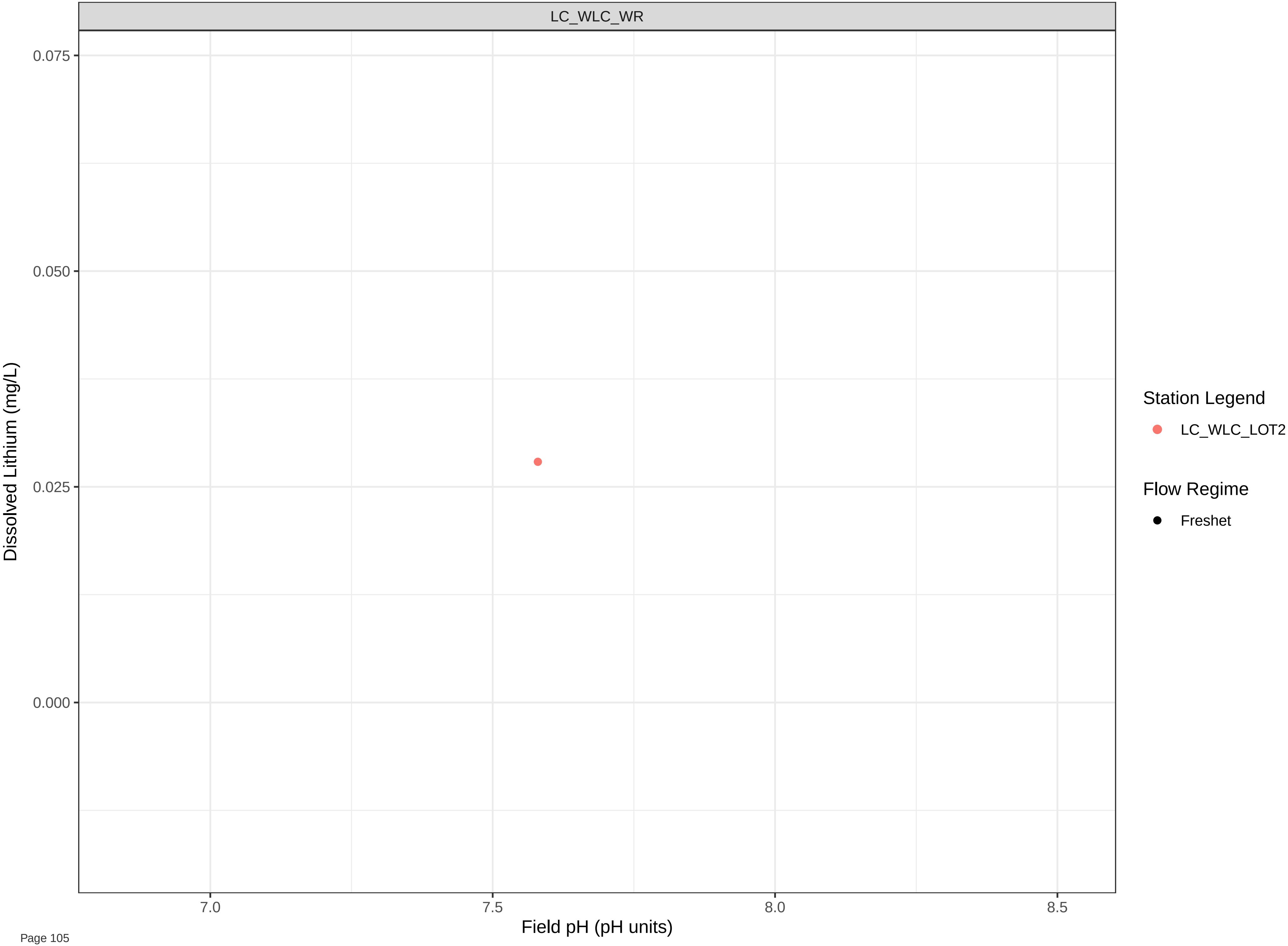

LC_DisturbedWSlope
Dissolved Lithium (mg/L)
0.0084
0.0082
0.0080
0.0078
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow

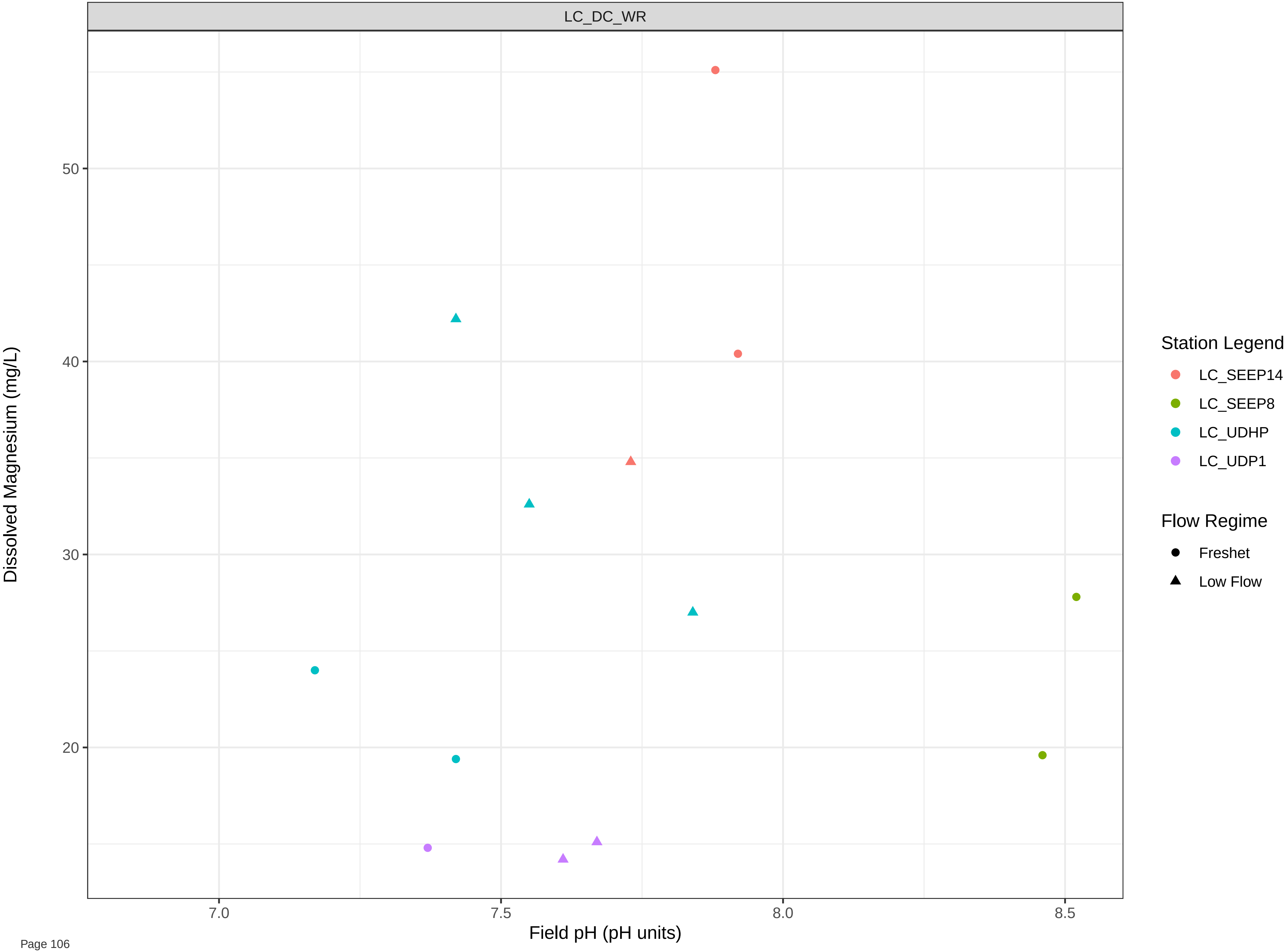

LC_HSP_WR
Dissolved Lithium (mg/L)
0.020
0.016
0.012
0.008
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

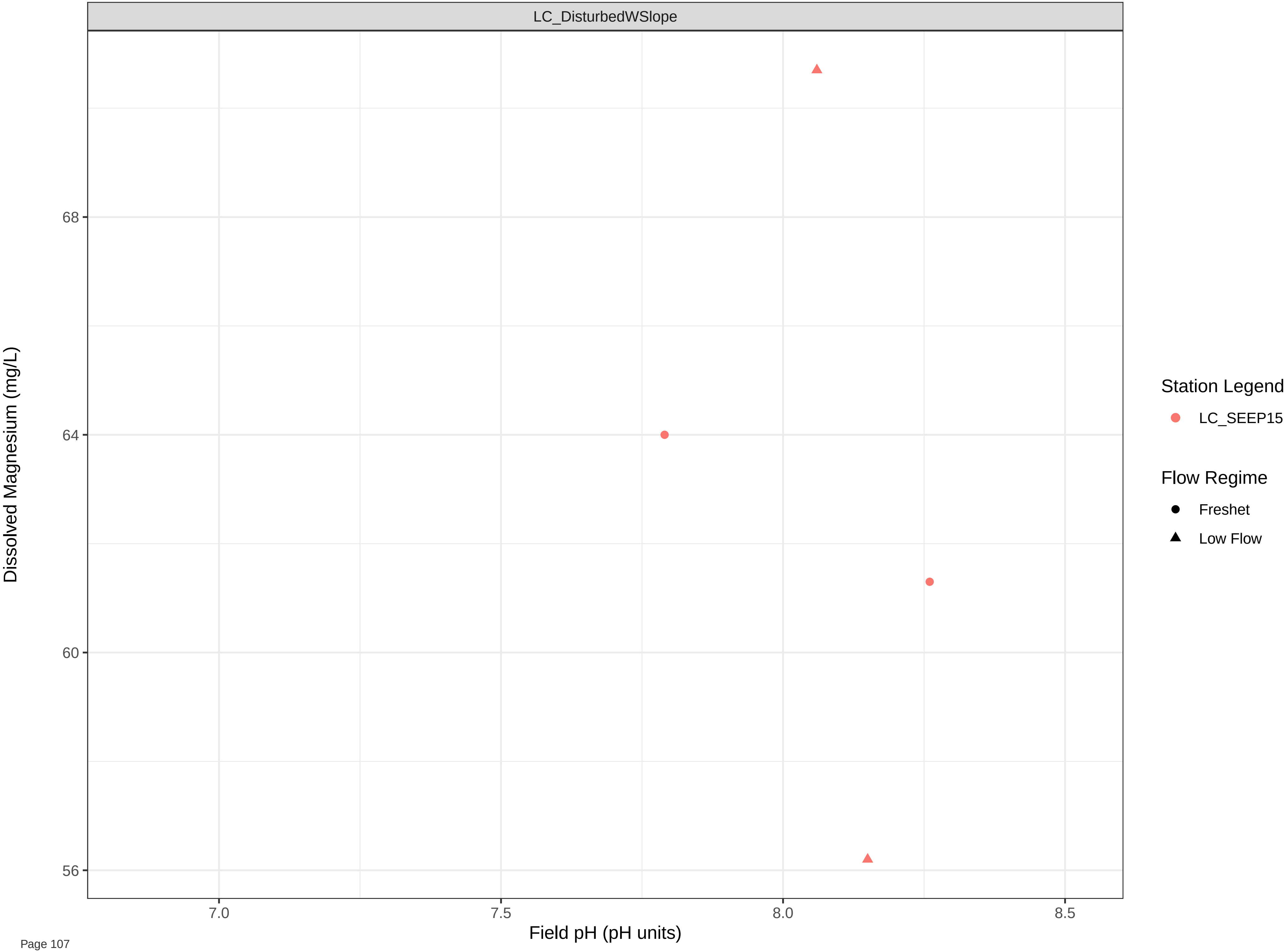

LC_MAXAM
Dissolved Lithium (mg/L)
0.0060
0.0055
0.0050
0.0045
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

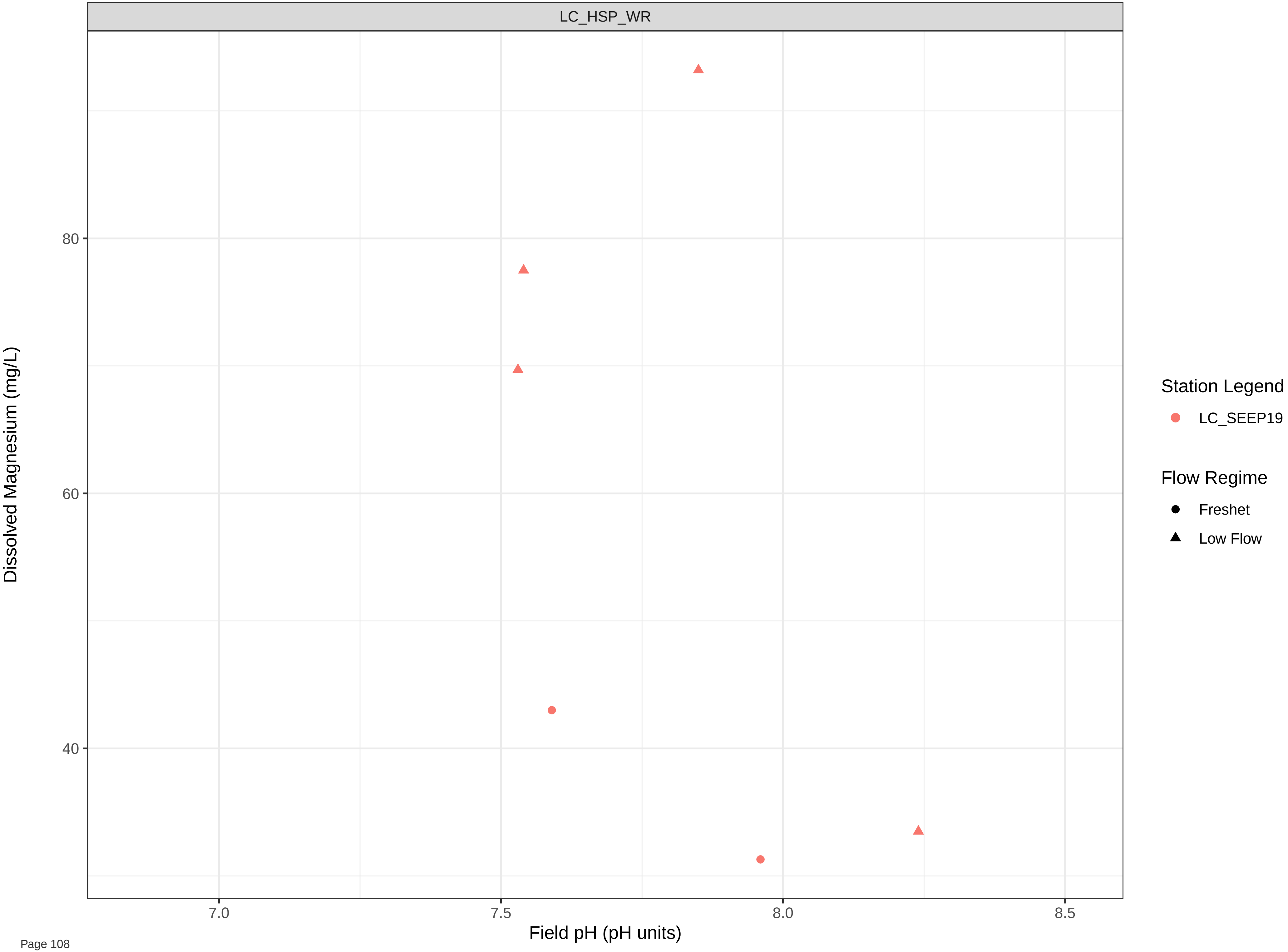

LC_MSA_WR
Dissolved Lithium (mg/L)
0.20
0.15
0.10
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

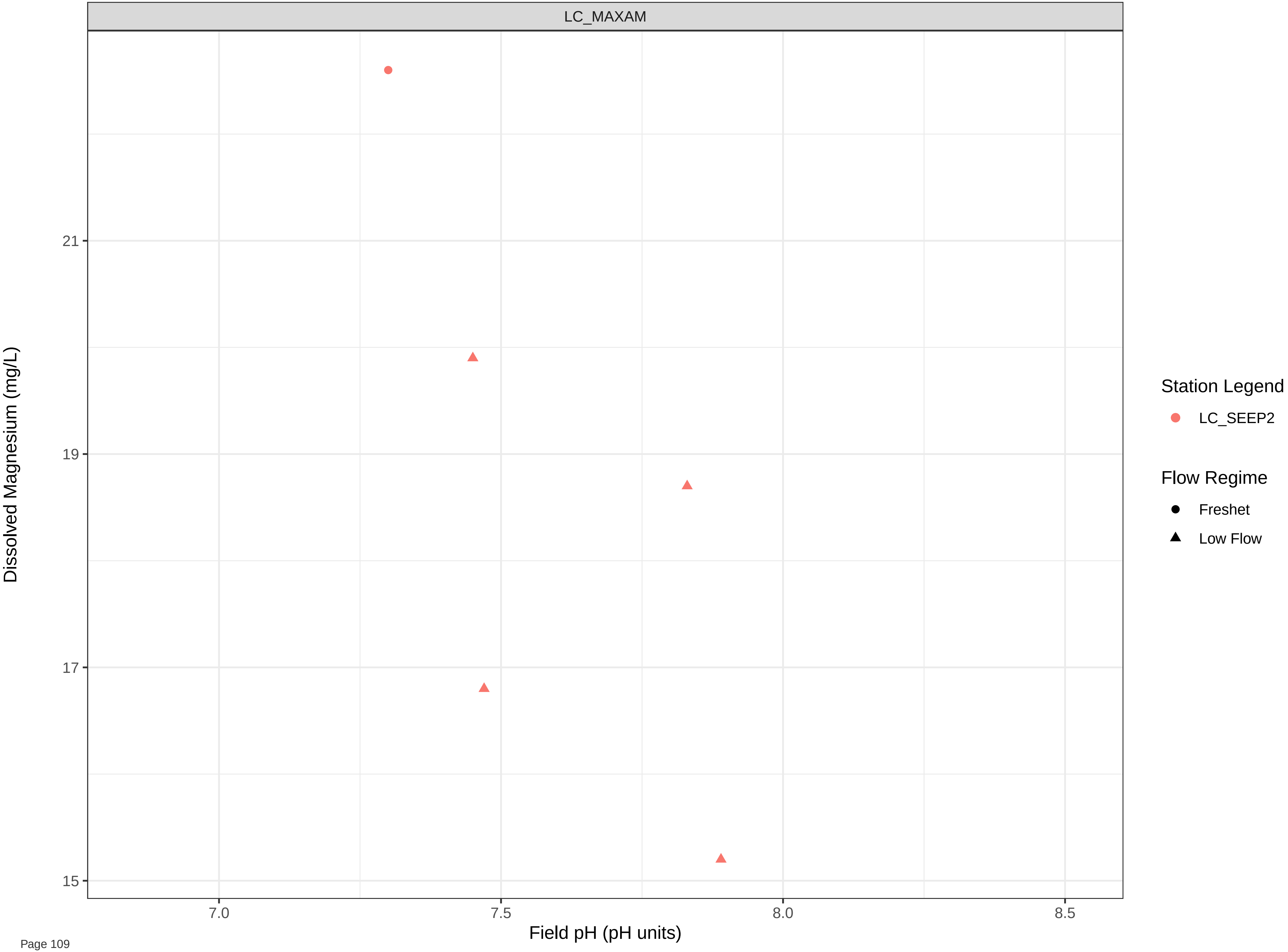

LC_PLANT
Dissolved Lithium (mg/L)
0.035
0.030
0.025
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

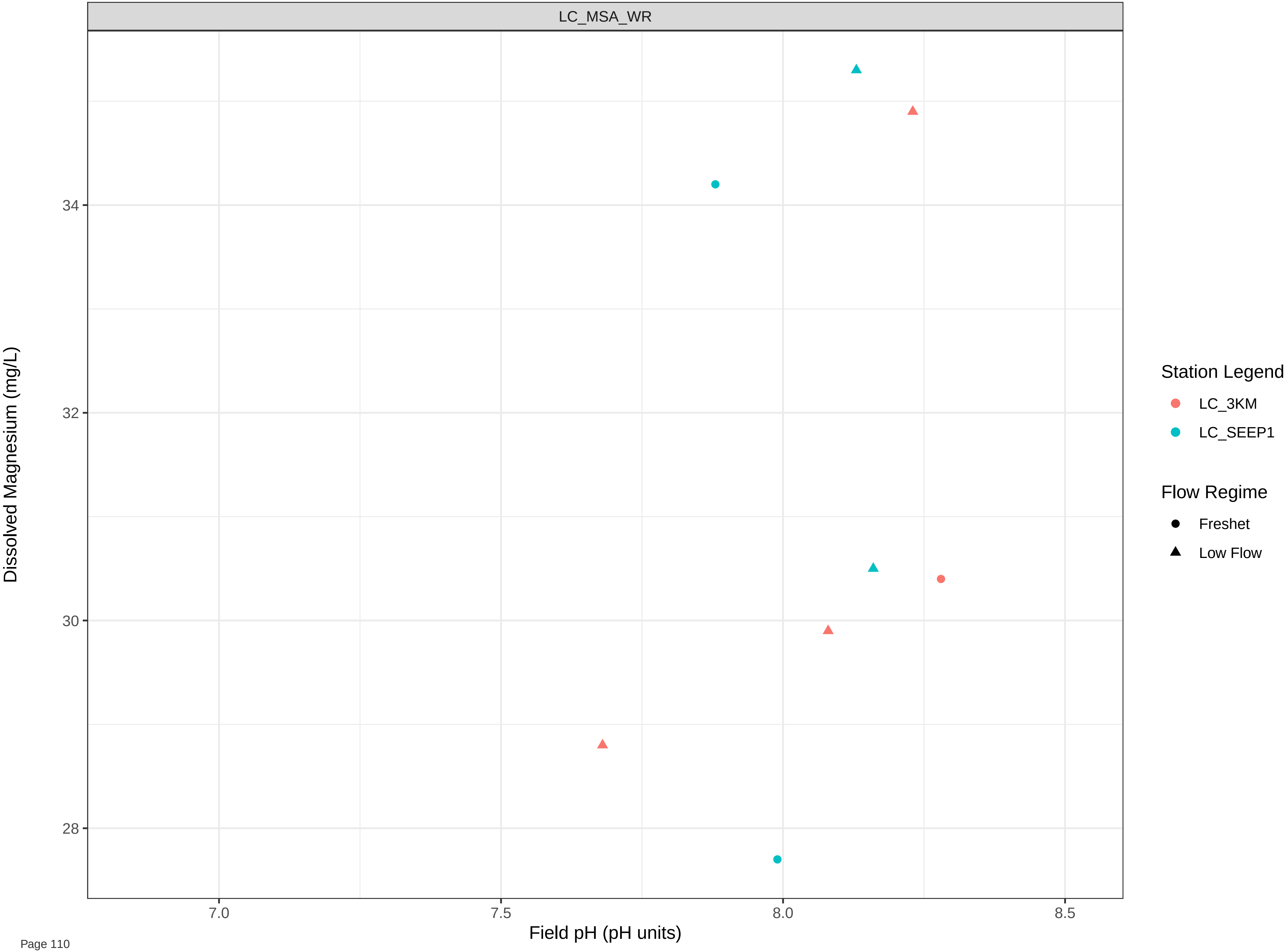

LC_WLC_WR
Dissolved Lithium (mg/L)
0.075
0.050
0.025
0.000
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

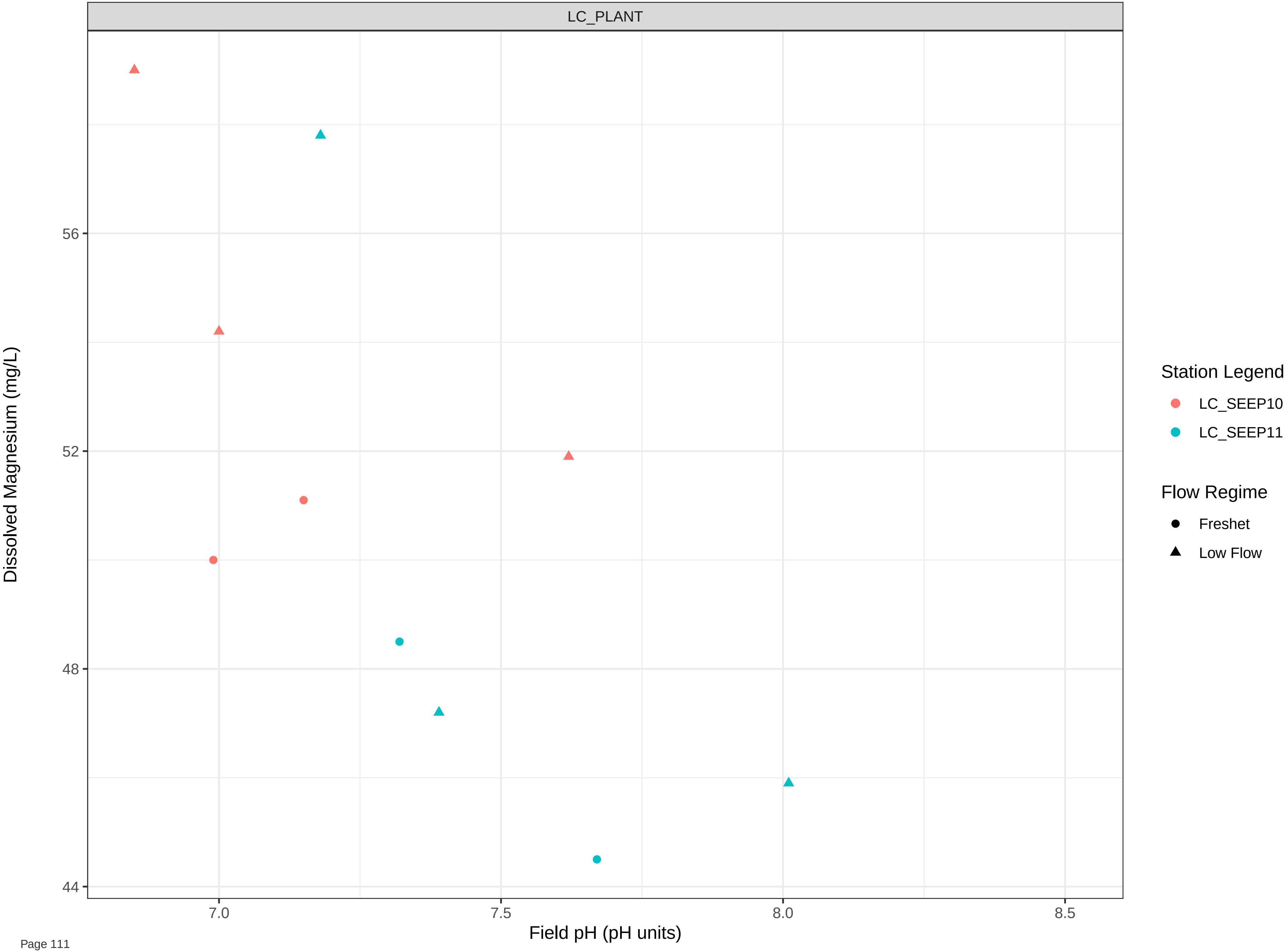

LC_DC_WR
Dissolved Magnesium (mg/L)
50
40
30
20
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

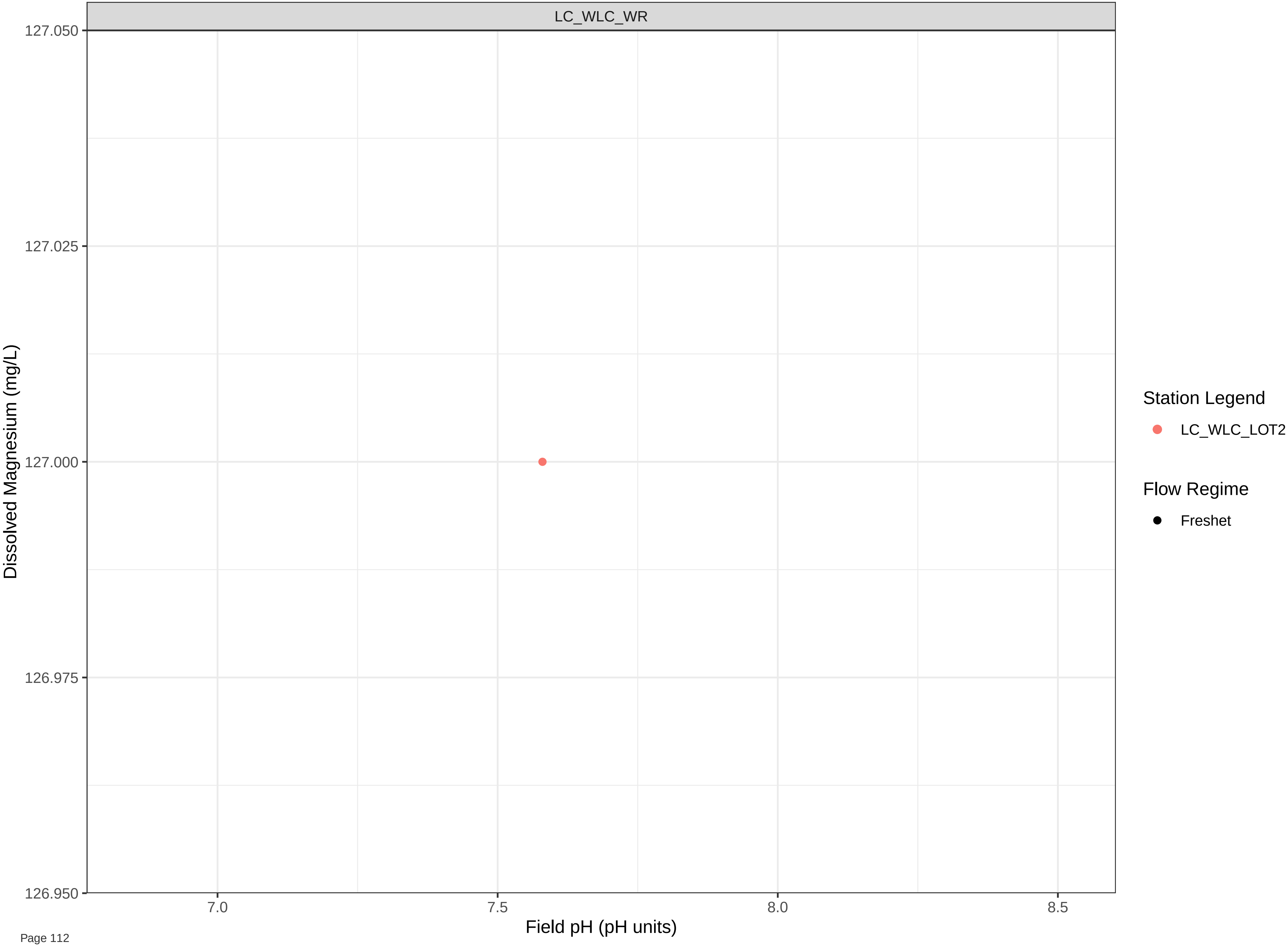

LC_DisturbedWSlope
Dissolved Magnesium (mg/L)
68
64
60
56
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow

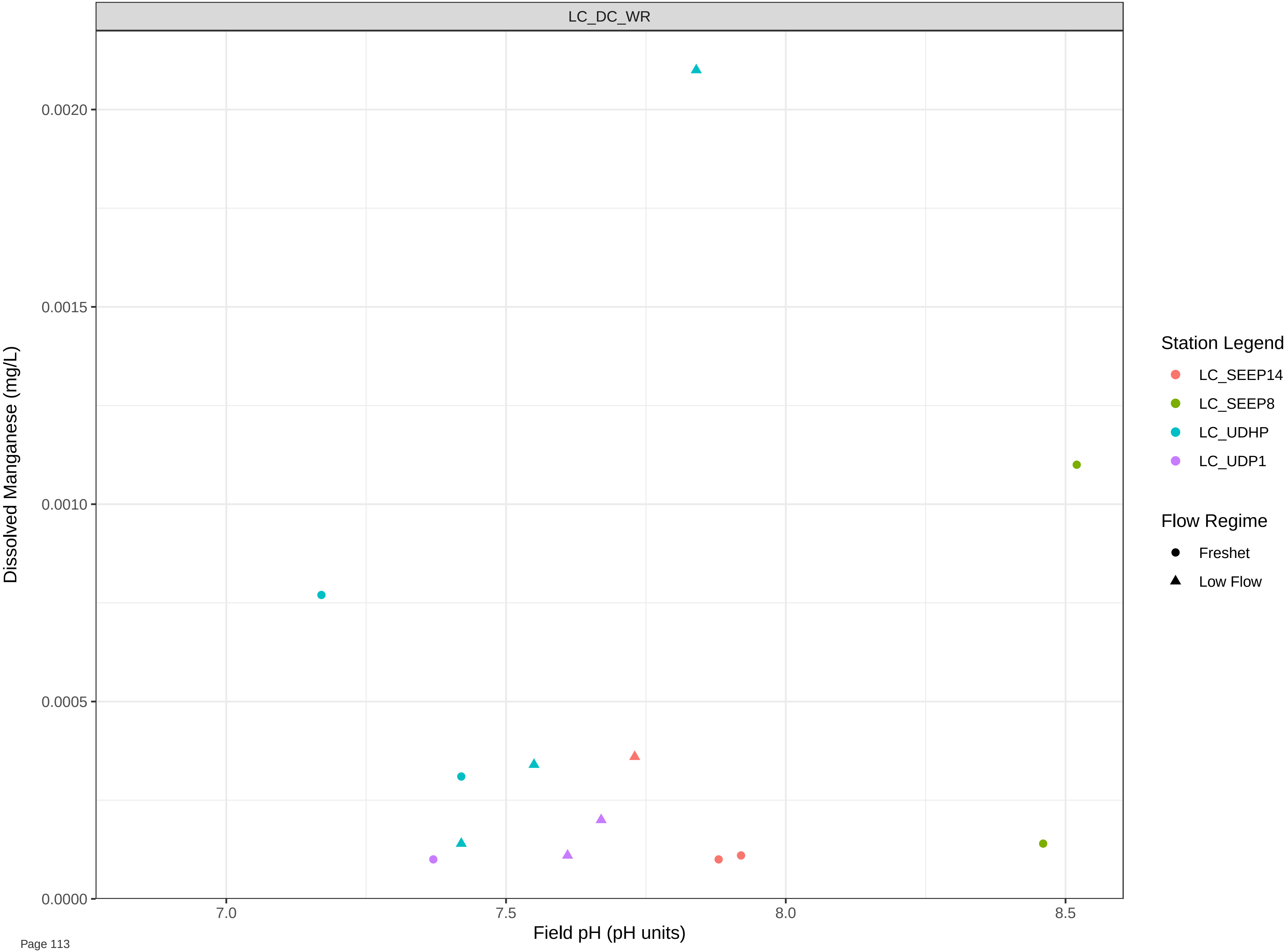

LC_HSP_WR
Dissolved Magnesium (mg/L)
80
60
40
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

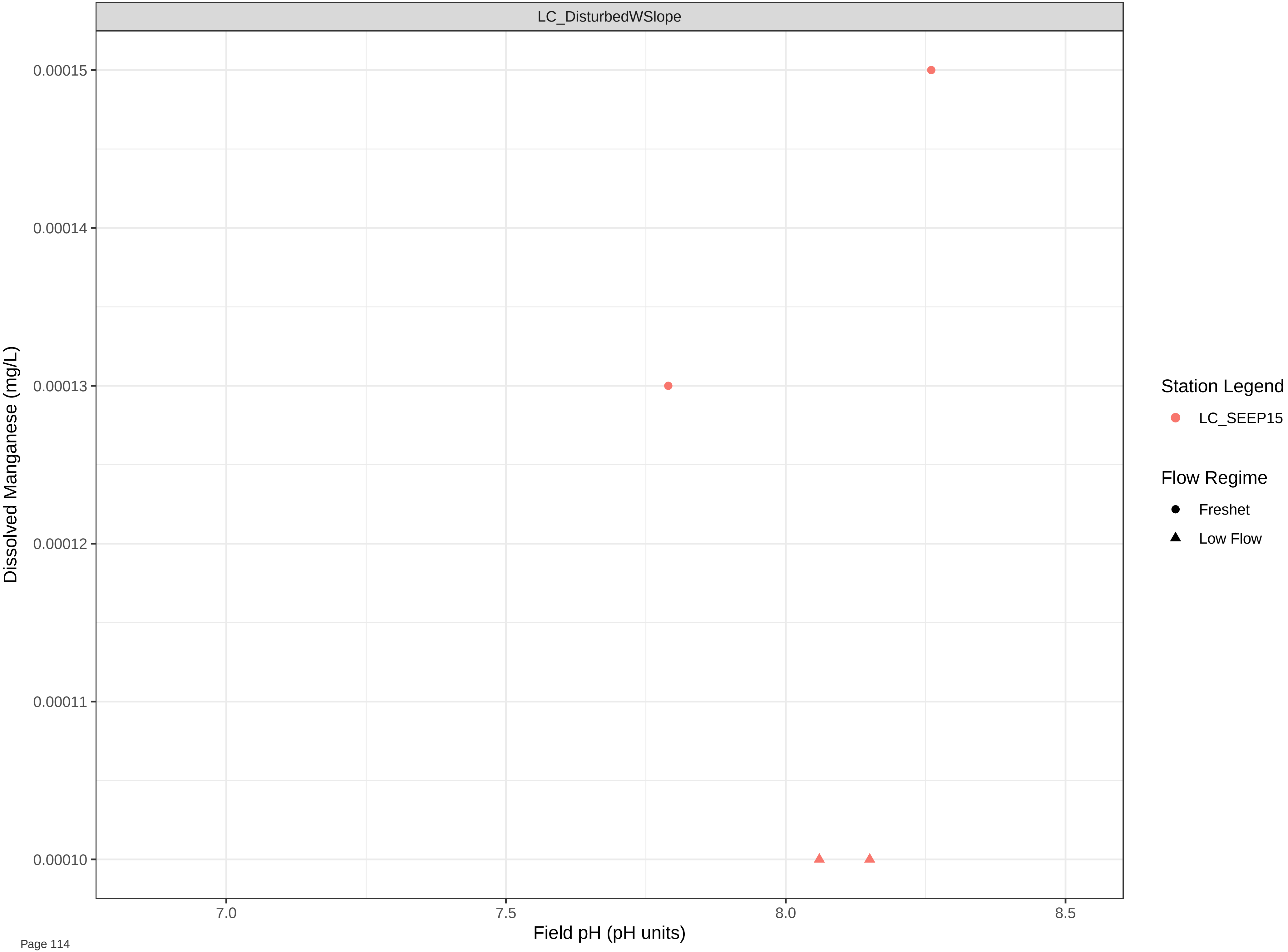

LC_MAXAM
Dissolved Magnesium (mg/L)
21
19
17
15
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

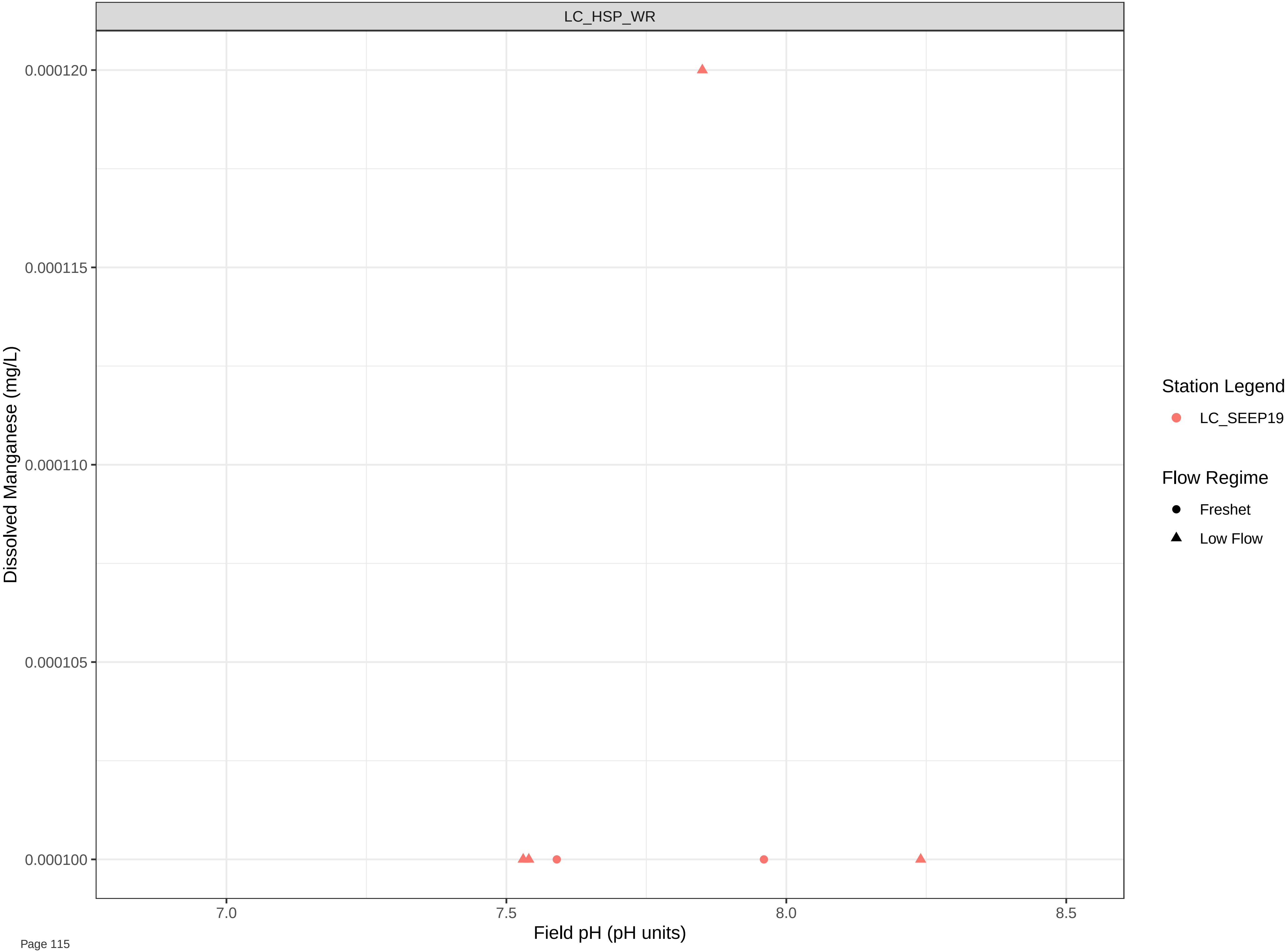

LC_MSA_WR
Dissolved Magnesium (mg/L)
34
32
30
28
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

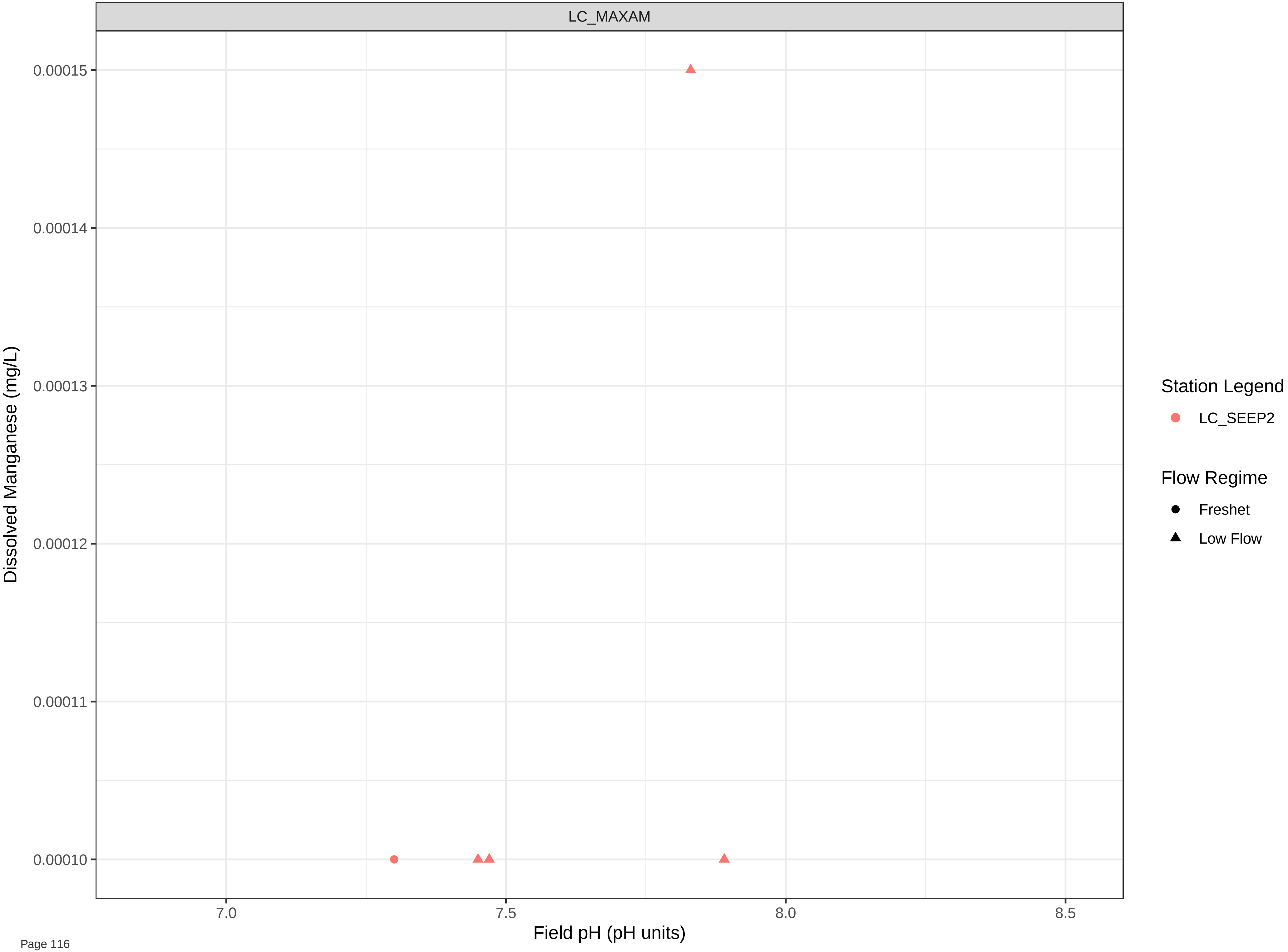

LC_PLANT
Dissolved Magnesium (mg/L)
56
52
48
44
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

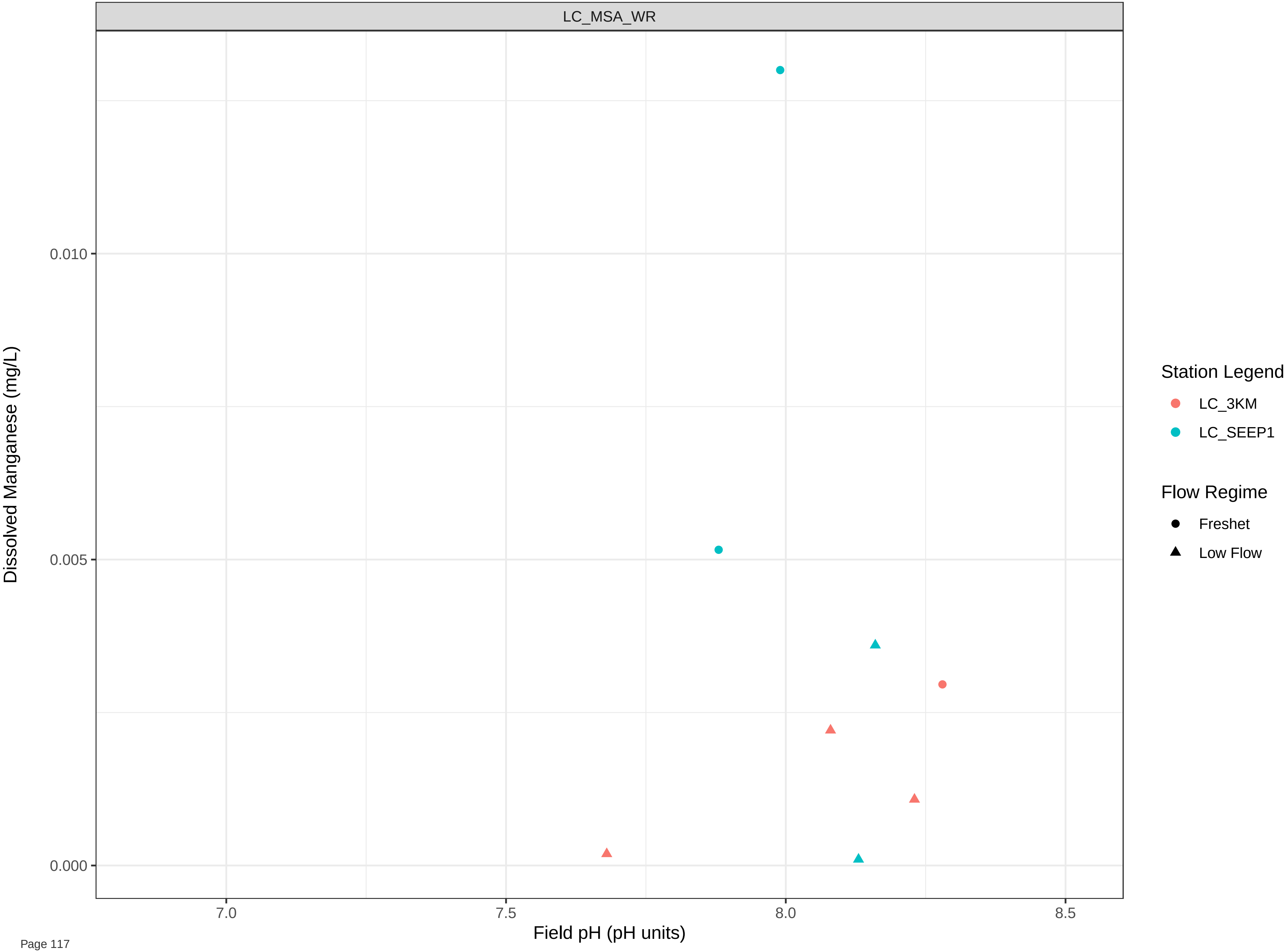

LC_WLC_WR
127.050
127.025
127.000
126.975
126.950
Dissolved Magnesium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

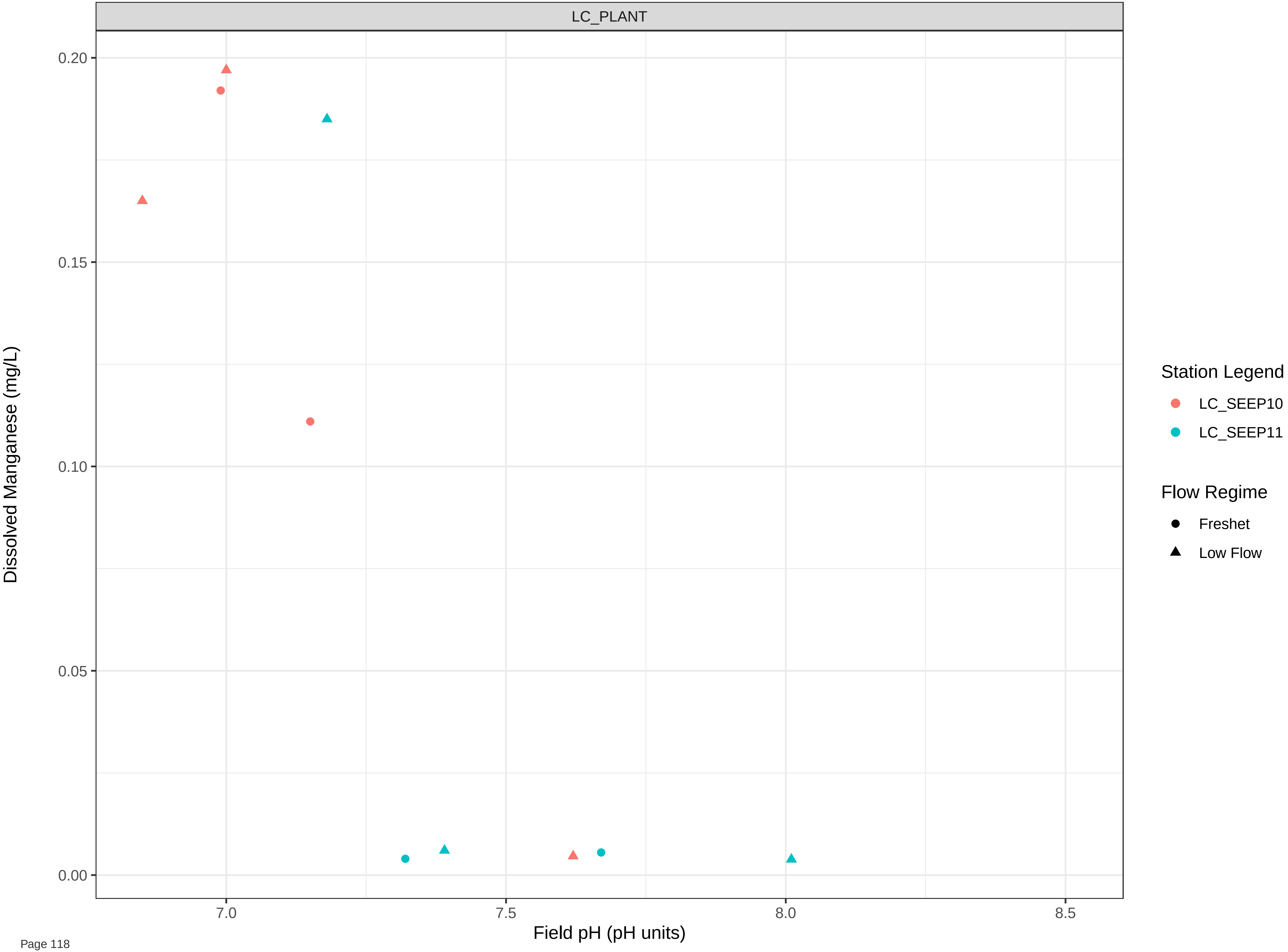

LC_DC_WR
Dissolved Manganese (mg/L)
0.0020
0.0015
0.0010
0.0005
0.0000
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

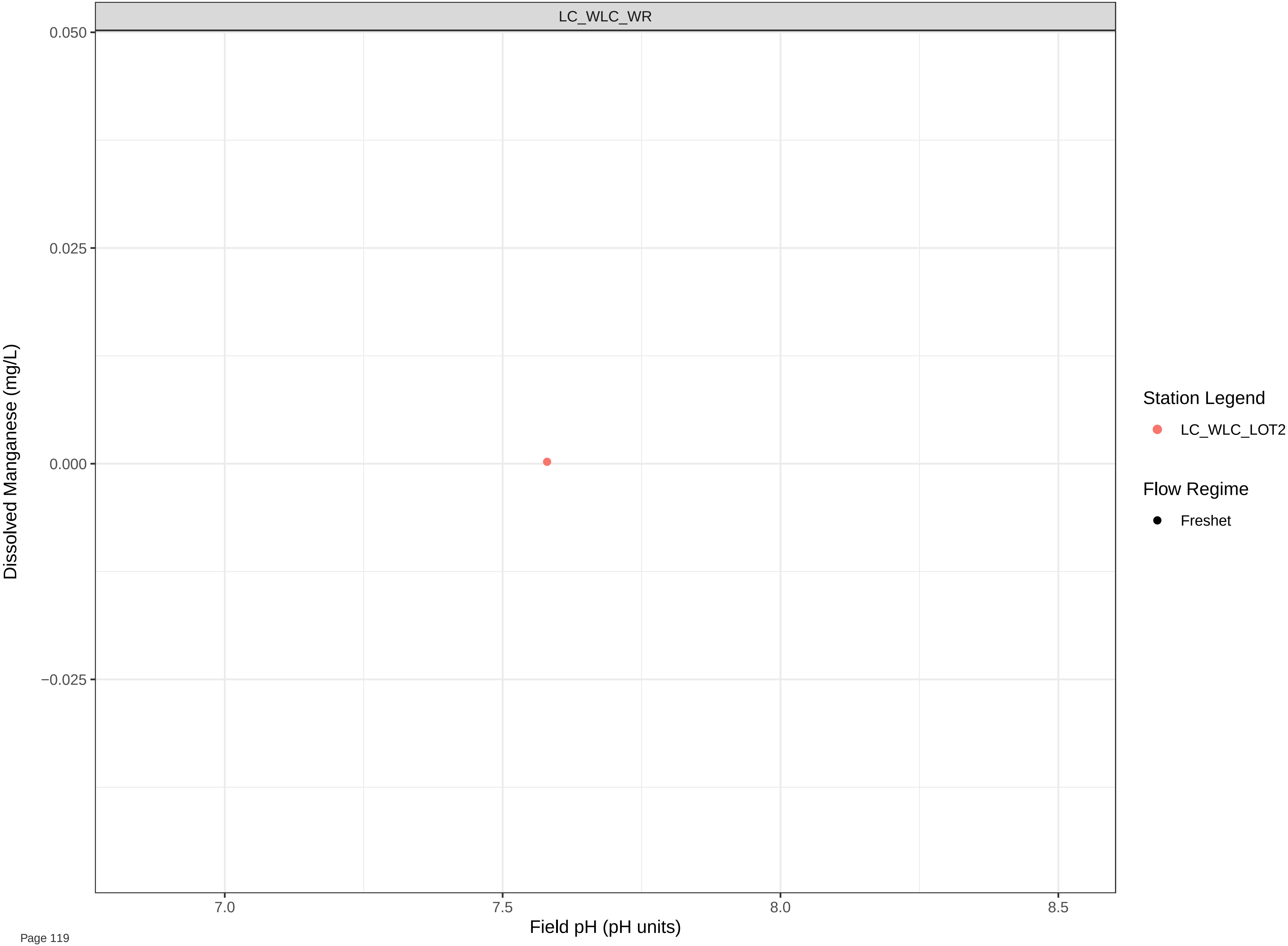

LC_DisturbedWSlope
Dissolved Manganese (mg/L)
0.00015
0.00014
0.00013
0.00012
0.00011
0.00010
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

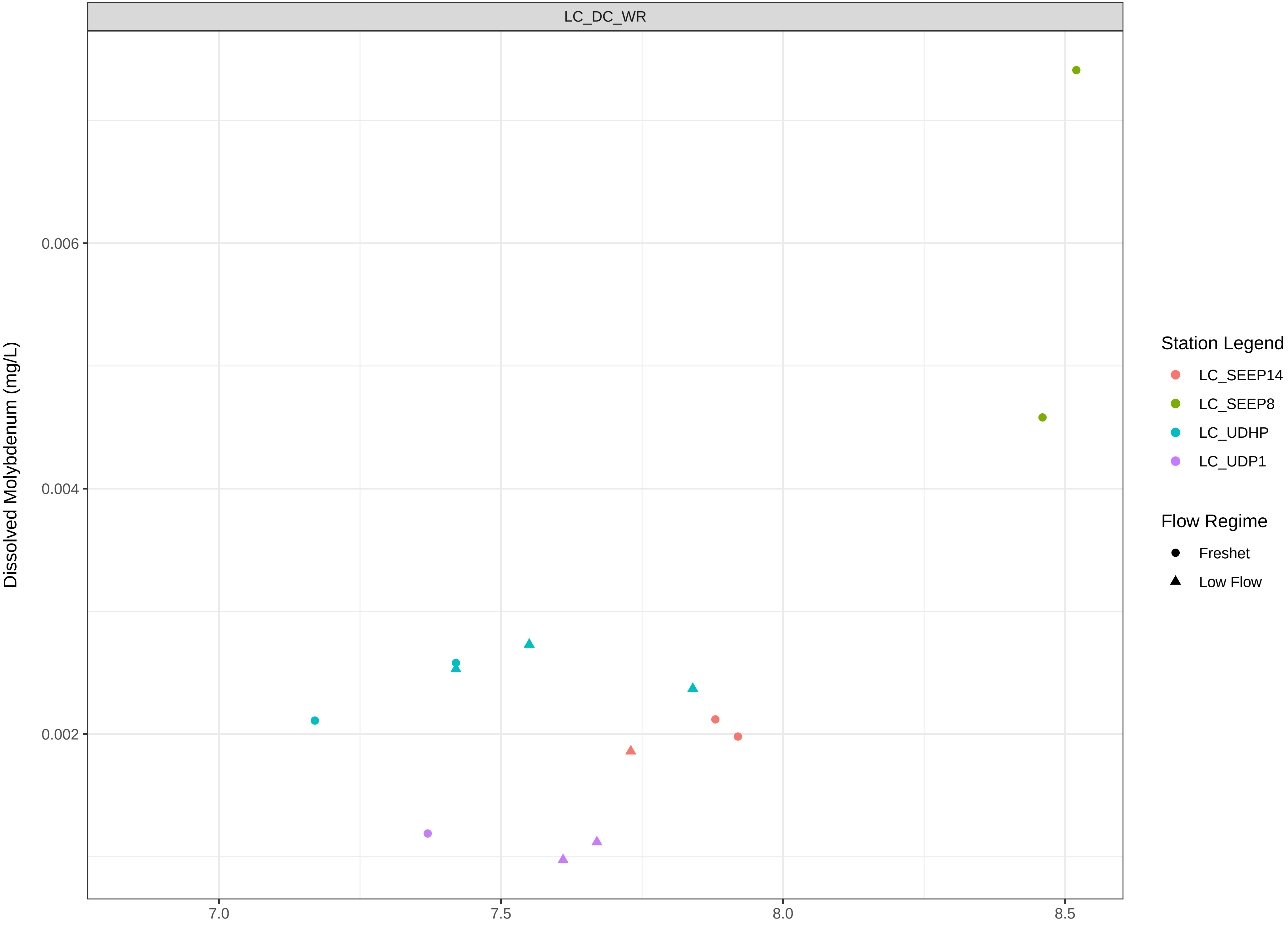

LC_HSP_WR
Dissolved Manganese (mg/L)
0.000120
0.000115
0.000110
0.000105
0.000100
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

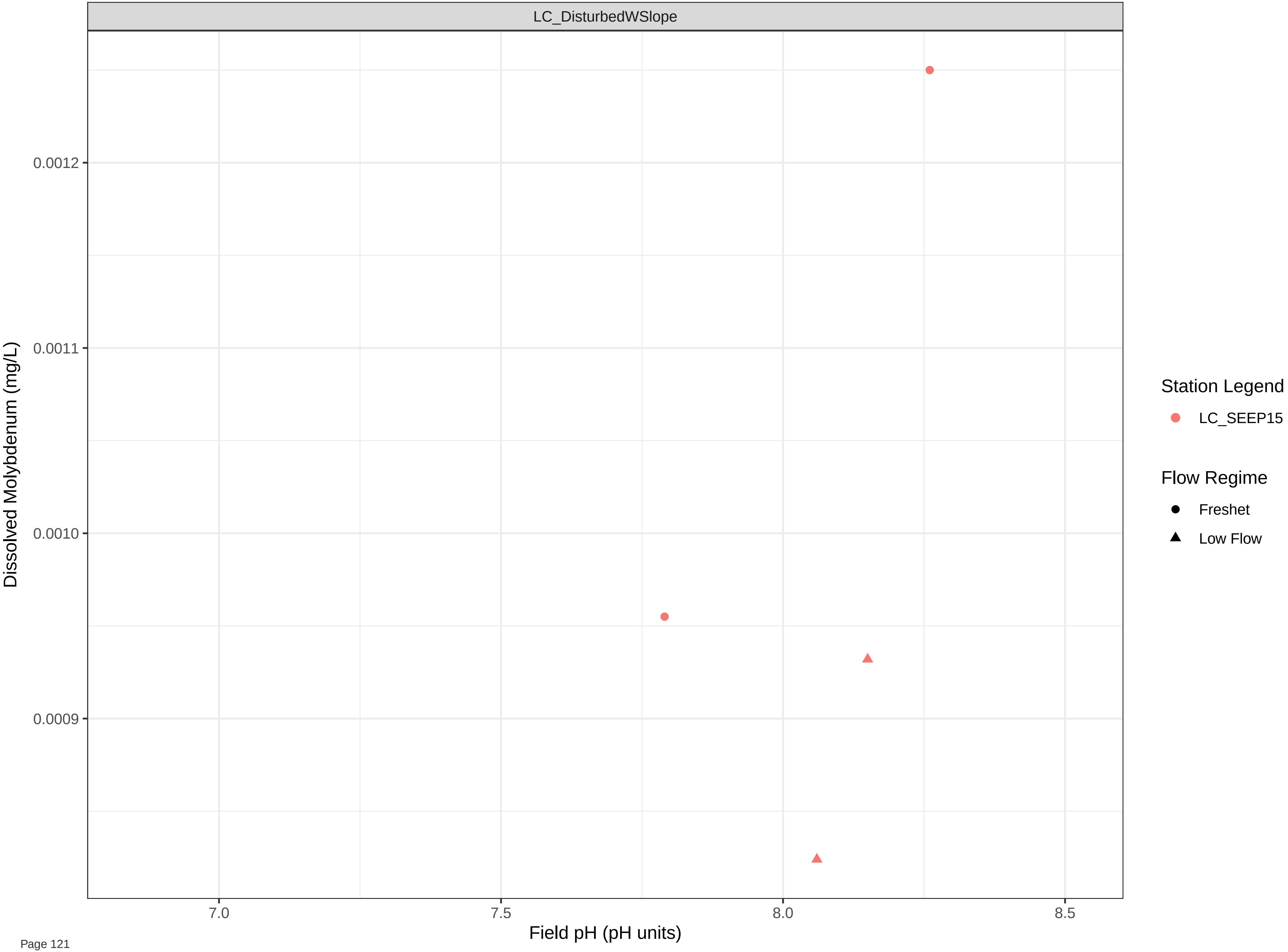

LC_MAXAM
0.00015
0.00014
0.00013
0.00012
0.00011
0.00010
Dissolved Manganese (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow

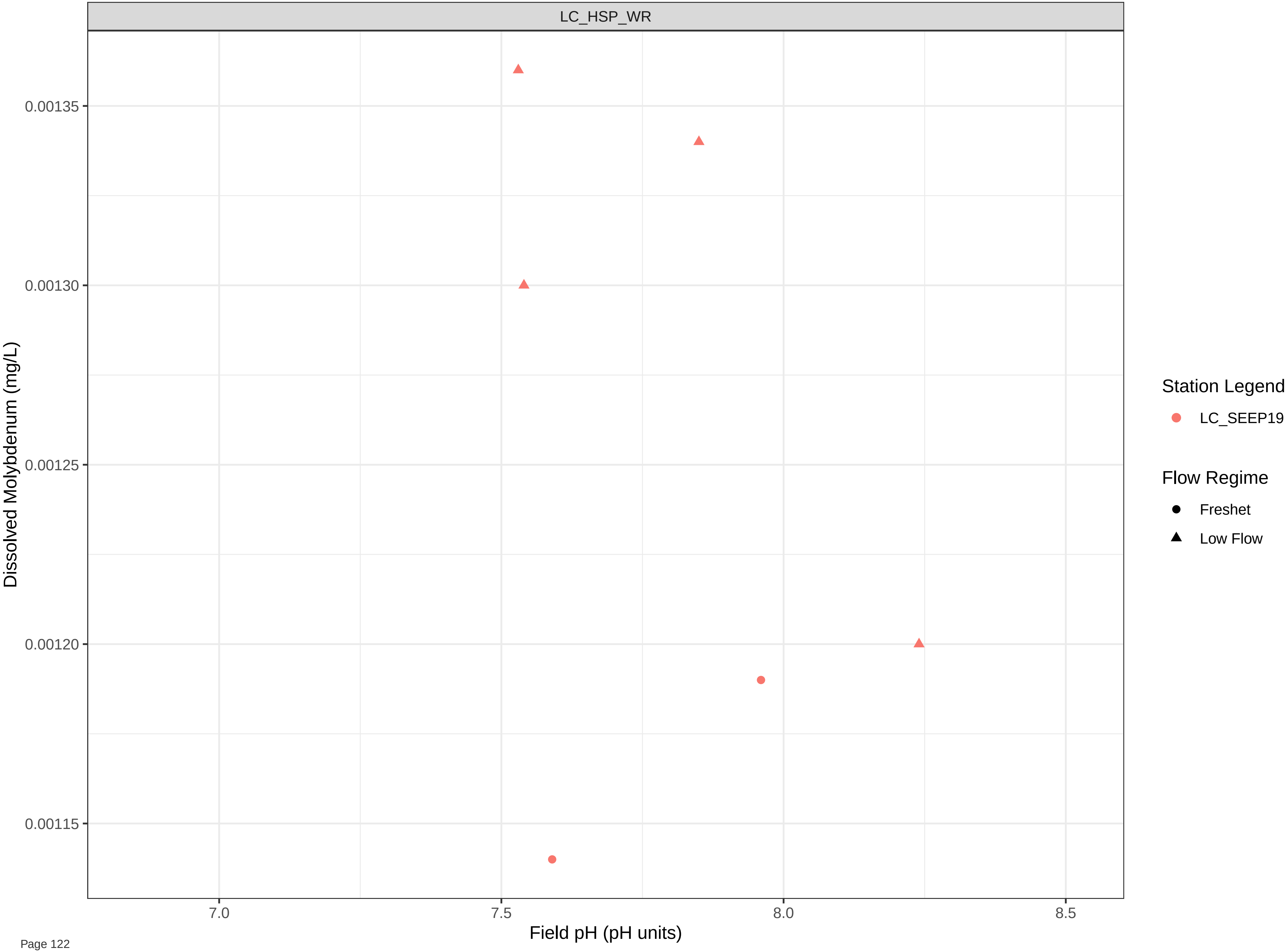

LC_MSA_WR
Dissolved Manganese (mg/L)
0.010
0.005
0.000
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

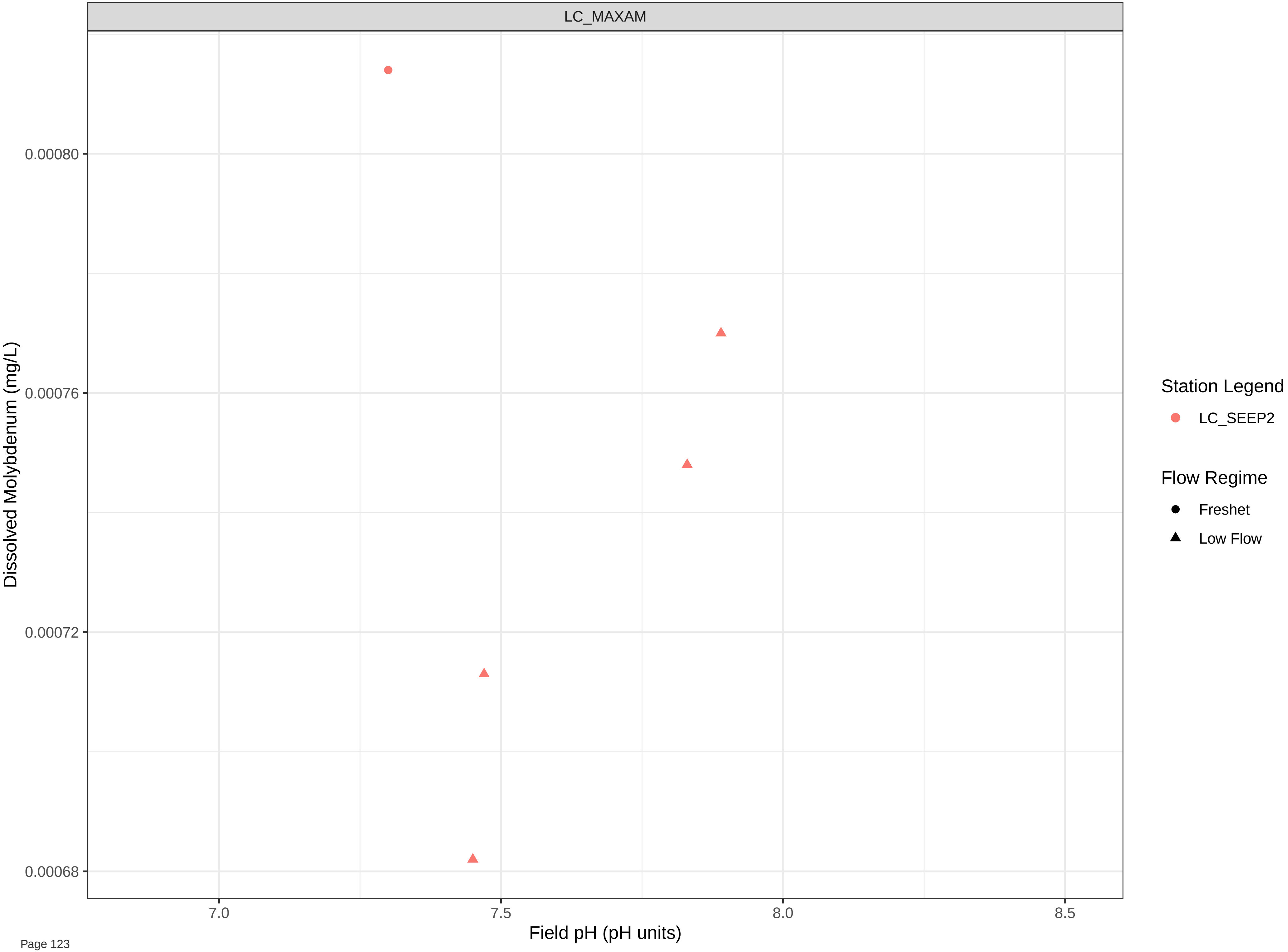

LC_PLANT
Dissolved Manganese (mg/L)
0.20
0.15
0.10
0.05
0.00
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

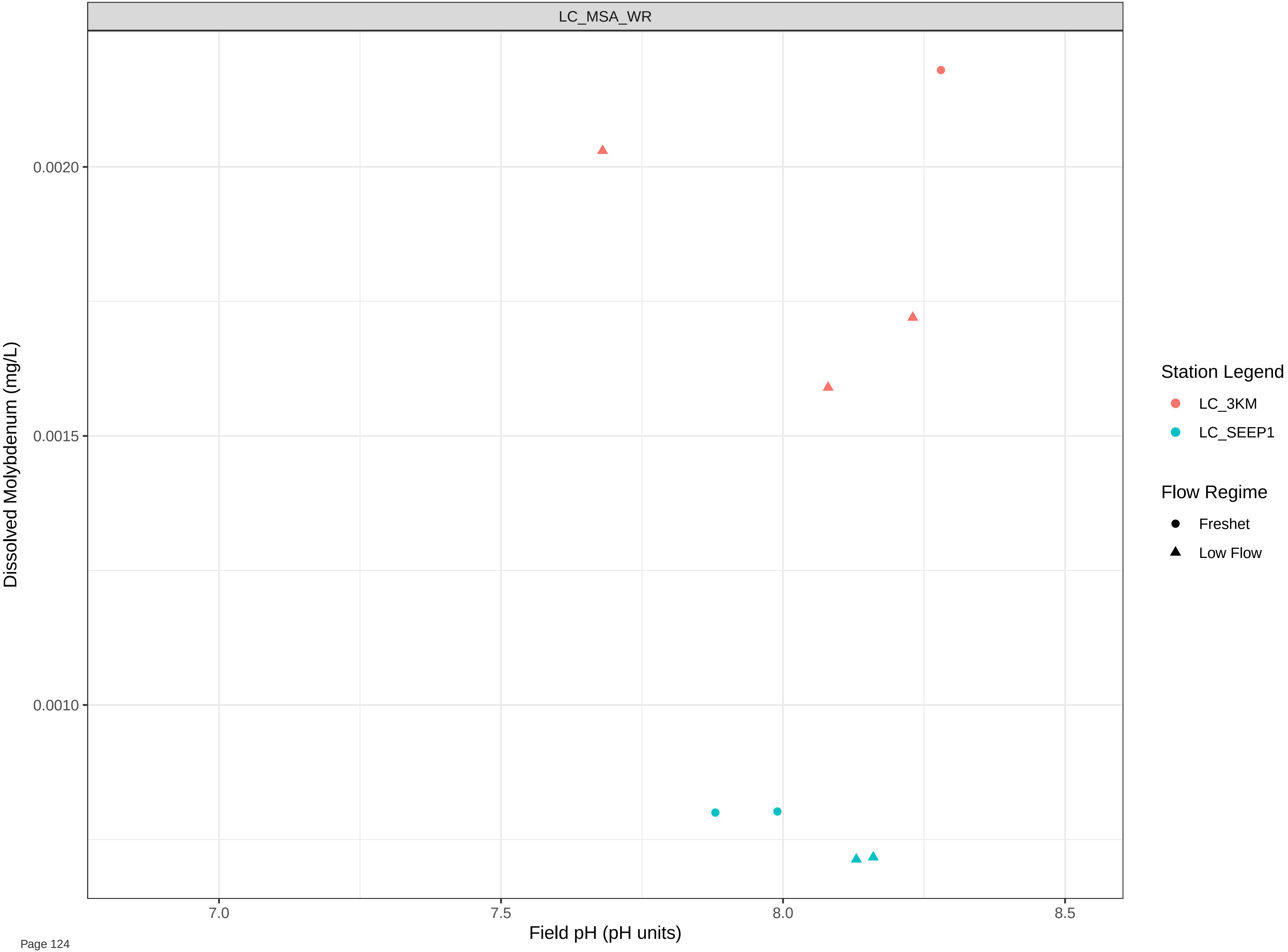

LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Manganese (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

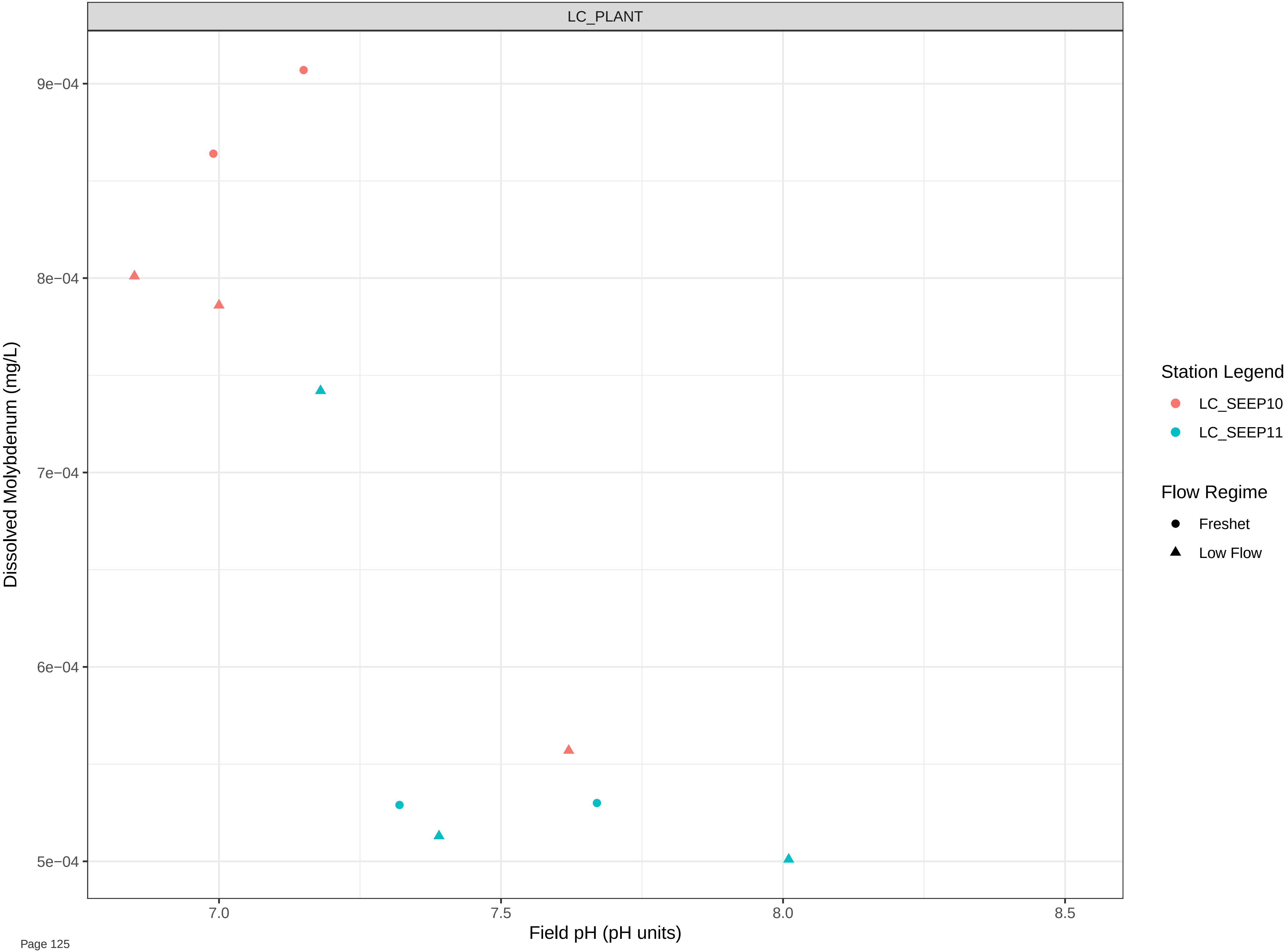

LC_DC_WR
Dissolved Molybdenum (mg/L)
0.006
0.004
0.002
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

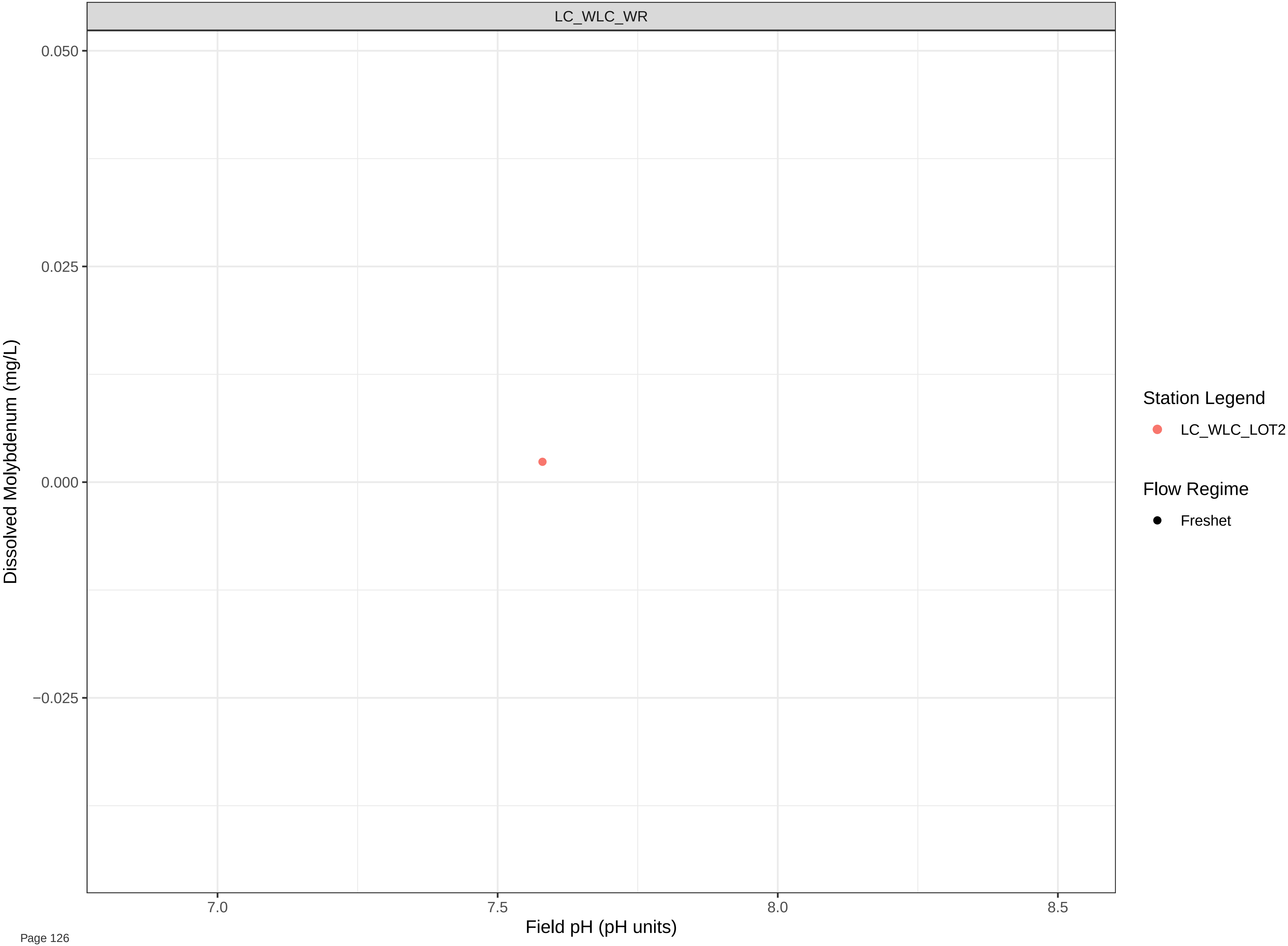

LC_DisturbedWSlope
Dissolved Molybdenum (mg/L)
0.0012
0.0011
0.0010
0.0009
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow

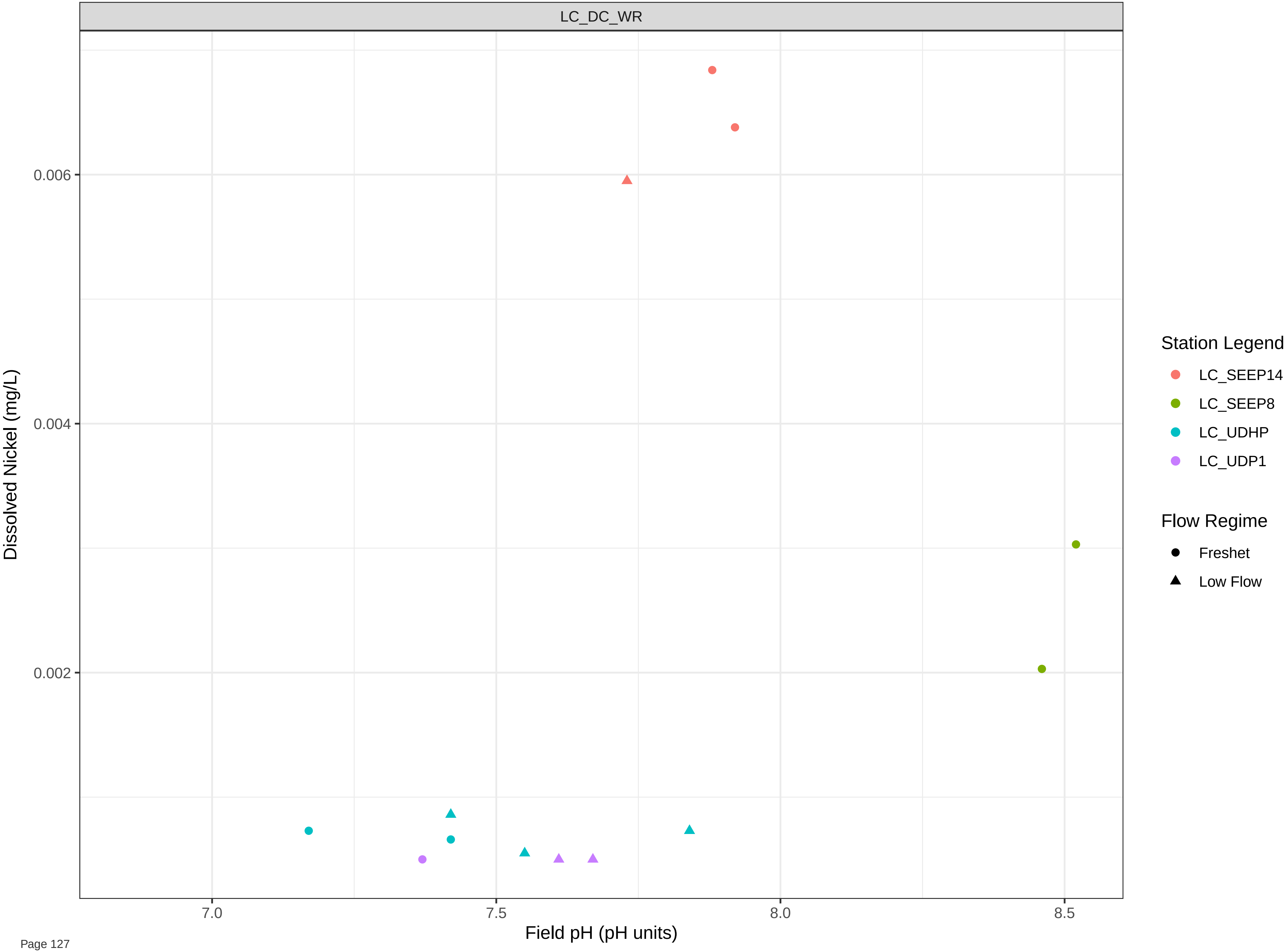

LC_HSP_WR
Dissolved Molybdenum (mg/L)
0.00135
0.00130
0.00125
0.00120
0.00115
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

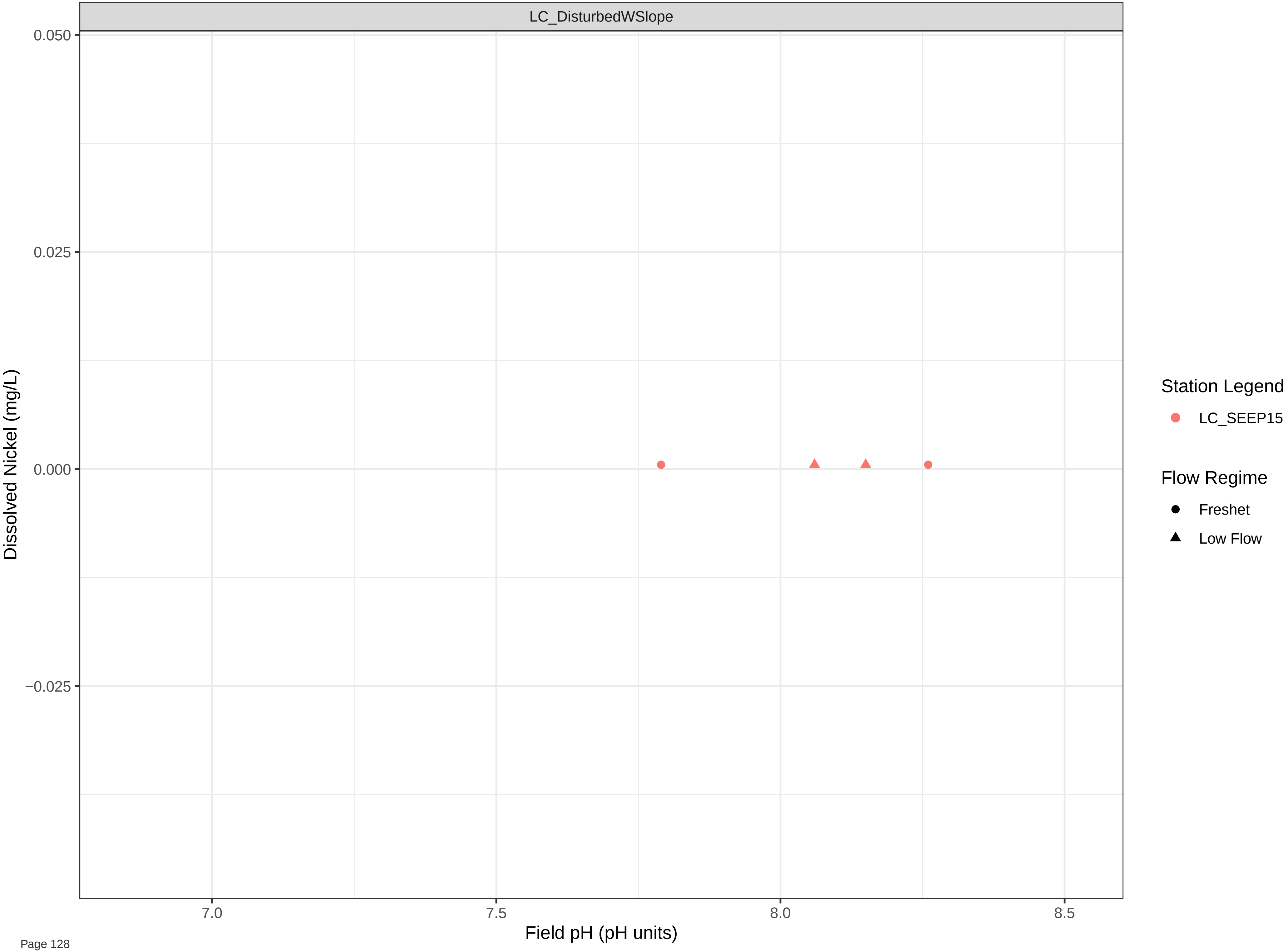

LC_MAXAM
Dissolved Molybdenum (mg/L)
0.00080
0.00076
0.00072
0.00068
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow

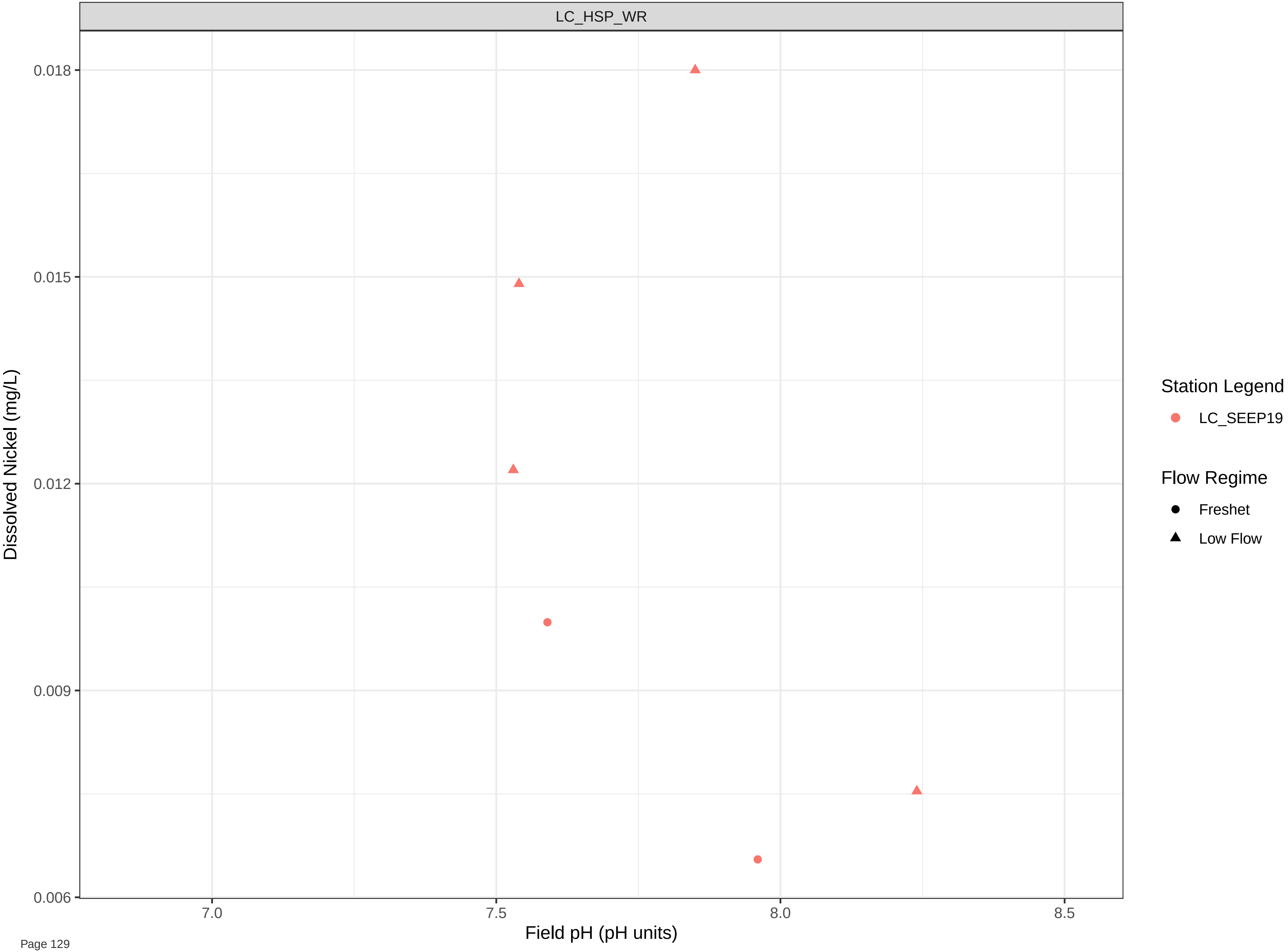

LC_MSA_WR
Dissolved Molybdenum (mg/L)
0.0020
0.0015
0.0010
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

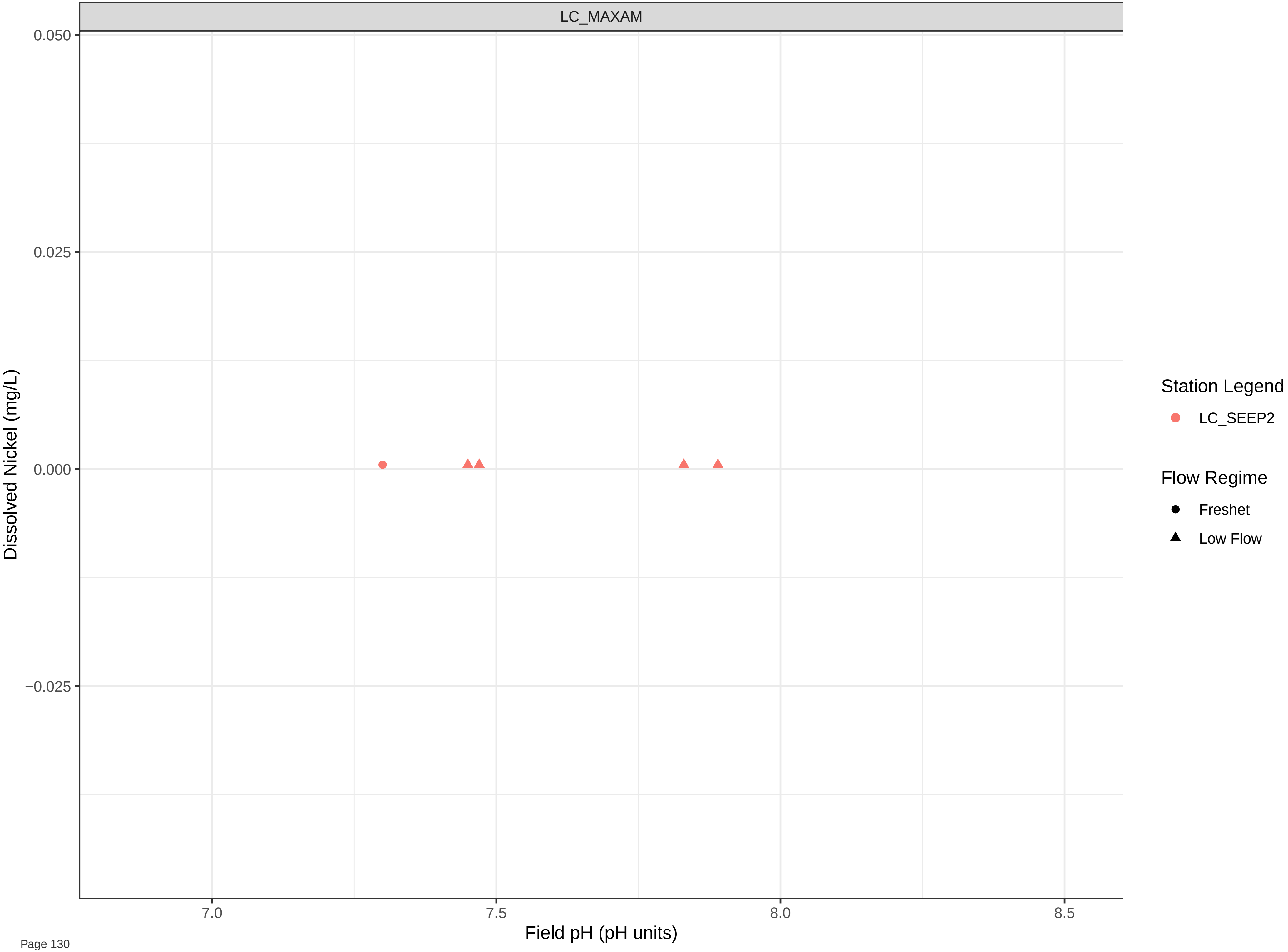

LC_PLANT
Dissolved Molybdenum (mg/L)
9e−04
8e−04
7e−04
6e−04
5e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

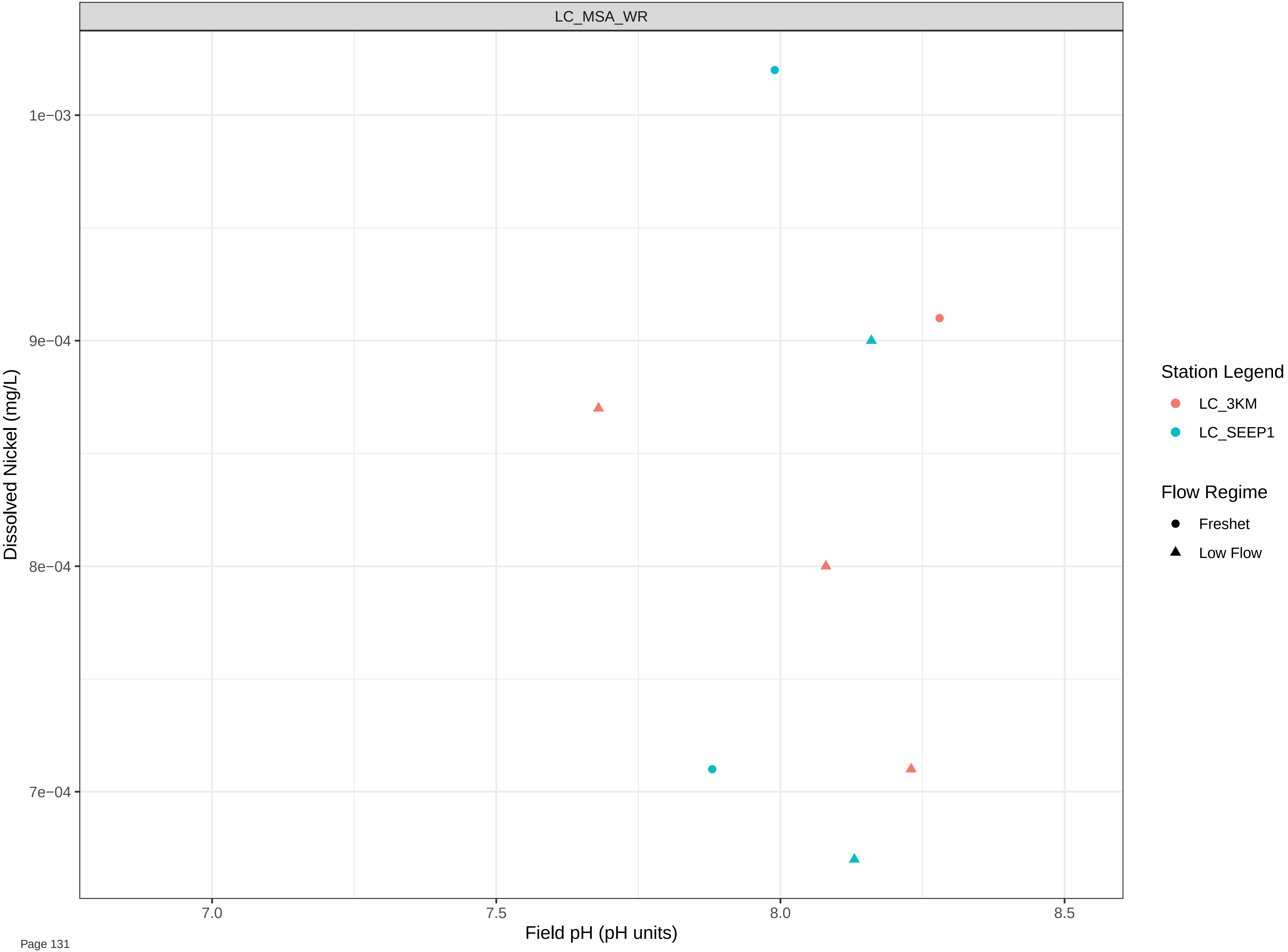

LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Molybdenum (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet

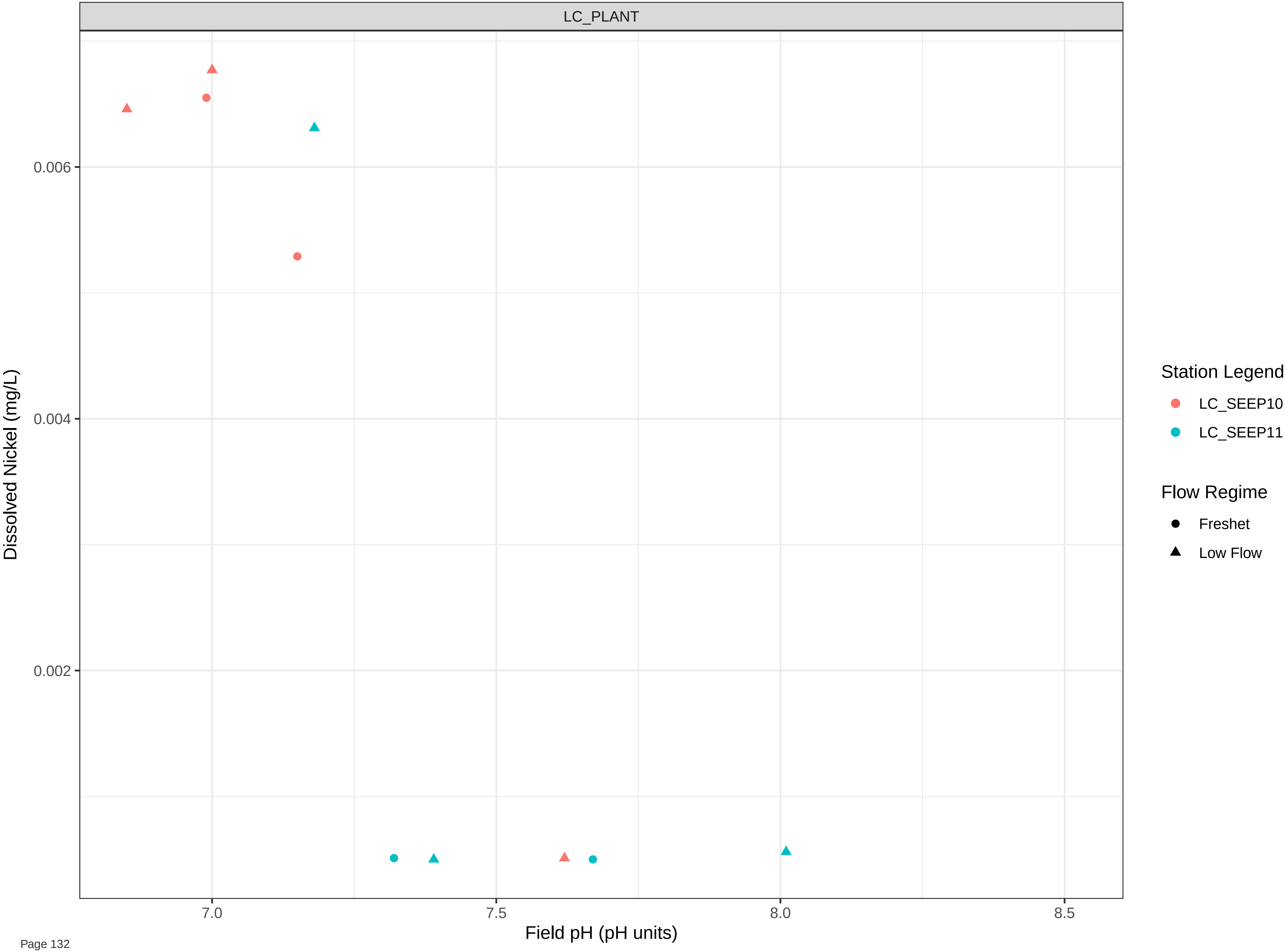

LC_DC_WR
Dissolved Nickel (mg/L)
0.006
0.004
0.002
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP14
● LC_SEEP8
● LC_UDHP
● LC_UDP1
Flow Regime
● Freshet
▲ Low Flow


LC_DisturbedWSlope
0.050
0.025
0.000
−0.025
Dissolved Nickel (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

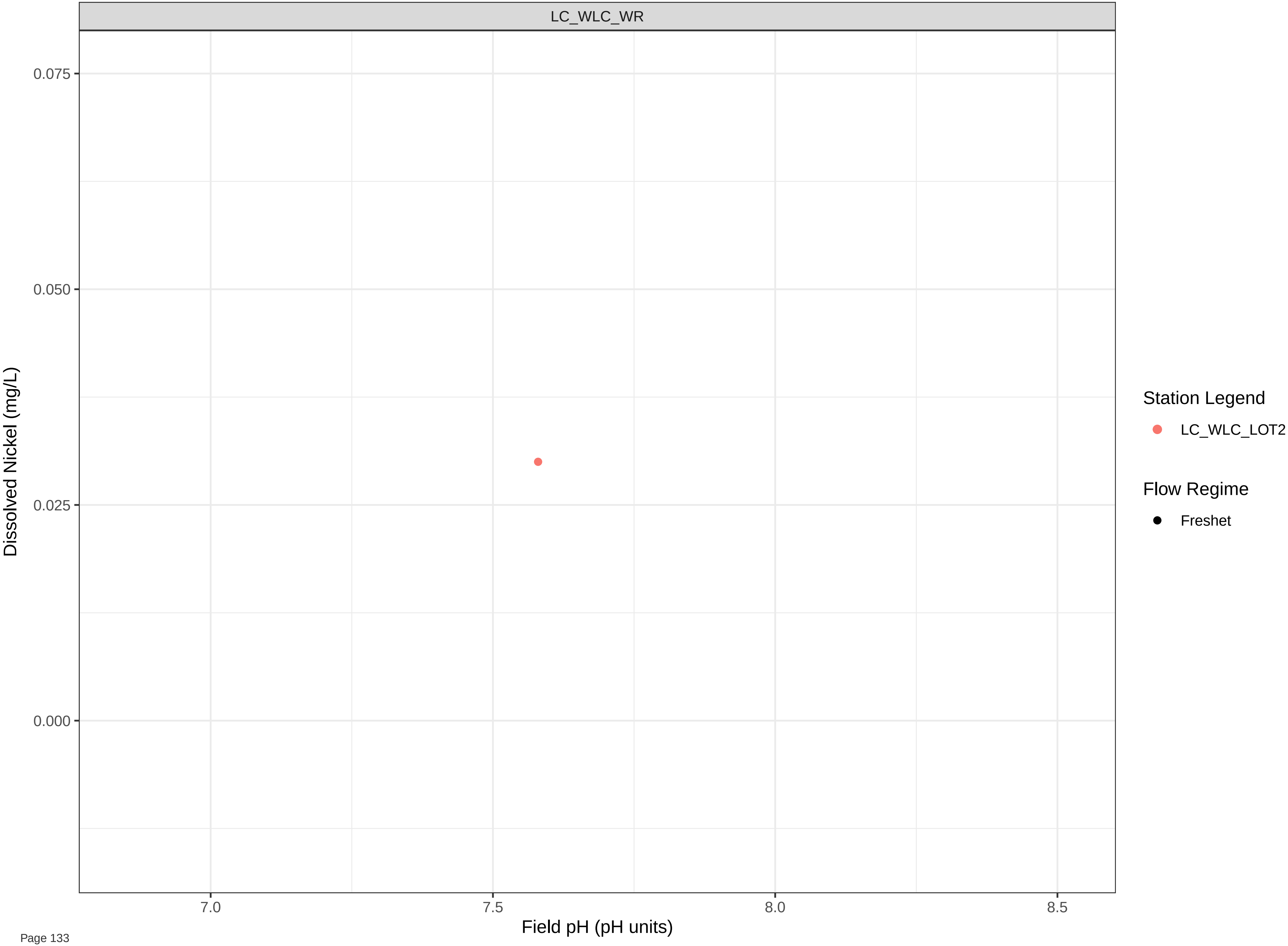

LC_HSP_WR
Dissolved Nickel (mg/L)
0.018
0.015
0.012
0.009
0.006
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

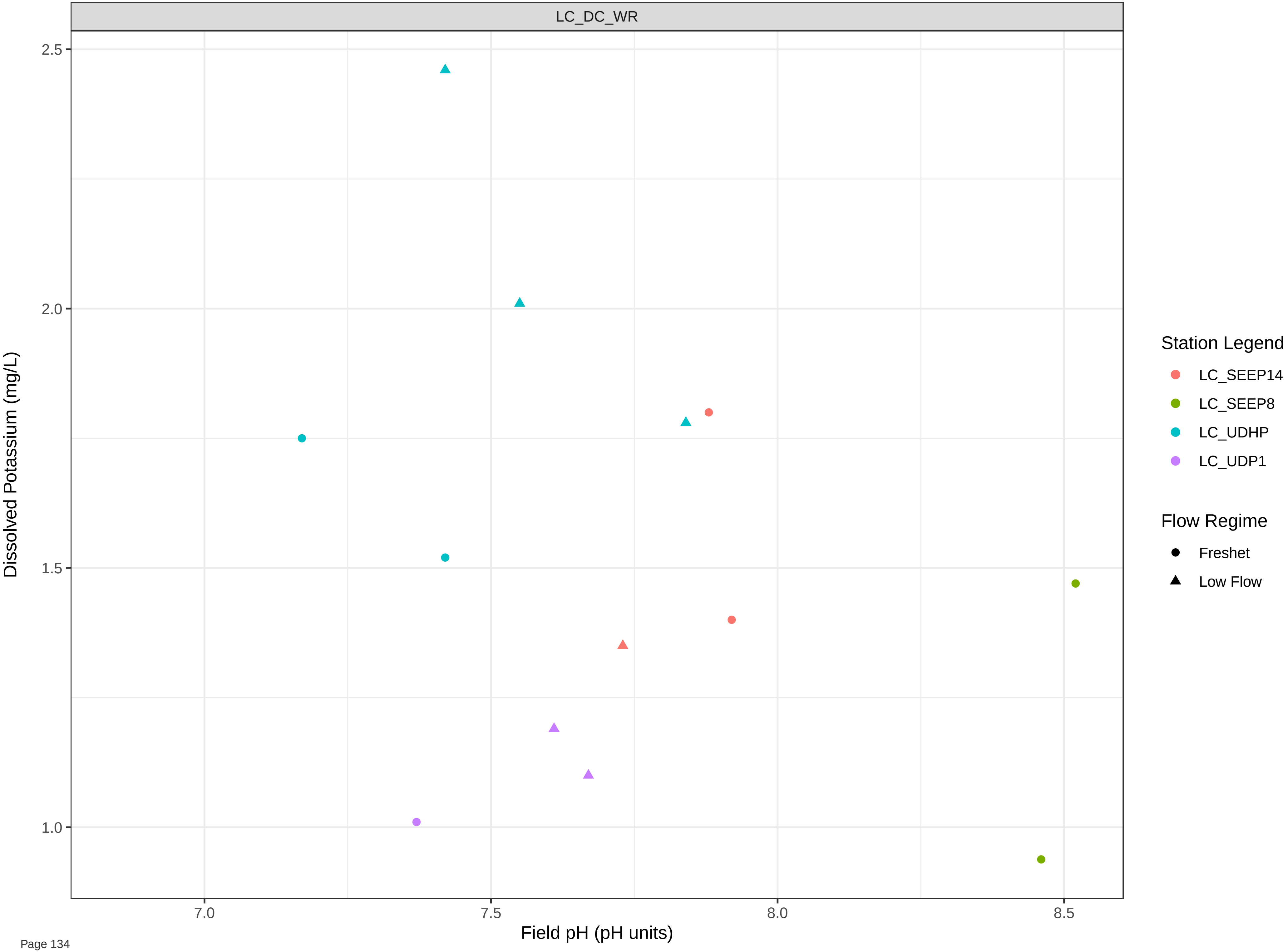

LC_MAXAM
0.050
0.025
0.000
−0.025
Dissolved Nickel (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

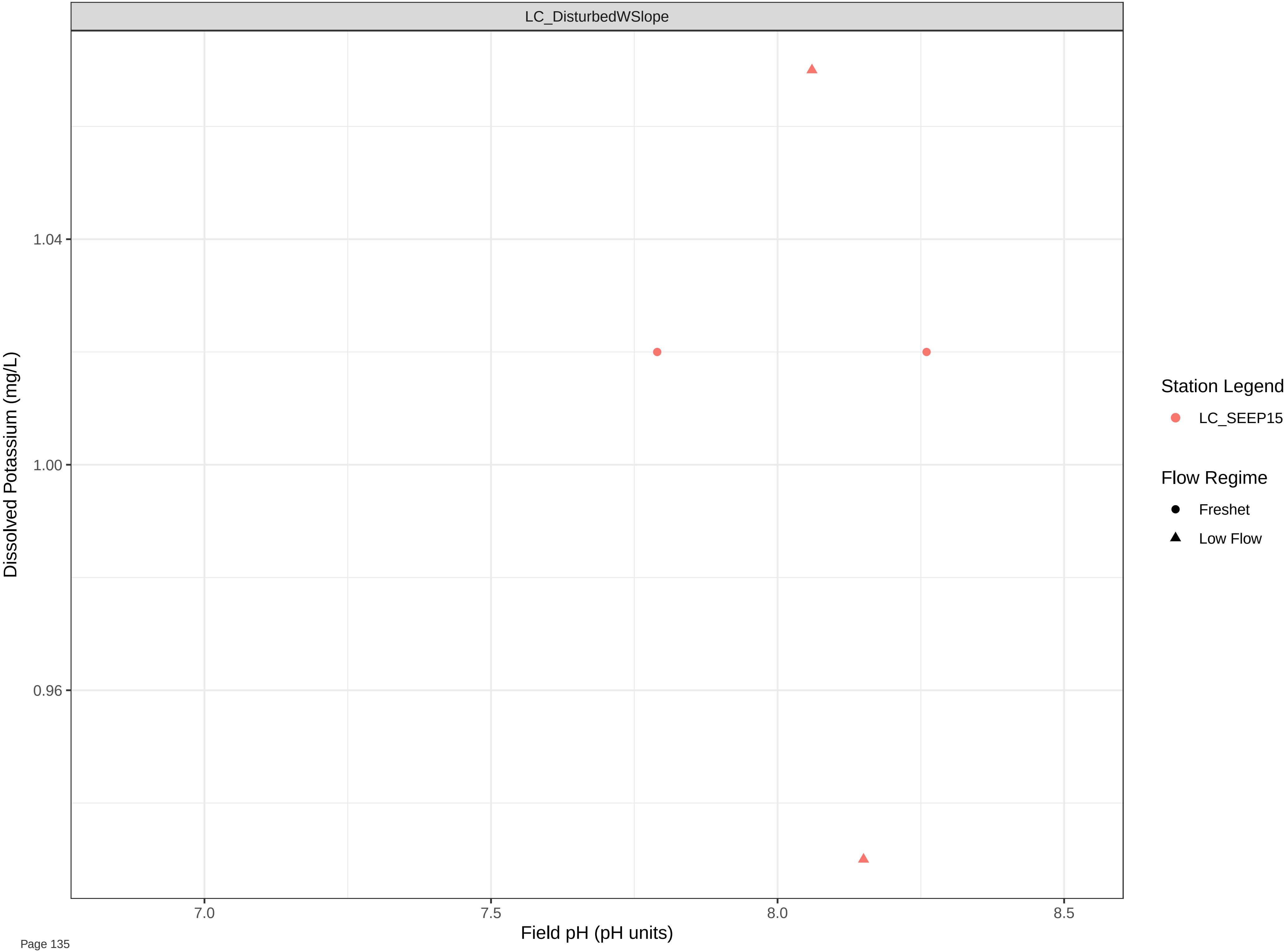

LC_MSA_WR
Dissolved Nickel (mg/L)
1e−03
9e−04
8e−04
7e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

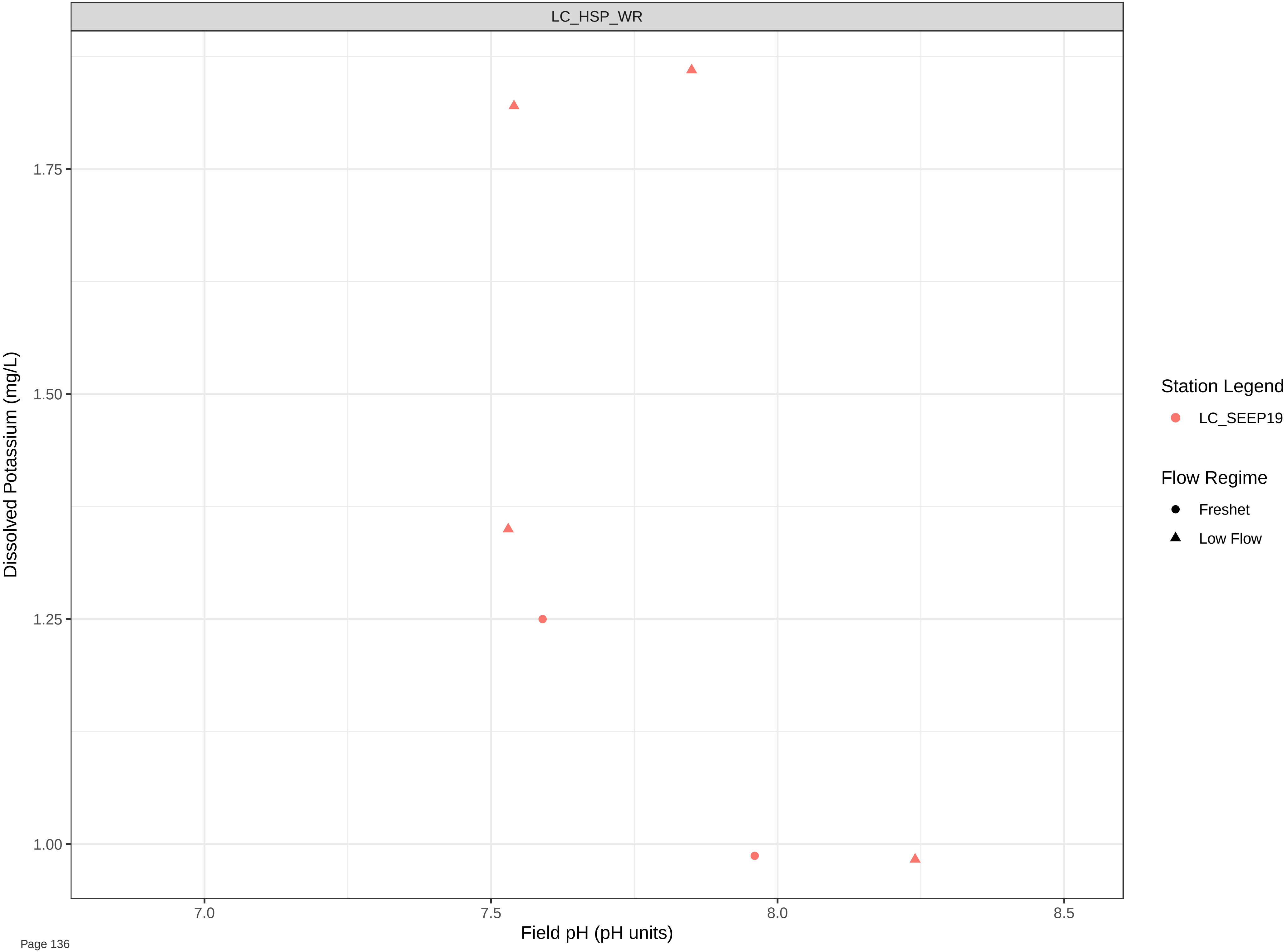


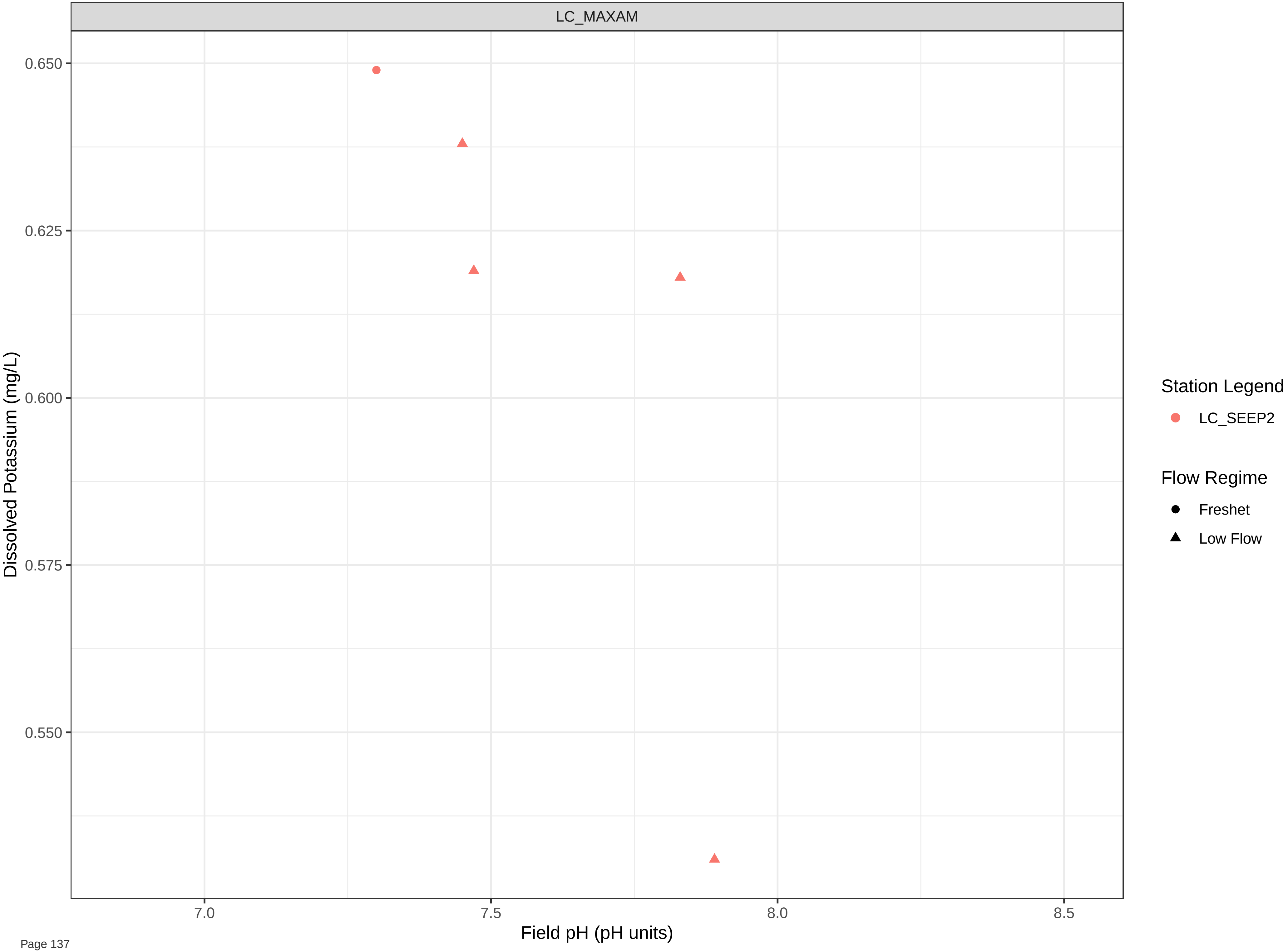
LC_PLANT
Dissolved Nickel (mg/L)
0.006
0.004
0.002
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

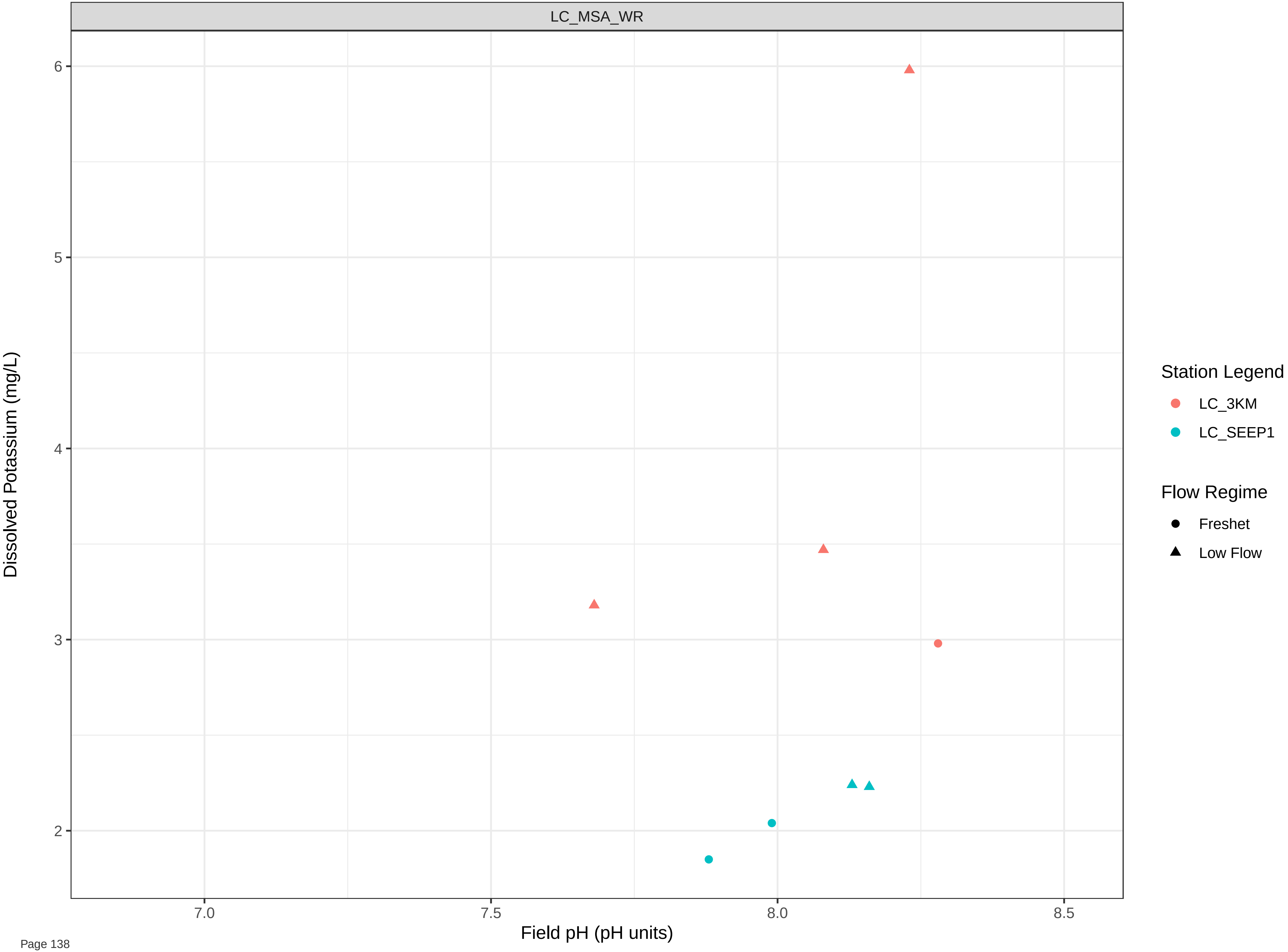

LC_WLC_WR
Dissolved Nickel (mg/L)
0.075
0.050
0.025
0.000
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

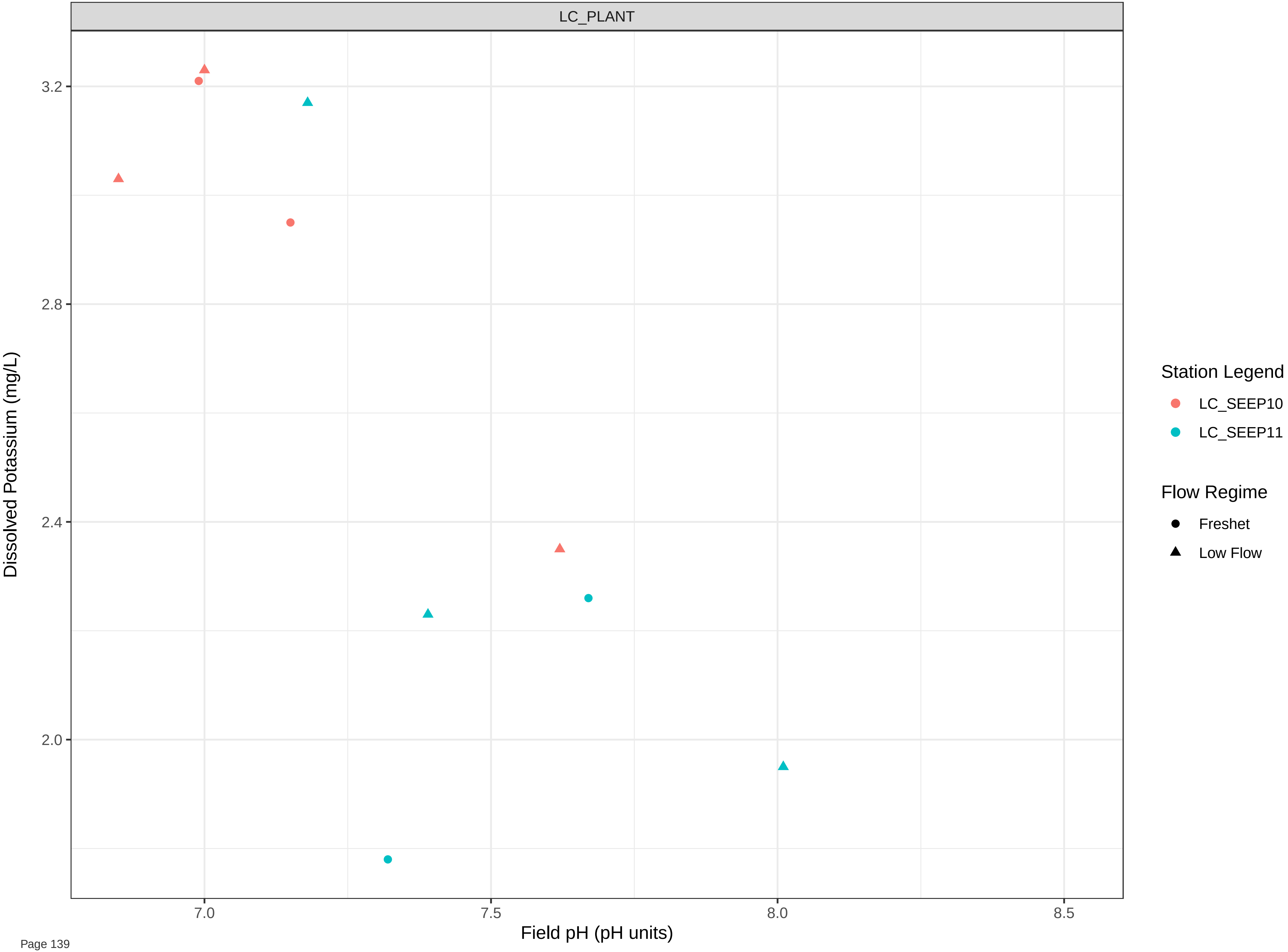

LC_DC_WR
Dissolved Potassium (mg/L)
2.5
2.0
1.5
1.0
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

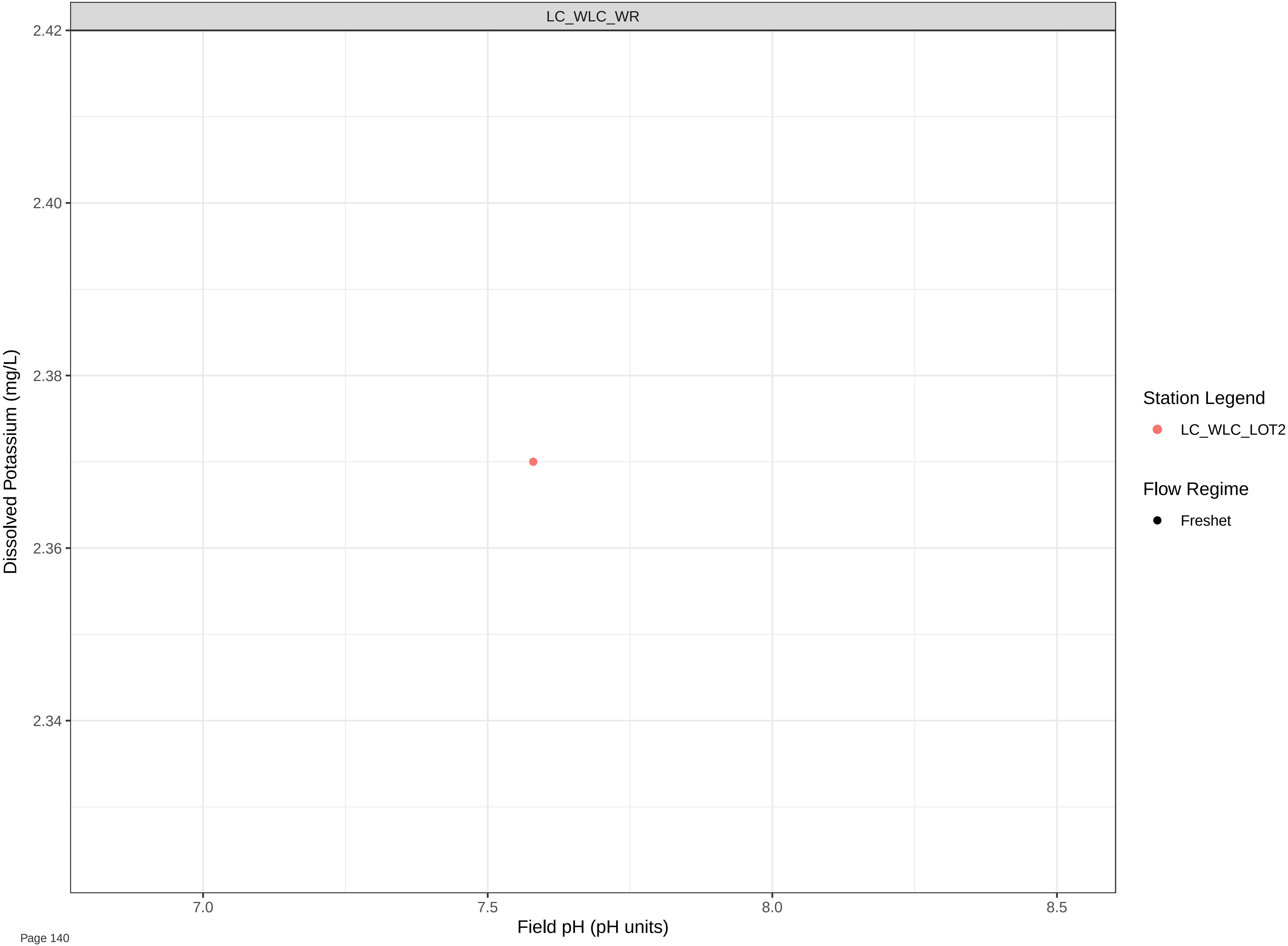

LC_DisturbedWSlope
Dissolved Potassium (mg/L)
1.04
1.00
0.96
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

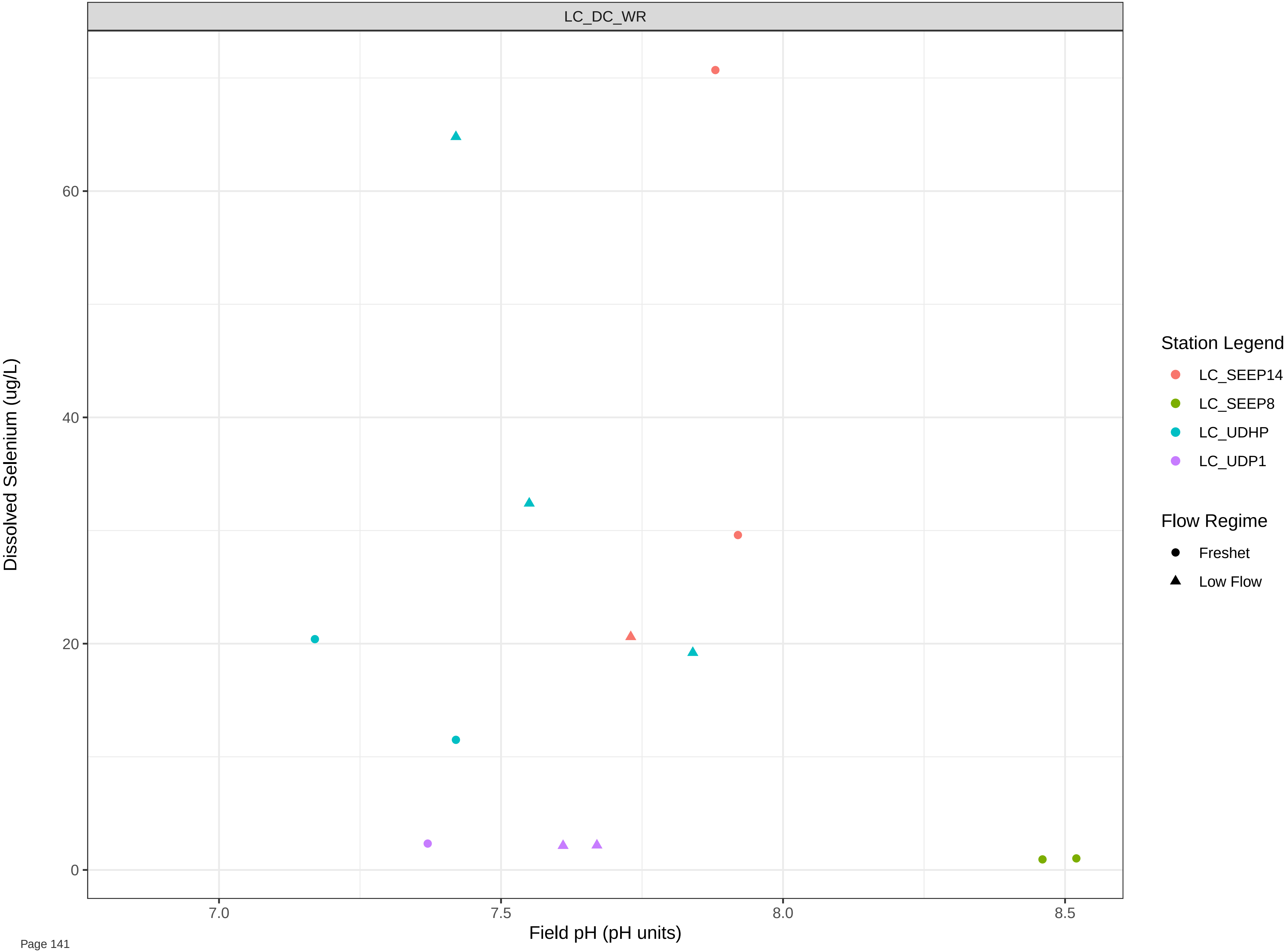

LC_HSP_WR
Dissolved Potassium (mg/L)
1.75
1.50
1.25
1.00
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

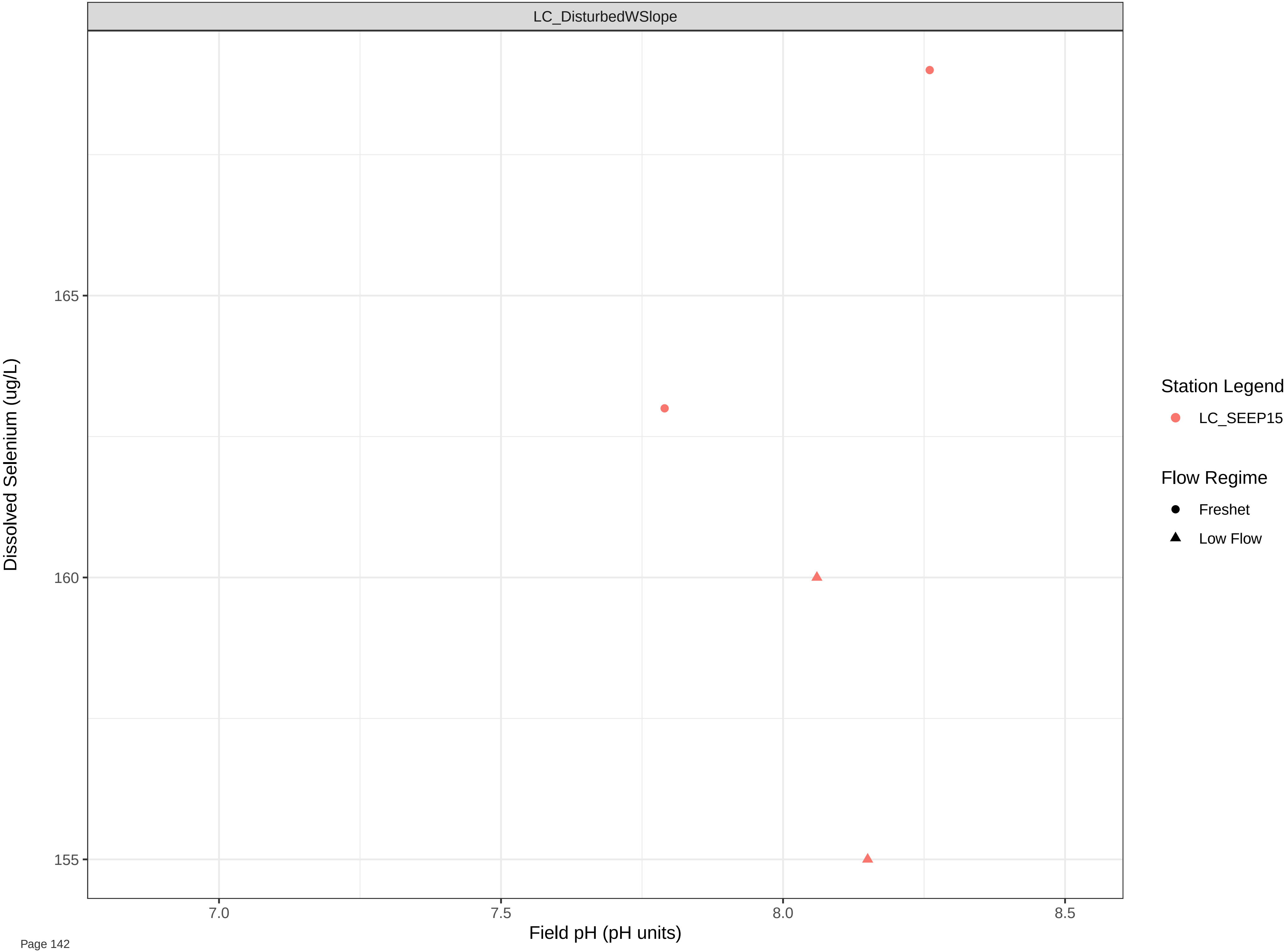

LC_MAXAM
0.650
0.625
0.600
0.575
0.550
Dissolved Potassium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow

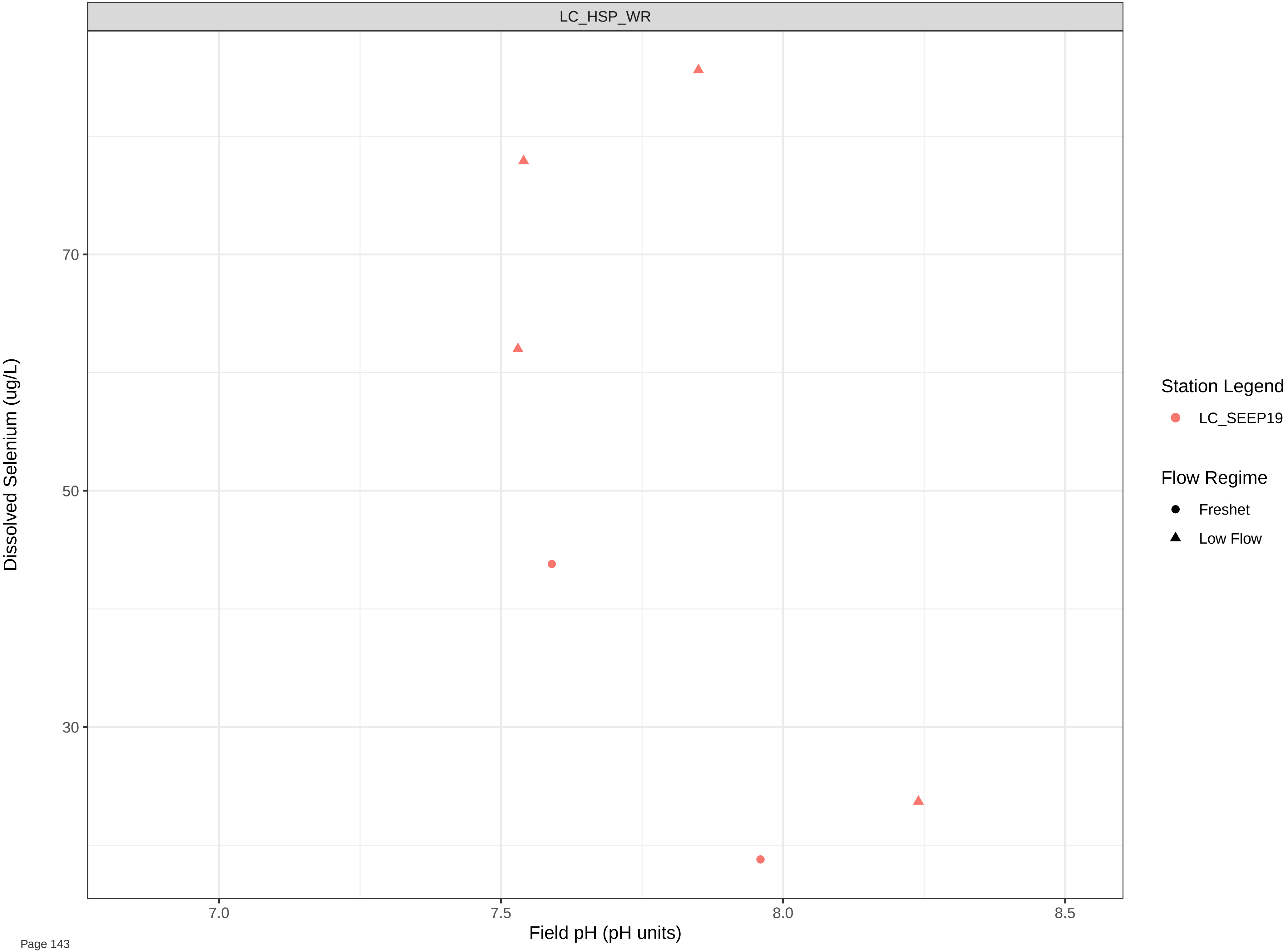

LC_MSA_WR
Dissolved Potassium (mg/L)
6
5
4
3
2
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

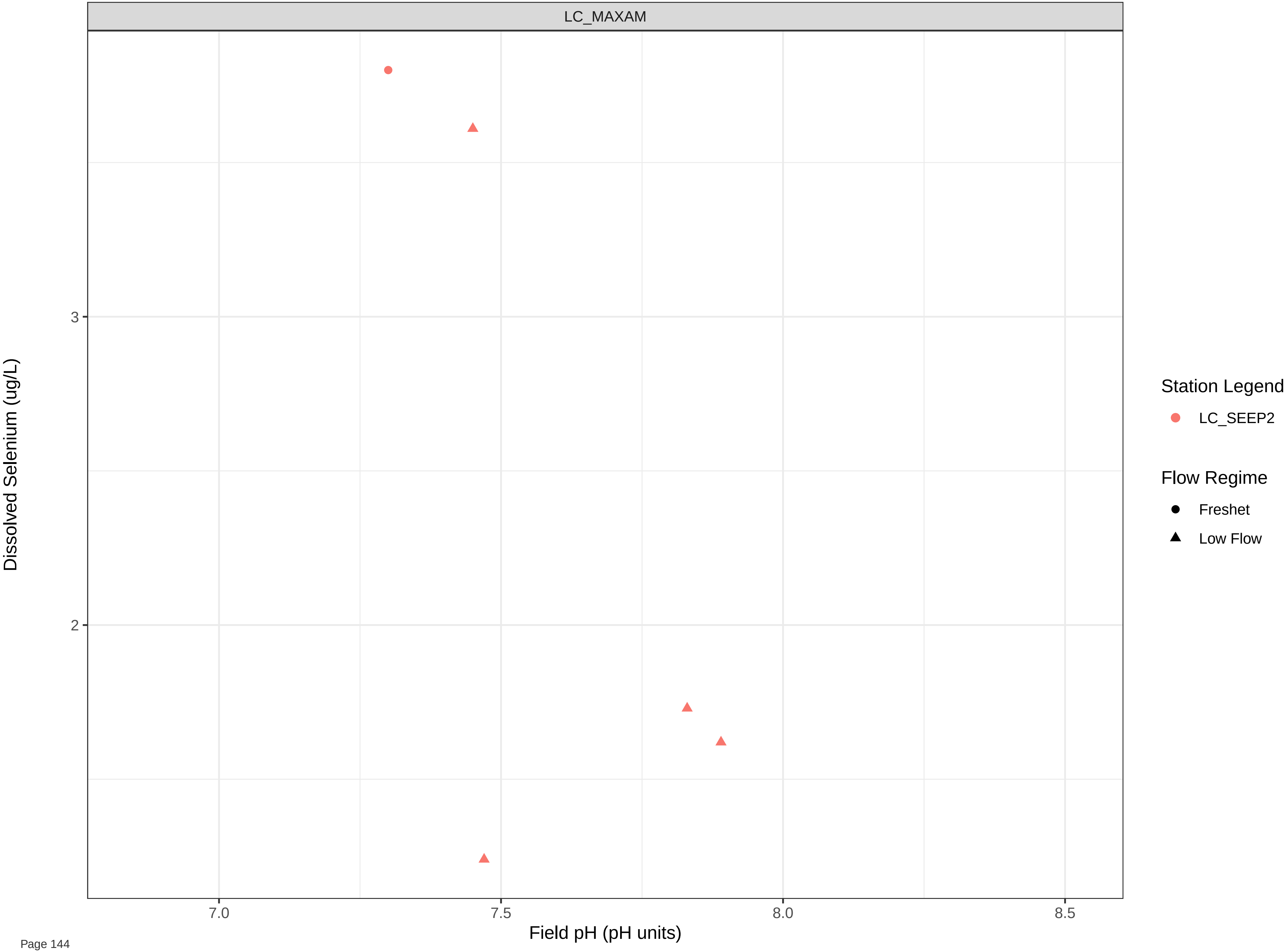

LC_PLANT
Dissolved Potassium (mg/L)
3.2
2.8
2.4
2.0
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

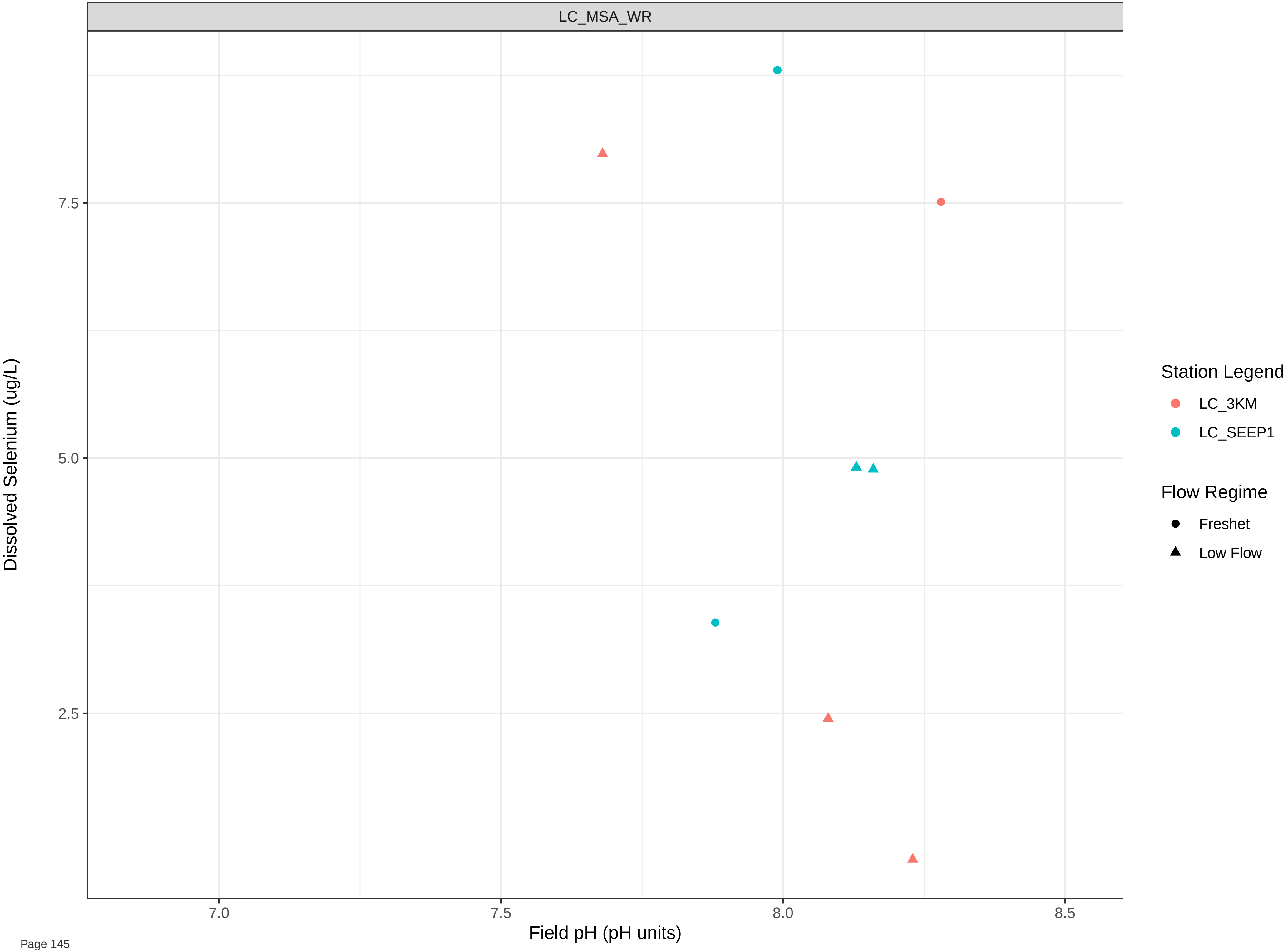

LC_WLC_WR
Dissolved Potassium (mg/L)
2.42
2.40
2.38
2.36
2.34
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

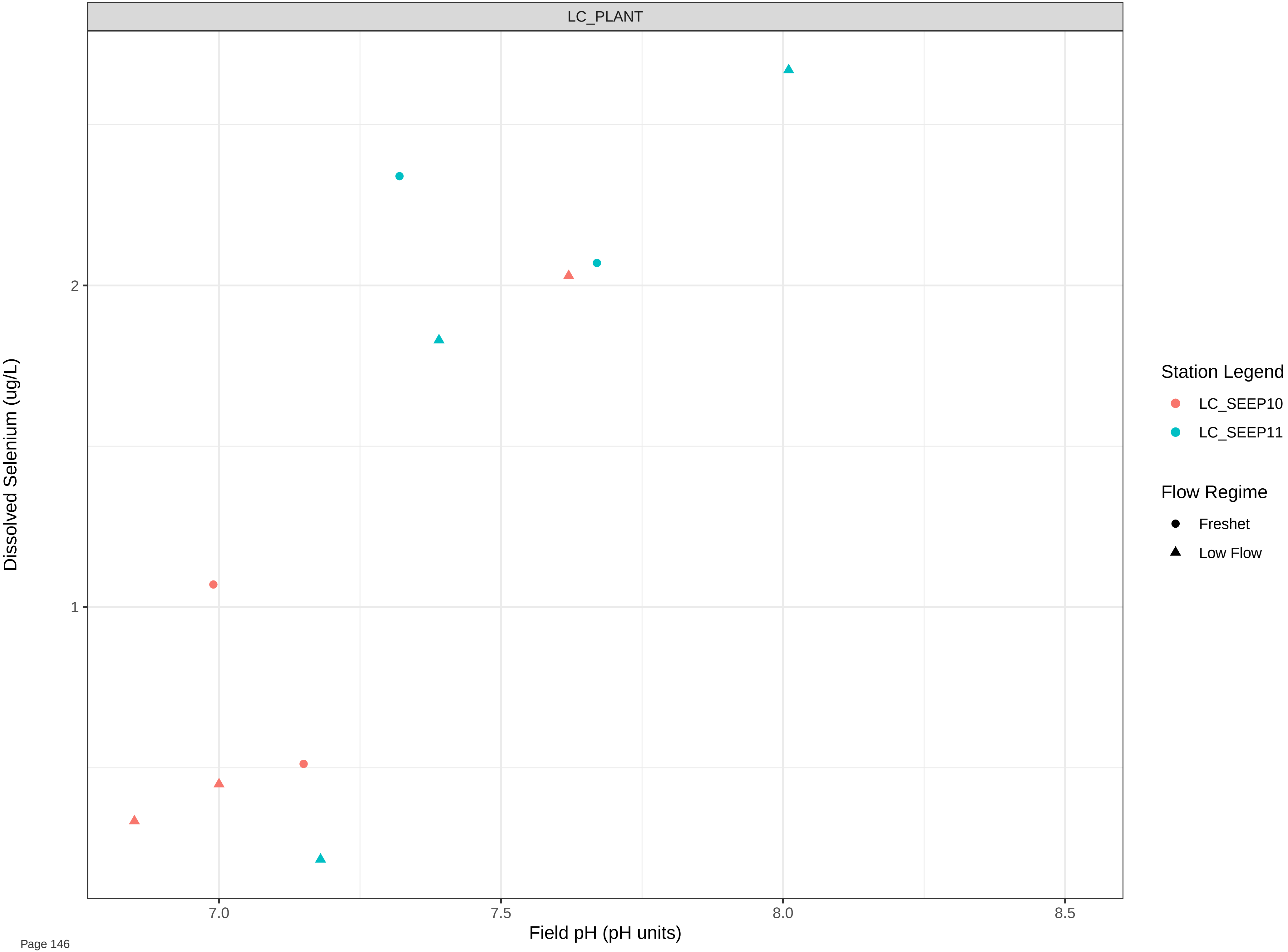

LC_DC_WR
Dissolved Selenium (ug/L)
60
40
20
0
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

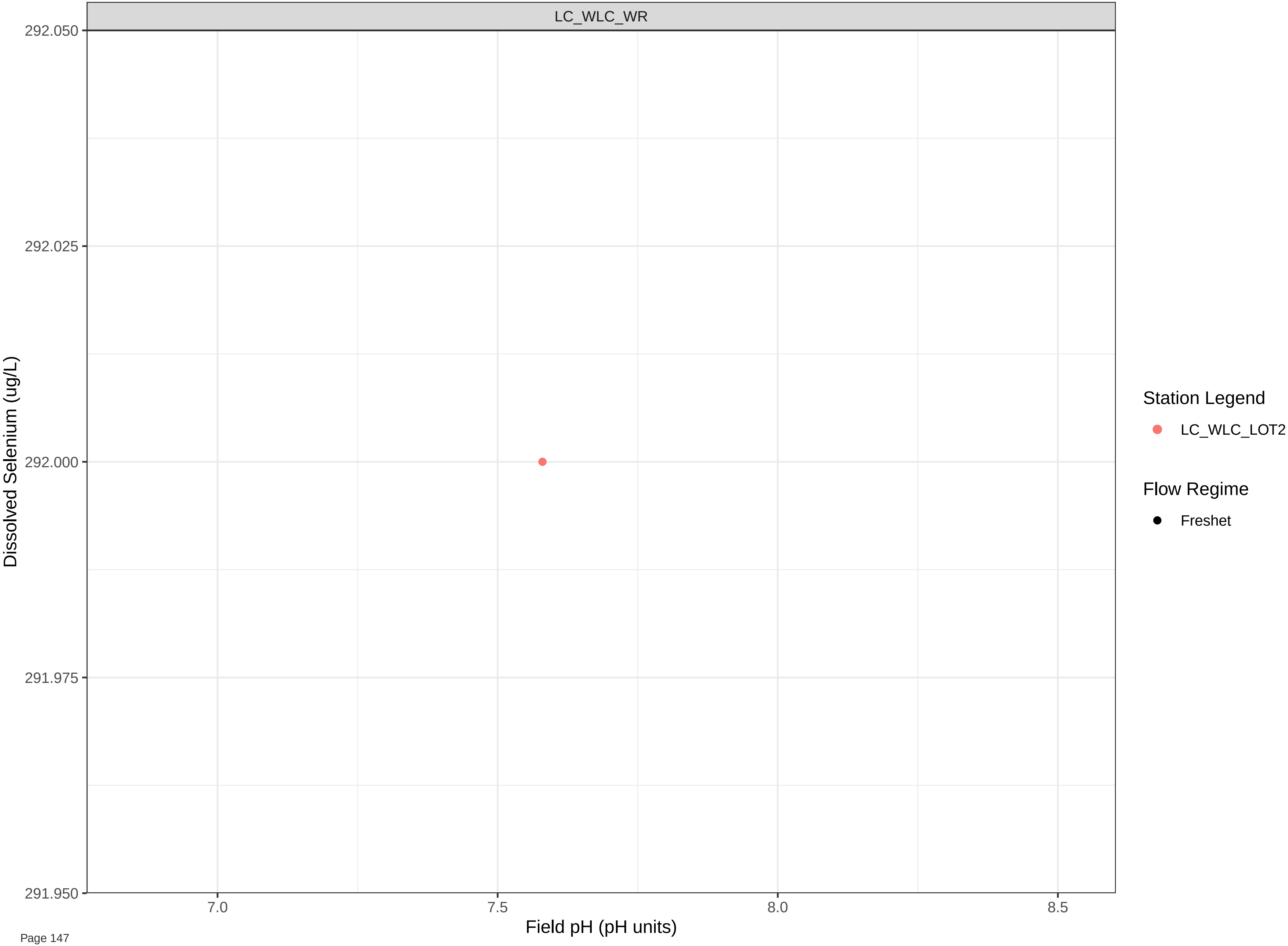

LC_DisturbedWSlope
Dissolved Selenium (ug/L)
165
160
155
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

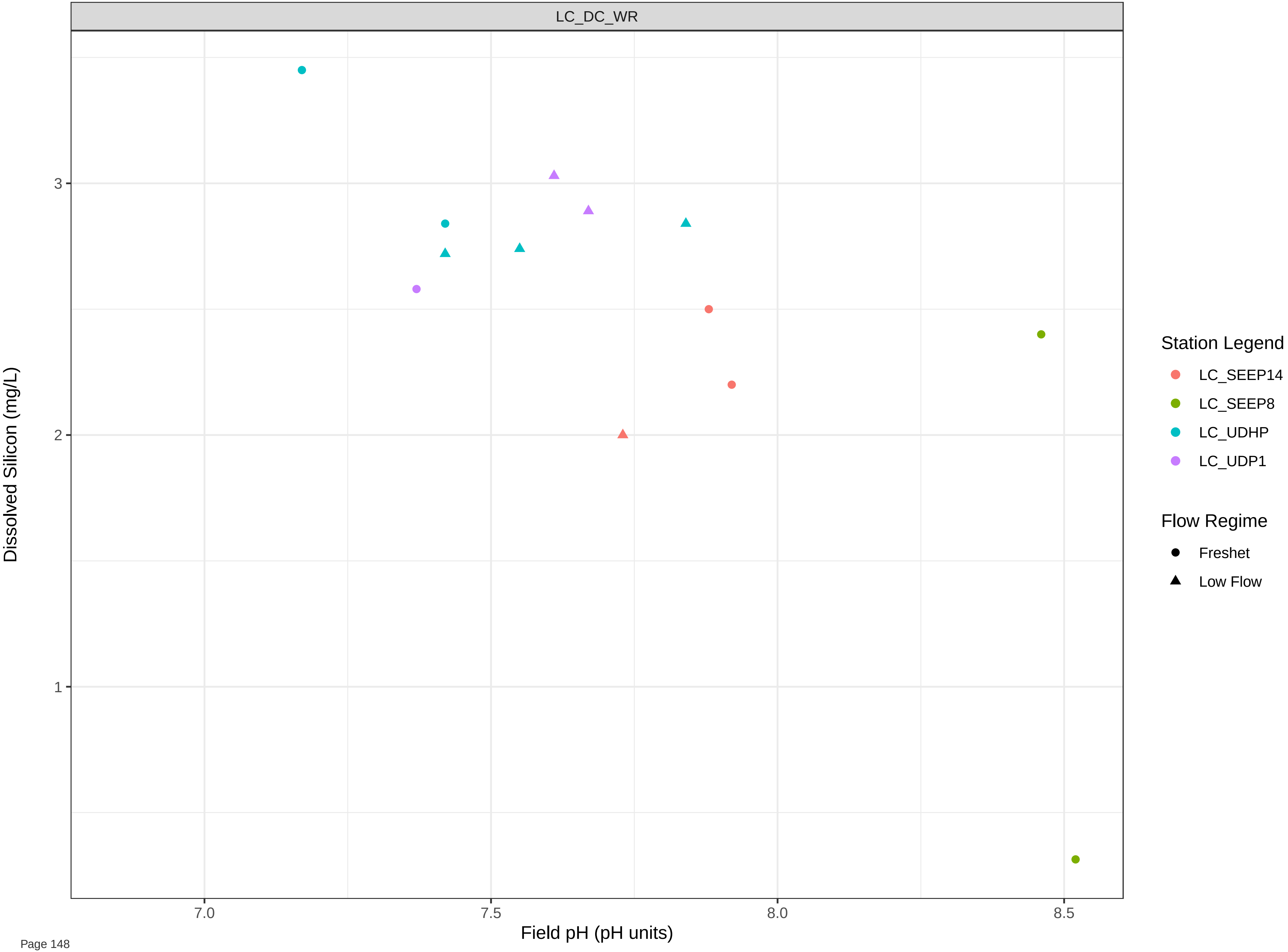

LC_HSP_WR
Dissolved Selenium (ug/L)
70
50
30
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

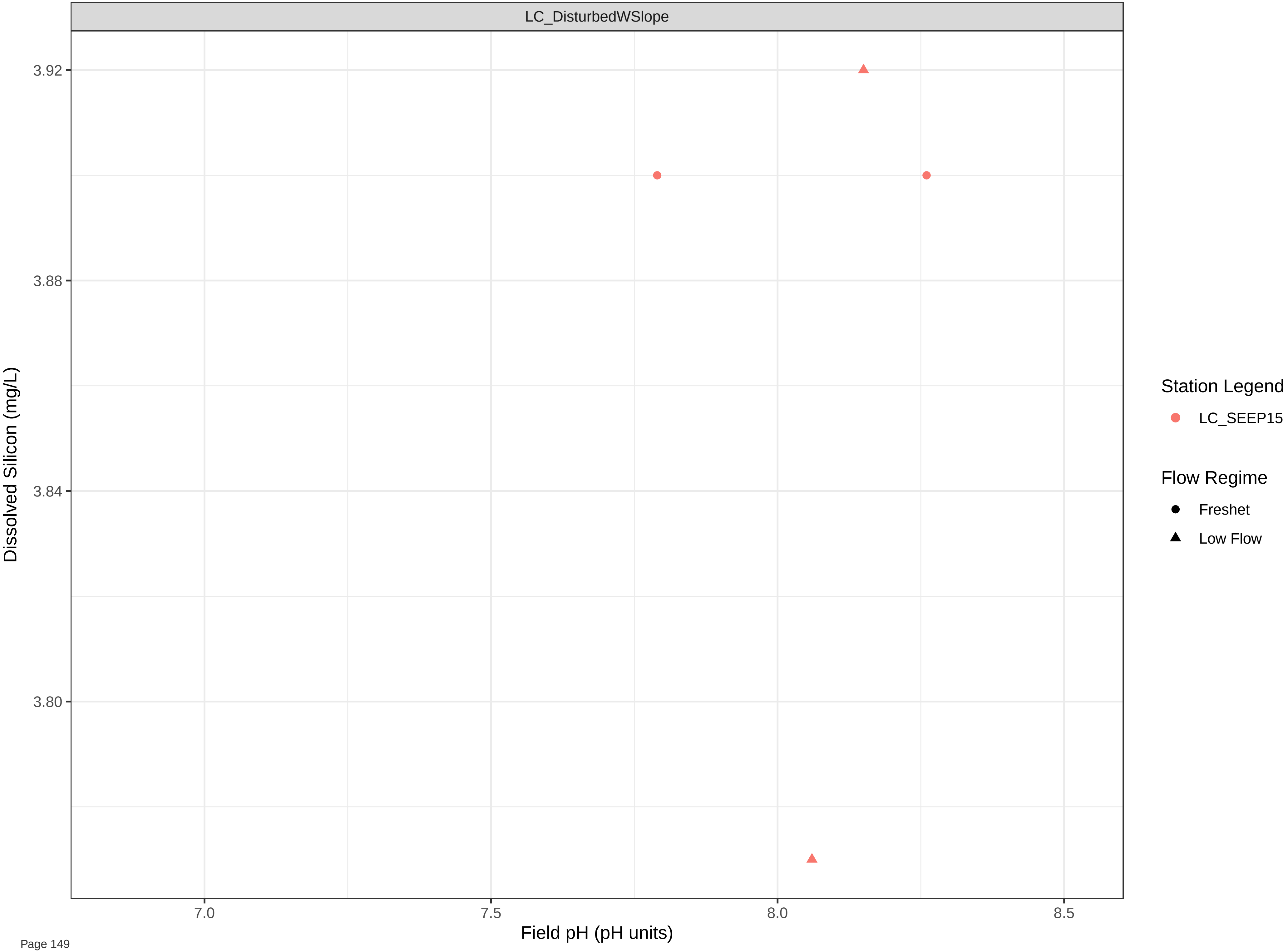

LC_MAXAM
Dissolved Selenium (ug/L)
3
2
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow

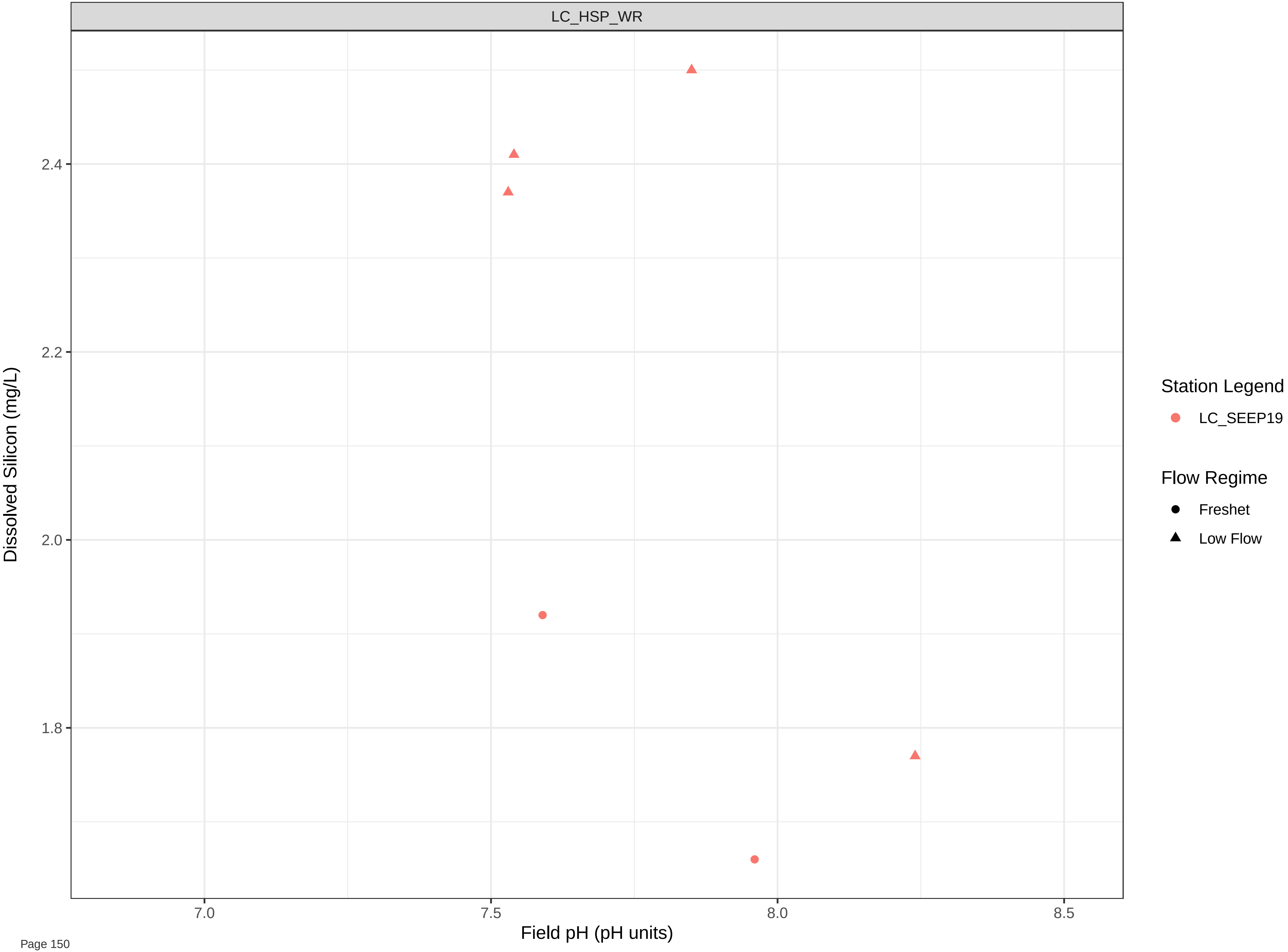

LC_MSA_WR
Dissolved Selenium (ug/L)
7.5
5.0
2.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

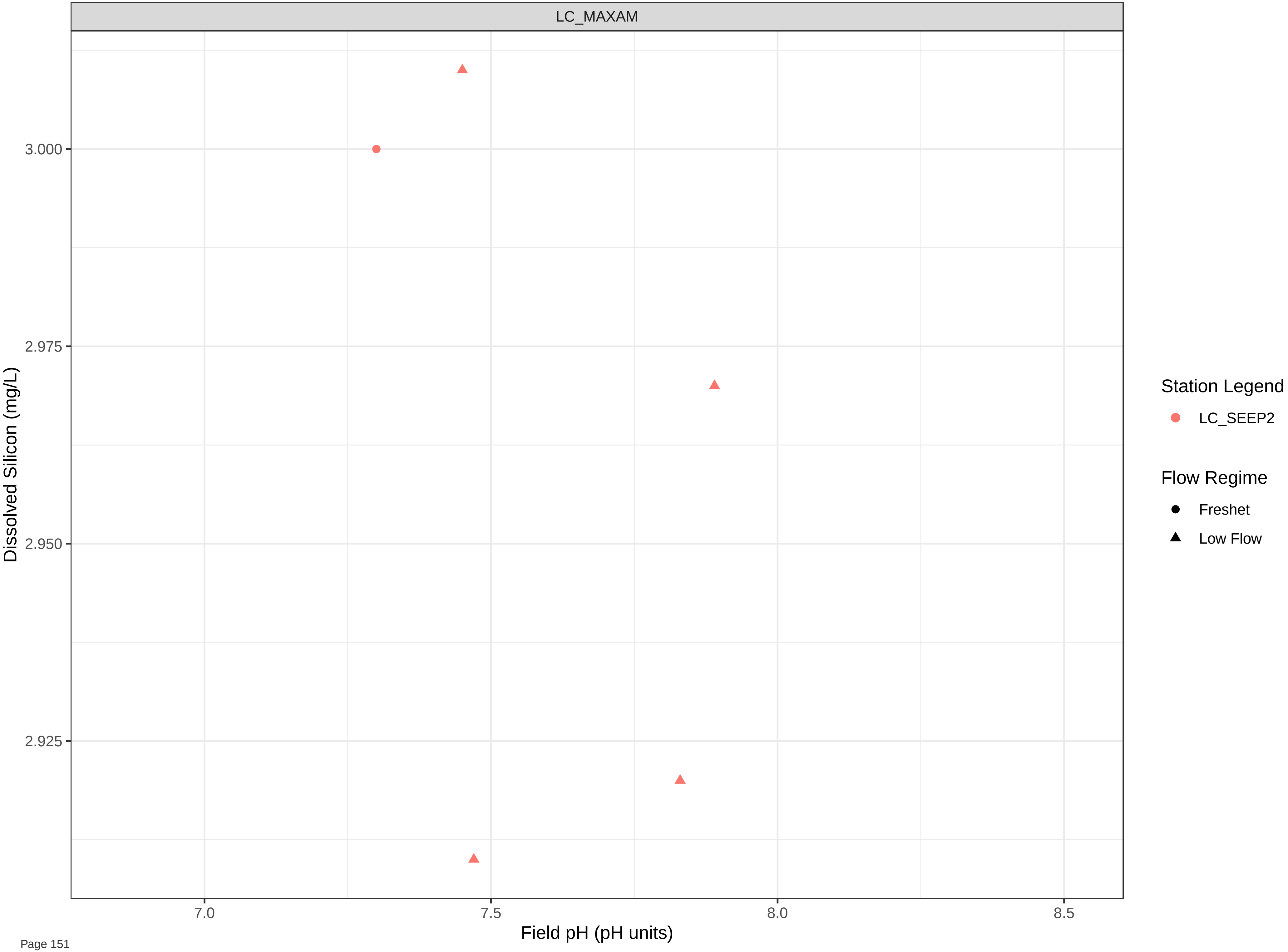

LC_PLANT
Dissolved Selenium (ug/L)
2
1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

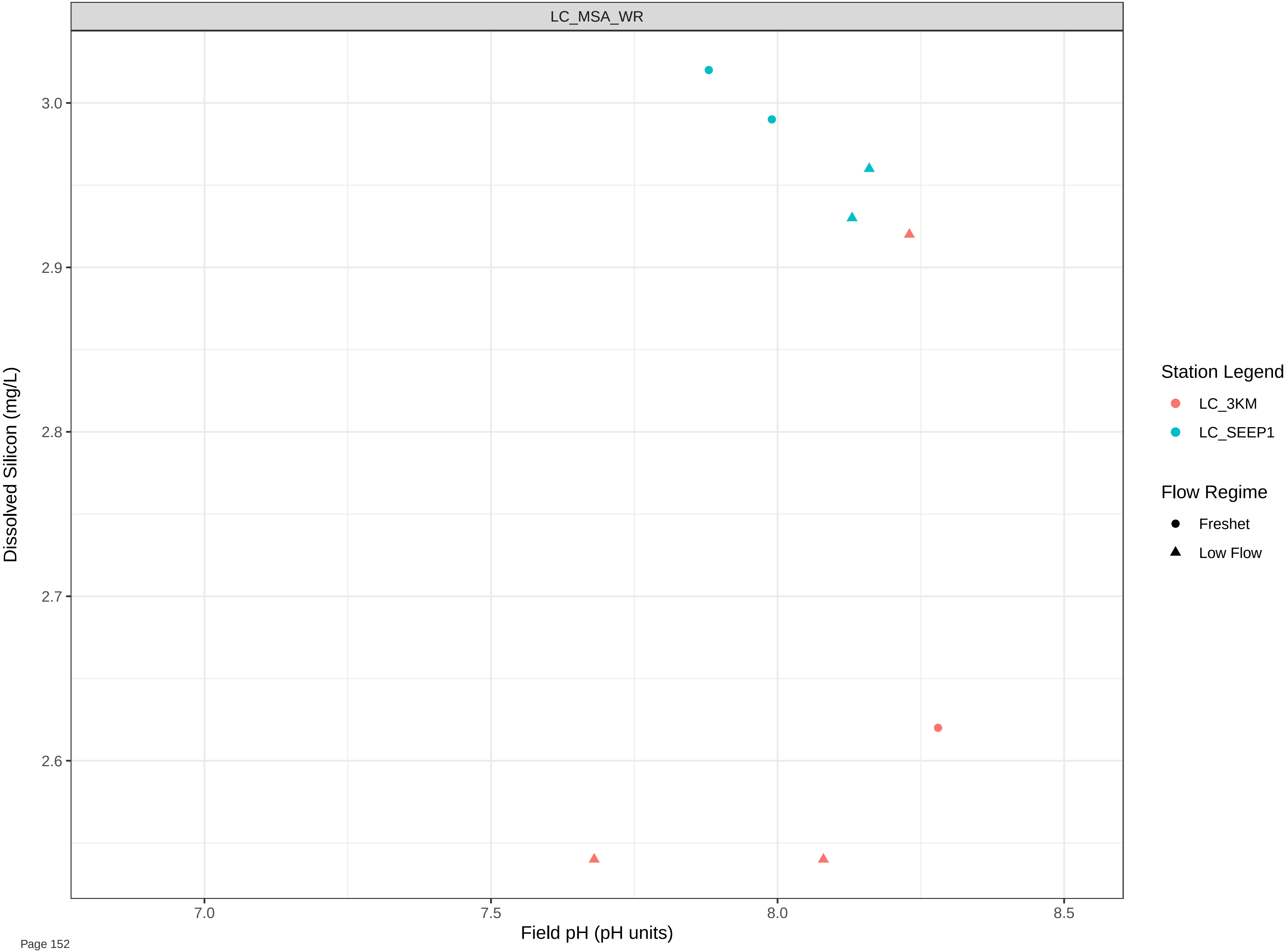

LC_WLC_WR
292.050
292.025
292.000
291.975
291.950
Dissolved Selenium (ug/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

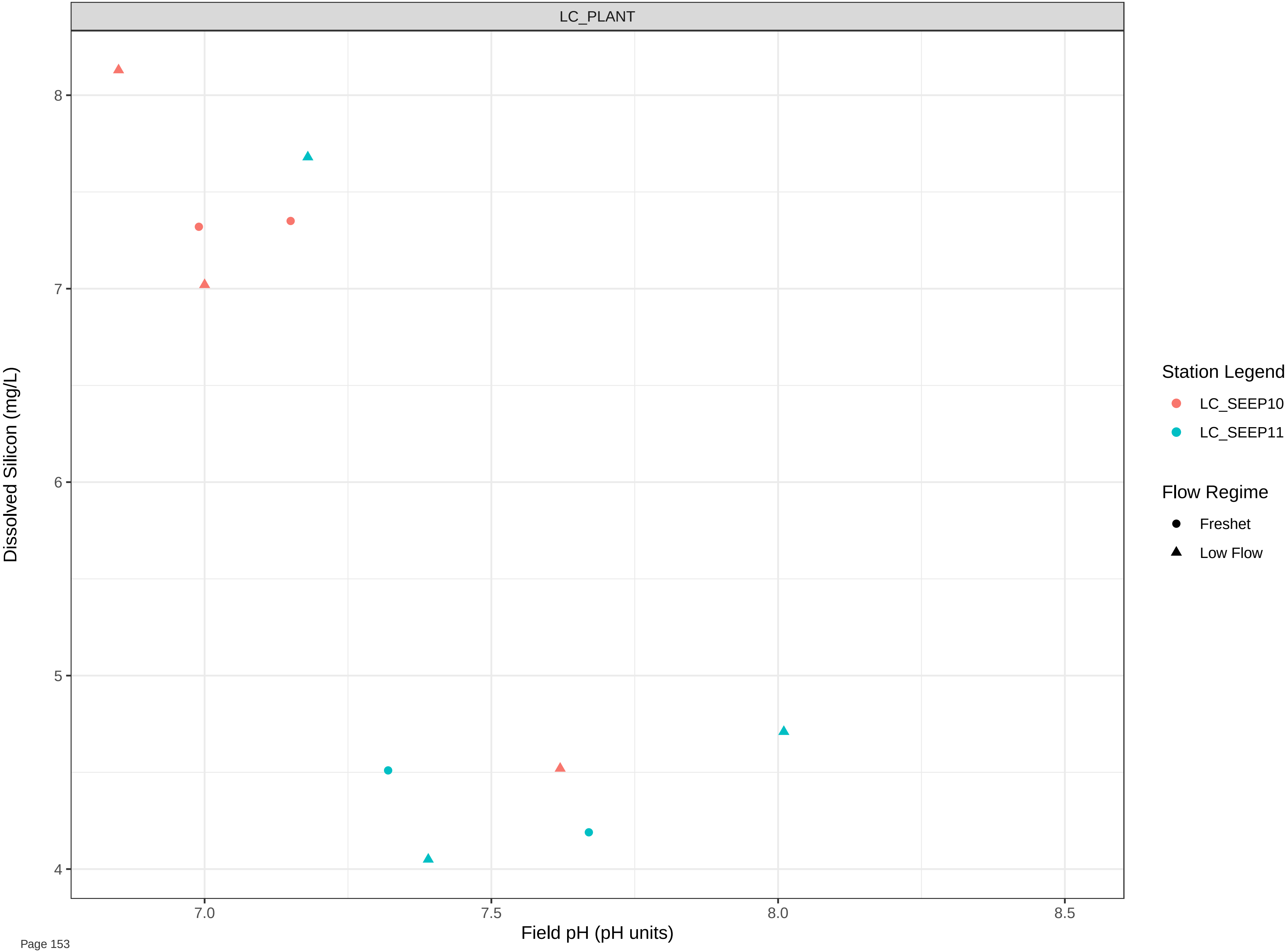

LC_DC_WR
Dissolved Silicon (mg/L)
3
2
1
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

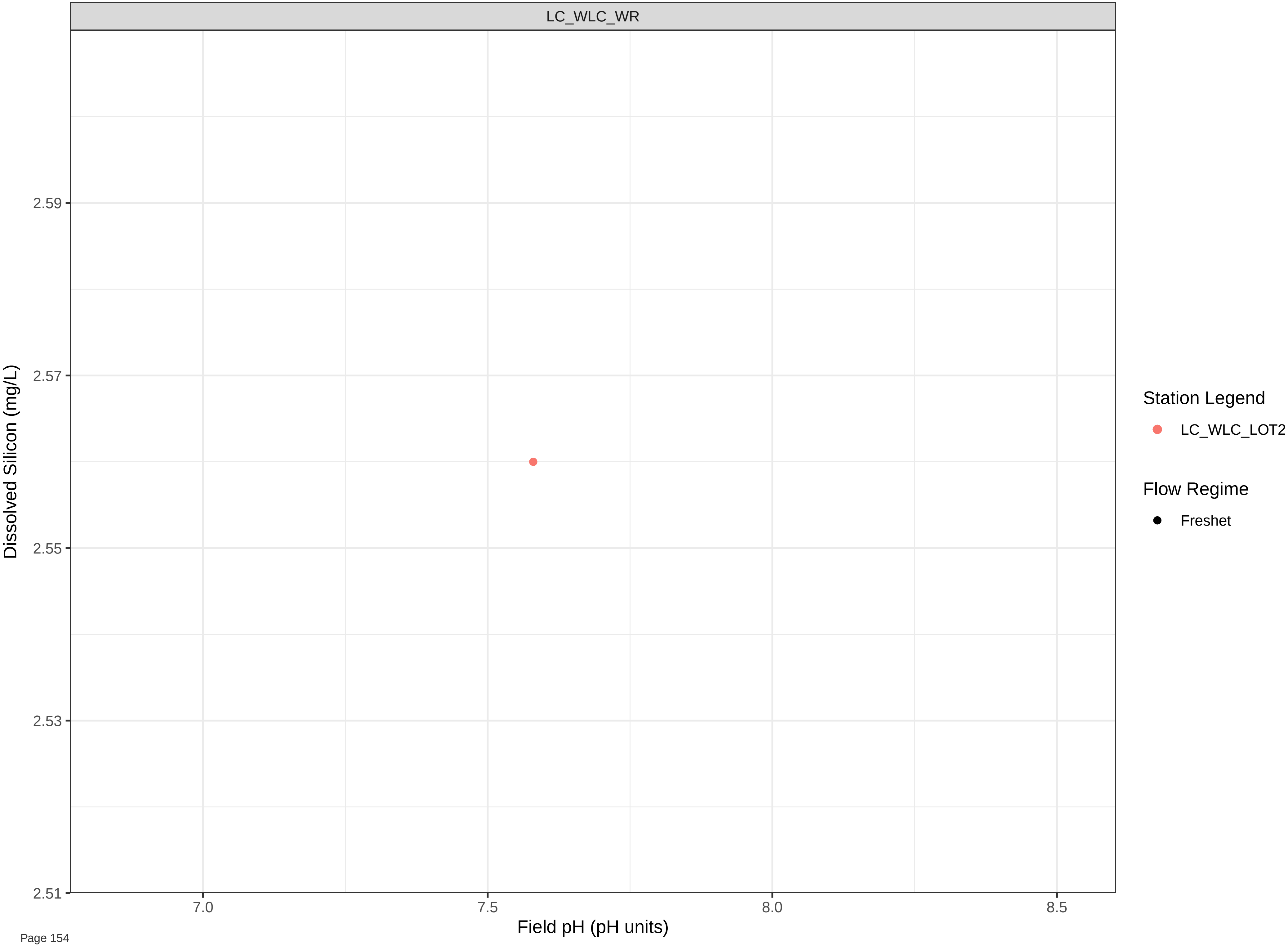

LC_DisturbedWSlope
3.92
3.88
3.84
3.80
7.0
7.5
8.0
8.5
Field pH (pH units)
Dissolved Silicon (mg/L)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow

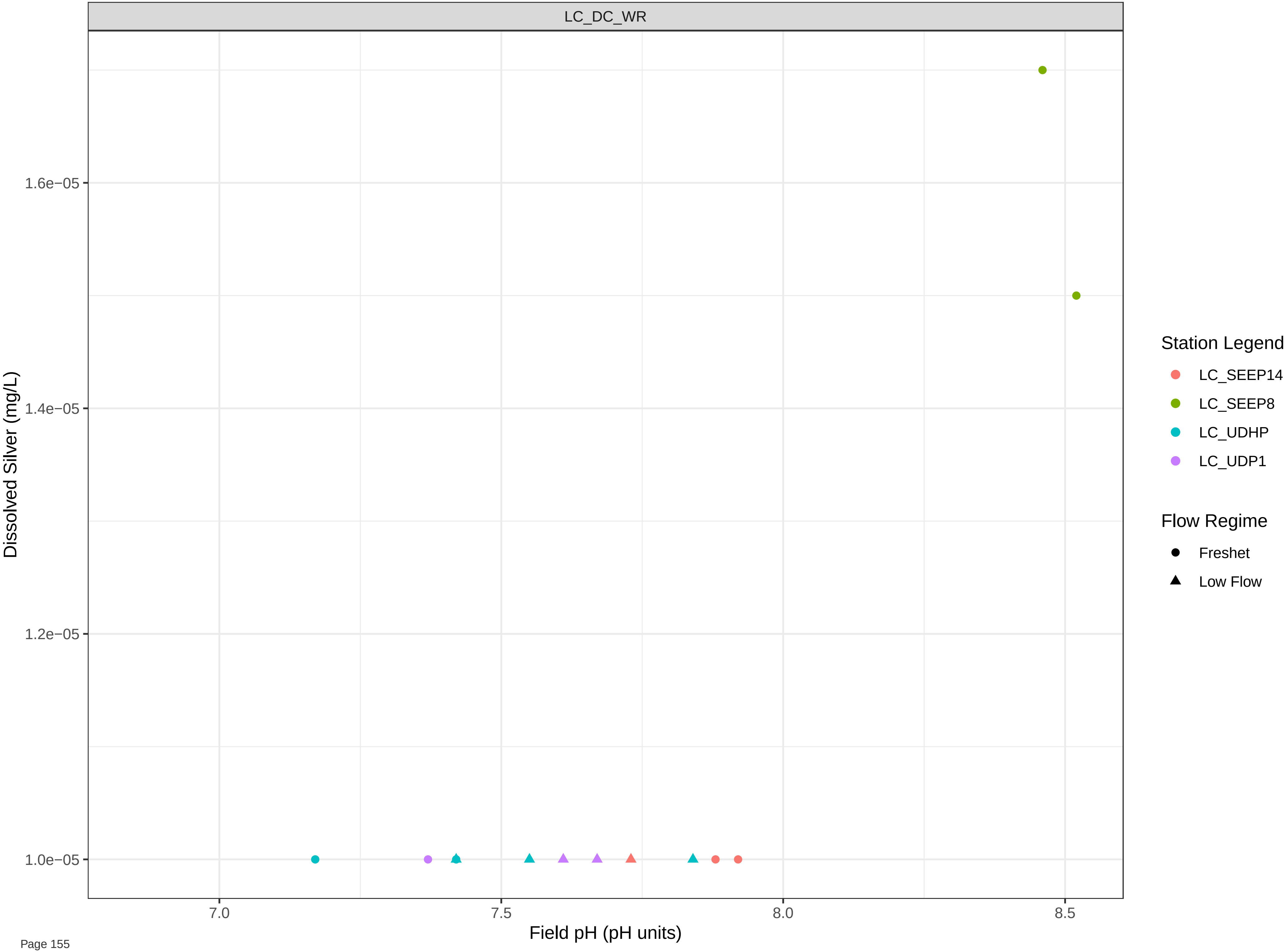

LC_HSP_WR
Dissolved Silicon (mg/L)
2.4
2.2
2.0
1.8
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

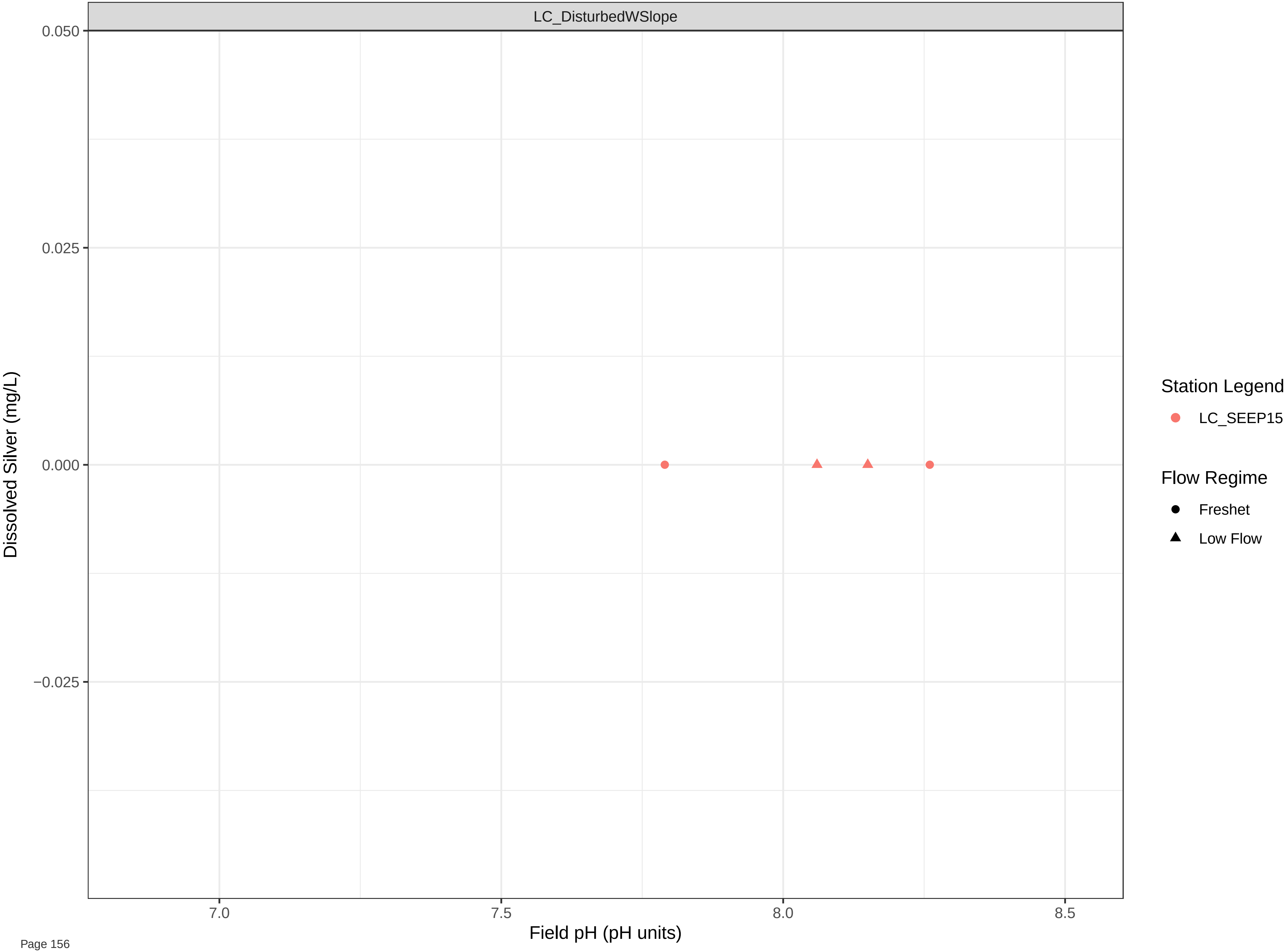

LC_MAXAM
Dissolved Silicon (mg/L)
3.000
2.975
2.950
2.925
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

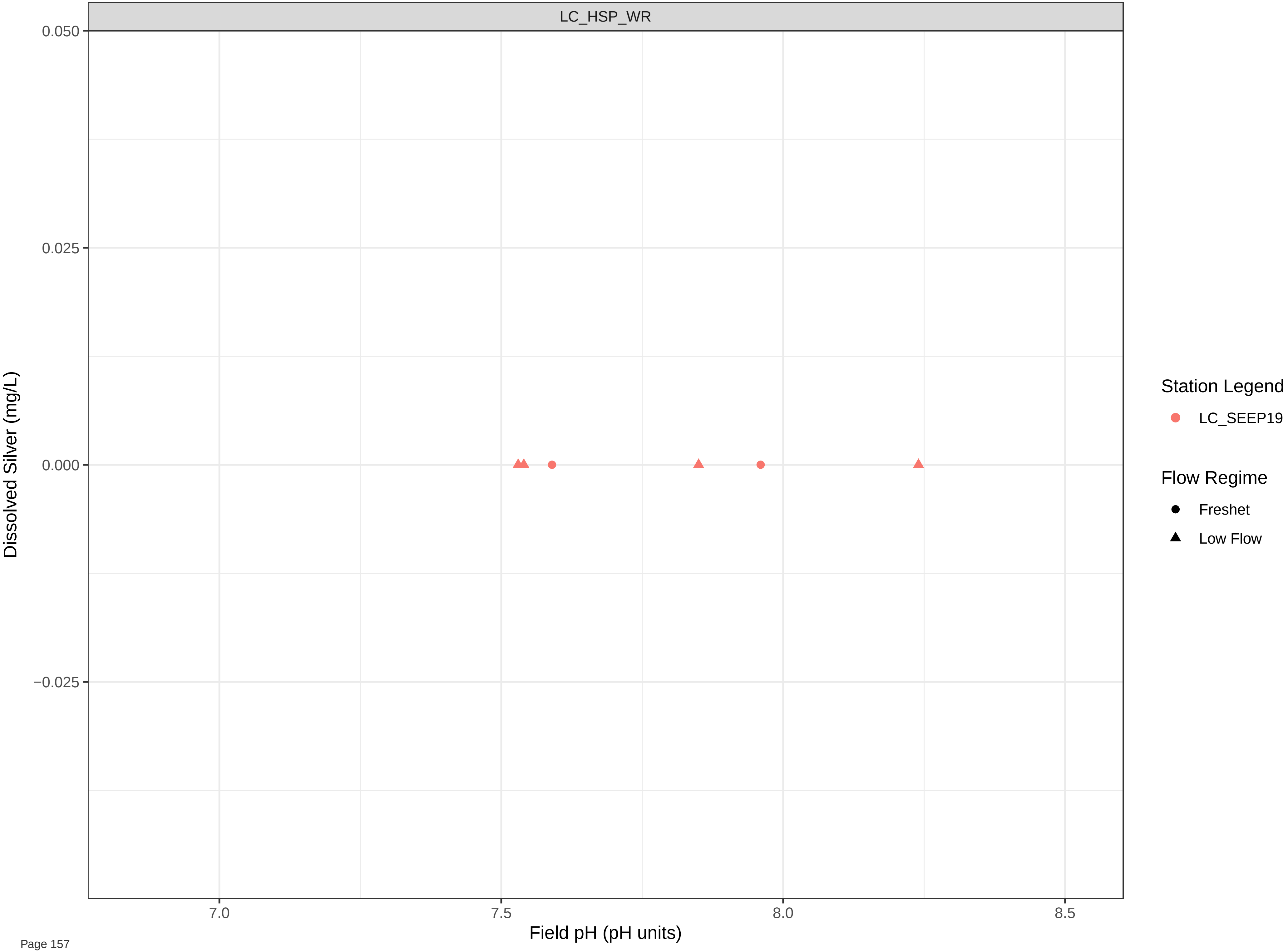

LC_MSA_WR
Dissolved Silicon (mg/L)
3.0
2.9
2.8
2.7
2.6
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

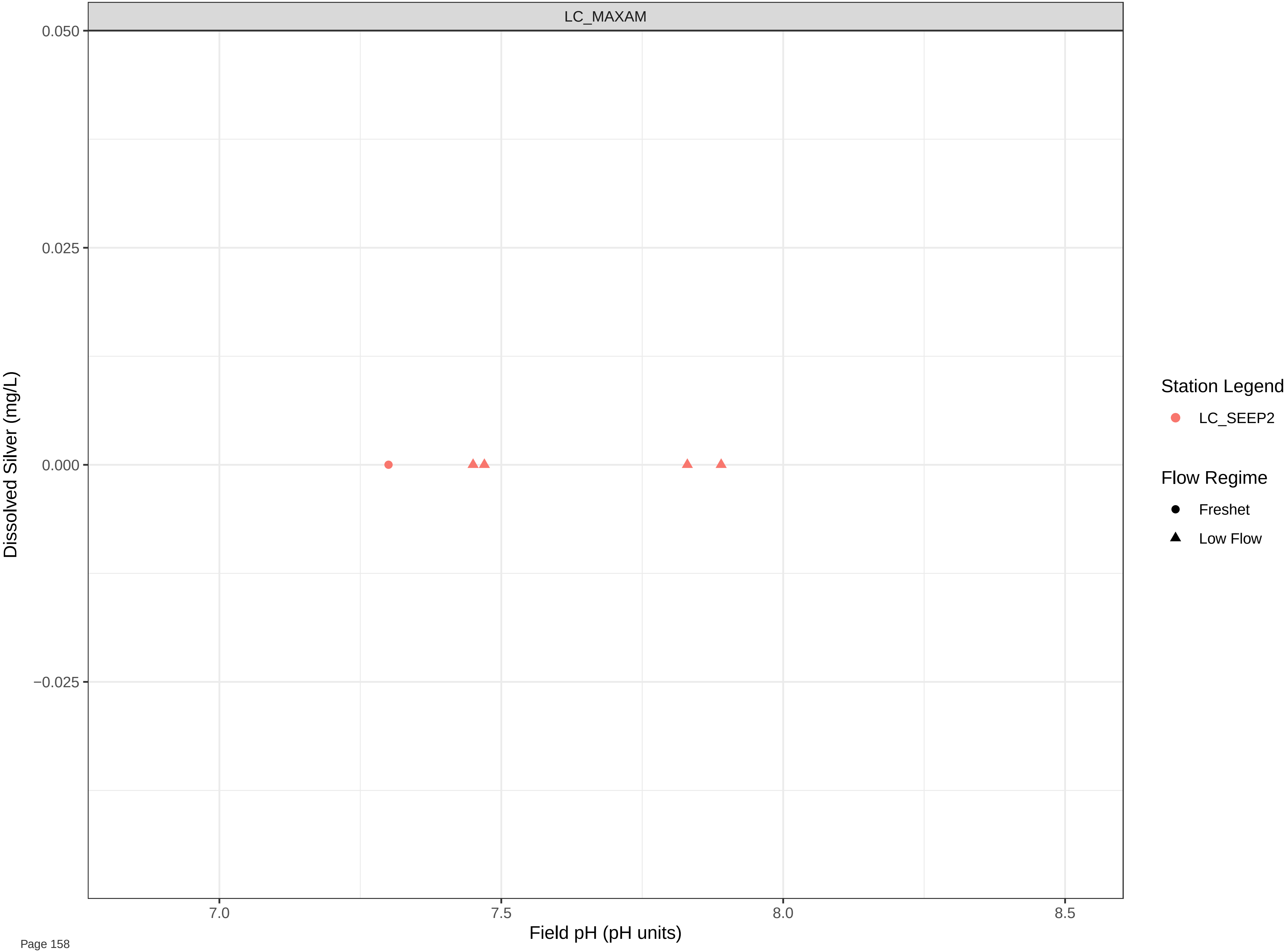

LC_PLANT
Dissolved Silicon (mg/L)
8
7
6
5
4
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

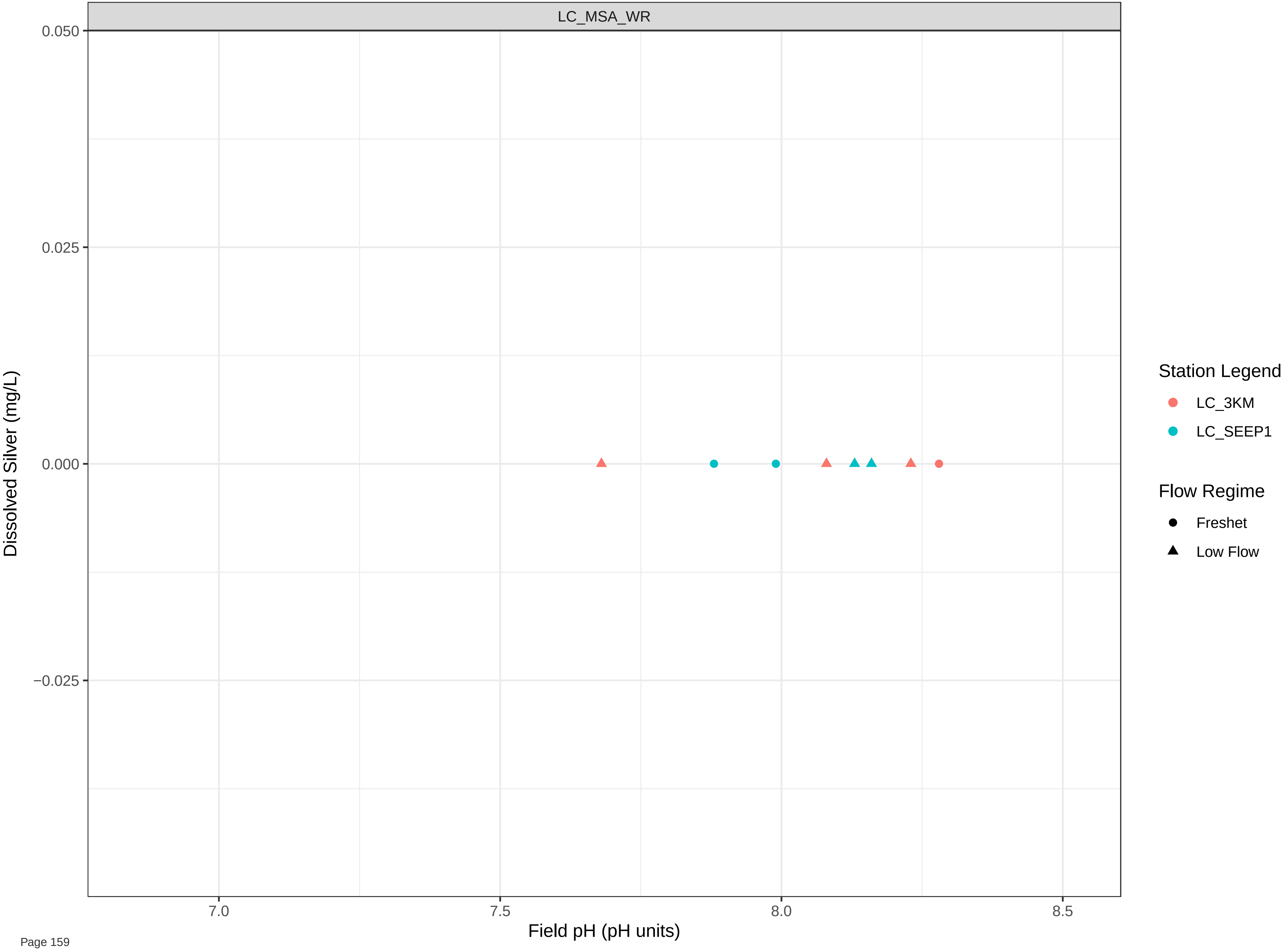

LC_WLC_WR
Dissolved Silicon (mg/L)
2.59
2.57
2.55
2.53
2.51
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

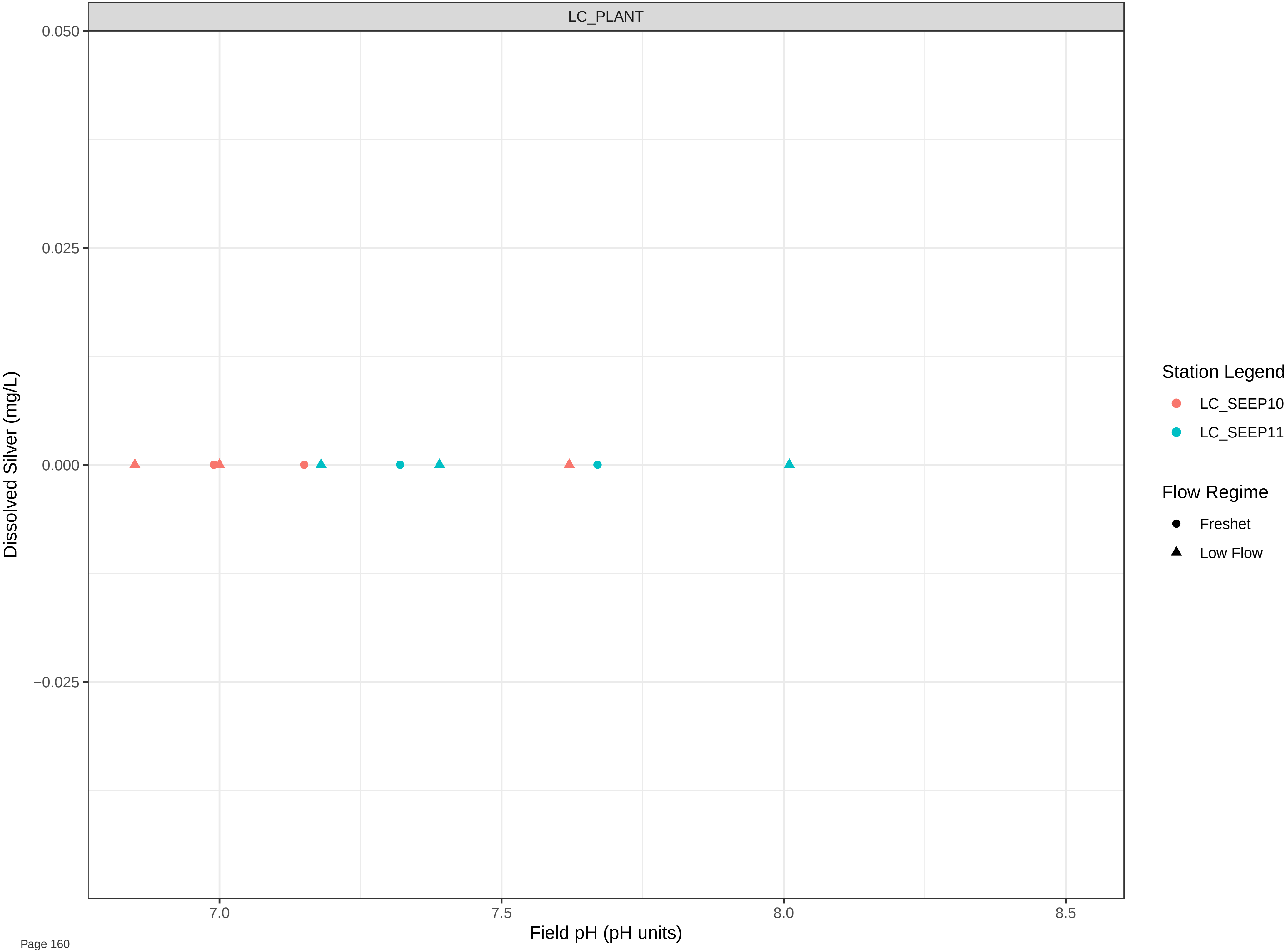

LC_DC_WR
Dissolved Silver (mg/L)
1.6e−05
1.4e−05
1.2e−05
1.0e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

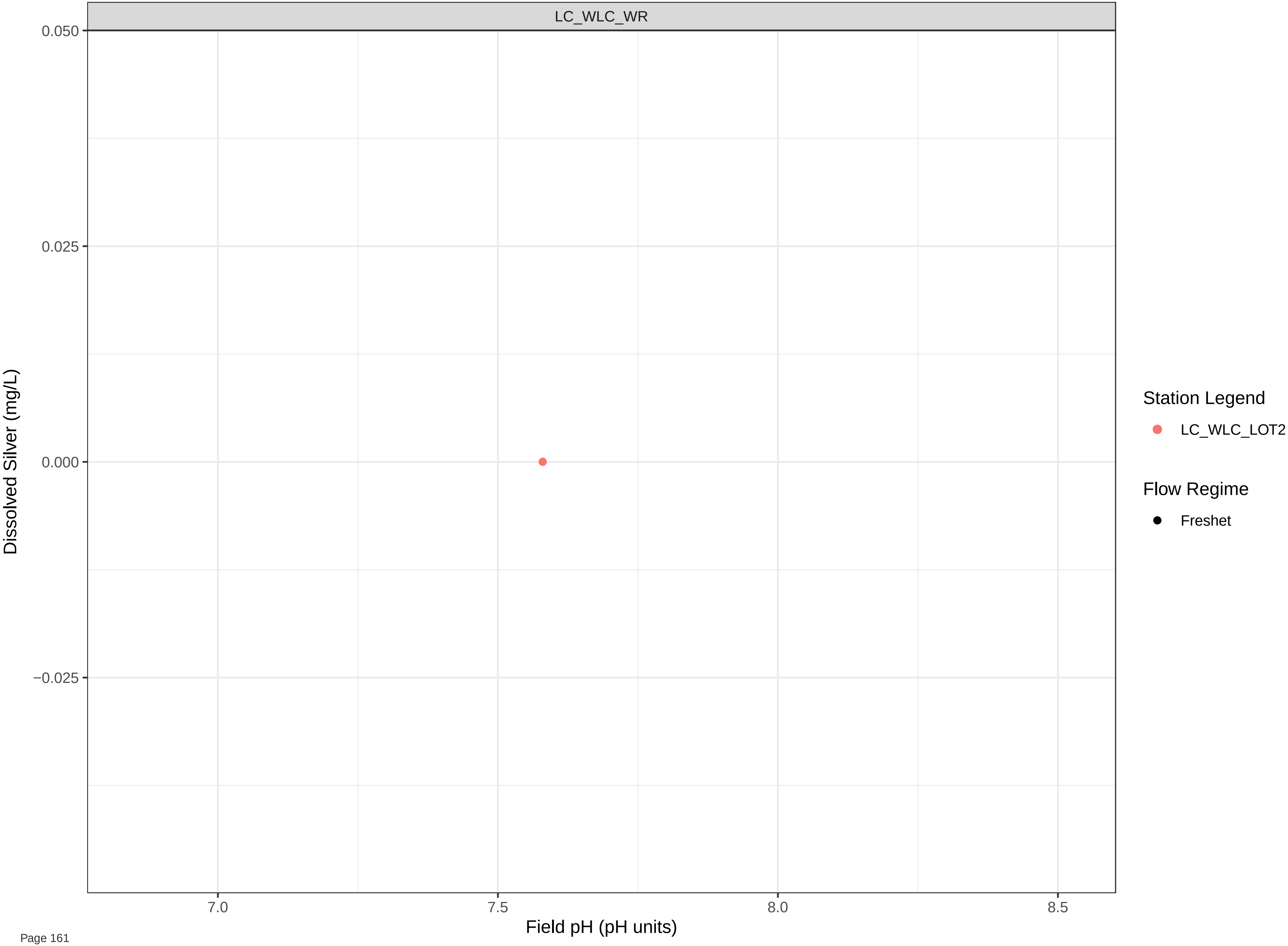

LC_DisturbedWSlope
0.050
0.025
0.000
−0.025
Dissolved Silver (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

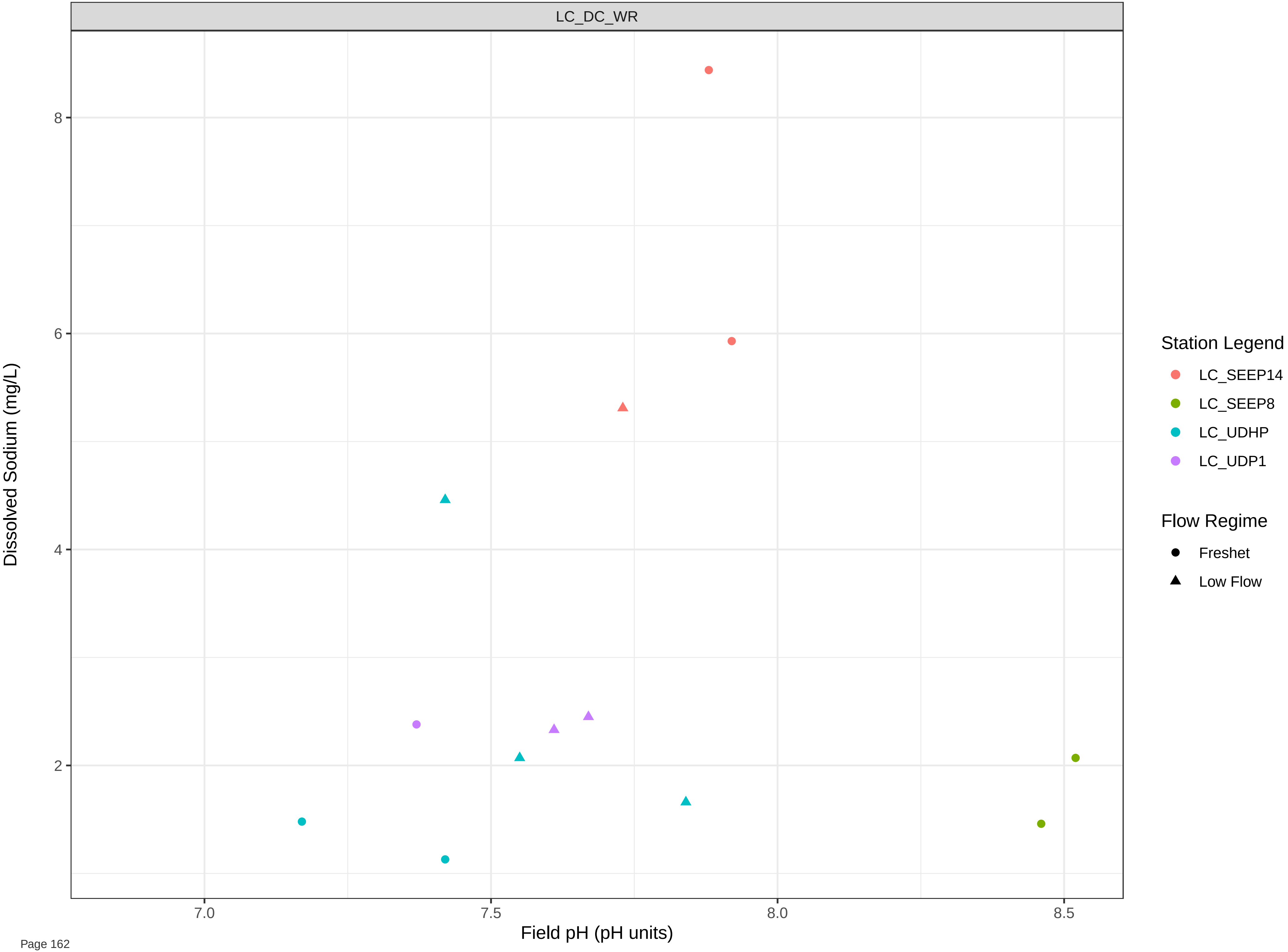

LC_HSP_WR
0.050
0.025
0.000
−0.025
Dissolved Silver (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

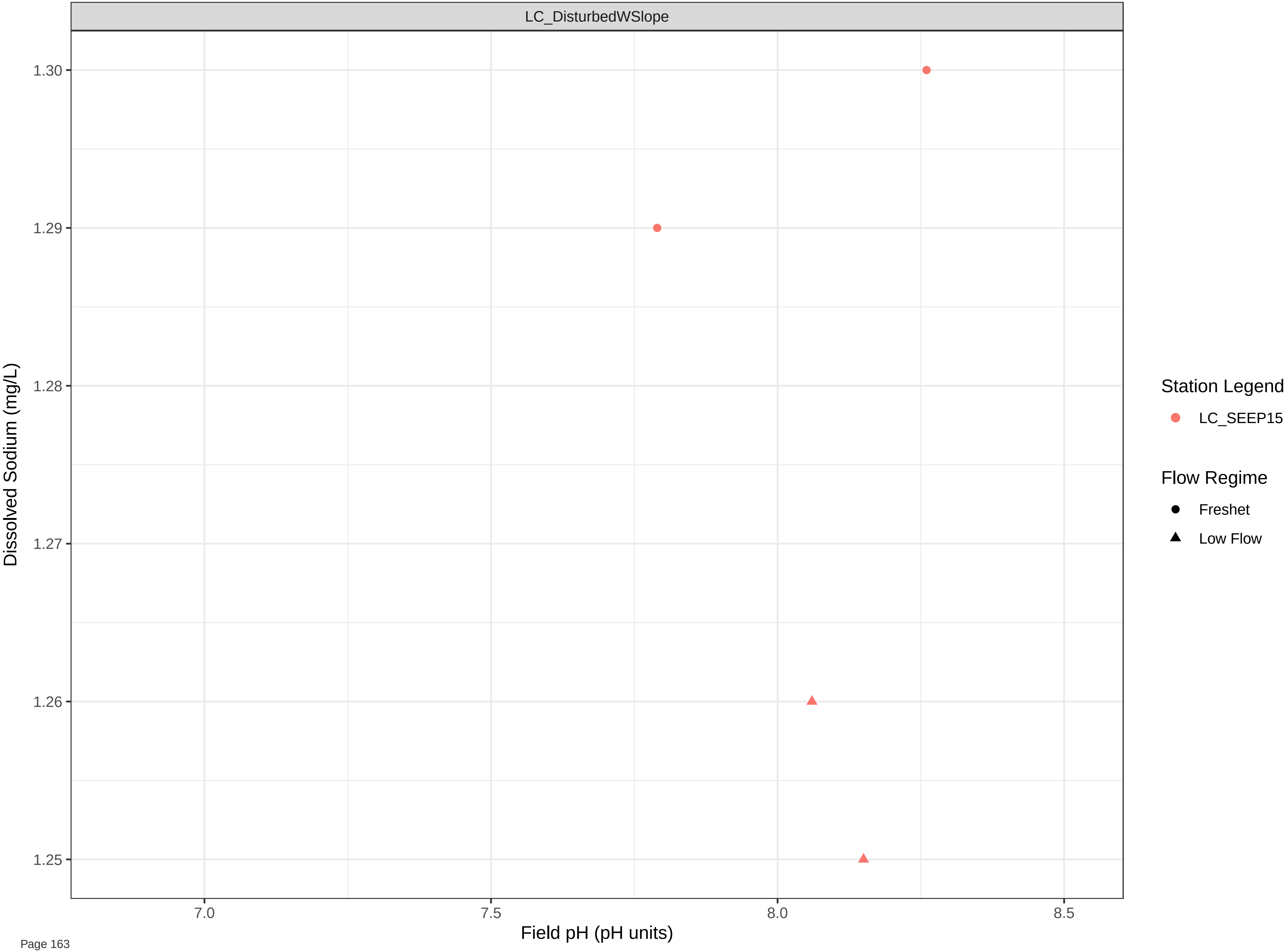

LC_MAXAM
0.050
0.025
0.000
−0.025
Dissolved Silver (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

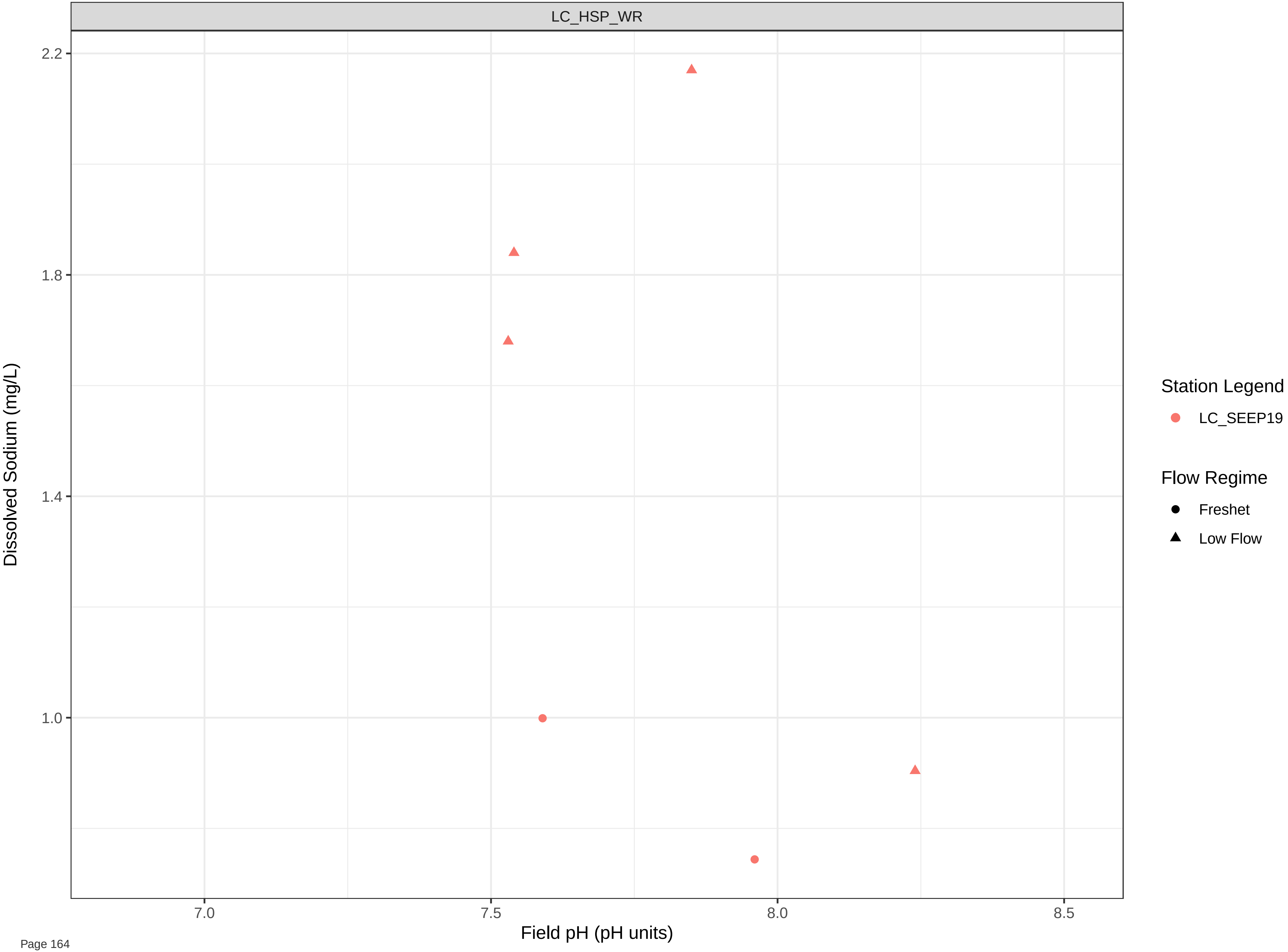

LC_MSA_WR
0.050
0.025
0.000
−0.025
Dissolved Silver (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

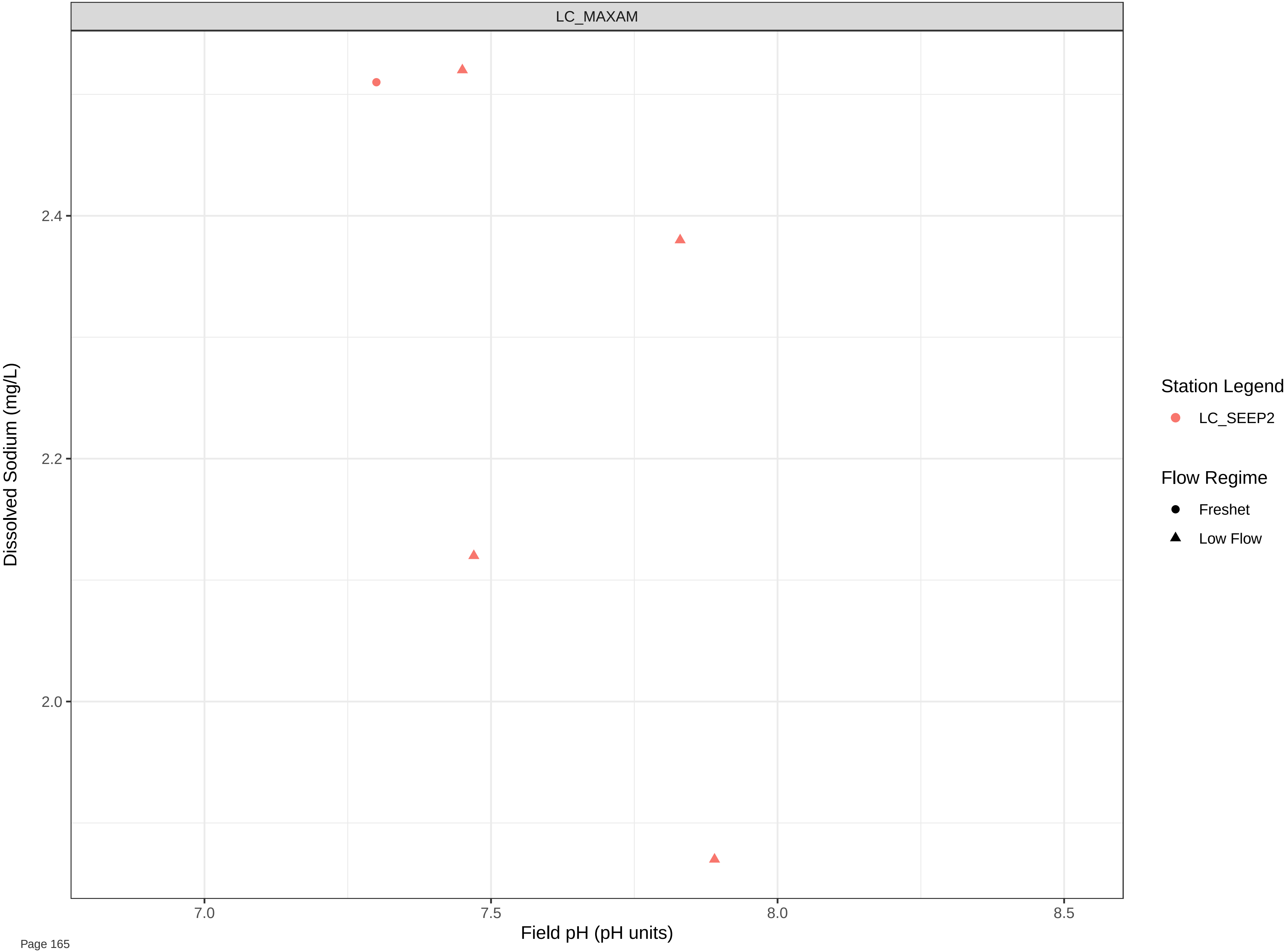

LC_PLANT
Dissolved Silver (mg/L)
0.050
0.025
0.000
−0.025
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

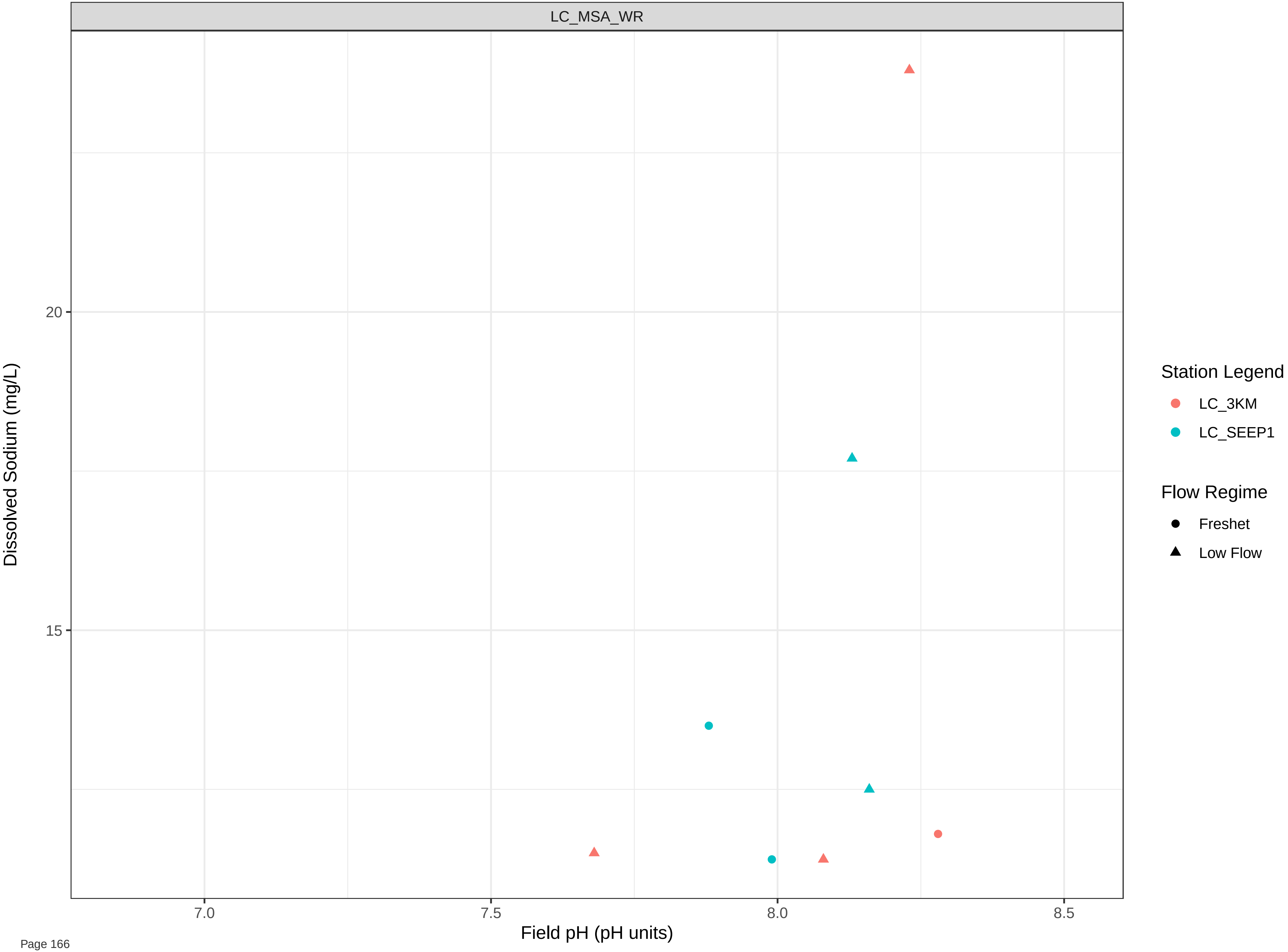

LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Silver (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

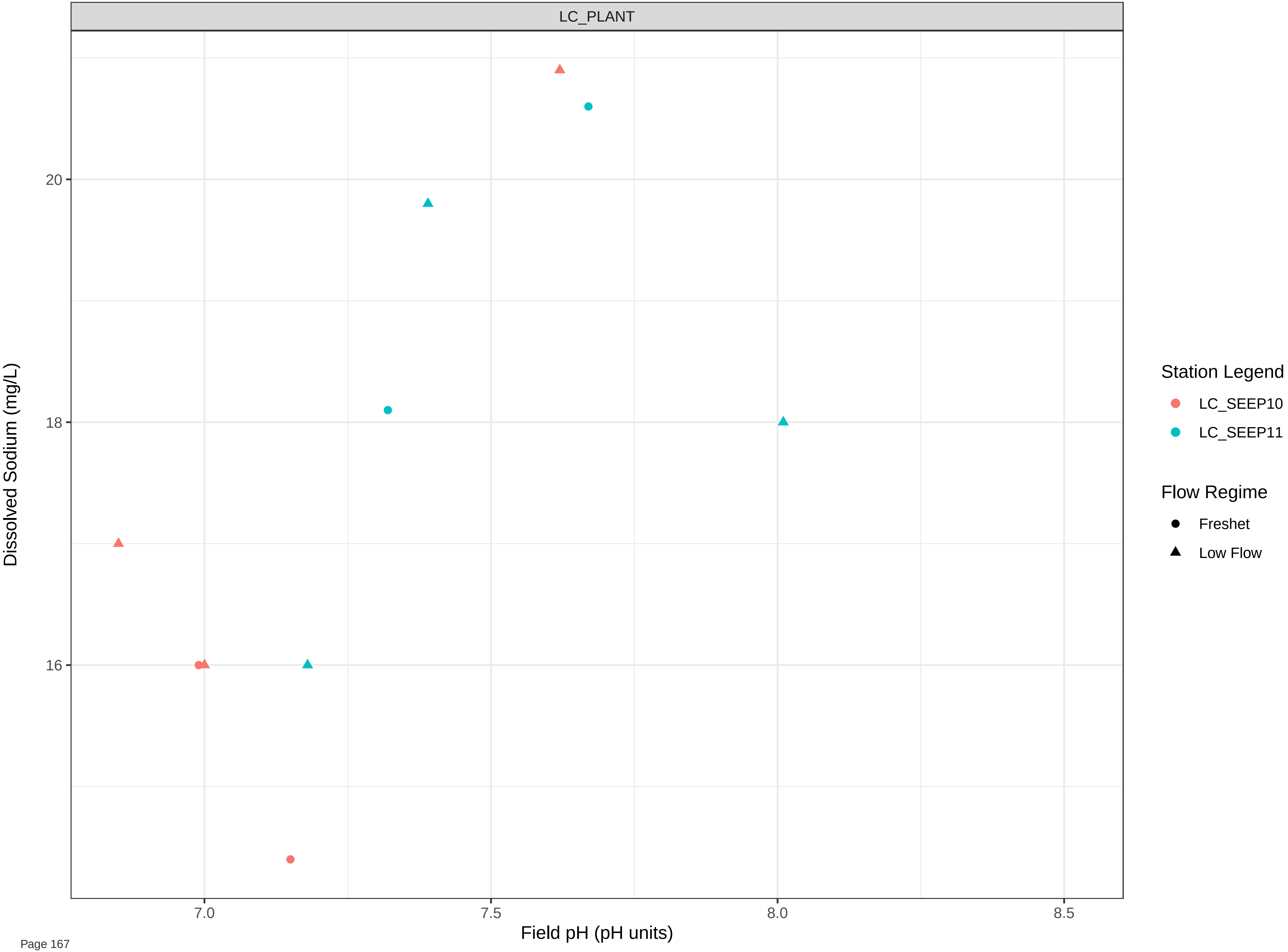

LC_DC_WR
Dissolved Sodium (mg/L)
8
6
4
2
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

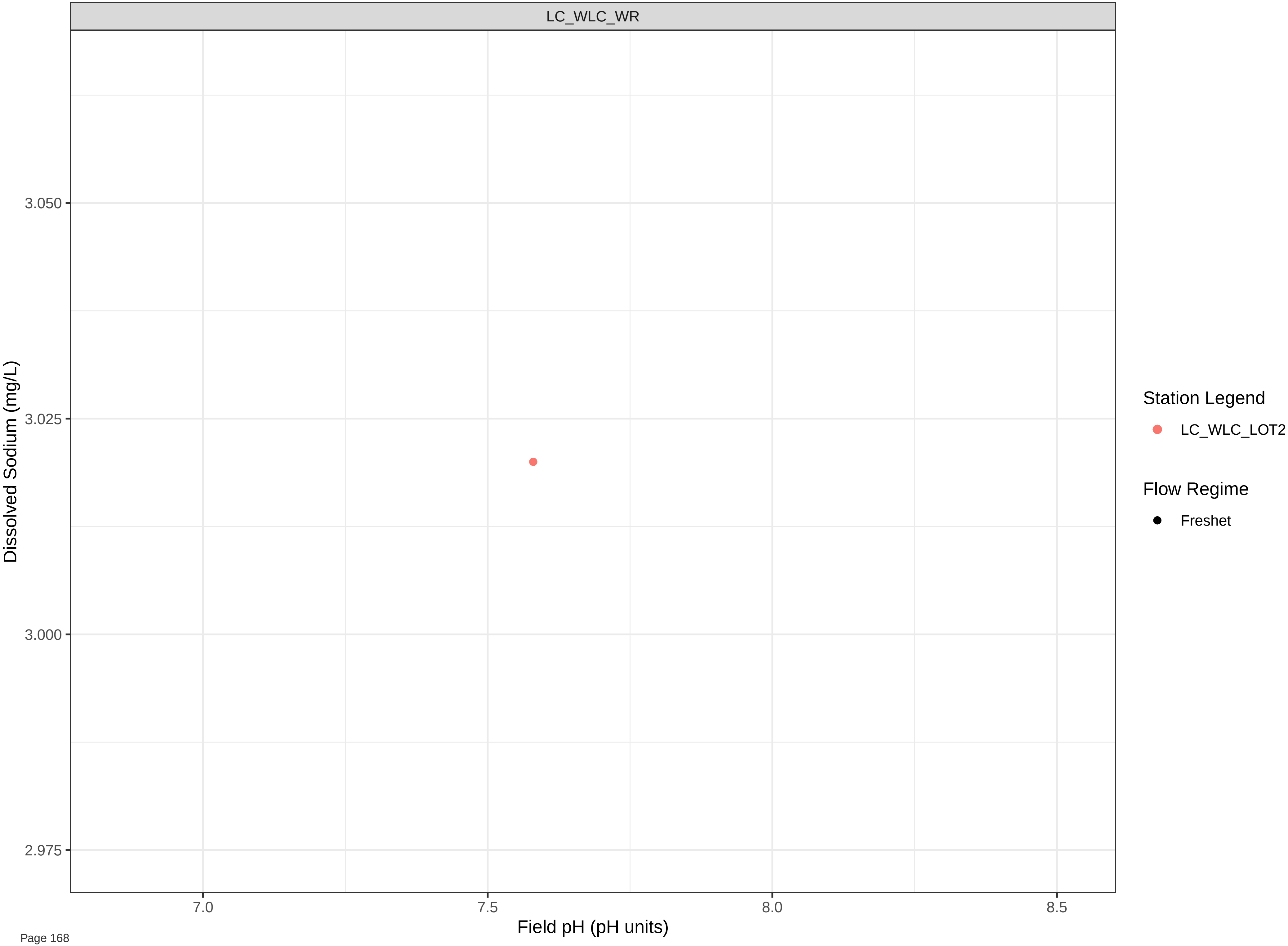

LC_DisturbedWSlope
Dissolved Sodium (mg/L)
1.30
1.29
1.28
1.27
1.26
1.25
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

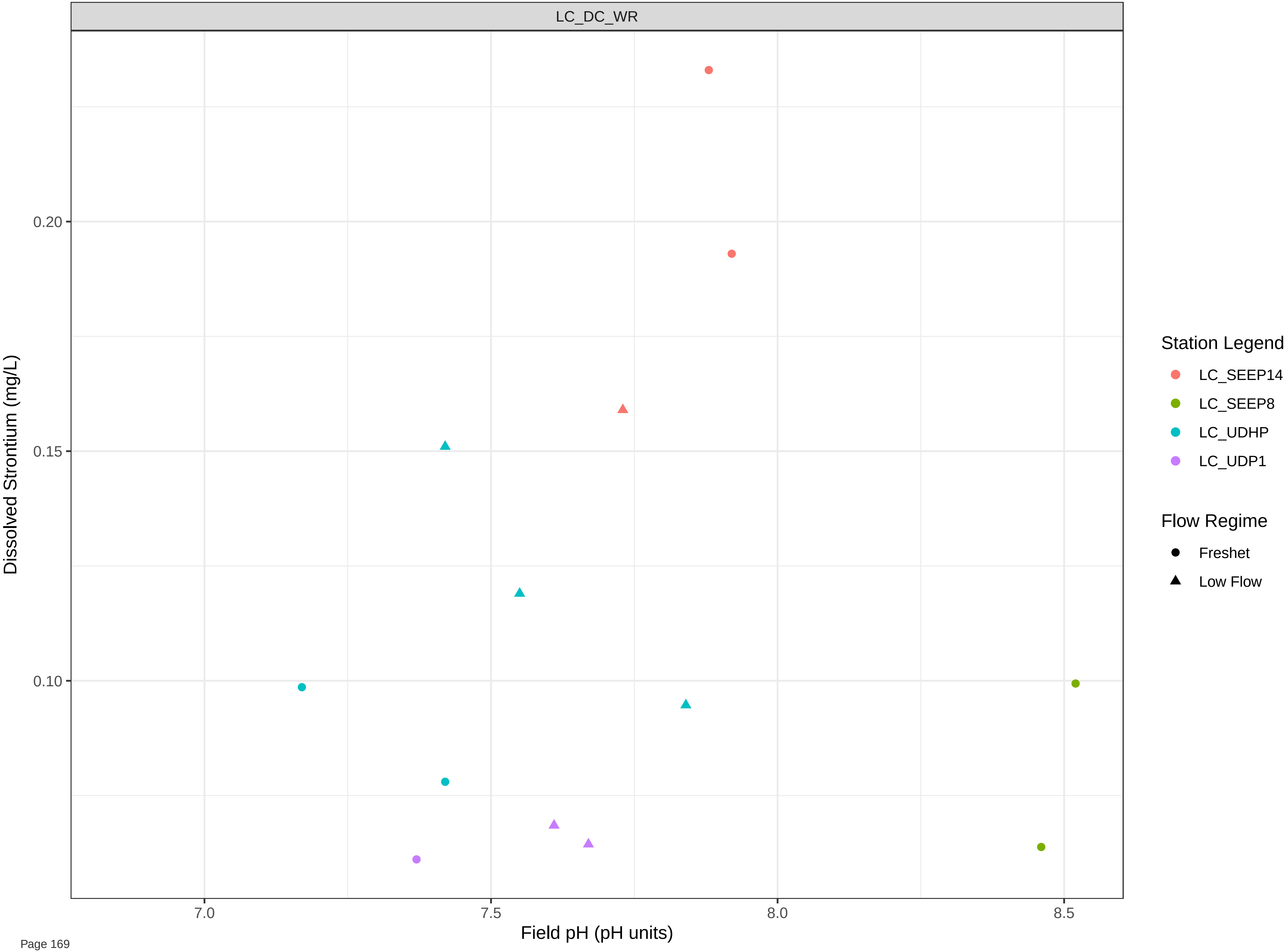

LC_HSP_WR
2.2
1.8
1.4
1.0
Dissolved Sodium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

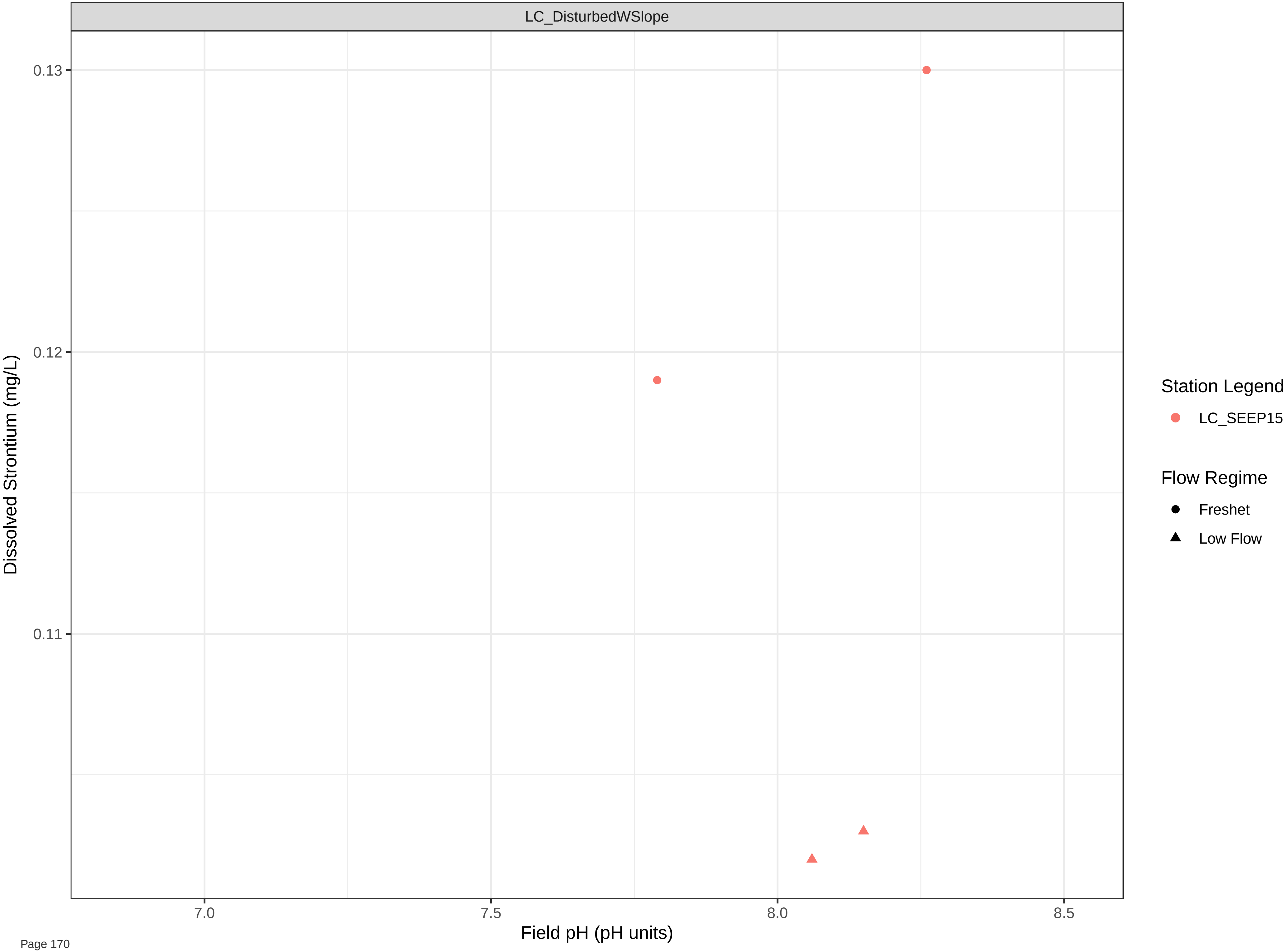

LC_MAXAM
Dissolved Sodium (mg/L)
2.4
2.2
2.0
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

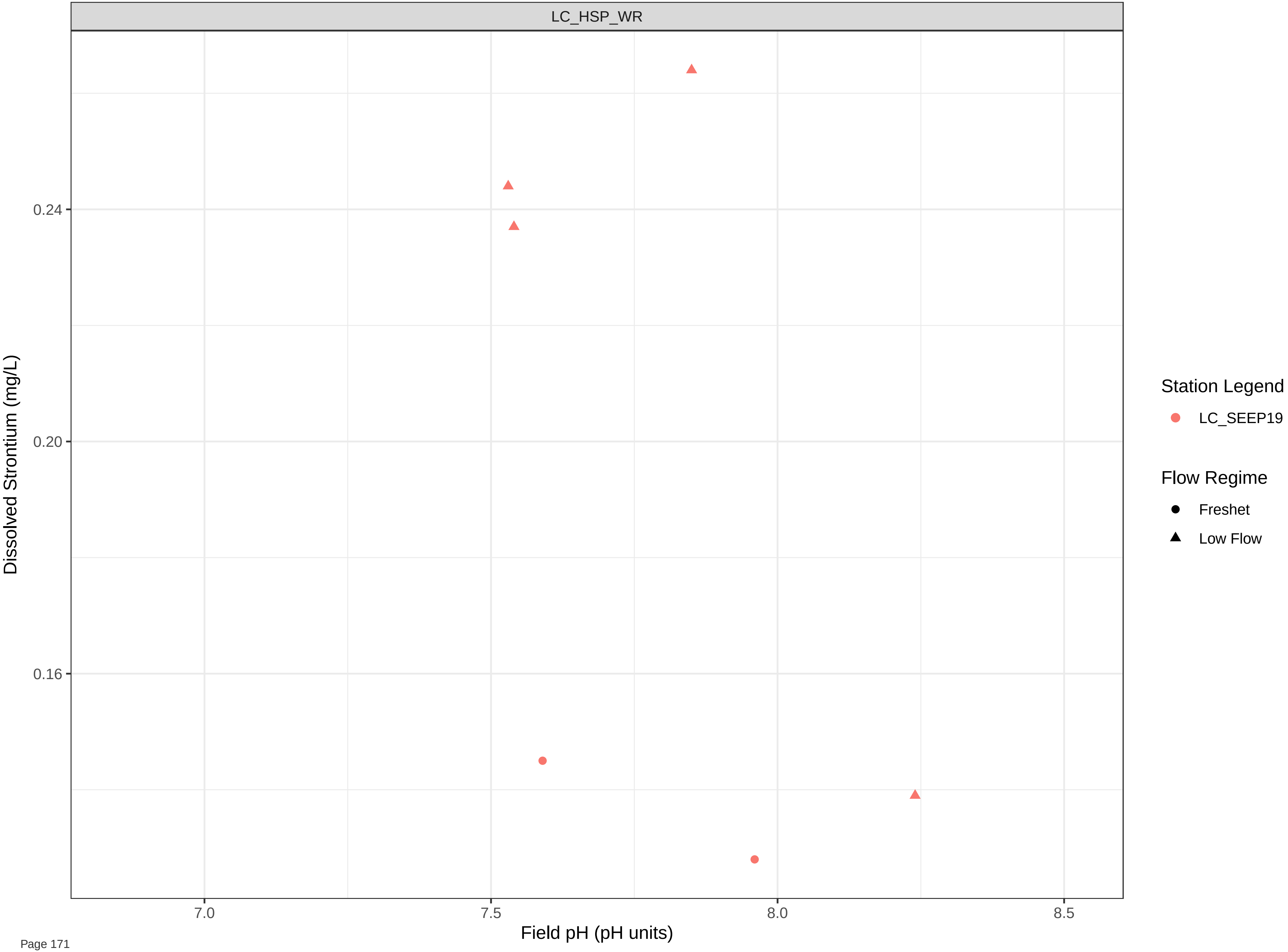

LC_MSA_WR
Dissolved Sodium (mg/L)
20
15
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

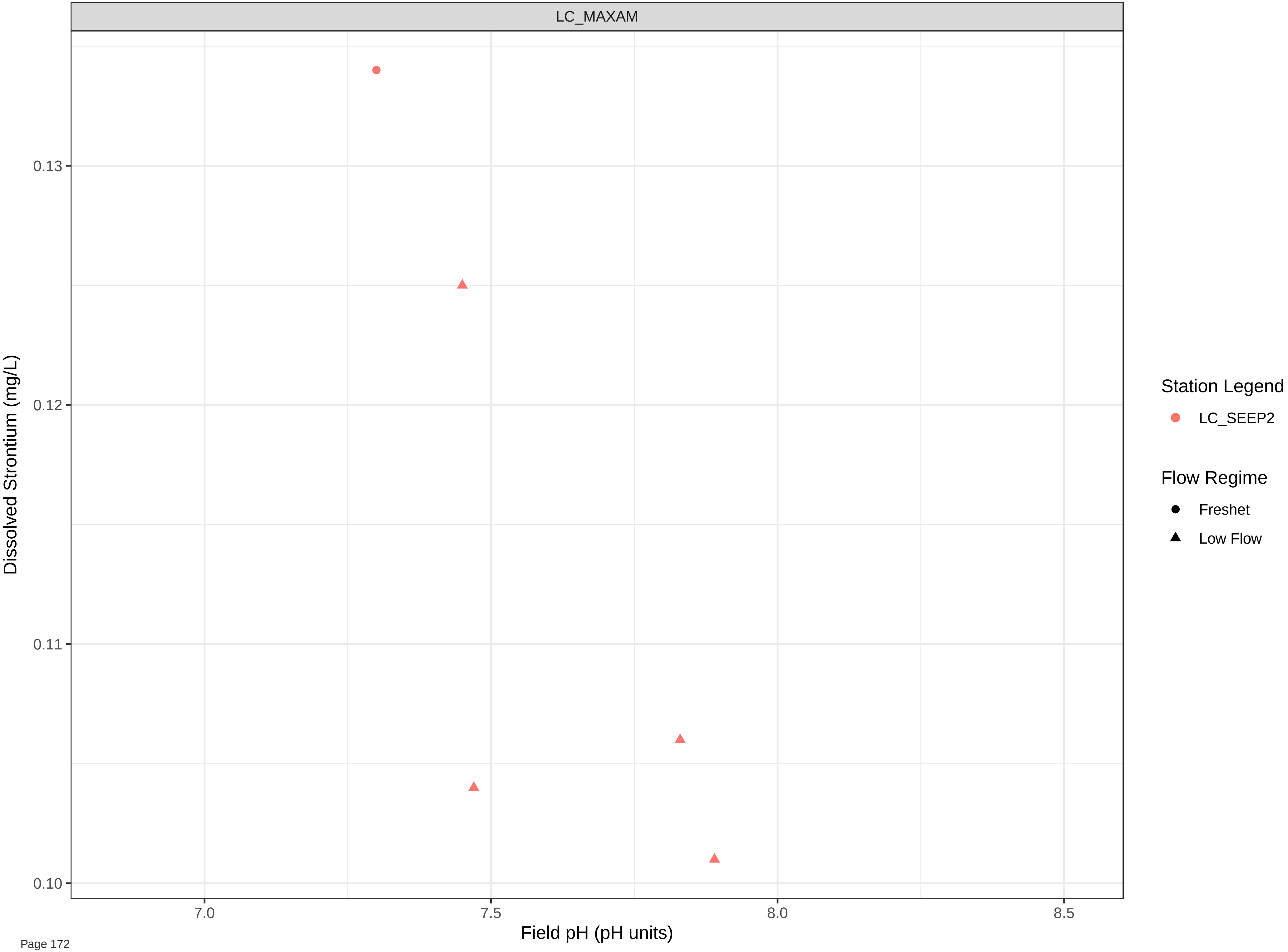

LC_PLANT
Dissolved Sodium (mg/L)
20
18
16
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

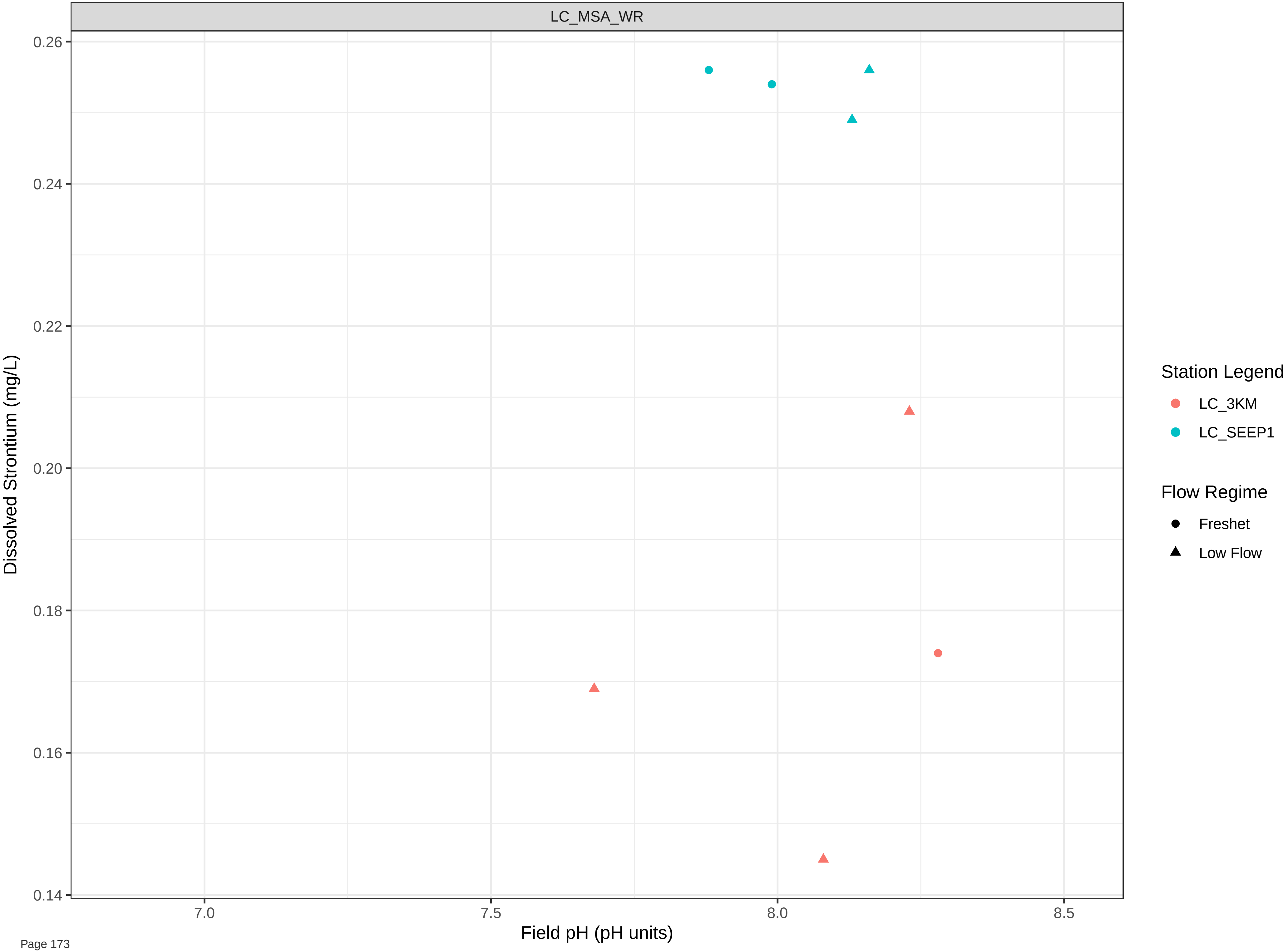

LC_WLC_WR
Dissolved Sodium (mg/L)
3.050
3.025
3.000
2.975
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

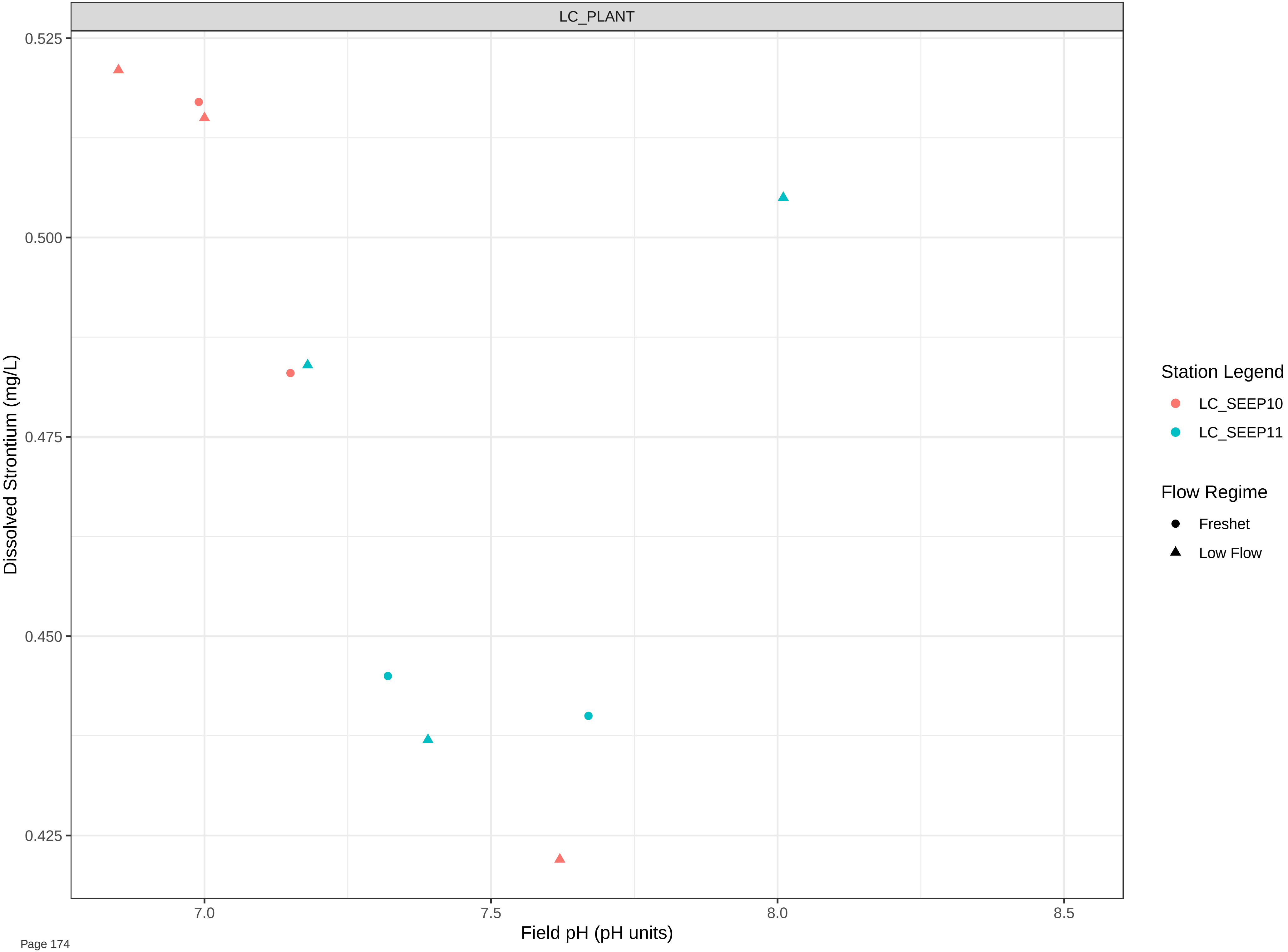

LC_DC_WR
Dissolved Strontium (mg/L)
0.20
0.15
0.10
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

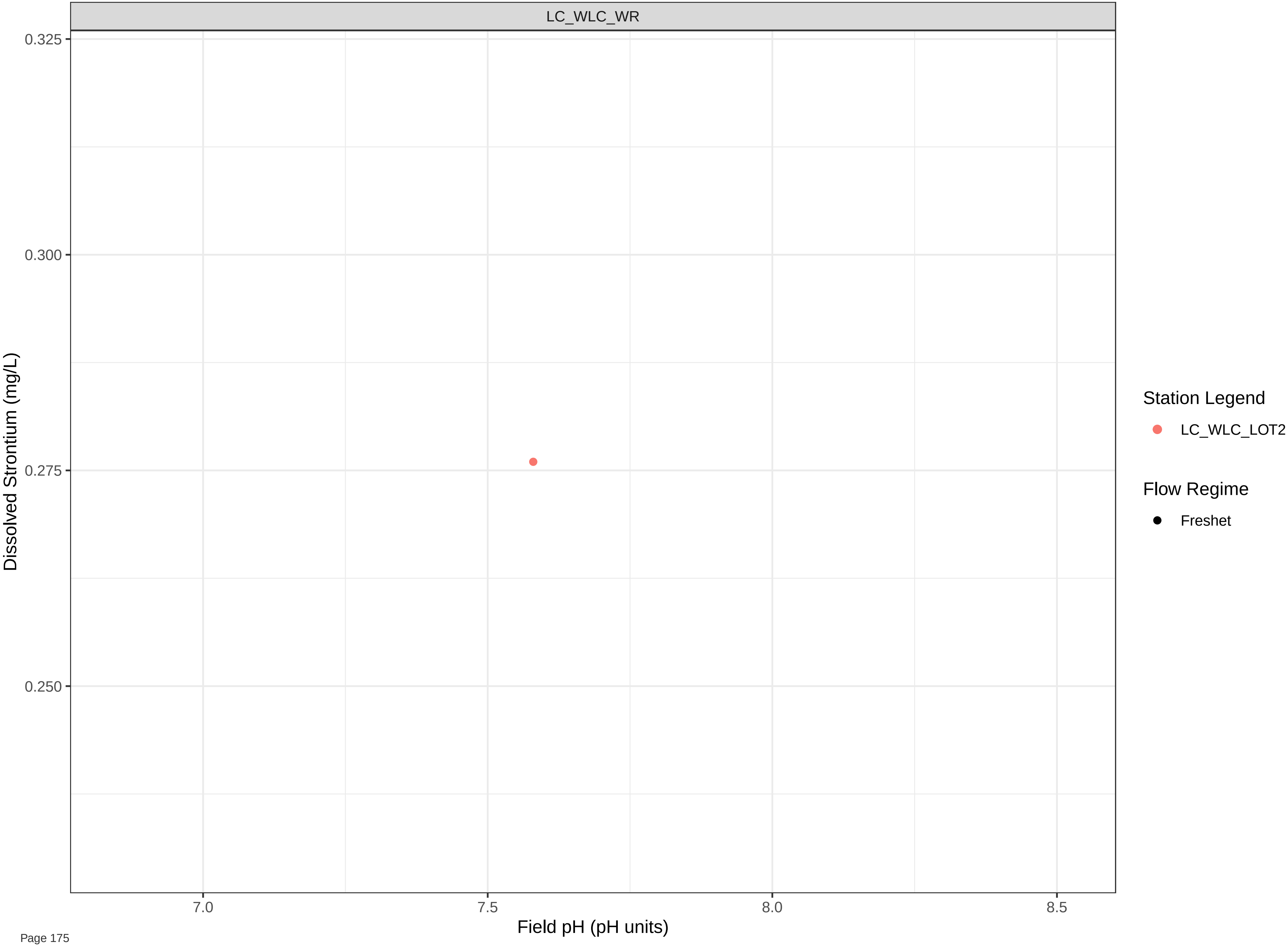

LC_DisturbedWSlope
Dissolved Strontium (mg/L)
0.13
0.12
0.11
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

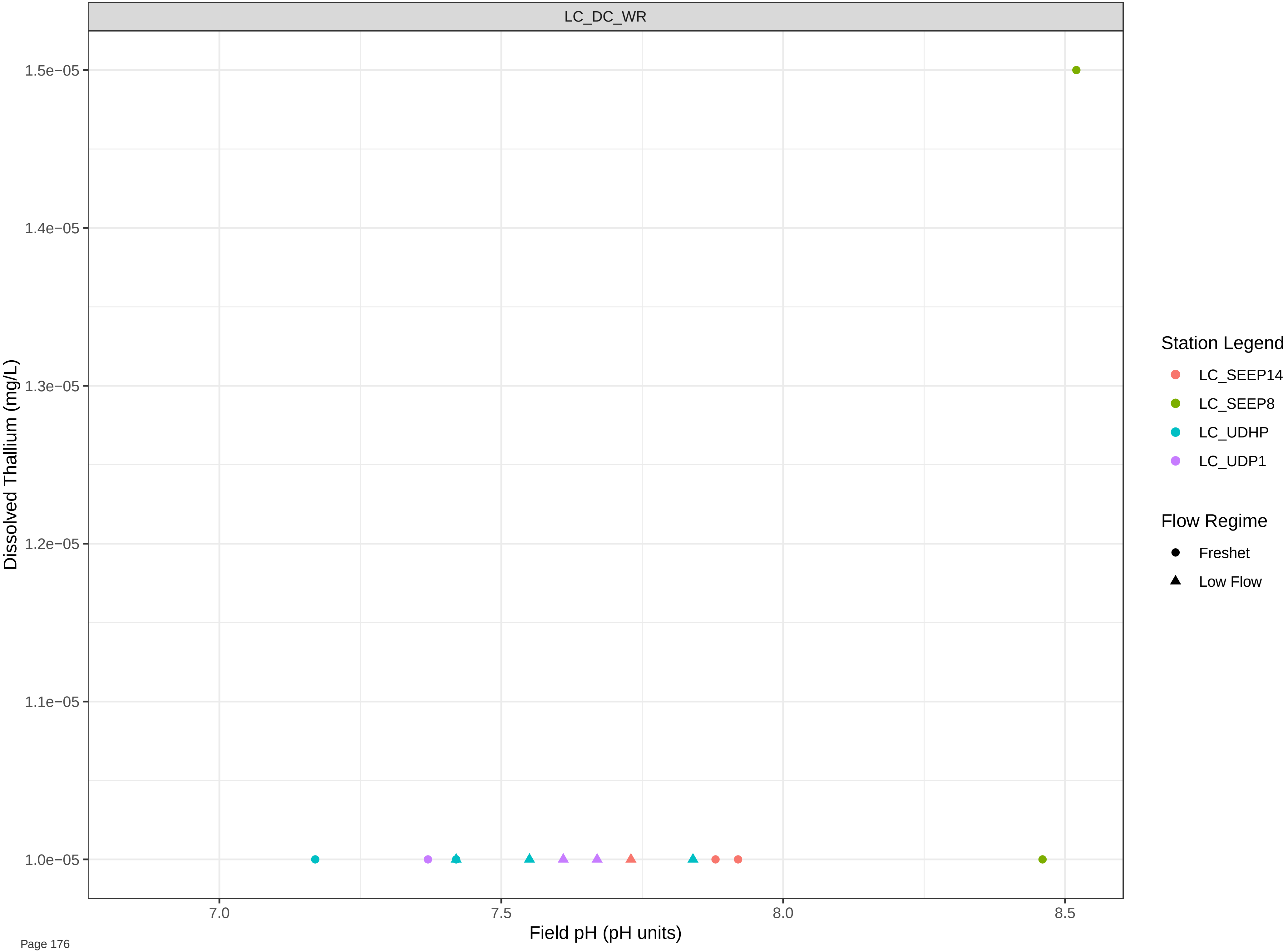

LC_HSP_WR
Dissolved Strontium (mg/L)
0.24
0.20
0.16
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow


LC_MAXAM
Dissolved Strontium (mg/L)
0.13
0.12
0.11
0.10
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

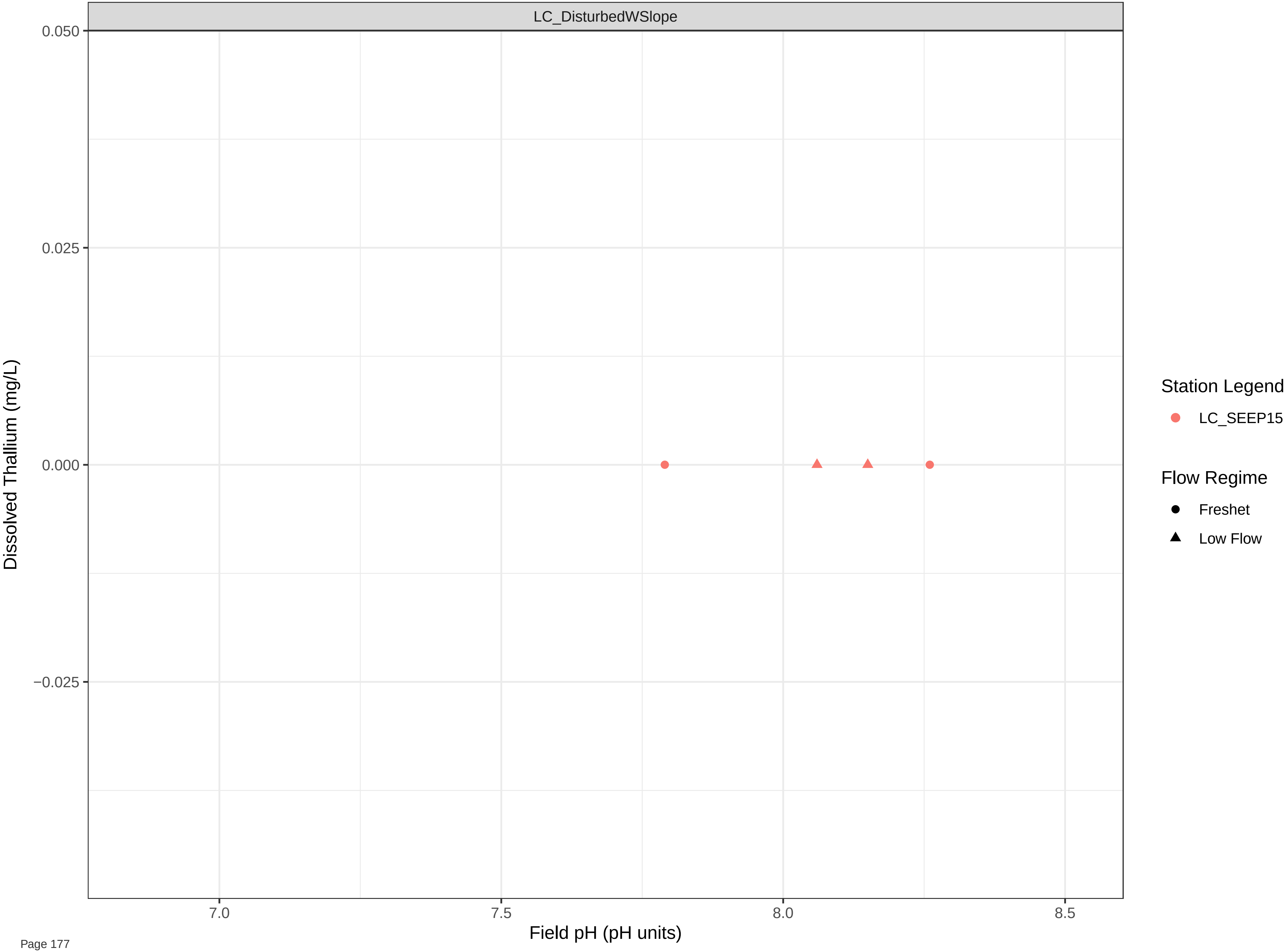

LC_MSA_WR
Dissolved Strontium (mg/L)
0.26
0.24
0.22
0.20
0.18
0.16
0.14
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

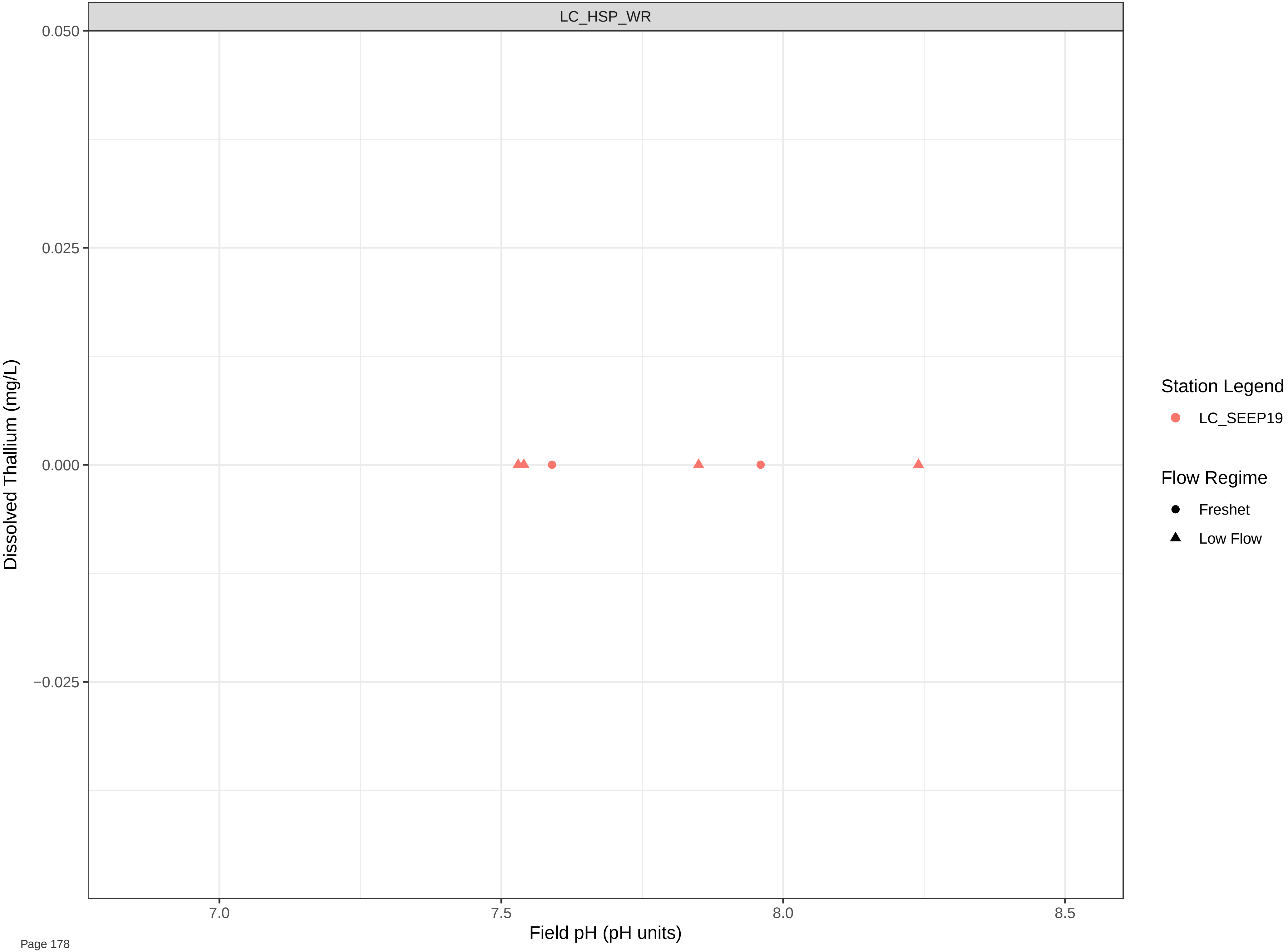

LC_PLANT
0.525
0.500
0.475
0.450
0.425
Dissolved Strontium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

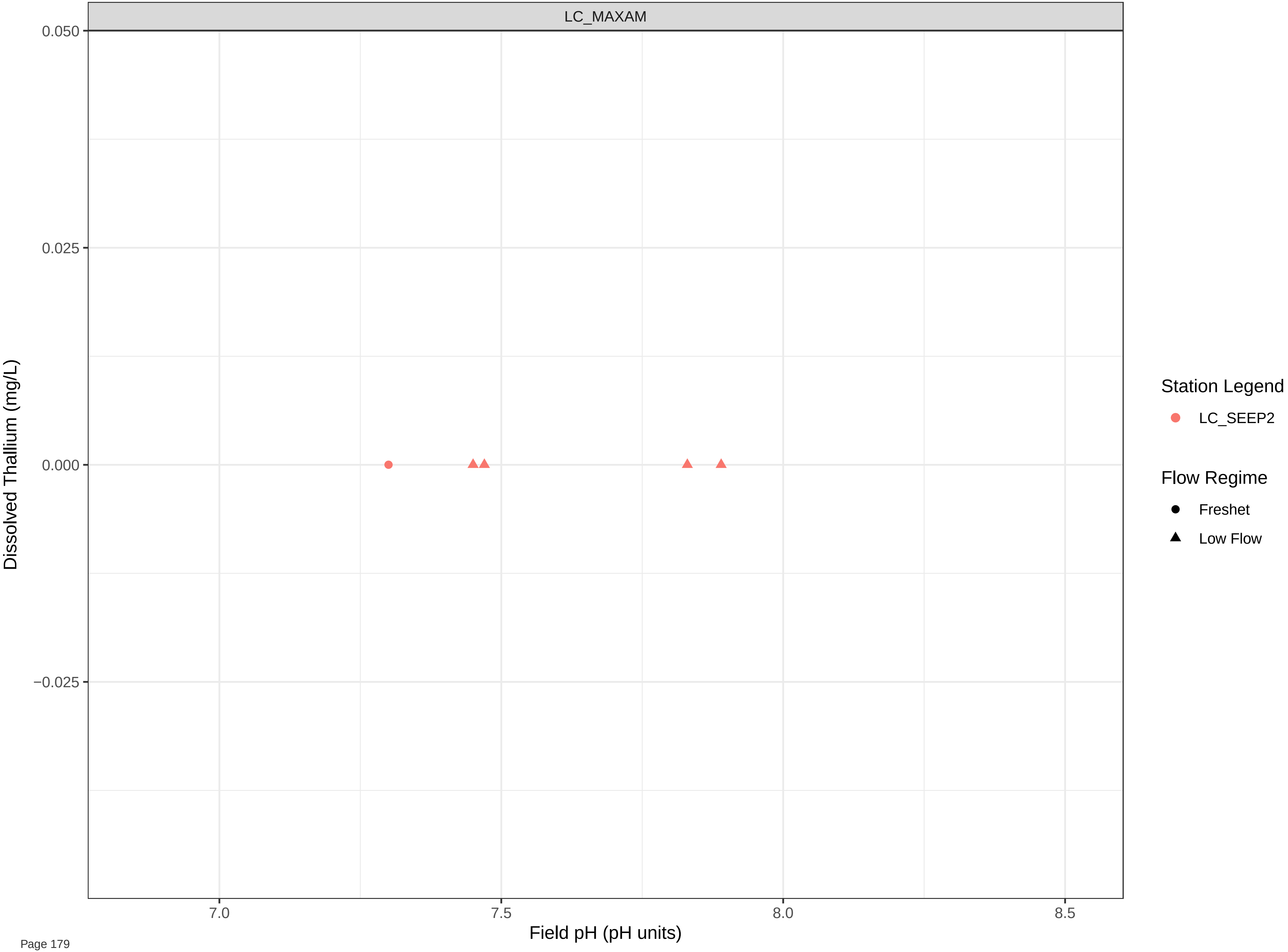

LC_WLC_WR
0.325
0.300
0.275
0.250
Dissolved Strontium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

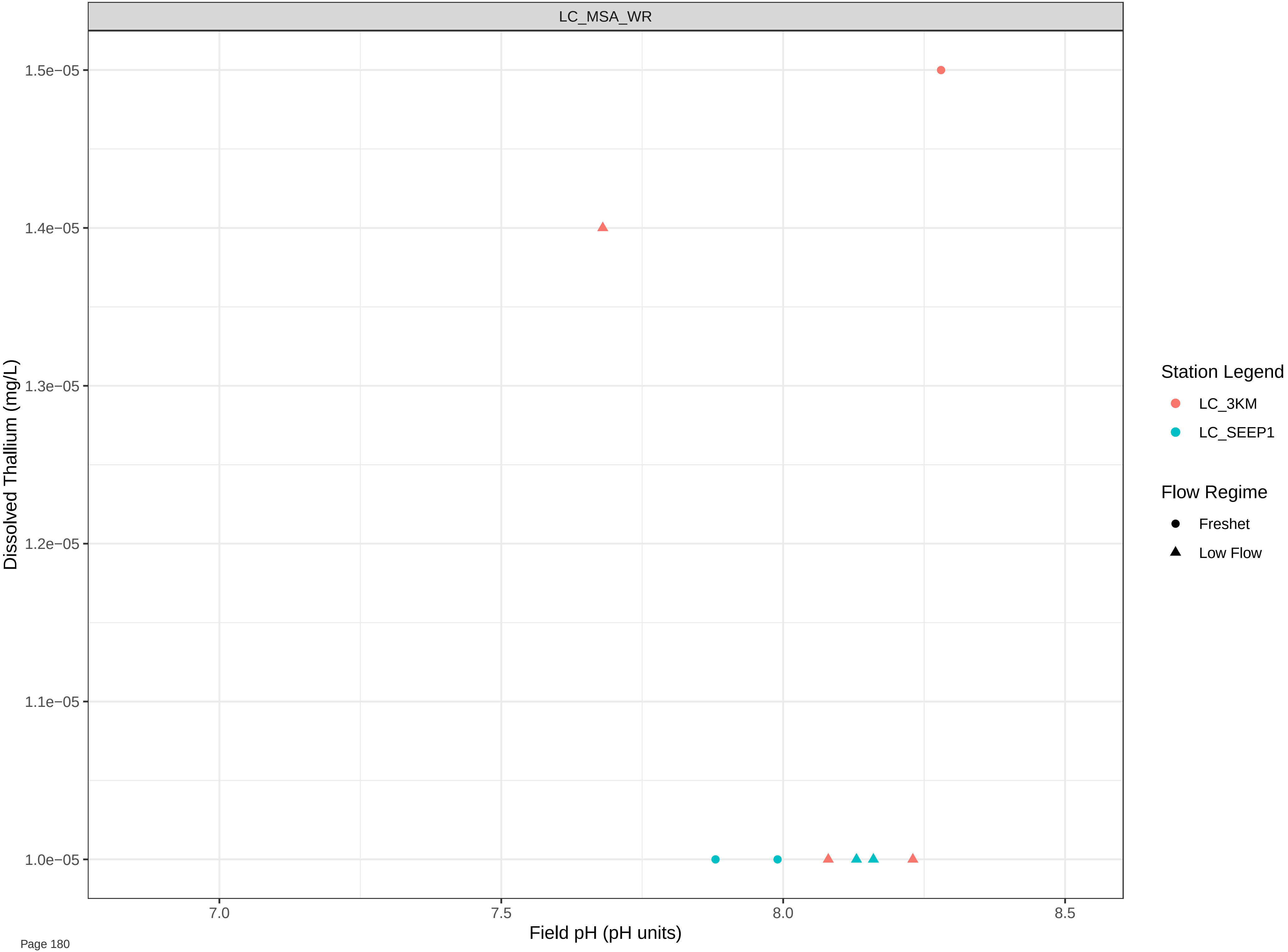


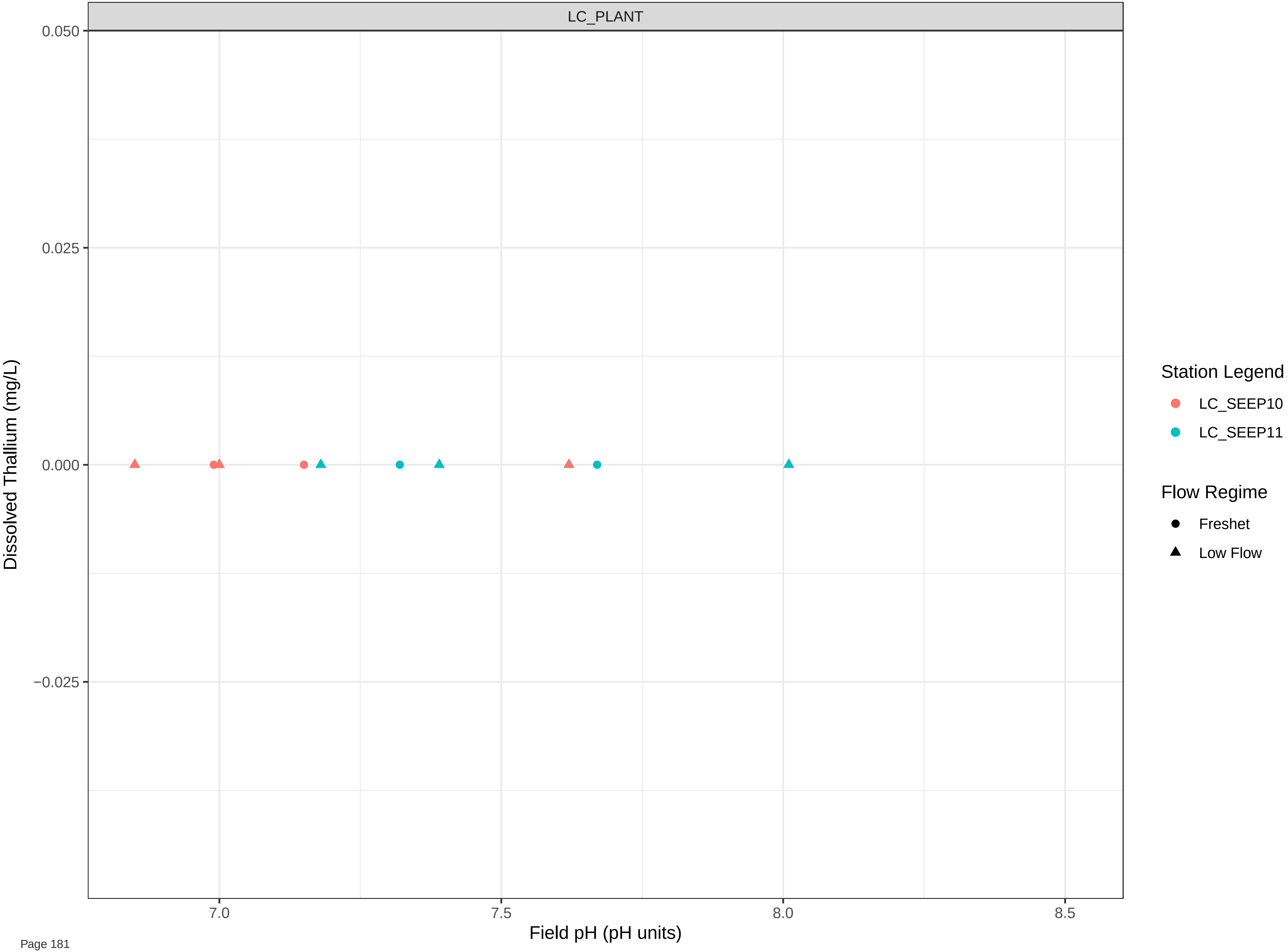
LC_DC_WR
Dissolved Thallium (mg/L)
1.5e−05
1.4e−05
1.3e−05
1.2e−05
1.1e−05
1.0e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

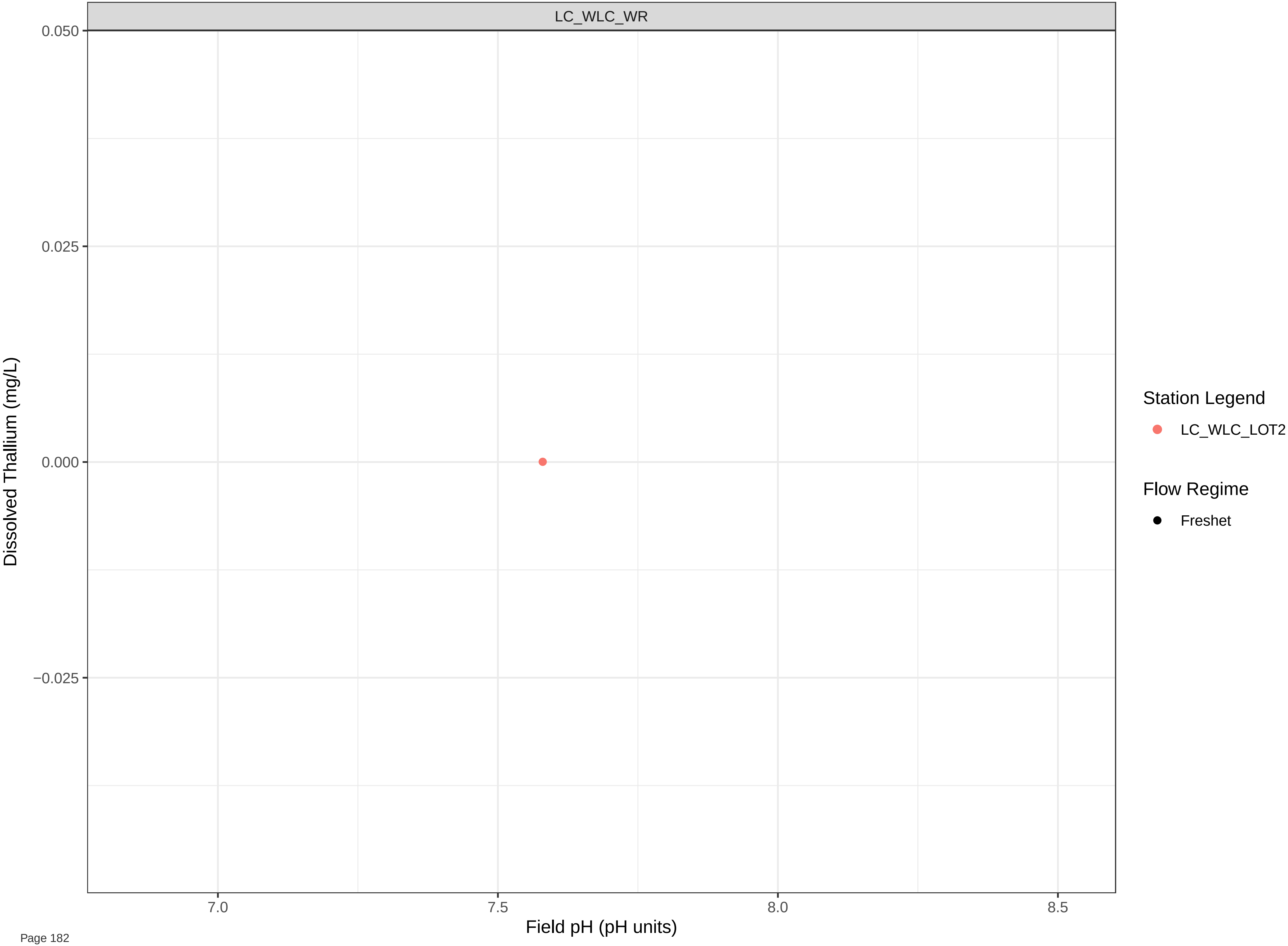

LC_DisturbedWSlope
0.050
0.025
0.000
−0.025
Dissolved Thallium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

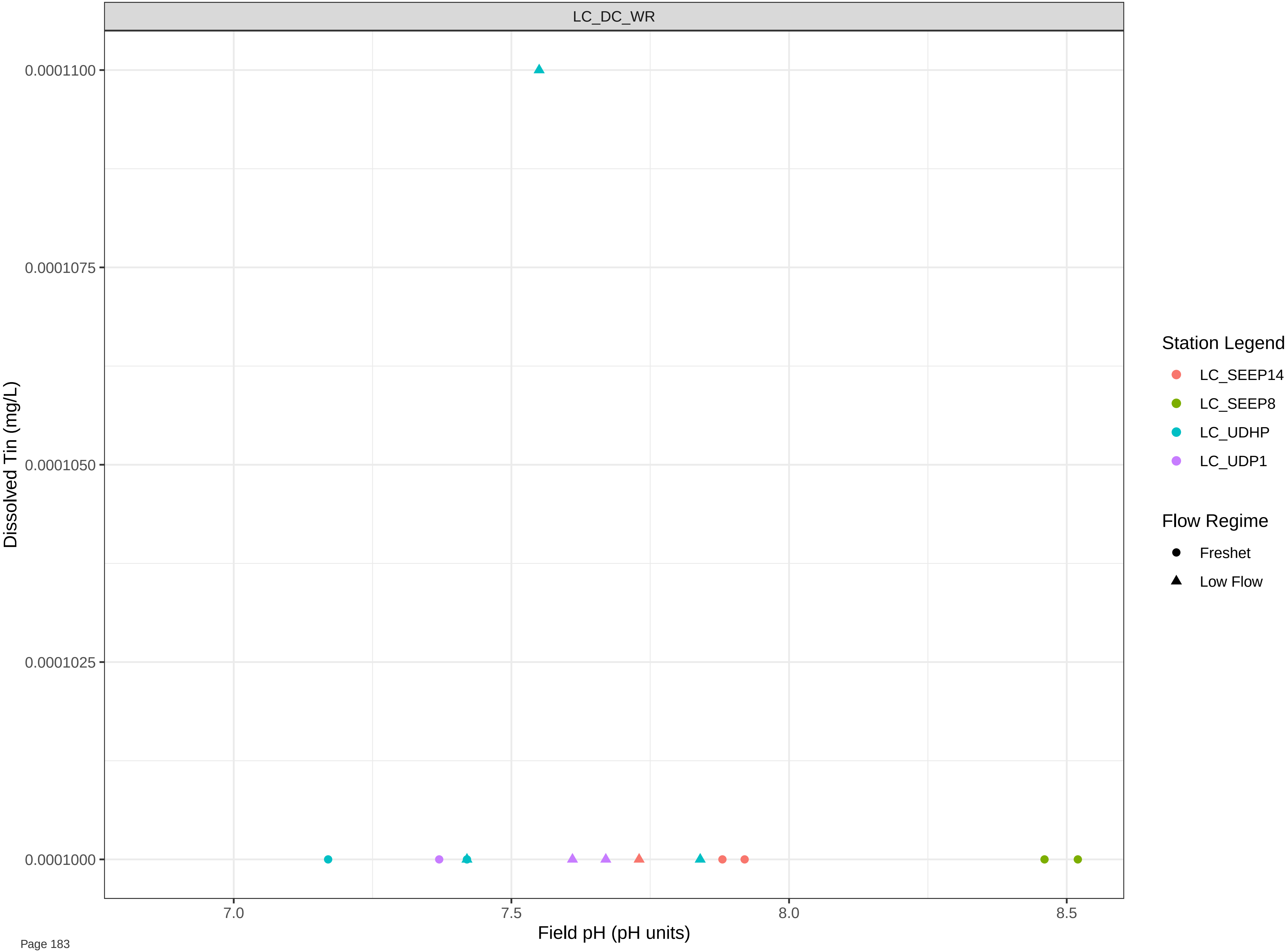

LC_HSP_WR
0.050
0.025
0.000
−0.025
Dissolved Thallium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

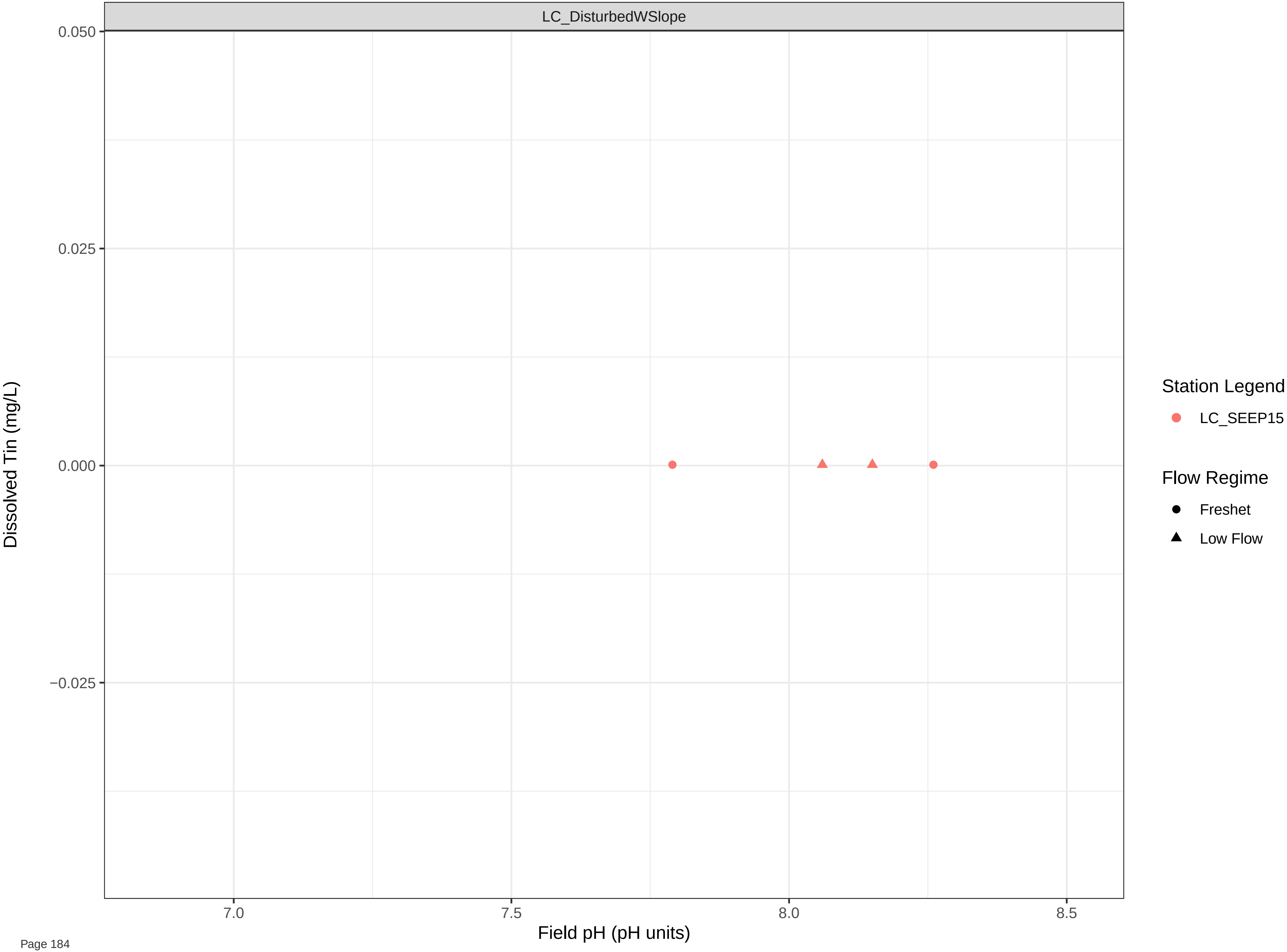

LC_MAXAM
0.050
0.025
0.000
−0.025
Dissolved Thallium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

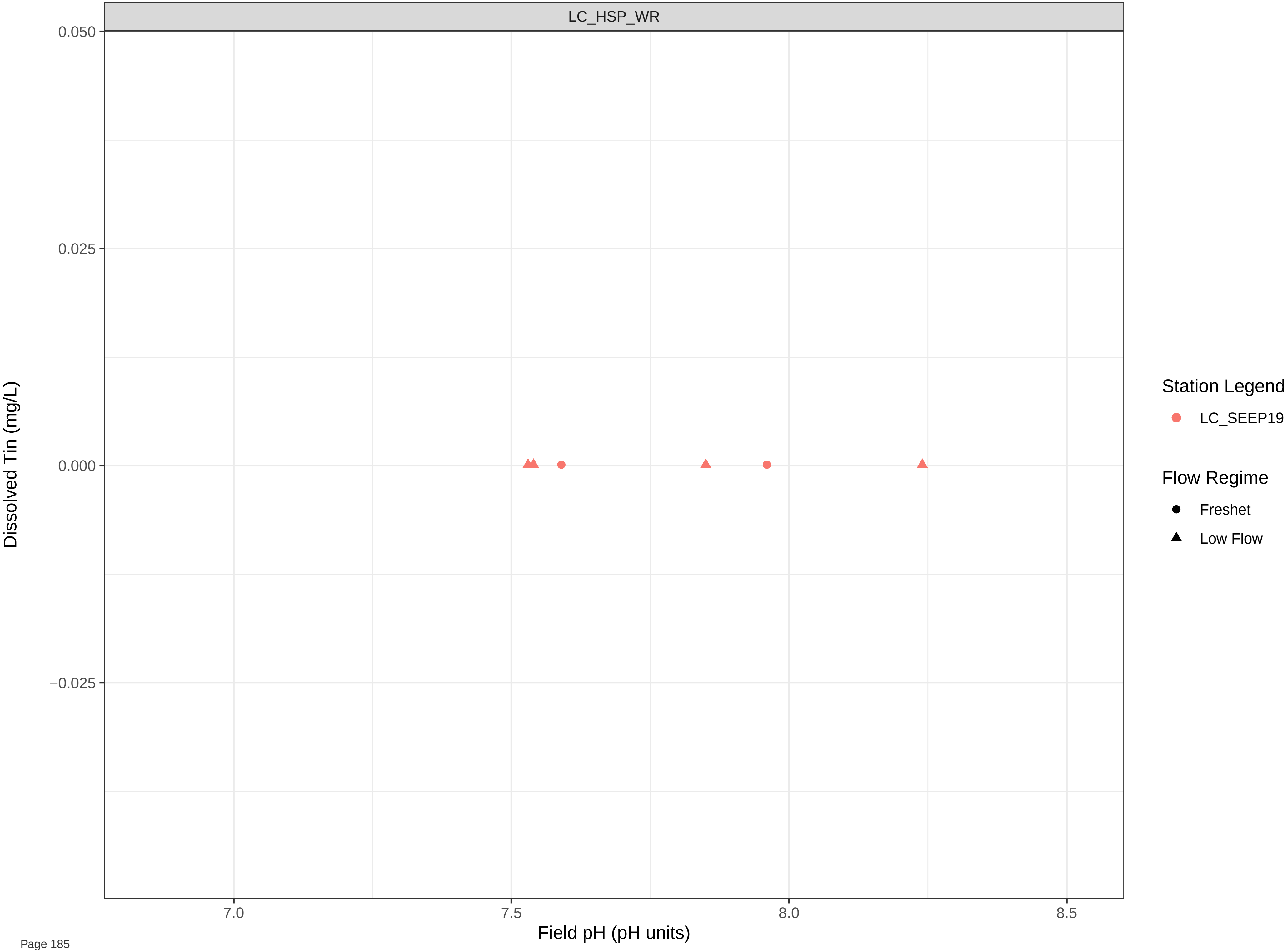

LC_MSA_WR
Dissolved Thallium (mg/L)
1.5e−05
1.4e−05
1.3e−05
1.2e−05
1.1e−05
1.0e−05
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

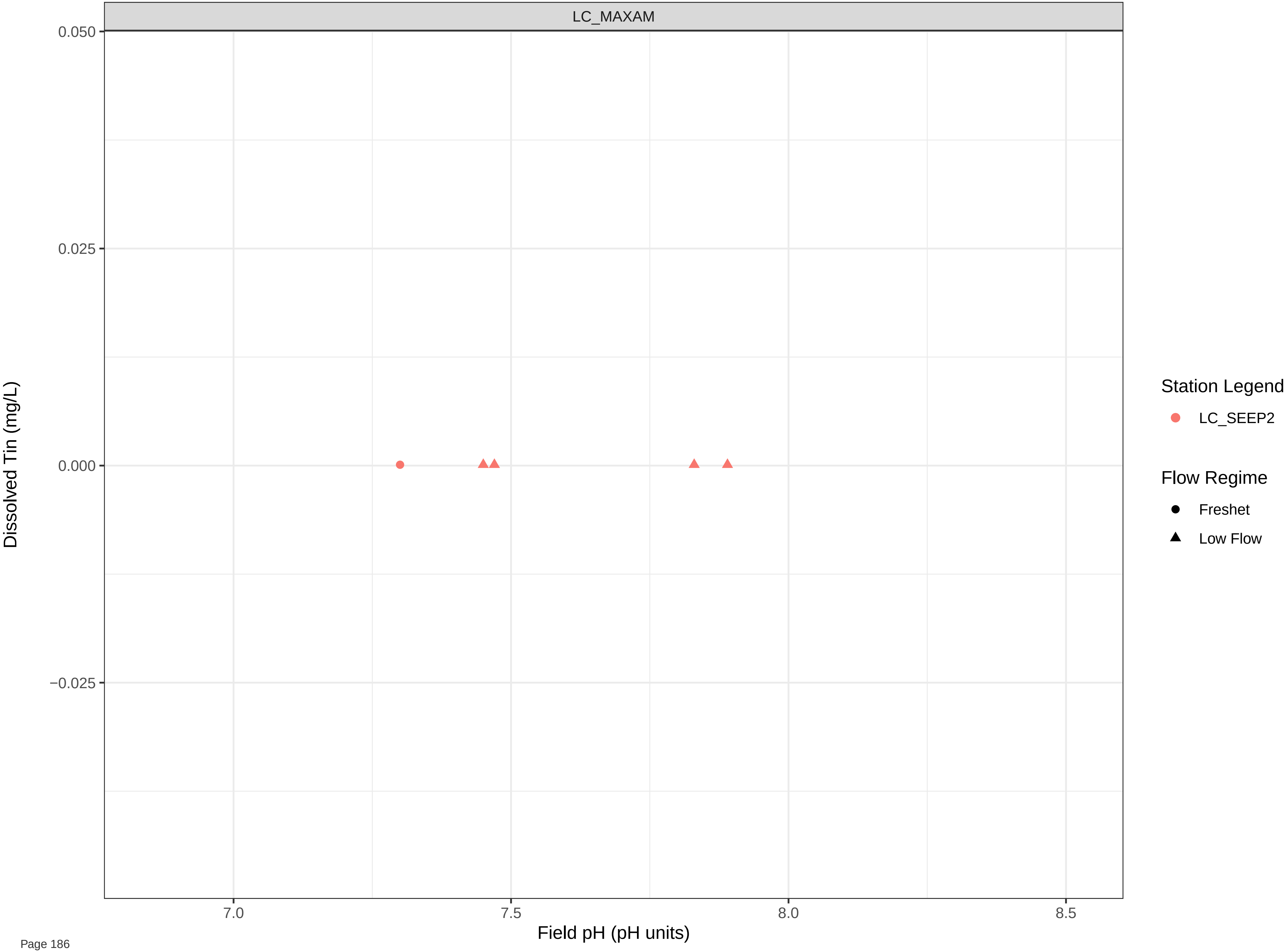

LC_PLANT
Dissolved Thallium (mg/L)
0.050
0.025
0.000
−0.025
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

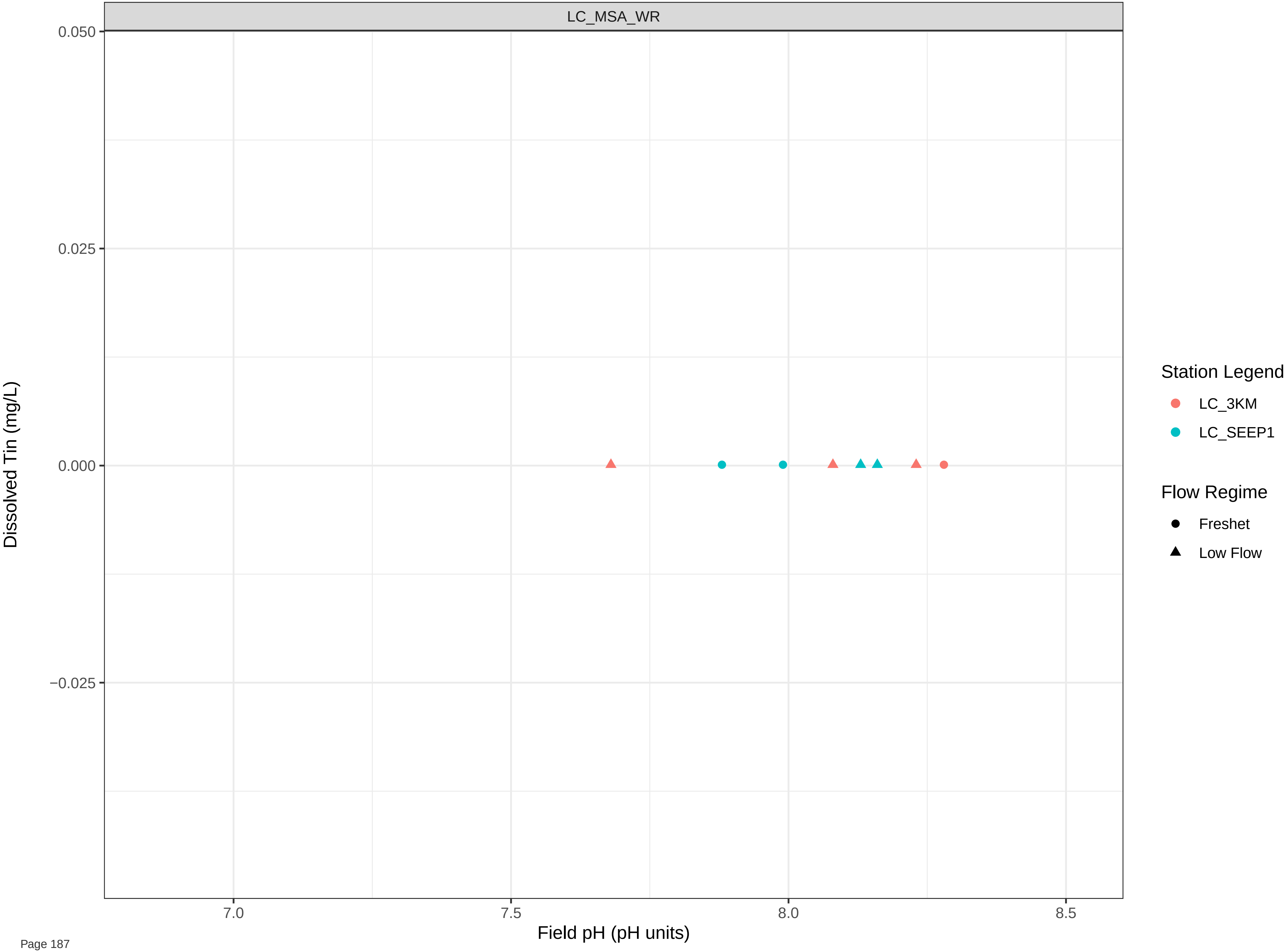

LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Thallium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

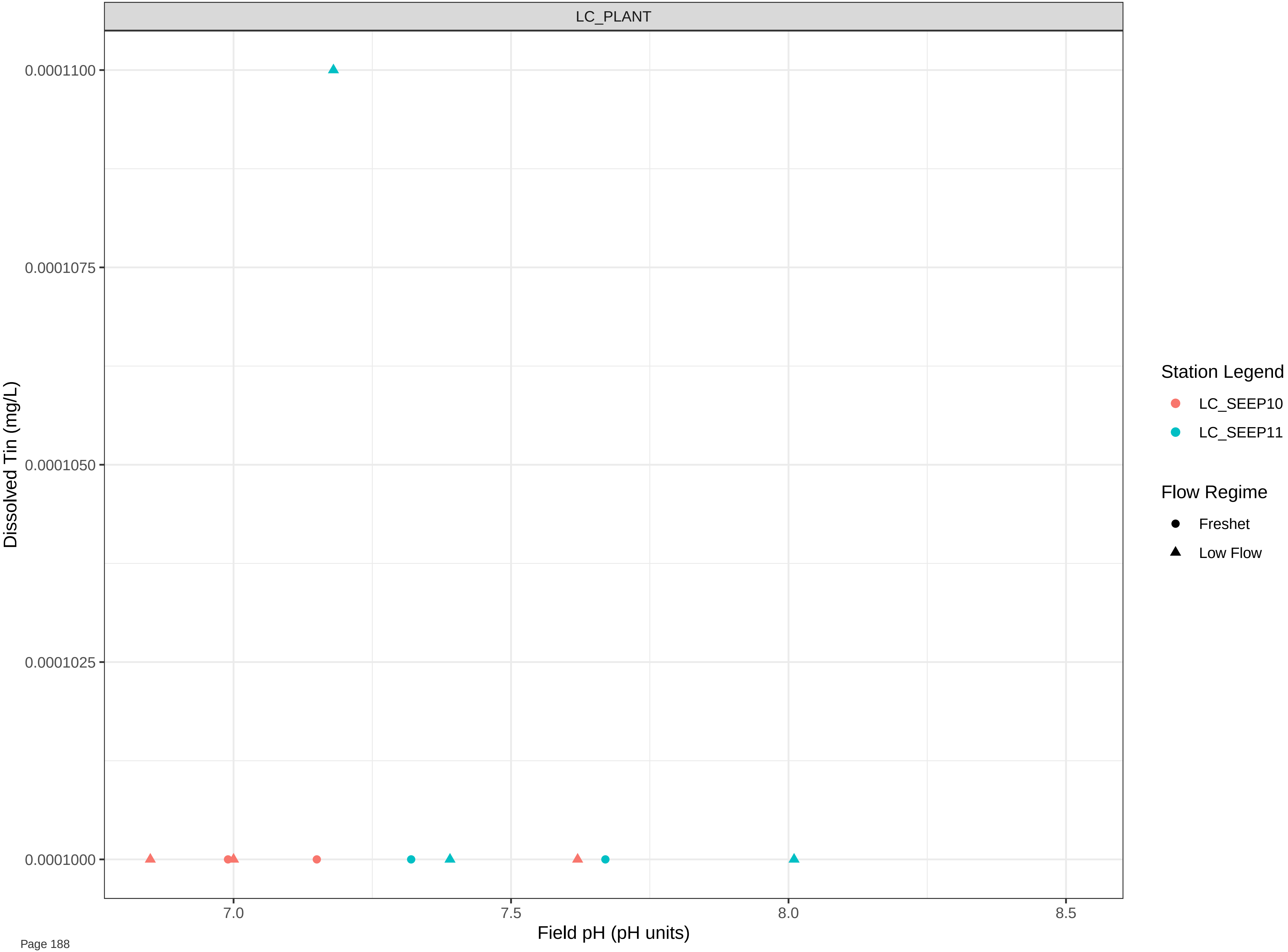

LC_DC_WR
Dissolved Tin (mg/L)
0.0001100
0.0001075
0.0001050
0.0001025
0.0001000
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

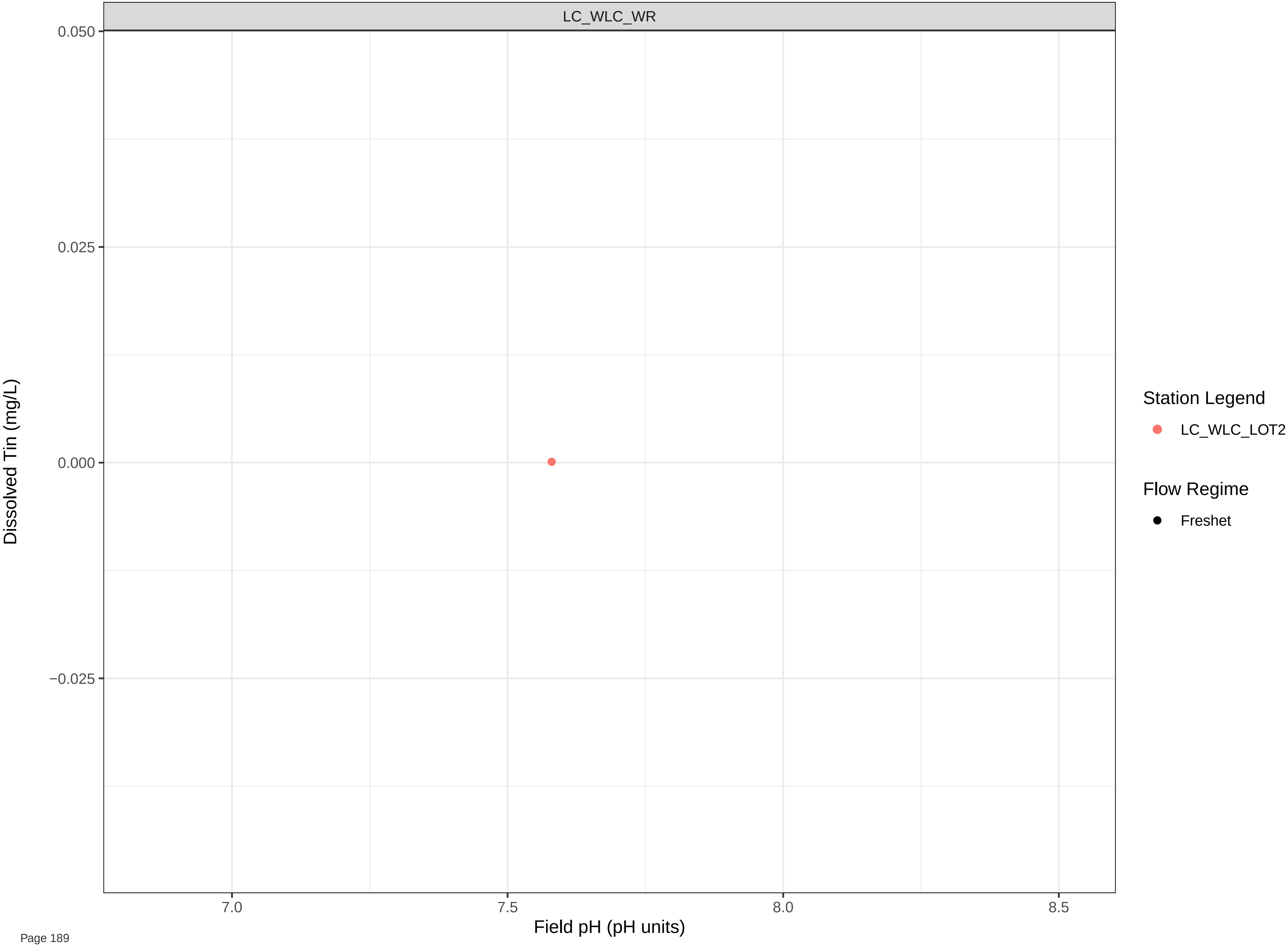

LC_DisturbedWSlope
0.050
0.025
0.000
−0.025
Dissolved Tin (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

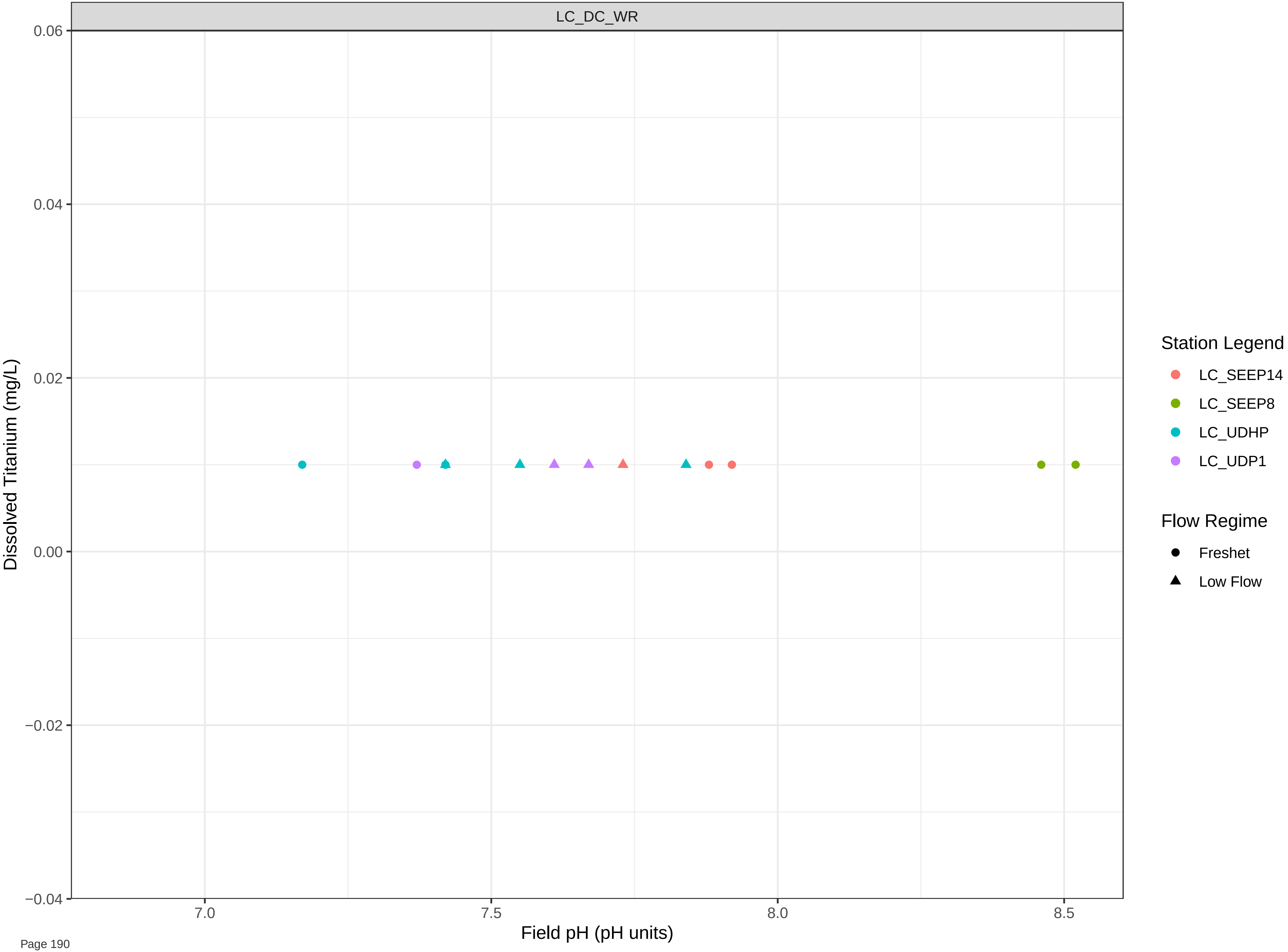

LC_HSP_WR
Dissolved Tin (mg/L)
0.050
0.025
0.000
−0.025
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

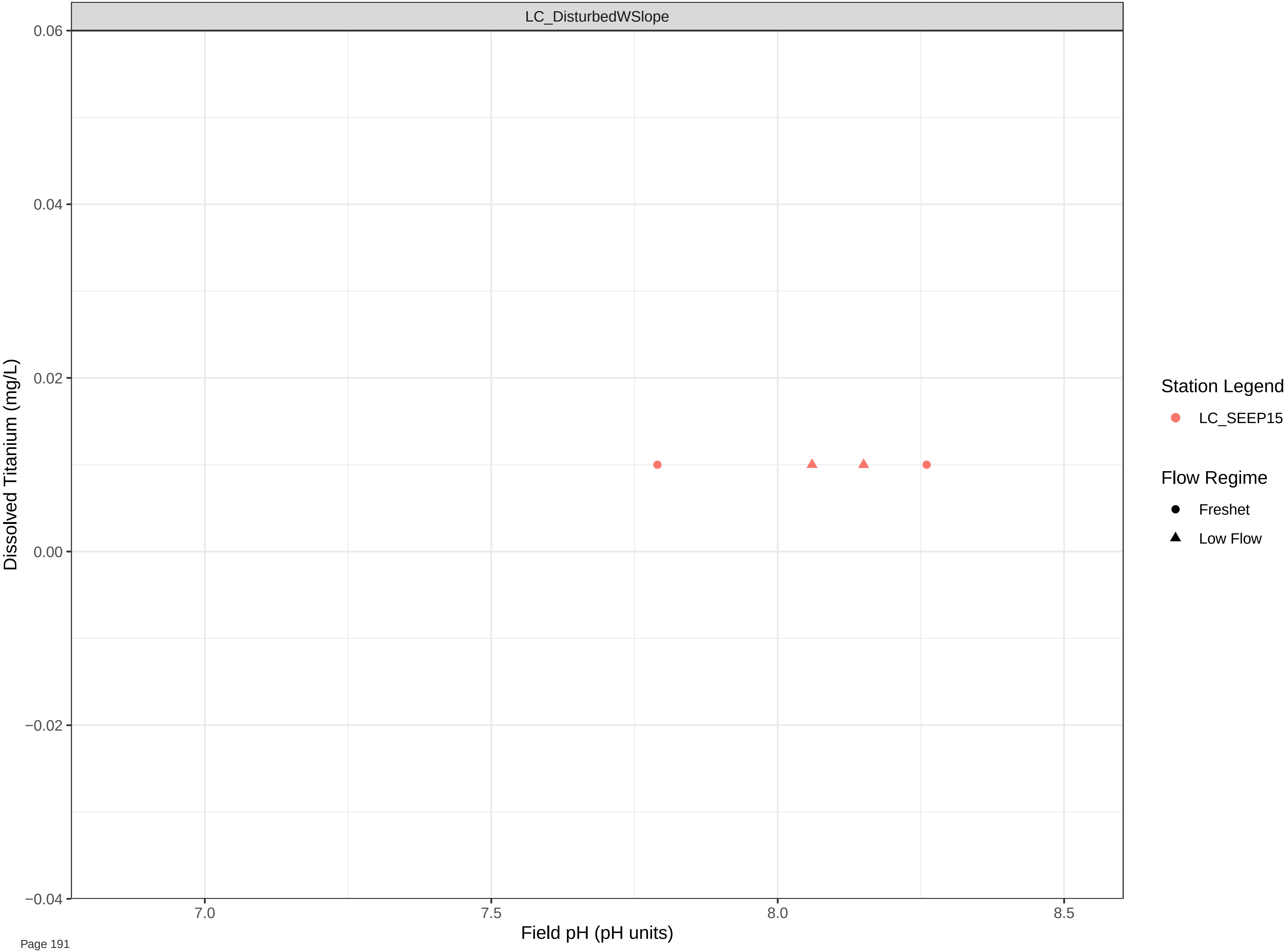

LC_MAXAM
0.050
0.025
0.000
−0.025
Dissolved Tin (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow

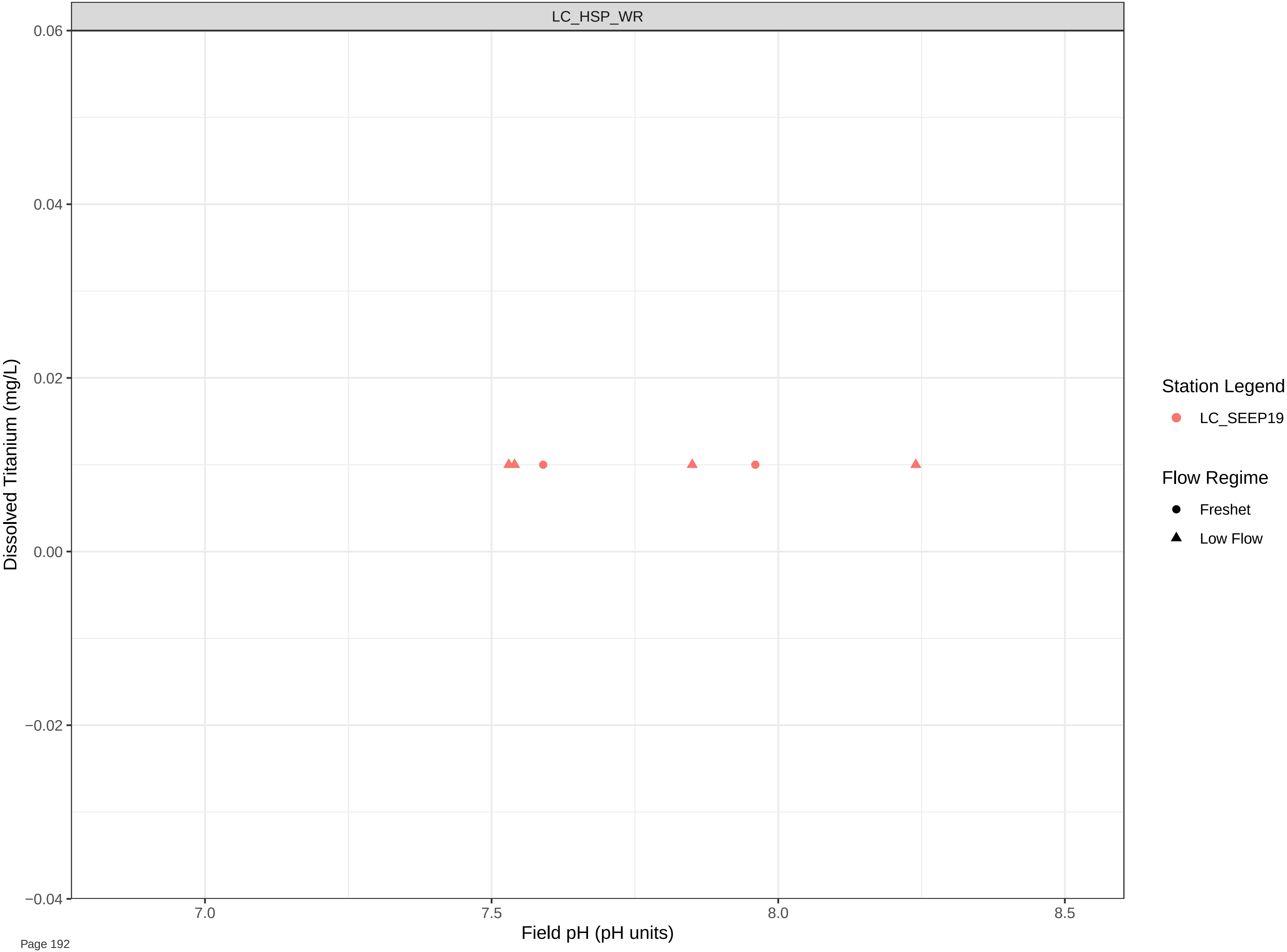

LC_MSA_WR
Dissolved Tin (mg/L)
0.050
0.025
0.000
−0.025
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

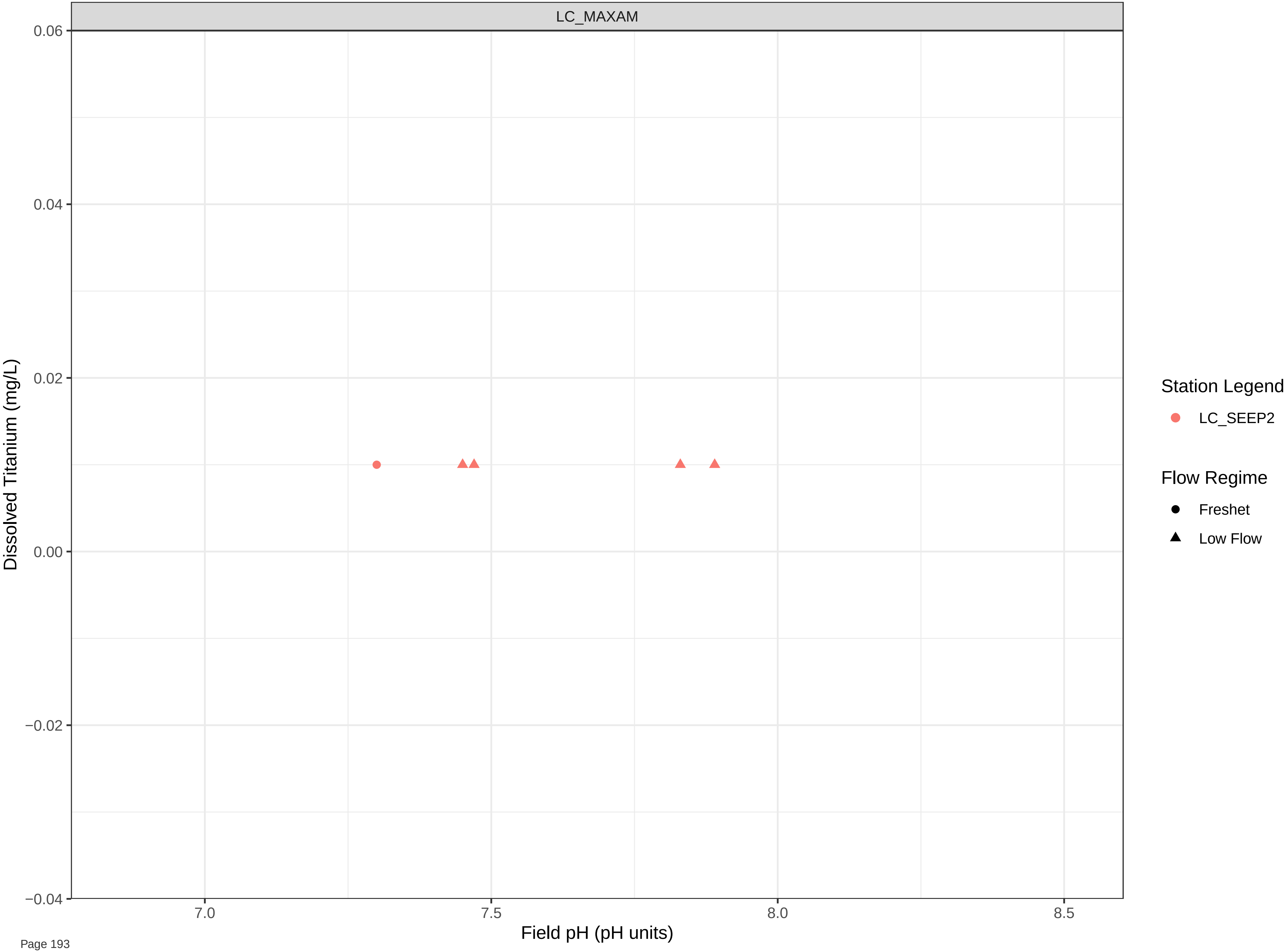

LC_PLANT
Dissolved Tin (mg/L)
0.0001100
0.0001075
0.0001050
0.0001025
0.0001000
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

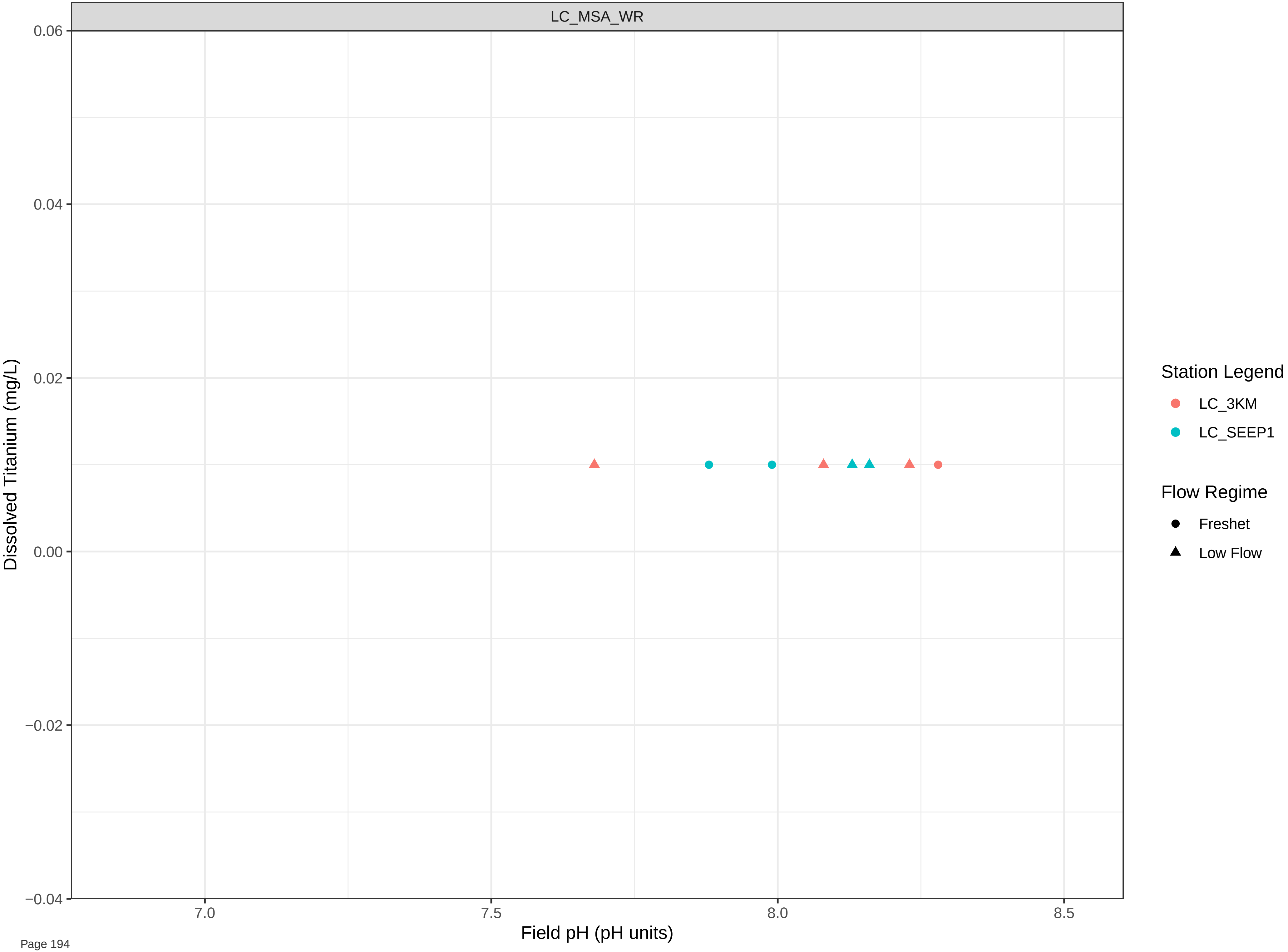

LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Tin (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

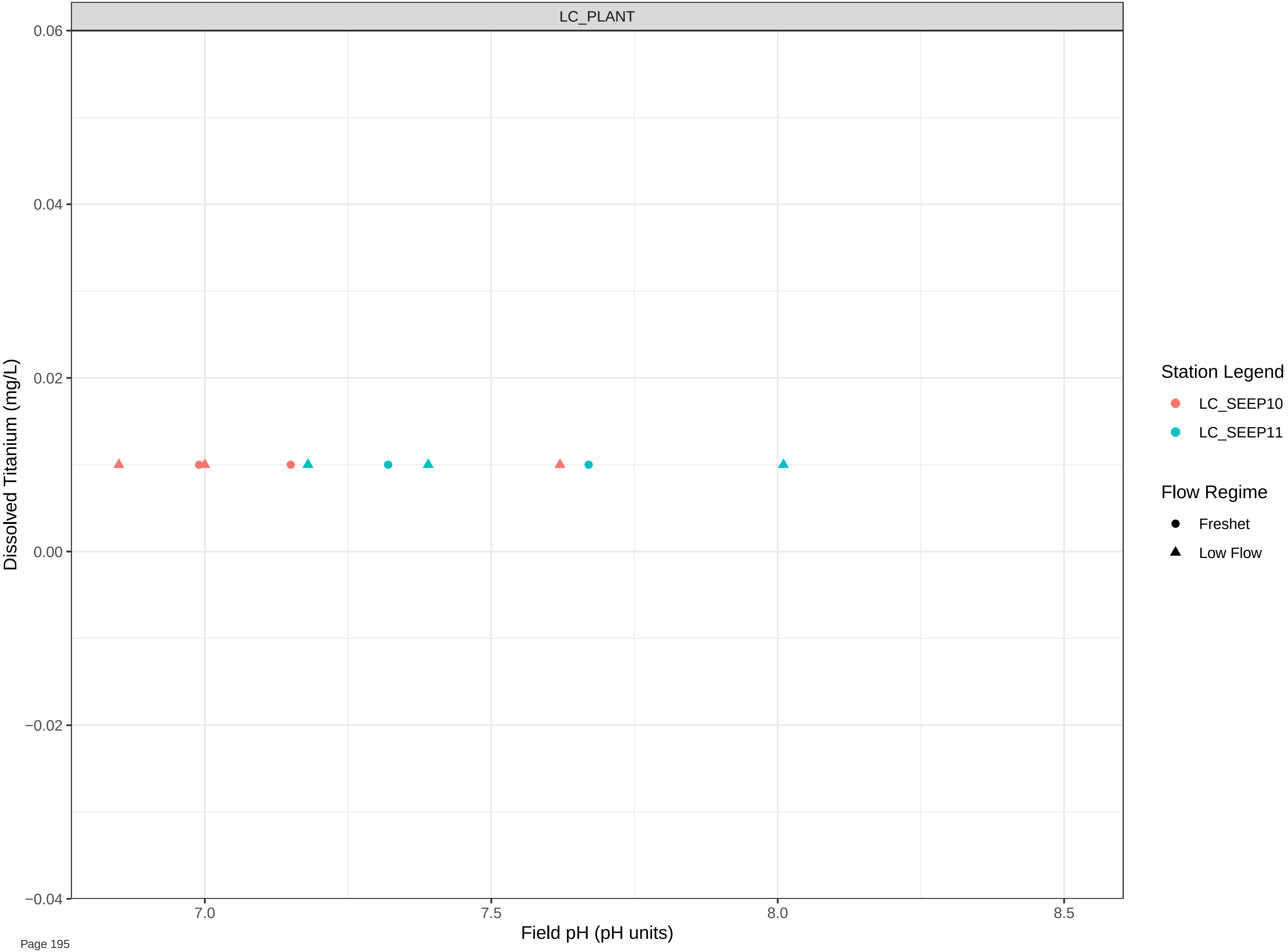

LC_DC_WR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

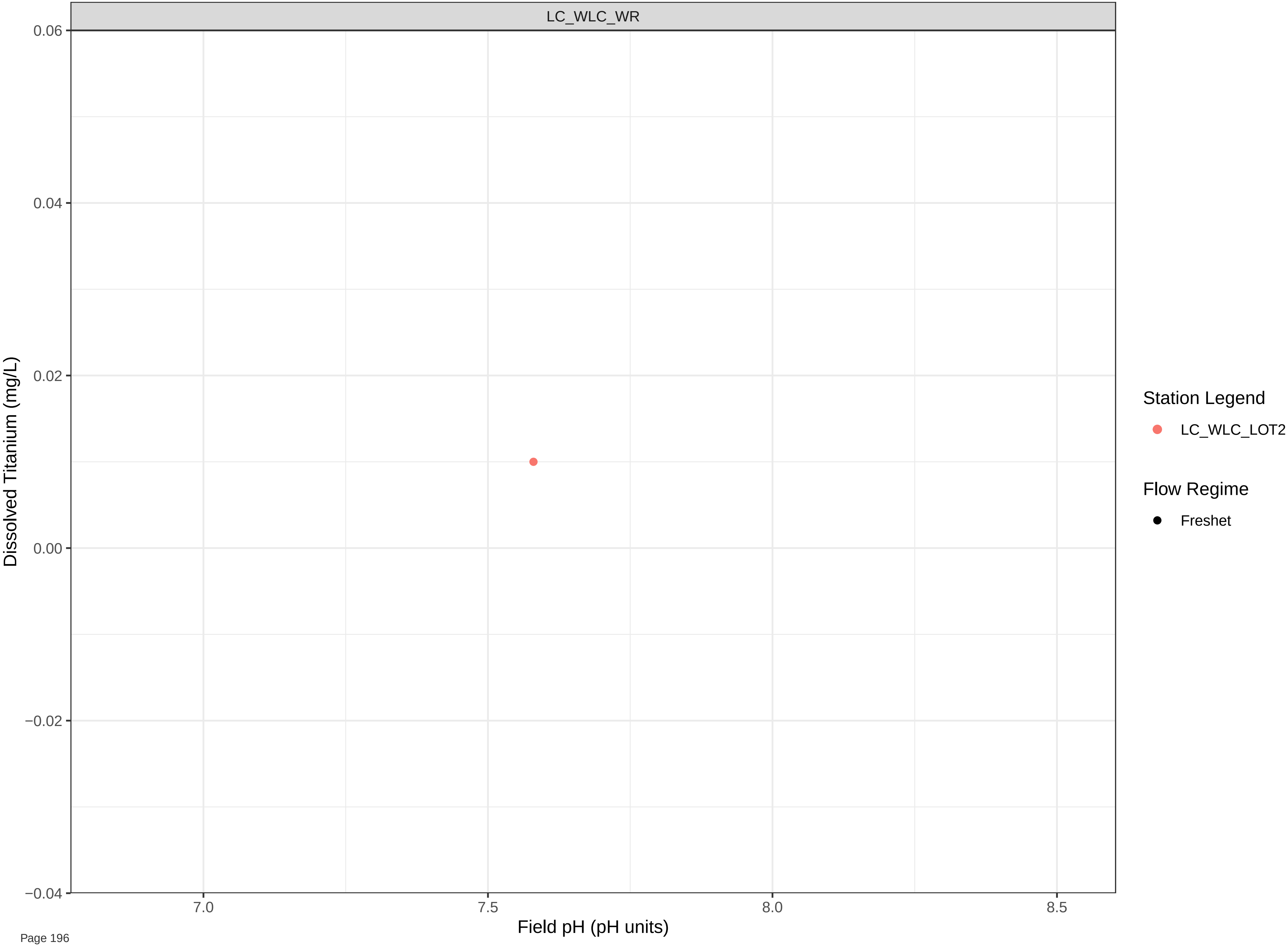

LC_DisturbedWSlope
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

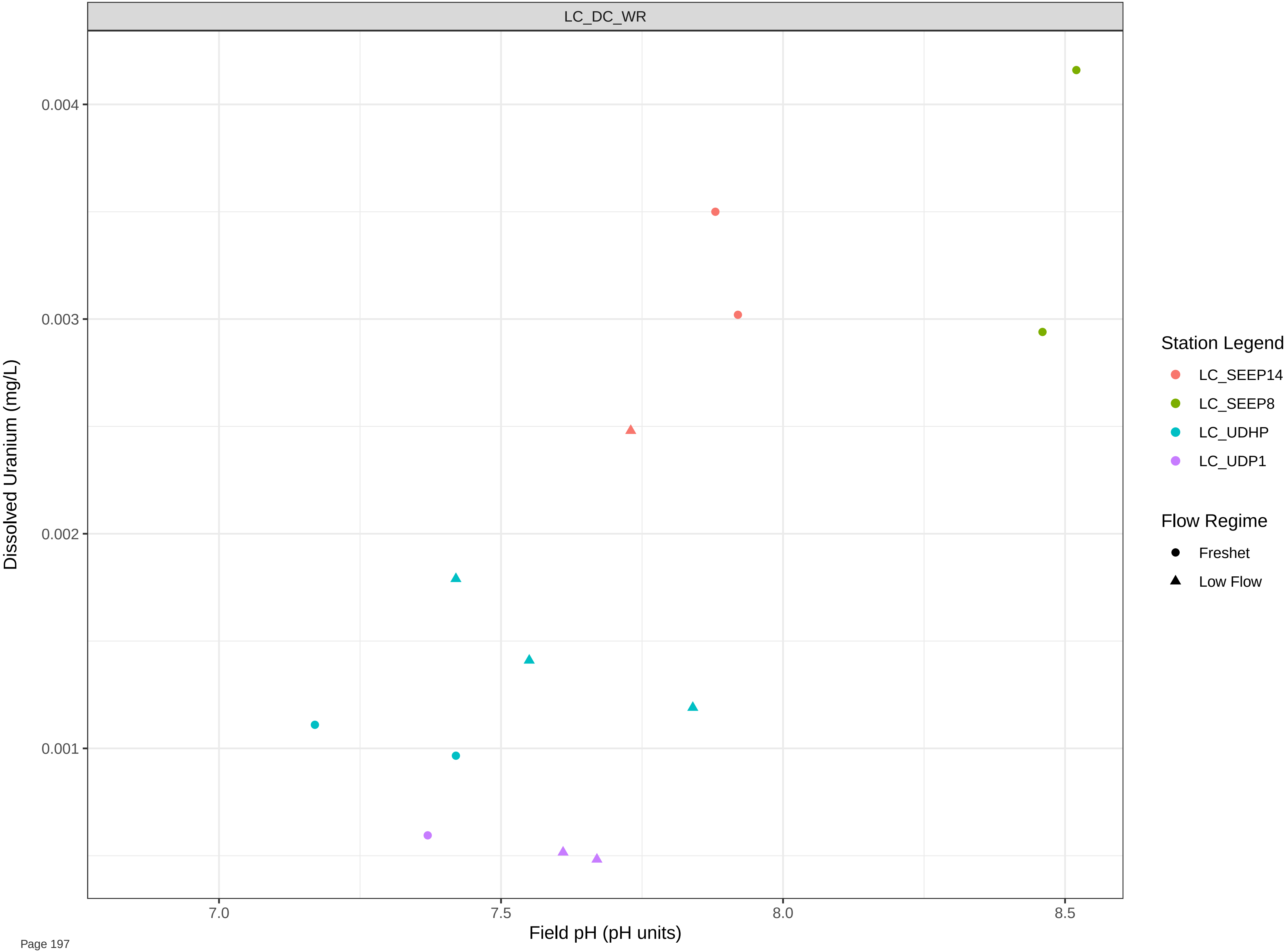

LC_HSP_WR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

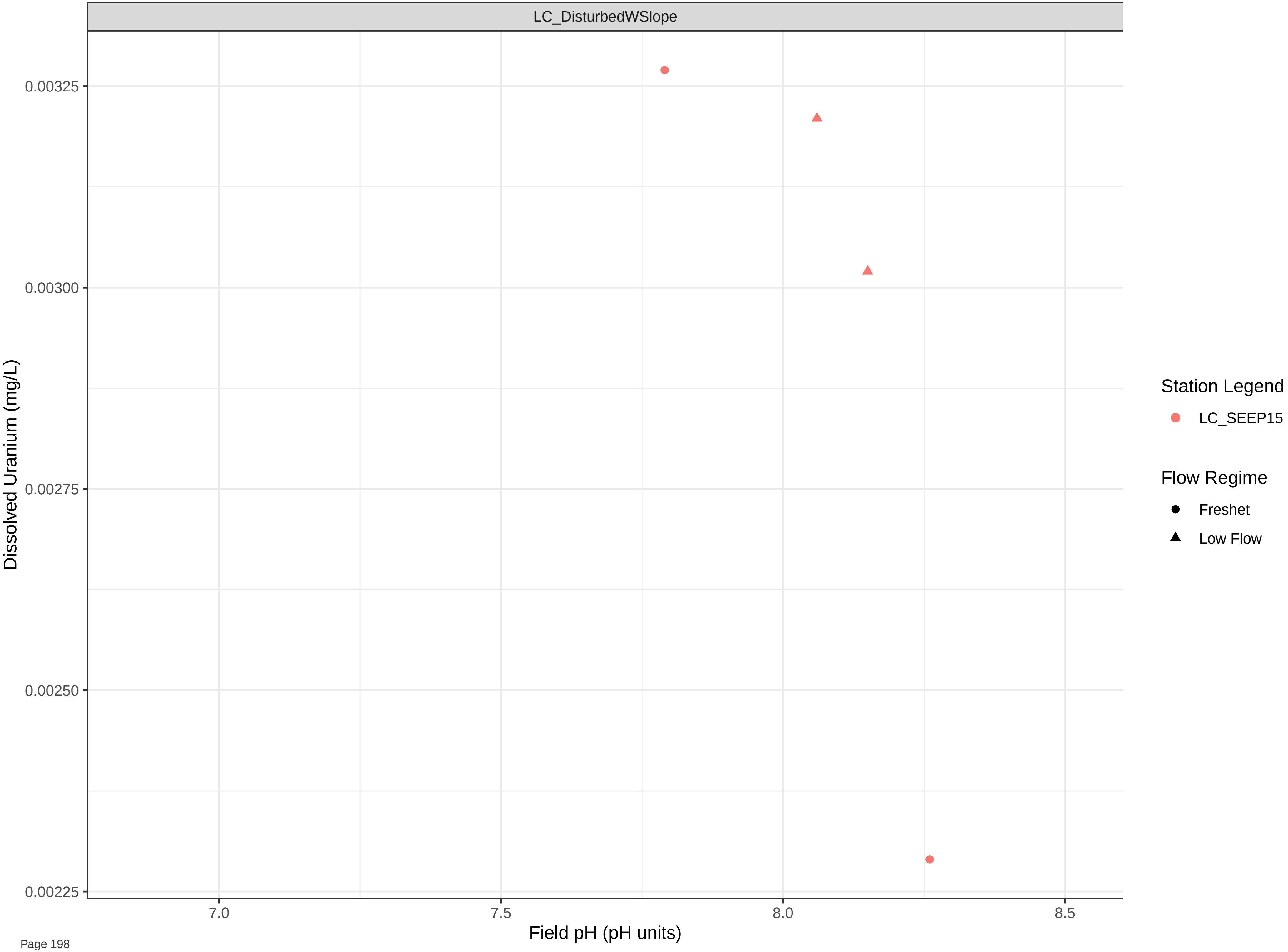

LC_MAXAM
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow

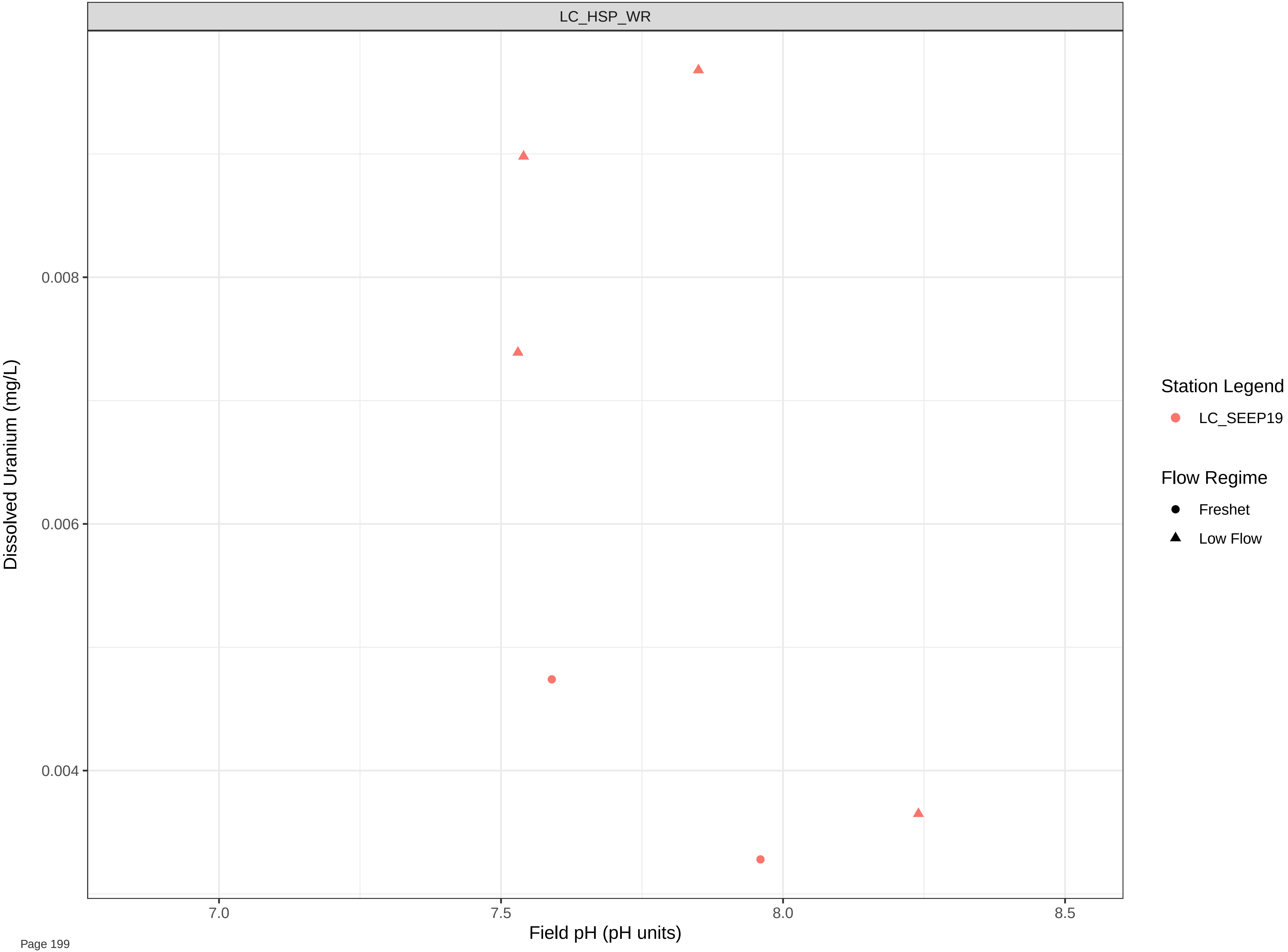

LC_MSA_WR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

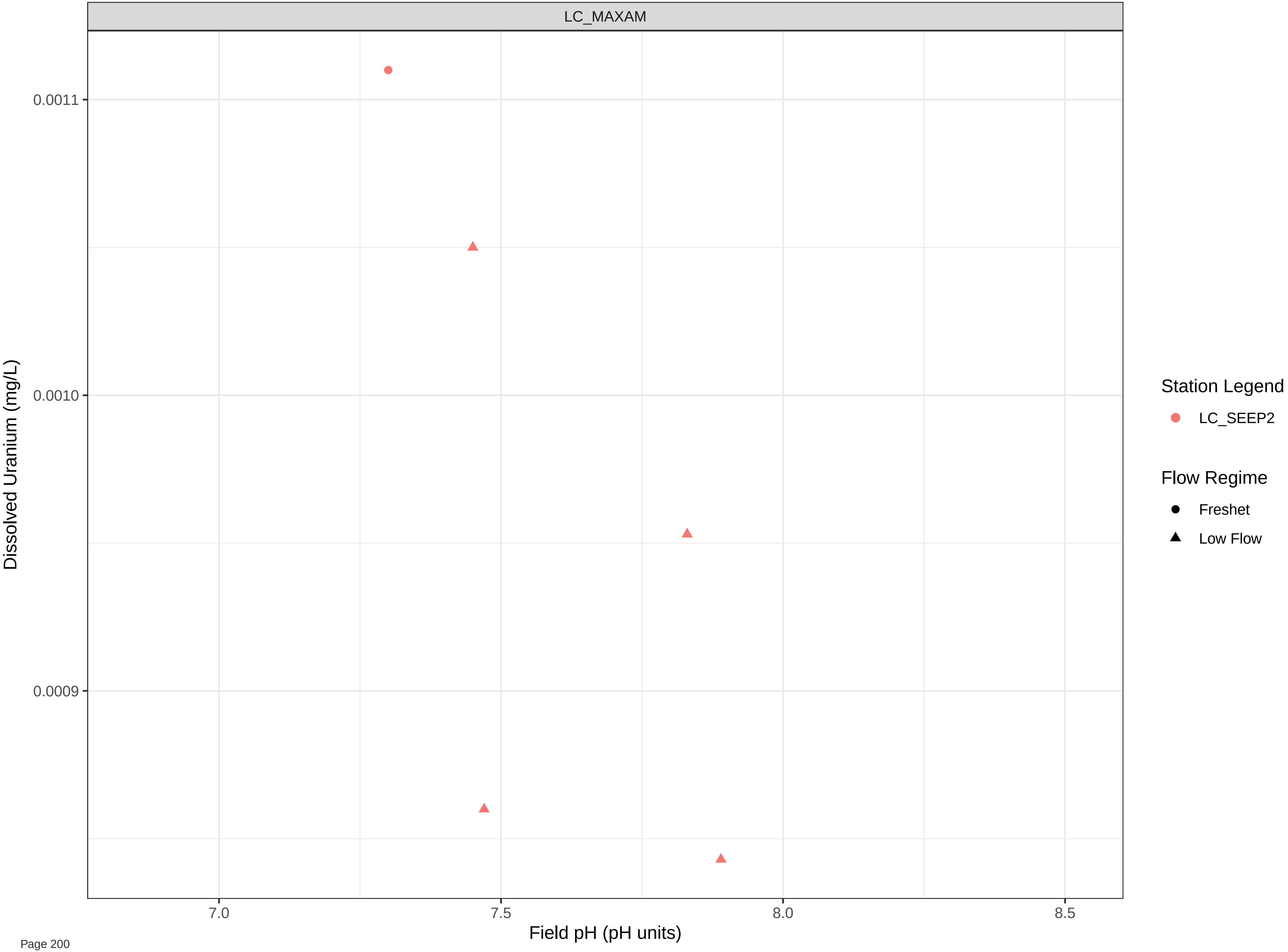

LC_PLANT
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

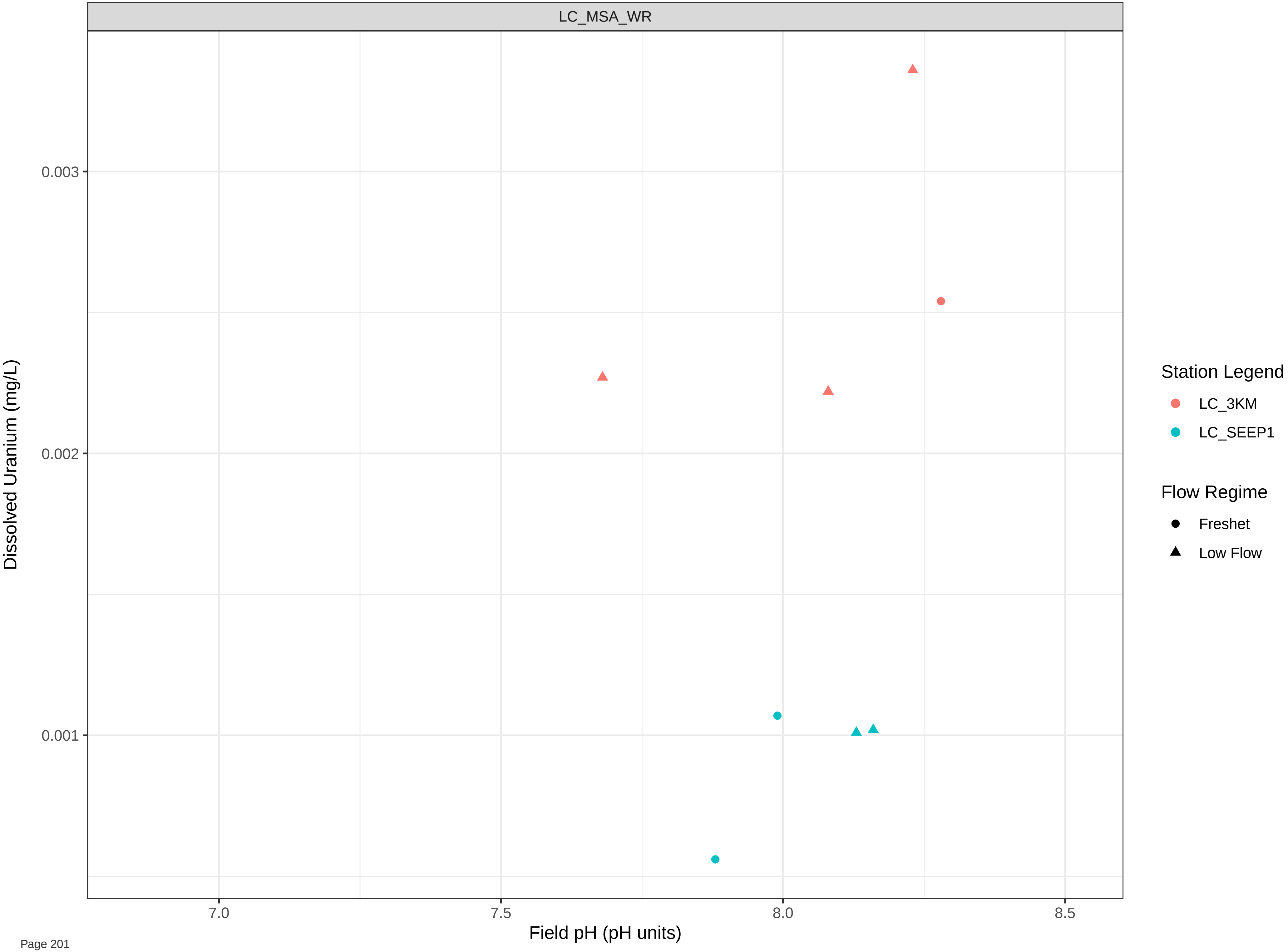

LC_WLC_WR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet

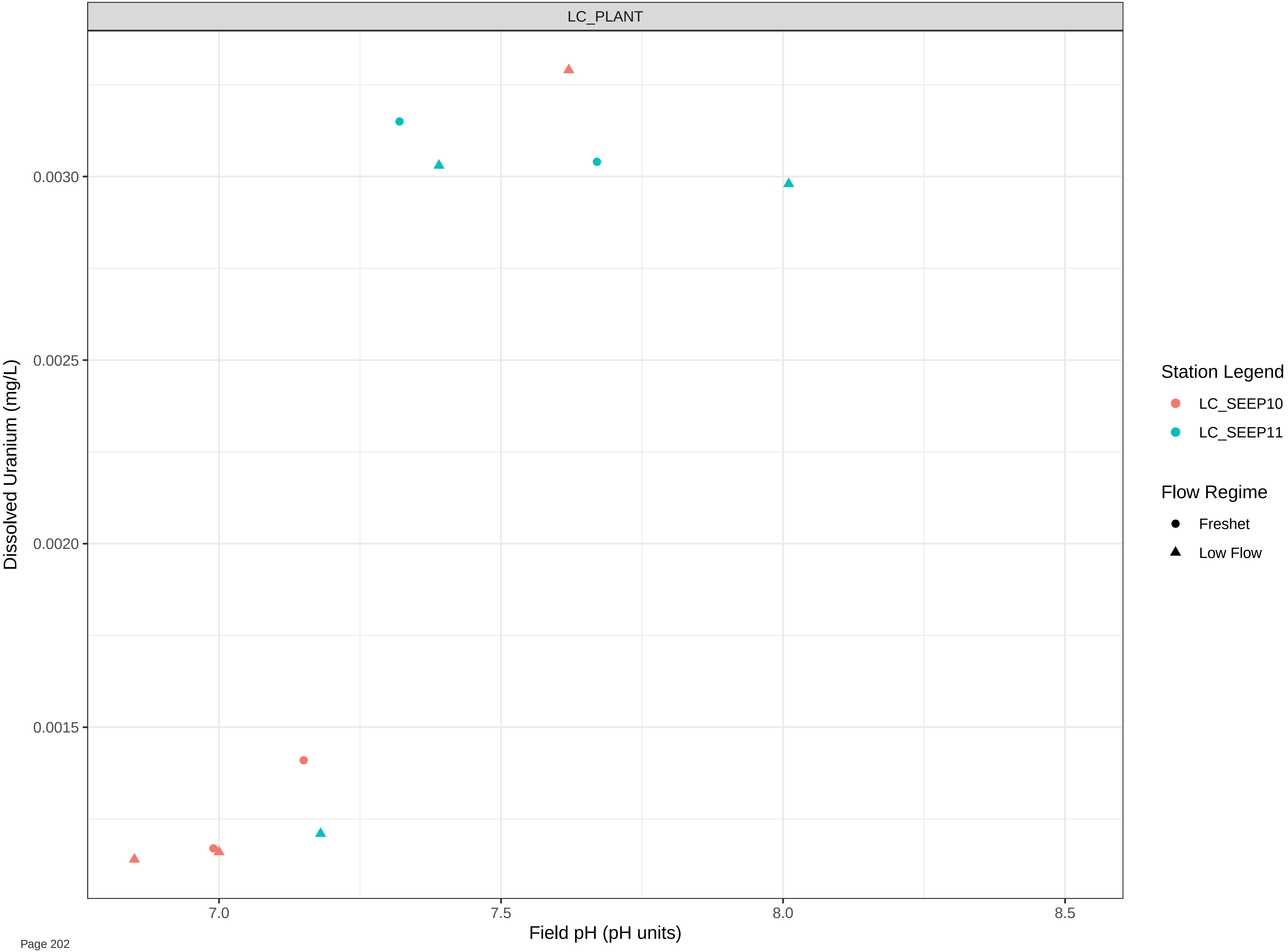

LC_DC_WR
Dissolved Uranium (mg/L)
0.004
0.003
0.002
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

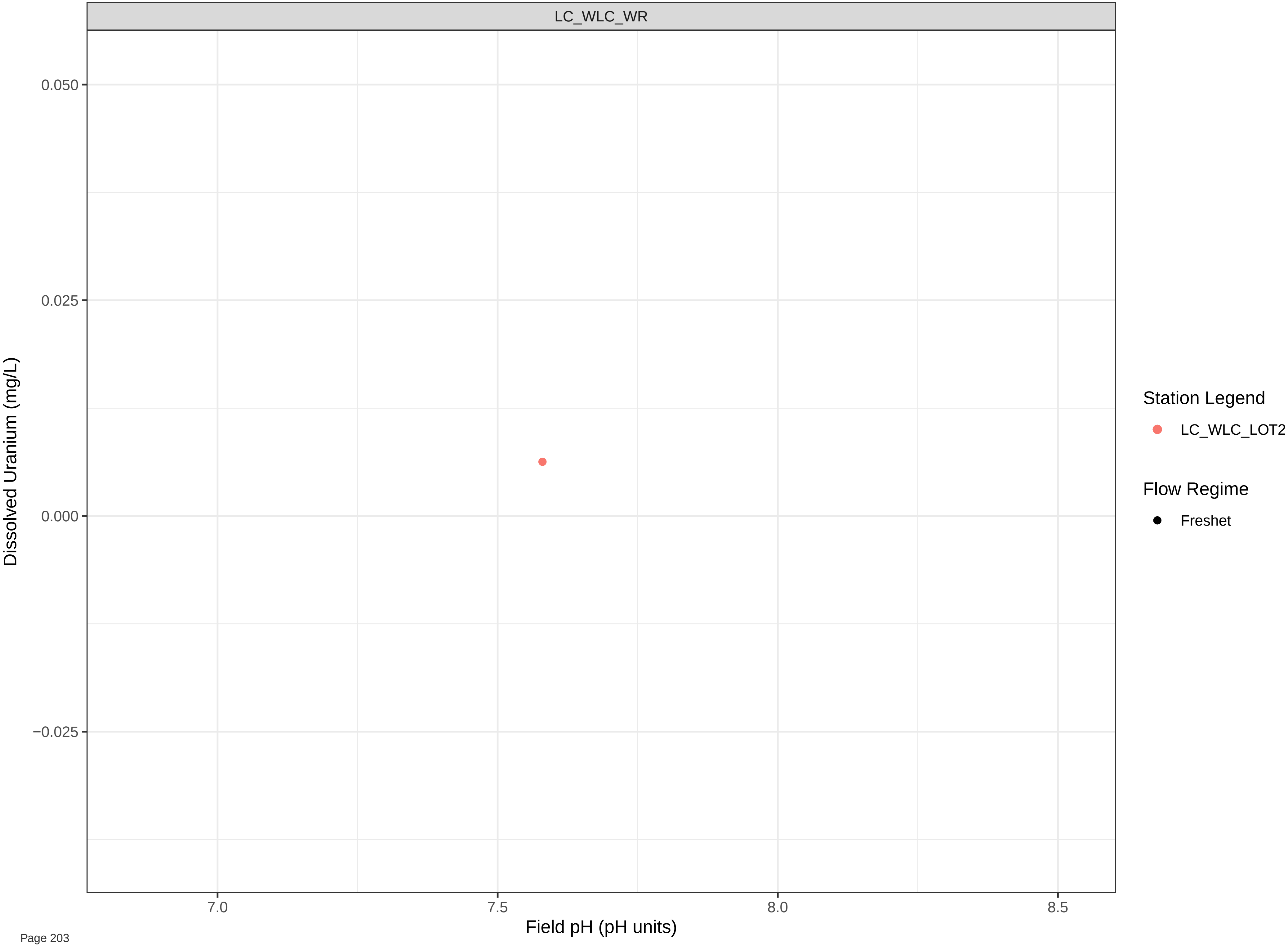

LC_DisturbedWSlope
Dissolved Uranium (mg/L)
0.00325
0.00300
0.00275
0.00250
0.00225
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

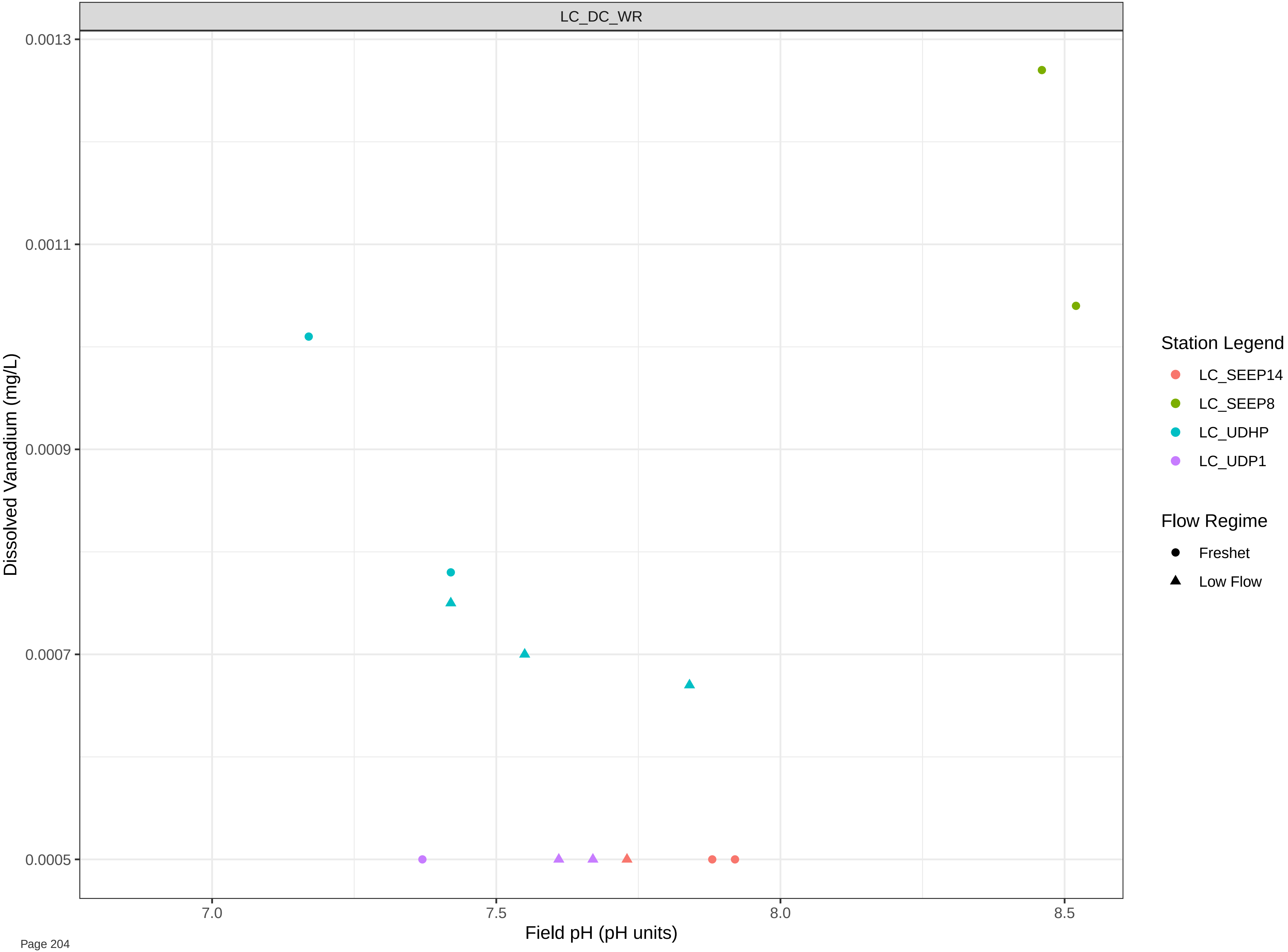

LC_HSP_WR
Dissolved Uranium (mg/L)
0.008
0.006
0.004
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

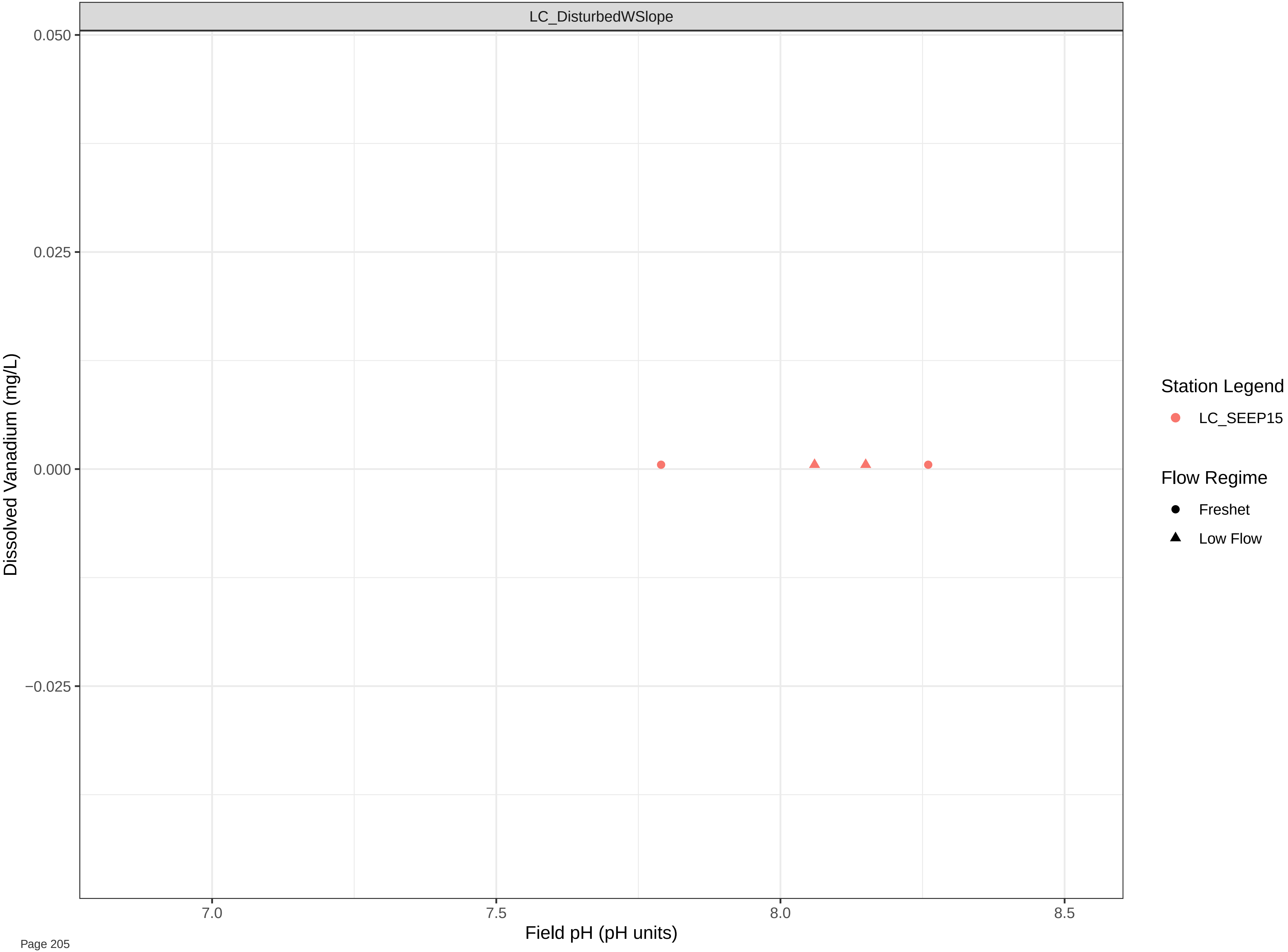

LC_MAXAM
Dissolved Uranium (mg/L)
0.0011
0.0010
0.0009
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

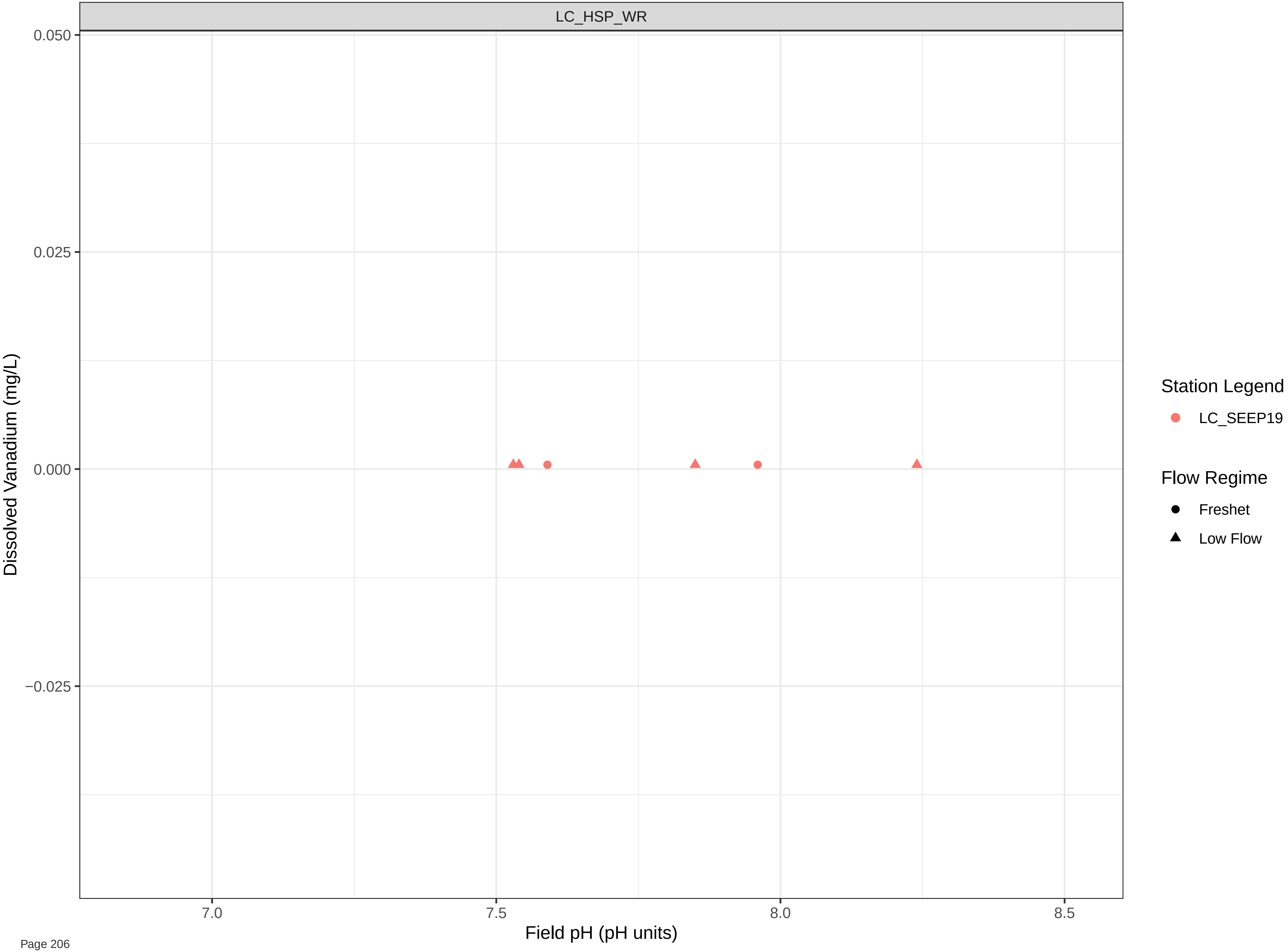

LC_MSA_WR
Dissolved Uranium (mg/L)
0.003
0.002
0.001
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

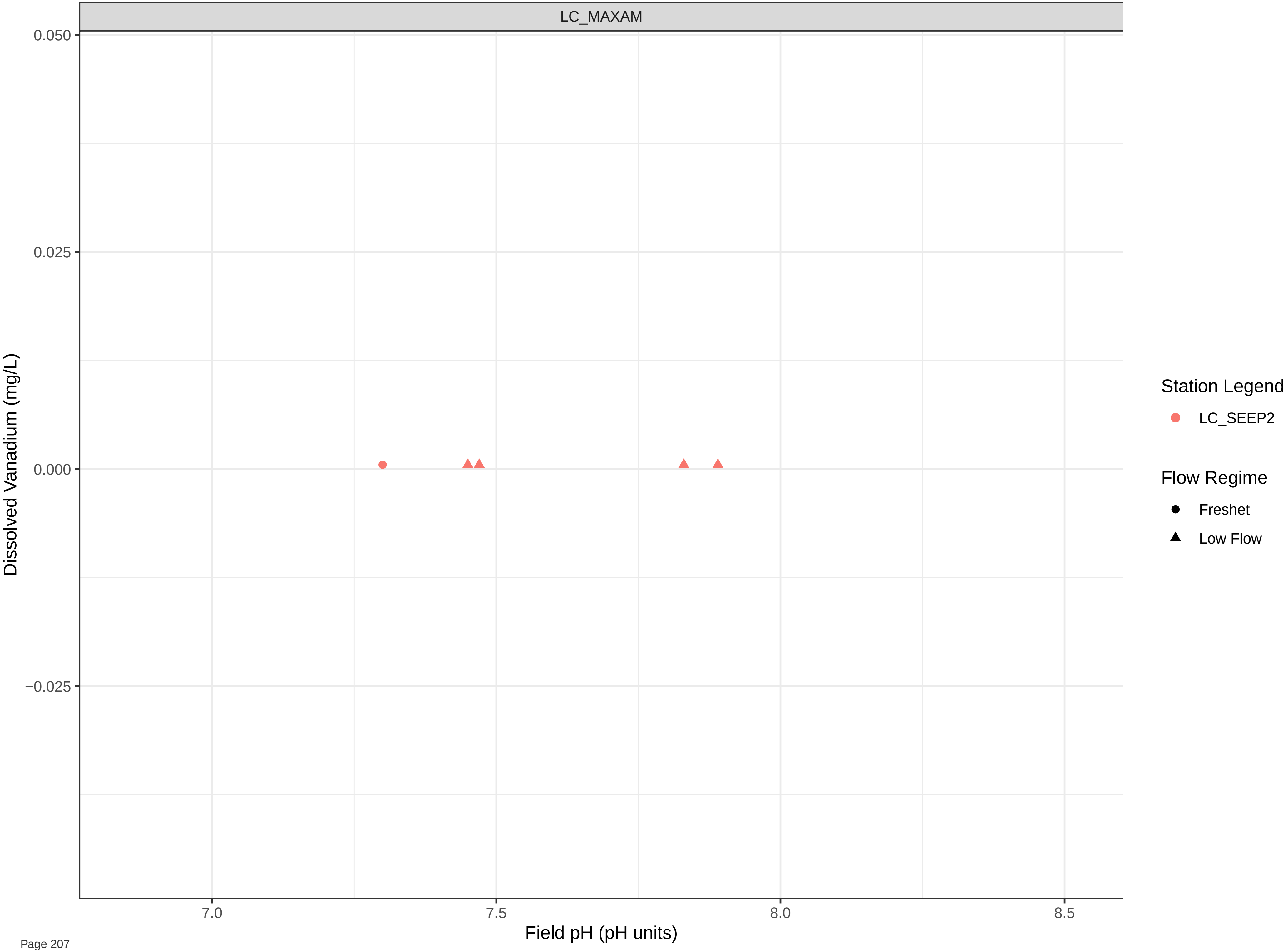

LC_PLANT
Dissolved Uranium (mg/L)
0.0030
0.0025
0.0020
0.0015
Field pH (pH units)
7.0
7.5
8.0
8.5
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

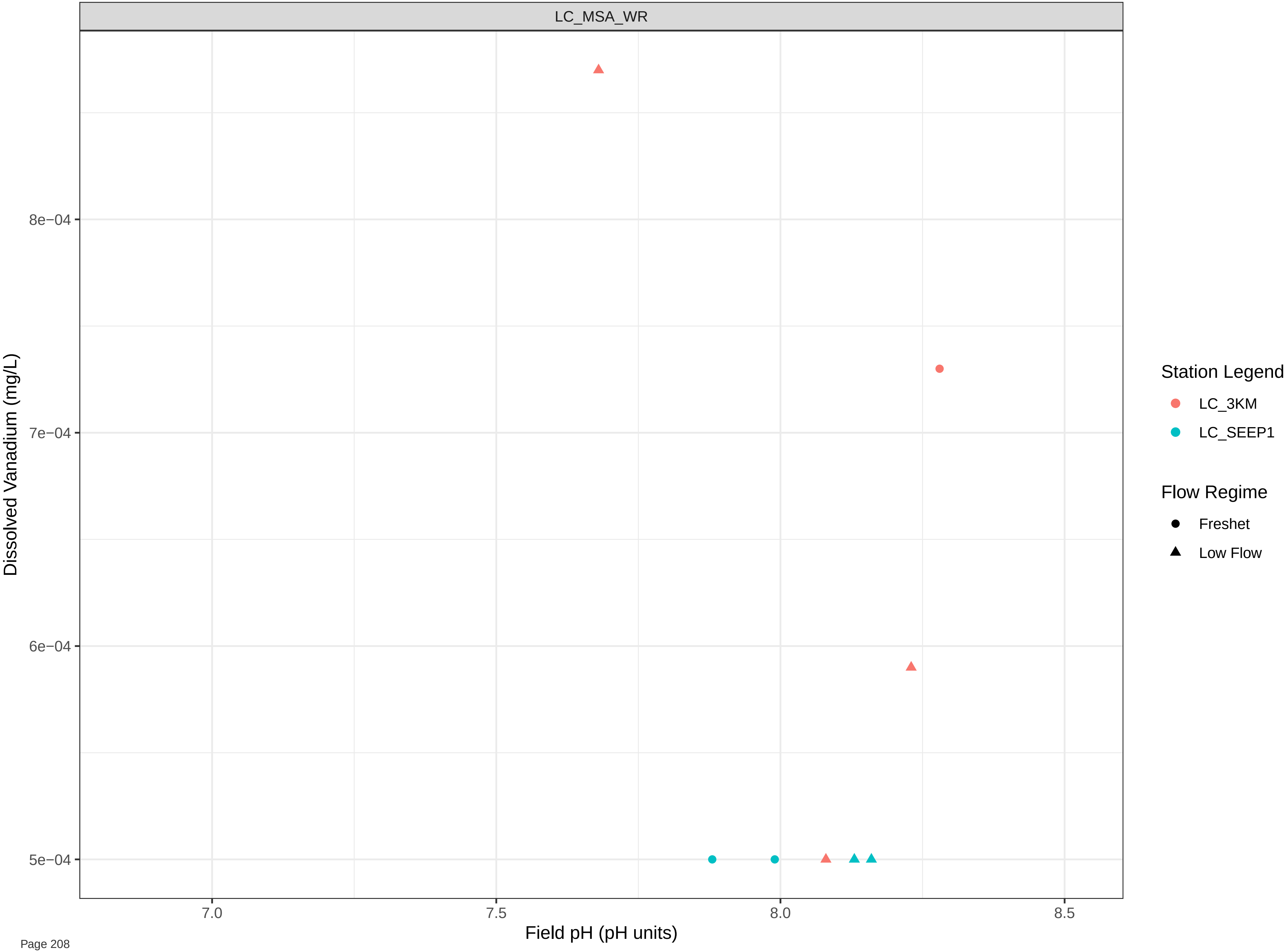

LC_WLC_WR
Dissolved Uranium (mg/L)
0.050
0.025
0.000
−0.025
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

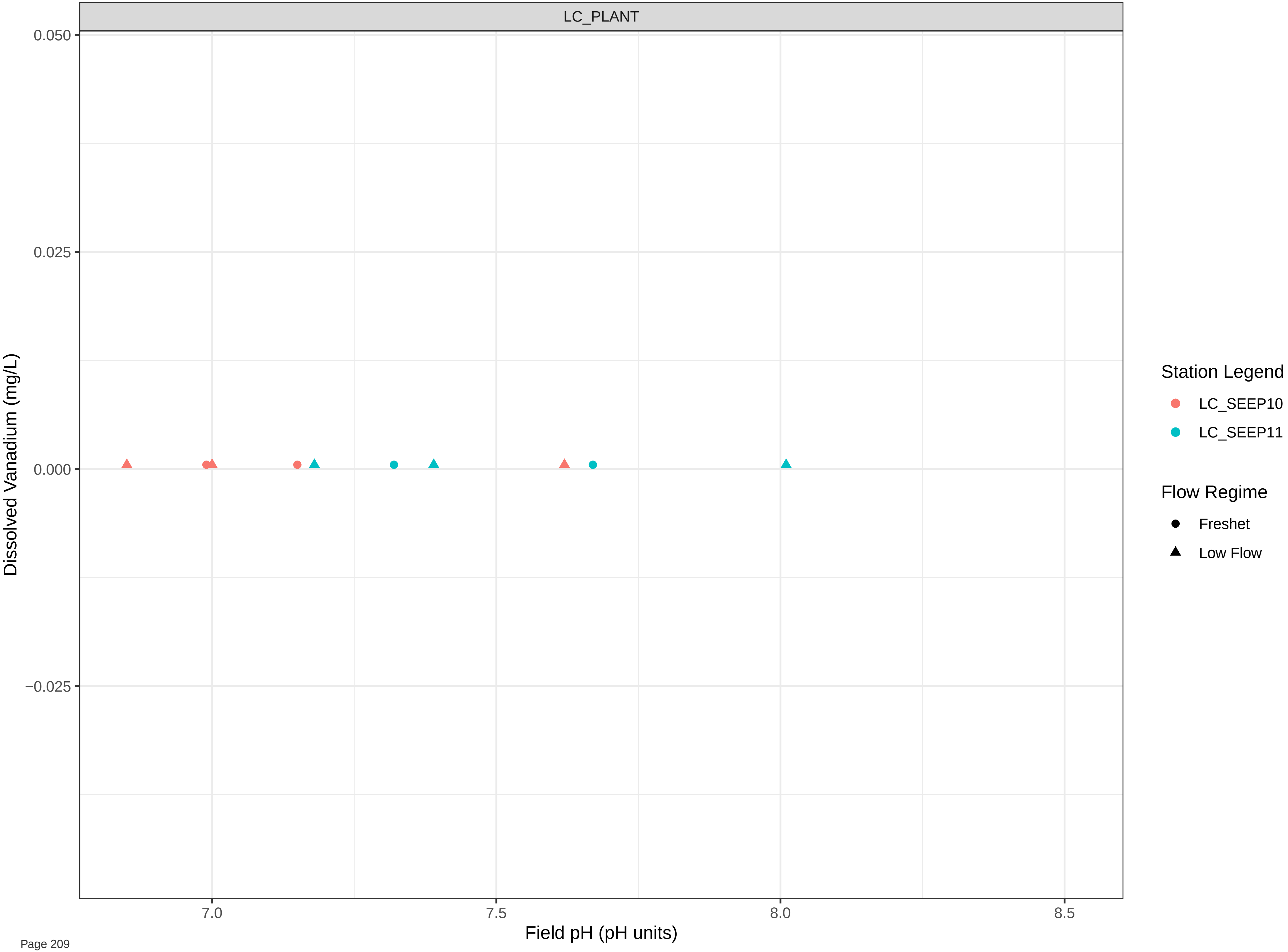

LC_DC_WR
Dissolved Vanadium (mg/L)
0.0013
0.0011
0.0009
0.0007
0.0005
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

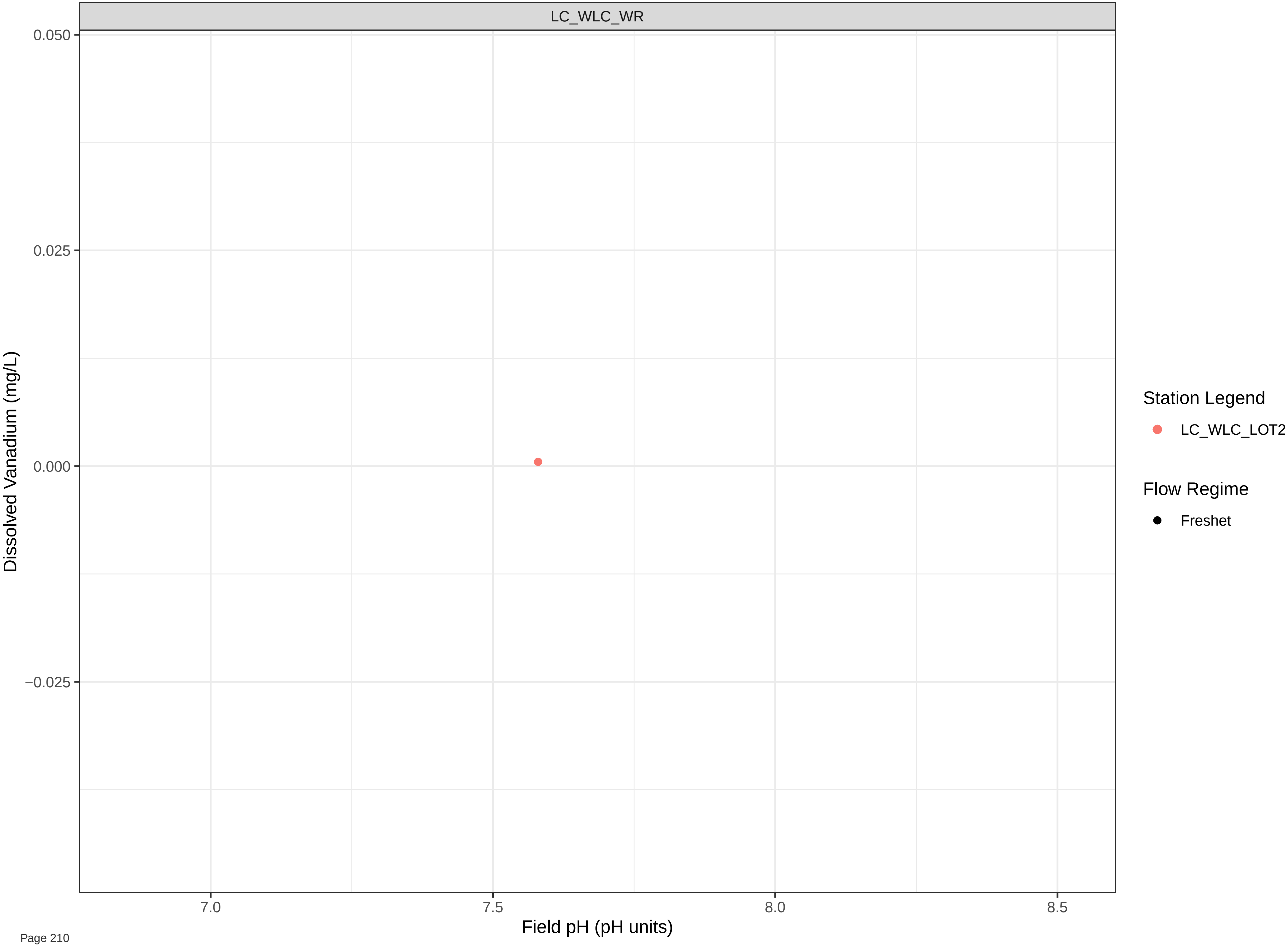

LC_DisturbedWSlope
0.050
0.025
0.000
−0.025
Dissolved Vanadium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

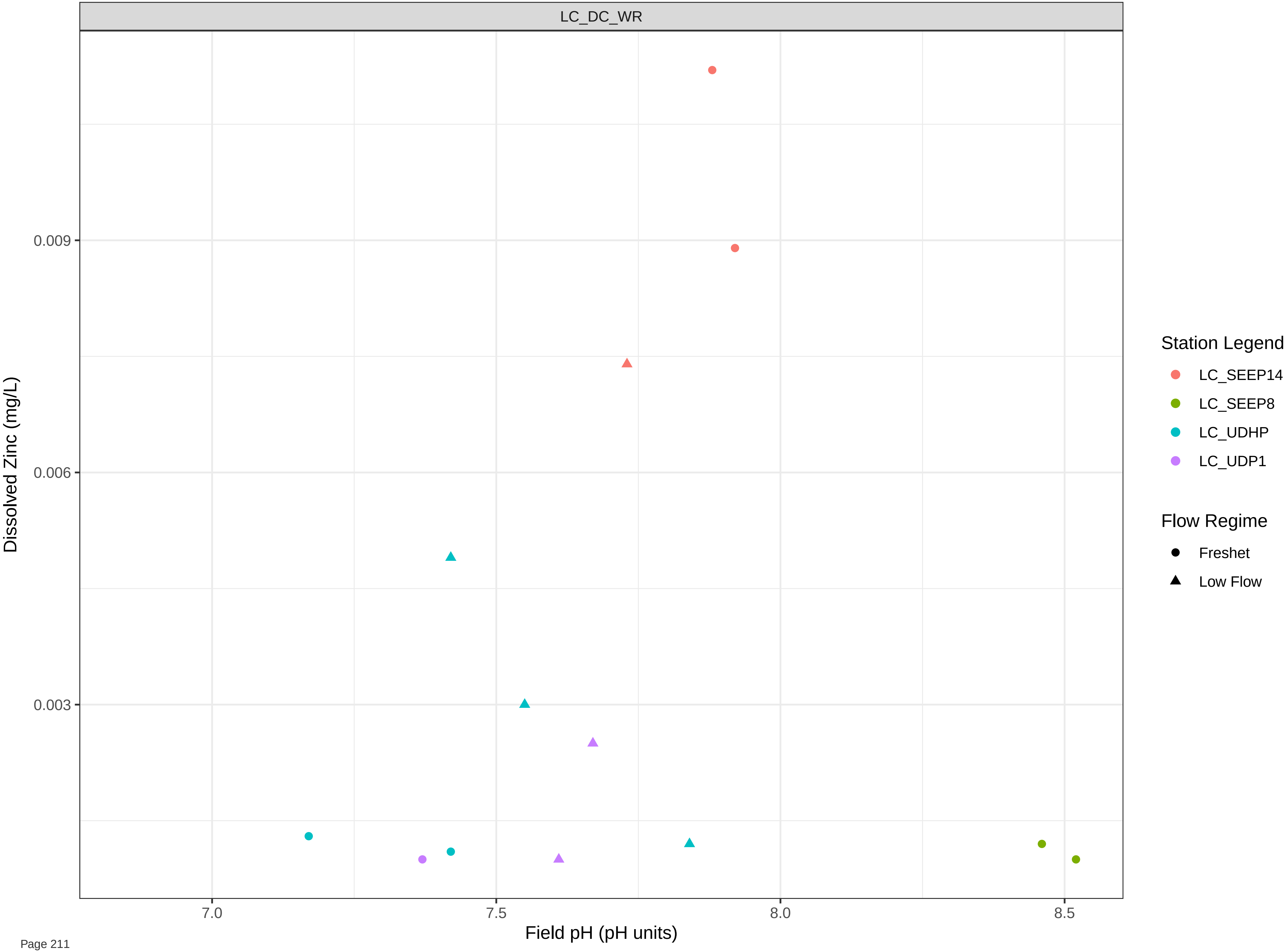

LC_HSP_WR
0.050
0.025
0.000
−0.025
Dissolved Vanadium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

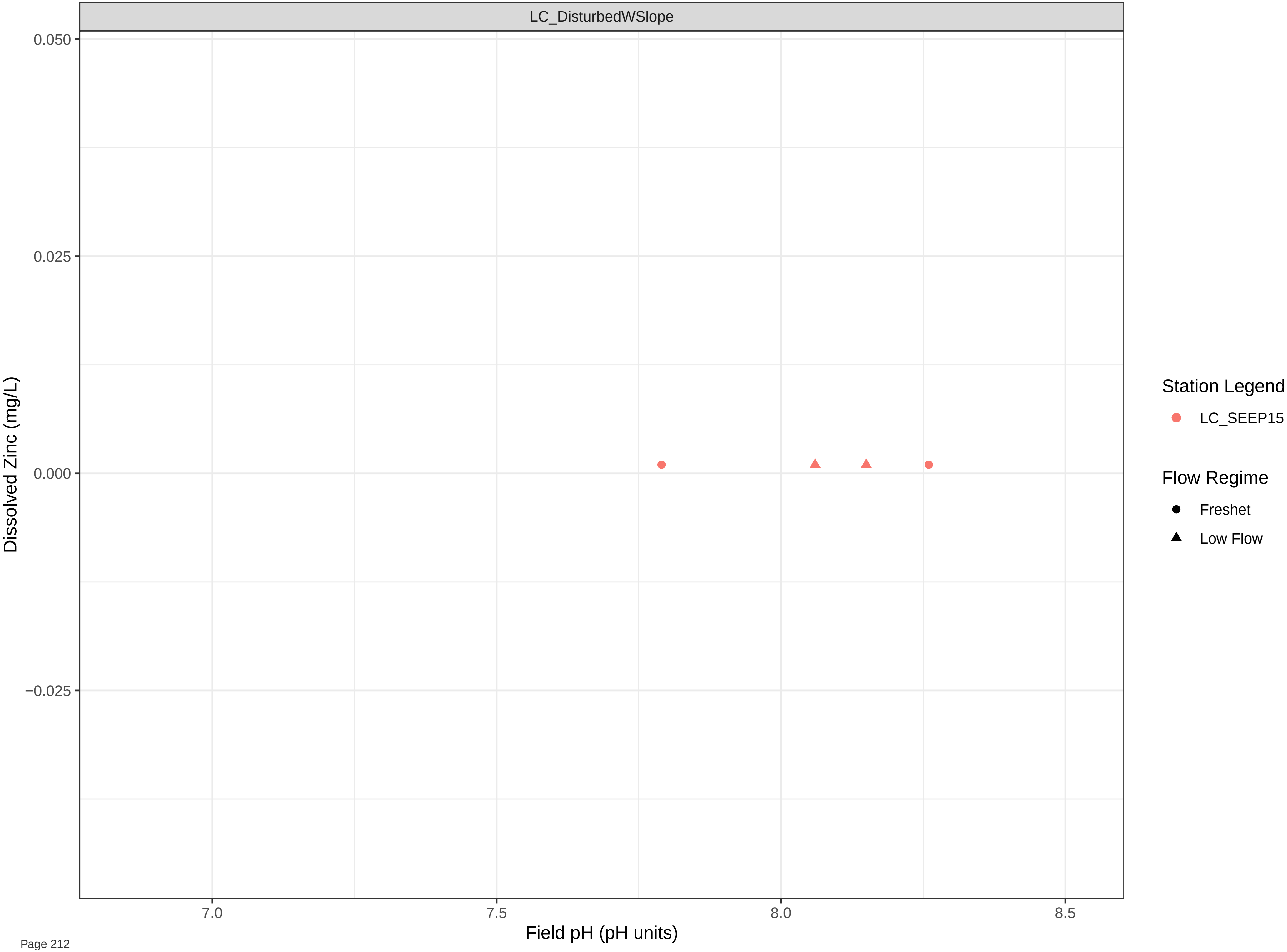

LC_MAXAM
0.050
0.025
0.000
−0.025
Dissolved Vanadium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow


LC_MSA_WR
Dissolved Vanadium (mg/L)
8e−04
7e−04
6e−04
5e−04
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

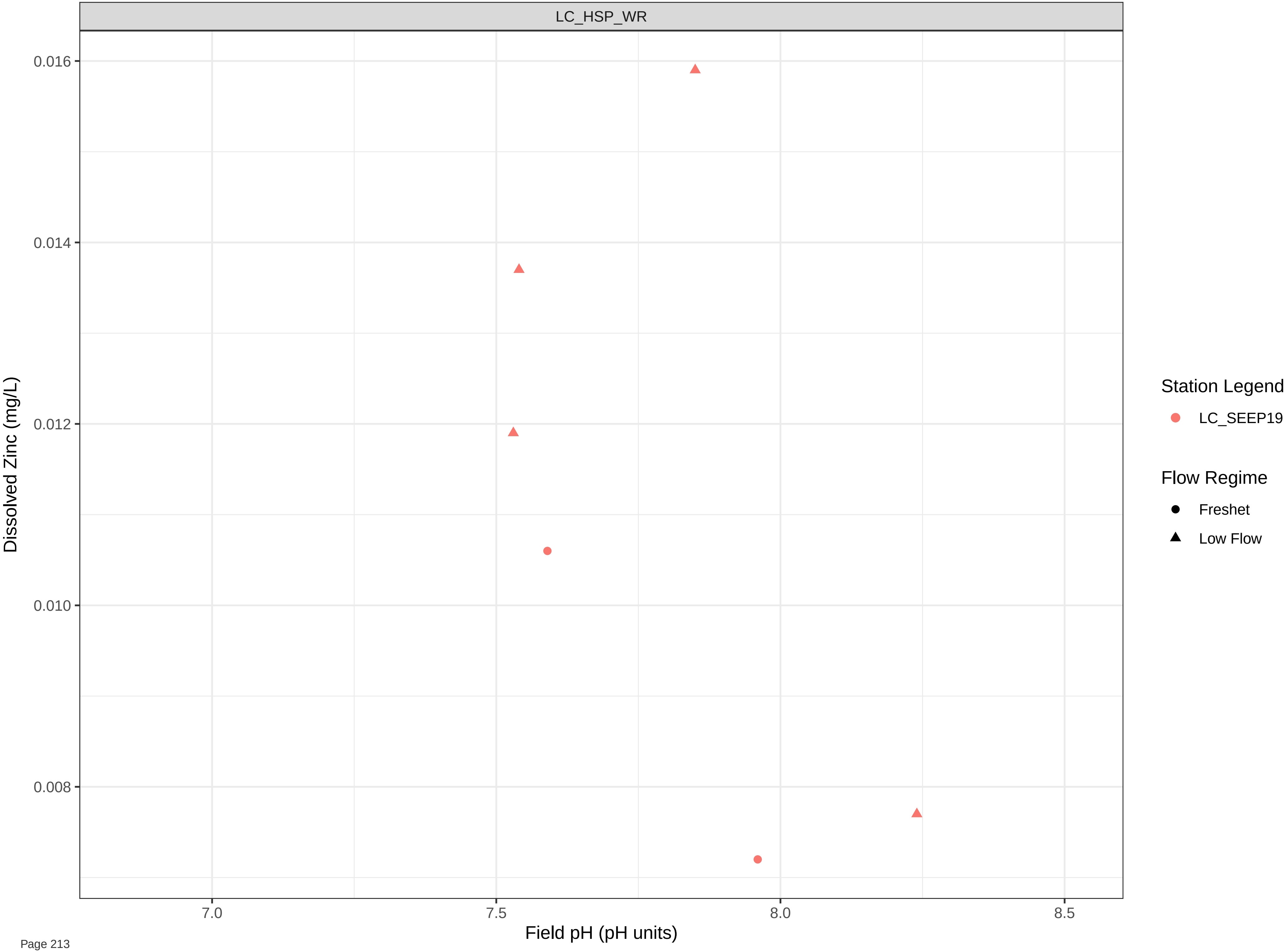

LC_PLANT
0.050
0.025
0.000
−0.025
Dissolved Vanadium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

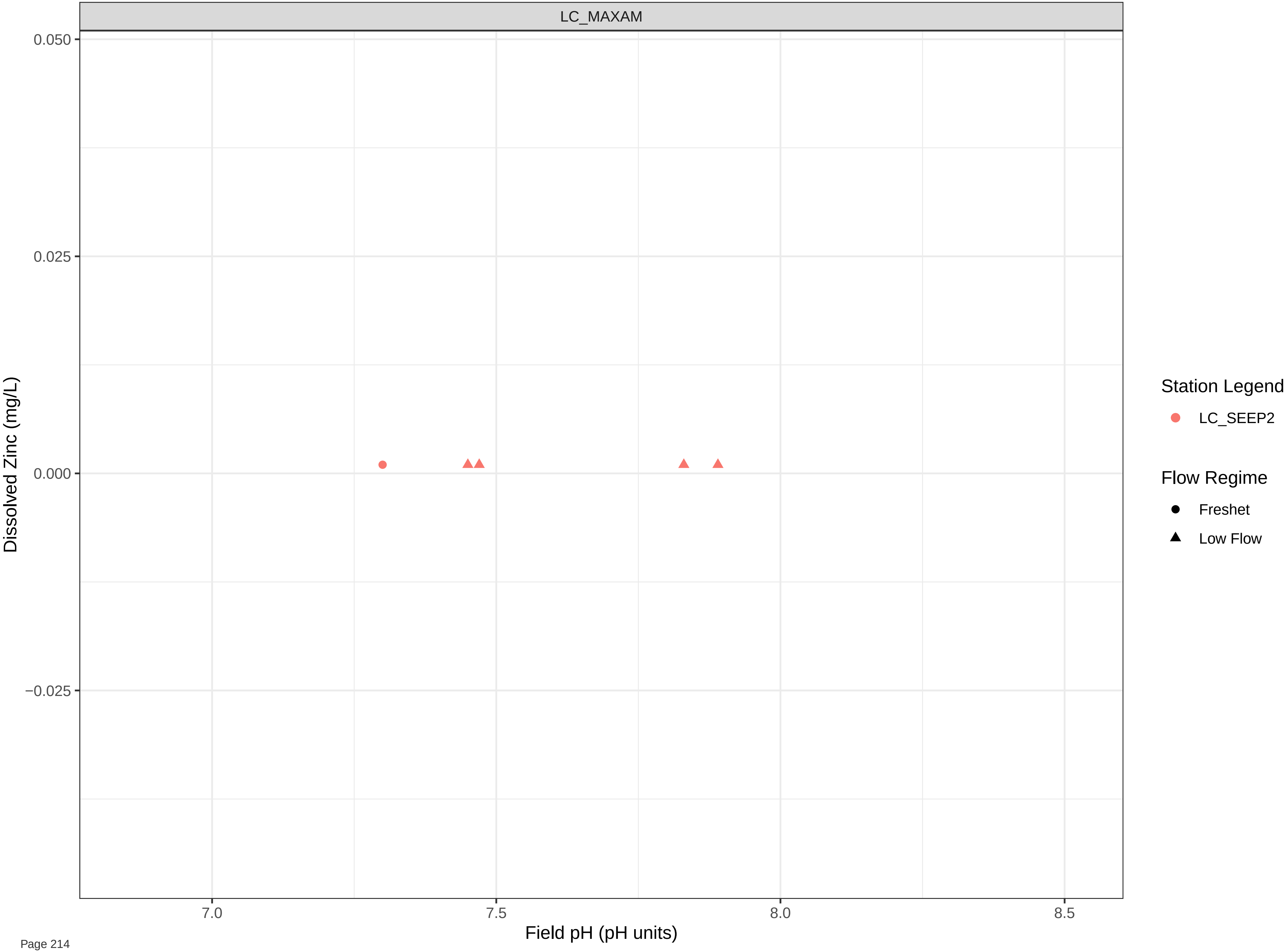

LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Vanadium (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

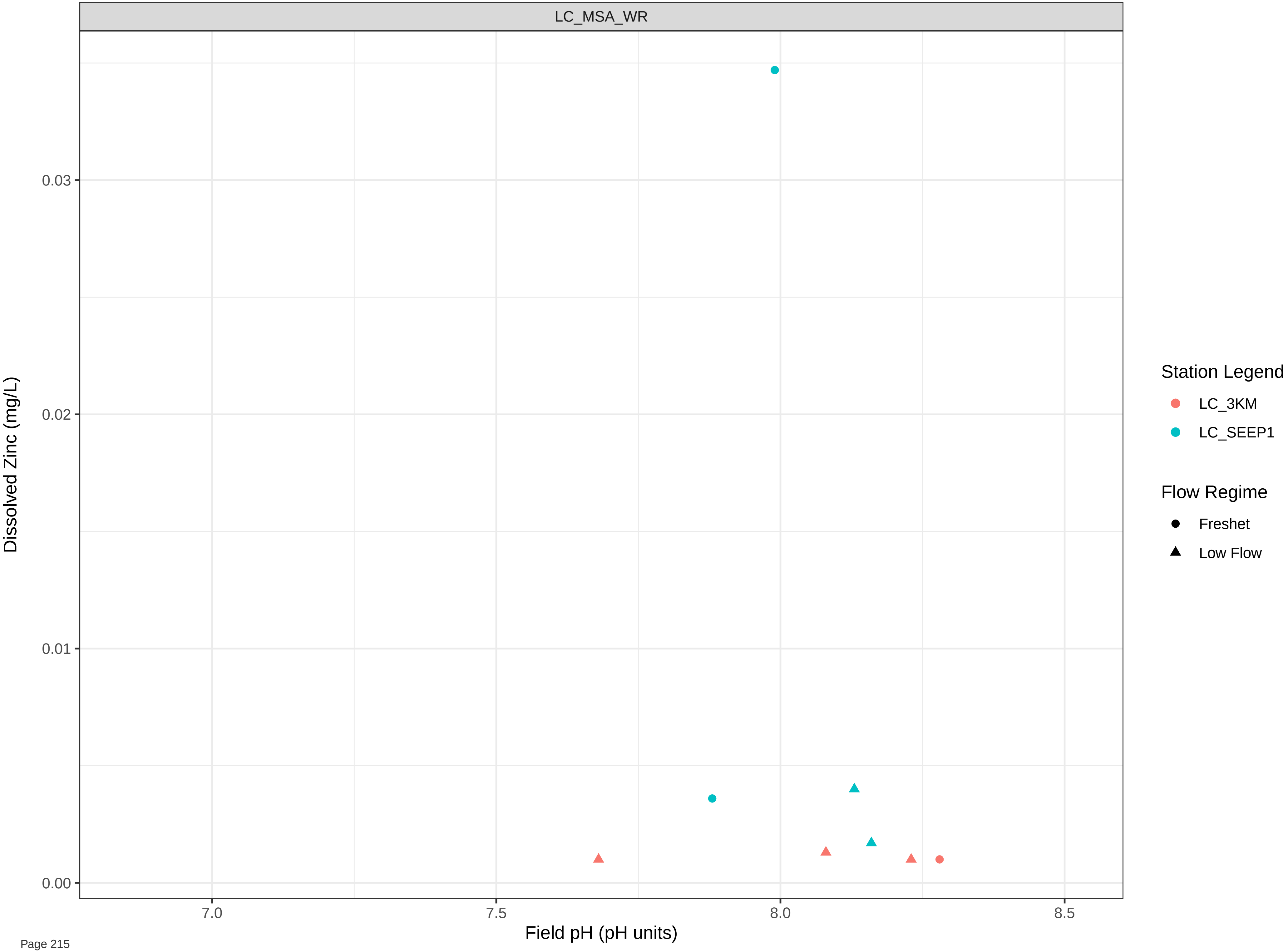

LC_DC_WR
Dissolved Zinc (mg/L)
0.009
0.006
0.003
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

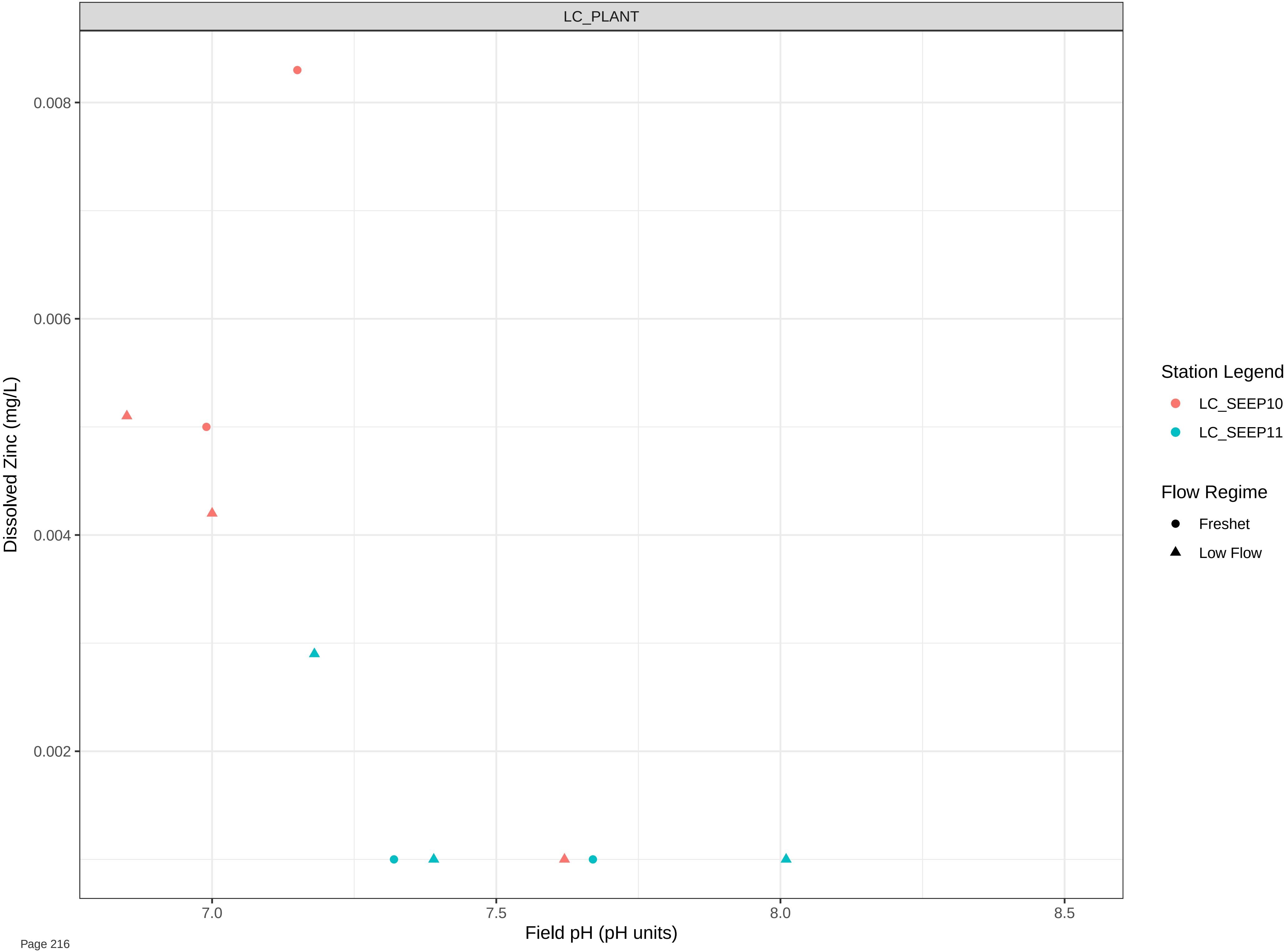


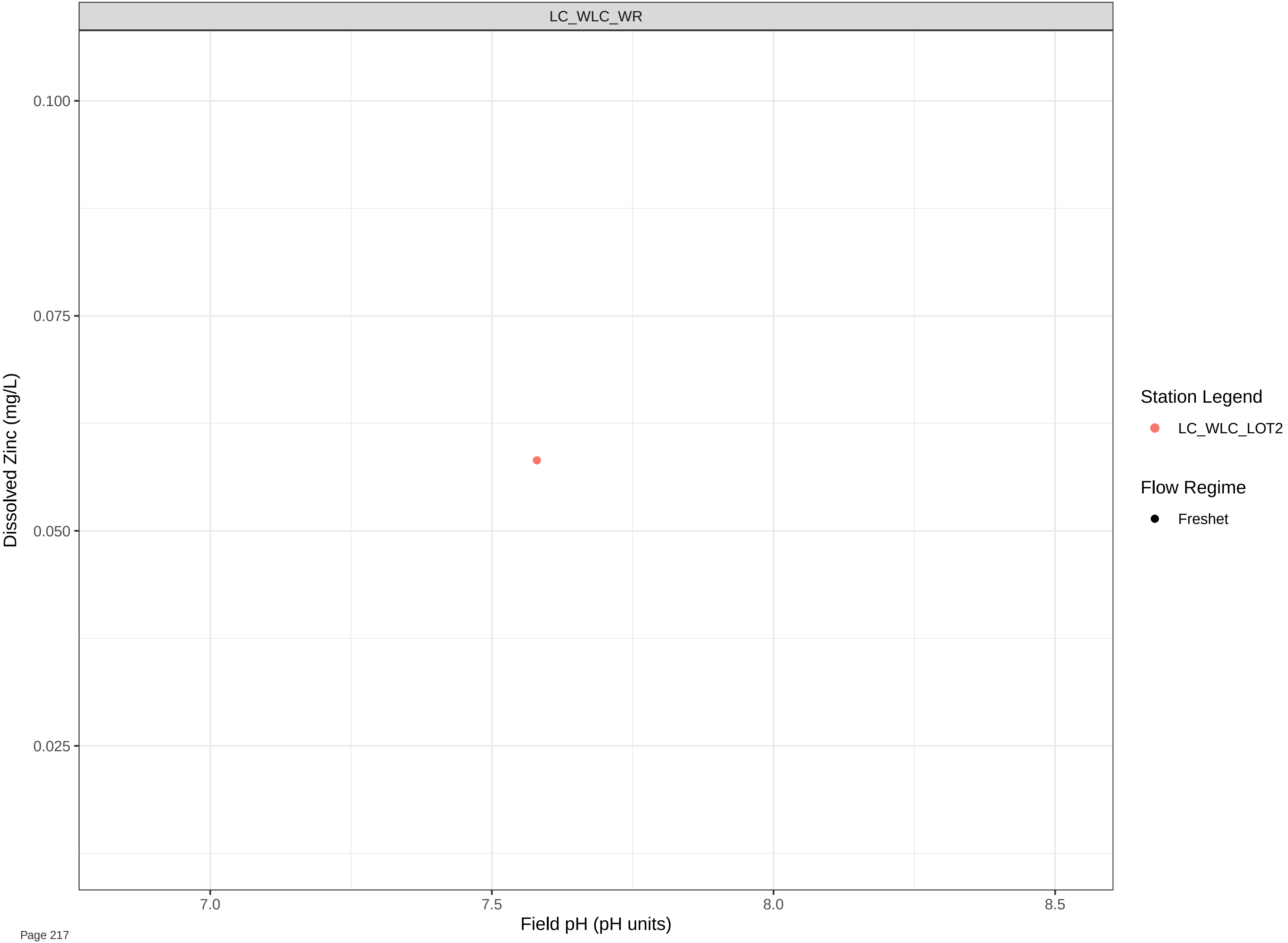
LC_DisturbedWSlope
0.050
0.025
0.000
−0.025
Dissolved Zinc (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

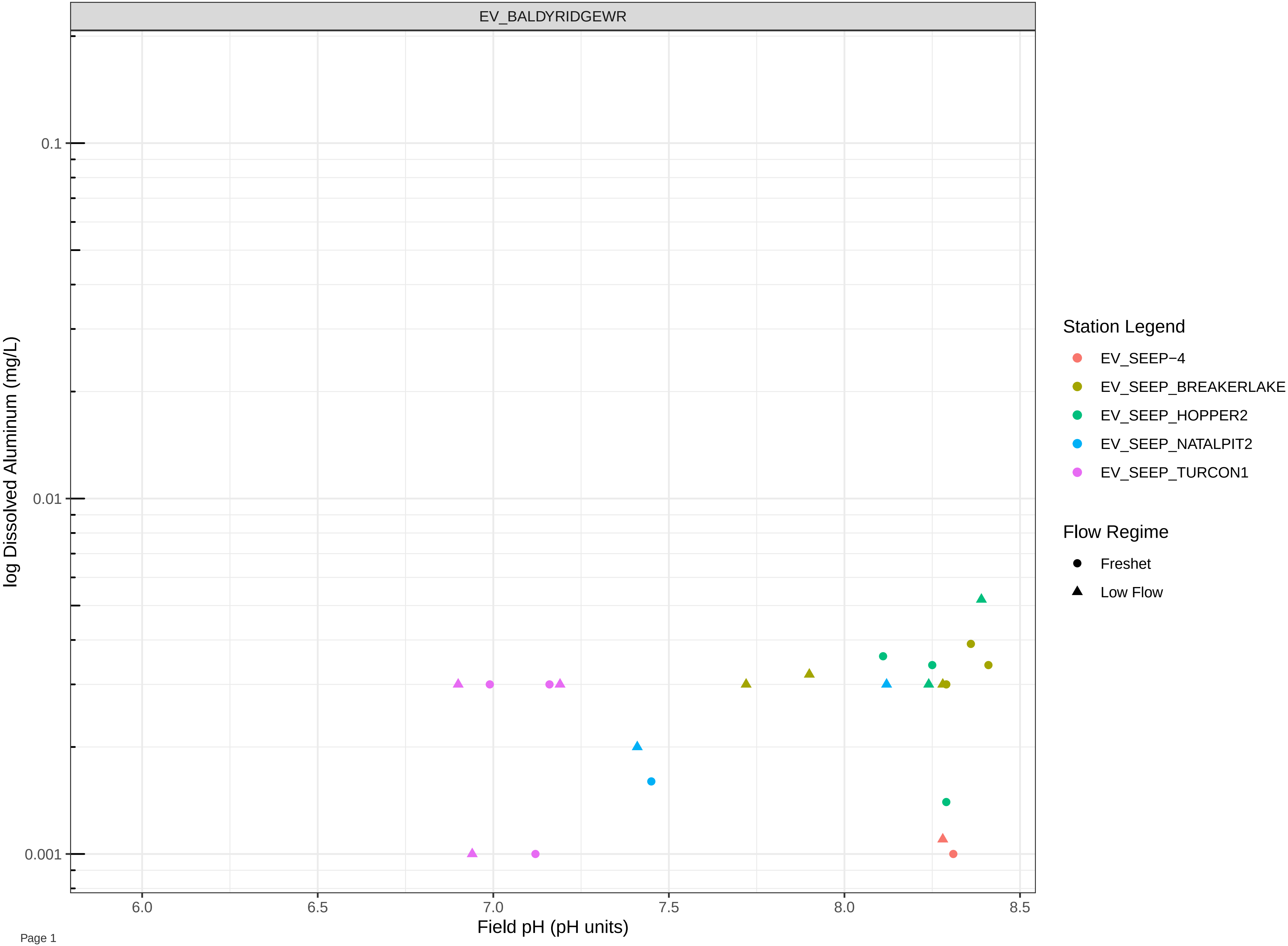

LC_HSP_WR
Dissolved Zinc (mg/L)
0.016
0.014
0.012
0.010
0.008
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

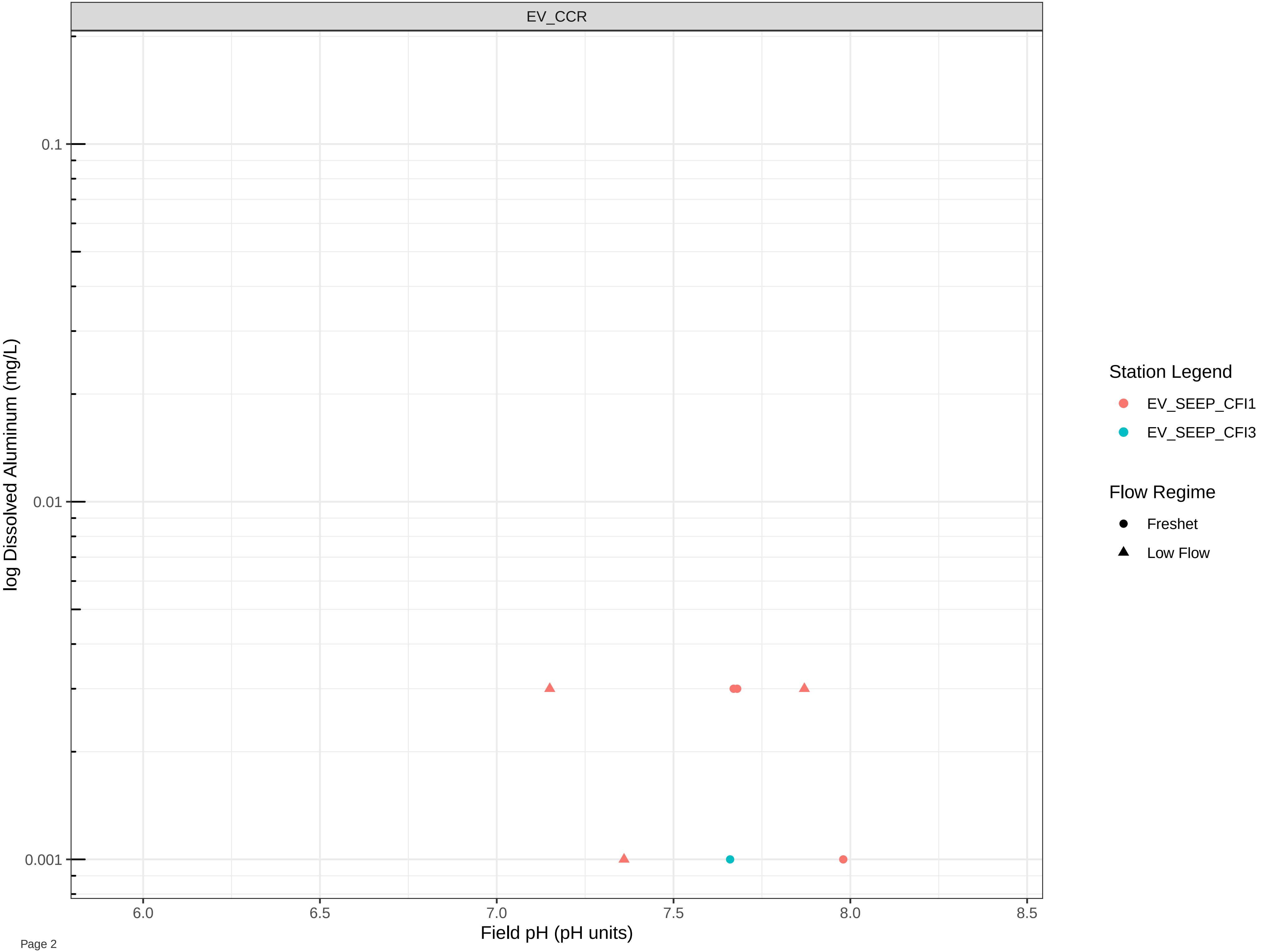

LC_MAXAM
Dissolved Zinc (mg/L)
0.050
0.025
0.000
−0.025
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

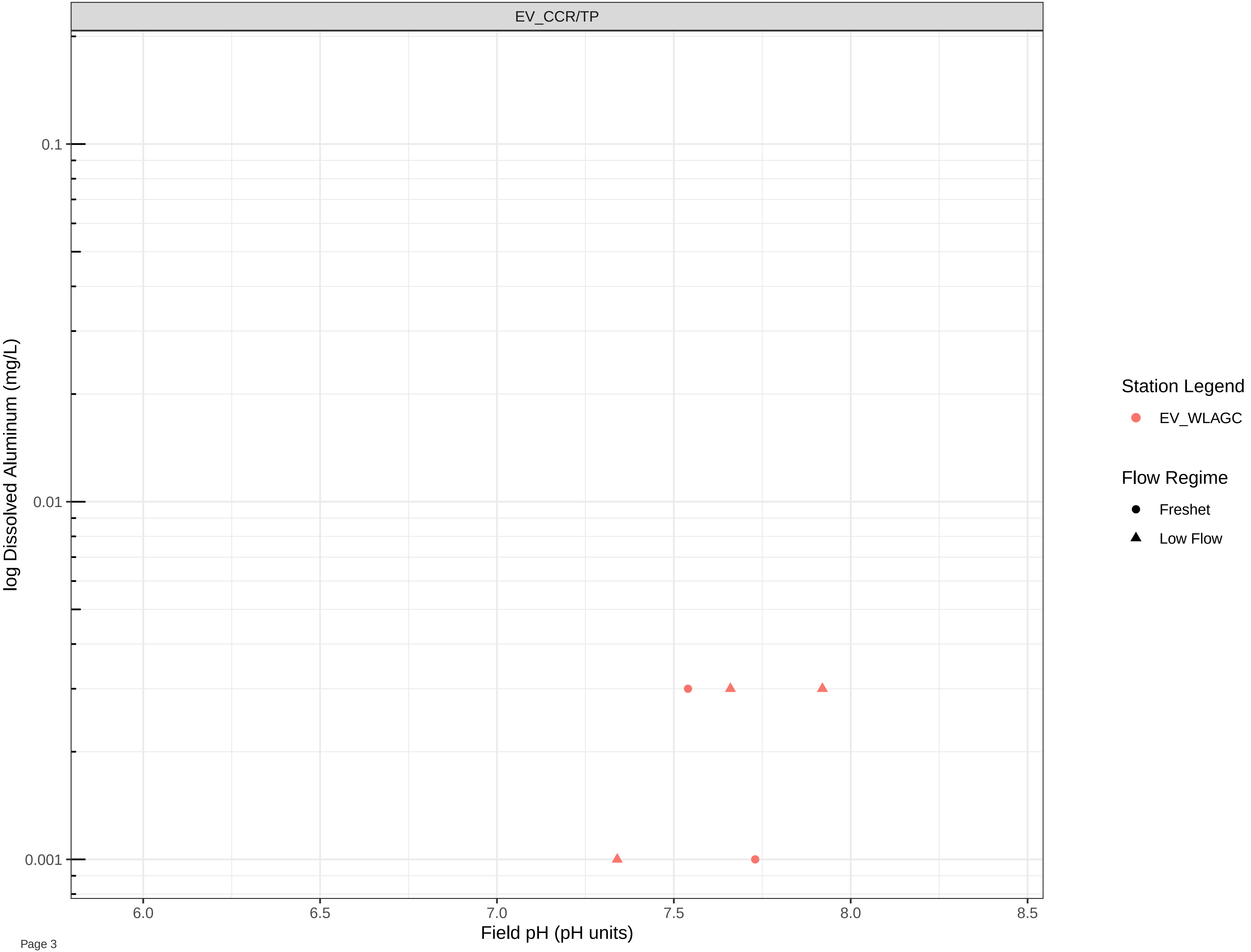

LC_MSA_WR
Dissolved Zinc (mg/L)
0.03
0.02
0.01
0.00
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

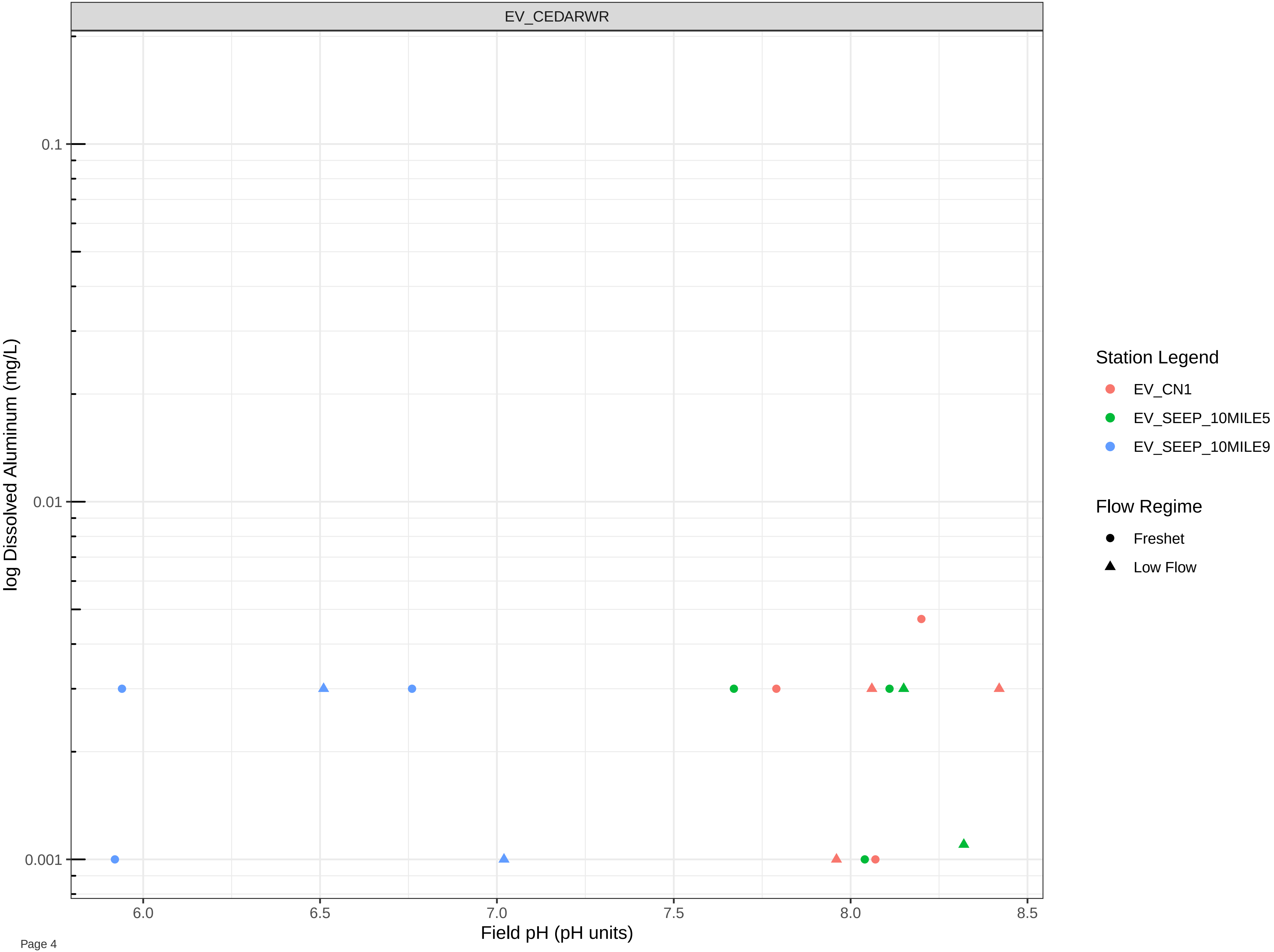

LC_PLANT
Dissolved Zinc (mg/L)
0.008
0.006
0.004
0.002
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

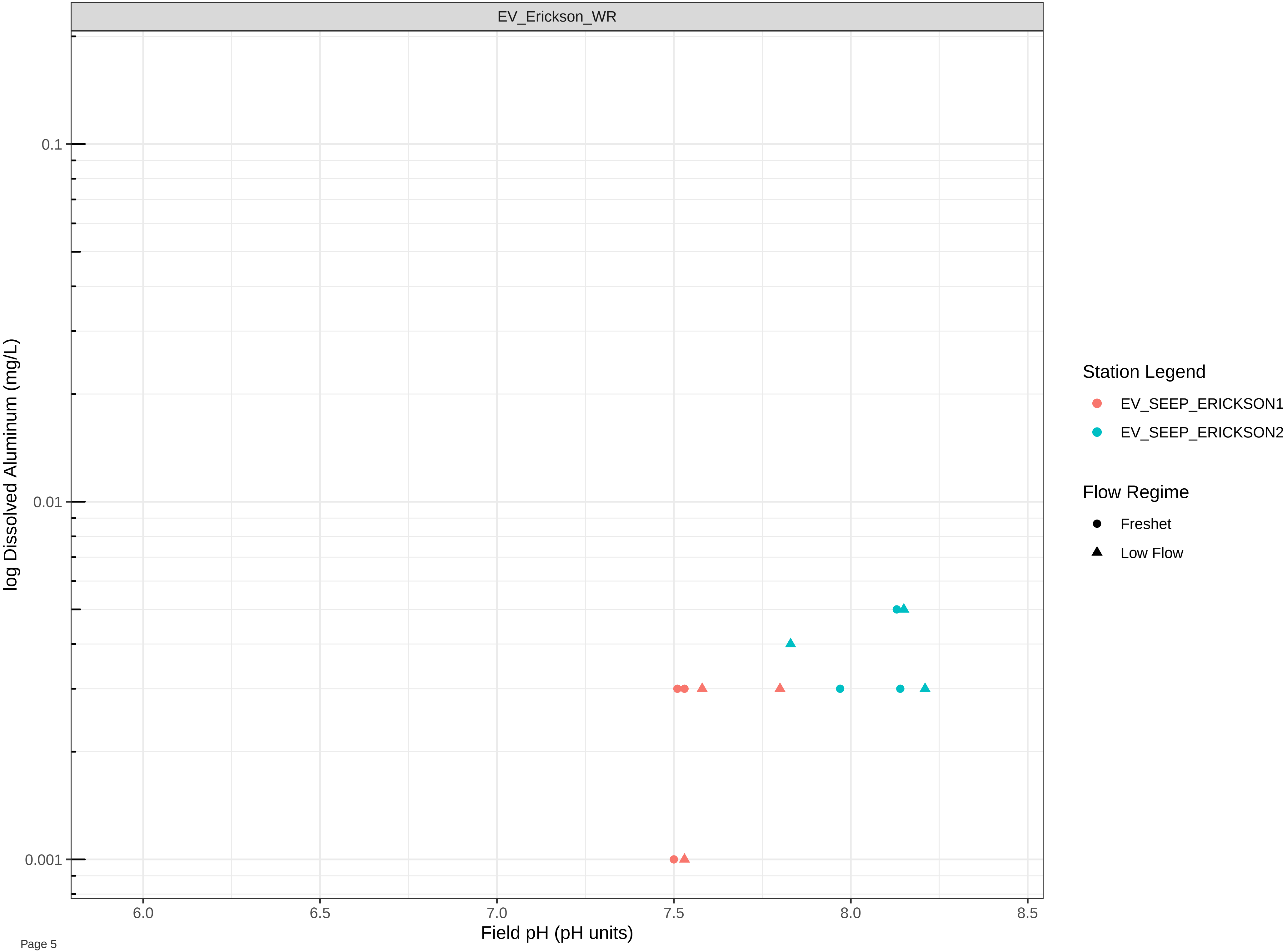

LC_WLC_WR
0.100
0.075
0.050
0.025
Dissolved Zinc (mg/L)
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

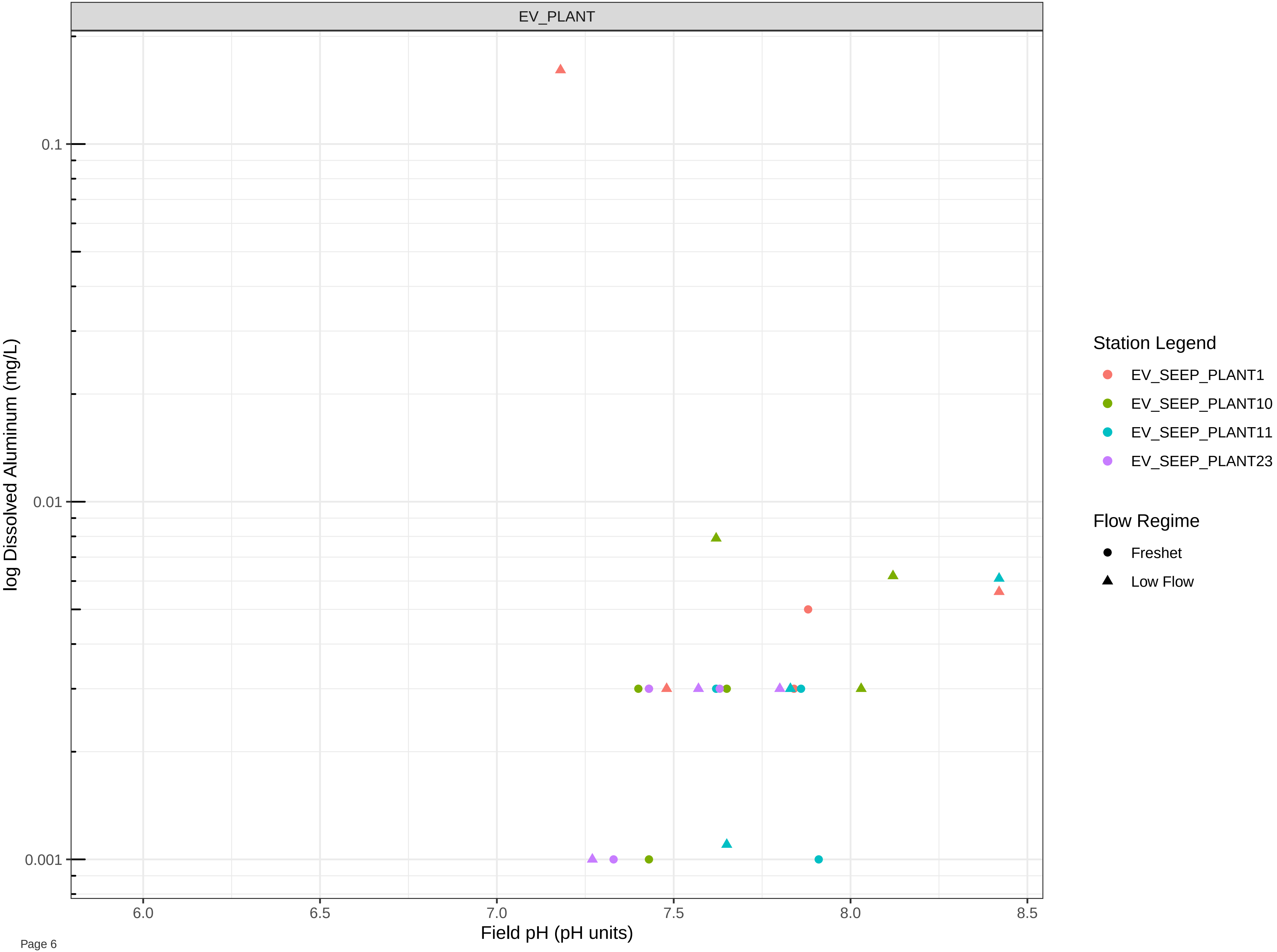

EV_BALDYRIDGEWR
log Dissolved Aluminum (mg/L)
0.1
0.01
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

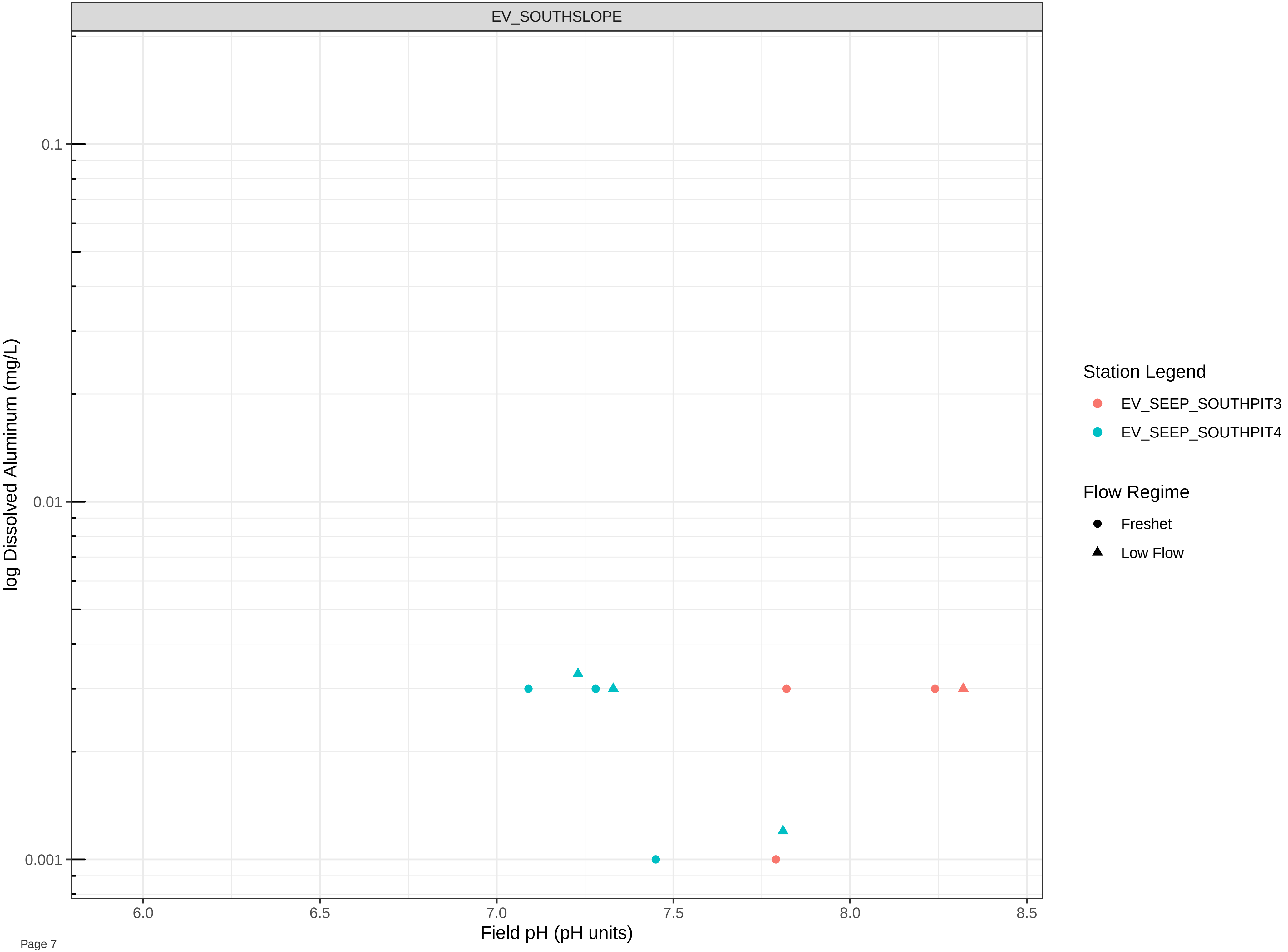

EV_CCR
log Dissolved Aluminum (mg/L)
0.1
0.01
0.001
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

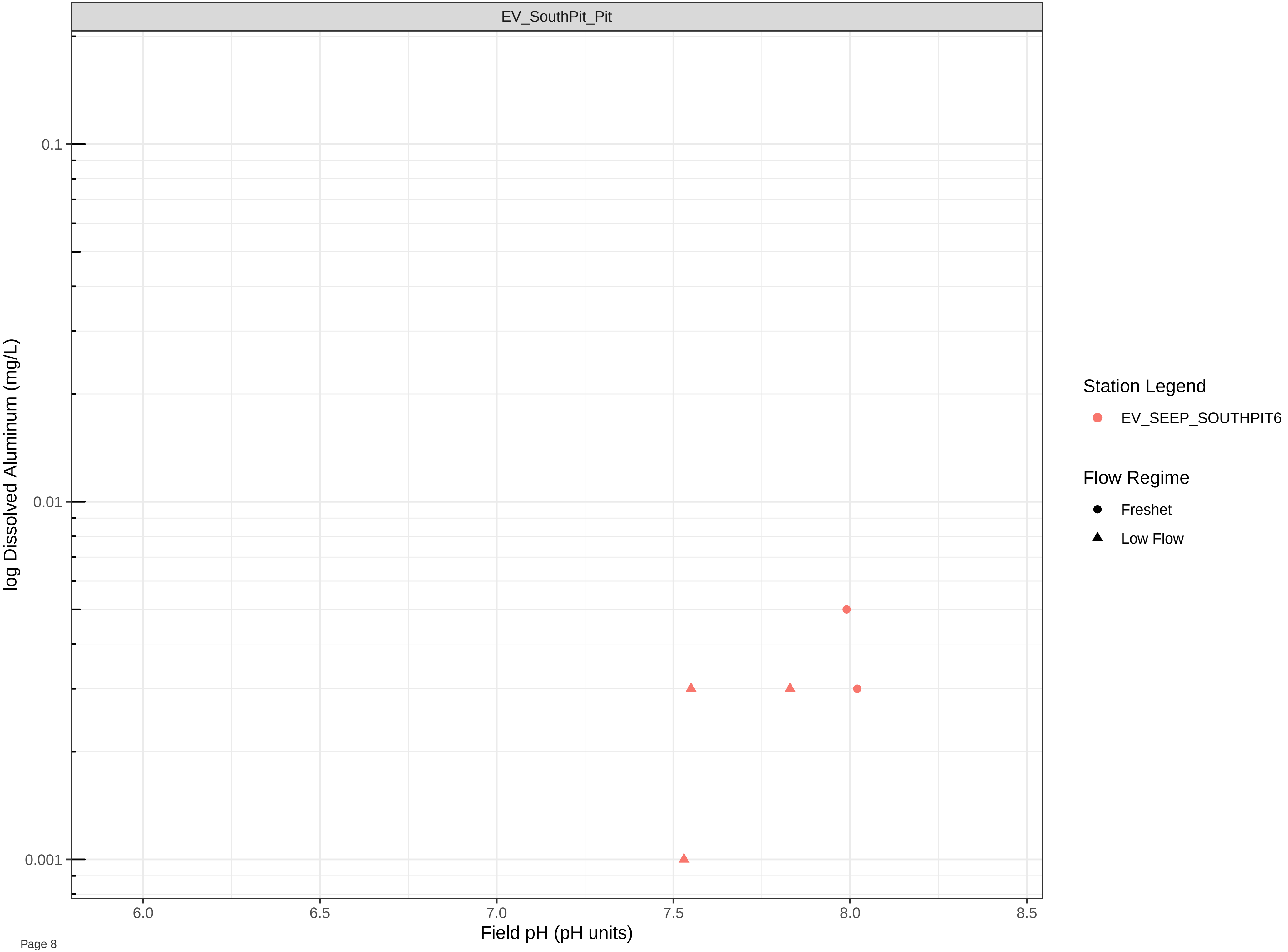

EV_CCR/TP
log Dissolved Aluminum (mg/L)
0.1
0.01
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

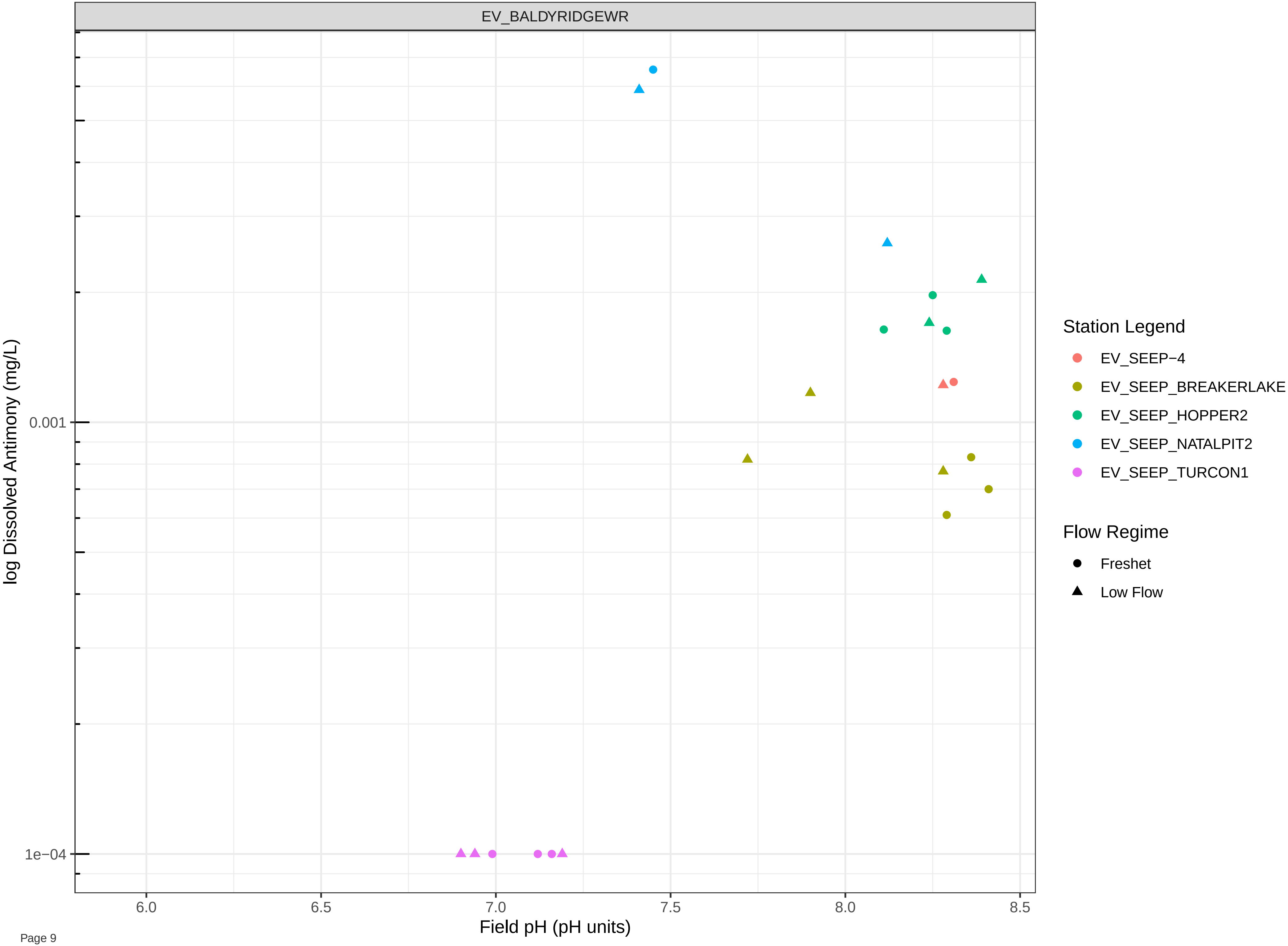

EV_CEDARWR
log Dissolved Aluminum (mg/L)
0.1
0.01
0.001
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

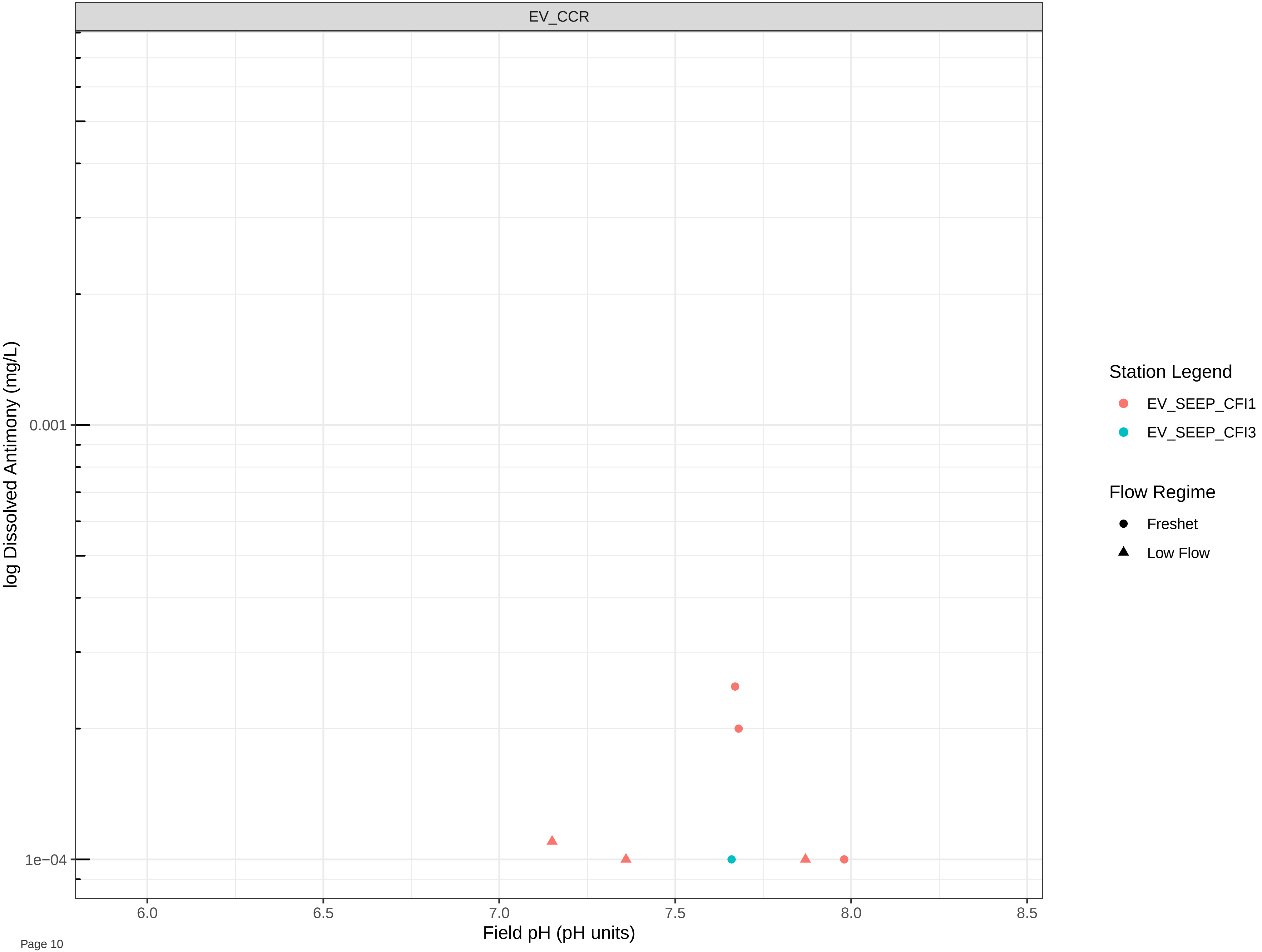

EV_Erickson_WR
log Dissolved Aluminum (mg/L)
0.1
0.01
0.001
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

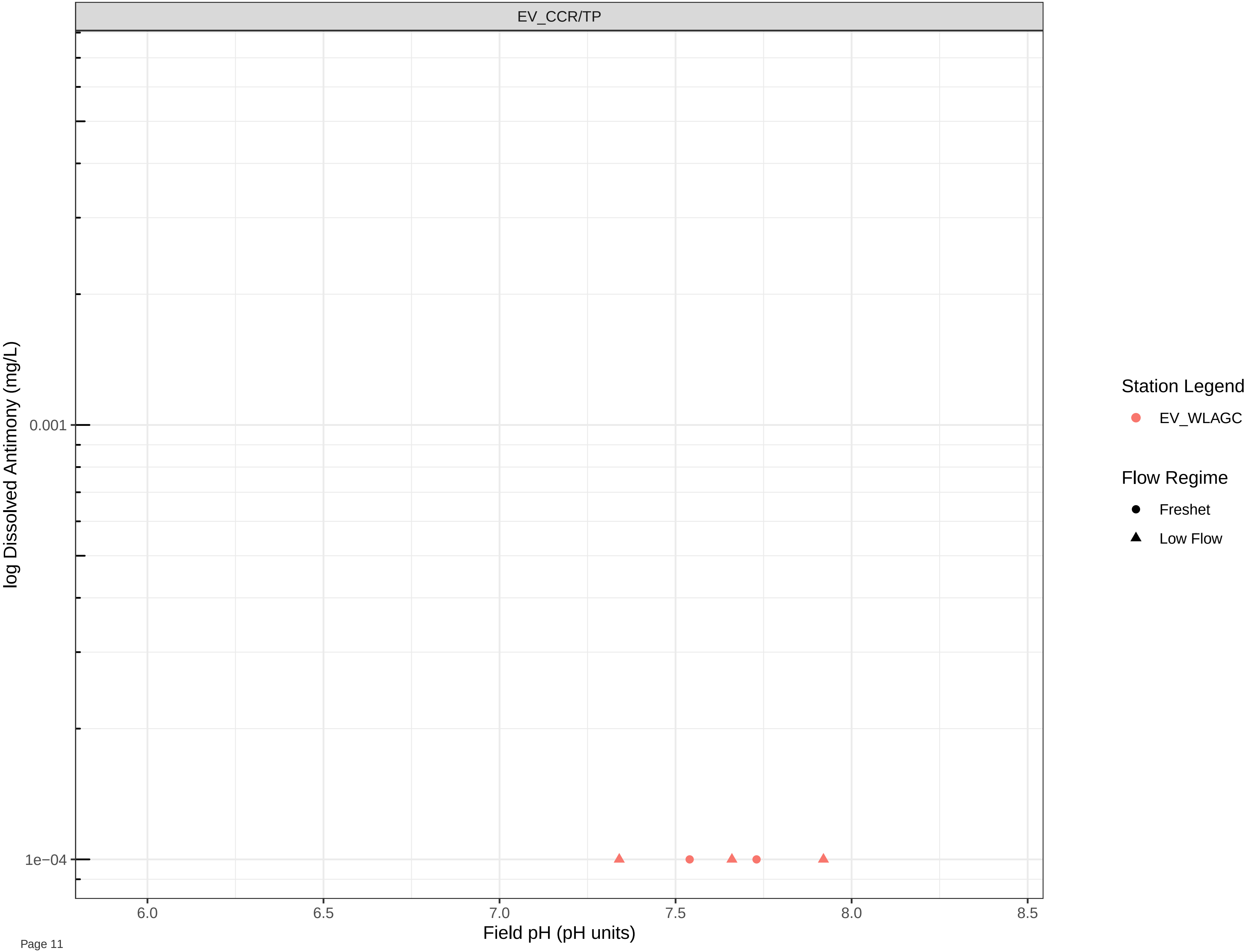

EV_PLANT
log Dissolved Aluminum (mg/L)
0.1
0.01
0.001
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

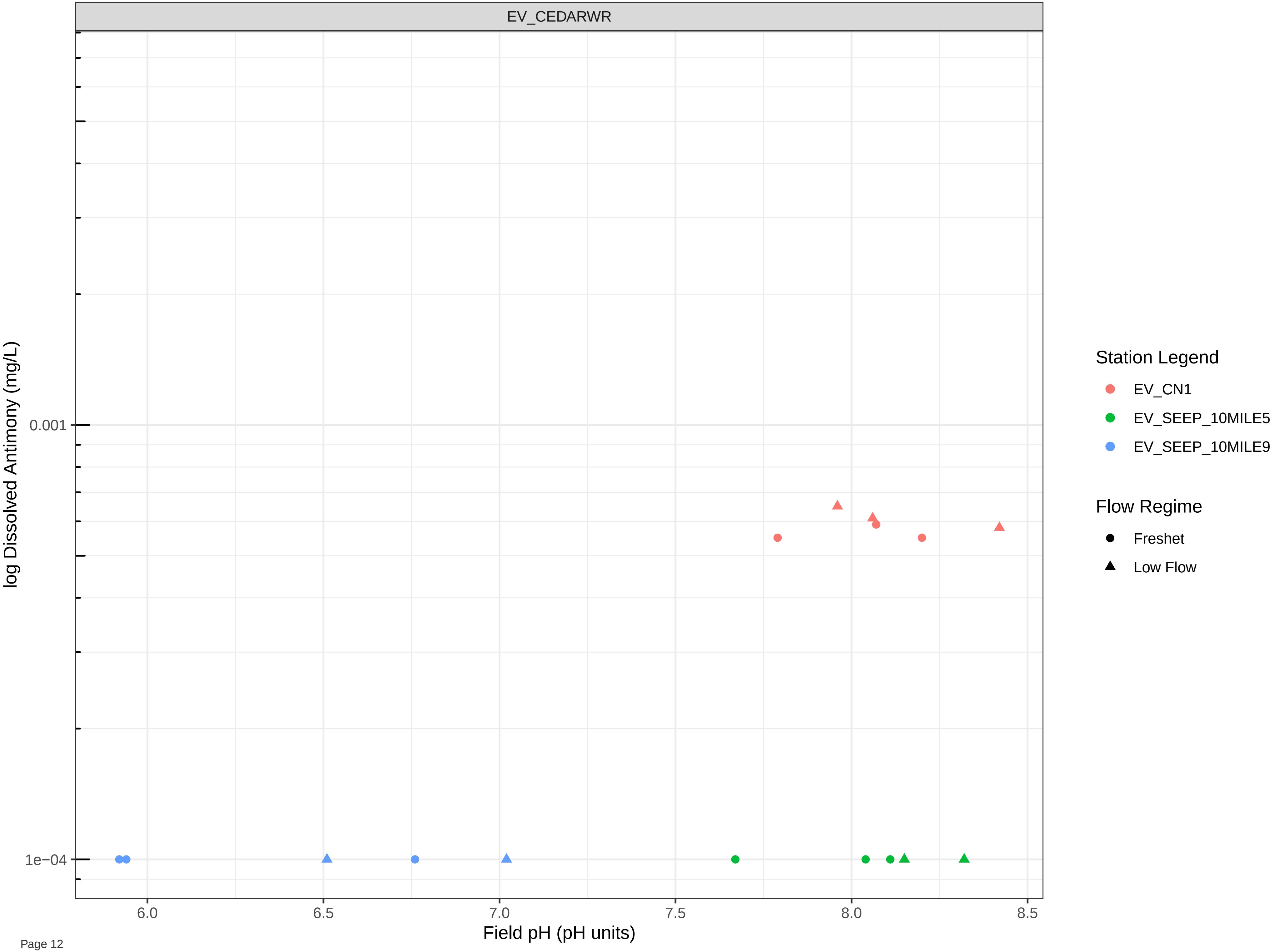

EV_SOUTHSLOPE
log Dissolved Aluminum (mg/L)
0.1
0.01
0.001
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

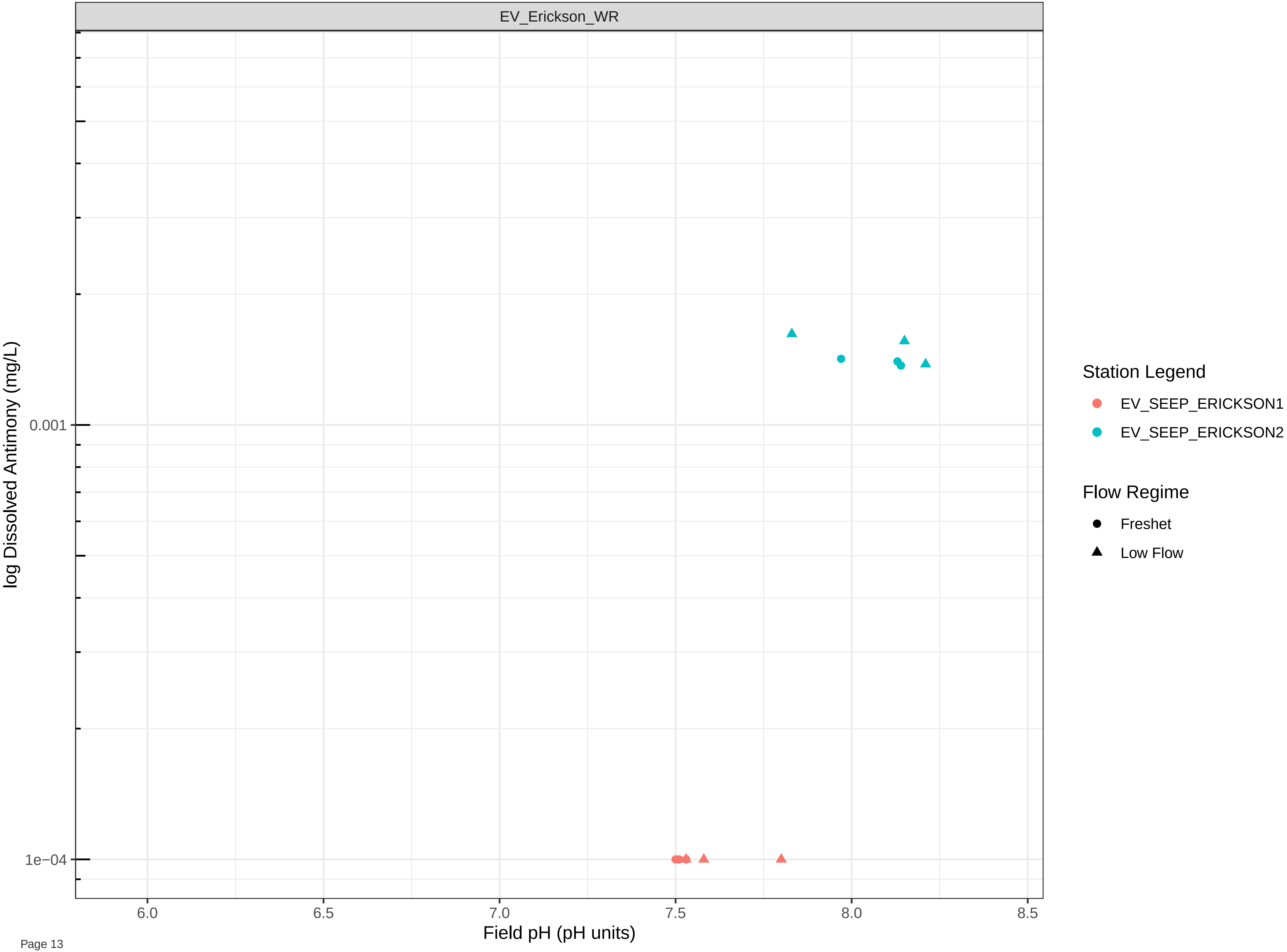

EV_SouthPit_Pit
log Dissolved Aluminum (mg/L)
0.1
0.01
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

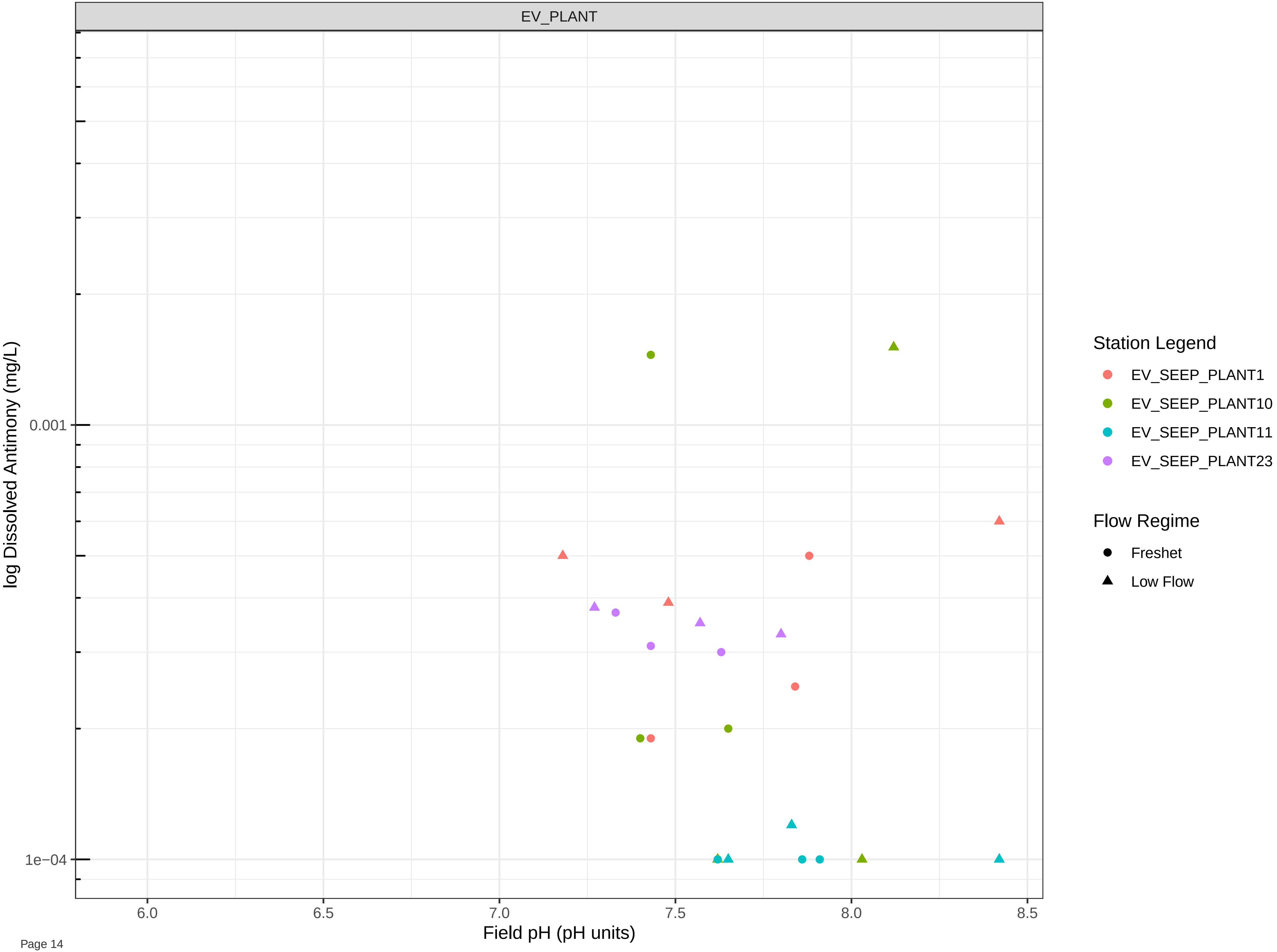

EV_BALDYRIDGEWR
log Dissolved Antimony (mg/L)
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

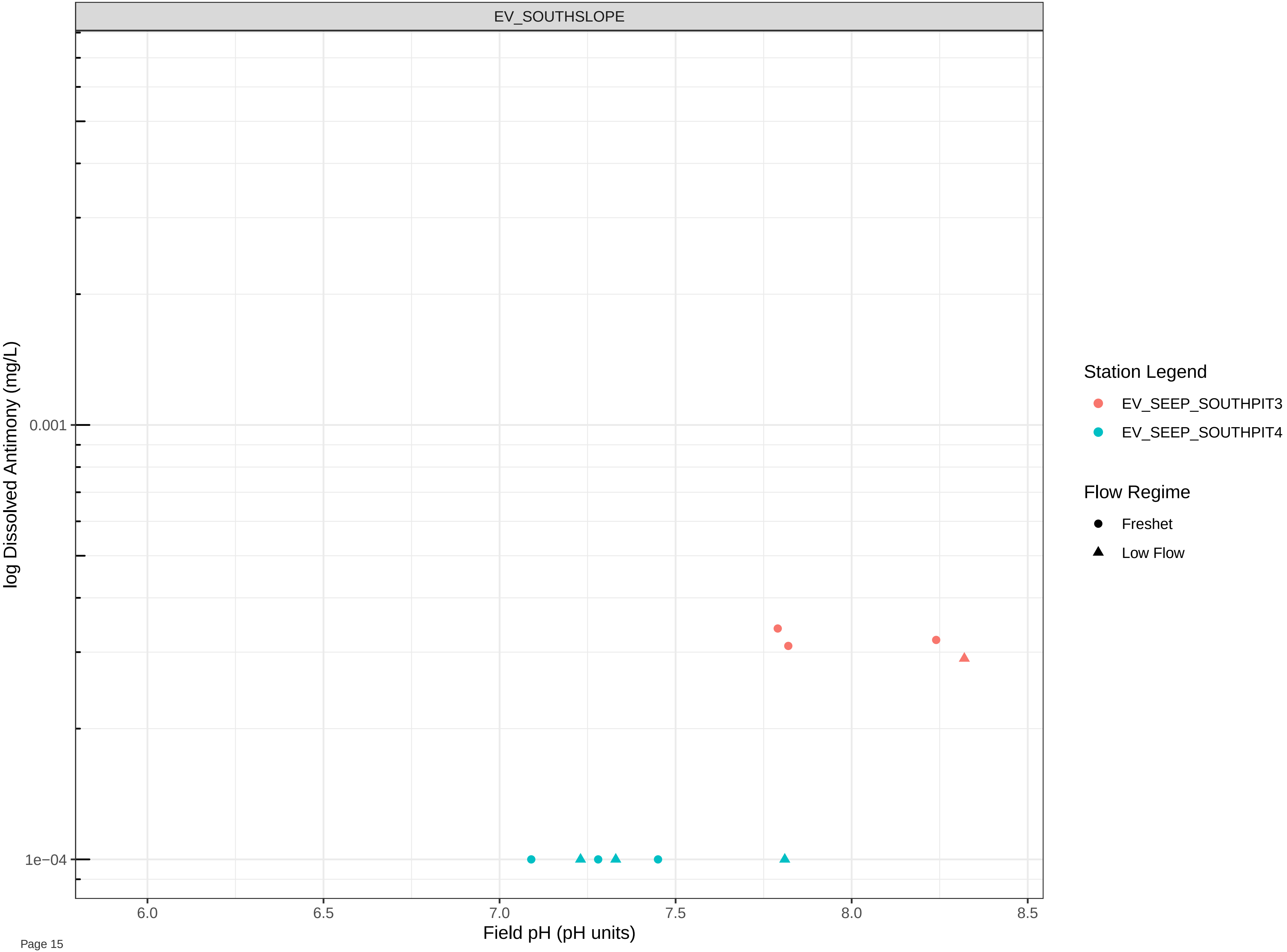

EV_CCR
log Dissolved Antimony (mg/L)
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

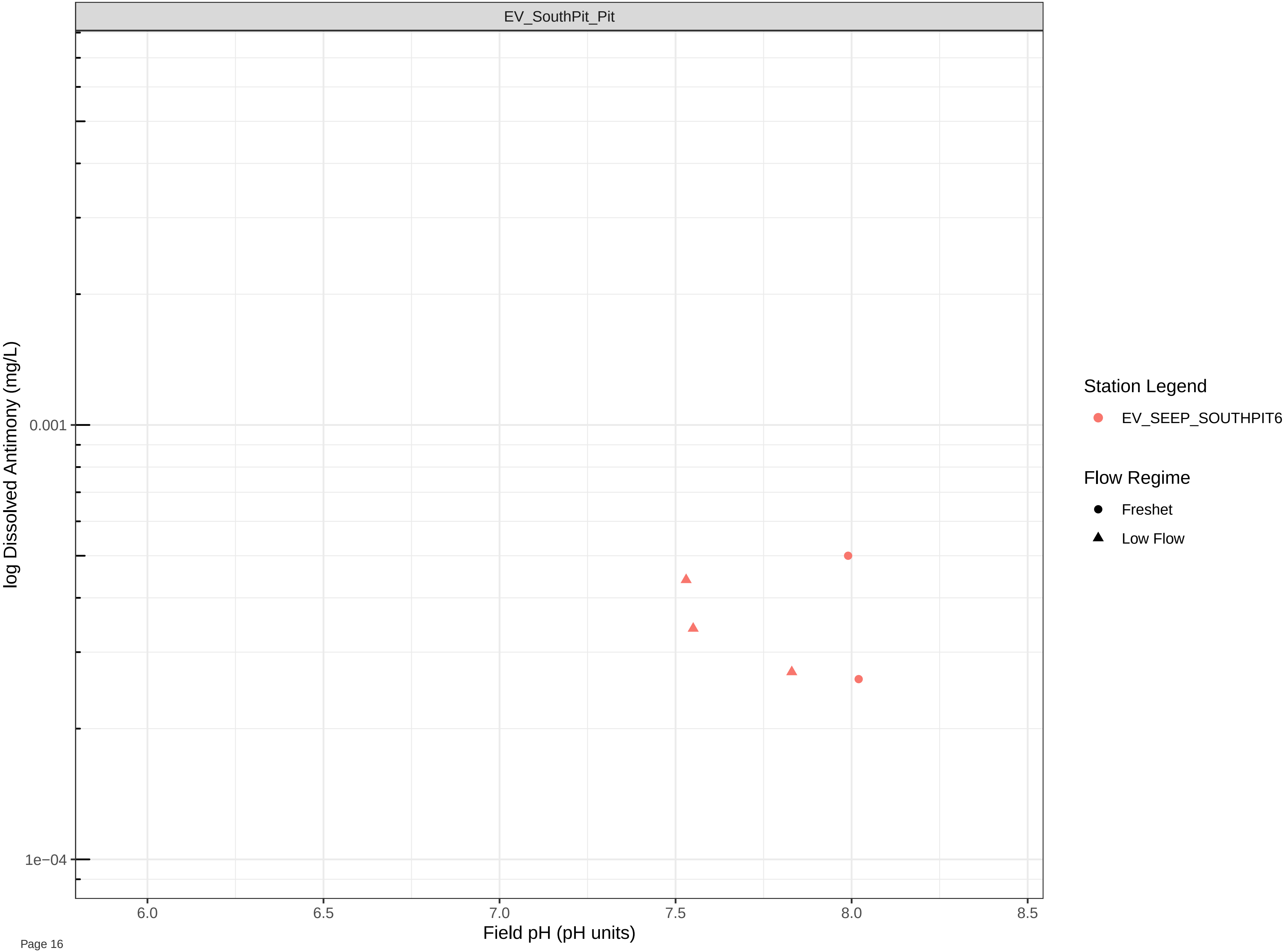

EV_CCR/TP
log Dissolved Antimony (mg/L)
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

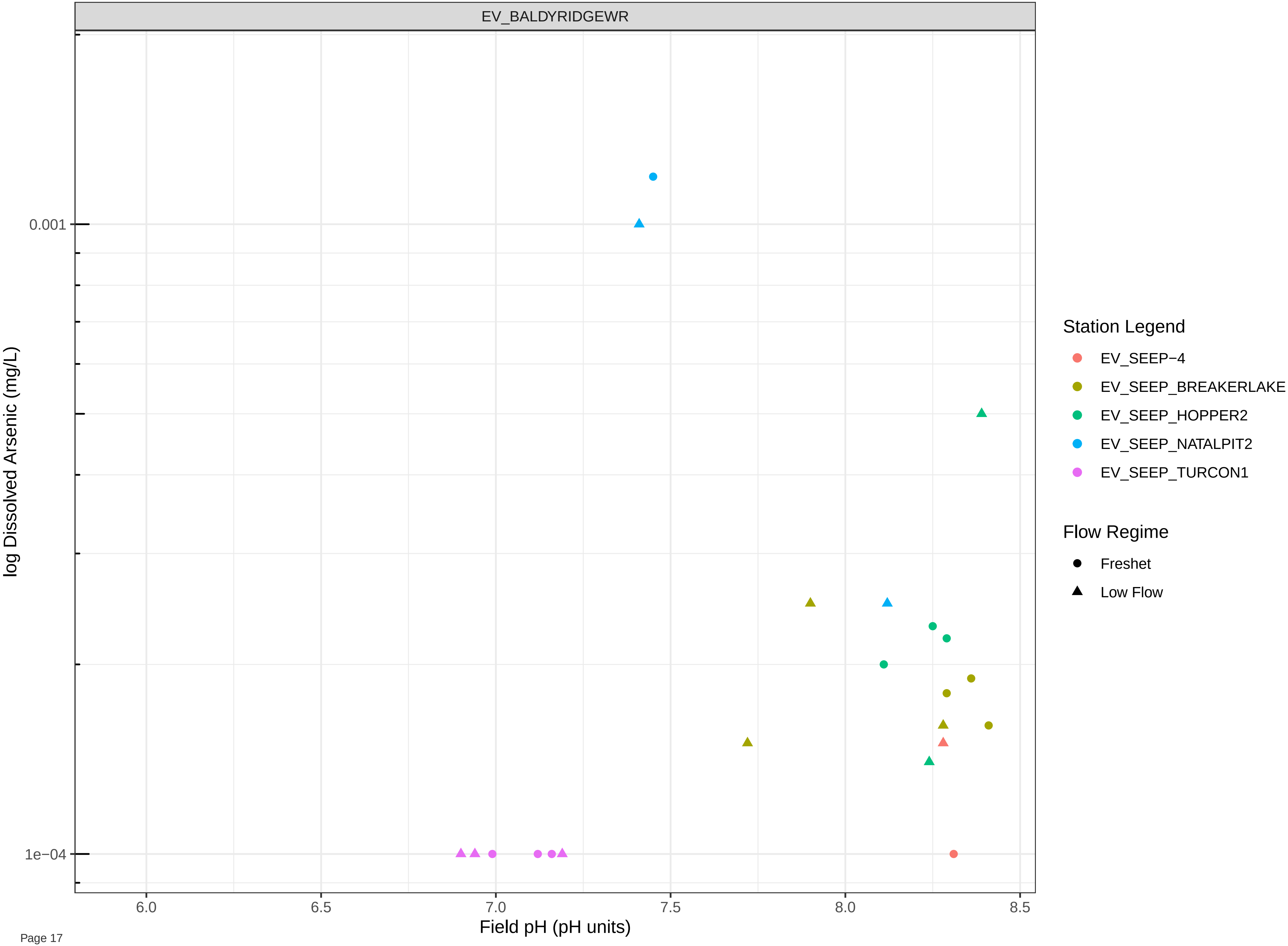

EV_CEDARWR
log Dissolved Antimony (mg/L)
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

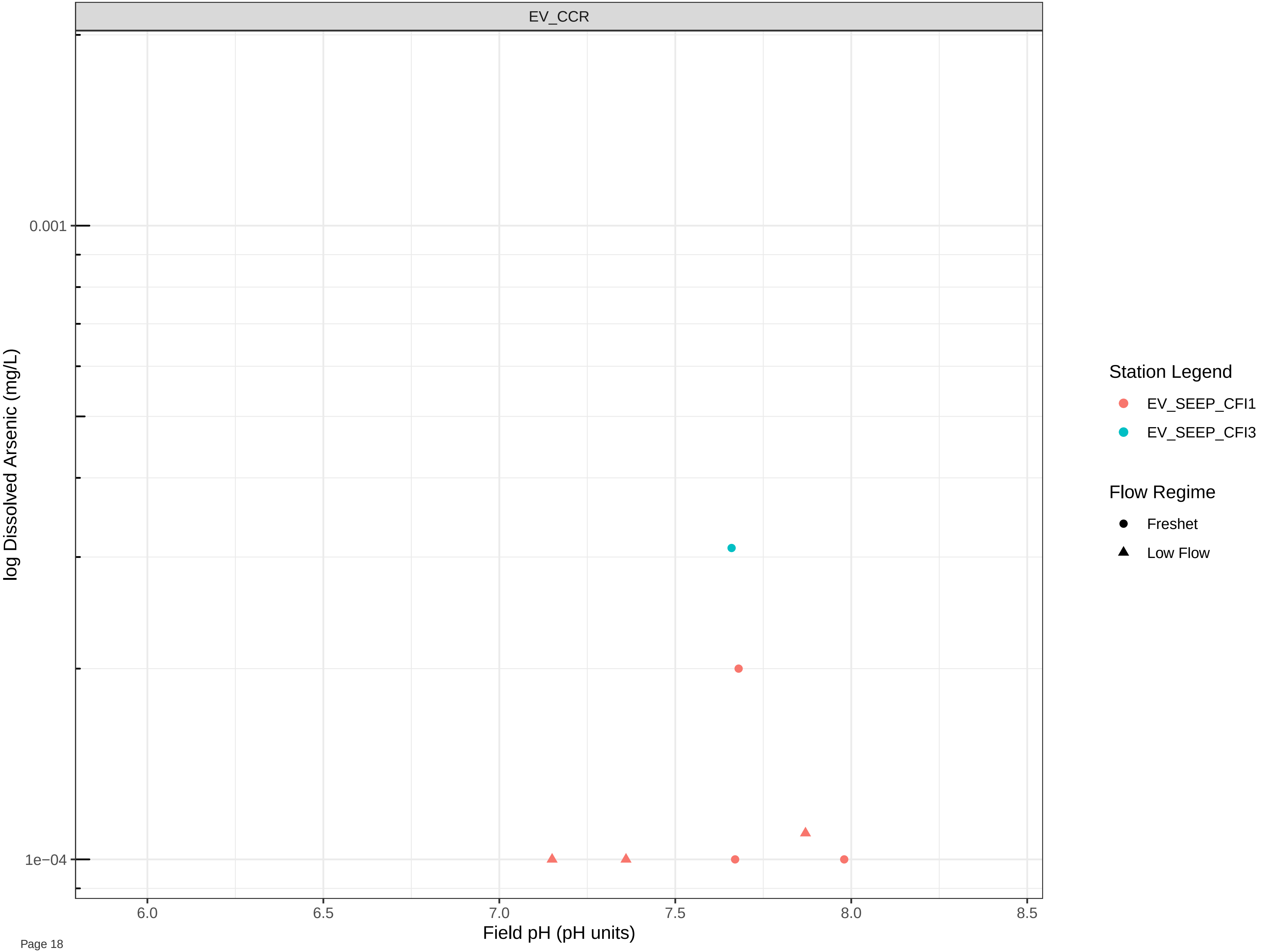

EV_Erickson_WR
log Dissolved Antimony (mg/L)
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

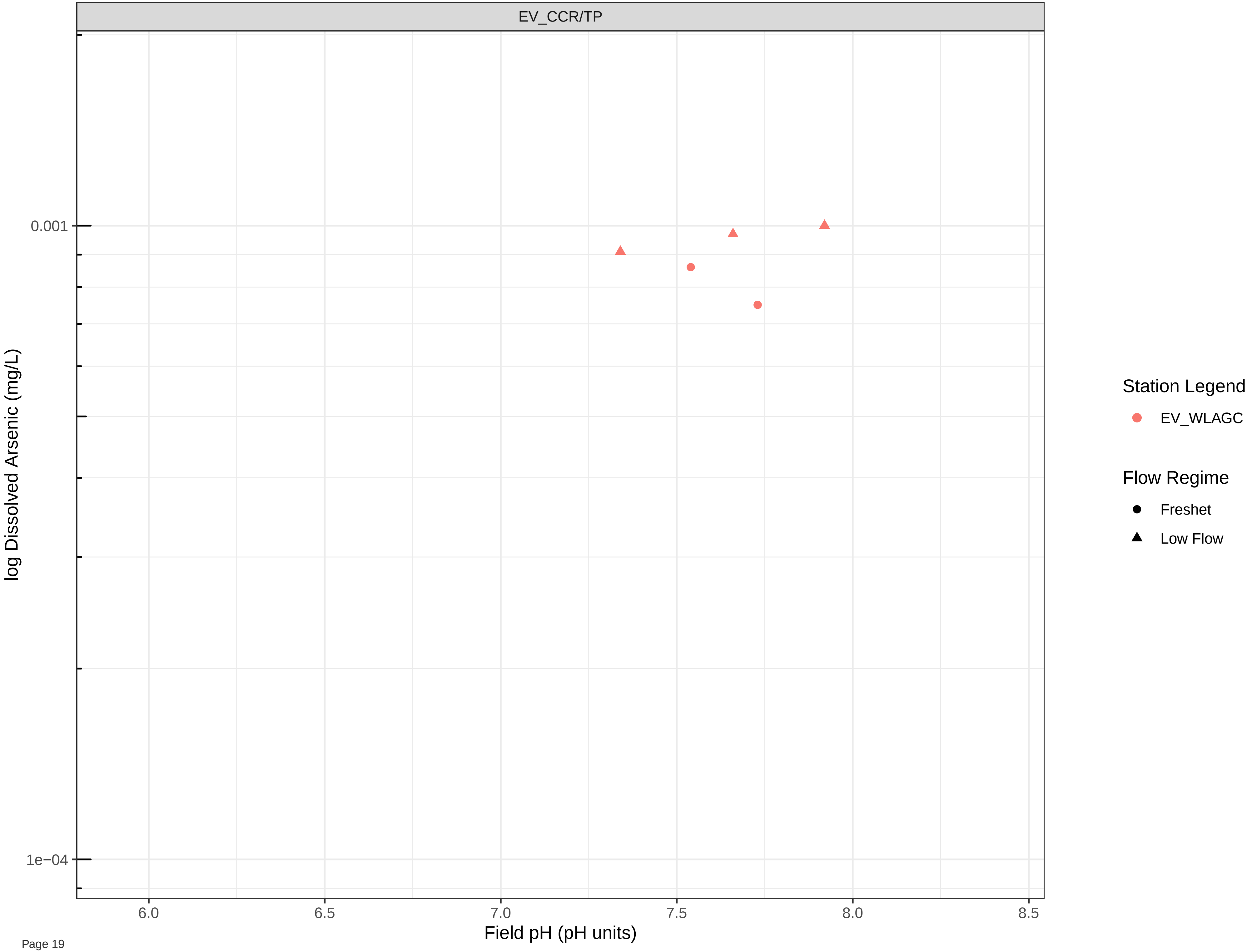

EV_PLANT
log Dissolved Antimony (mg/L)
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_PLANT1
● EV_SEEP_PLANT10
● EV_SEEP_PLANT11
● EV_SEEP_PLANT23
Flow Regime
● Freshet
▲ Low Flow

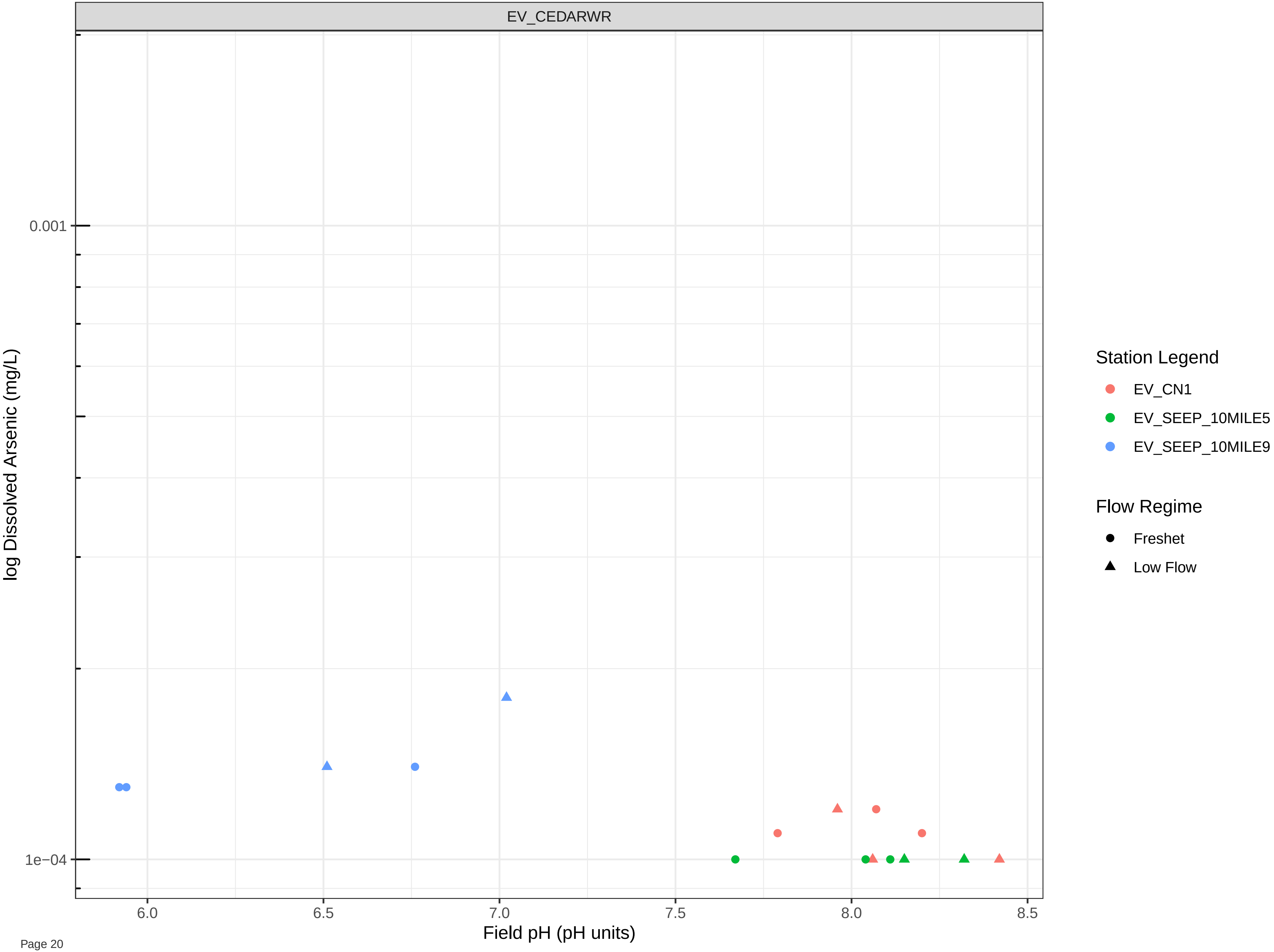

EV_SOUTHSLOPE
log Dissolved Antimony (mg/L)
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

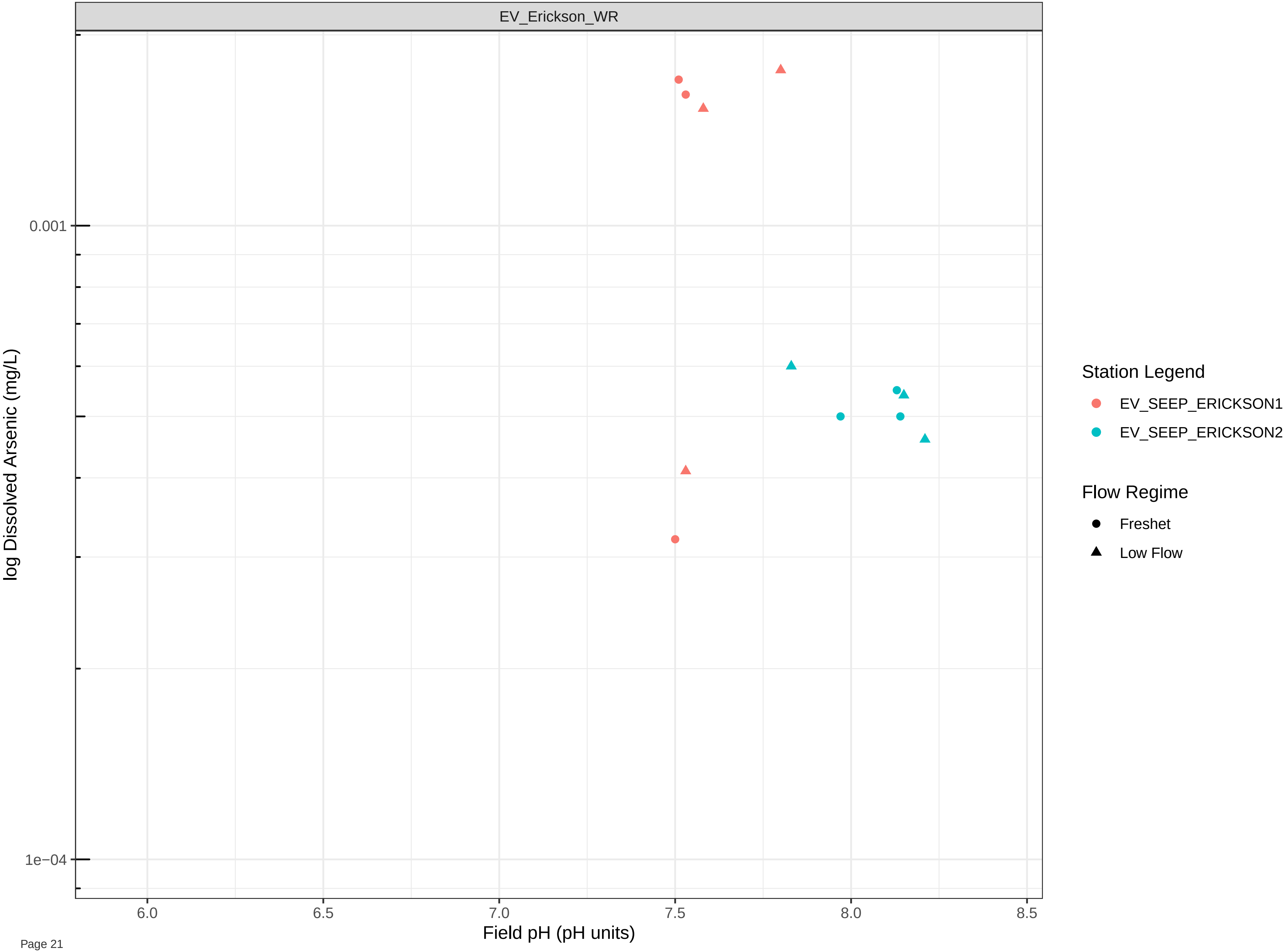

EV_SouthPit_Pit
log Dissolved Antimony (mg/L)
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

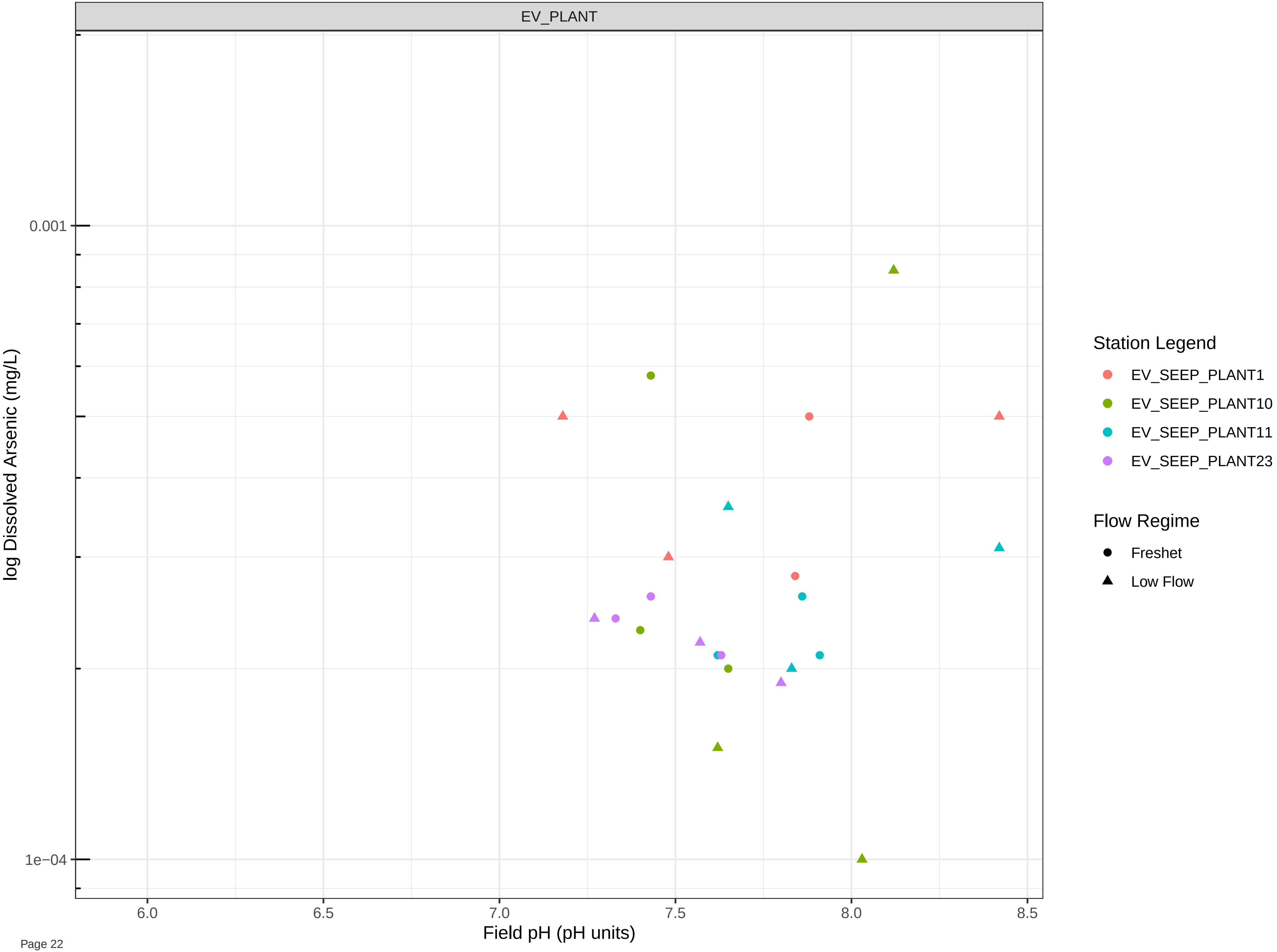

EV_BALDYRIDGEWR
log Dissolved Arsenic (mg/L)
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

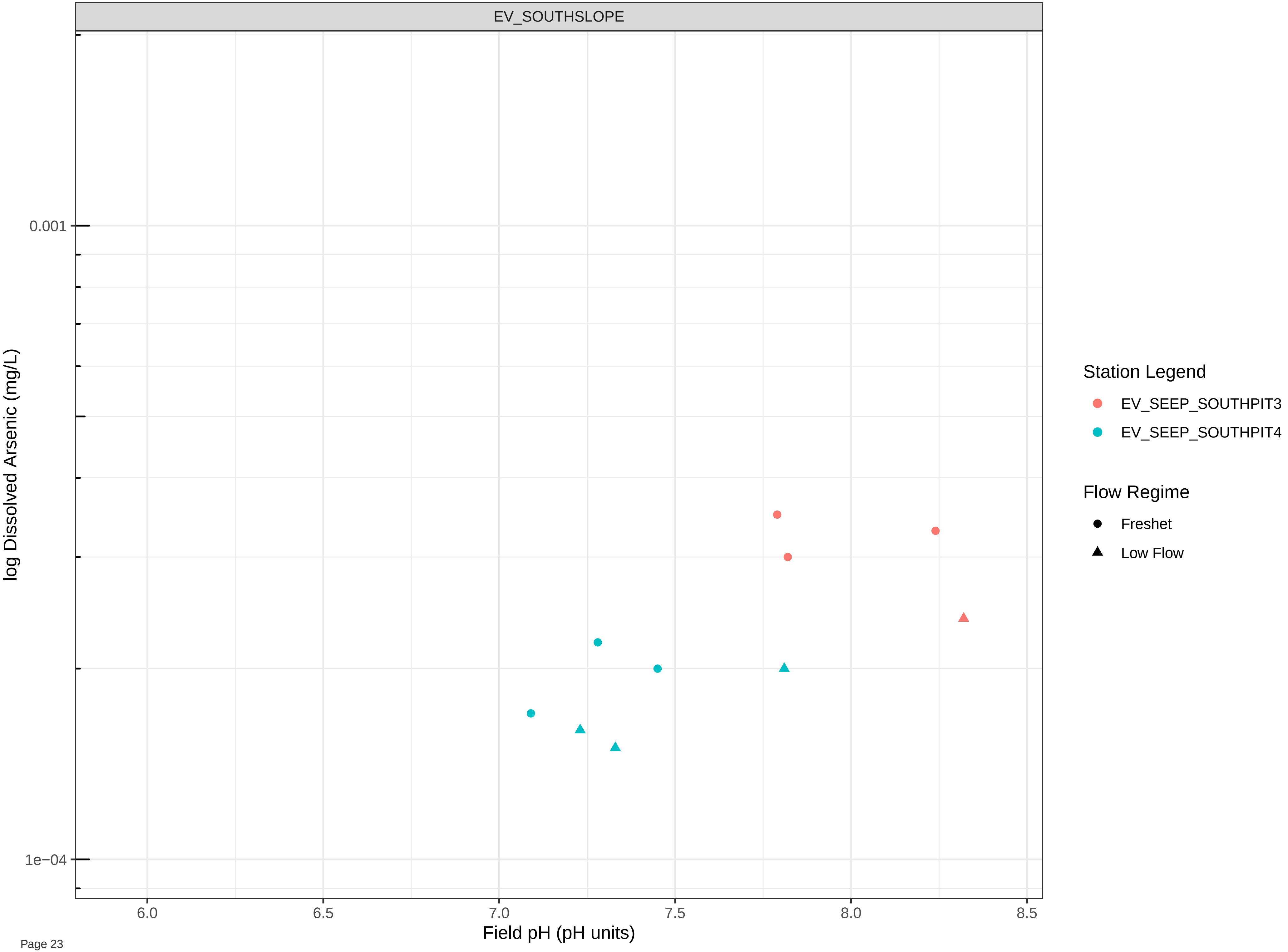

EV_CCR
log Dissolved Arsenic (mg/L)
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

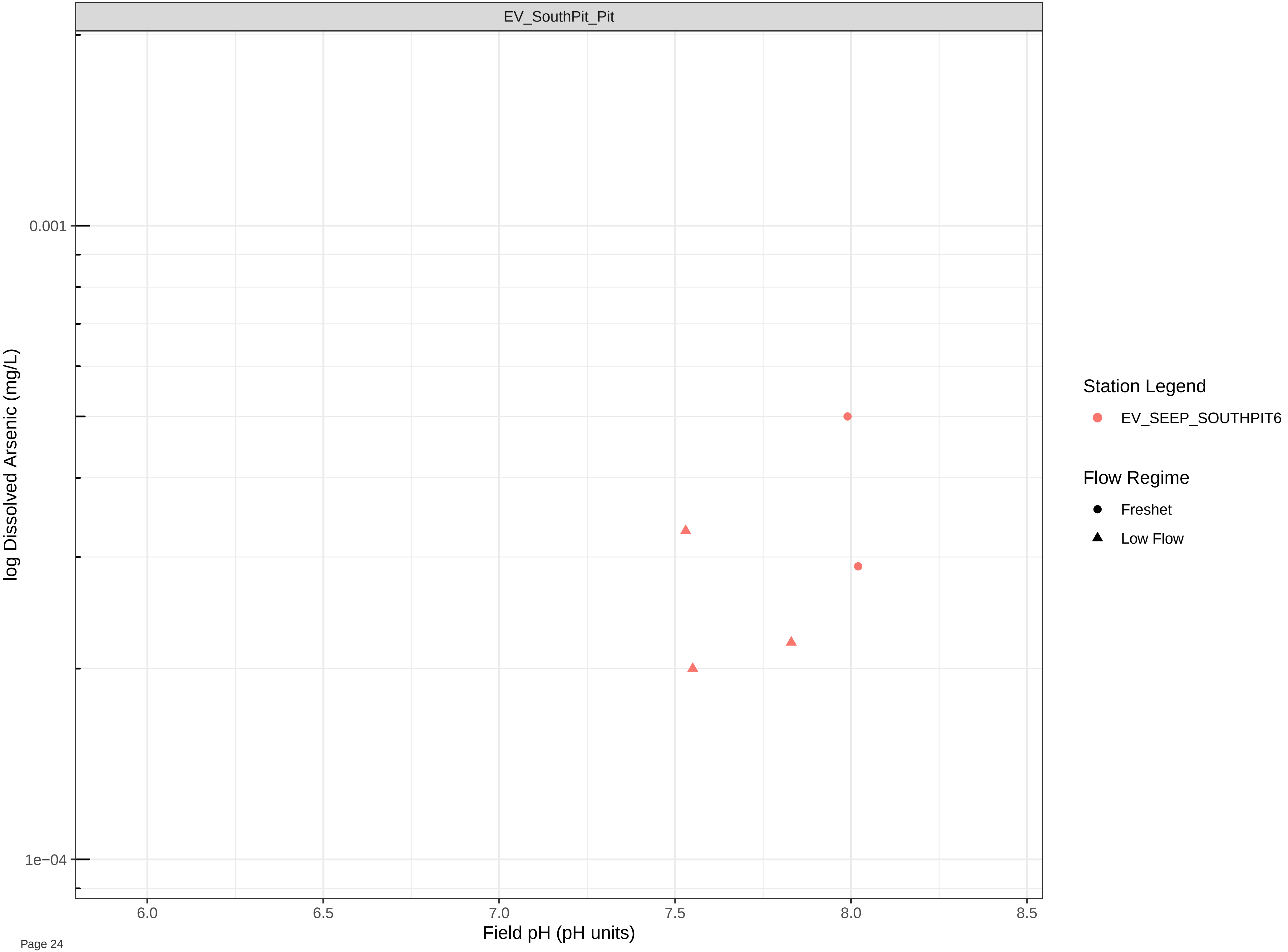

EV_CCR/TP
0.001
1e−04
log Dissolved Arsenic (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

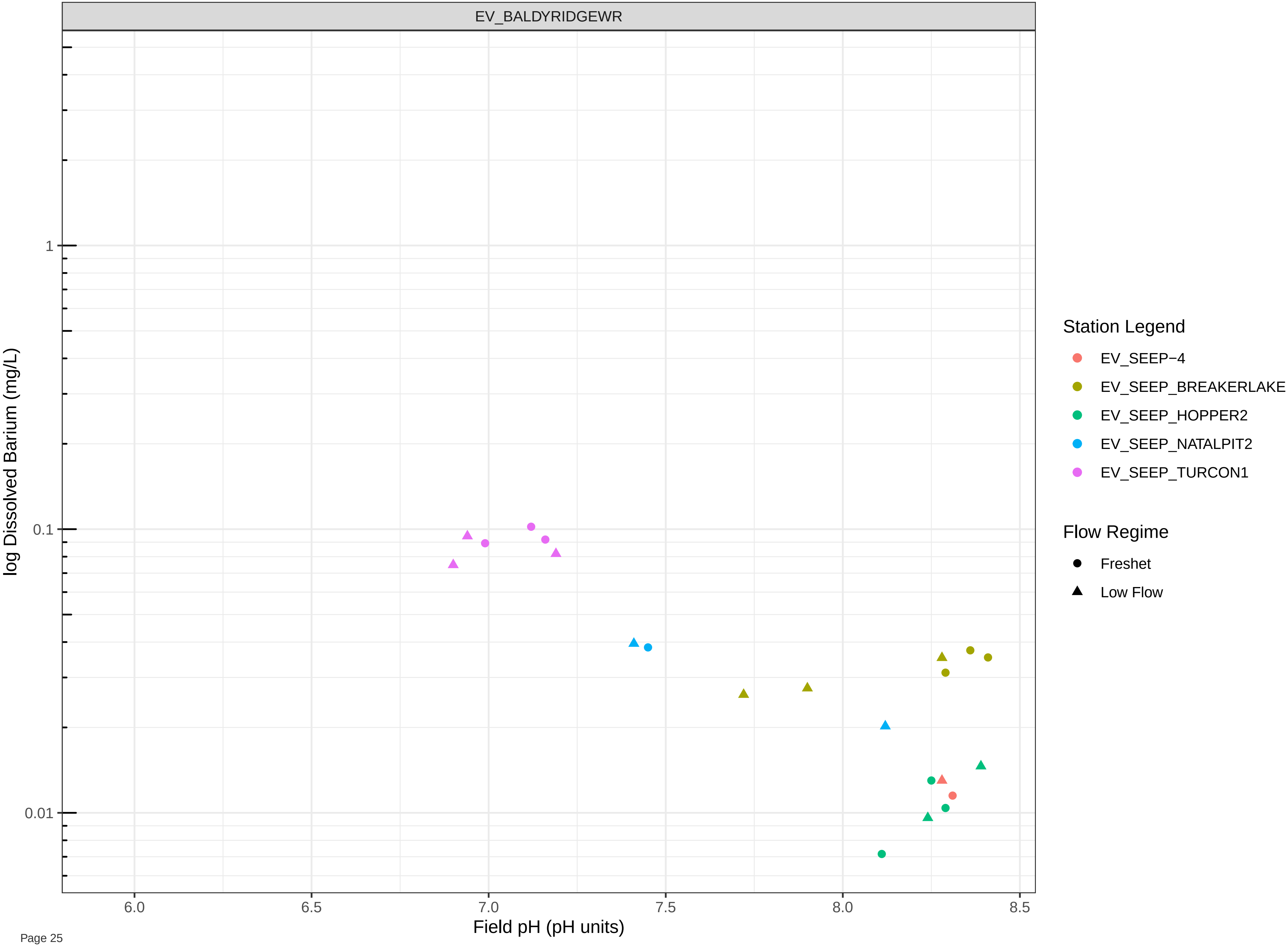

EV_CEDARWR
log Dissolved Arsenic (mg/L)
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

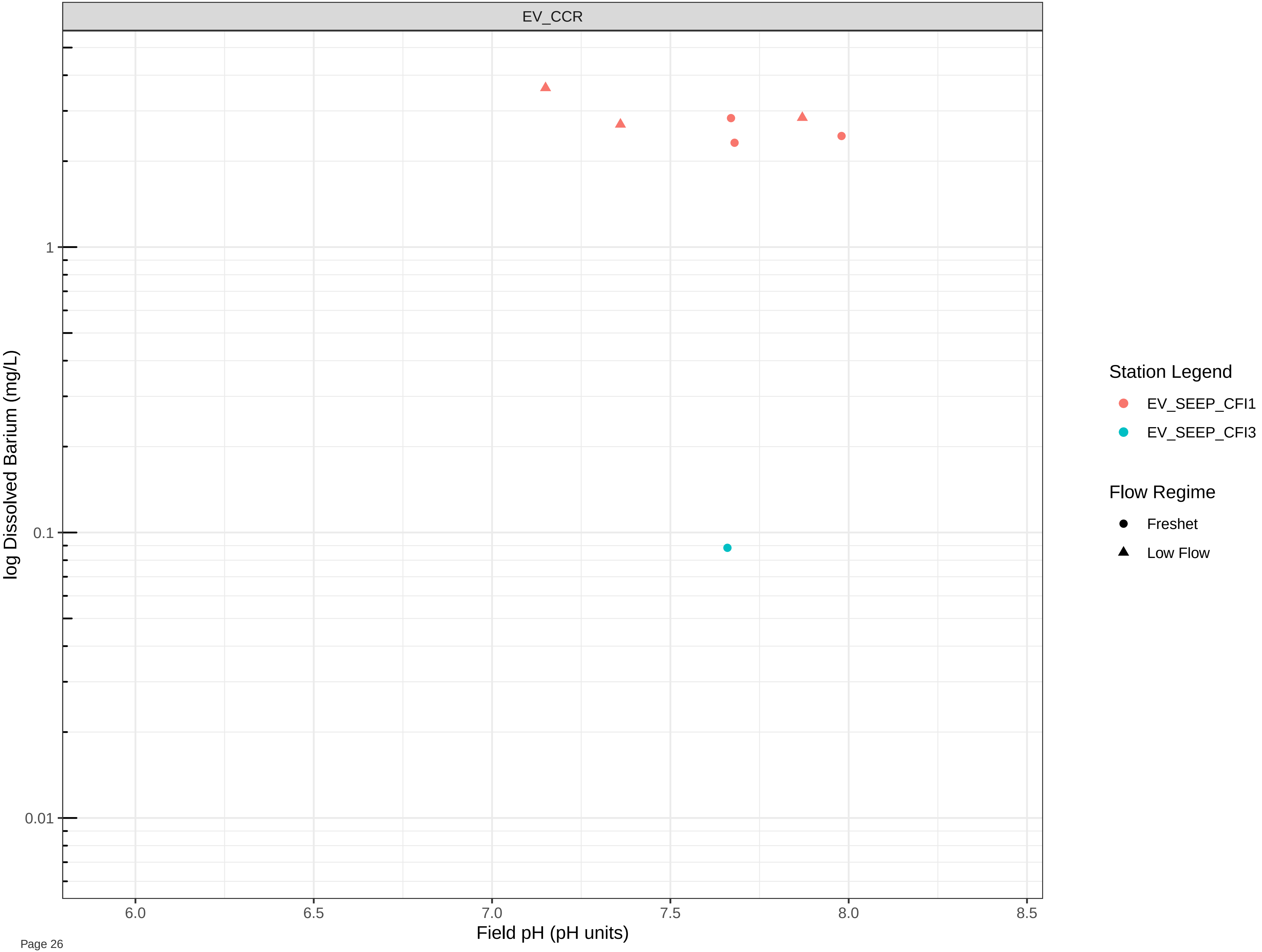

EV_Erickson_WR
log Dissolved Arsenic (mg/L)
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

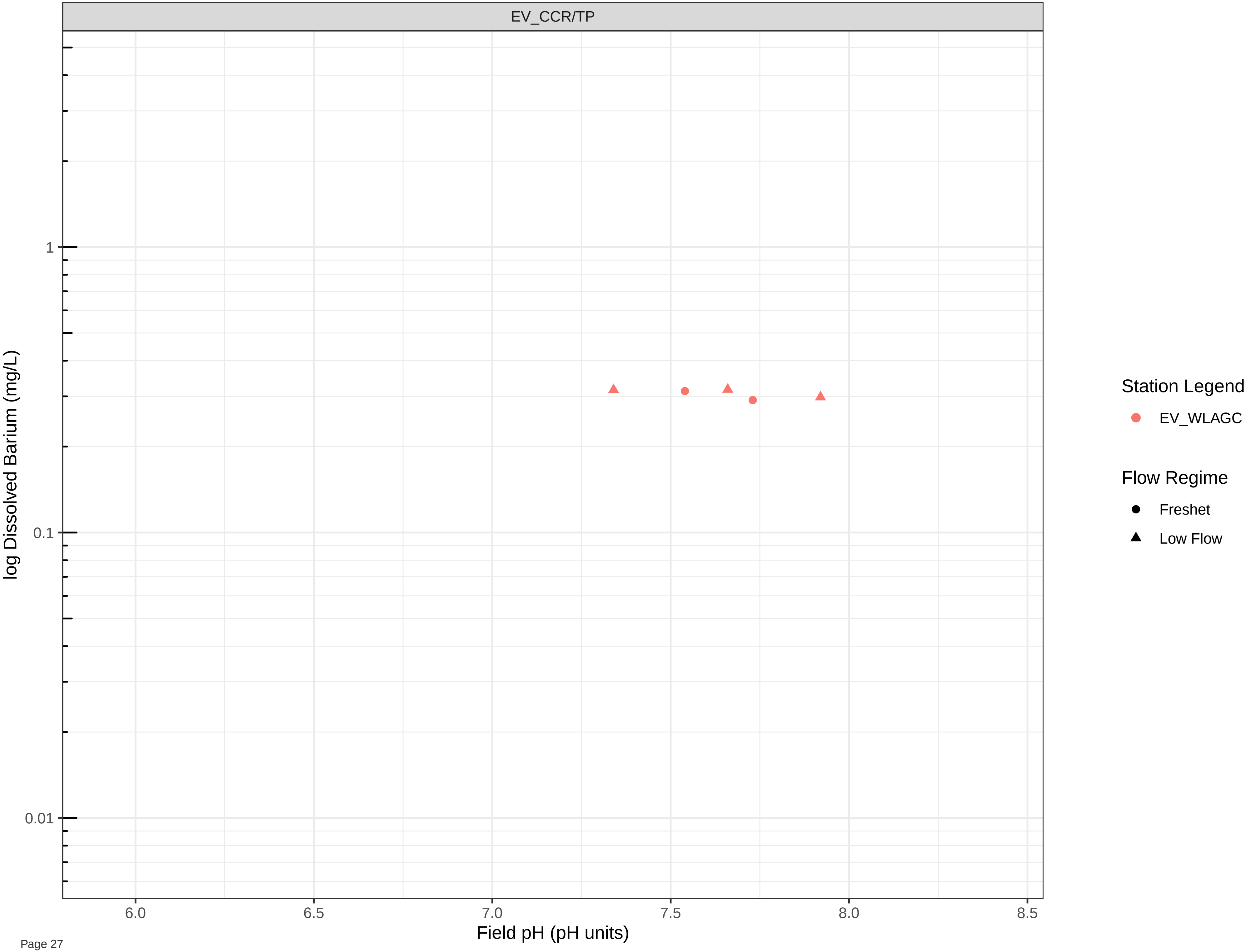

EV_PLANT
0.001
1e−04
log Dissolved Arsenic (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

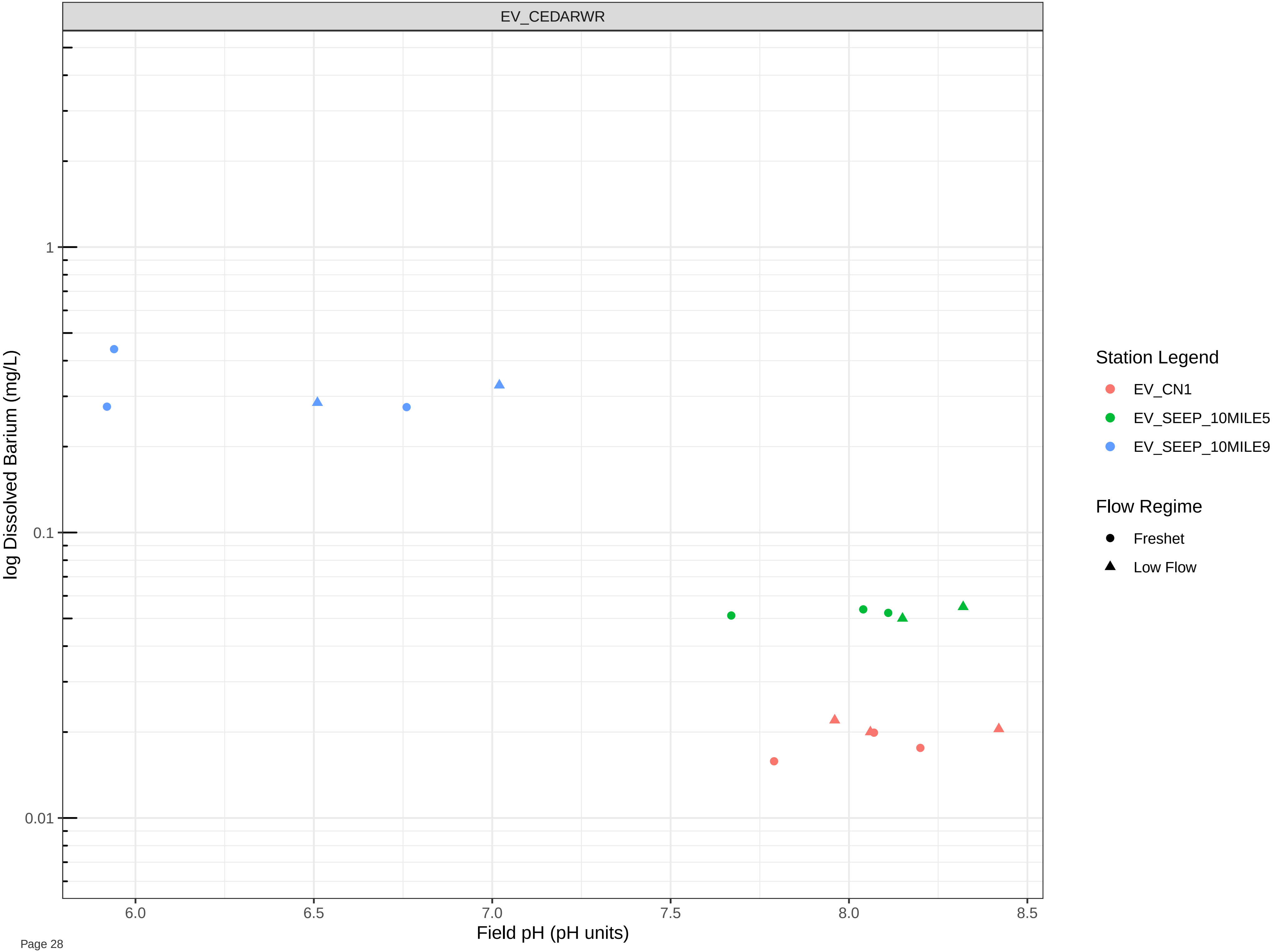

EV_SOUTHSLOPE
0.001
1e−04
log Dissolved Arsenic (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

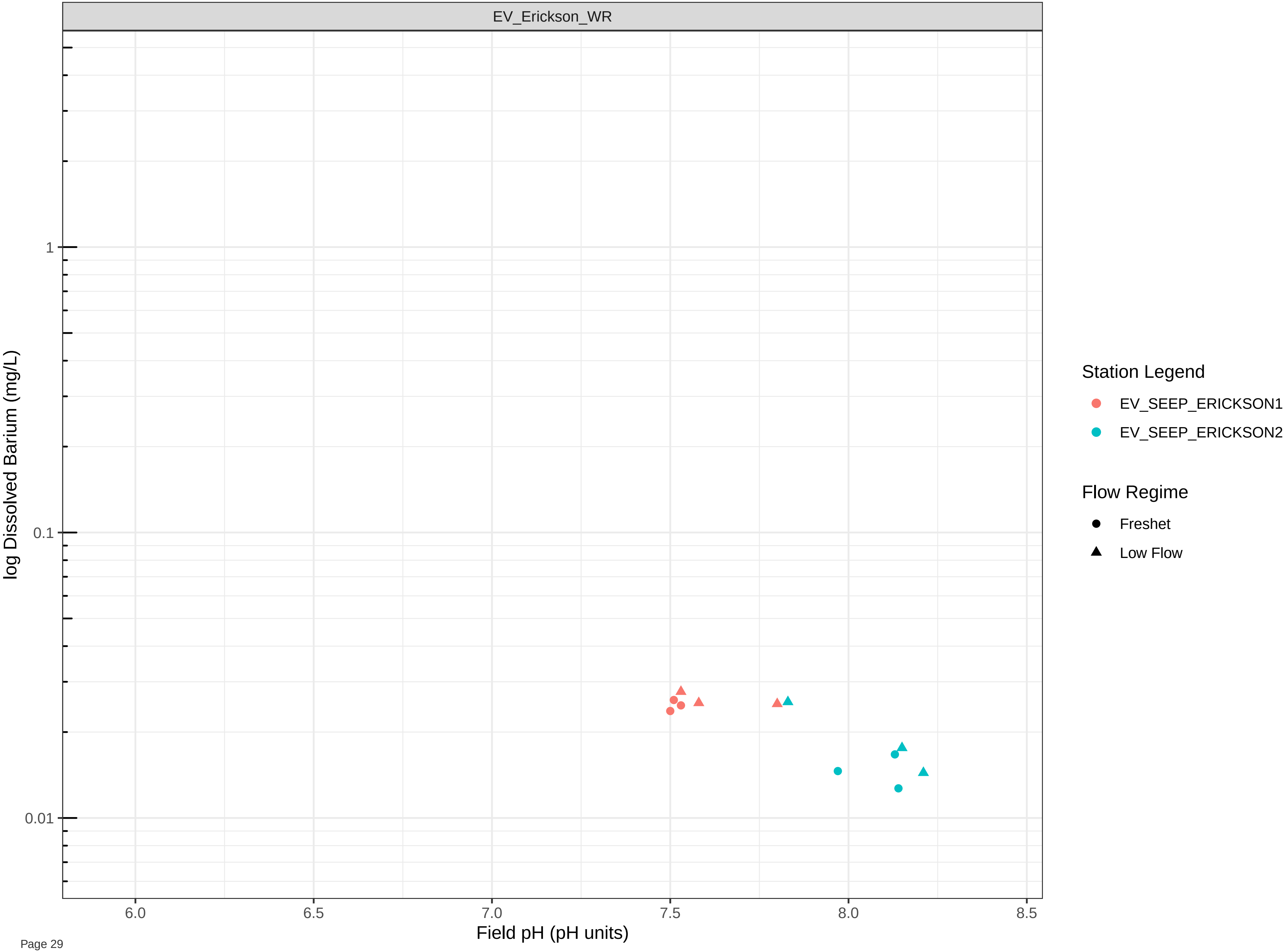

EV_SouthPit_Pit
0.001
1e−04
log Dissolved Arsenic (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

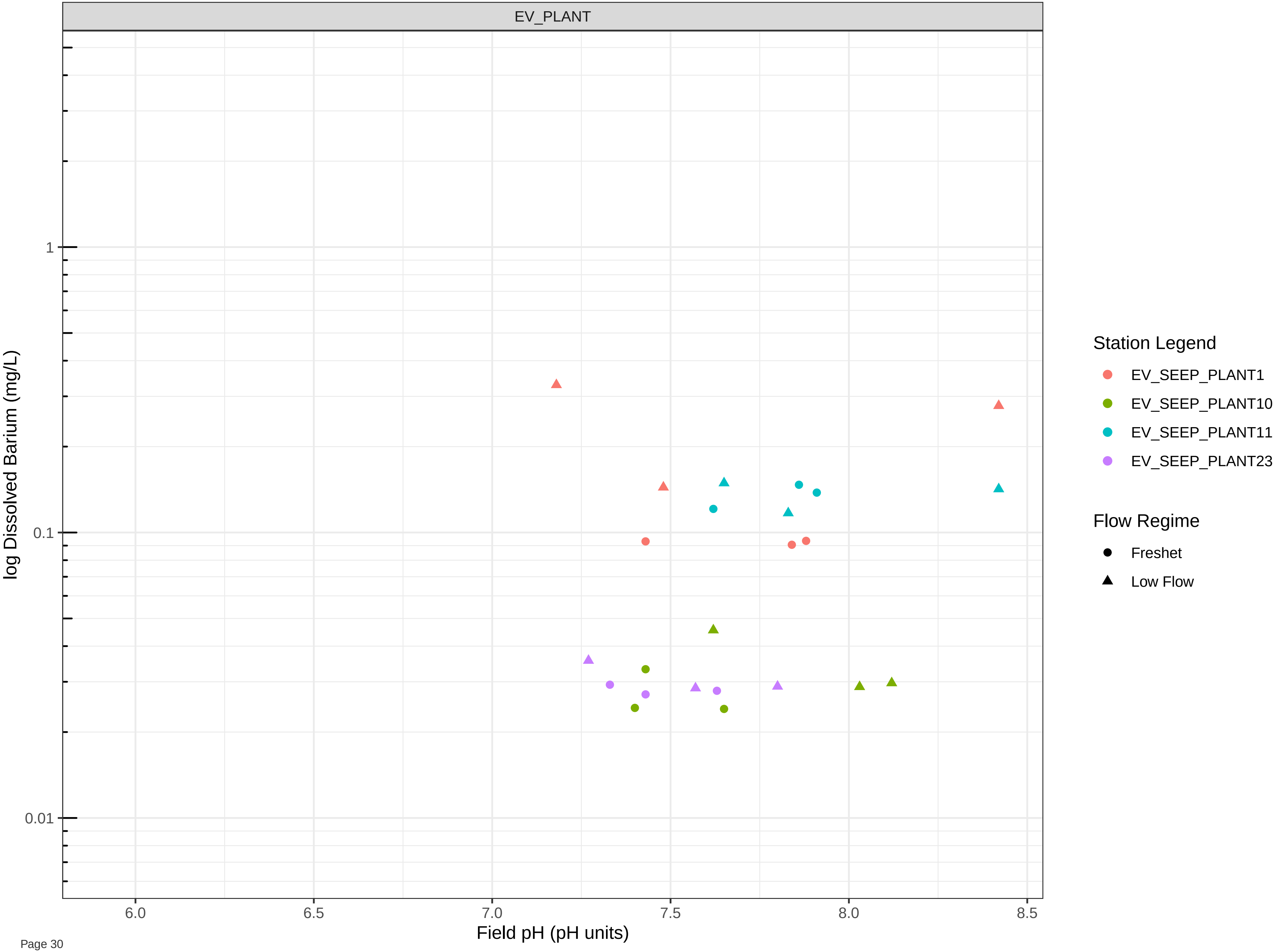

EV_BALDYRIDGEWR
log Dissolved Barium (mg/L)
1
0.1
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

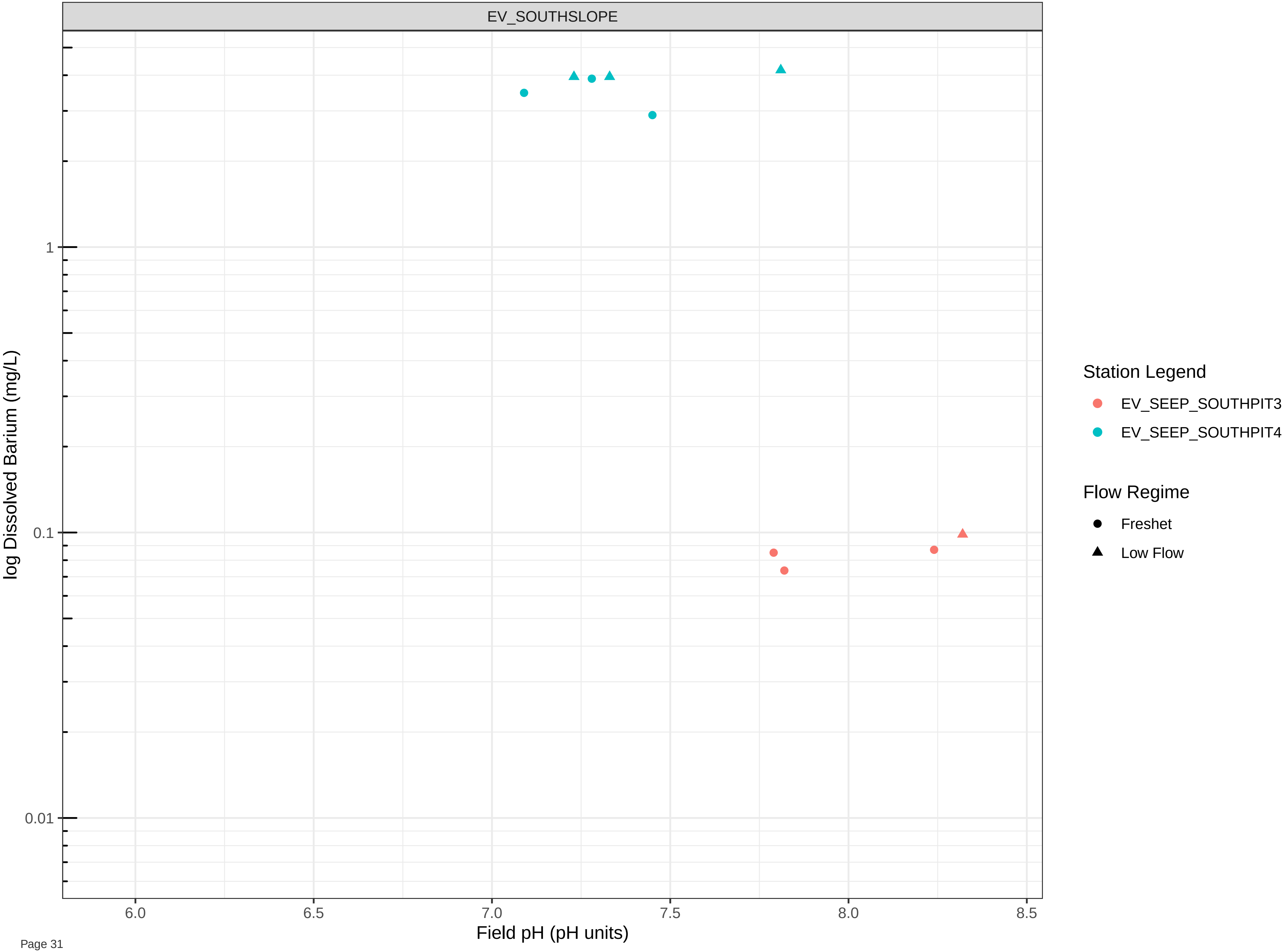

EV_CCR
log Dissolved Barium (mg/L)
1
0.1
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

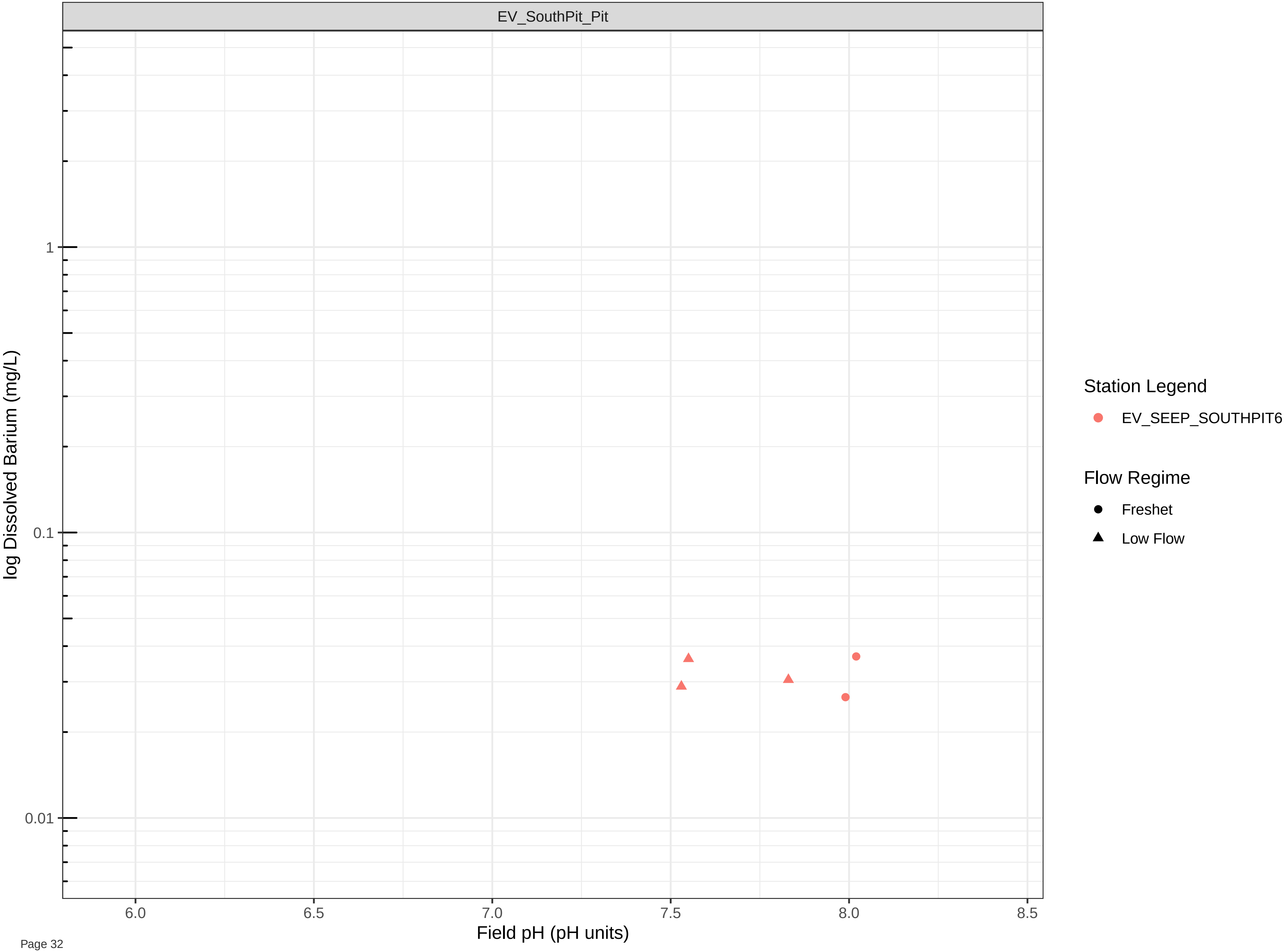

EV_CCR/TP
log Dissolved Barium (mg/L)
1
0.1
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

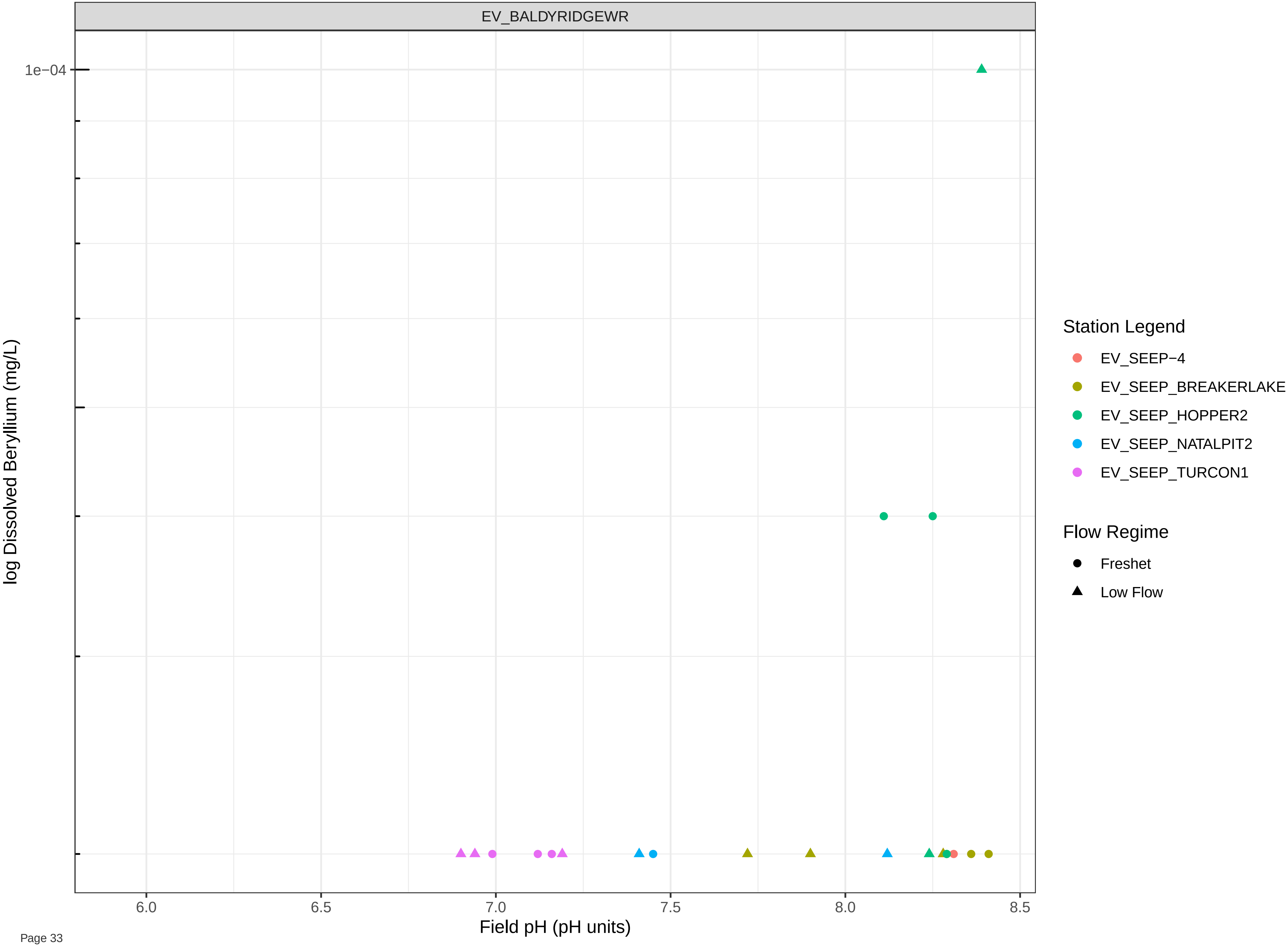

EV_CEDARWR
log Dissolved Barium (mg/L)
1
0.1
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

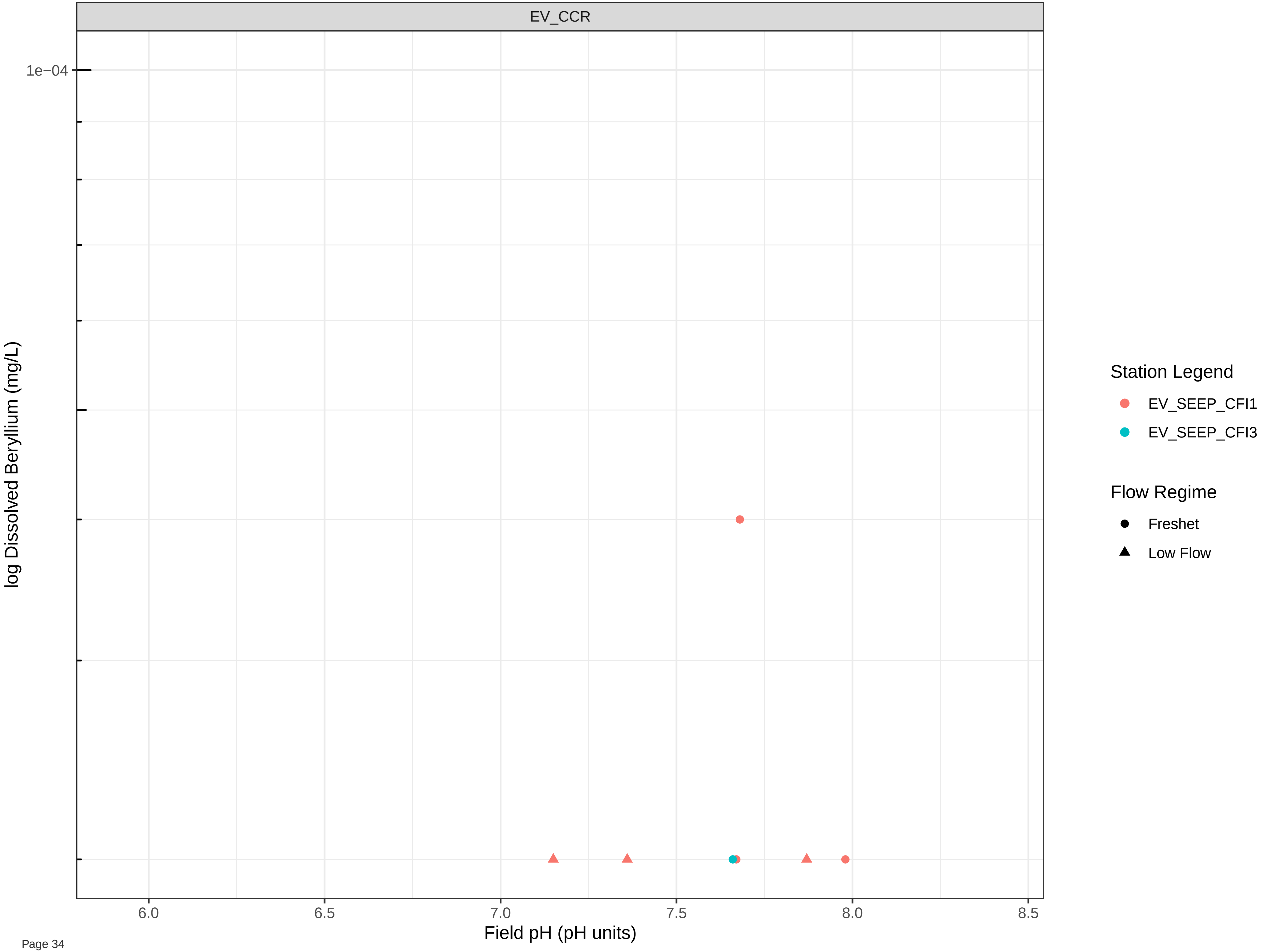

EV_Erickson_WR
log Dissolved Barium (mg/L)
1
0.1
0.01
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

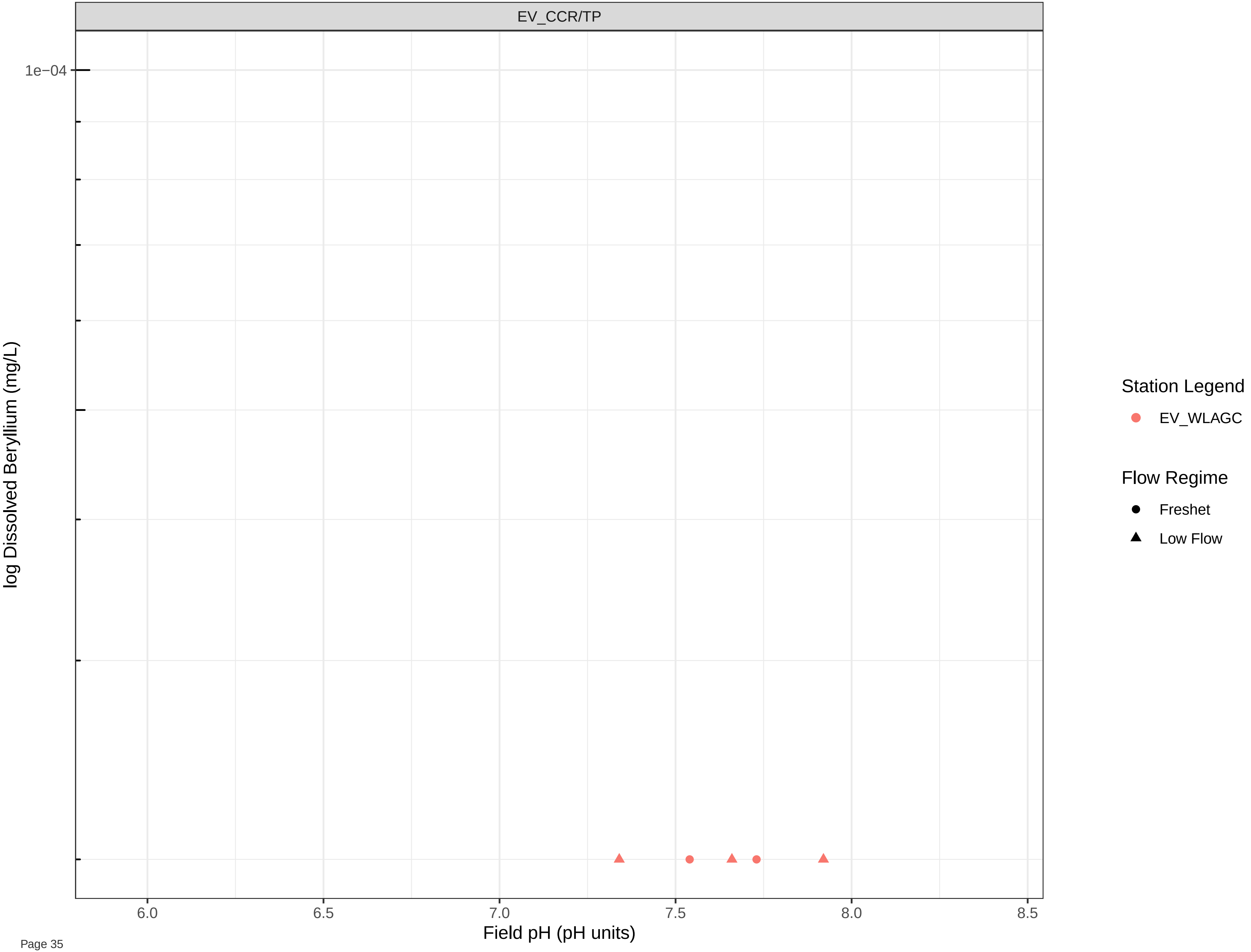

EV_PLANT
log Dissolved Barium (mg/L)
1
0.1
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_PLANT1
● EV_SEEP_PLANT10
● EV_SEEP_PLANT11
● EV_SEEP_PLANT23
Flow Regime
● Freshet
▲ Low Flow

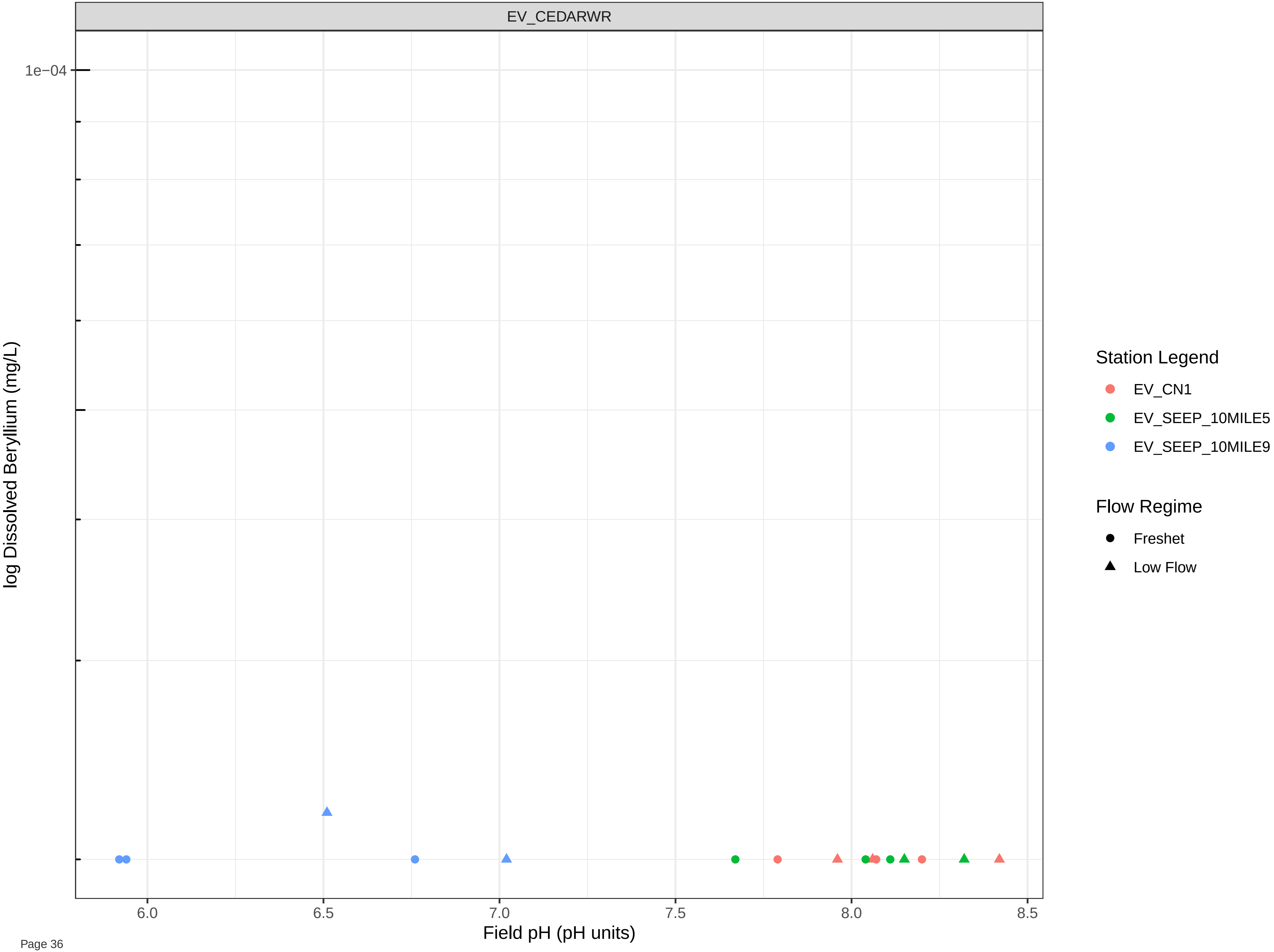

EV_SOUTHSLOPE
log Dissolved Barium (mg/L)
1
0.1
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

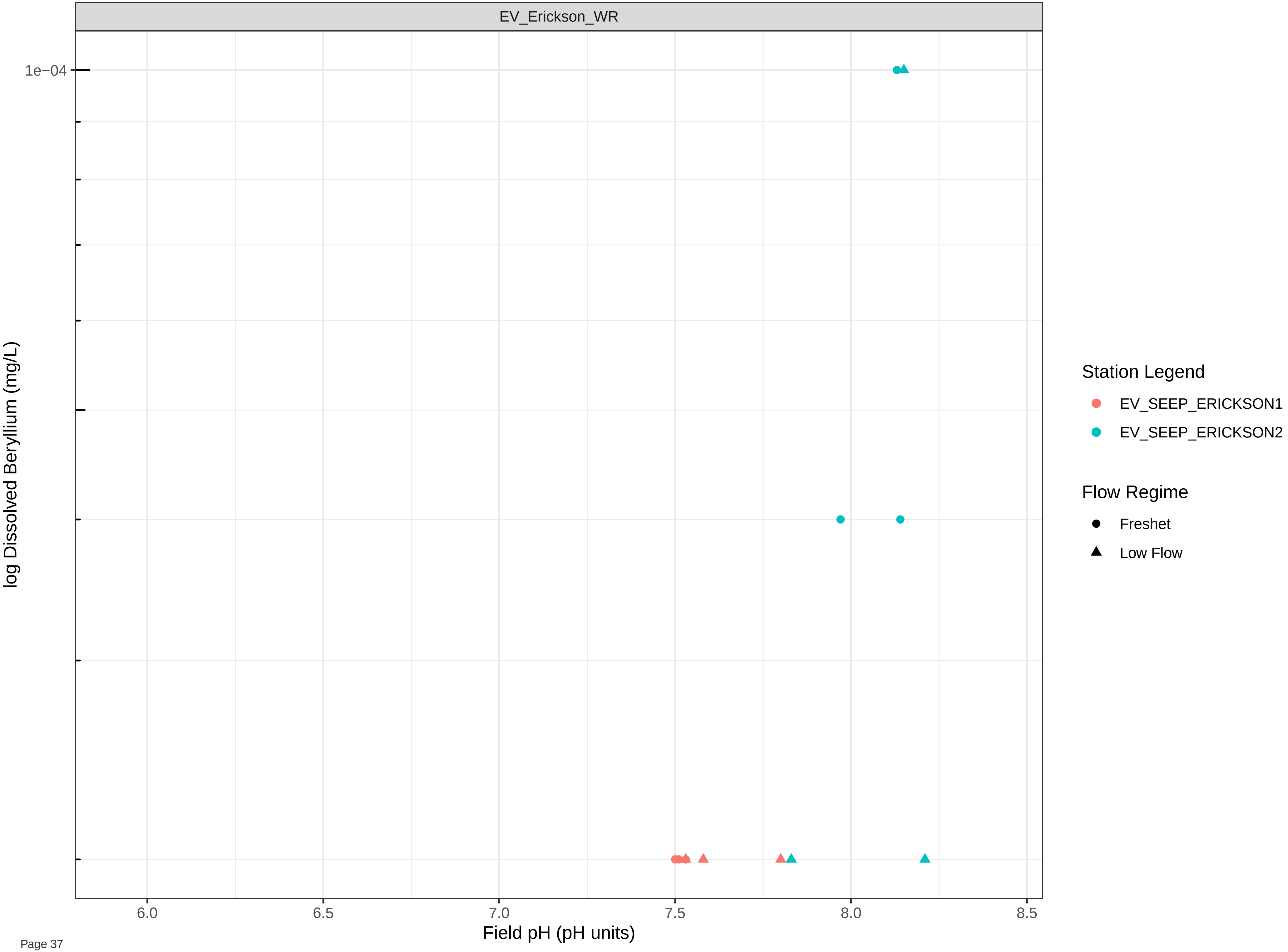

EV_SouthPit_Pit
log Dissolved Barium (mg/L)
1
0.1
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

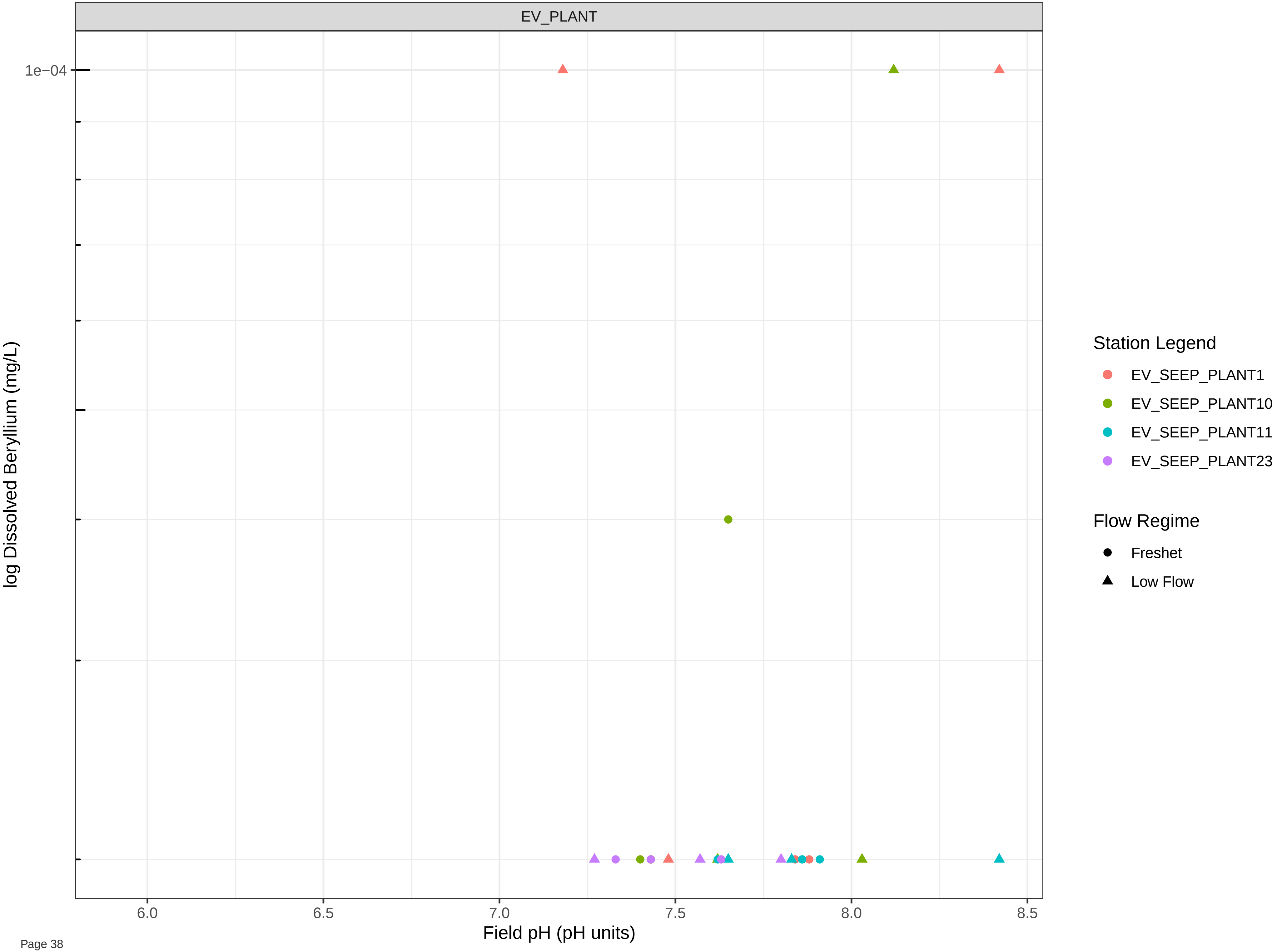

EV_BALDYRIDGEWR
1e−04
log Dissolved Beryllium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

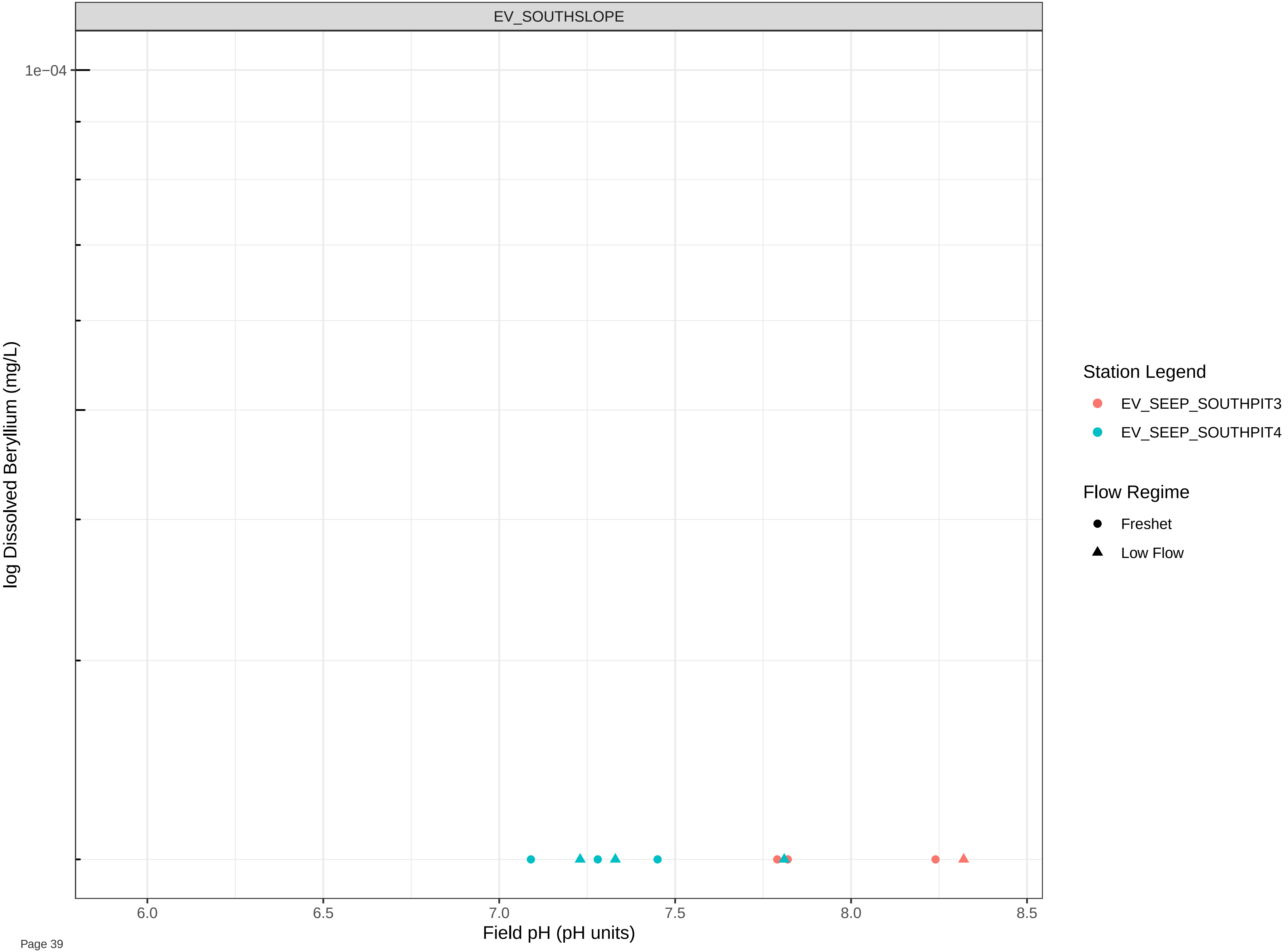

EV_CCR
1e−04
log Dissolved Beryllium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

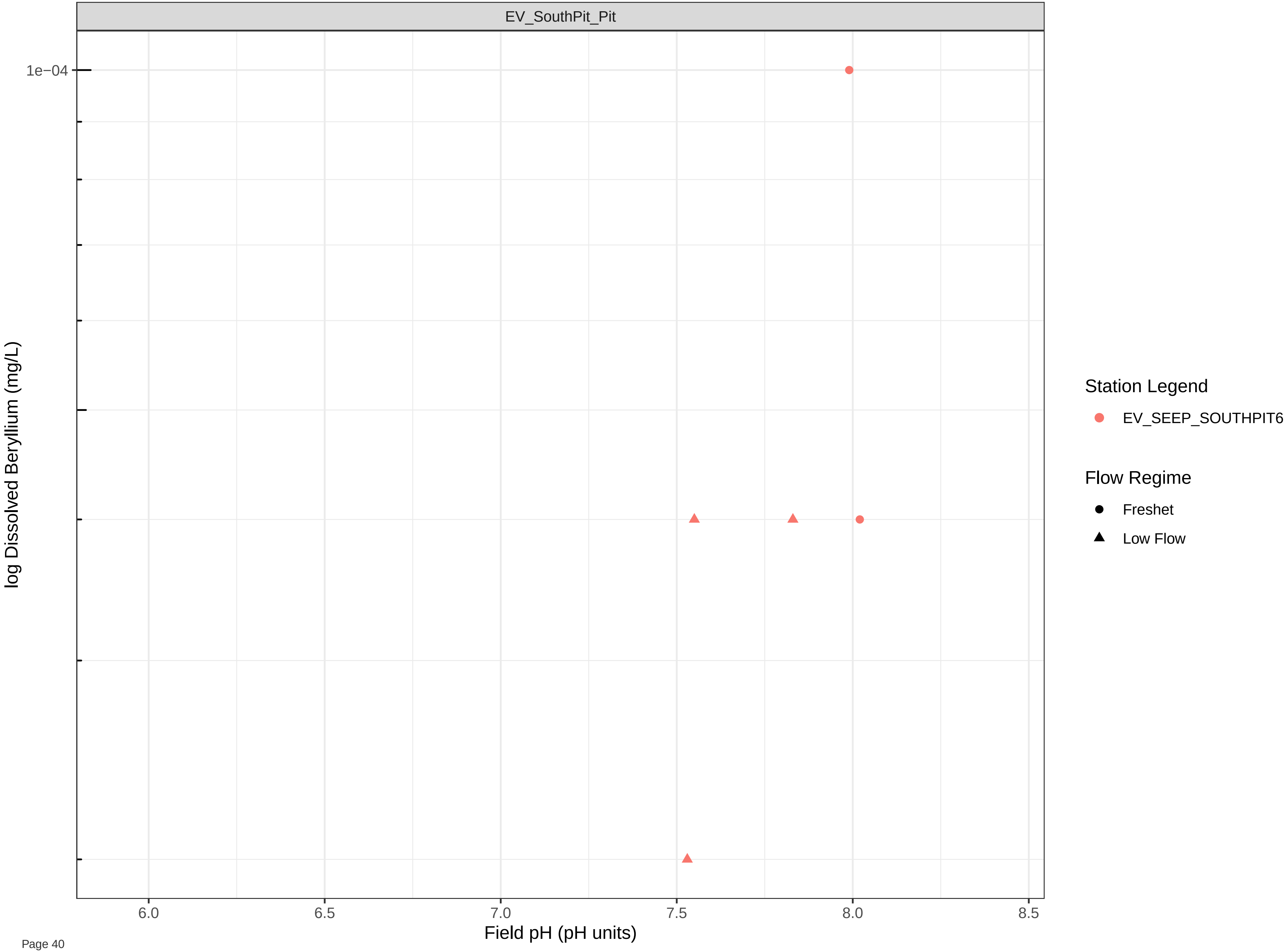

EV_CCR/TP
1e−04
log Dissolved Beryllium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

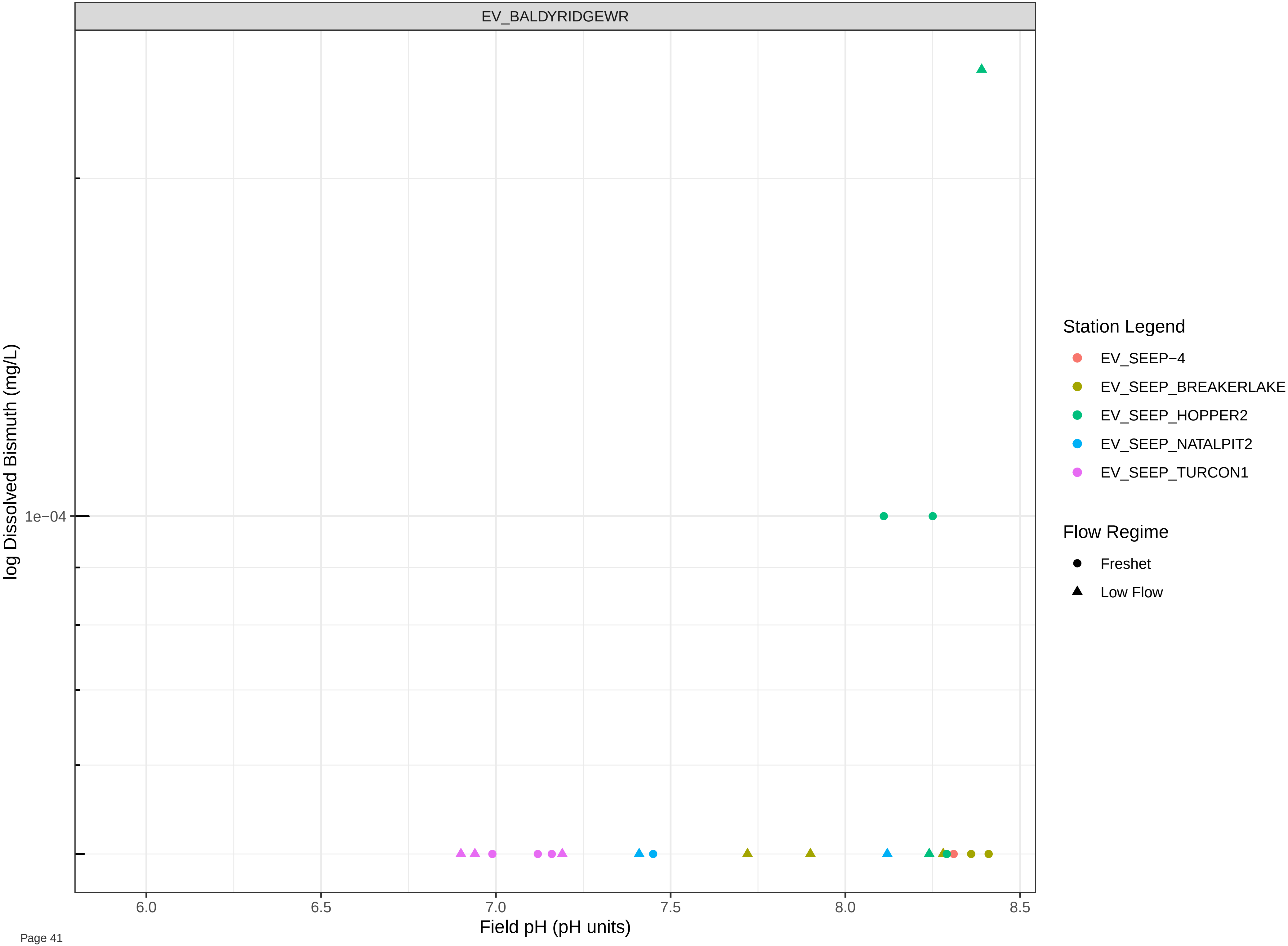

EV_CEDARWR
1e−04
log Dissolved Beryllium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

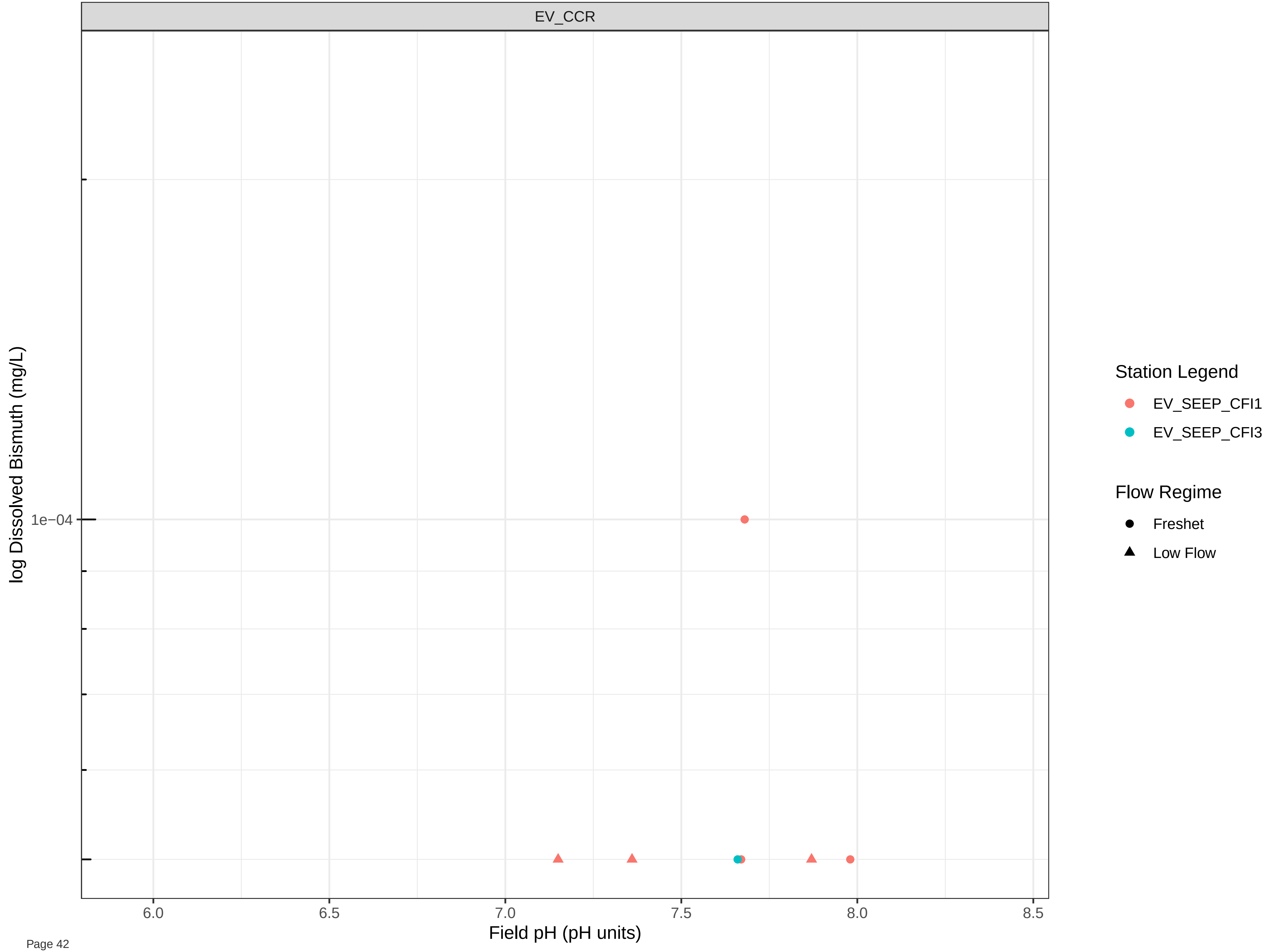

EV_Erickson_WR
1e−04
log Dissolved Beryllium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

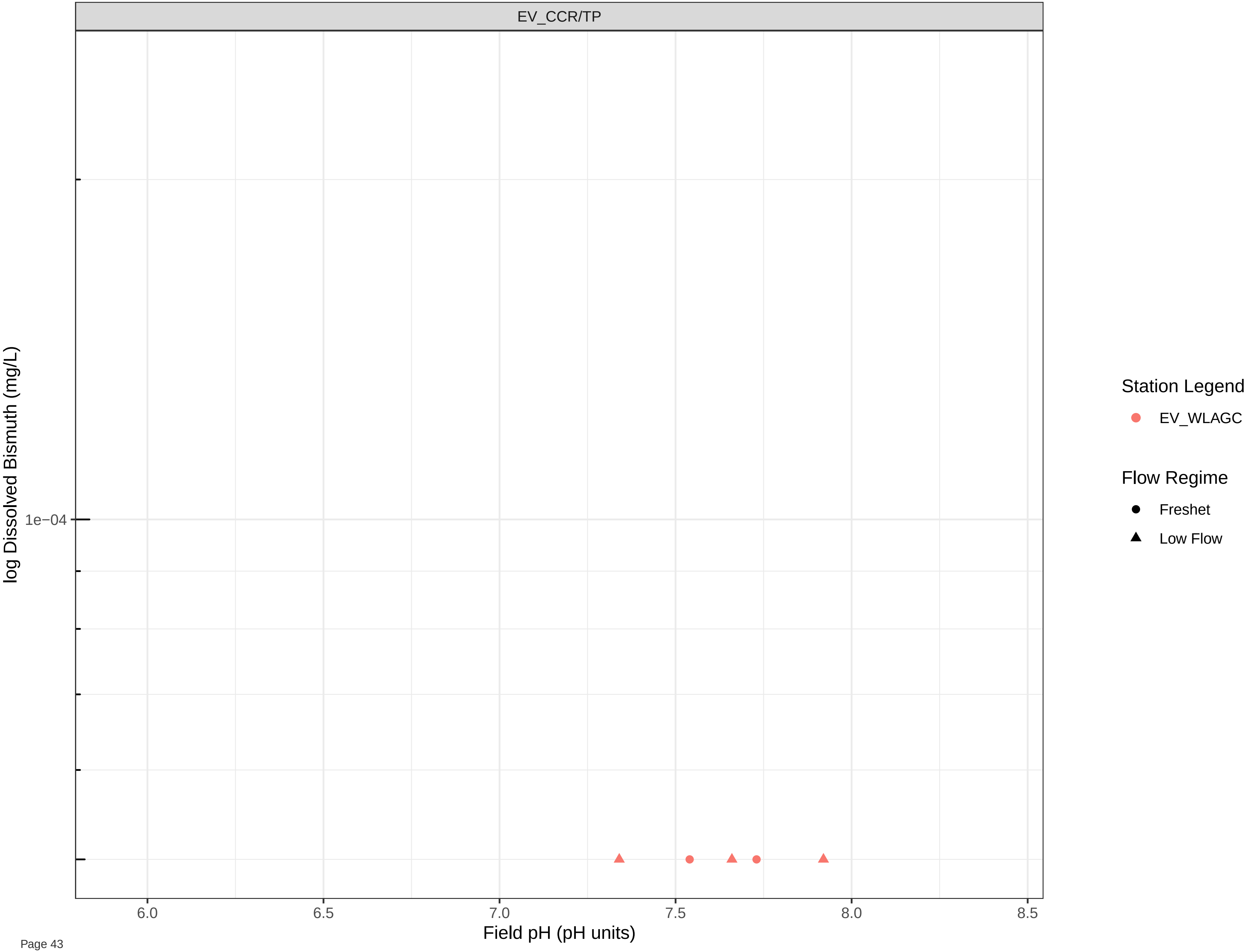

EV_PLANT
1e−04
log Dissolved Beryllium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_PLANT1
● EV_SEEP_PLANT10
● EV_SEEP_PLANT11
● EV_SEEP_PLANT23
Flow Regime
● Freshet
▲ Low Flow

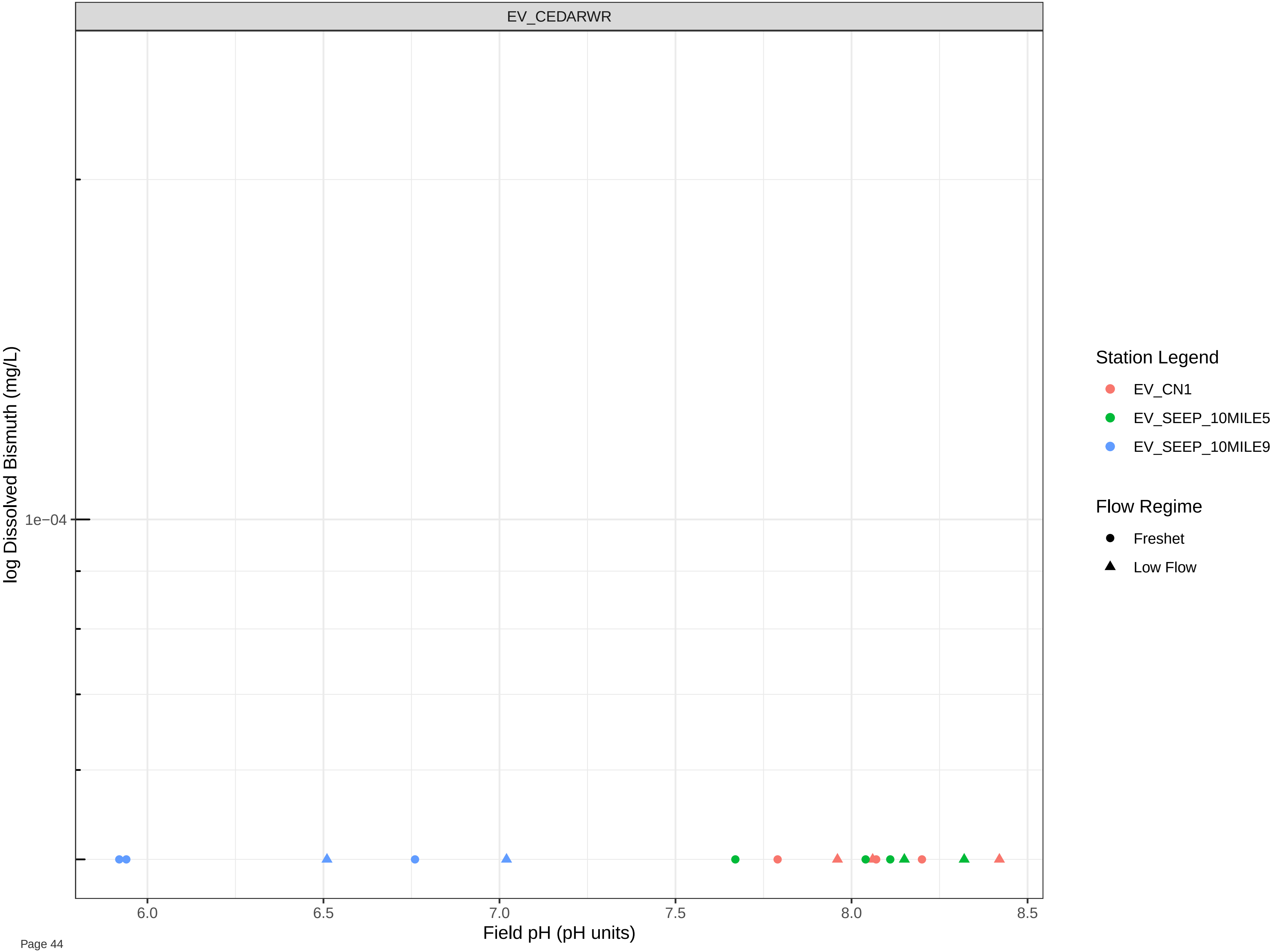

EV_SOUTHSLOPE
1e−04
log Dissolved Beryllium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

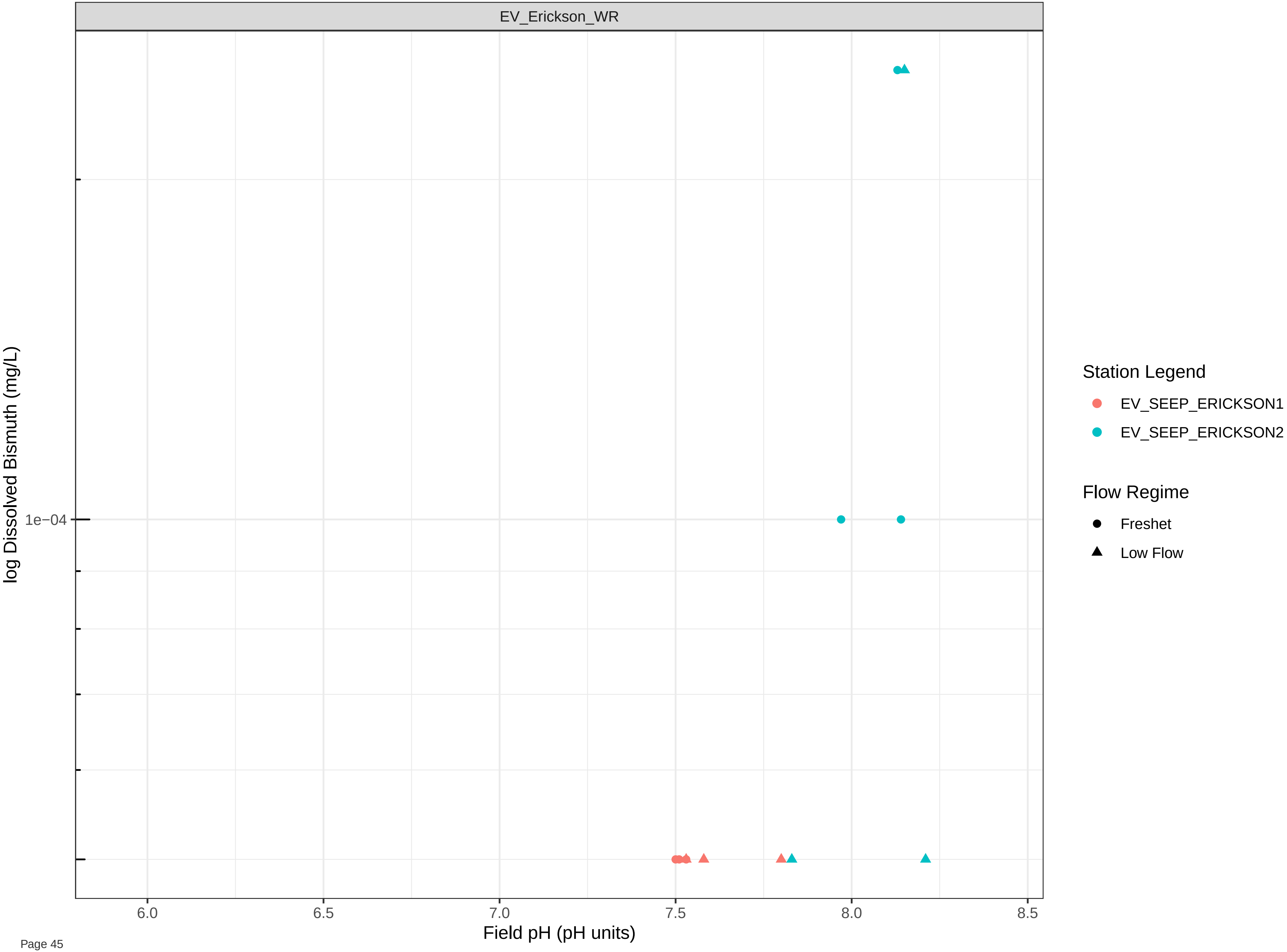

EV_SouthPit_Pit
1e−04
log Dissolved Beryllium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

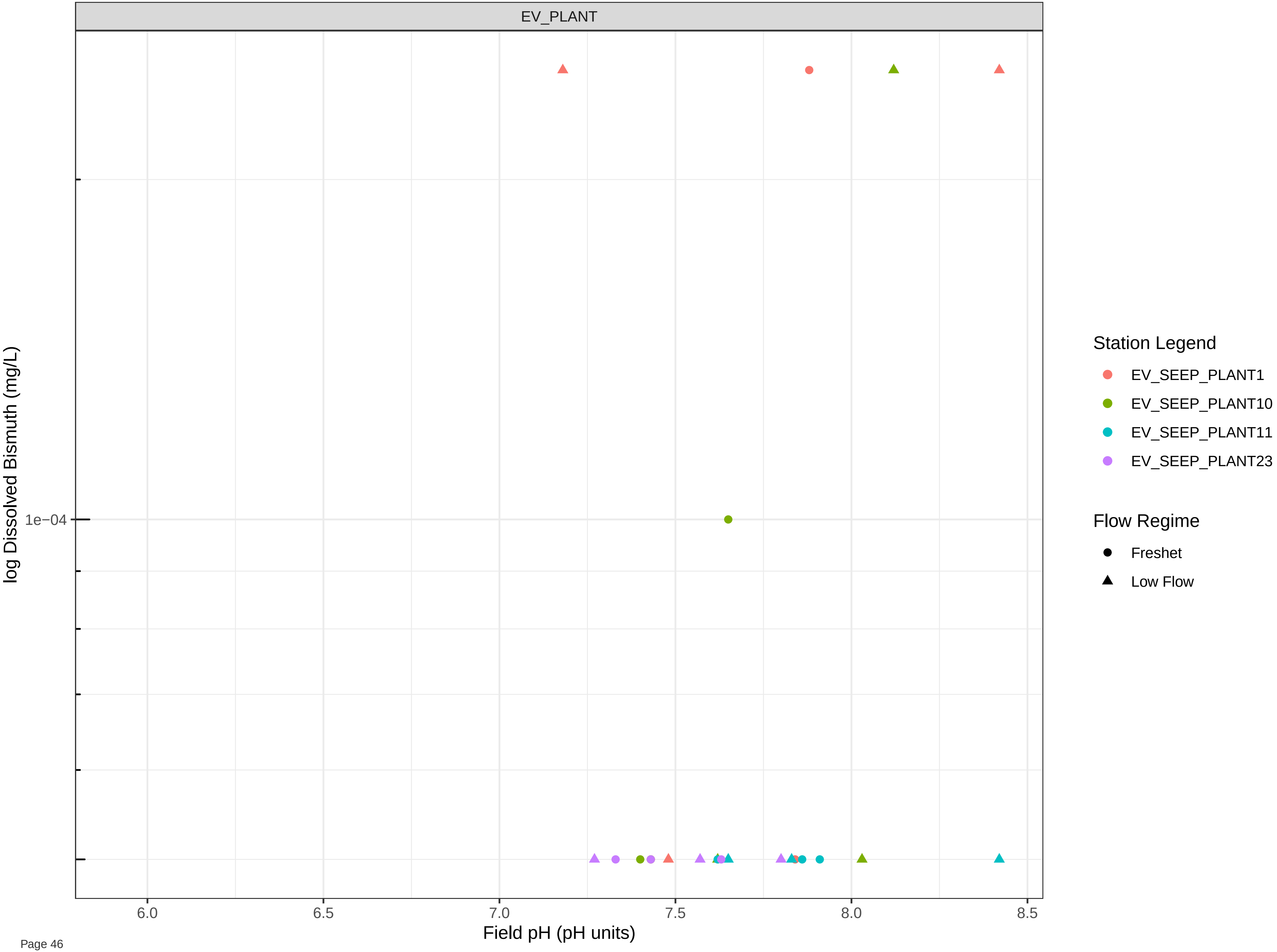

EV_BALDYRIDGEWR
log Dissolved Bismuth (mg/L)
1e−04
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

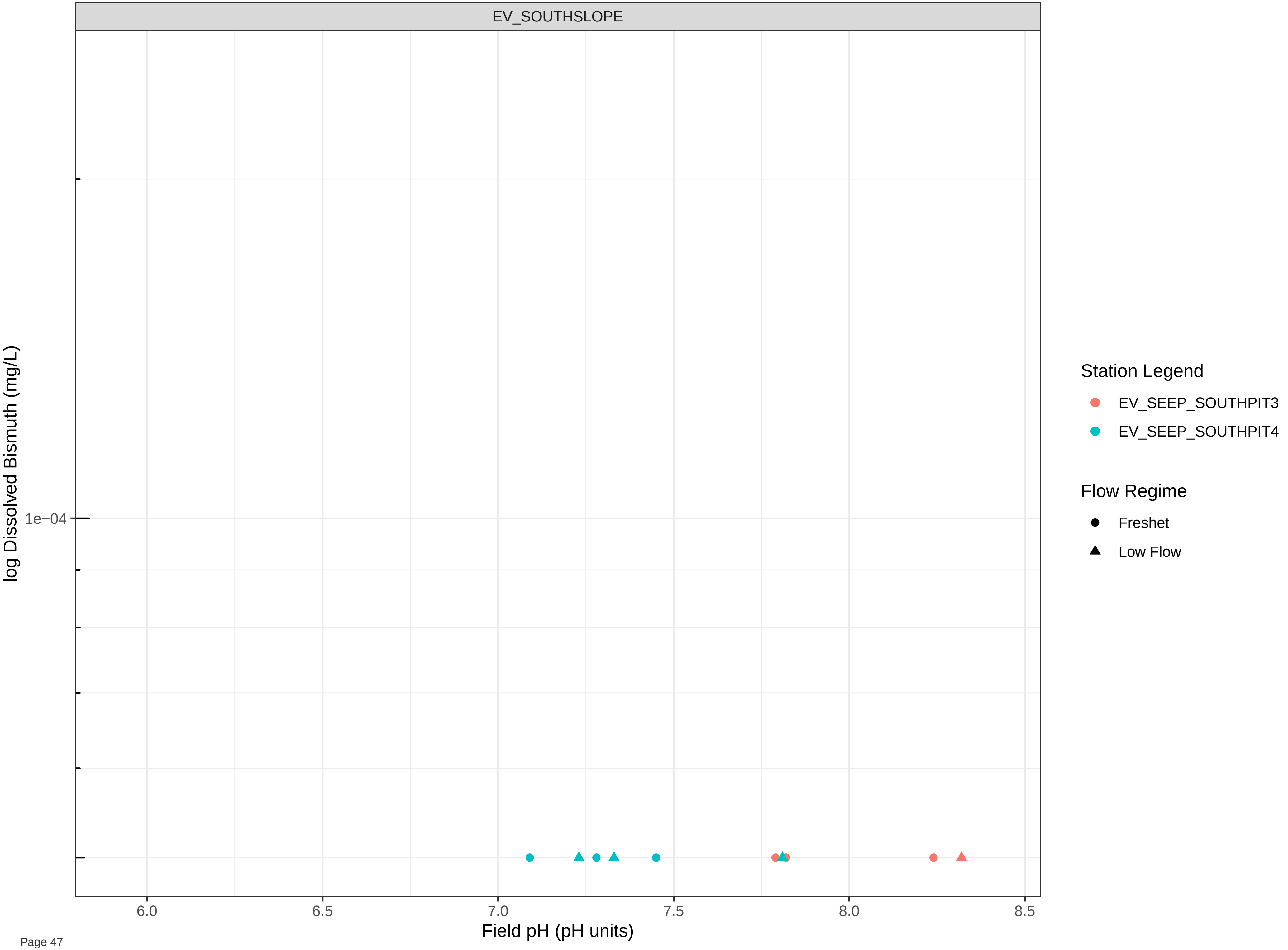

EV_CCR
log Dissolved Bismuth (mg/L)
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

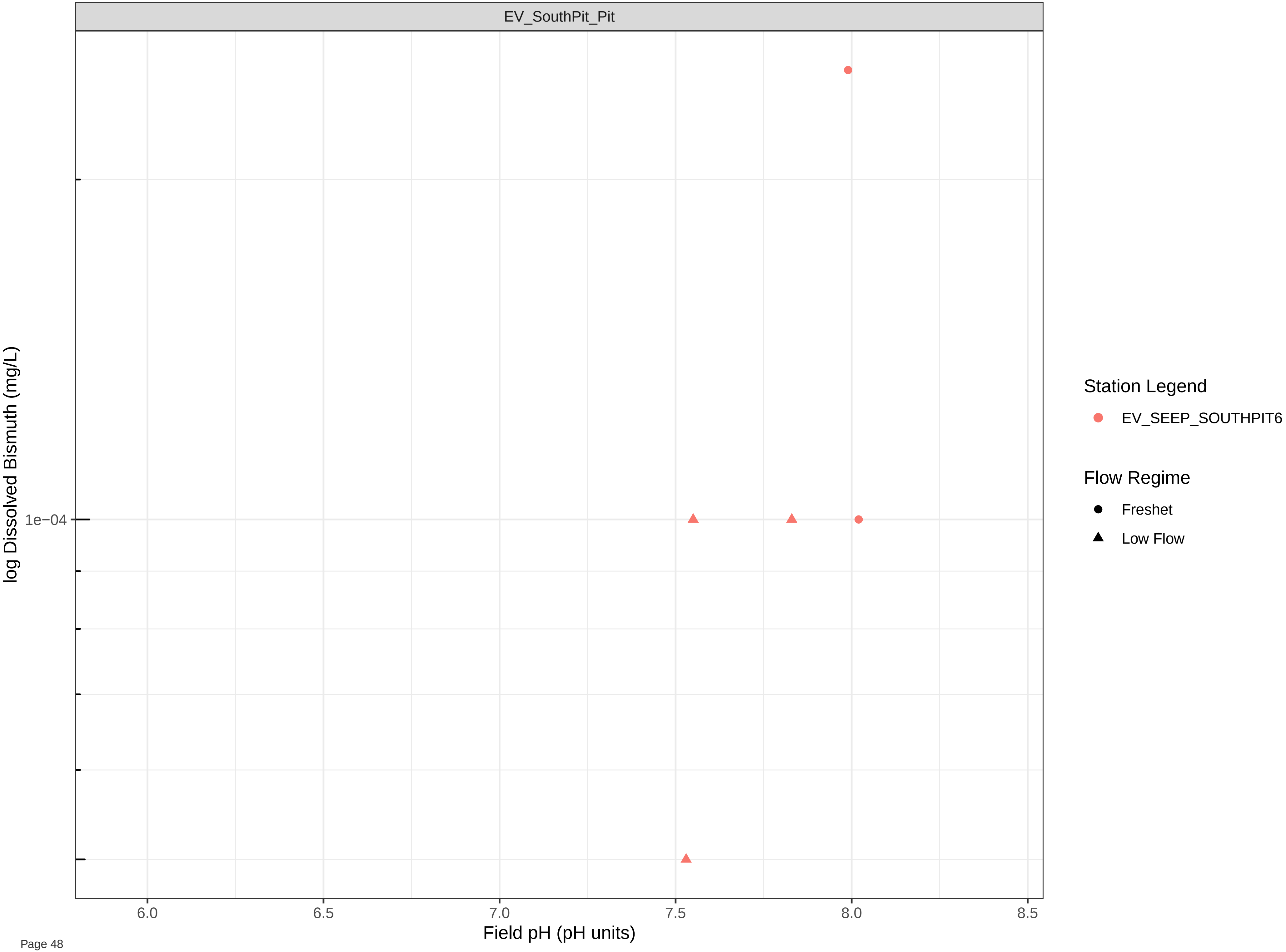

EV_CCR/TP
log Dissolved Bismuth (mg/L)
1e−04
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

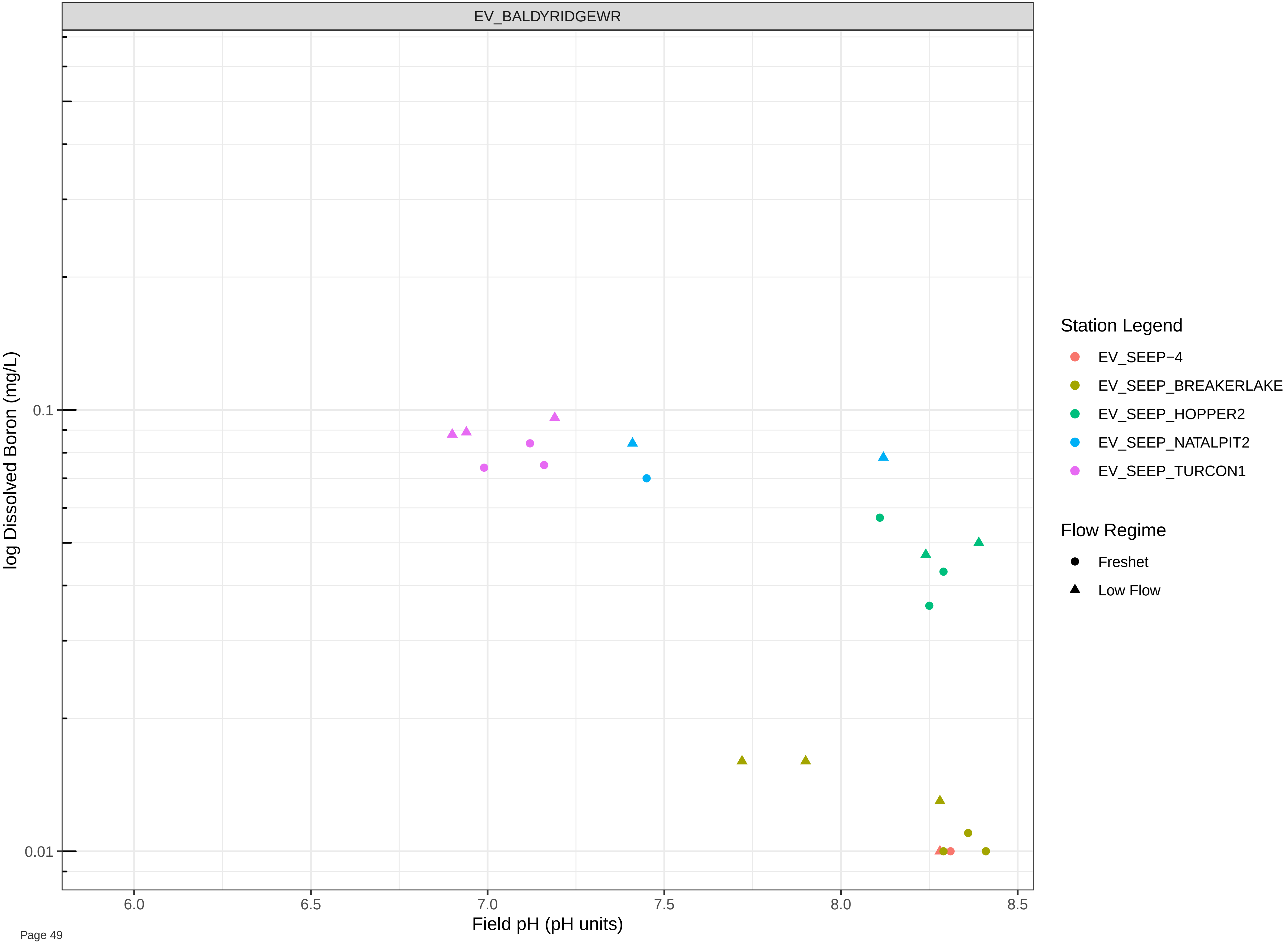

EV_CEDARWR
log Dissolved Bismuth (mg/L)
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

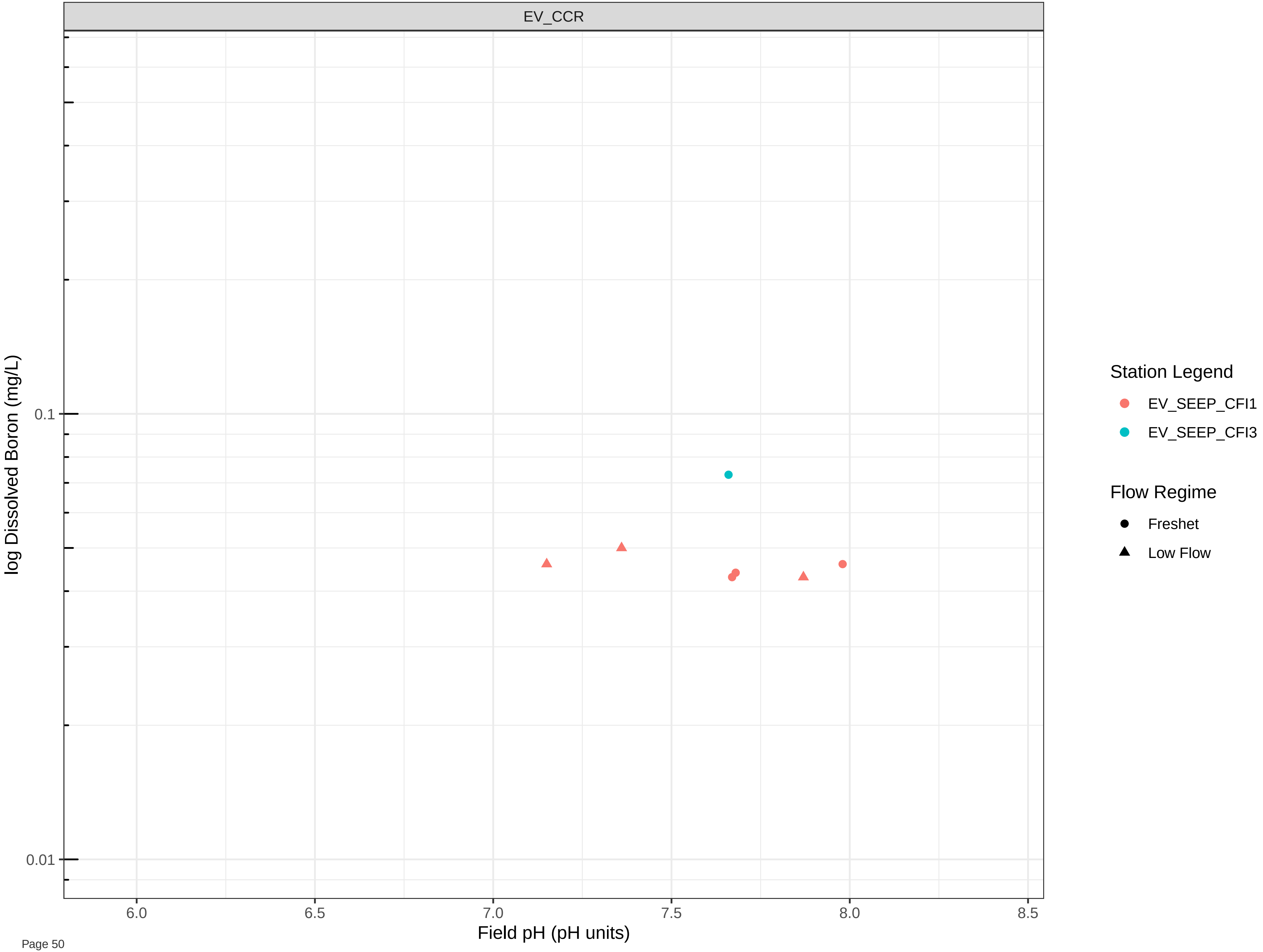

EV_Erickson_WR
log Dissolved Bismuth (mg/L)
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

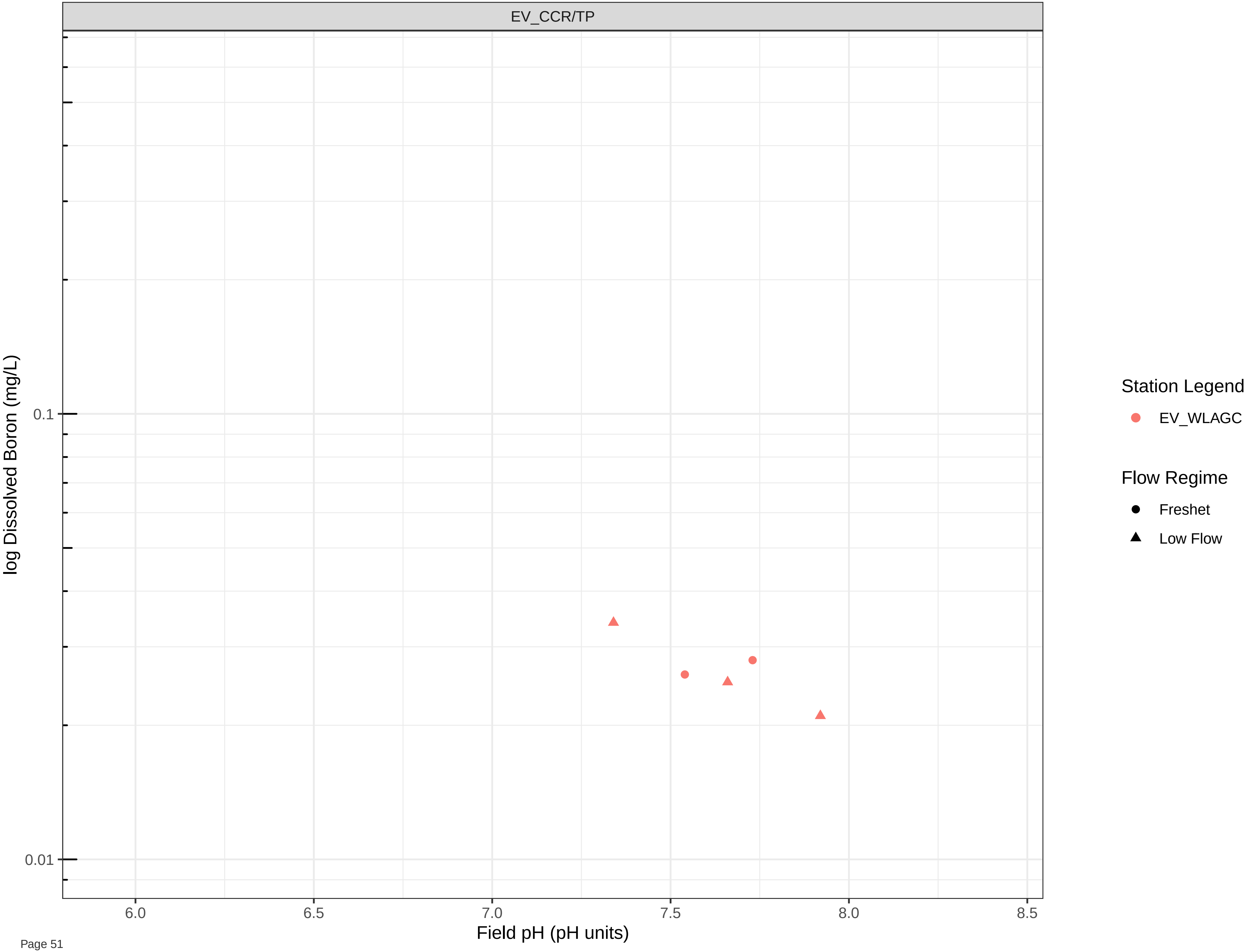

EV_PLANT
log Dissolved Bismuth (mg/L)
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

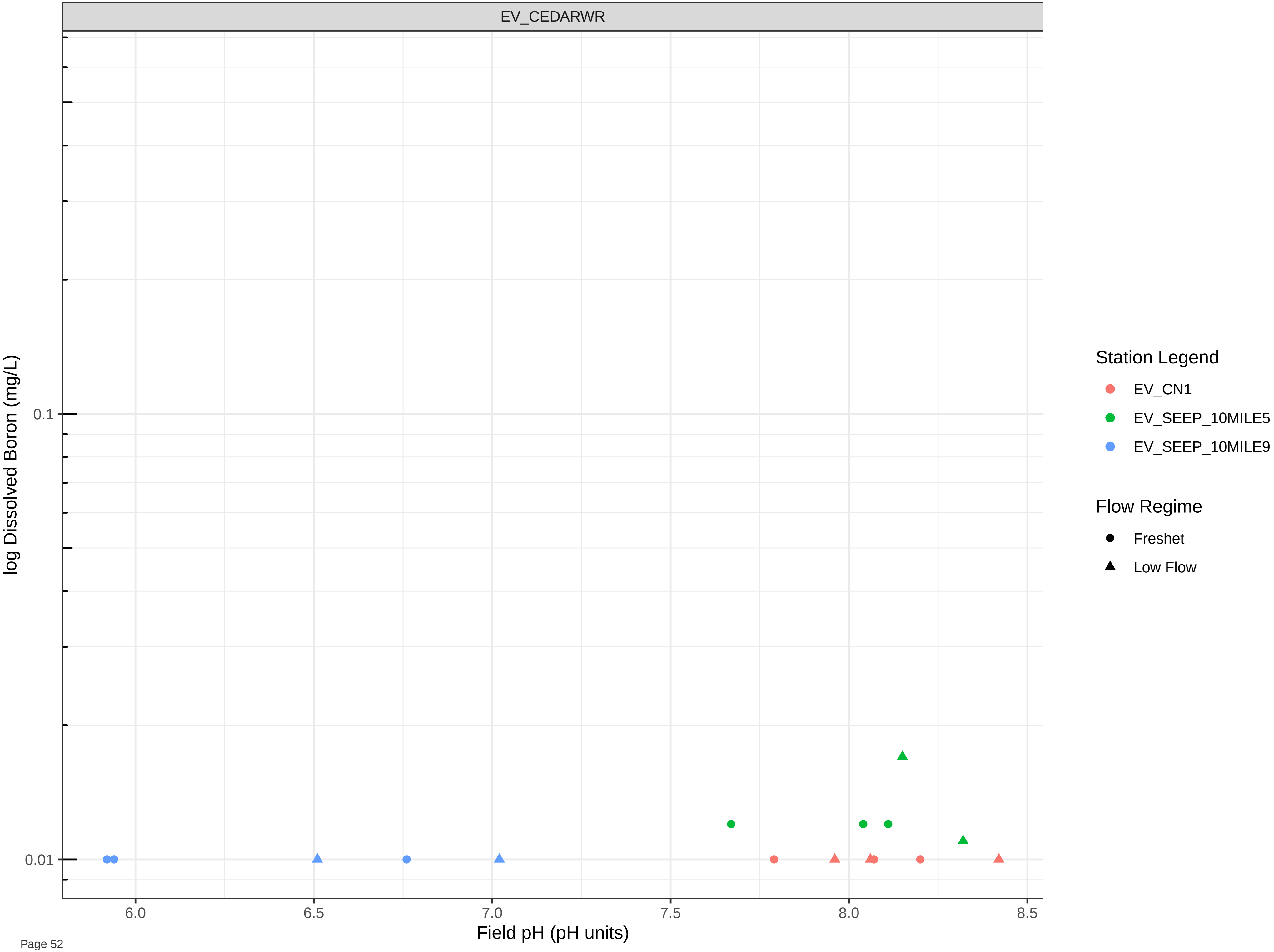

EV_SOUTHSLOPE
log Dissolved Bismuth (mg/L)
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

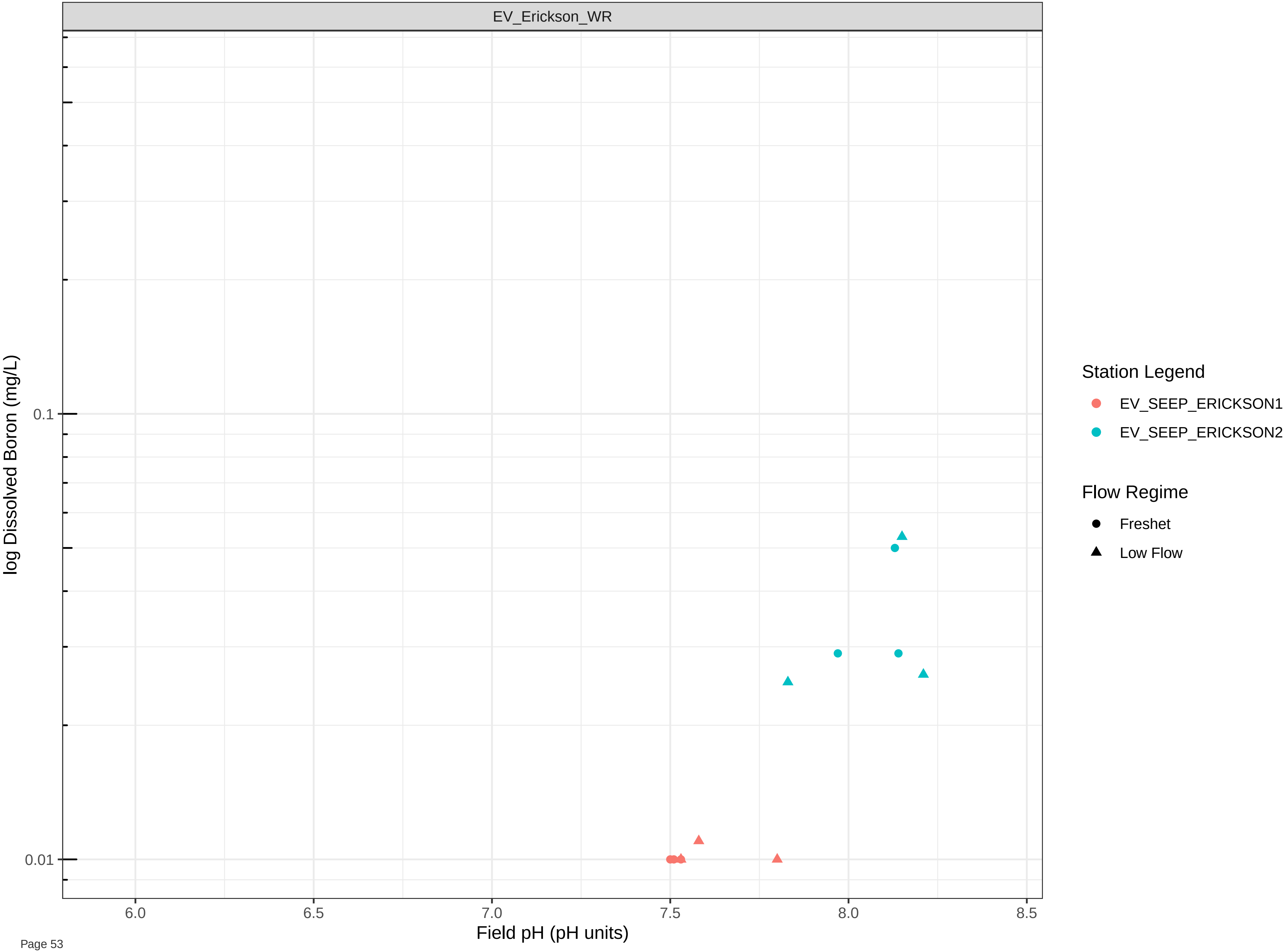

EV_SouthPit_Pit
log Dissolved Bismuth (mg/L)
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

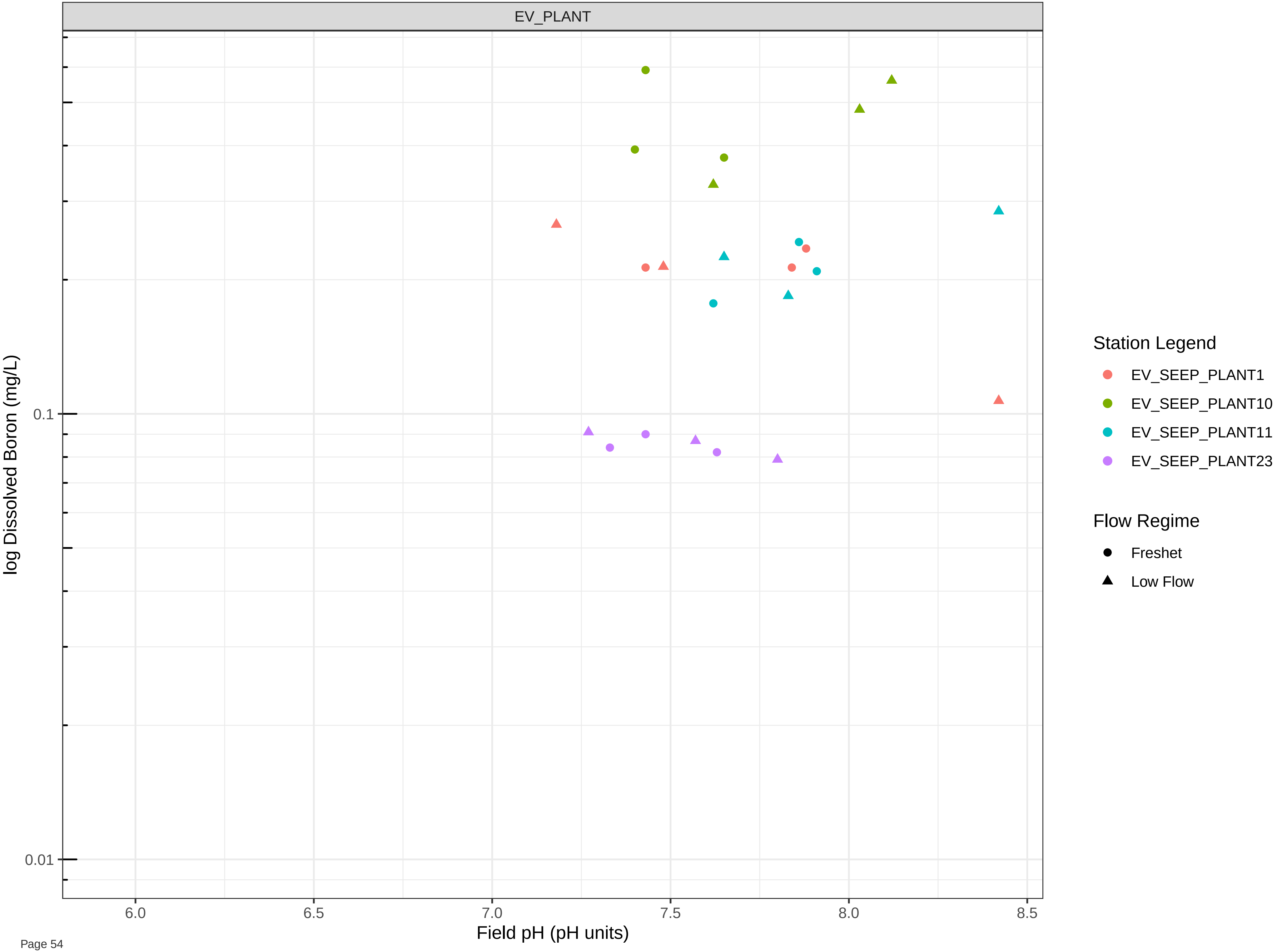

EV_BALDYRIDGEWR
log Dissolved Boron (mg/L)
0.1
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

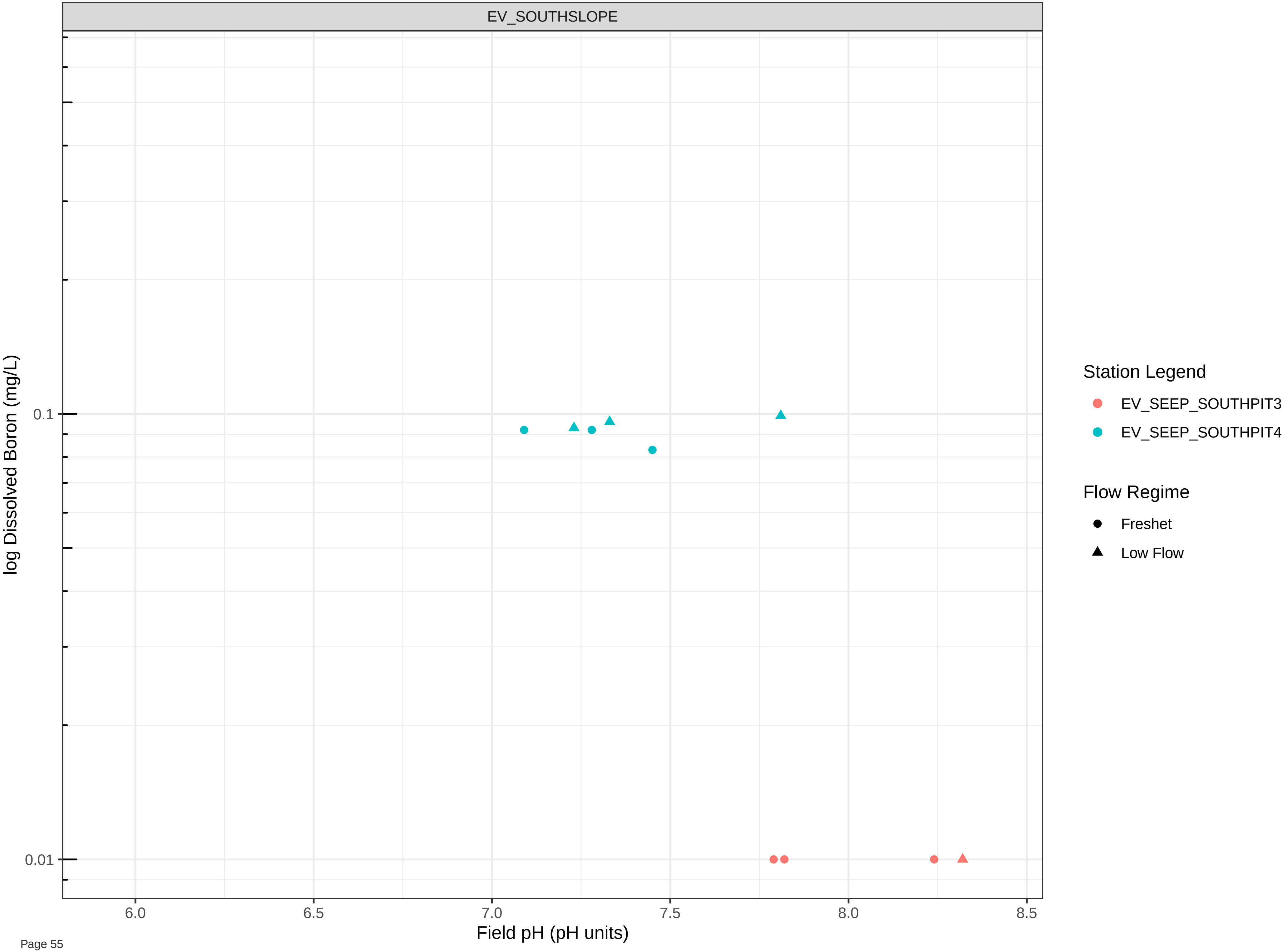

EV_CCR
log Dissolved Boron (mg/L)
0.1
0.01
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

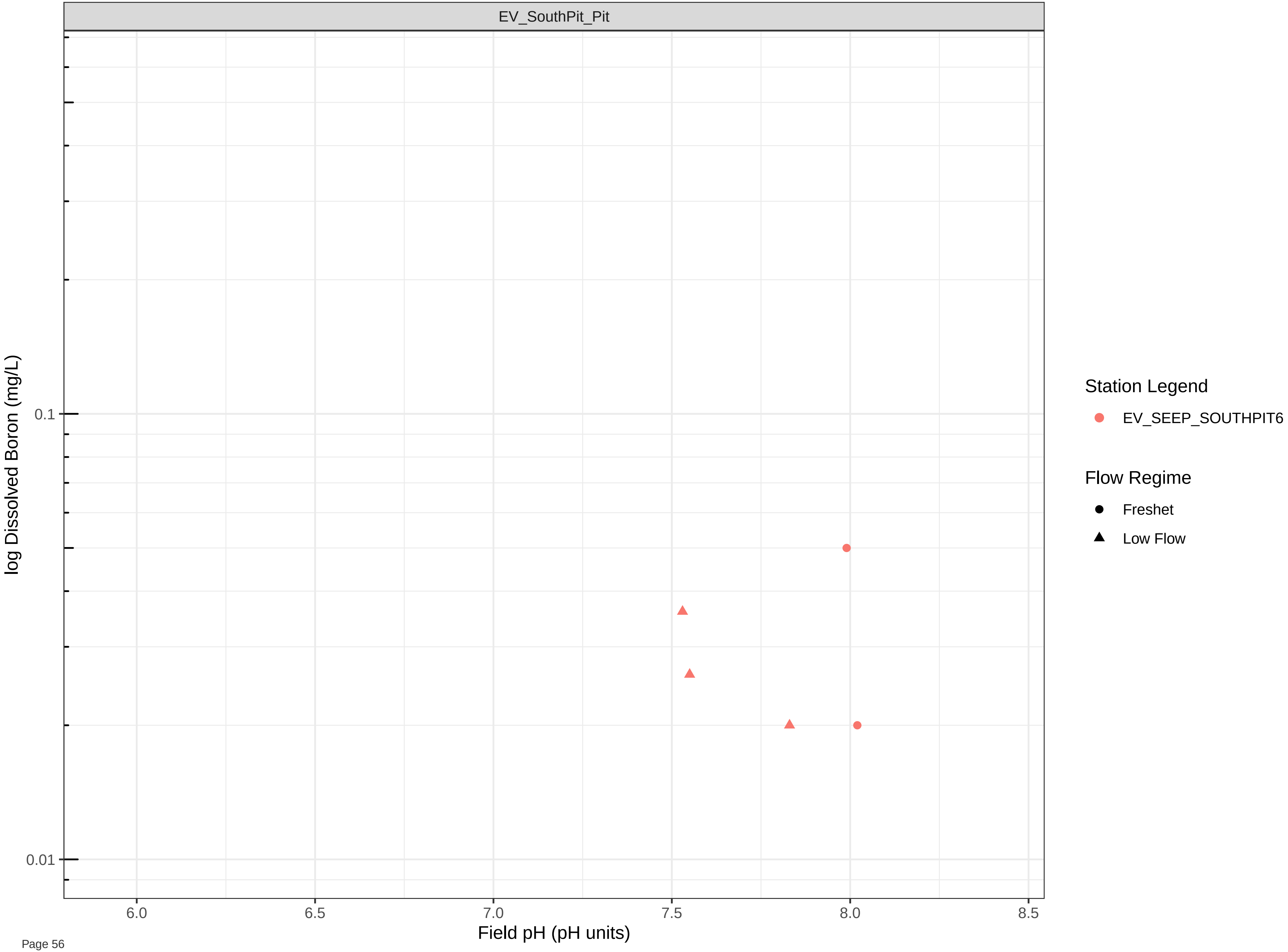

EV_CCR/TP
log Dissolved Boron (mg/L)
0.1
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

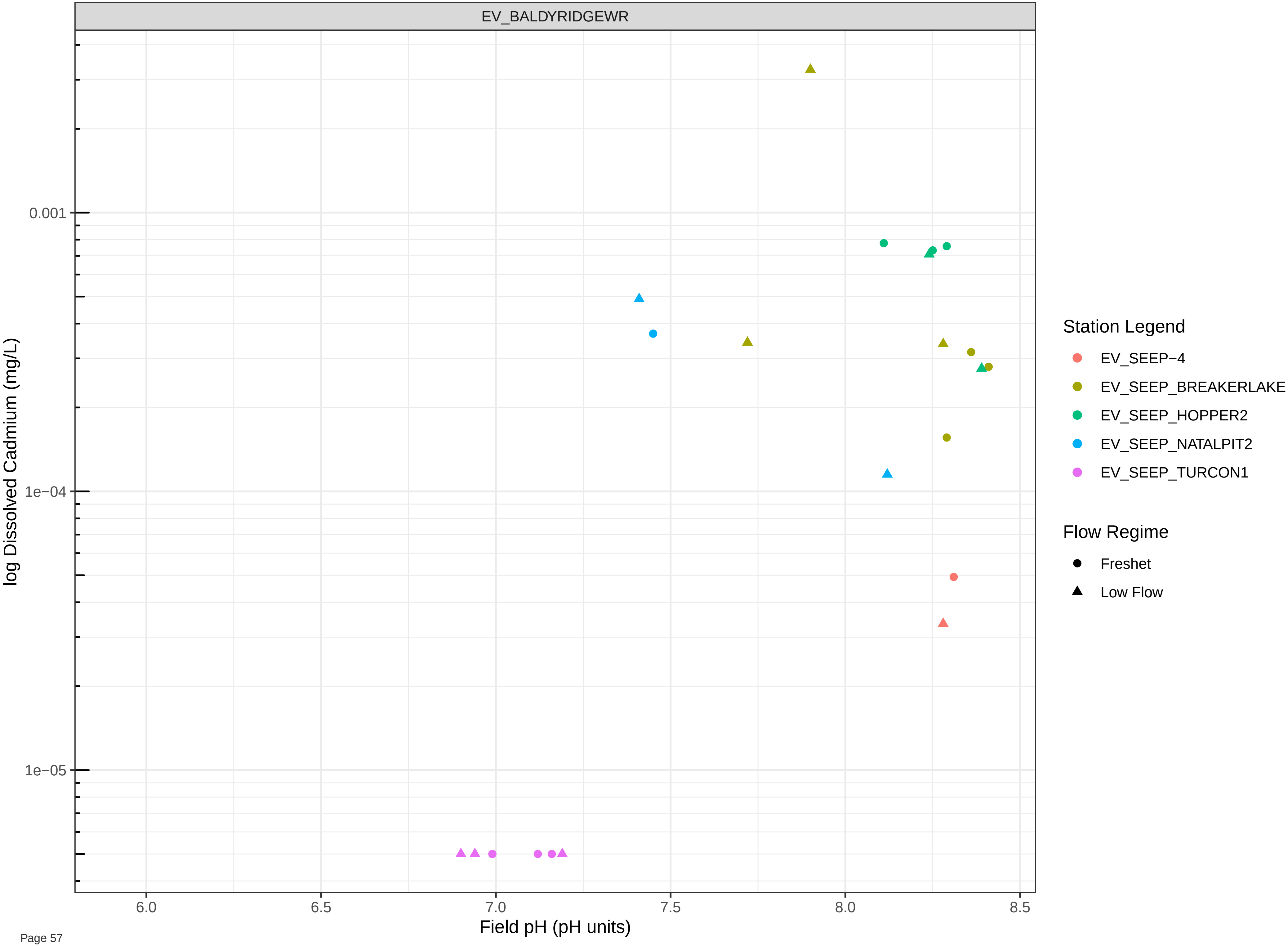

EV_CEDARWR
log Dissolved Boron (mg/L)
0.1
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

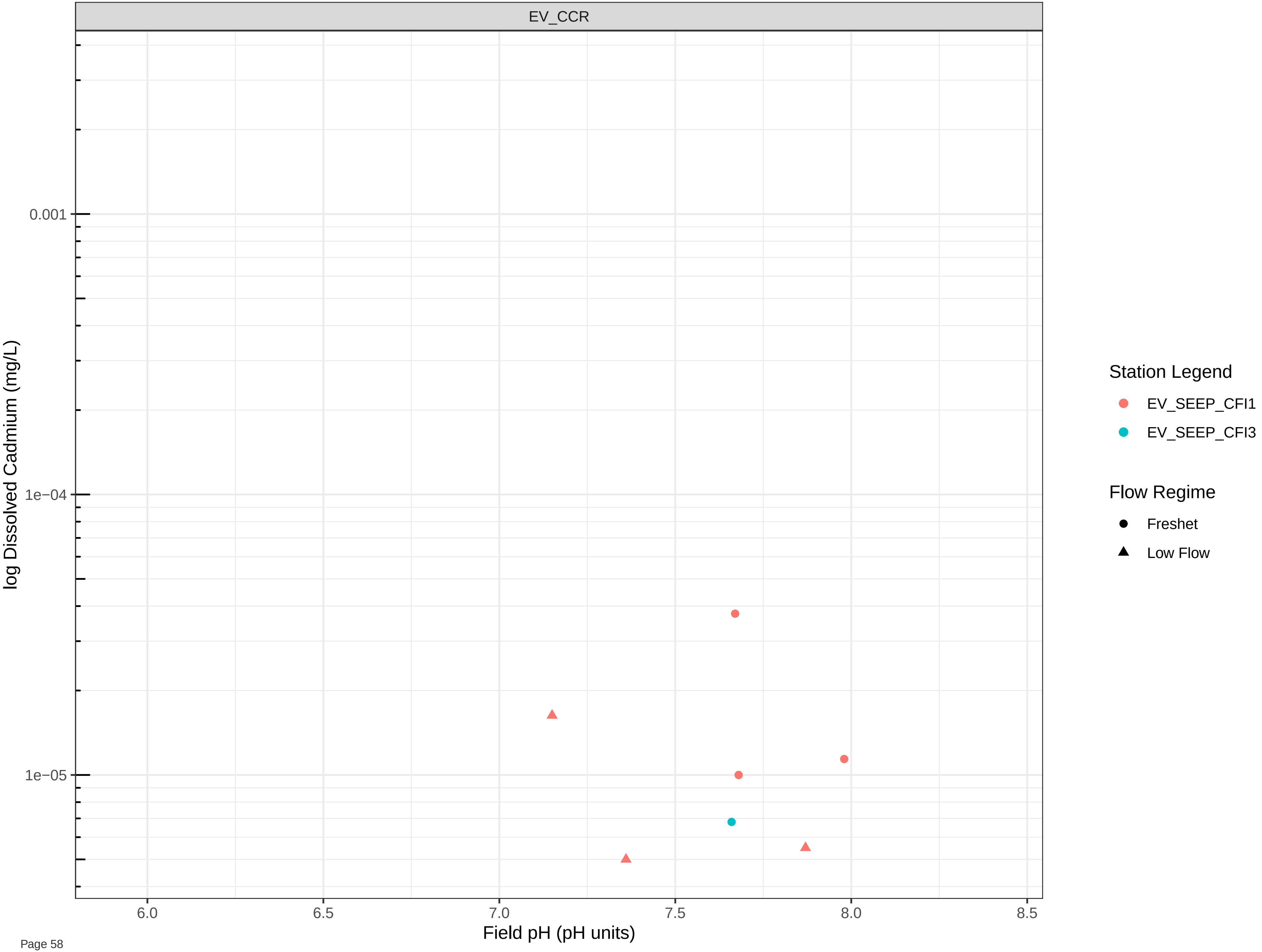

EV_Erickson_WR
log Dissolved Boron (mg/L)
0.1
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

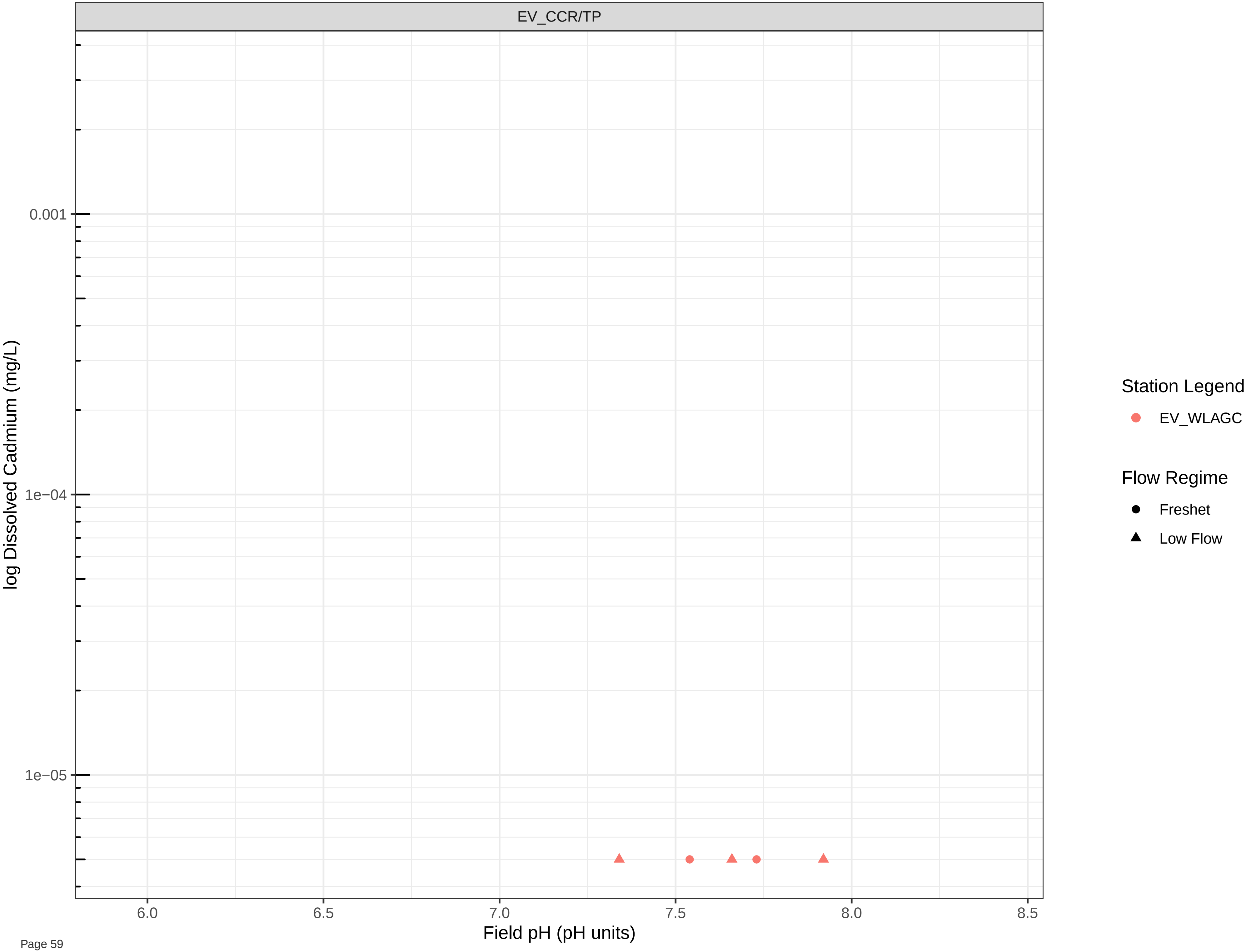

EV_PLANT
log Dissolved Boron (mg/L)
0.1
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

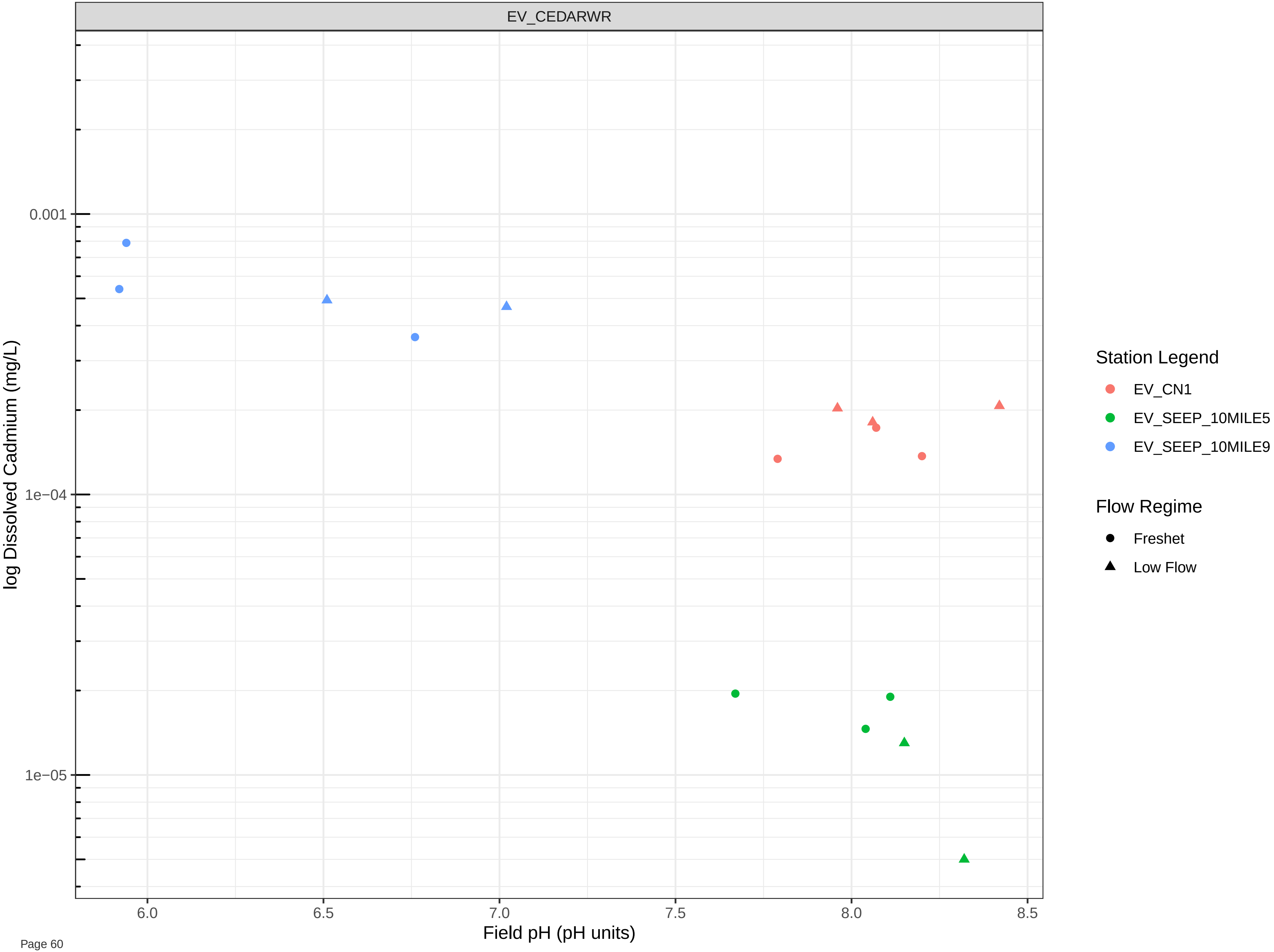

EV_SOUTHSLOPE
log Dissolved Boron (mg/L)
0.1
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

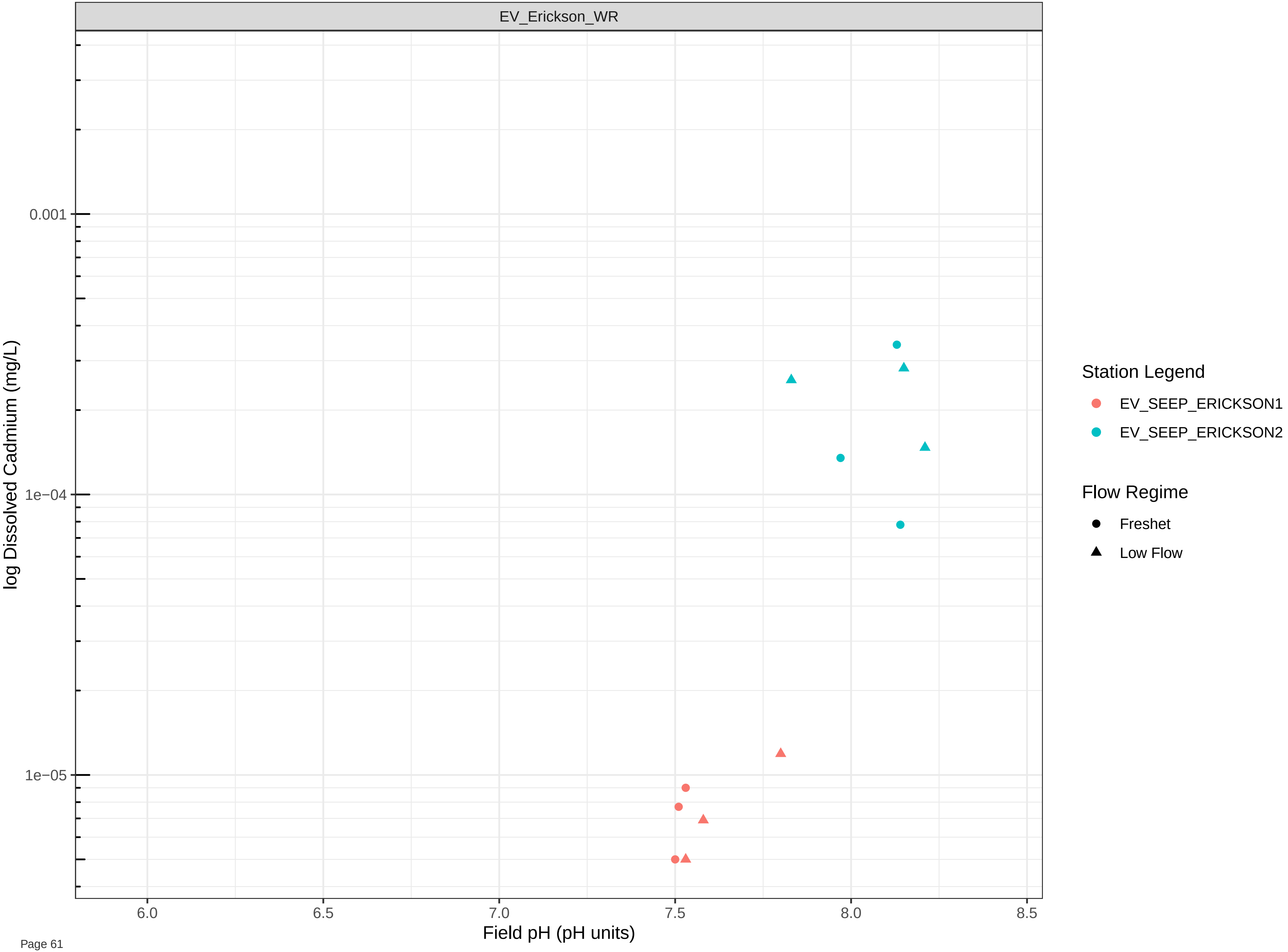

EV_SouthPit_Pit
log Dissolved Boron (mg/L)
0.1
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

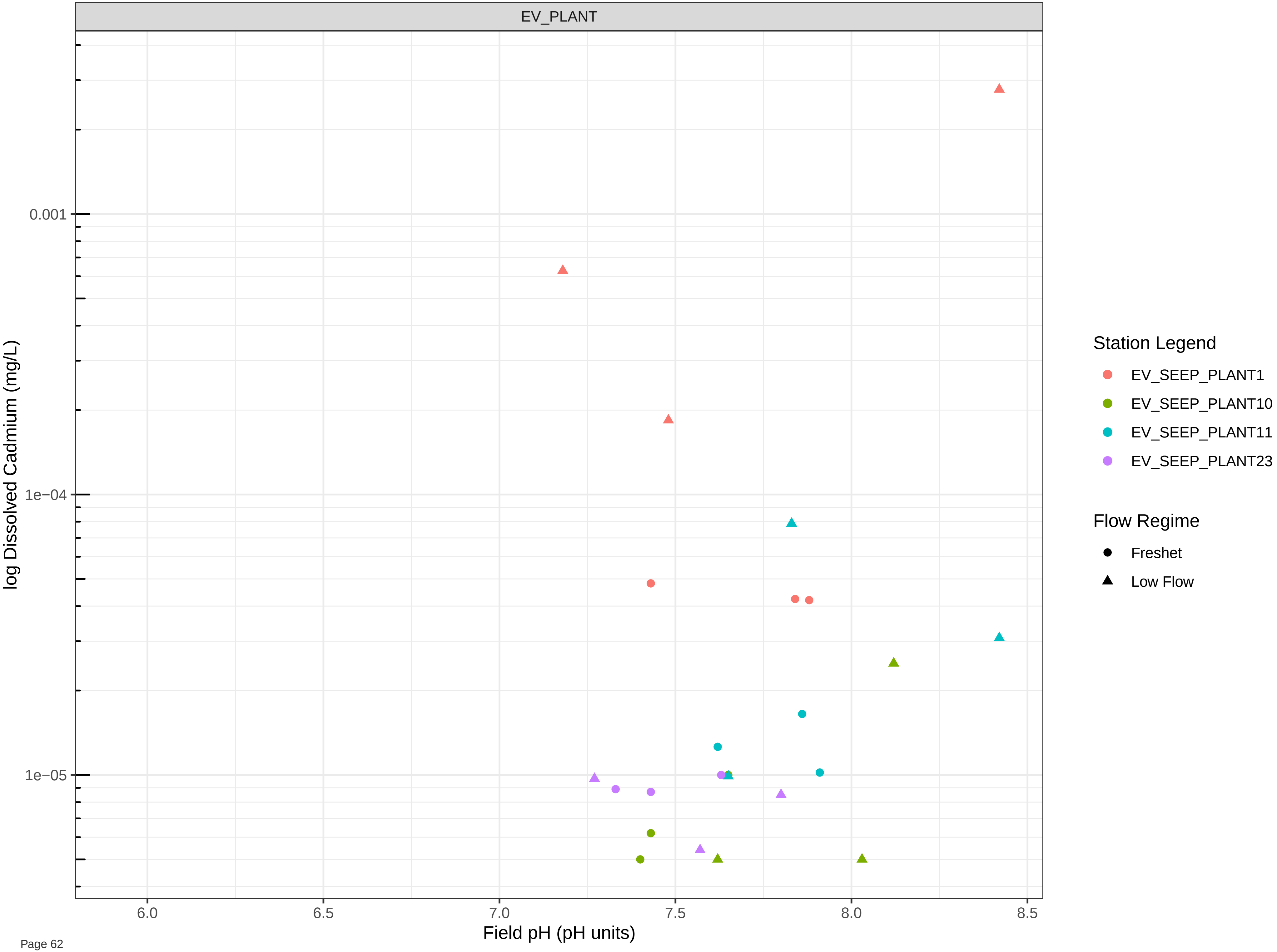

EV_BALDYRIDGEWR
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

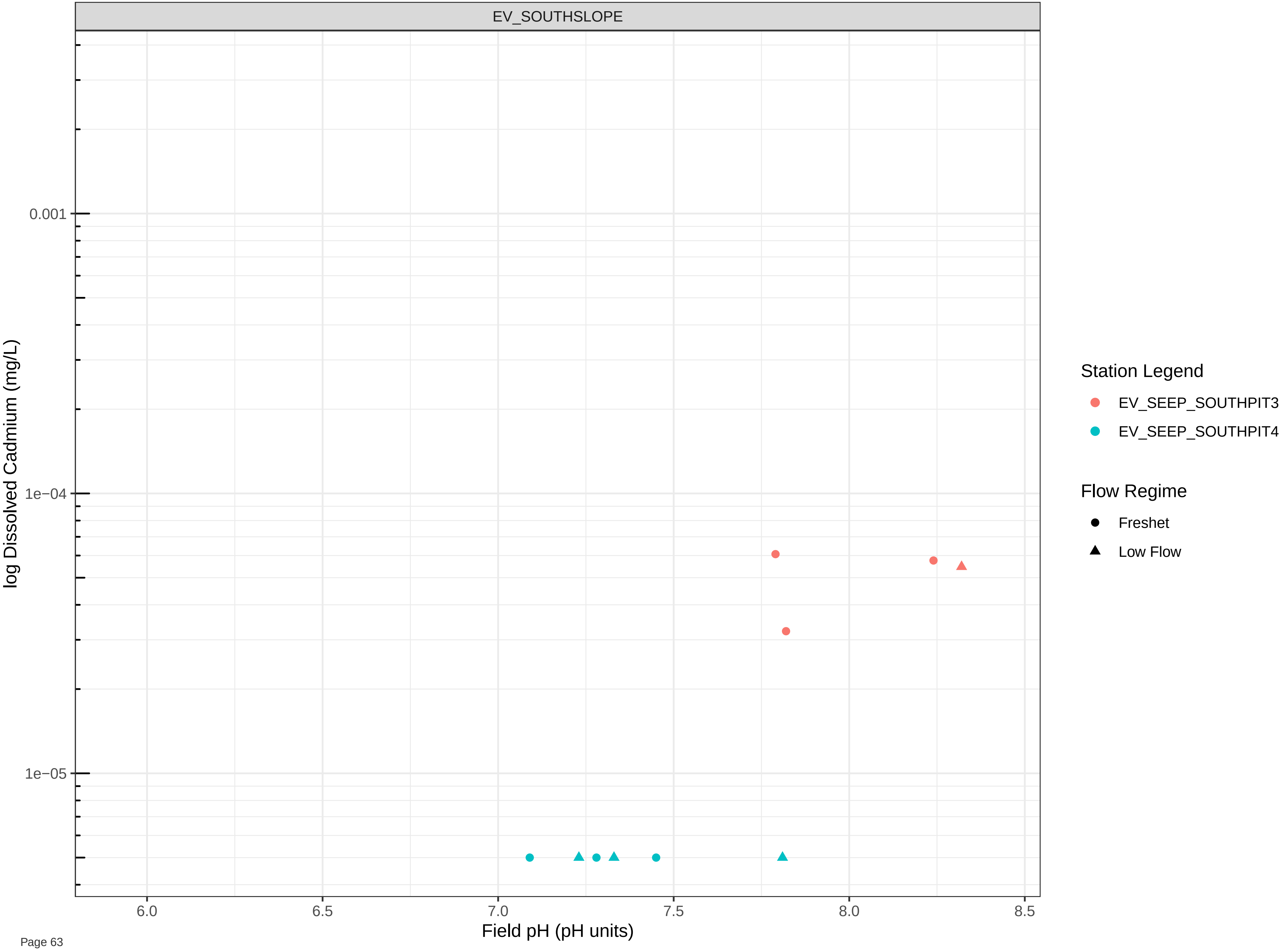

EV_CCR
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

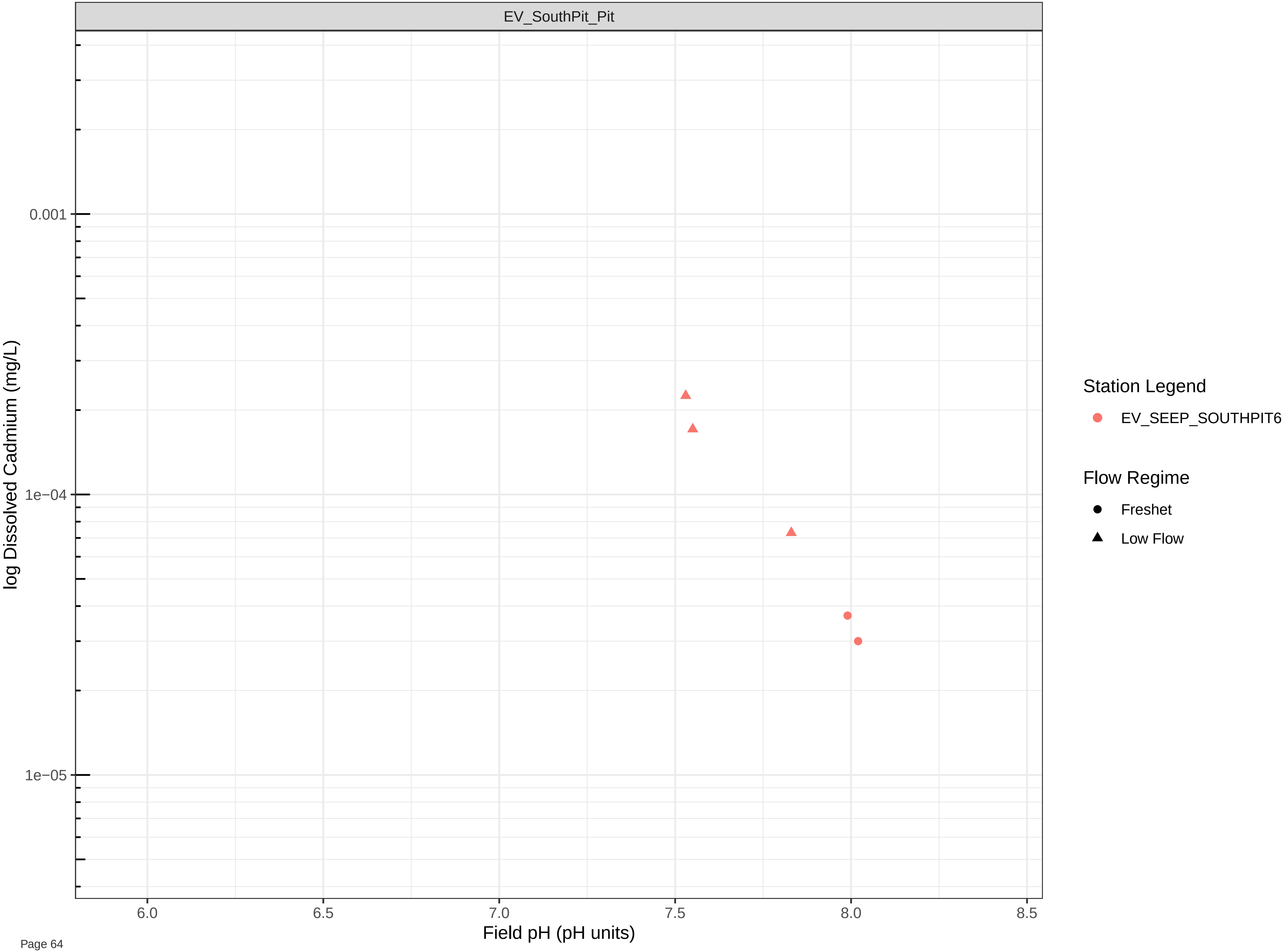

EV_CCR/TP
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

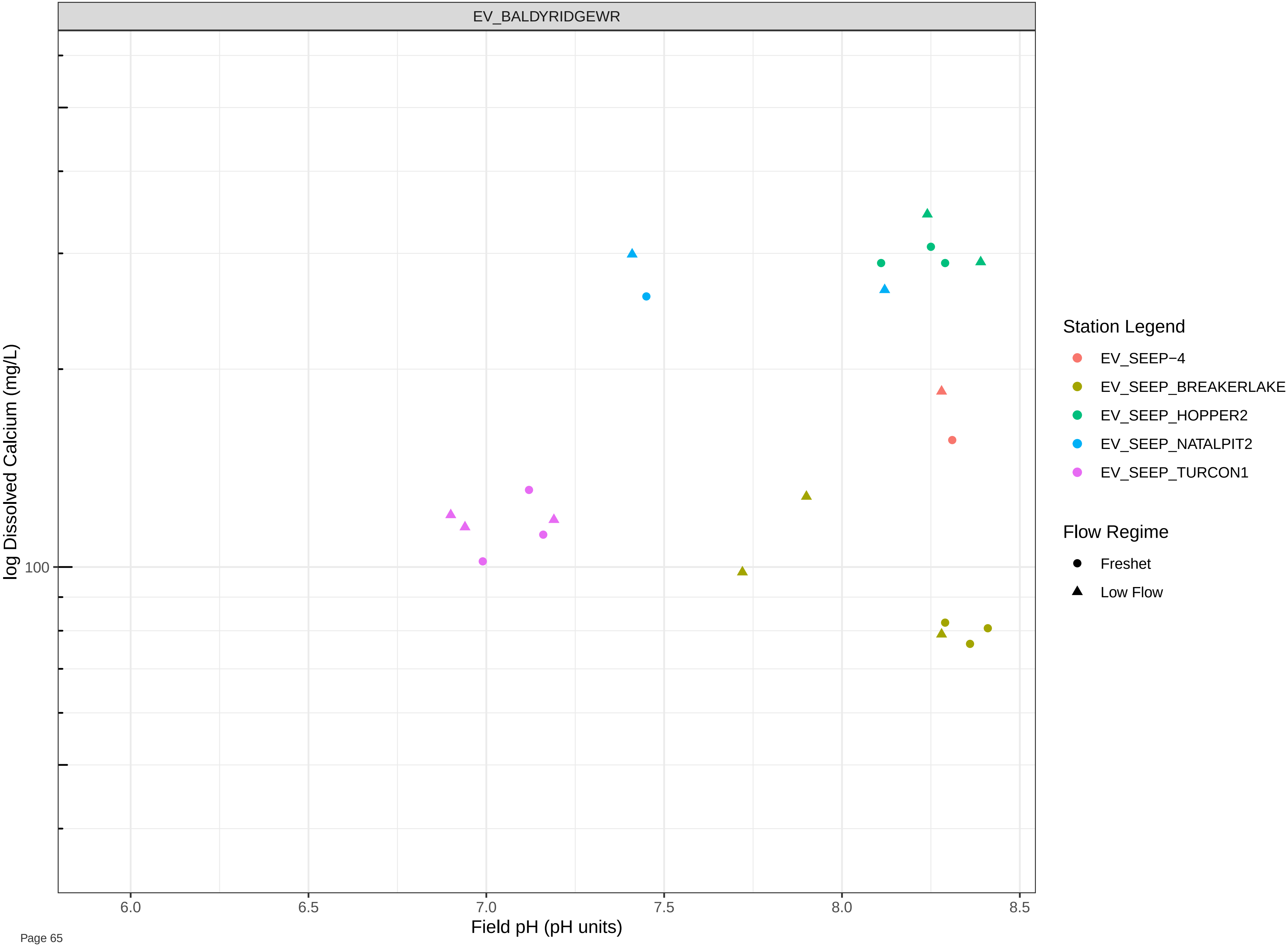

EV_CEDARWR
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

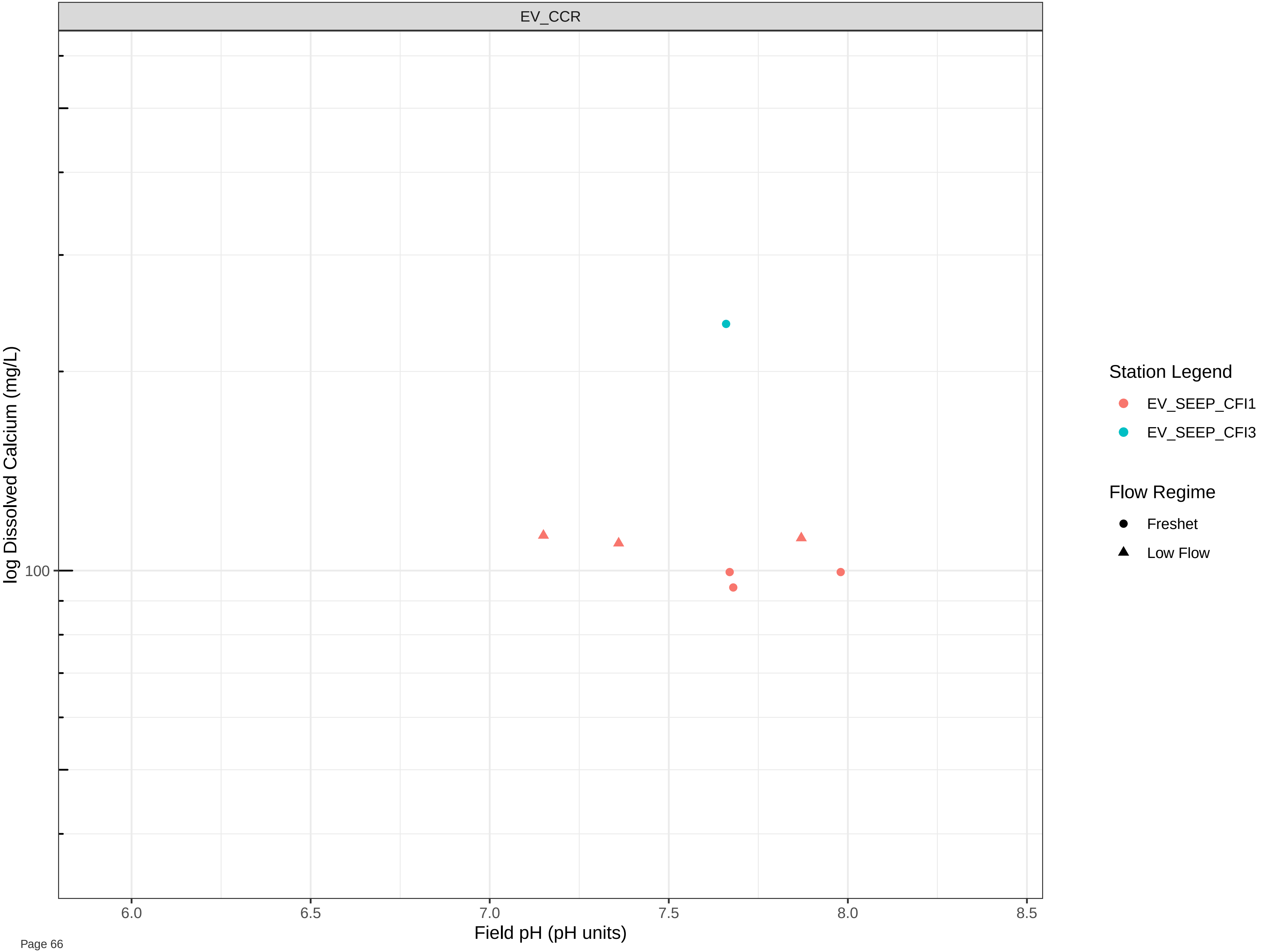

EV_Erickson_WR
0.001
1e−04
1e−05
log Dissolved Cadmium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

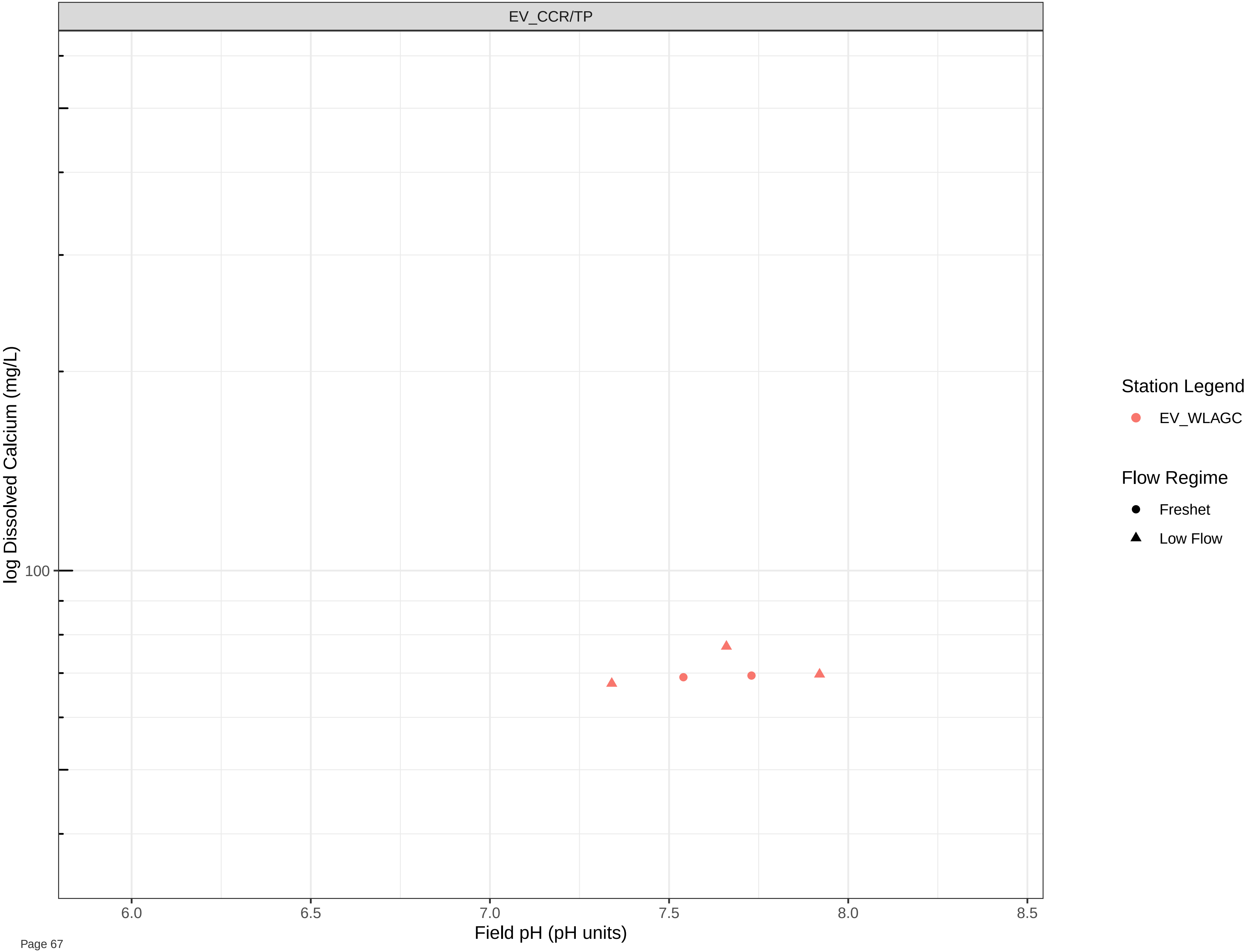

EV_PLANT
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

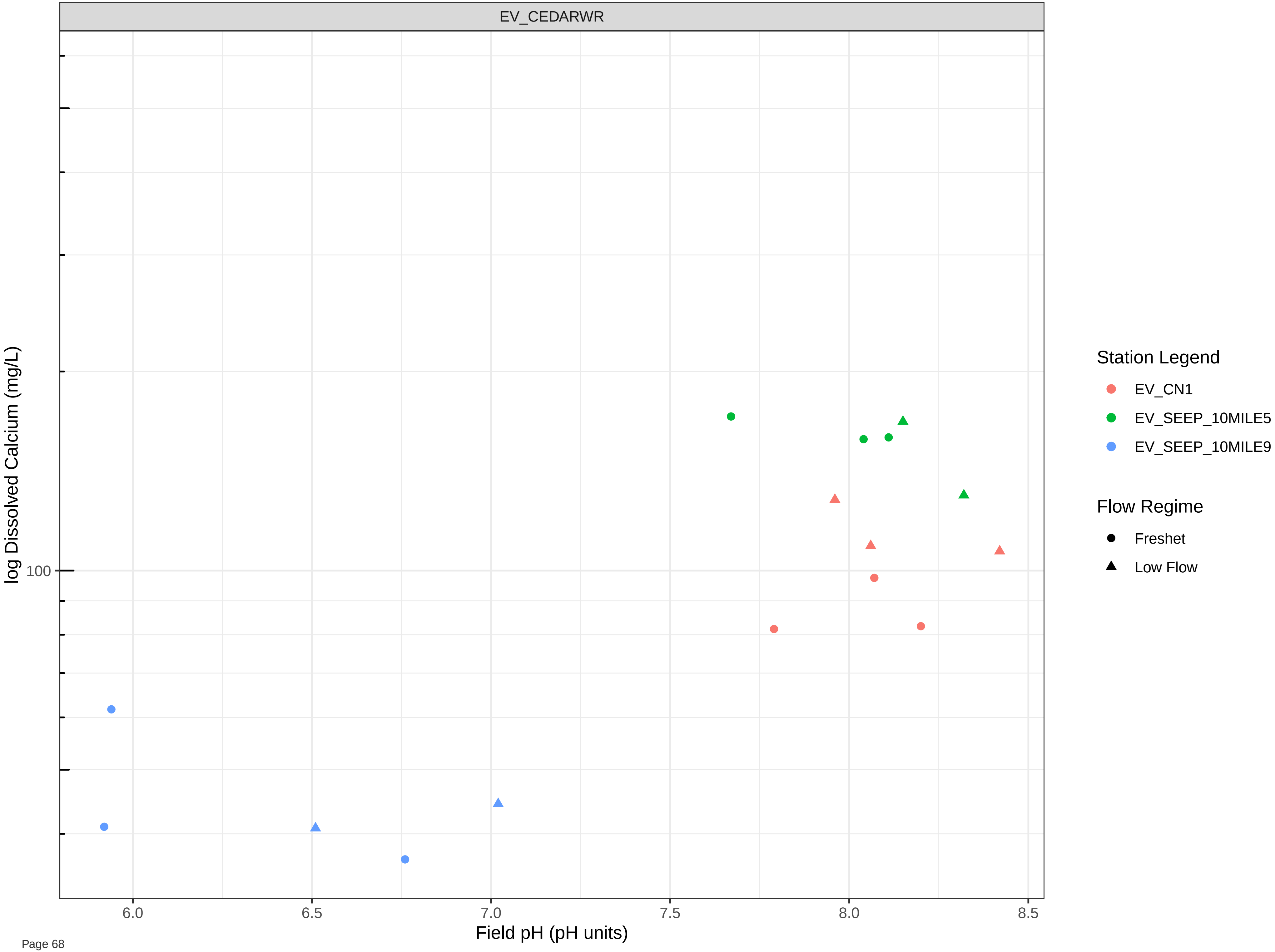

EV_SOUTHSLOPE
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

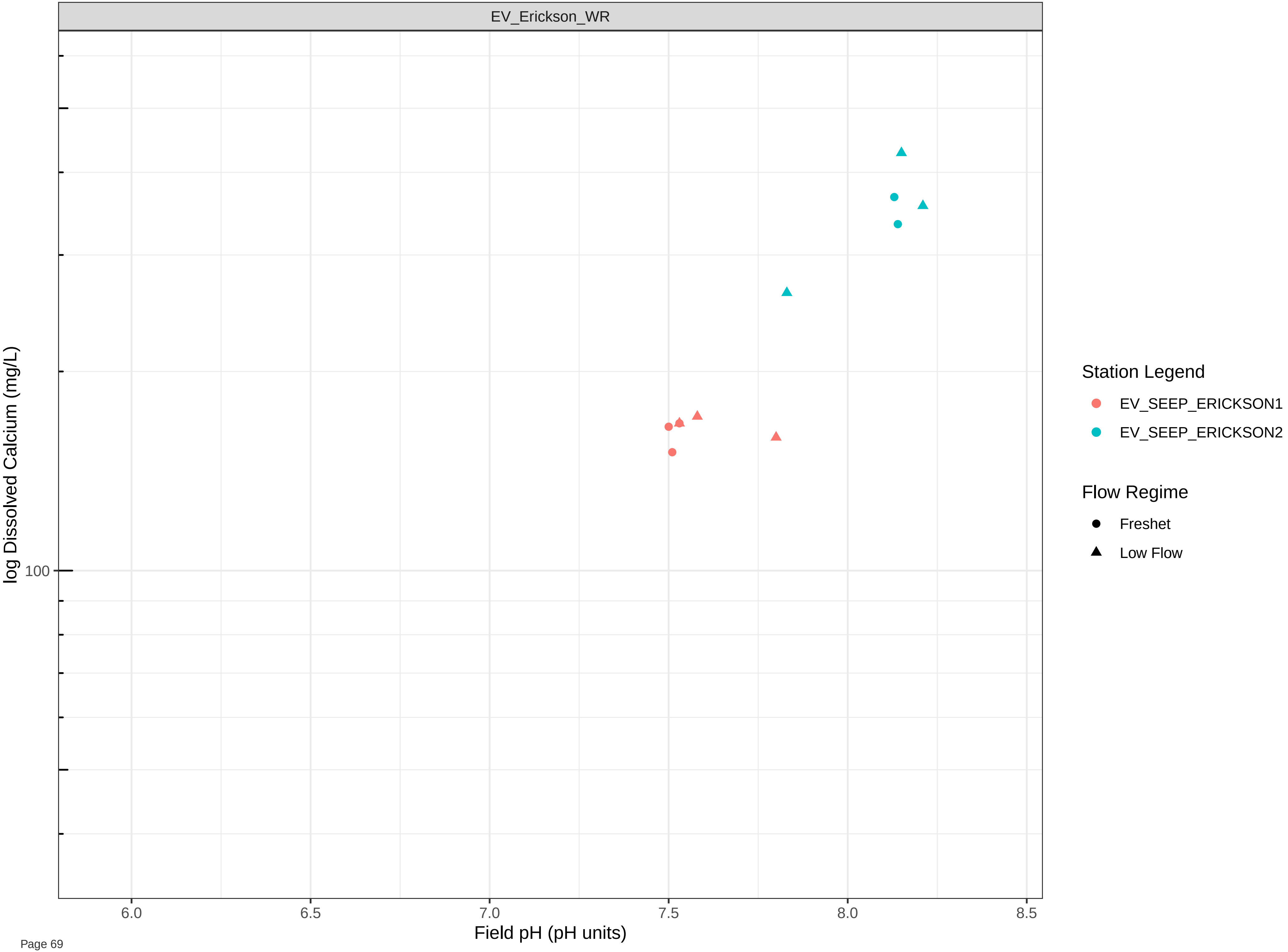

EV_SouthPit_Pit
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

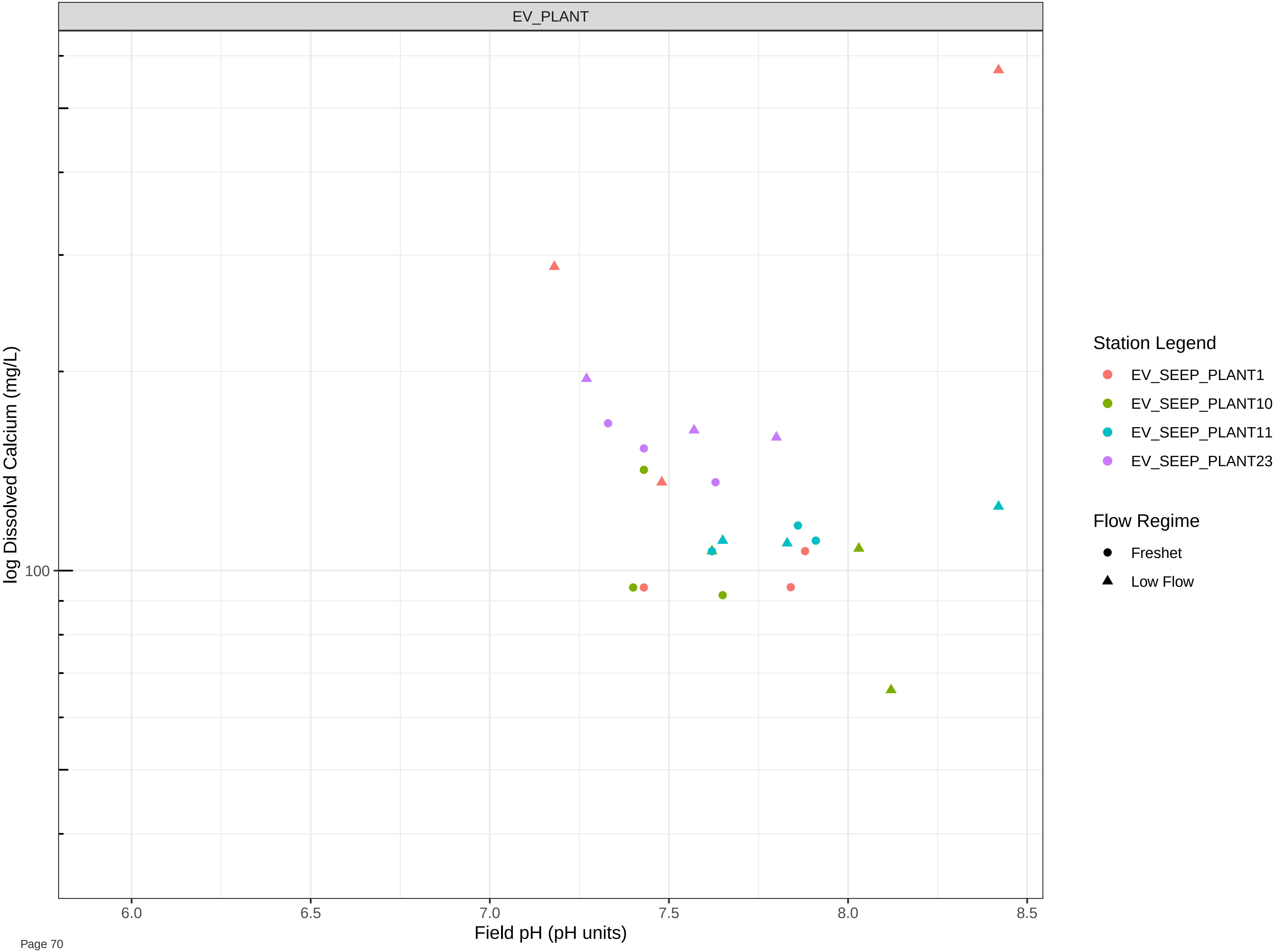

EV_BALDYRIDGEWR
log Dissolved Calcium (mg/L)
100
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

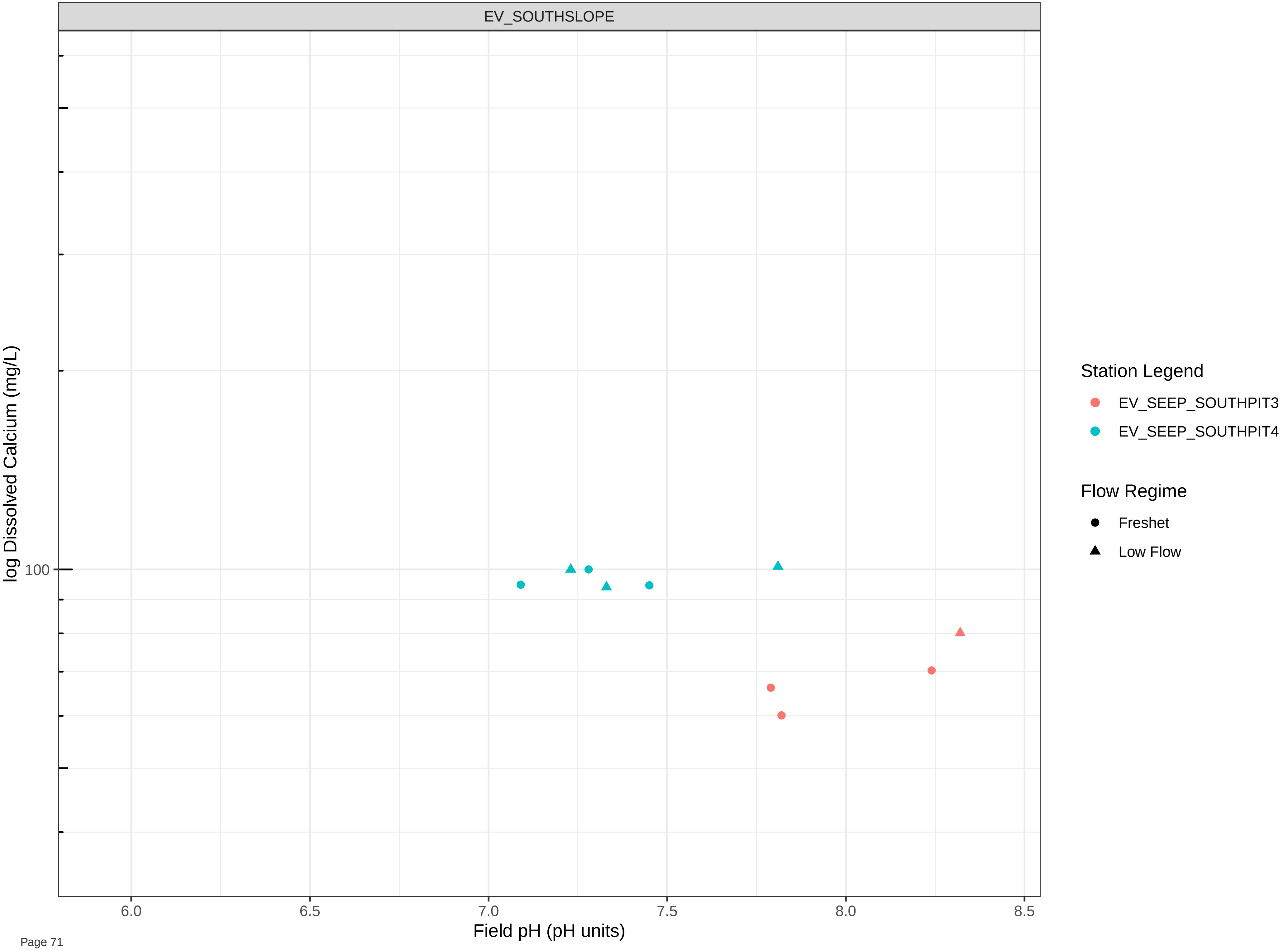

EV_CCR
log Dissolved Calcium (mg/L)
100
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

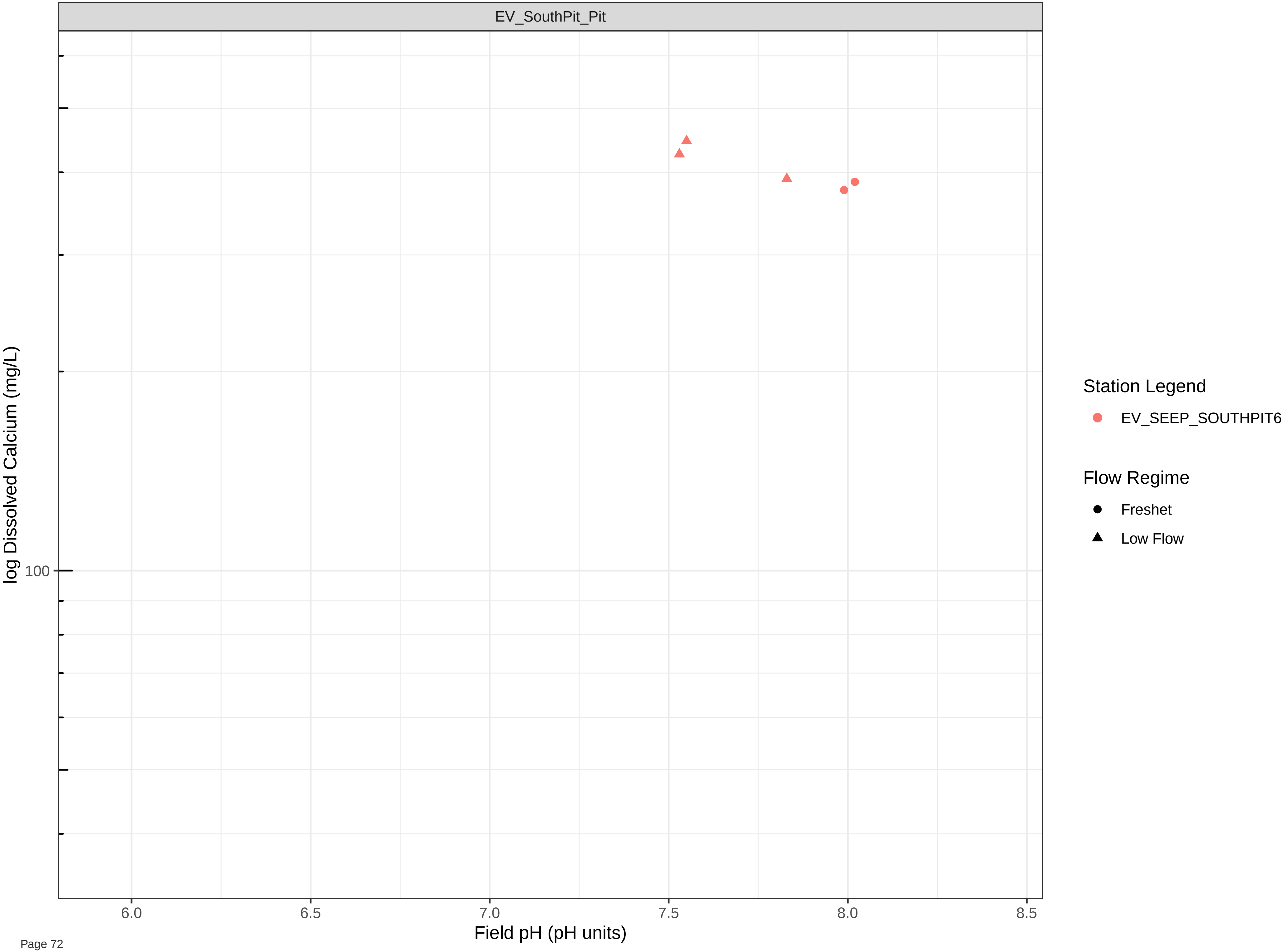

EV_CCR/TP
log Dissolved Calcium (mg/L)
100
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

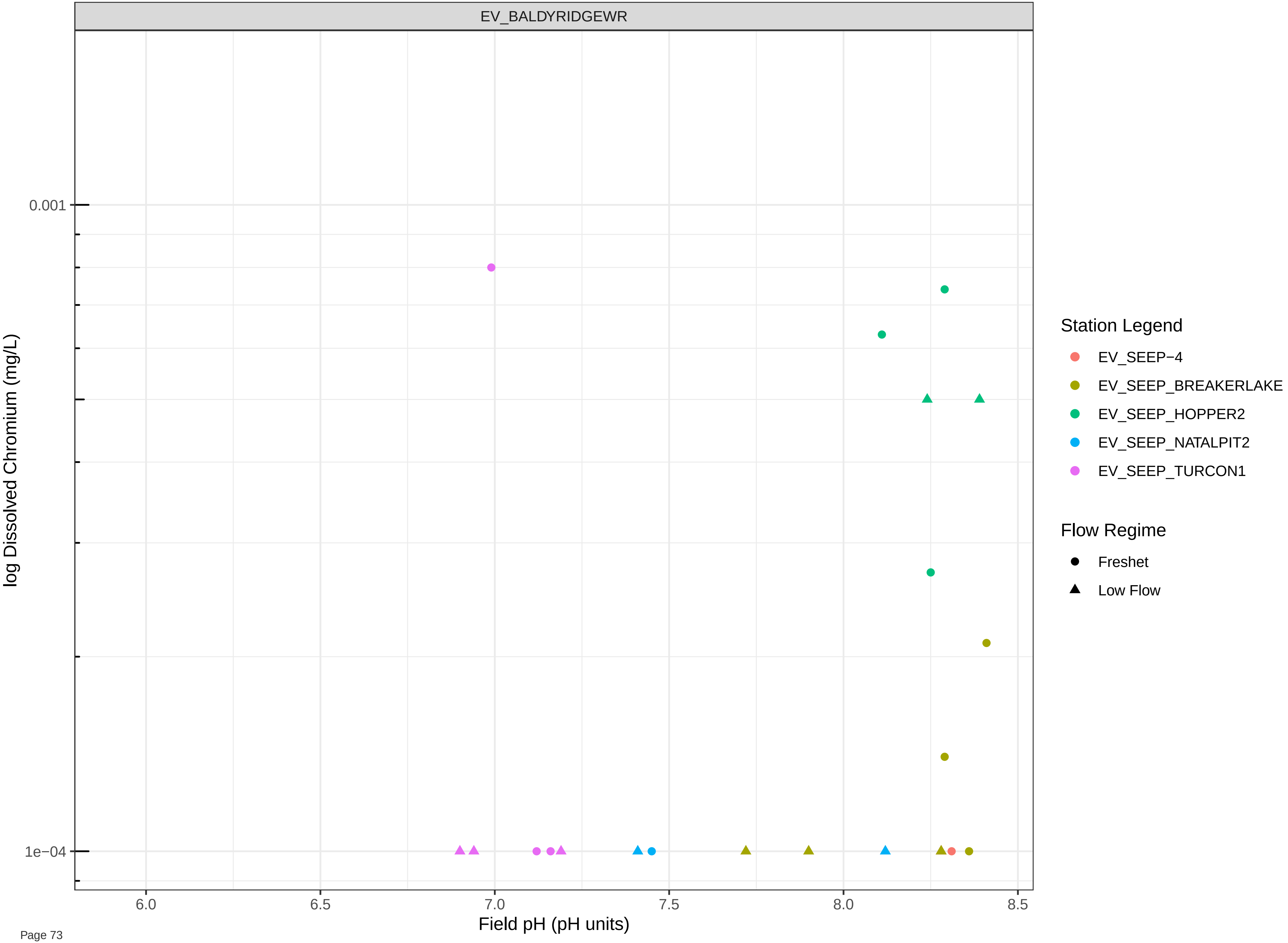

EV_CEDARWR
log Dissolved Calcium (mg/L)
100
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
● EV_CN1
● EV_SEEP_10MILE5
● EV_SEEP_10MILE9
Flow Regime
● Freshet
▲ Low Flow

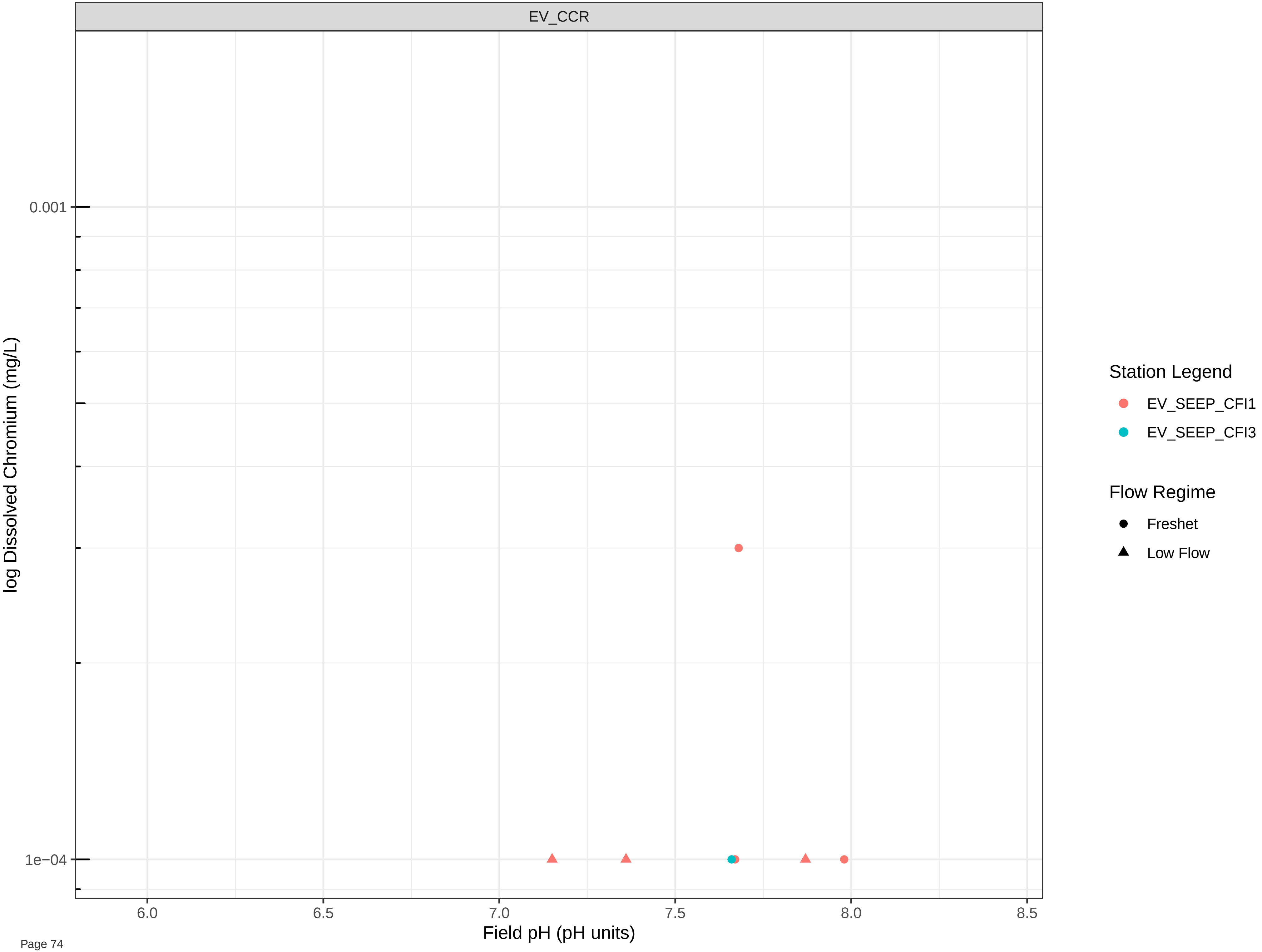

EV_Erickson_WR
log Dissolved Calcium (mg/L)
100
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

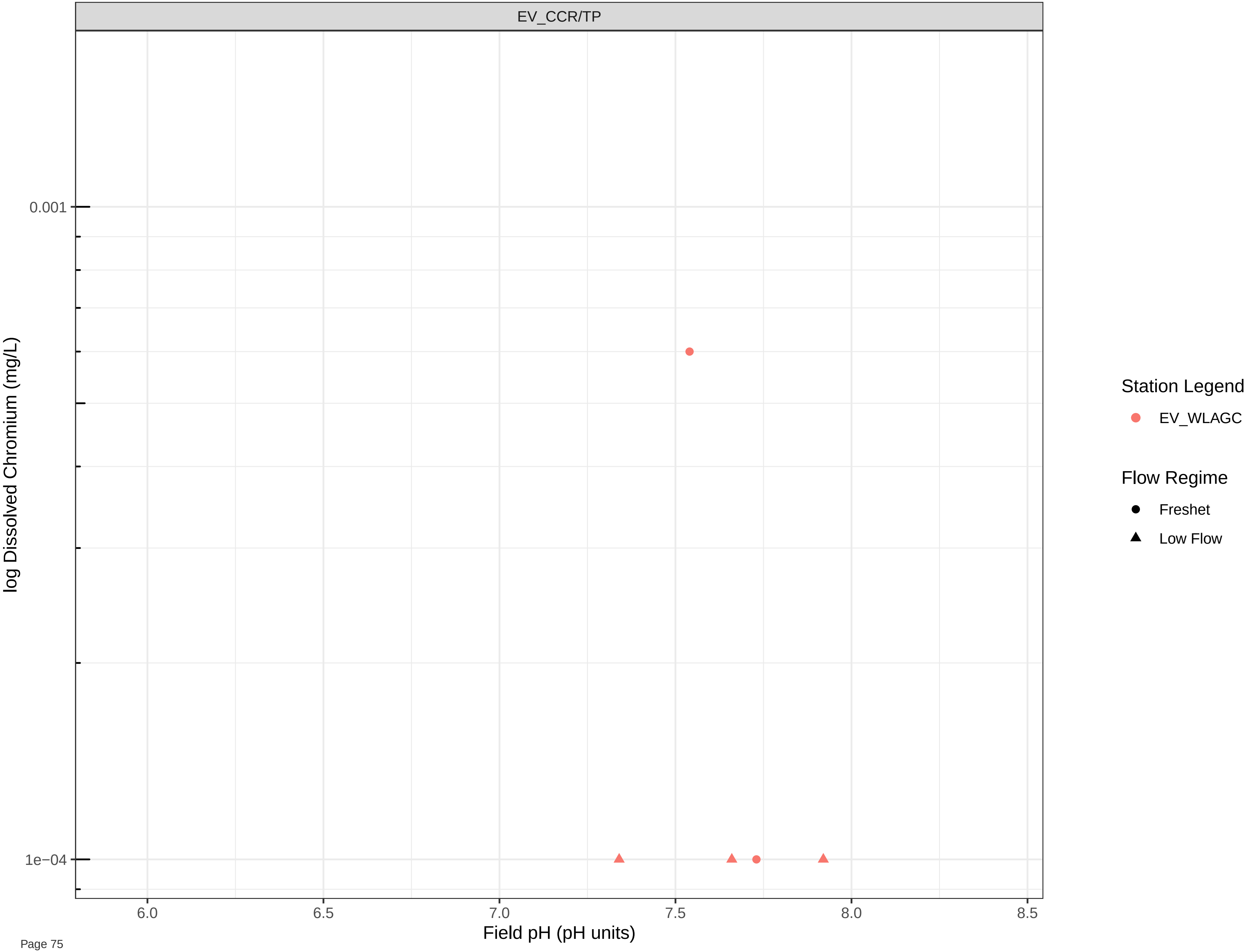

EV_PLANT
log Dissolved Calcium (mg/L)
100
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

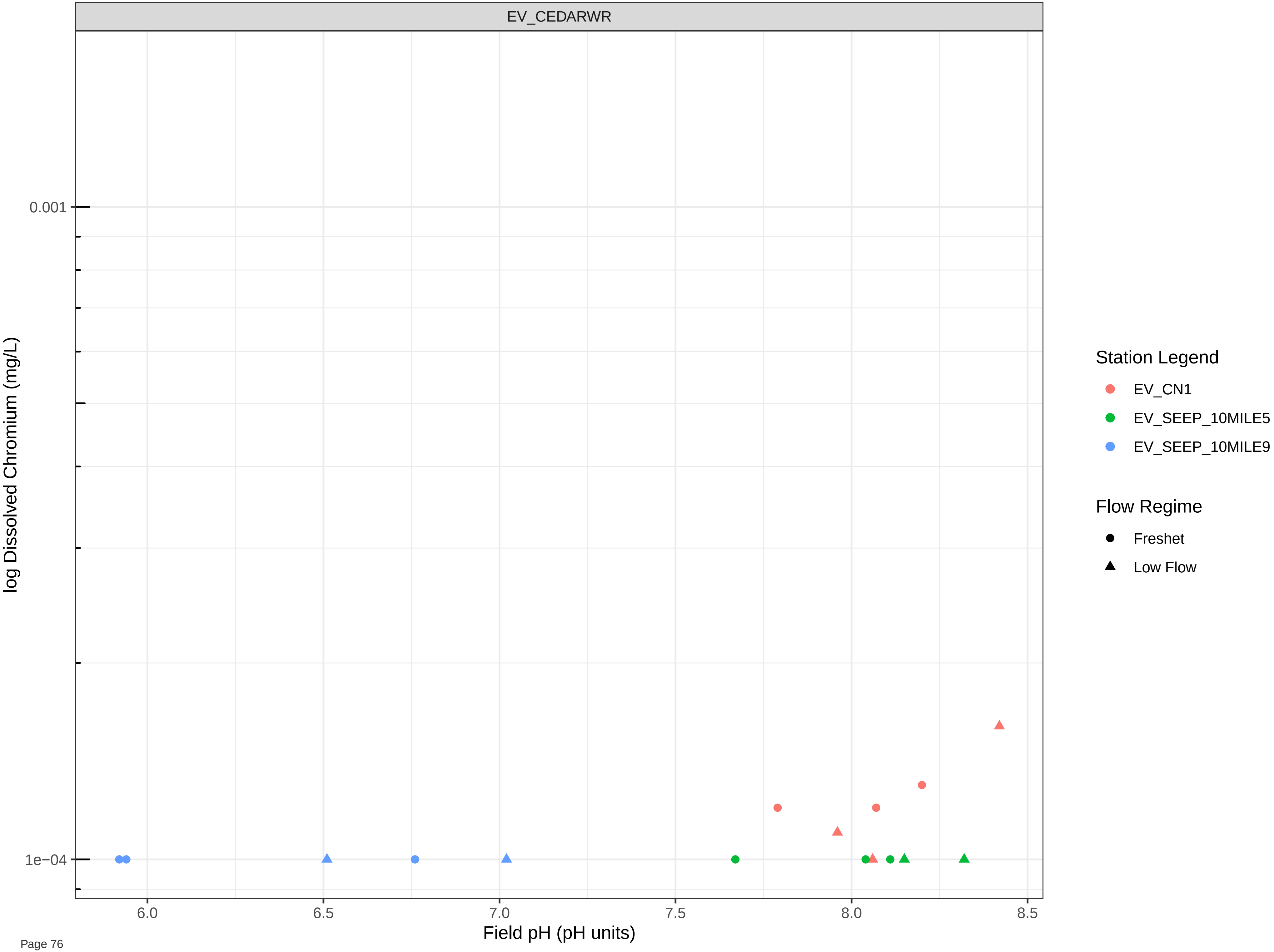

EV_SOUTHSLOPE
log Dissolved Calcium (mg/L)
100
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

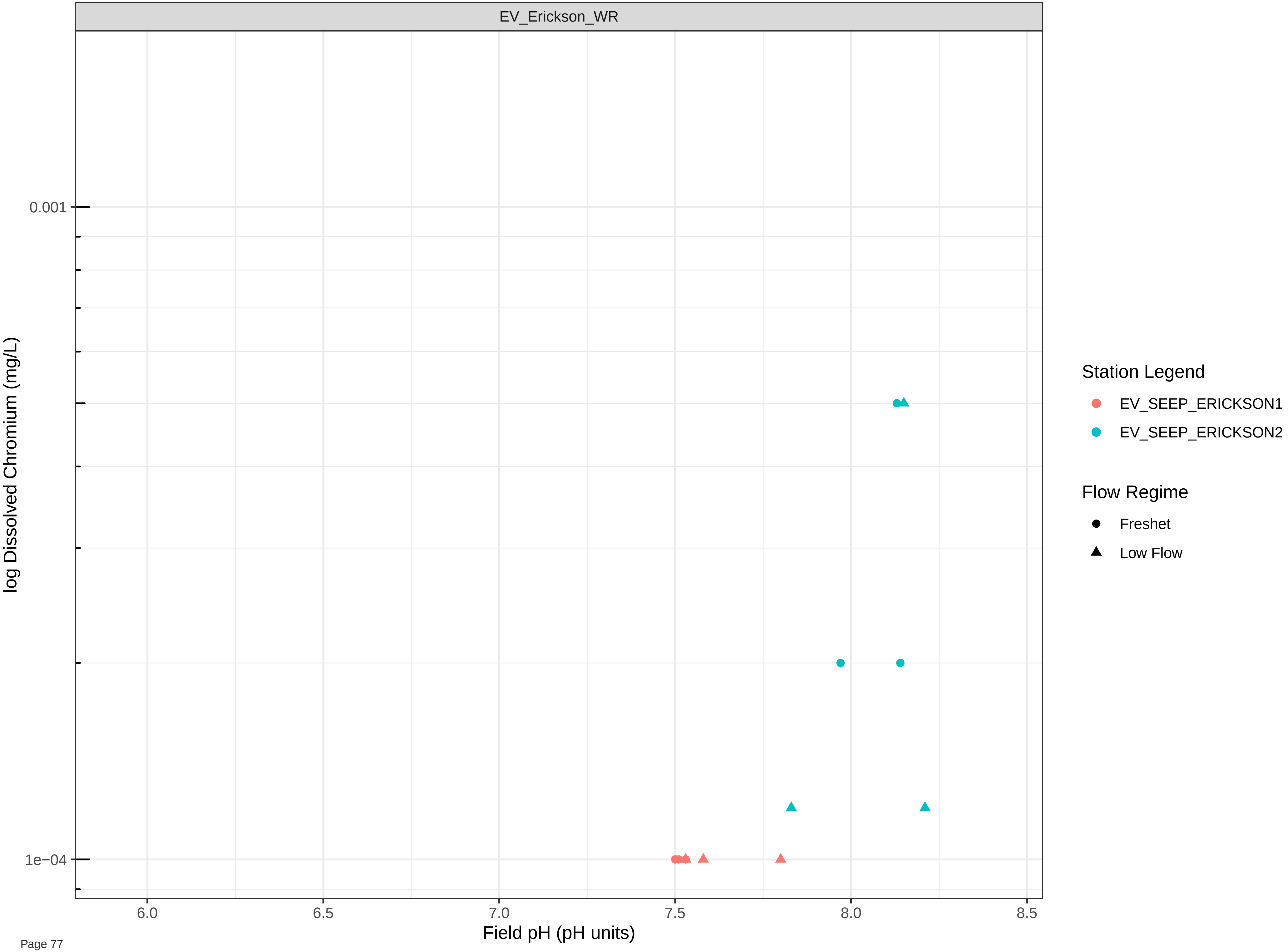

EV_SouthPit_Pit
log Dissolved Calcium (mg/L)
100
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

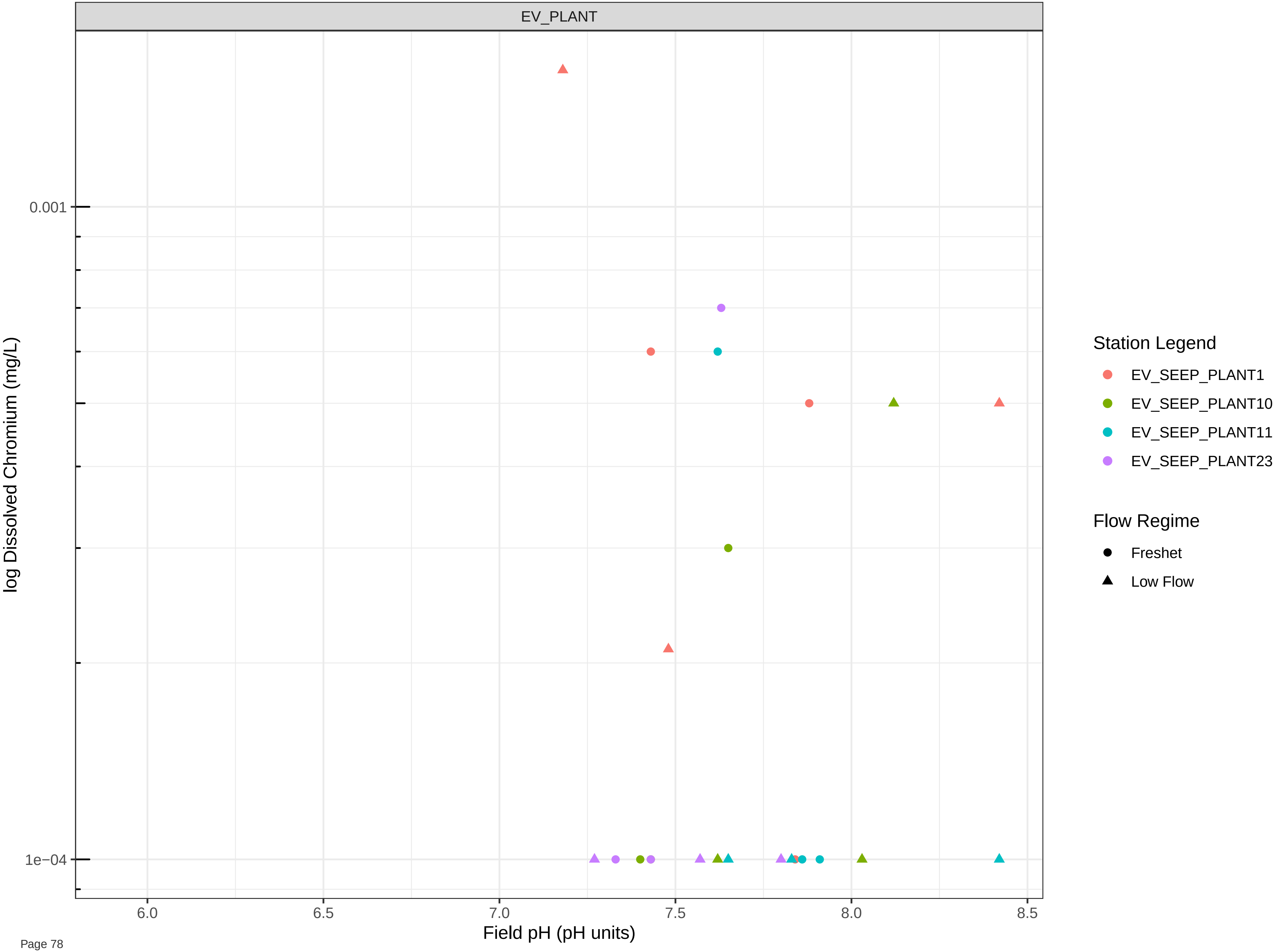

EV_BALDYRIDGEWR
0.001
1e−04
log Dissolved Chromium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

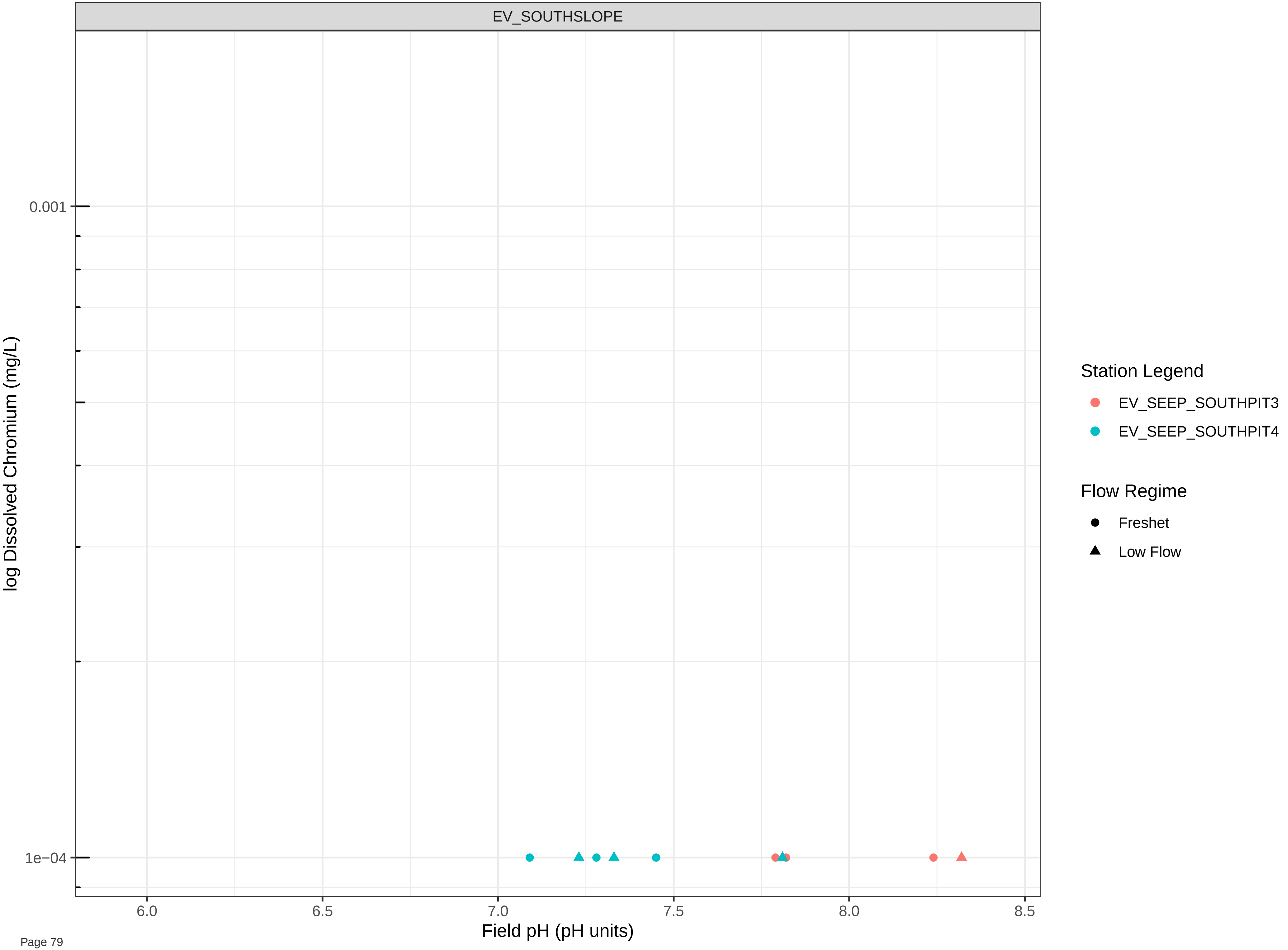

EV_CCR
log Dissolved Chromium (mg/L)
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

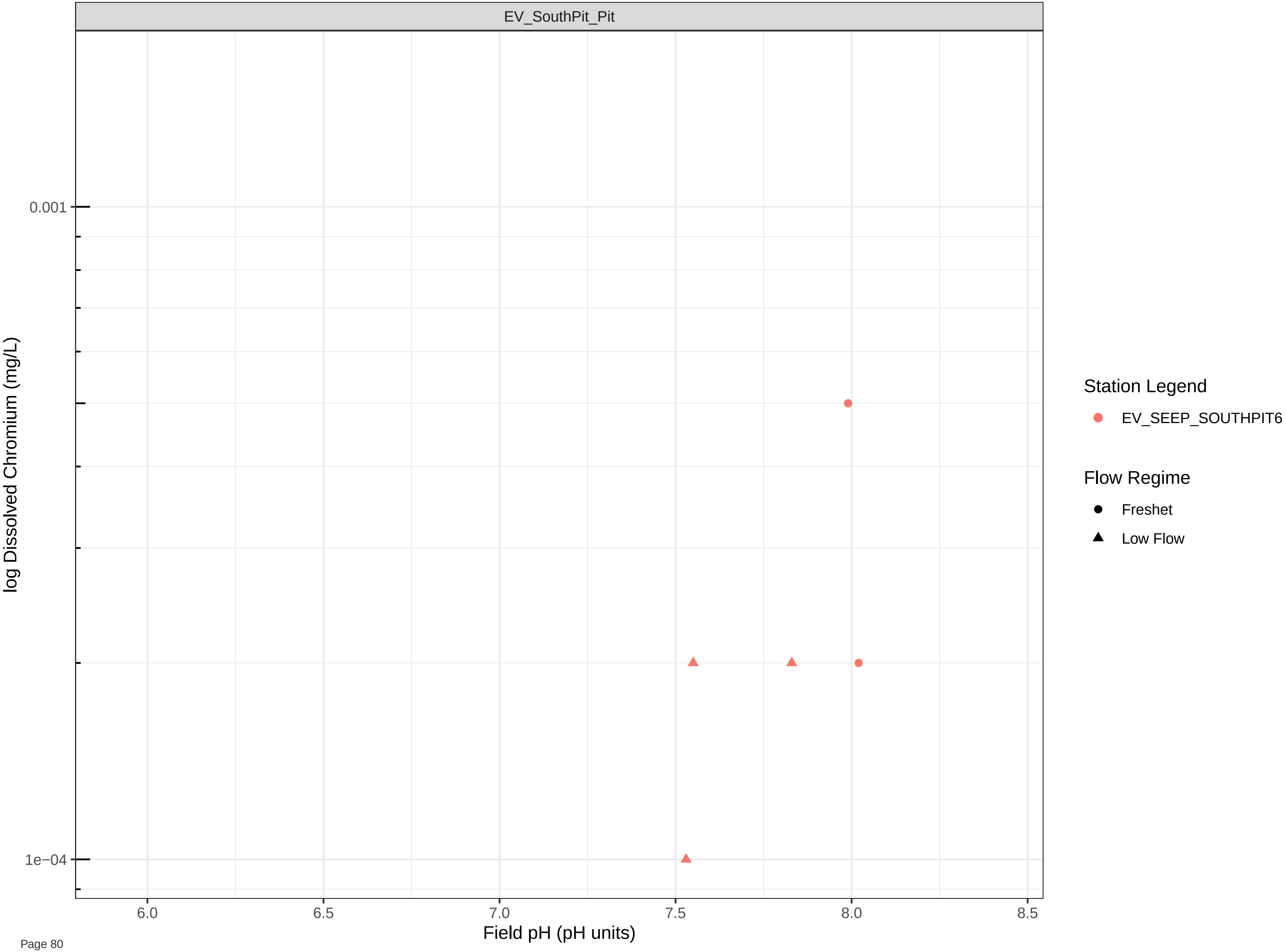

EV_CCR/TP
log Dissolved Chromium (mg/L)
0.001
1e−04
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

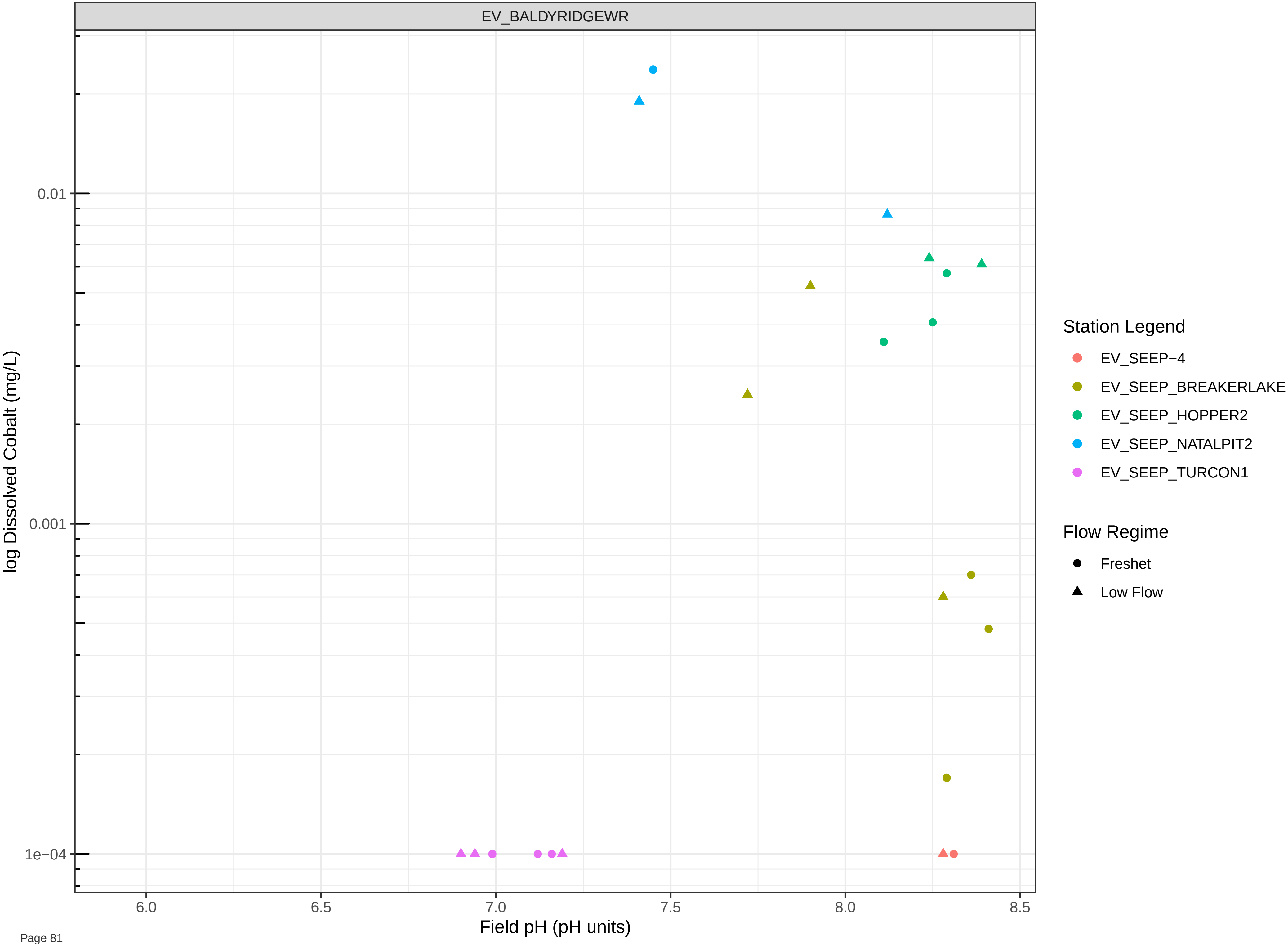

EV_CEDARWR
log Dissolved Chromium (mg/L)
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

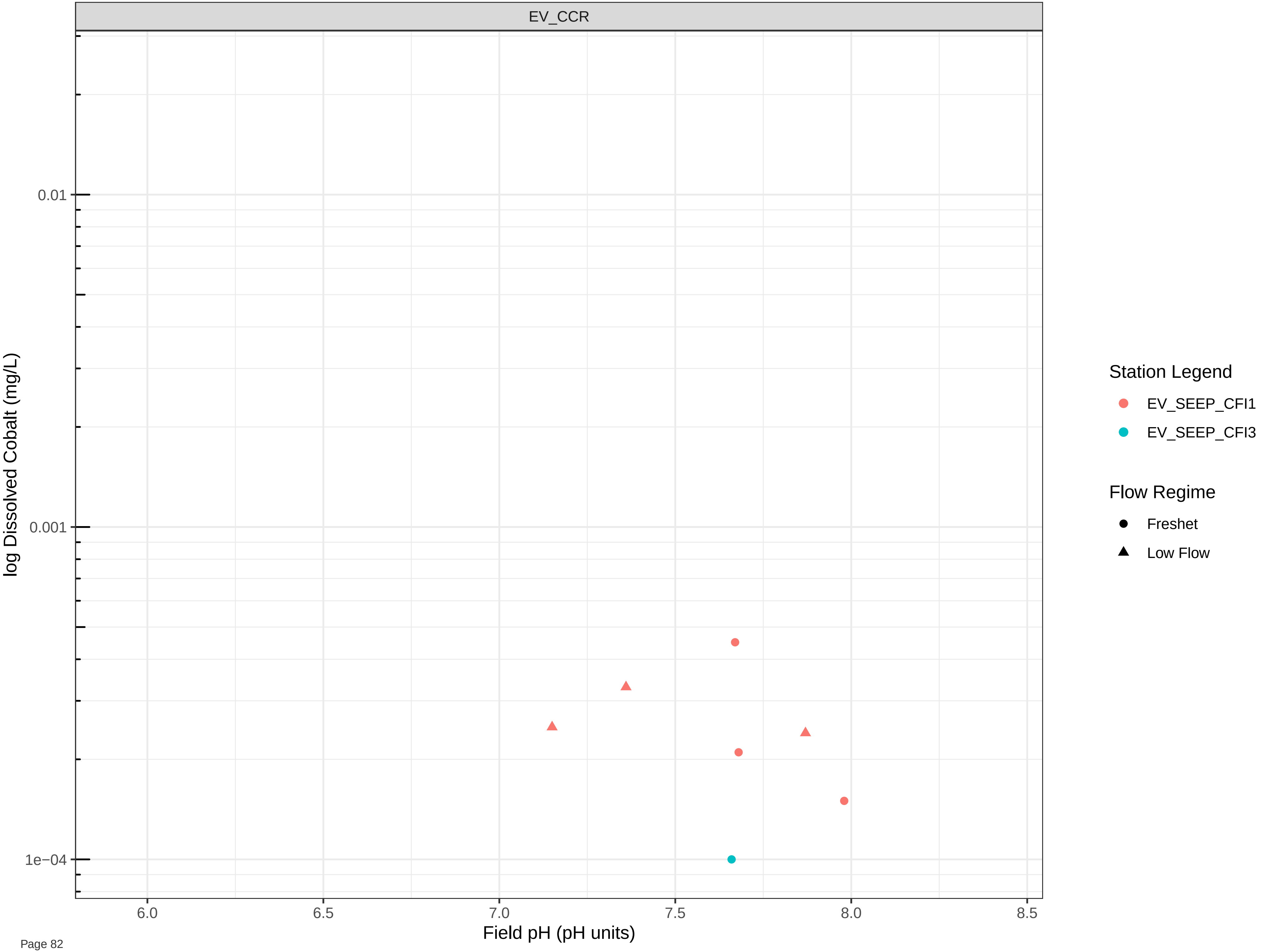

EV_Erickson_WR
0.001
1e−04
log Dissolved Chromium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

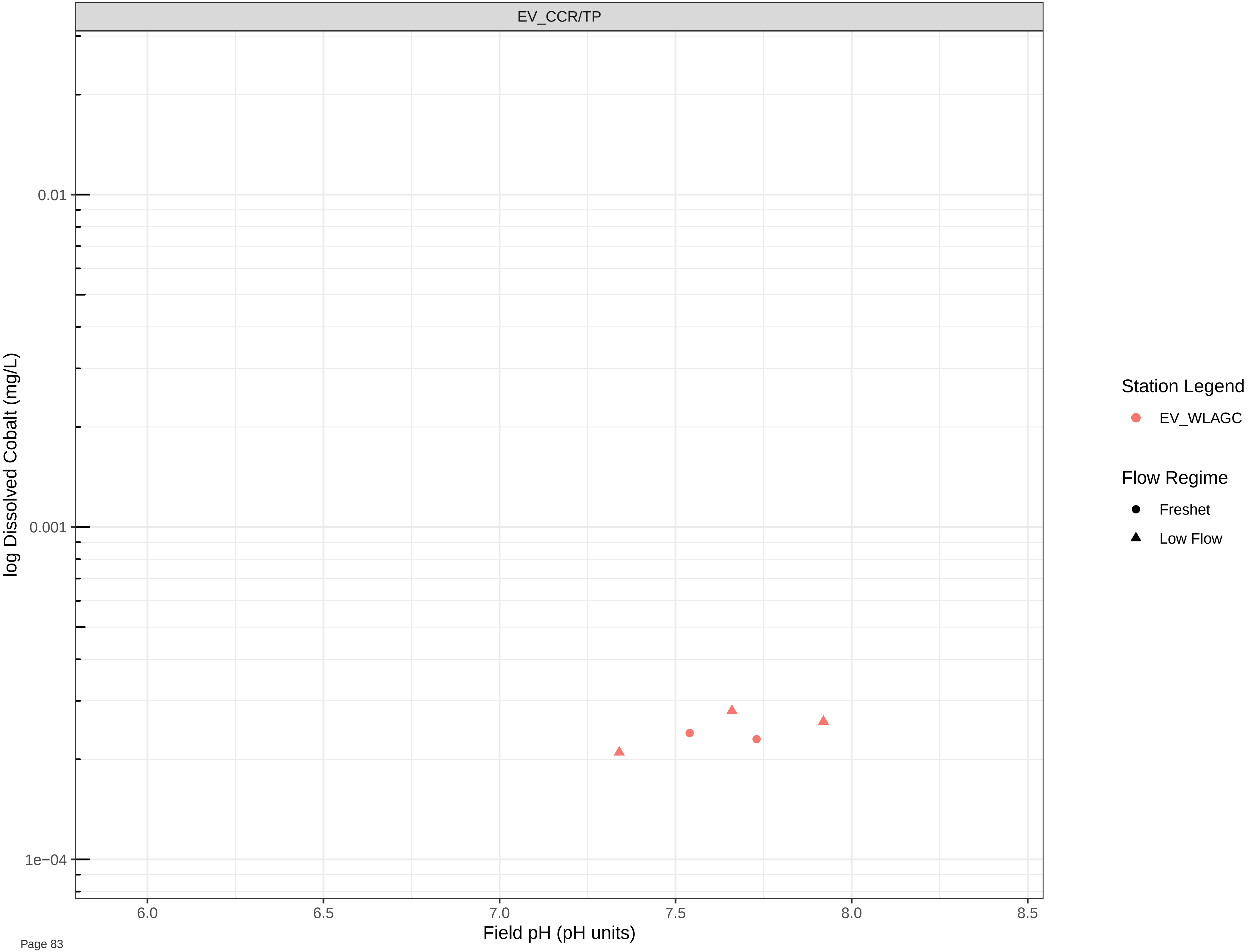

EV_PLANT
log Dissolved Chromium (mg/L)
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

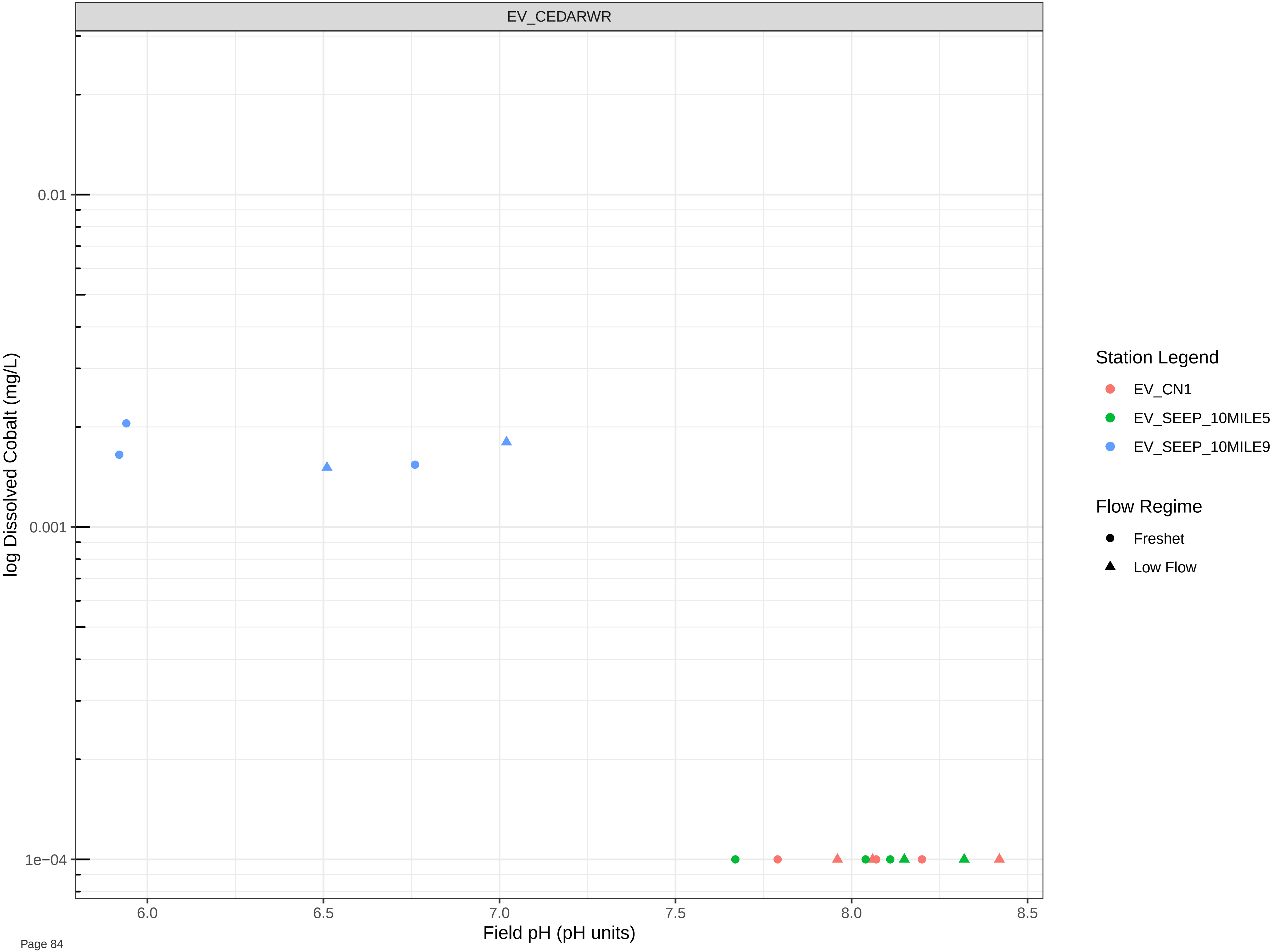

EV_SOUTHSLOPE
0.001
1e−04
log Dissolved Chromium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

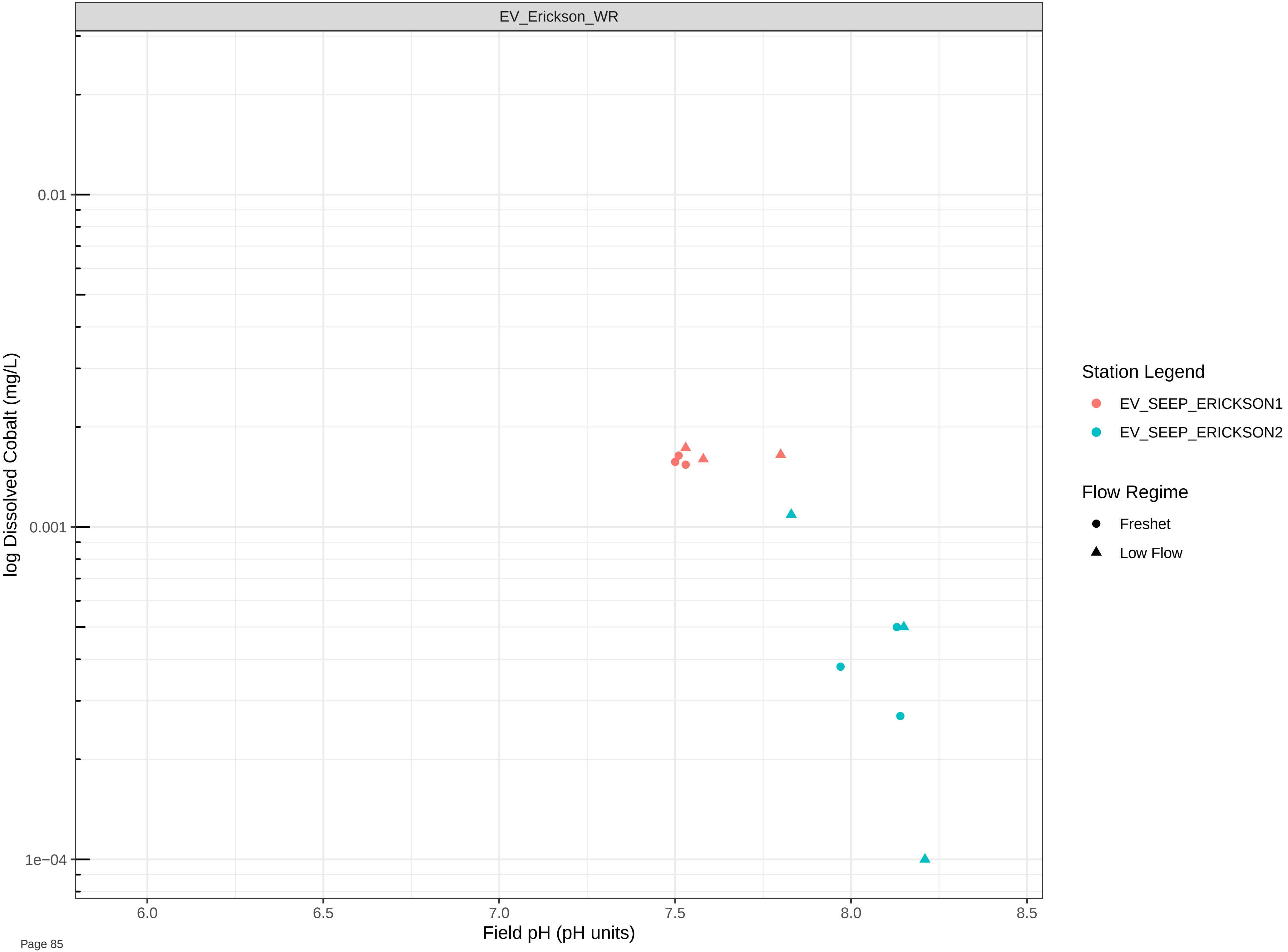

EV_SouthPit_Pit
0.001
1e−04
log Dissolved Chromium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

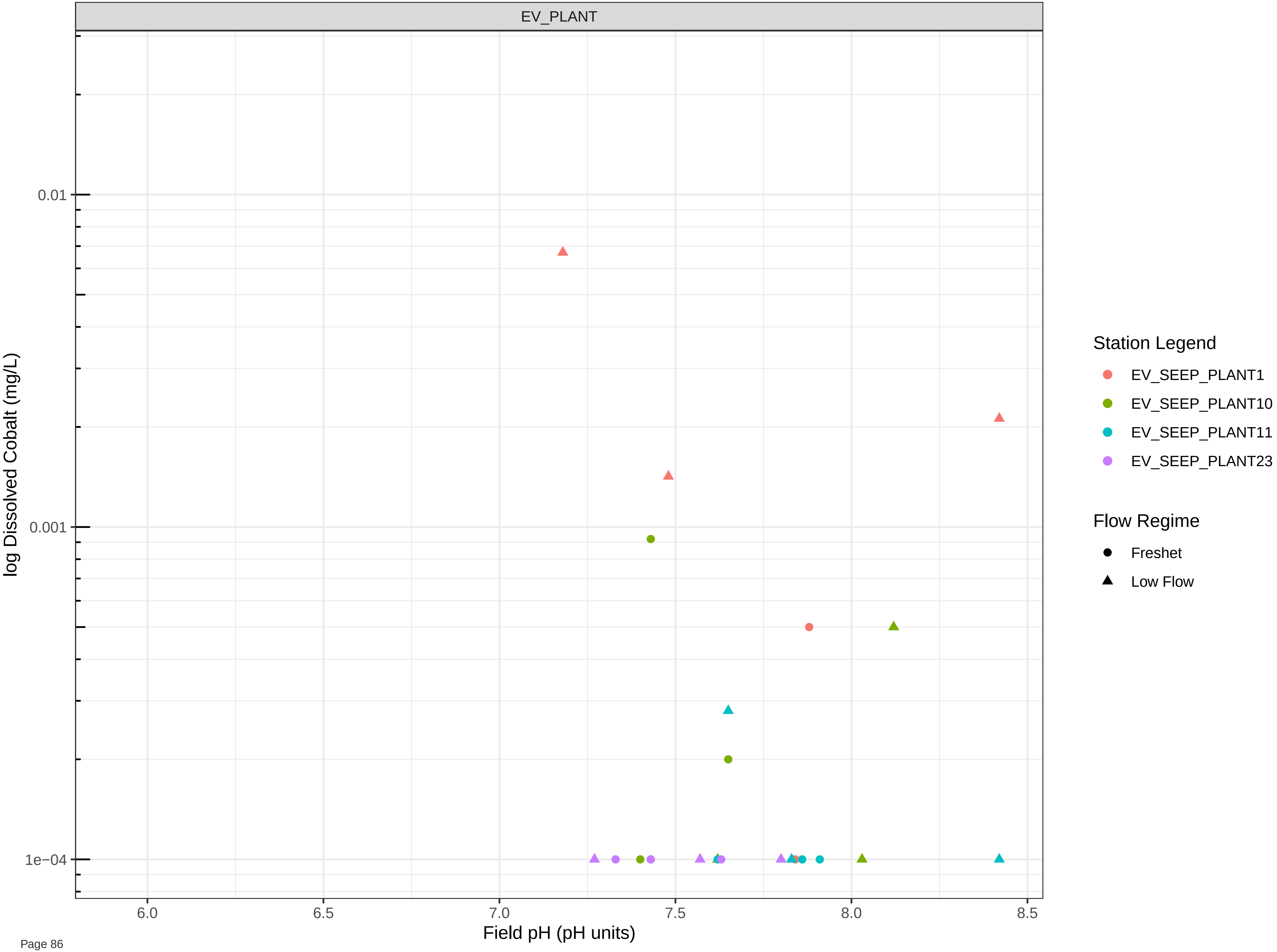

EV_BALDYRIDGEWR
log Dissolved Cobalt (mg/L)
0.01
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

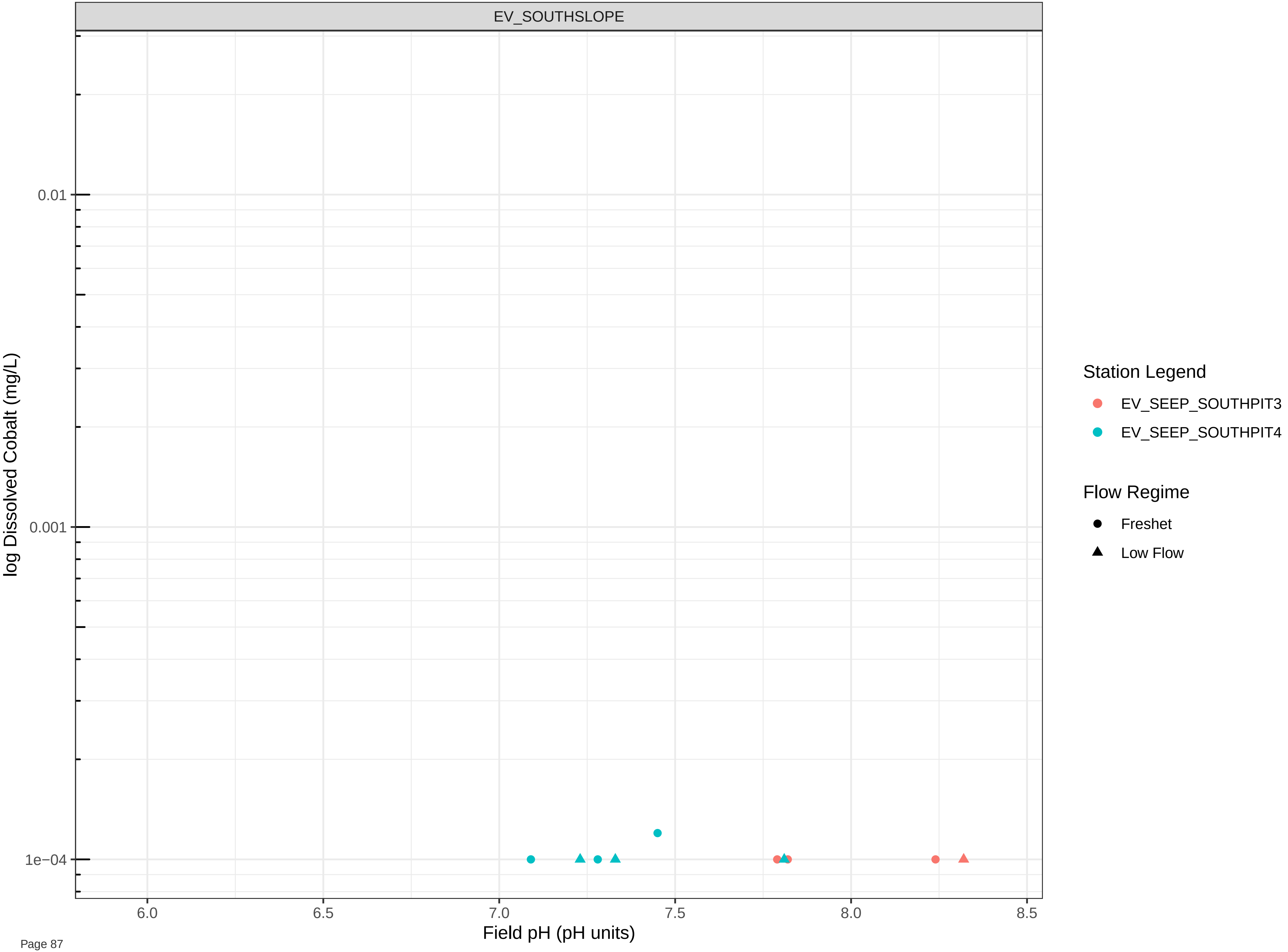

EV_CCR
log Dissolved Cobalt (mg/L)
0.01
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

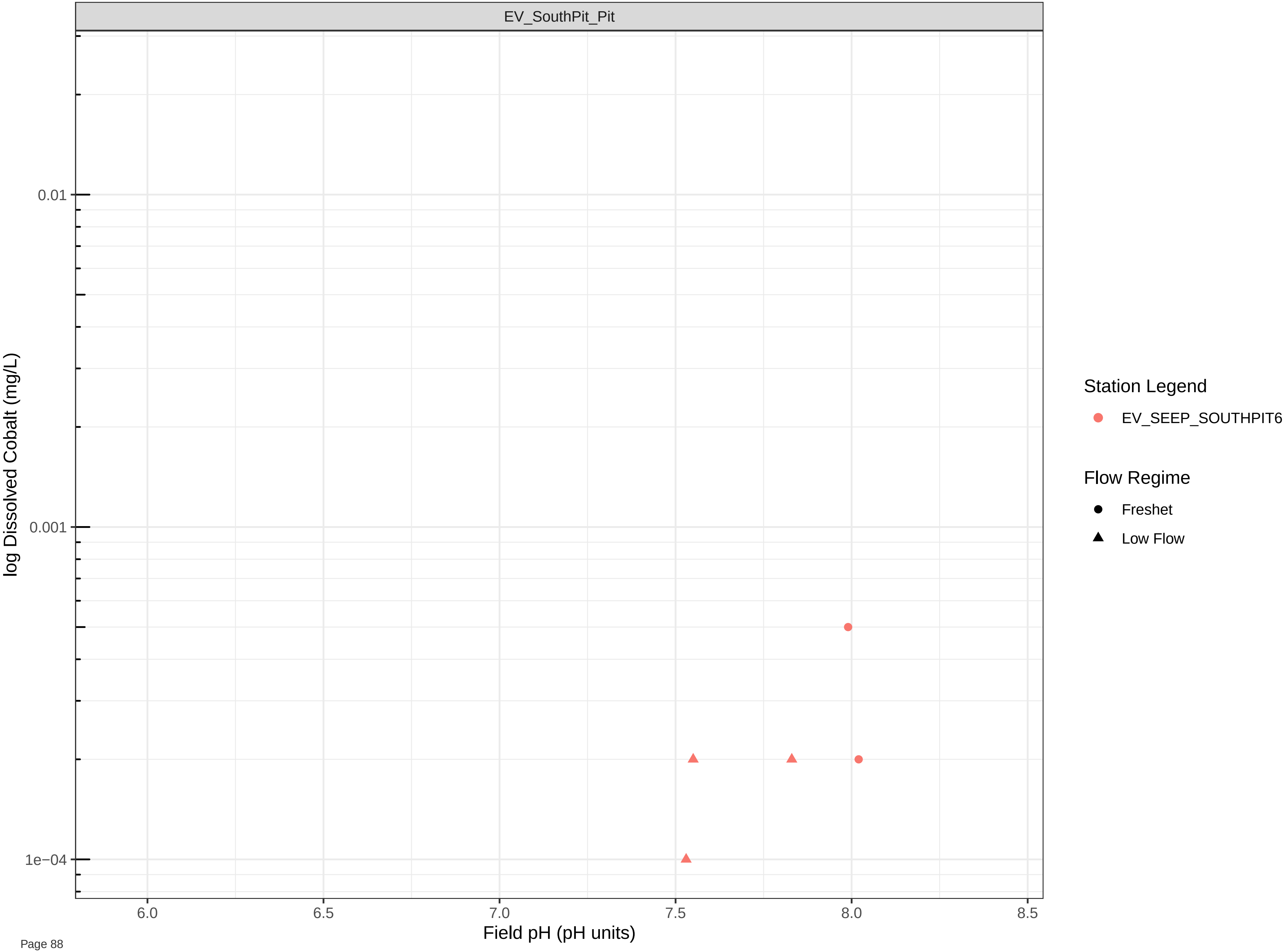

EV_CCR/TP
log Dissolved Cobalt (mg/L)
0.01
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

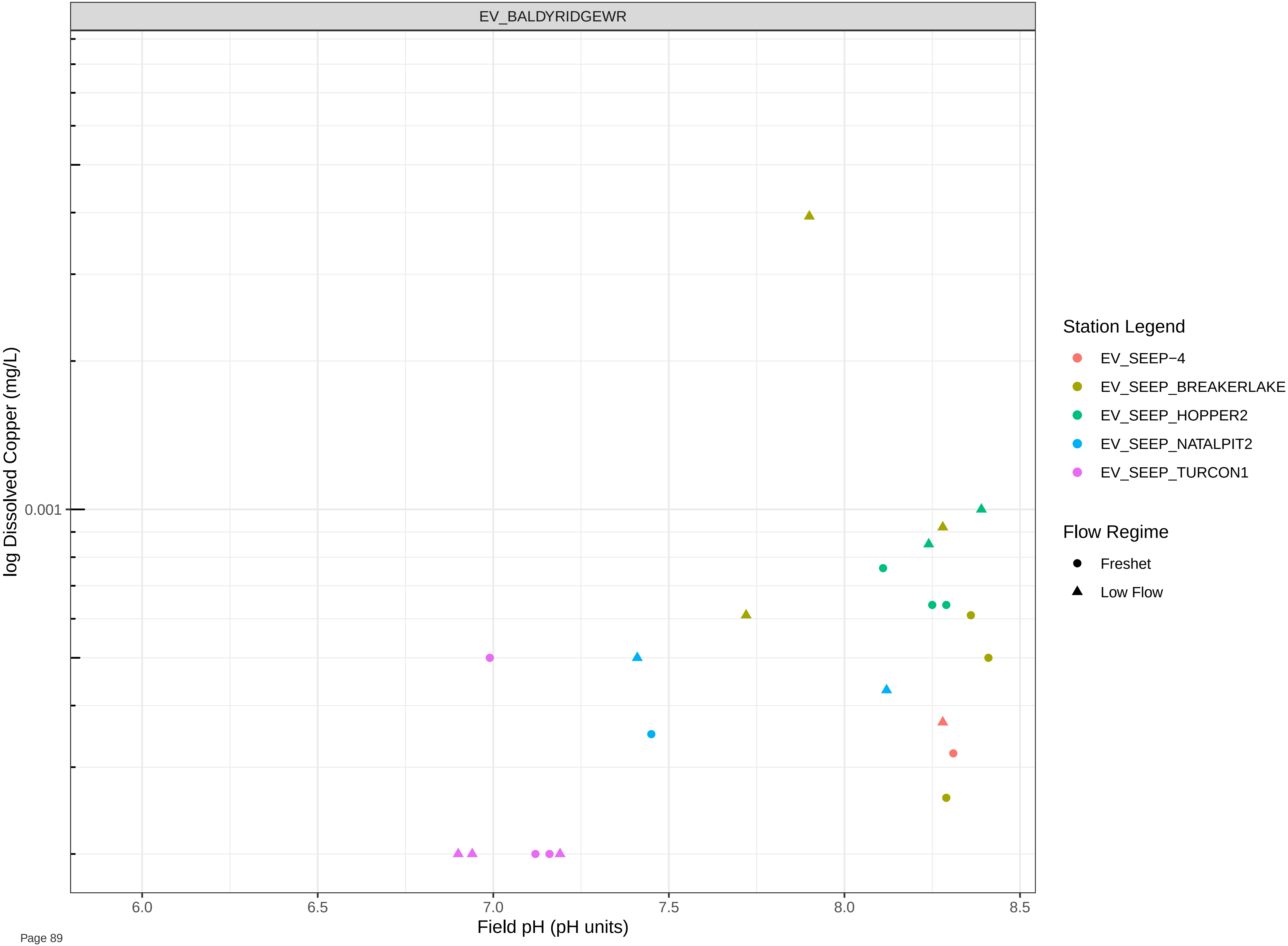

EV_CEDARWR
log Dissolved Cobalt (mg/L)
0.01
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

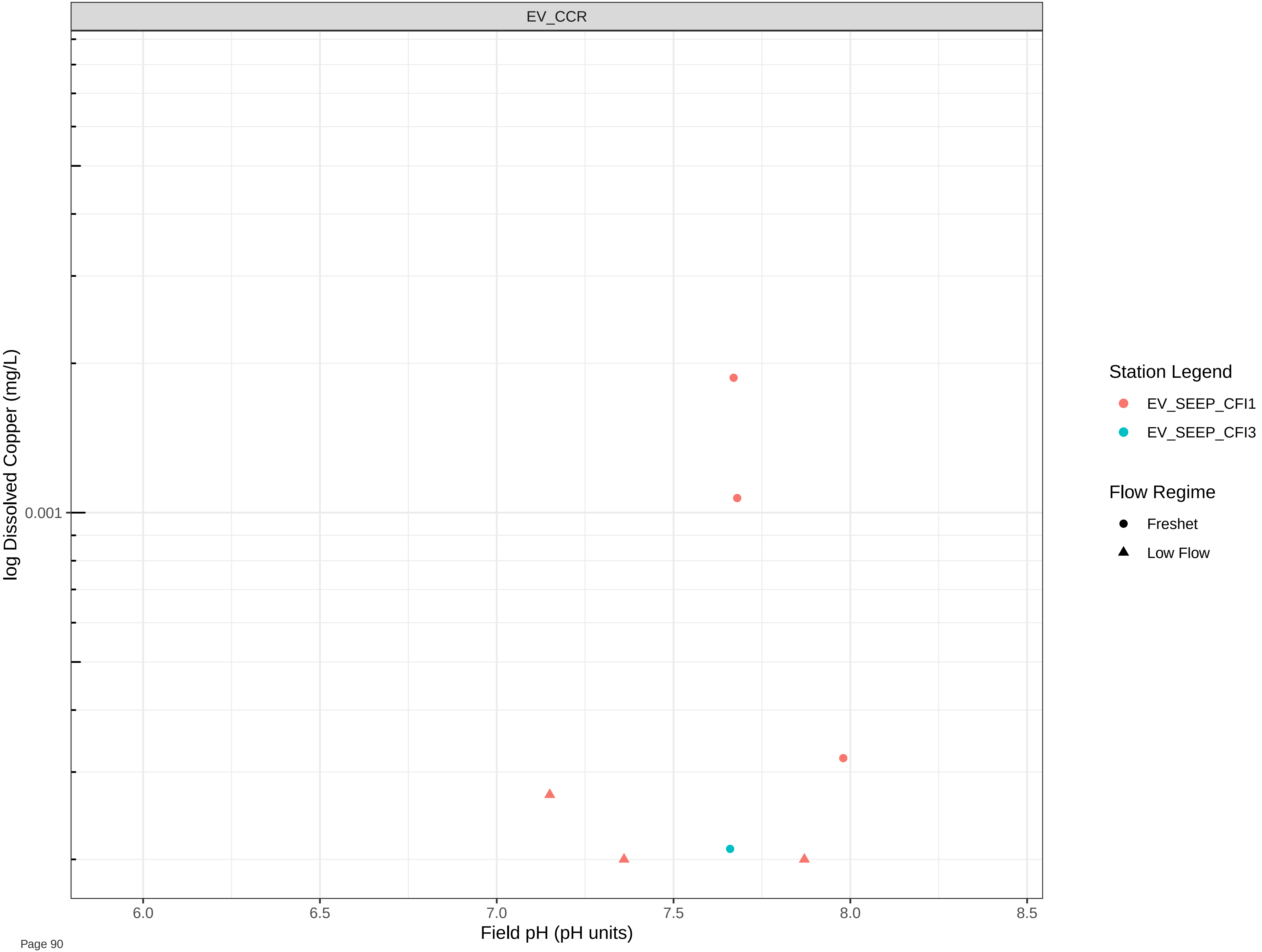

EV_Erickson_WR
log Dissolved Cobalt (mg/L)
0.01
0.001
1e−04
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

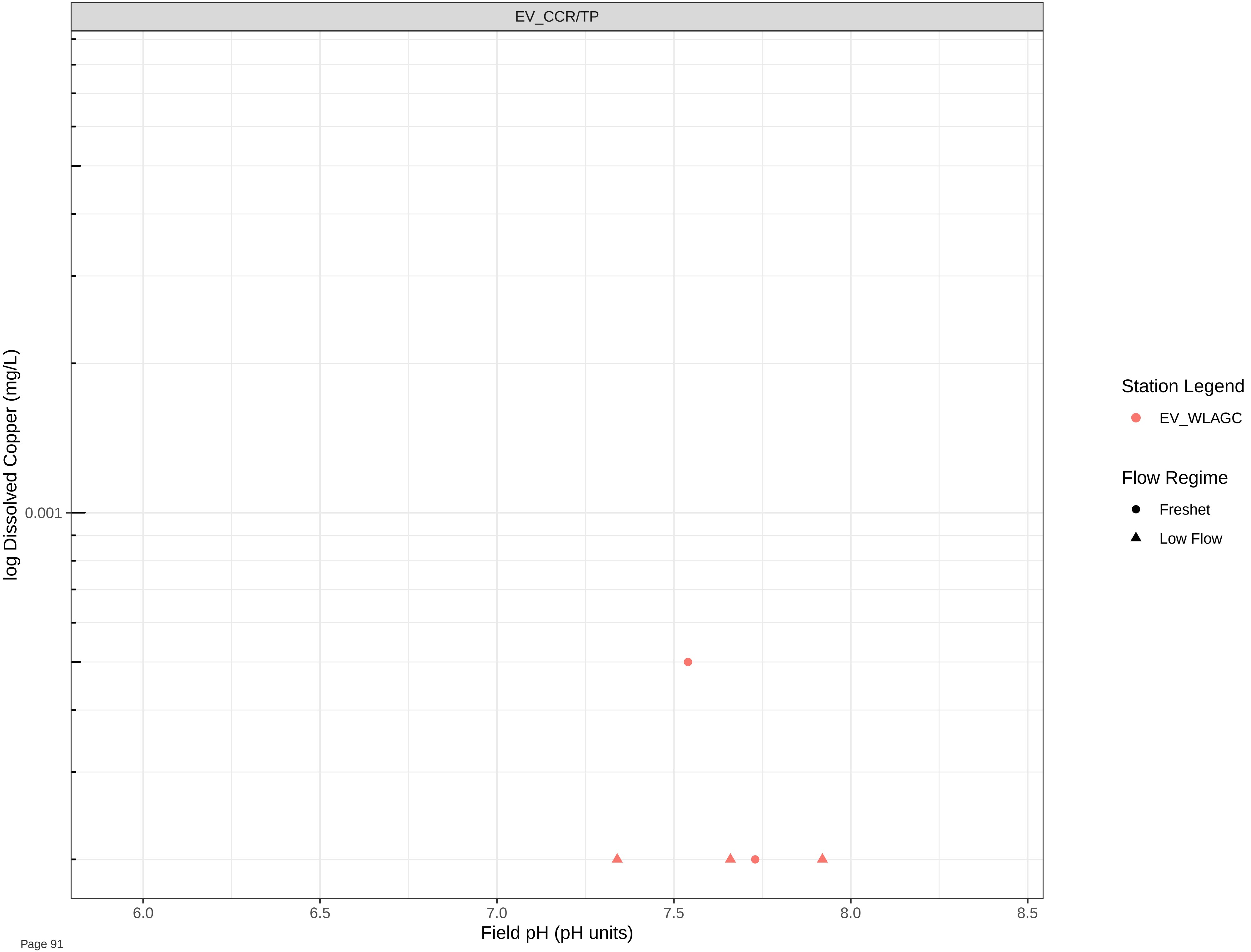

EV_PLANT
log Dissolved Cobalt (mg/L)
0.01
0.001
1e−04
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

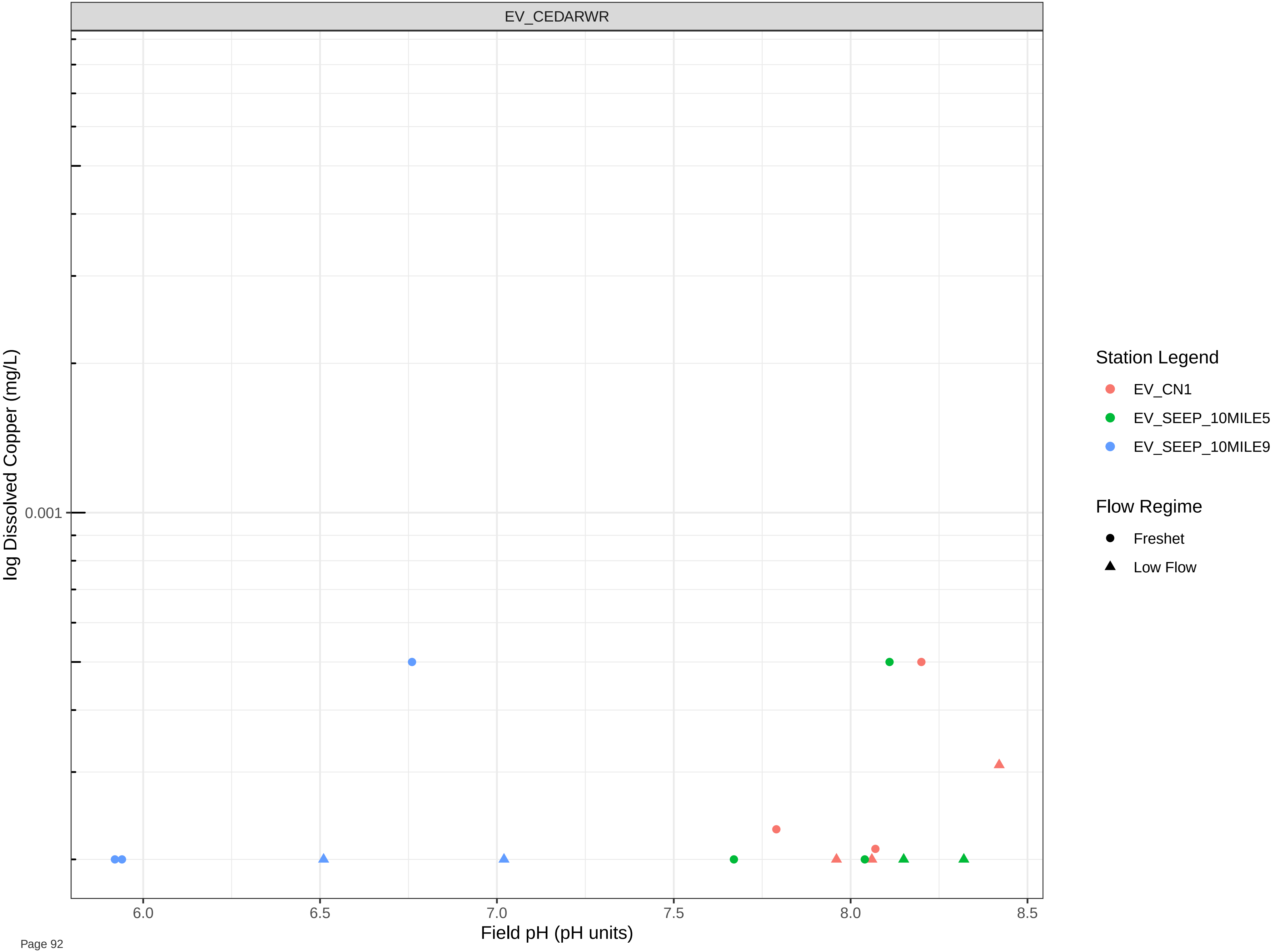

EV_SOUTHSLOPE
log Dissolved Cobalt (mg/L)
0.01
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

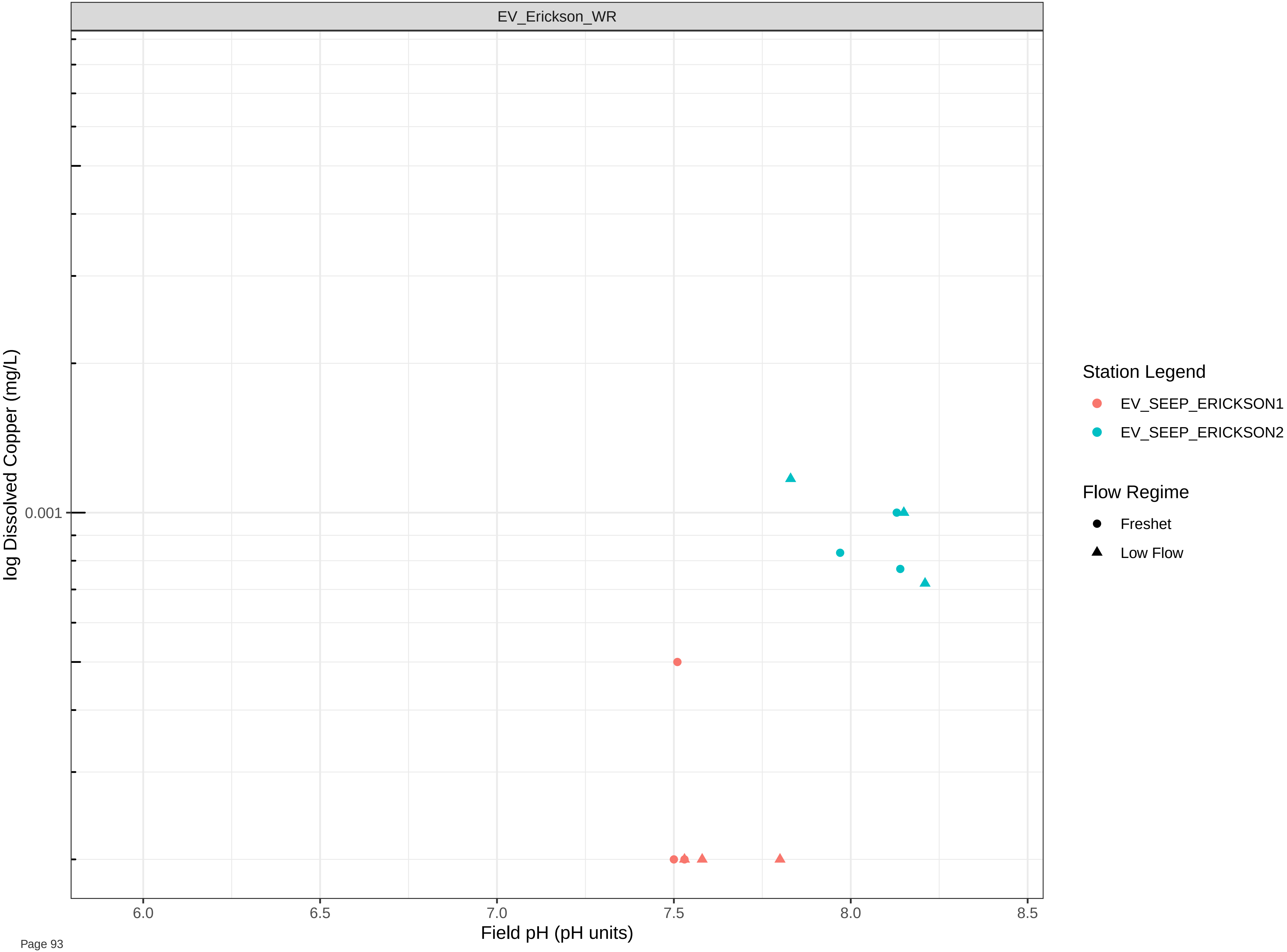

EV_SouthPit_Pit
log Dissolved Cobalt (mg/L)
0.01
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

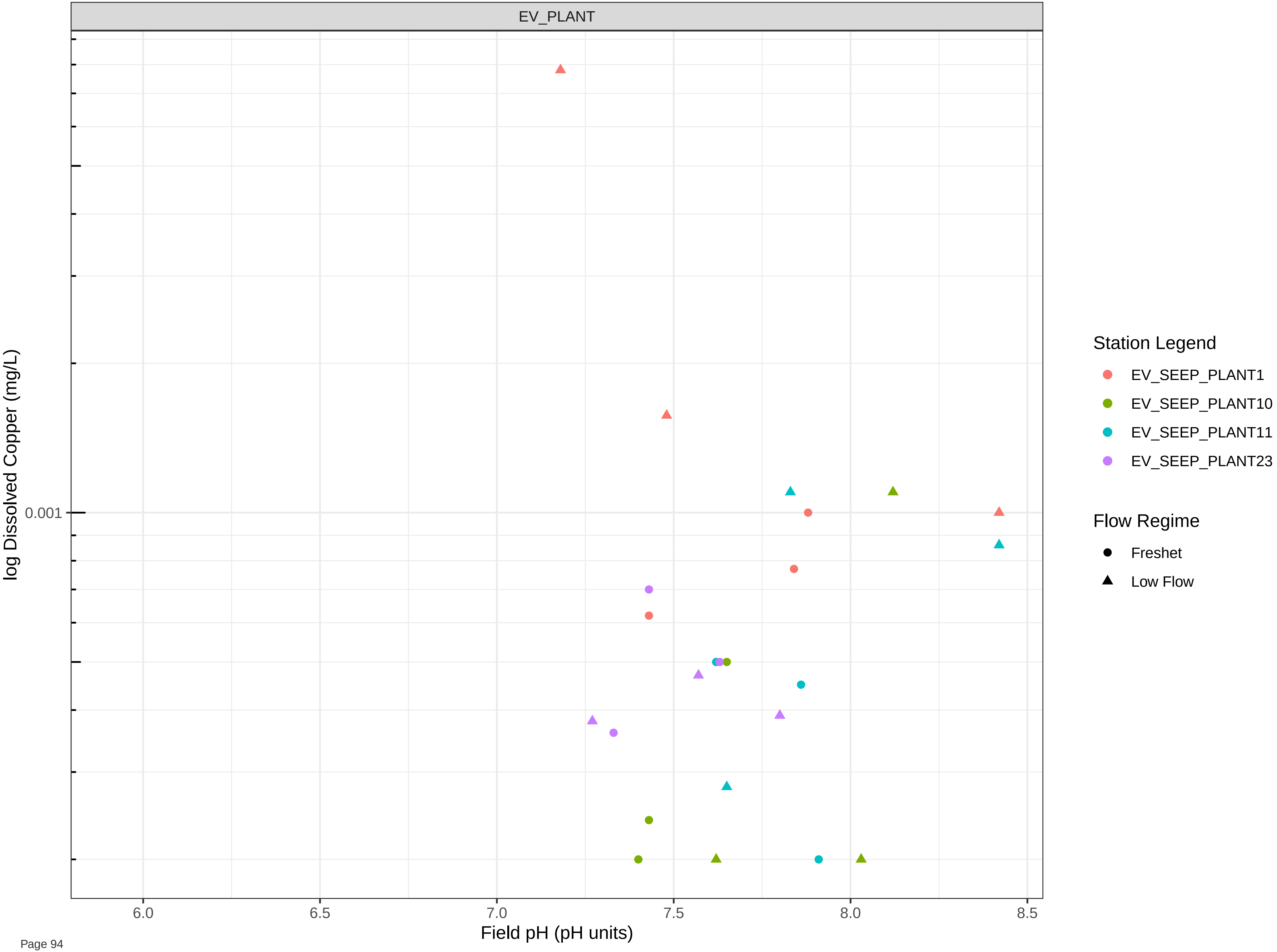

EV_BALDYRIDGEWR
log Dissolved Copper (mg/L)
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

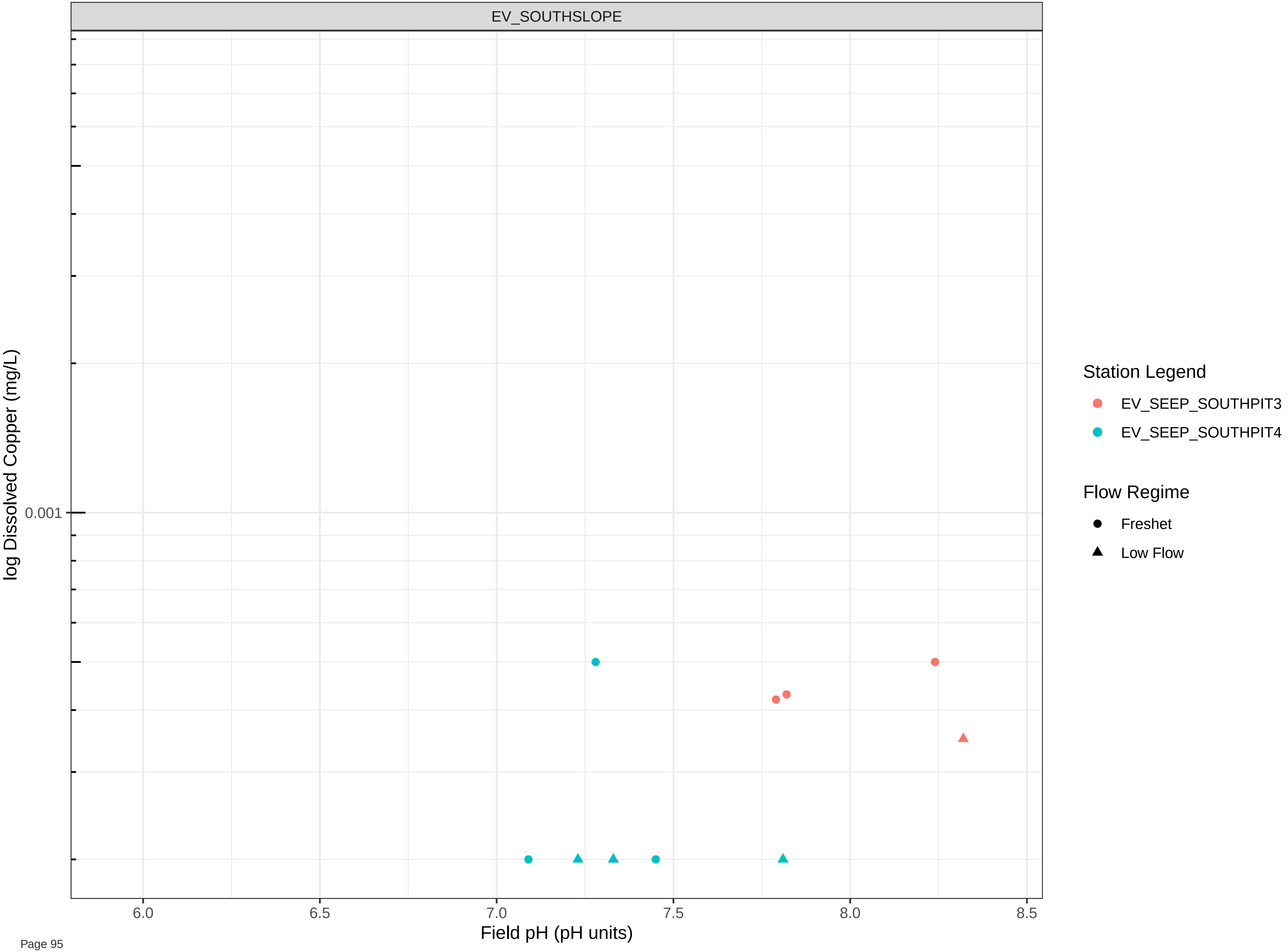

EV_CCR
log Dissolved Copper (mg/L)
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

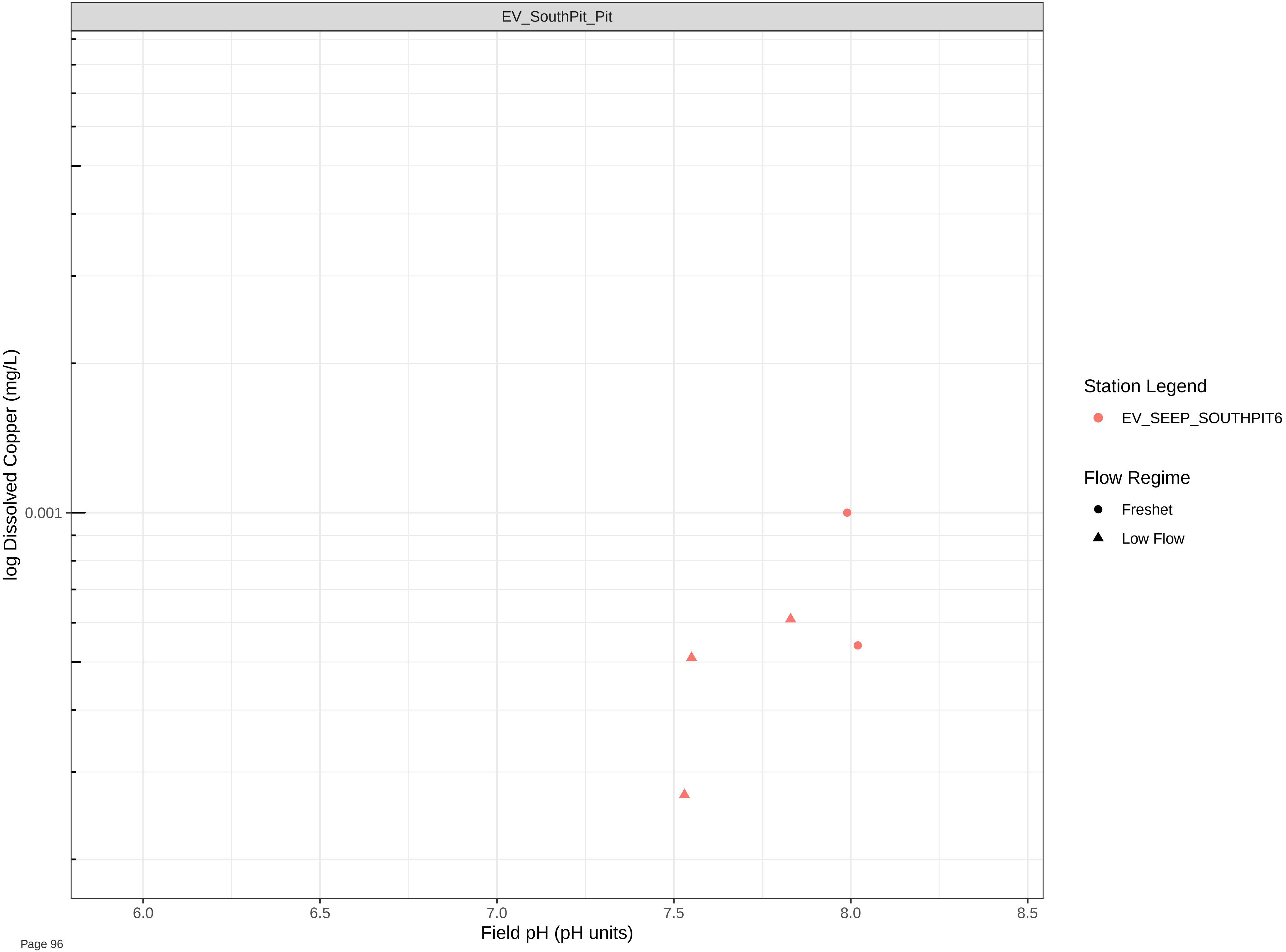

EV_CCR/TP
log Dissolved Copper (mg/L)
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

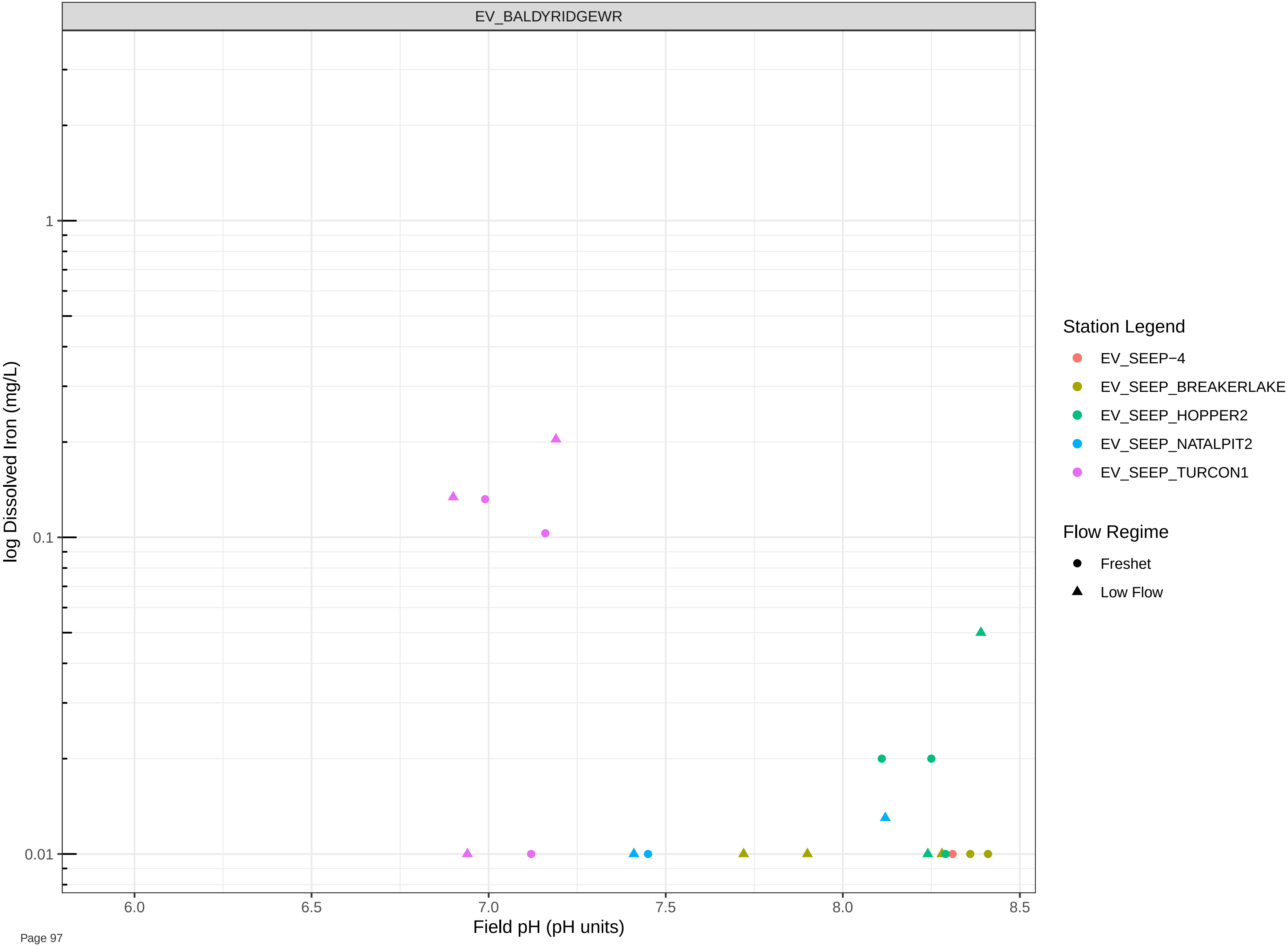

EV_CEDARWR
log Dissolved Copper (mg/L)
0.001
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

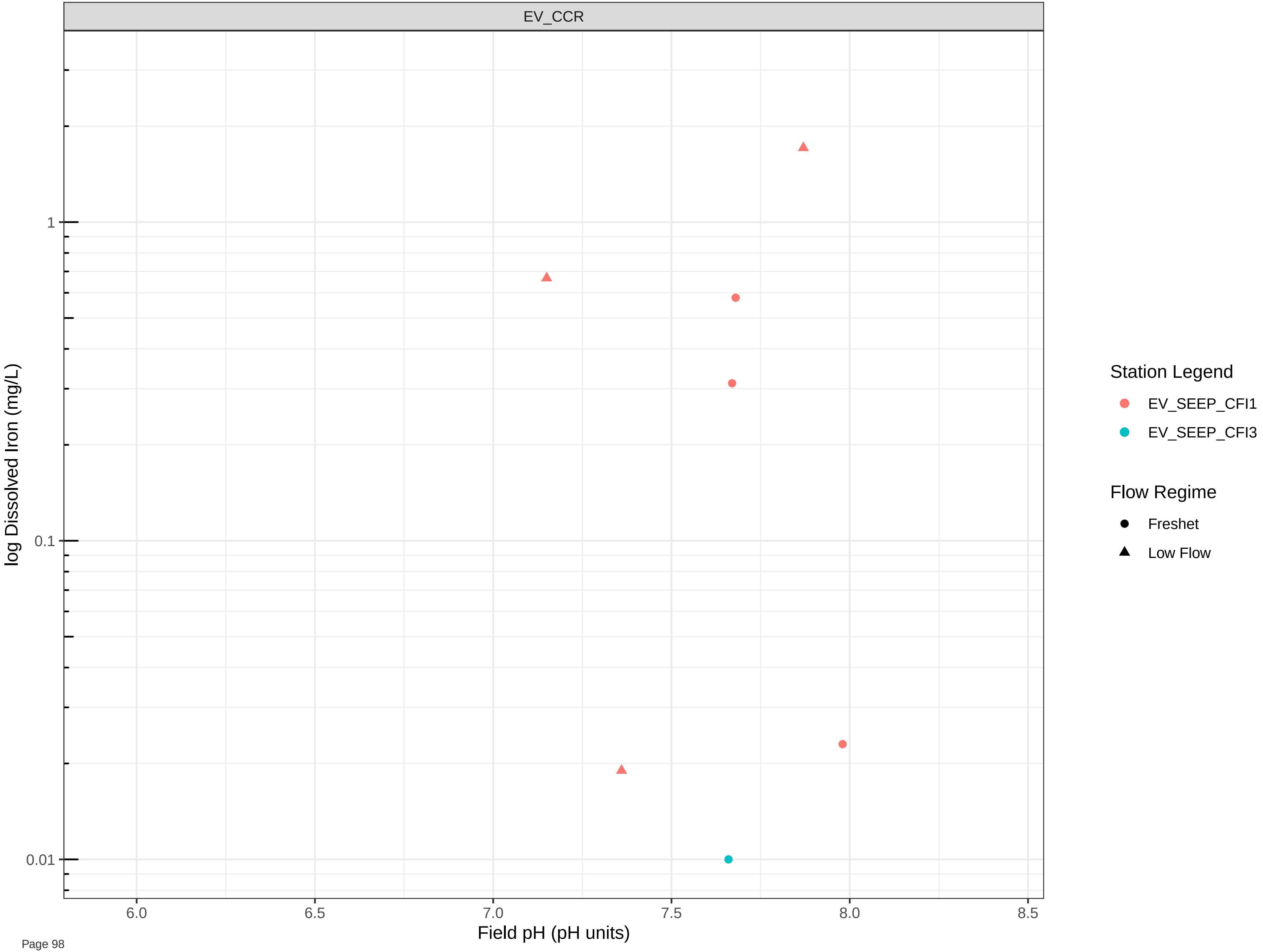

EV_Erickson_WR
log Dissolved Copper (mg/L)
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

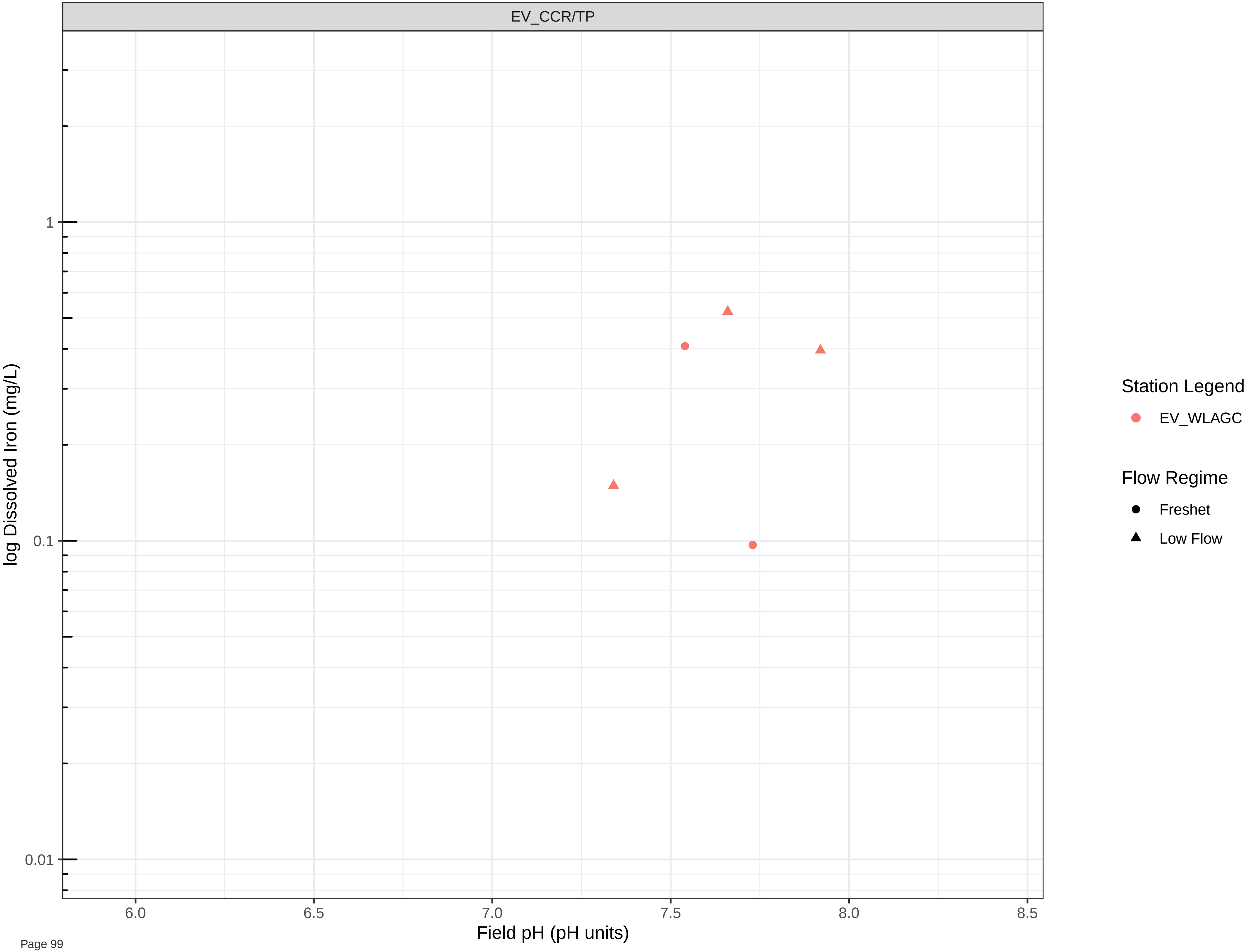

EV_PLANT
log Dissolved Copper (mg/L)
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

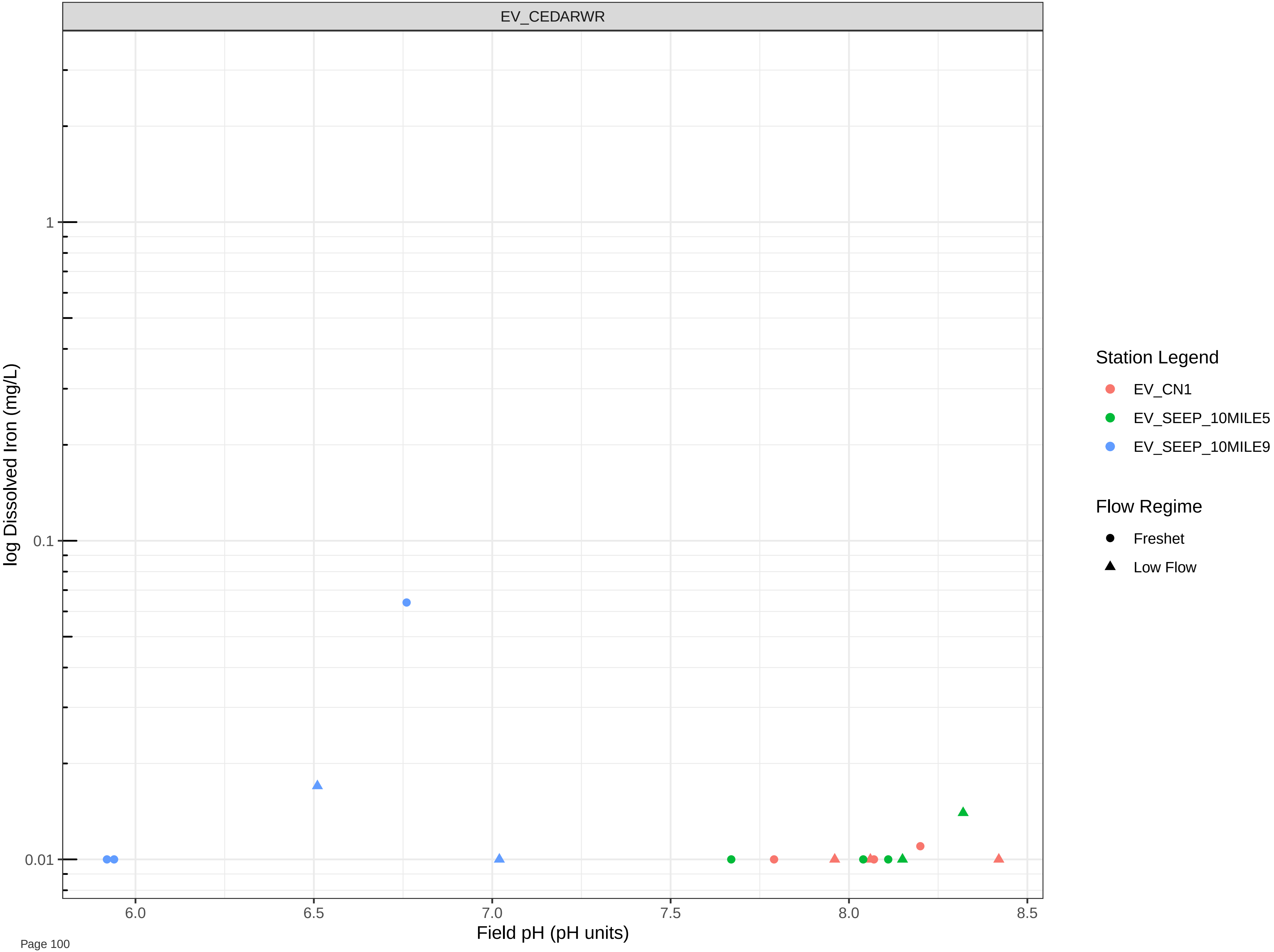

EV_SOUTHSLOPE
log Dissolved Copper (mg/L)
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

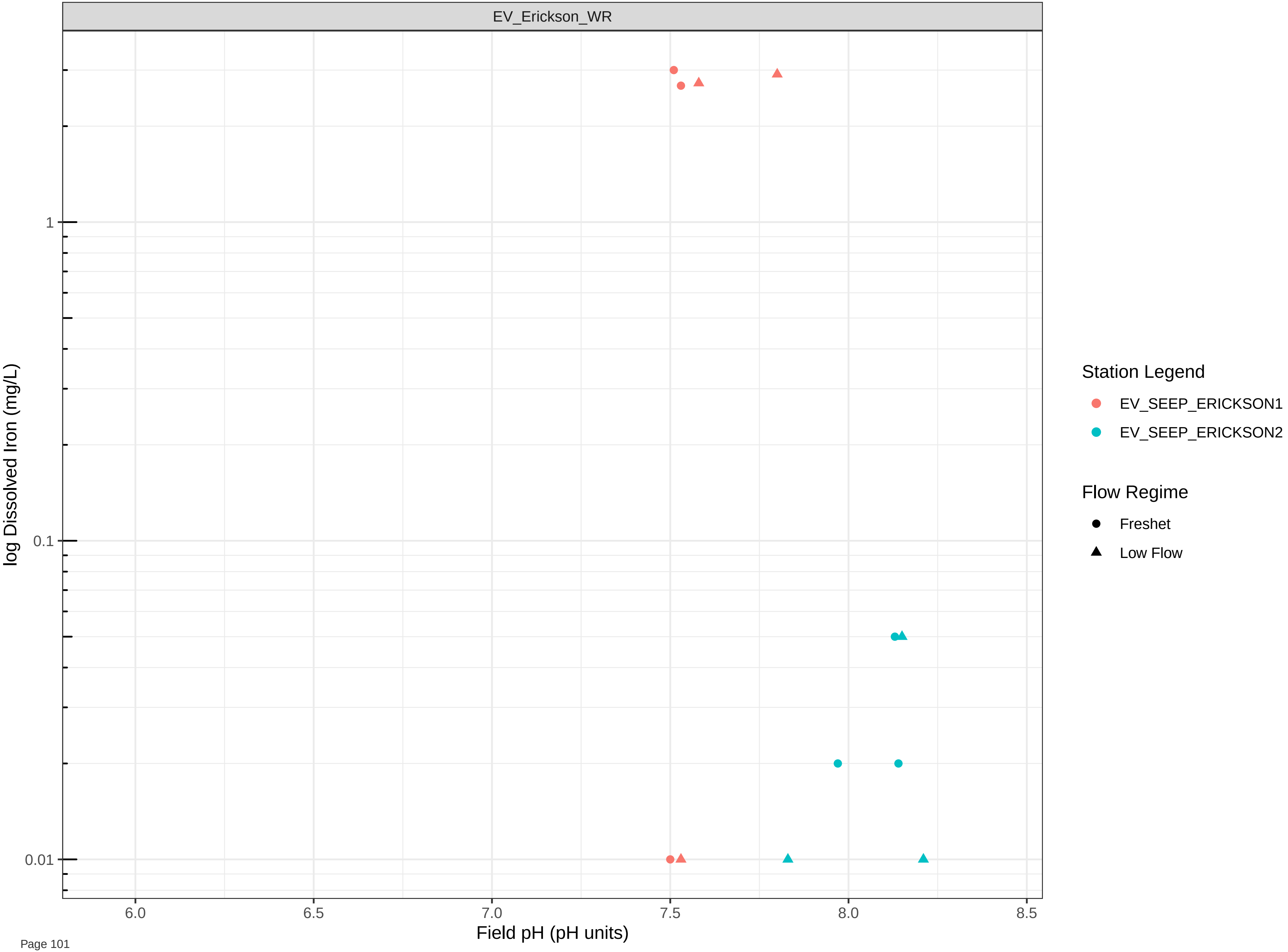

EV_SouthPit_Pit
log Dissolved Copper (mg/L)
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

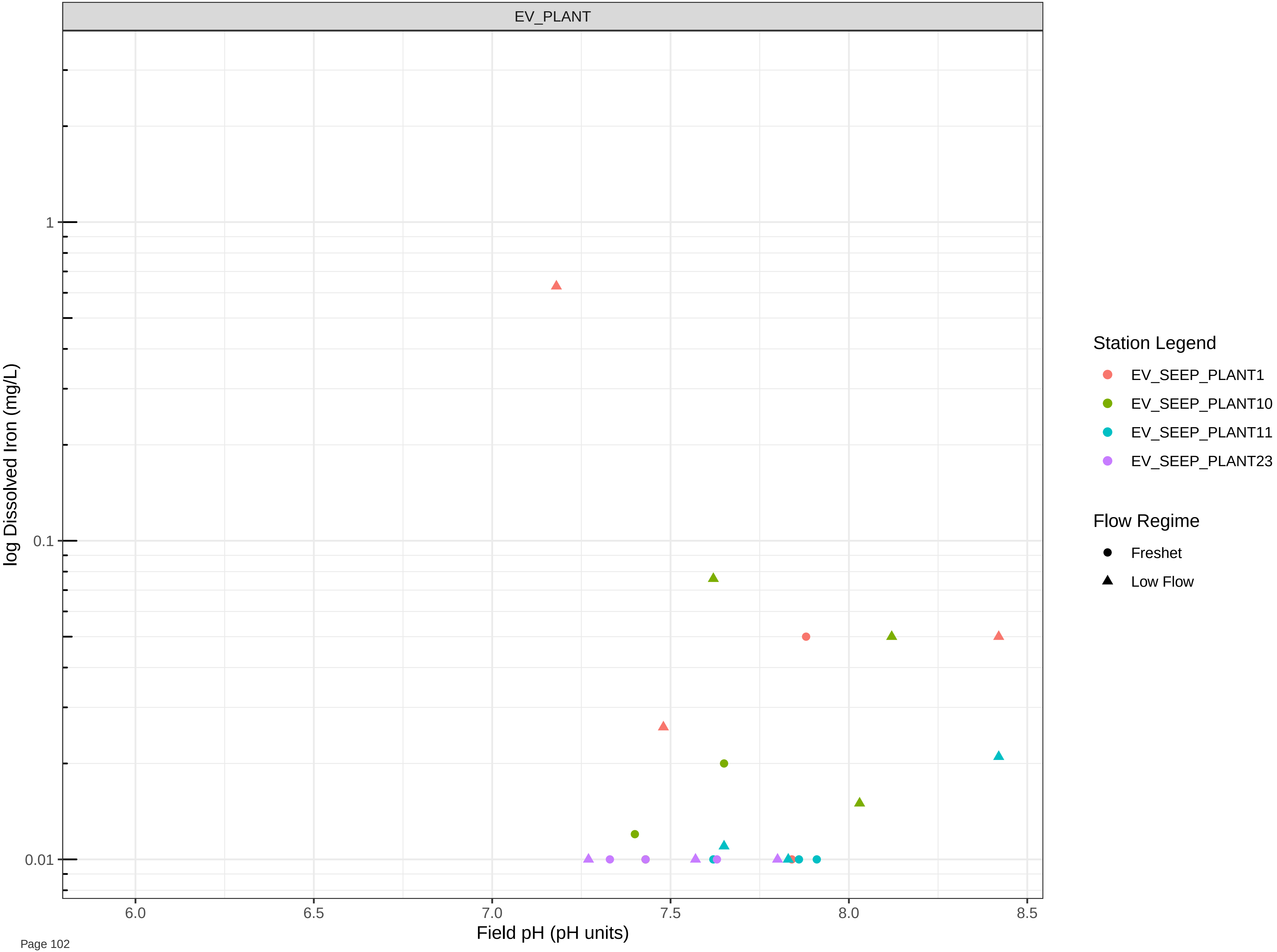

EV_BALDYRIDGEWR
log Dissolved Iron (mg/L)
1
0.1
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

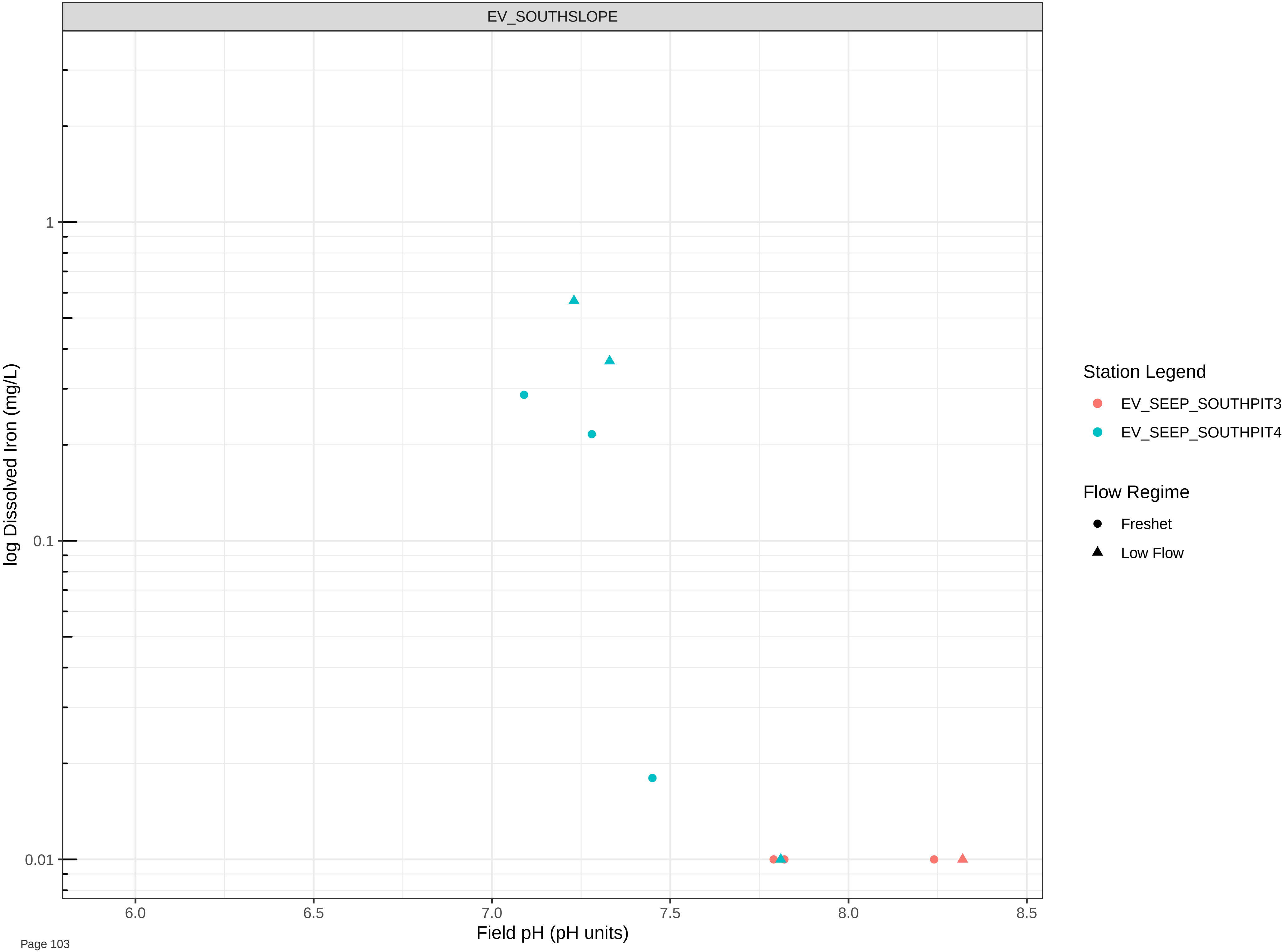

EV_CCR
log Dissolved Iron (mg/L)
1
0.1
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

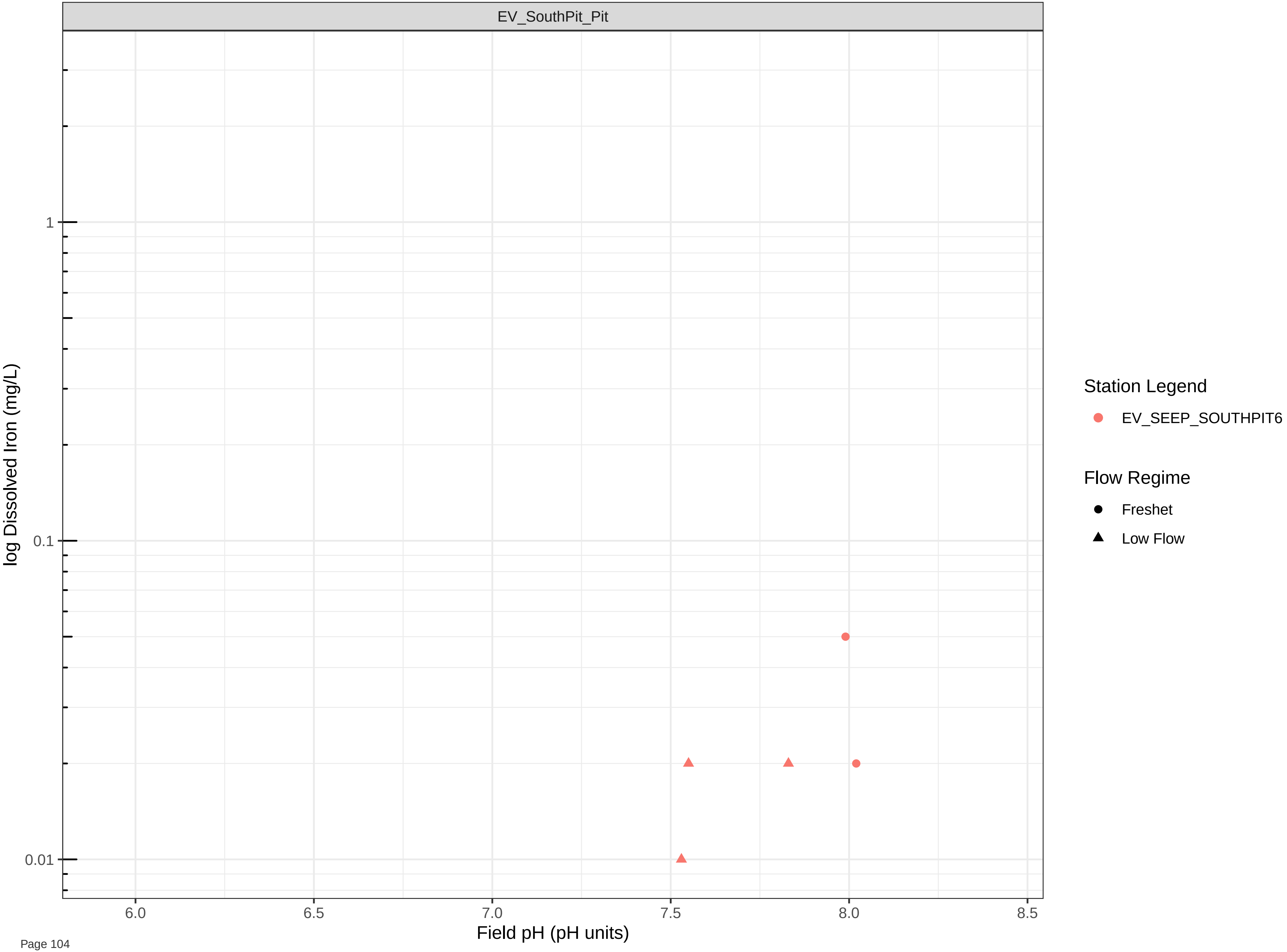

EV_CCR/TP
log Dissolved Iron (mg/L)
1
0.1
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

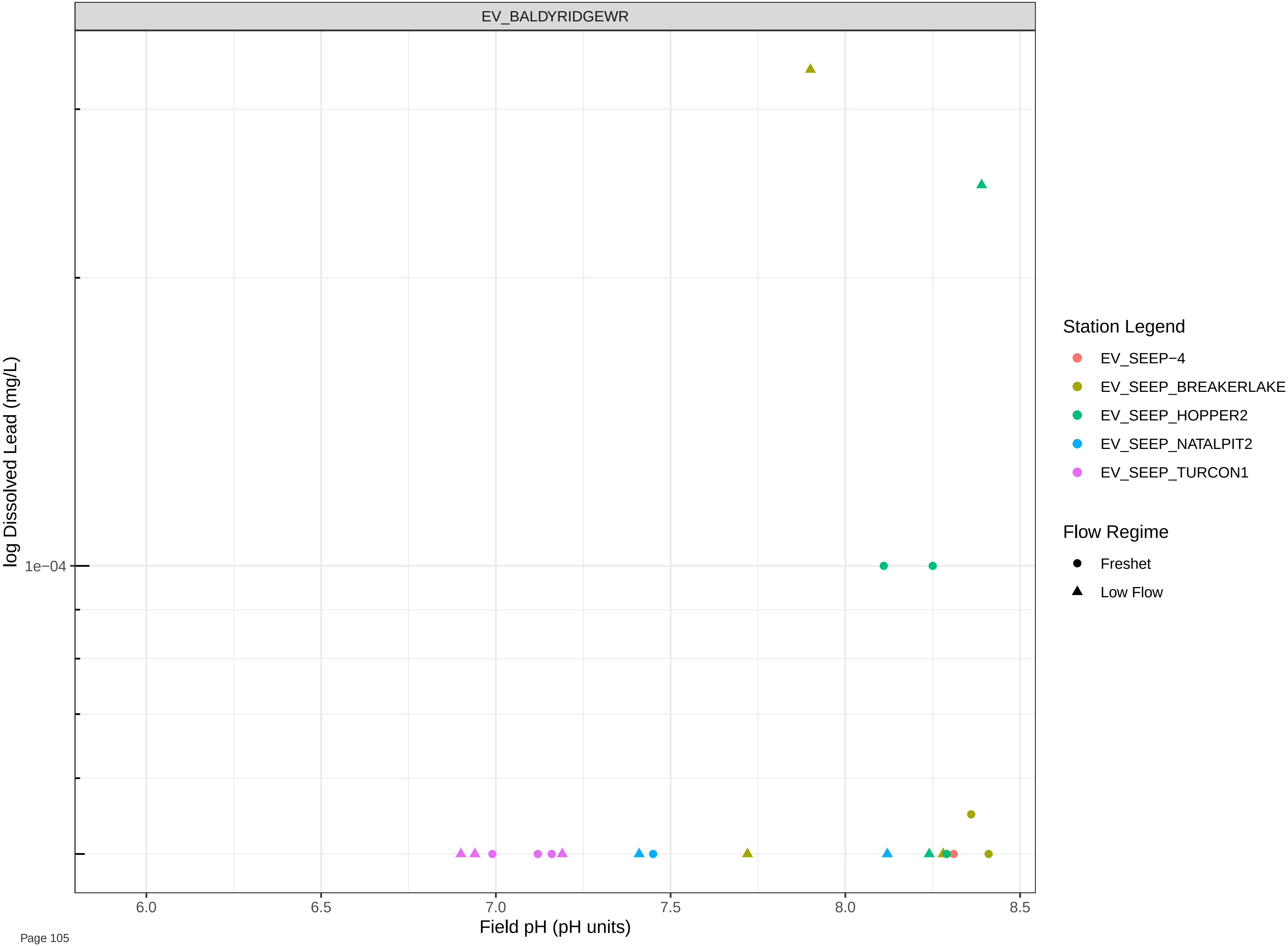

EV_CEDARWR
log Dissolved Iron (mg/L)
1
0.1
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_CN1
● EV_SEEP_10MILE5
● EV_SEEP_10MILE9
Flow Regime
● Freshet
▲ Low Flow

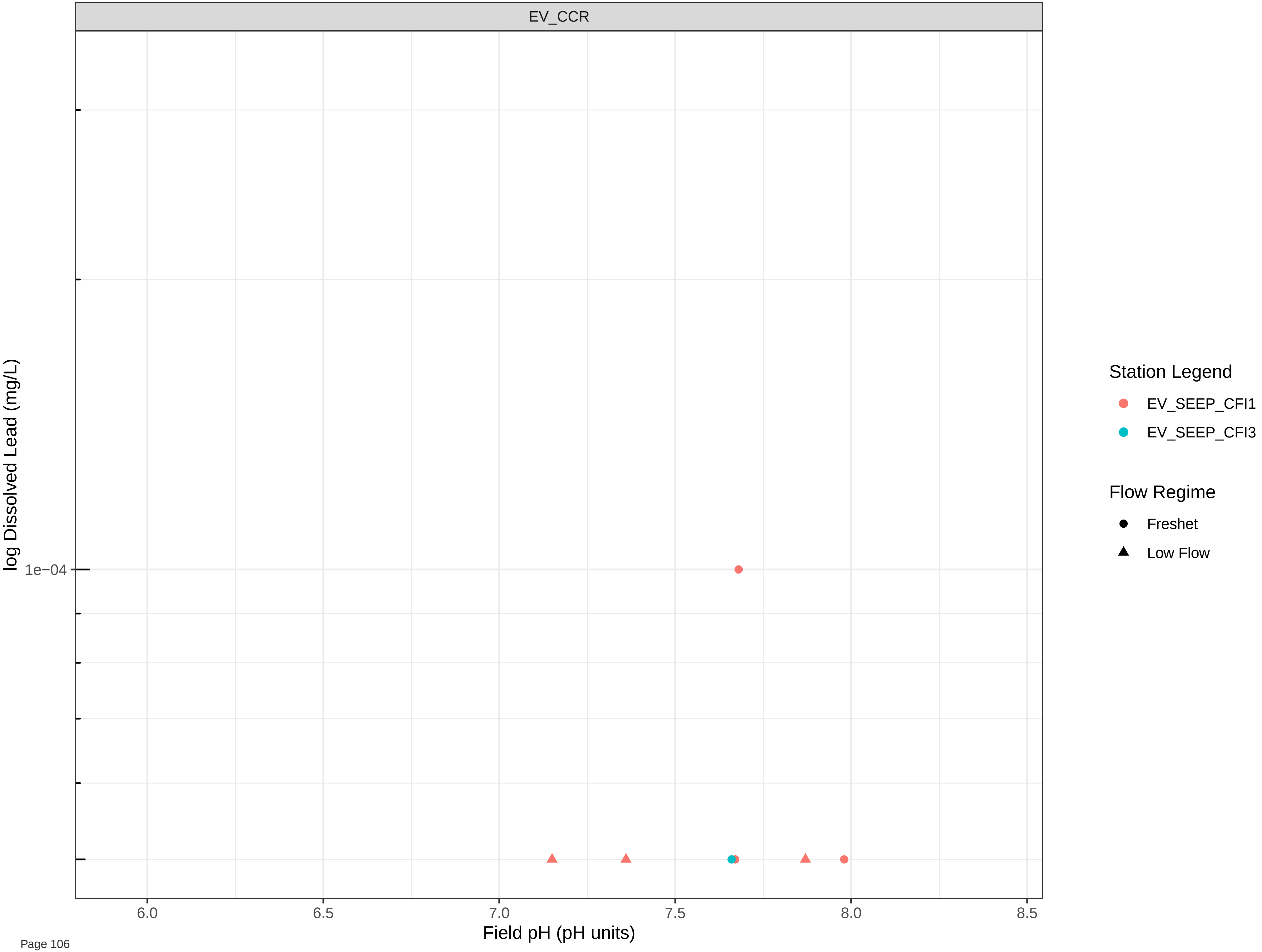

EV_Erickson_WR
log Dissolved Iron (mg/L)
1
0.1
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

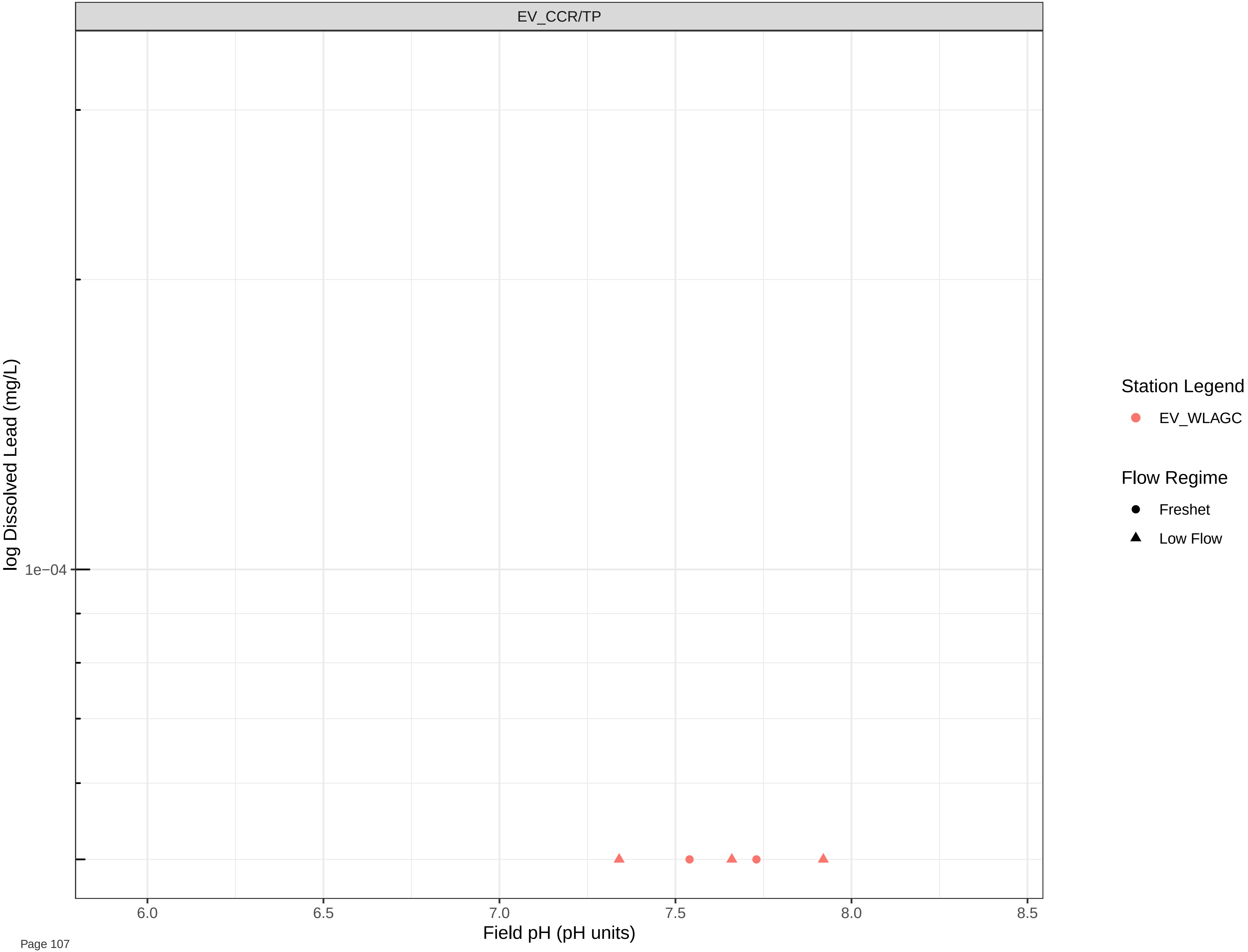

EV_PLANT
log Dissolved Iron (mg/L)
1
0.1
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

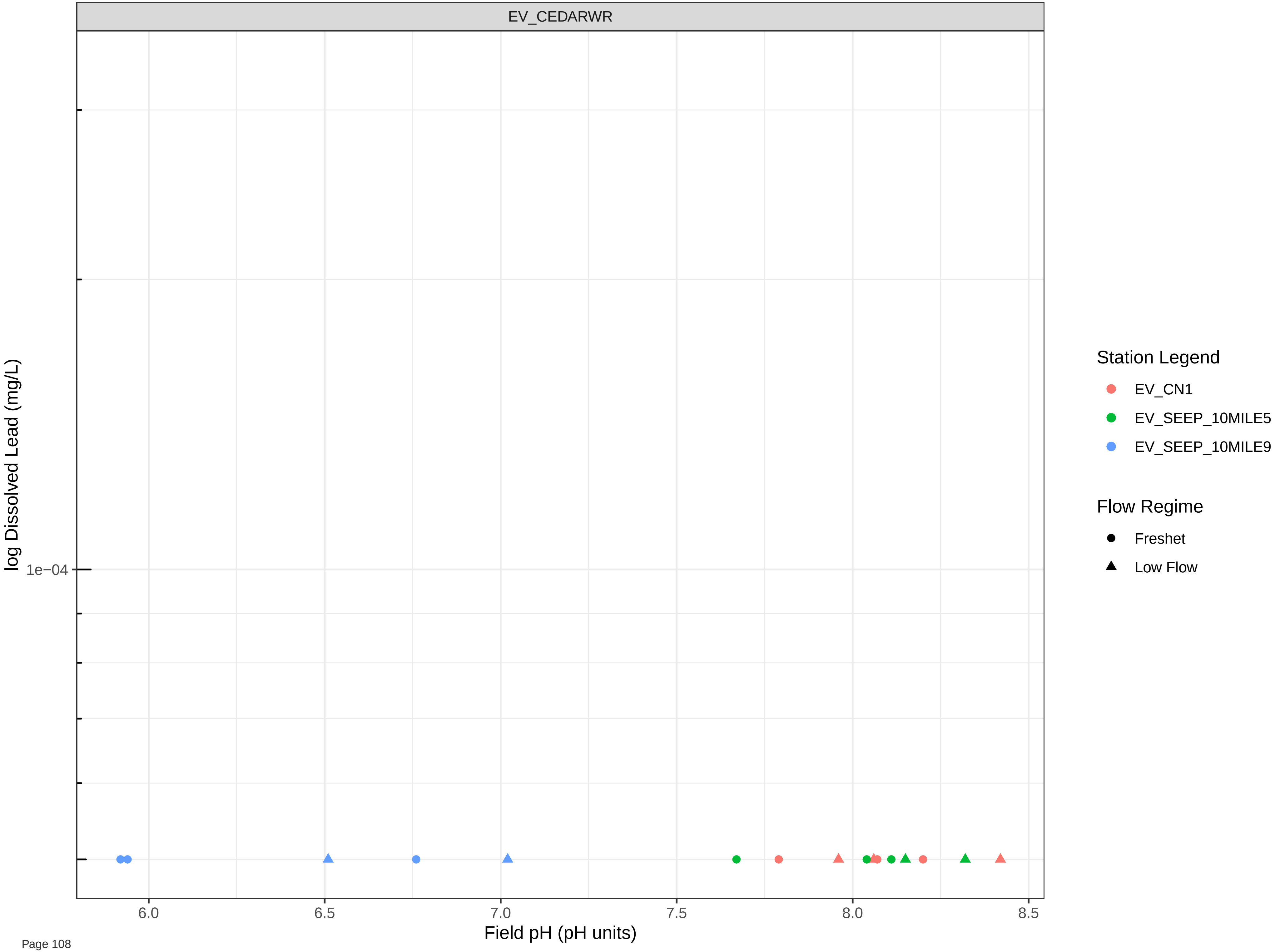

EV_SOUTHSLOPE
log Dissolved Iron (mg/L)
1
0.1
0.01
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

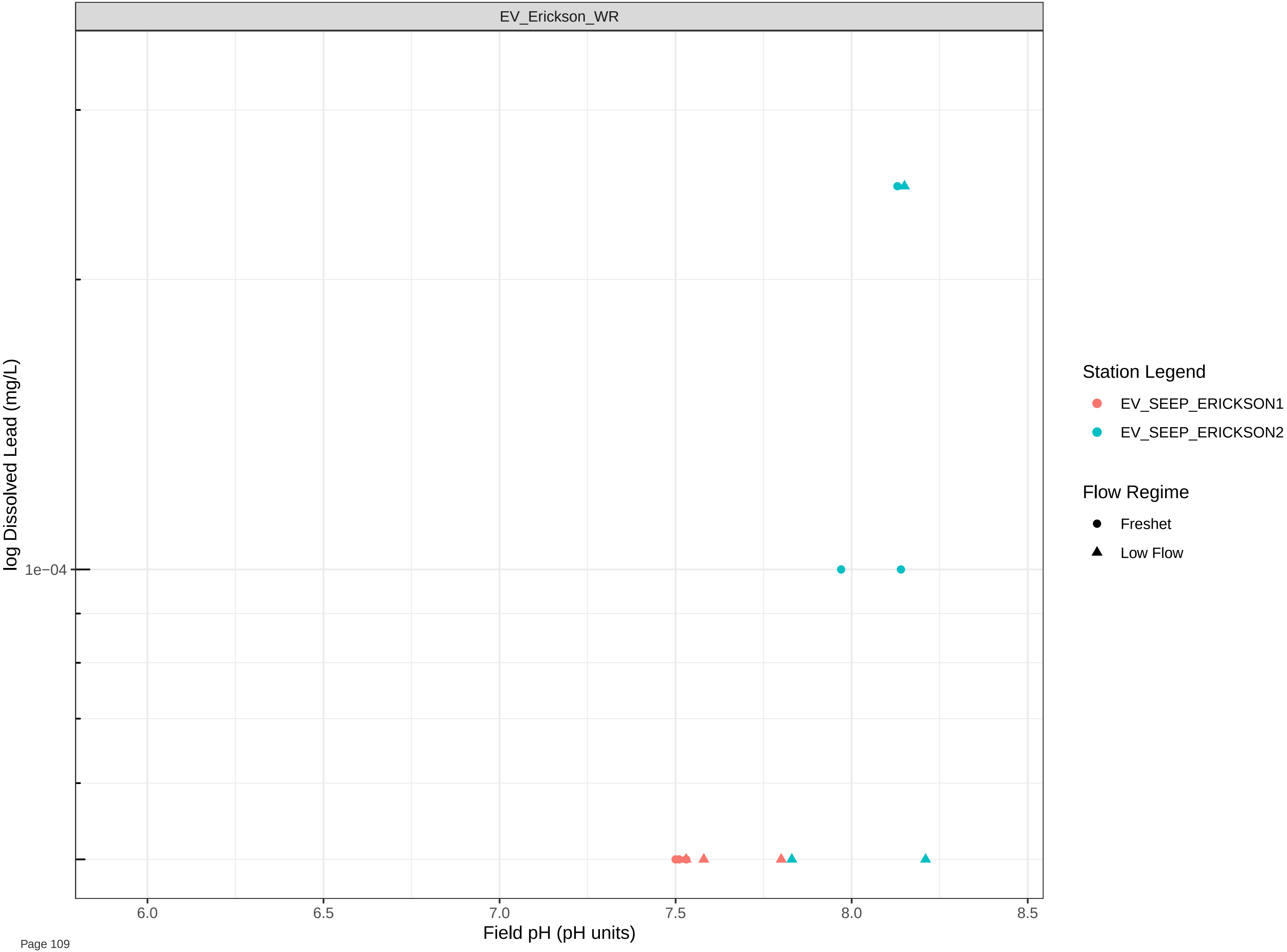

EV_SouthPit_Pit
log Dissolved Iron (mg/L)
1
0.1
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

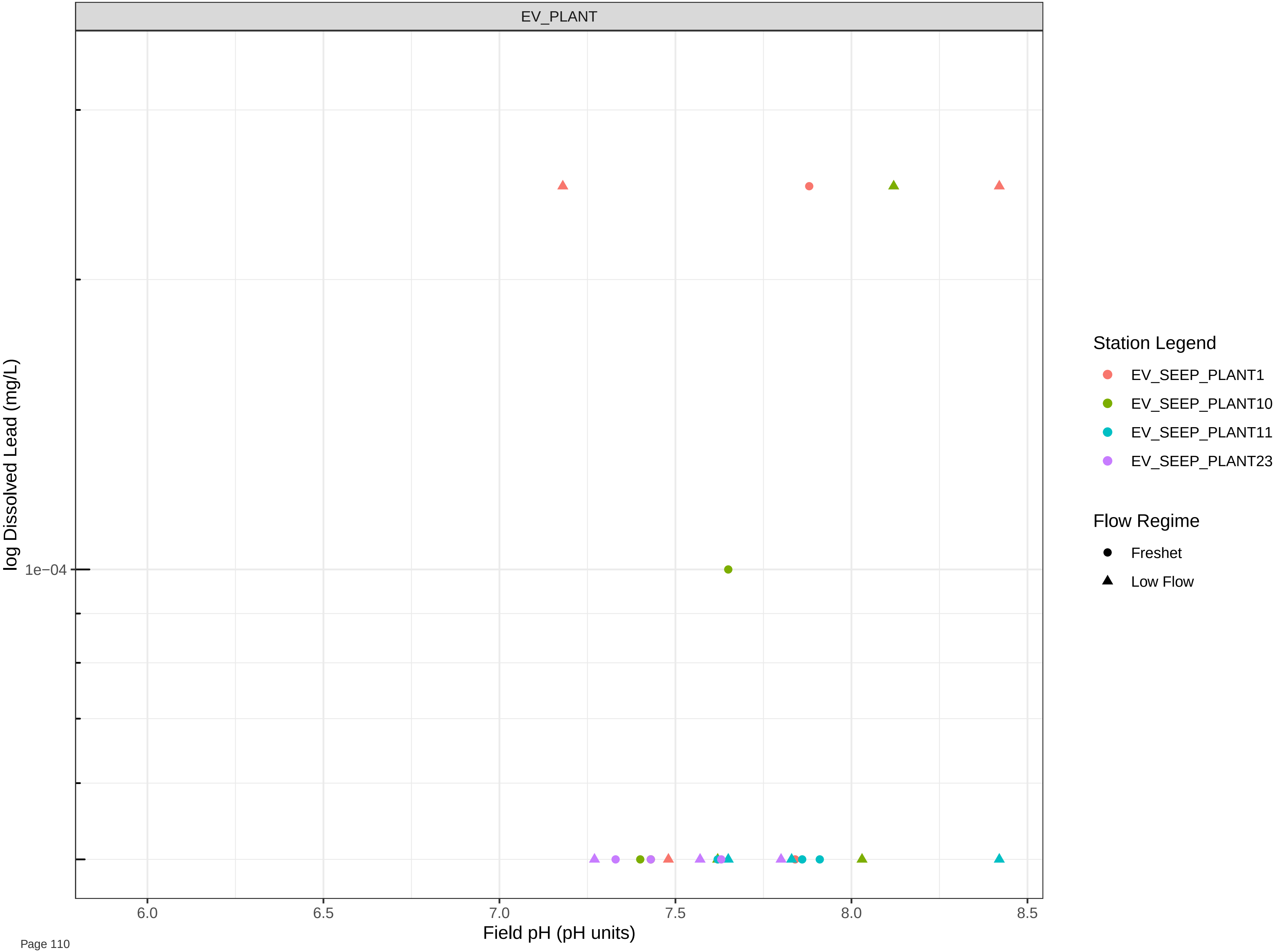

EV_BALDYRIDGEWR
log Dissolved Lead (mg/L)
1e−04
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

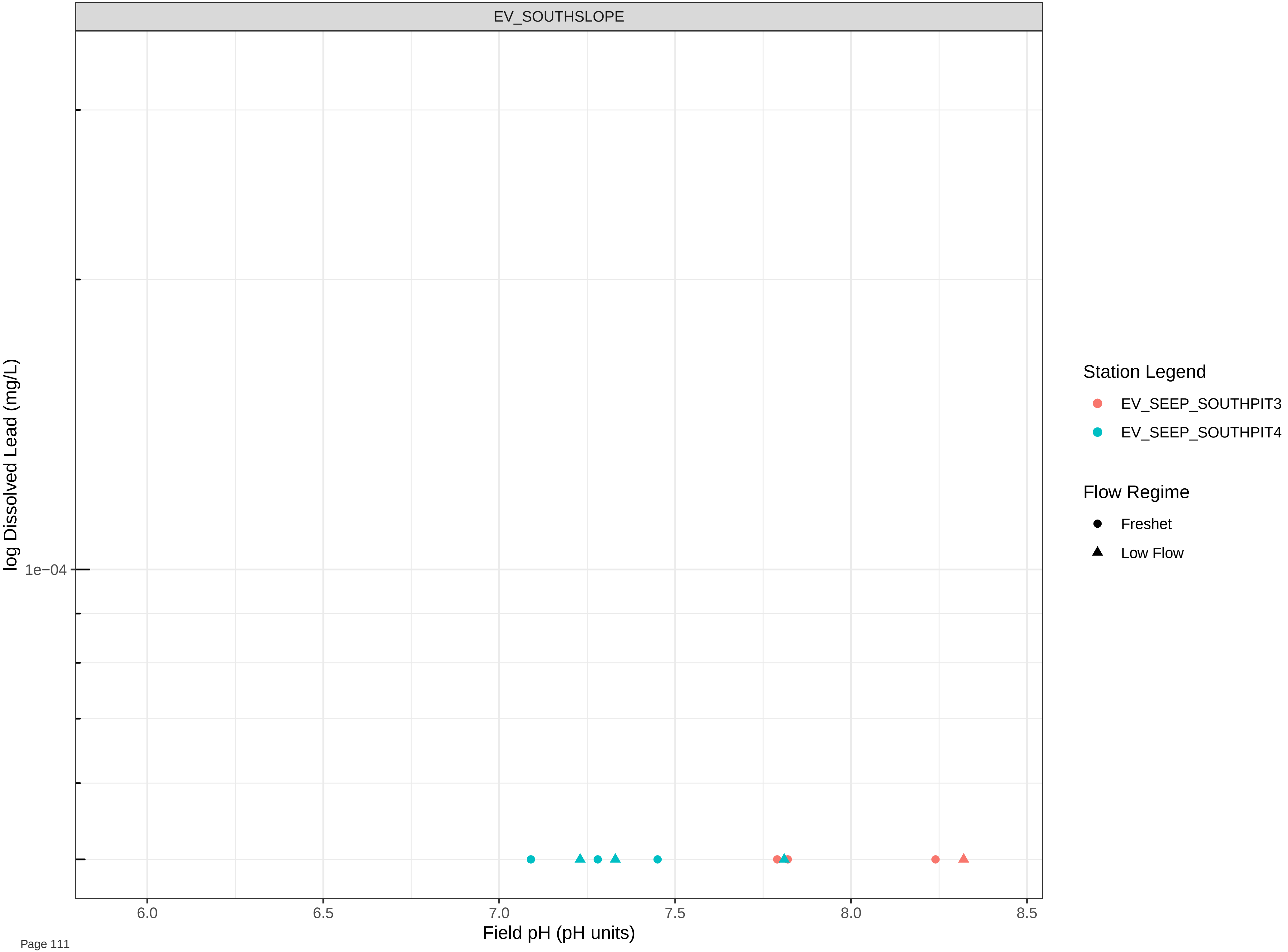

EV_CCR
log Dissolved Lead (mg/L)
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

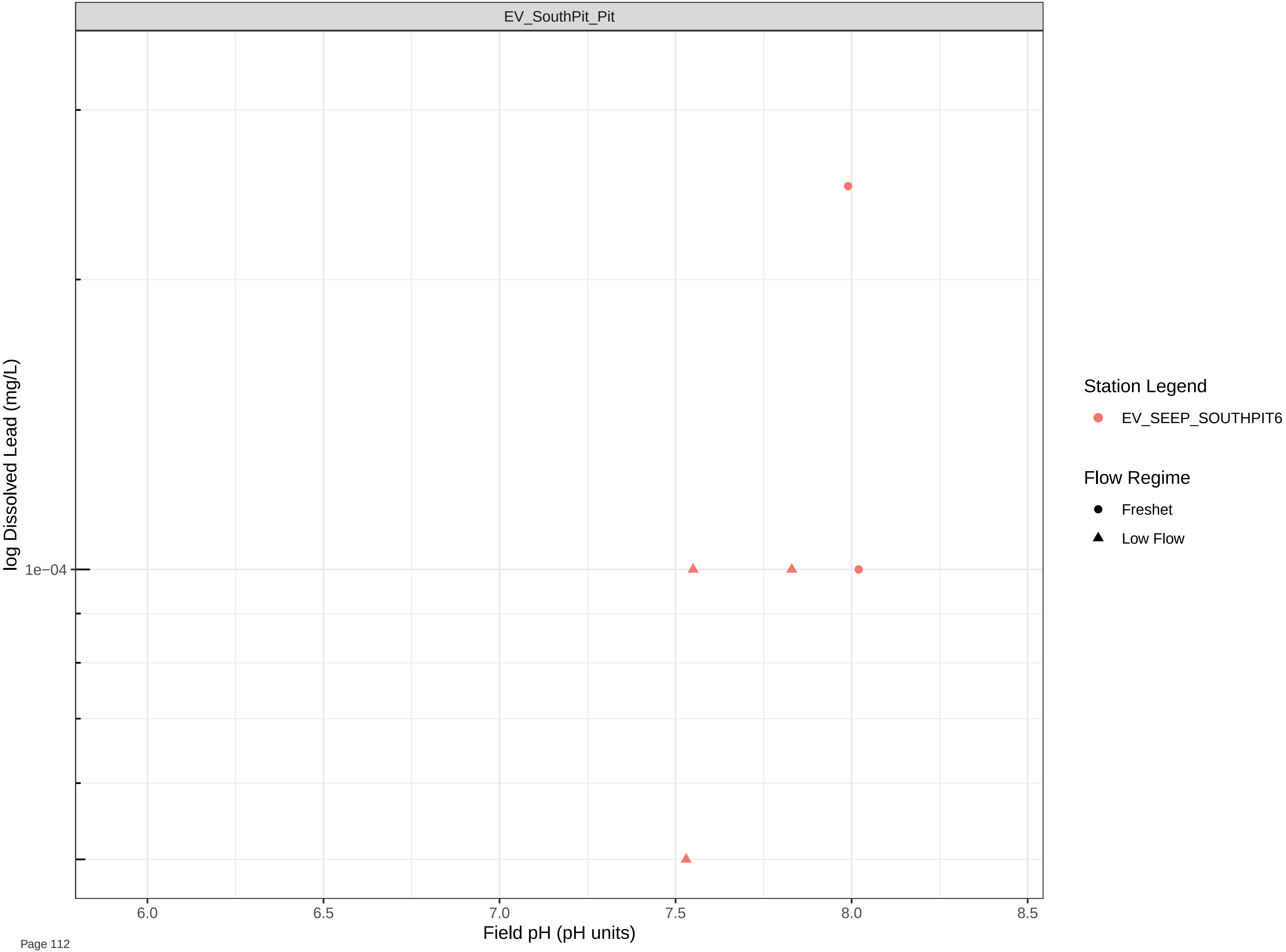

EV_CCR/TP
log Dissolved Lead (mg/L)
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

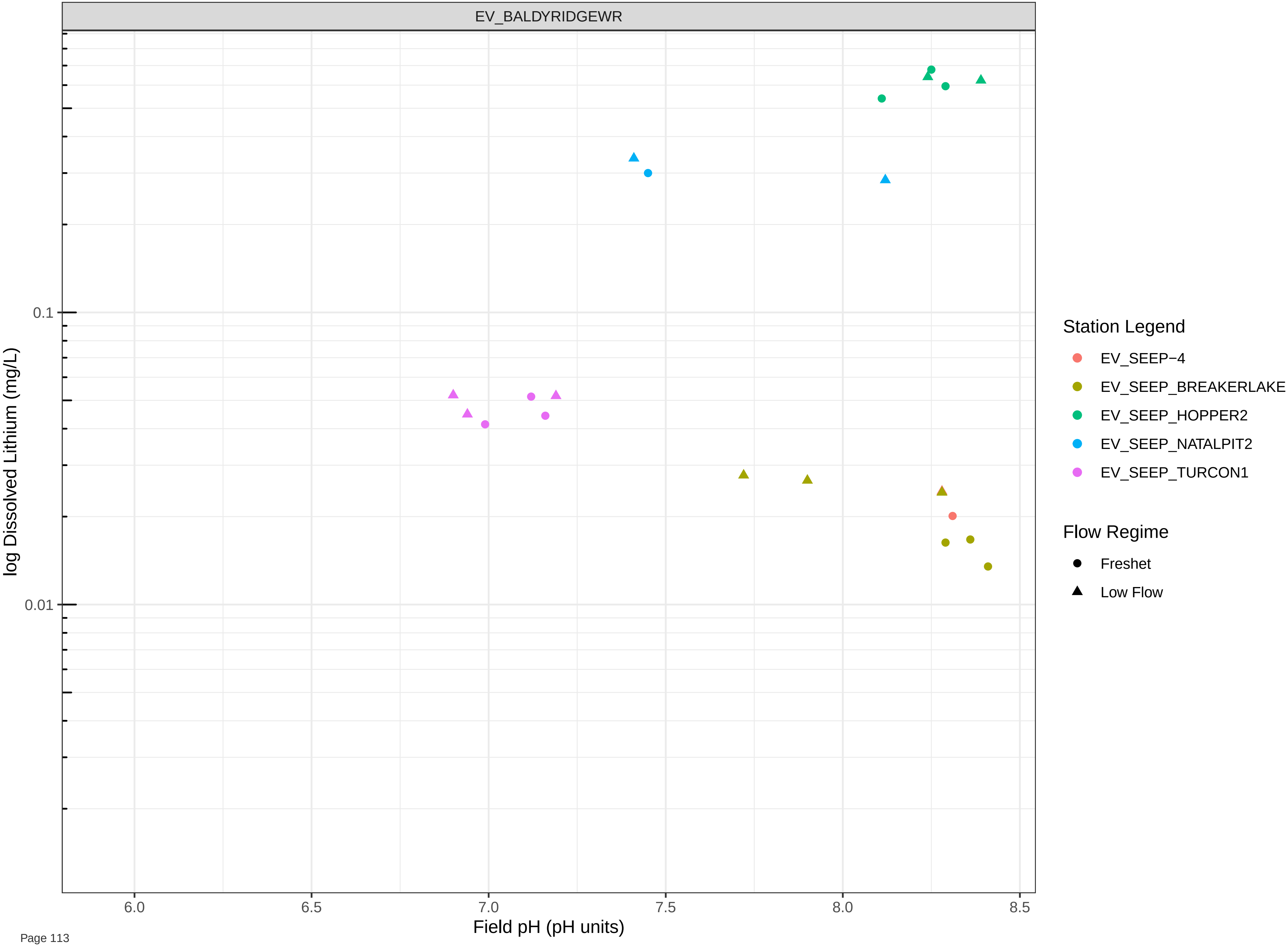

EV_CEDARWR
log Dissolved Lead (mg/L)
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_CN1
● EV_SEEP_10MILE5
● EV_SEEP_10MILE9
Flow Regime
● Freshet
▲ Low Flow

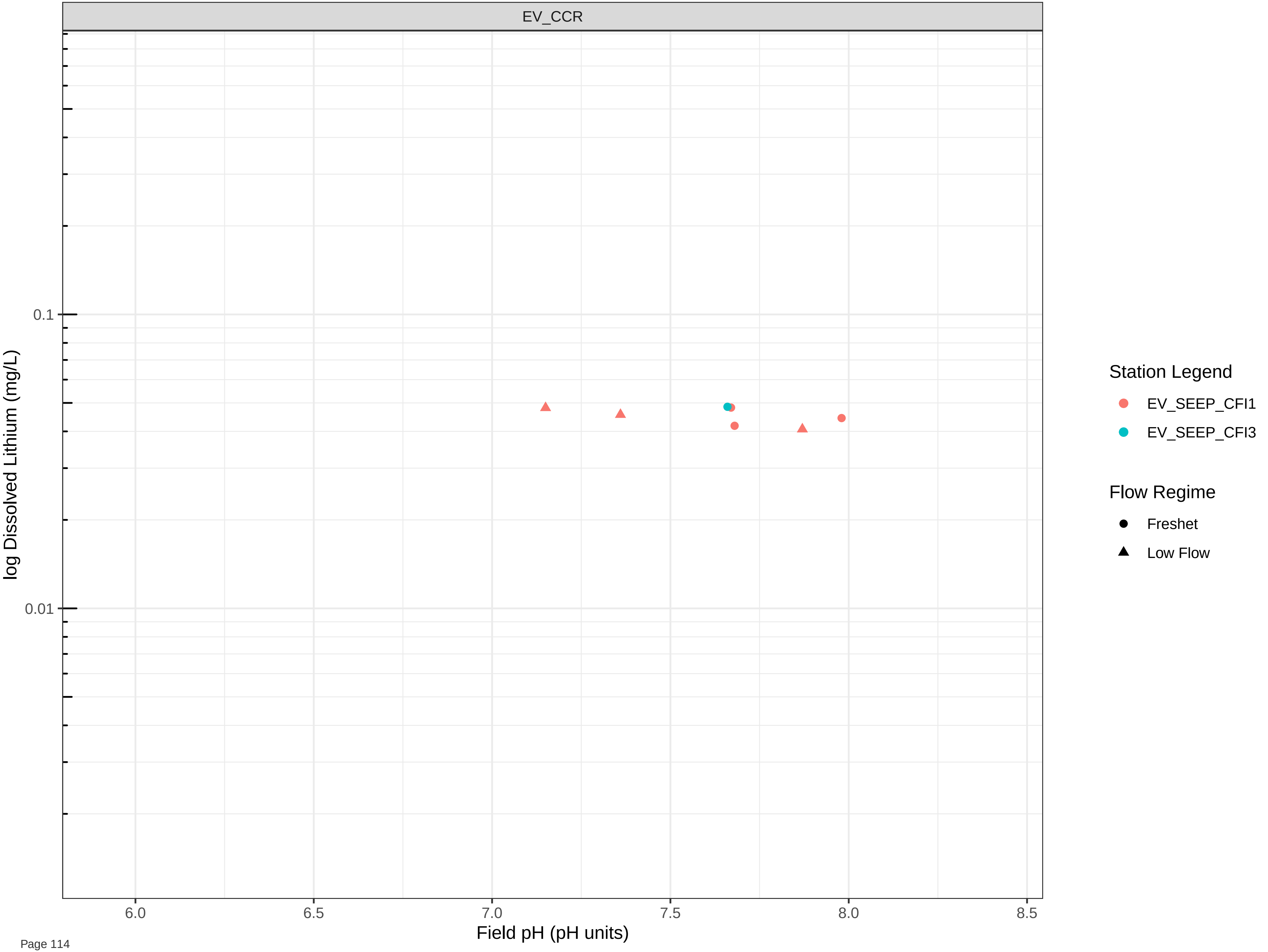

EV_Erickson_WR
log Dissolved Lead (mg/L)
1e−04
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

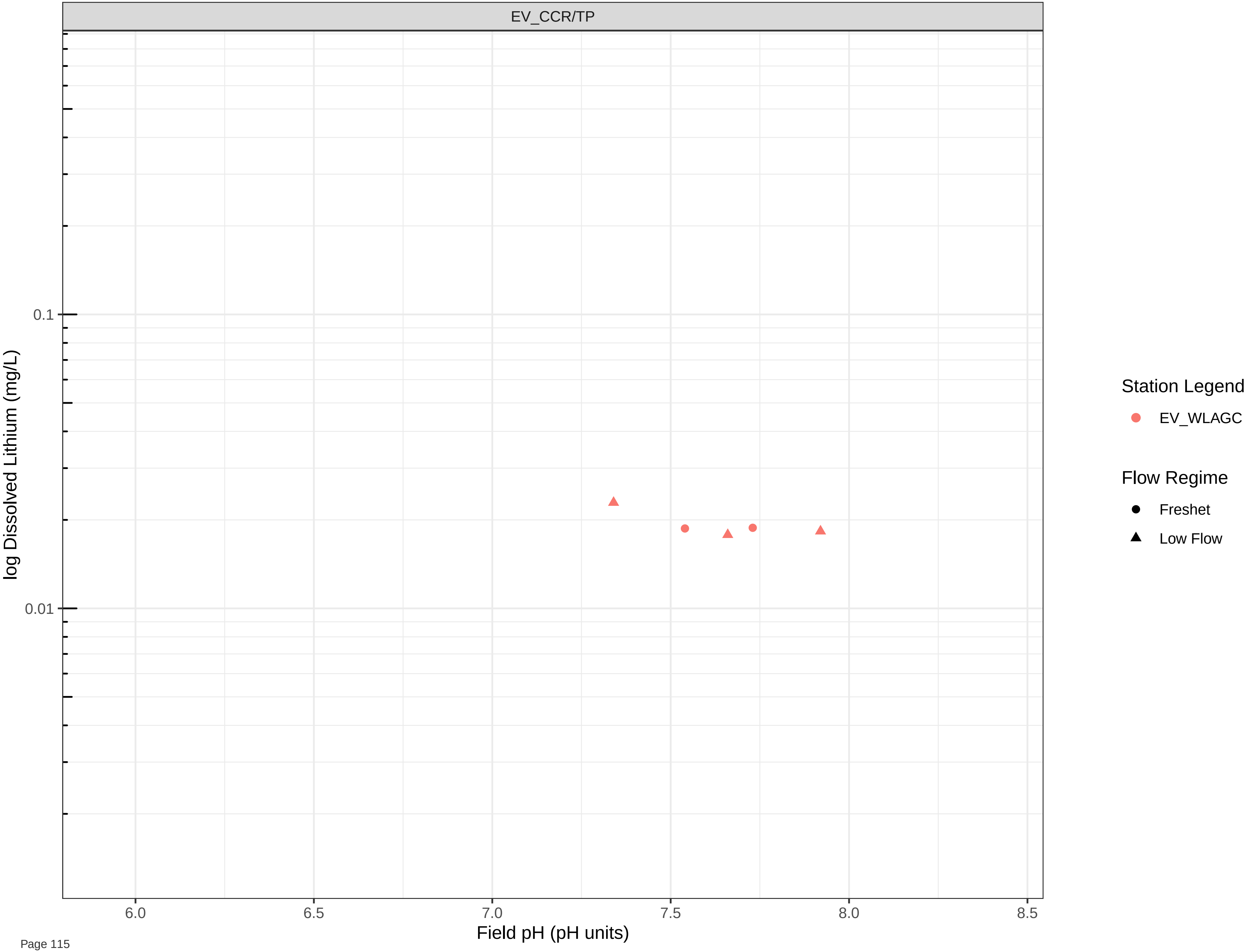

EV_PLANT
log Dissolved Lead (mg/L)
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

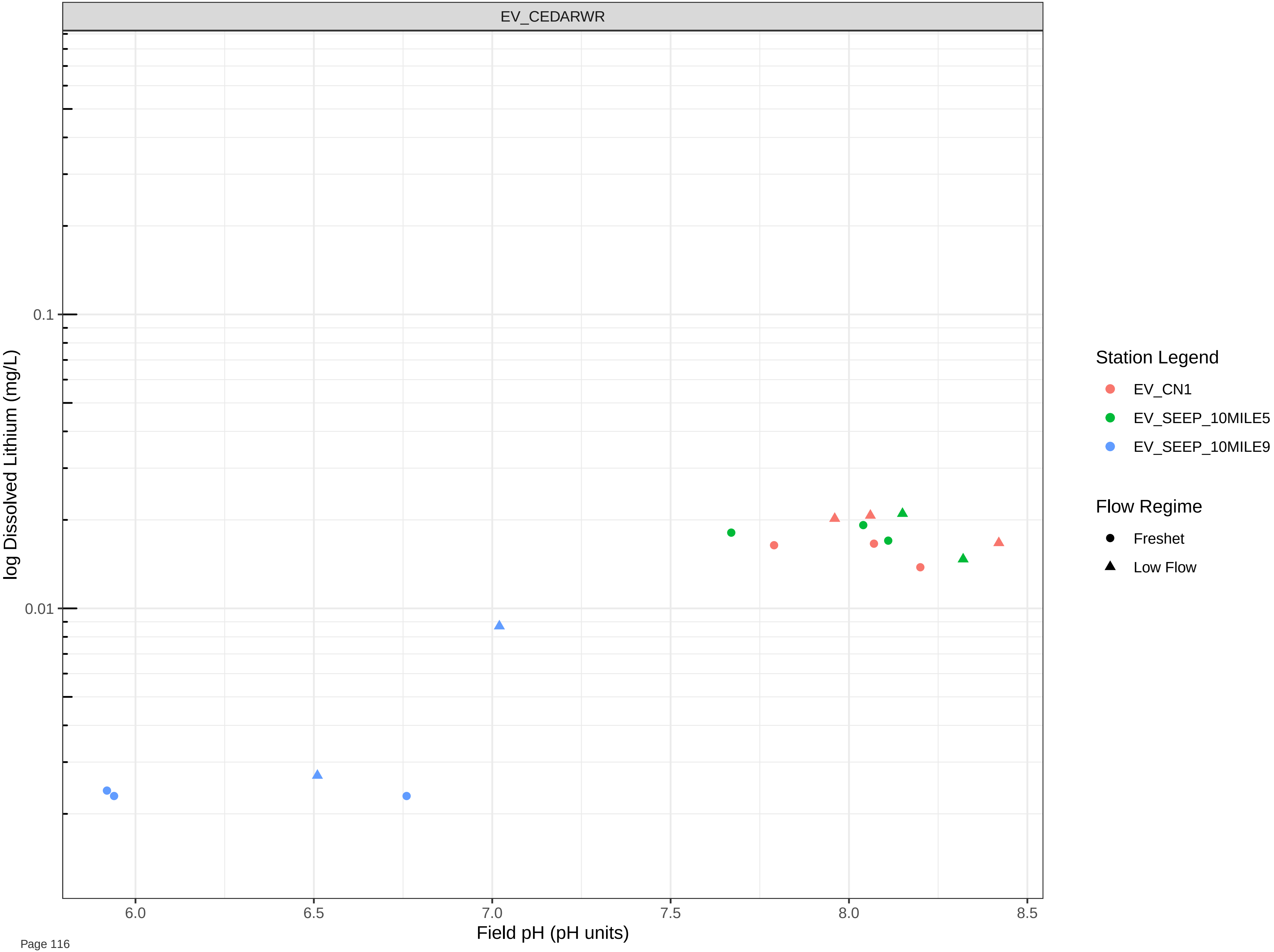

EV_SOUTHSLOPE
log Dissolved Lead (mg/L)
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

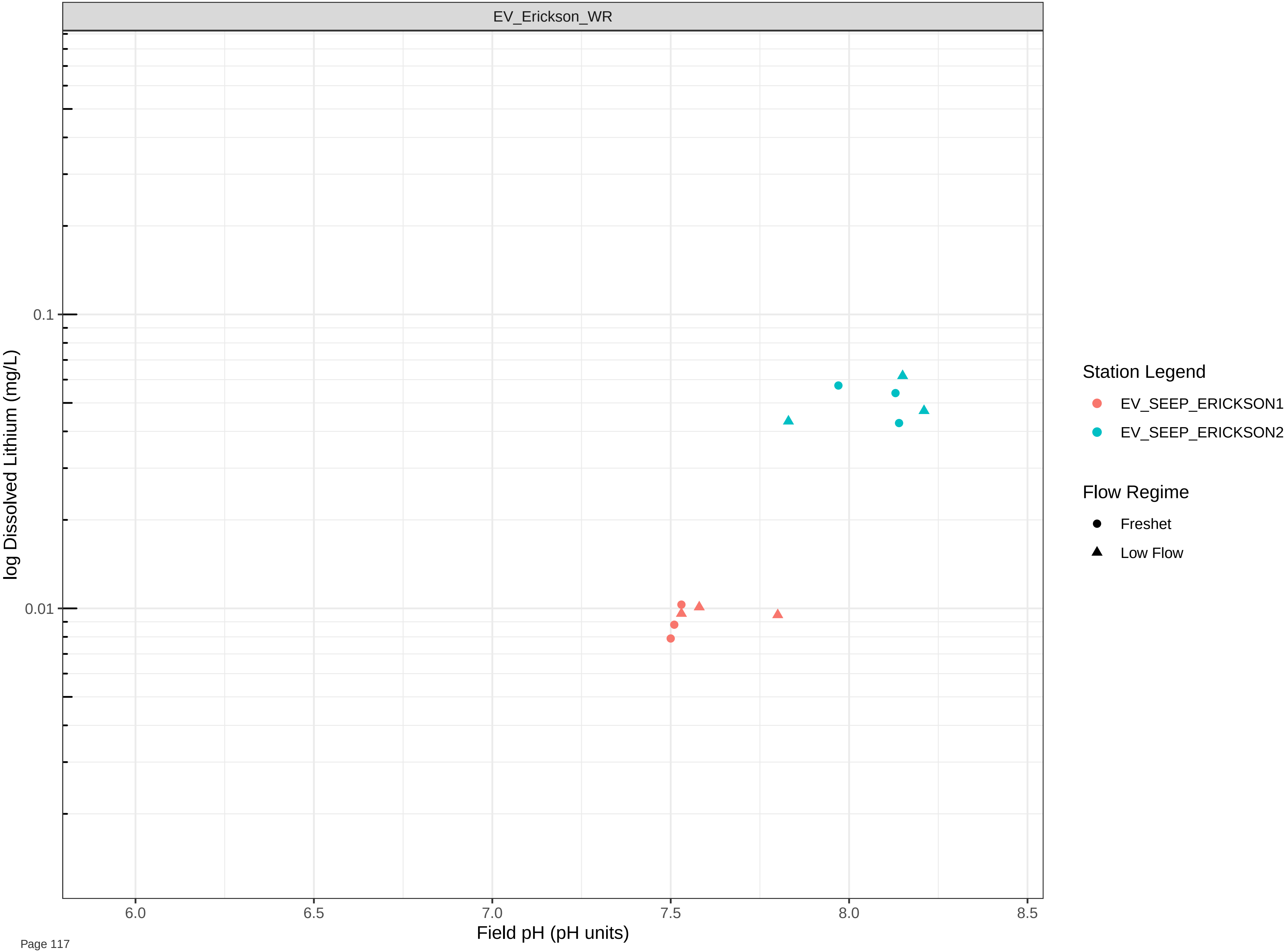

EV_SouthPit_Pit
log Dissolved Lead (mg/L)
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

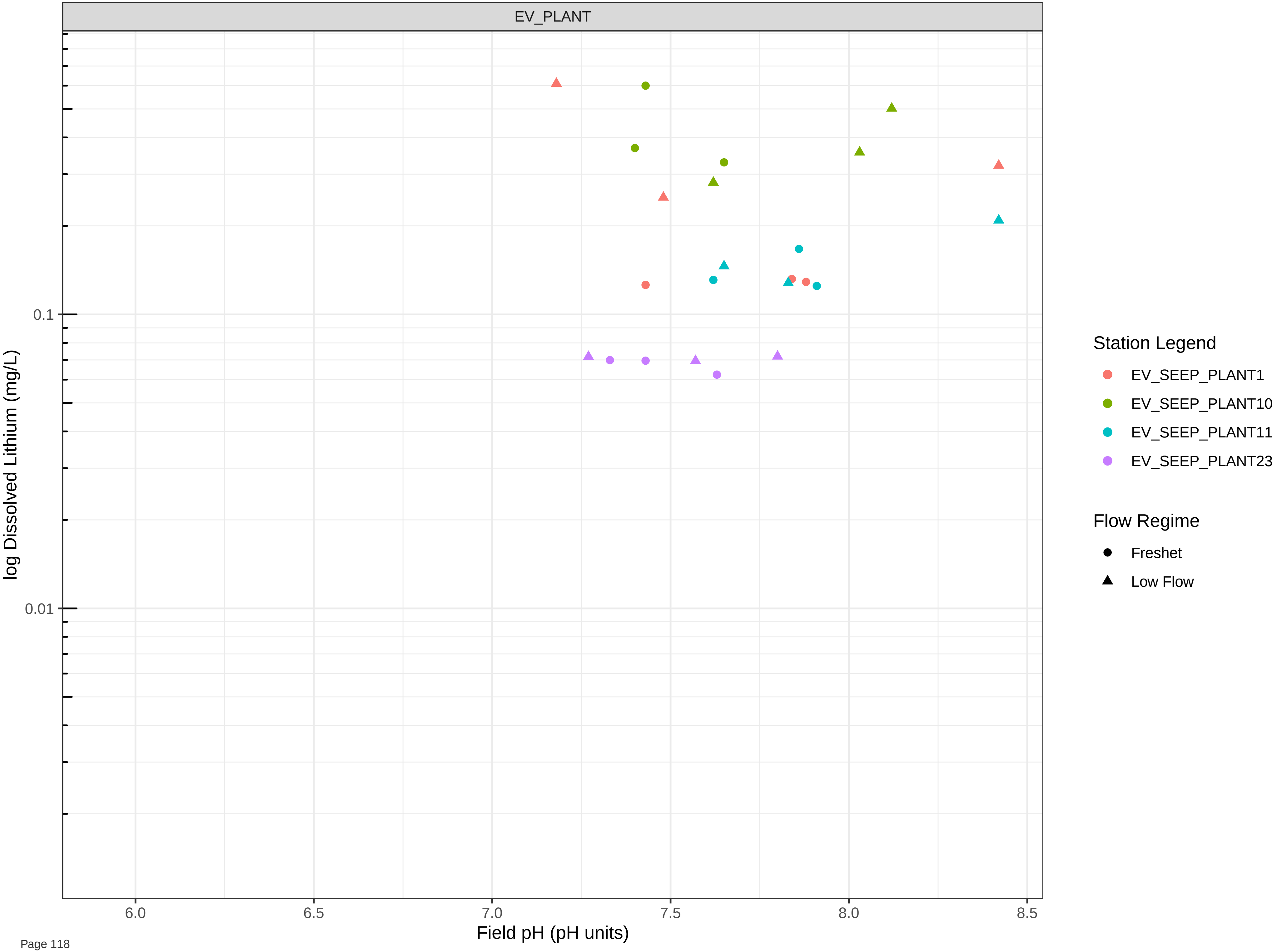

EV_BALDYRIDGEWR
log Dissolved Lithium (mg/L)
0.1
0.01
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

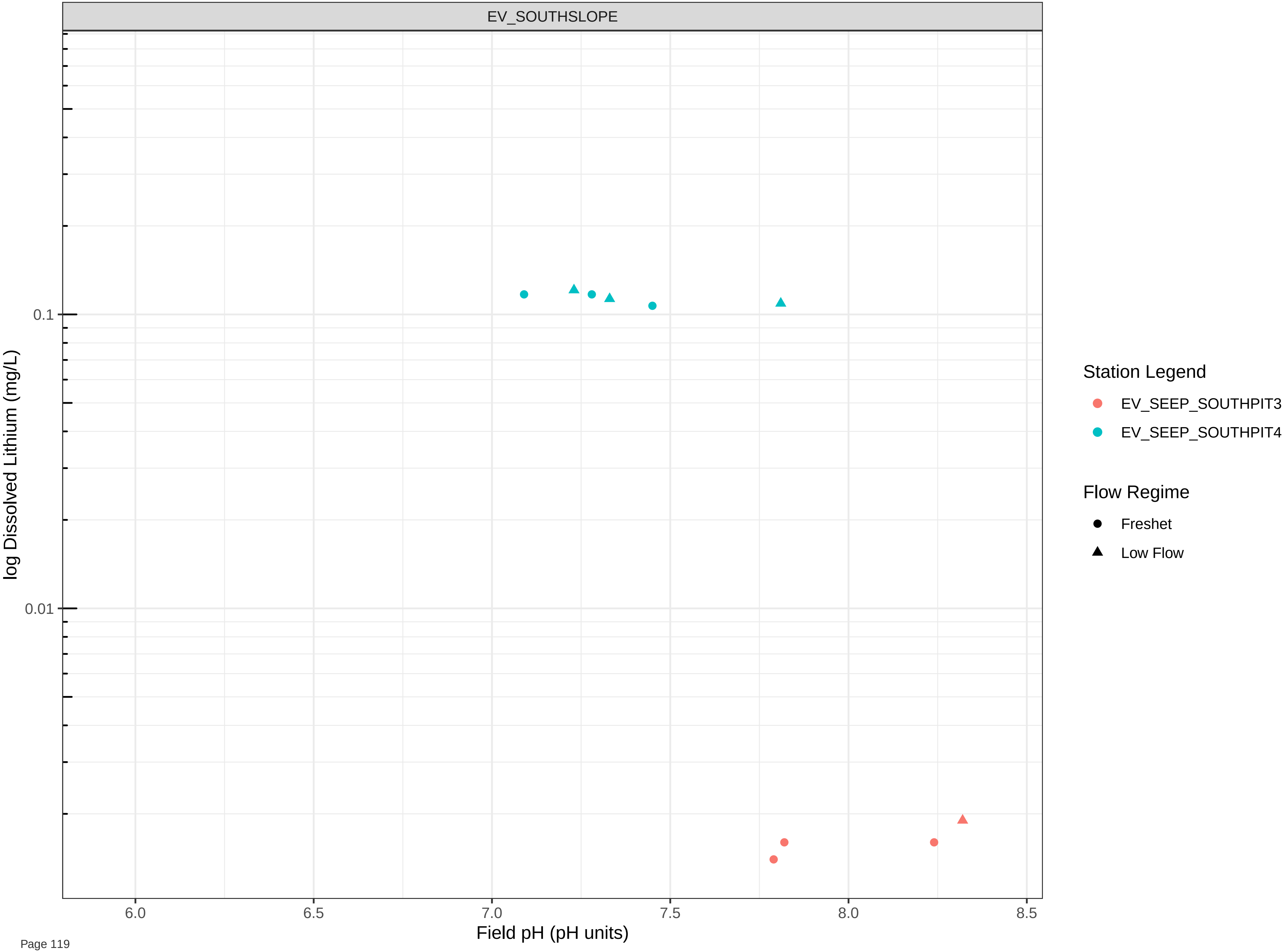

EV_CCR
log Dissolved Lithium (mg/L)
0.1
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

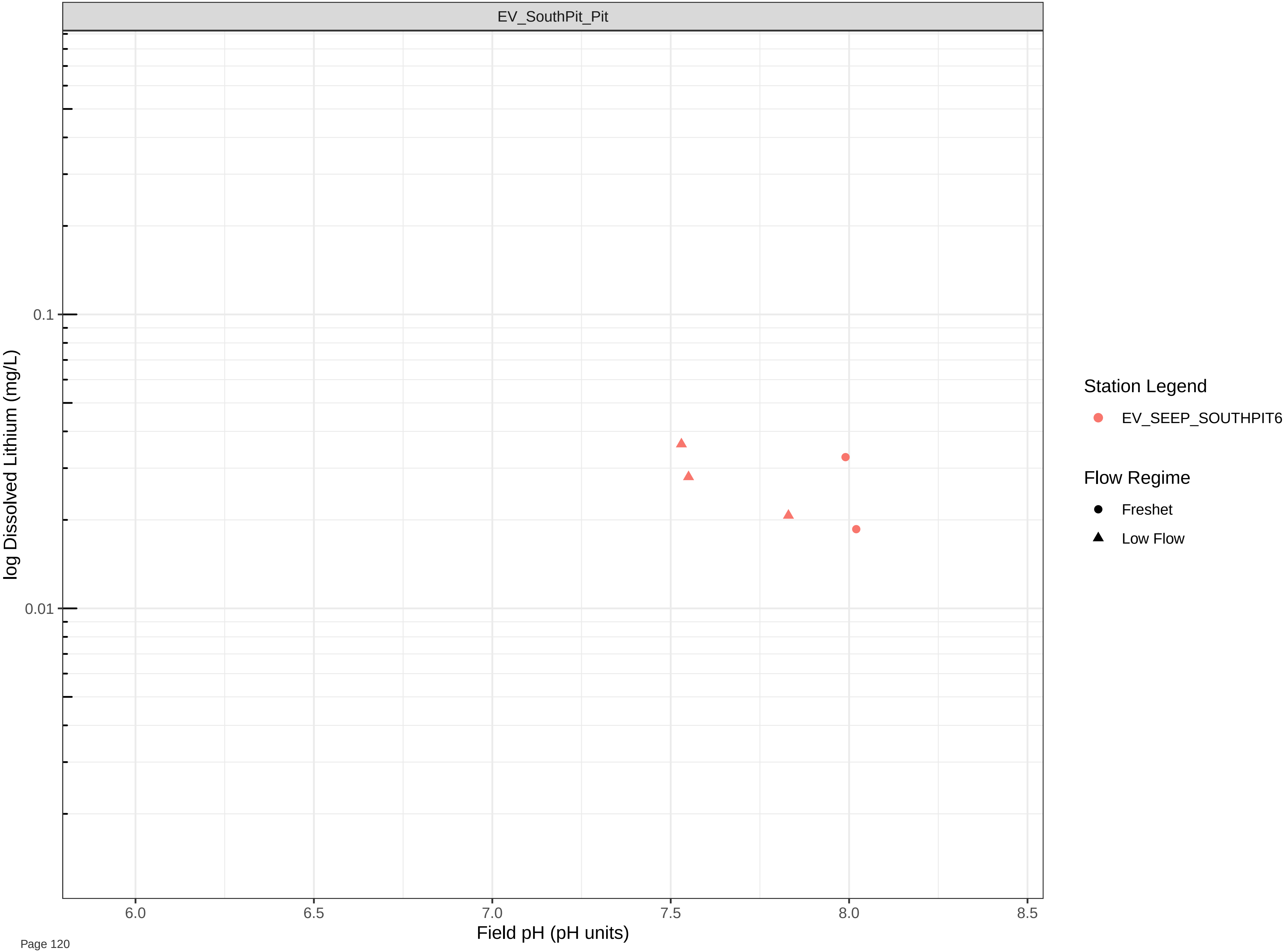

EV_CCR/TP
log Dissolved Lithium (mg/L)
0.1
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

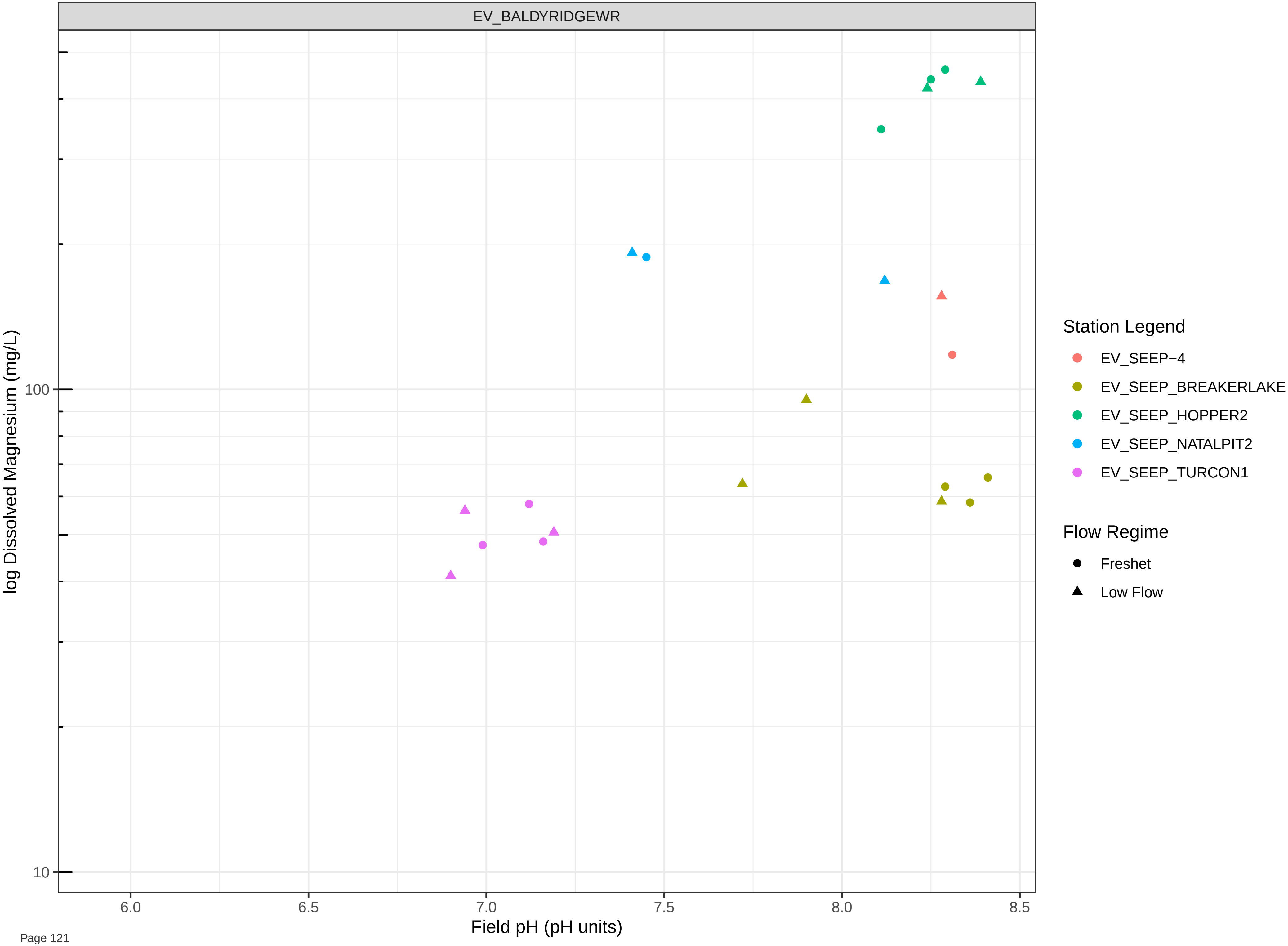

EV_CEDARWR
log Dissolved Lithium (mg/L)
0.1
0.01
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

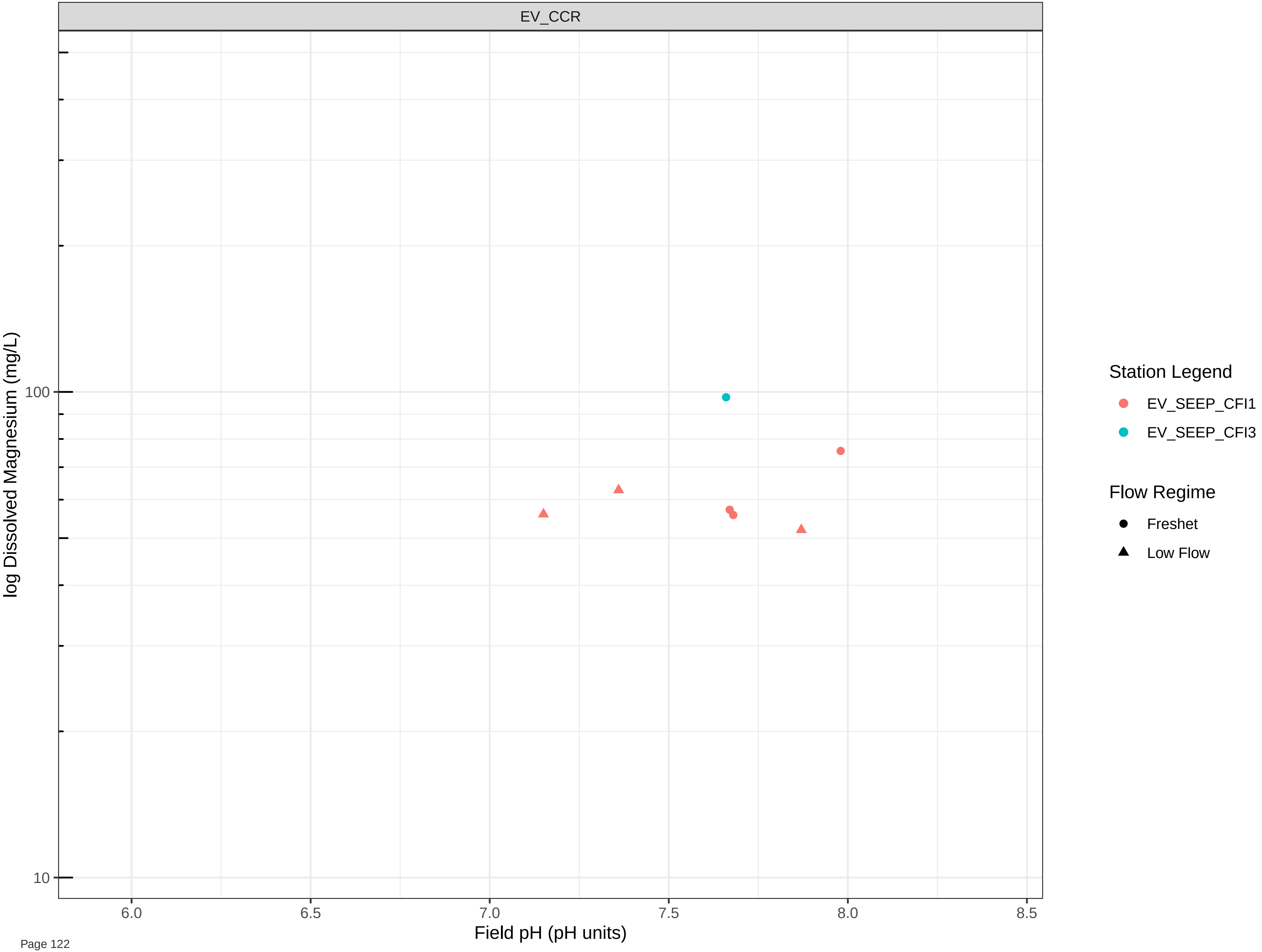

EV_Erickson_WR
log Dissolved Lithium (mg/L)
0.1
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

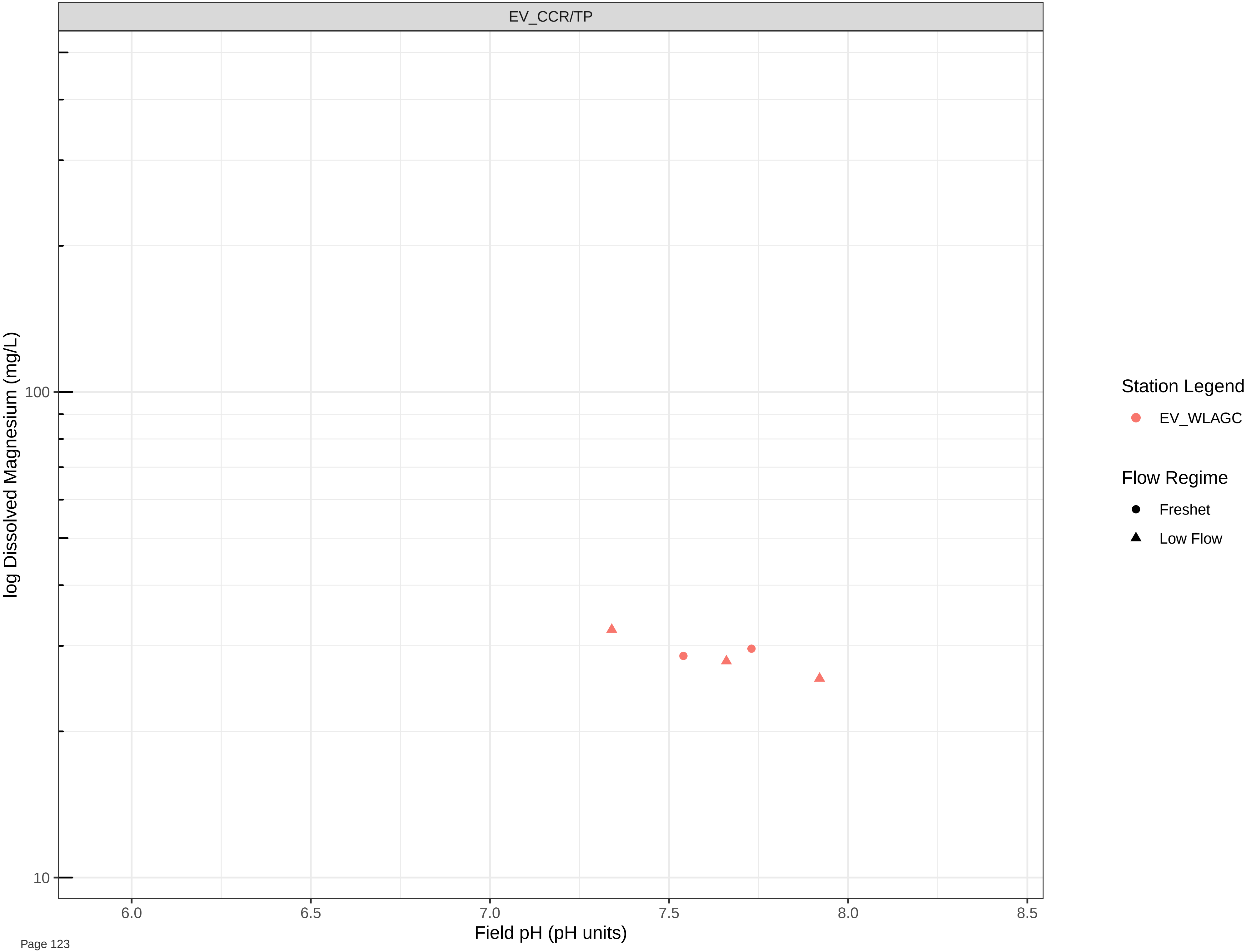

EV_PLANT
log Dissolved Lithium (mg/L)
0.1
0.01
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

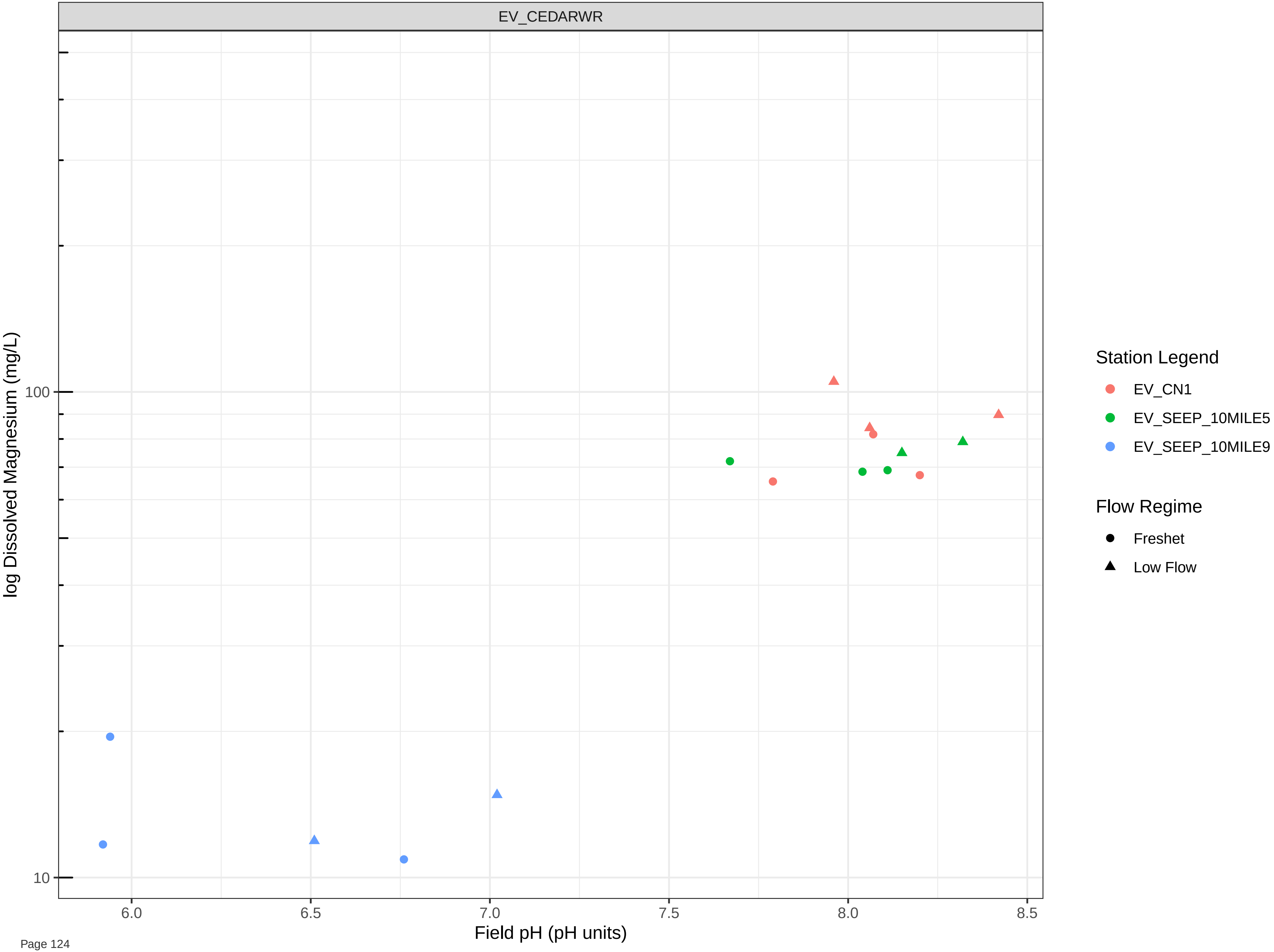

EV_SOUTHSLOPE
0.1
0.01
log Dissolved Lithium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

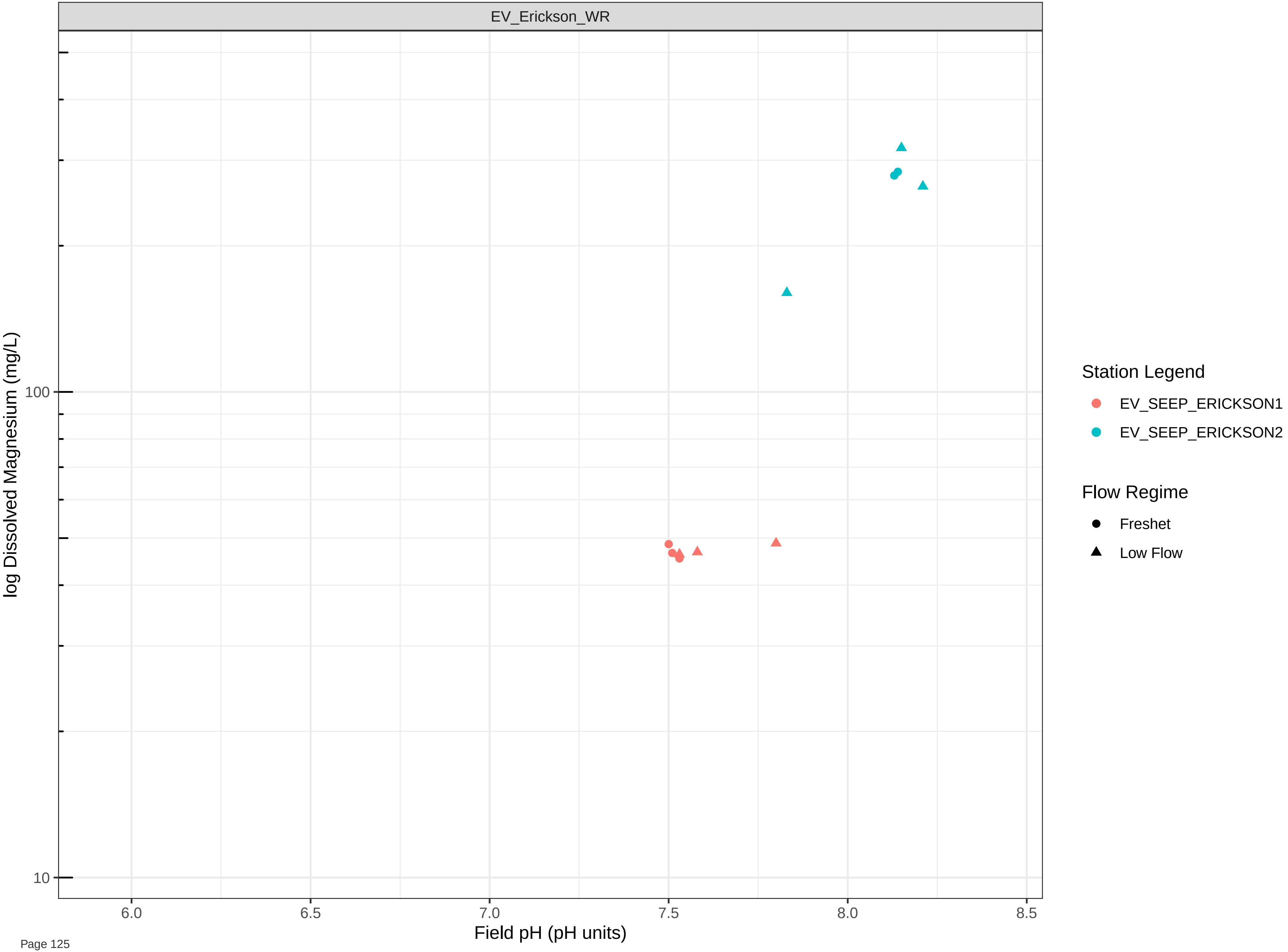

EV_SouthPit_Pit
log Dissolved Lithium (mg/L)
0.1
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

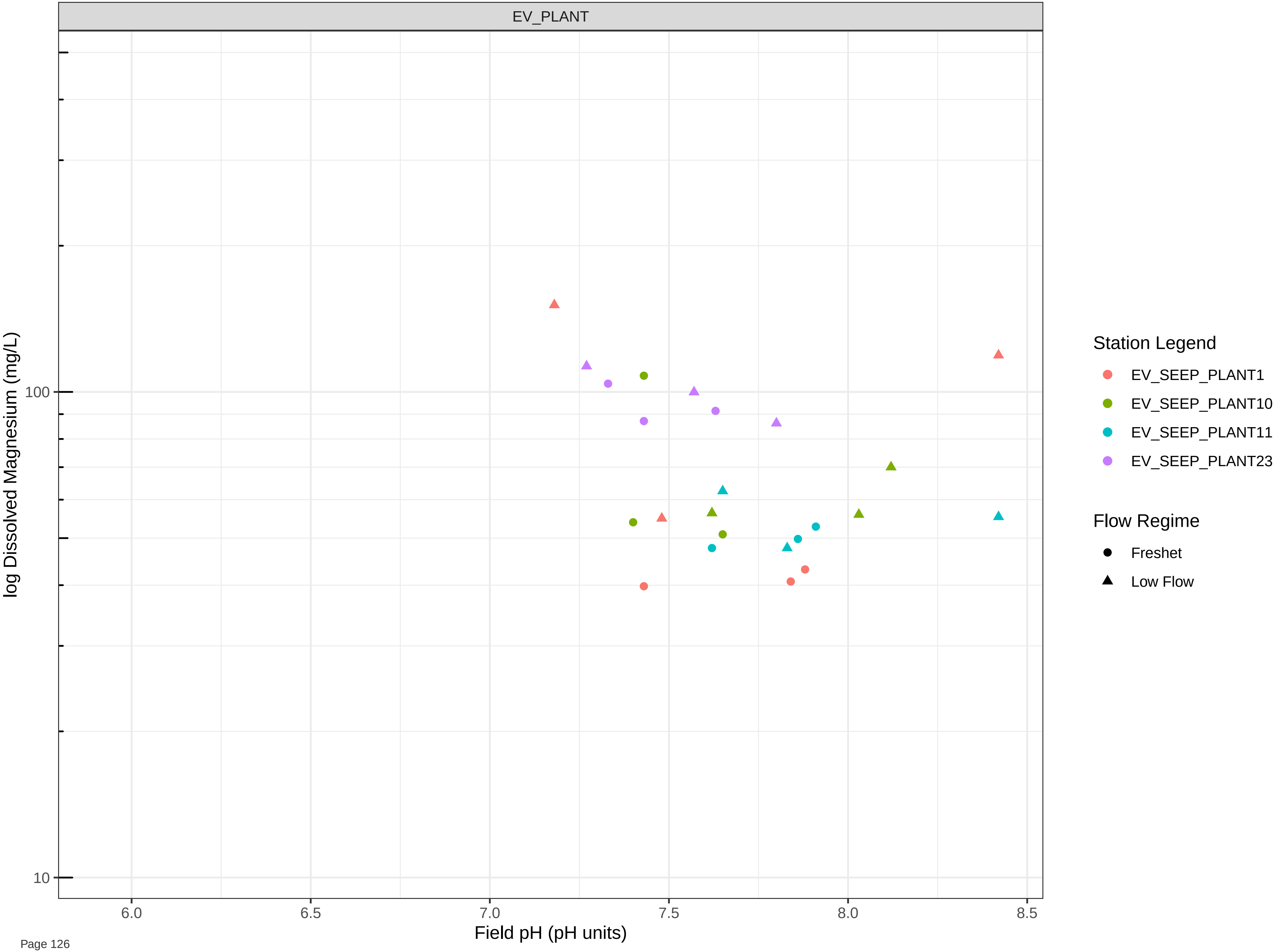

EV_BALDYRIDGEWR
log Dissolved Magnesium (mg/L)
100
10
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

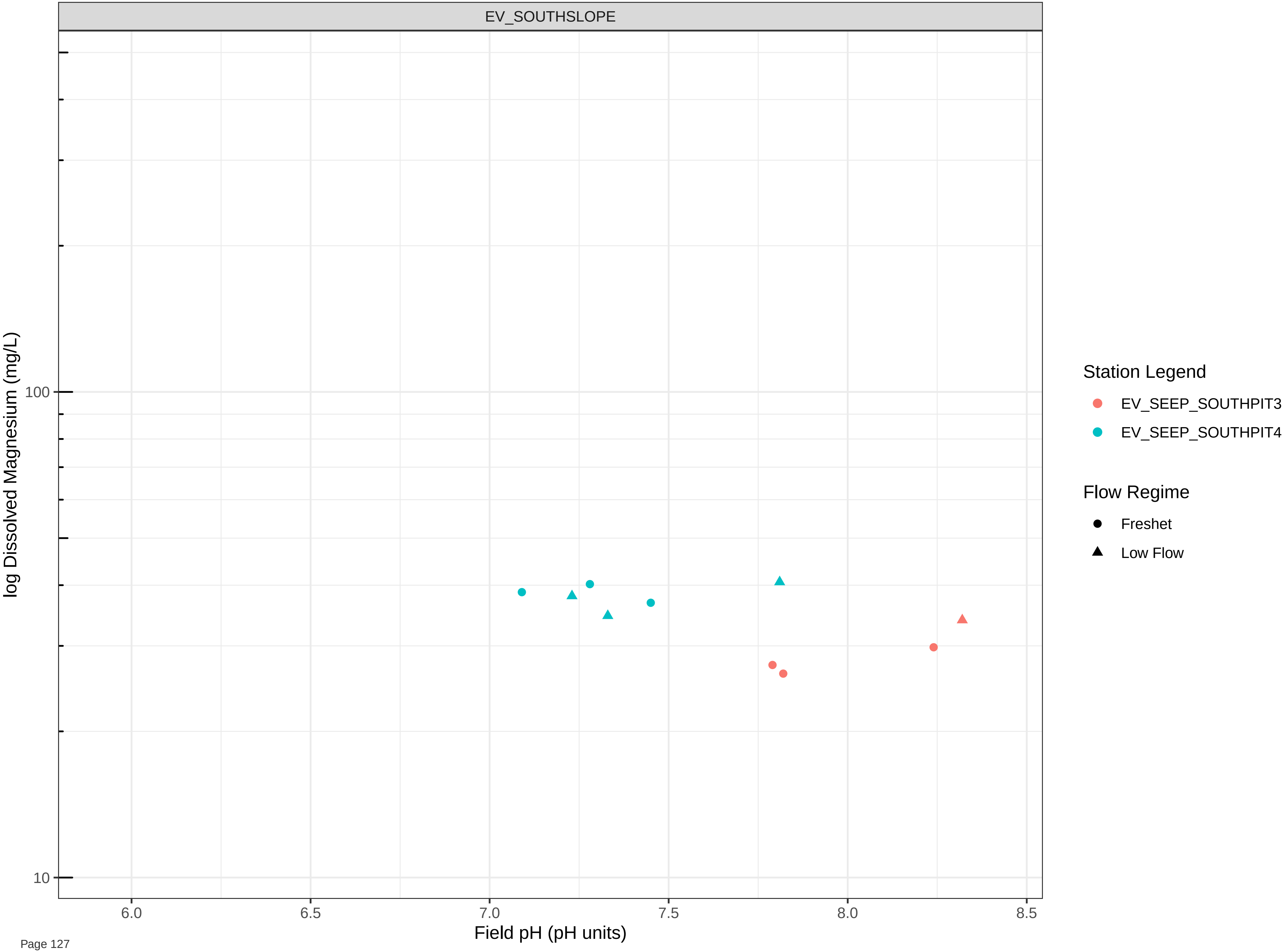

EV_CCR
log Dissolved Magnesium (mg/L)
100
10
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

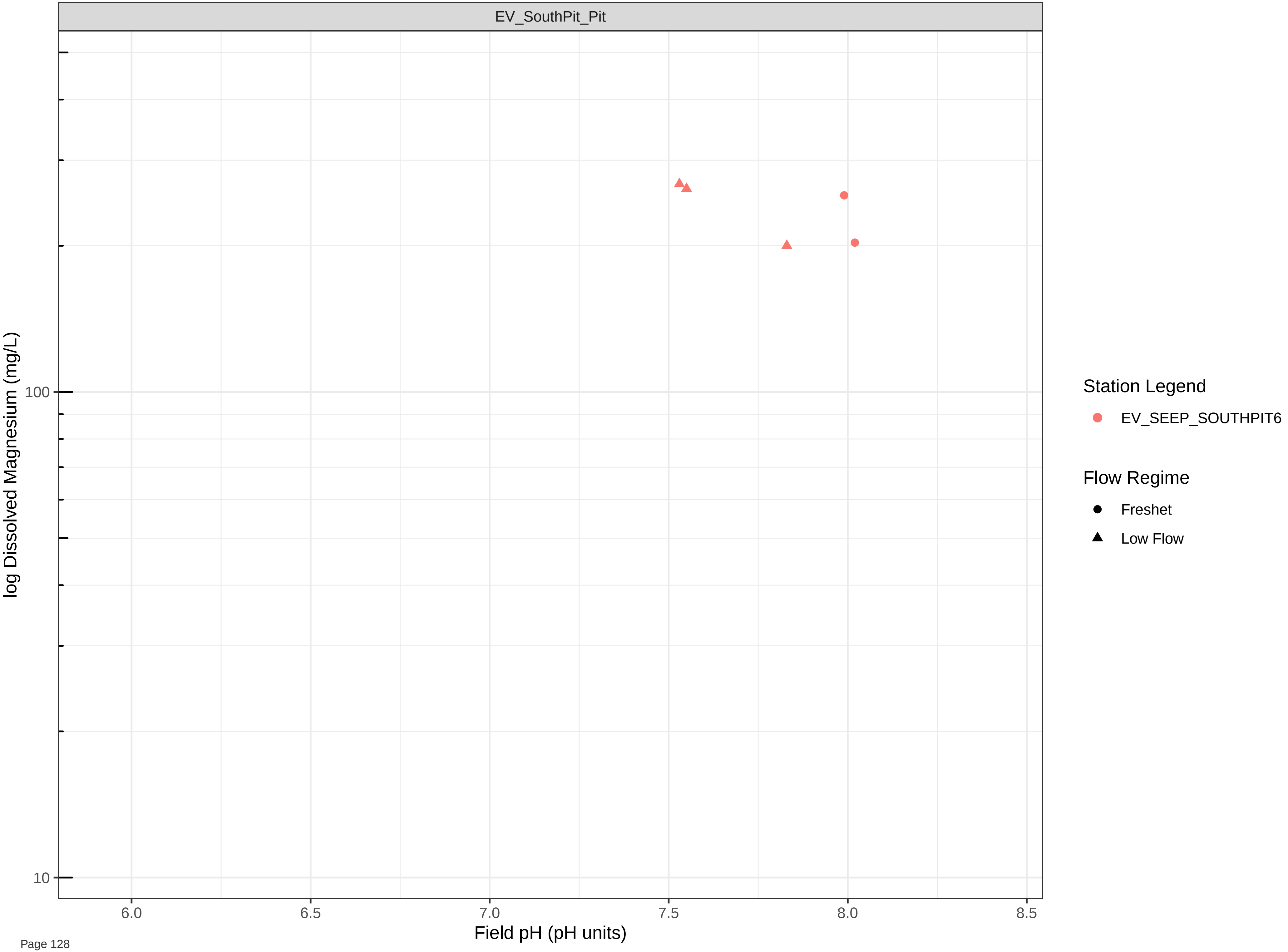

EV_CCR/TP
log Dissolved Magnesium (mg/L)
100
10
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

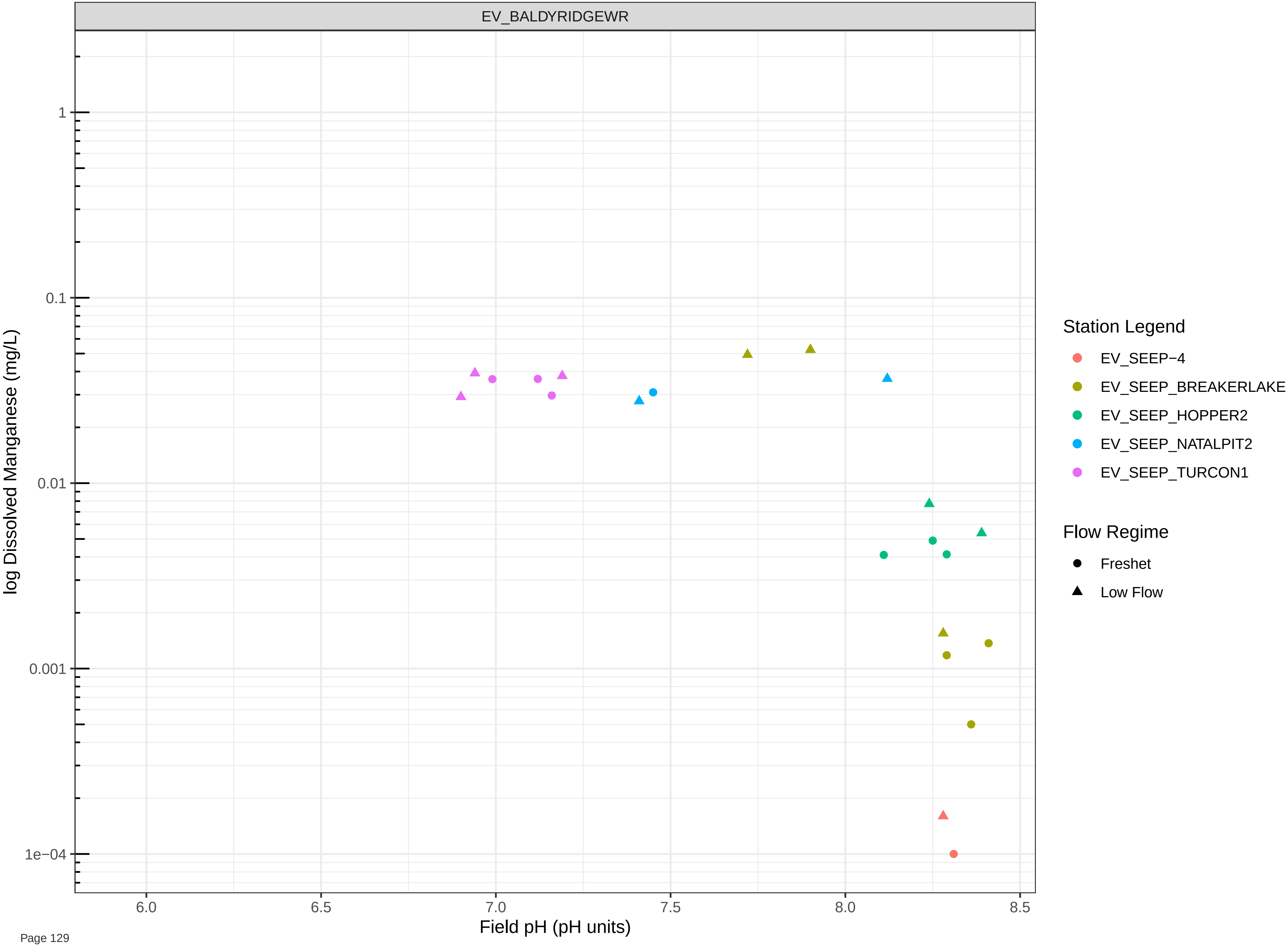

EV_CEDARWR
log Dissolved Magnesium (mg/L)
100
10
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

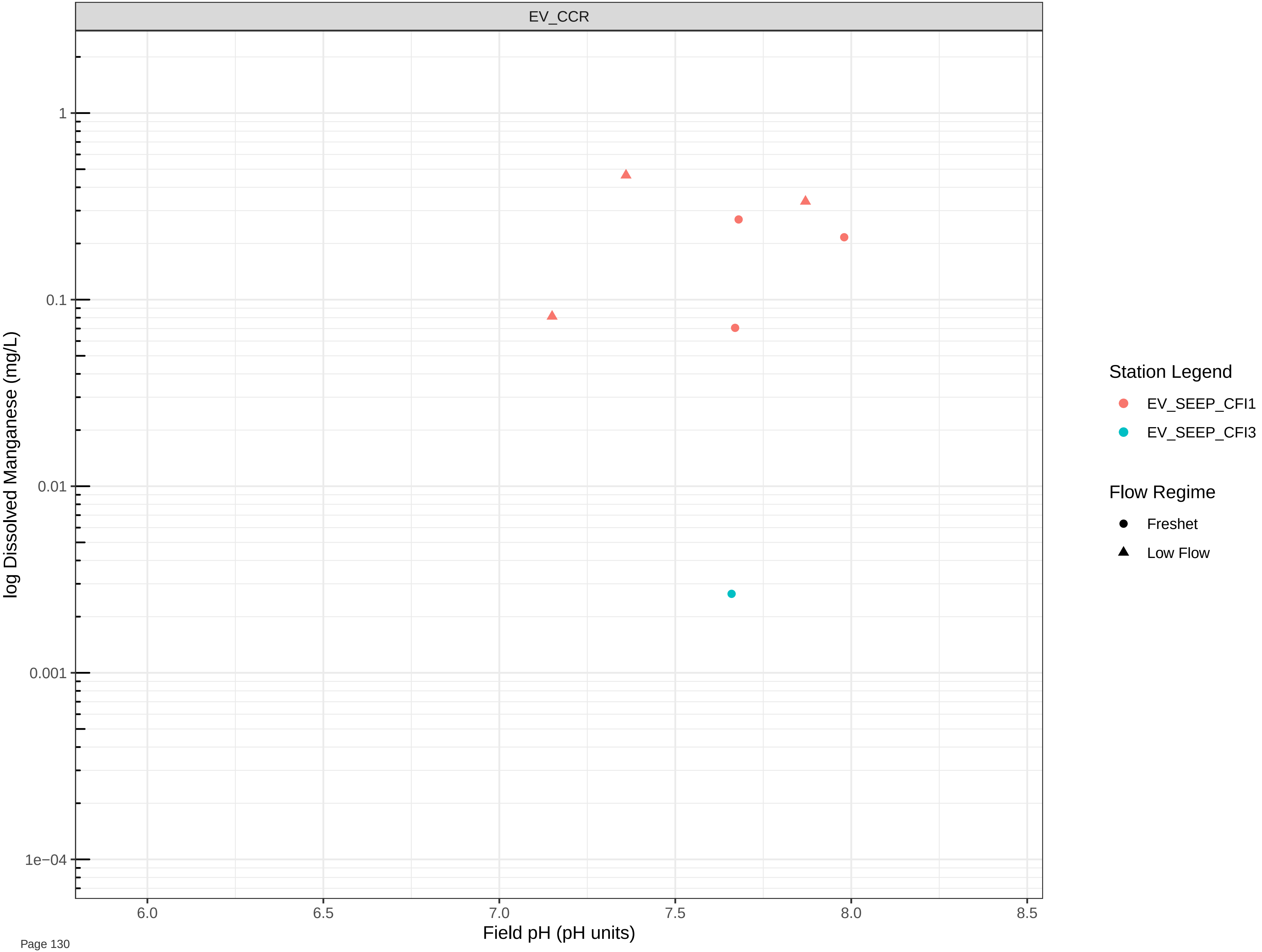

EV_Erickson_WR
log Dissolved Magnesium (mg/L)
100
10
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

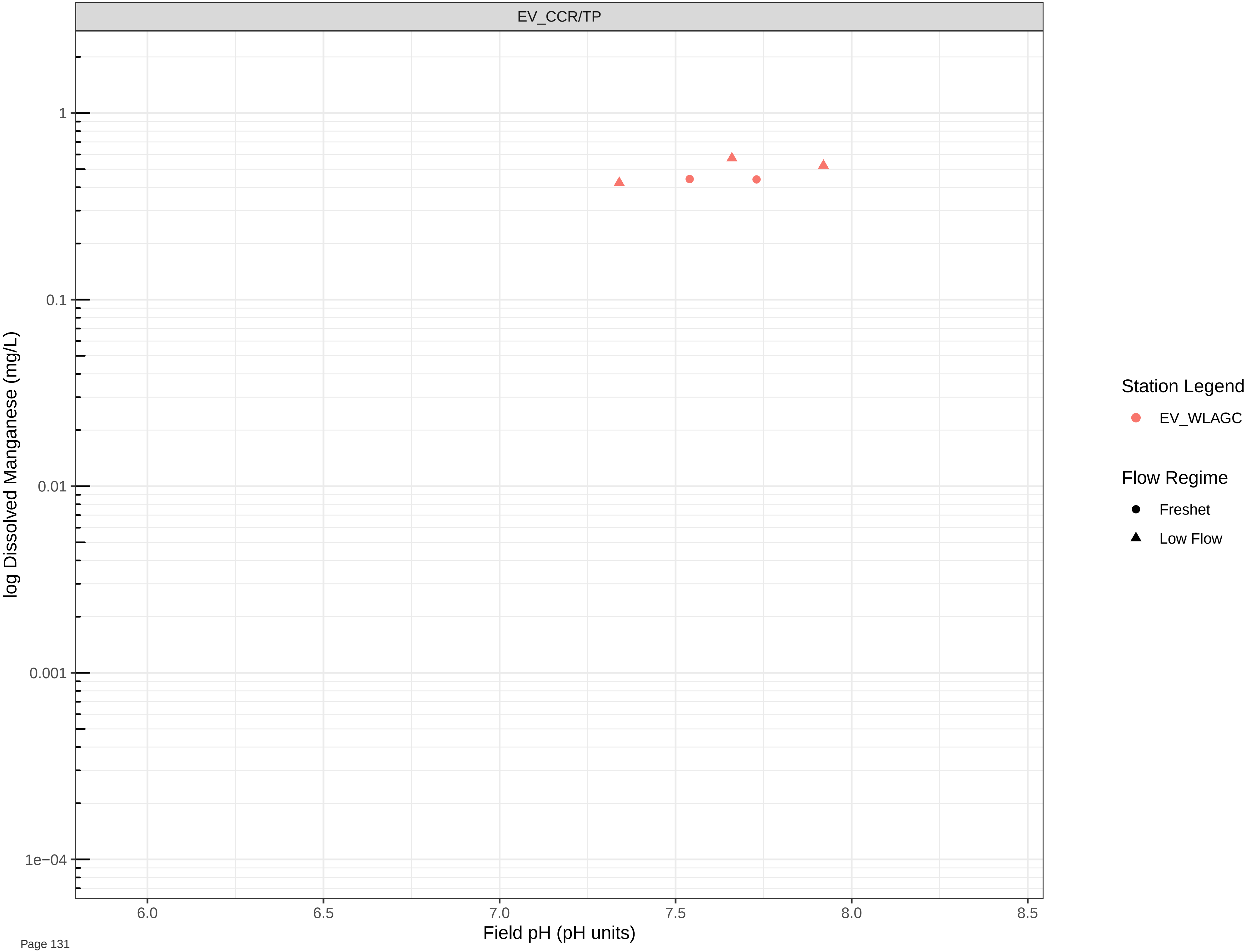

EV_PLANT
log Dissolved Magnesium (mg/L)
100
10
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

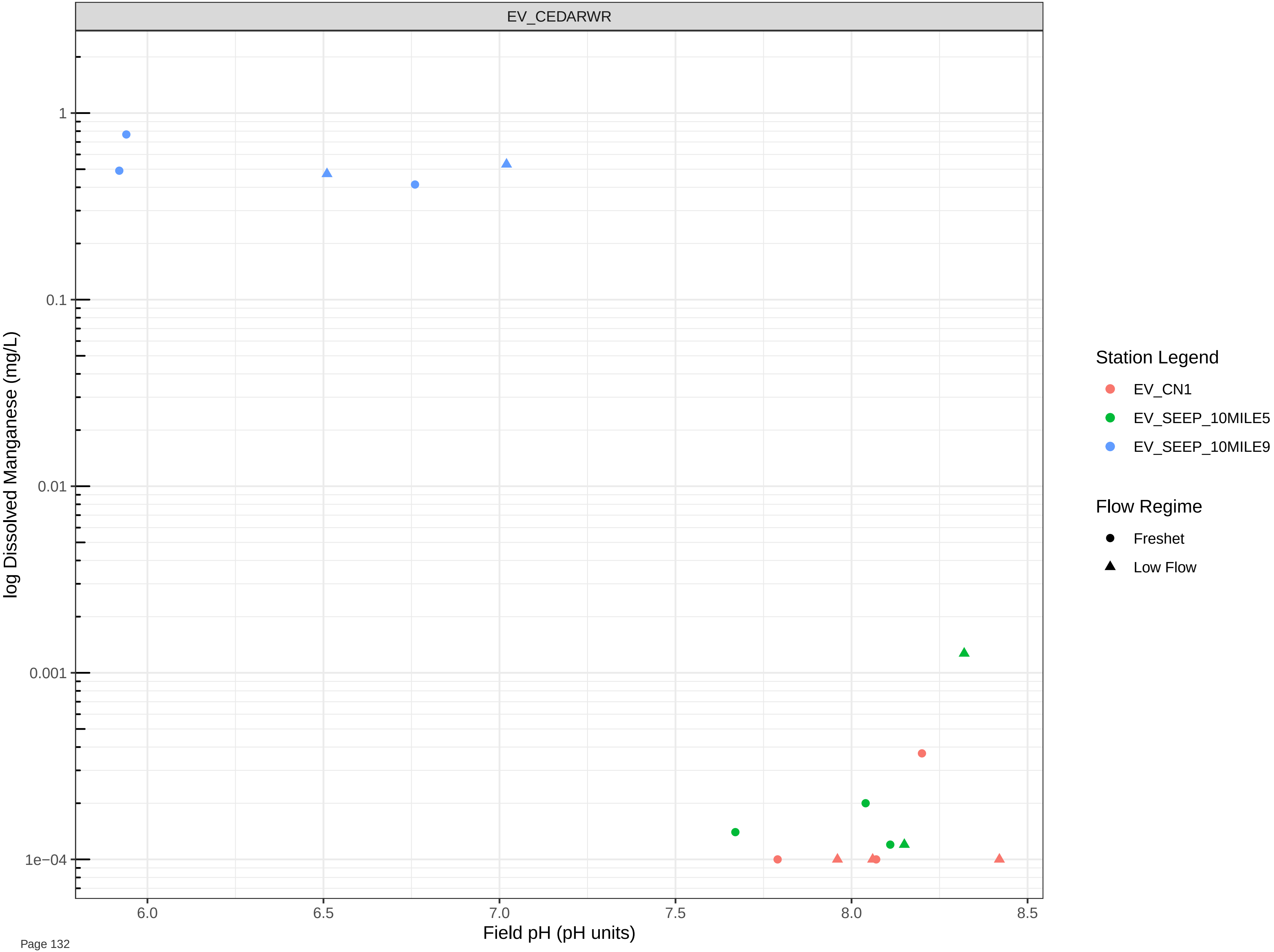

EV_SOUTHSLOPE
log Dissolved Magnesium (mg/L)
100
10
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

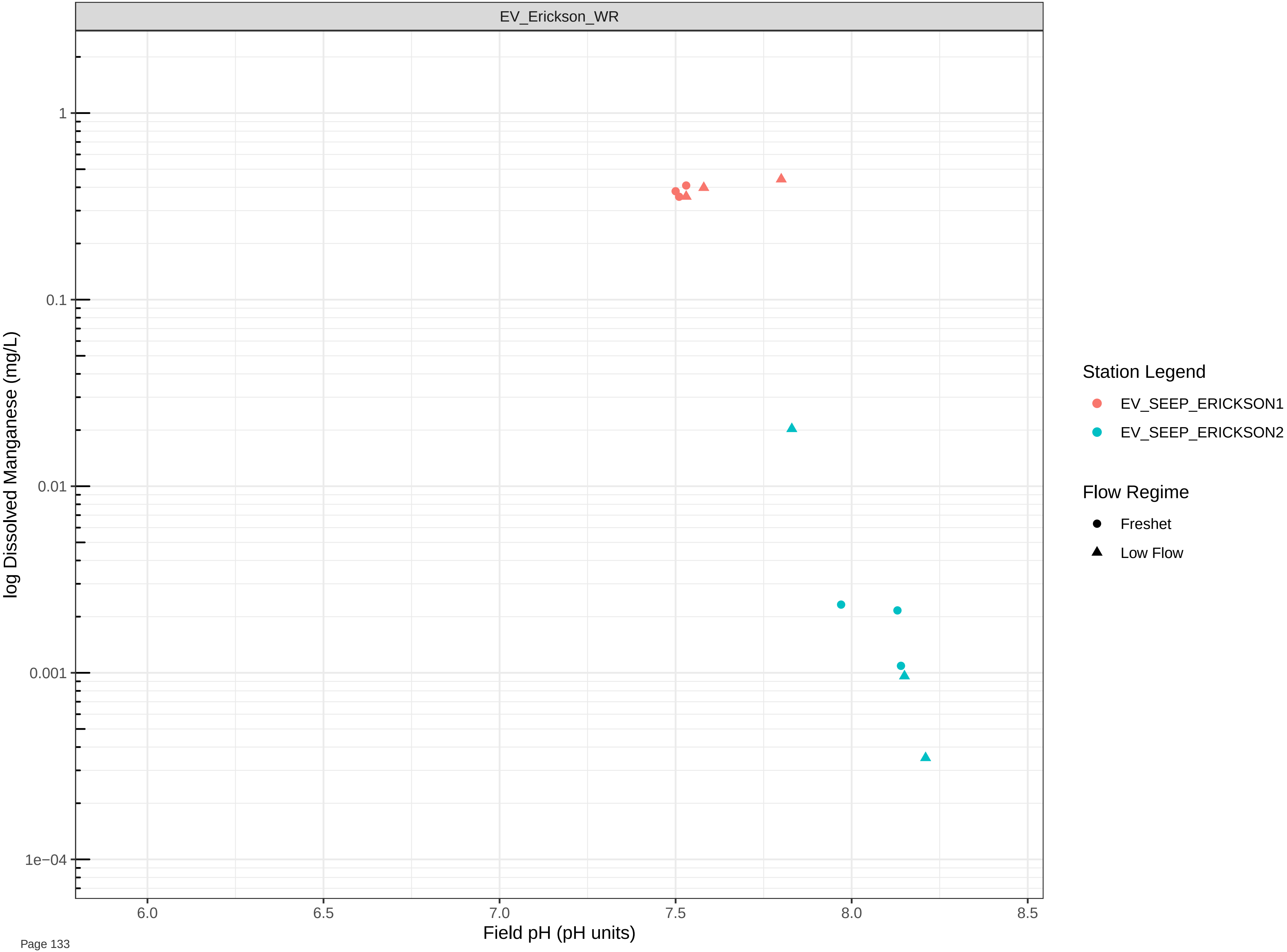

EV_SouthPit_Pit
log Dissolved Magnesium (mg/L)
100
10
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

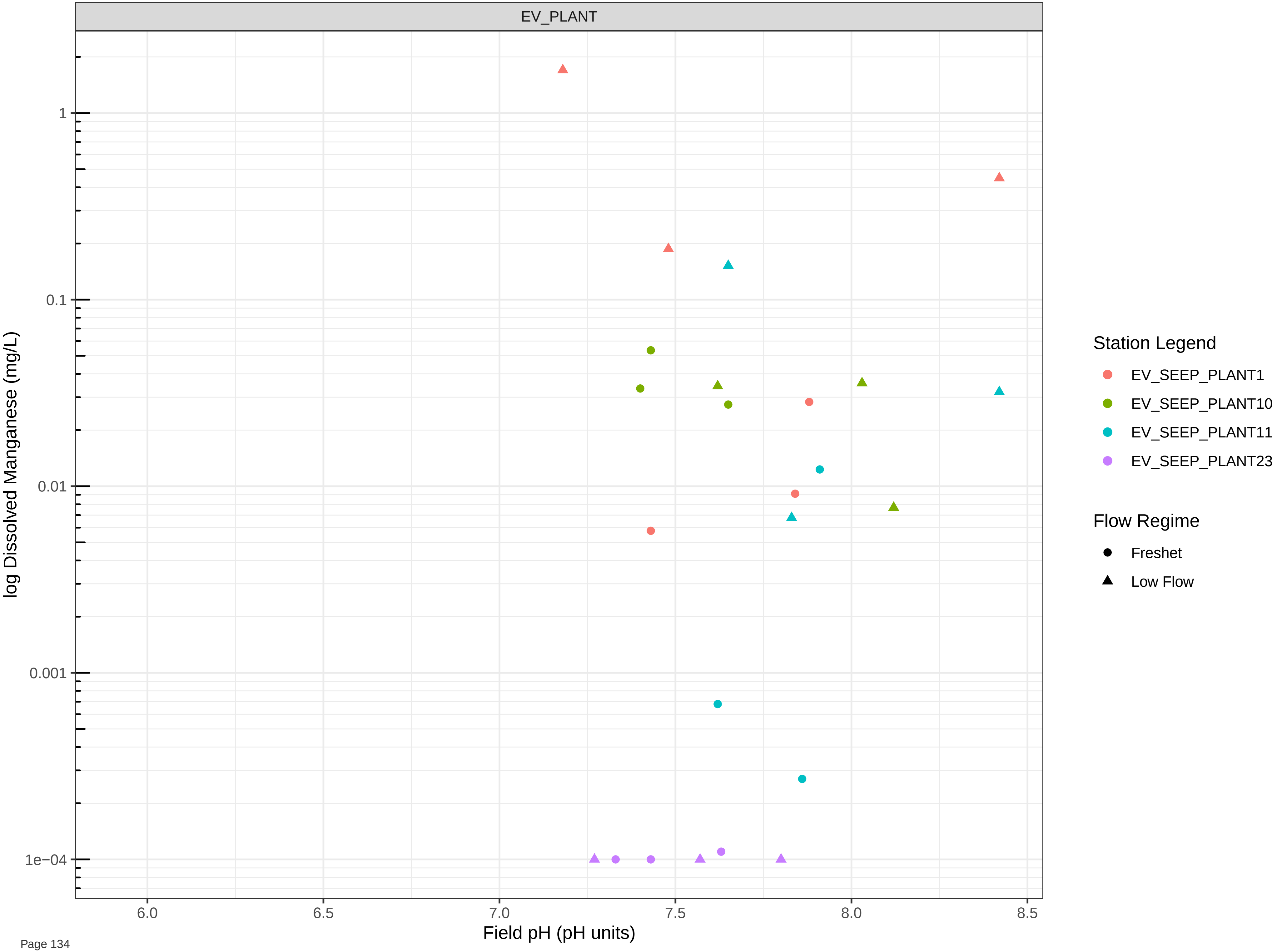

EV_BALDYRIDGEWR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

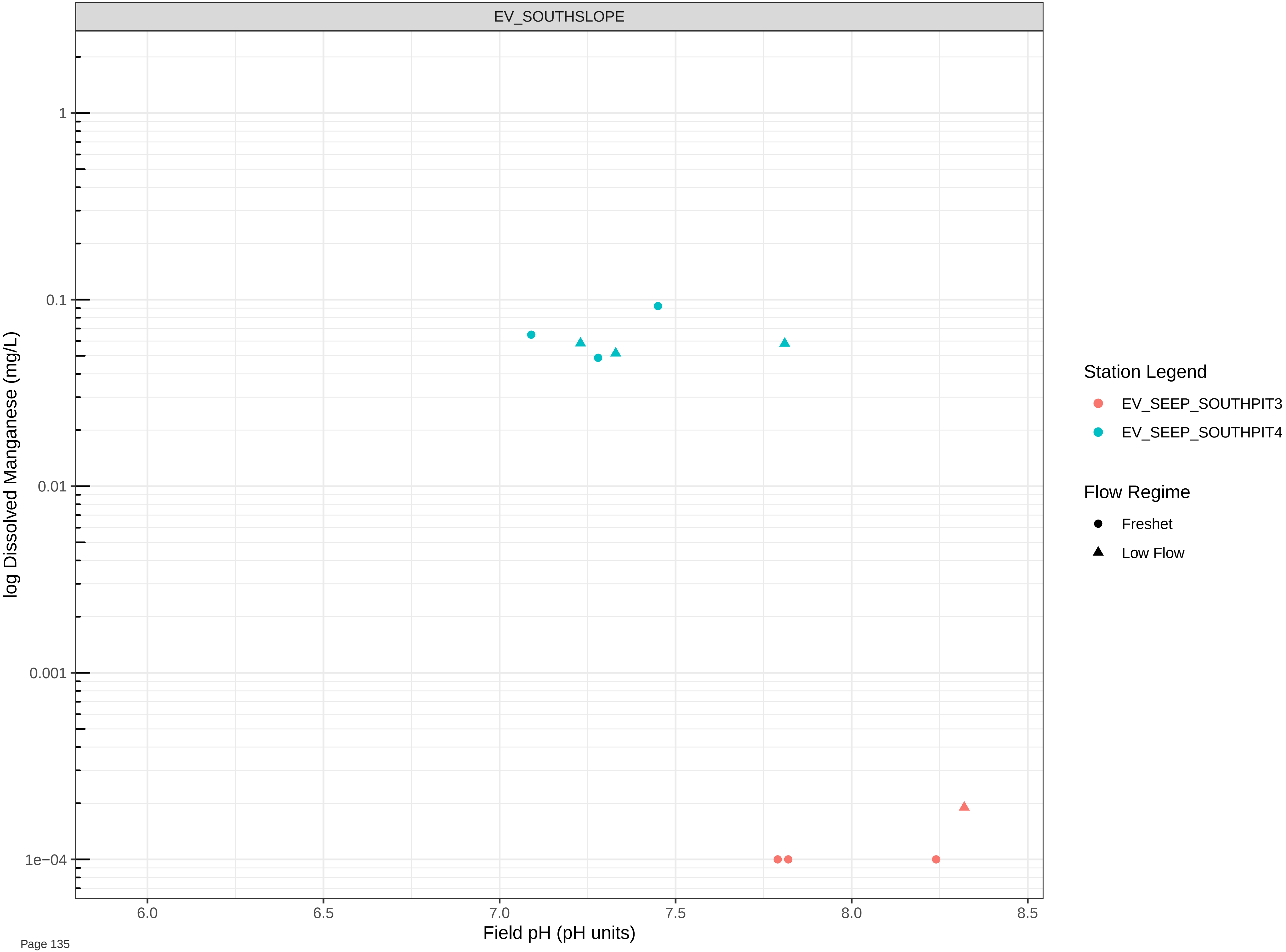

EV_CCR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

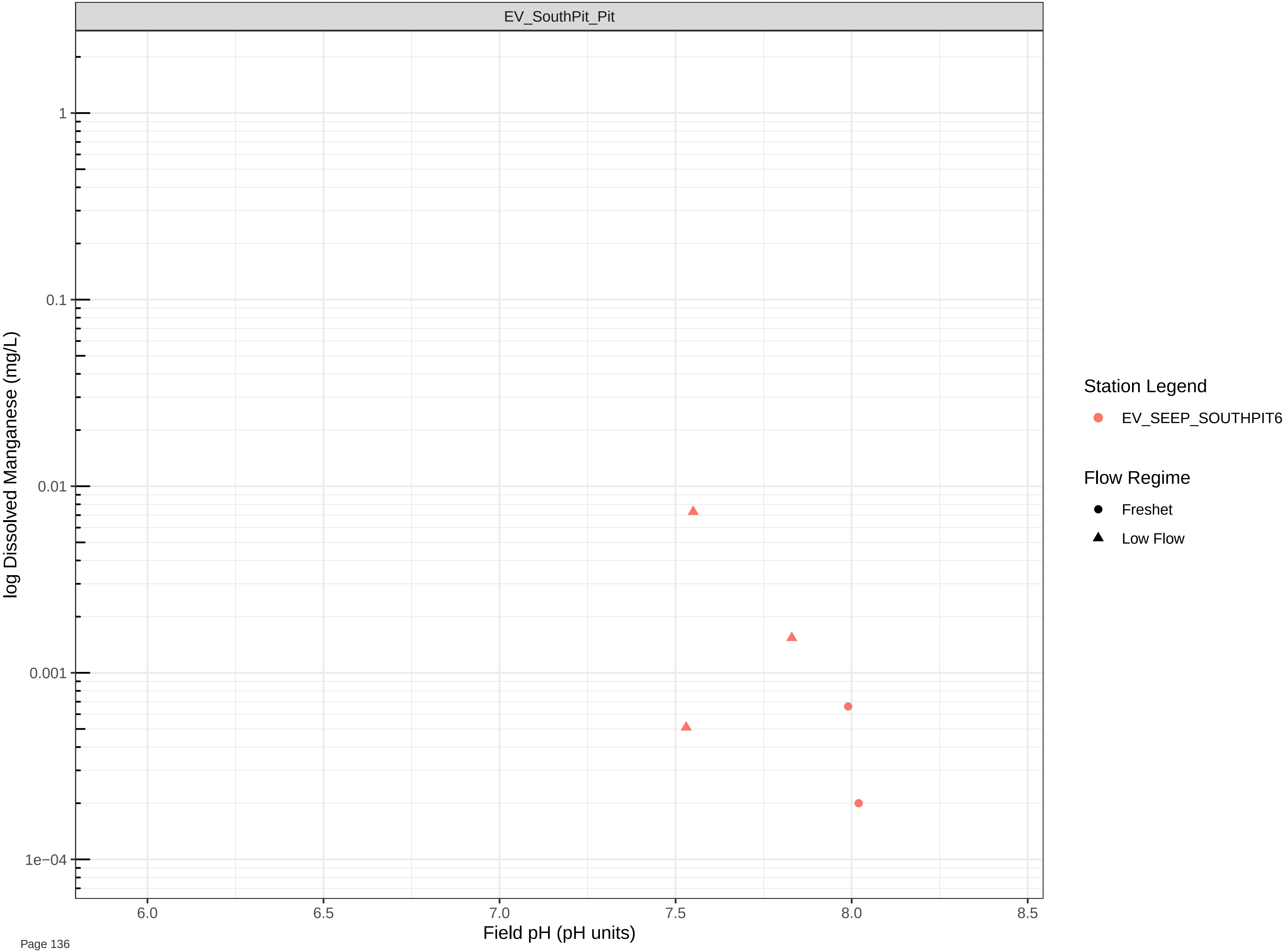

EV_CCR/TP
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

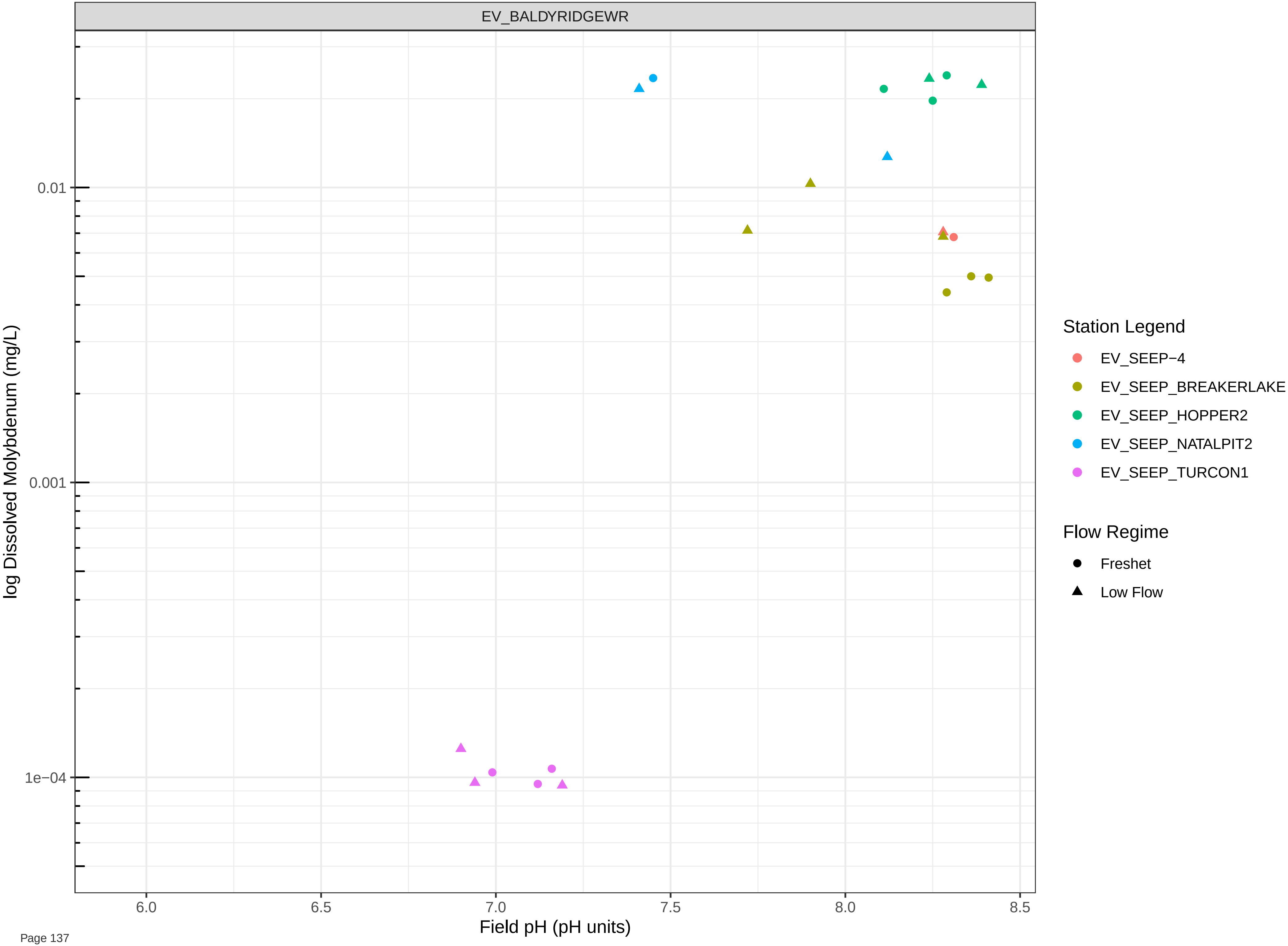

EV_CEDARWR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
● EV_CN1
● EV_SEEP_10MILE5
● EV_SEEP_10MILE9
Flow Regime
● Freshet
▲ Low Flow

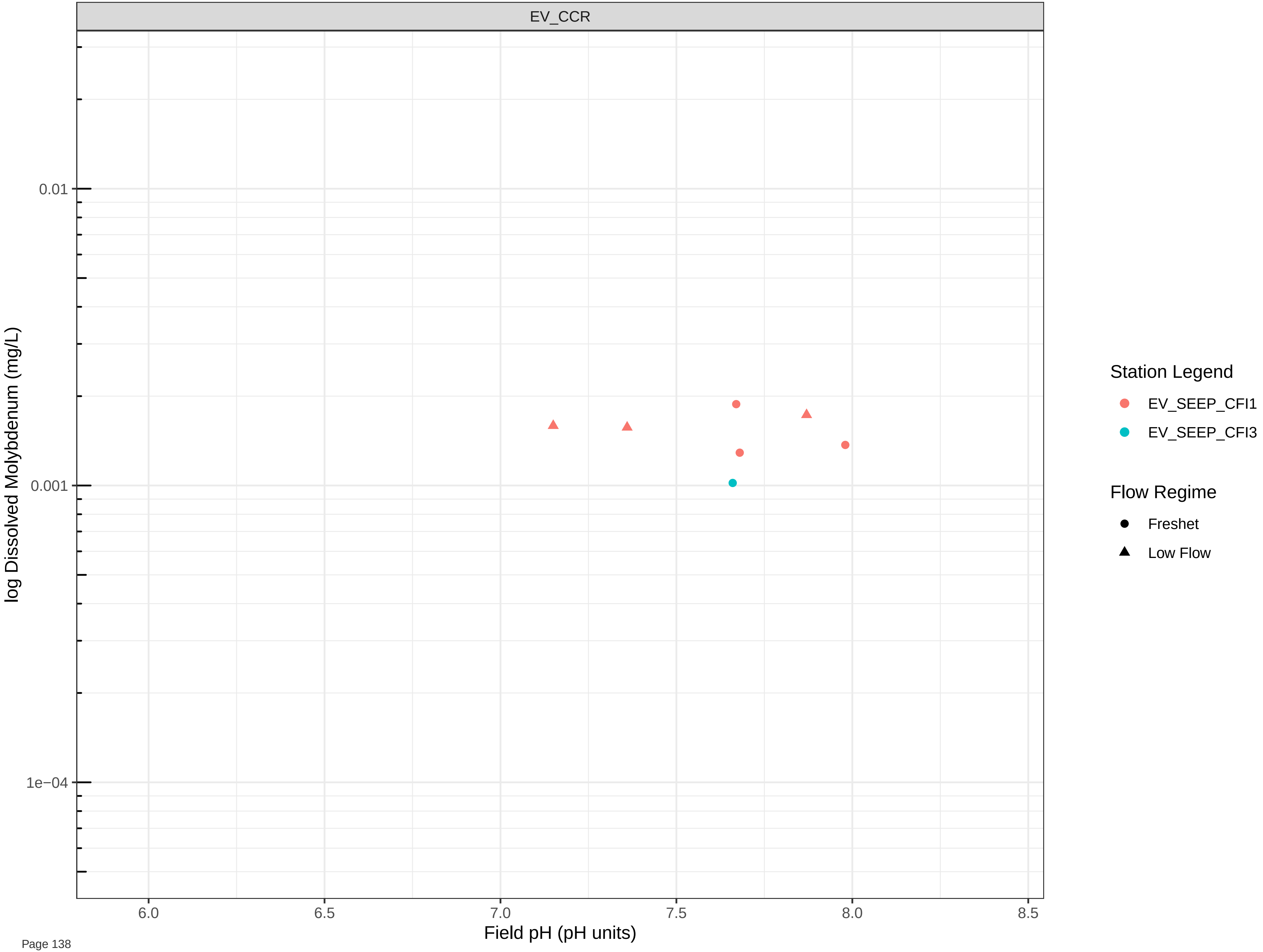

EV_Erickson_WR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

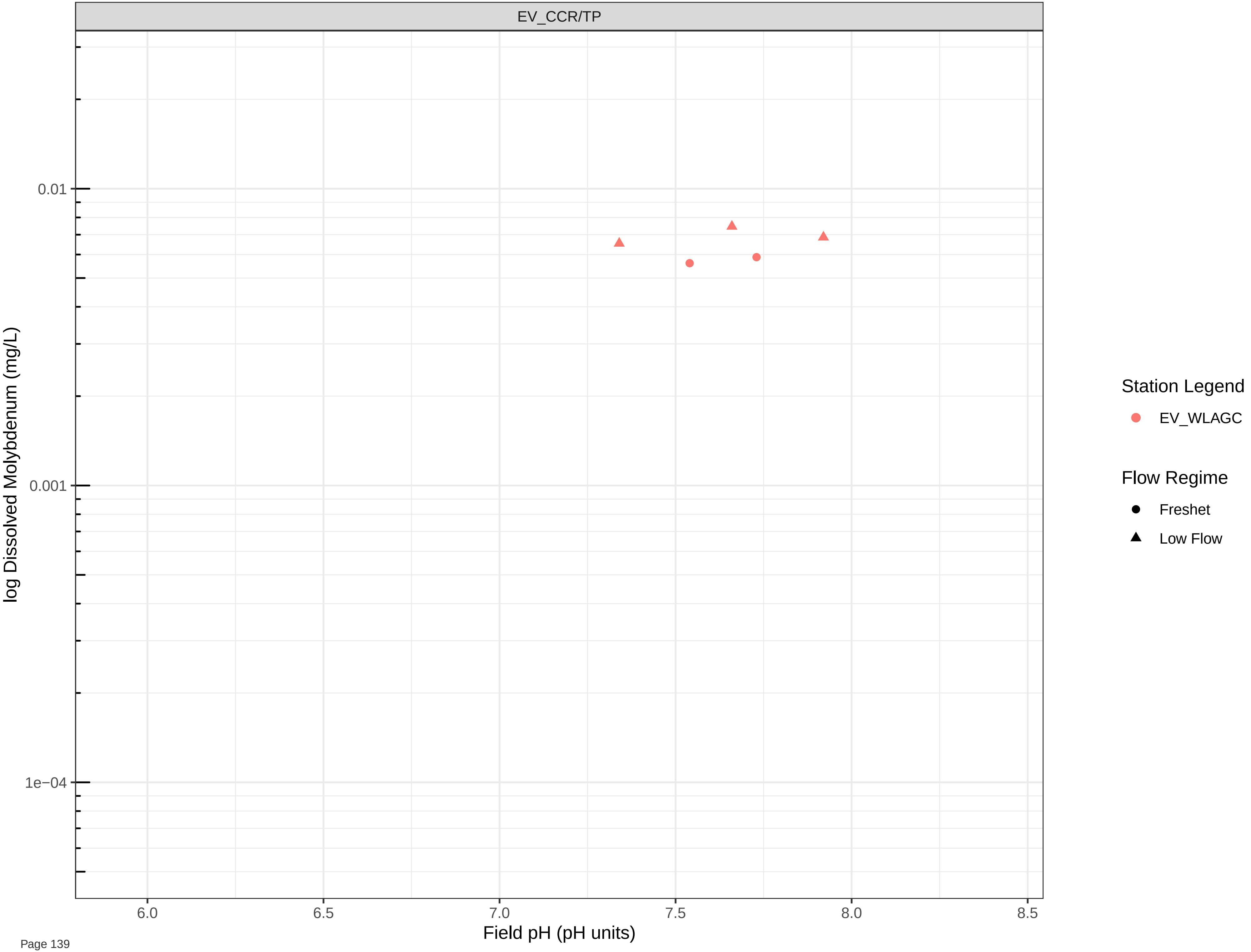

EV_PLANT
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

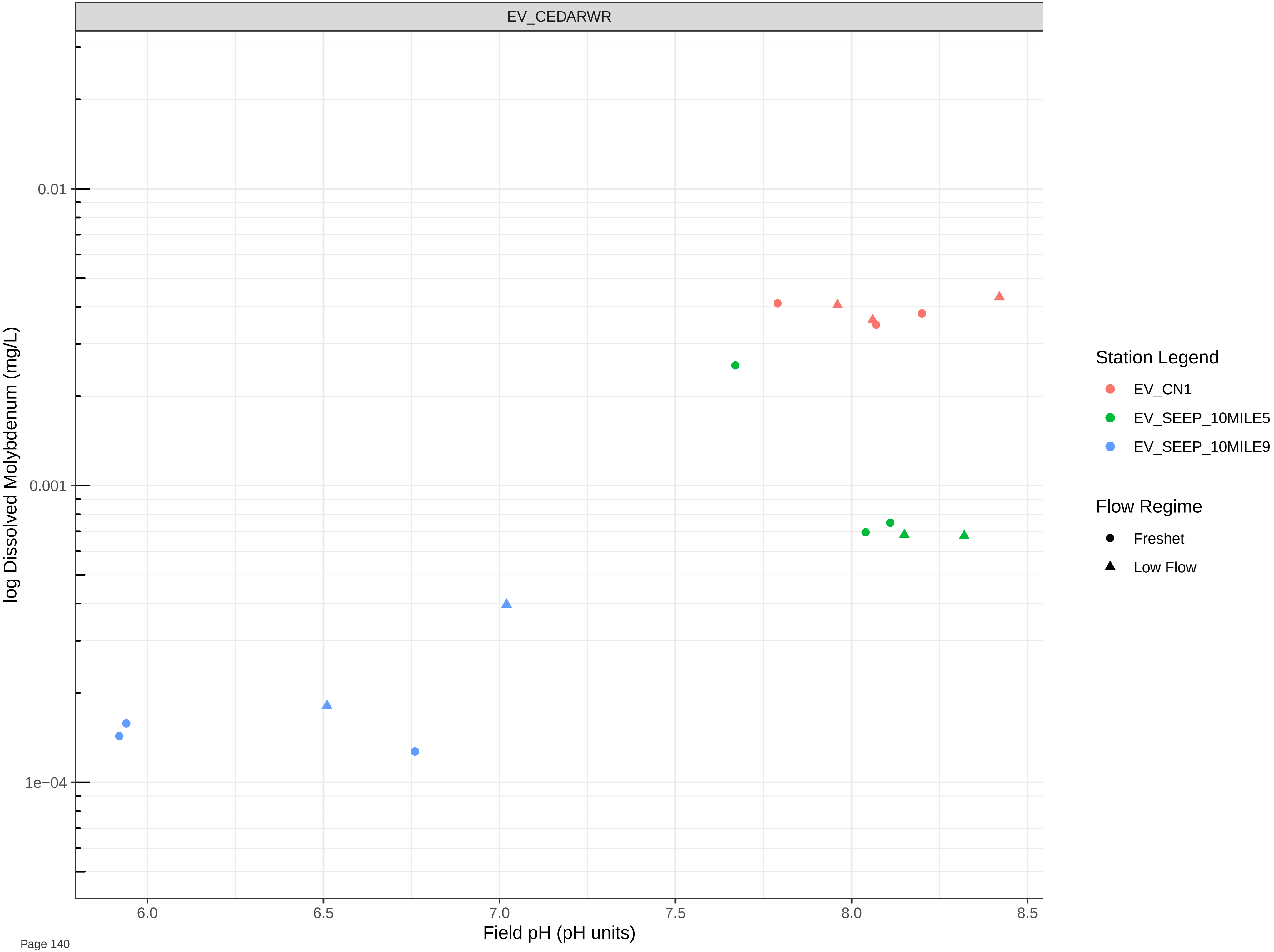

EV_SOUTHSLOPE
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

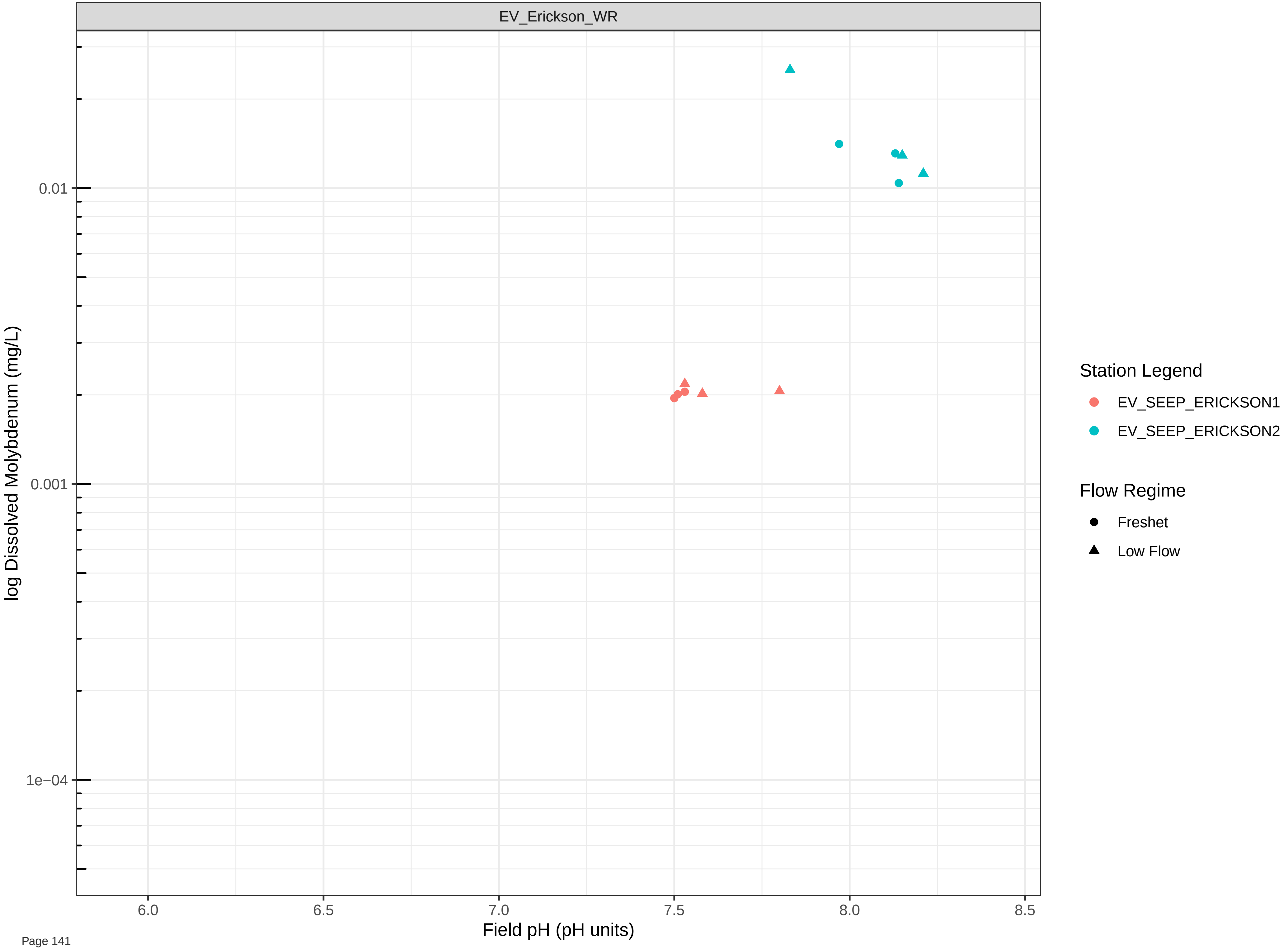

EV_SouthPit_Pit
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

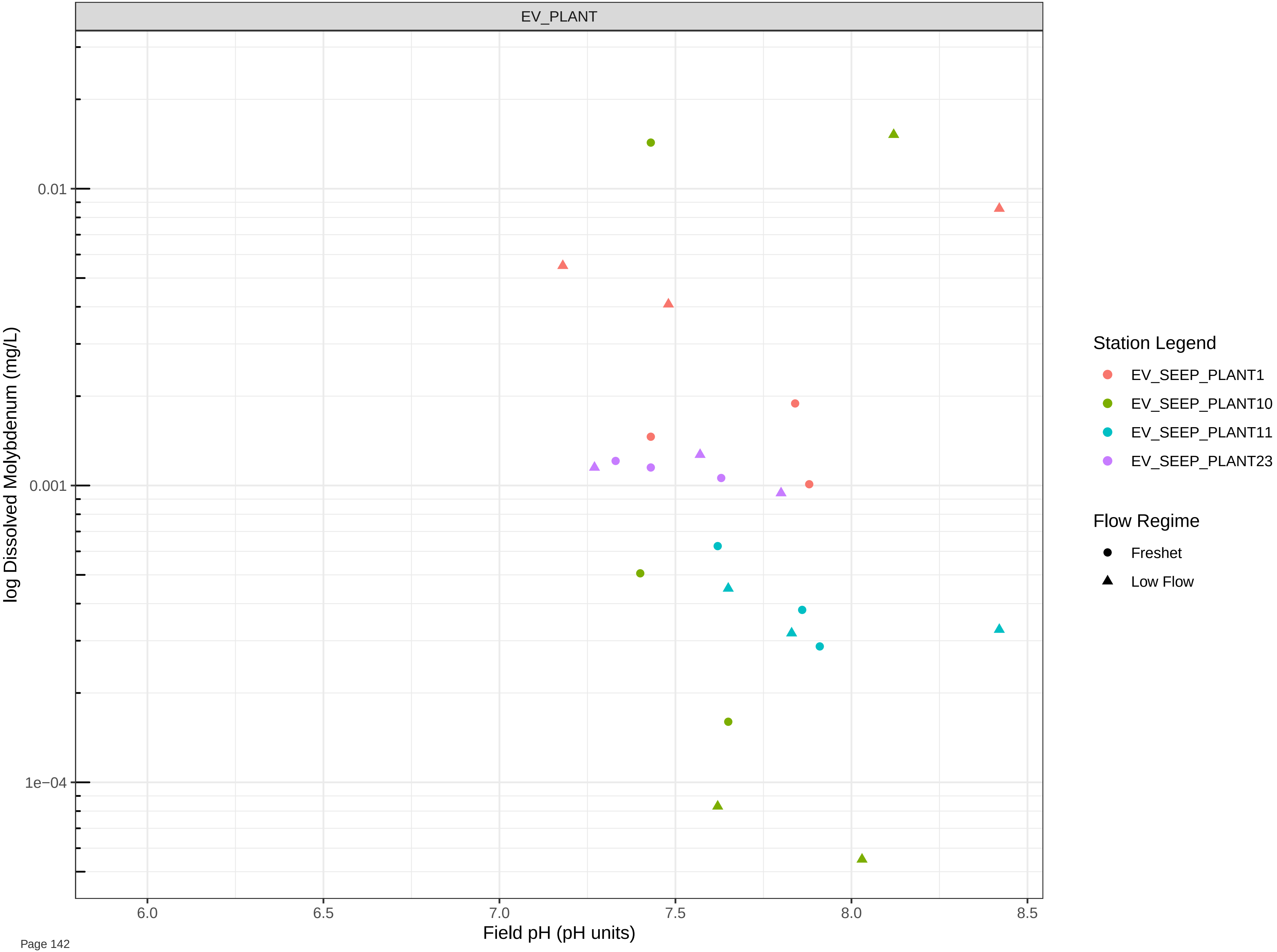

EV_BALDYRIDGEWR
log Dissolved Molybdenum (mg/L)
0.01
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

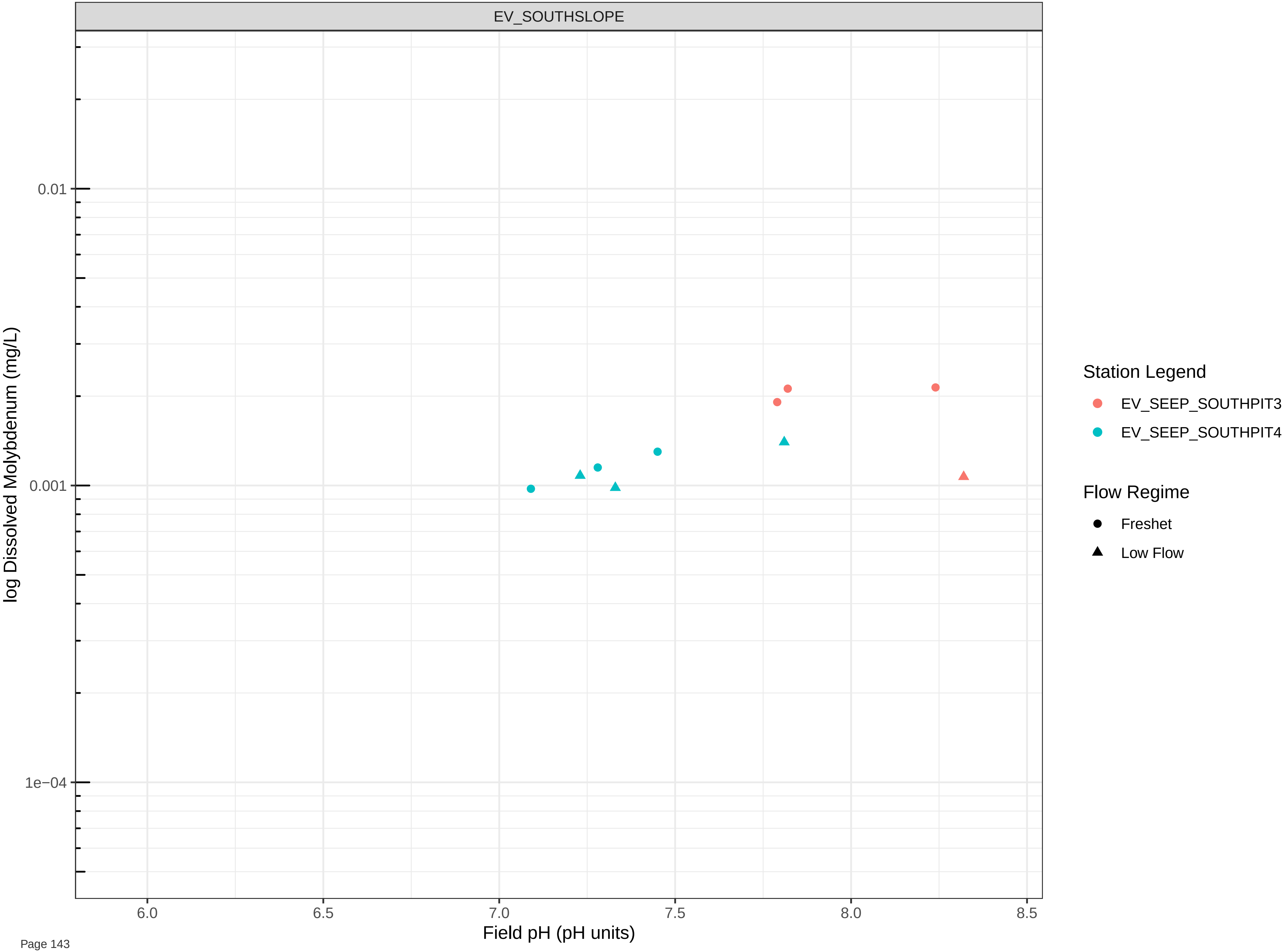

EV_CCR
log Dissolved Molybdenum (mg/L)
0.01
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

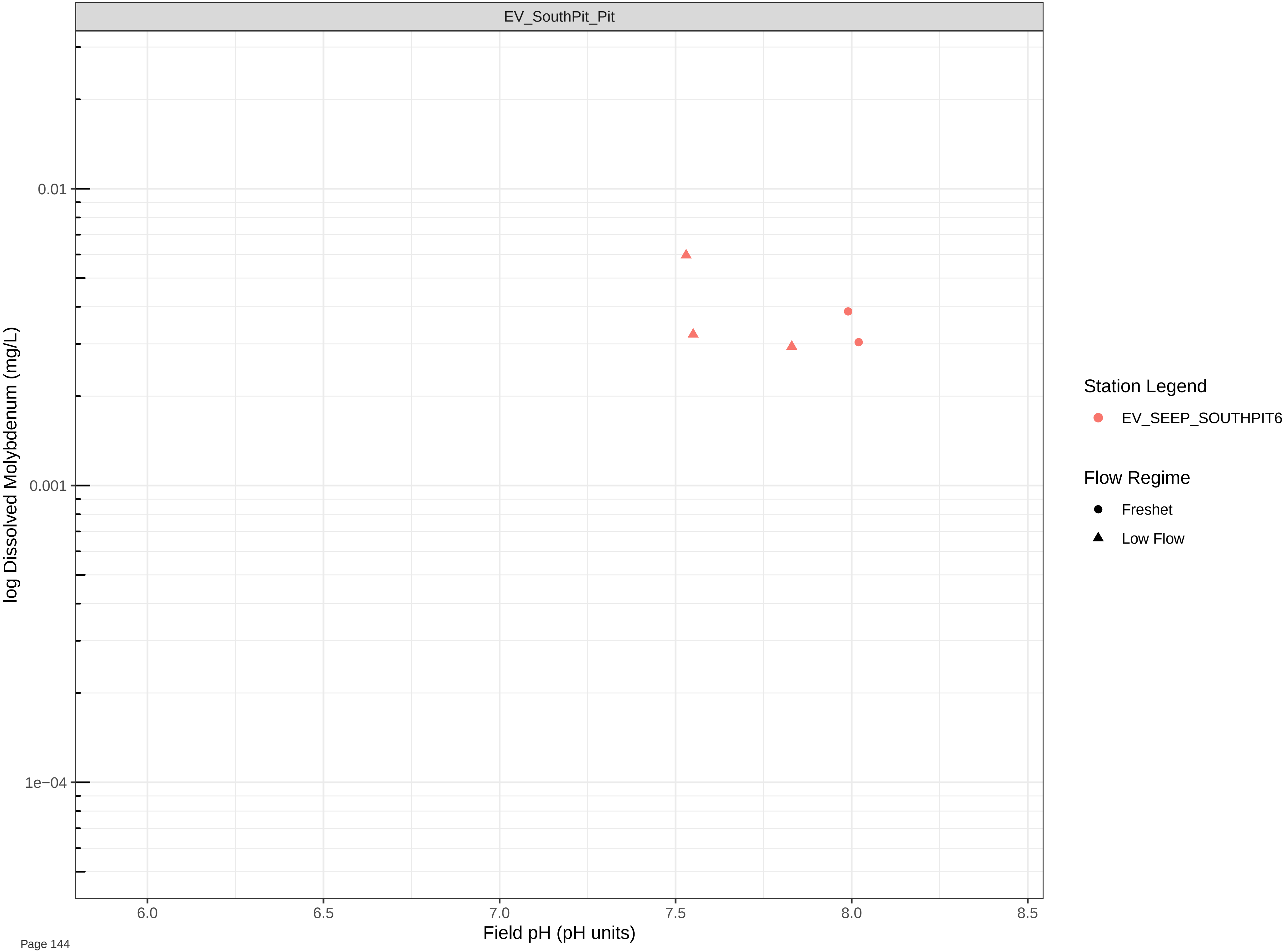

EV_CCR/TP
log Dissolved Molybdenum (mg/L)
0.01
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

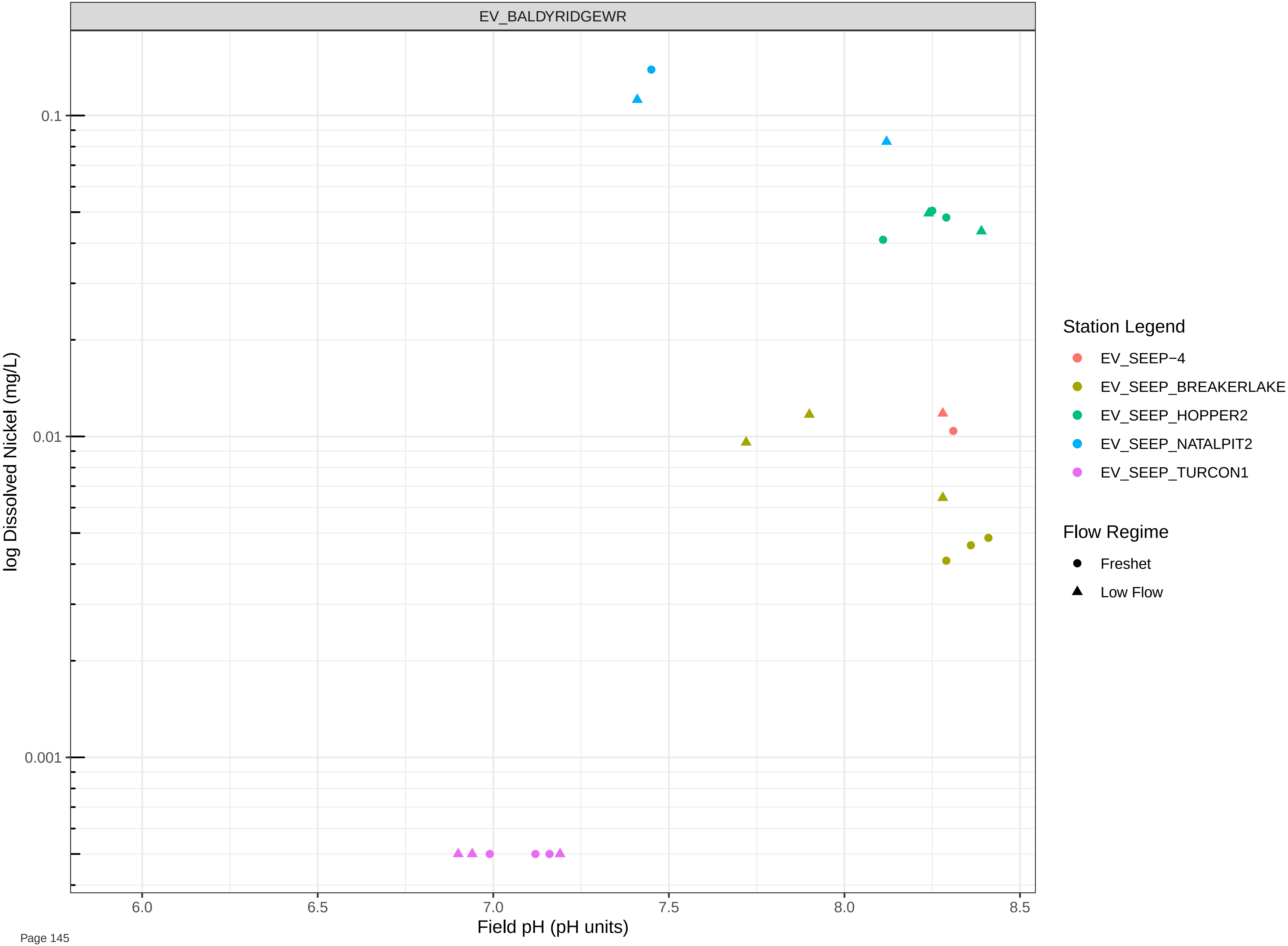

EV_CEDARWR
log Dissolved Molybdenum (mg/L)
0.01
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

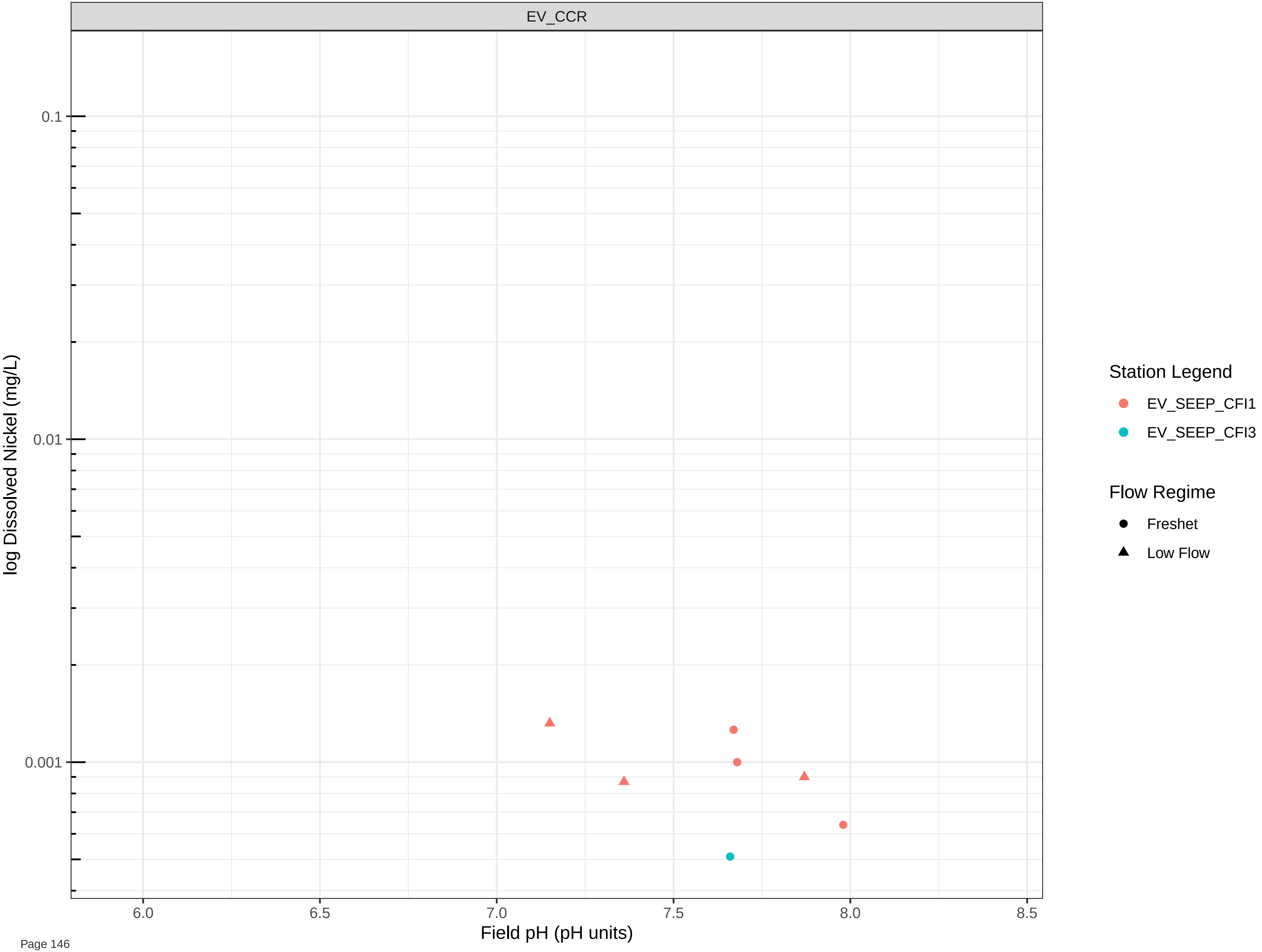

EV_Erickson_WR
log Dissolved Molybdenum (mg/L)
0.01
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

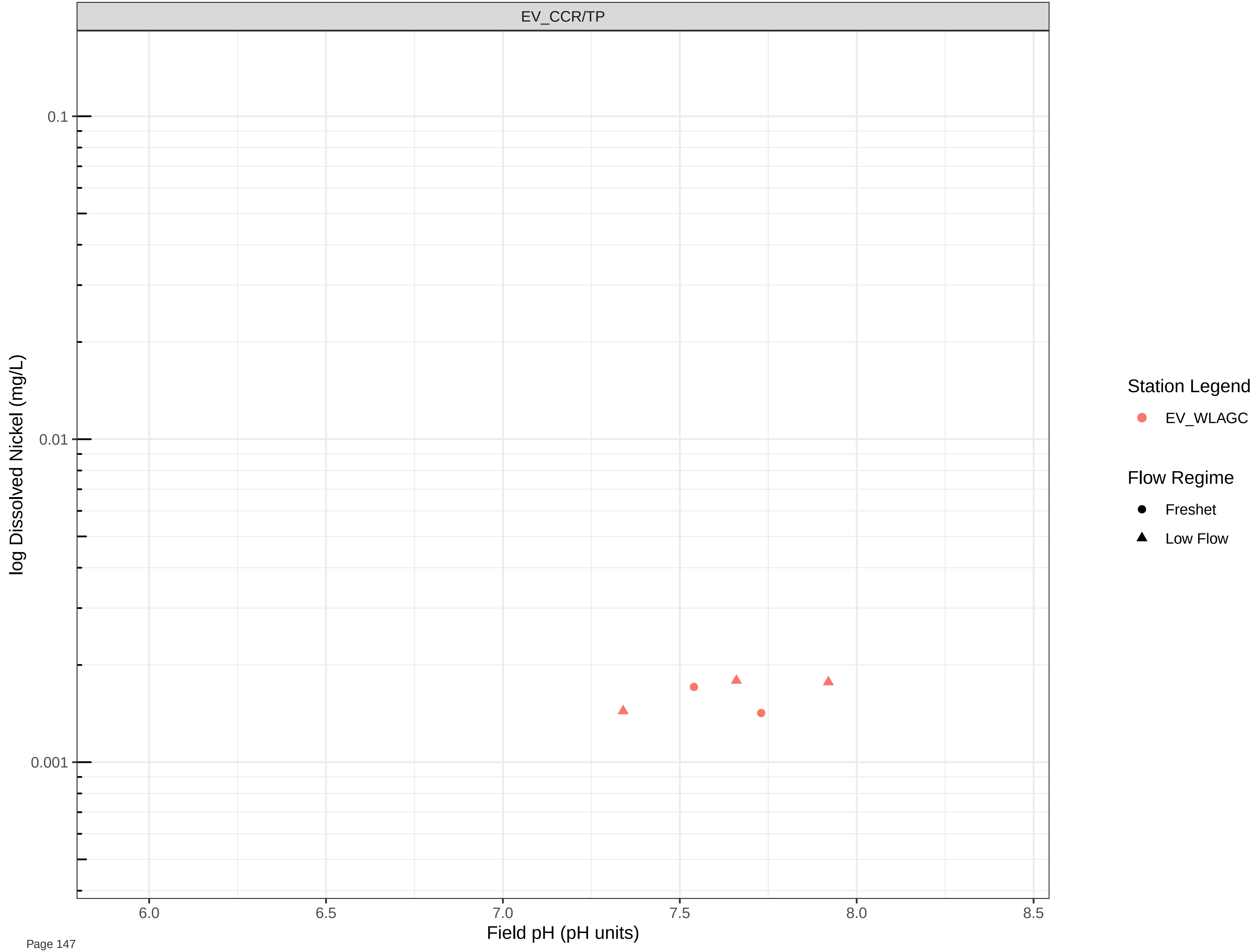

EV_PLANT
log Dissolved Molybdenum (mg/L)
0.01
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

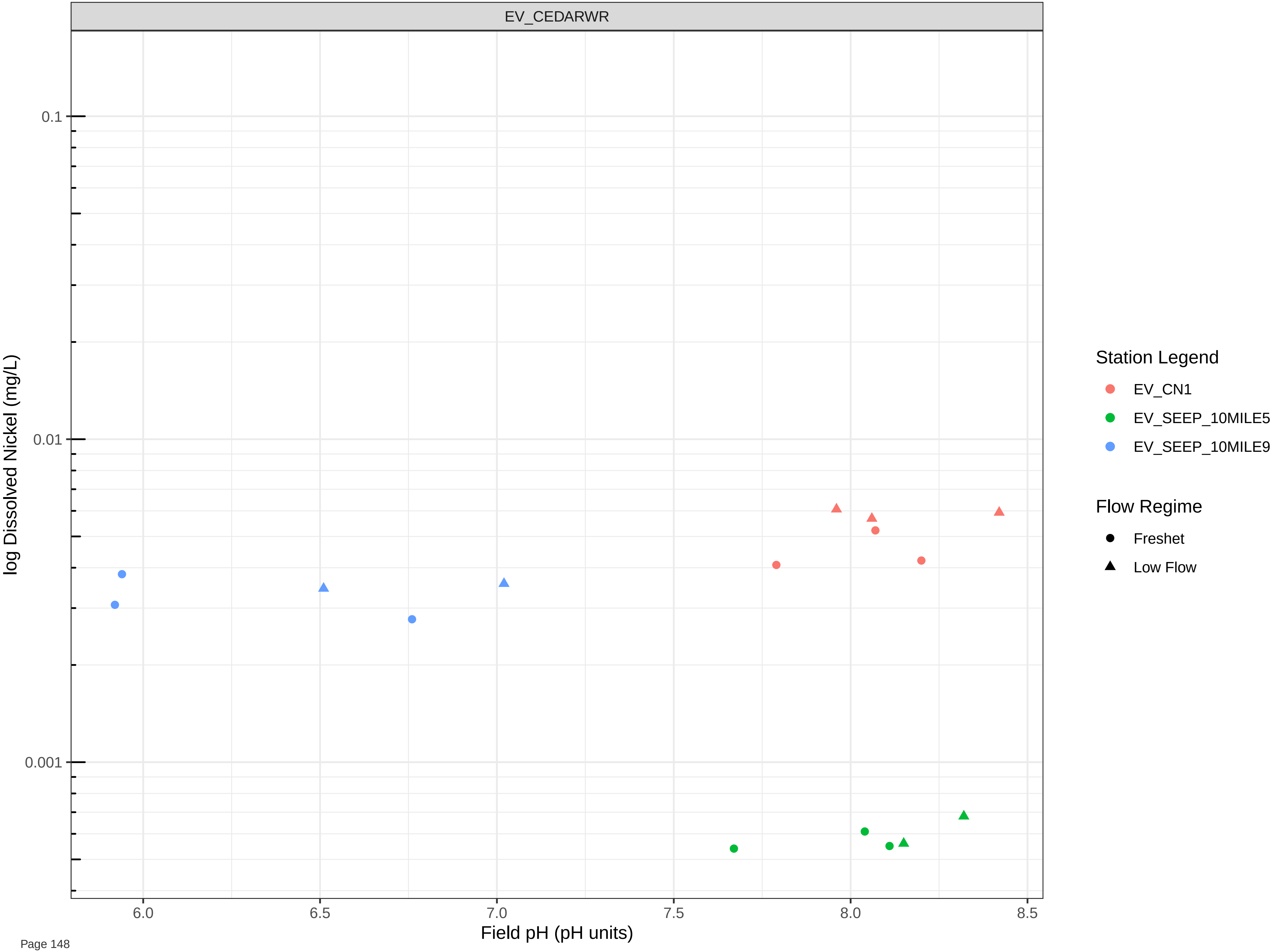

EV_SOUTHSLOPE
log Dissolved Molybdenum (mg/L)
0.01
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

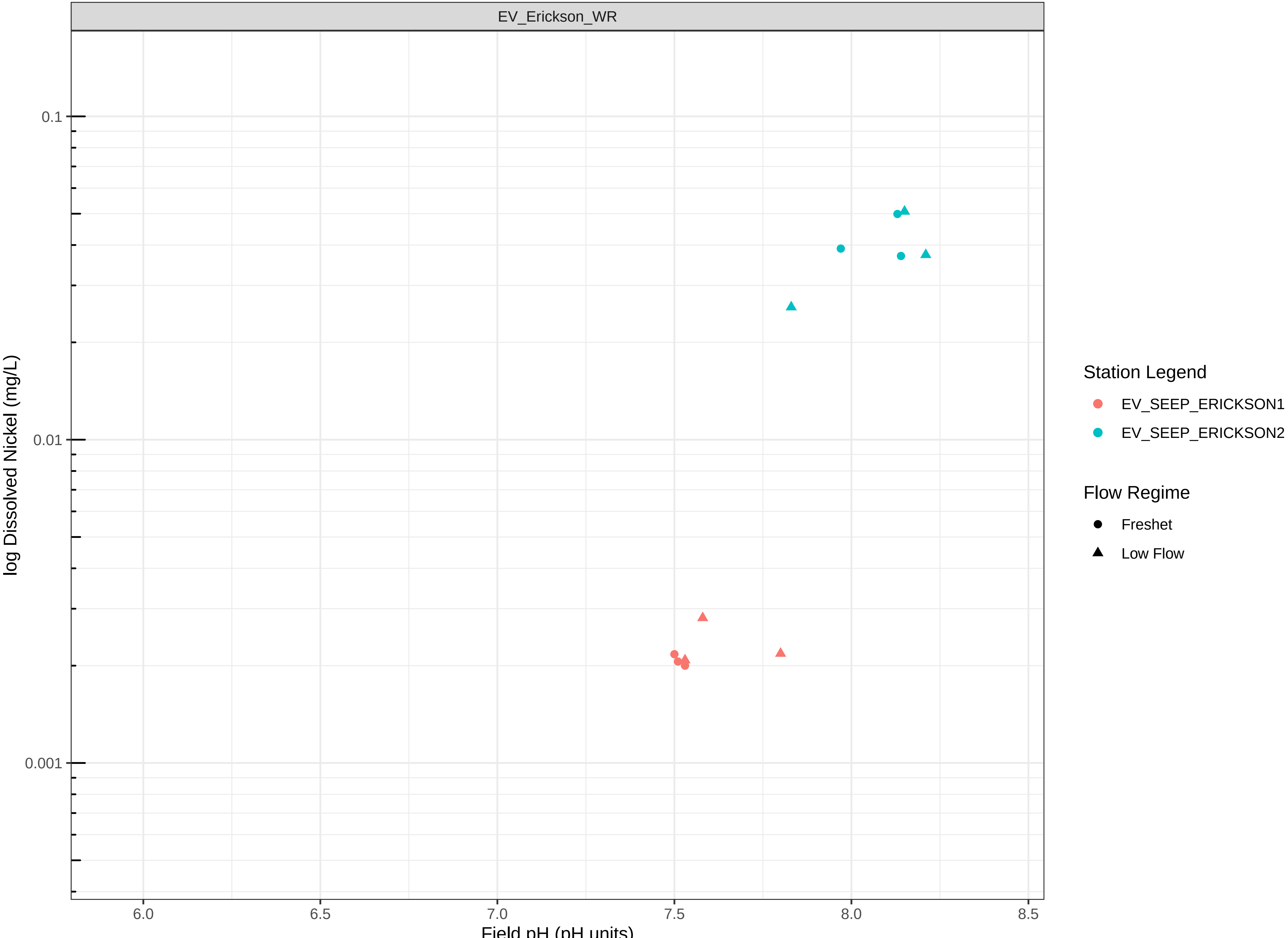

EV_SouthPit_Pit
log Dissolved Molybdenum (mg/L)
0.01
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

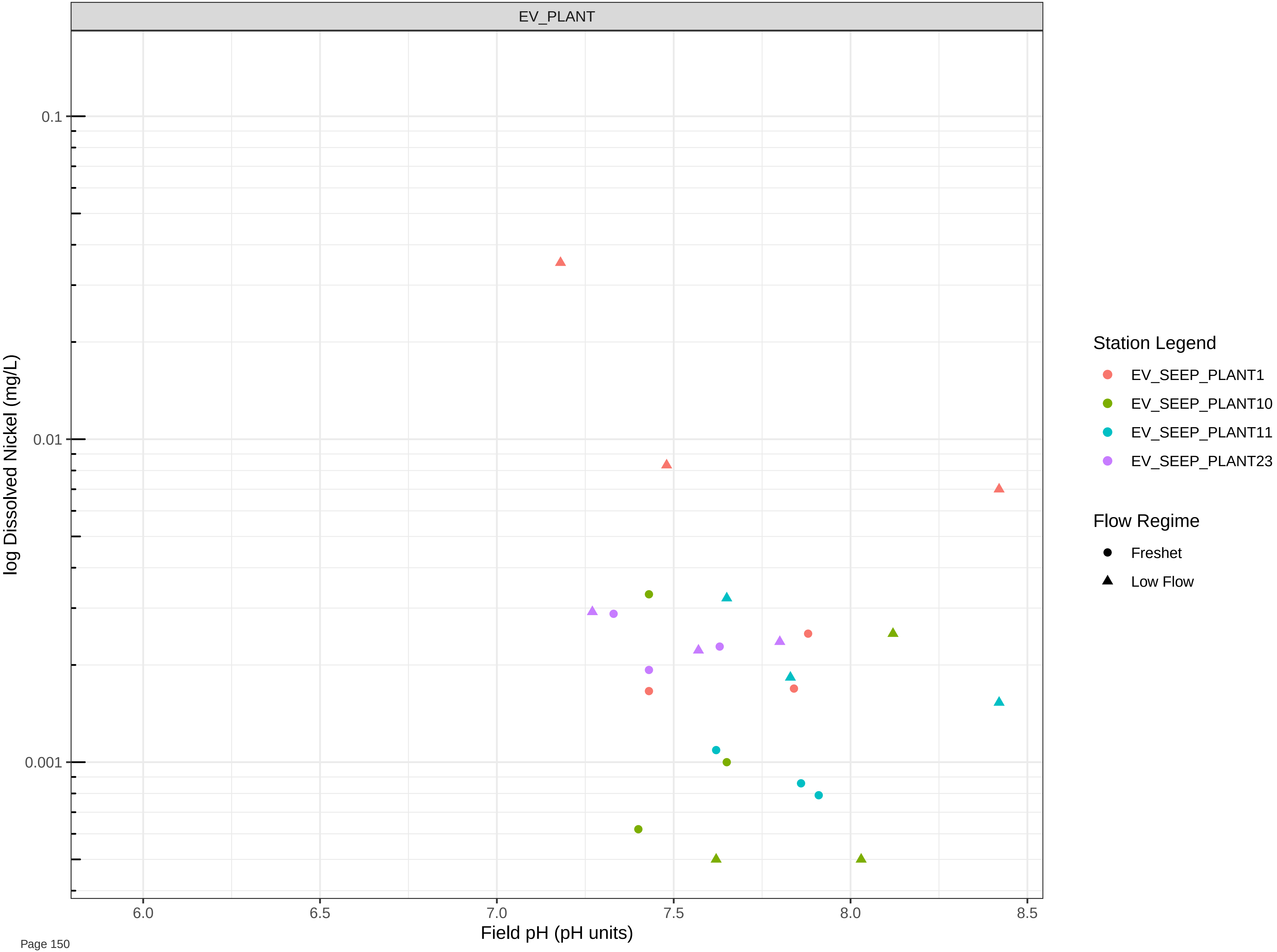

EV_BALDYRIDGEWR
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

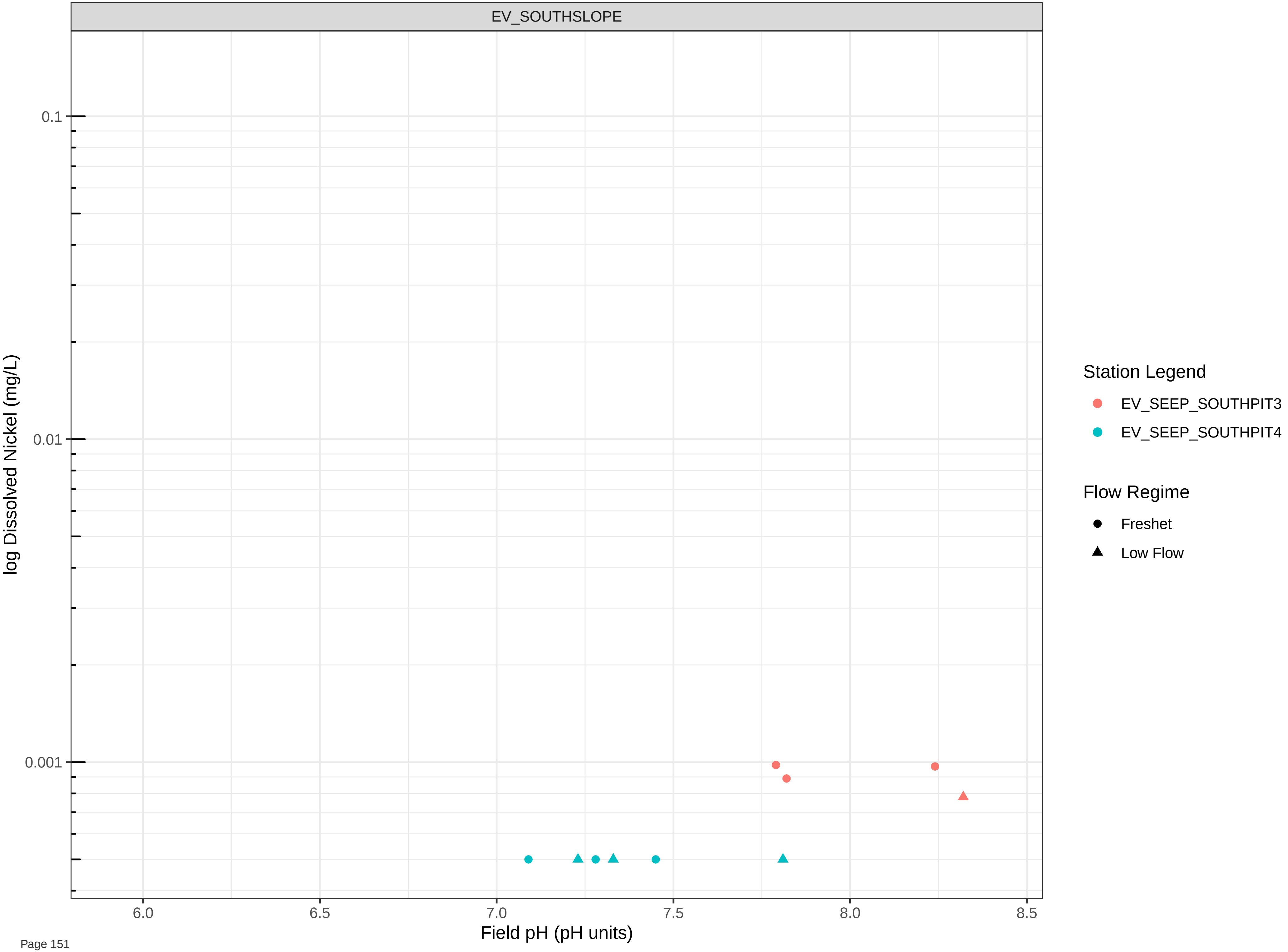

EV_CCR
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

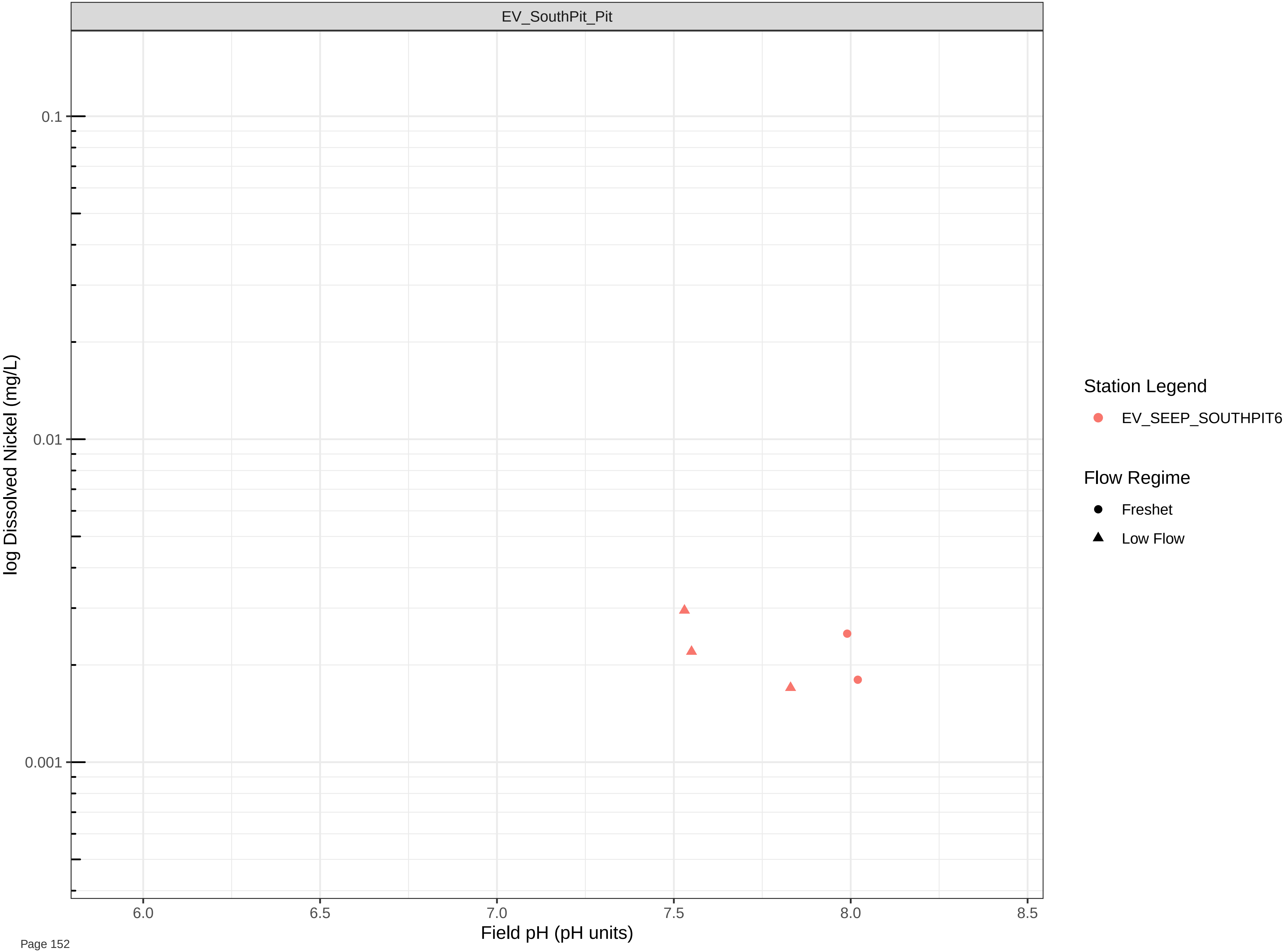

EV_CCR/TP
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

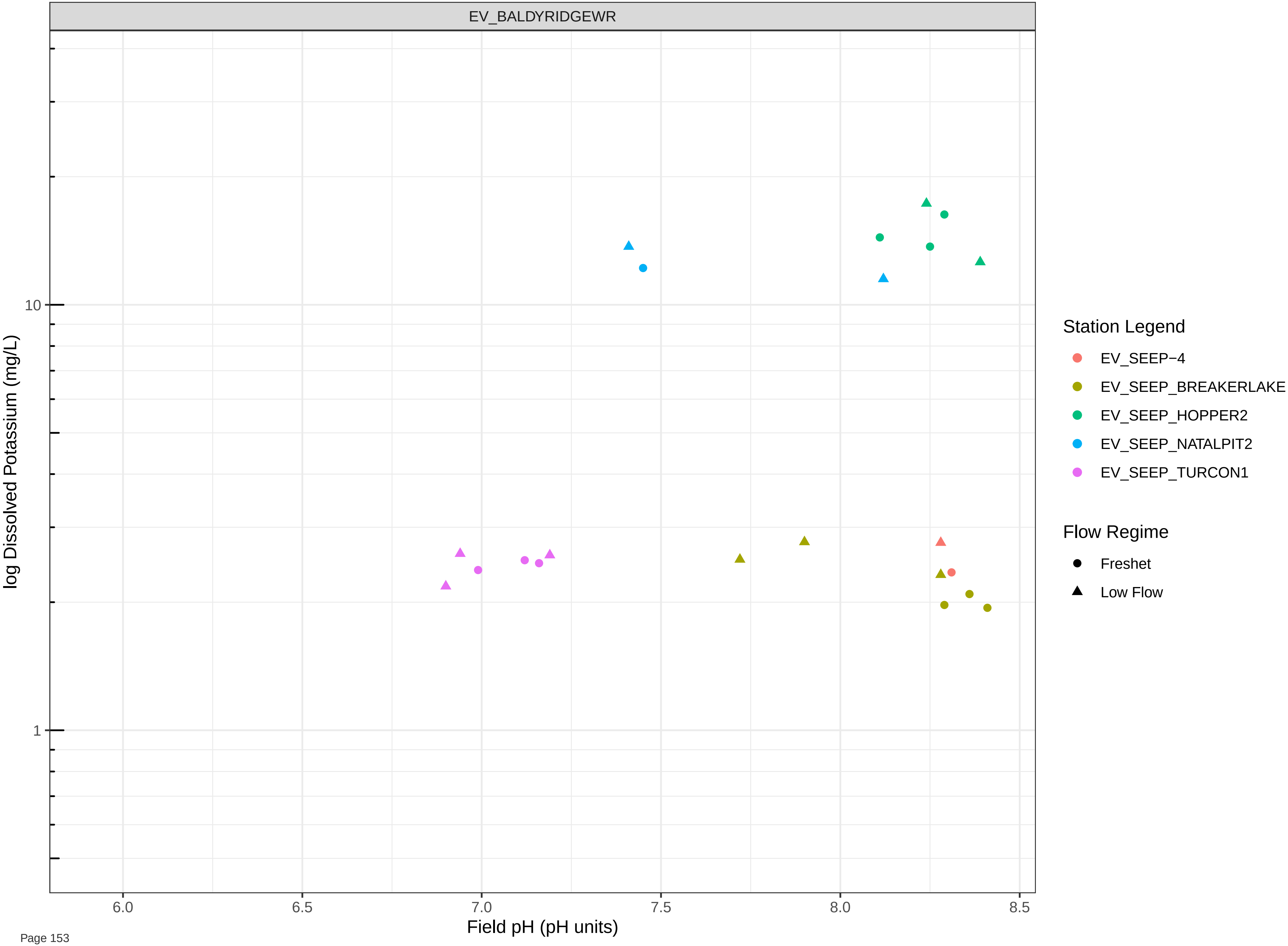

EV_CEDARWR
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

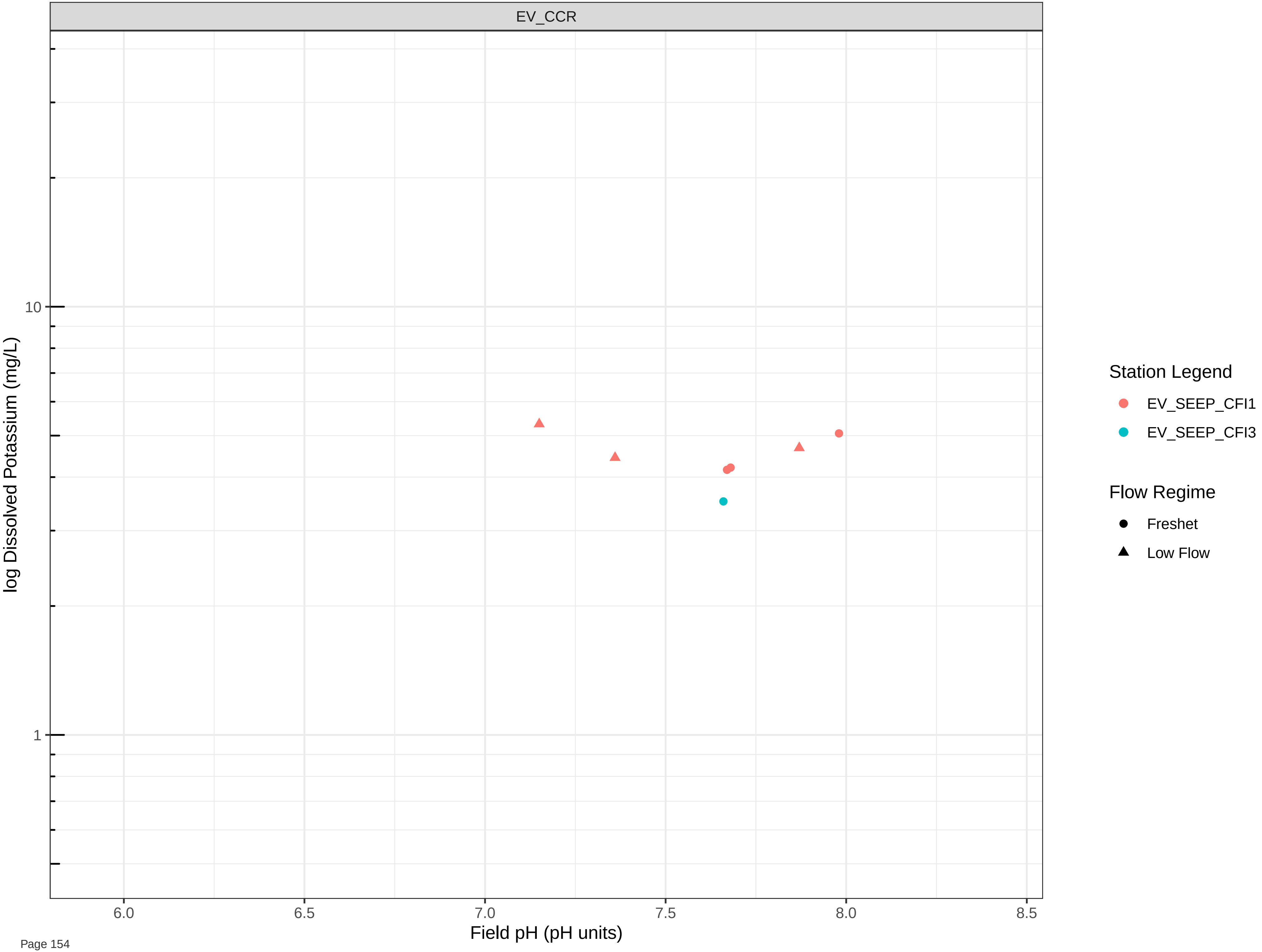

EV_Erickson_WR
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

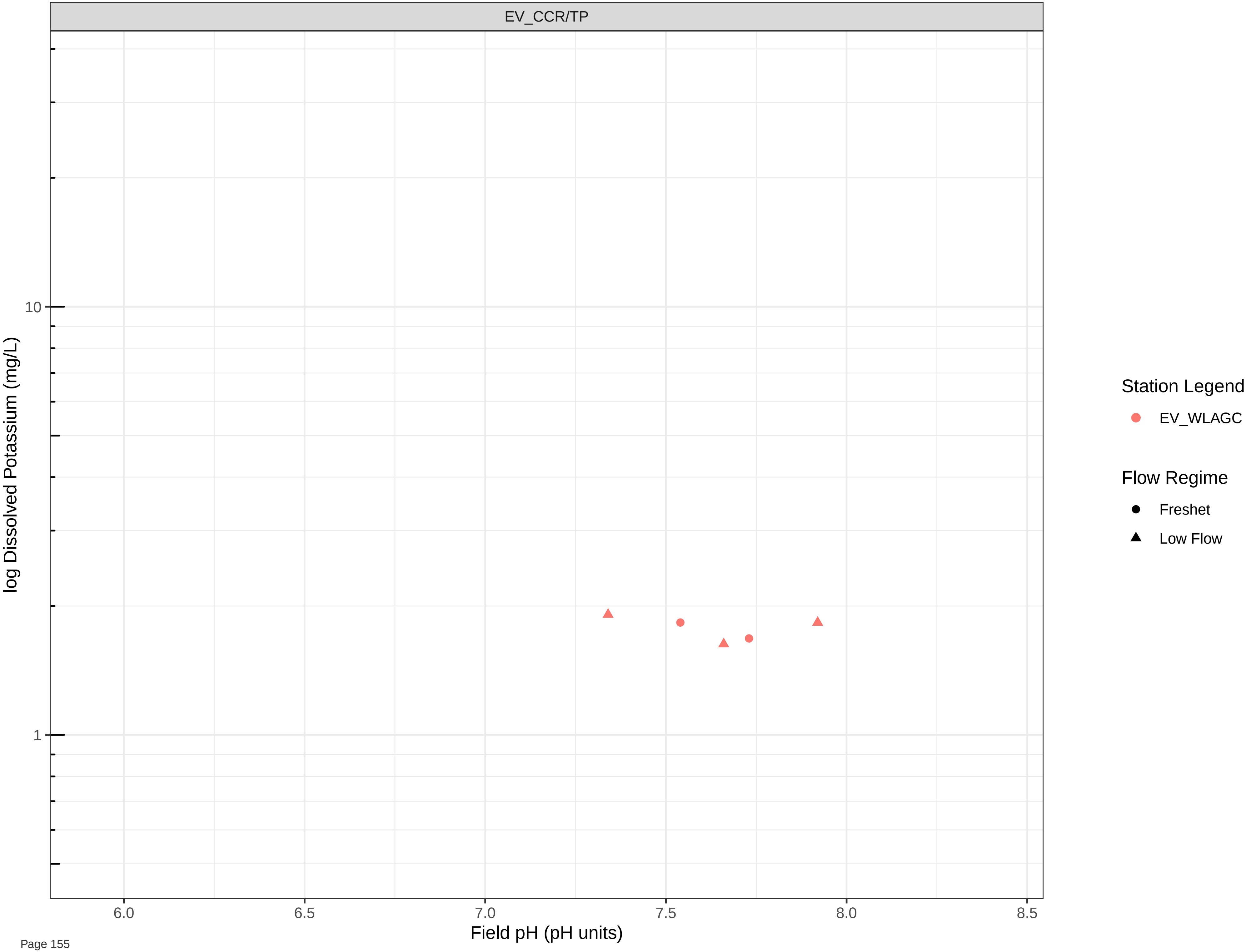

EV_PLANT
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

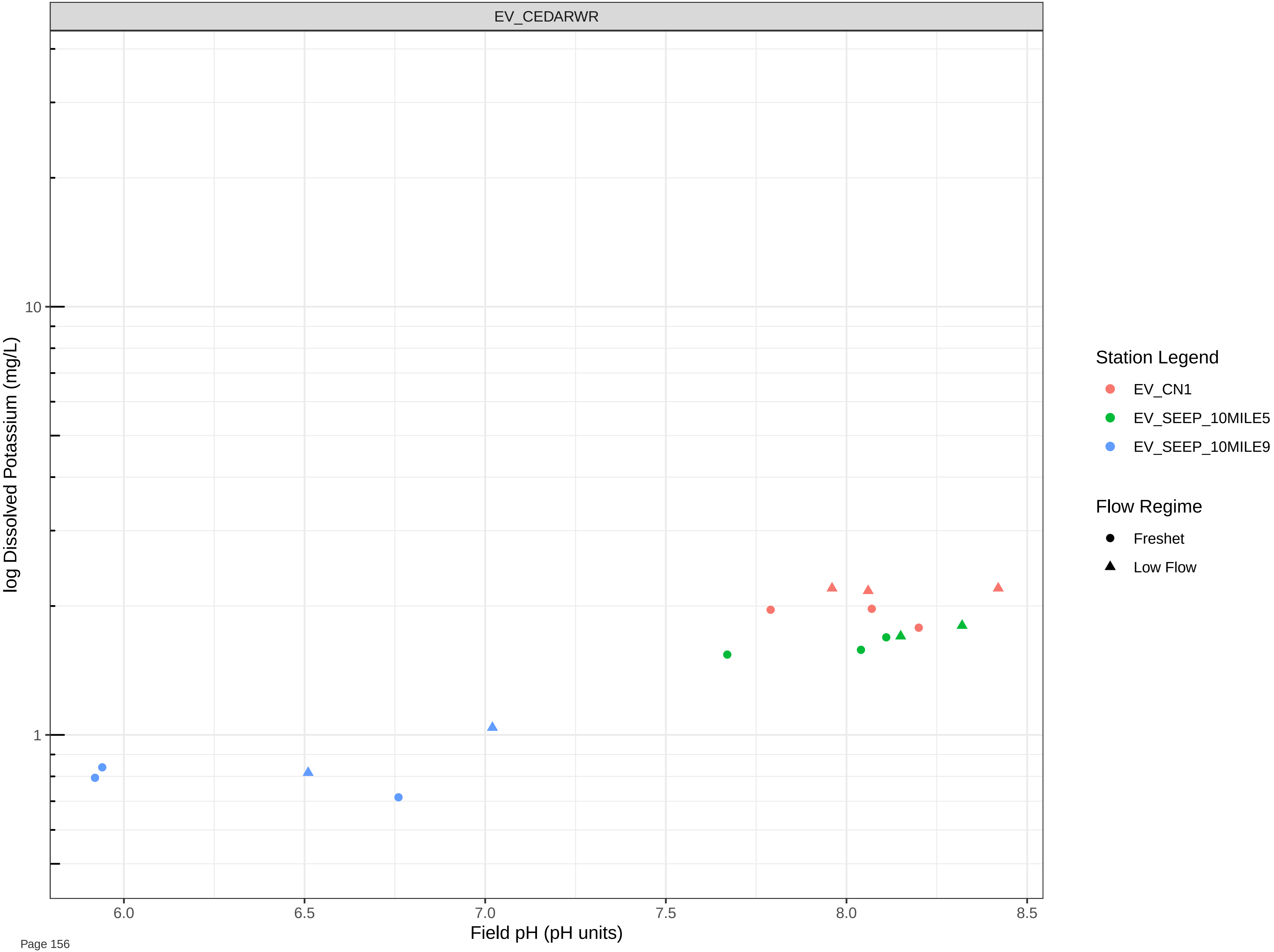

EV_SOUTHSLOPE
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

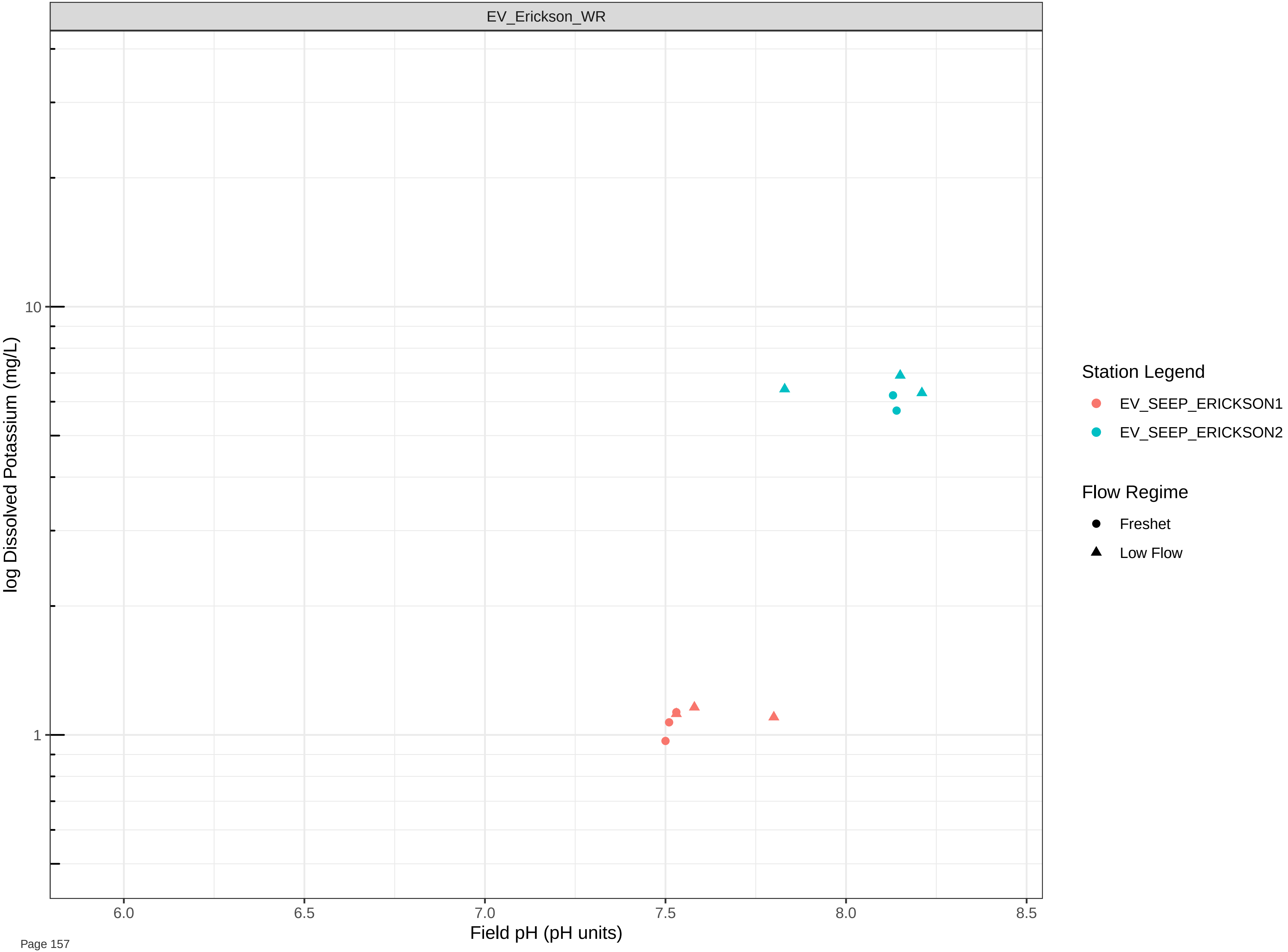

EV_SouthPit_Pit
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

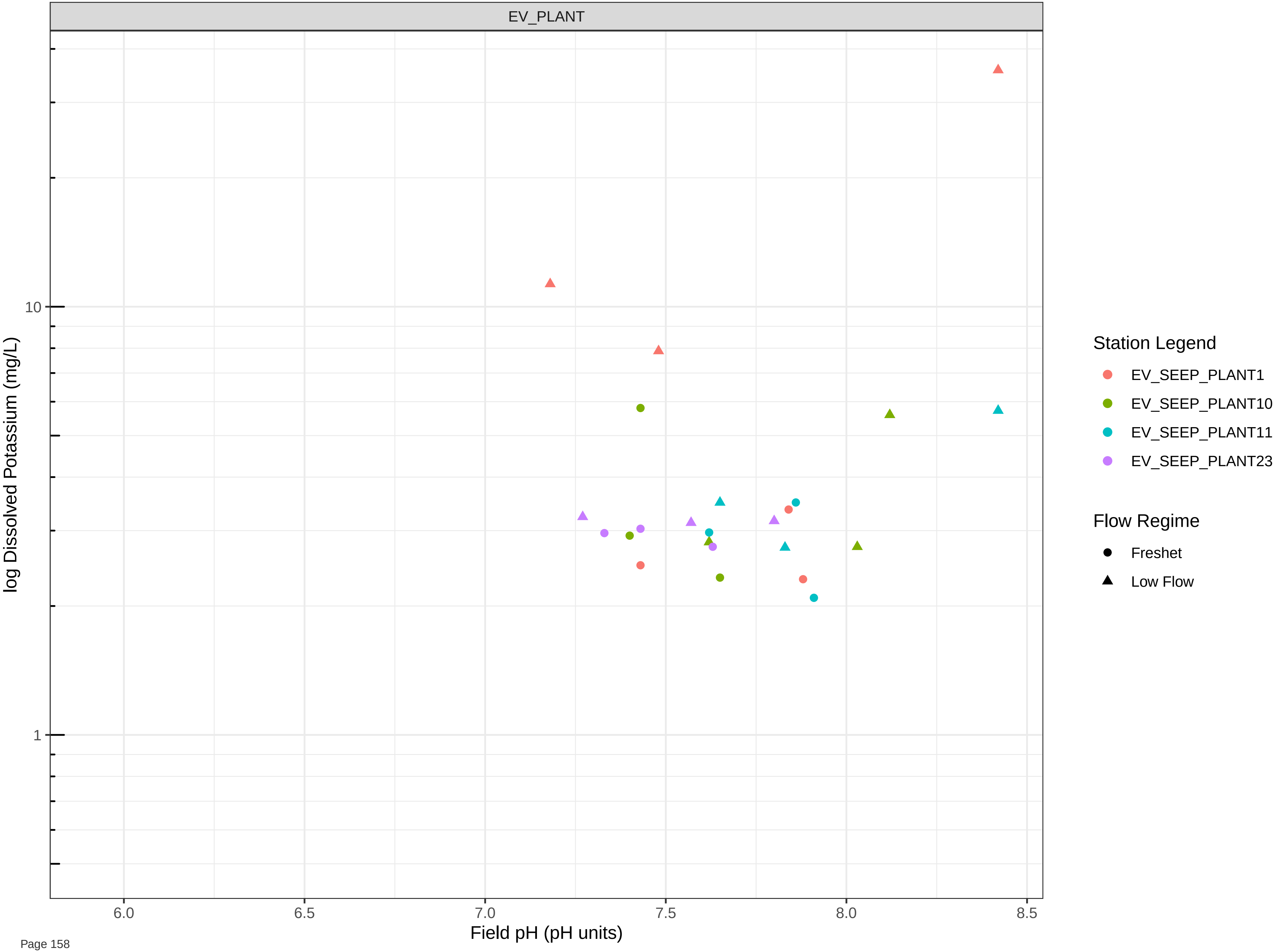

EV_BALDYRIDGEWR
log Dissolved Potassium (mg/L)
10
1
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

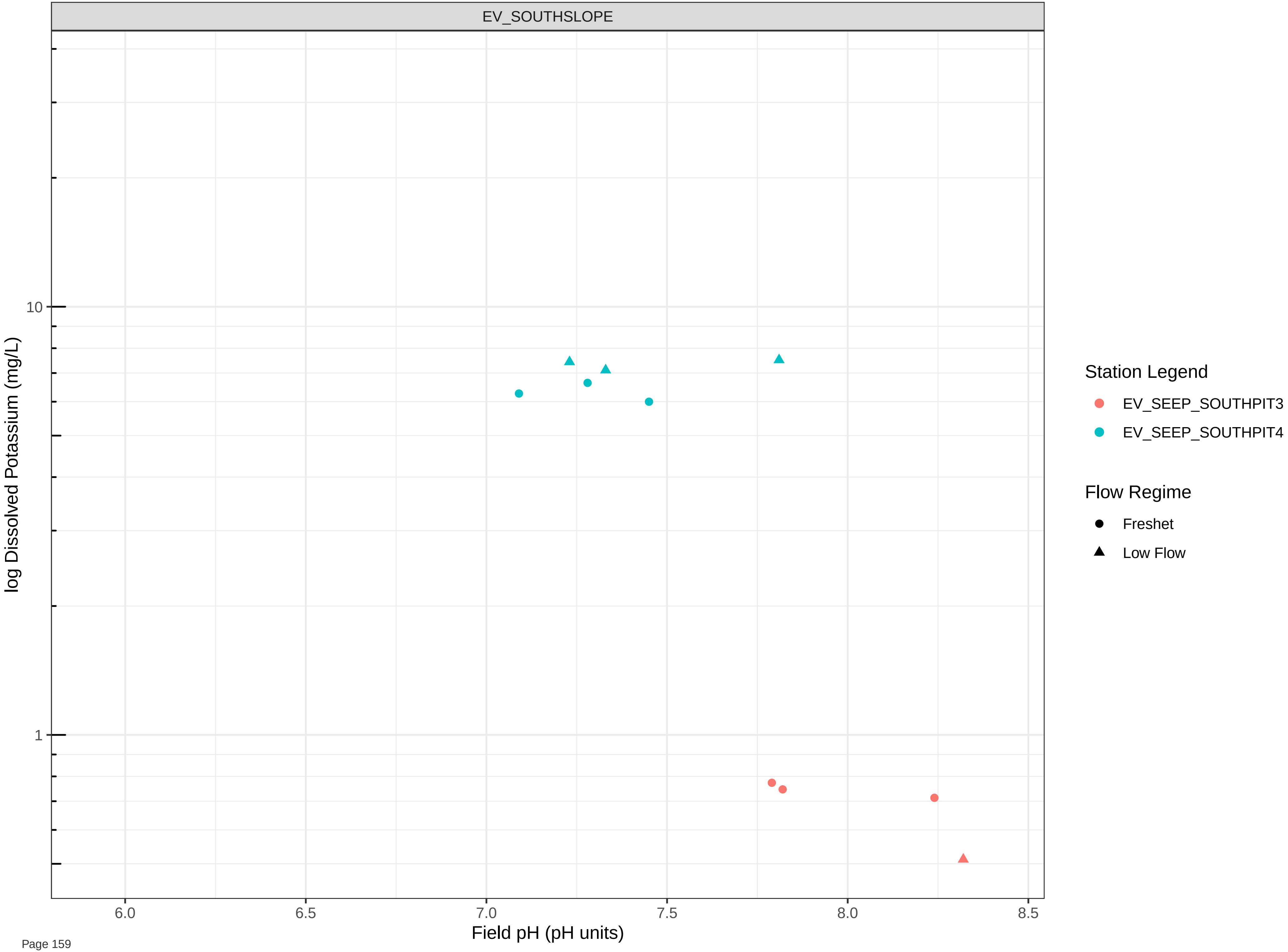

EV_CCR
log Dissolved Potassium (mg/L)
10
1
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

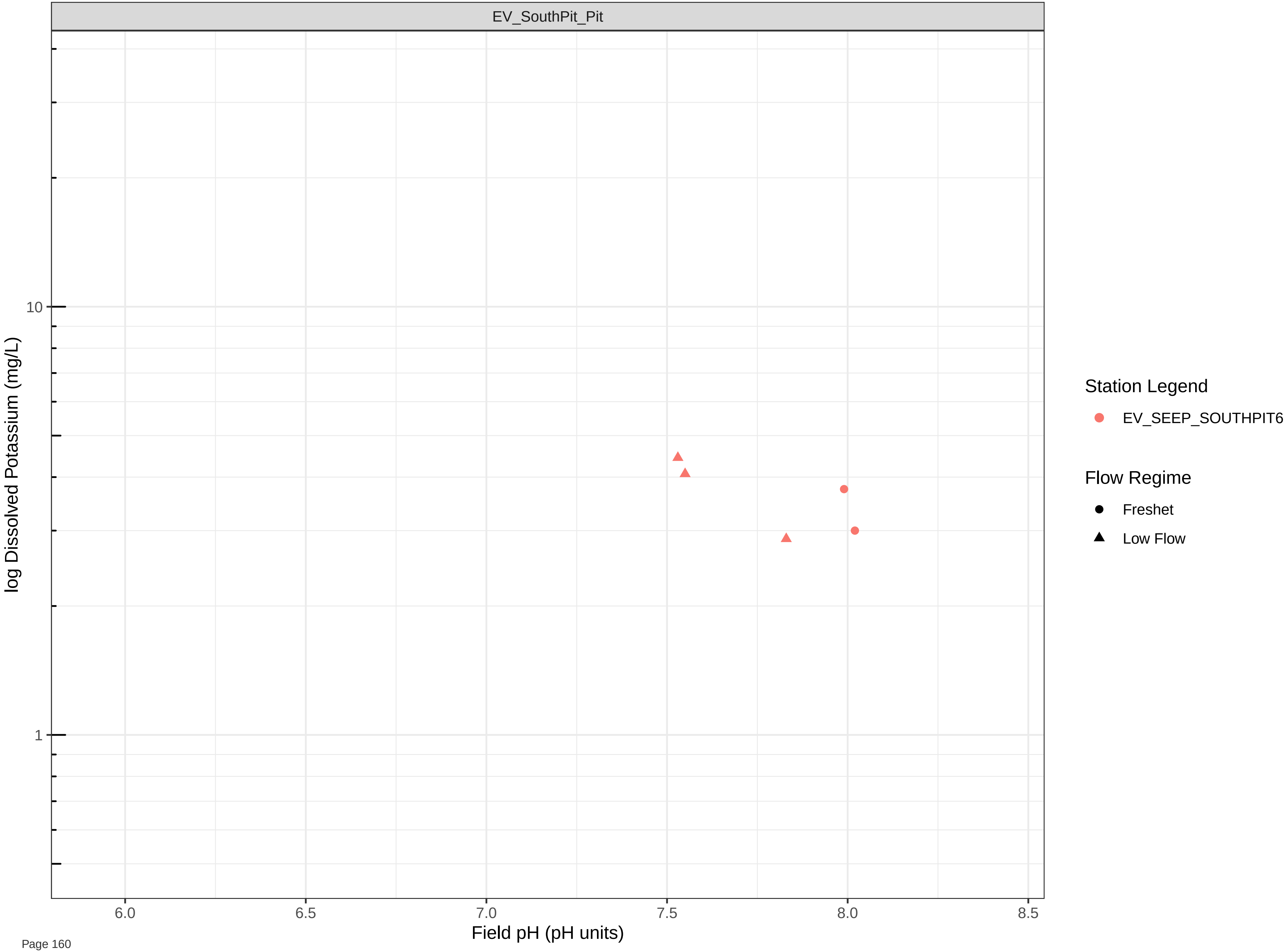

EV_CCR/TP
log Dissolved Potassium (mg/L)
10
1
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

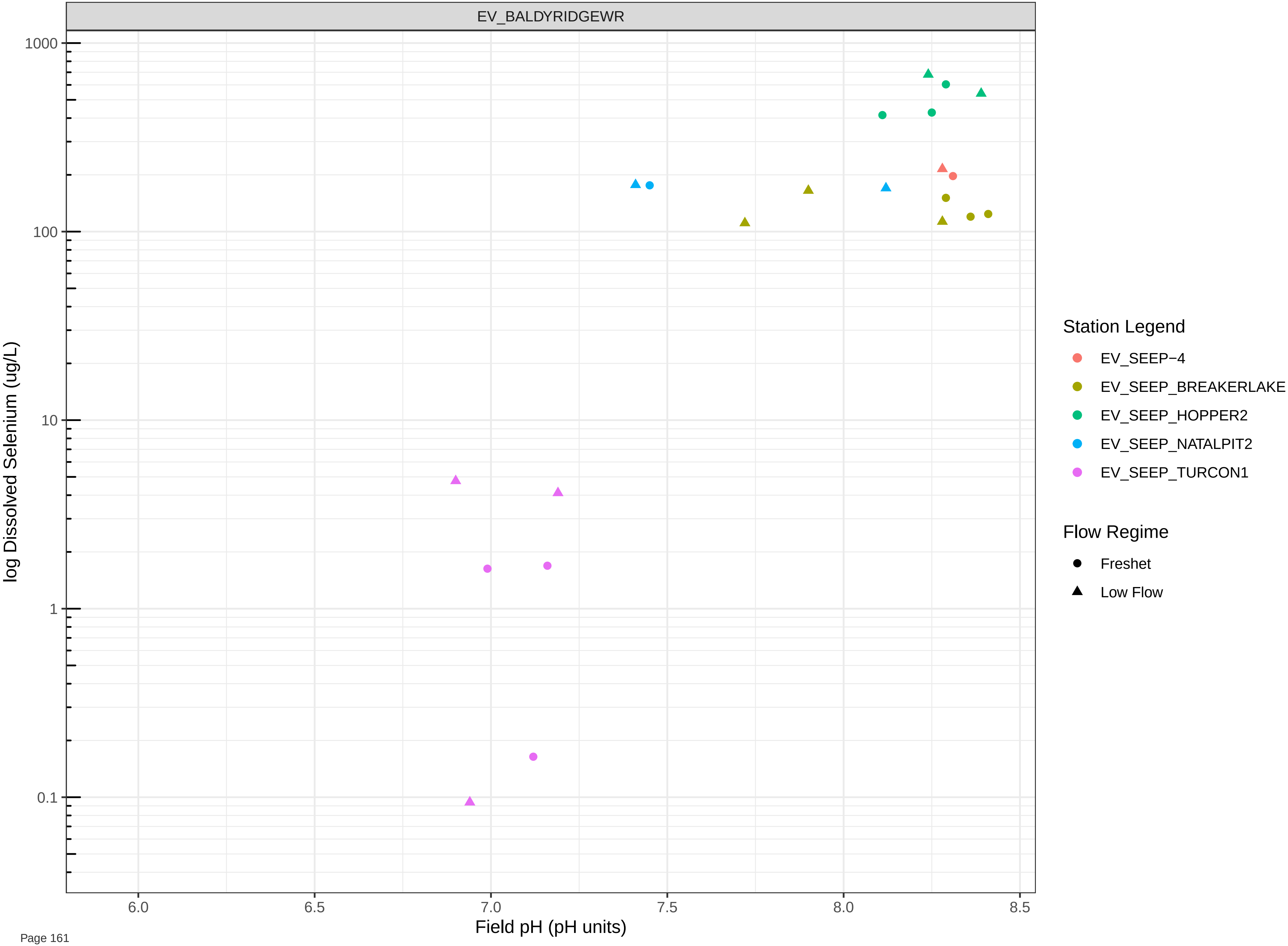

EV_CEDARWR
log Dissolved Potassium (mg/L)
10
1
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

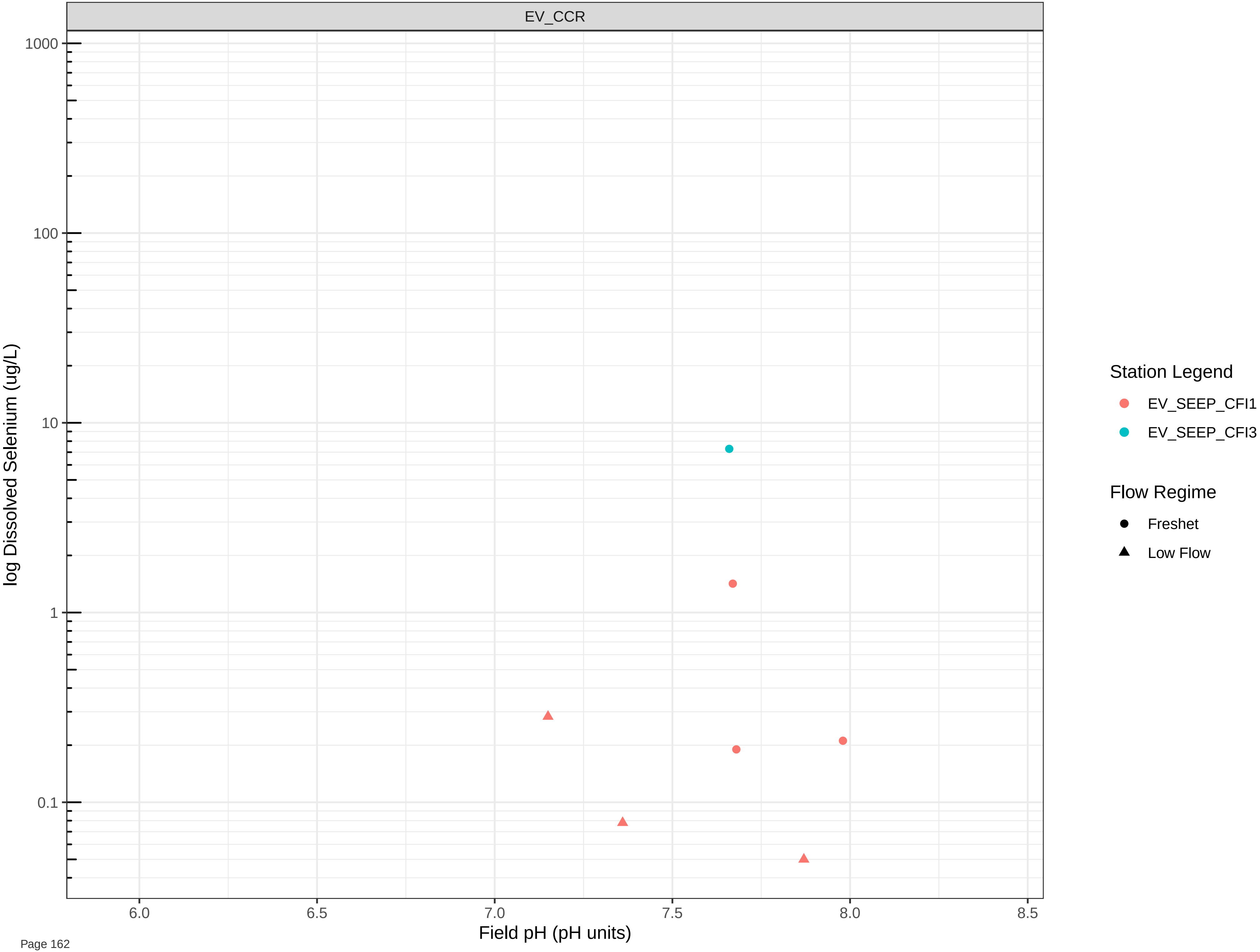

EV_Erickson_WR
log Dissolved Potassium (mg/L)
10
1
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

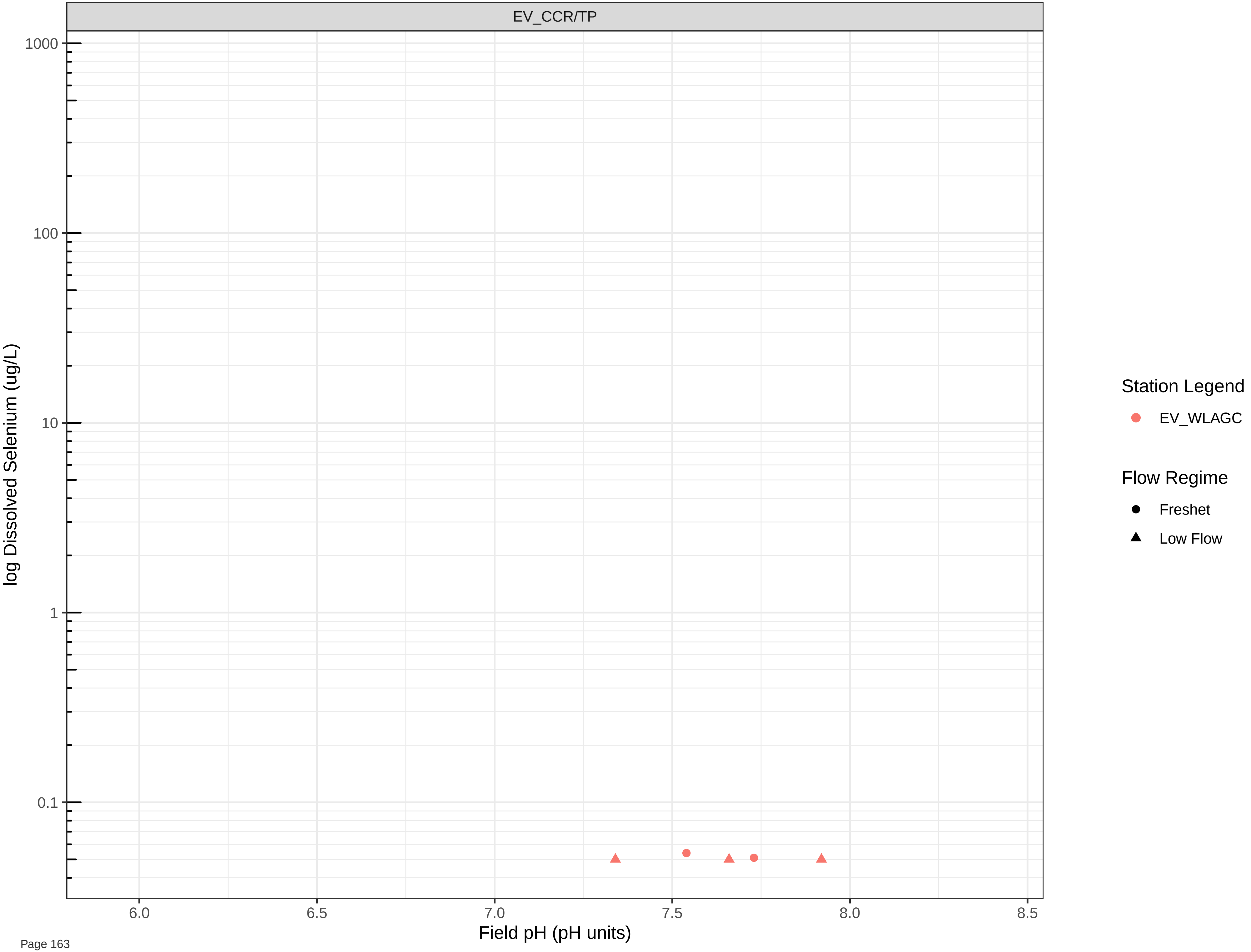

EV_PLANT
log Dissolved Potassium (mg/L)
10
1
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

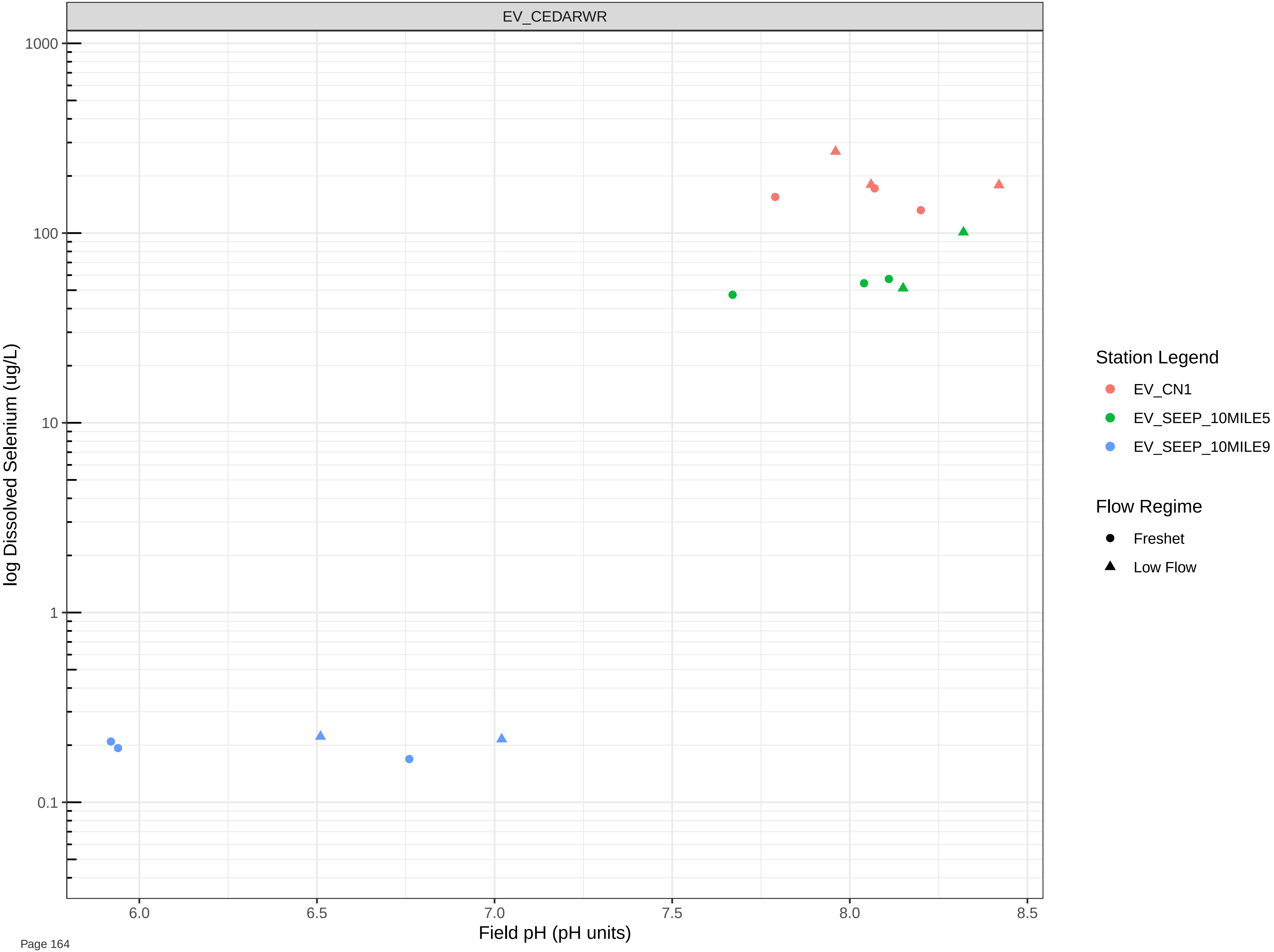

EV_SOUTHSLOPE
log Dissolved Potassium (mg/L)
10
1
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

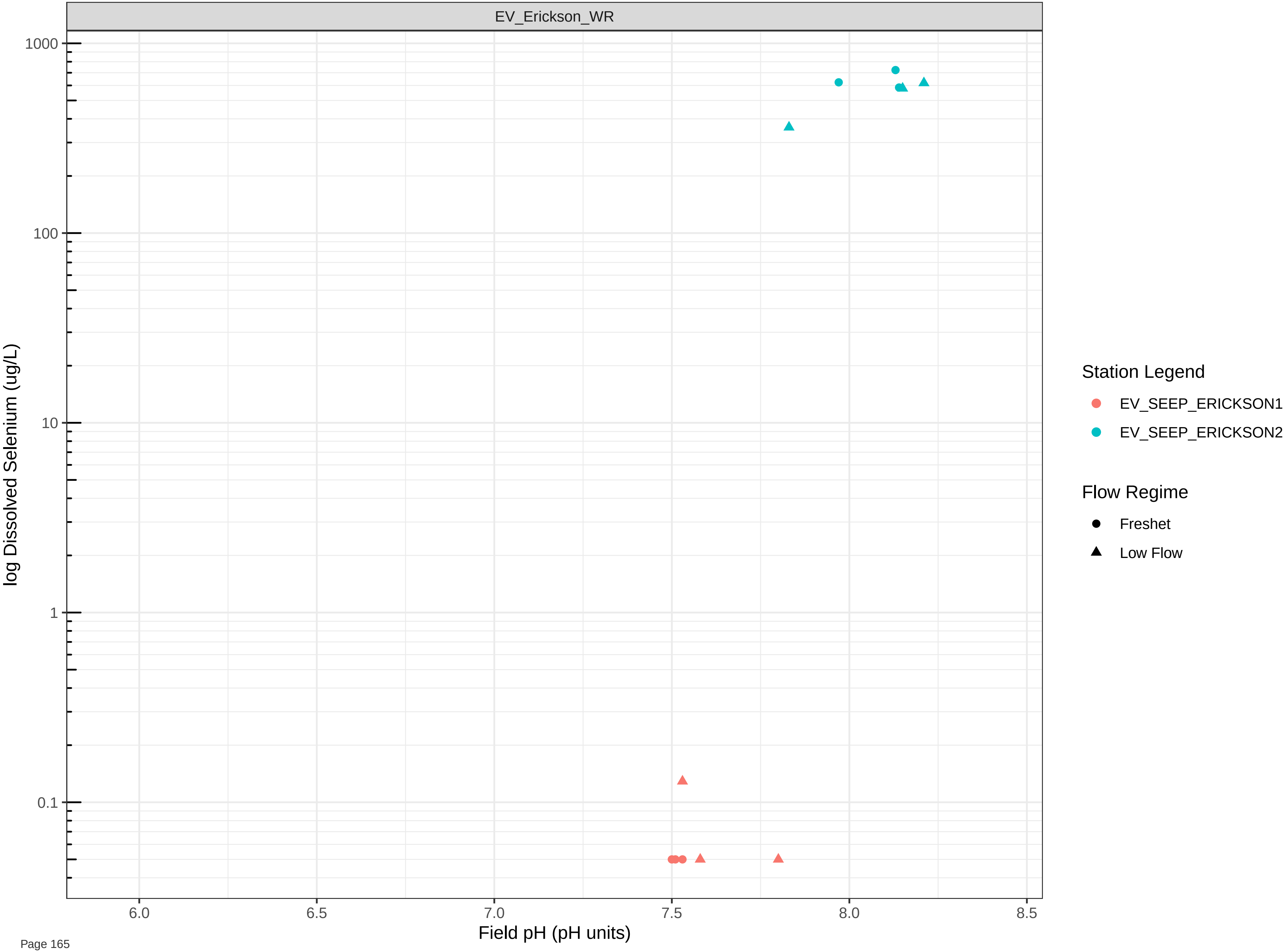

EV_SouthPit_Pit
log Dissolved Potassium (mg/L)
10
1
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

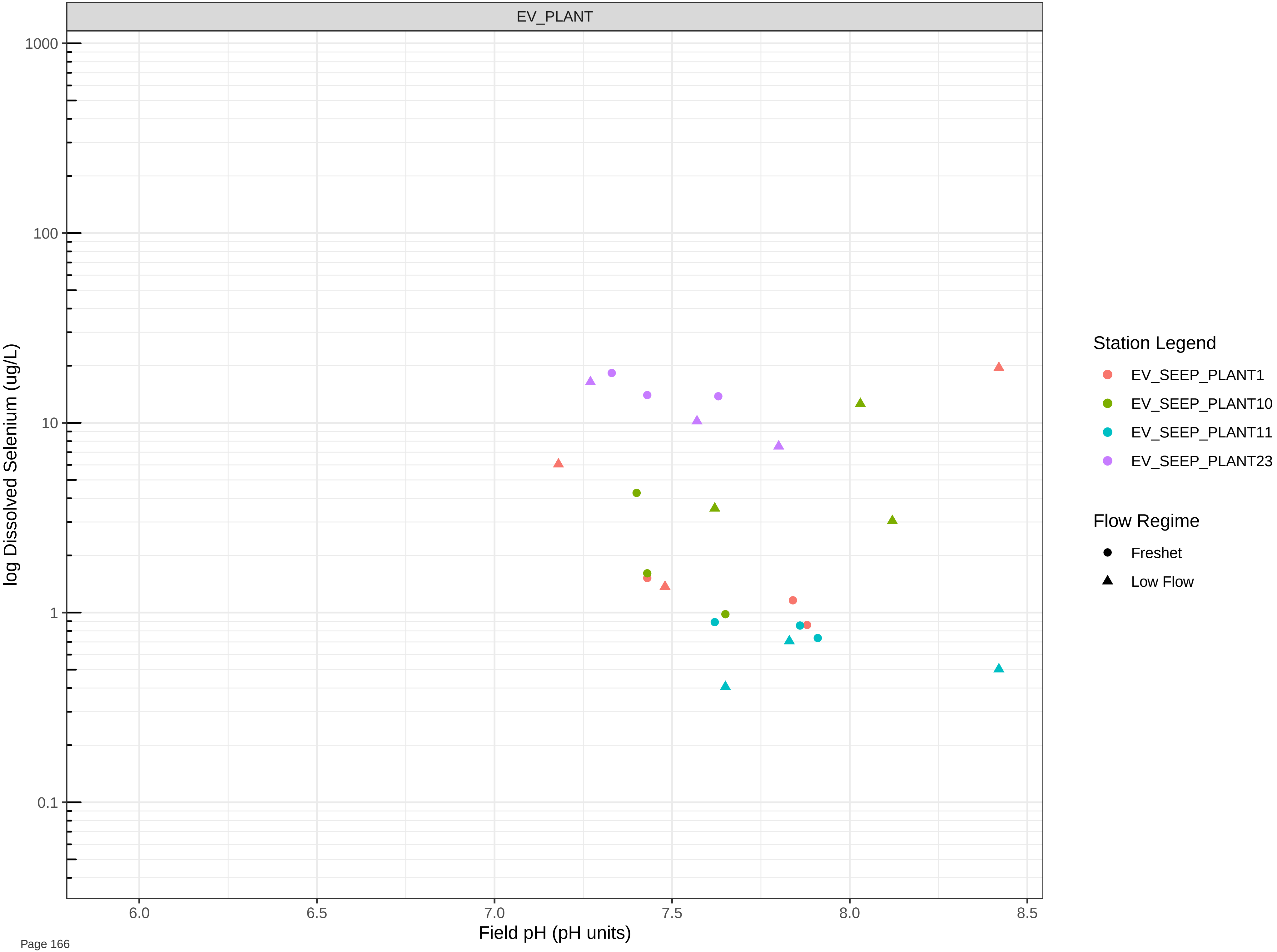

EV_BALDYRIDGEWR
log Dissolved Selenium (ug/L)
1000
100
10
1
0.1
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

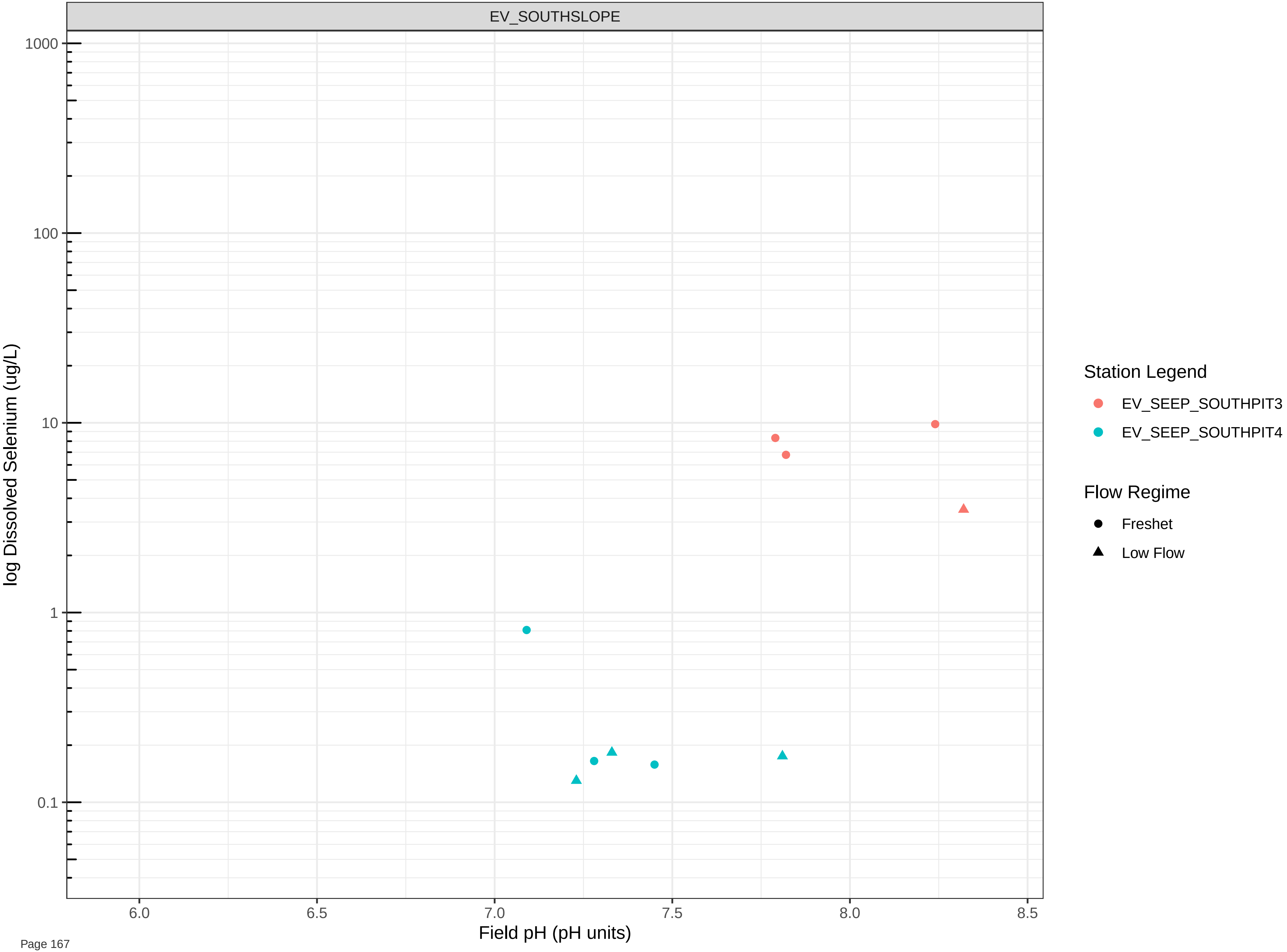

EV_CCR
1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

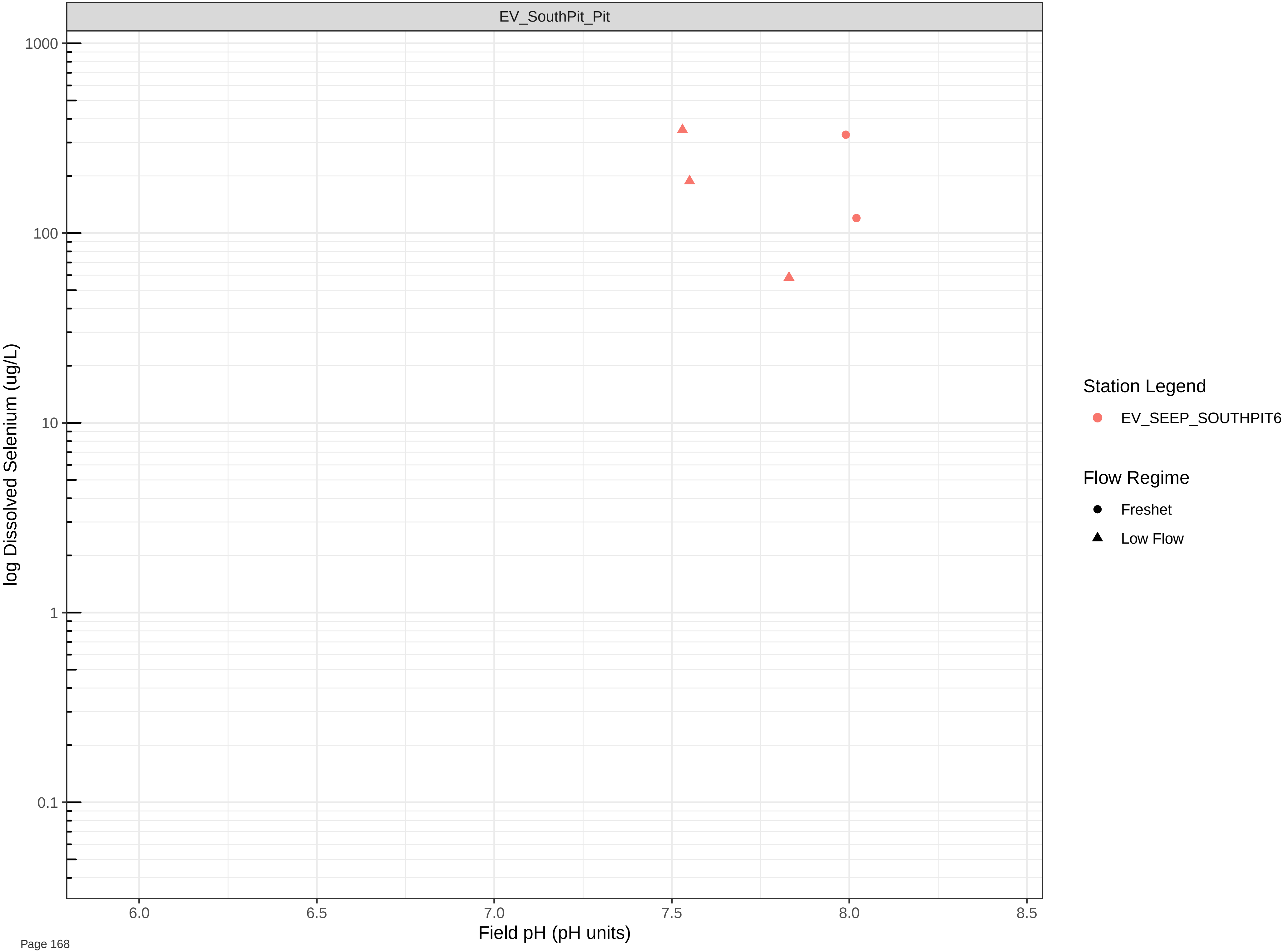

EV_CCR/TP
1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

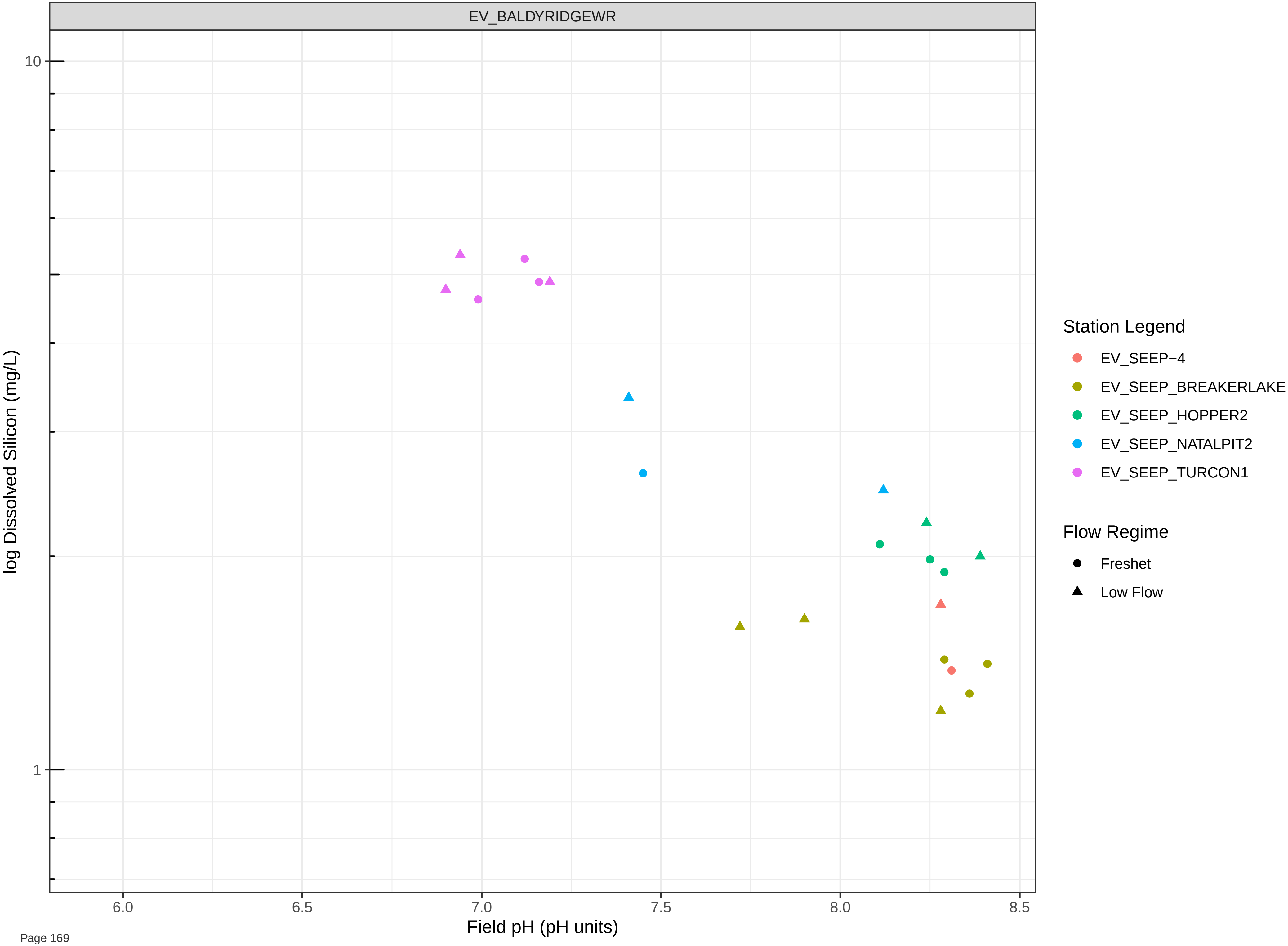

EV_CEDARWR
1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_CN1
● EV_SEEP_10MILE5
● EV_SEEP_10MILE9
Flow Regime
● Freshet
▲ Low Flow

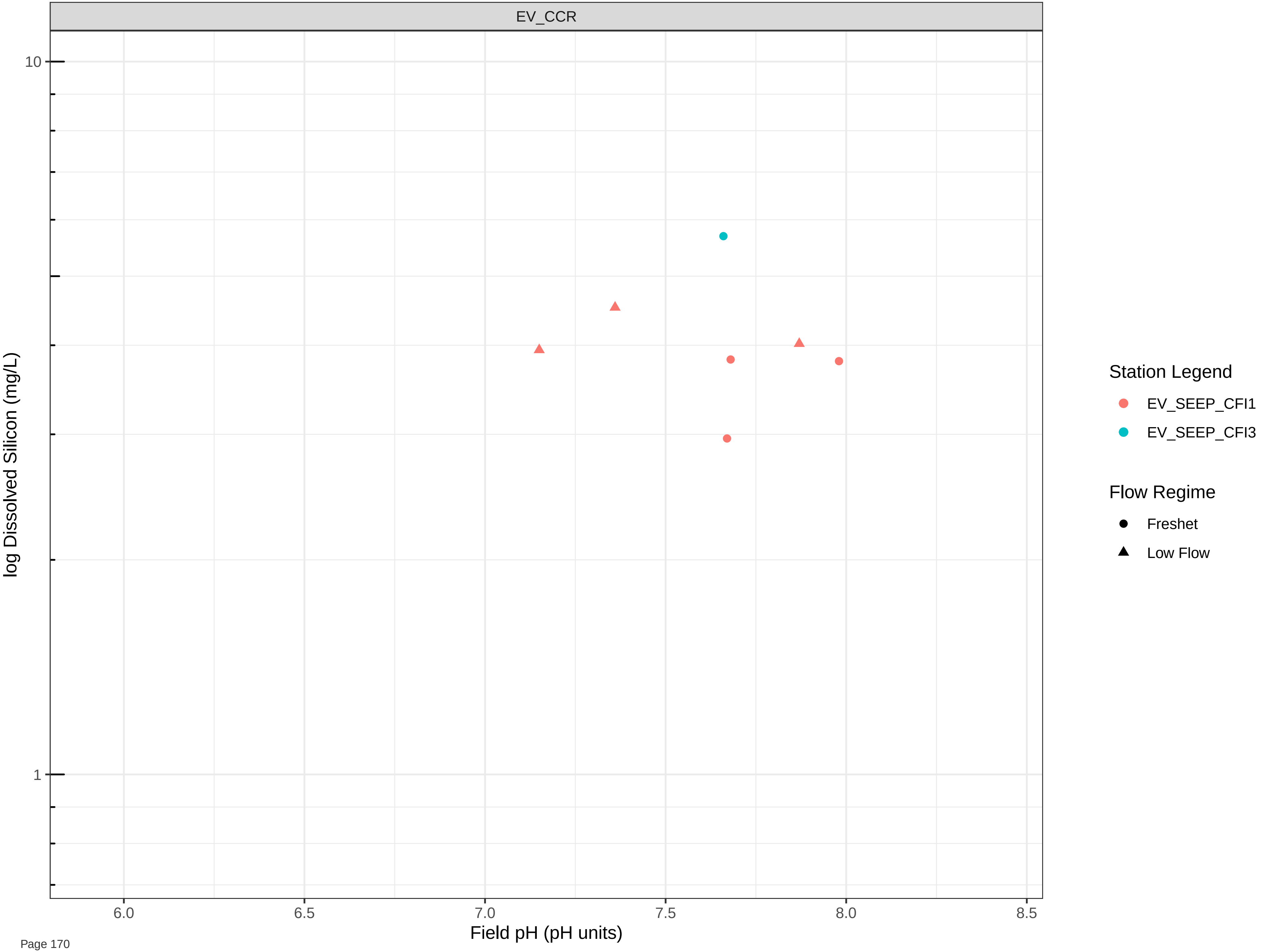

EV_Erickson_WR
log Dissolved Selenium (ug/L)
1000
100
10
1
0.1
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

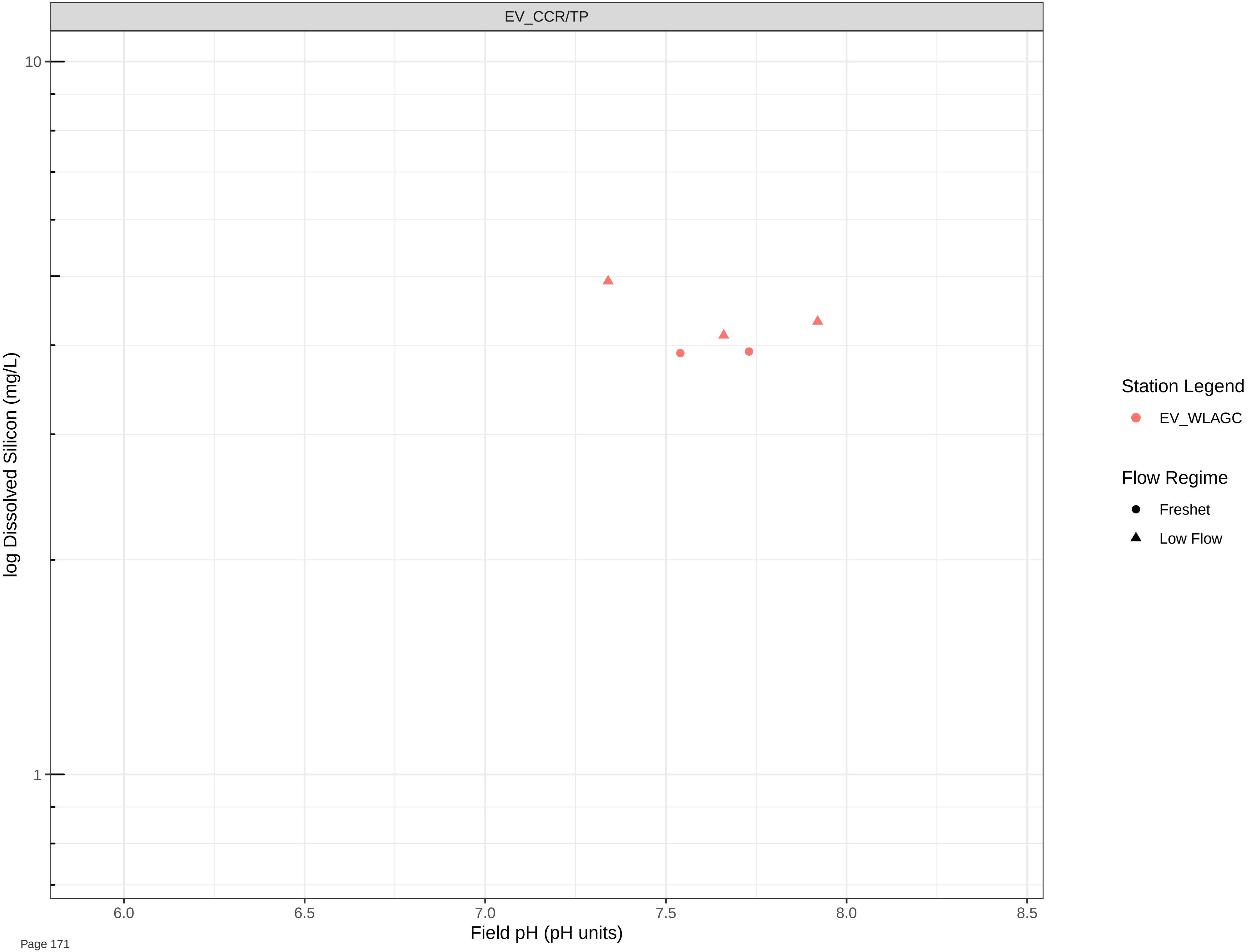

EV_PLANT
log Dissolved Selenium (ug/L)
1000
100
10
1
0.1
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

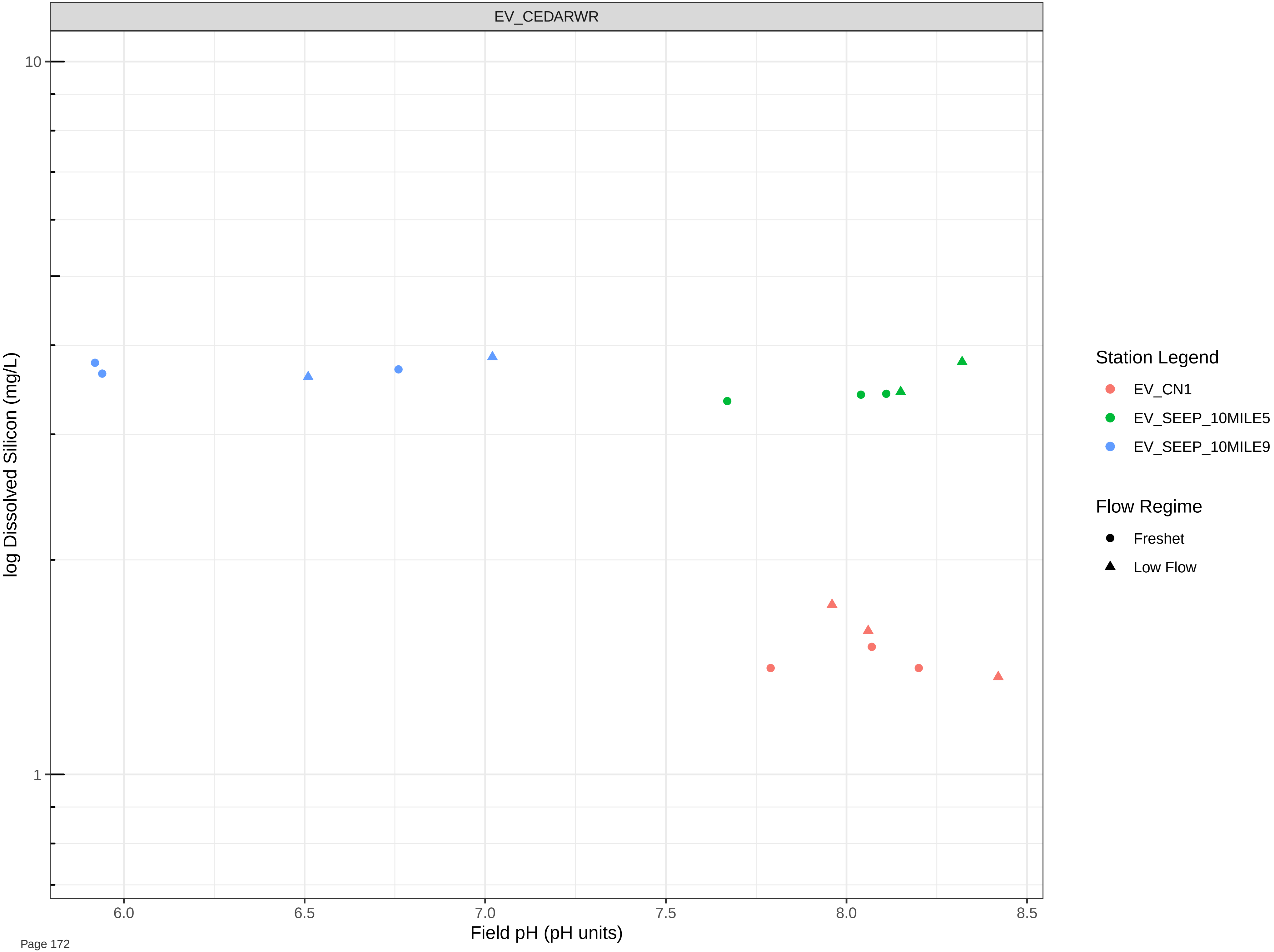

EV_SOUTHSLOPE
1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

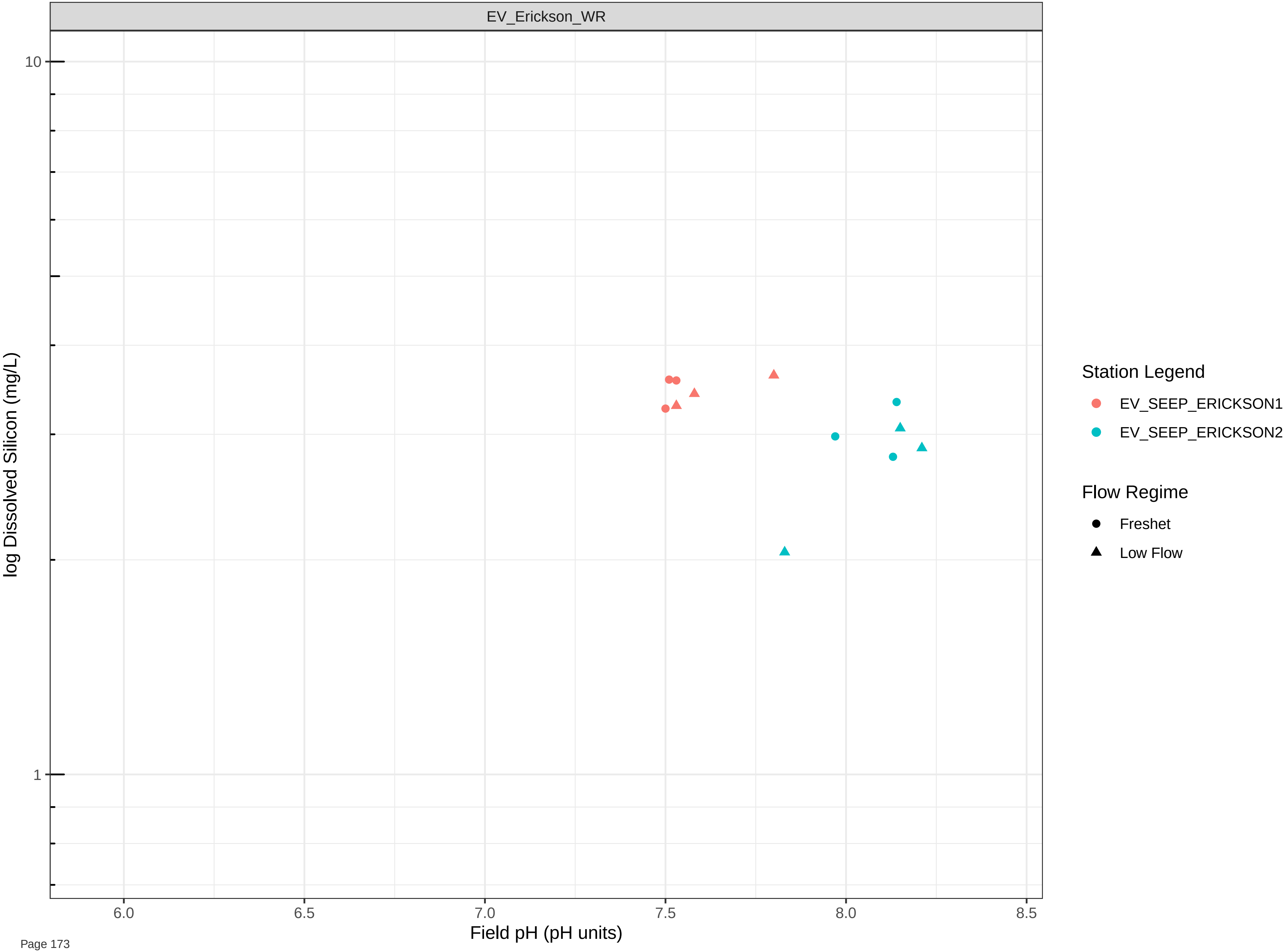

EV_SouthPit_Pit
1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

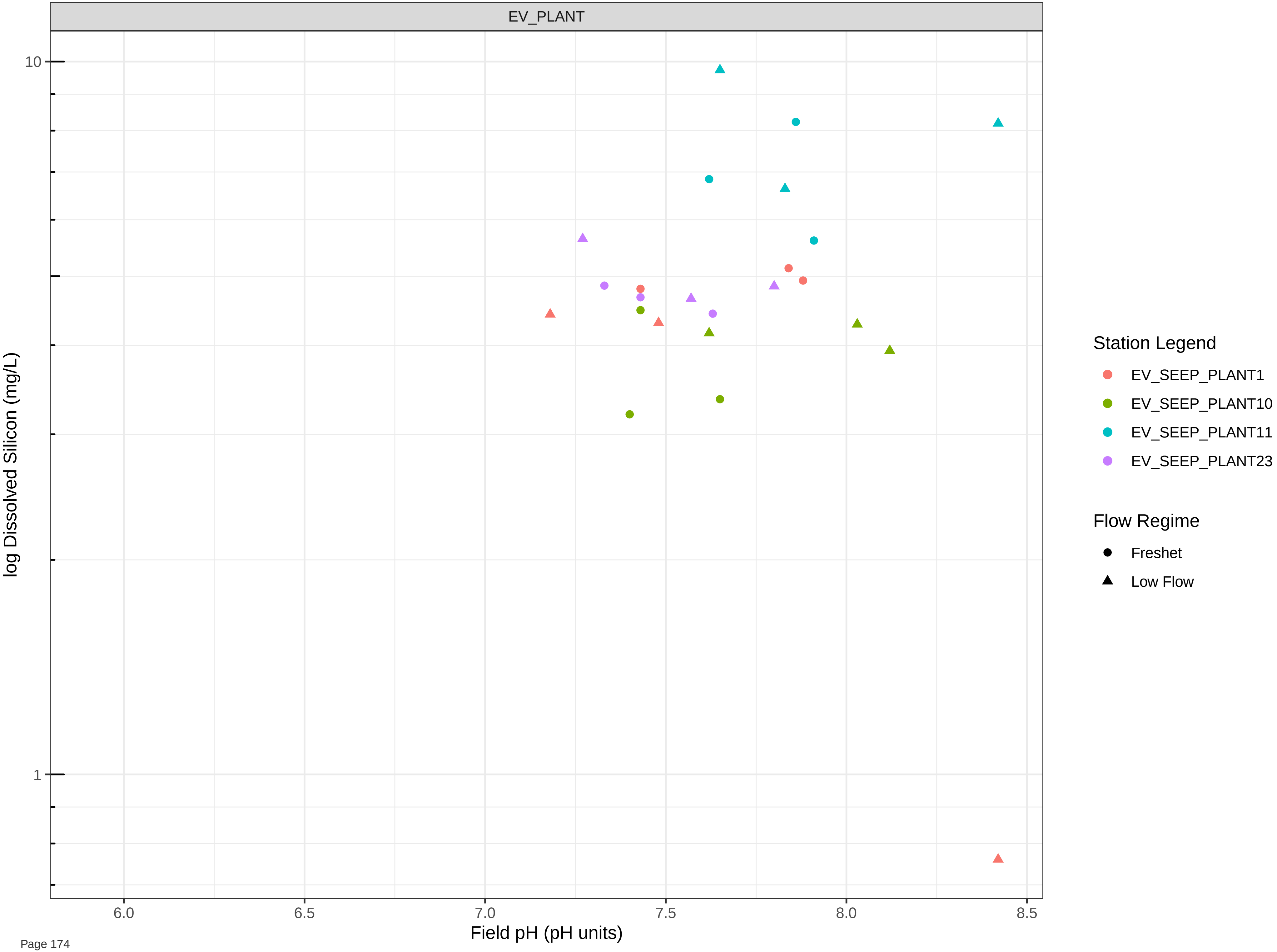

EV_BALDYRIDGEWR
log Dissolved Silicon (mg/L)
10
1
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

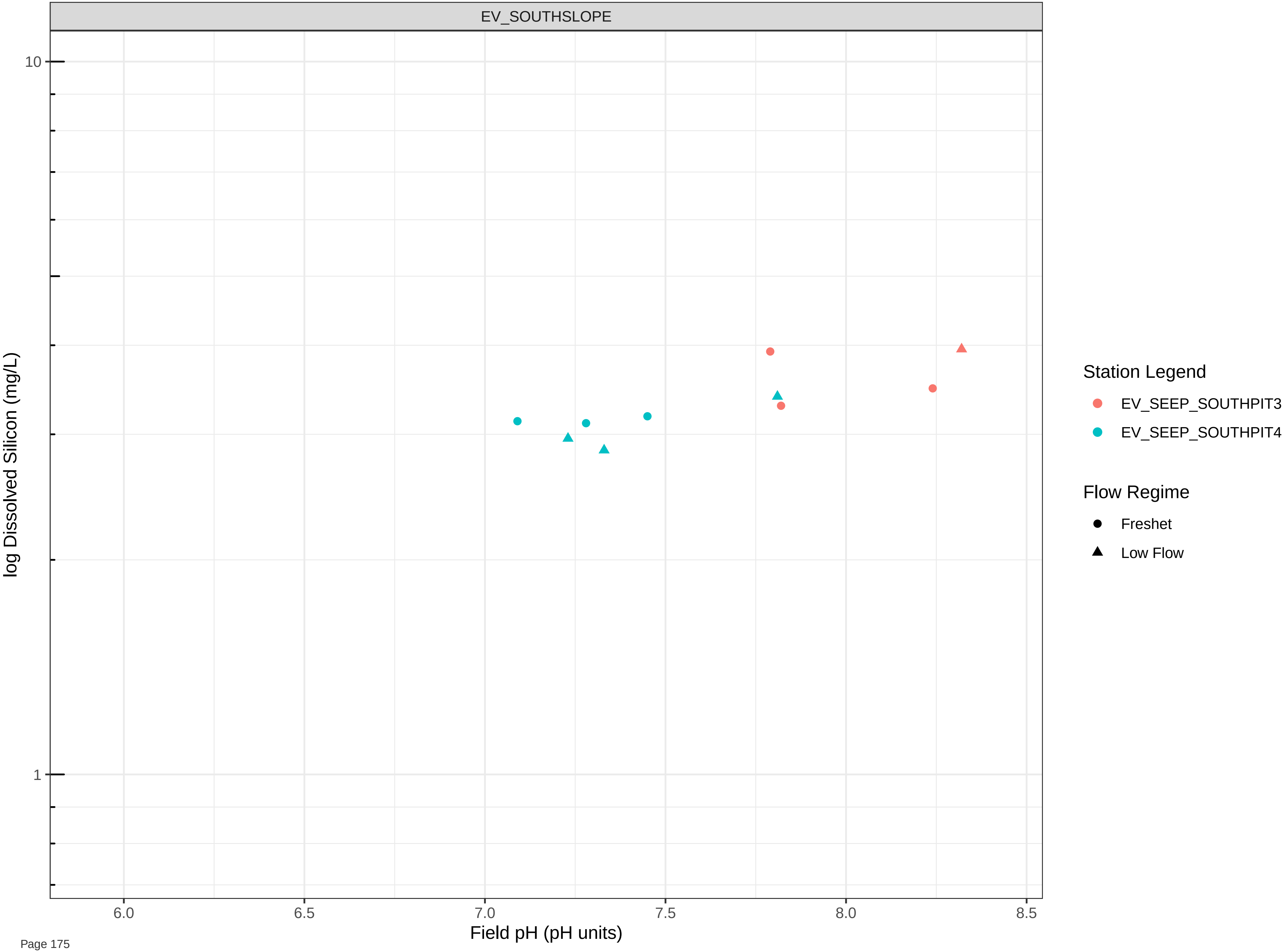

EV_CCR
10
1
log Dissolved Silicon (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

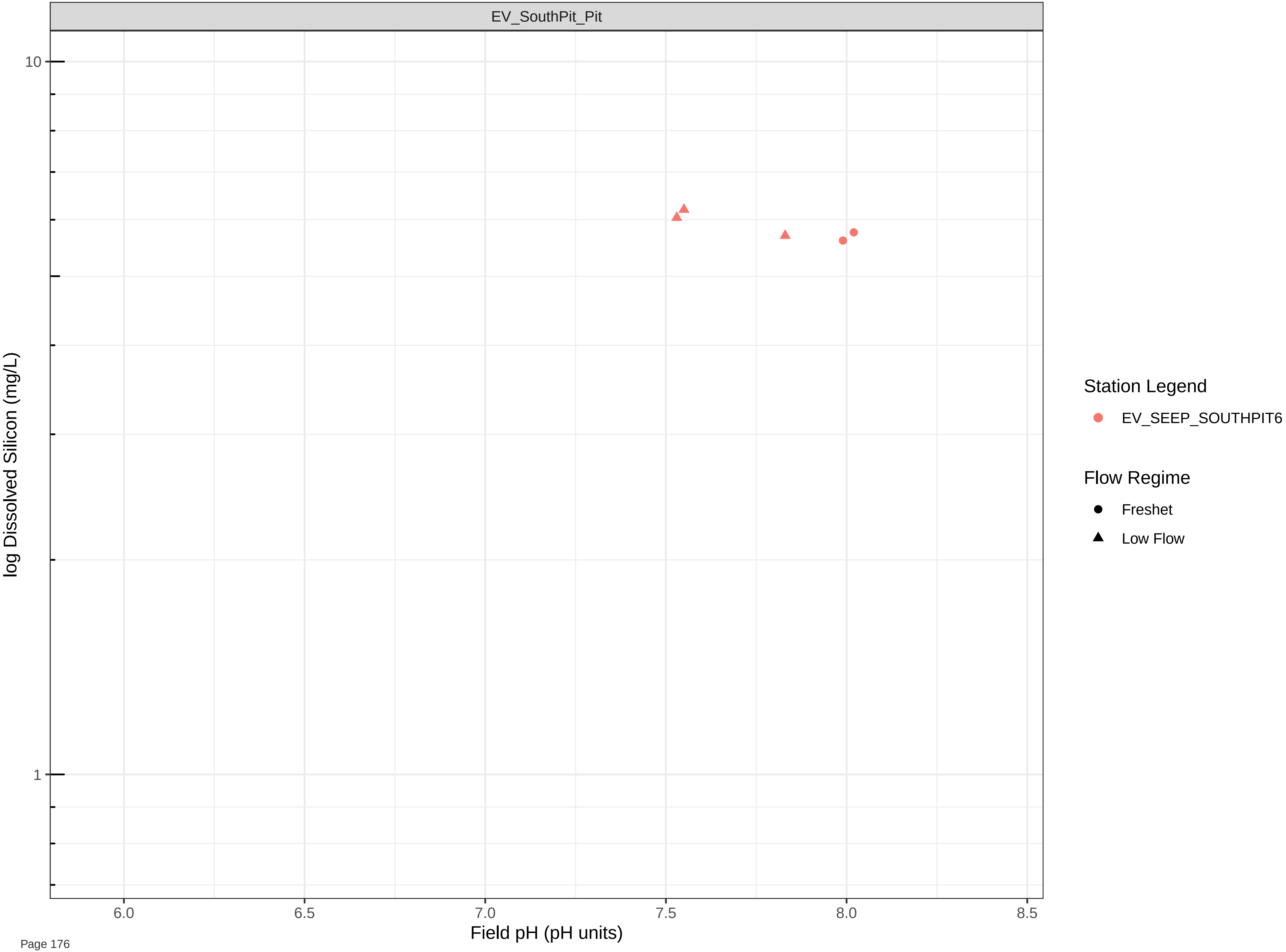

EV_CCR/TP
10
1
log Dissolved Silicon (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

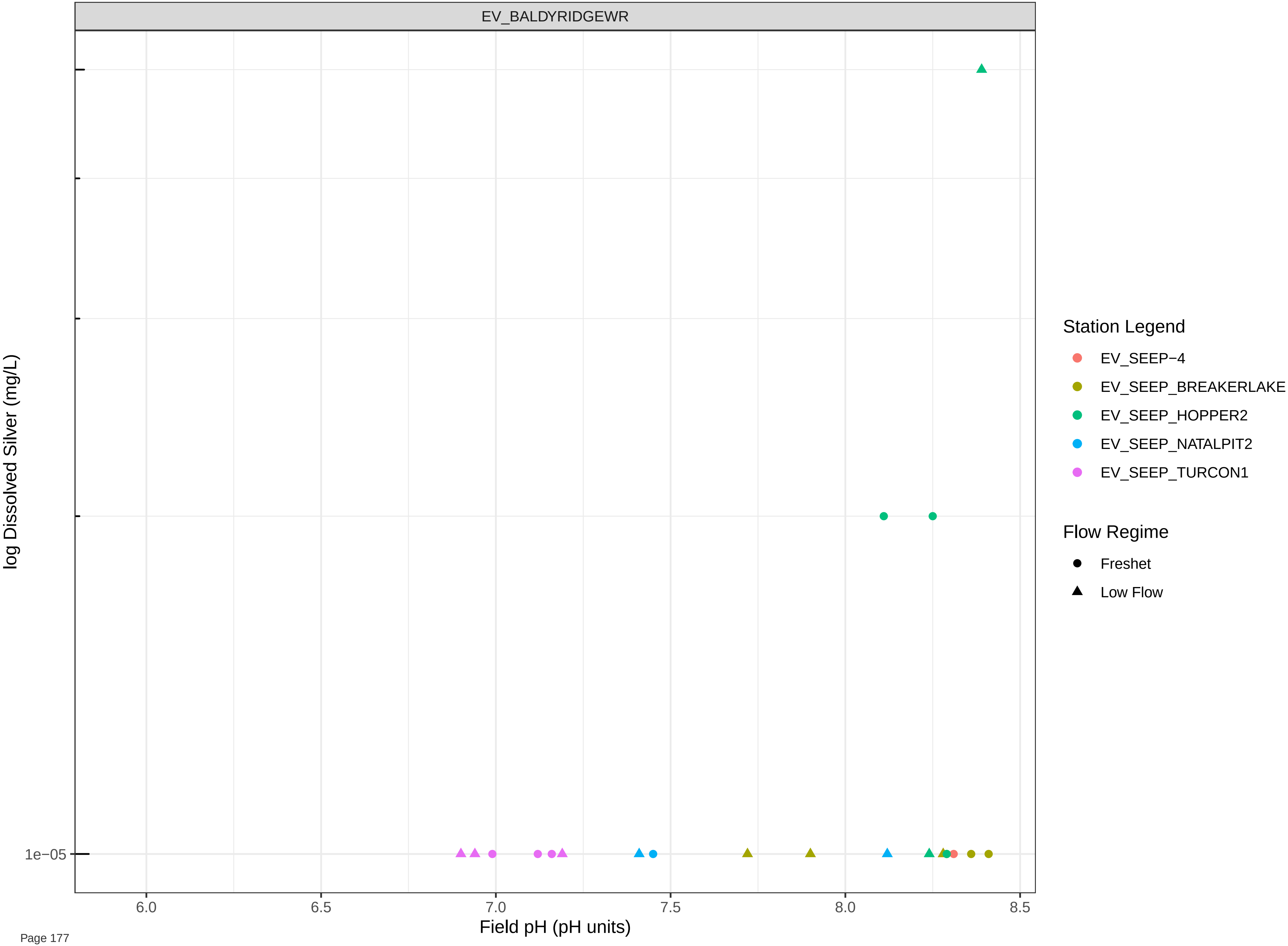

EV_CEDARWR
log Dissolved Silicon (mg/L)
10
1
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

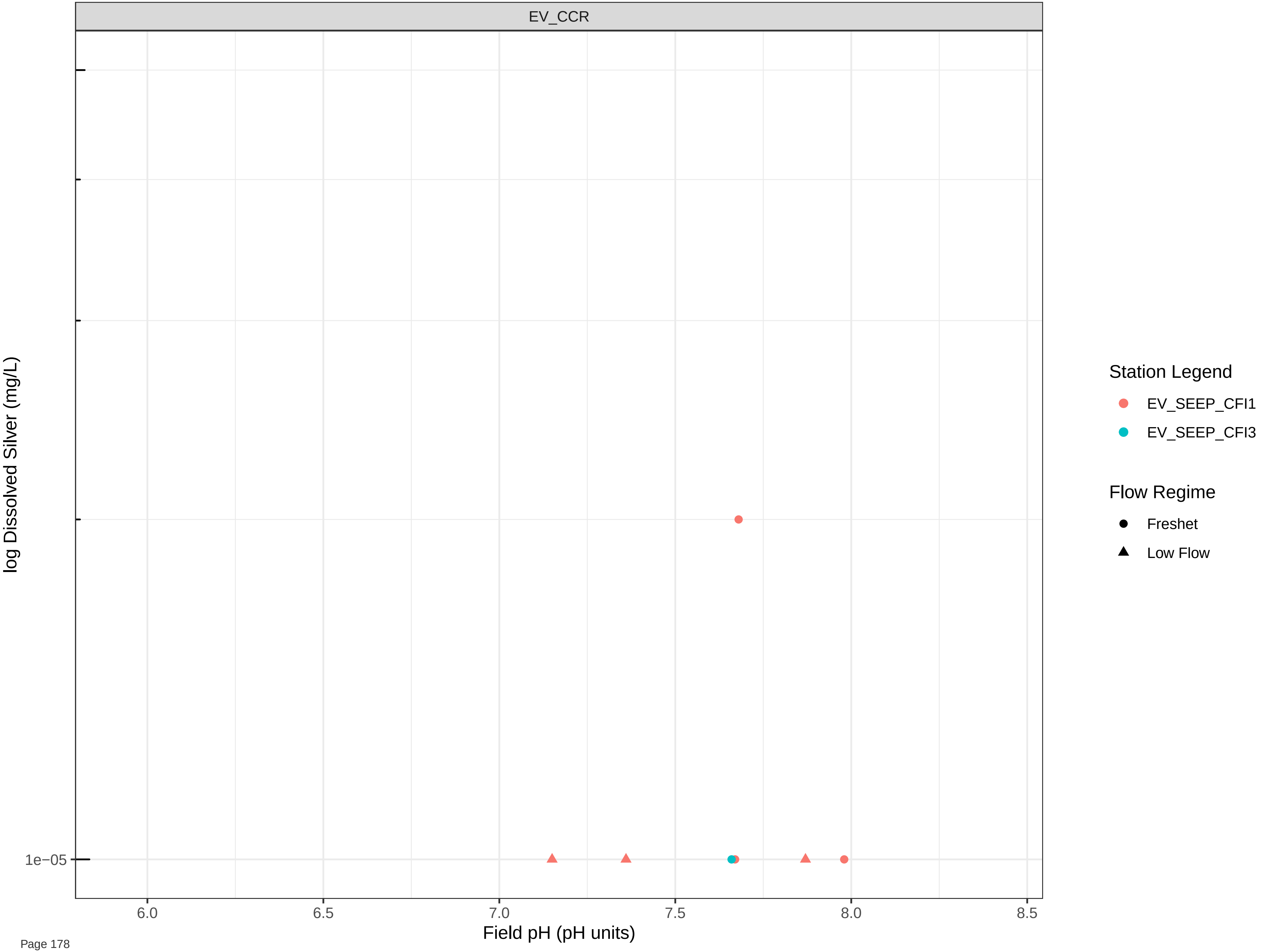

EV_Erickson_WR
log Dissolved Silicon (mg/L)
10
1
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

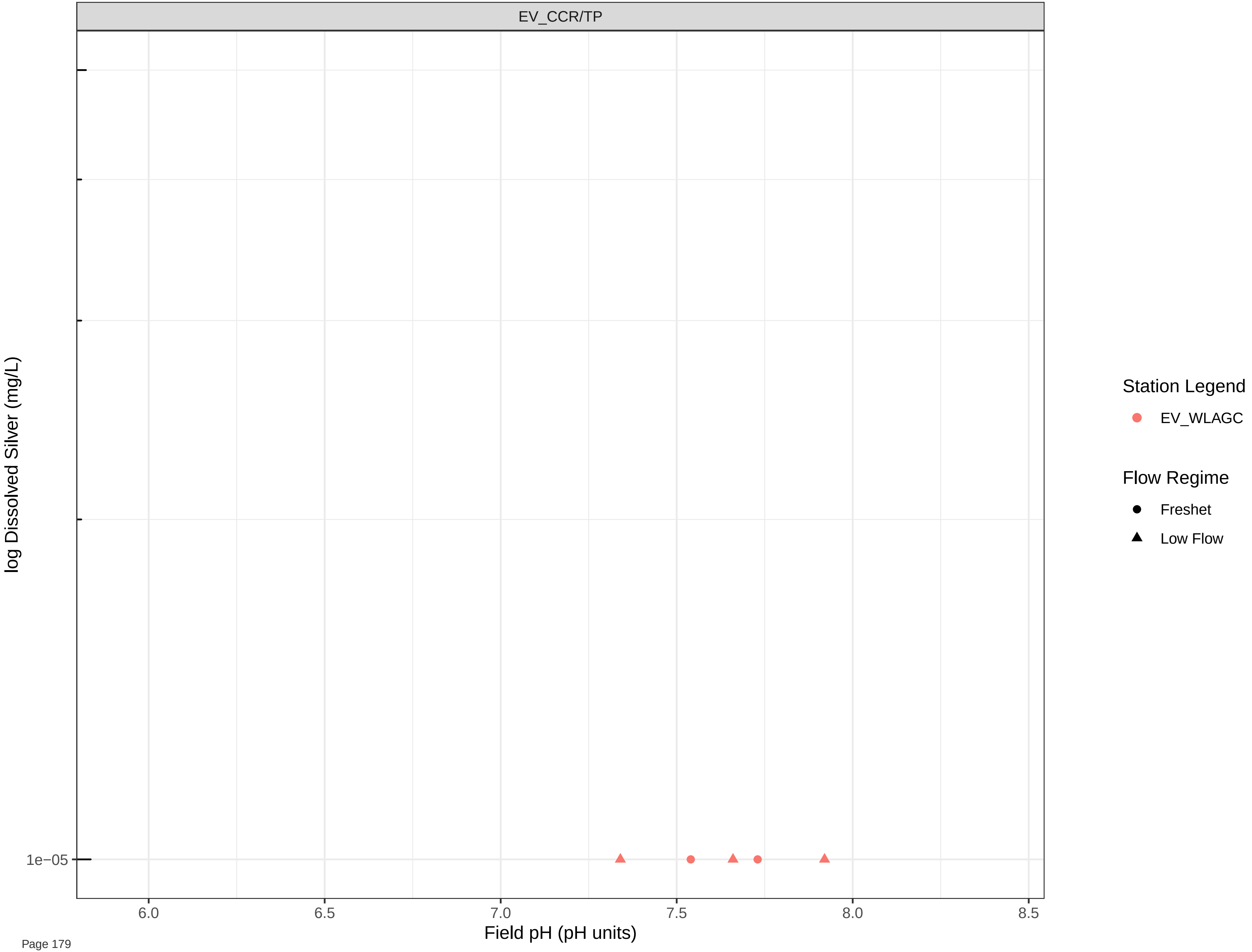

EV_PLANT
10
1
log Dissolved Silicon (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_PLANT1
● EV_SEEP_PLANT10
● EV_SEEP_PLANT11
● EV_SEEP_PLANT23
Flow Regime
● Freshet
▲ Low Flow

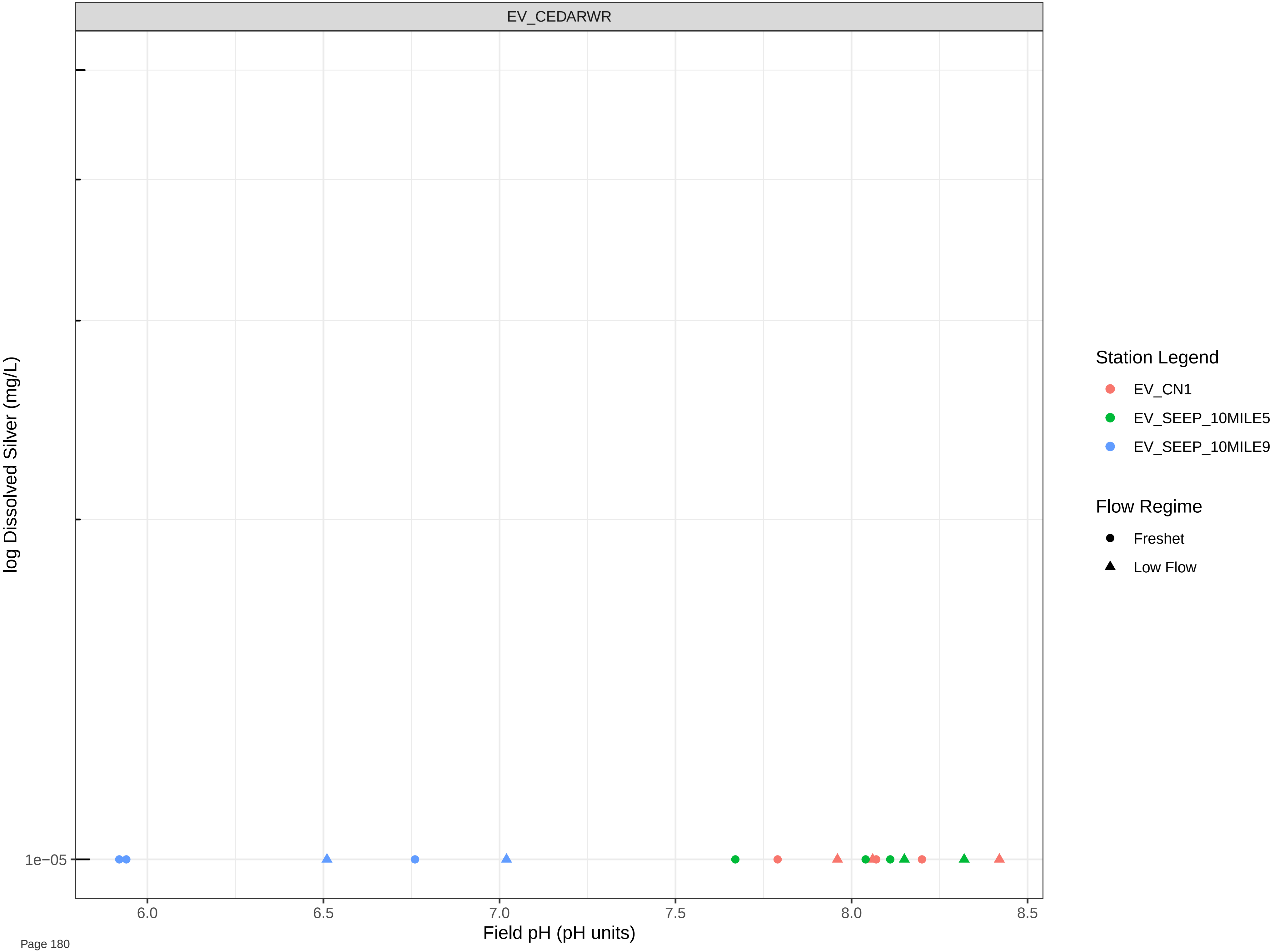

EV_SOUTHSLOPE
10
1
log Dissolved Silicon (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

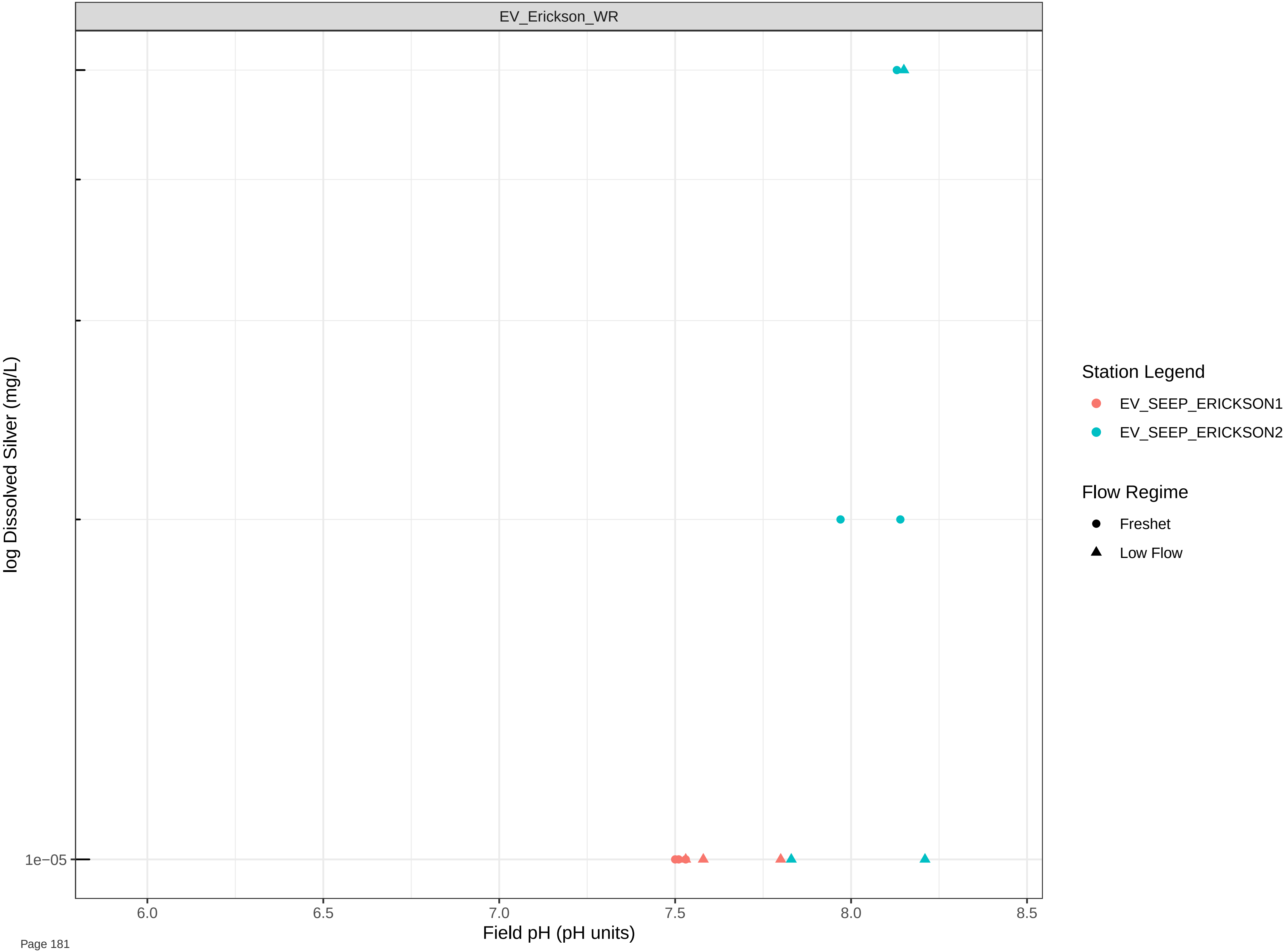

EV_SouthPit_Pit
10
1
log Dissolved Silicon (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

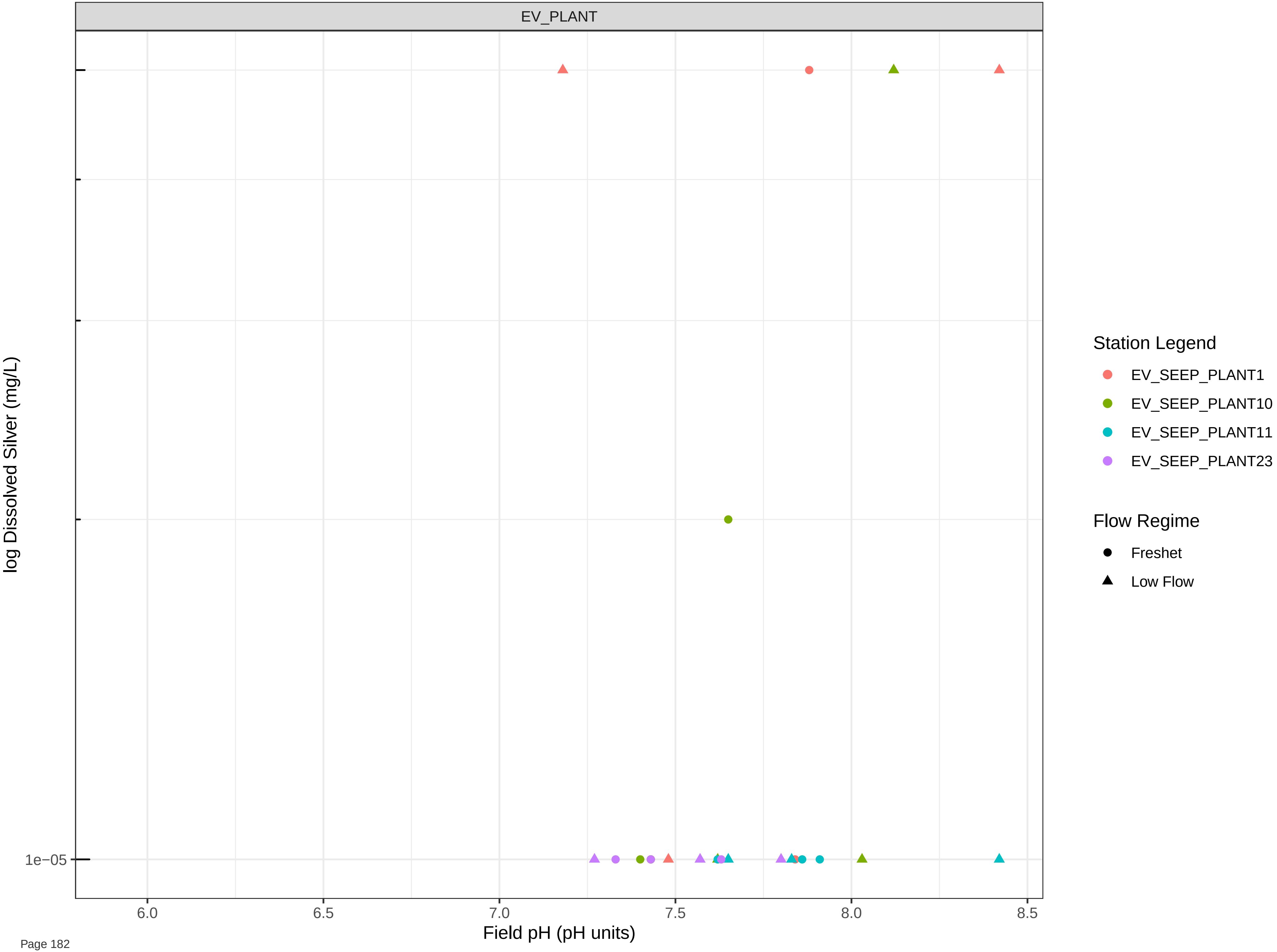

EV_BALDYRIDGEWR
log Dissolved Silver (mg/L)
1e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

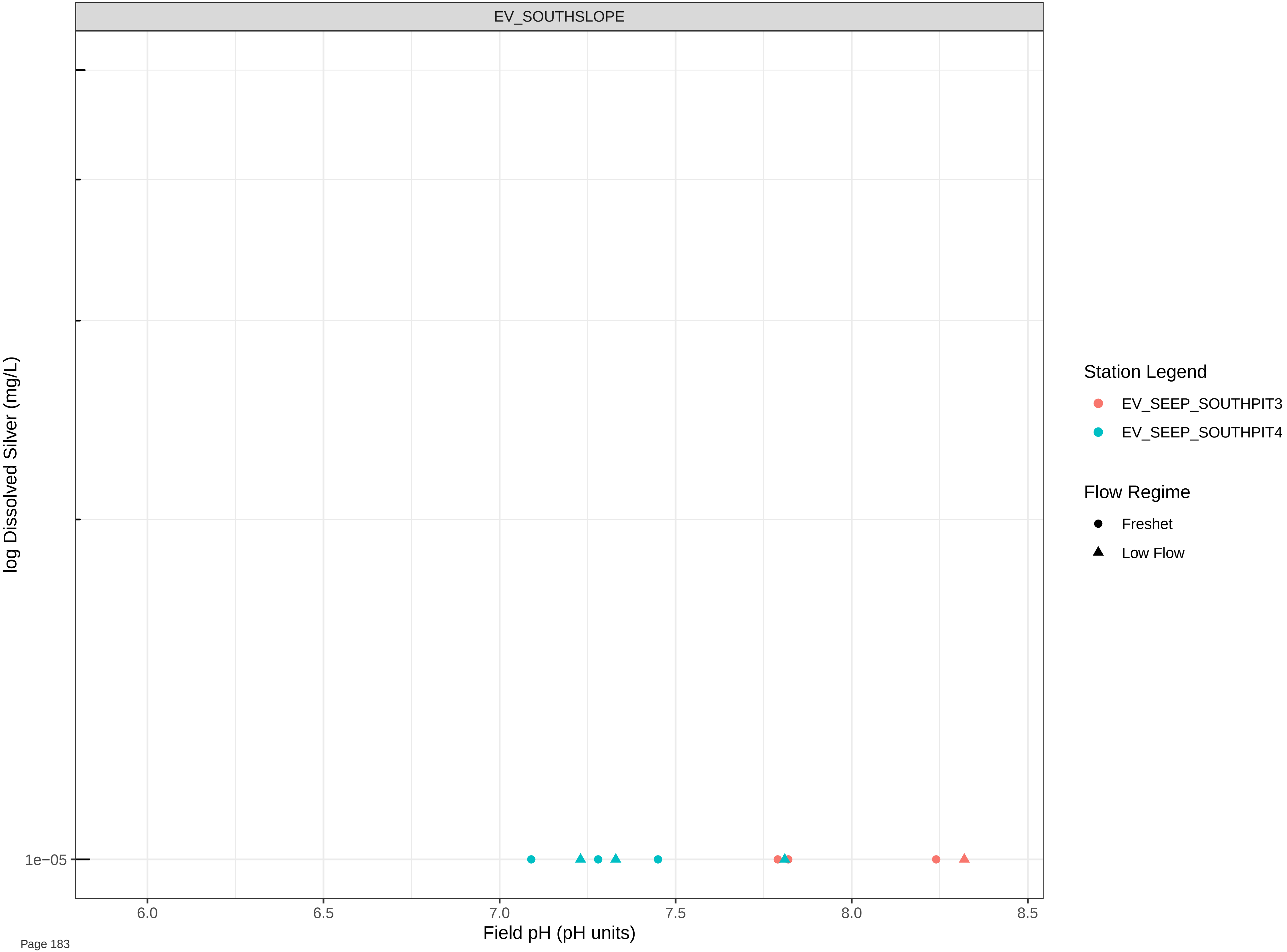

EV_CCR
log Dissolved Silver (mg/L)
1e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

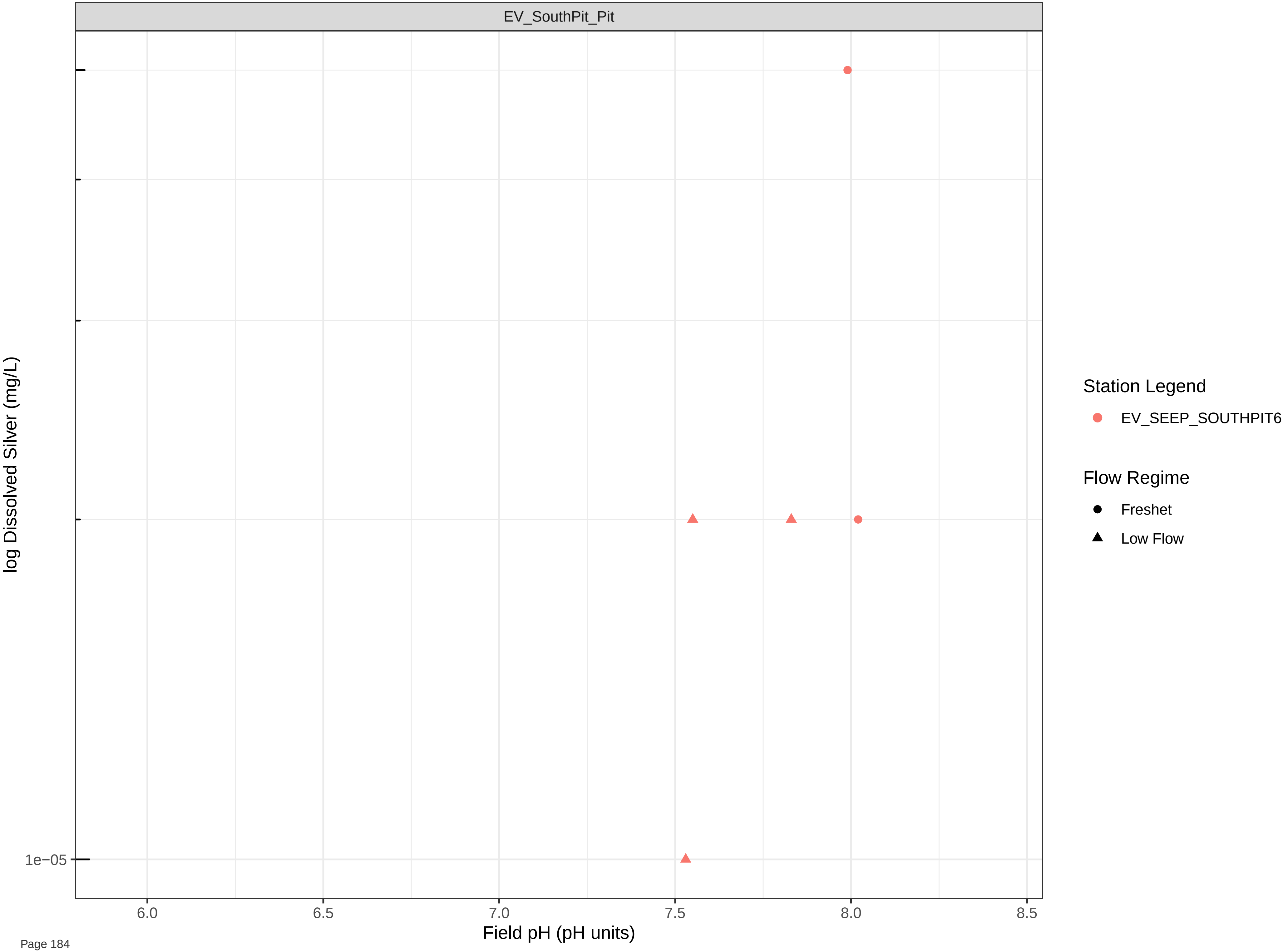

EV_CCR/TP
log Dissolved Silver (mg/L)
1e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

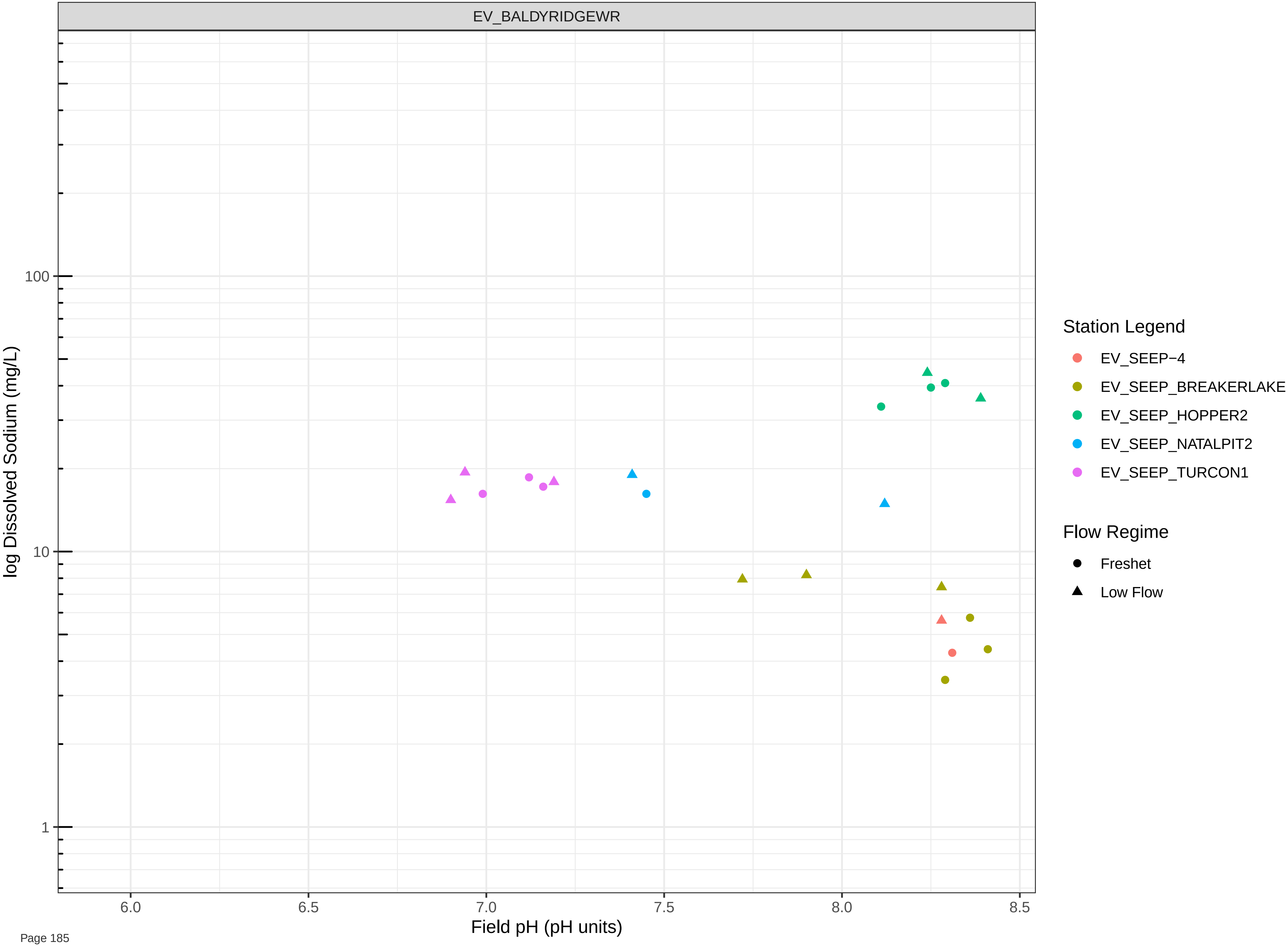

EV_CEDARWR
log Dissolved Silver (mg/L)
1e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

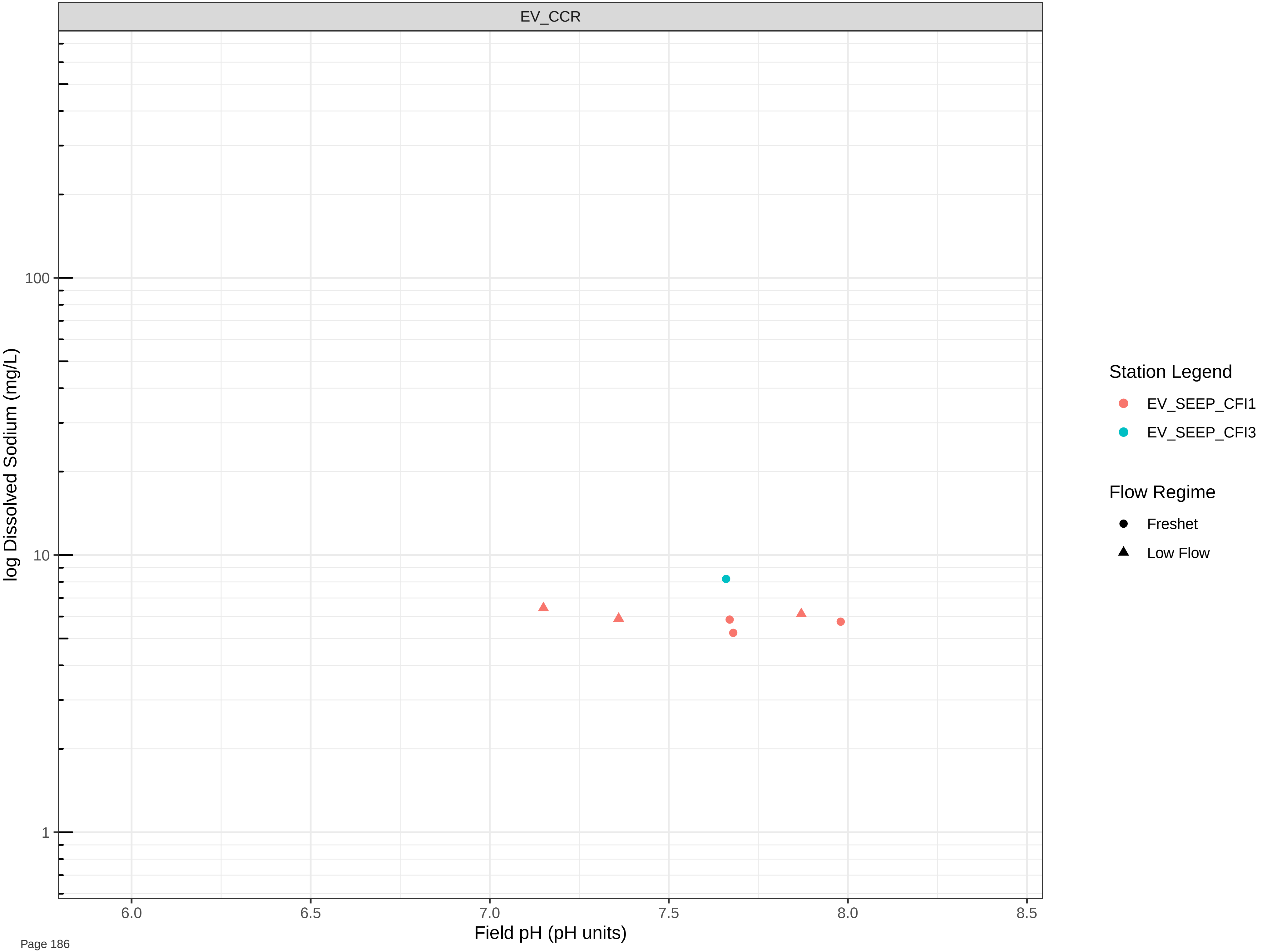

EV_Erickson_WR
log Dissolved Silver (mg/L)
1e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

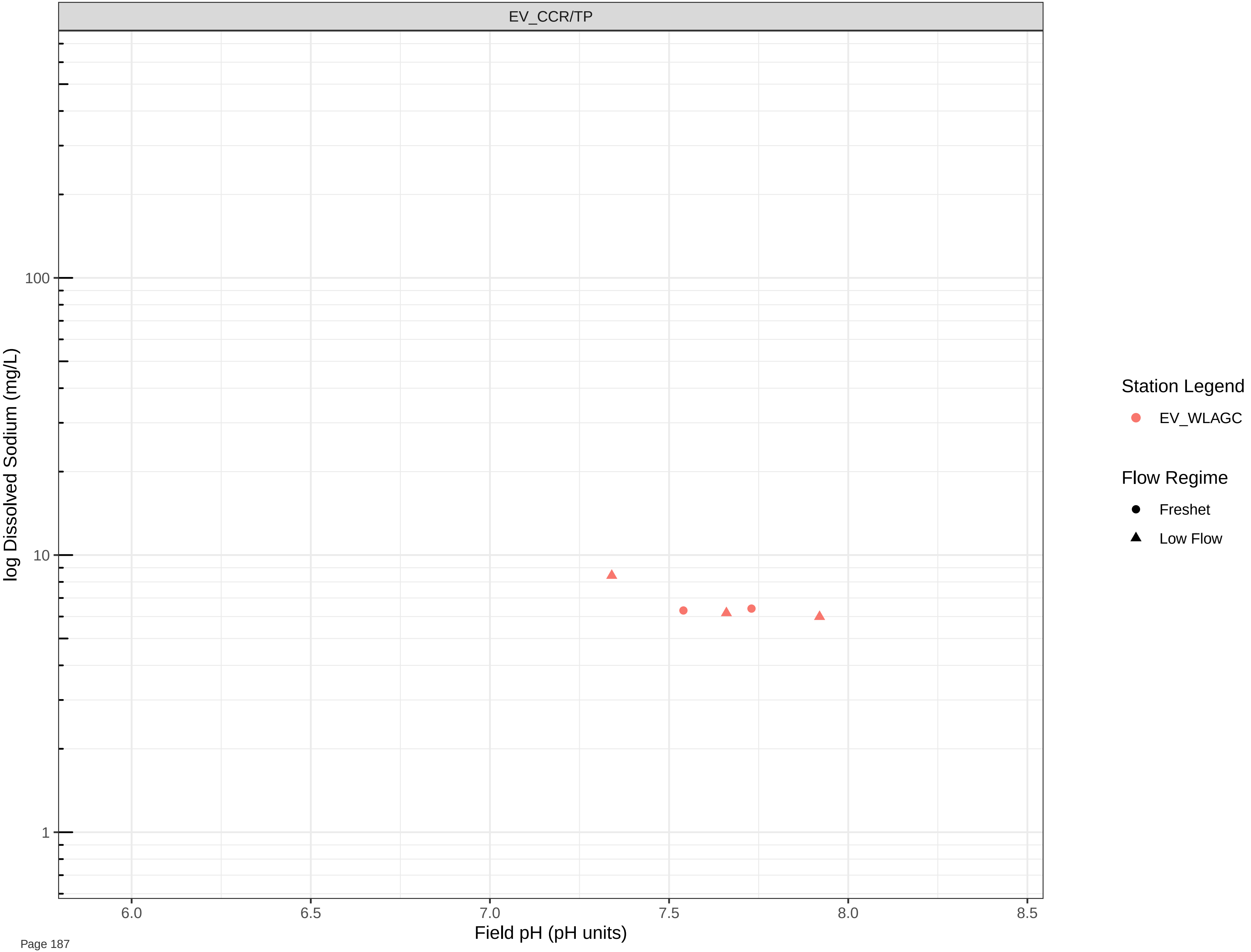

EV_PLANT
log Dissolved Silver (mg/L)
1e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

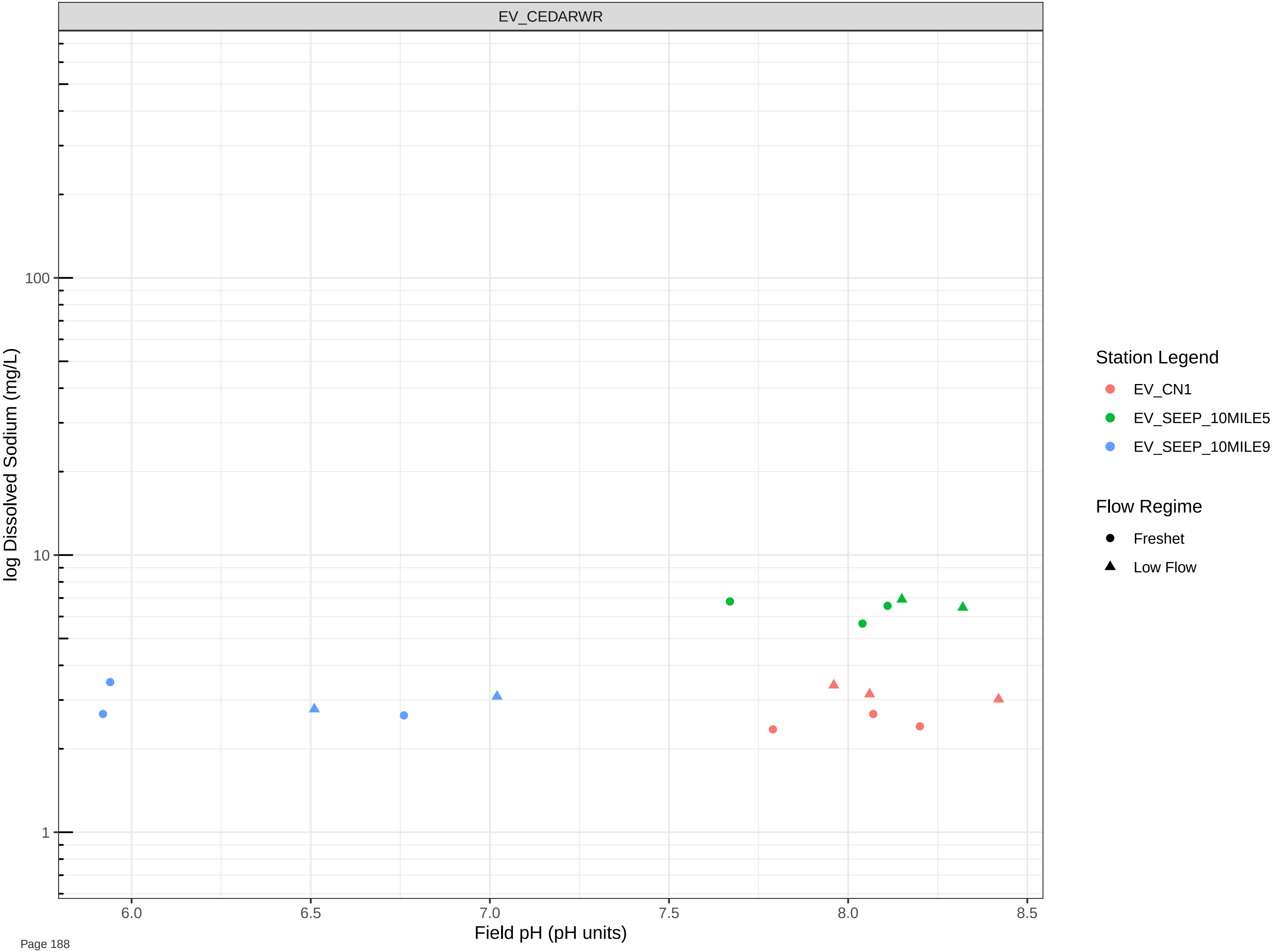

EV_SOUTHSLOPE
log Dissolved Silver (mg/L)
1e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

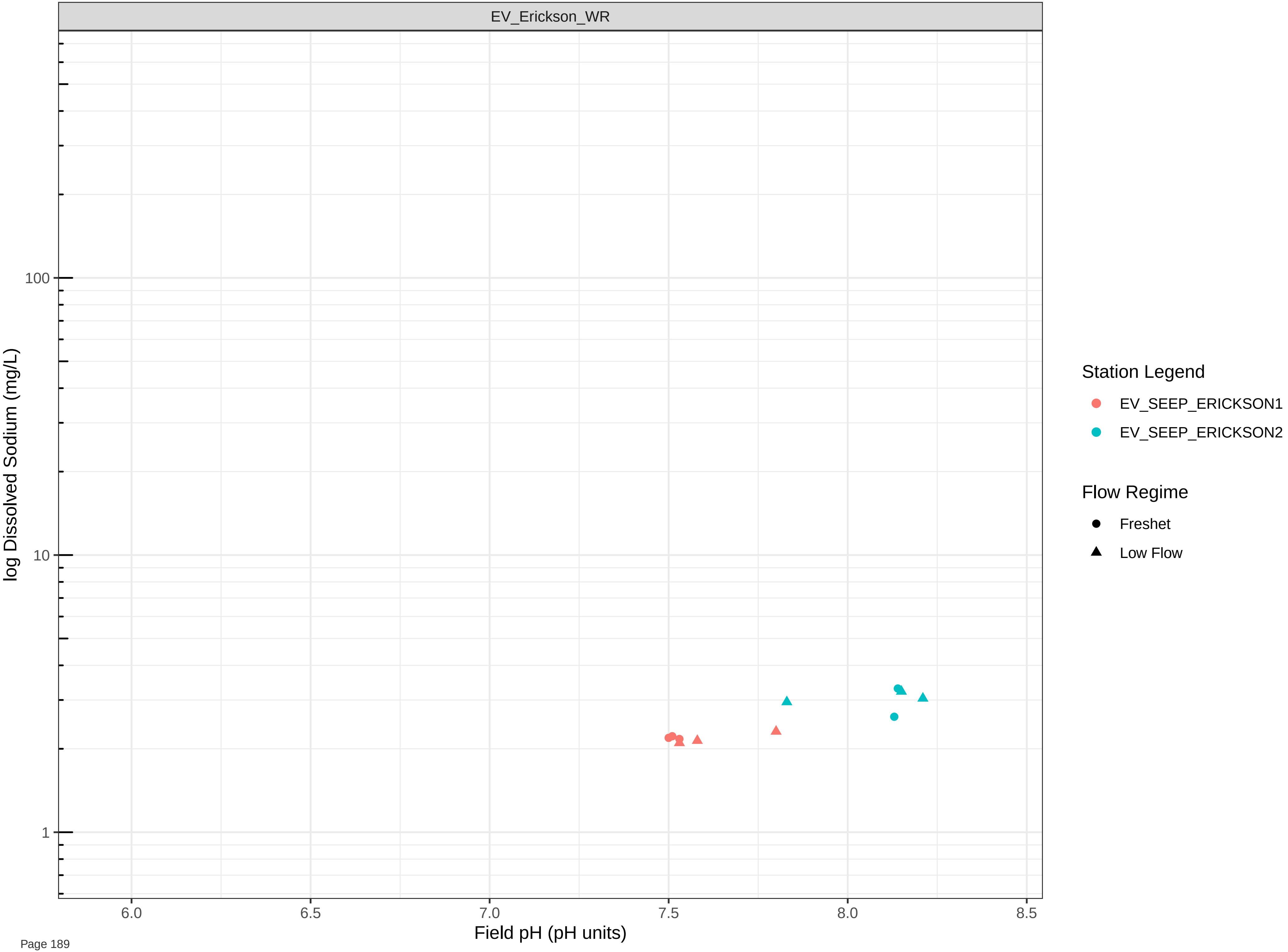

EV_SouthPit_Pit
log Dissolved Silver (mg/L)
1e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

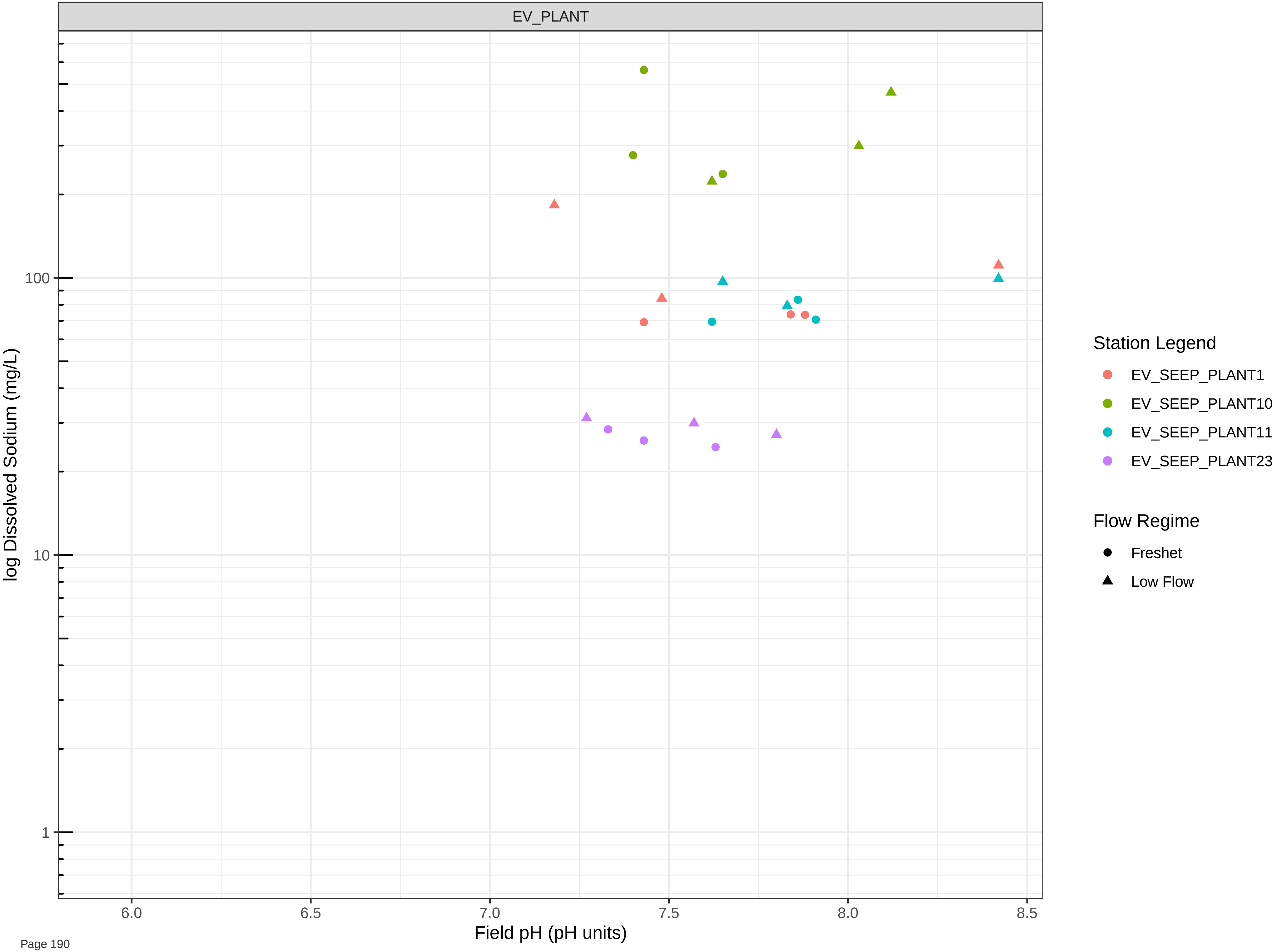

EV_BALDYRIDGEWR
log Dissolved Sodium (mg/L)
100
10
1
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

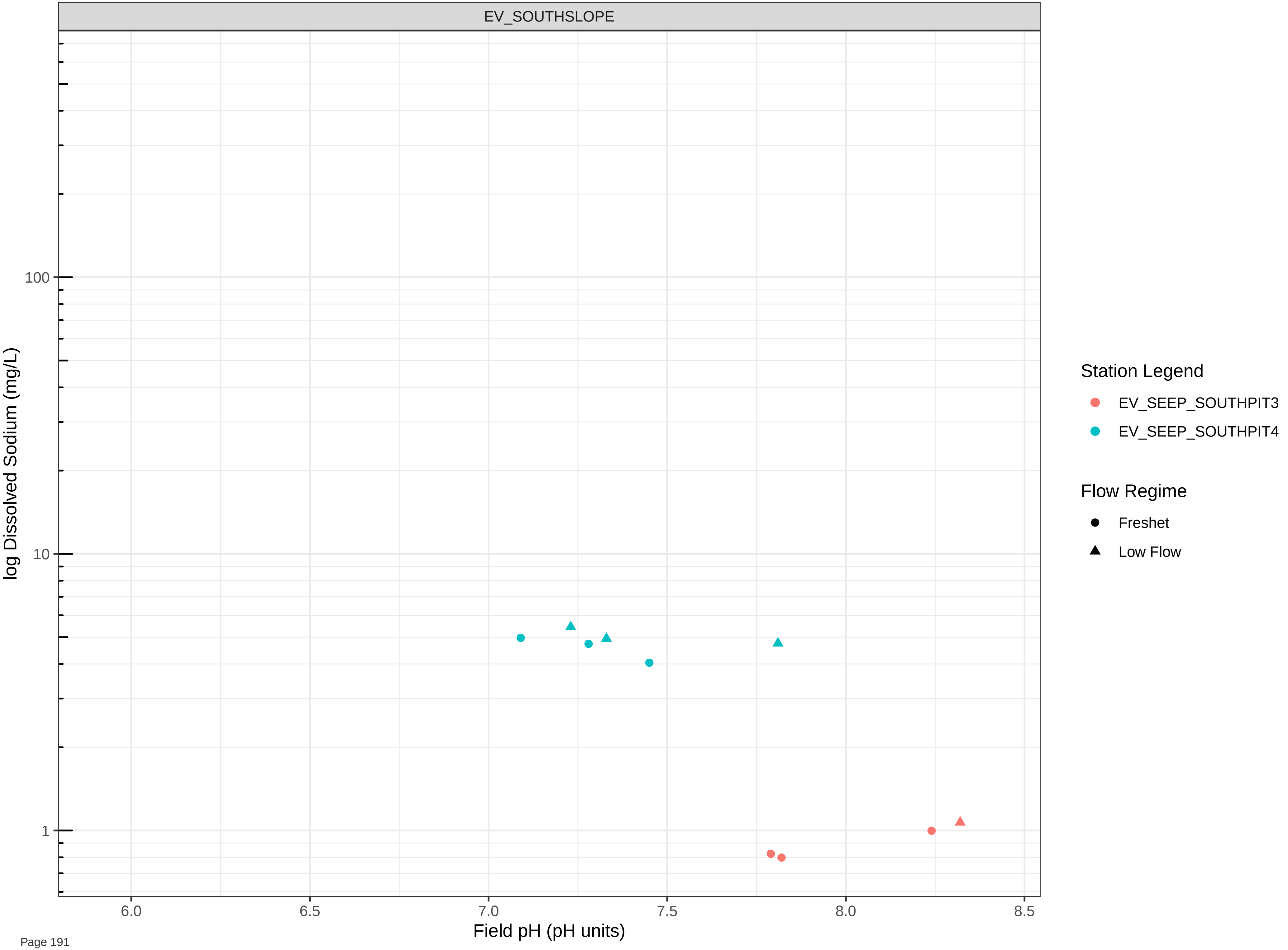

EV_CCR
log Dissolved Sodium (mg/L)
100
10
1
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

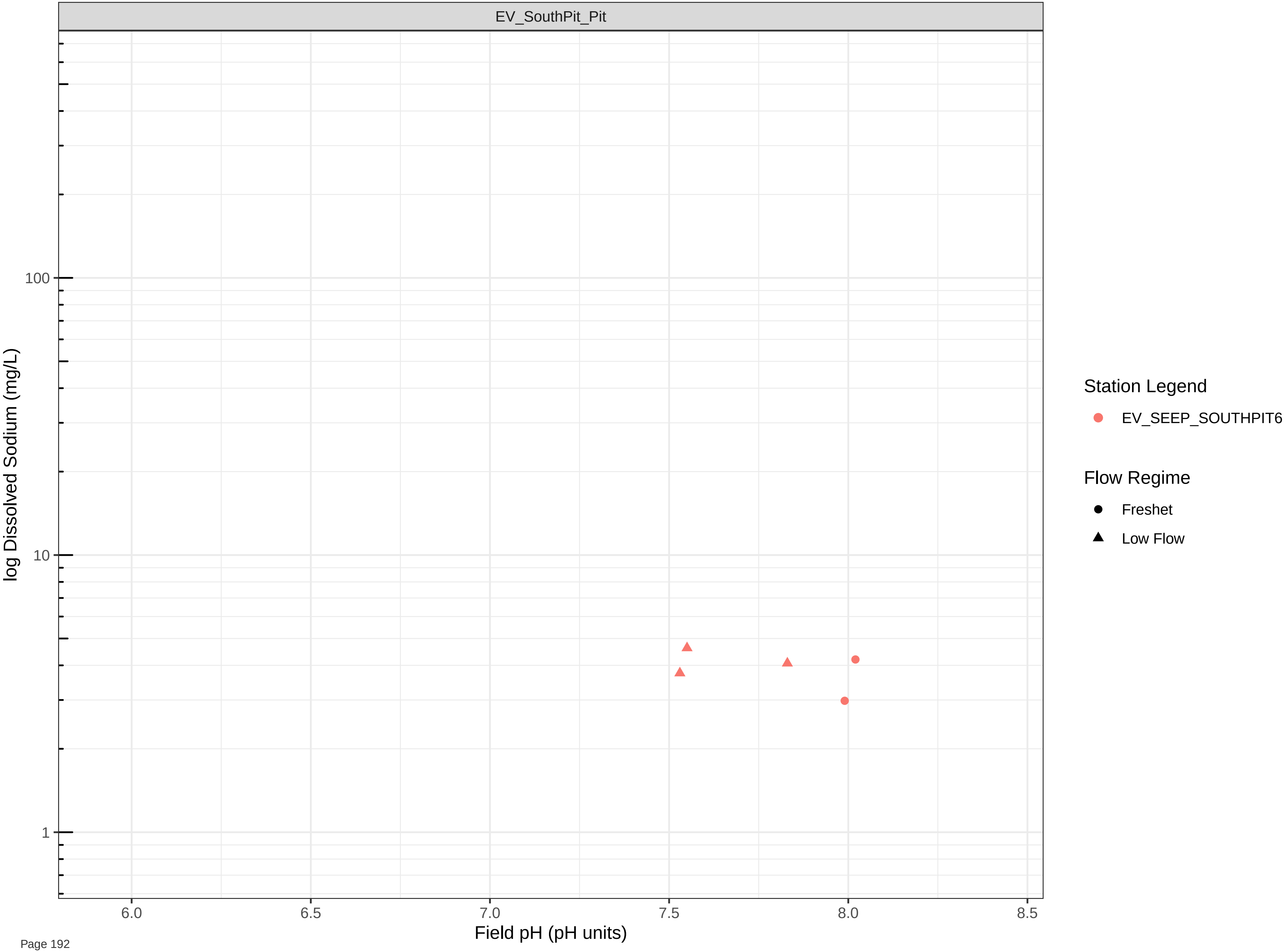

EV_CCR/TP
log Dissolved Sodium (mg/L)
100
10
1
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

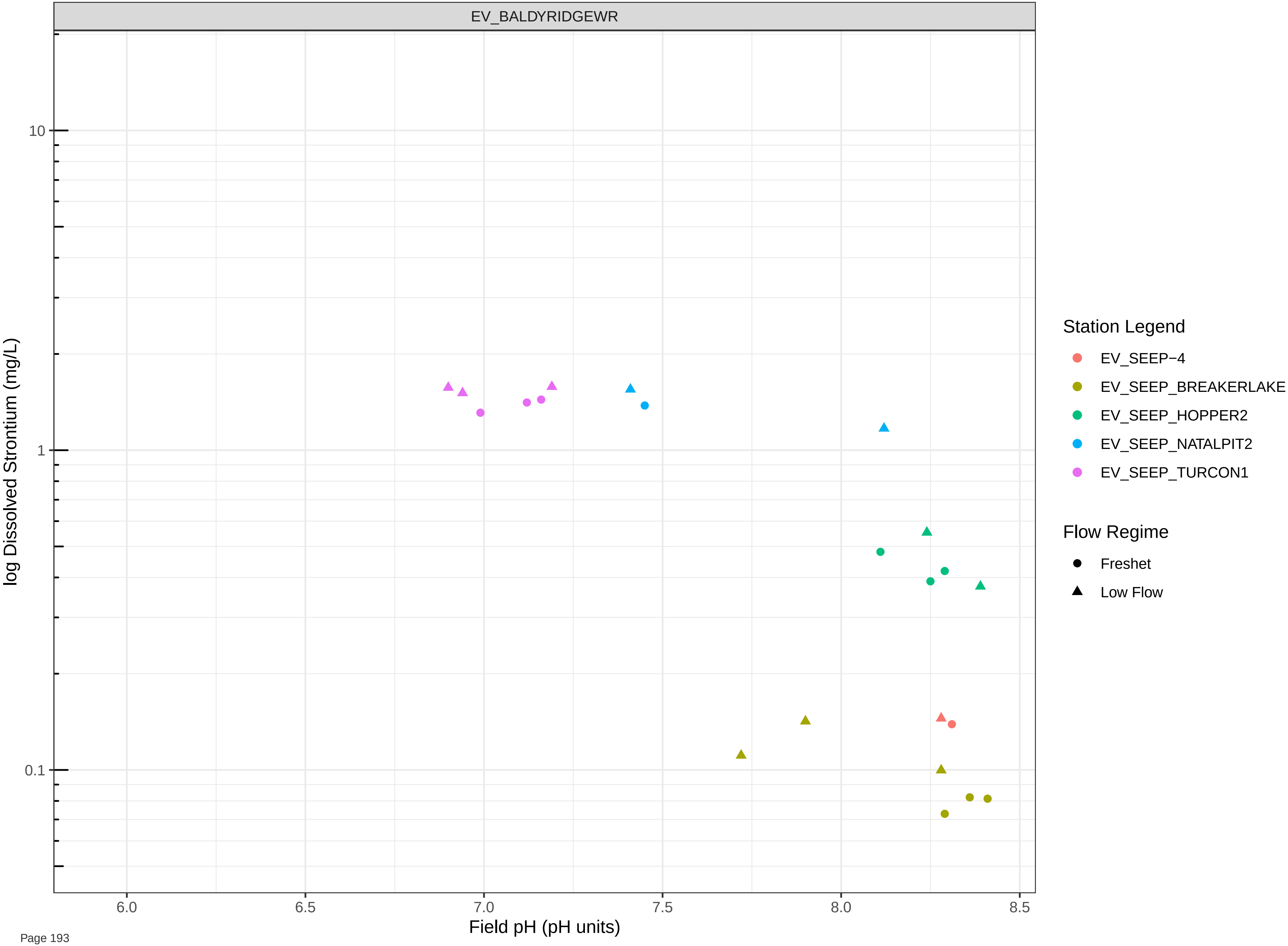

EV_CEDARWR
log Dissolved Sodium (mg/L)
100
10
1
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

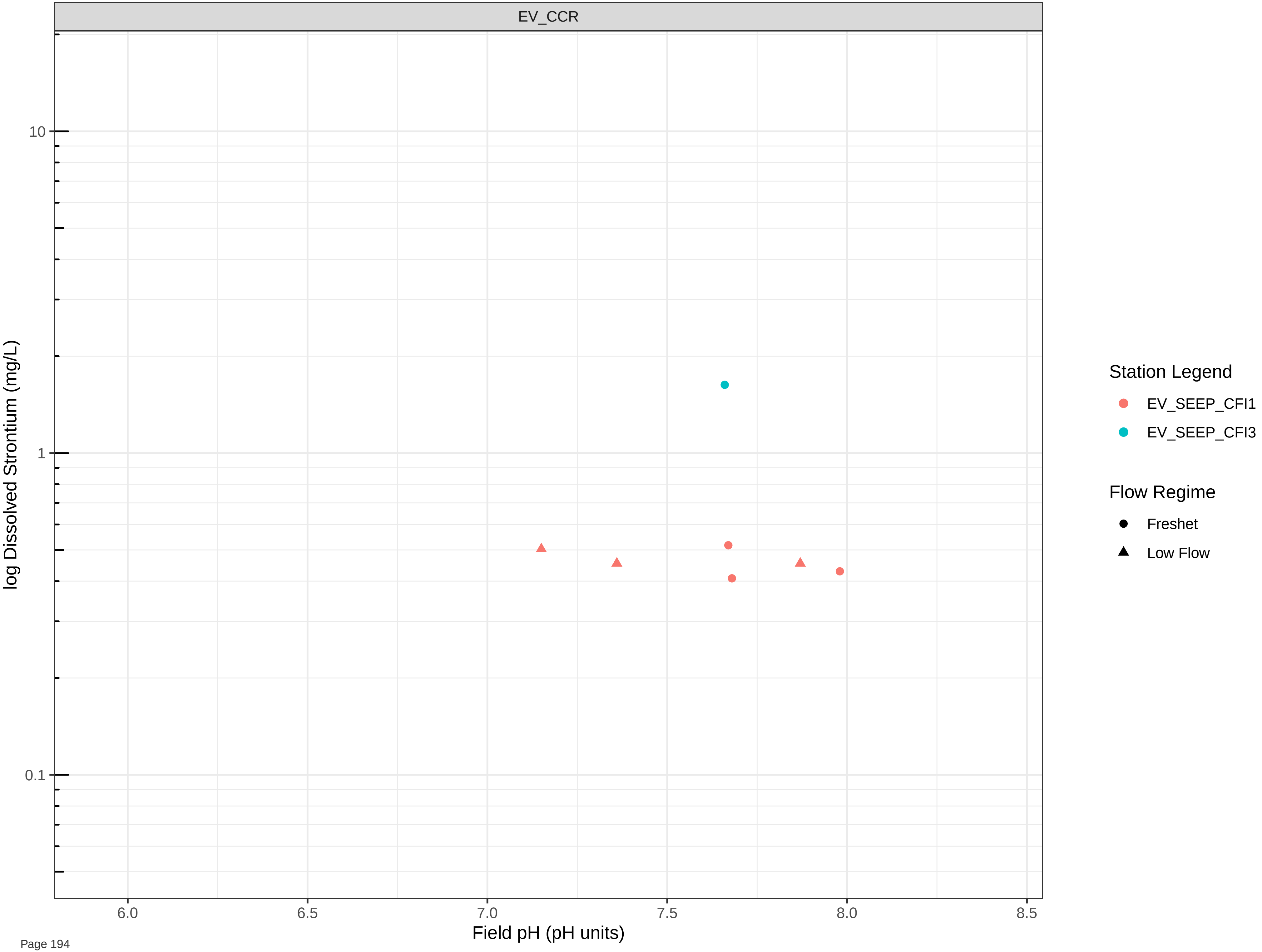

EV_Erickson_WR
log Dissolved Sodium (mg/L)
100
10
1
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

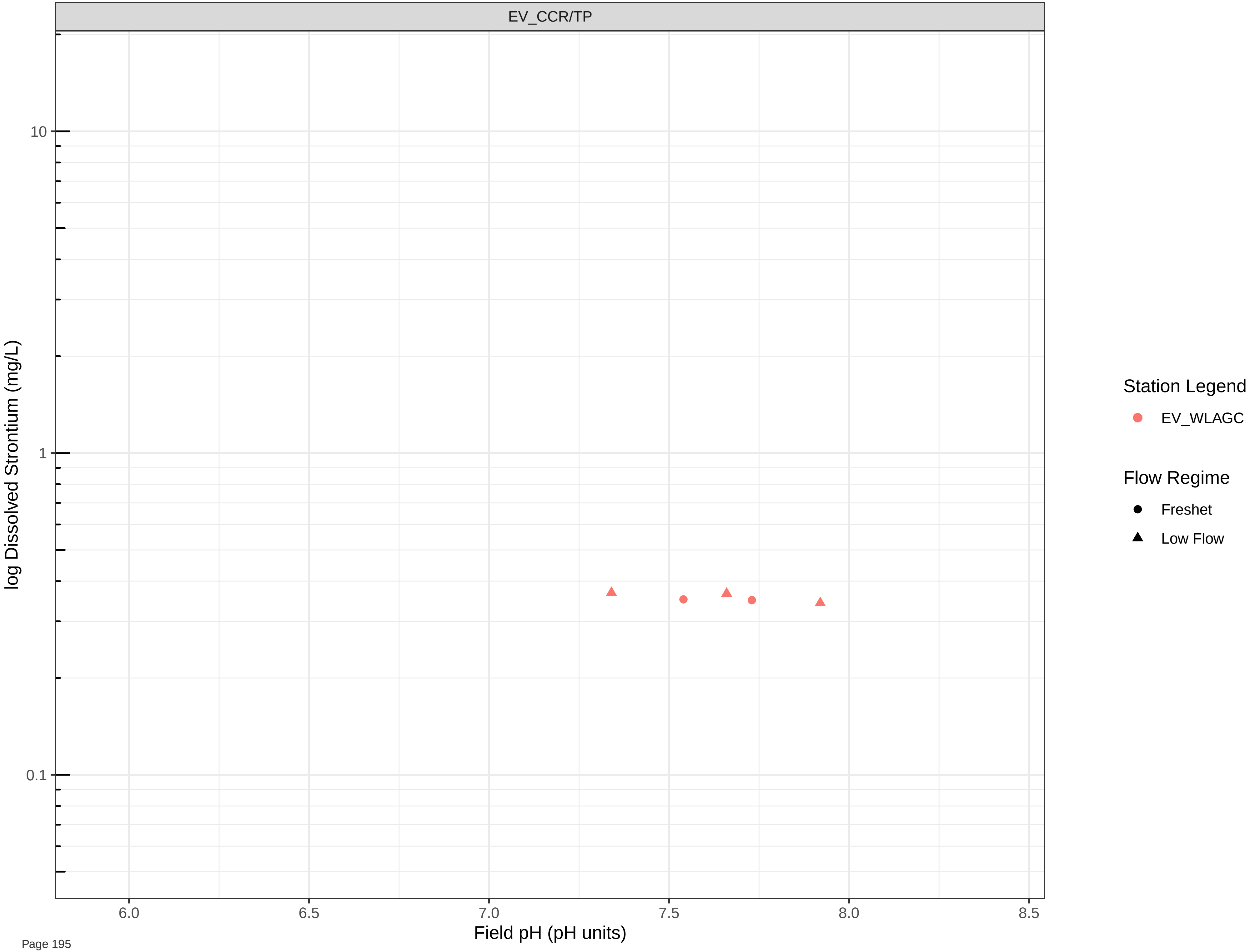

EV_PLANT
log Dissolved Sodium (mg/L)
100
10
1
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

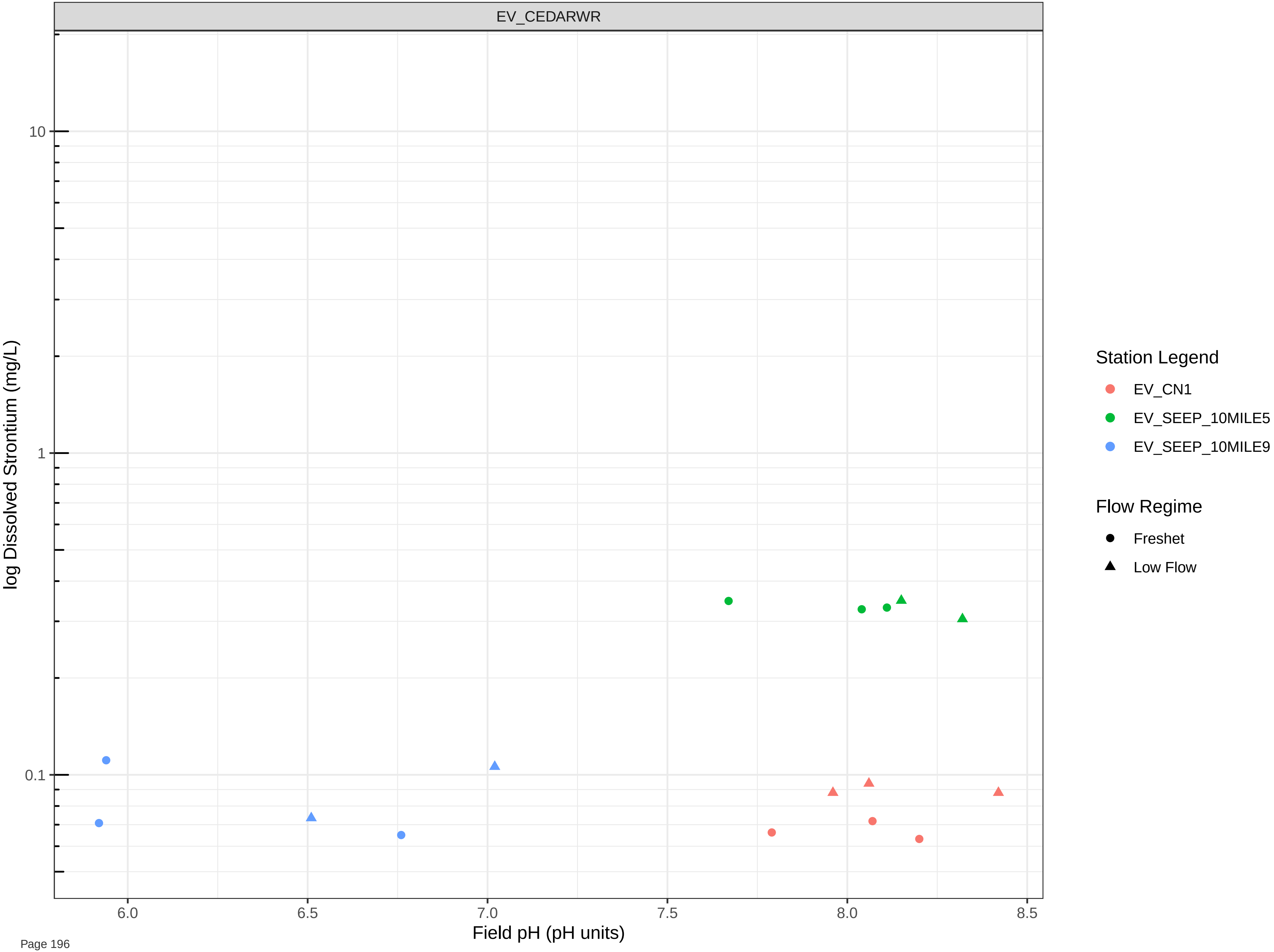

EV_SOUTHSLOPE
100
10
1
log Dissolved Sodium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

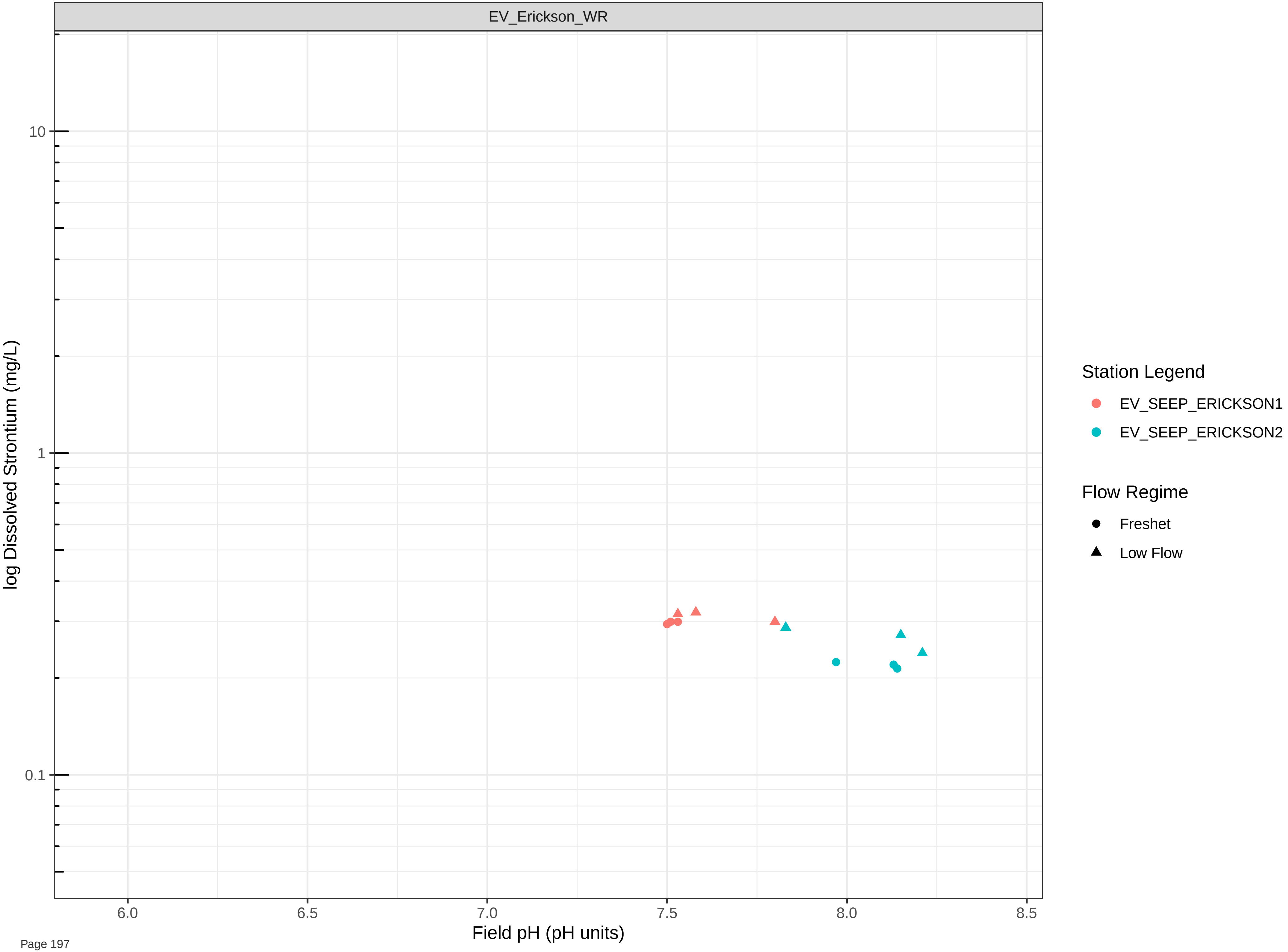

EV_SouthPit_Pit
log Dissolved Sodium (mg/L)
100
10
1
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

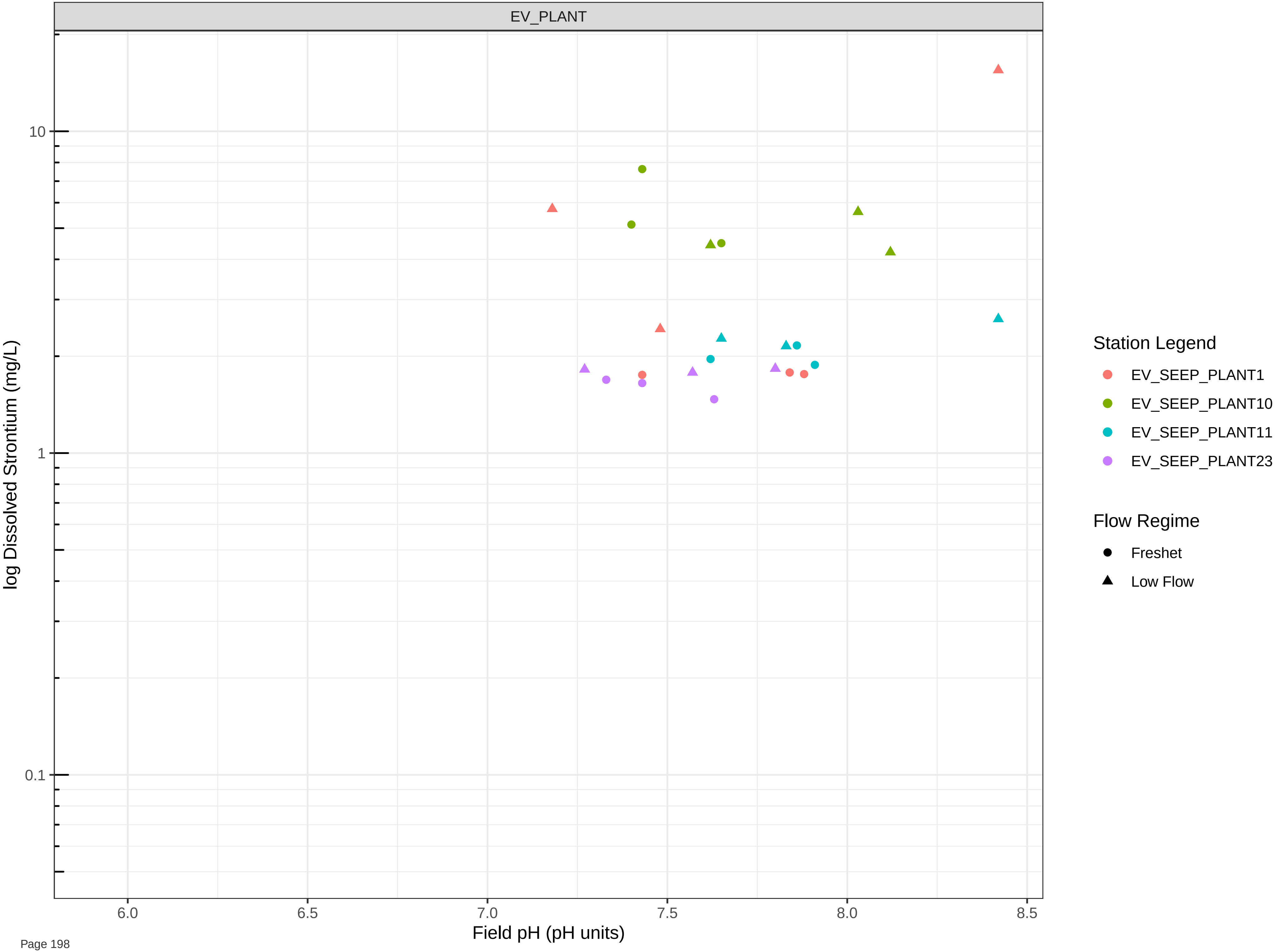

EV_BALDYRIDGEWR
log Dissolved Strontium (mg/L)
10
1
0.1
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

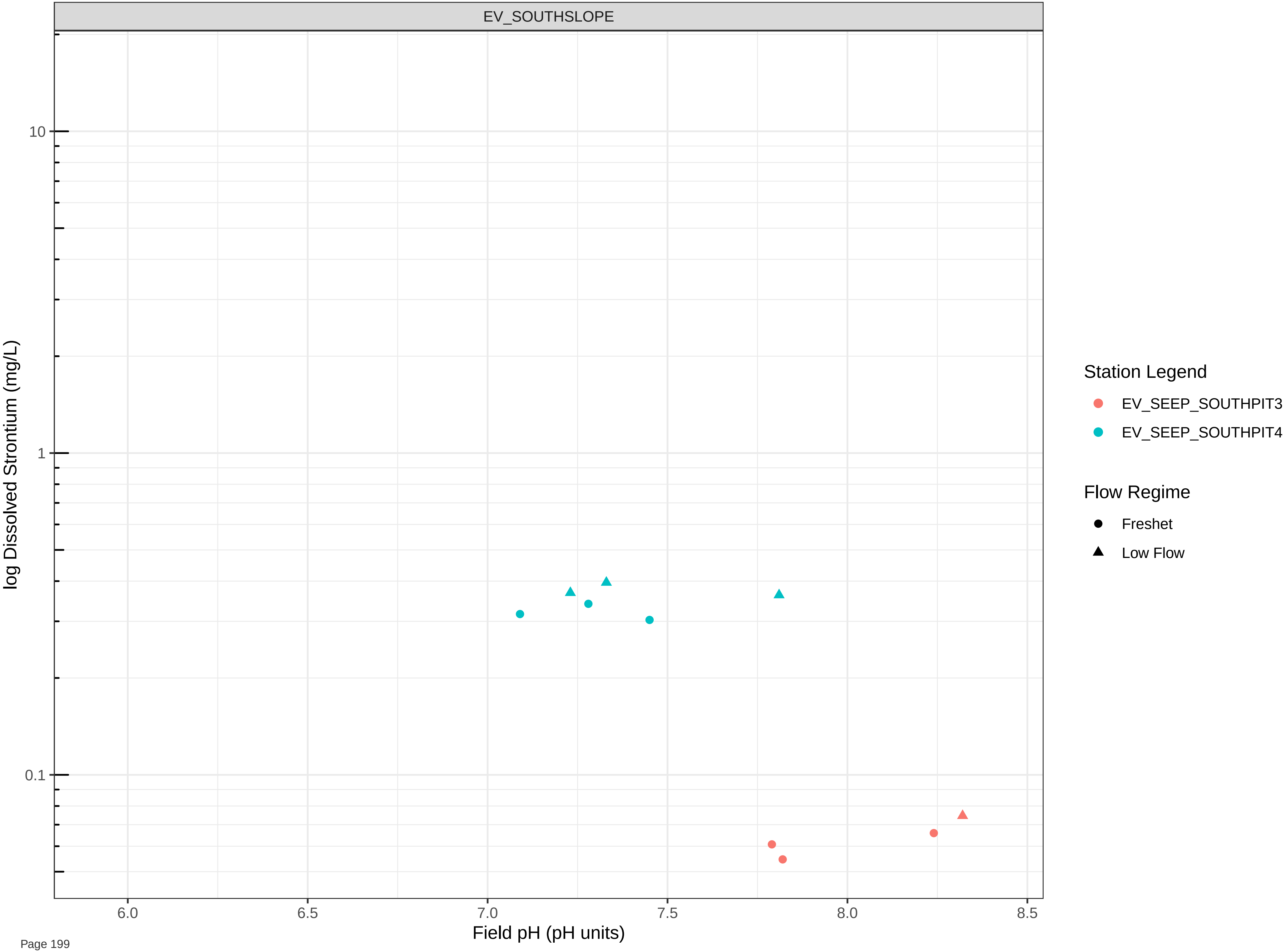

EV_CCR
log Dissolved Strontium (mg/L)
10
1
0.1
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

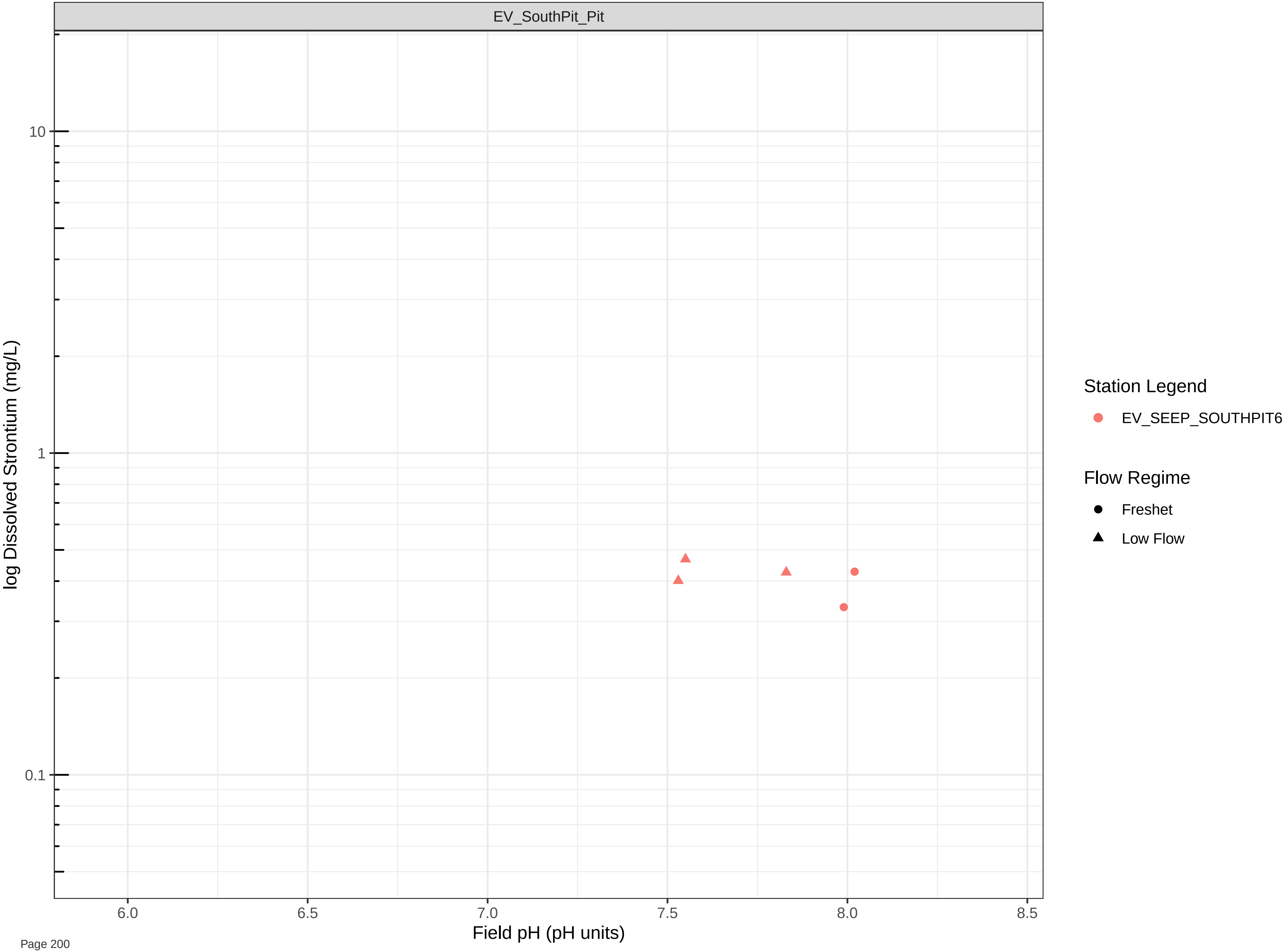

EV_CCR/TP
10
1
0.1
log Dissolved Strontium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

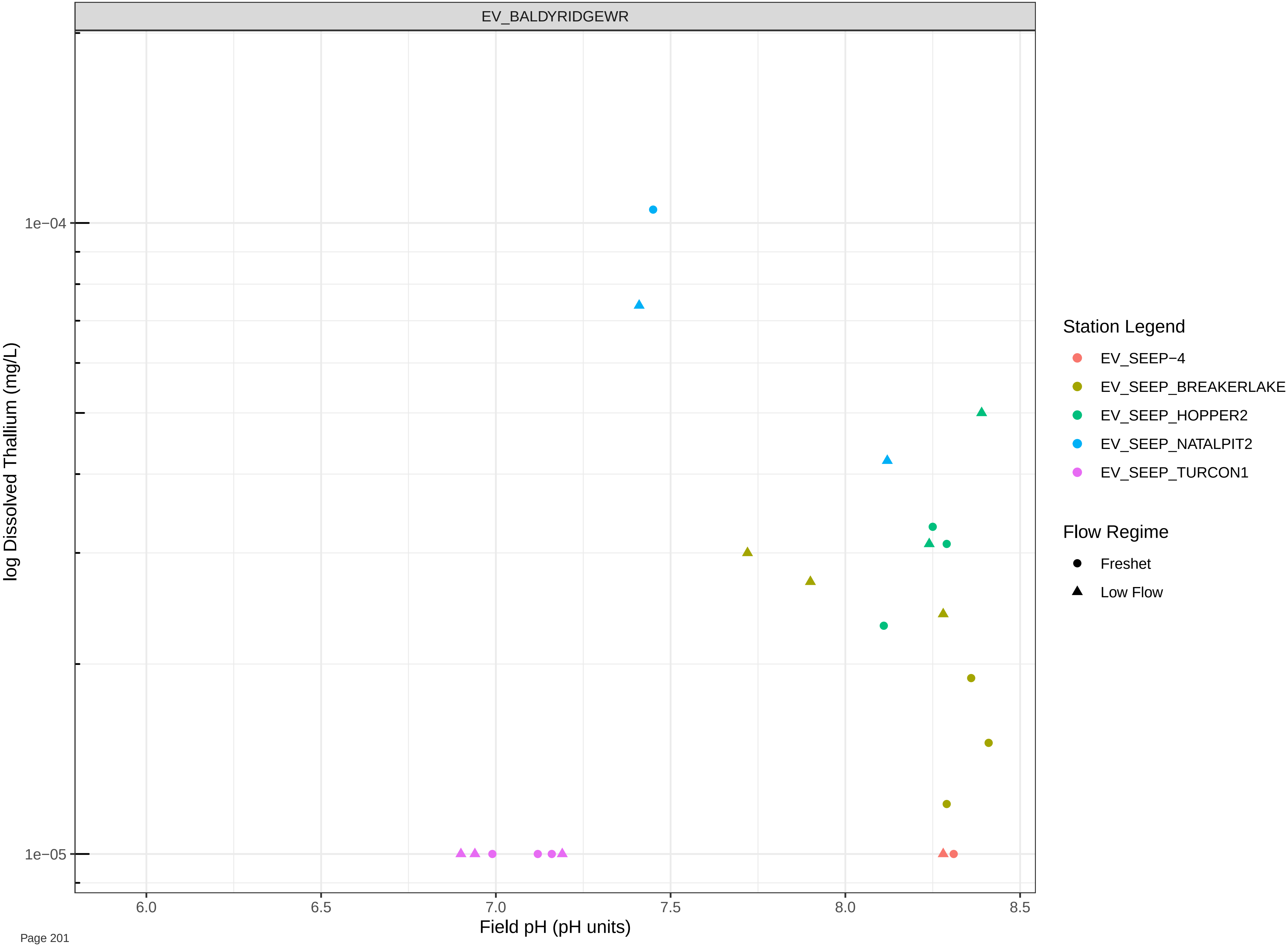

EV_CEDARWR
log Dissolved Strontium (mg/L)
10
1
0.1
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

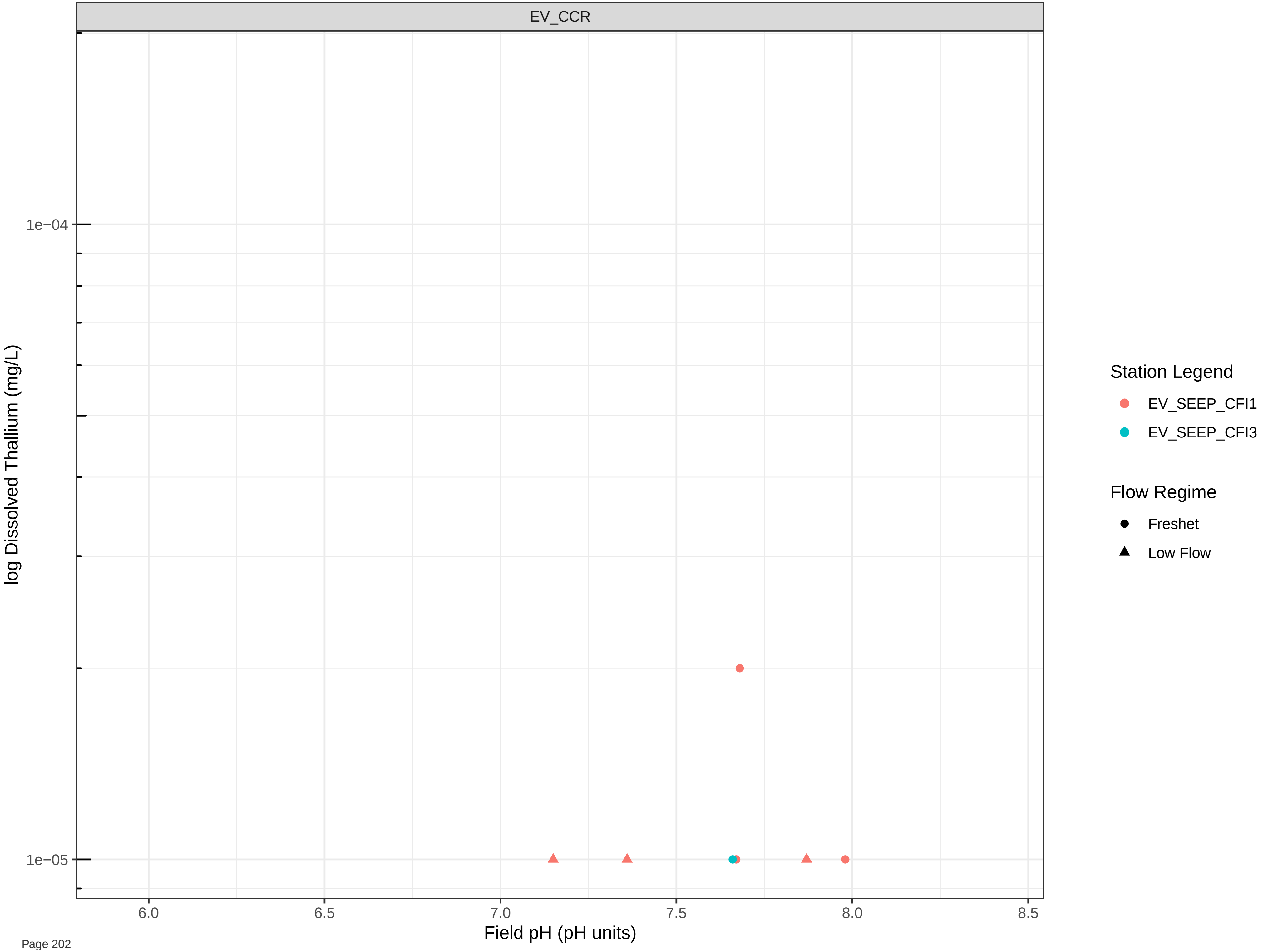

EV_Erickson_WR
log Dissolved Strontium (mg/L)
10
1
0.1
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

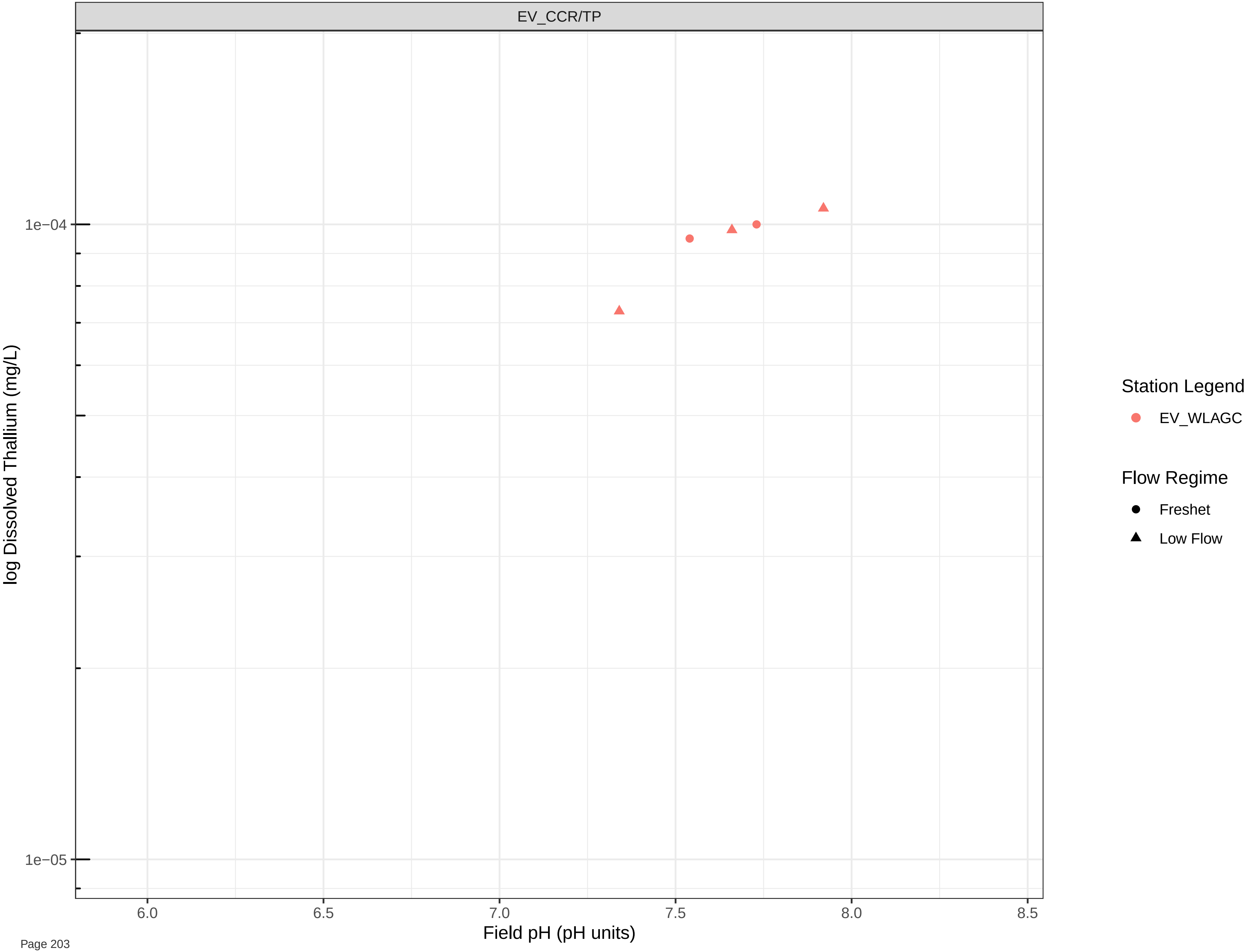

EV_PLANT
log Dissolved Strontium (mg/L)
10
1
0.1
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

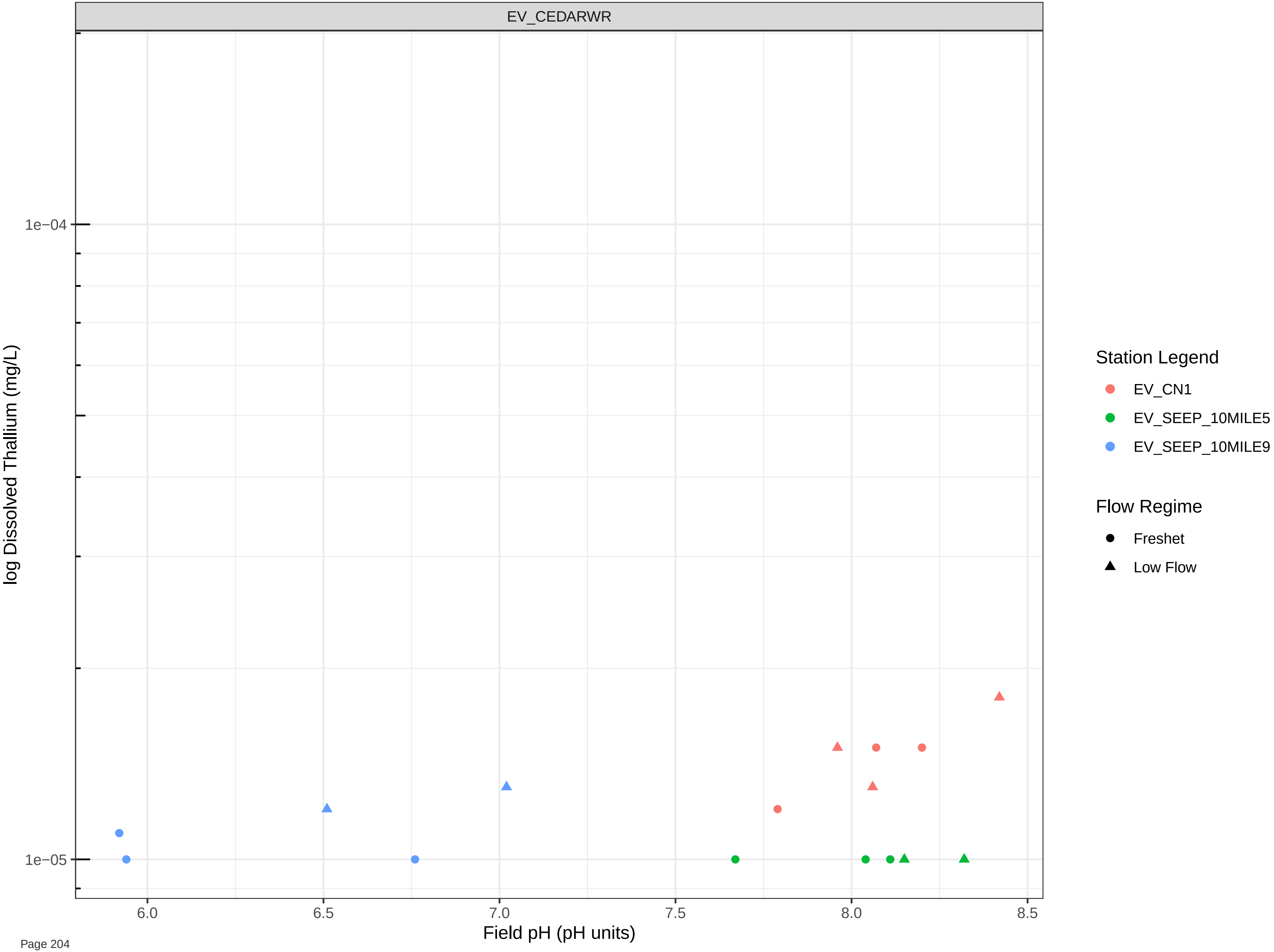

EV_SOUTHSLOPE
log Dissolved Strontium (mg/L)
10
1
0.1
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

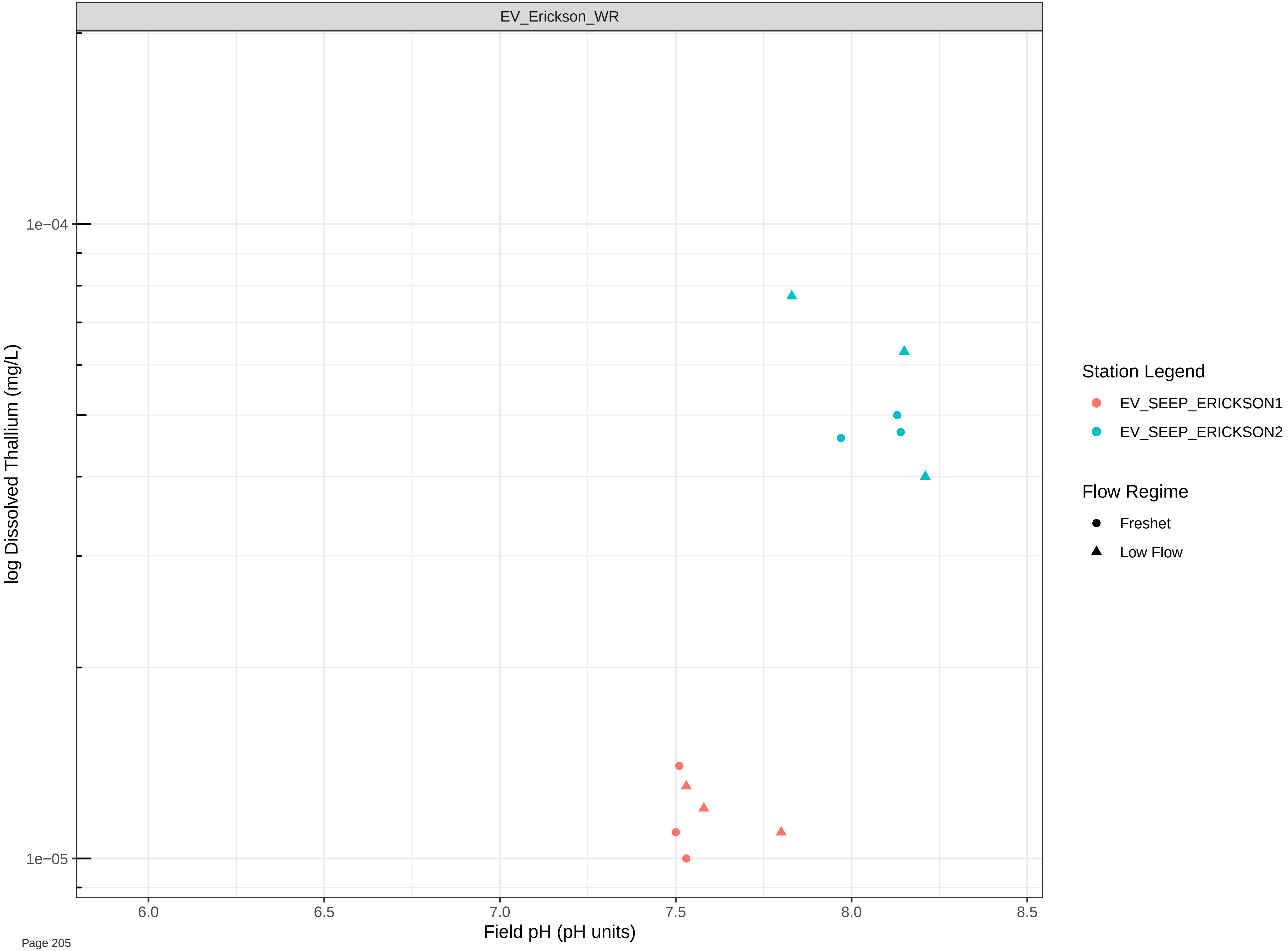

EV_SouthPit_Pit
log Dissolved Strontium (mg/L)
10
1
0.1
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

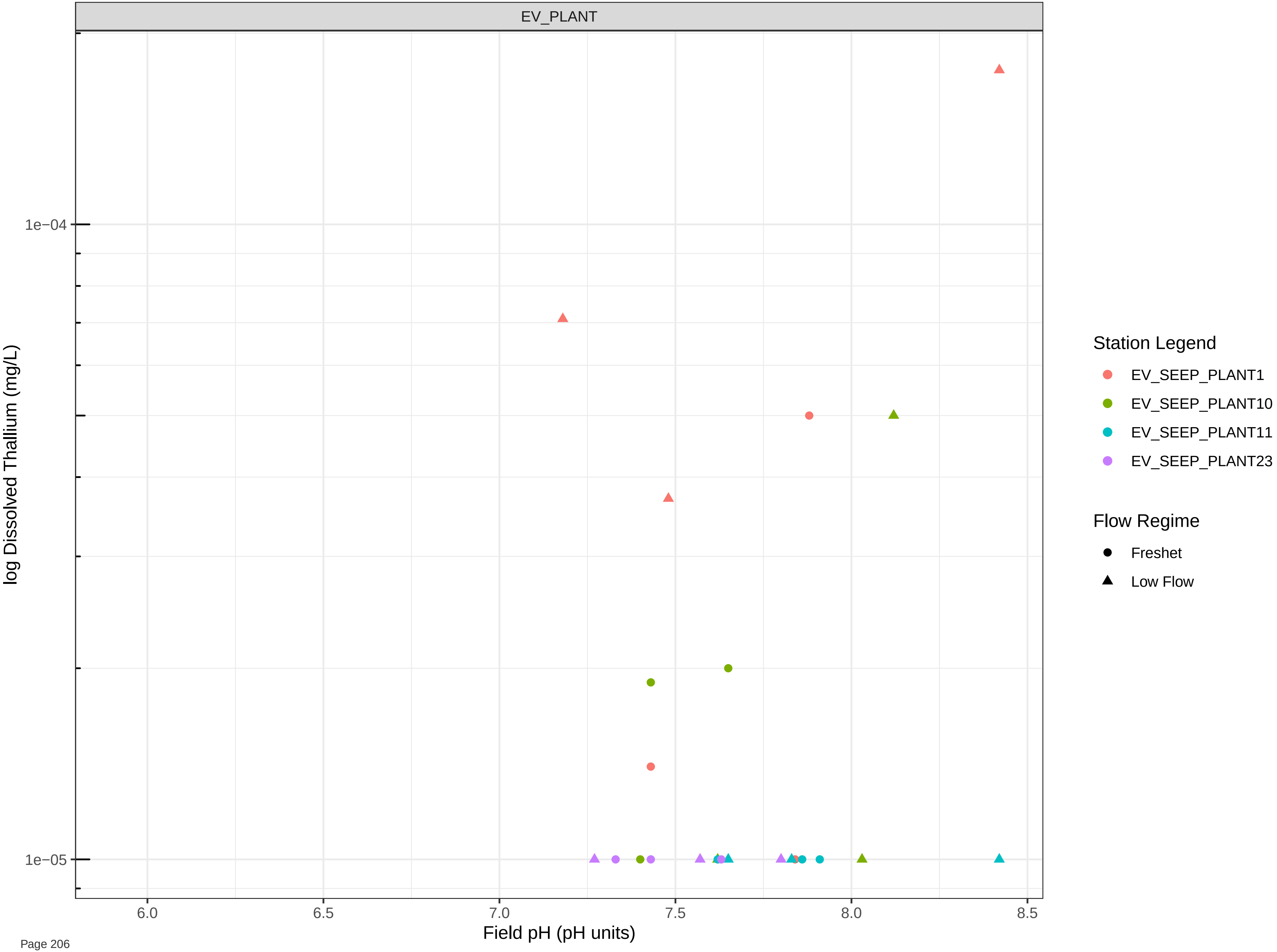

EV_BALDYRIDGEWR
log Dissolved Thallium (mg/L)
1e−04
1e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

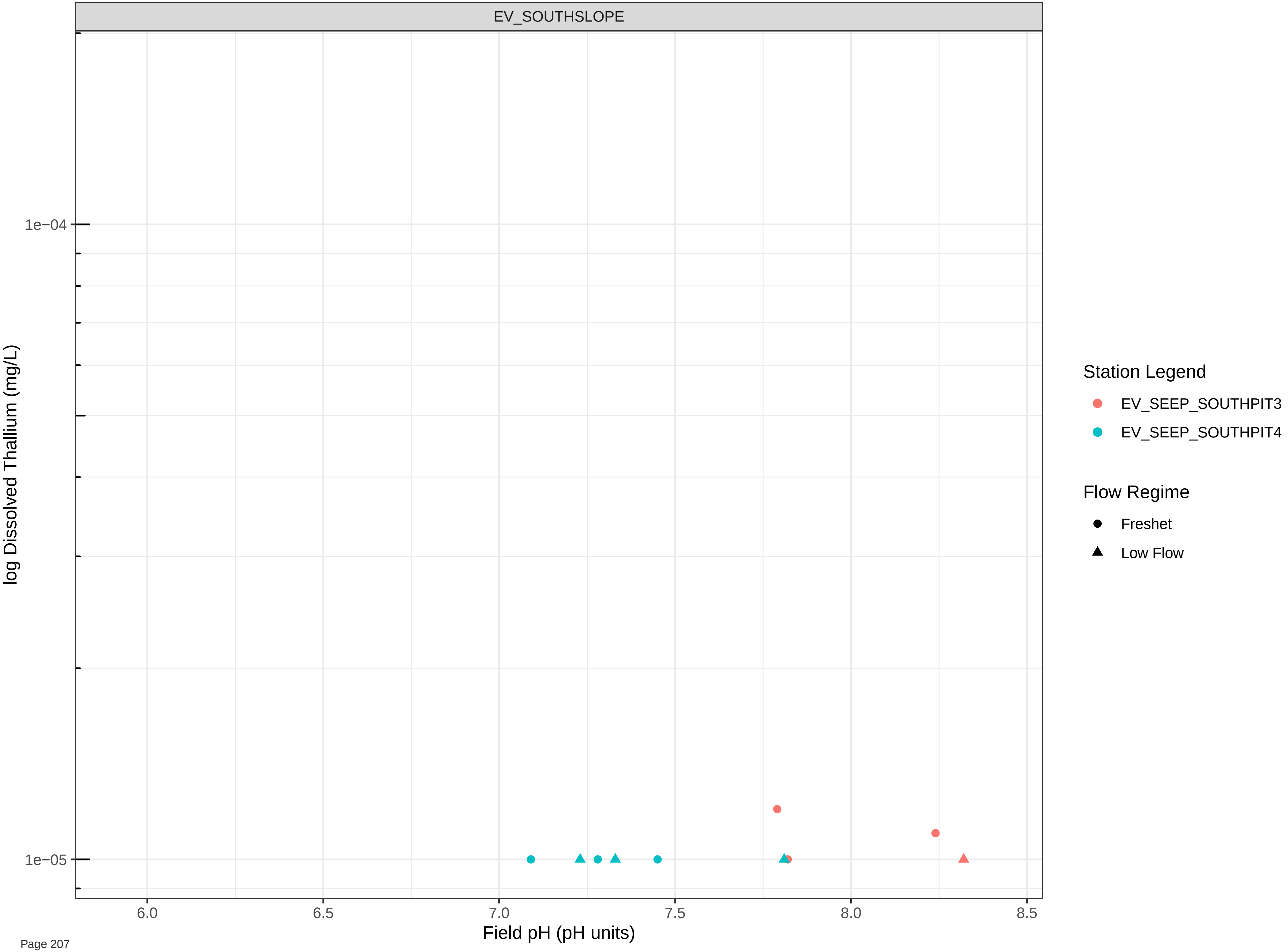

EV_CCR
log Dissolved Thallium (mg/L)
1e−04
1e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

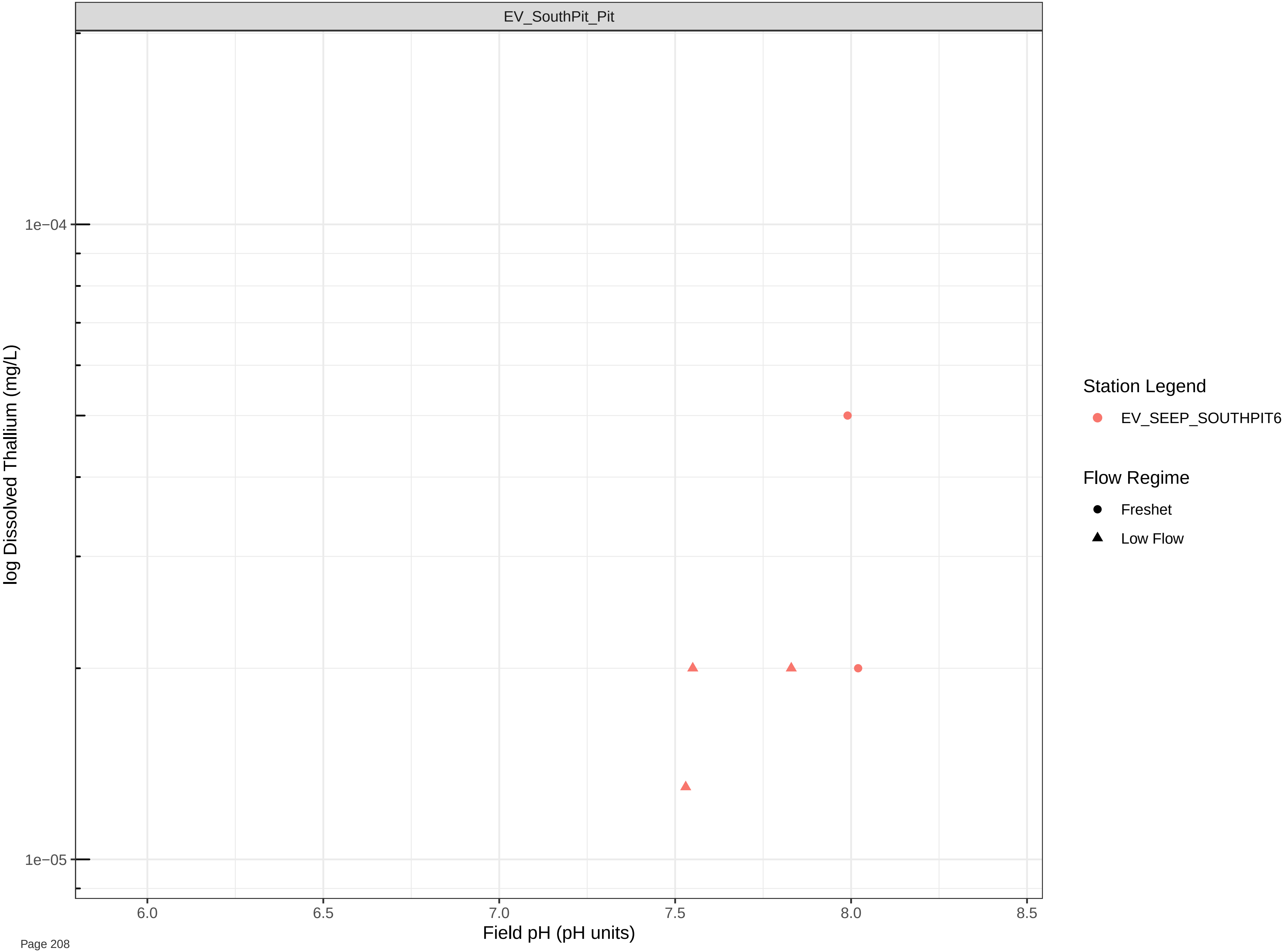

EV_CCR/TP
1e−04
1e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
log Dissolved Thallium (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

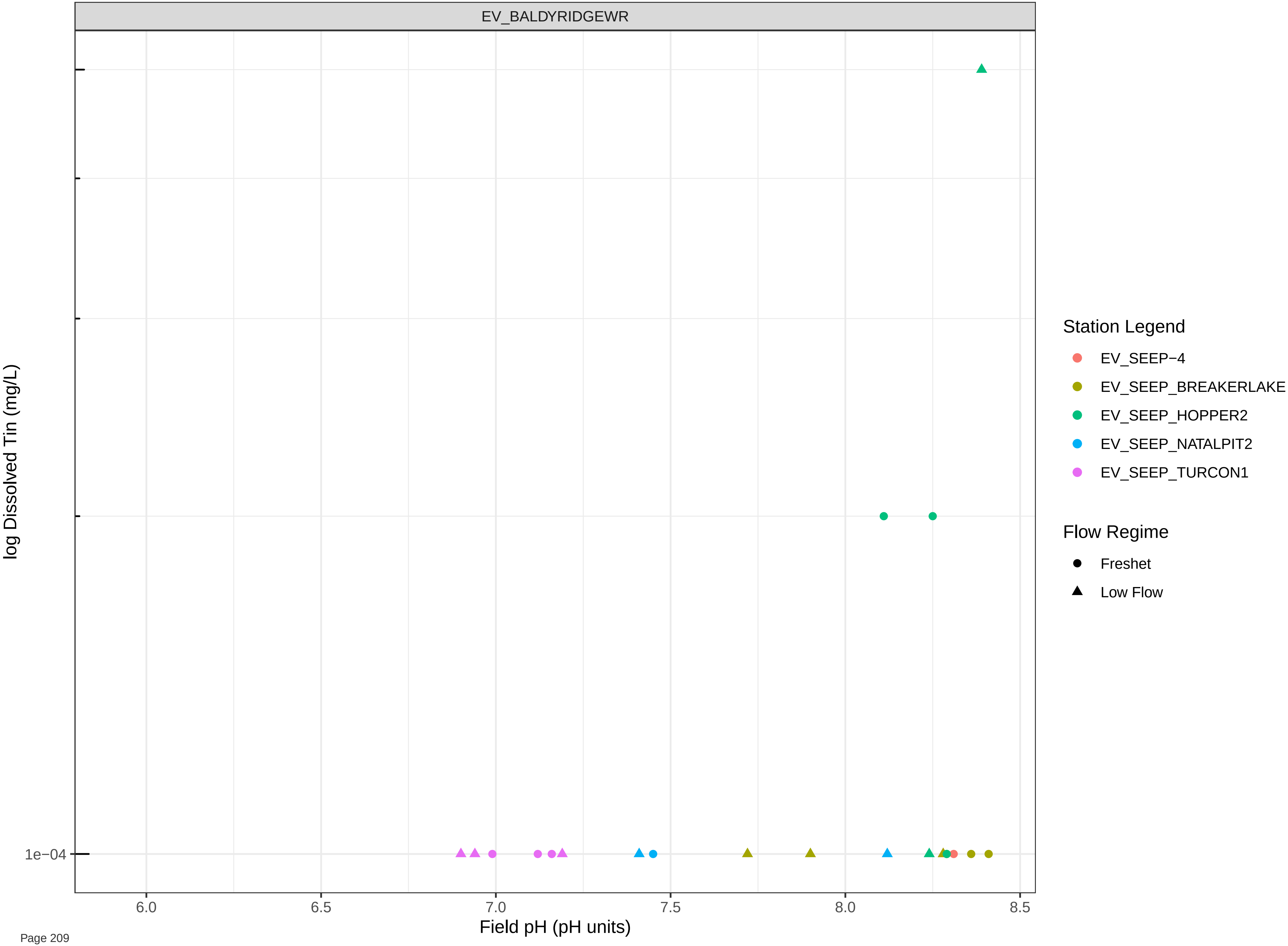

EV_CEDARWR
log Dissolved Thallium (mg/L)
1e−04
1e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

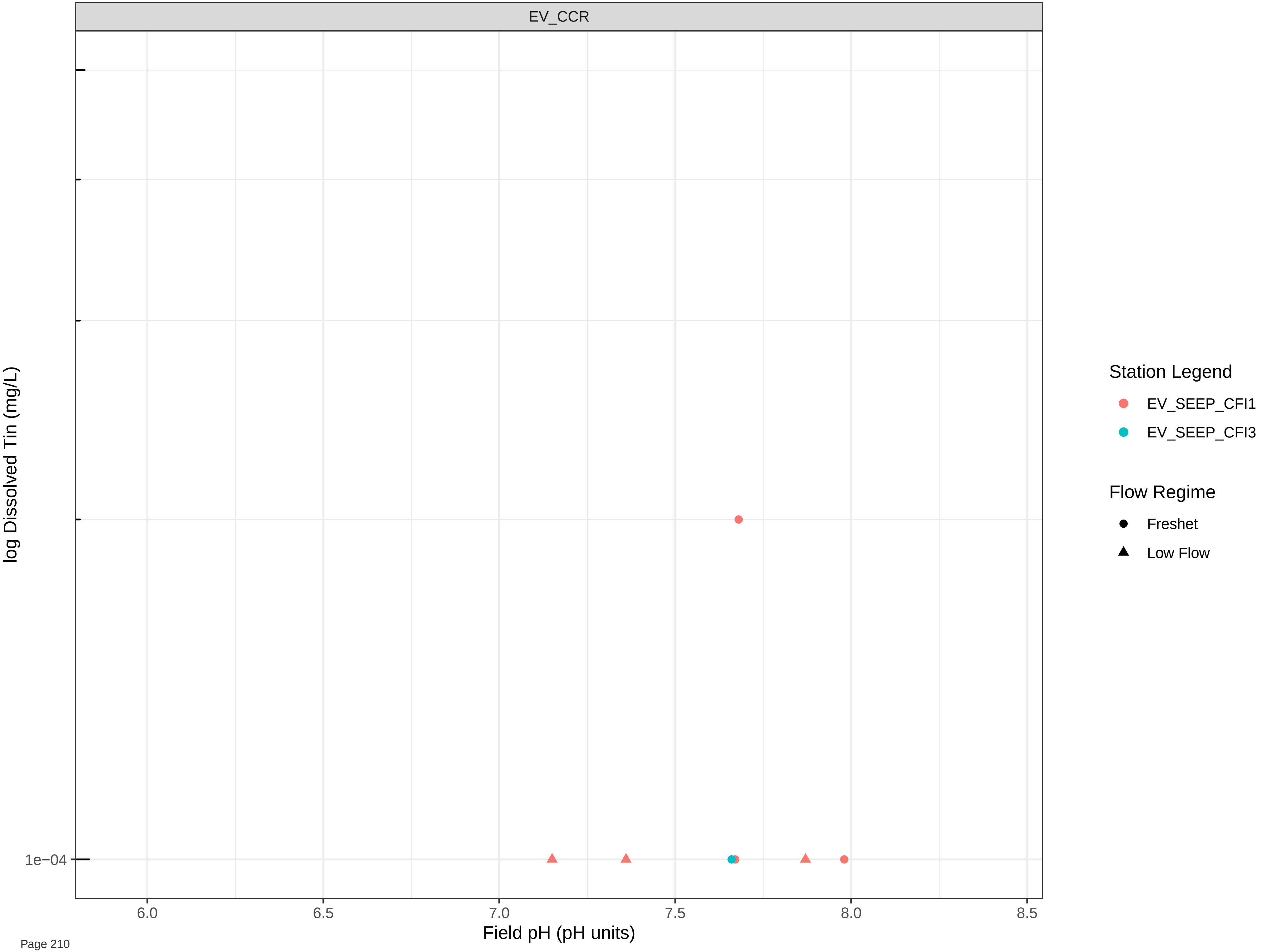

EV_Erickson_WR
log Dissolved Thallium (mg/L)
1e−04
1e−05
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

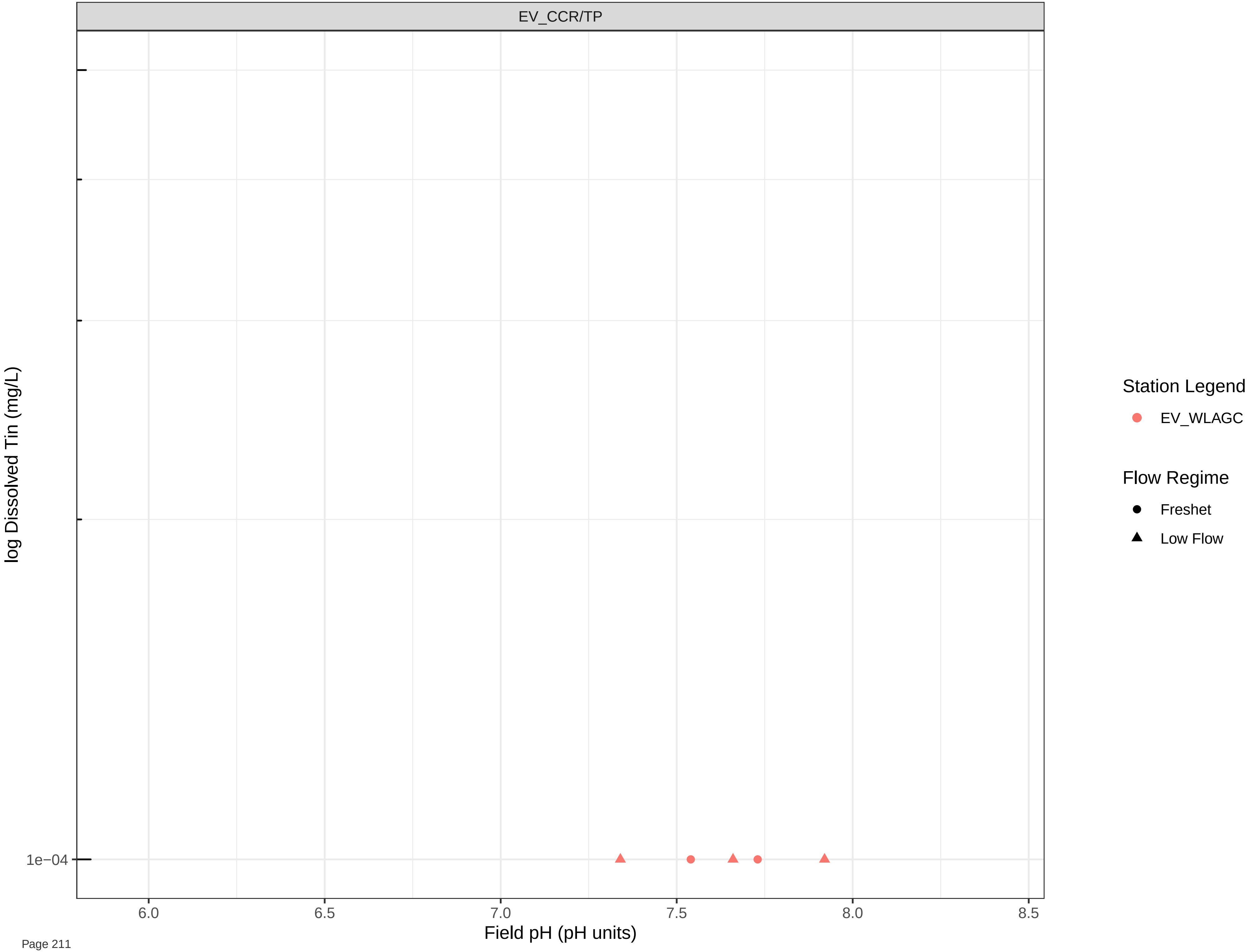

EV_PLANT
log Dissolved Thallium (mg/L)
1e−04
1e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

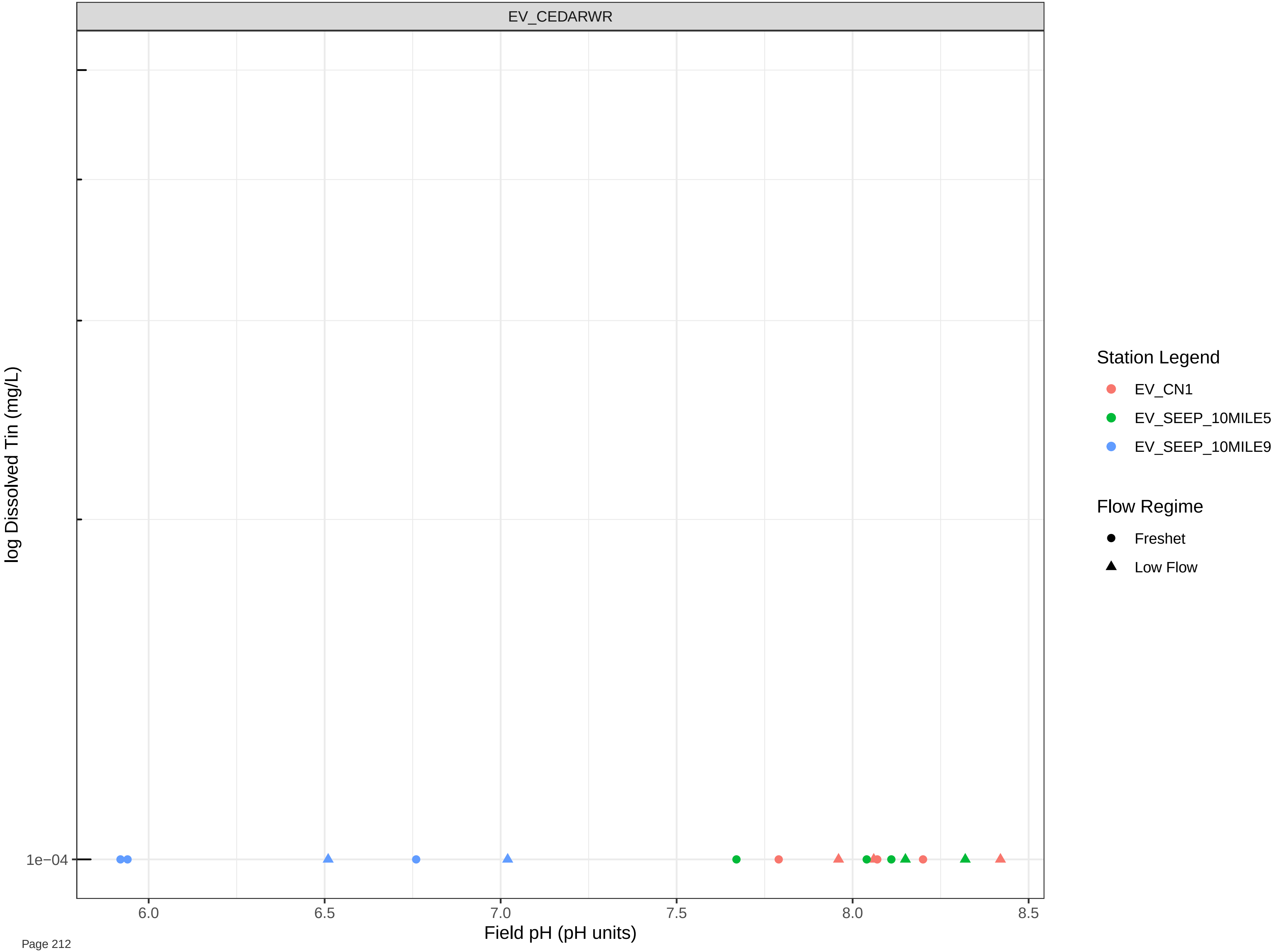

EV_SOUTHSLOPE
log Dissolved Thallium (mg/L)
1e−04
1e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

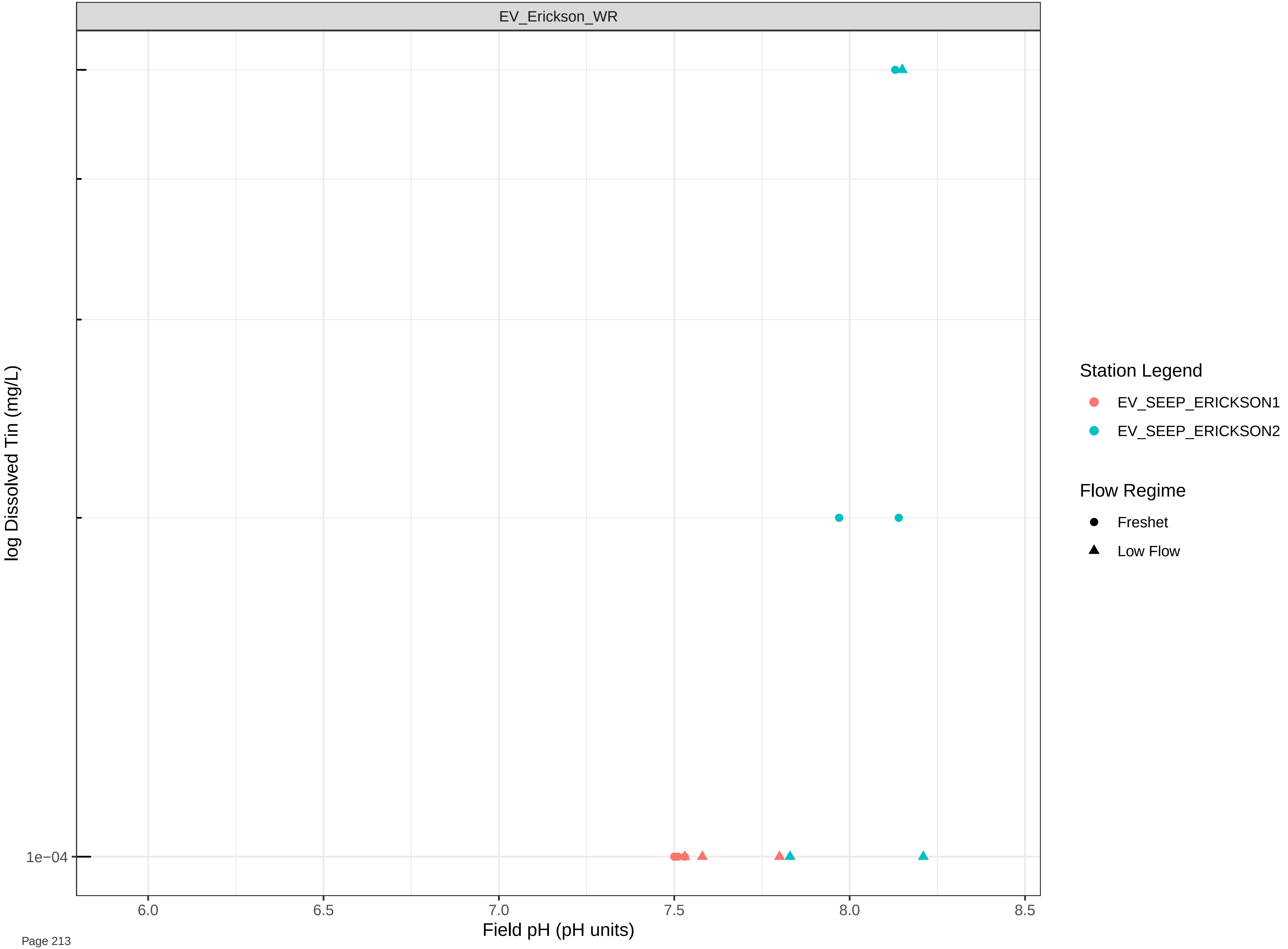

EV_SouthPit_Pit
log Dissolved Thallium (mg/L)
1e−04
1e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

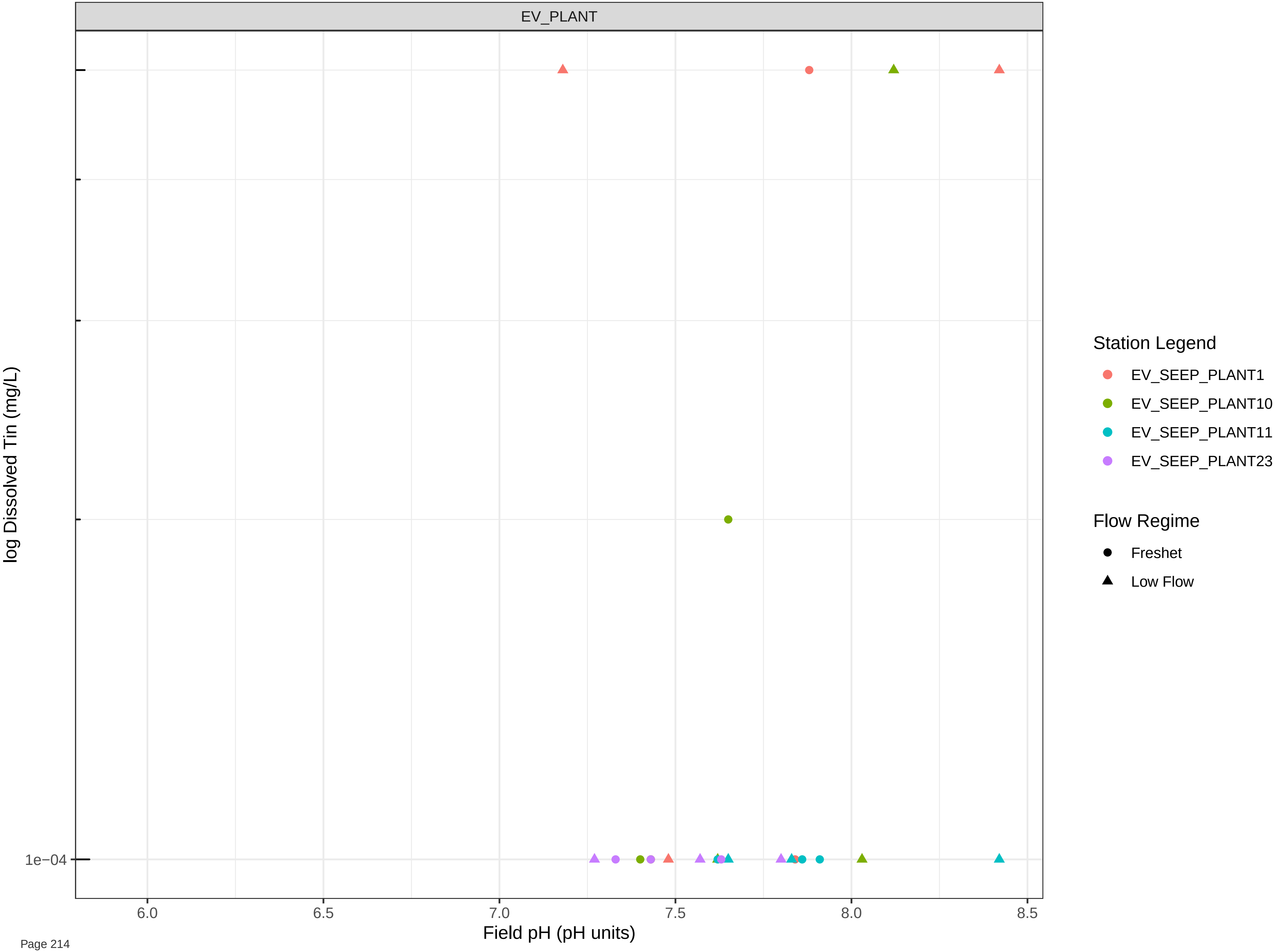

EV_BALDYRIDGEWR
log Dissolved Tin (mg/L)
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

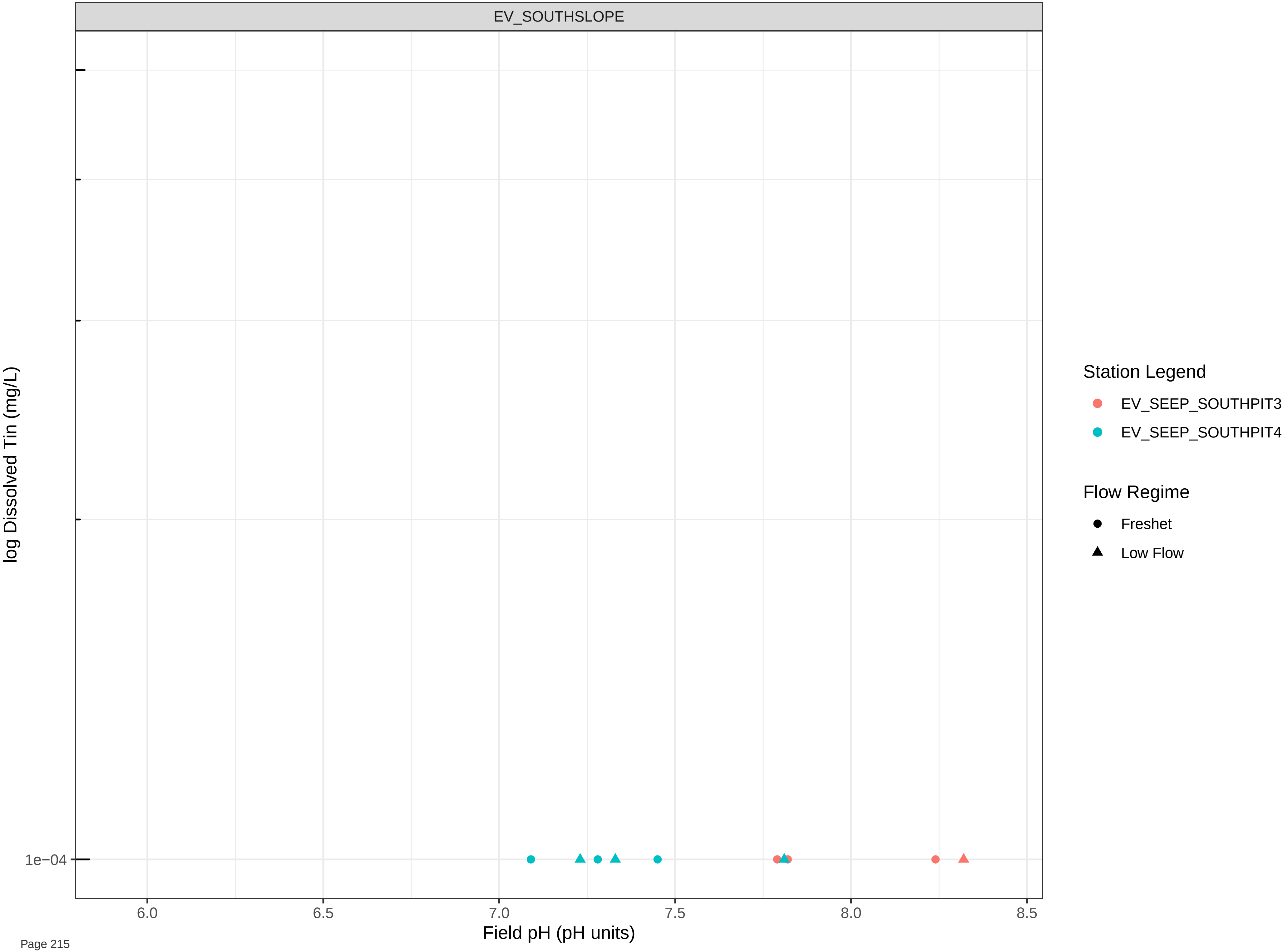

EV_CCR
log Dissolved Tin (mg/L)
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

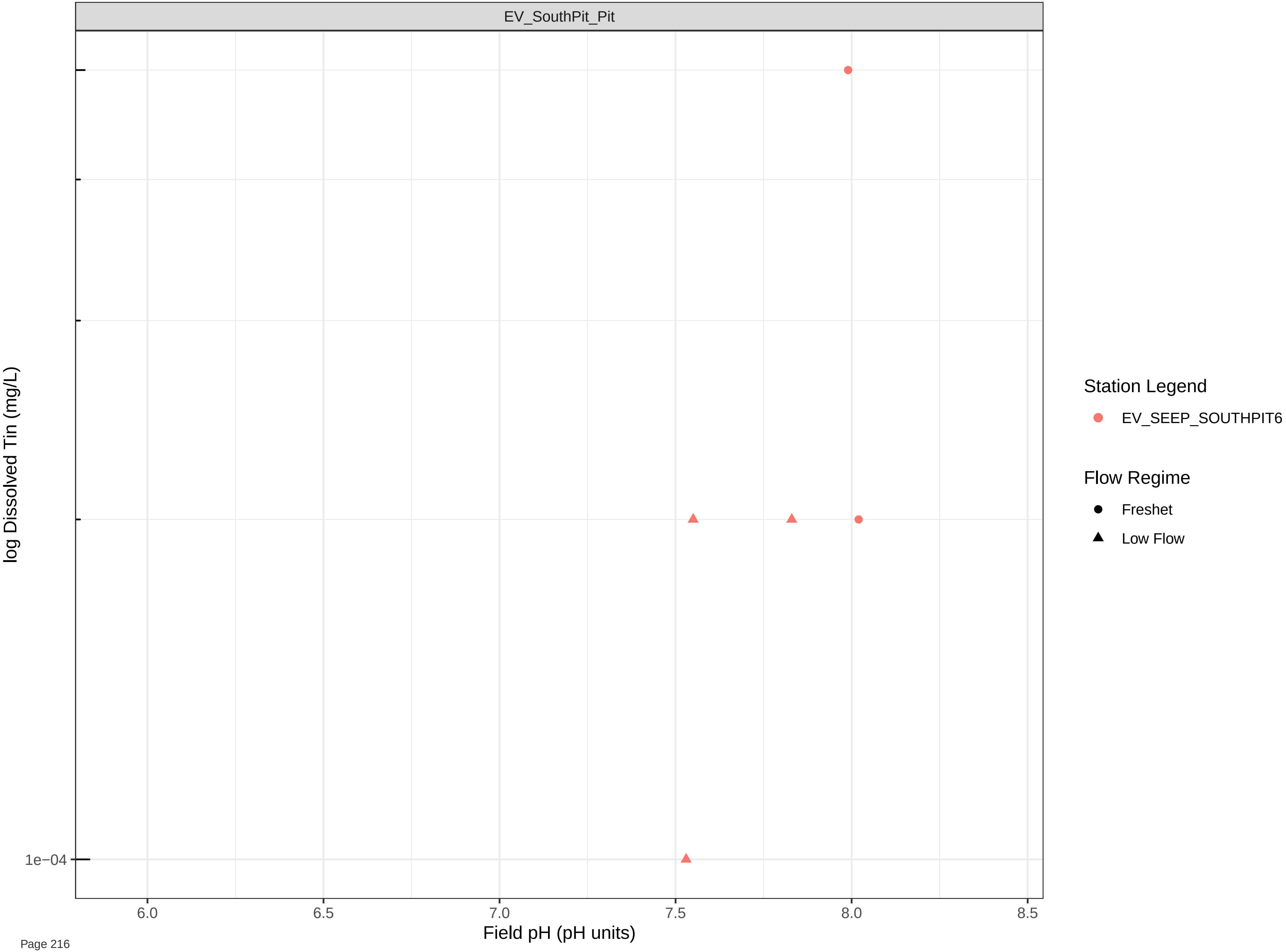

EV_CCR/TP
log Dissolved Tin (mg/L)
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

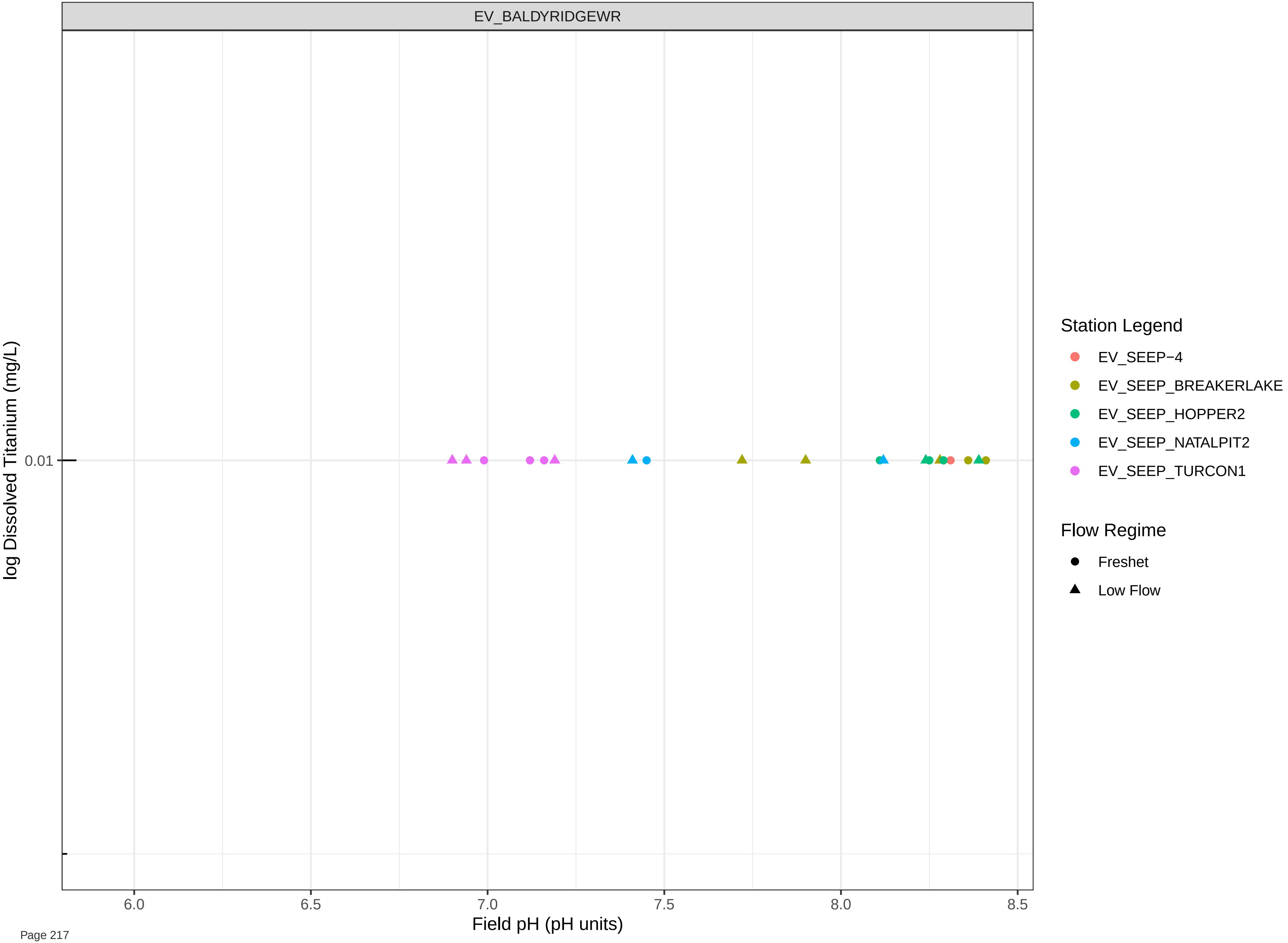

EV_CEDARWR
log Dissolved Tin (mg/L)
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

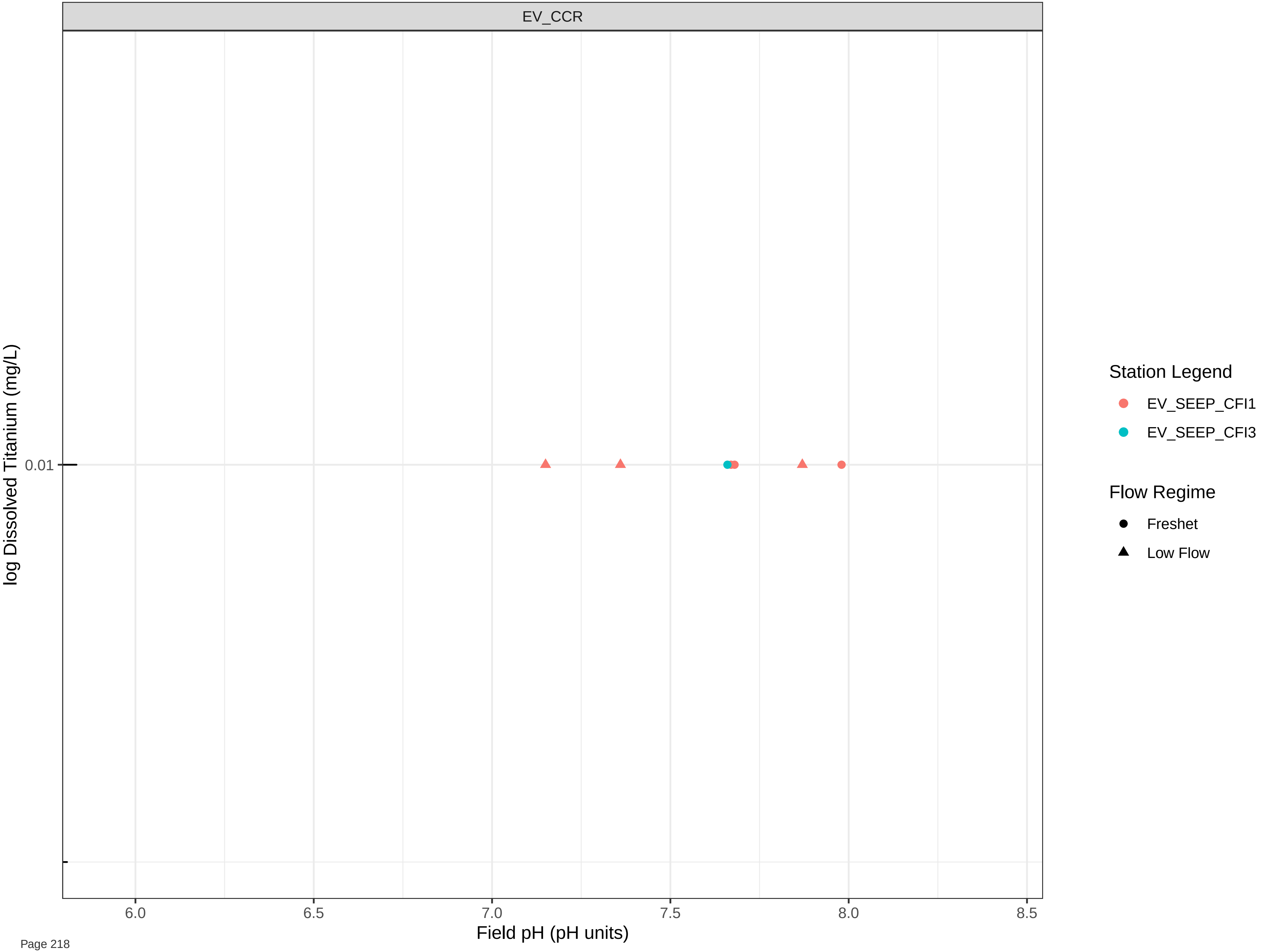

EV_Erickson_WR
log Dissolved Tin (mg/L)
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

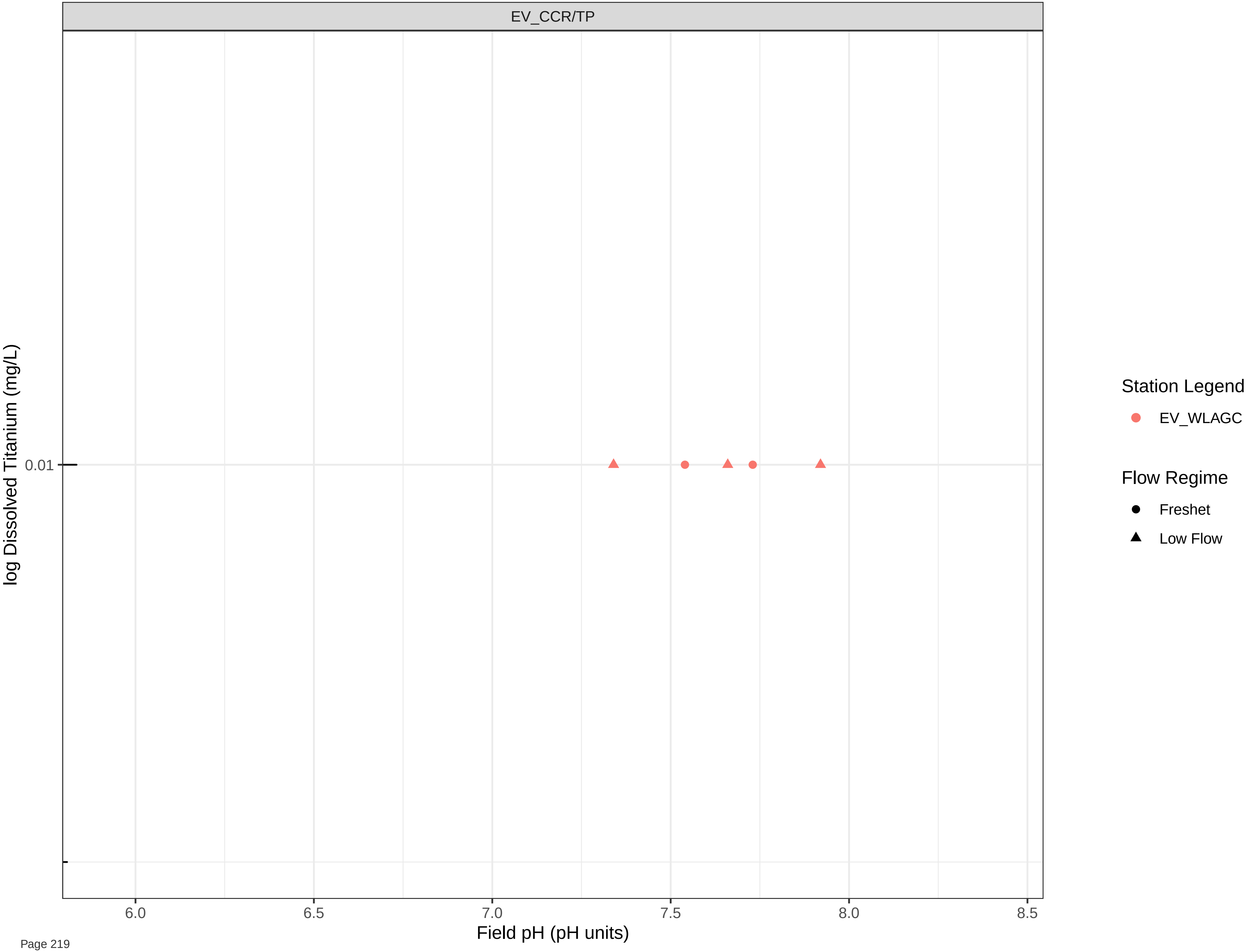

EV_PLANT
log Dissolved Tin (mg/L)
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

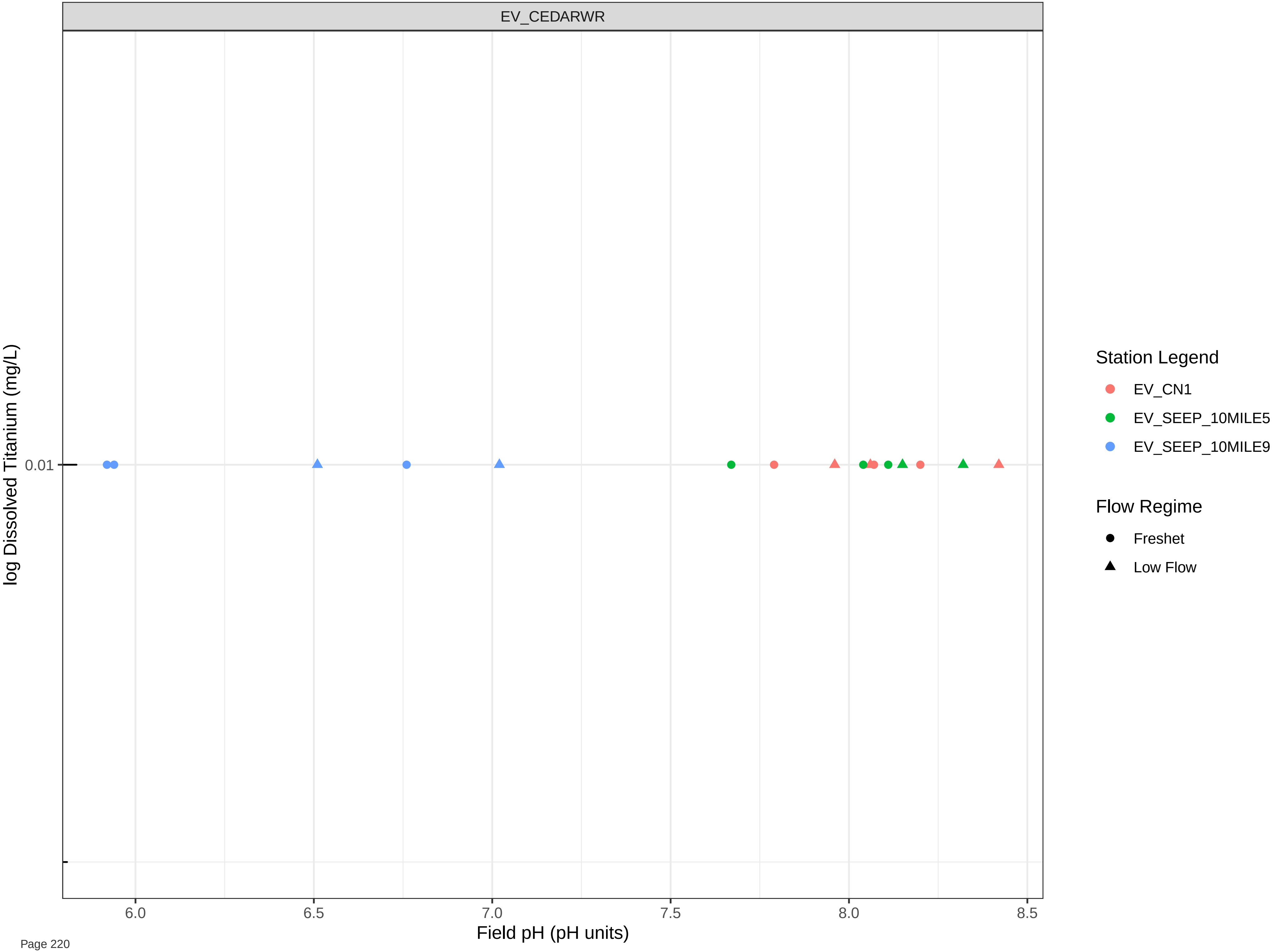

EV_SOUTHSLOPE
log Dissolved Tin (mg/L)
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

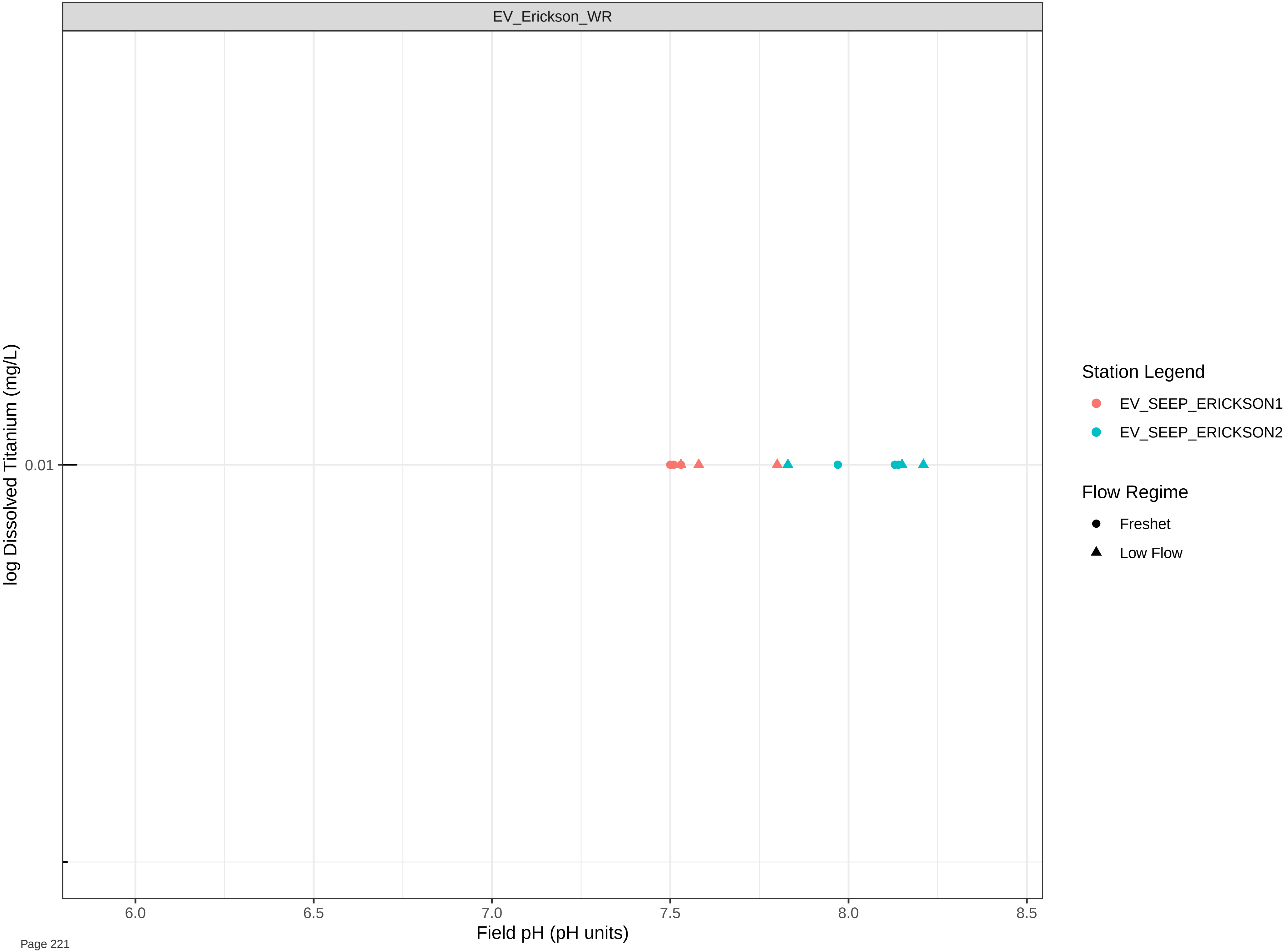

EV_SouthPit_Pit
log Dissolved Tin (mg/L)
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

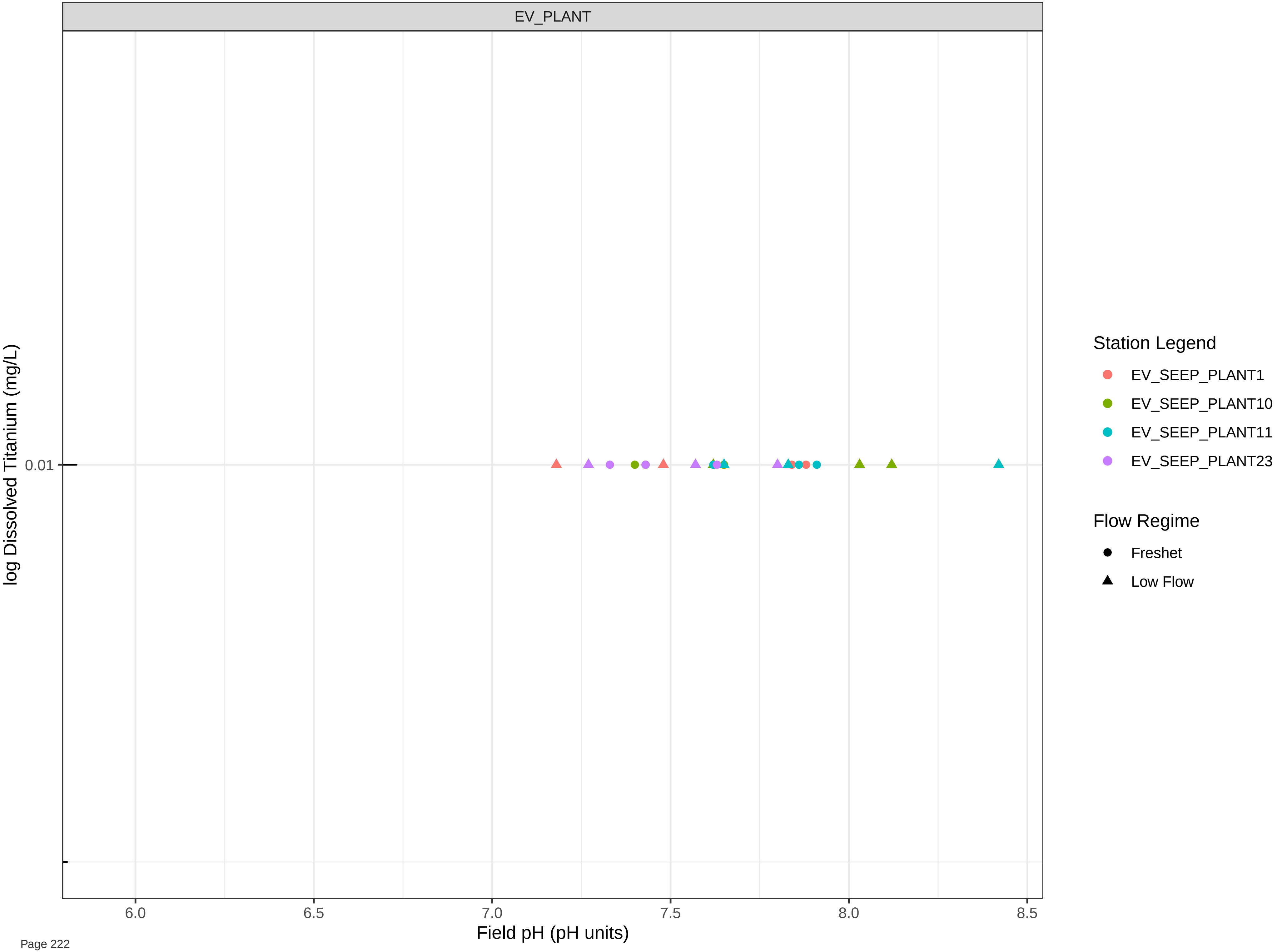

EV_BALDYRIDGEWR
log Dissolved Titanium (mg/L)
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

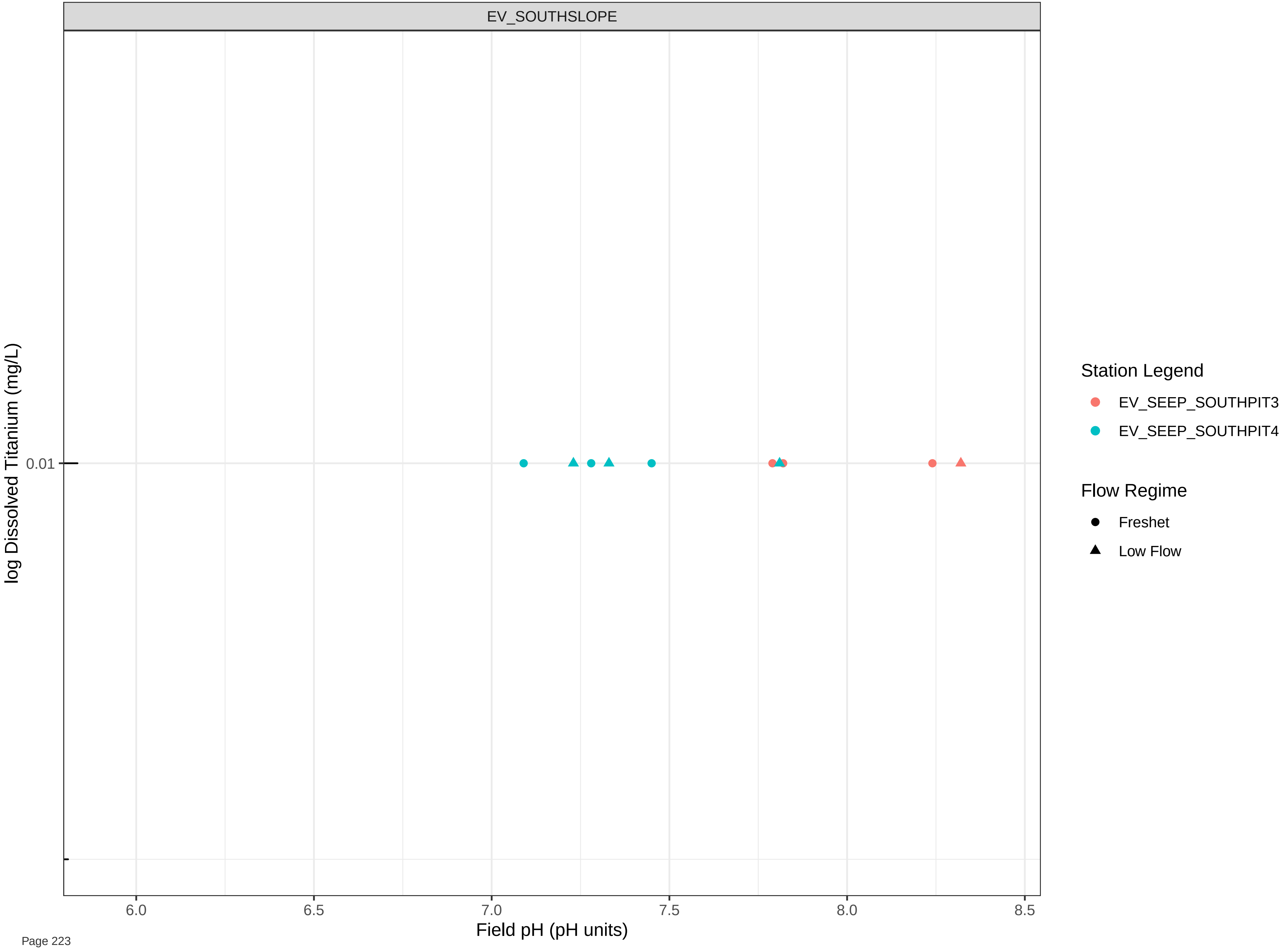

EV_CCR
log Dissolved Titanium (mg/L)
0.01
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

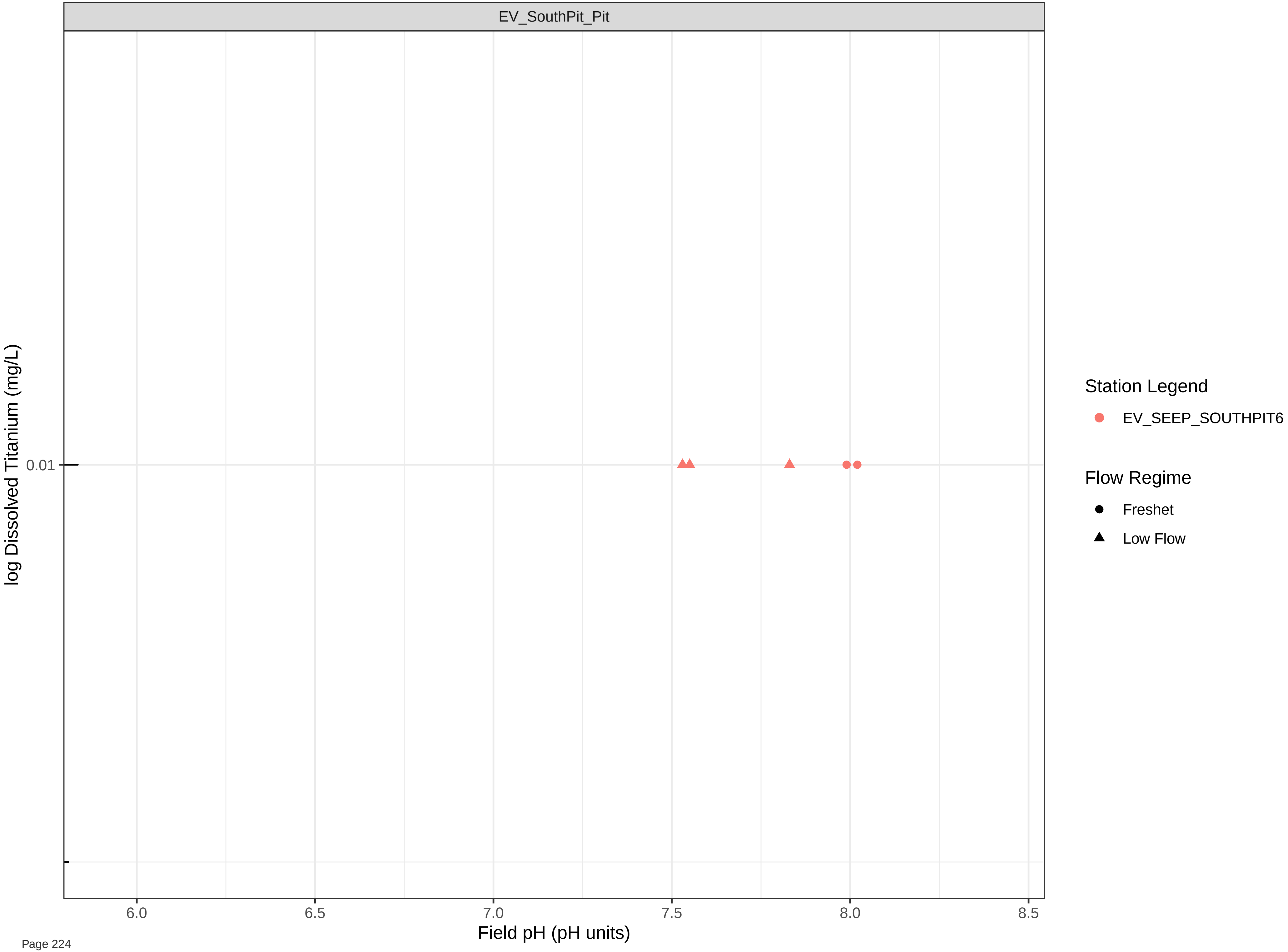

EV_CCR/TP
log Dissolved Titanium (mg/L)
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

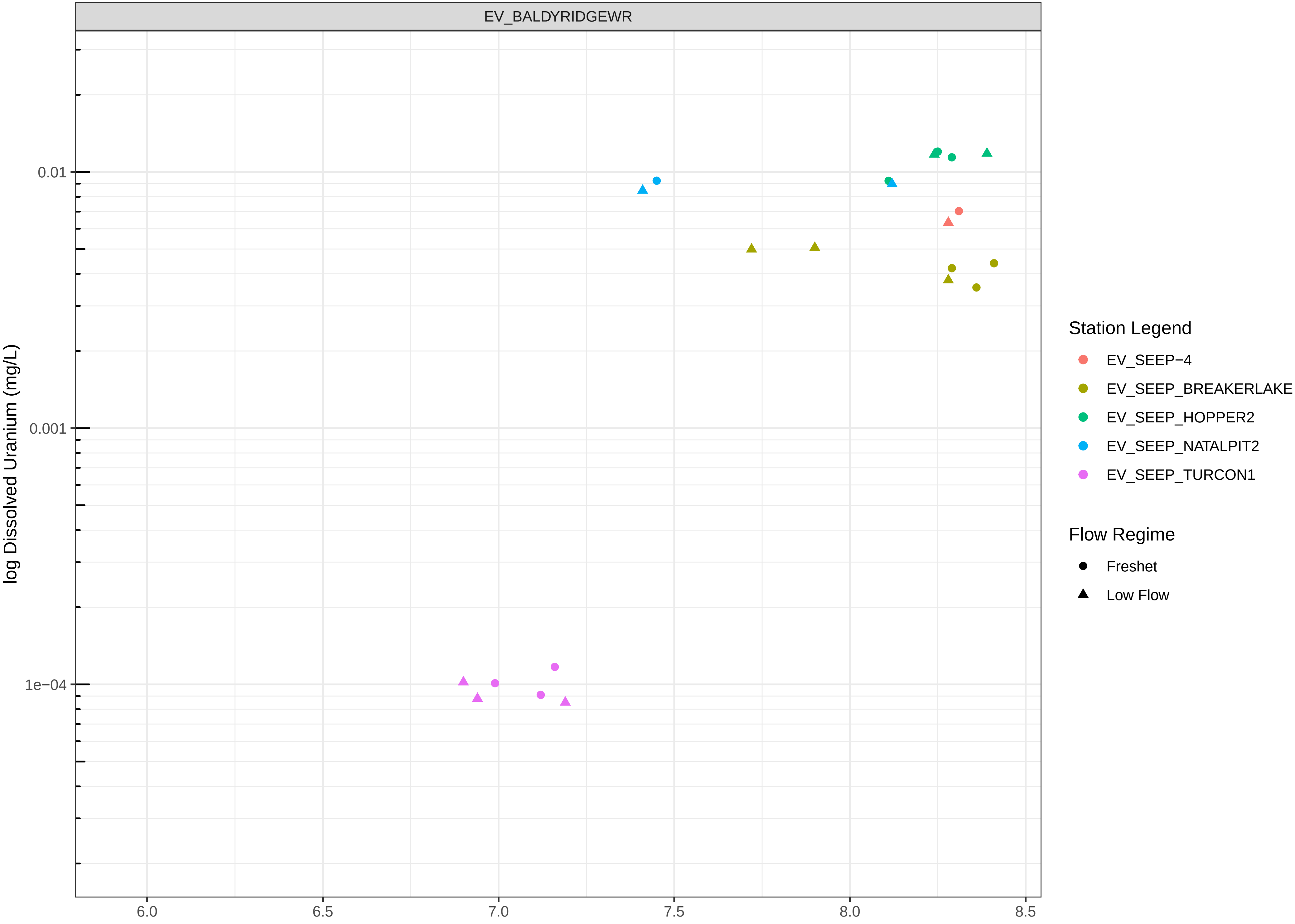

EV_CEDARWR
log Dissolved Titanium (mg/L)
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

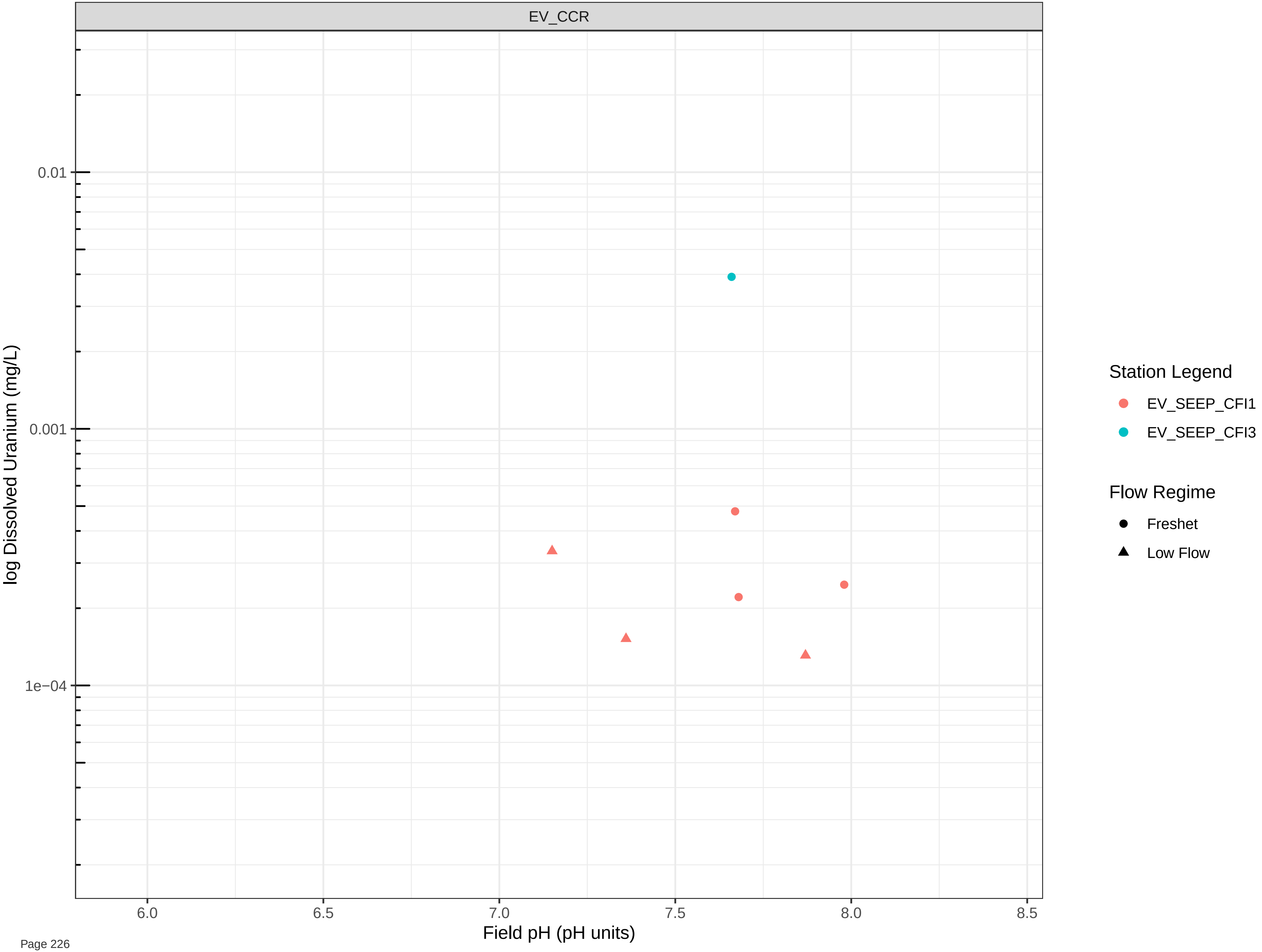

EV_Erickson_WR
log Dissolved Titanium (mg/L)
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

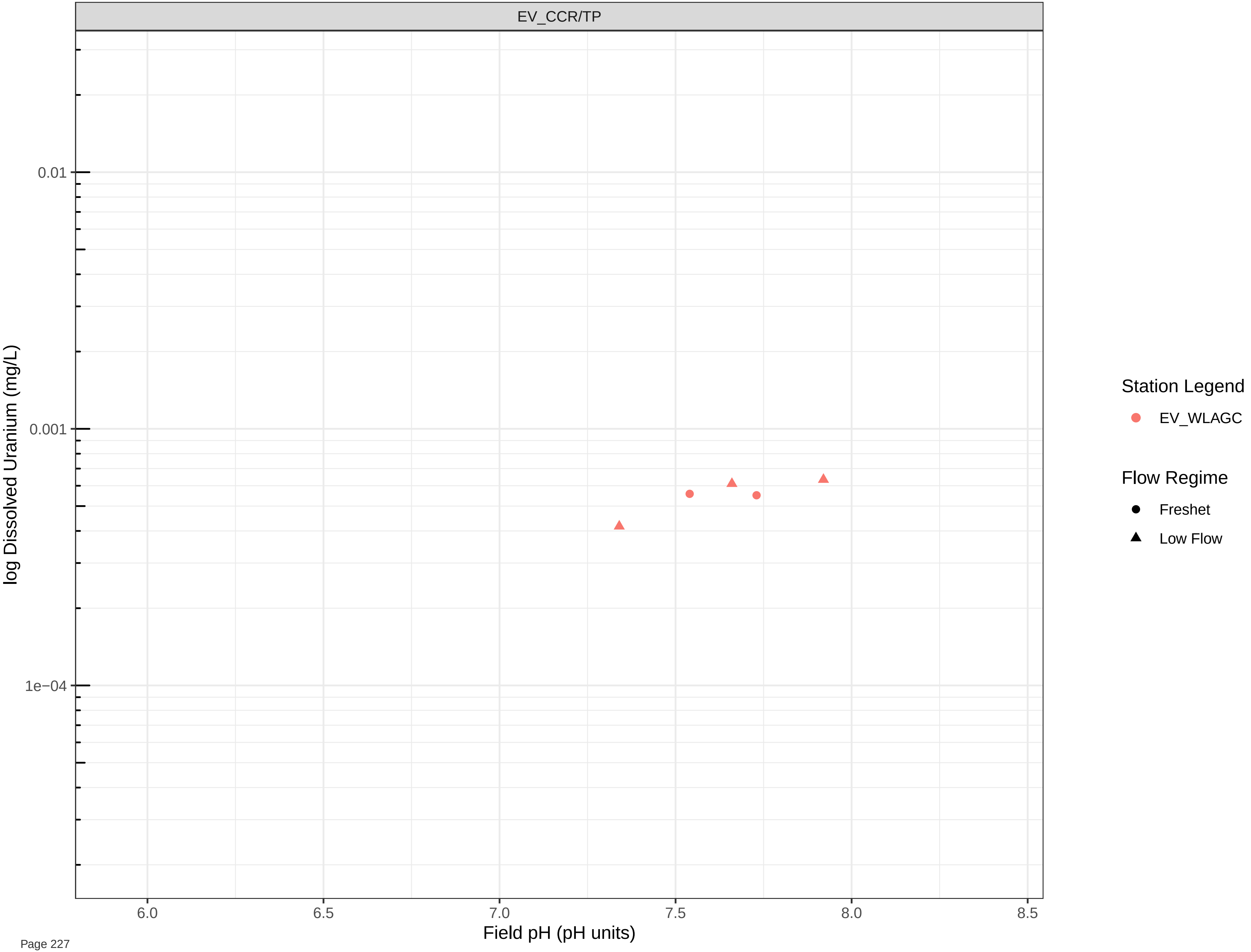

EV_PLANT
log Dissolved Titanium (mg/L)
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

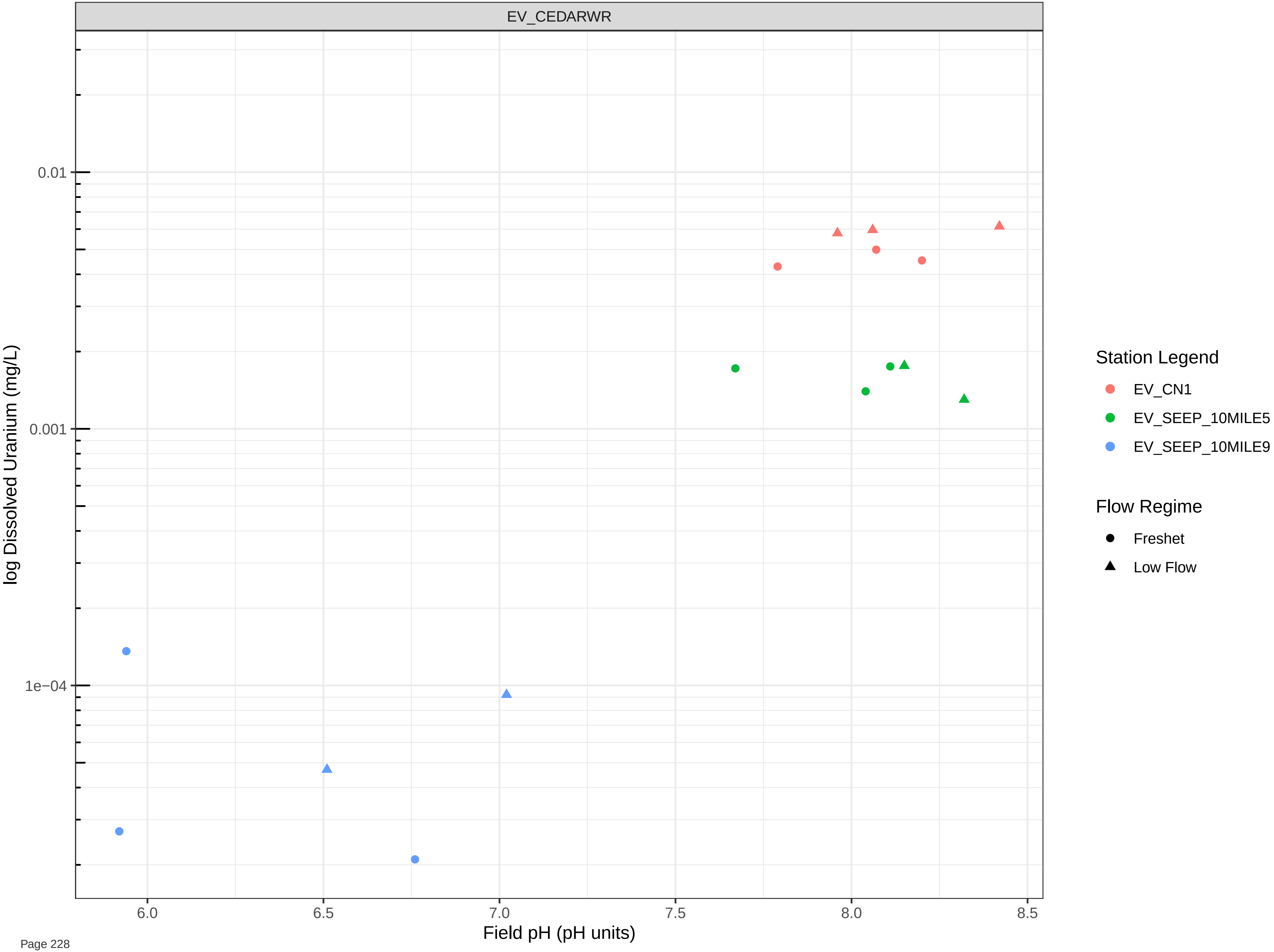

EV_SOUTHSLOPE
log Dissolved Titanium (mg/L)
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

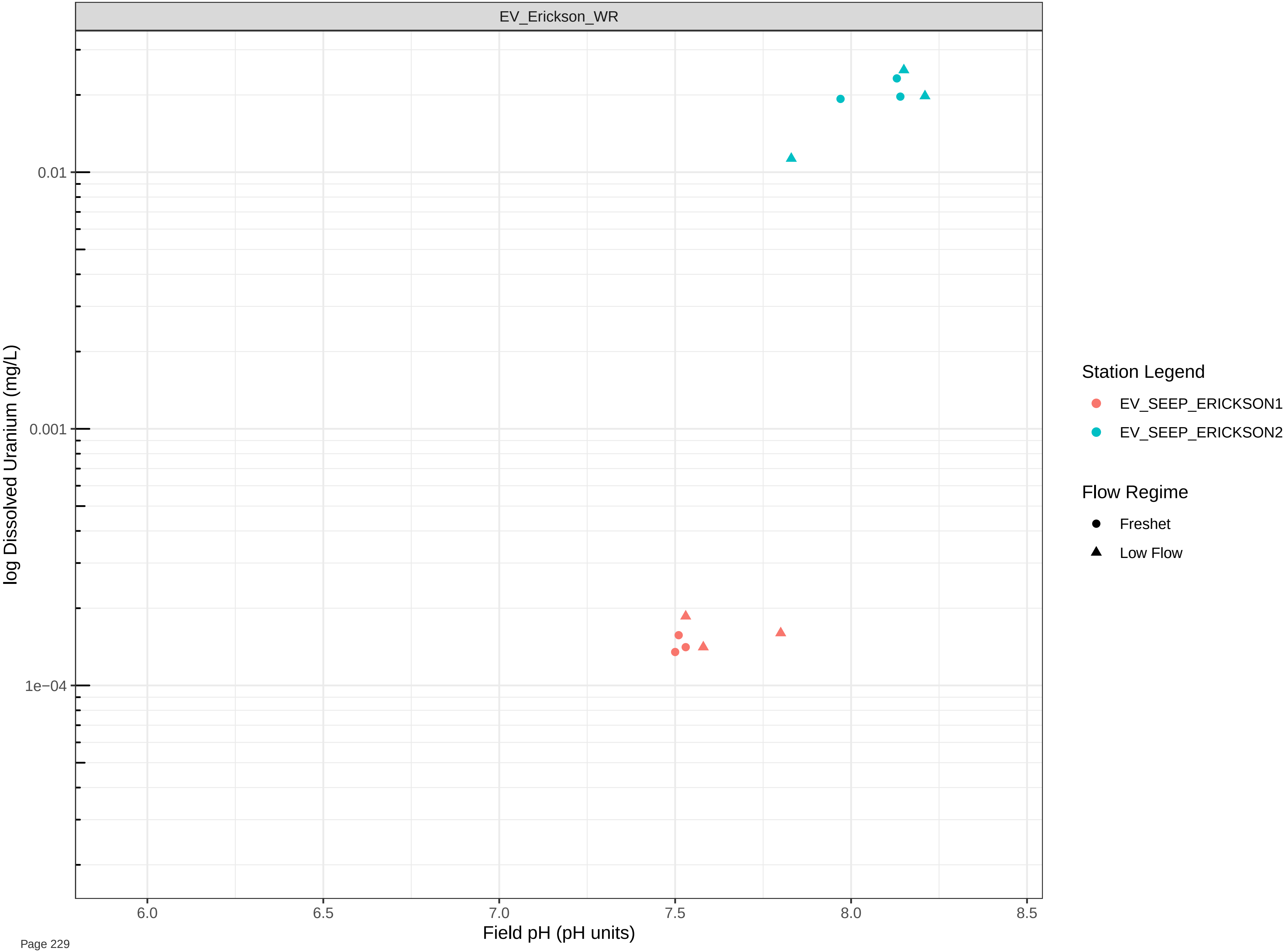

EV_SouthPit_Pit
log Dissolved Titanium (mg/L)
0.01
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

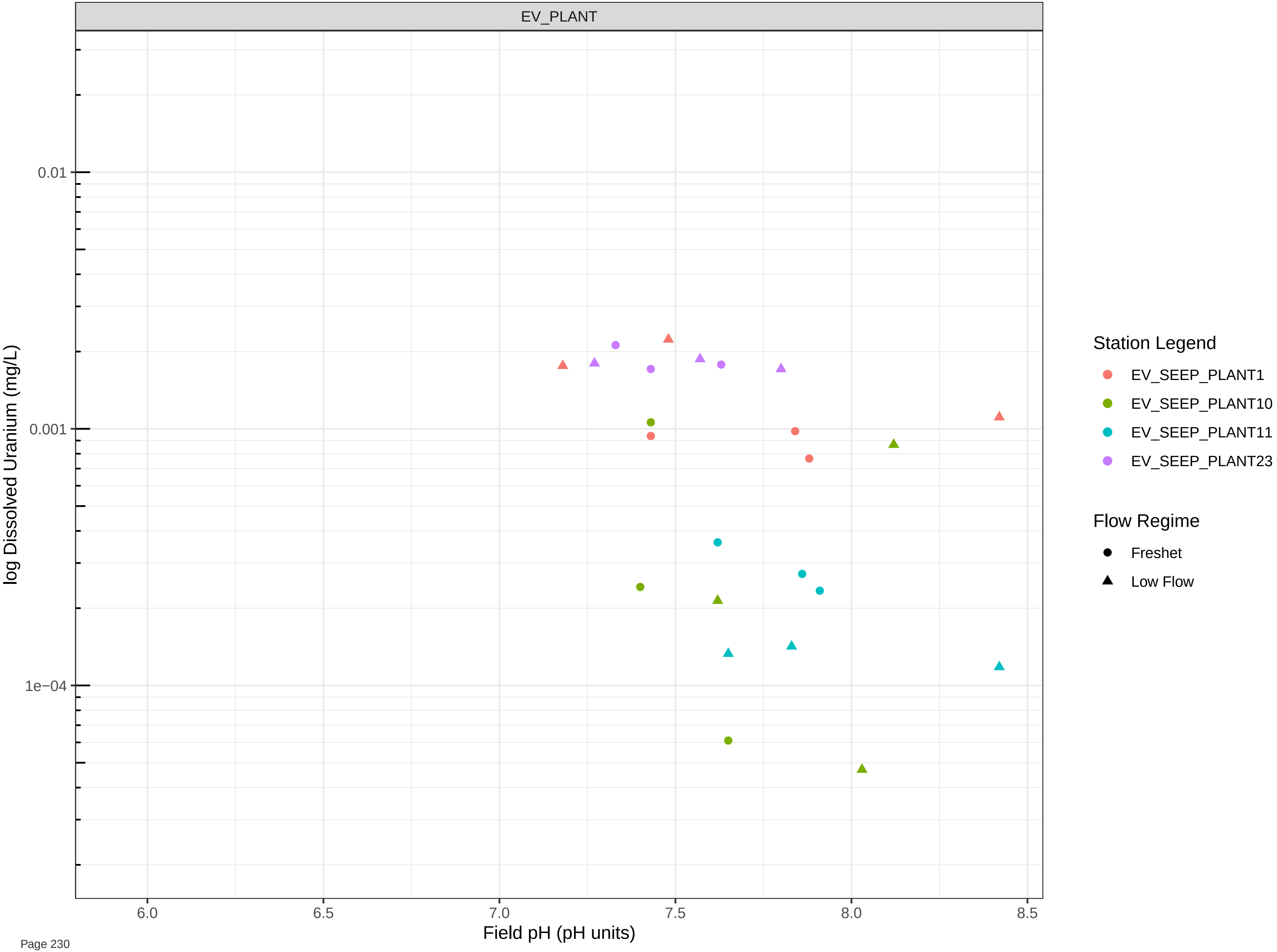

EV_BALDYRIDGEWR
log Dissolved Uranium (mg/L)
0.01
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

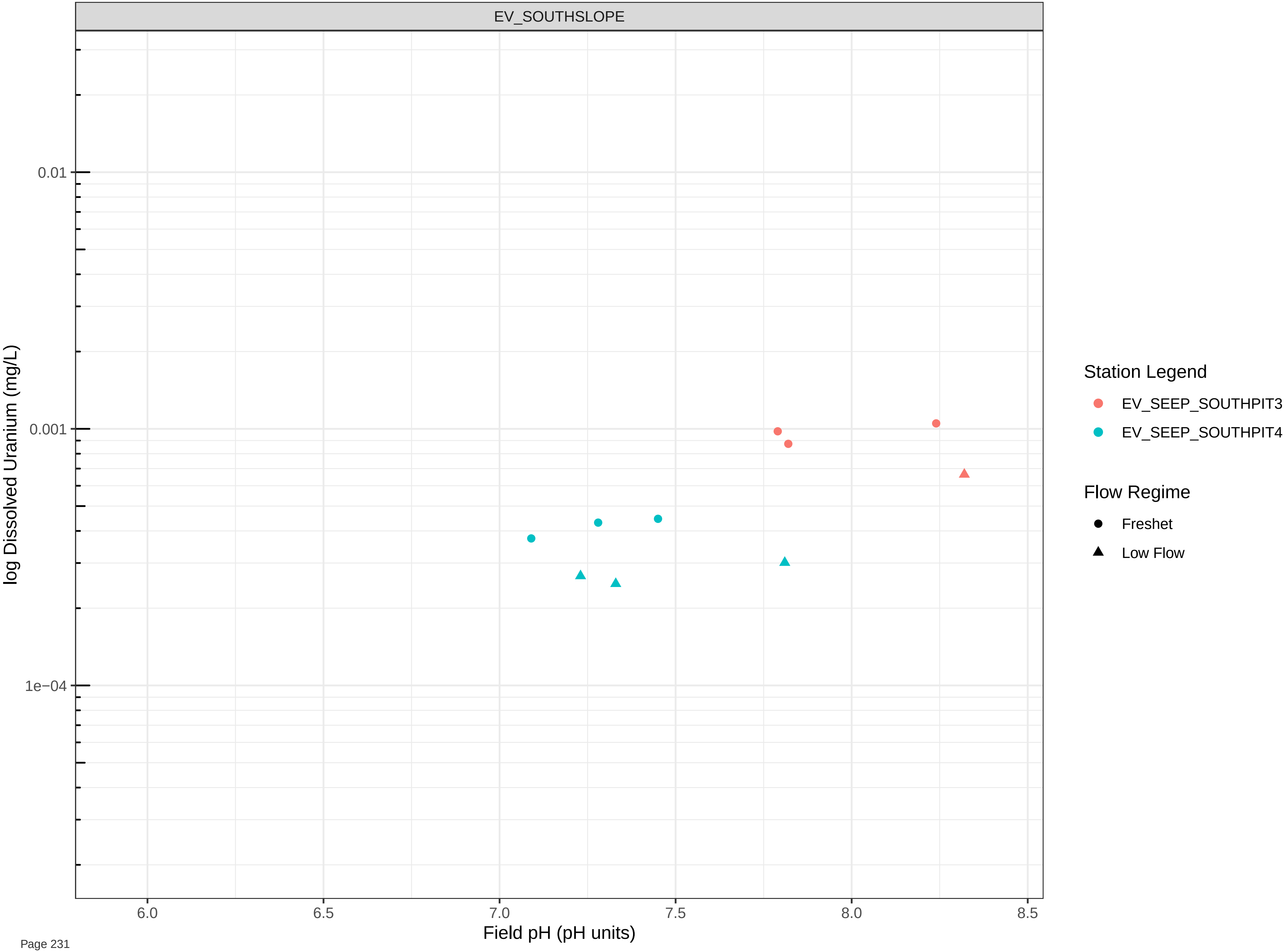

EV_CCR
log Dissolved Uranium (mg/L)
0.01
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

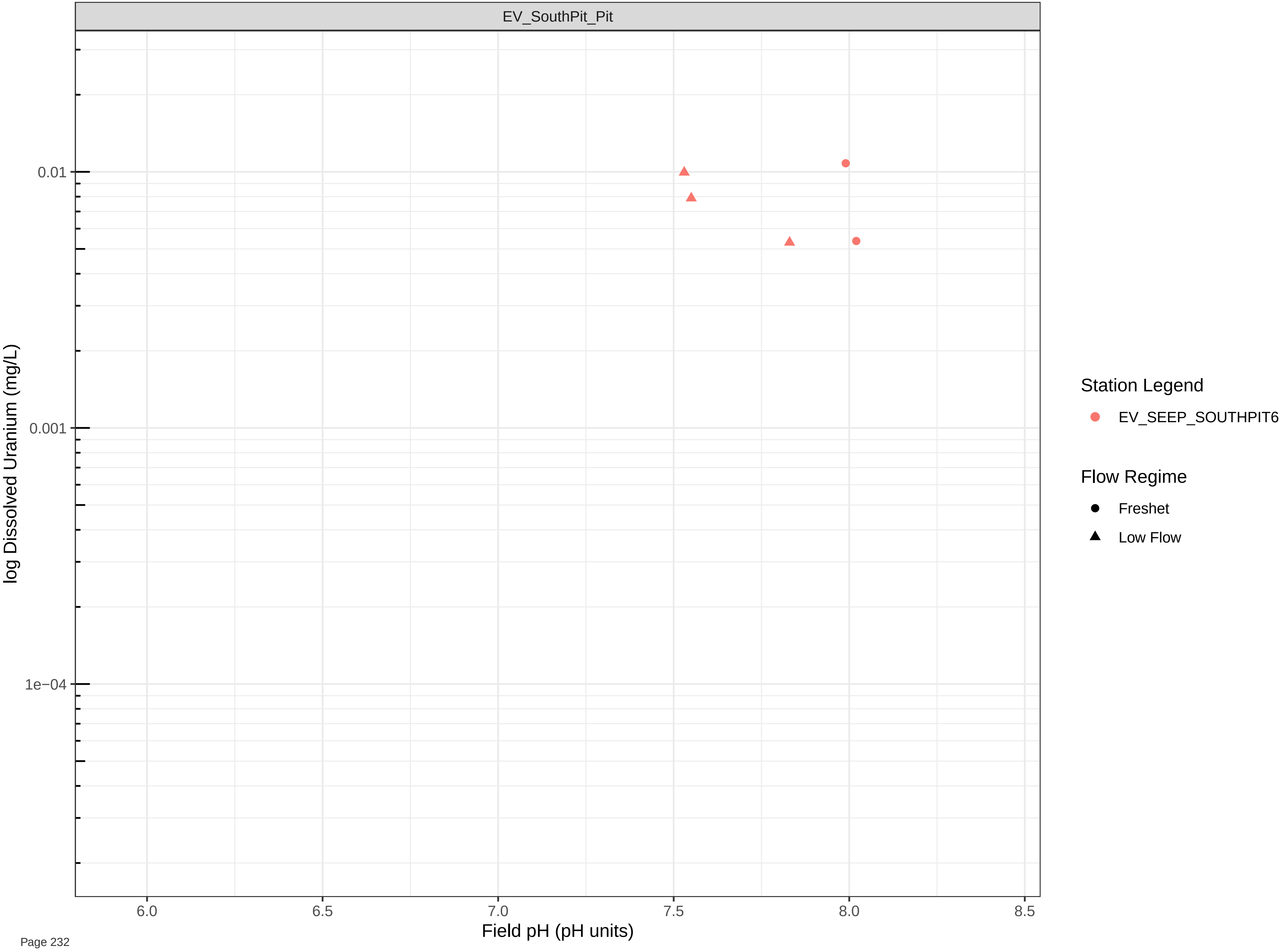

EV_CCR/TP
log Dissolved Uranium (mg/L)
0.01
0.001
1e−04
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

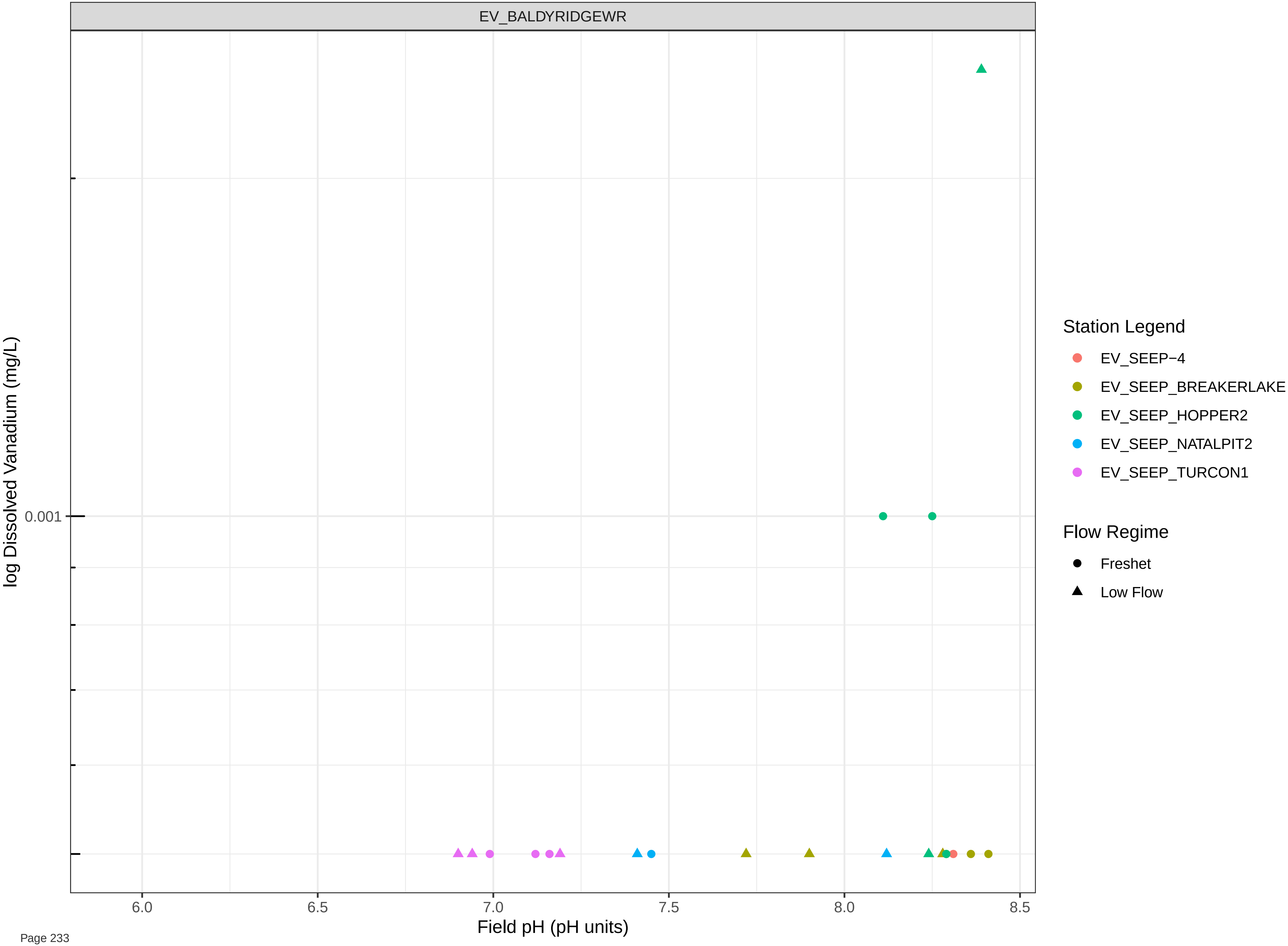

EV_CEDARWR
log Dissolved Uranium (mg/L)
0.01
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

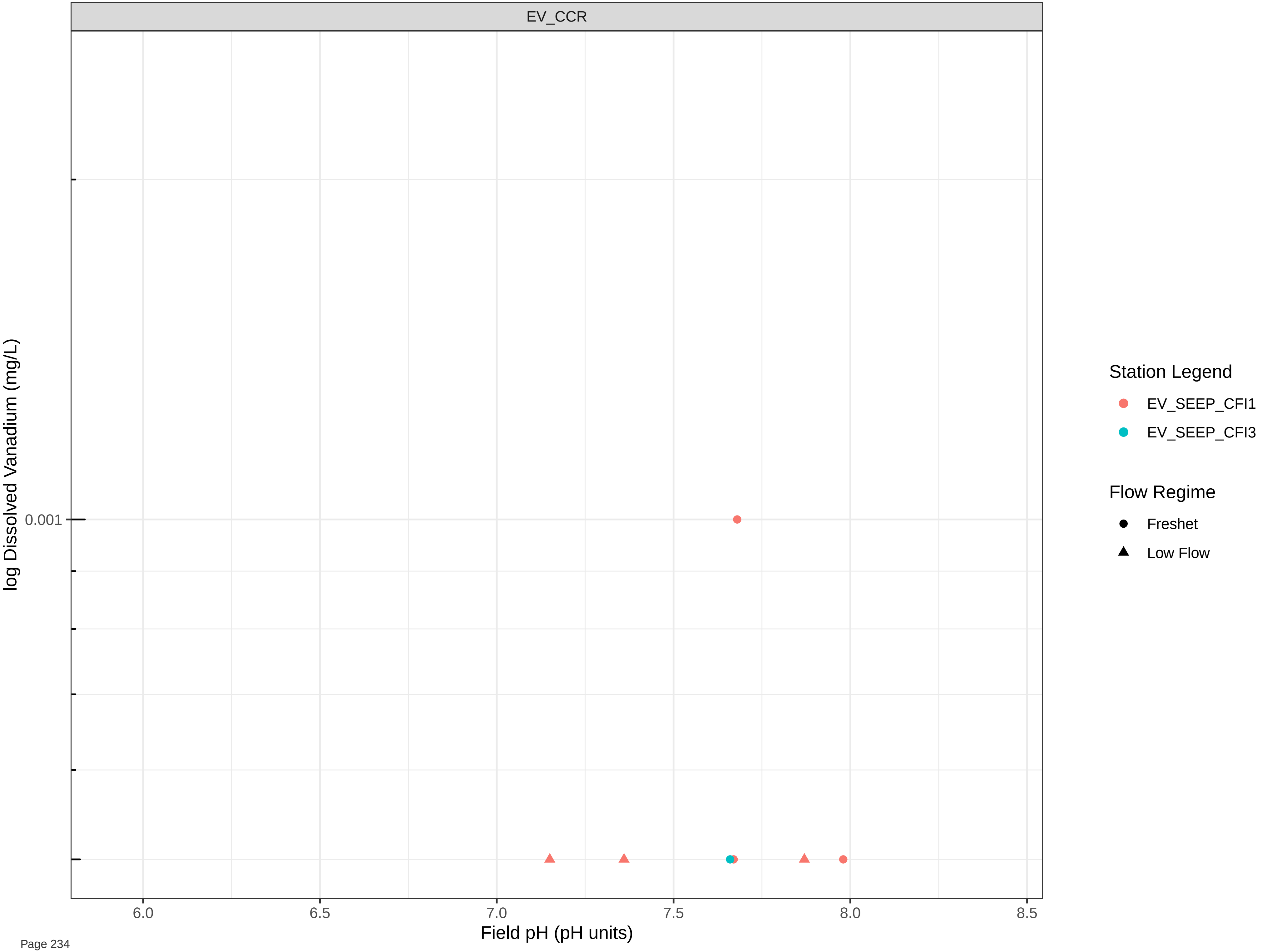

EV_Erickson_WR
log Dissolved Uranium (mg/L)
0.01
0.001
1e−04
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

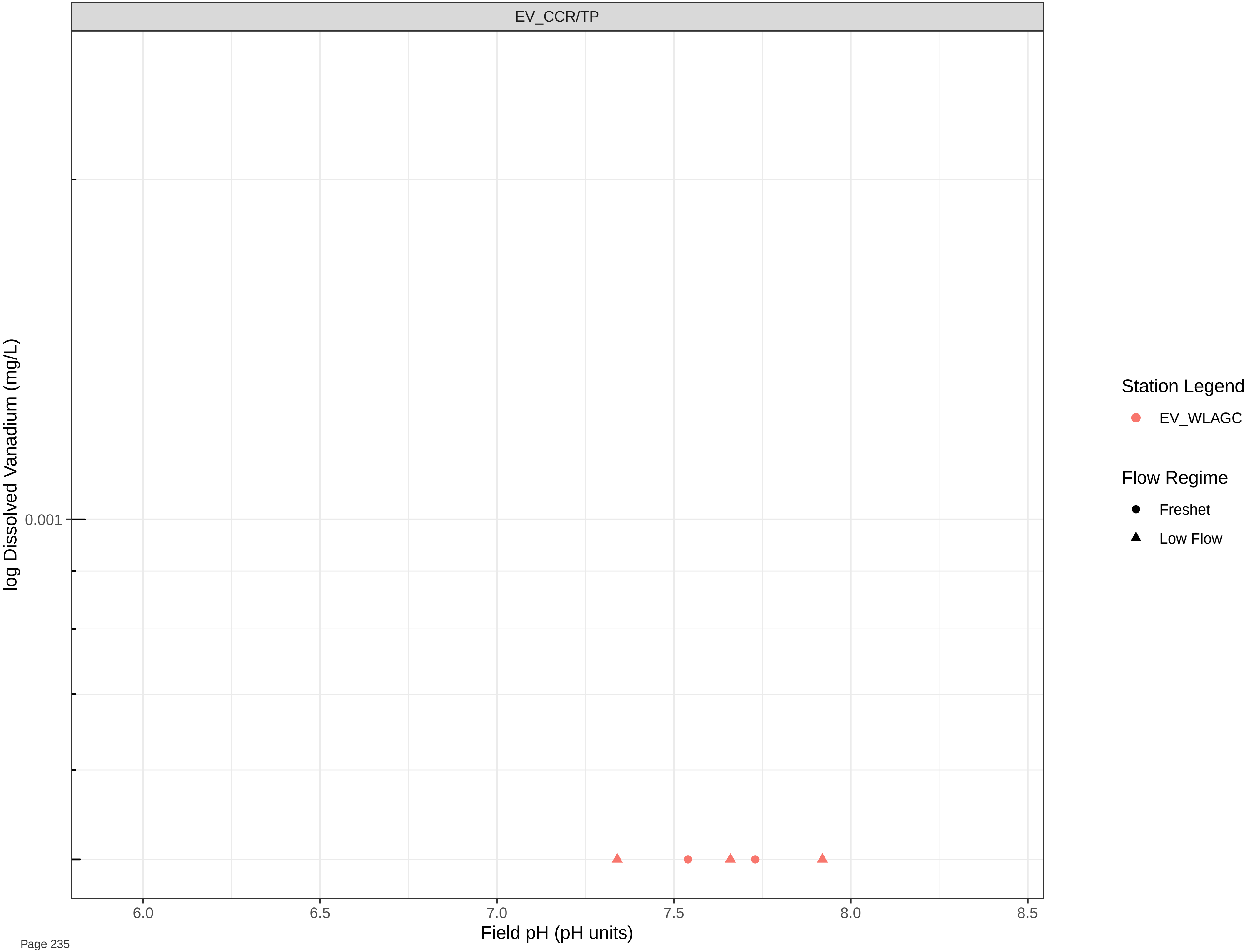

EV_PLANT
0.01
0.001
1e−04
log Dissolved Uranium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

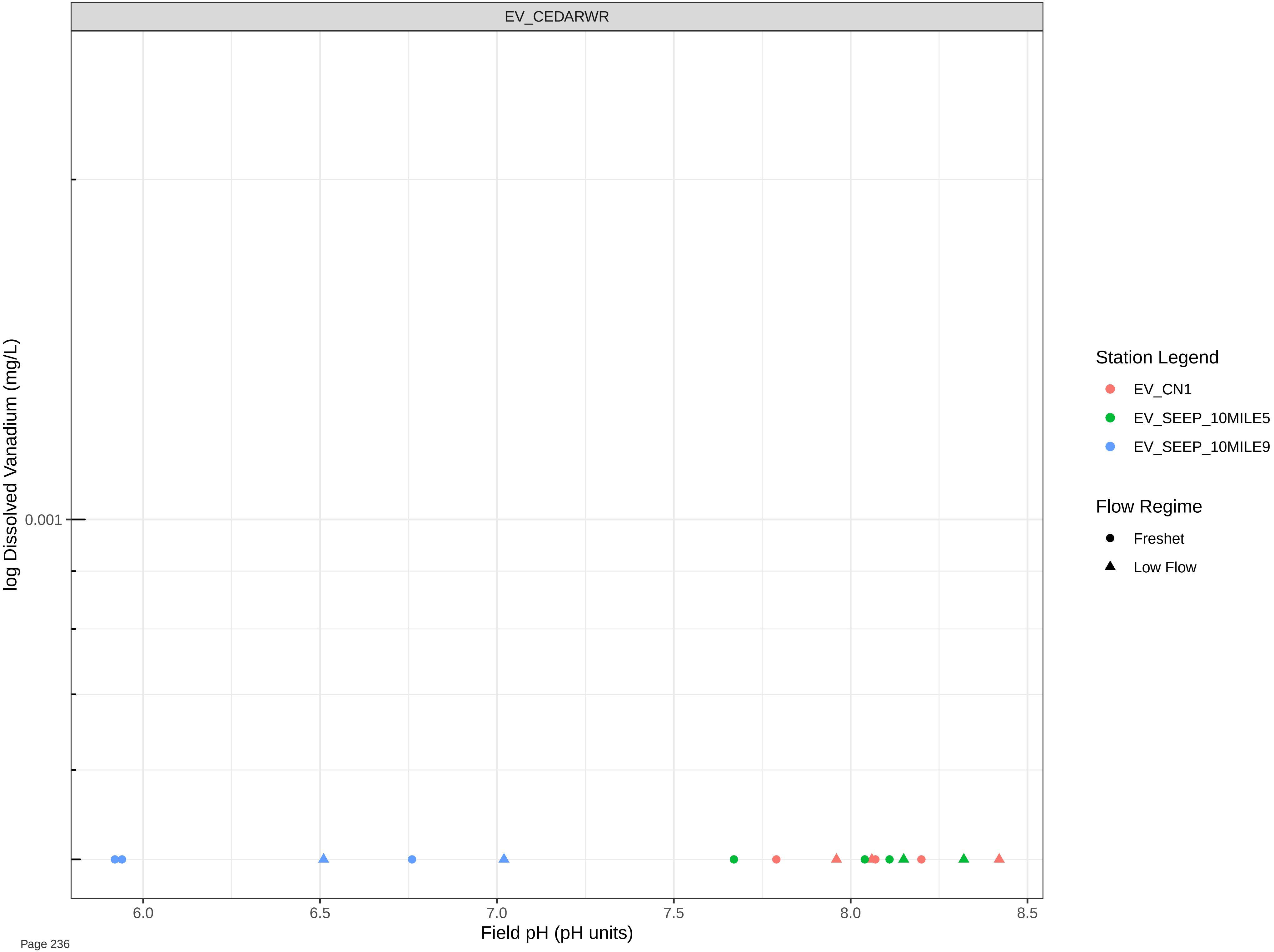

EV_SOUTHSLOPE
log Dissolved Uranium (mg/L)
0.01
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

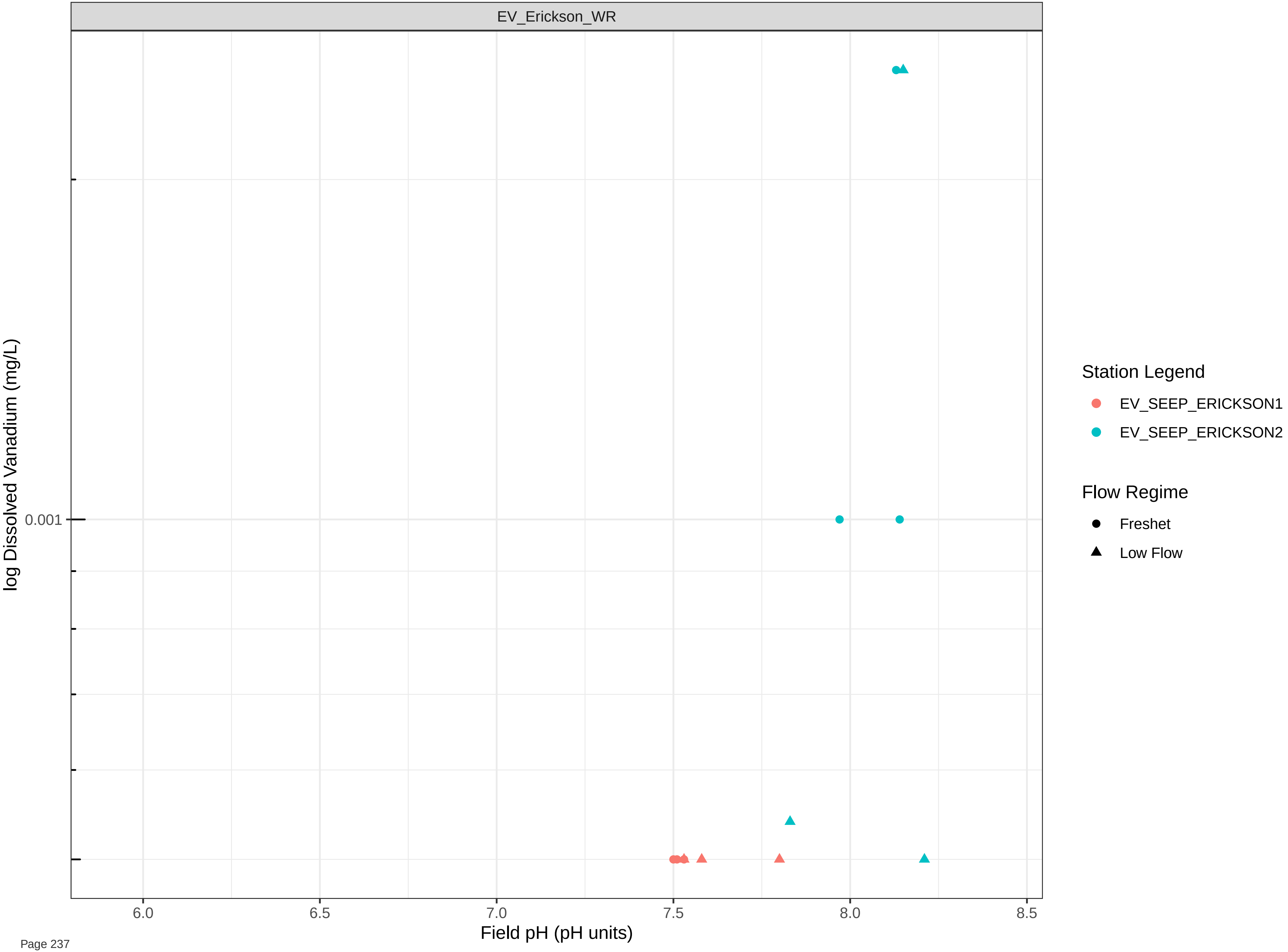

EV_SouthPit_Pit
log Dissolved Uranium (mg/L)
0.01
0.001
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

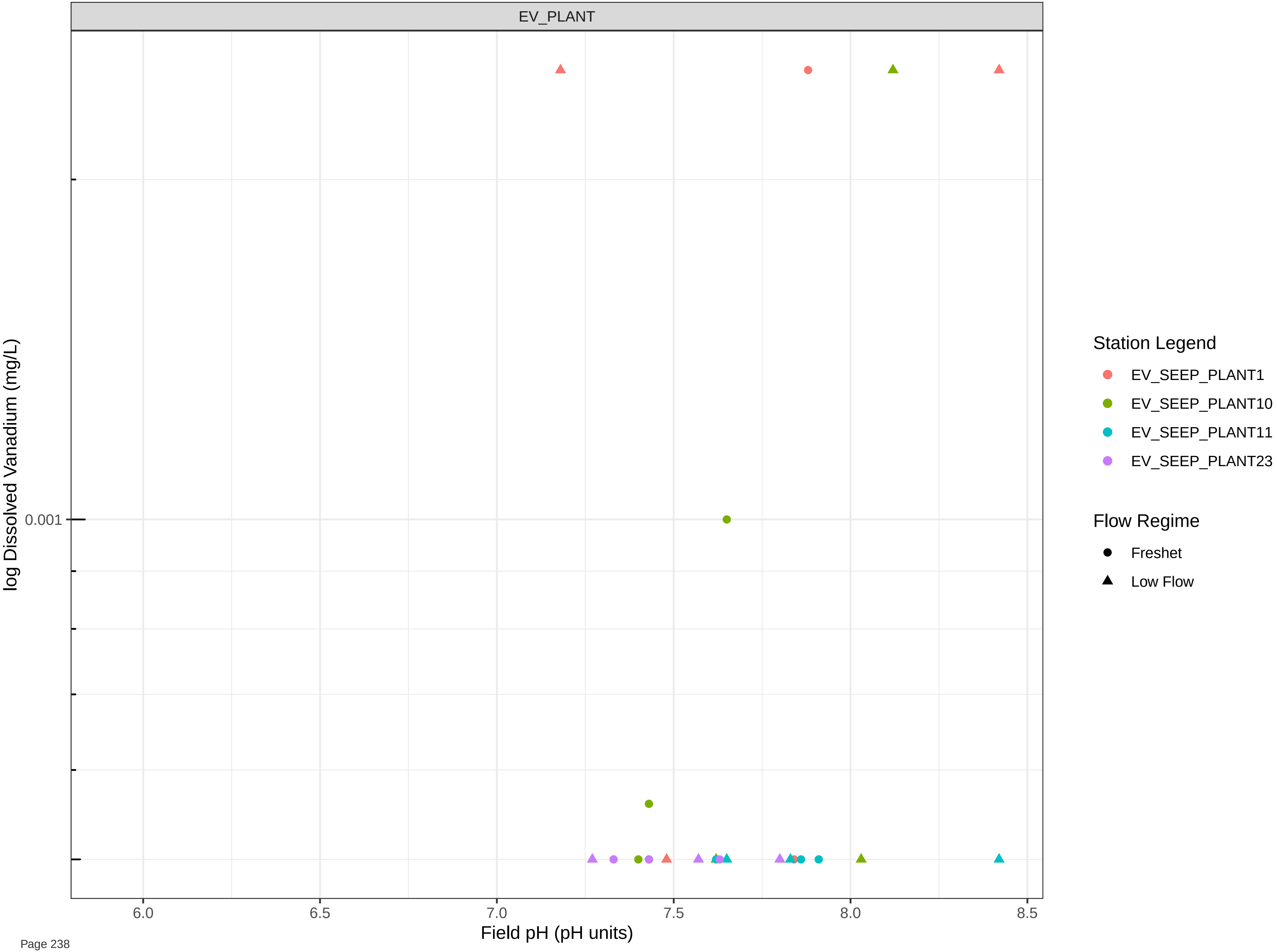

EV_BALDYRIDGEWR
log Dissolved Vanadium (mg/L)
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

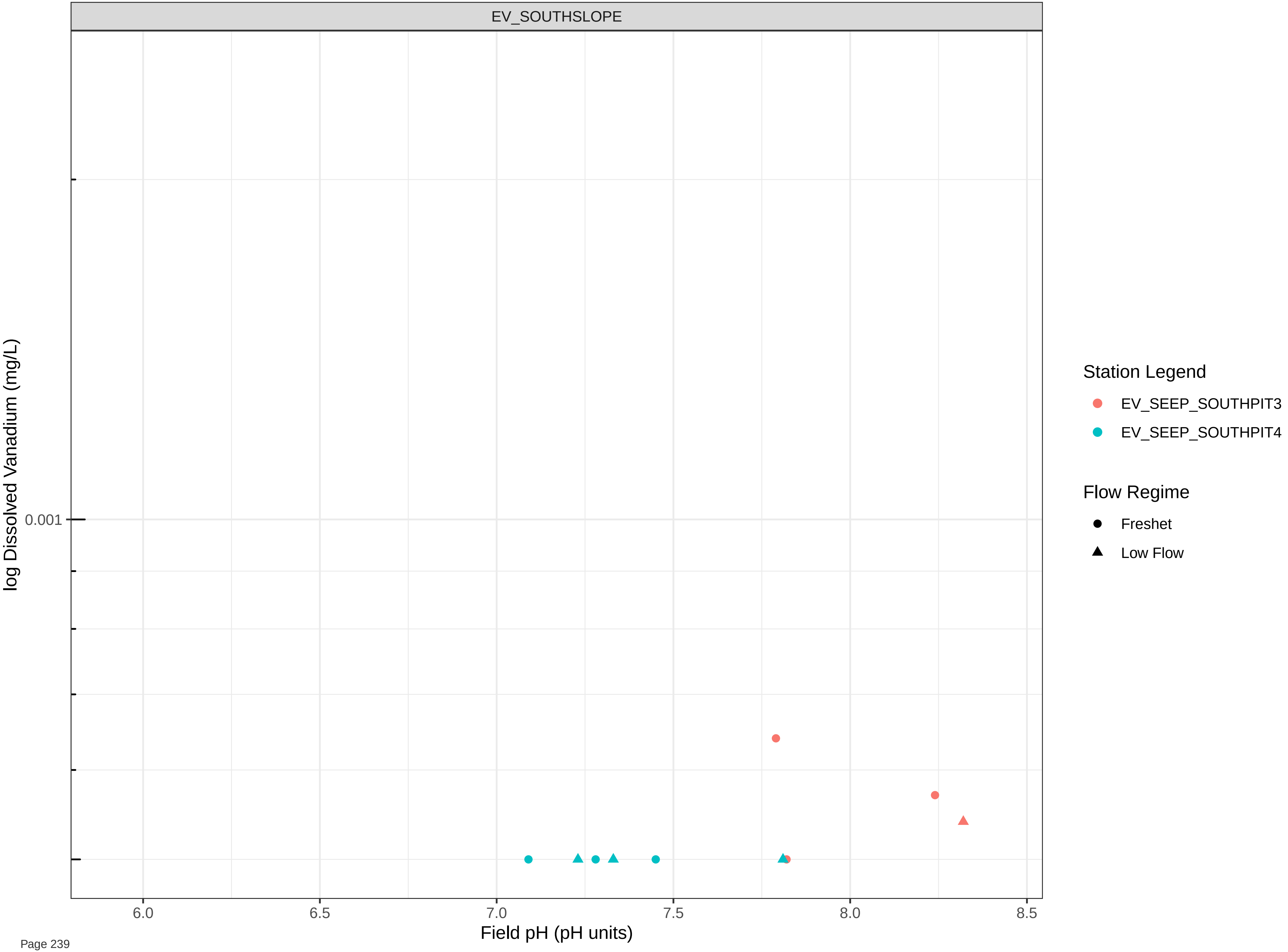

EV_CCR
log Dissolved Vanadium (mg/L)
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

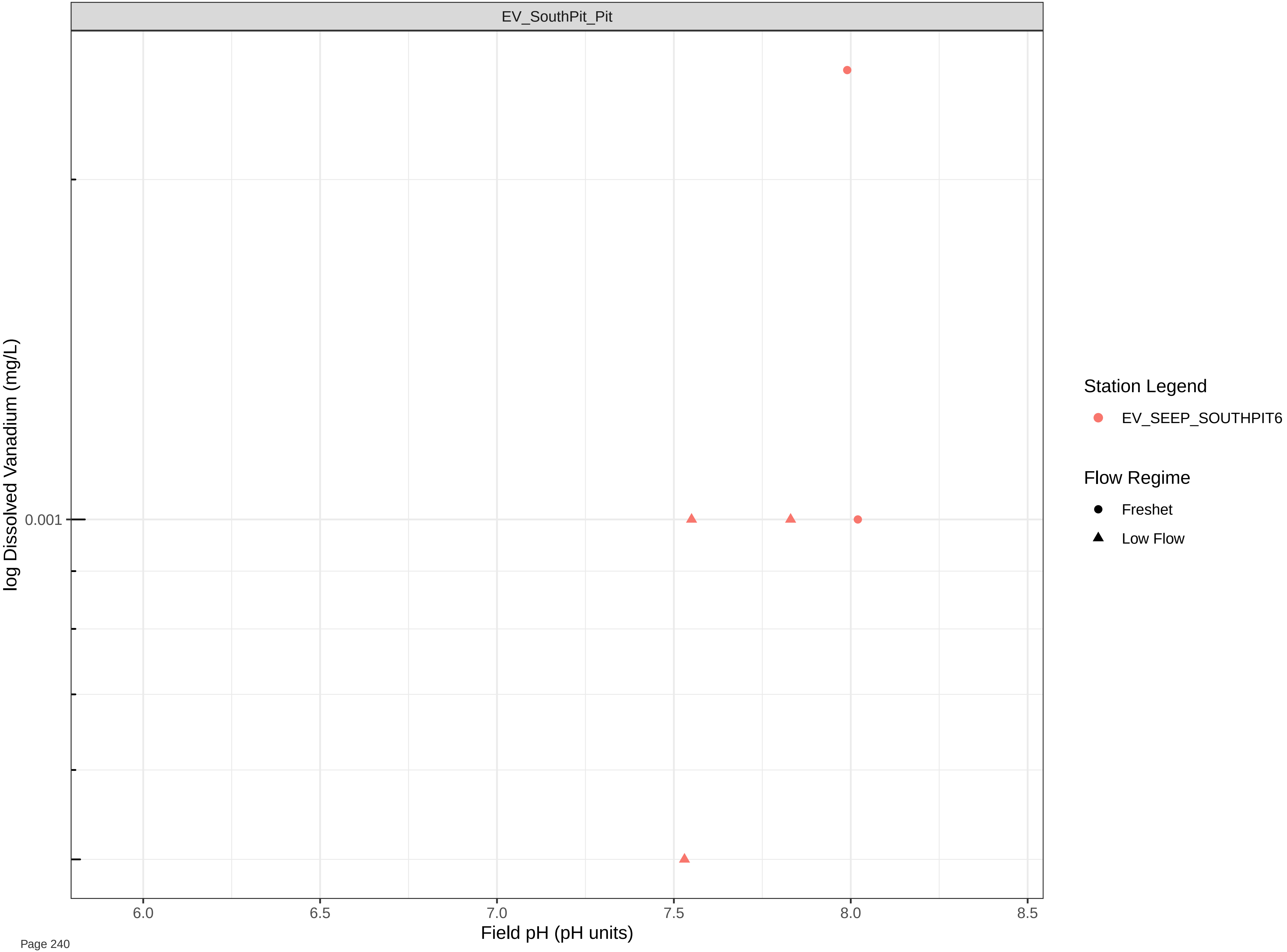

EV_CCR/TP
log Dissolved Vanadium (mg/L)
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

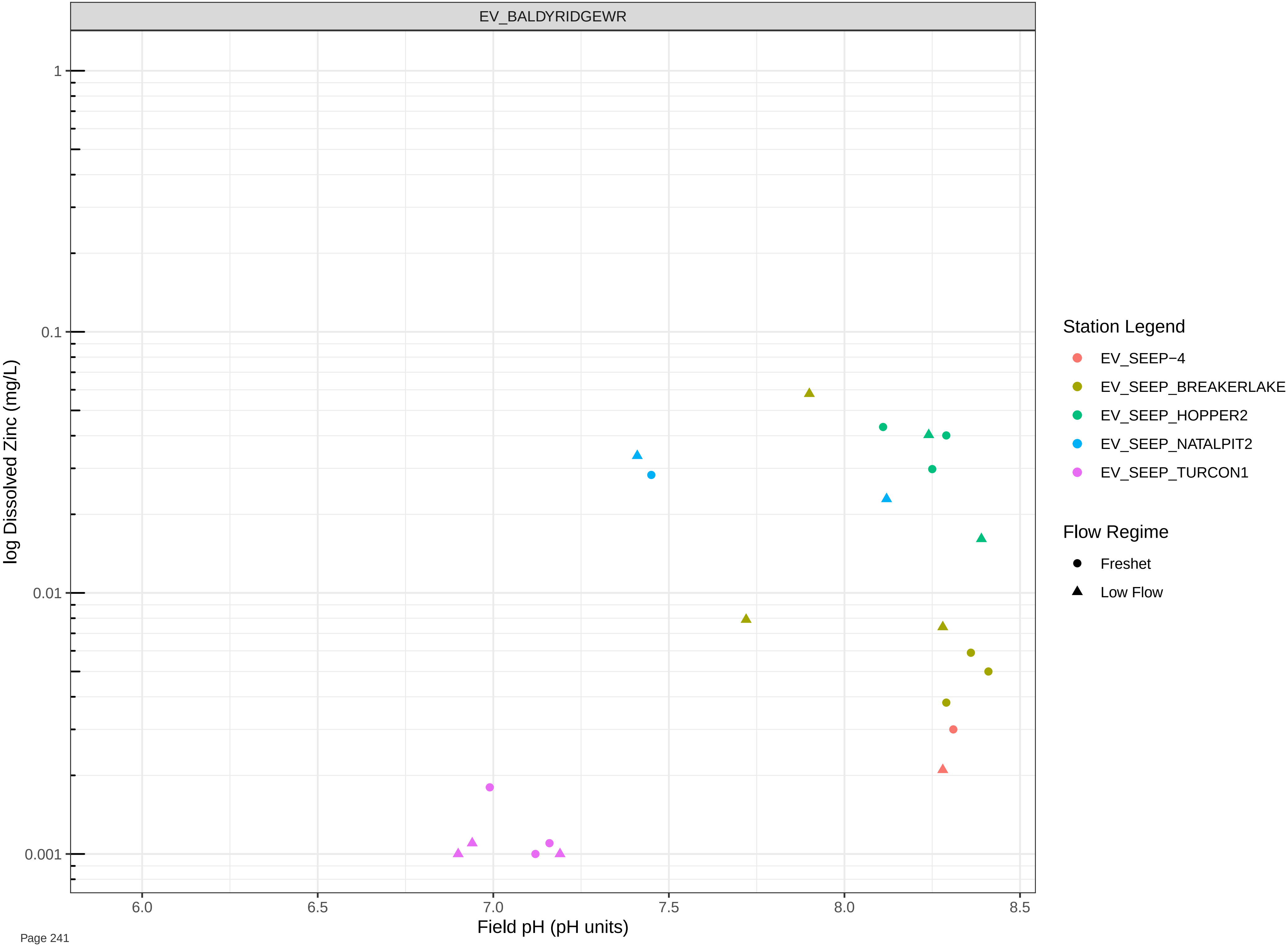

EV_CEDARWR
log Dissolved Vanadium (mg/L)
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

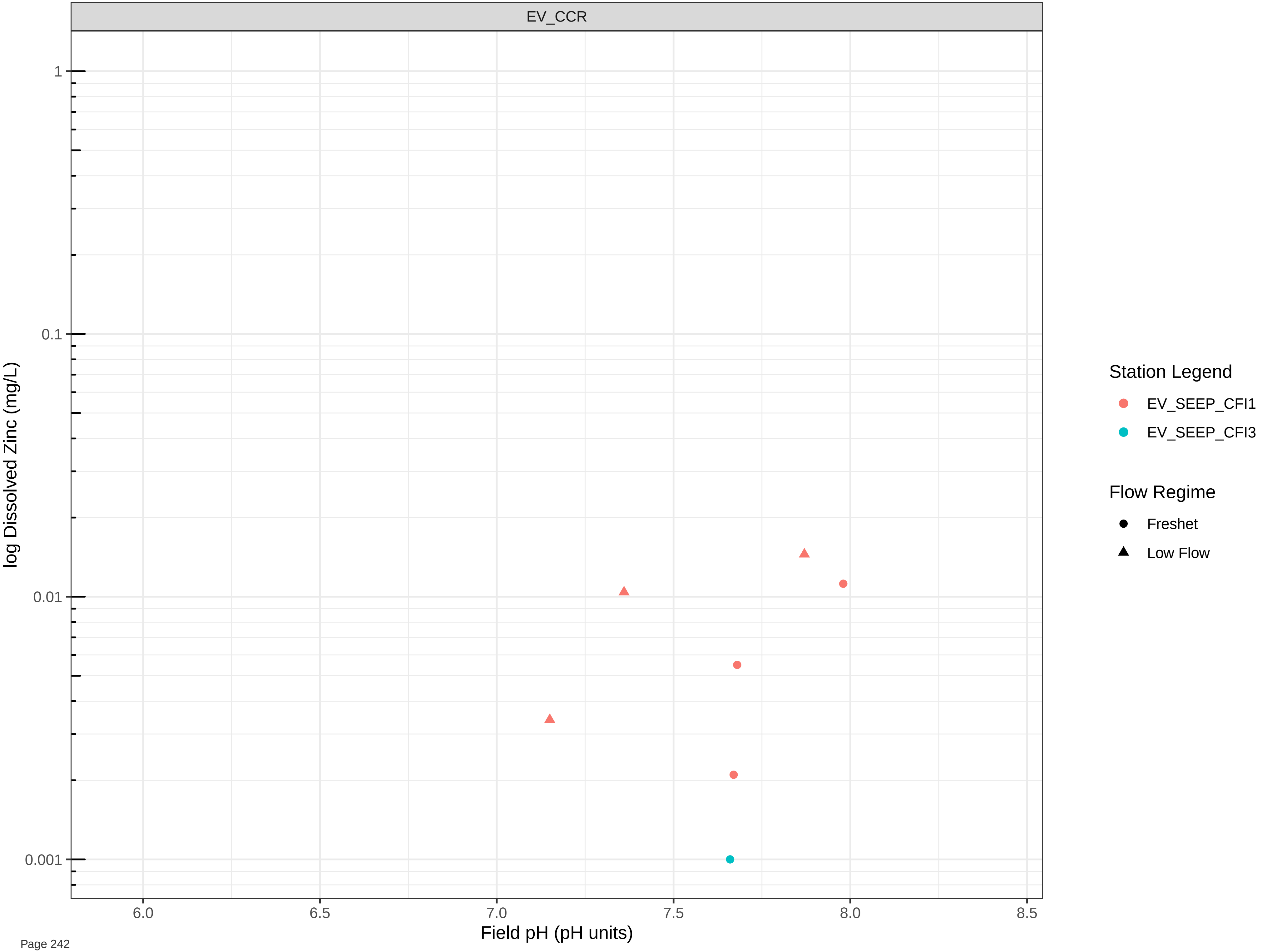

EV_Erickson_WR
log Dissolved Vanadium (mg/L)
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

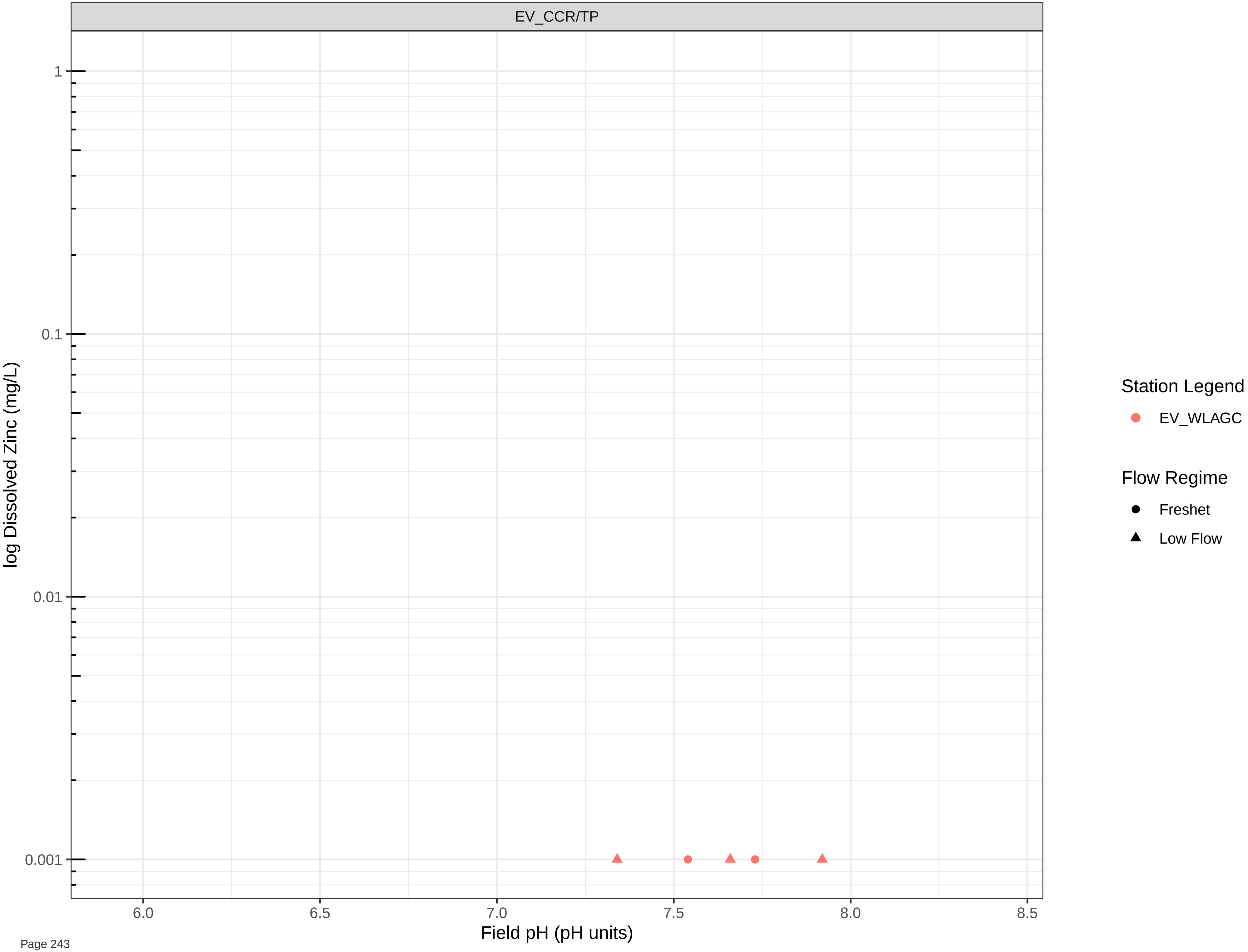

EV_PLANT
log Dissolved Vanadium (mg/L)
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

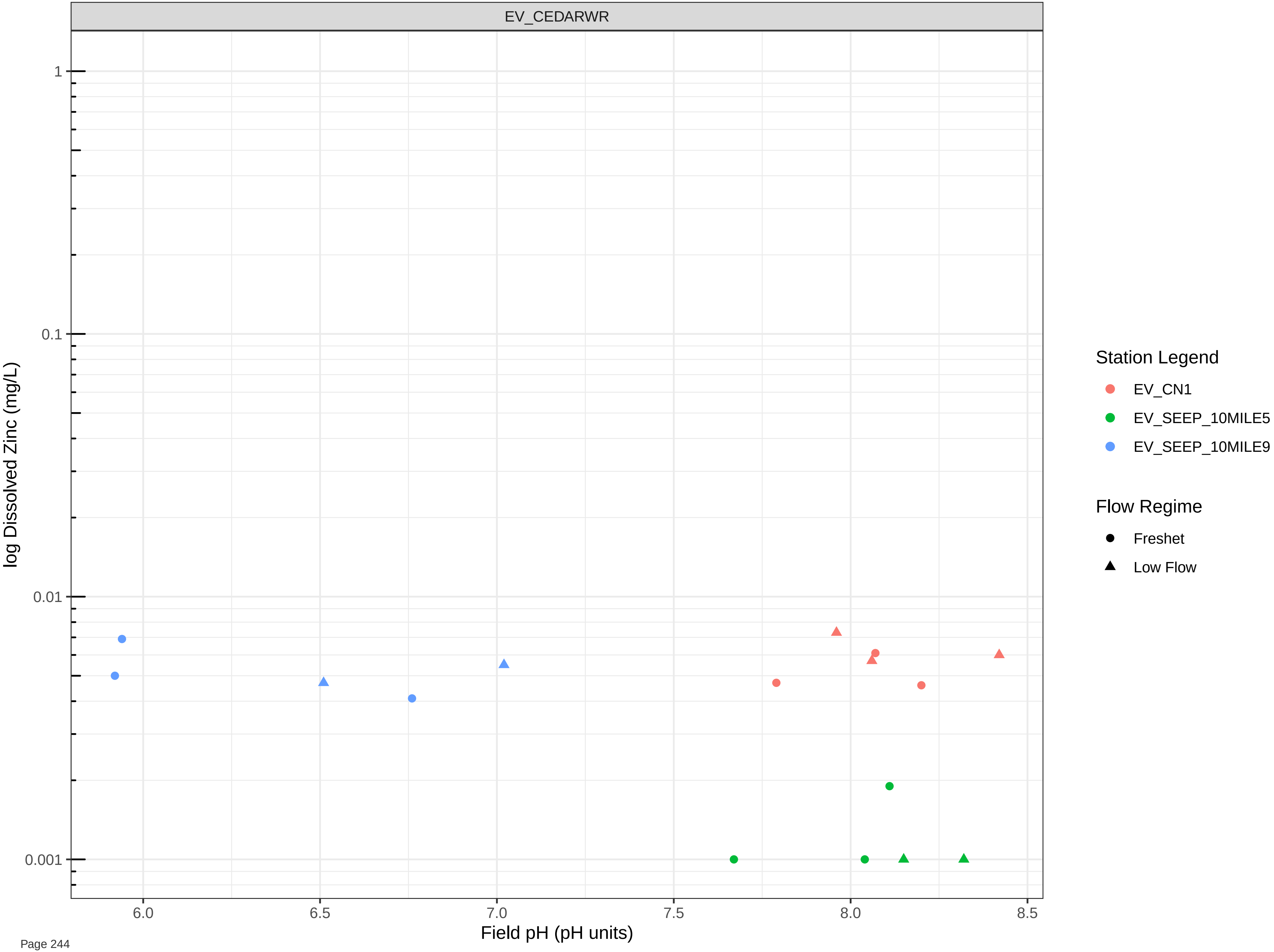

EV_SOUTHSLOPE
log Dissolved Vanadium (mg/L)
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

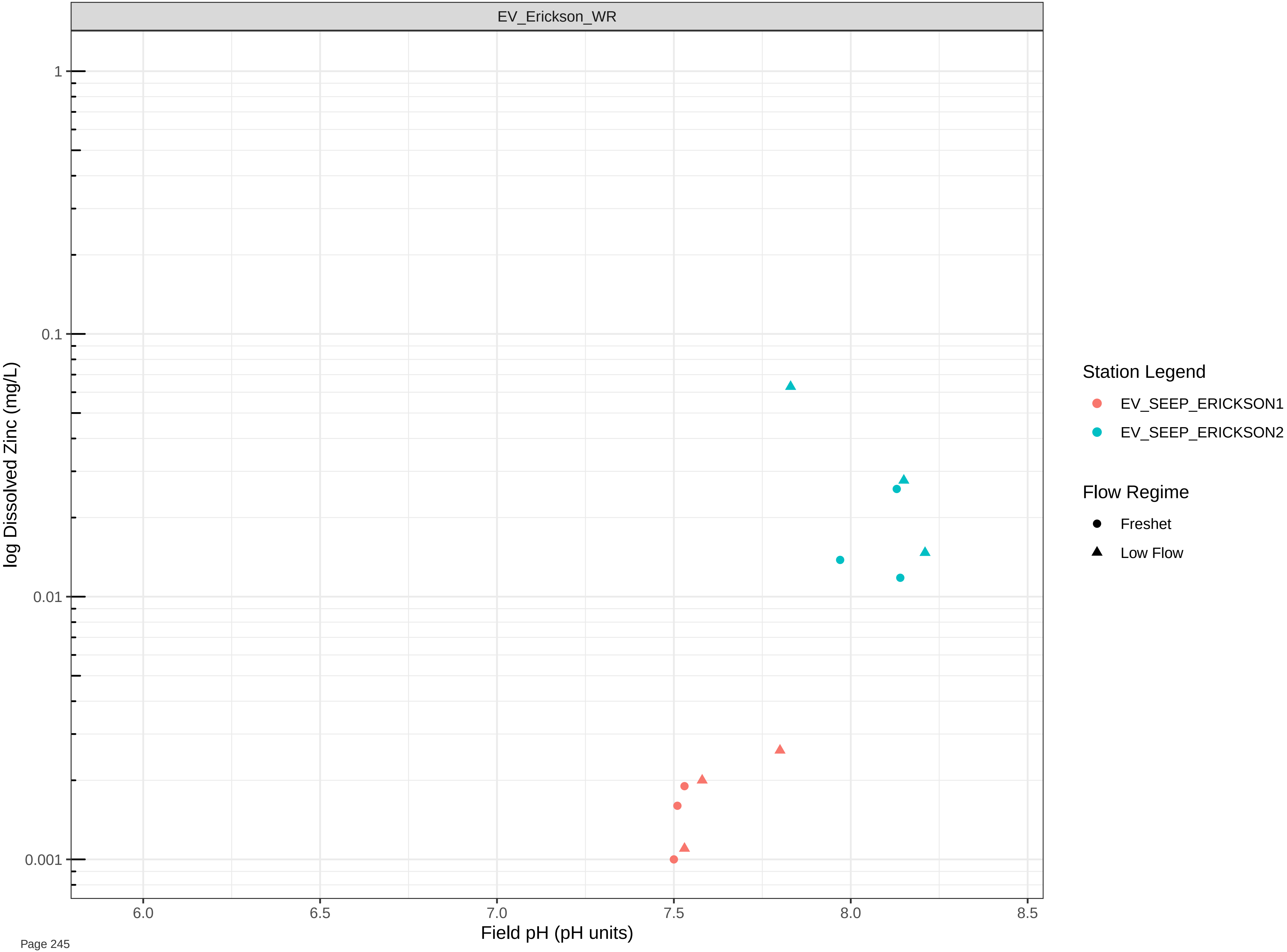

EV_SouthPit_Pit
log Dissolved Vanadium (mg/L)
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

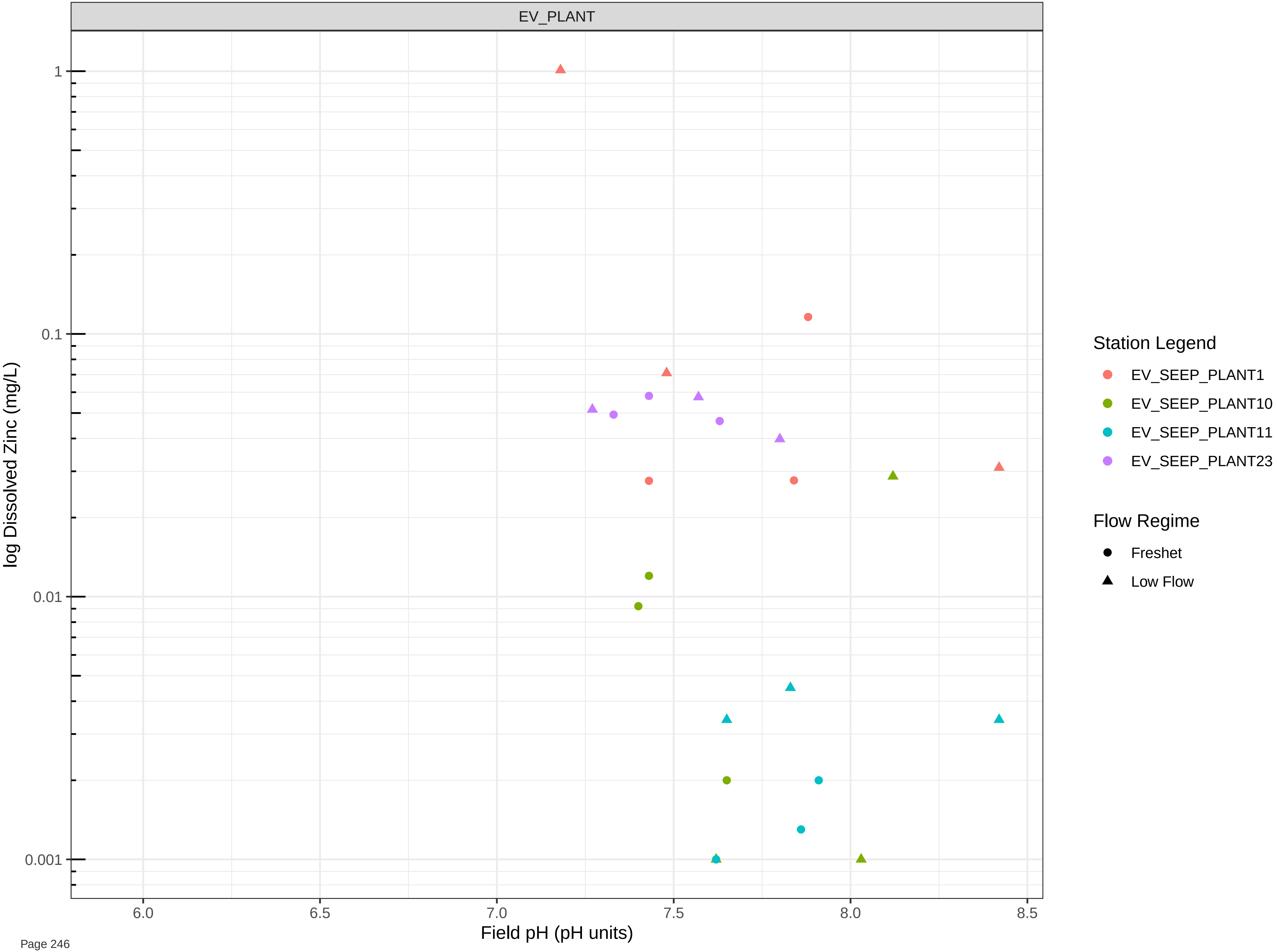

EV_BALDYRIDGEWR
log Dissolved Zinc (mg/L)
1
0.1
0.01
0.001
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
● EV_SEEP−4
● EV_SEEP_BREAKERLAKE
● EV_SEEP_HOPPER2
● EV_SEEP_NATALPIT2
● EV_SEEP_TURCON1
Flow Regime
● Freshet
▲ Low Flow

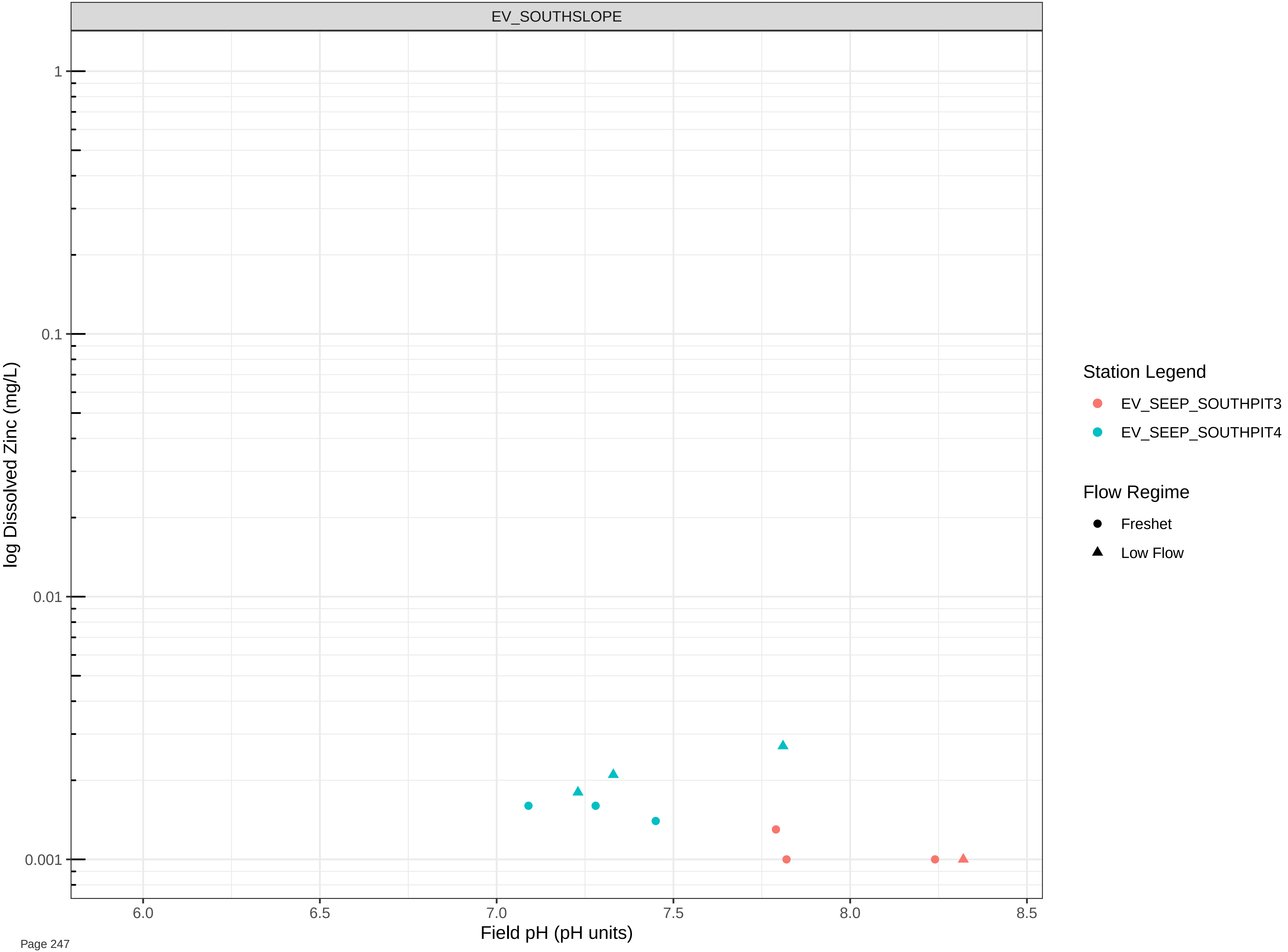

EV_CCR
log Dissolved Zinc (mg/L)
1
0.1
0.01
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

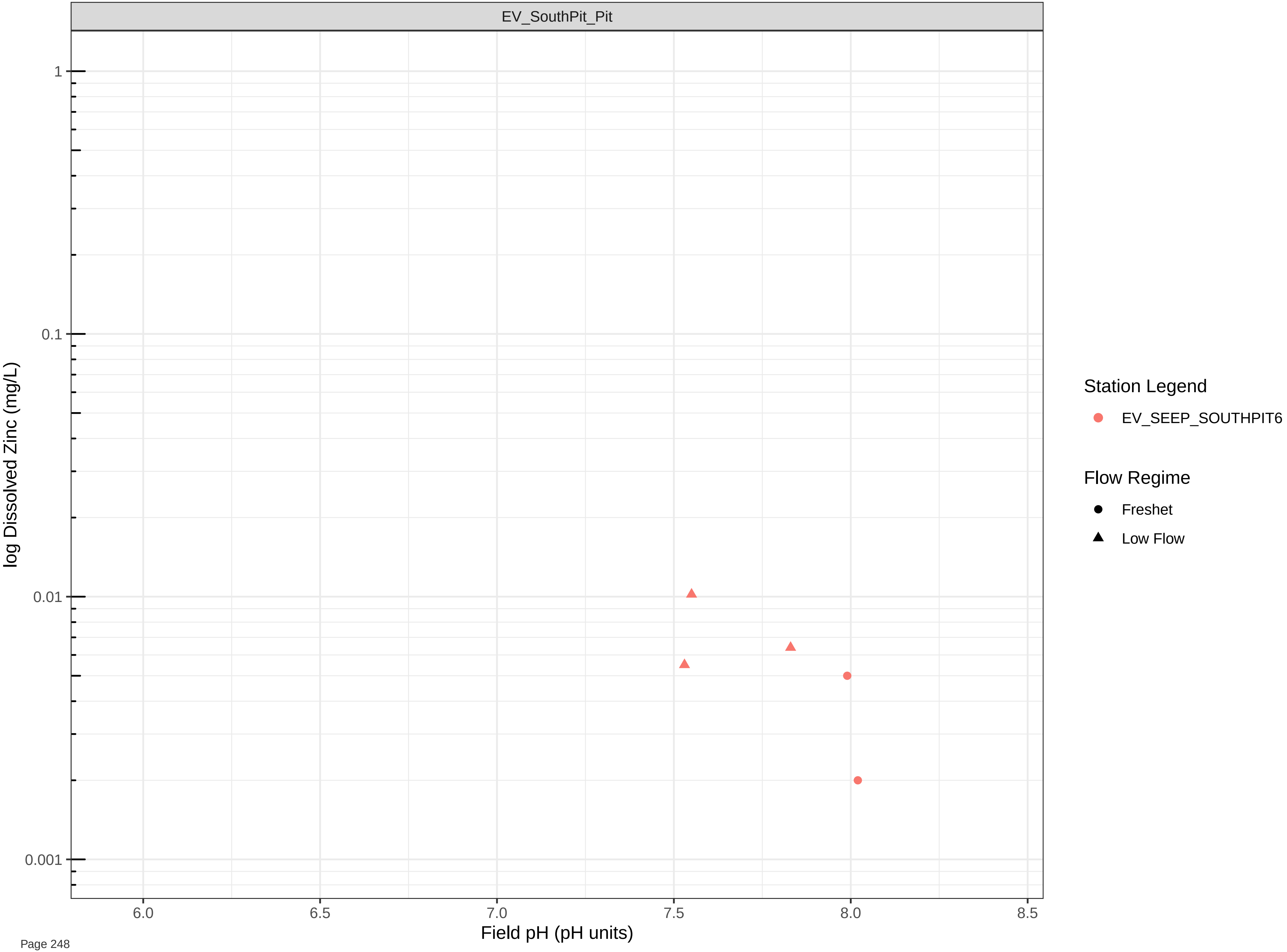

EV_CCR/TP
1
0.1
0.01
0.001
log Dissolved Zinc (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

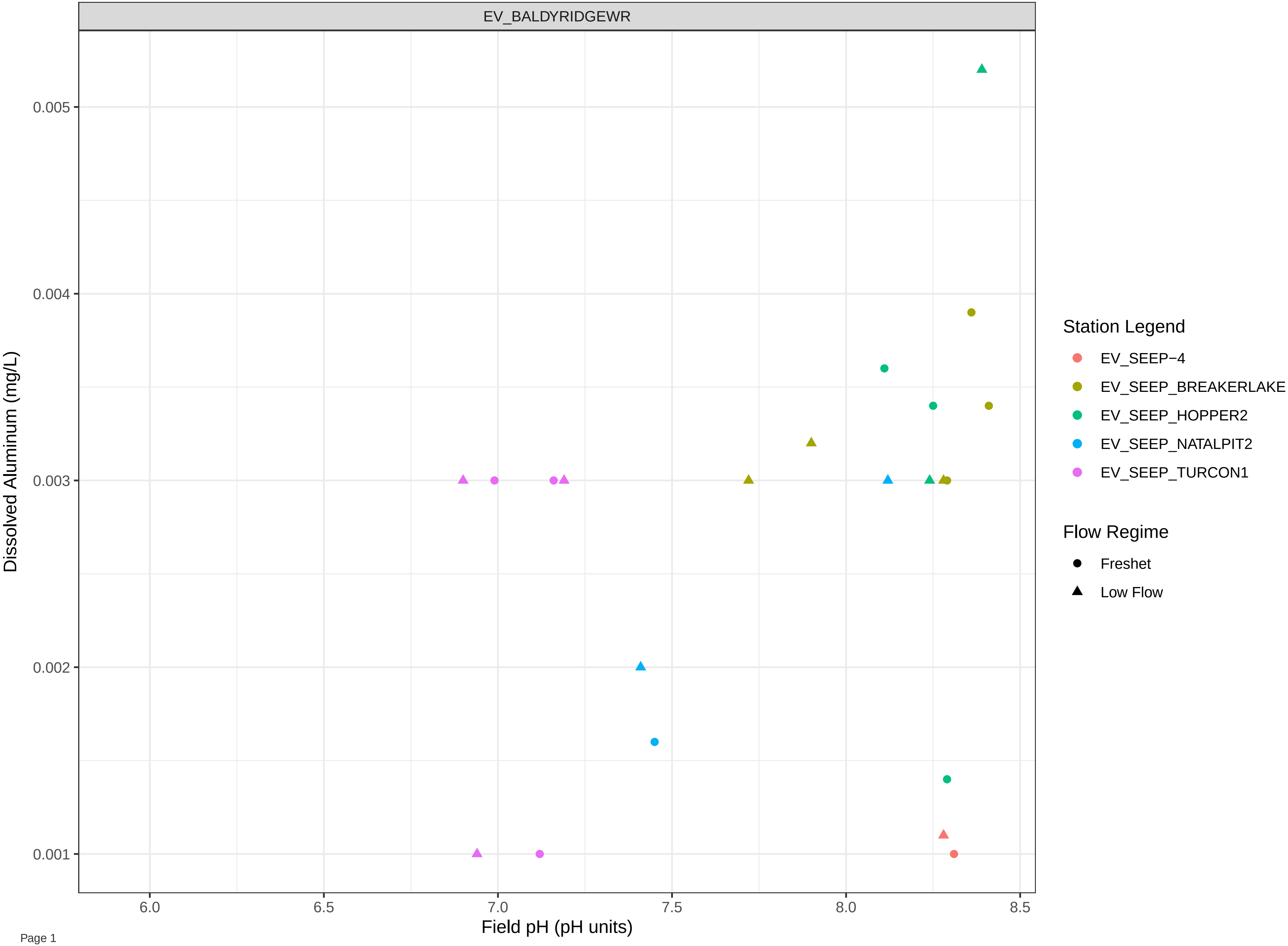

EV_CEDARWR
log Dissolved Zinc (mg/L)
1
0.1
0.01
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

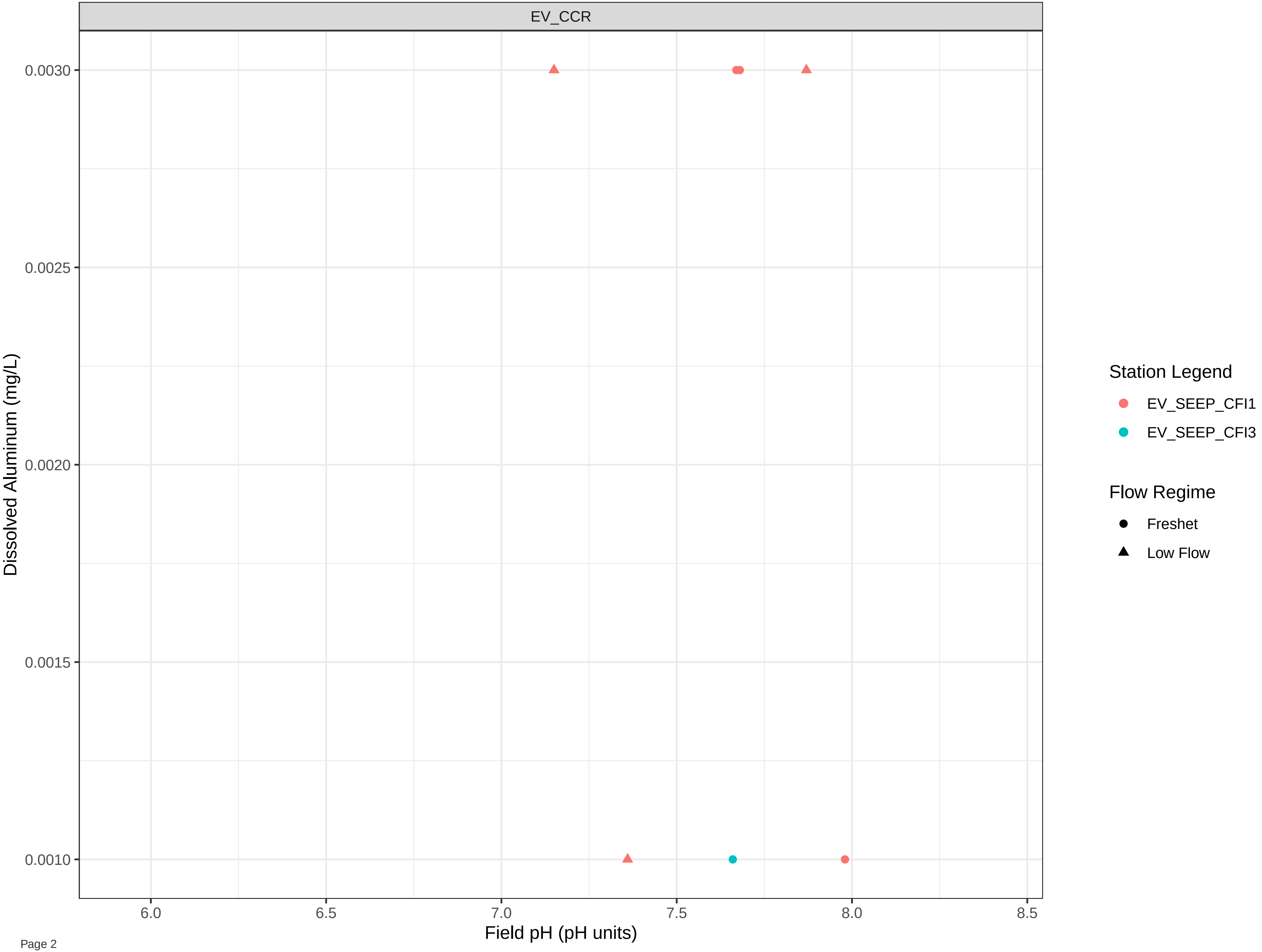

EV_Erickson_WR
log Dissolved Zinc (mg/L)
1
0.1
0.01
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

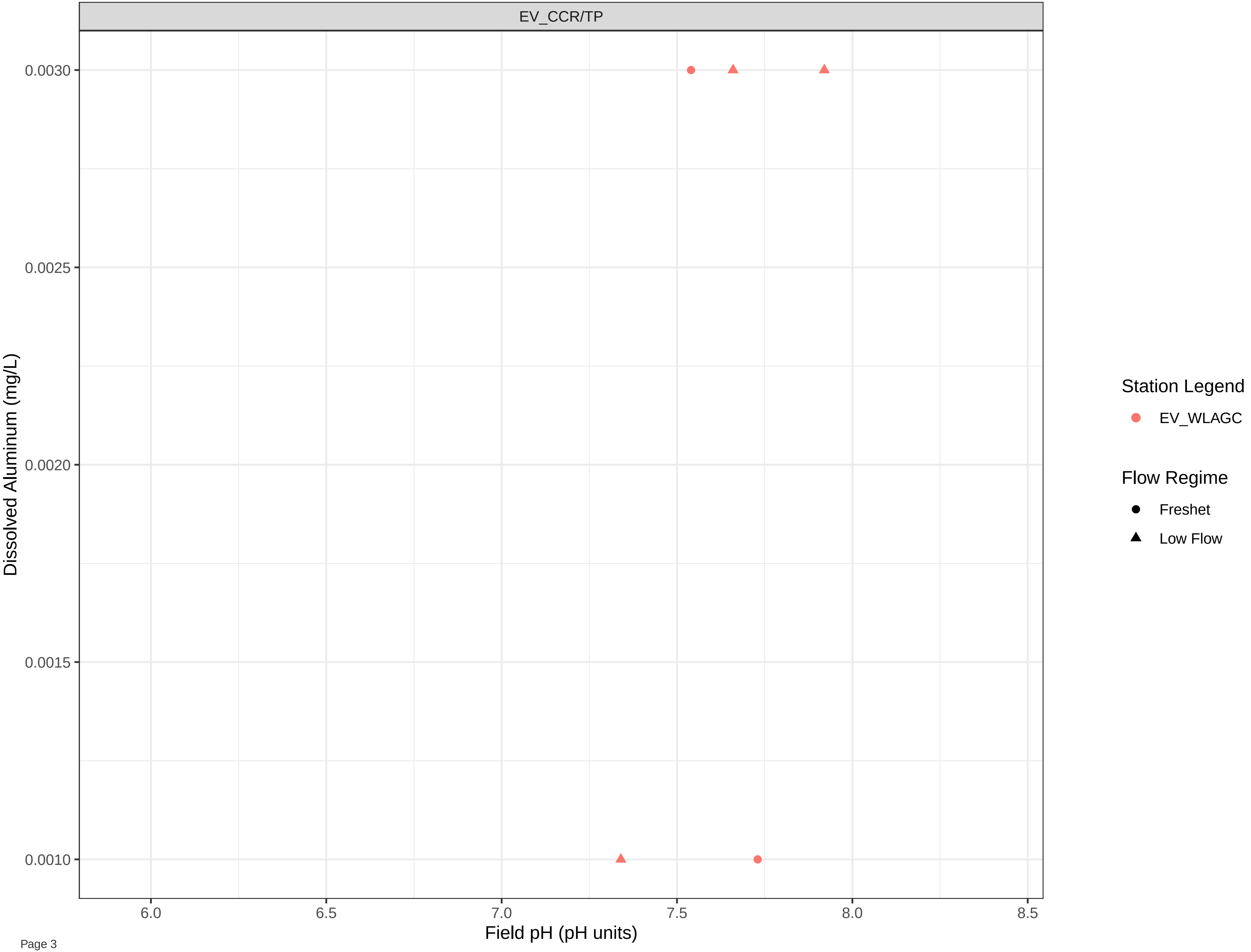

EV_PLANT
log Dissolved Zinc (mg/L)
1
0.1
0.01
0.001
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

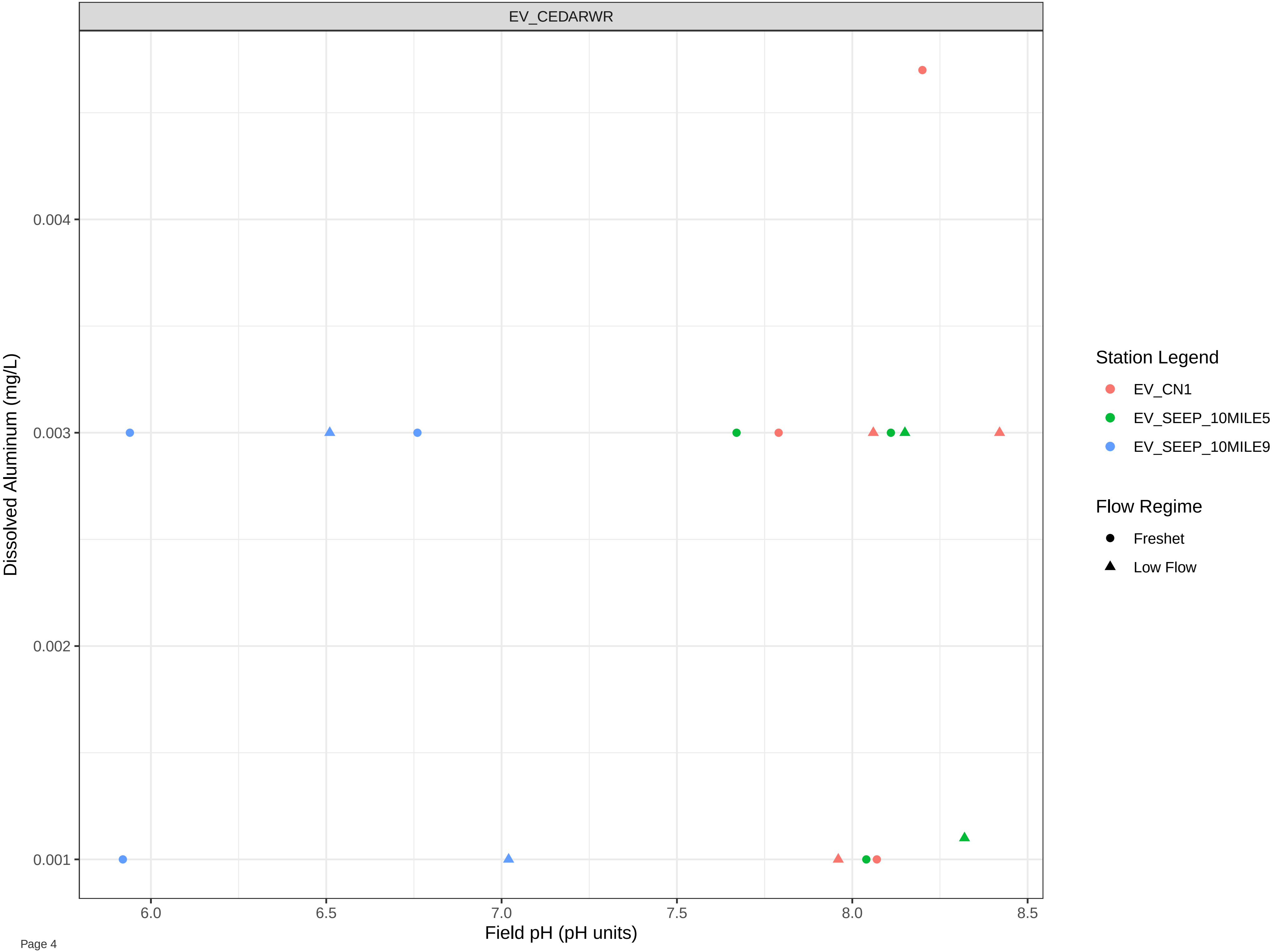

EV_SOUTHSLOPE
log Dissolved Zinc (mg/L)
1
0.1
0.01
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

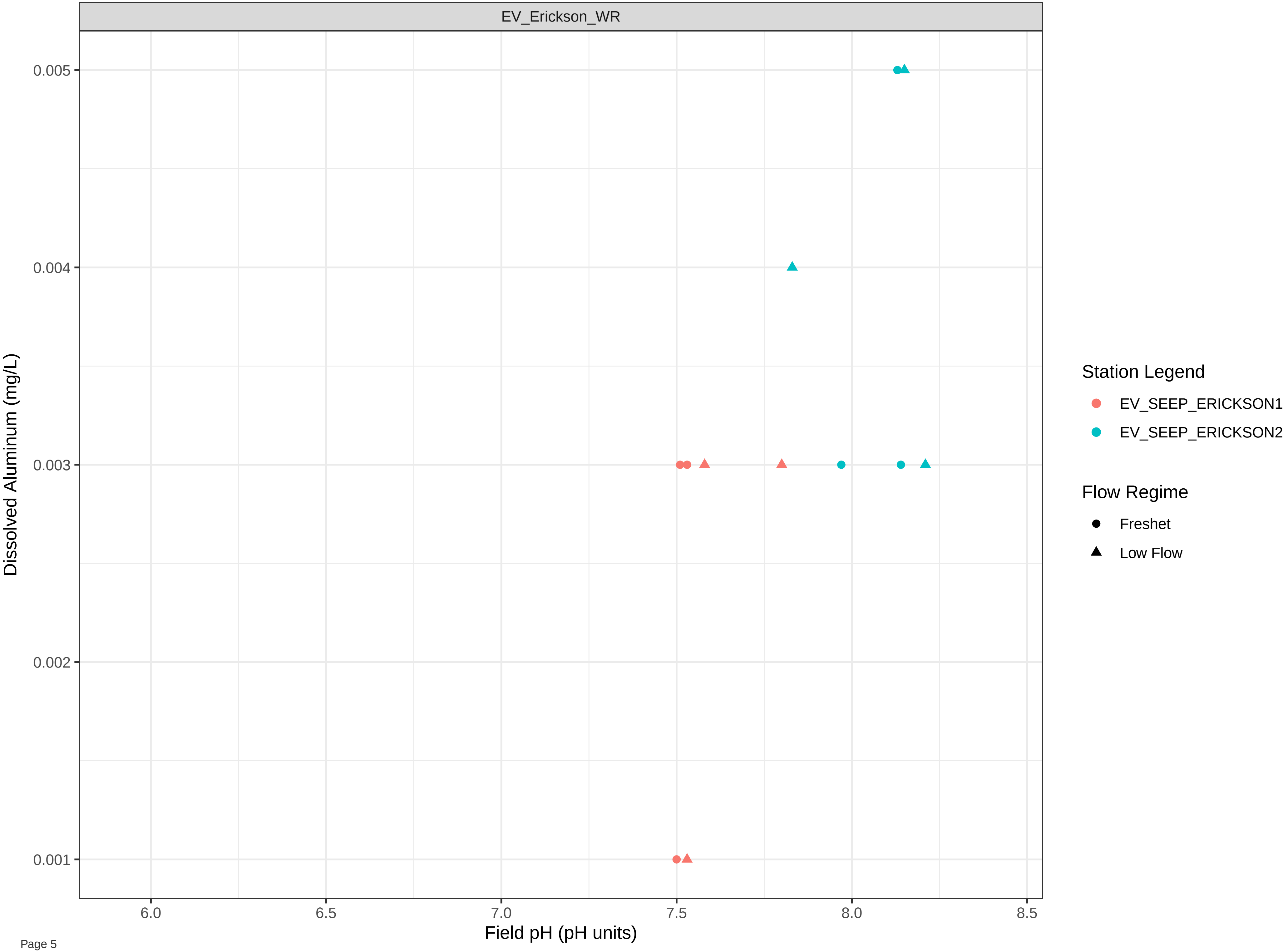

EV_SouthPit_Pit
log Dissolved Zinc (mg/L)
1
0.1
0.01
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

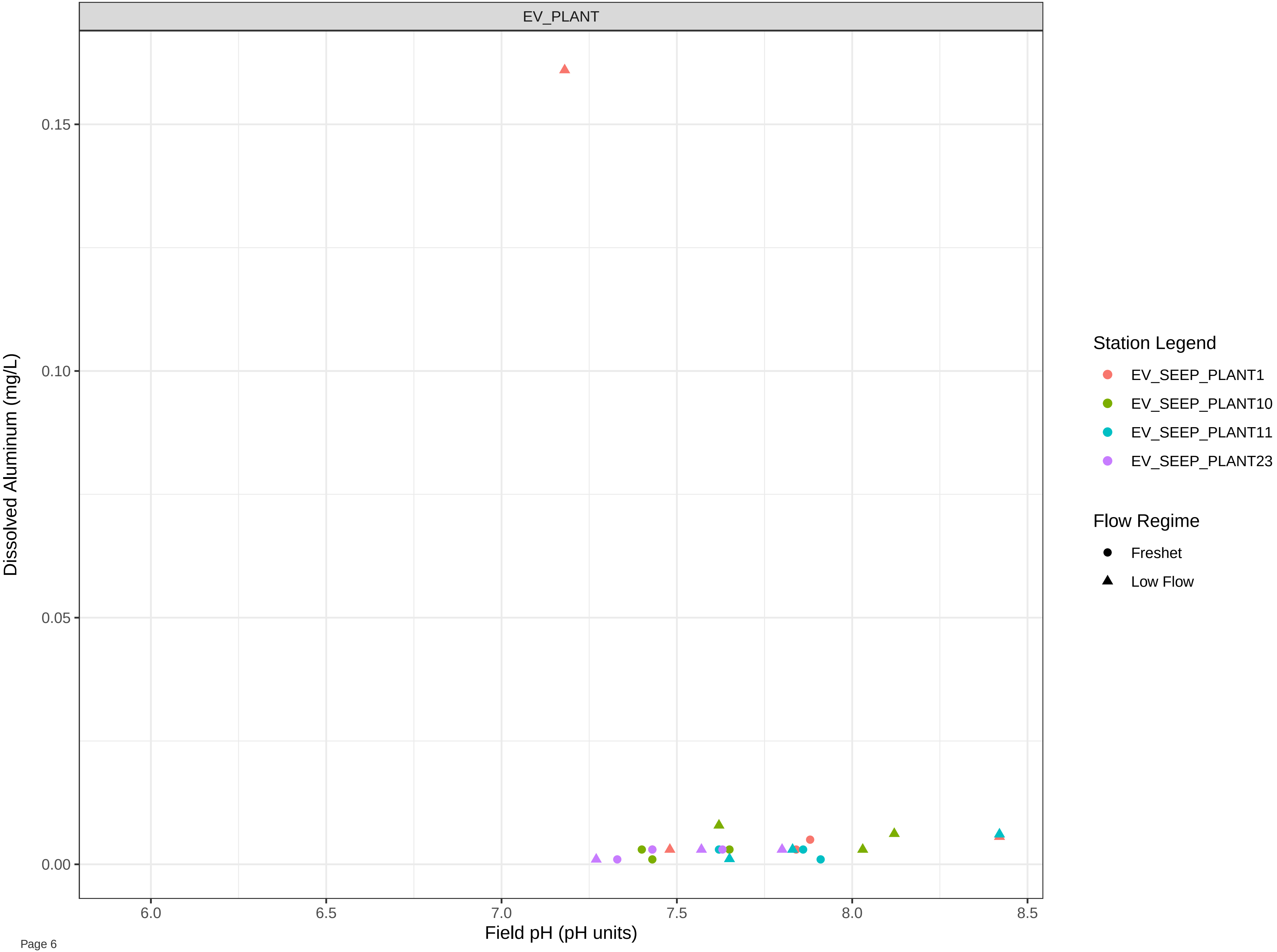

EV_BALDYRIDGEWR
Dissolved Aluminum (mg/L)
0.005
0.004
0.003
0.002
0.001
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

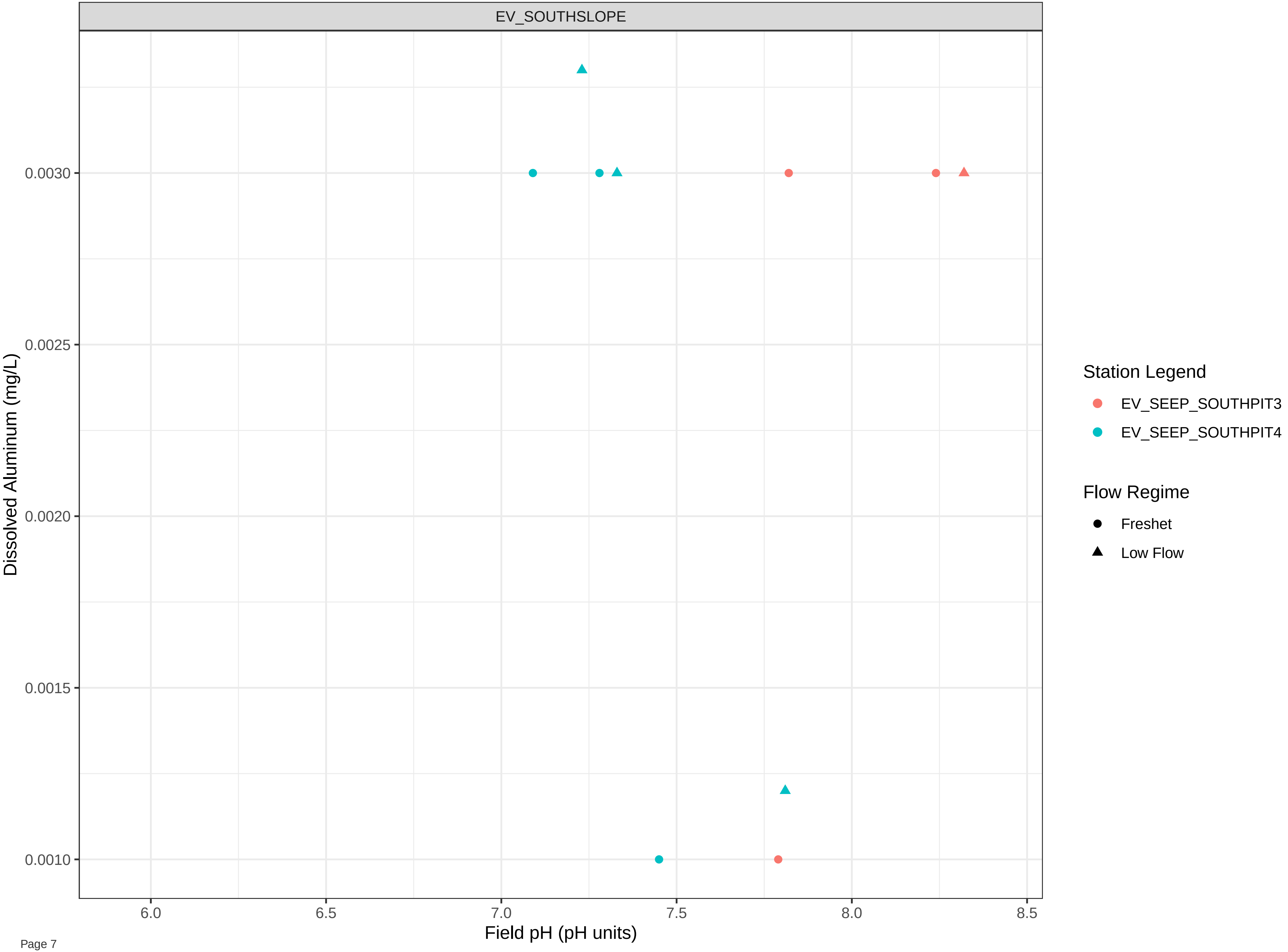

EV_CCR
Dissolved Aluminum (mg/L)
0.0030
0.0025
0.0020
0.0015
0.0010
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

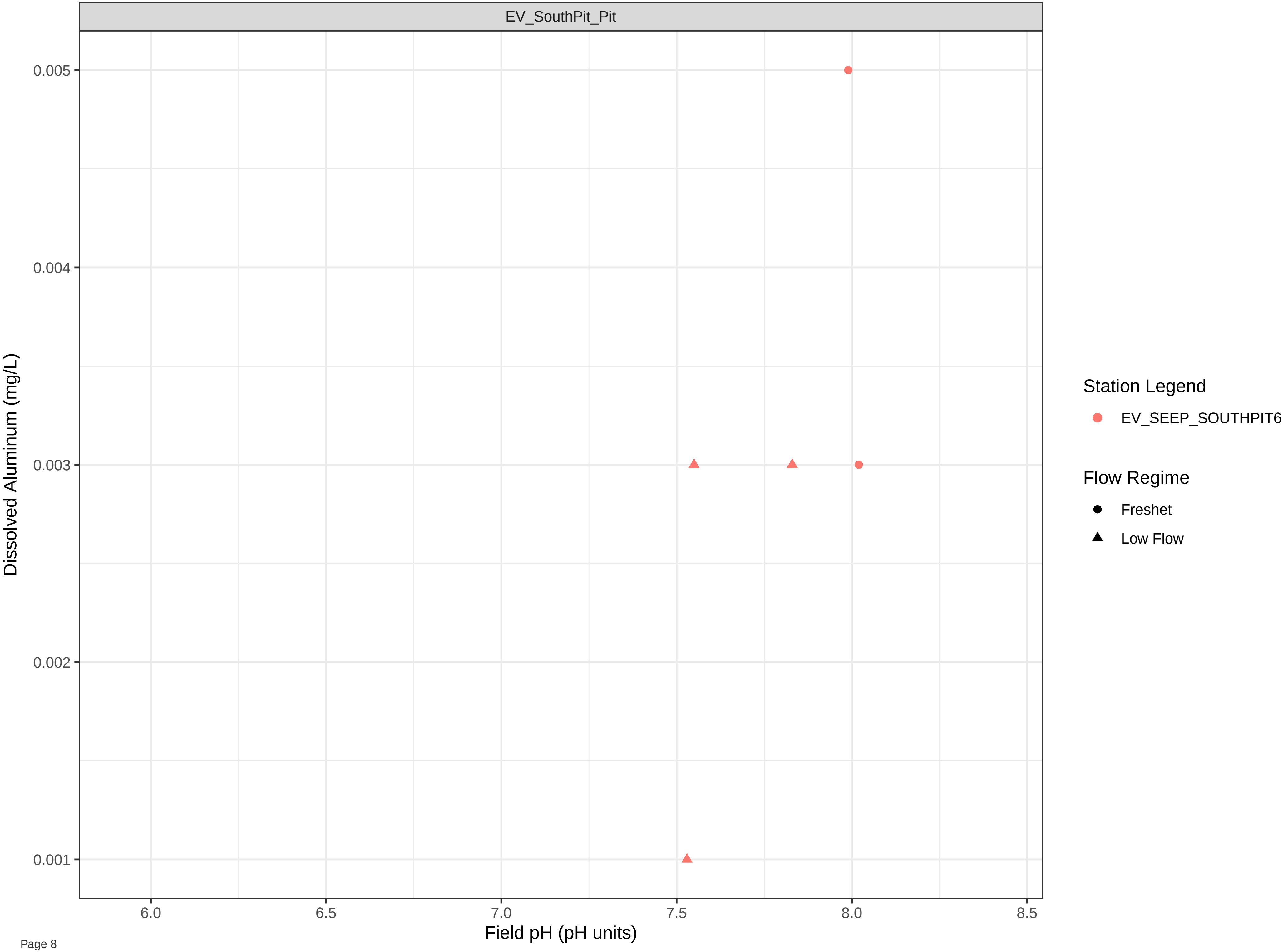

EV_CCR/TP
Dissolved Aluminum (mg/L)
0.0030
0.0025
0.0020
0.0015
0.0010
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

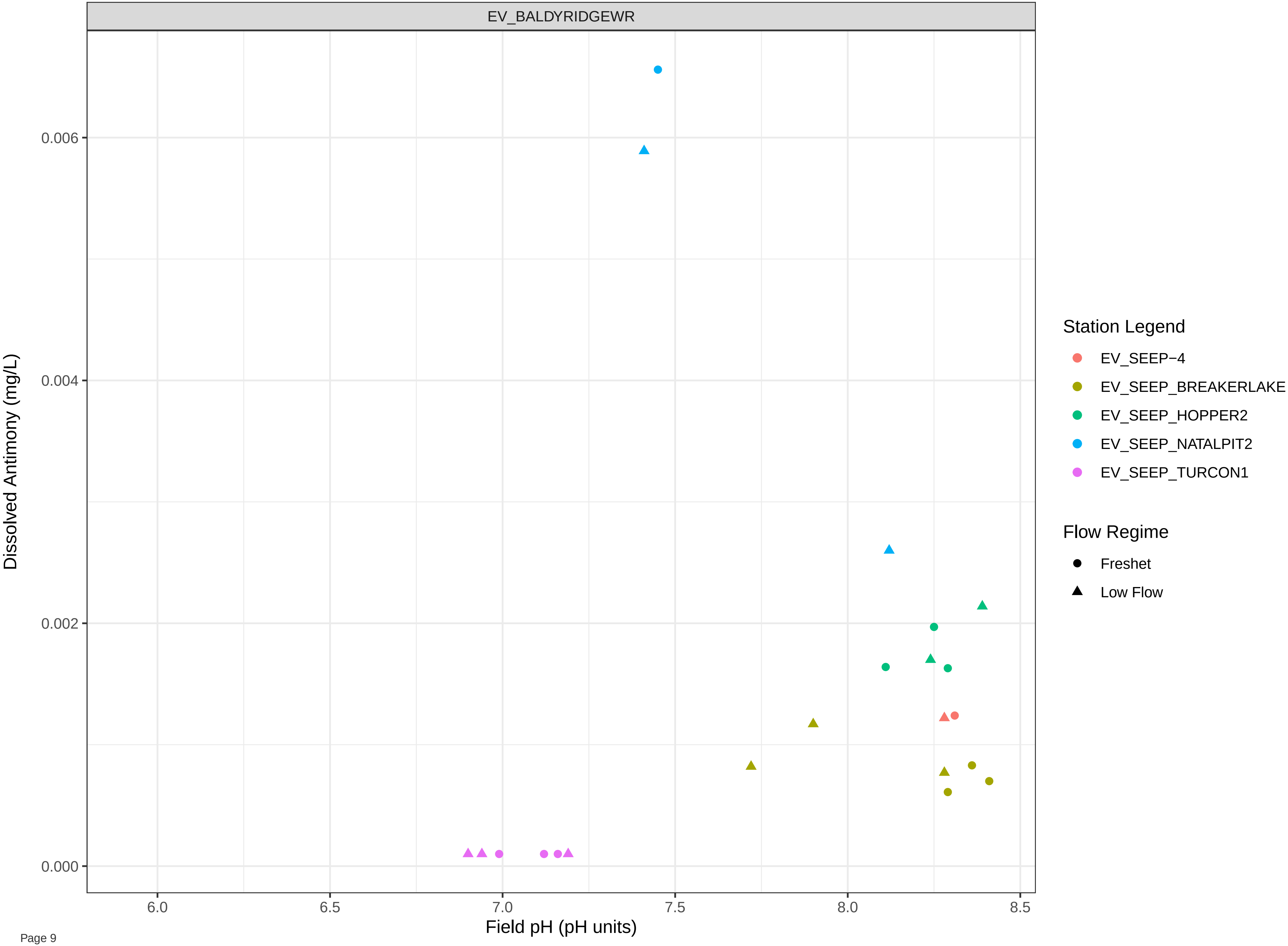

EV_CEDARWR
Dissolved Aluminum (mg/L)
0.004
0.003
0.002
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

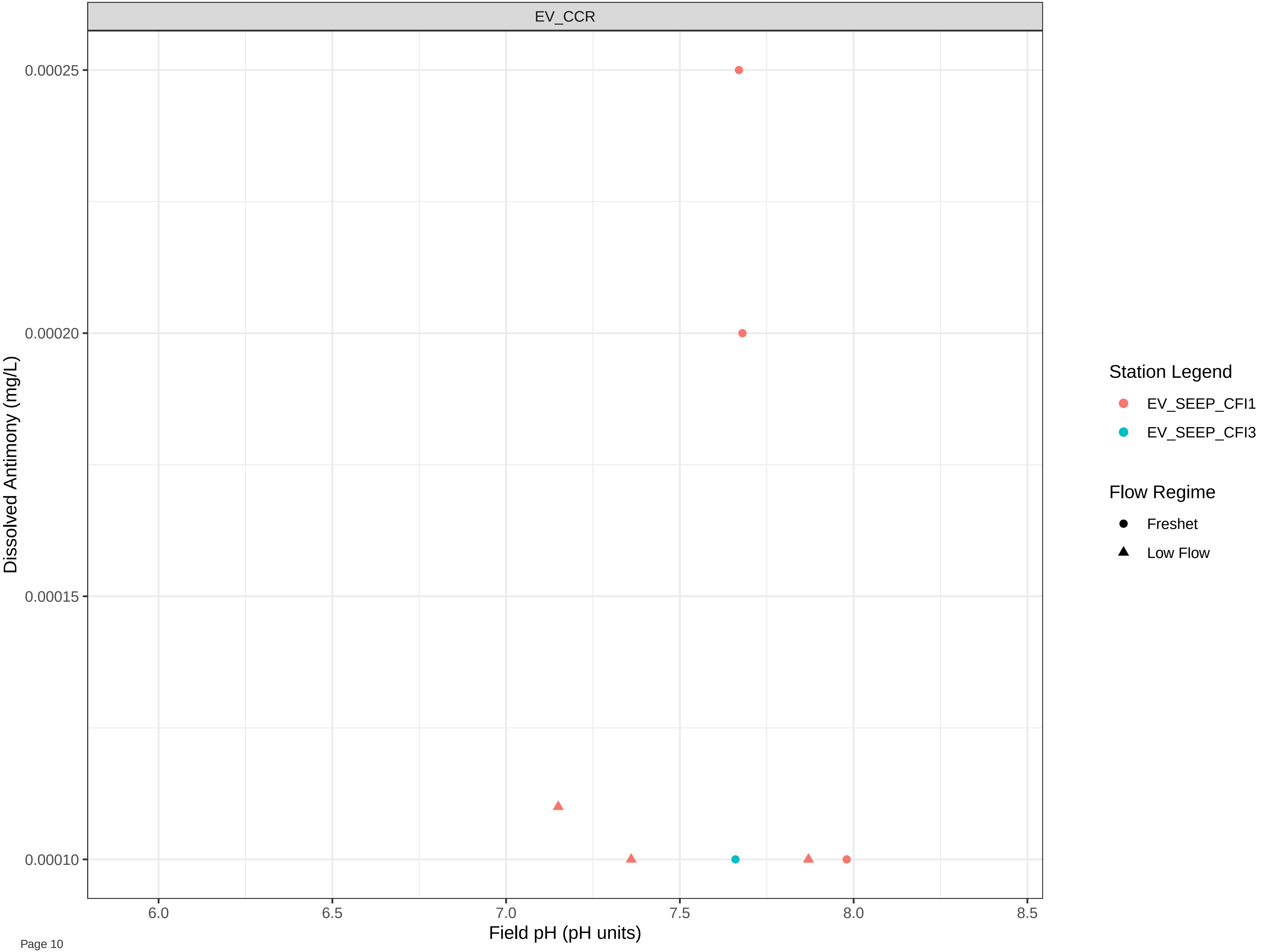

EV_Erickson_WR
Dissolved Aluminum (mg/L)
0.005
0.004
0.003
0.002
0.001
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

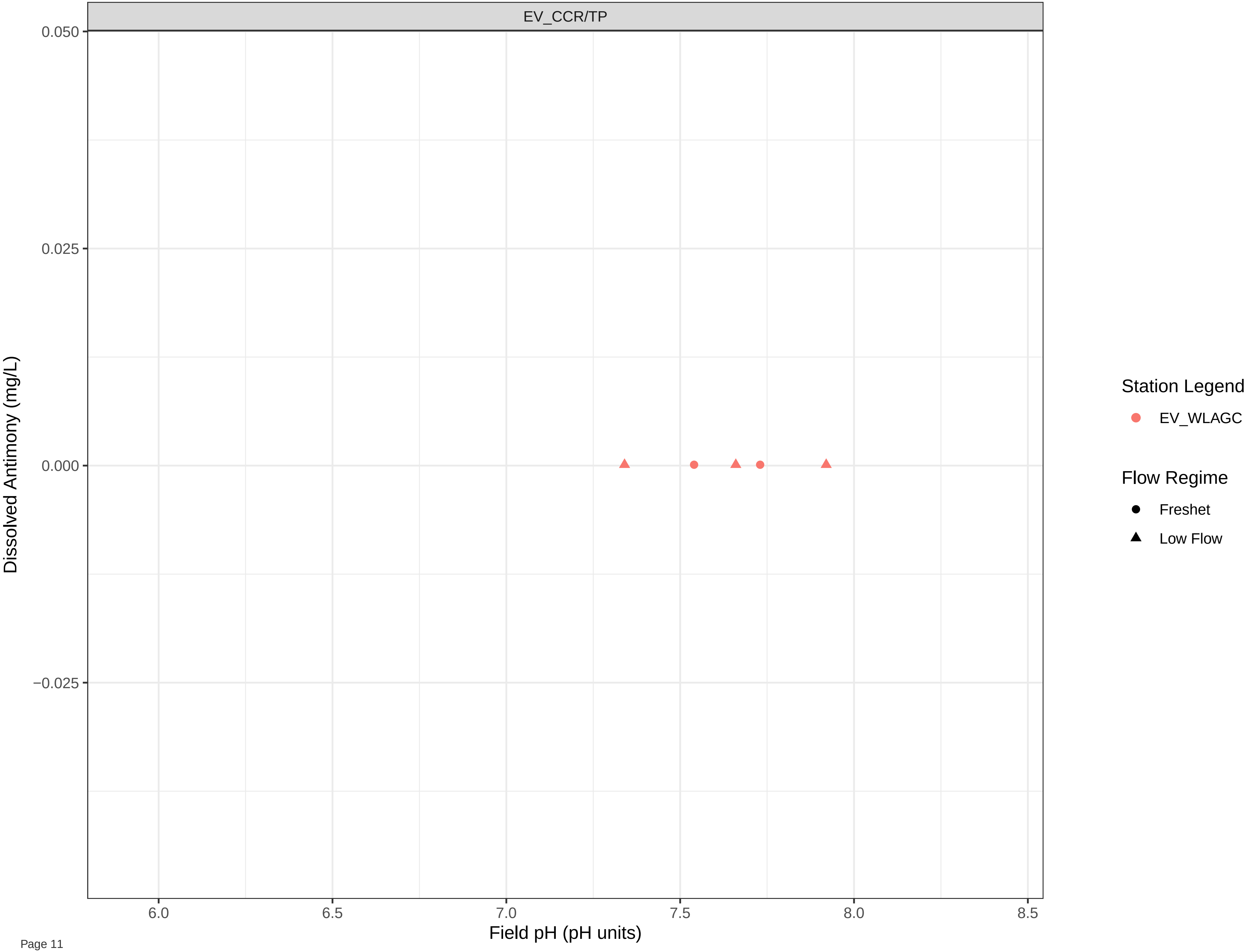

EV_PLANT
Dissolved Aluminum (mg/L)
0.15
0.10
0.05
0.00
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

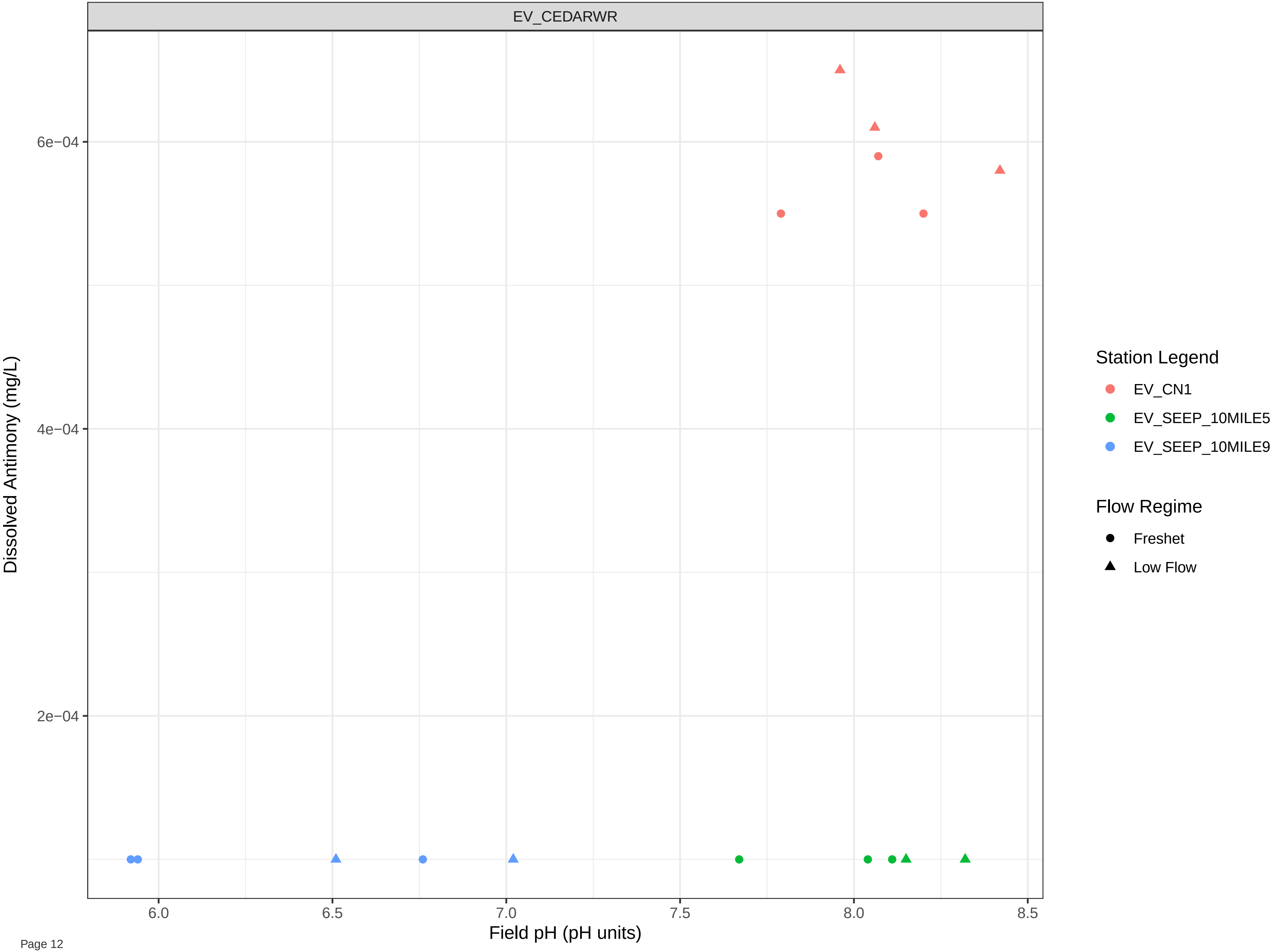

EV_SOUTHSLOPE
Dissolved Aluminum (mg/L)
0.0030
0.0025
0.0020
0.0015
0.0010
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

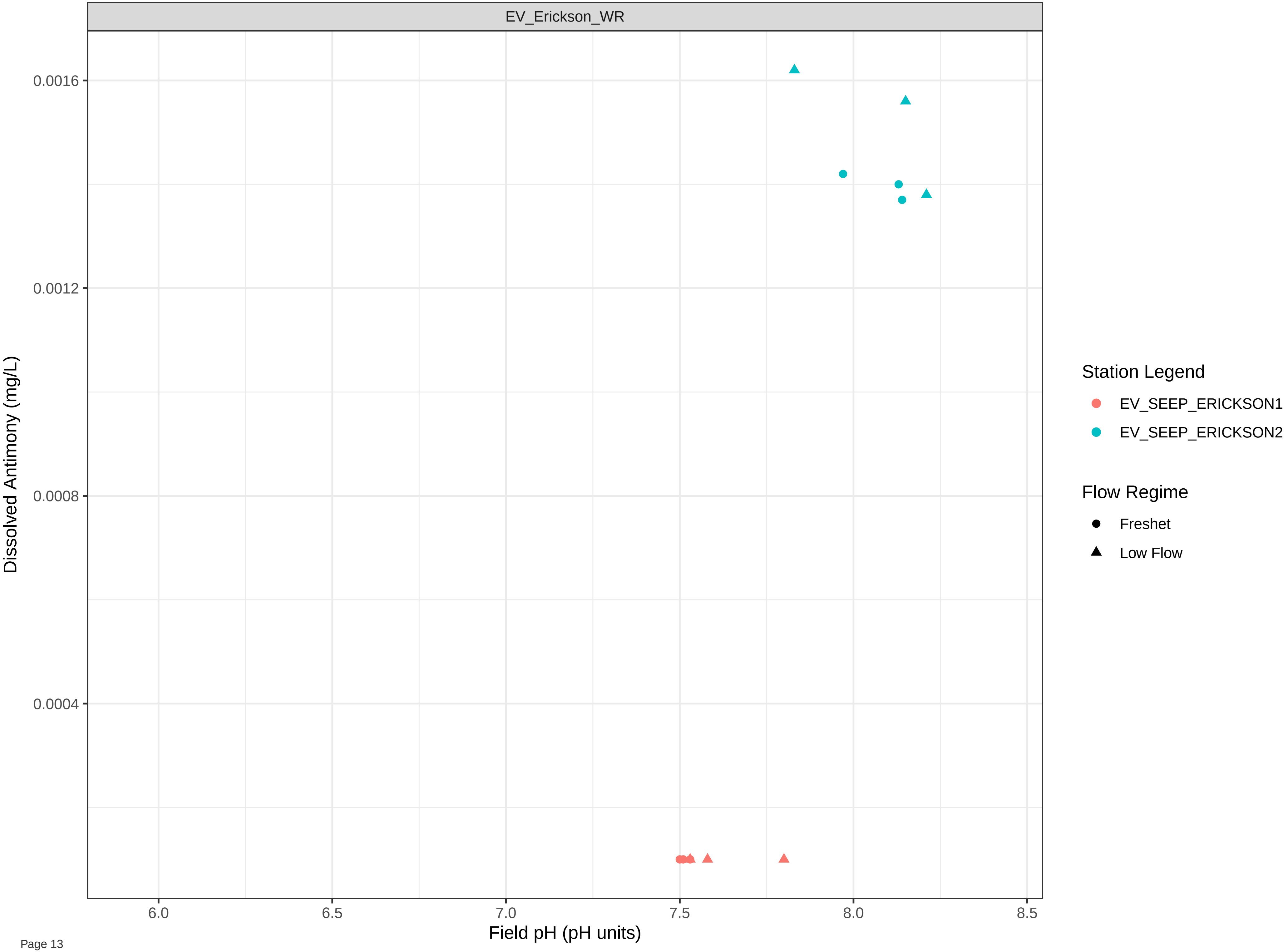

EV_SouthPit_Pit
Dissolved Aluminum (mg/L)
0.005
0.004
0.003
0.002
0.001
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

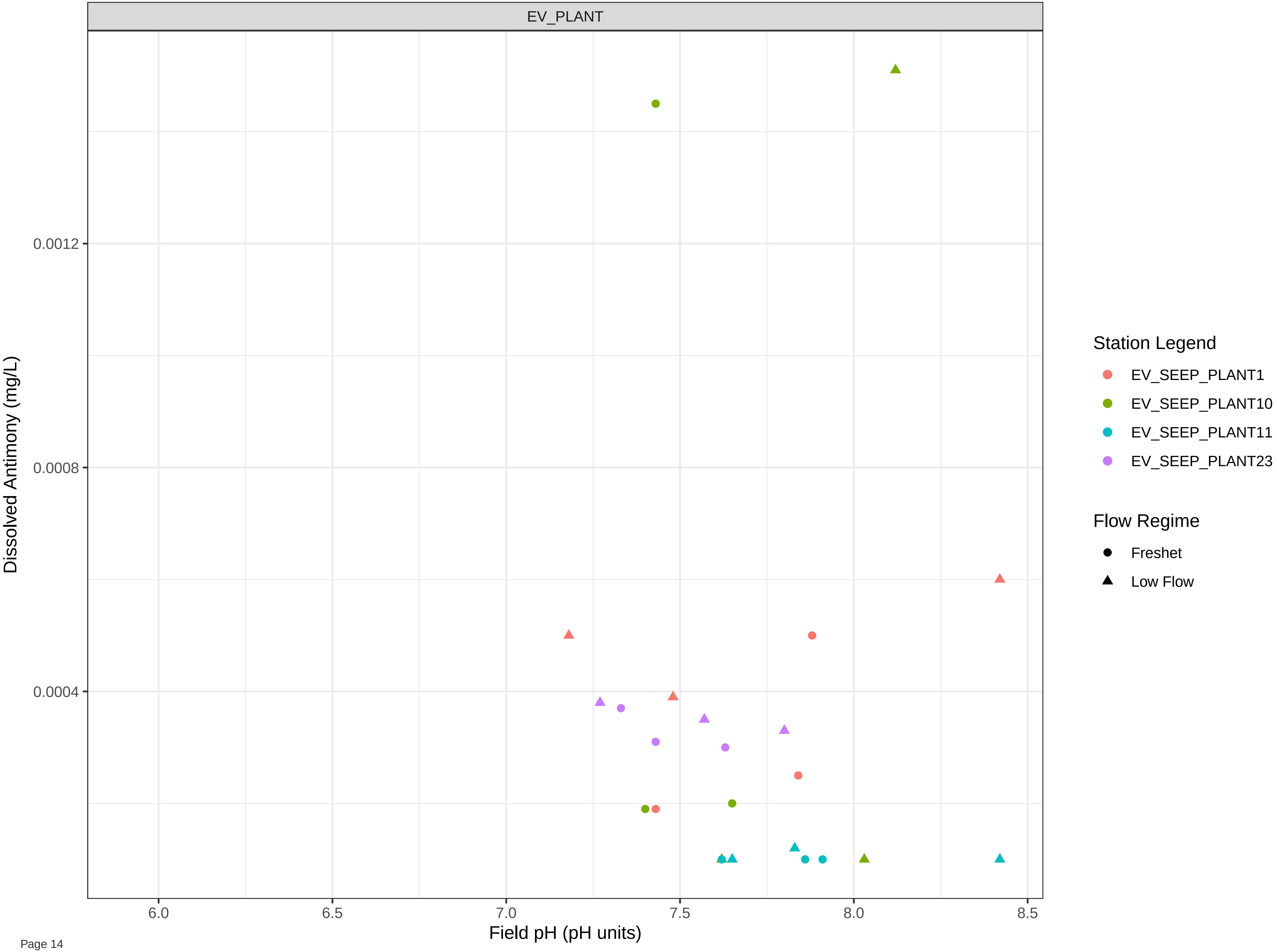

EV_BALDYRIDGEWR
Dissolved Antimony (mg/L)
0.006
0.004
0.002
0.000
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

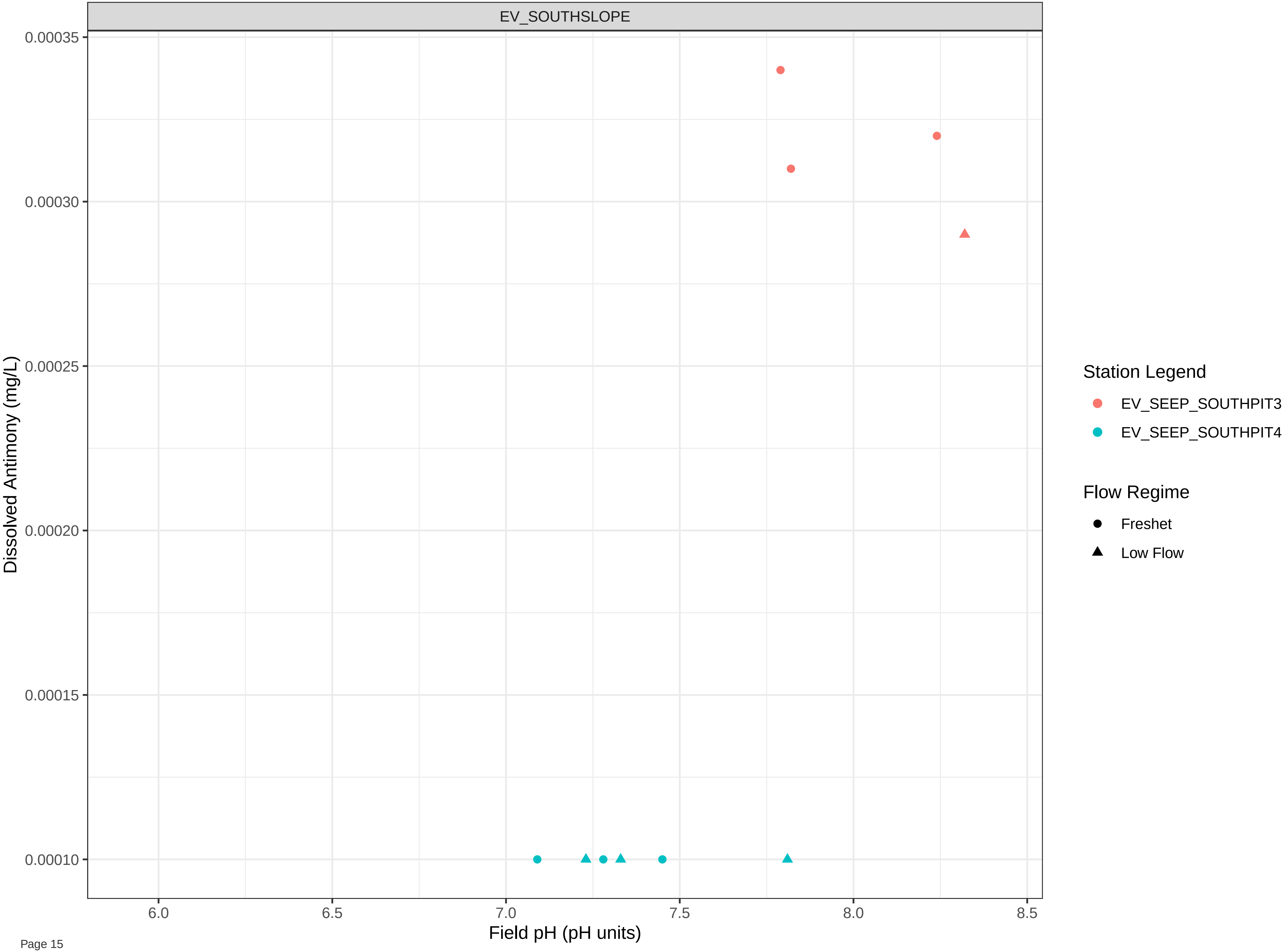

EV_CCR
Dissolved Antimony (mg/L)
0.00025
0.00020
0.00015
0.00010
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

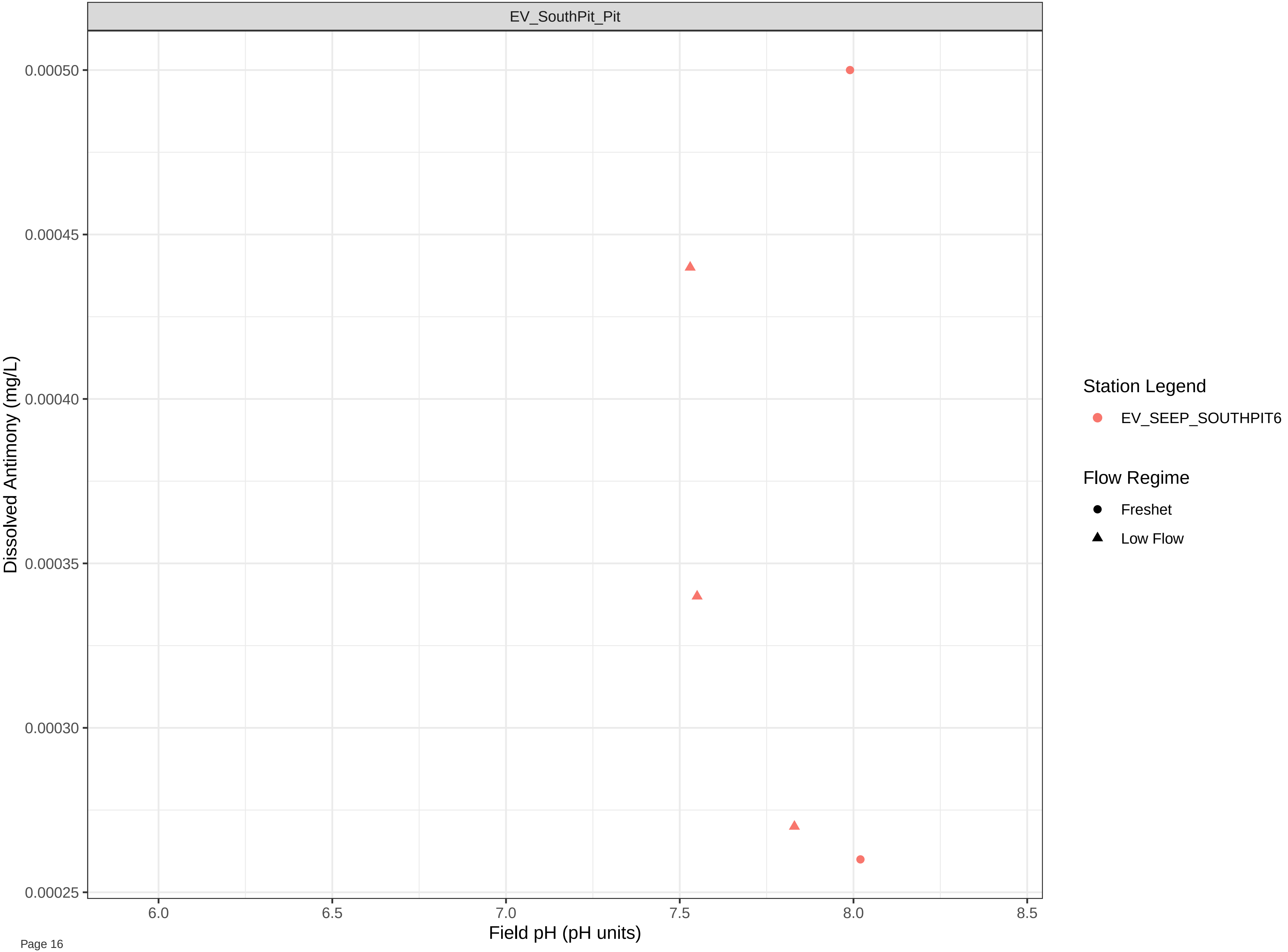

EV_CCR/TP
0.050
0.025
0.000
−0.025
Dissolved Antimony (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

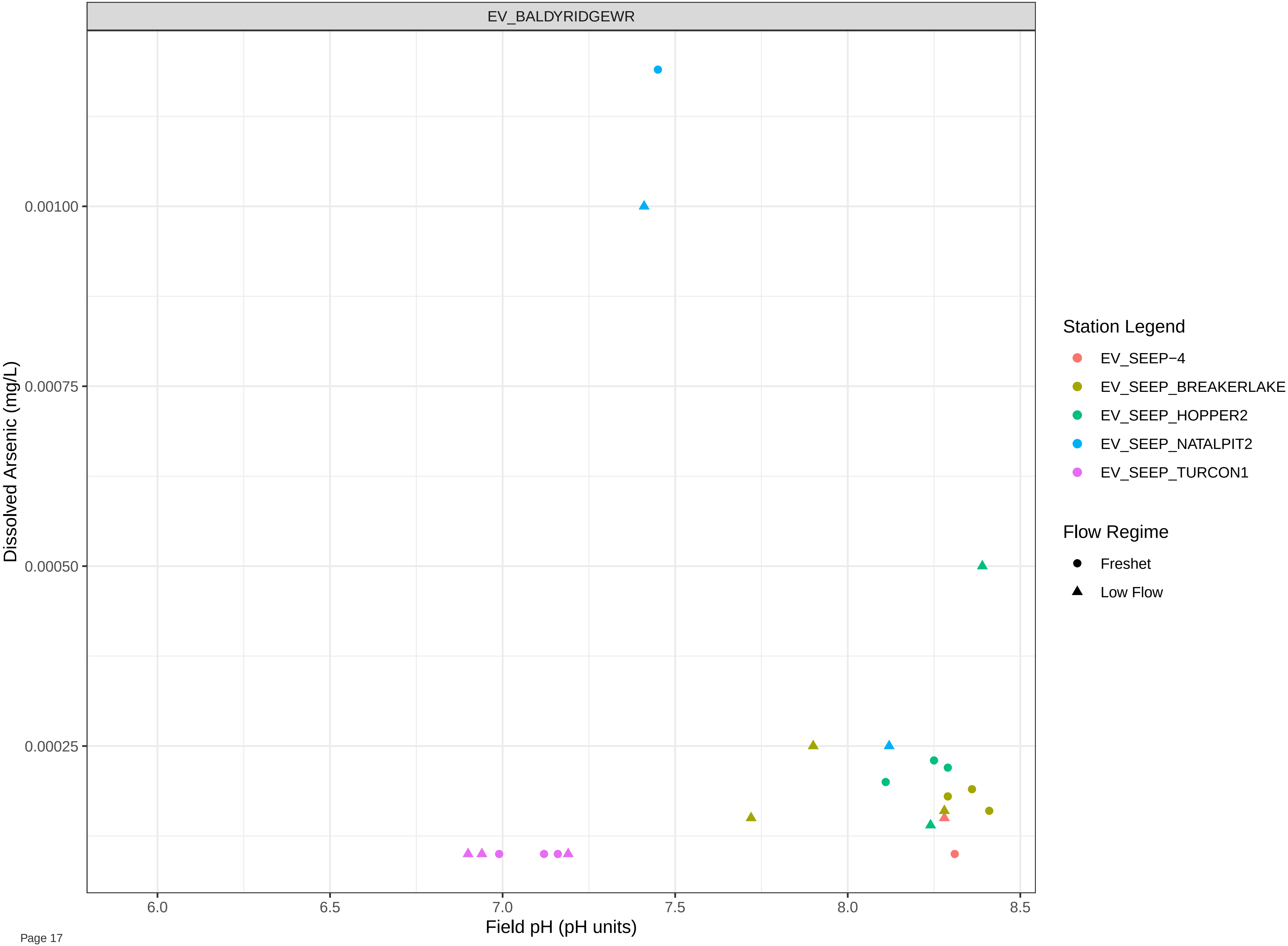

EV_CEDARWR
Dissolved Antimony (mg/L)
6e−04
4e−04
2e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

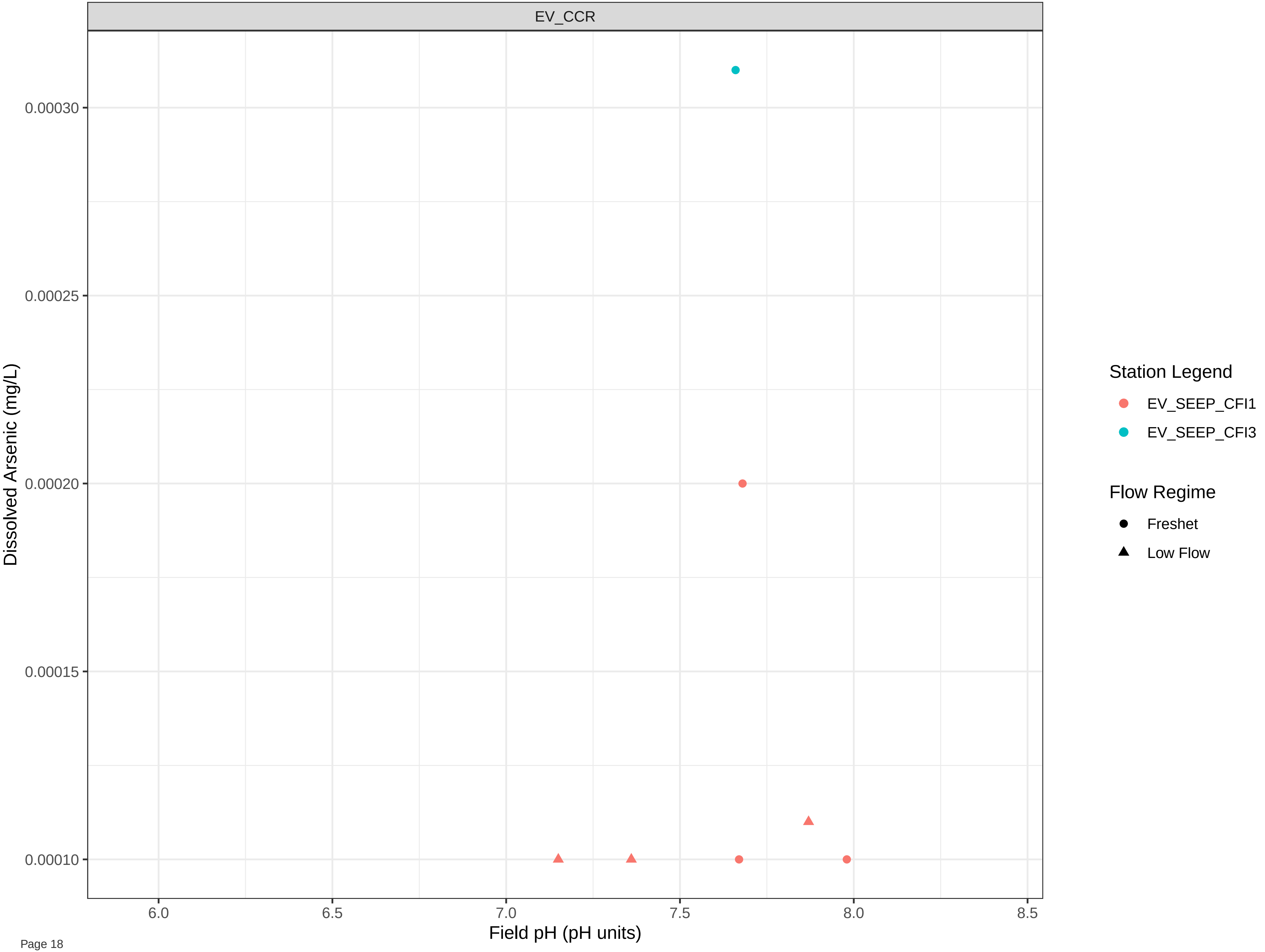

EV_Erickson_WR
Dissolved Antimony (mg/L)
0.0016
0.0012
0.0008
0.0004
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

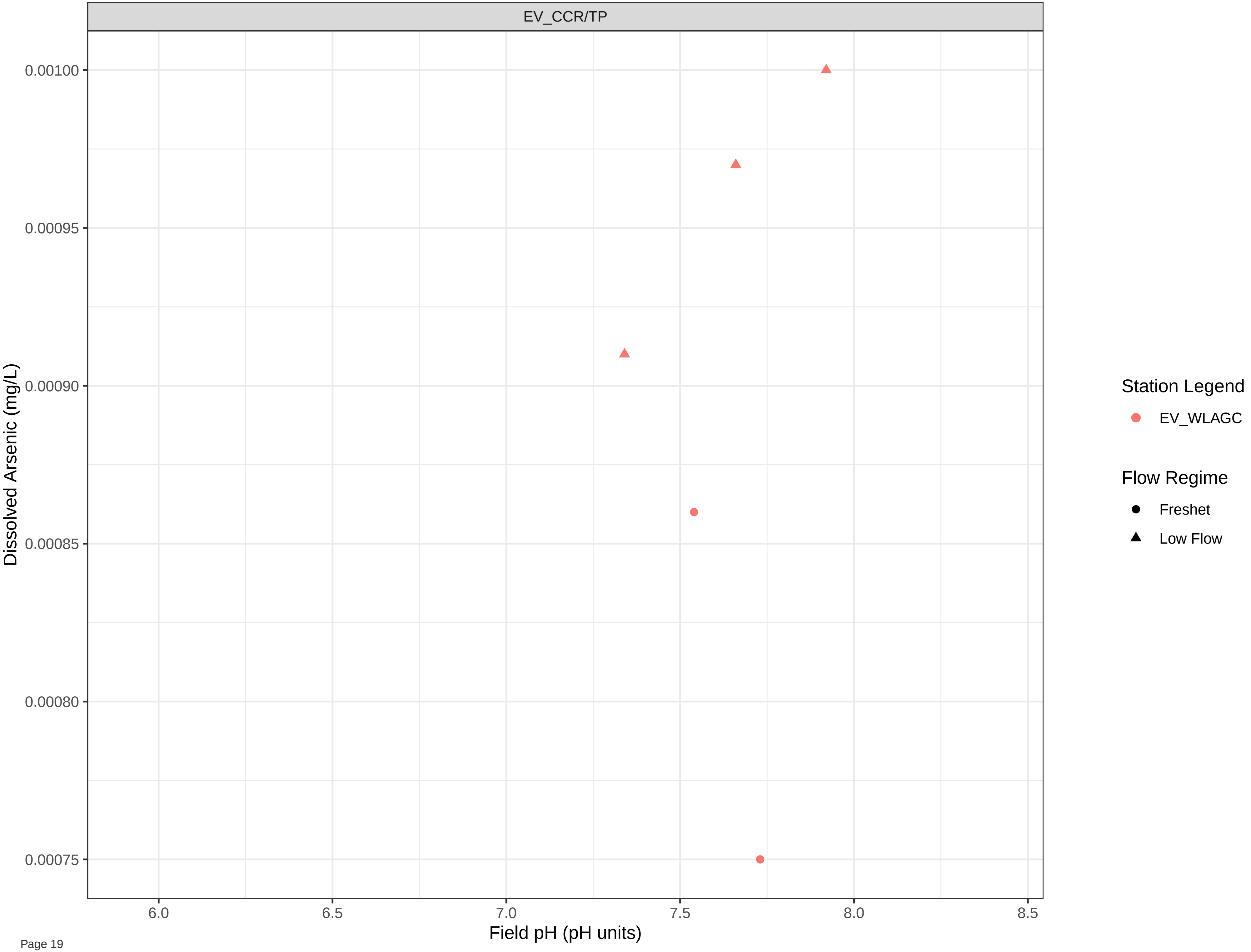

EV_PLANT
Dissolved Antimony (mg/L)
0.0012
0.0008
0.0004
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

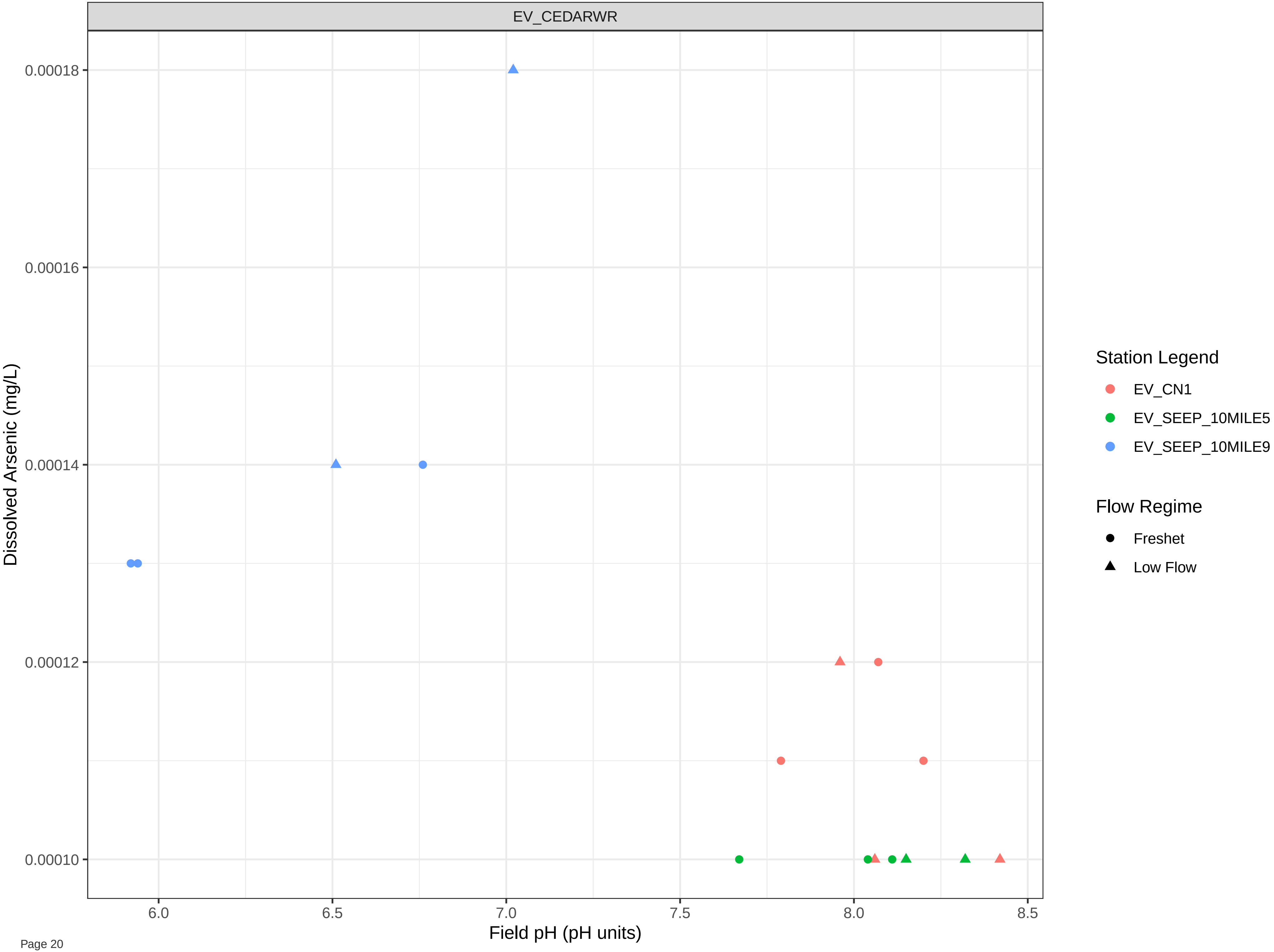

EV_SOUTHSLOPE
Dissolved Antimony (mg/L)
0.00035
0.00030
0.00025
0.00020
0.00015
0.00010
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

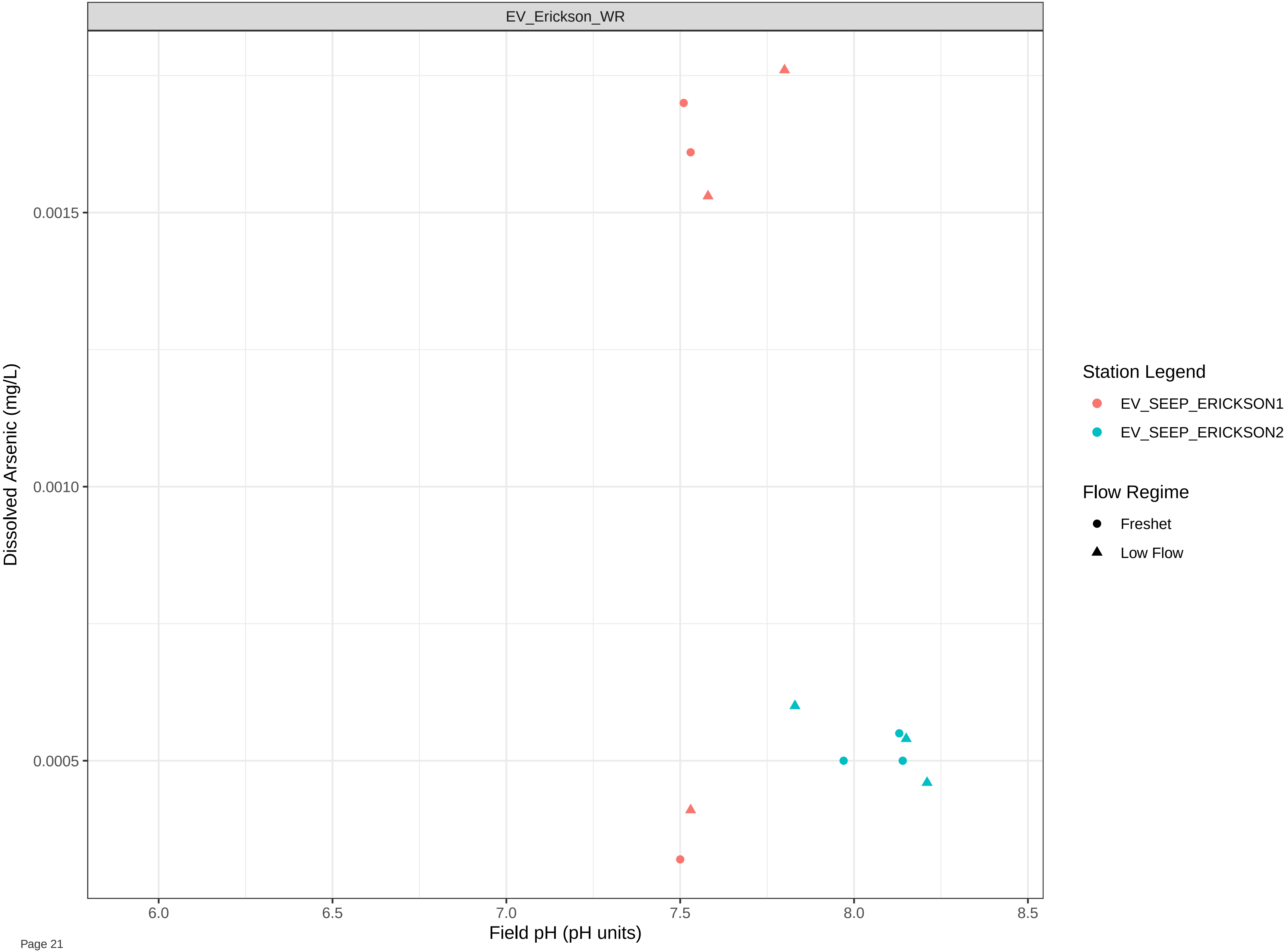

EV_SouthPit_Pit
Dissolved Antimony (mg/L)
0.00050
0.00045
0.00040
0.00035
0.00030
0.00025
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

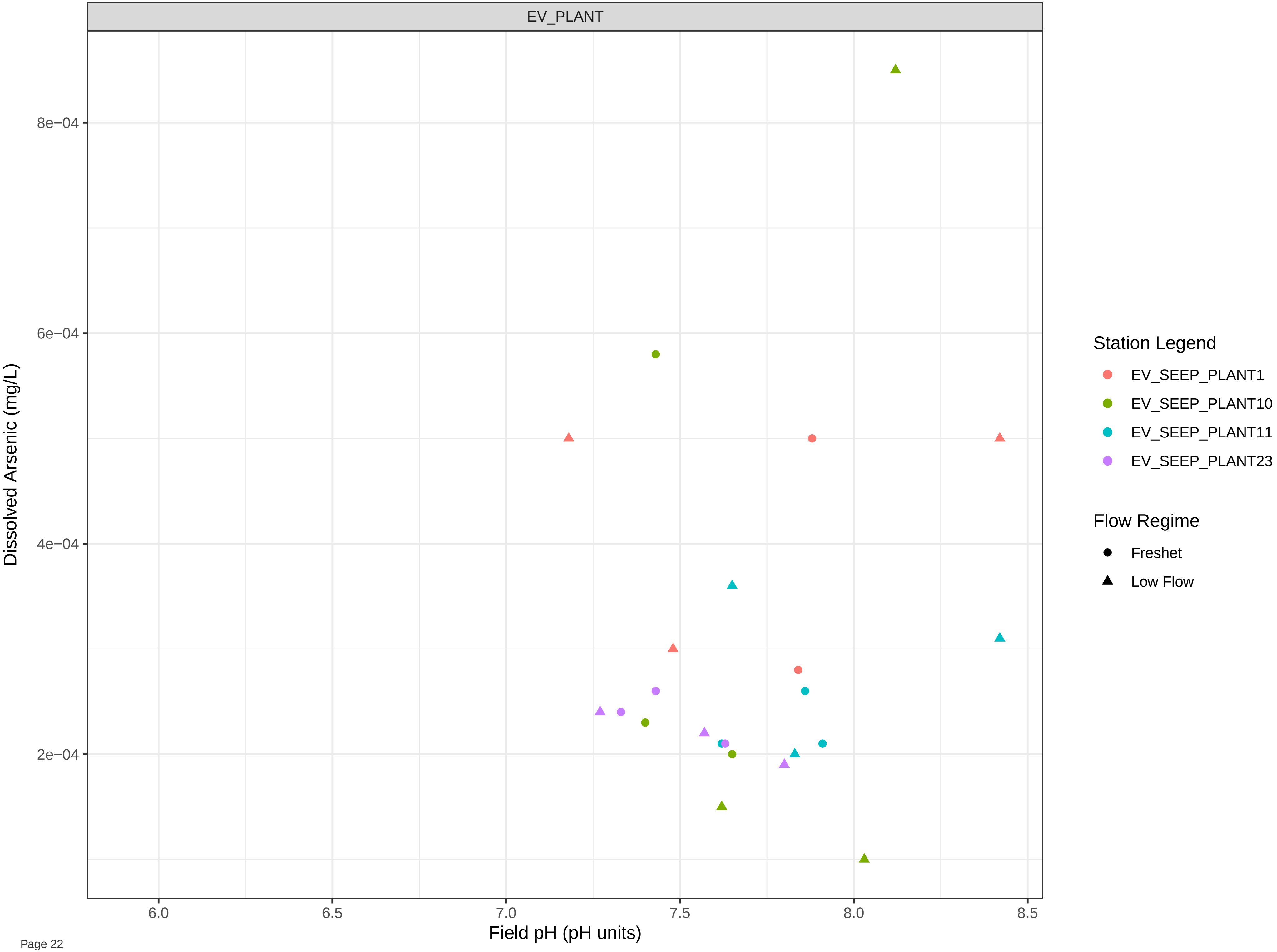

EV_BALDYRIDGEWR
Dissolved Arsenic (mg/L)
0.00100
0.00075
0.00050
0.00025
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

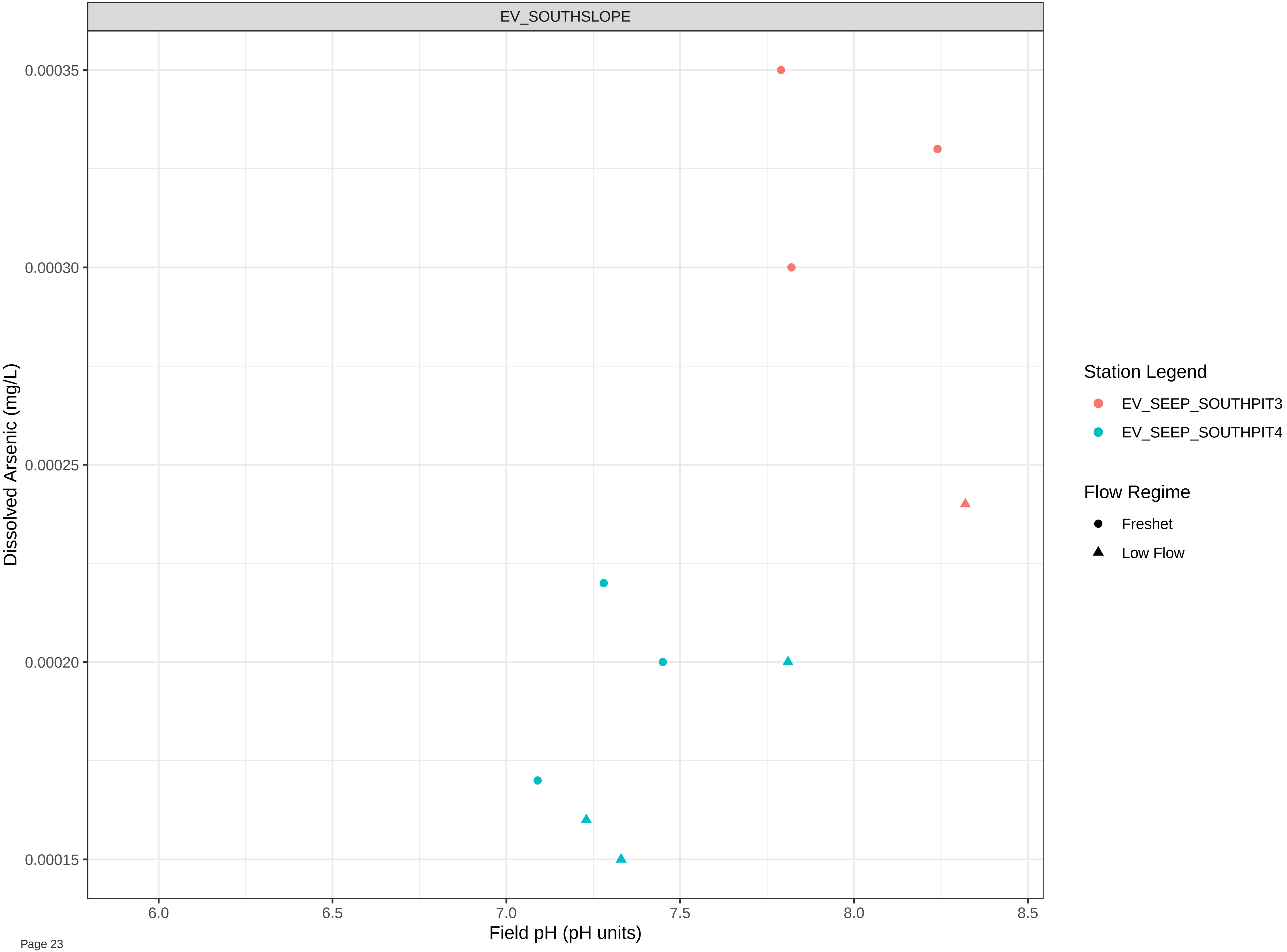

EV_CCR
Dissolved Arsenic (mg/L)
0.00030
0.00025
0.00020
0.00015
0.00010
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

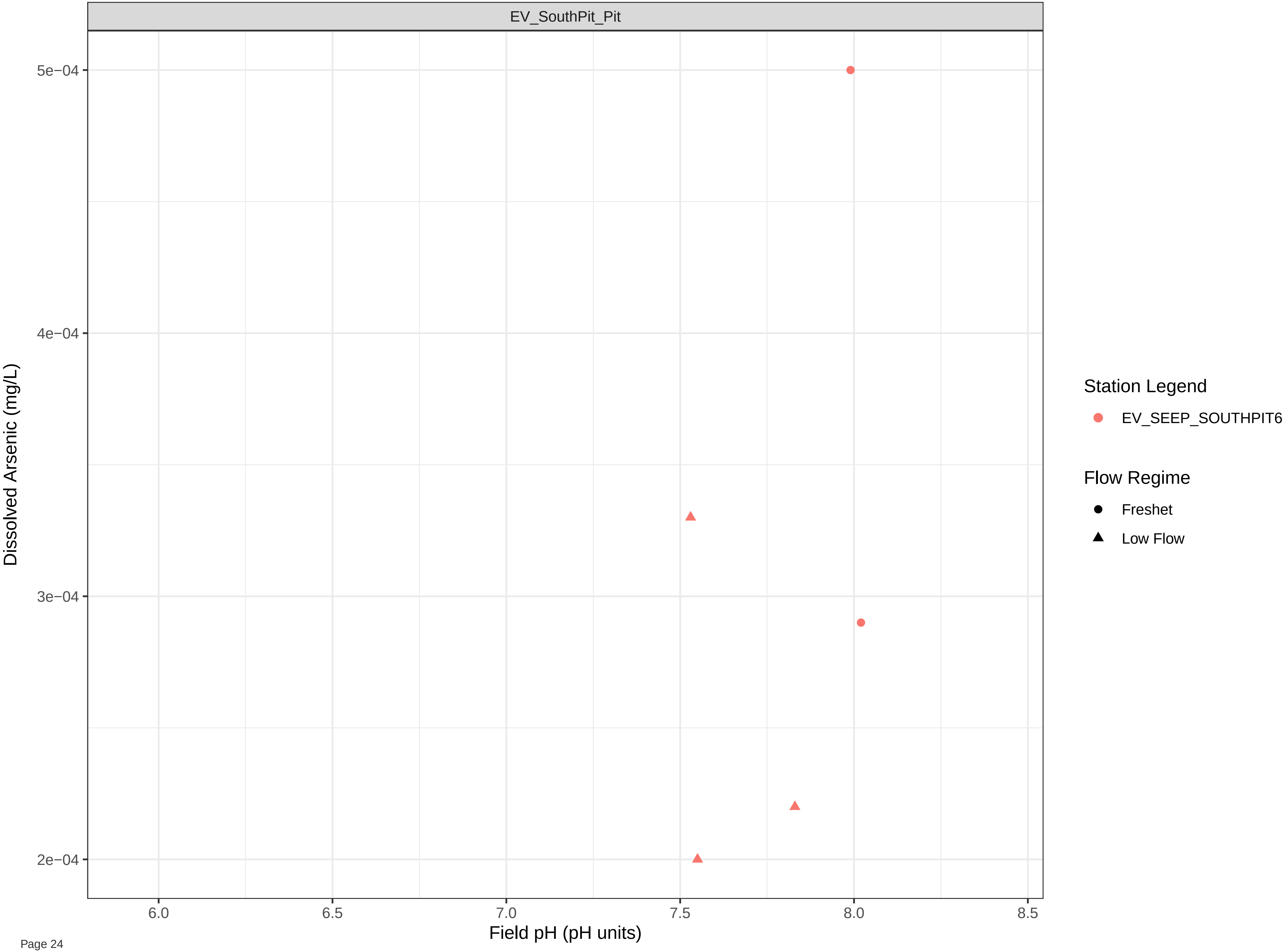

EV_CCR/TP
Dissolved Arsenic (mg/L)
0.00100
0.00095
0.00090
0.00085
0.00080
0.00075
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

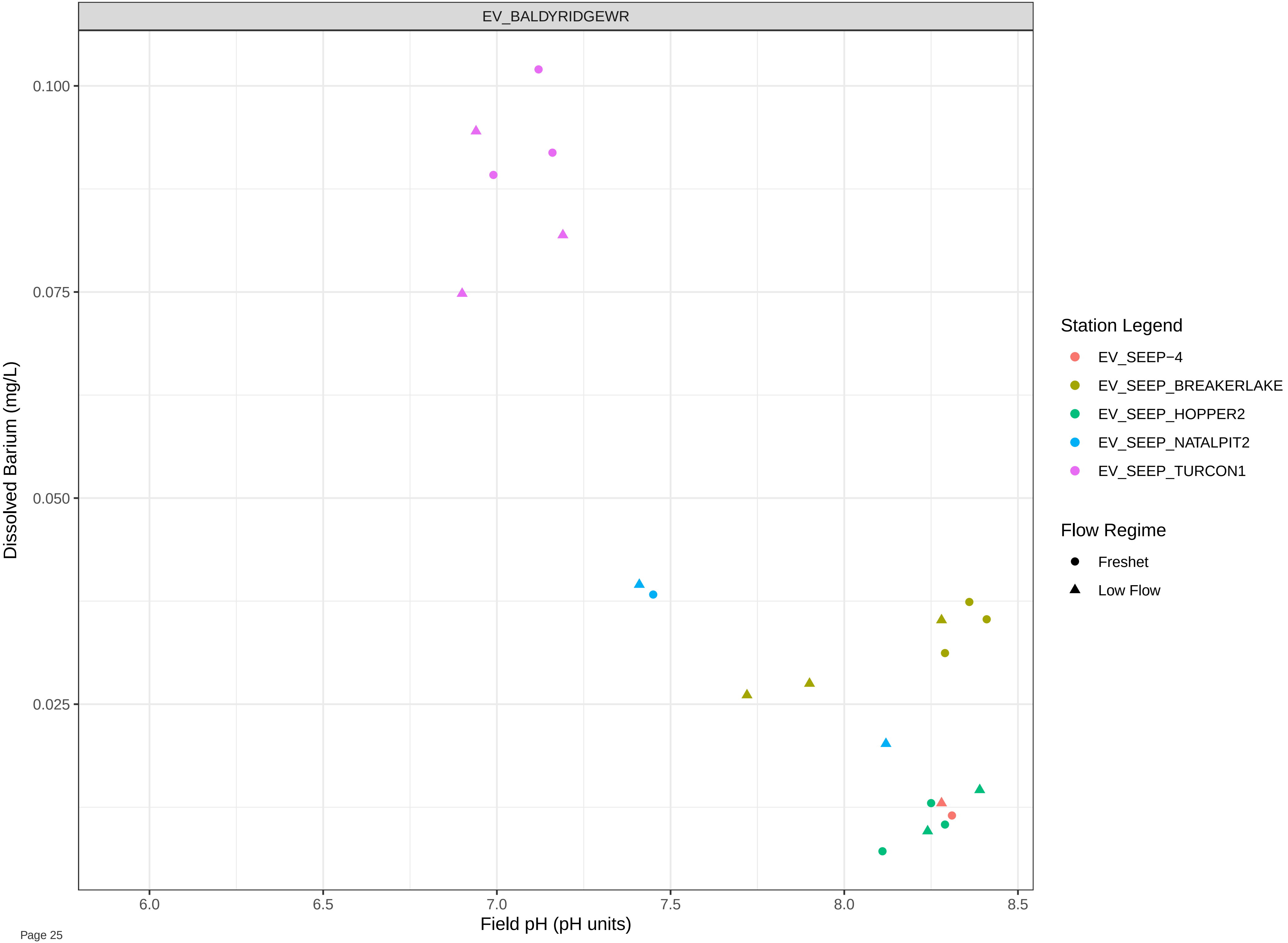

EV_CEDARWR
Dissolved Arsenic (mg/L)
0.00018
0.00016
0.00014
0.00012
0.00010
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

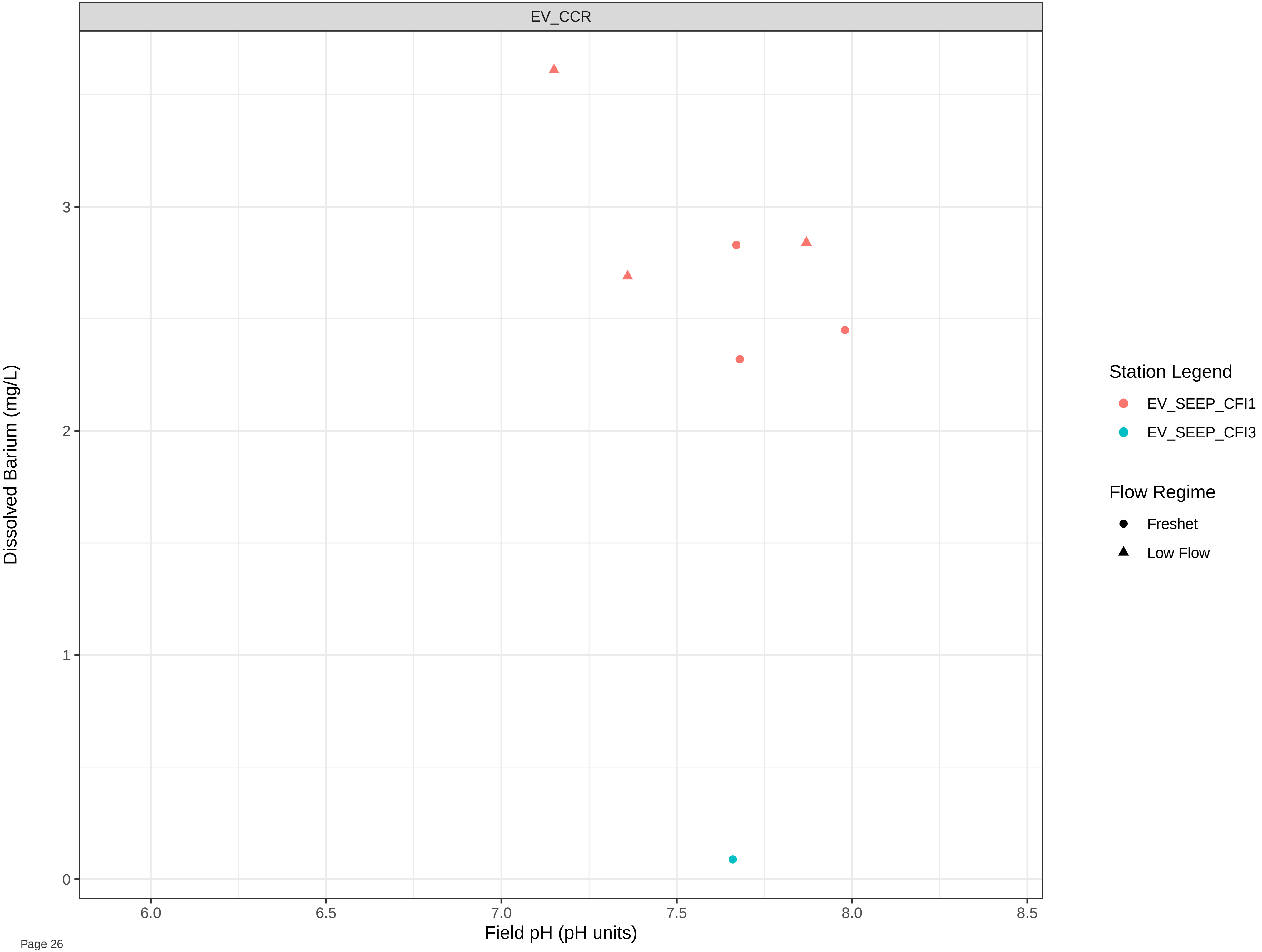

EV_Erickson_WR
Dissolved Arsenic (mg/L)
0.0015
0.0010
0.0005
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

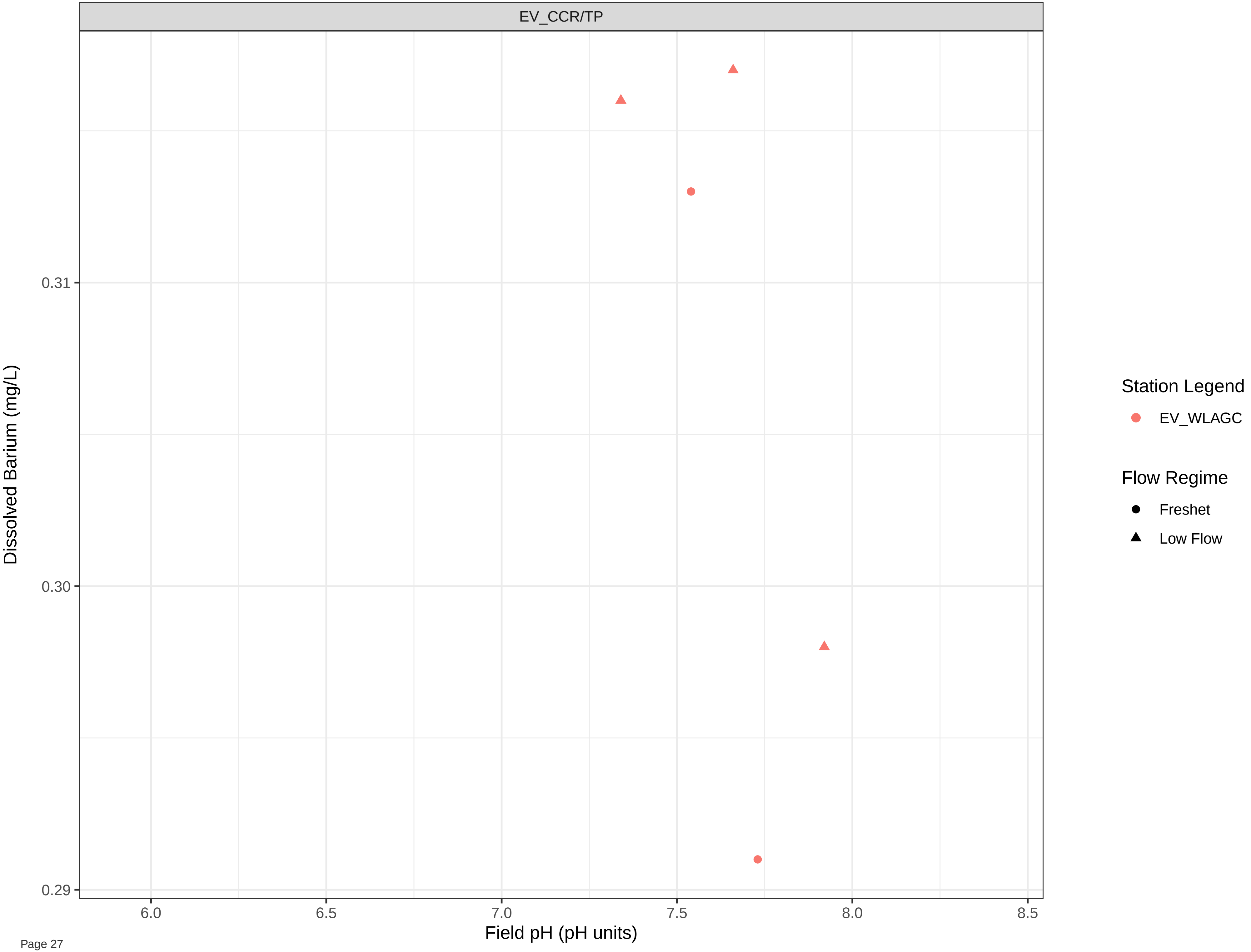

EV_PLANT
Dissolved Arsenic (mg/L)
8e−04
6e−04
4e−04
2e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_PLANT1
● EV_SEEP_PLANT10
● EV_SEEP_PLANT11
● EV_SEEP_PLANT23
Flow Regime
● Freshet
▲ Low Flow

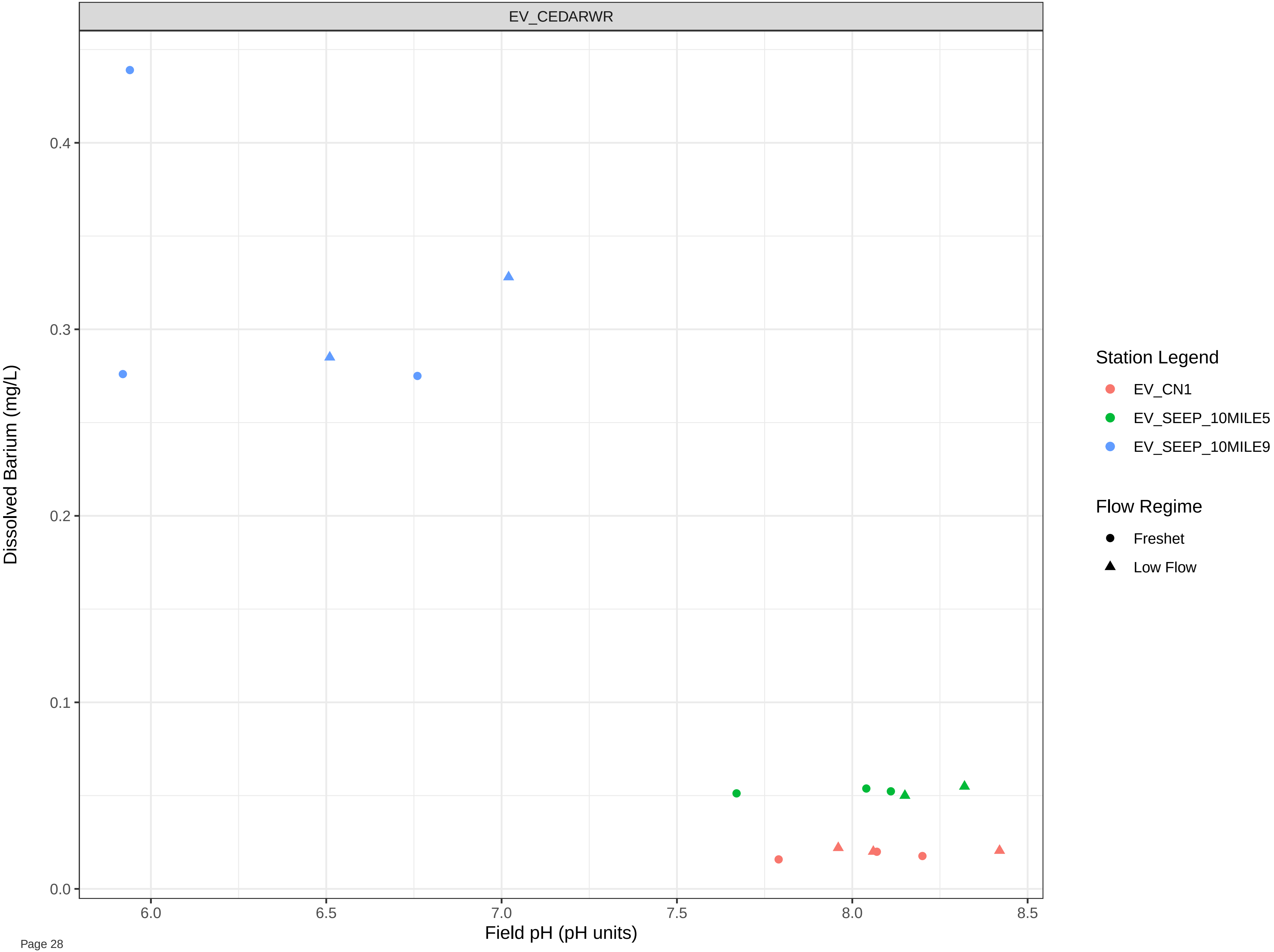

EV_SOUTHSLOPE
Dissolved Arsenic (mg/L)
0.00035
0.00030
0.00025
0.00020
0.00015
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

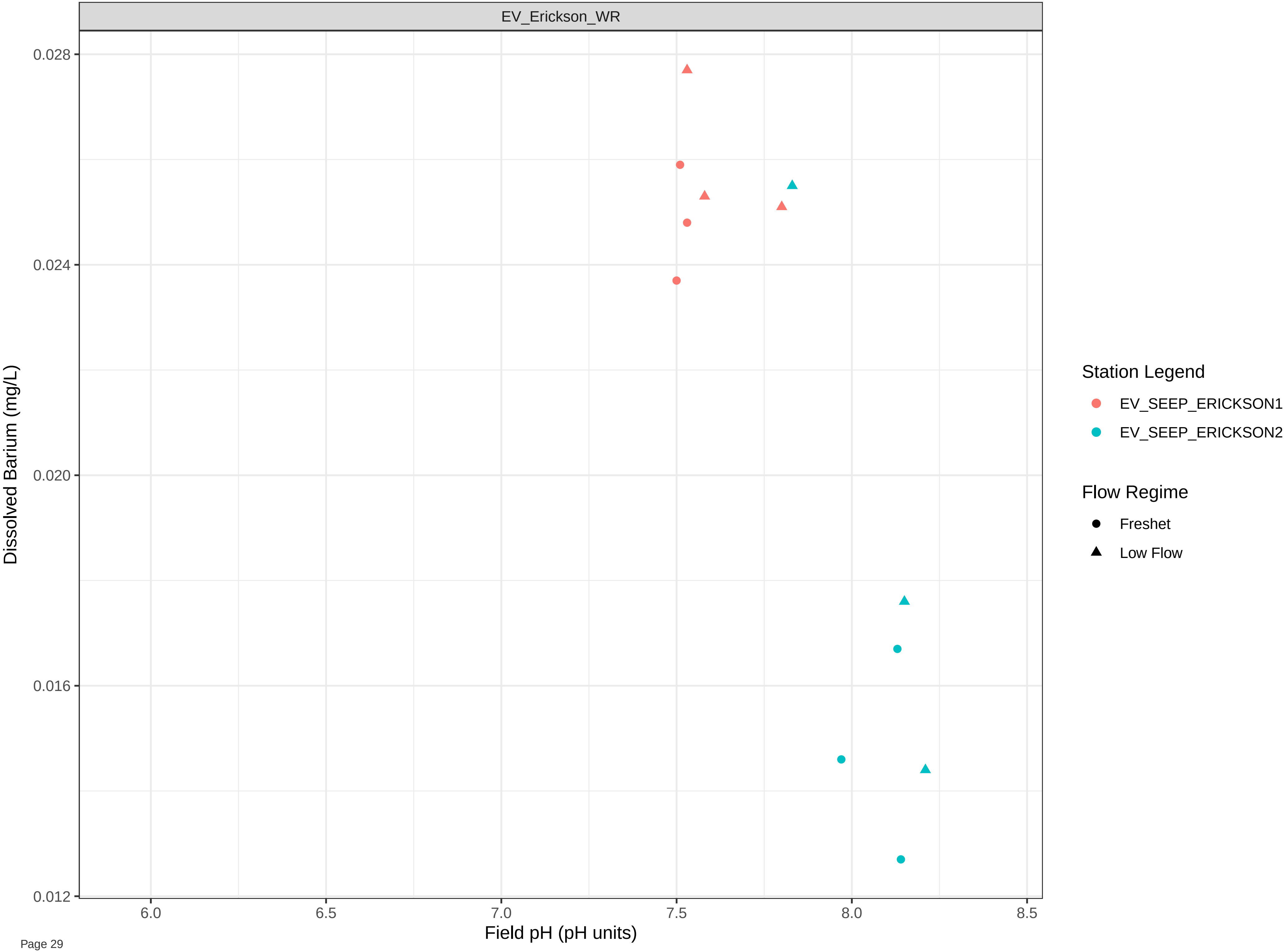

EV_SouthPit_Pit
Dissolved Arsenic (mg/L)
5e−04
4e−04
3e−04
2e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

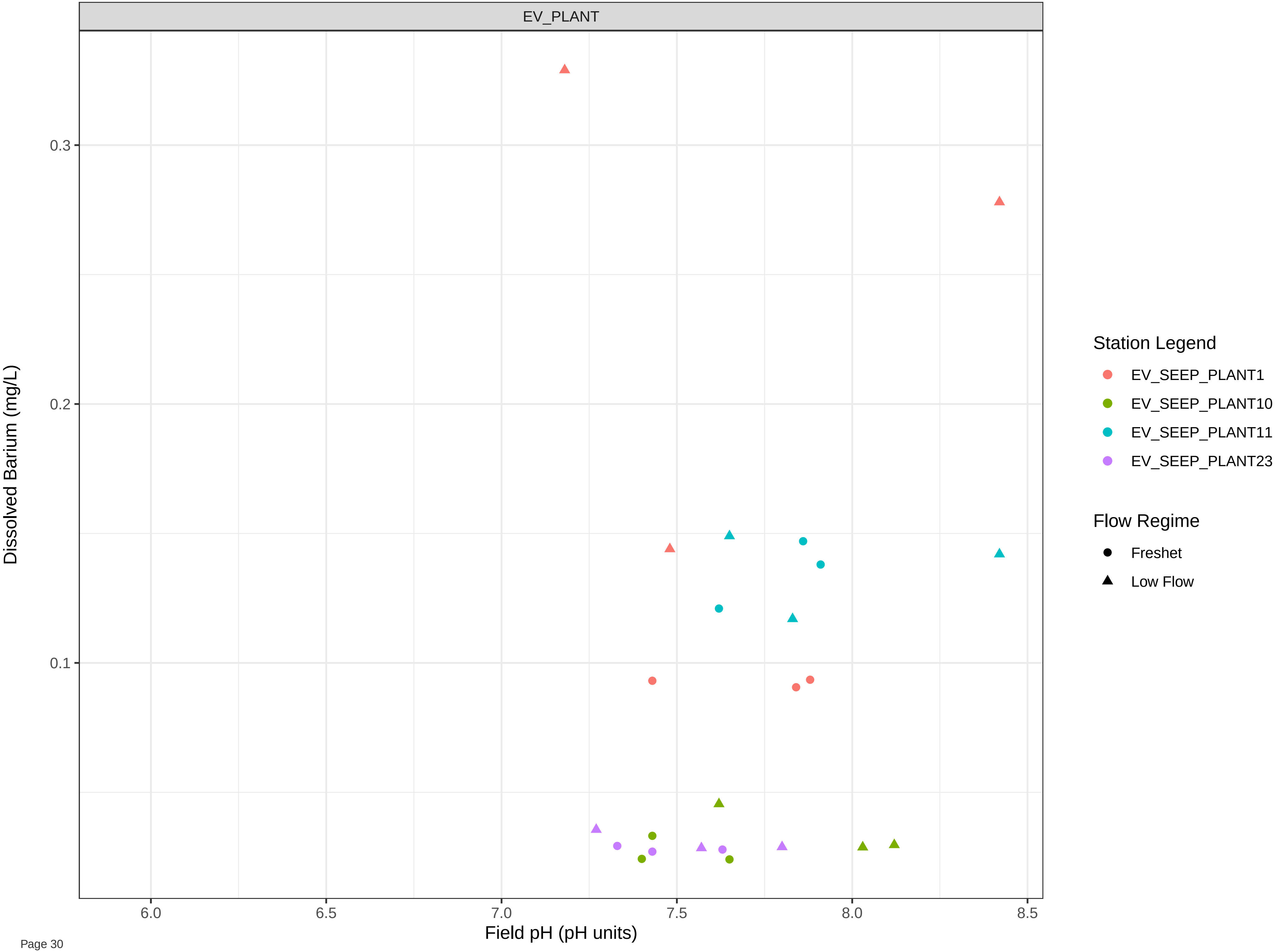

EV_BALDYRIDGEWR
Dissolved Barium (mg/L)
0.100
0.075
0.050
0.025
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

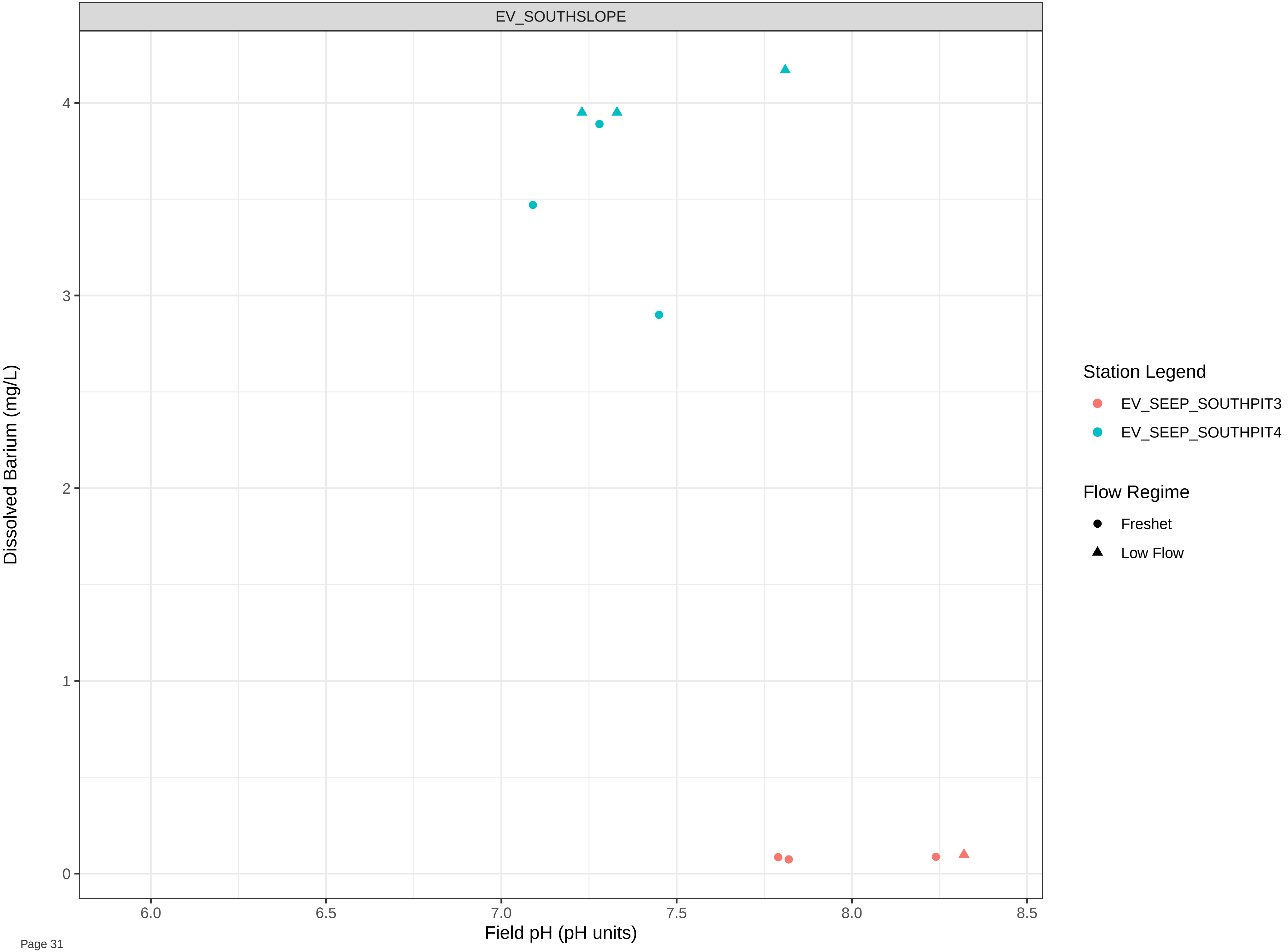

EV_CCR
Dissolved Barium (mg/L)
0
1
2
3
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

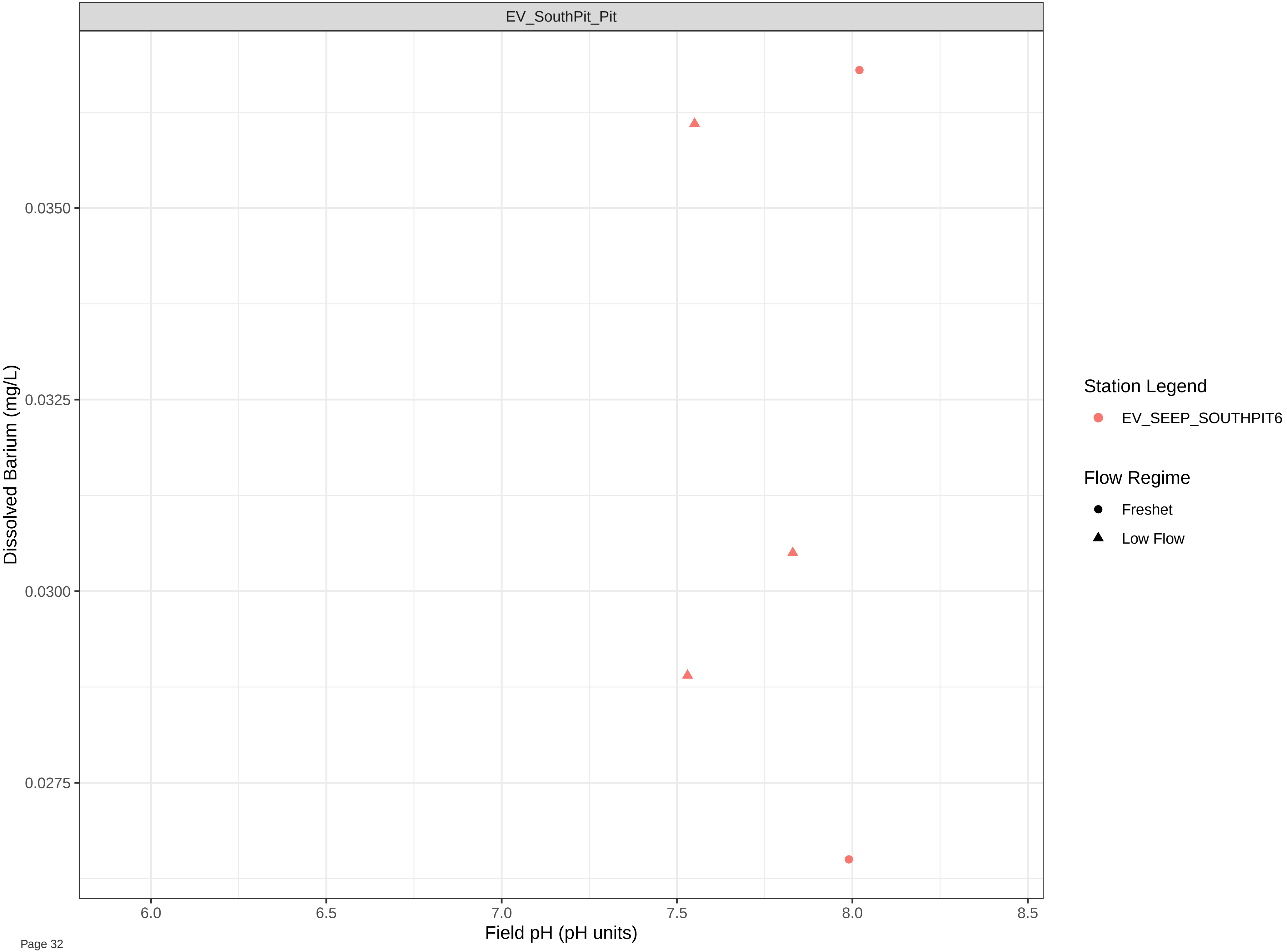

EV_CCR/TP
Dissolved Barium (mg/L)
0.31
0.30
0.29
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

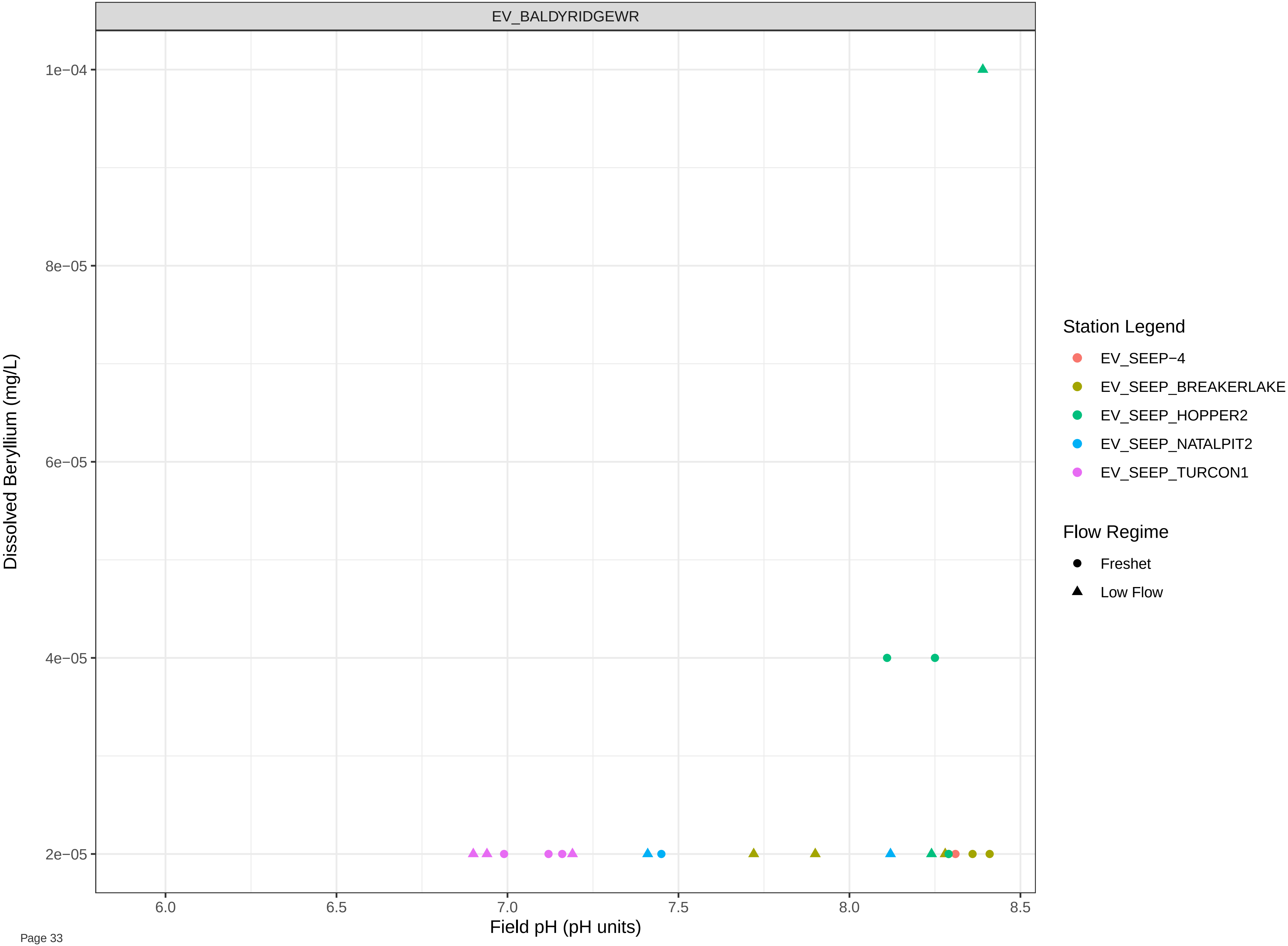

EV_CEDARWR
Dissolved Barium (mg/L)
0.0
0.1
0.2
0.3
0.4
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

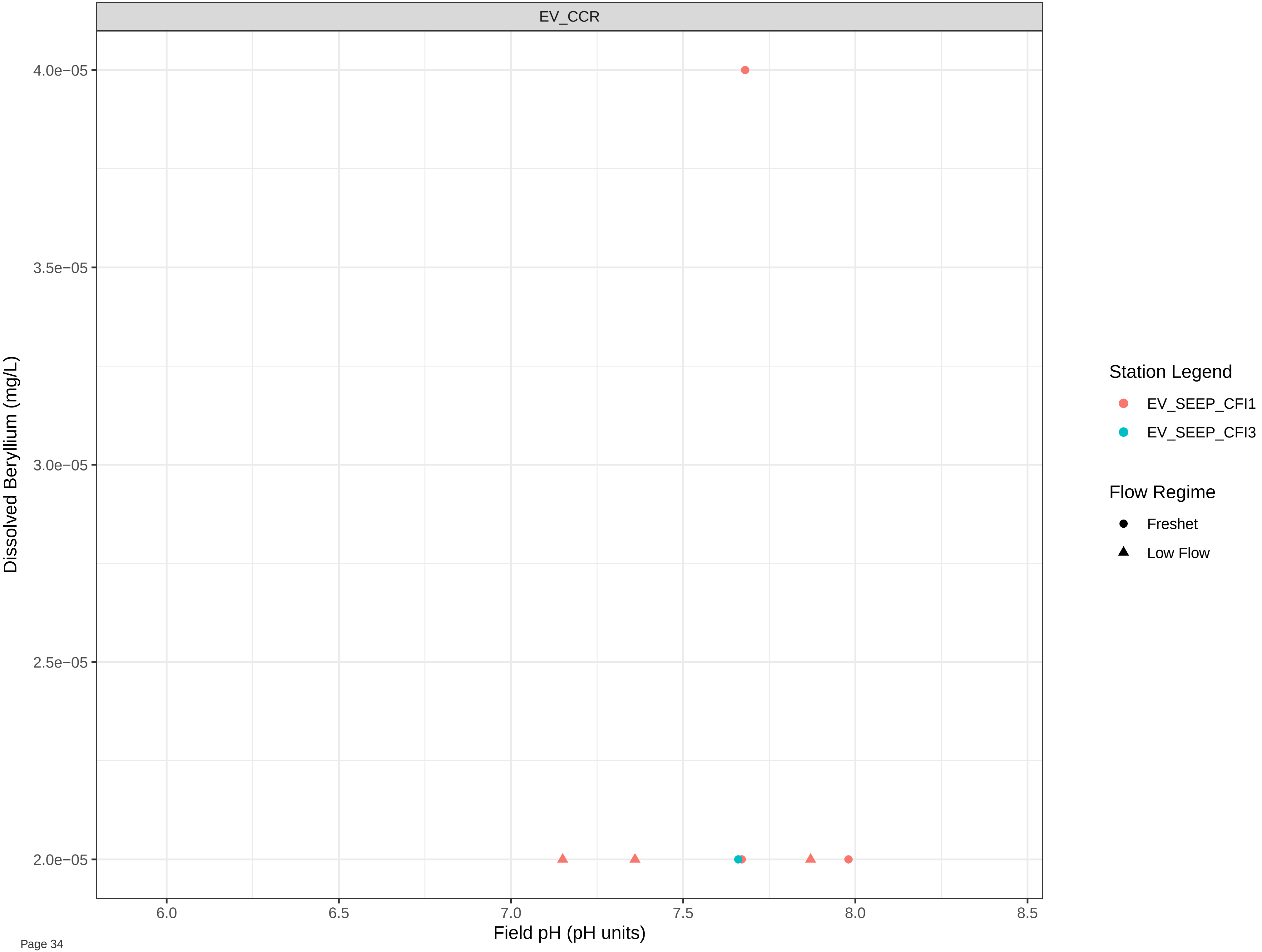

EV_Erickson_WR
Dissolved Barium (mg/L)
0.028
0.024
0.020
0.016
0.012
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

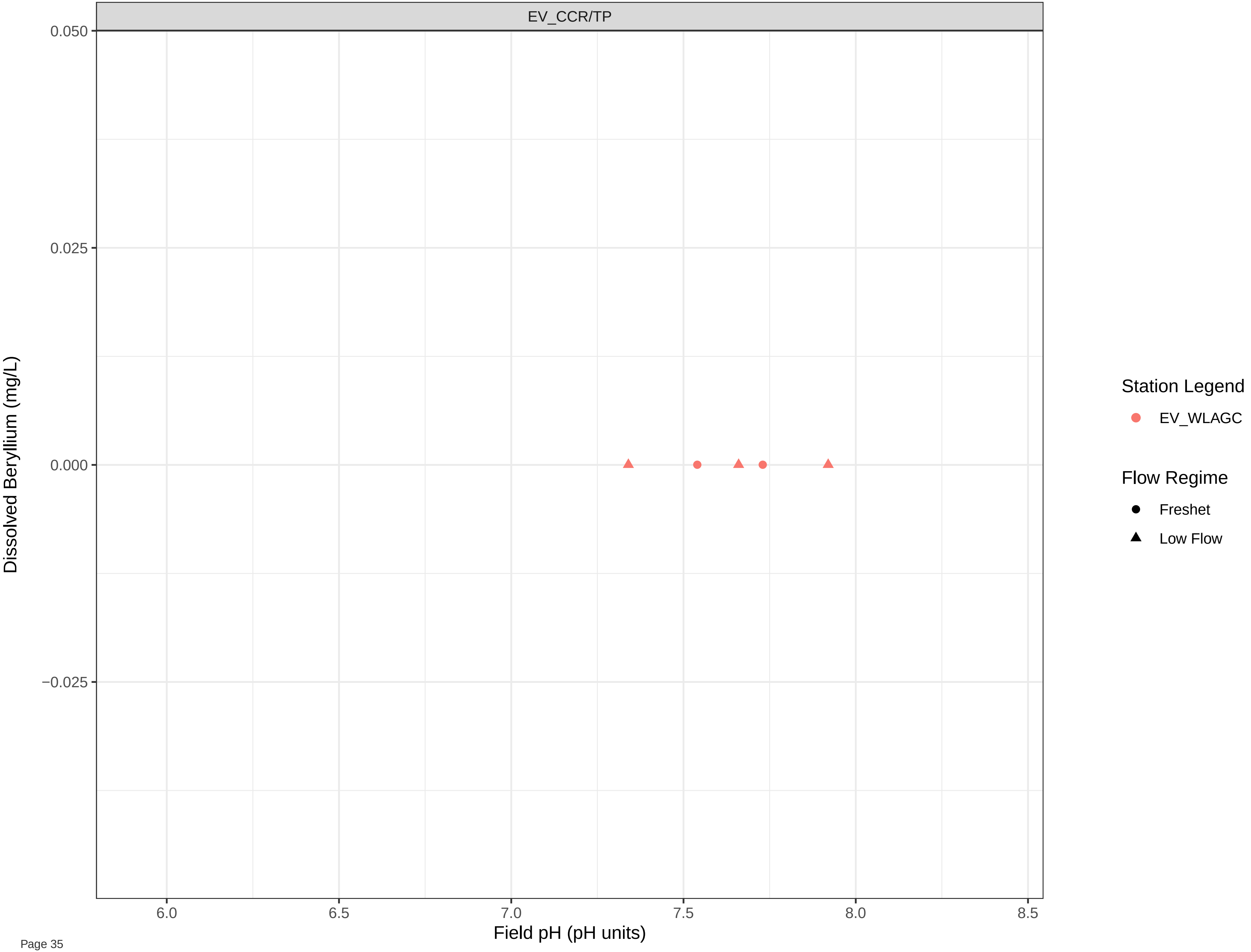

EV_PLANT
Dissolved Barium (mg/L)
0.3
0.2
0.1
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

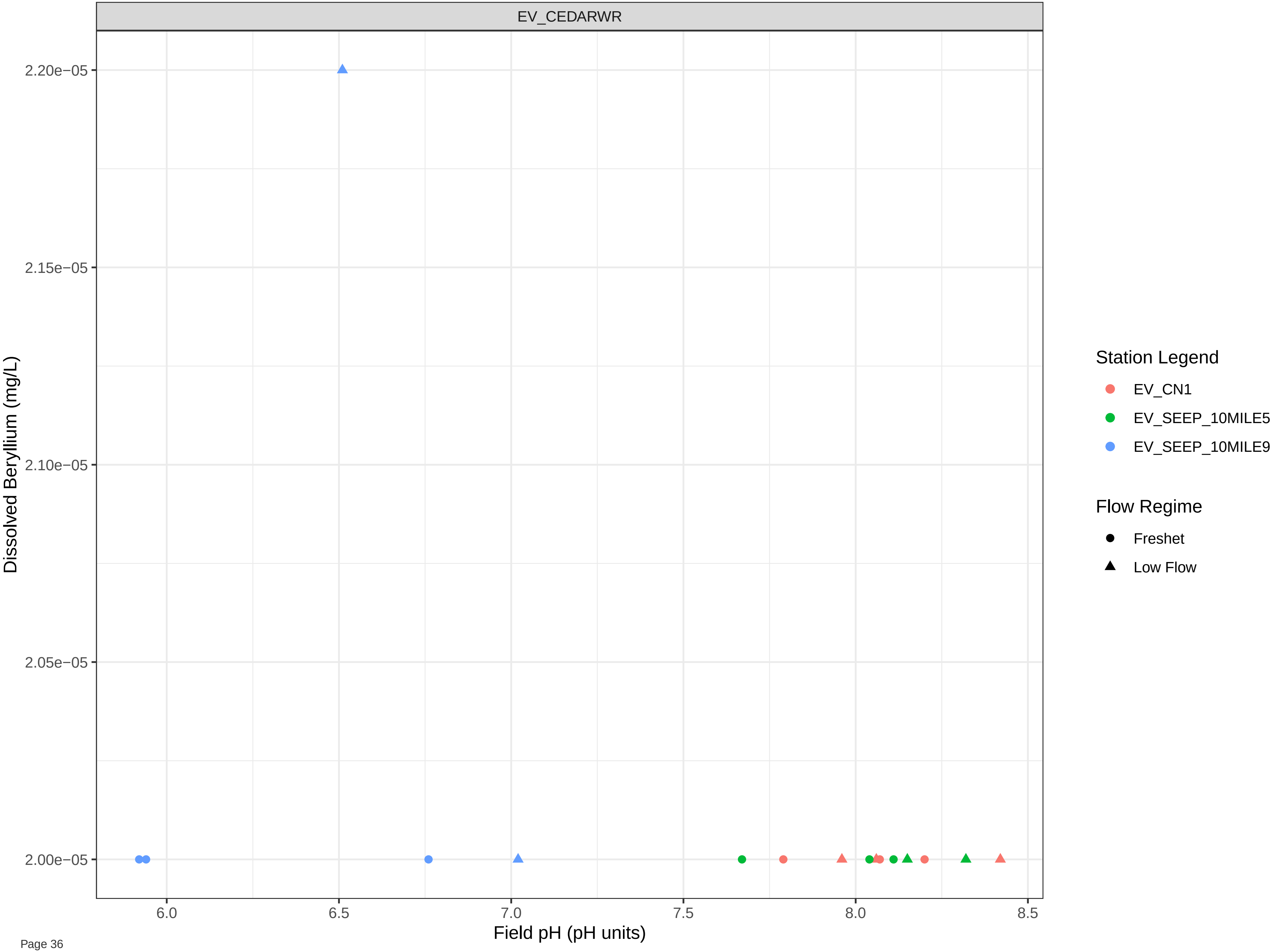

EV_SOUTHSLOPE
Dissolved Barium (mg/L)
0
1
2
3
4
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

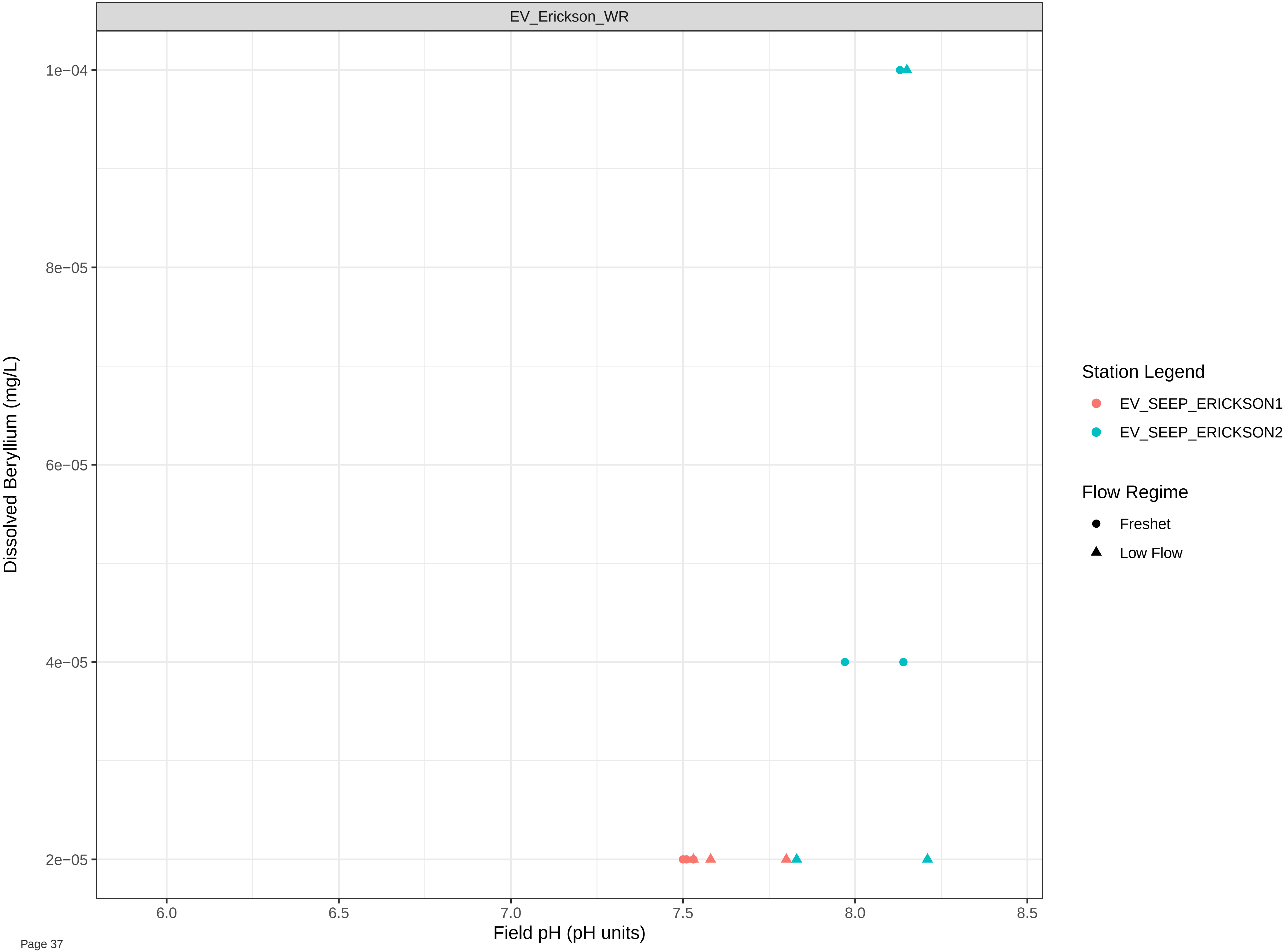

EV_SouthPit_Pit
Dissolved Barium (mg/L)
0.0350
0.0325
0.0300
0.0275
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

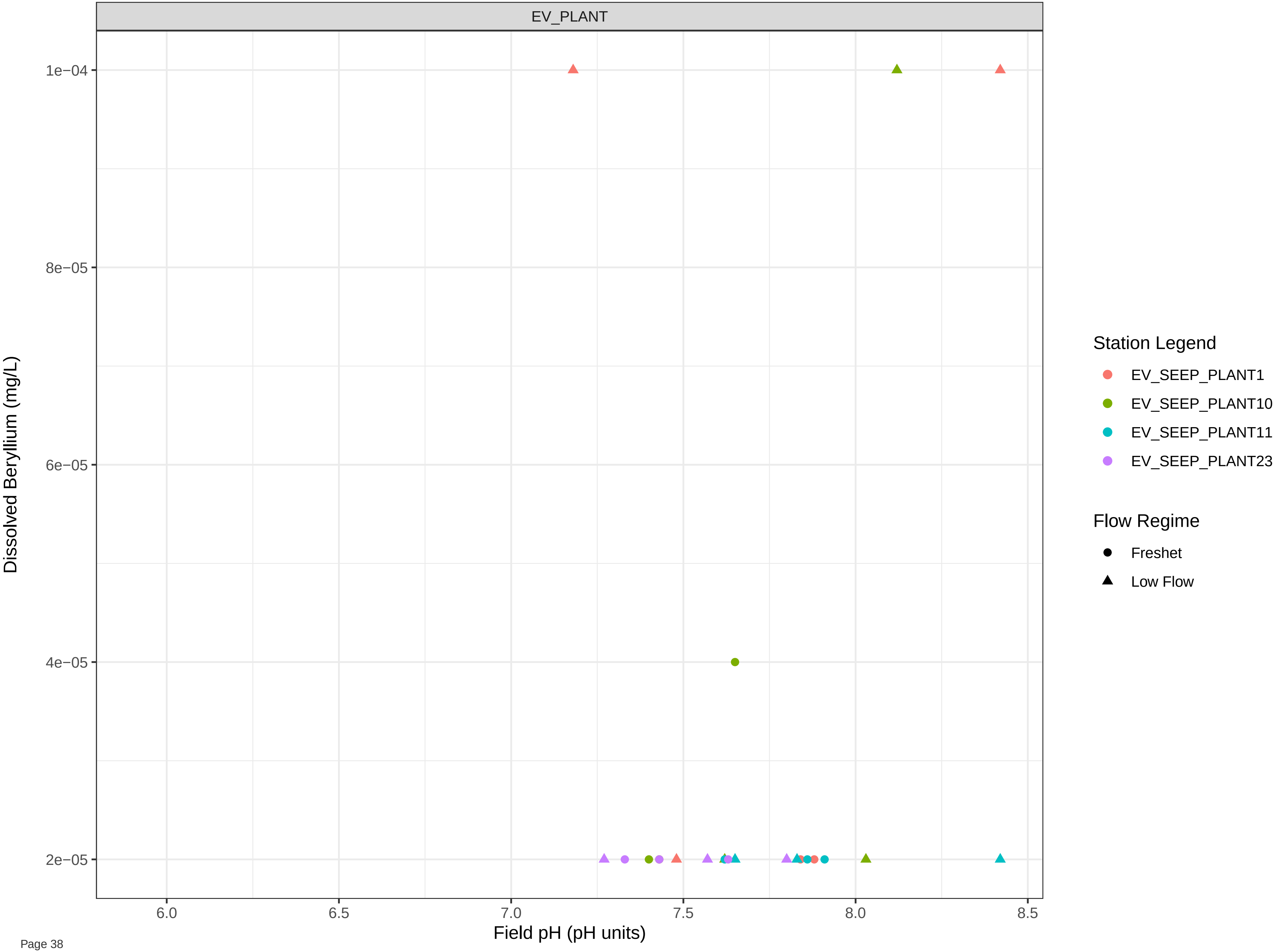

EV_BALDYRIDGEWR
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

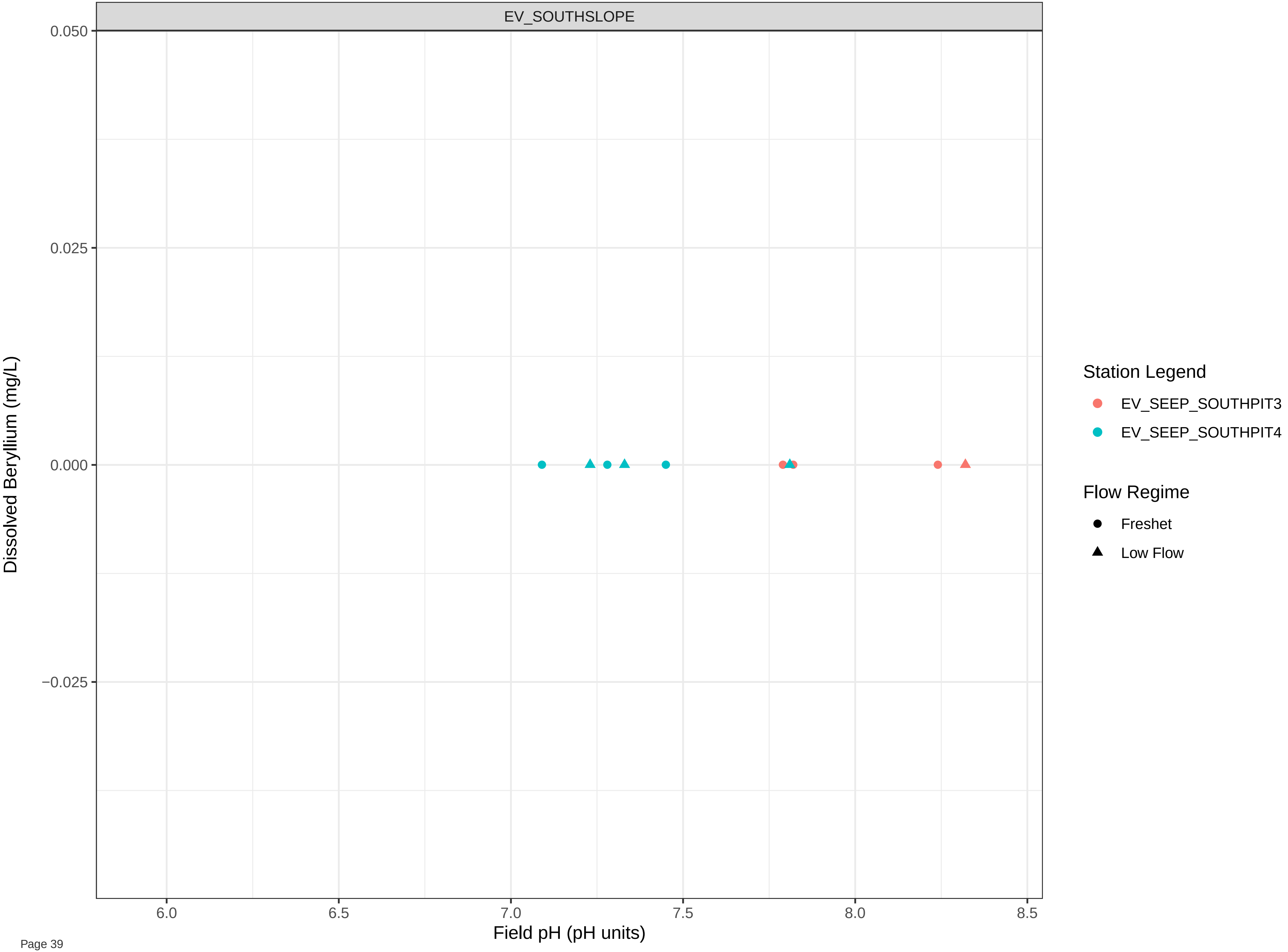

EV_CCR
4.0e−05
3.5e−05
3.0e−05
2.5e−05
2.0e−05
Dissolved Beryllium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

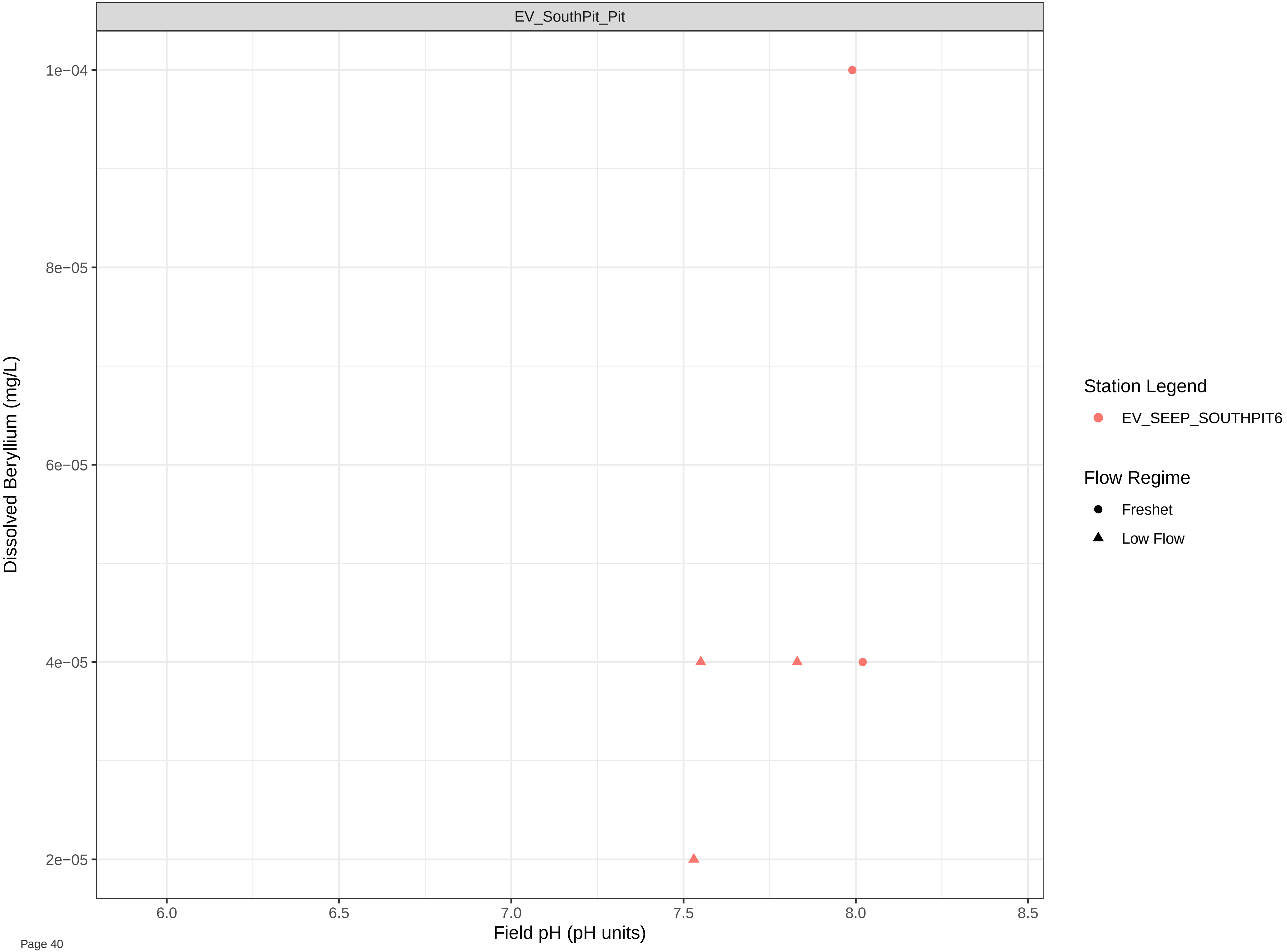

EV_CCR/TP
0.050
0.025
0.000
−0.025
Dissolved Beryllium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

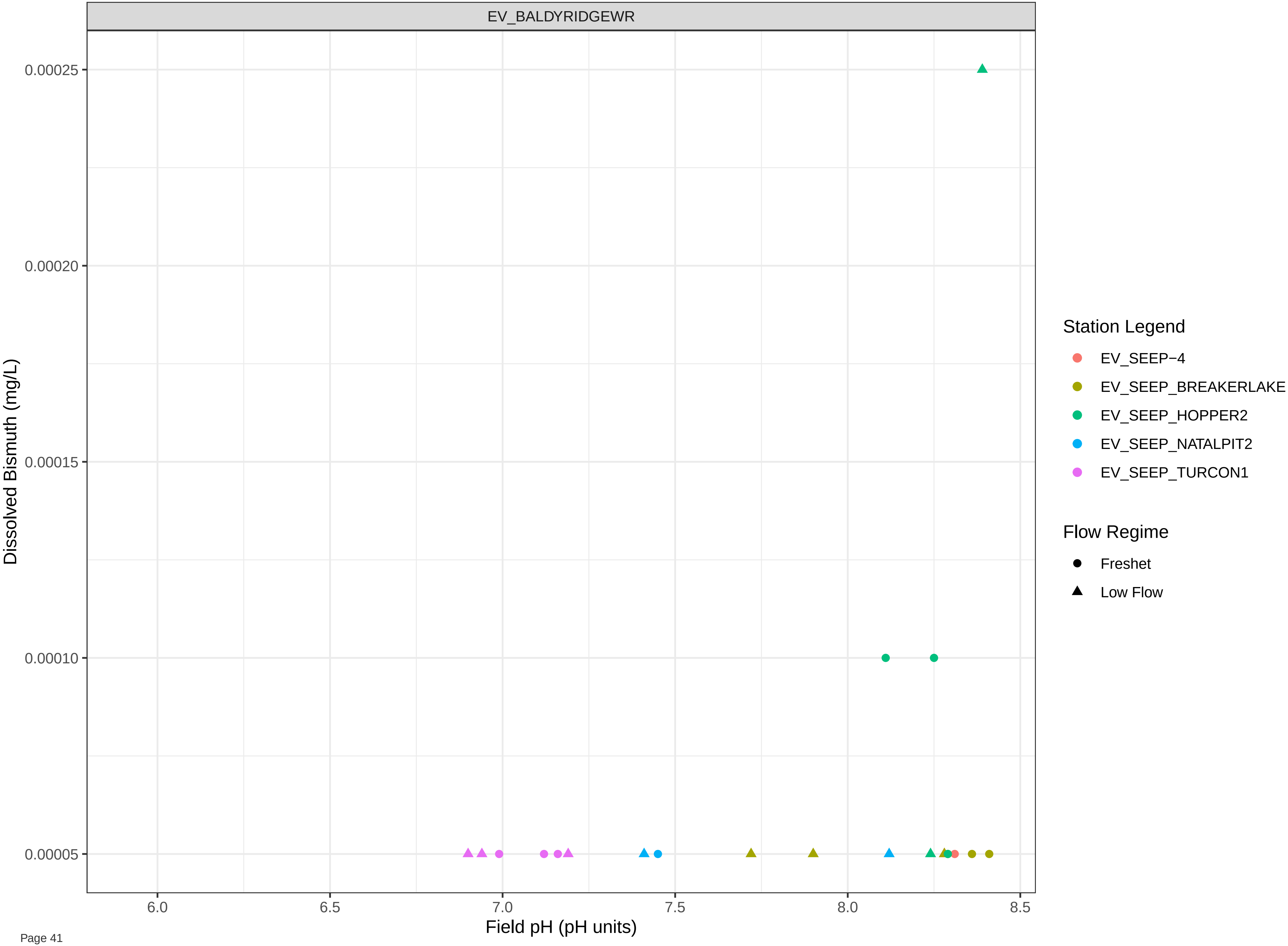

EV_CEDARWR
2.20e−05
2.15e−05
2.10e−05
2.05e−05
2.00e−05
Dissolved Beryllium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

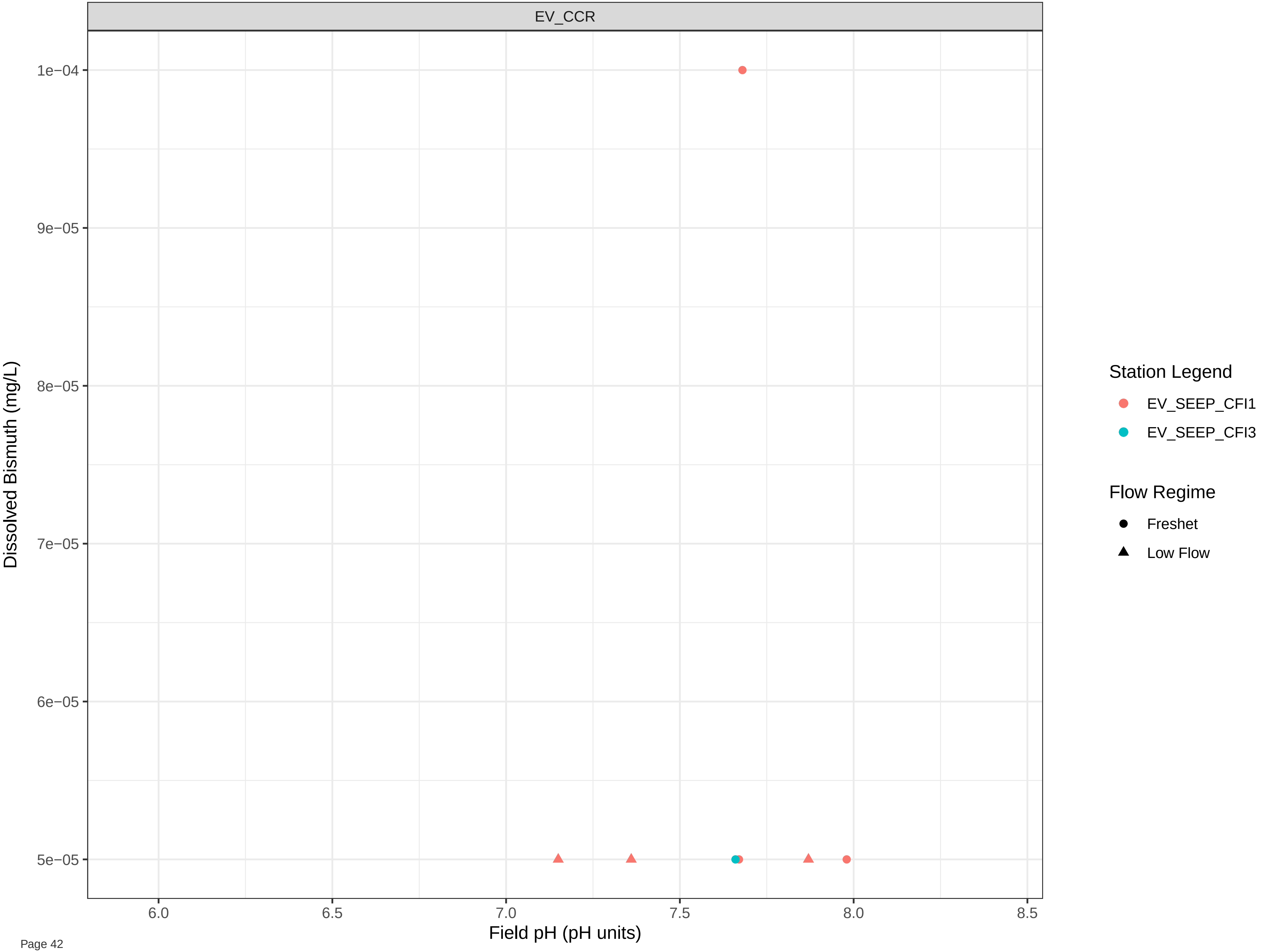

EV_Erickson_WR
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

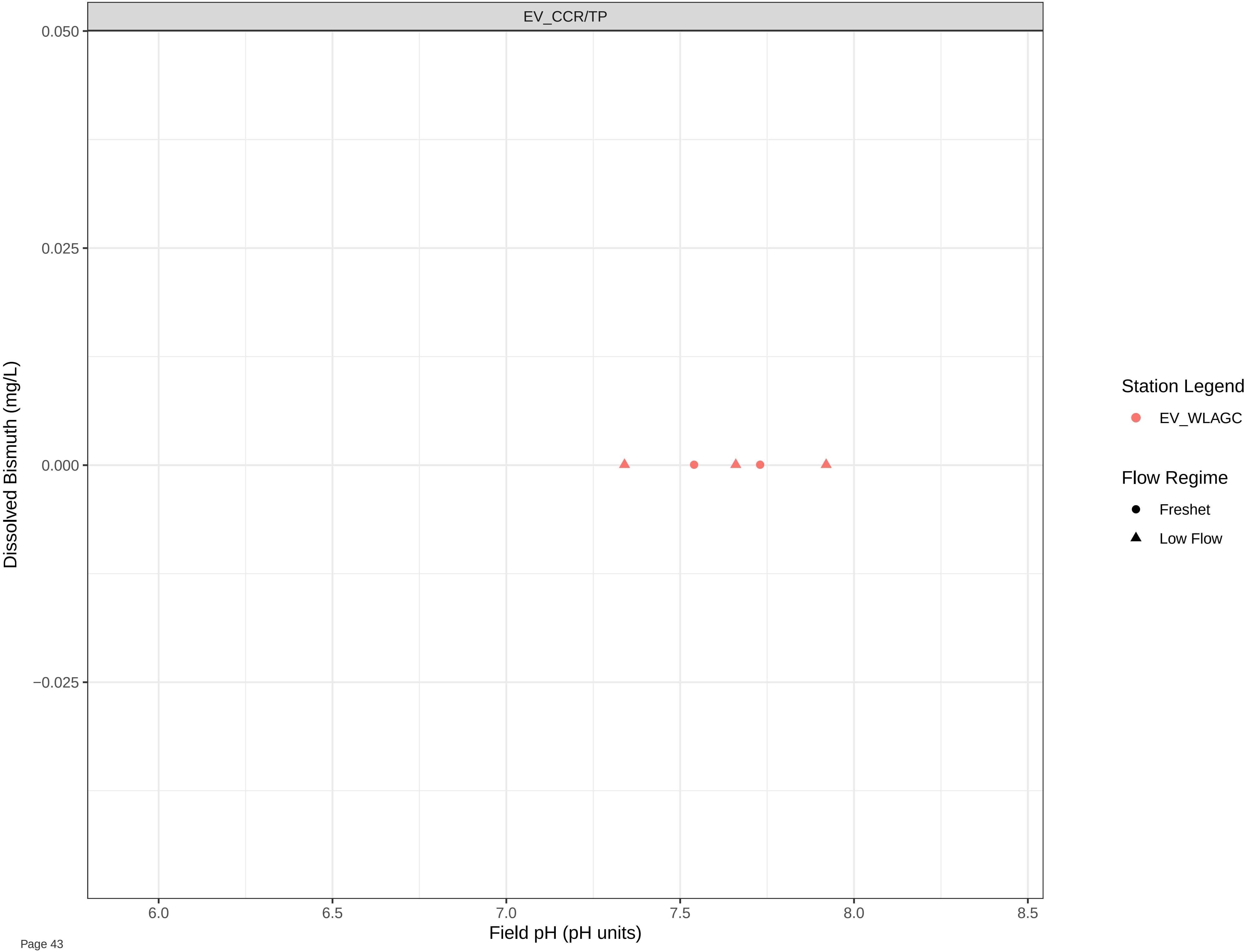

EV_PLANT
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

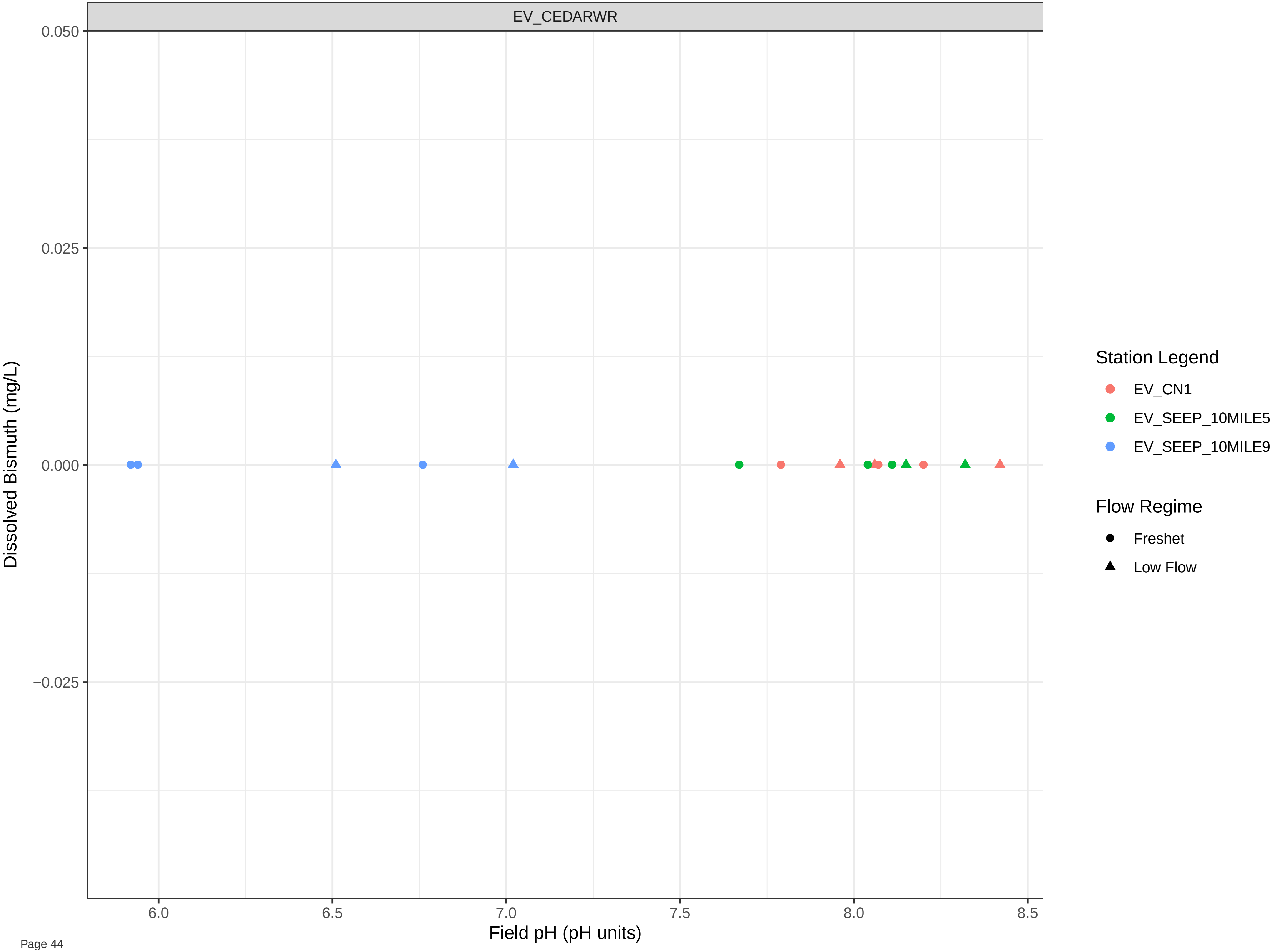

EV_SOUTHSLOPE
Dissolved Beryllium (mg/L)
0.050
0.025
0.000
−0.025
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

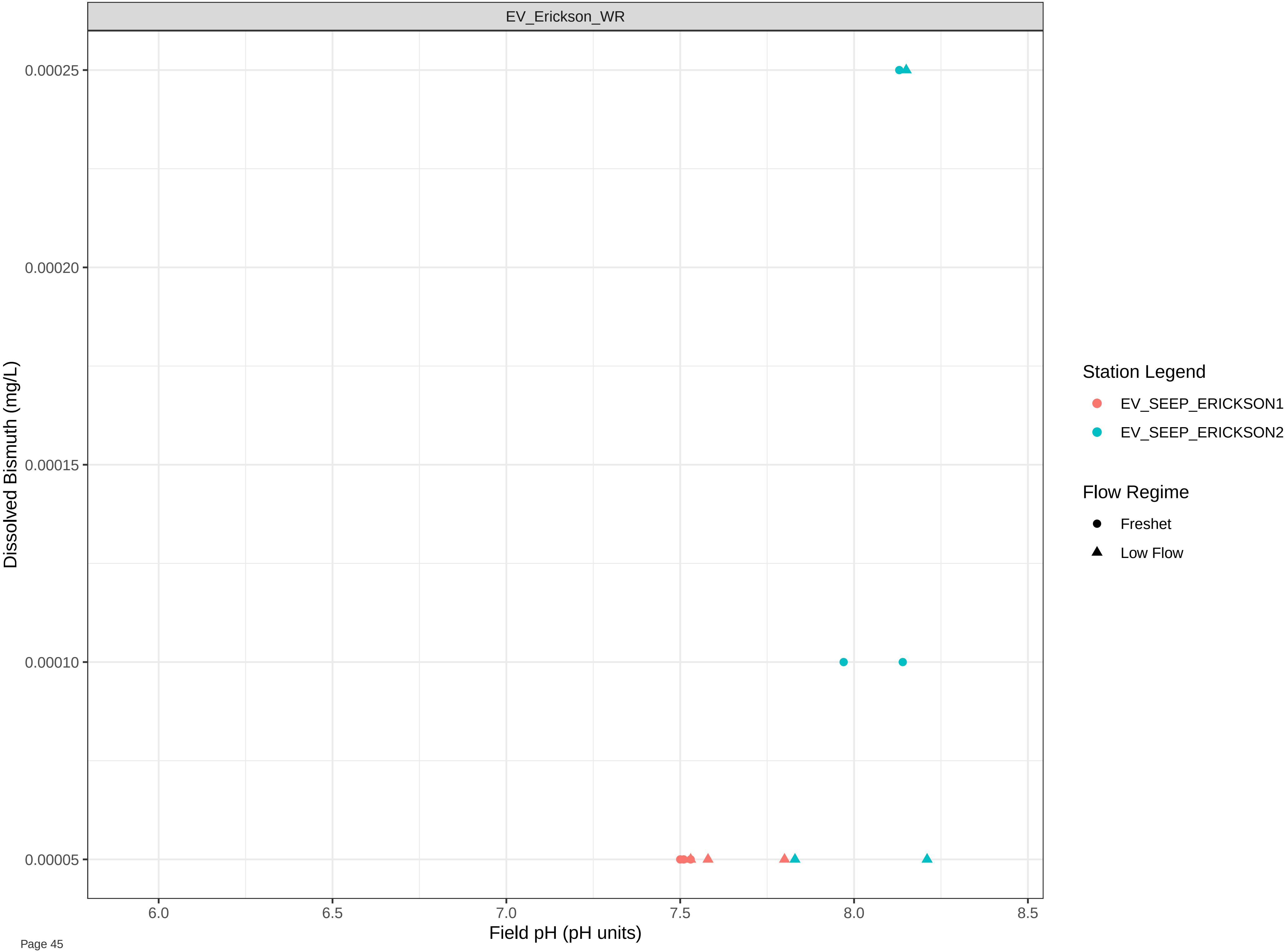

EV_SouthPit_Pit
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

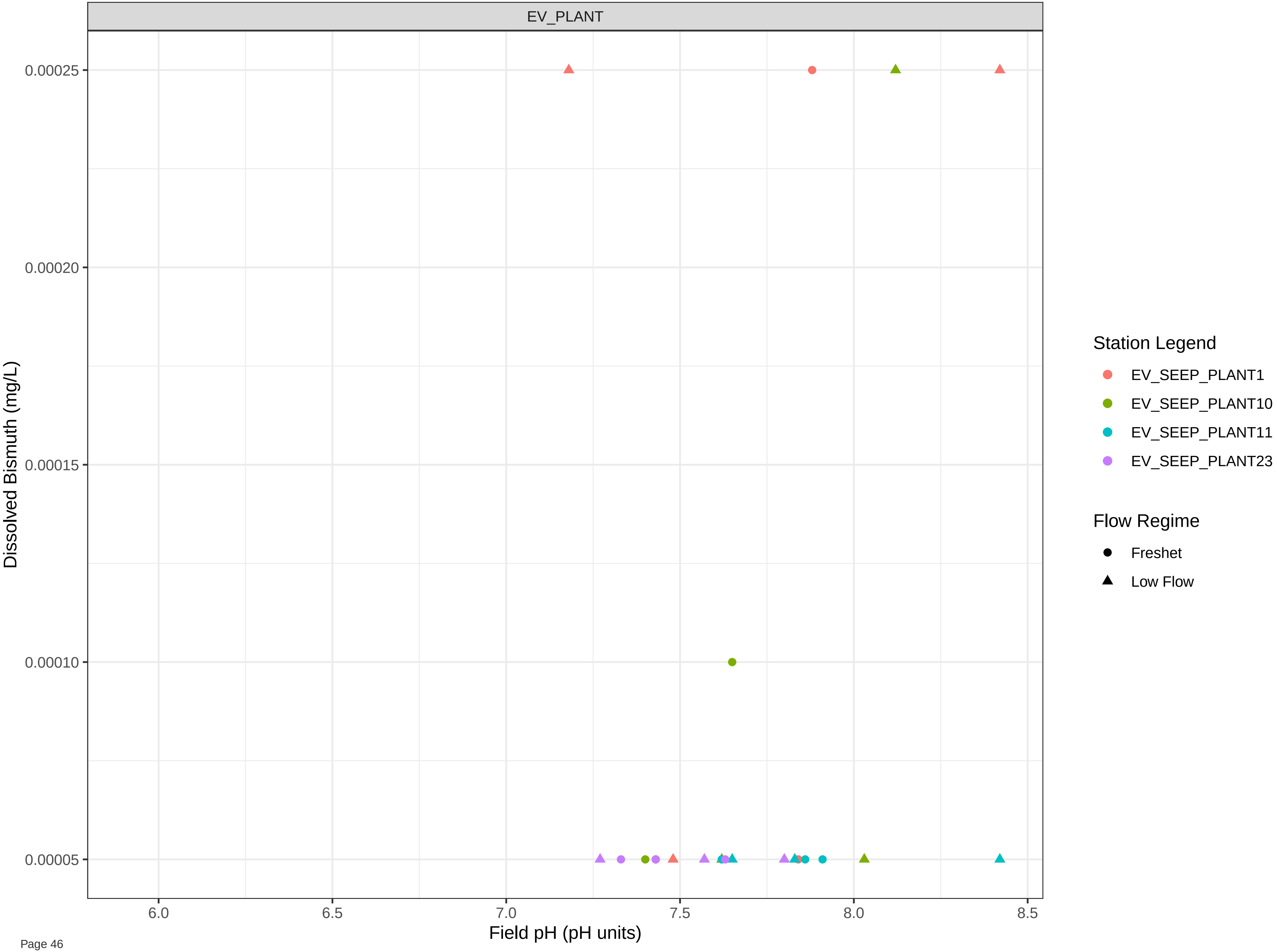

EV_BALDYRIDGEWR
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Bismuth (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

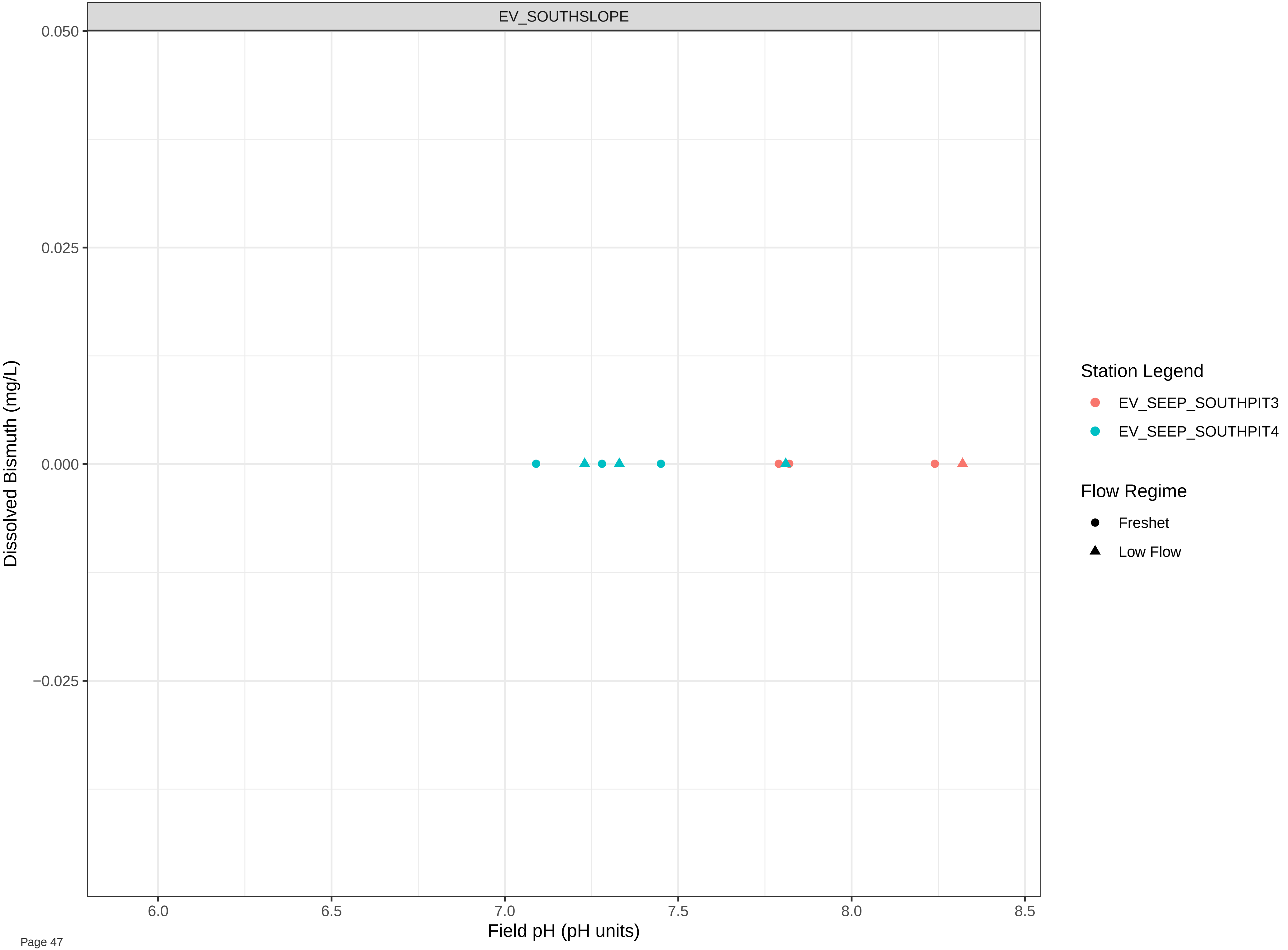

EV_CCR
1e−04
9e−05
8e−05
7e−05
6e−05
5e−05
Dissolved Bismuth (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

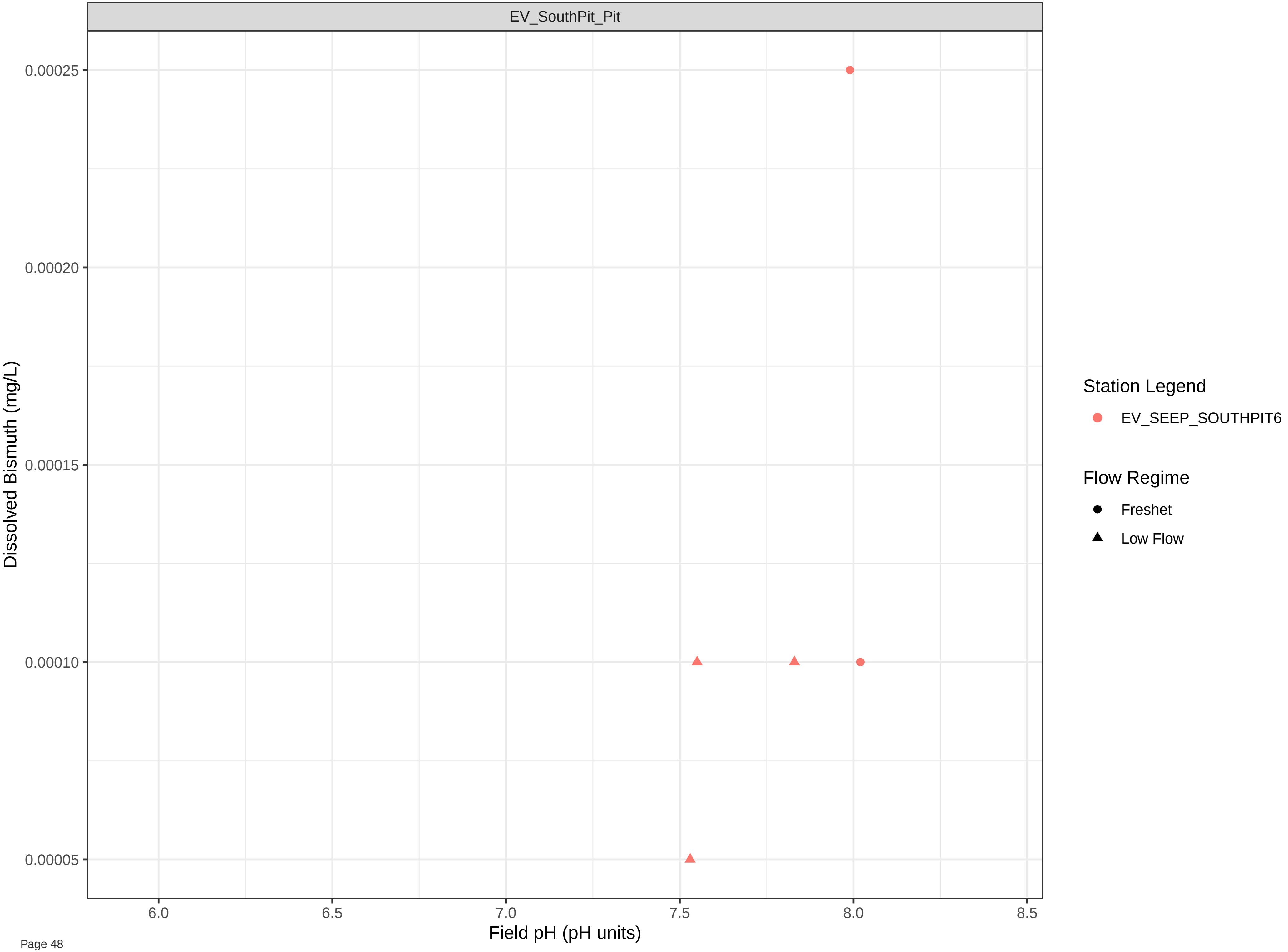

EV_CCR/TP
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

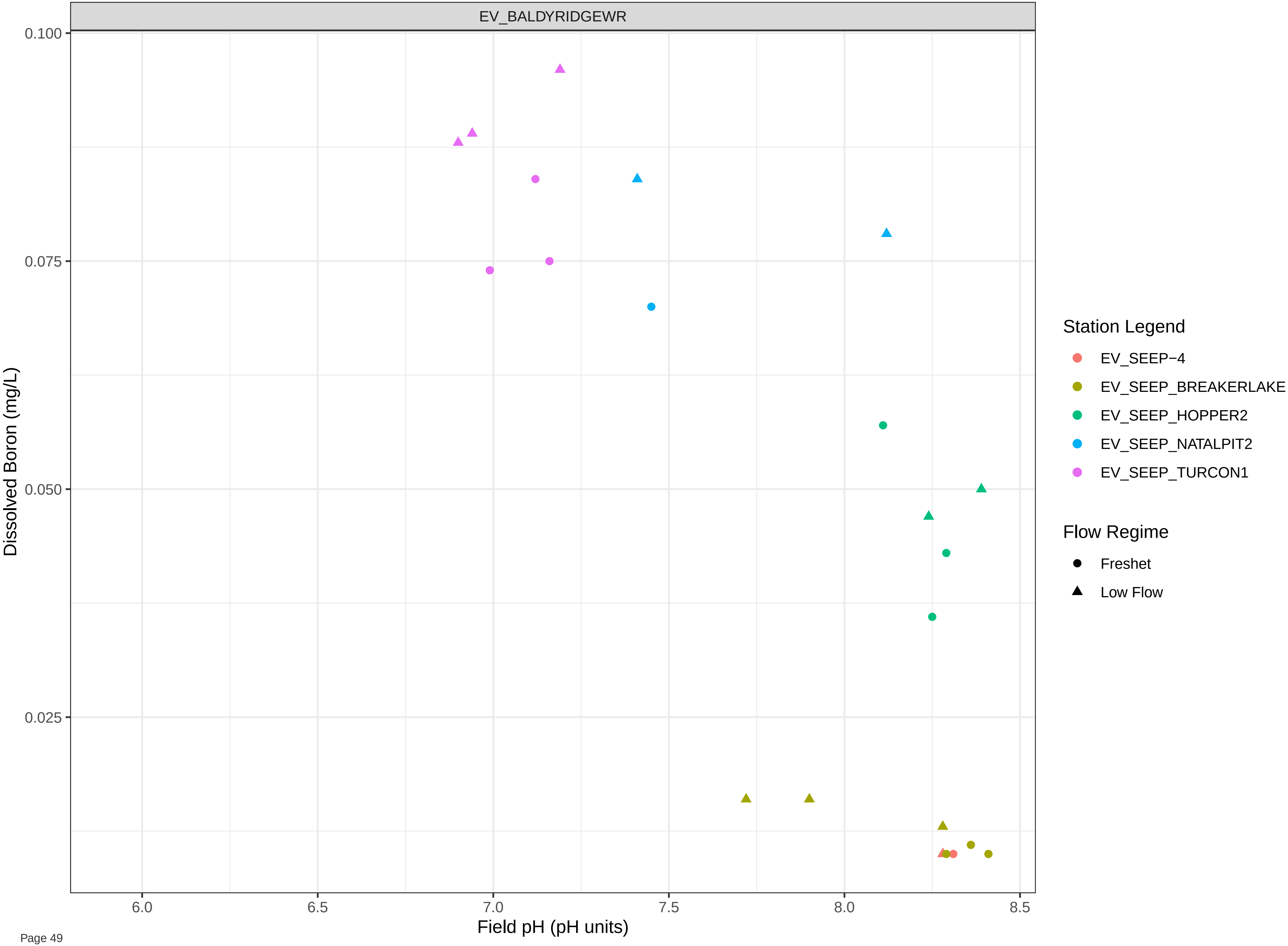

EV_CEDARWR
Dissolved Bismuth (mg/L)
0.050
0.025
0.000
−0.025
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

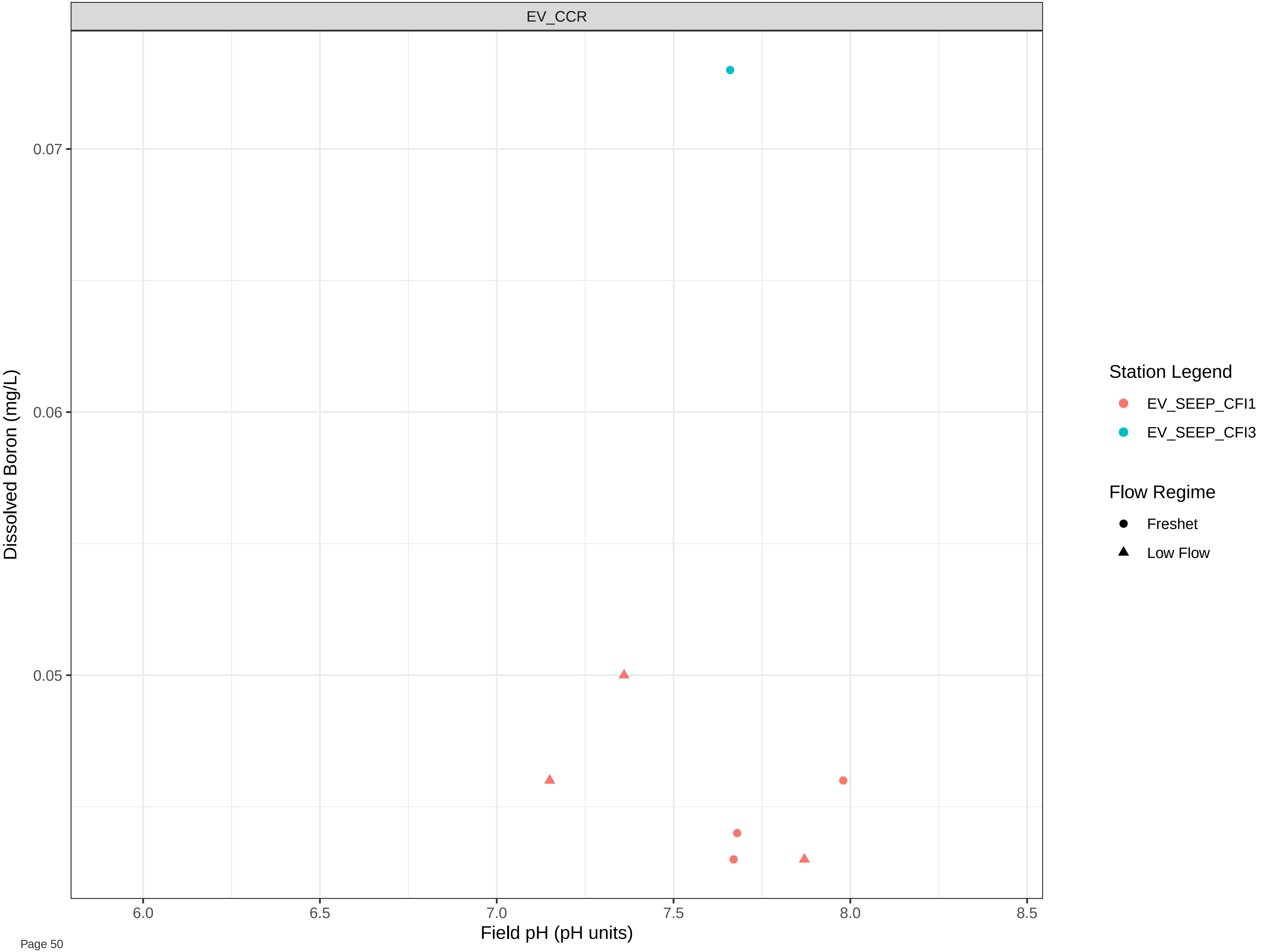

EV_Erickson_WR
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

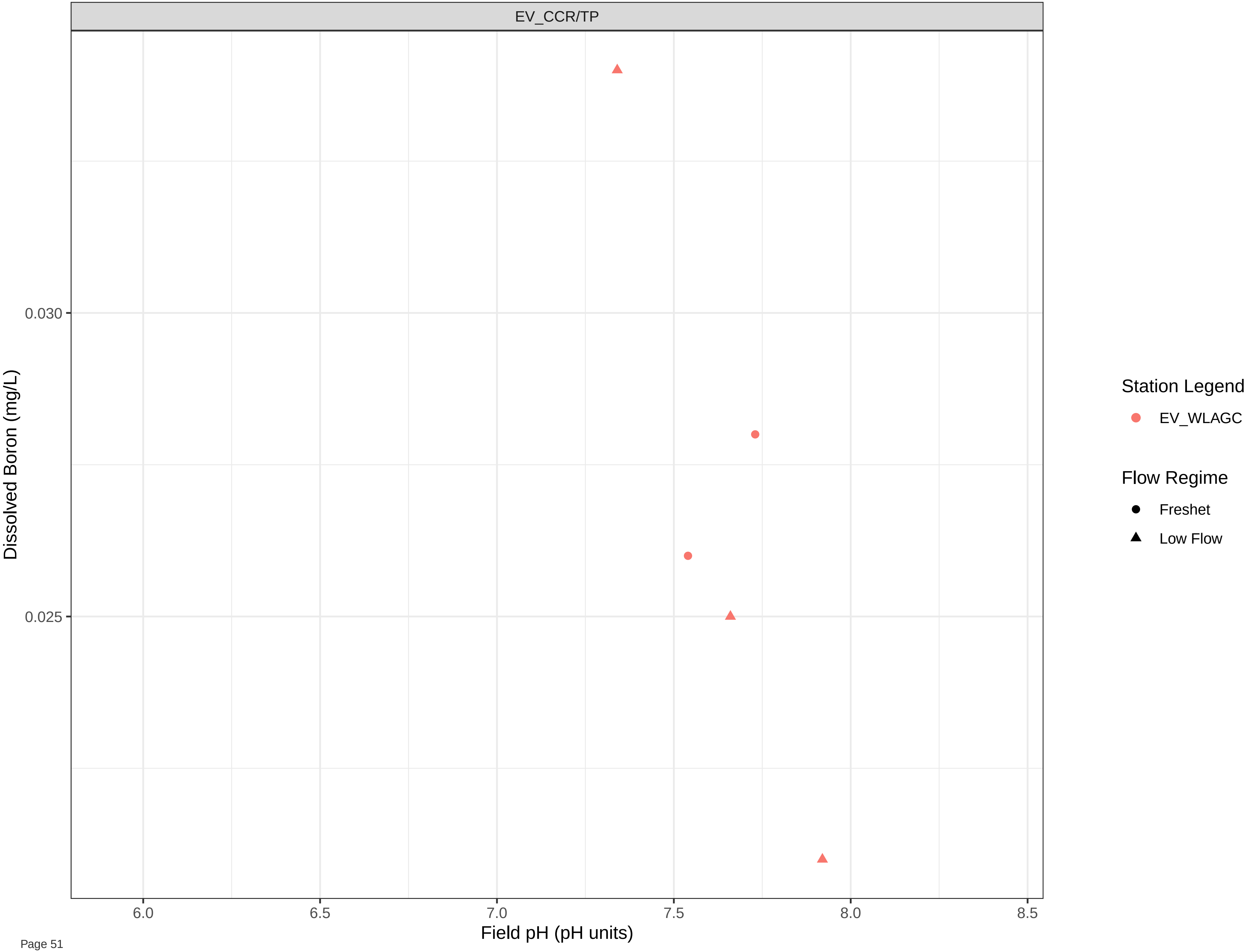

EV_PLANT
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

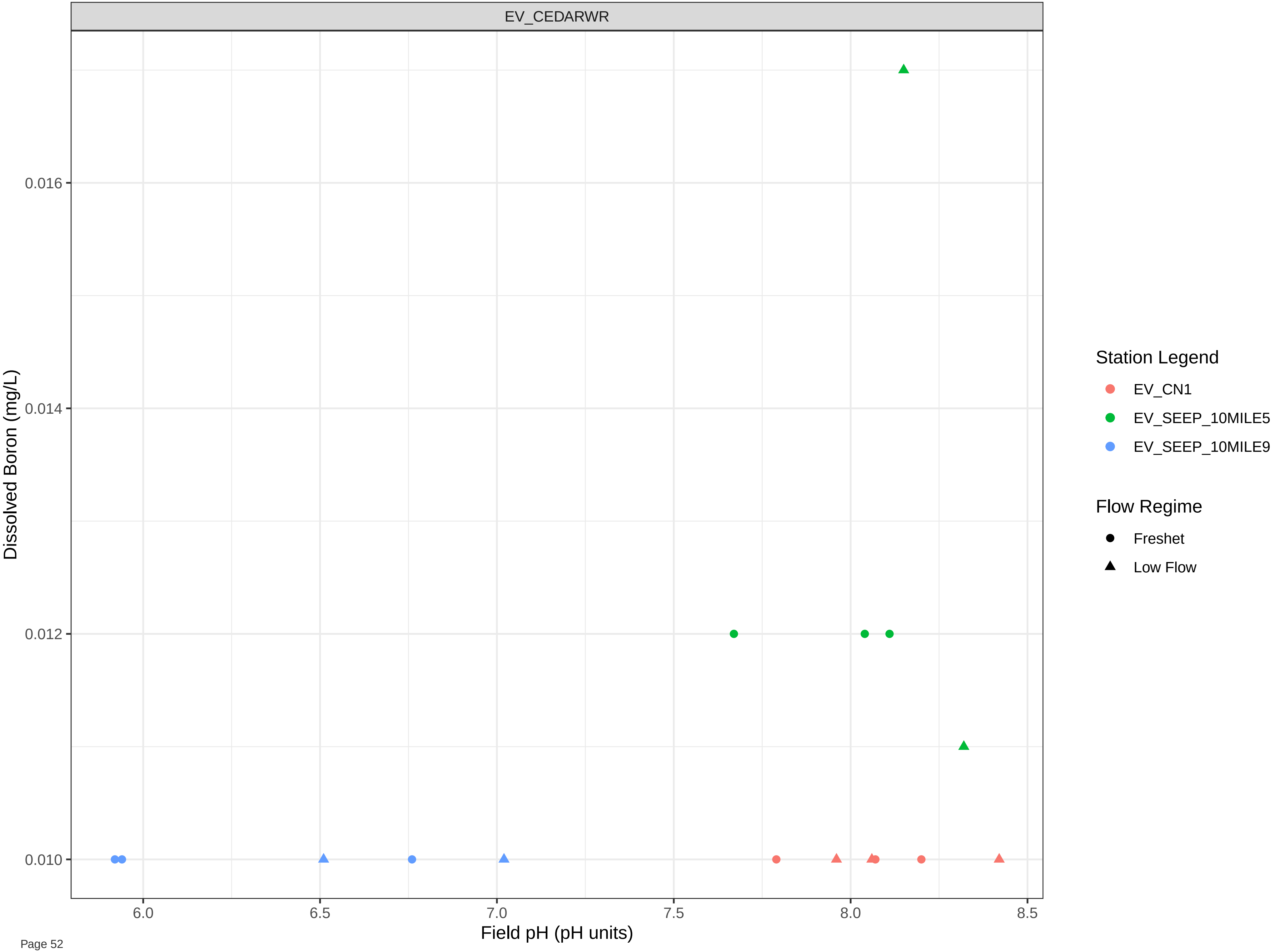

EV_SOUTHSLOPE
Dissolved Bismuth (mg/L)
0.050
0.025
0.000
−0.025
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

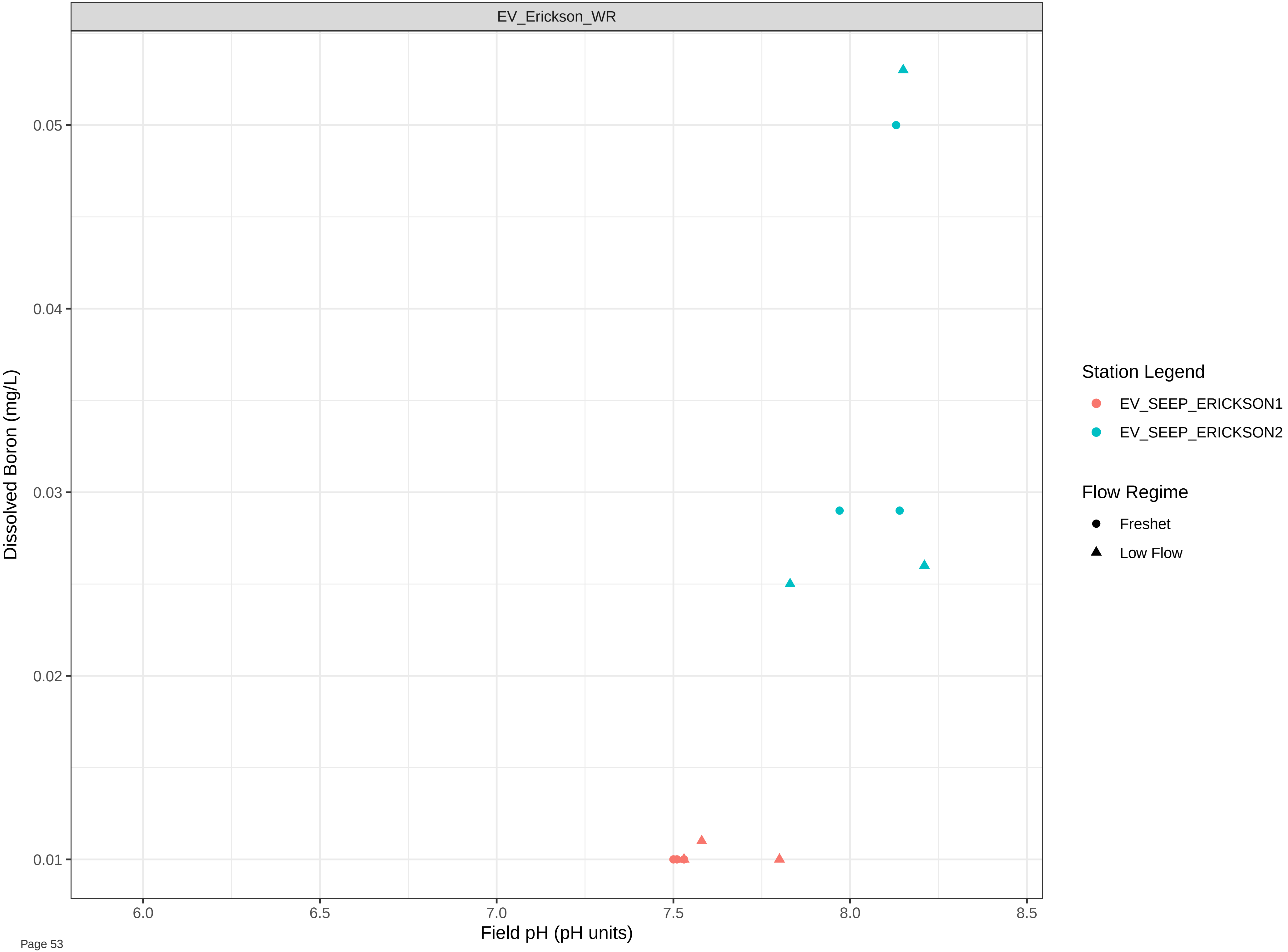

EV_SouthPit_Pit
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

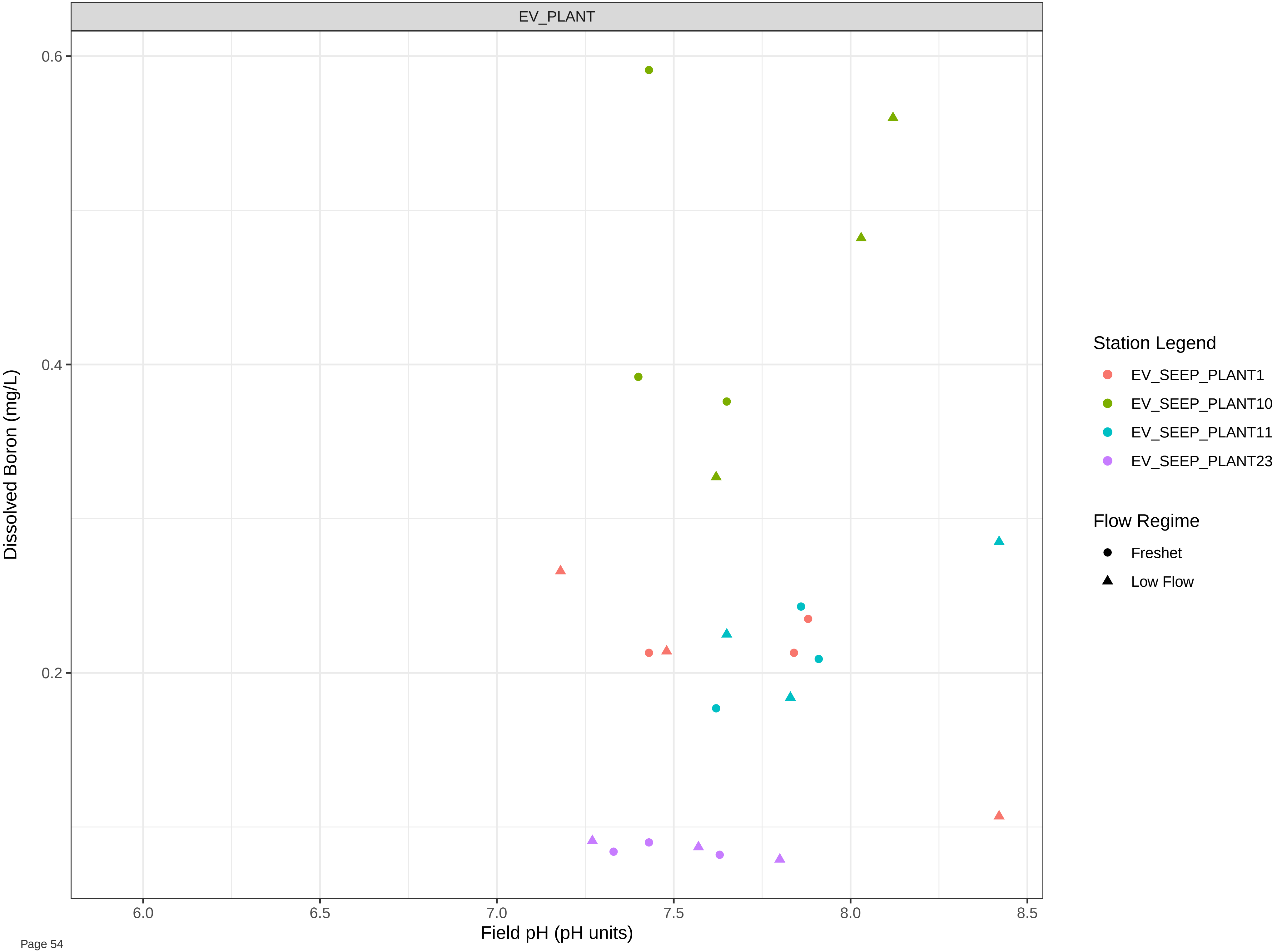

EV_BALDYRIDGEWR
Dissolved Boron (mg/L)
0.100
0.075
0.050
0.025
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

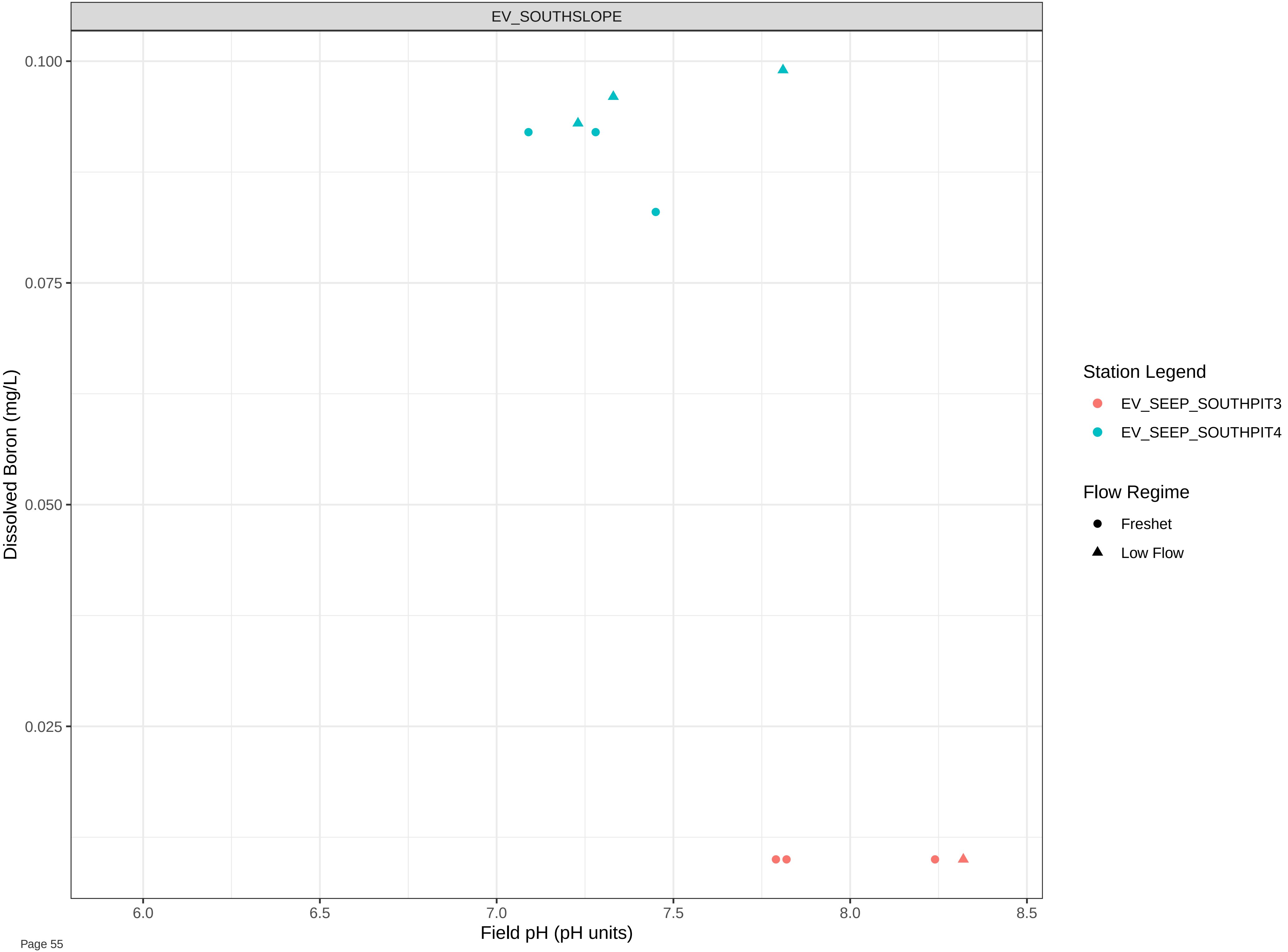

EV_CCR
Dissolved Boron (mg/L)
0.07
0.06
0.05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

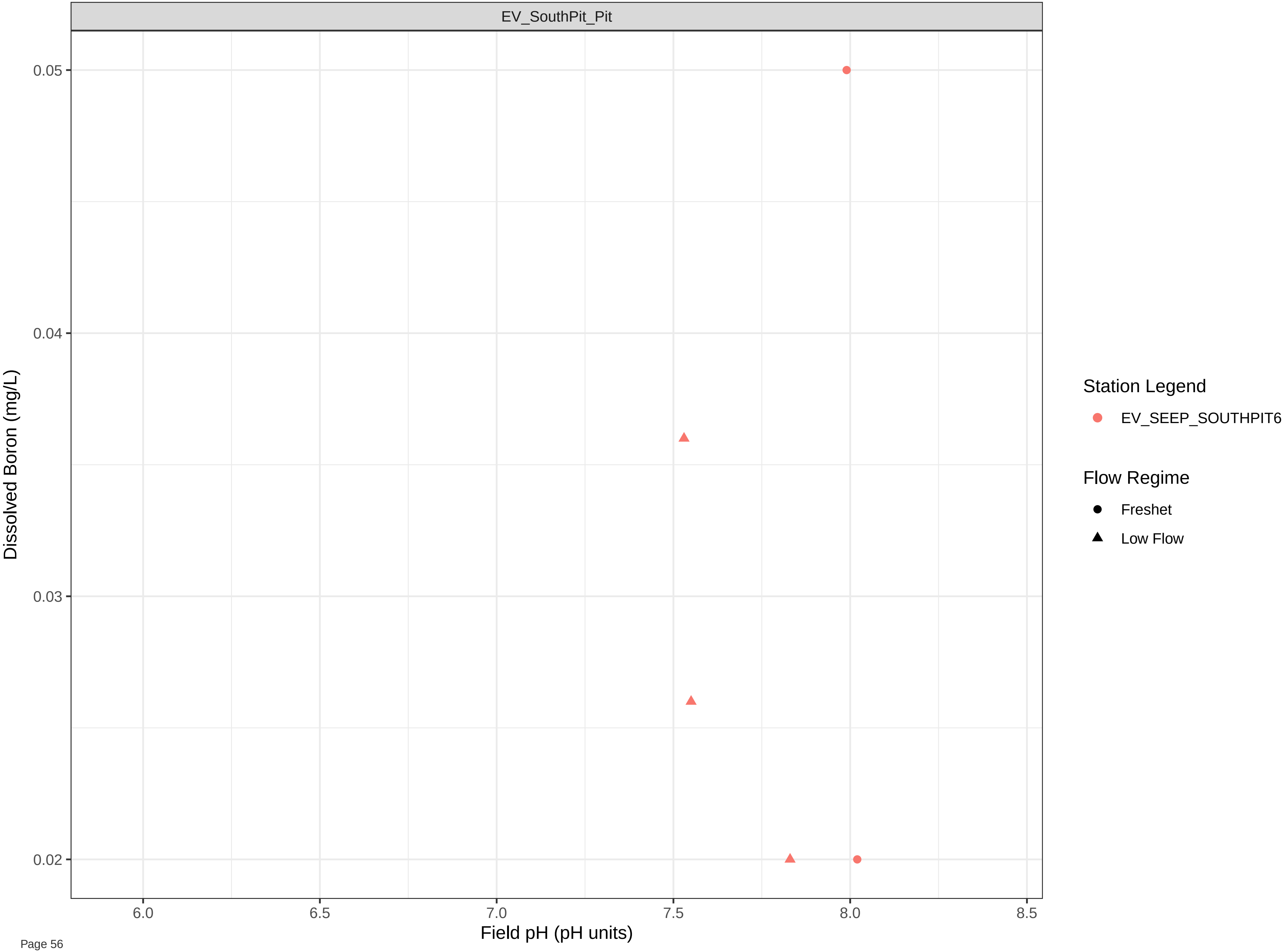

EV_CCR/TP
0.030
0.025
Dissolved Boron (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

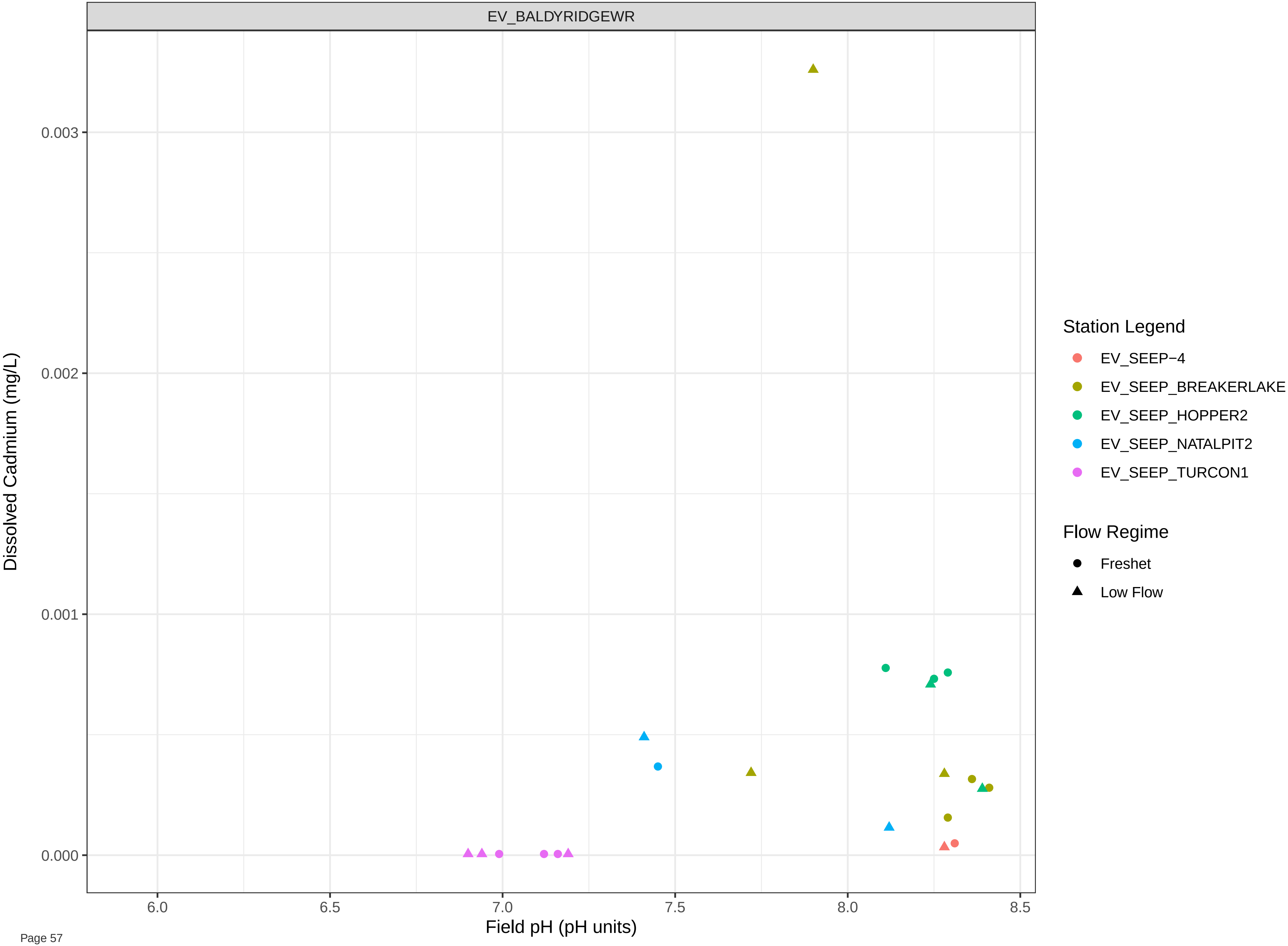

EV_CEDARWR
Dissolved Boron (mg/L)
0.016
0.014
0.012
0.010
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

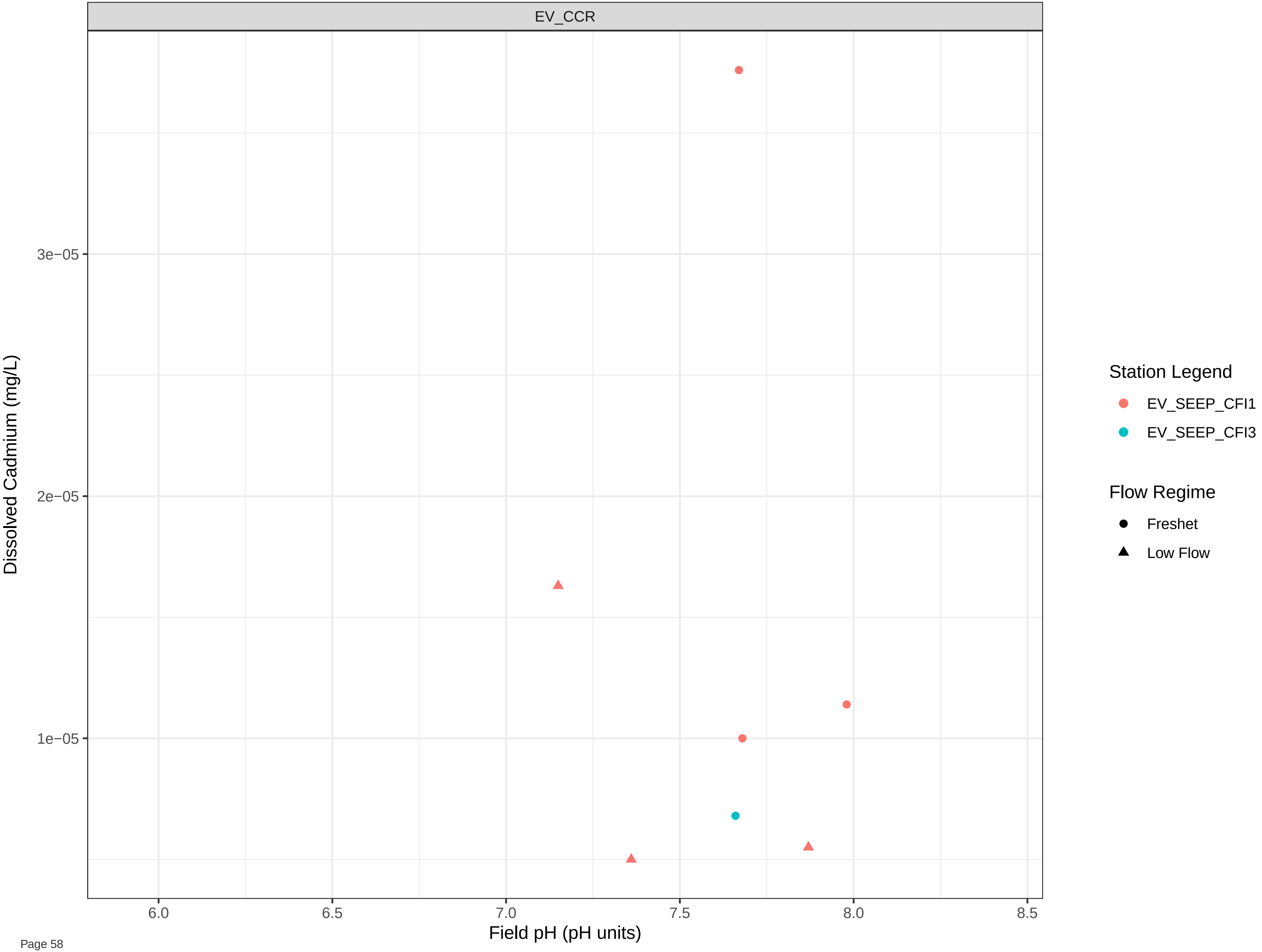

EV_Erickson_WR
Dissolved Boron (mg/L)
0.05
0.04
0.03
0.02
0.01
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

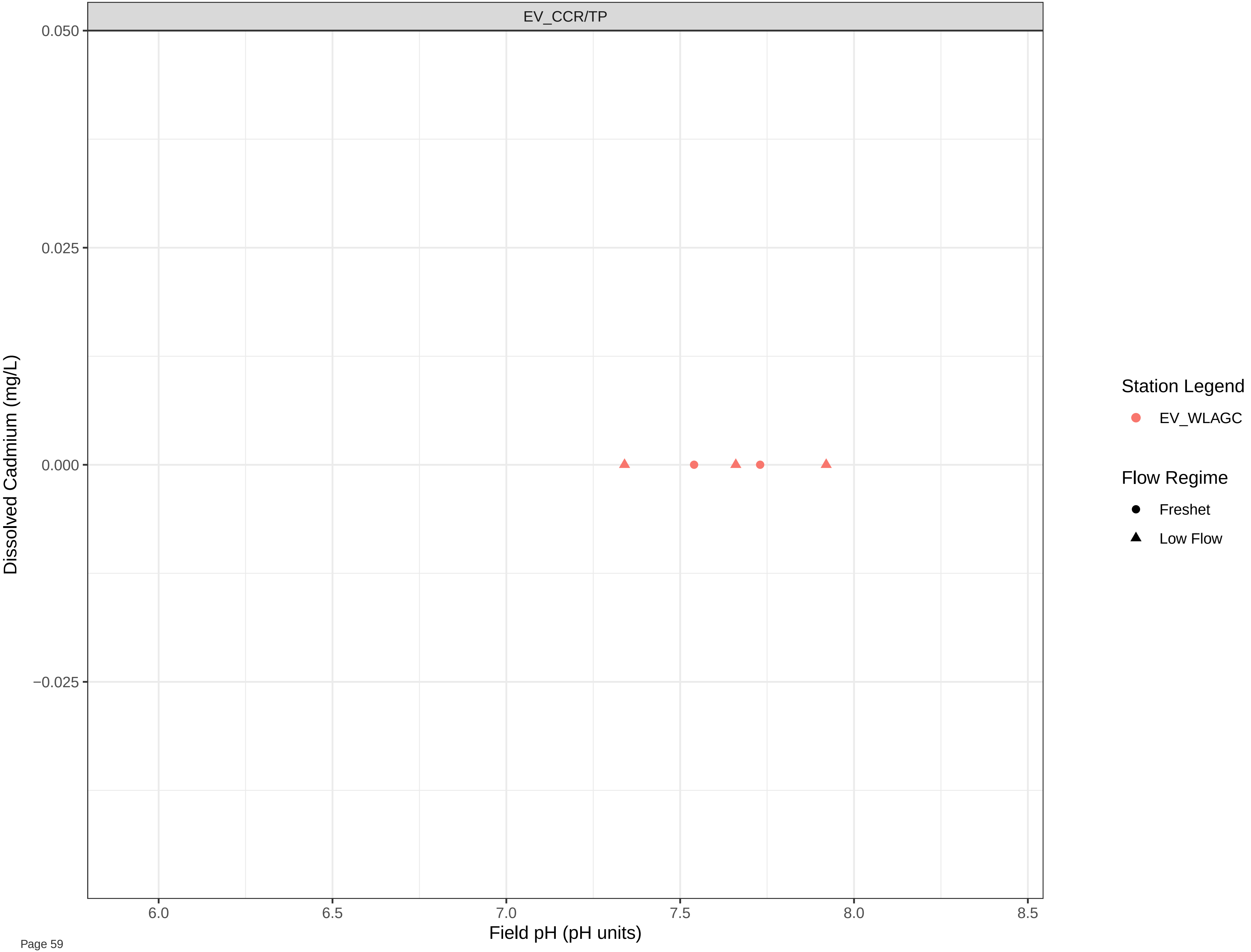

EV_PLANT
Dissolved Boron (mg/L)
0.6
0.4
0.2
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

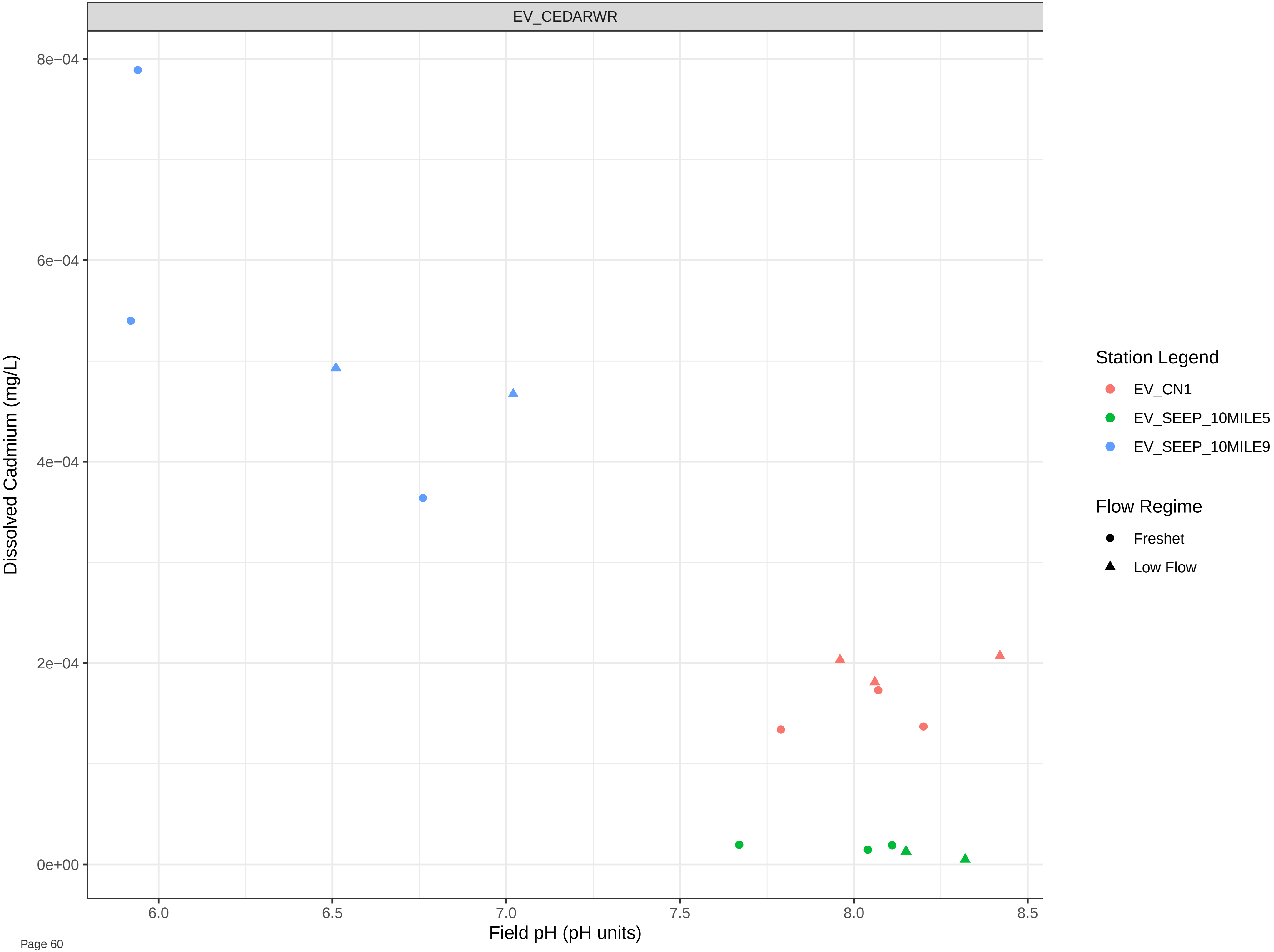

EV_SOUTHSLOPE
Dissolved Boron (mg/L)
0.100
0.075
0.050
0.025
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

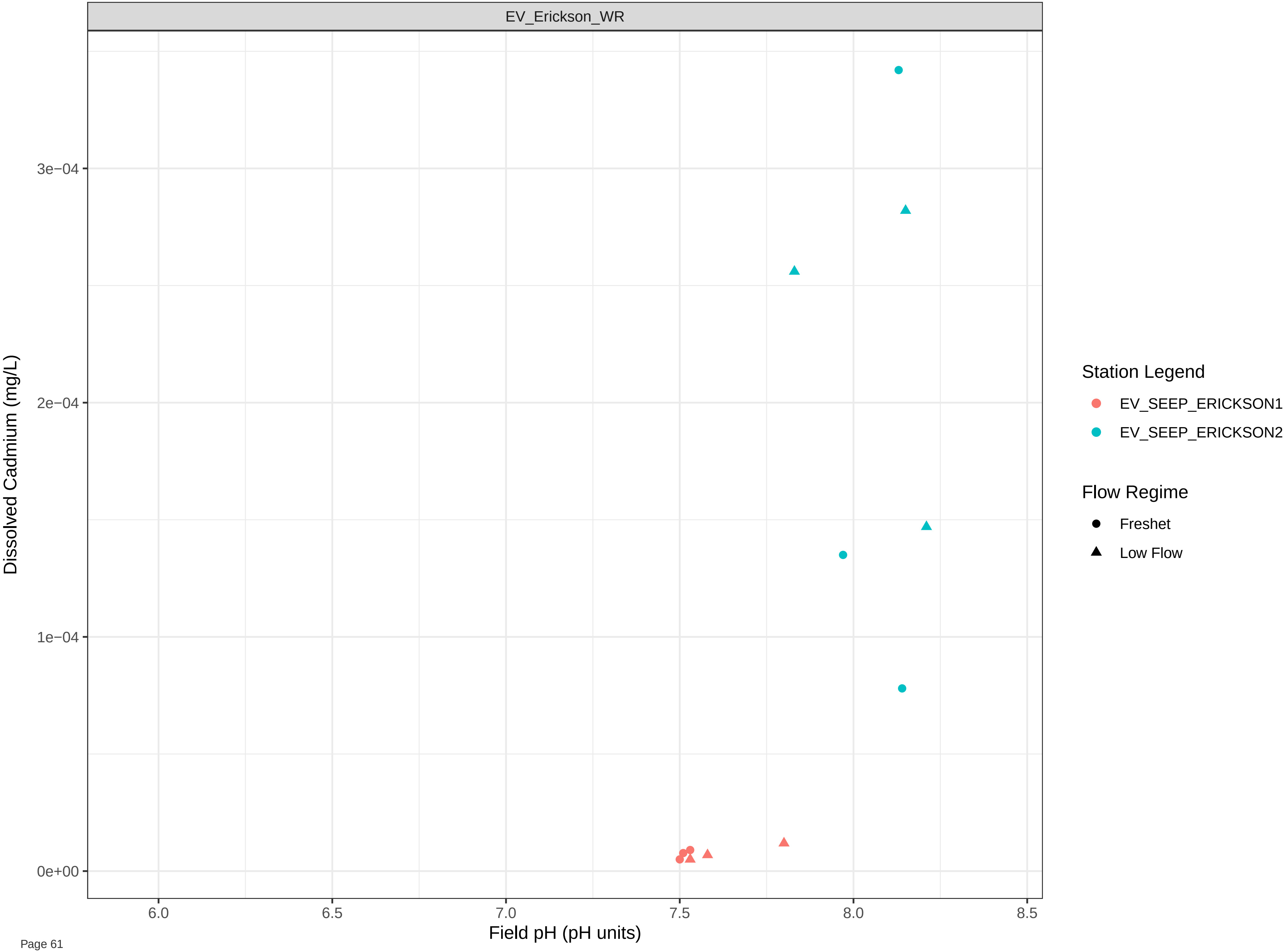

EV_SouthPit_Pit
Dissolved Boron (mg/L)
0.05
0.04
0.03
0.02
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

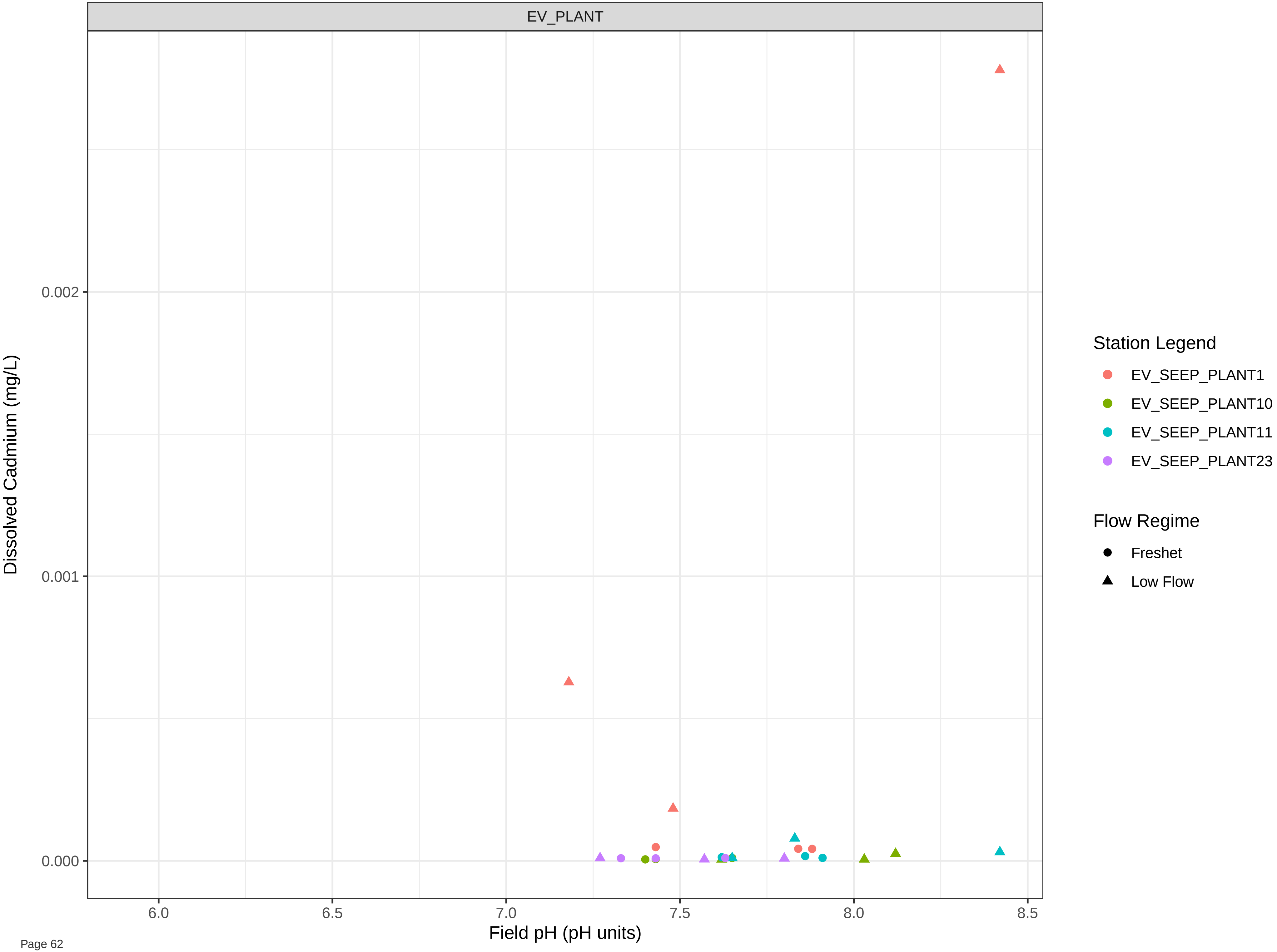

EV_BALDYRIDGEWR
Dissolved Cadmium (mg/L)
0.003
0.002
0.001
0.000
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

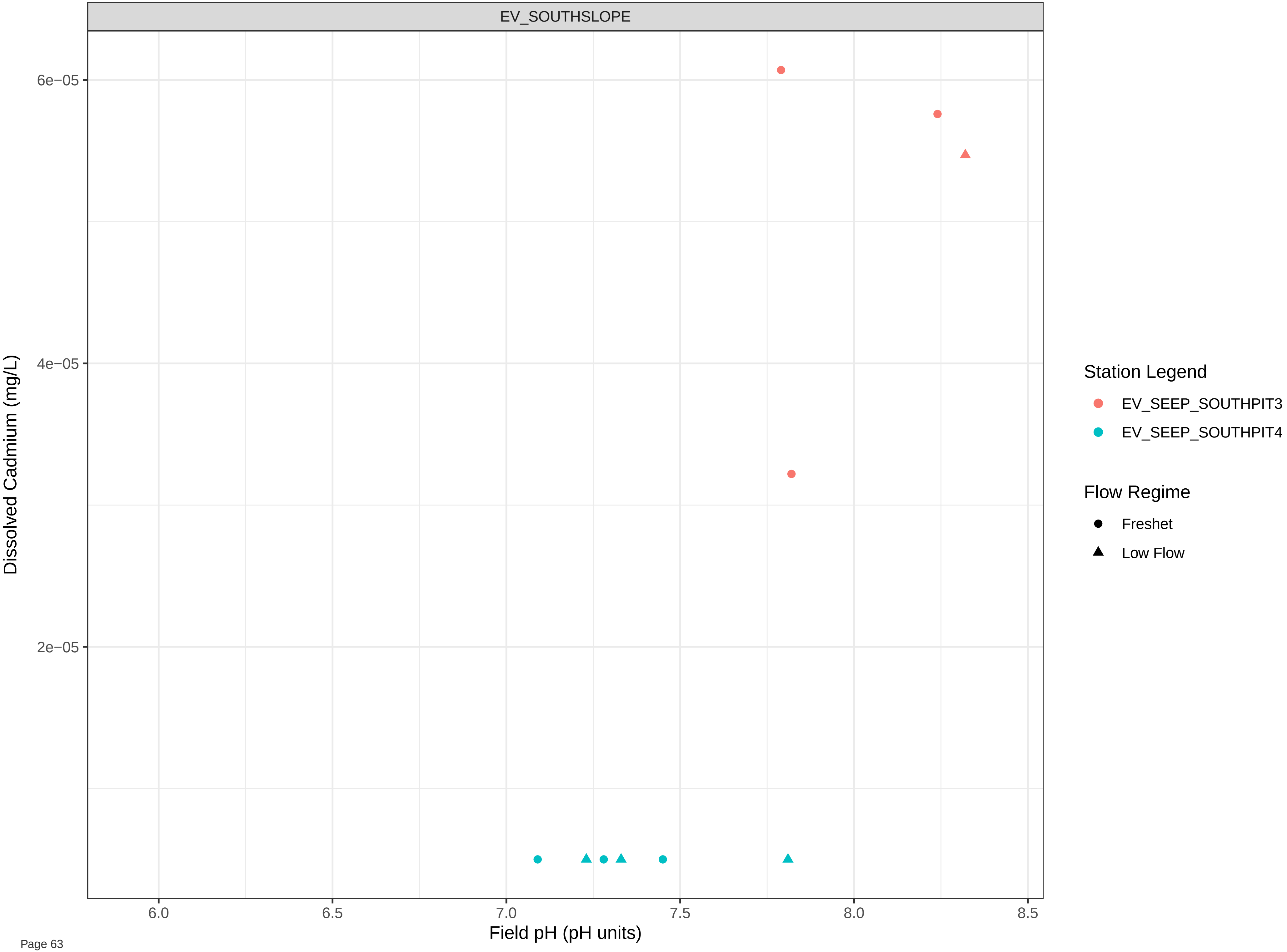

EV_CCR
Dissolved Cadmium (mg/L)
3e−05
2e−05
1e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

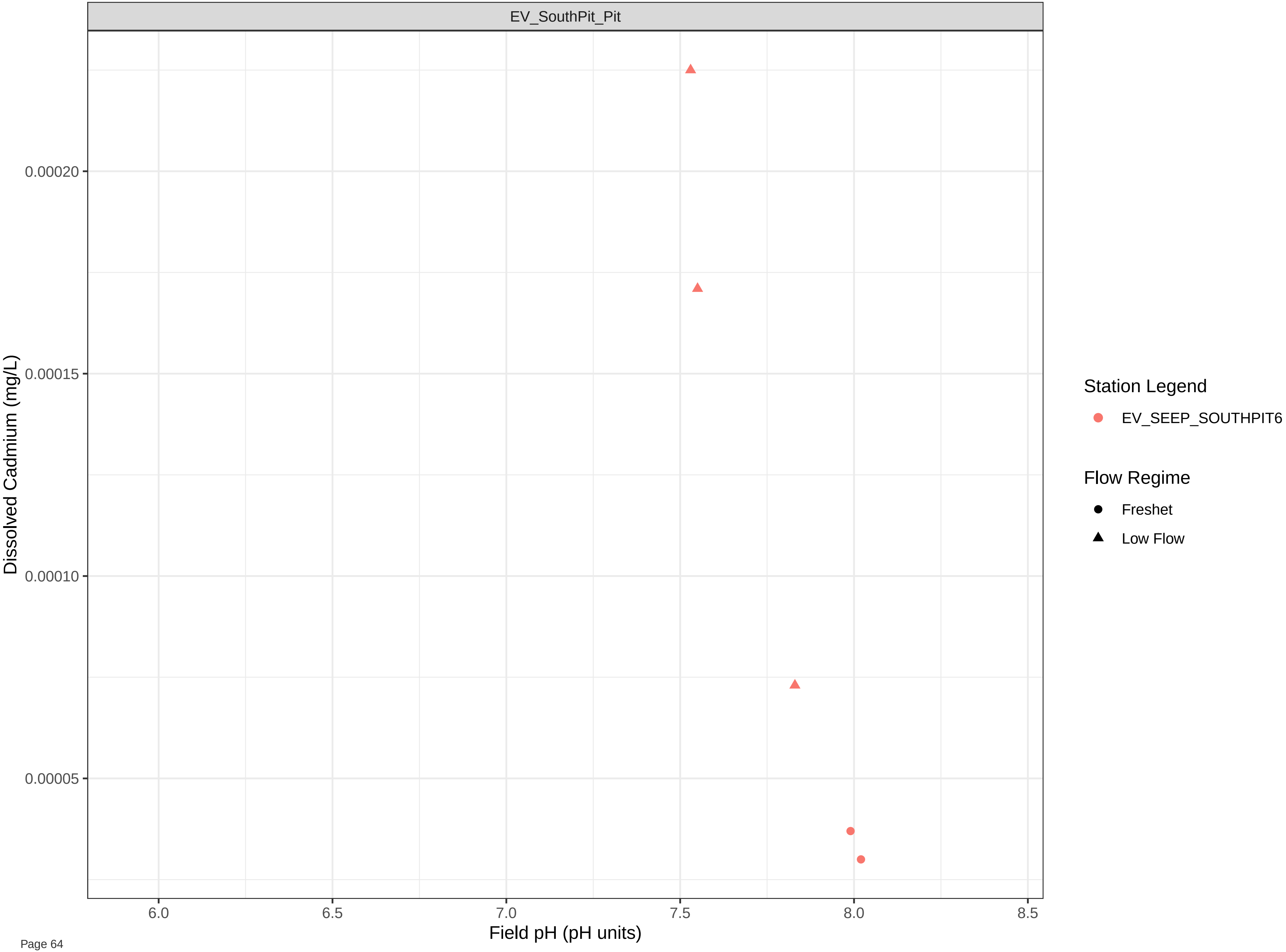

EV_CCR/TP
0.050
0.025
0.000
−0.025
Dissolved Cadmium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

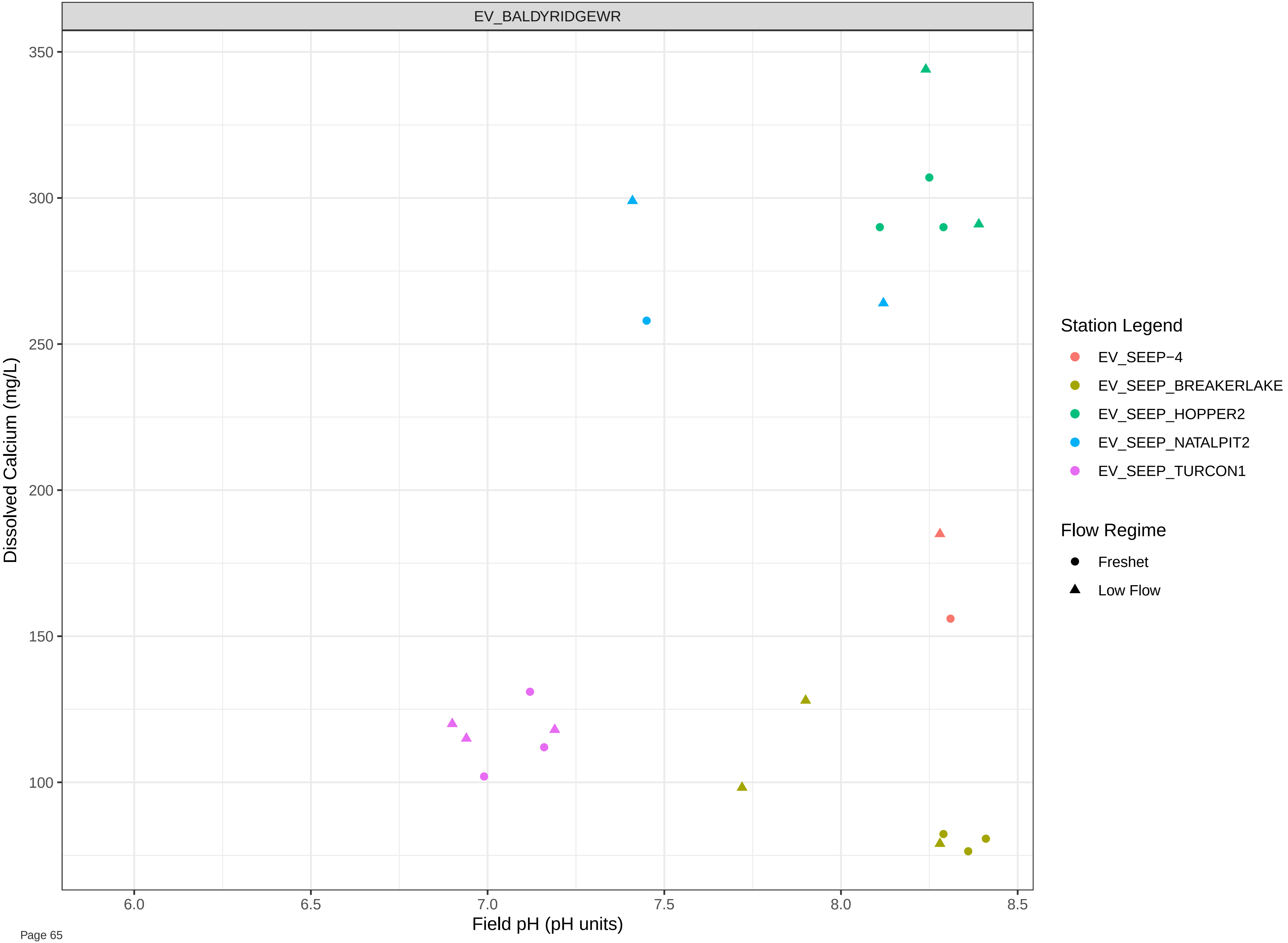

EV_CEDARWR
Dissolved Cadmium (mg/L)
8e−04
6e−04
4e−04
2e−04
0e+00
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

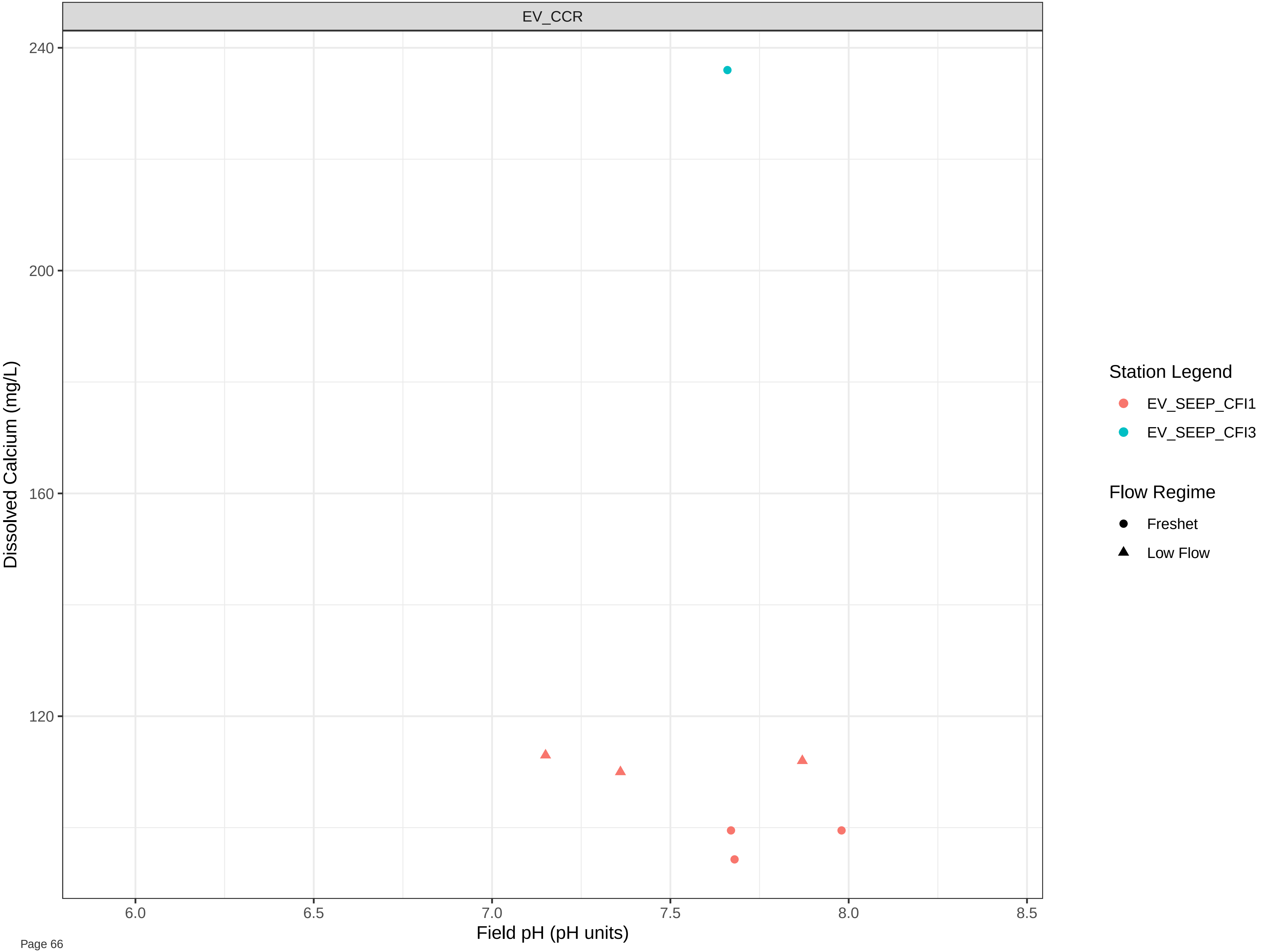

EV_Erickson_WR
Dissolved Cadmium (mg/L)
3e−04
2e−04
1e−04
0e+00
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

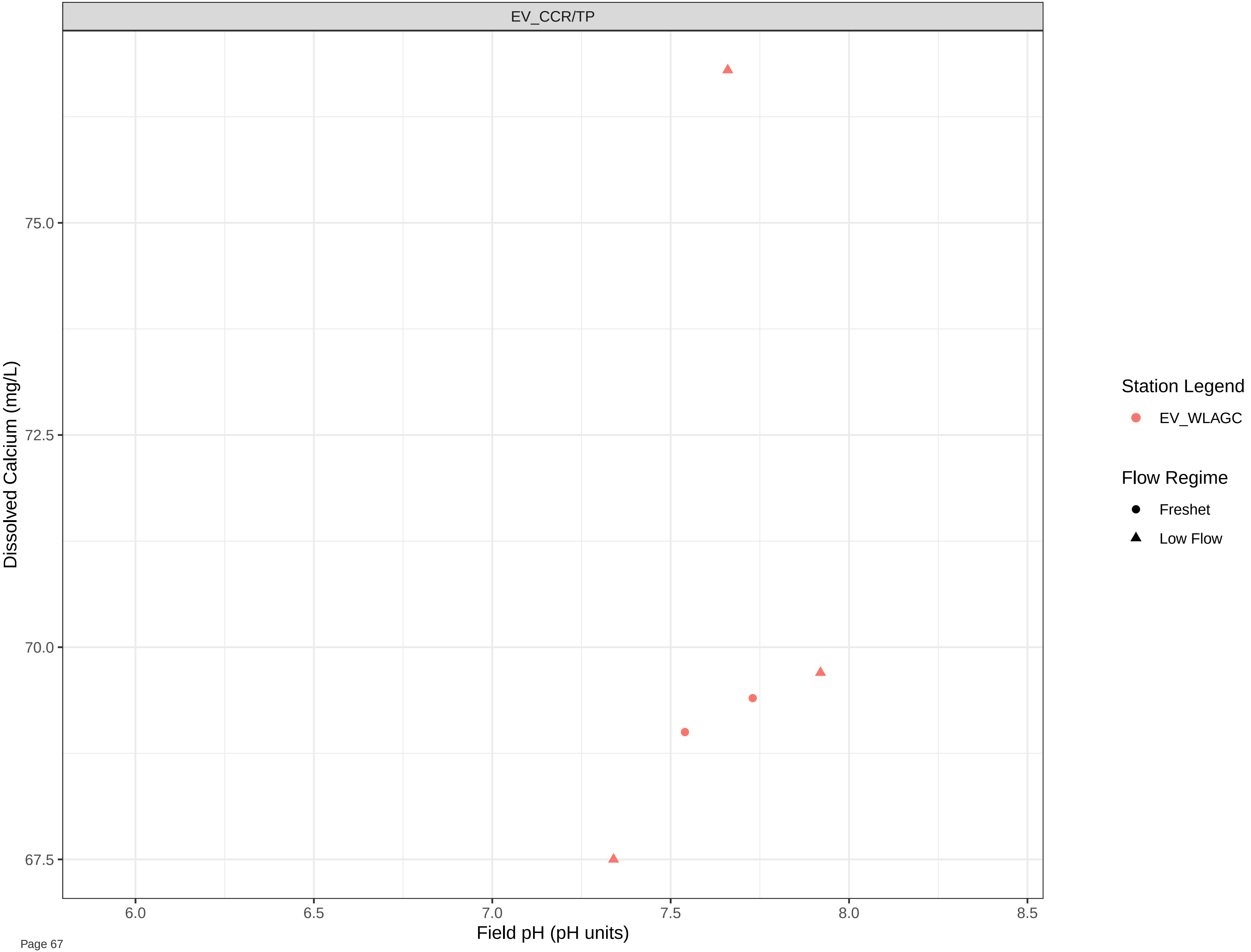

EV_PLANT
Dissolved Cadmium (mg/L)
0.002
0.001
0.000
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

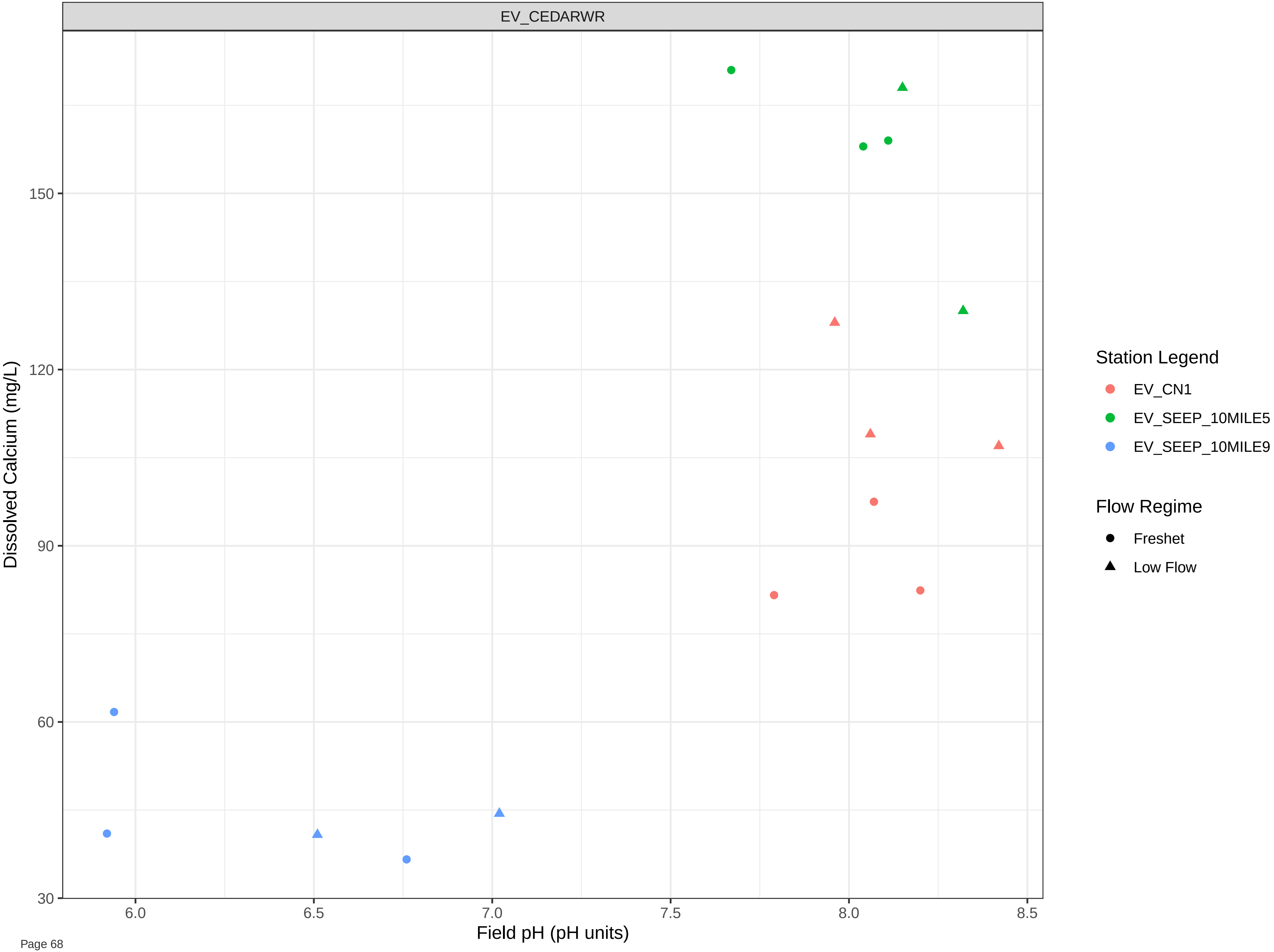

EV_SOUTHSLOPE
Dissolved Cadmium (mg/L)
6e−05
4e−05
2e−05
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

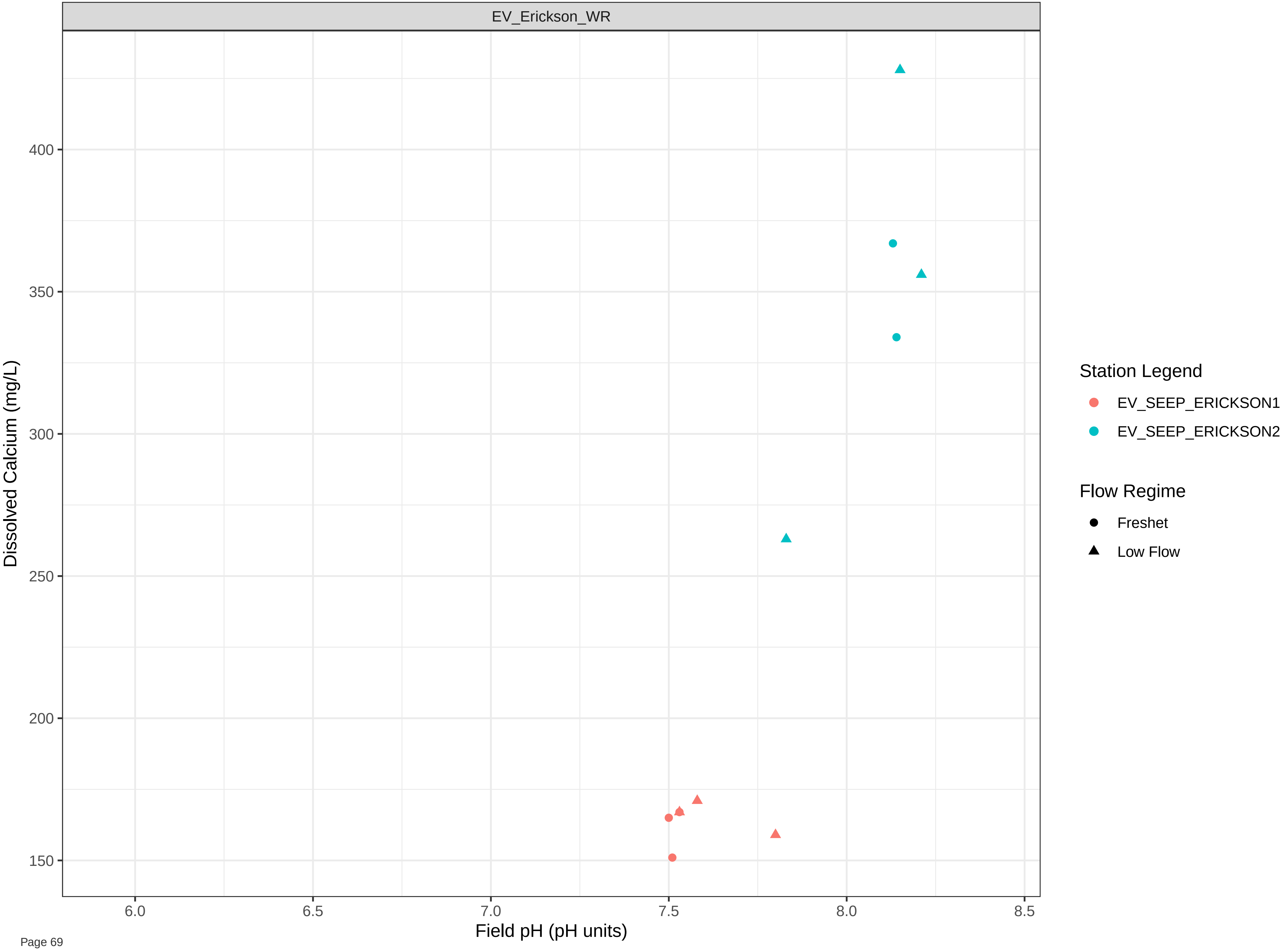

EV_SouthPit_Pit
Dissolved Cadmium (mg/L)
0.00020
0.00015
0.00010
0.00005
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

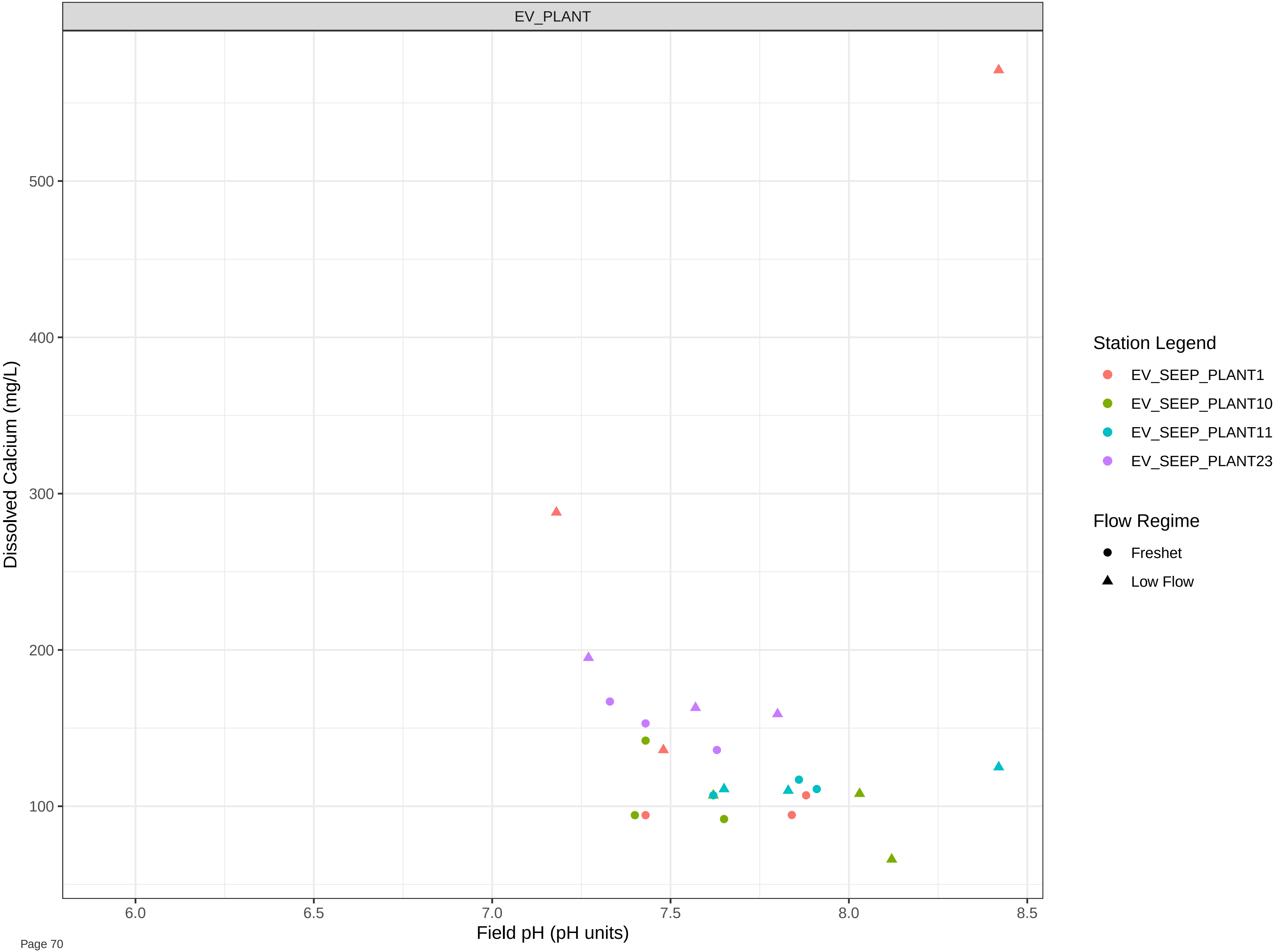

EV_BALDYRIDGEWR
Dissolved Calcium (mg/L)
350
300
250
200
150
100
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

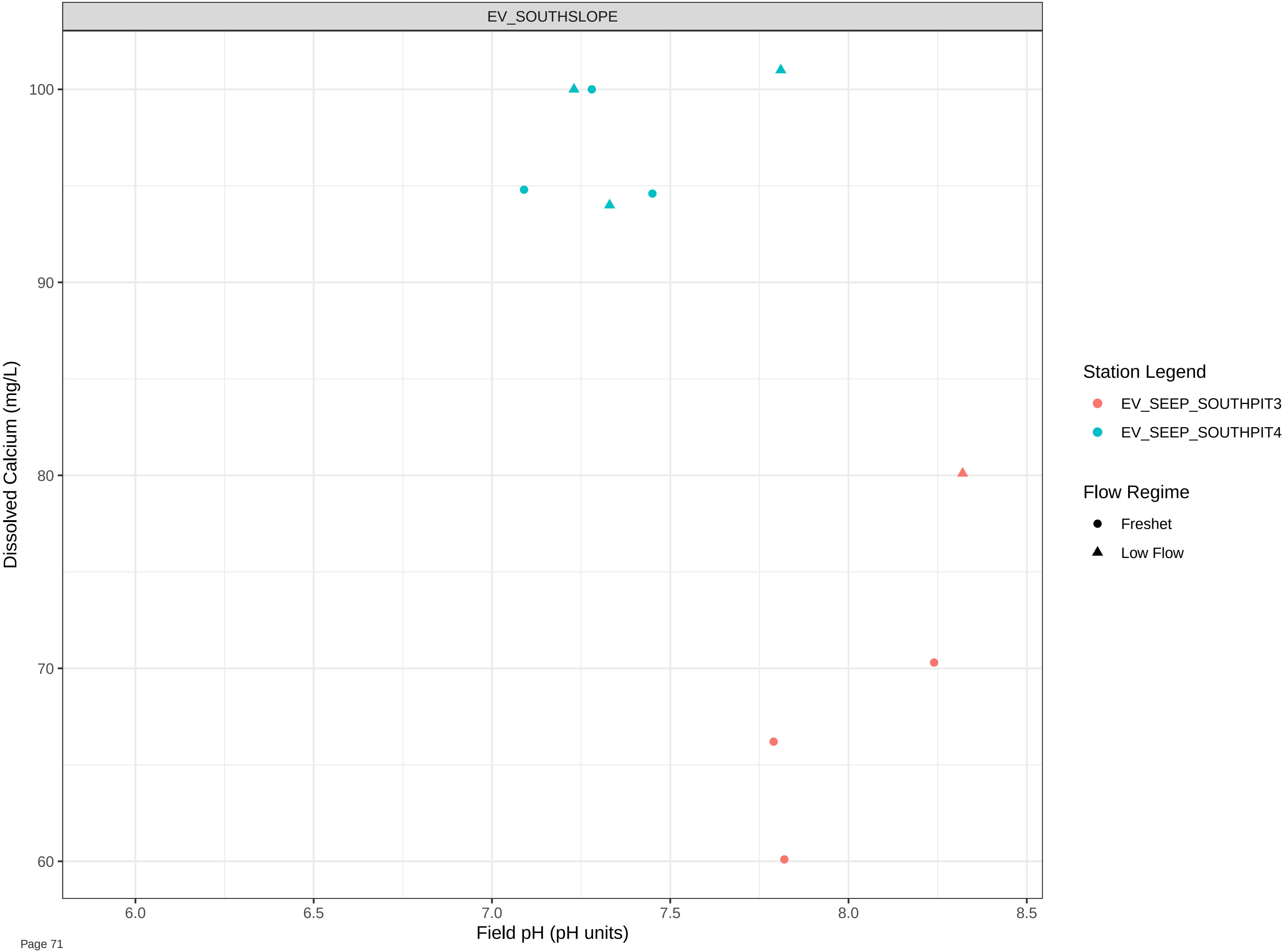

EV_CCR
240
200
160
120
6.0
6.5
7.0
7.5
8.0
8.5
Dissolved Calcium (mg/L)
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

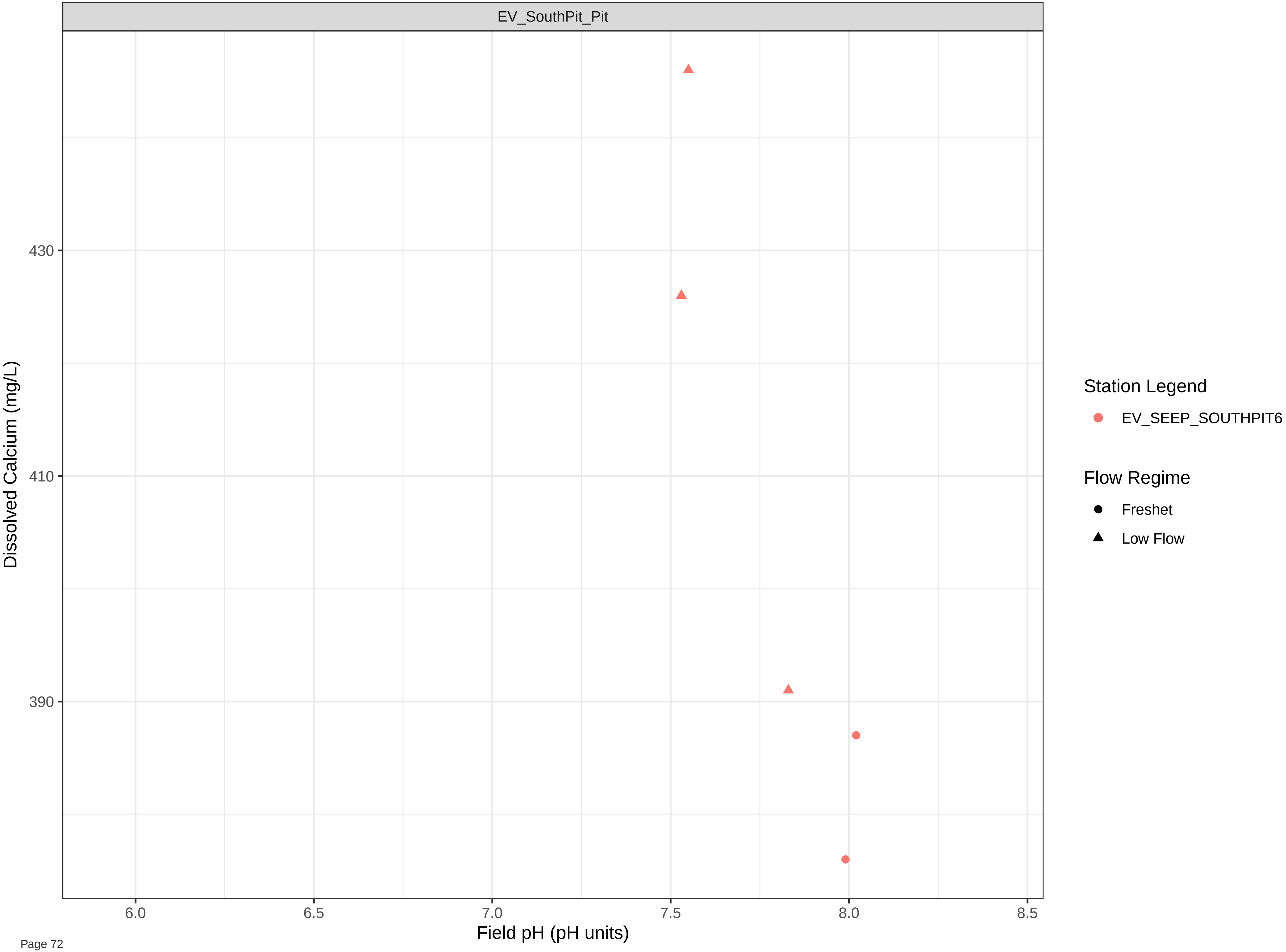

EV_CCR/TP
Dissolved Calcium (mg/L)
75.0
72.5
70.0
67.5
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

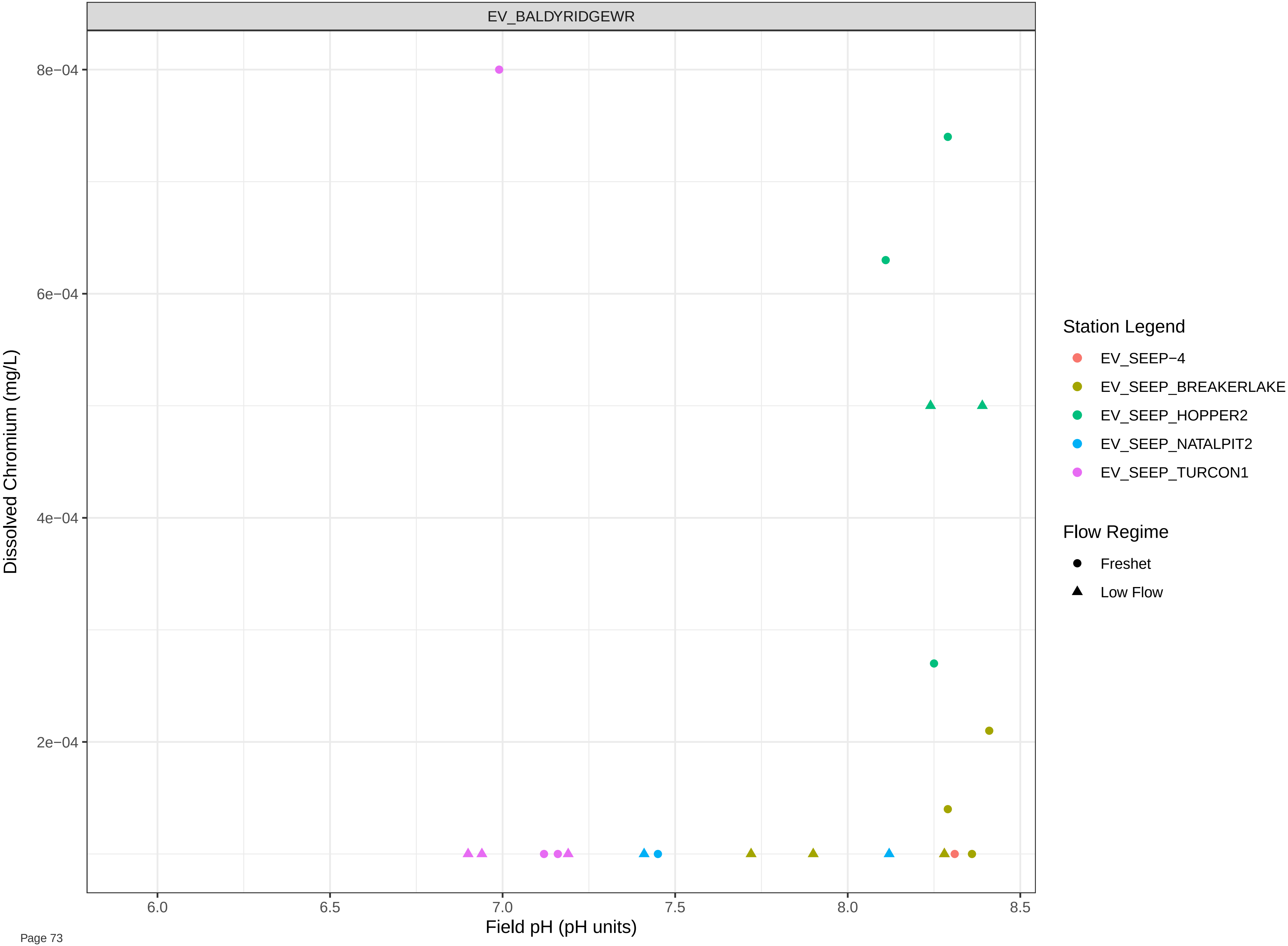

EV_CEDARWR
Dissolved Calcium (mg/L)
150
120
90
60
30
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

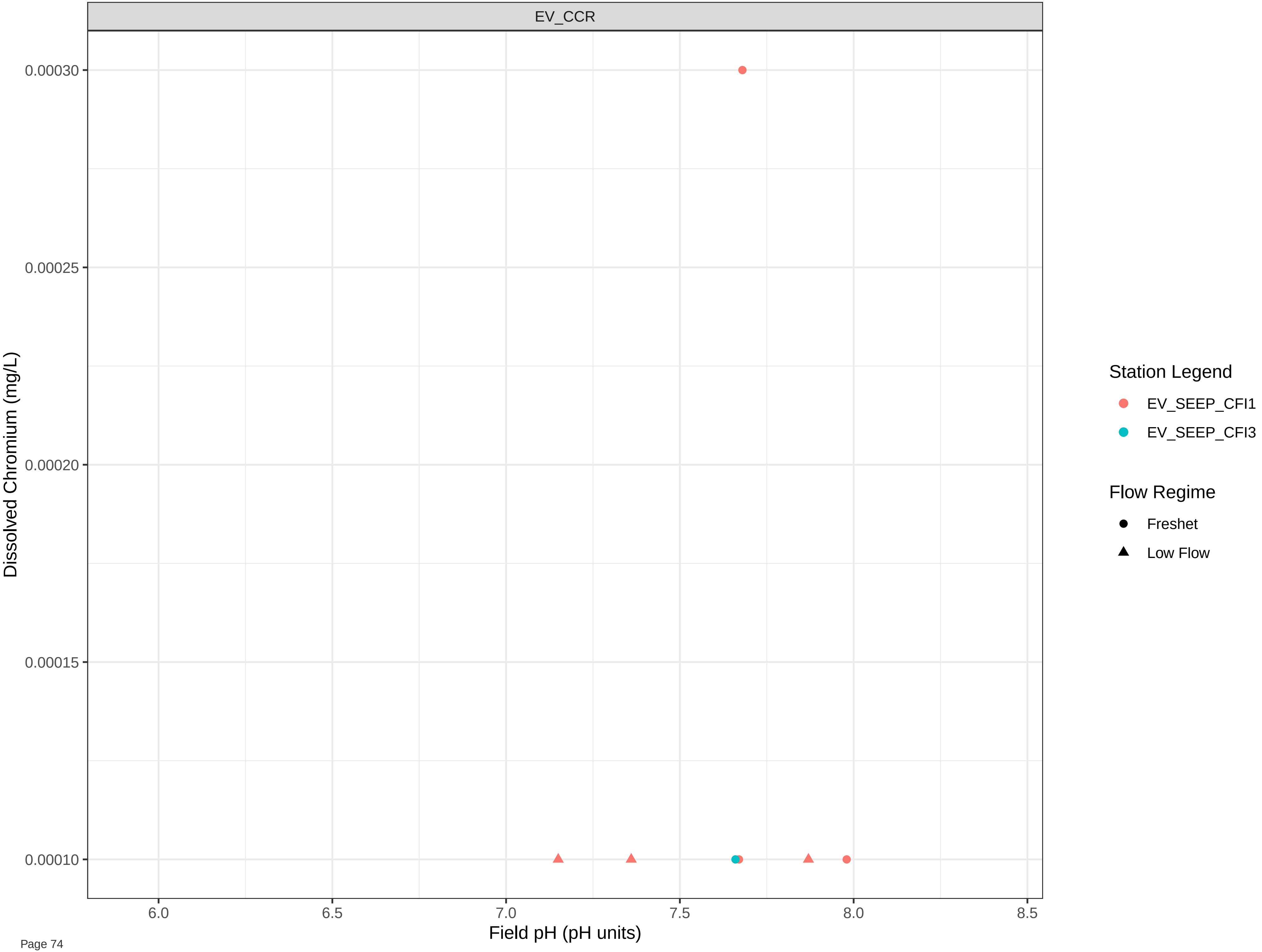

EV_Erickson_WR
Dissolved Calcium (mg/L)
400
350
300
250
200
150
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

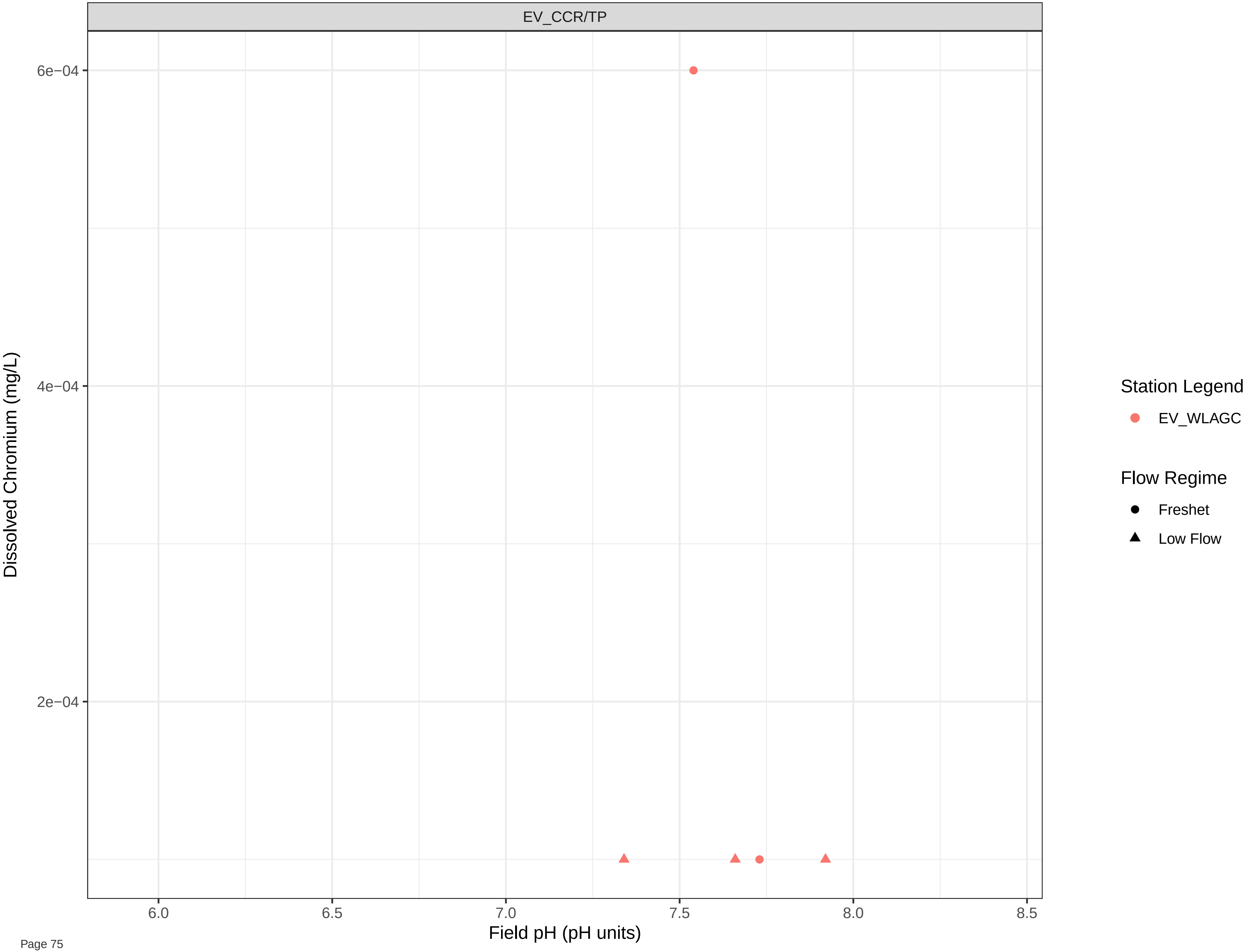

EV_PLANT
Dissolved Calcium (mg/L)
500
400
300
200
100
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

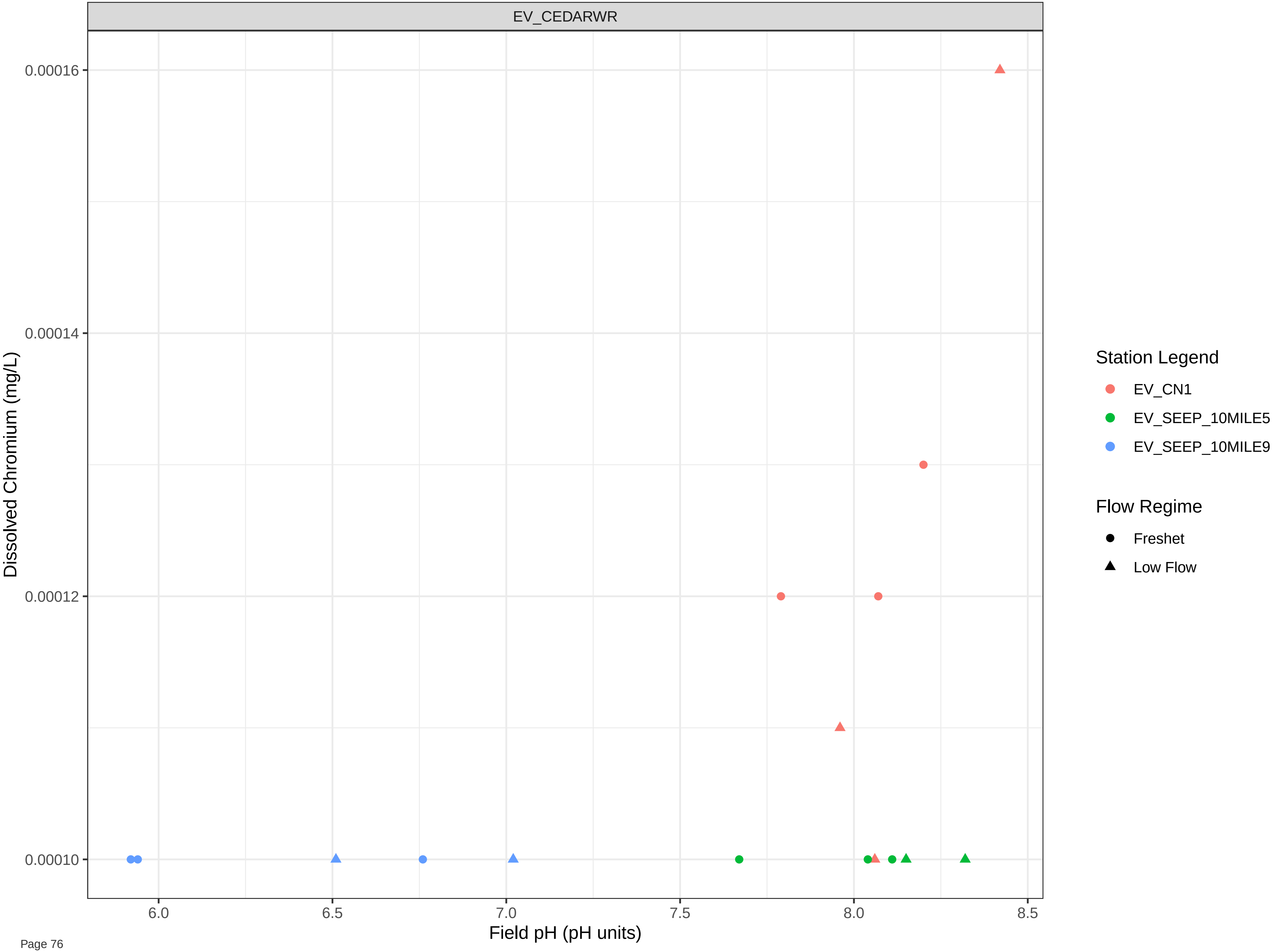

EV_SOUTHSLOPE
Dissolved Calcium (mg/L)
100
90
80
70
60
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

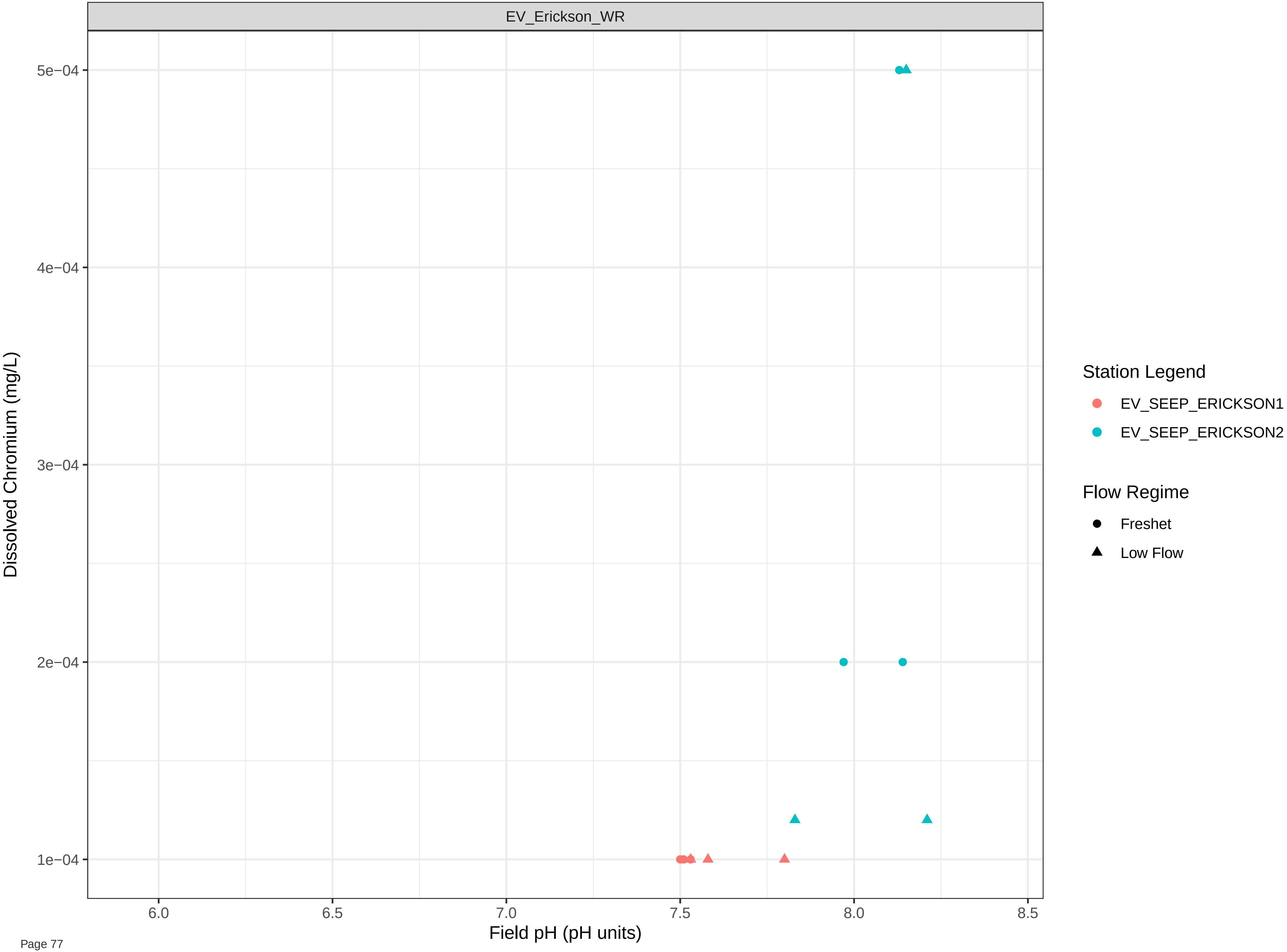

EV_SouthPit_Pit
Dissolved Calcium (mg/L)
430
410
390
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

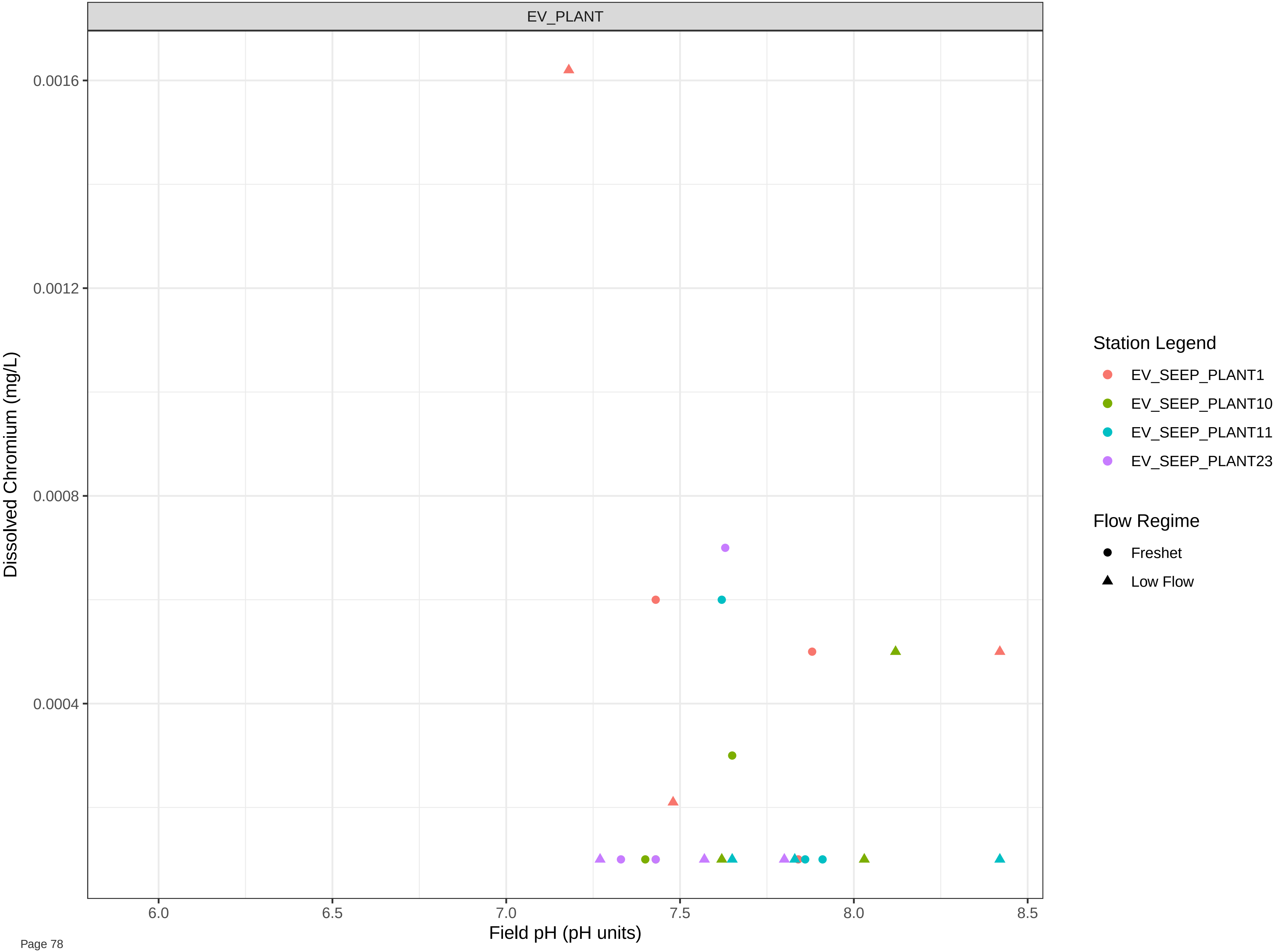

EV_BALDYRIDGEWR
Dissolved Chromium (mg/L)
8e−04
6e−04
4e−04
2e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

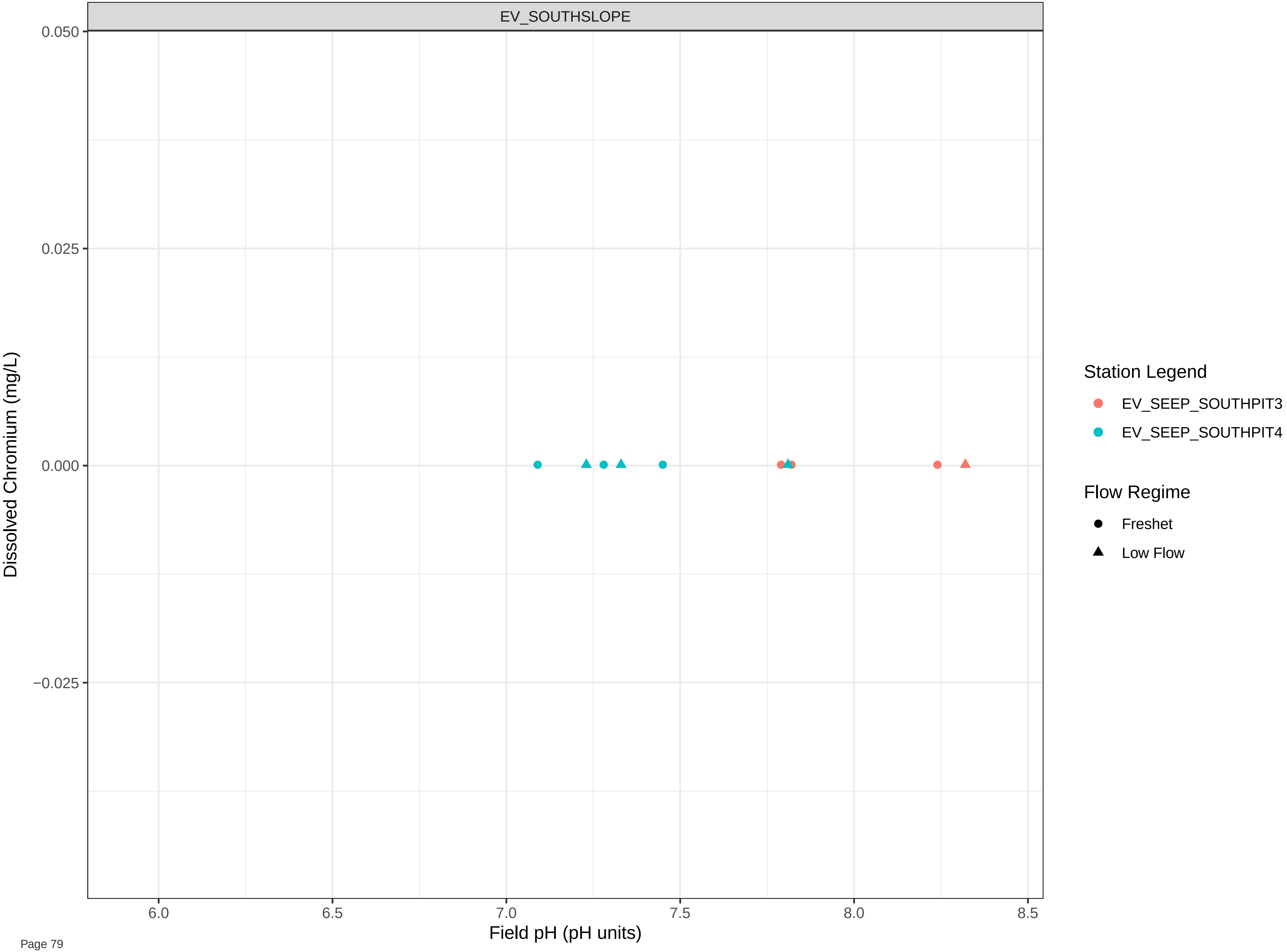

EV_CCR
0.00030
0.00025
0.00020
0.00015
0.00010
Dissolved Chromium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

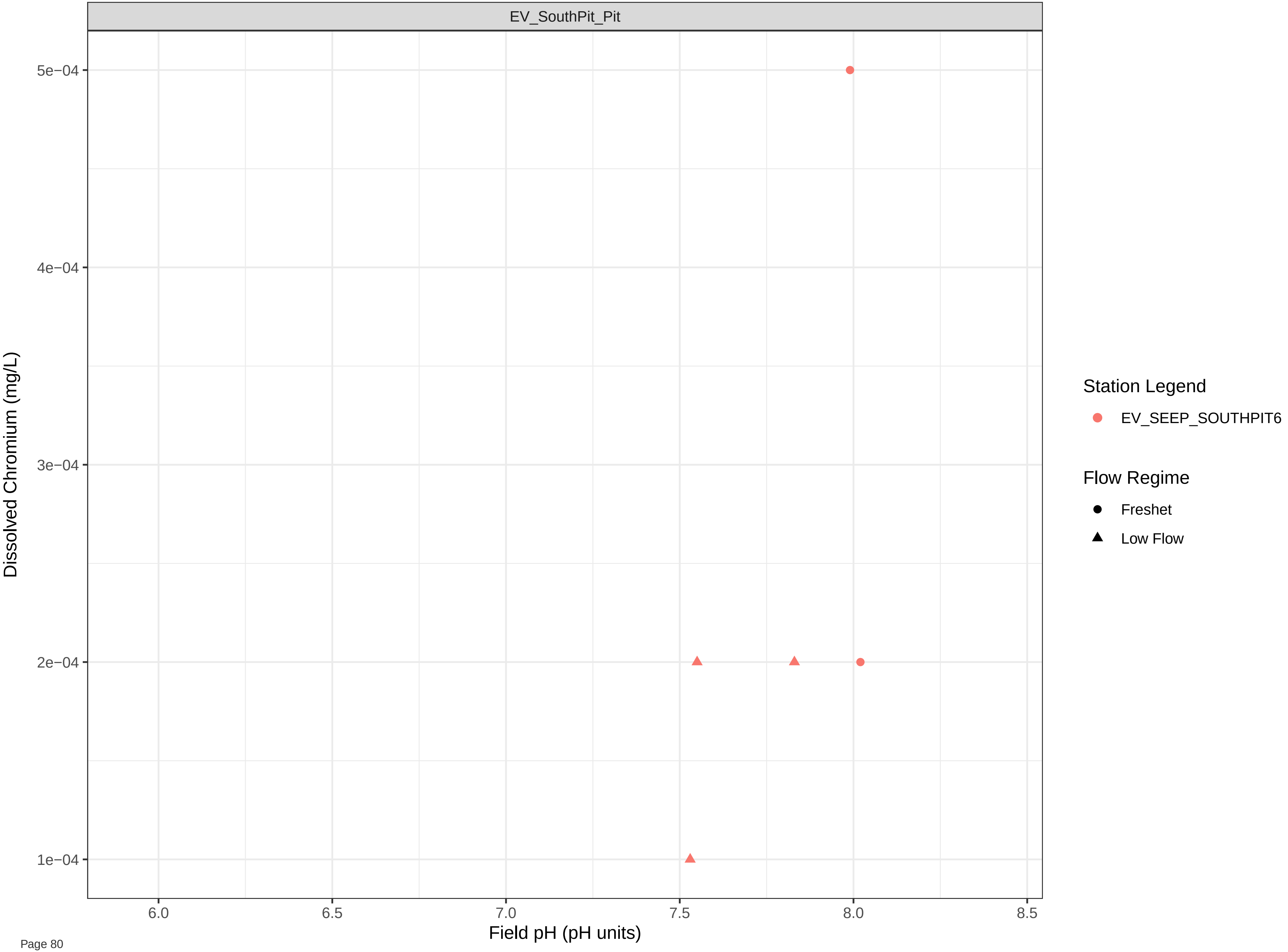

EV_CCR/TP
Dissolved Chromium (mg/L)
6e−04
4e−04
2e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

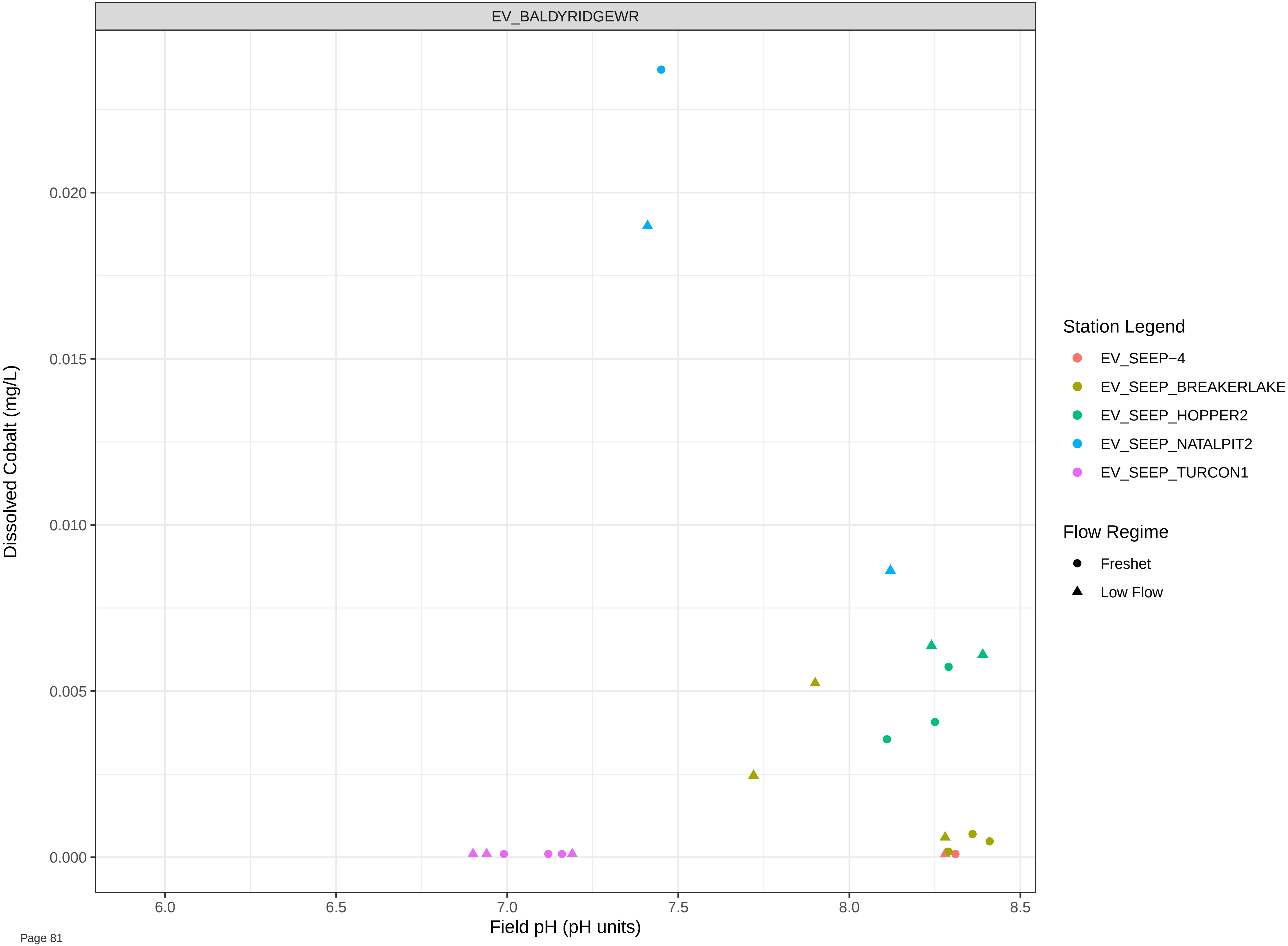

EV_CEDARWR
Dissolved Chromium (mg/L)
0.00016
0.00014
0.00012
0.00010
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

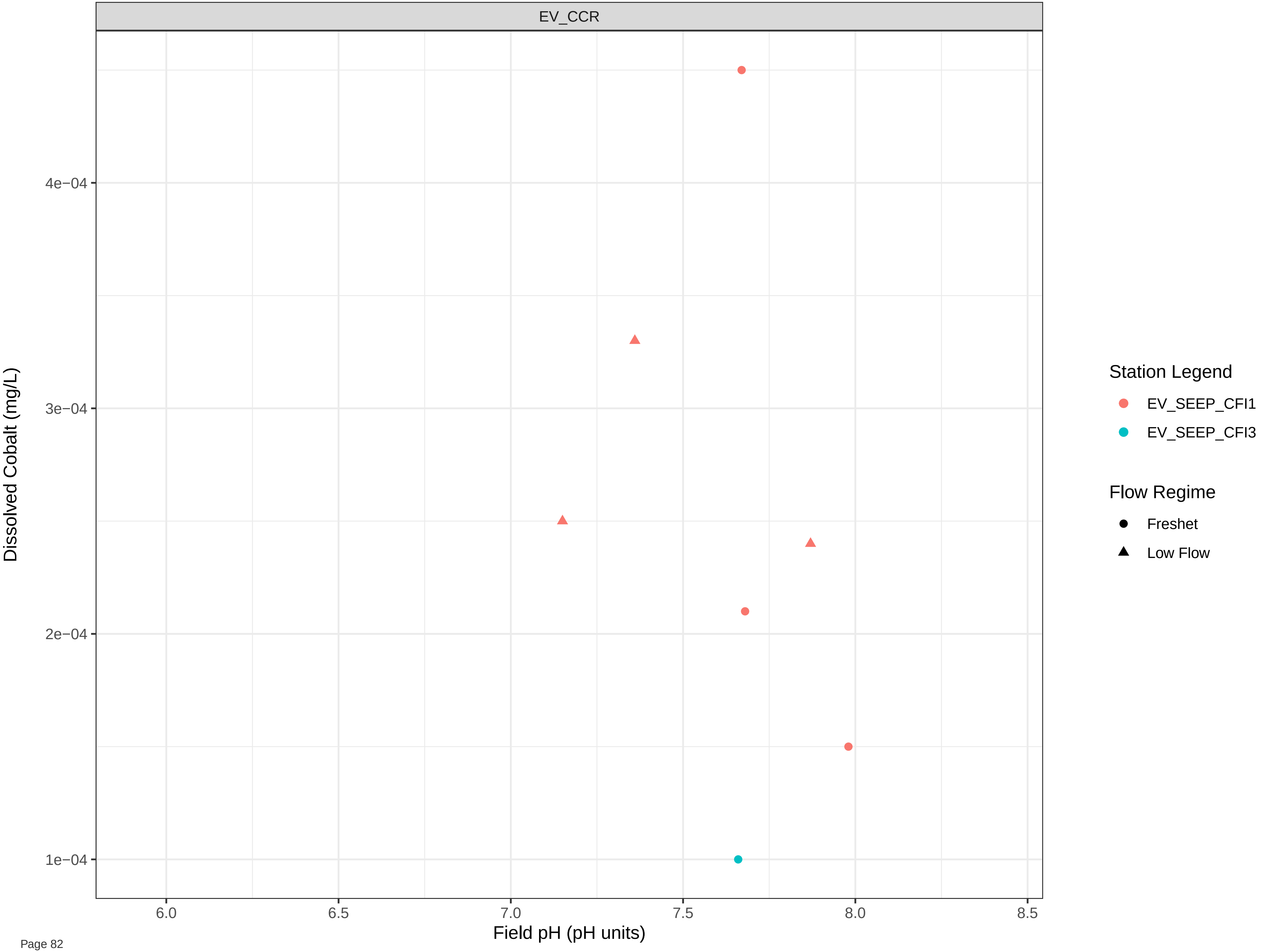

EV_Erickson_WR
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

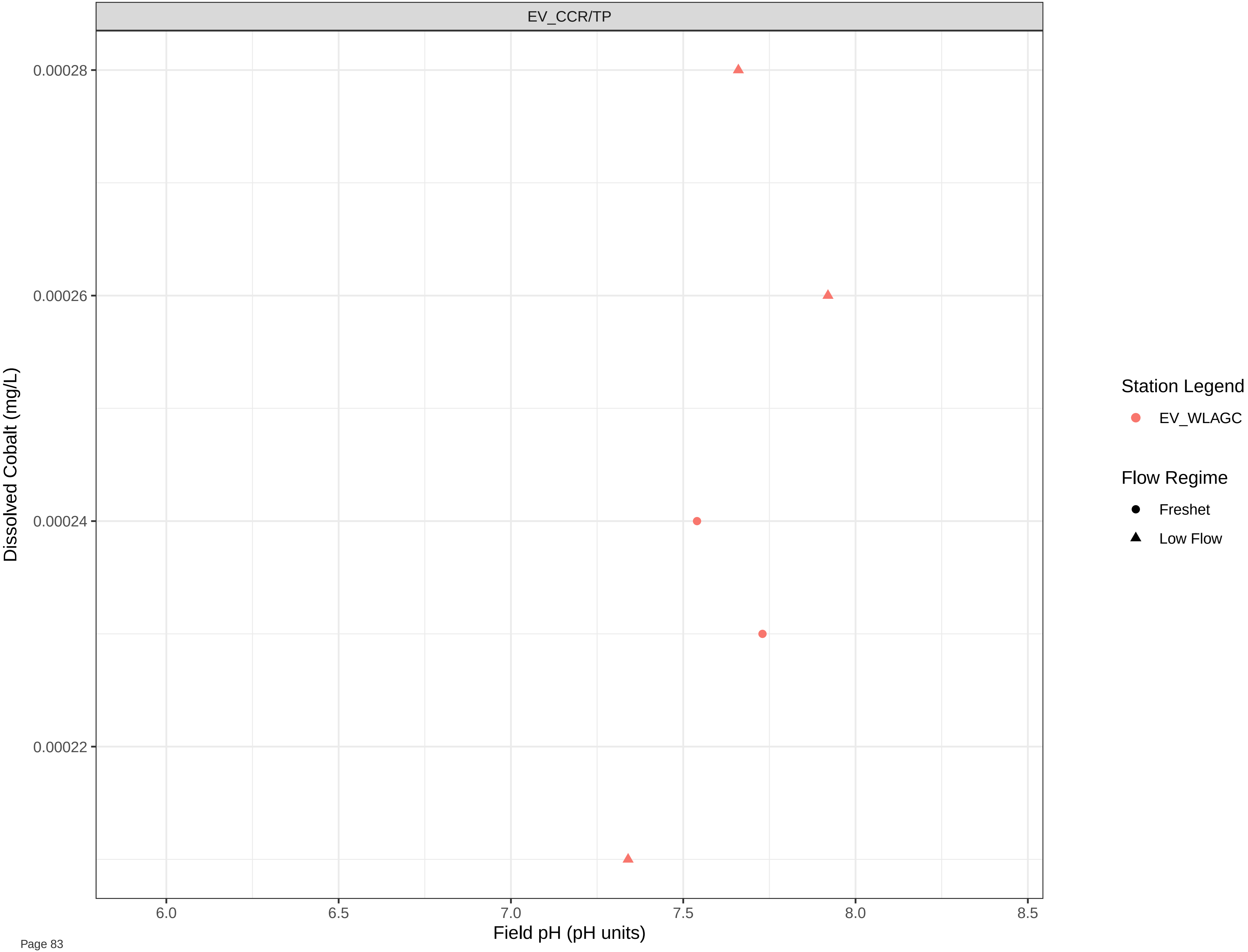

EV_PLANT
Dissolved Chromium (mg/L)
0.0016
0.0012
0.0008
0.0004
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

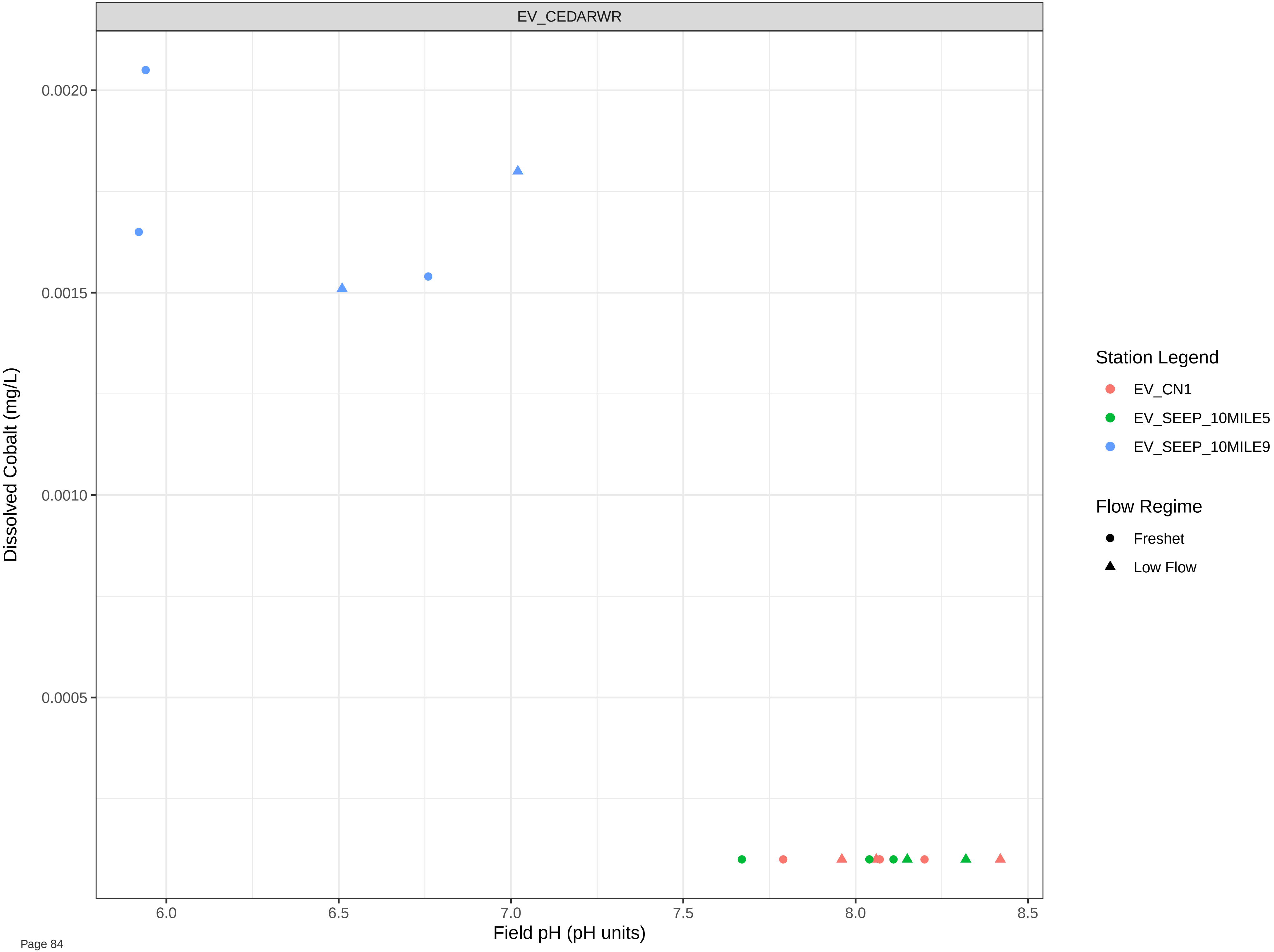

EV_SOUTHSLOPE
Dissolved Chromium (mg/L)
0.050
0.025
0.000
−0.025
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

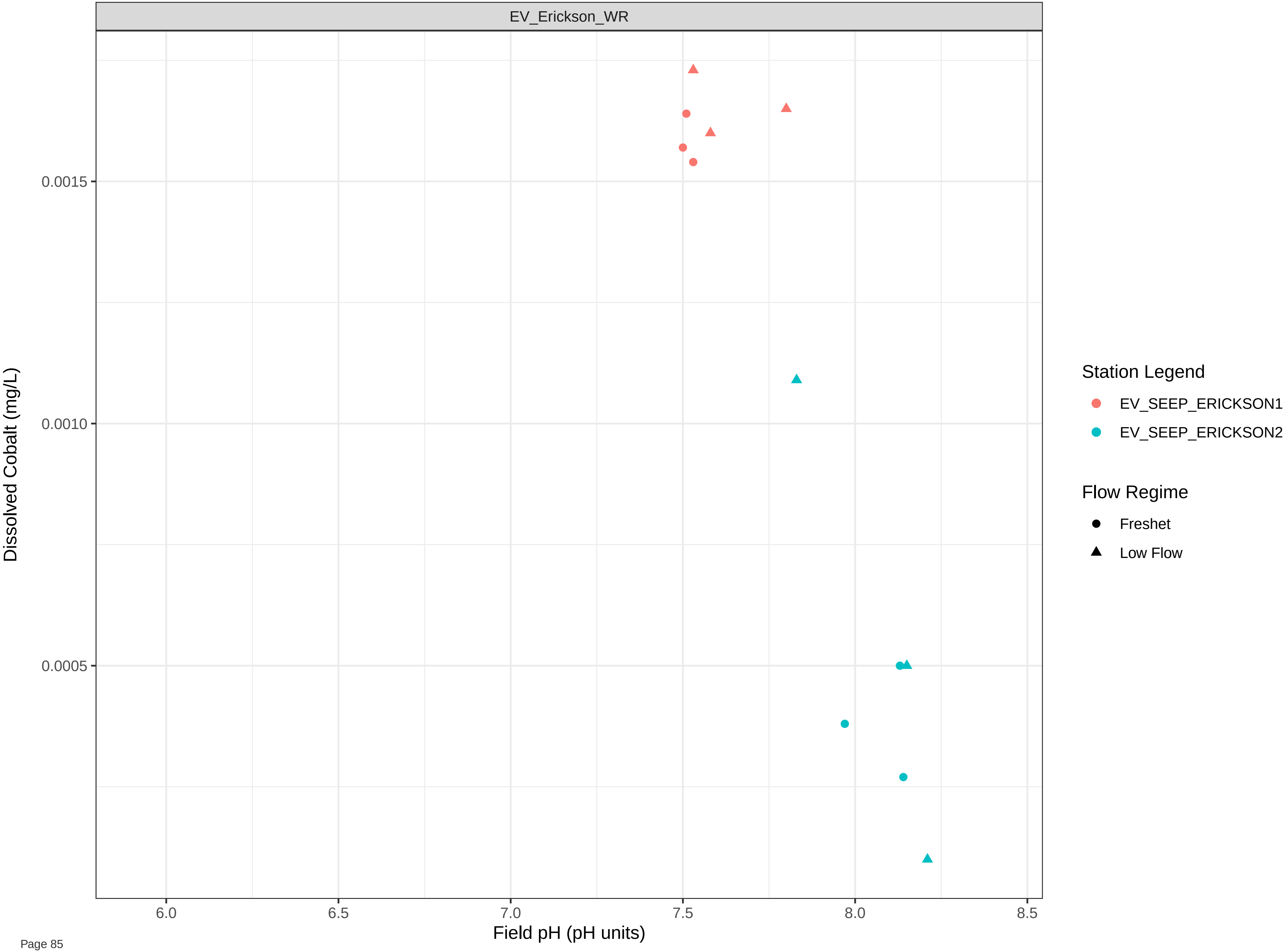

EV_SouthPit_Pit
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

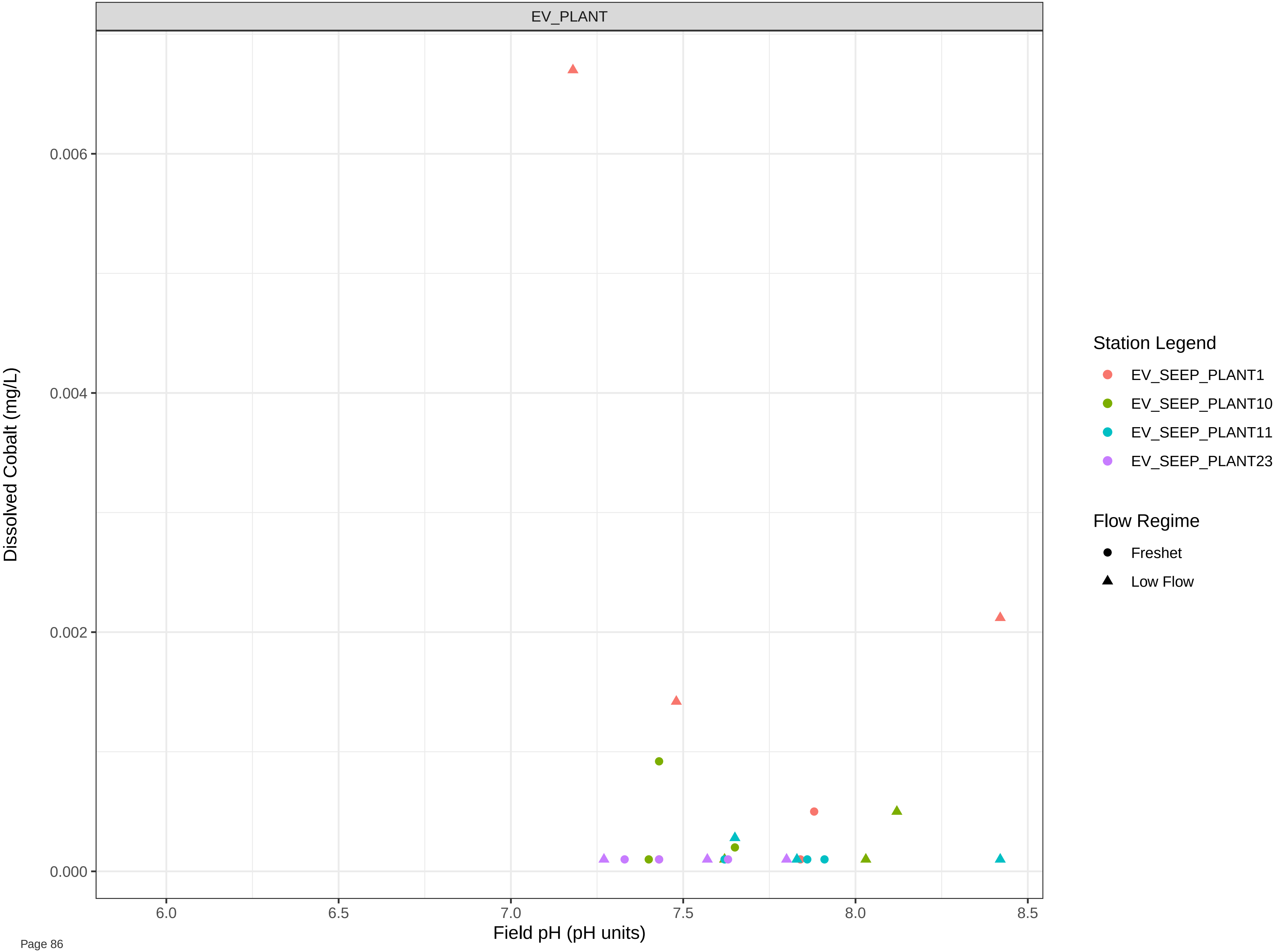

EV_BALDYRIDGEWR
Dissolved Cobalt (mg/L)
0.020
0.015
0.010
0.005
0.000
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

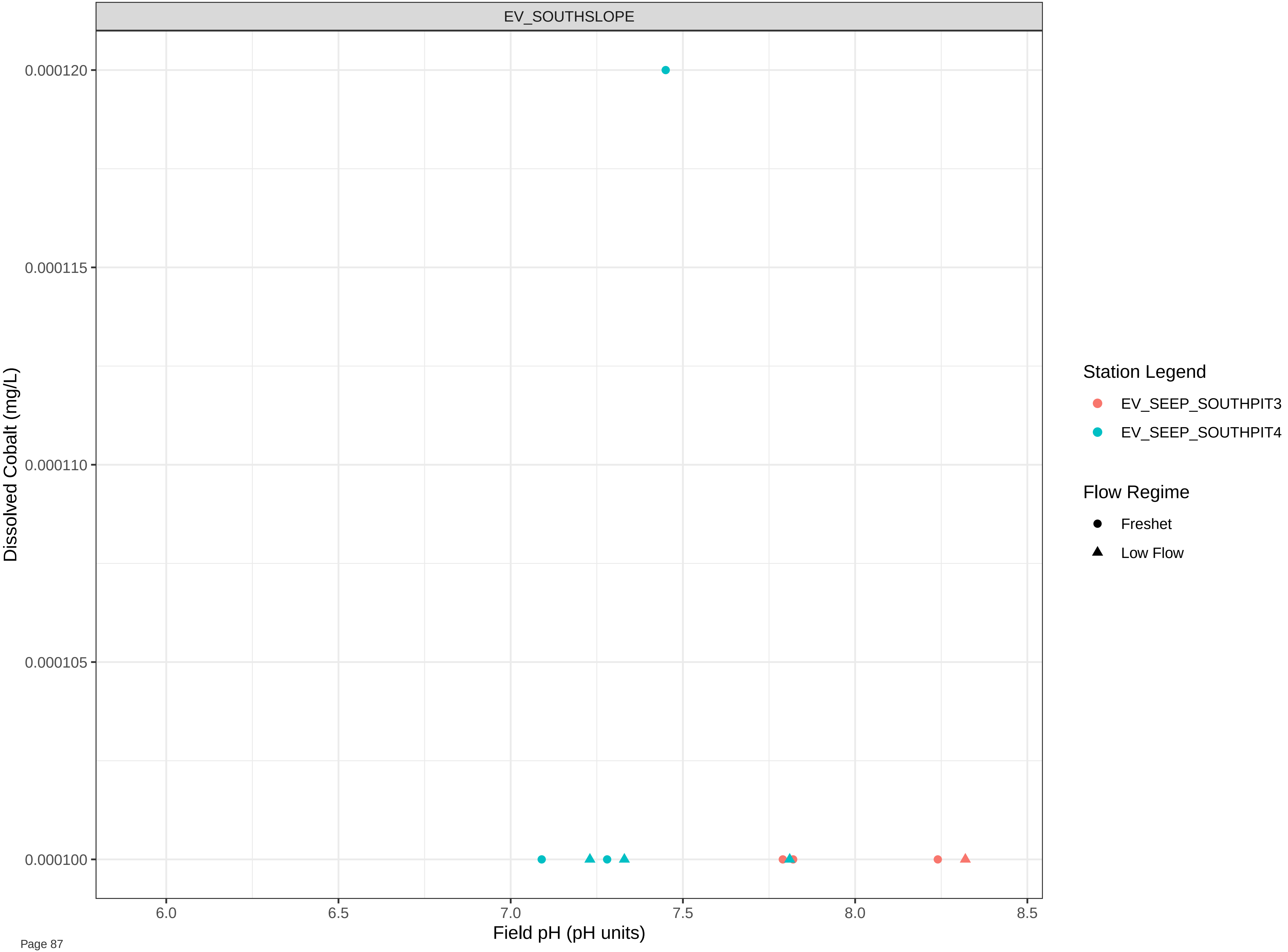

EV_CCR
Dissolved Cobalt (mg/L)
4e−04
3e−04
2e−04
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

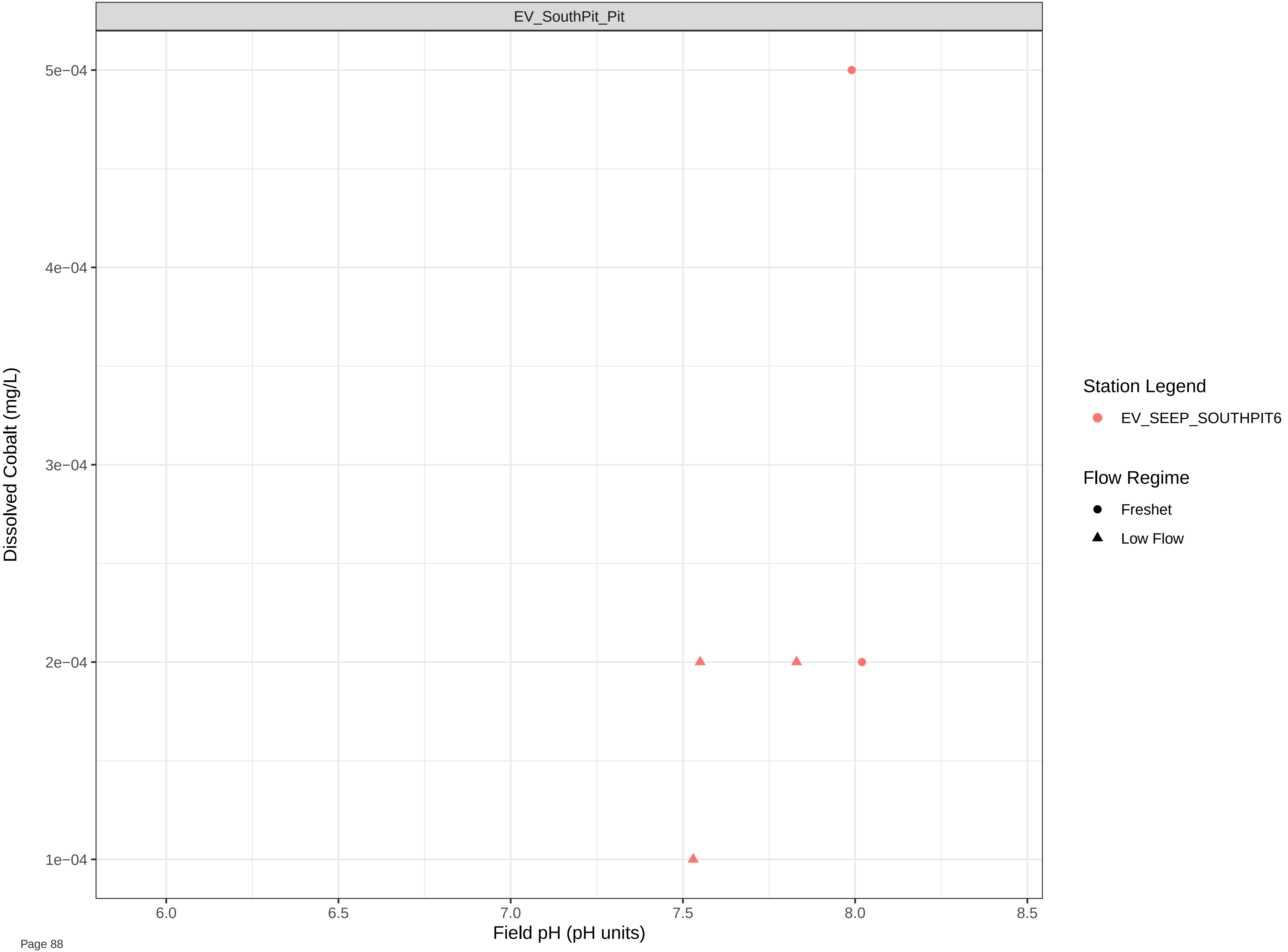

EV_CCR/TP
Dissolved Cobalt (mg/L)
0.00028
0.00026
0.00024
0.00022
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

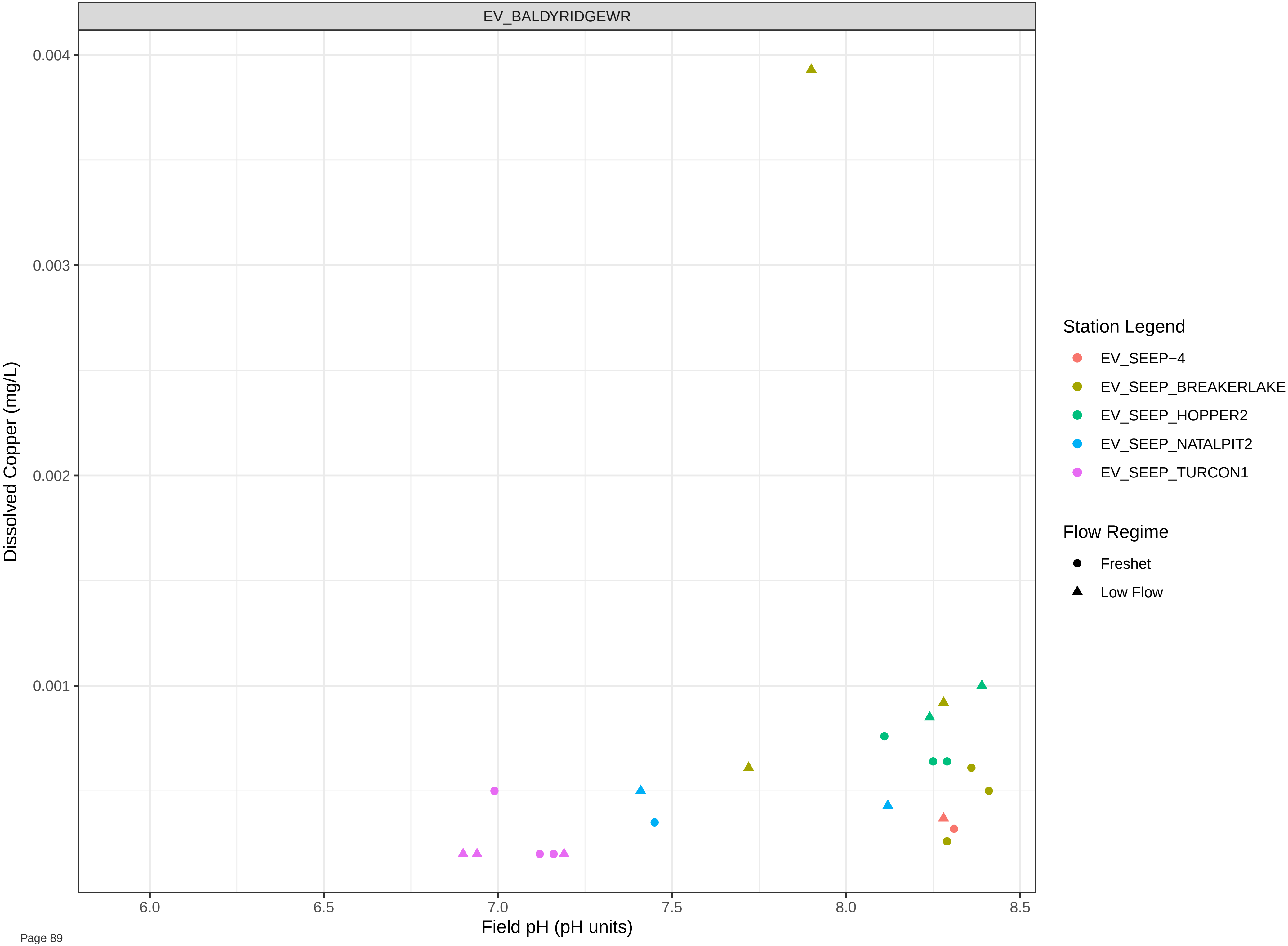

EV_CEDARWR
Dissolved Cobalt (mg/L)
0.0020
0.0015
0.0010
0.0005
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

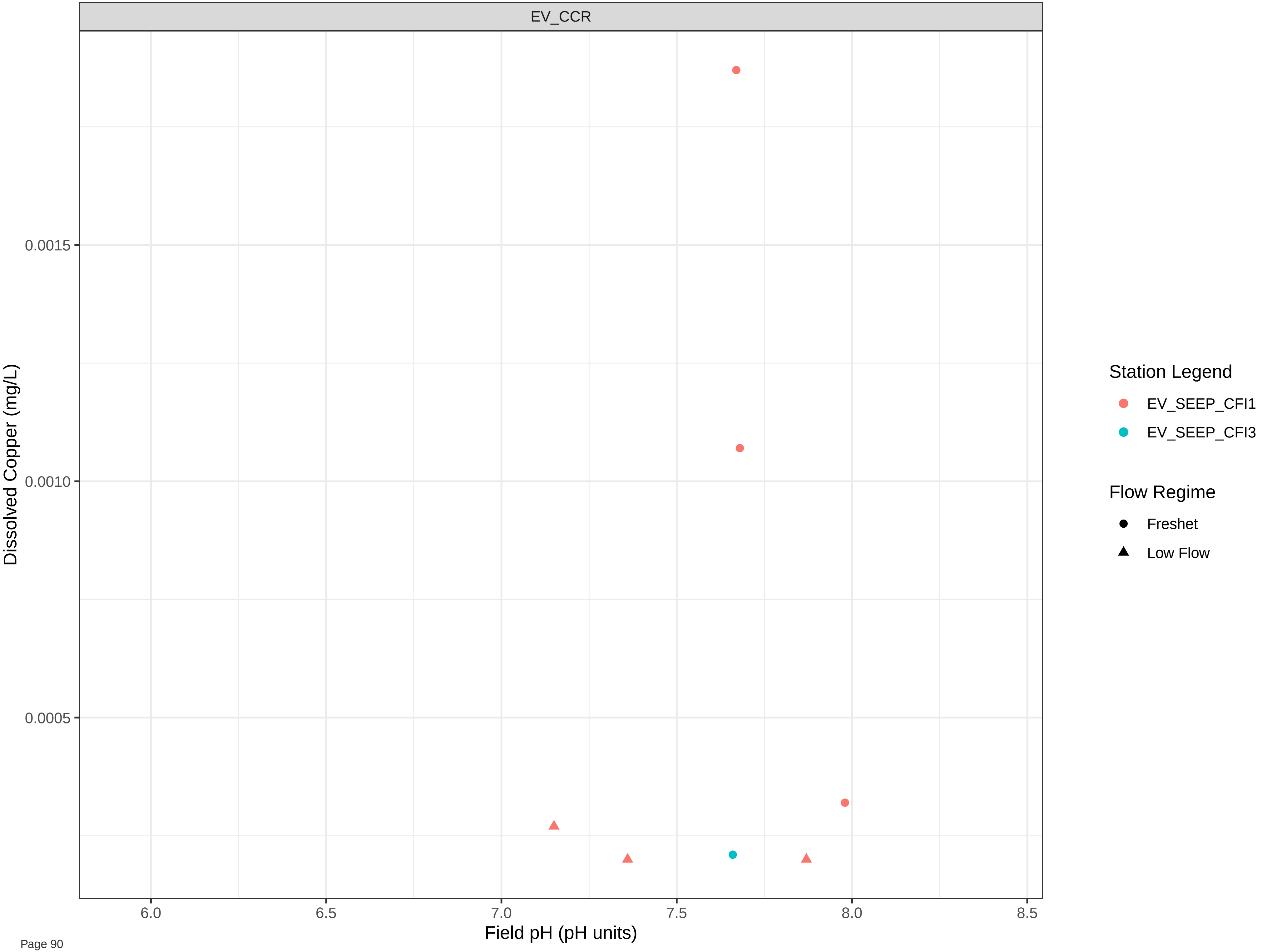

EV_Erickson_WR
Dissolved Cobalt (mg/L)
0.0015
0.0010
0.0005
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

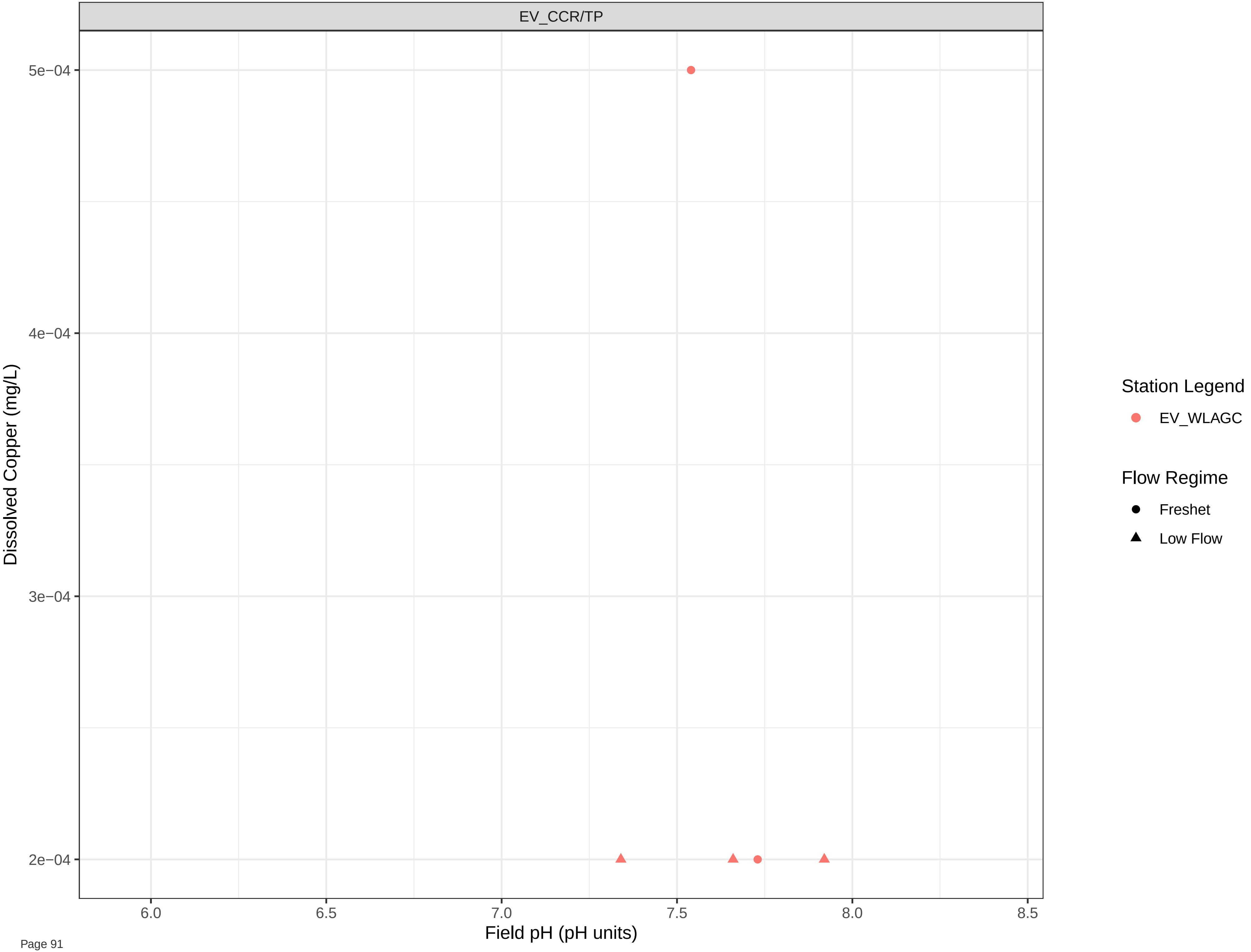

EV_PLANT
Dissolved Cobalt (mg/L)
0.006
0.004
0.002
0.000
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

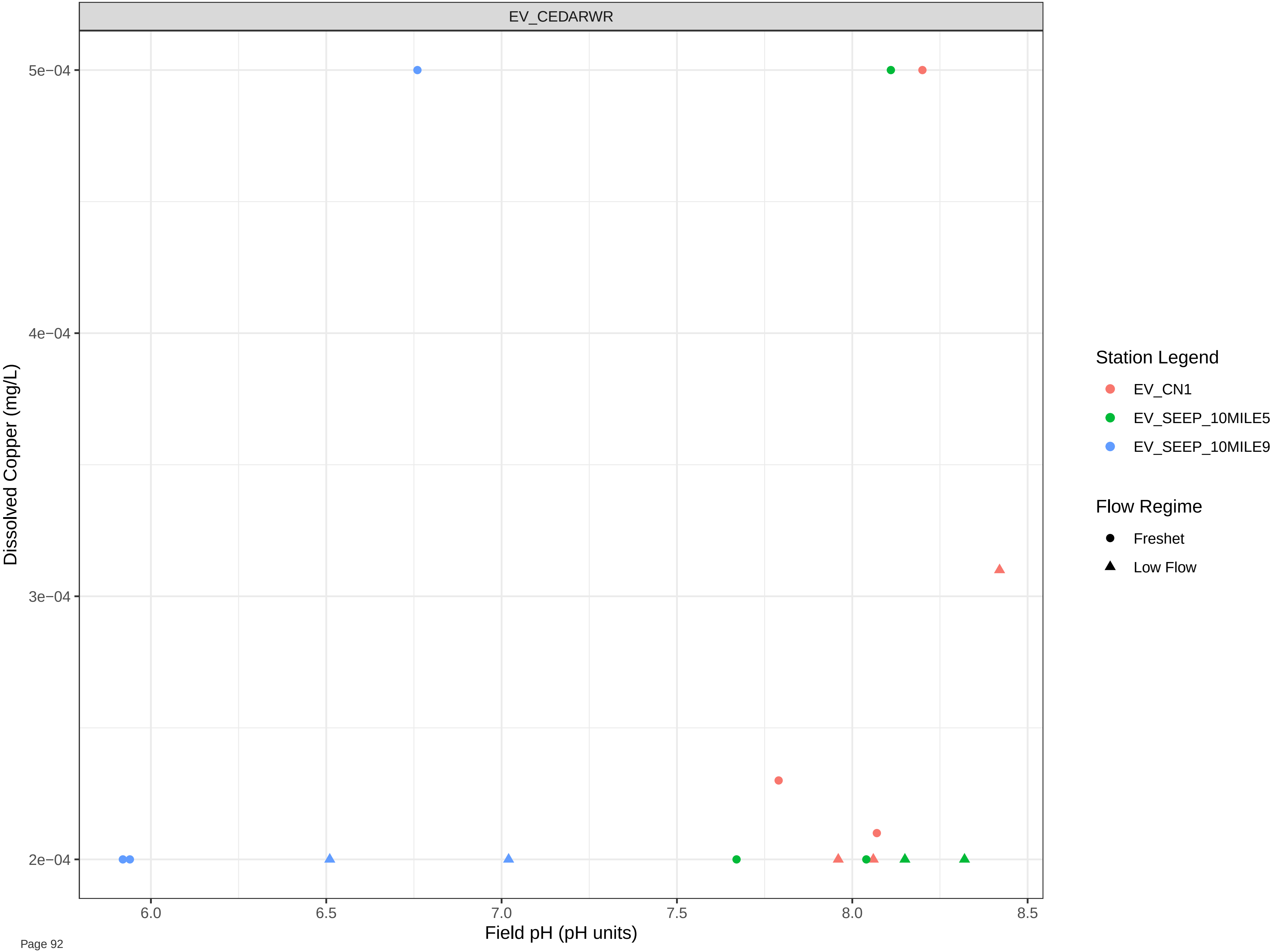

EV_SOUTHSLOPE
Dissolved Cobalt (mg/L)
0.000120
0.000115
0.000110
0.000105
0.000100
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

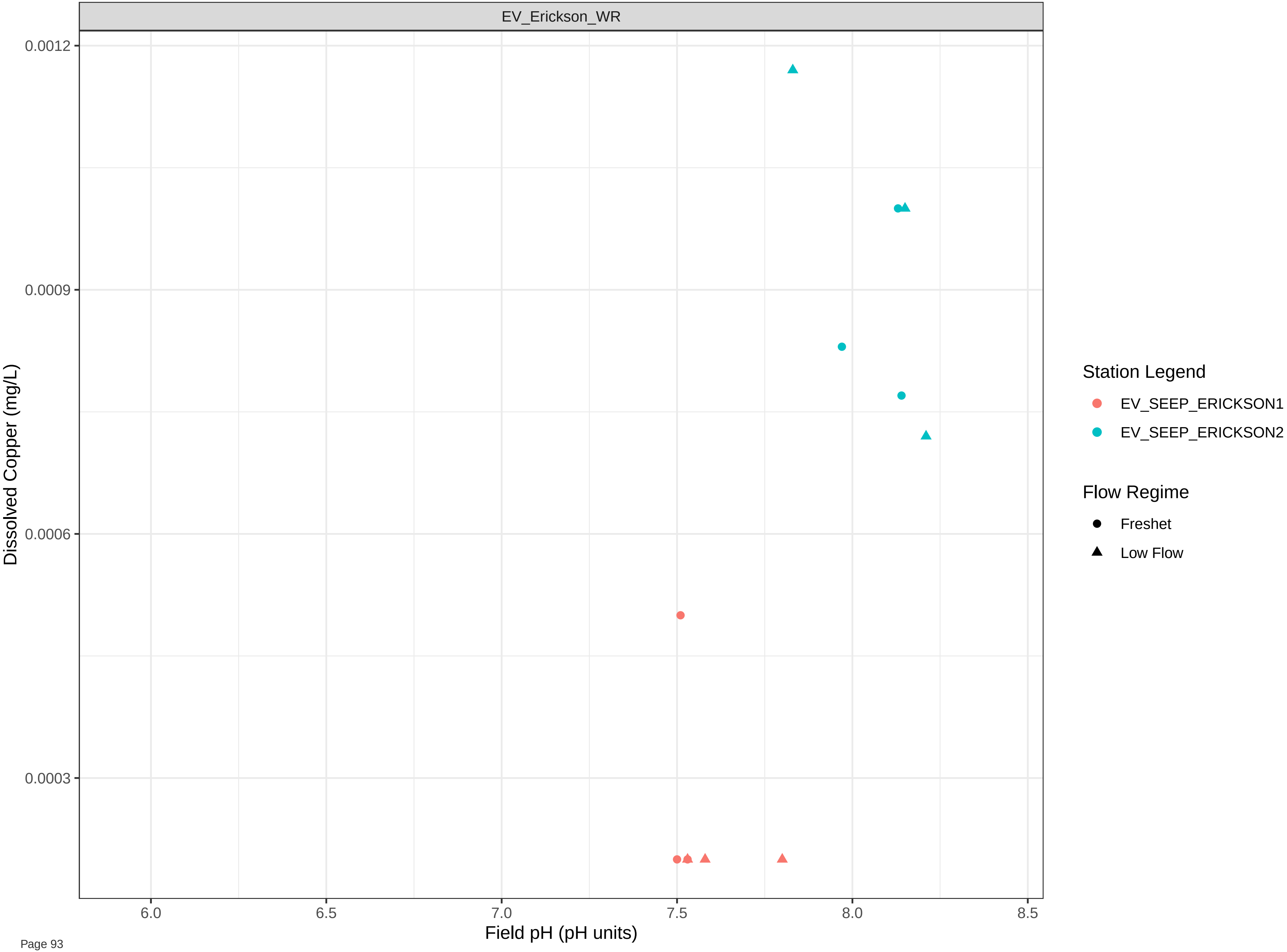

EV_SouthPit_Pit
Dissolved Cobalt (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

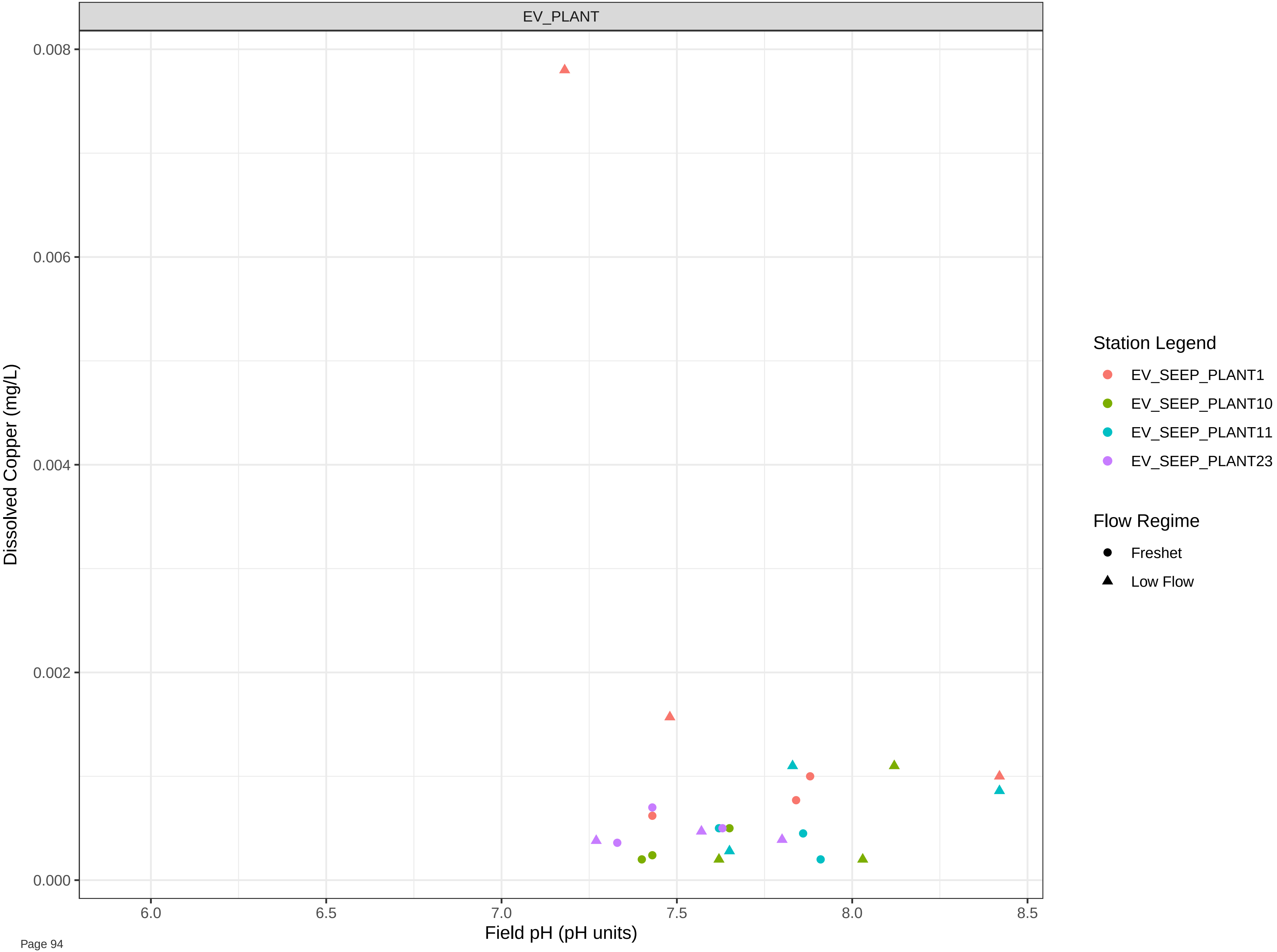

EV_BALDYRIDGEWR
0.004
0.003
0.002
0.001
Dissolved Copper (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

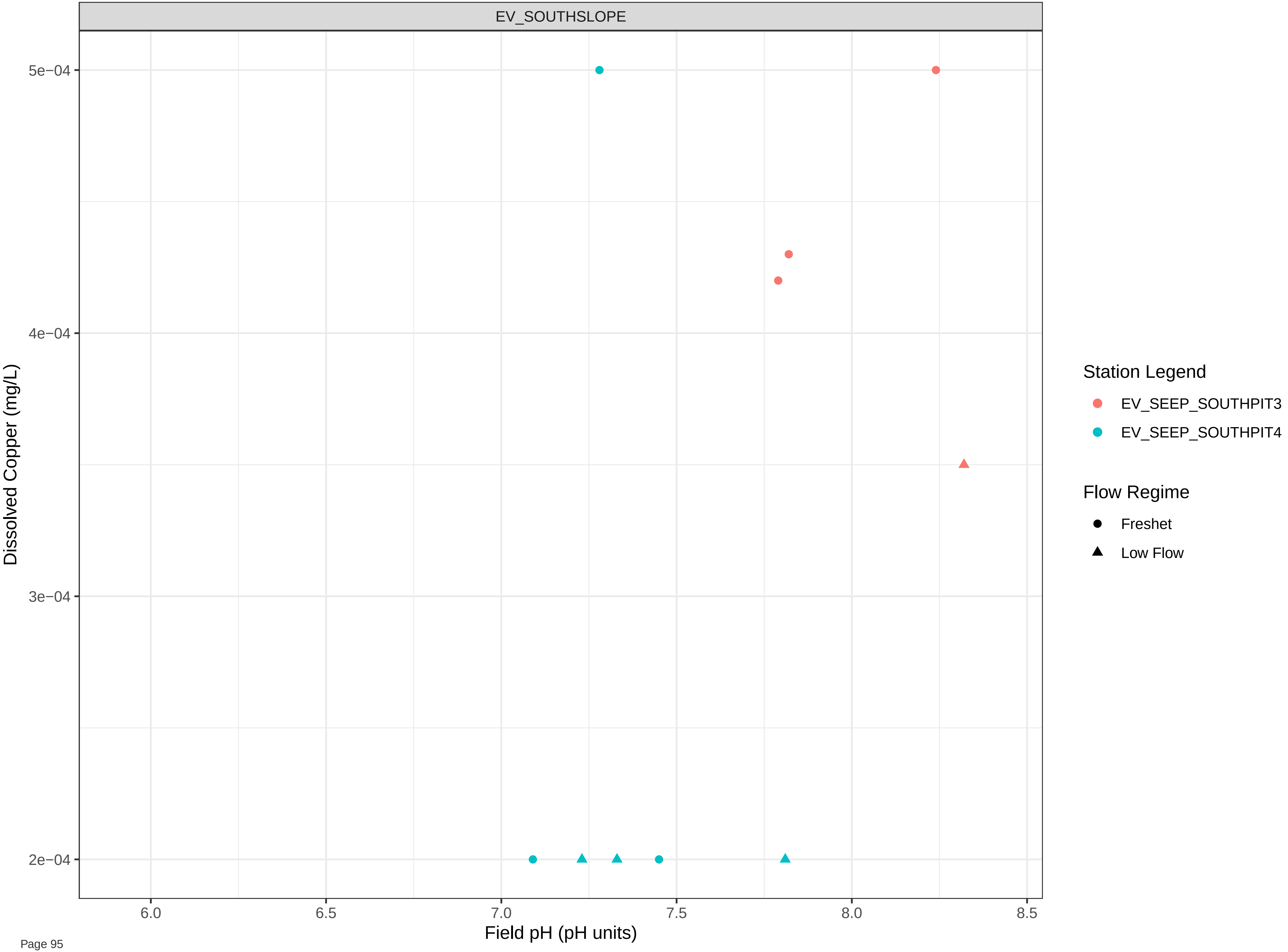

EV_CCR
Dissolved Copper (mg/L)
0.0015
0.0010
0.0005
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

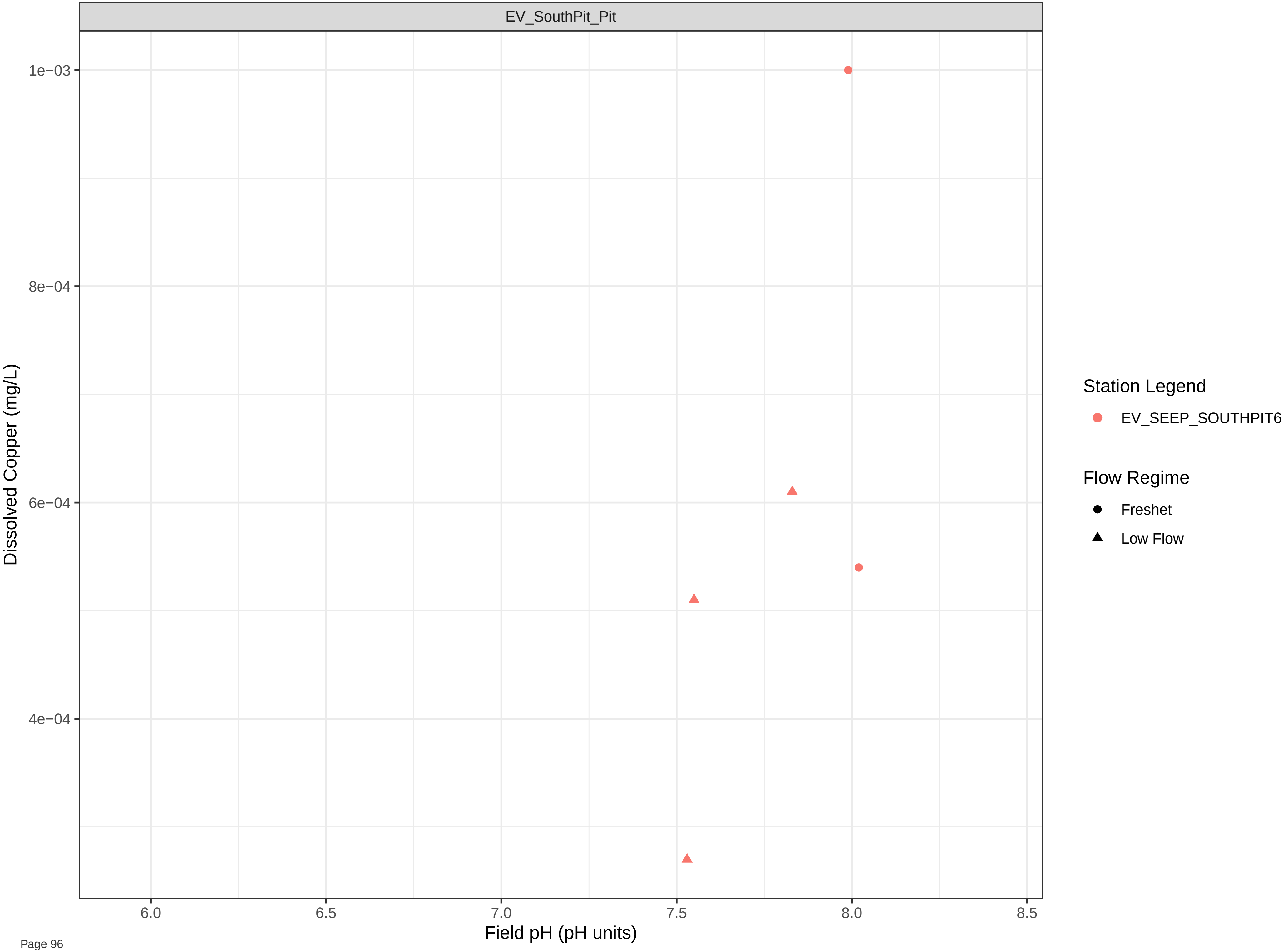

EV_CCR/TP
5e−04
4e−04
3e−04
2e−04
Dissolved Copper (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

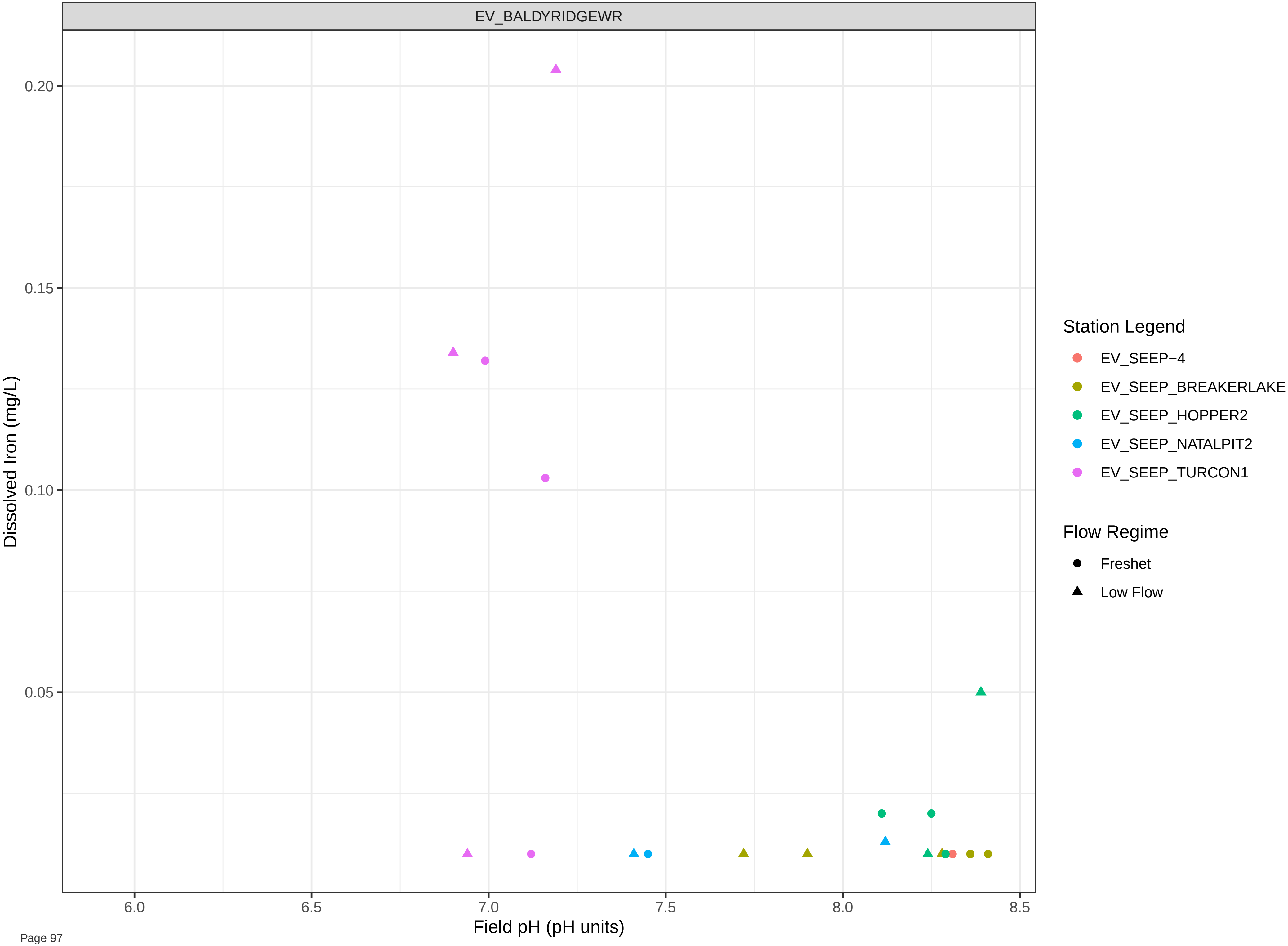

EV_CEDARWR
5e−04
4e−04
3e−04
2e−04
Dissolved Copper (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

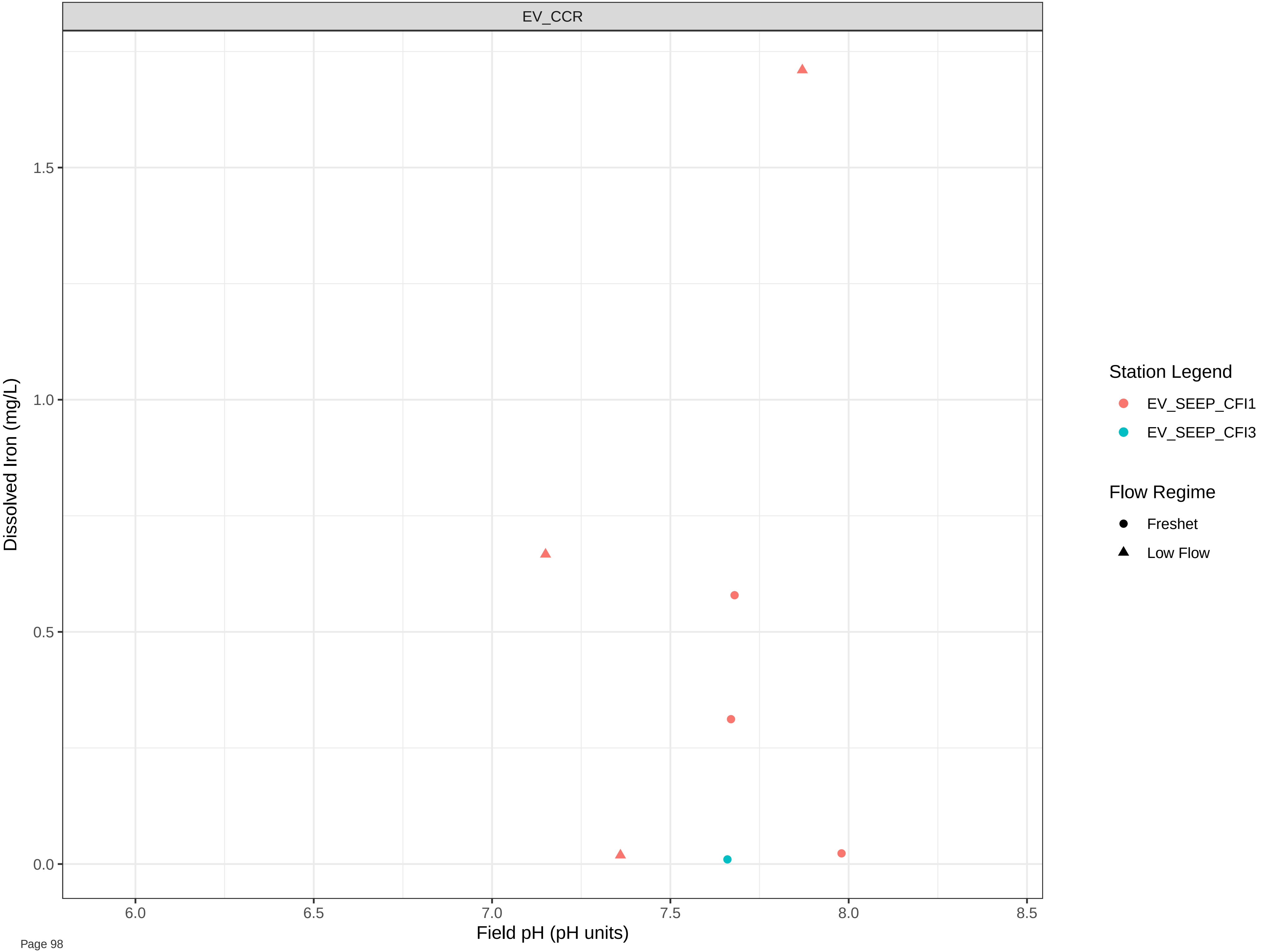

EV_Erickson_WR
Dissolved Copper (mg/L)
0.0012
0.0009
0.0006
0.0003
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

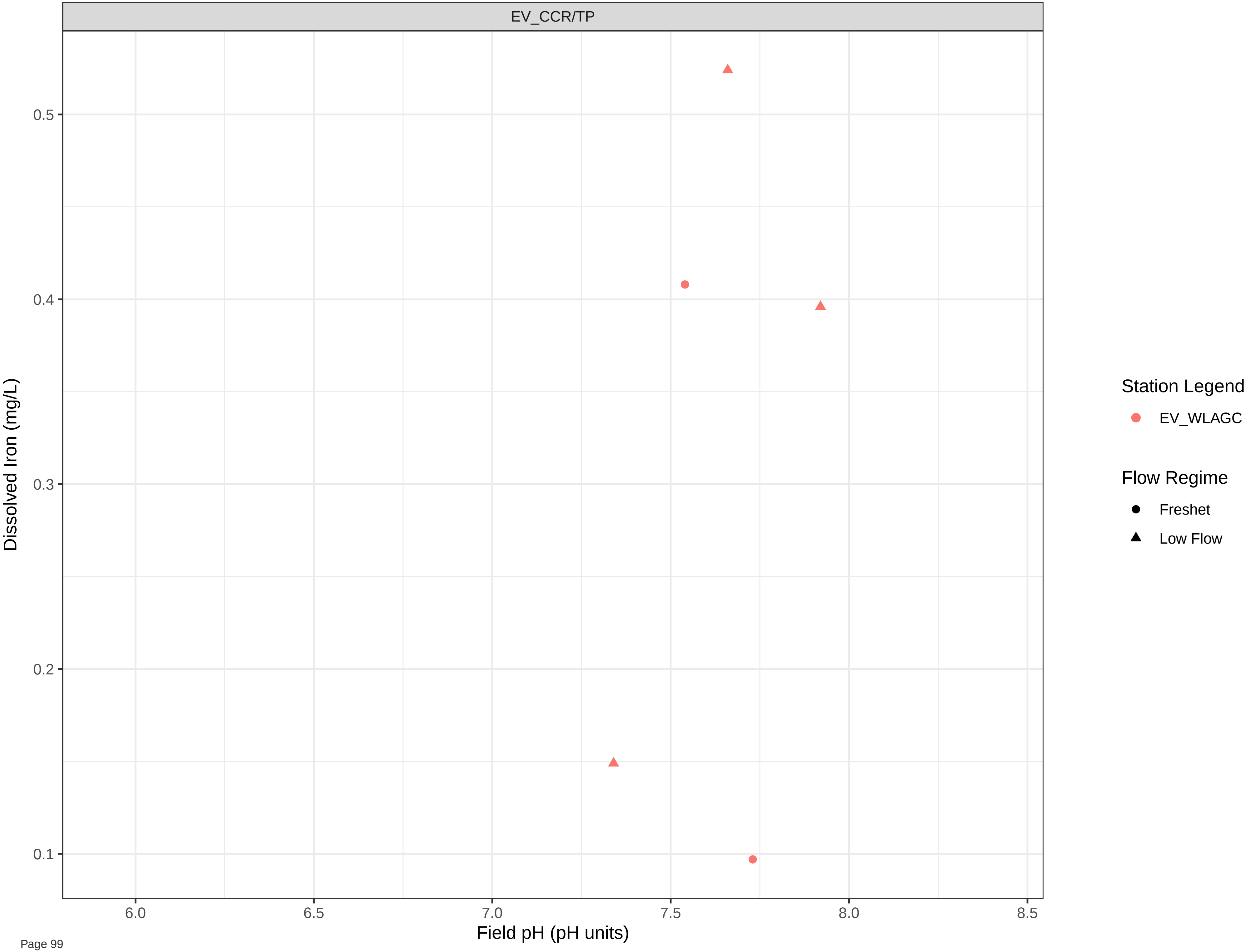

EV_PLANT
Dissolved Copper (mg/L)
0.008
0.006
0.004
0.002
0.000
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

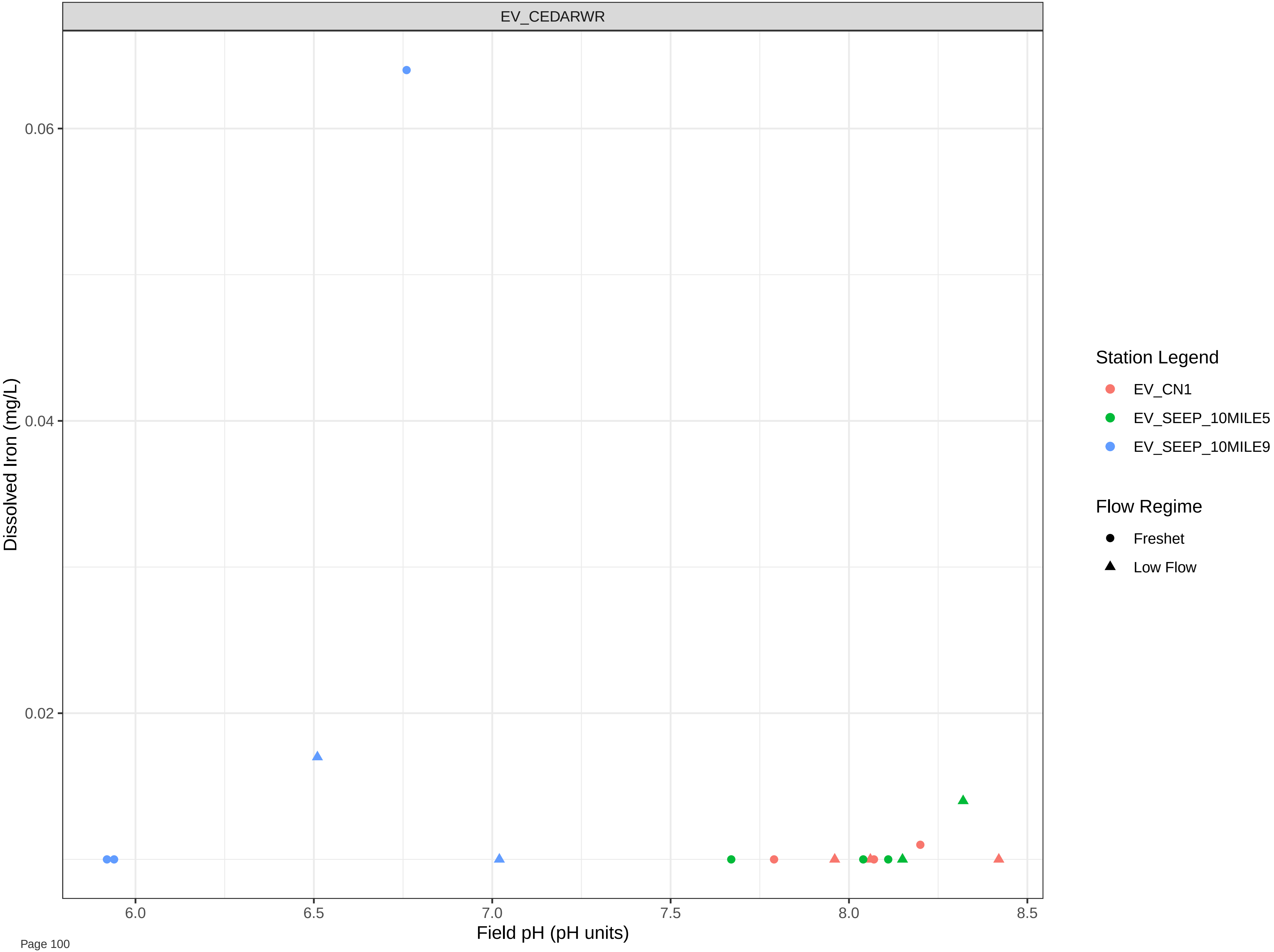

EV_SOUTHSLOPE
Dissolved Copper (mg/L)
5e−04
4e−04
3e−04
2e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

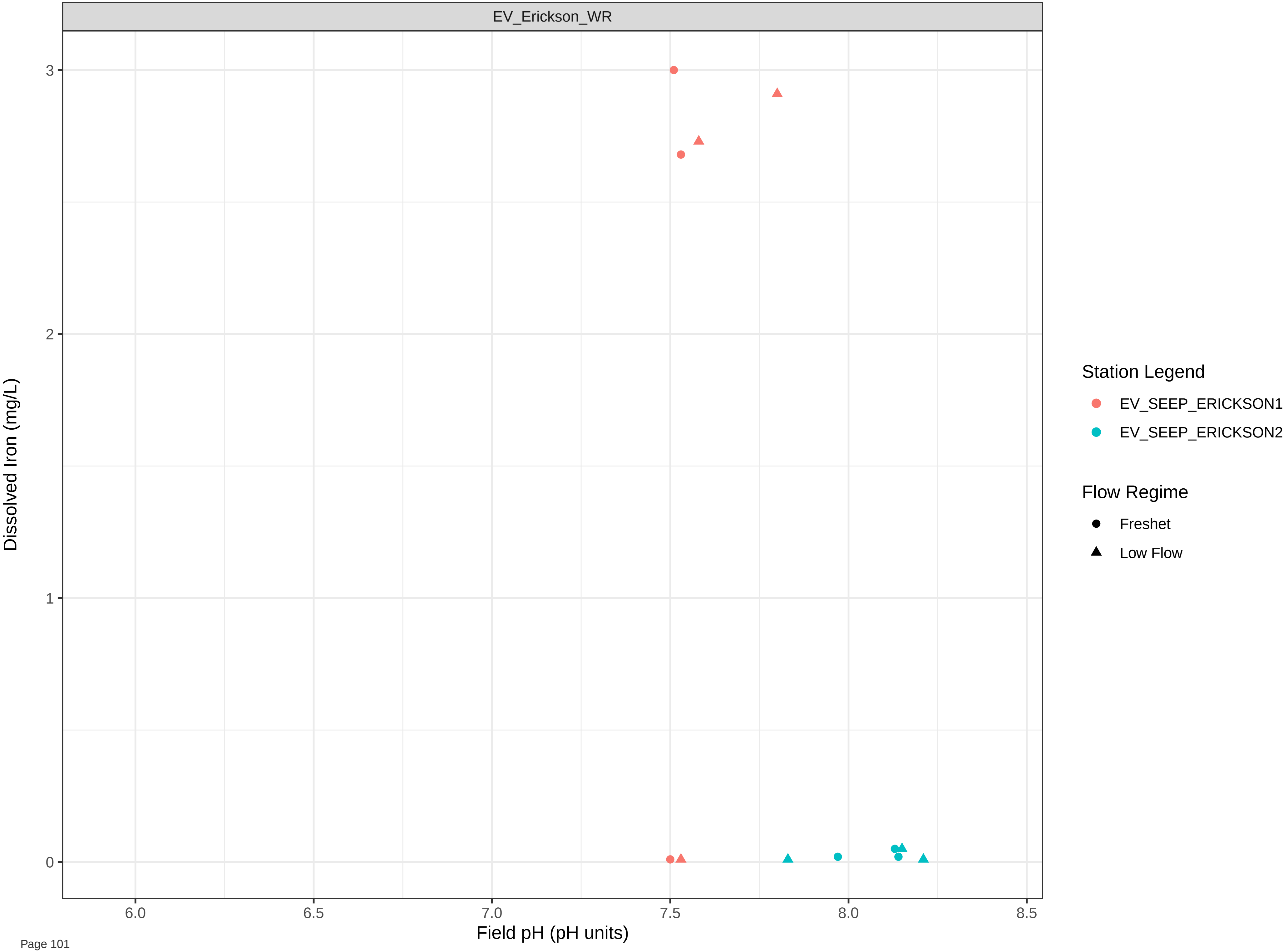

EV_SouthPit_Pit
1e−03
8e−04
6e−04
4e−04
Dissolved Copper (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

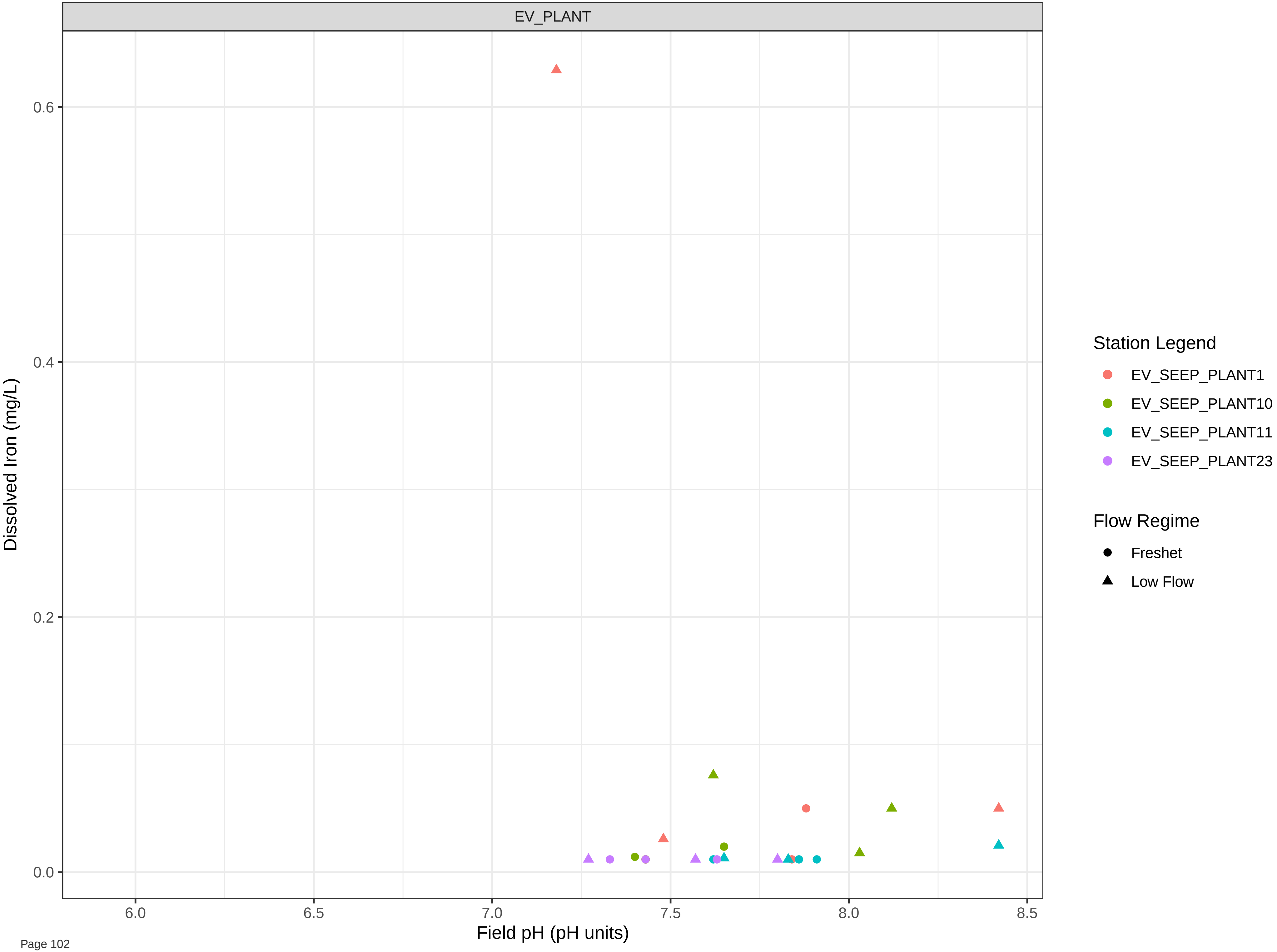

EV_BALDYRIDGEWR
Dissolved Iron (mg/L)
0.20
0.15
0.10
0.05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

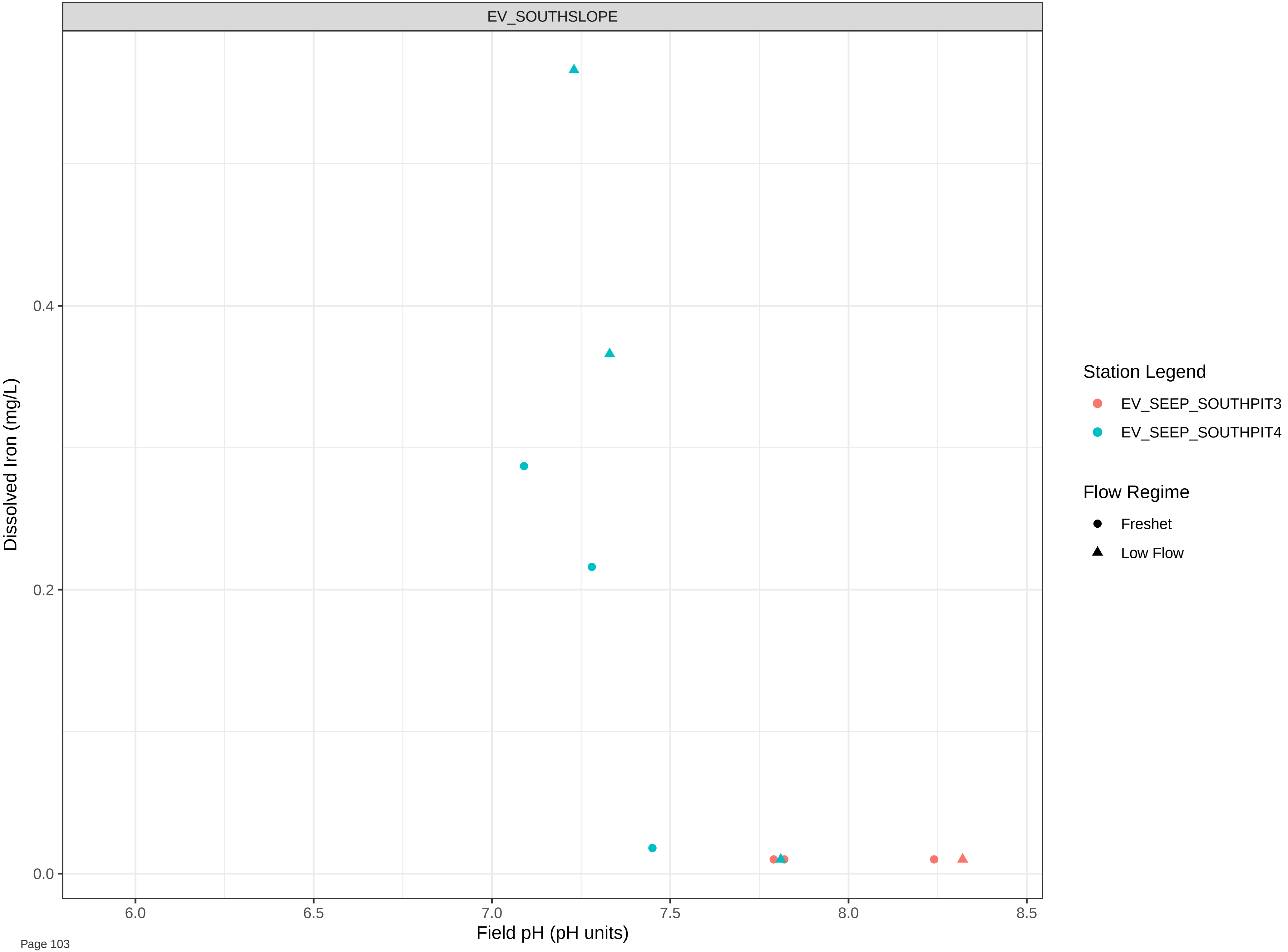

EV_CCR
Dissolved Iron (mg/L)
1.5
1.0
0.5
0.0
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

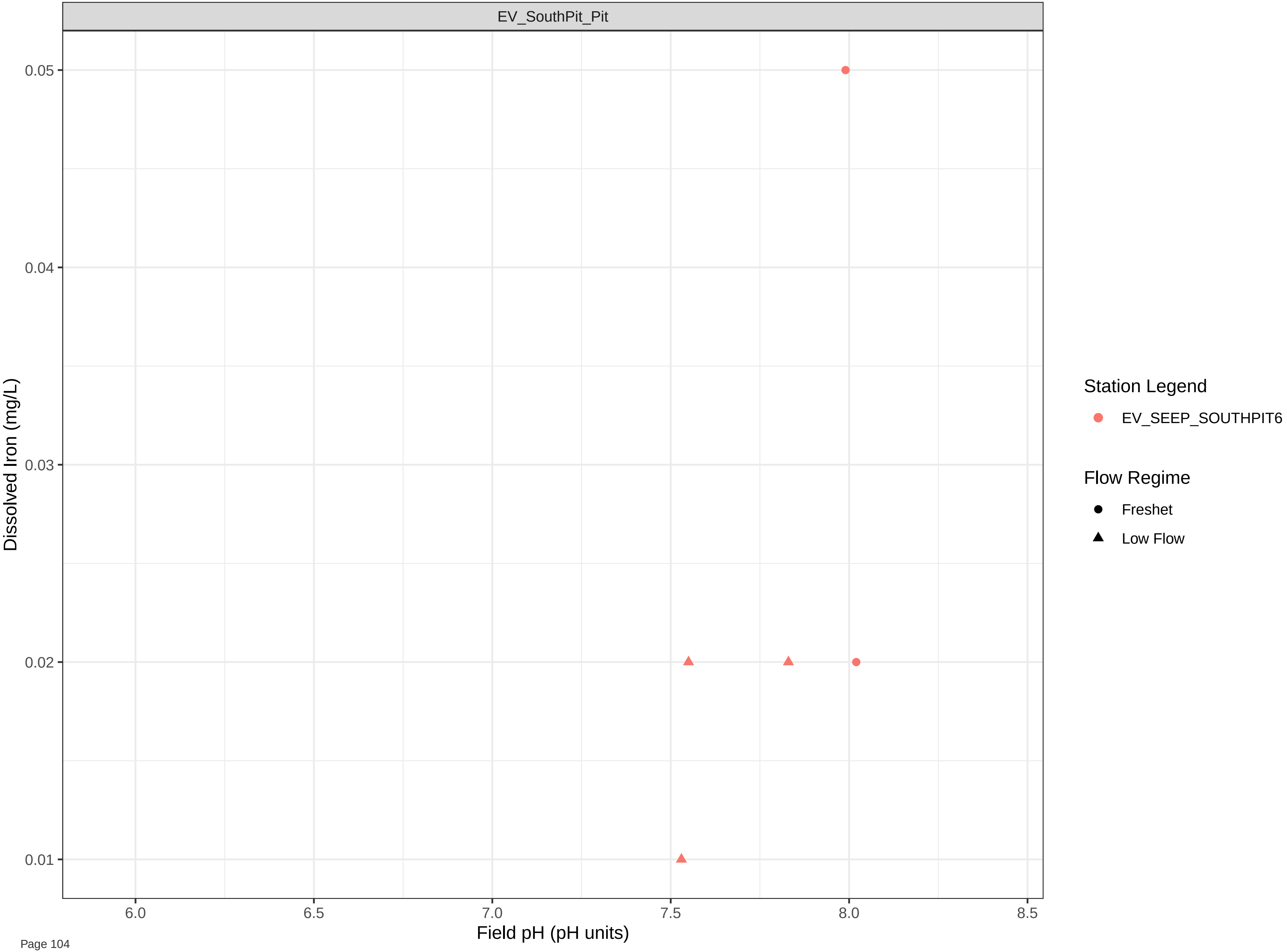

EV_CCR/TP
Dissolved Iron (mg/L)
0.5
0.4
0.3
0.2
0.1
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

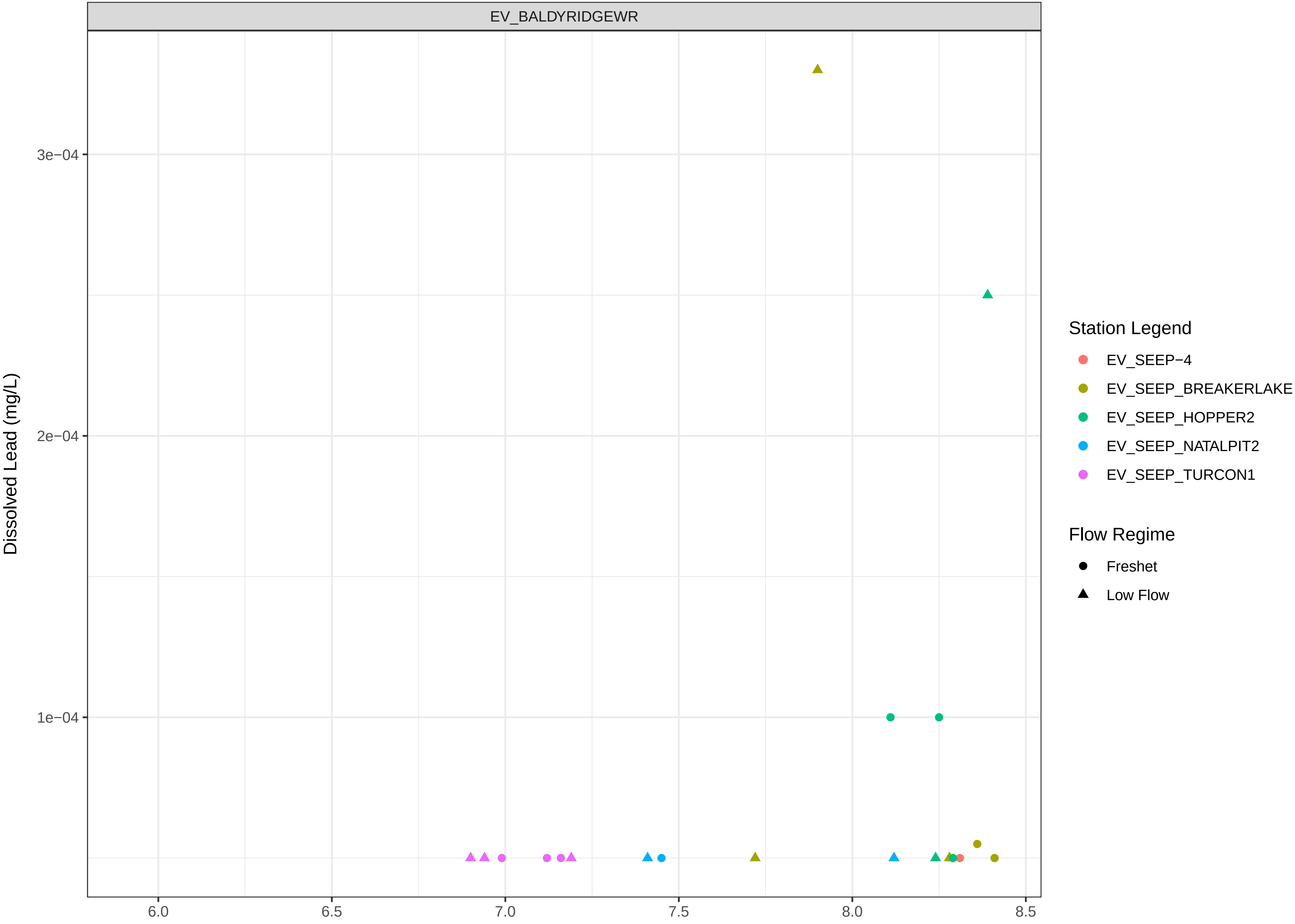

EV_CEDARWR
Dissolved Iron (mg/L)
0.06
0.04
0.02
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

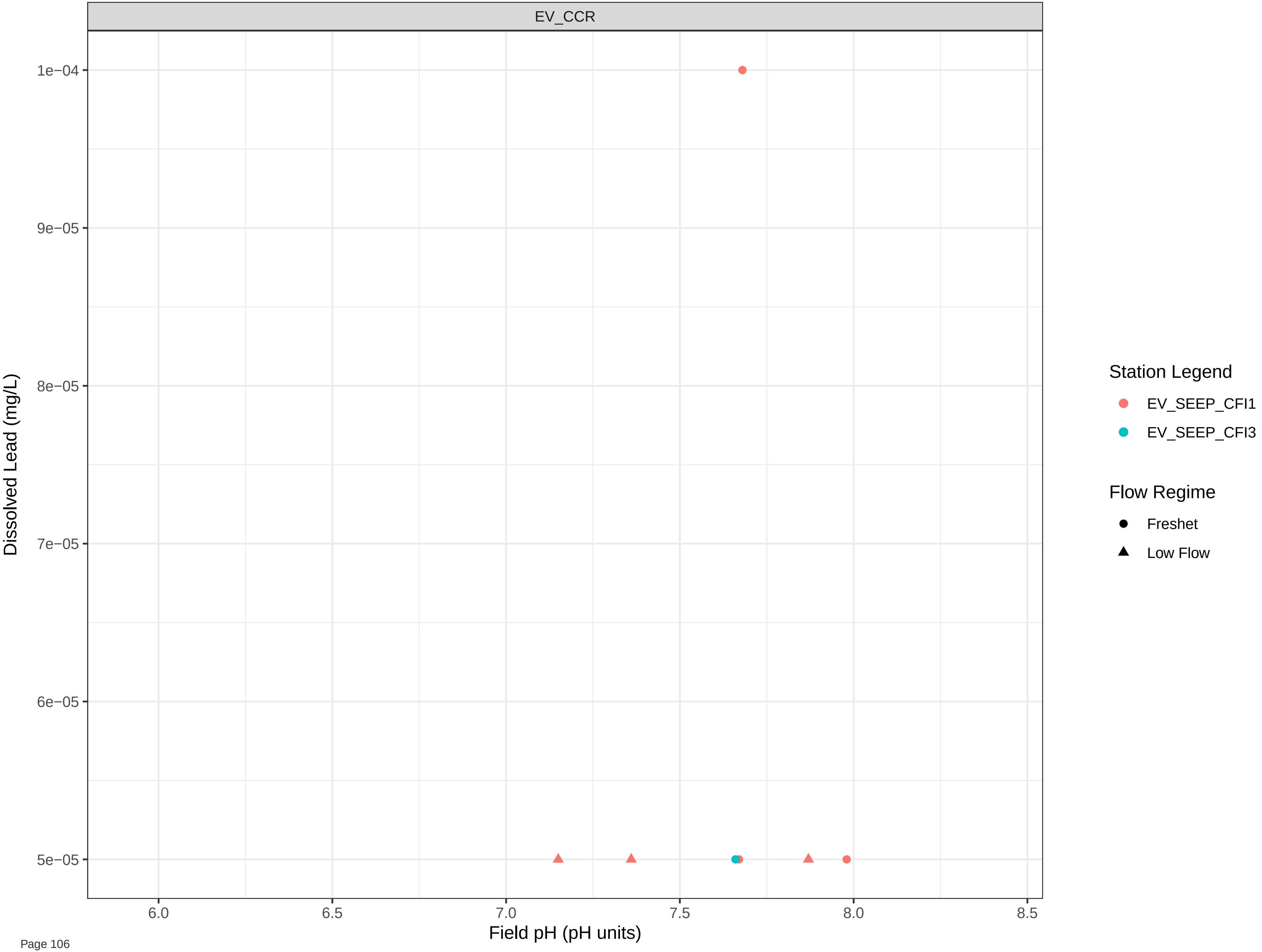

EV_Erickson_WR
Dissolved Iron (mg/L)
3
2
1
0
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

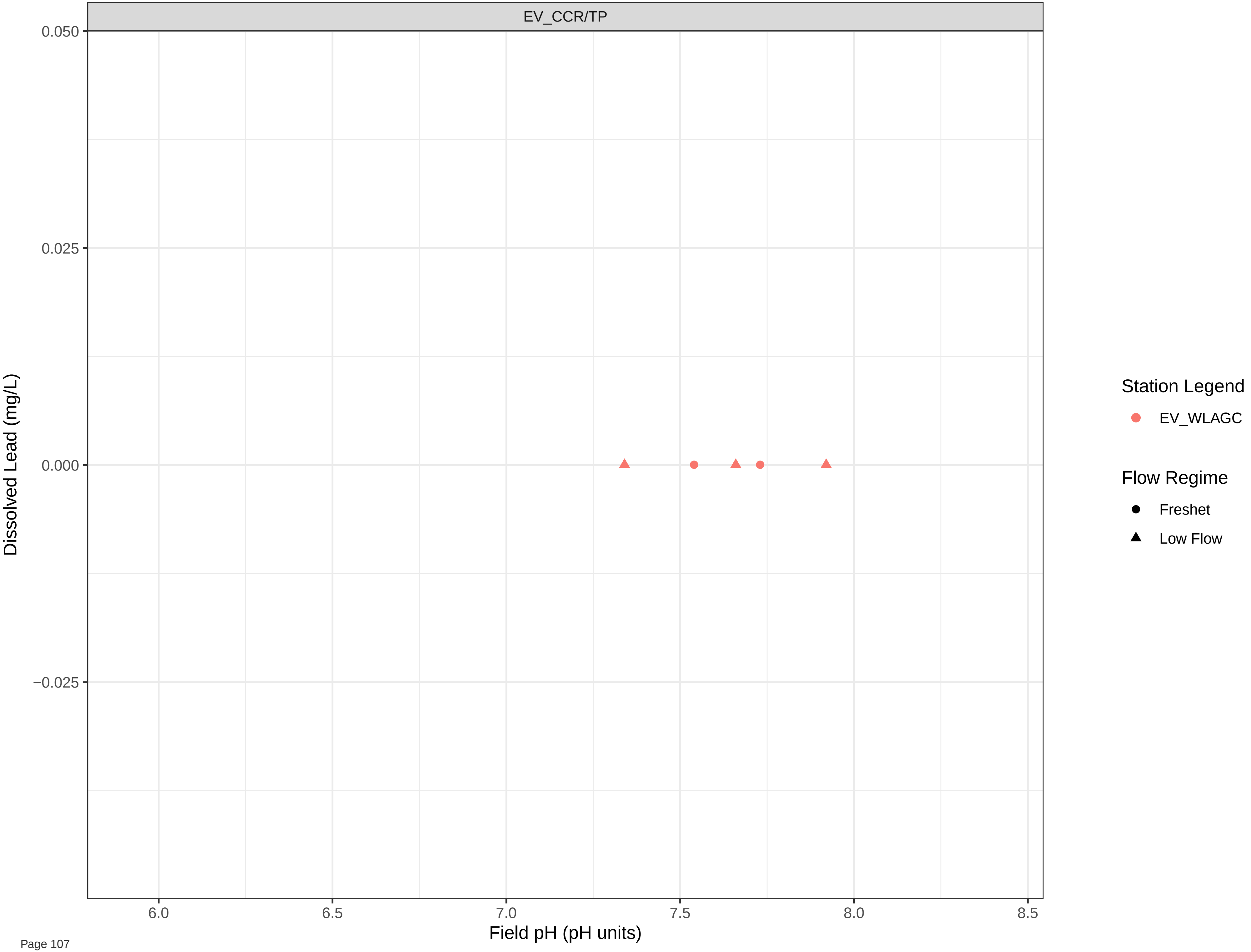

EV_PLANT
Dissolved Iron (mg/L)
0.6
0.4
0.2
0.0
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

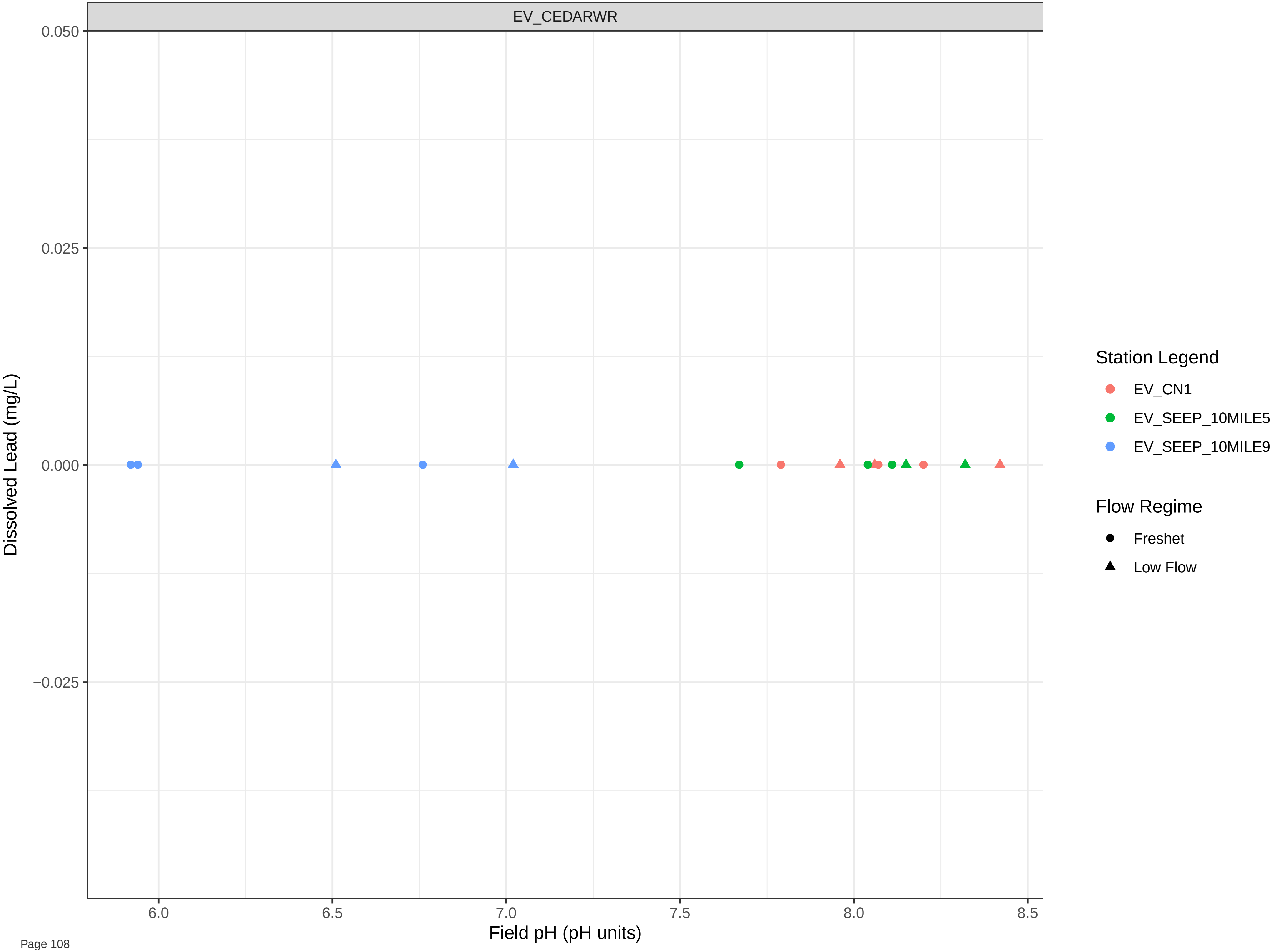

EV_SOUTHSLOPE
Dissolved Iron (mg/L)
0.0
0.2
0.4
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

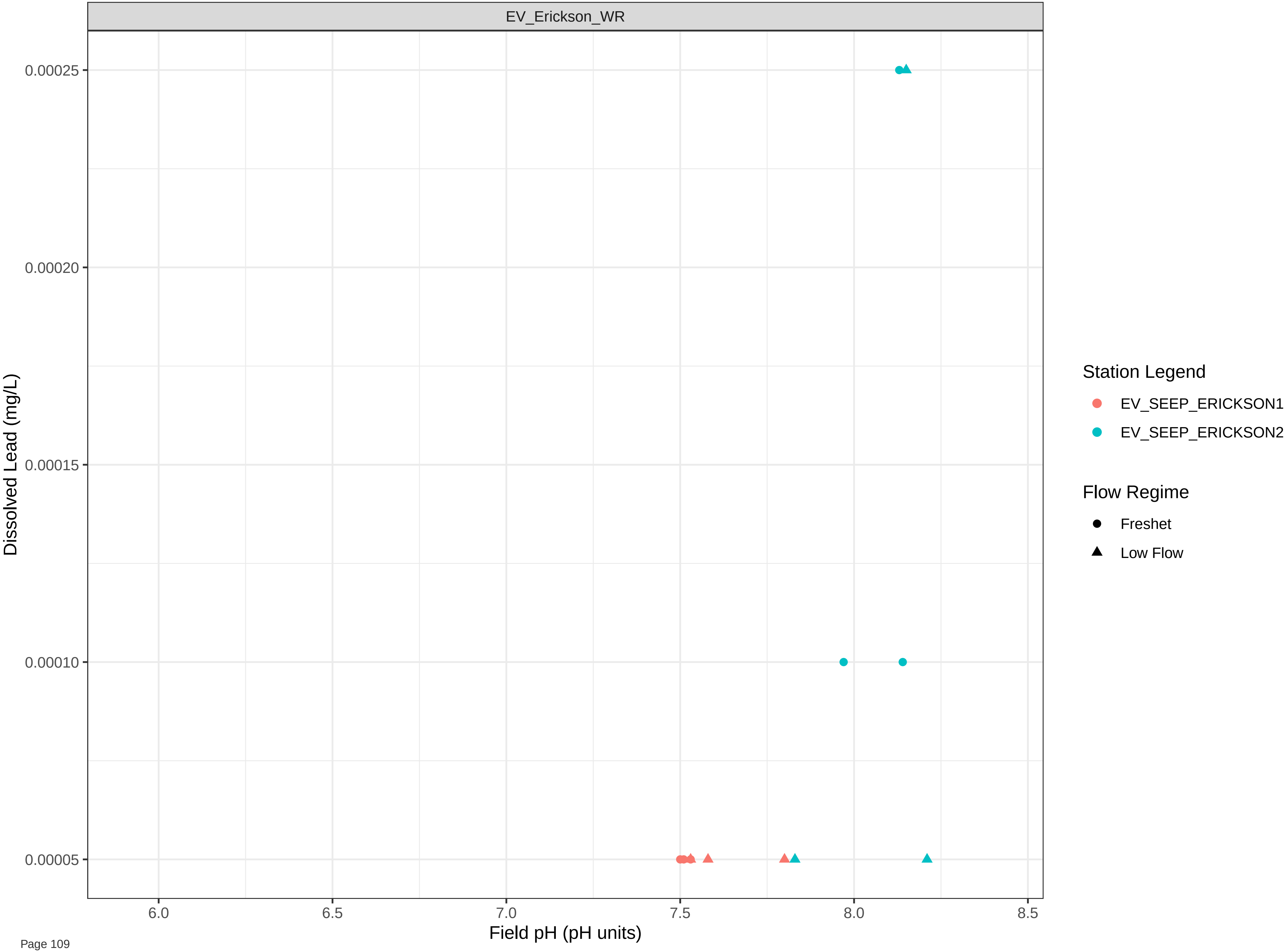

EV_SouthPit_Pit
Dissolved Iron (mg/L)
0.05
0.04
0.03
0.02
0.01
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

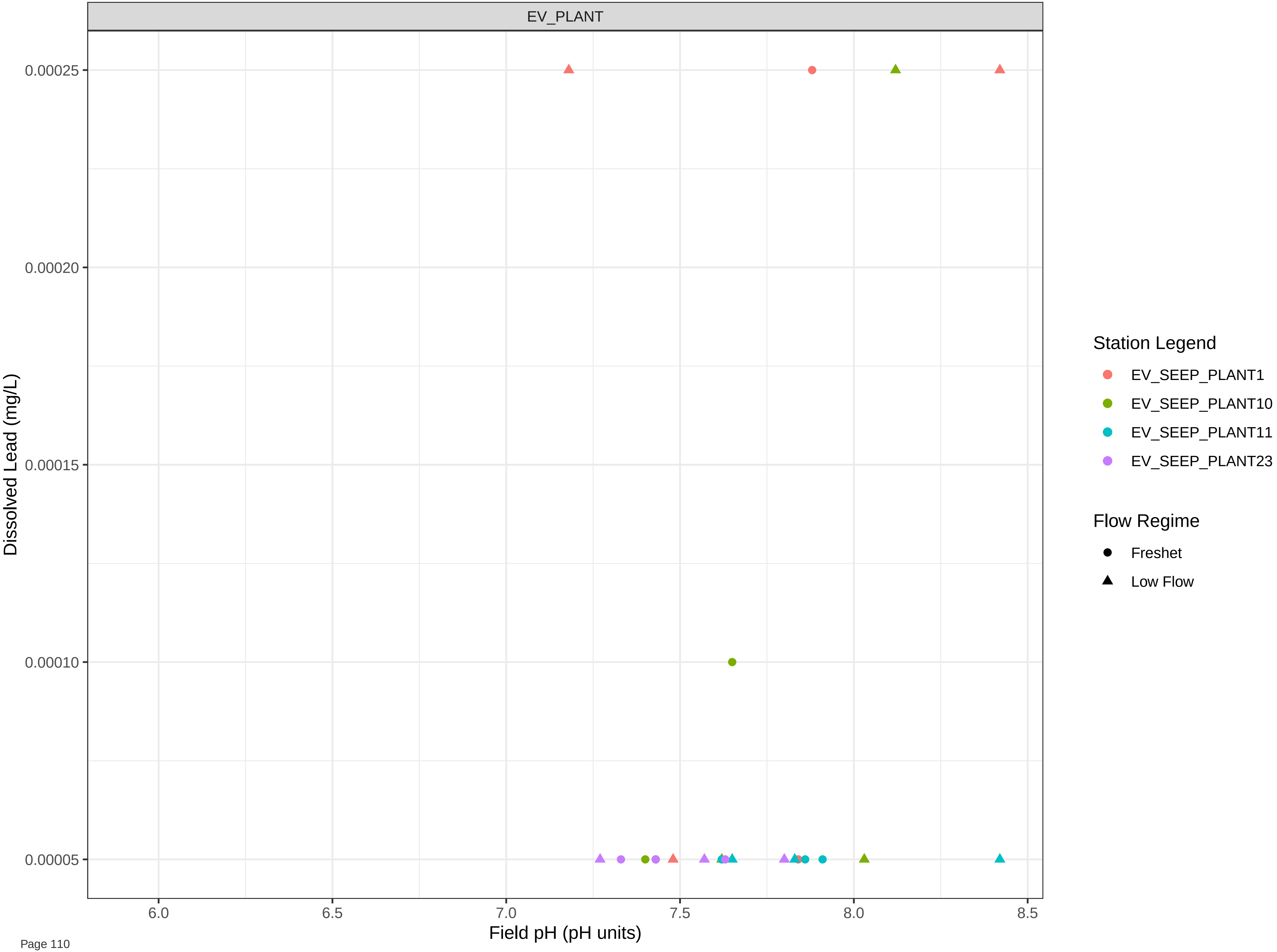

EV_BALDYRIDGEWR
Dissolved Lead (mg/L)
3e−04
2e−04
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

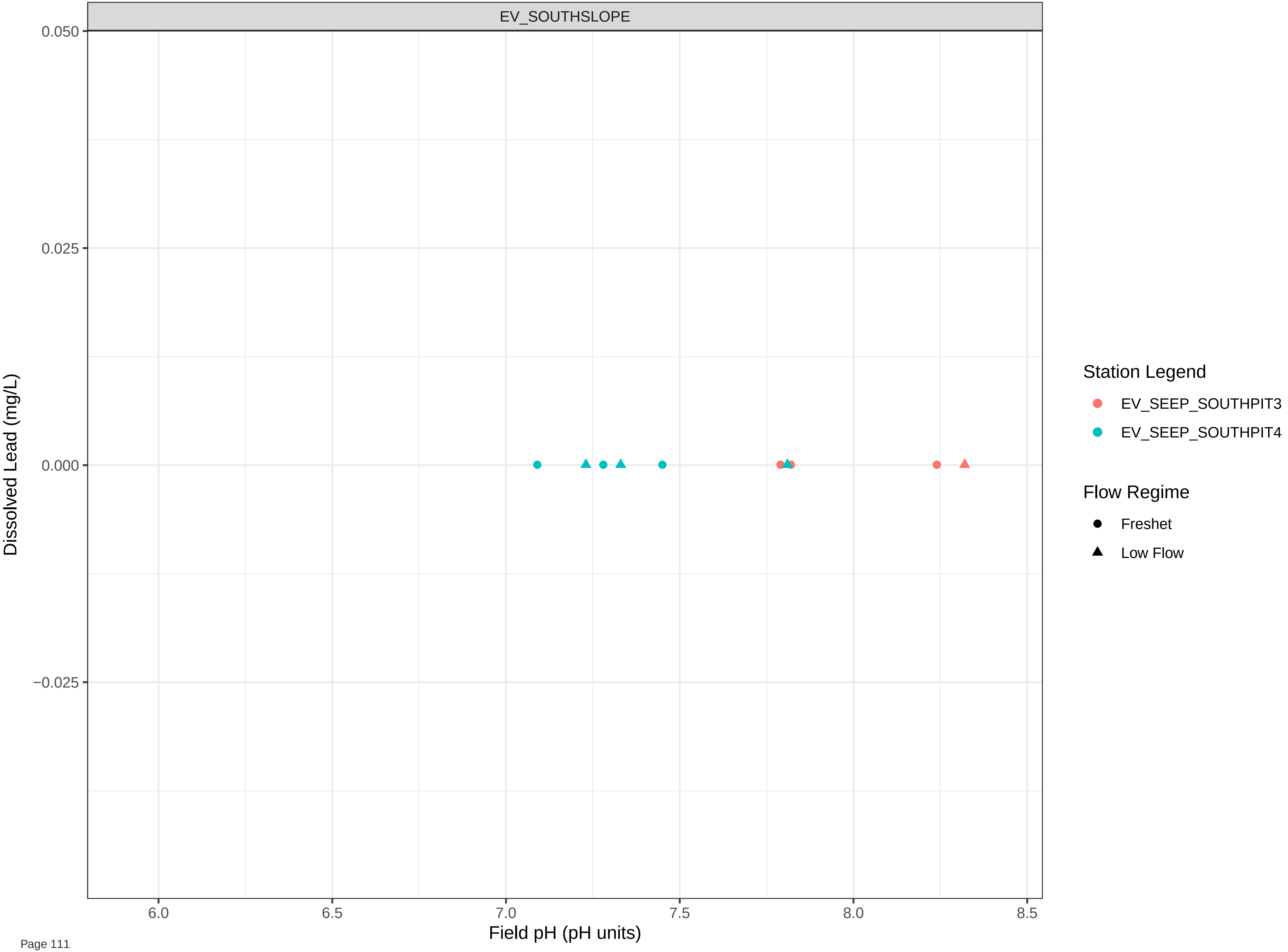

EV_CCR
Dissolved Lead (mg/L)
1e−04
9e−05
8e−05
7e−05
6e−05
5e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

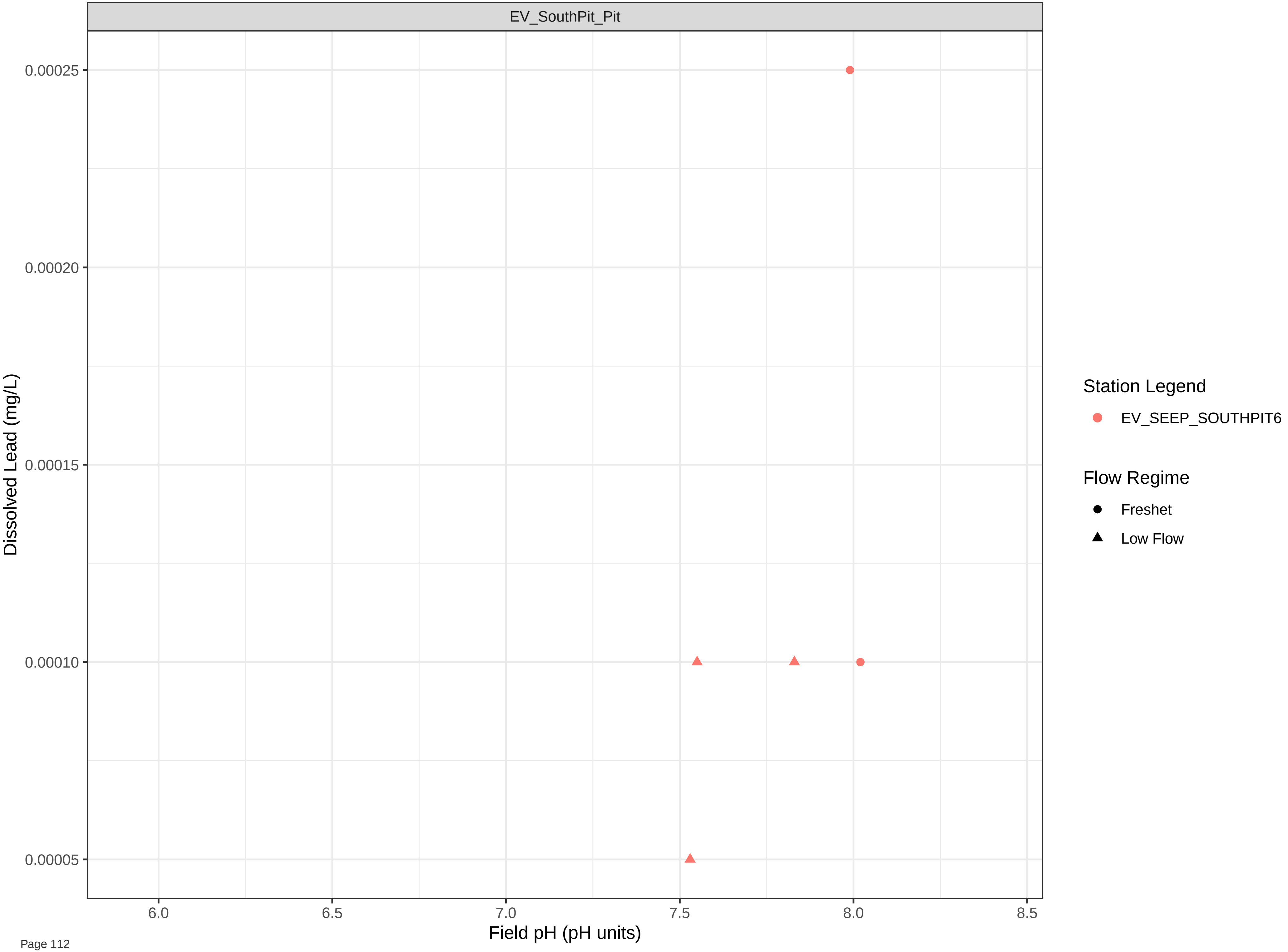

EV_CCR/TP
0.050
0.025
0.000
−0.025
Dissolved Lead (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

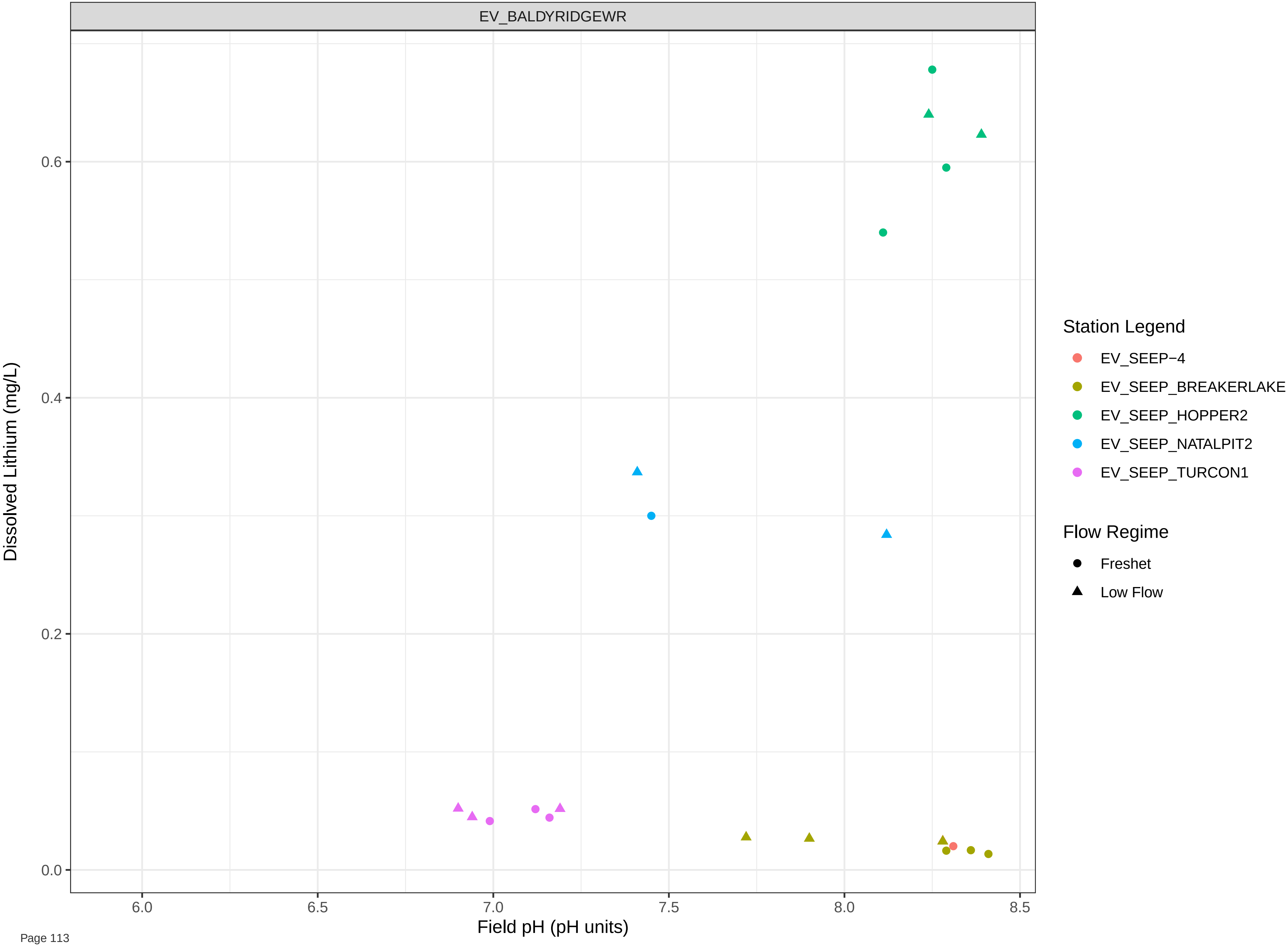

EV_CEDARWR
Dissolved Lead (mg/L)
0.050
0.025
0.000
−0.025
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

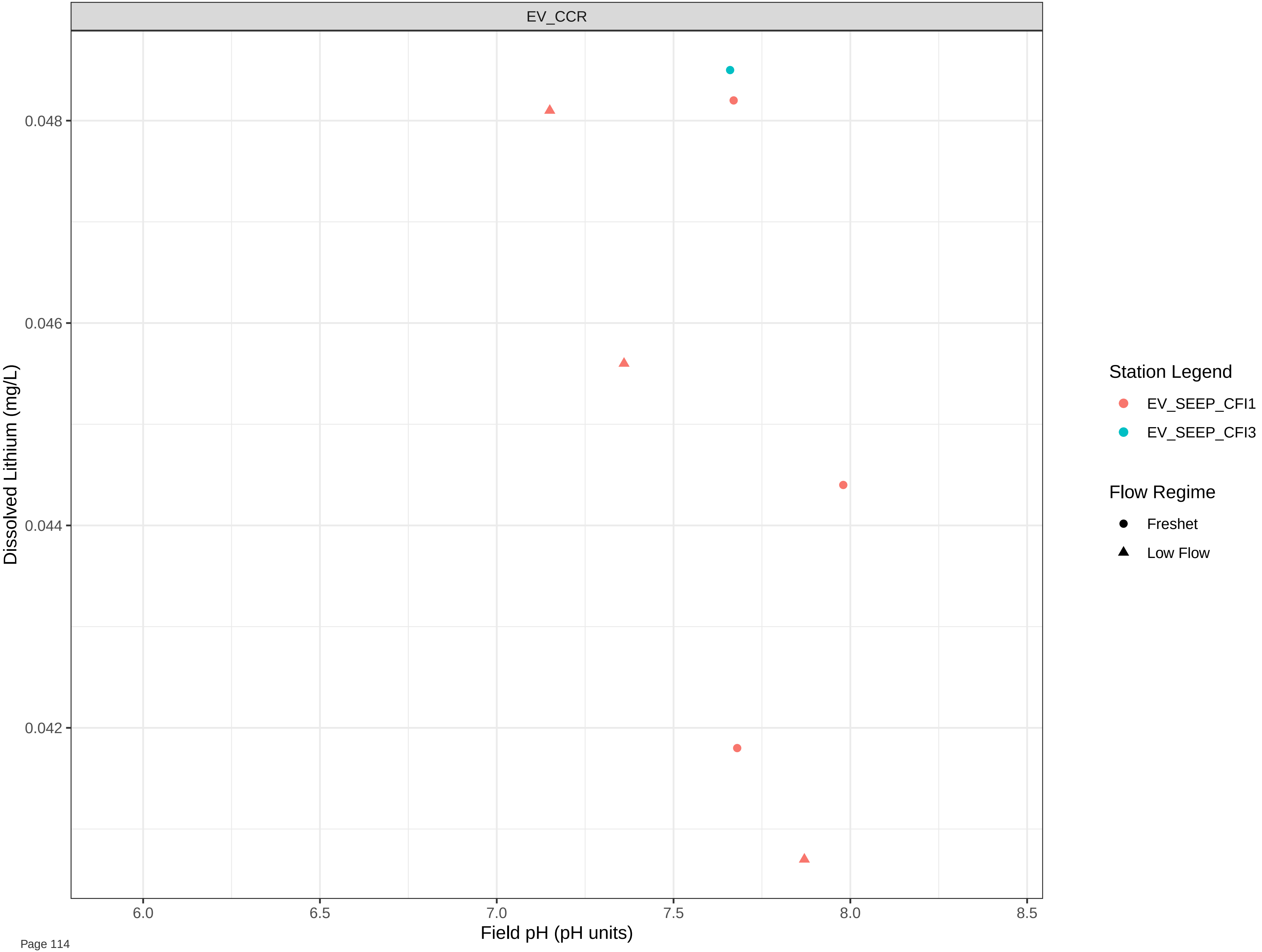

EV_Erickson_WR
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

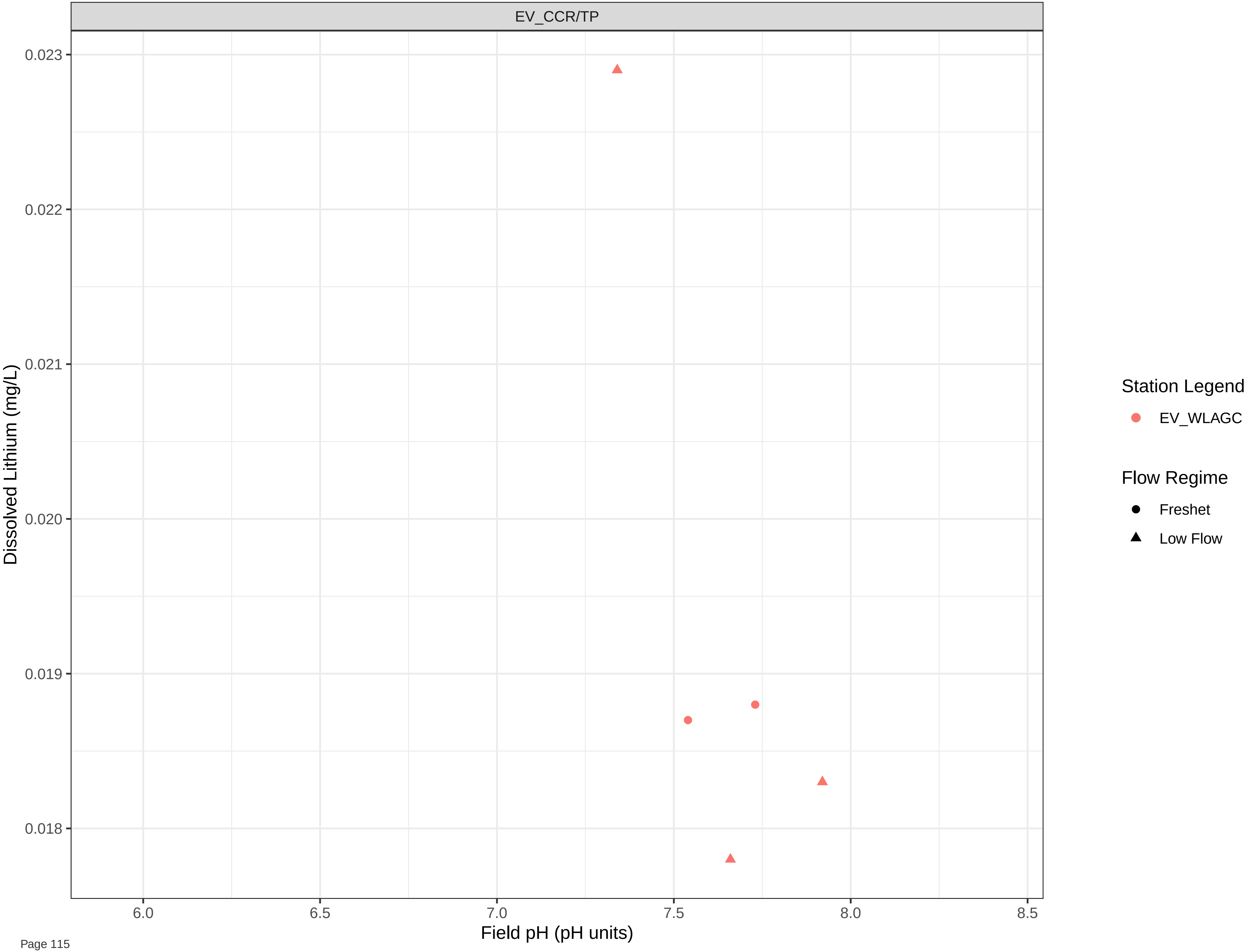

EV_PLANT
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

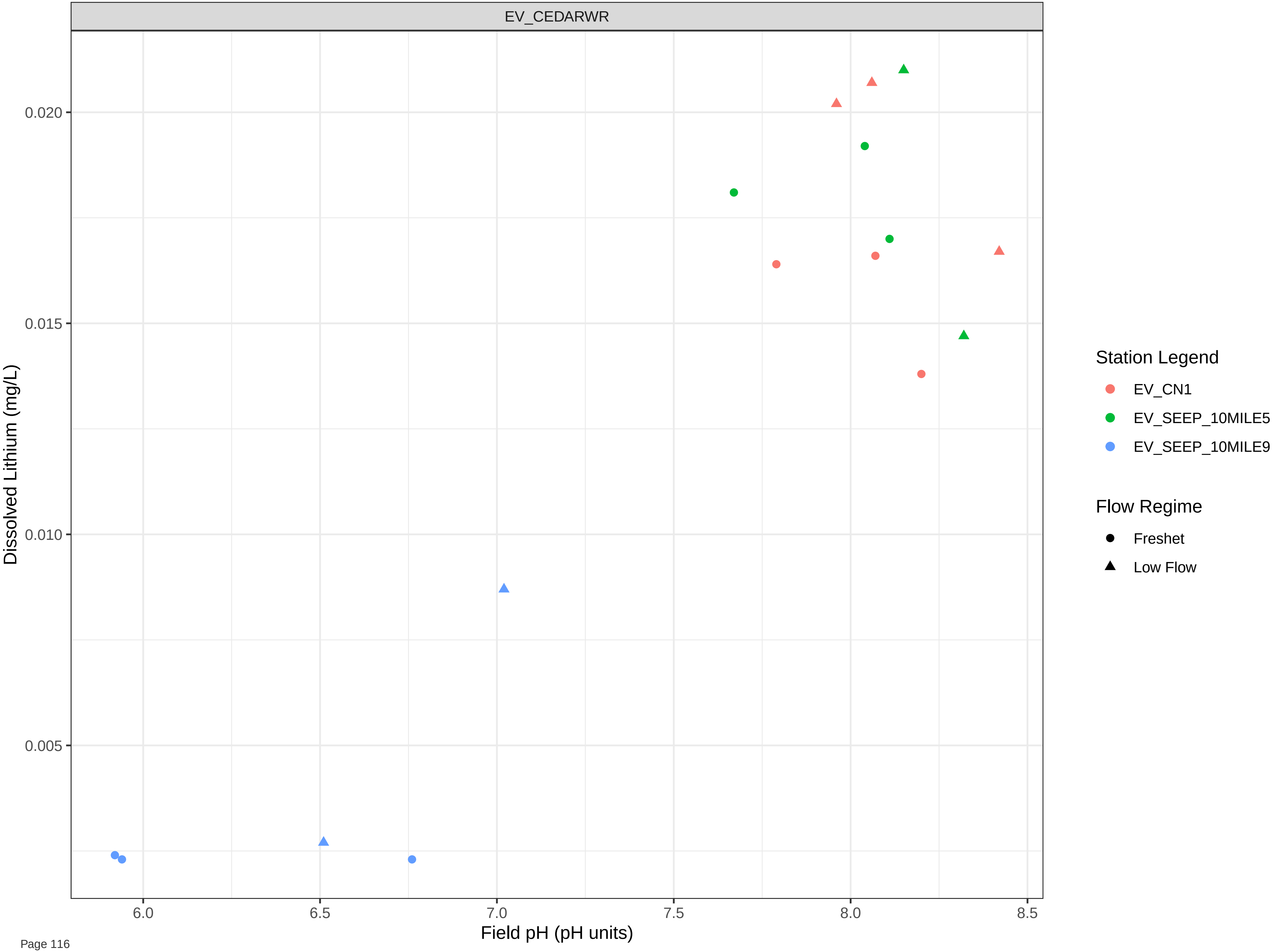

EV_SOUTHSLOPE
Dissolved Lead (mg/L)
0.050
0.025
0.000
−0.025
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

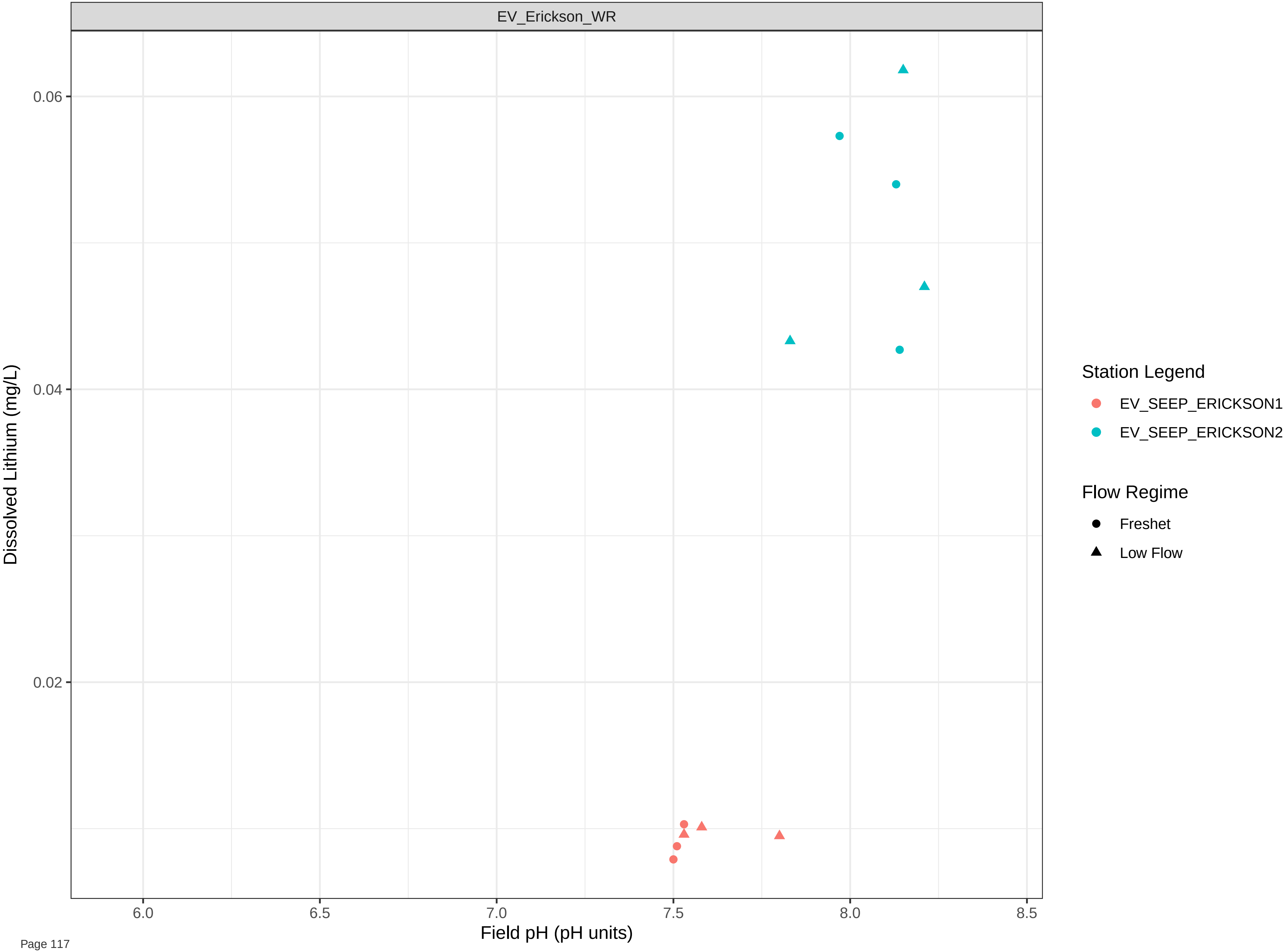

EV_SouthPit_Pit
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

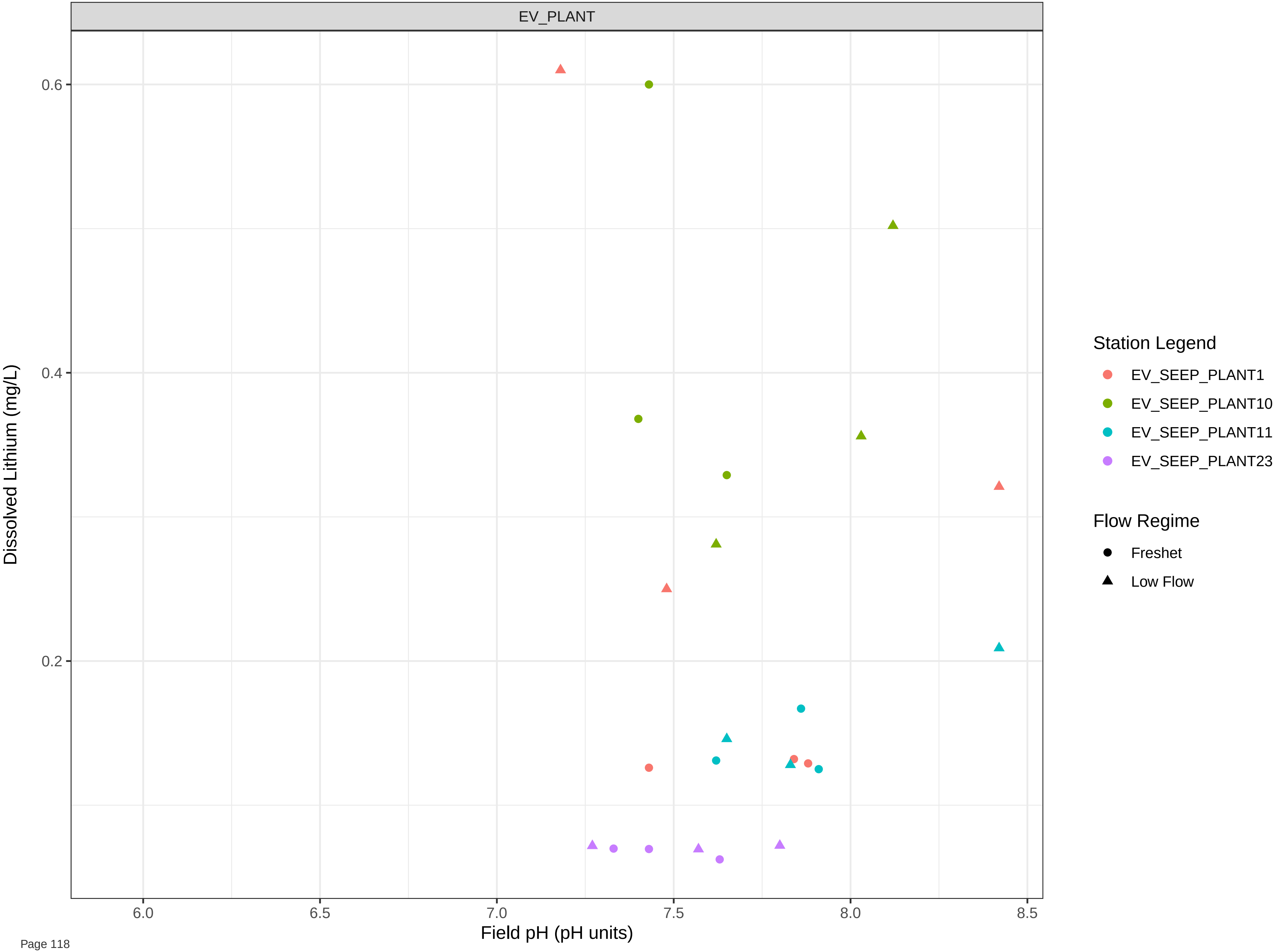

EV_BALDYRIDGEWR
Dissolved Lithium (mg/L)
0.0
0.2
0.4
0.6
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow


EV_CCR
Dissolved Lithium (mg/L)
0.048
0.046
0.044
0.042
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

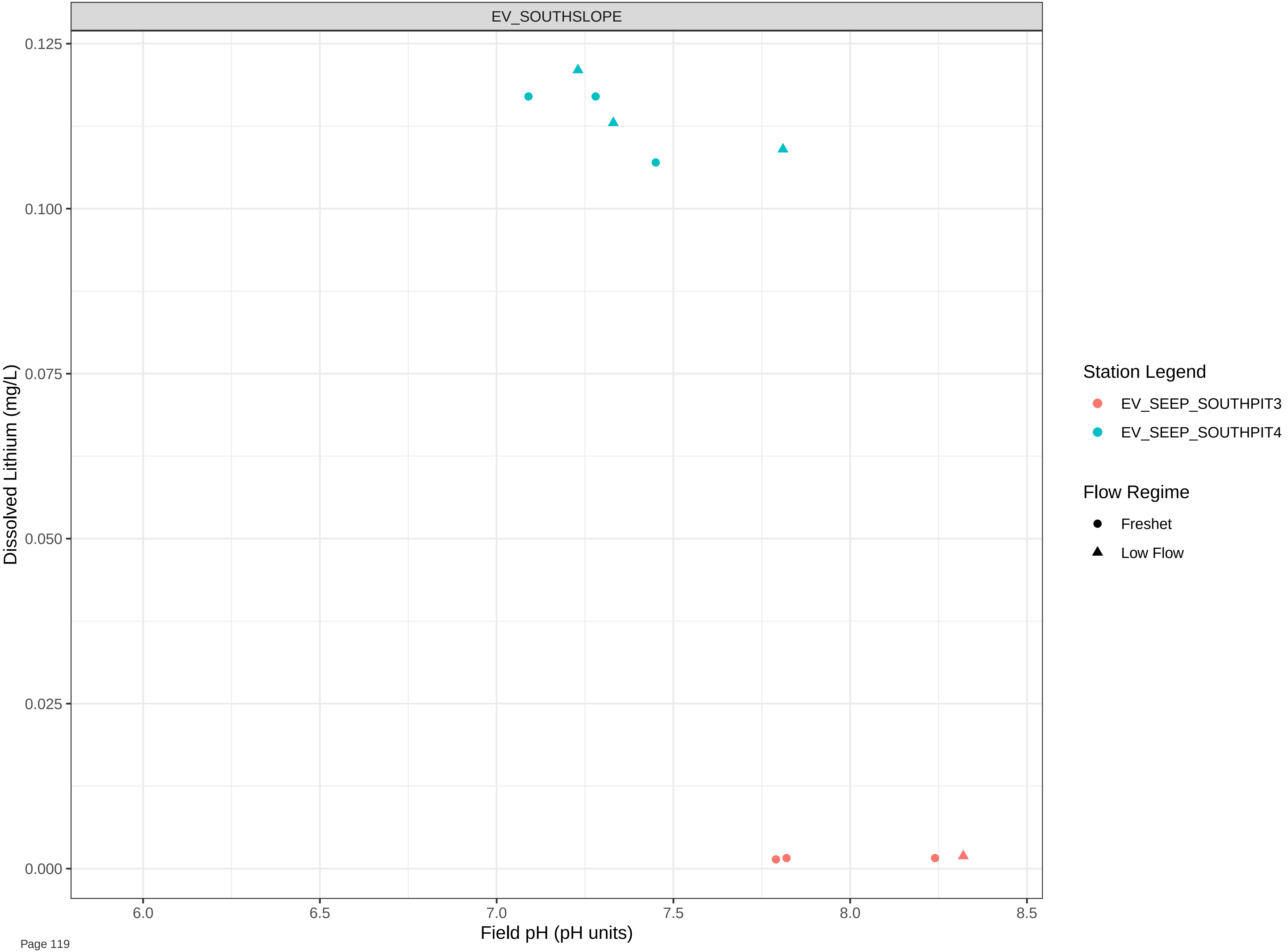

EV_CCR/TP
0.023
0.022
0.021
0.020
0.019
0.018
Dissolved Lithium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

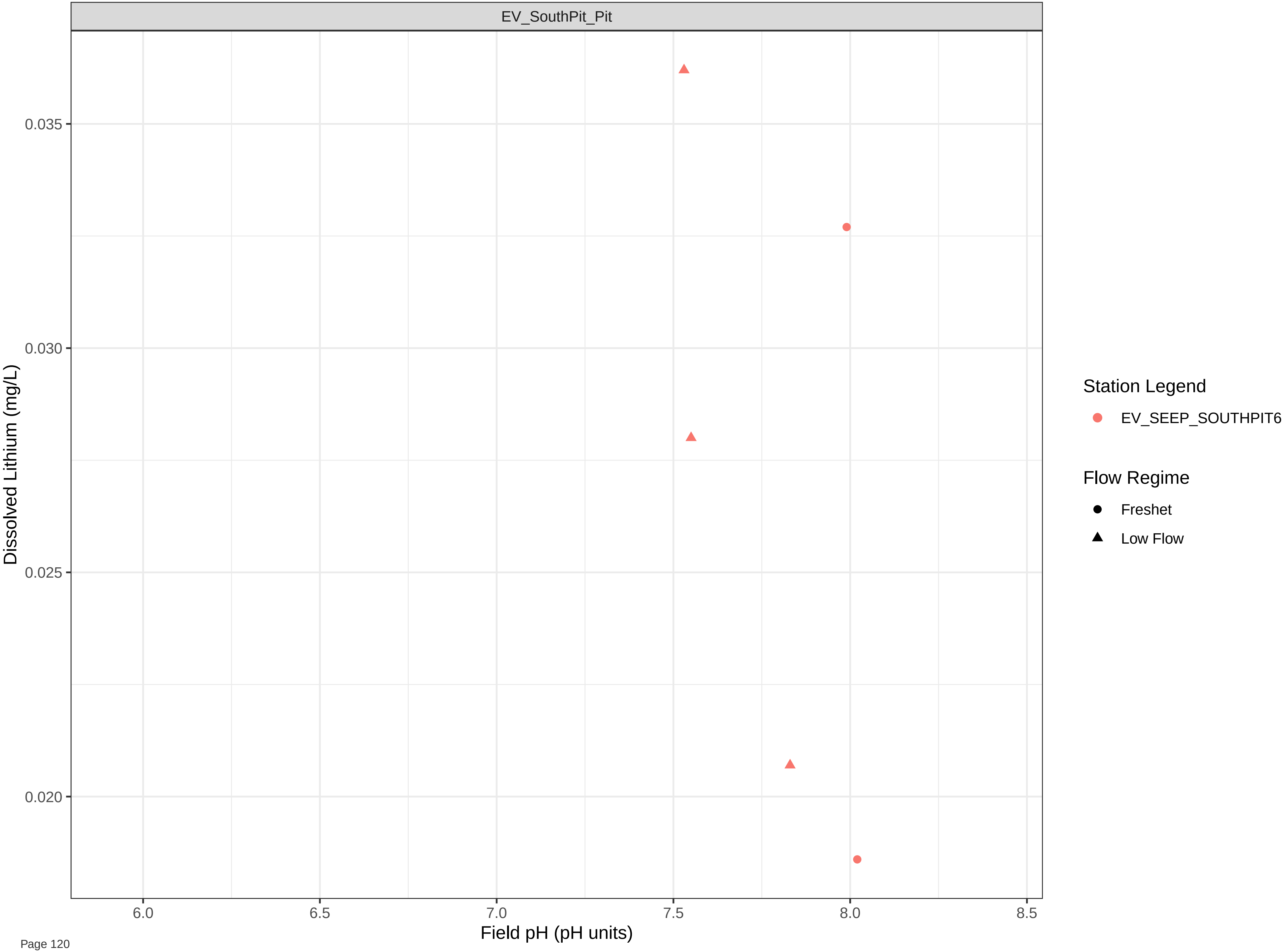

EV_CEDARWR
Dissolved Lithium (mg/L)
0.020
0.015
0.010
0.005
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_CN1
● EV_SEEP_10MILE5
● EV_SEEP_10MILE9
Flow Regime
● Freshet
▲ Low Flow

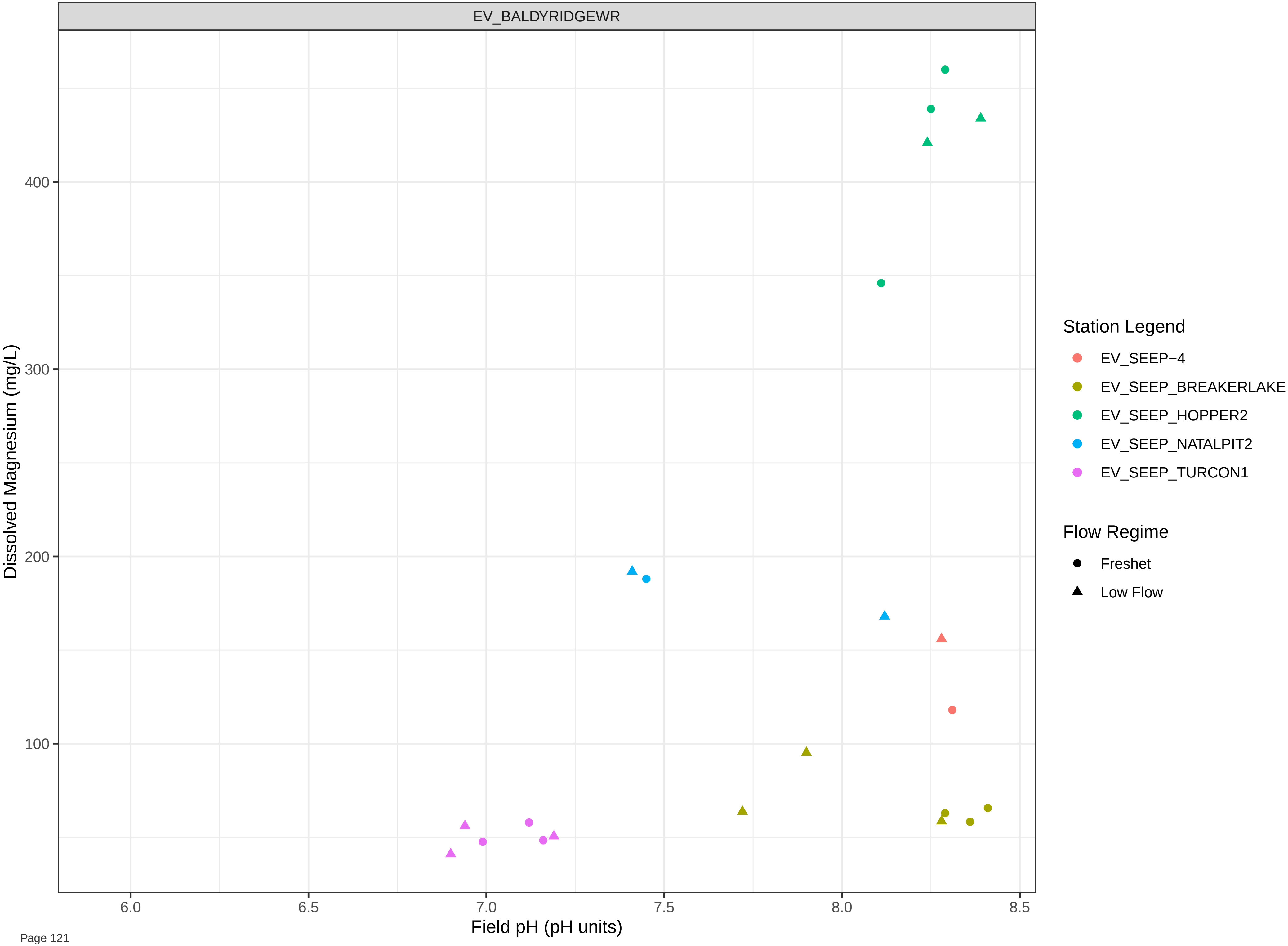

EV_Erickson_WR
Dissolved Lithium (mg/L)
0.06
0.04
0.02
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

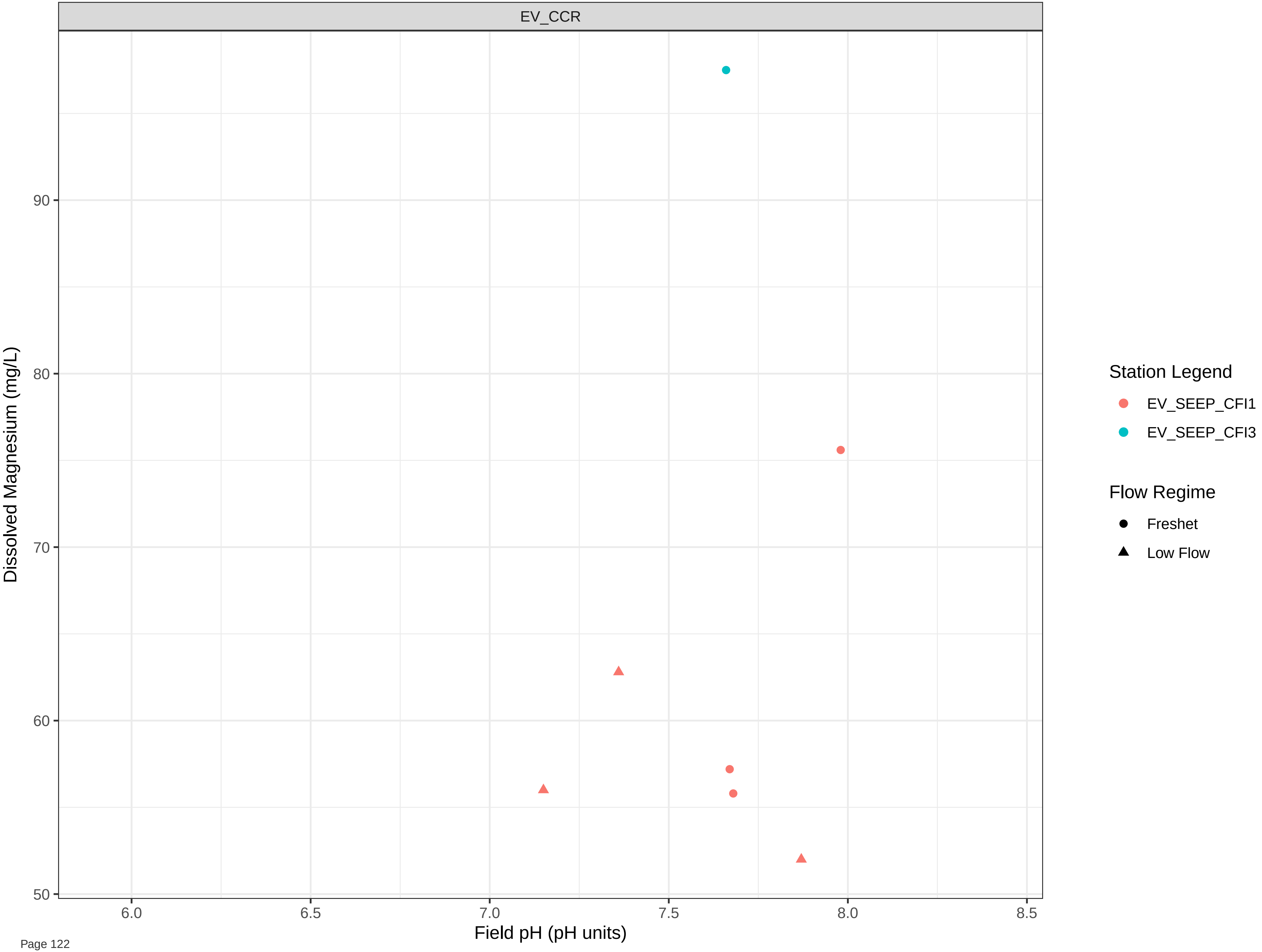


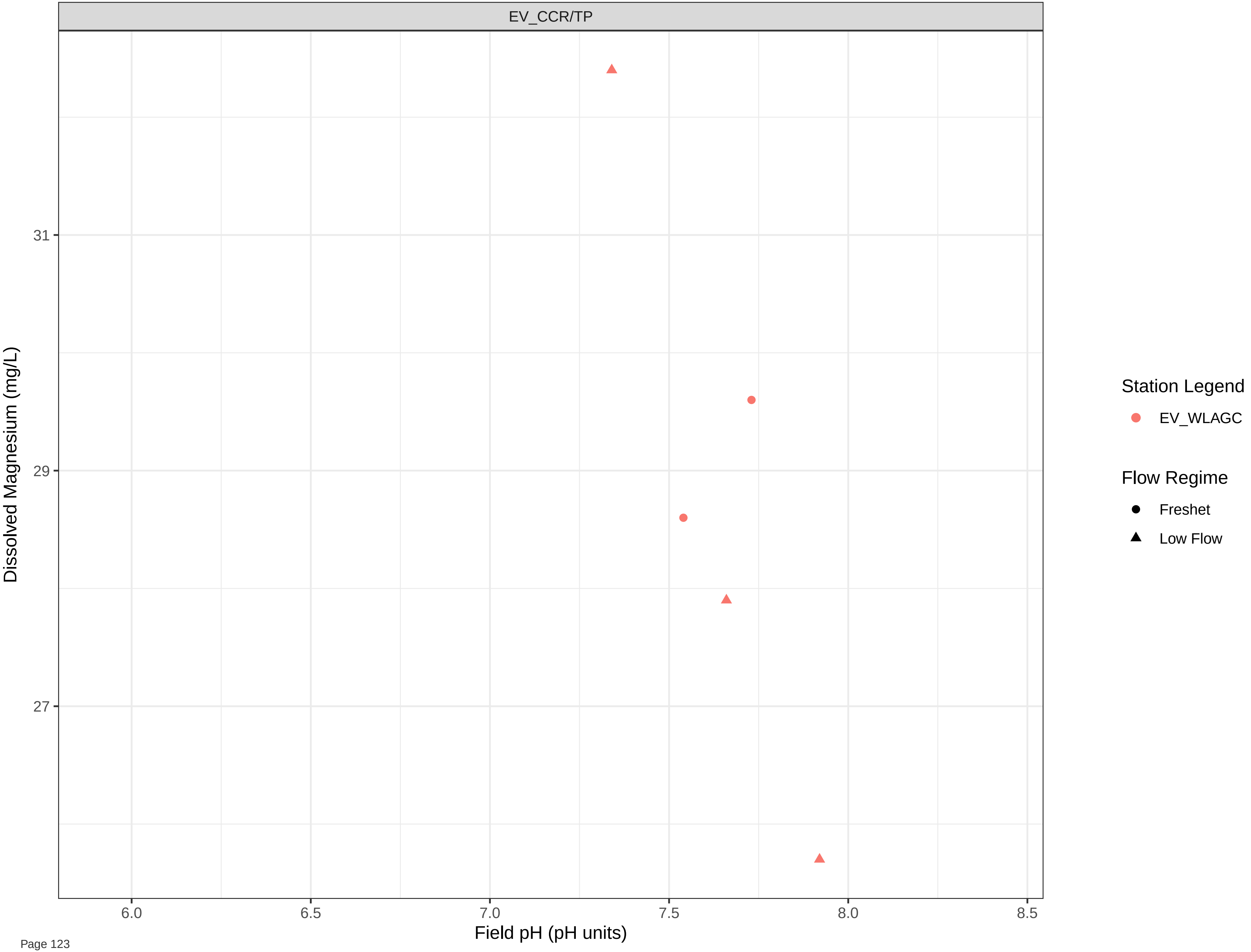
EV_PLANT
Dissolved Lithium (mg/L)
0.6
0.4
0.2
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

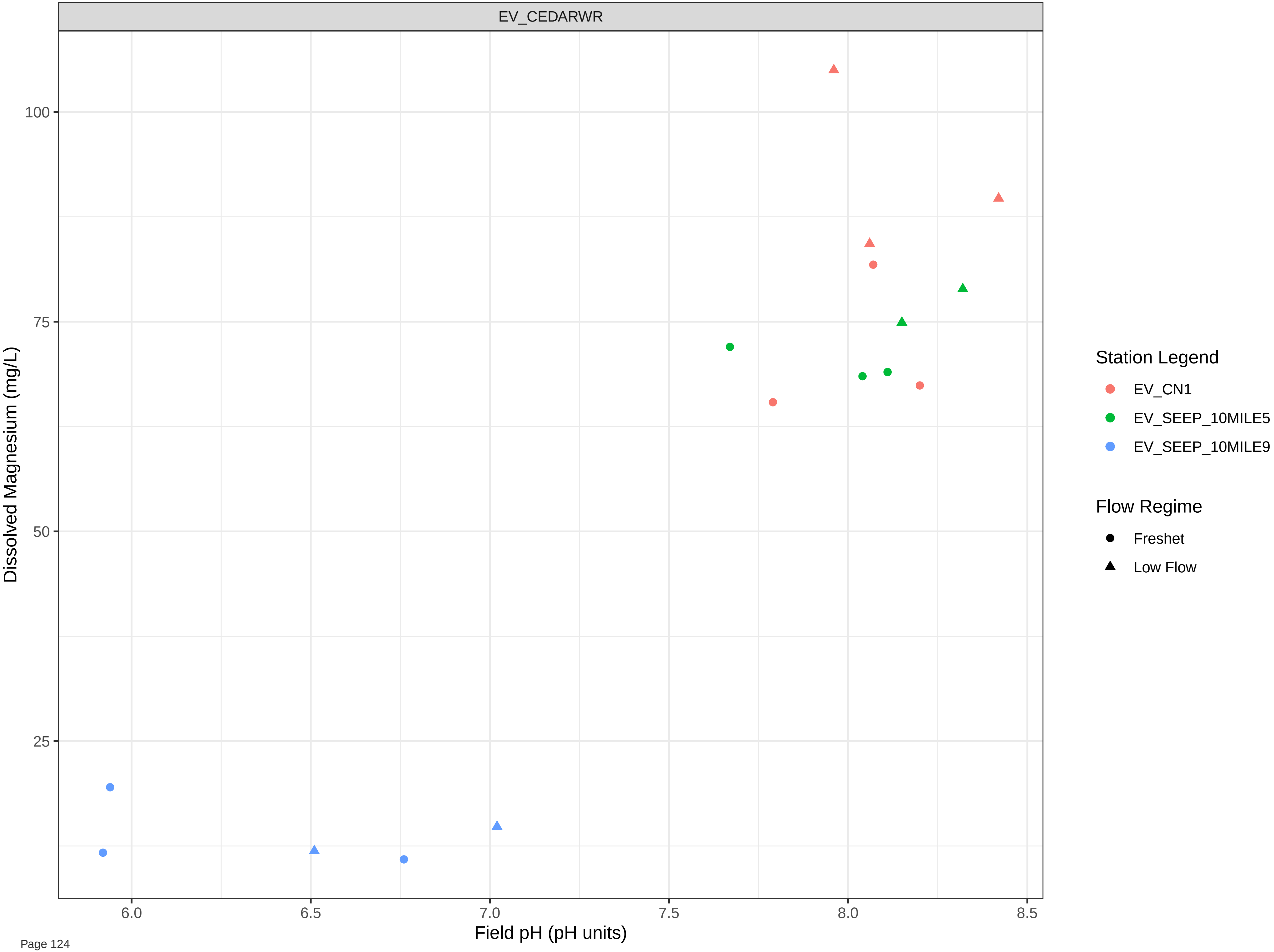

EV_SOUTHSLOPE
0.125
0.100
0.075
0.050
0.025
0.000
Dissolved Lithium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

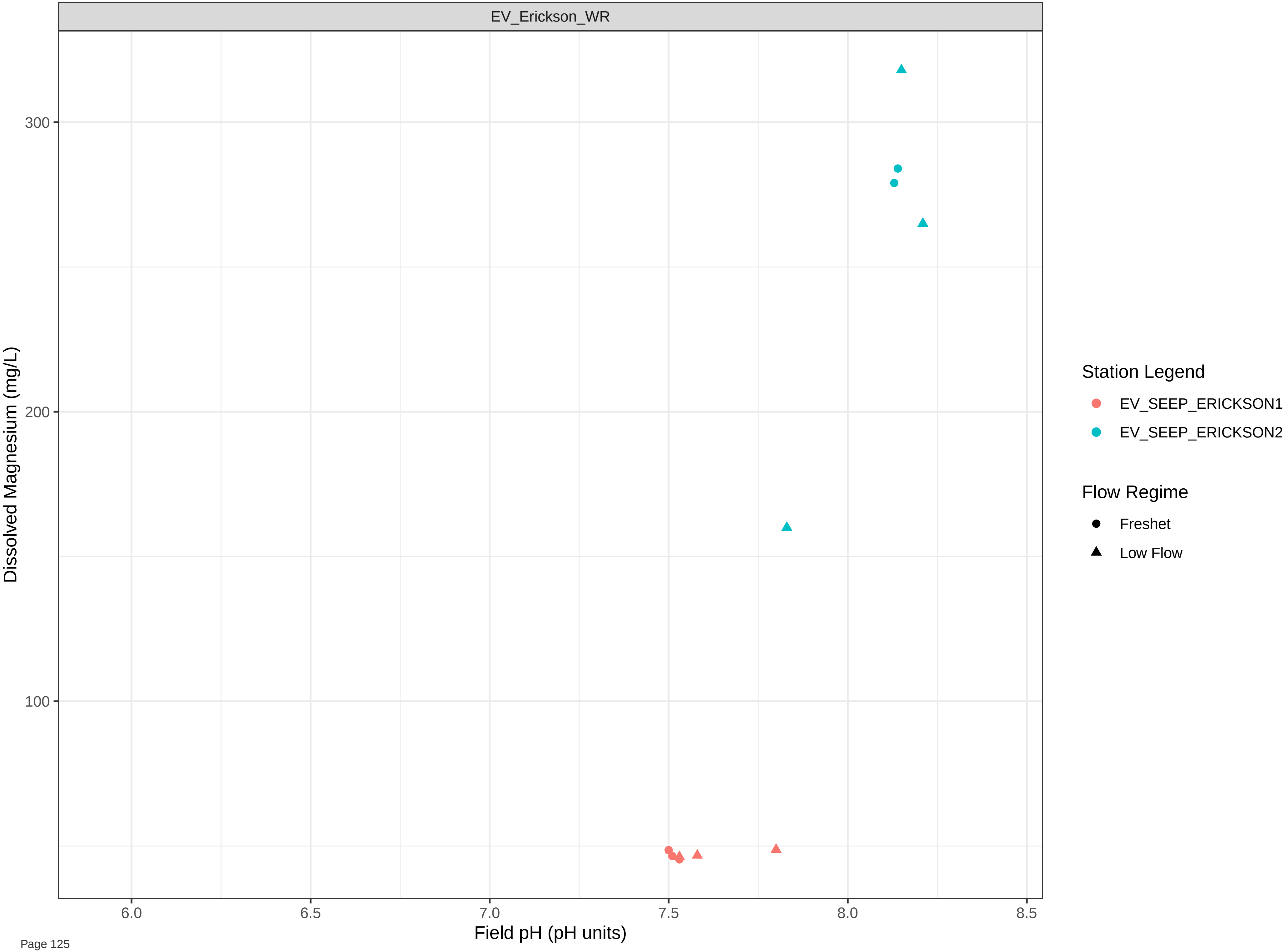

EV_SouthPit_Pit
Dissolved Lithium (mg/L)
0.035
0.030
0.025
0.020
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

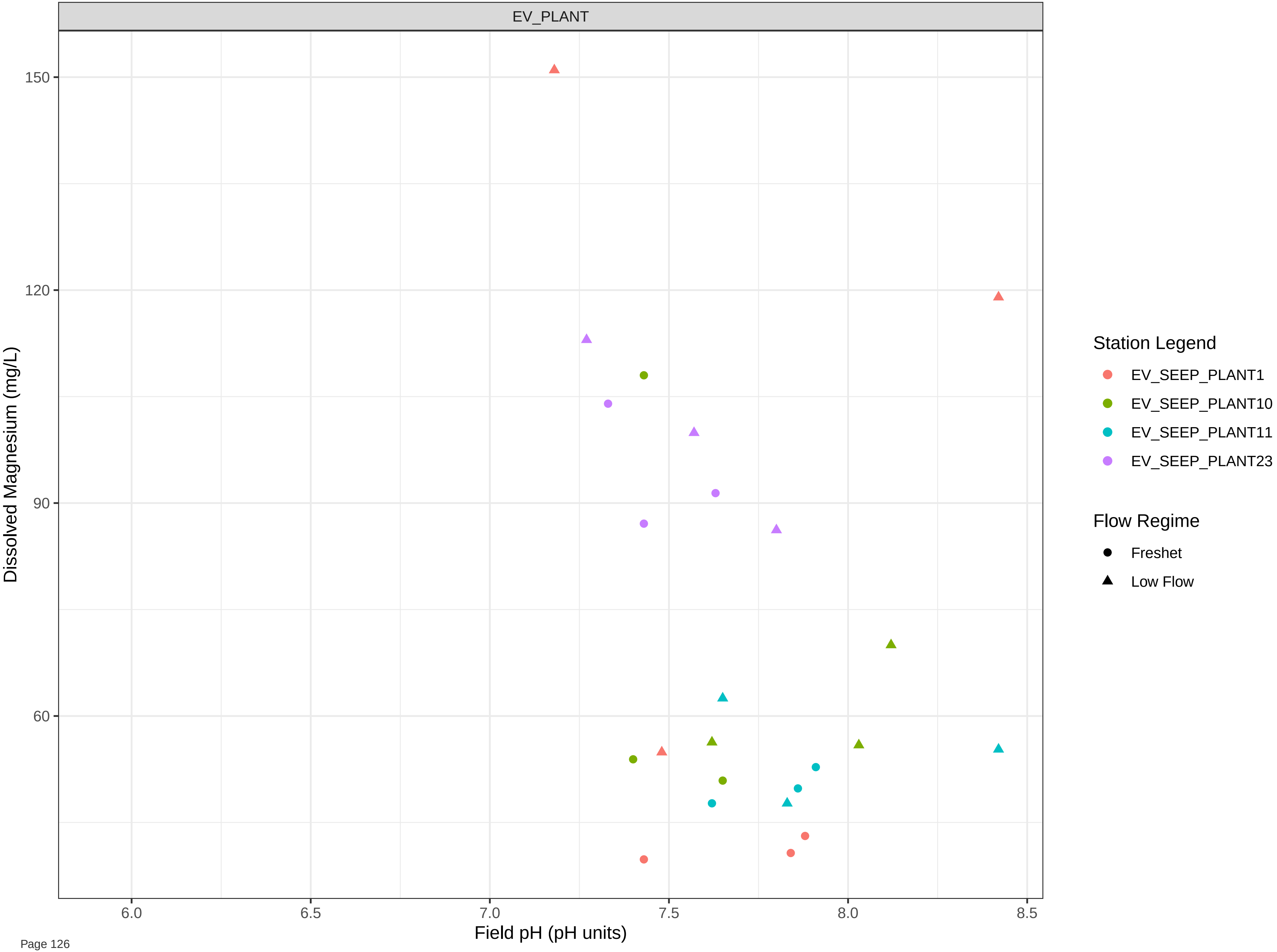

EV_BALDYRIDGEWR
Dissolved Magnesium (mg/L)
400
300
200
100
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

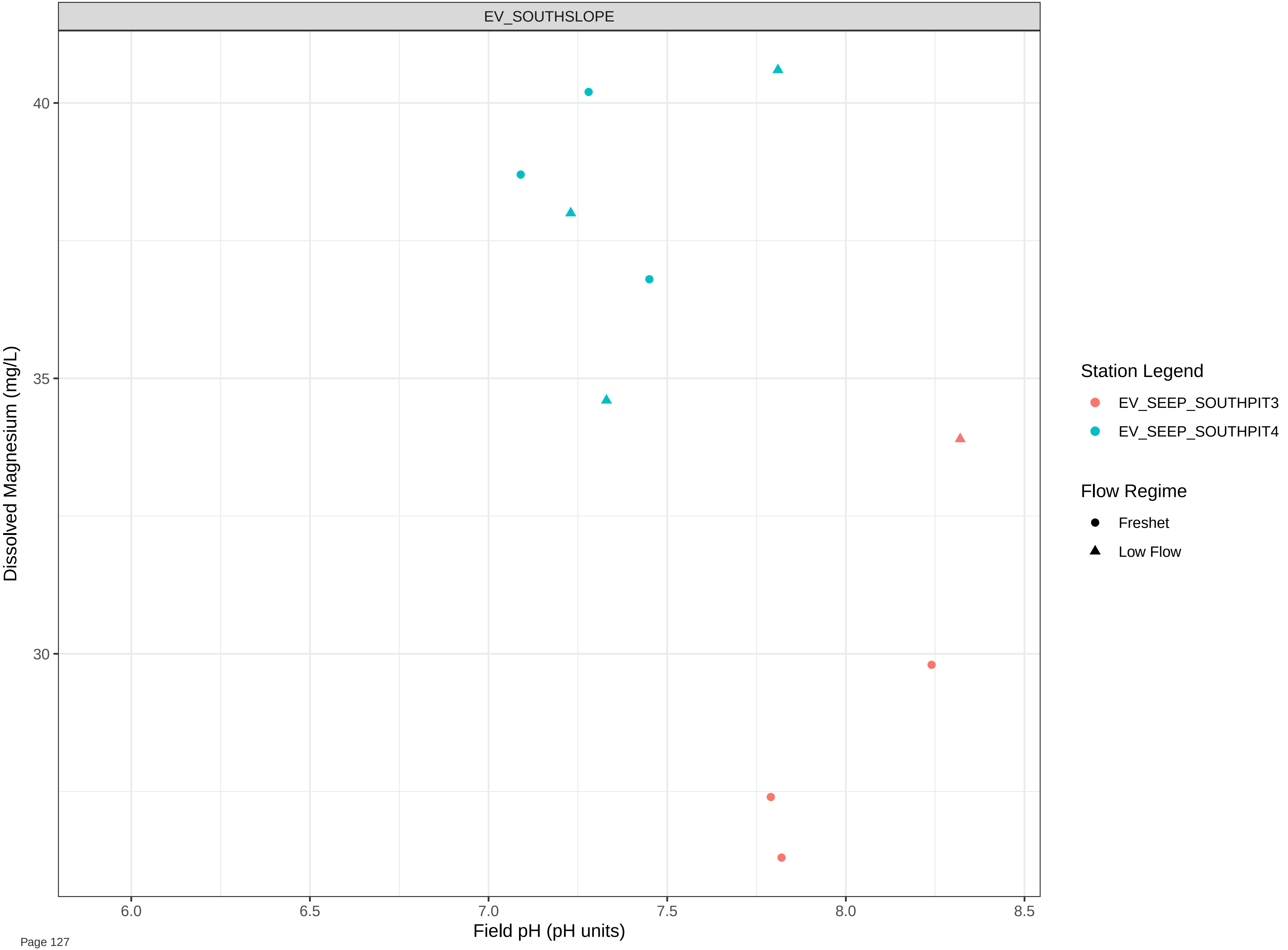

EV_CCR
Dissolved Magnesium (mg/L)
90
80
70
60
50
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

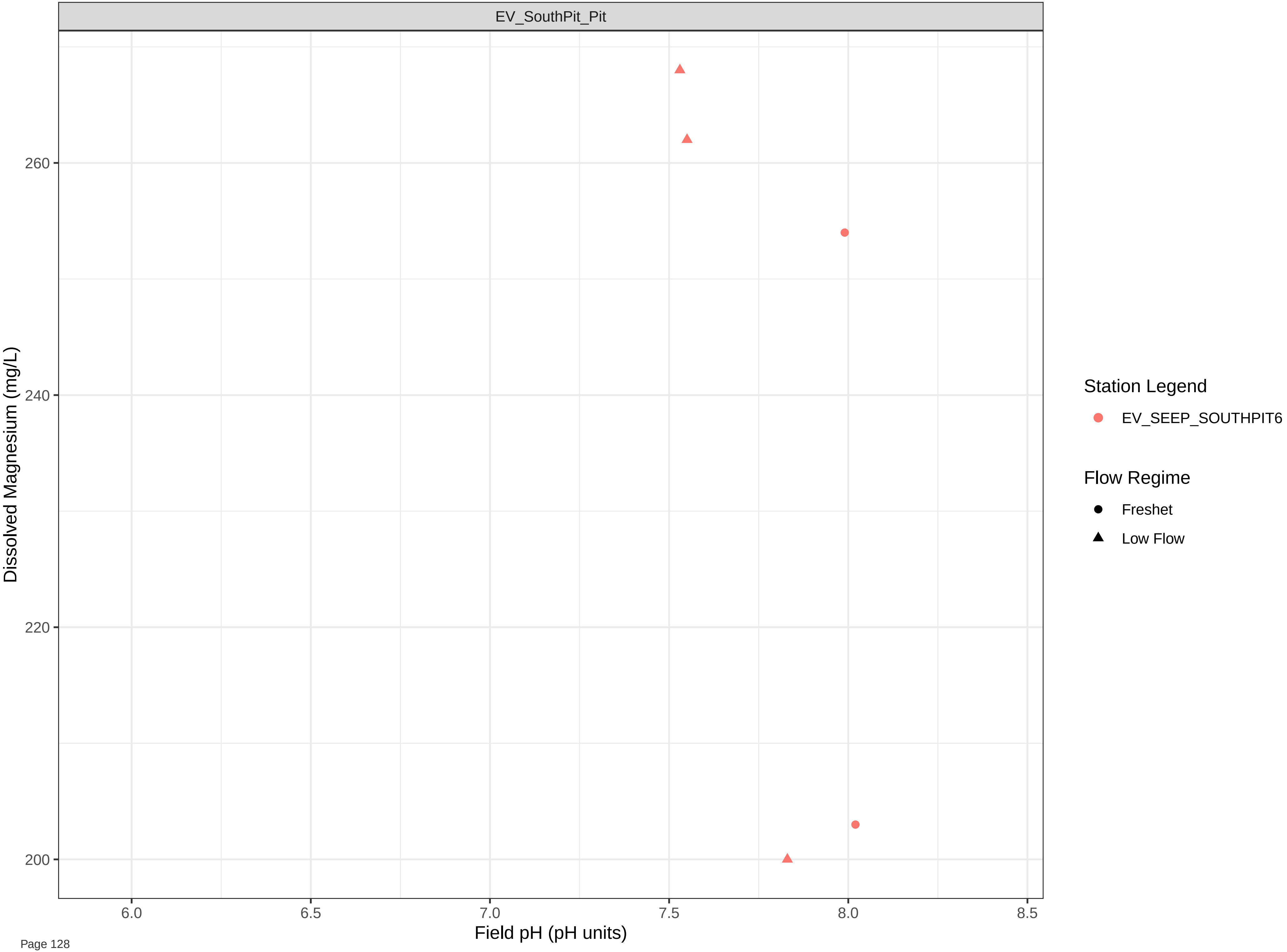

EV_CCR/TP
Dissolved Magnesium (mg/L)
31
29
27
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

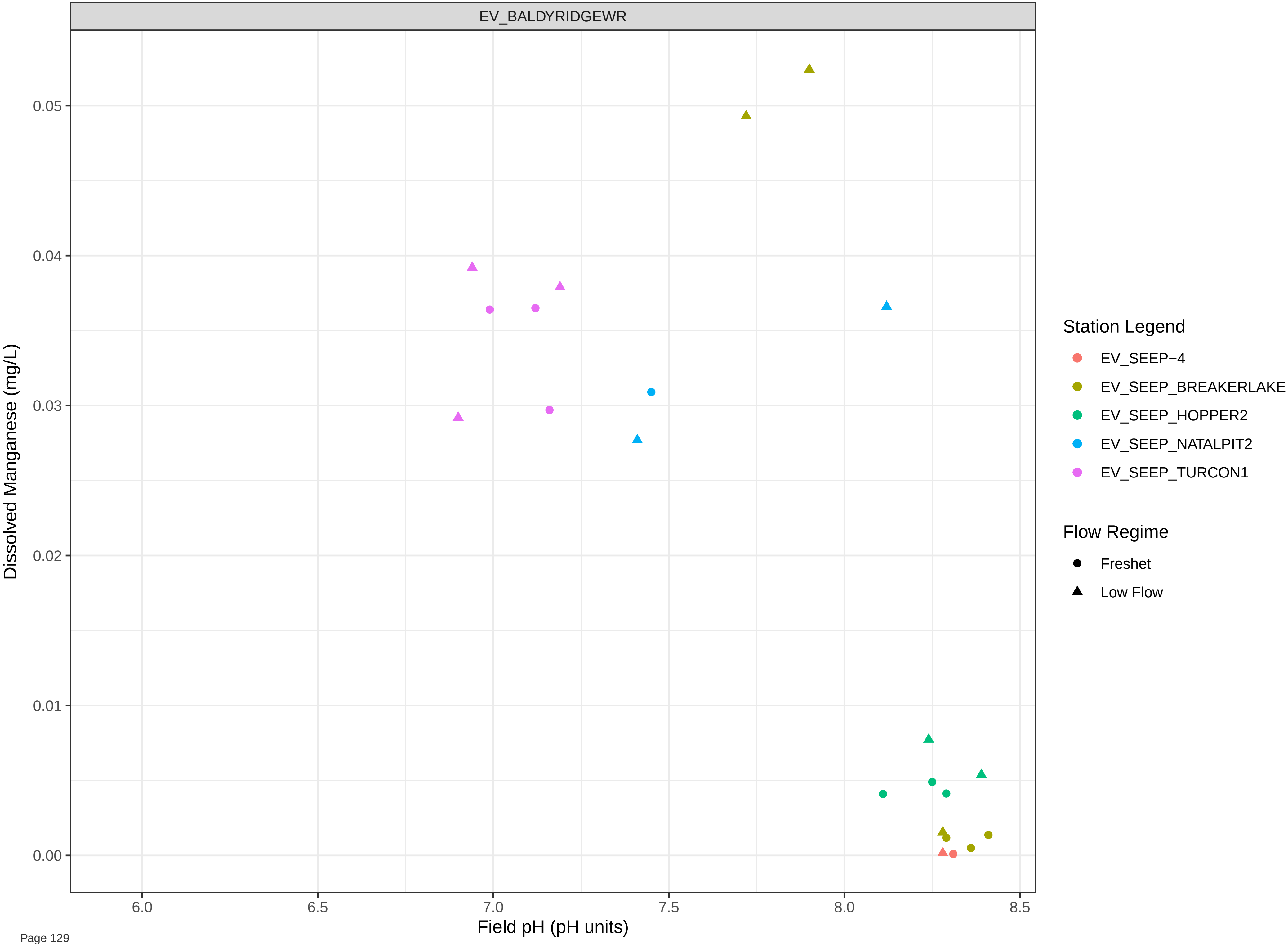

EV_CEDARWR
Dissolved Magnesium (mg/L)
100
75
50
25
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

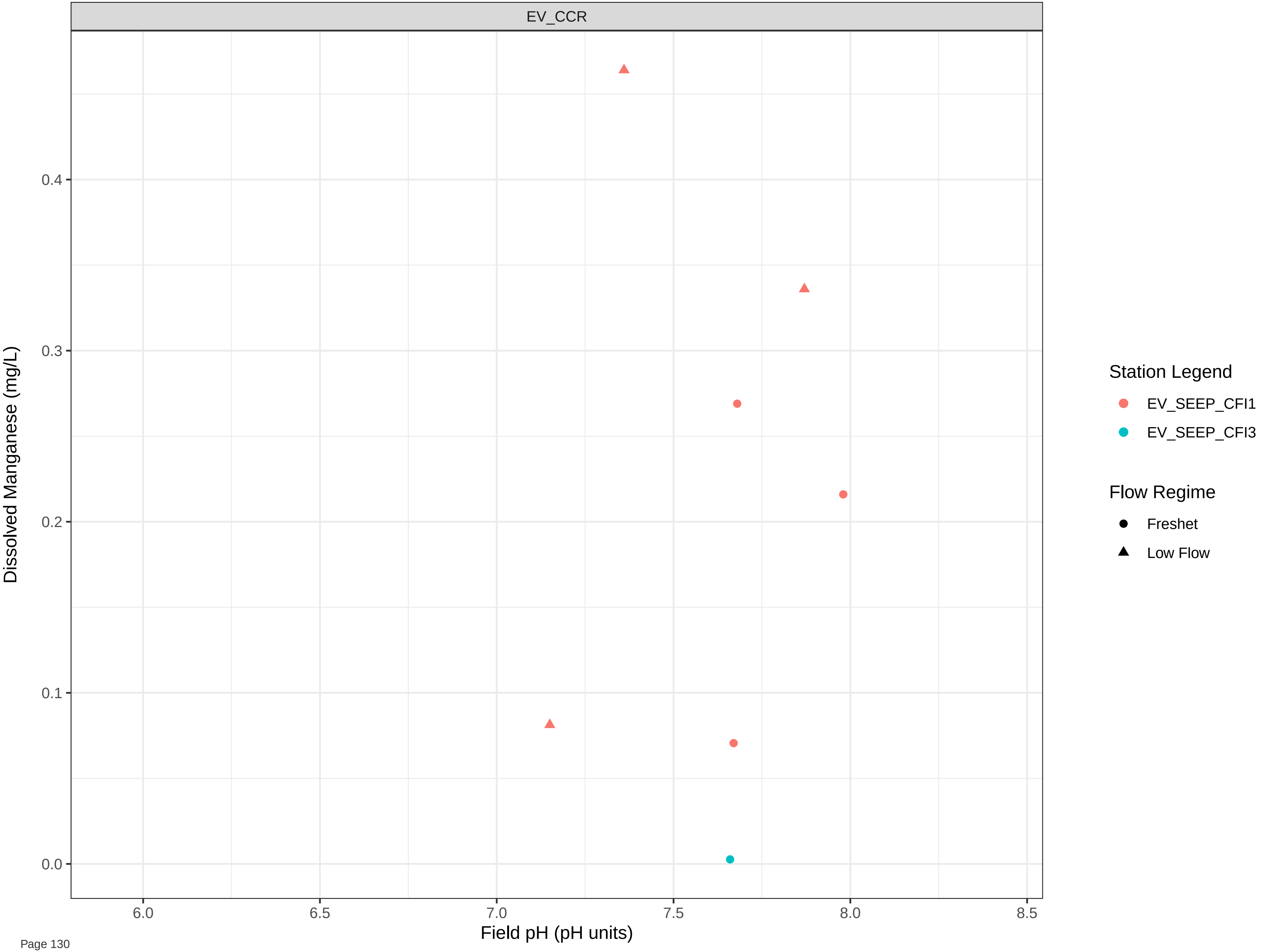

EV_Erickson_WR
Dissolved Magnesium (mg/L)
300
200
100
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

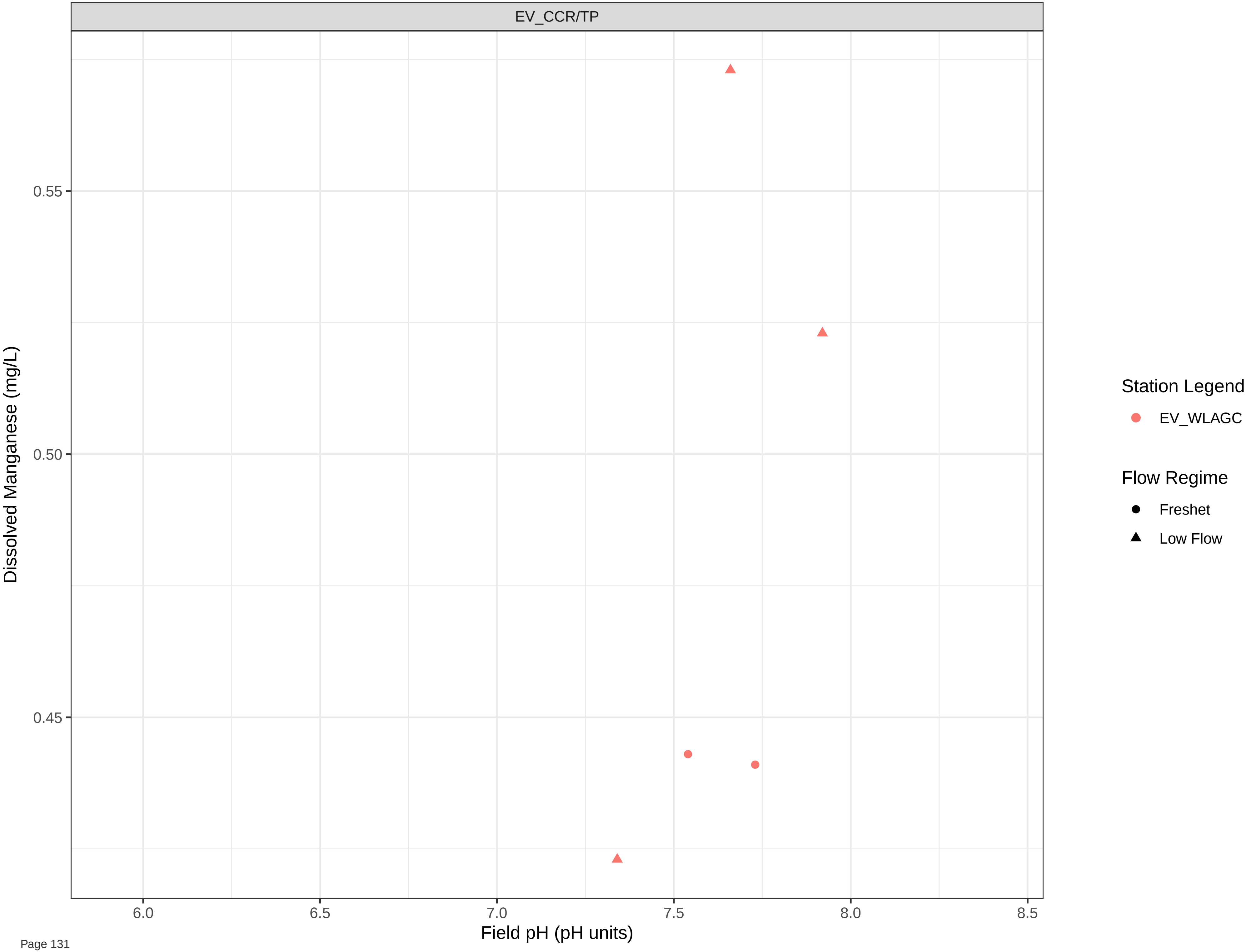

EV_PLANT
Dissolved Magnesium (mg/L)
150
120
90
60
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

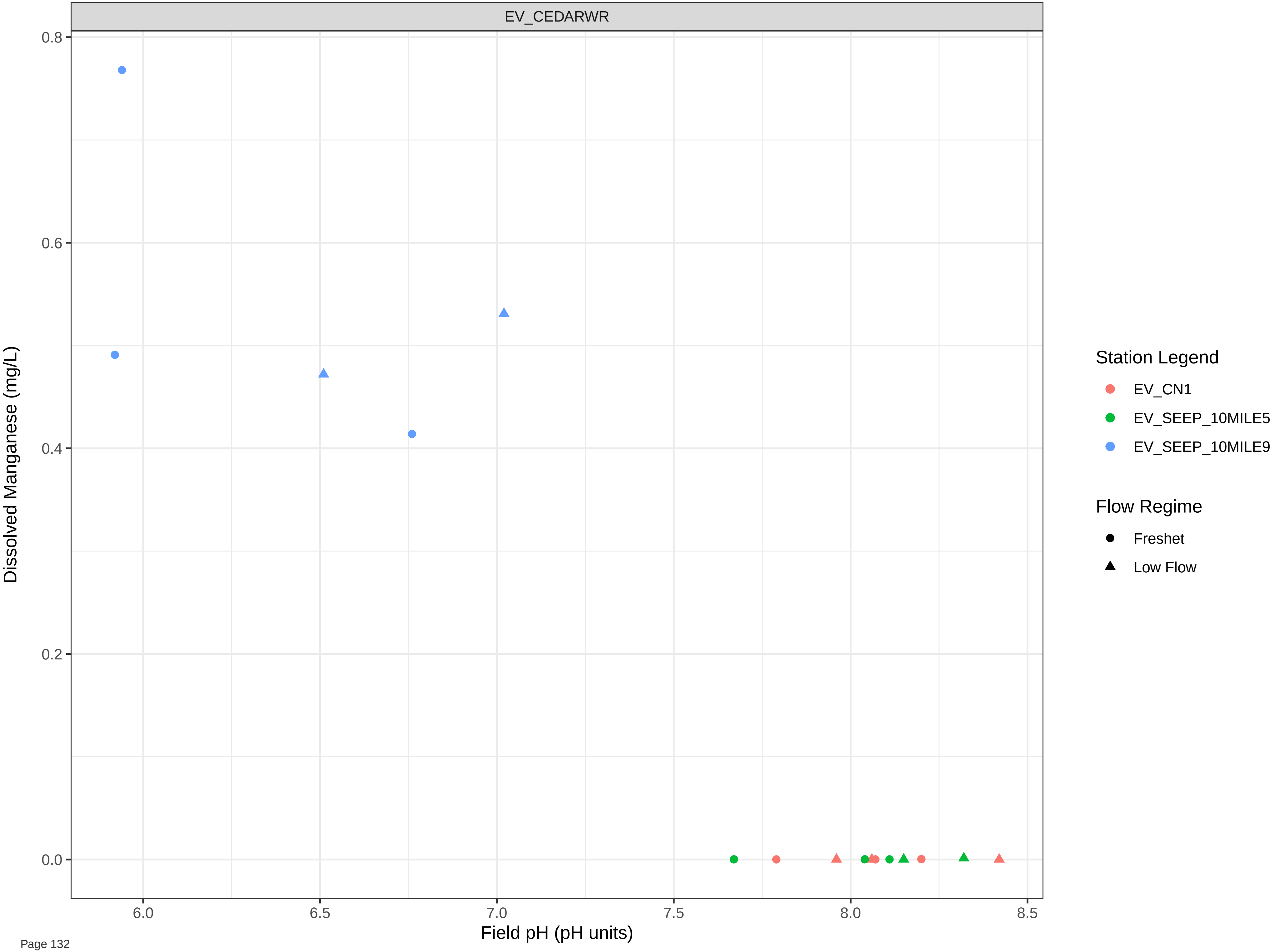

EV_SOUTHSLOPE
Dissolved Magnesium (mg/L)
40
35
30
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

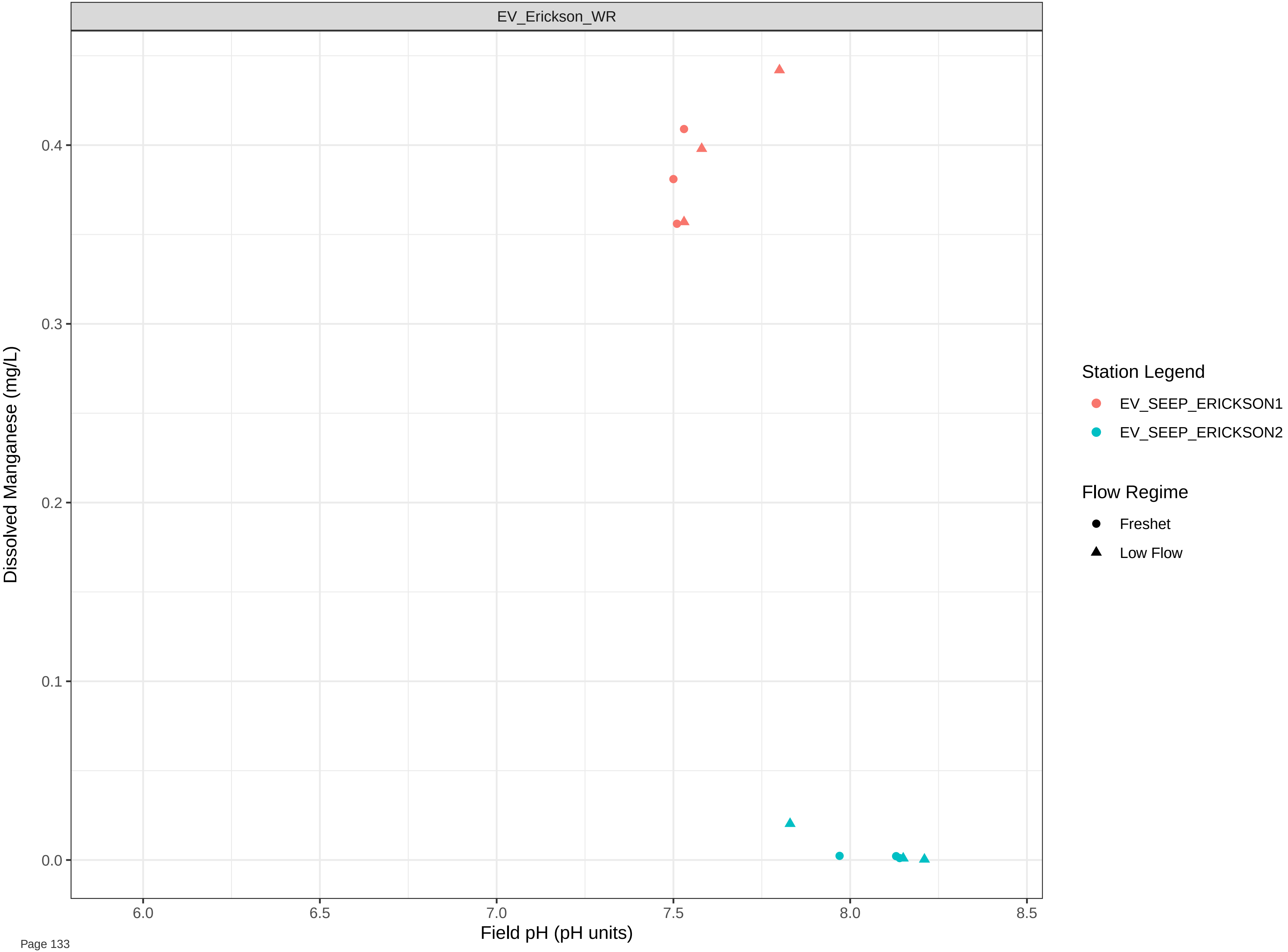

EV_SouthPit_Pit
Dissolved Magnesium (mg/L)
260
240
220
200
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

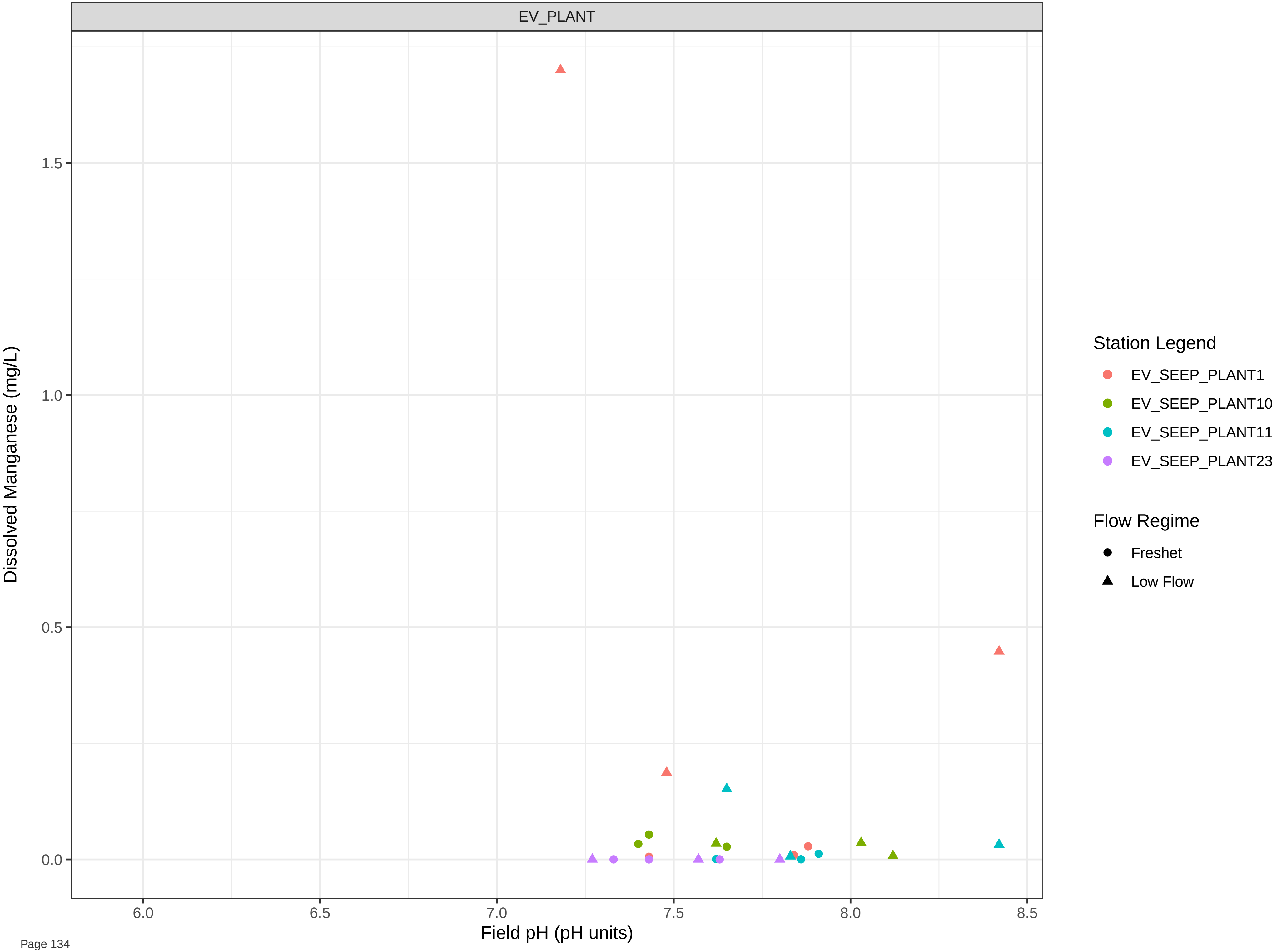

EV_BALDYRIDGEWR
Dissolved Manganese (mg/L)
0.00
0.01
0.02
0.03
0.04
0.05
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

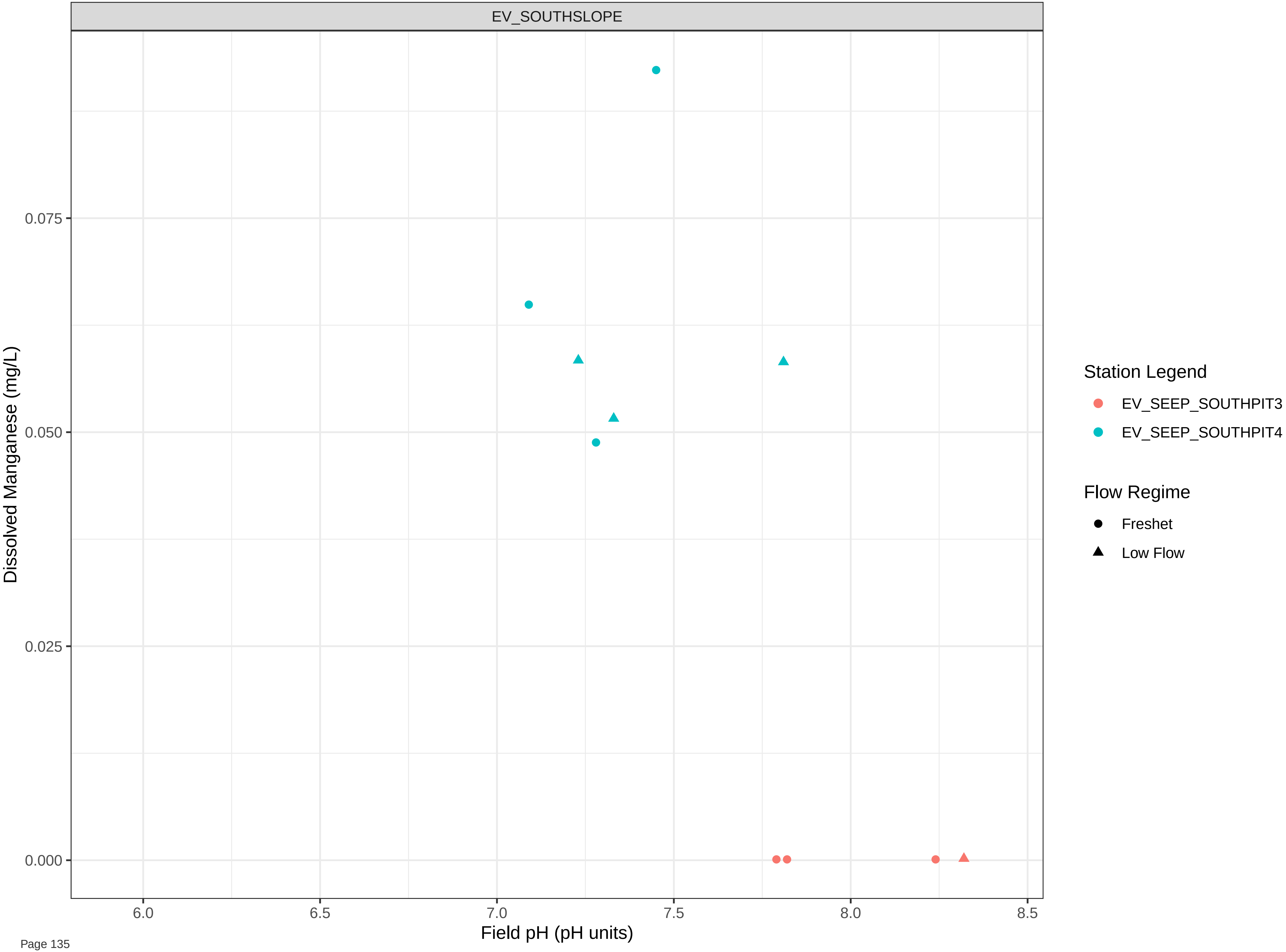

EV_CCR
Dissolved Manganese (mg/L)
0.4
0.3
0.2
0.1
0.0
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

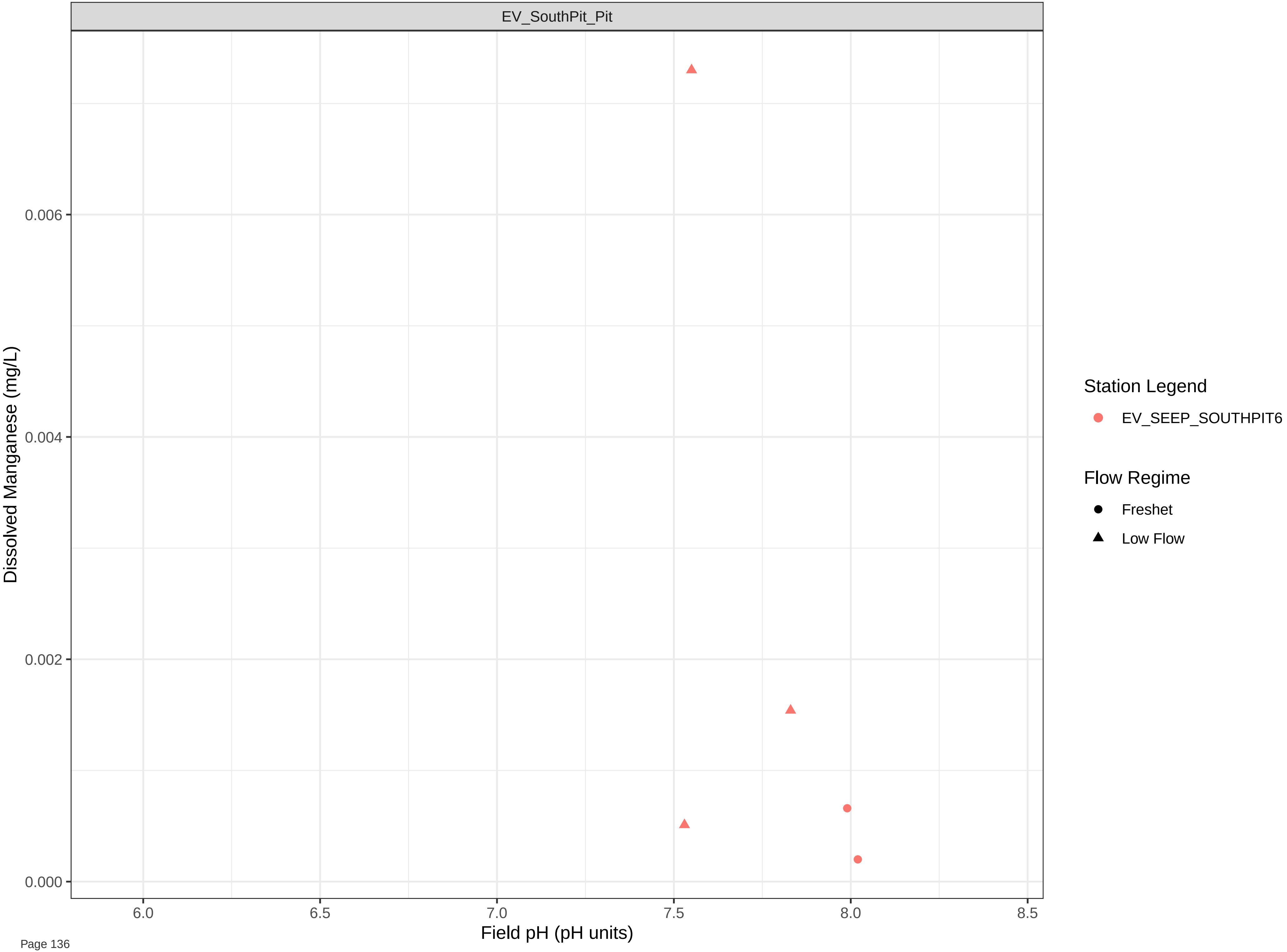

EV_CCR/TP
0.55
0.50
0.45
6.0
6.5
7.0
7.5
8.0
8.5
Dissolved Manganese (mg/L)
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

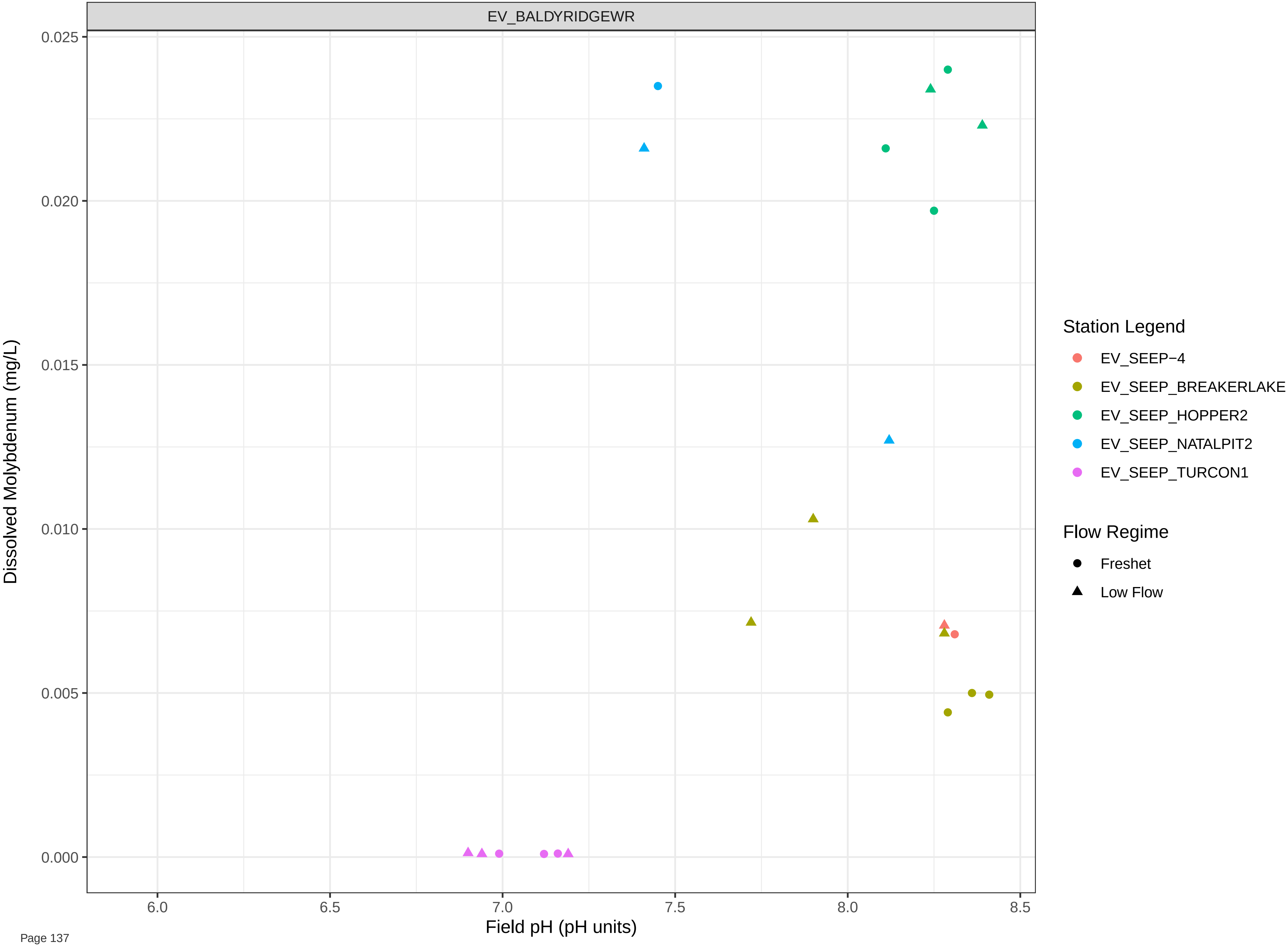

EV_CEDARWR
Dissolved Manganese (mg/L)
0.8
0.6
0.4
0.2
0.0
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

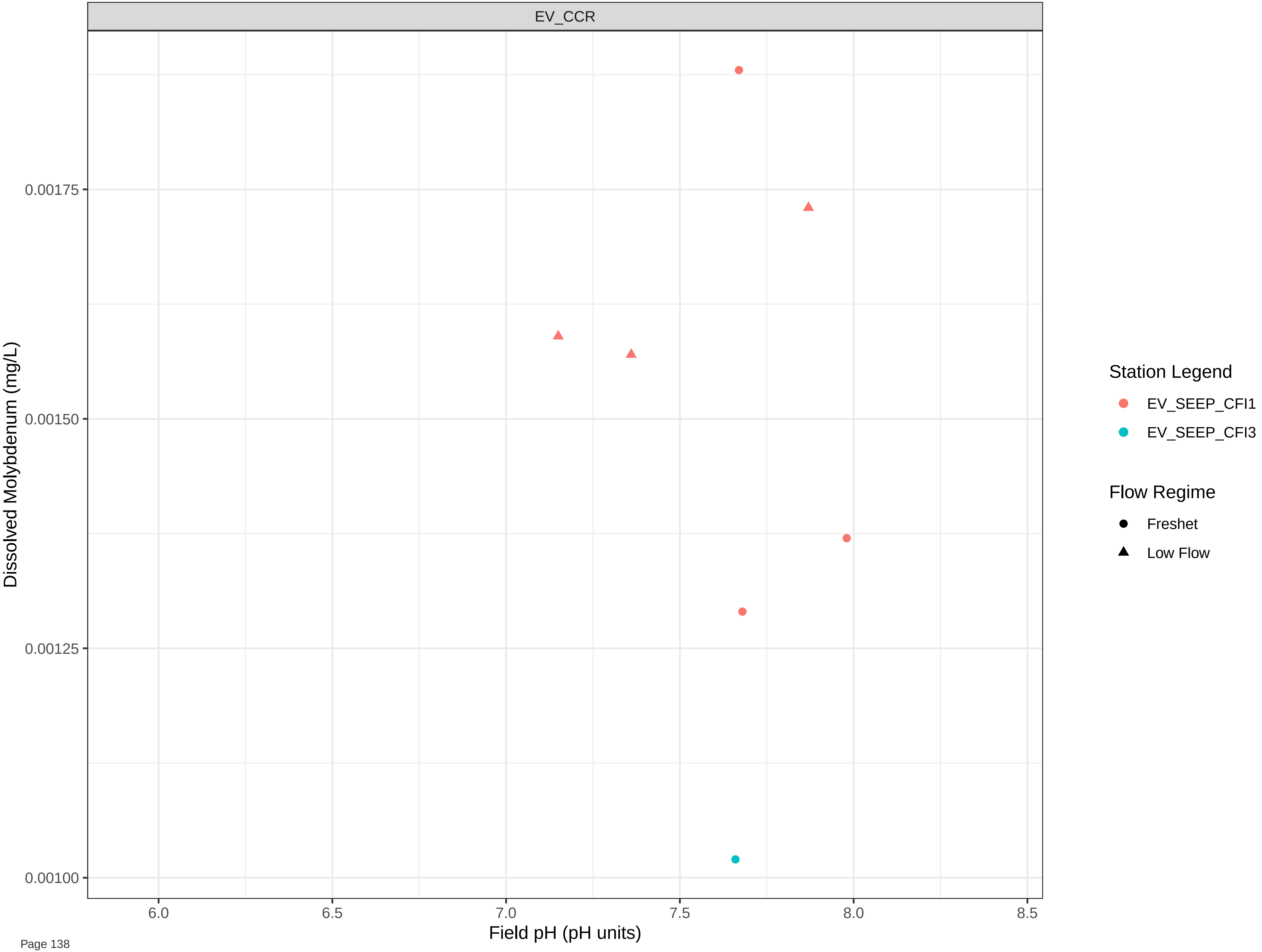

EV_Erickson_WR
Dissolved Manganese (mg/L)
0.4
0.3
0.2
0.1
0.0
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

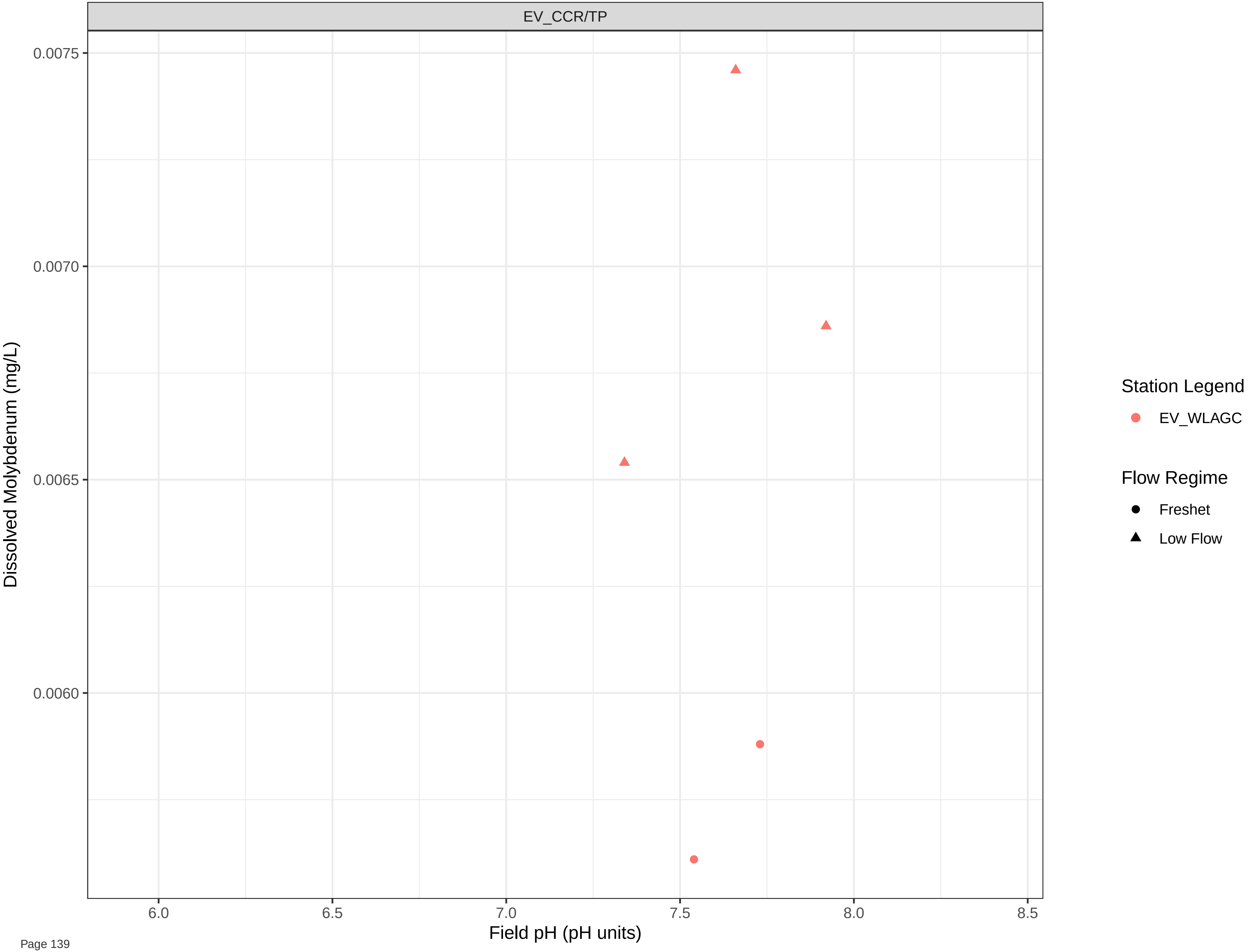

EV_PLANT
Dissolved Manganese (mg/L)
1.5
1.0
0.5
0.0
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

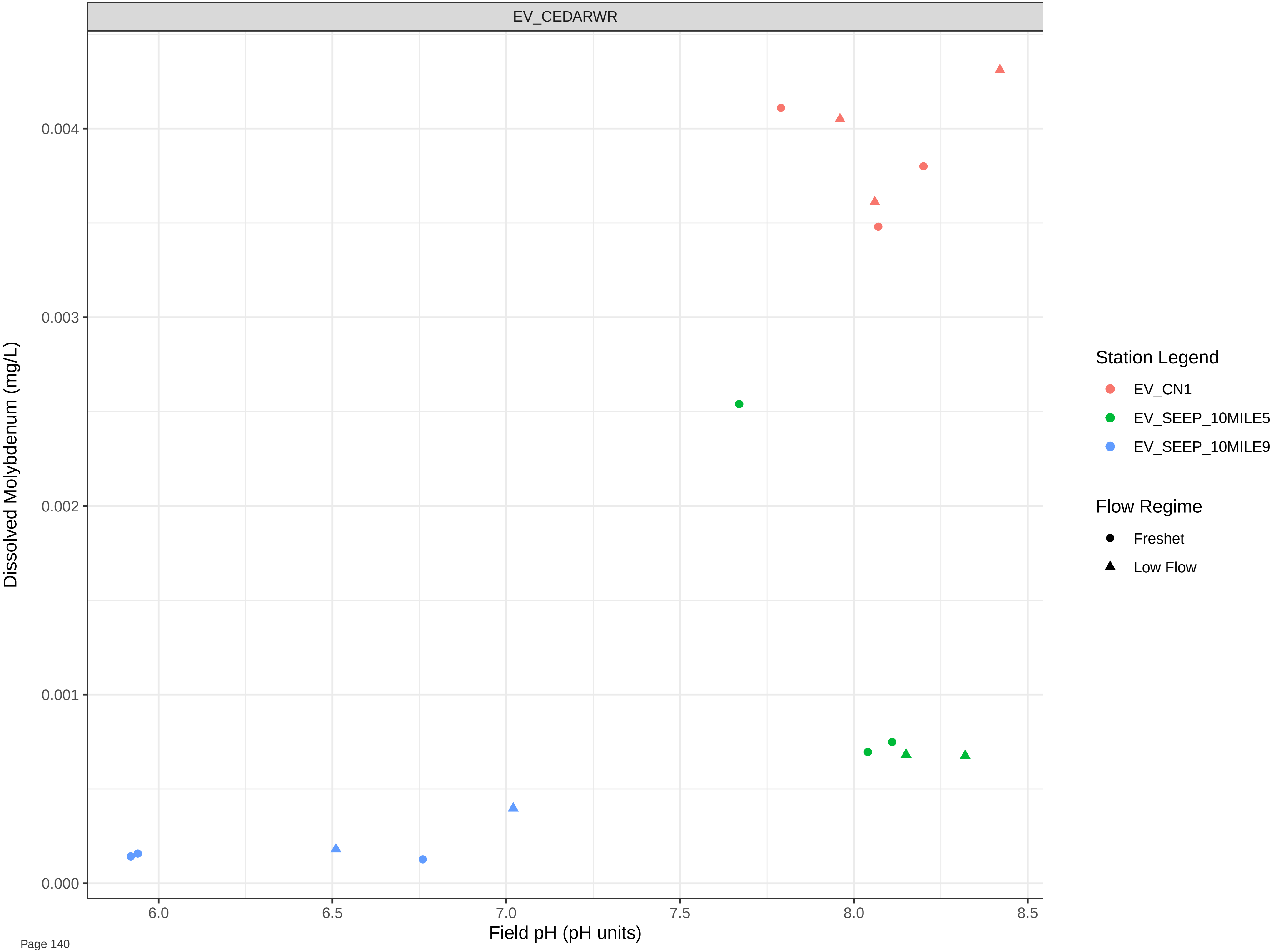

EV_SOUTHSLOPE
Dissolved Manganese (mg/L)
0.075
0.050
0.025
0.000
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

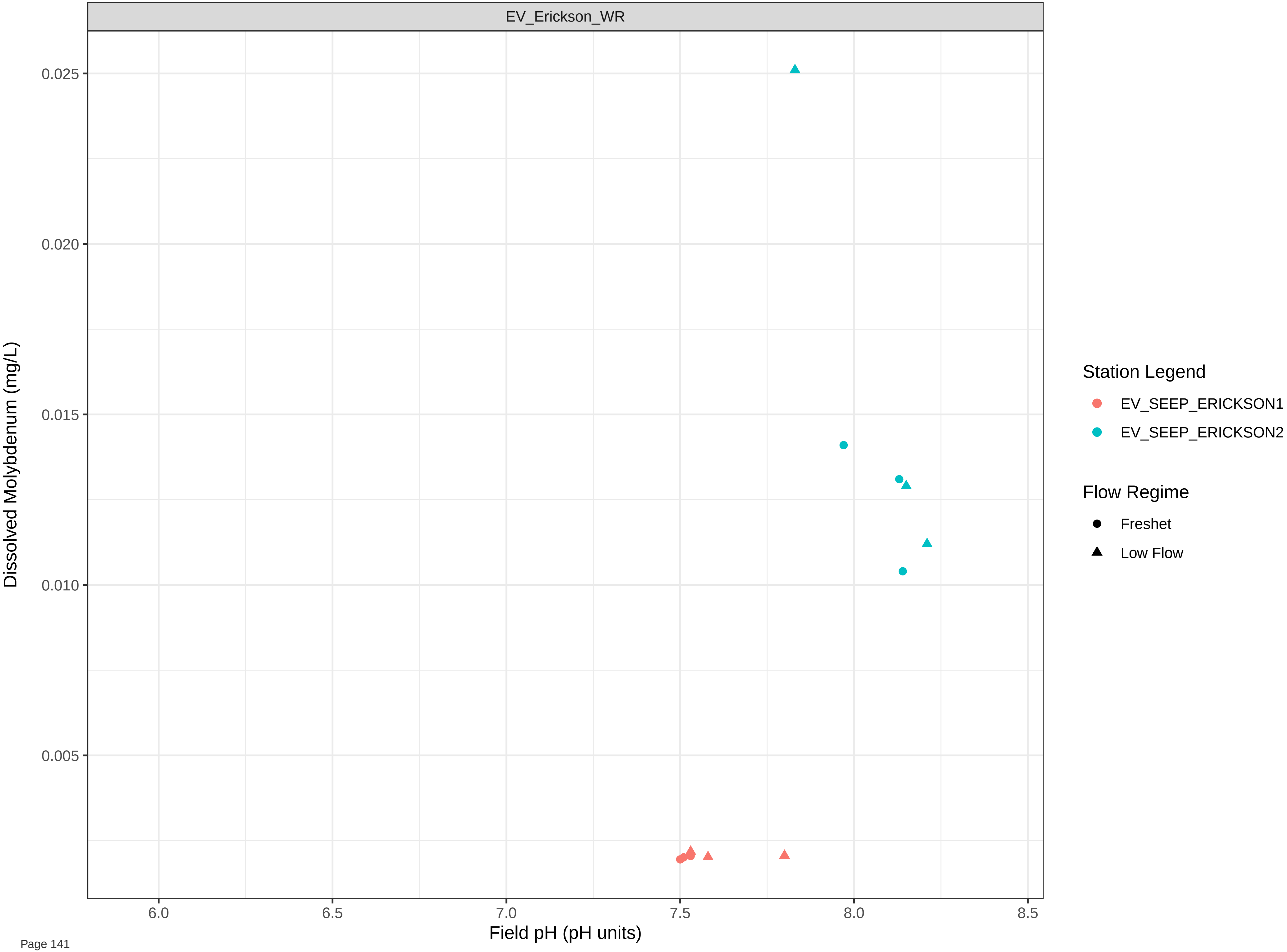

EV_SouthPit_Pit
Dissolved Manganese (mg/L)
0.000
0.002
0.004
0.006
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

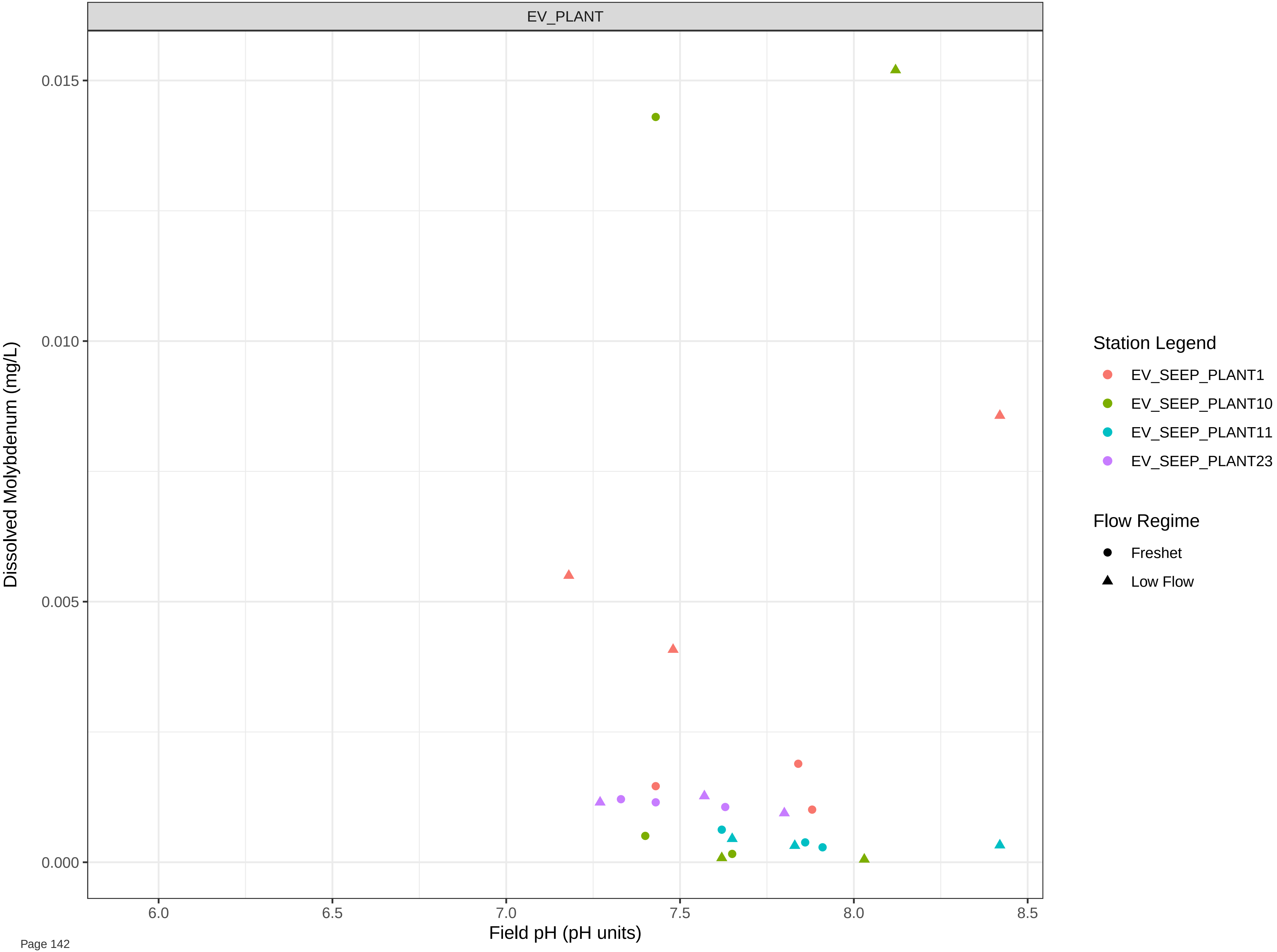

EV_BALDYRIDGEWR
Dissolved Molybdenum (mg/L)
0.025
0.020
0.015
0.010
0.005
0.000
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

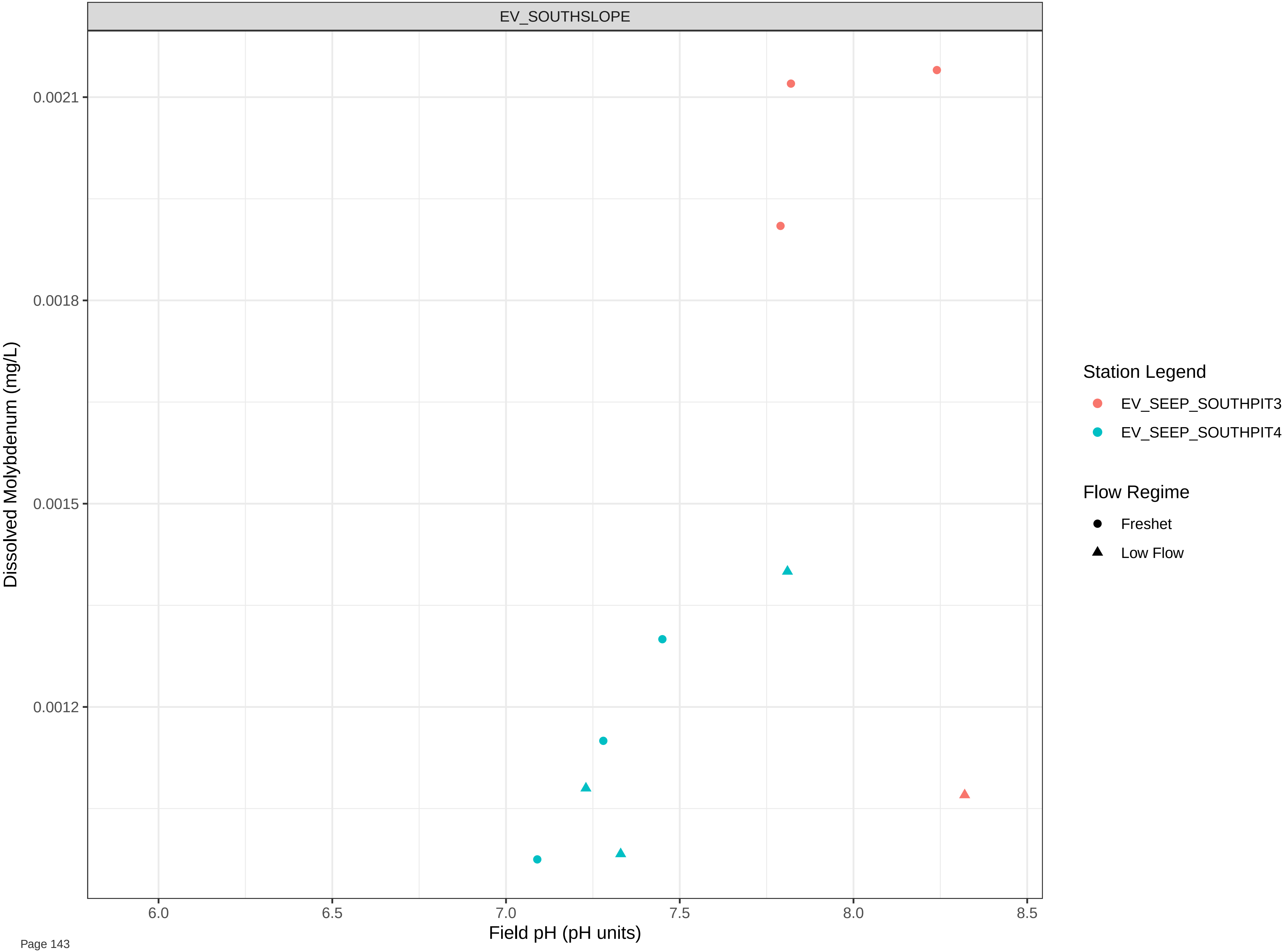

EV_CCR
Dissolved Molybdenum (mg/L)
0.00175
0.00150
0.00125
0.00100
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

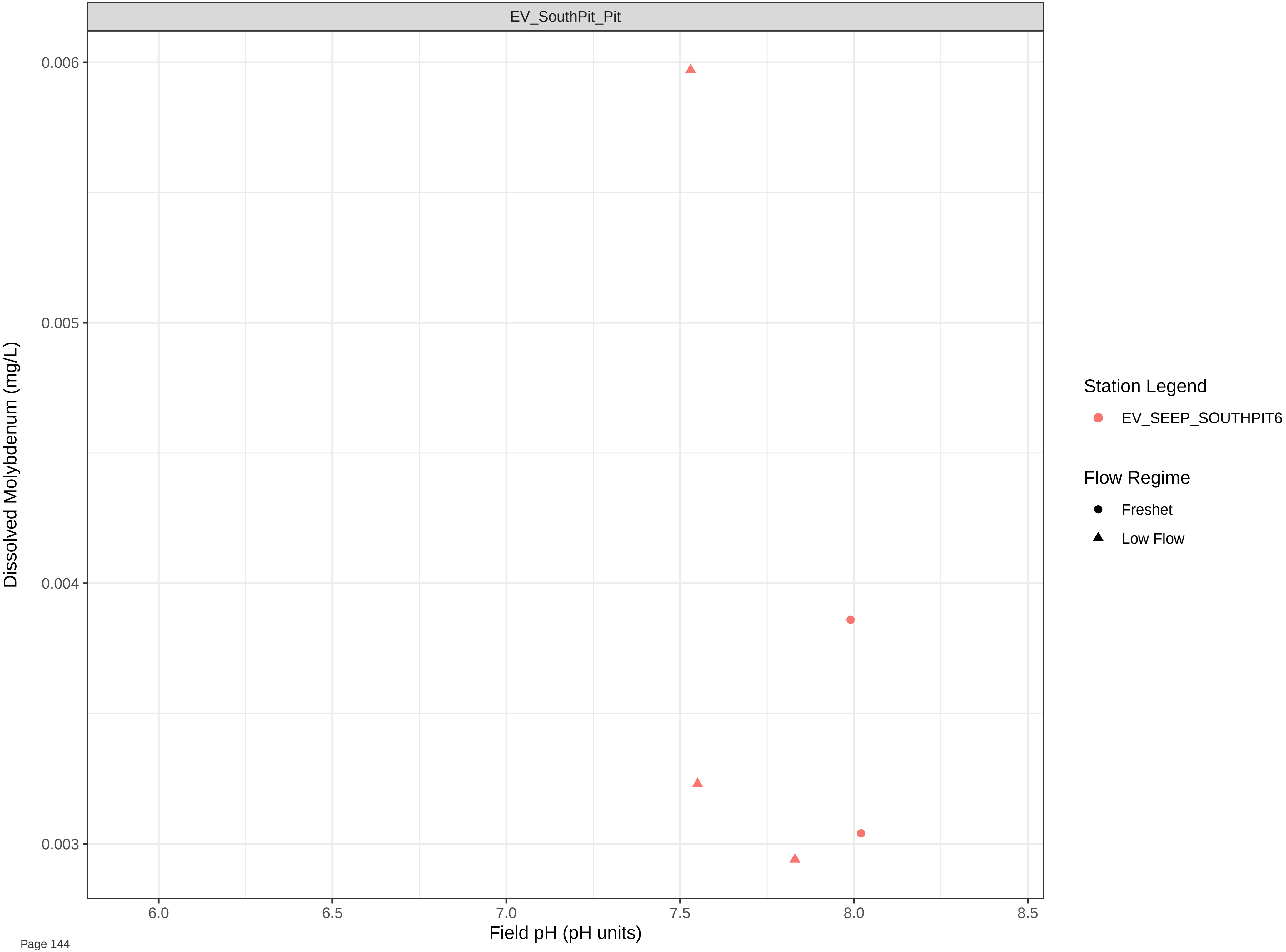

EV_CCR/TP
Dissolved Molybdenum (mg/L)
0.0075
0.0070
0.0065
0.0060
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

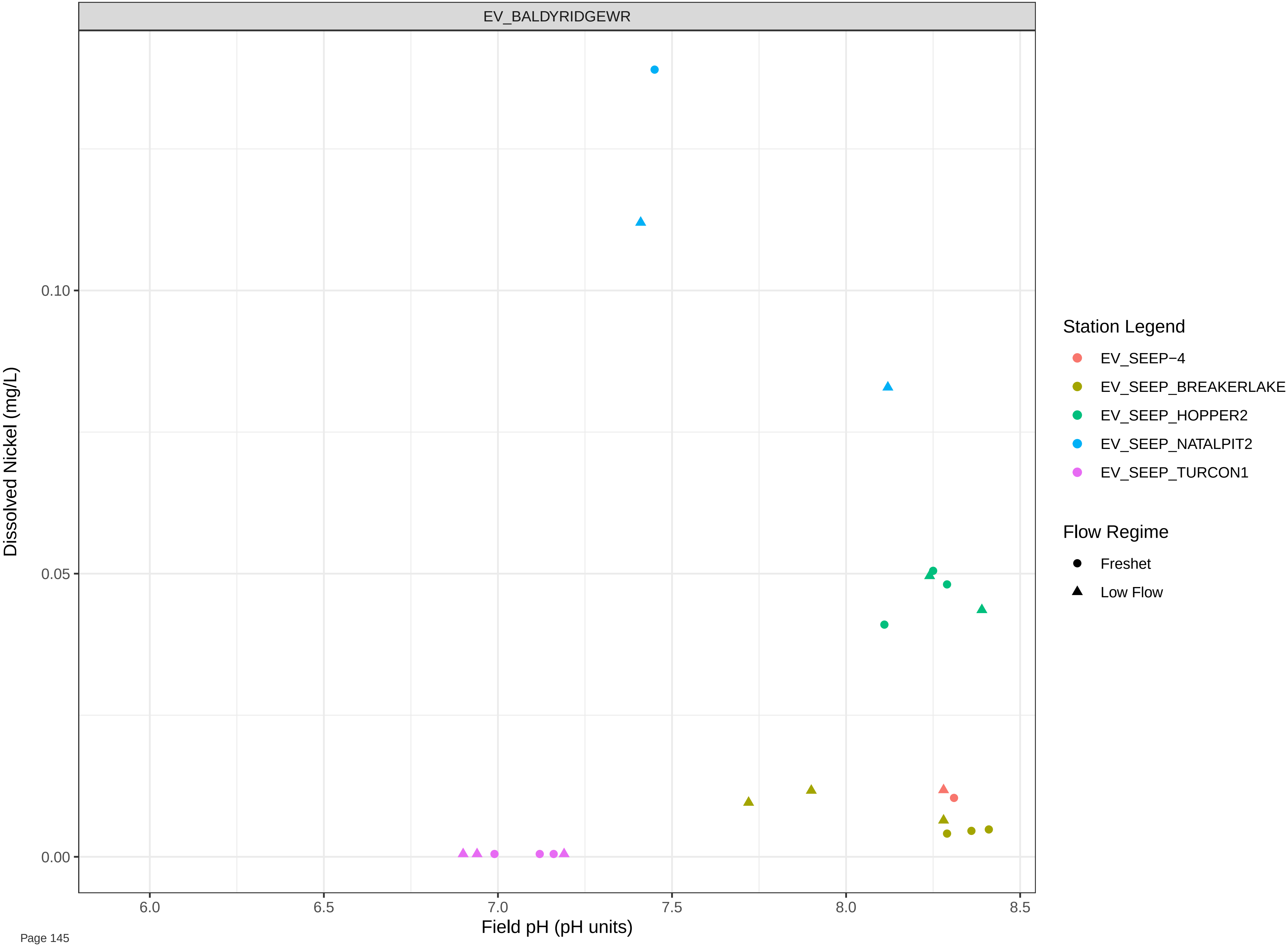

EV_CEDARWR
Dissolved Molybdenum (mg/L)
0.004
0.003
0.002
0.001
0.000
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

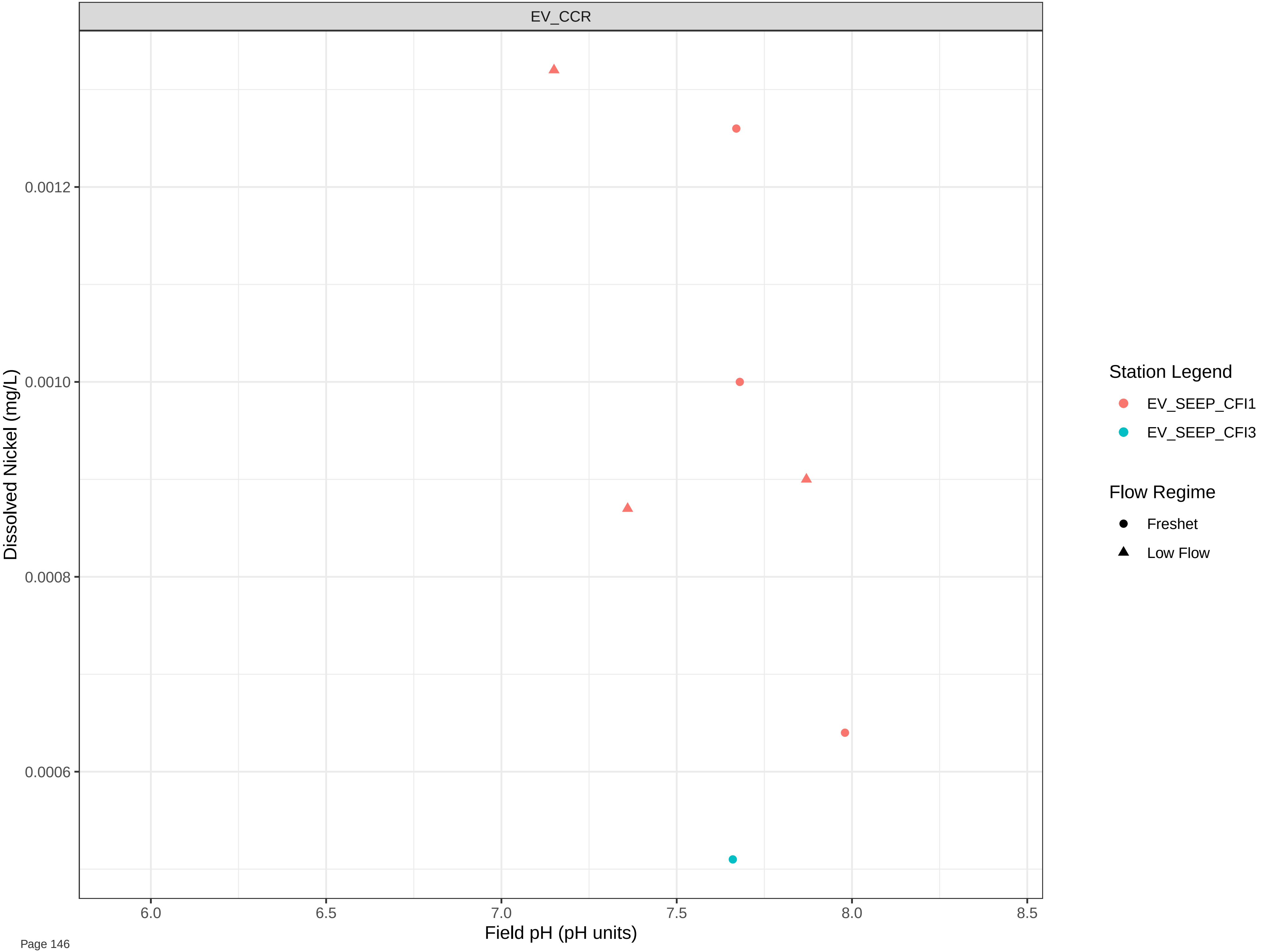

EV_Erickson_WR
Dissolved Molybdenum (mg/L)
0.025
0.020
0.015
0.010
0.005
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

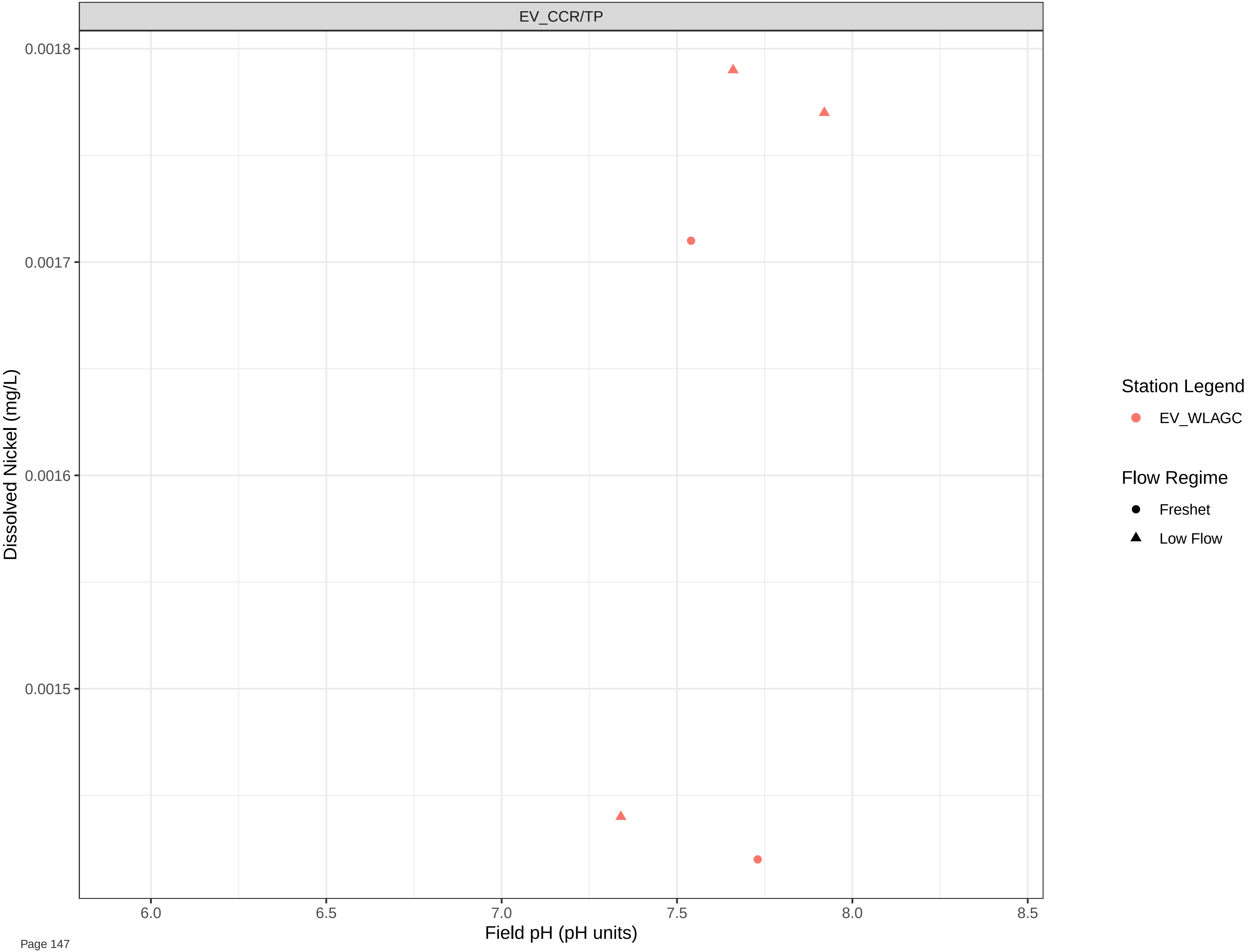

EV_PLANT
Dissolved Molybdenum (mg/L)
0.015
0.010
0.005
0.000
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

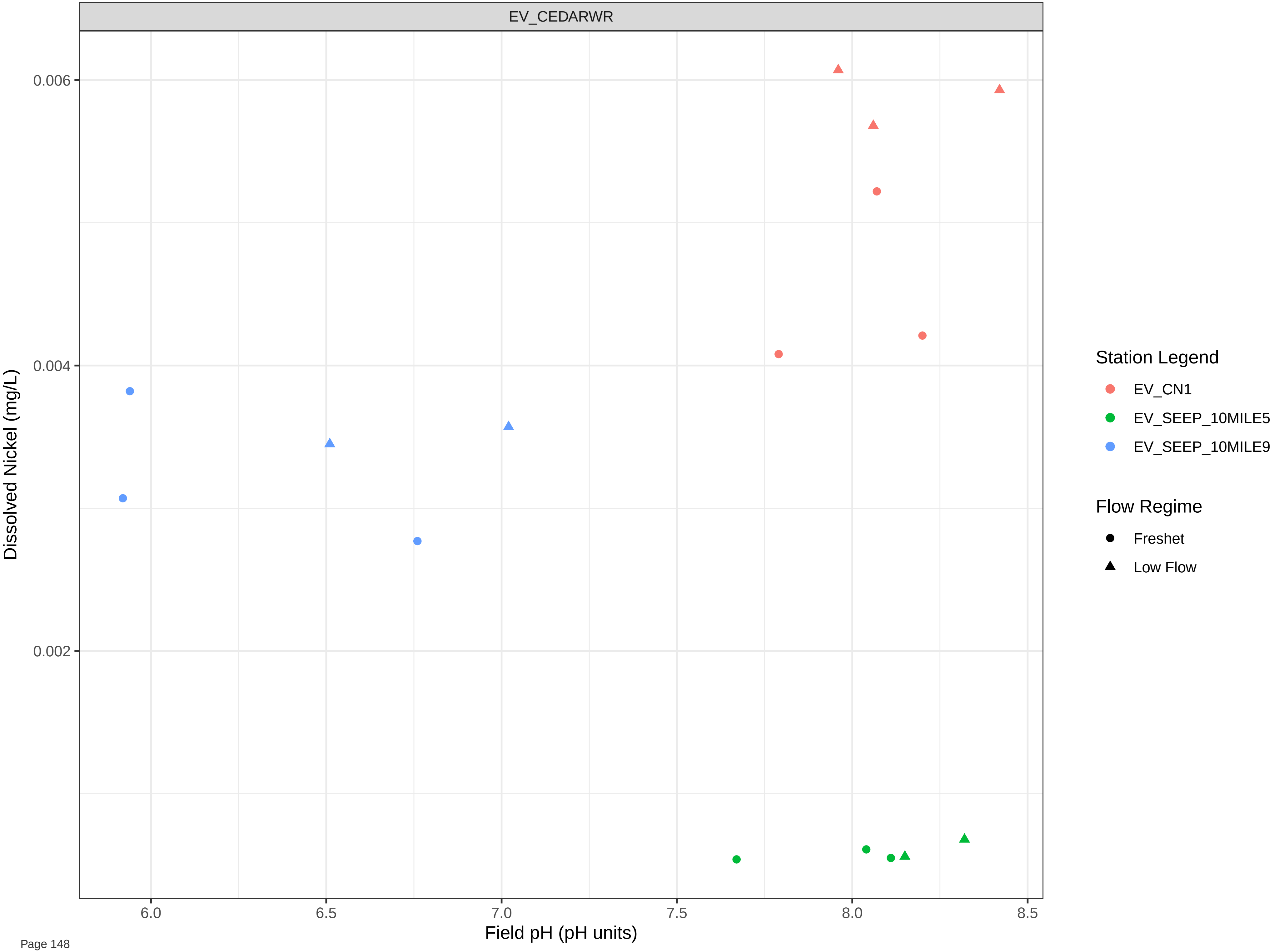

EV_SOUTHSLOPE
Dissolved Molybdenum (mg/L)
0.0021
0.0018
0.0015
0.0012
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

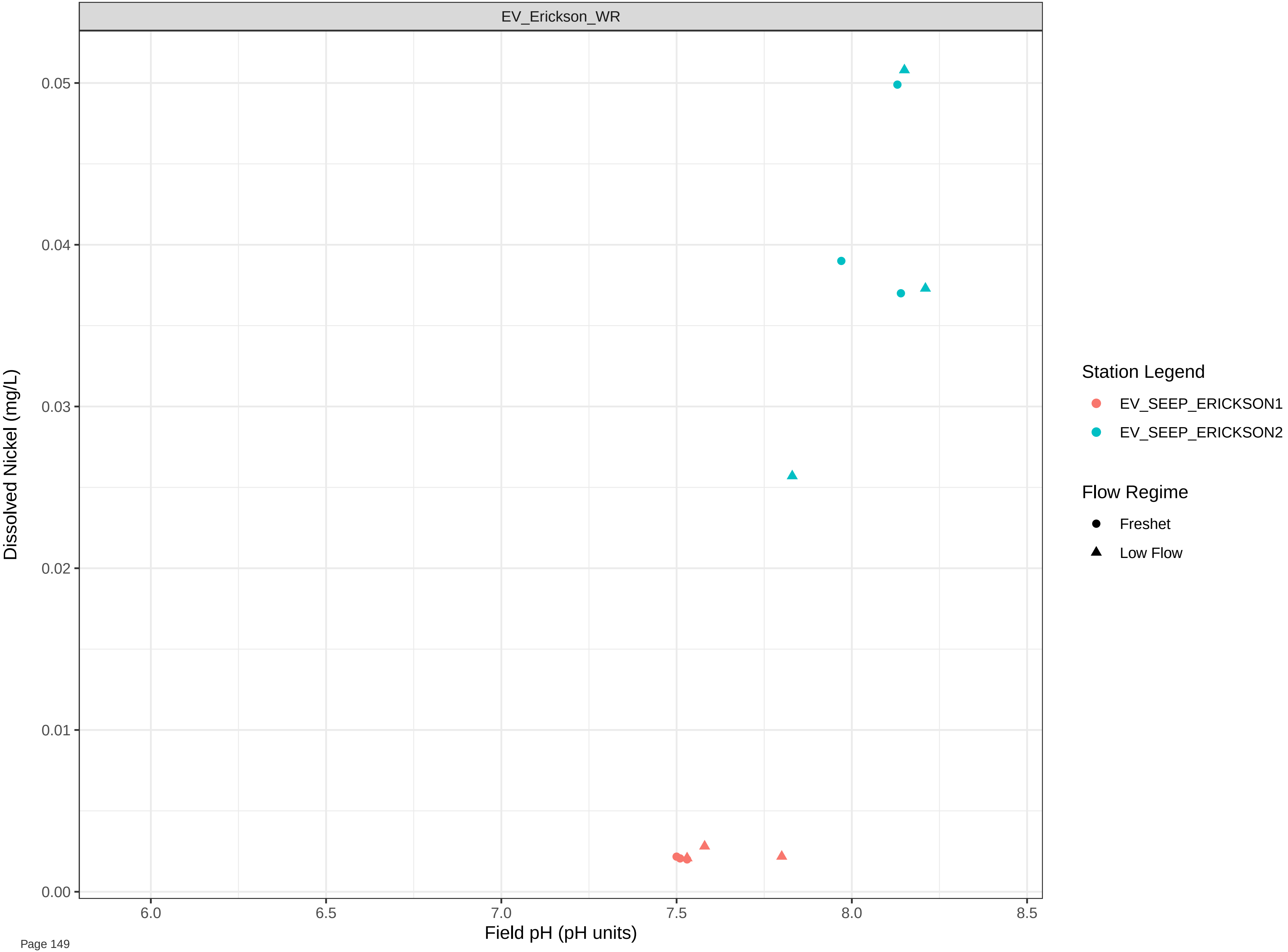

EV_SouthPit_Pit
0.006
0.005
0.004
0.003
Dissolved Molybdenum (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

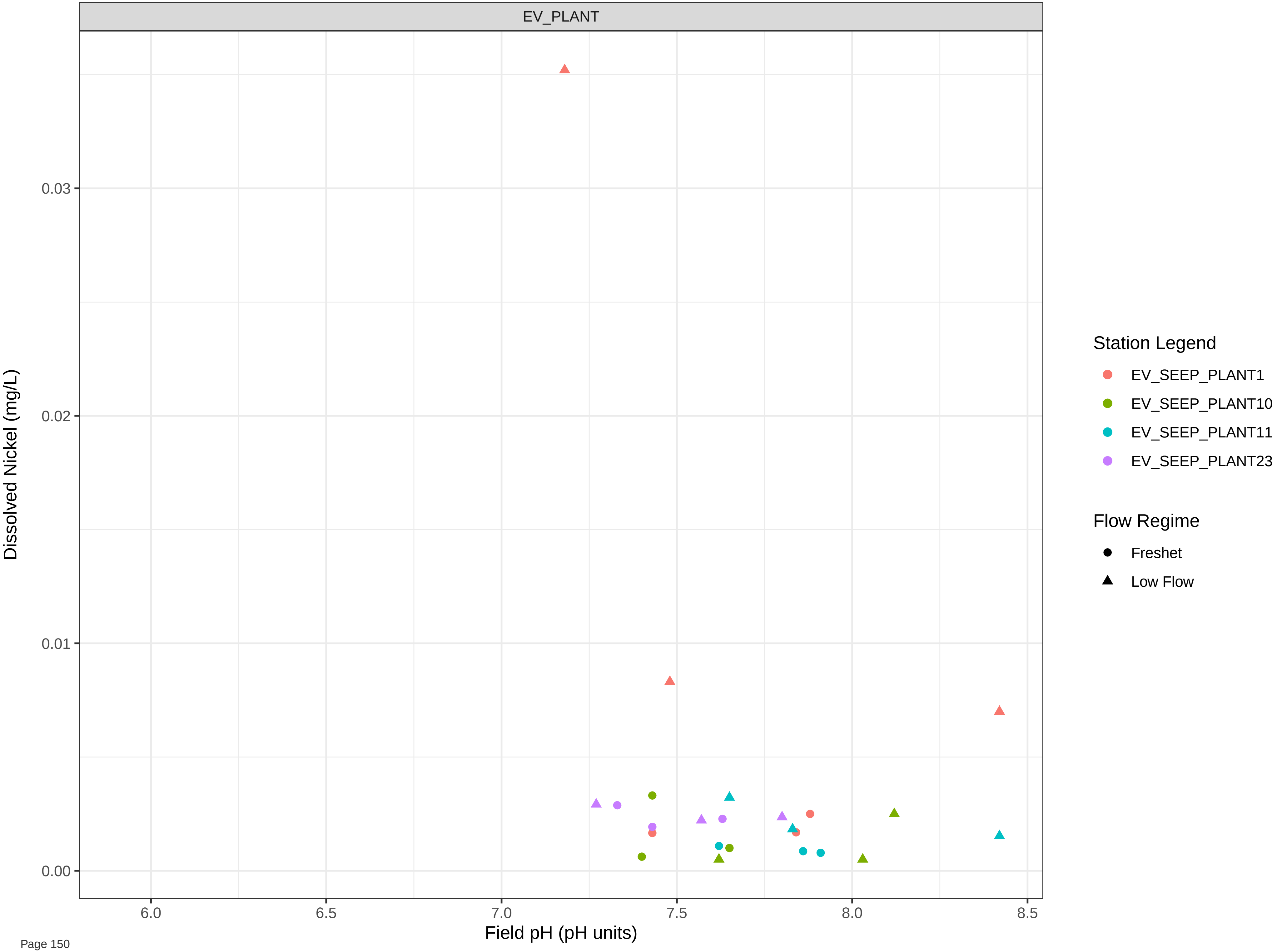

EV_BALDYRIDGEWR
Dissolved Nickel (mg/L)
0.10
0.05
0.00
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

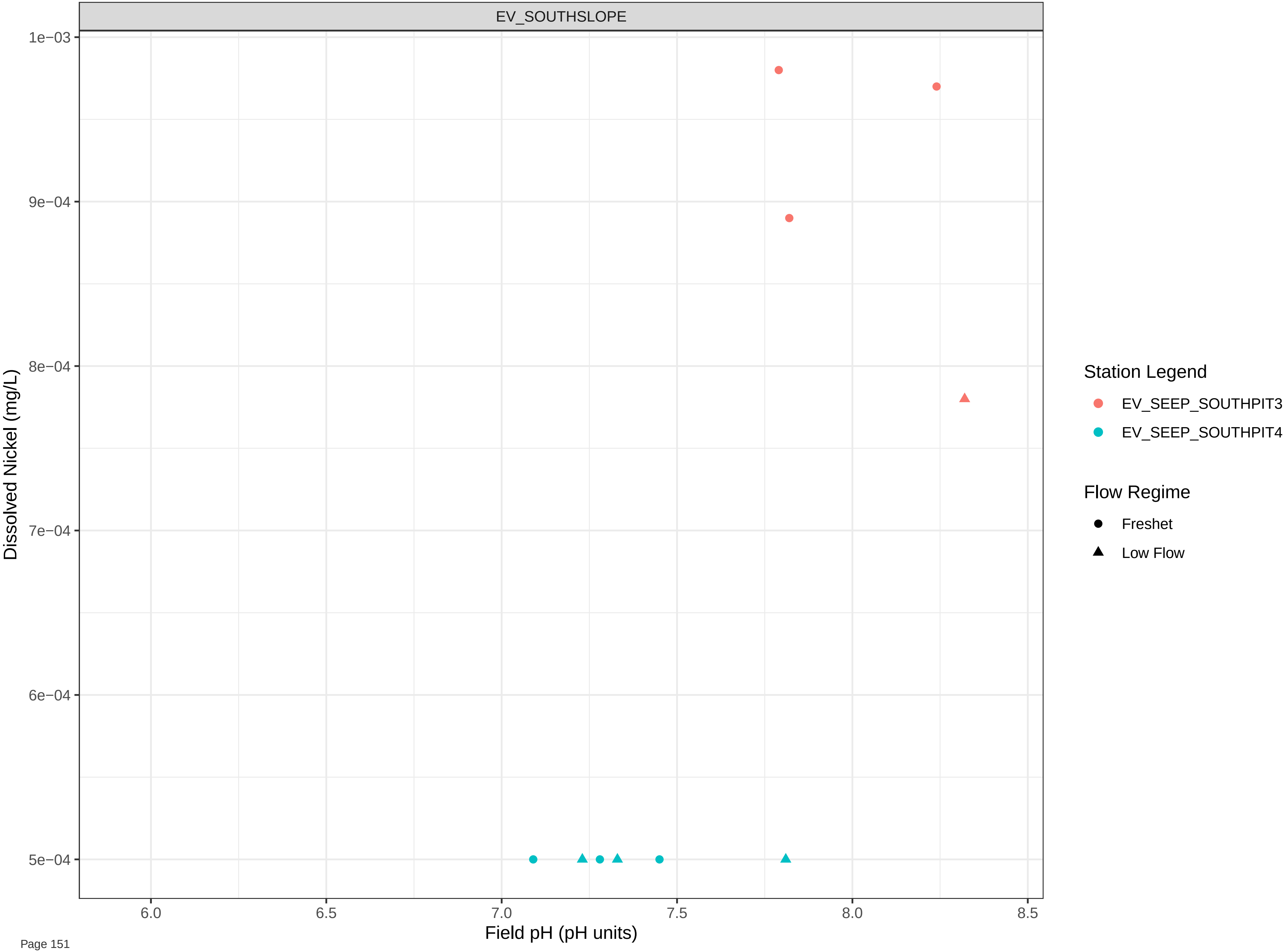

EV_CCR
Dissolved Nickel (mg/L)
0.0012
0.0010
0.0008
0.0006
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

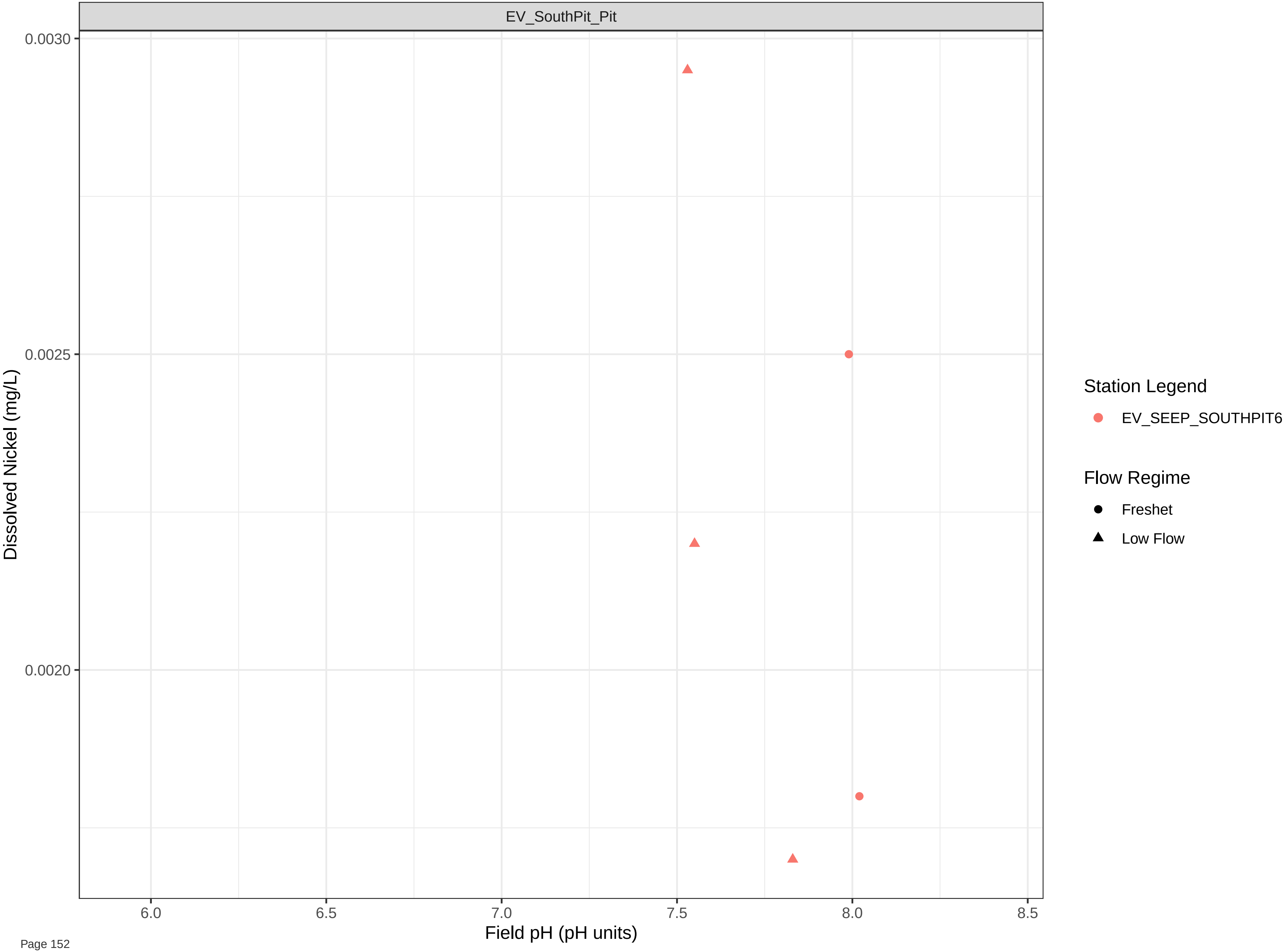

EV_CCR/TP
Dissolved Nickel (mg/L)
0.0018
0.0017
0.0016
0.0015
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

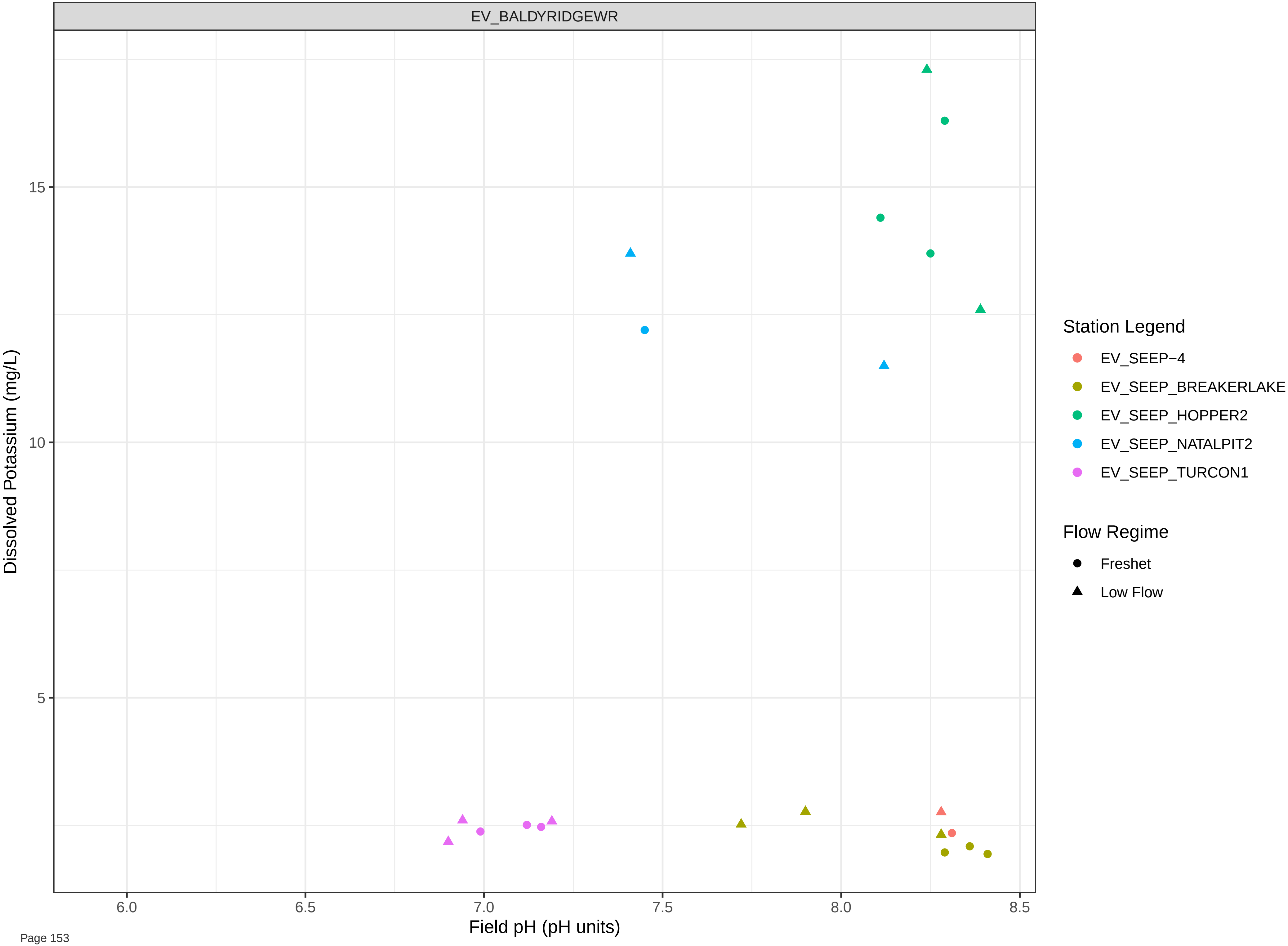

EV_CEDARWR
Dissolved Nickel (mg/L)
0.006
0.004
0.002
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

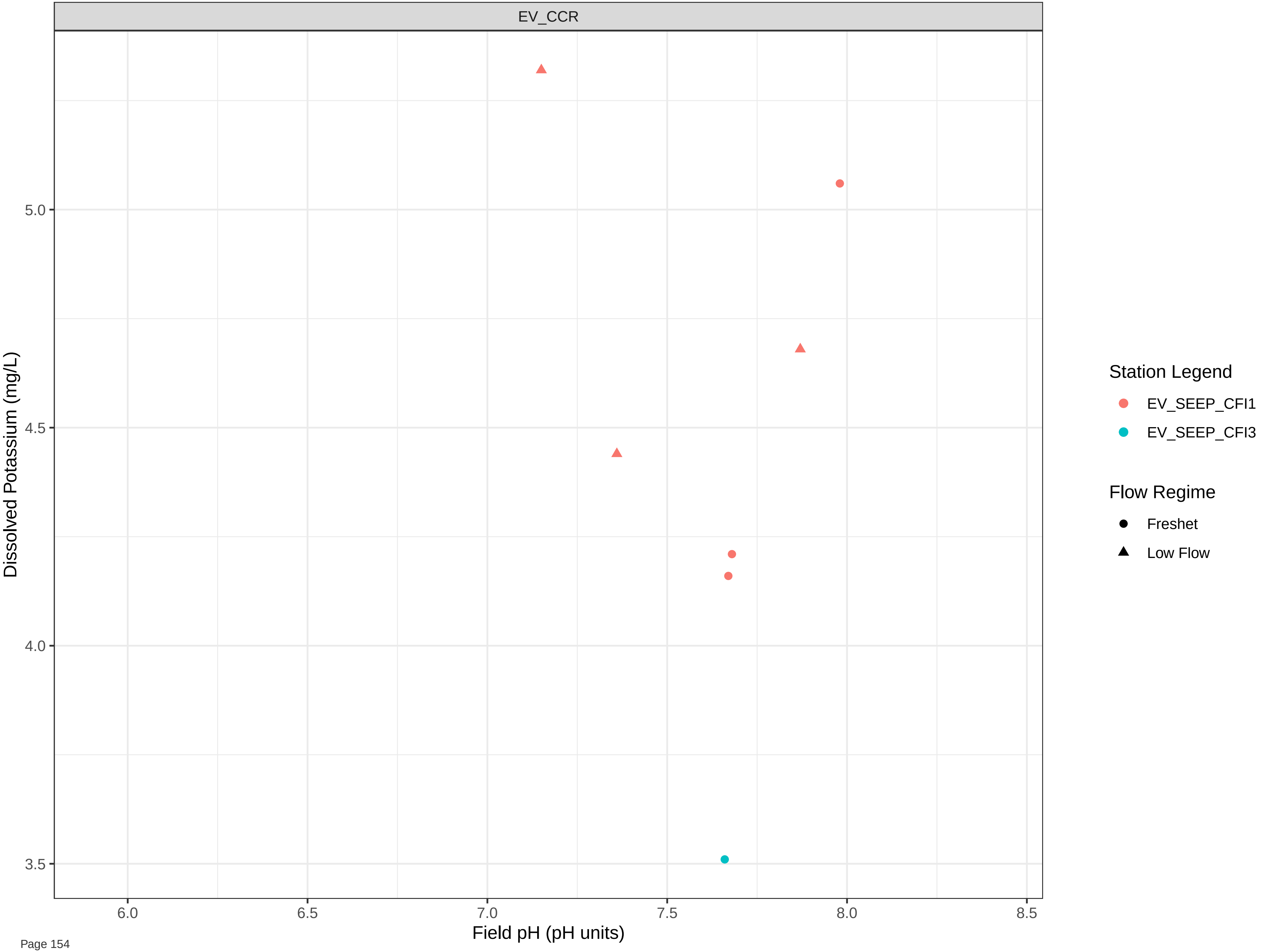

EV_Erickson_WR
Dissolved Nickel (mg/L)
0.05
0.04
0.03
0.02
0.01
0.00
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

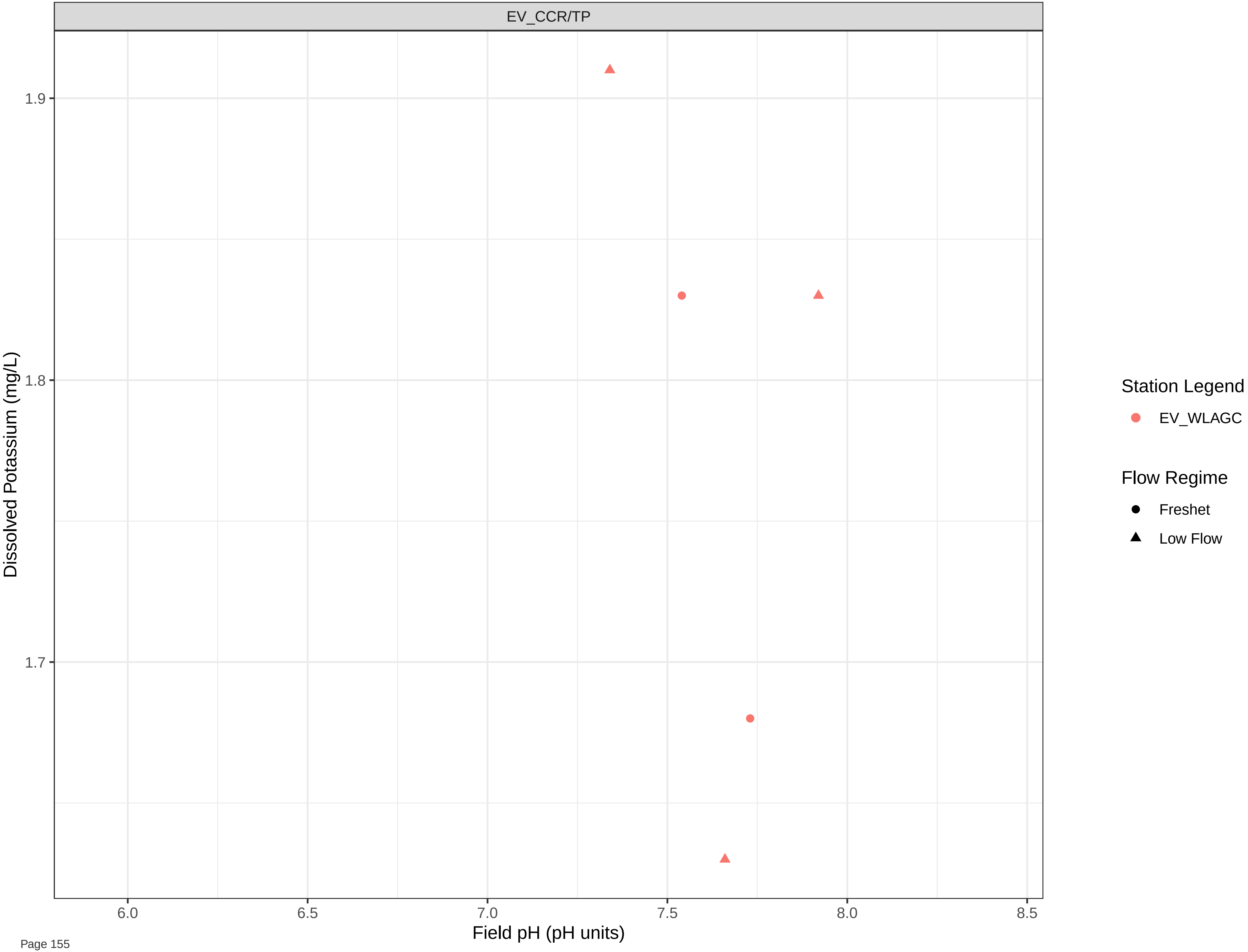

EV_PLANT
Dissolved Nickel (mg/L)
0.00
0.01
0.02
0.03
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

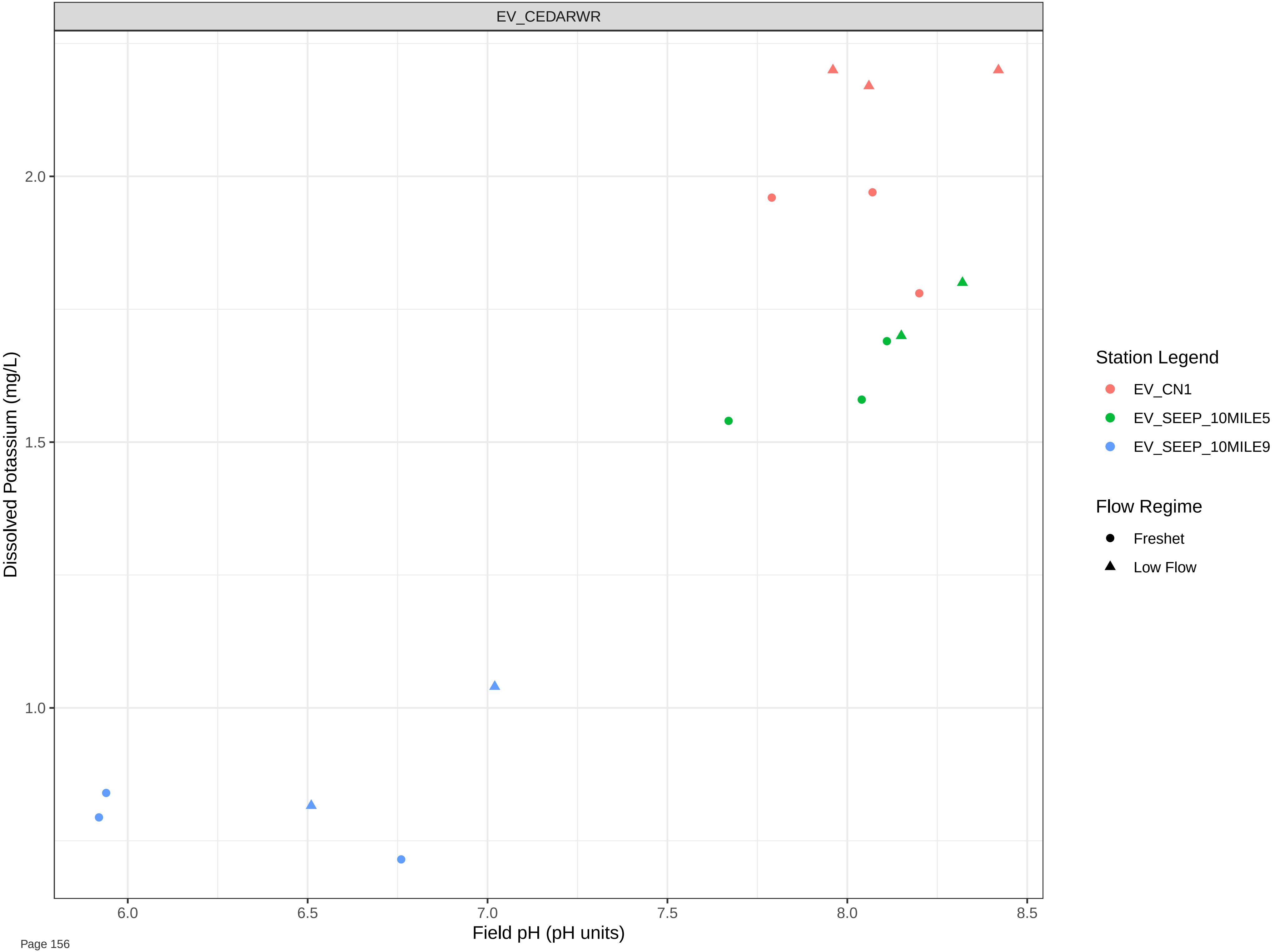

EV_SOUTHSLOPE
Dissolved Nickel (mg/L)
1e−03
9e−04
8e−04
7e−04
6e−04
5e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

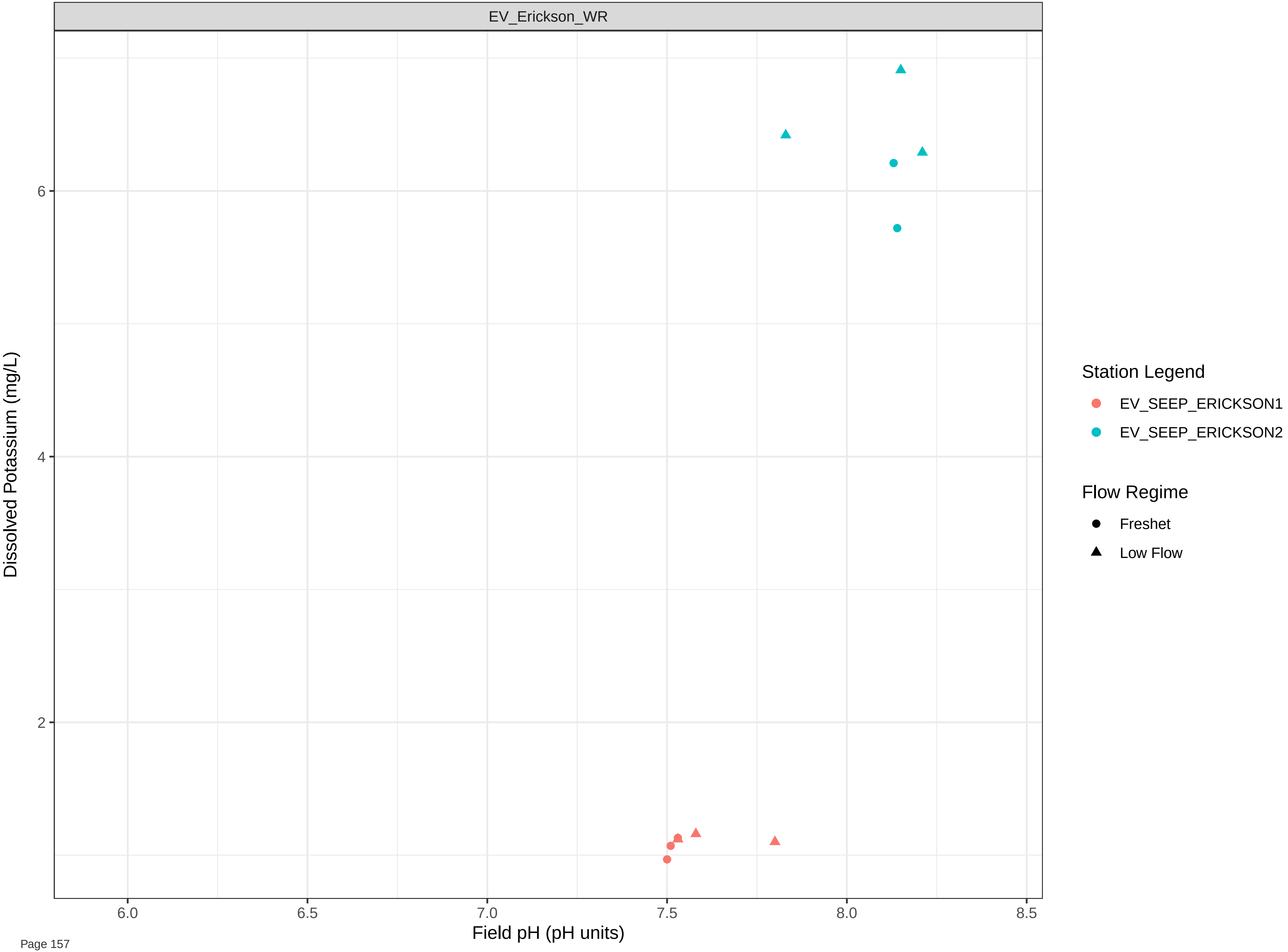

EV_SouthPit_Pit
Dissolved Nickel (mg/L)
0.0030
0.0025
0.0020
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

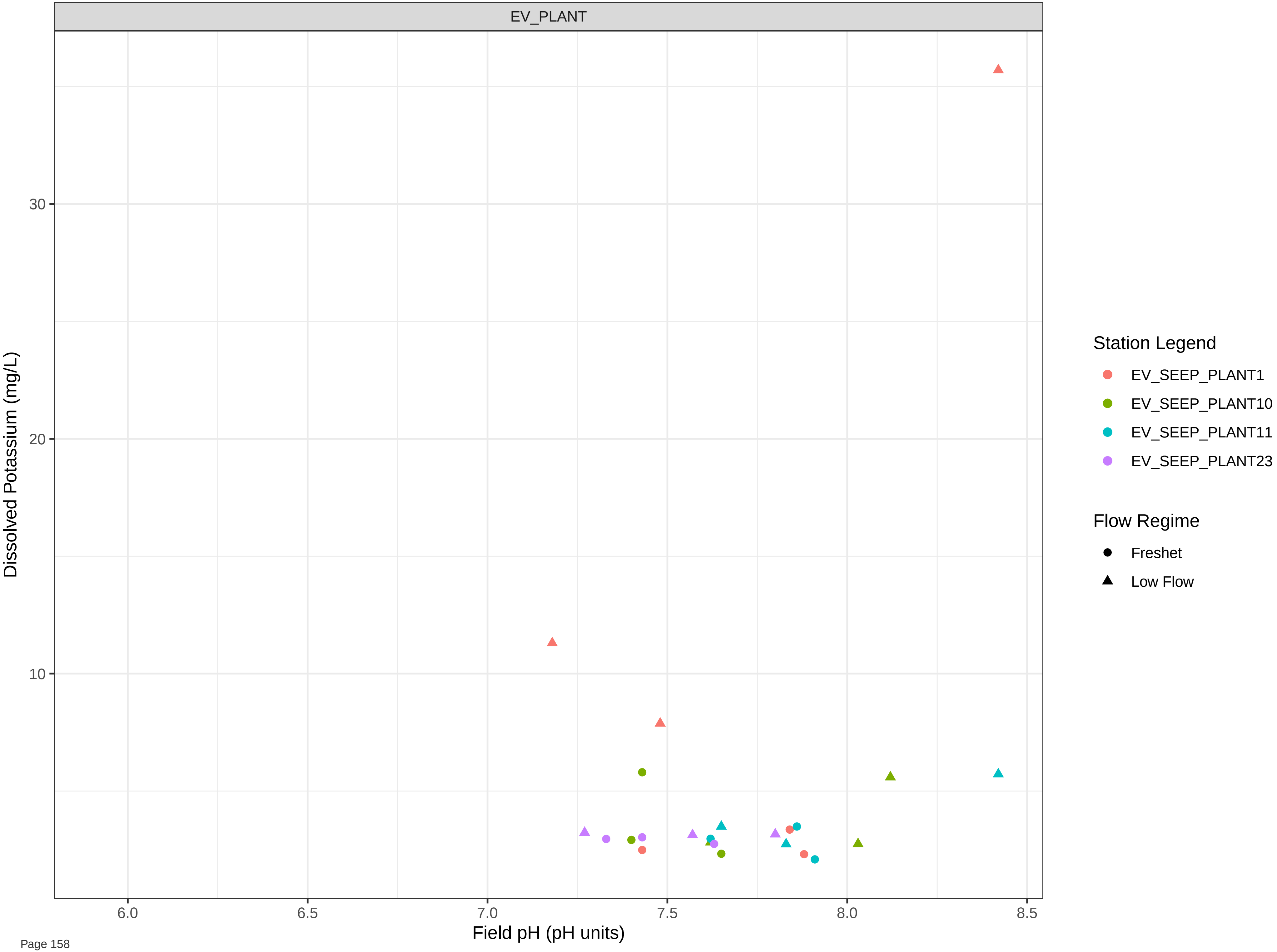

EV_BALDYRIDGEWR
Dissolved Potassium (mg/L)
15
10
5
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP−4
● EV_SEEP_BREAKERLAKE
● EV_SEEP_HOPPER2
● EV_SEEP_NATALPIT2
● EV_SEEP_TURCON1
Flow Regime
● Freshet
▲ Low Flow

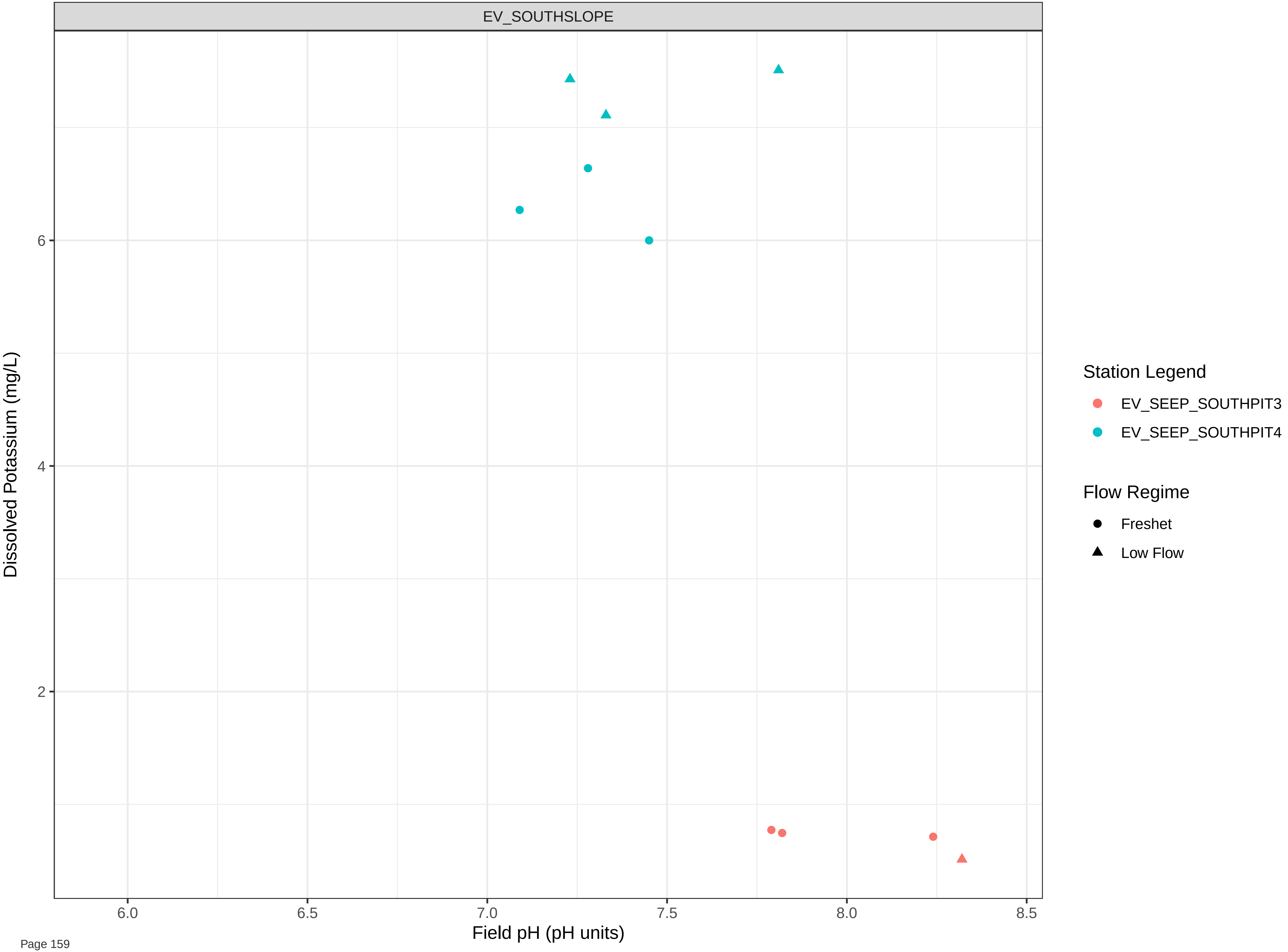

EV_CCR
Dissolved Potassium (mg/L)
5.0
4.5
4.0
3.5
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

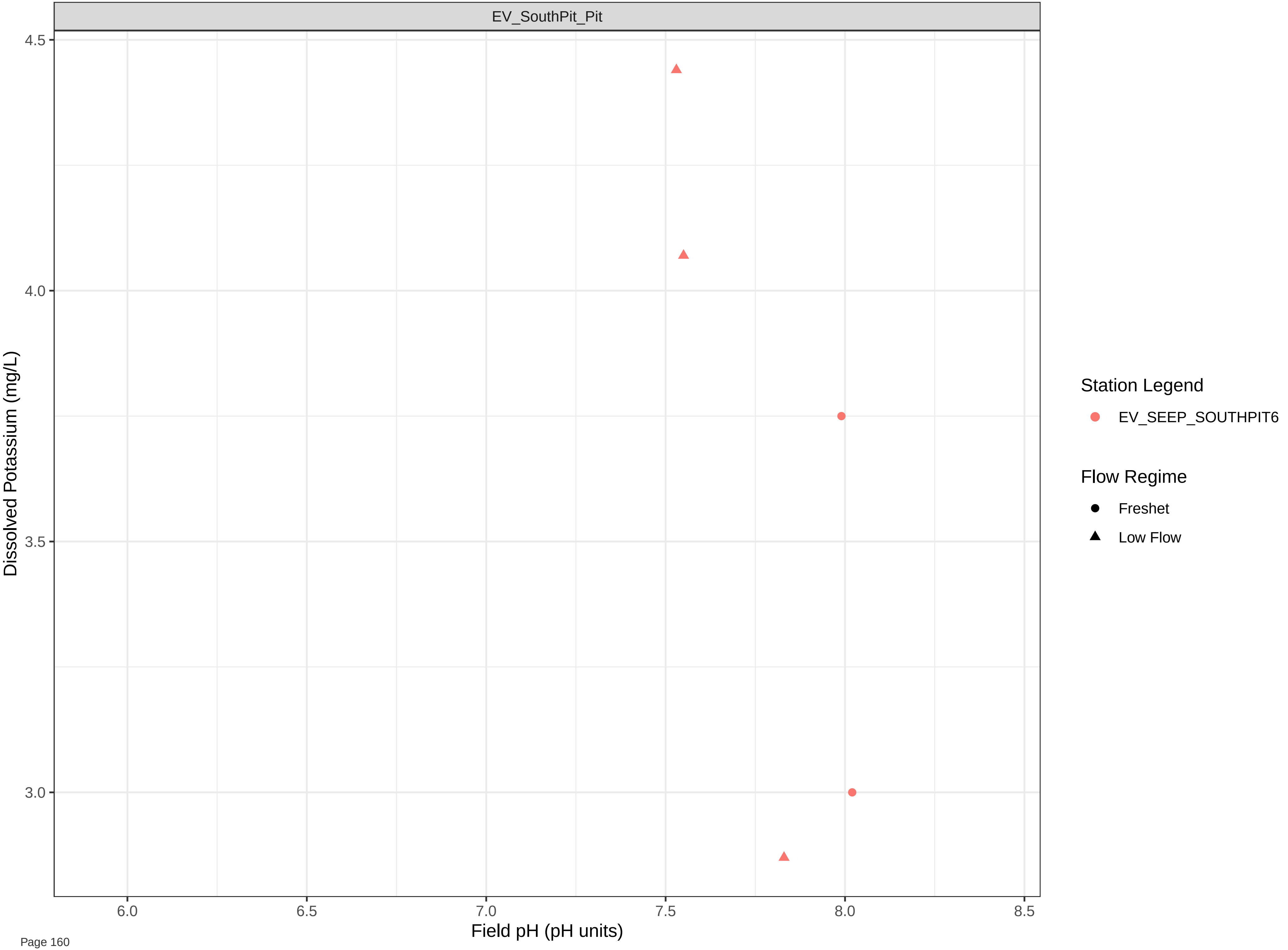

EV_CCR/TP
Dissolved Potassium (mg/L)
1.9
1.8
1.7
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

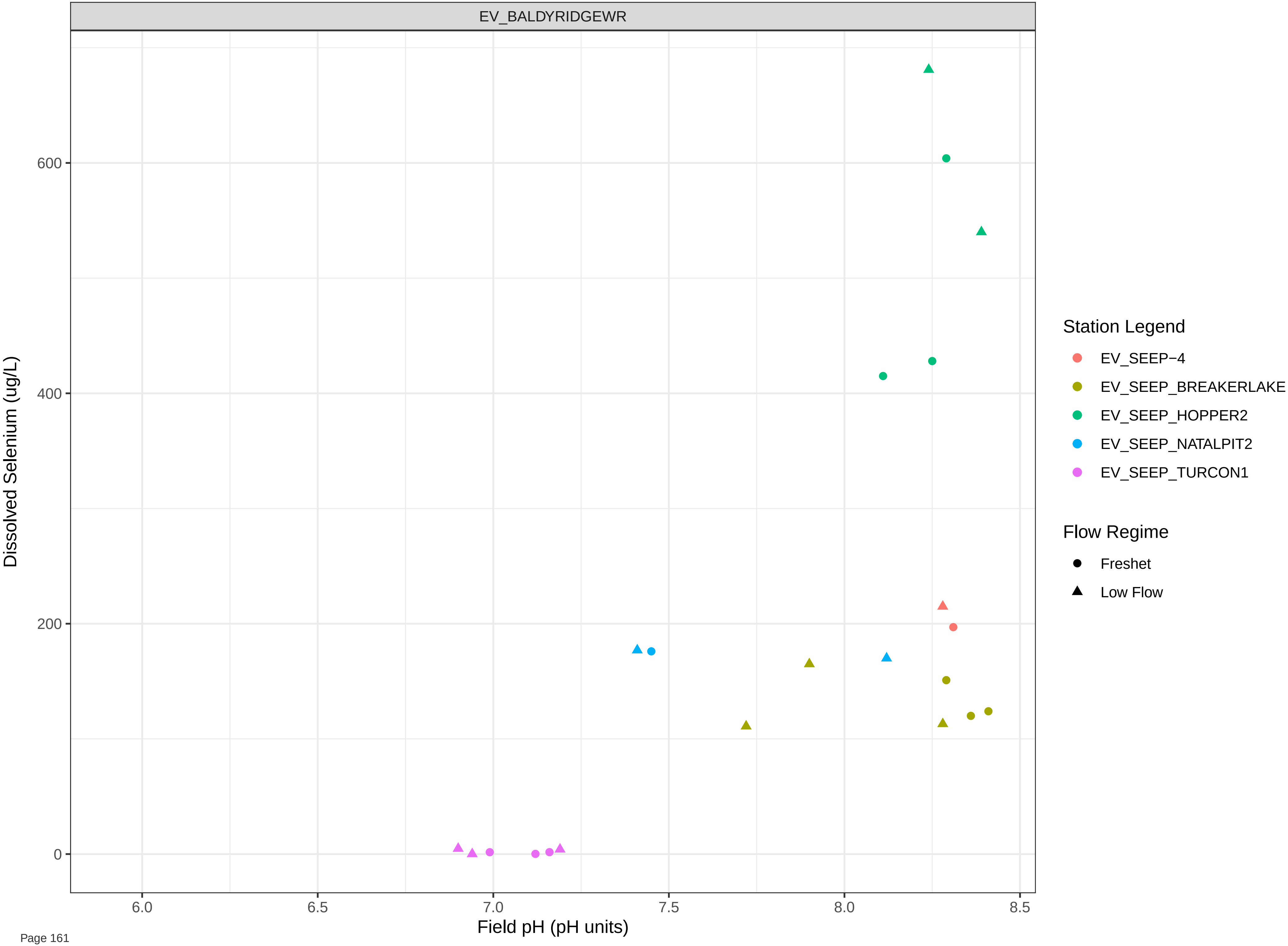

EV_CEDARWR
Dissolved Potassium (mg/L)
2.0
1.5
1.0
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_CN1
● EV_SEEP_10MILE5
● EV_SEEP_10MILE9
Flow Regime
● Freshet
▲ Low Flow

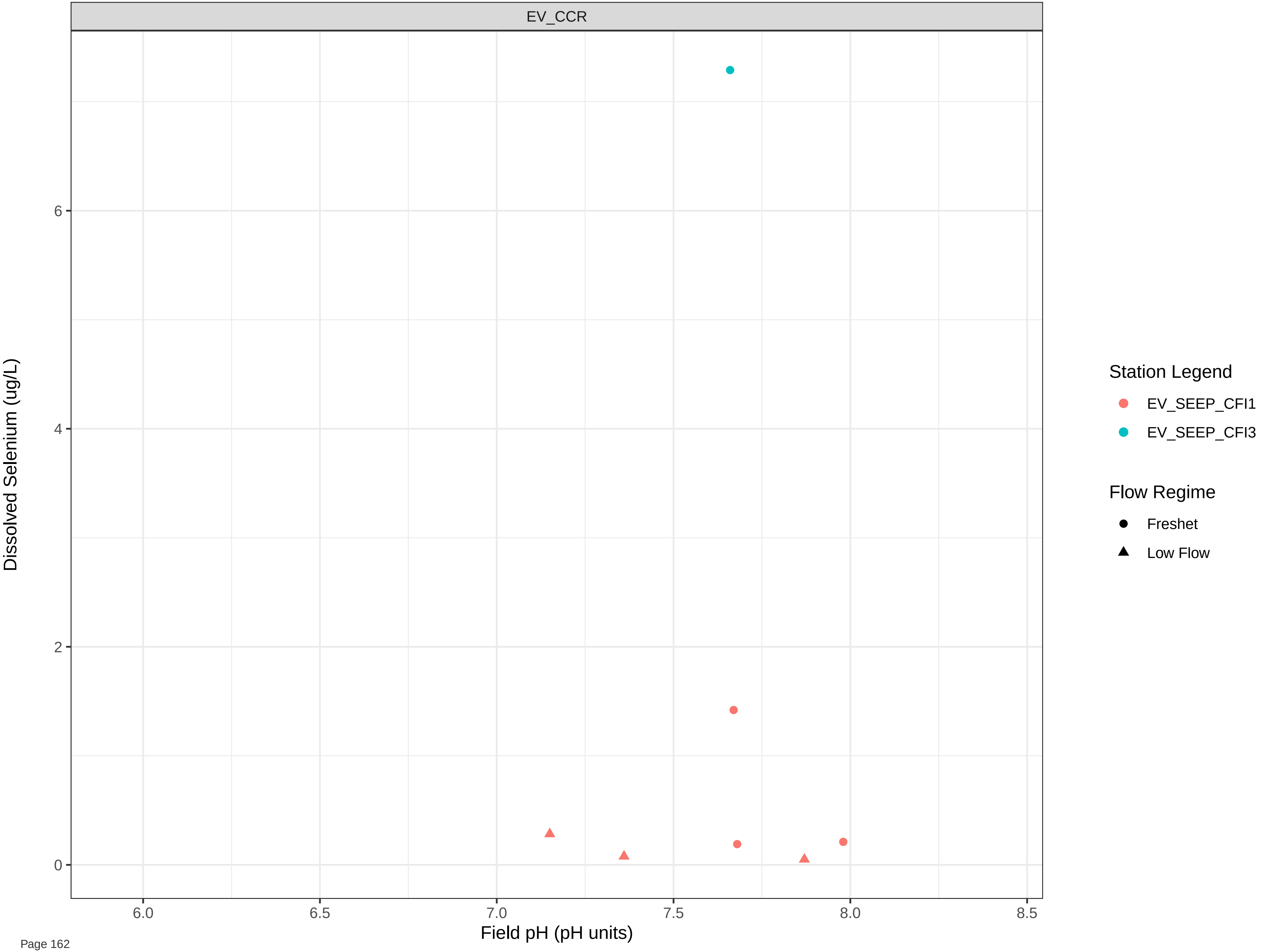

EV_Erickson_WR
Dissolved Potassium (mg/L)
6
4
2
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

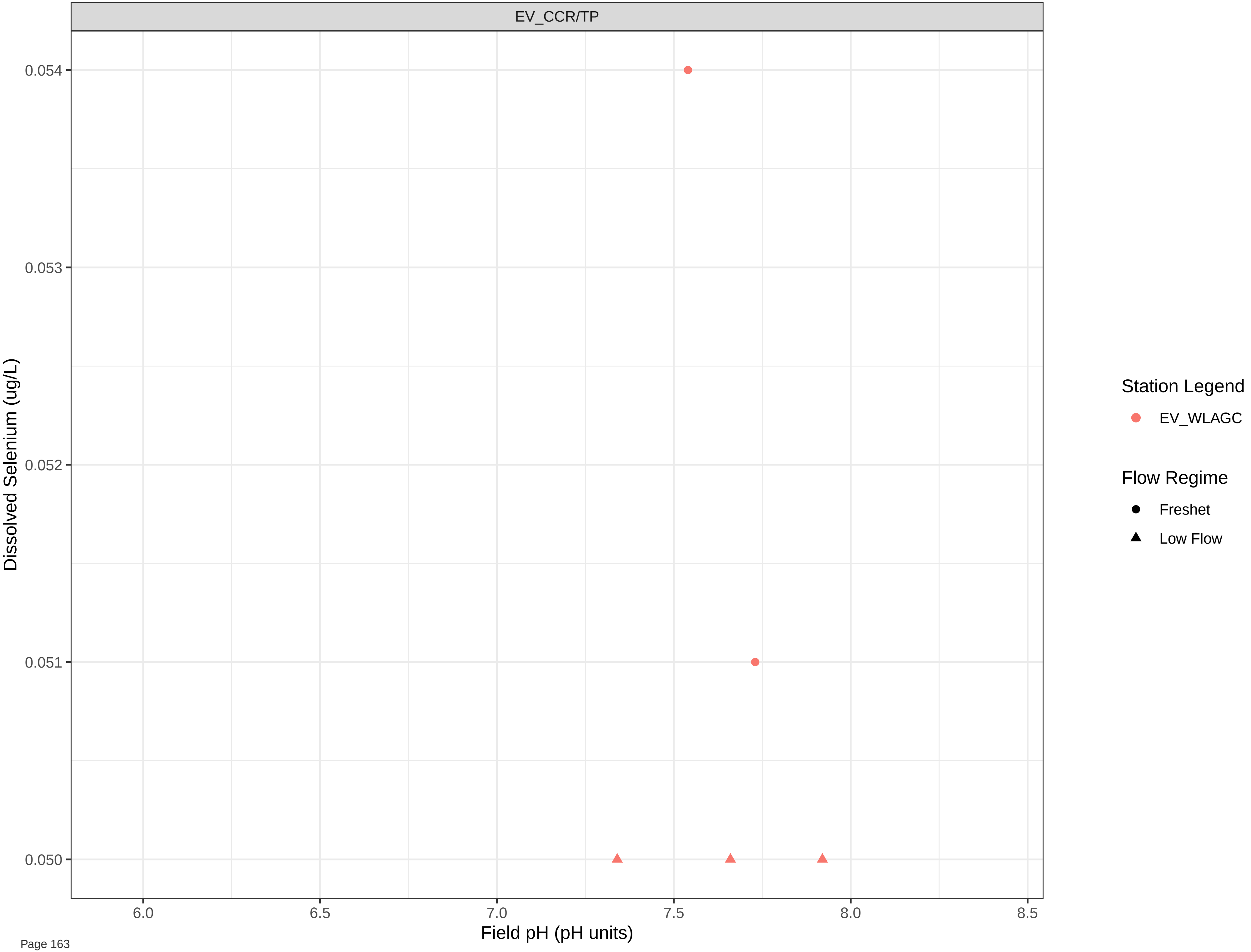

EV_PLANT
Dissolved Potassium (mg/L)
30
20
10
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

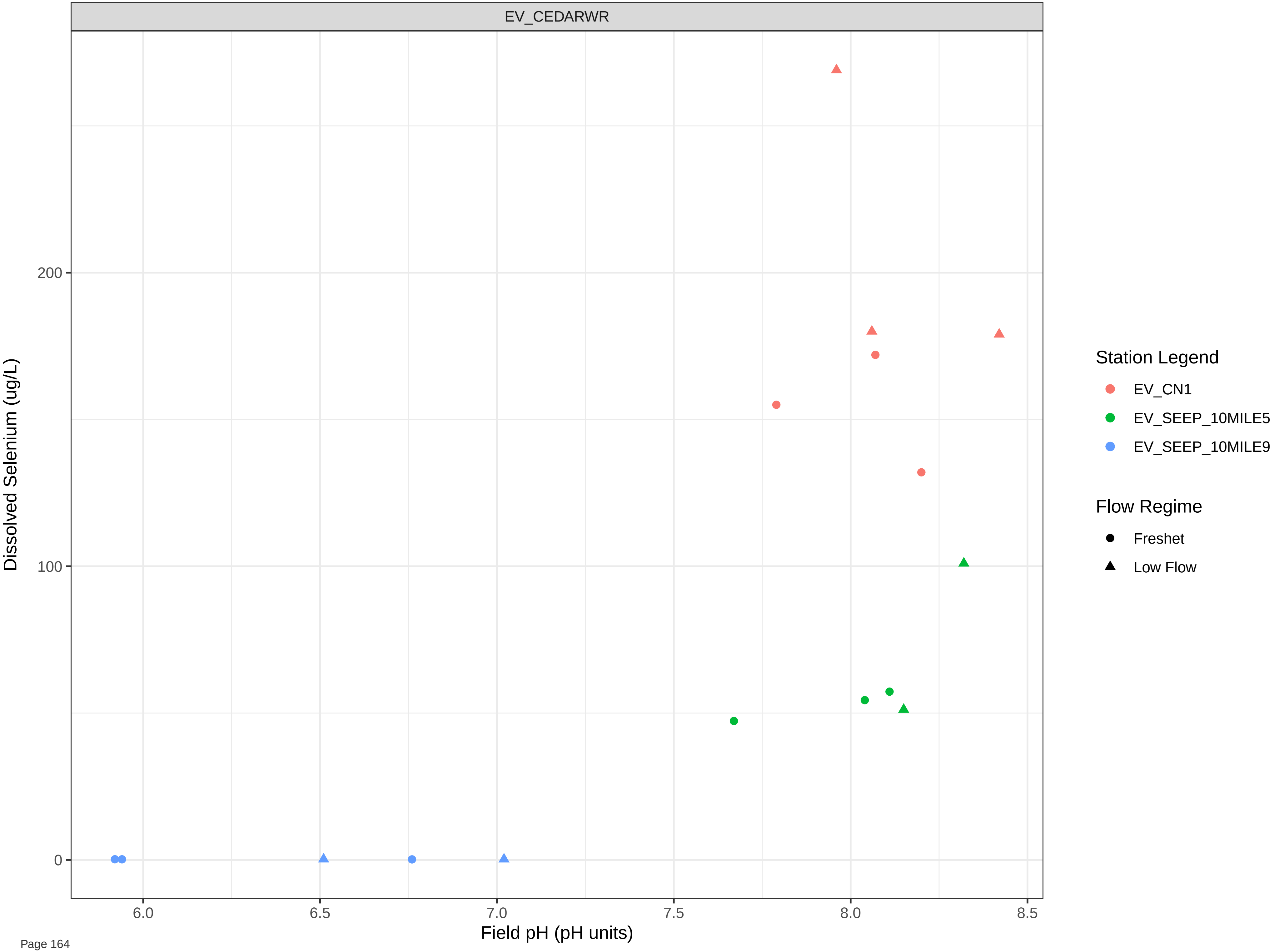

EV_SOUTHSLOPE
Dissolved Potassium (mg/L)
6
4
2
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

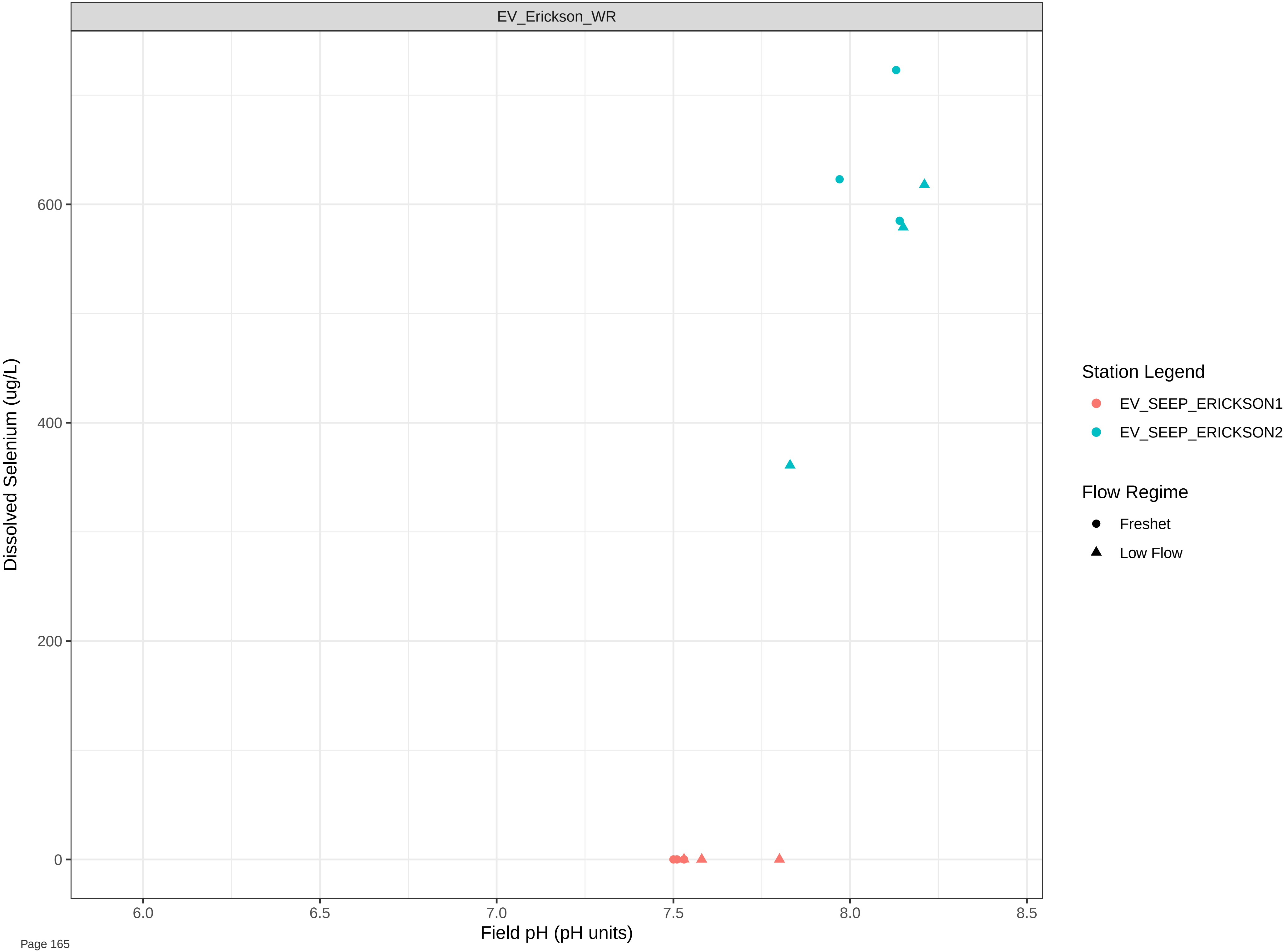

EV_SouthPit_Pit
Dissolved Potassium (mg/L)
4.5
4.0
3.5
3.0
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

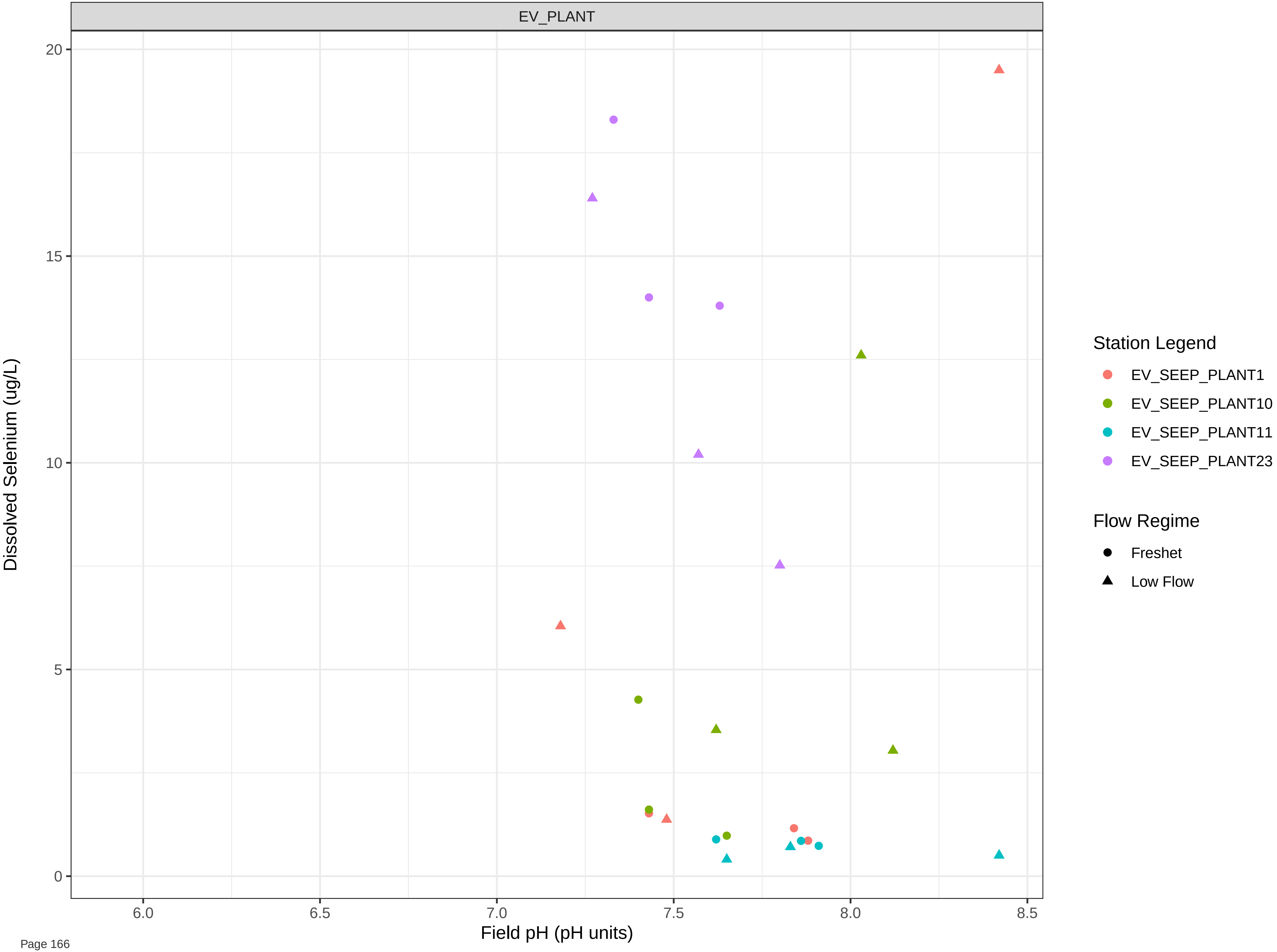

EV_BALDYRIDGEWR
Dissolved Selenium (ug/L)
600
400
200
0
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

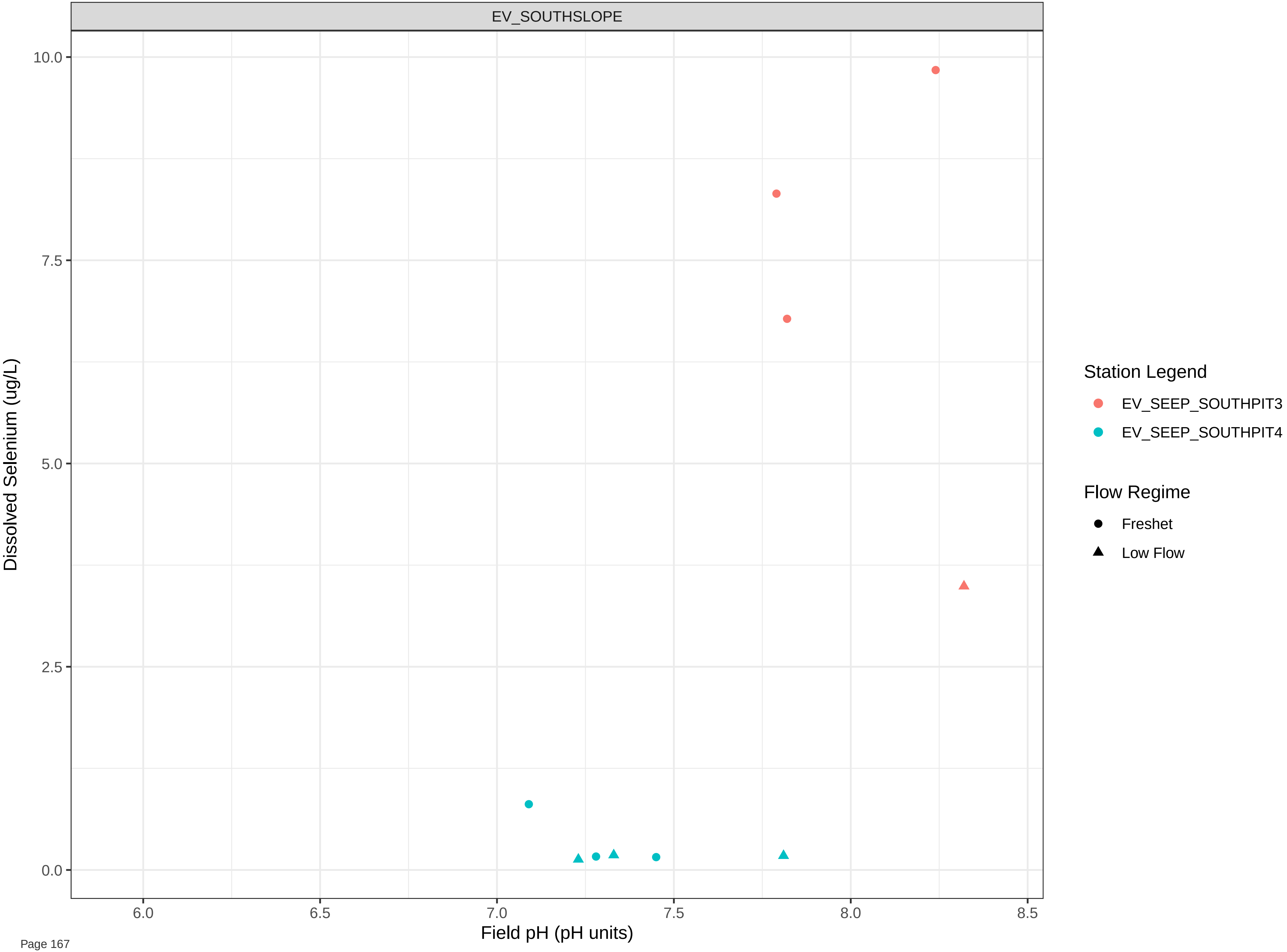

EV_CCR
Dissolved Selenium (ug/L)
0
2
4
6
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

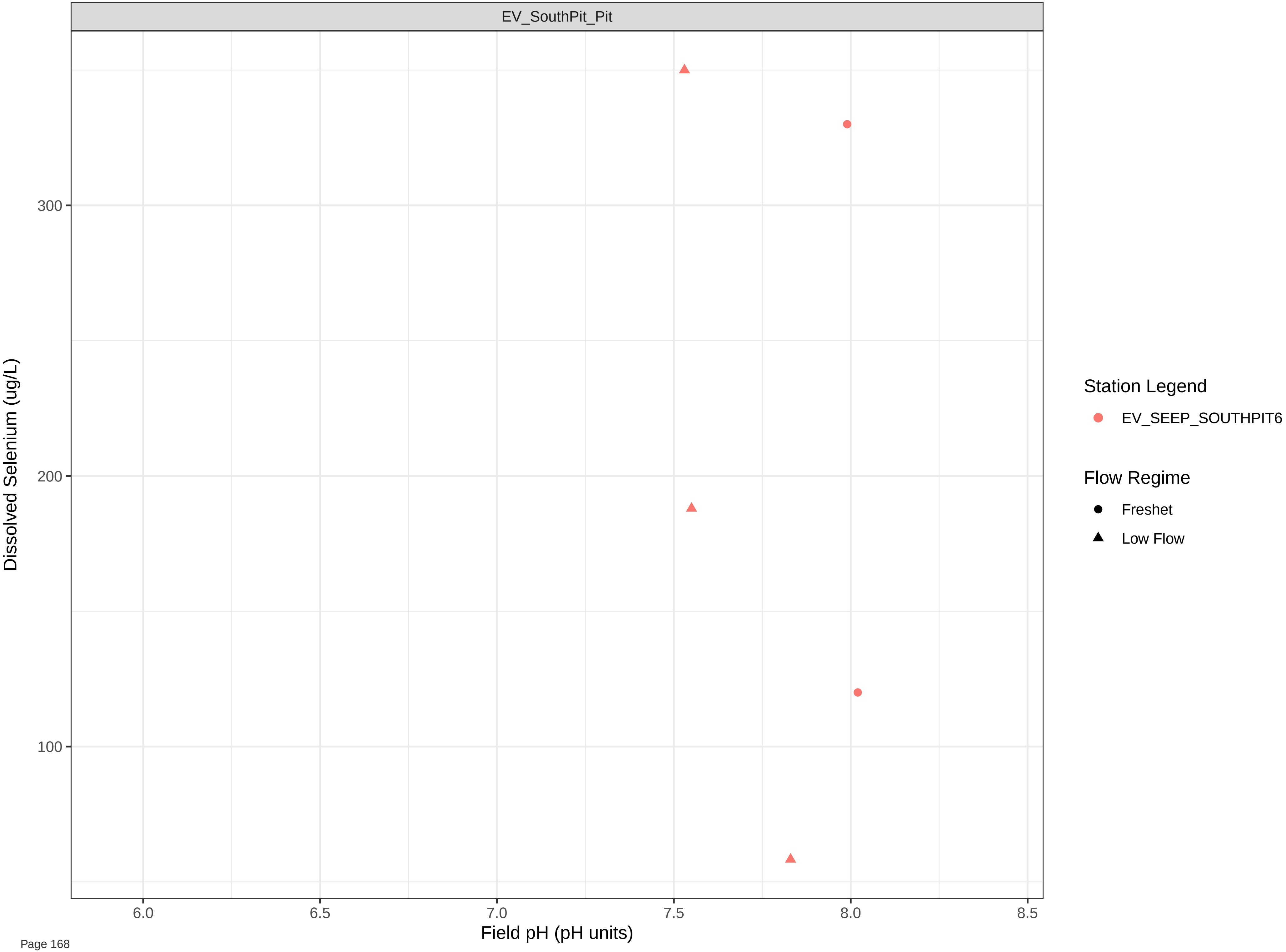

EV_CCR/TP
Dissolved Selenium (ug/L)
0.054
0.053
0.052
0.051
0.050
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

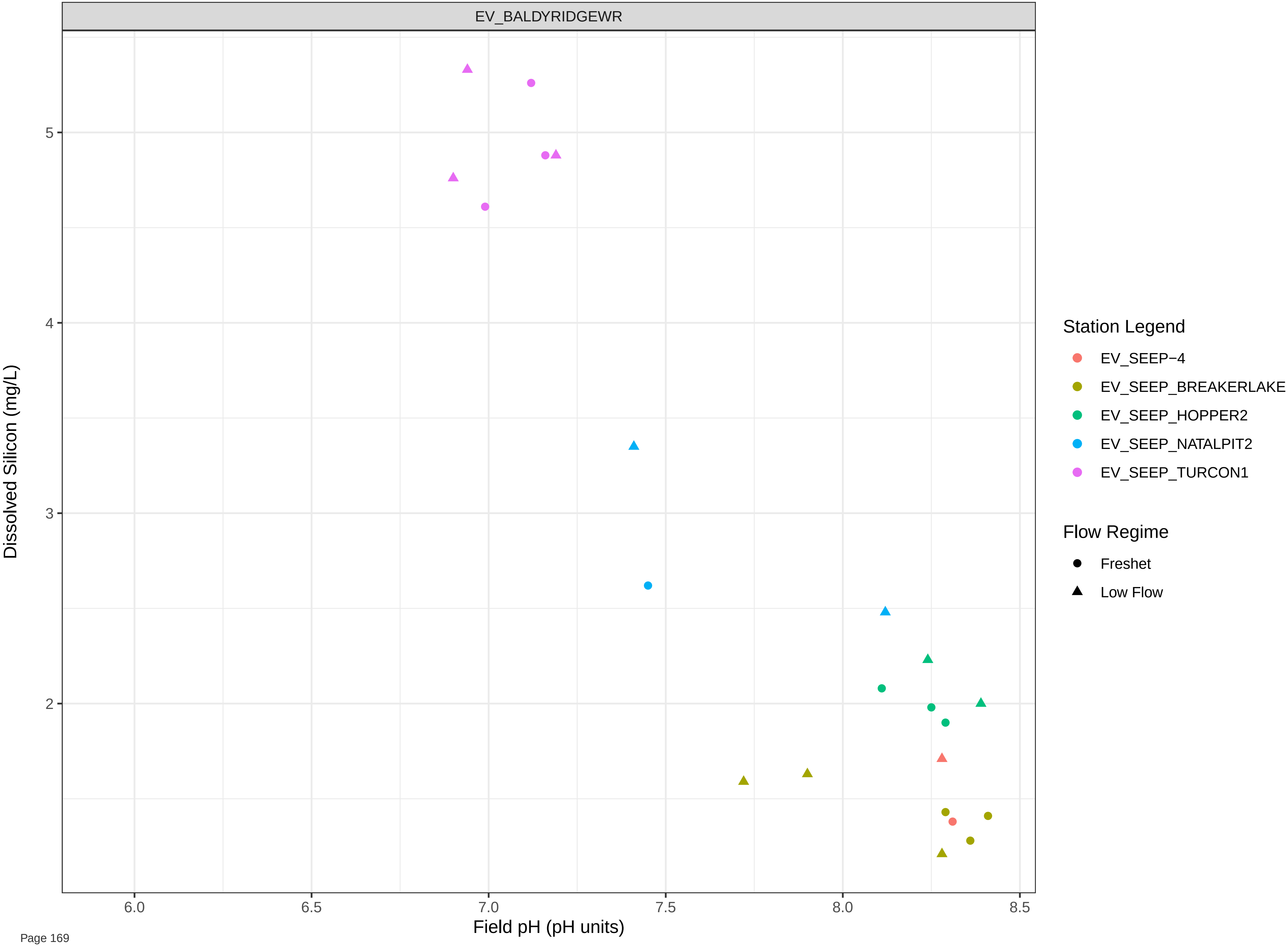

EV_CEDARWR
Dissolved Selenium (ug/L)
200
100
0
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

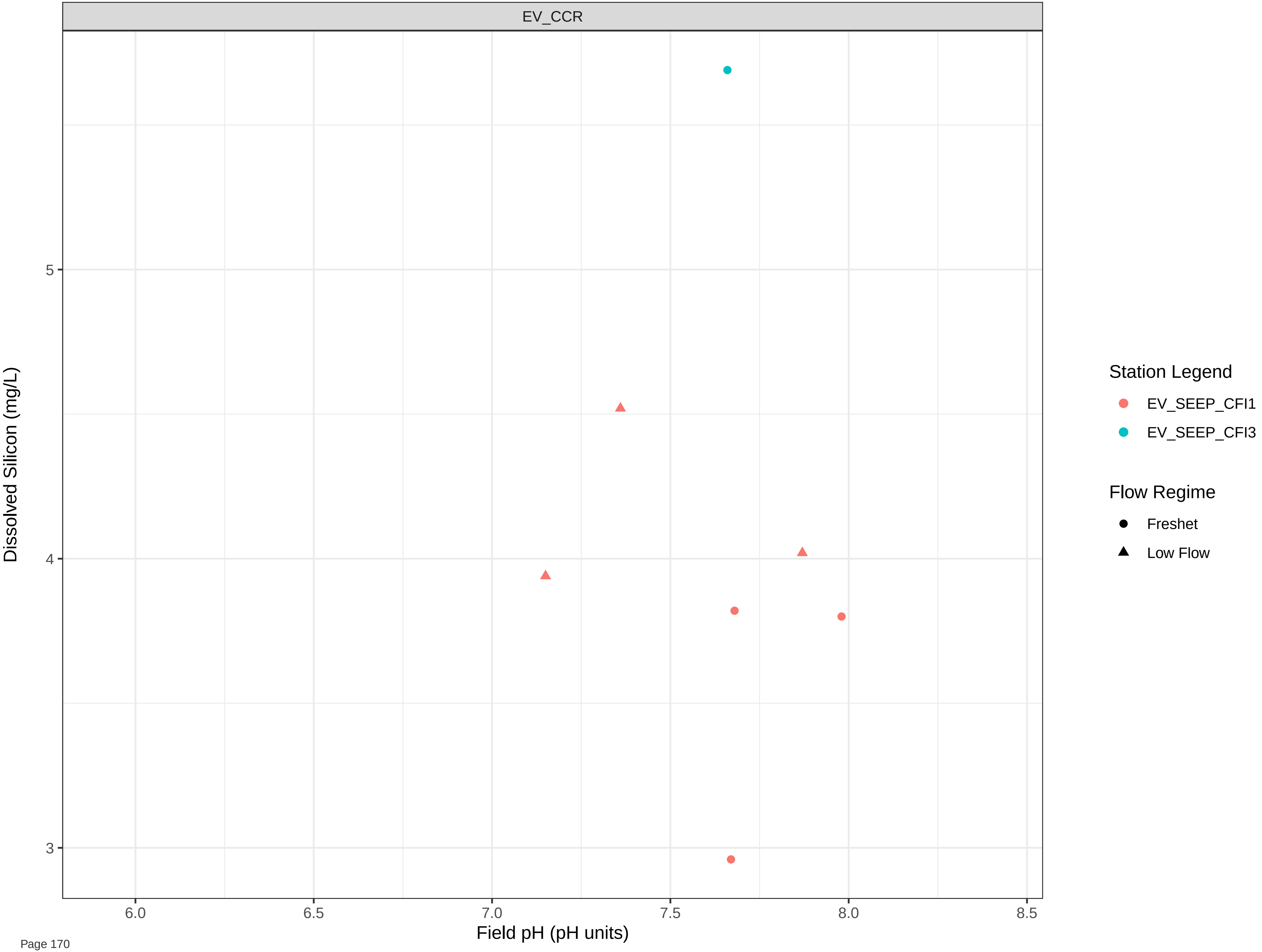

EV_Erickson_WR
Dissolved Selenium (ug/L)
600
400
200
0
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

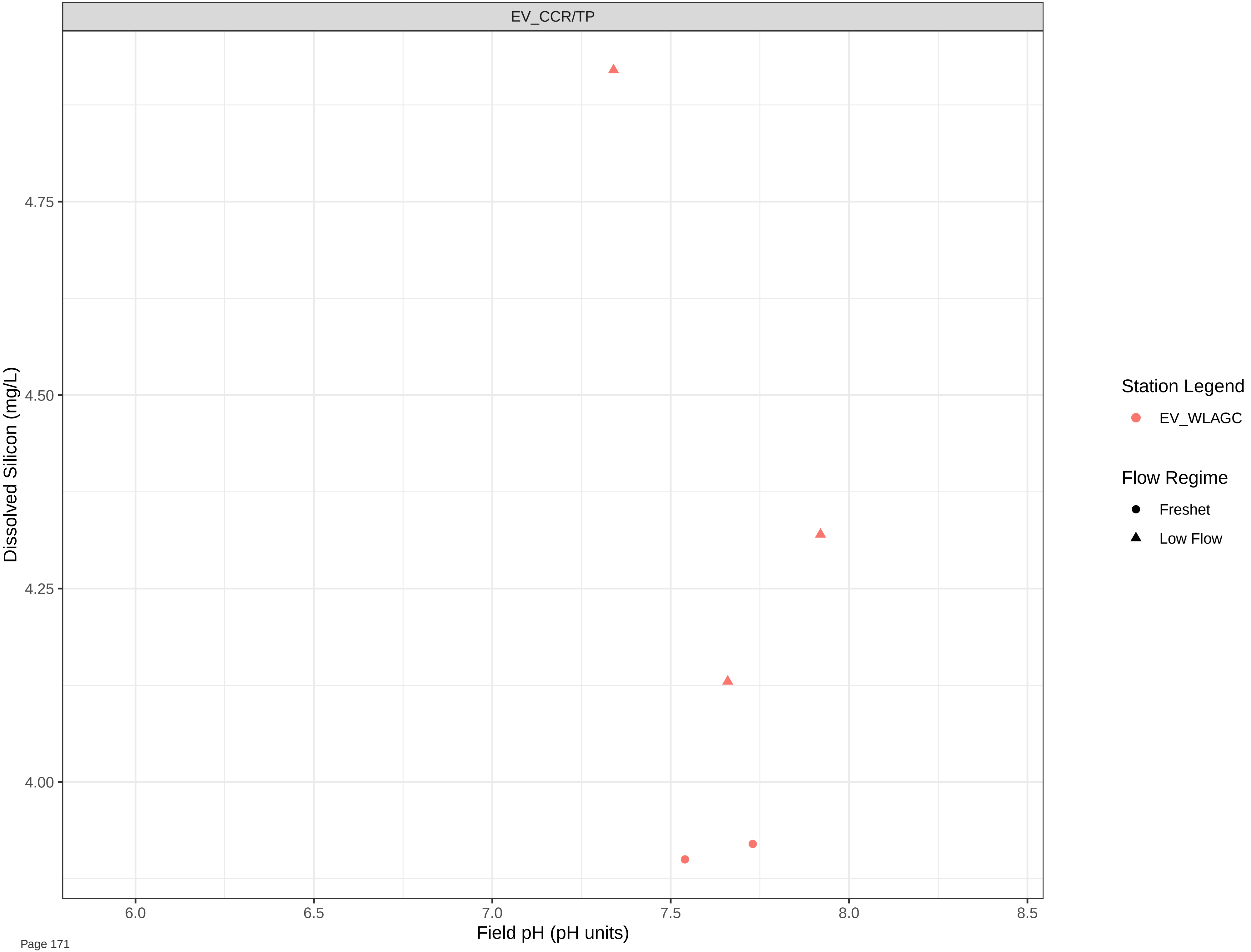

EV_PLANT
Dissolved Selenium (ug/L)
20
15
10
5
0
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

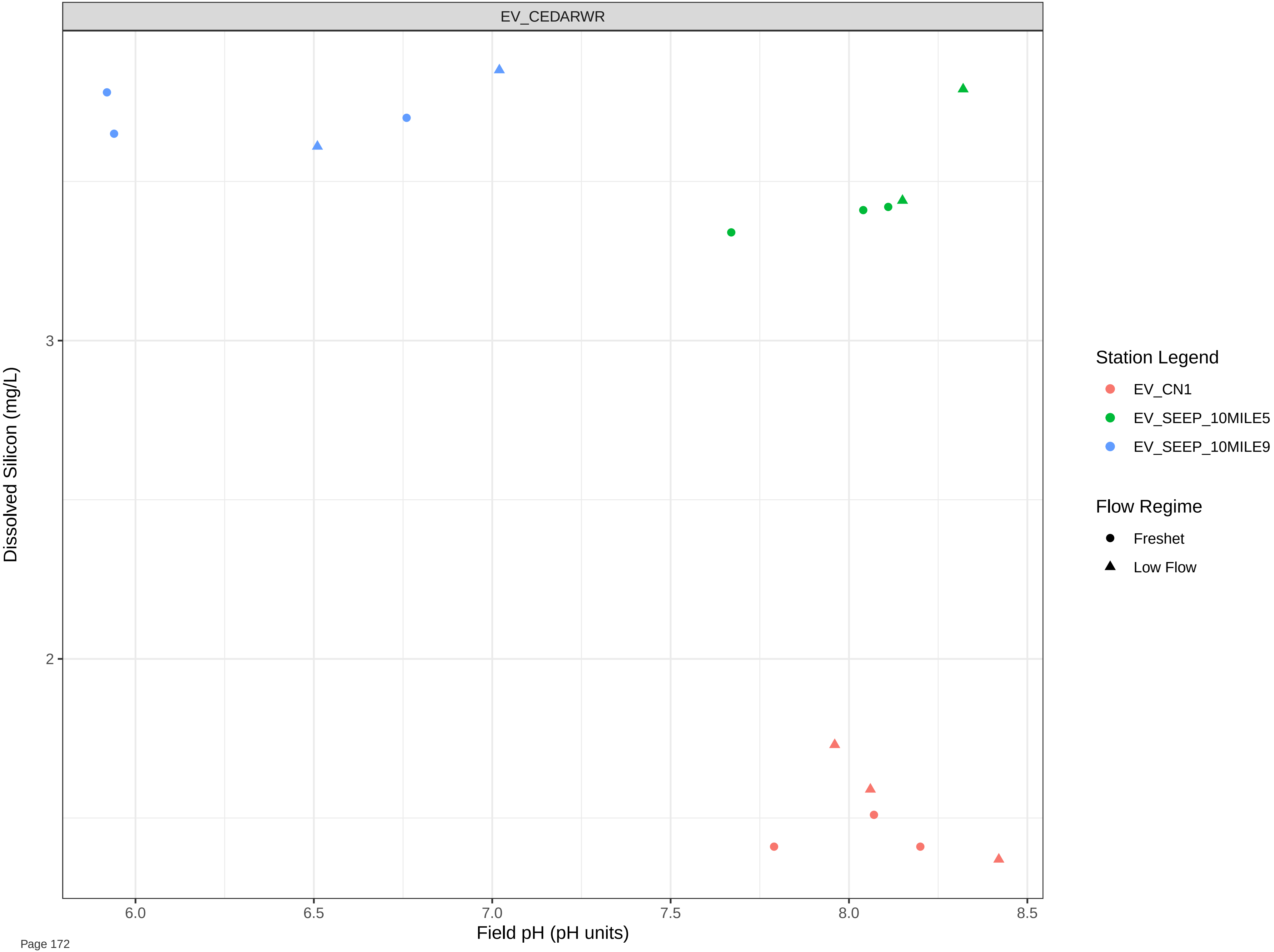

EV_SOUTHSLOPE
Dissolved Selenium (ug/L)
10.0
7.5
5.0
2.5
0.0
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

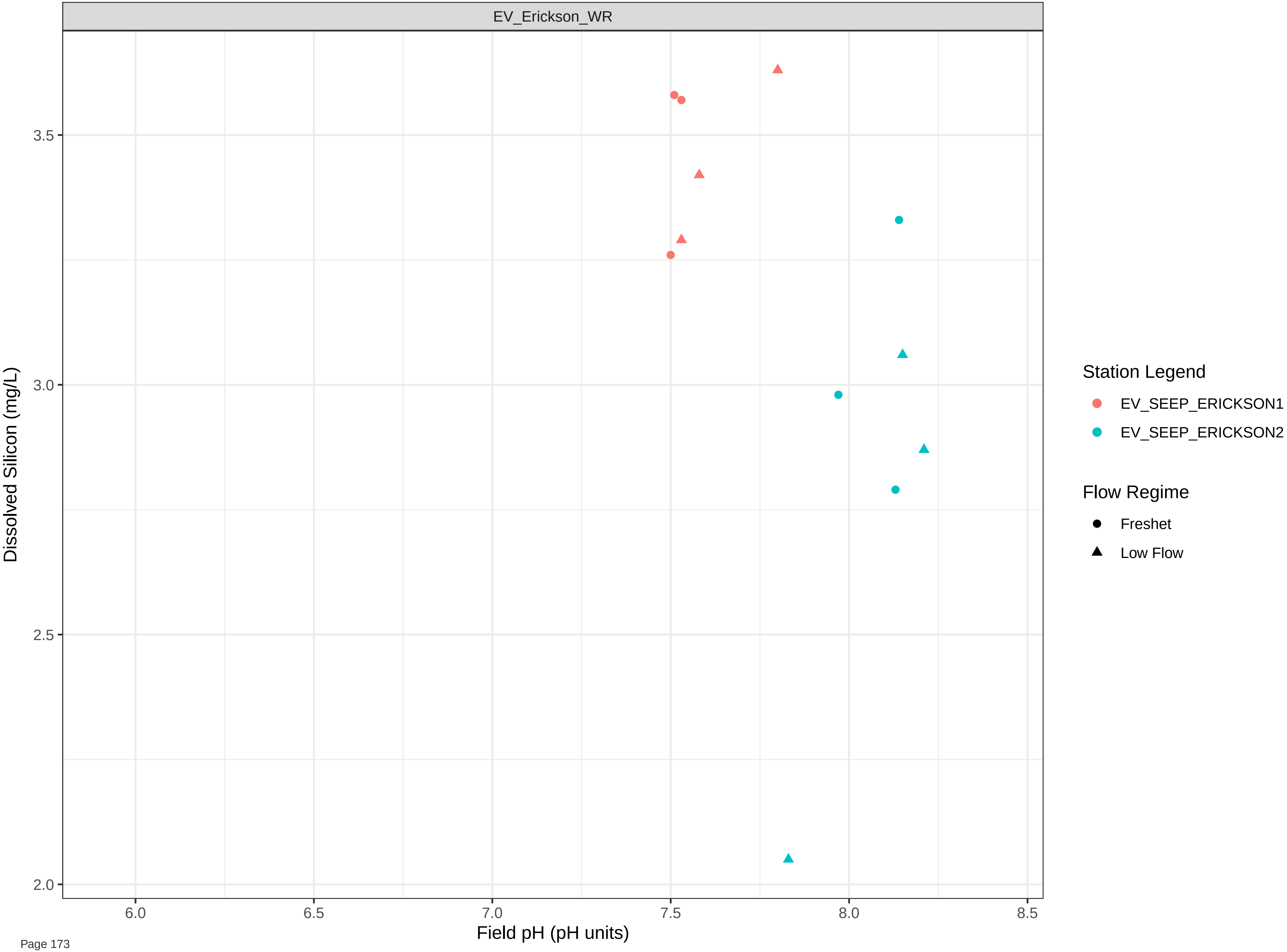

EV_SouthPit_Pit
Dissolved Selenium (ug/L)
300
200
100
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

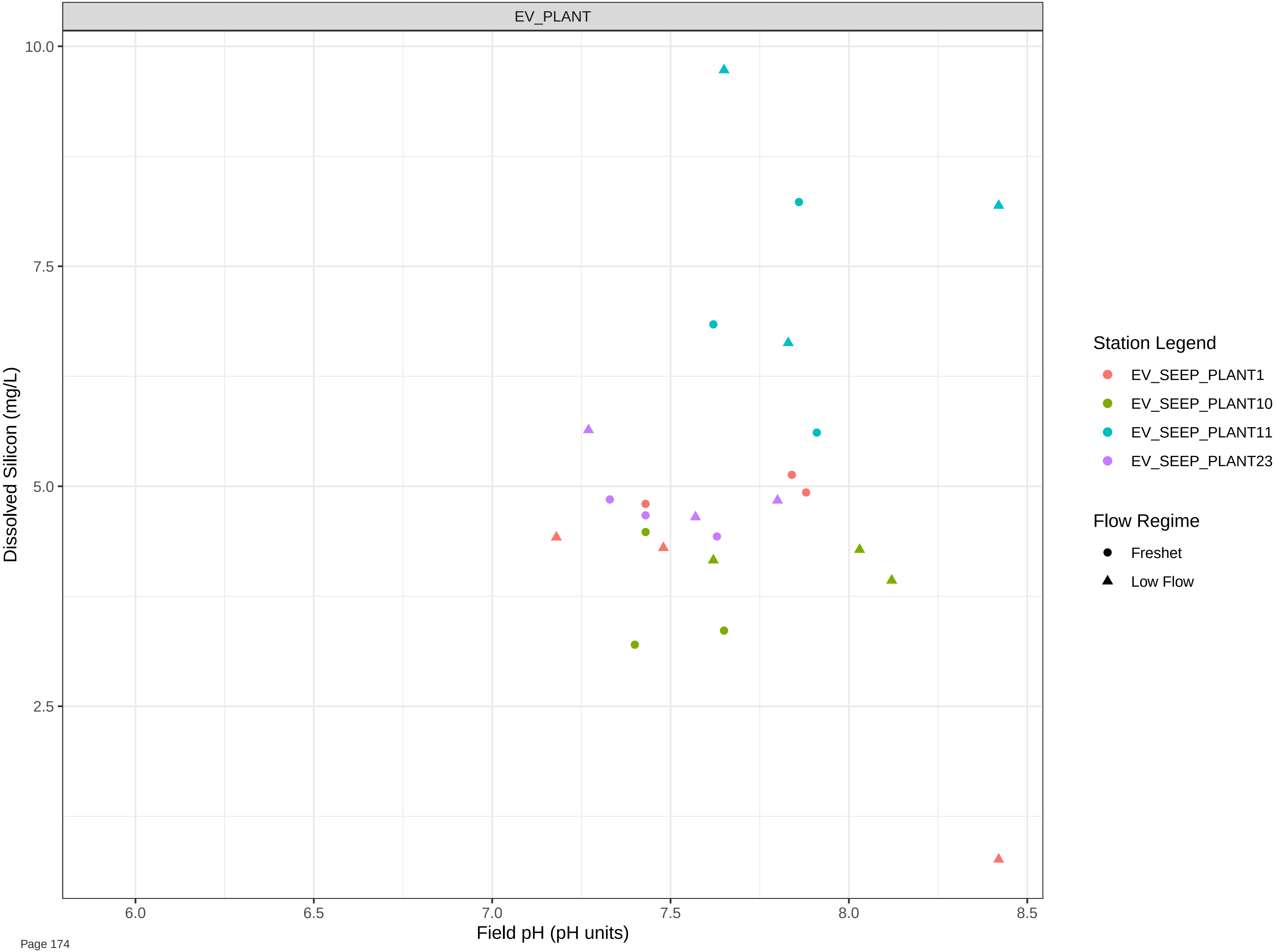

EV_BALDYRIDGEWR
Dissolved Silicon (mg/L)
5
4
3
2
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

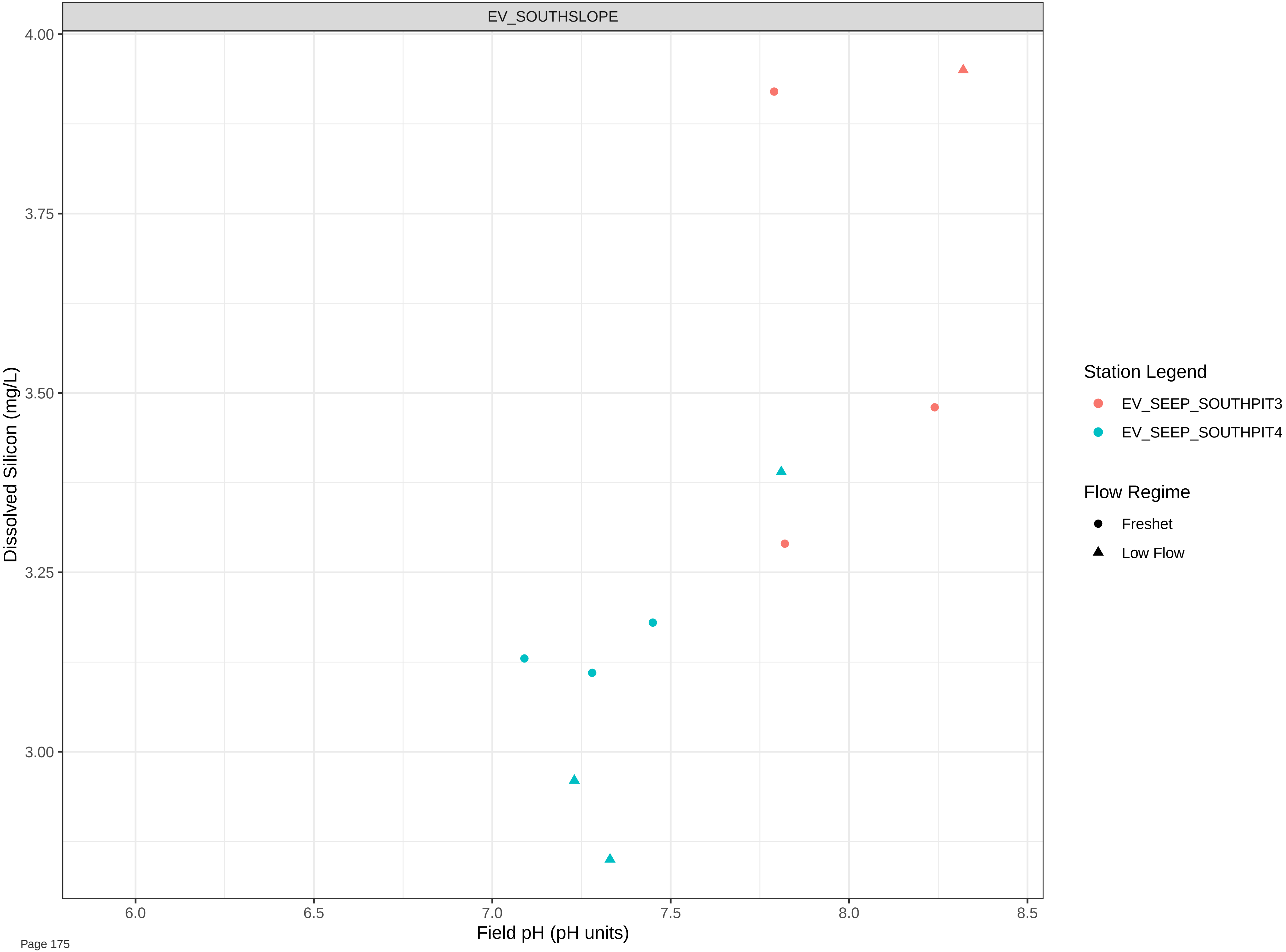

EV_CCR
Dissolved Silicon (mg/L)
5
4
3
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

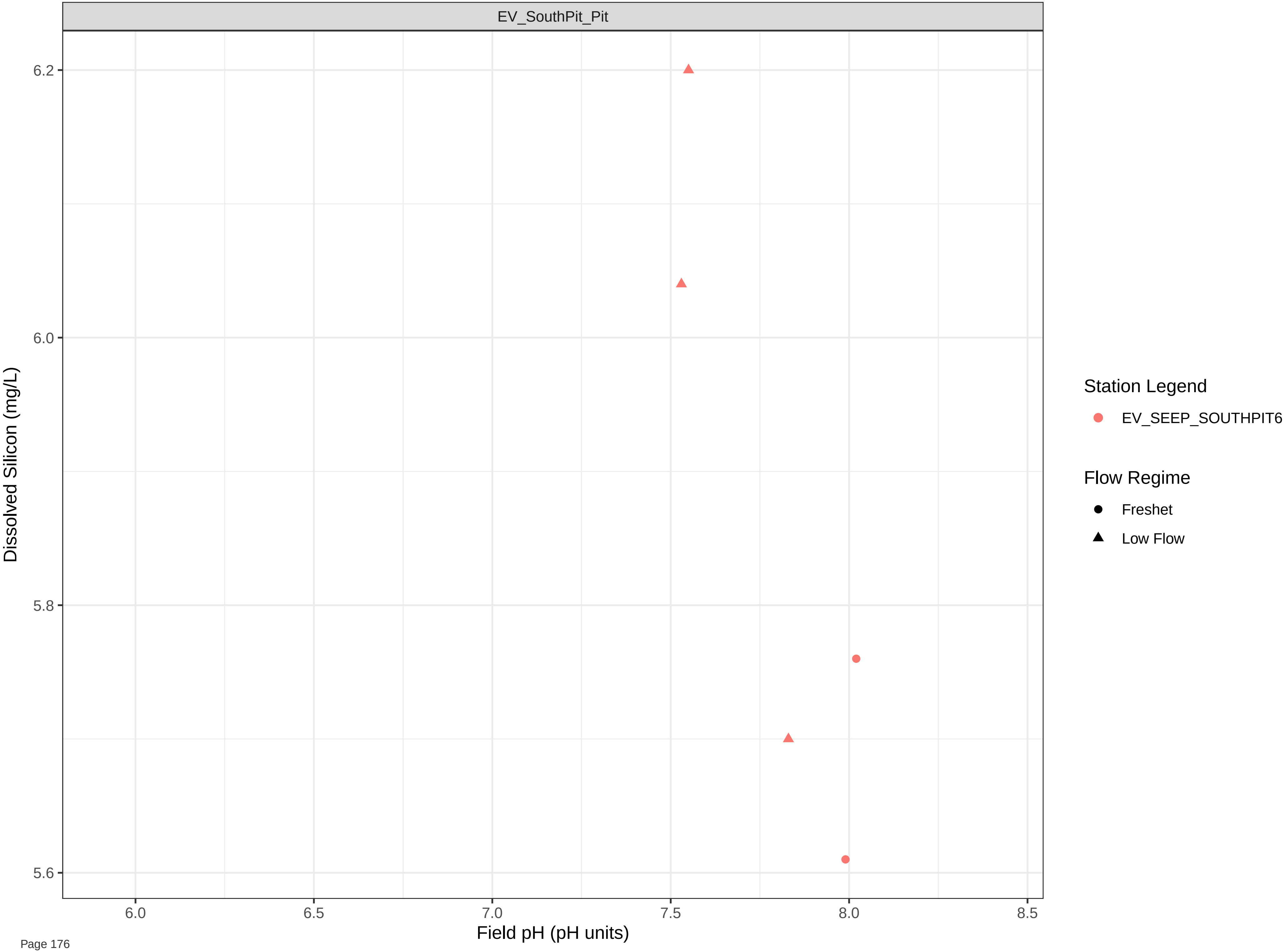

EV_CCR/TP
Dissolved Silicon (mg/L)
4.75
4.50
4.25
4.00
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

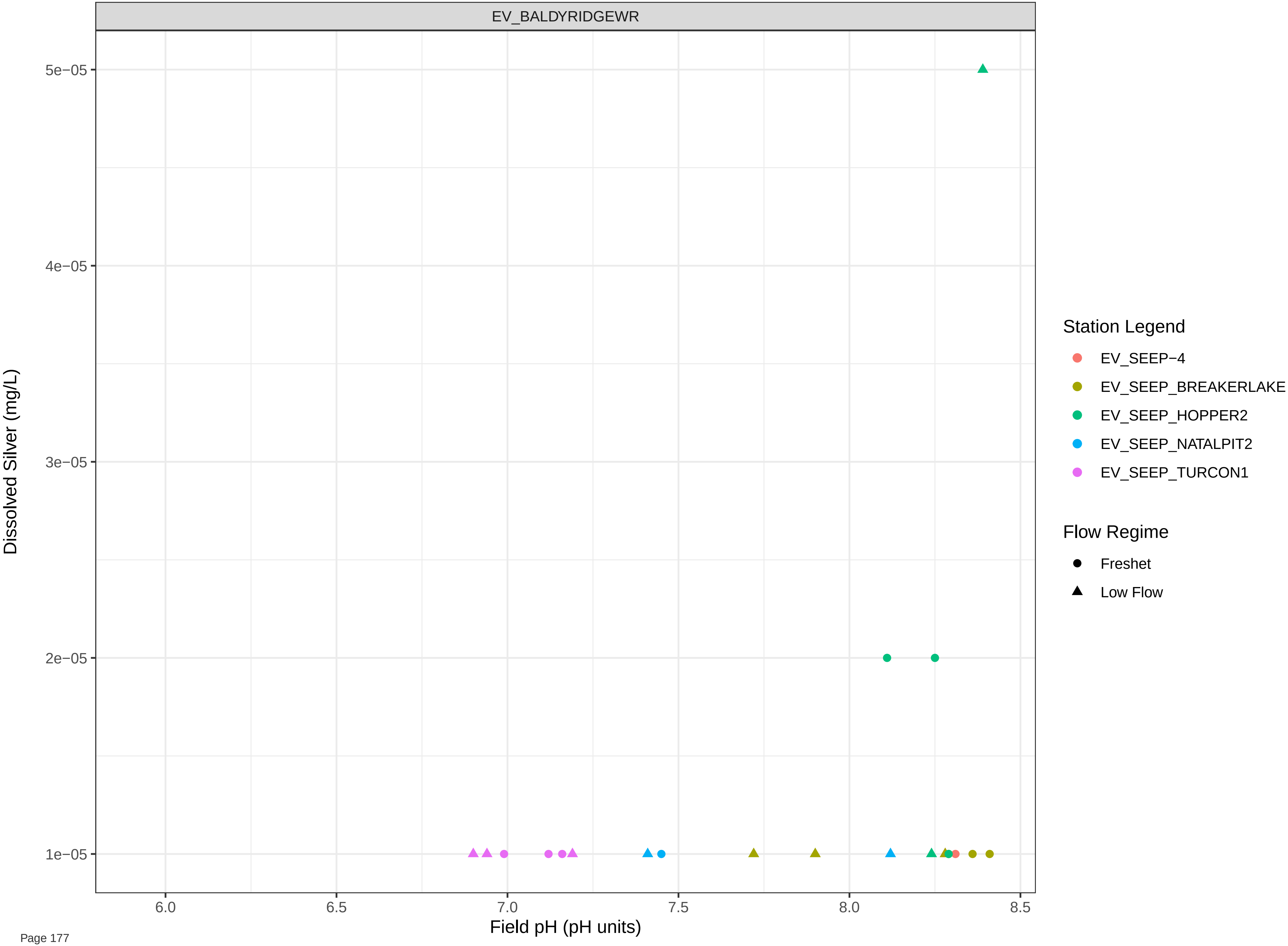

EV_CEDARWR
Dissolved Silicon (mg/L)
3
2
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

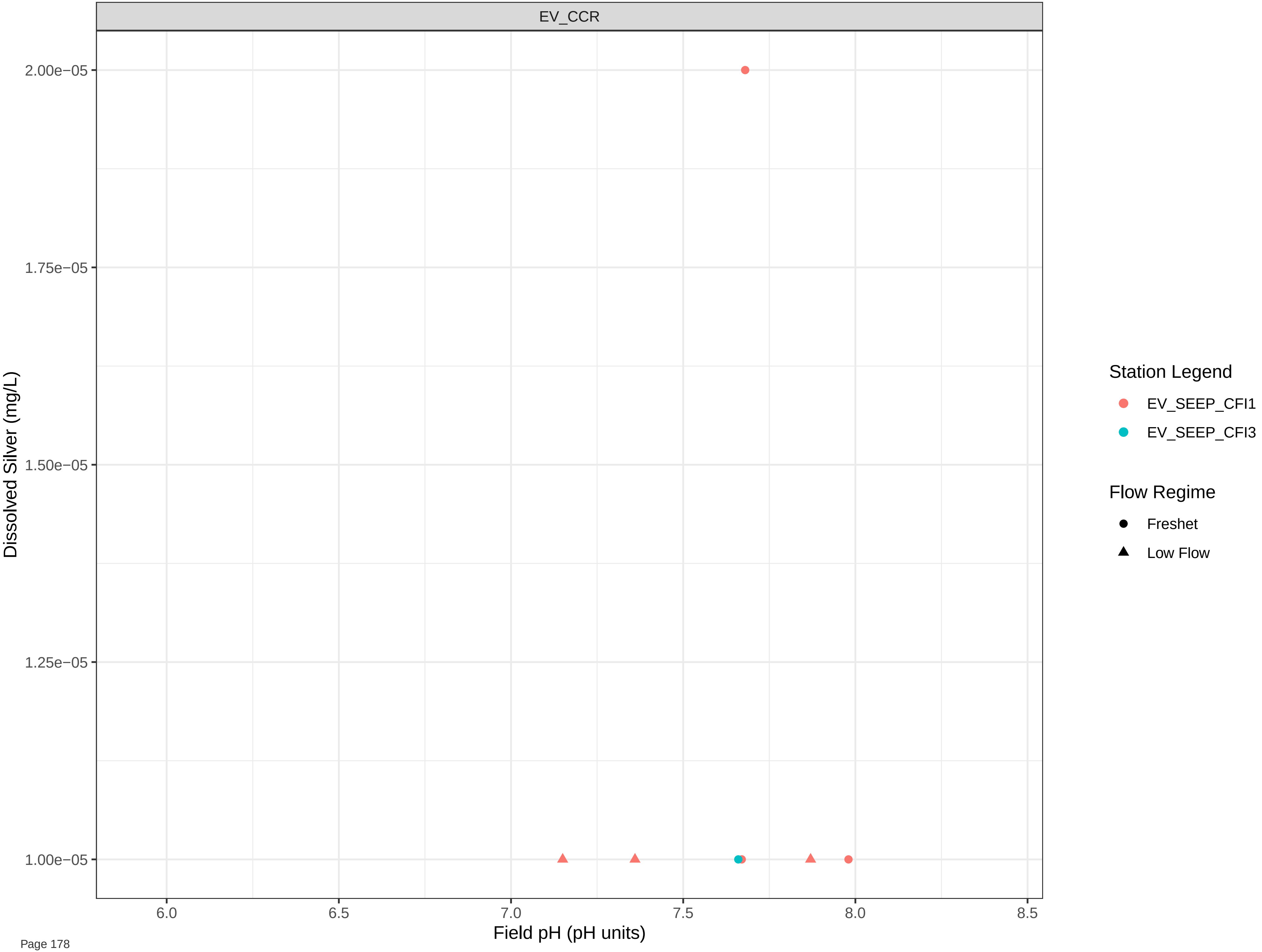

EV_Erickson_WR
Dissolved Silicon (mg/L)
3.5
3.0
2.5
2.0
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

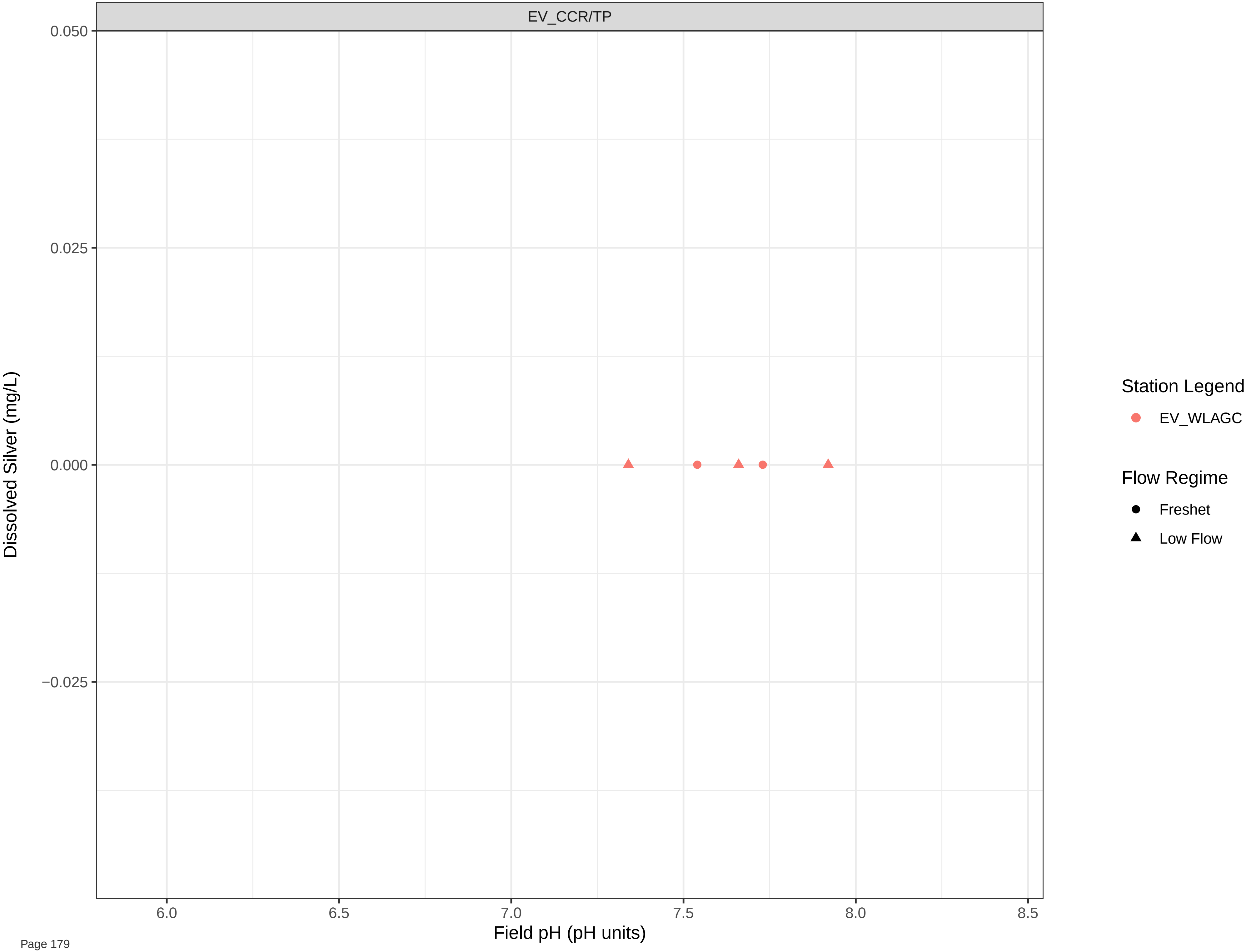

EV_PLANT
Dissolved Silicon (mg/L)
10.0
7.5
5.0
2.5
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

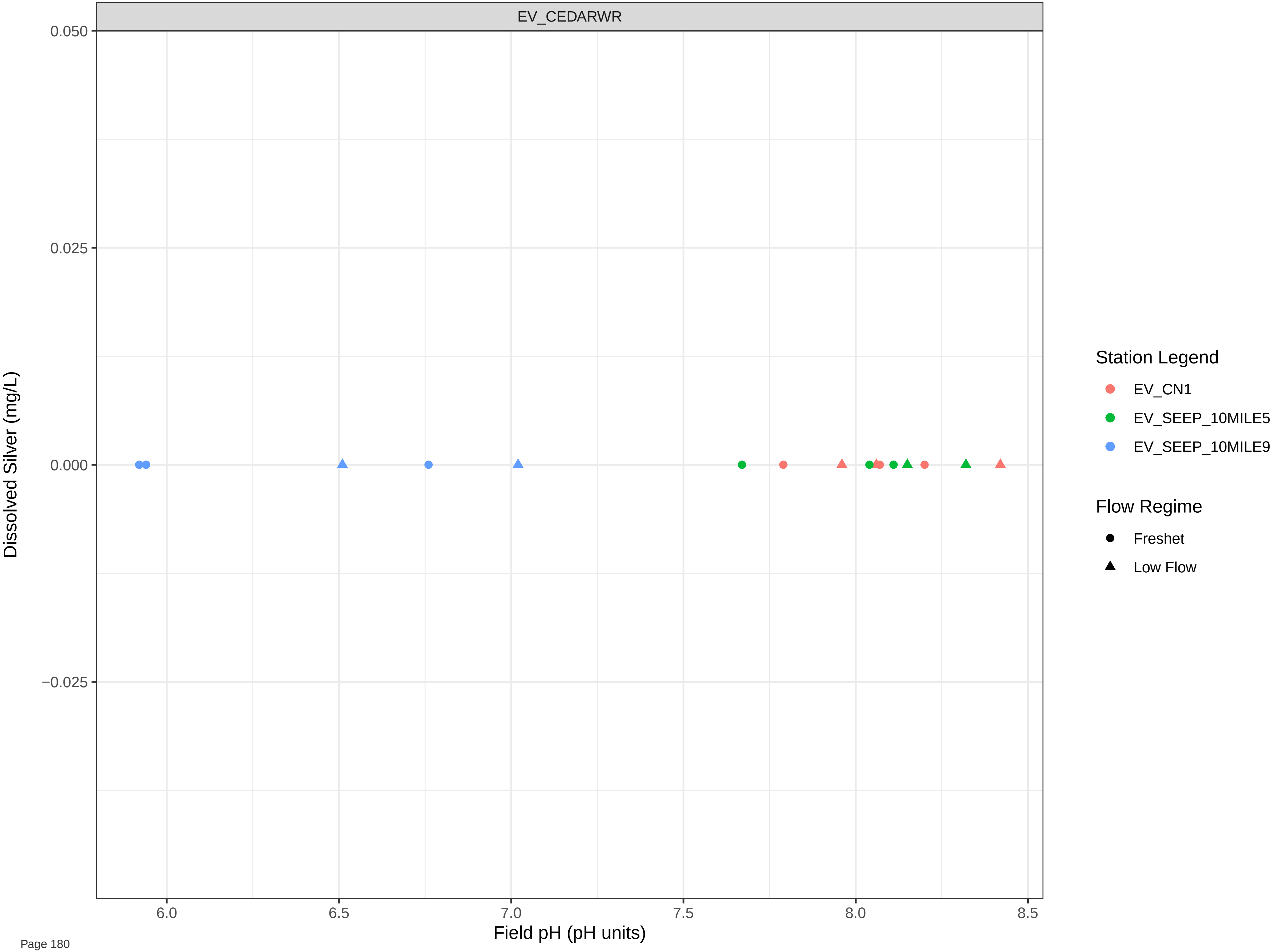

EV_SOUTHSLOPE
Dissolved Silicon (mg/L)
4.00
3.75
3.50
3.25
3.00
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

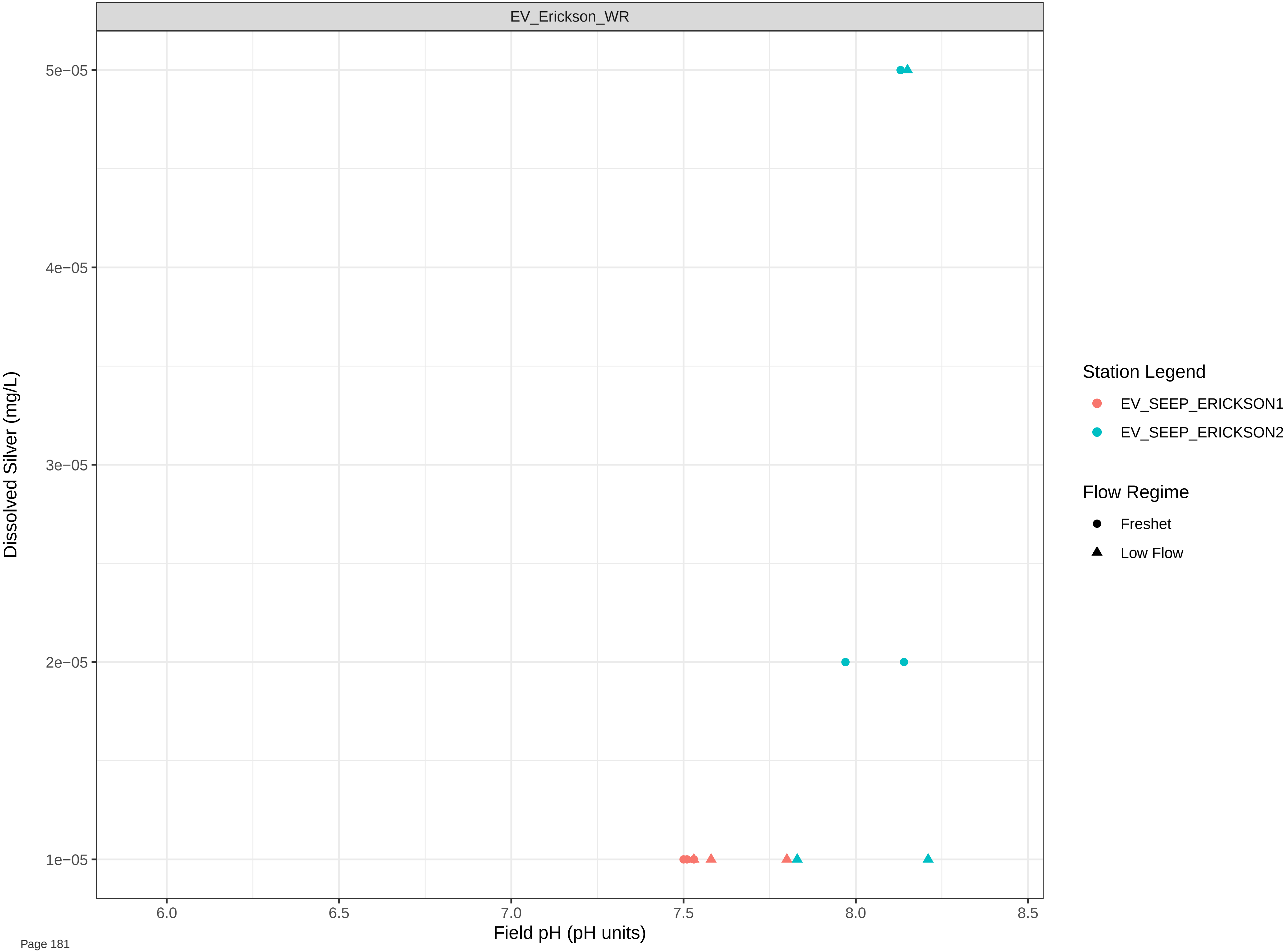

EV_SouthPit_Pit
Dissolved Silicon (mg/L)
6.2
6.0
5.8
5.6
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

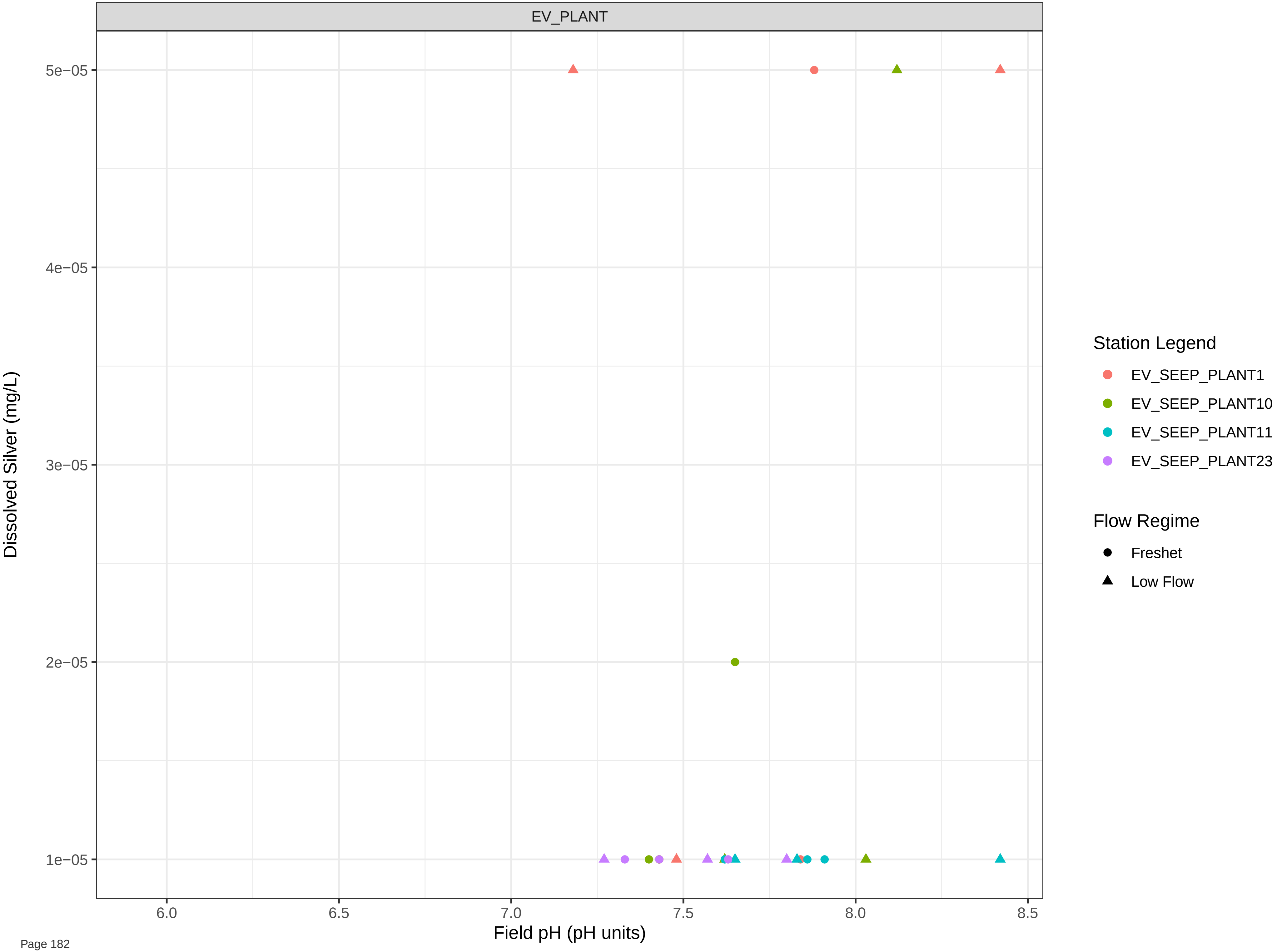

EV_BALDYRIDGEWR
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

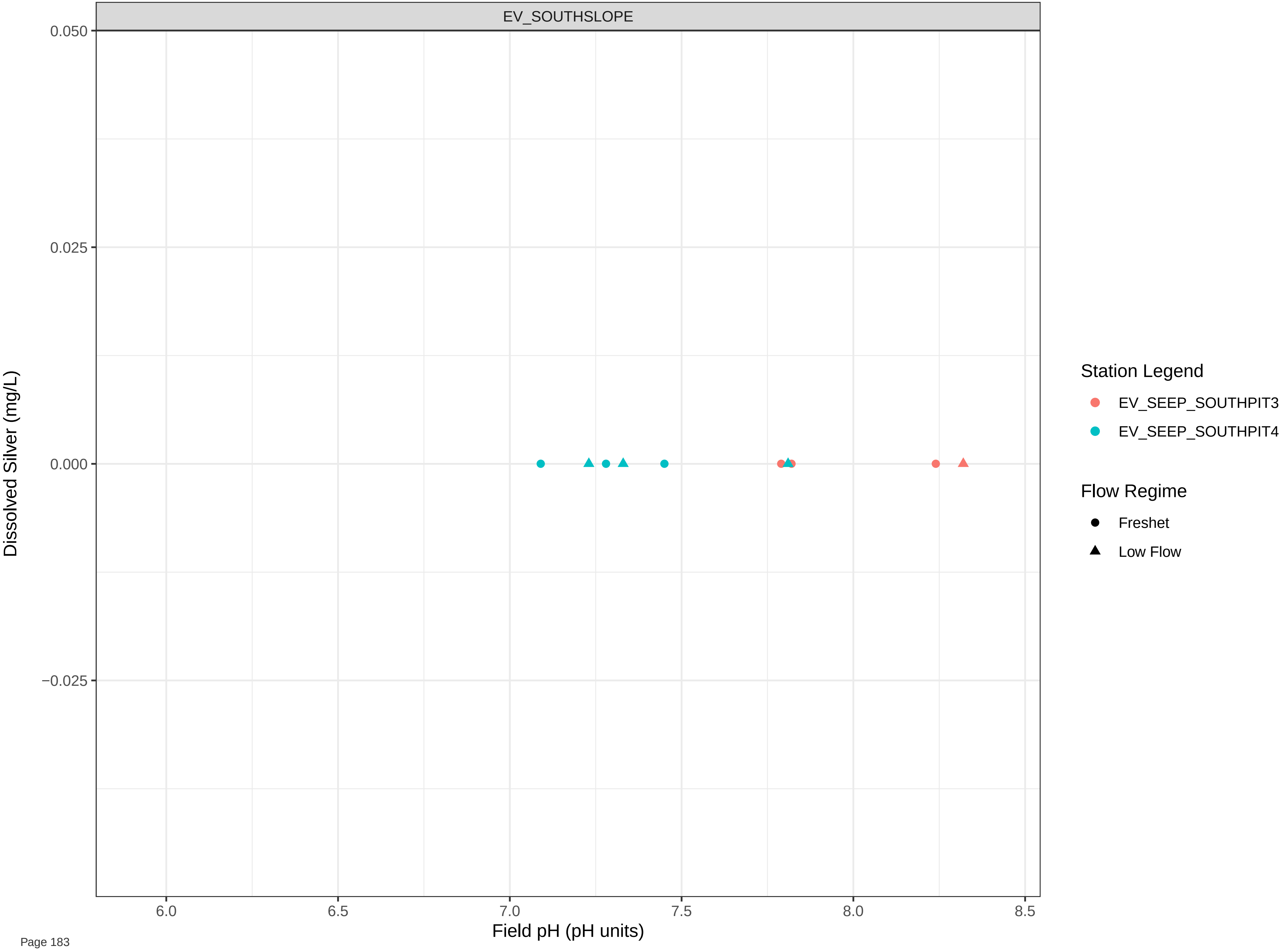

EV_CCR
Dissolved Silver (mg/L)
2.00e−05
1.75e−05
1.50e−05
1.25e−05
1.00e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

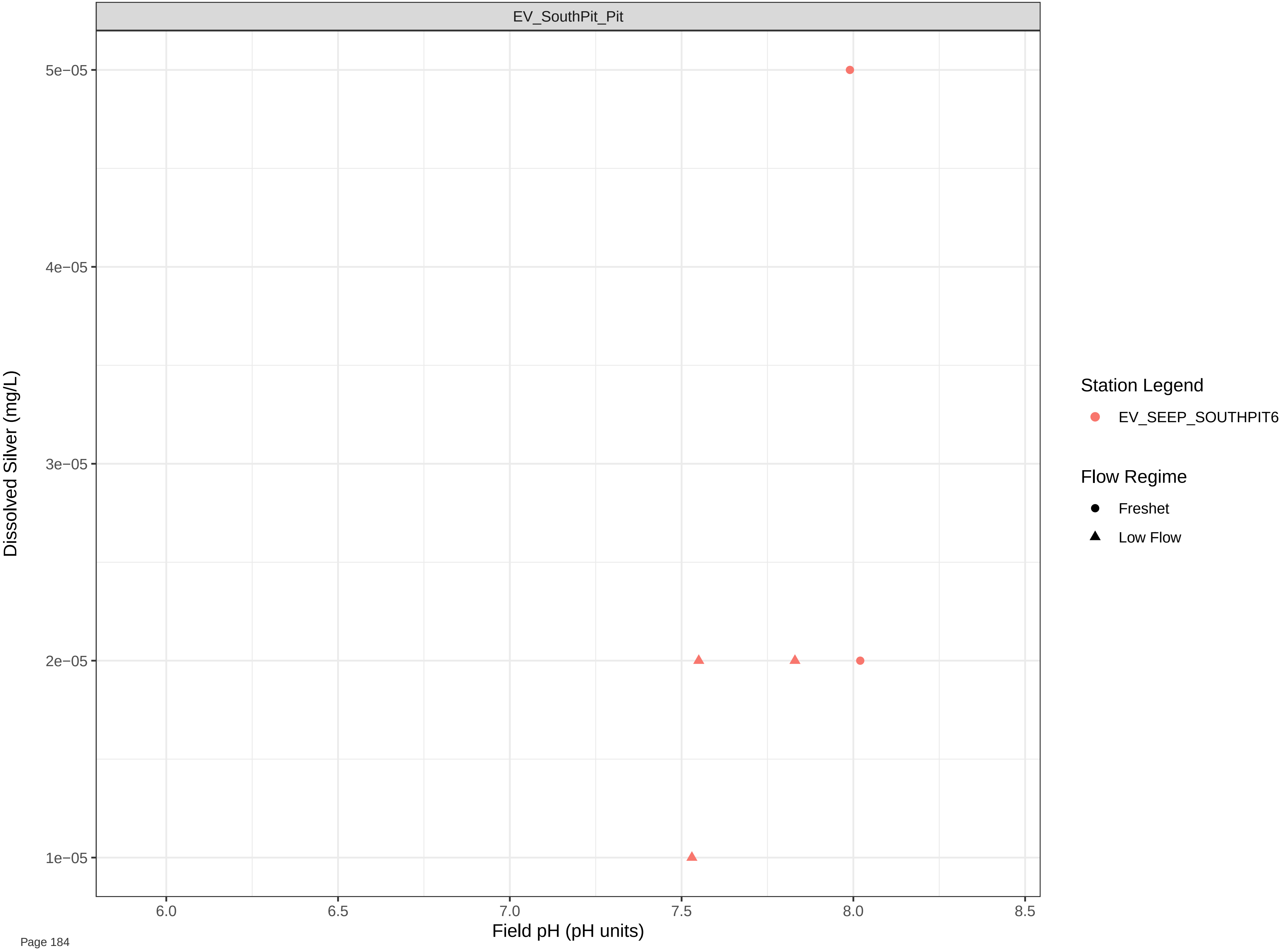

EV_CCR/TP
Dissolved Silver (mg/L)
0.050
0.025
0.000
−0.025
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

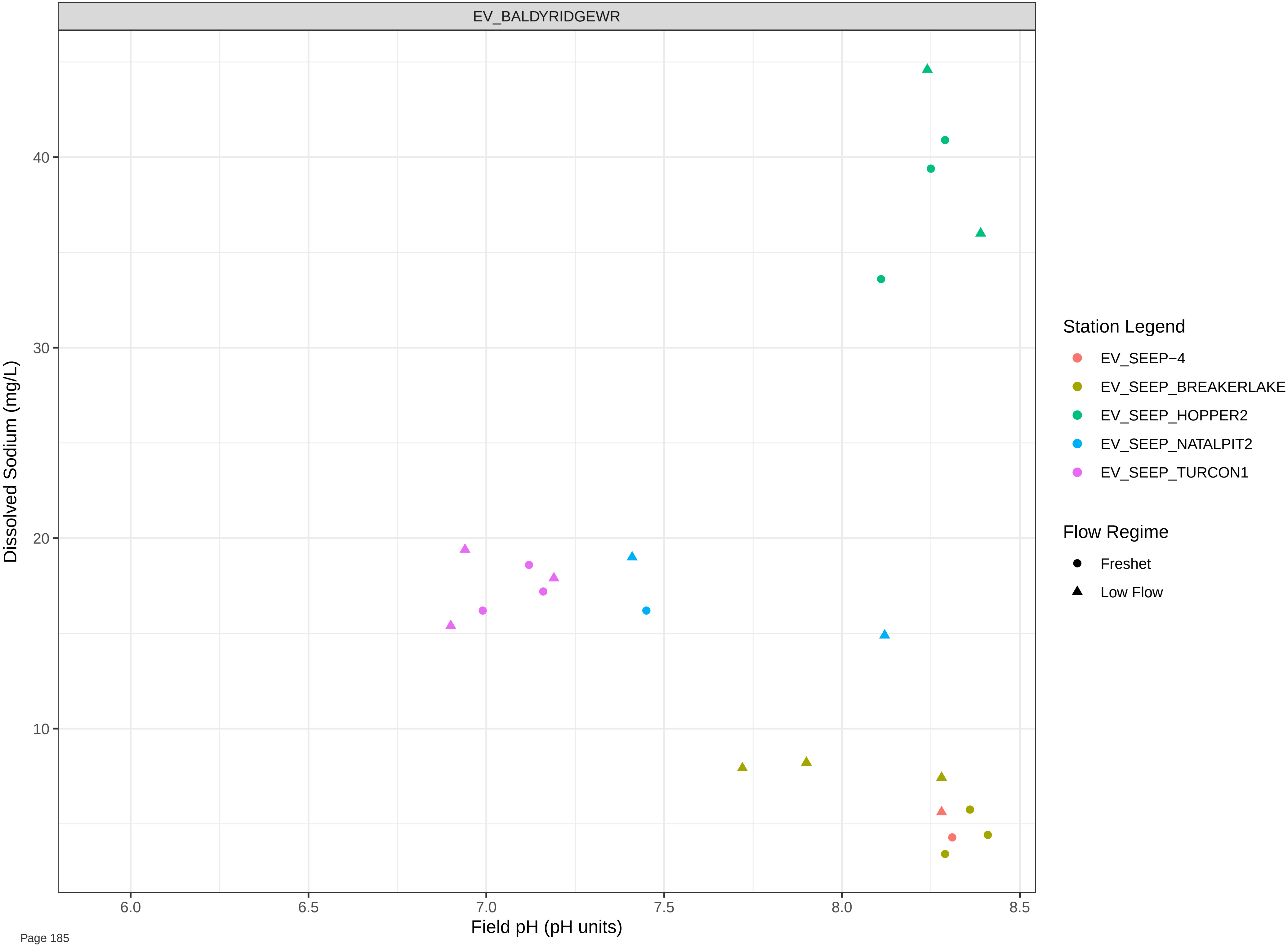

EV_CEDARWR
Dissolved Silver (mg/L)
0.050
0.025
0.000
−0.025
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

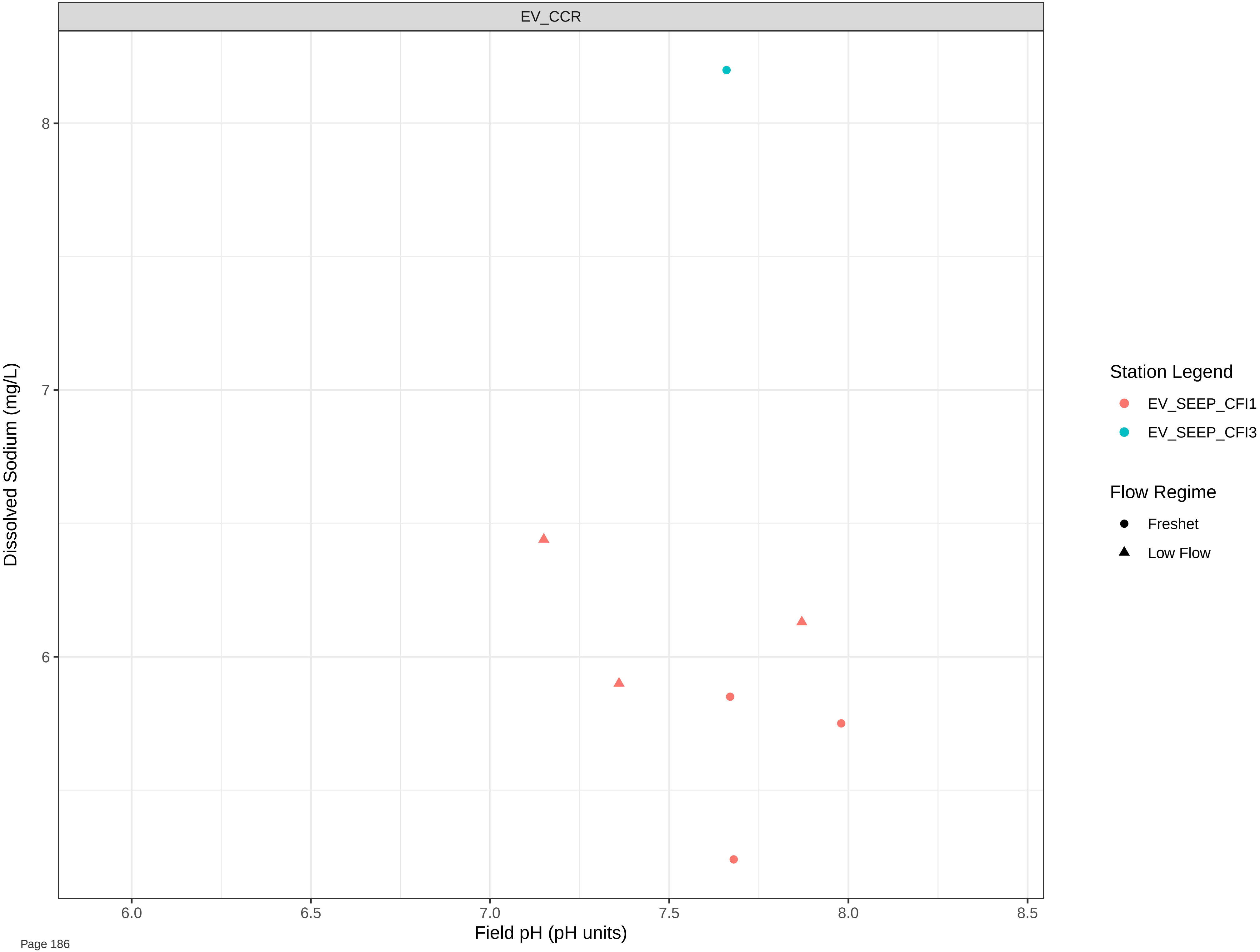

EV_Erickson_WR
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

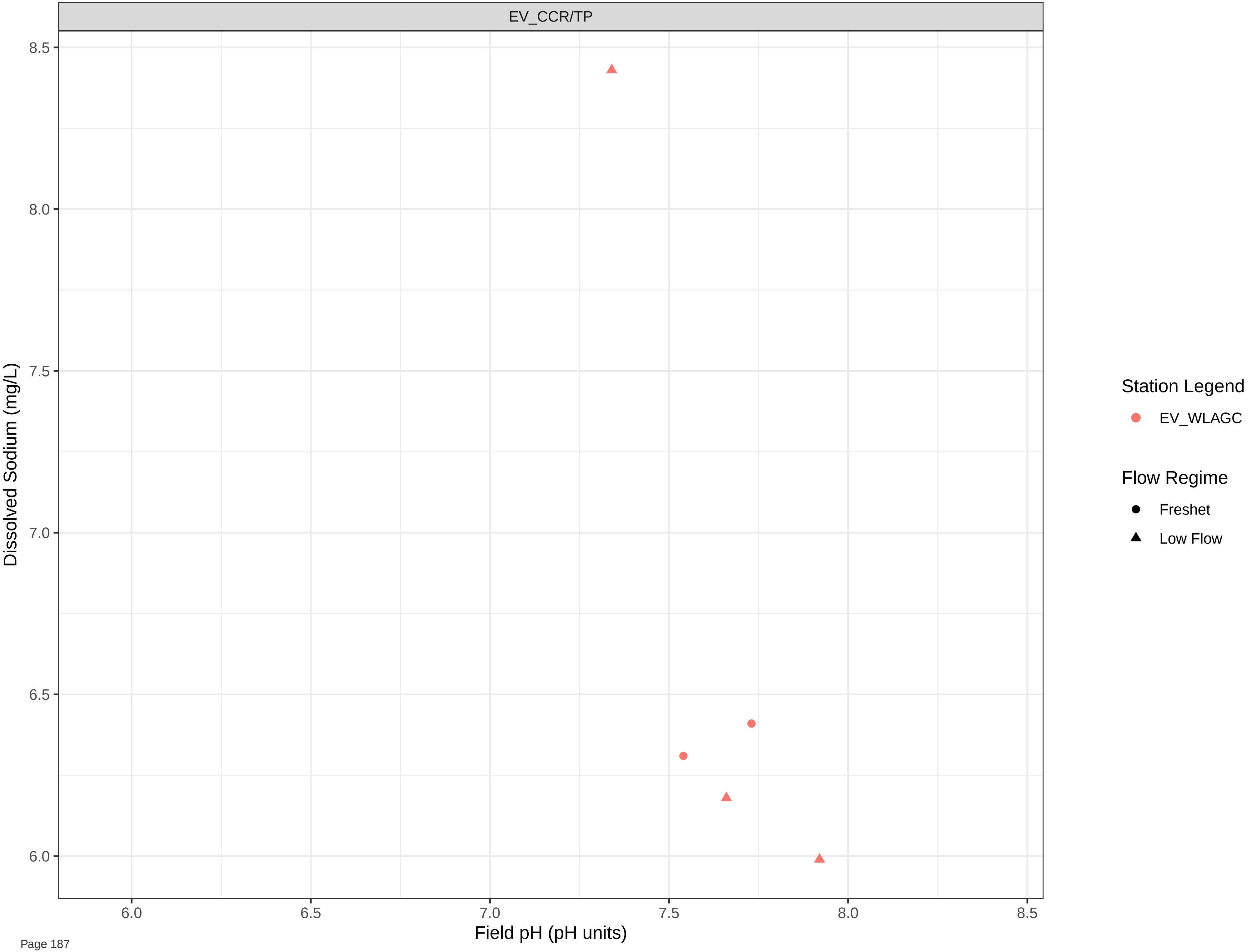

EV_PLANT
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

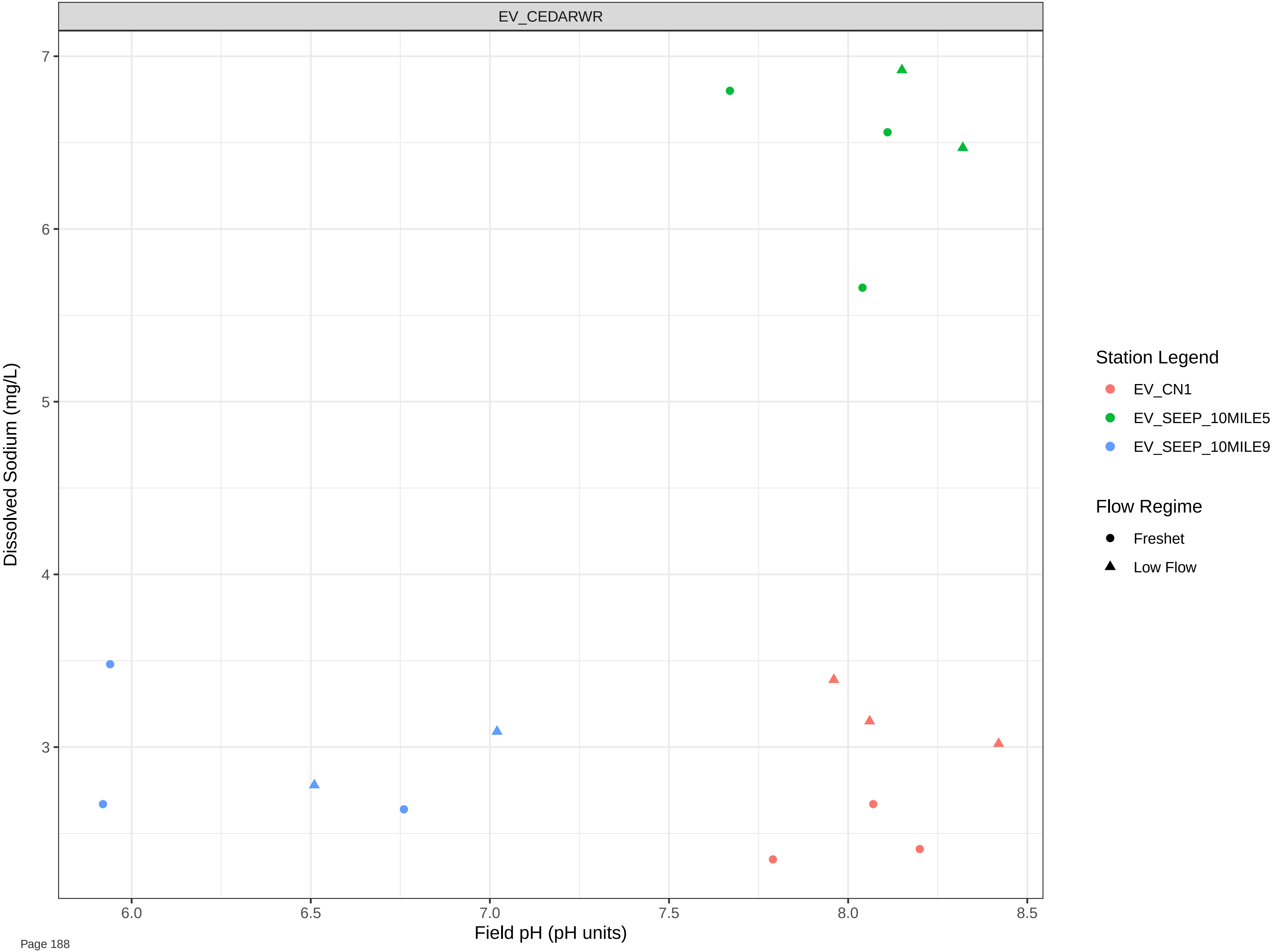

EV_SOUTHSLOPE
Dissolved Silver (mg/L)
0.050
0.025
0.000
−0.025
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

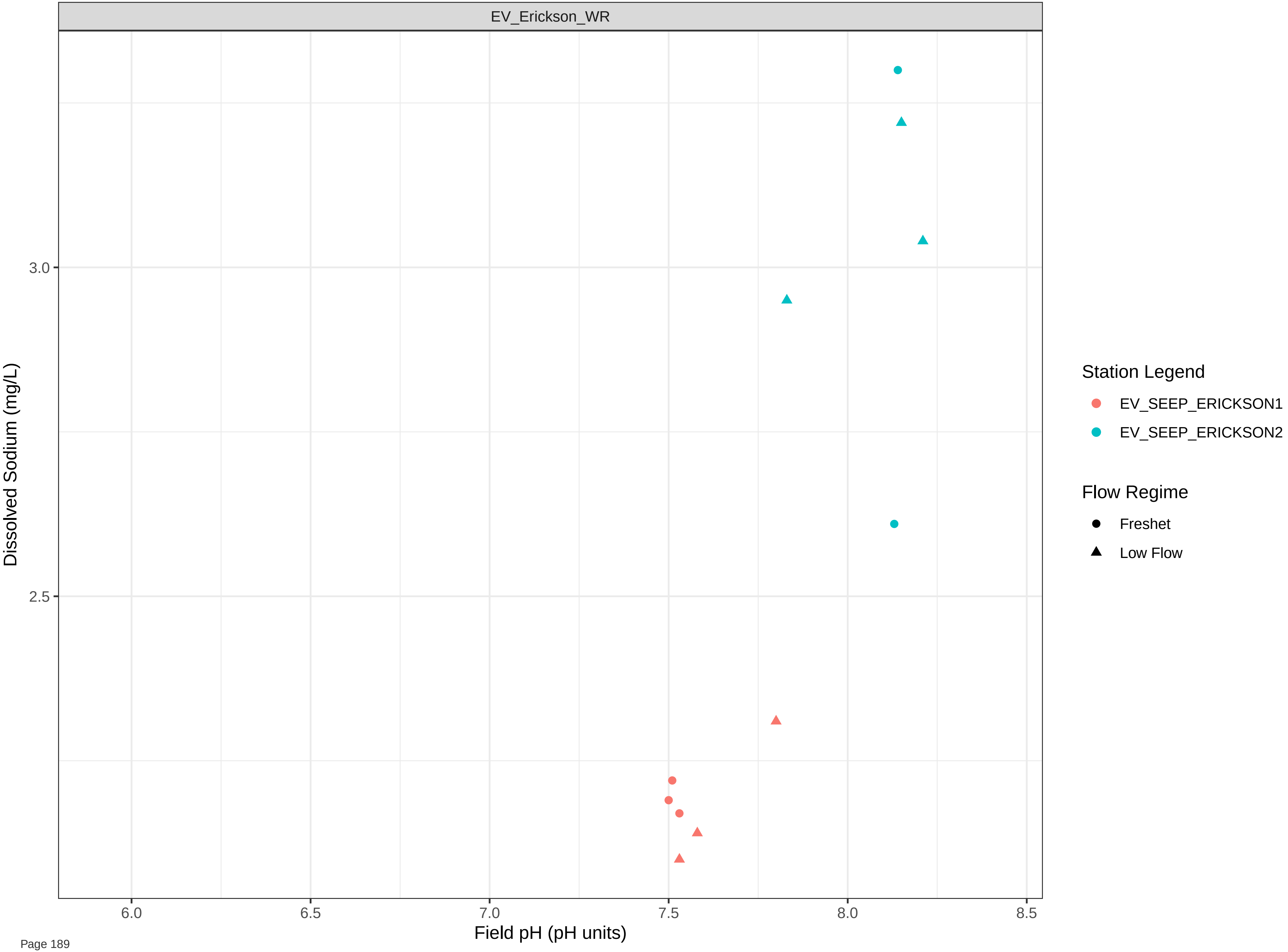

EV_SouthPit_Pit
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

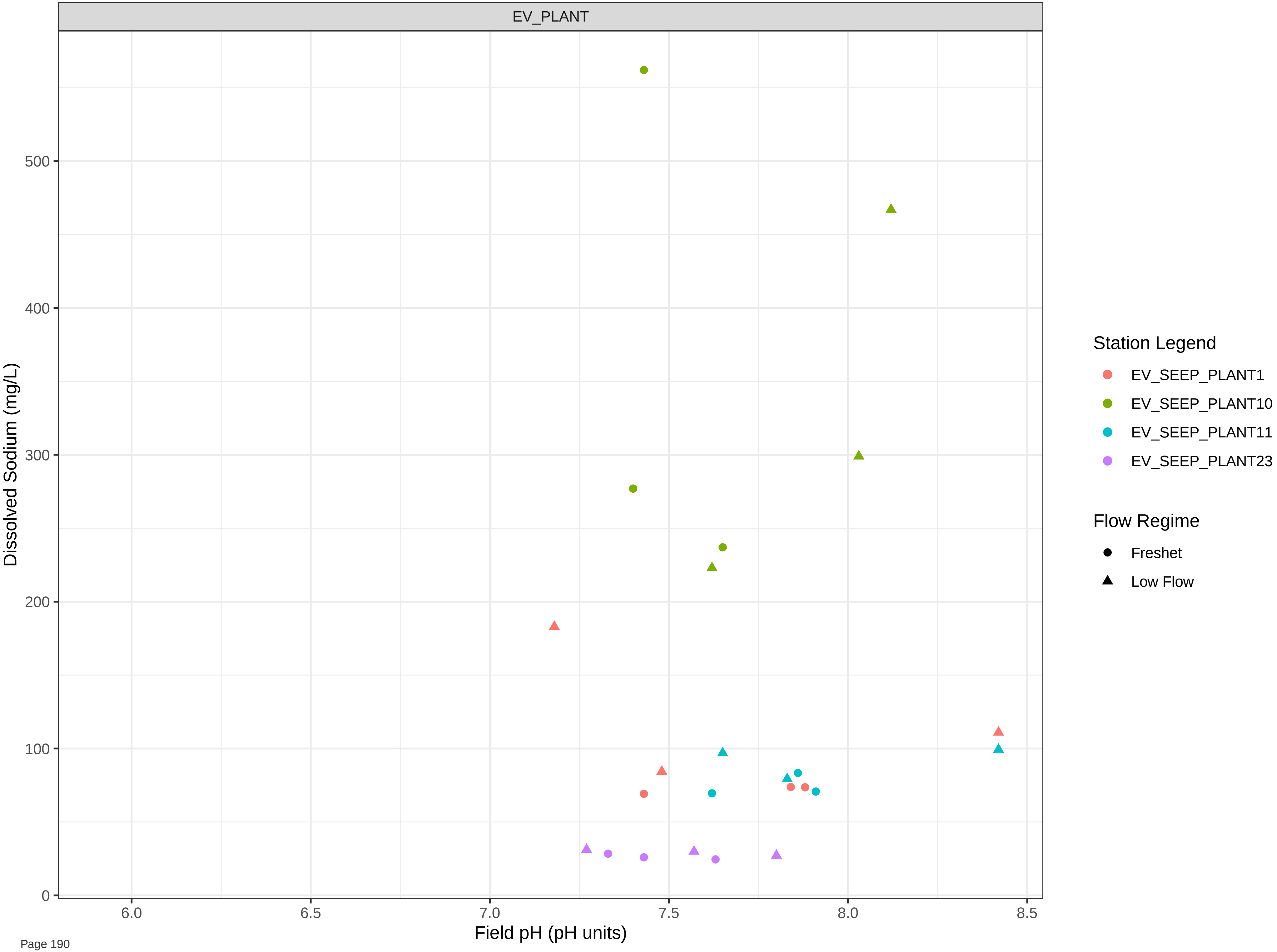

EV_BALDYRIDGEWR
Dissolved Sodium (mg/L)
40
30
20
10
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

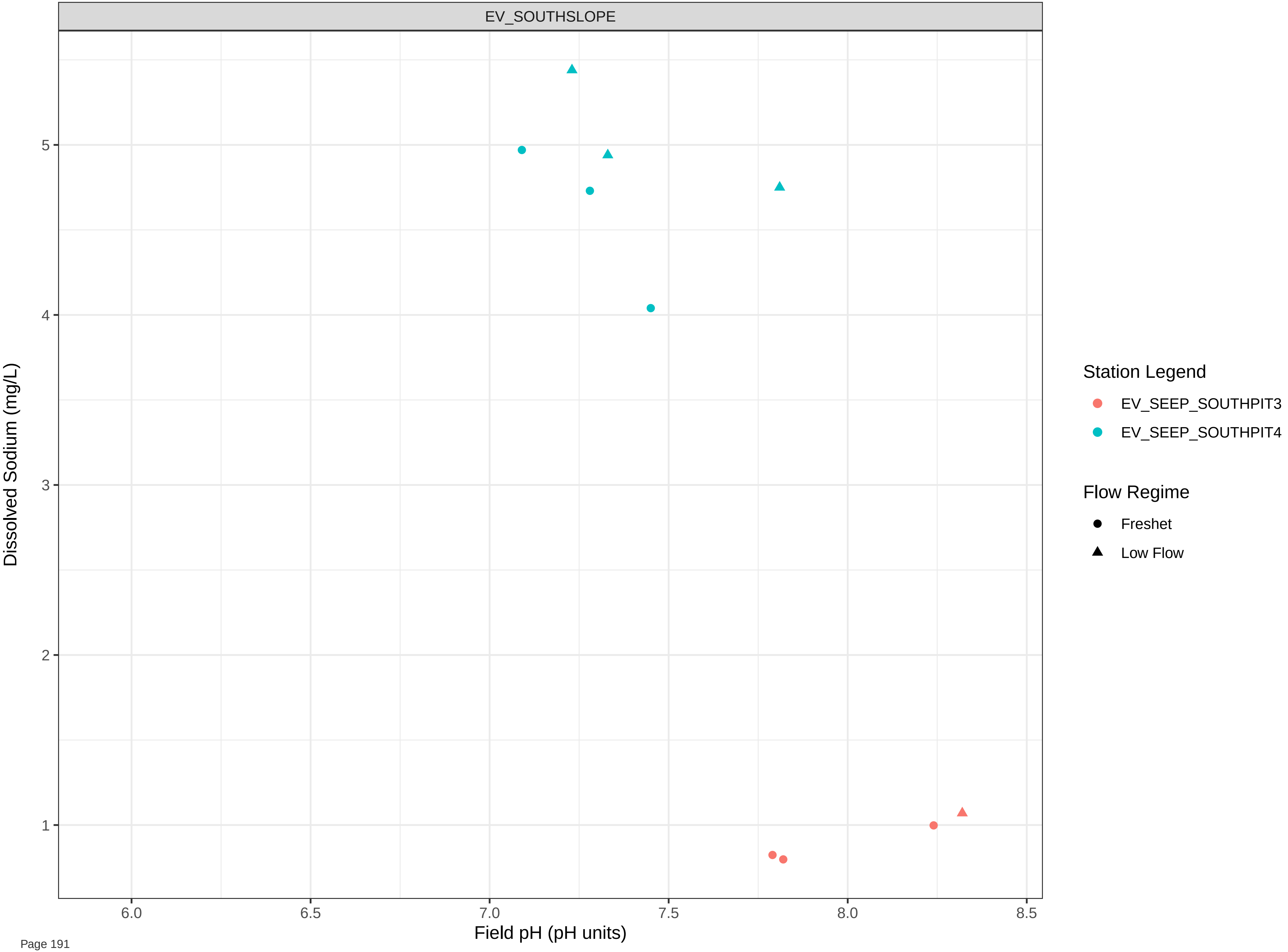

EV_CCR
Dissolved Sodium (mg/L)
8
7
6
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

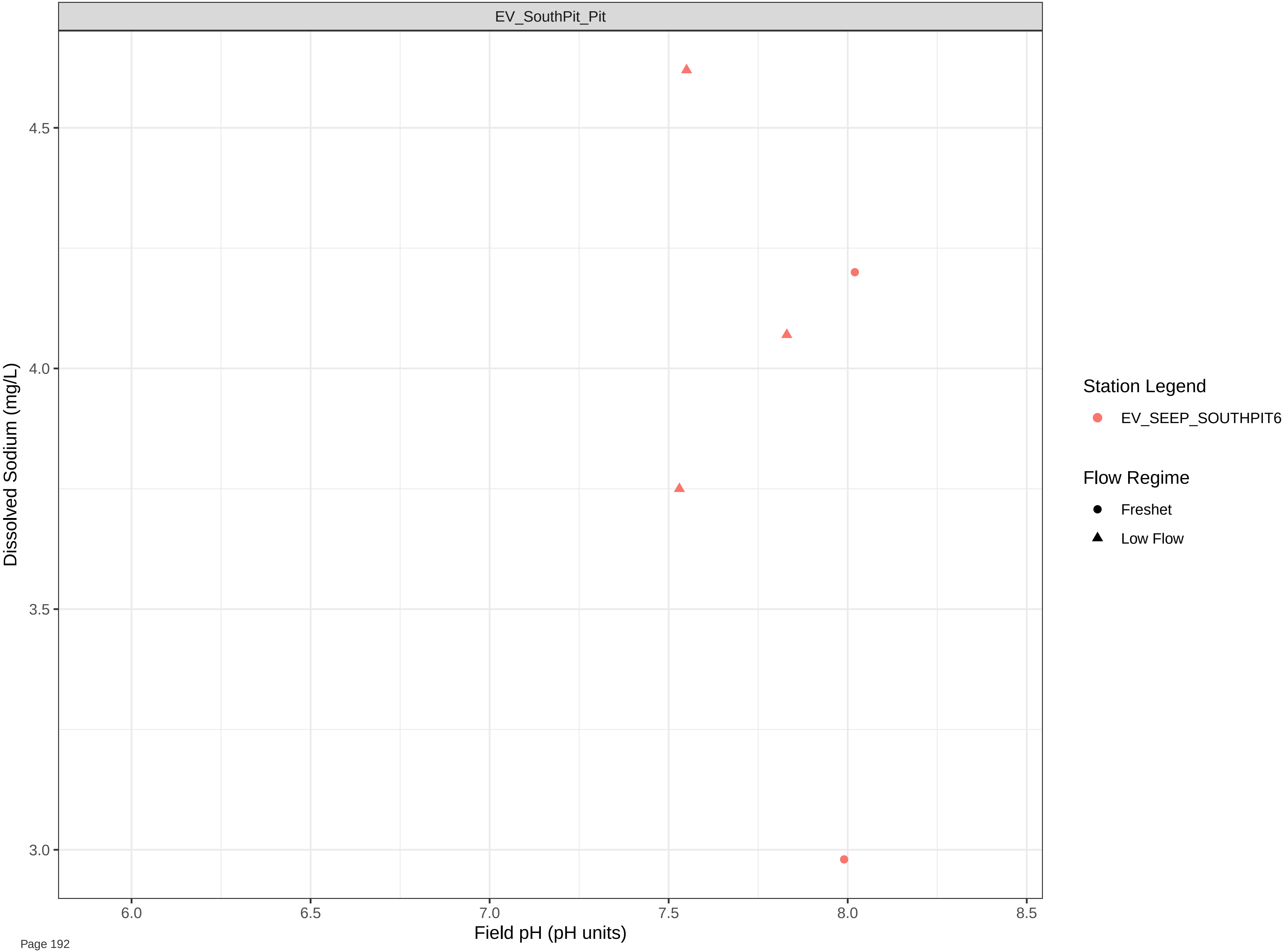

EV_CCR/TP
Dissolved Sodium (mg/L)
8.5
8.0
7.5
7.0
6.5
6.0
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

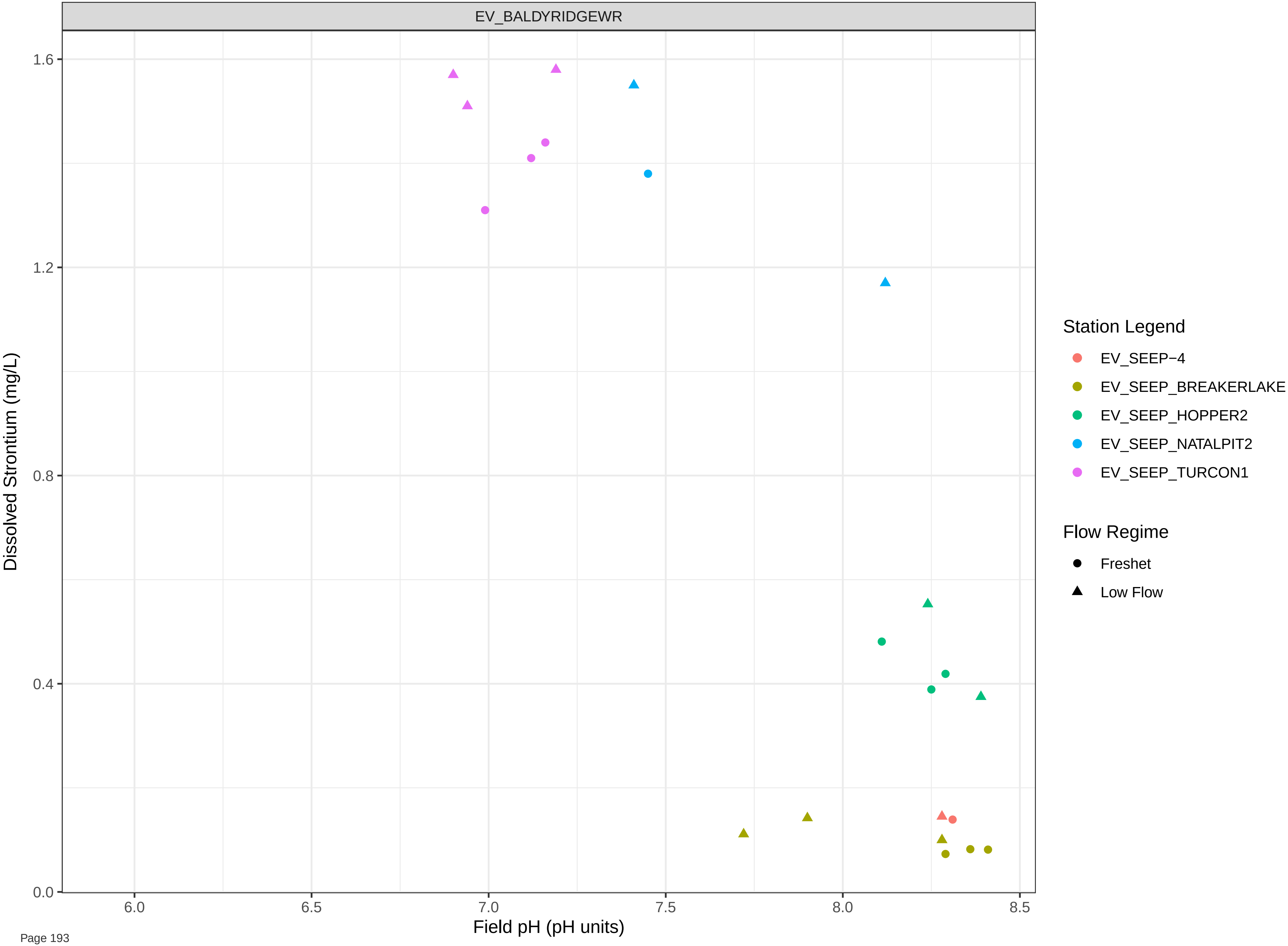

EV_CEDARWR
Dissolved Sodium (mg/L)
7
6
5
4
3
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

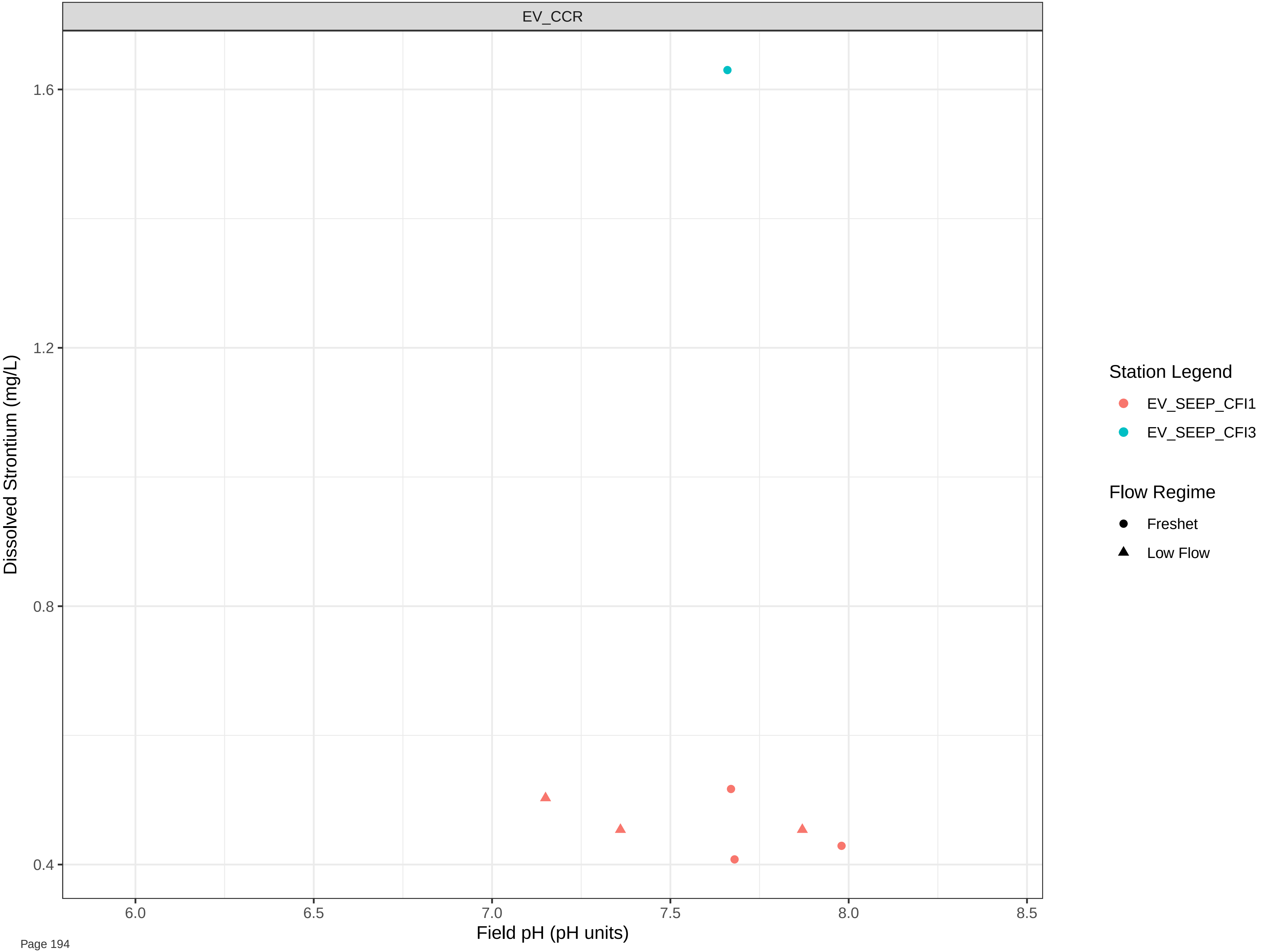

EV_Erickson_WR
Dissolved Sodium (mg/L)
3.0
2.5
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

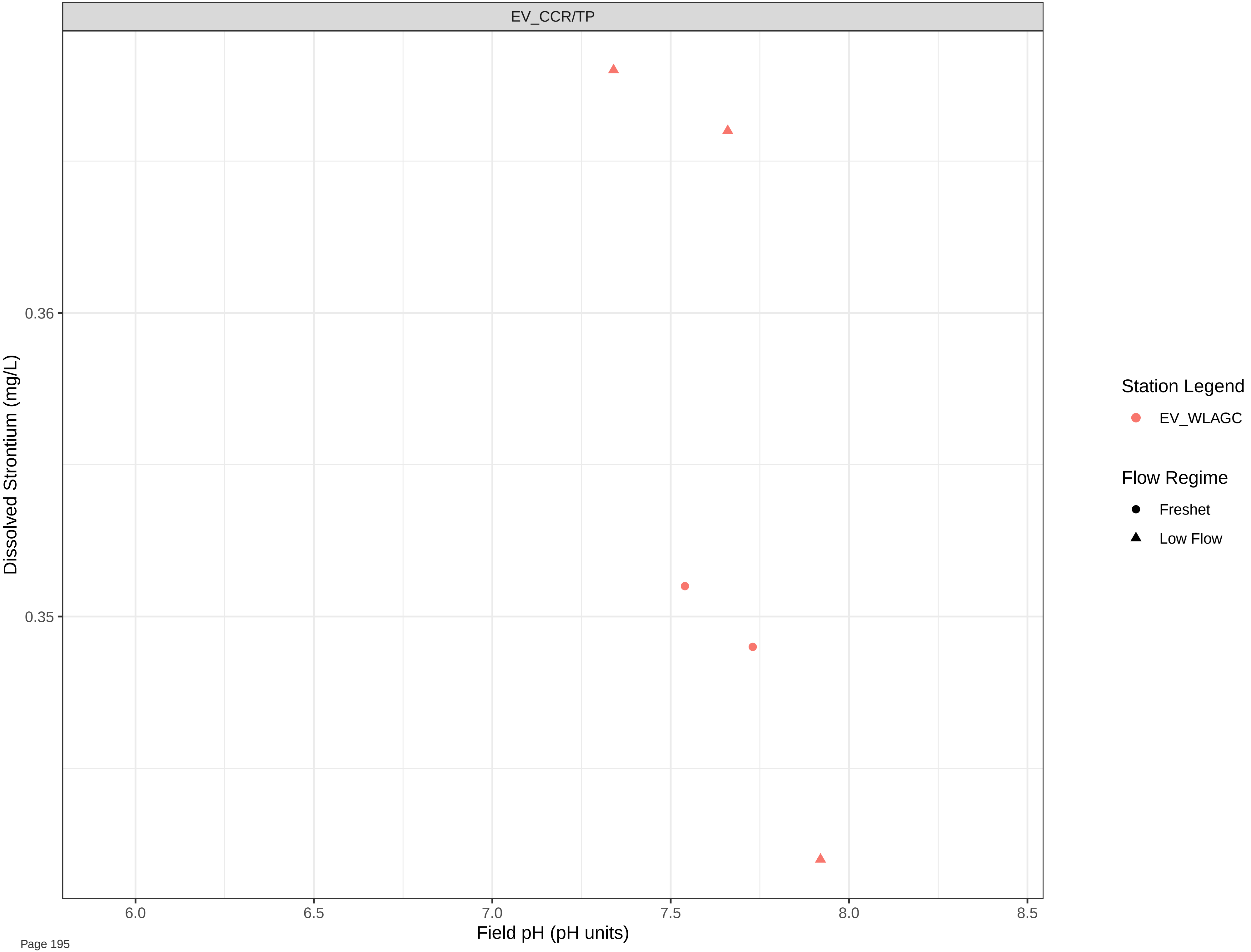

EV_PLANT
Dissolved Sodium (mg/L)
500
400
300
200
100
0
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

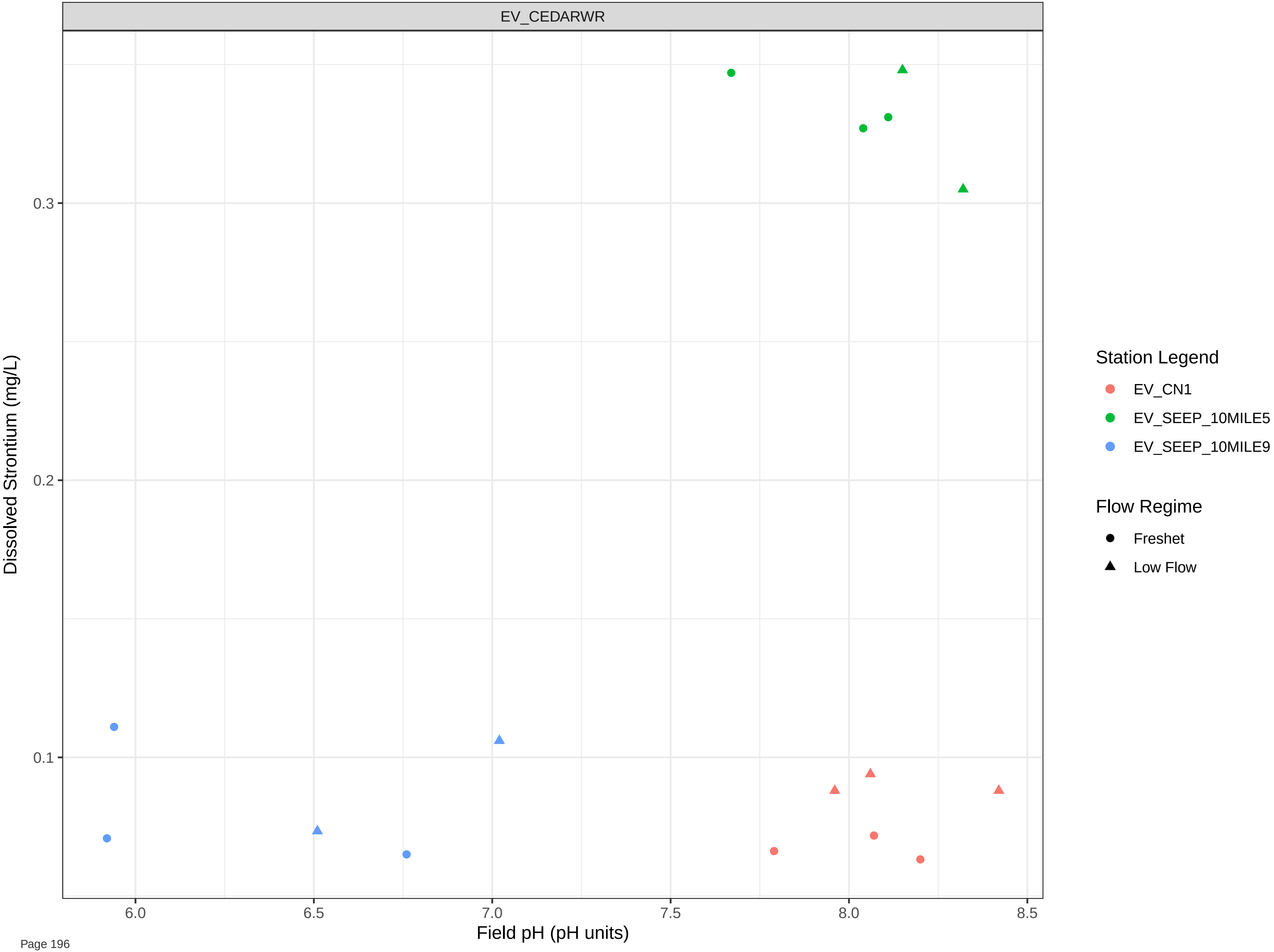

EV_SOUTHSLOPE
Dissolved Sodium (mg/L)
5
4
3
2
1
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

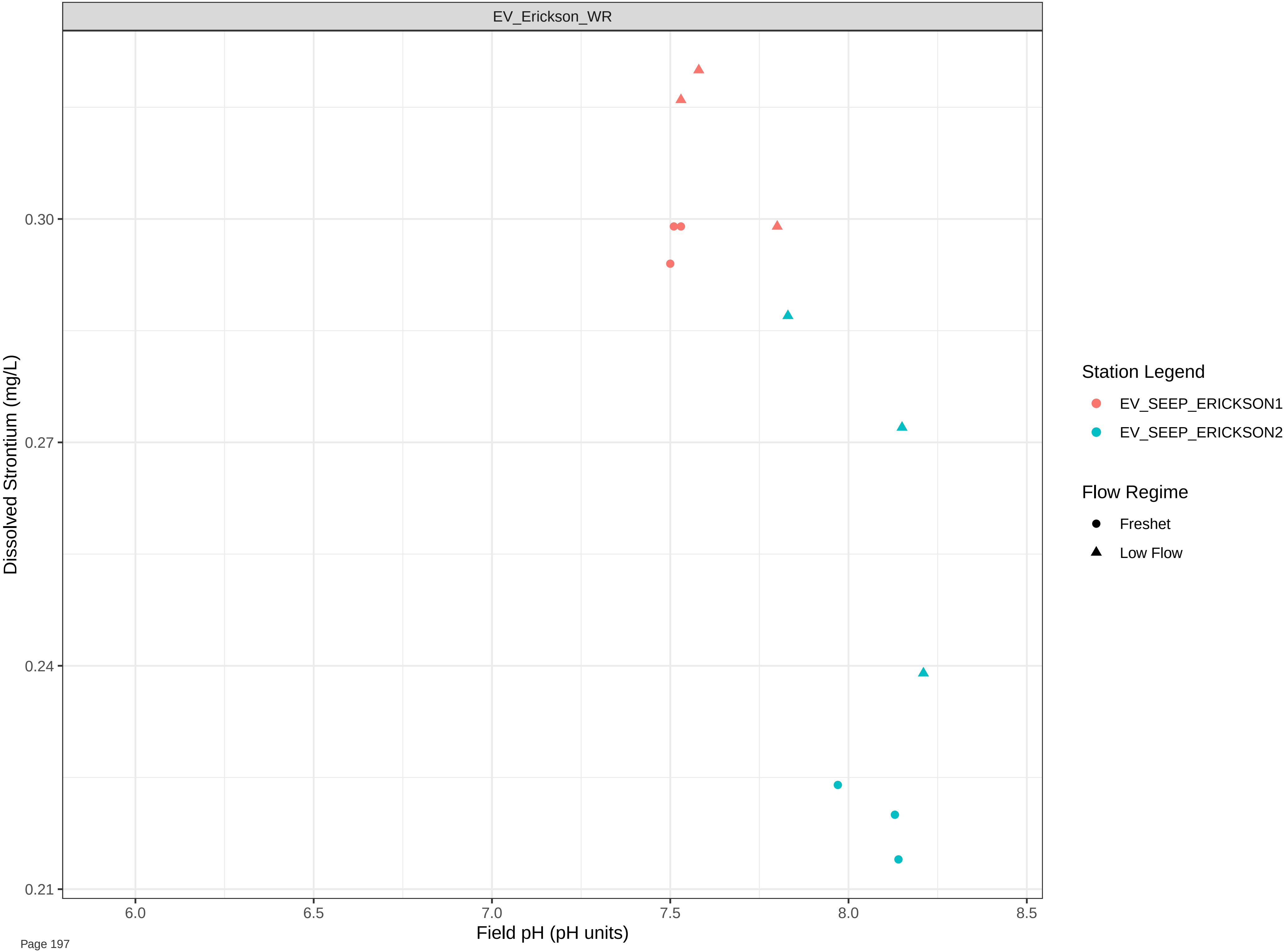

EV_SouthPit_Pit
Dissolved Sodium (mg/L)
4.5
4.0
3.5
3.0
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

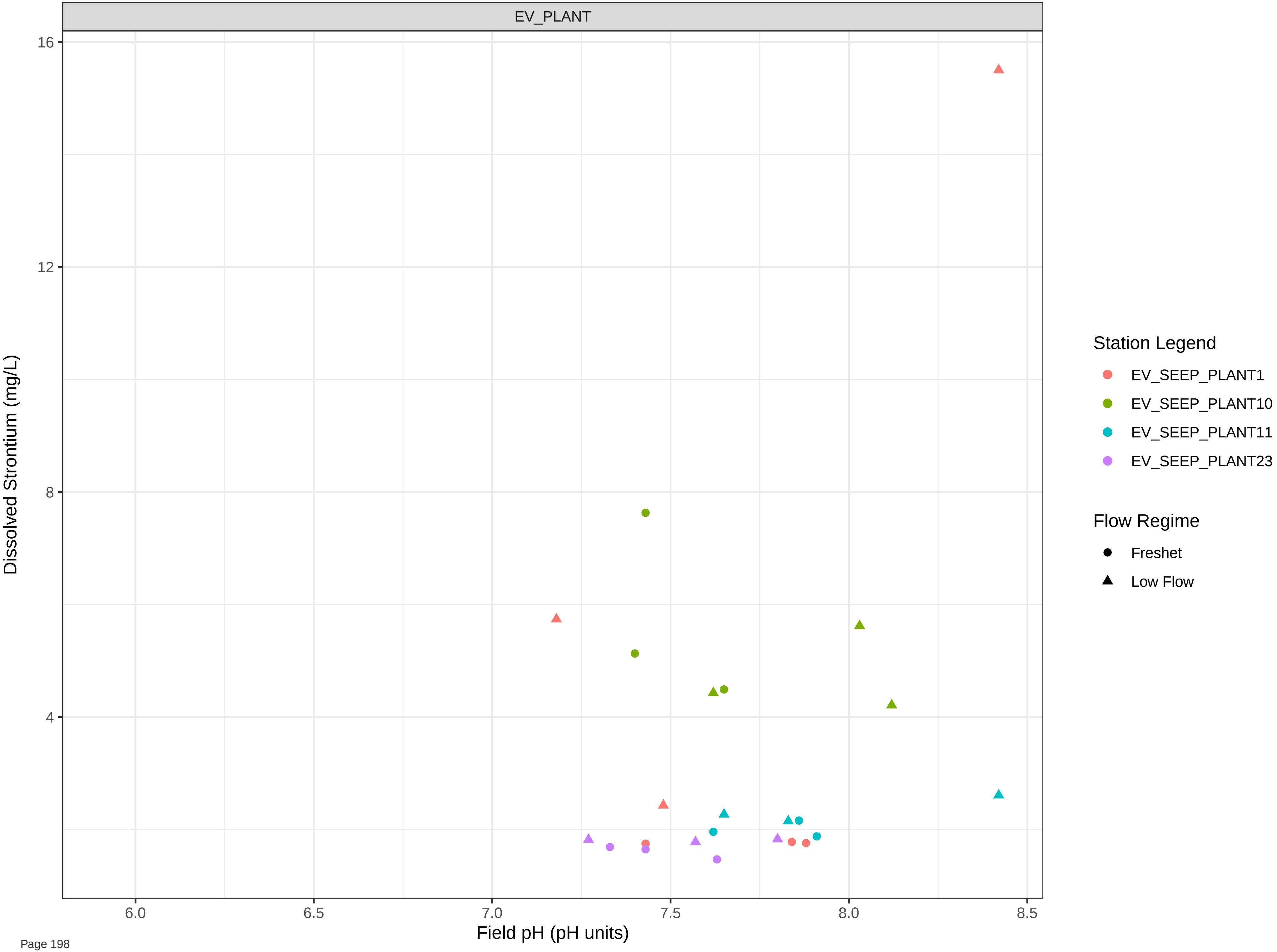

EV_BALDYRIDGEWR
Dissolved Strontium (mg/L)
1.6
1.2
0.8
0.4
0.0
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

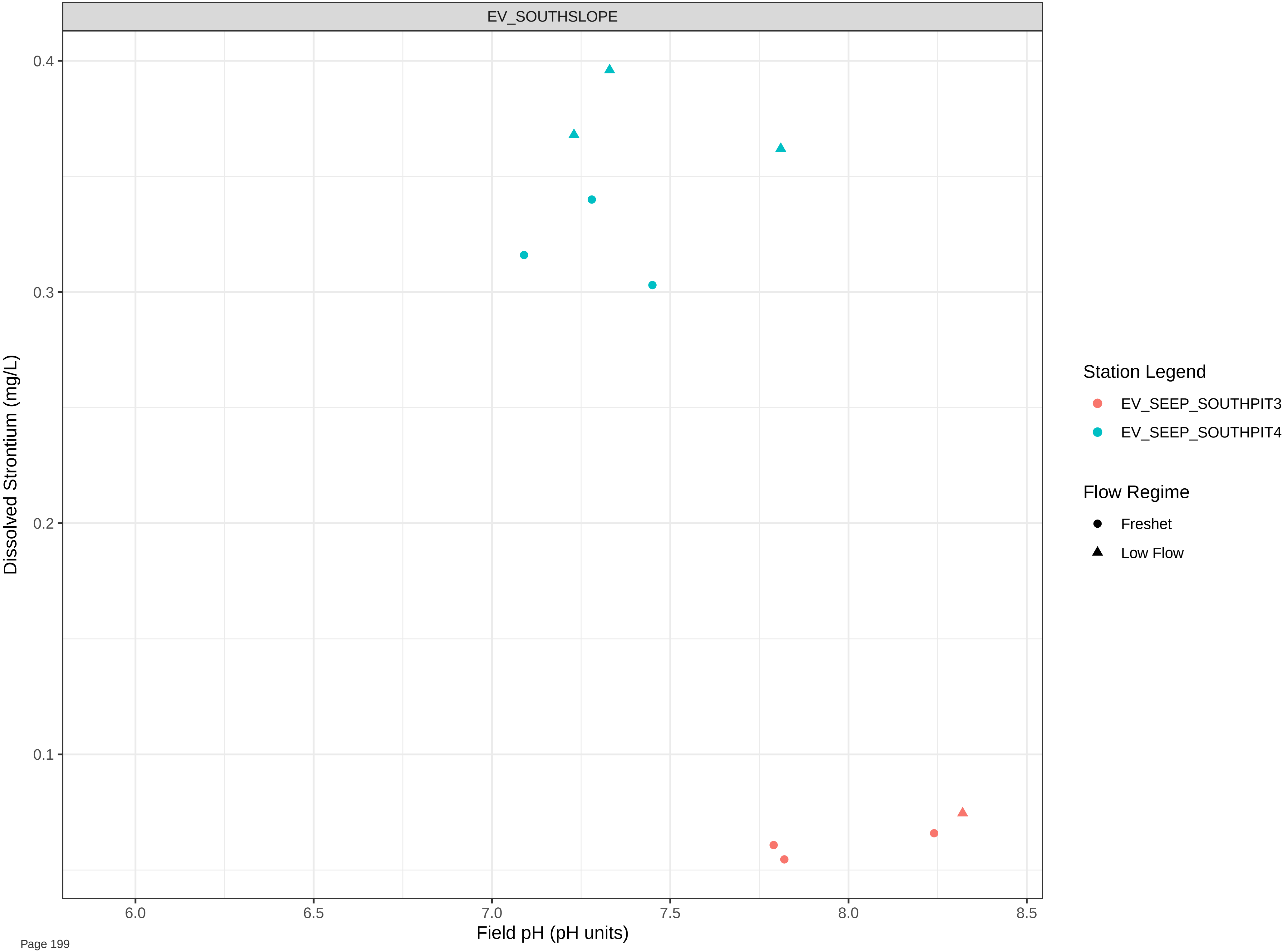

EV_CCR
Dissolved Strontium (mg/L)
1.6
1.2
0.8
0.4
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

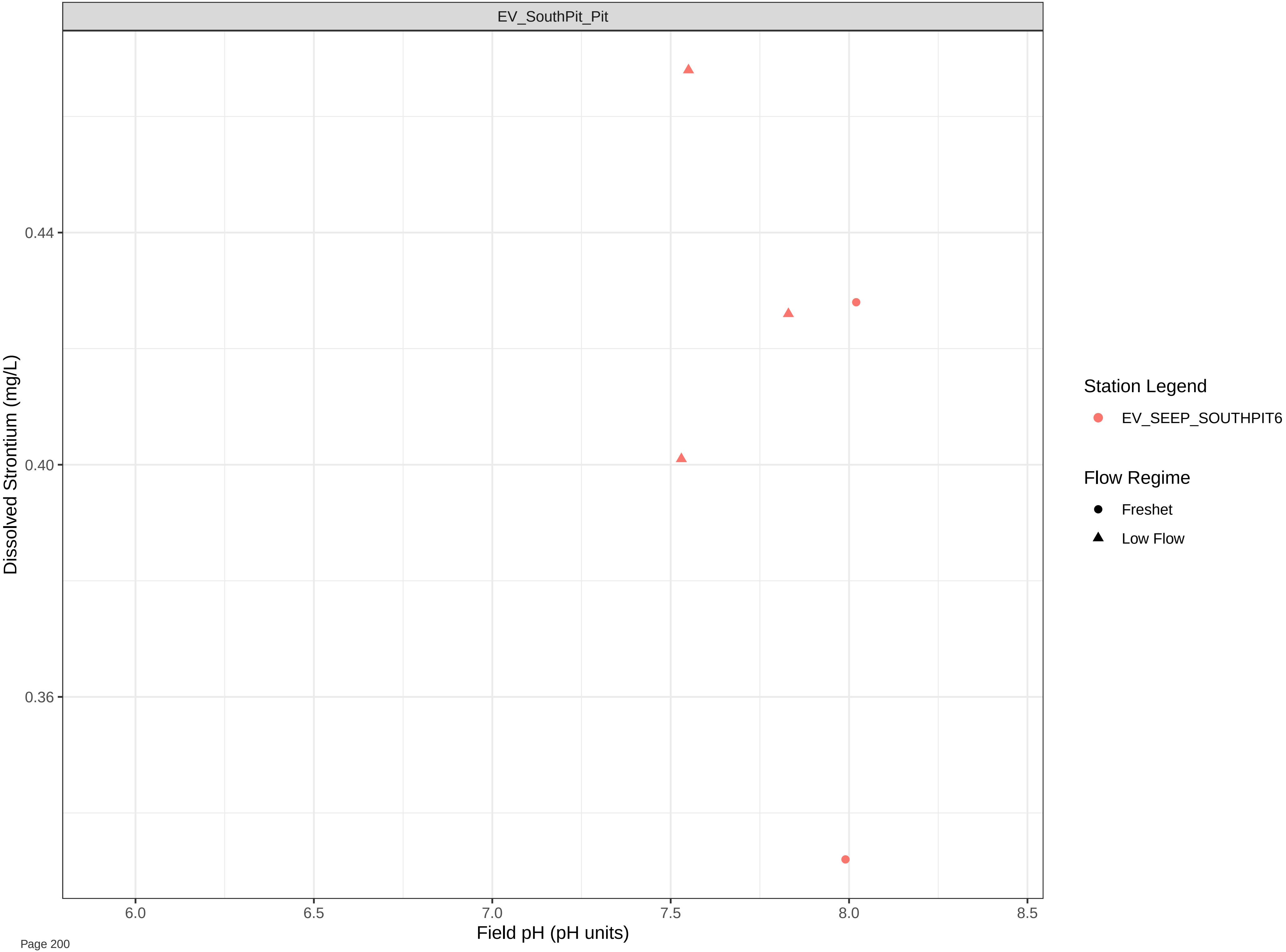

EV_CCR/TP
Dissolved Strontium (mg/L)
0.36
0.35
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

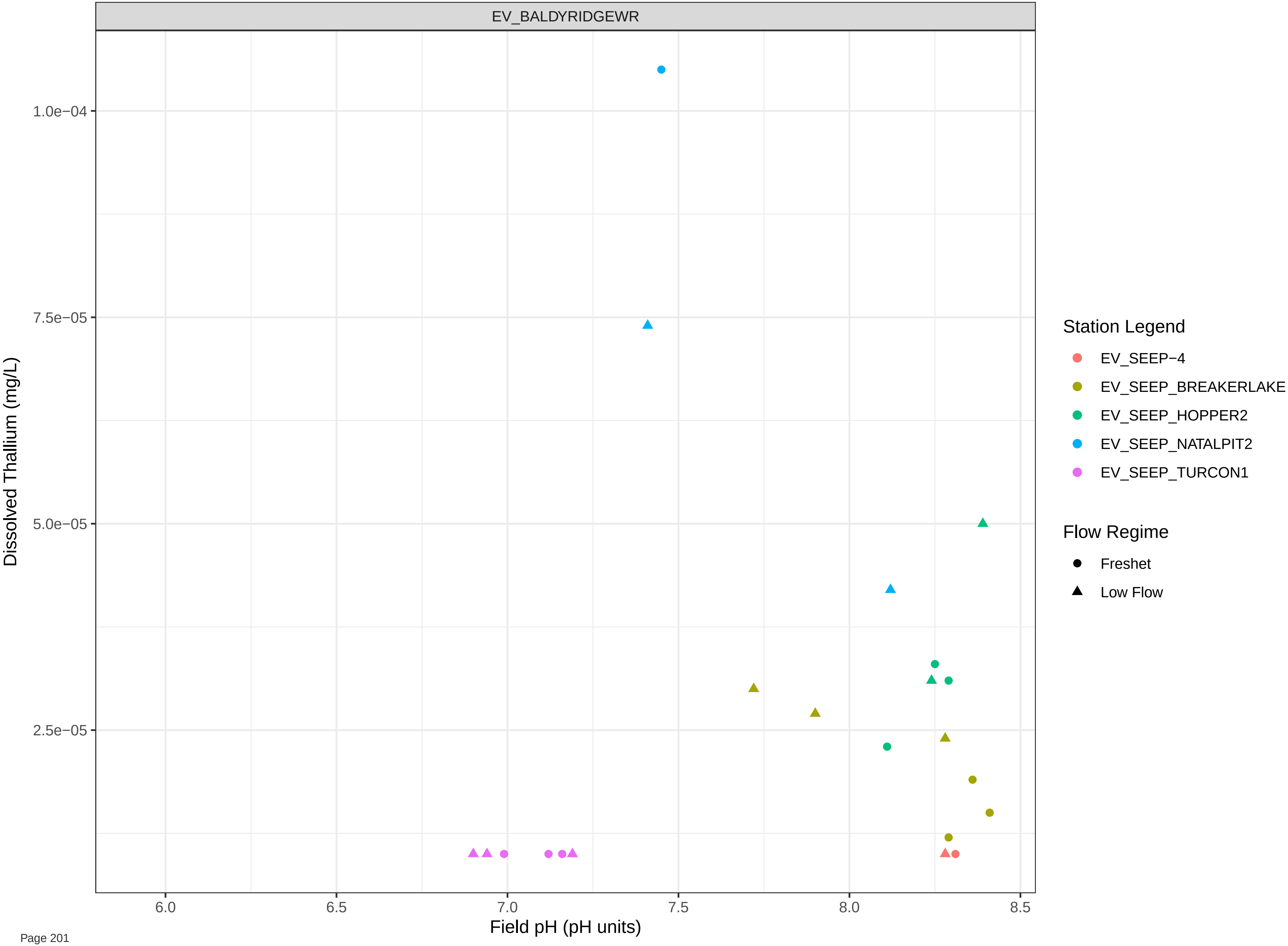

EV_CEDARWR
Dissolved Strontium (mg/L)
0.3
0.2
0.1
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

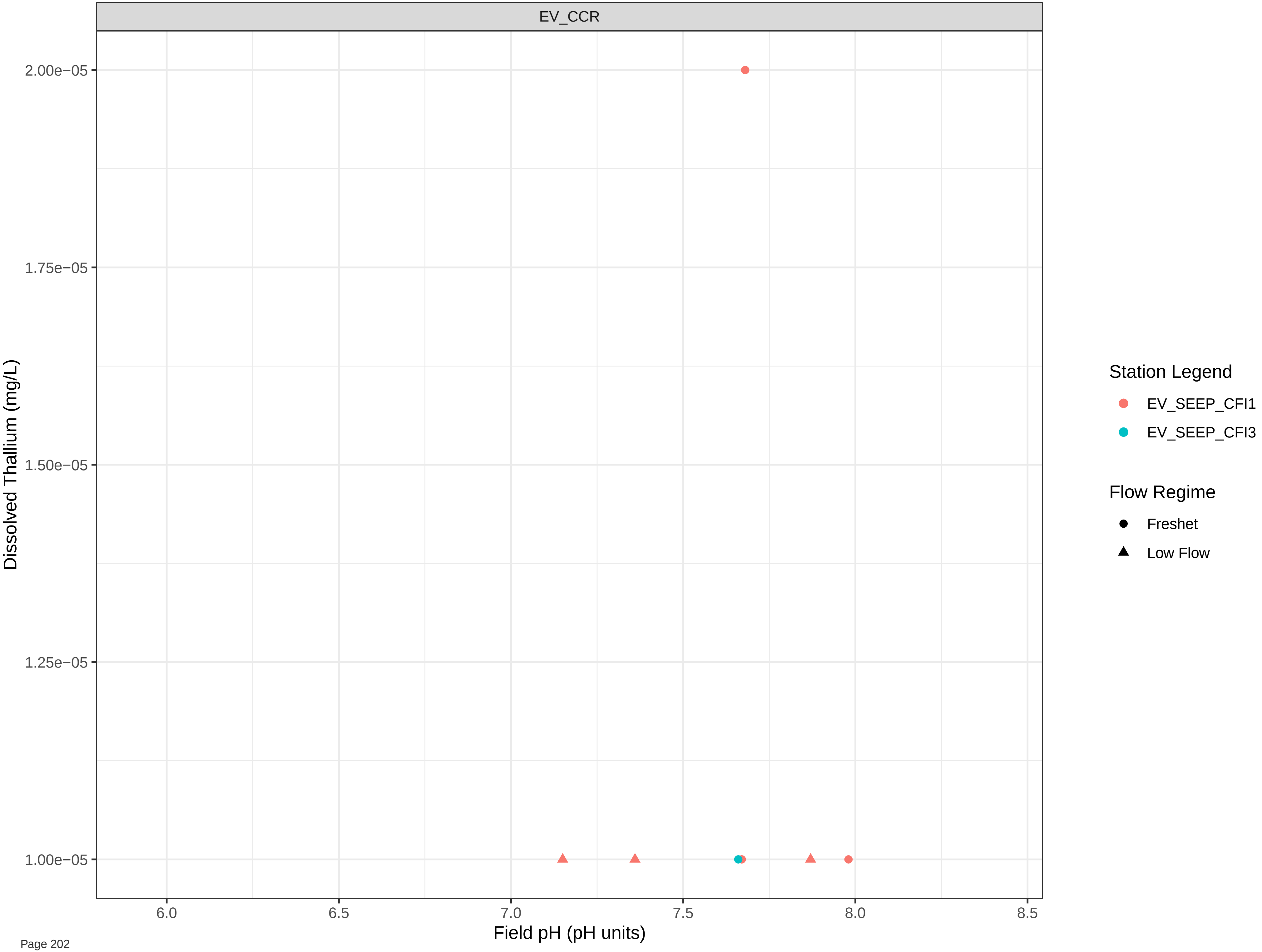

EV_Erickson_WR
Dissolved Strontium (mg/L)
0.30
0.27
0.24
0.21
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

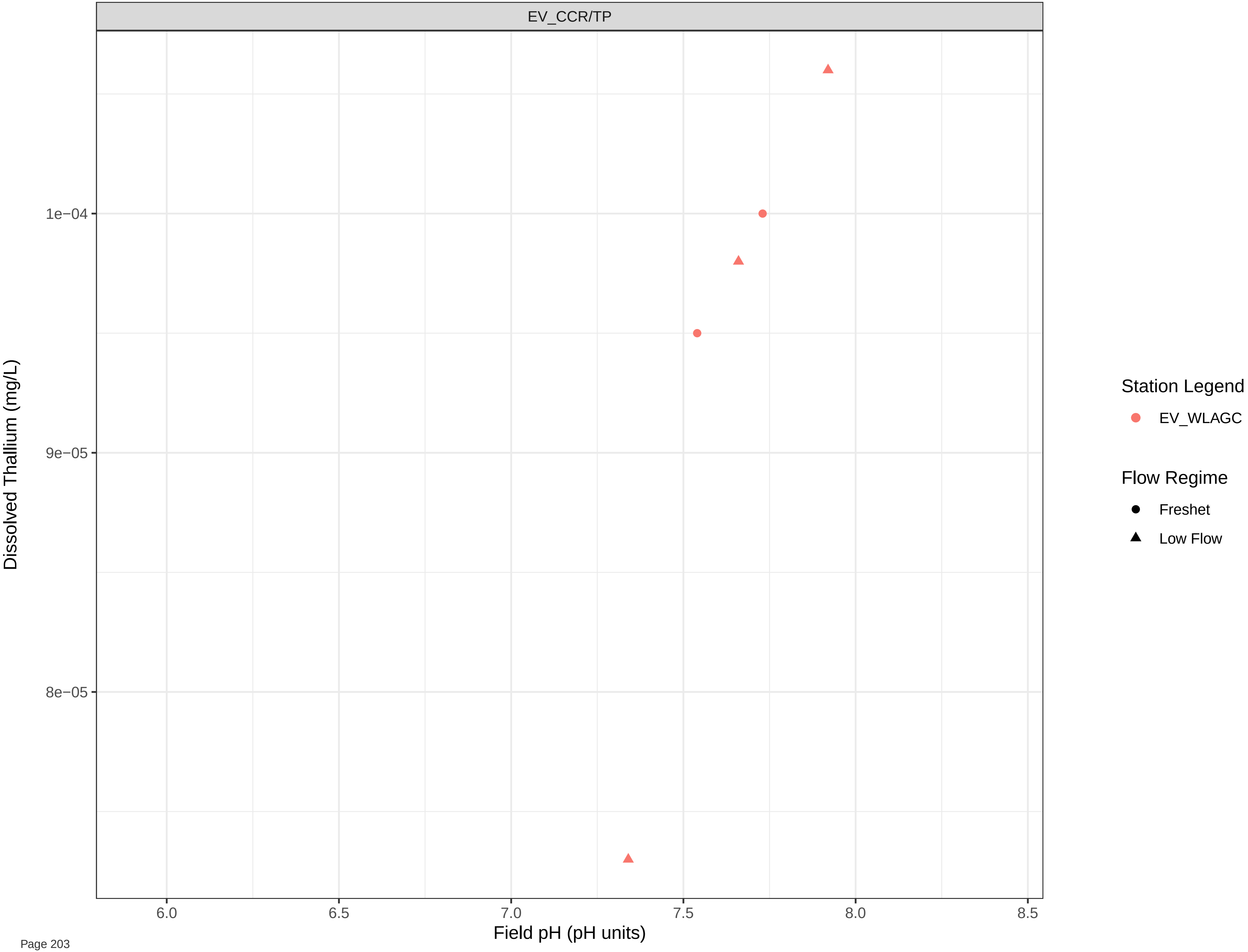

EV_PLANT
Dissolved Strontium (mg/L)
16
12
8
4
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

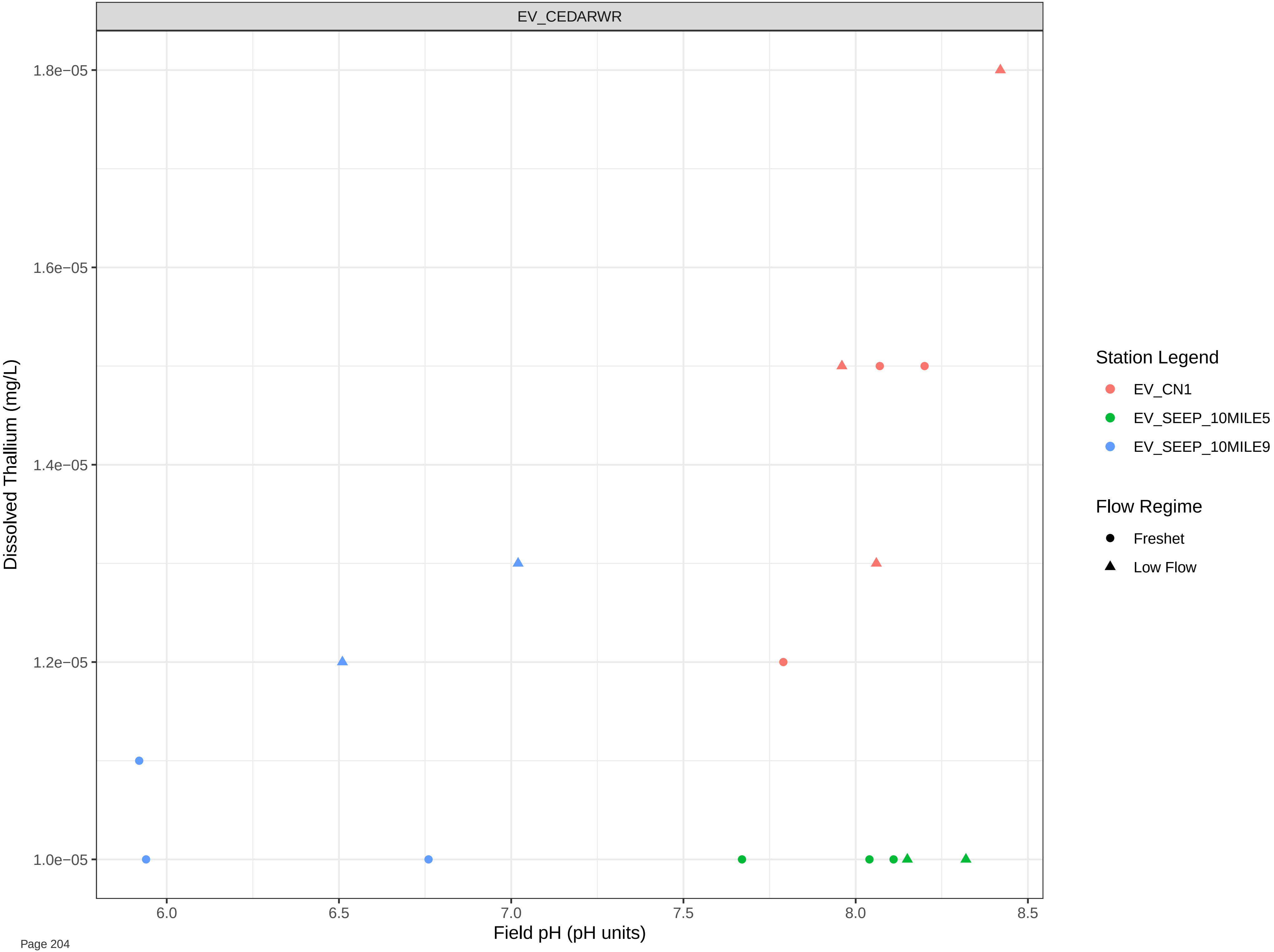

EV_SOUTHSLOPE
Dissolved Strontium (mg/L)
0.4
0.3
0.2
0.1
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

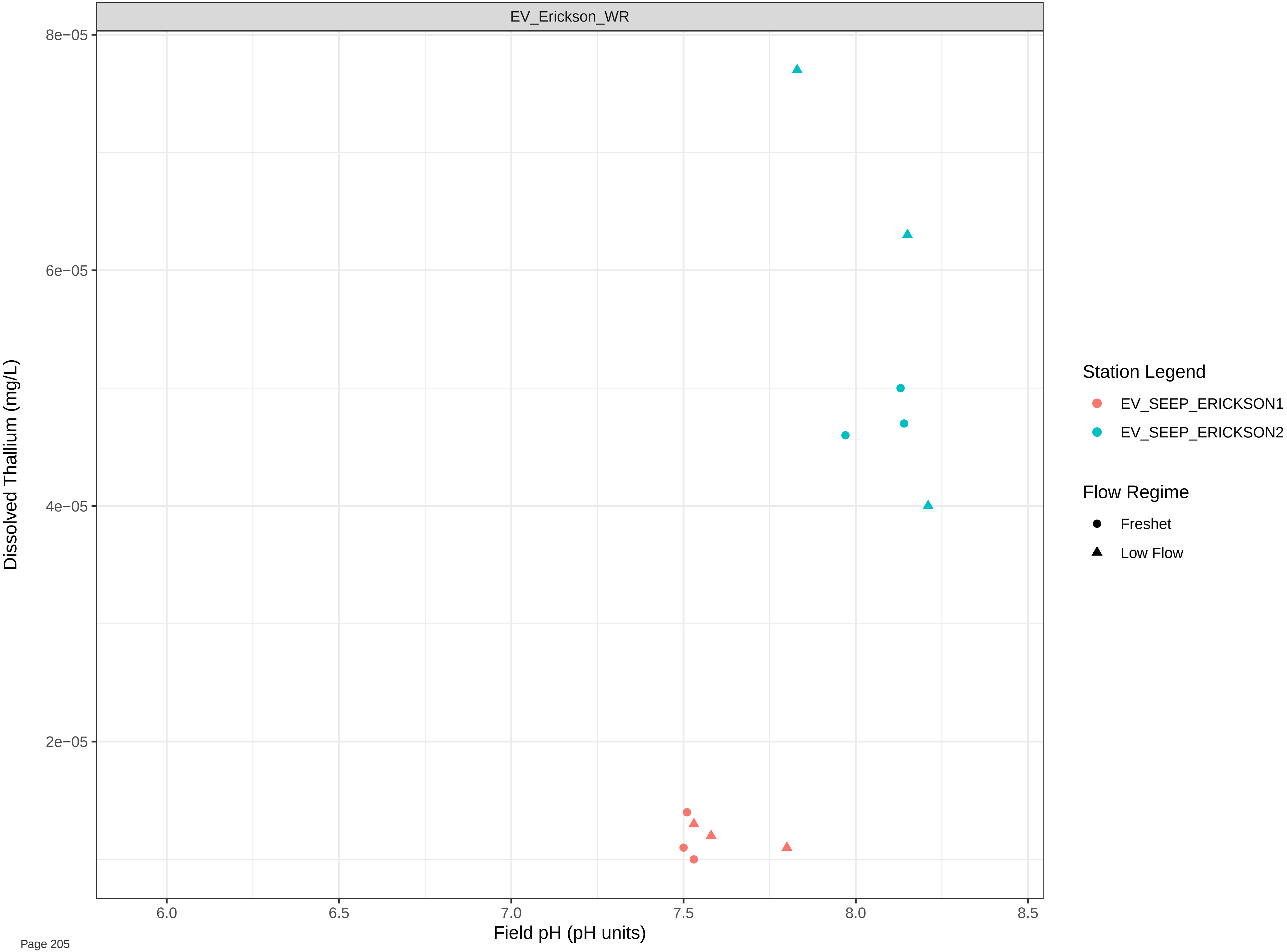

EV_SouthPit_Pit
Dissolved Strontium (mg/L)
0.44
0.40
0.36
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

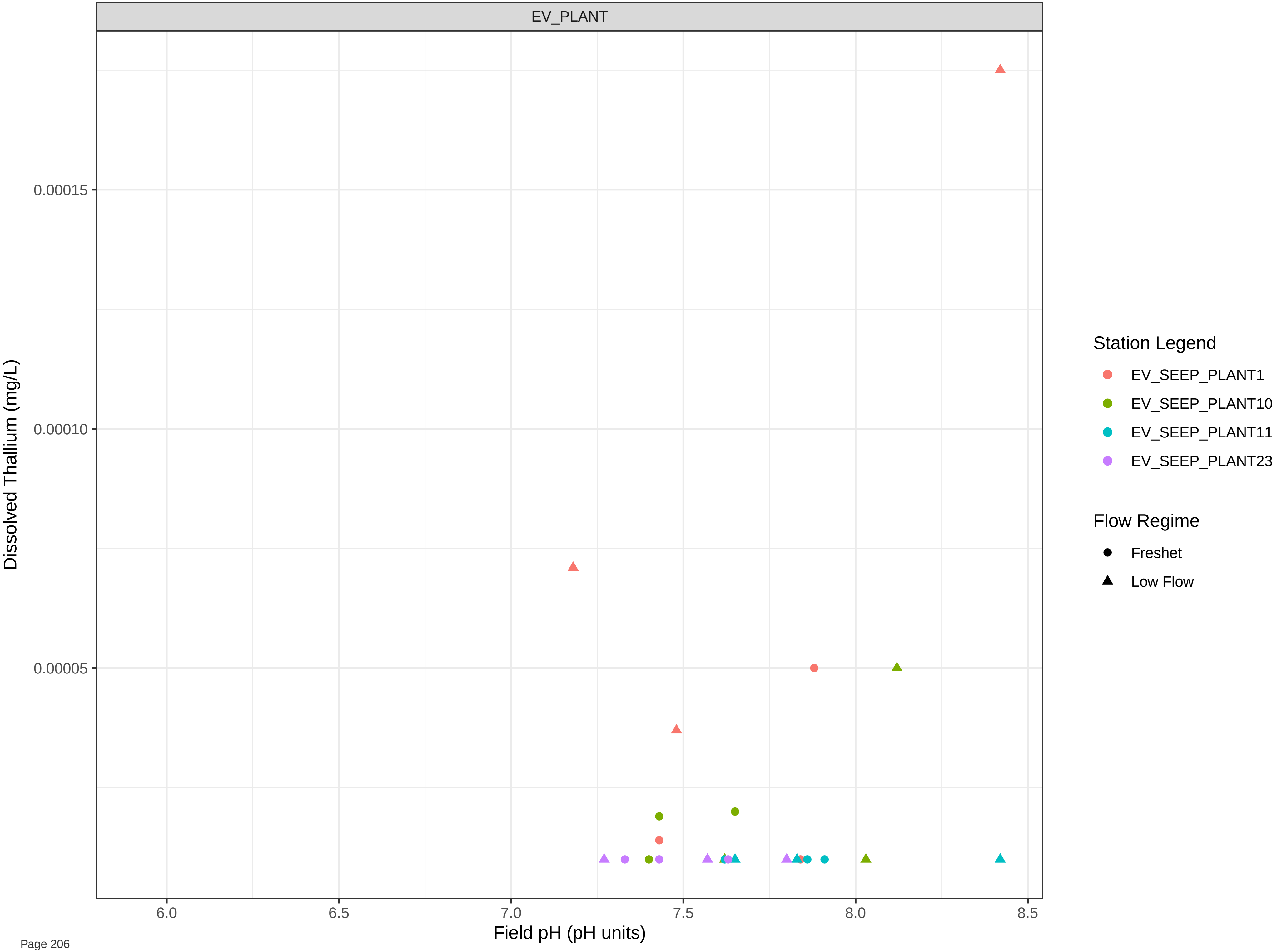

EV_BALDYRIDGEWR
Dissolved Thallium (mg/L)
1.0e−04
7.5e−05
5.0e−05
2.5e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

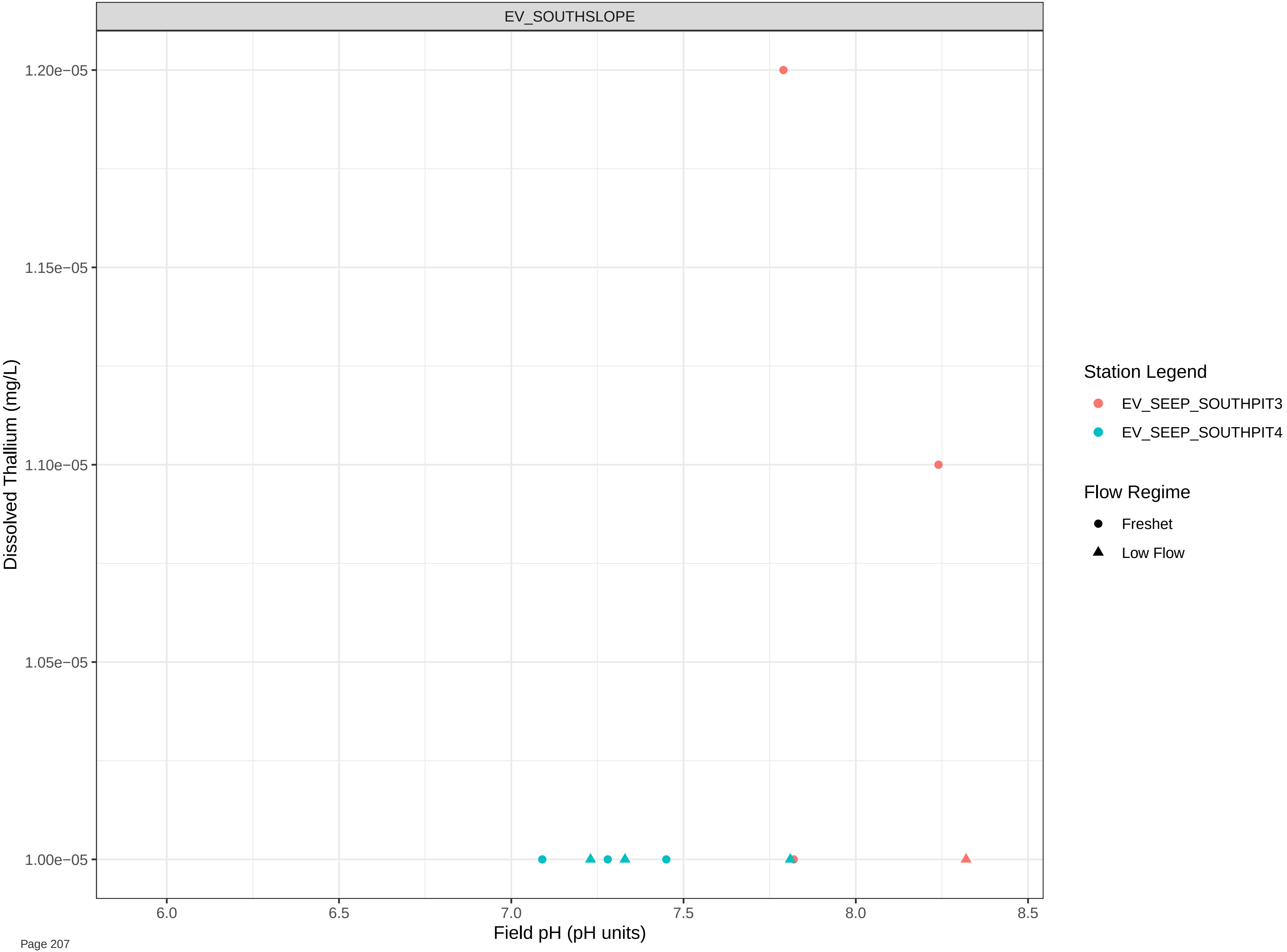

EV_CCR
2.00e−05
1.75e−05
1.50e−05
1.25e−05
1.00e−05
Dissolved Thallium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

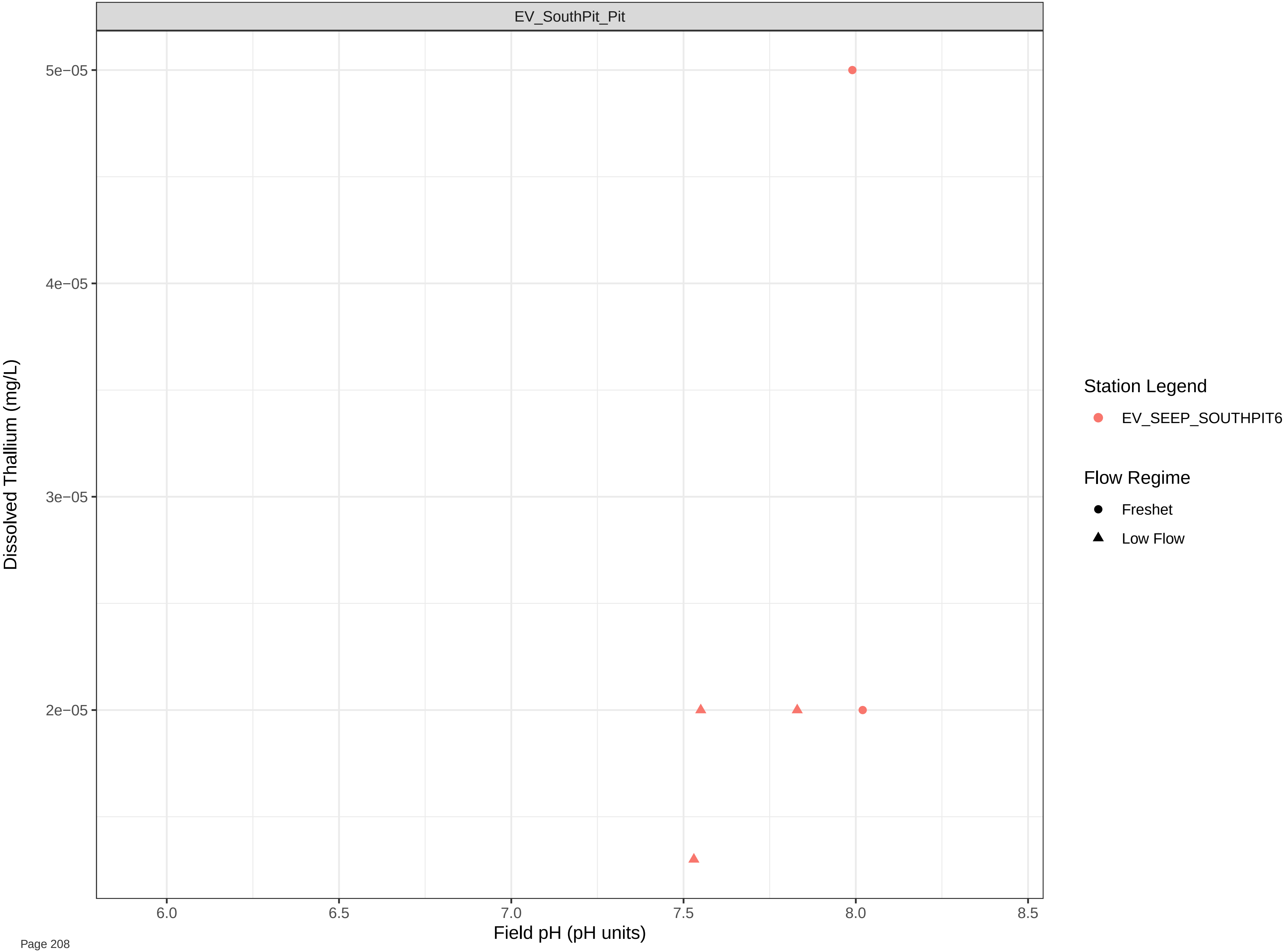

EV_CCR/TP
Dissolved Thallium (mg/L)
1e−04
9e−05
8e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

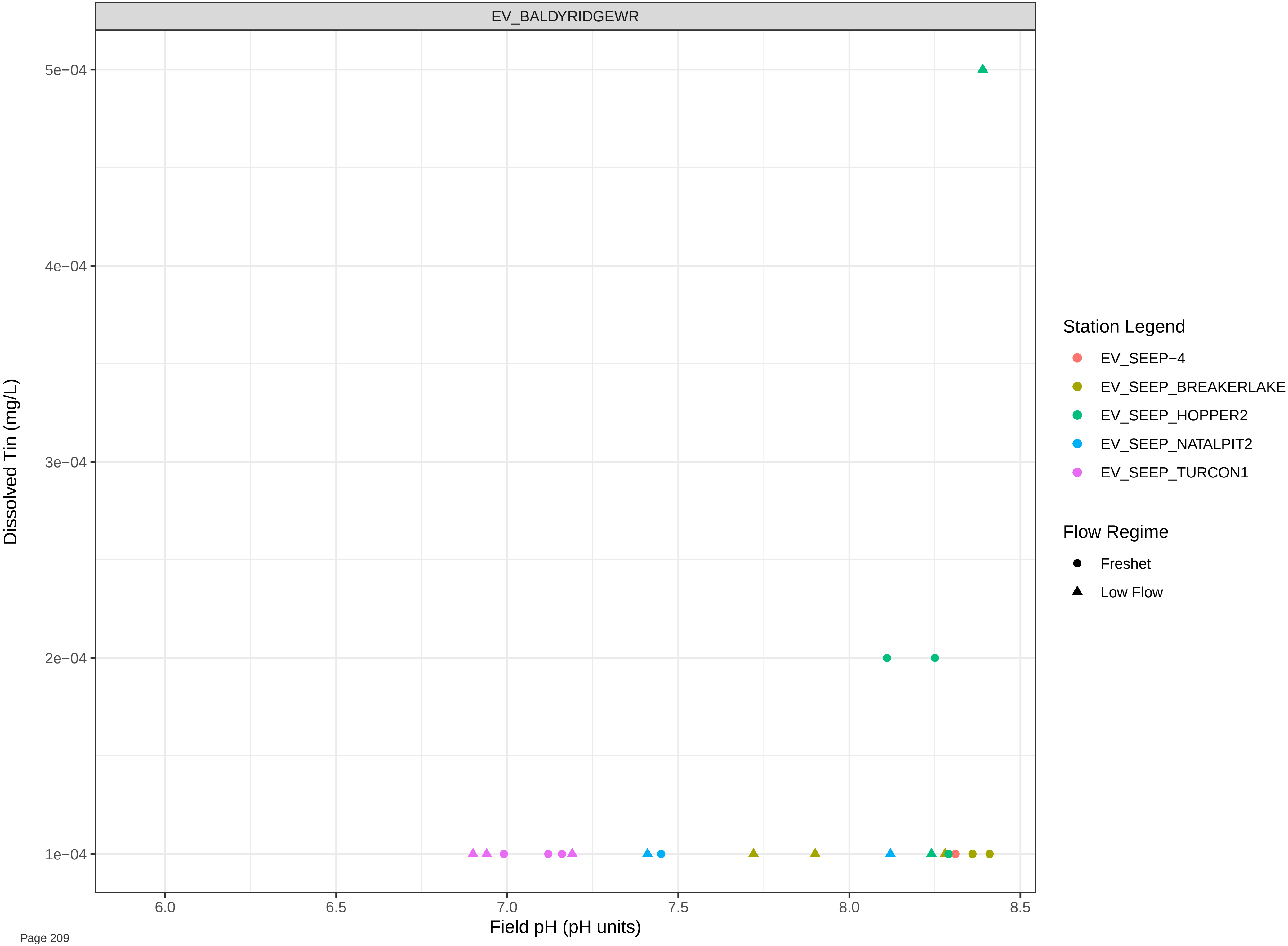

EV_CEDARWR
1.8e−05
1.6e−05
1.4e−05
1.2e−05
1.0e−05
Dissolved Thallium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

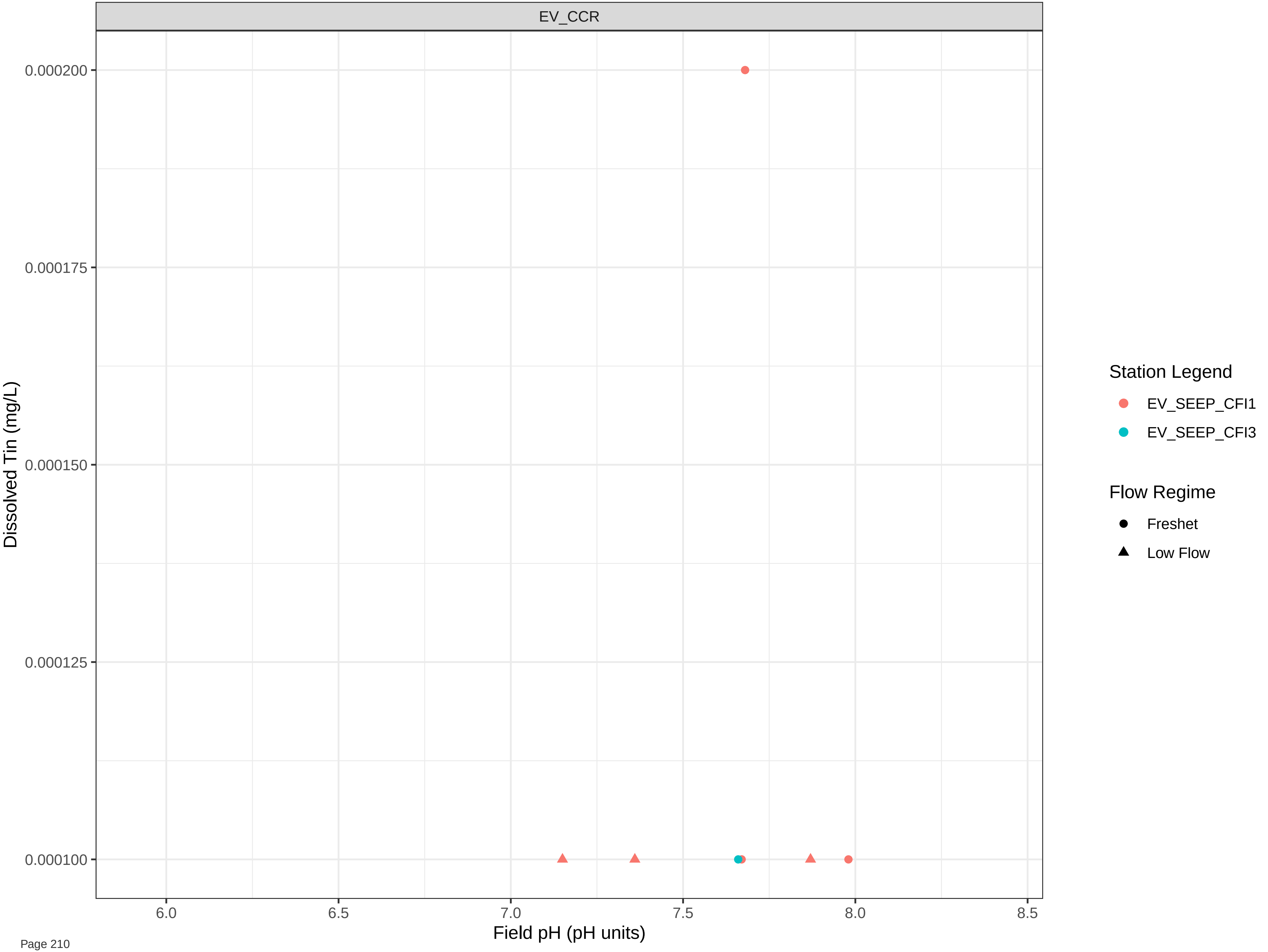

EV_Erickson_WR
8e−05
6e−05
4e−05
2e−05
Dissolved Thallium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

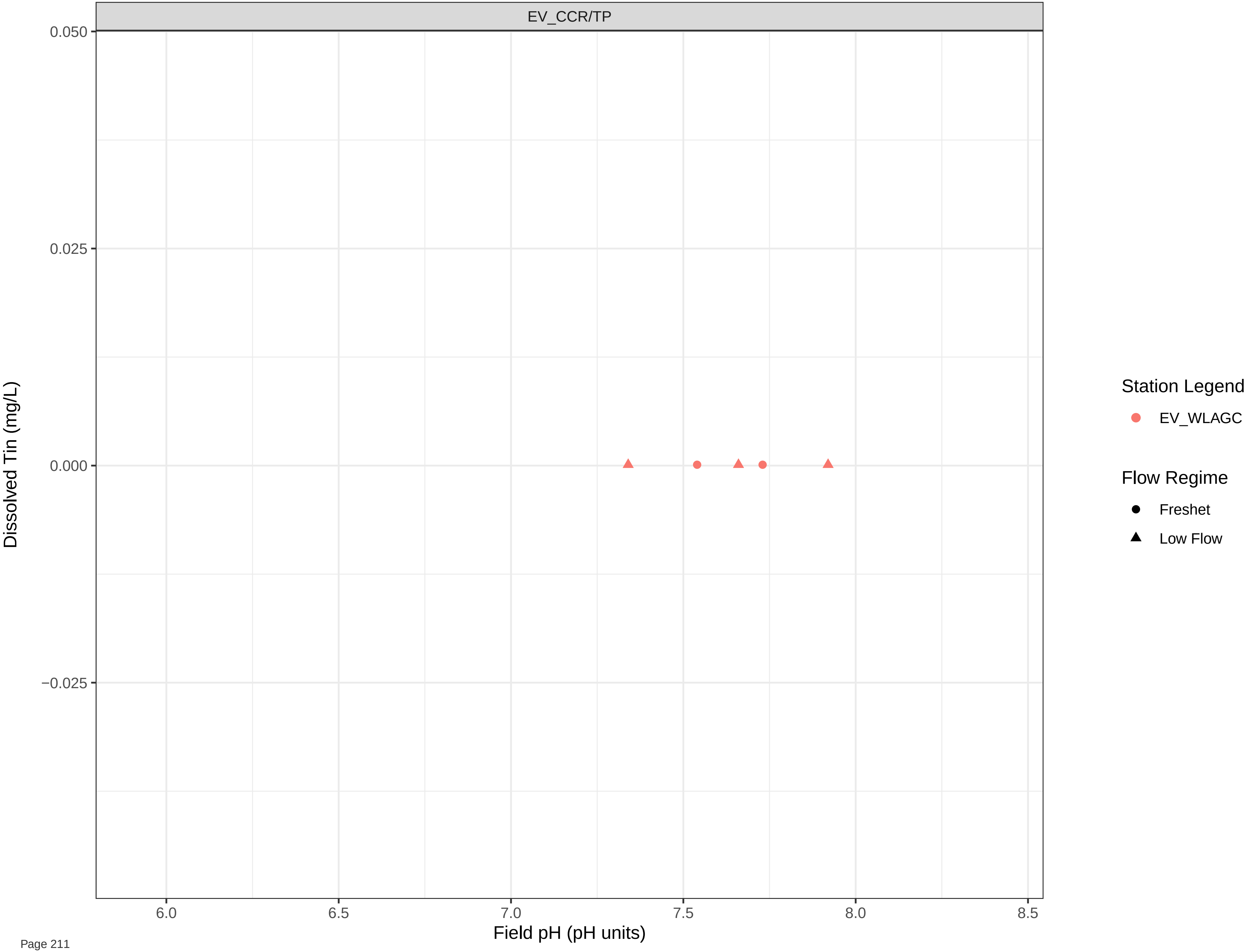

EV_PLANT
Dissolved Thallium (mg/L)
0.00015
0.00010
0.00005
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

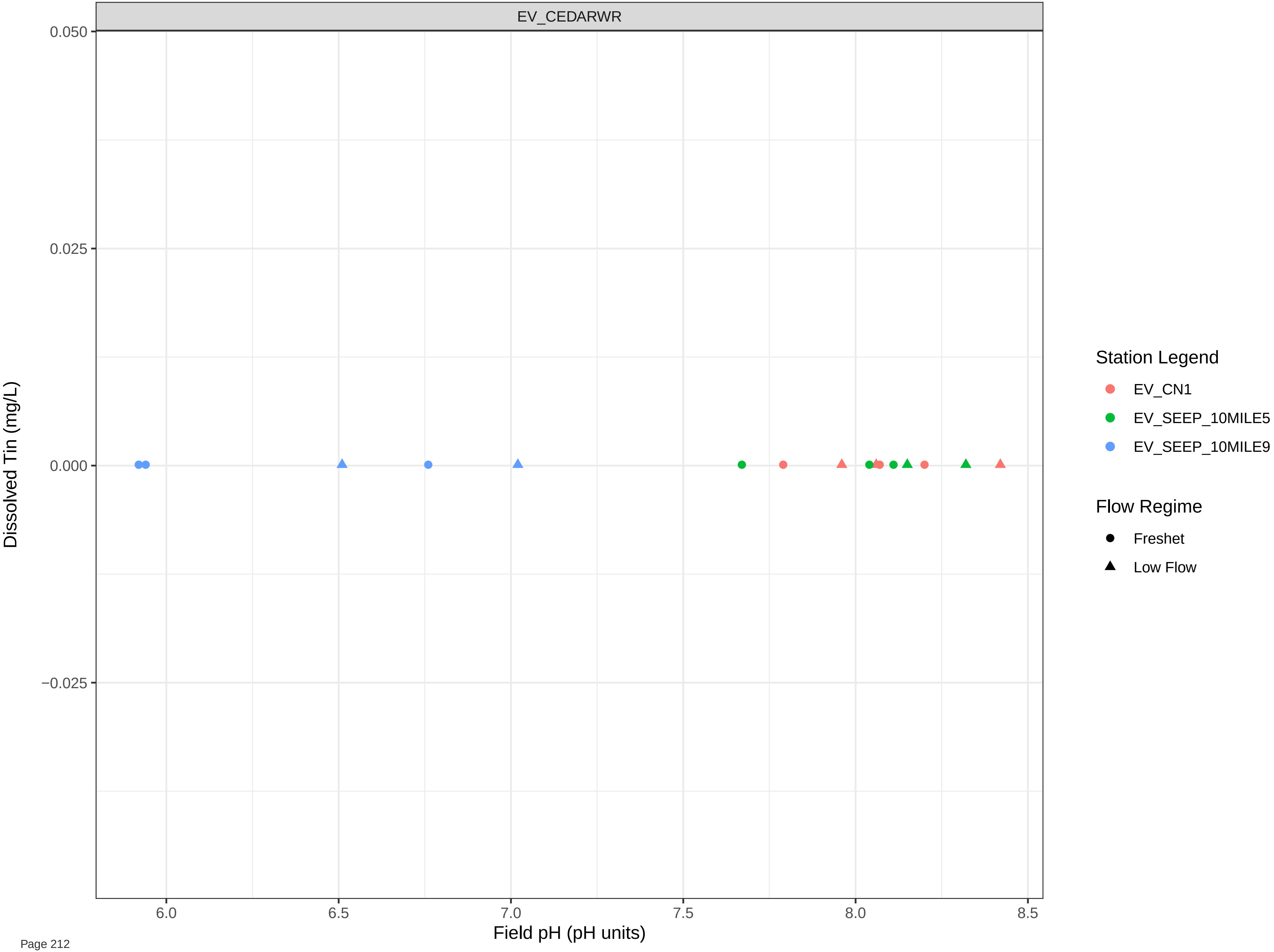

EV_SOUTHSLOPE
Dissolved Thallium (mg/L)
1.20e−05
1.15e−05
1.10e−05
1.05e−05
1.00e−05
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

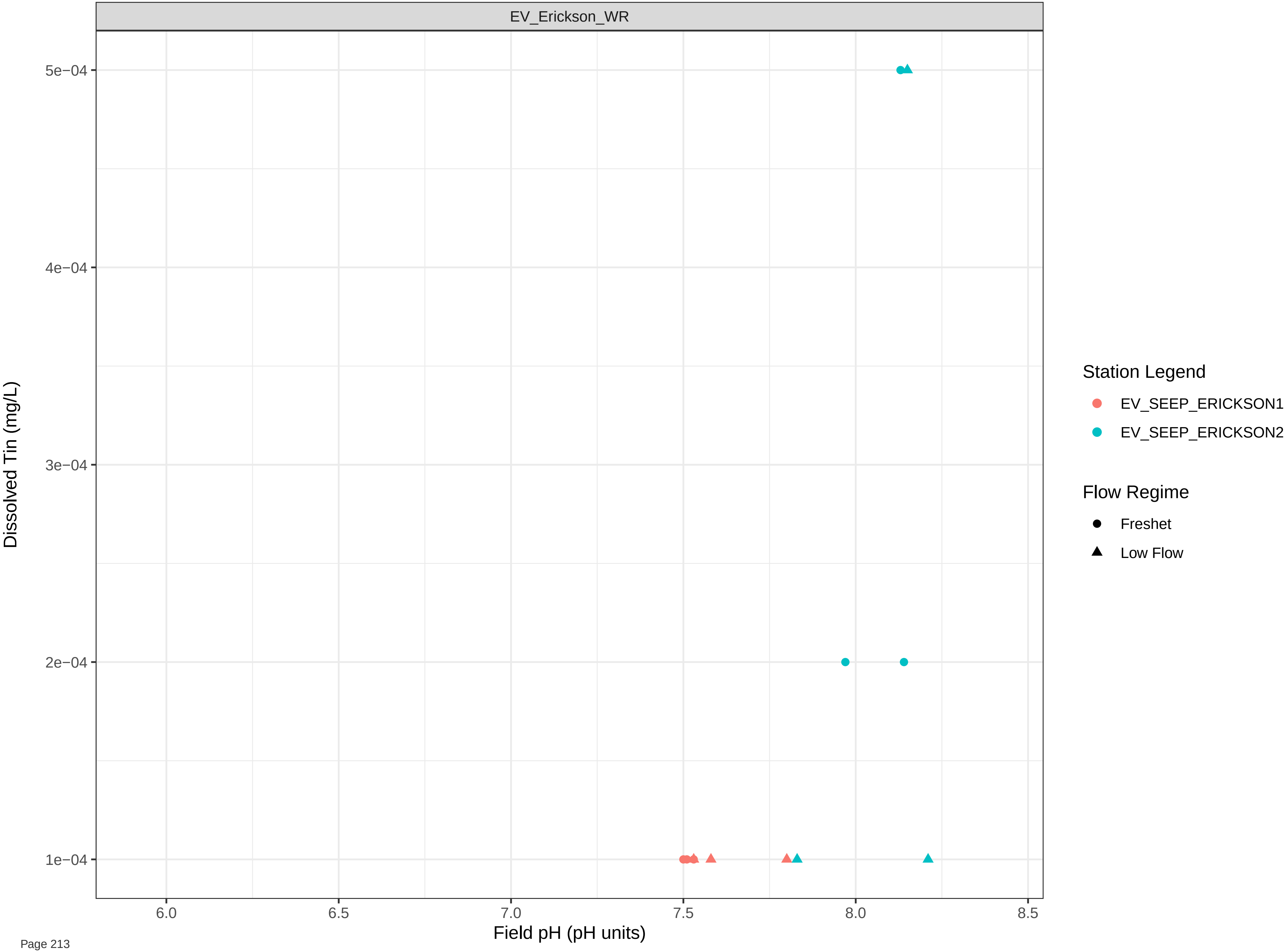

EV_SouthPit_Pit
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

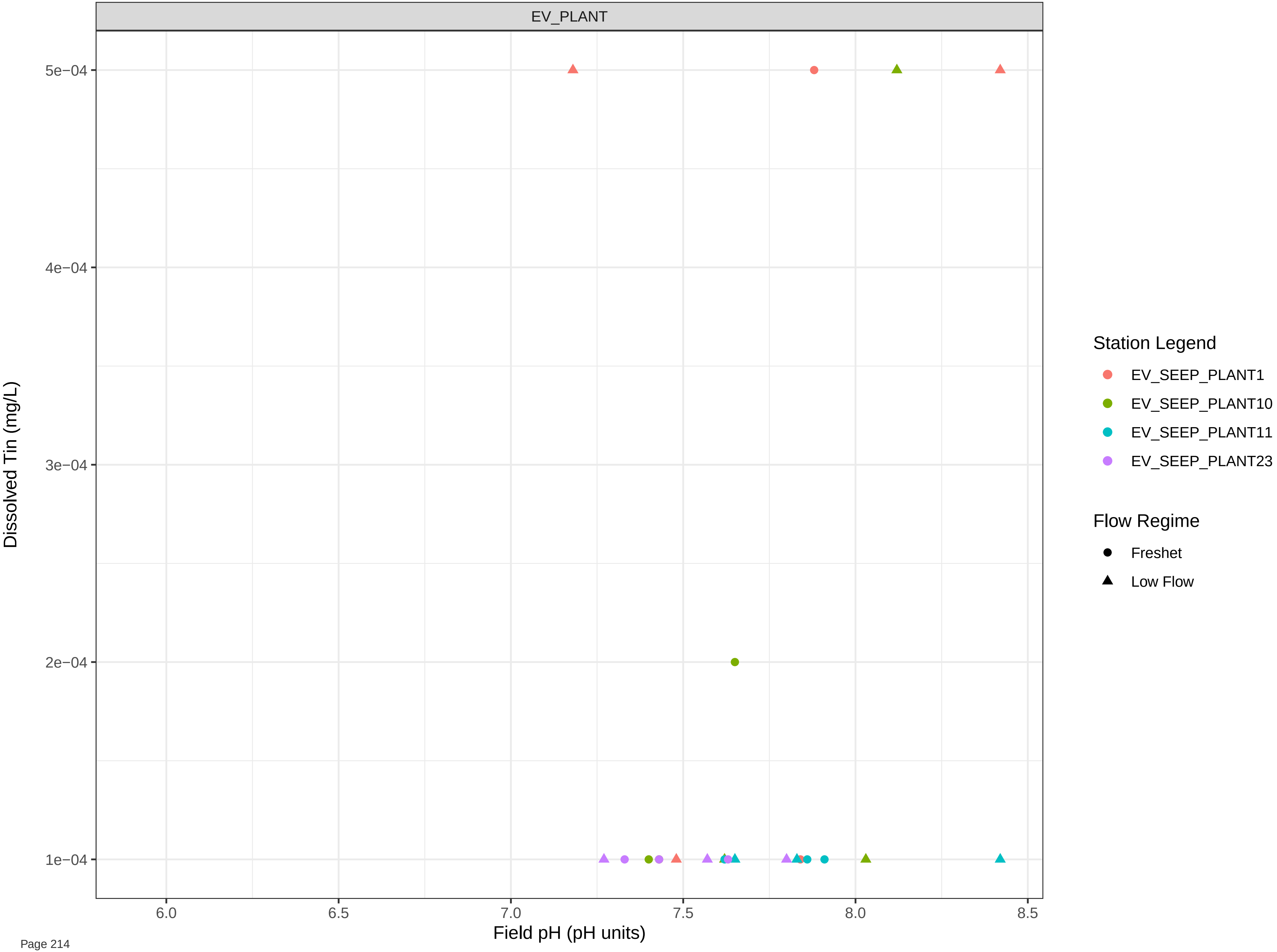

EV_BALDYRIDGEWR
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

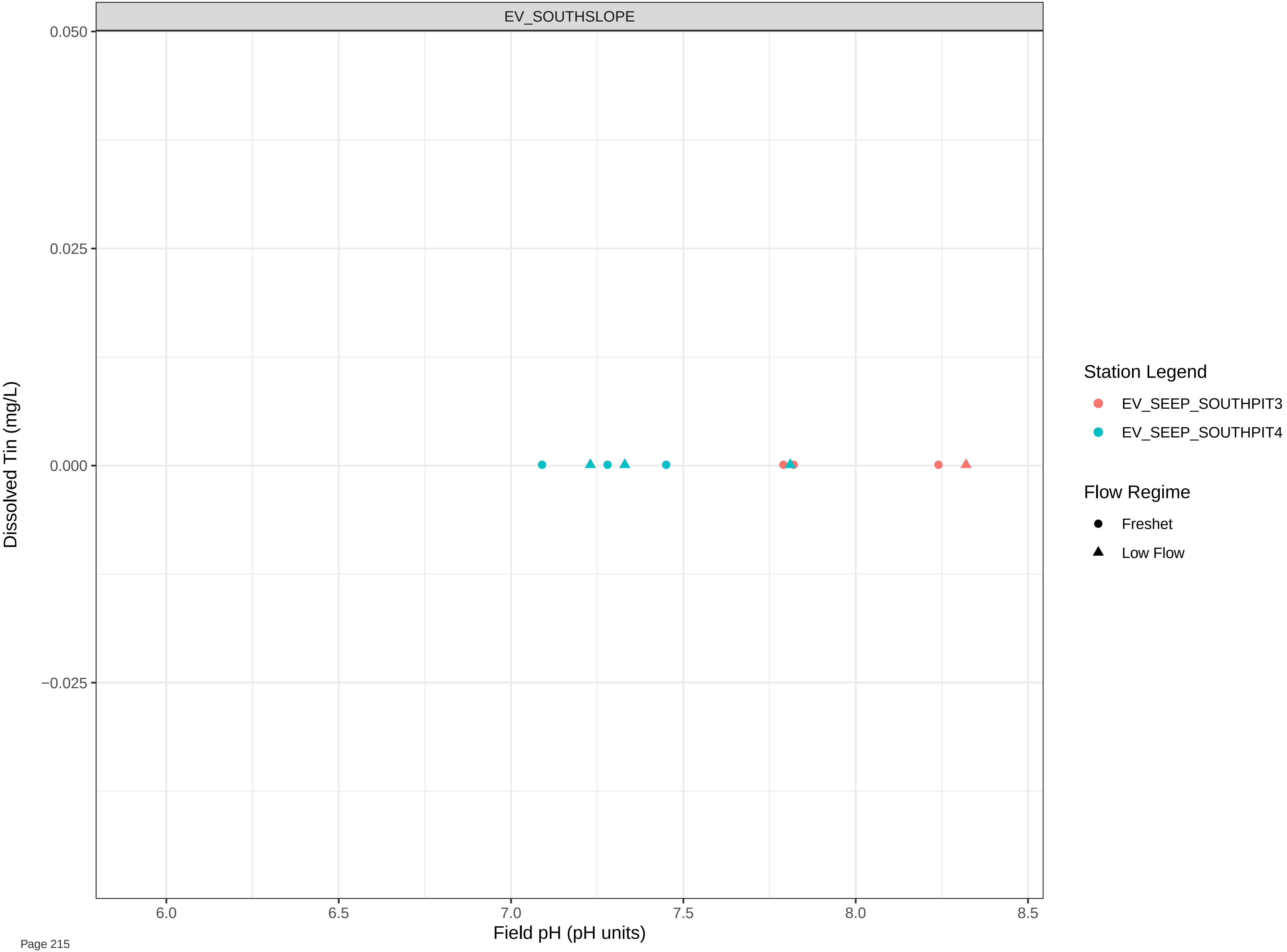

EV_CCR
Dissolved Tin (mg/L)
0.000200
0.000175
0.000150
0.000125
0.000100
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

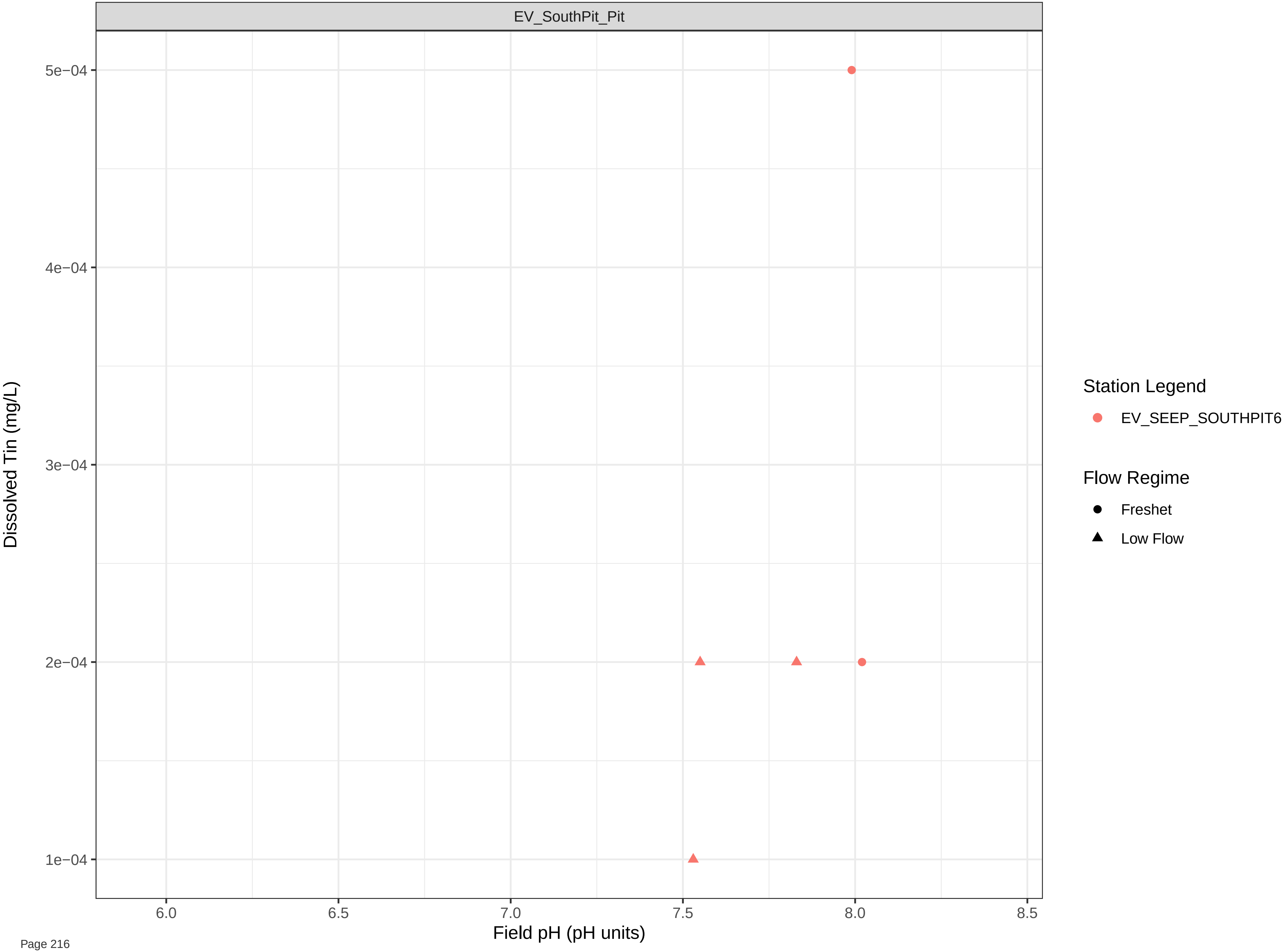

EV_CCR/TP
0.050
0.025
0.000
−0.025
Dissolved Tin (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

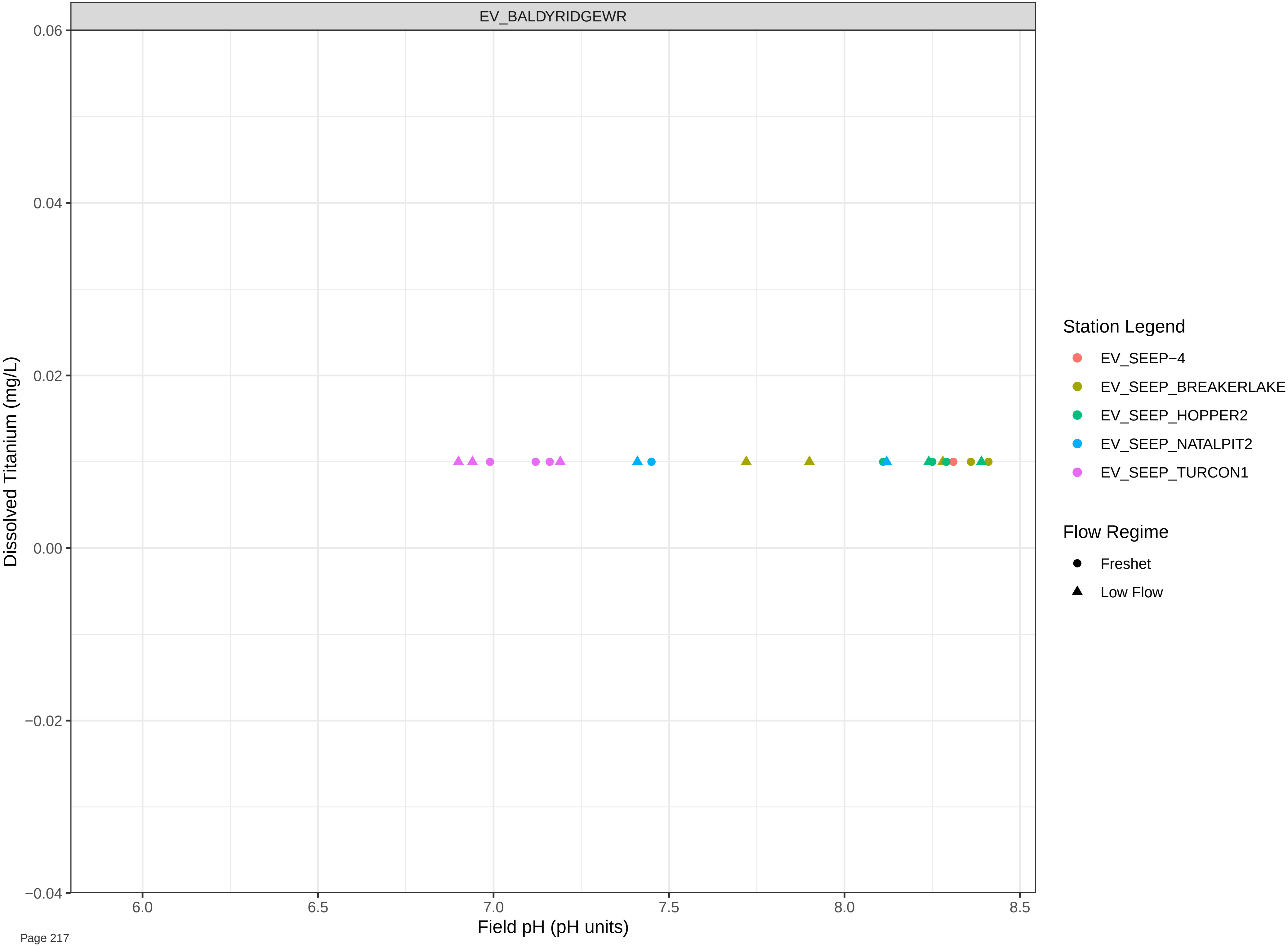

EV_CEDARWR
Dissolved Tin (mg/L)
0.050
0.025
0.000
−0.025
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

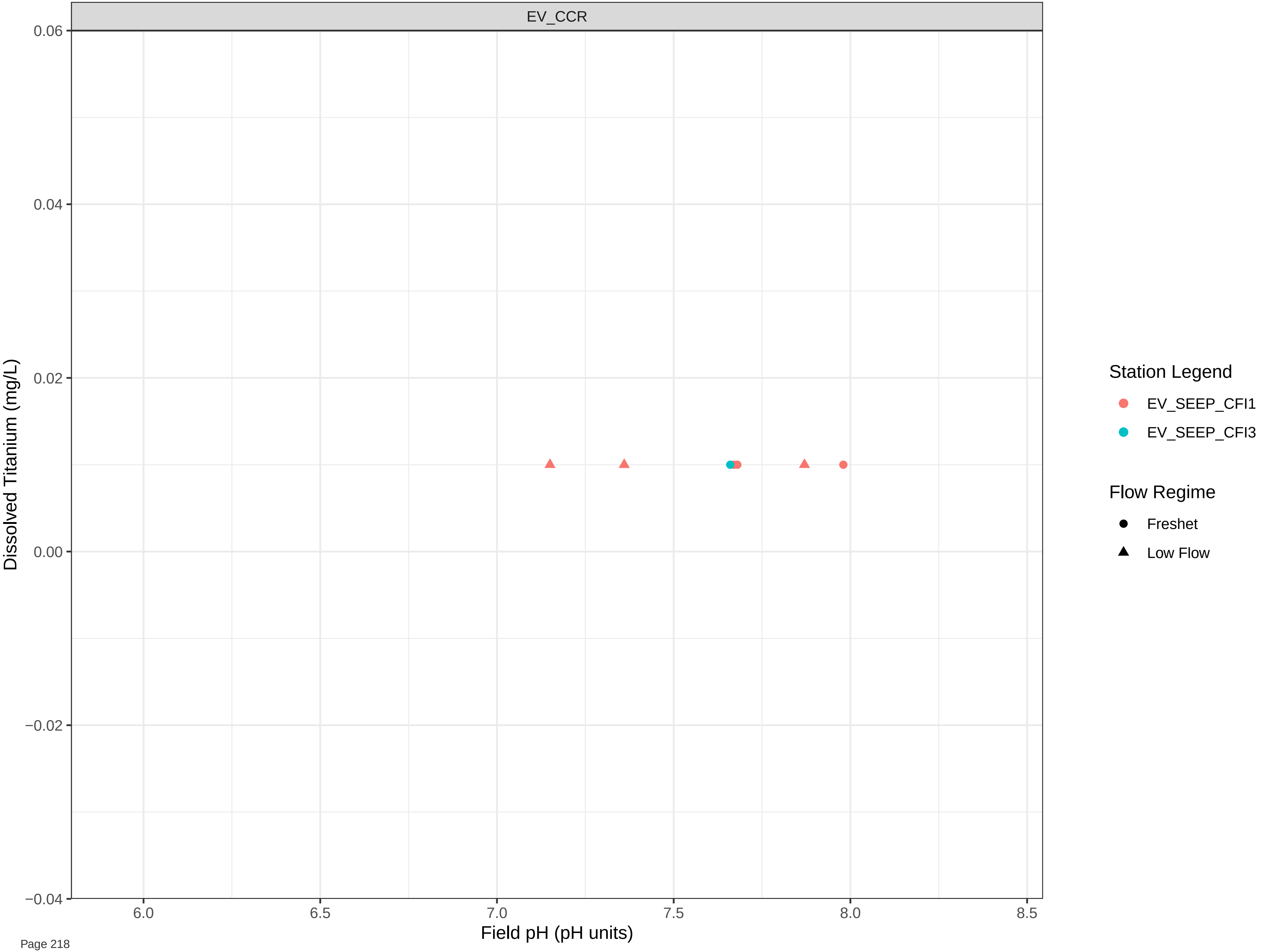

EV_Erickson_WR
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

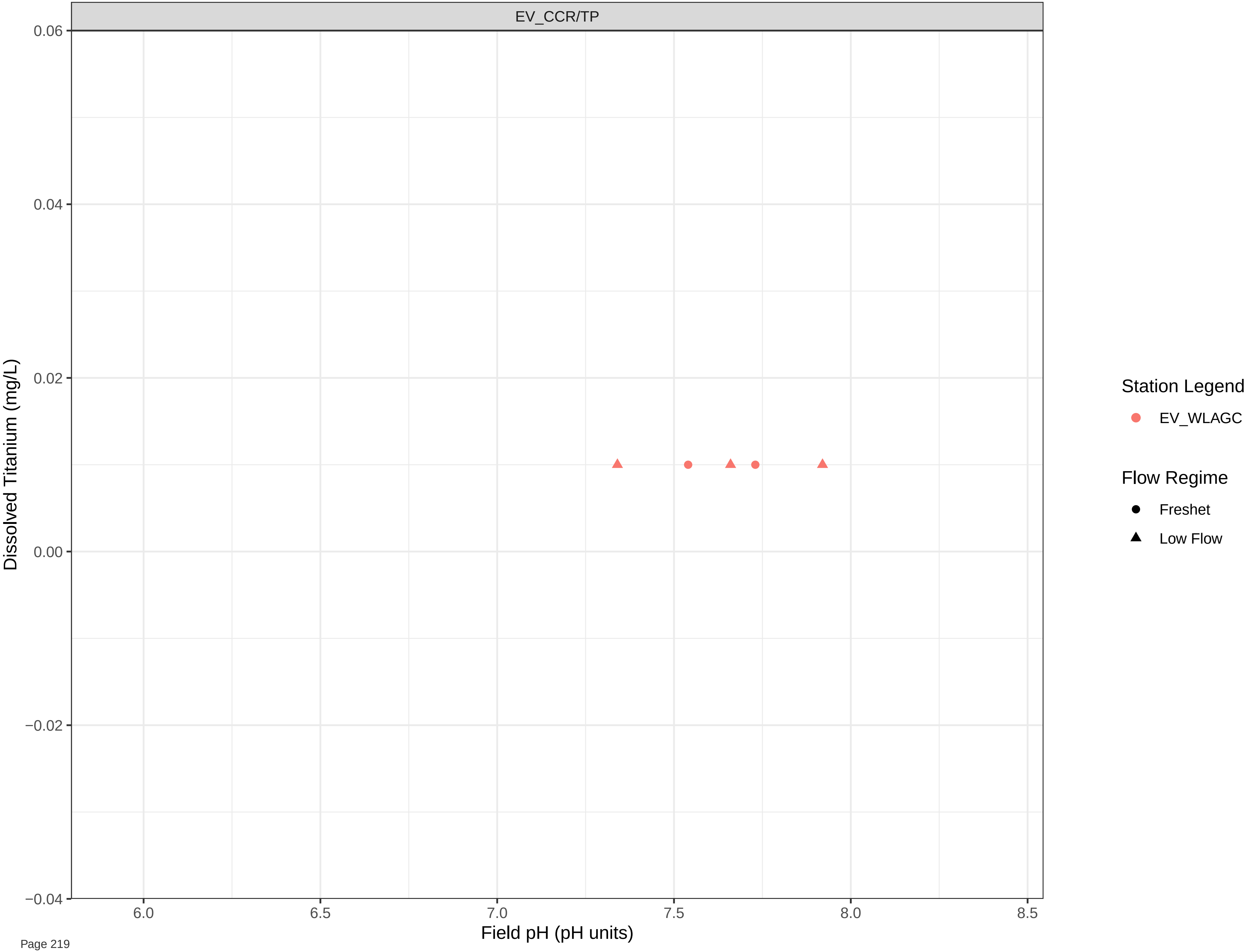

EV_PLANT
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

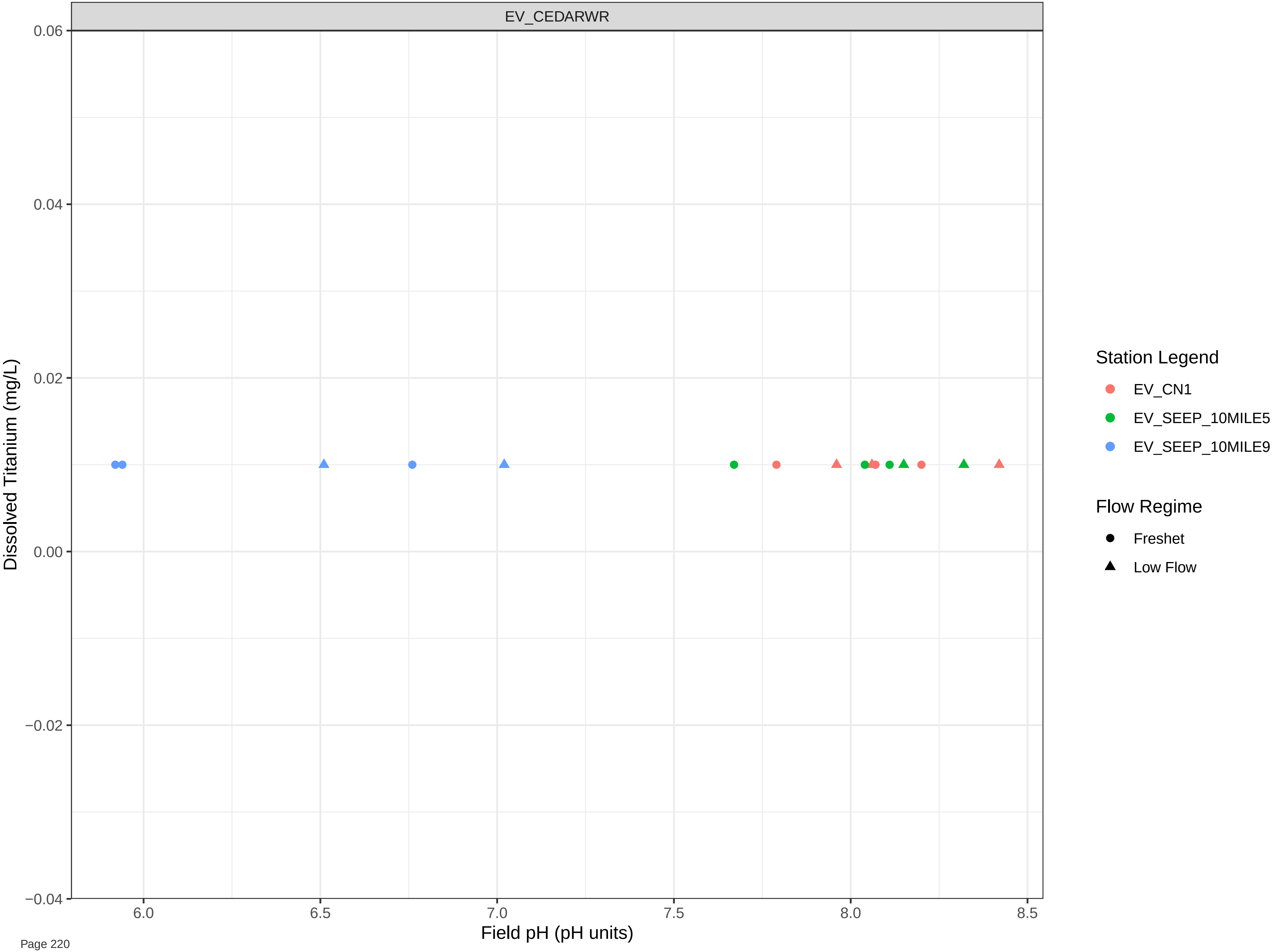

EV_SOUTHSLOPE
0.050
0.025
0.000
−0.025
Dissolved Tin (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

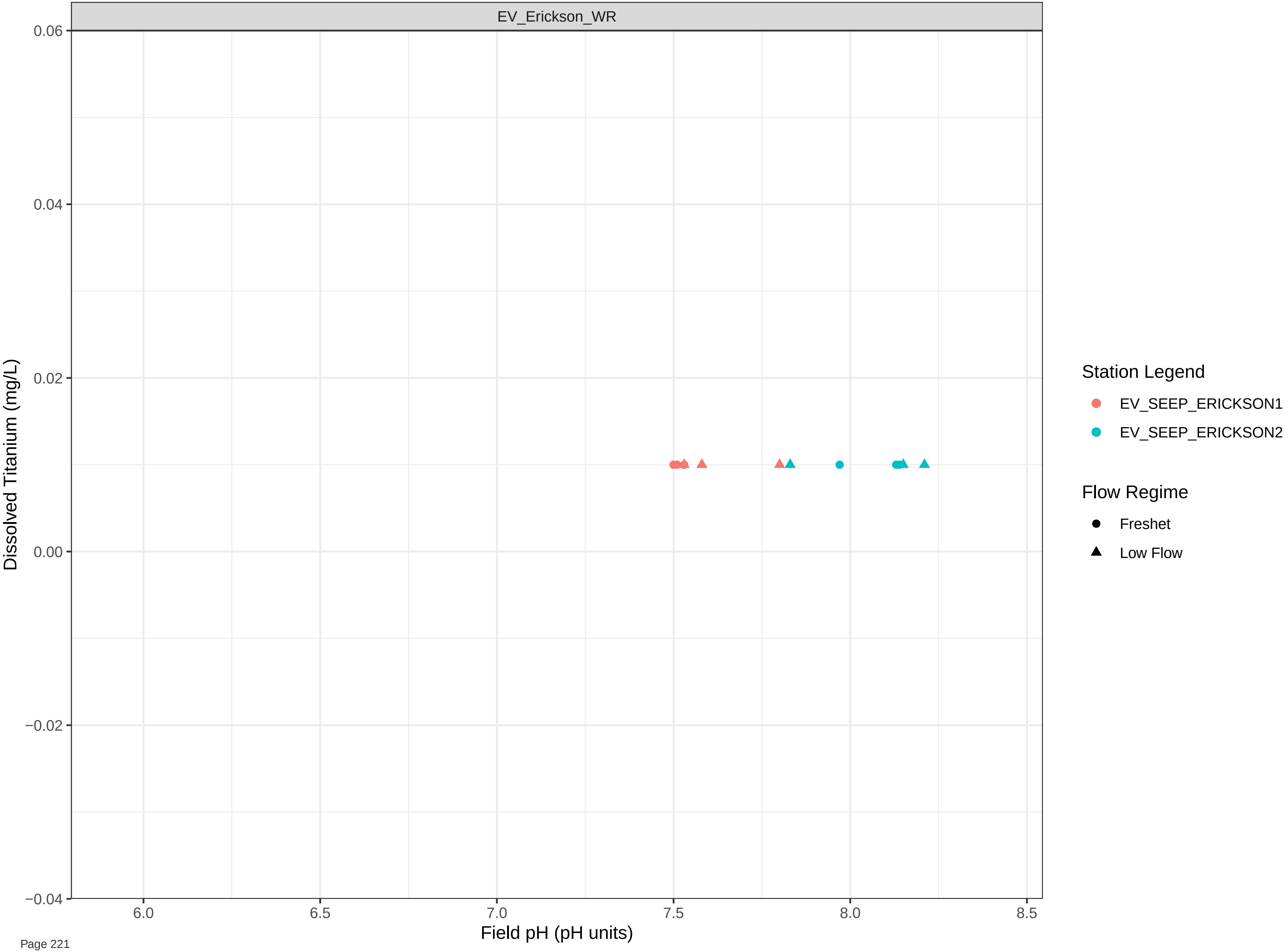

EV_SouthPit_Pit
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

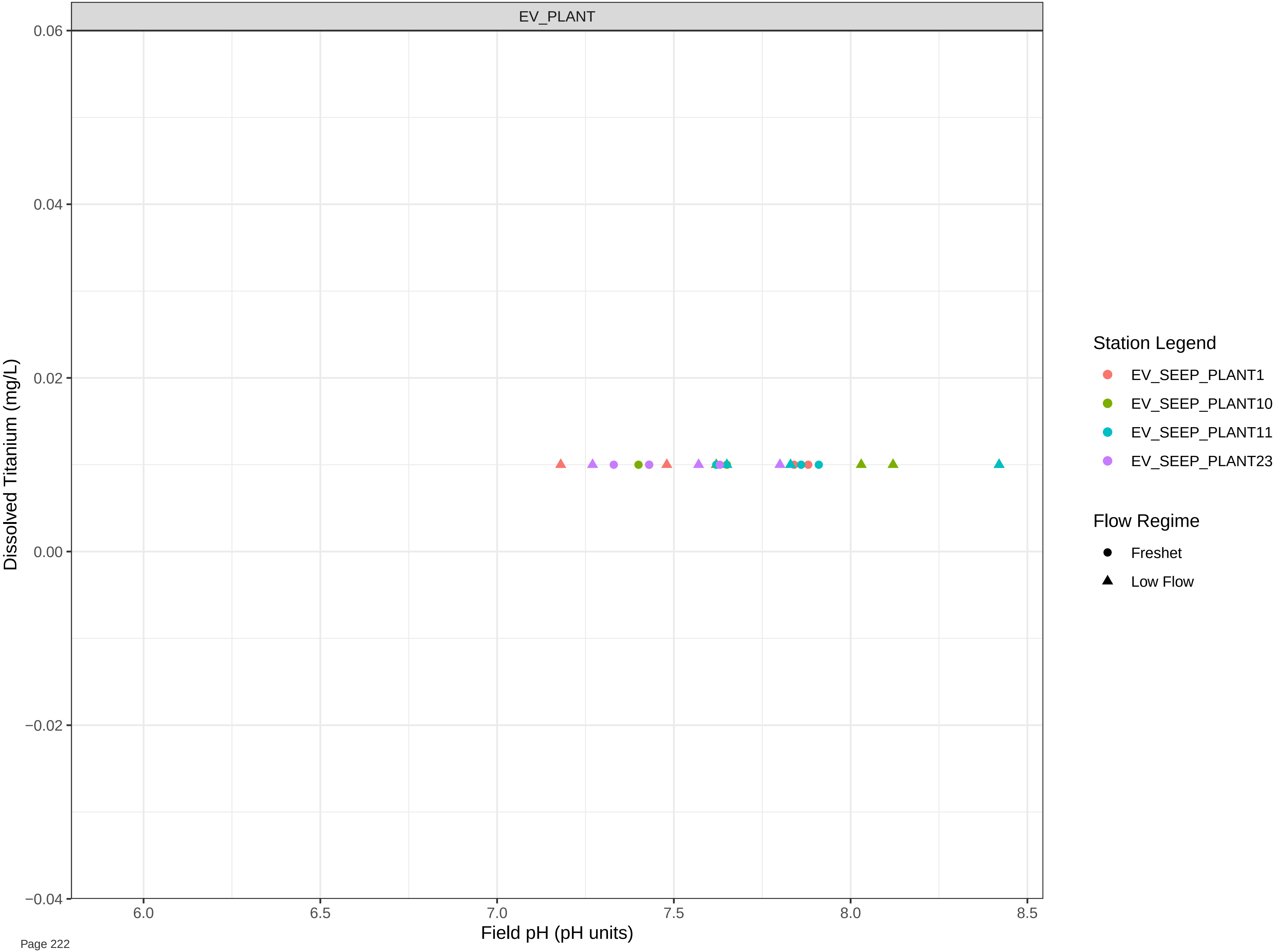

EV_BALDYRIDGEWR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

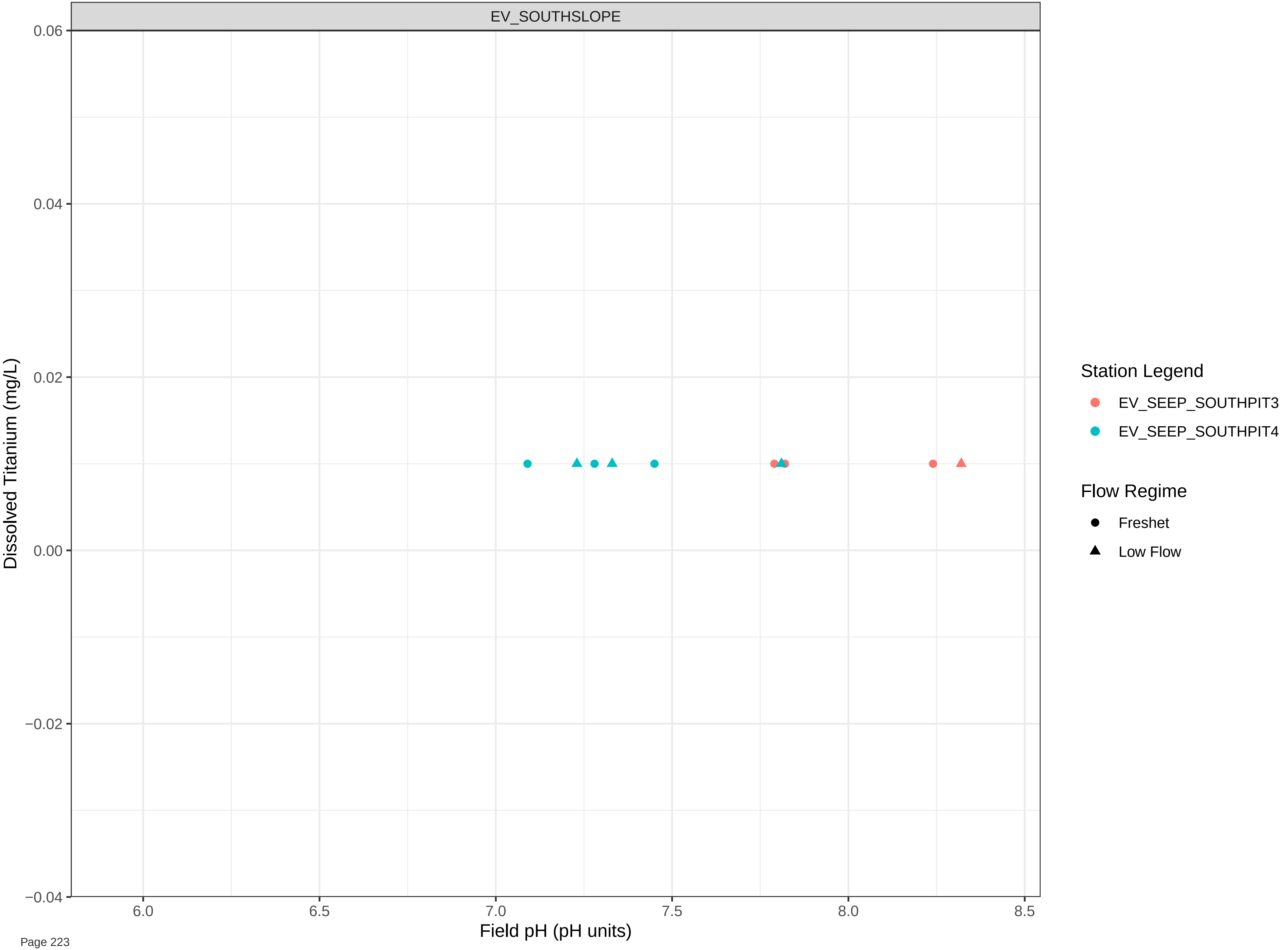

EV_CCR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

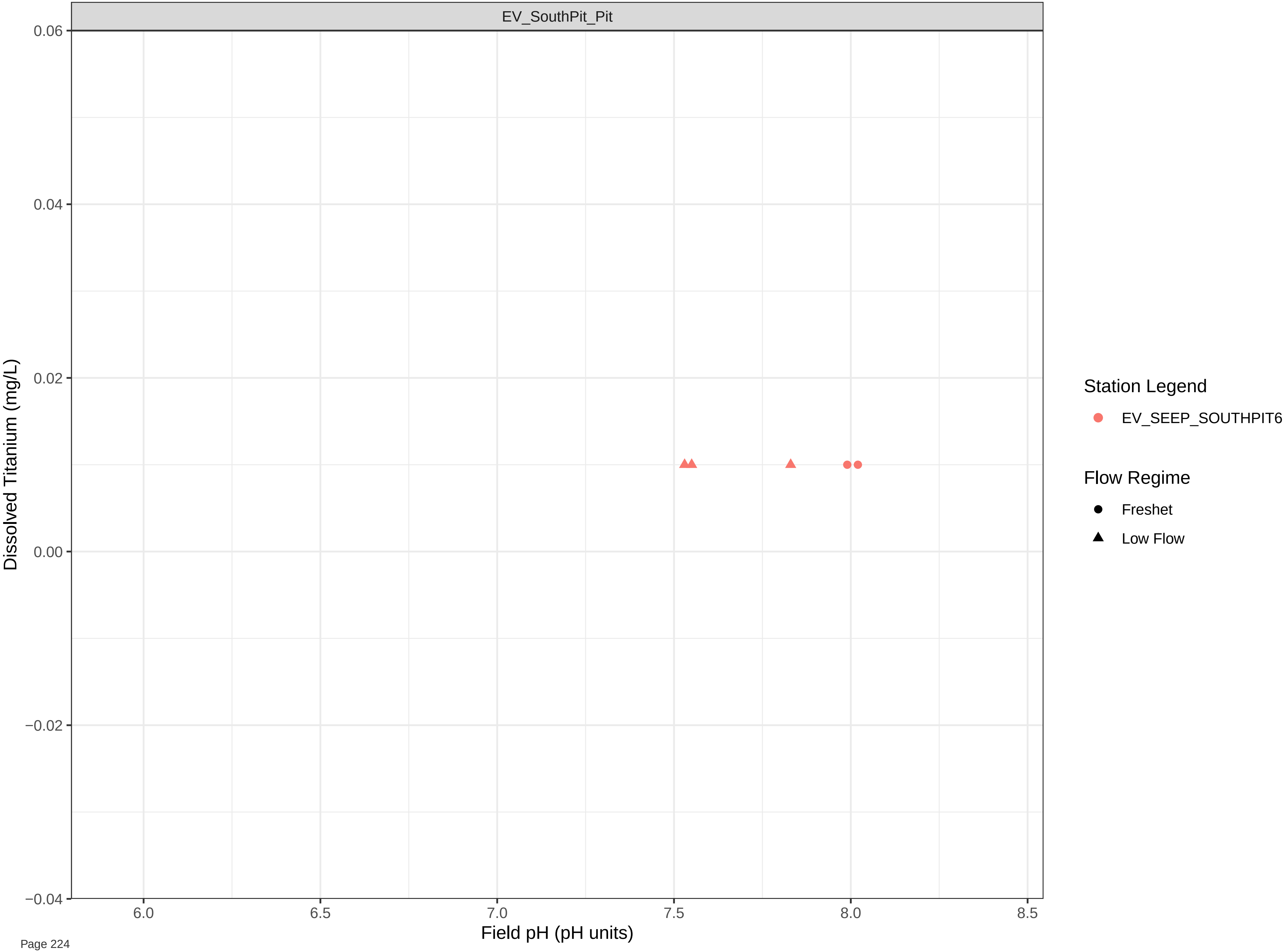

EV_CCR/TP
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

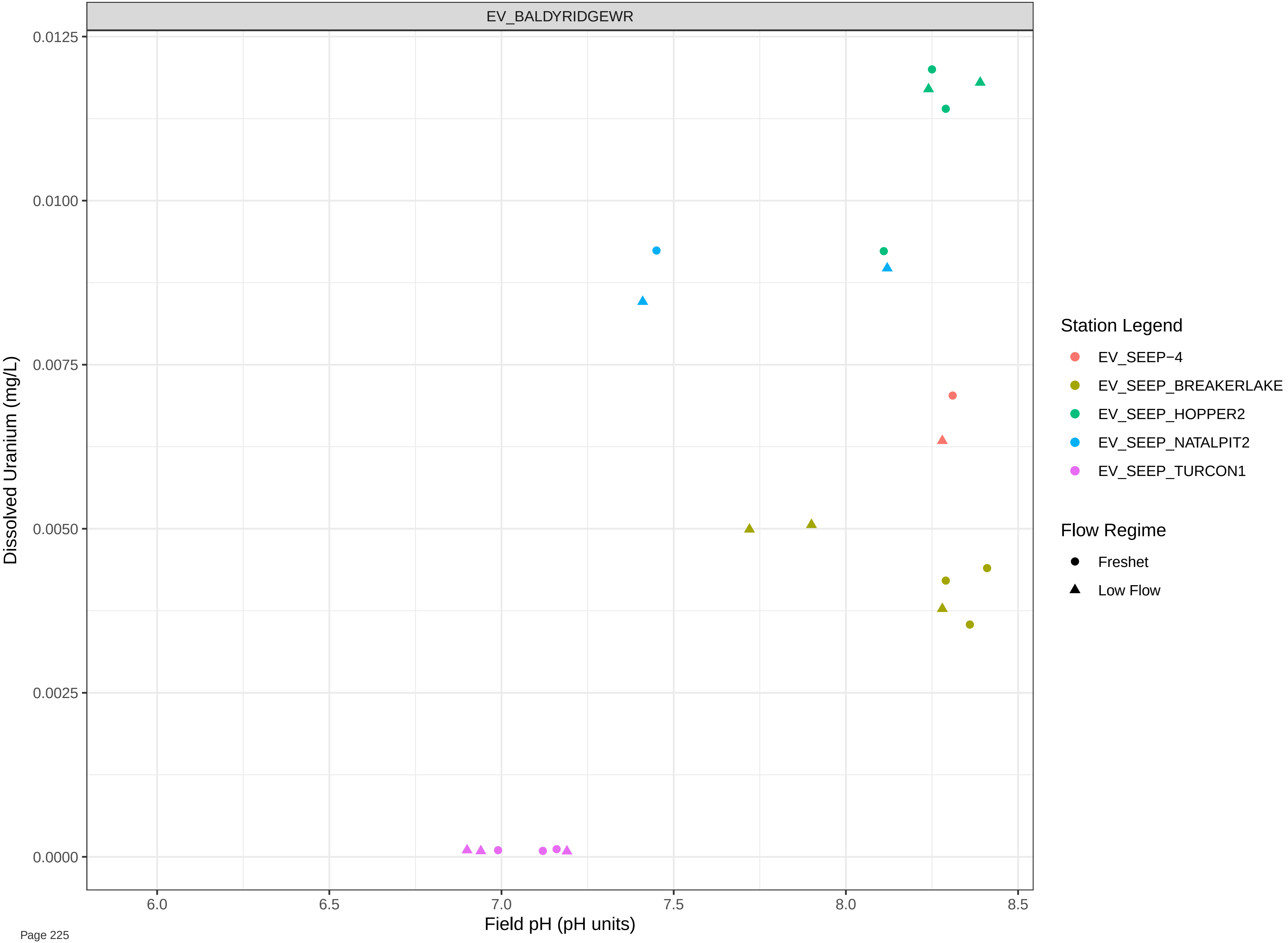

EV_CEDARWR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

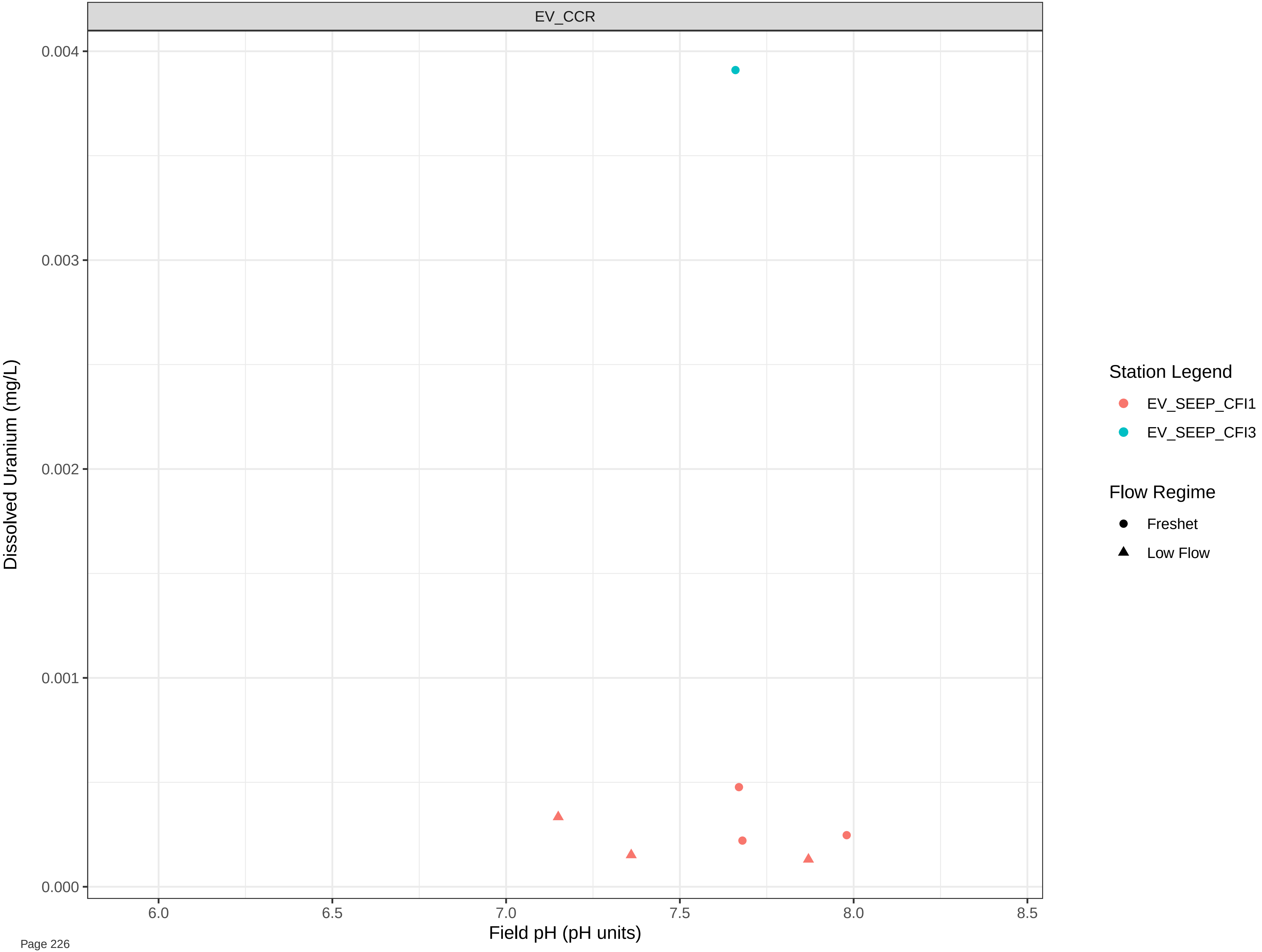

EV_Erickson_WR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

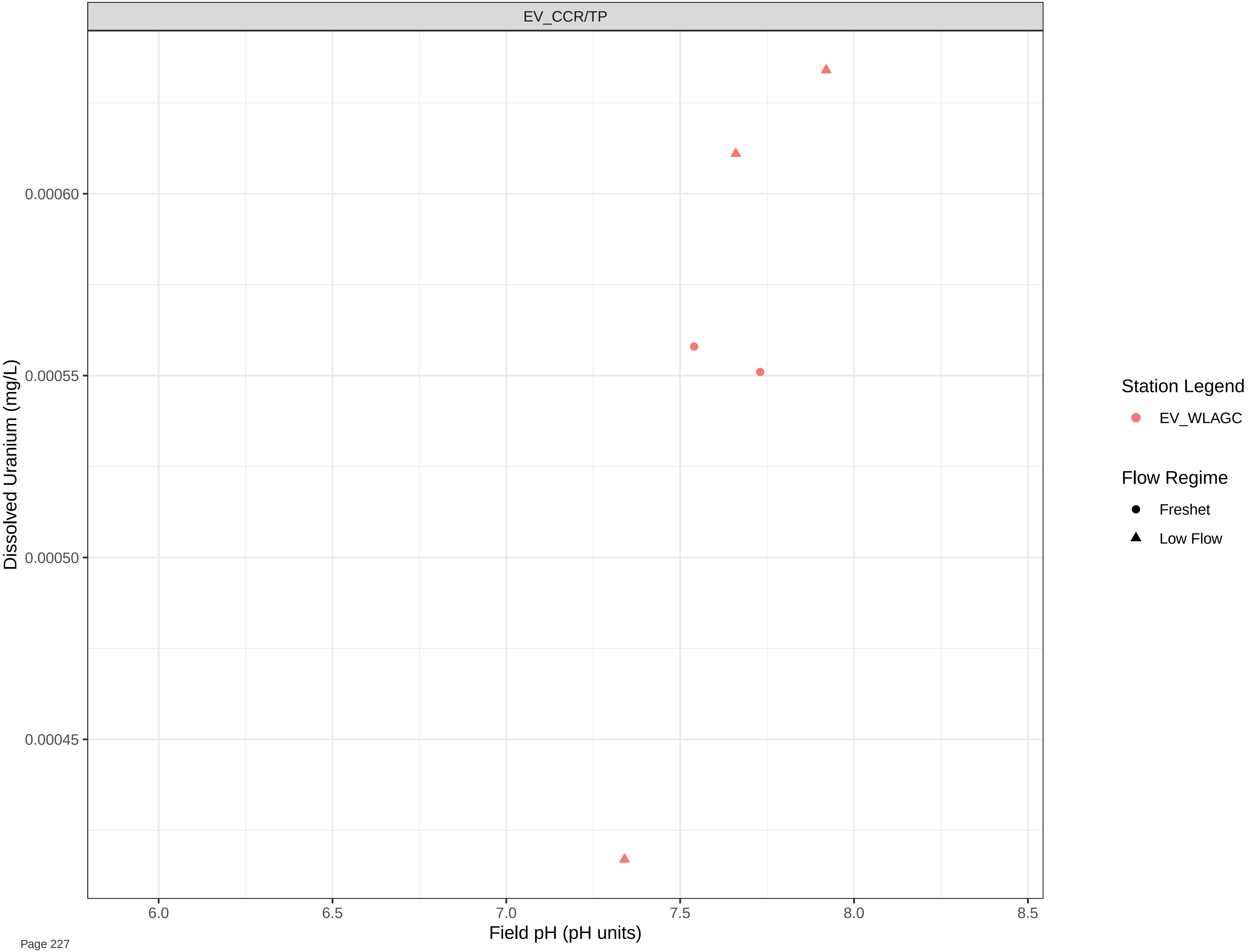

EV_PLANT
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

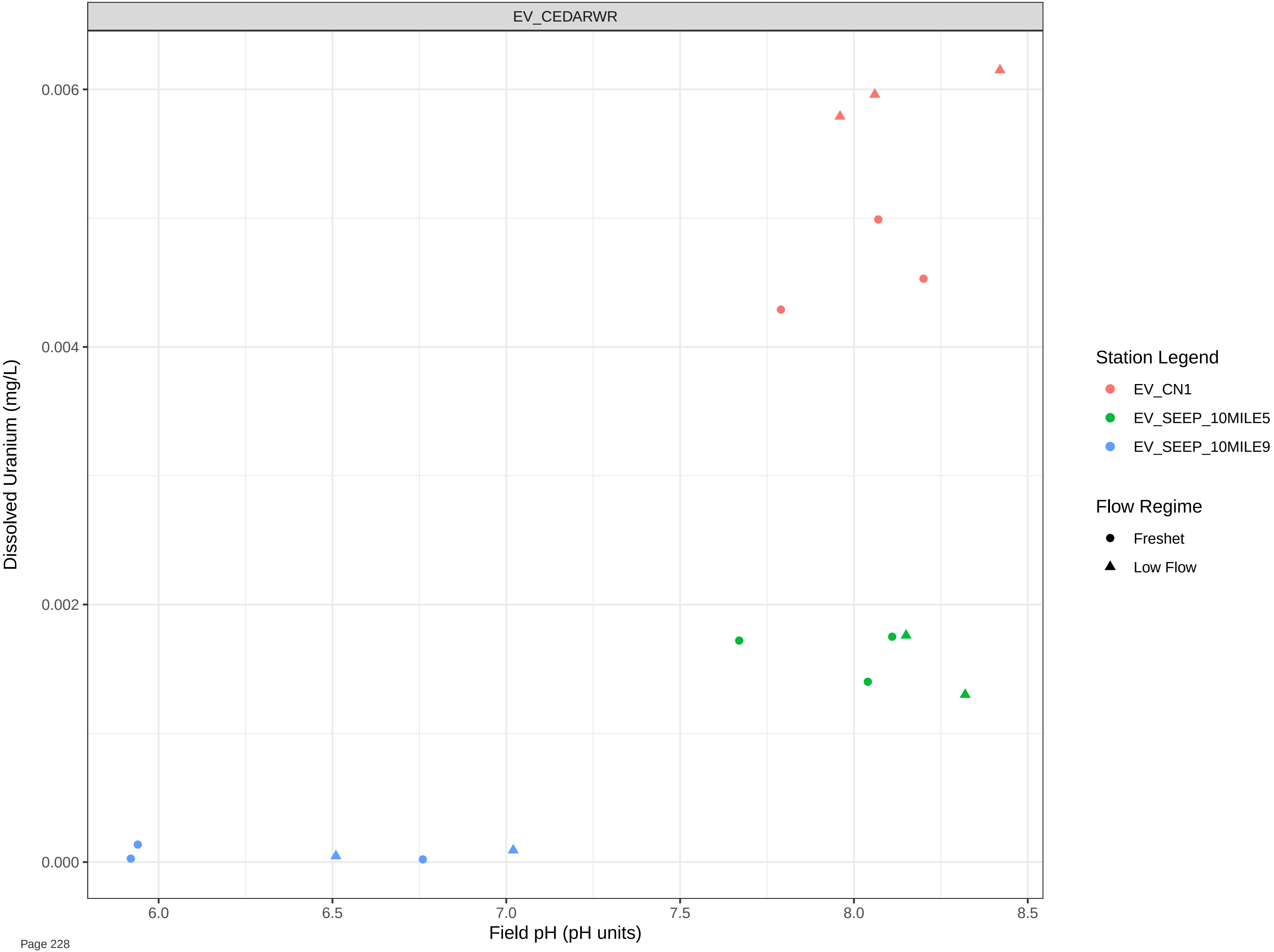

EV_SOUTHSLOPE
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

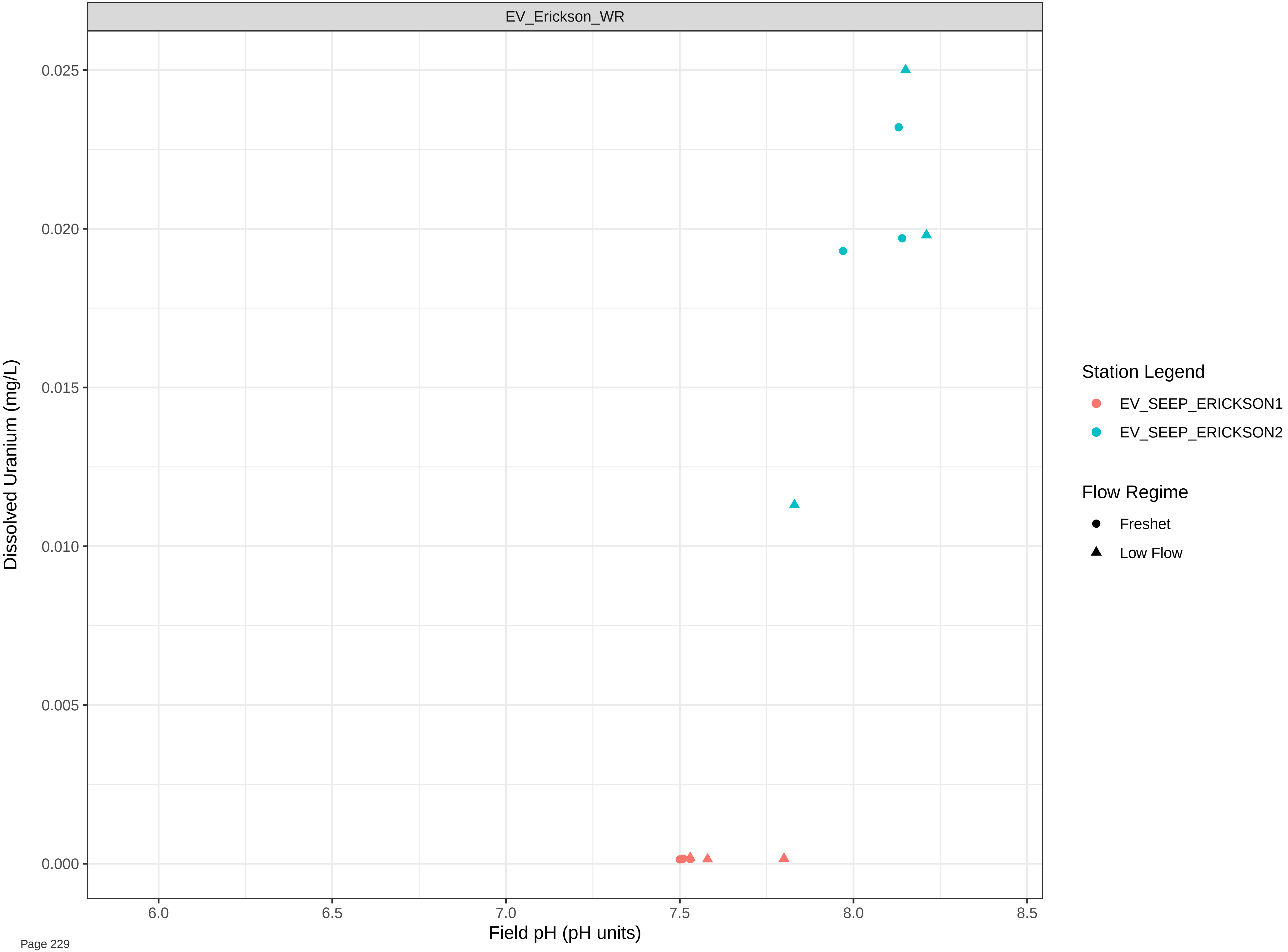

EV_SouthPit_Pit
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

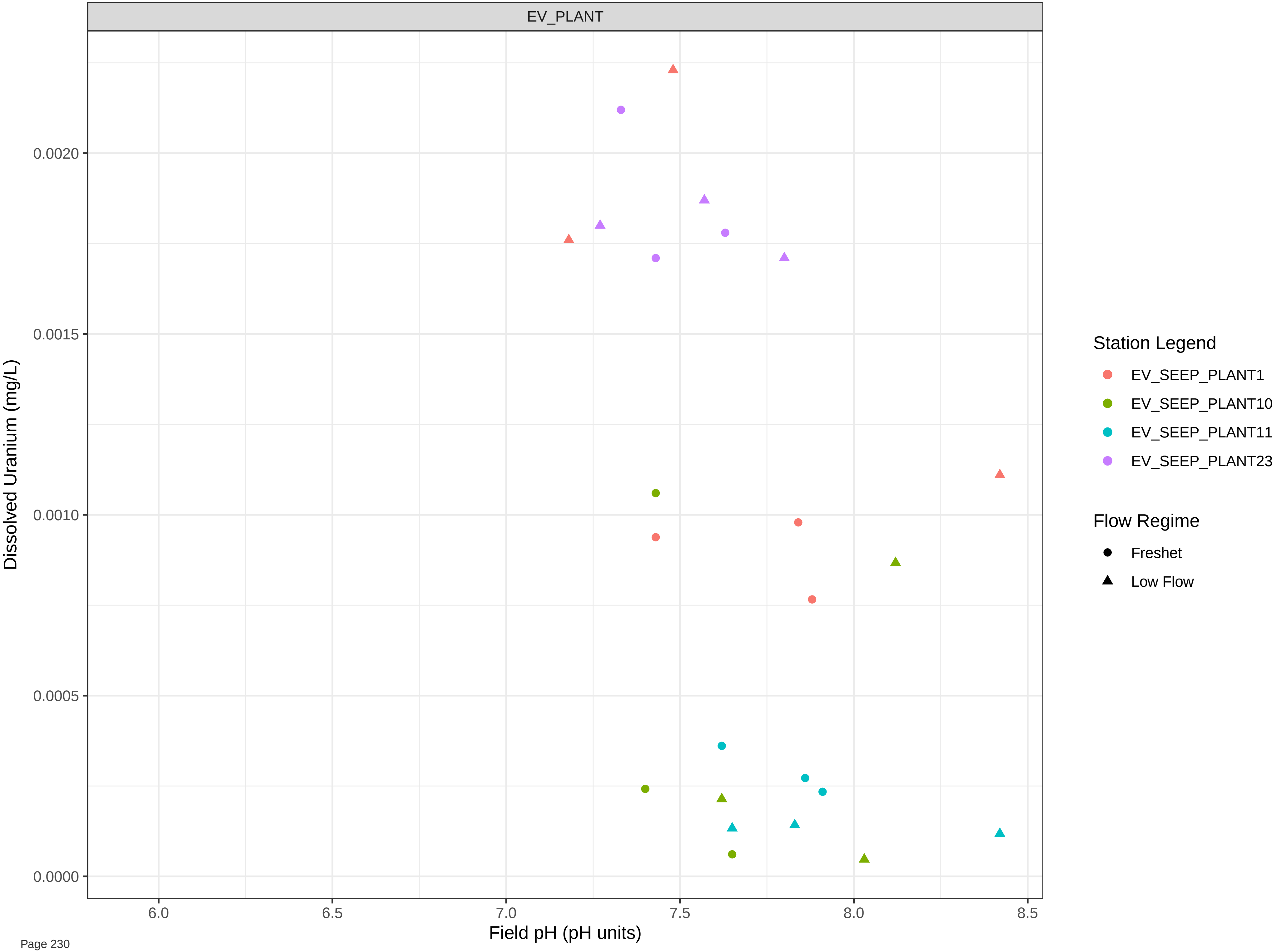

EV_BALDYRIDGEWR
Dissolved Uranium (mg/L)
0.0125
0.0100
0.0075
0.0050
0.0025
0.0000
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP−4
● EV_SEEP_BREAKERLAKE
● EV_SEEP_HOPPER2
● EV_SEEP_NATALPIT2
● EV_SEEP_TURCON1
Flow Regime
● Freshet
▲ Low Flow

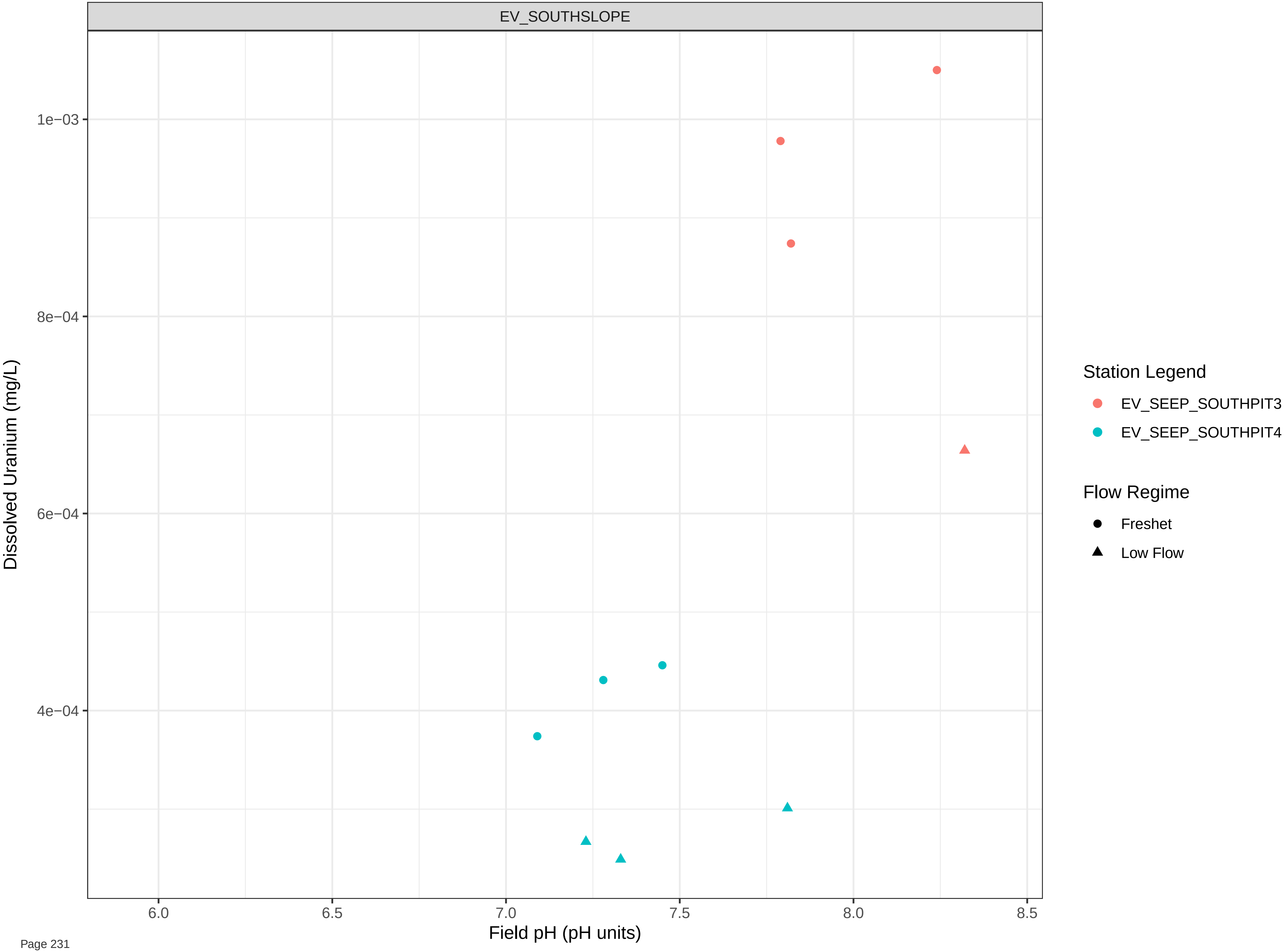

EV_CCR
Dissolved Uranium (mg/L)
0.004
0.003
0.002
0.001
0.000
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

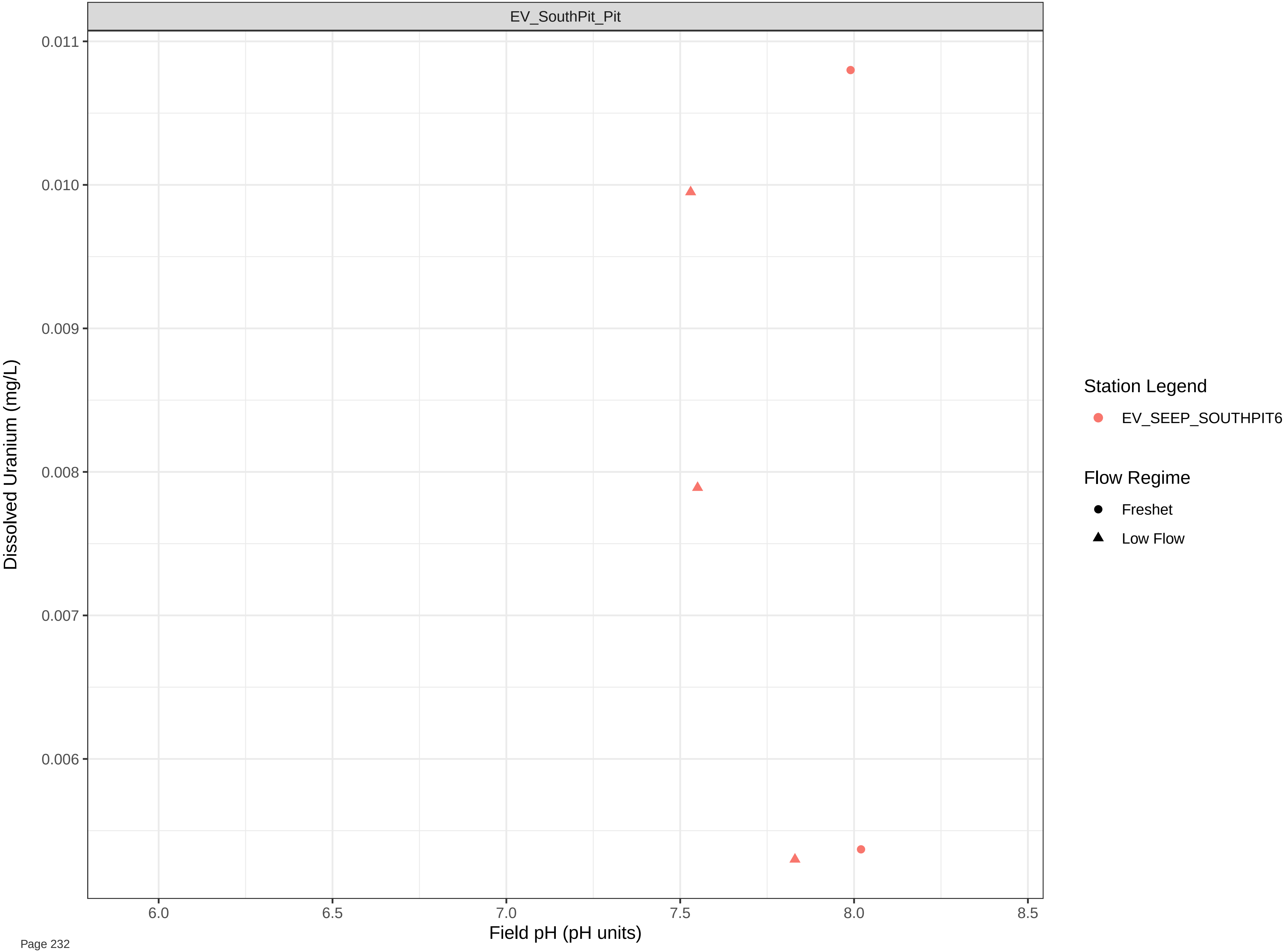

EV_CCR/TP
Dissolved Uranium (mg/L)
0.00060
0.00055
0.00050
0.00045
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

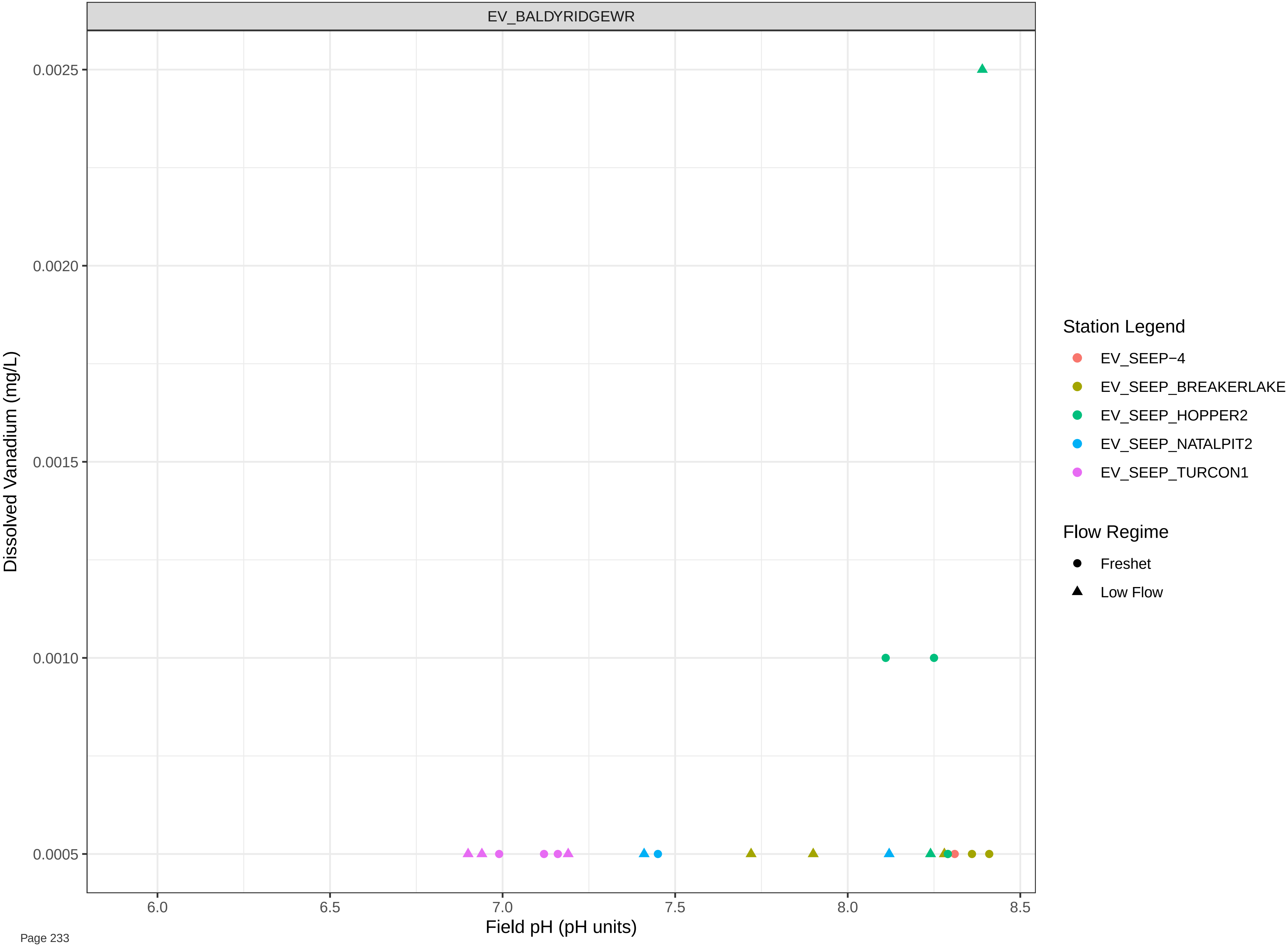

EV_CEDARWR
Dissolved Uranium (mg/L)
0.006
0.004
0.002
0.000
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

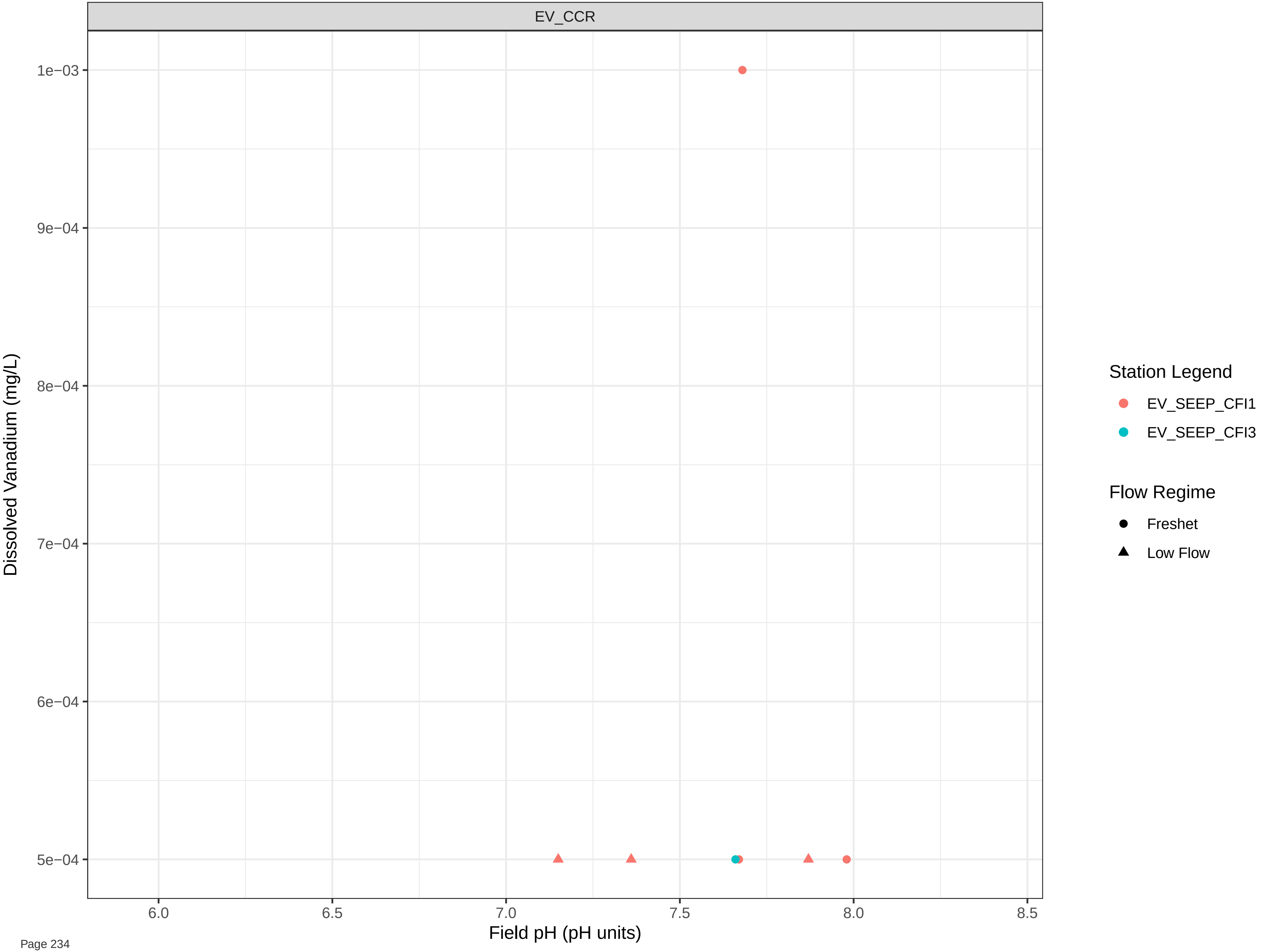

EV_Erickson_WR
Dissolved Uranium (mg/L)
0.025
0.020
0.015
0.010
0.005
0.000
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

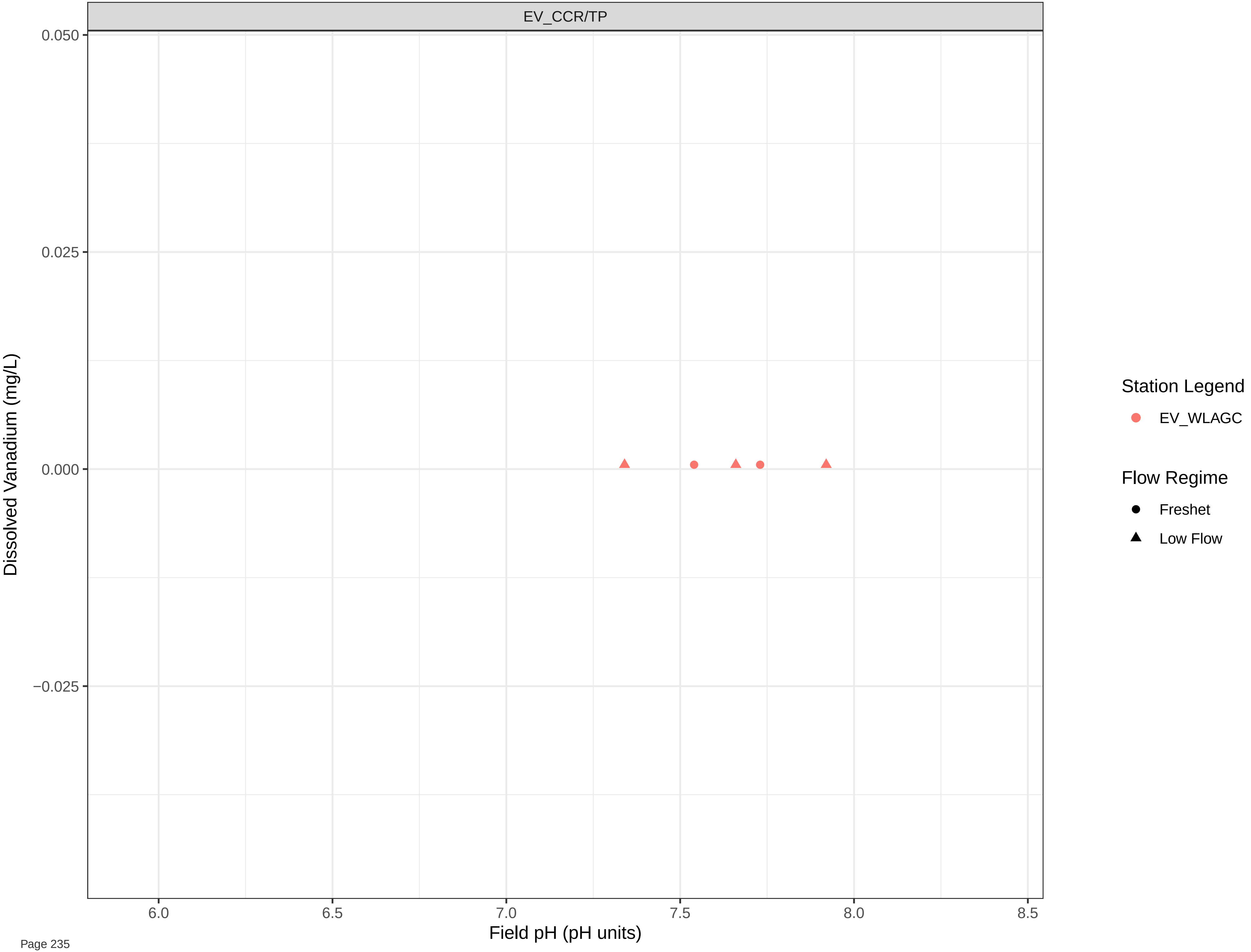

EV_PLANT
Dissolved Uranium (mg/L)
0.0020
0.0015
0.0010
0.0005
0.0000
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

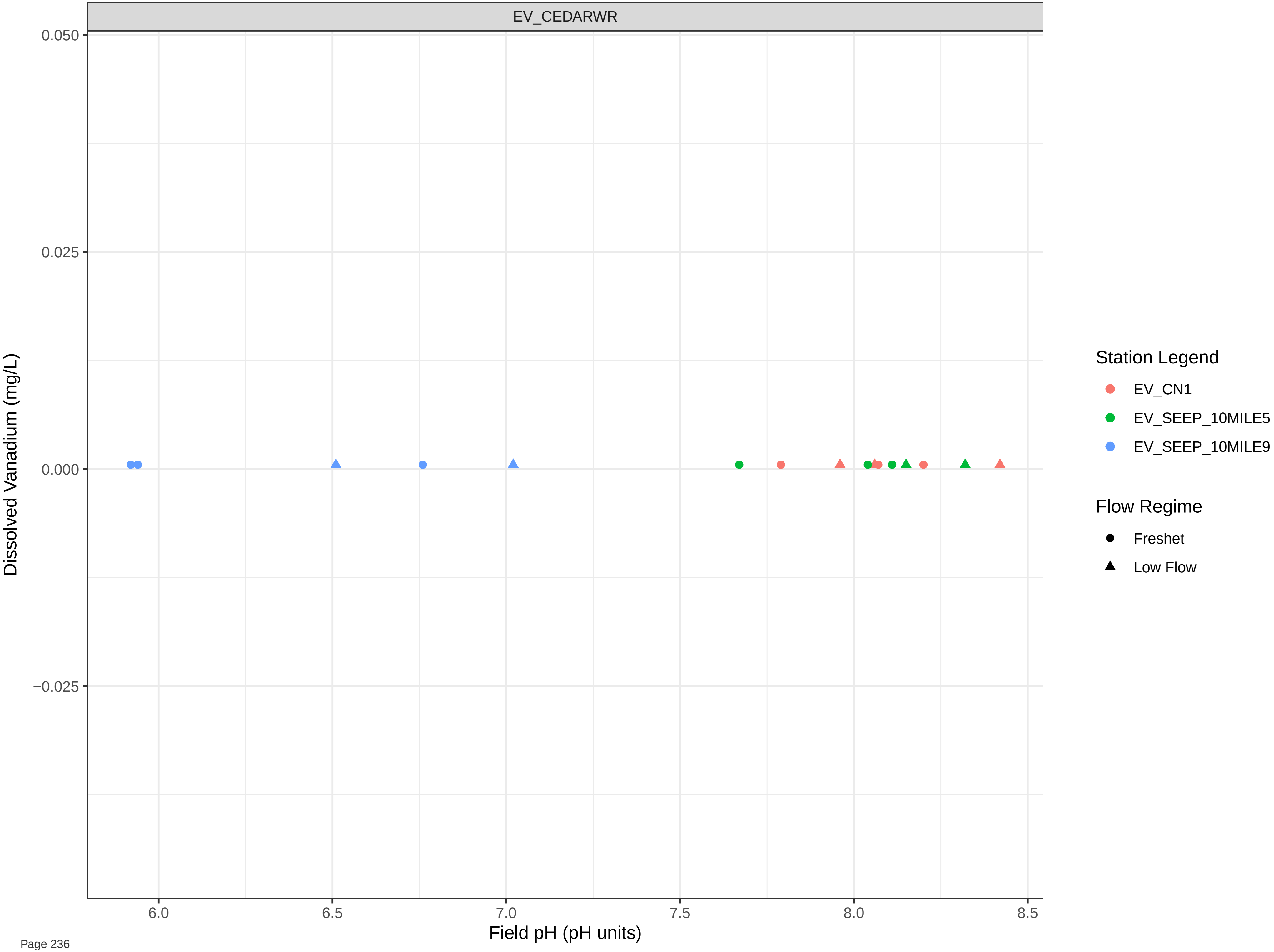

EV_SOUTHSLOPE
Dissolved Uranium (mg/L)
1e−03
8e−04
6e−04
4e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

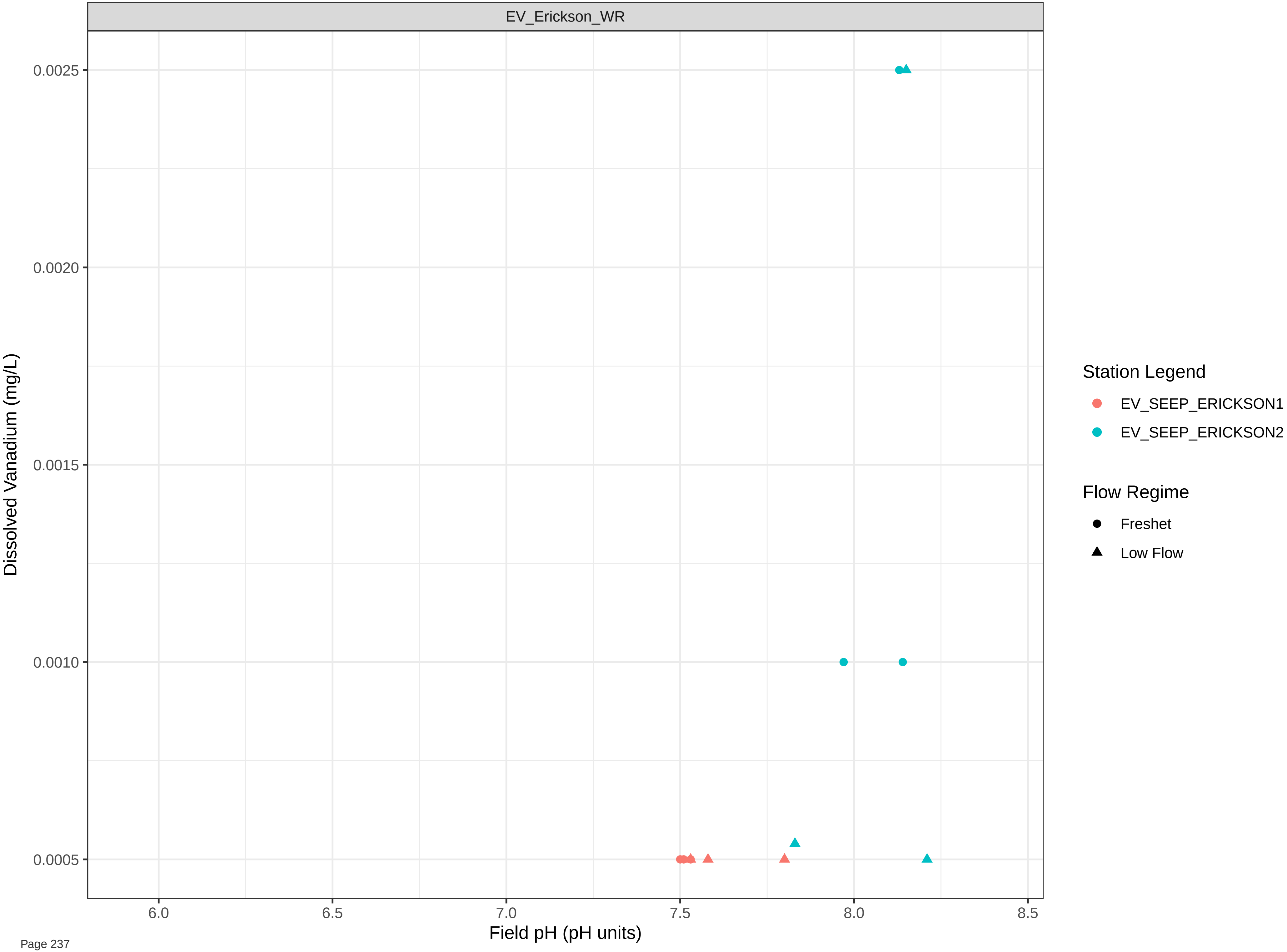

EV_SouthPit_Pit
Dissolved Uranium (mg/L)
0.011
0.010
0.009
0.008
0.007
0.006
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

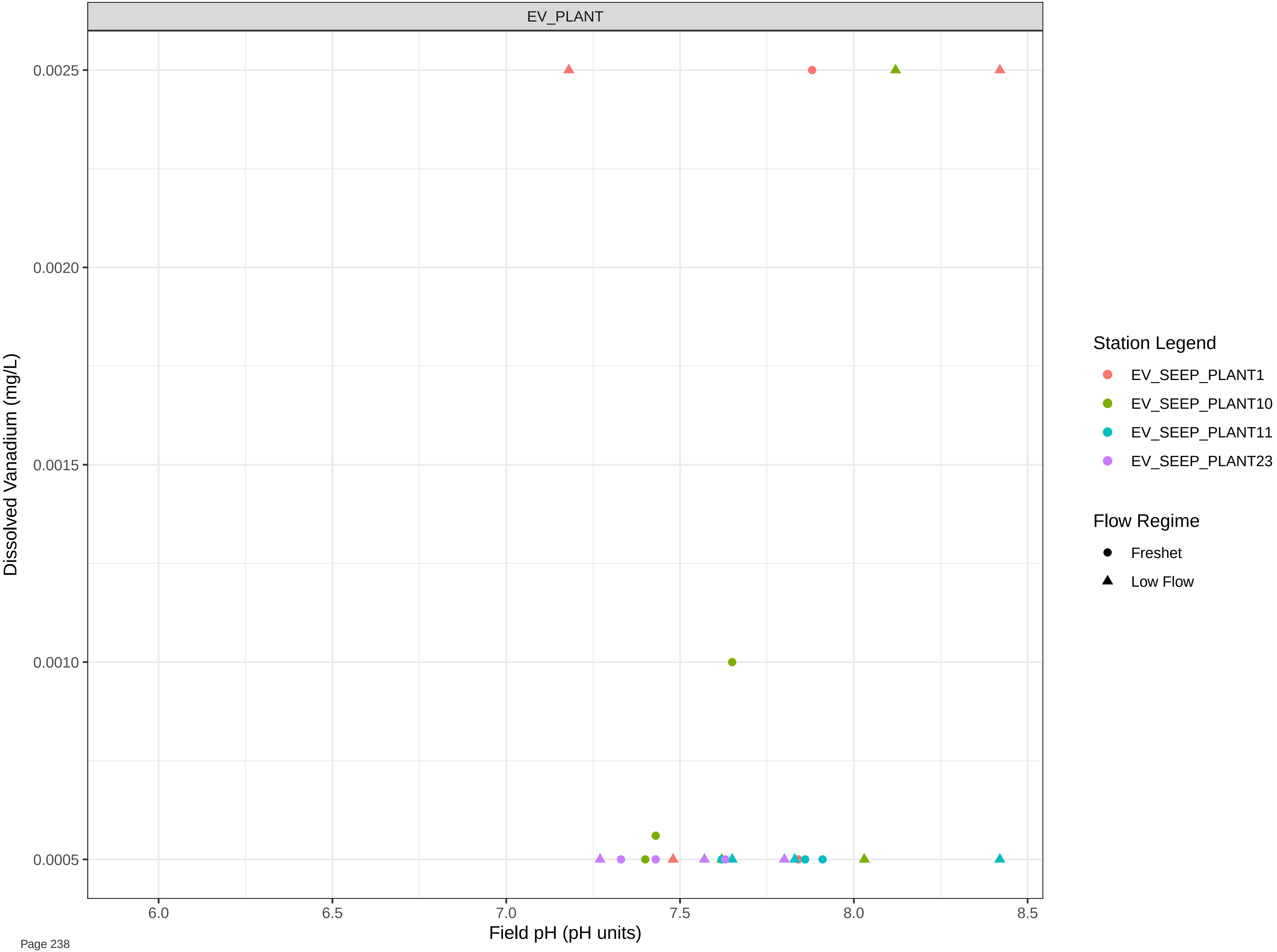

EV_BALDYRIDGEWR
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

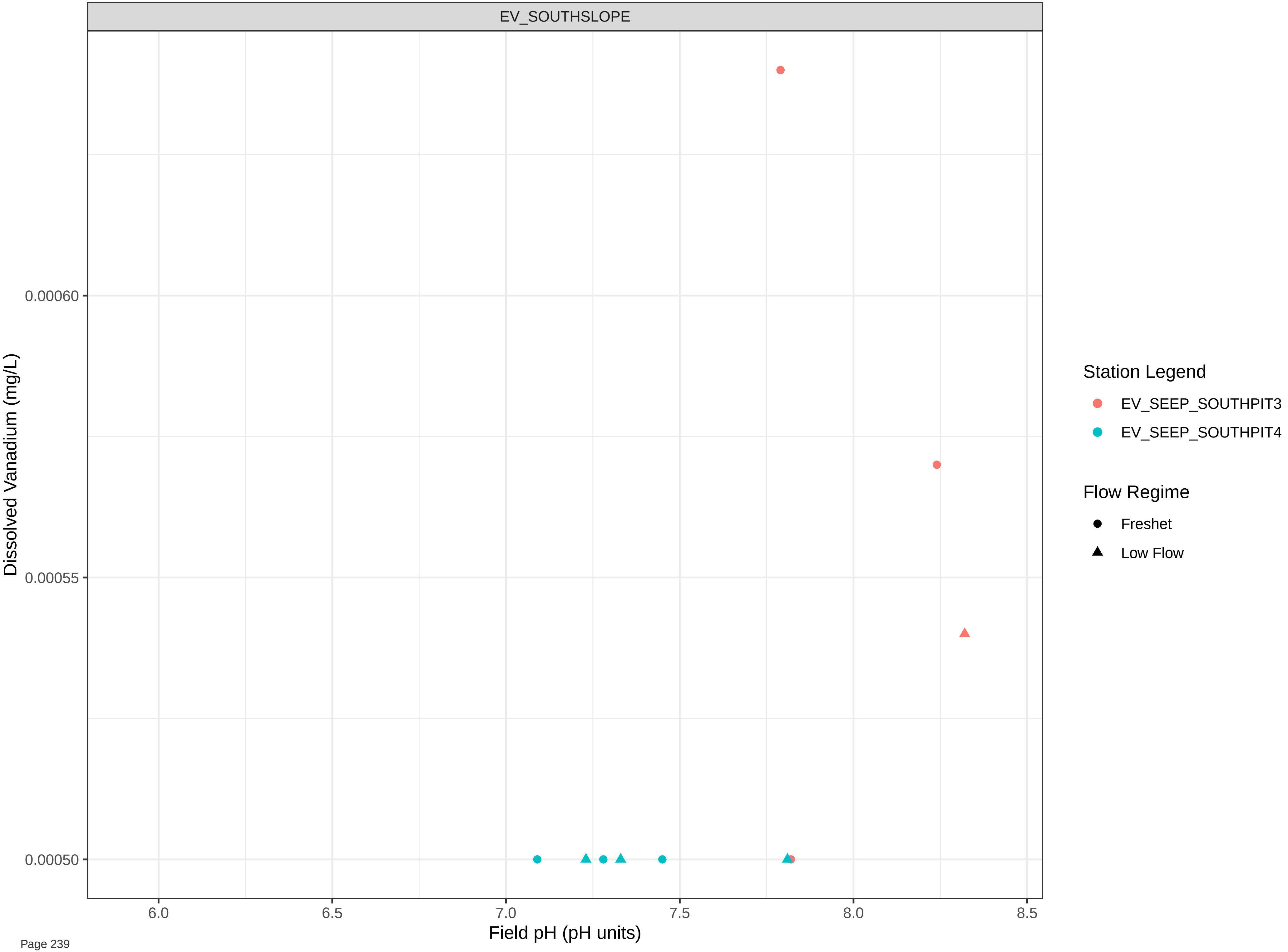

EV_CCR
Dissolved Vanadium (mg/L)
1e−03
9e−04
8e−04
7e−04
6e−04
5e−04
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

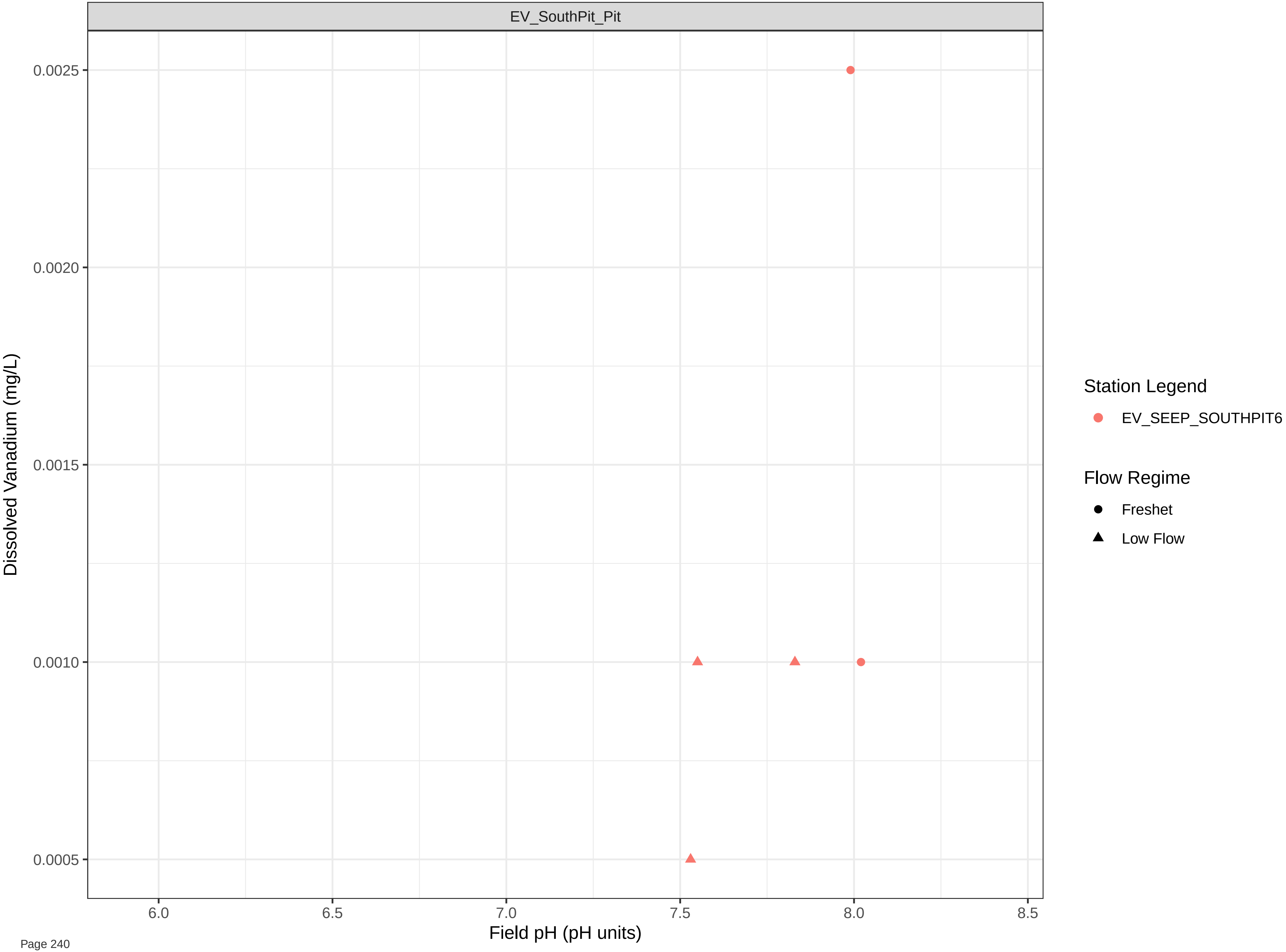

EV_CCR/TP
0.050
0.025
0.000
−0.025
Dissolved Vanadium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

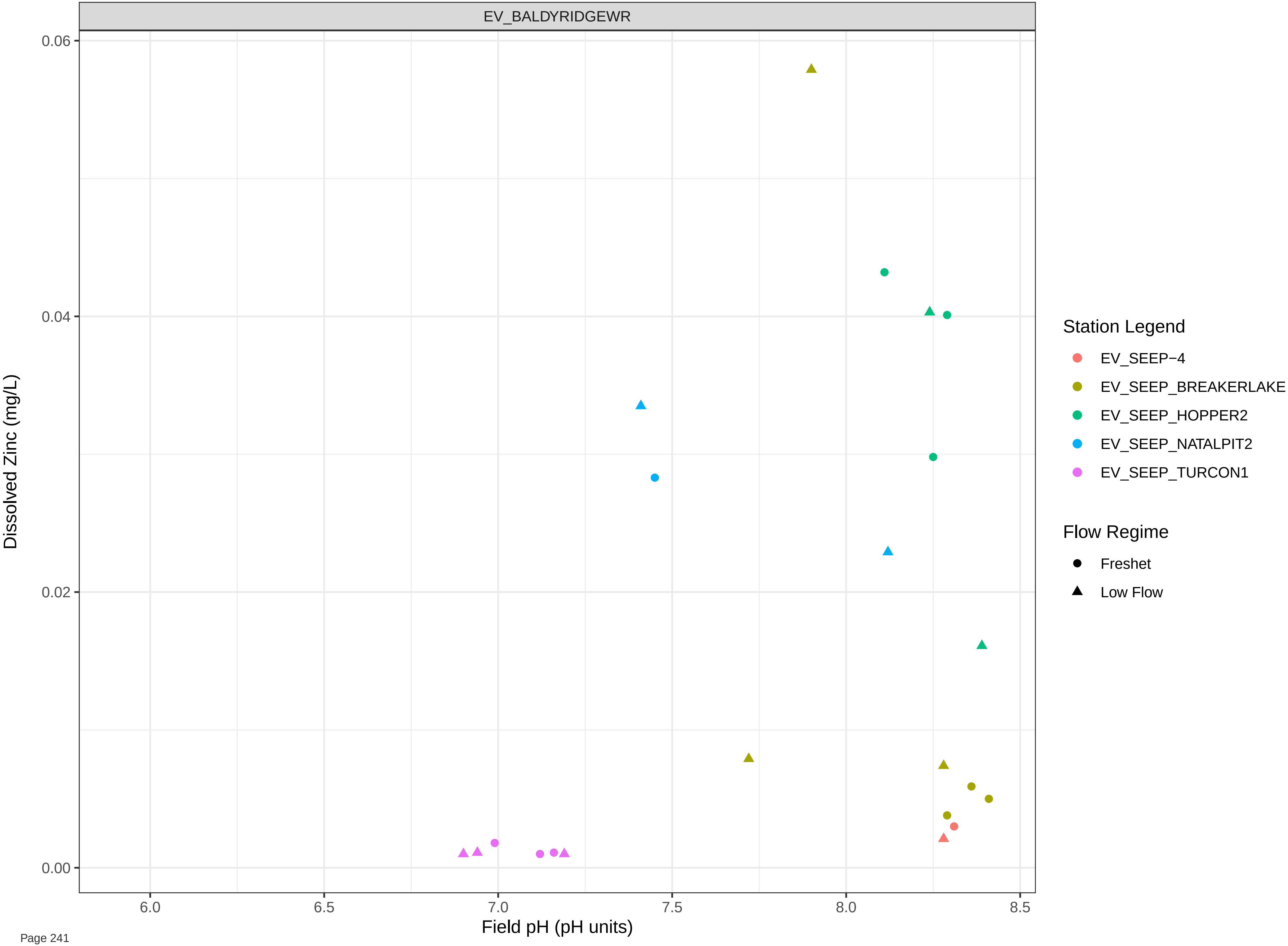

EV_CEDARWR
0.050
0.025
0.000
−0.025
Dissolved Vanadium (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

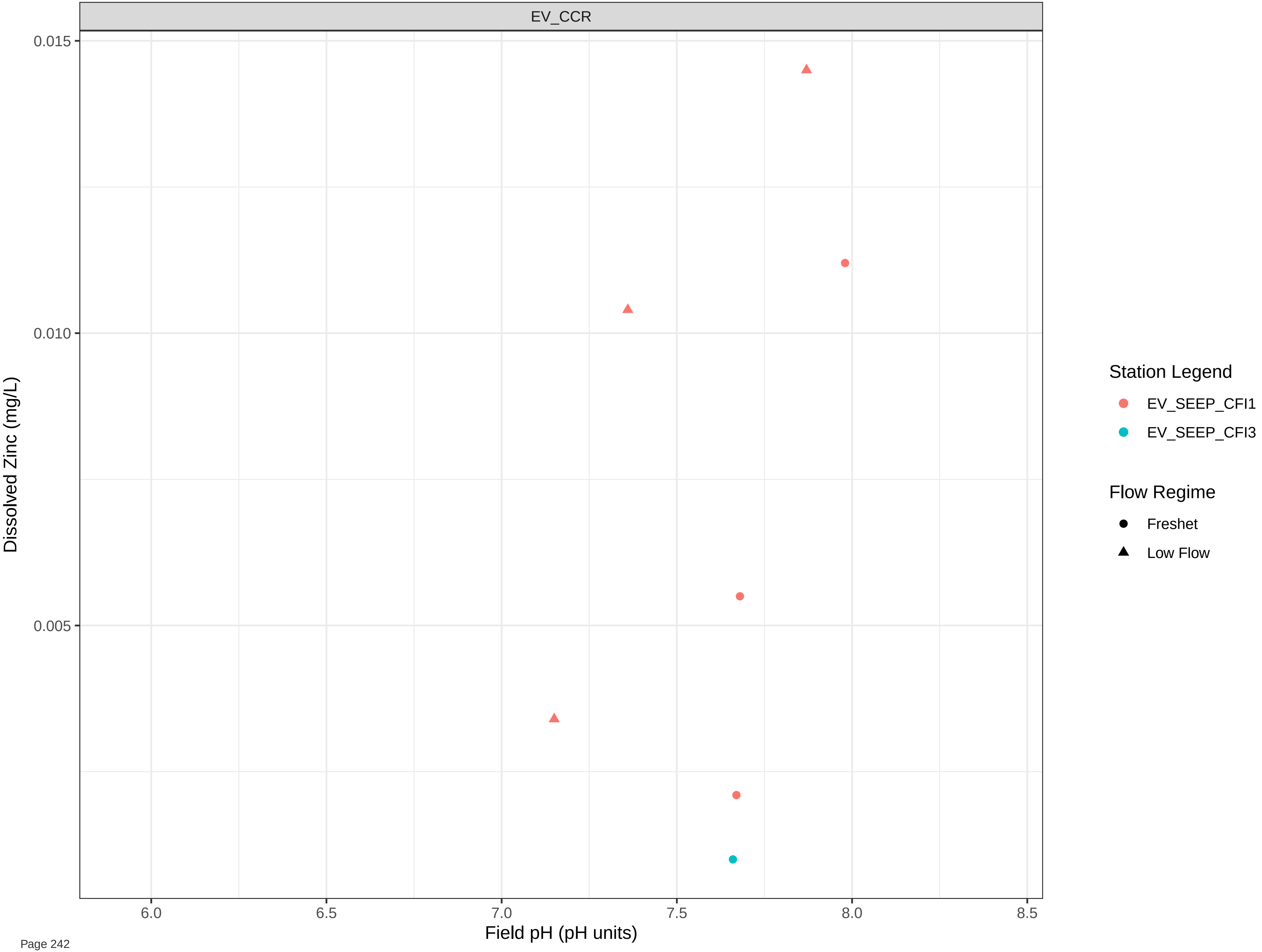

EV_Erickson_WR
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

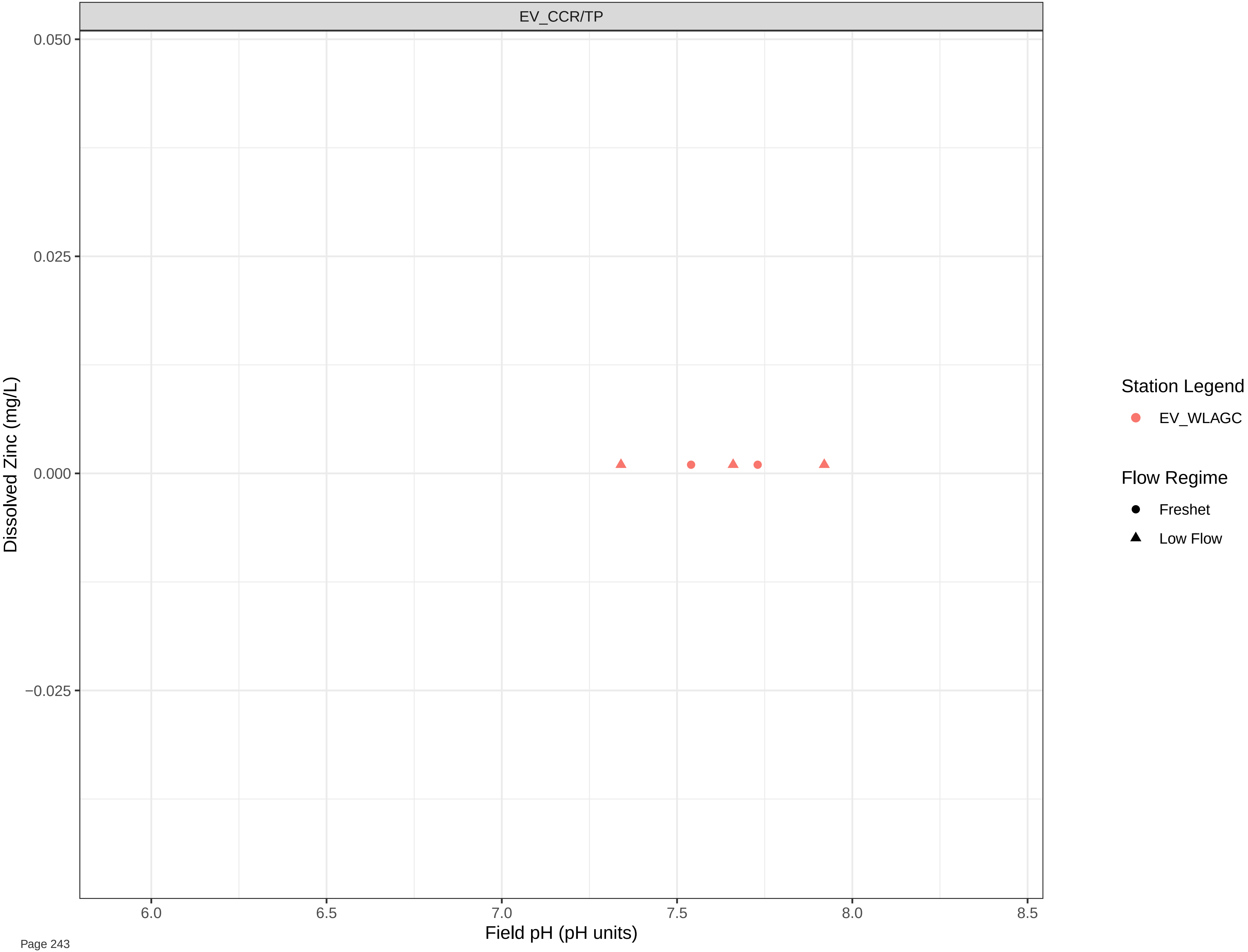

EV_PLANT
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

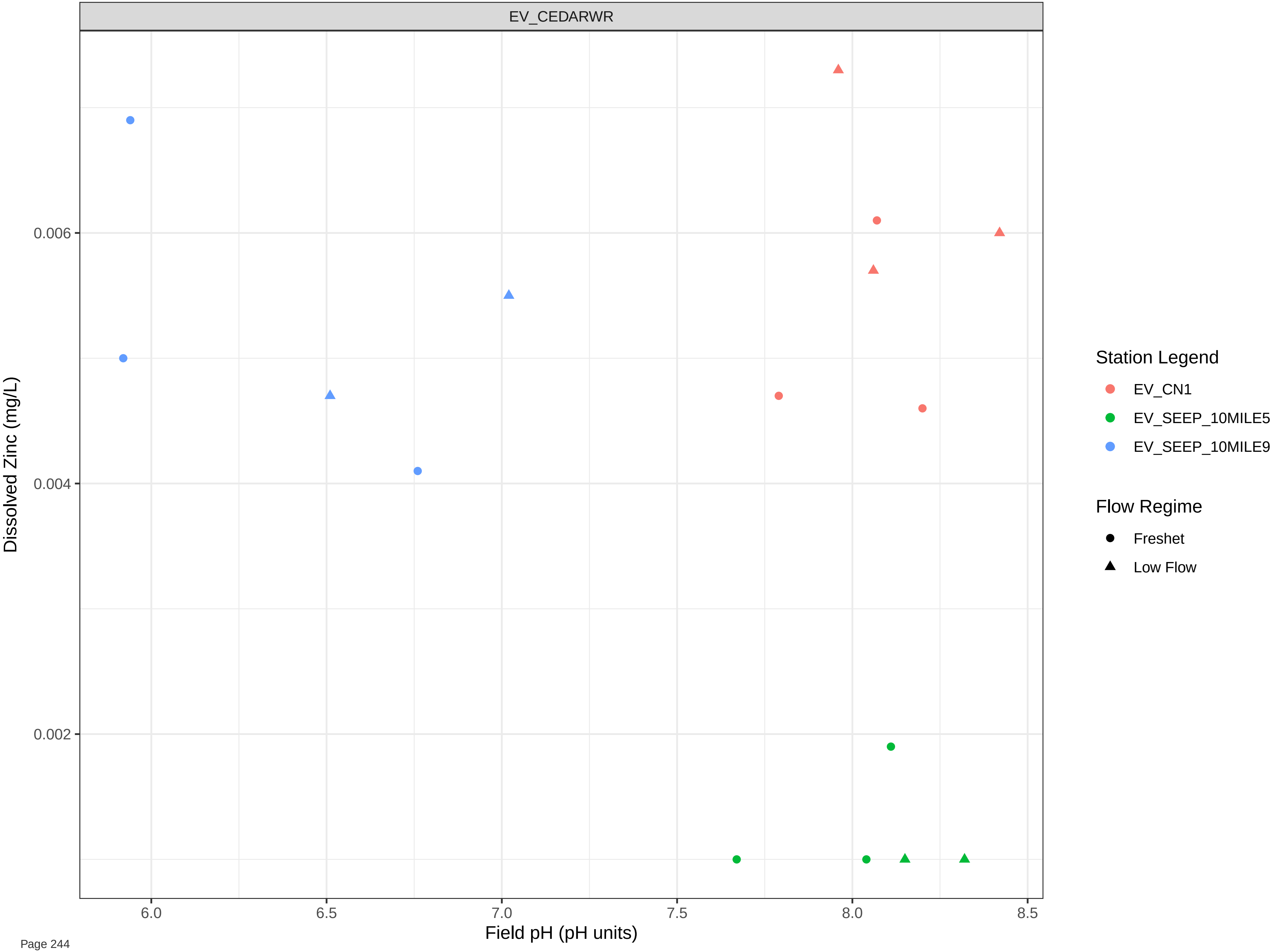

EV_SOUTHSLOPE
Dissolved Vanadium (mg/L)
0.00060
0.00055
0.00050
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

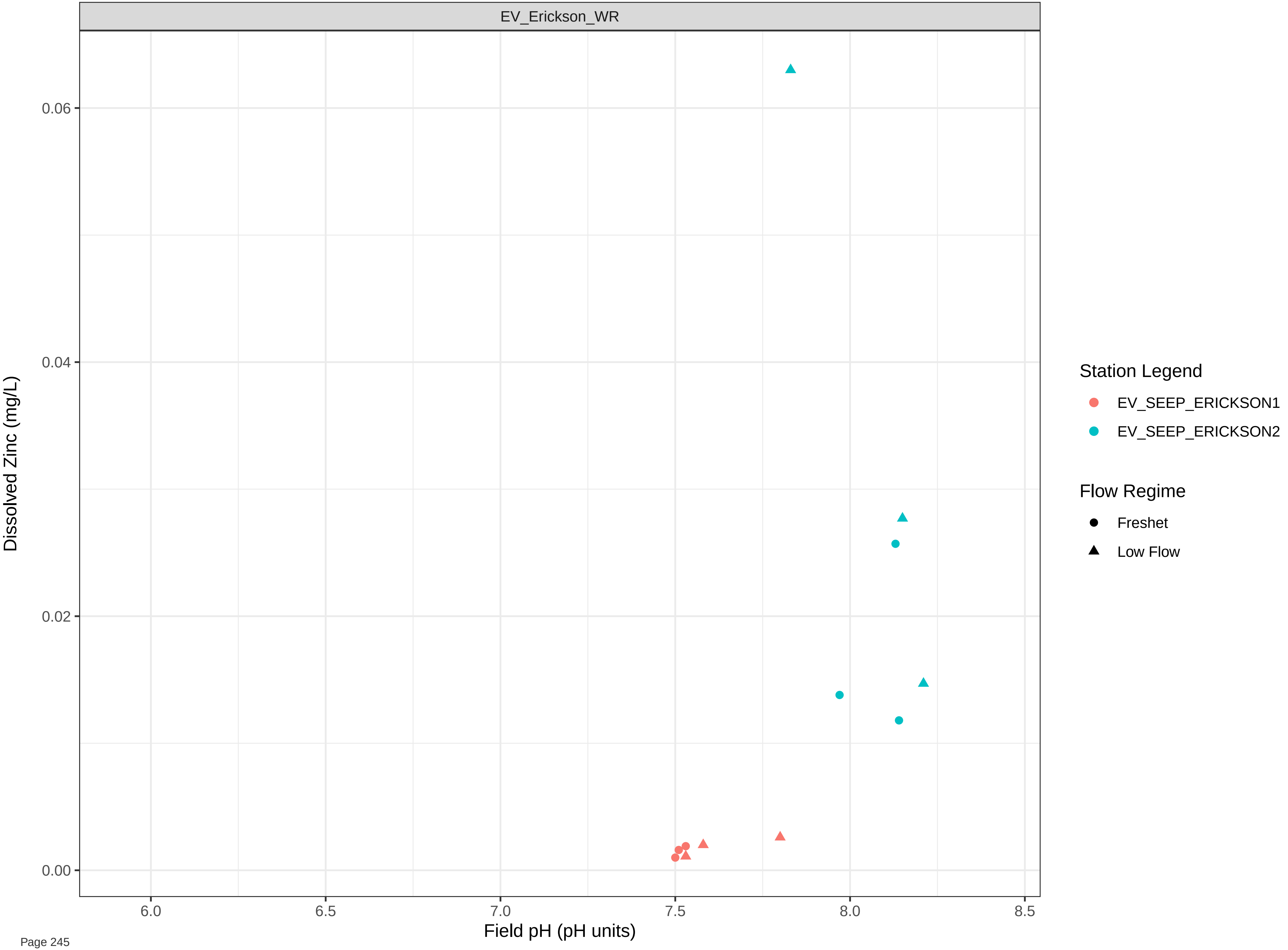

EV_SouthPit_Pit
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

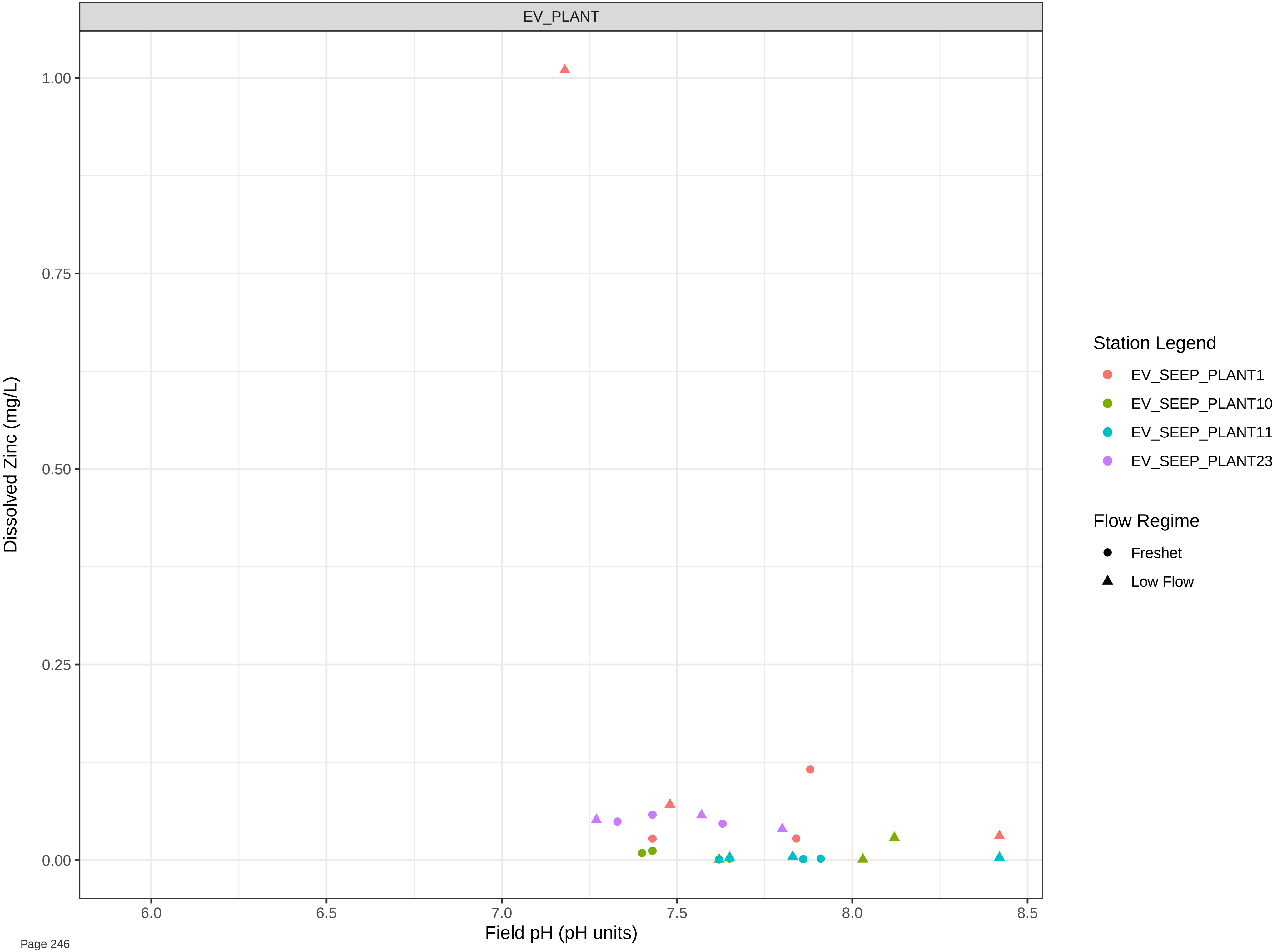

EV_BALDYRIDGEWR
Dissolved Zinc (mg/L)
0.06
0.04
0.02
0.00
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

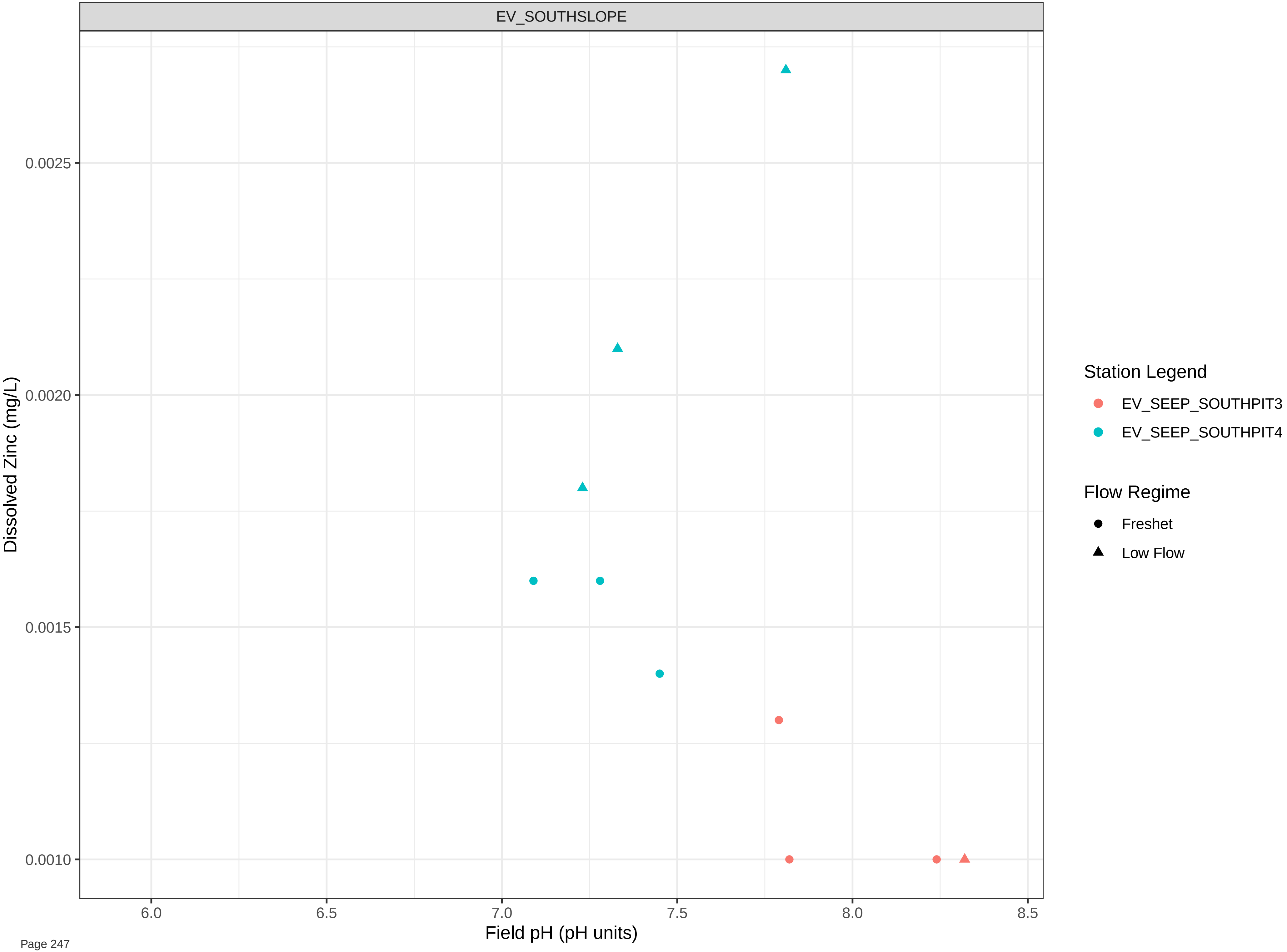

EV_CCR
0.015
0.010
0.005
Dissolved Zinc (mg/L)
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

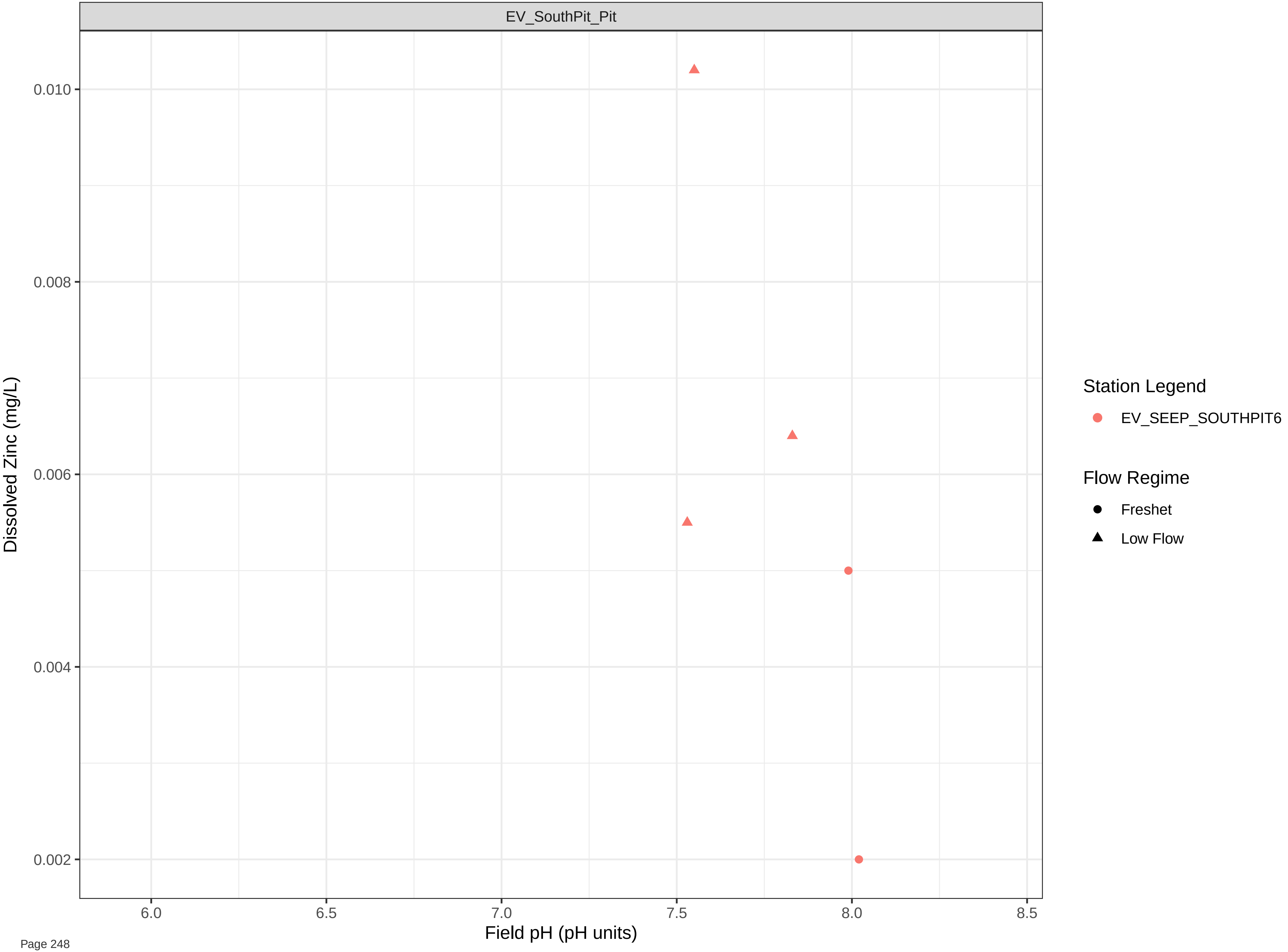

EV_CCR/TP
Dissolved Zinc (mg/L)
0.050
0.025
0.000
−0.025
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

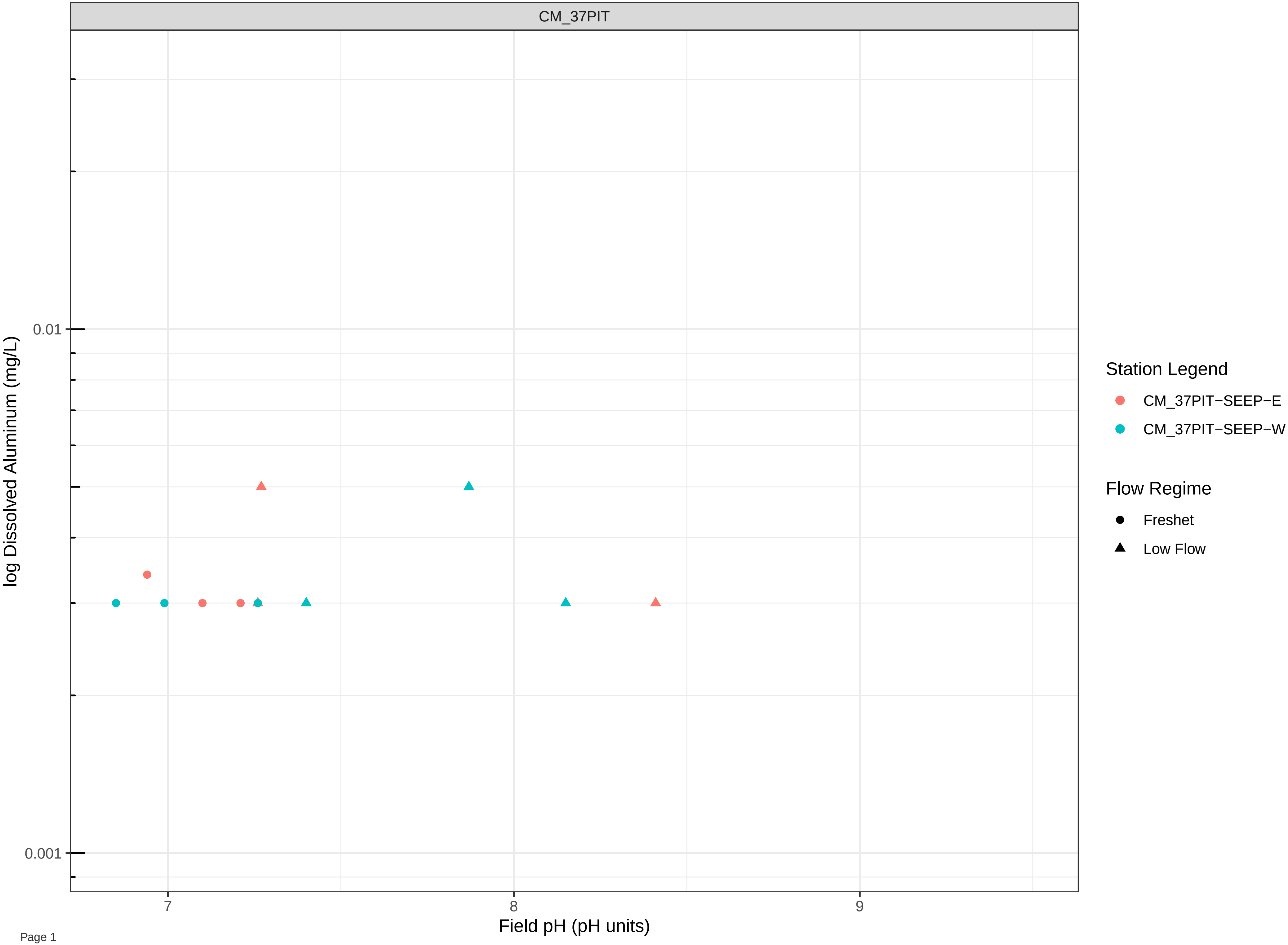

EV_CEDARWR
Dissolved Zinc (mg/L)
0.006
0.004
0.002
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

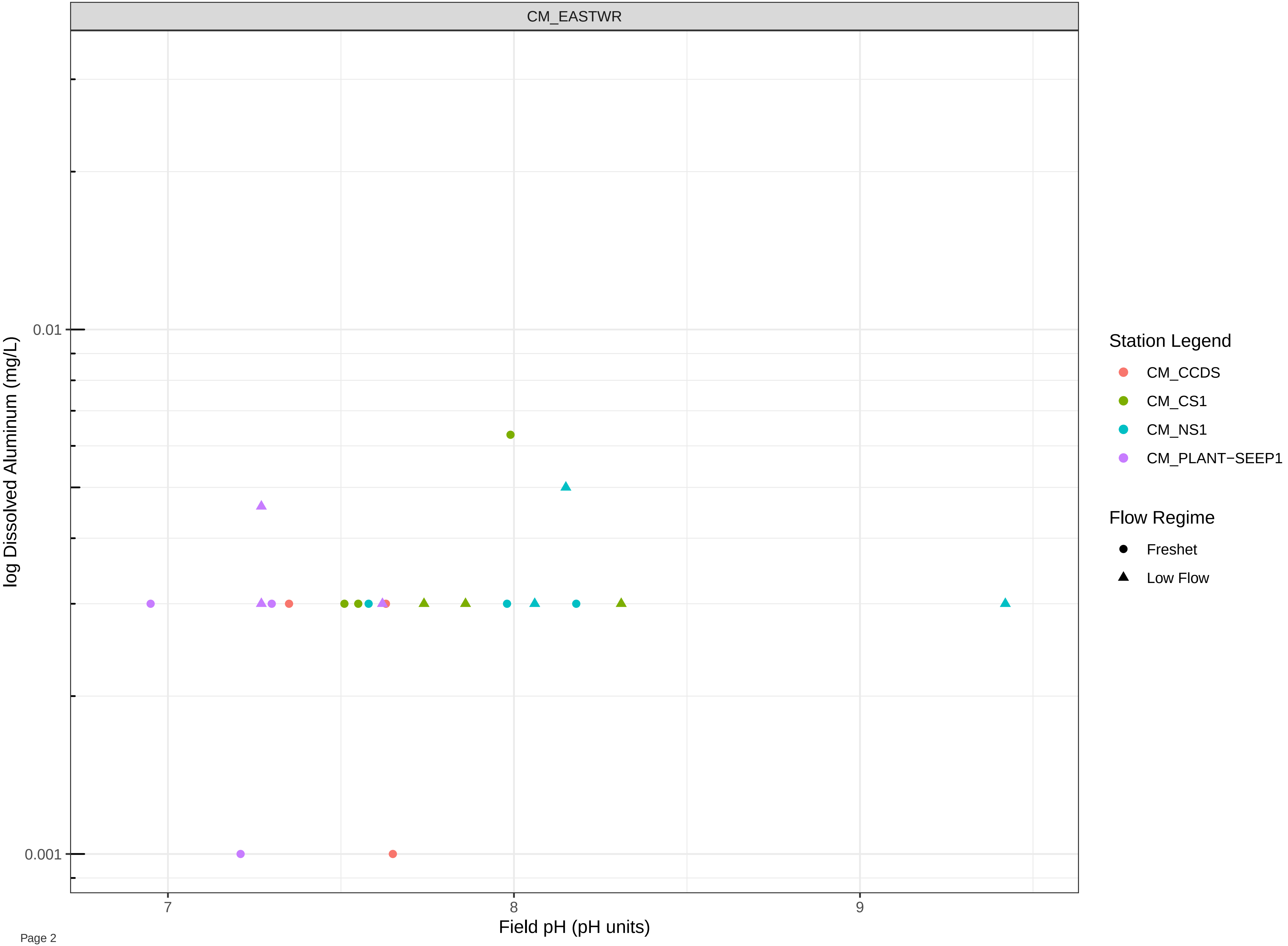

EV_Erickson_WR
Dissolved Zinc (mg/L)
0.06
0.04
0.02
0.00
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

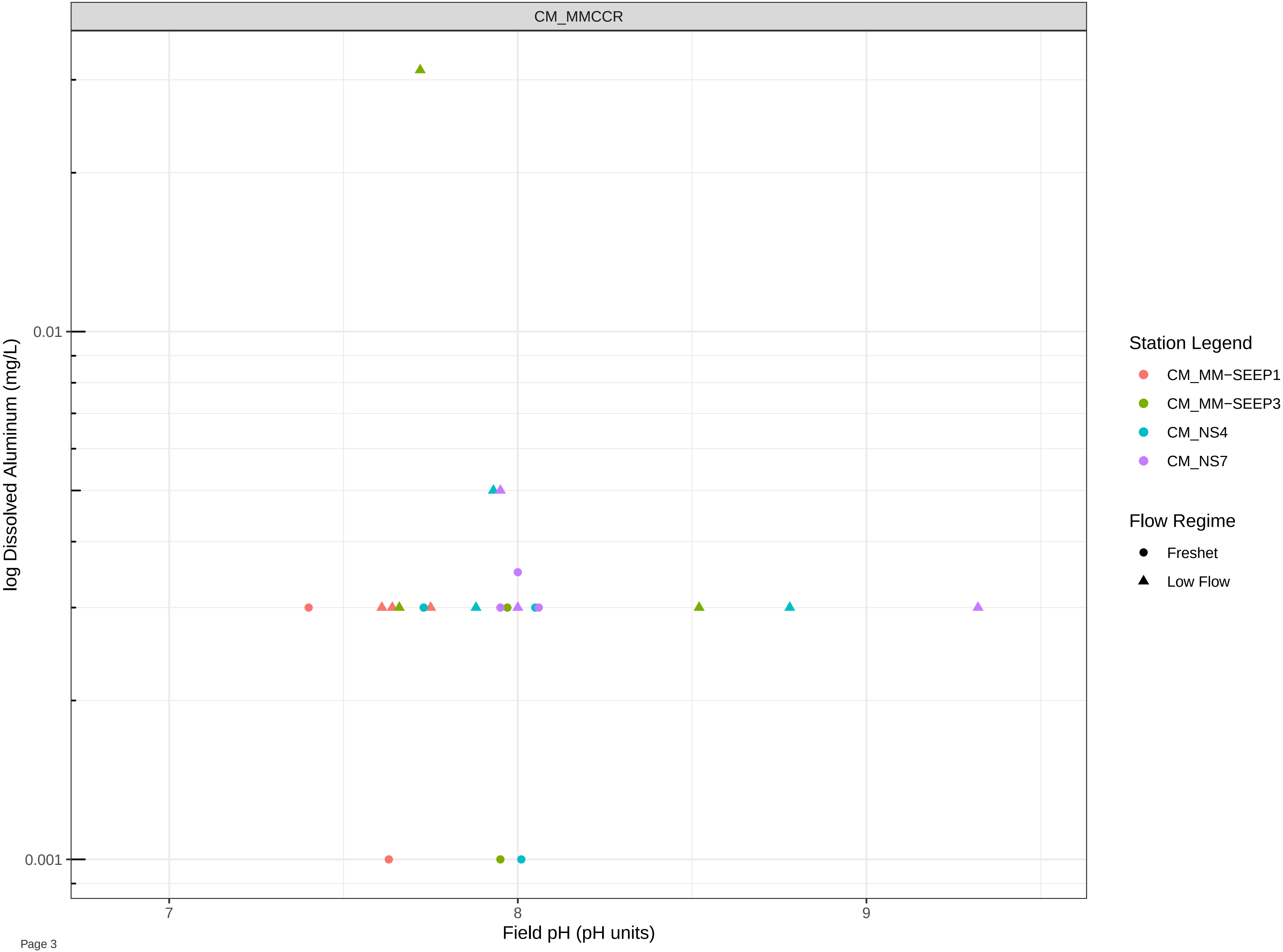

EV_PLANT
Dissolved Zinc (mg/L)
1.00
0.75
0.50
0.25
0.00
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

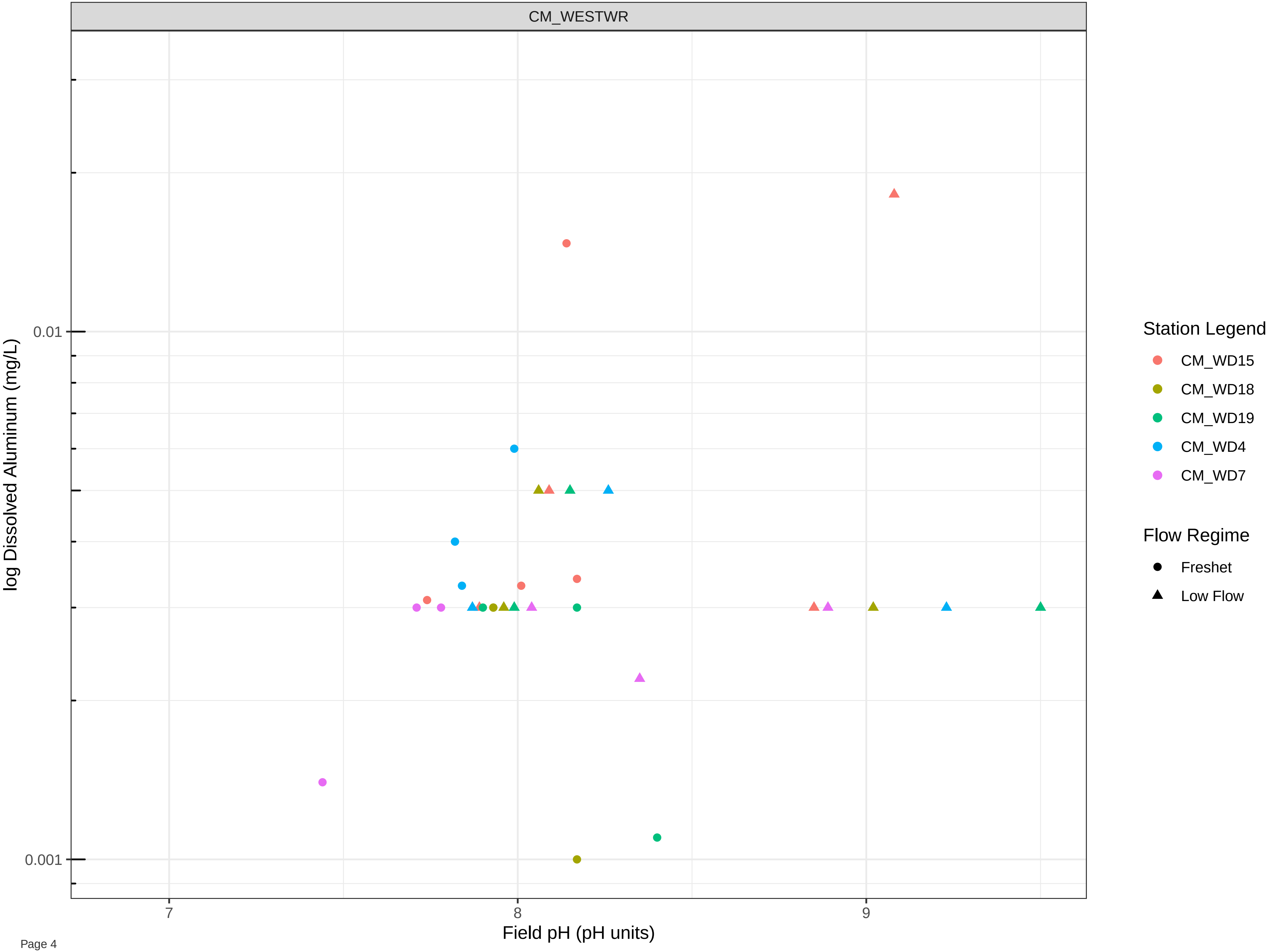

EV_SOUTHSLOPE
Dissolved Zinc (mg/L)
0.0025
0.0020
0.0015
0.0010
6.0
6.5
7.0
7.5
8.0
8.5
Field pH (pH units)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

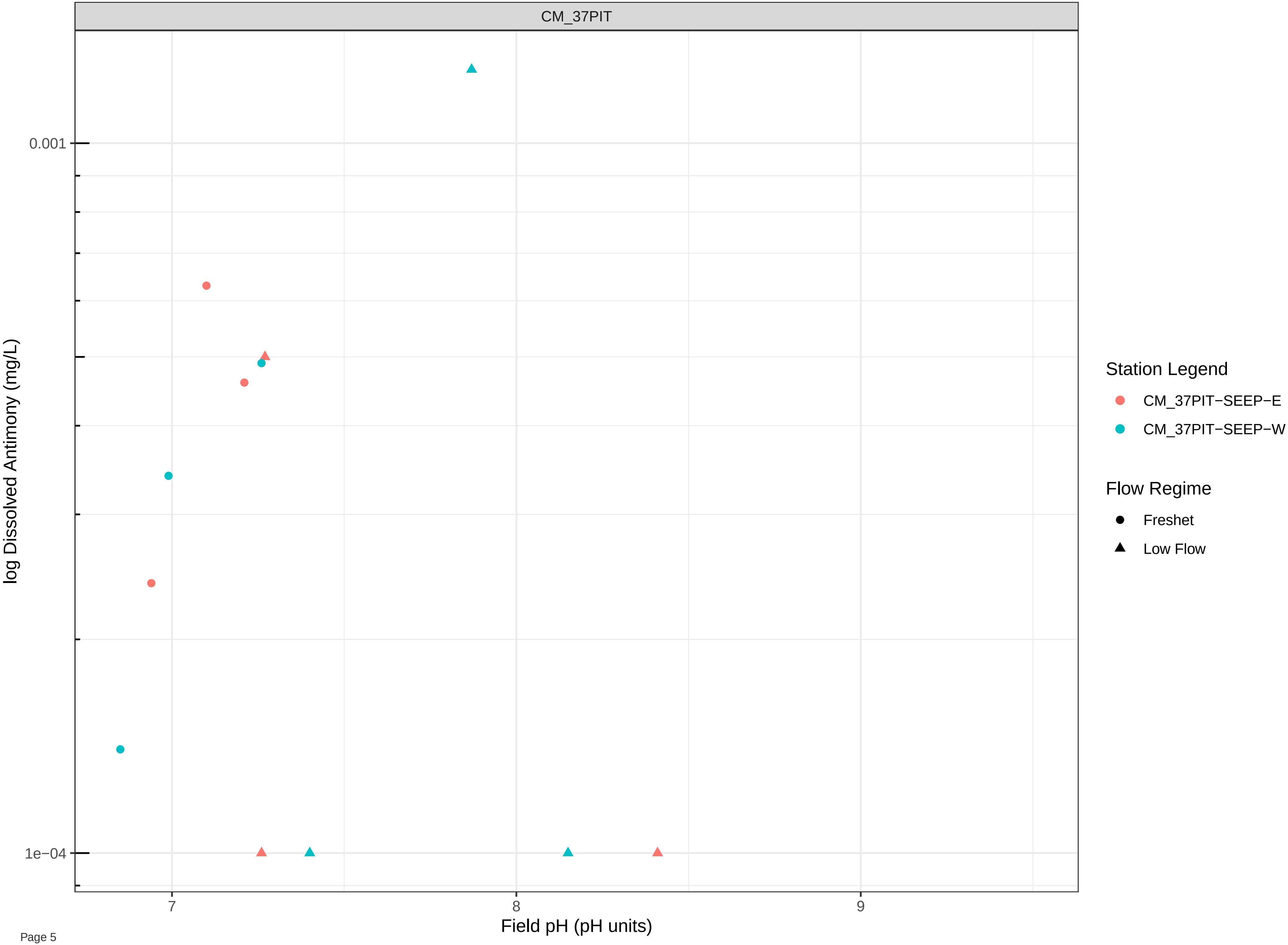

EV_SouthPit_Pit
Dissolved Zinc (mg/L)
0.010
0.008
0.006
0.004
0.002
Field pH (pH units)
6.0
6.5
7.0
7.5
8.0
8.5
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

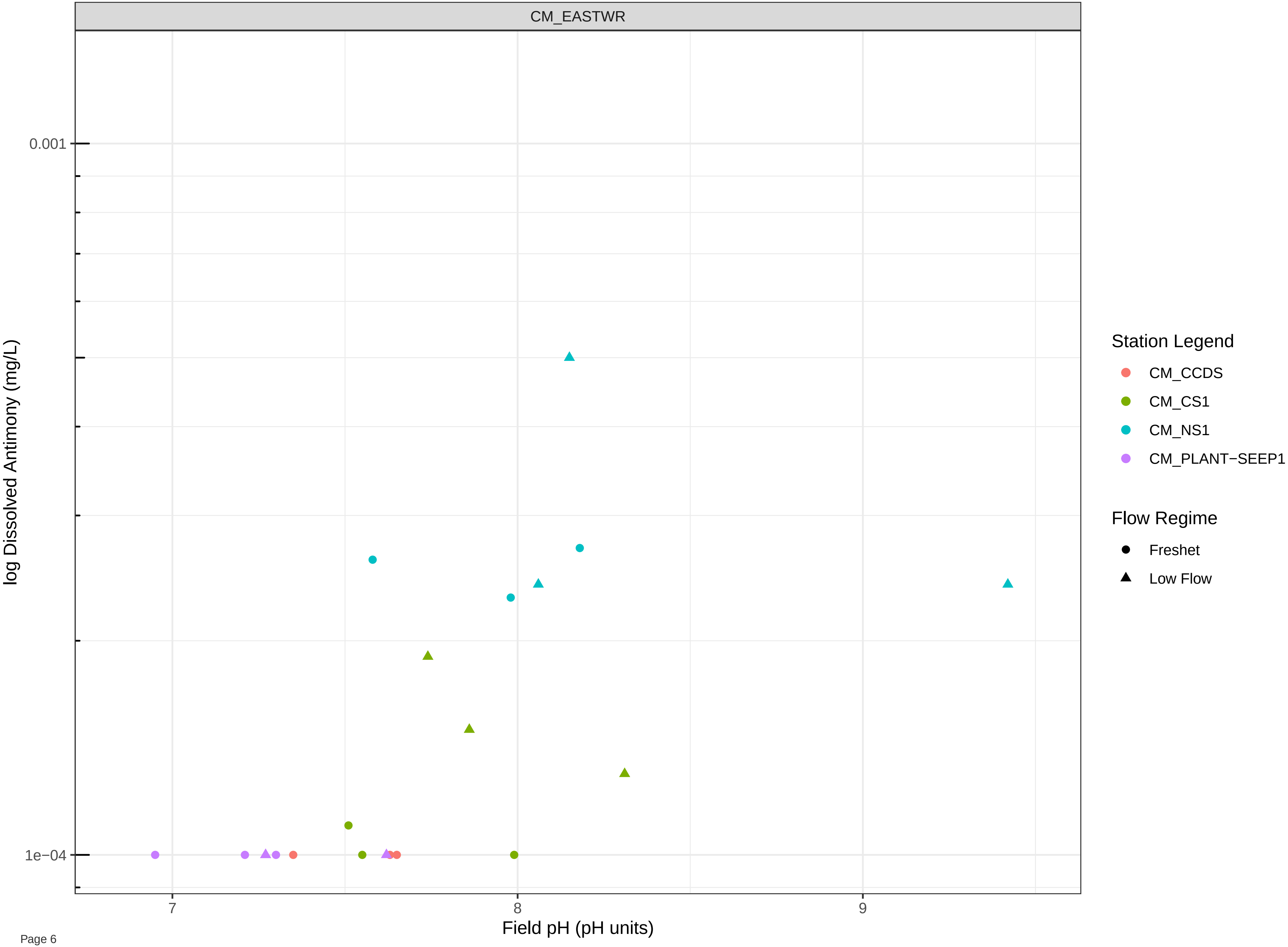

CM_37PIT
log Dissolved Aluminum (mg/L)
0.01
0.001
7
8
9
Field pH (pH units)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow

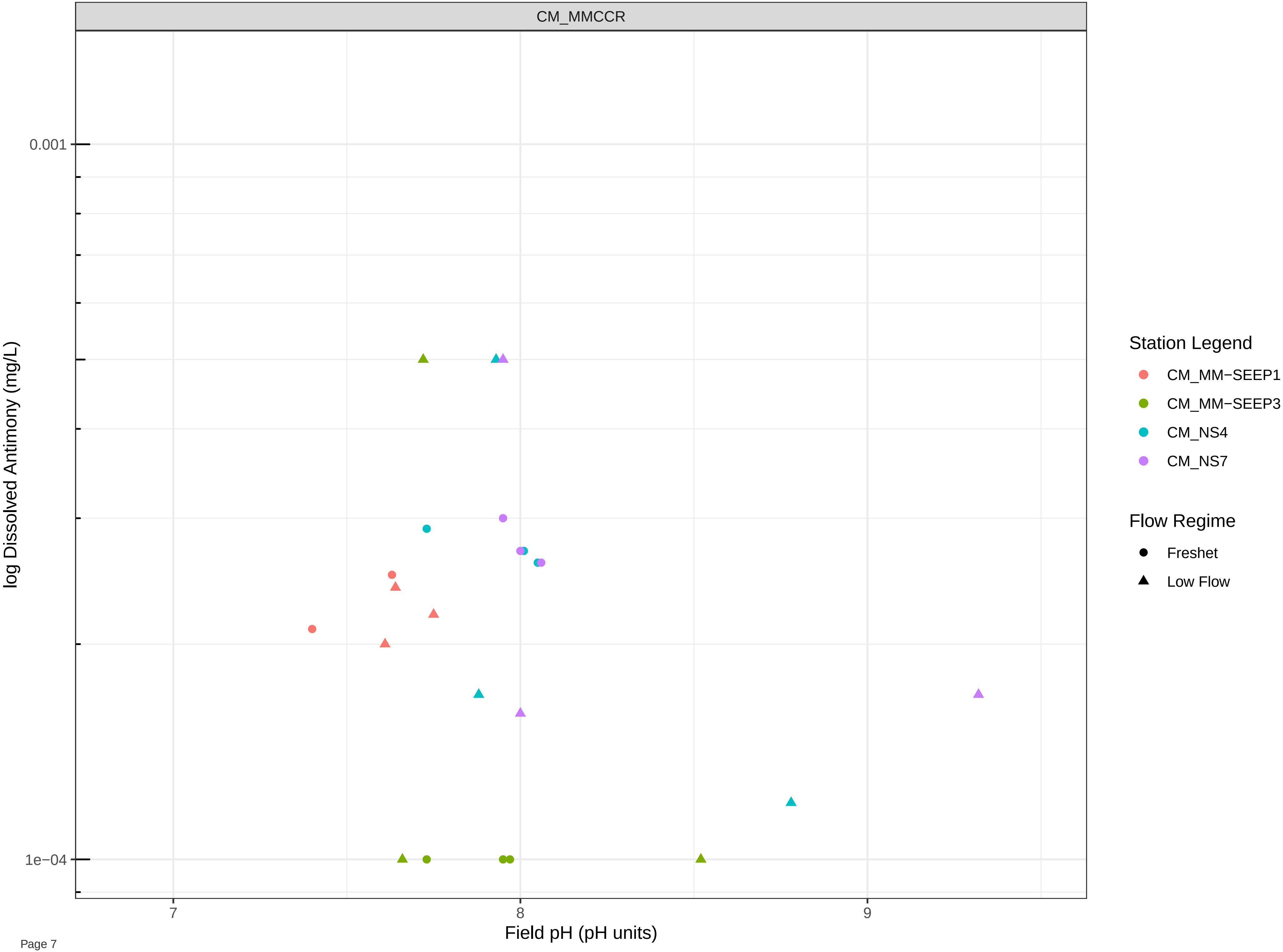

CM_EASTWR
log Dissolved Aluminum (mg/L)
0.01
0.001
Field pH (pH units)
7
8
9
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow


CM_MMCCR
log Dissolved Aluminum (mg/L)
0.01
0.001
Field pH (pH units)
7
8
9
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow


CM_WESTWR
log Dissolved Aluminum (mg/L)
0.01
0.001
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow


CM_37PIT
log Dissolved Antimony (mg/L)
0.001
1e−04
7
8
9
Field pH (pH units)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow


CM_EASTWR
0.001
1e−04
log Dissolved Antimony (mg/L)
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow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0.001
1e−04
log Dissolved Antimony (mg/L)
7
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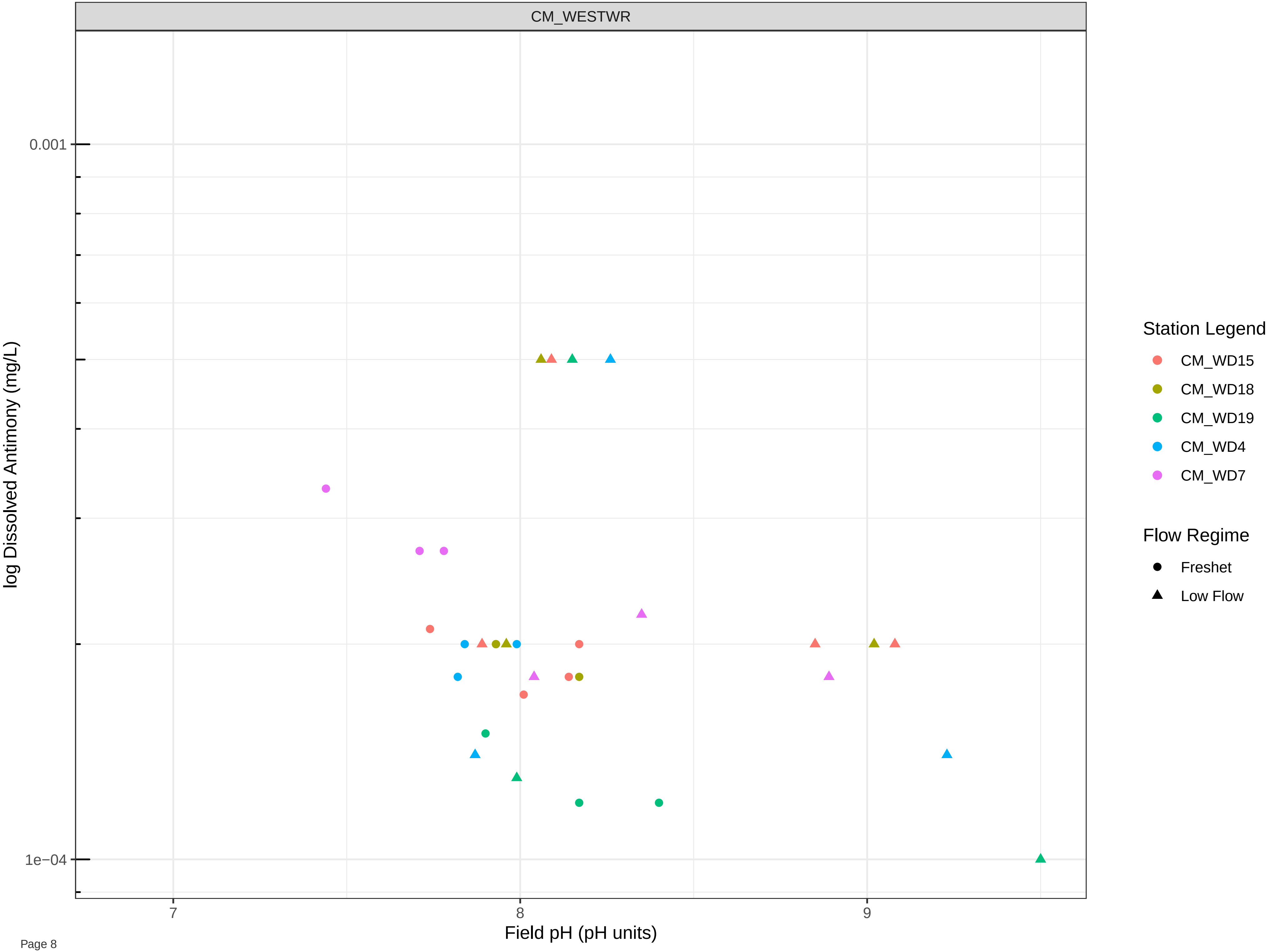
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow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1e−04
log Dissolved Antimony (mg/L)
7
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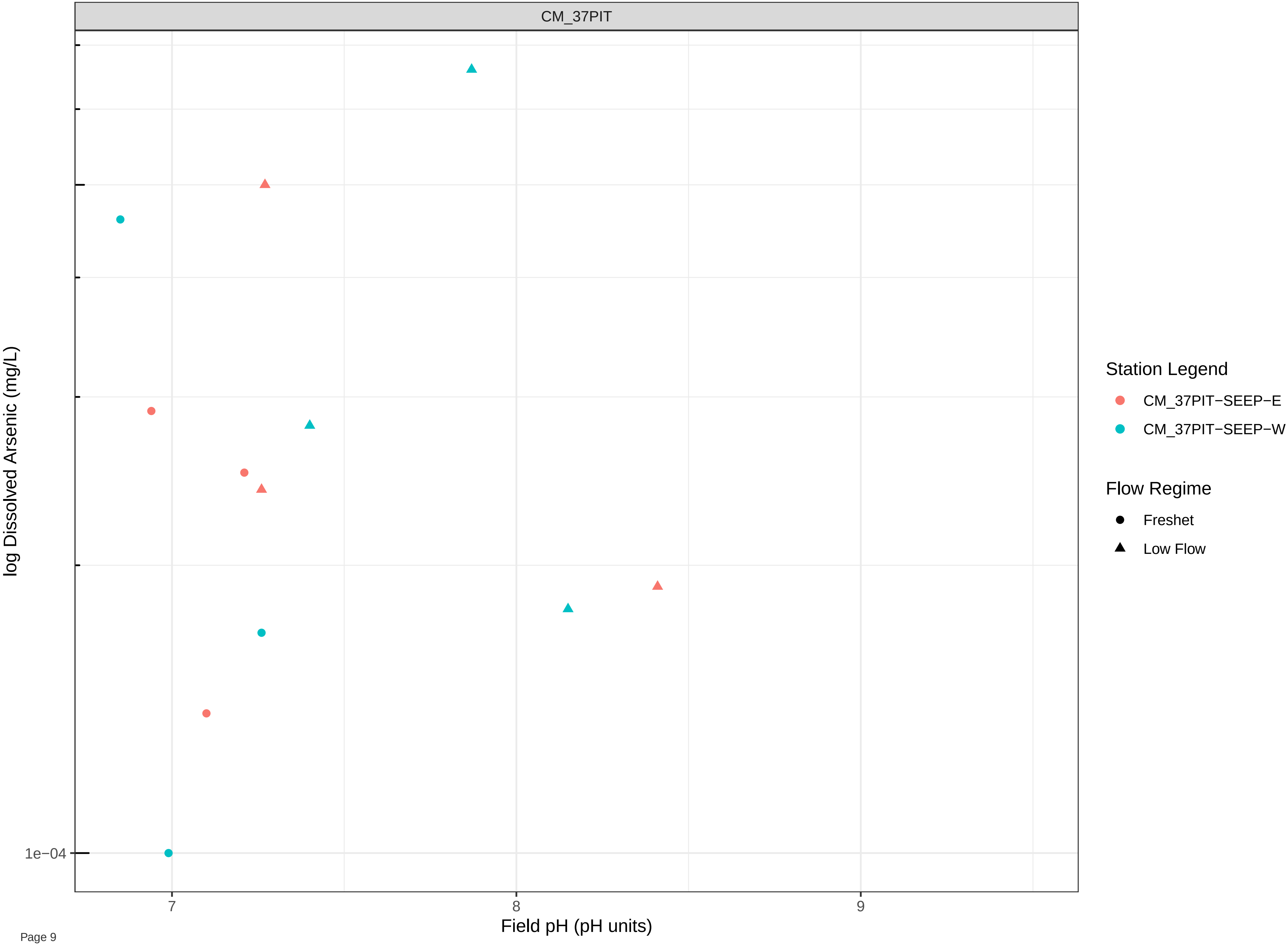
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow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log Dissolved Arsenic (mg/L)
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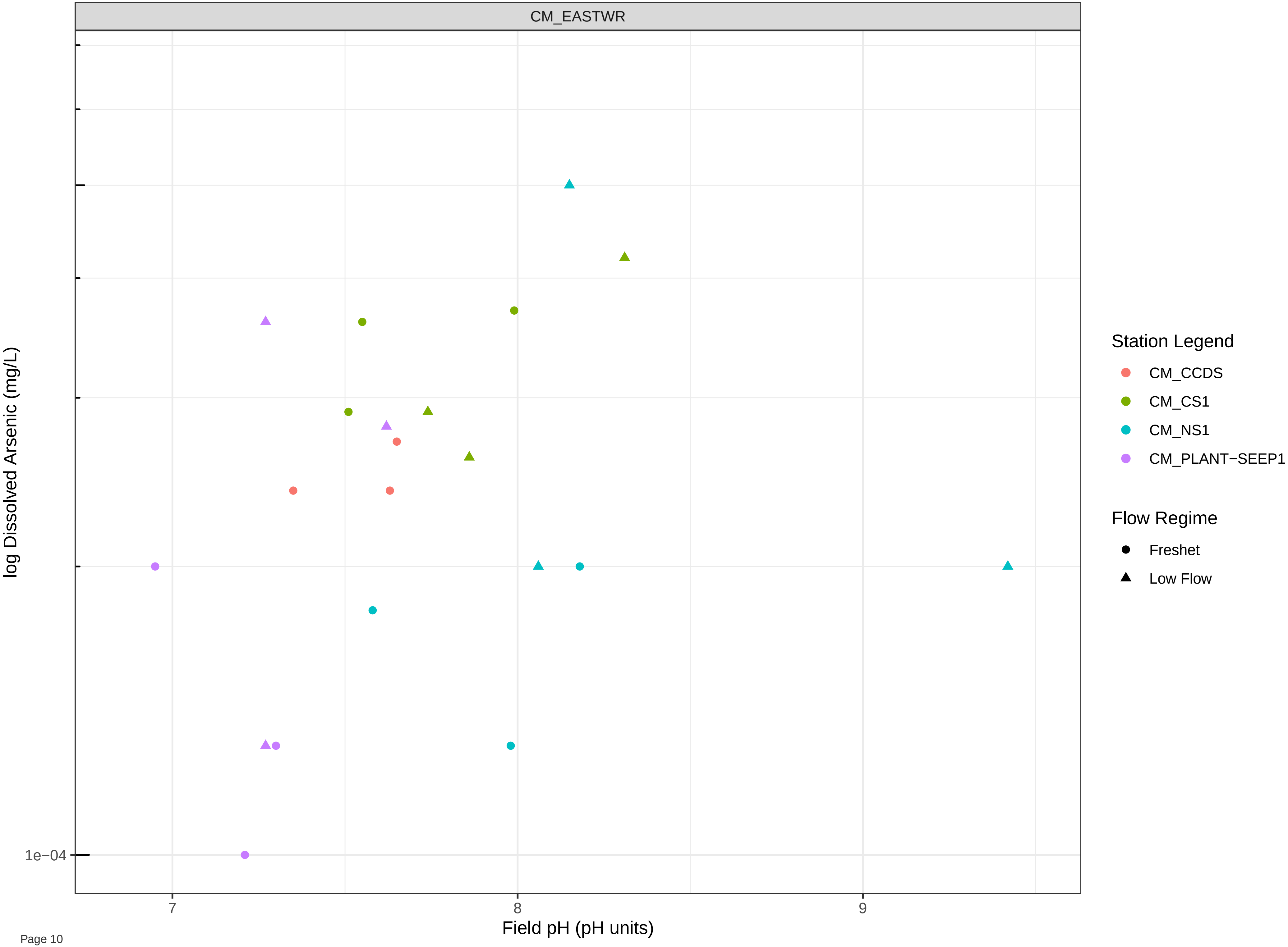
9
Field pH (pH units)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow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log Dissolved Arsenic (mg/L)
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Field pH (pH units)
Station Legend
CM_CCDS
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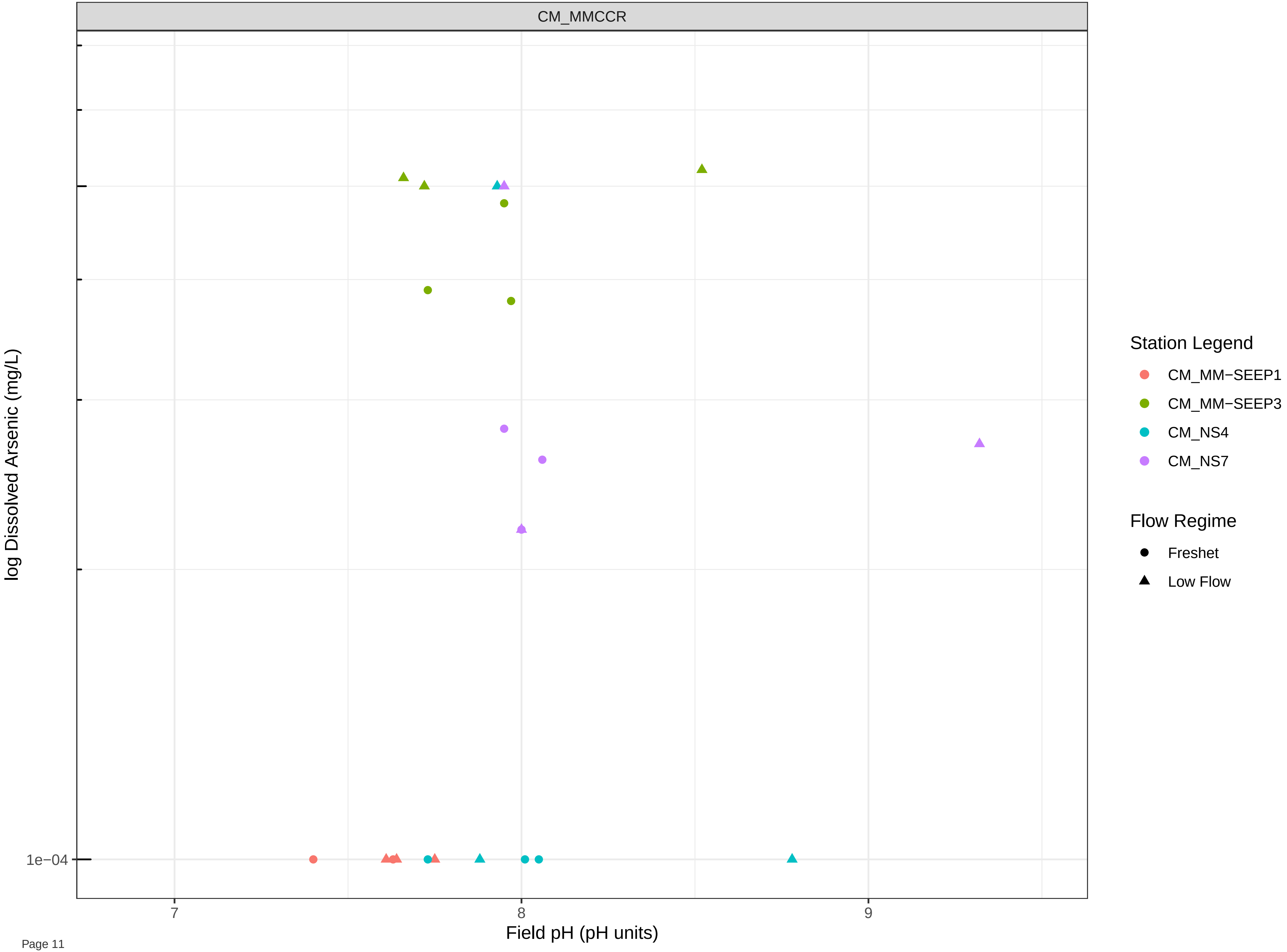
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow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log Dissolved Arsenic (mg/L)
1e−04
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Field pH (pH units)
Station Legend
CM_MM−SEEP1
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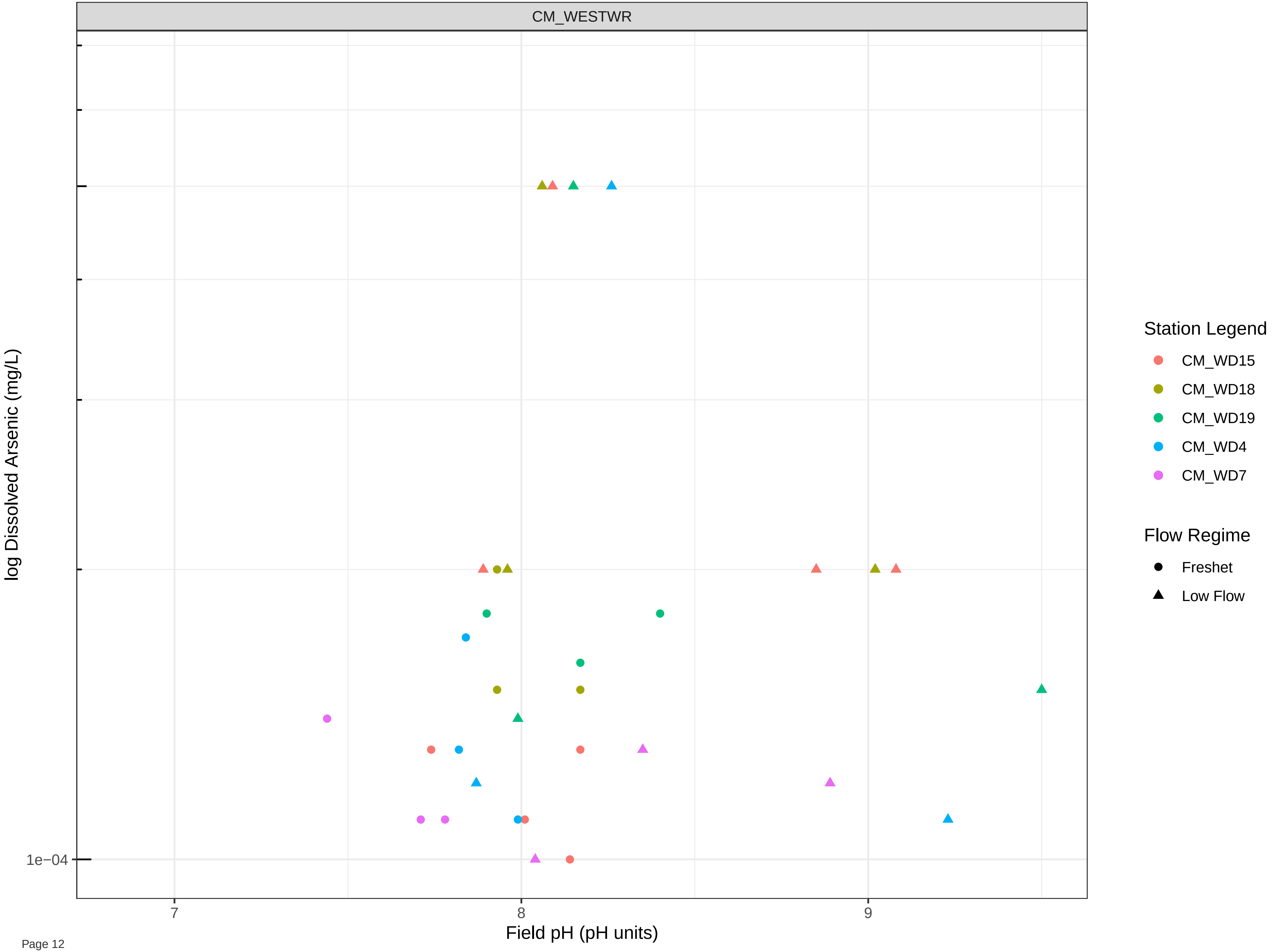
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow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log Dissolved Arsenic (mg/L)
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7
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Field pH (pH units)
Station Legend
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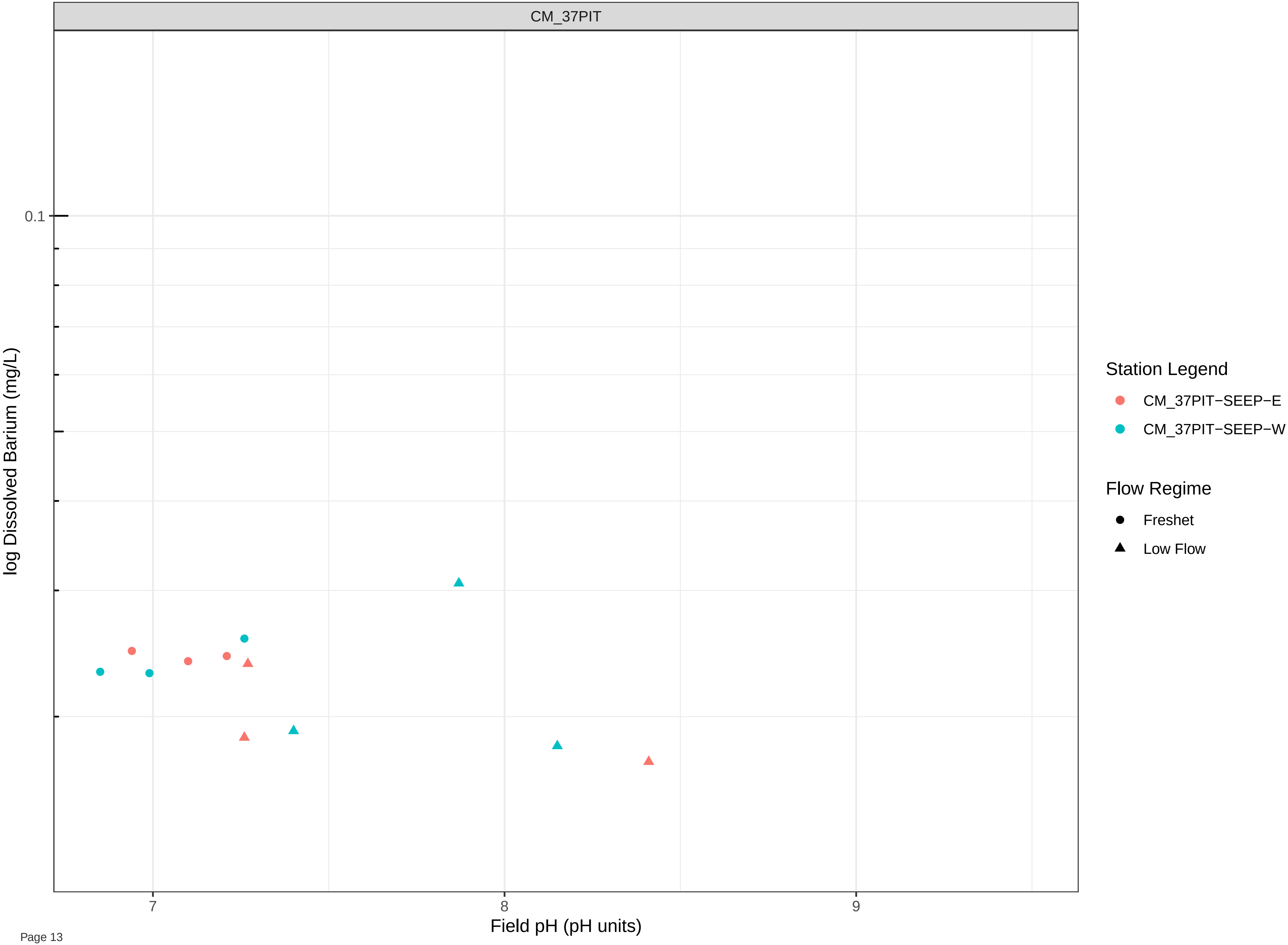
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow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log Dissolved Barium (mg/L)
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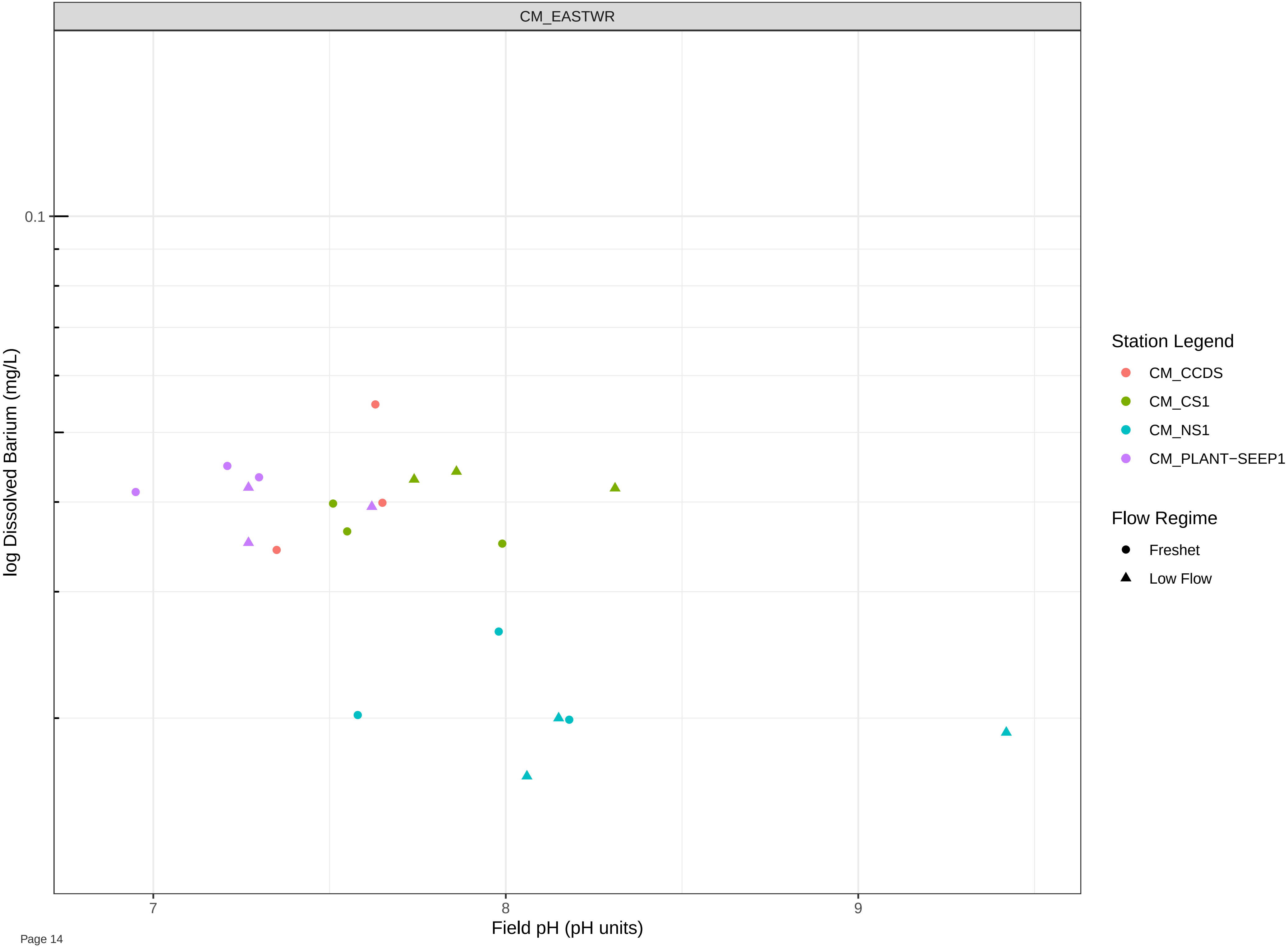
Field pH (pH units)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow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Field pH (pH units)
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Station Legend
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CM_CS1
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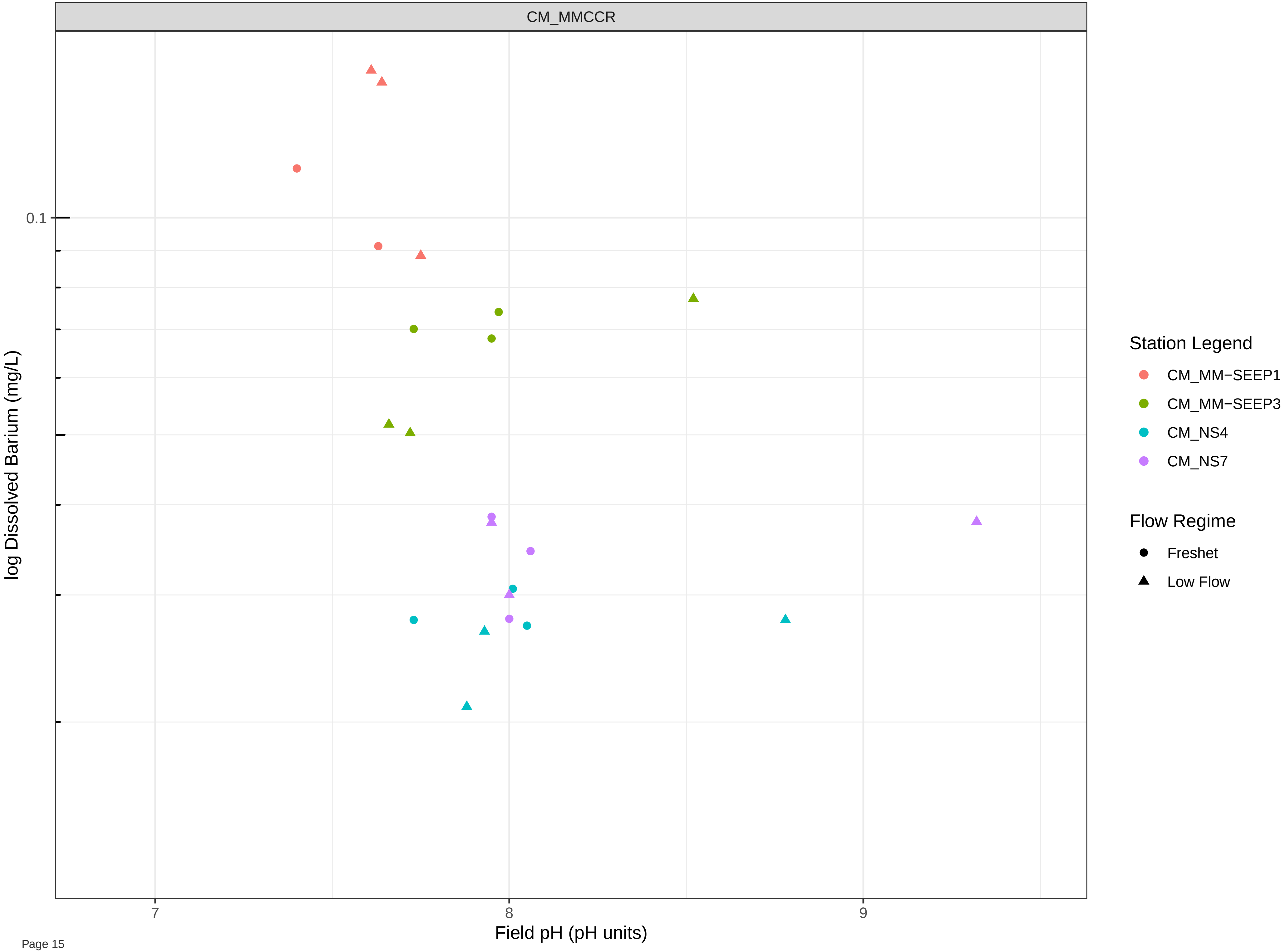
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow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Field pH (pH units)
Station Legend
CM_MM−SEEP1
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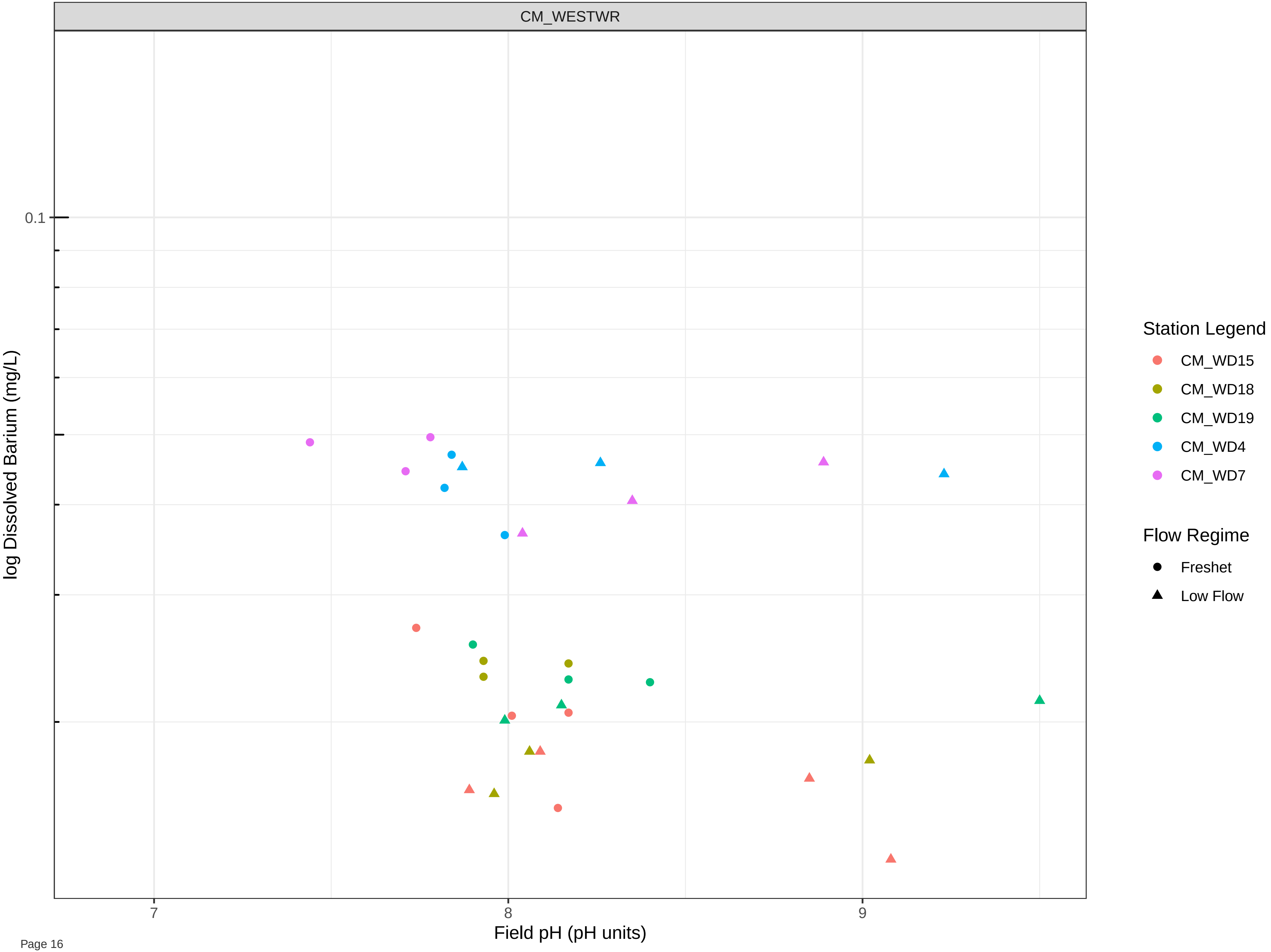
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow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log Dissolved Barium (mg/L)
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Field pH (pH units)
Station Legend
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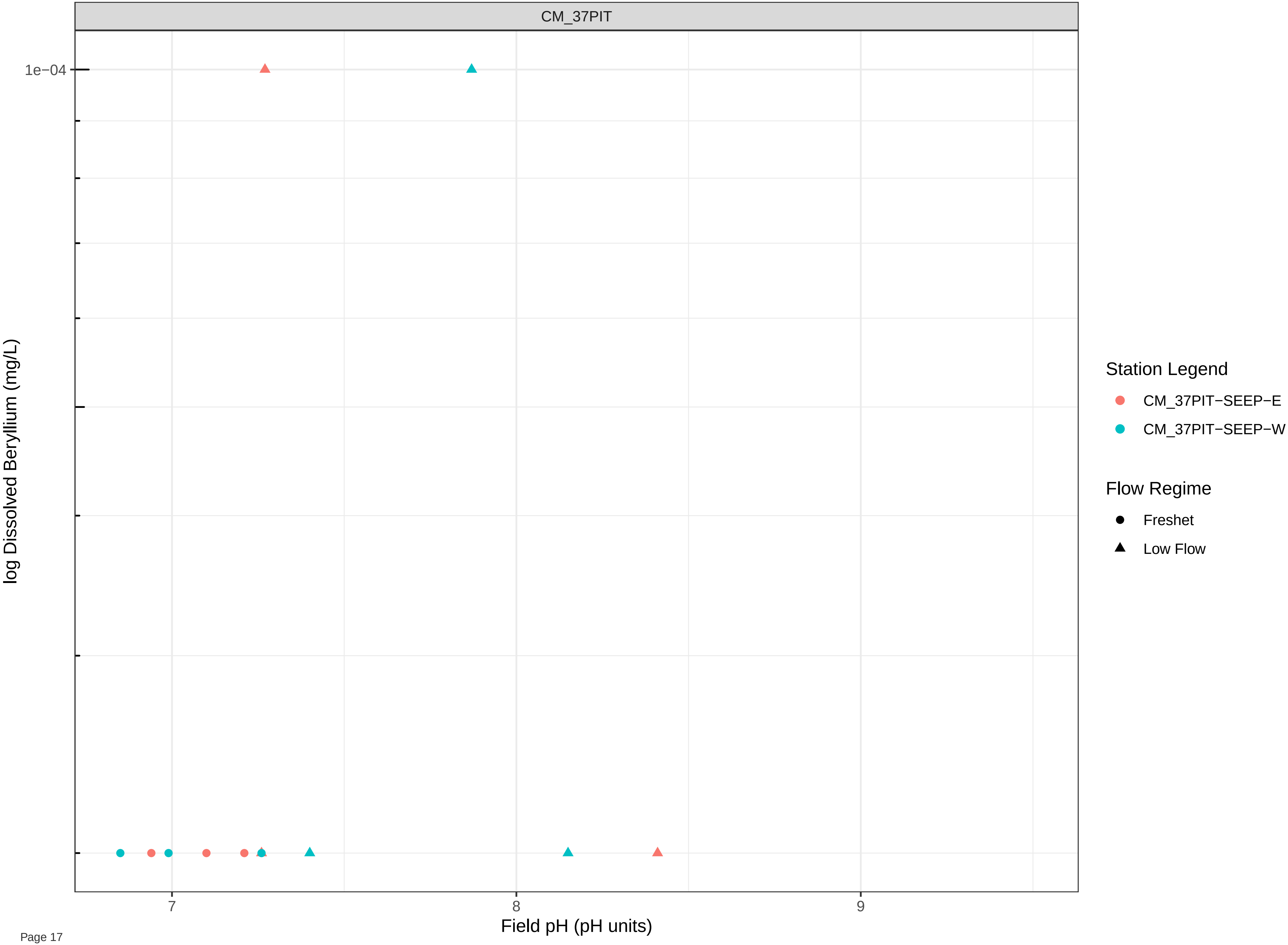
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow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Field pH (pH units)
Station Legend
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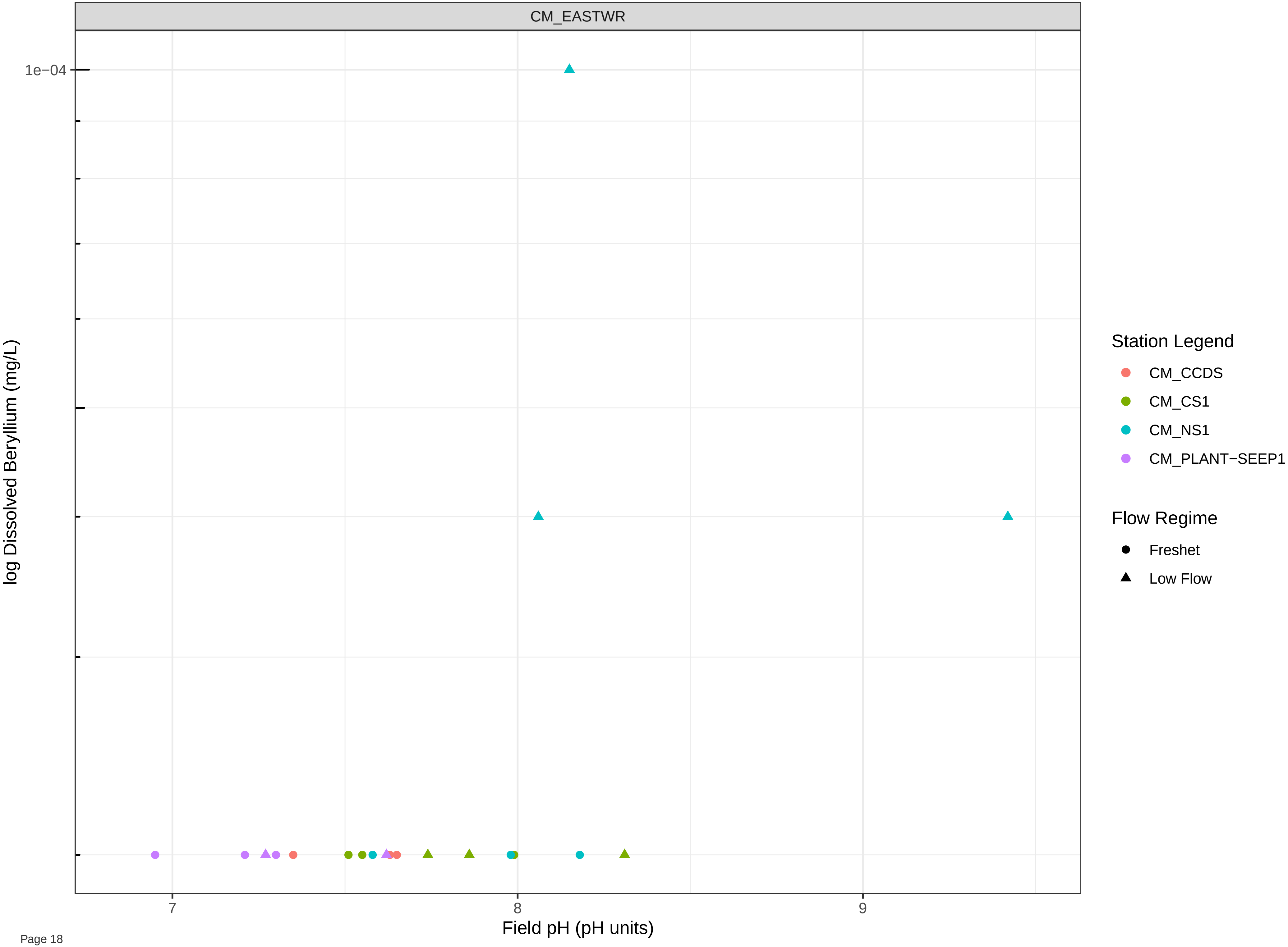
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow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log Dissolved Beryllium (mg/L)
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8
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Field pH (pH units)
Station Legend
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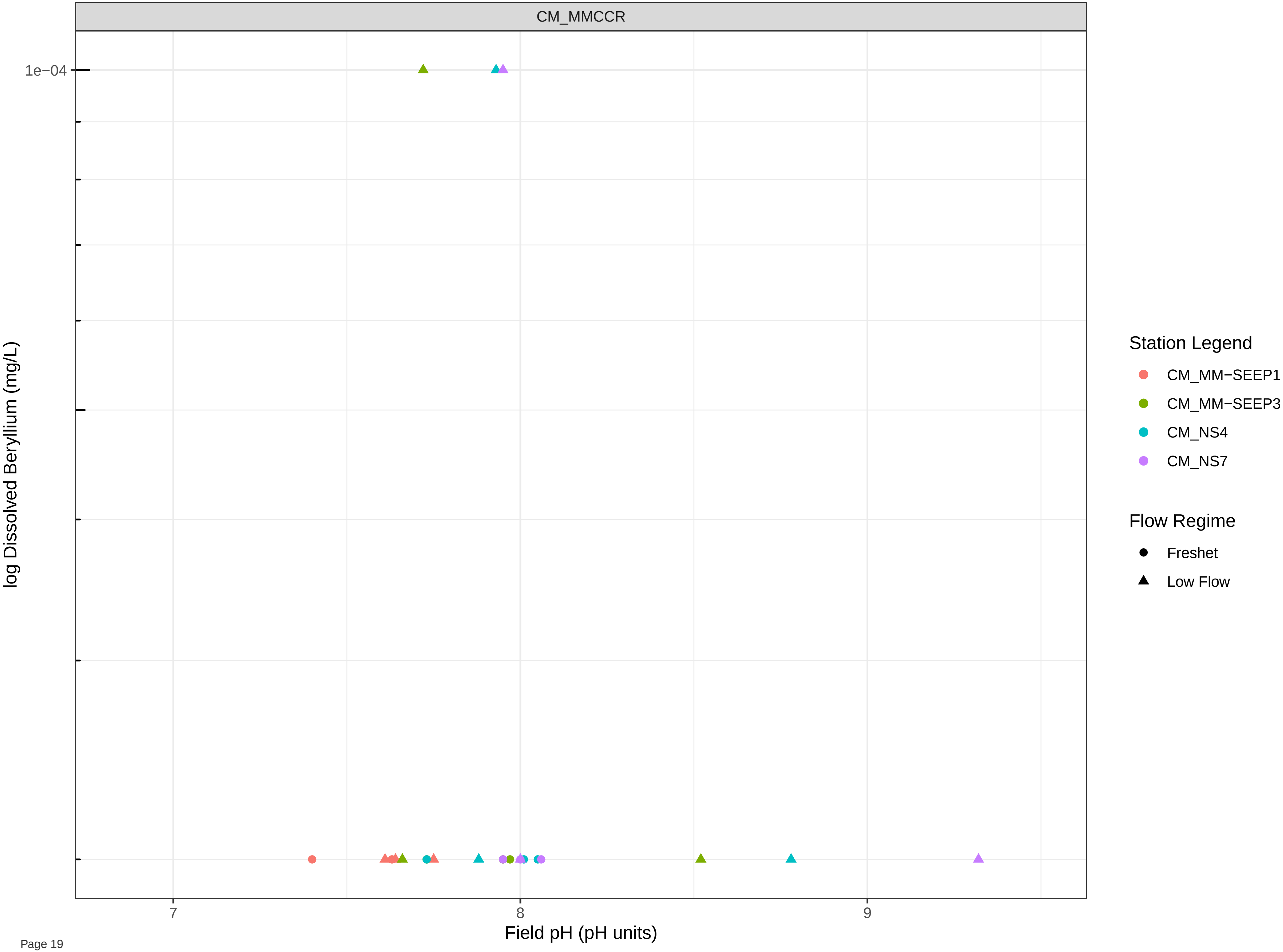
● CM_CS1
● CM_NS1
● CM_PLANT−SEEP1
Flow Regime
● Freshet
▲ Low Flow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log Dissolved Beryllium (mg/L)
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Field pH (pH units)
Station Legend
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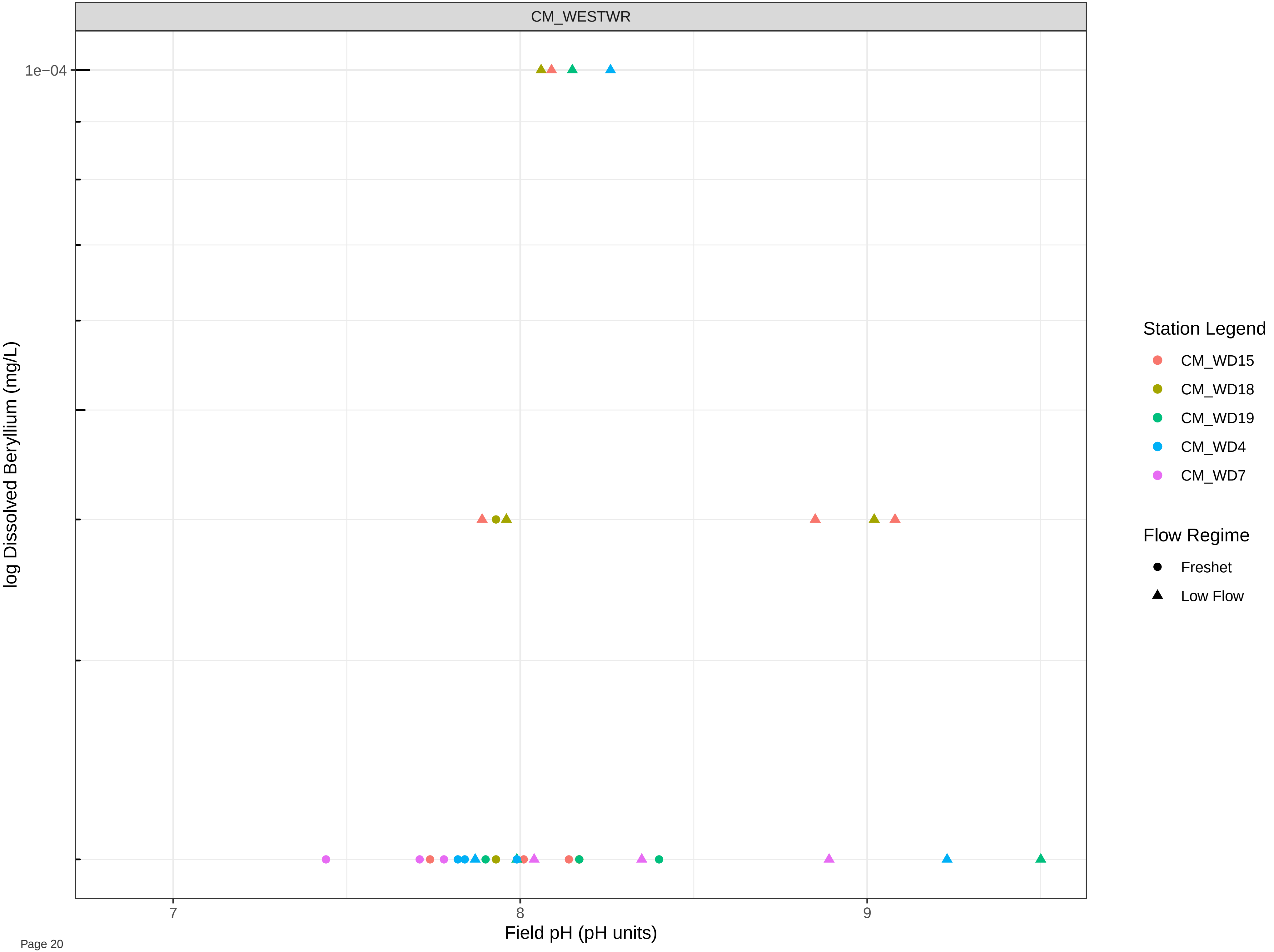
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow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log Dissolved Beryllium (mg/L)
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Field pH (pH units)
Station Legend
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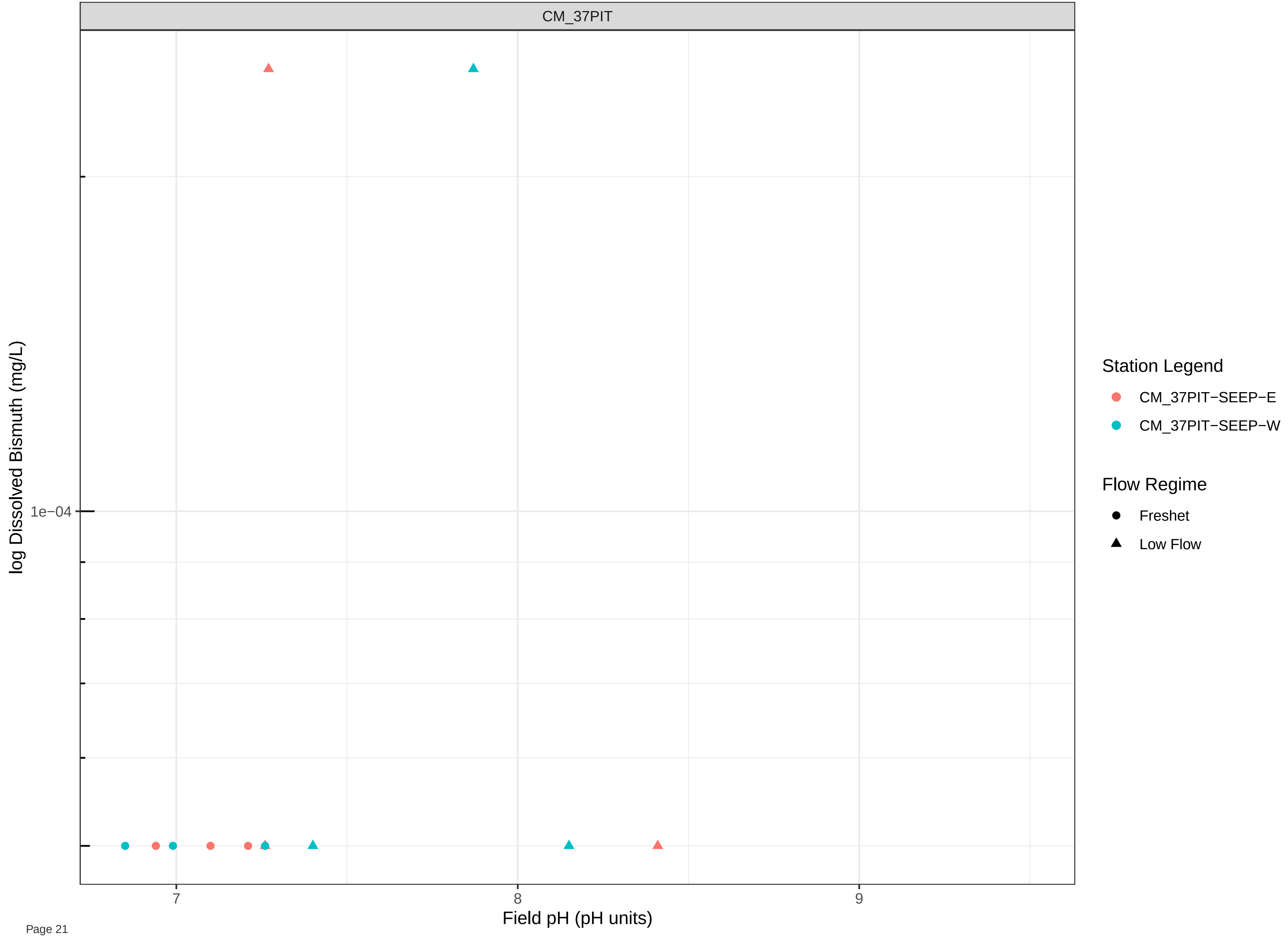
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow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log Dissolved Bismuth (mg/L)
1e−04
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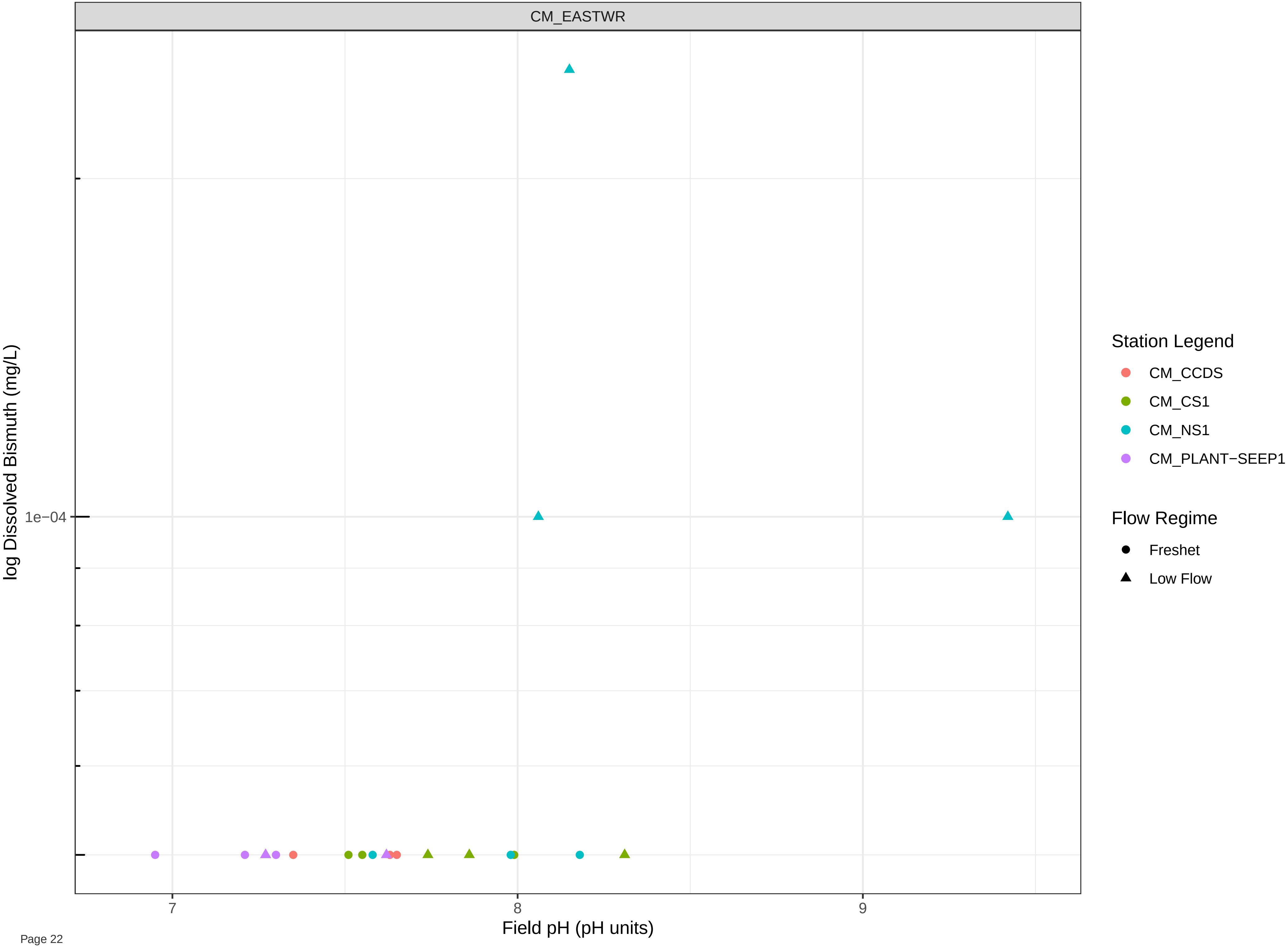
8
9
Field pH (pH units)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow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log Dissolved Bismuth (mg/L)
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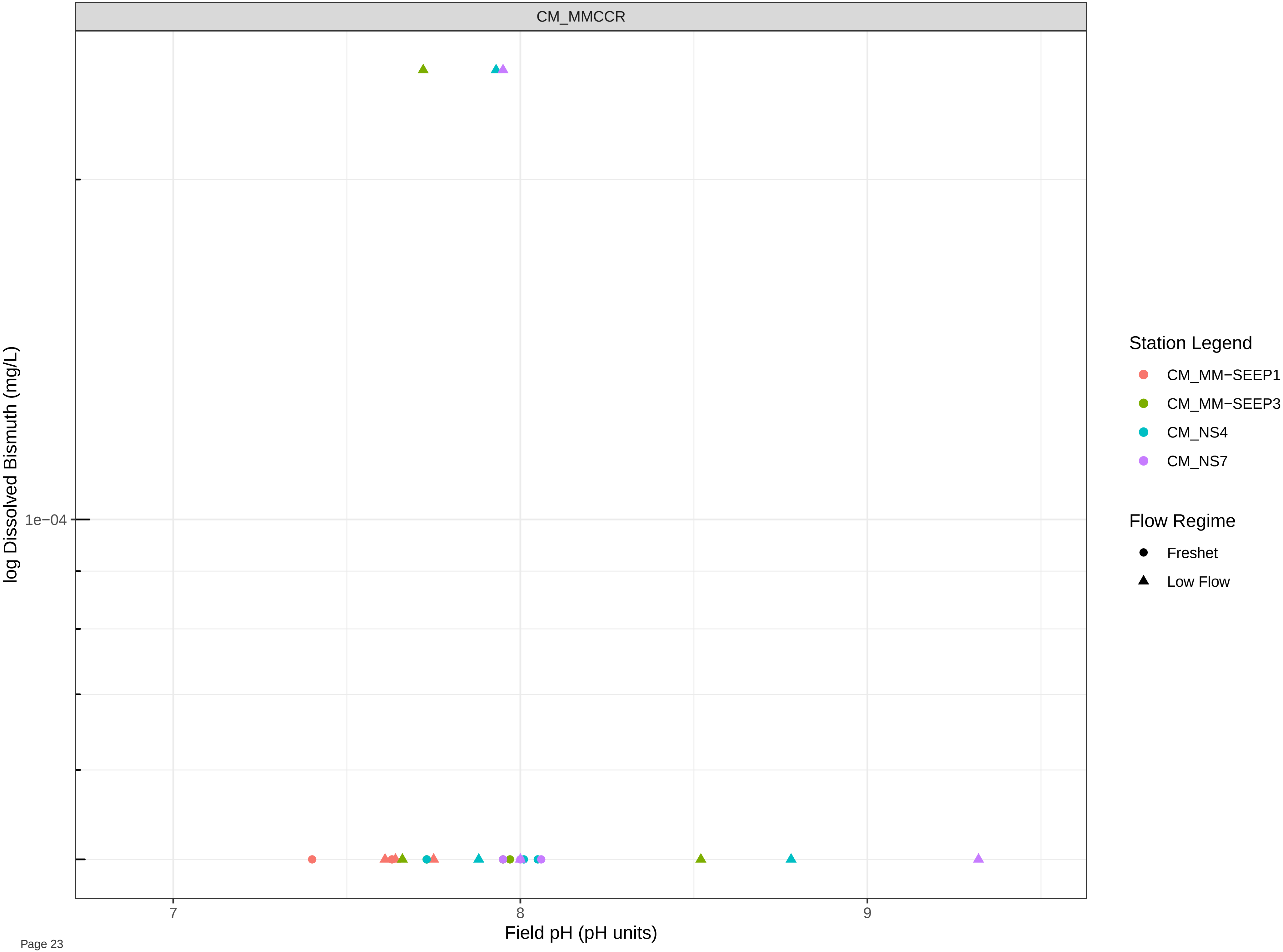
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow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log Dissolved Bismuth (mg/L)
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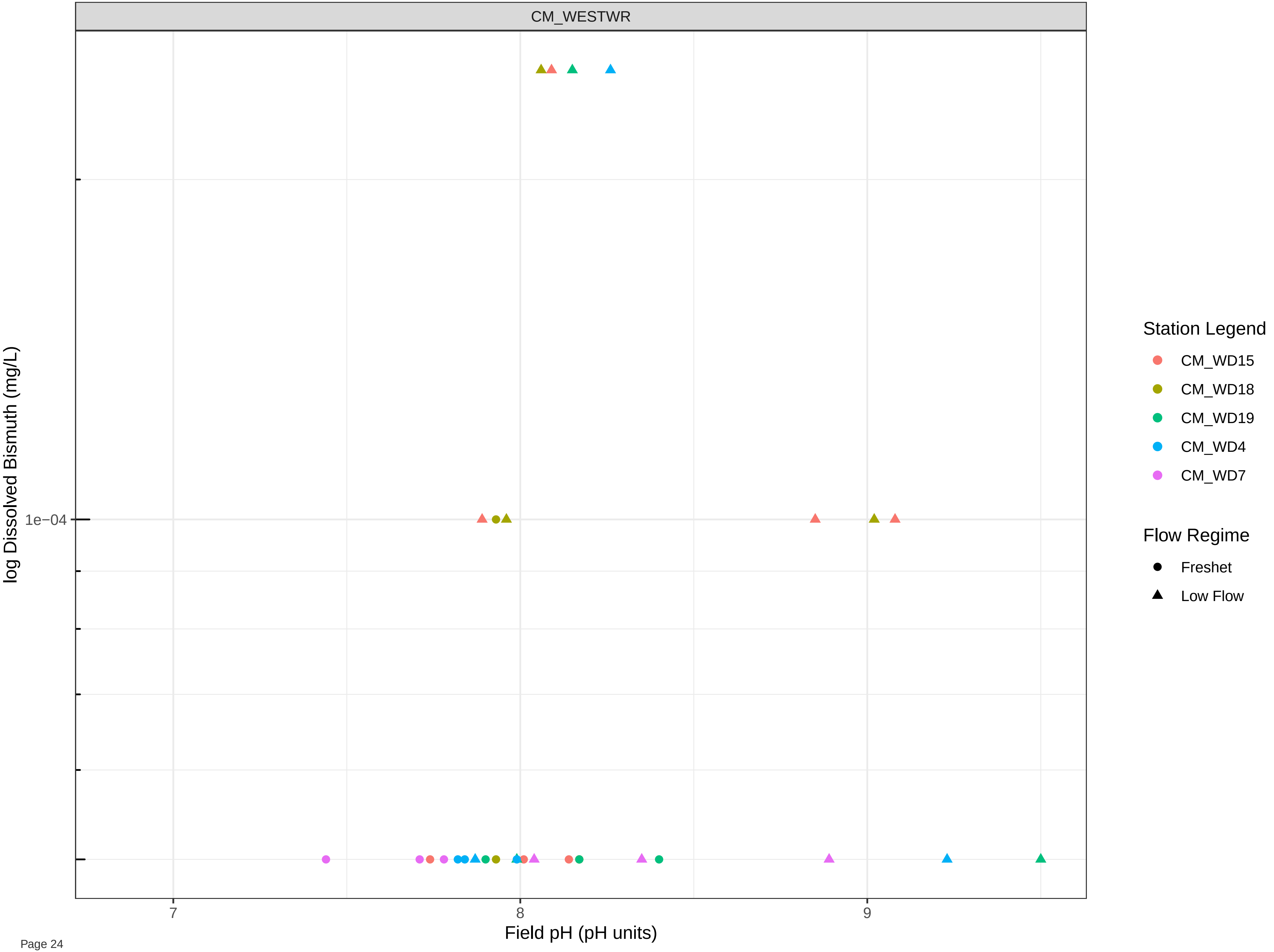
7
8
9
Field pH (pH units)
Station Legend
● CM_MM−SEEP1
● CM_MM−SEEP3
● CM_NS4
● CM_NS7
Flow Regime
● Freshet
▲ Low Flow


CM_WESTWR
log Dissolved Bismuth (mg/L)
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7
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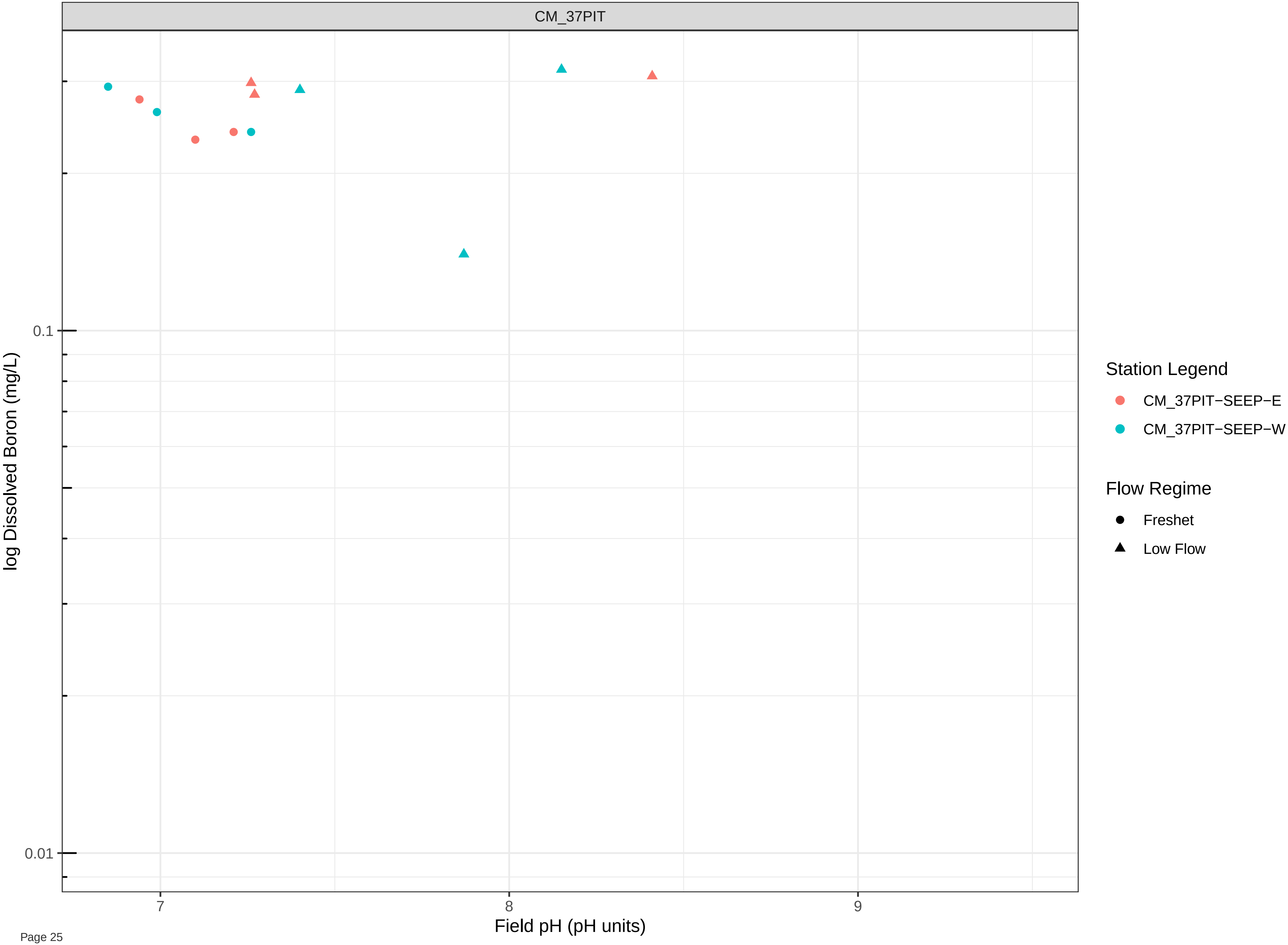
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow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0.1
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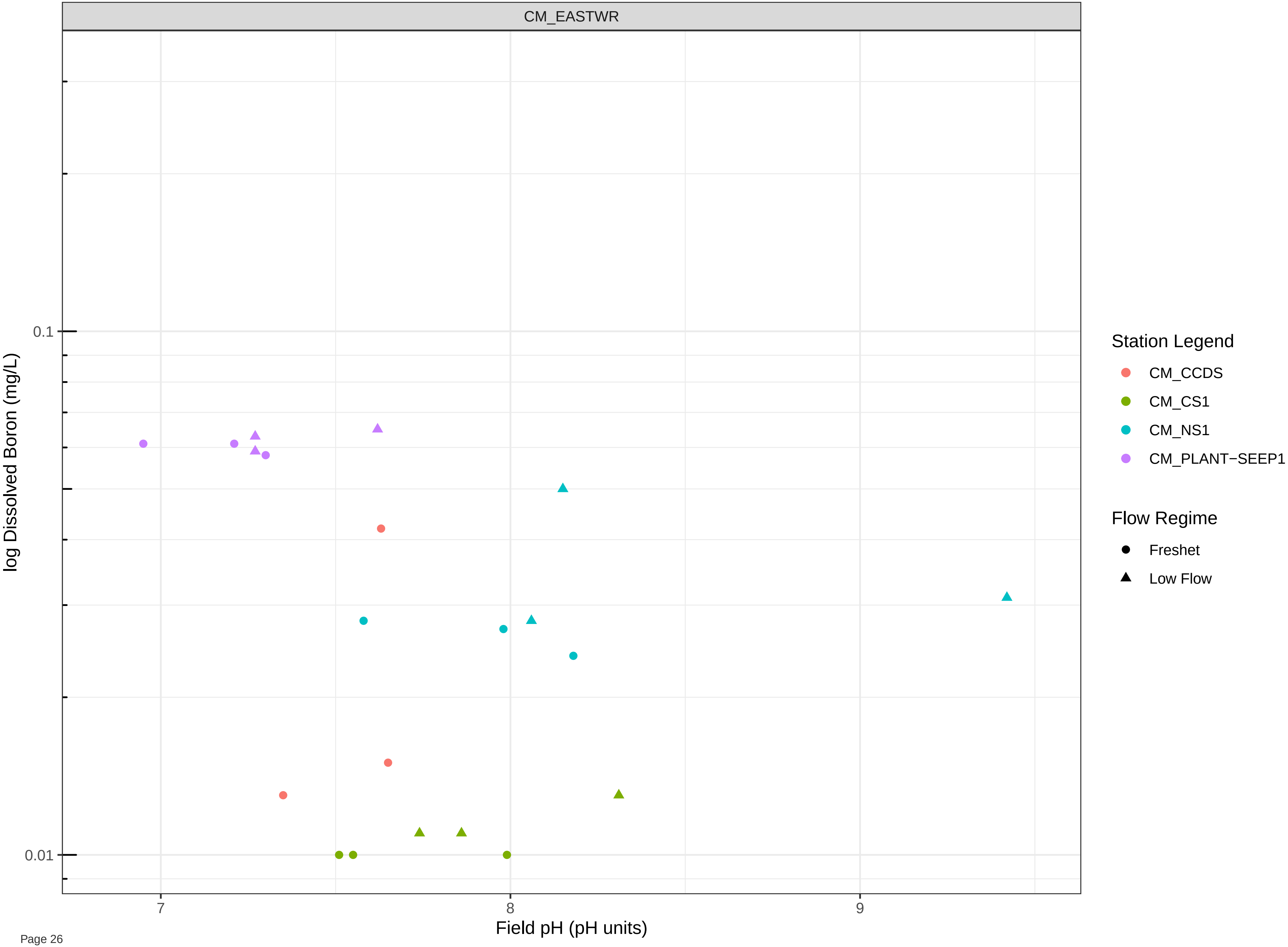
Field pH (pH units)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow


CM_EASTWR
log Dissolved Boron (mg/L)
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Field pH (pH units)
Station Legend
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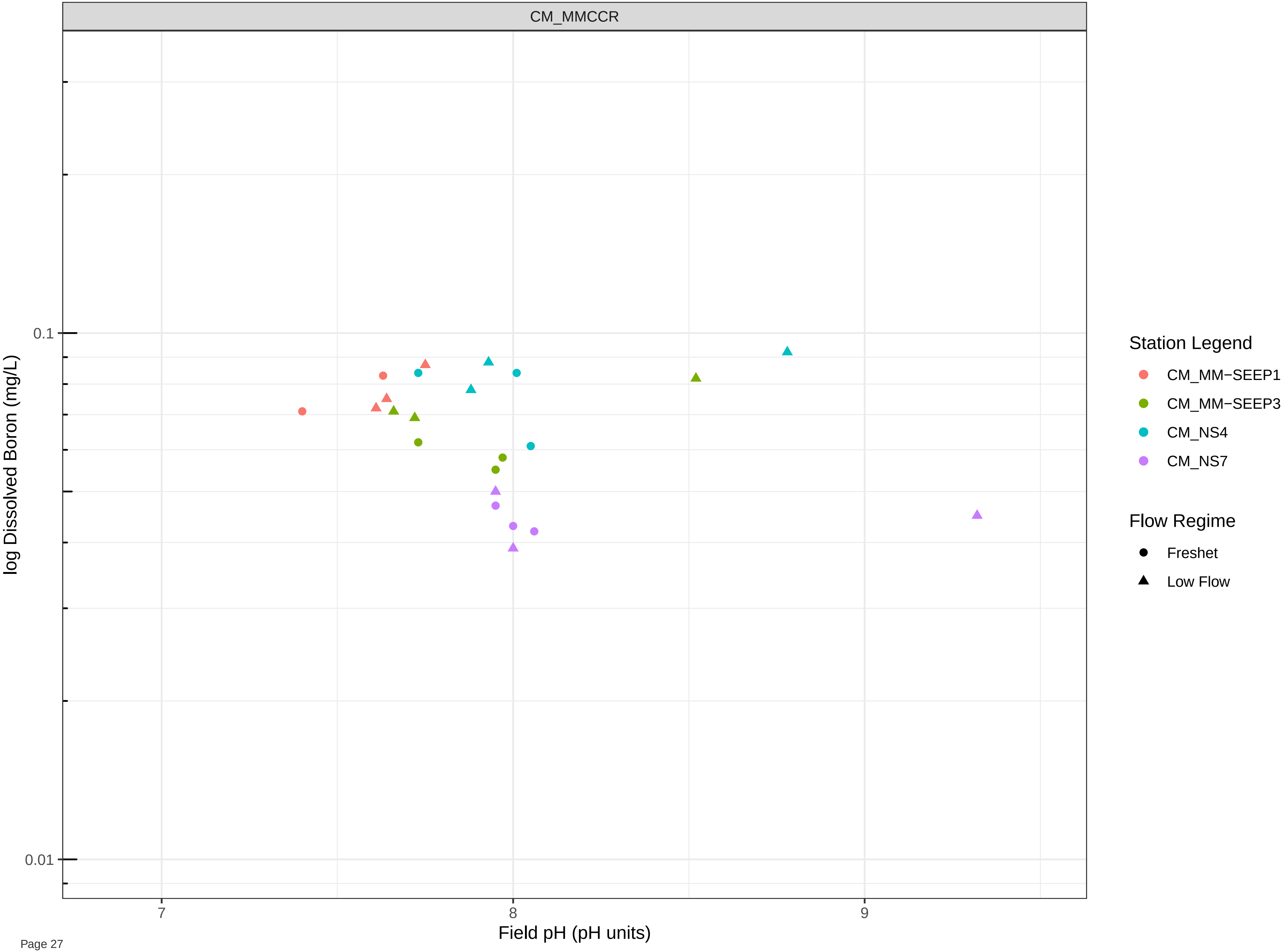
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow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log Dissolved Boron (mg/L)
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7
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Field pH (pH units)
Station Legend
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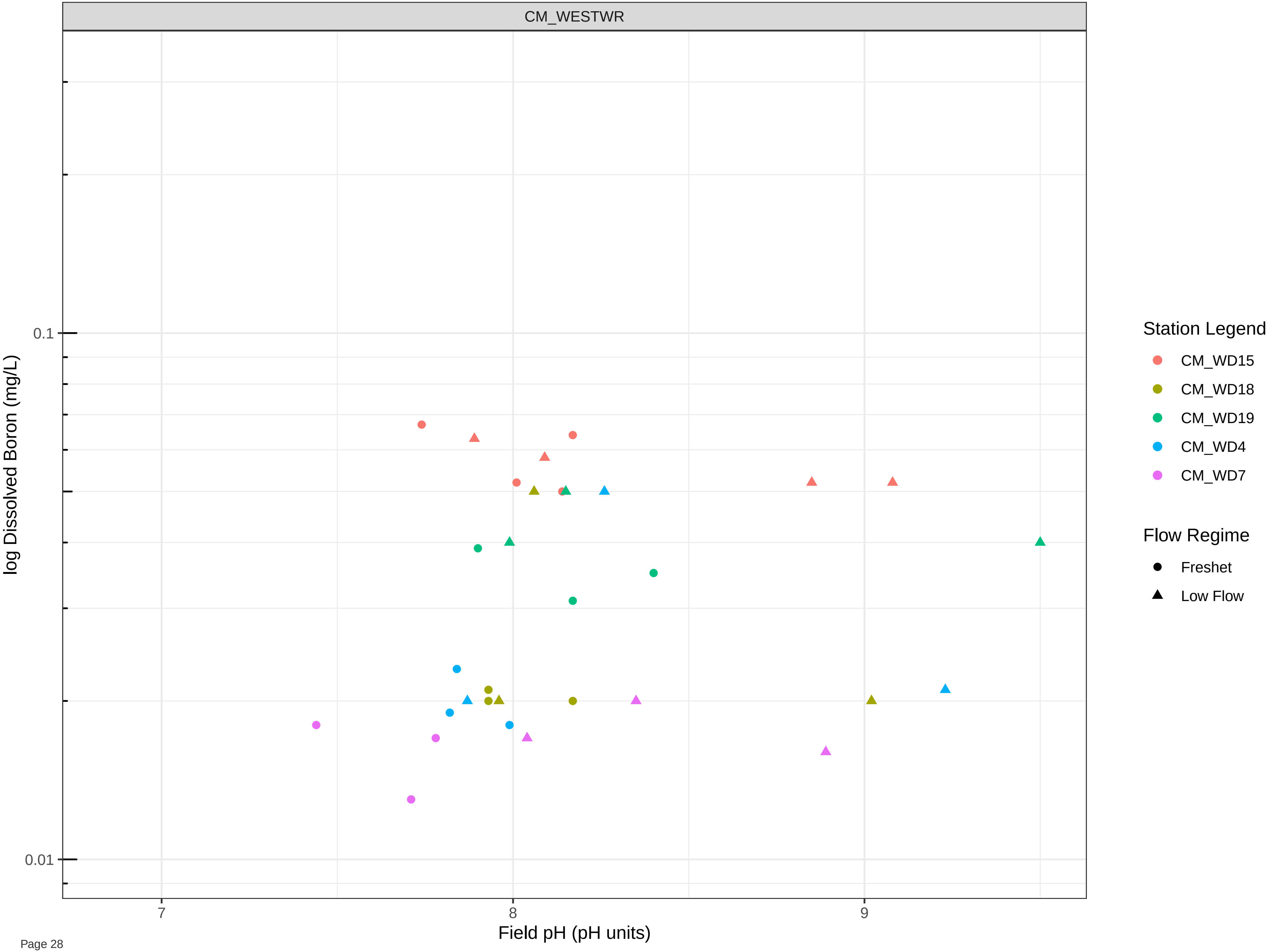
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow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0.01
Field pH (pH units)
7
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Station Legend
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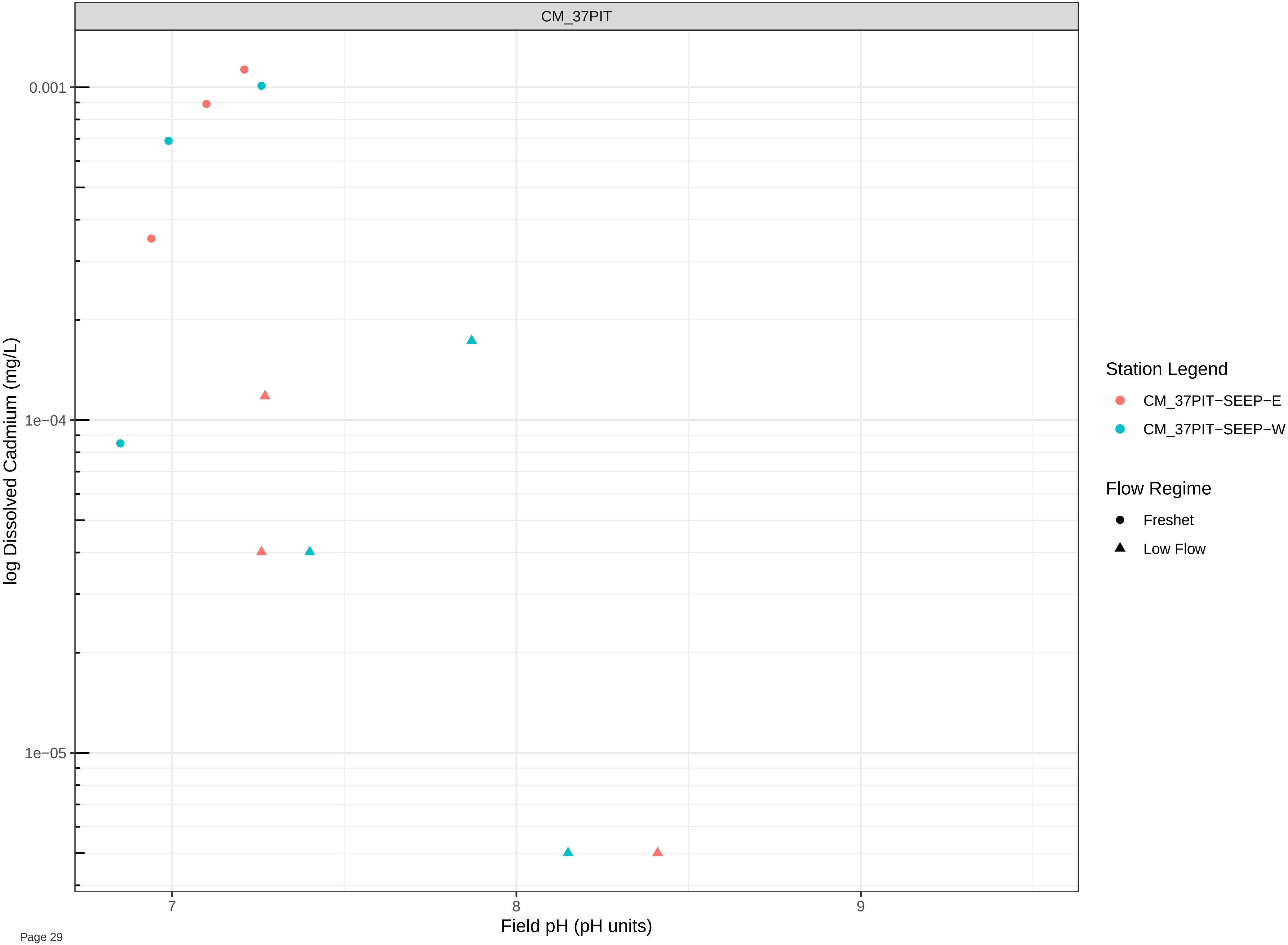
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow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Field pH (pH units)
Station Legend
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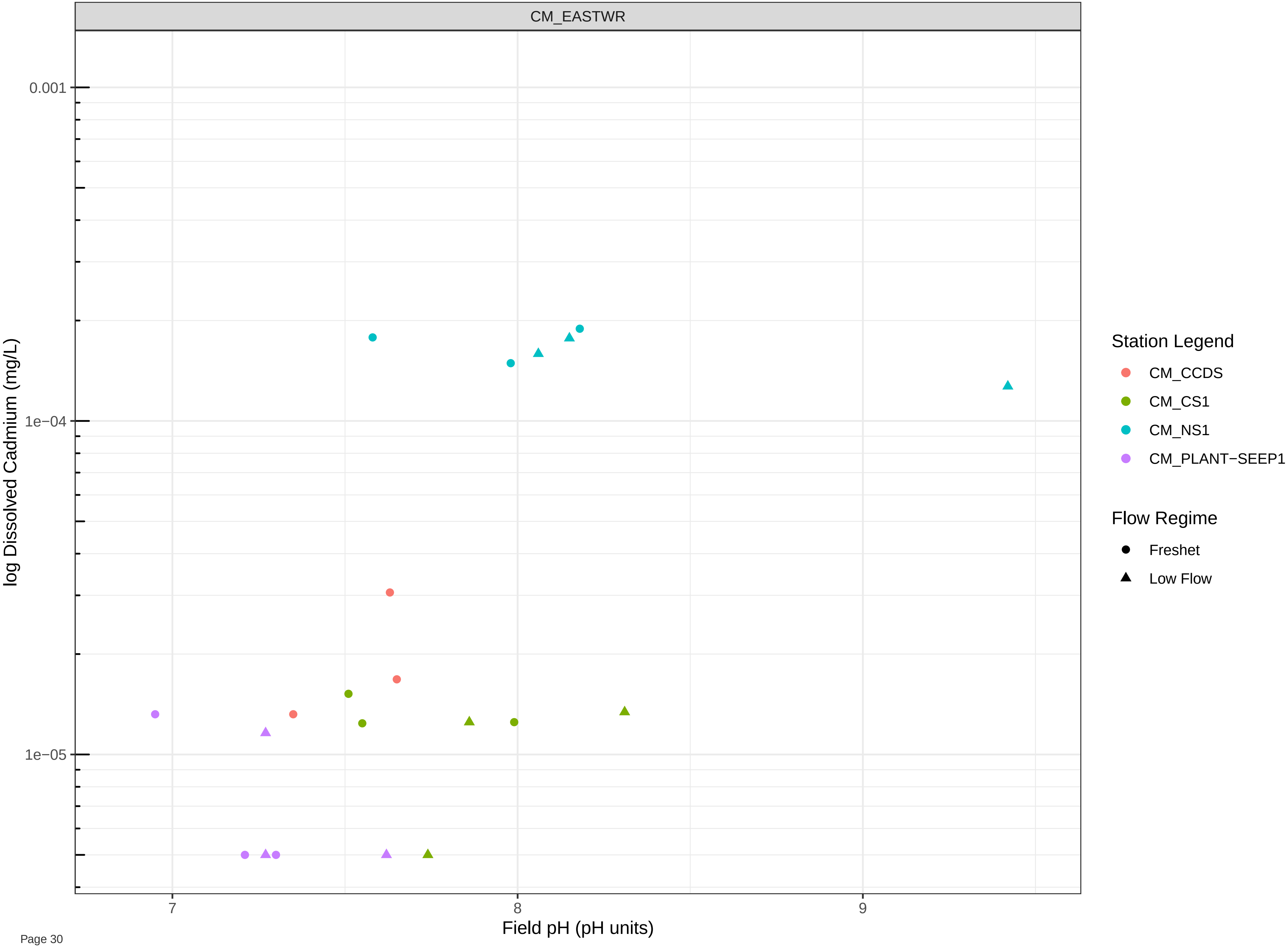
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow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CM_PLANT−SEEP1
Flow Regime
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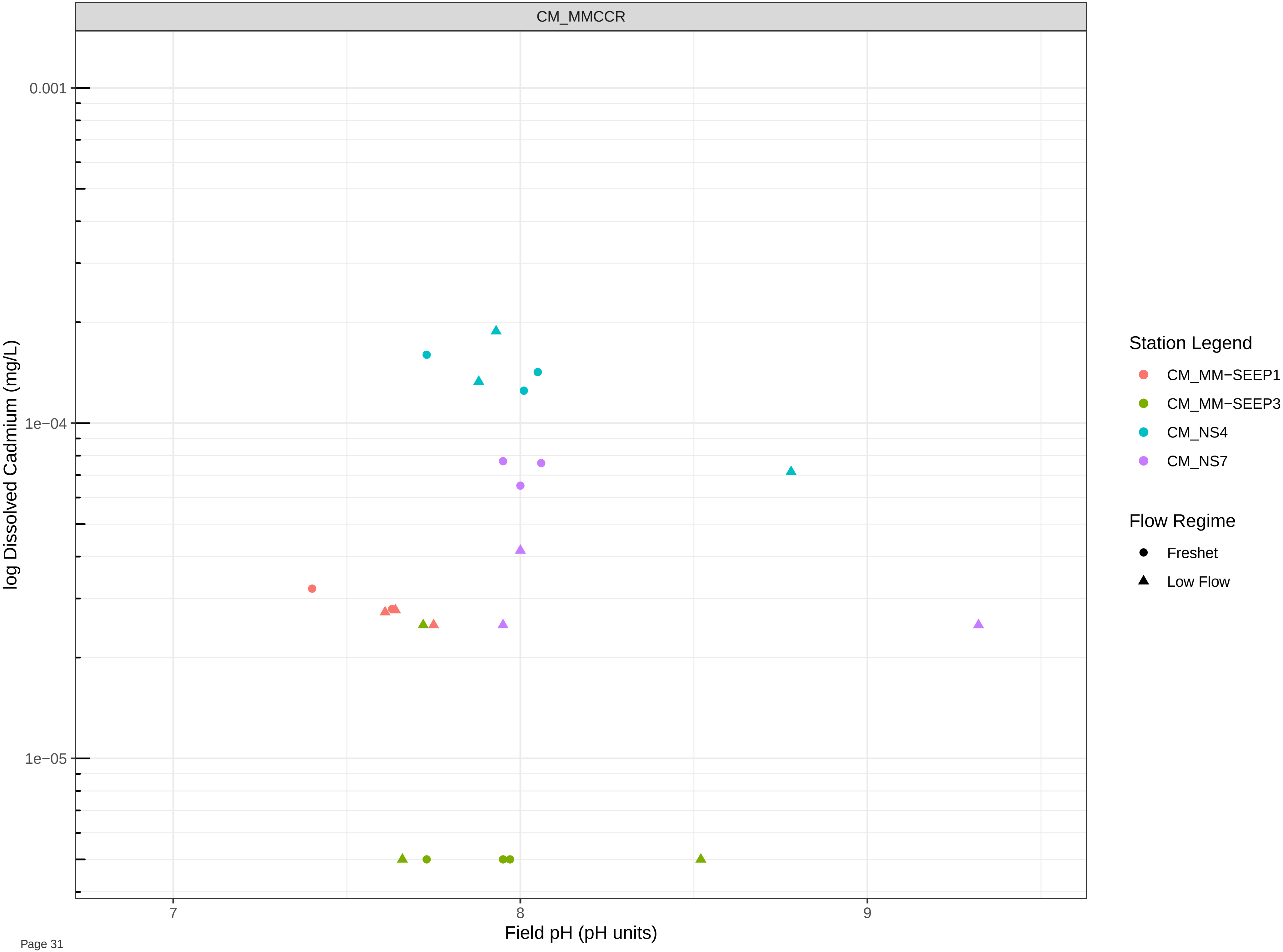
Low Flow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Field pH (pH units)
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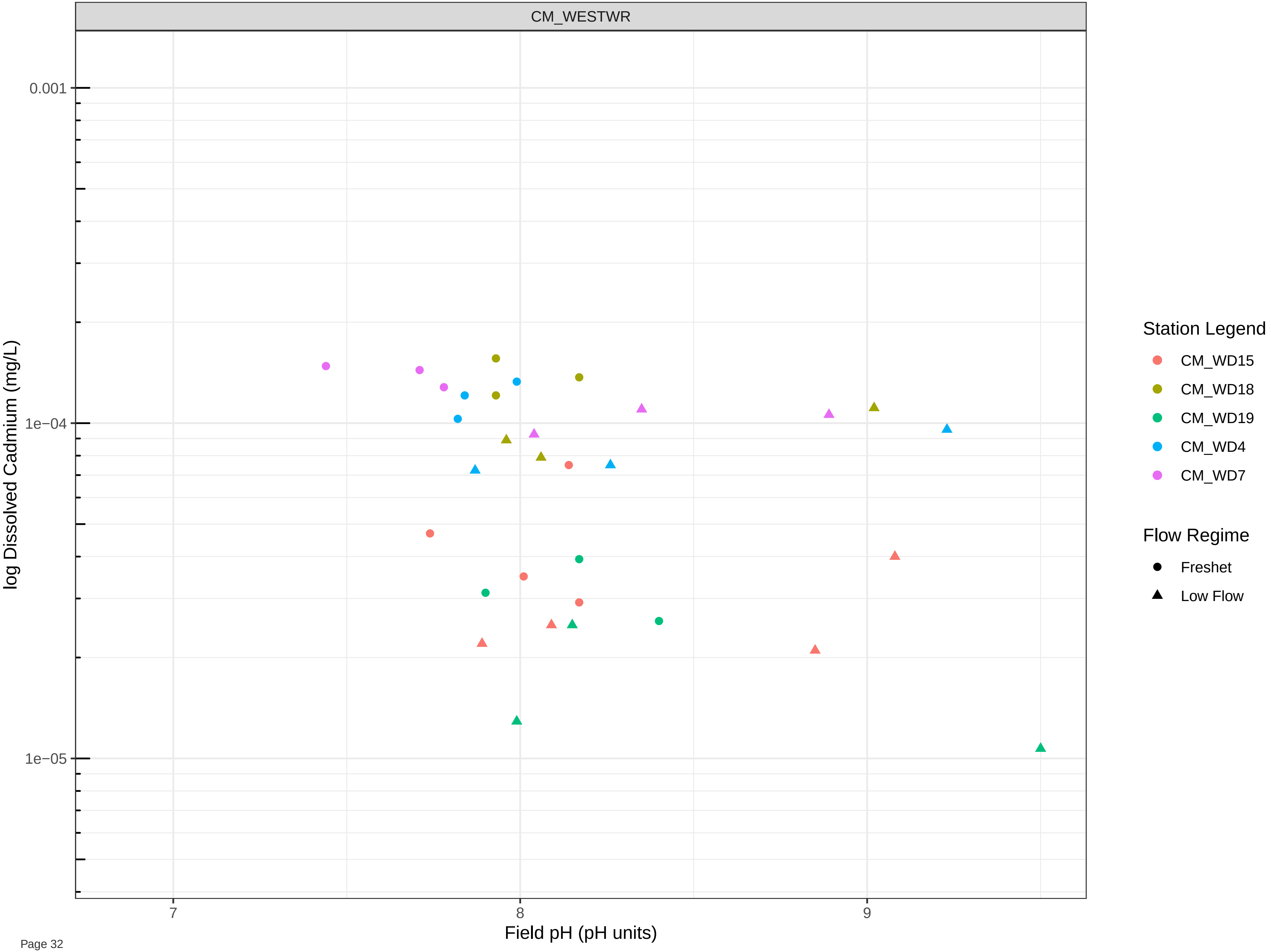
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow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log Dissolved Cadmium (mg/L)
7
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9
Field pH (pH units)
Station Legend
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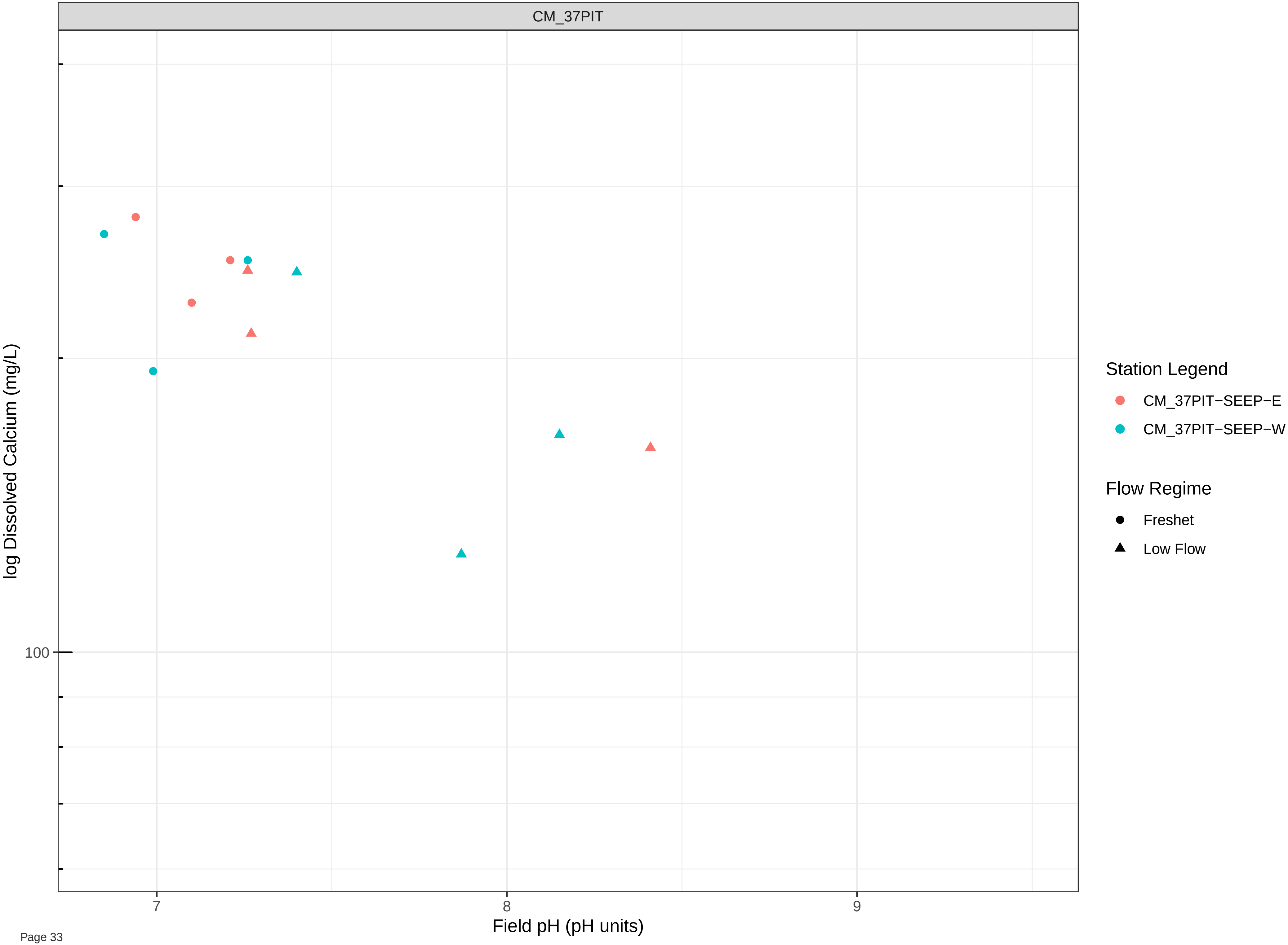
● CM_WD18
● CM_WD19
● CM_WD4
● CM_WD7
Flow Regime
● Freshet
▲ Low Flow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Field pH (pH units)
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Station Legend
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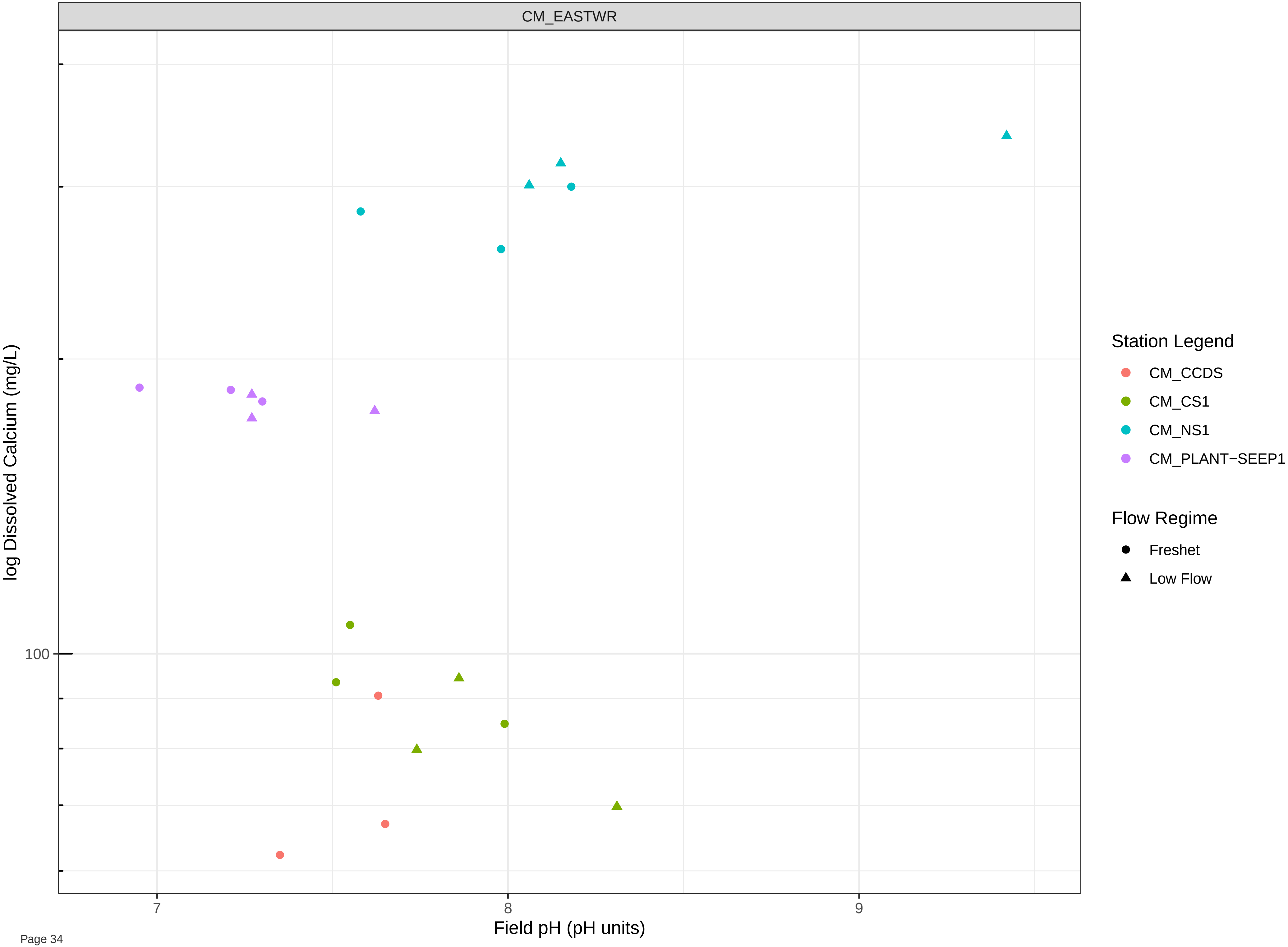
Flow Regime
Freshet
Low Flow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Field pH (pH units)
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Station Legend
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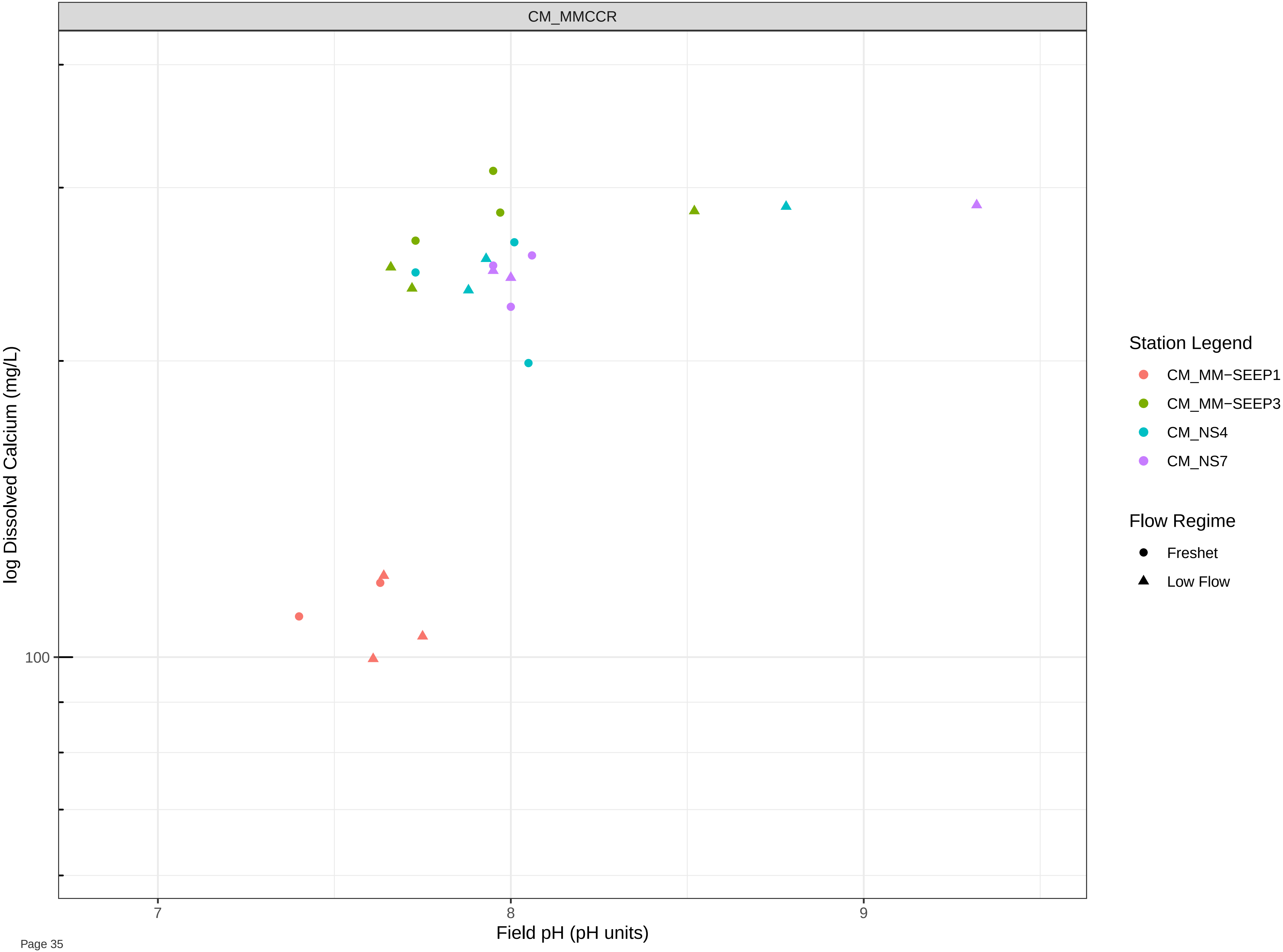
● CM_NS1
● CM_PLANT−SEEP1
Flow Regime
● Freshet
▲ Low Flow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7
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Field pH (pH units)
Station Legend
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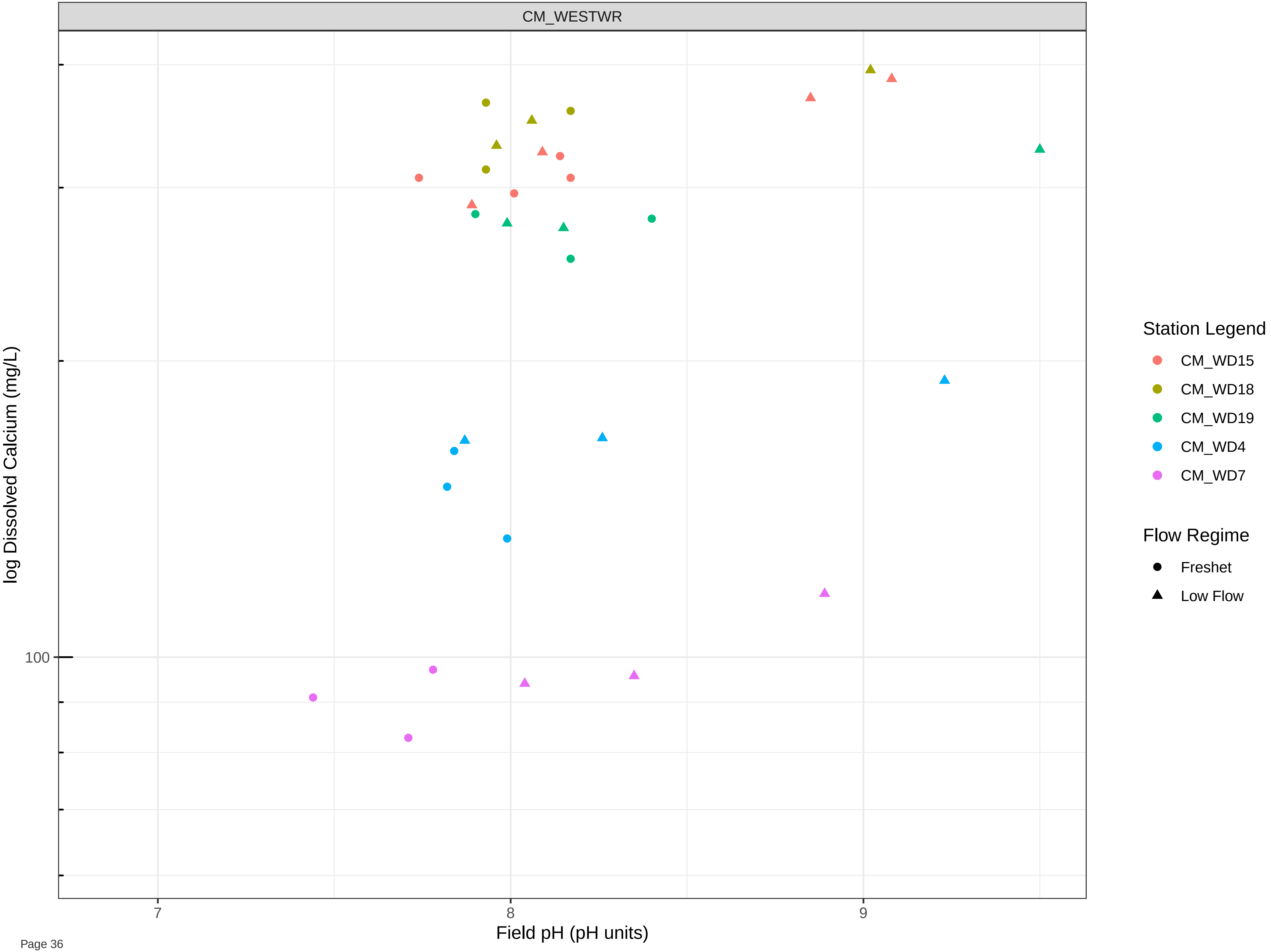
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow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7
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Field pH (pH units)
Station Legend
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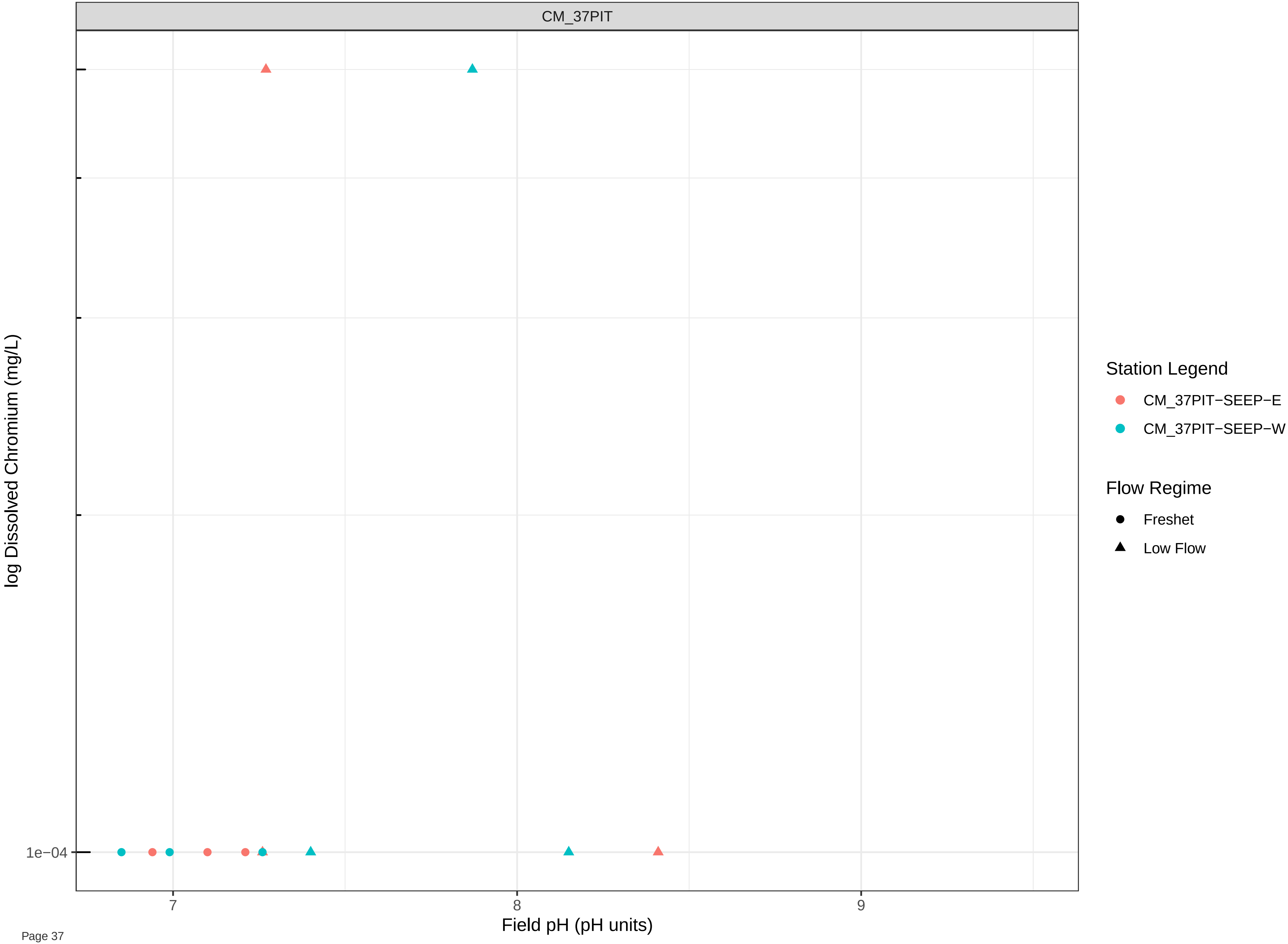
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow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7
8
9
Field pH (pH units)
Station Legend
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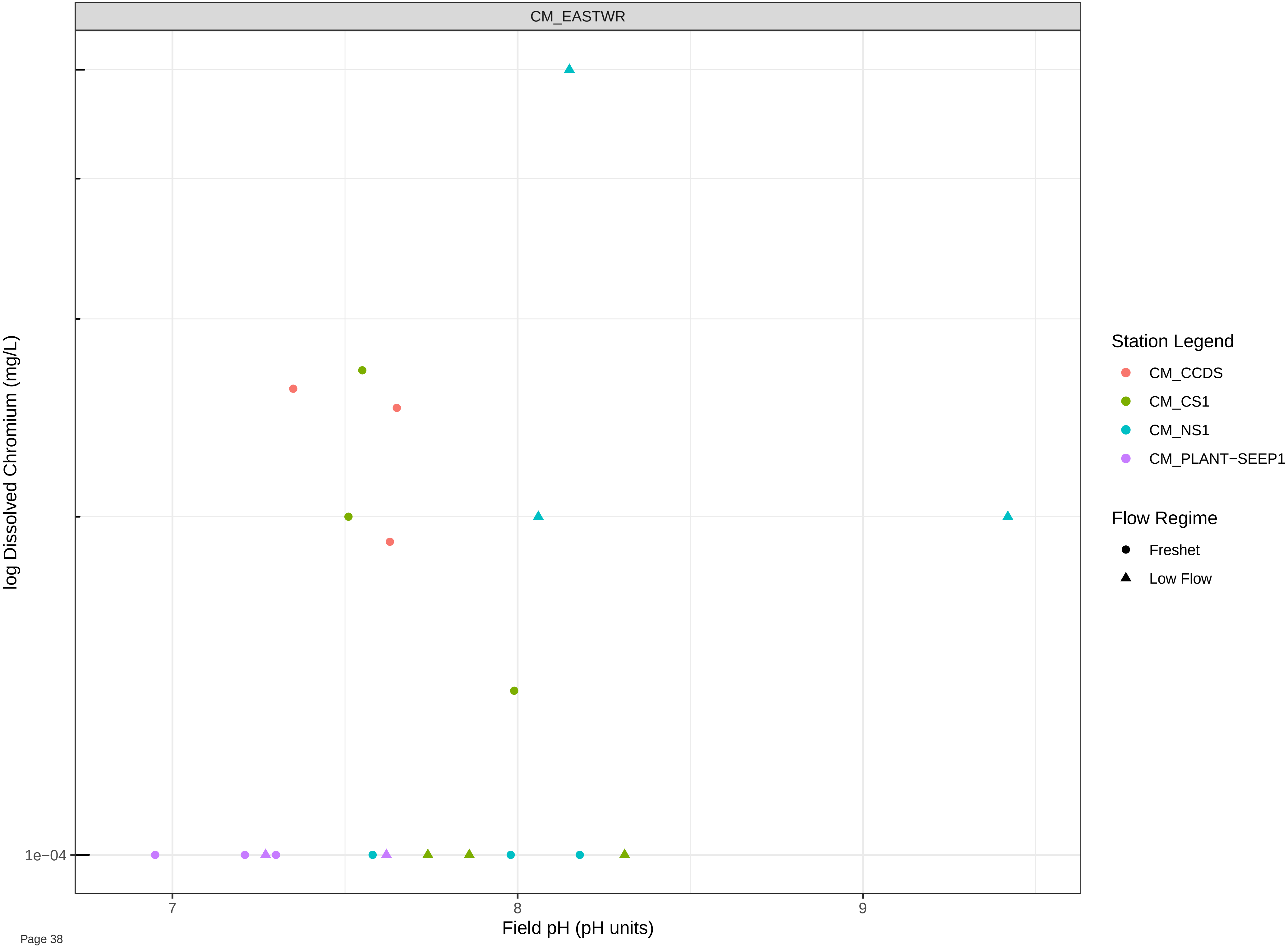
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow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1e−04
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Field pH (pH units)
Station Legend
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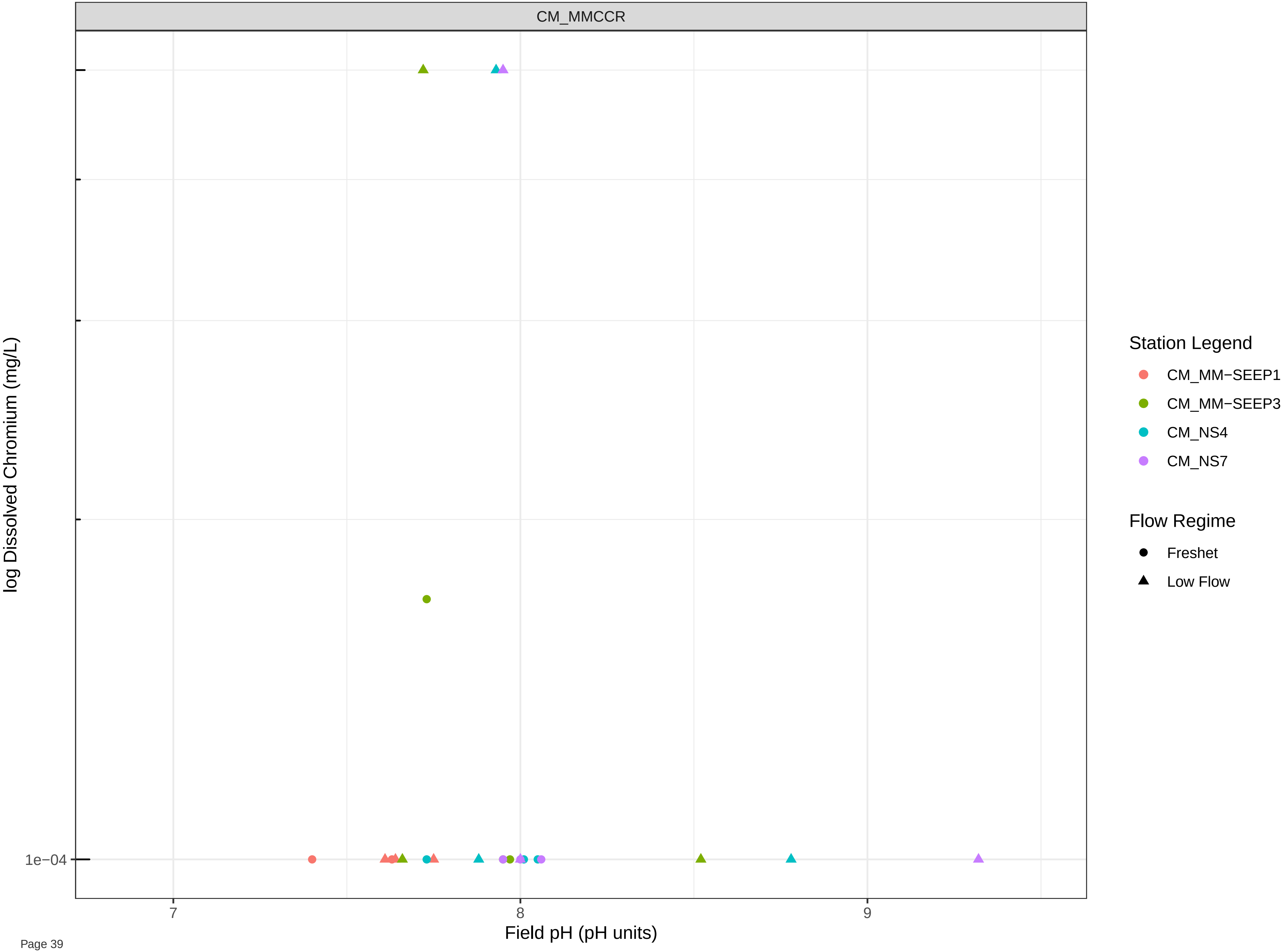
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow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7
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Field pH (pH units)
Station Legend
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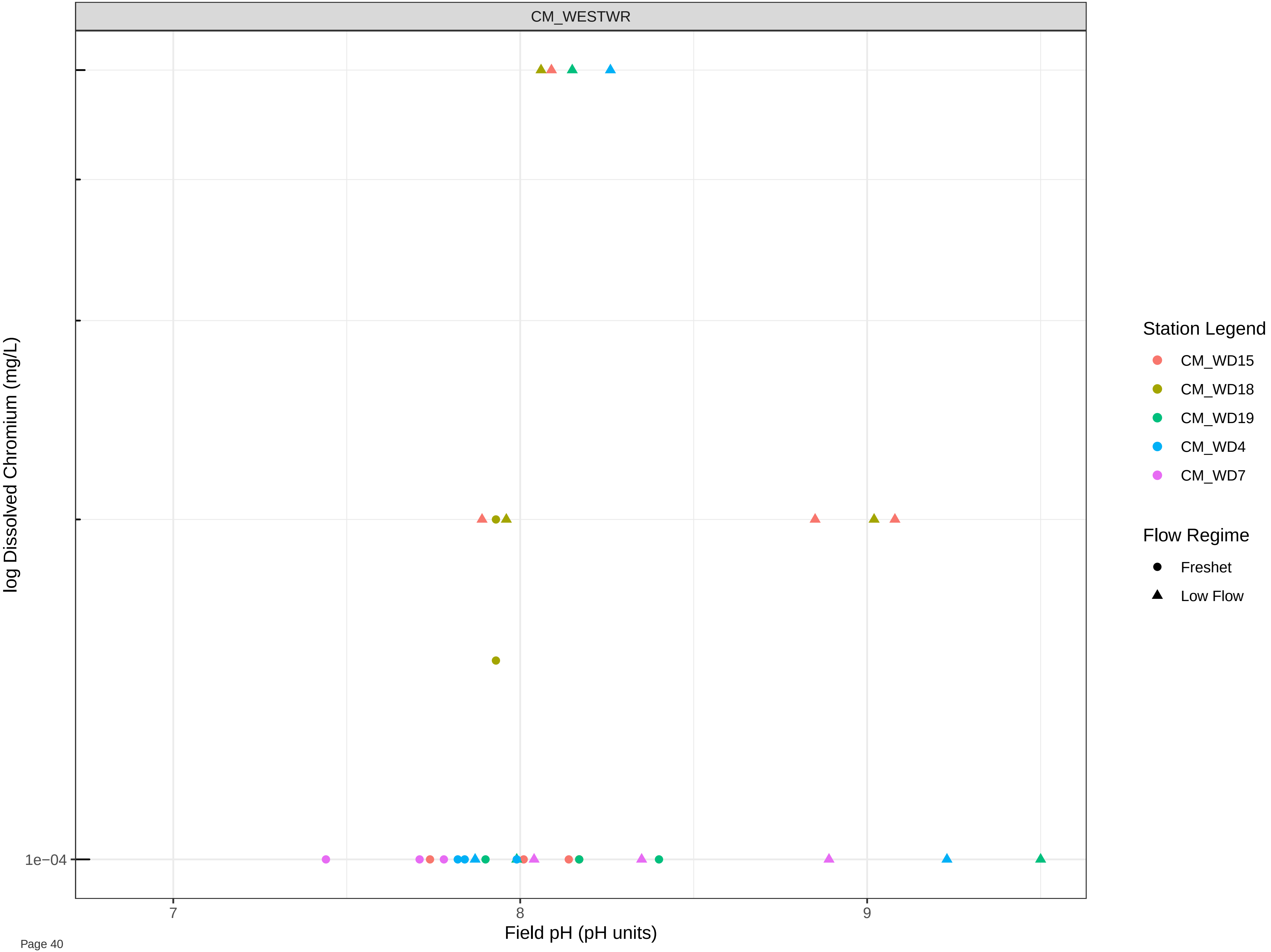
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow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7
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Field pH (pH units)
Station Legend
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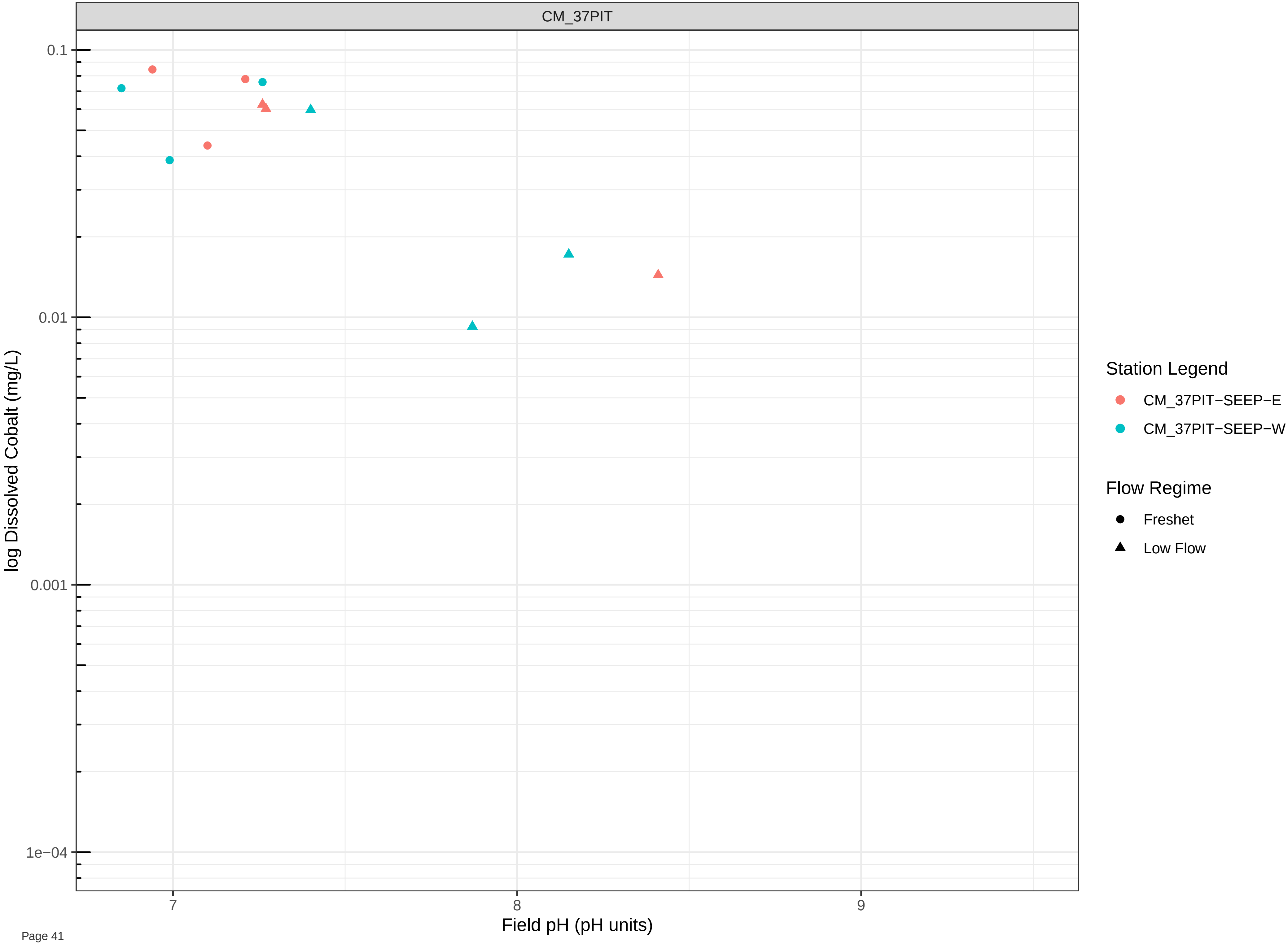
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow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0.01
0.001
1e−04
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7
8
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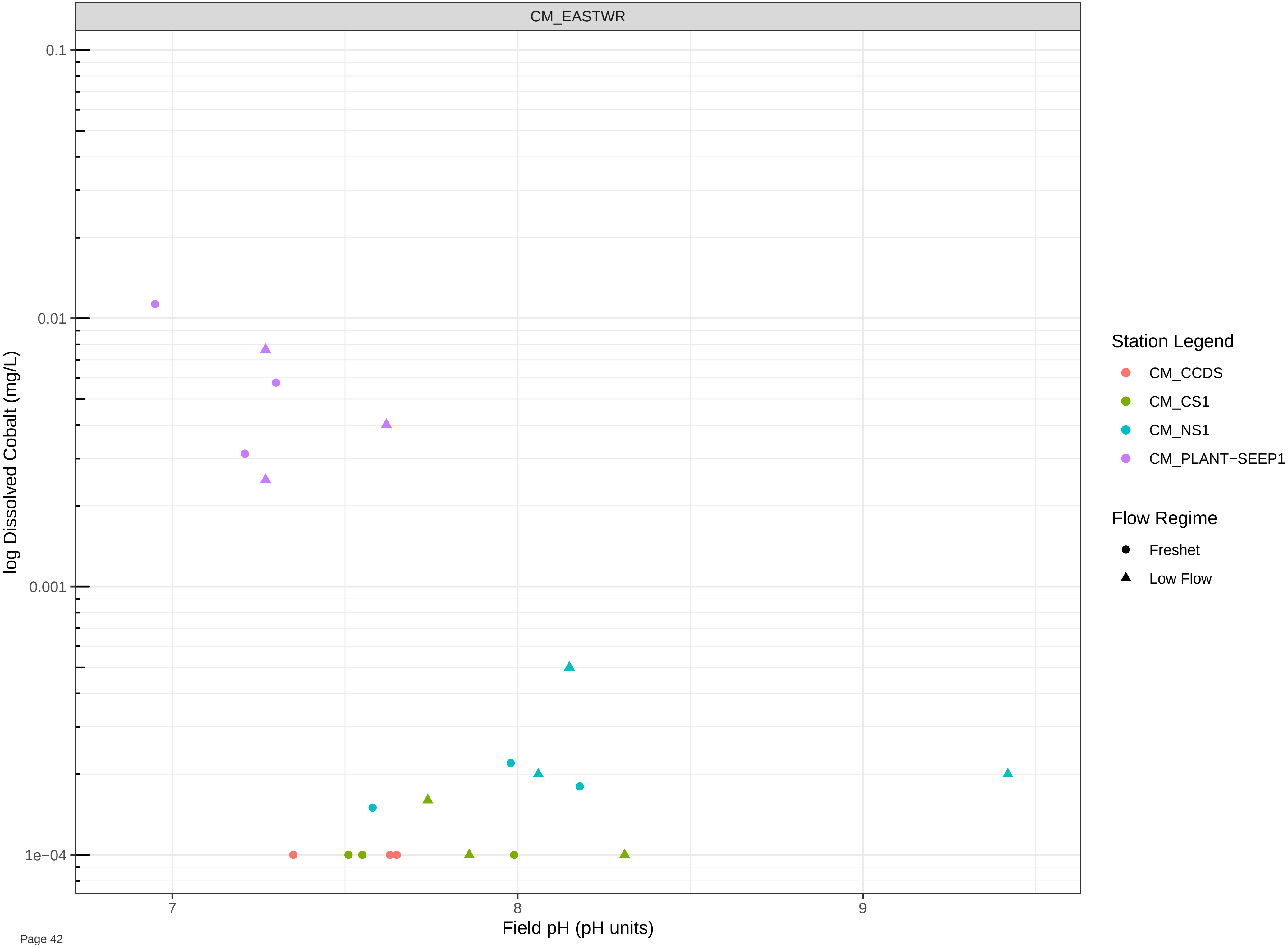
Field pH (pH units)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow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0.01
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1e−04
log Dissolved Cobalt (mg/L)
7
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Field pH (pH units)
Station Legend
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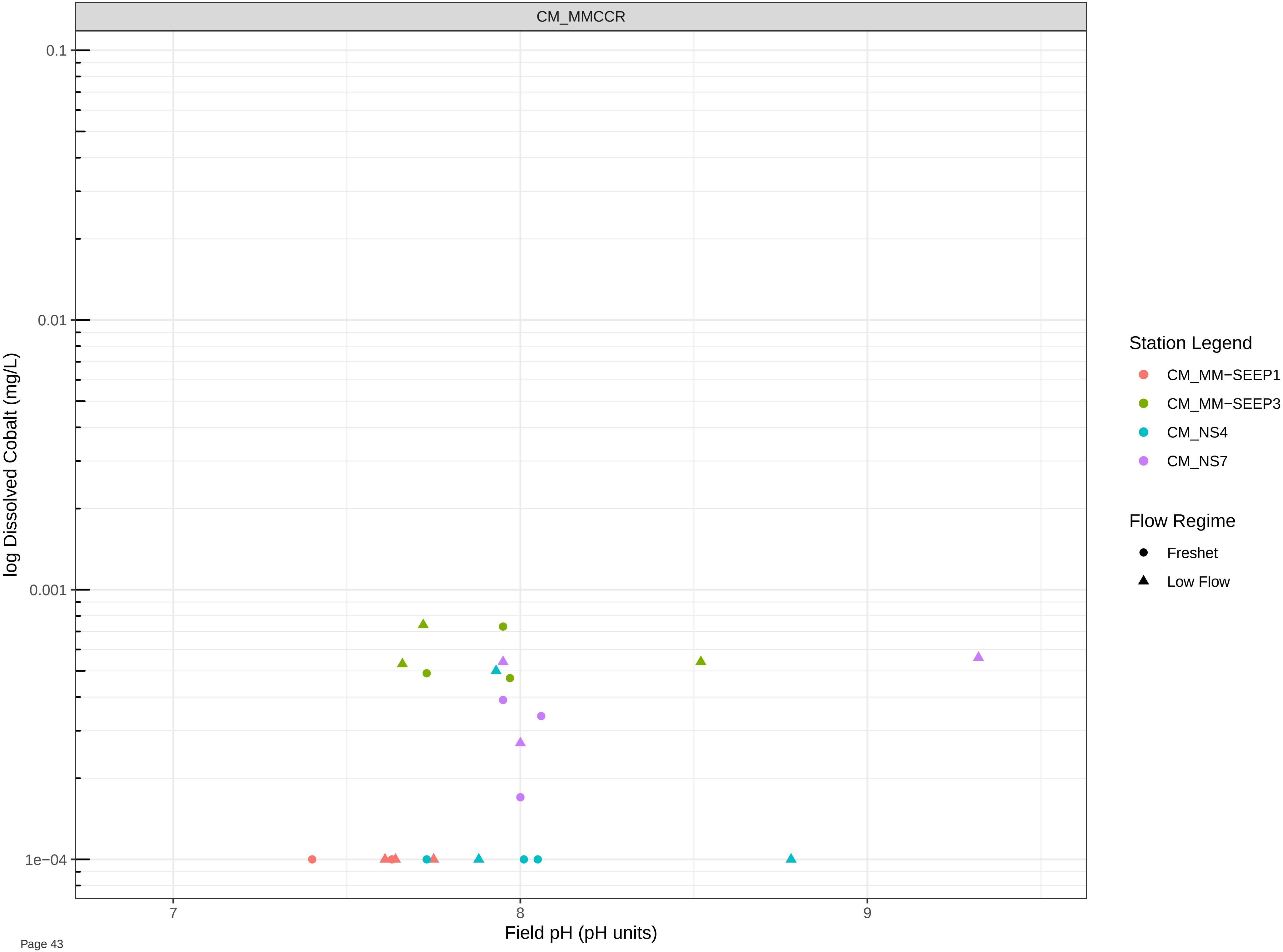
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow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0.01
0.001
1e−04
log Dissolved Cobalt (mg/L)
7
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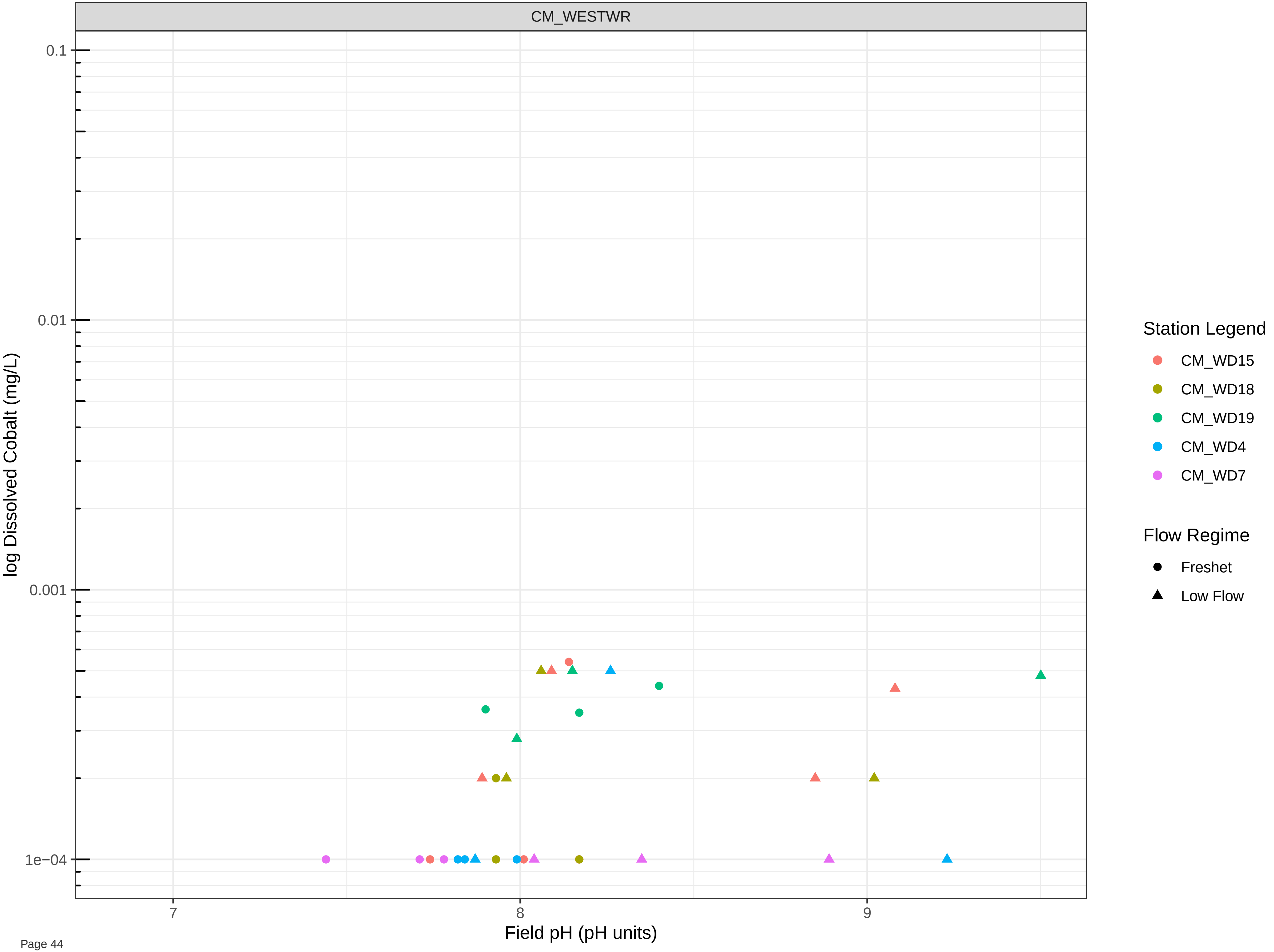
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow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0.01
0.001
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log Dissolved Cobalt (mg/L)
7
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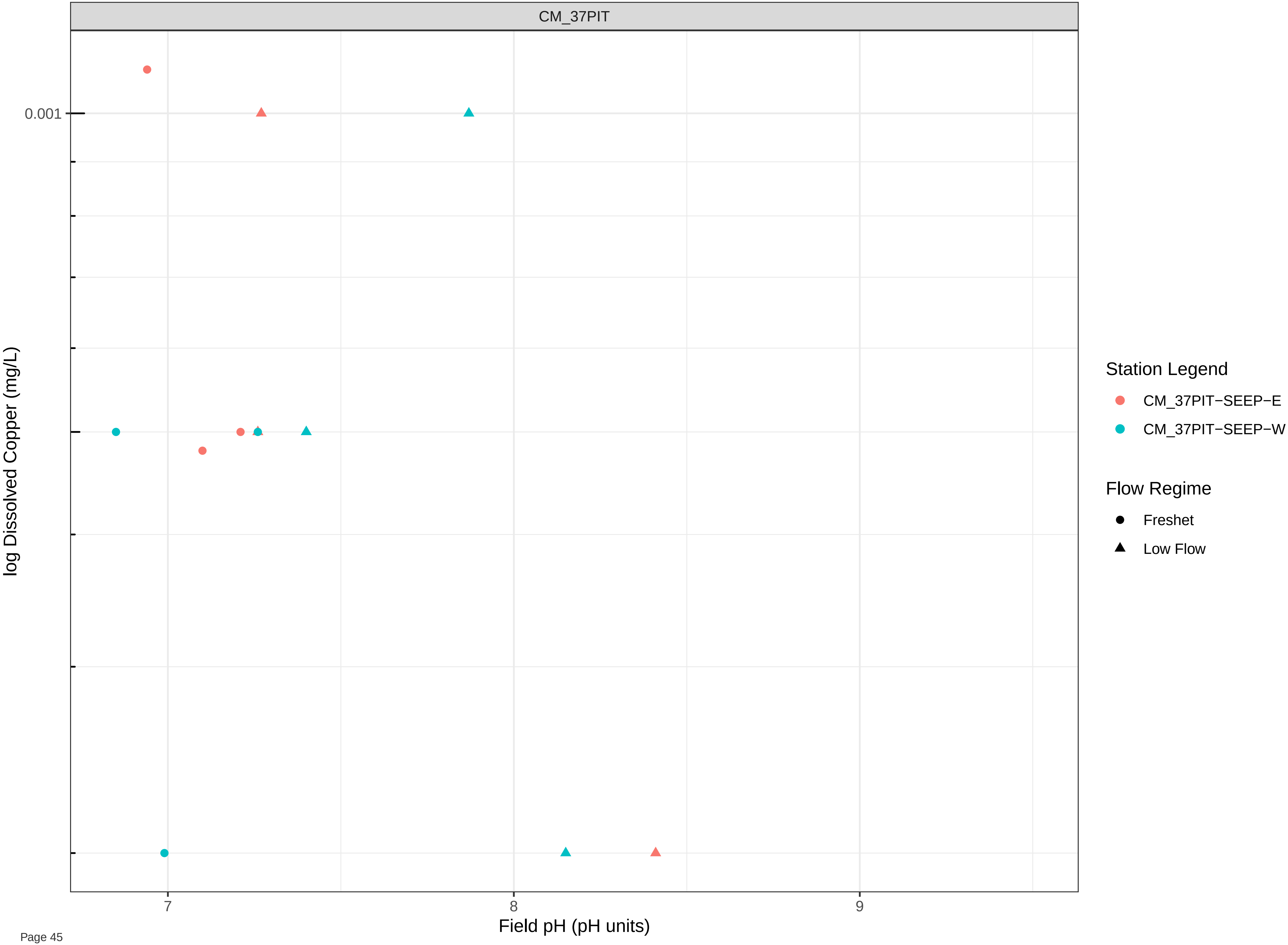
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow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0.001
log Dissolved Copper (mg/L)
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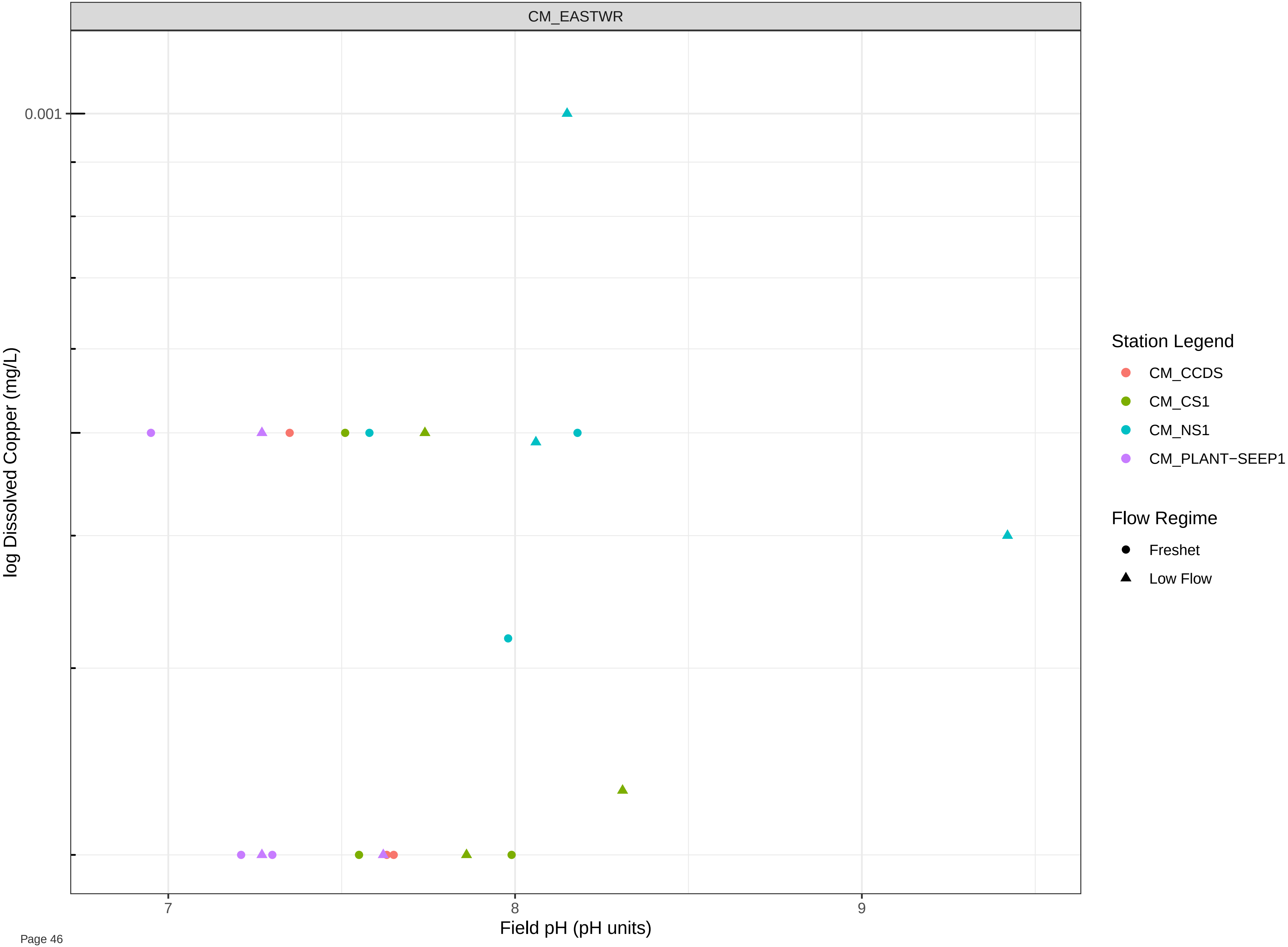
Field pH (pH units)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow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0.001
log Dissolved Copper (mg/L)
7
8
9
Field pH (pH units)
Station Legend
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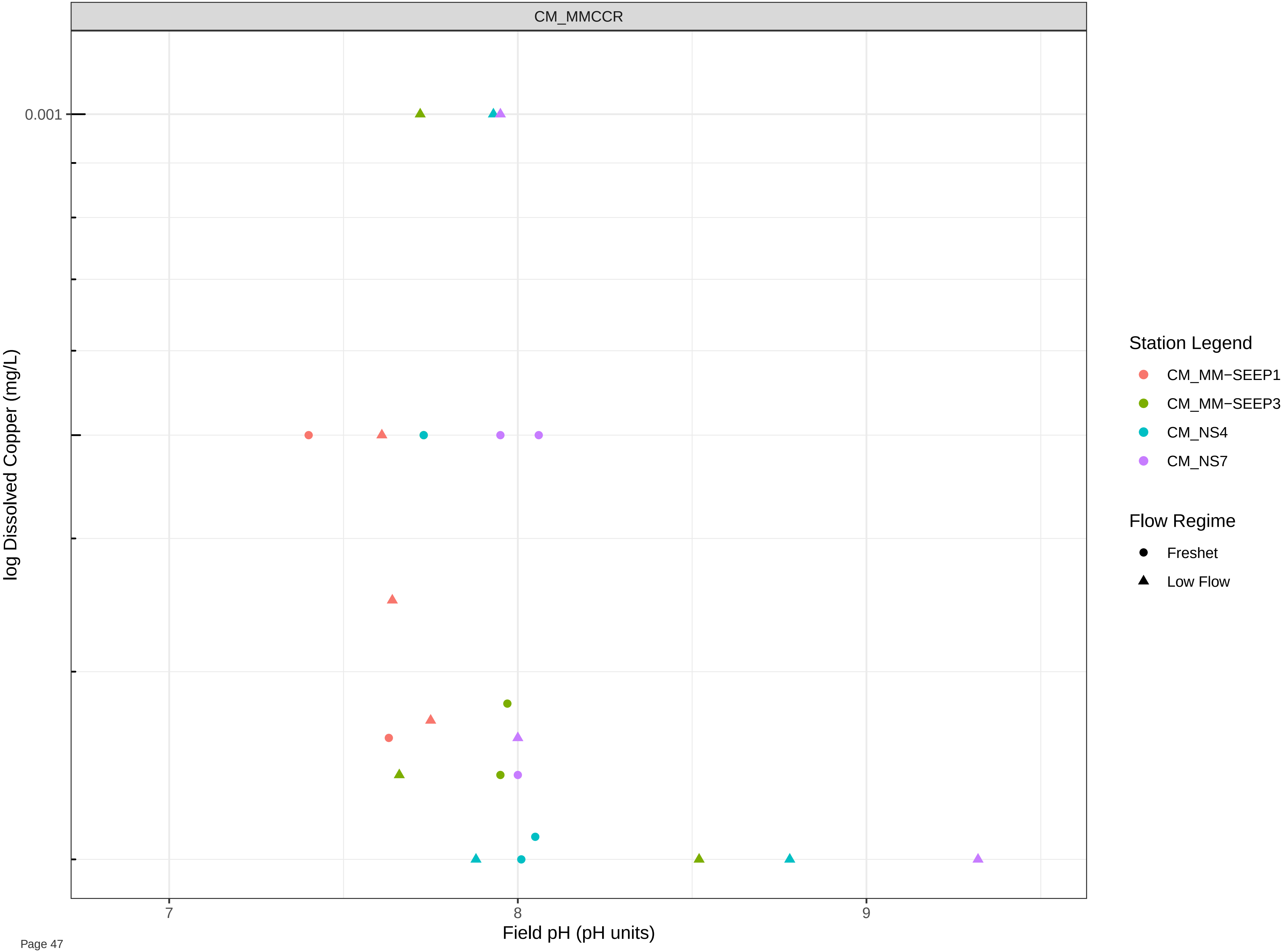
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow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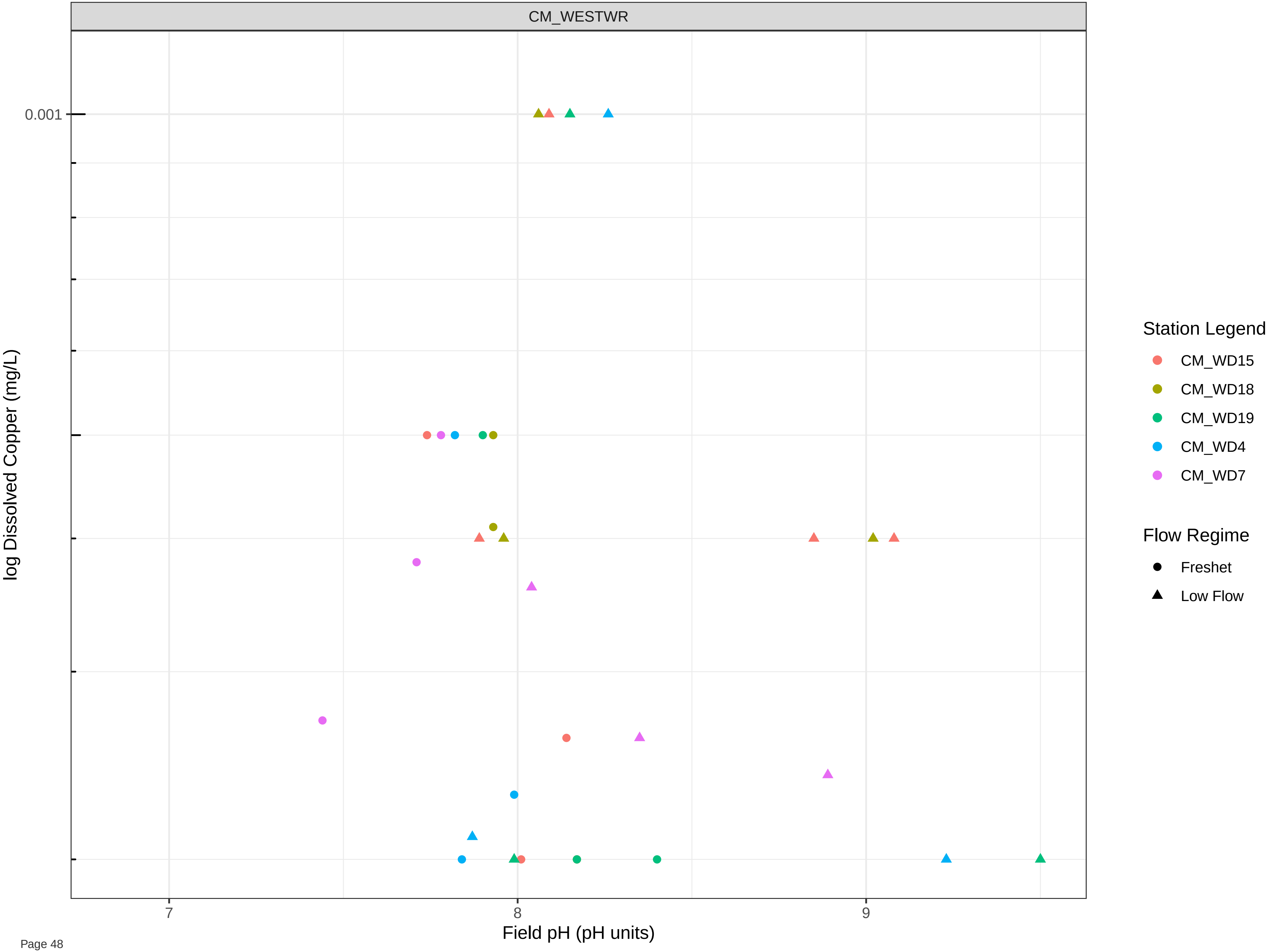
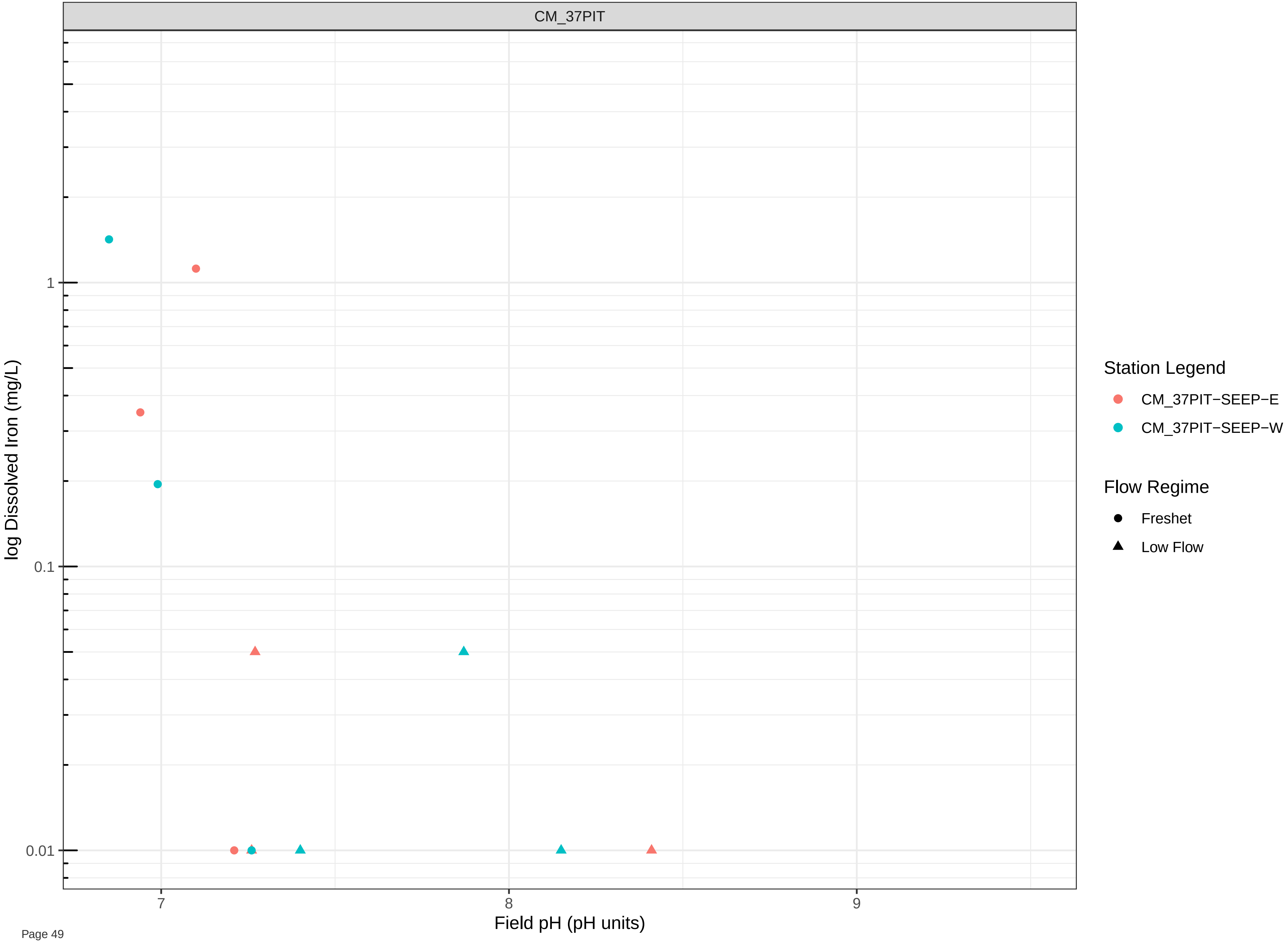
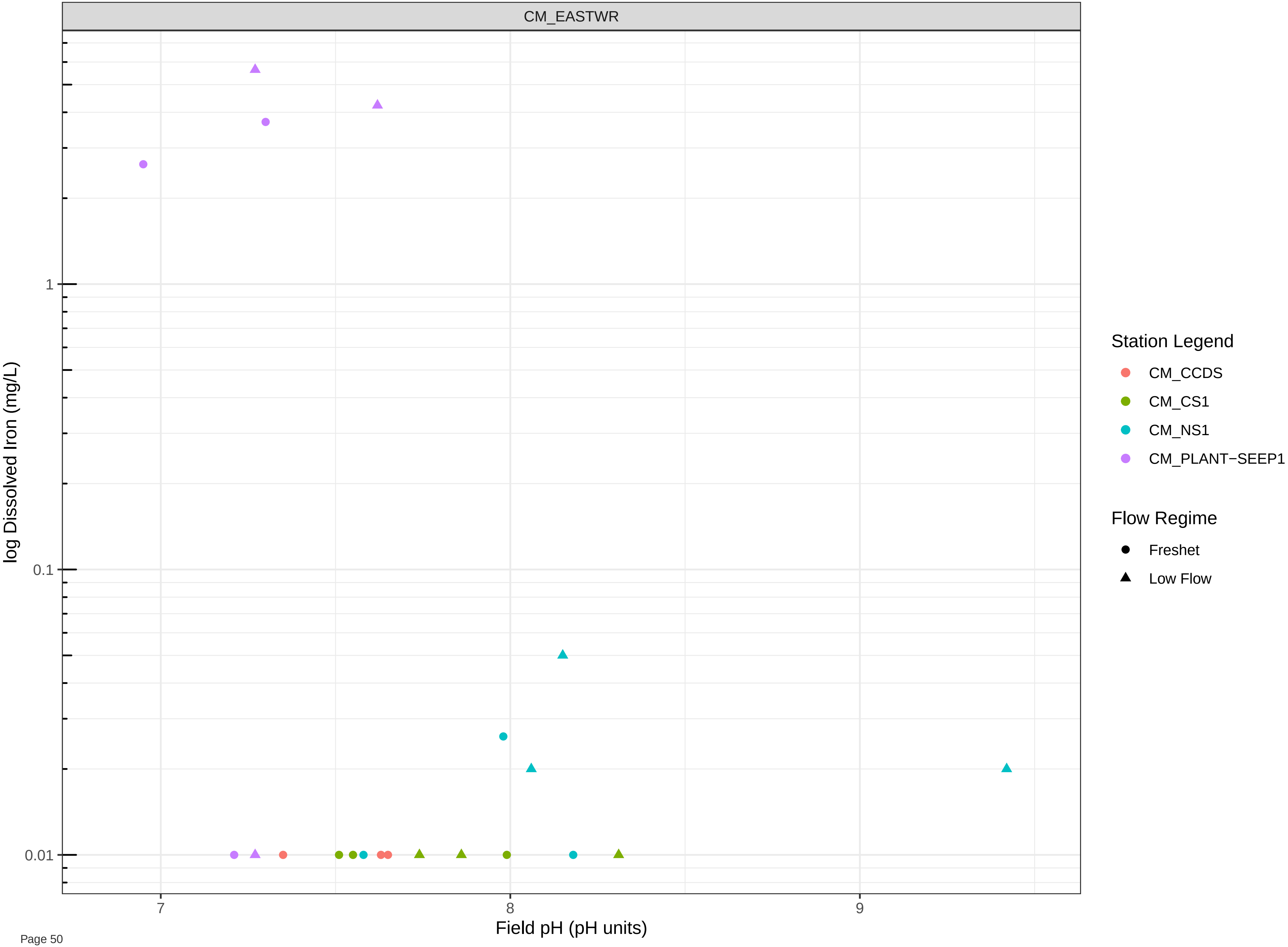
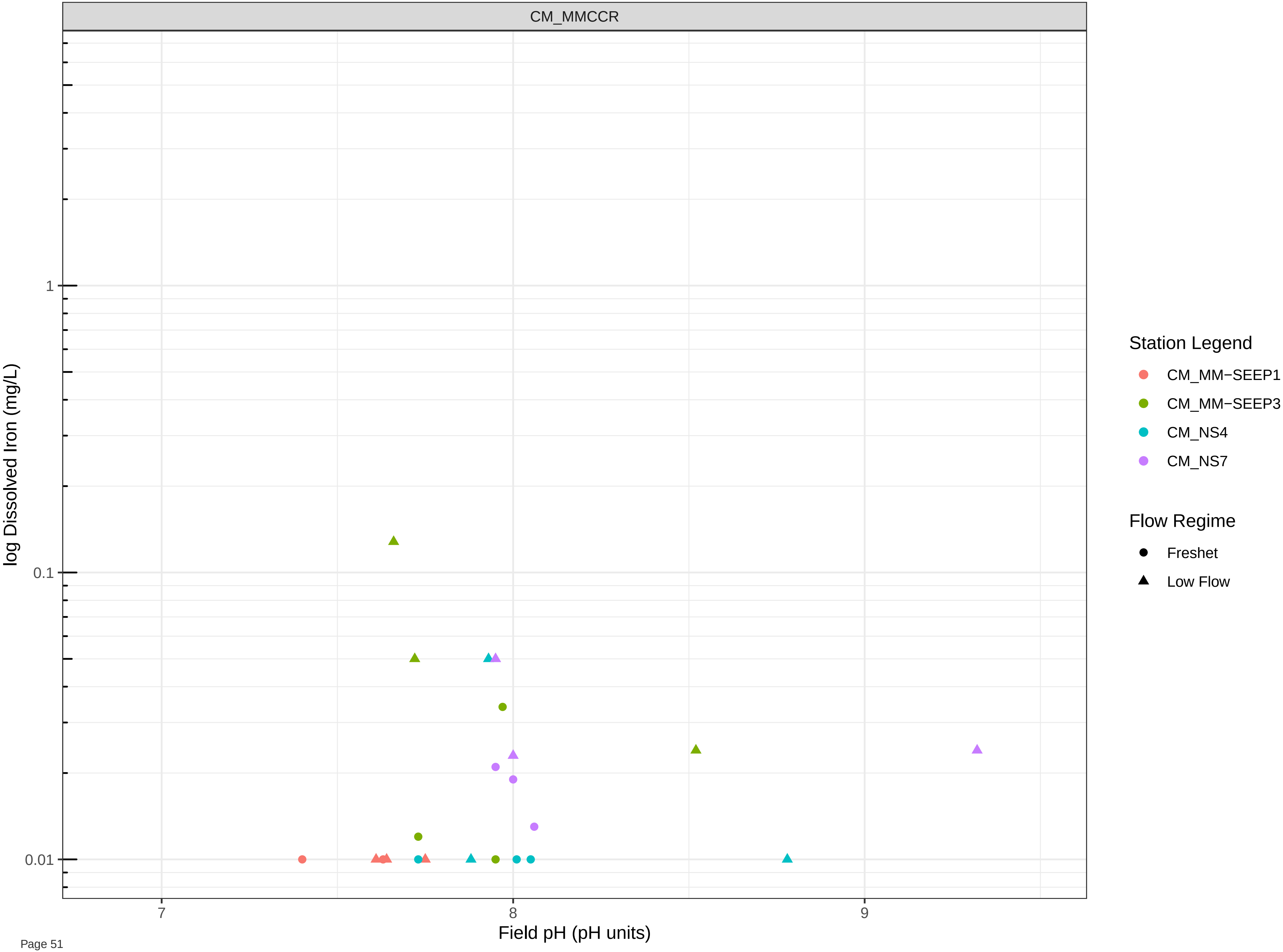
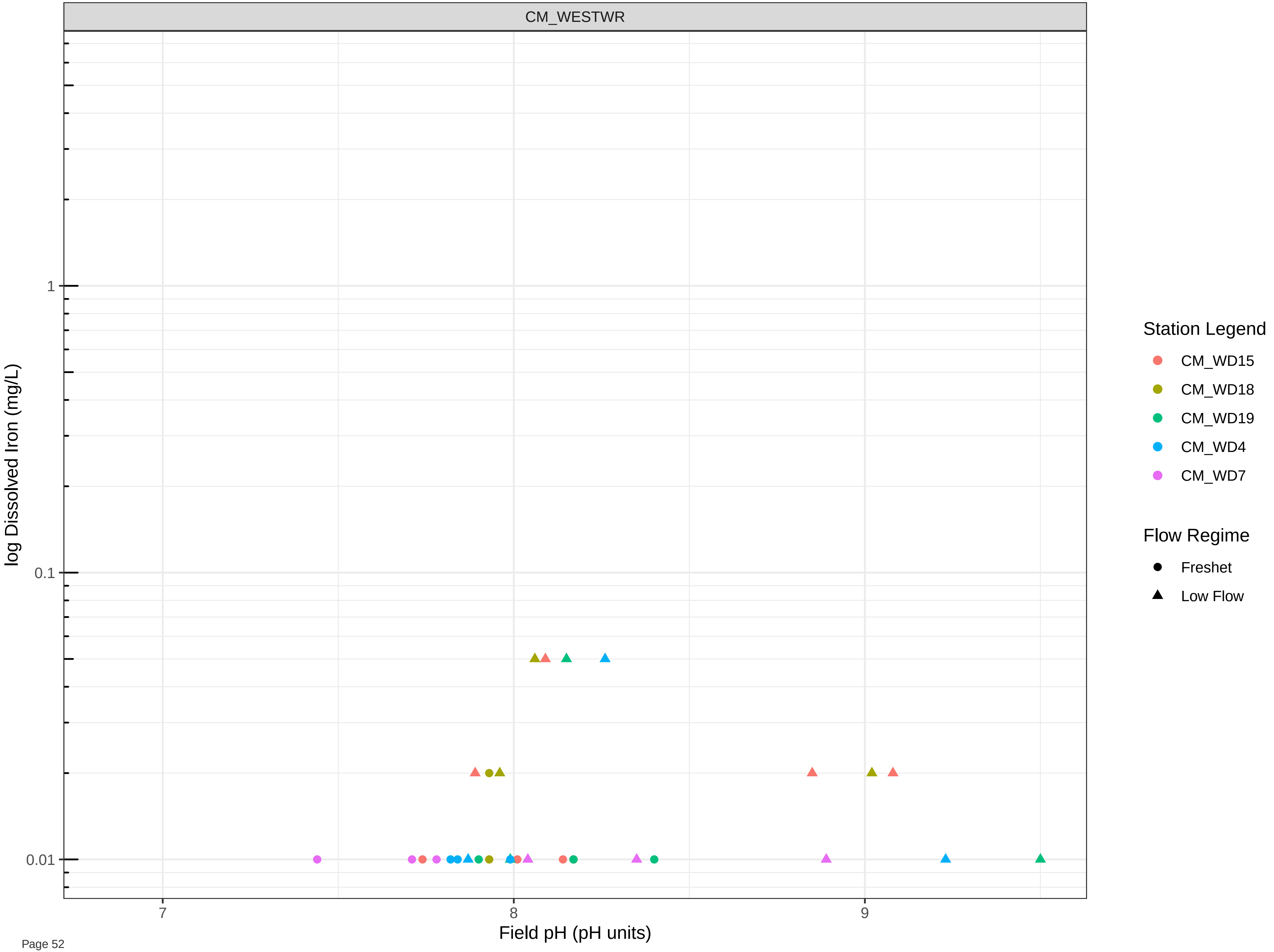
log Dissolved Copper (mg/L)
7
8
9
Field pH (pH units)
Station Legend
● CM_MM−SEEP1
● CM_MM−SEEP3
● CM_NS4
● CM_NS7
Flow Regime
● Freshet
▲ Low Flow

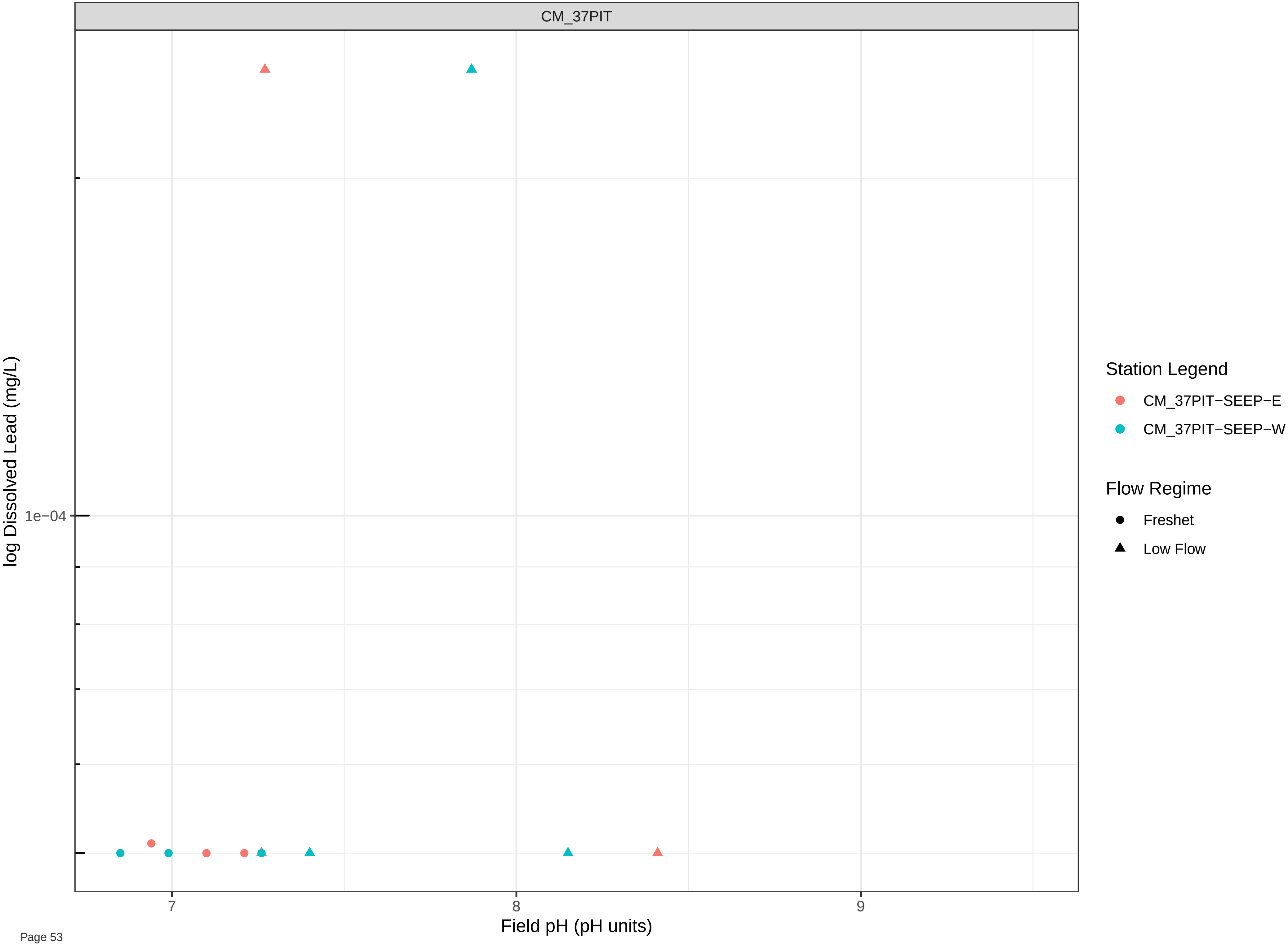

CM_WESTWR
0.001
log Dissolved Copper (mg/L)
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

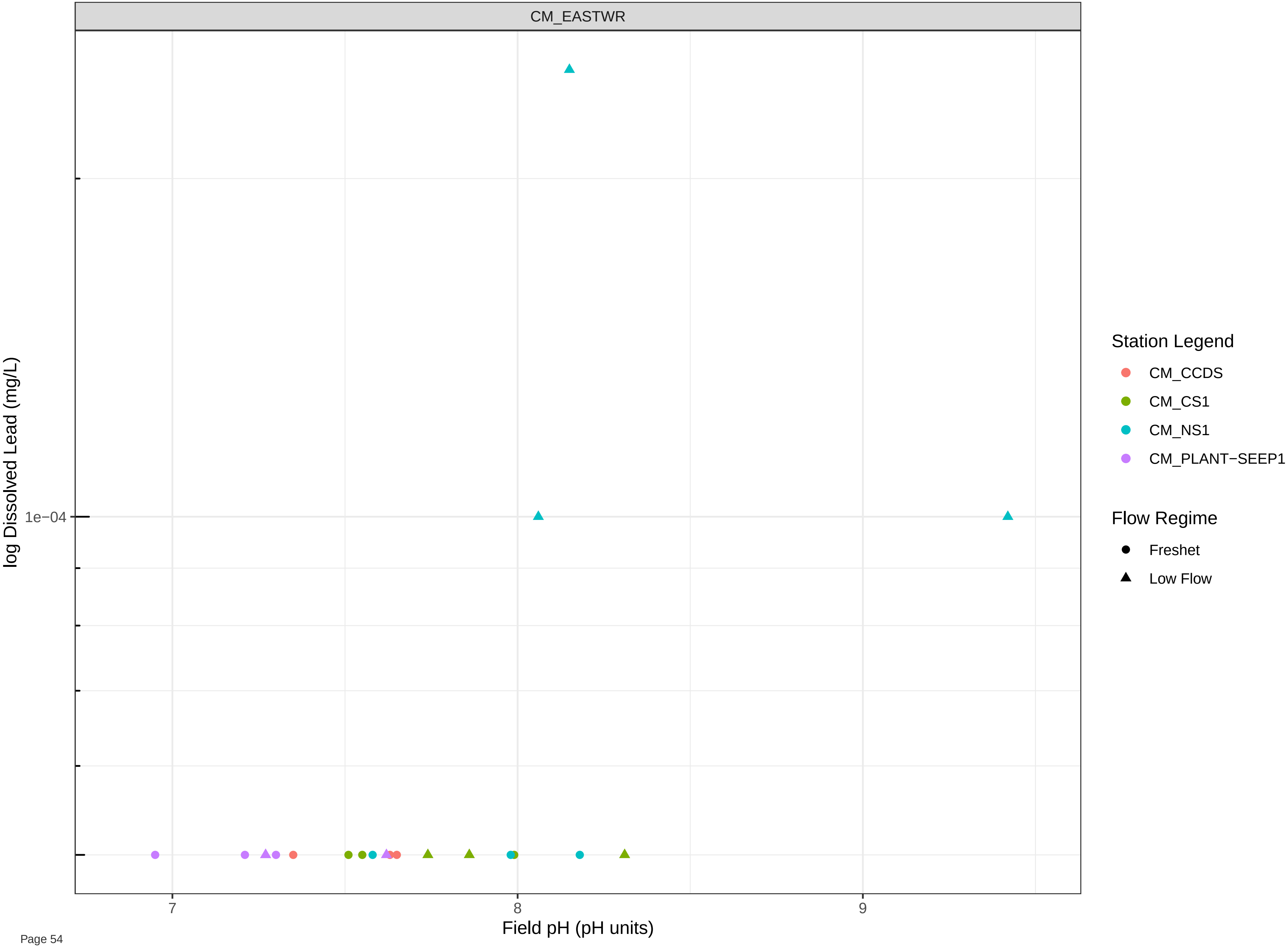

CM_37PIT
log Dissolved Iron (mg/L)
1
0.1
0.01
7
8
9
Field pH (pH units)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

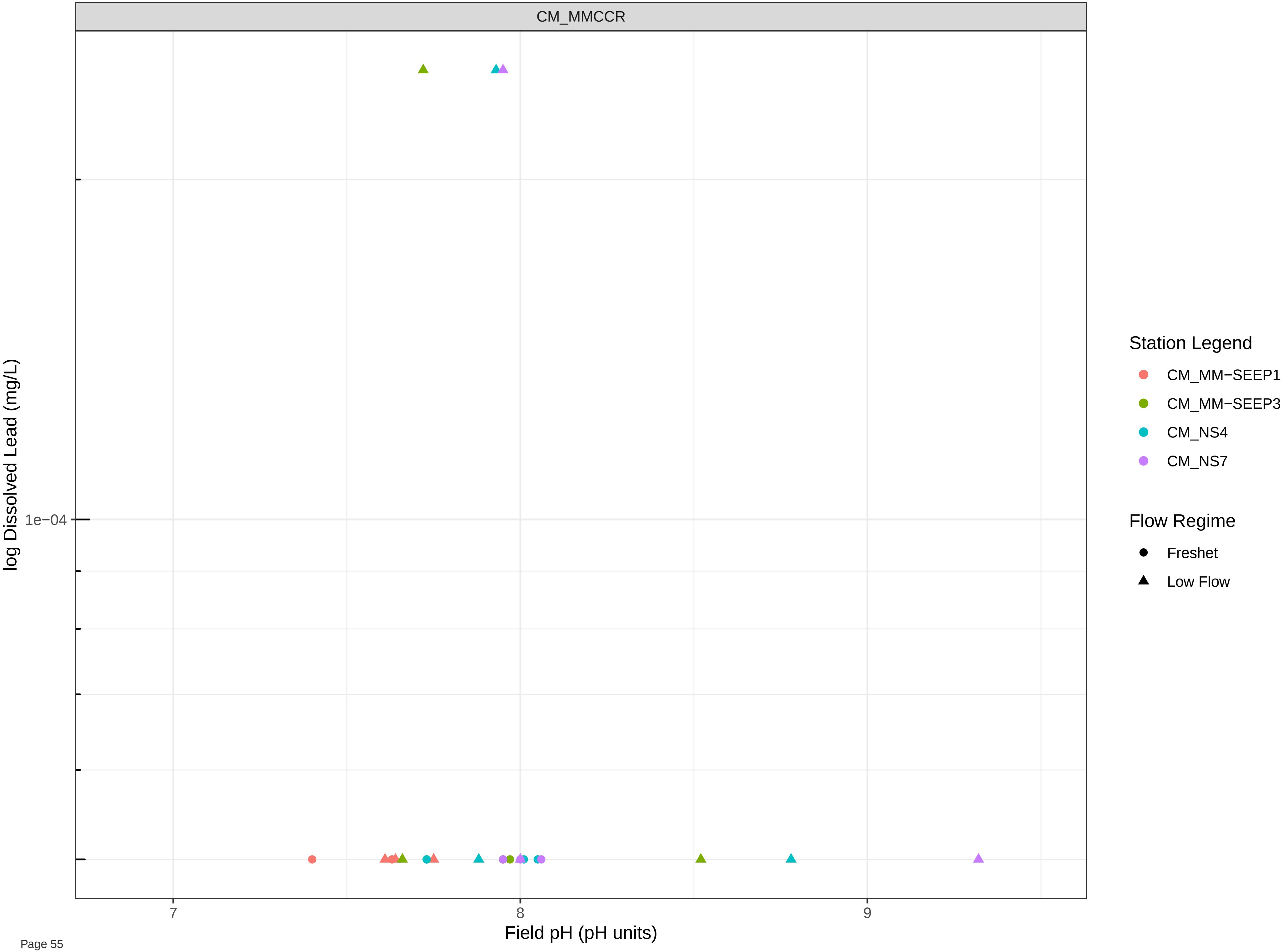

CM_EASTWR
log Dissolved Iron (mg/L)
1
0.1
0.01
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

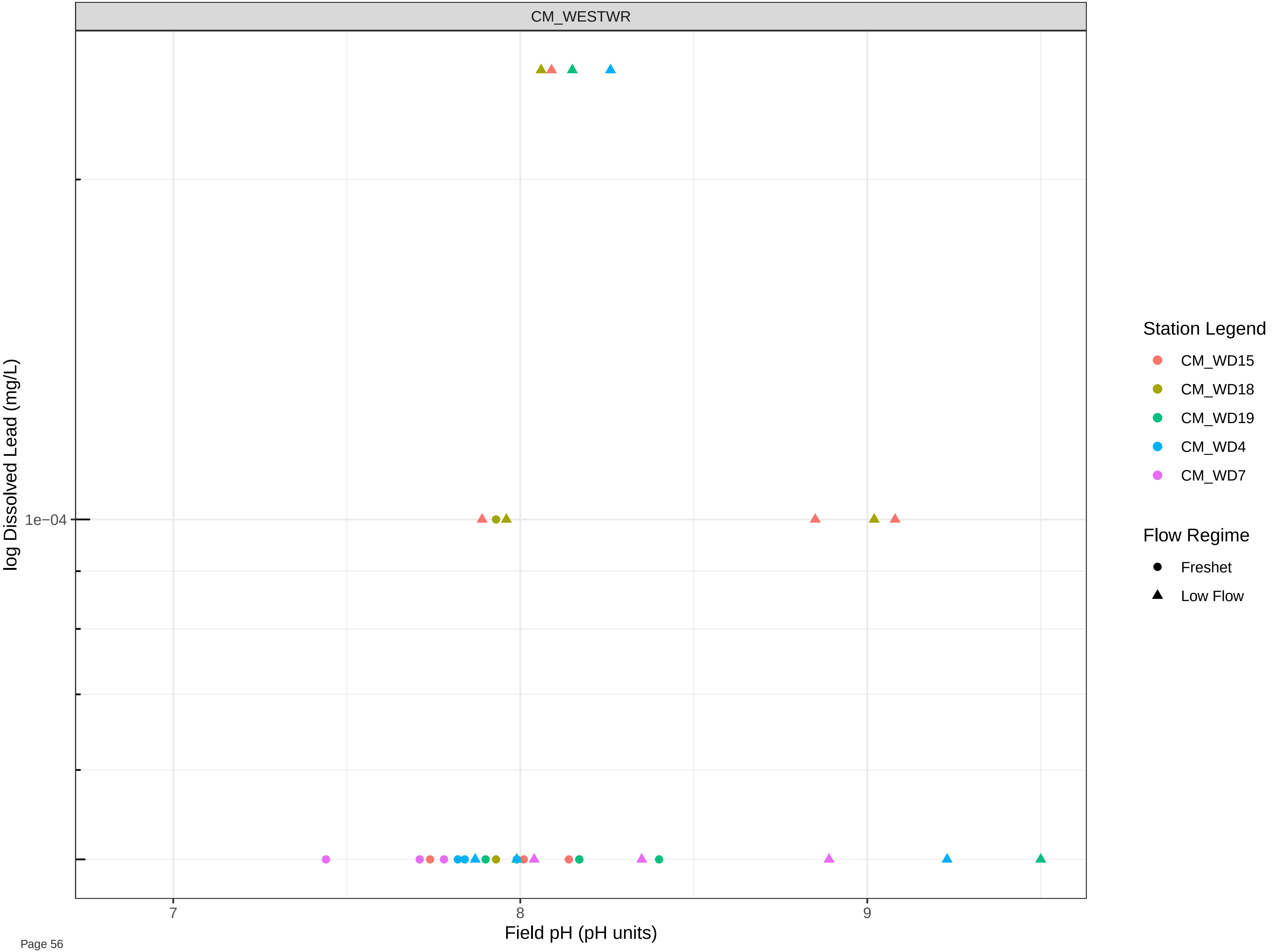

CM_MMCCR
log Dissolved Iron (mg/L)
1
0.1
0.01
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

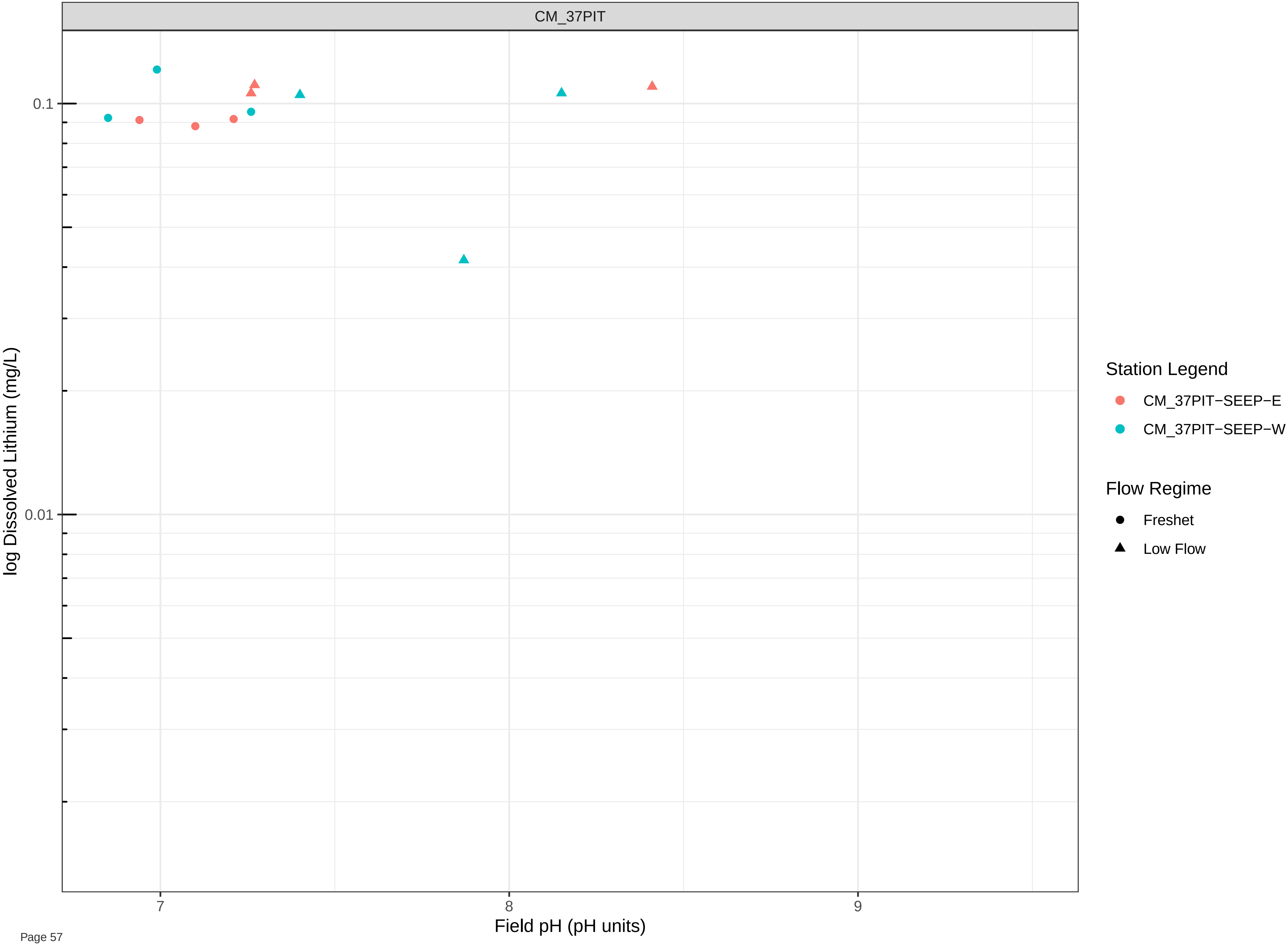

CM_WESTWR
log Dissolved Iron (mg/L)
1
0.1
0.01
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow


CM_37PIT
log Dissolved Lead (mg/L)
1e−04
Field pH (pH units)
7
8
9
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow


CM_EASTWR
log Dissolved Lead (mg/L)
1e−04
Field pH (pH units)
7
8
9
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow


CM_MMCCR
log Dissolved Lead (mg/L)
1e−04
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow


CM_WESTWR
log Dissolved Lead (mg/L)
1e−04
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow



CM_37PIT
0.1
0.01
log Dissolved Lithium (mg/L)
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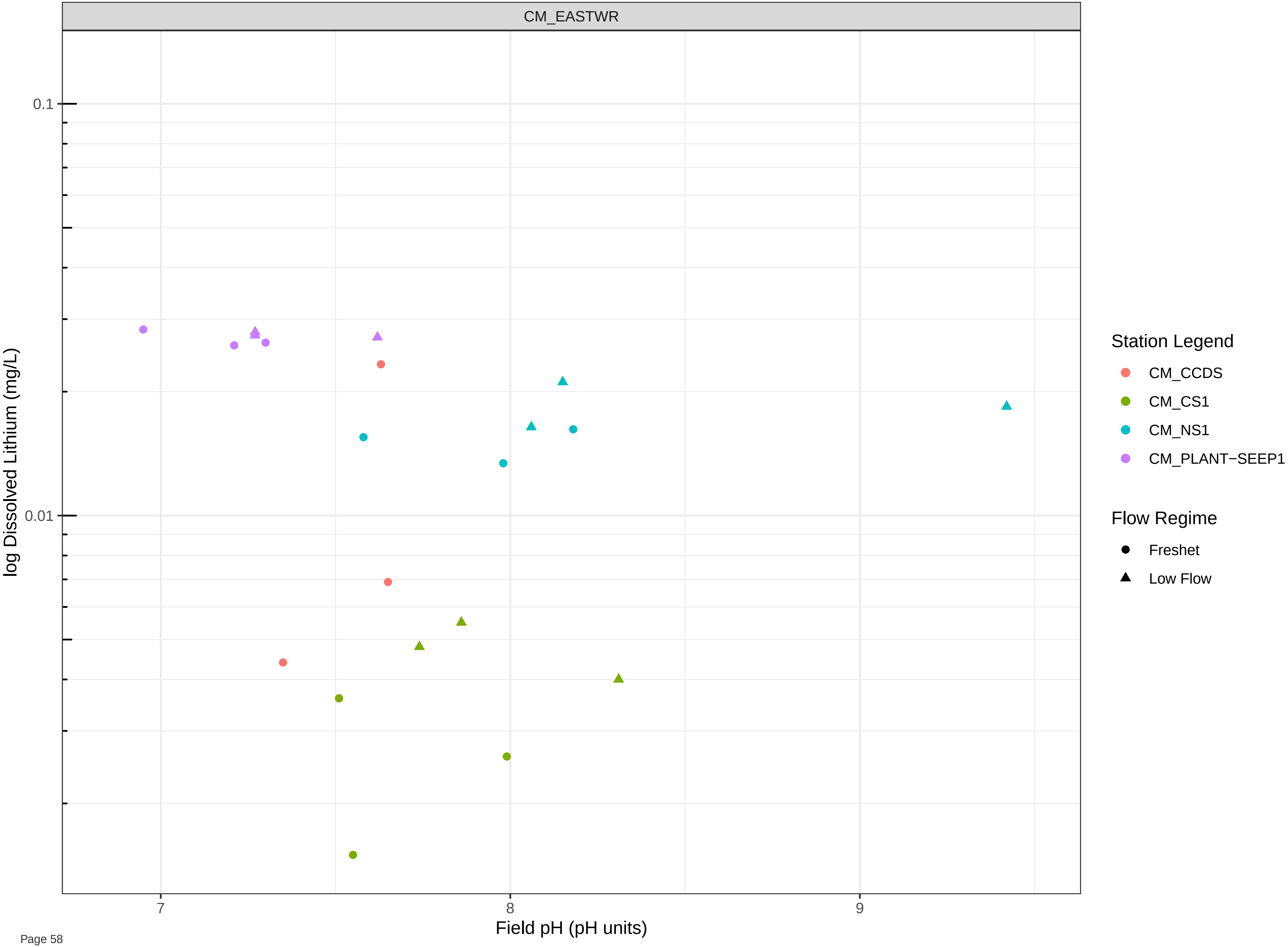
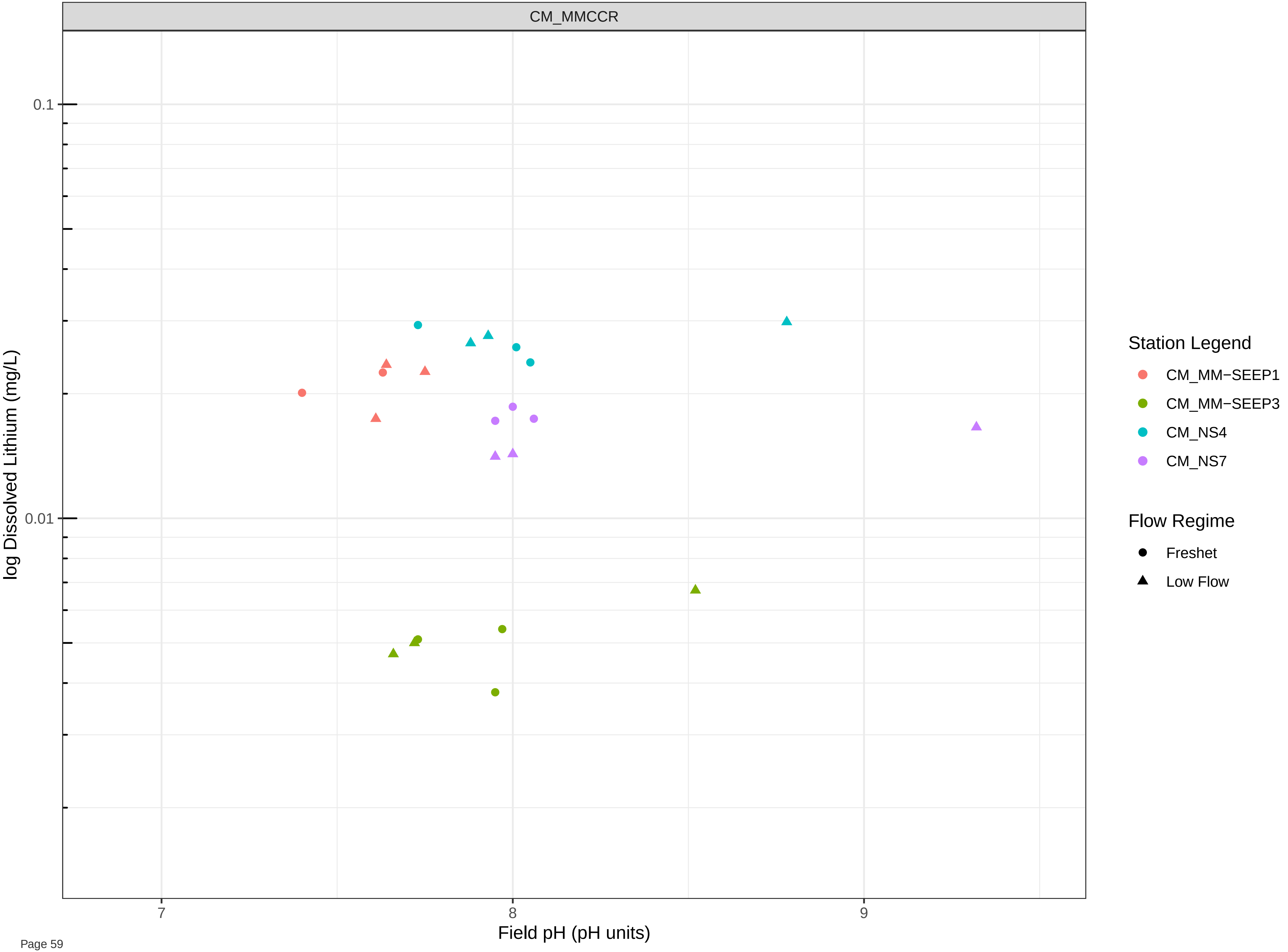
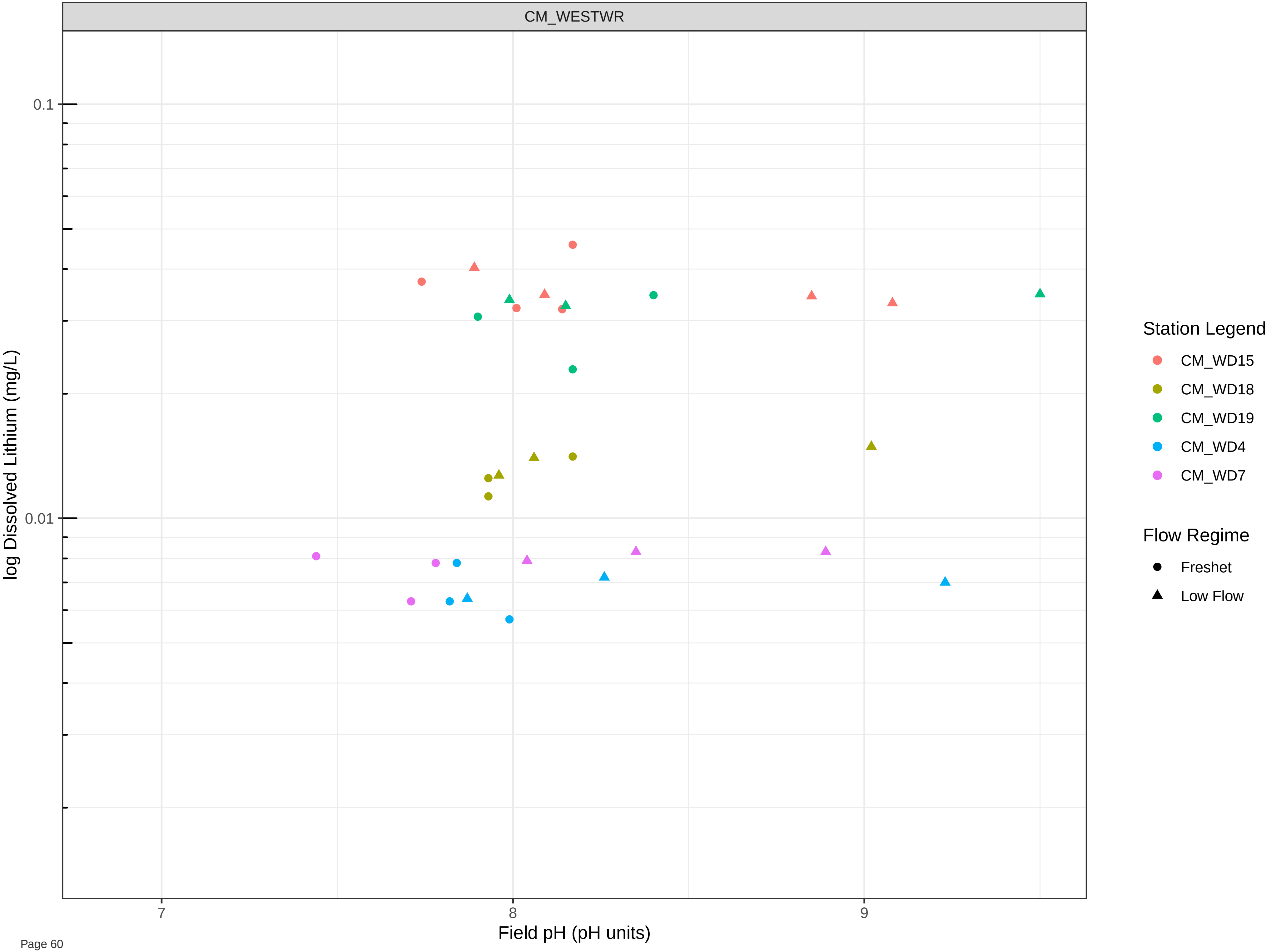
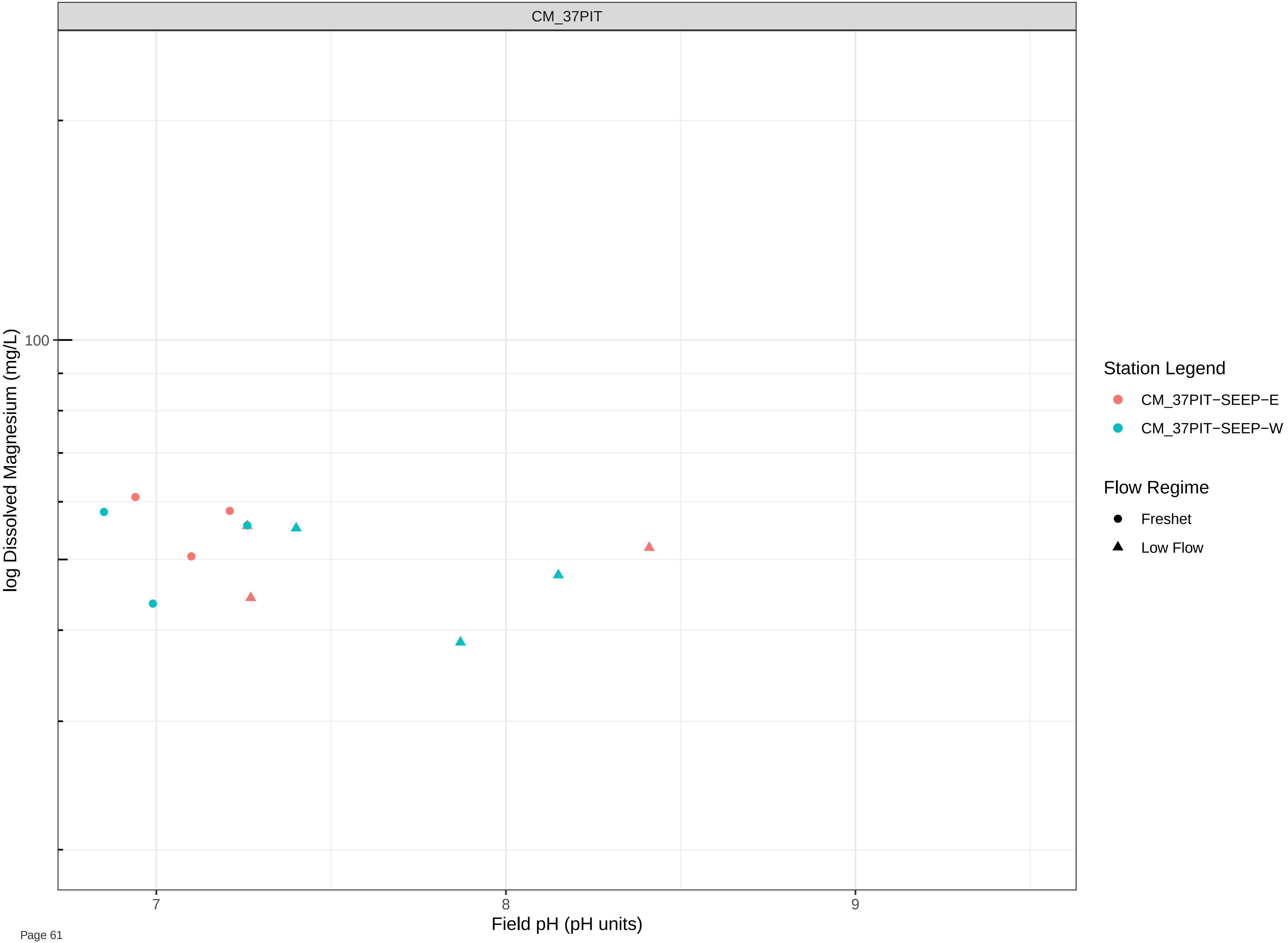
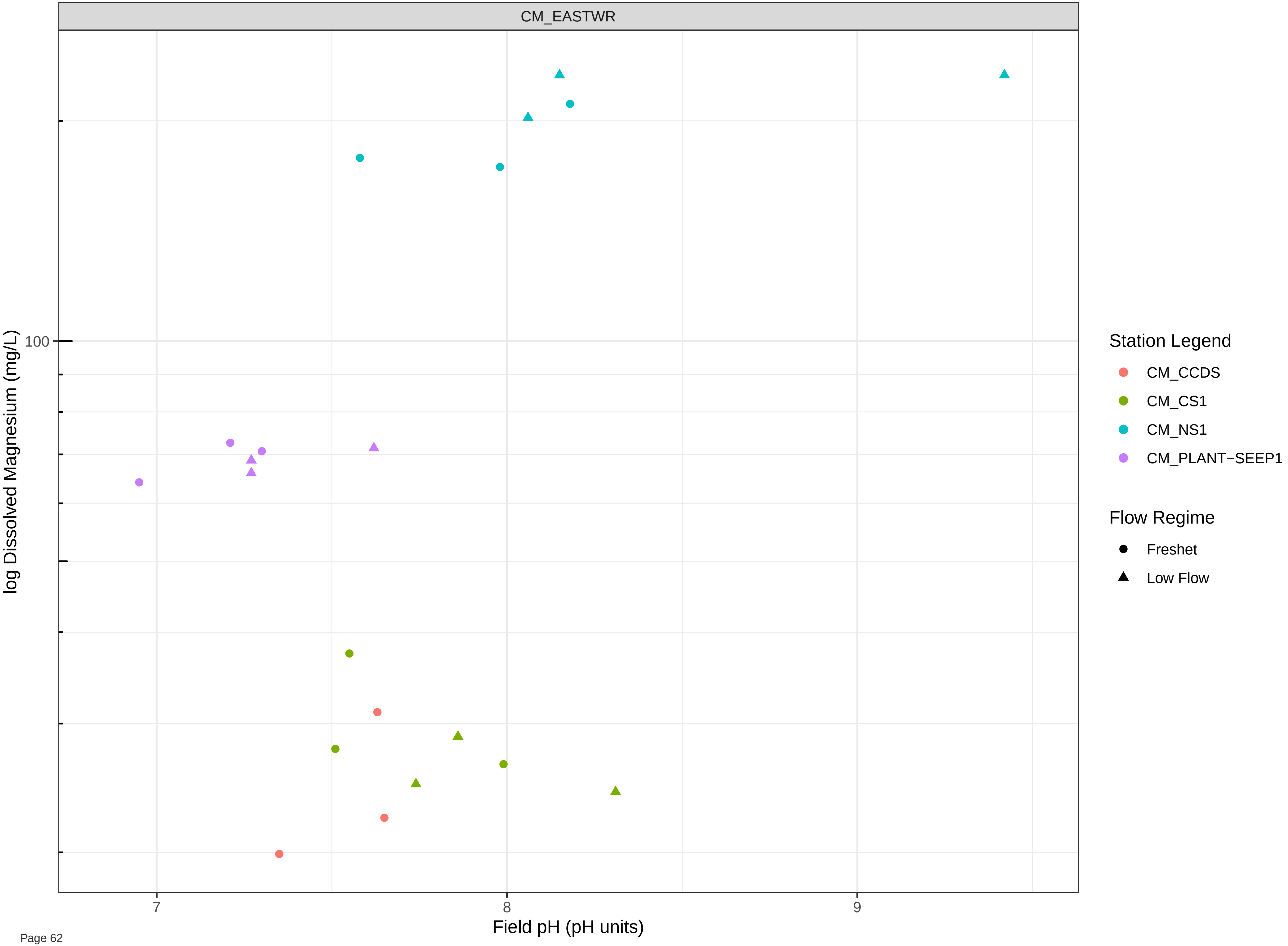
8
9
Field pH (pH units)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow


CM_EASTWR
0.1
0.01
log Dissolved Lithium (mg/L)
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow


CM_MMCCR
0.1
0.01
log Dissolved Lithium (mg/L)
7
8
9
Field pH (pH units)
Station Legend
● CM_MM−SEEP1
● CM_MM−SEEP3
● CM_NS4
● CM_NS7
Flow Regime
● Freshet
▲ Low Flow


CM_WESTWR
log Dissolved Lithium (mg/L)
0.1
0.01
Field pH (pH units)
7
8
9
Station Legend
● CM_WD15
● CM_WD18
● CM_WD19
● CM_WD4
● CM_WD7
Flow Regime
● Freshet
▲ Low Flow


CM_37PIT
log Dissolved Magnesium (mg/L)
100
Field pH (pH units)
7
8
9
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow


CM_EASTWR
log Dissolved Magnesium (mg/L)
100
Field pH (pH units)
7
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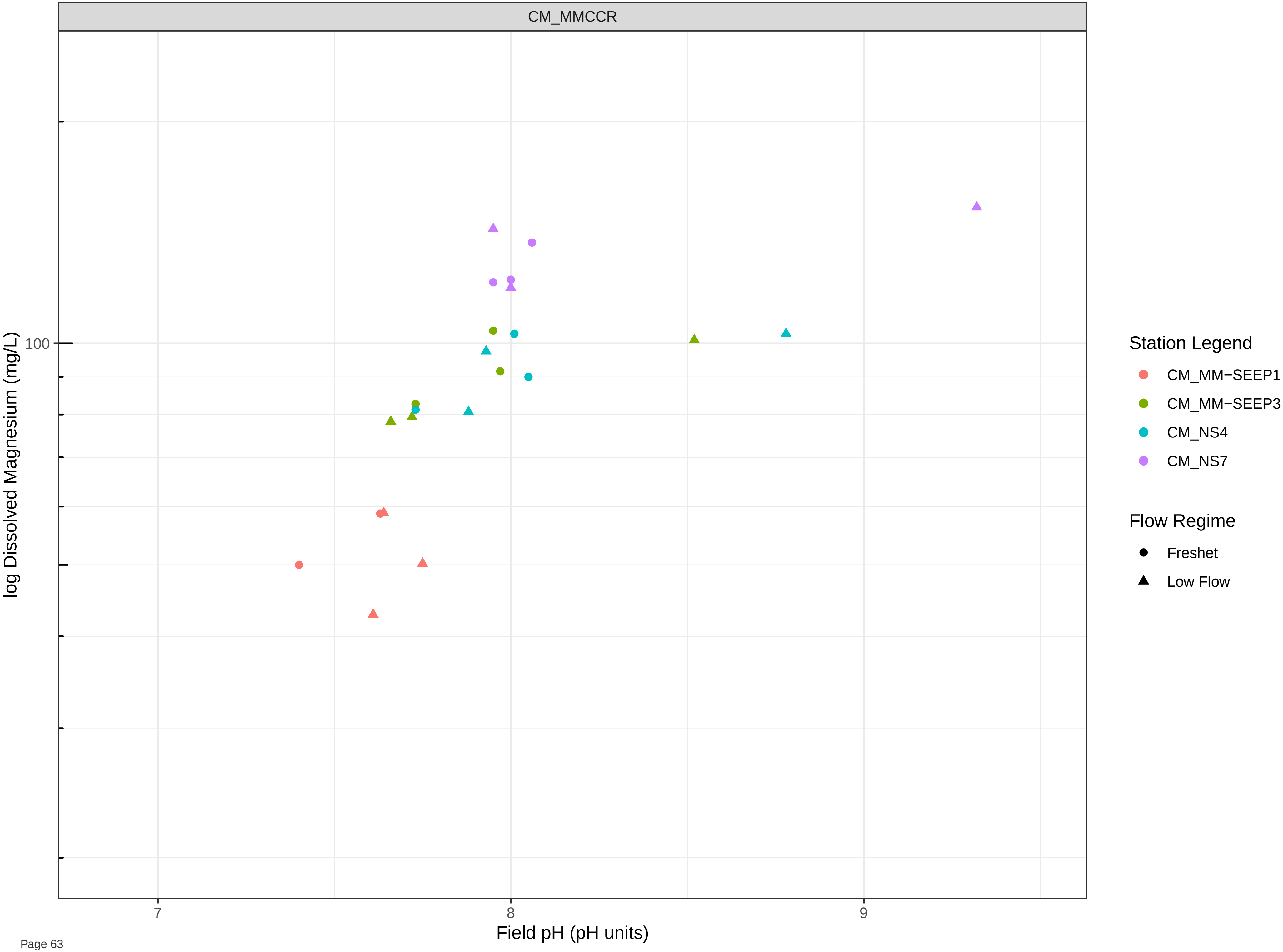
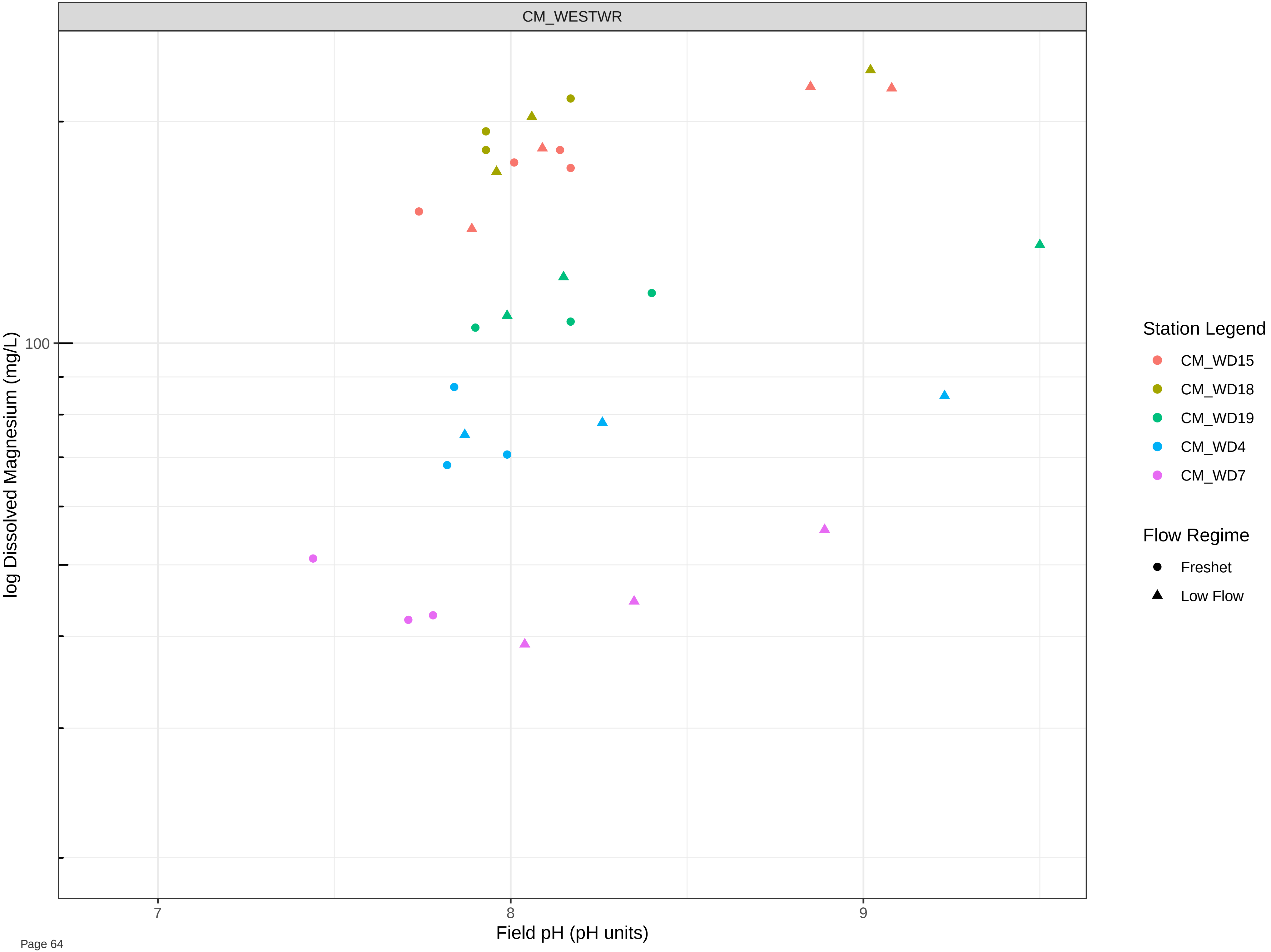
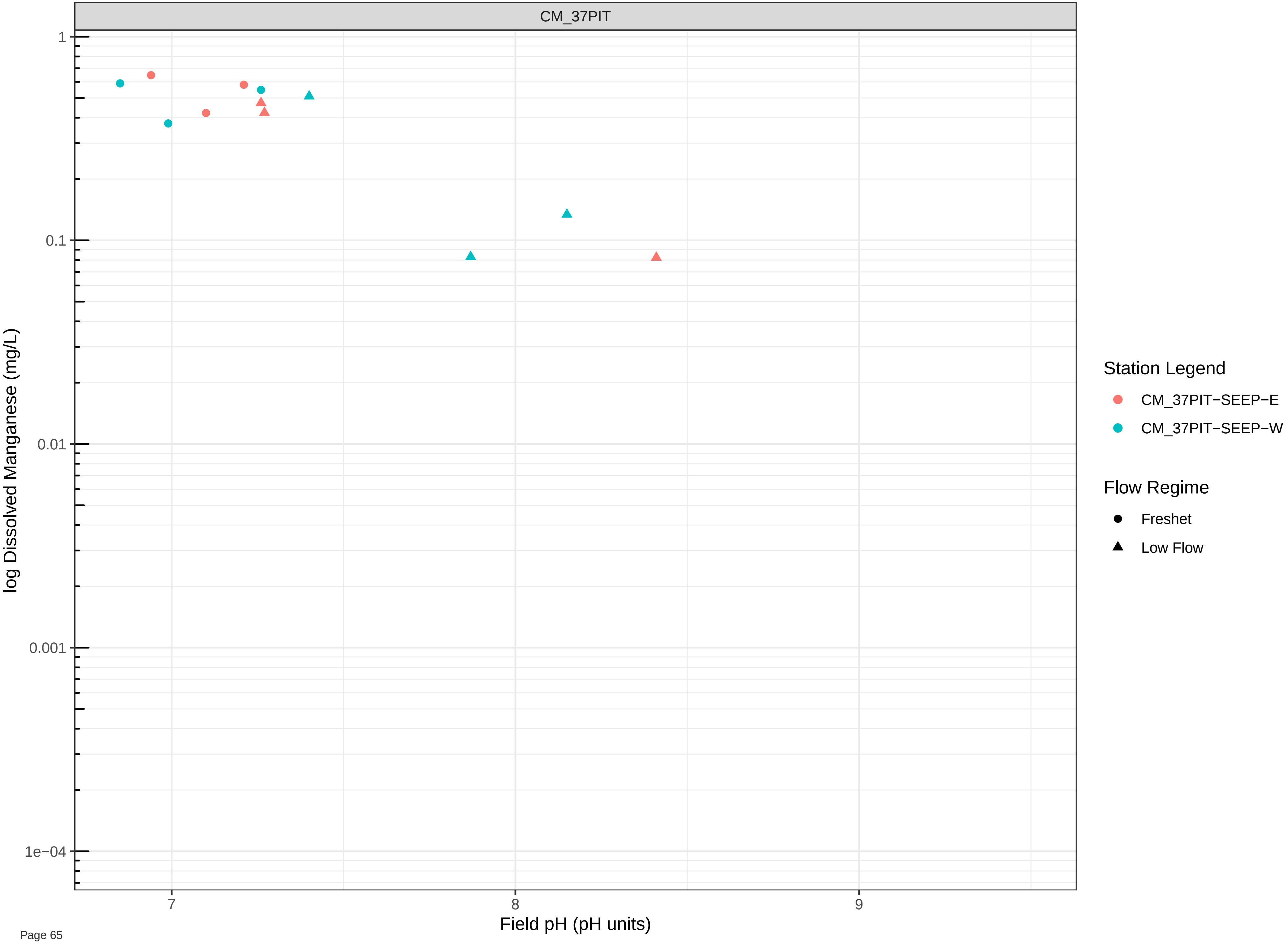
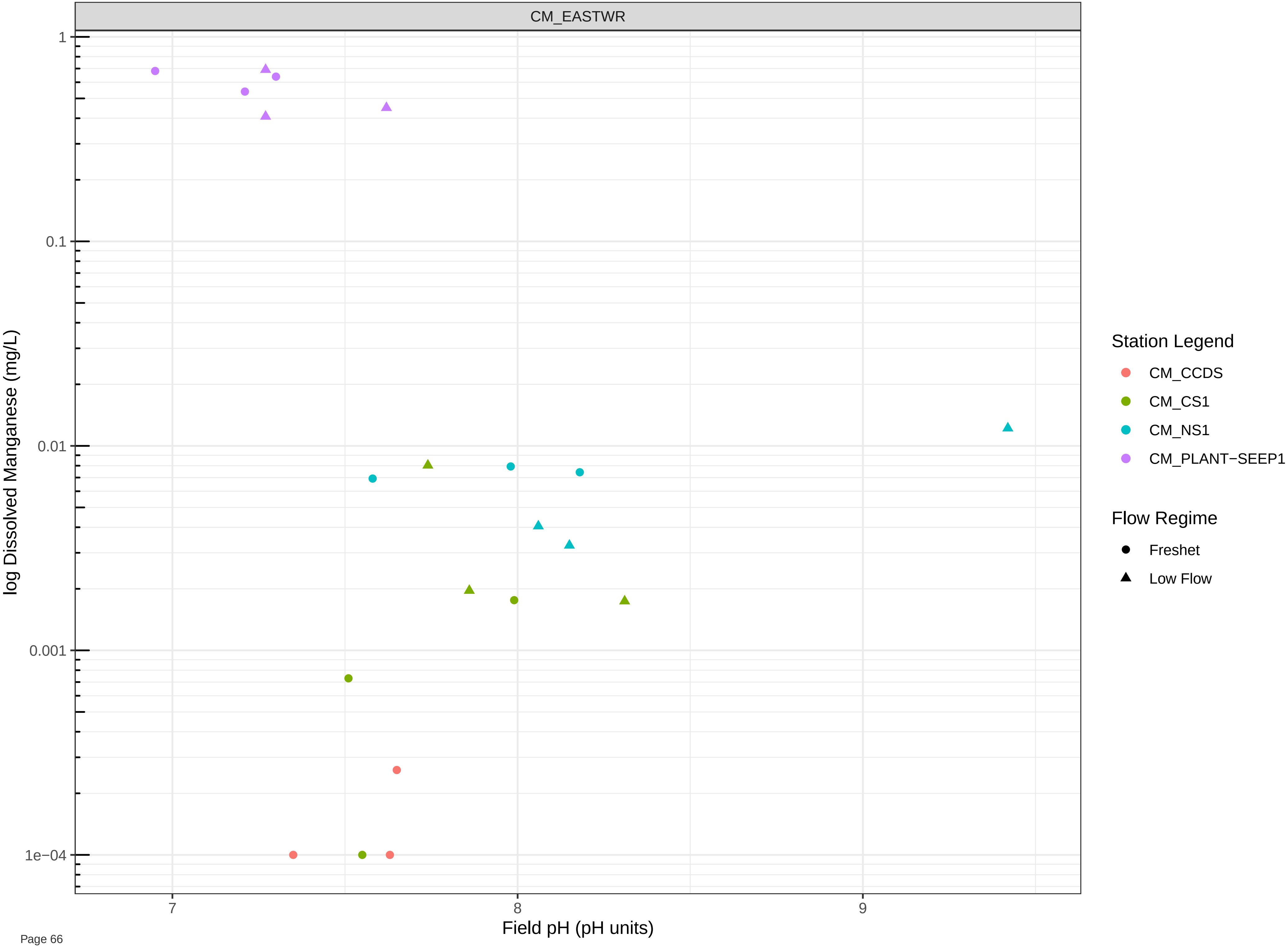
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow


CM_MMCCR
log Dissolved Magnesium (mg/L)
100
Field pH (pH units)
7
8
9
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow


CM_WESTWR
log Dissolved Magnesium (mg/L)
100
Field pH (pH units)
7
8
9
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow


CM_37PIT
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
7
8
9
Field pH (pH units)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow


CM_EASTWR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
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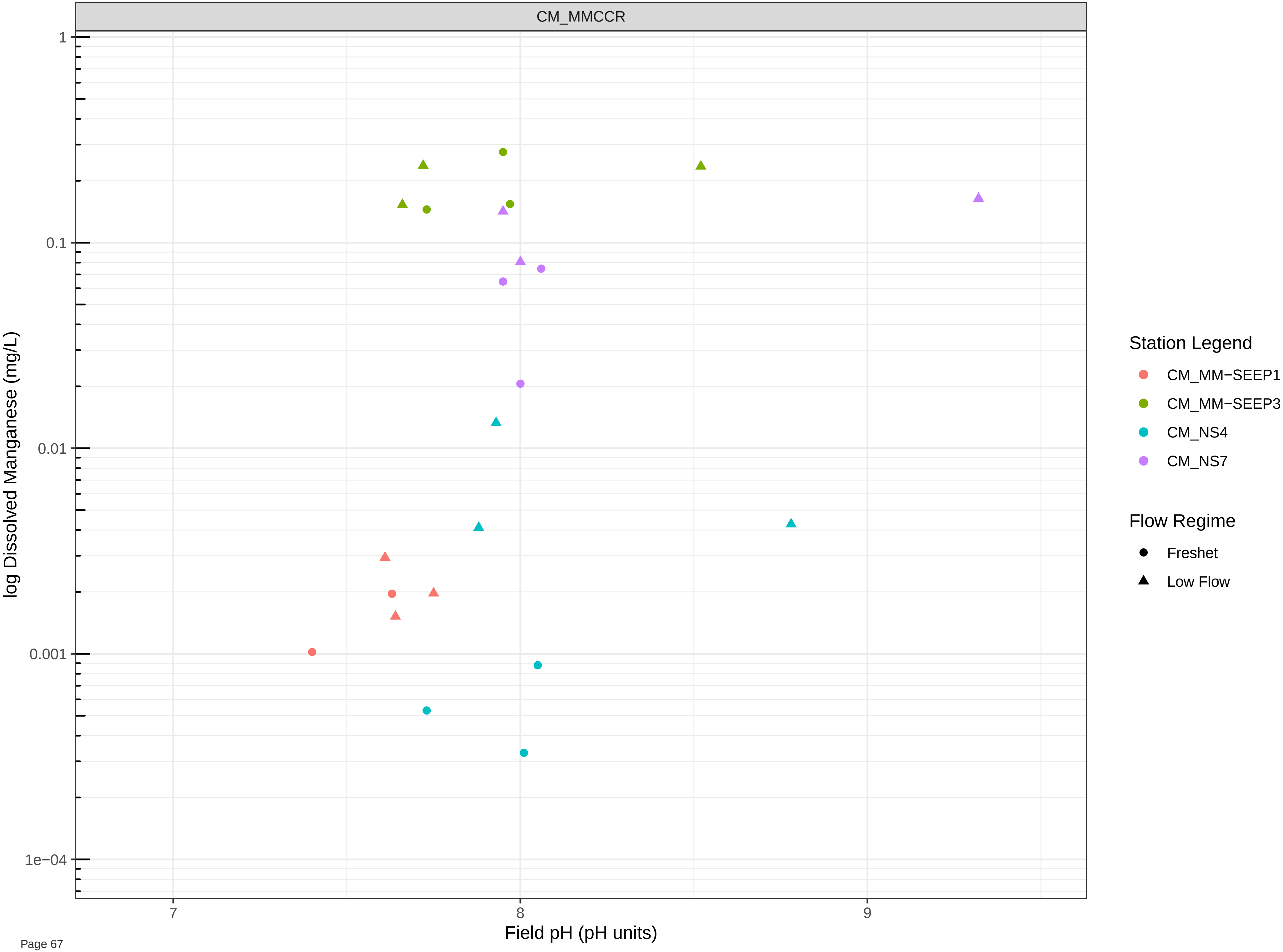
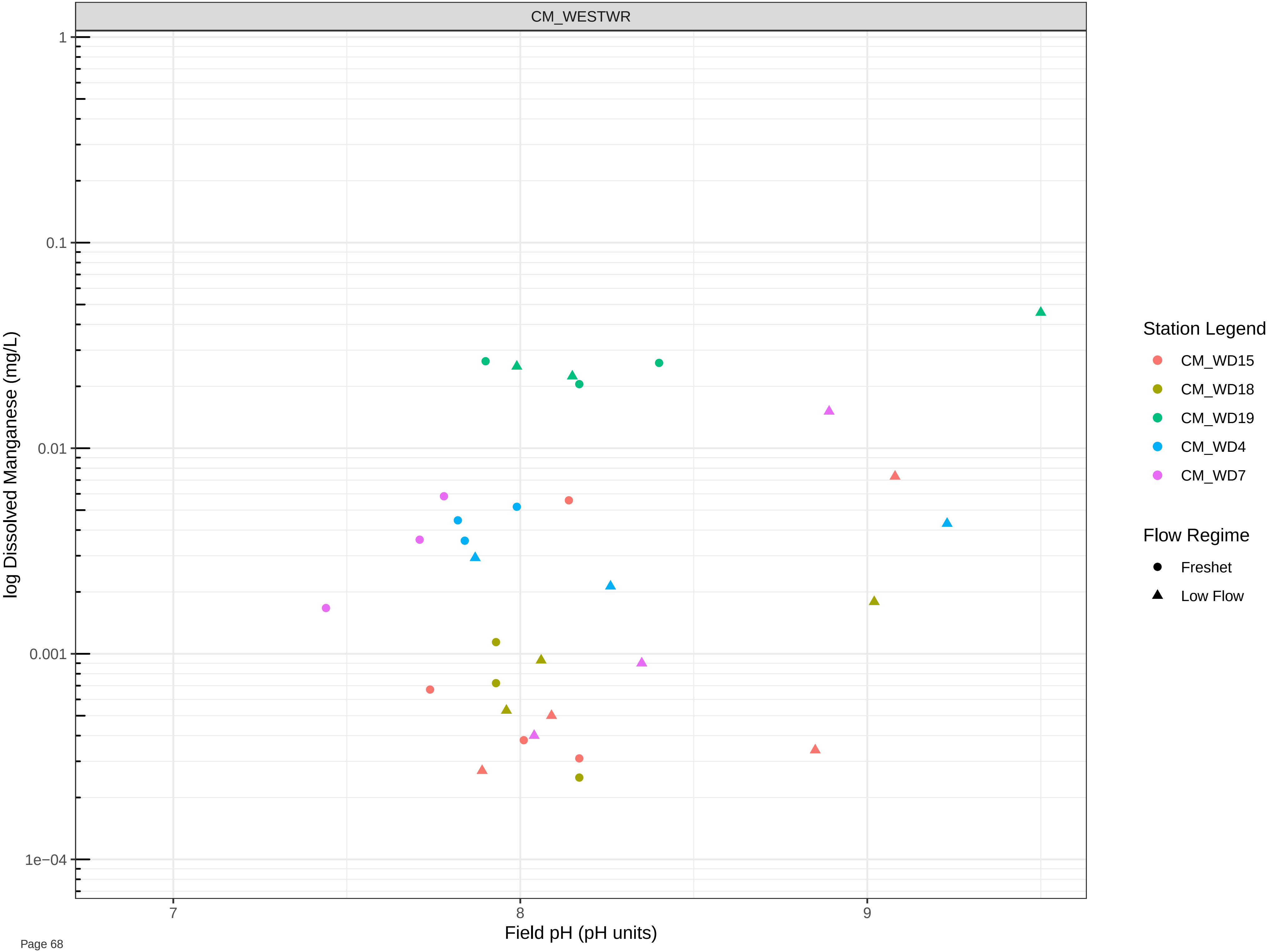
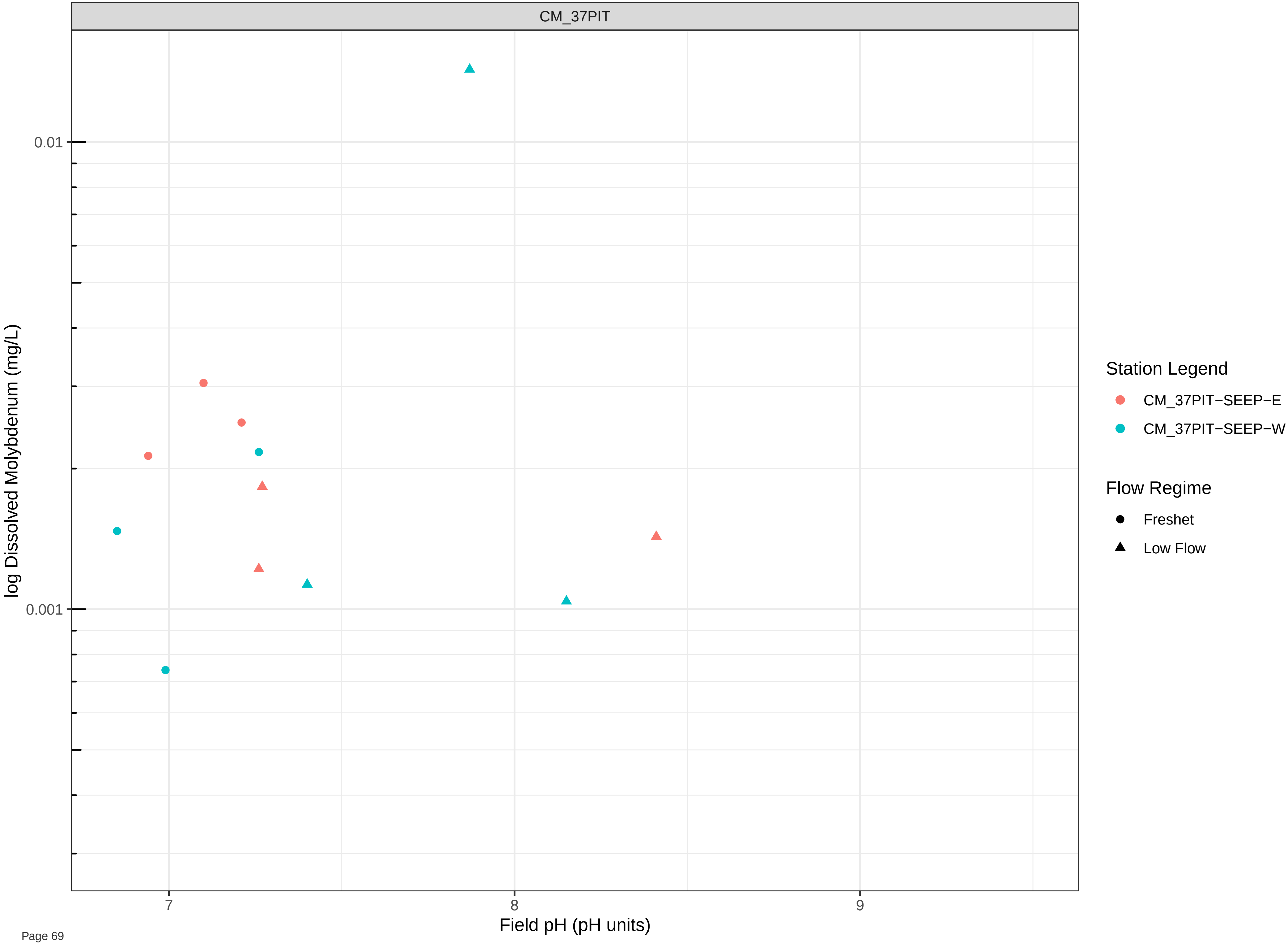
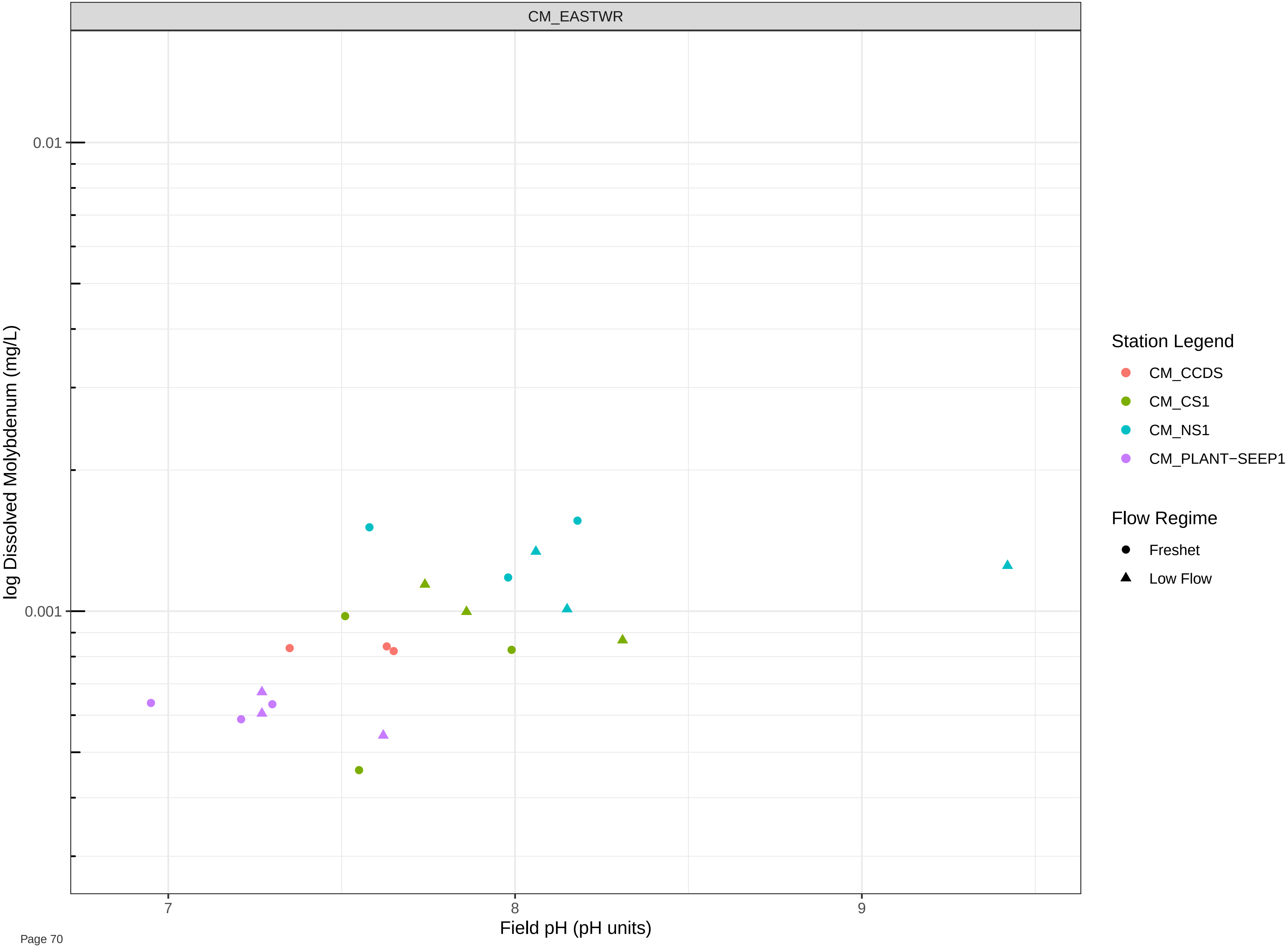
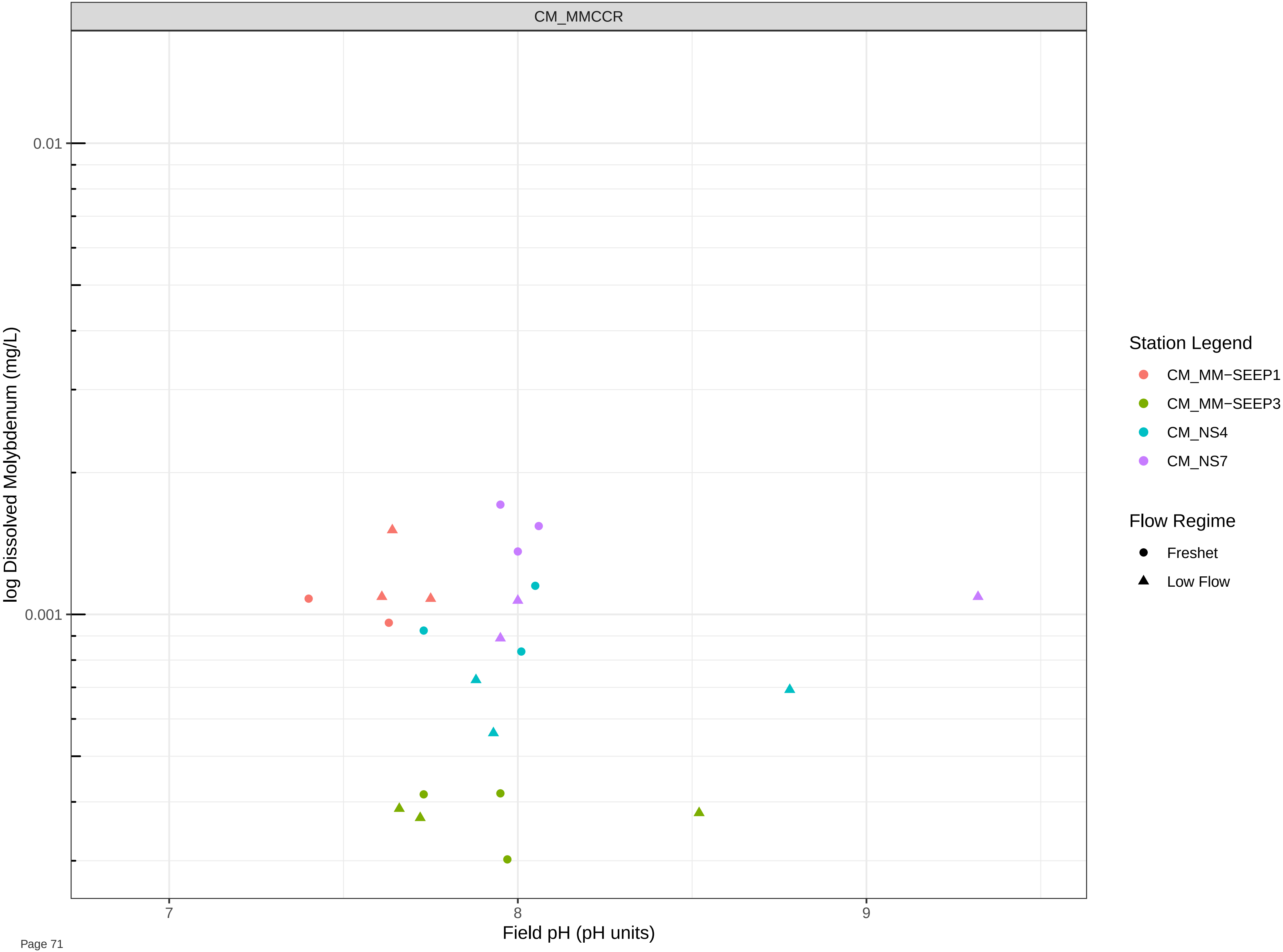
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

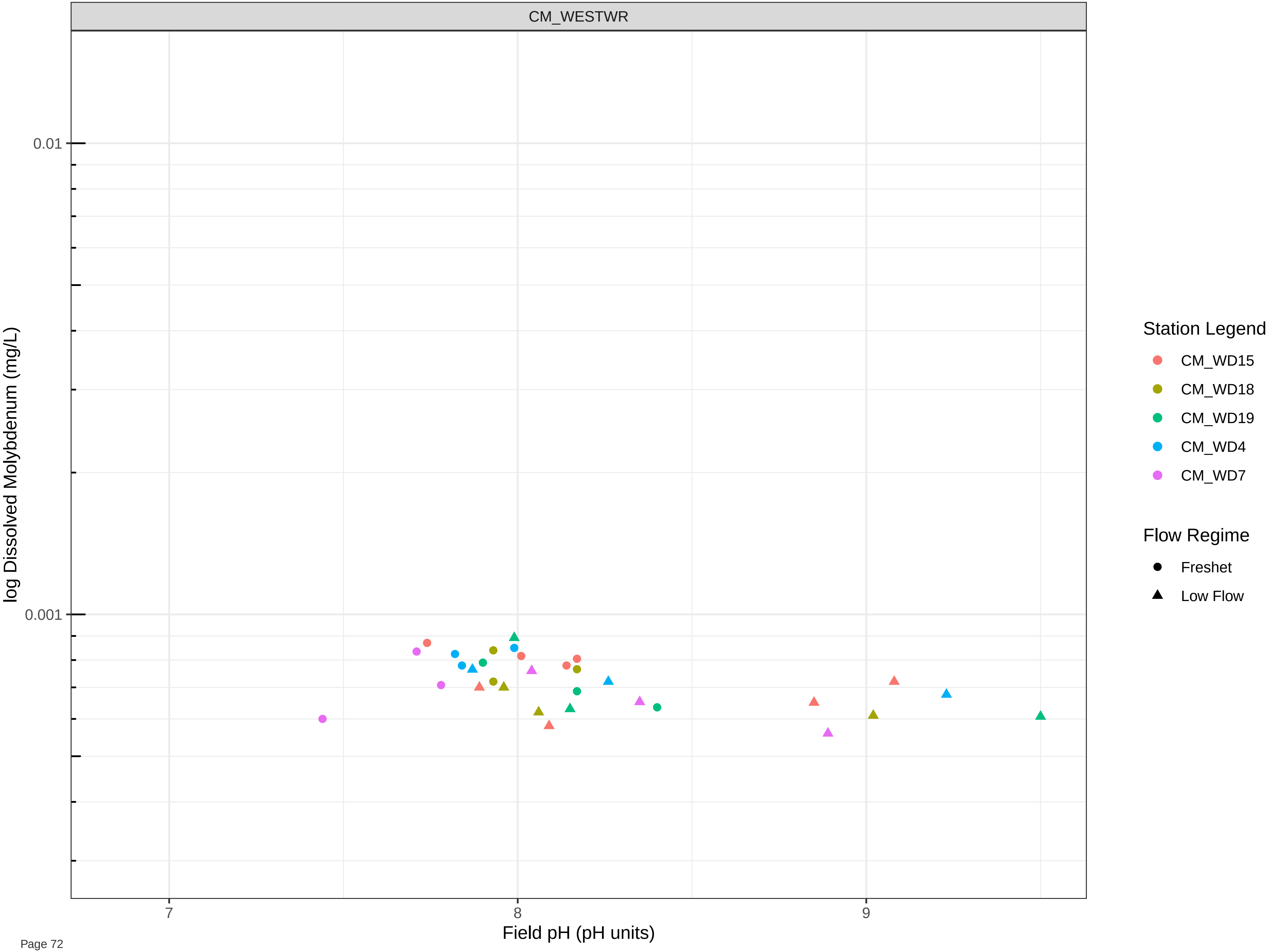

CM_MMCCR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow


CM_WESTWR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow


CM_37PIT
0.01
0.001
log Dissolved Molybdenum (mg/L)
7
8
9
Field pH (pH units)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow


CM_EASTWR
log Dissolved Molybdenum (mg/L)
0.01
0.001
Field pH (pH units)
7
8
9
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow


CM_MMCCR
log Dissolved Molybdenum (mg/L)
0.01
0.001
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow


CM_WESTWR
log Dissolved Molybdenum (mg/L)
0.01
0.001
7
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Field pH (pH units)
Station Legend
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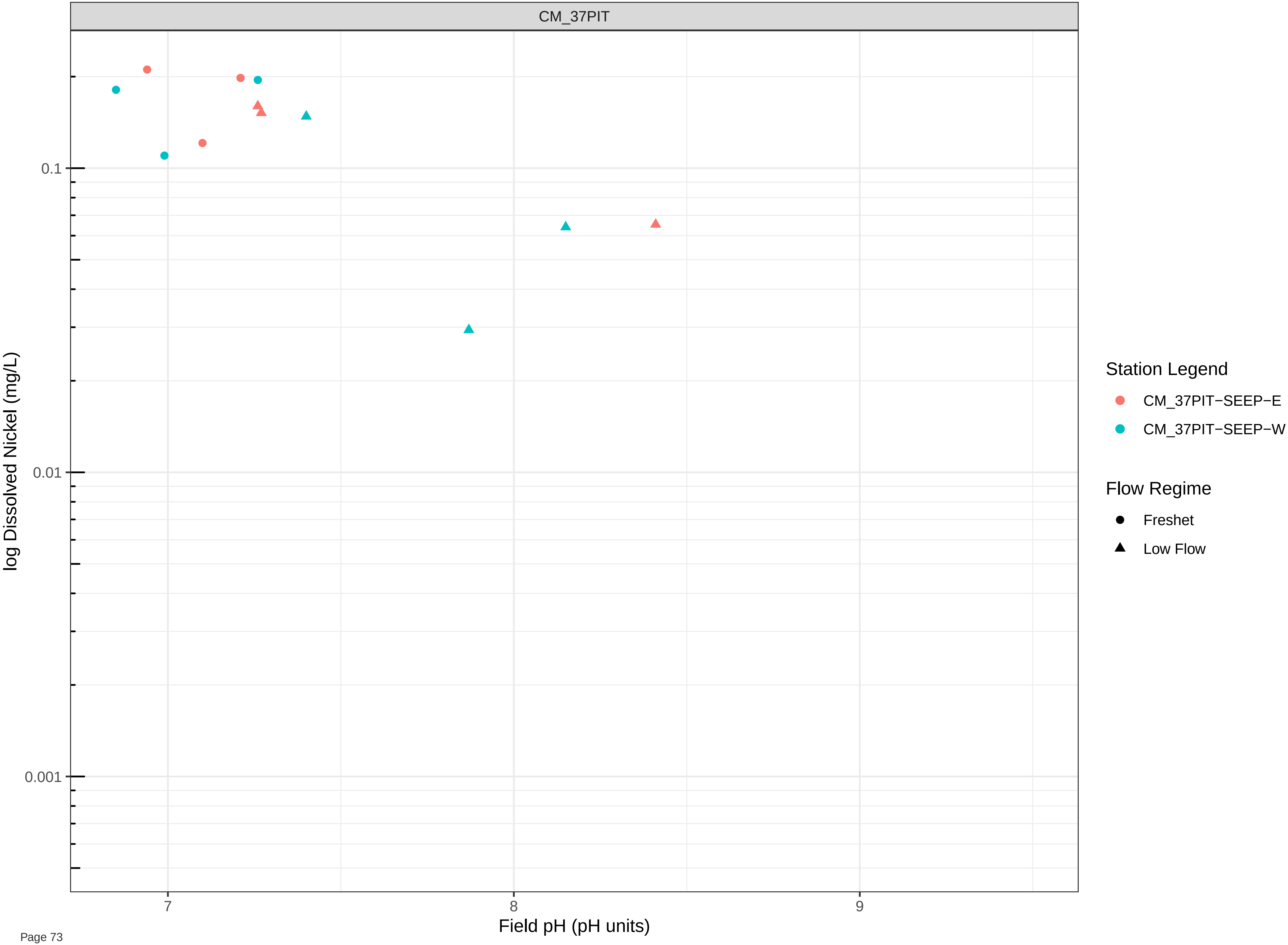
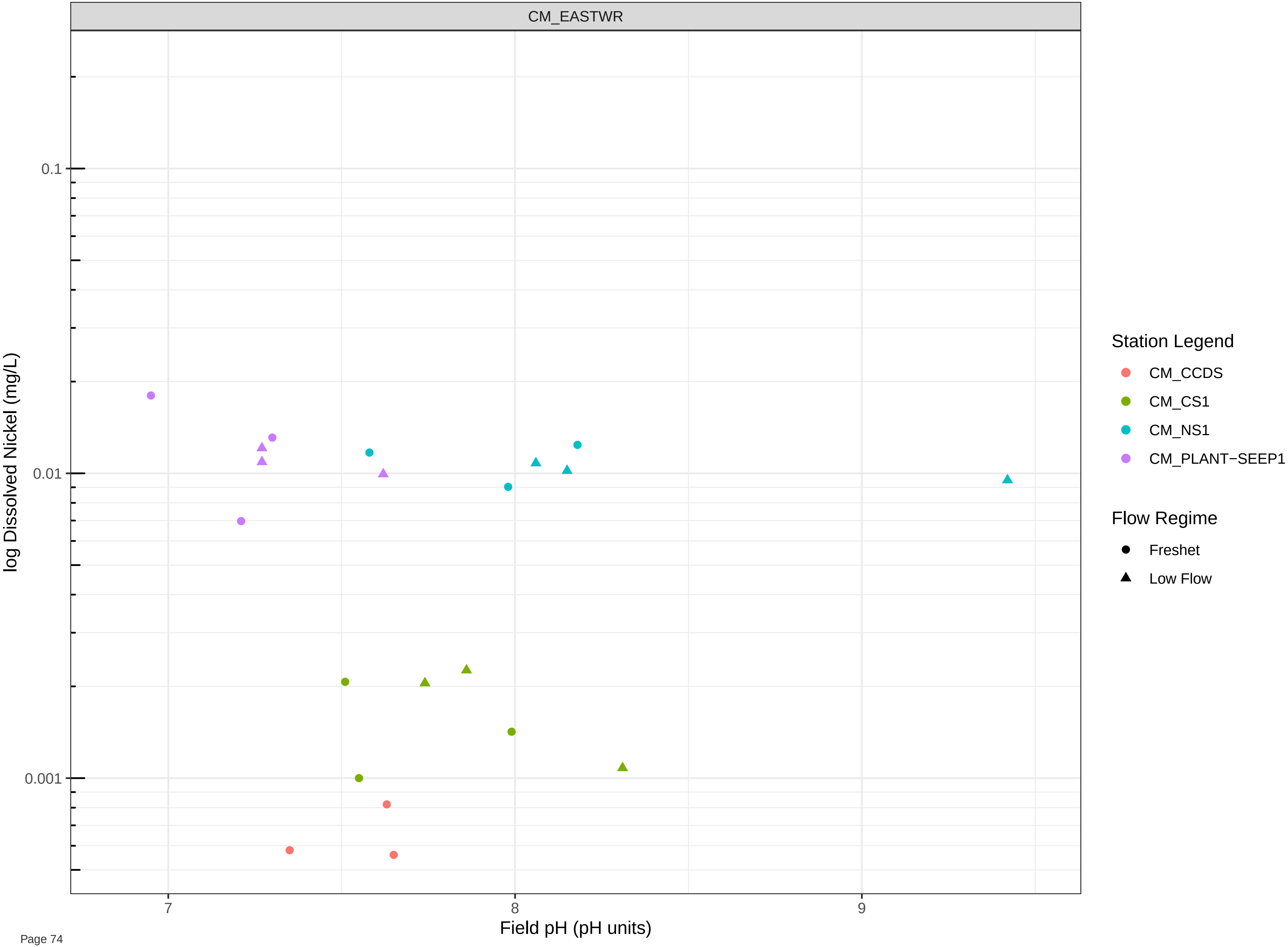
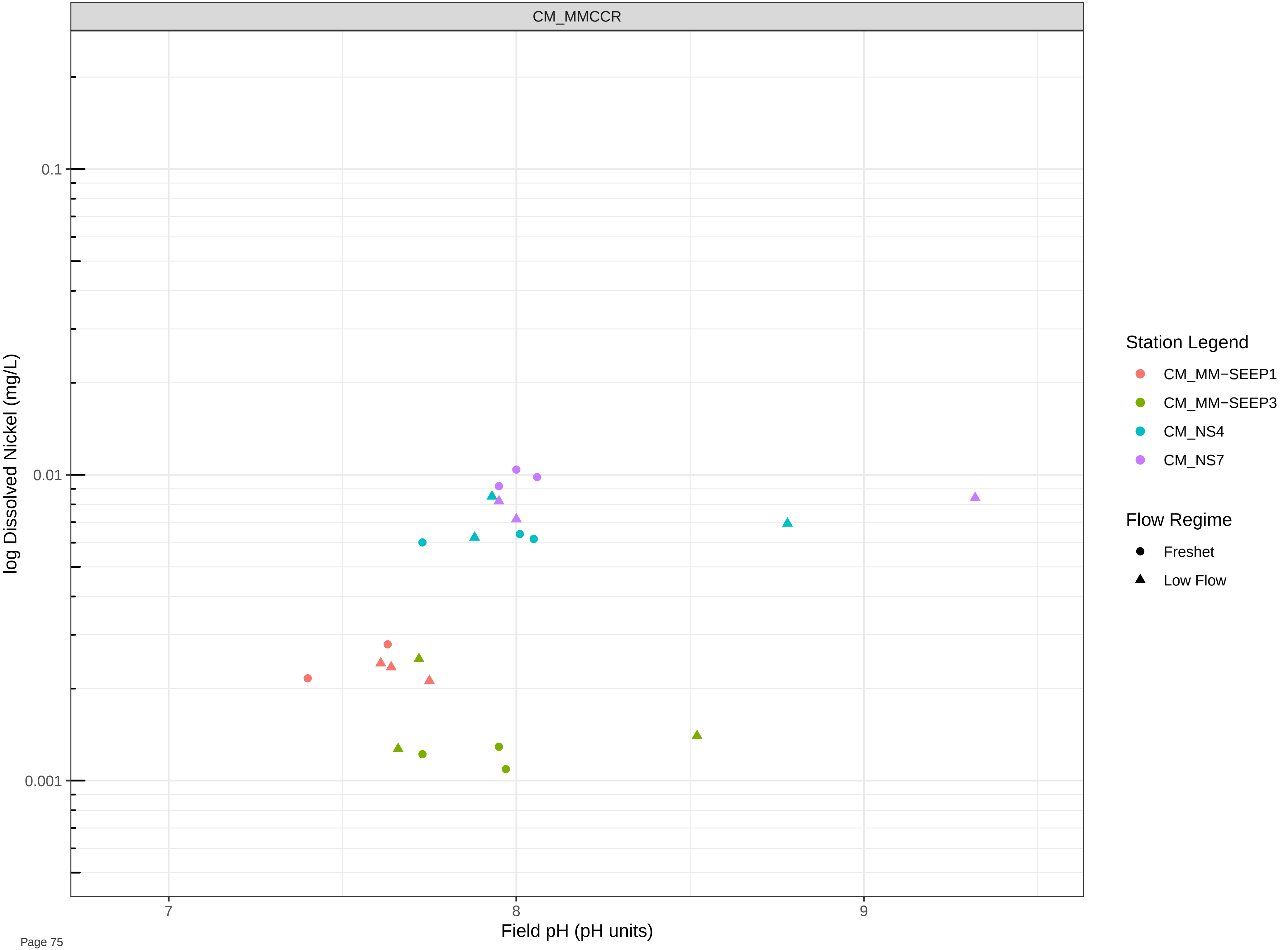
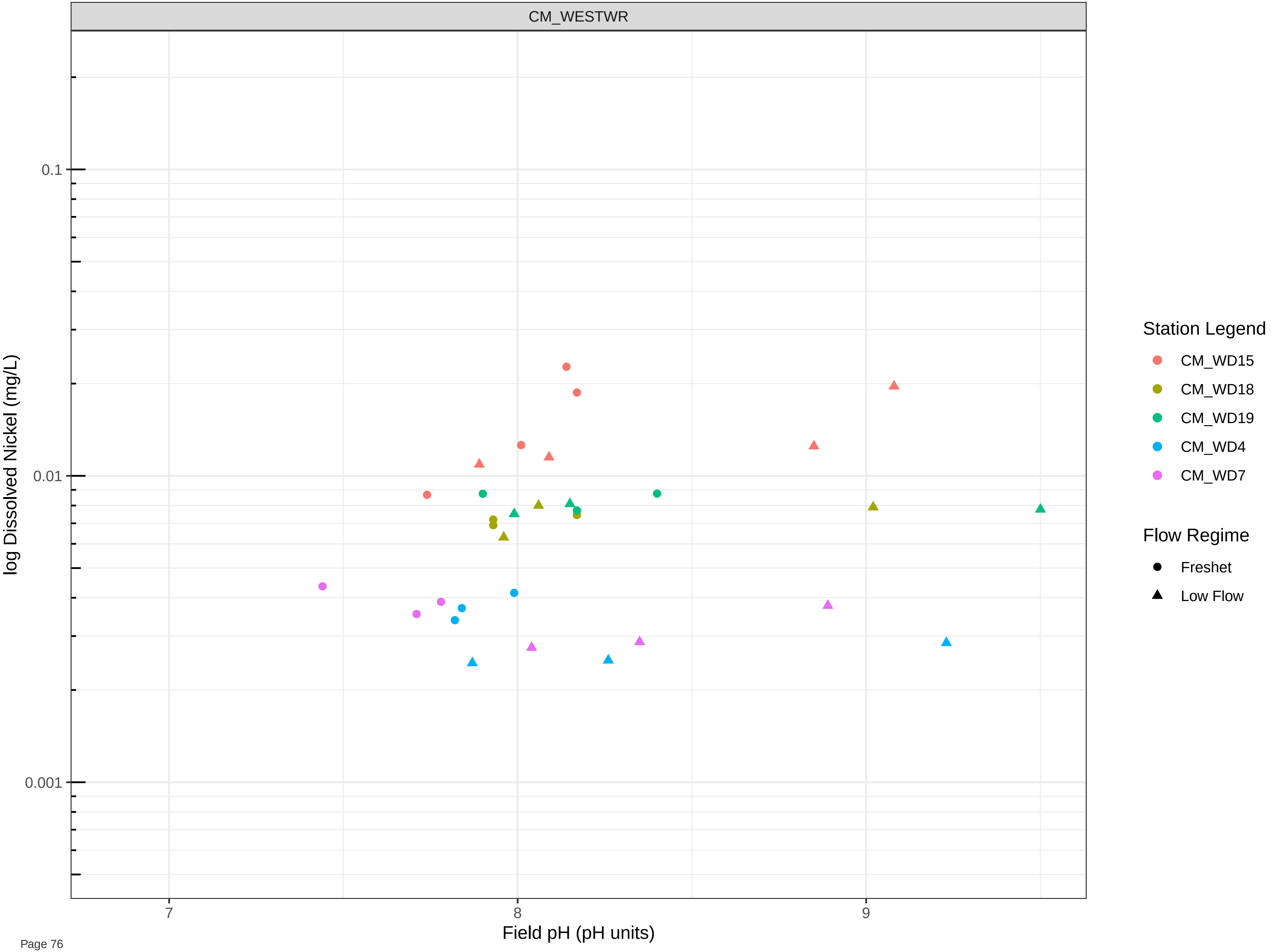
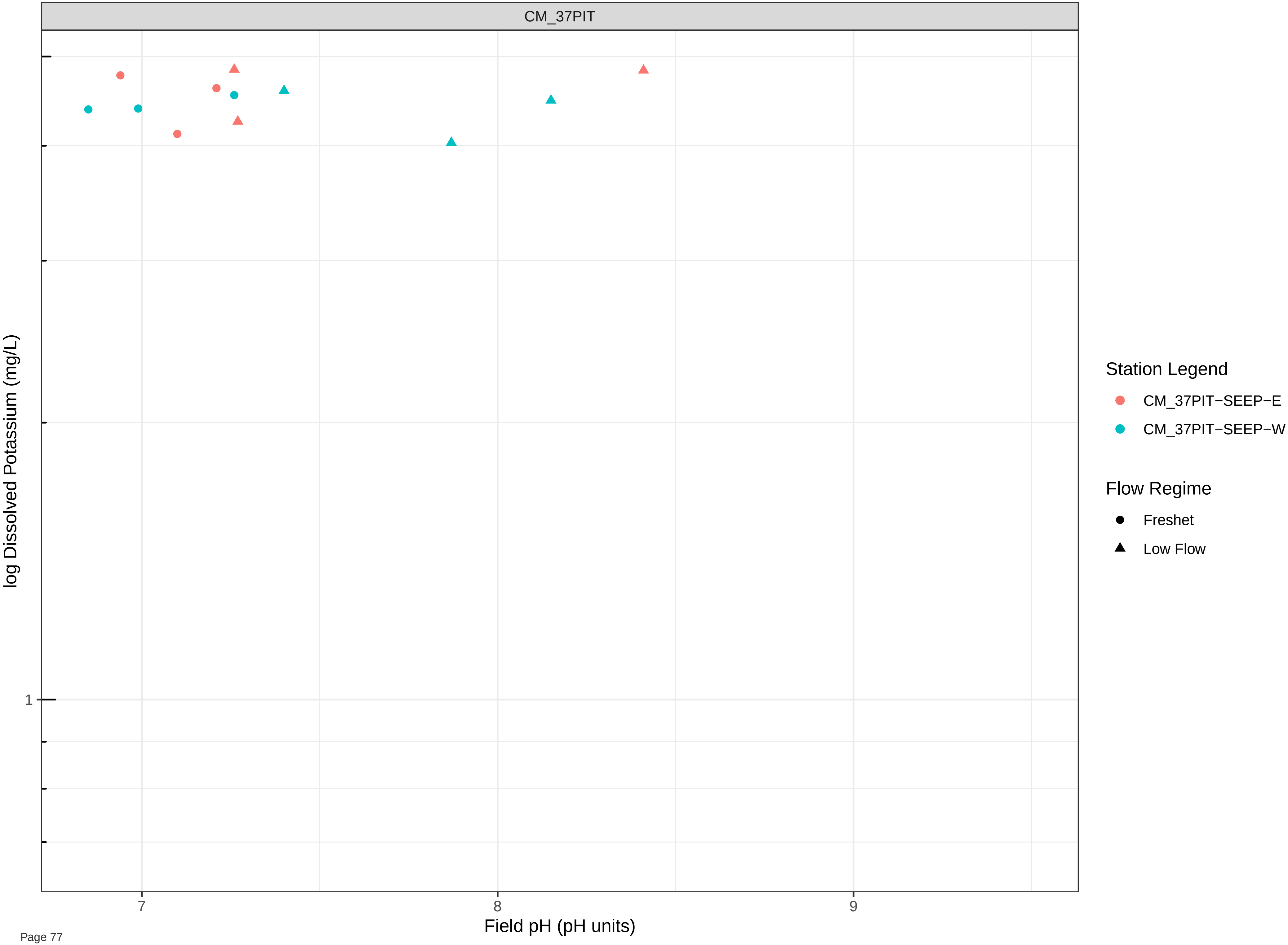
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

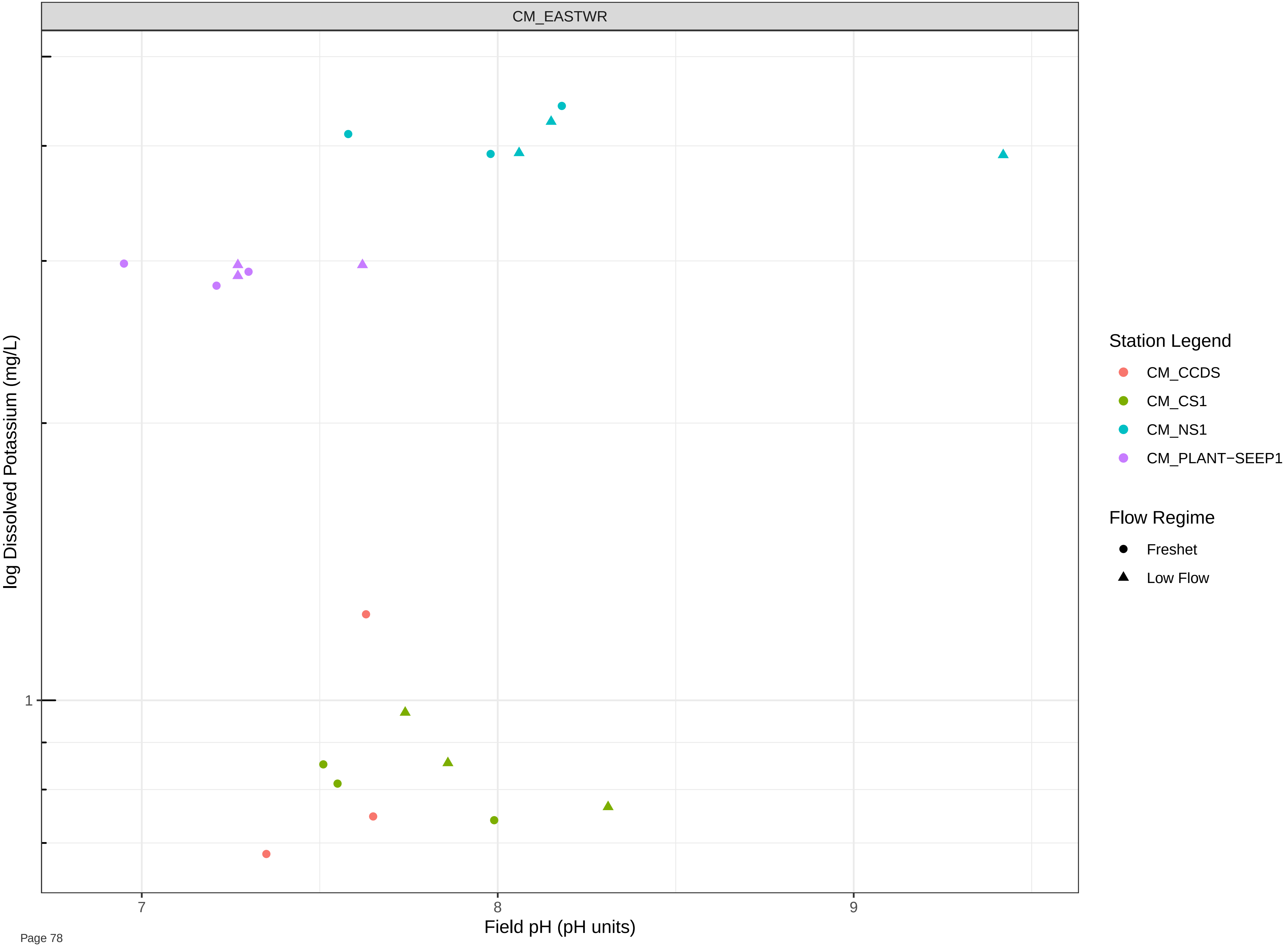

CM_37PIT
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
7
8
9
Field pH (pH units)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

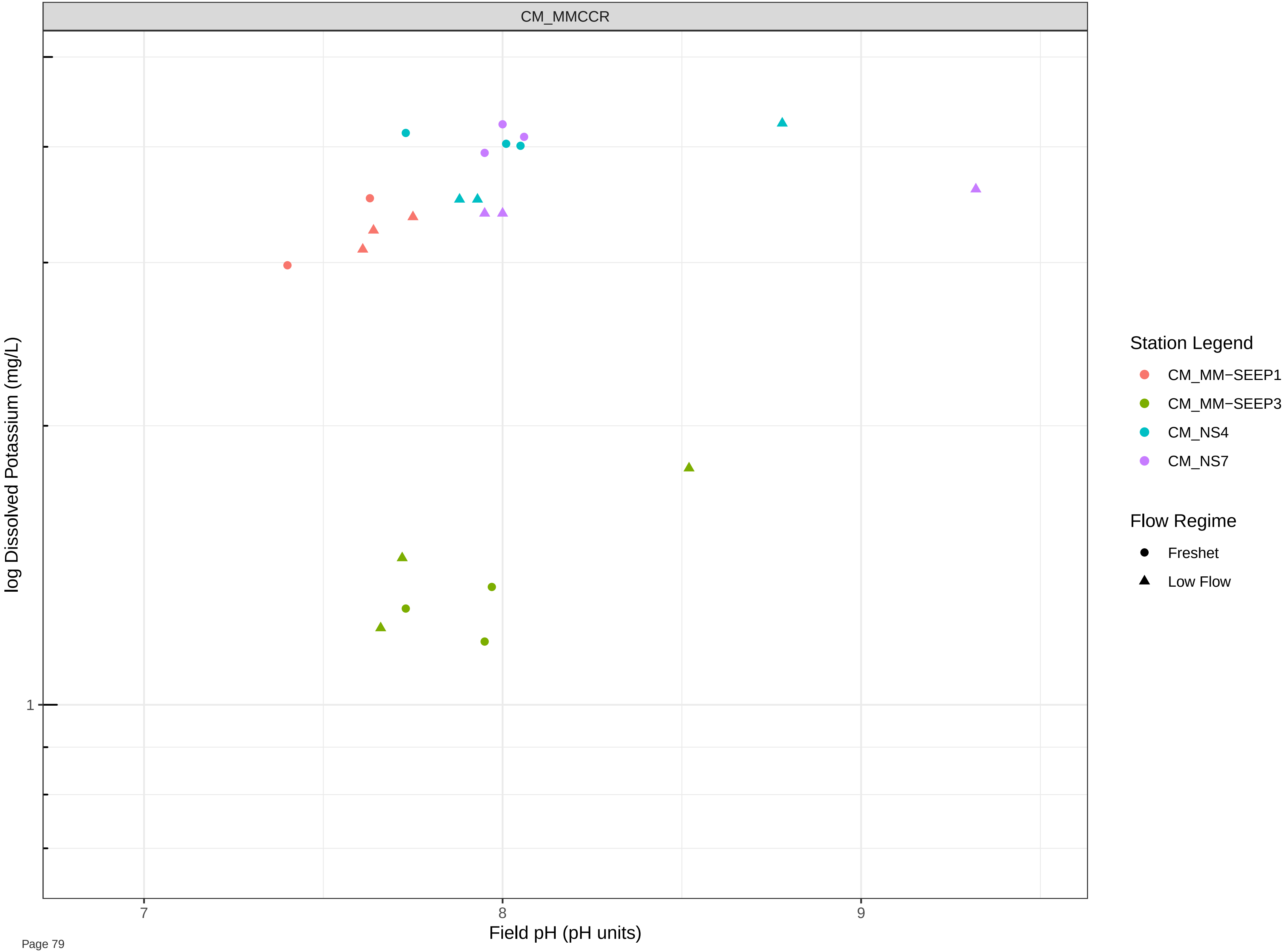

CM_EASTWR
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
7
8
9
Field pH (pH units)
Station Legend
● CM_CCDS
● CM_CS1
● CM_NS1
● CM_PLANT−SEEP1
Flow Regime
● Freshet
▲ Low Flow

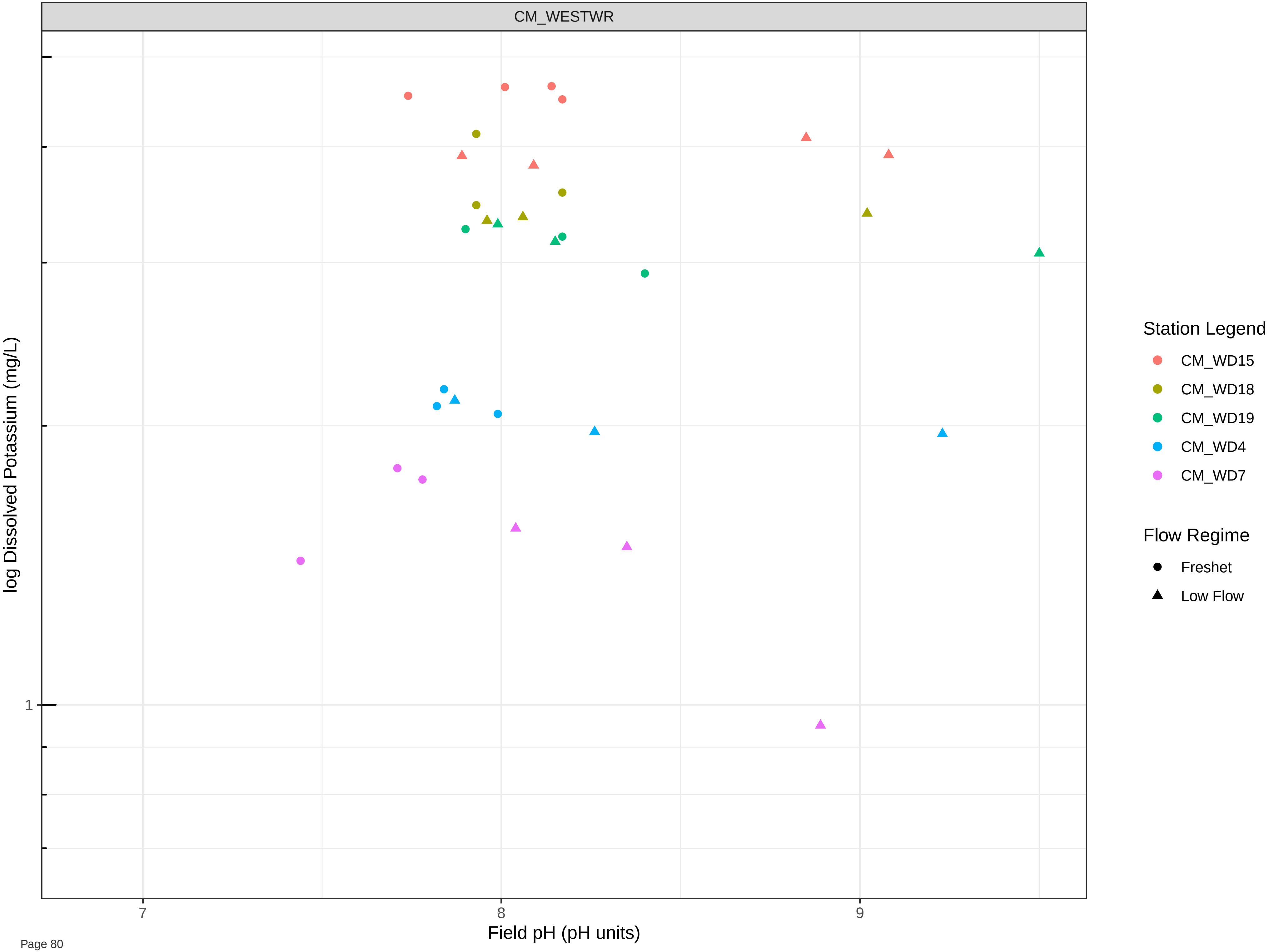

CM_MMCCR
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

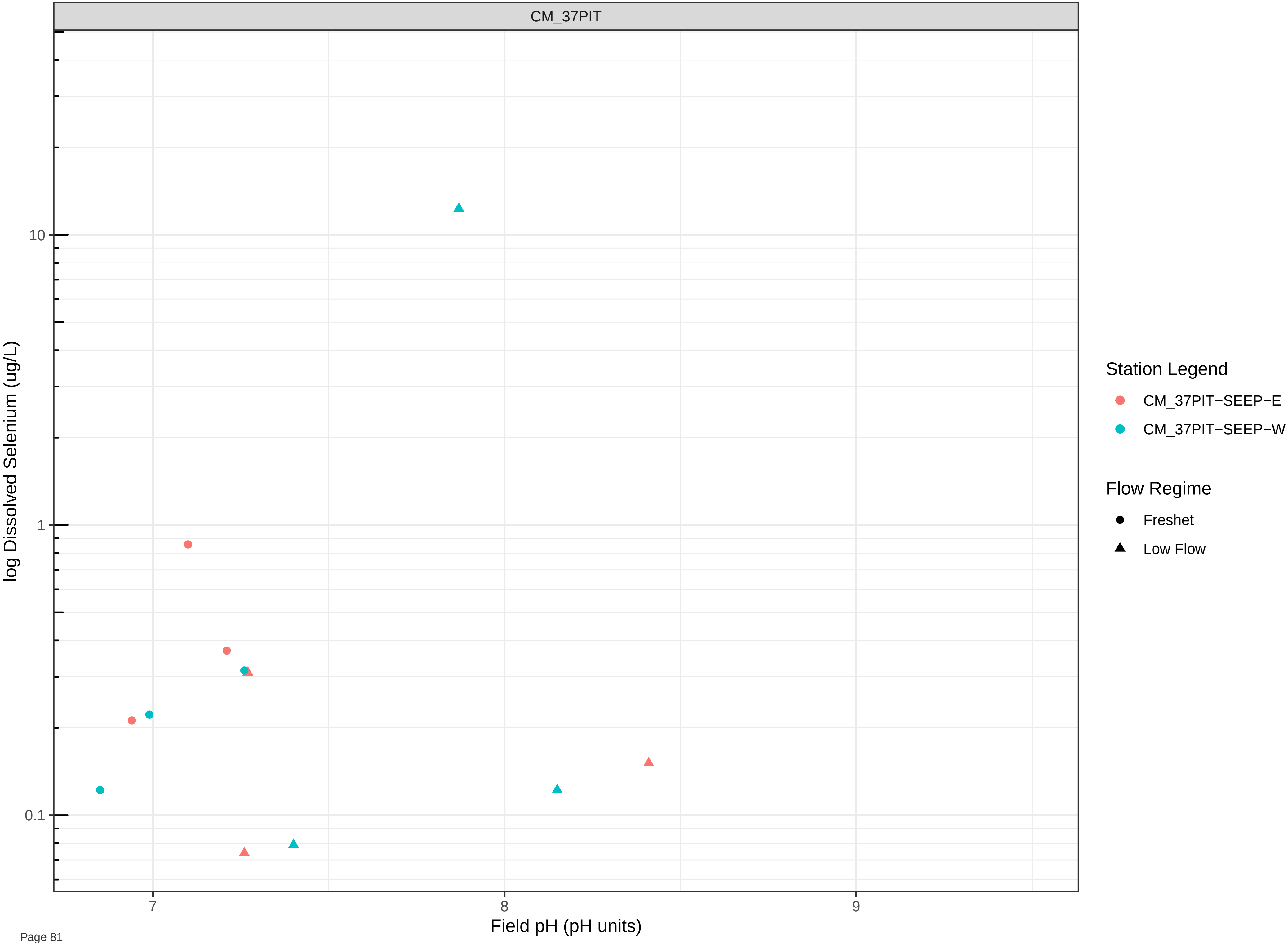

CM_WESTWR
0.1
0.01
0.001
log Dissolved Nickel (mg/L)
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

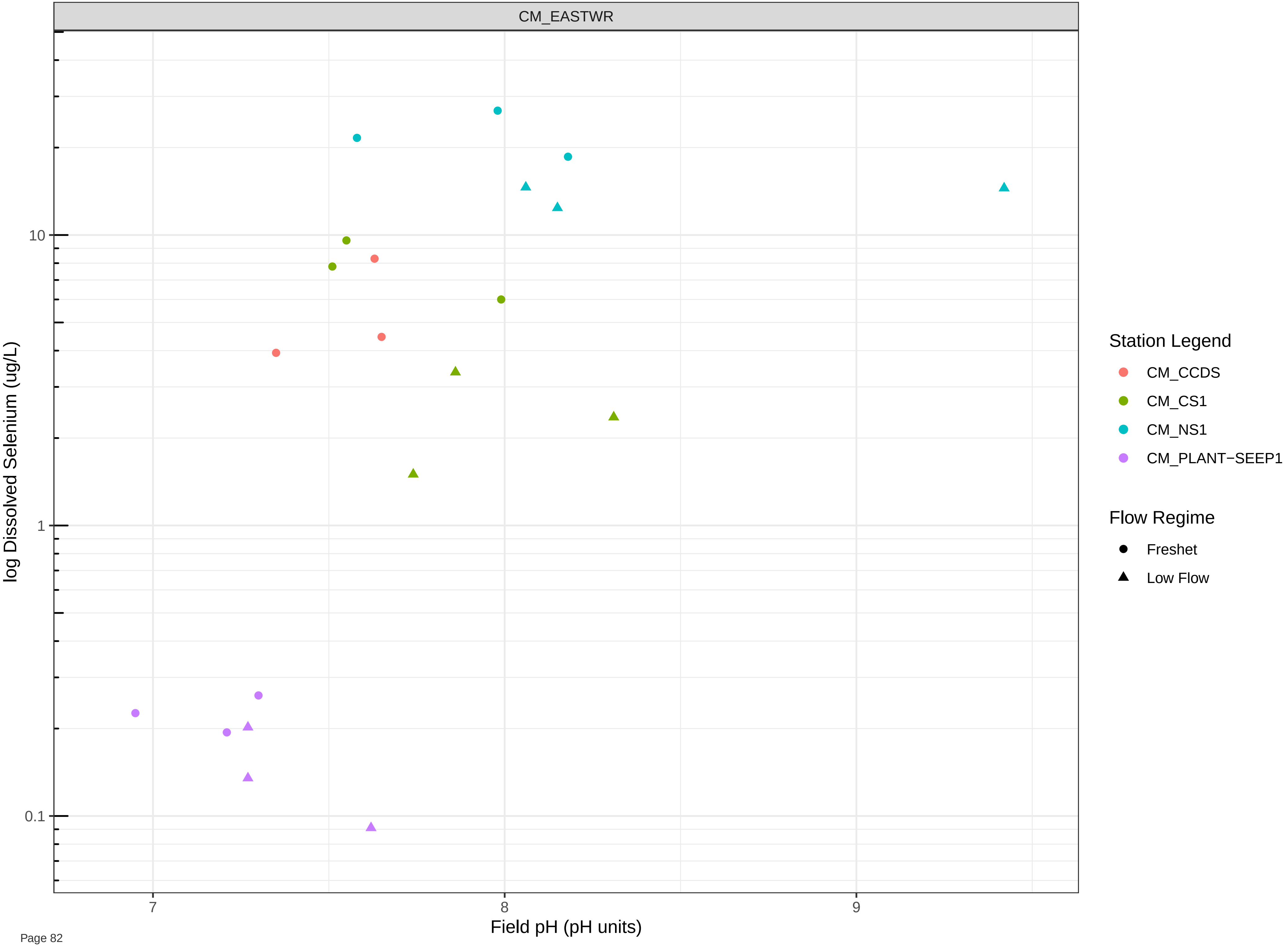

CM_37PIT
log Dissolved Potassium (mg/L)
1
7
8
9
Field pH (pH units)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow


CM_EASTWR
log Dissolved Potassium (mg/L)
1
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow


CM_MMCCR
log Dissolved Potassium (mg/L)
1
7
8
9
Field pH (pH units)
Station Legend
● CM_MM−SEEP1
● CM_MM−SEEP3
● CM_NS4
● CM_NS7
Flow Regime
● Freshet
▲ Low Flow


CM_WESTWR
log Dissolved Potassium (mg/L)
1
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow


CM_37PIT
log Dissolved Selenium (ug/L)
10
1
0.1
7
8
9
Field pH (pH units)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow


CM_EASTWR
log Dissolved Selenium (ug/L)
10
1
0.1
7
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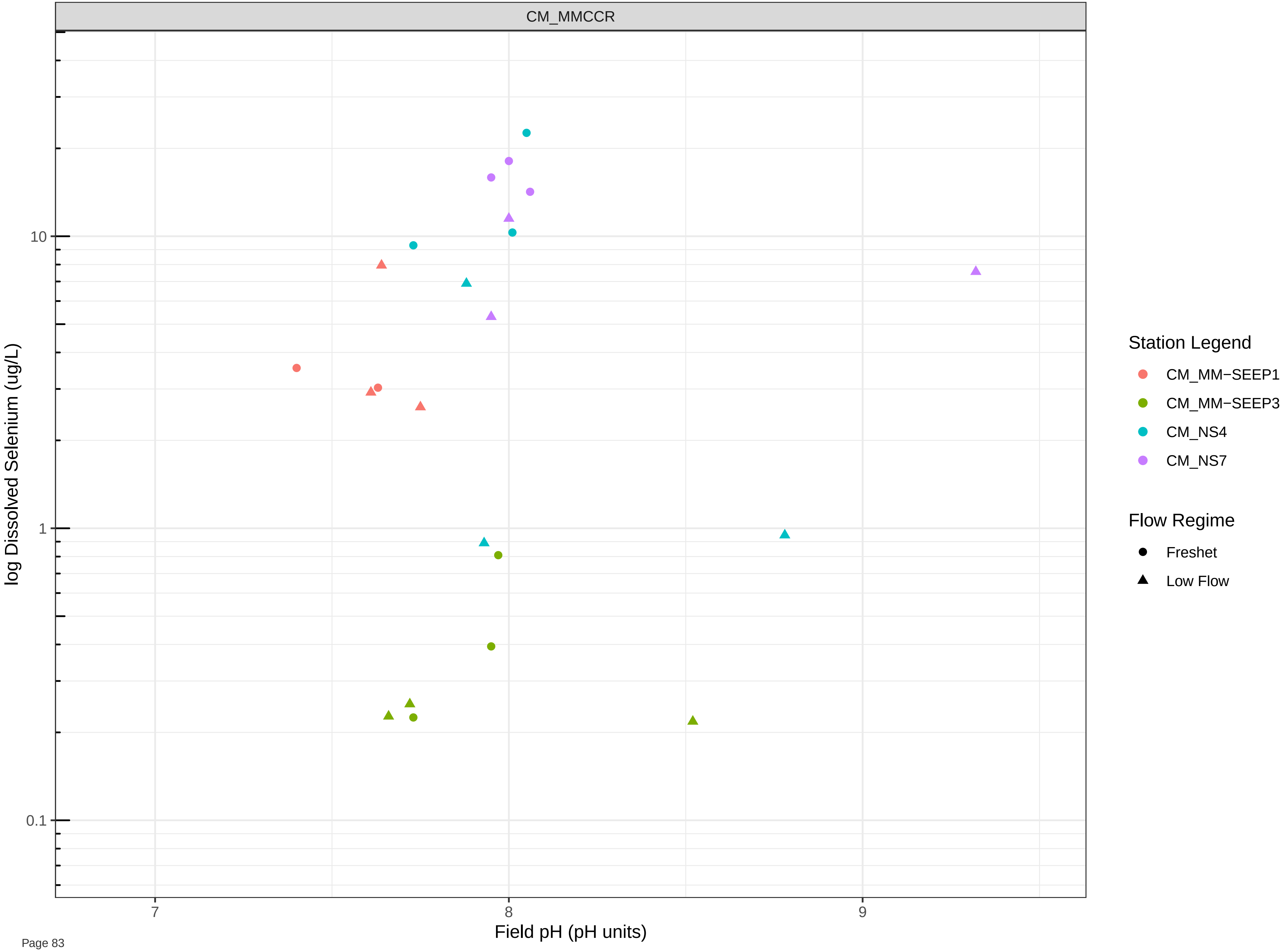
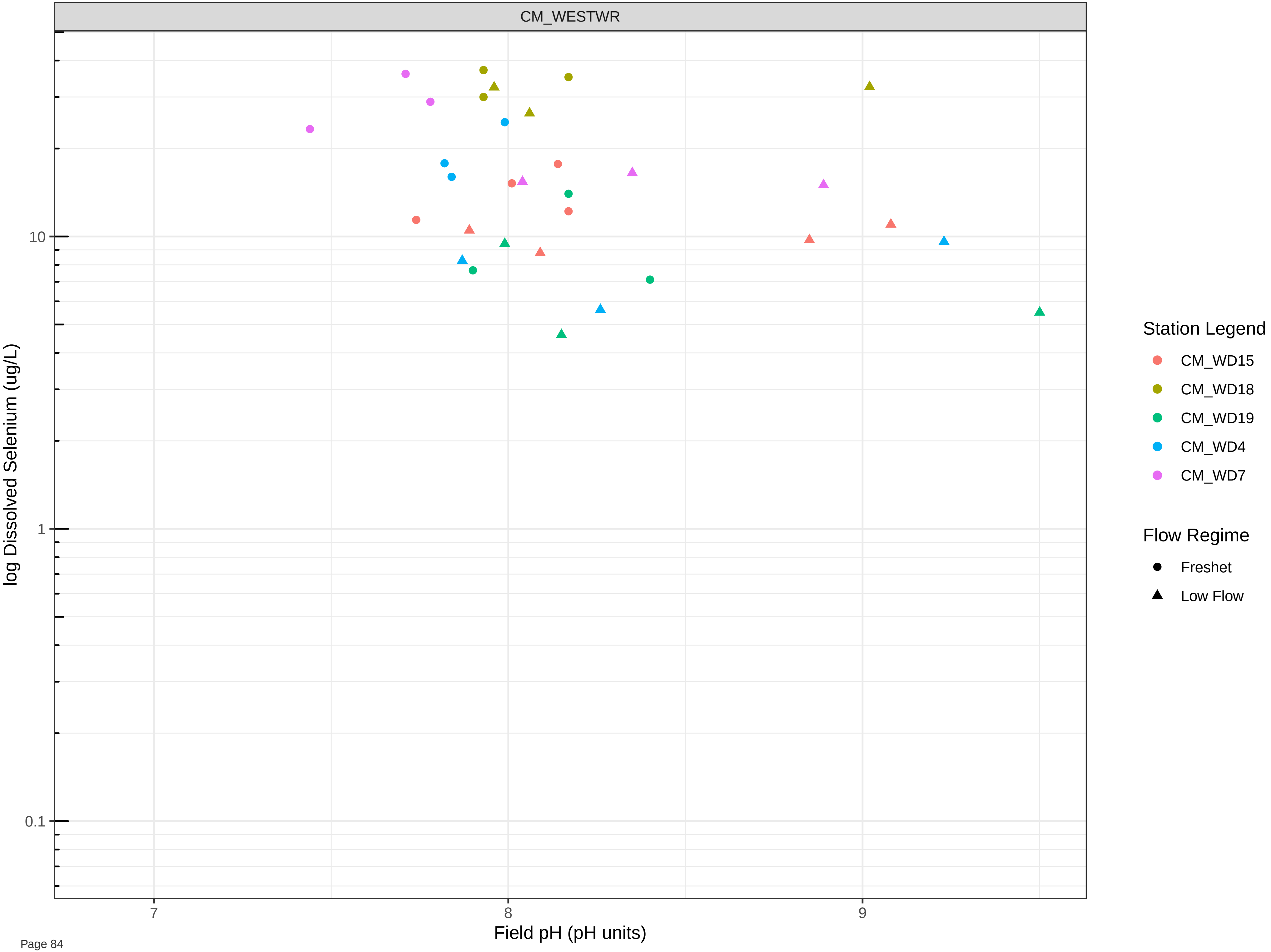
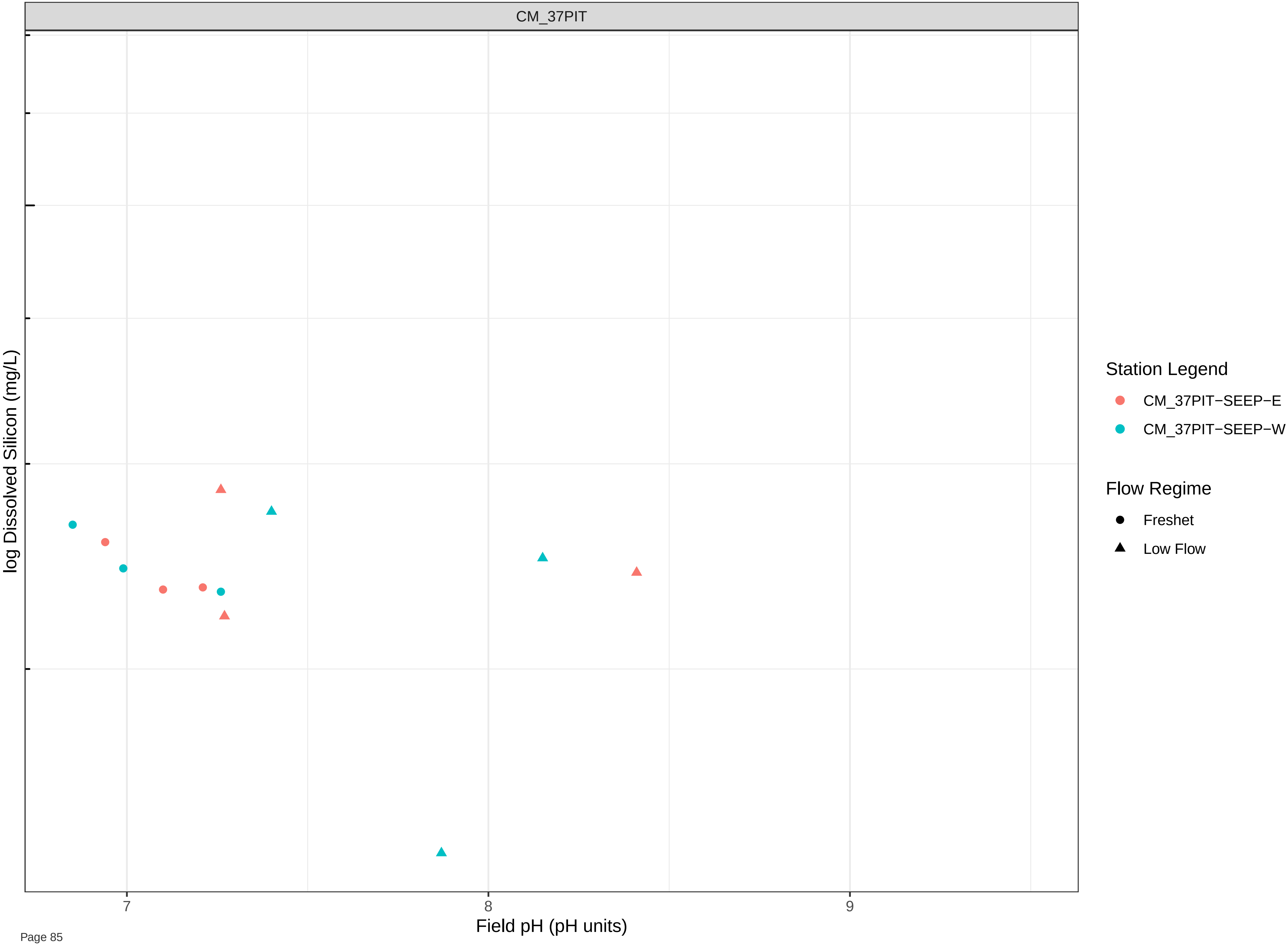
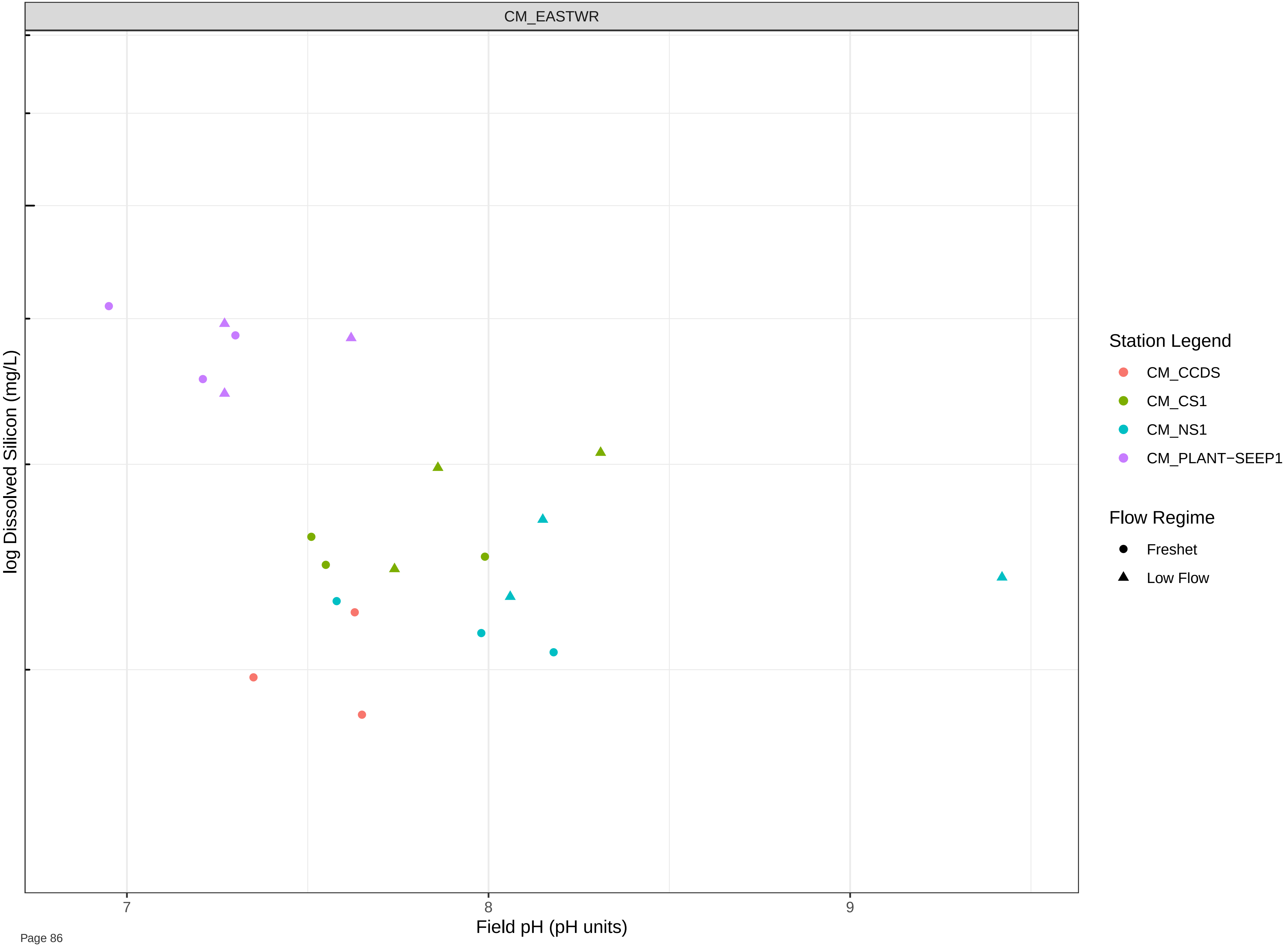
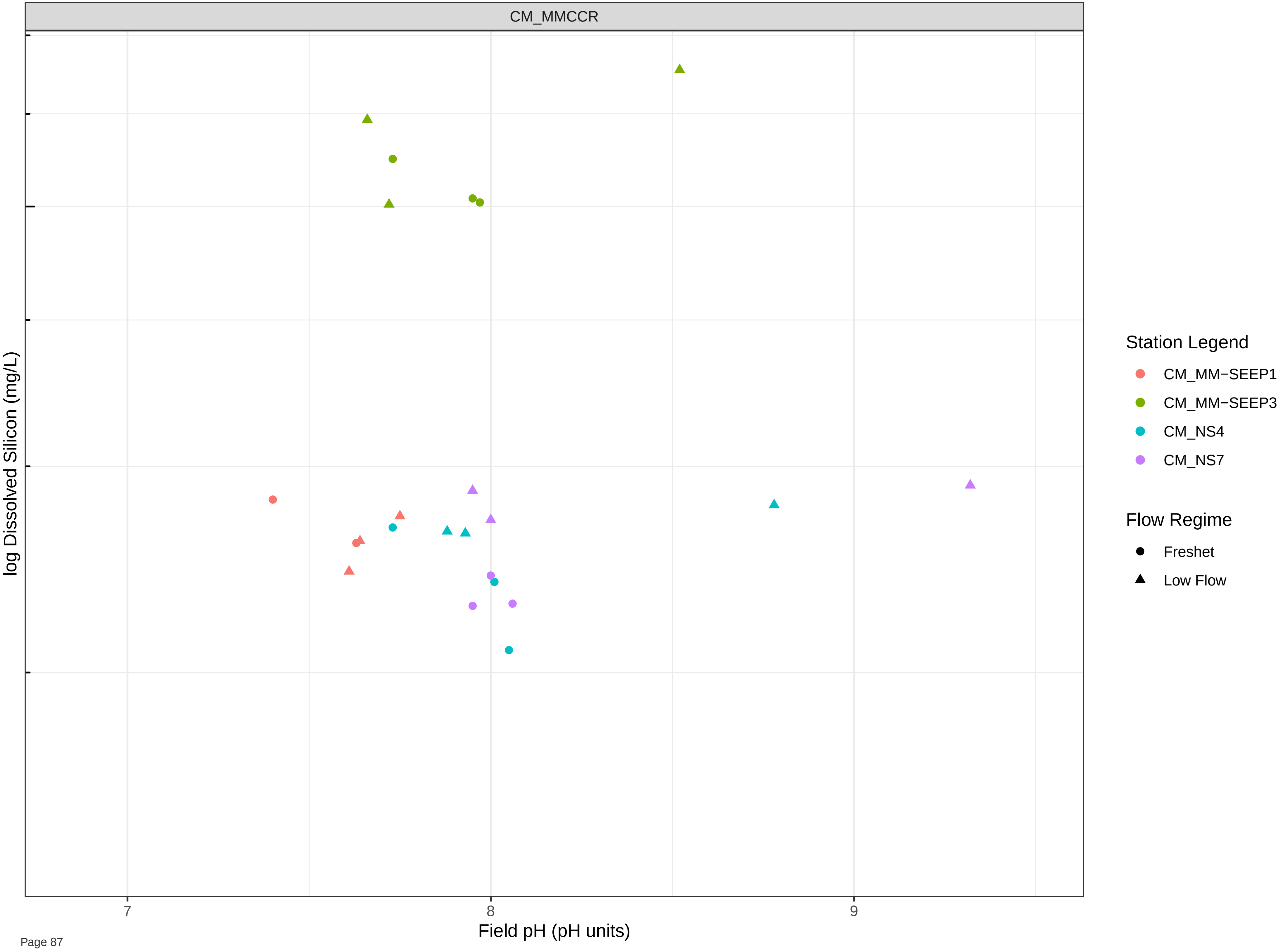
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

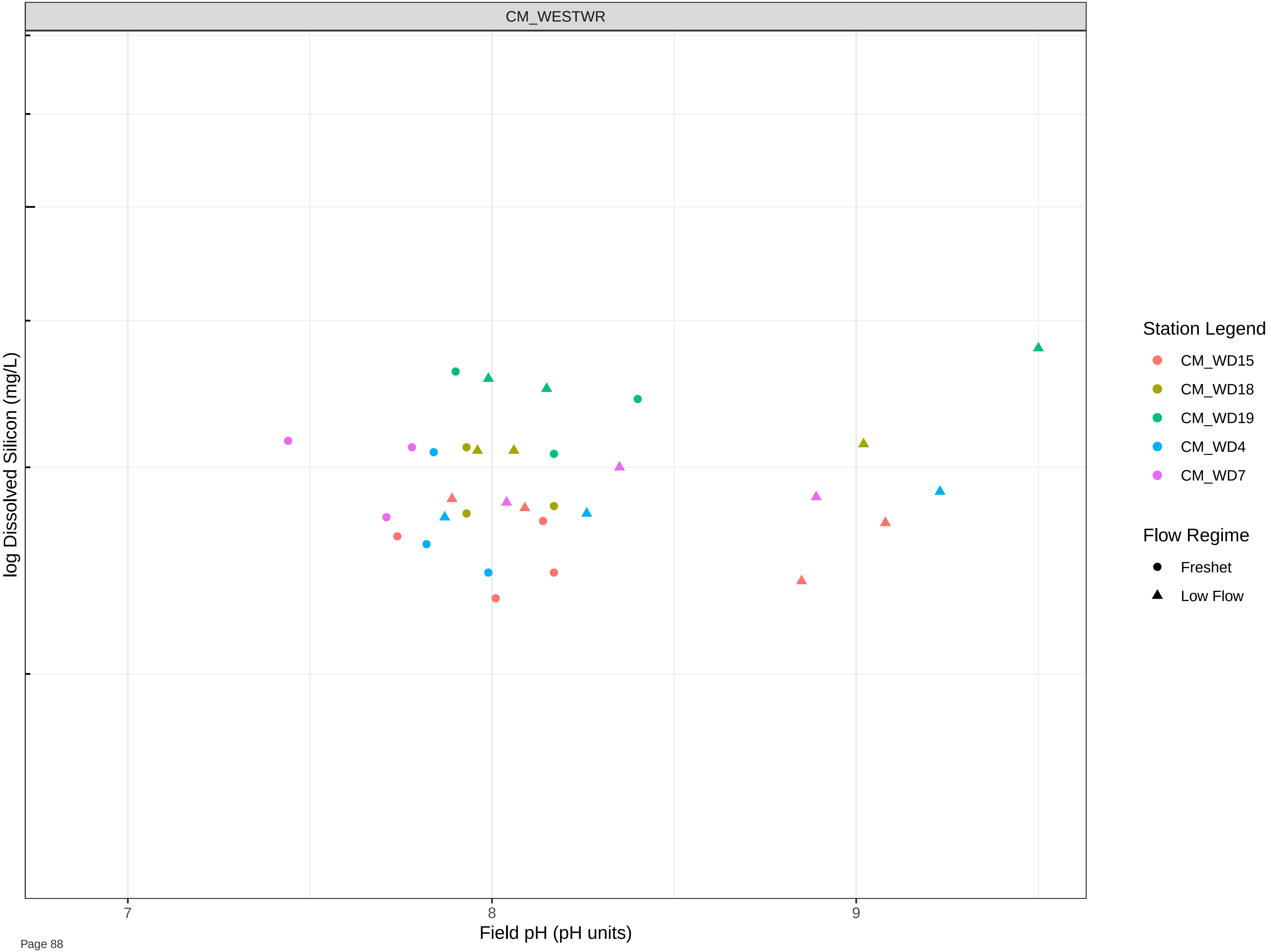

CM_MMCCR
log Dissolved Selenium (ug/L)
10
1
0.1
7
8
9
Field pH (pH units)
Station Legend
● CM_MM−SEEP1
● CM_MM−SEEP3
● CM_NS4
● CM_NS7
Flow Regime
● Freshet
▲ Low Flow

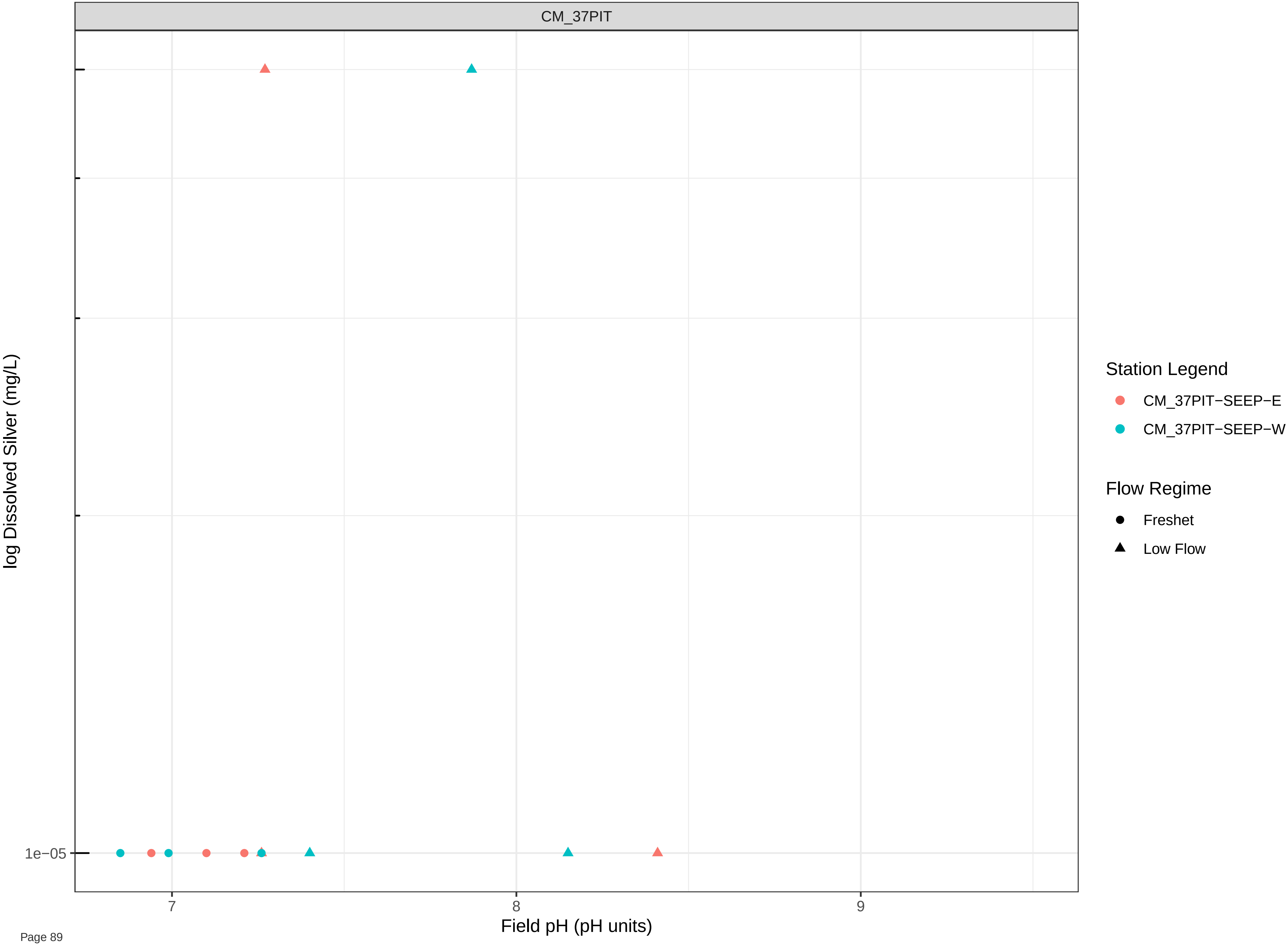

CM_WESTWR
log Dissolved Selenium (ug/L)
10
1
0.1
7
8
9
Field pH (pH units)
Station Legend
● CM_WD15
● CM_WD18
● CM_WD19
● CM_WD4
● CM_WD7
Flow Regime
● Freshet
▲ Low Flow

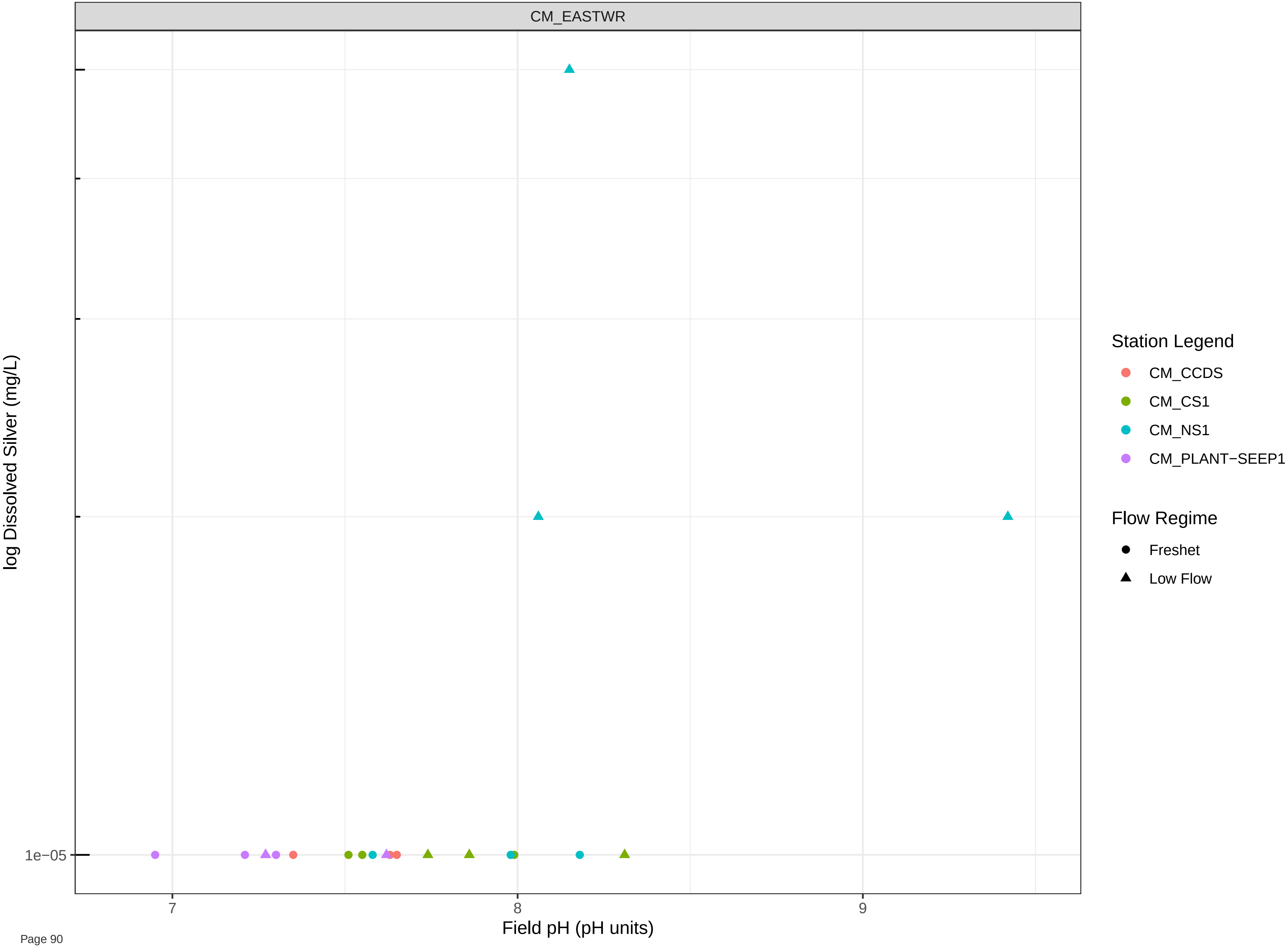

CM_37PIT
log Dissolved Silicon (mg/L)
7
8
9
Field pH (pH units)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow


CM_EASTWR
log Dissolved Silicon (mg/L)
Field pH (pH units)
7
8
9
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow


CM_MMCCR
log Dissolved Silicon (mg/L)
7
8
9
Field pH (pH units)
Station Legend
● CM_MM−SEEP1
● CM_MM−SEEP3
● CM_NS4
● CM_NS7
Flow Regime
● Freshet
▲ Low Flow


CM_WESTWR
log Dissolved Silicon (mg/L)
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow


CM_37PIT
log Dissolved Silver (mg/L)
1e−05
7
8
9
Field pH (pH units)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow


CM_EASTWR
log Dissolved Silver (mg/L)
1e−05
7
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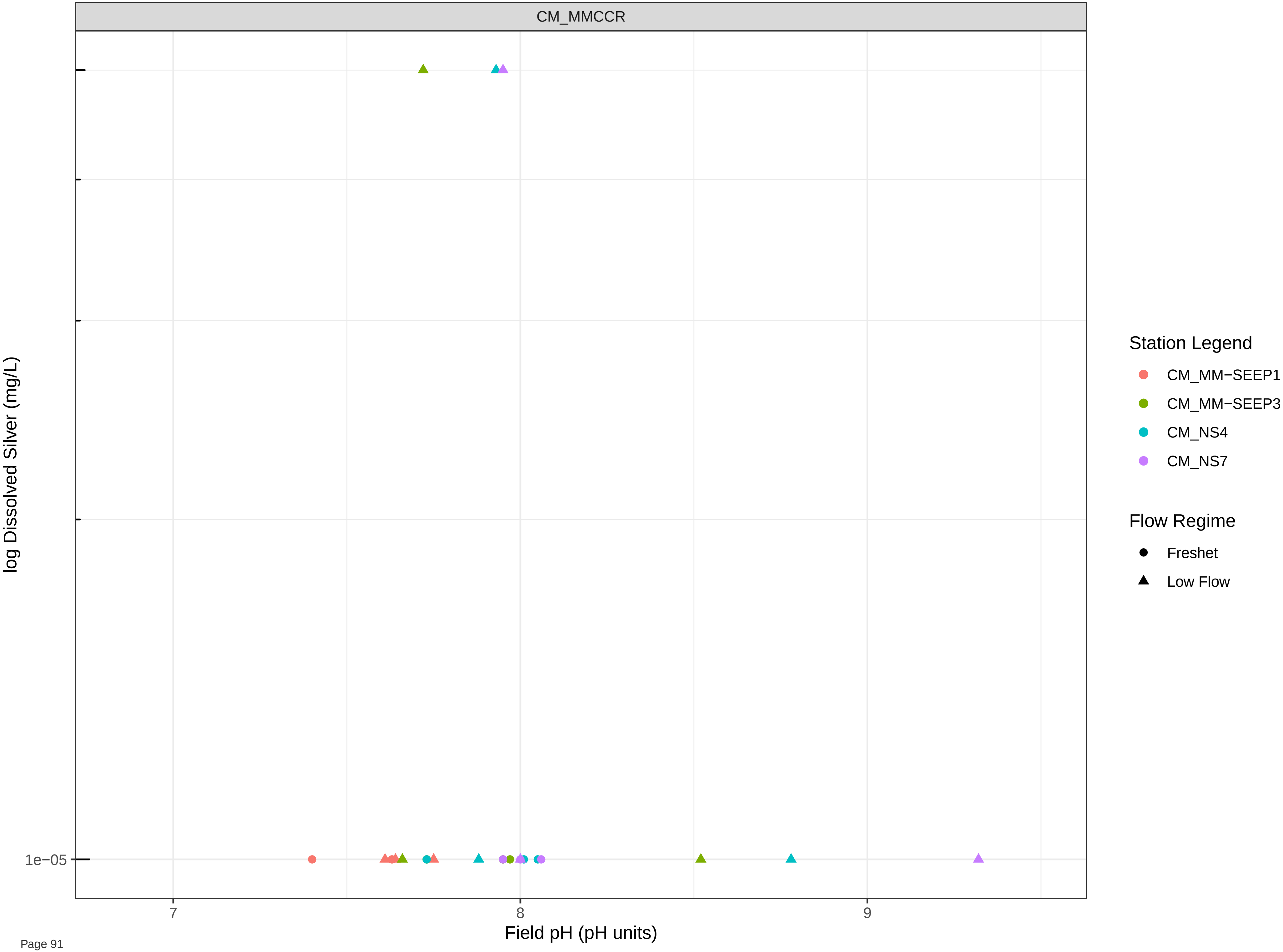
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow


CM_MMCCR
log Dissolved Silver (mg/L)
1e−05
7
8
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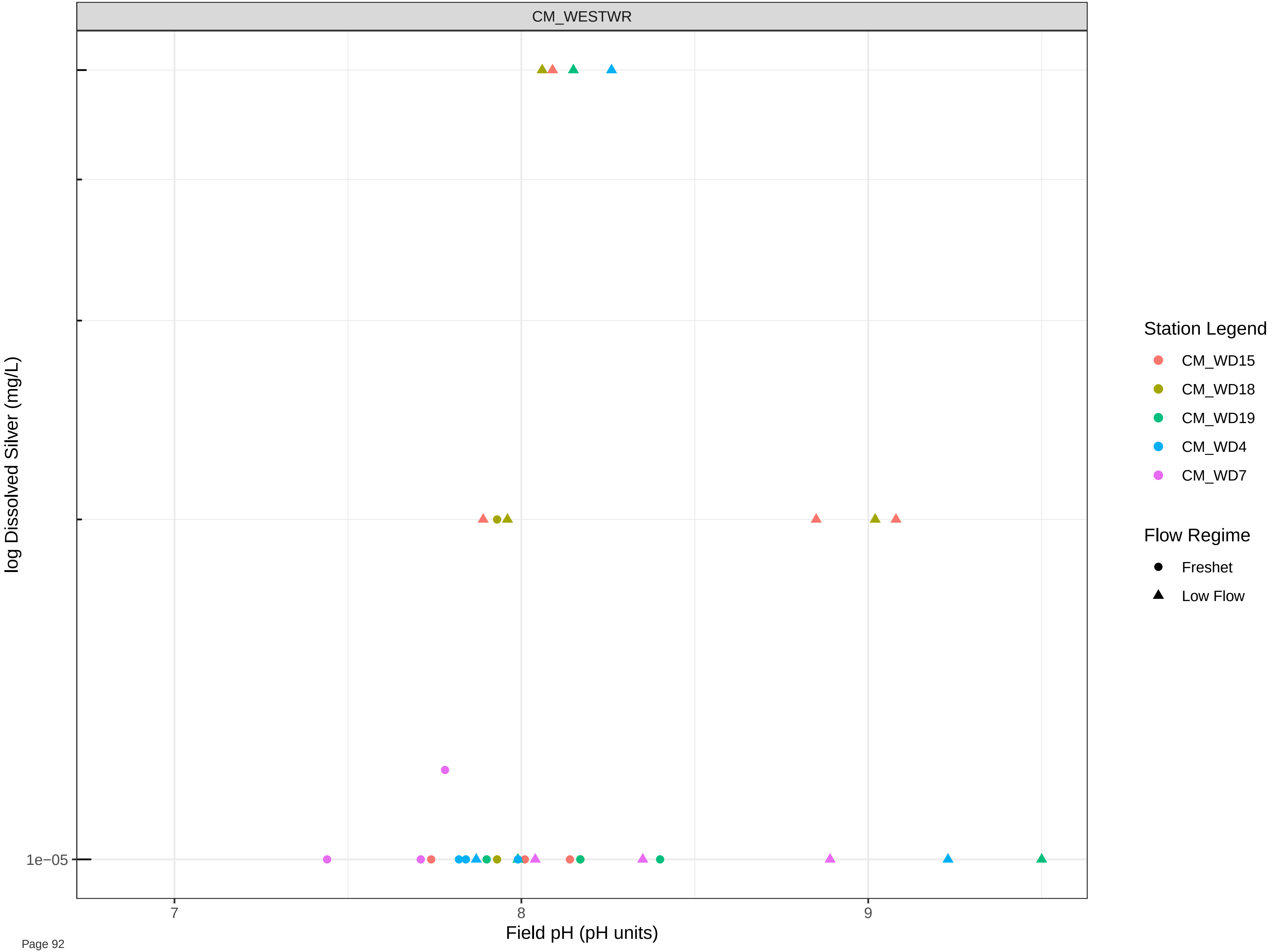
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow


CM_WESTWR
log Dissolved Silver (mg/L)
1e−05
7
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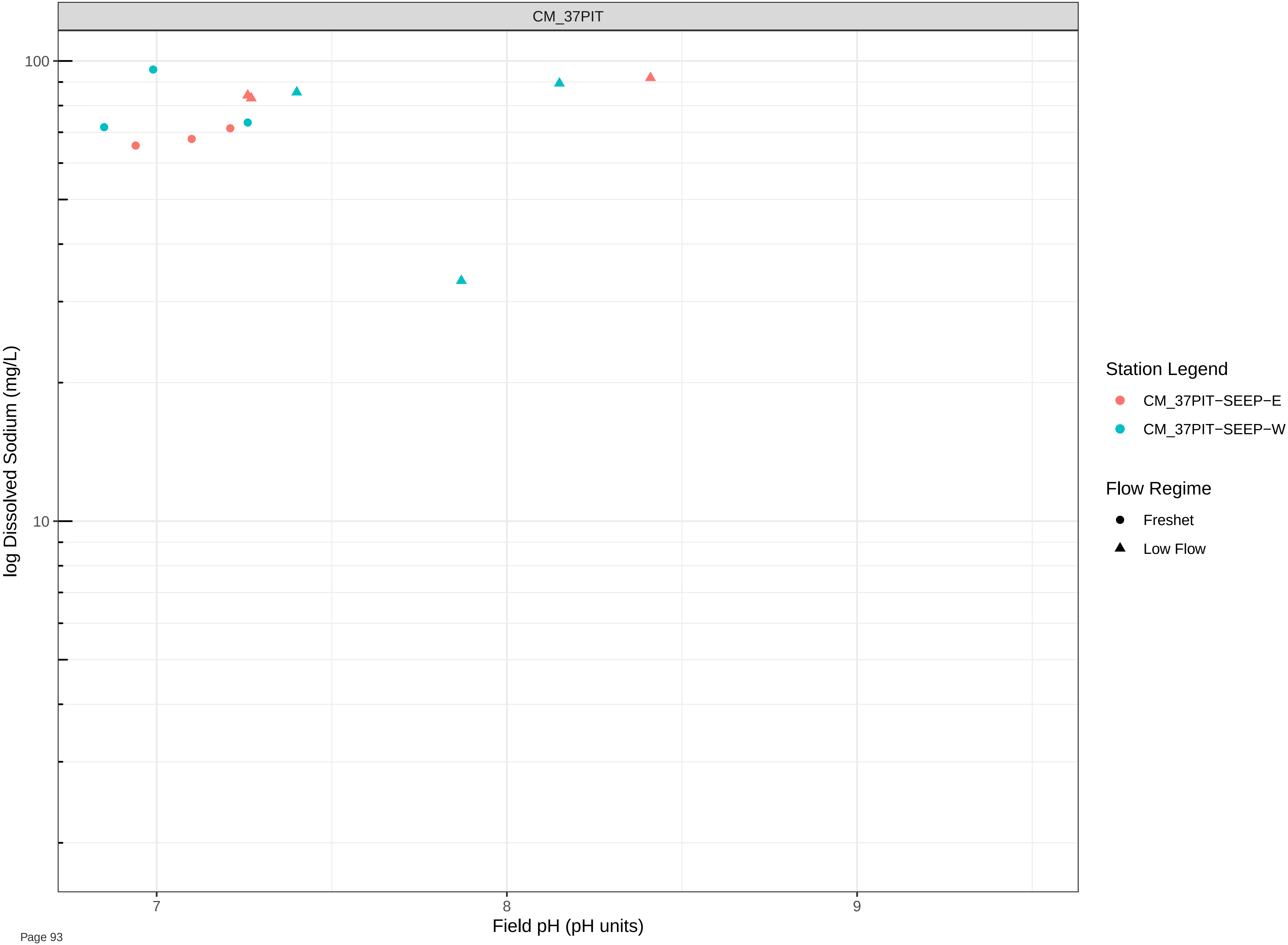
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow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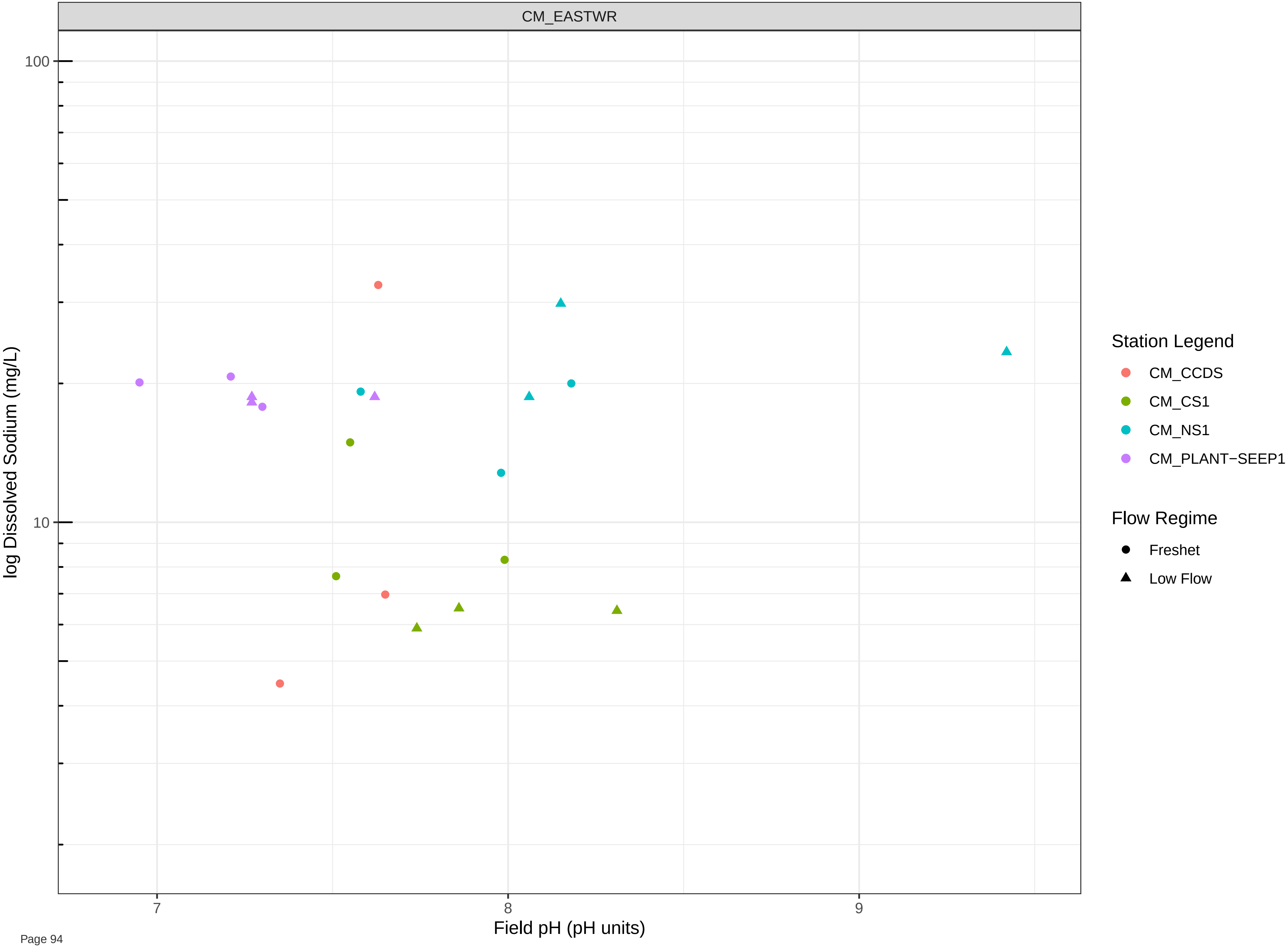
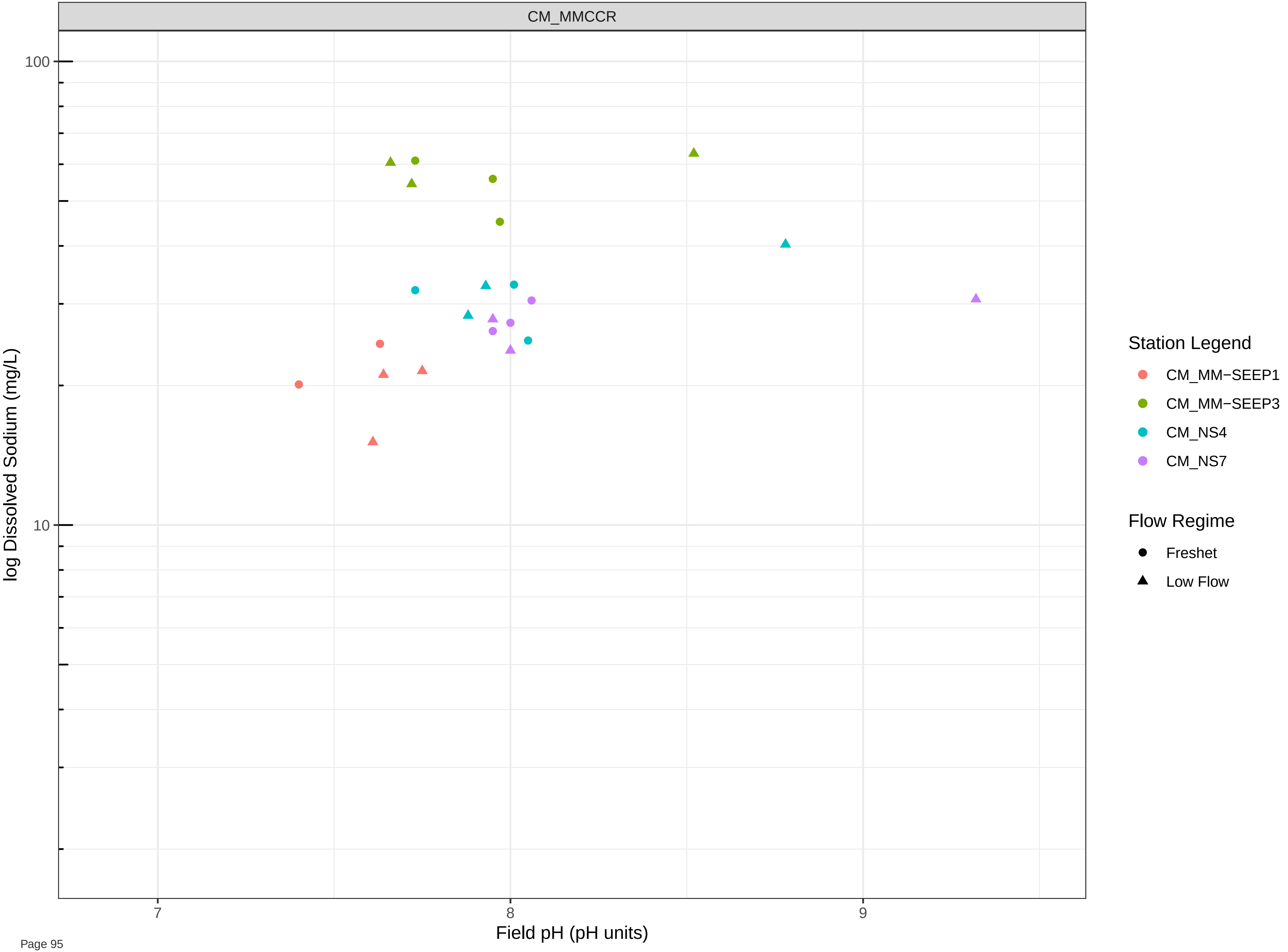
100
10
log Dissolved Sodium (mg/L)
7
8
9
Field pH (pH units)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow


CM_EASTWR
100
10
log Dissolved Sodium (mg/L)
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow


CM_MMCCR
100
10
log Dissolved Sodium (mg/L)
7
8
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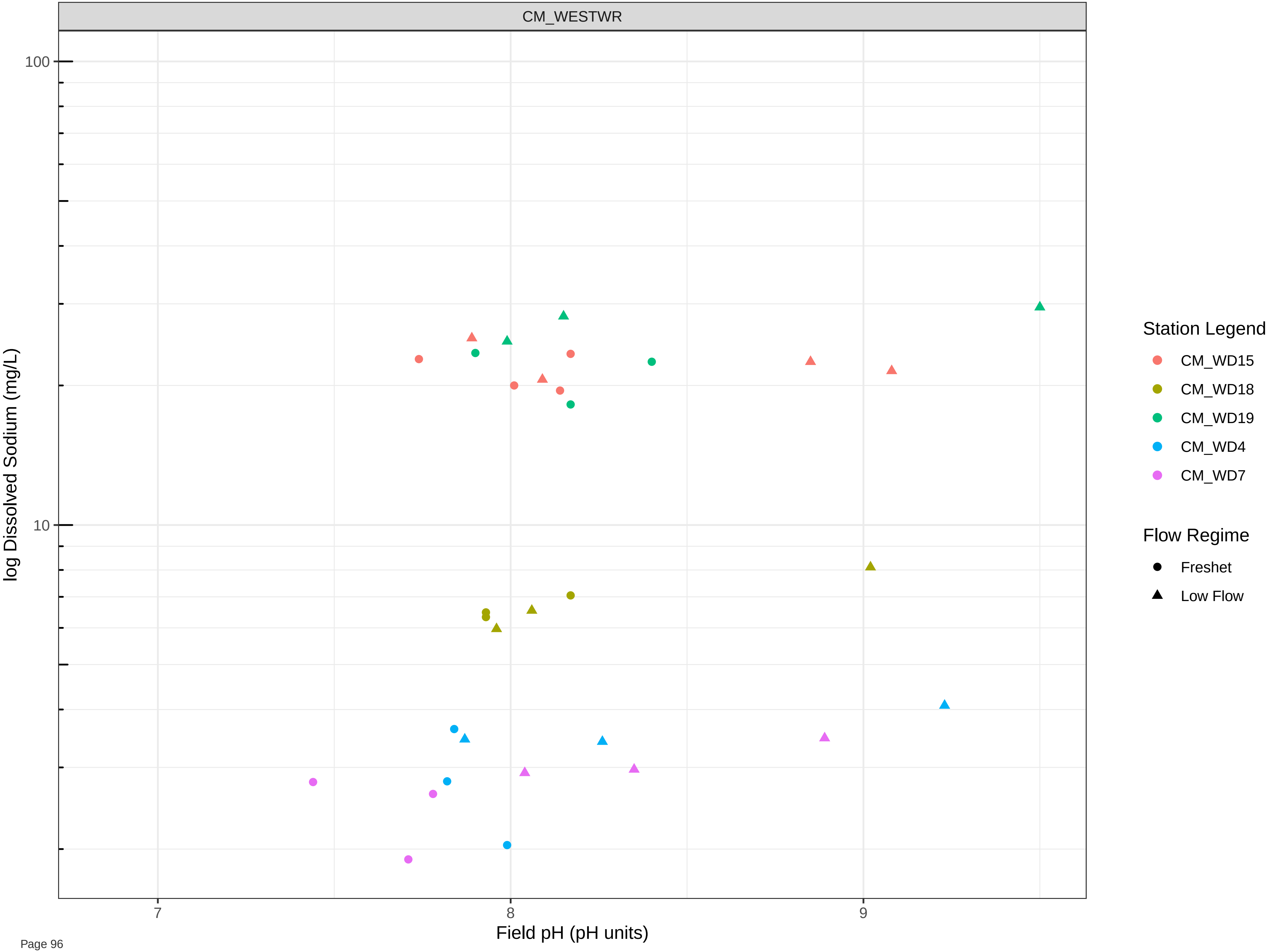
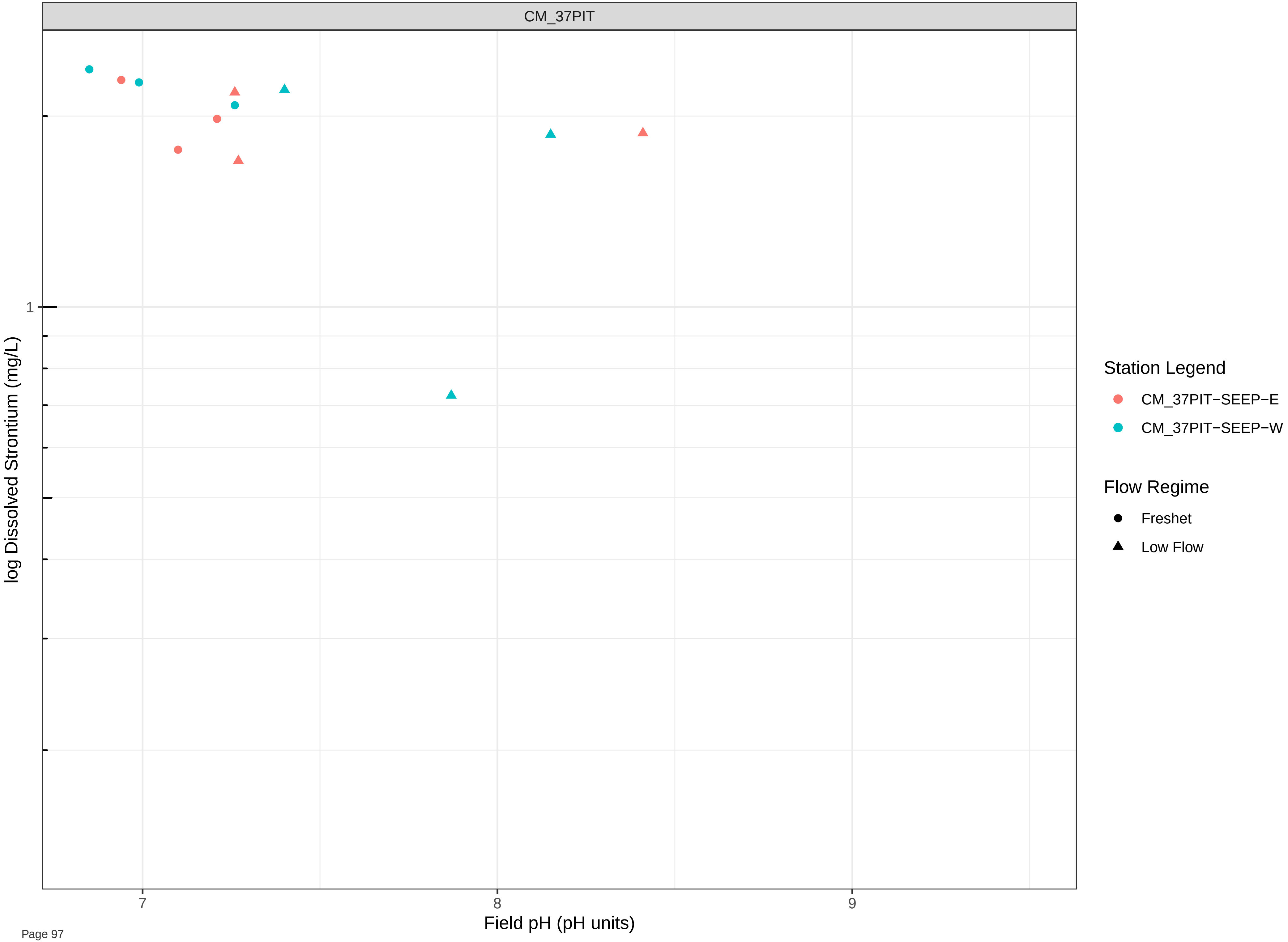
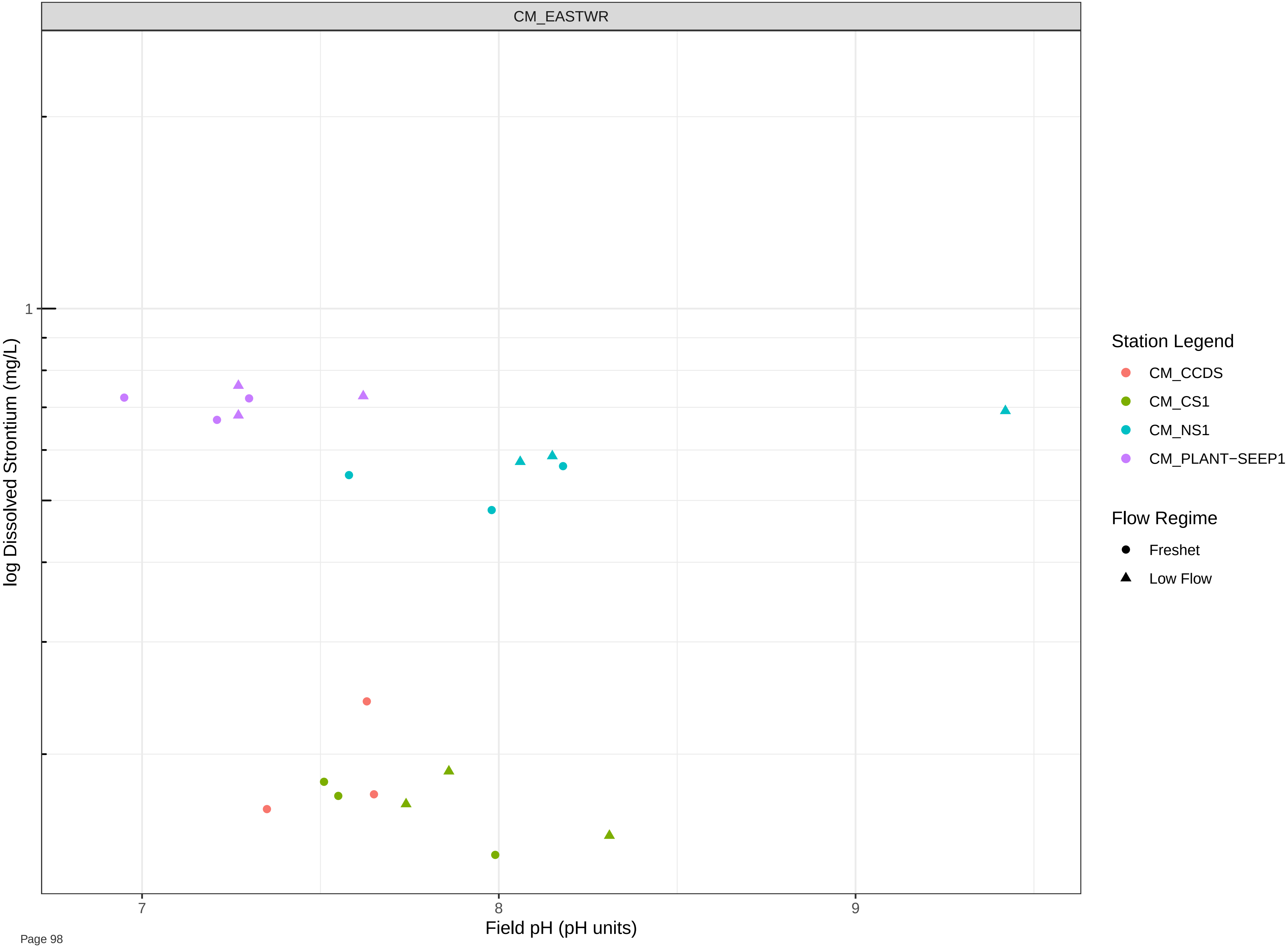
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow


CM_WESTWR
100
10
log Dissolved Sodium (mg/L)
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow


CM_37PIT
log Dissolved Strontium (mg/L)
1
7
8
9
Field pH (pH units)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow


CM_EASTWR
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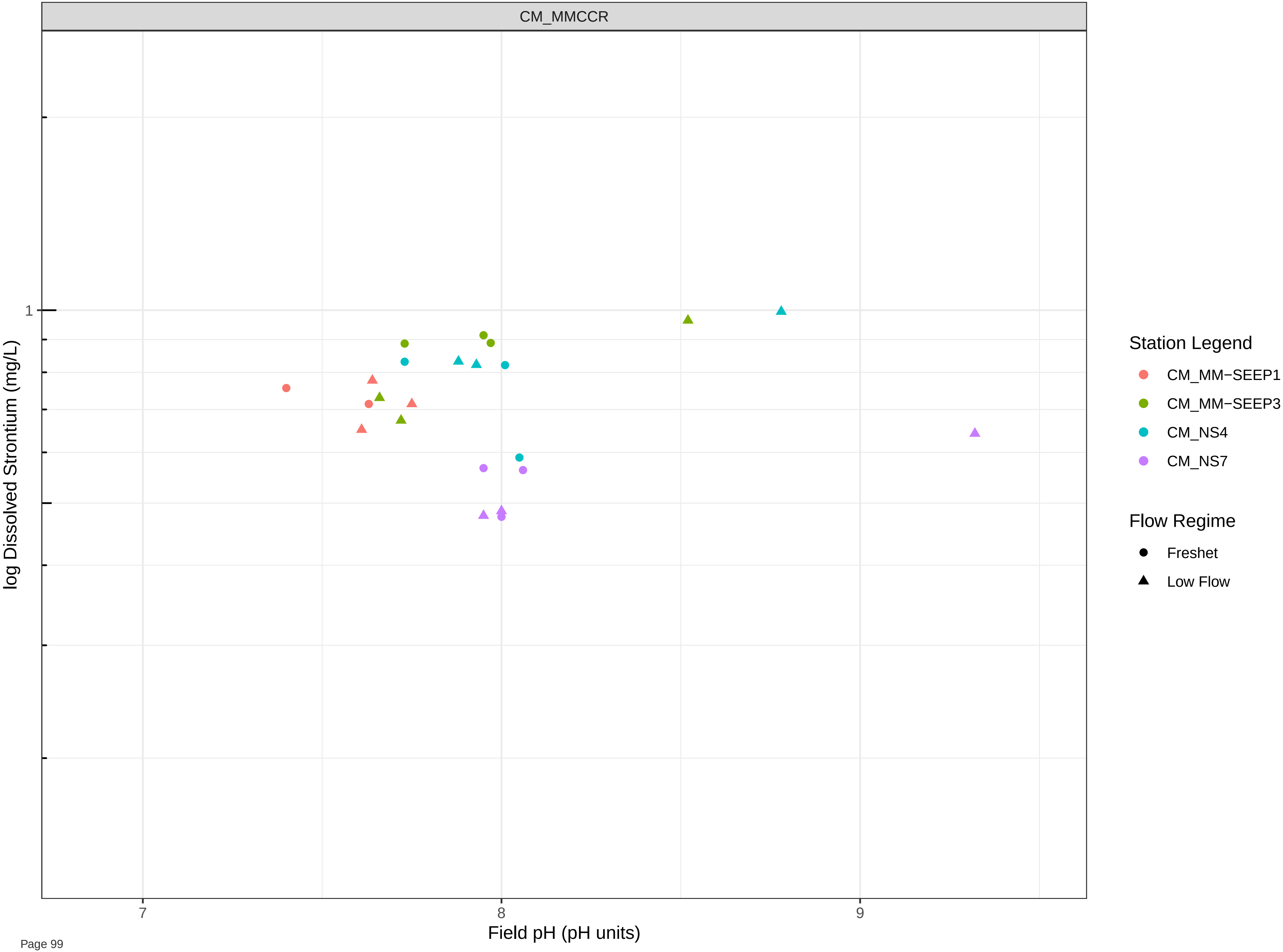
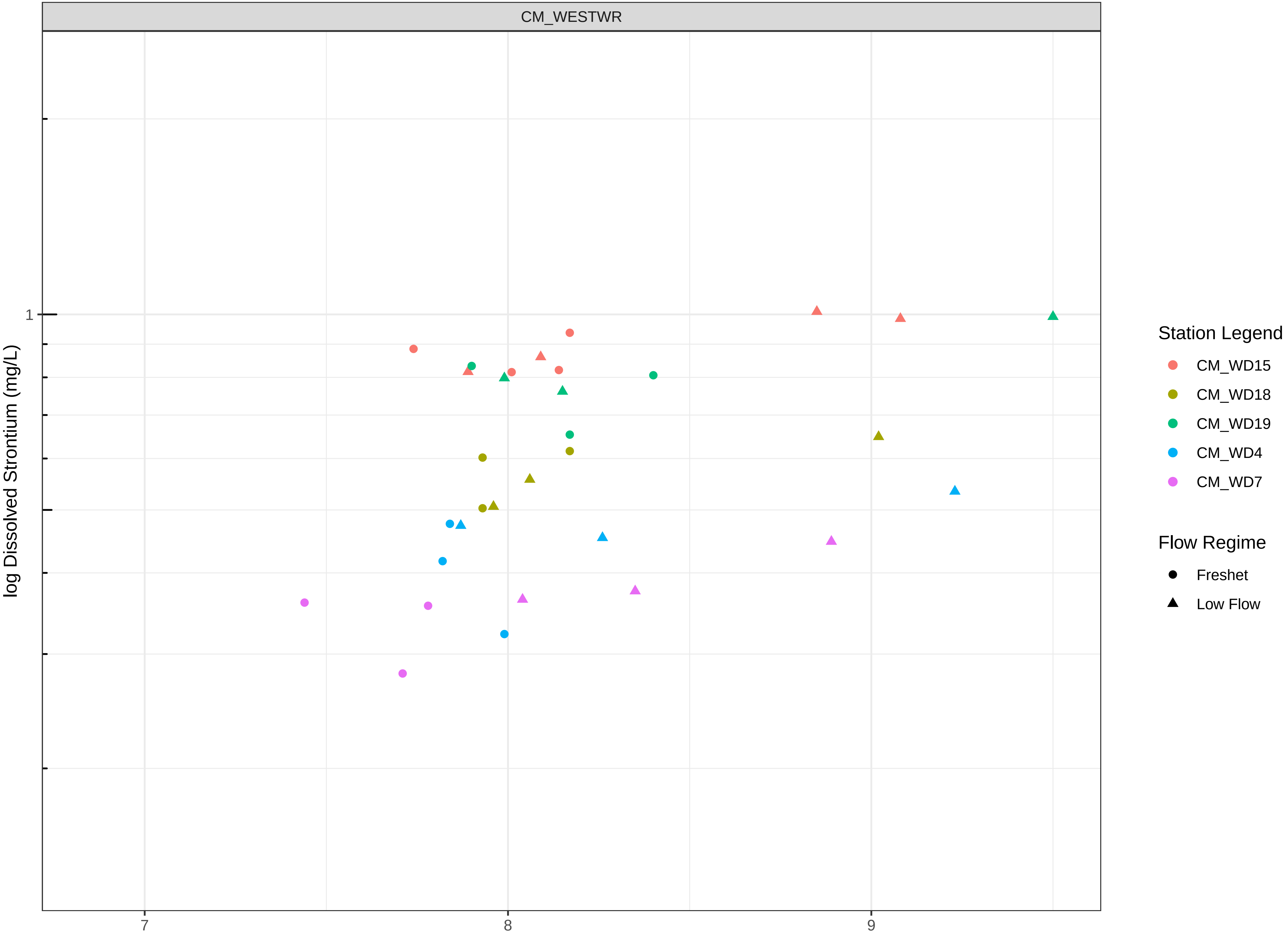
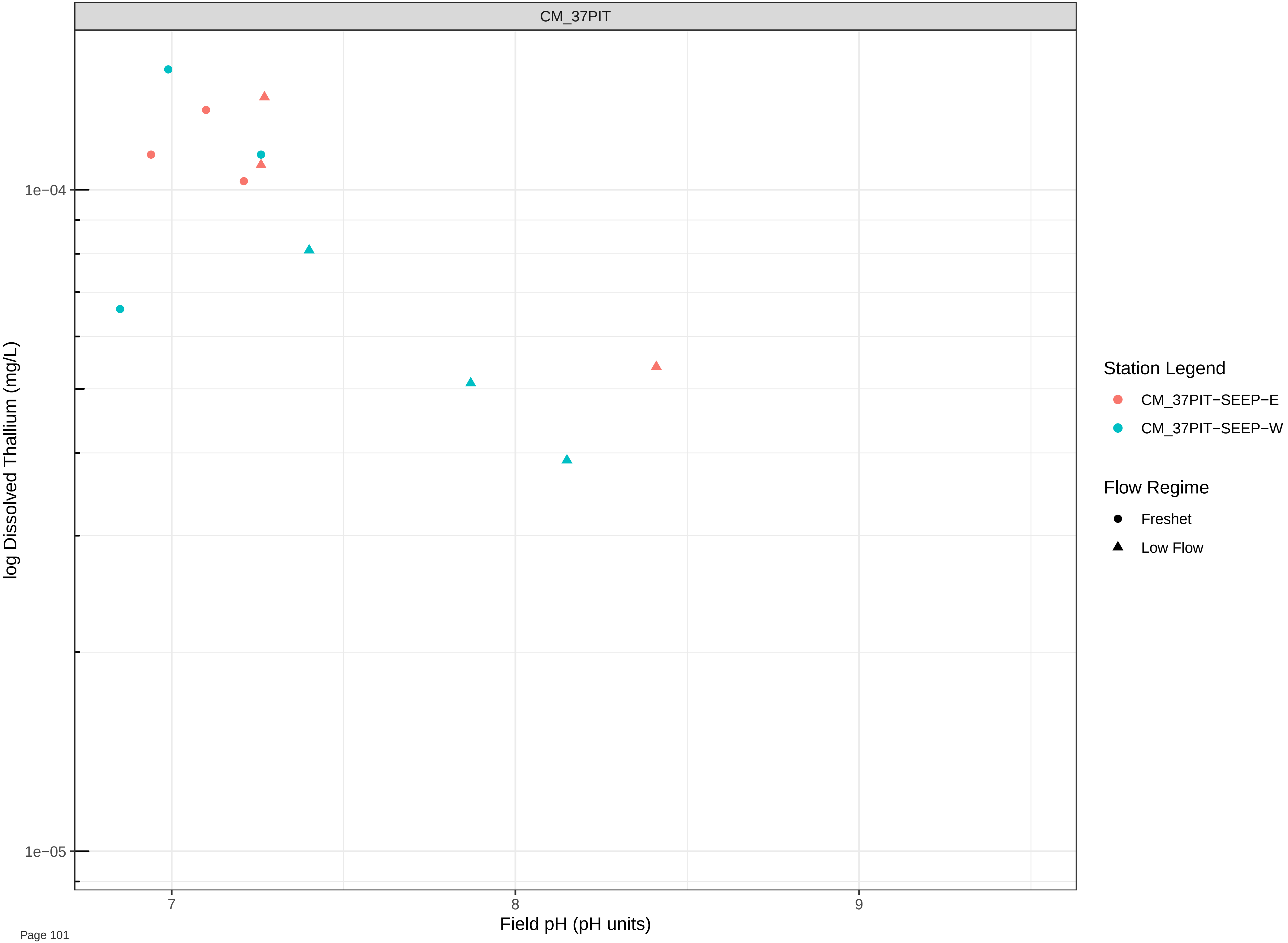
log Dissolved Strontium (mg/L)
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow


CM_MMCCR
log Dissolved Strontium (mg/L)
1
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow


CM_WESTWR
log Dissolved Strontium (mg/L)
1
Field pH (pH units)
7
8
9
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
● Freshet
▲ Low Flow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1e−04
1e−05
log Dissolved Thallium (mg/L)
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Field pH (pH units)
Station Legend
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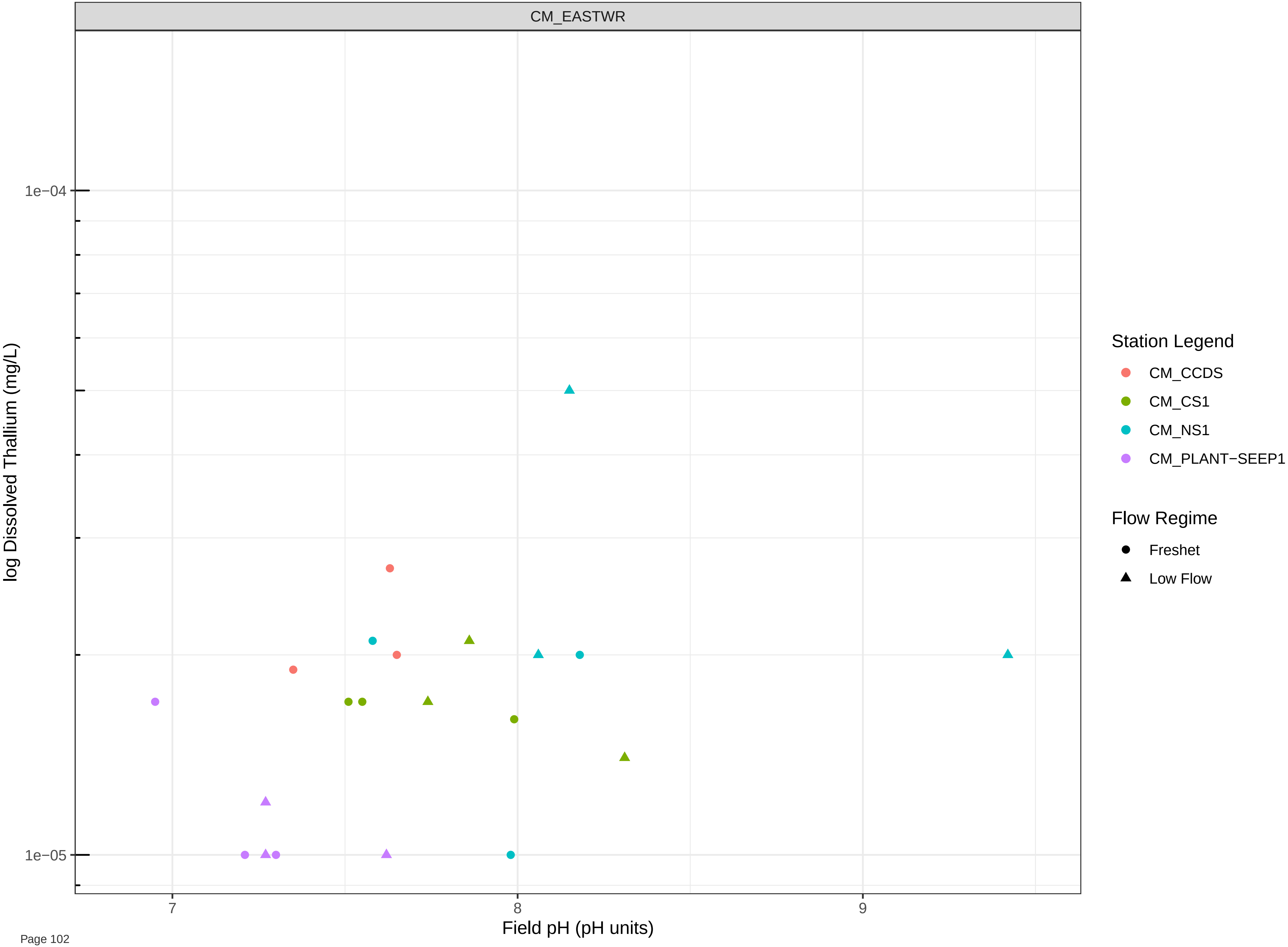
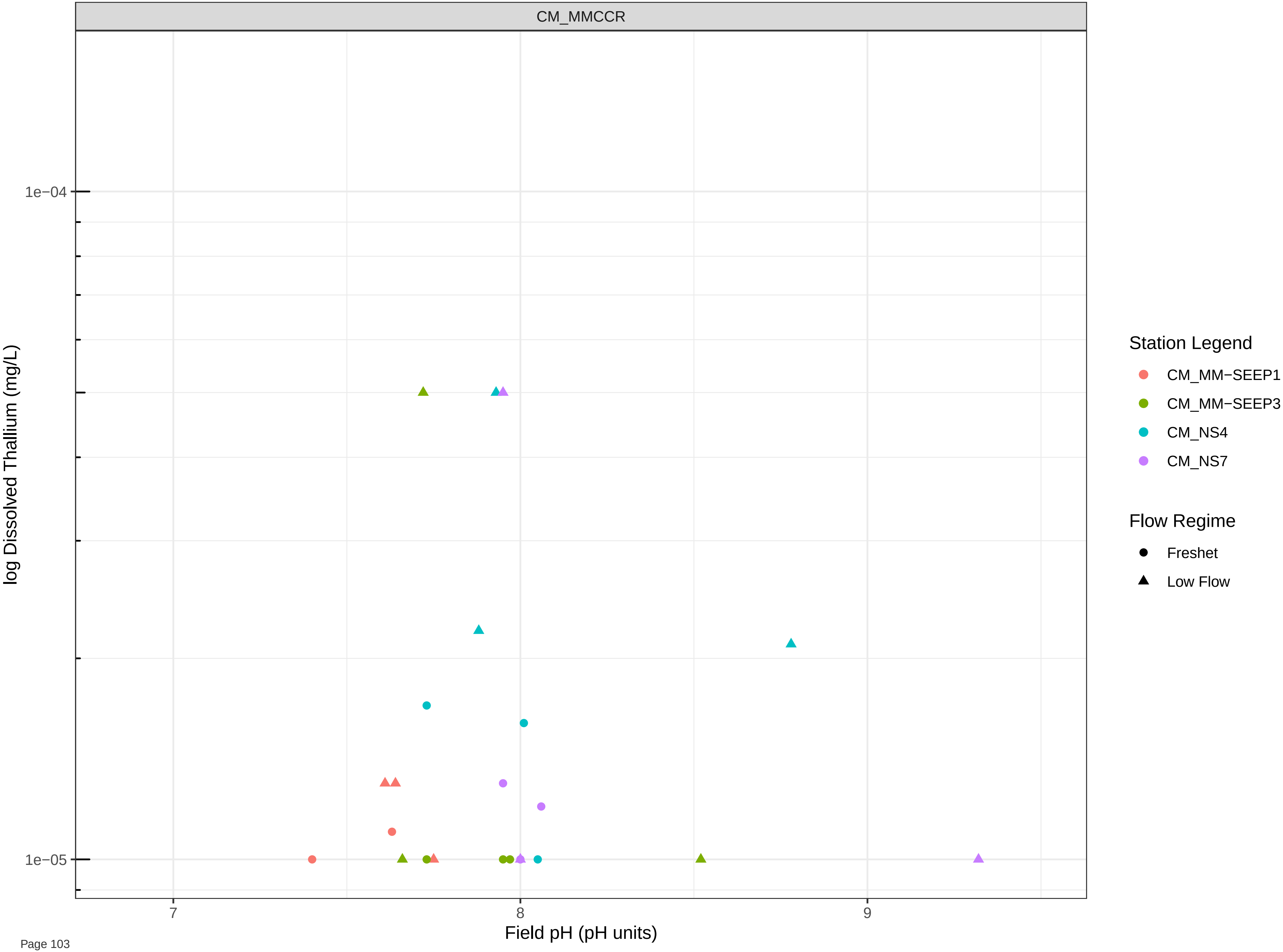
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow


CM_EASTWR
log Dissolved Thallium (mg/L)
1e−04
1e−05
Field pH (pH units)
7
8
9
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow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1e−05
log Dissolved Thallium (mg/L)
7
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9
Field pH (pH units)
Station Legend
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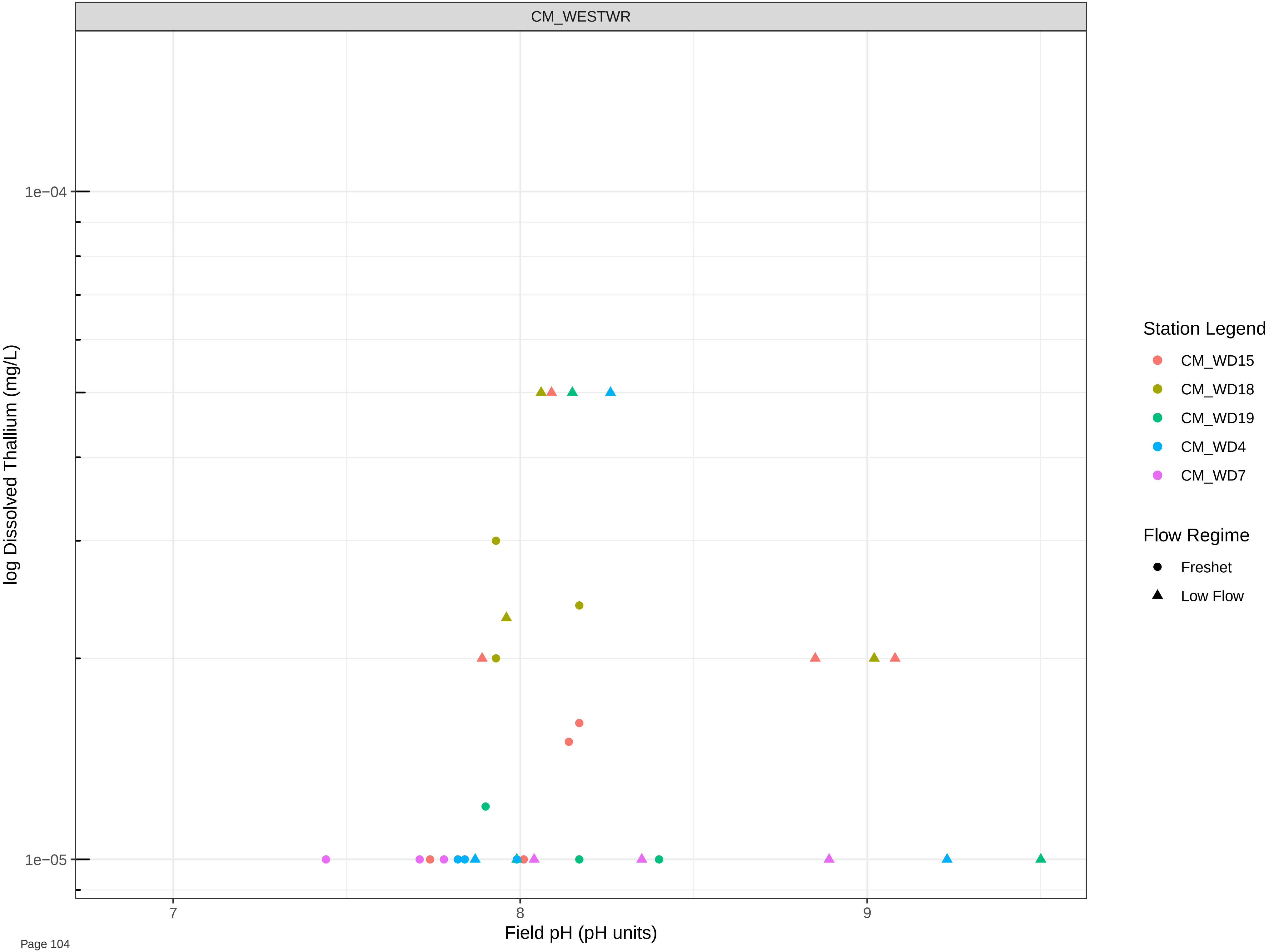
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow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1e−05
log Dissolved Thallium (mg/L)
7
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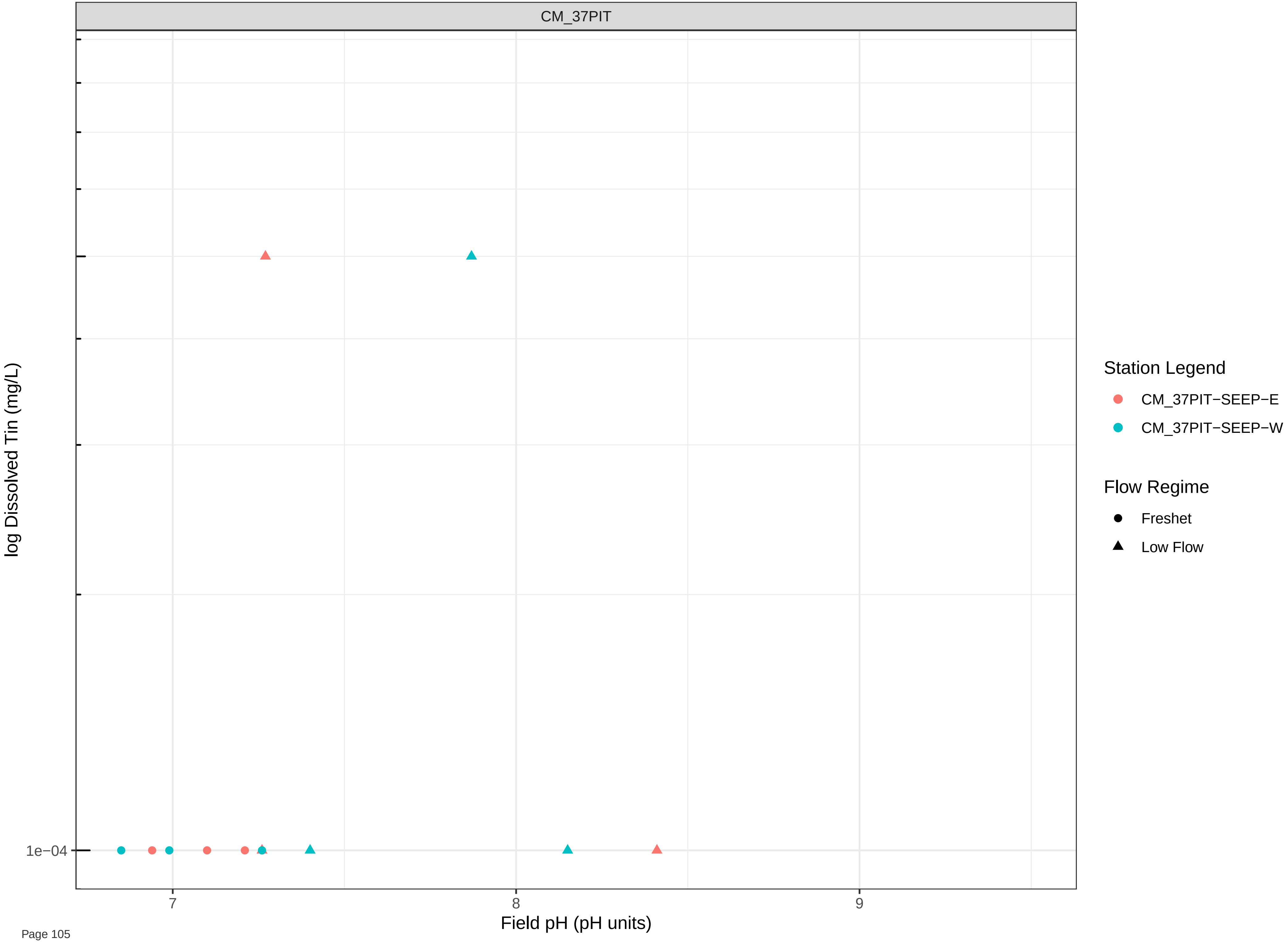
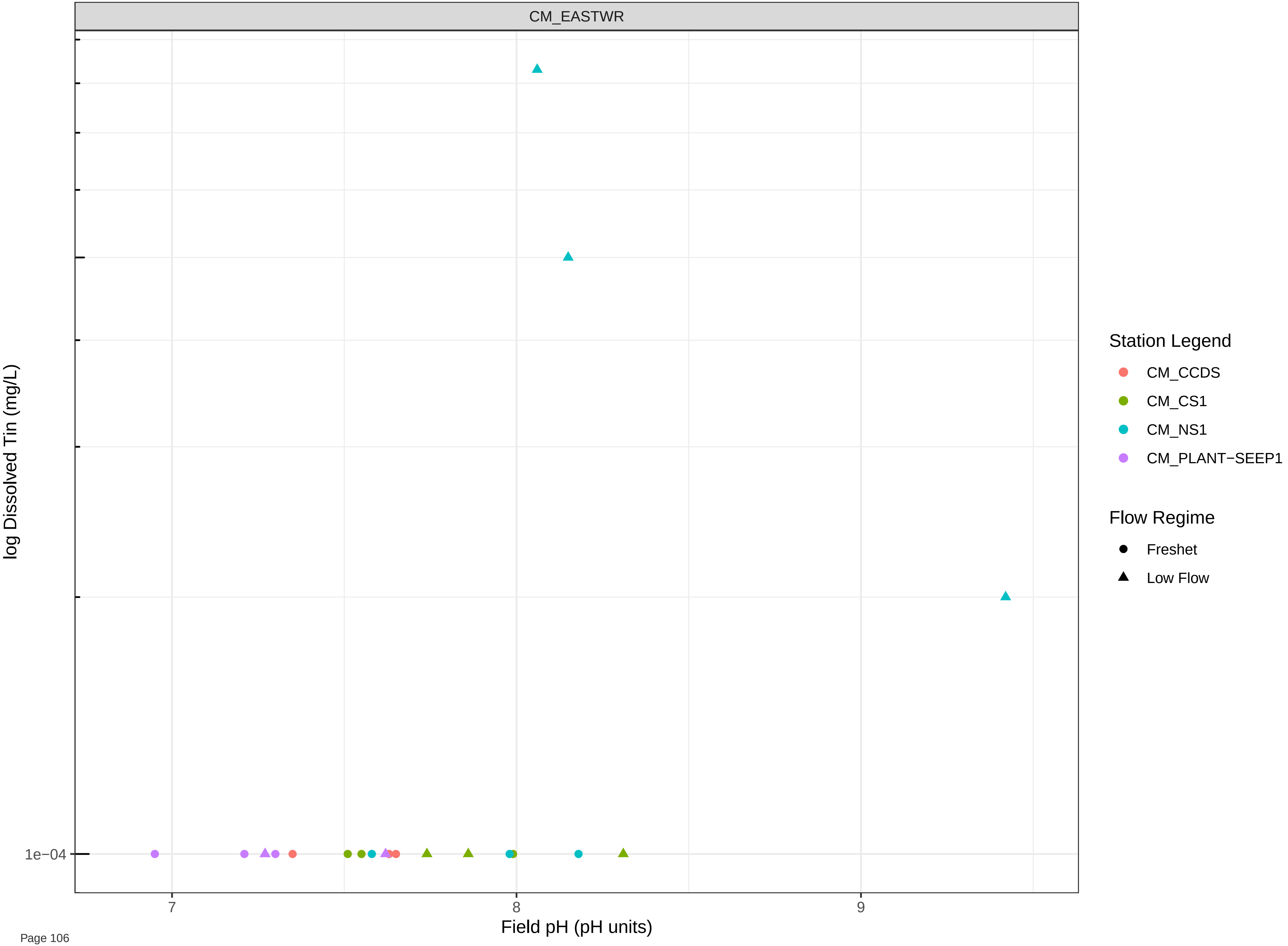
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow


CM_37PIT
log Dissolved Tin (mg/L)
1e−04
7
8
9
Field pH (pH units)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow


CM_EASTWR
log Dissolved Tin (mg/L)
1e−04
7
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Field pH (pH units)
Station Legend
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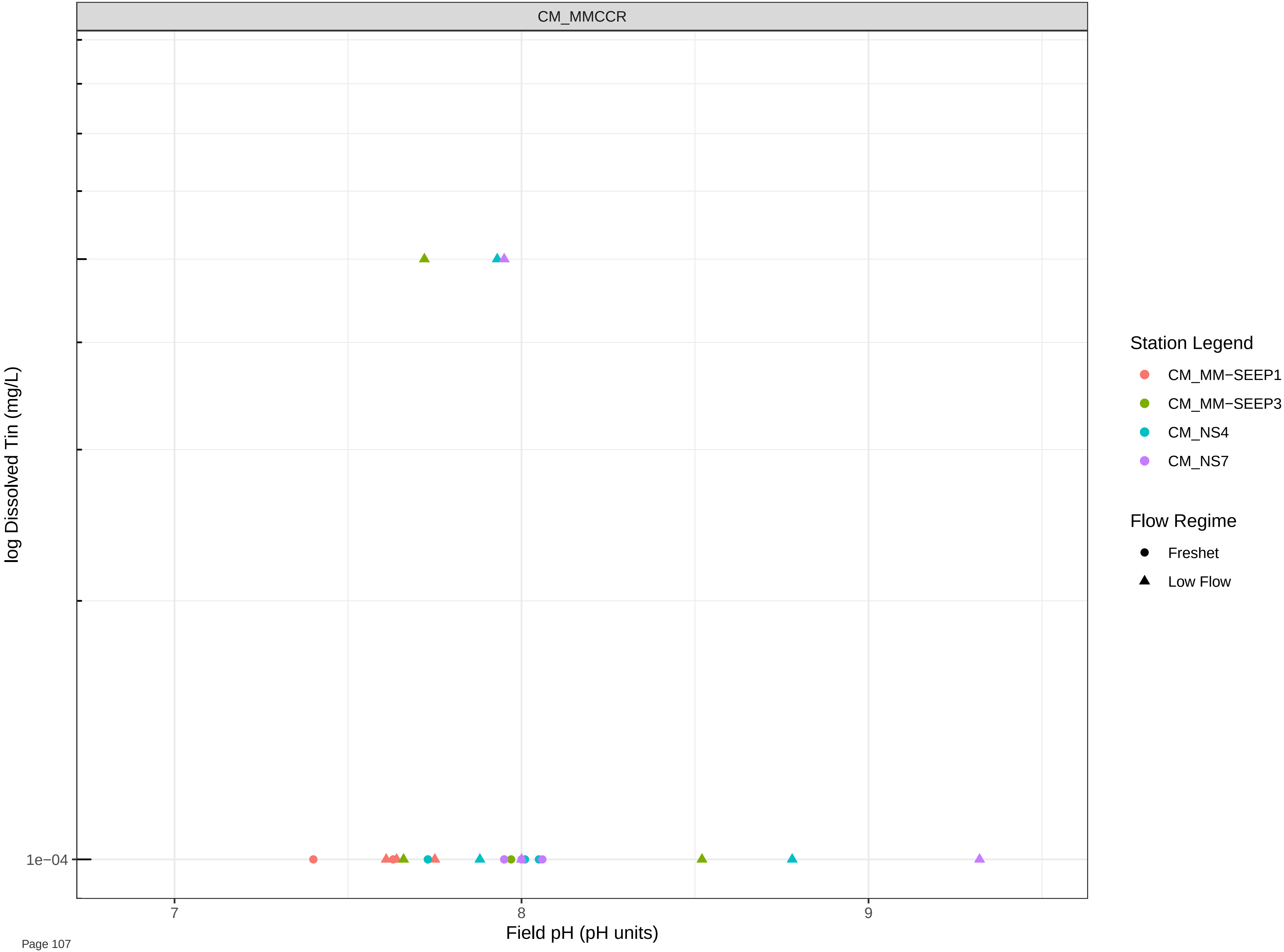
● CM_CS1
● CM_NS1
● CM_PLANT−SEEP1
Flow Regime
● Freshet
▲ Low Flow


CM_MMCCR
log Dissolved Tin (mg/L)
1e−04
7
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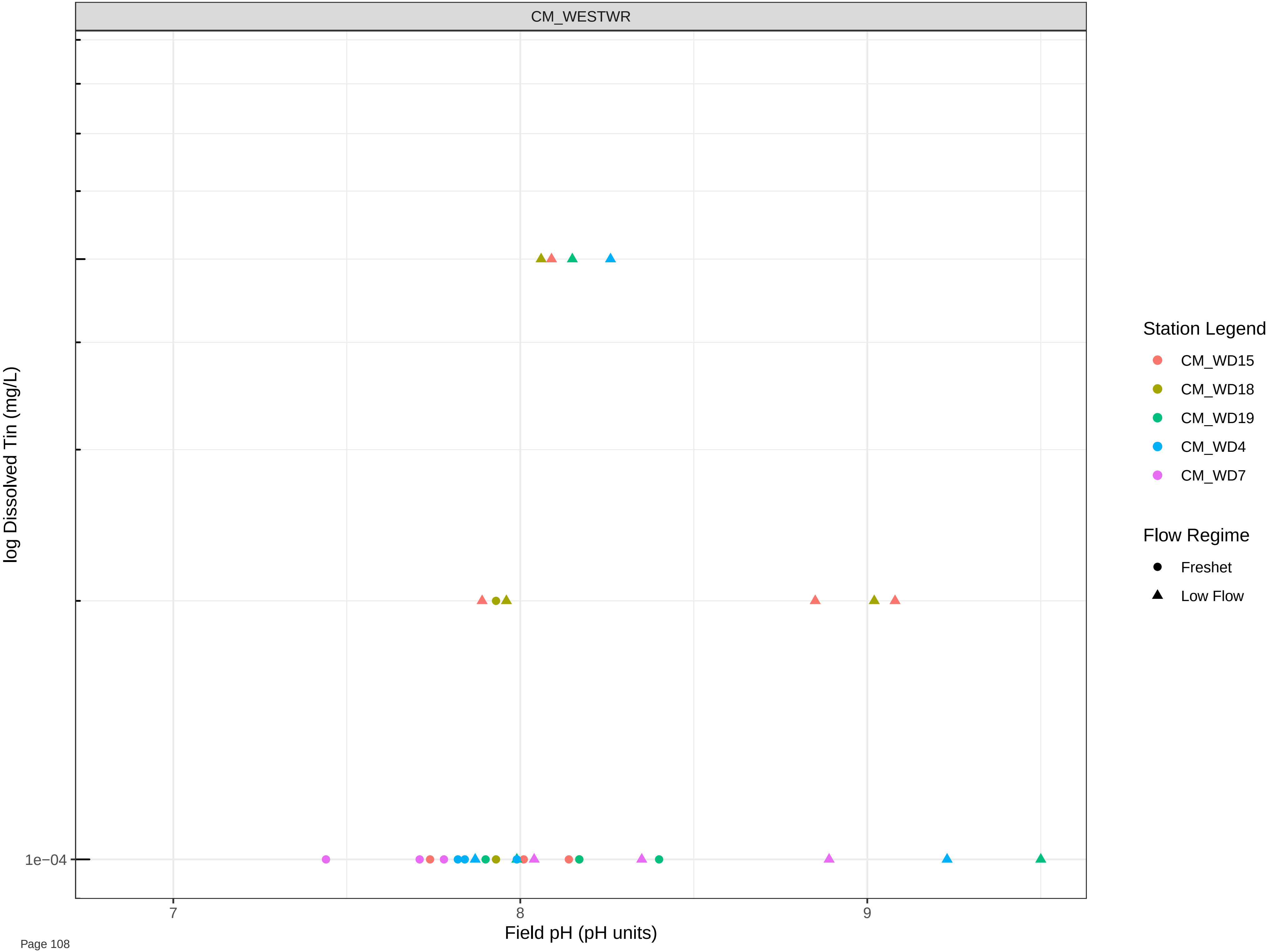
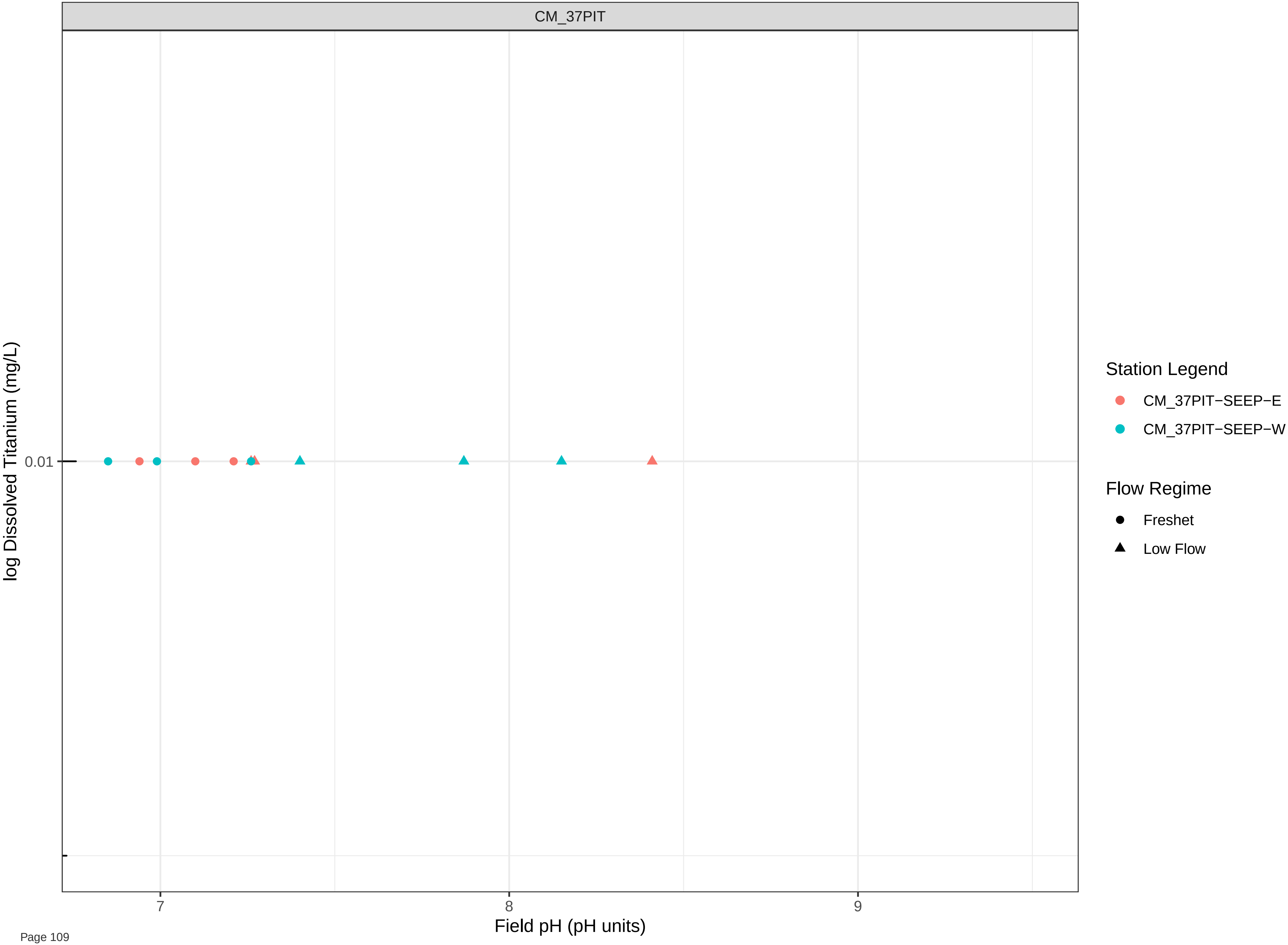
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow


CM_WESTWR
log Dissolved Tin (mg/L)
1e−04
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow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log Dissolved Titanium (mg/L)
0.01
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Field pH (pH units)
Station Legend
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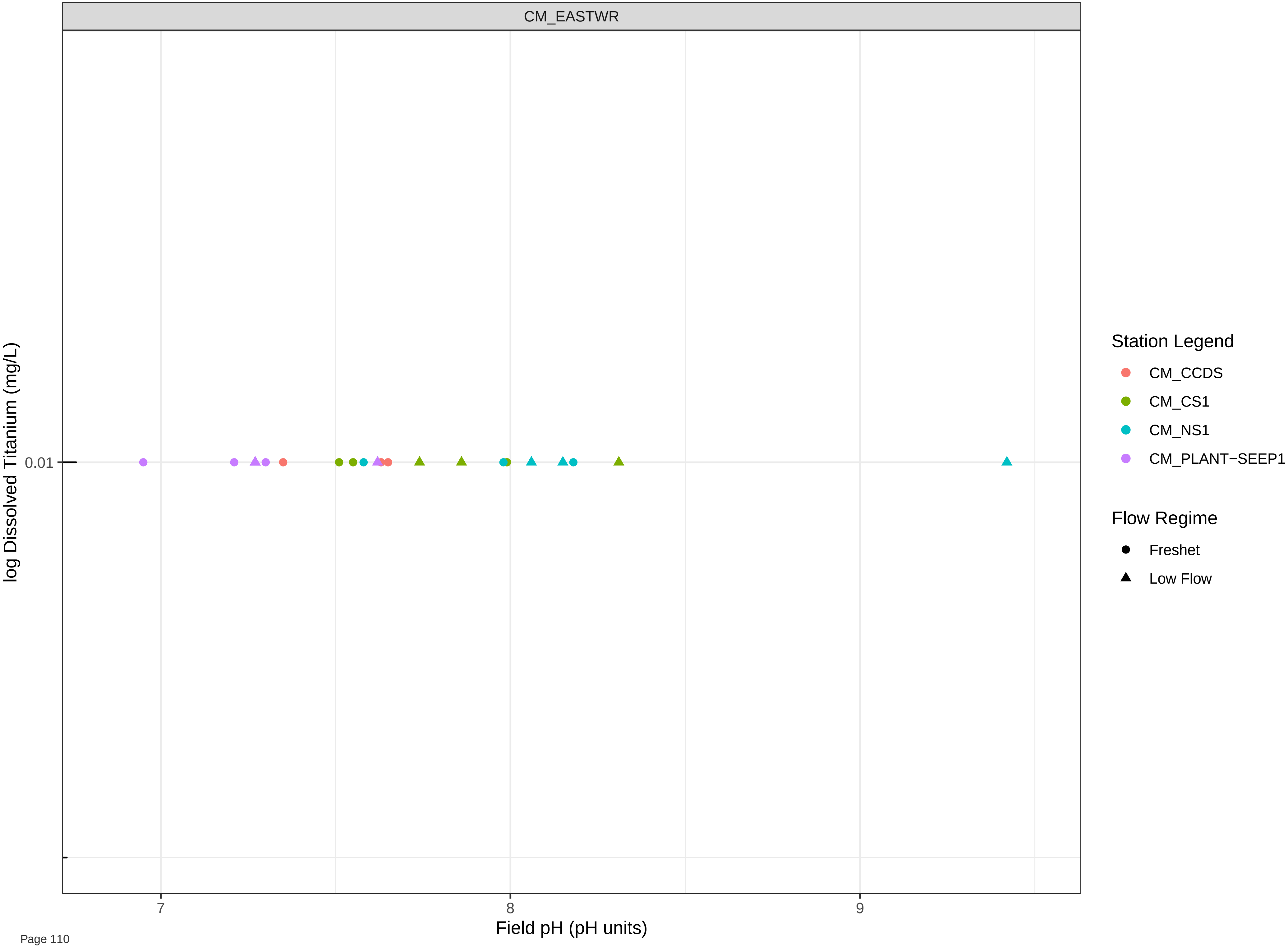
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow


CM_EASTWR
log Dissolved Titanium (mg/L)
0.01
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Field pH (pH units)
Station Legend
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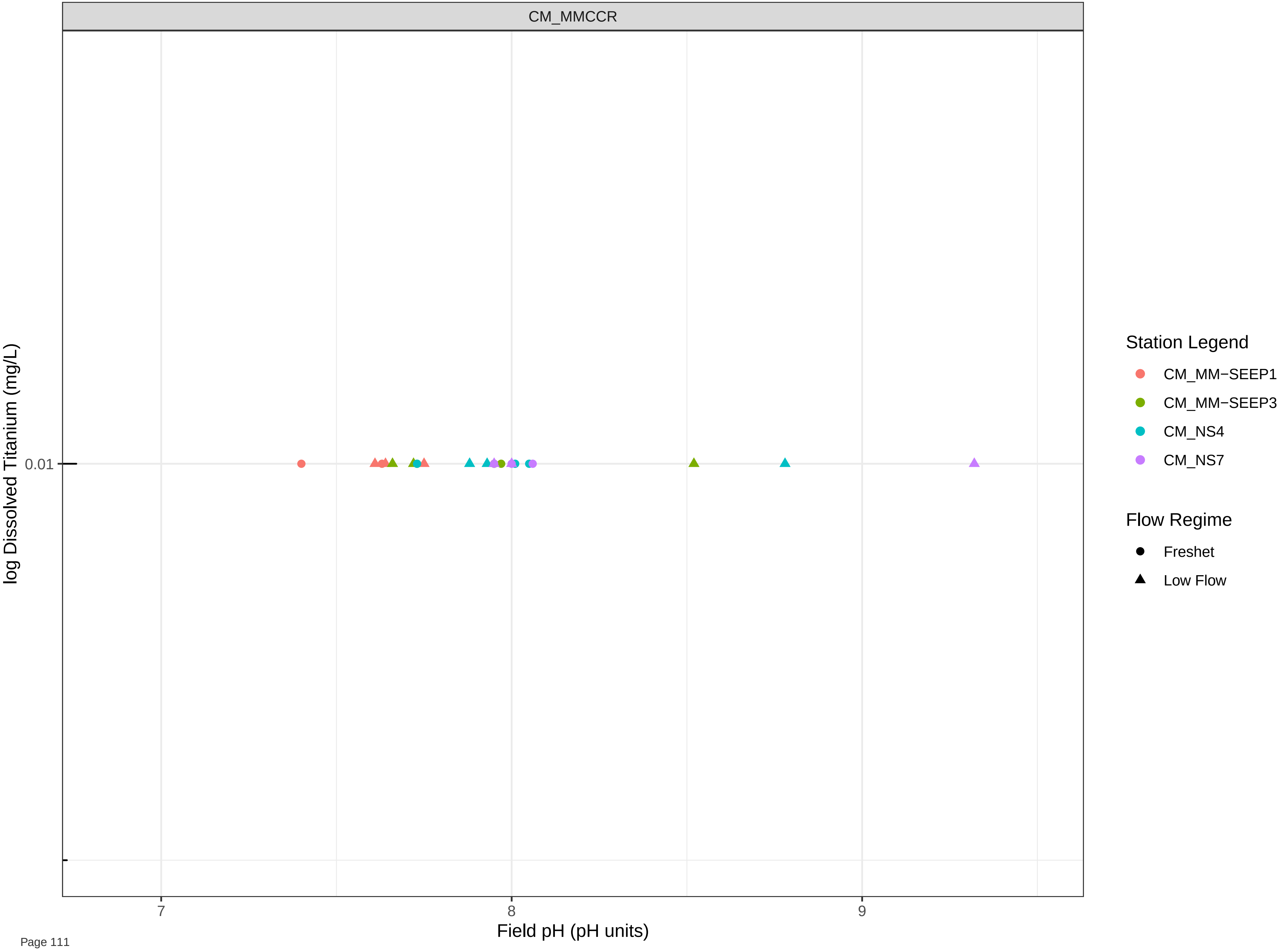
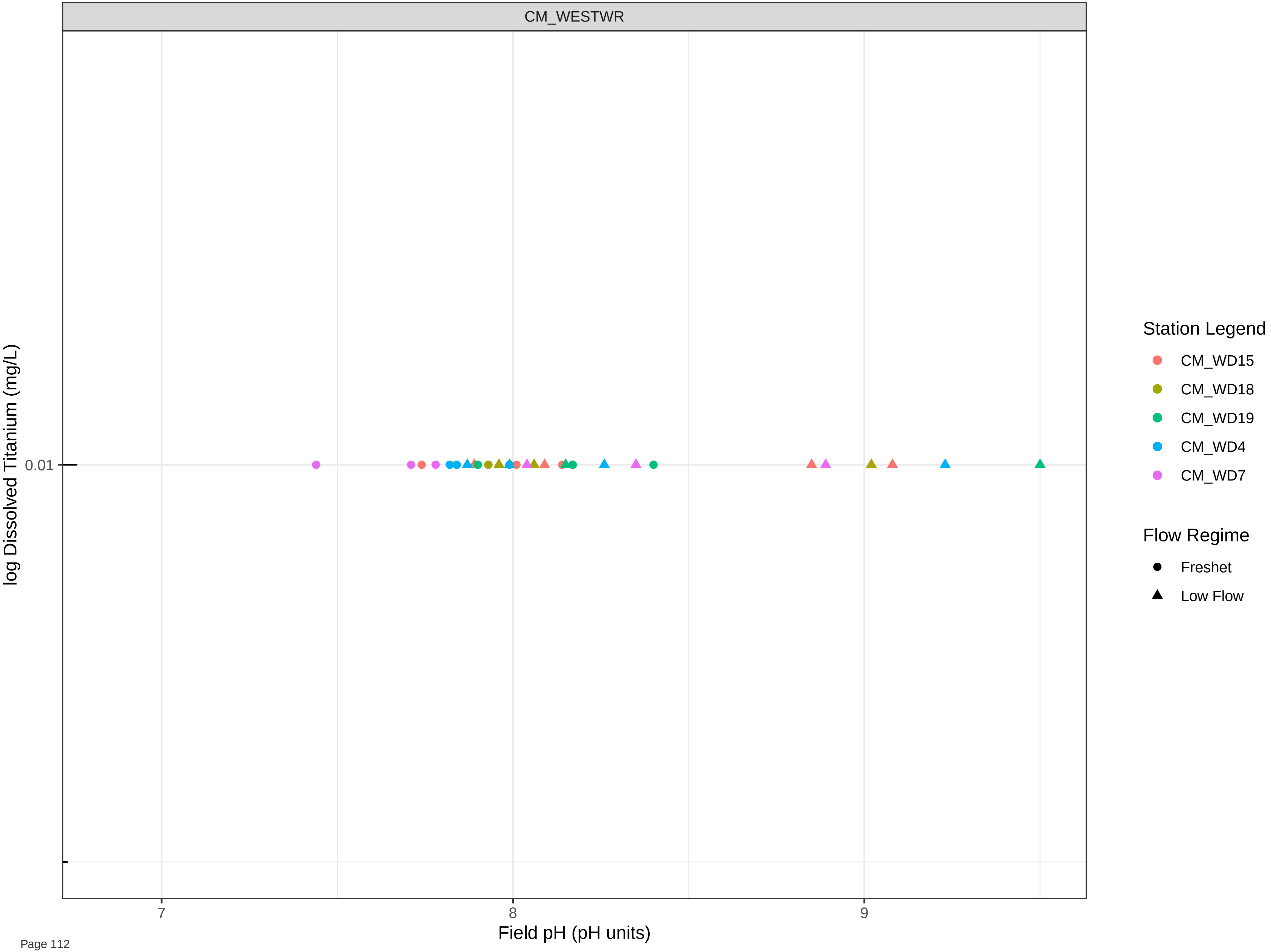
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow


CM_MMCCR
log Dissolved Titanium (mg/L)
0.01
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow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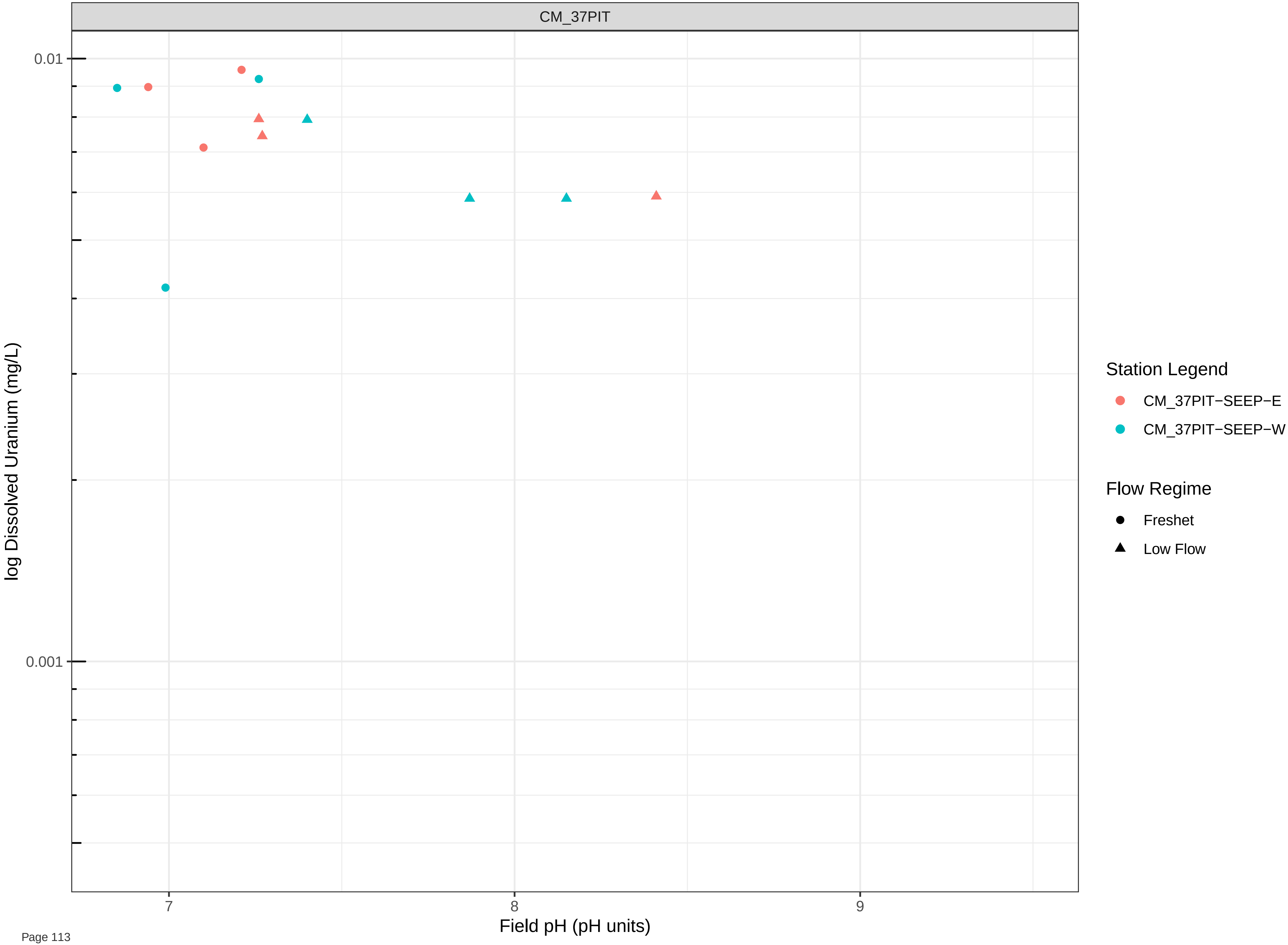
log Dissolved Titanium (mg/L)
0.01
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow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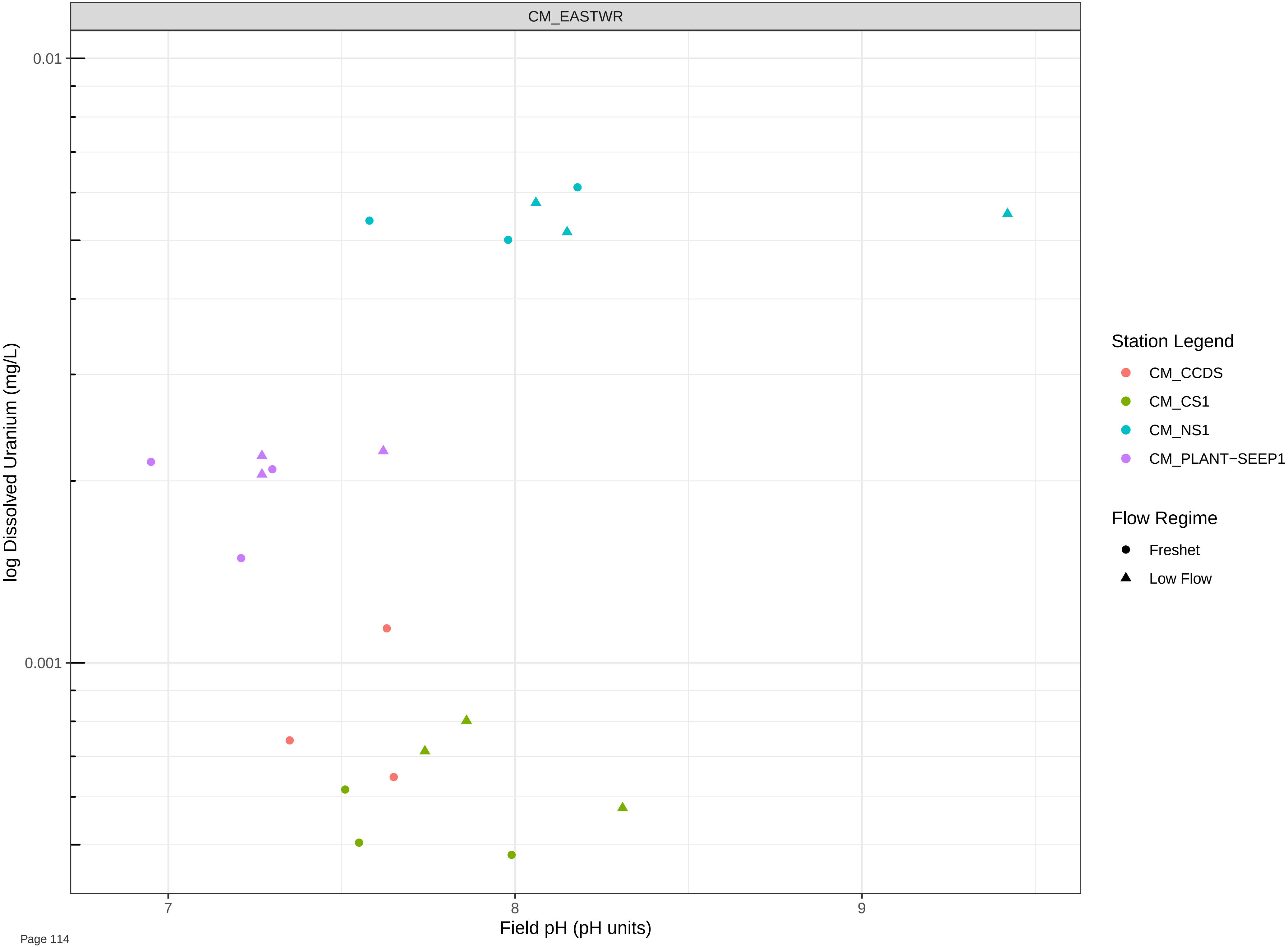
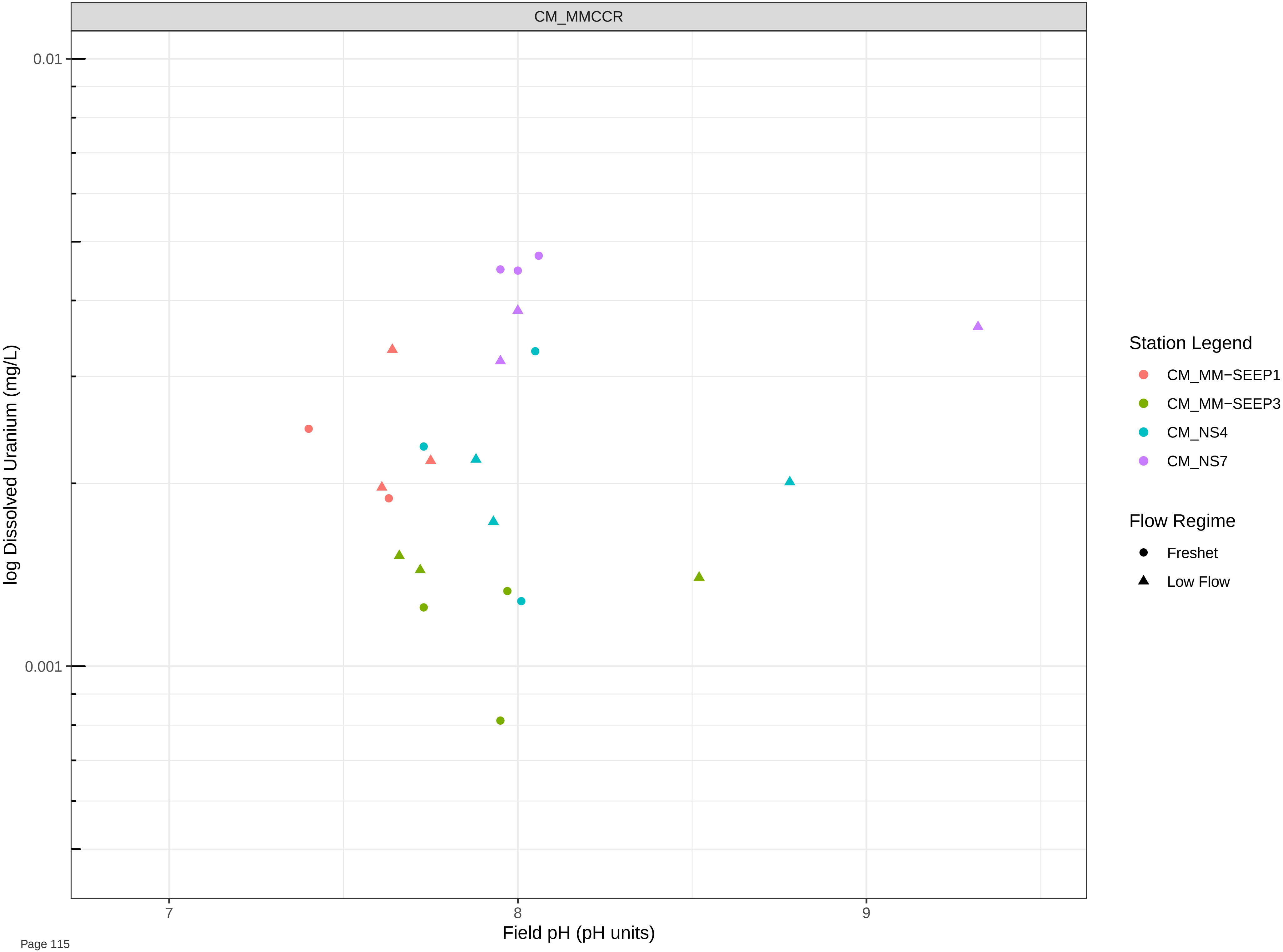
0.01
0.001
log Dissolved Uranium (mg/L)
7
8
9
Field pH (pH units)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow


CM_EASTWR
0.01
0.001
log Dissolved Uranium (mg/L)
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow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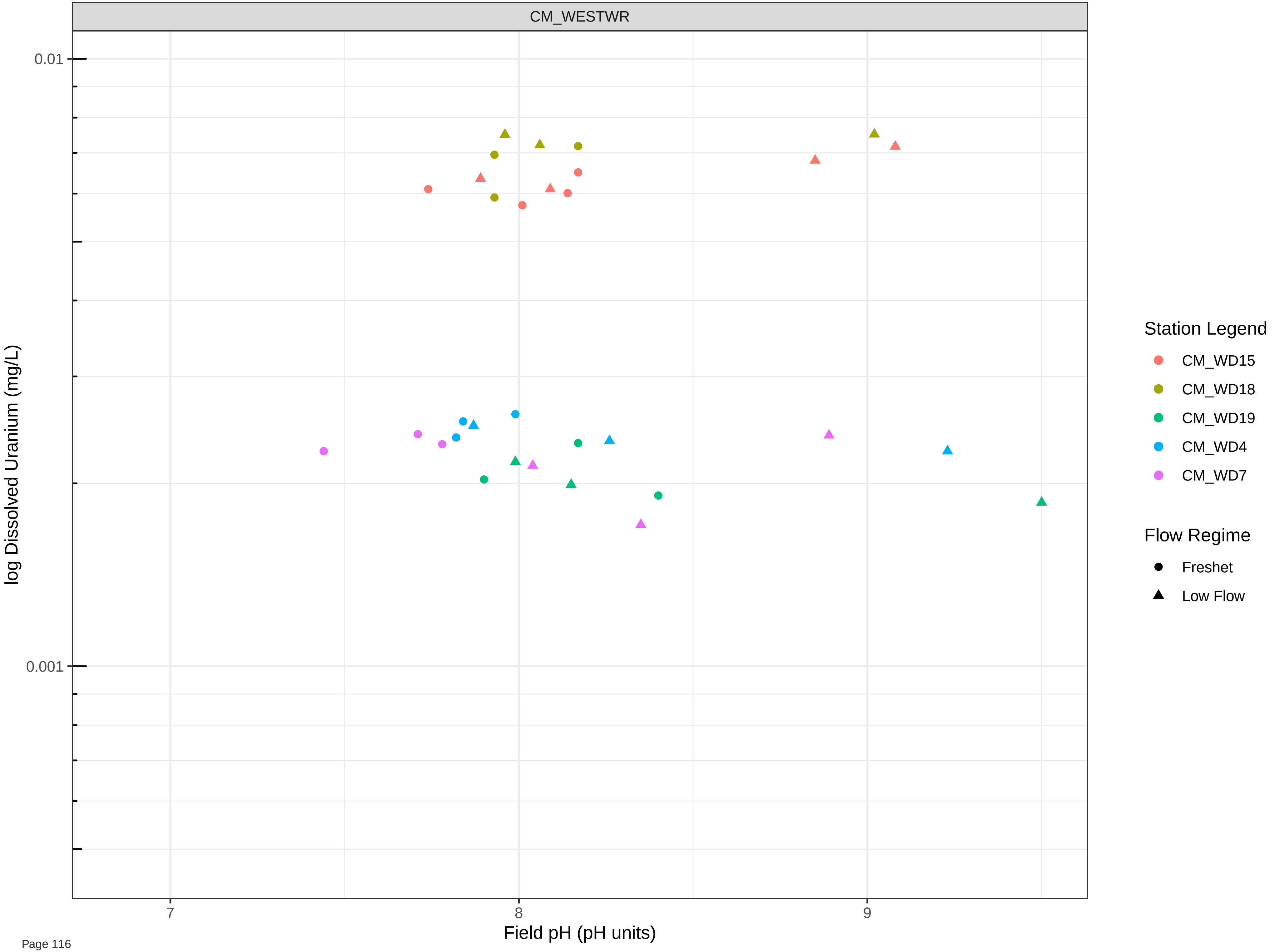
0.001
log Dissolved Uranium (mg/L)
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow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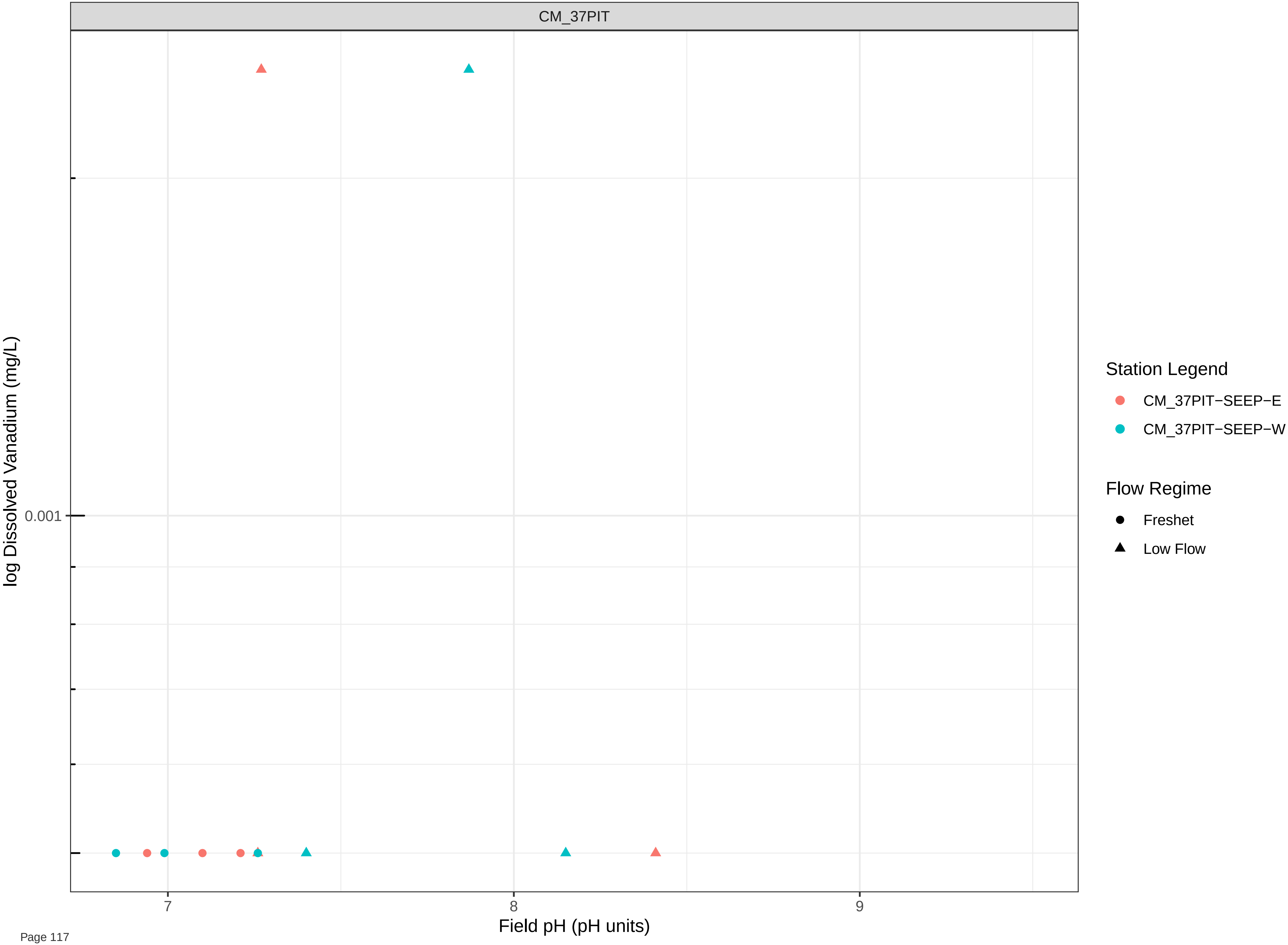
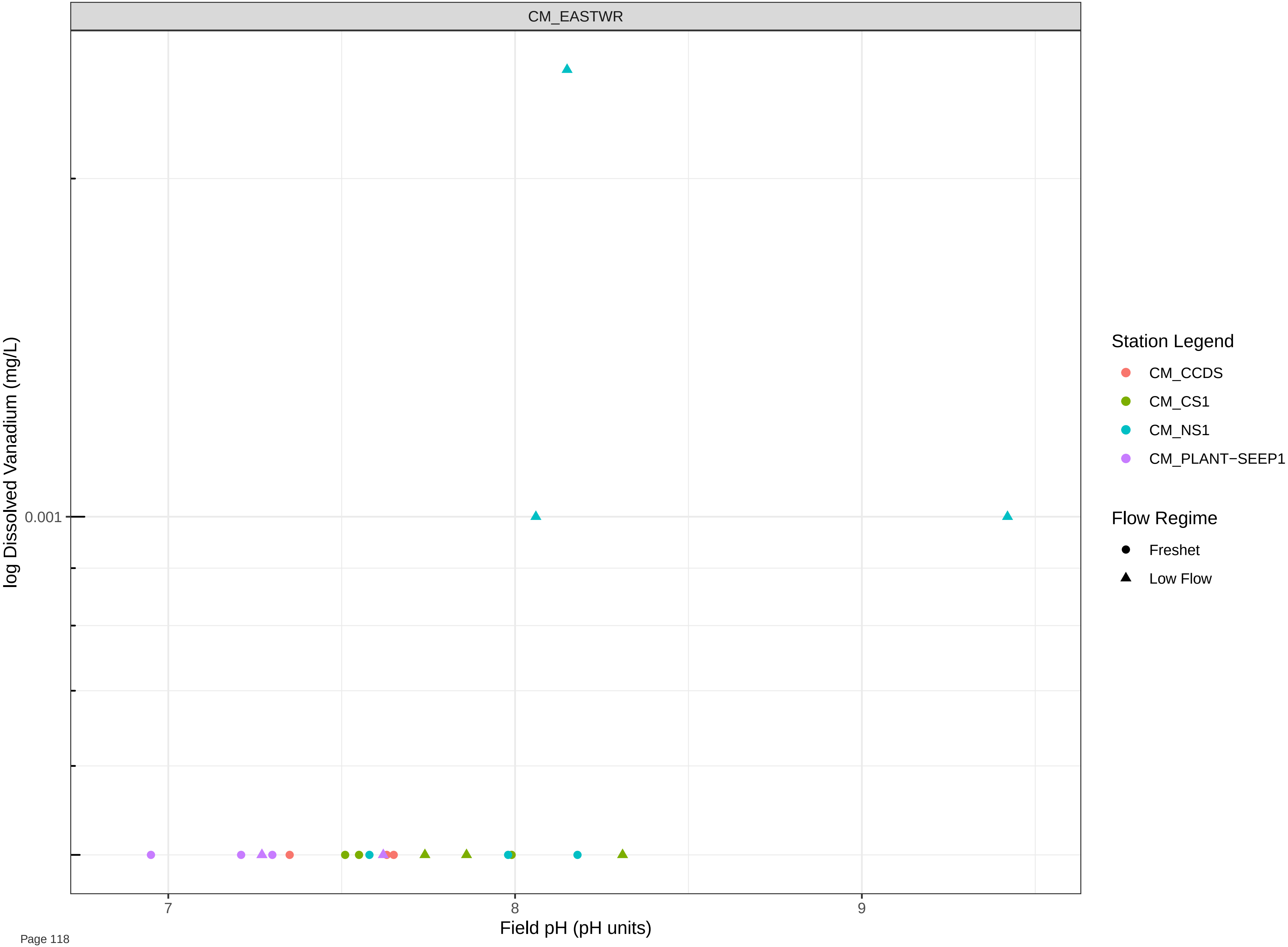
0.01
0.001
log Dissolved Uranium (mg/L)
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow


CM_37PIT
log Dissolved Vanadium (mg/L)
0.001
Field pH (pH units)
7
8
9
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow


CM_EASTWR
log Dissolved Vanadium (mg/L)
0.001
7
8
9
Field pH (pH units)
Station Legend
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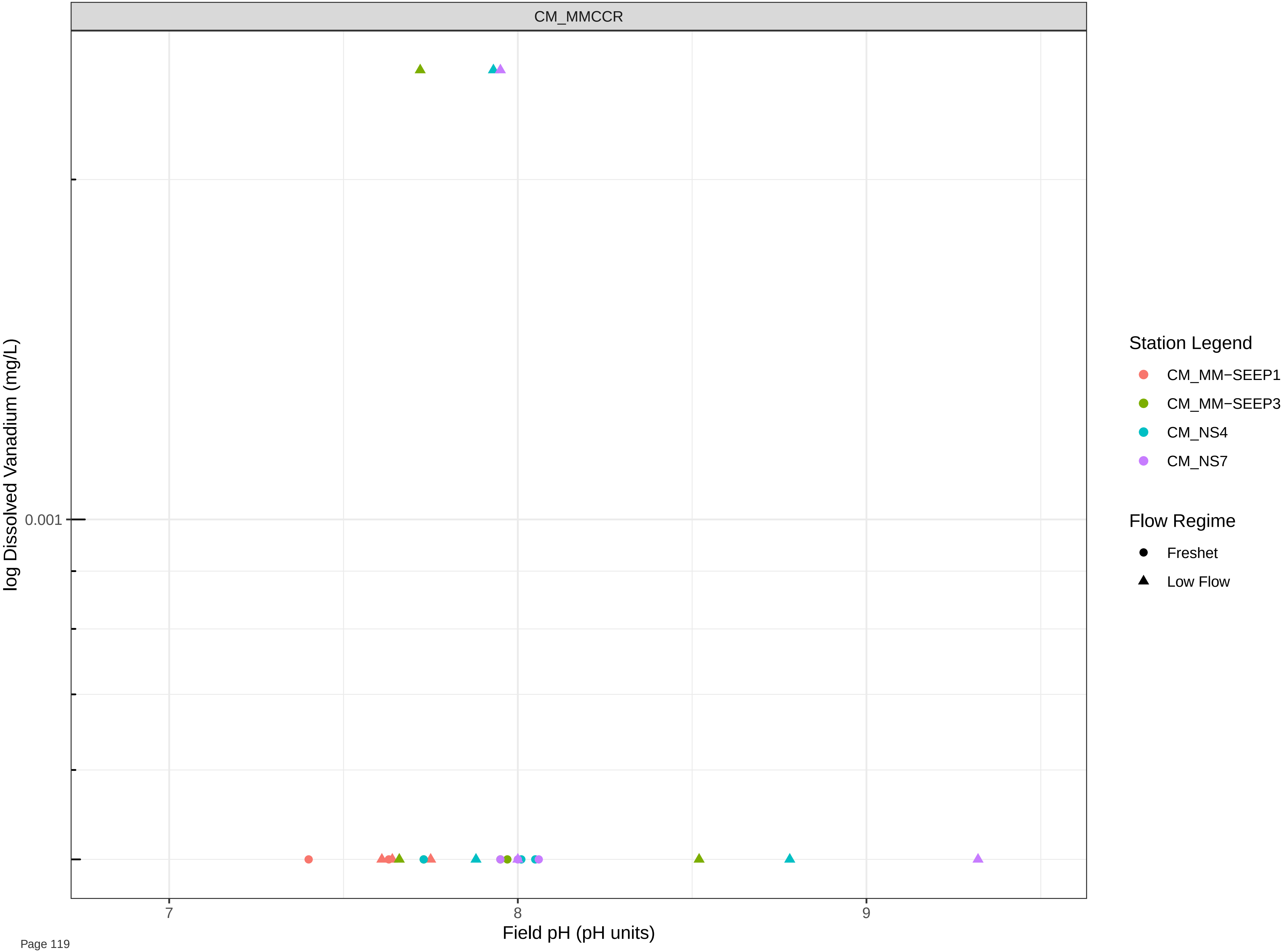
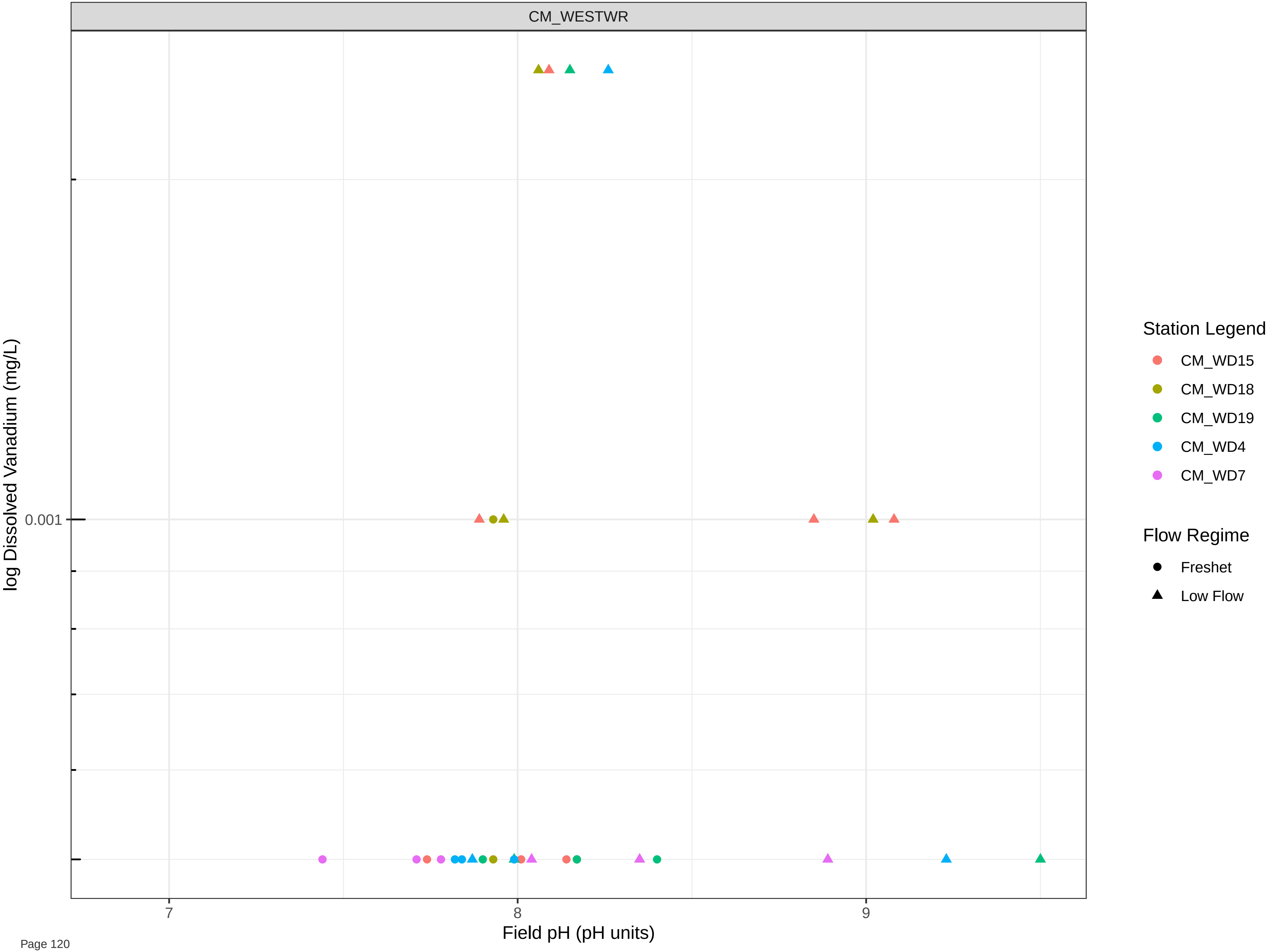
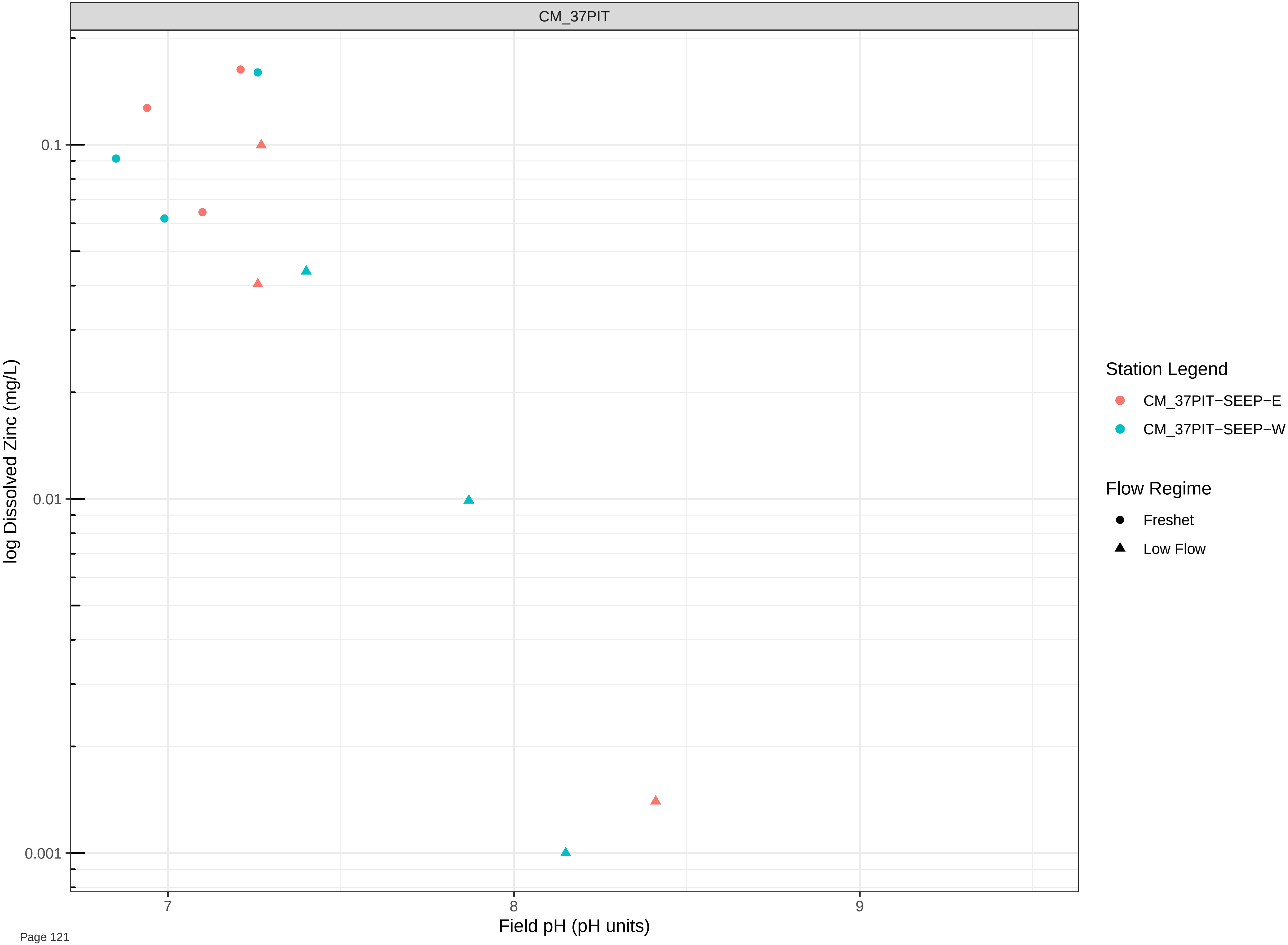
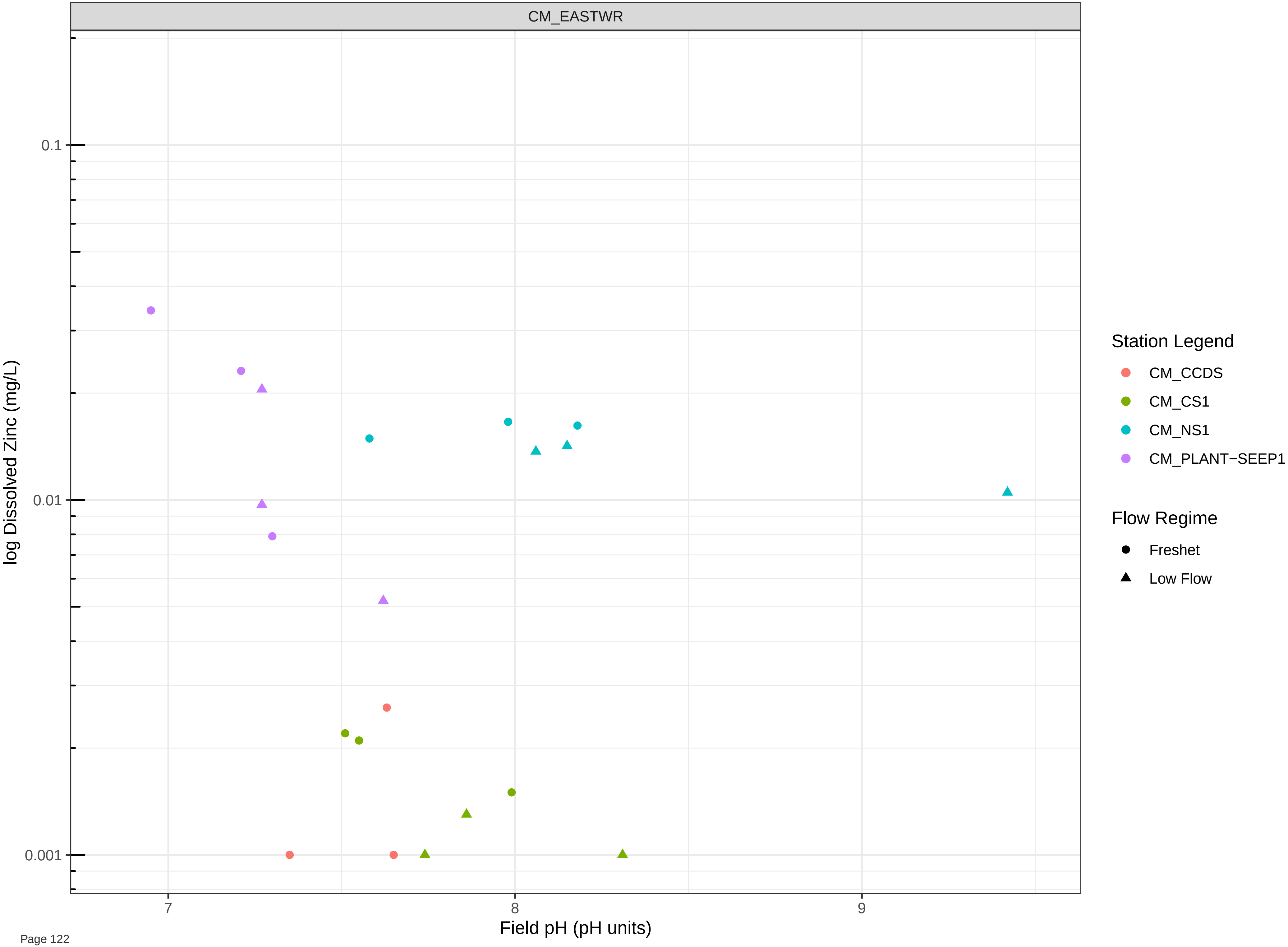
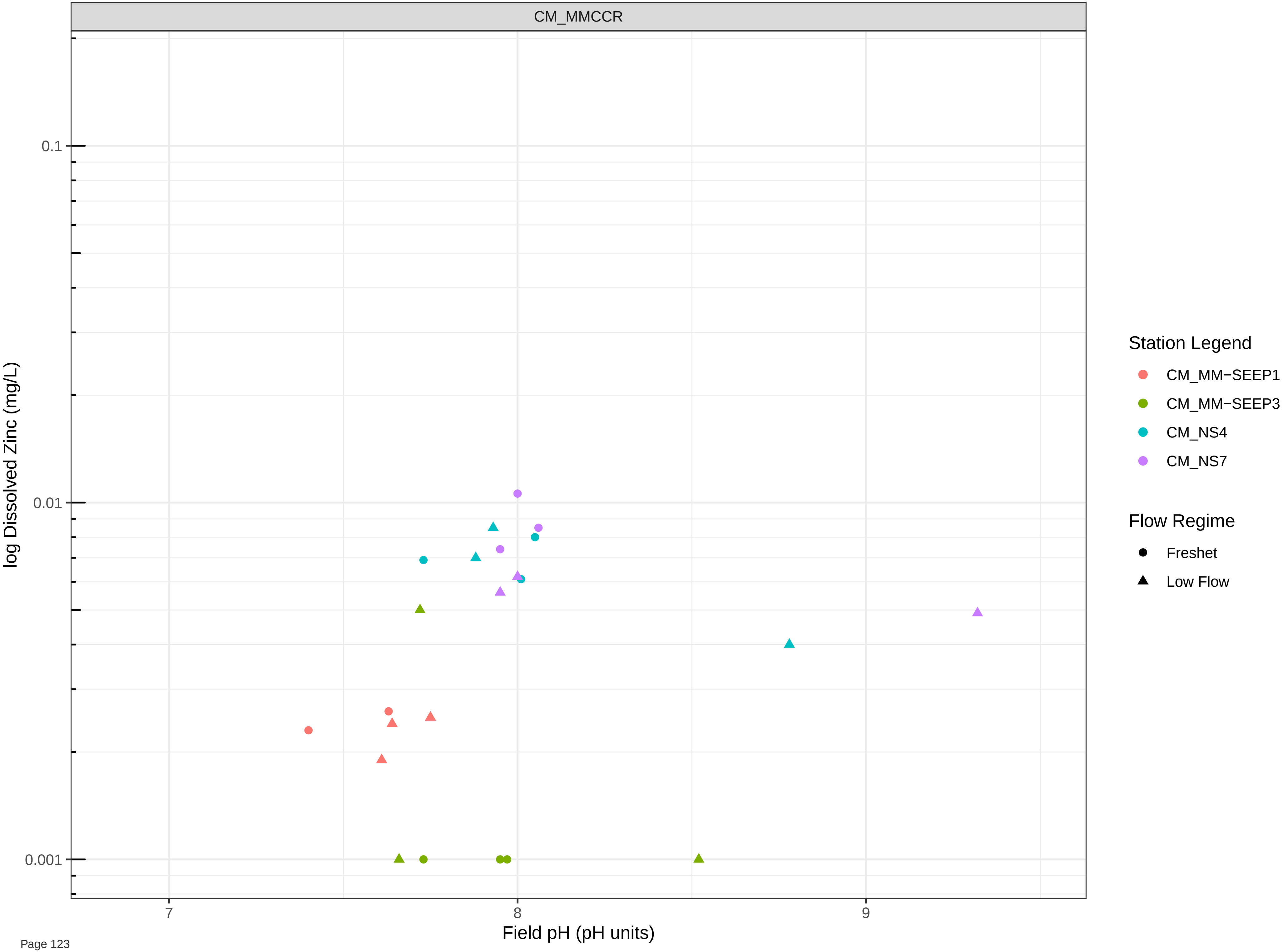
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

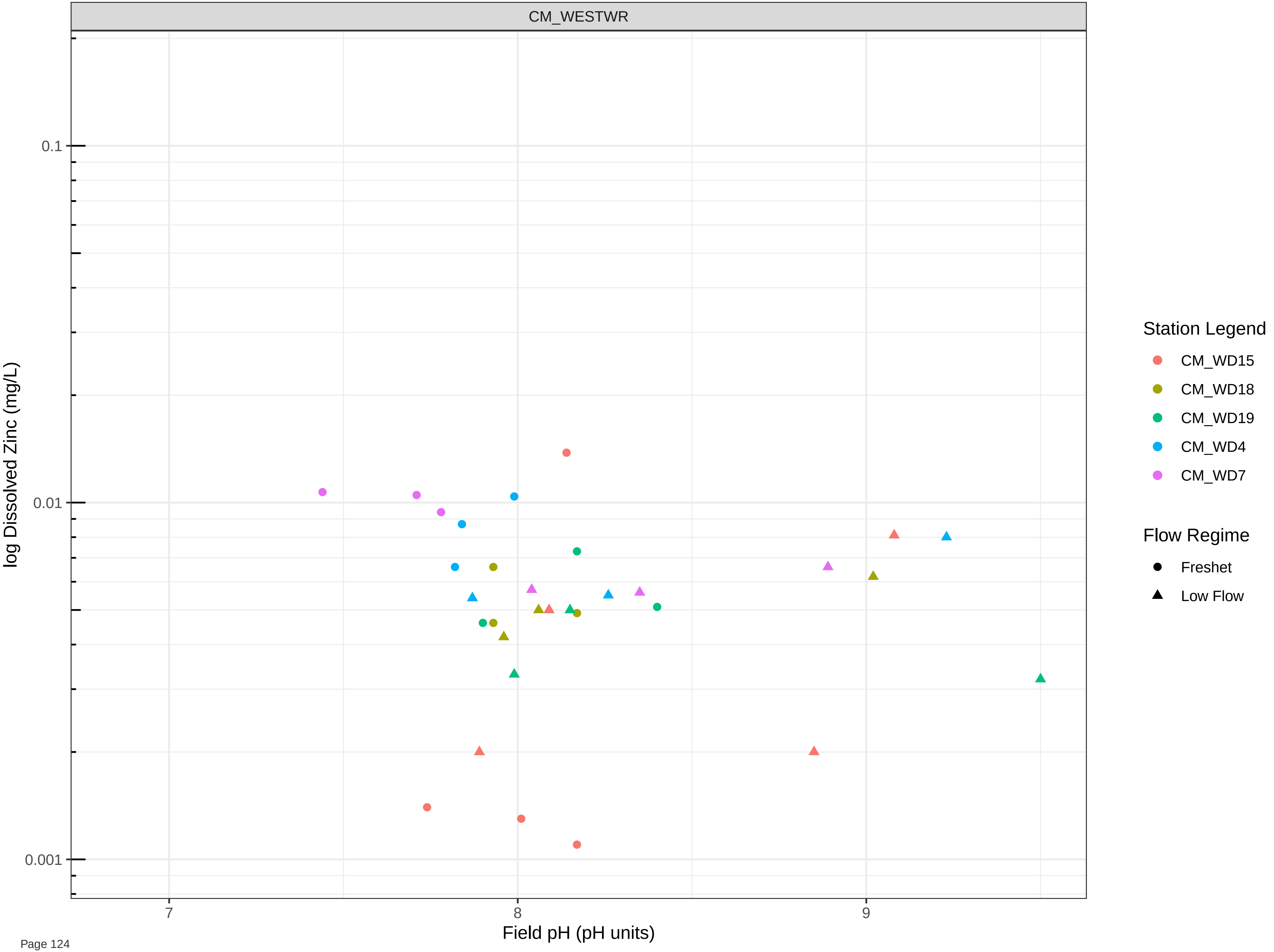

CM_MMCCR
log Dissolved Vanadium (mg/L)
0.001
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

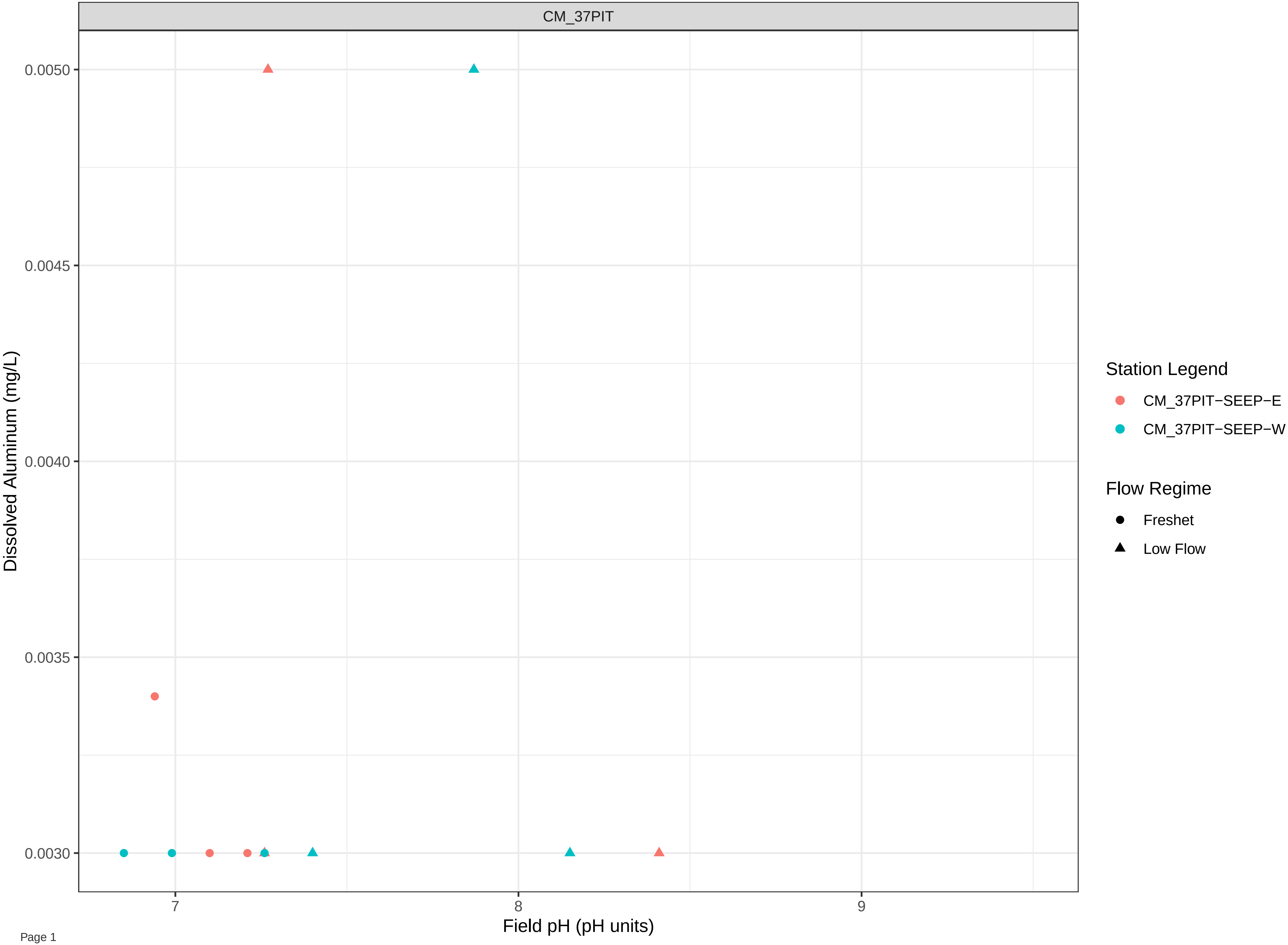

CM_WESTWR
log Dissolved Vanadium (mg/L)
0.001
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

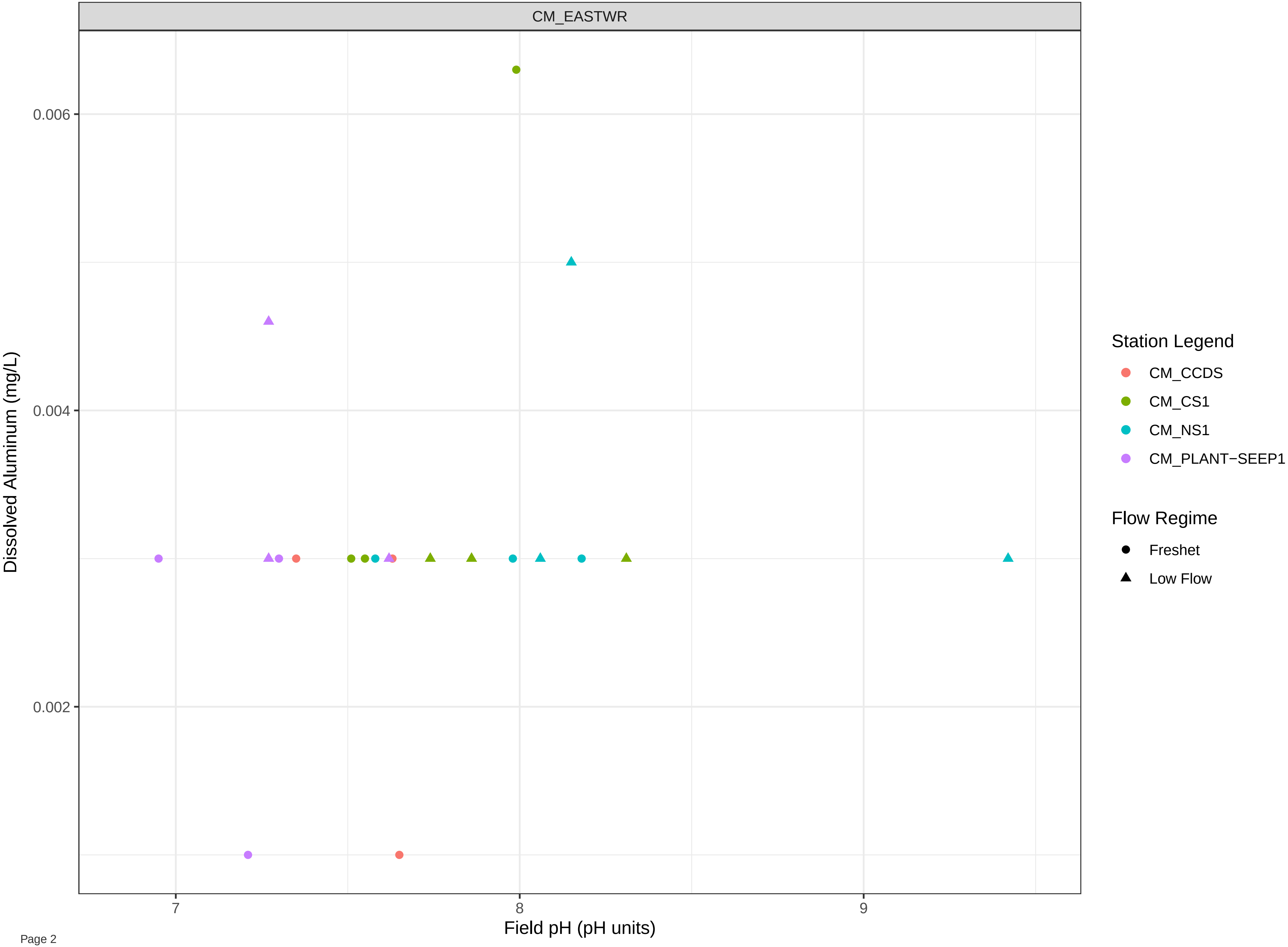

CM_37PIT
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
7
8
9
Field pH (pH units)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

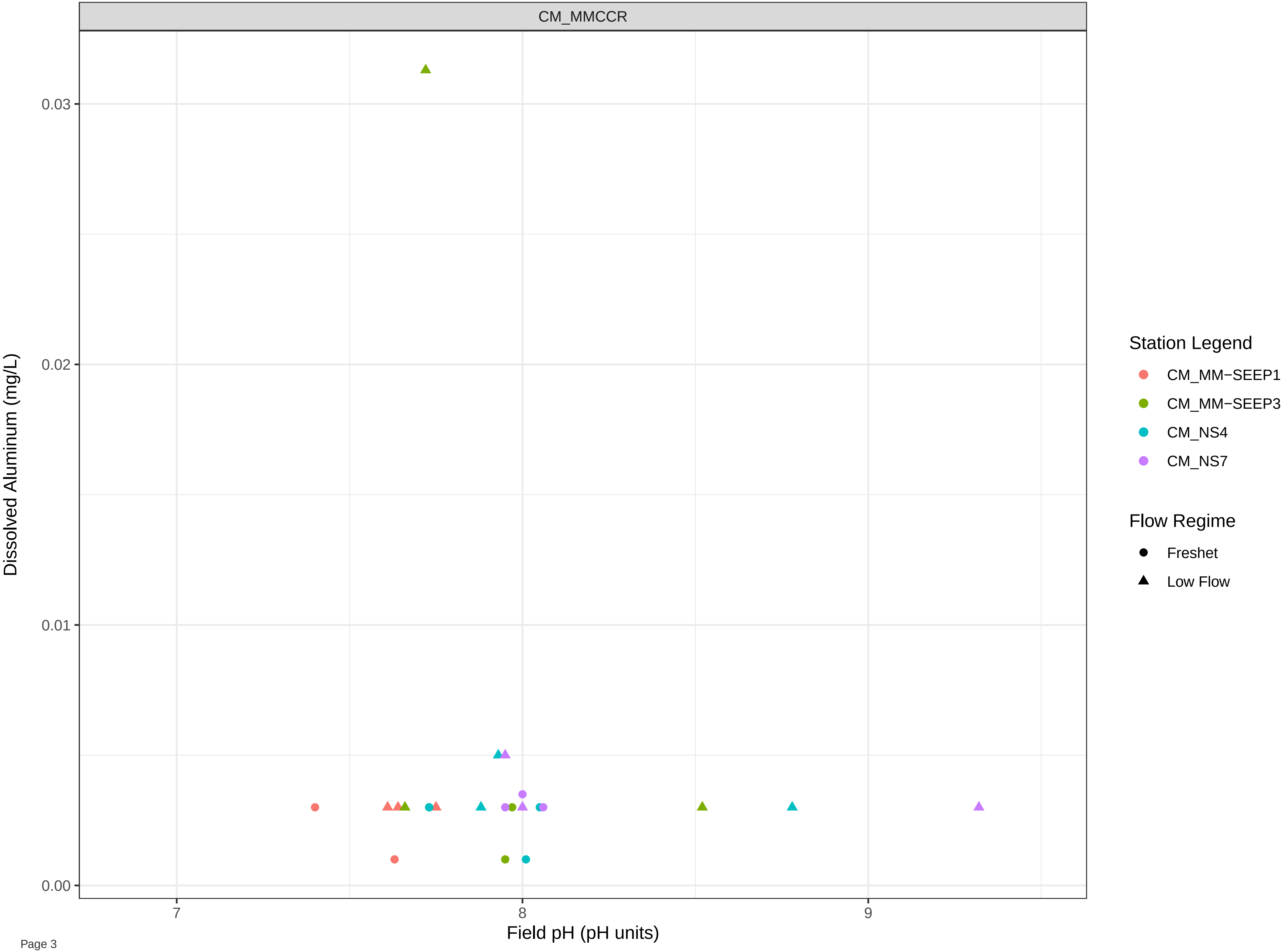

CM_EASTWR
0.1
0.01
0.001
7
8
9
Field pH (pH units)
log Dissolved Zinc (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

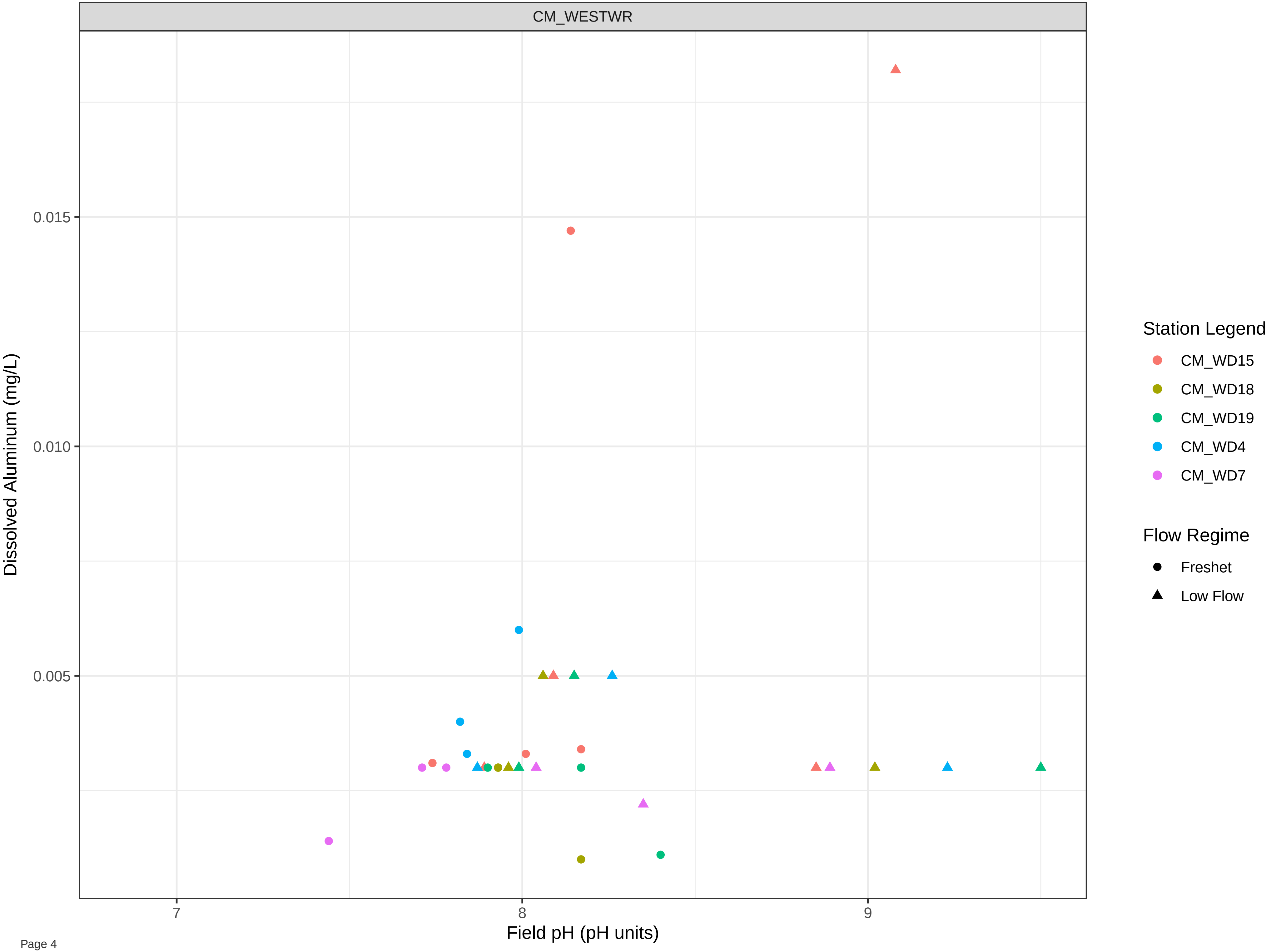

CM_MMCCR
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
Field pH (pH units)
7
8
9
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow


CM_WESTWR
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow


CM_37PIT
Dissolved Aluminum (mg/L)
0.0050
0.0045
0.0040
0.0035
0.0030
7
8
9
Field pH (pH units)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow


CM_EASTWR
Dissolved Aluminum (mg/L)
0.006
0.004
0.002
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow


CM_MMCCR
Dissolved Aluminum (mg/L)
0.03
0.02
0.01
0.00
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow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Dissolved Aluminum (mg/L)
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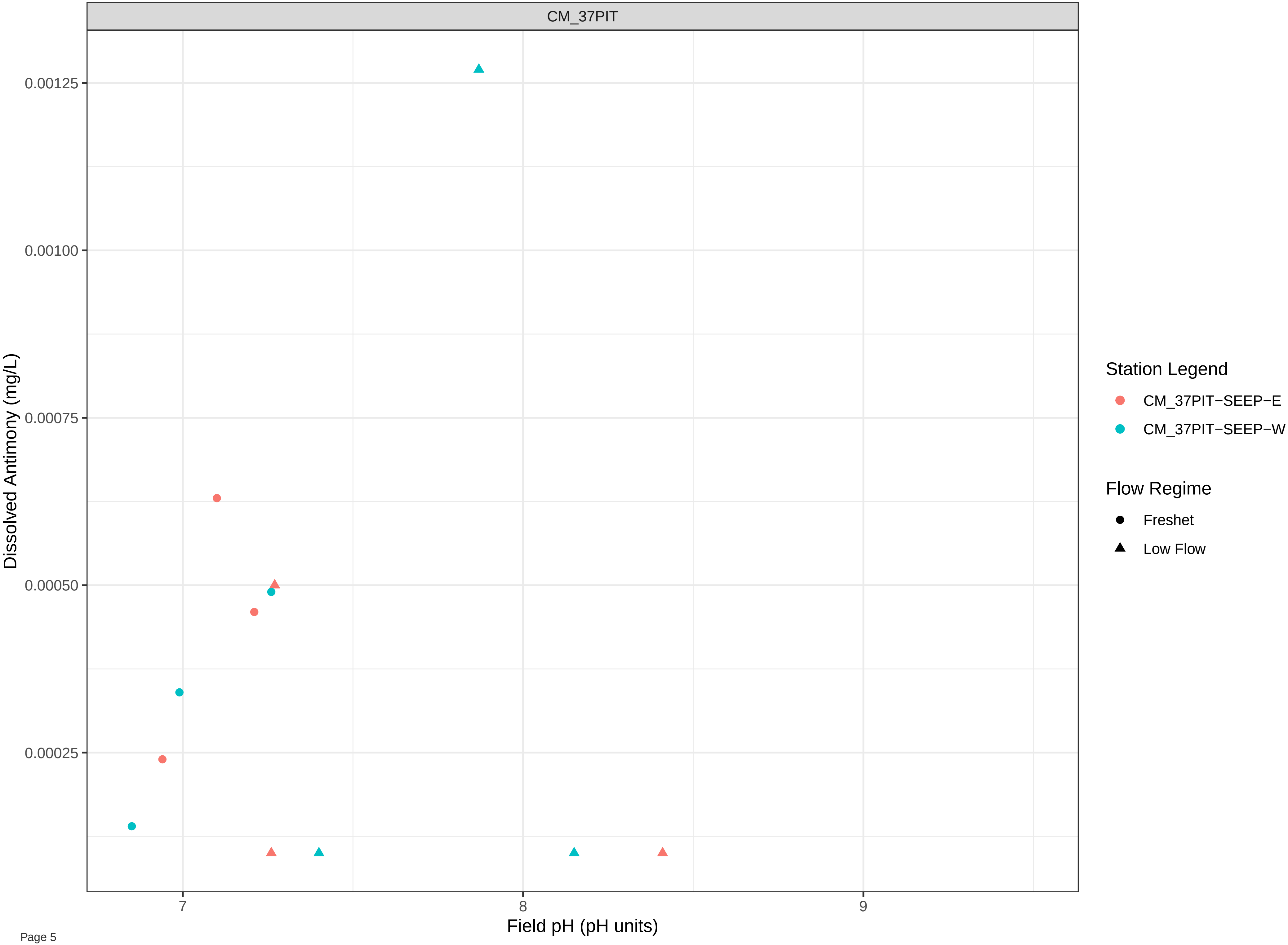
0.010
0.005
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow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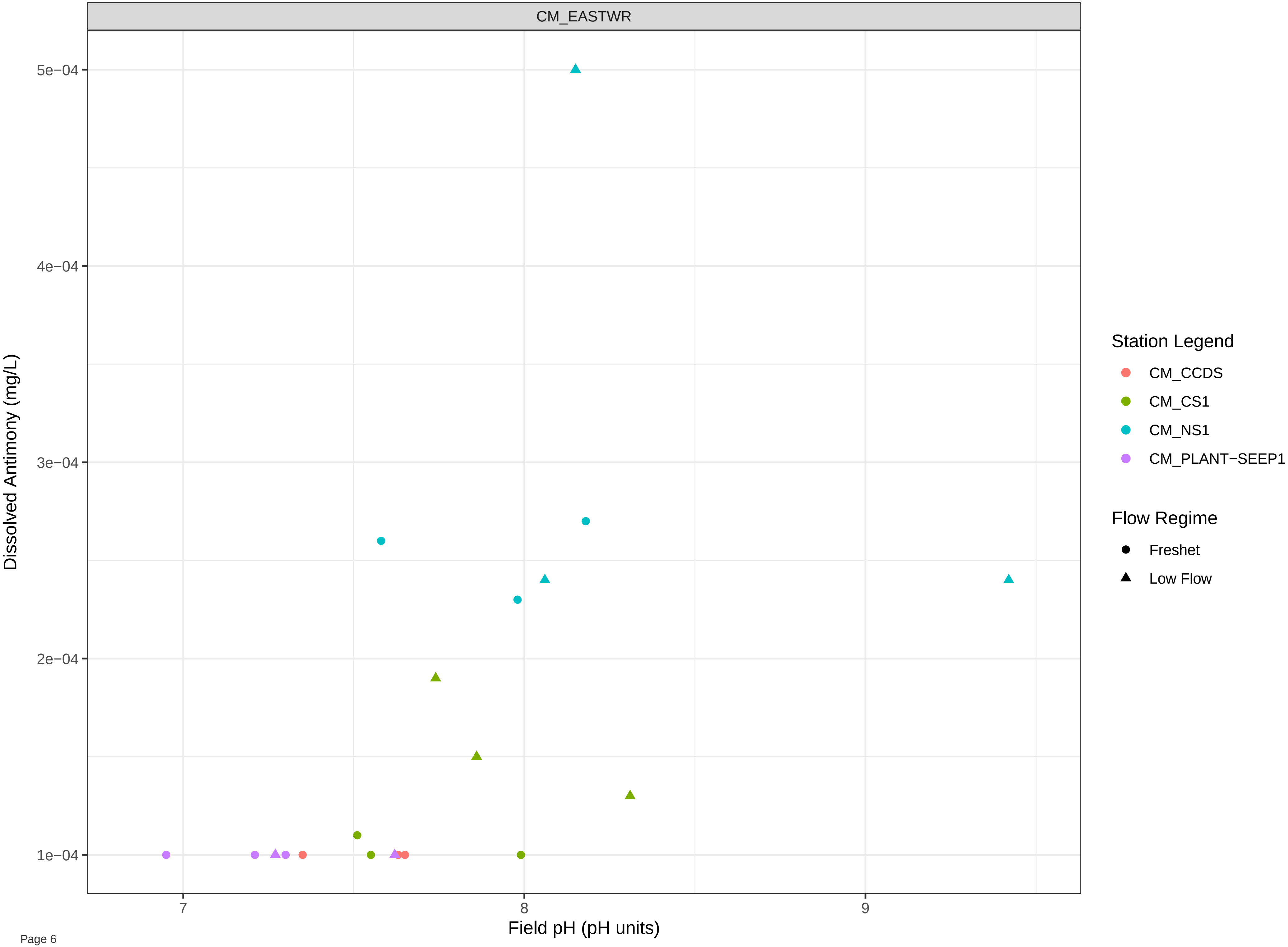
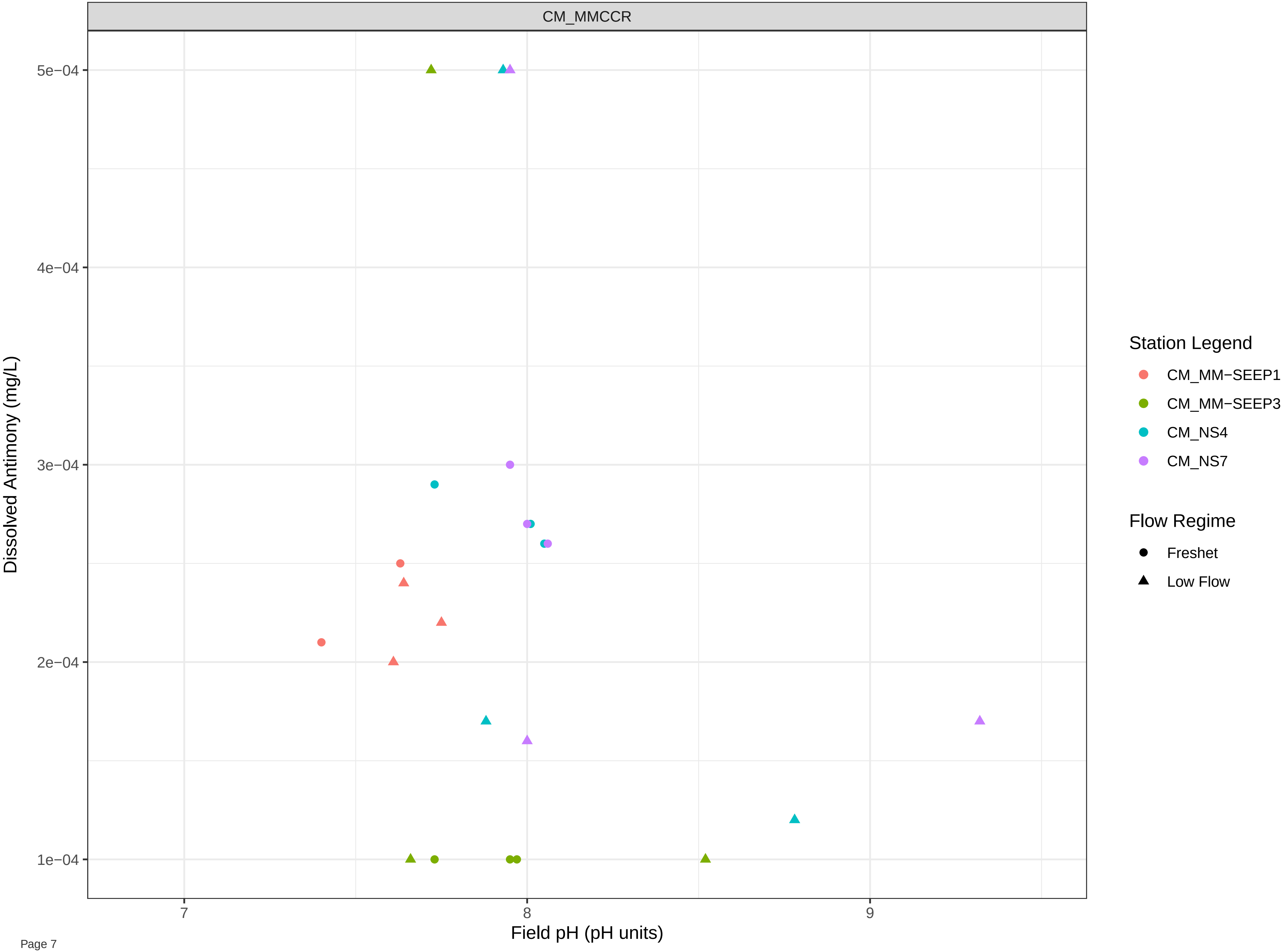
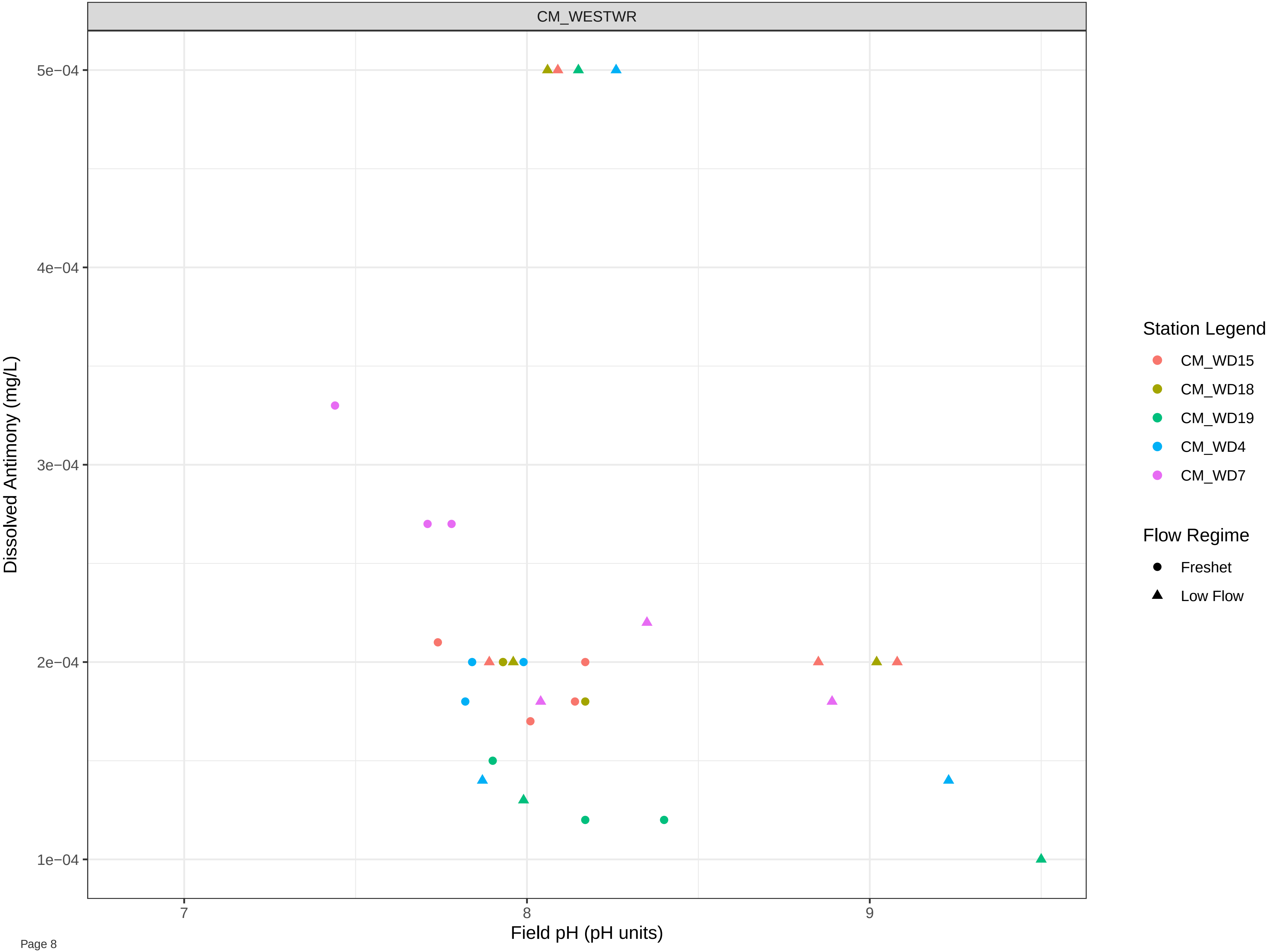
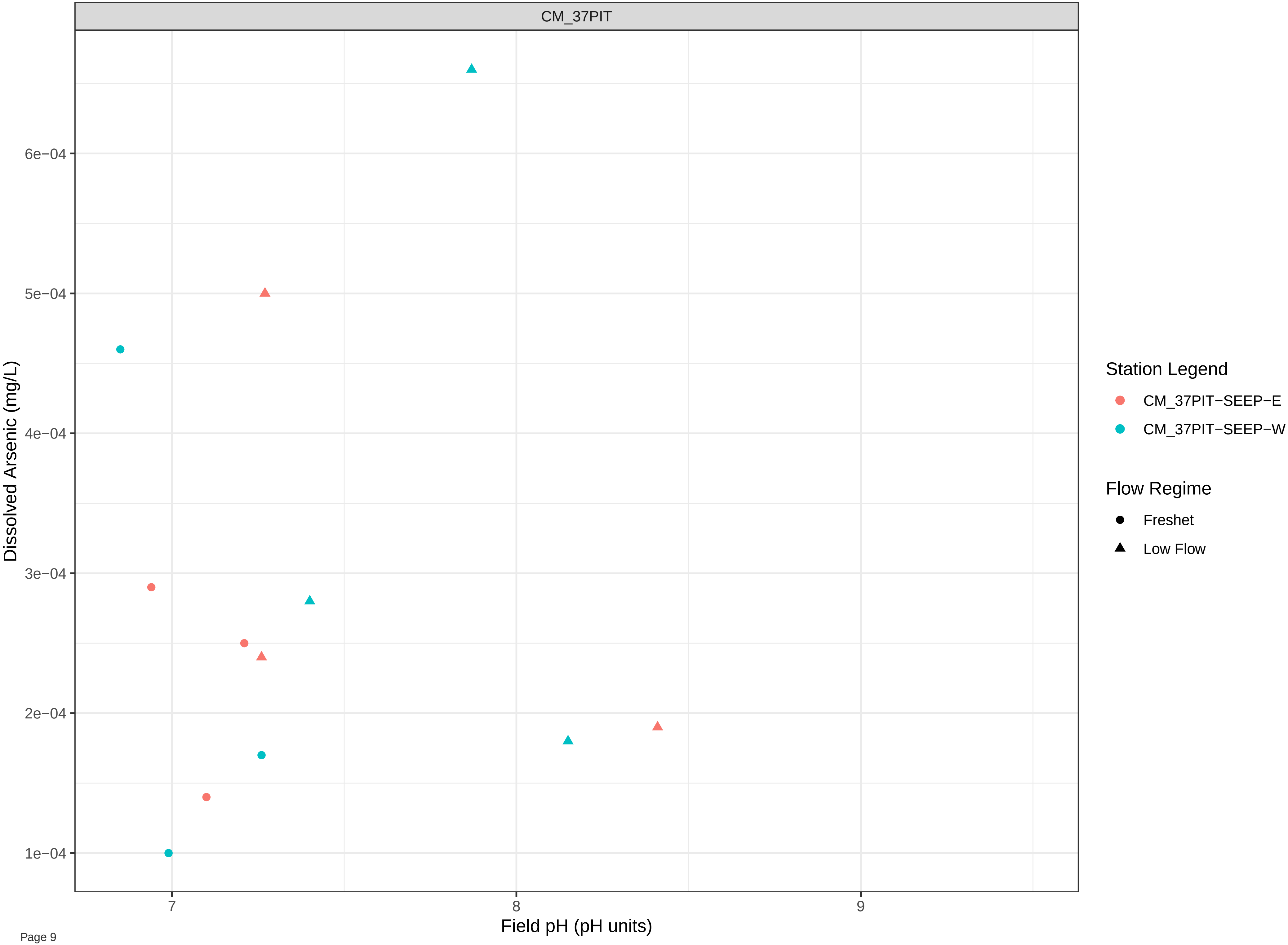
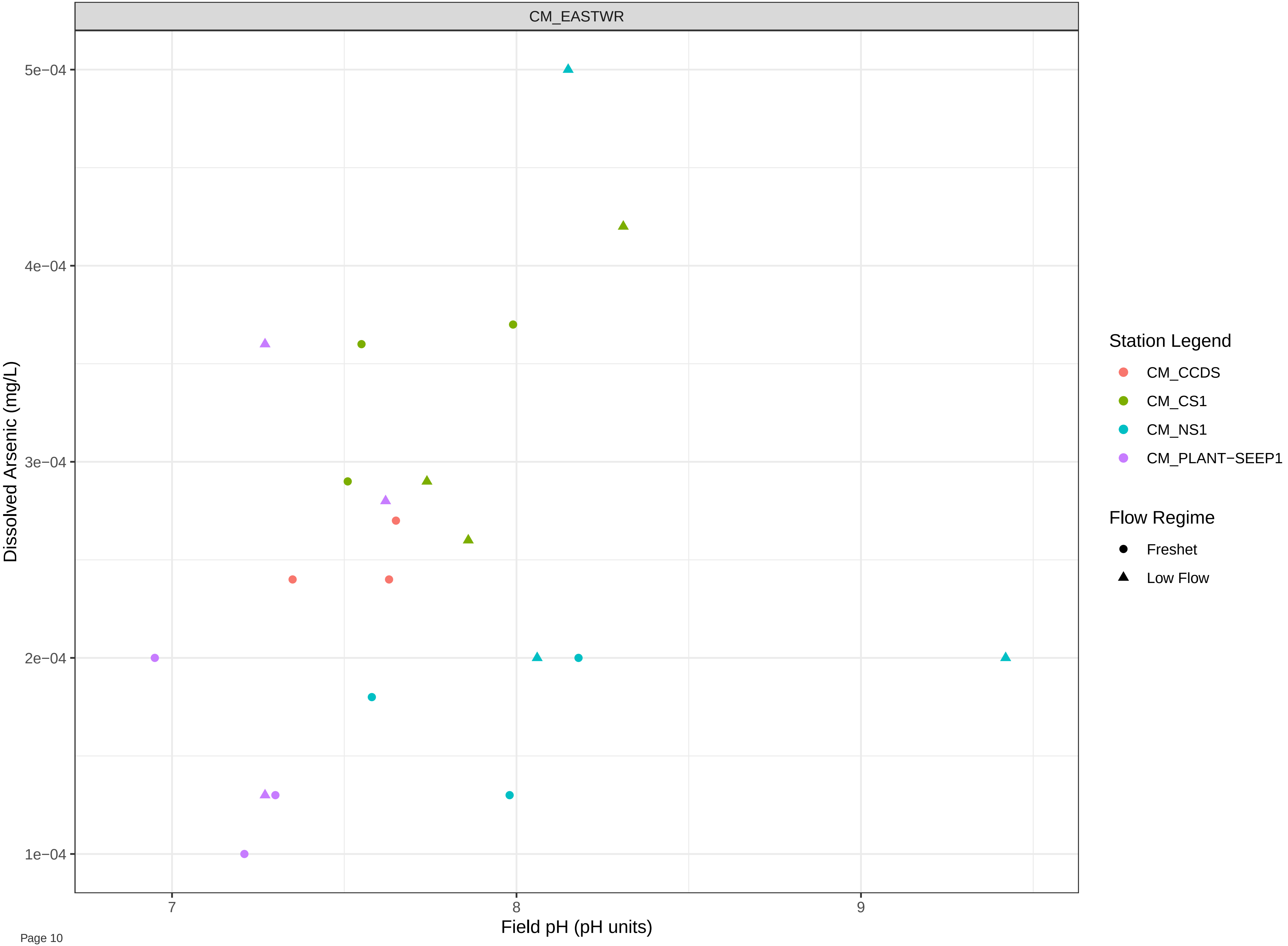
Dissolved Antimony (mg/L)
0.00125
0.00100
0.00075
0.00050
0.00025
Field pH (pH units)
7
8
9
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

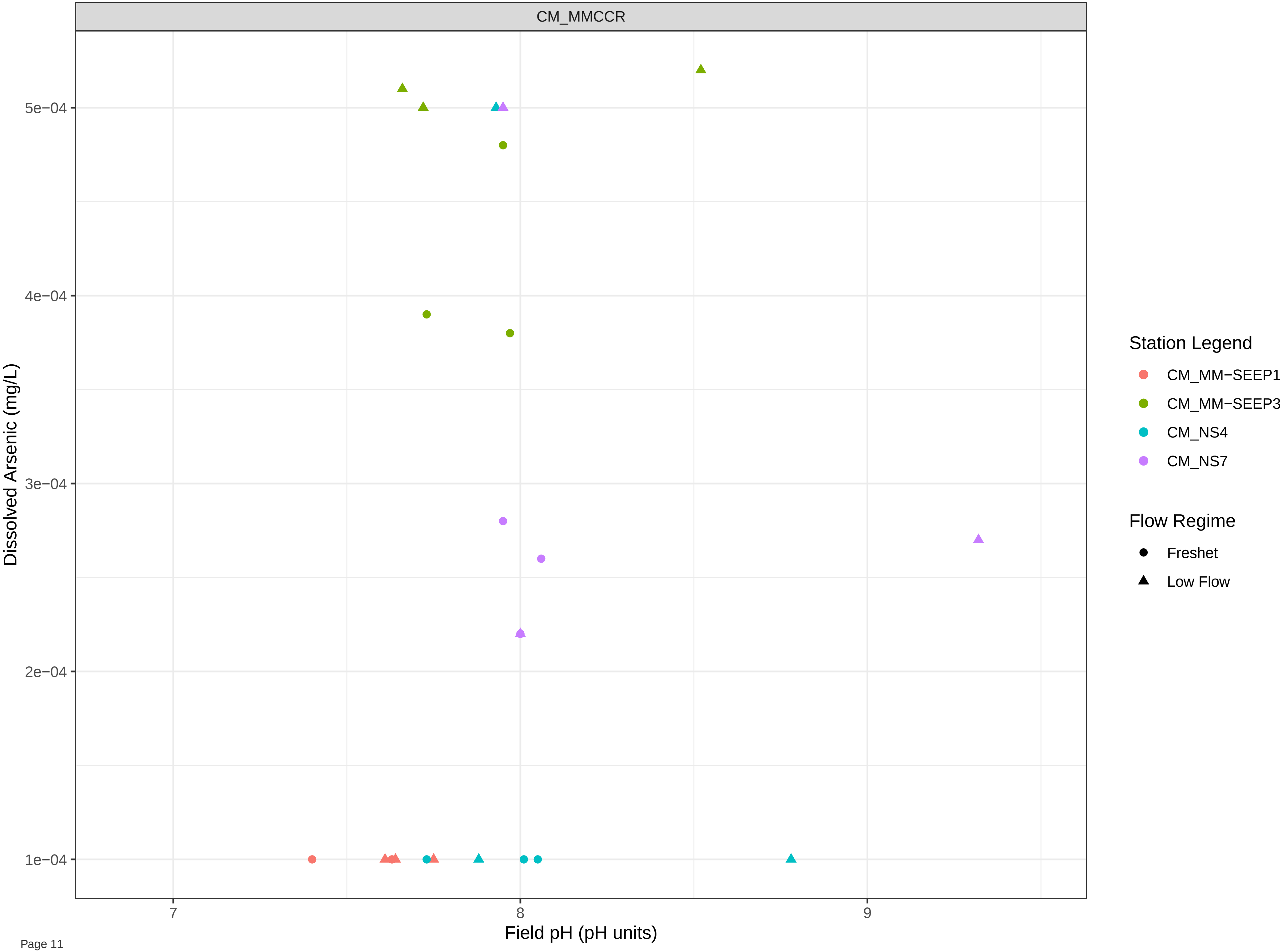

CM_EASTWR
Dissolved Antimony (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

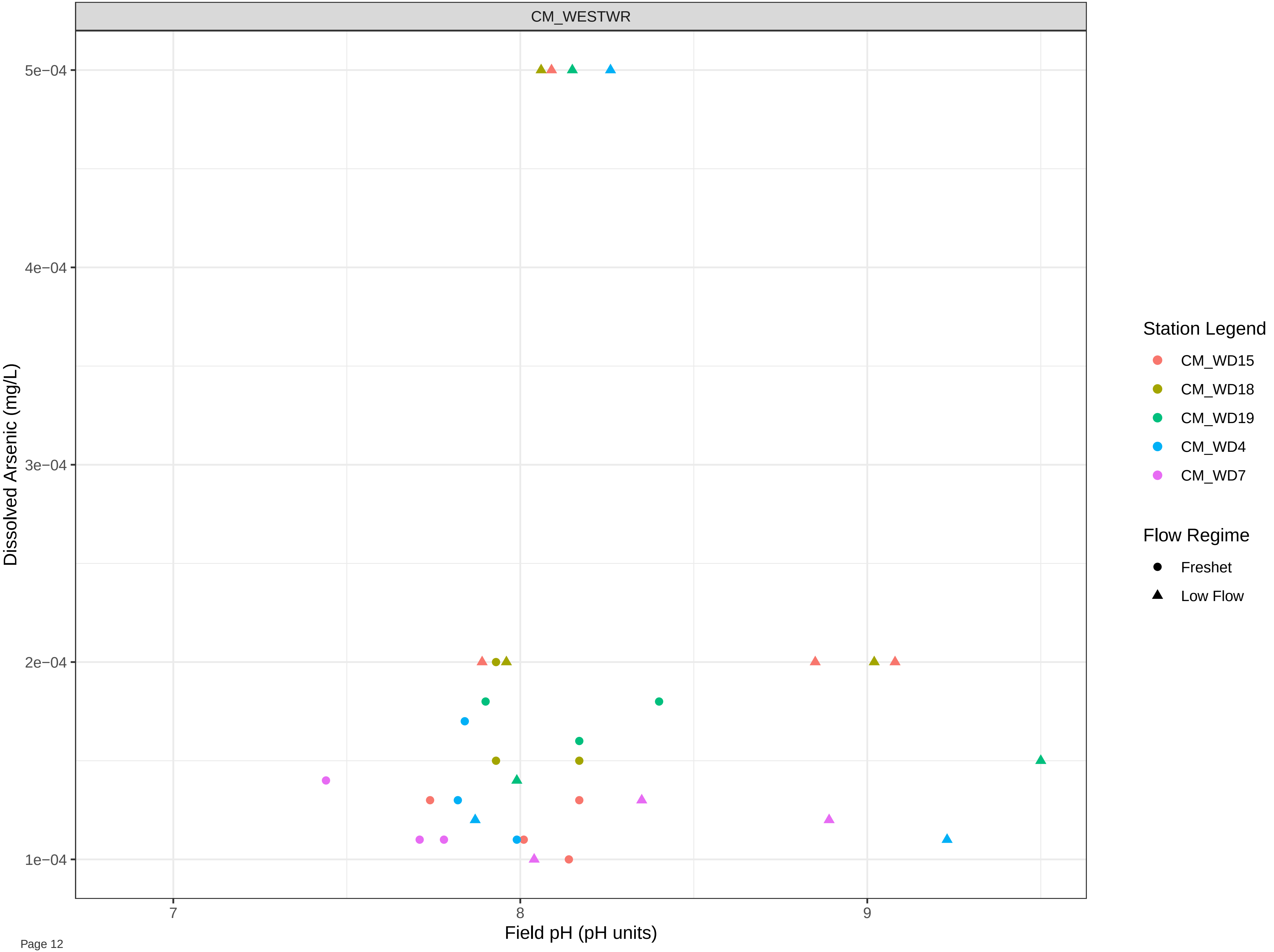

CM_MMCCR
Dissolved Antimony (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

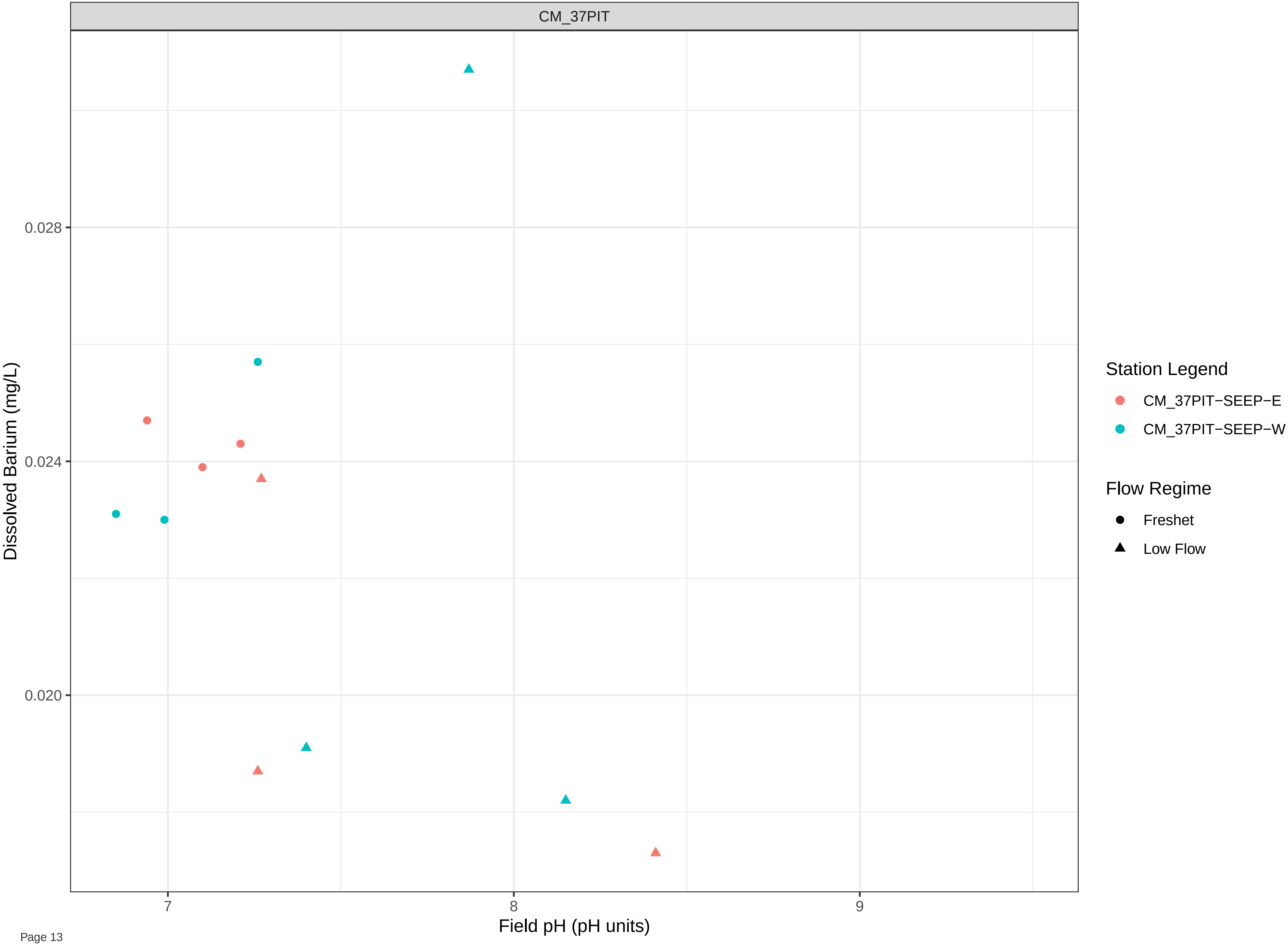

CM_WESTWR
Dissolved Antimony (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

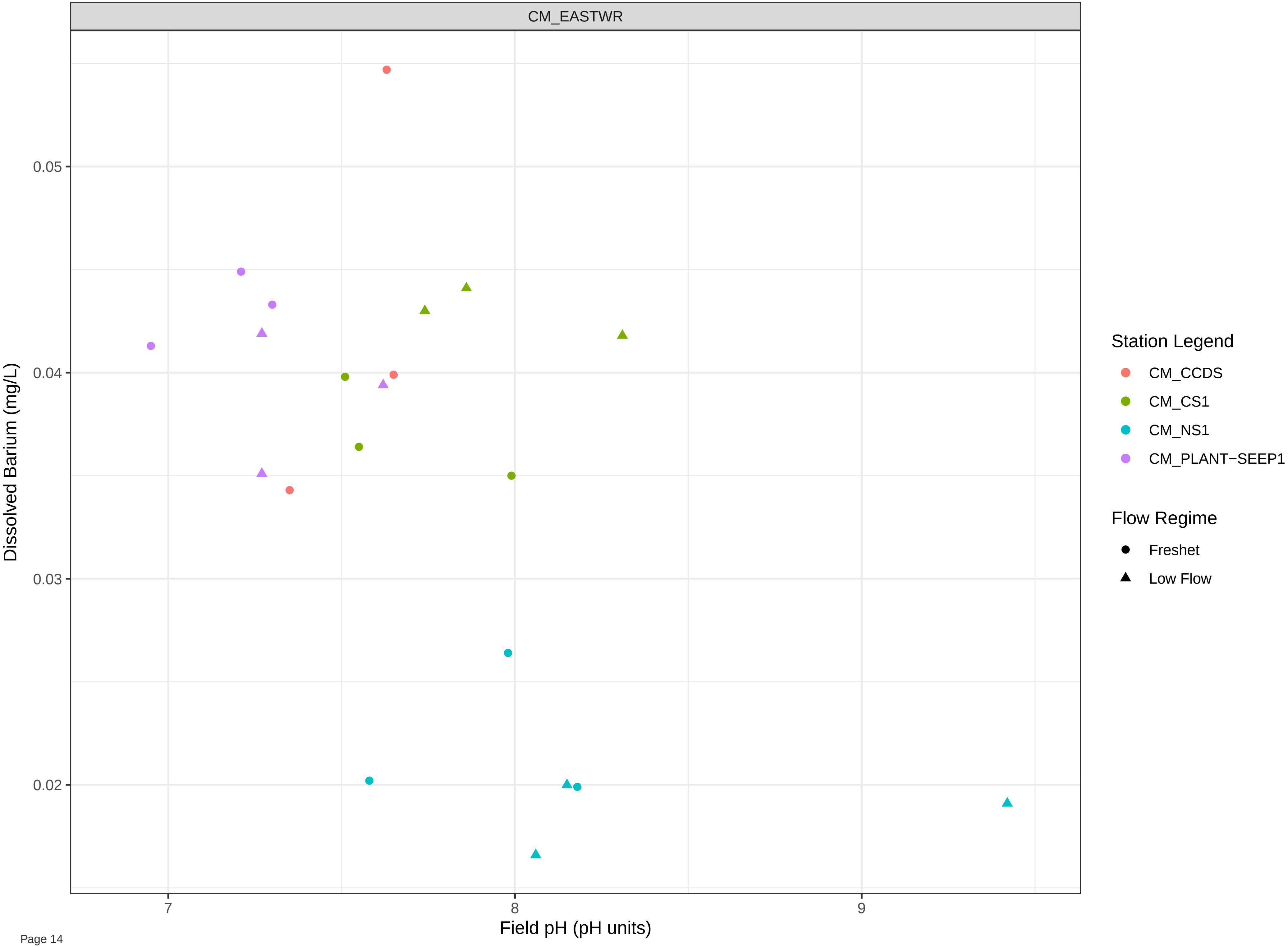

CM_37PIT
Dissolved Arsenic (mg/L)
6e−04
5e−04
4e−04
3e−04
2e−04
1e−04
7
8
9
Field pH (pH units)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

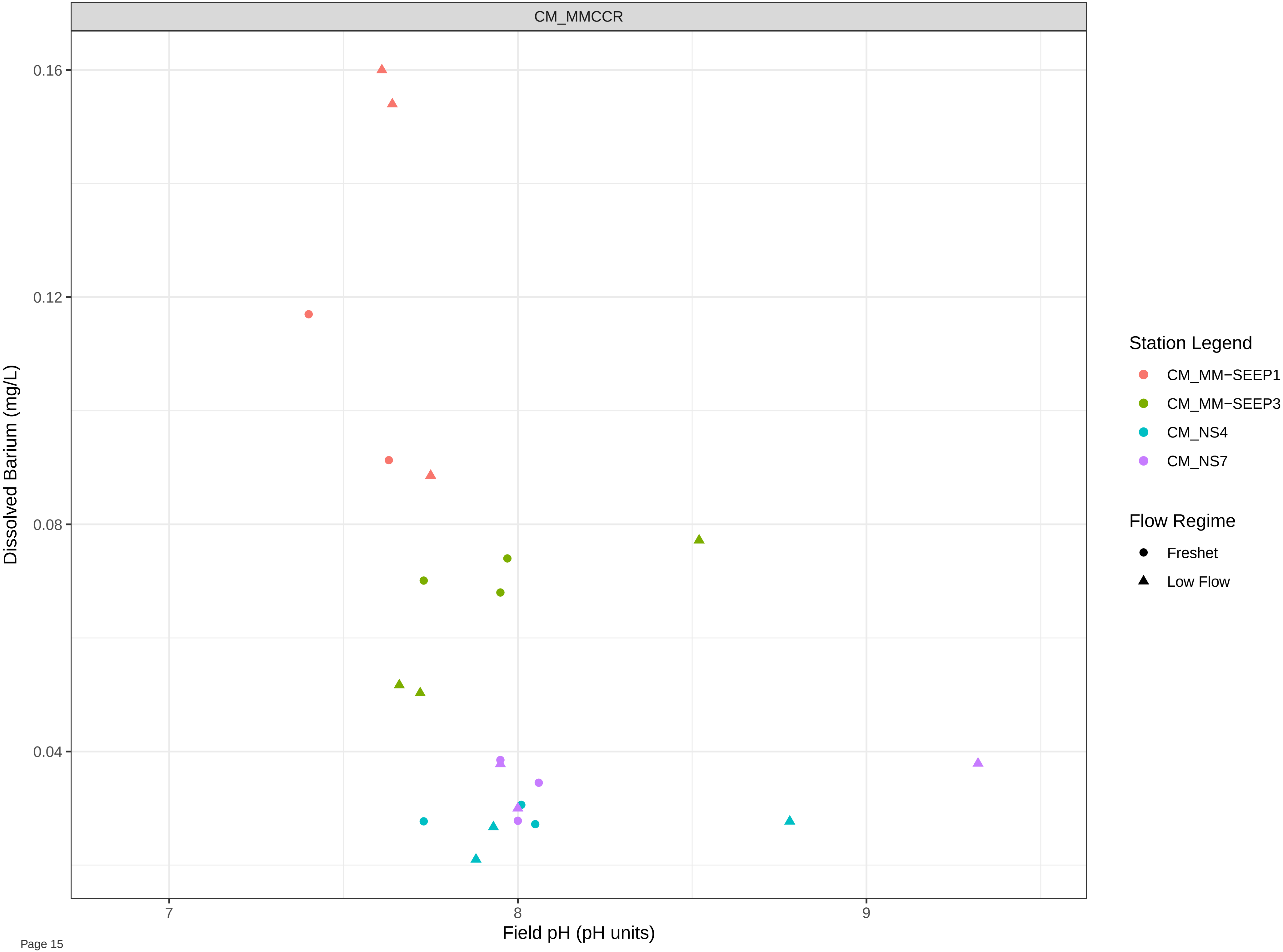

CM_EASTWR
Dissolved Arsenic (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
Field pH (pH units)
7
8
9
Station Legend
● CM_CCDS
● CM_CS1
● CM_NS1
● CM_PLANT−SEEP1
Flow Regime
● Freshet
▲ Low Flow

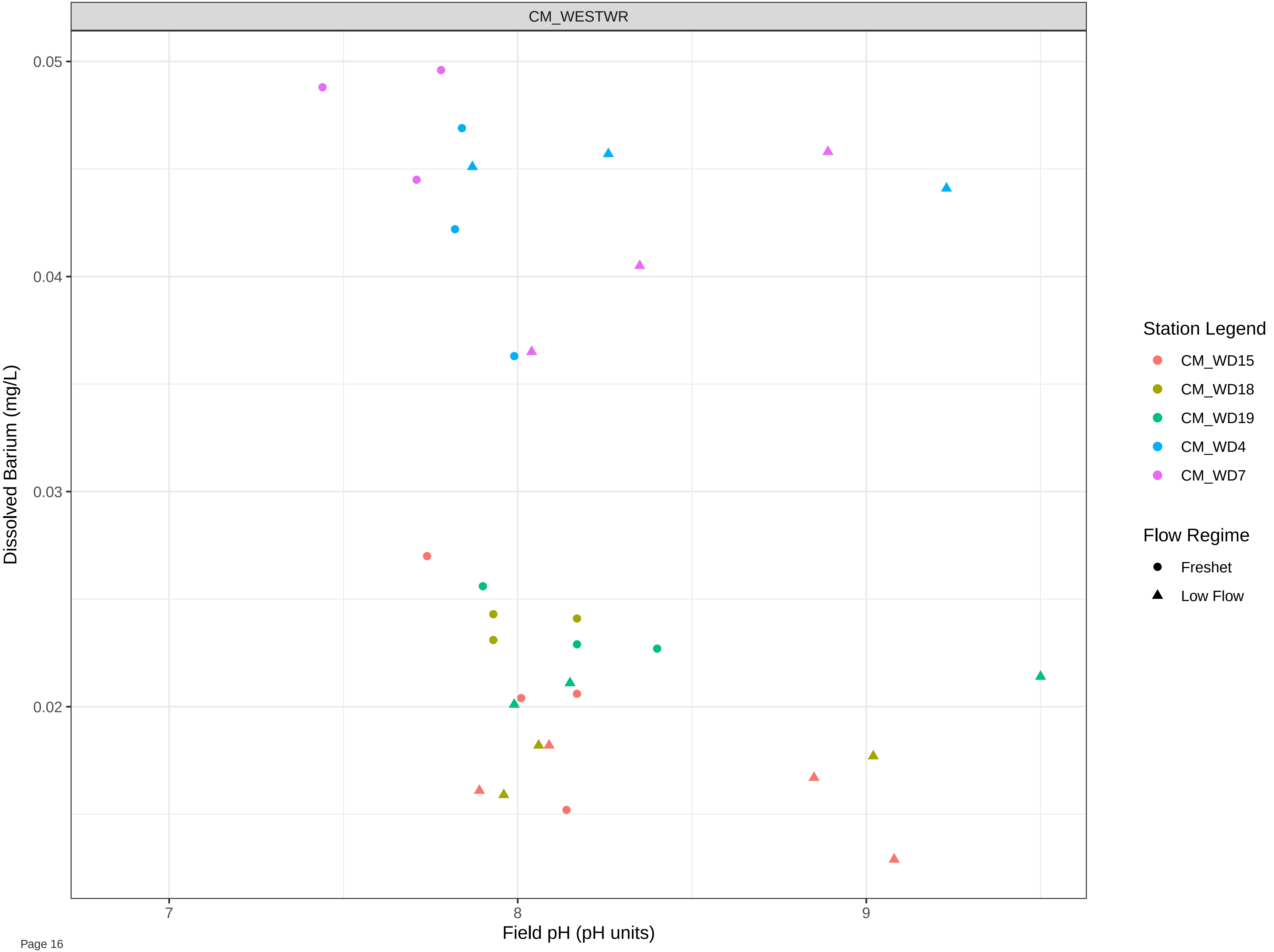

CM_MMCCR
Dissolved Arsenic (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

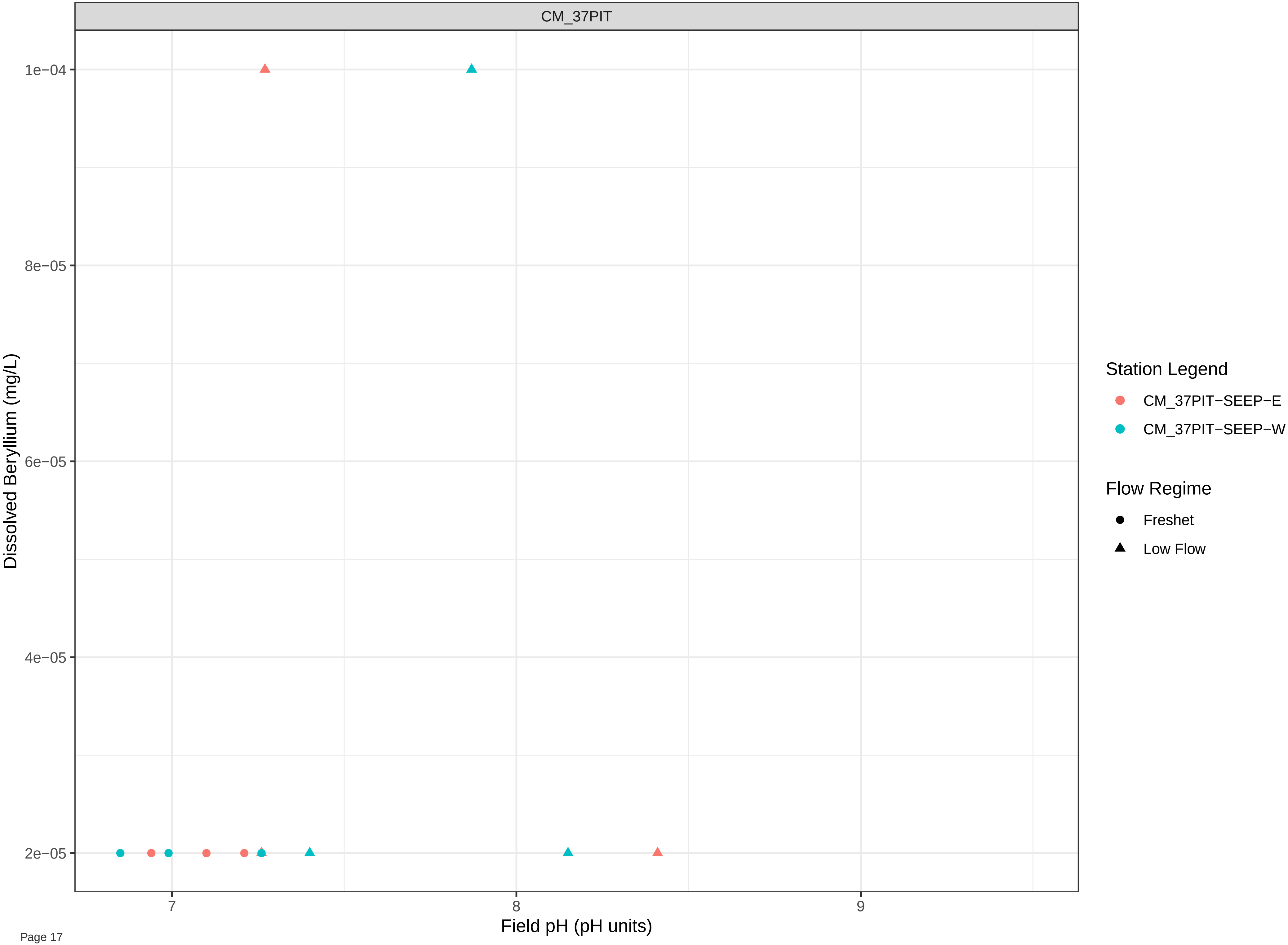

CM_WESTWR
Dissolved Arsenic (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
Field pH (pH units)
7
8
9
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

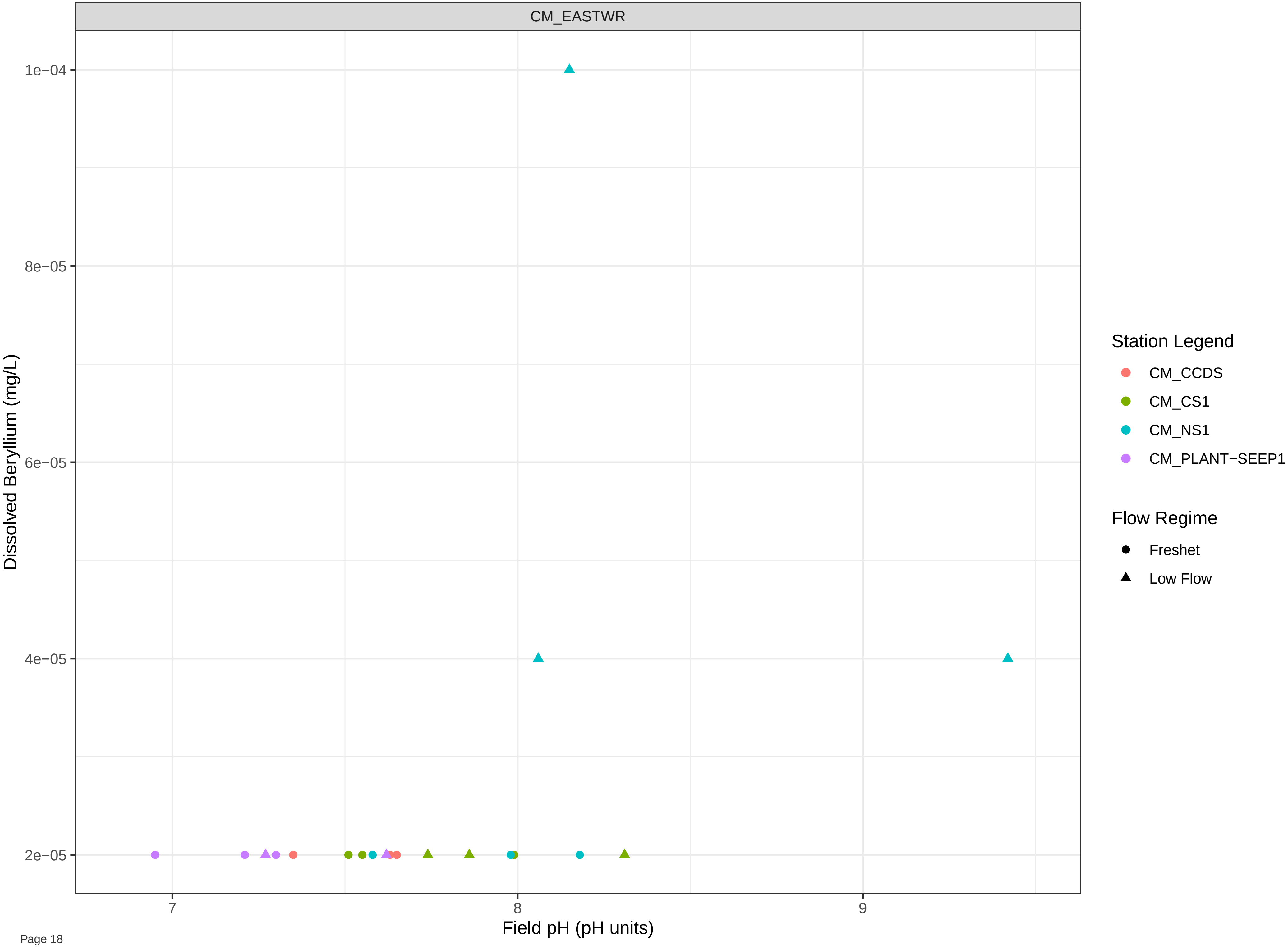

CM_37PIT
Dissolved Barium (mg/L)
0.028
0.024
0.020
7
8
9
Field pH (pH units)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

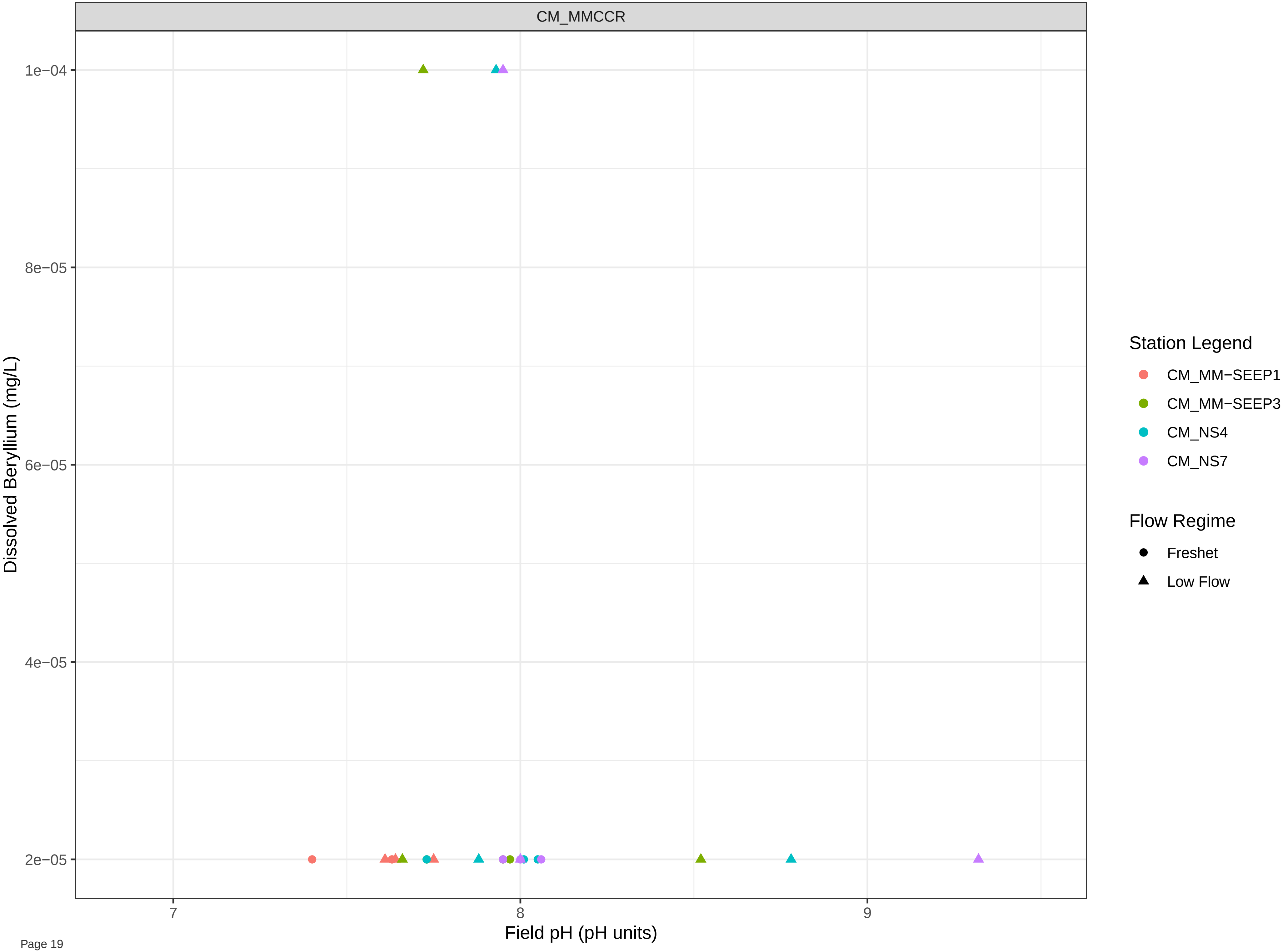

CM_EASTWR
Dissolved Barium (mg/L)
0.05
0.04
0.03
0.02
Field pH (pH units)
7
8
9
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

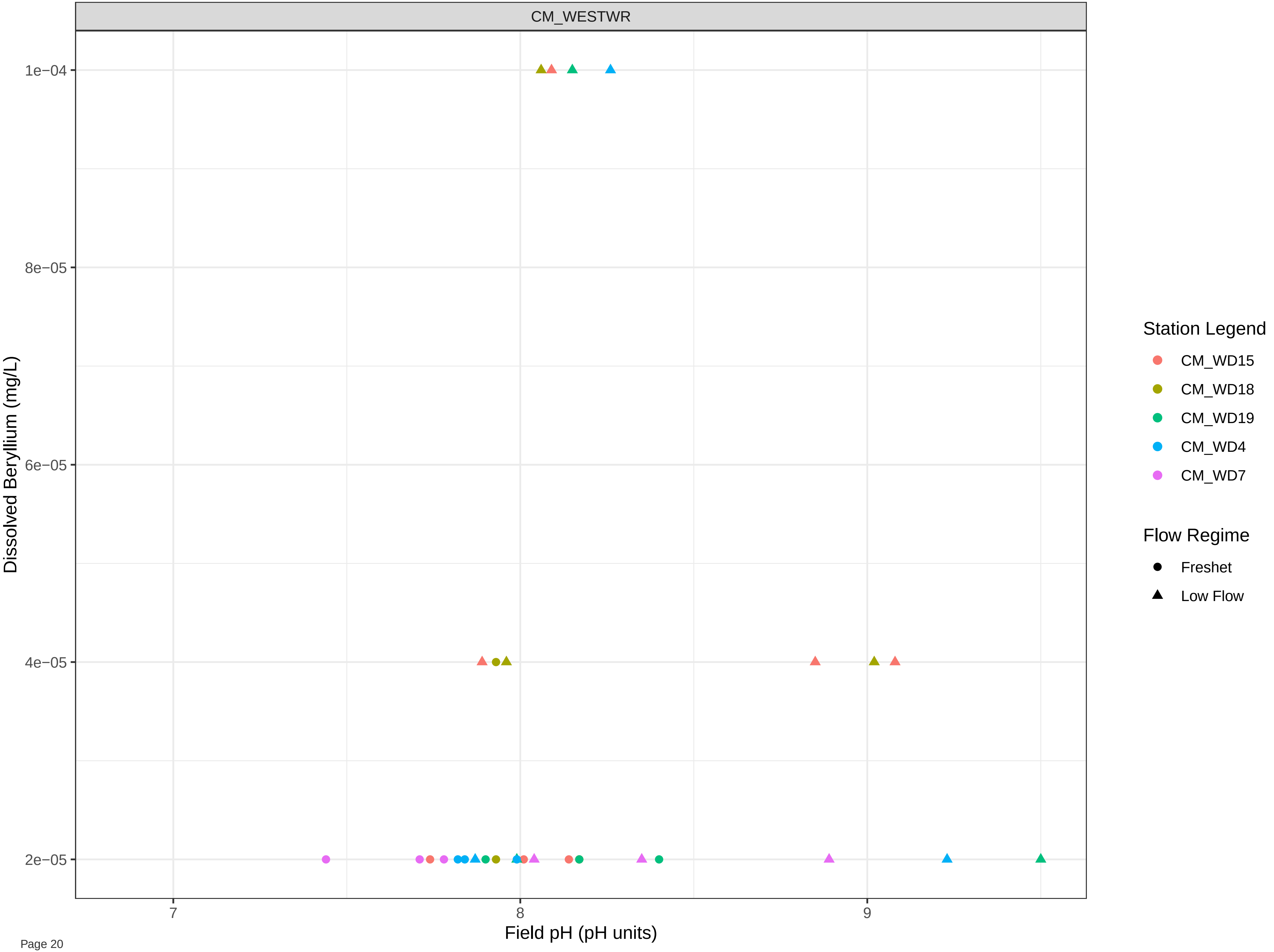

CM_MMCCR
Dissolved Barium (mg/L)
0.16
0.12
0.08
0.04
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

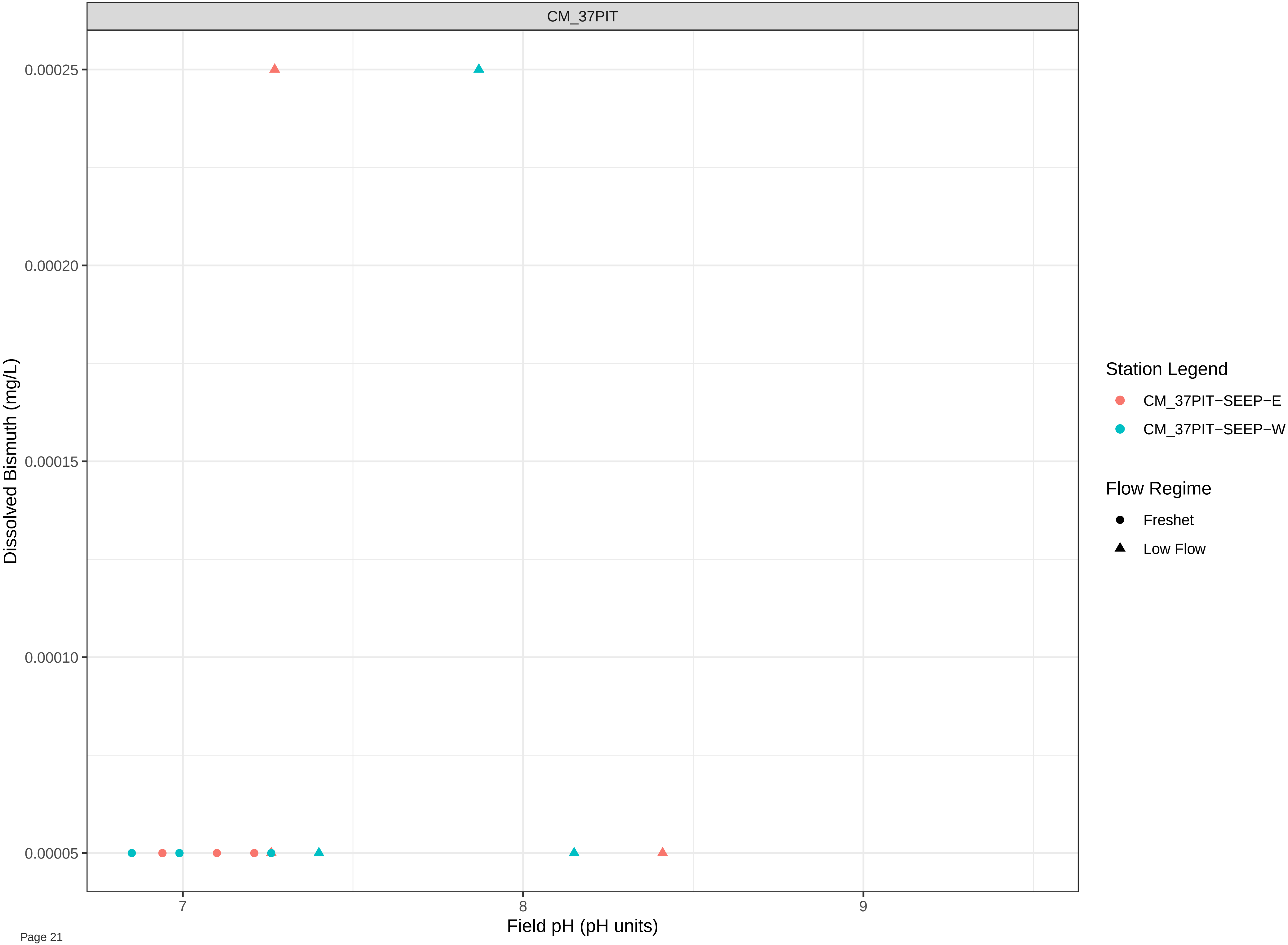

CM_WESTWR
0.05
0.04
0.03
0.02
Dissolved Barium (mg/L)
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

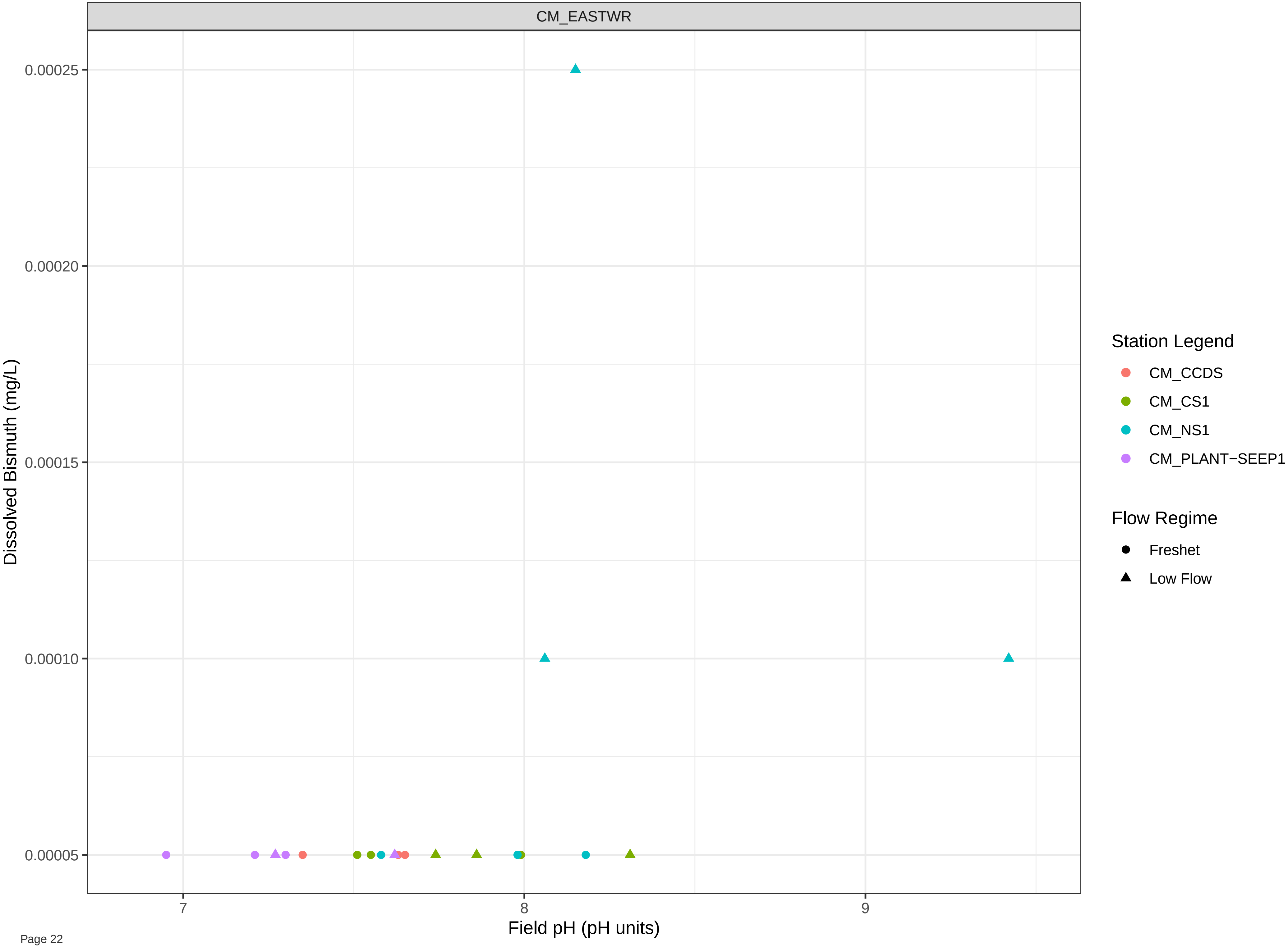

CM_37PIT
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
7
8
9
Field pH (pH units)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

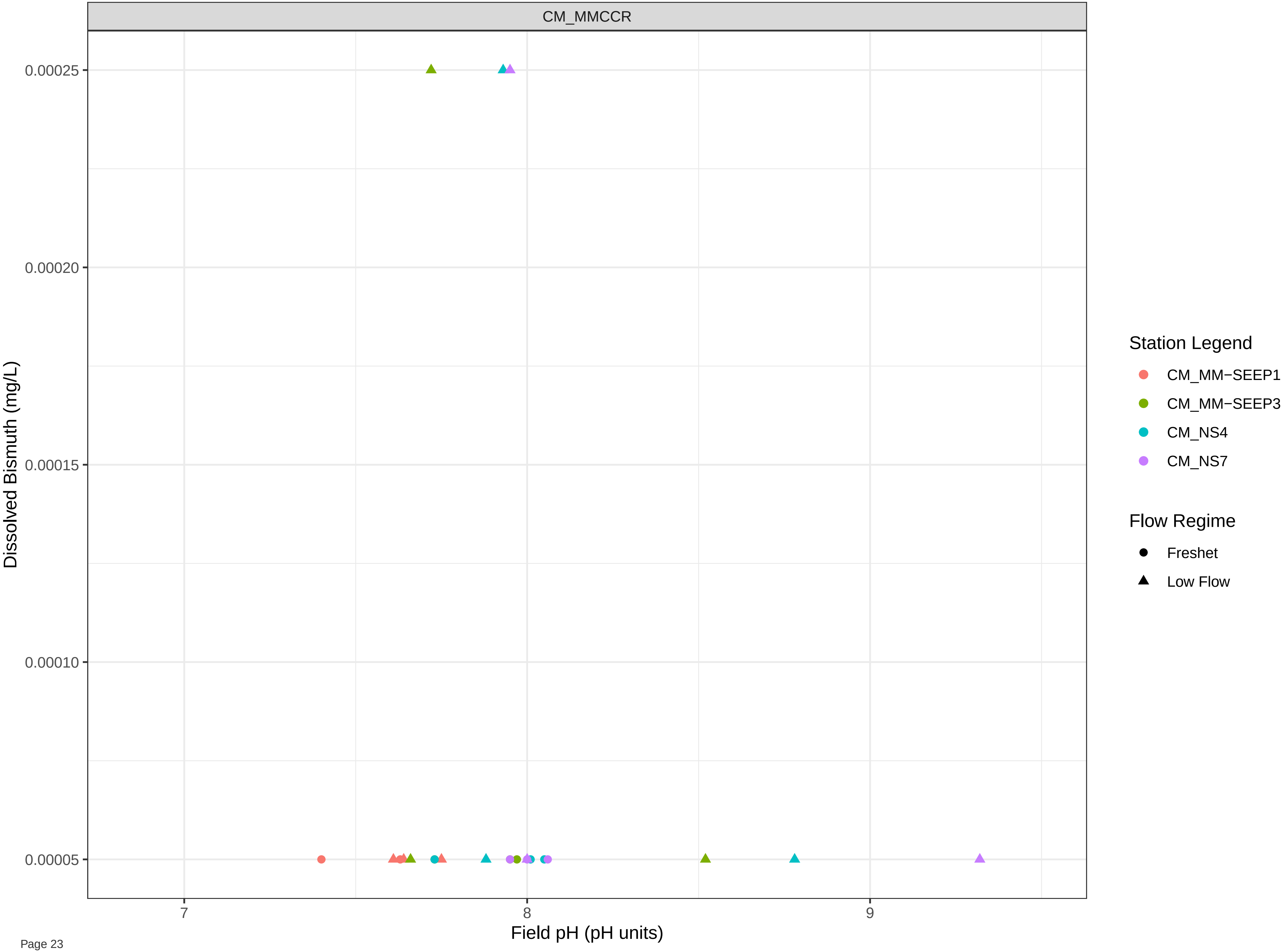

CM_EASTWR
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

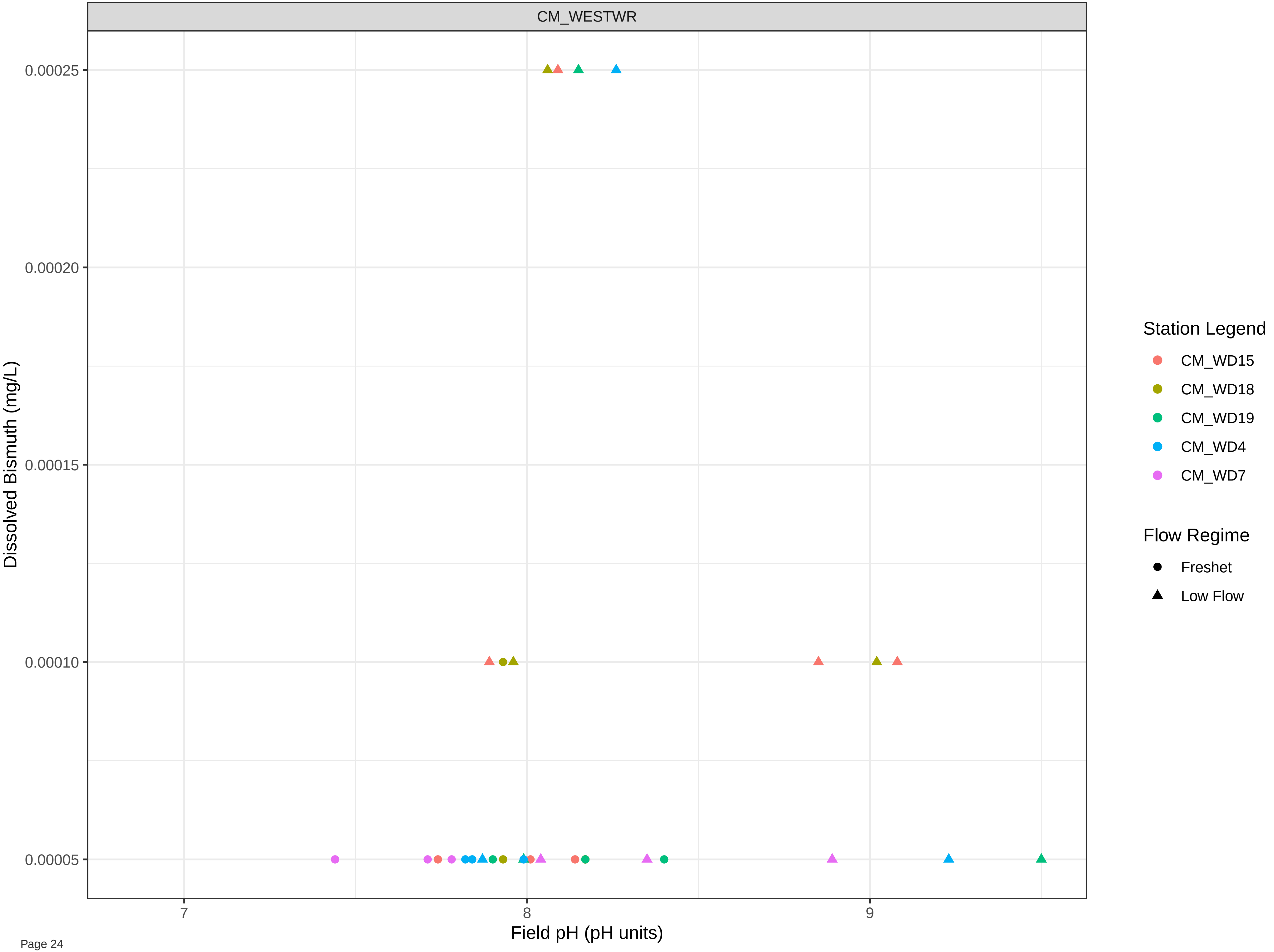

CM_MMCCR
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

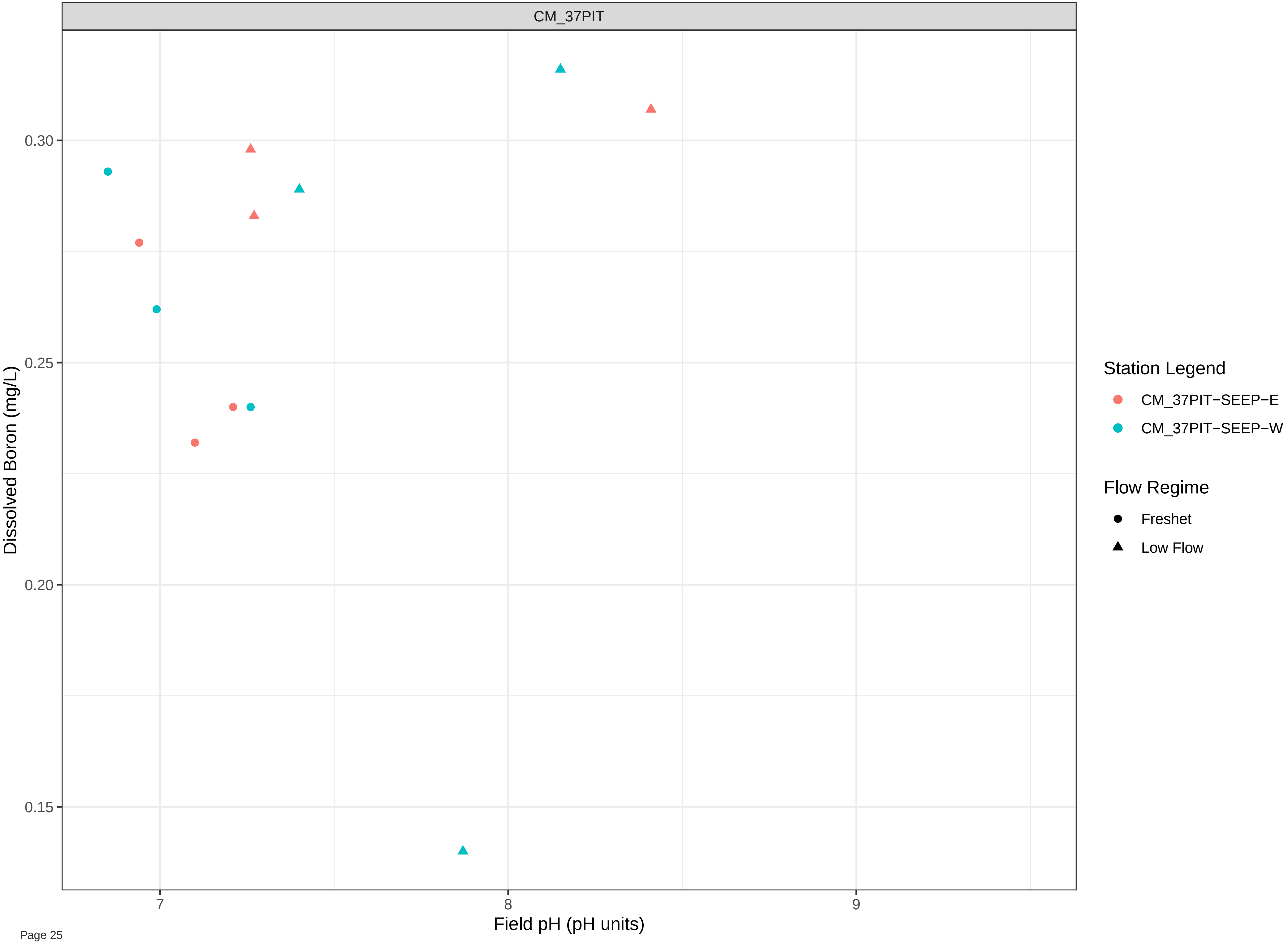

CM_WESTWR
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
Field pH (pH units)
7
8
9
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

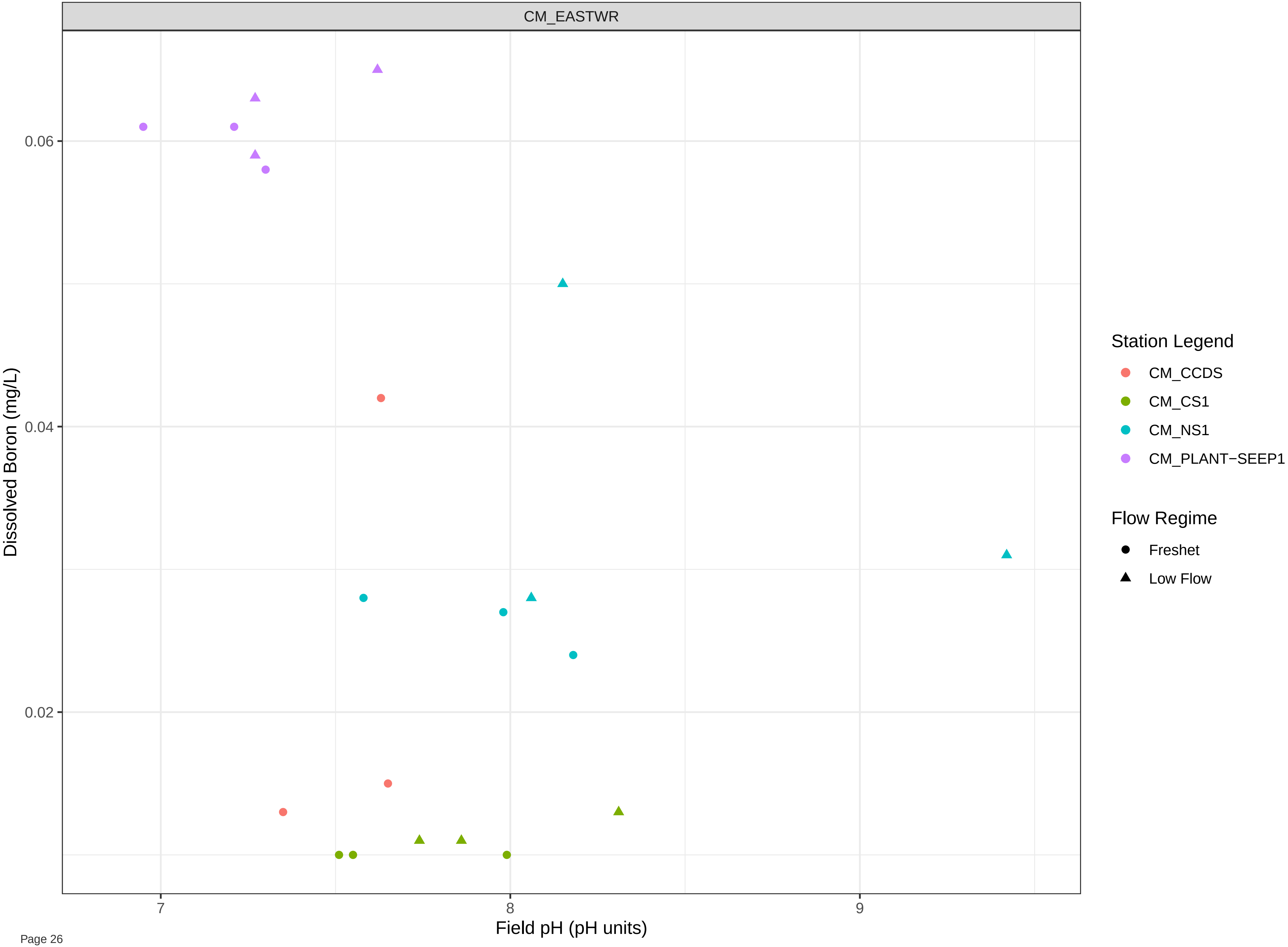

CM_37PIT
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
7
8
9
Field pH (pH units)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

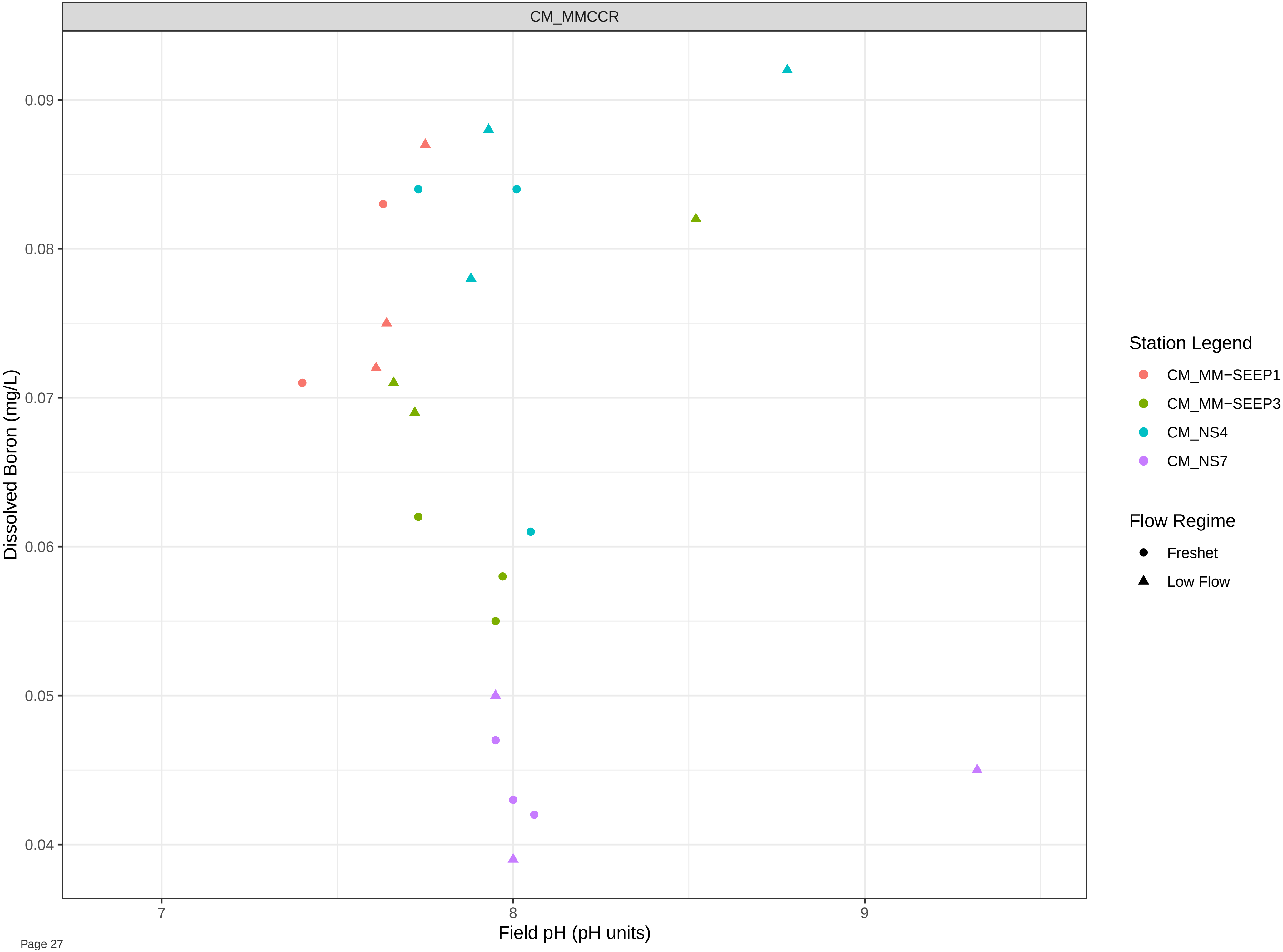

CM_EASTWR
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

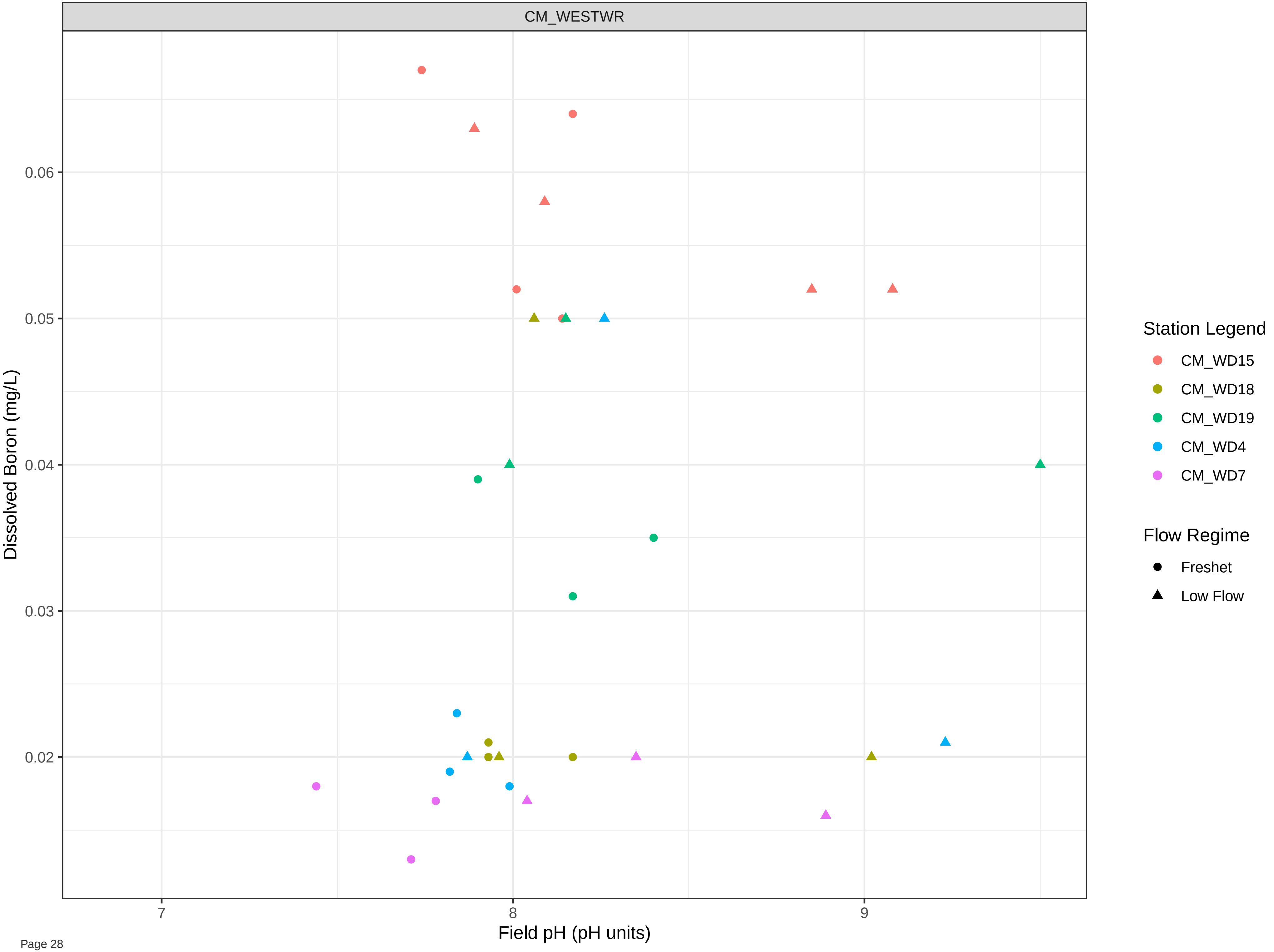

CM_MMCCR
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

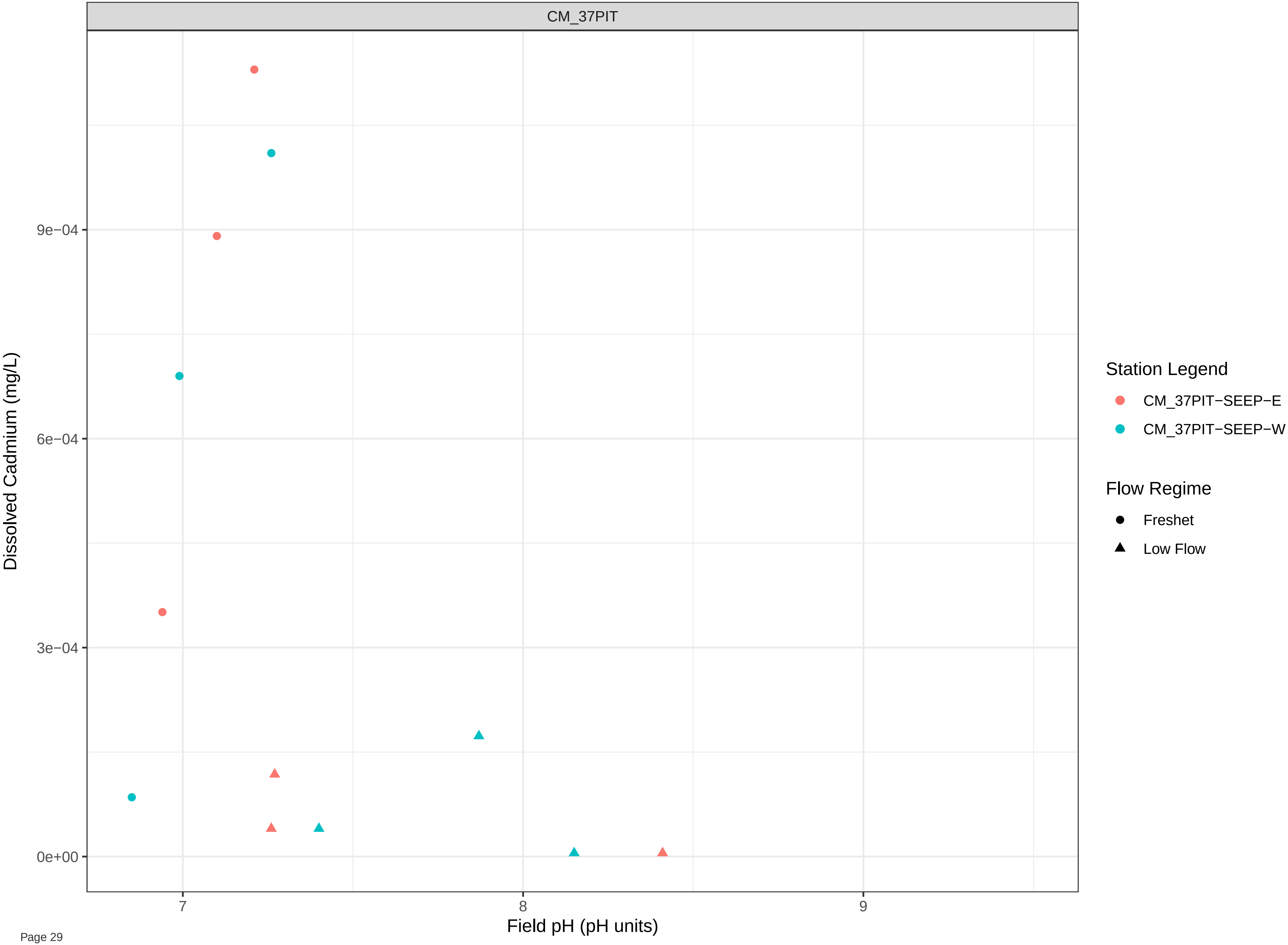

CM_WESTWR
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

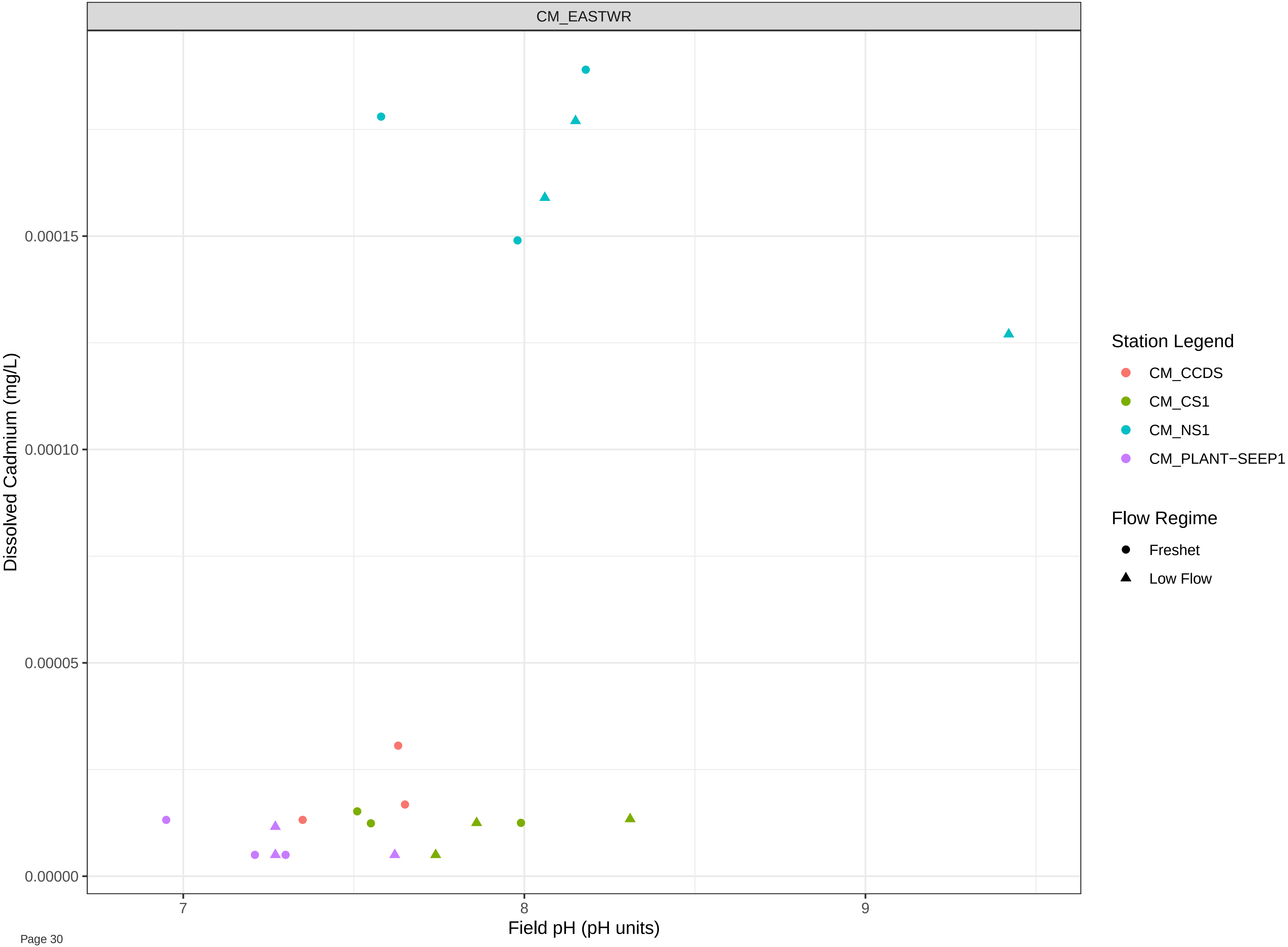

CM_37PIT
Dissolved Boron (mg/L)
0.30
0.25
0.20
0.15
7
8
9
Field pH (pH units)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

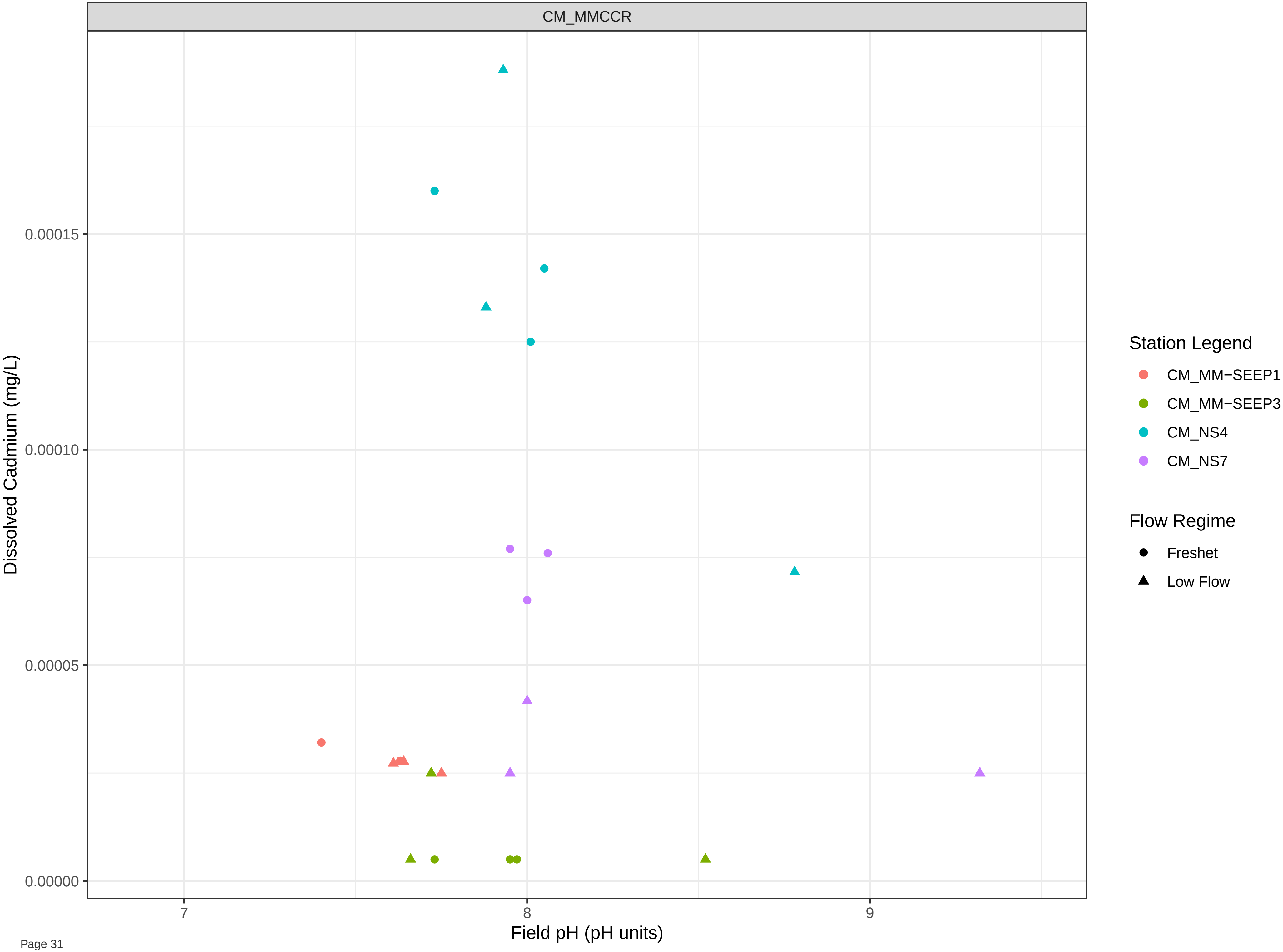

CM_EASTWR
Dissolved Boron (mg/L)
0.06
0.04
0.02
7
8
9
Field pH (pH units)
Station Legend
● CM_CCDS
● CM_CS1
● CM_NS1
● CM_PLANT−SEEP1
Flow Regime
● Freshet
▲ Low Flow

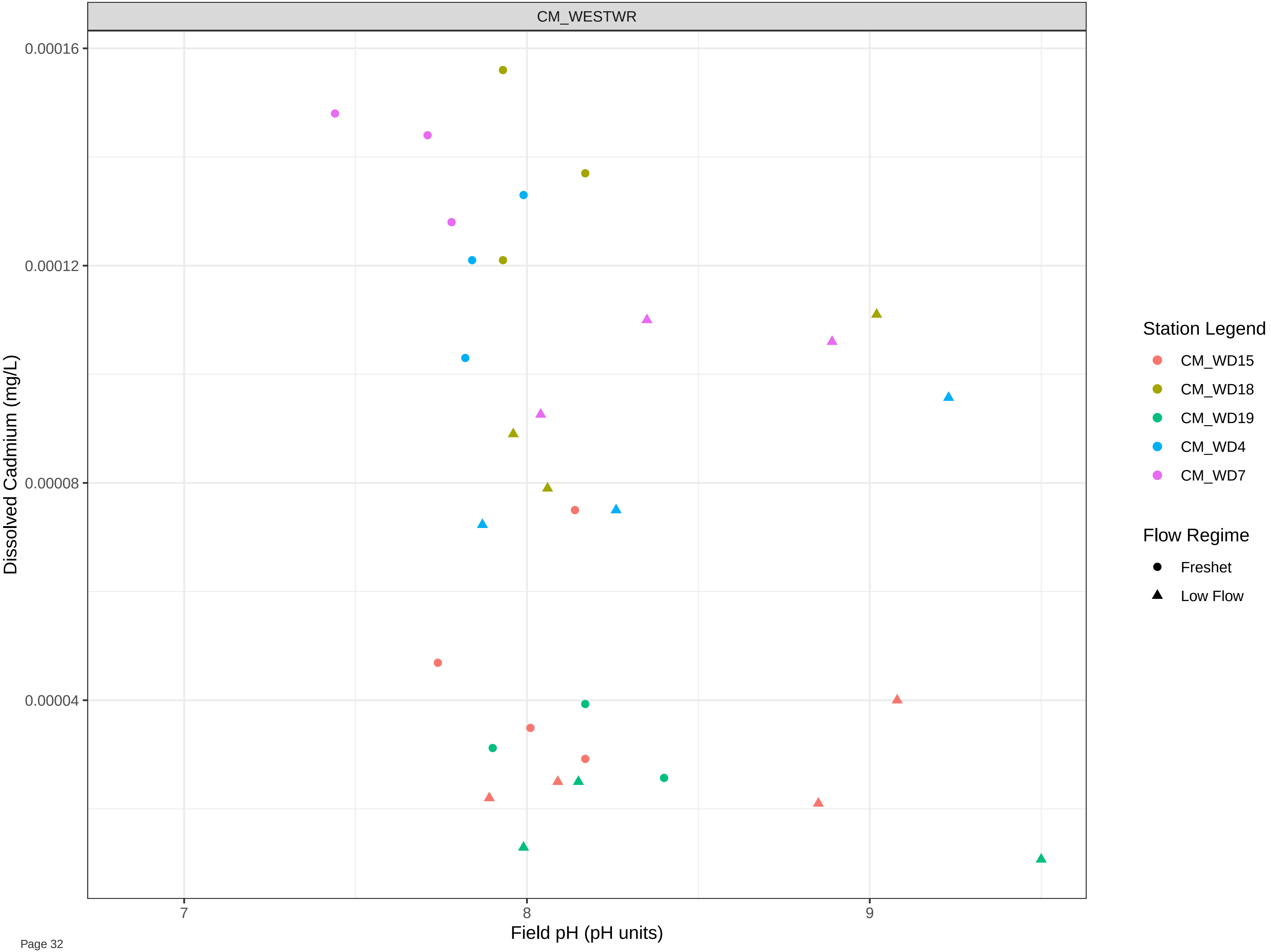

CM_MMCCR
0.09
0.08
0.07
0.06
0.05
0.04
Dissolved Boron (mg/L)
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

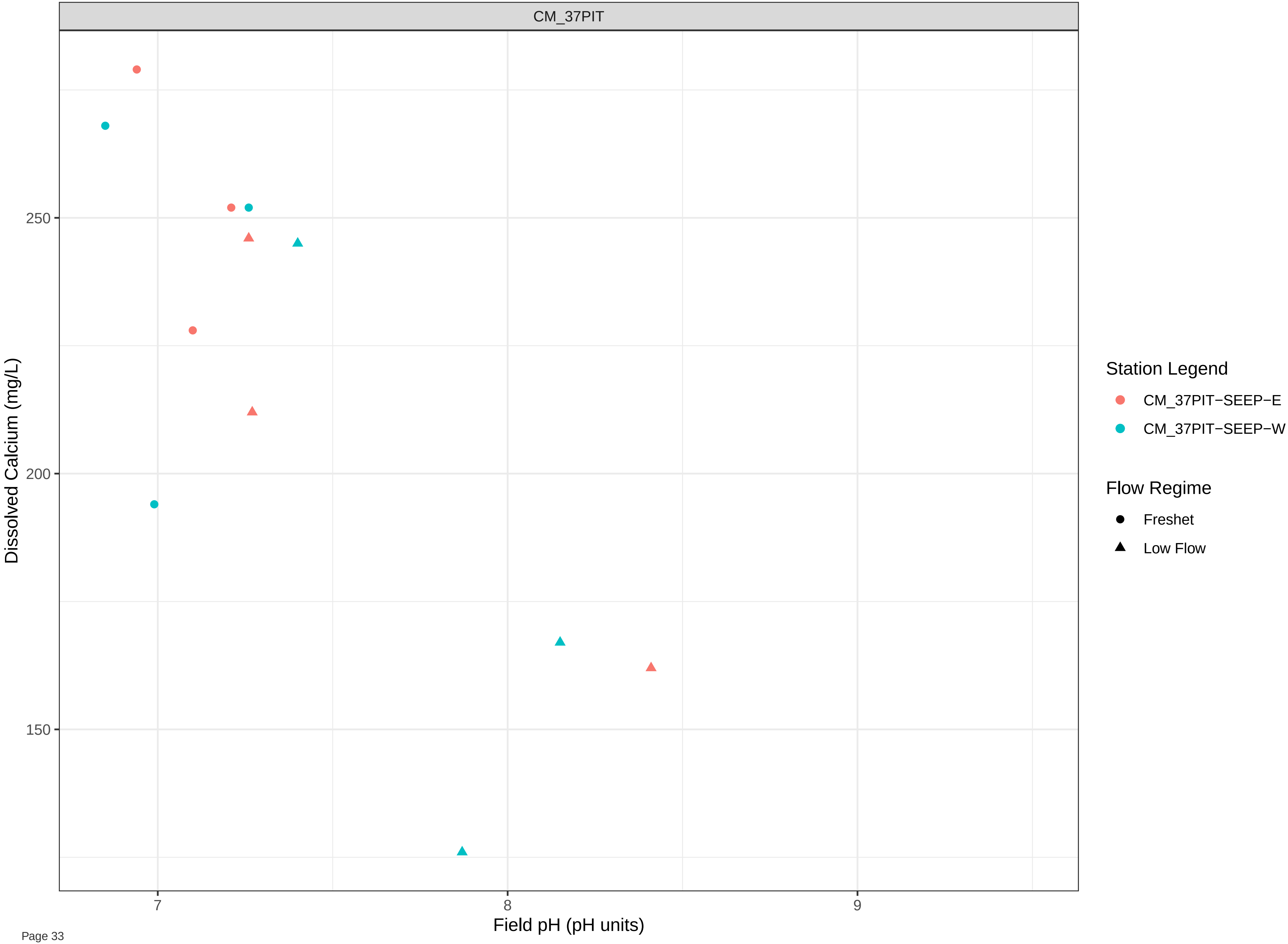

CM_WESTWR
Dissolved Boron (mg/L)
0.06
0.05
0.04
0.03
0.02
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

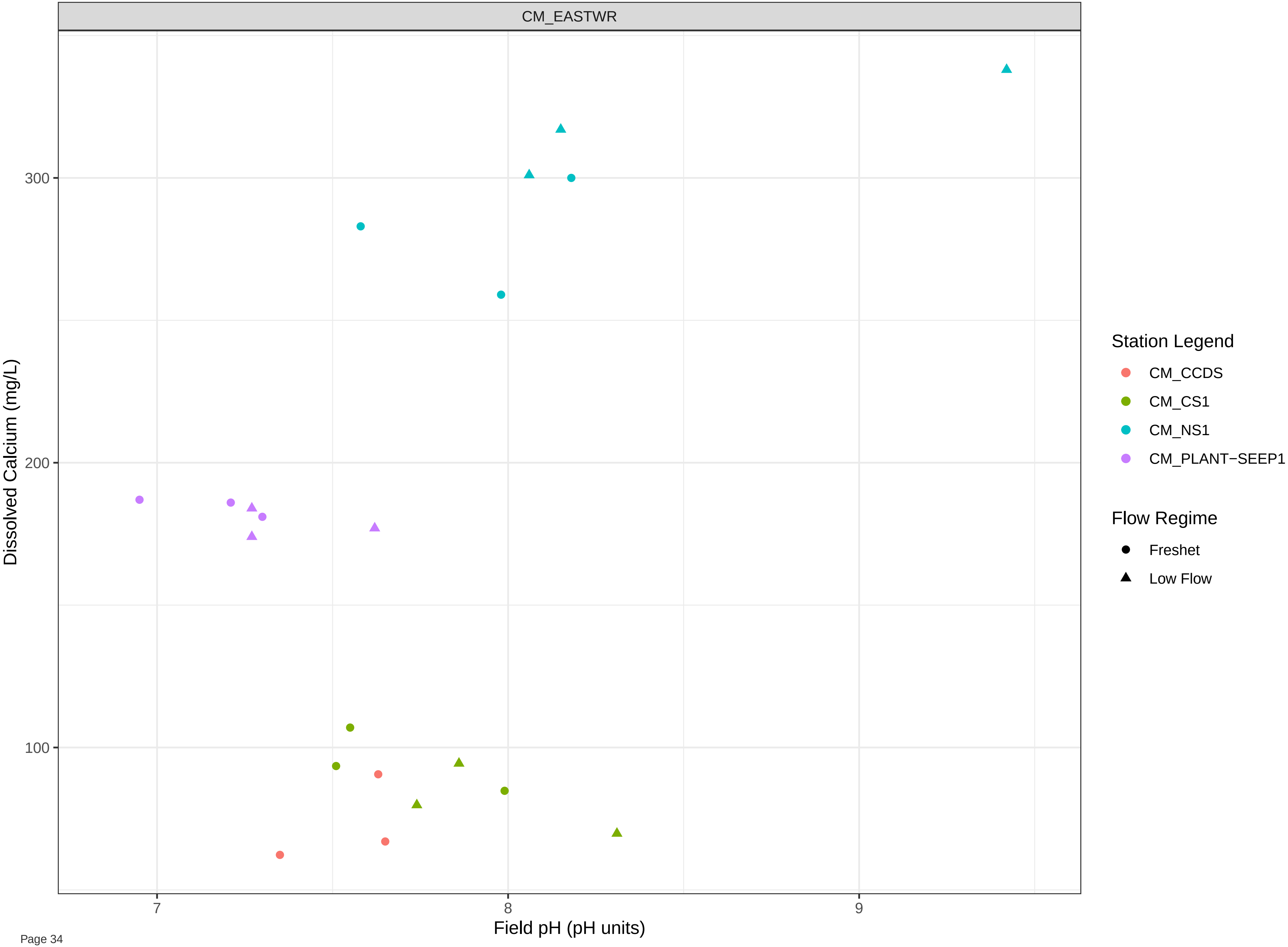

CM_37PIT
Dissolved Cadmium (mg/L)
9e−04
6e−04
3e−04
0e+00
7
8
9
Field pH (pH units)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

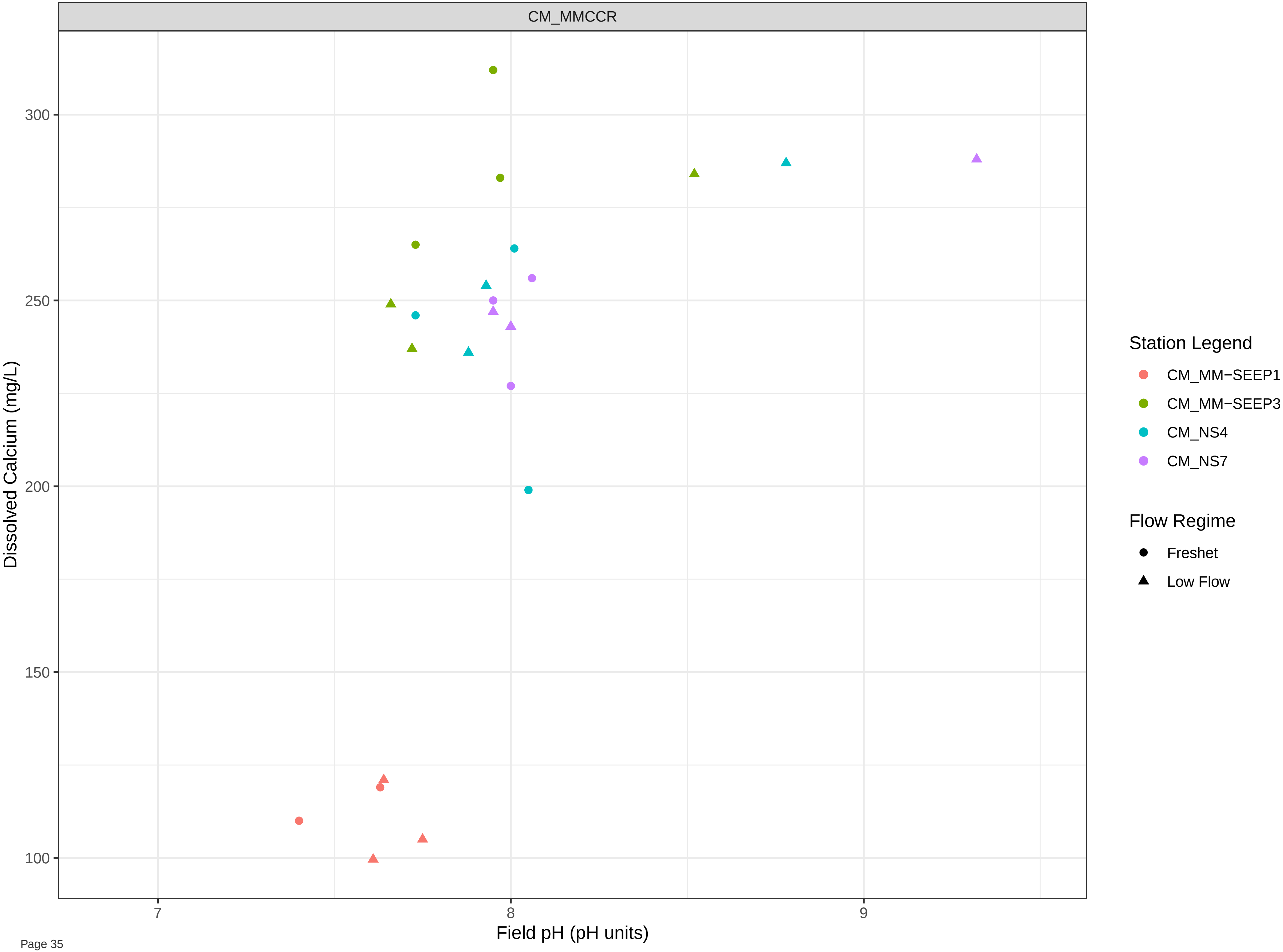

CM_EASTWR
Dissolved Cadmium (mg/L)
0.00015
0.00010
0.00005
0.00000
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

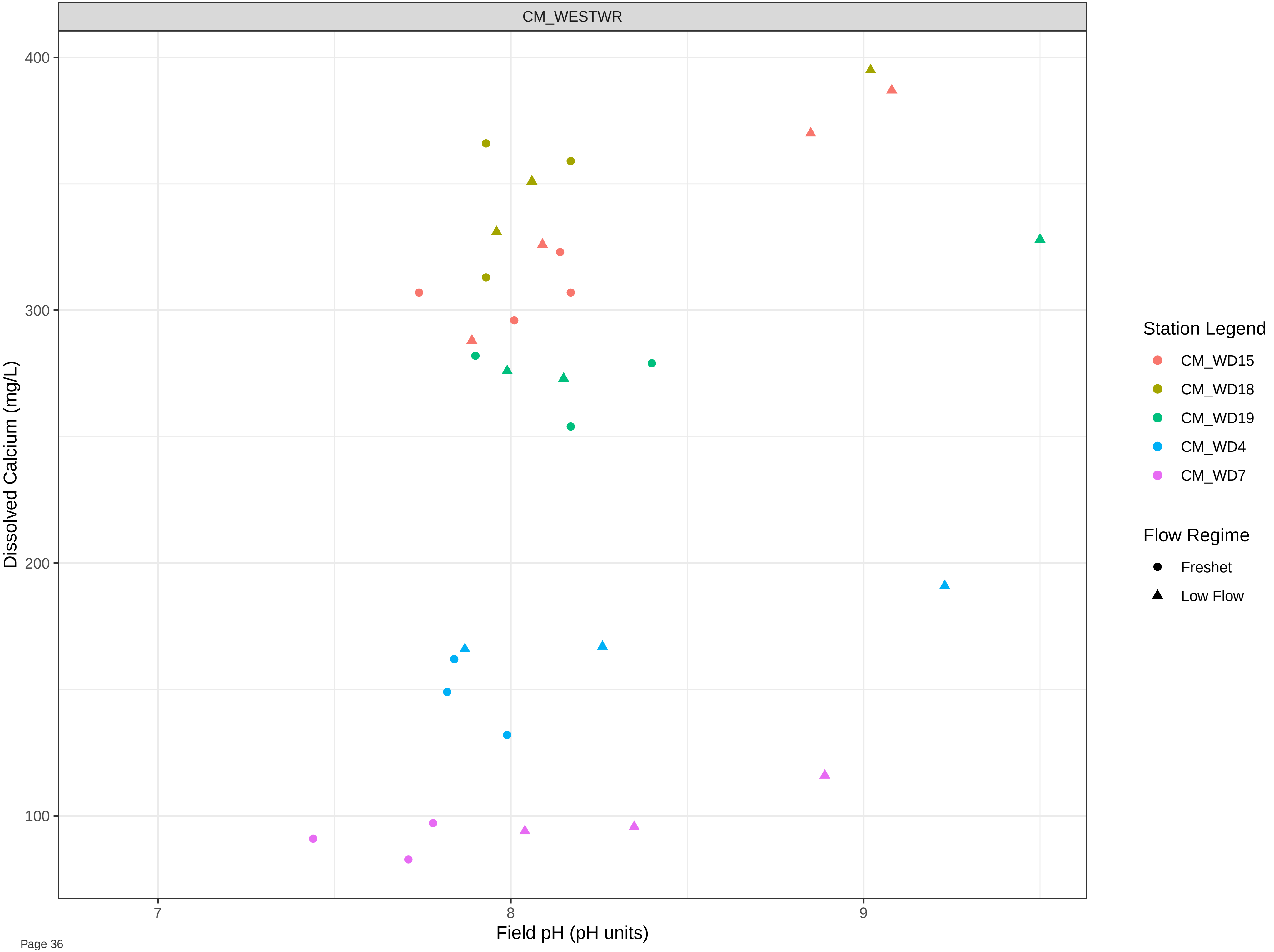

CM_MMCCR
Dissolved Cadmium (mg/L)
0.00015
0.00010
0.00005
0.00000
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

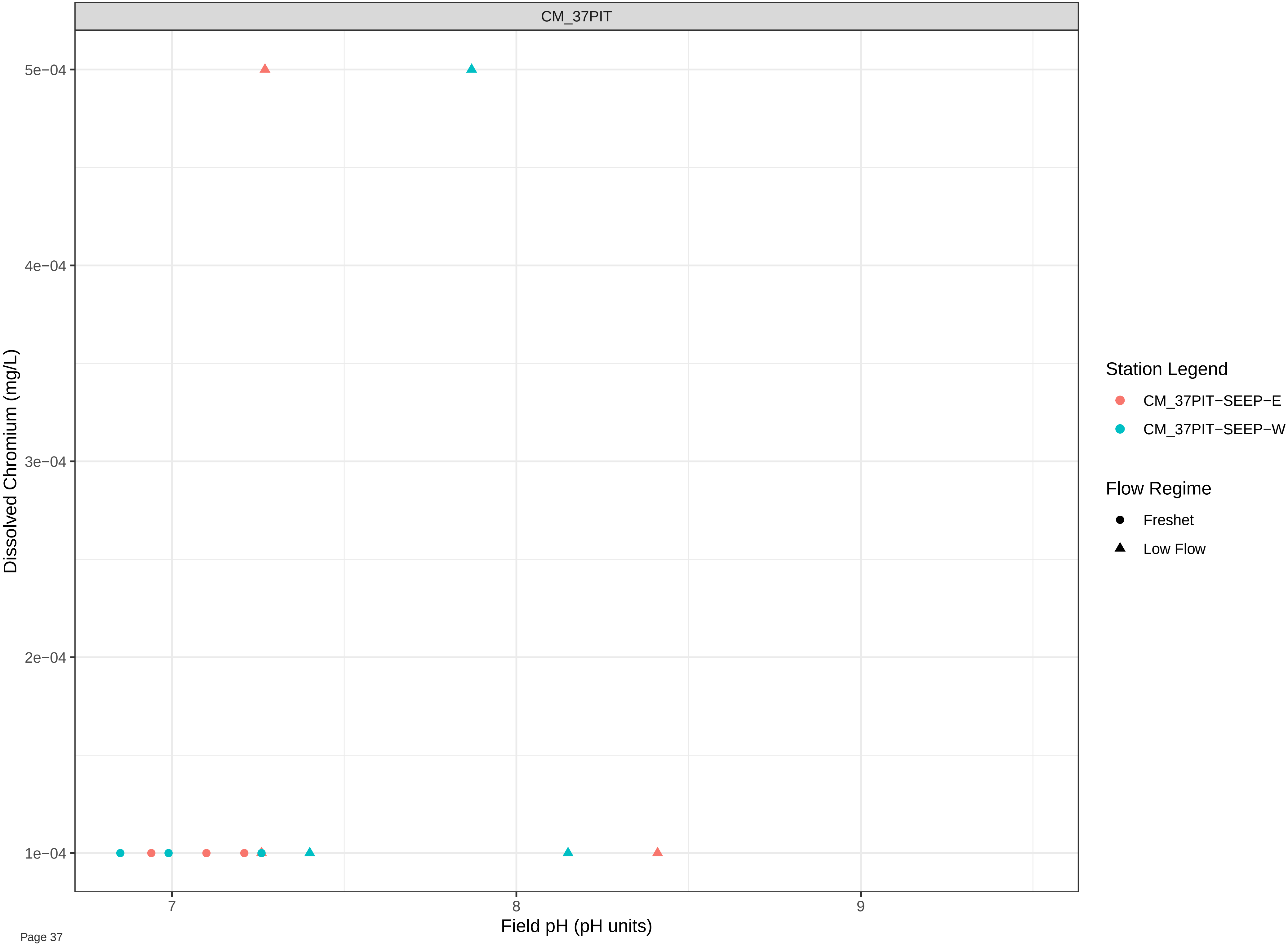

CM_WESTWR
Dissolved Cadmium (mg/L)
0.00016
0.00012
0.00008
0.00004
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

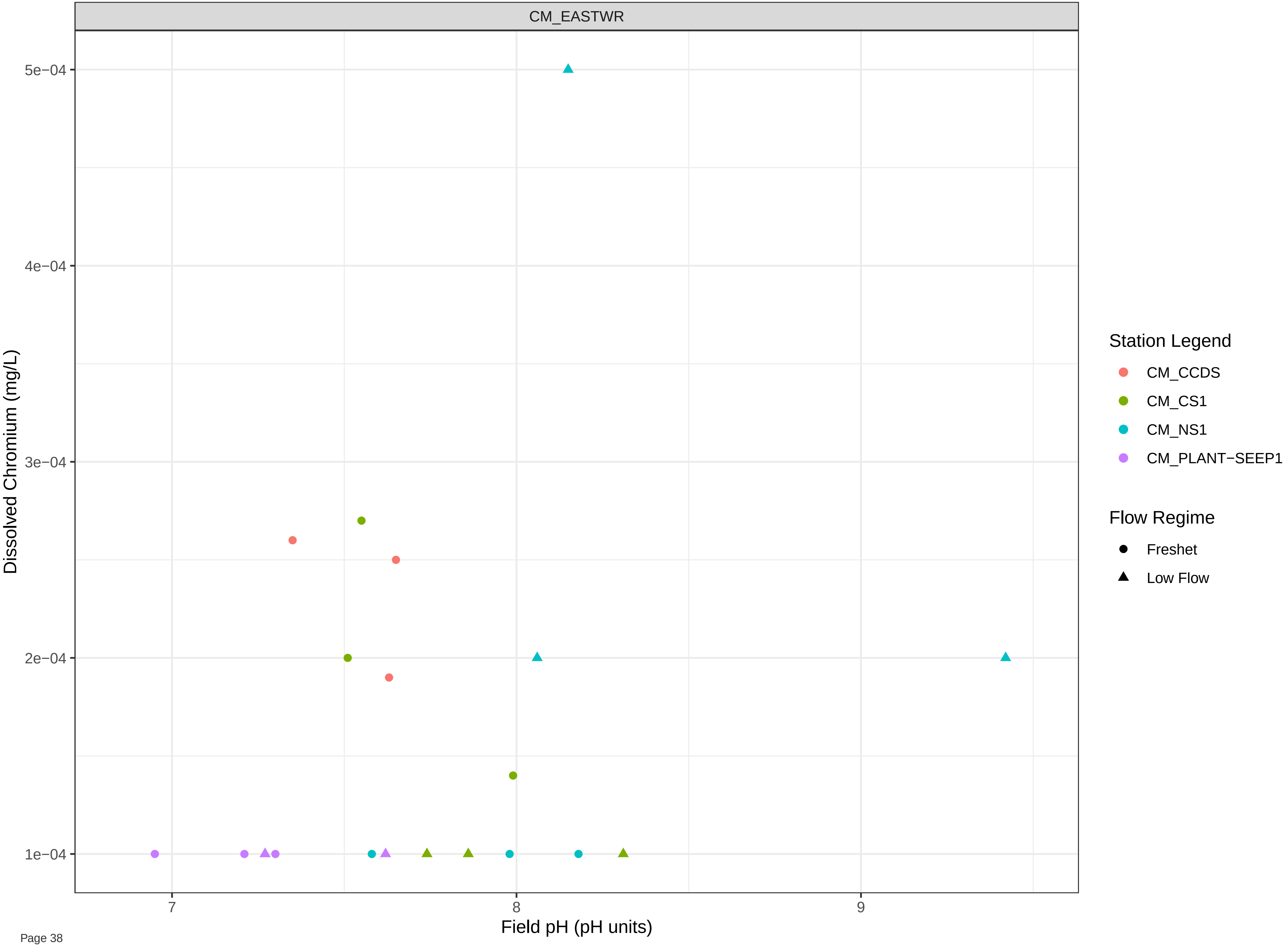

CM_37PIT
Dissolved Calcium (mg/L)
250
200
150
7
8
9
Field pH (pH units)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow

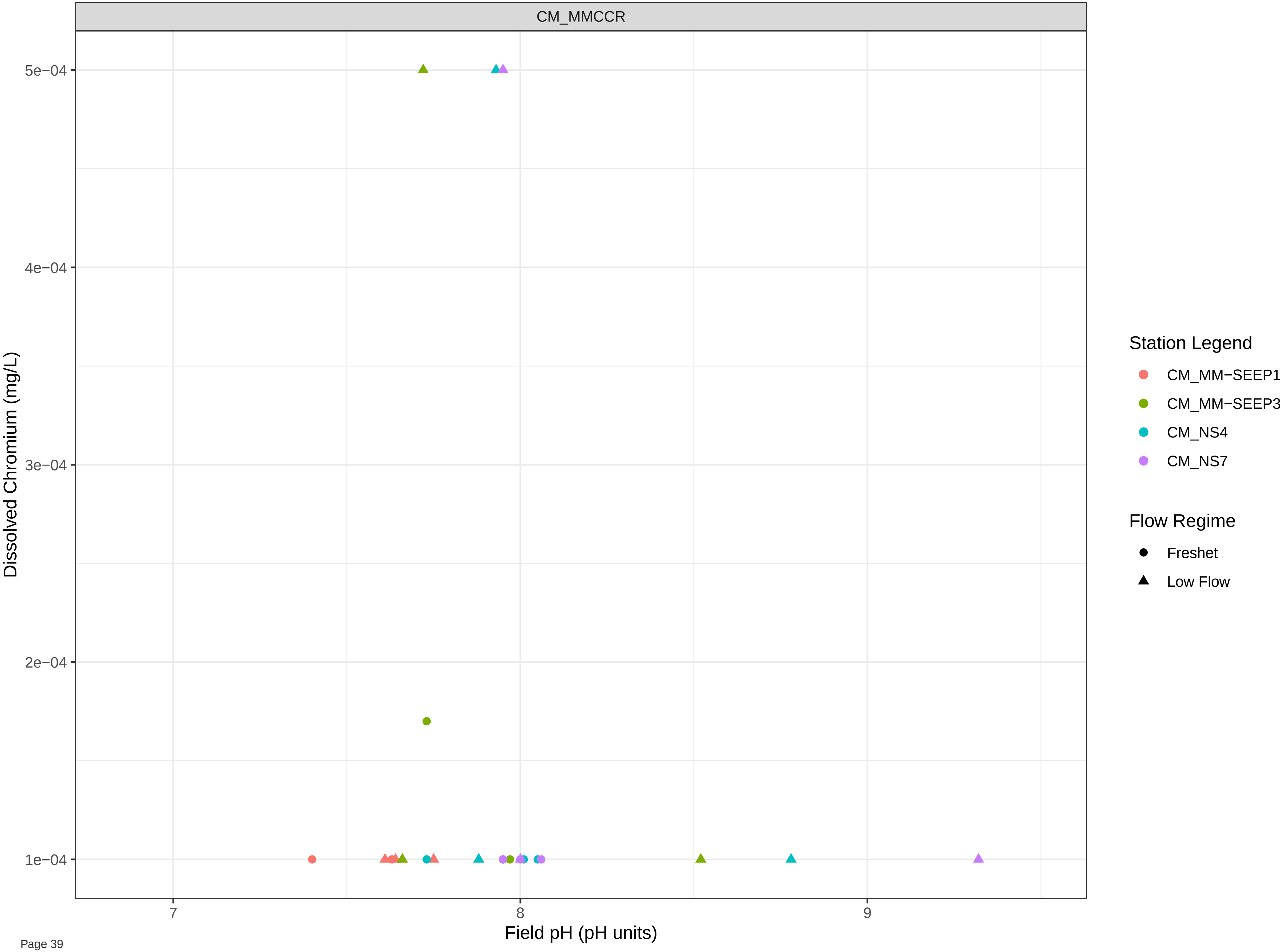

CM_EASTWR
Dissolved Calcium (mg/L)
300
200
100
7
8
9
Field pH (pH units)
Station Legend
● CM_CCDS
● CM_CS1
● CM_NS1
● CM_PLANT−SEEP1
Flow Regime
● Freshet
▲ Low Flow

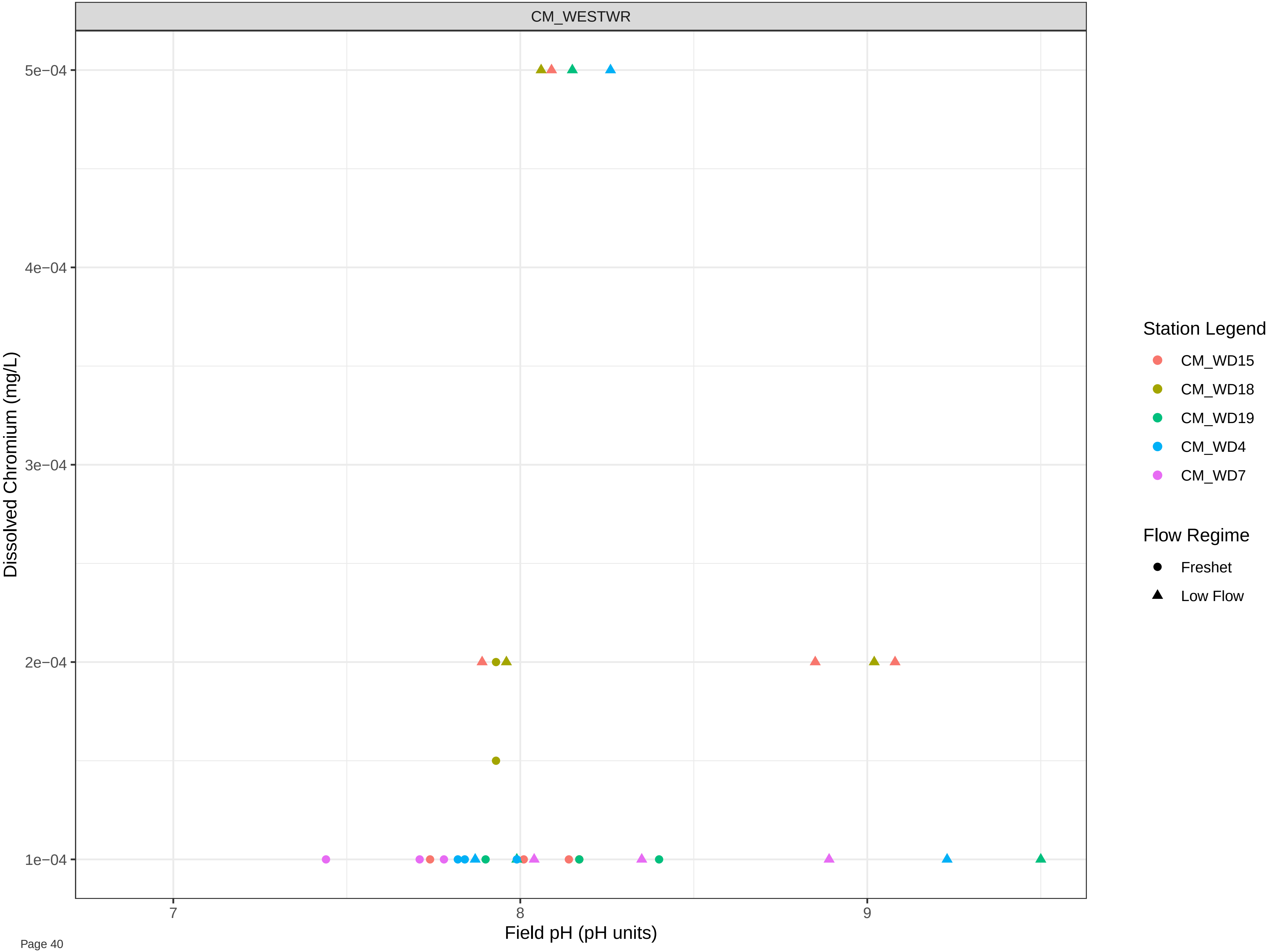

CM_MMCCR
Dissolved Calcium (mg/L)
300
250
200
150
100
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

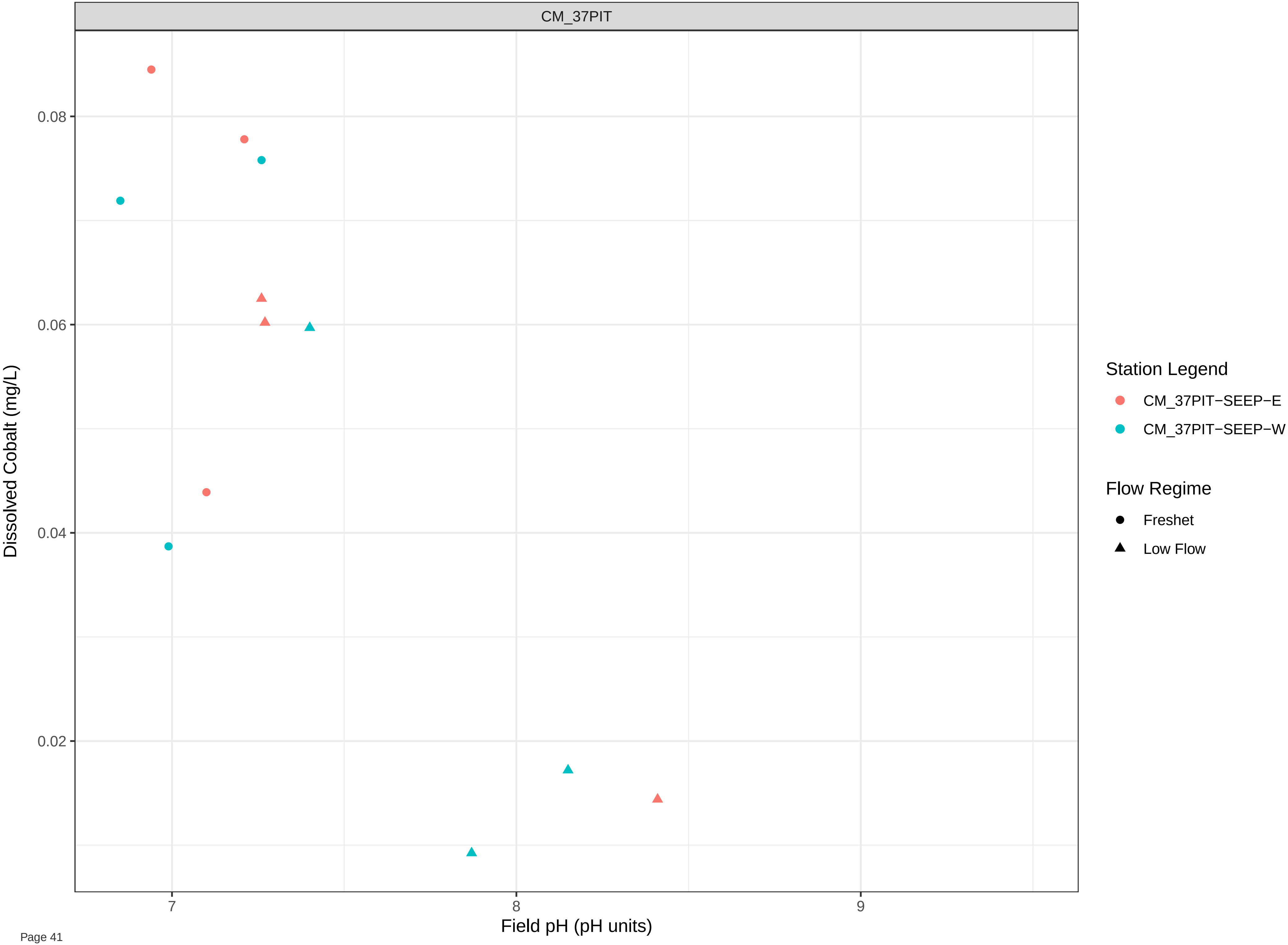

CM_WESTWR
Dissolved Calcium (mg/L)
400
300
200
100
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

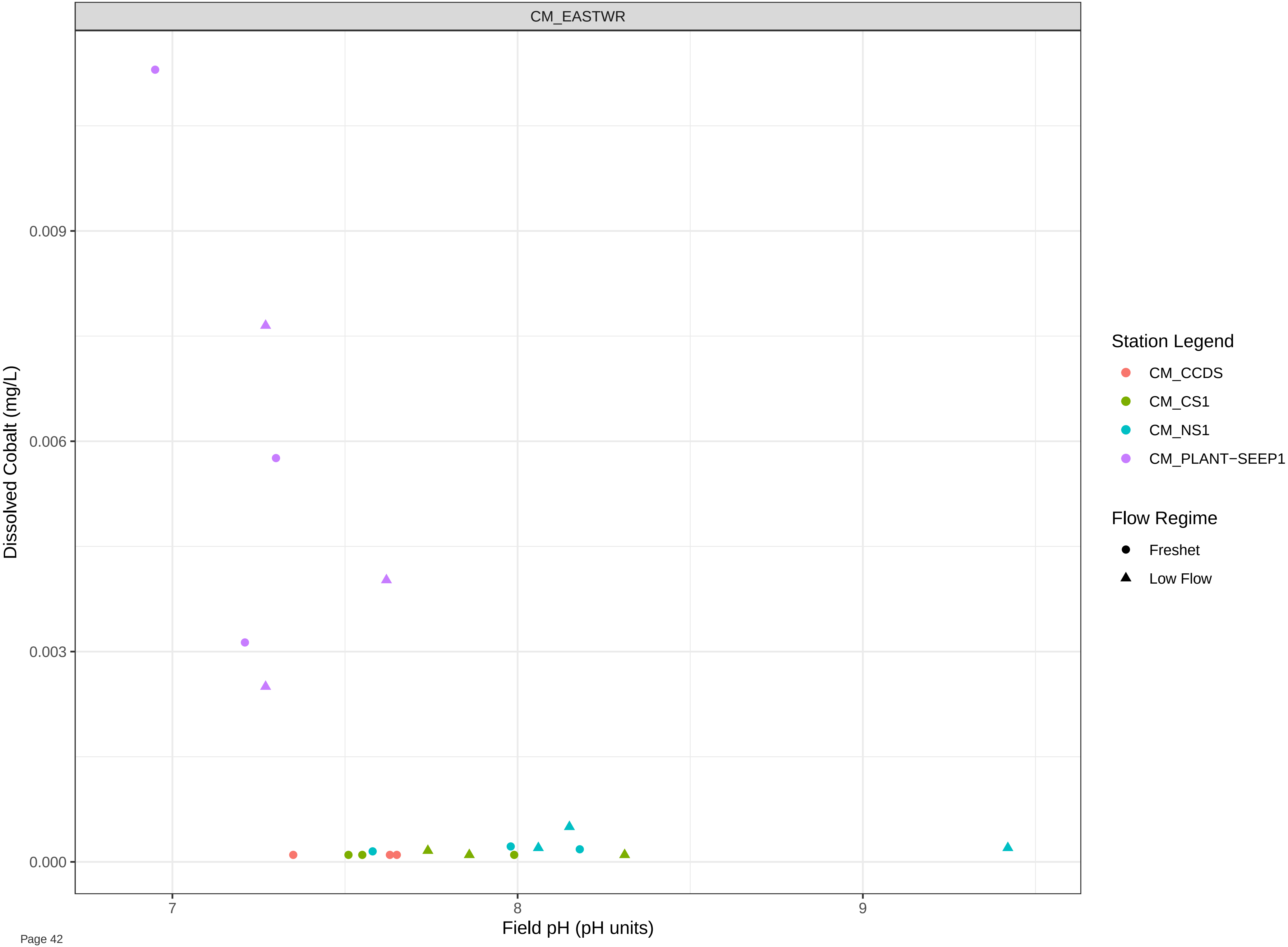

CM_37PIT
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Chromium (mg/L)
7
8
9
Field pH (pH units)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

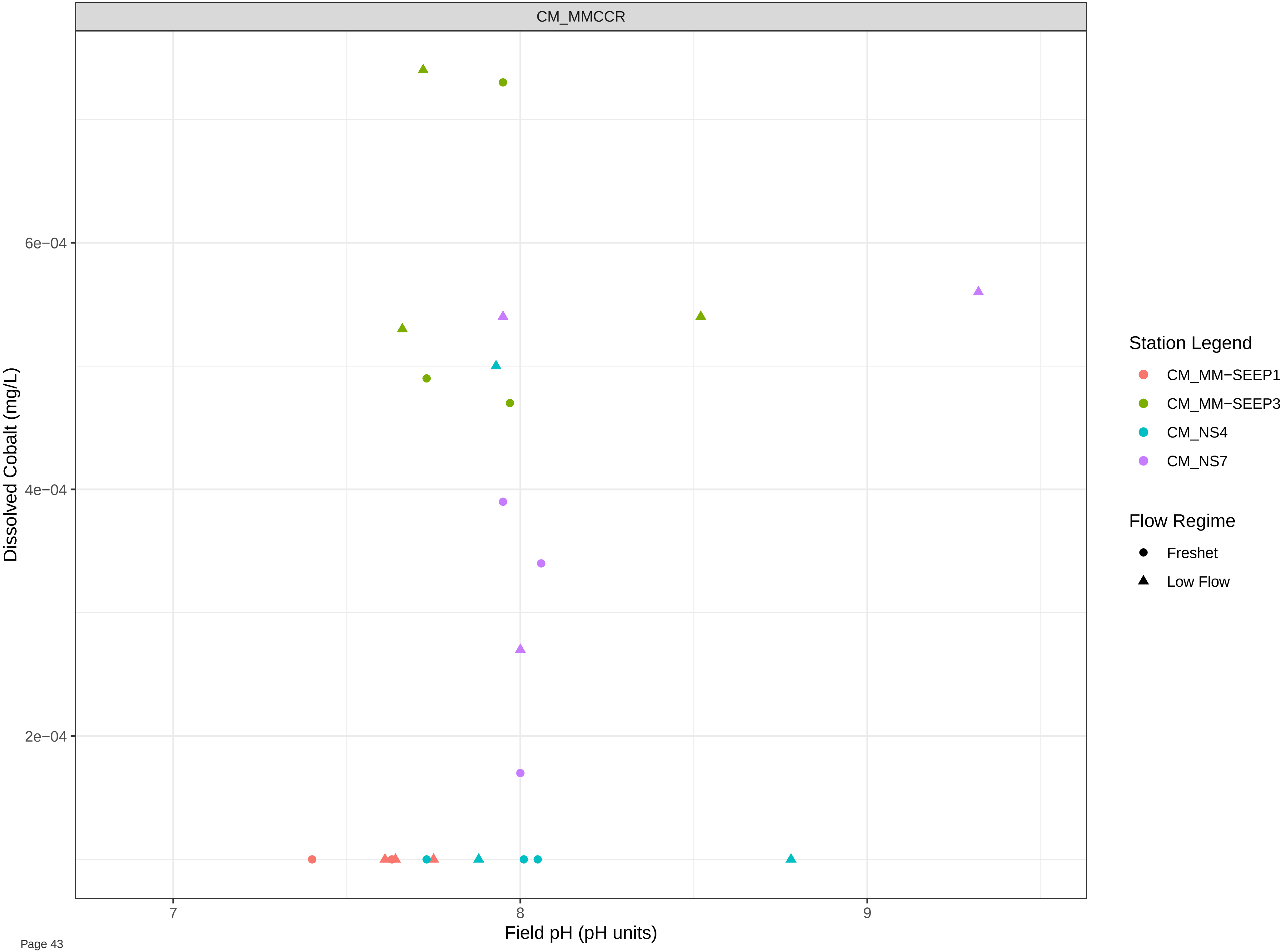

CM_EASTWR
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

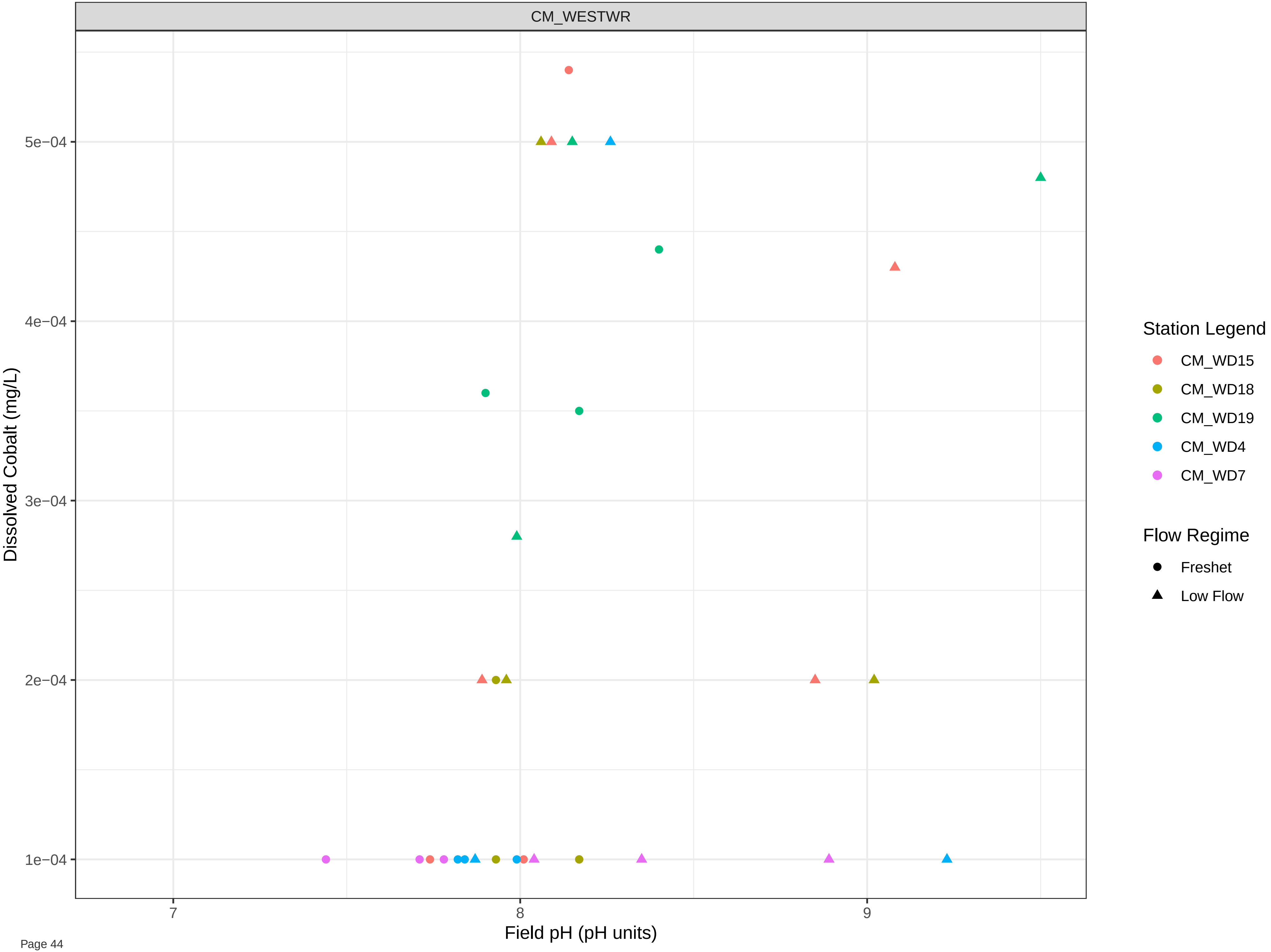

CM_MMCCR
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

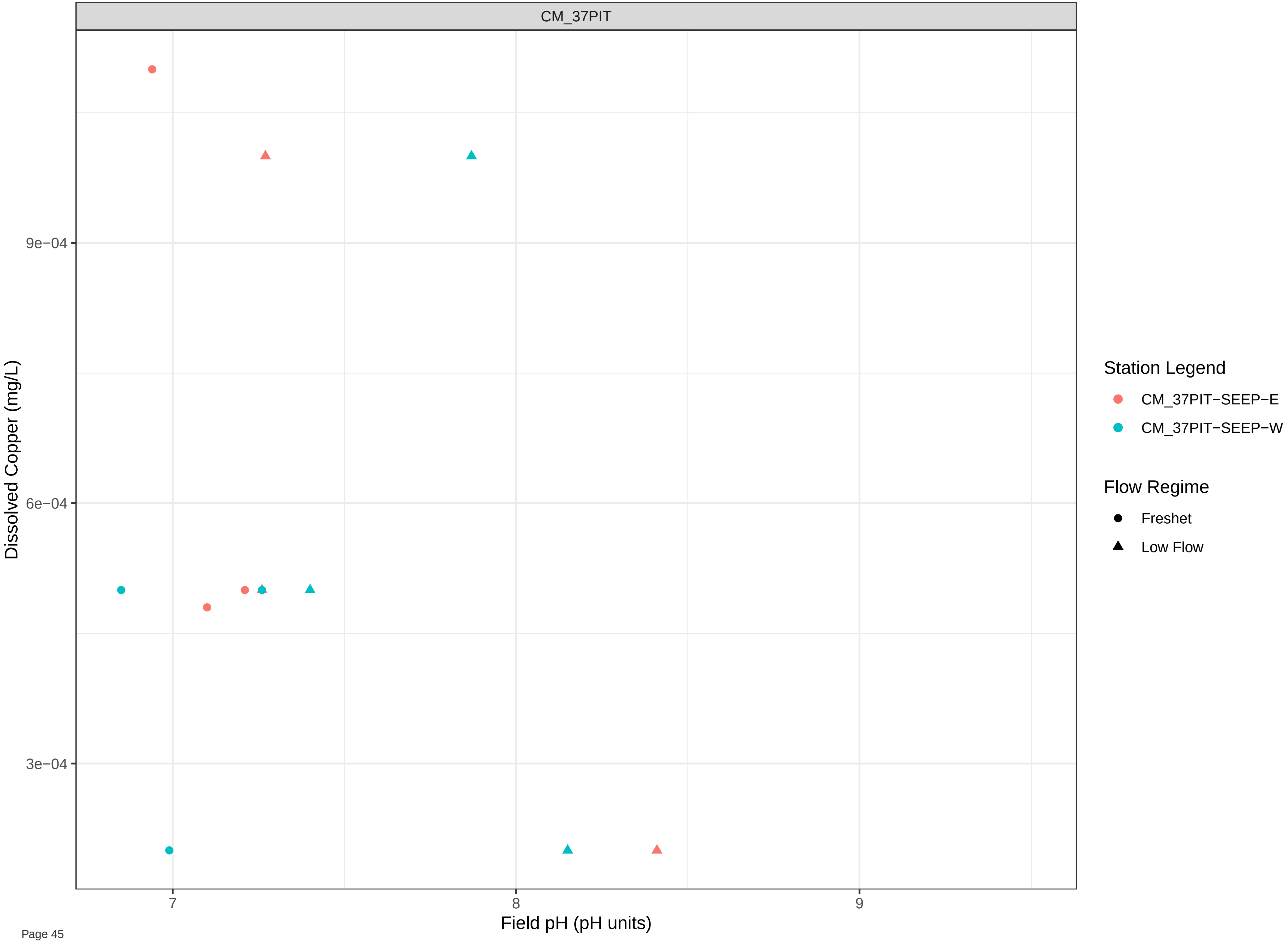

CM_WESTWR
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

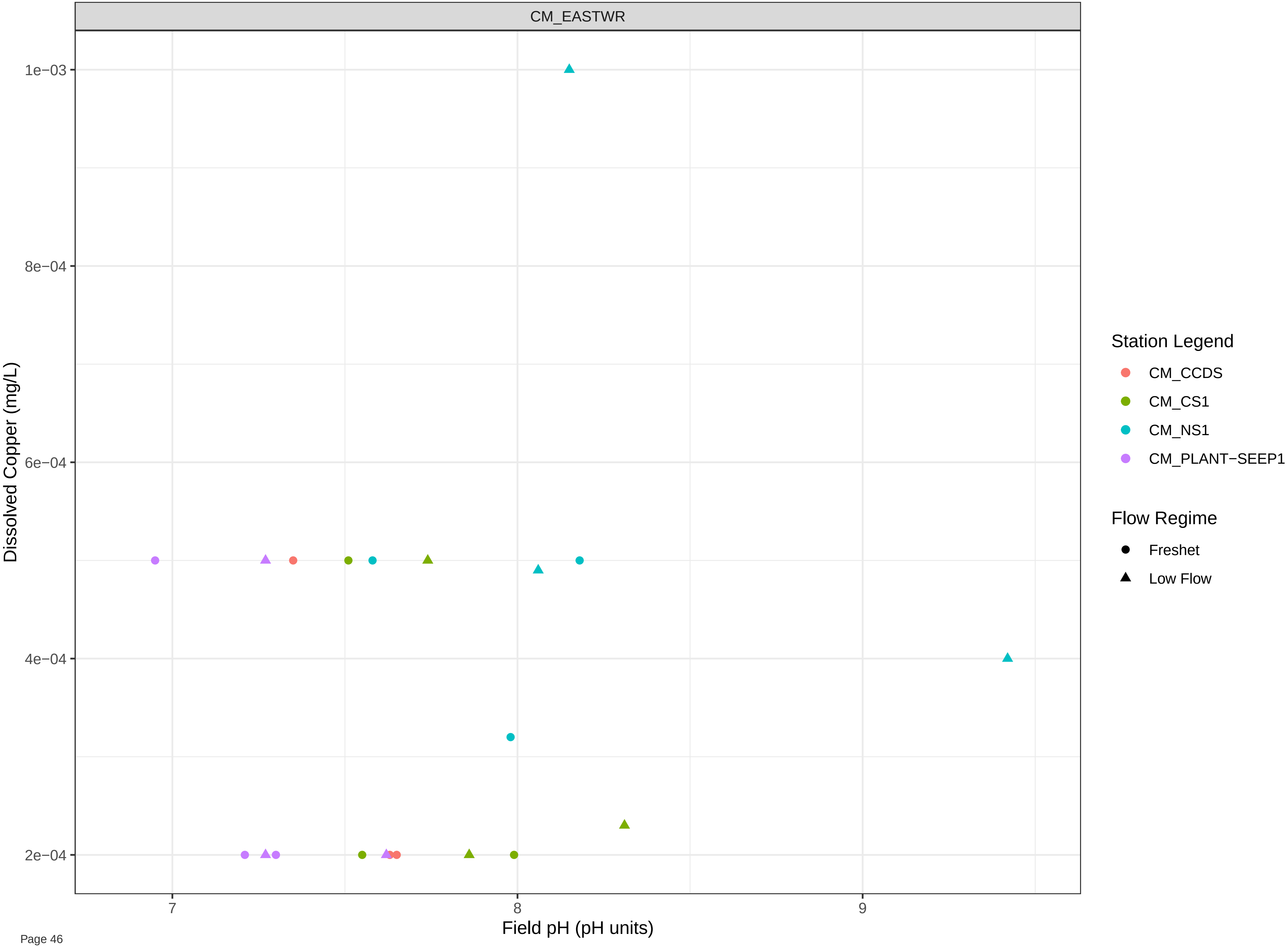

CM_37PIT
Dissolved Cobalt (mg/L)
0.08
0.06
0.04
0.02
7
8
9
Field pH (pH units)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow

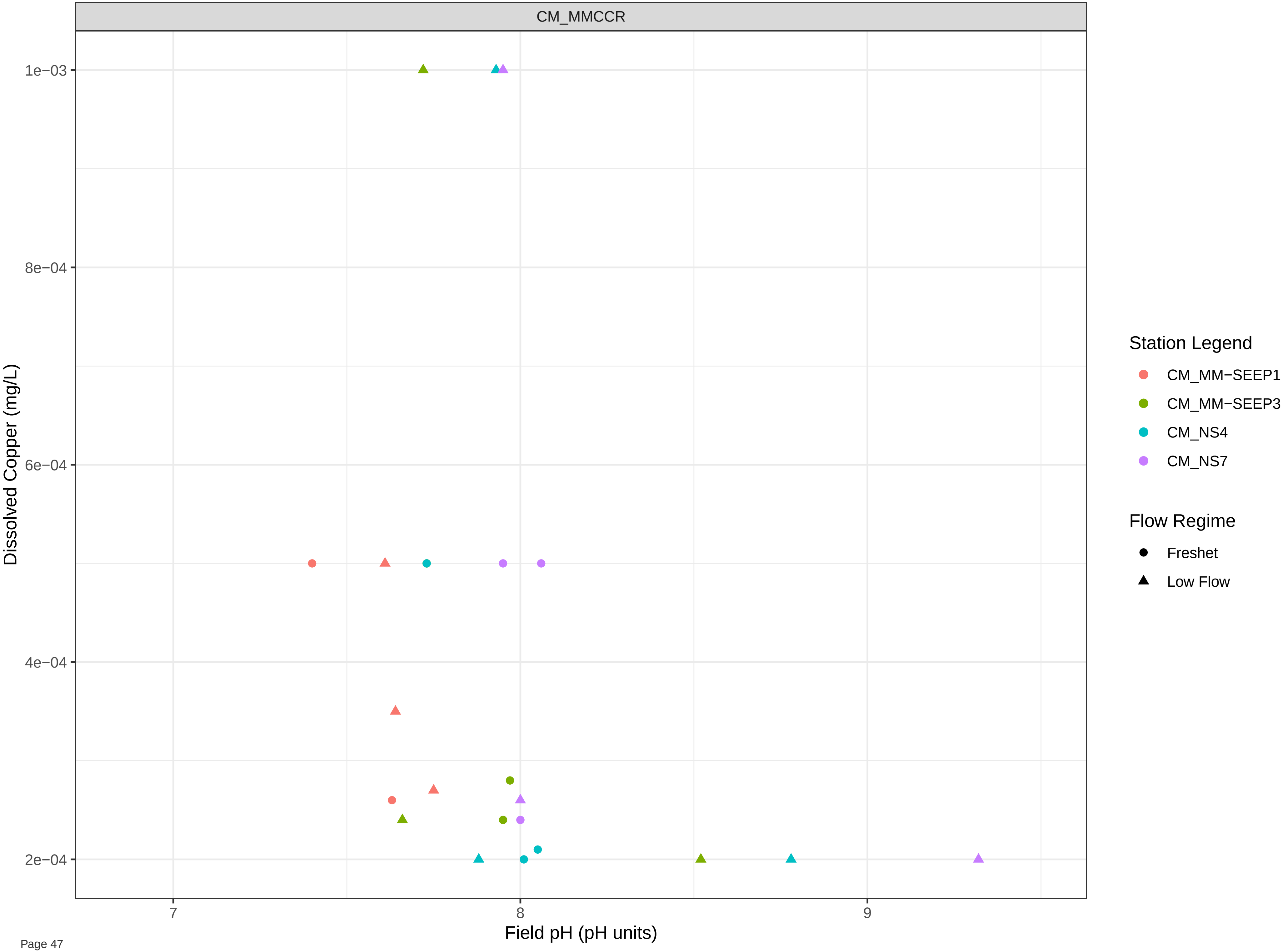

CM_EASTWR
Dissolved Cobalt (mg/L)
0.009
0.006
0.003
0.000
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

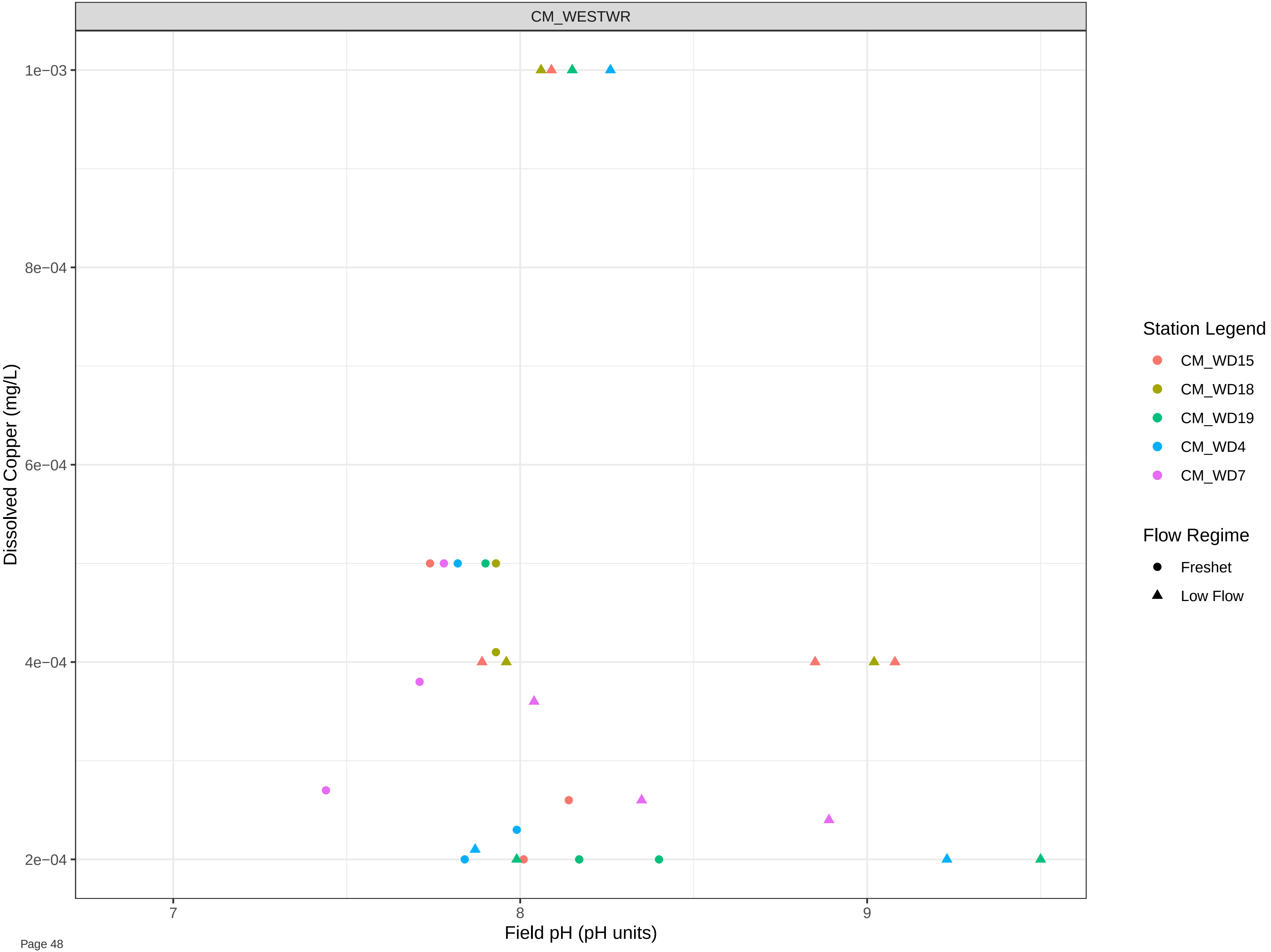

CM_MMCCR
Dissolved Cobalt (mg/L)
6e−04
4e−04
2e−04
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

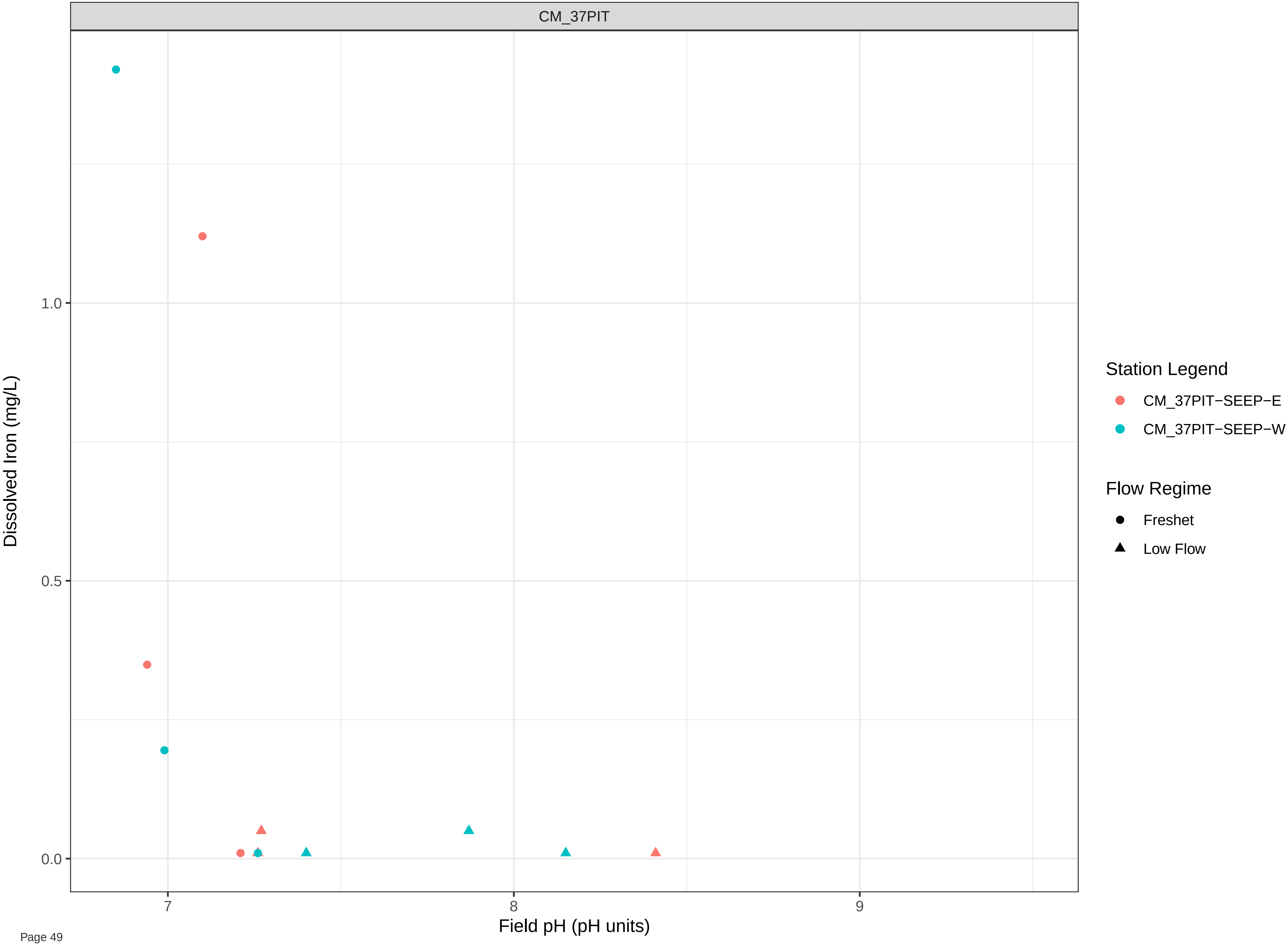

CM_WESTWR
Dissolved Cobalt (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

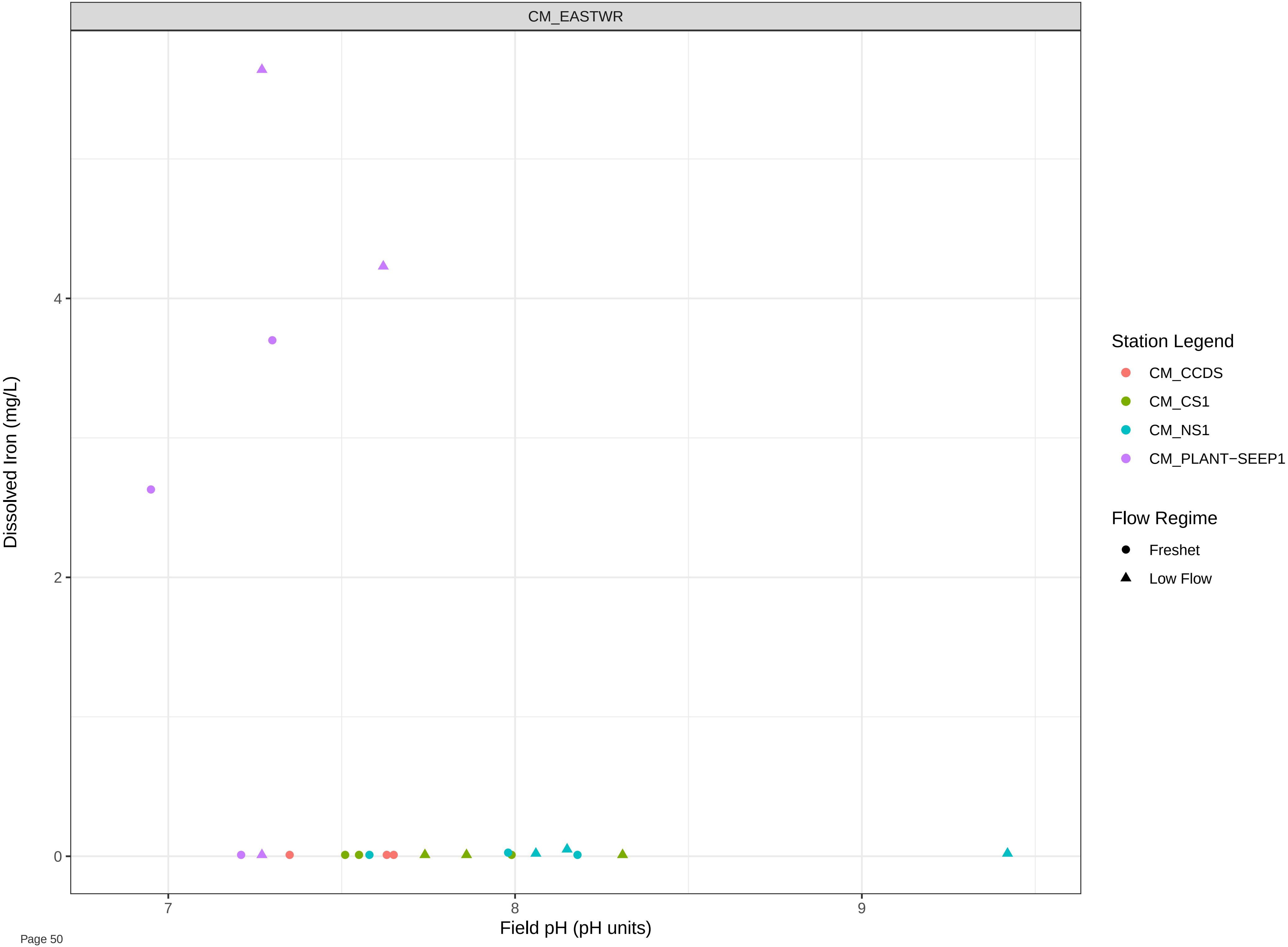

CM_37PIT
Dissolved Copper (mg/L)
9e−04
6e−04
3e−04
7
8
9
Field pH (pH units)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

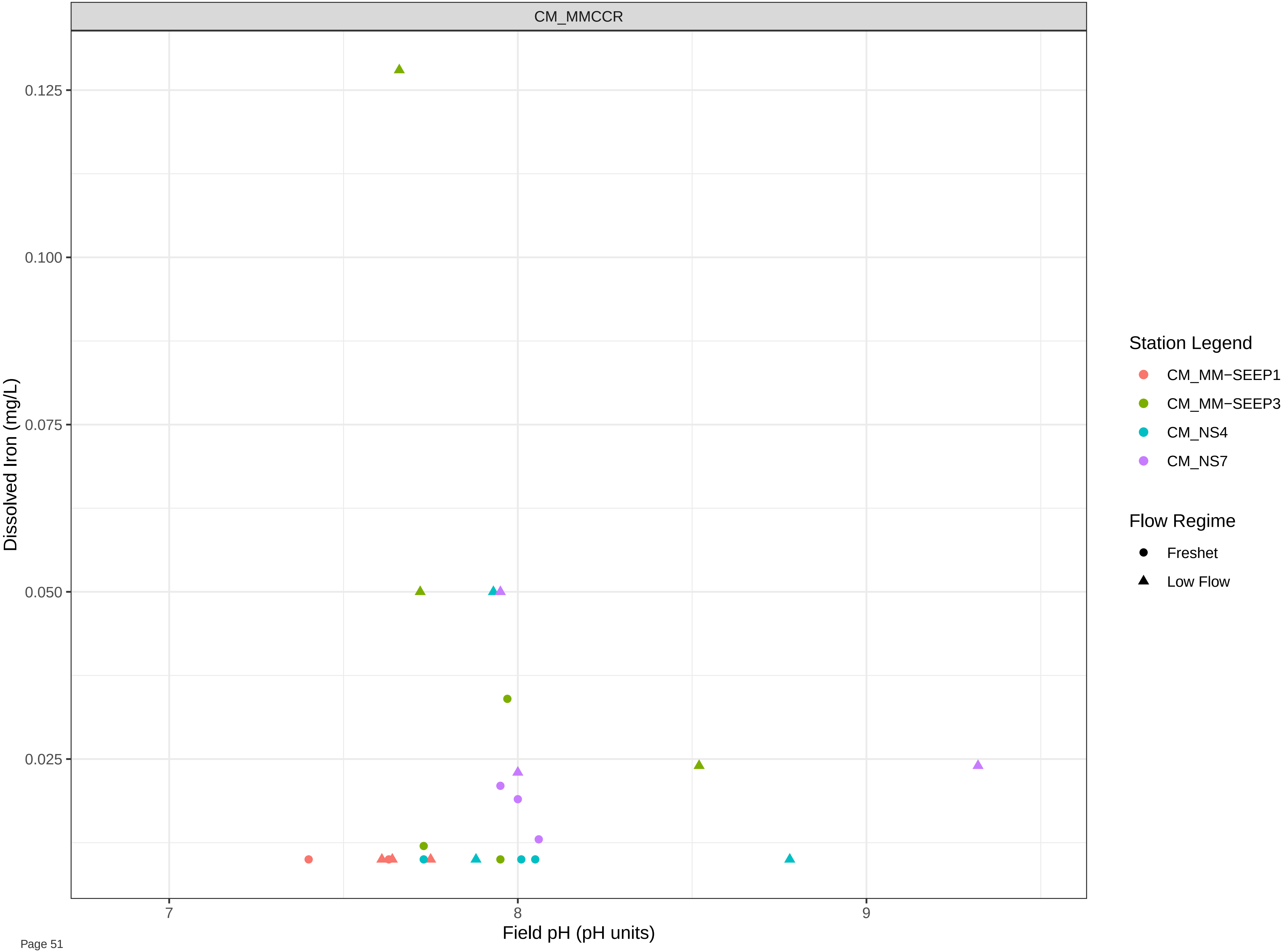

CM_EASTWR
Dissolved Copper (mg/L)
1e−03
8e−04
6e−04
4e−04
2e−04
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

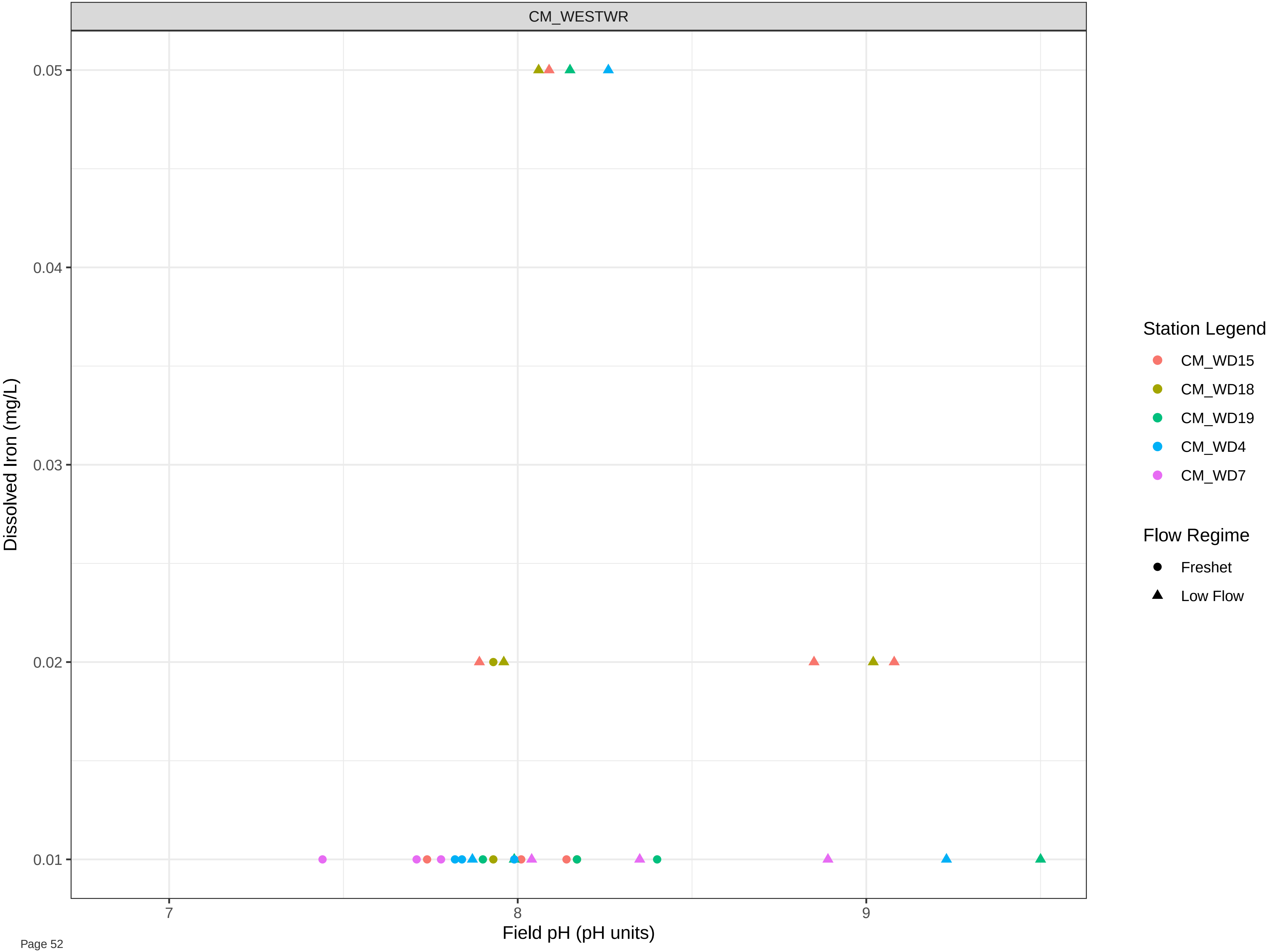

CM_MMCCR
Dissolved Copper (mg/L)
1e−03
8e−04
6e−04
4e−04
2e−04
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

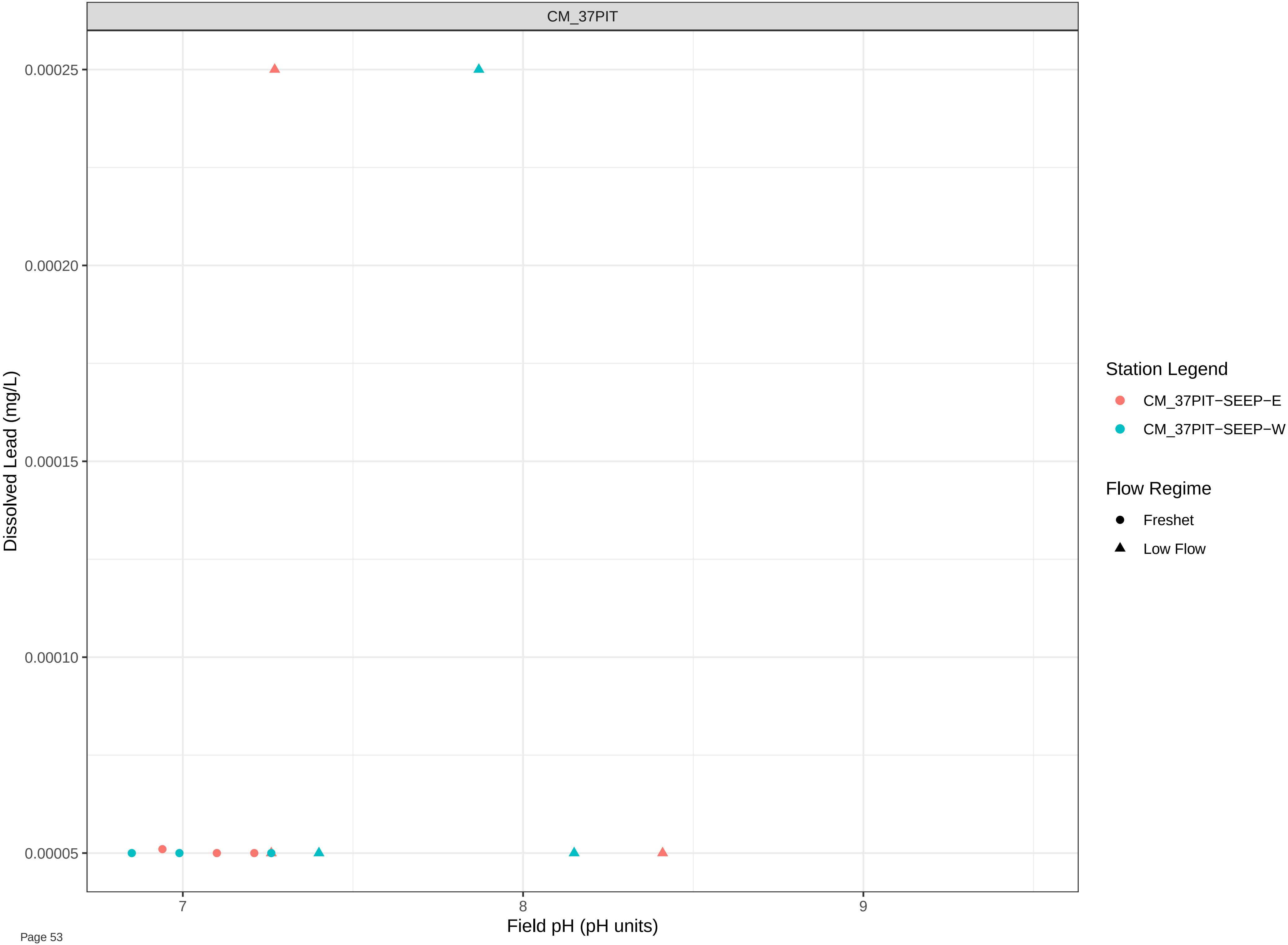

CM_WESTWR
Dissolved Copper (mg/L)
1e−03
8e−04
6e−04
4e−04
2e−04
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

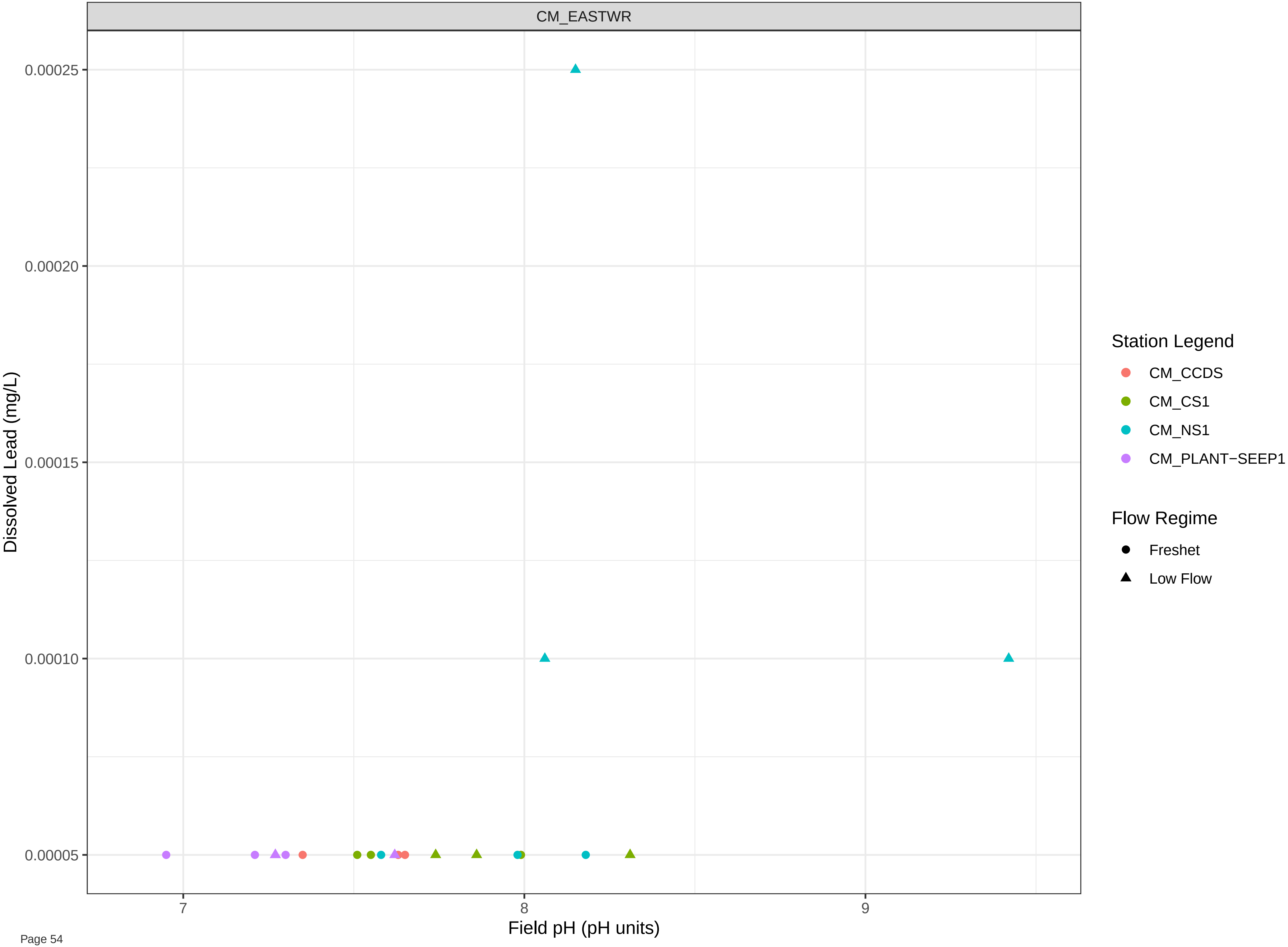

CM_37PIT
Dissolved Iron (mg/L)
1.0
0.5
0.0
7
8
9
Field pH (pH units)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow

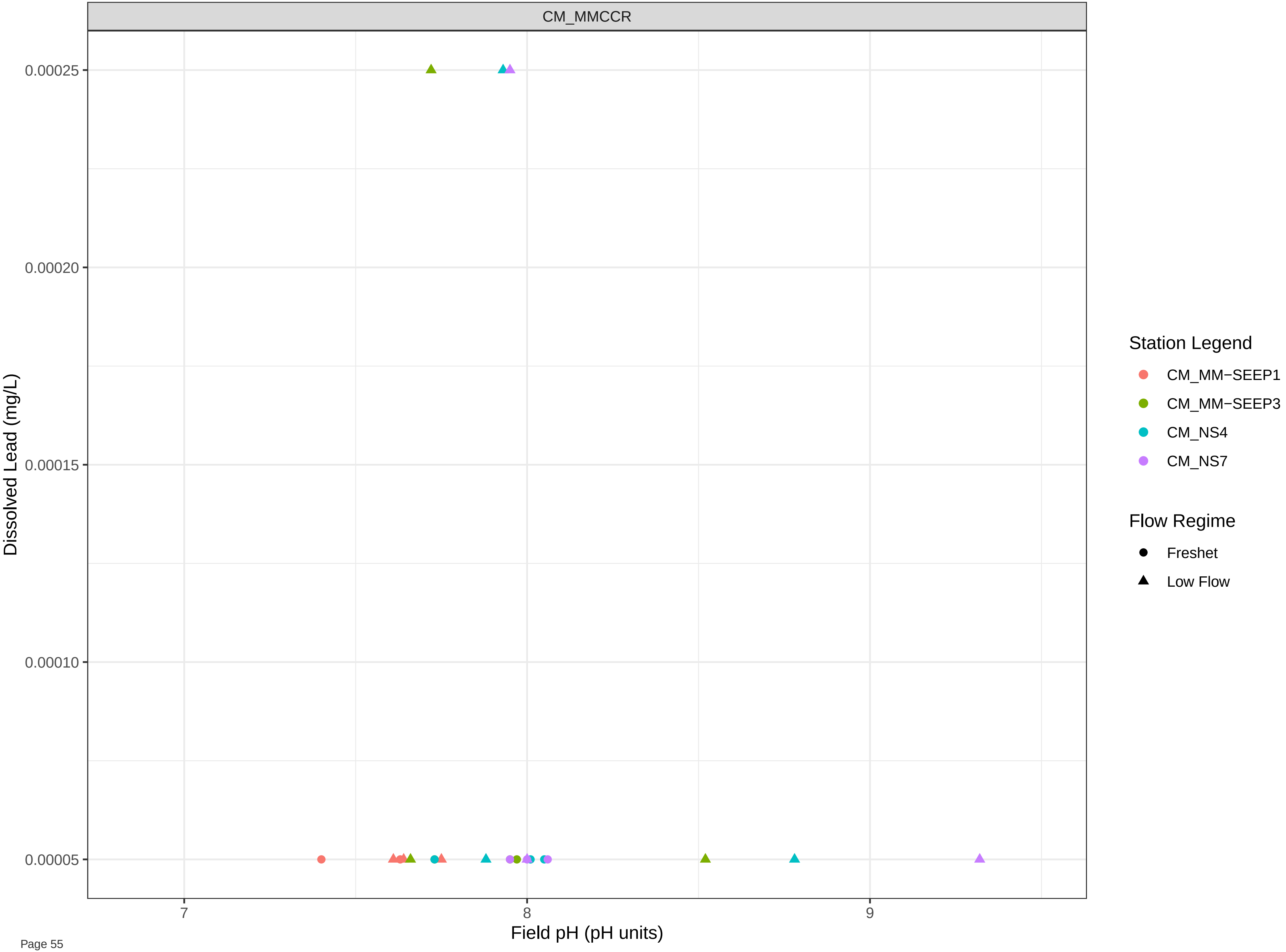

CM_EASTWR
Dissolved Iron (mg/L)
0
2
4
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

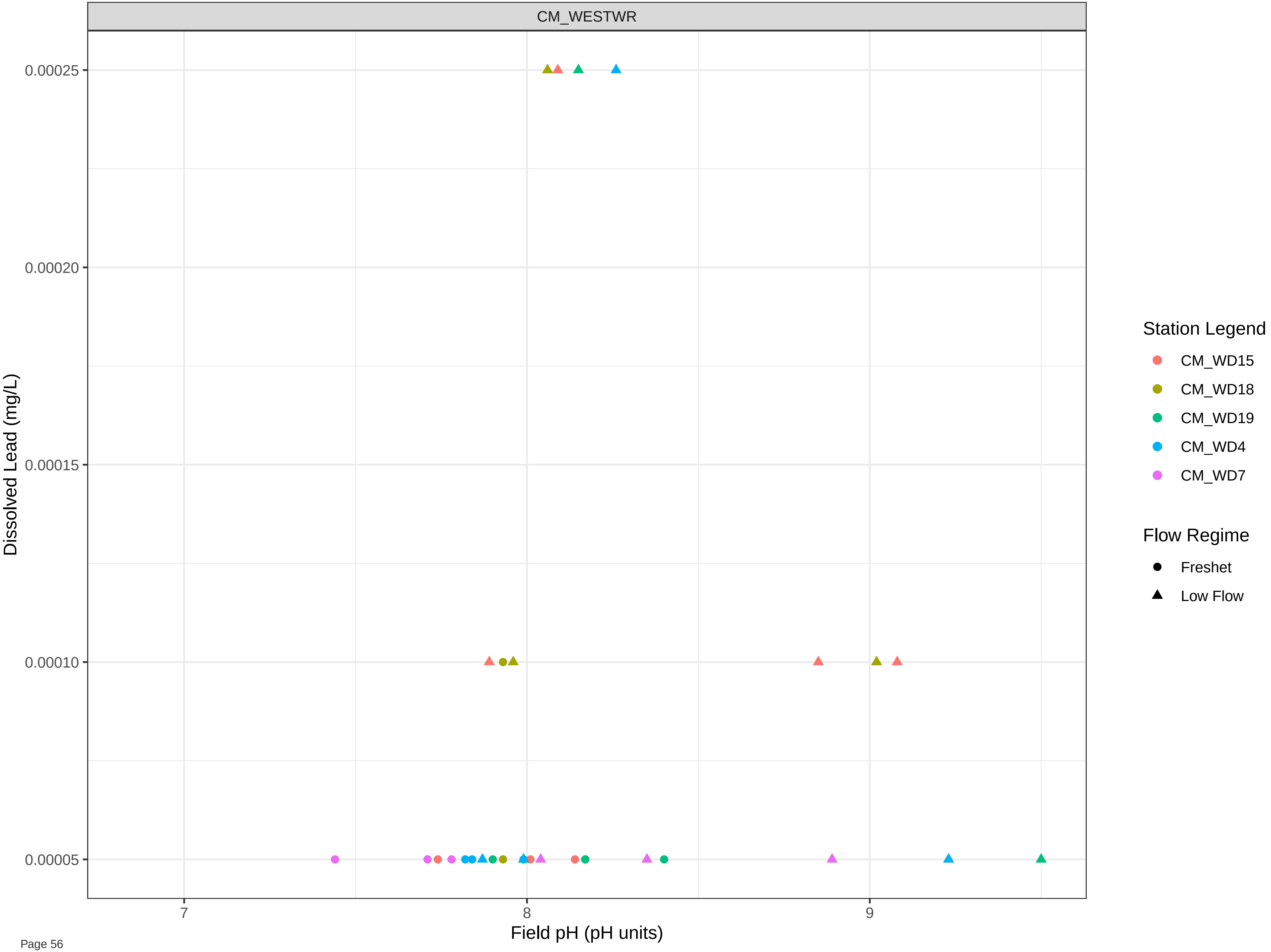

CM_MMCCR
Dissolved Iron (mg/L)
0.125
0.100
0.075
0.050
0.025
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

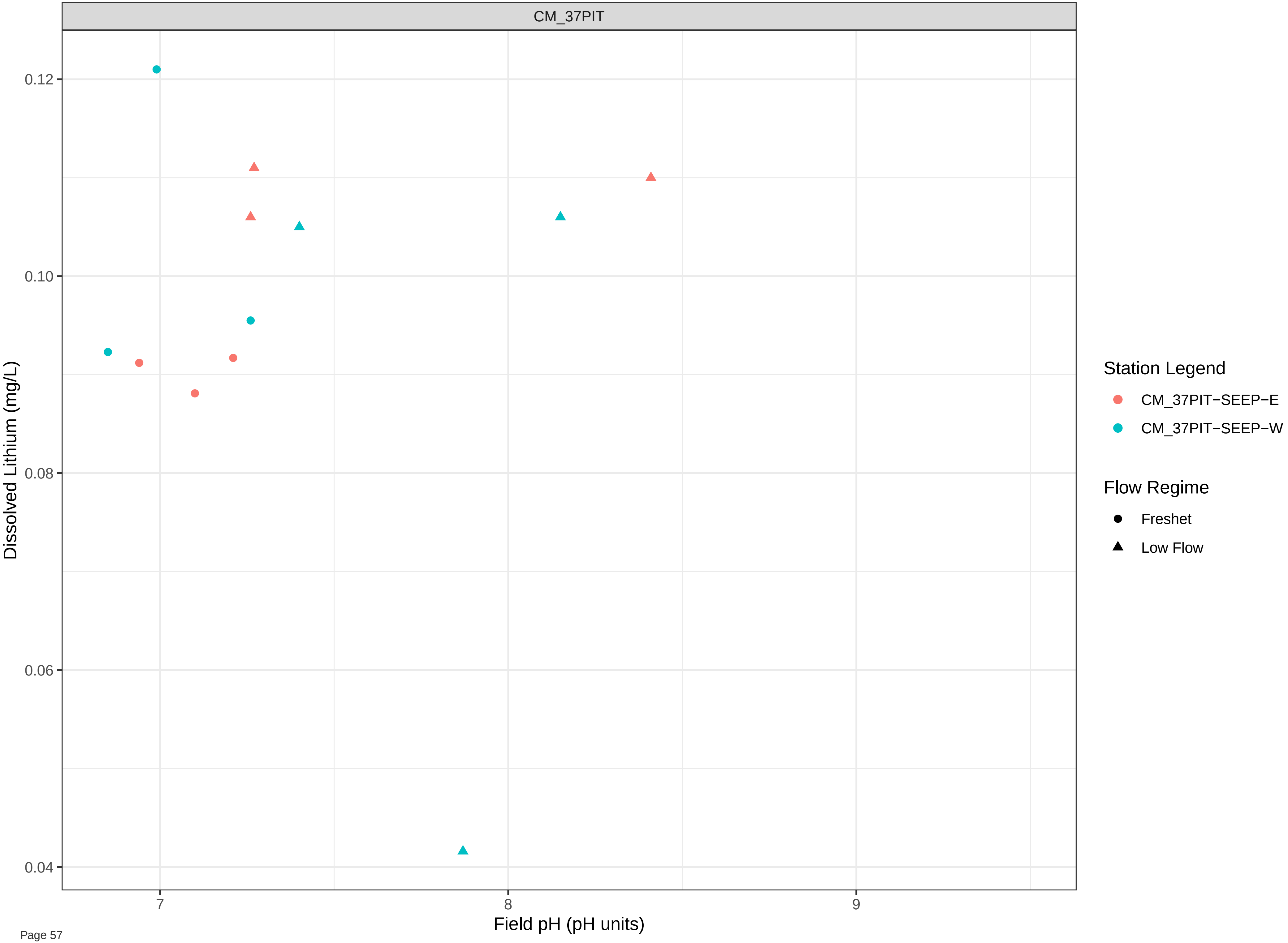

CM_WESTWR
Dissolved Iron (mg/L)
0.05
0.04
0.03
0.02
0.01
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

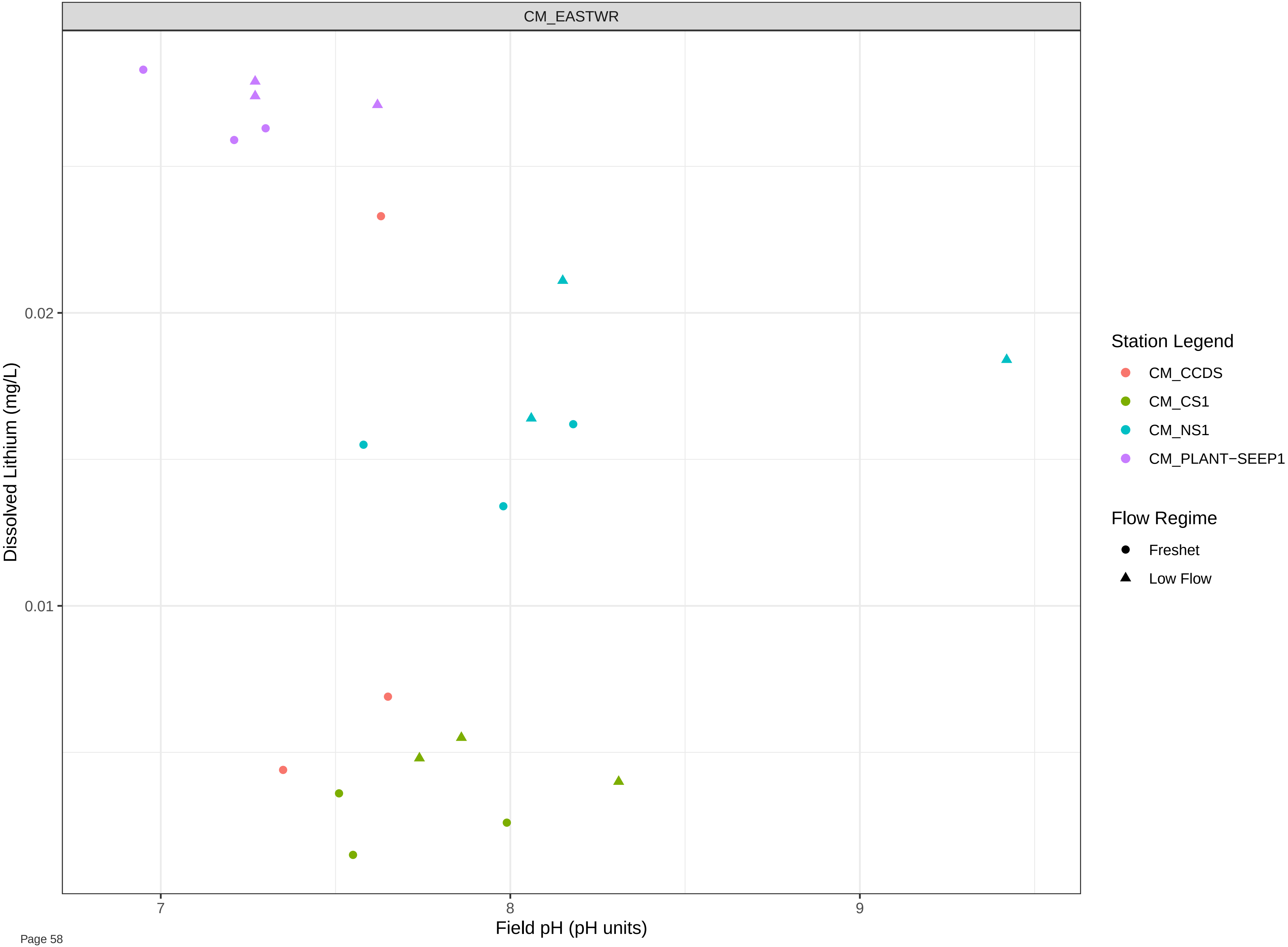

CM_37PIT
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Lead (mg/L)
7
8
9
Field pH (pH units)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

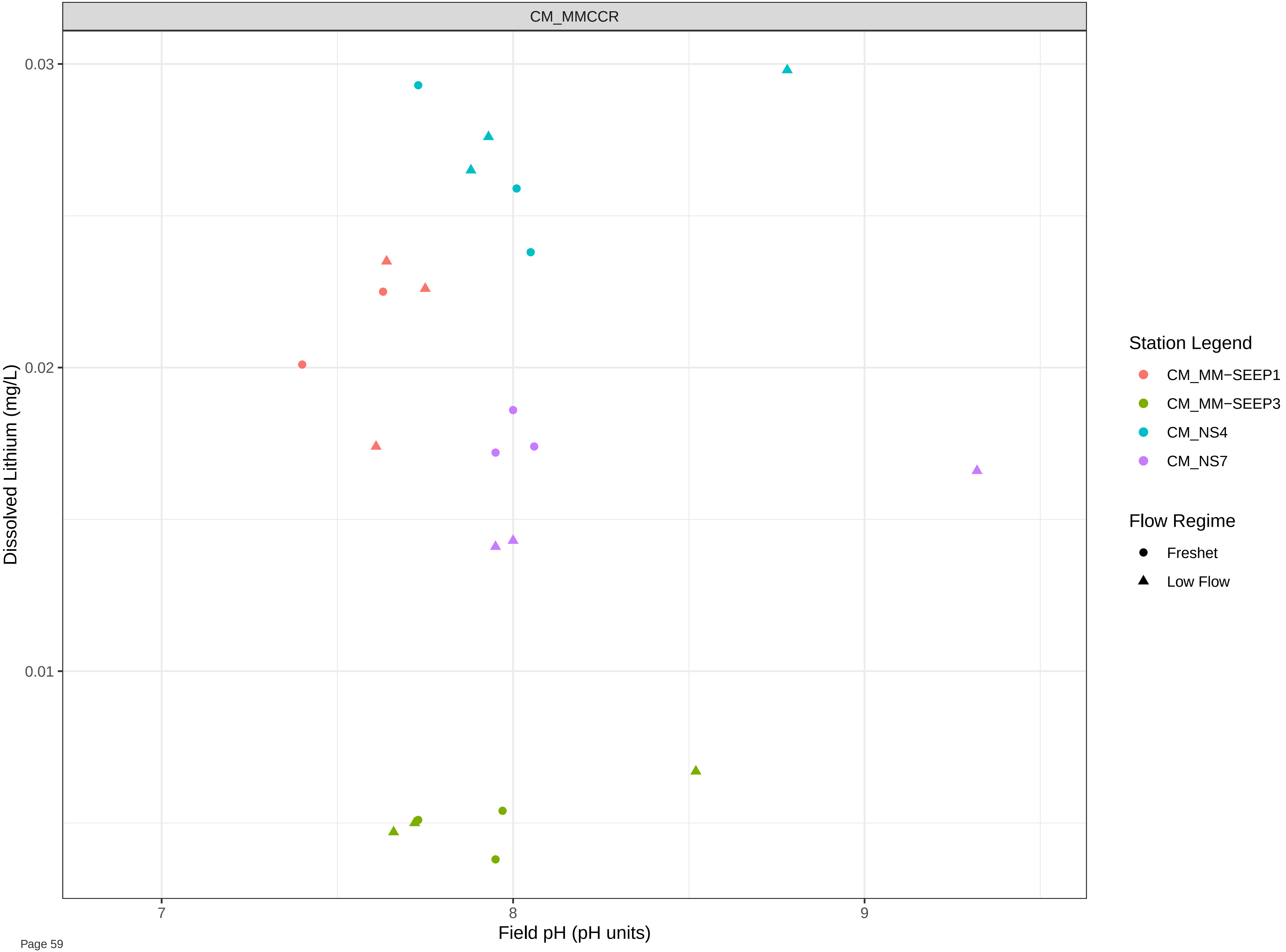

CM_EASTWR
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Lead (mg/L)
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

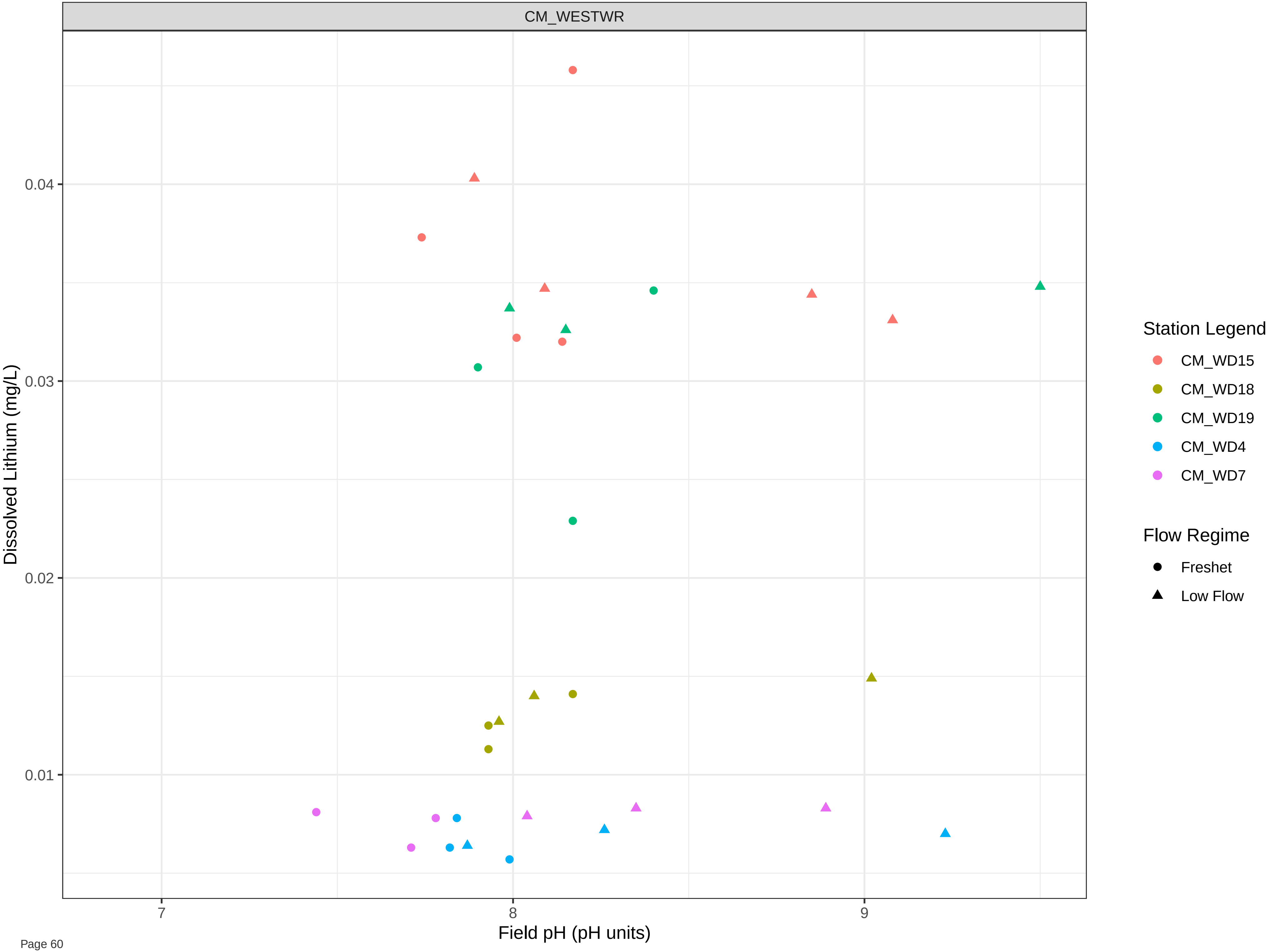

CM_MMCCR
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Lead (mg/L)
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

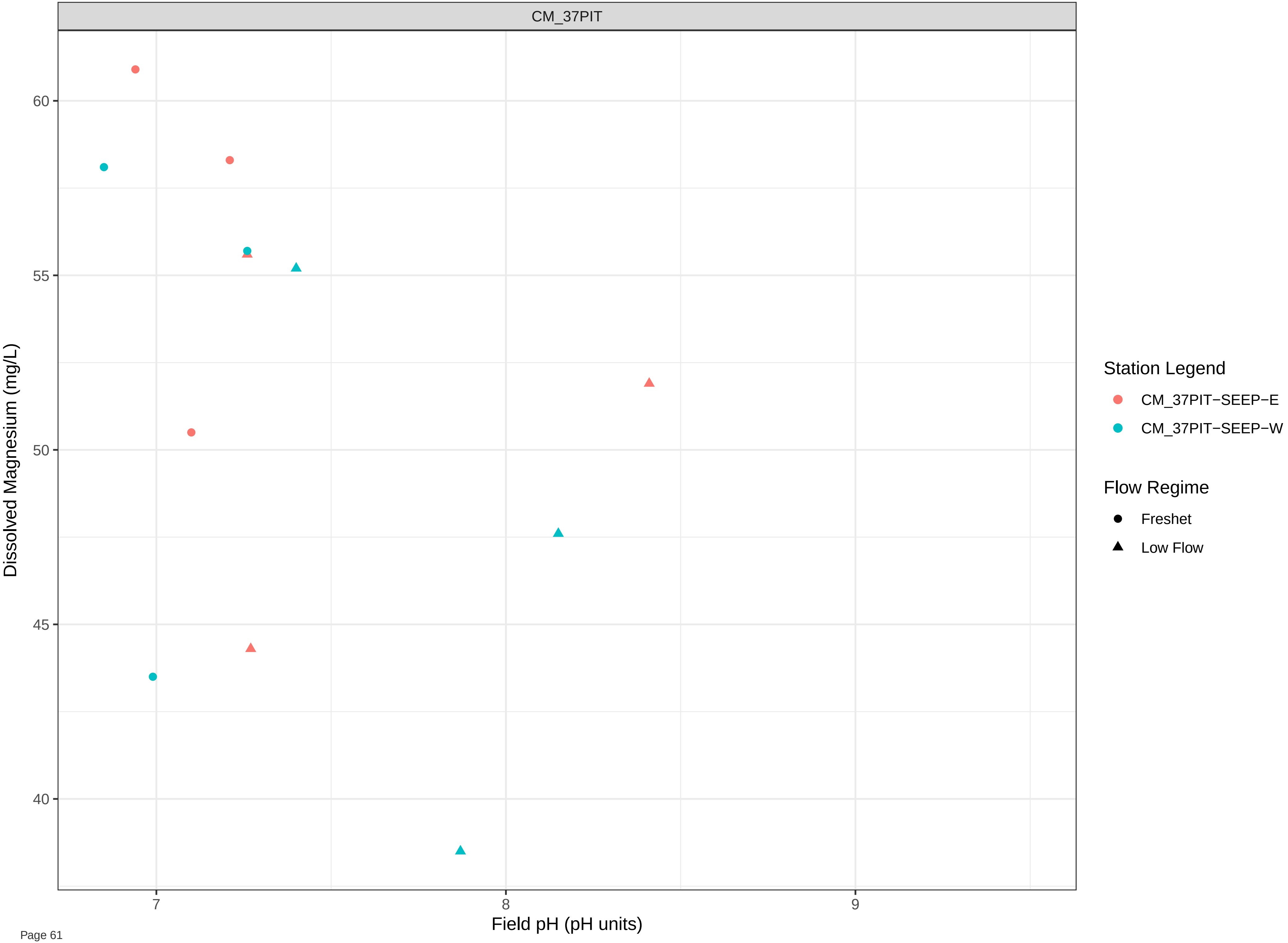

CM_WESTWR
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
Field pH (pH units)
7
8
9
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

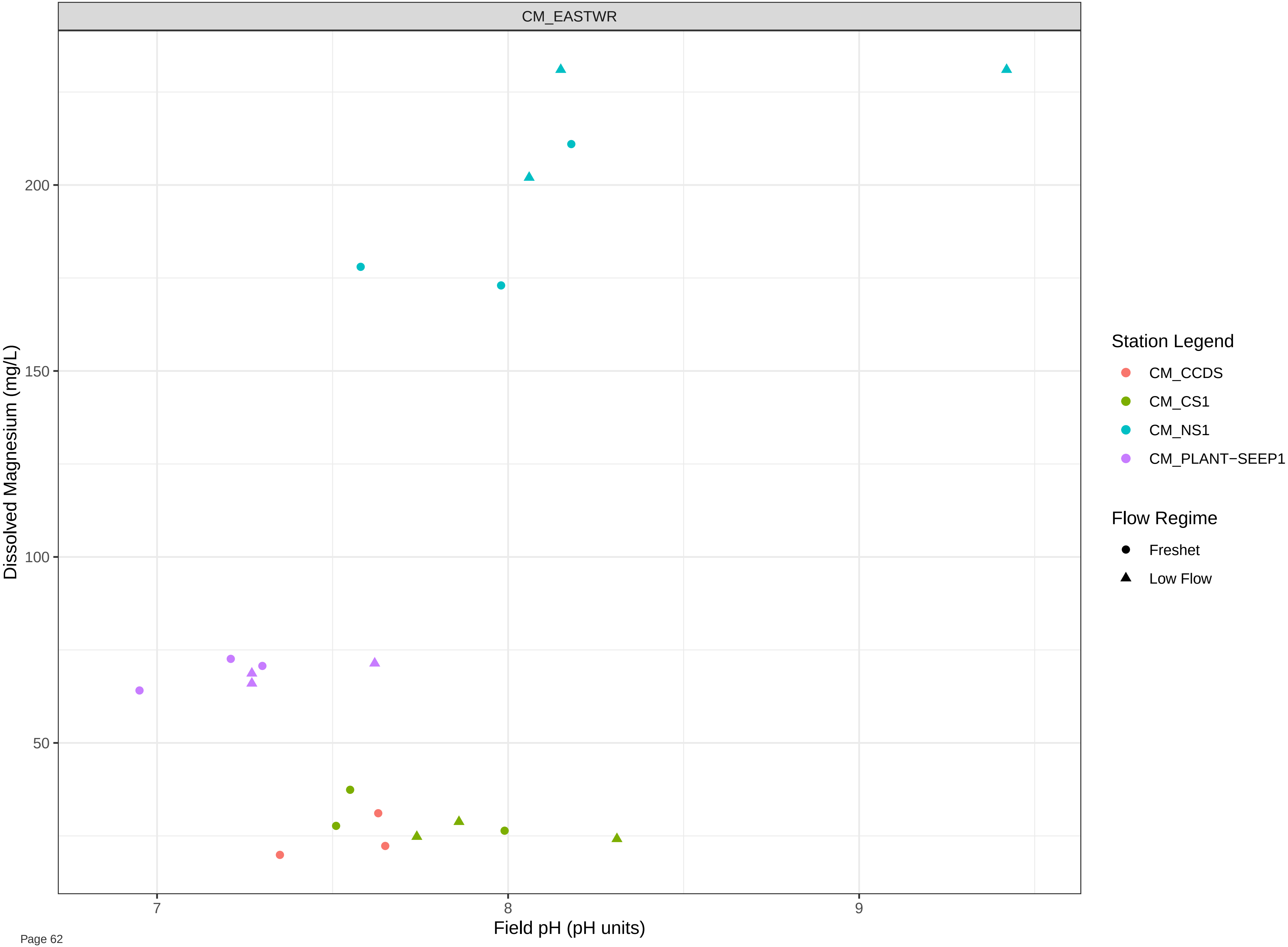

CM_37PIT
Dissolved Lithium (mg/L)
0.12
0.10
0.08
0.06
0.04
7
8
9
Field pH (pH units)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow

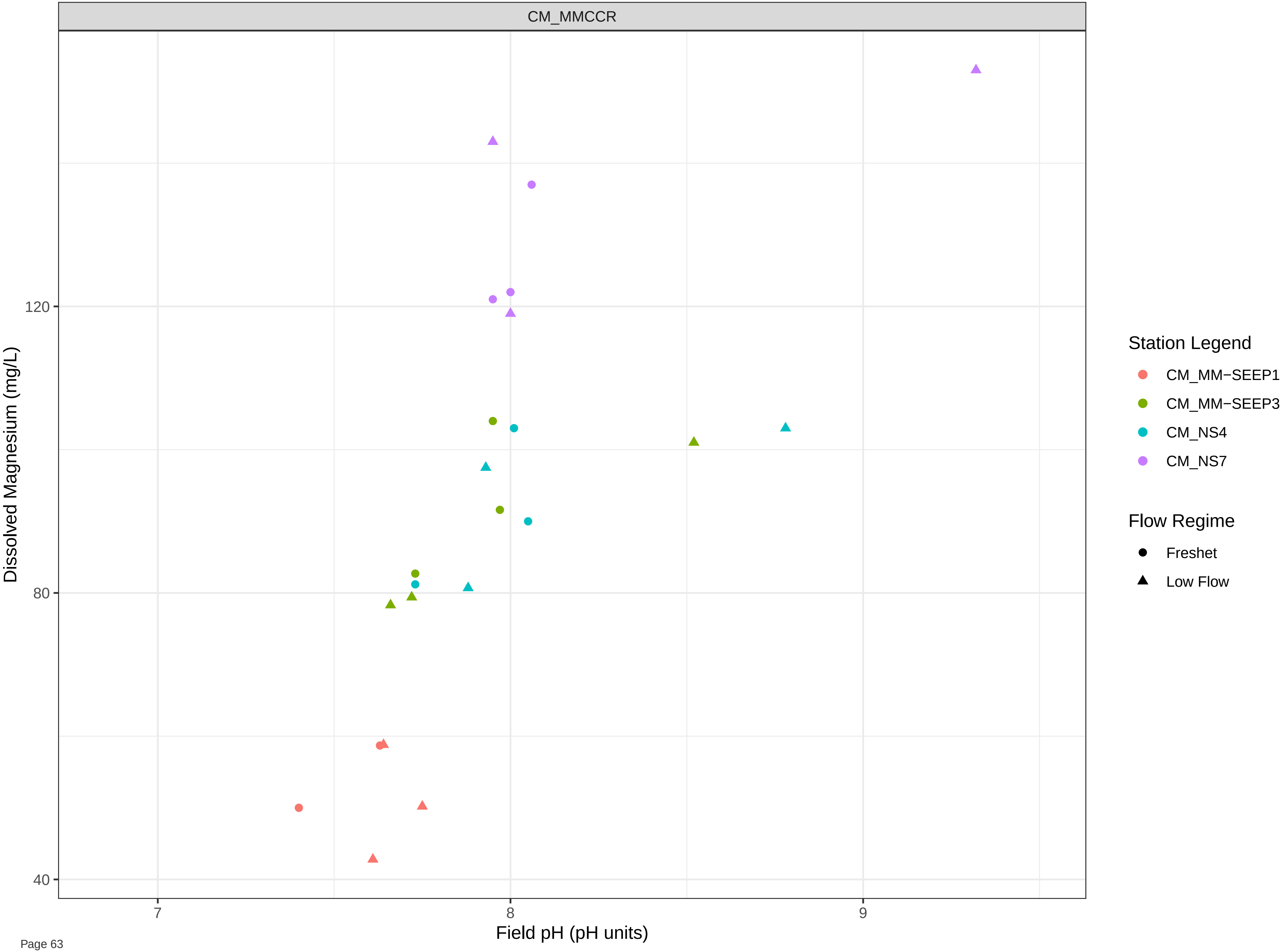

CM_EASTWR
Dissolved Lithium (mg/L)
0.02
0.01
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

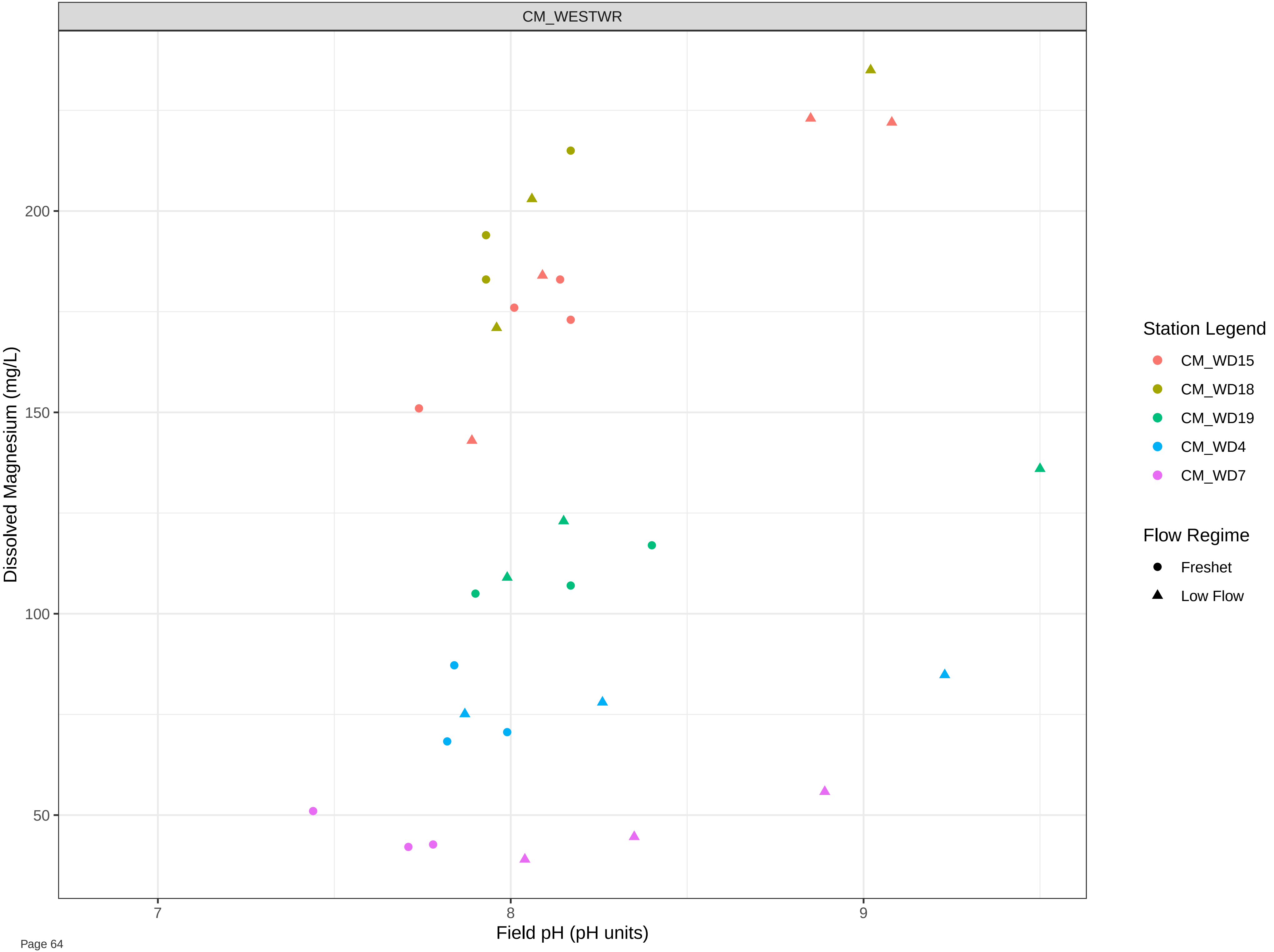

CM_MMCCR
Dissolved Lithium (mg/L)
0.03
0.02
0.01
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

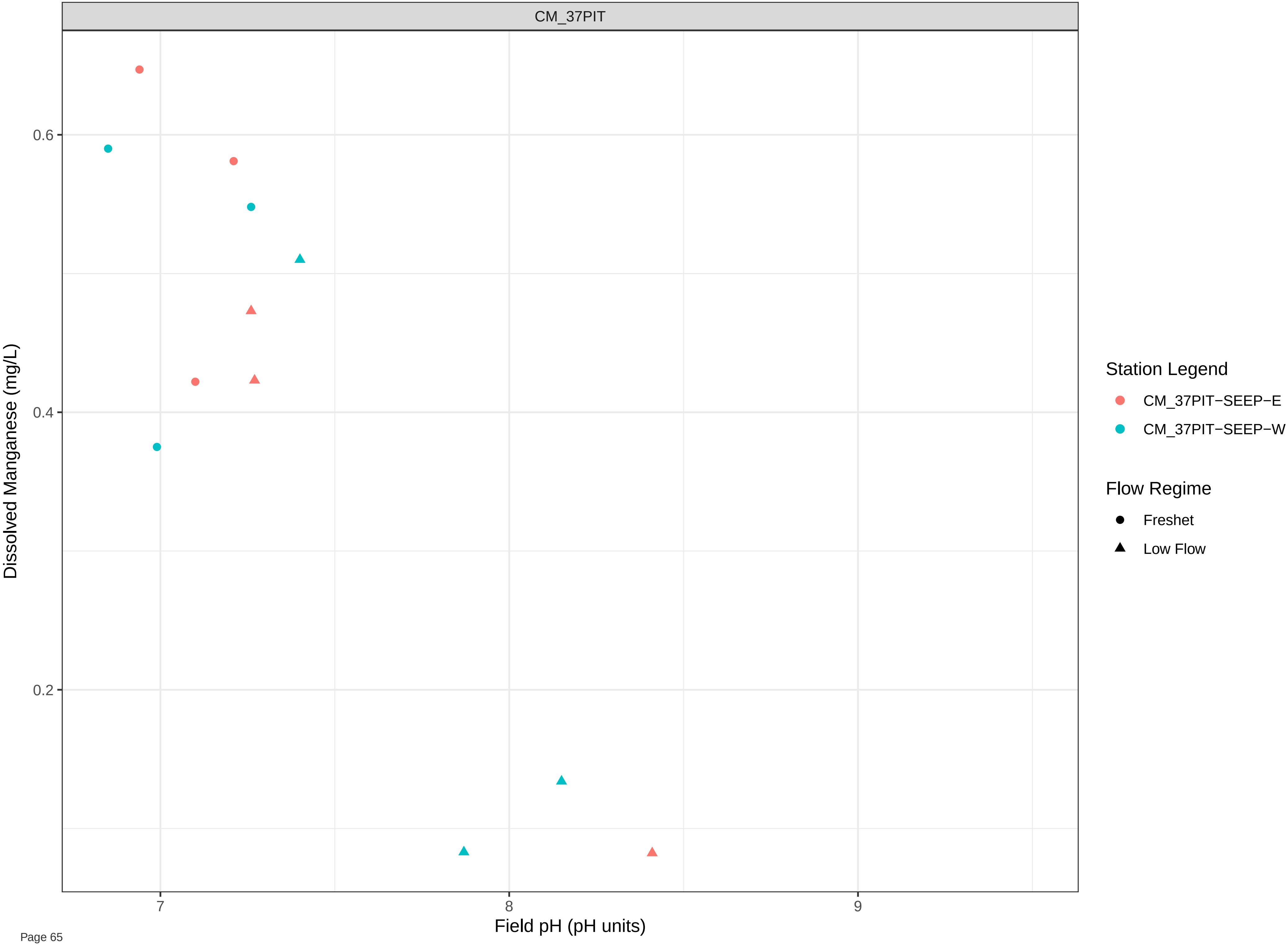

CM_WESTWR
Dissolved Lithium (mg/L)
0.04
0.03
0.02
0.01
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

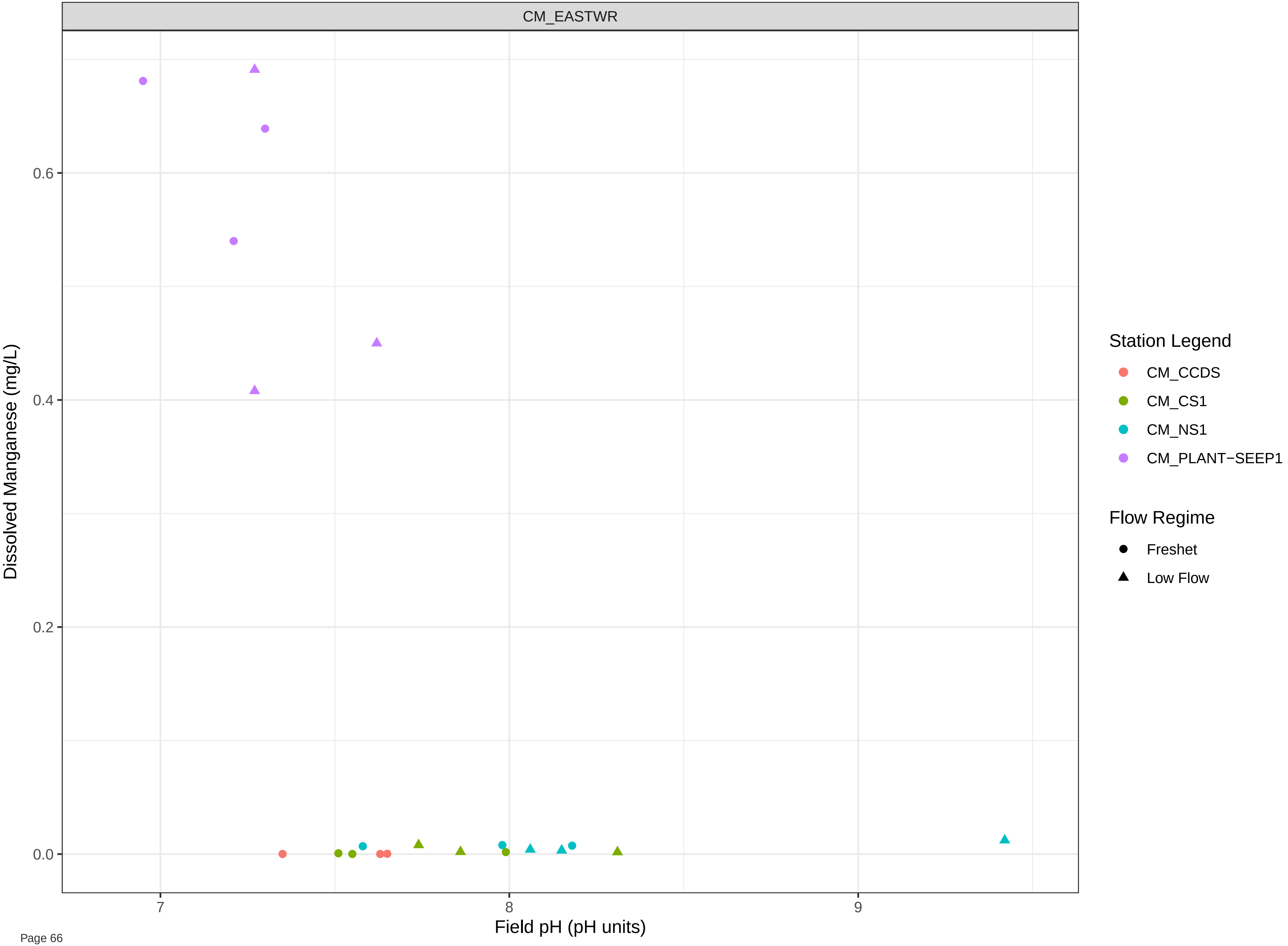

CM_37PIT
Dissolved Magnesium (mg/L)
60
55
50
45
40
Field pH (pH units)
7
8
9
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

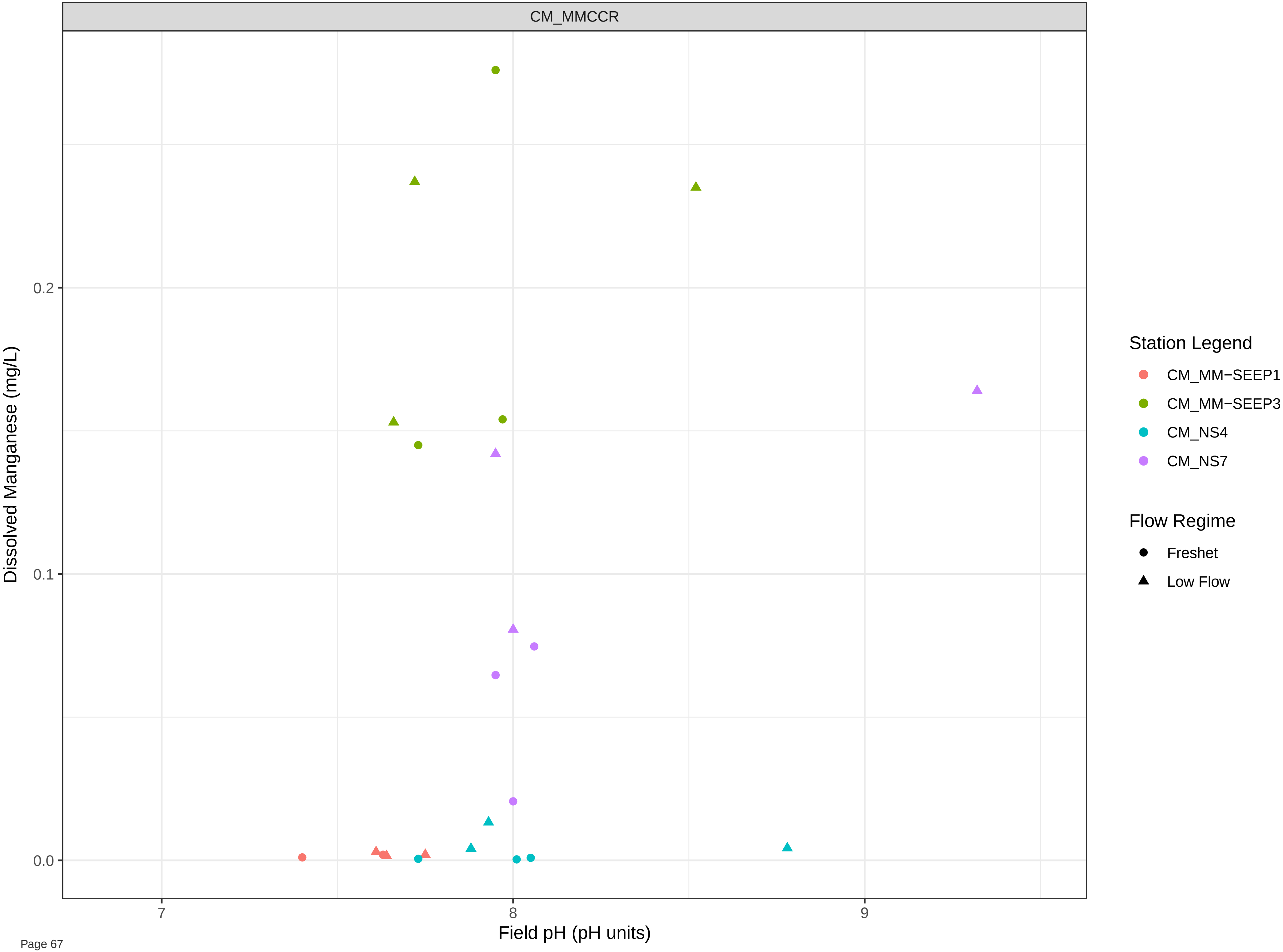

CM_EASTWR
Dissolved Magnesium (mg/L)
200
150
100
50
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

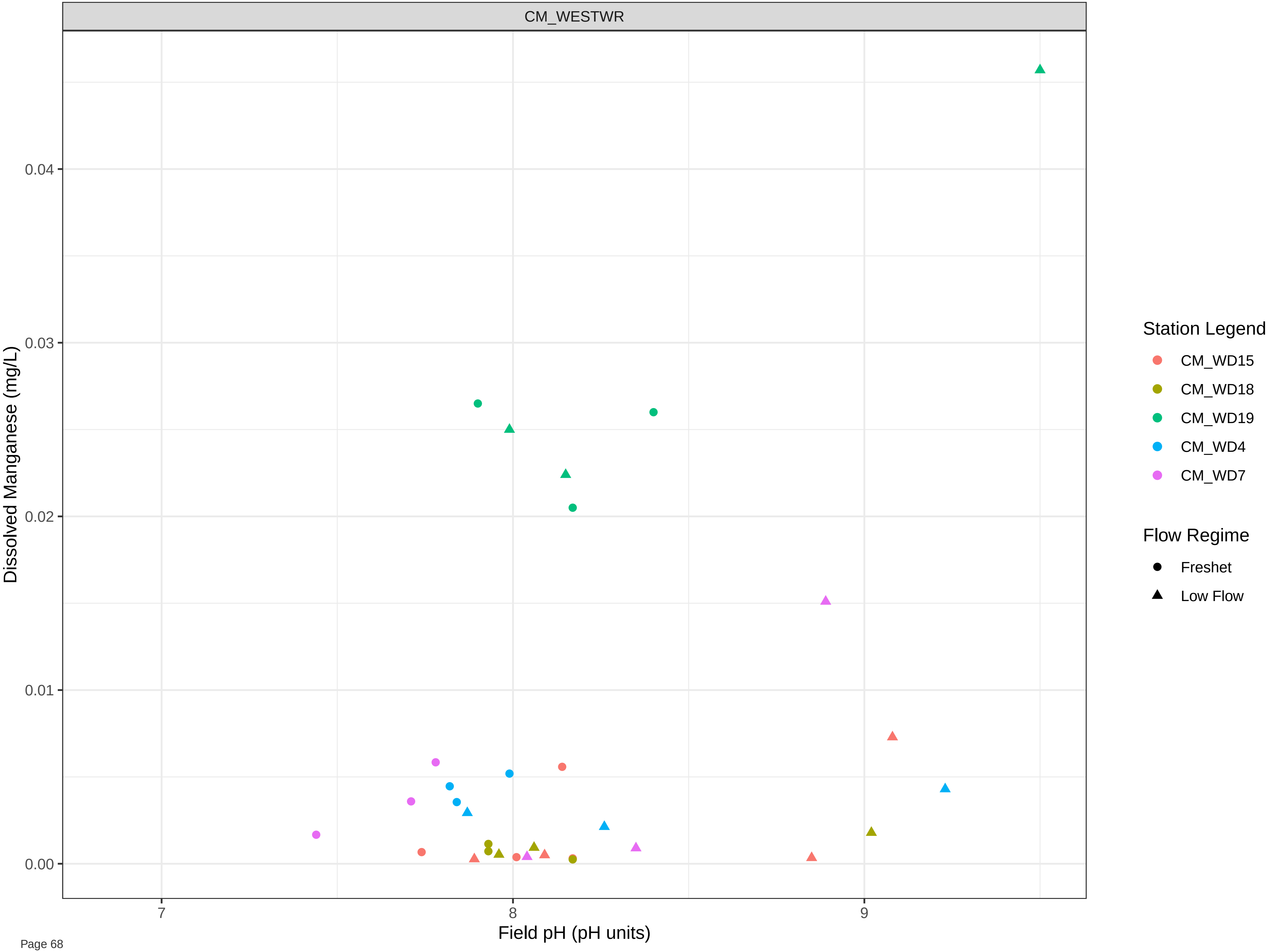

CM_MMCCR
Dissolved Magnesium (mg/L)
120
80
40
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

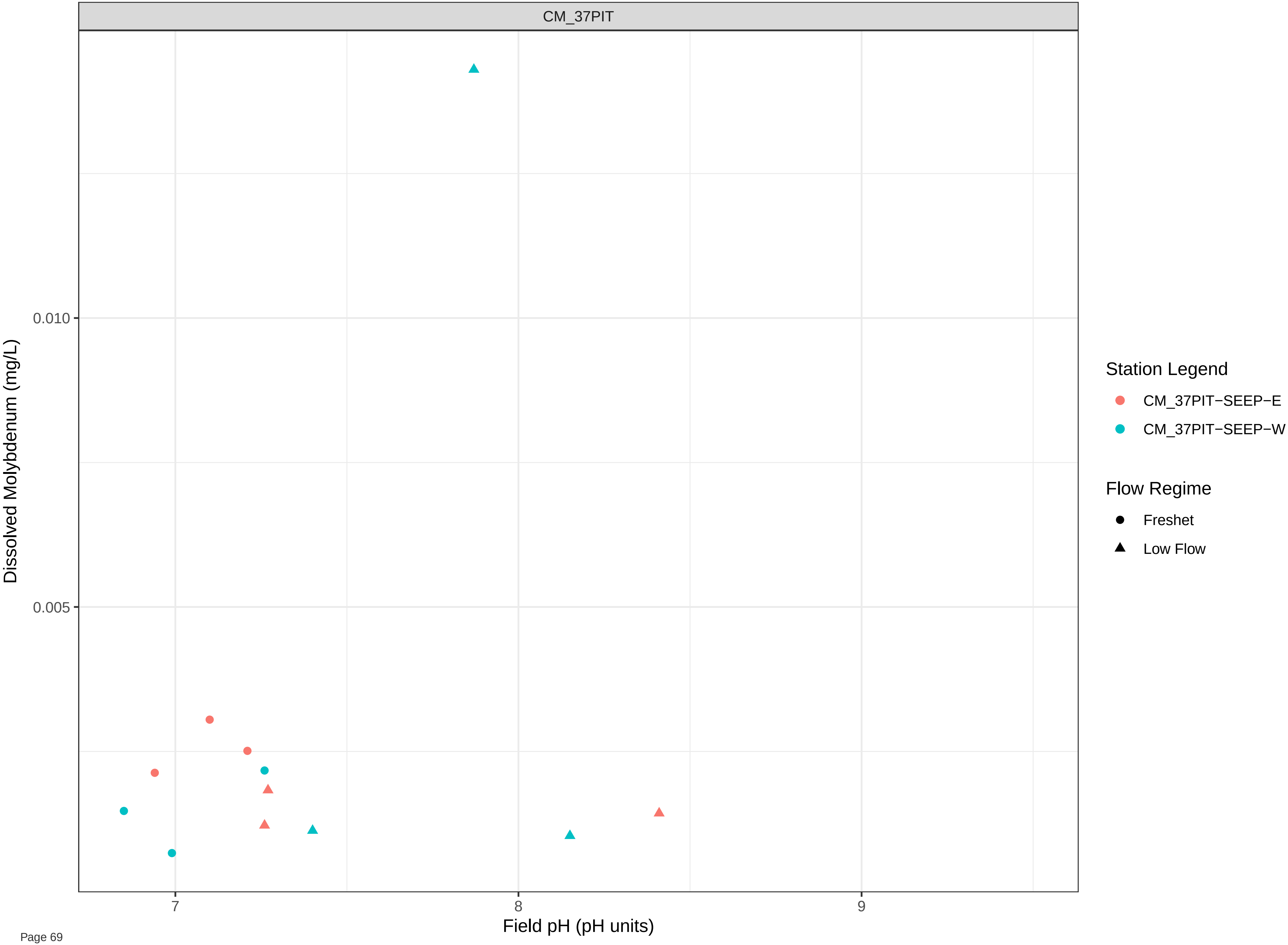

CM_WESTWR
Dissolved Magnesium (mg/L)
200
150
100
50
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

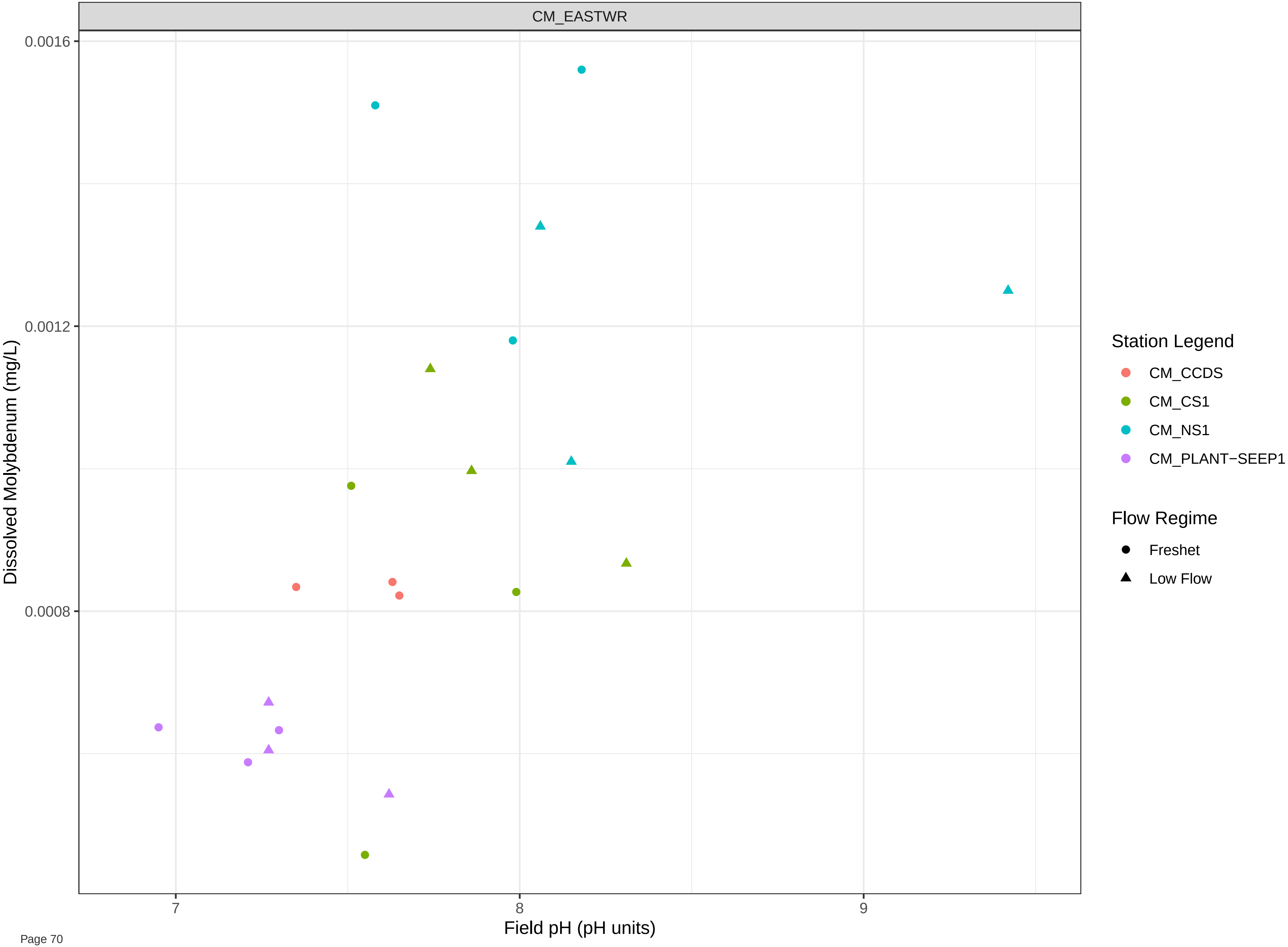

CM_37PIT
Dissolved Manganese (mg/L)
0.6
0.4
0.2
Field pH (pH units)
7
8
9
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

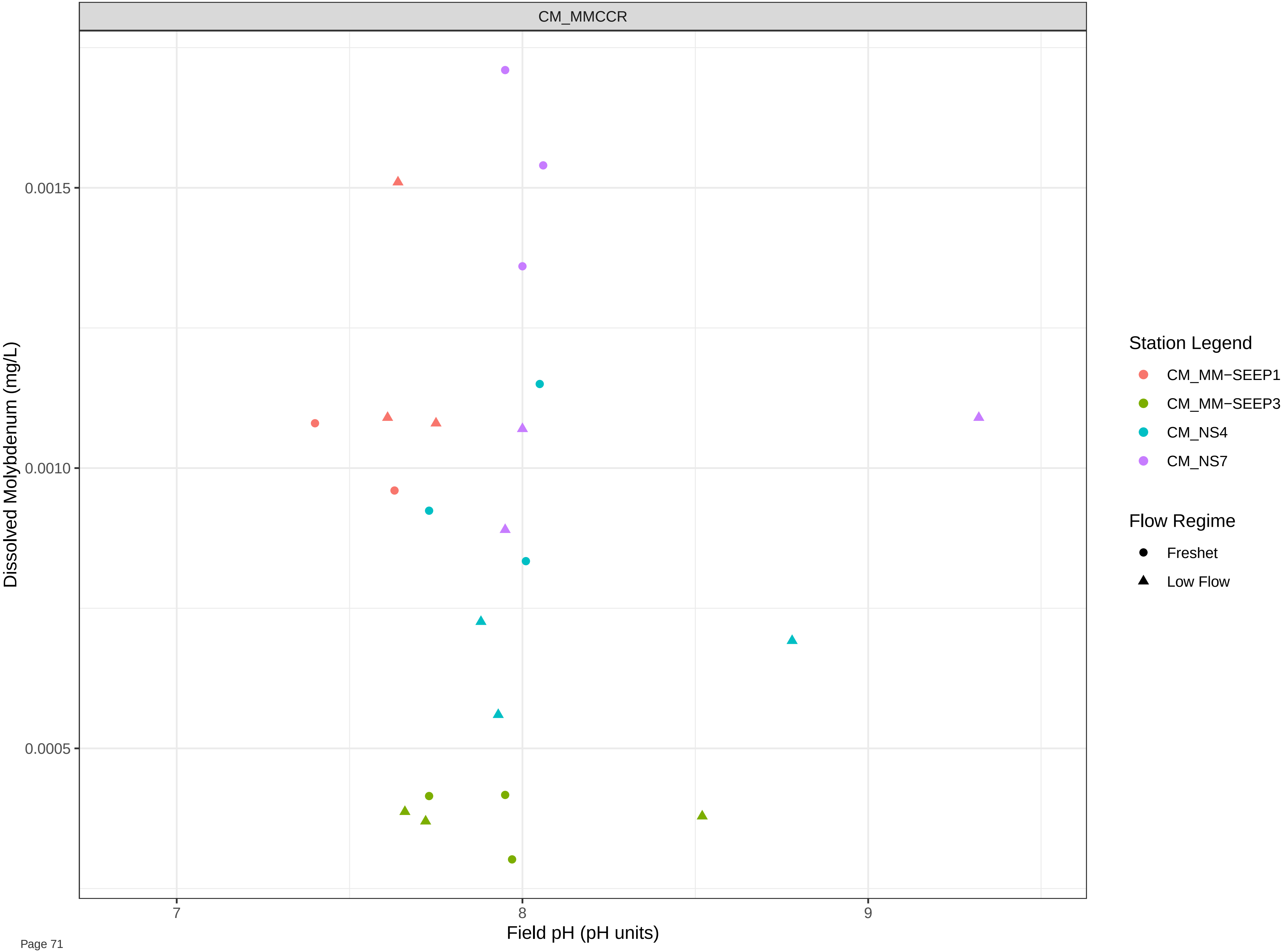

CM_EASTWR
0.6
0.4
0.2
0.0
Dissolved Manganese (mg/L)
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

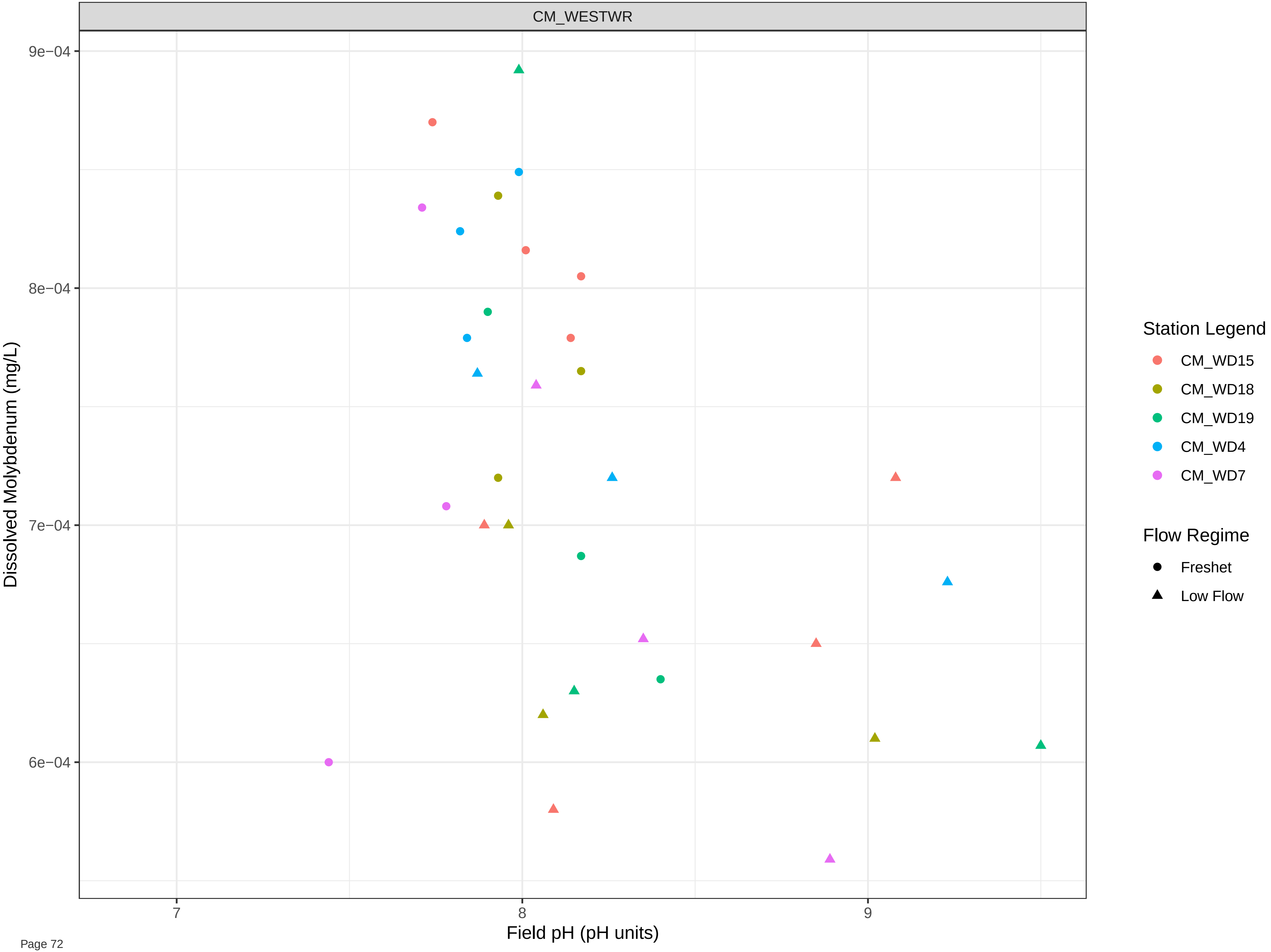

CM_MMCCR
Dissolved Manganese (mg/L)
0.2
0.1
0.0
7
8
9
Field pH (pH units)
Station Legend
● CM_MM−SEEP1
● CM_MM−SEEP3
● CM_NS4
● CM_NS7
Flow Regime
● Freshet
▲ Low Flow

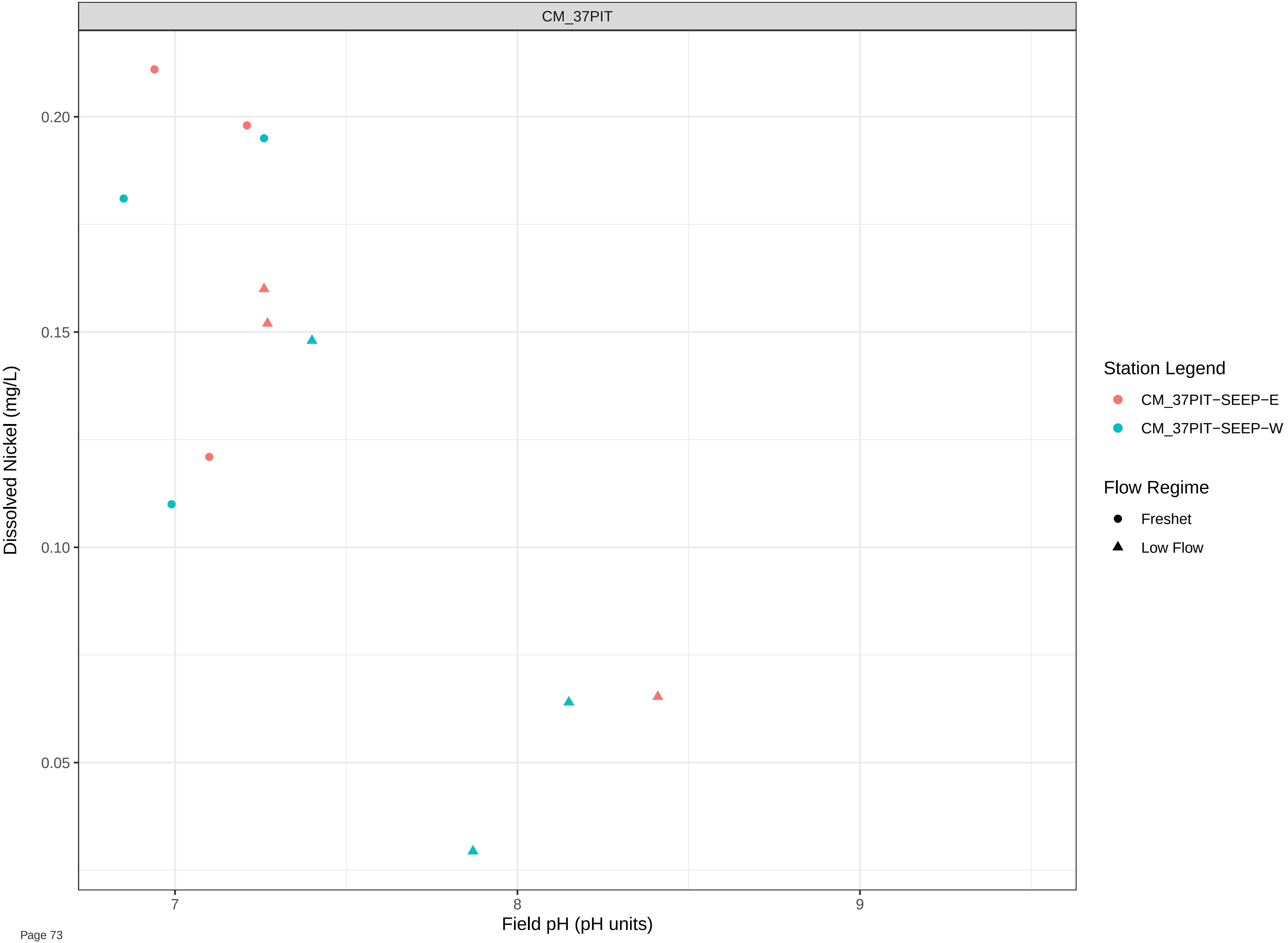

CM_WESTWR
Dissolved Manganese (mg/L)
0.00
0.01
0.02
0.03
0.04
Field pH (pH units)
7
8
9
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

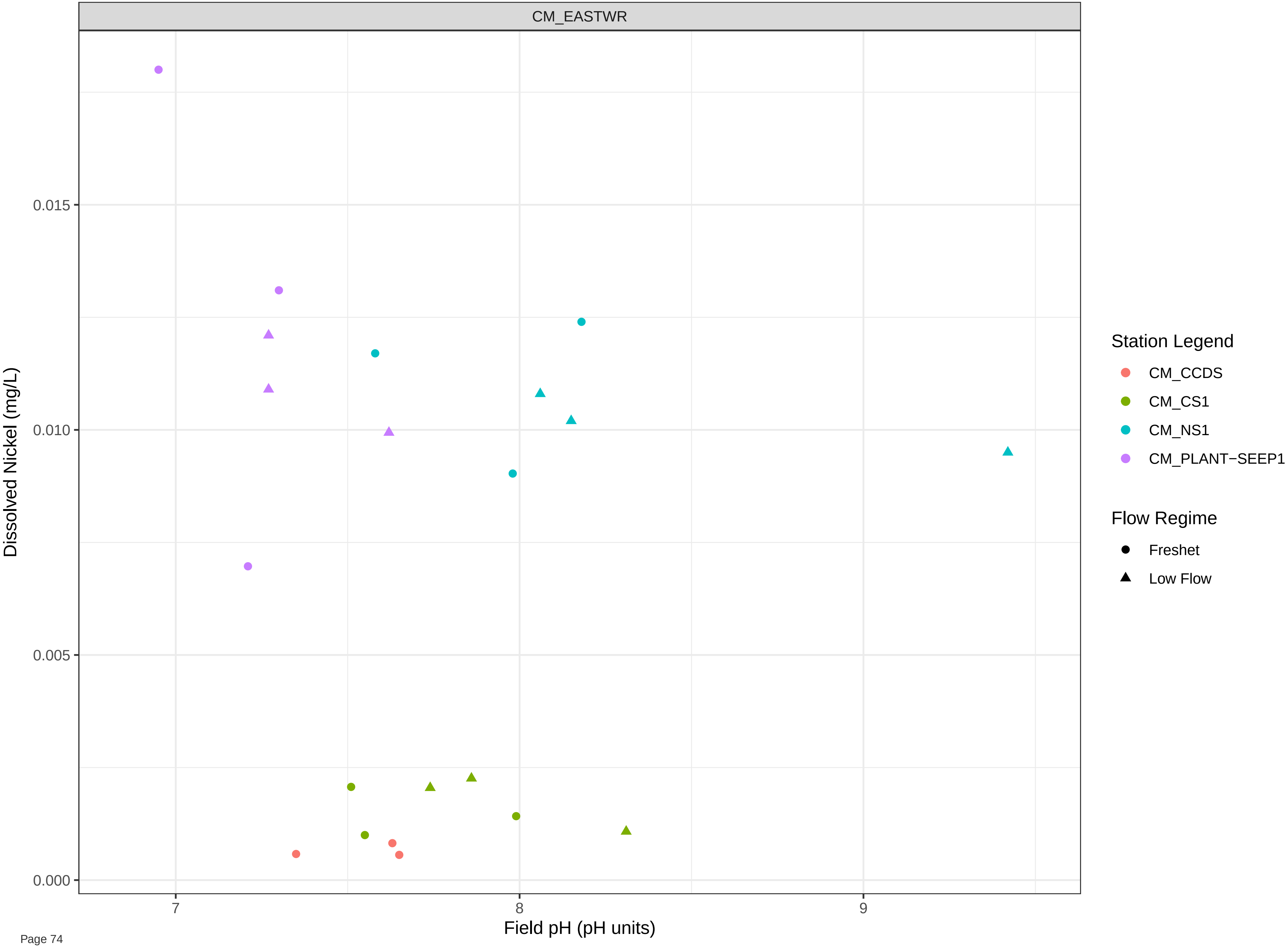

CM_37PIT
Dissolved Molybdenum (mg/L)
0.010
0.005
7
8
9
Field pH (pH units)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

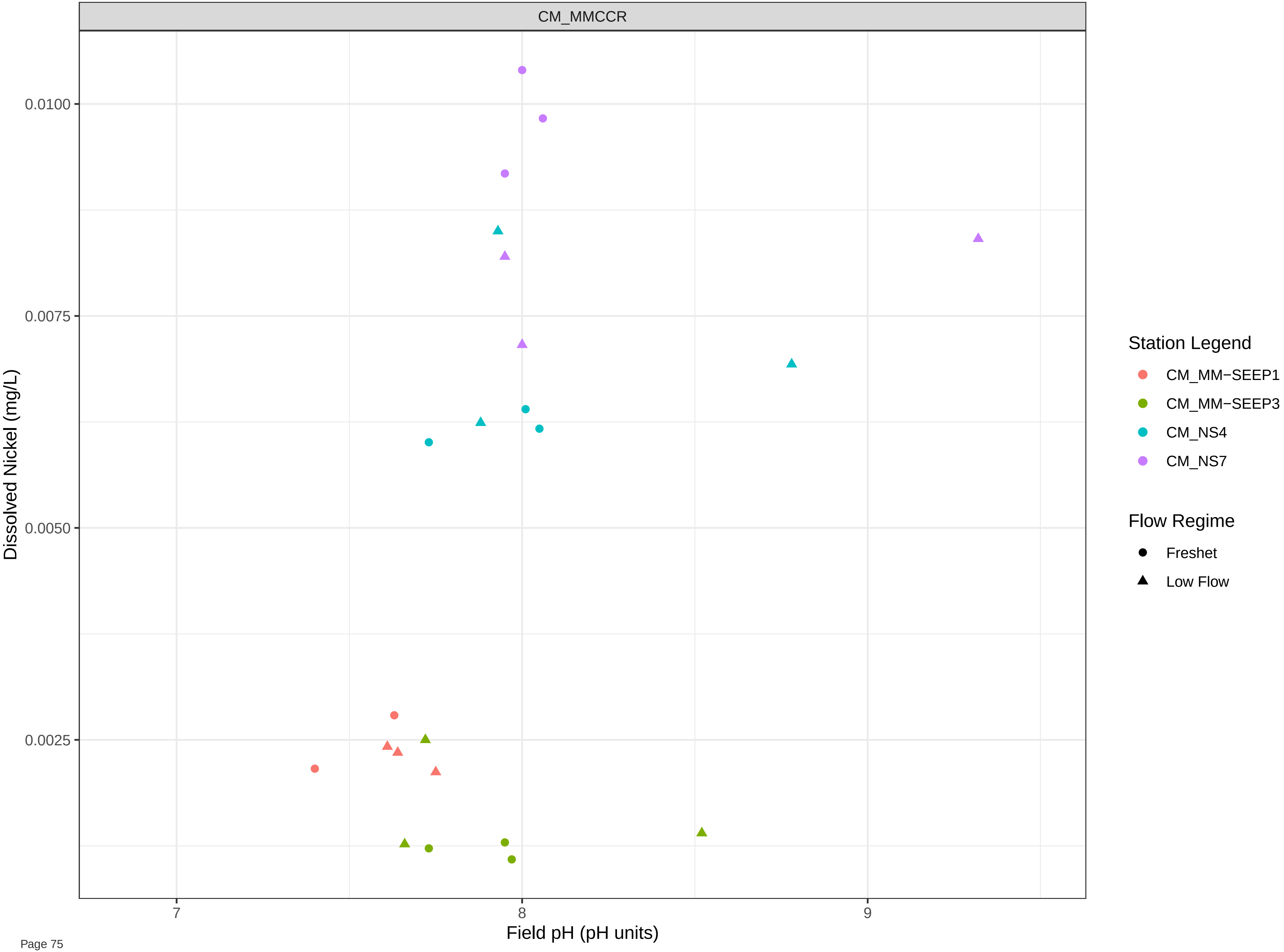

CM_EASTWR
0.0016
0.0012
0.0008
Dissolved Molybdenum (mg/L)
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

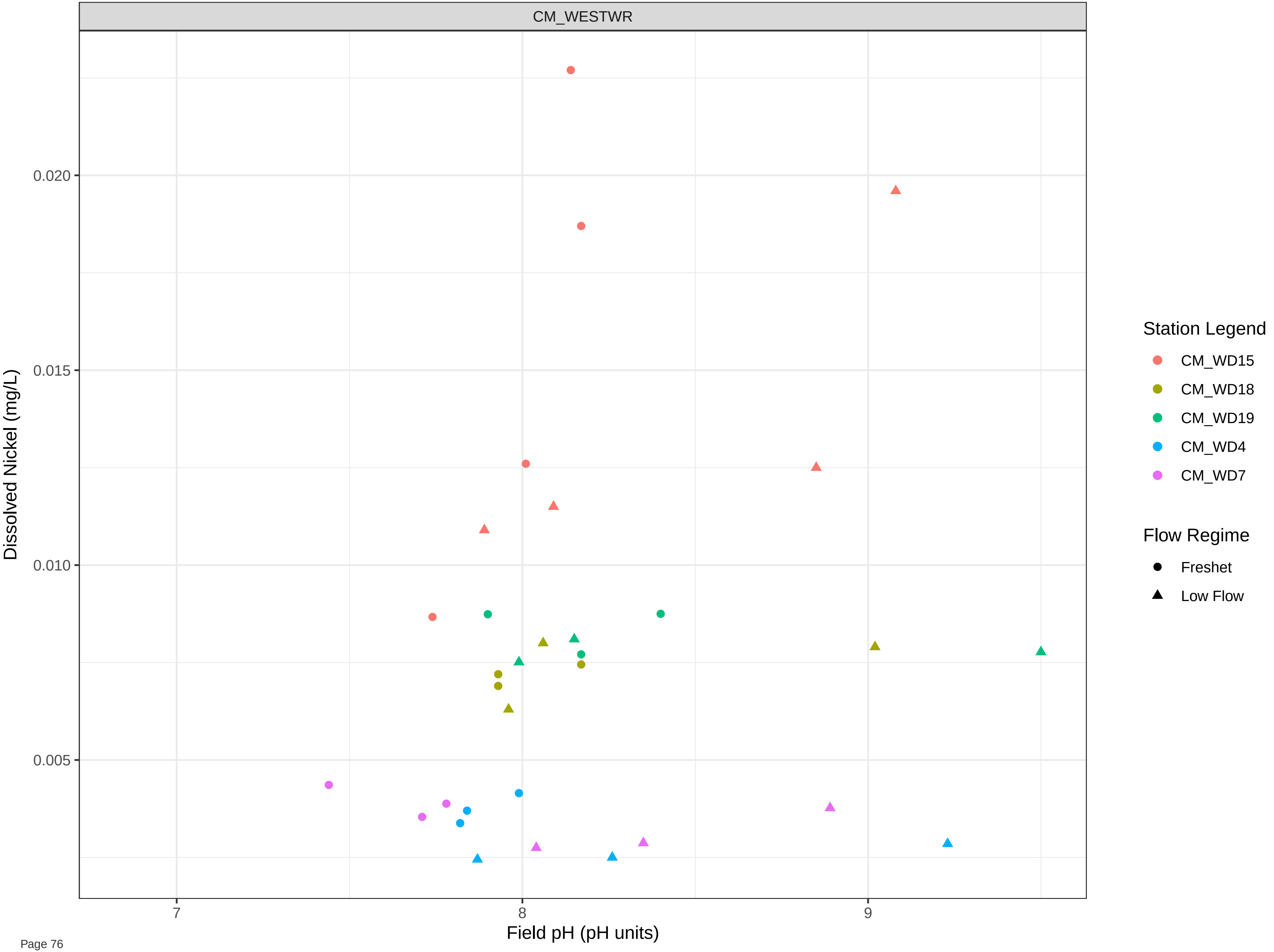

CM_MMCCR
Dissolved Molybdenum (mg/L)
0.0015
0.0010
0.0005
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

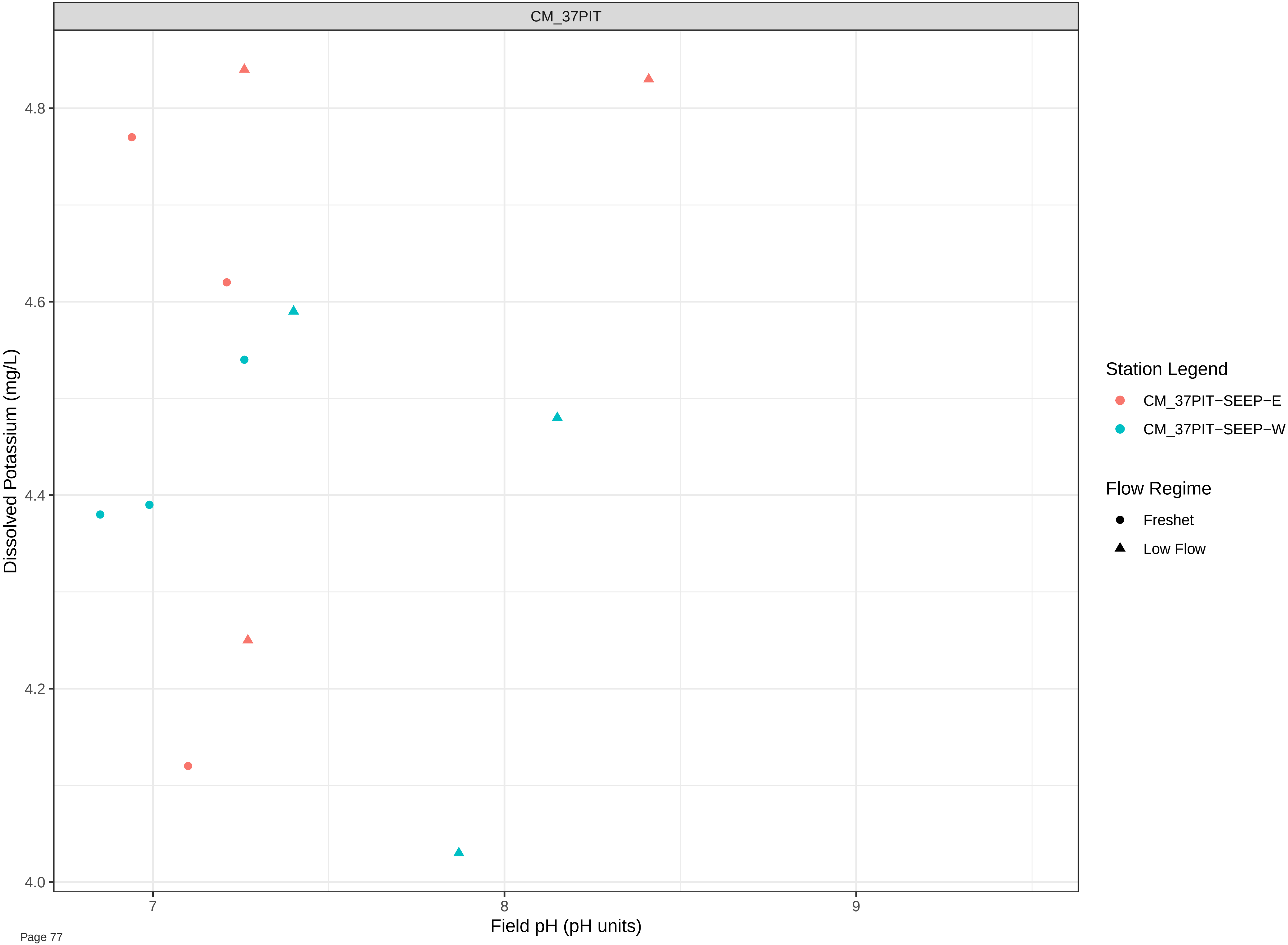

CM_WESTWR
9e−04
8e−04
7e−04
6e−04
Dissolved Molybdenum (mg/L)
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

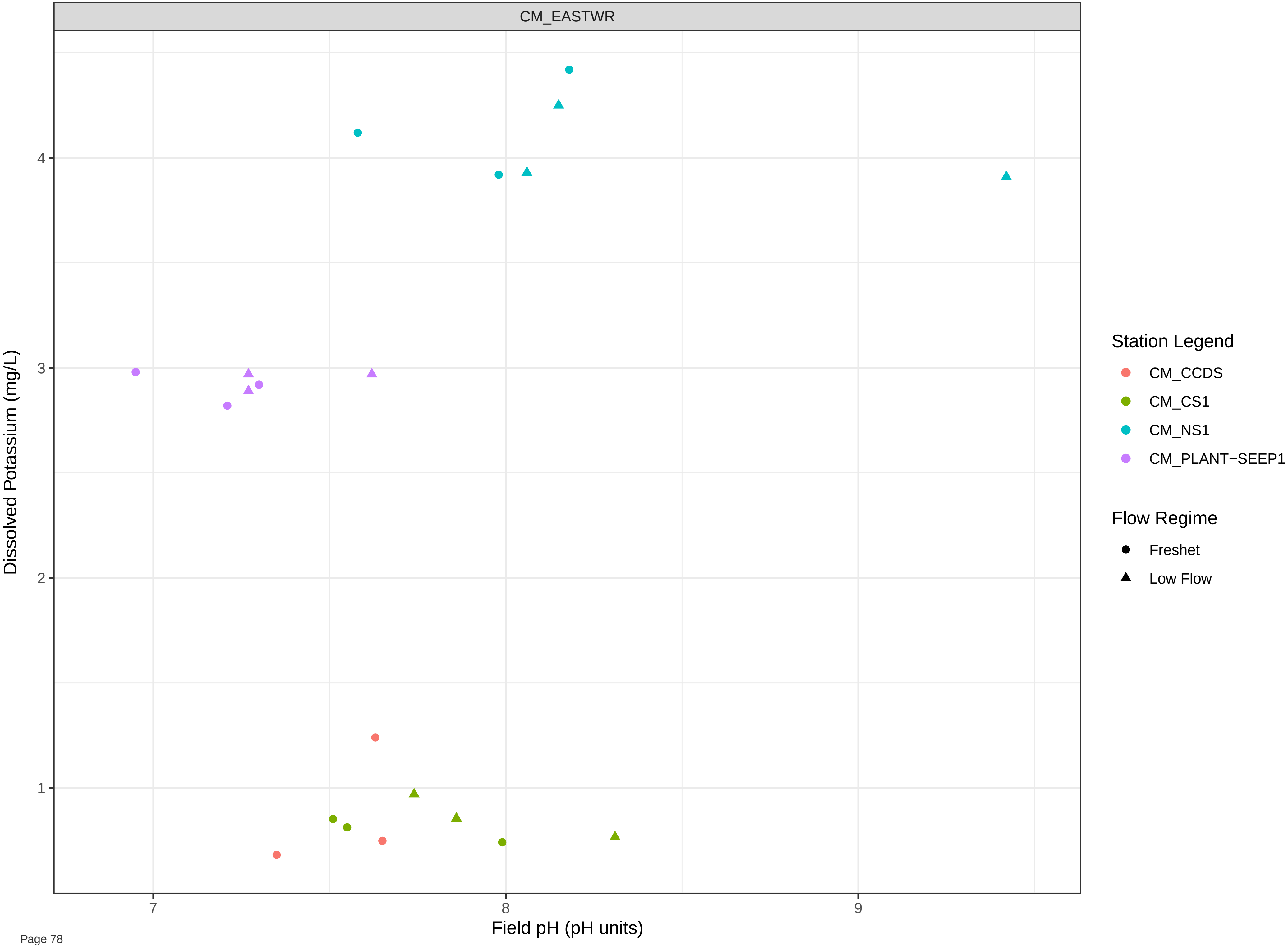

CM_37PIT
Dissolved Nickel (mg/L)
0.20
0.15
0.10
0.05
7
8
9
Field pH (pH units)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow

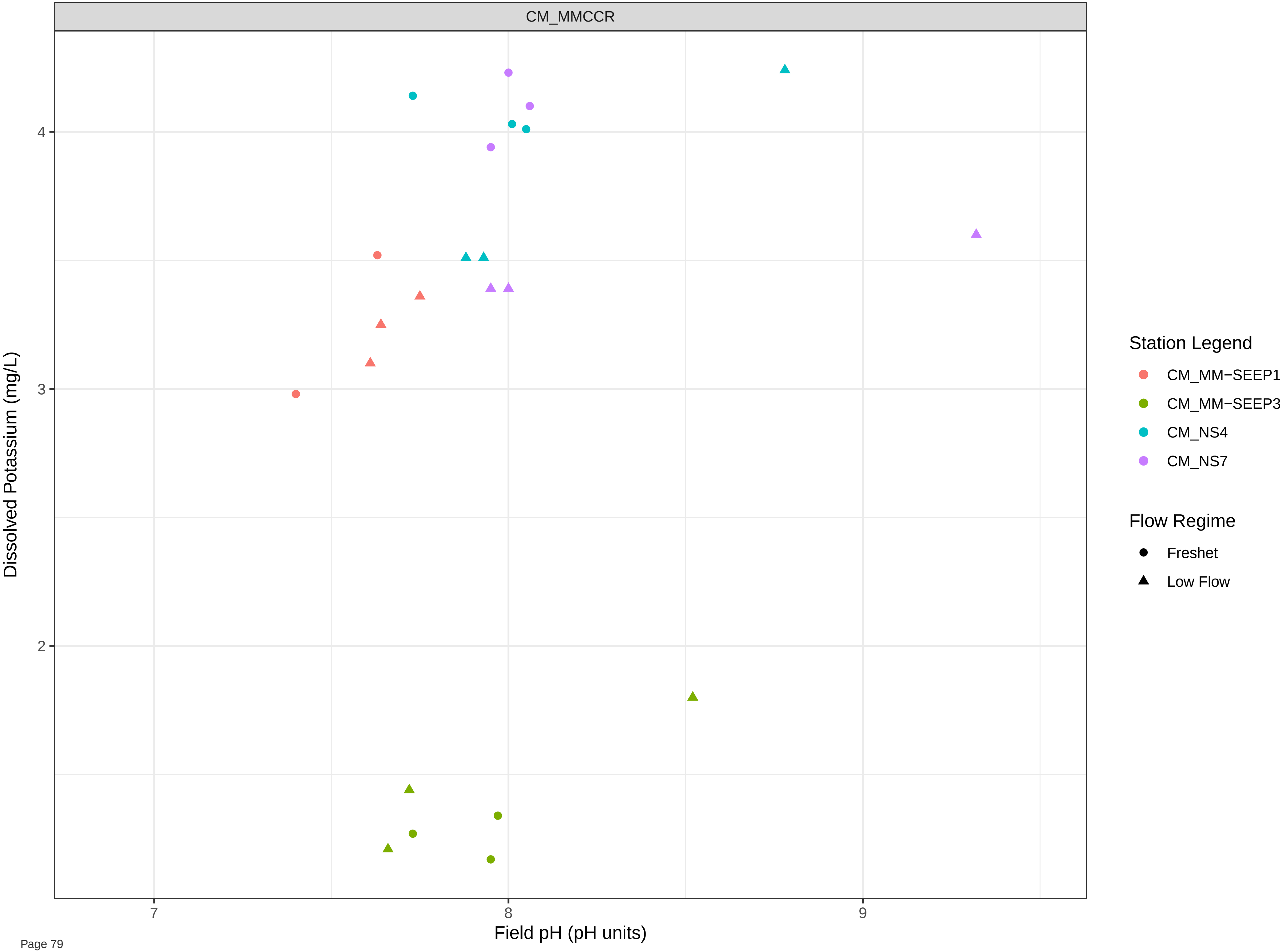

CM_EASTWR
Dissolved Nickel (mg/L)
0.015
0.010
0.005
0.000
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

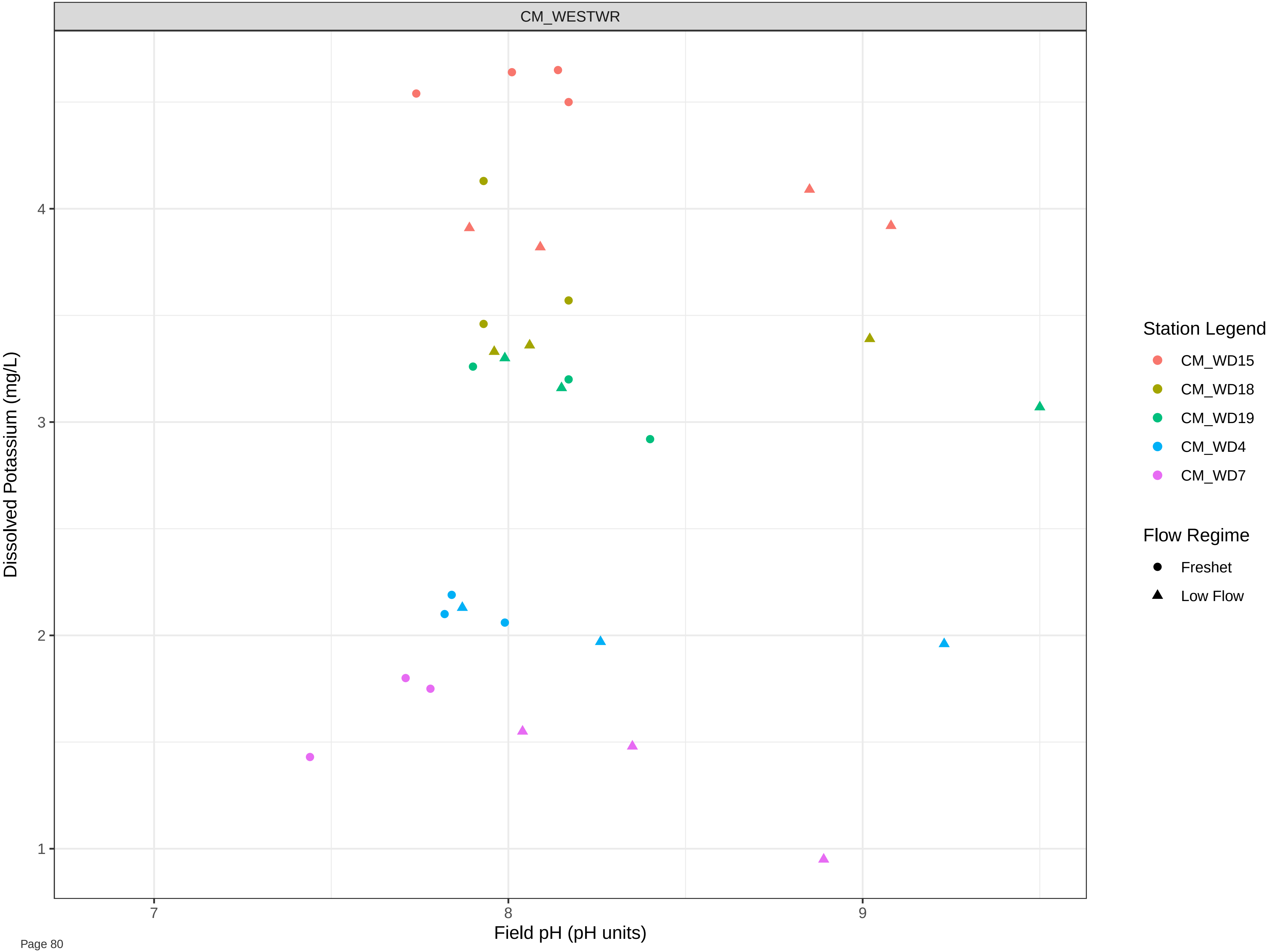

CM_MMCCR
Dissolved Nickel (mg/L)
0.0100
0.0075
0.0050
0.0025
7
8
9
Field pH (pH units)
Station Legend
● CM_MM−SEEP1
● CM_MM−SEEP3
● CM_NS4
● CM_NS7
Flow Regime
● Freshet
▲ Low Flow

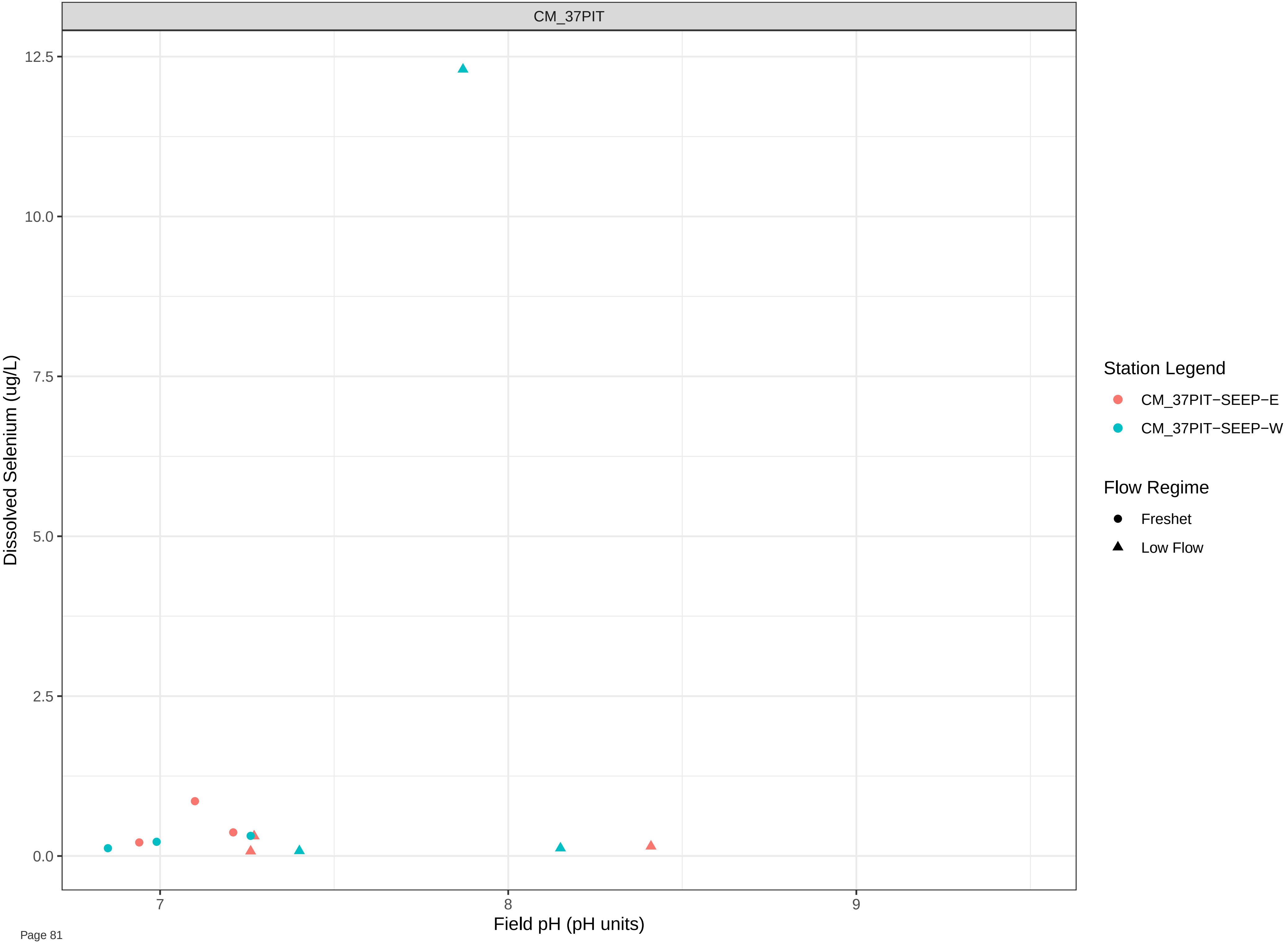

CM_WESTWR
Dissolved Nickel (mg/L)
0.020
0.015
0.010
0.005
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

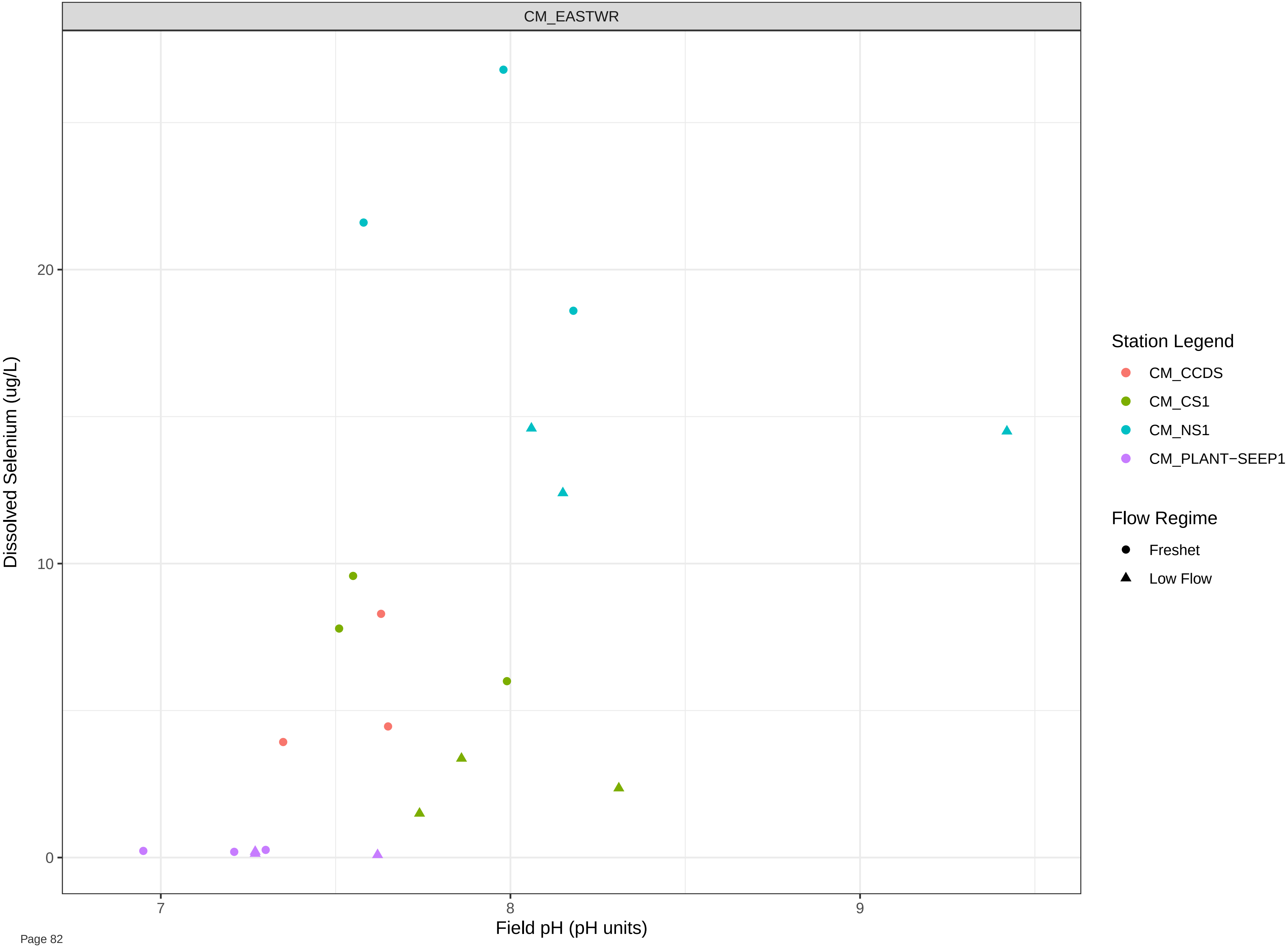

CM_37PIT
Dissolved Potassium (mg/L)
4.0
4.2
4.4
4.6
4.8
Field pH (pH units)
7
8
9
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

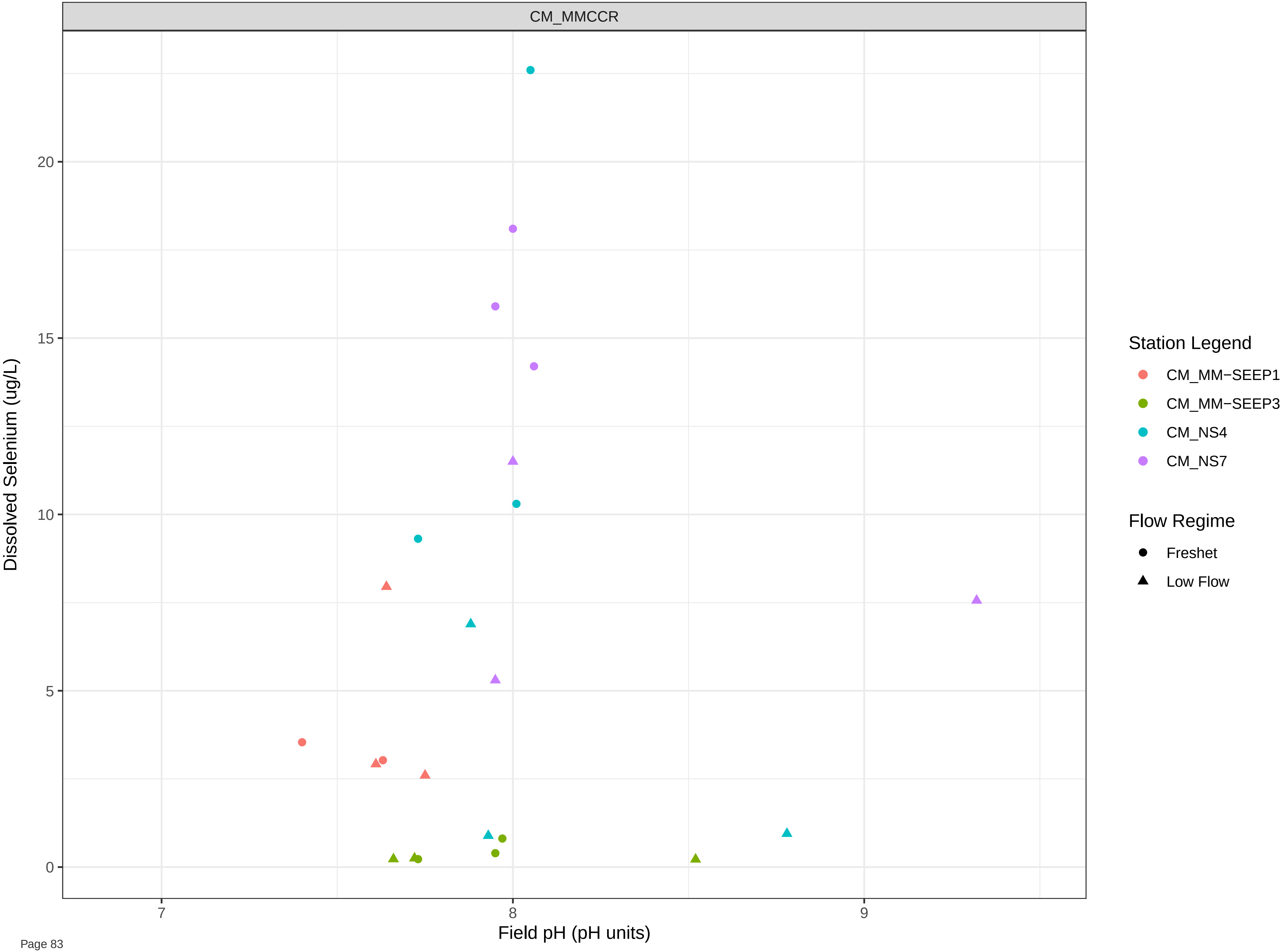

CM_EASTWR
Dissolved Potassium (mg/L)
1
2
3
4
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

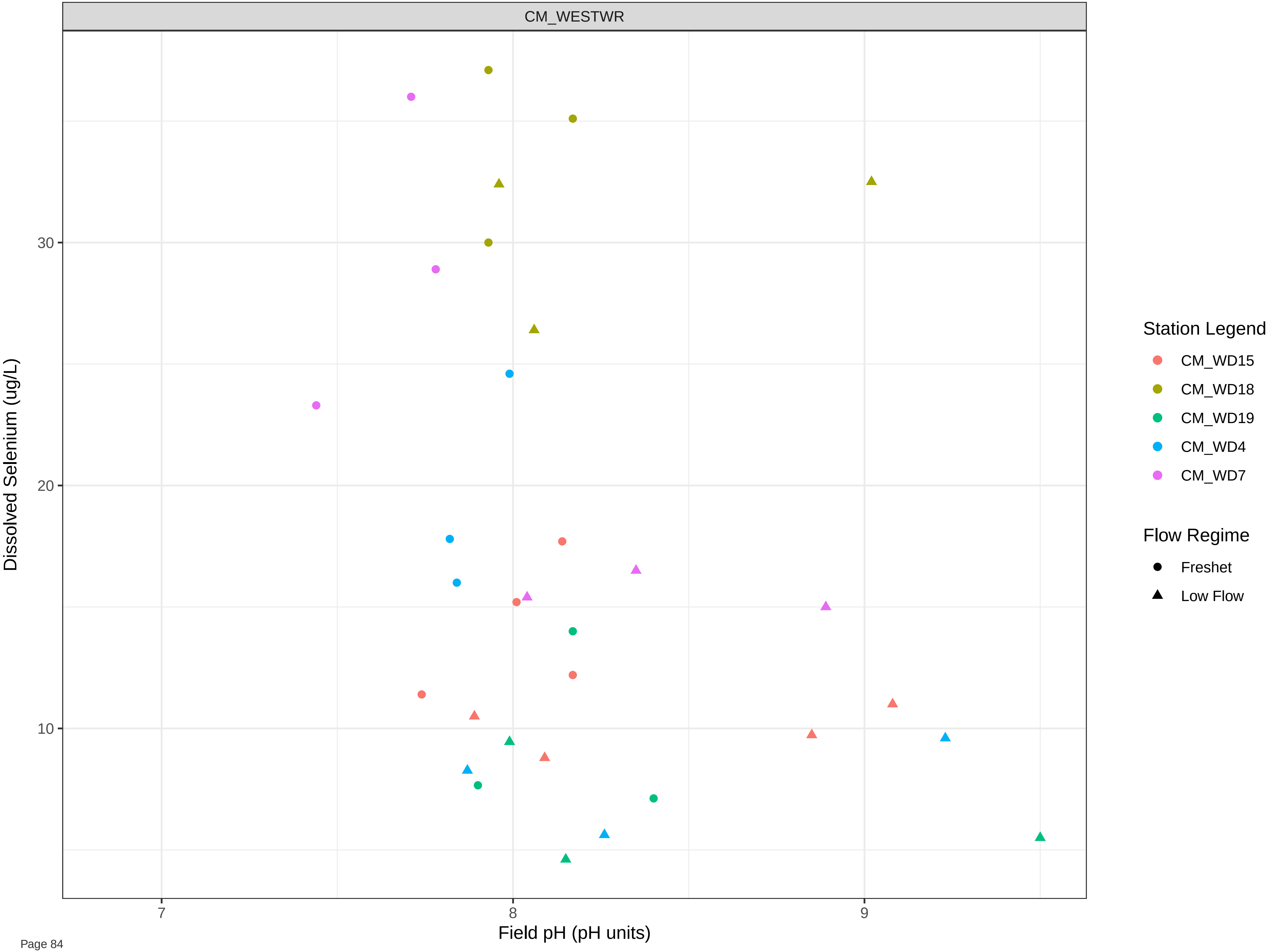

CM_MMCCR
Dissolved Potassium (mg/L)
4
3
2
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

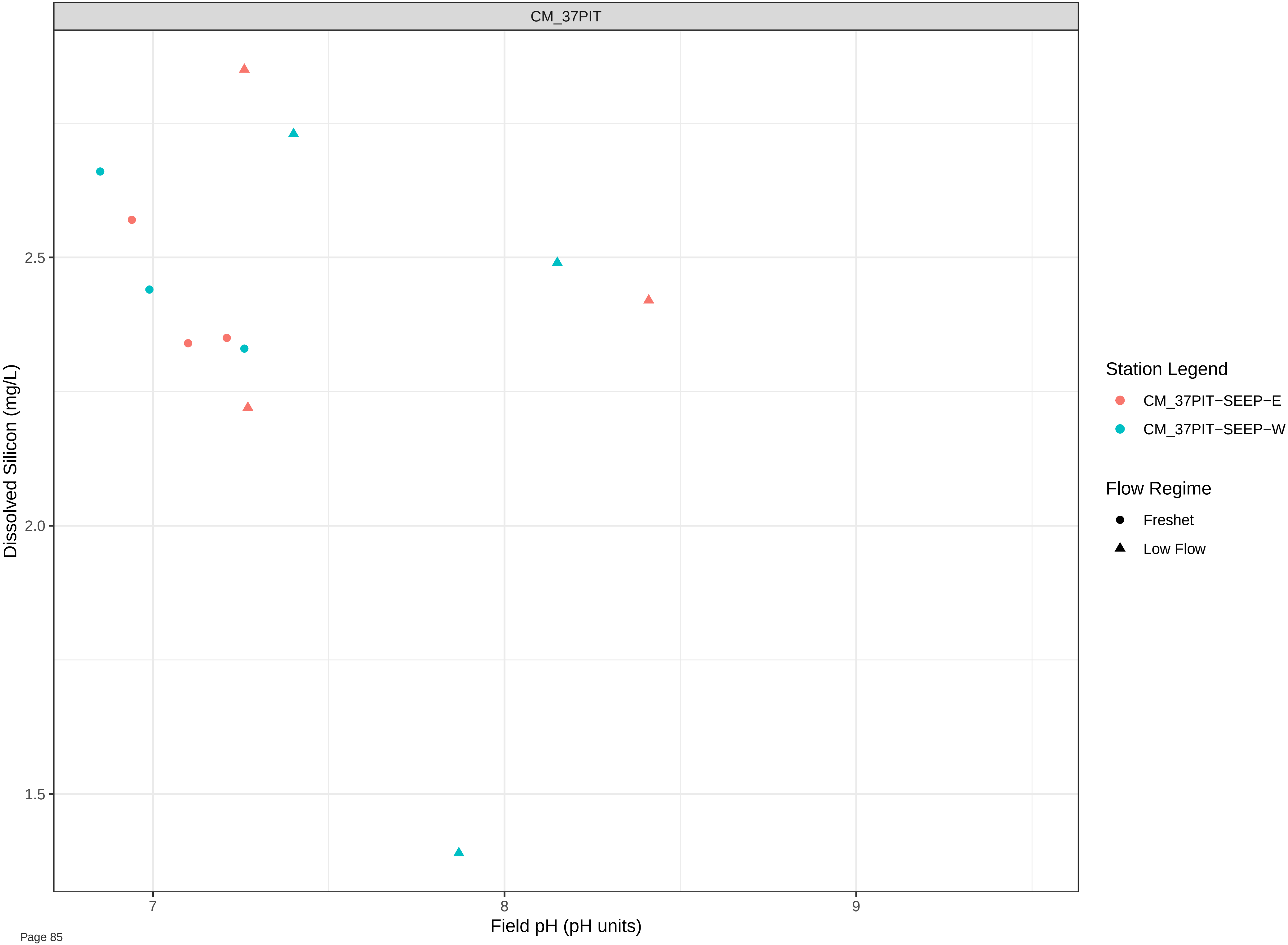

CM_WESTWR
Dissolved Potassium (mg/L)
1
2
3
4
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

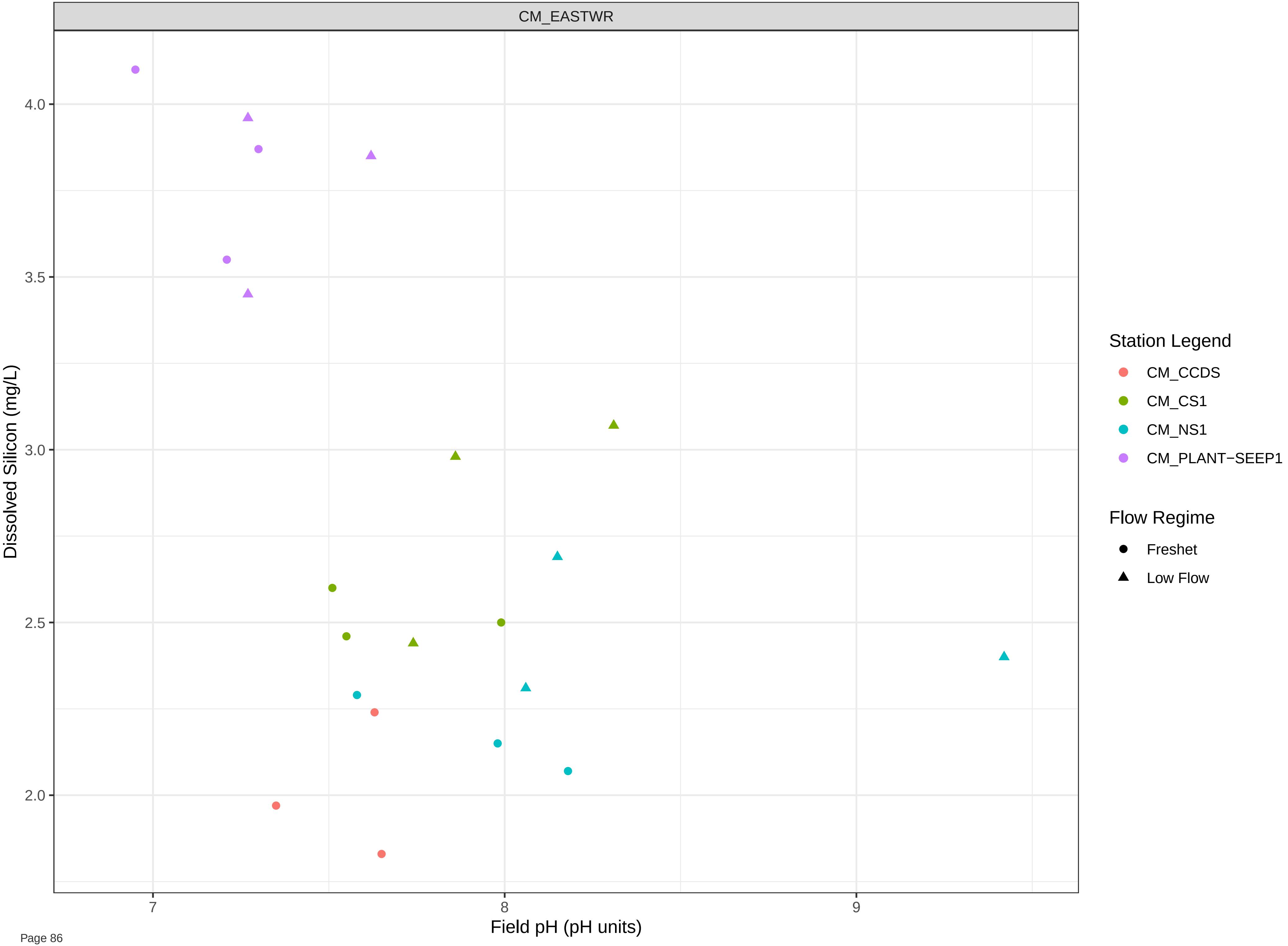

CM_37PIT
Dissolved Selenium (ug/L)
12.5
10.0
7.5
5.0
2.5
0.0
7
8
9
Field pH (pH units)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow

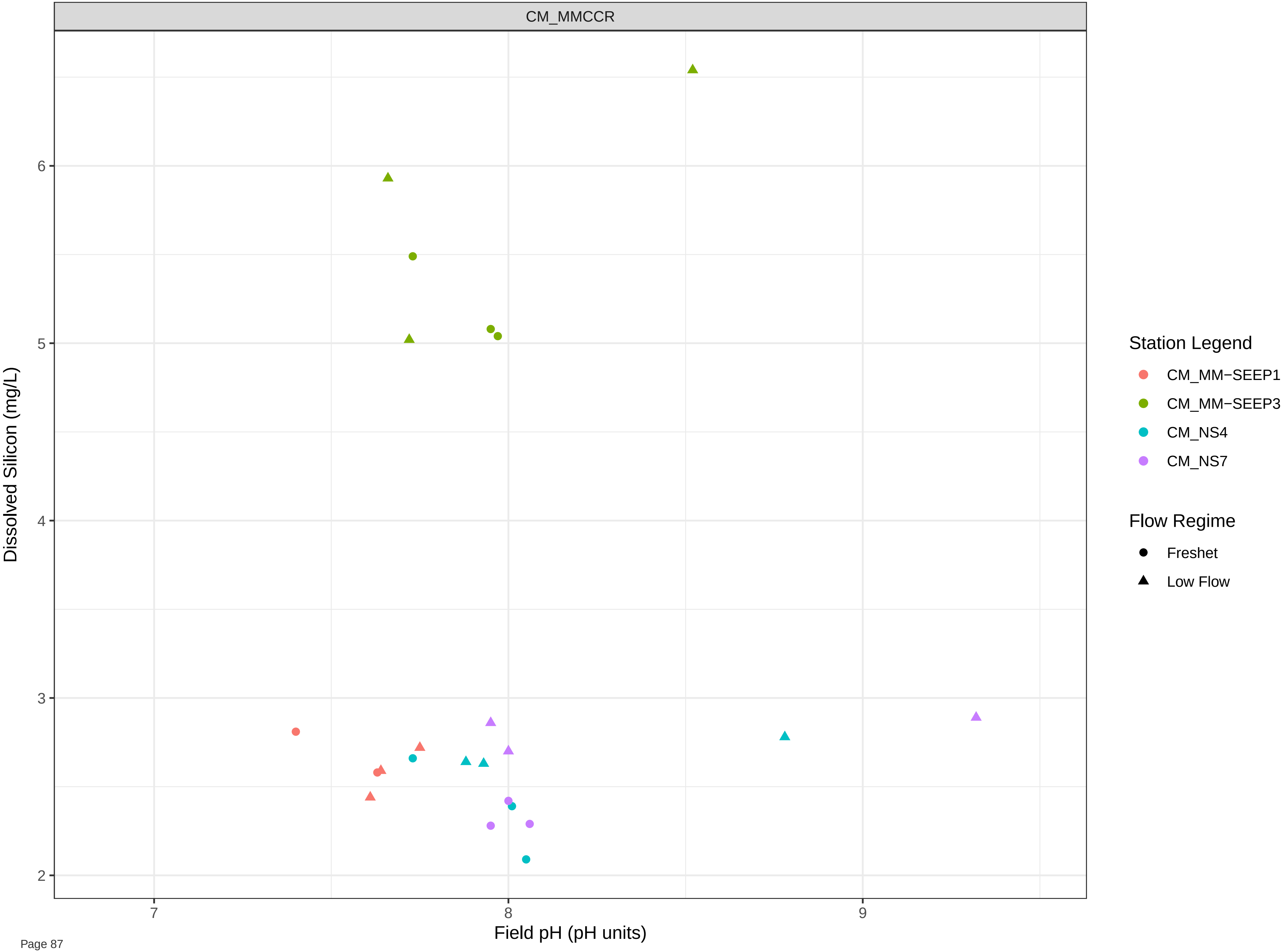

CM_EASTWR
Dissolved Selenium (ug/L)
0
10
20
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

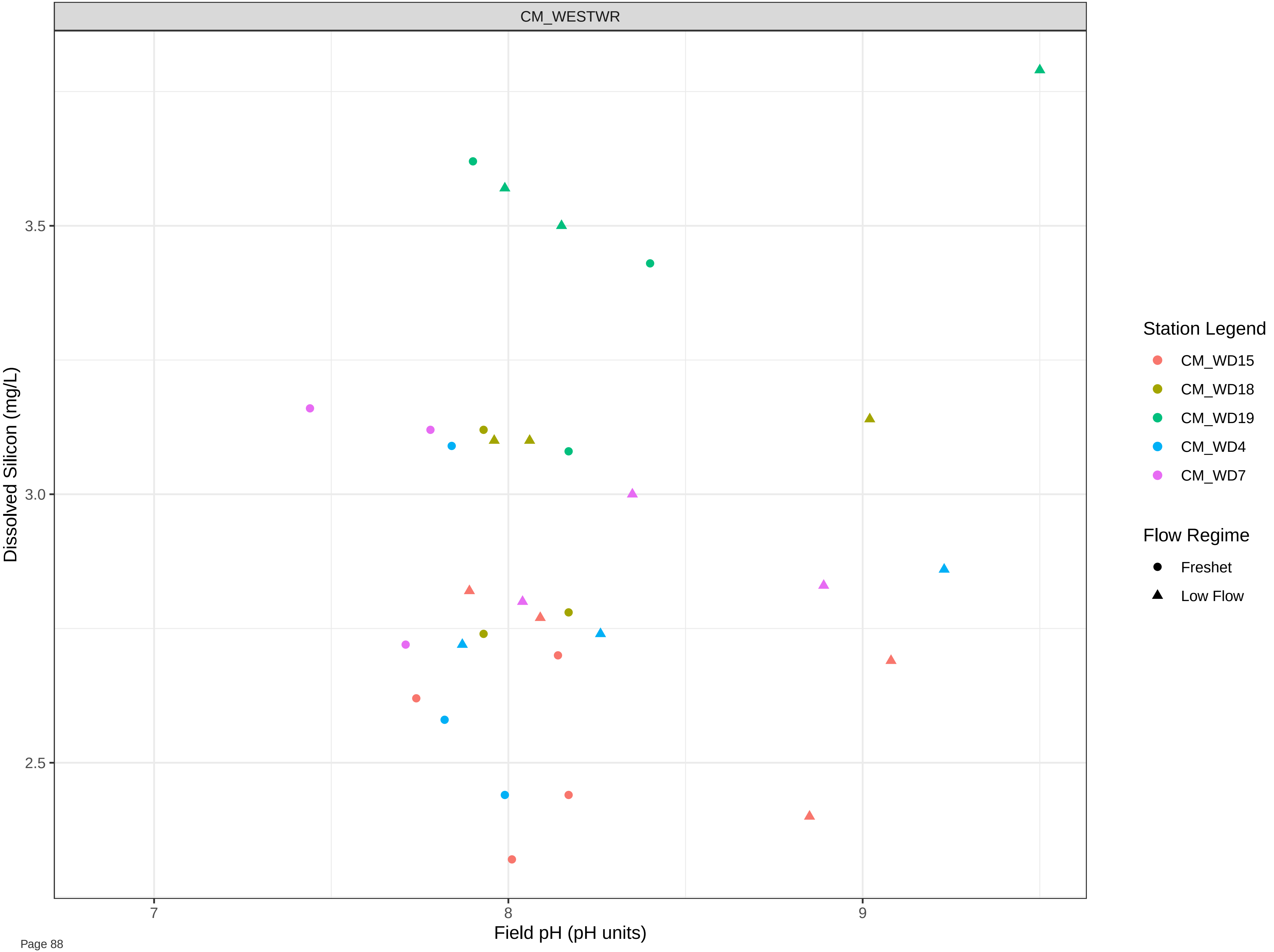

CM_MMCCR
Dissolved Selenium (ug/L)
20
15
10
5
0
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow


CM_WESTWR
Dissolved Selenium (ug/L)
30
20
10
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

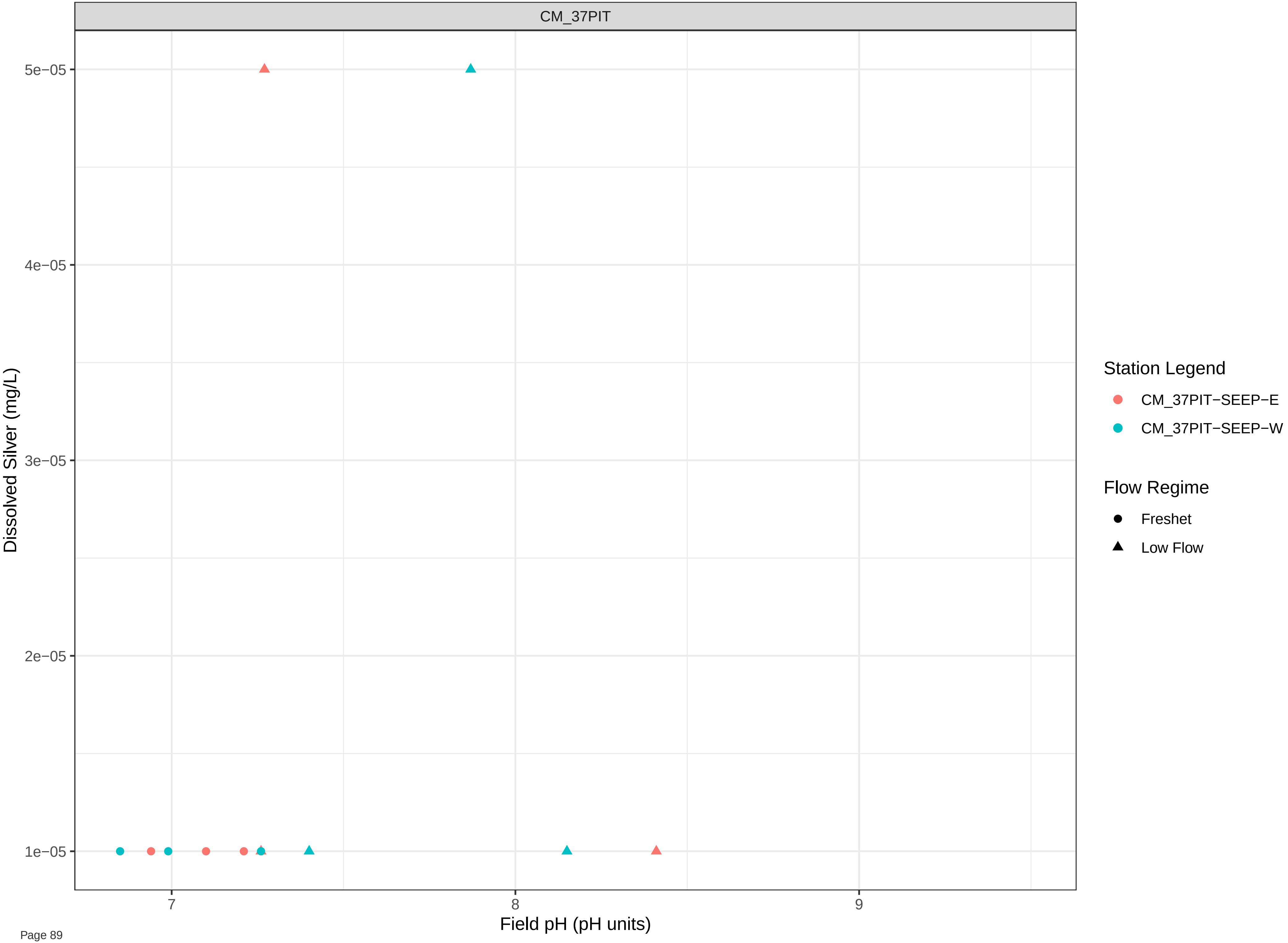

CM_37PIT
Dissolved Silicon (mg/L)
2.5
2.0
1.5
7
8
9
Field pH (pH units)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow

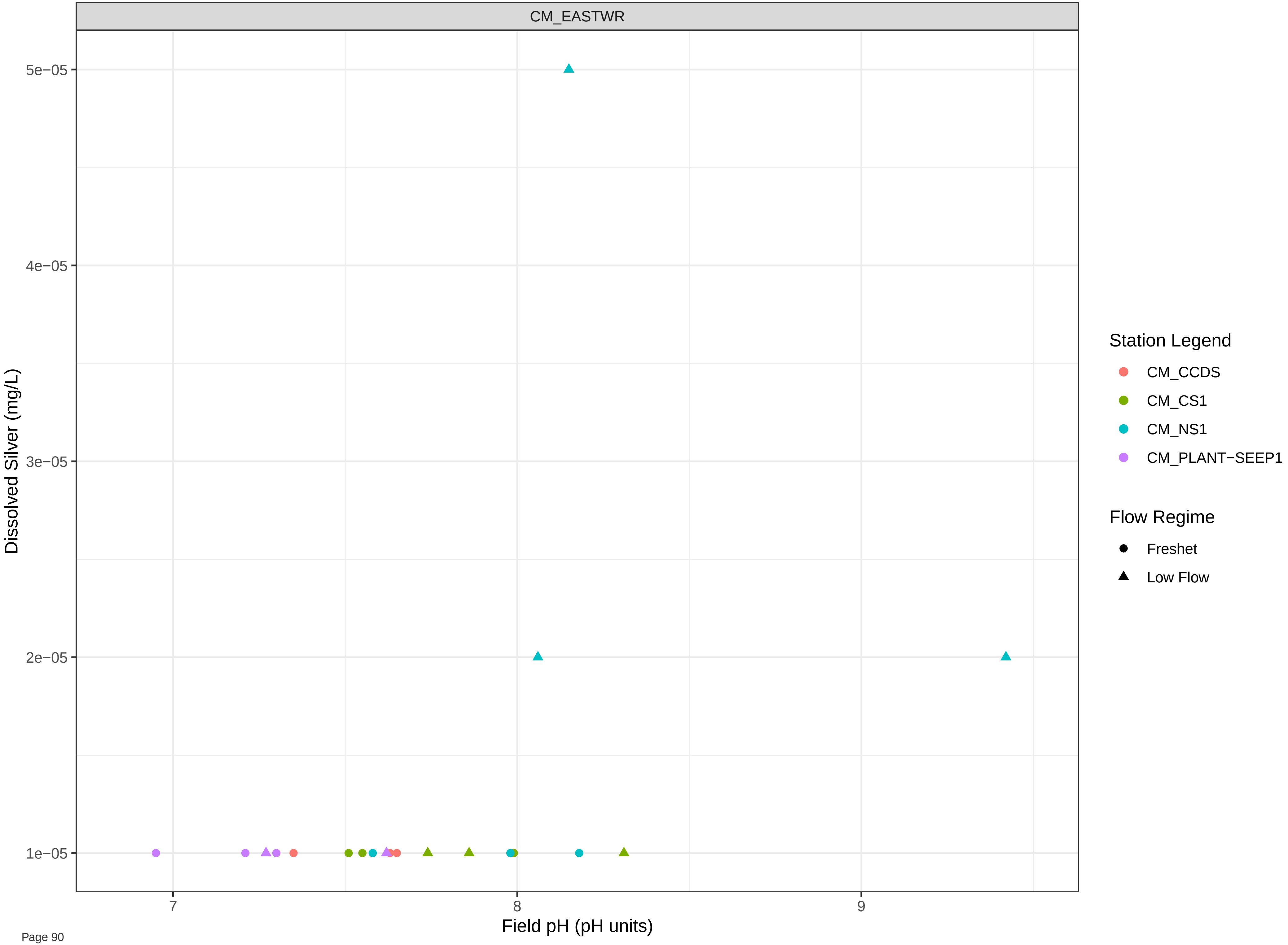

CM_EASTWR
Dissolved Silicon (mg/L)
4.0
3.5
3.0
2.5
2.0
Field pH (pH units)
7
8
9
Station Legend
● CM_CCDS
● CM_CS1
● CM_NS1
● CM_PLANT−SEEP1
Flow Regime
● Freshet
▲ Low Flow

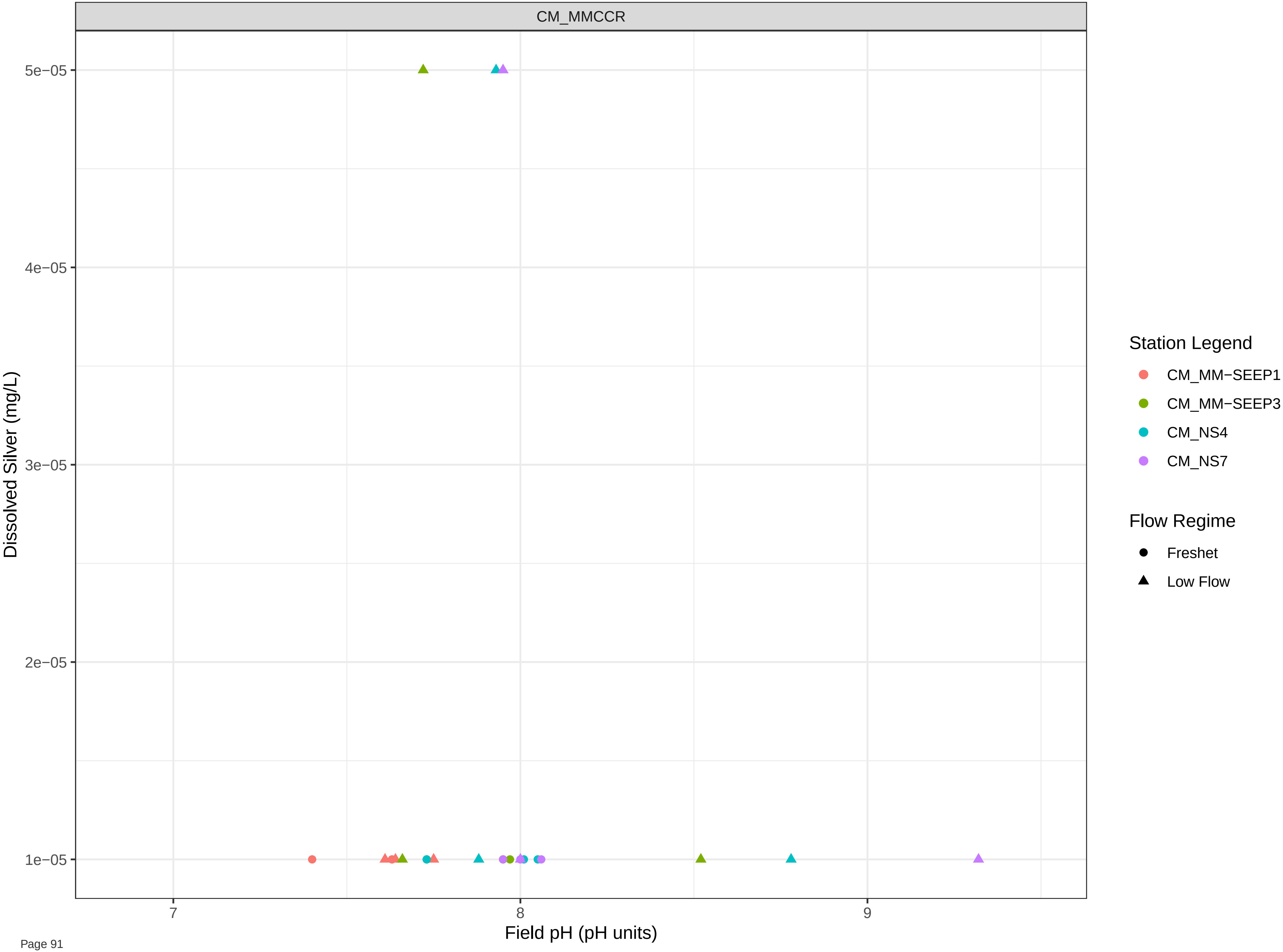

CM_MMCCR
Dissolved Silicon (mg/L)
6
5
4
3
2
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

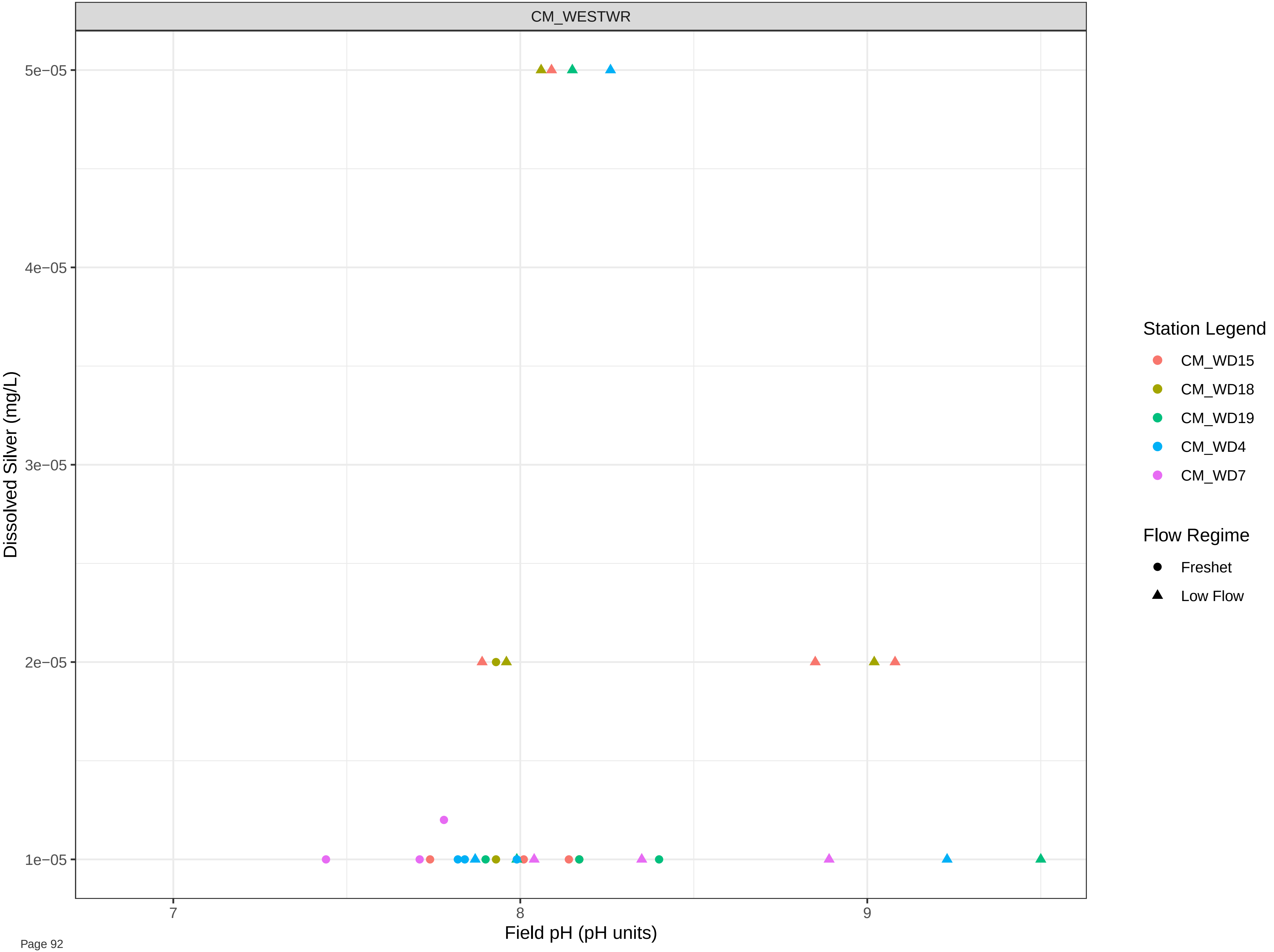


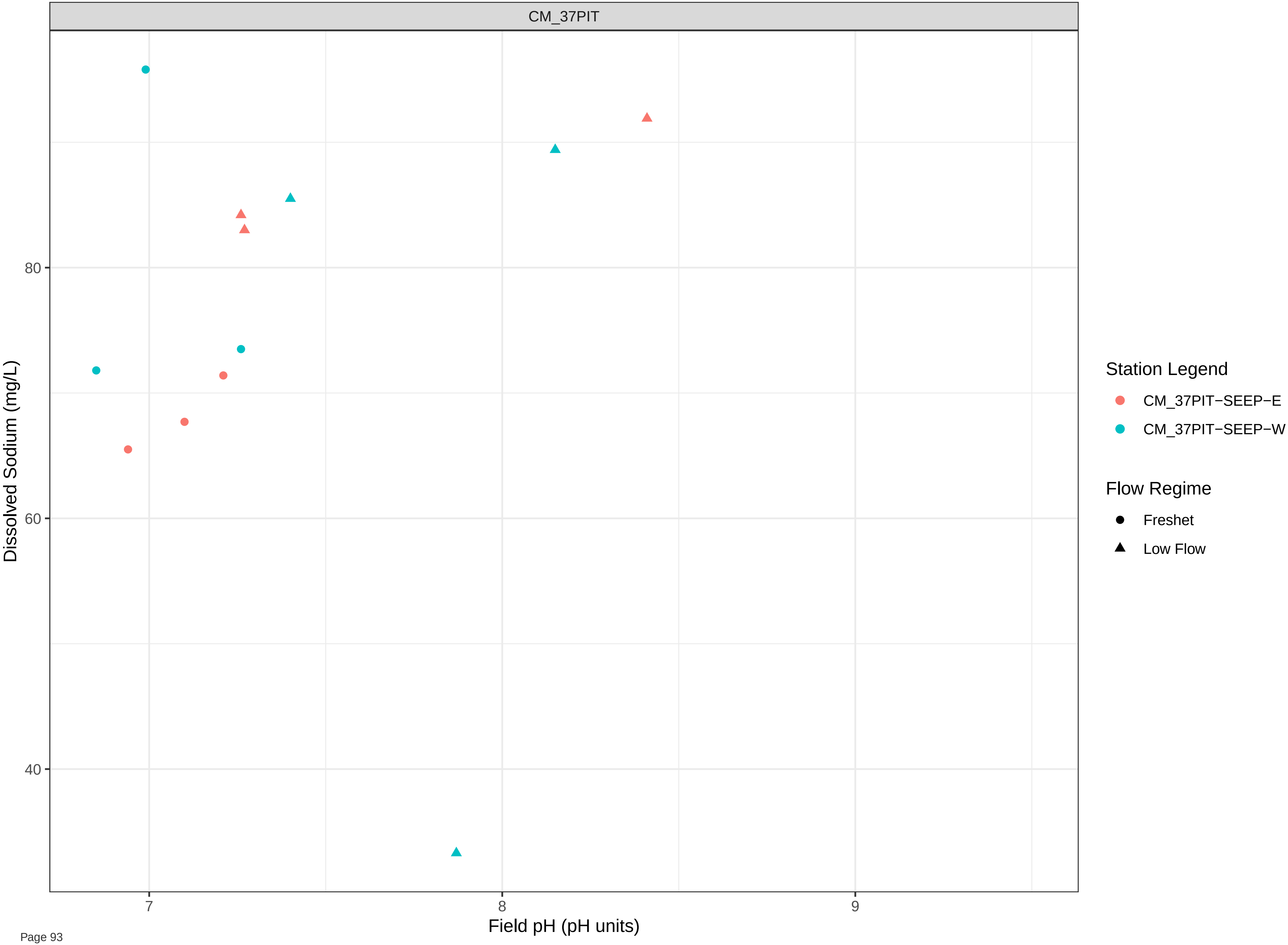
CM_WESTWR
Dissolved Silicon (mg/L)
3.5
3.0
2.5
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

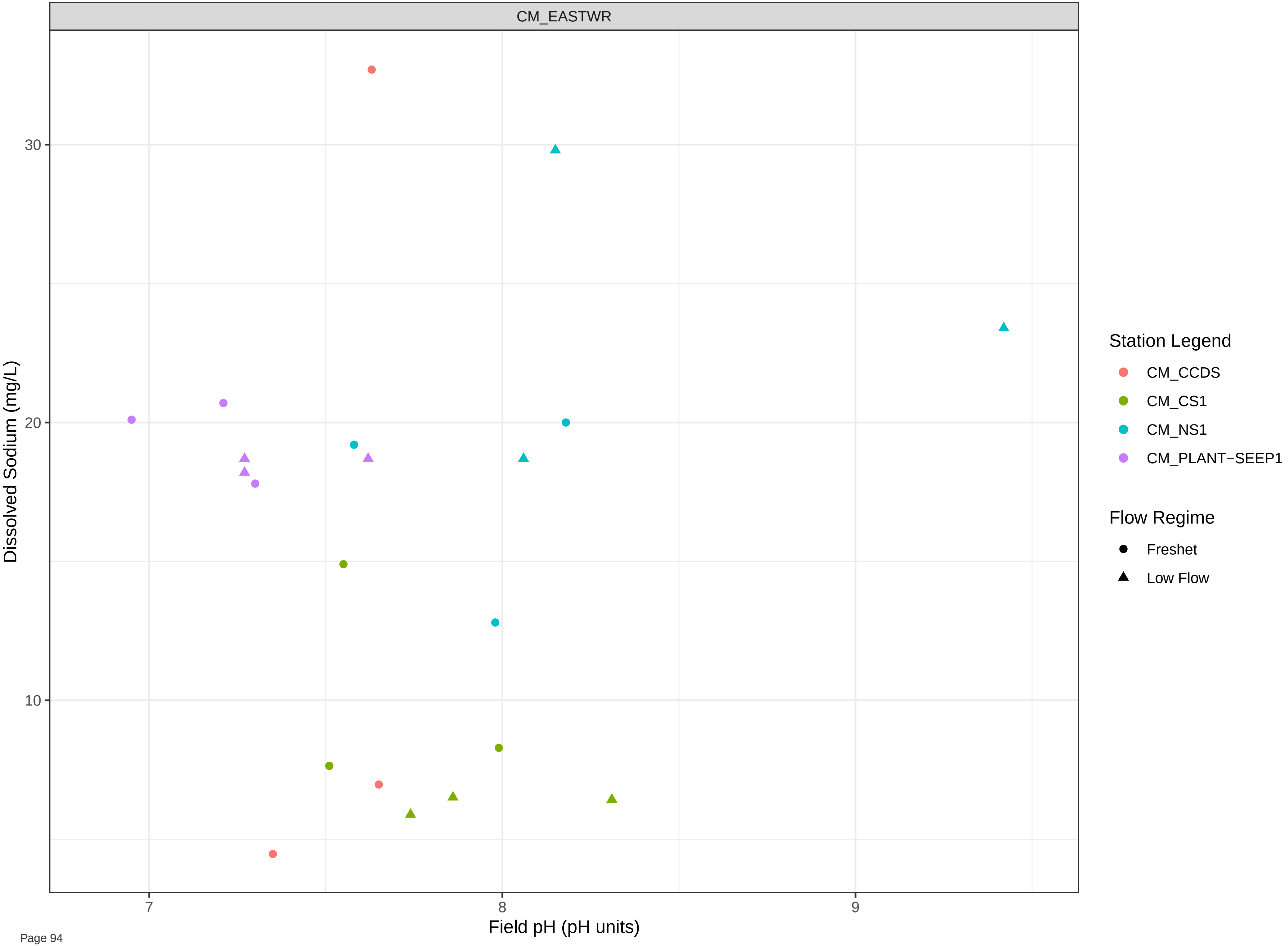

CM_37PIT
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
7
8
9
Field pH (pH units)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

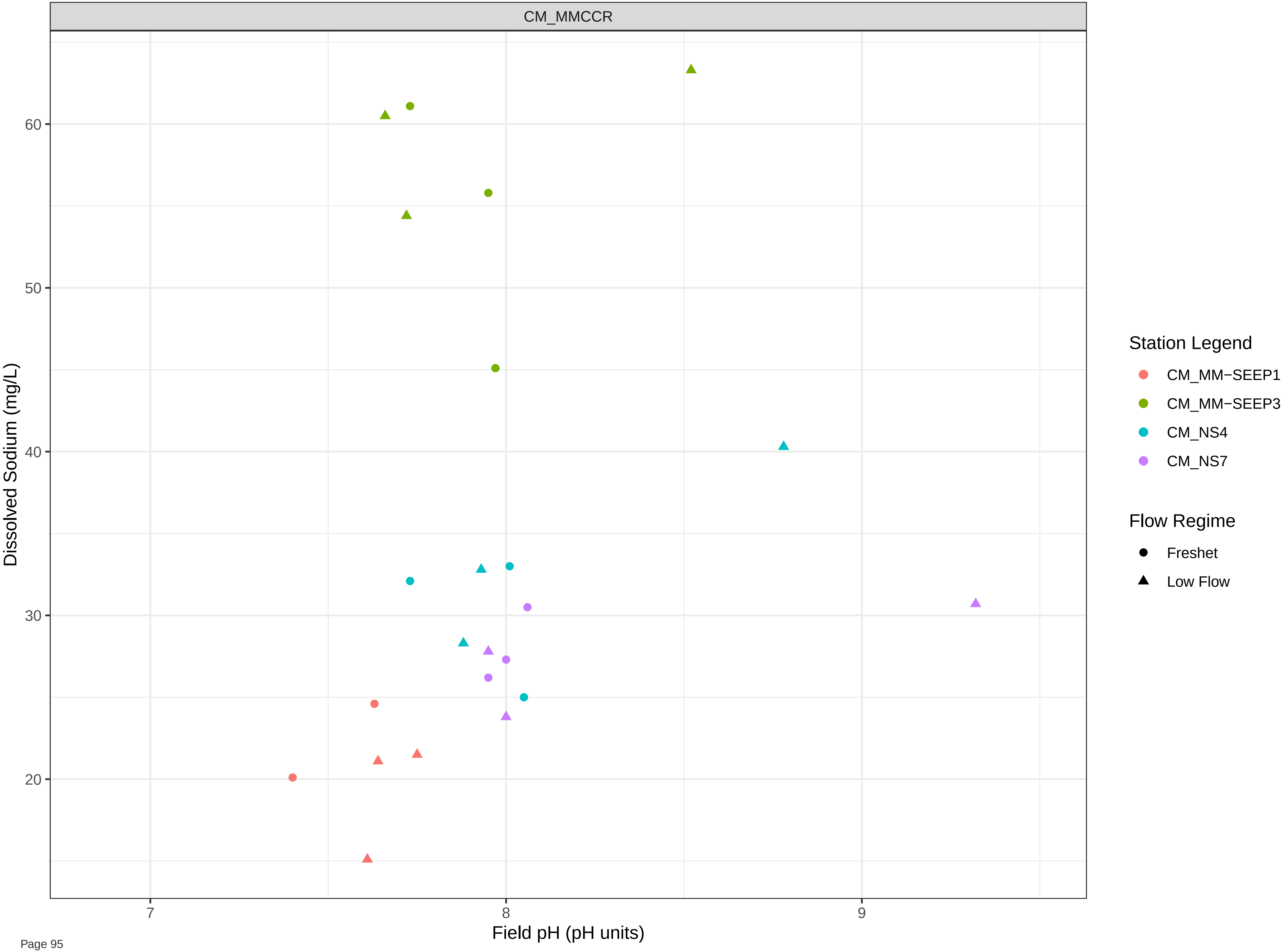

CM_EASTWR
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

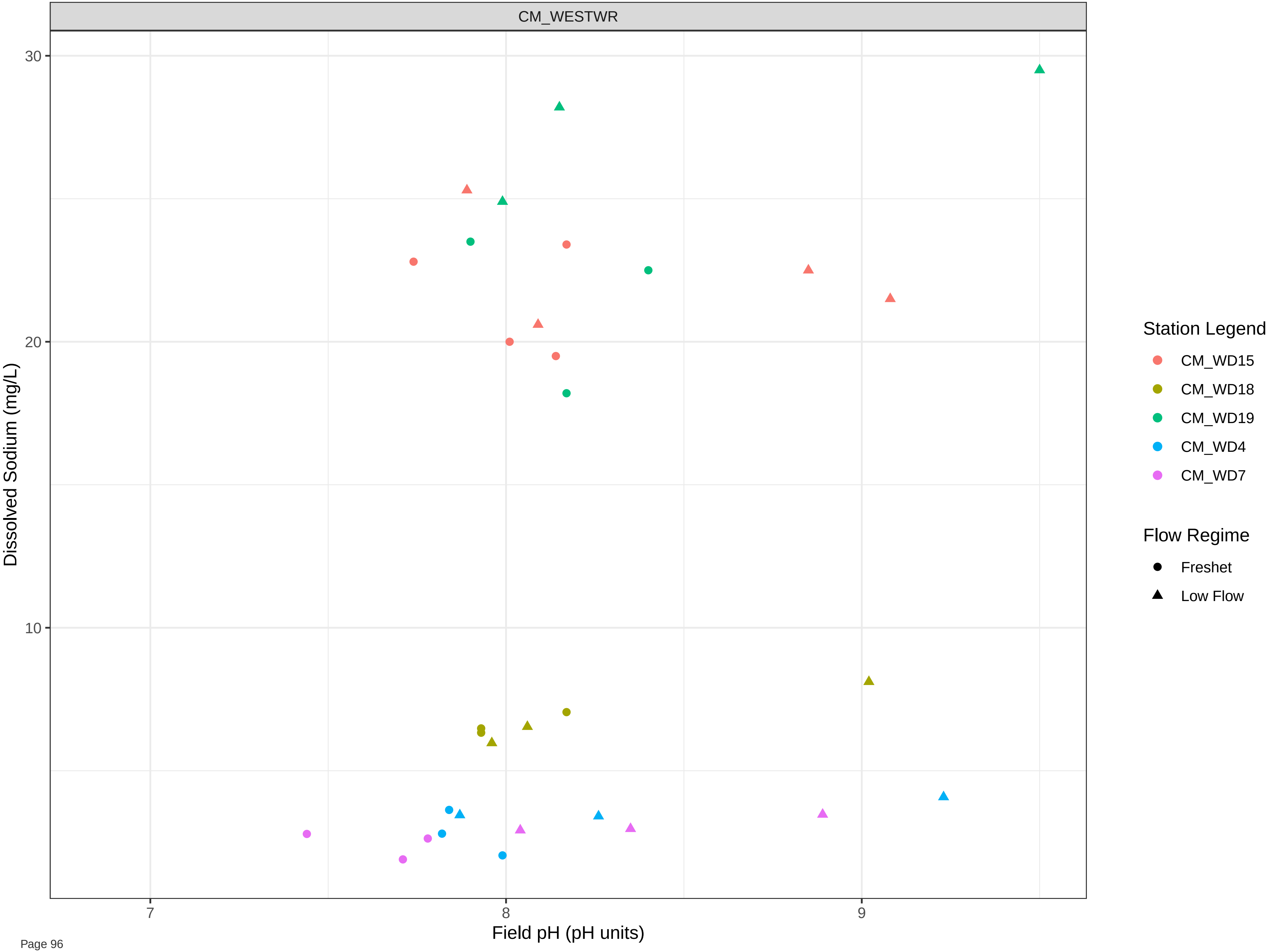

CM_MMCCR
5e−05
4e−05
3e−05
2e−05
1e−05
Dissolved Silver (mg/L)
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

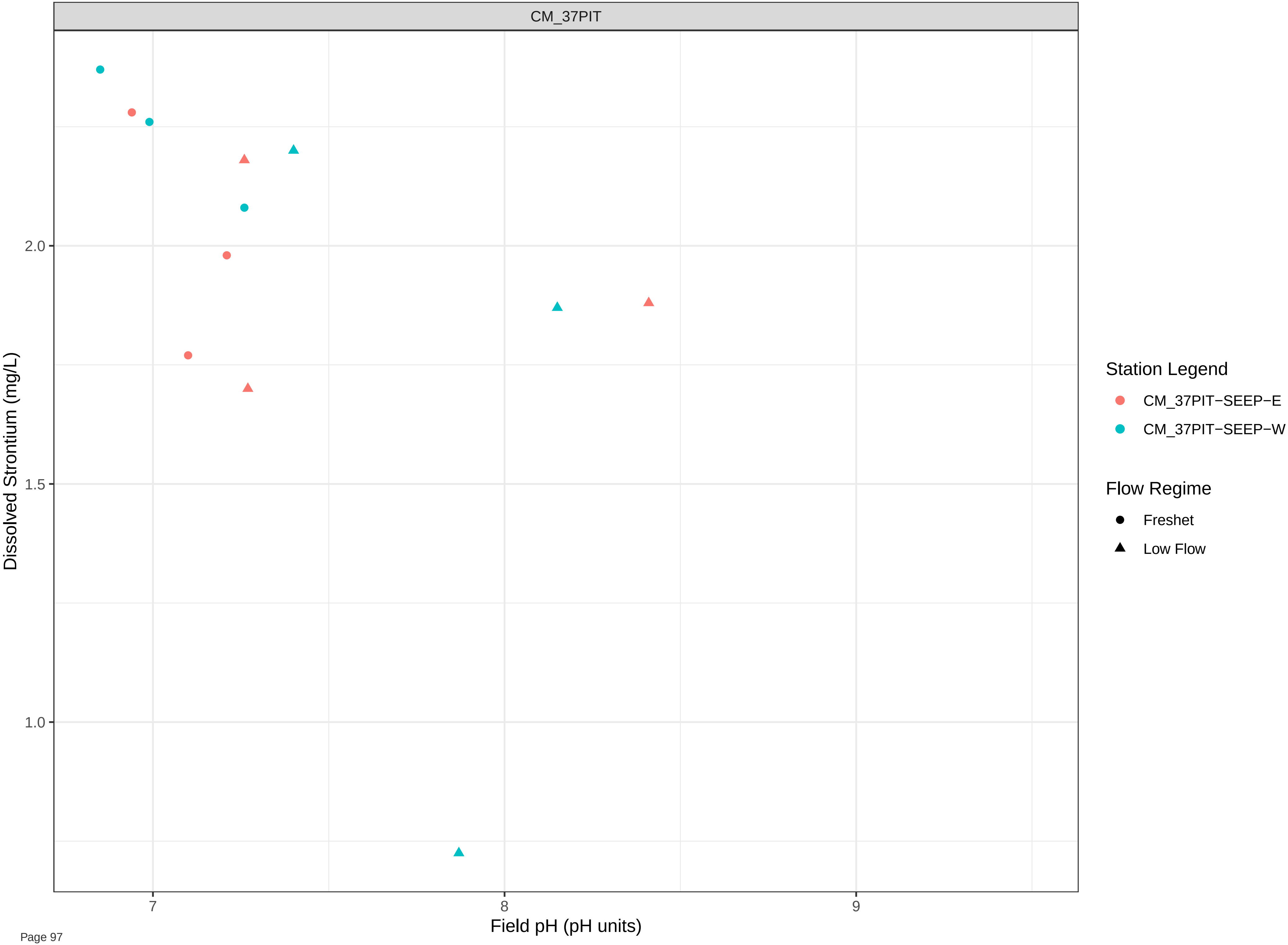

CM_WESTWR
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

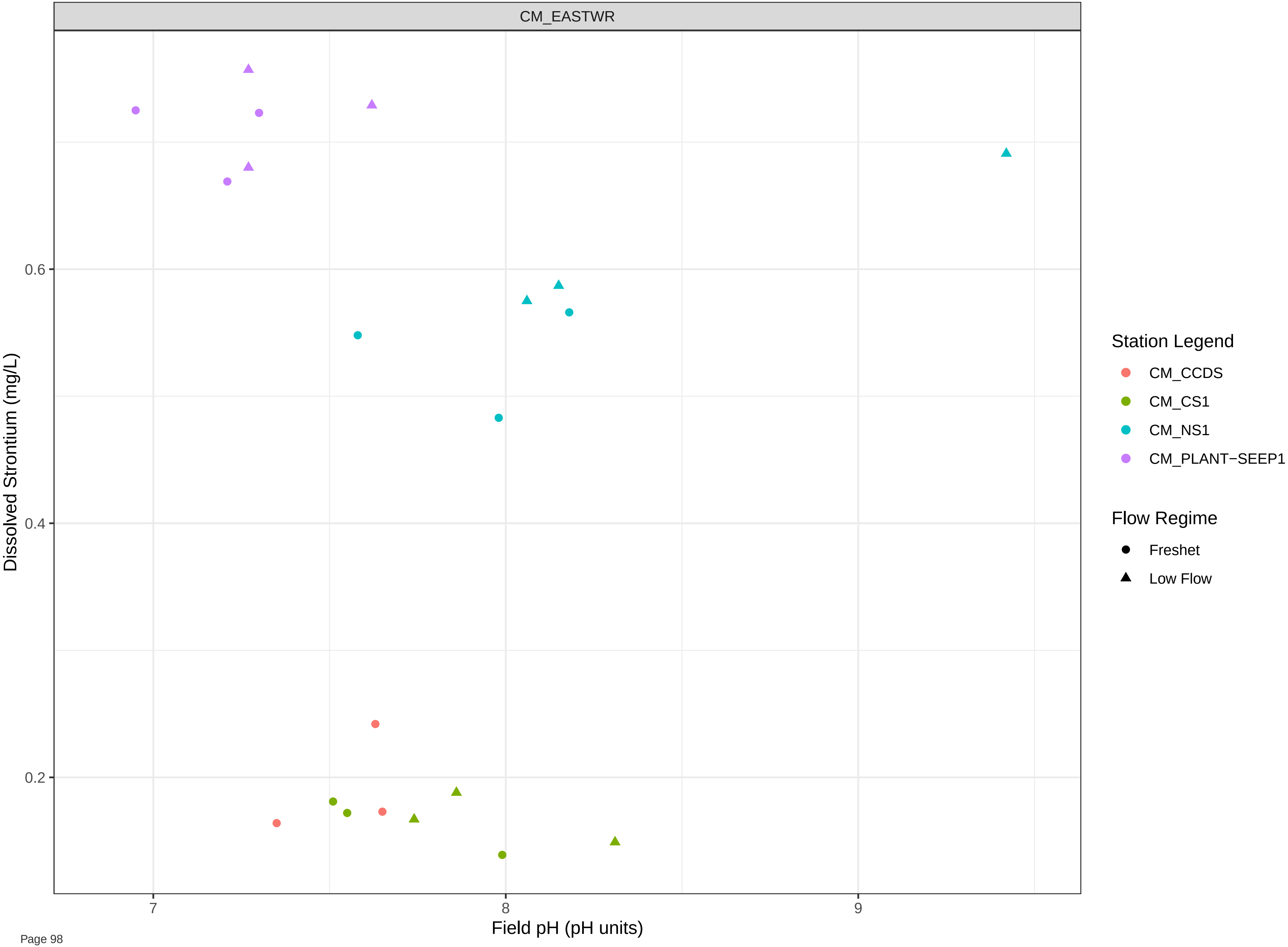

CM_37PIT
Dissolved Sodium (mg/L)
80
60
40
7
8
9
Field pH (pH units)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow

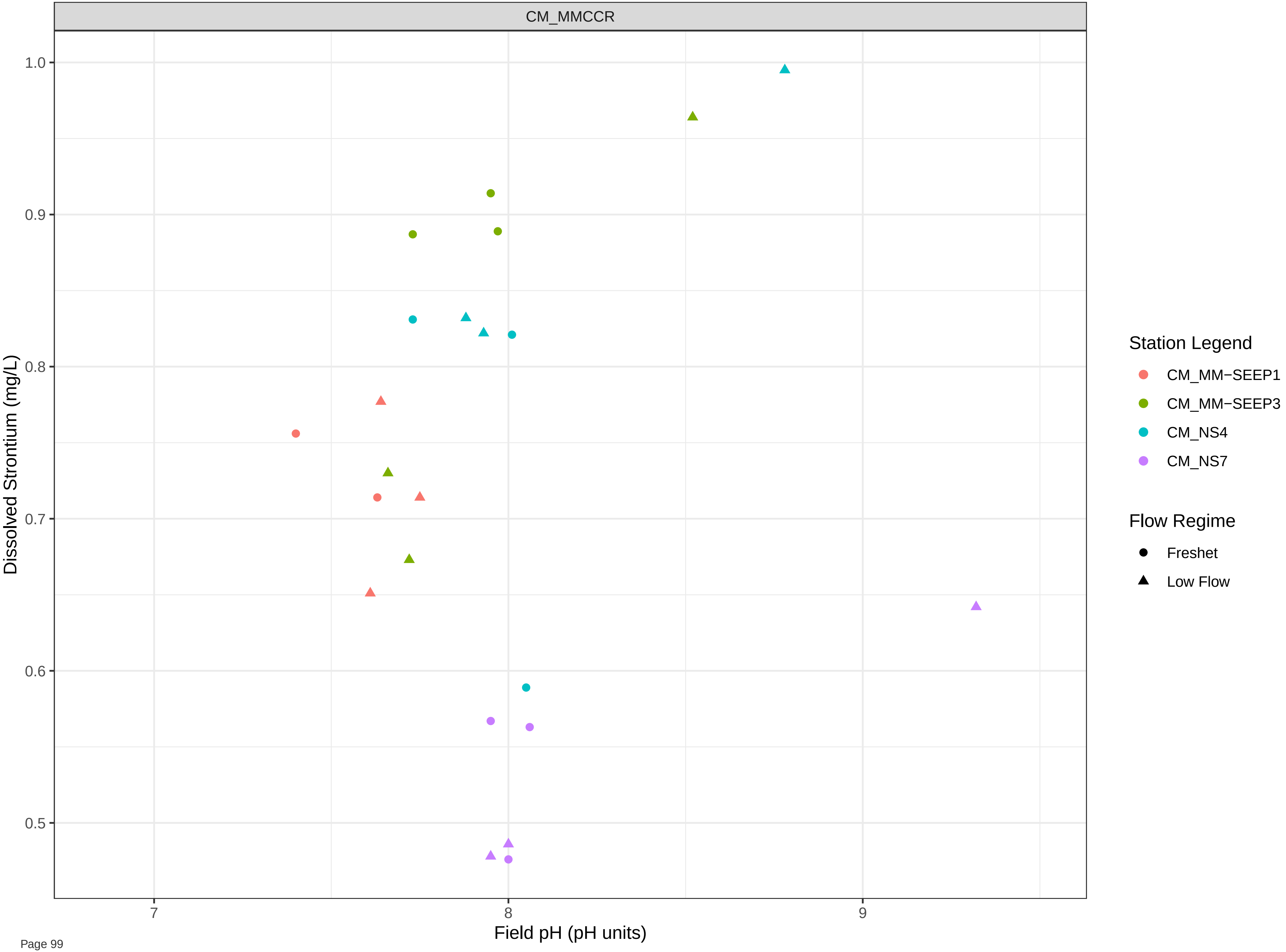

CM_EASTWR
Dissolved Sodium (mg/L)
30
20
10
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

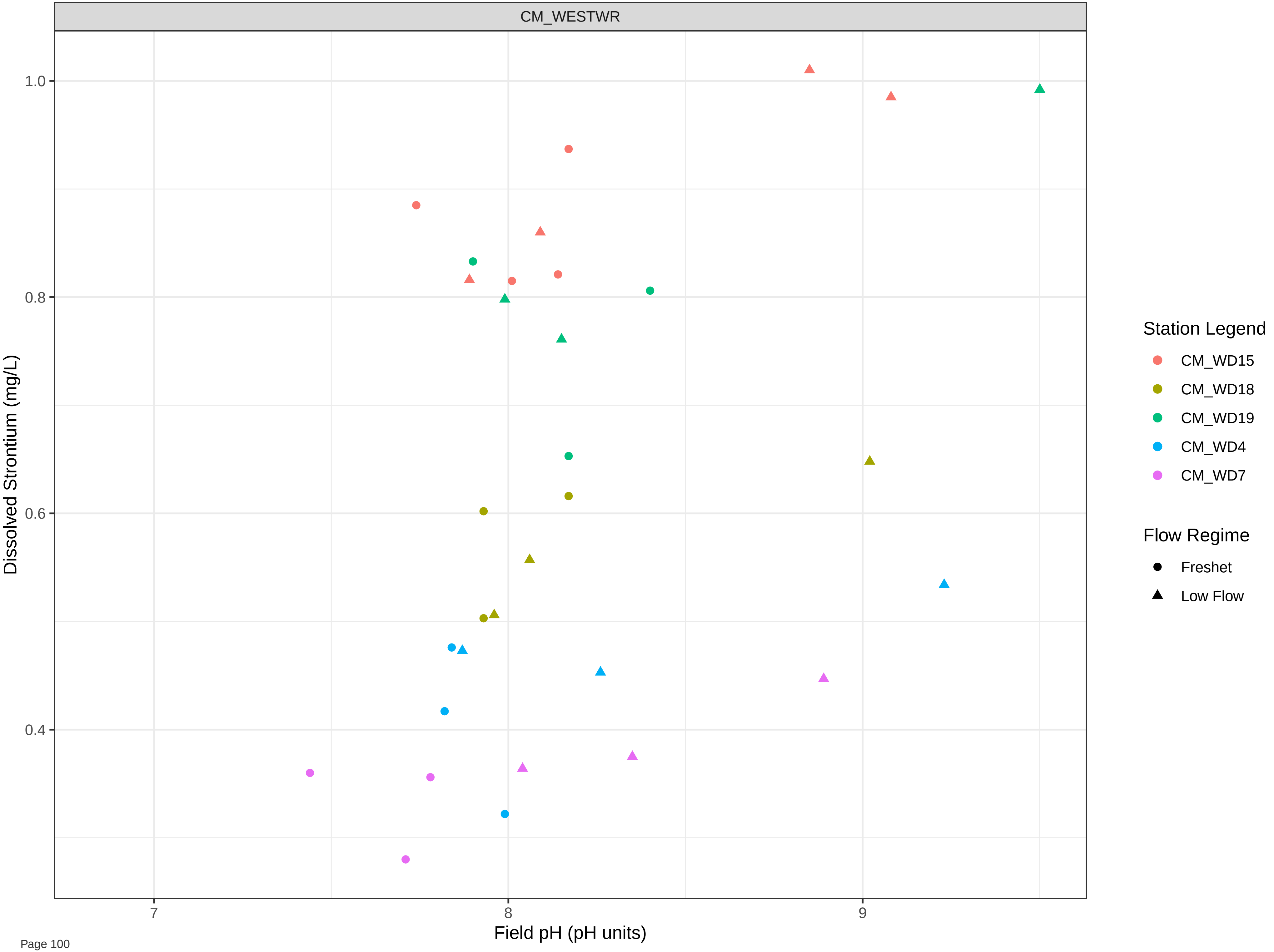

CM_MMCCR
Dissolved Sodium (mg/L)
60
50
40
30
20
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

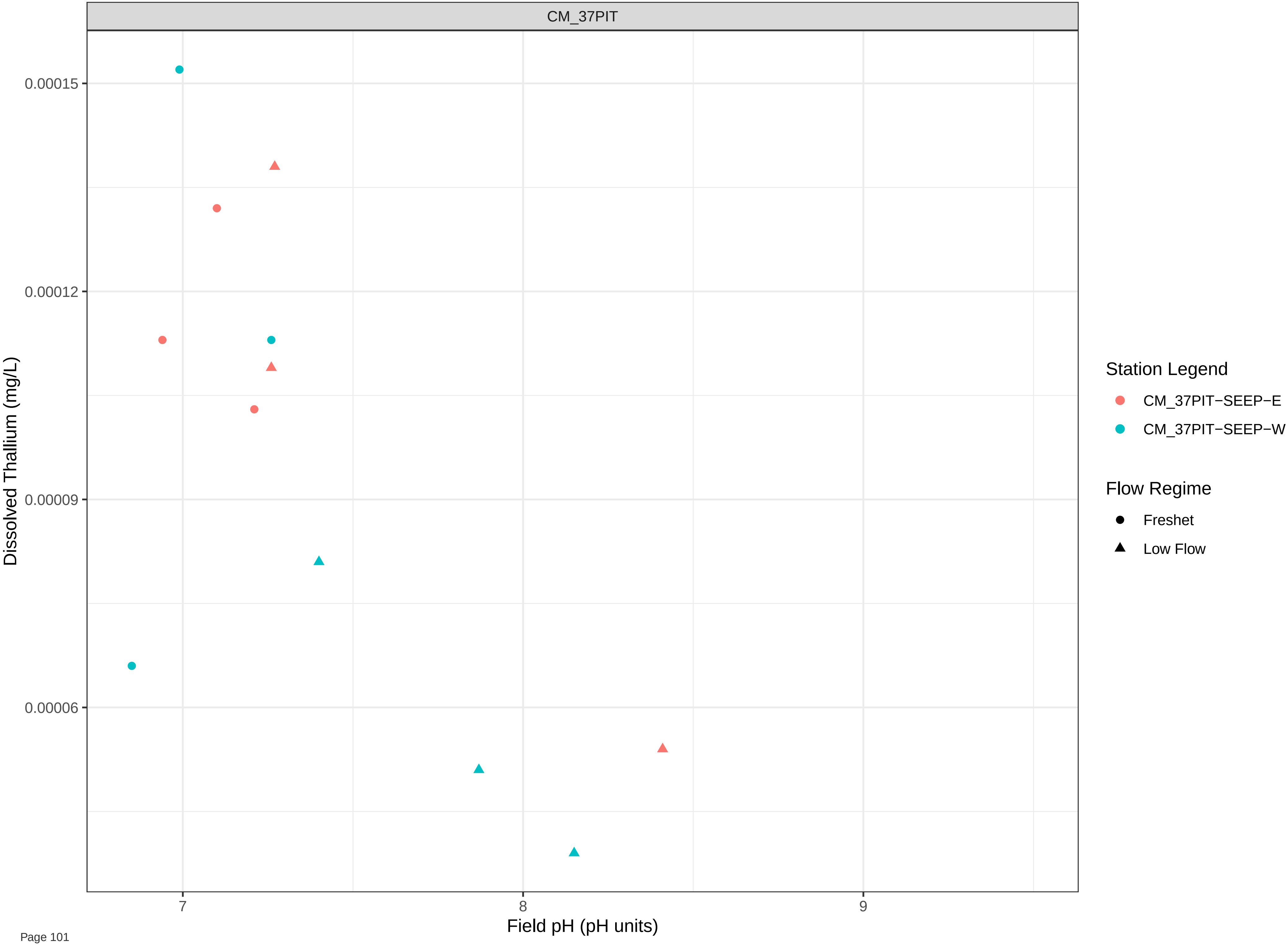

CM_WESTWR
30
20
10
Dissolved Sodium (mg/L)
7
8
9
Field pH (pH units)
Station Legend
● CM_WD15
● CM_WD18
● CM_WD19
● CM_WD4
● CM_WD7
Flow Regime
● Freshet
▲ Low Flow

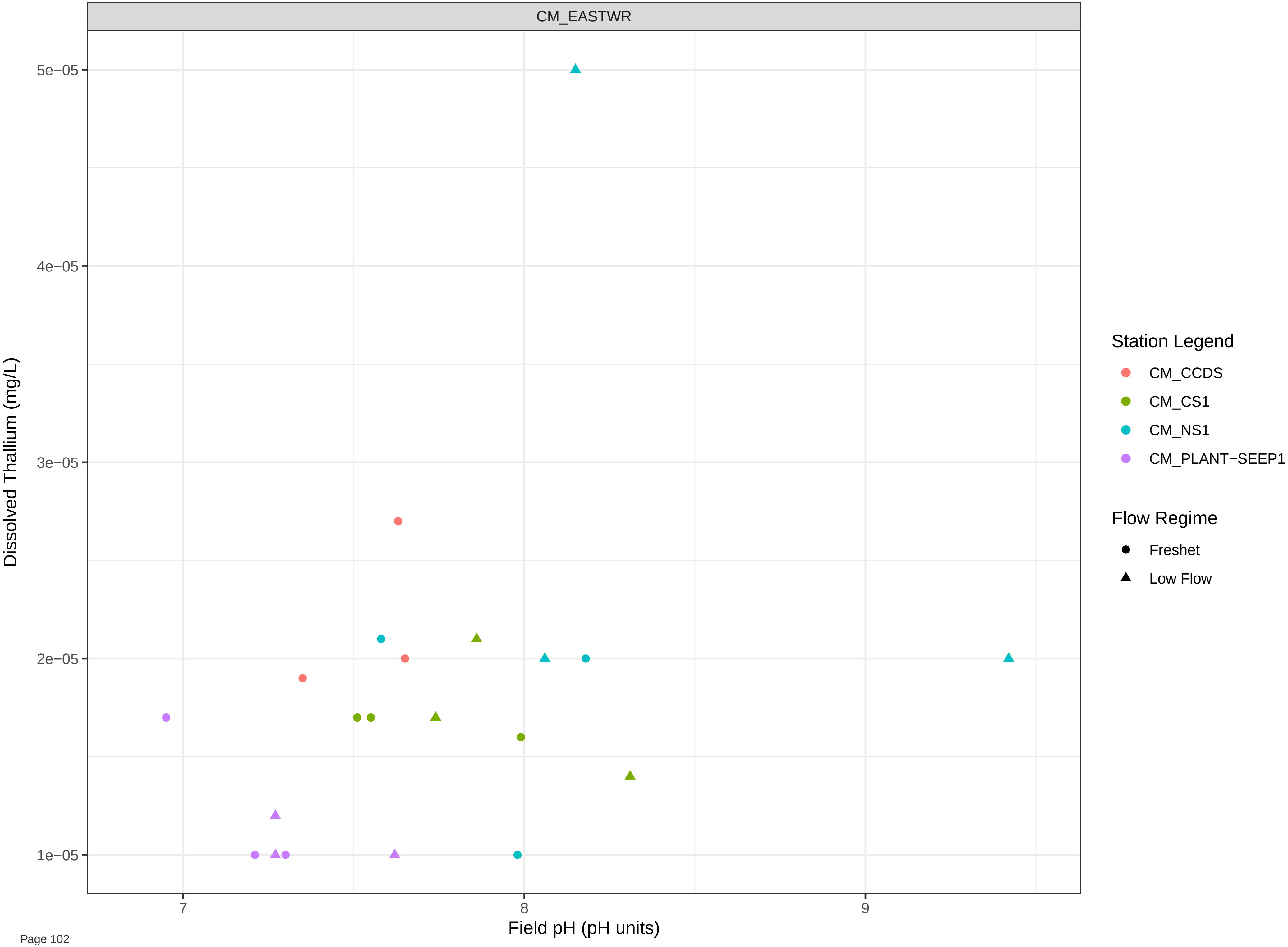

CM_37PIT
Dissolved Strontium (mg/L)
2.0
1.5
1.0
7
8
9
Field pH (pH units)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

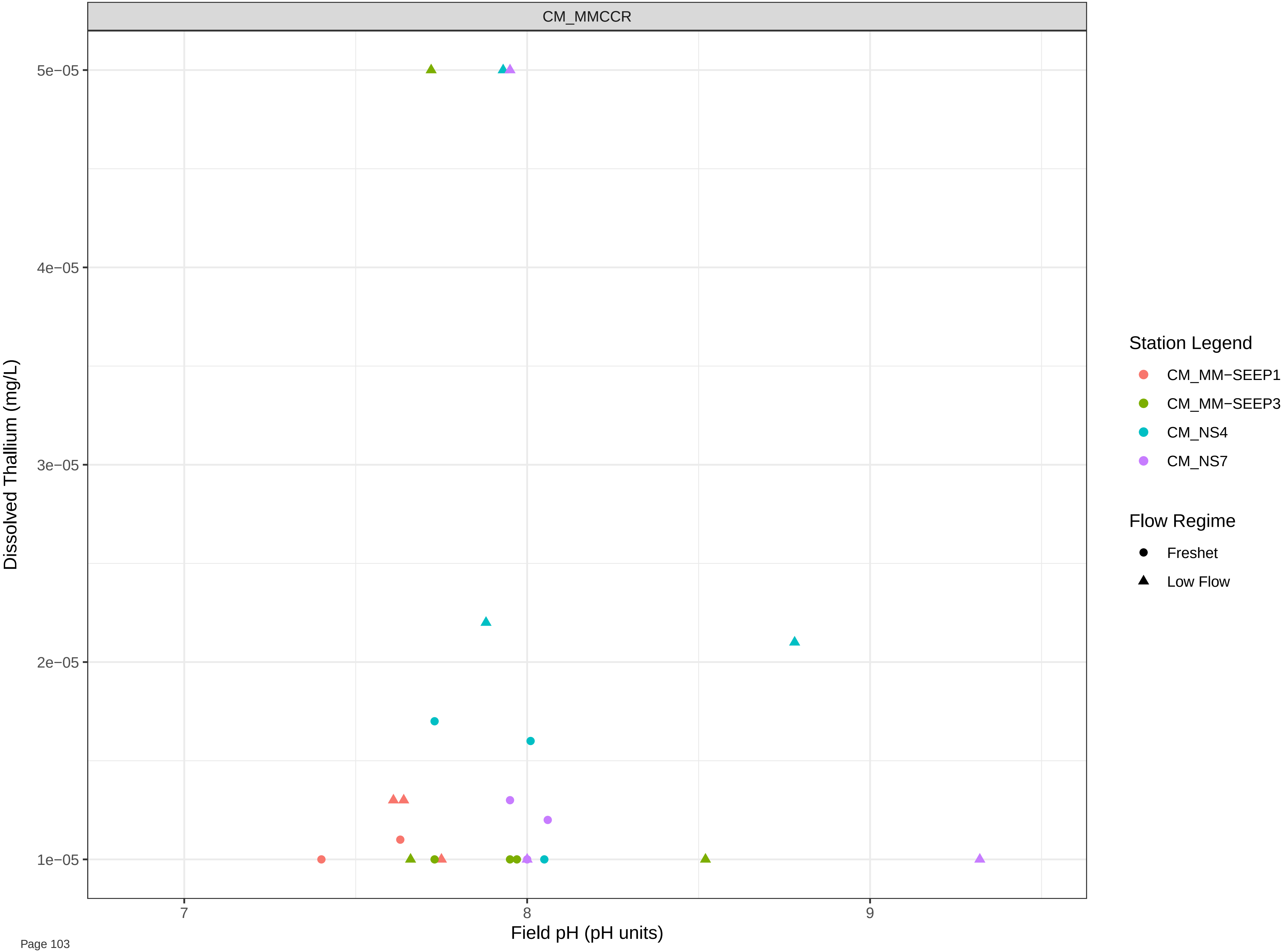

CM_EASTWR
Dissolved Strontium (mg/L)
0.6
0.4
0.2
Field pH (pH units)
7
8
9
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

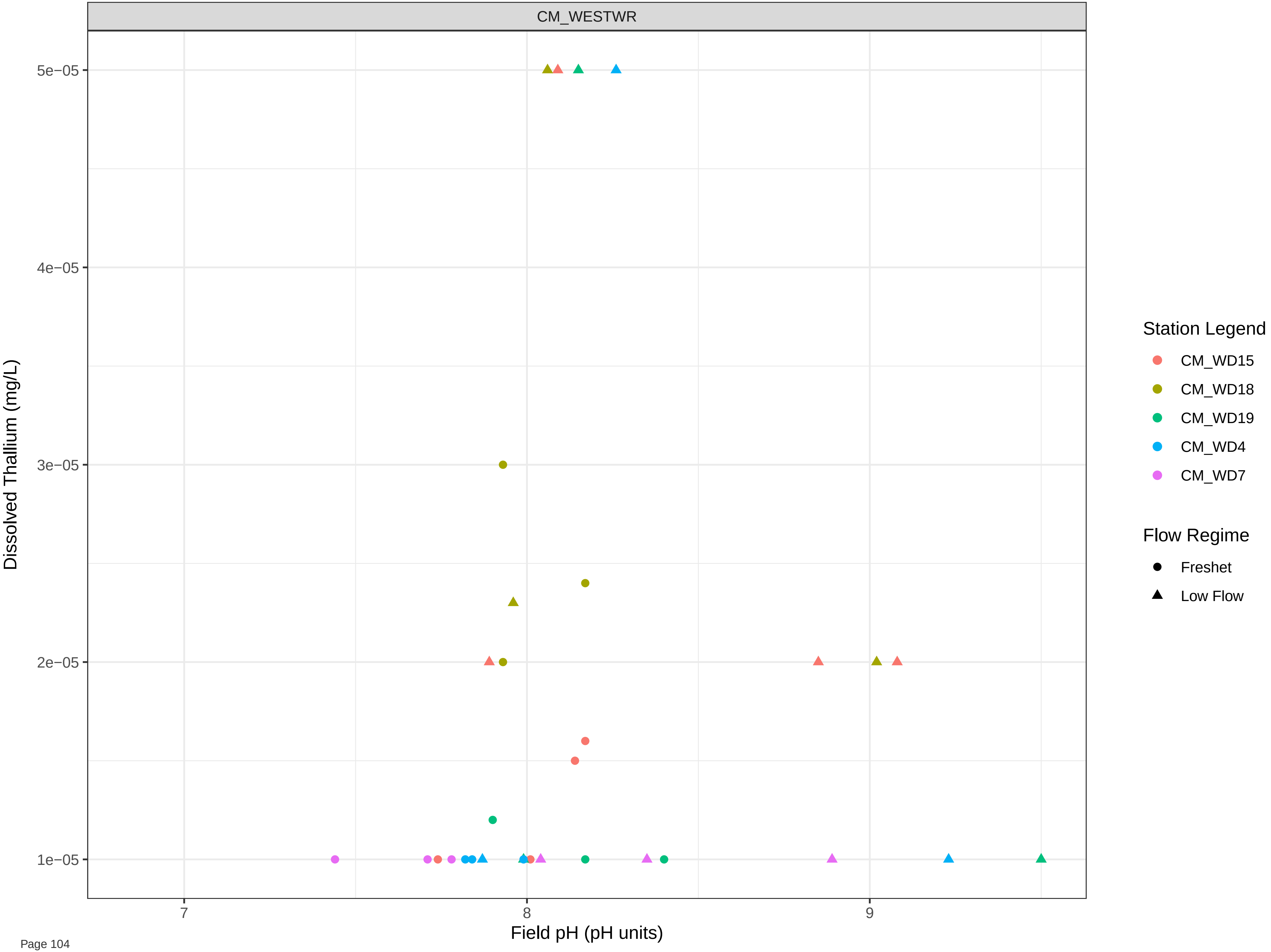

CM_MMCCR
Dissolved Strontium (mg/L)
1.0
0.9
0.8
0.7
0.6
0.5
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

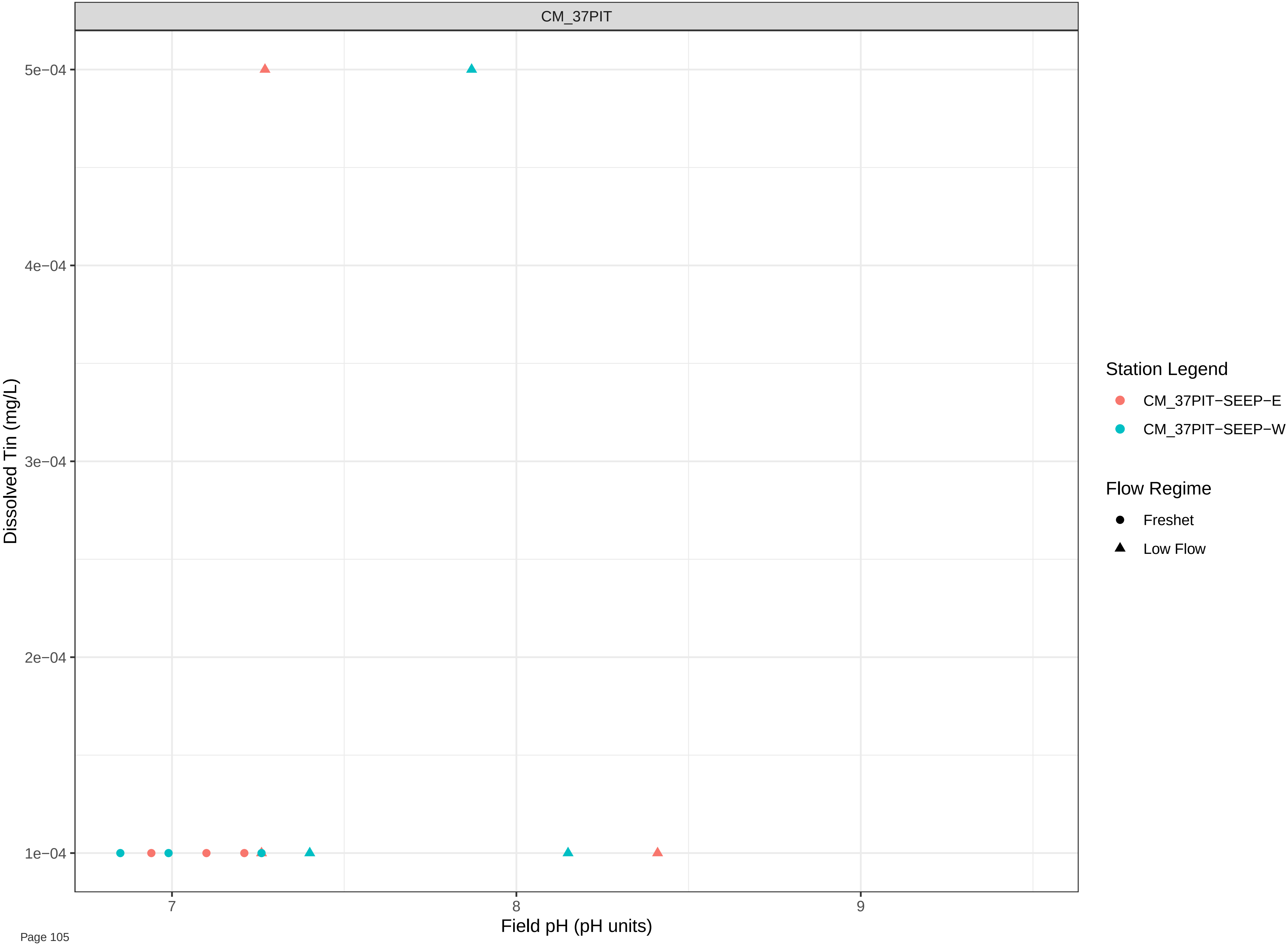

CM_WESTWR
1.0
0.8
0.6
0.4
Dissolved Strontium (mg/L)
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

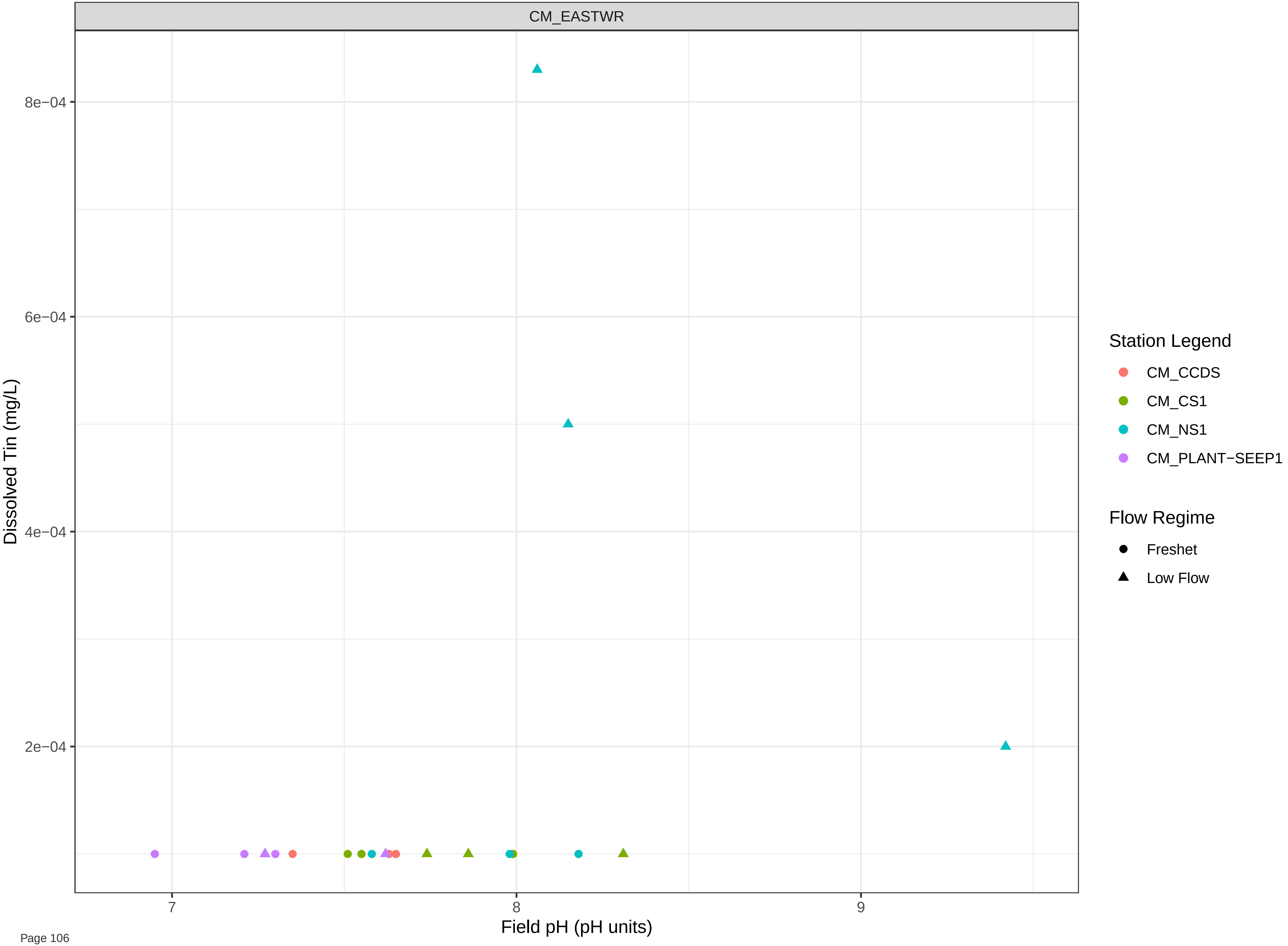

CM_37PIT
Dissolved Thallium (mg/L)
0.00015
0.00012
0.00009
0.00006
Field pH (pH units)
7
8
9
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

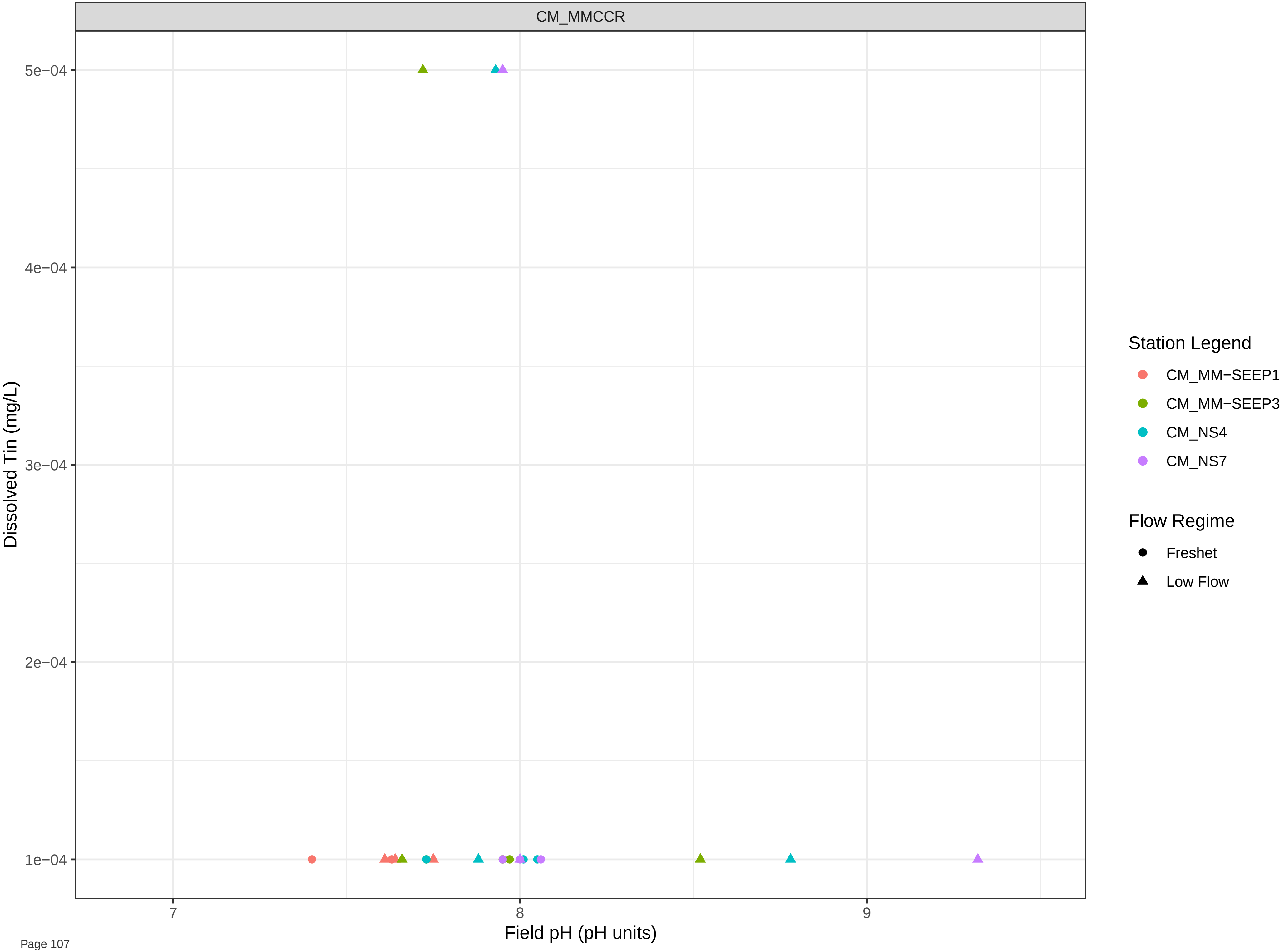

CM_EASTWR
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

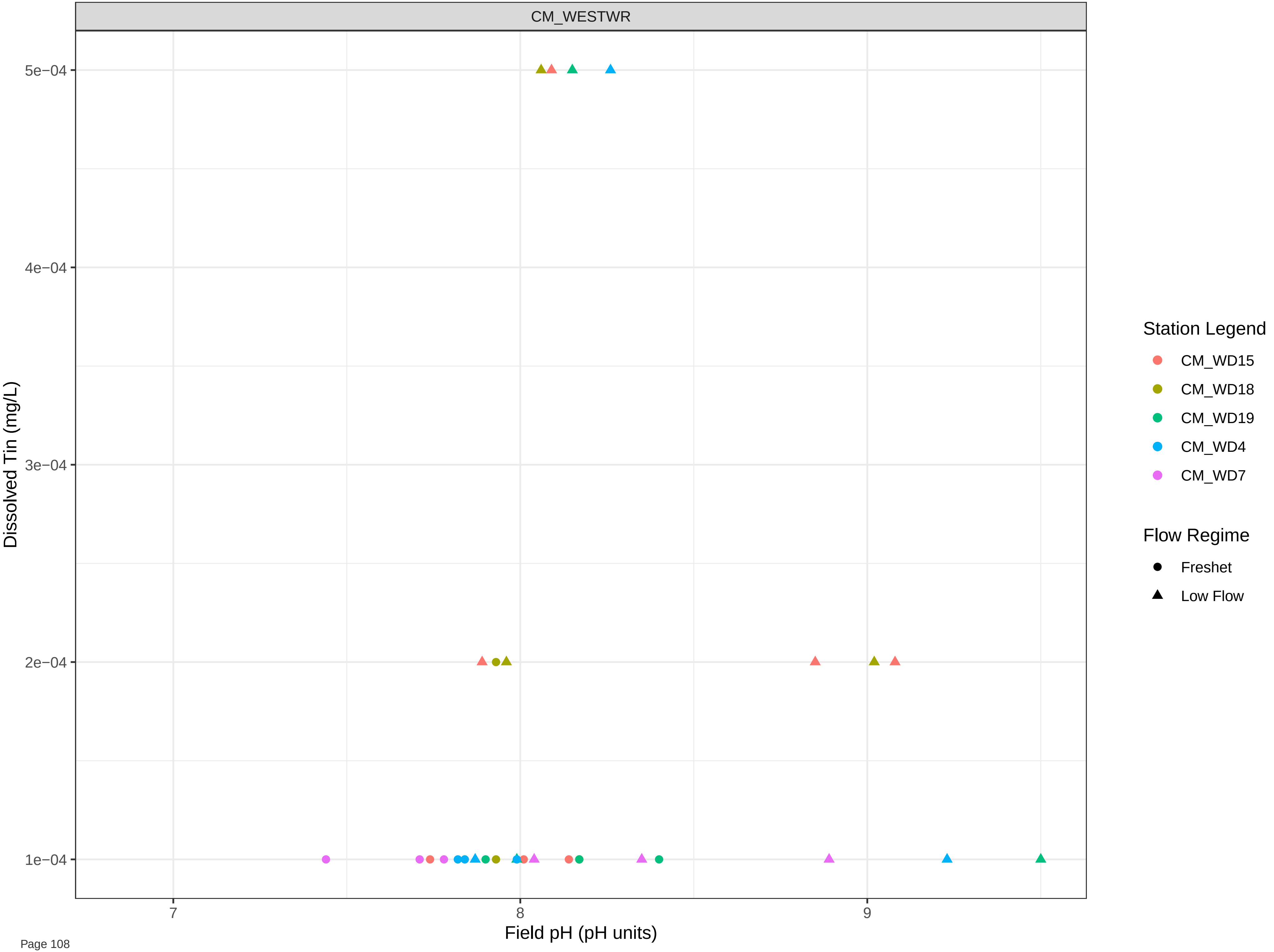

CM_MMCCR
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

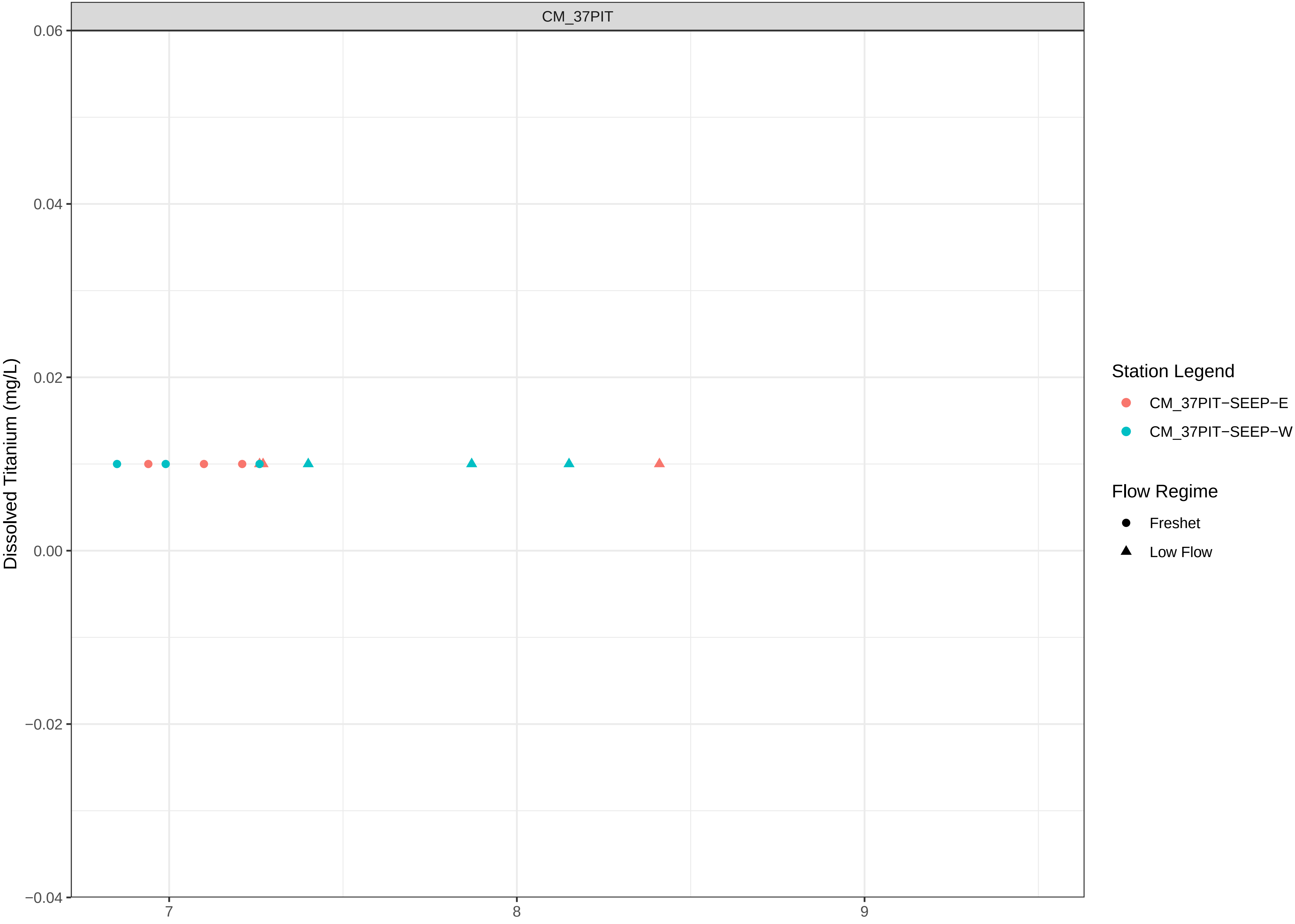

CM_WESTWR
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

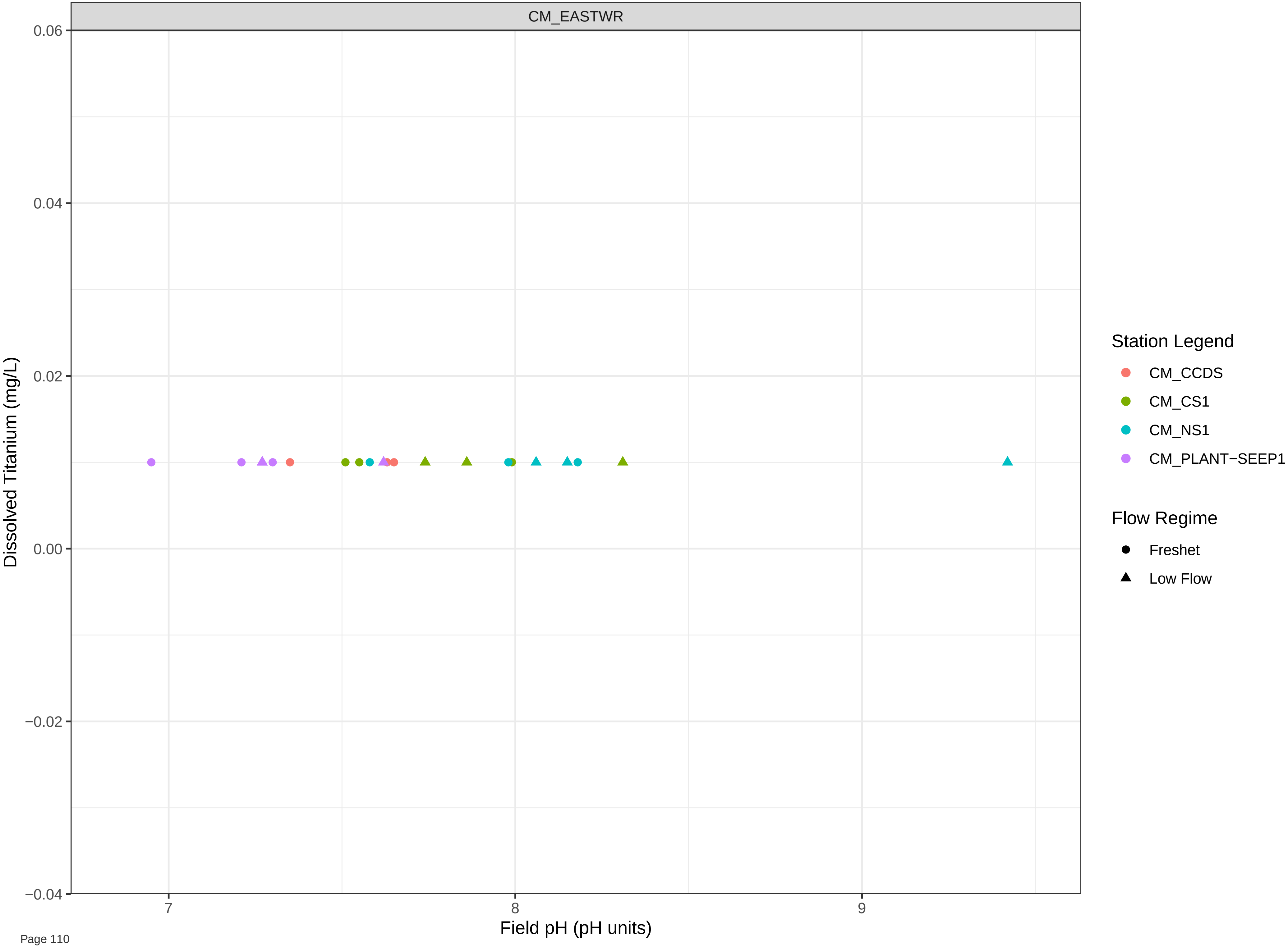

CM_37PIT
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
7
8
9
Field pH (pH units)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

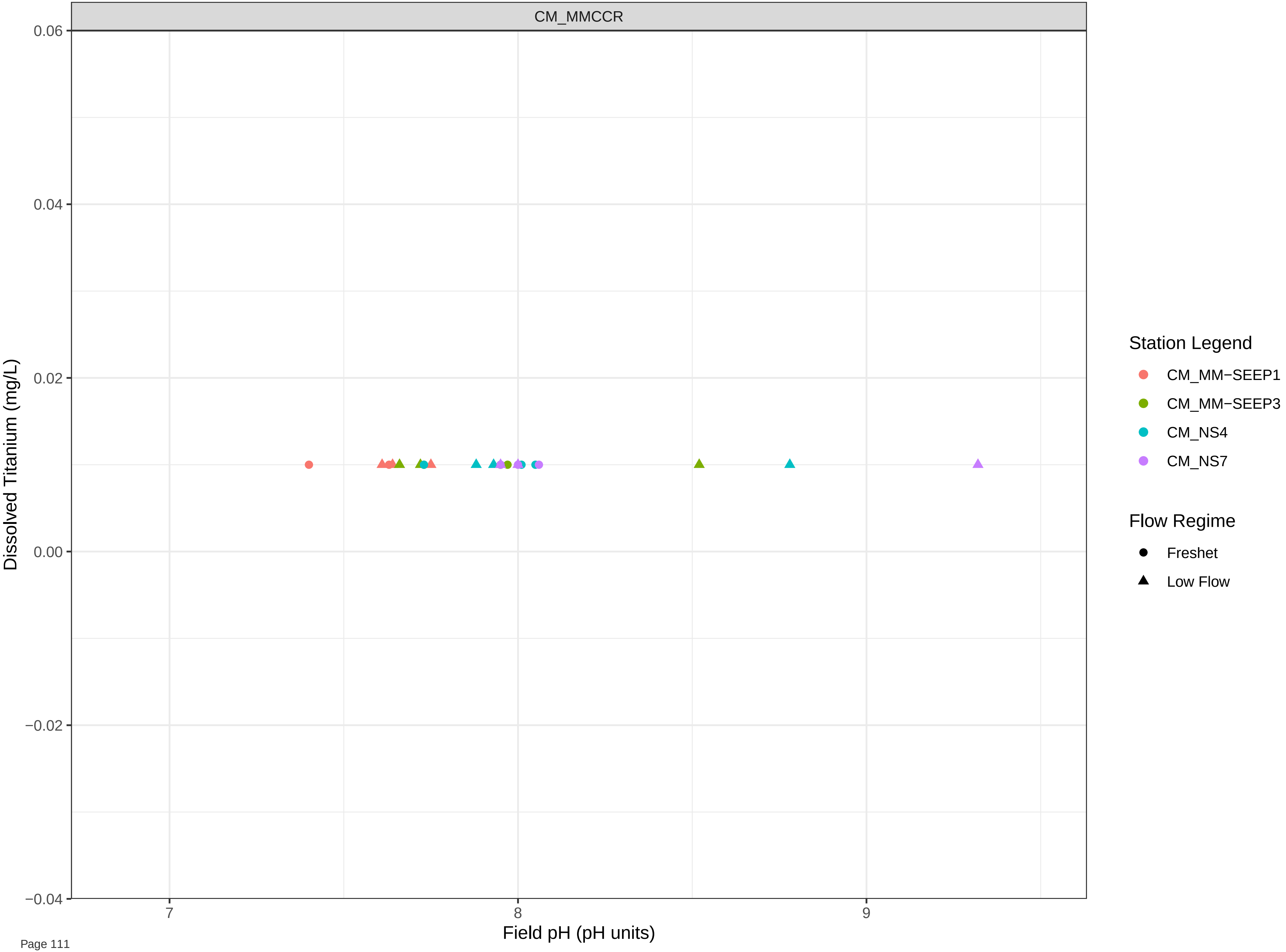

CM_EASTWR
Dissolved Tin (mg/L)
8e−04
6e−04
4e−04
2e−04
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

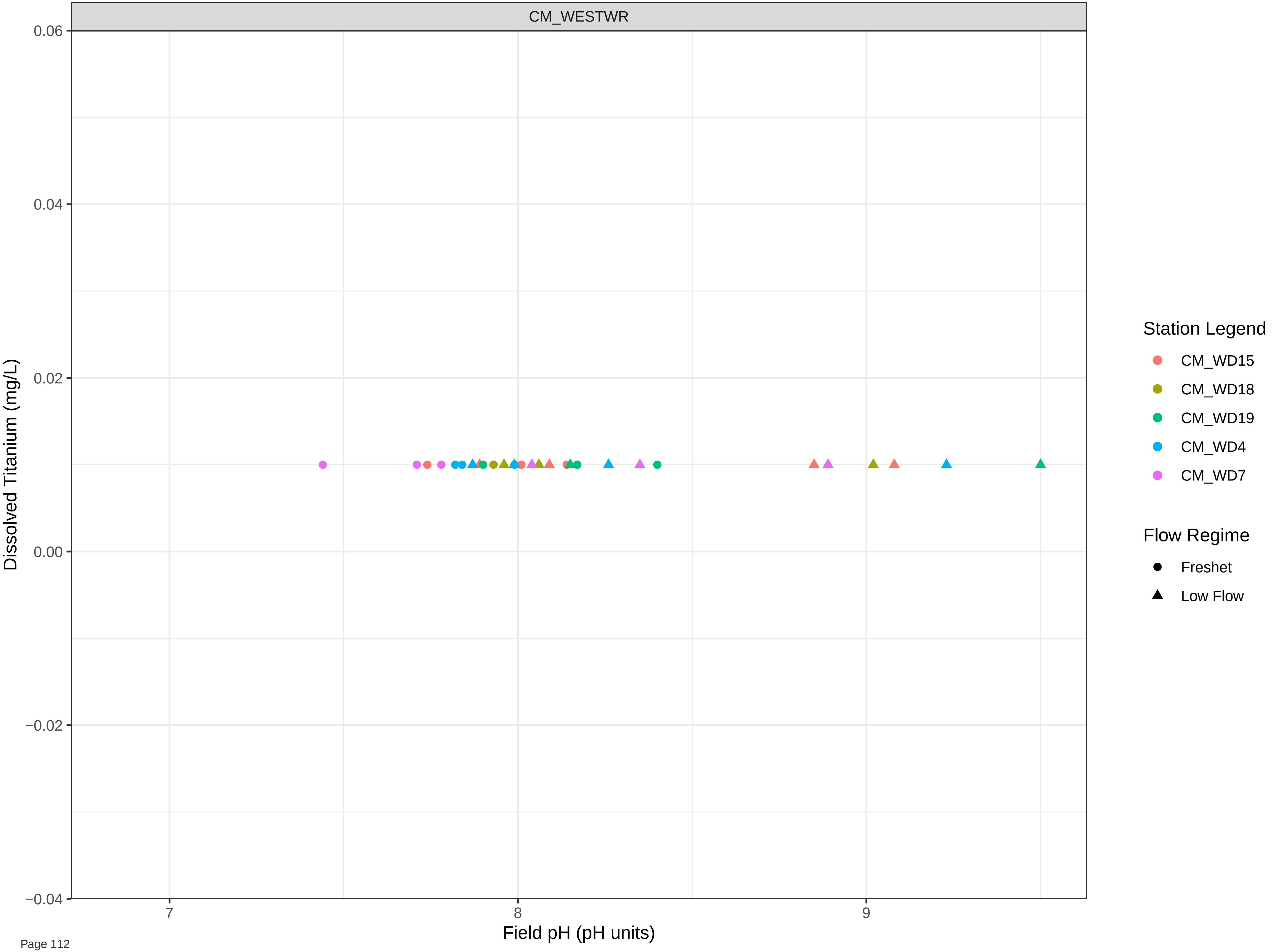

CM_MMCCR
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
7
8
9
Field pH (pH units)
Station Legend
● CM_MM−SEEP1
● CM_MM−SEEP3
● CM_NS4
● CM_NS7
Flow Regime
● Freshet
▲ Low Flow

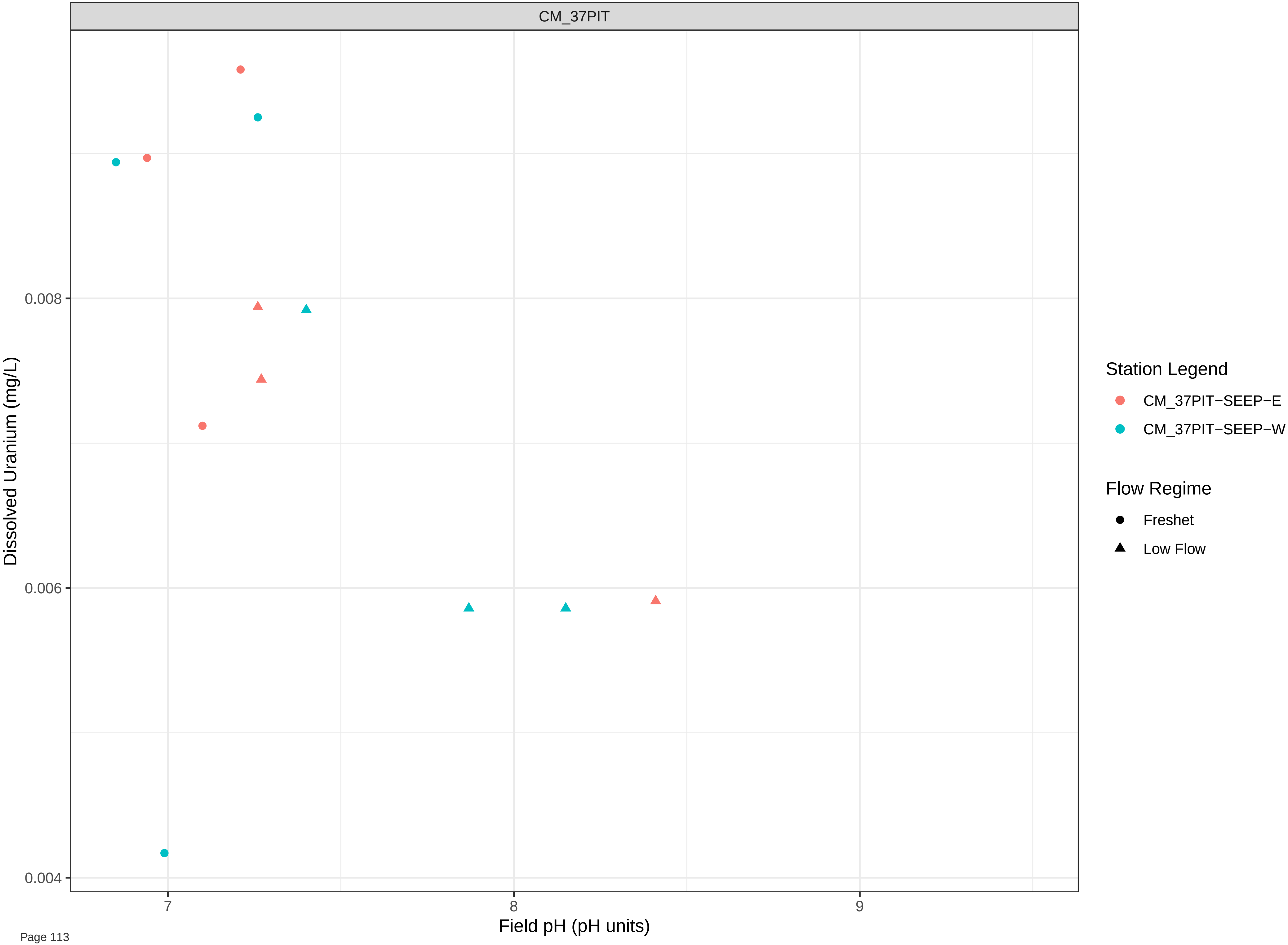

CM_WESTWR
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

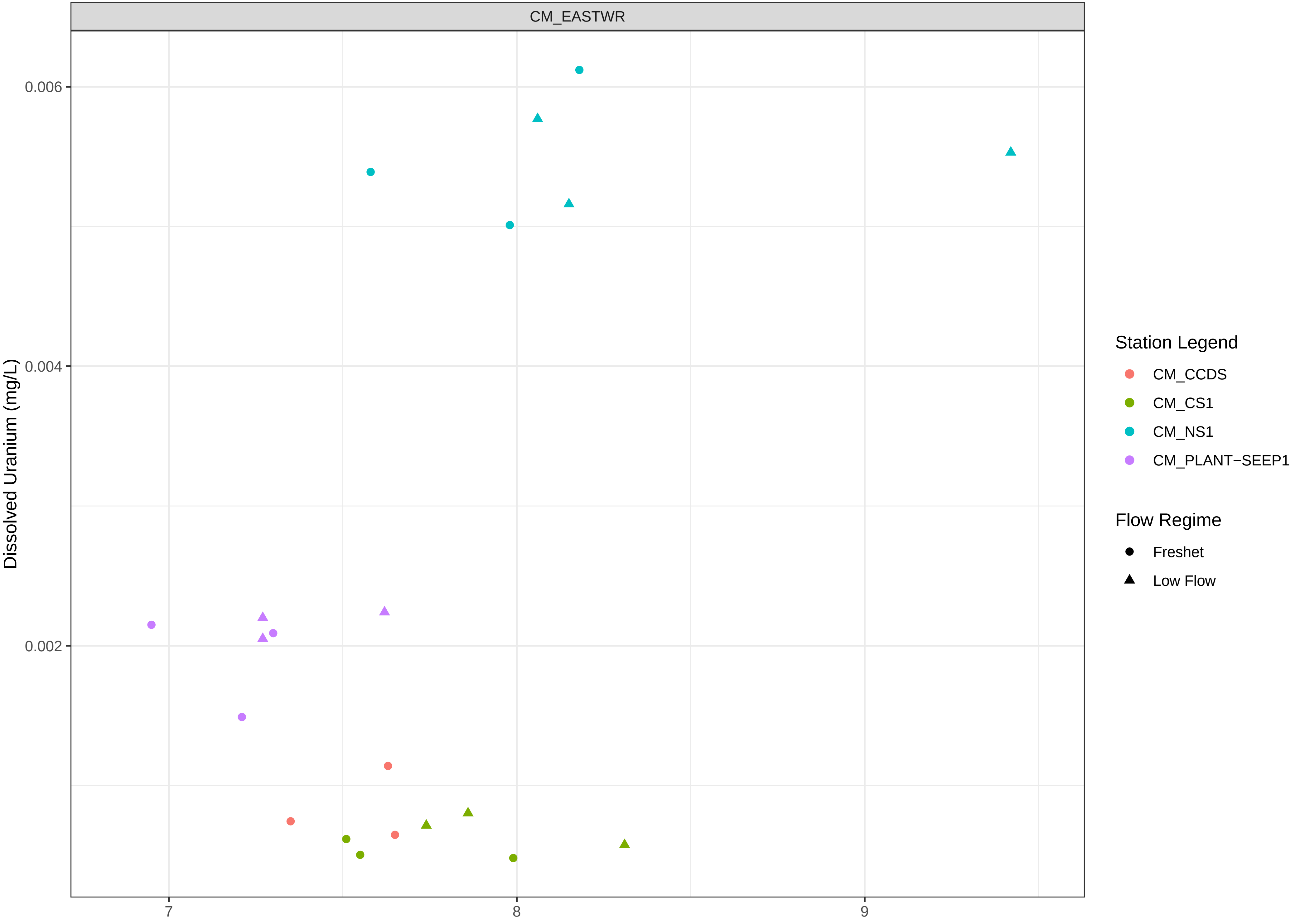

CM_37PIT
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
7
8
9
Field pH (pH units)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

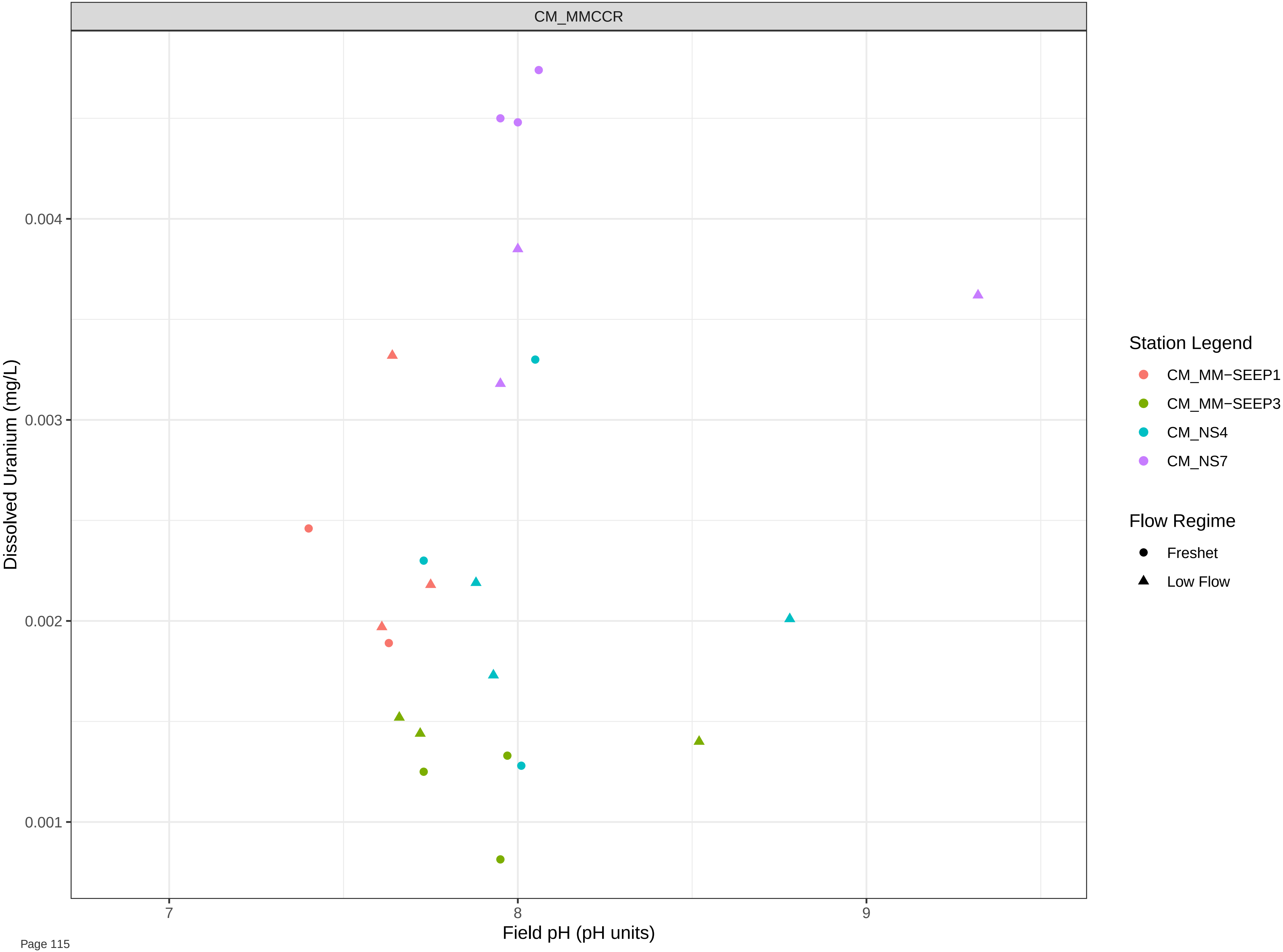

CM_EASTWR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

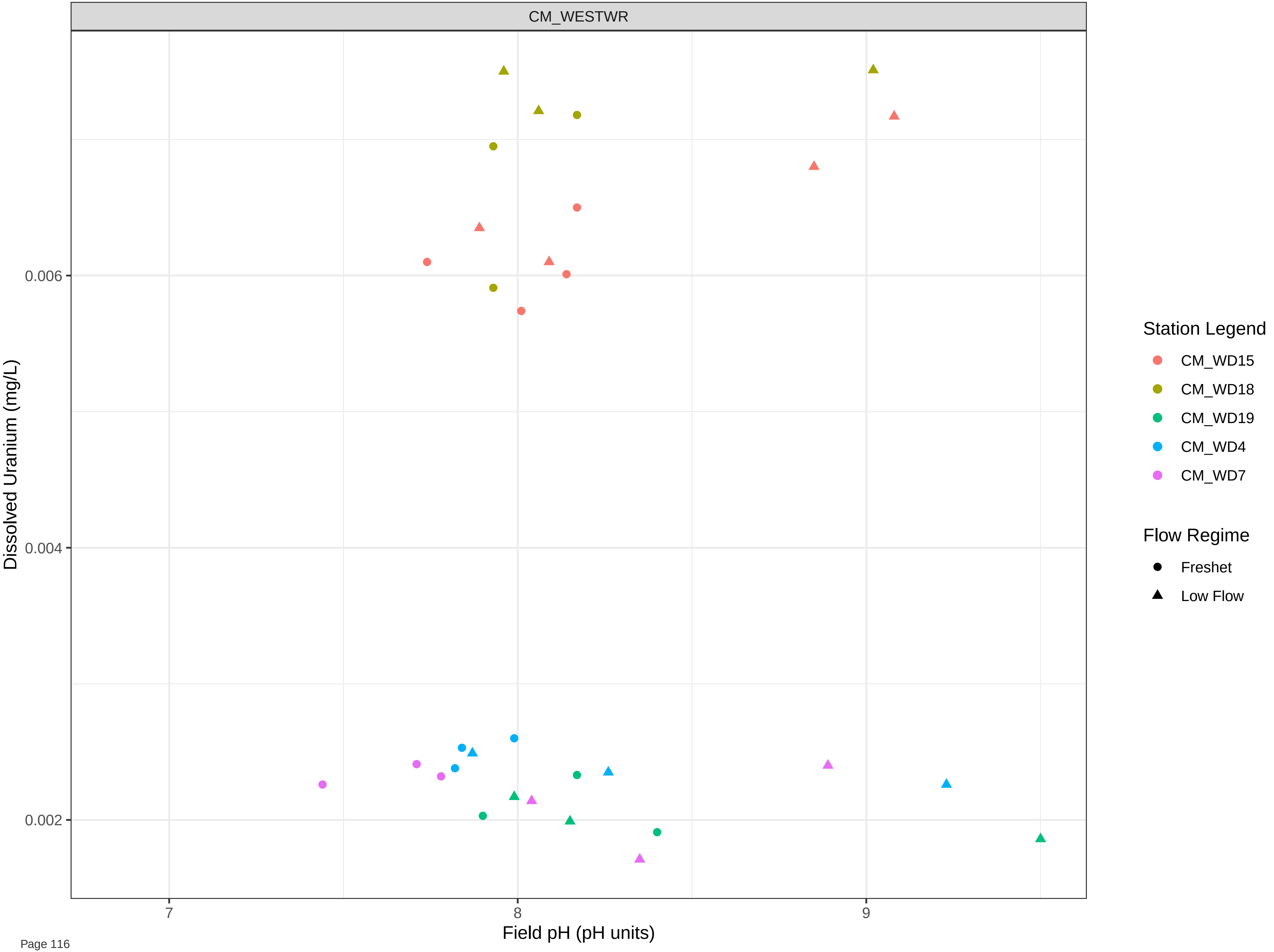

CM_MMCCR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Field pH (pH units)
7
8
9
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

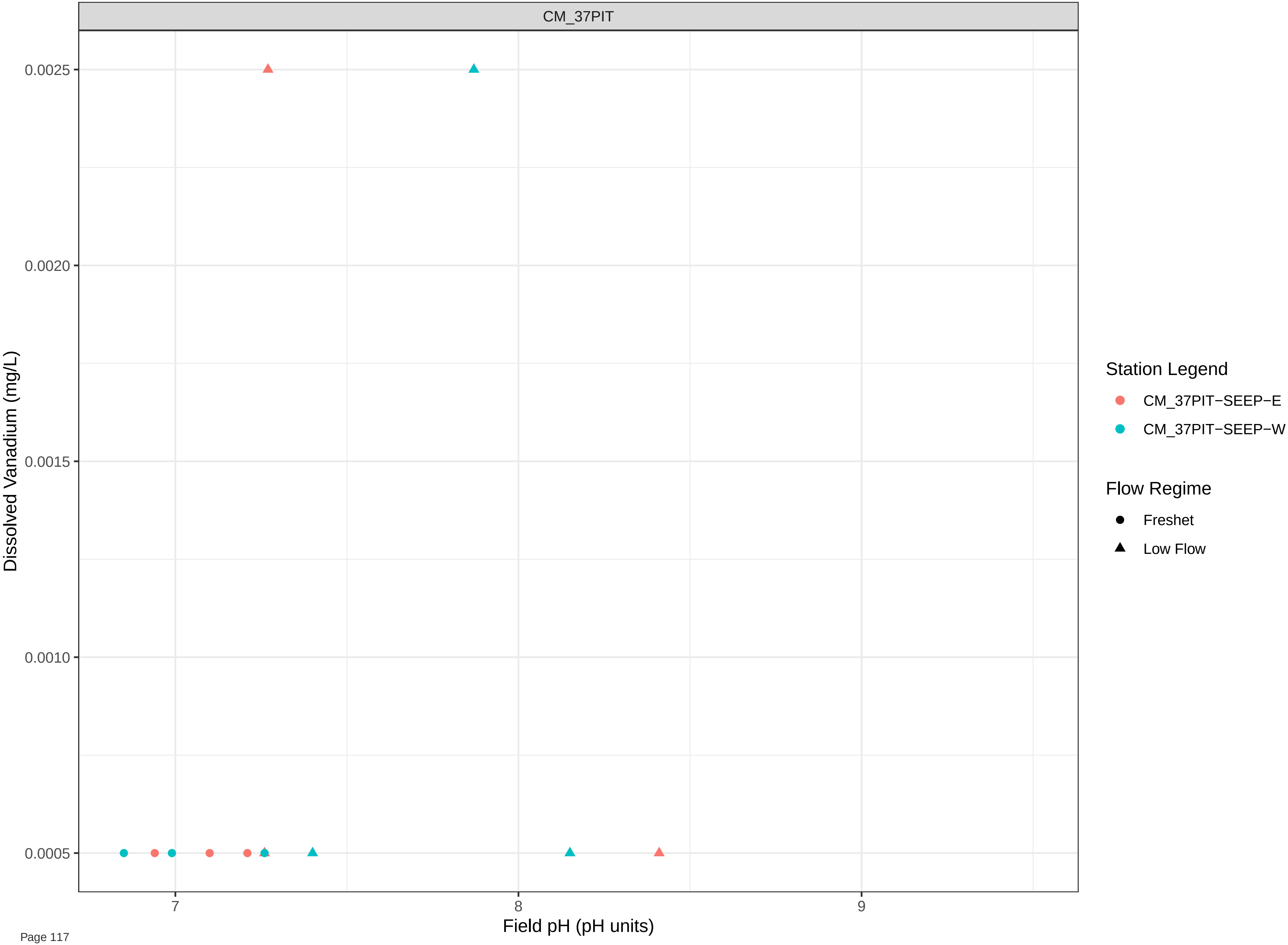

CM_WESTWR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

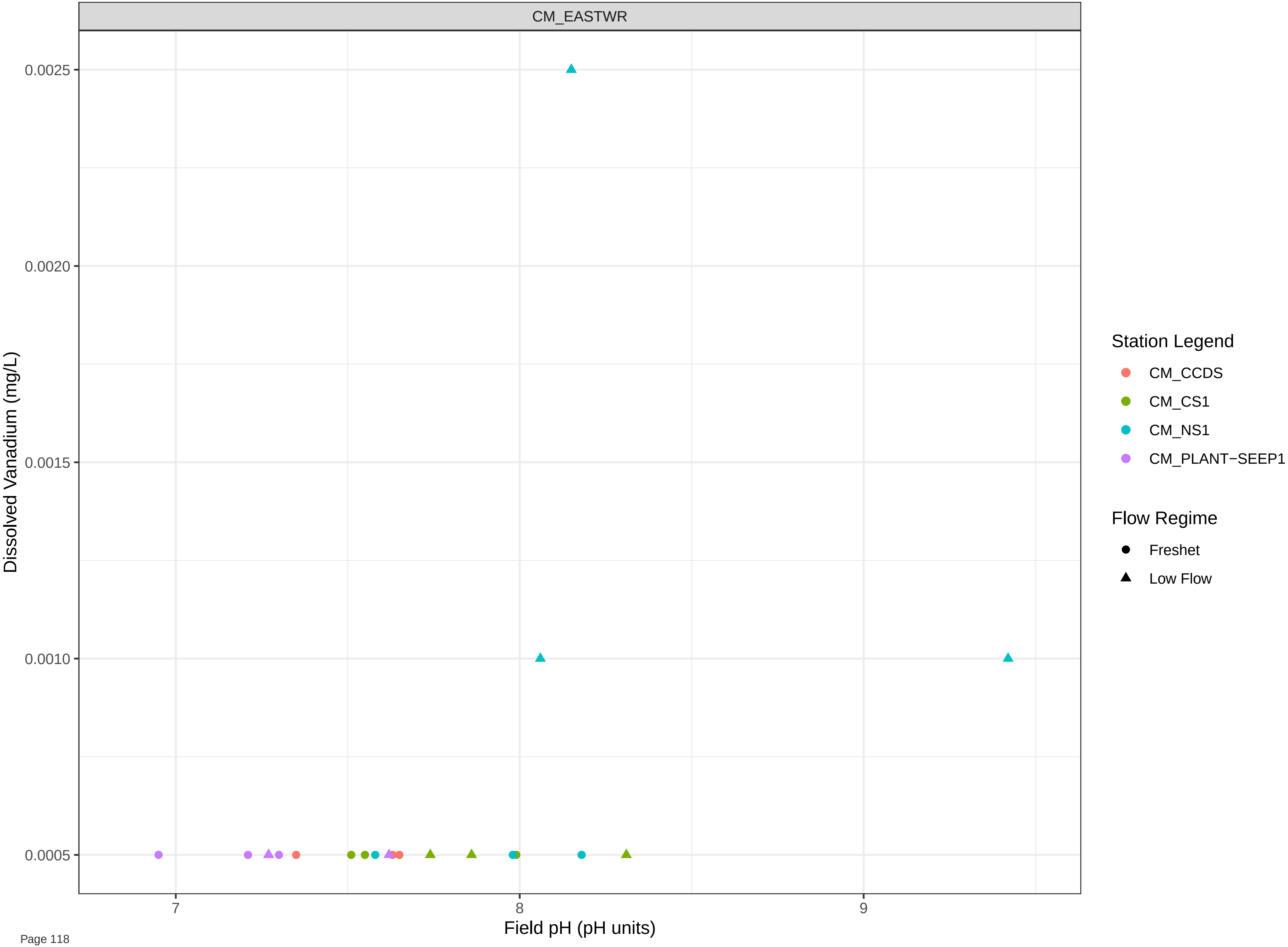

CM_37PIT
Dissolved Uranium (mg/L)
0.004
0.006
0.008
7
8
9
Field pH (pH units)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow

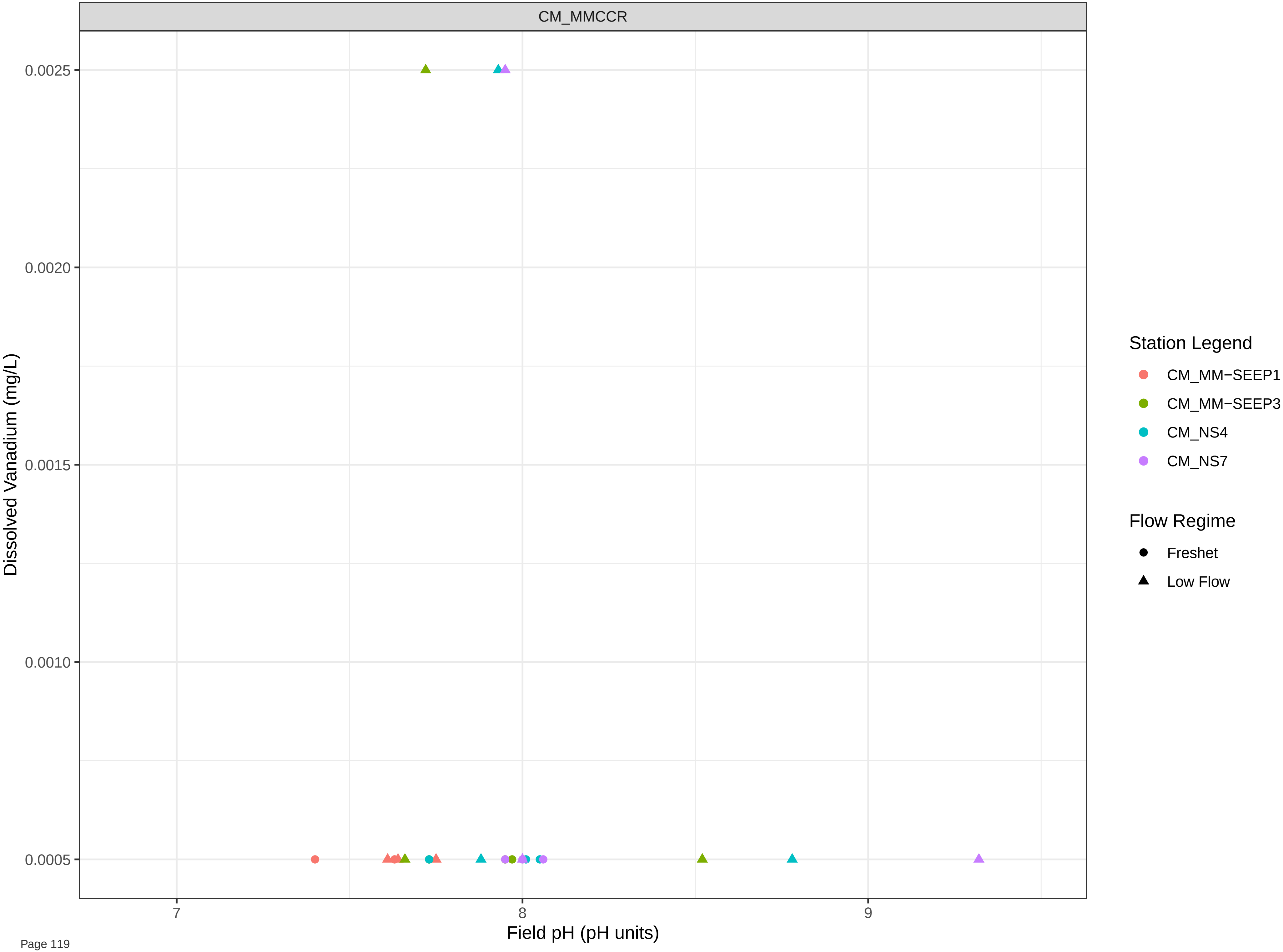

CM_EASTWR
Dissolved Uranium (mg/L)
0.006
0.004
0.002
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

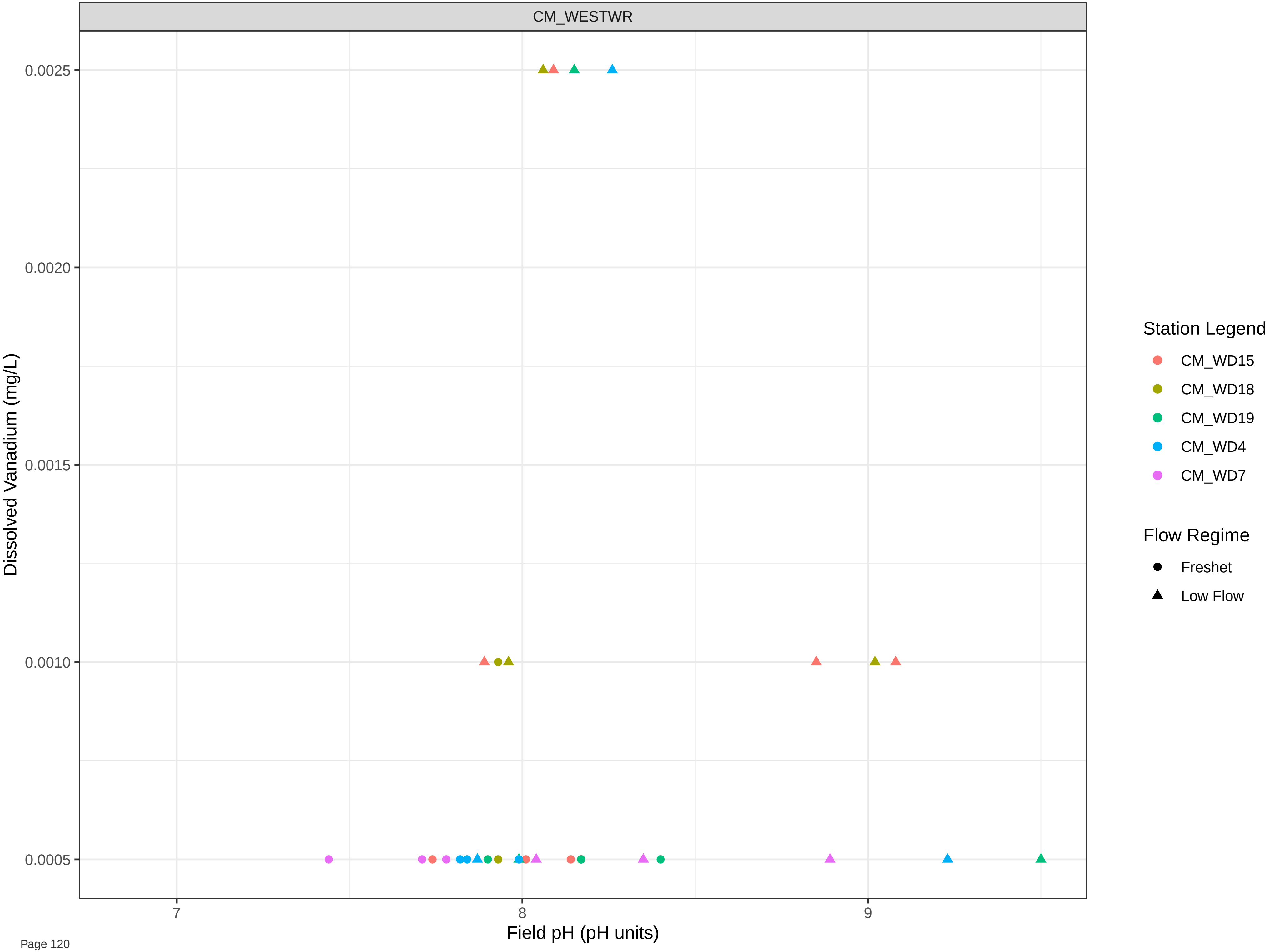

CM_MMCCR
Dissolved Uranium (mg/L)
0.004
0.003
0.002
0.001
7
8
9
Field pH (pH units)
Station Legend
● CM_MM−SEEP1
● CM_MM−SEEP3
● CM_NS4
● CM_NS7
Flow Regime
● Freshet
▲ Low Flow

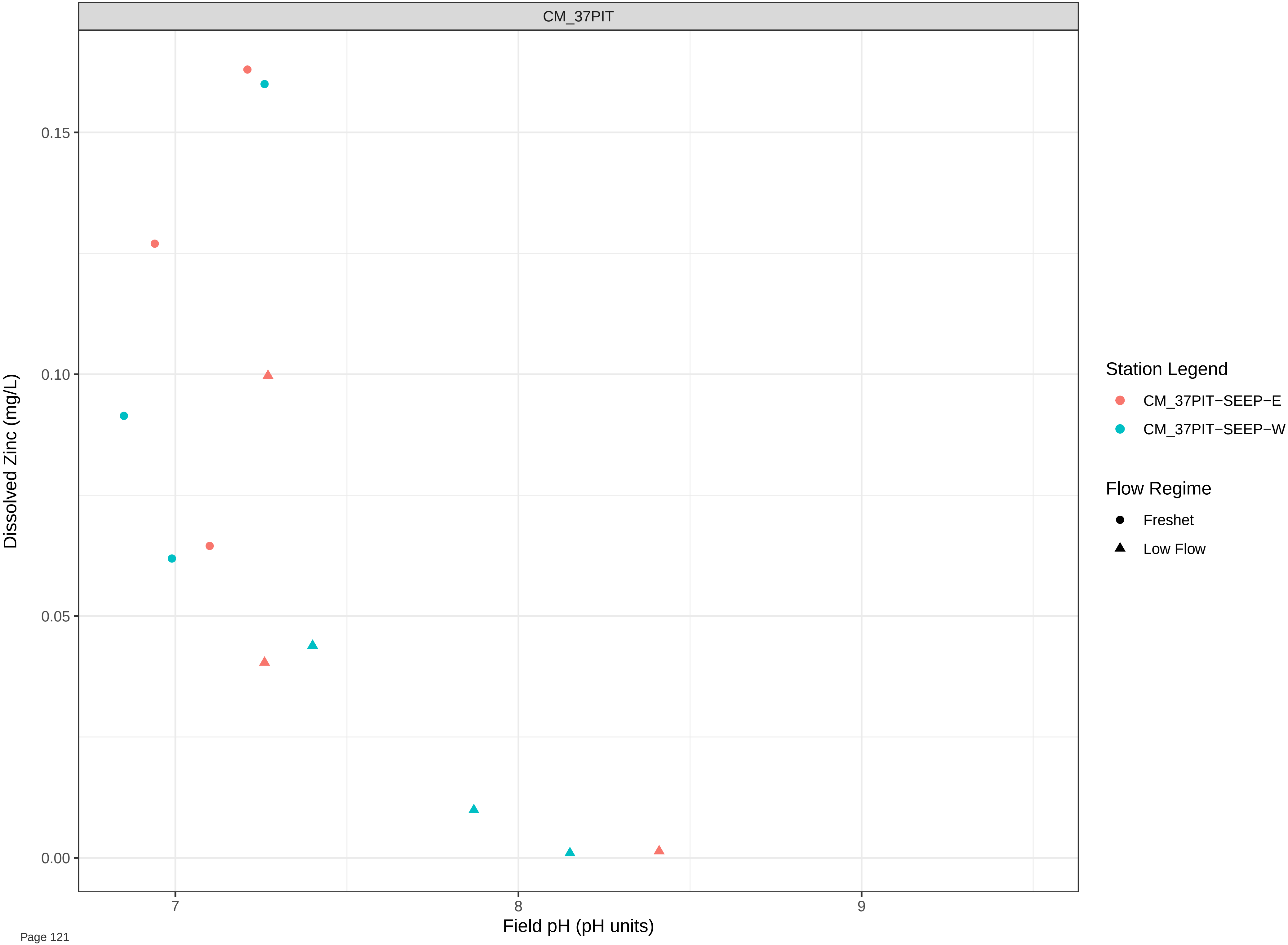

CM_WESTWR
Dissolved Uranium (mg/L)
0.006
0.004
0.002
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

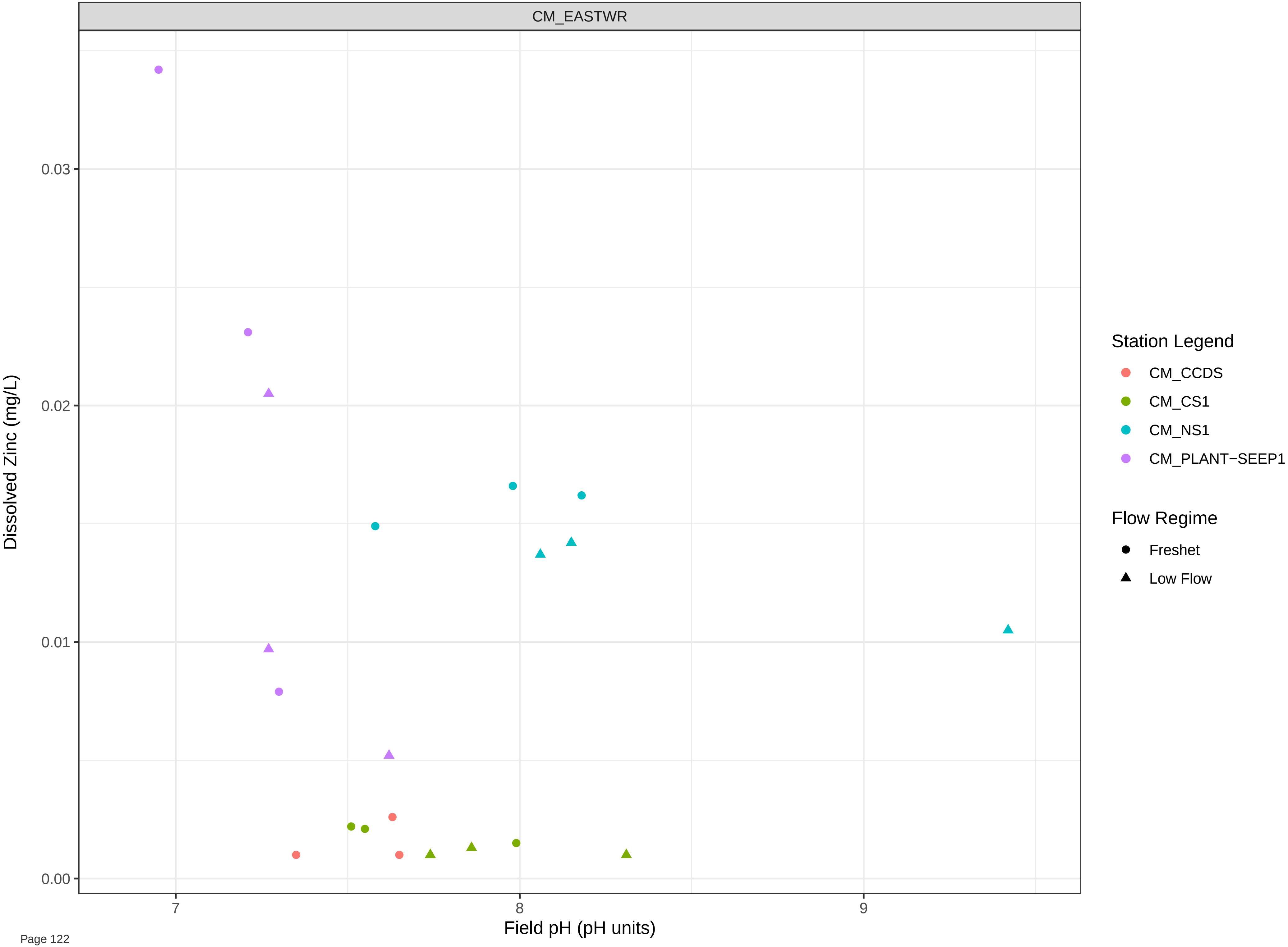

CM_37PIT
0.0025
0.0020
0.0015
0.0010
0.0005
Dissolved Vanadium (mg/L)
7
8
9
Field pH (pH units)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

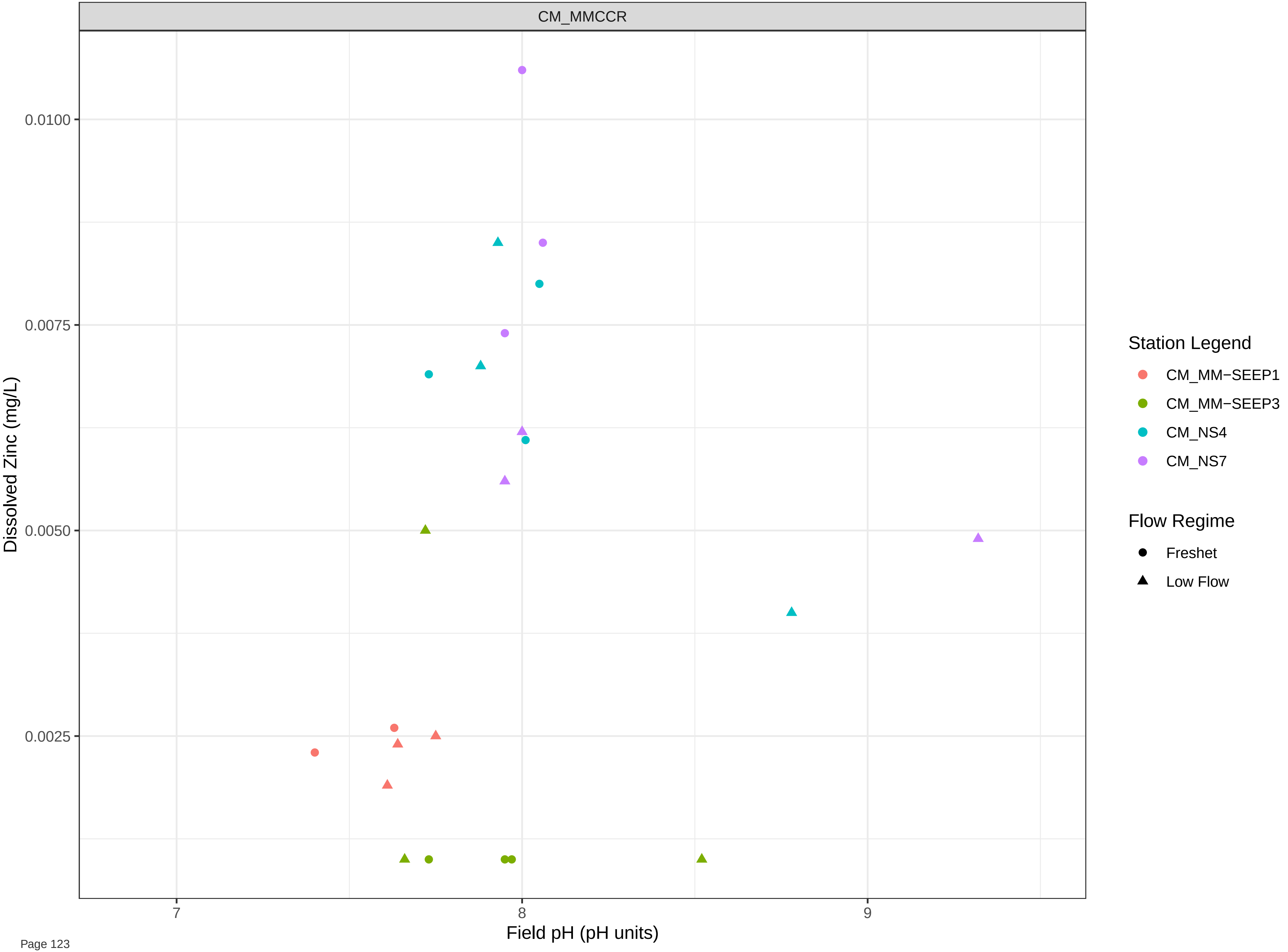

CM_EASTWR
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

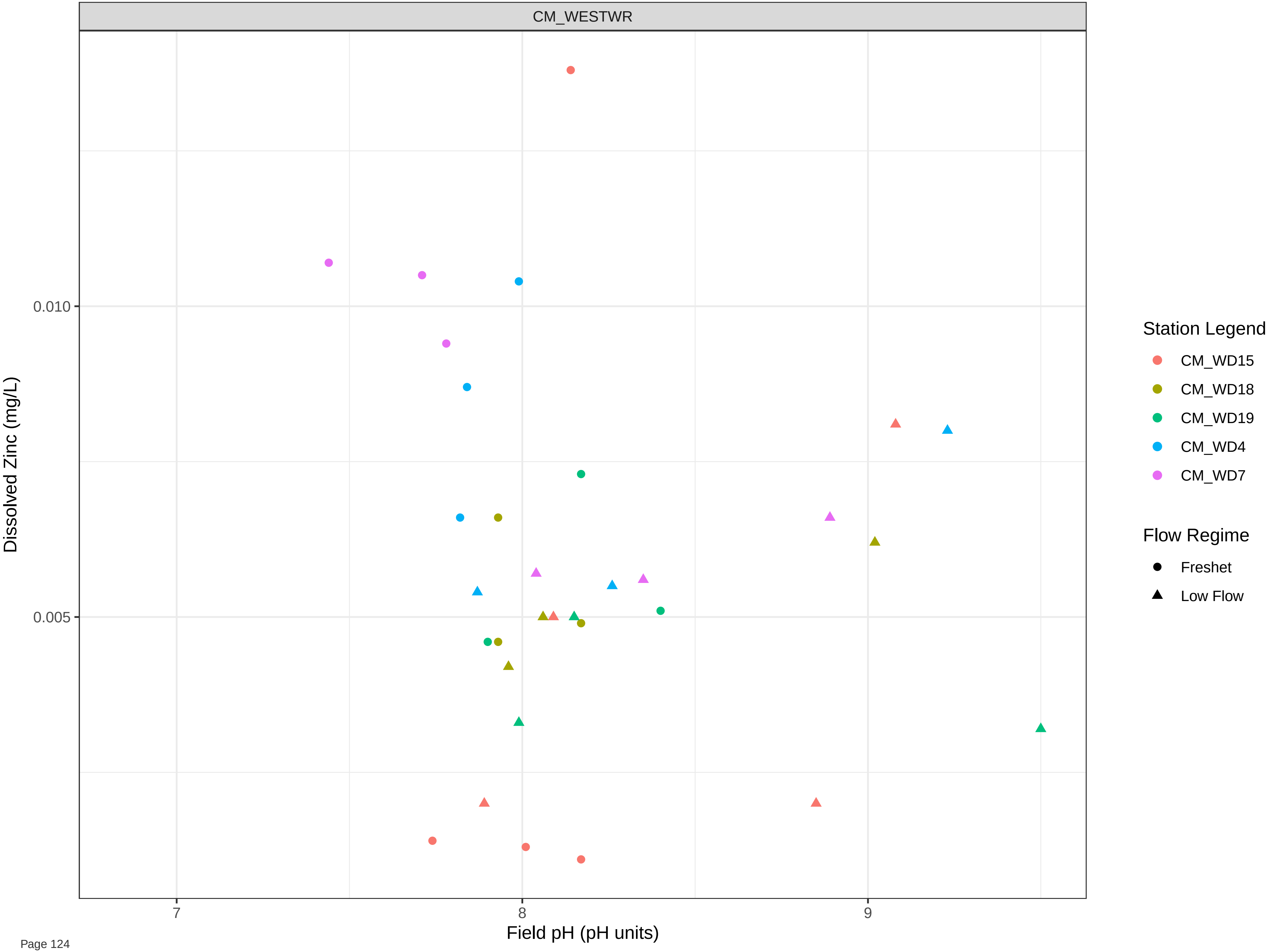

CM_MMCCR
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
Field pH (pH units)
7
8
9
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow


CM_WESTWR
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

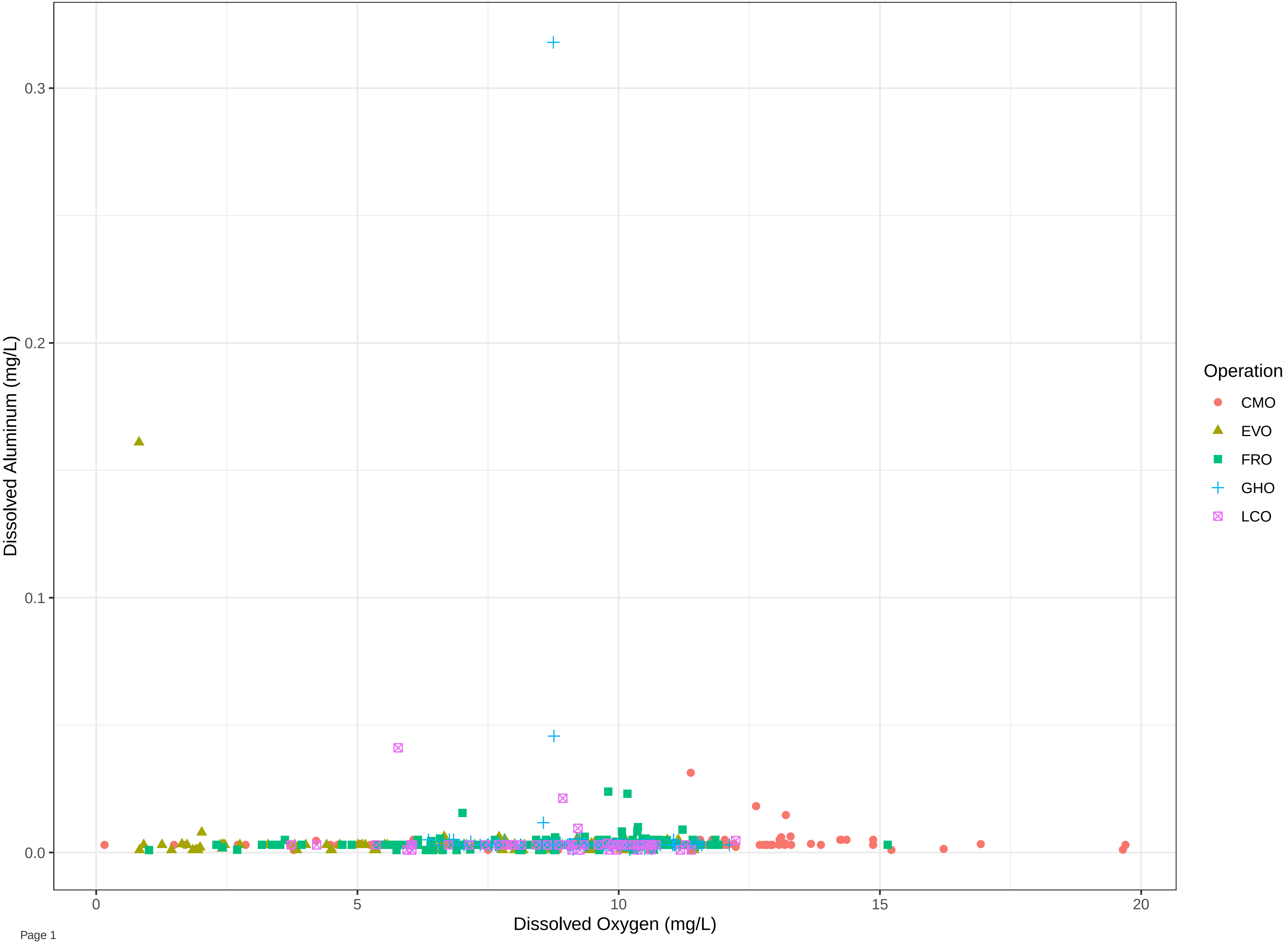

CM_37PIT
Dissolved Zinc (mg/L)
0.15
0.10
0.05
0.00
Field pH (pH units)
7
8
9
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow


CM_EASTWR
Dissolved Zinc (mg/L)
0.03
0.02
0.01
0.00
7
8
9
Field pH (pH units)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

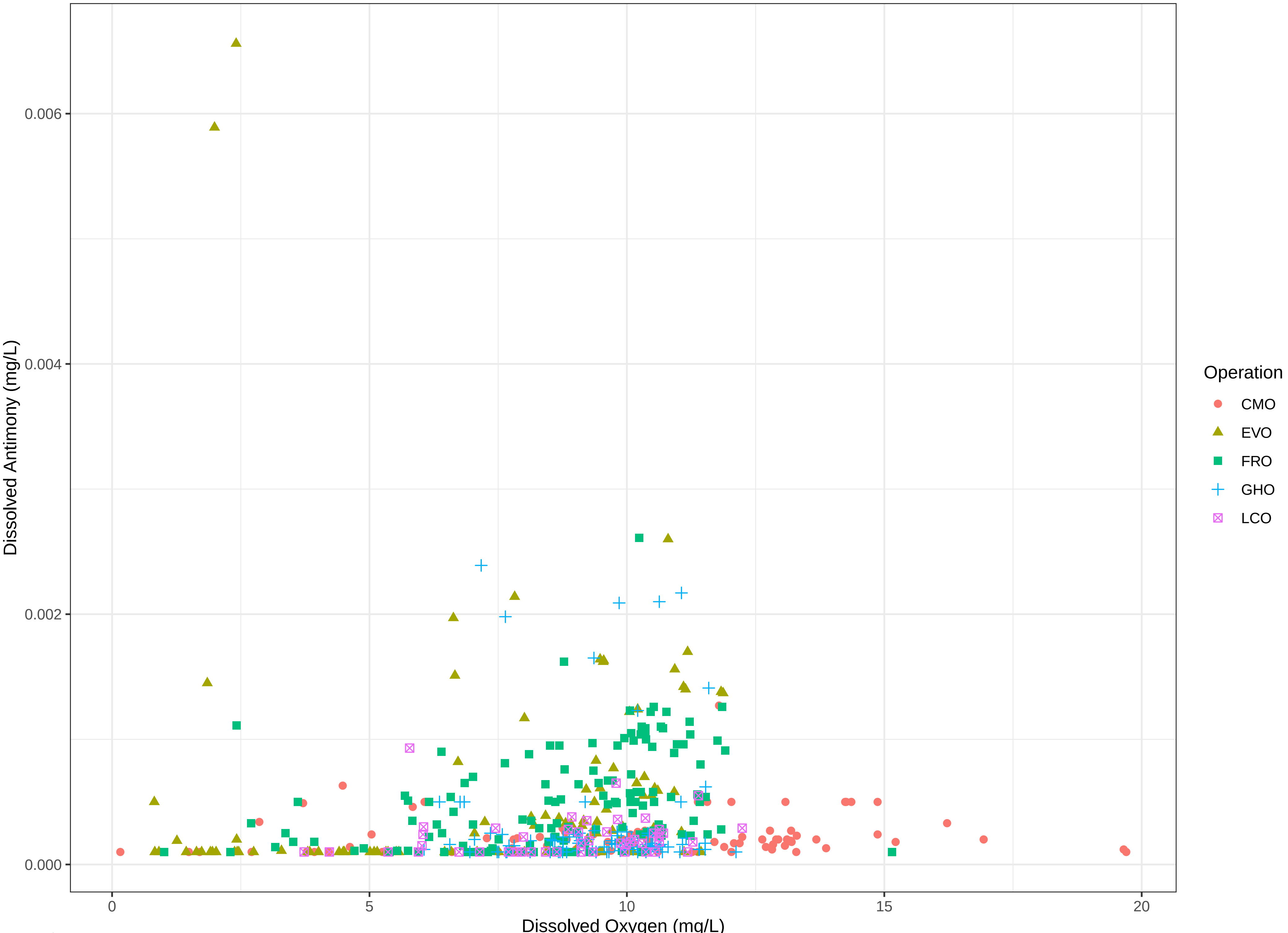

CM_MMCCR
Dissolved Zinc (mg/L)
0.0100
0.0075
0.0050
0.0025
7
8
9
Field pH (pH units)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

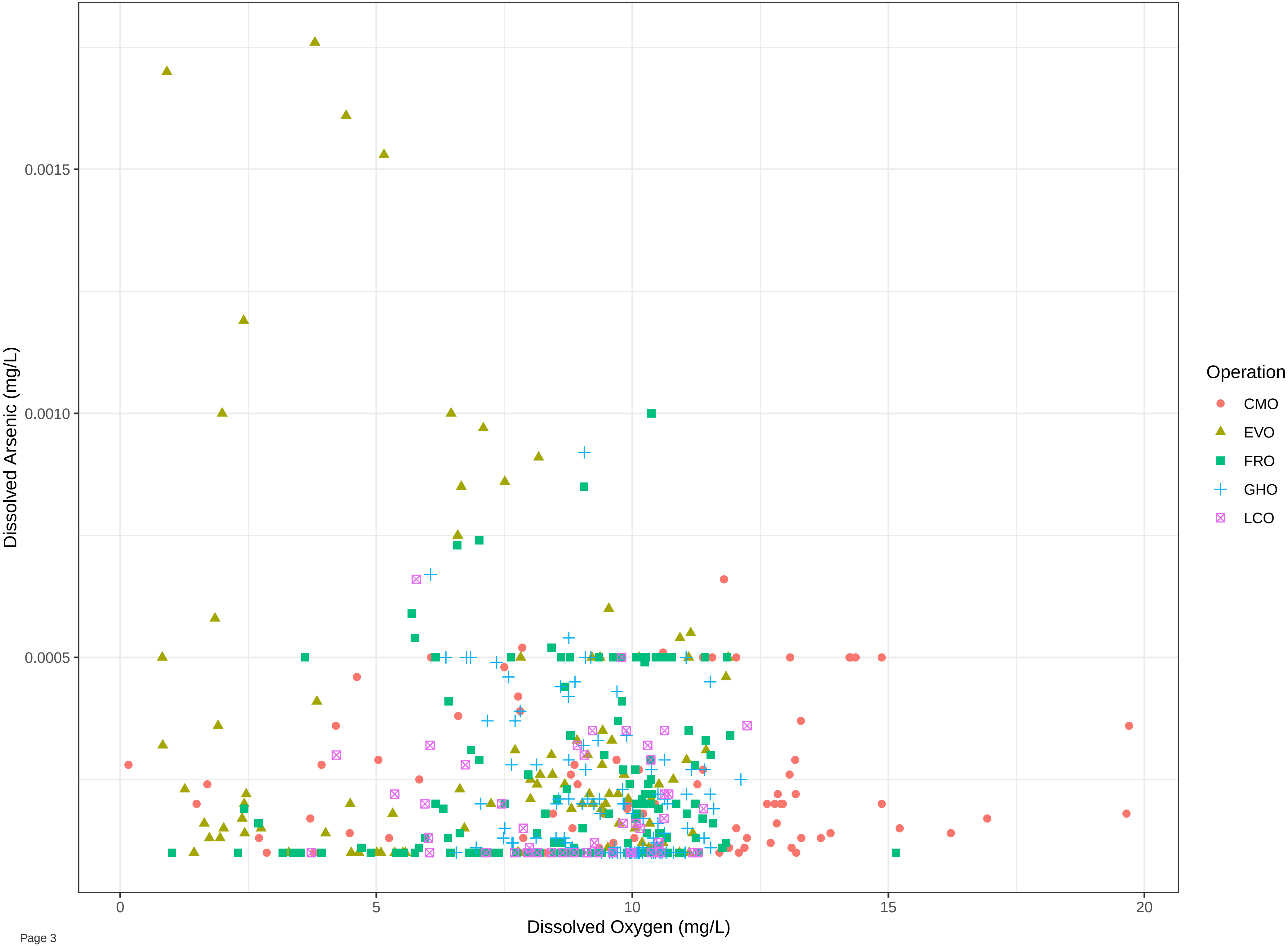

CM_WESTWR
Dissolved Zinc (mg/L)
0.010
0.005
7
8
9
Field pH (pH units)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

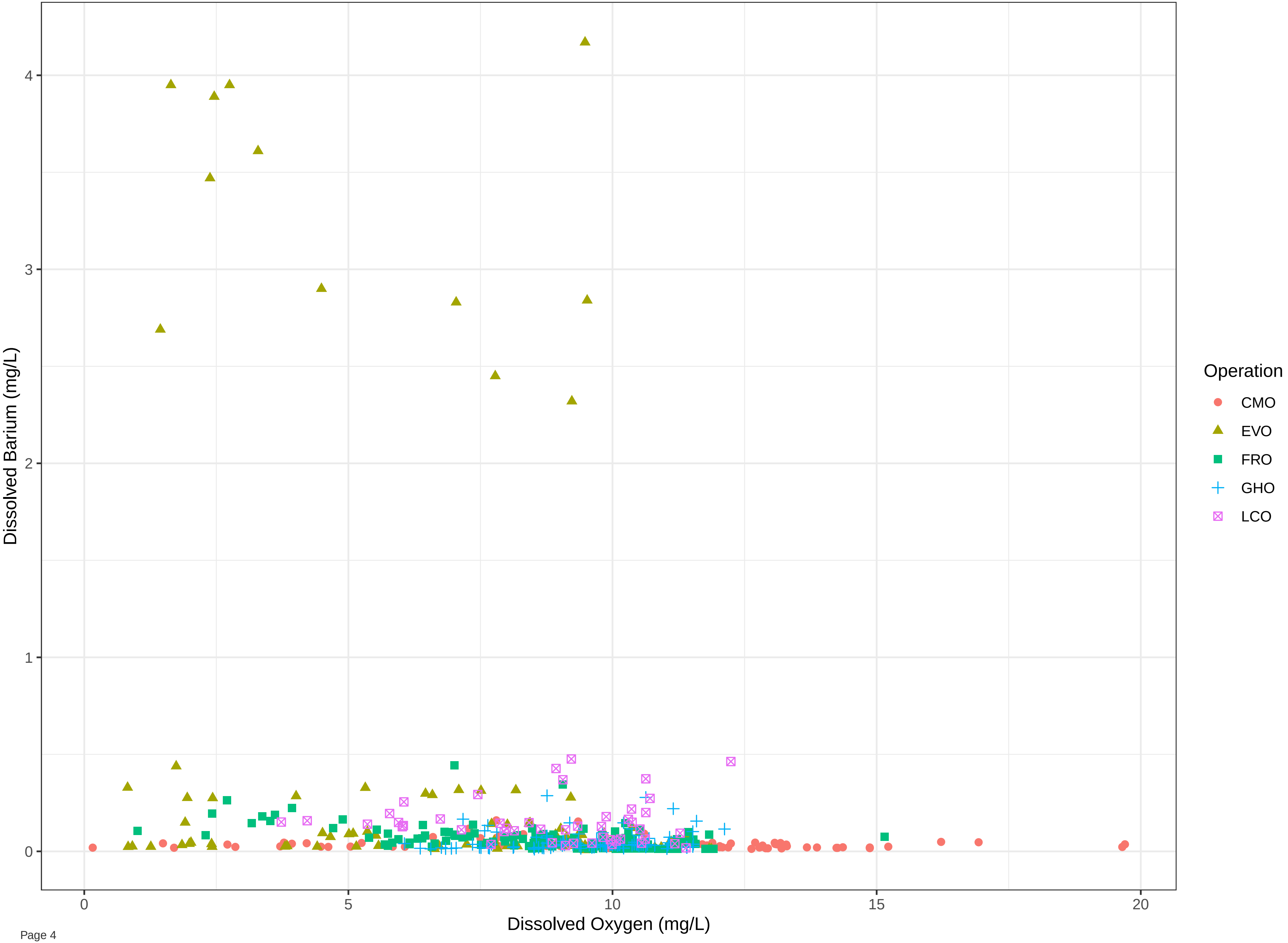
Appendix H Metals versus Dissolved Oxygen Cross Plots

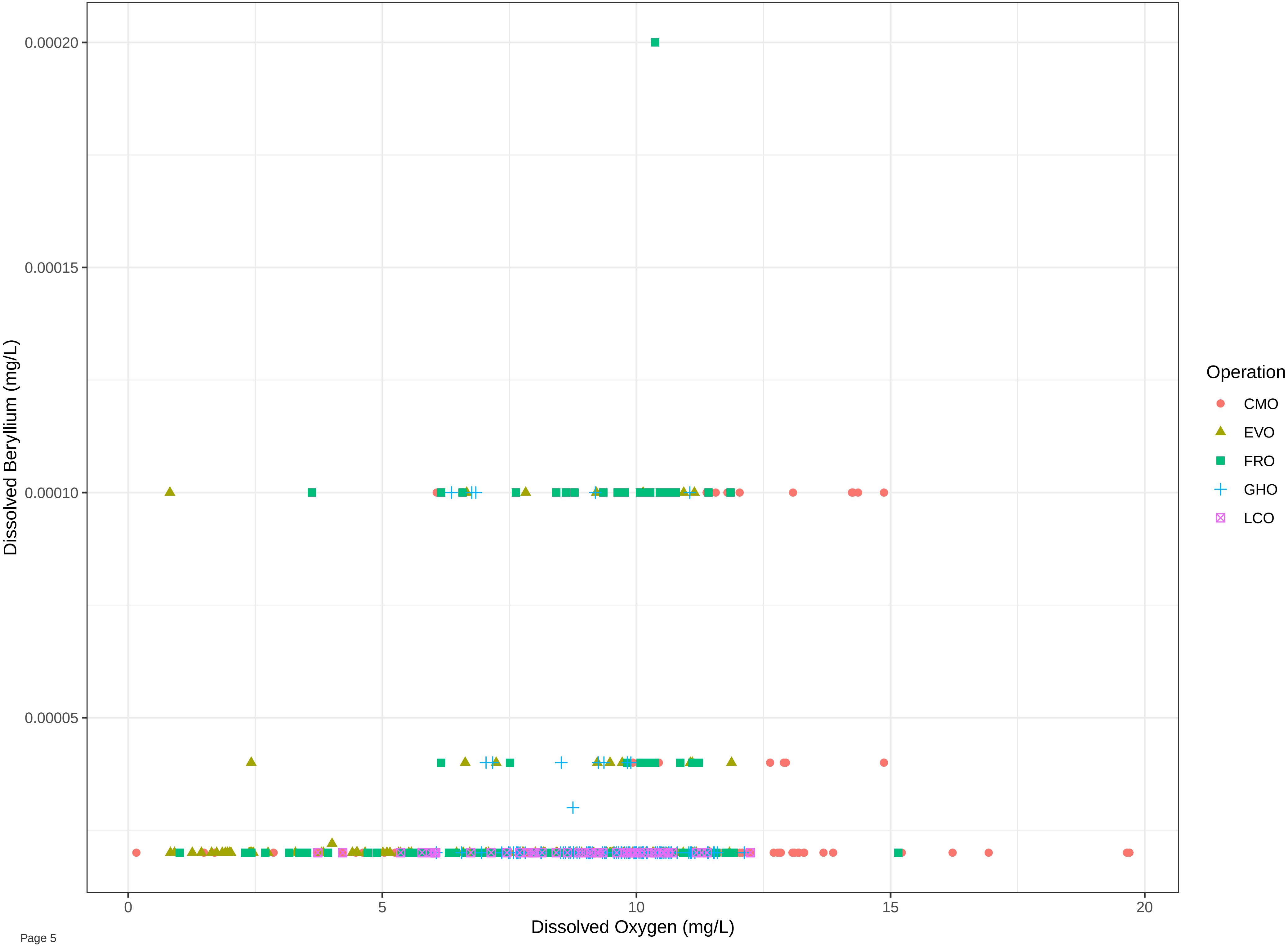


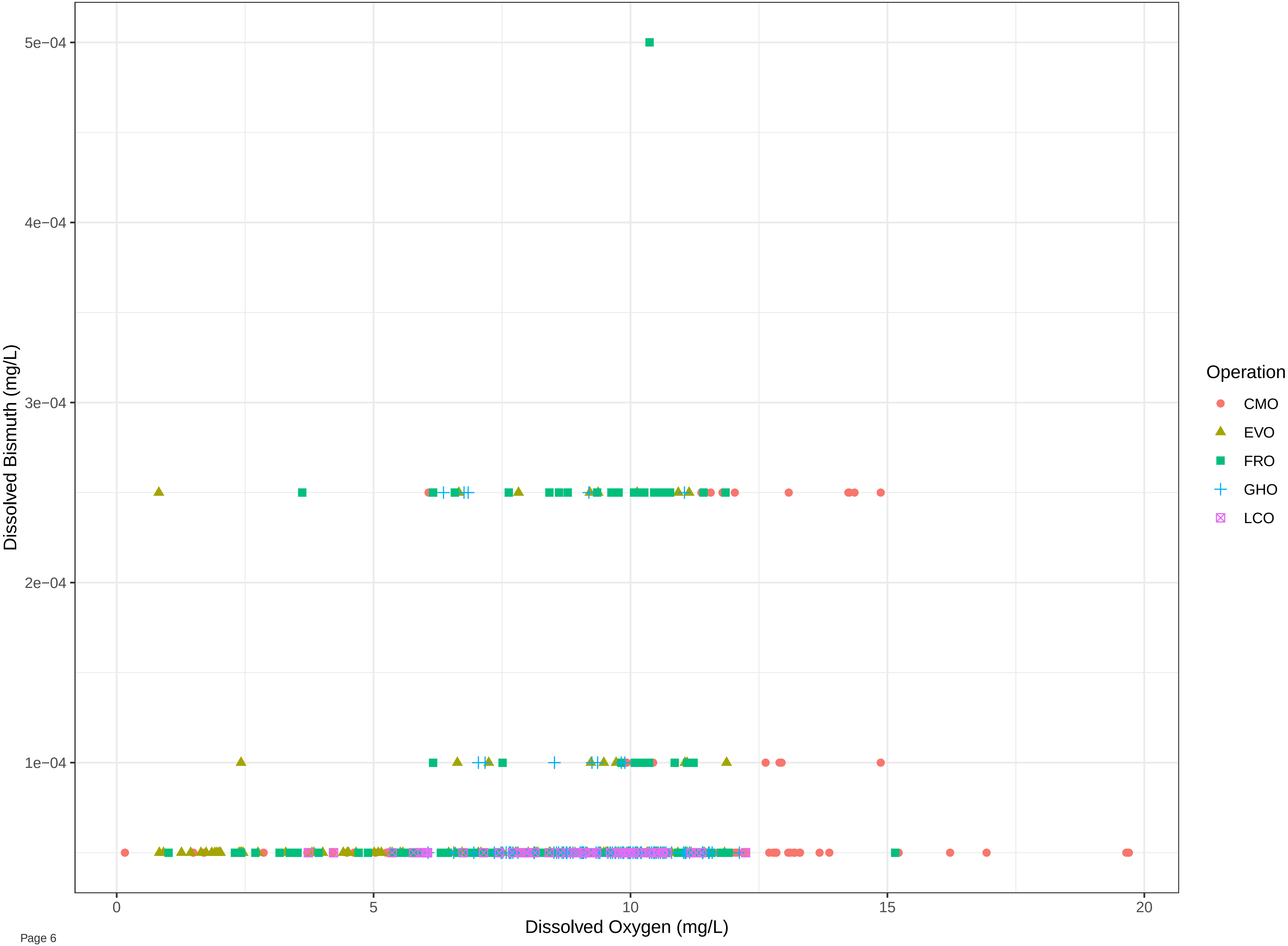
Dissolved Aluminum (mg/L)
0.3
0.2
0.1
0.0
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO


Dissolved Antimony (mg/L)
0.006
0.004
0.002
0.000
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

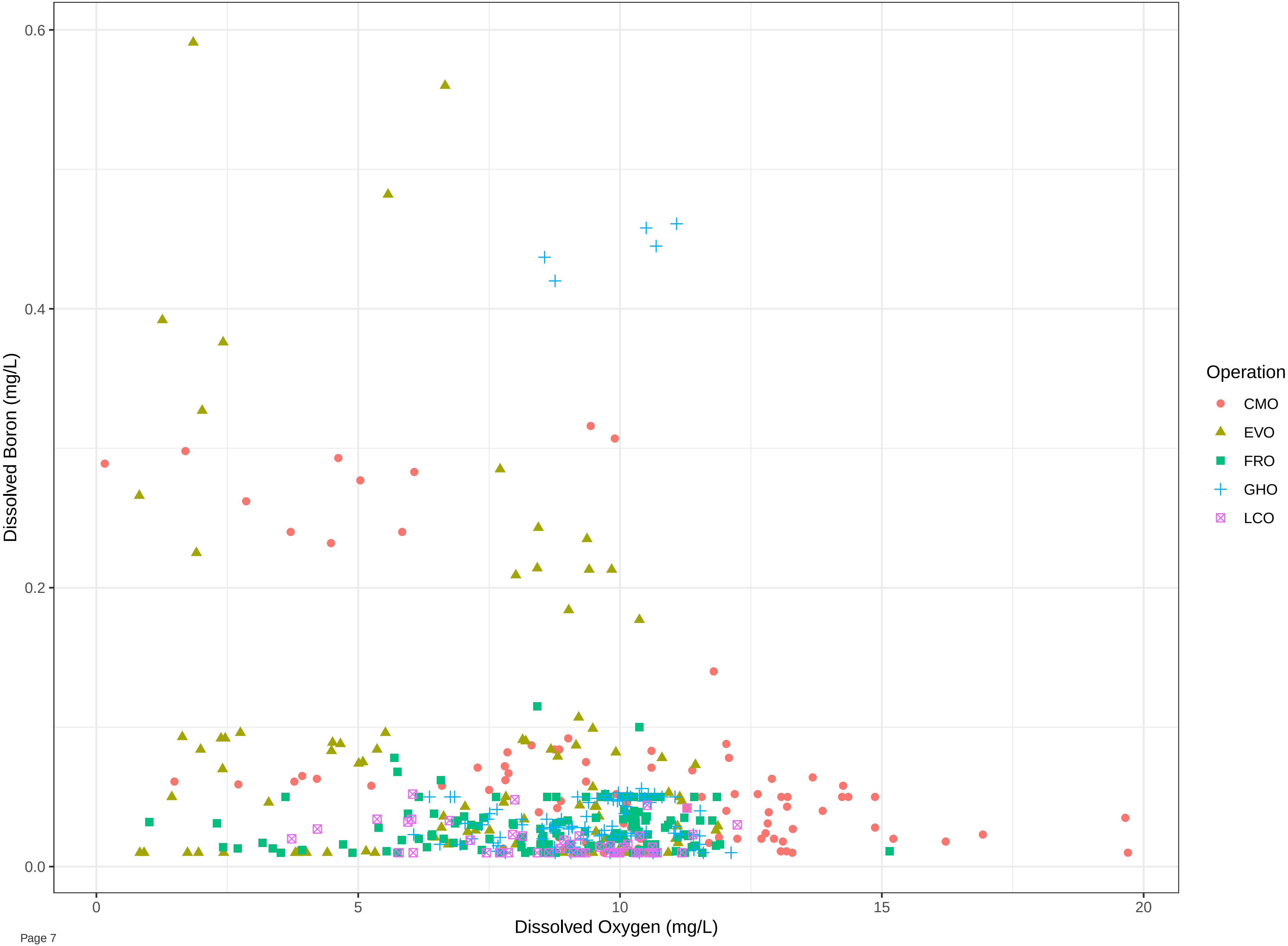

Dissolved Arsenic (mg/L)
0.0015
0.0010
0.0005
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

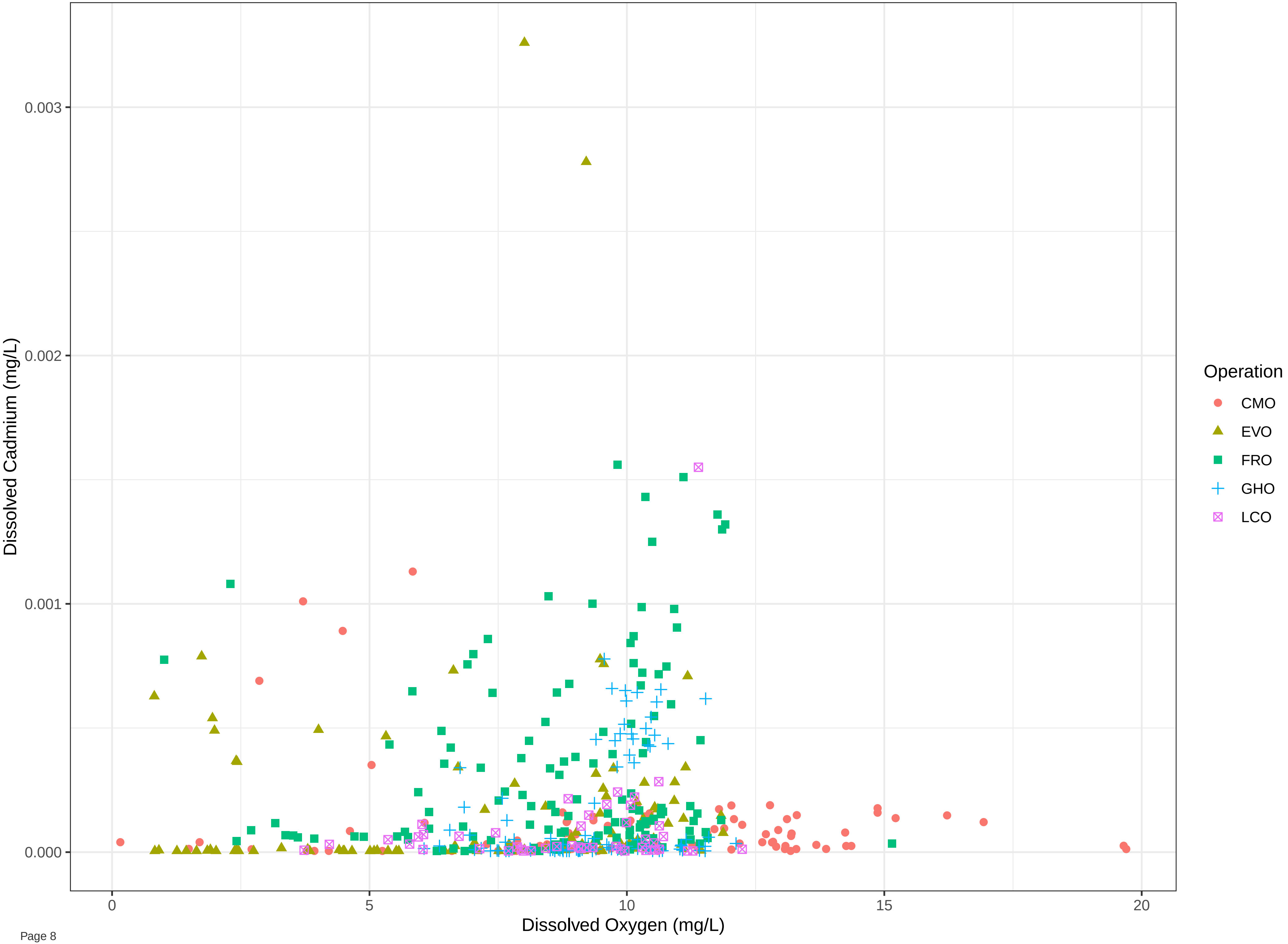

Dissolved Barium (mg/L)
0
1
2
3
4
Dissolved Oxygen (mg/L)
0
5
10
15
20
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO


0.00020
0.00015
0.00010
0.00005
Dissolved Beryllium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

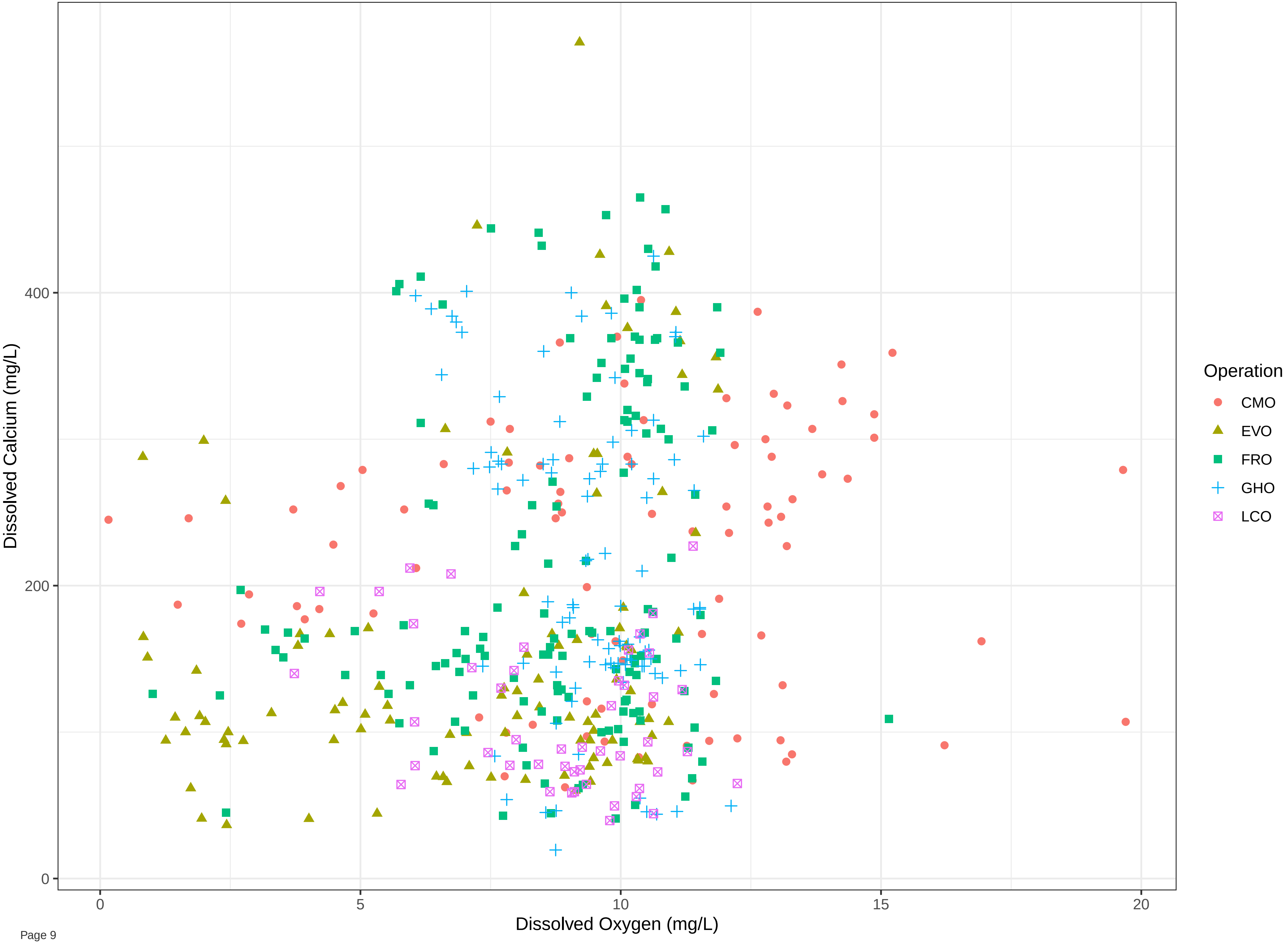


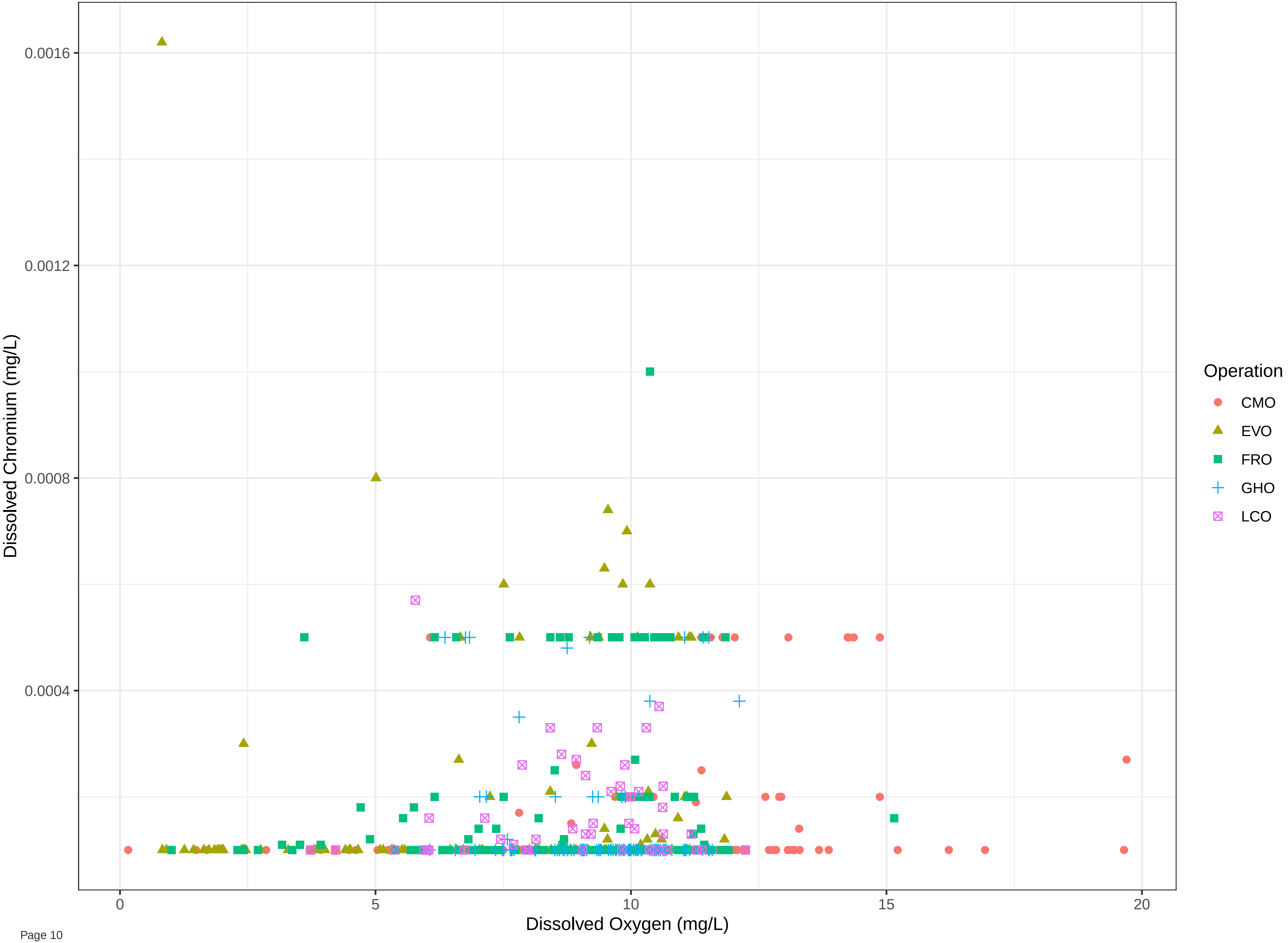
Dissolved Bismuth (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO


Dissolved Boron (mg/L)
0.6
0.4
0.2
0.0
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO

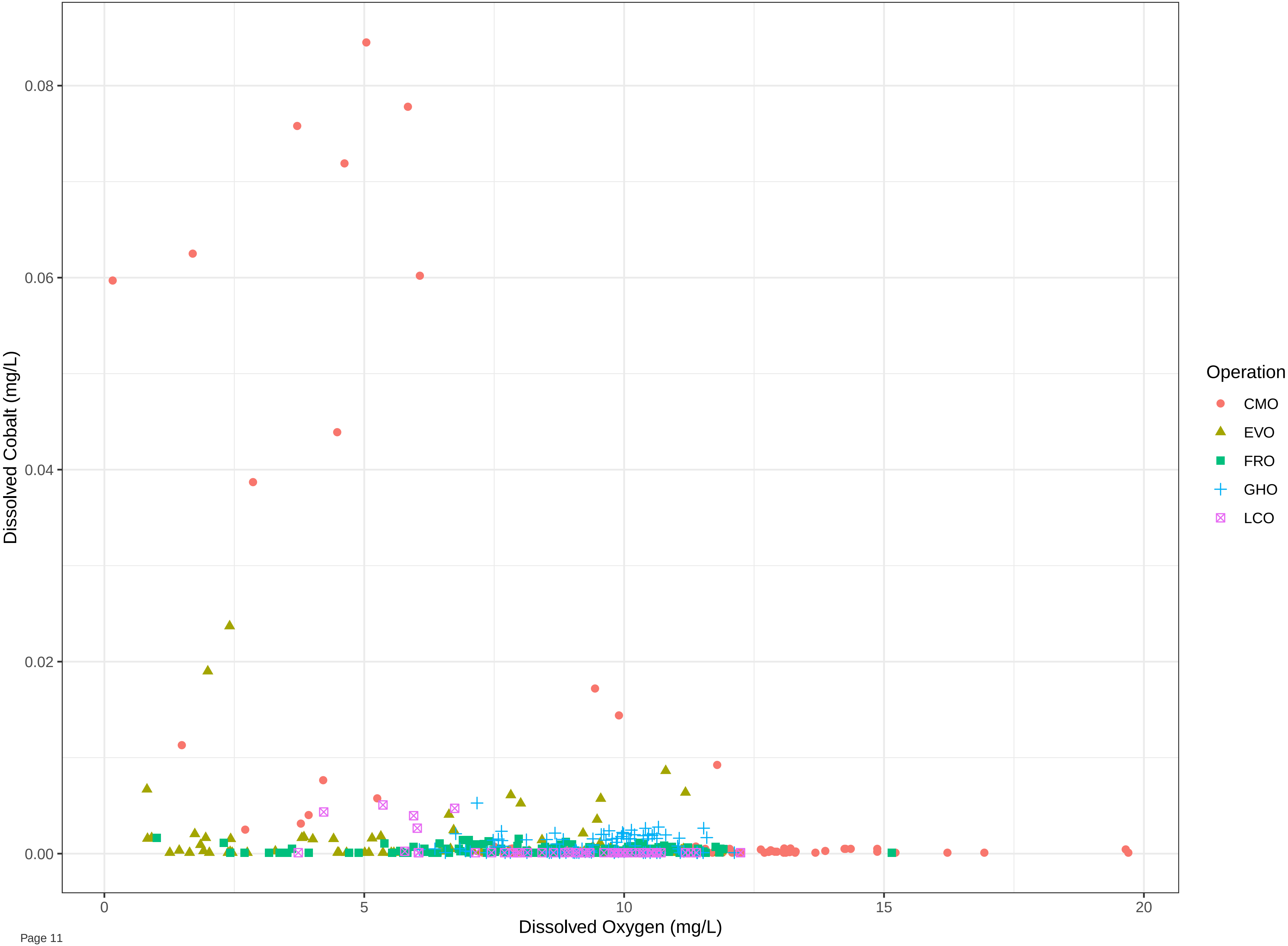


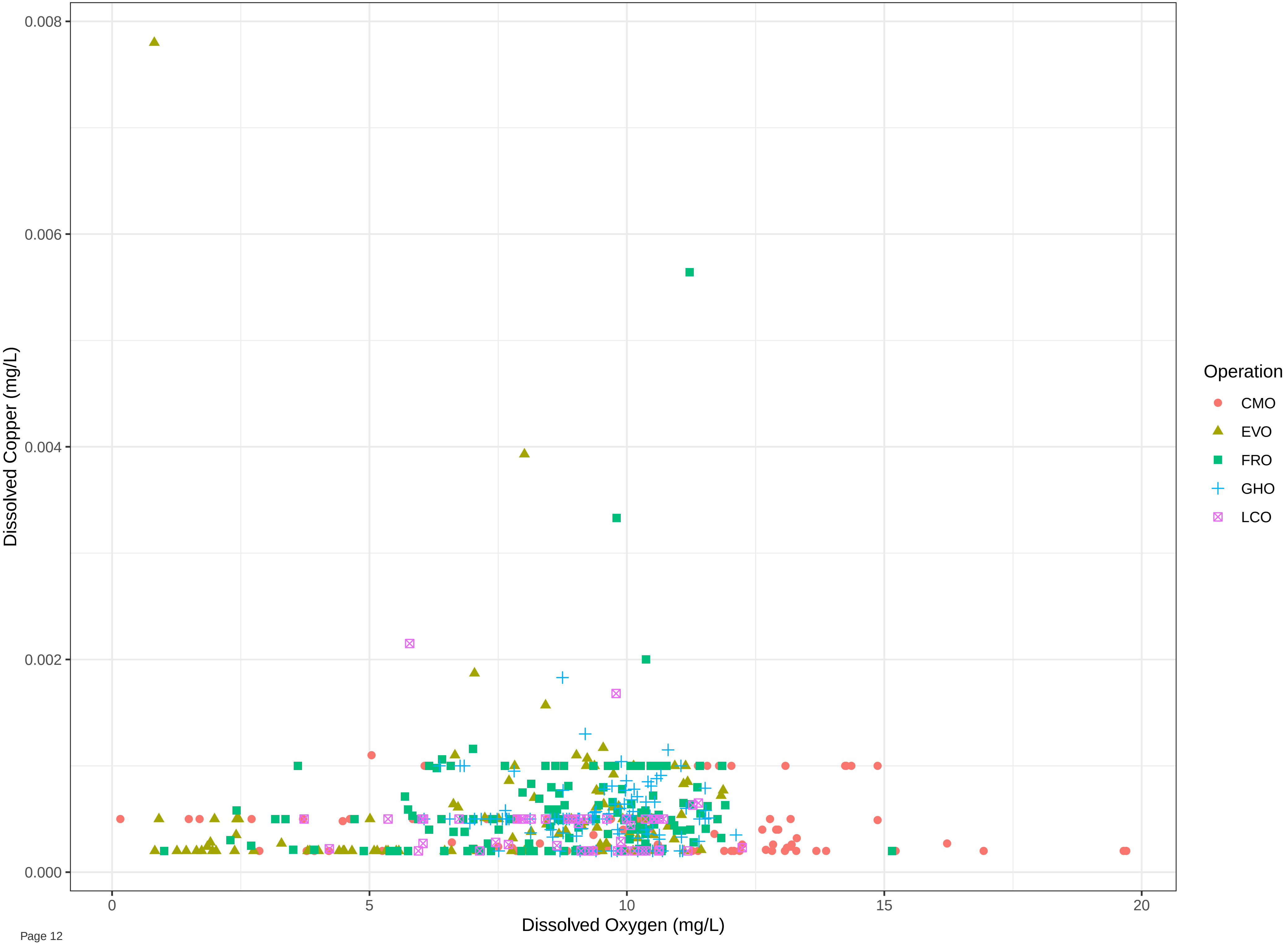
Dissolved Cadmium (mg/L)
0.003
0.002
0.001
0.000
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

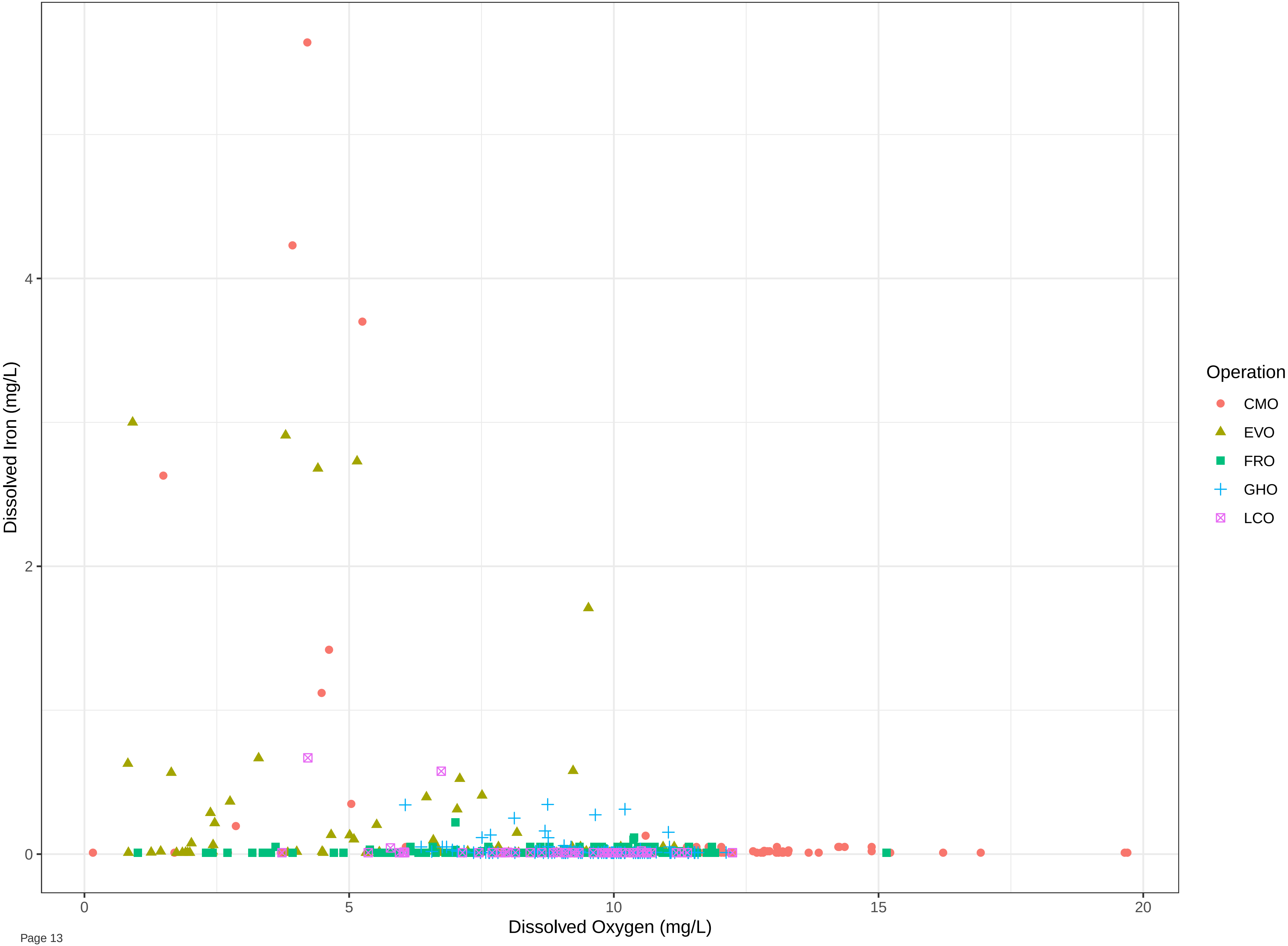

Dissolved Calcium (mg/L)
400
200
0
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

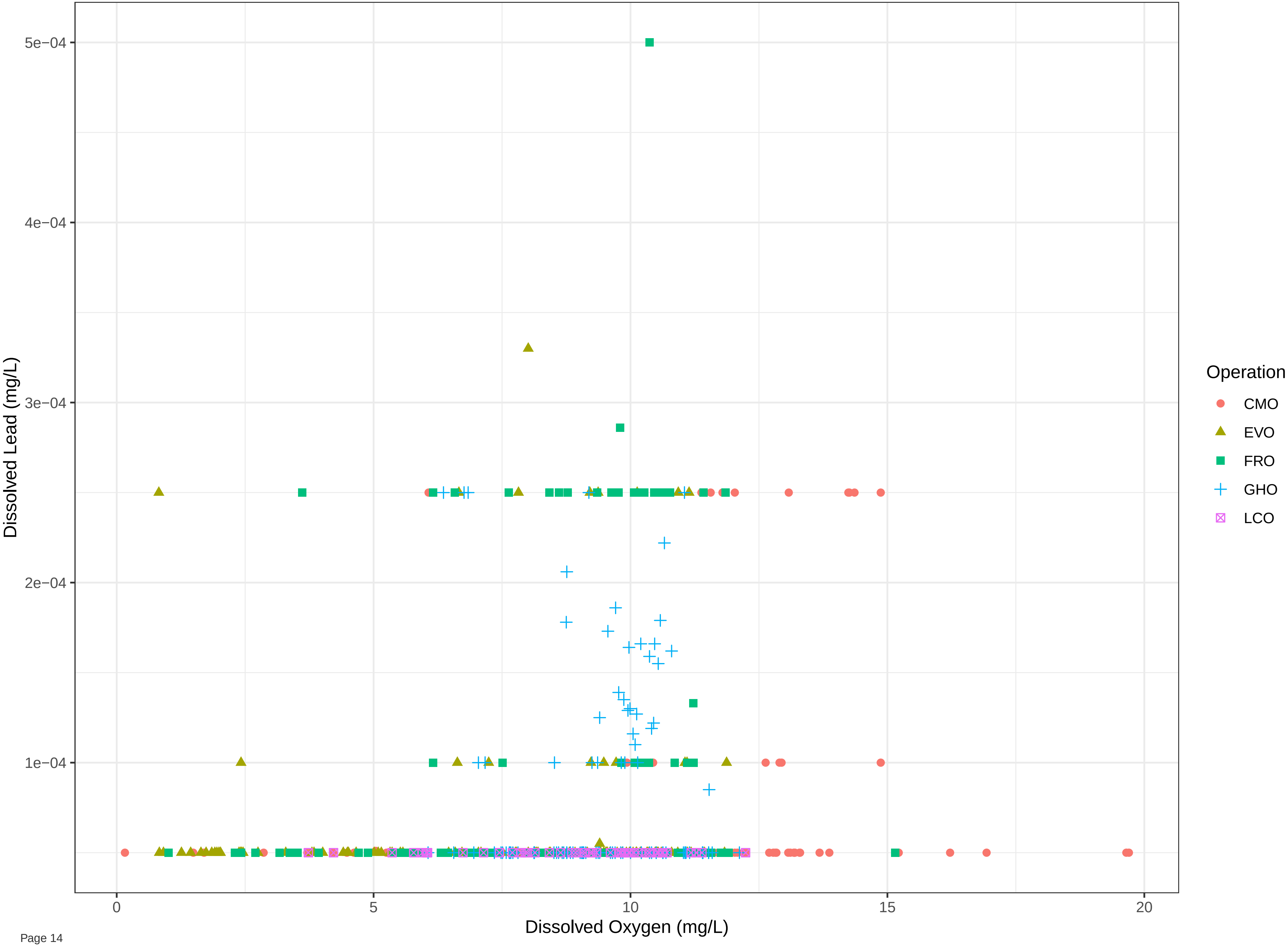


Dissolved Chromium (mg/L)
0.0016
0.0012
0.0008
0.0004
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

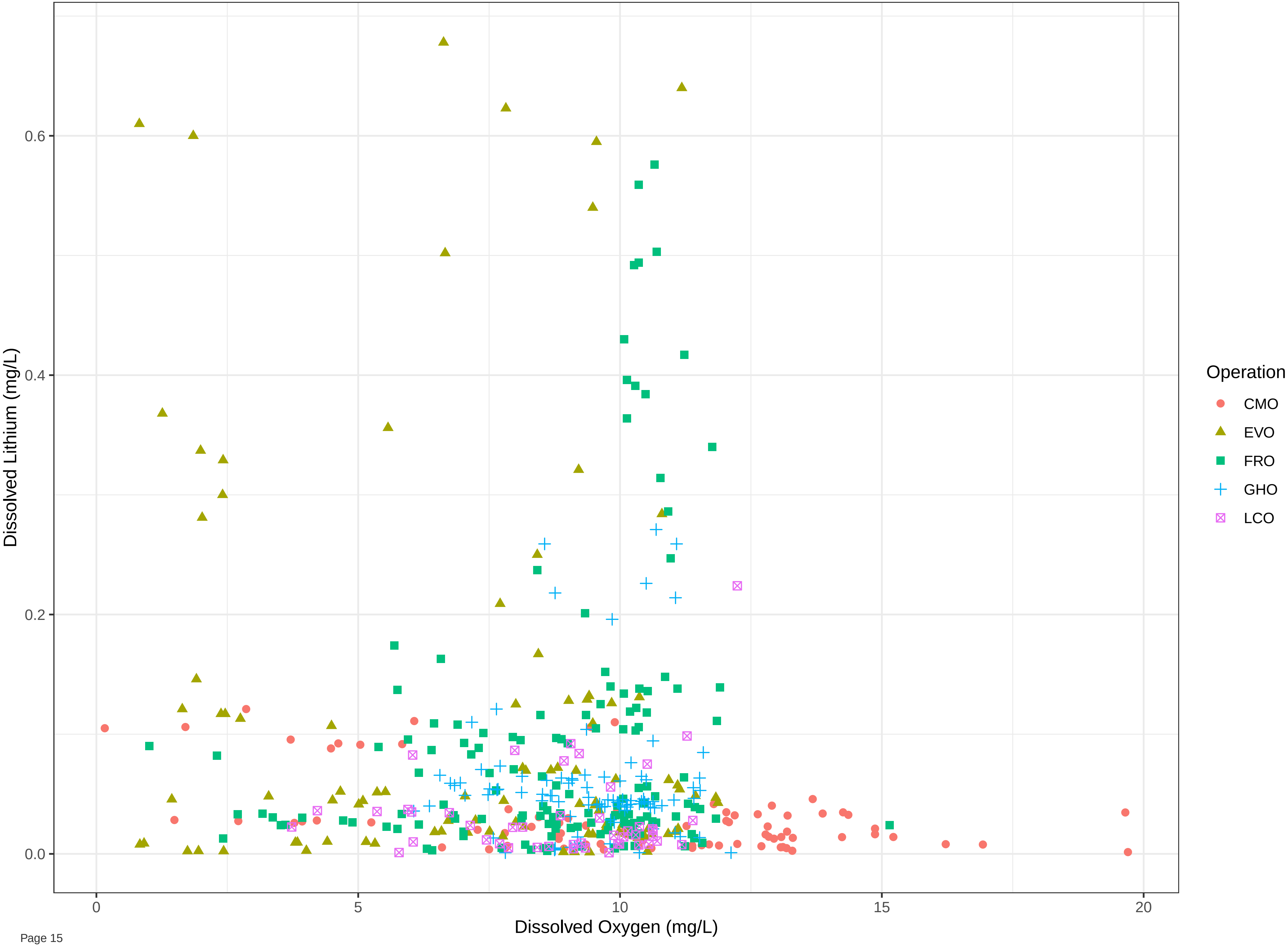

0.08
0.06
0.04
0.02
0.00
Dissolved Cobalt (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

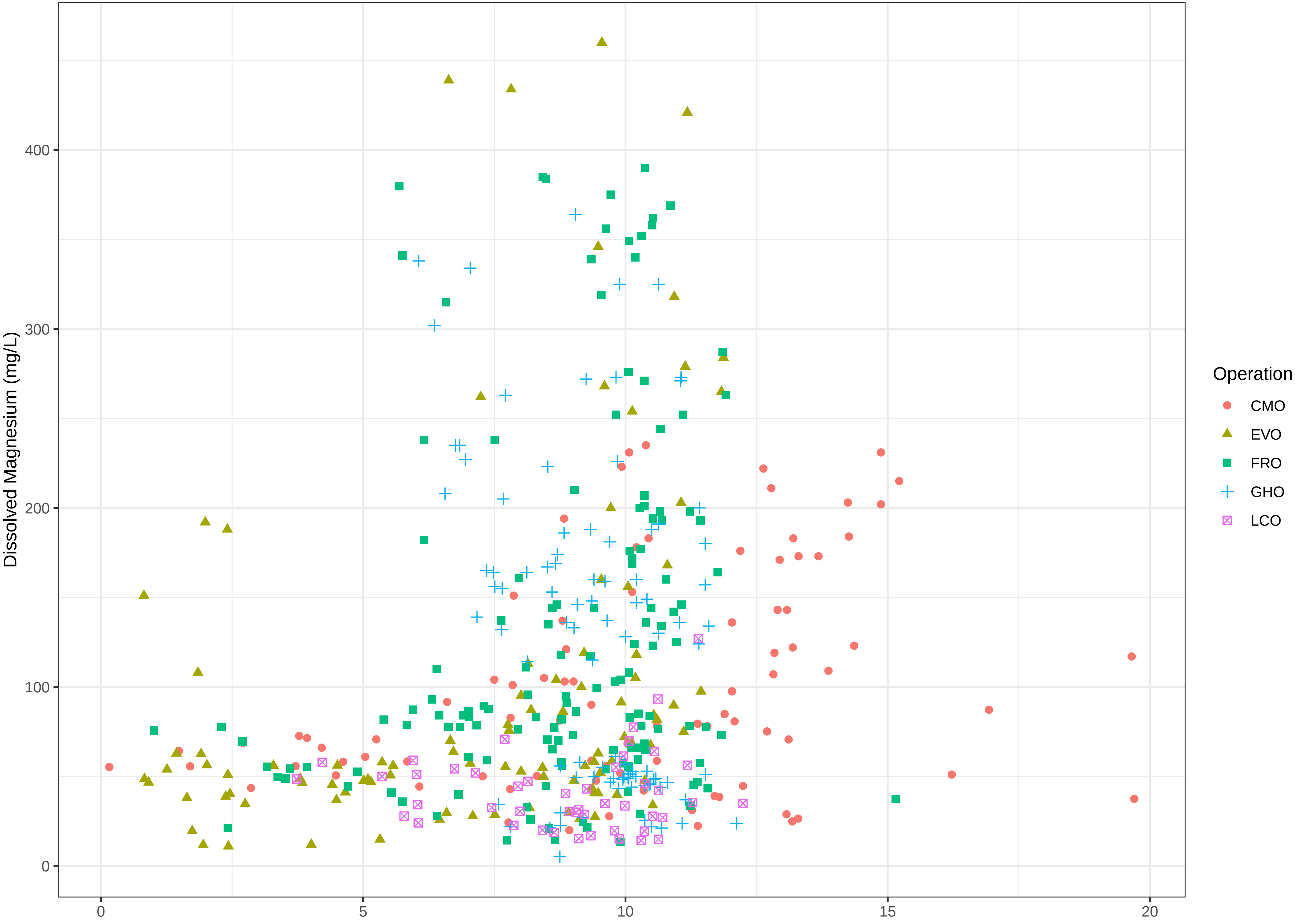

Dissolved Copper (mg/L)
0.008
0.006
0.004
0.002
0.000
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

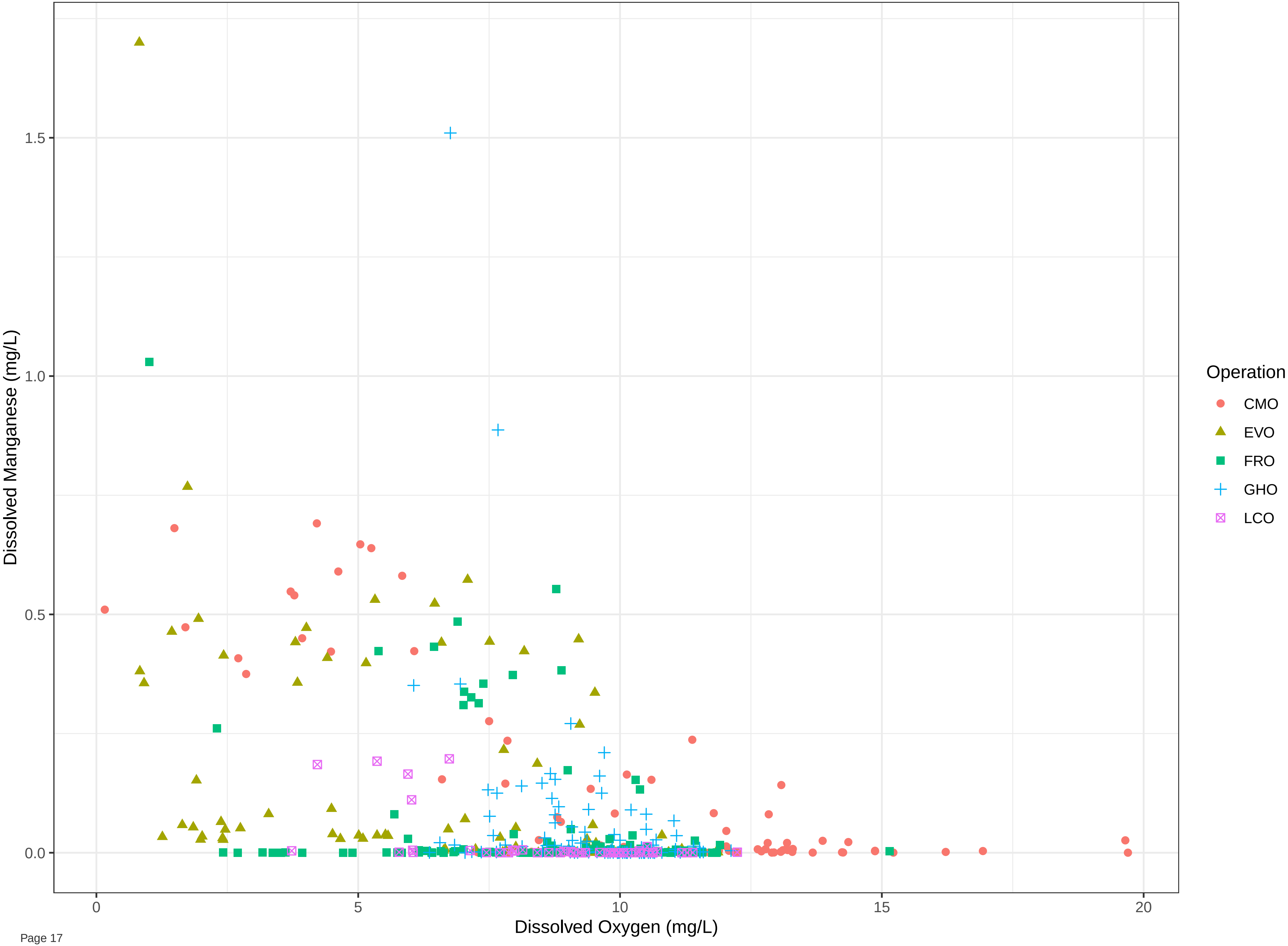

Dissolved Iron (mg/L)
0
2
4
Dissolved Oxygen (mg/L)
0
5
10
15
20
Operation
CMO
EVO
FRO
GHO
LCO

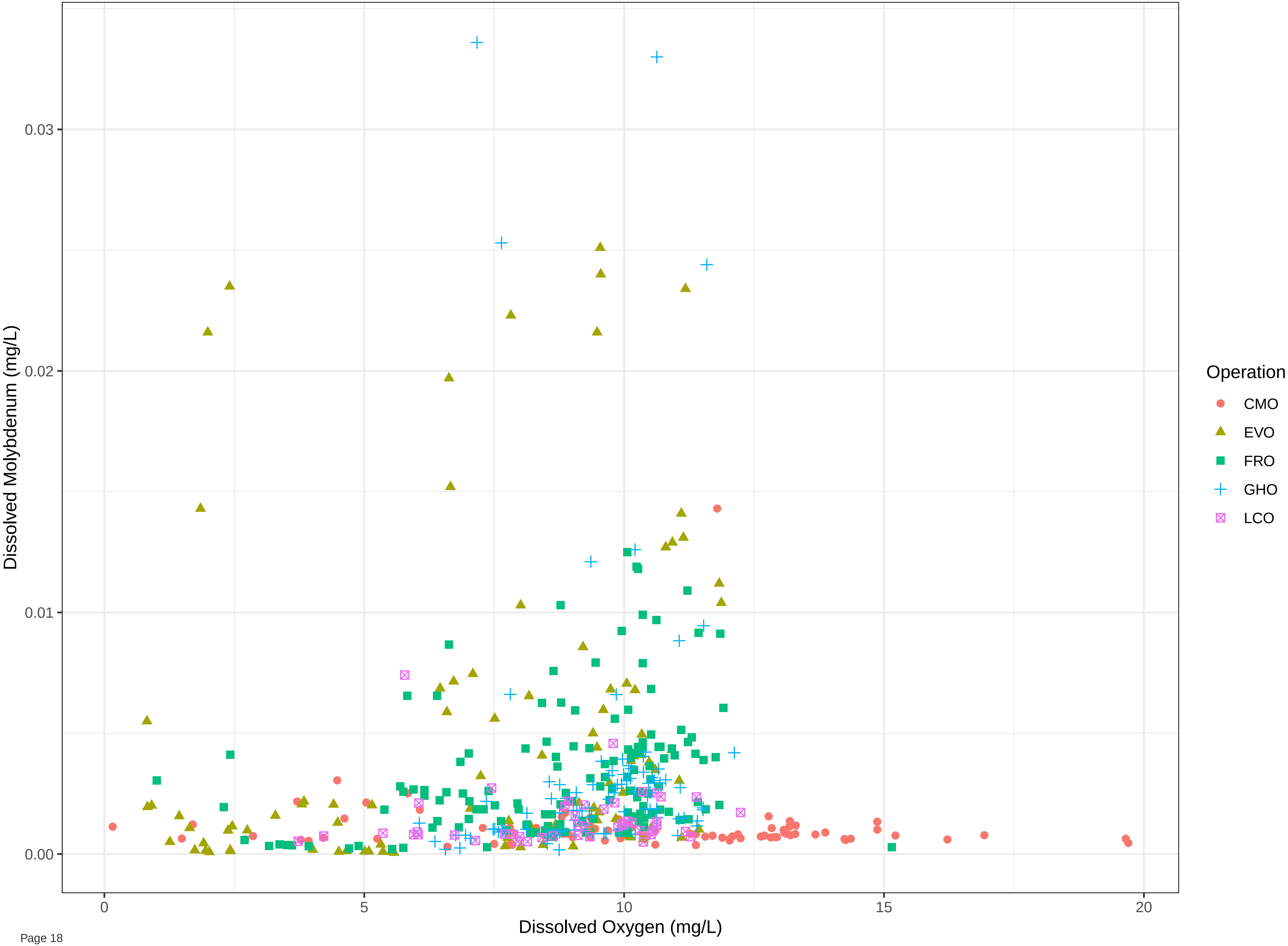


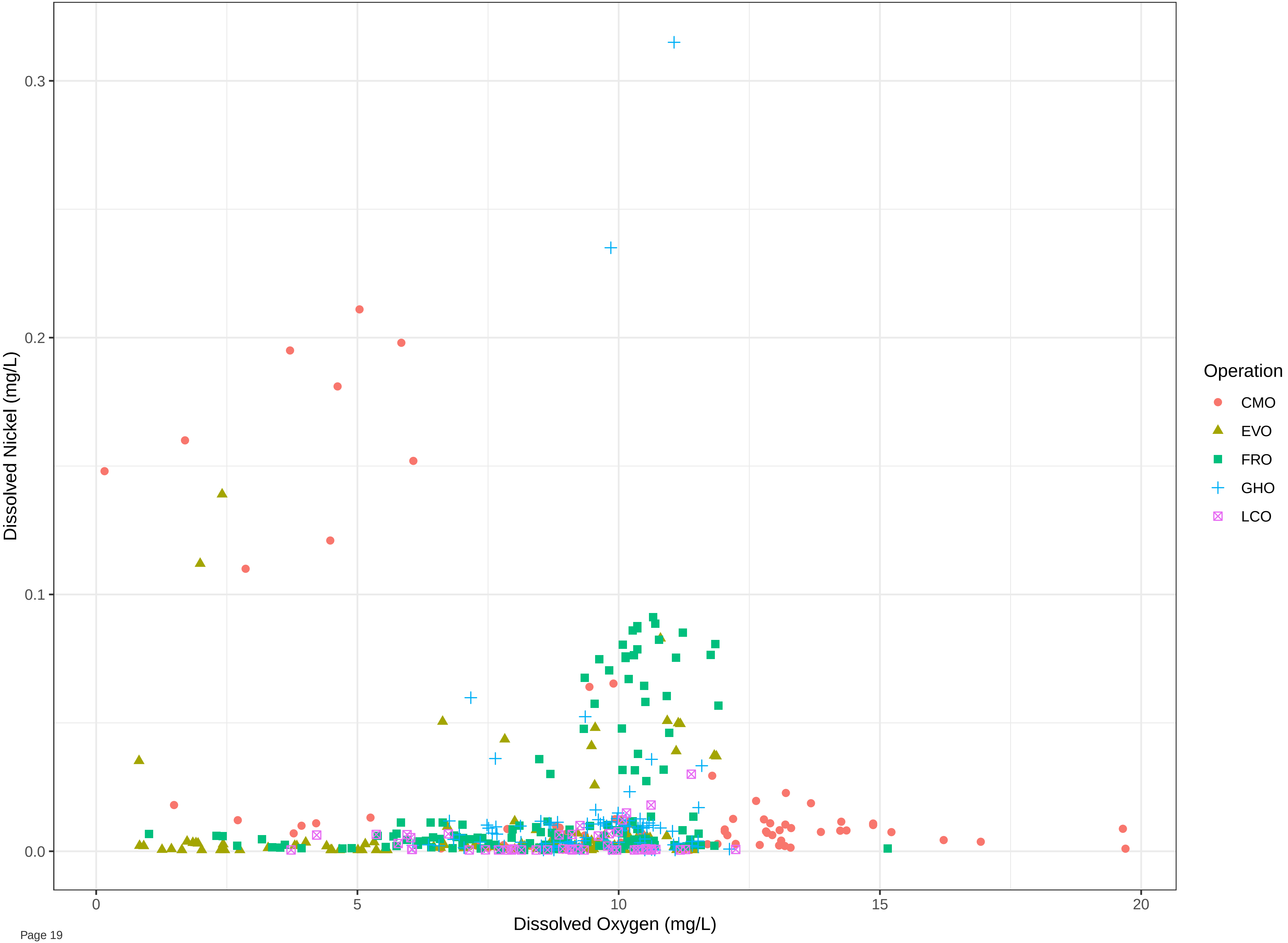
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Lead (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

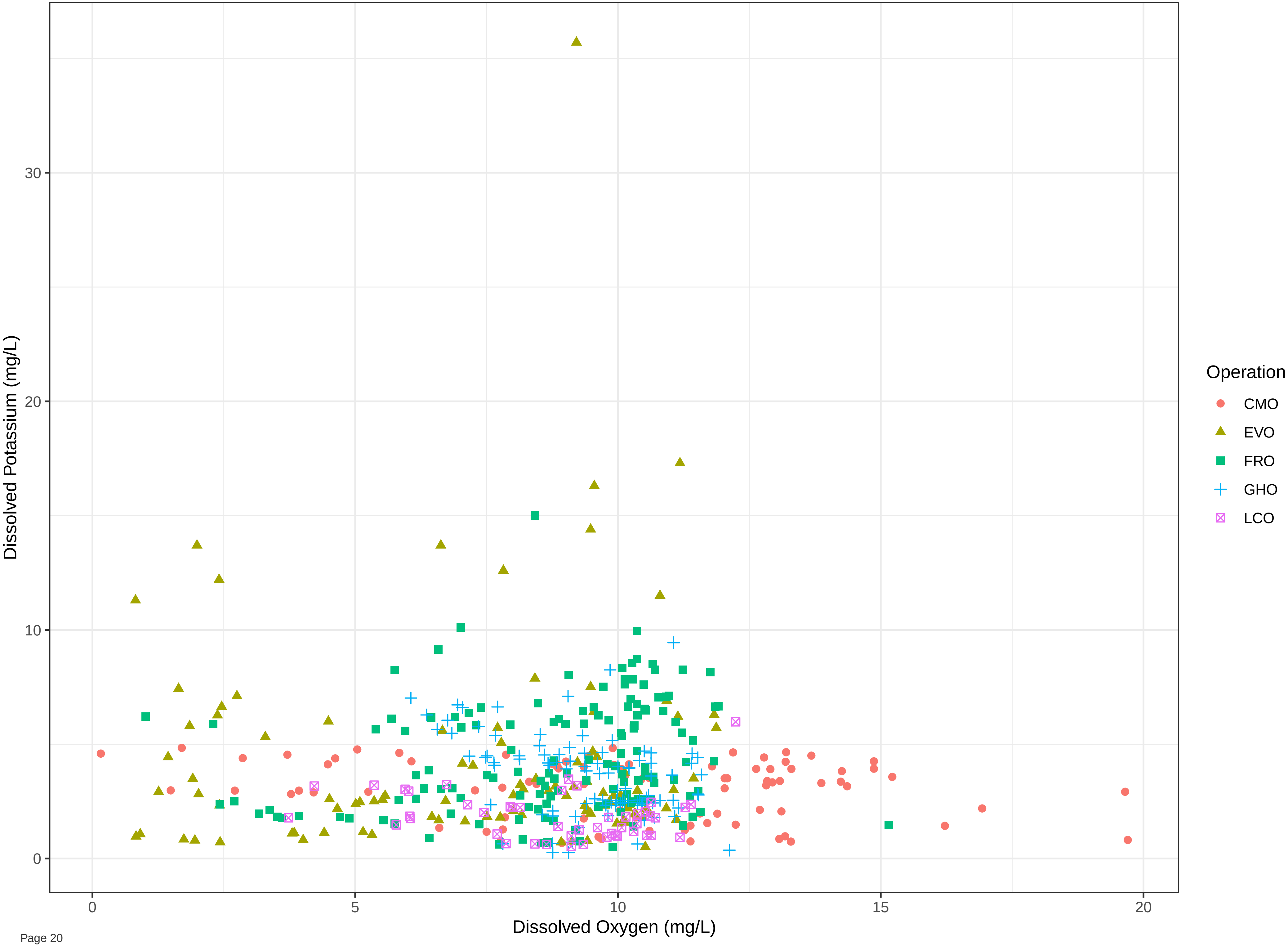

Dissolved Lithium (mg/L)
0.6
0.4
0.2
0.0
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO


Dissolved Magnesium (mg/L)
0
100
200
300
400
Dissolved Oxygen (mg/L)
0
5
10
15
20
Operation
CMO
EVO
FRO
GHO
LCO

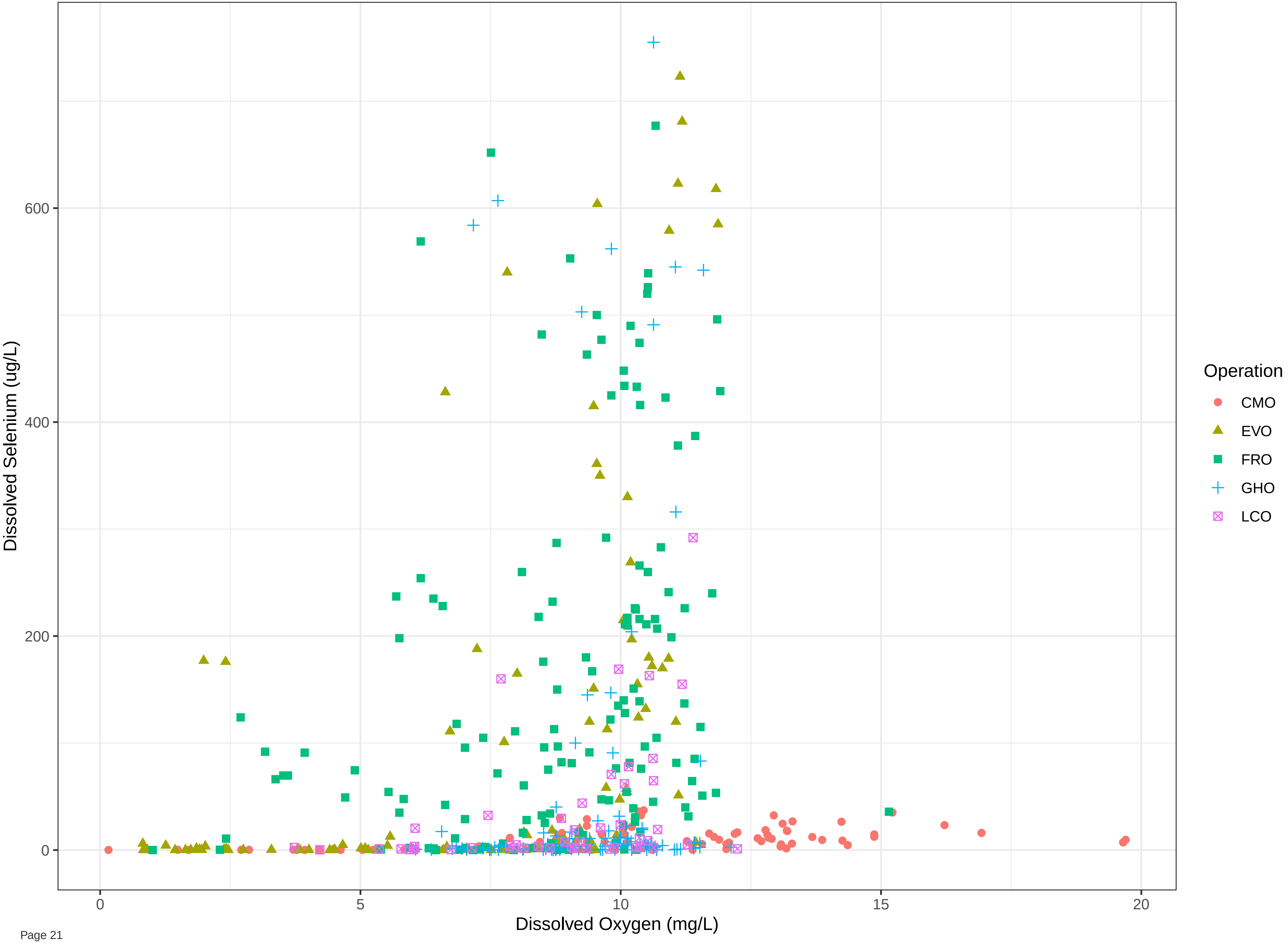

Dissolved Manganese (mg/L)
0.0
0.5
1.0
1.5
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

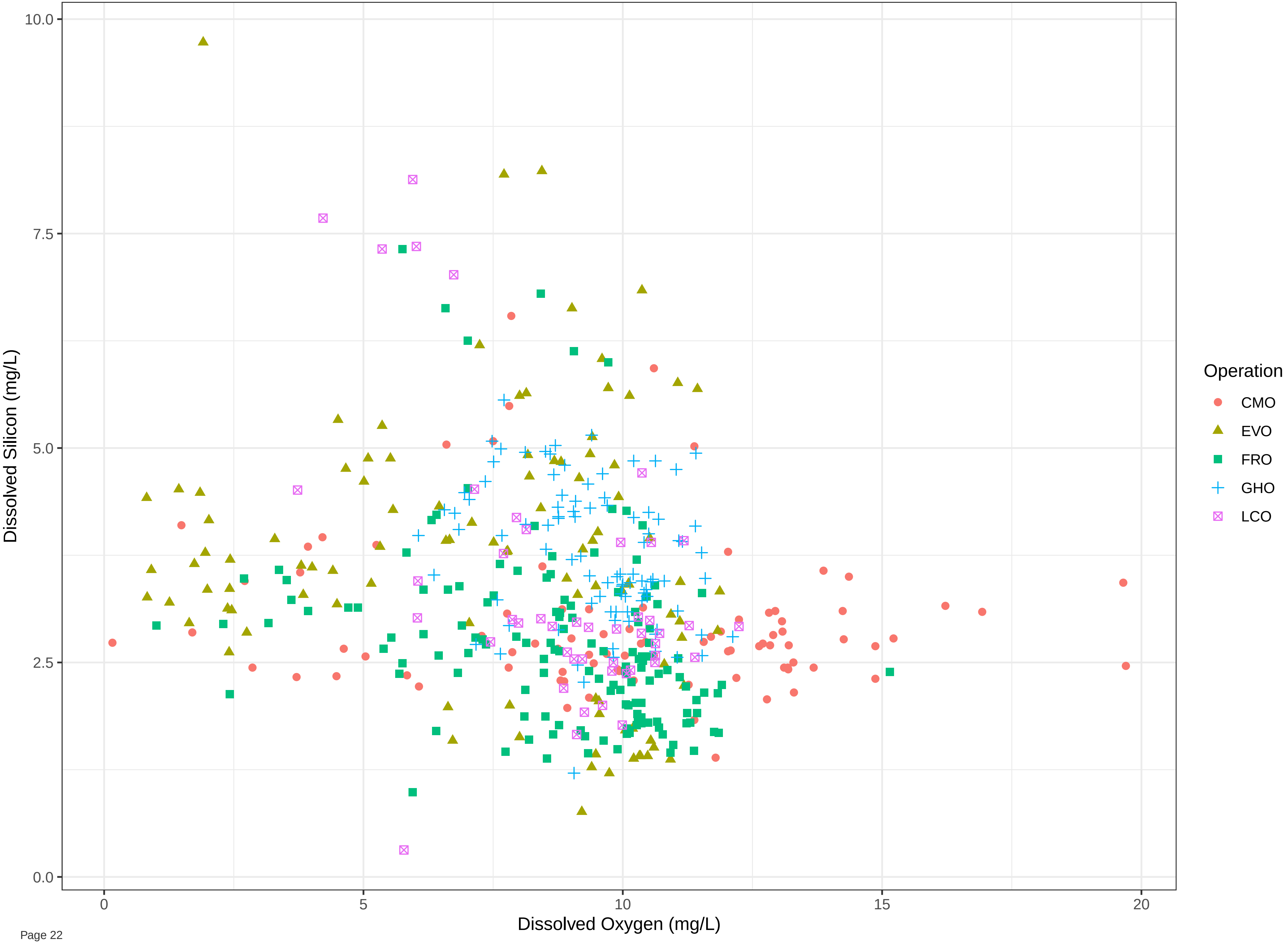

Dissolved Molybdenum (mg/L)
0.03
0.02
0.01
0.00
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO

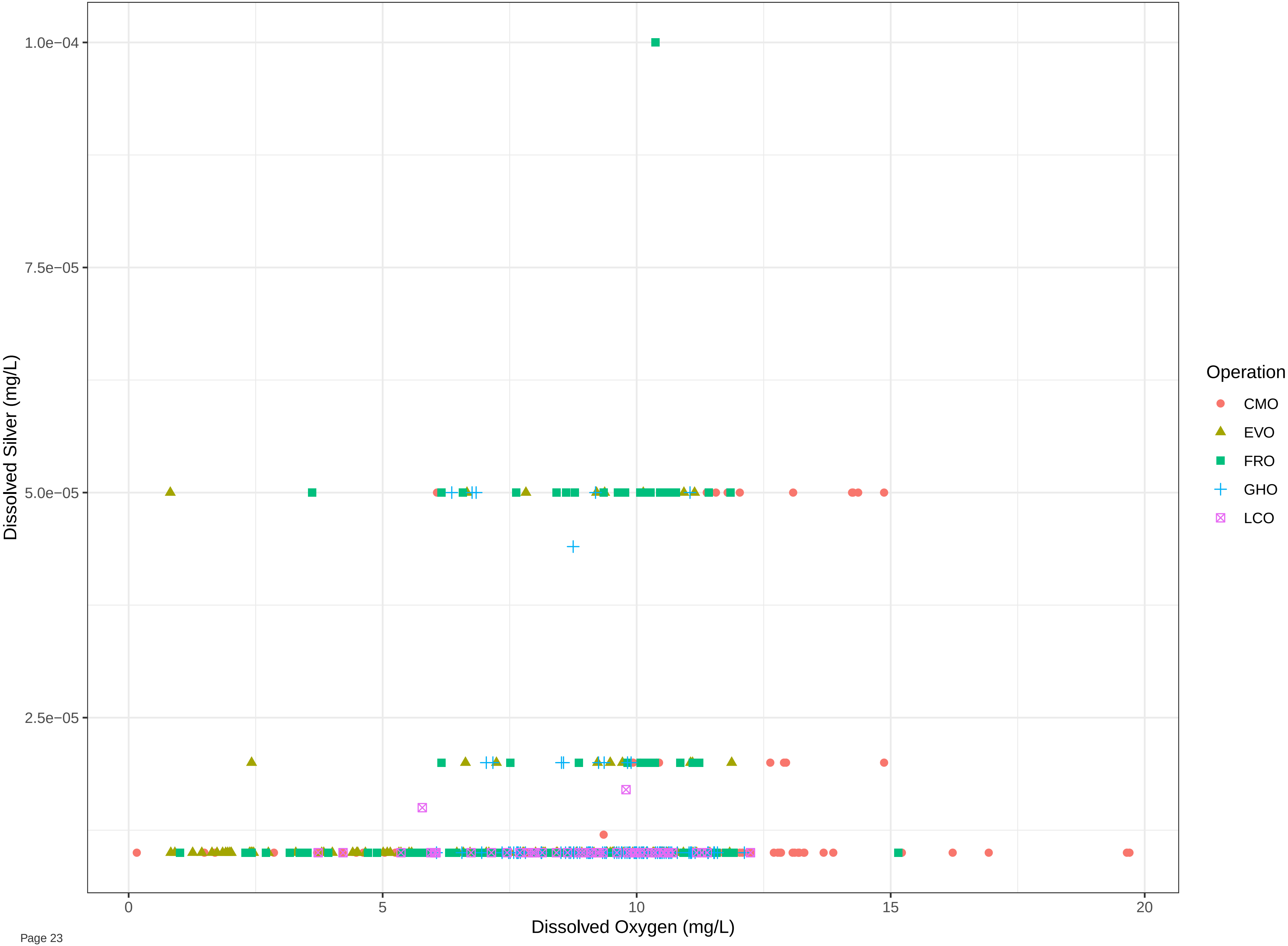

Dissolved Nickel (mg/L)
0.3
0.2
0.1
0.0
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO



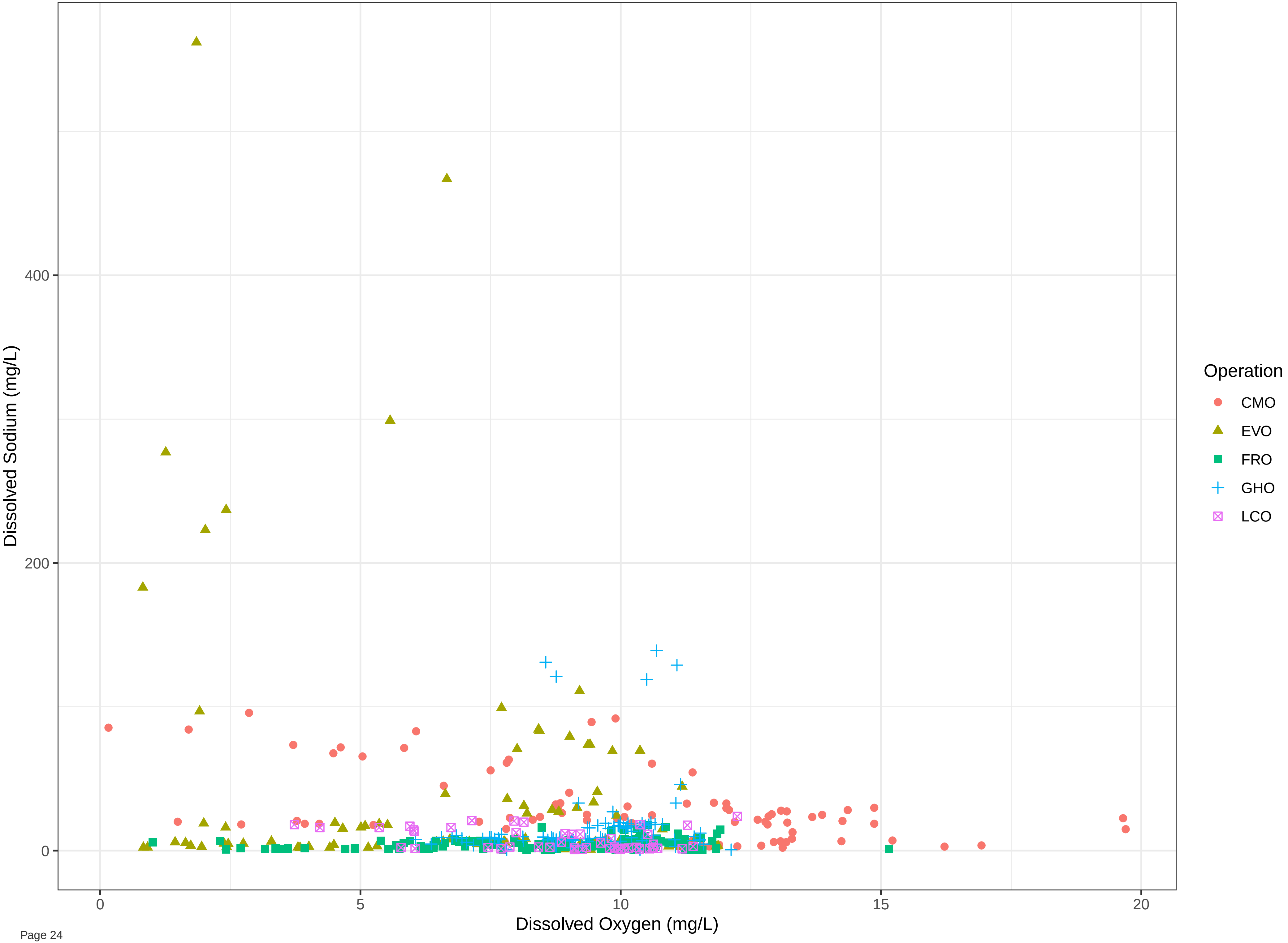
Dissolved Potassium (mg/L)
30
20
10
0
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

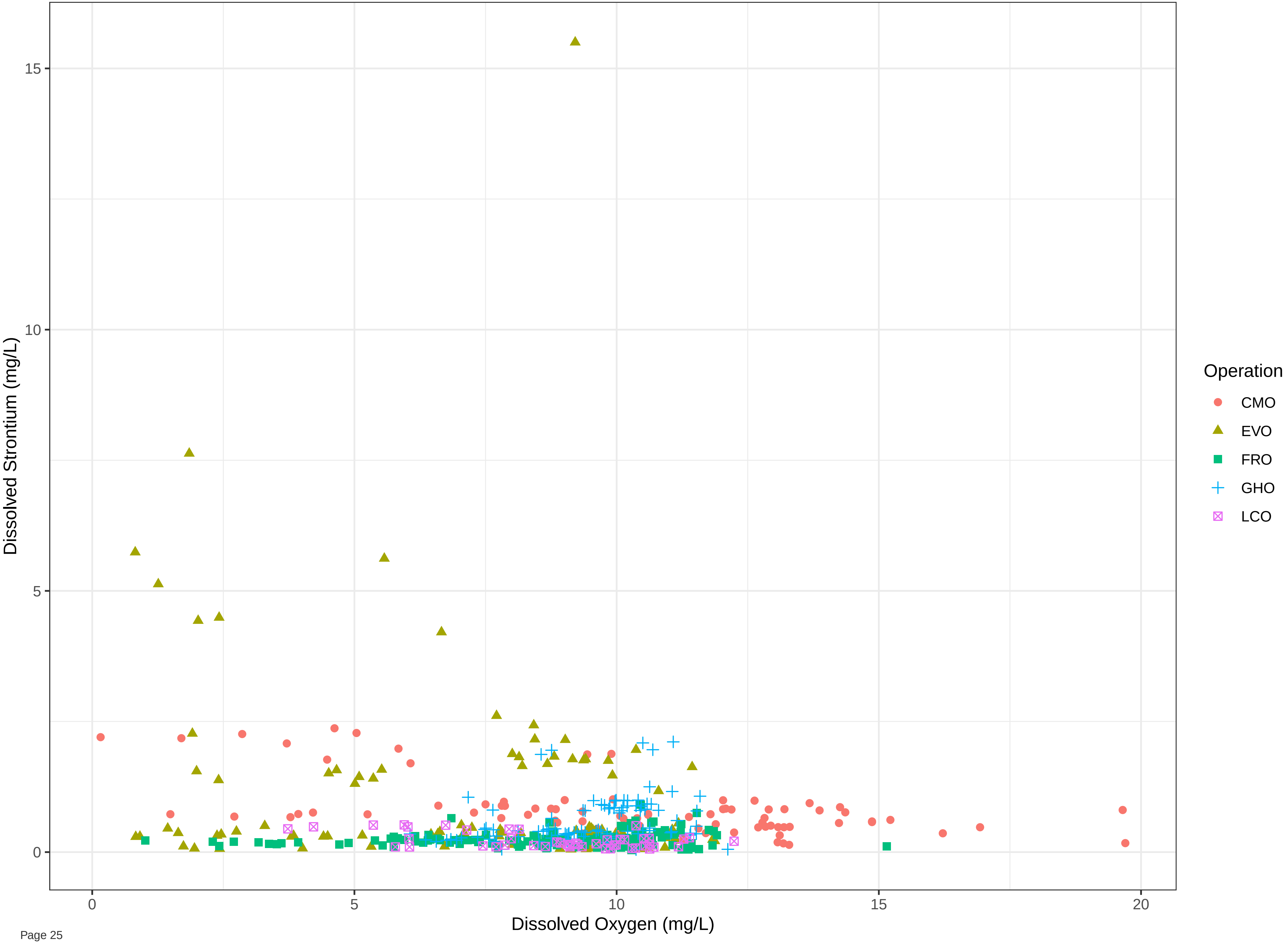

Dissolved Selenium (ug/L)
600
400
200
0
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

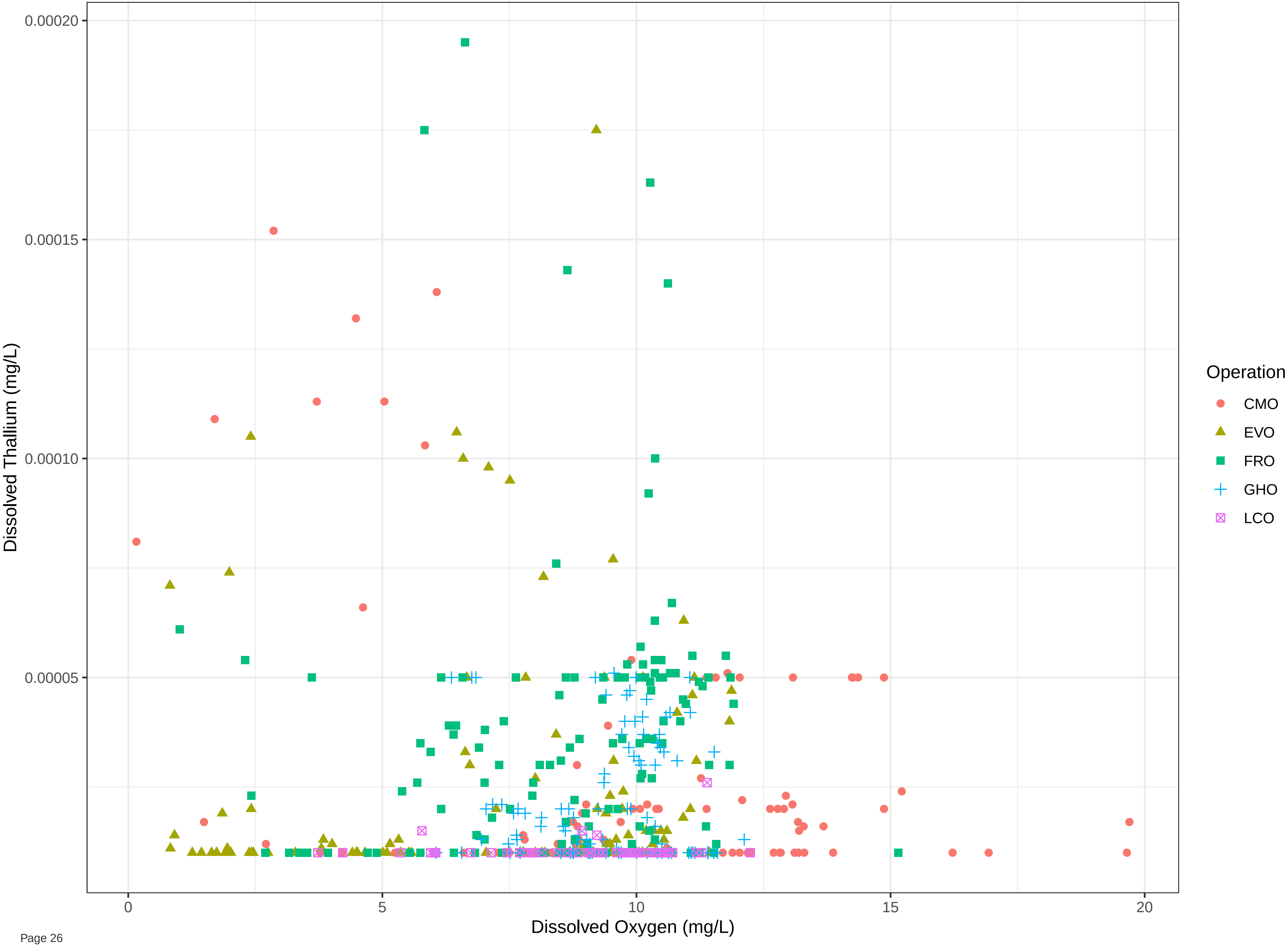

Dissolved Silicon (mg/L)
10.0
7.5
5.0
2.5
0.0
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

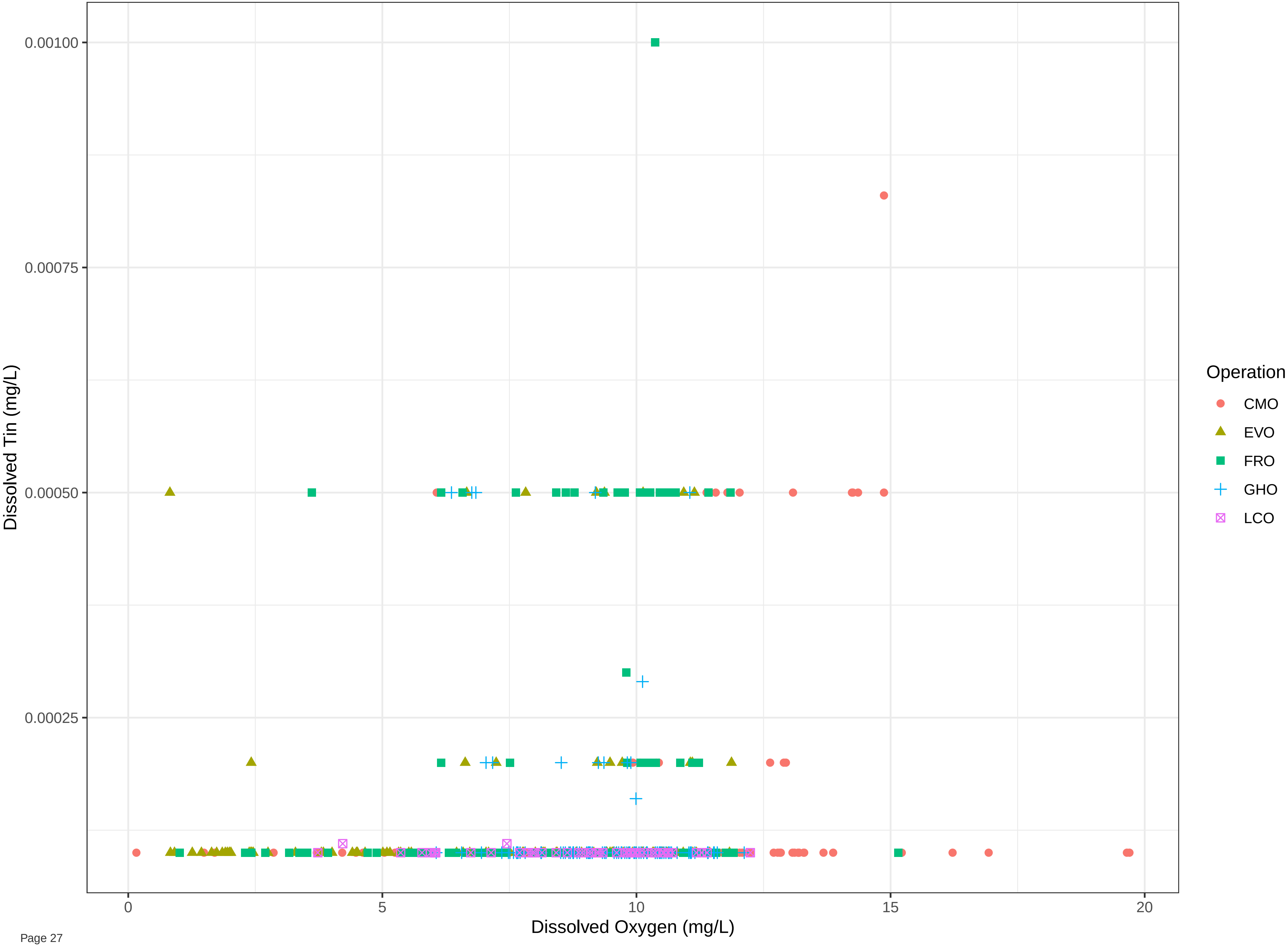


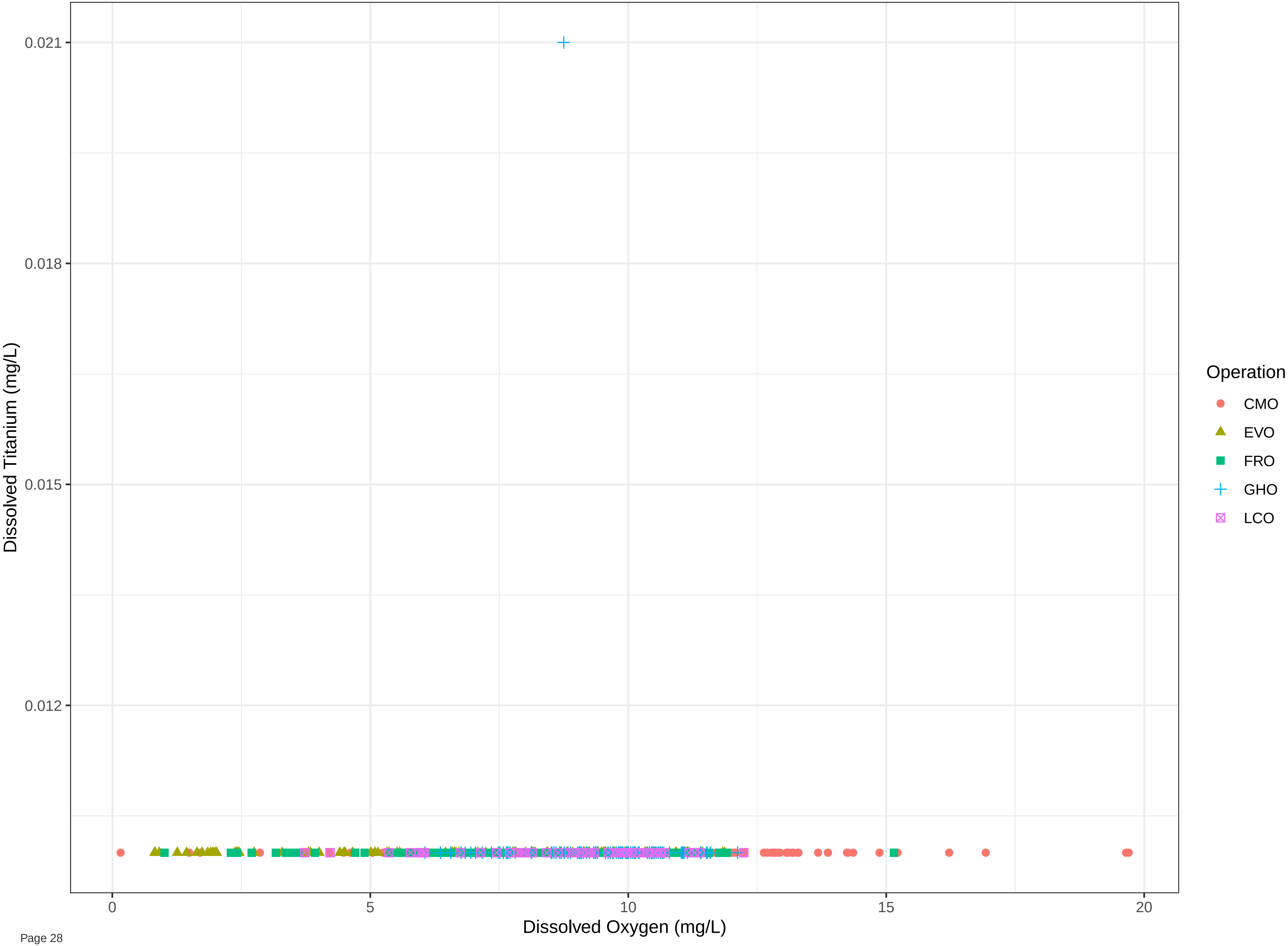
Dissolved Silver (mg/L)
1.0e−04
7.5e−05
5.0e−05
2.5e−05
Dissolved Oxygen (mg/L)
0
5
10
15
20
Operation
CMO
EVO
FRO
GHO
LCO


Dissolved Sodium (mg/L)
400
200
0
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

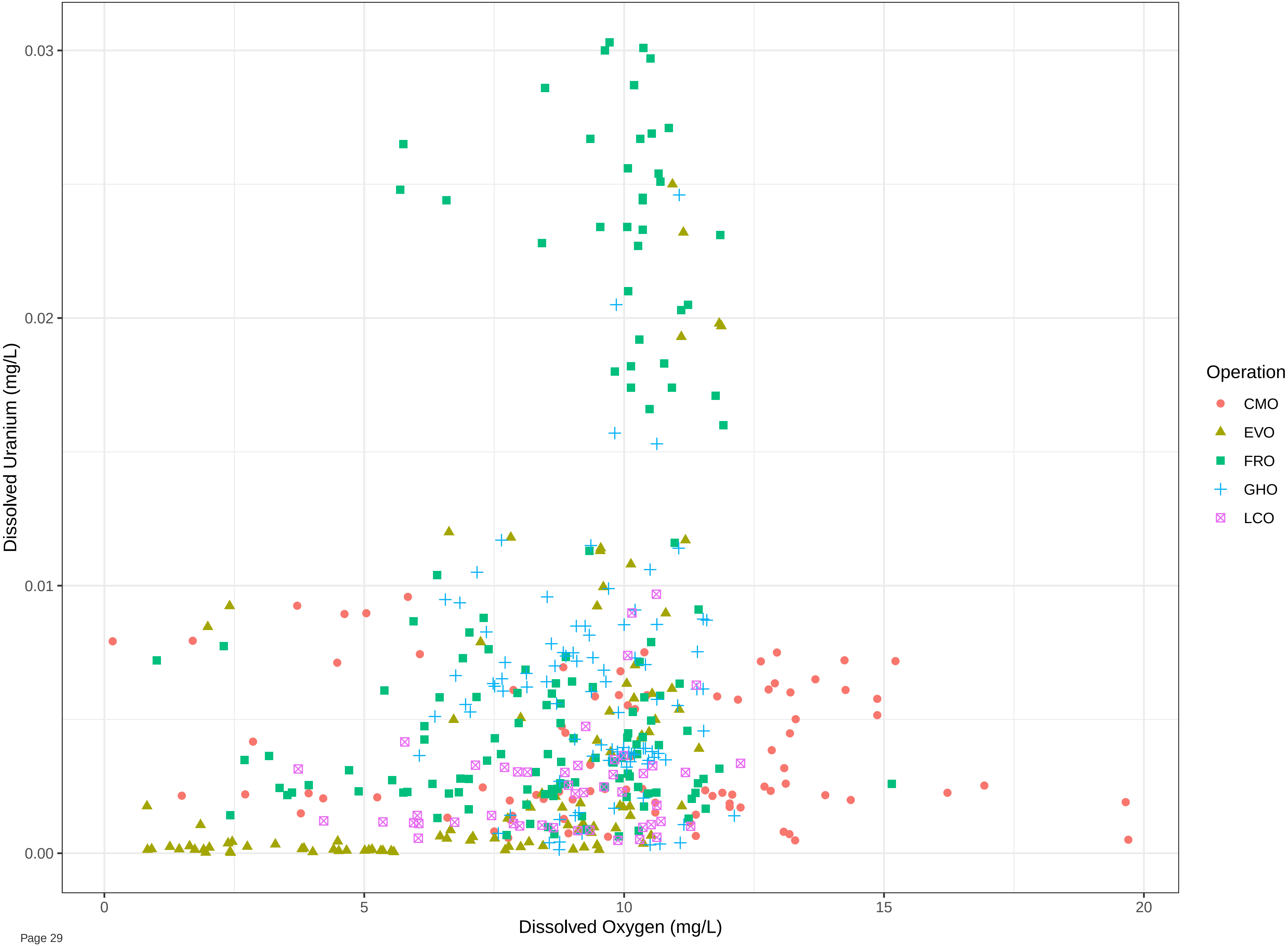

15
10
5
0
Dissolved Strontium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO

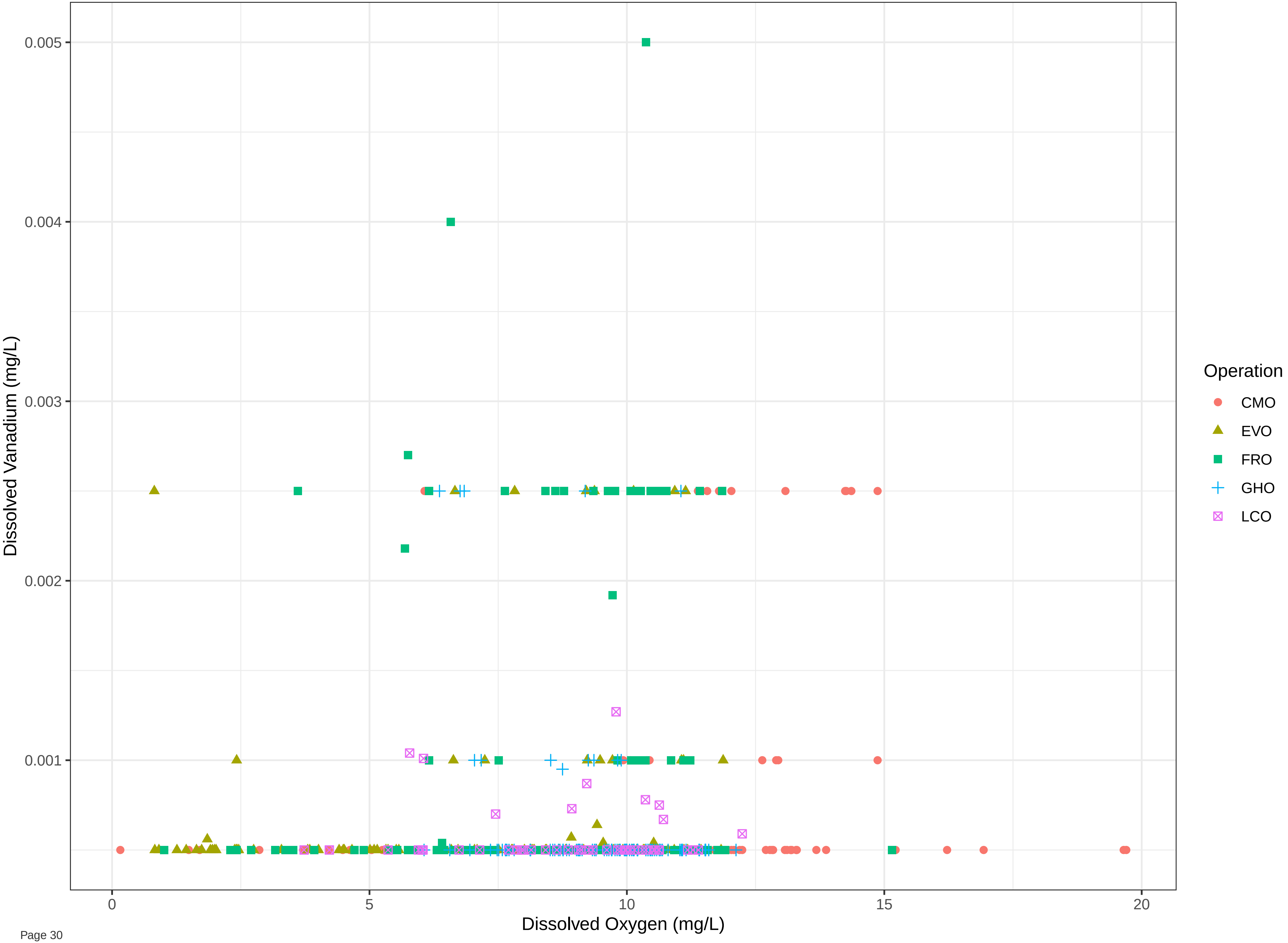

0.00020
0.00015
0.00010
0.00005
Dissolved Thallium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

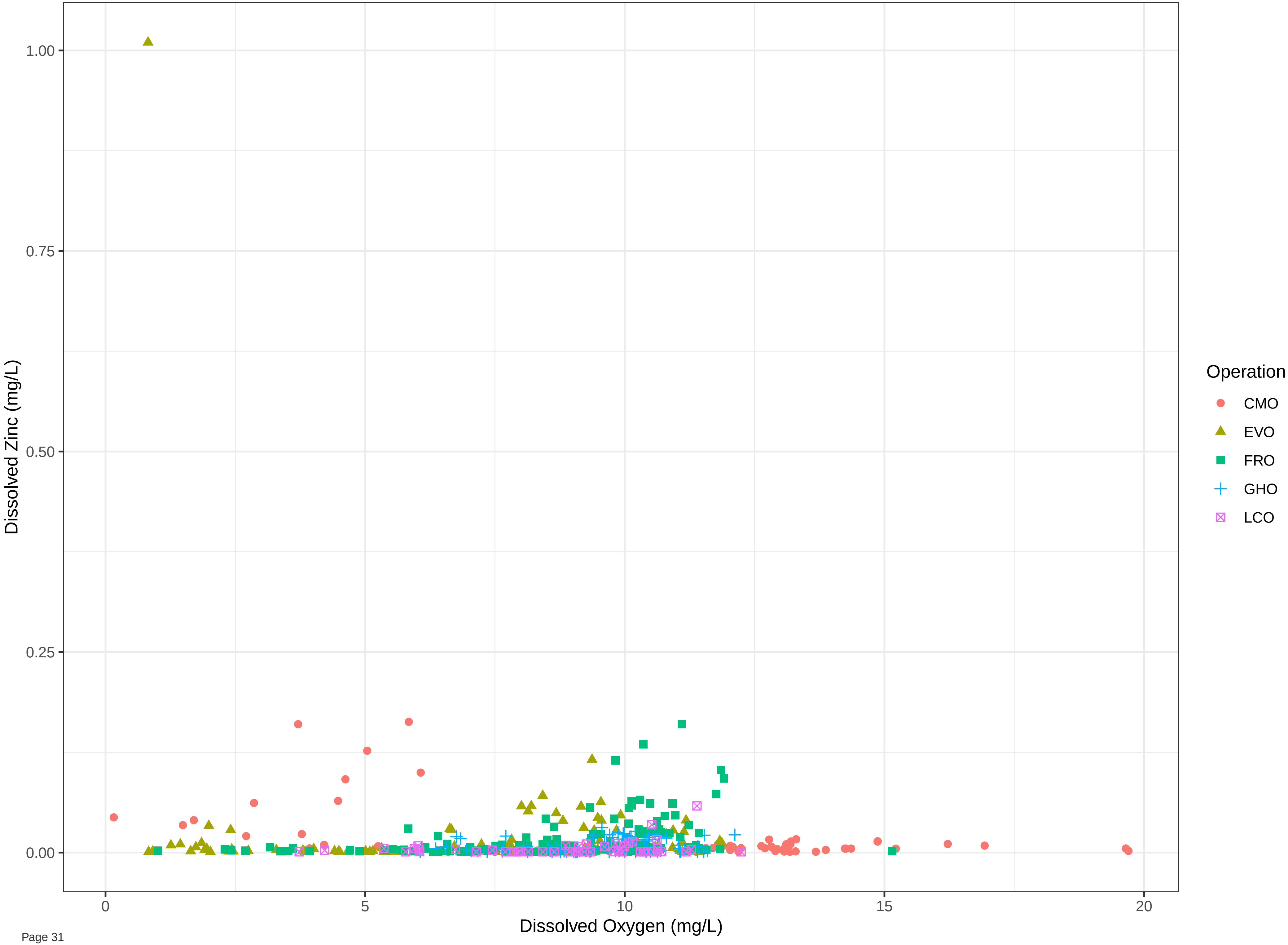

0.00100
0.00075
0.00050
0.00025
Dissolved Tin (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

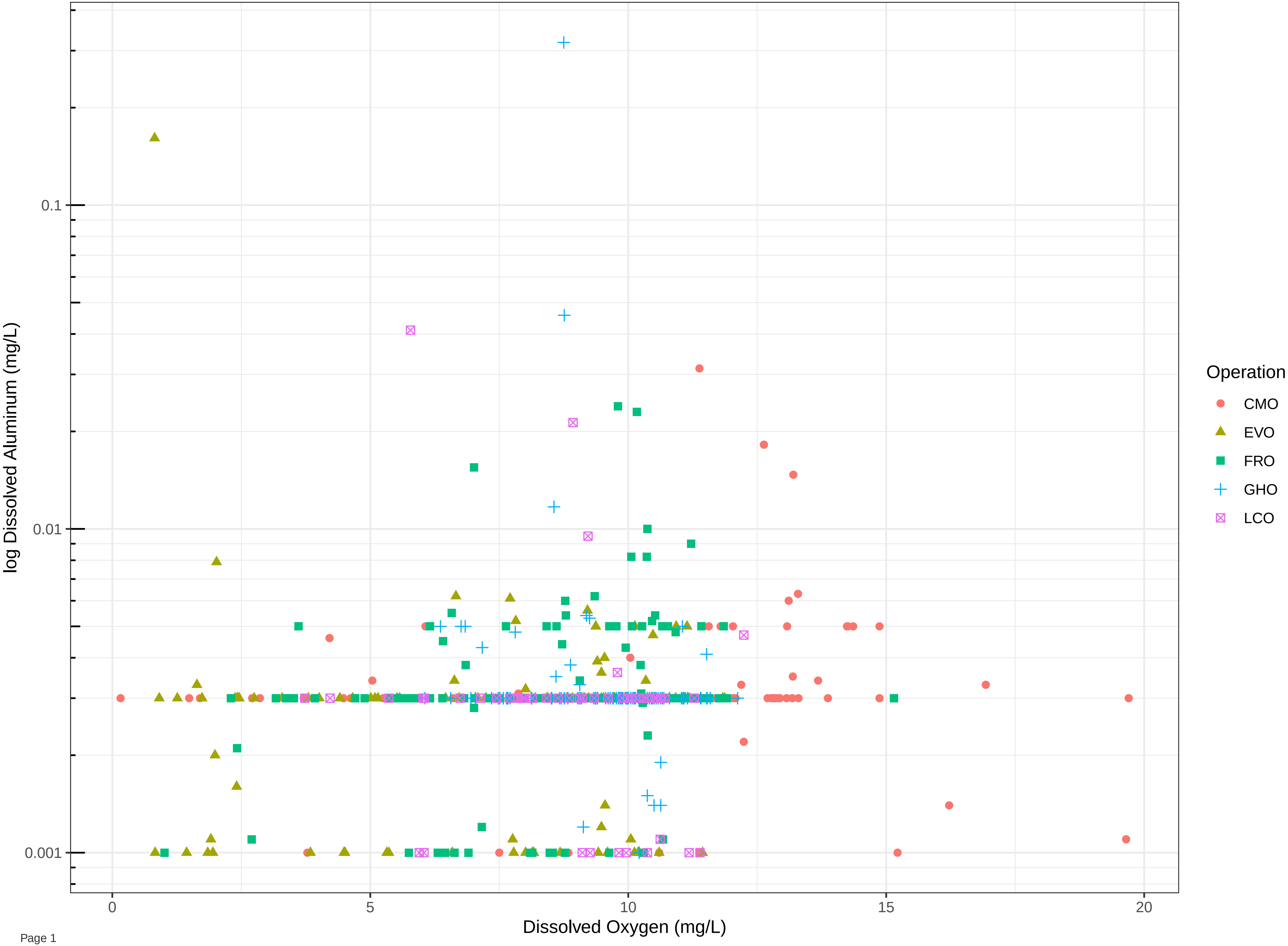


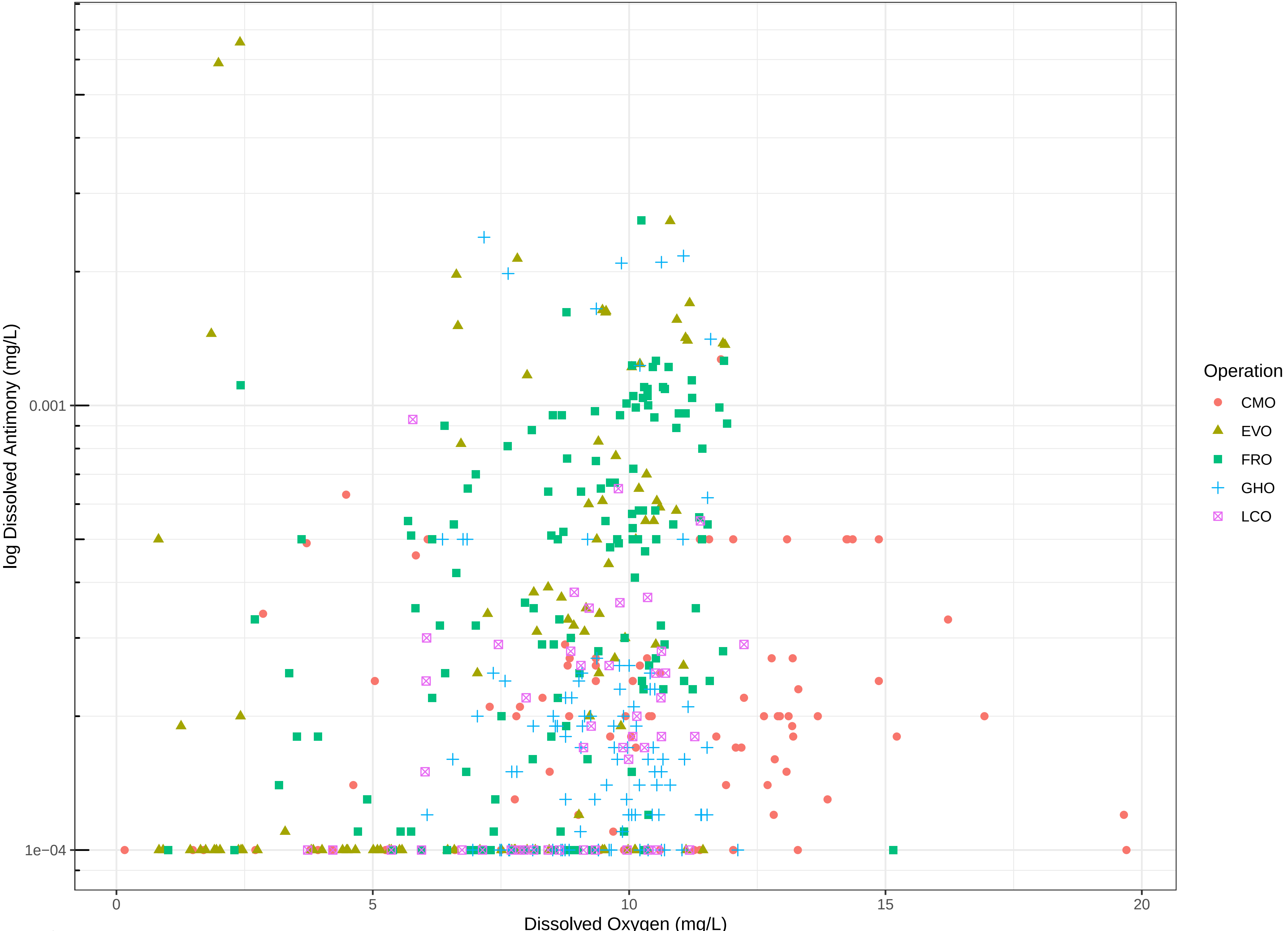
Dissolved Titanium (mg/L)
0.021
0.018
0.015
0.012
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

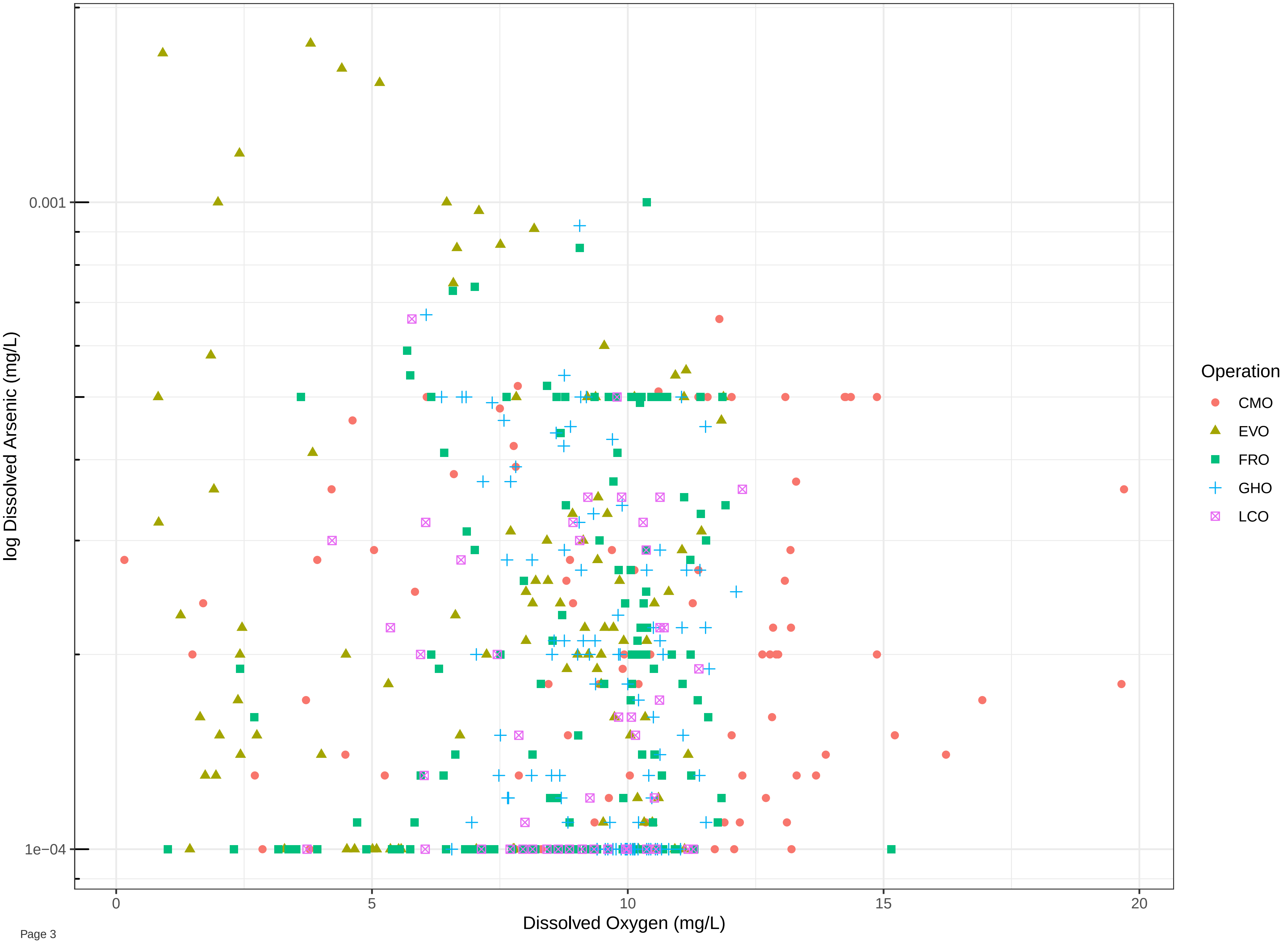

Dissolved Uranium (mg/L)
0.03
0.02
0.01
0.00
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO


0.005
0.004
0.003
0.002
0.001
Dissolved Vanadium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

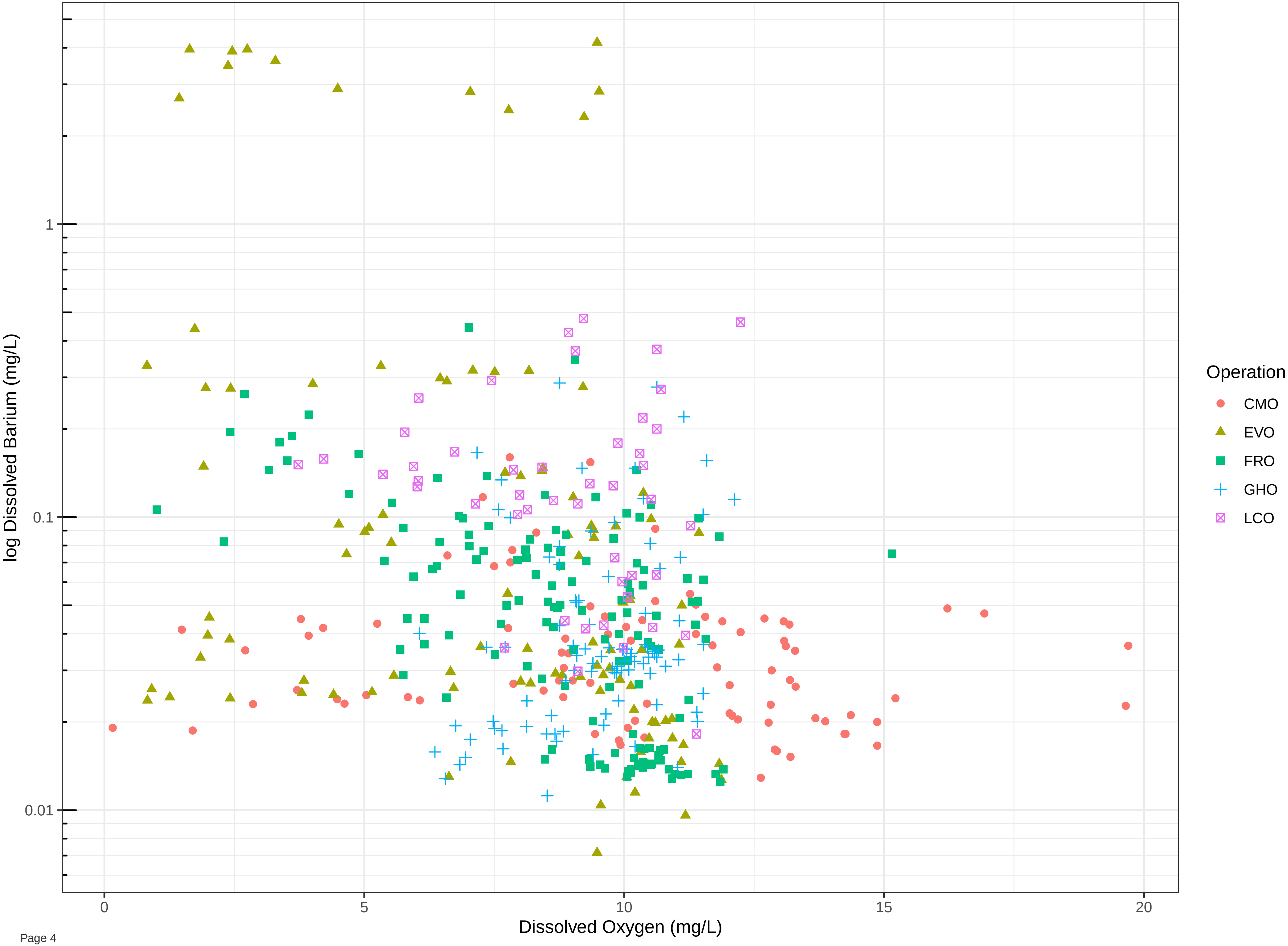

Dissolved Zinc (mg/L)
1.00
0.75
0.50
0.25
0.00
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

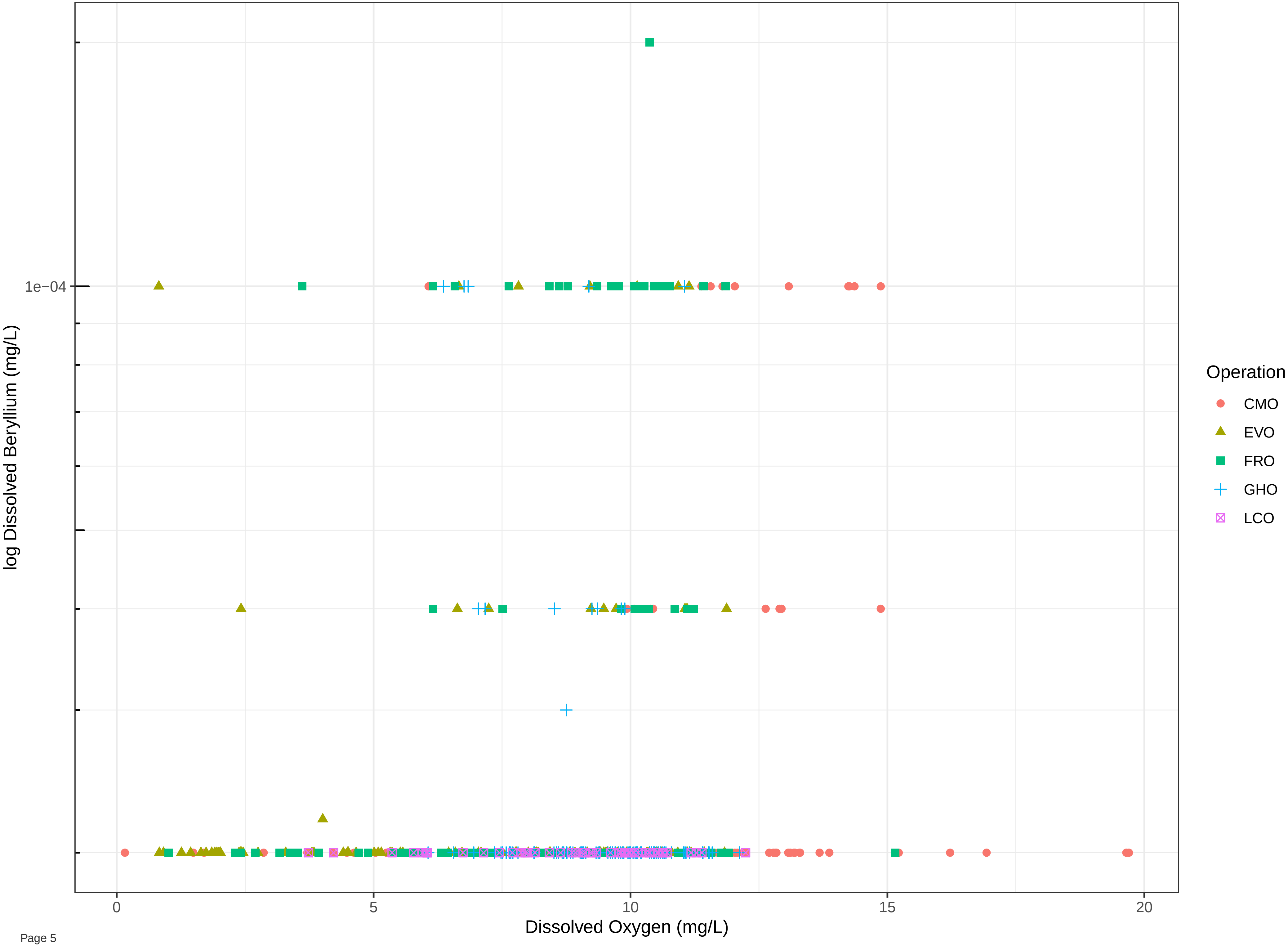

log Dissolved Aluminum (mg/L)
0.1
0.01
0.001
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO


log Dissolved Antimony (mg/L)
0.001
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

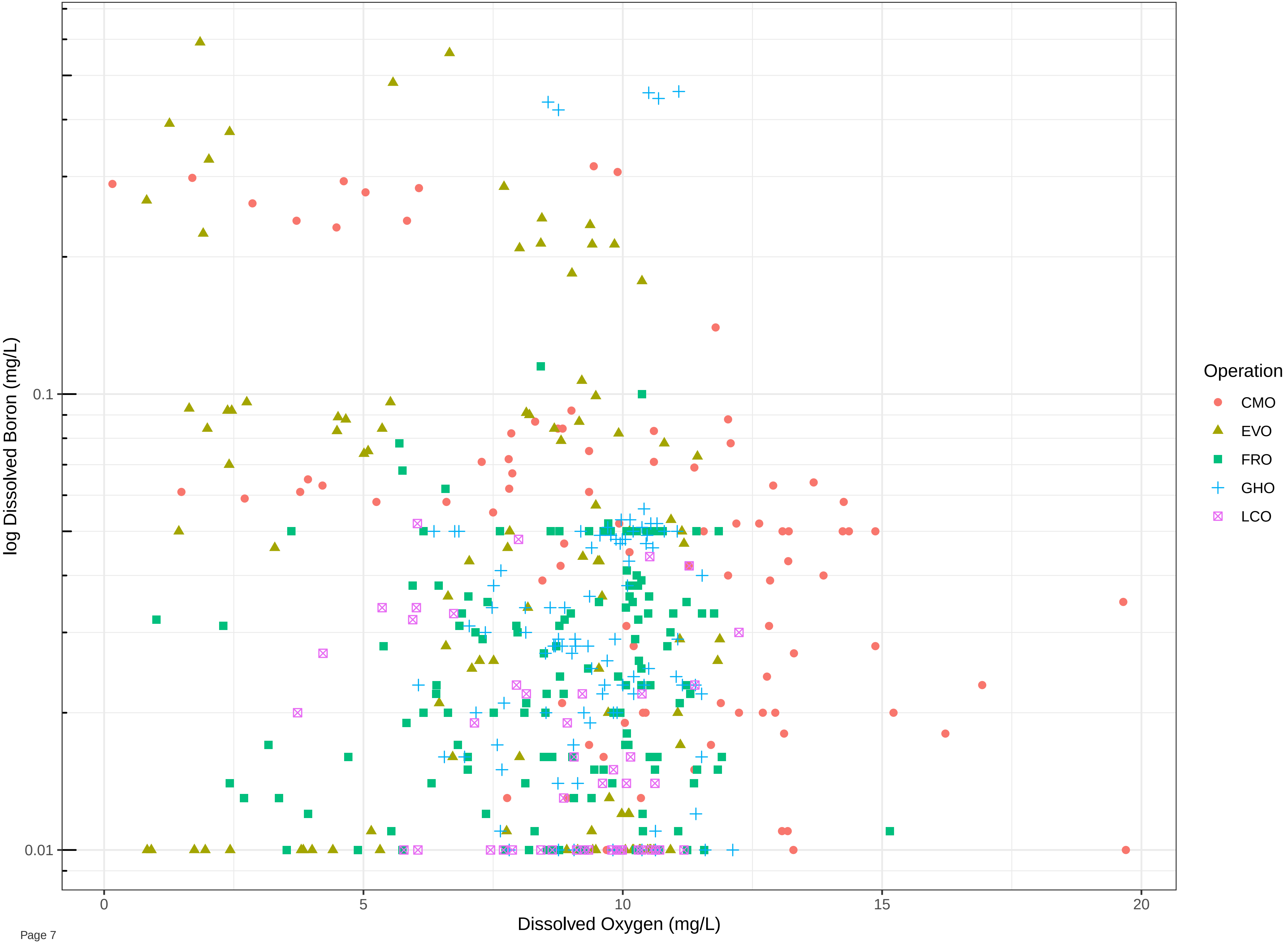


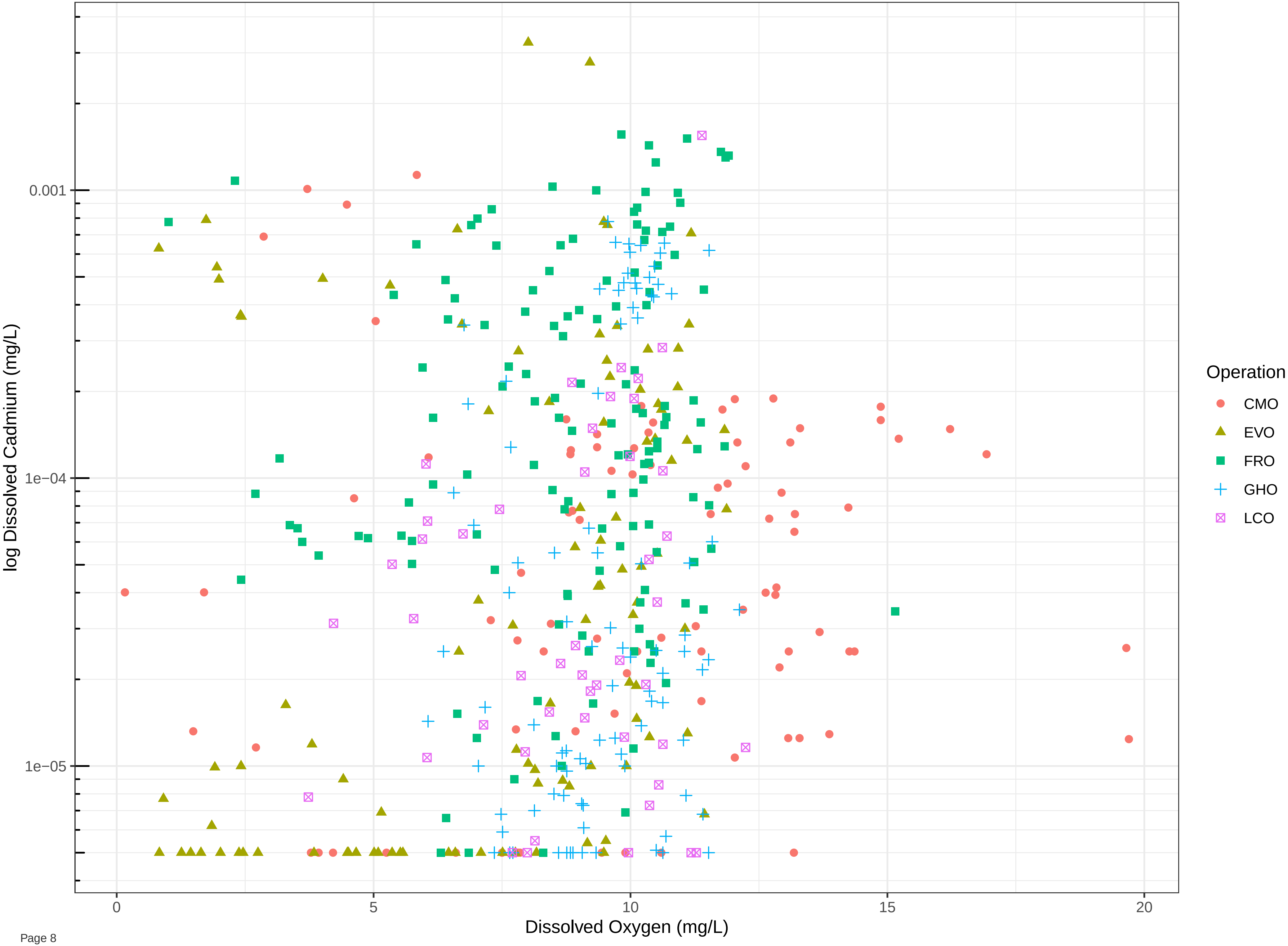
log Dissolved Arsenic (mg/L)
0.001
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

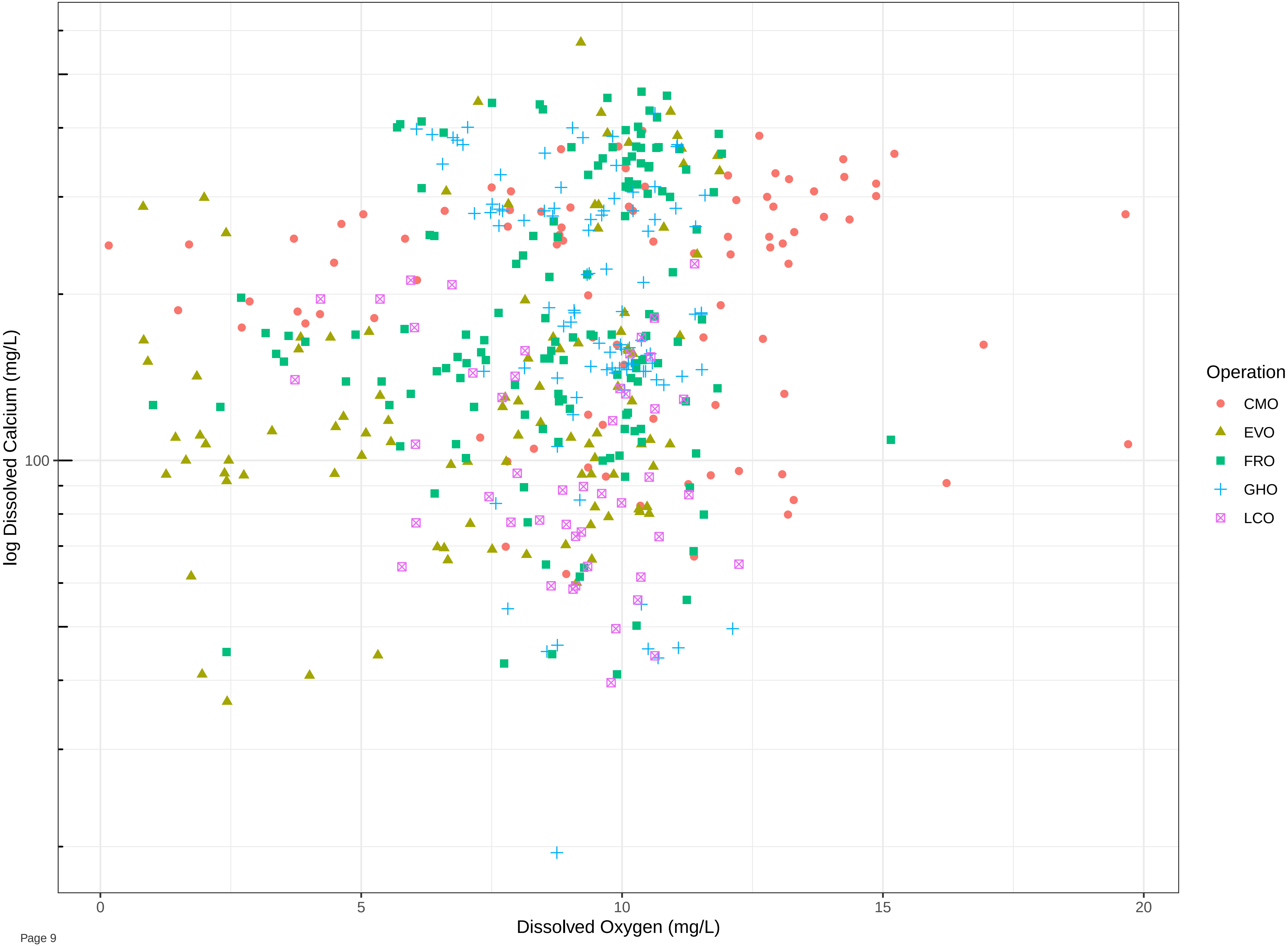

log Dissolved Barium (mg/L)
1
0.1
0.01
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO


log Dissolved Beryllium (mg/L)
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

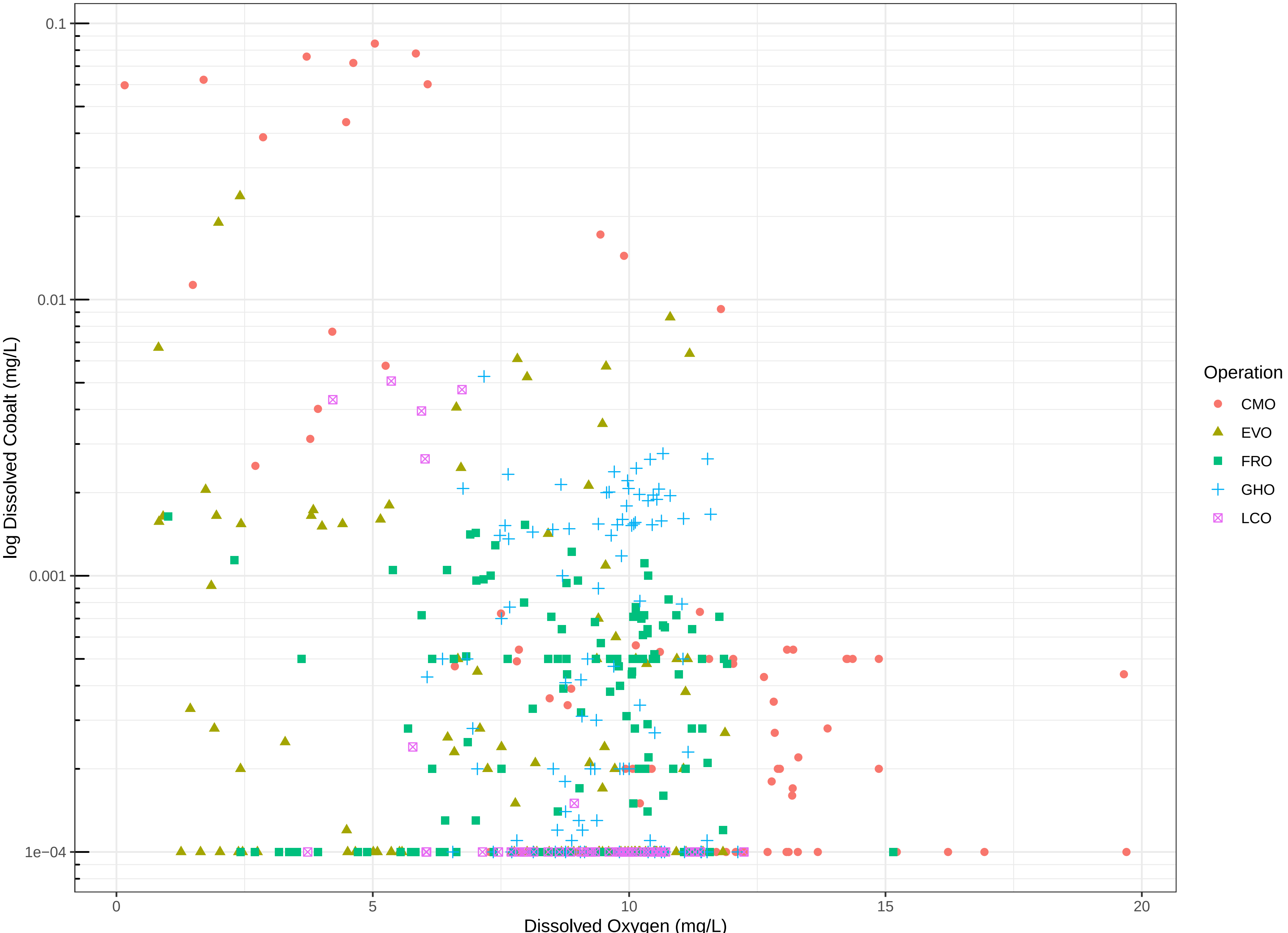

log Dissolved Bismuth (mg/L)
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO


log Dissolved Boron (mg/L)
0.1
0.01
Dissolved Oxygen (mg/L)
0
5
10
15
20
Operation
CMO
EVO
FRO
GHO
LCO

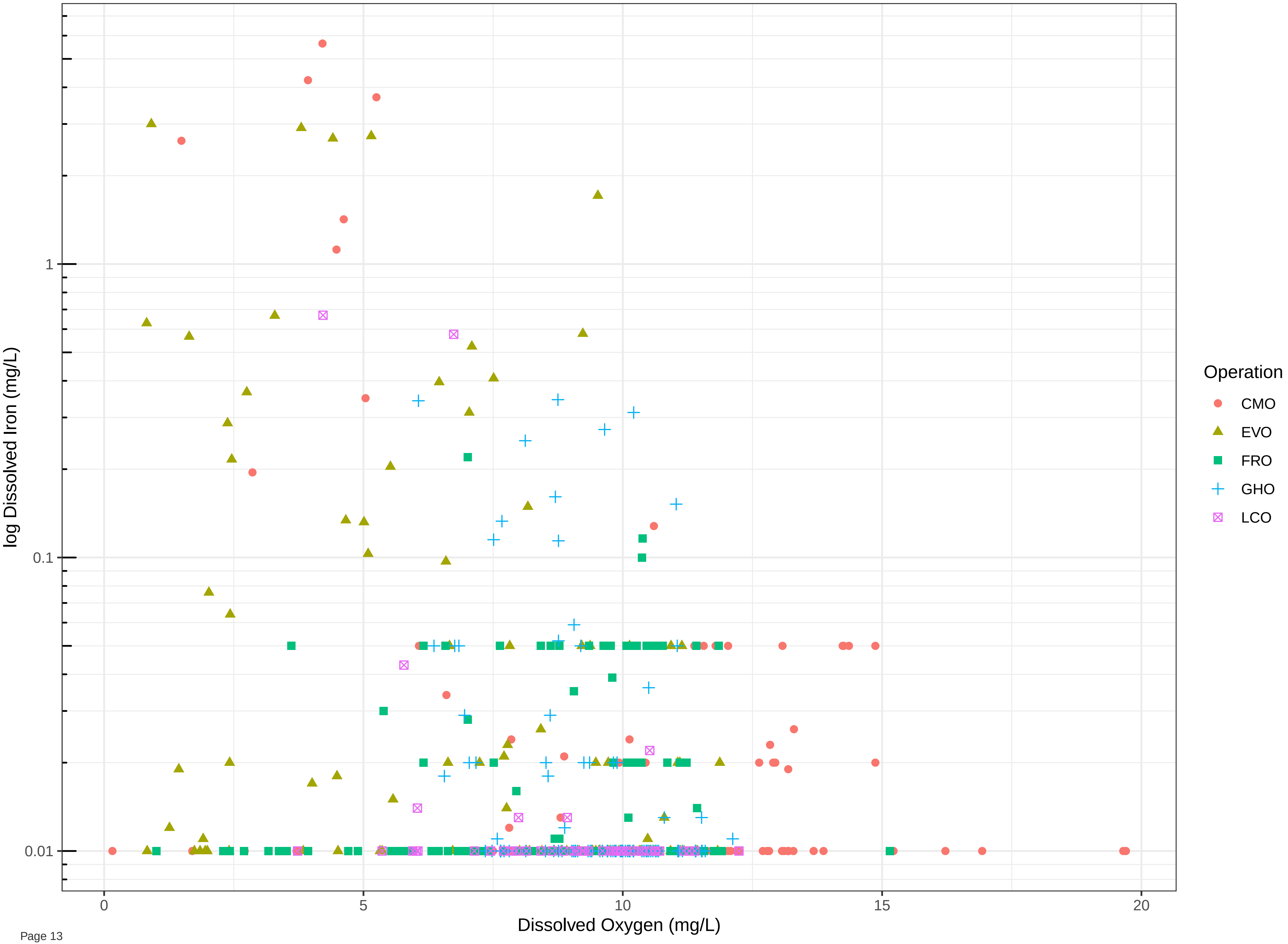

log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

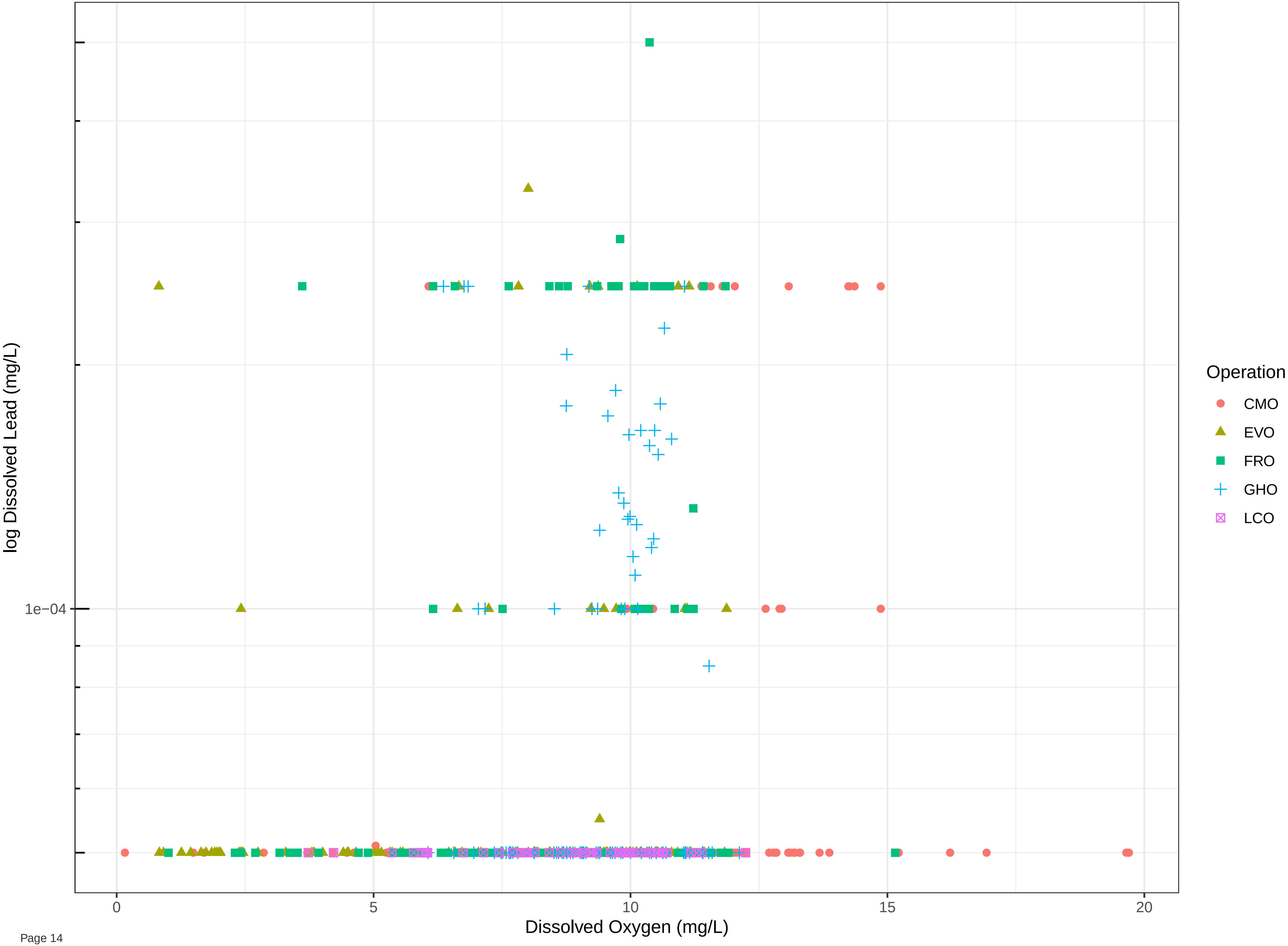

log Dissolved Calcium (mg/L)
100
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

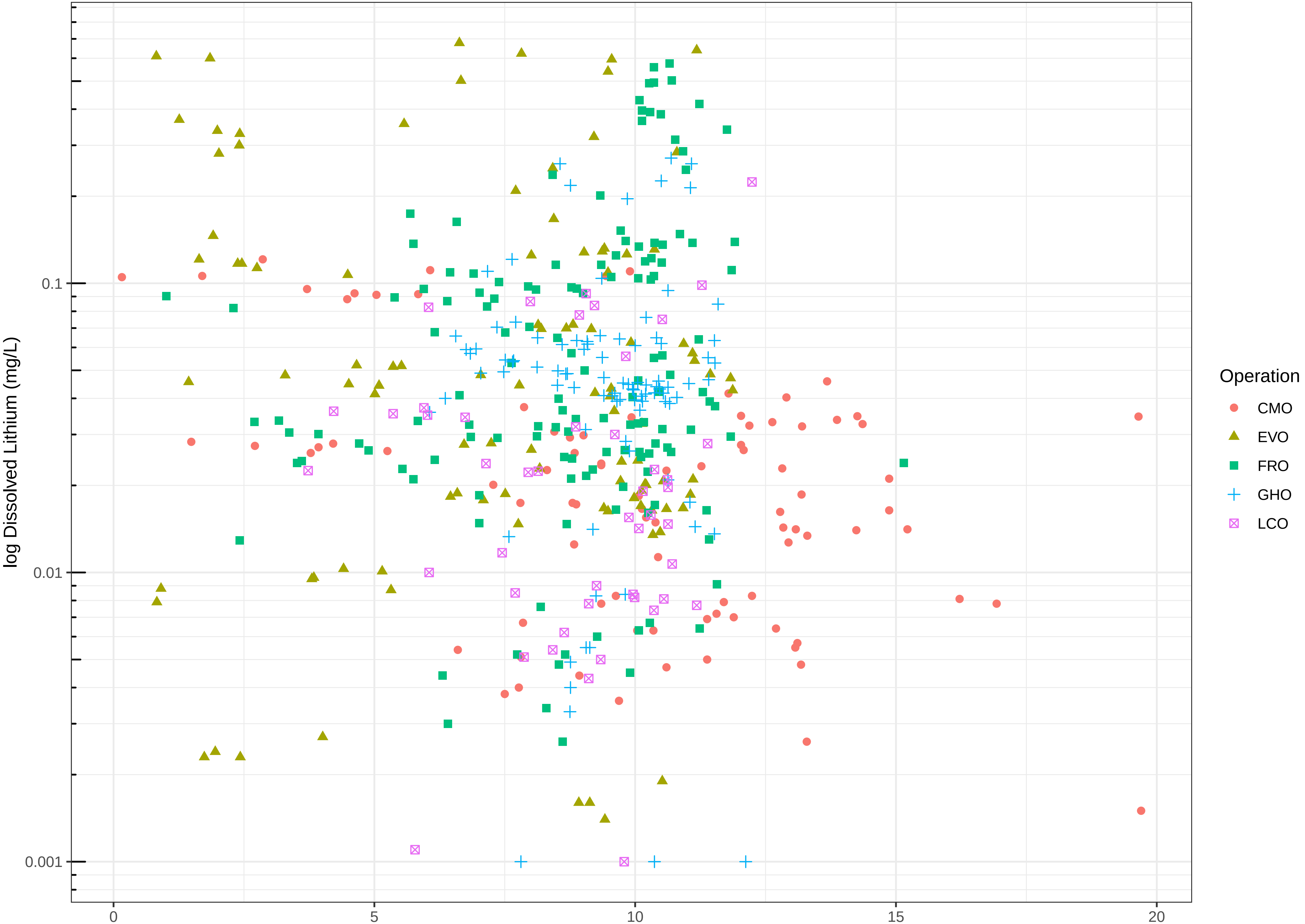
log Dissolved Chromium (mg/L)
0.001
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO


0.1
0.01
0.001
1e−04
log Dissolved Cobalt (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

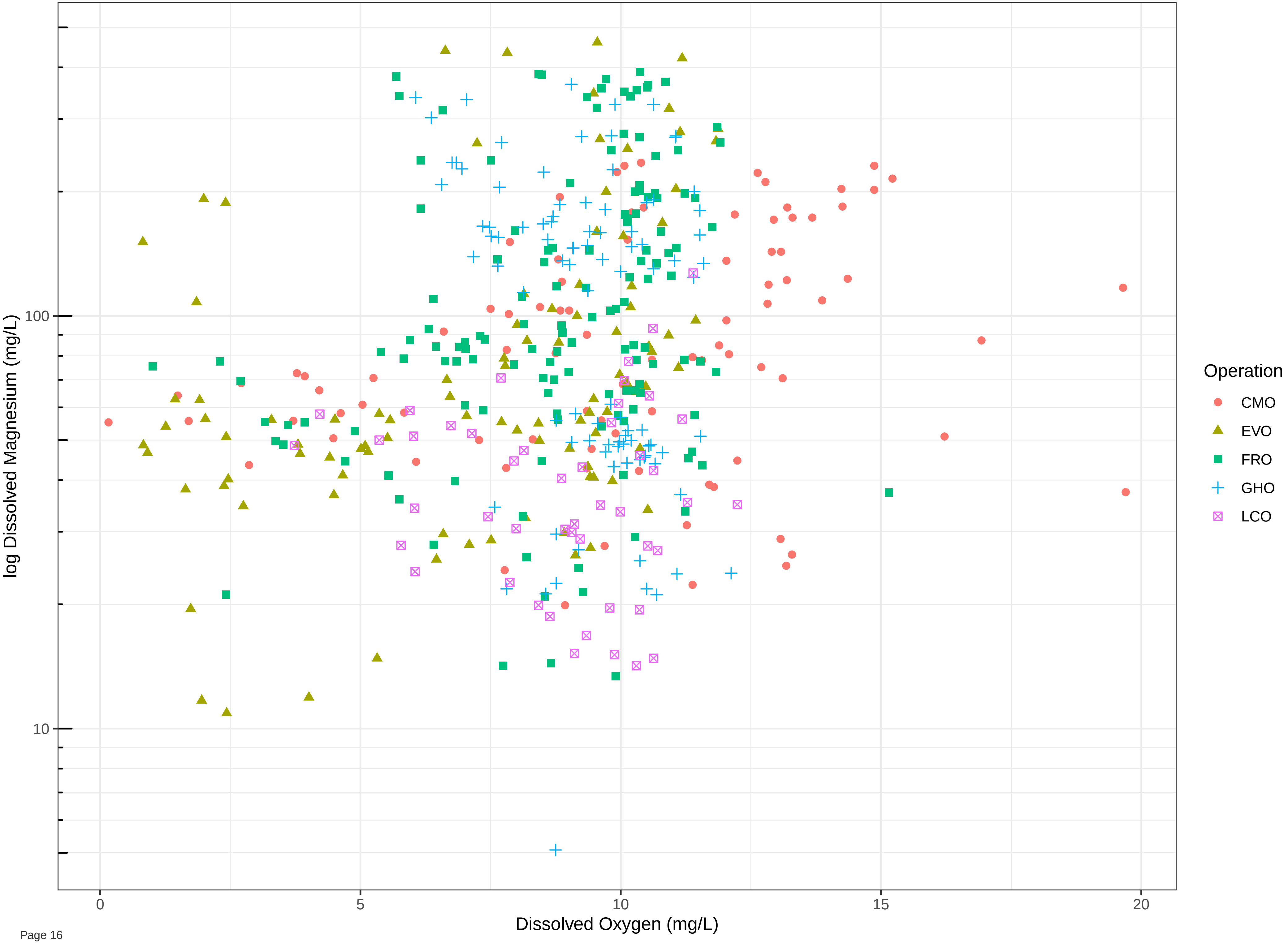

log Dissolved Copper (mg/L)
0.001
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO


log Dissolved Iron (mg/L)
1
0.1
0.01
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

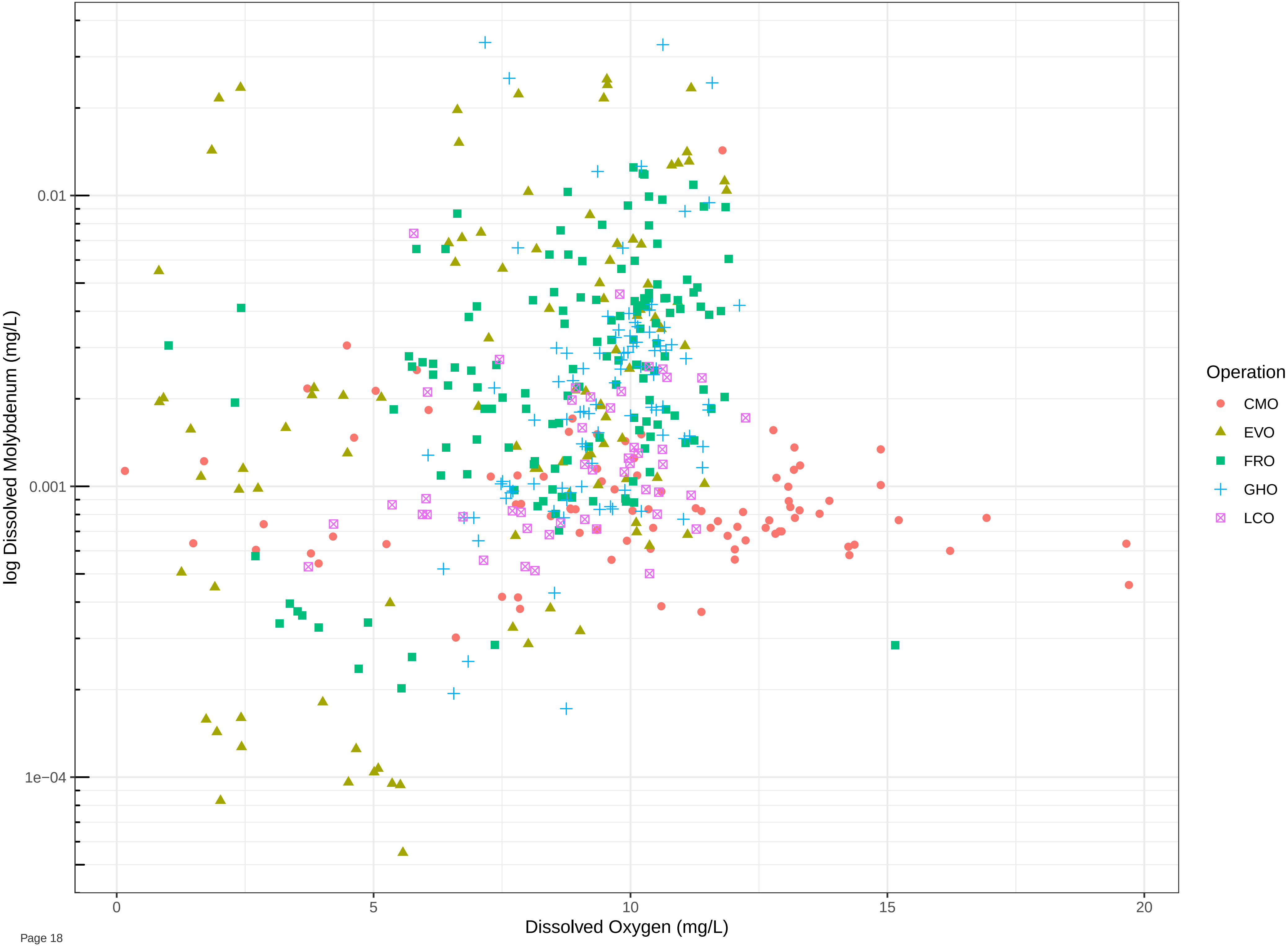

log Dissolved Lead (mg/L)
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

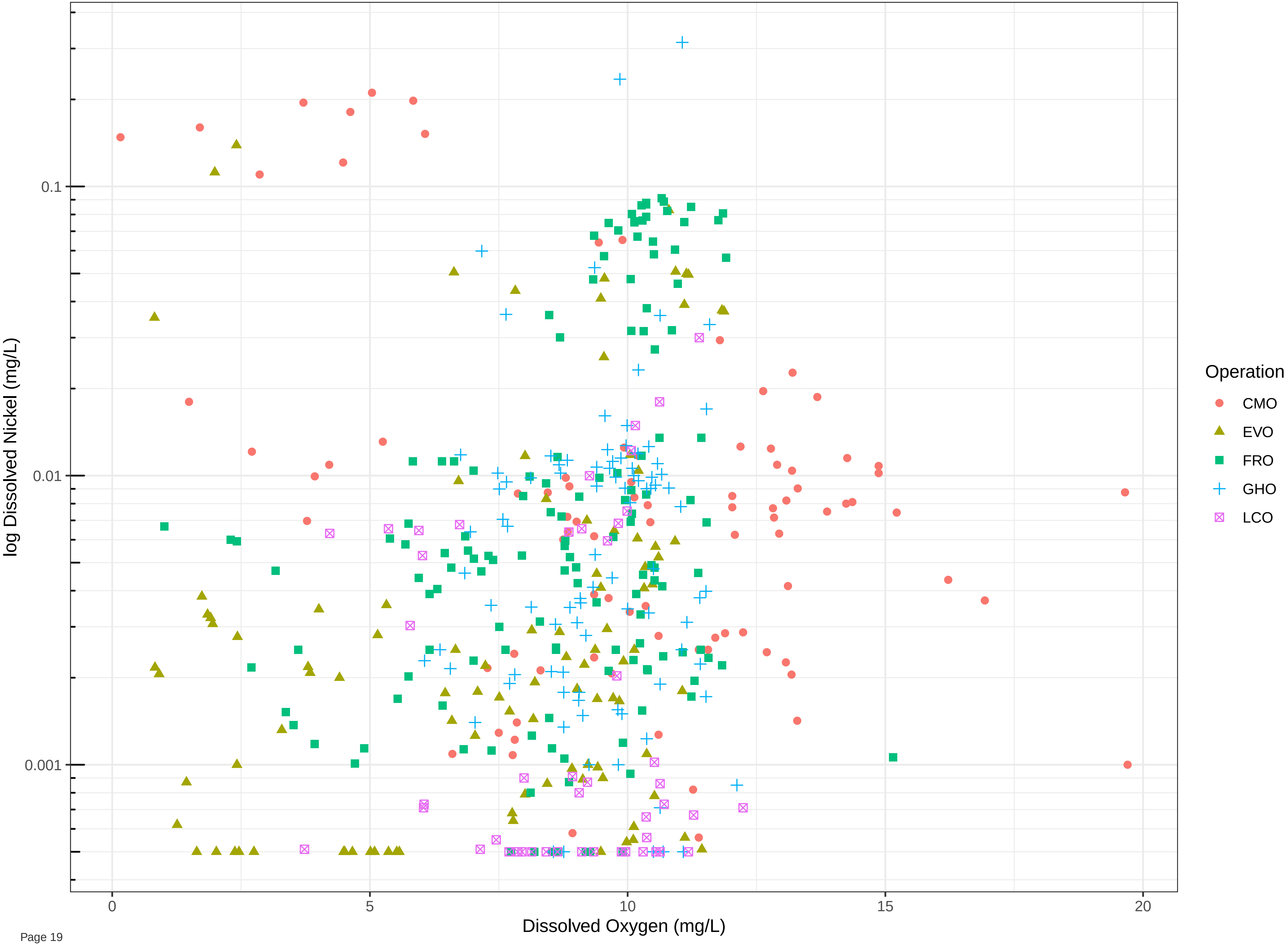


log Dissolved Lithium (mg/L)
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
0
5
10
15
20
Operation
CMO
EVO
FRO
GHO
LCO


log Dissolved Magnesium (mg/L)
100
10
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

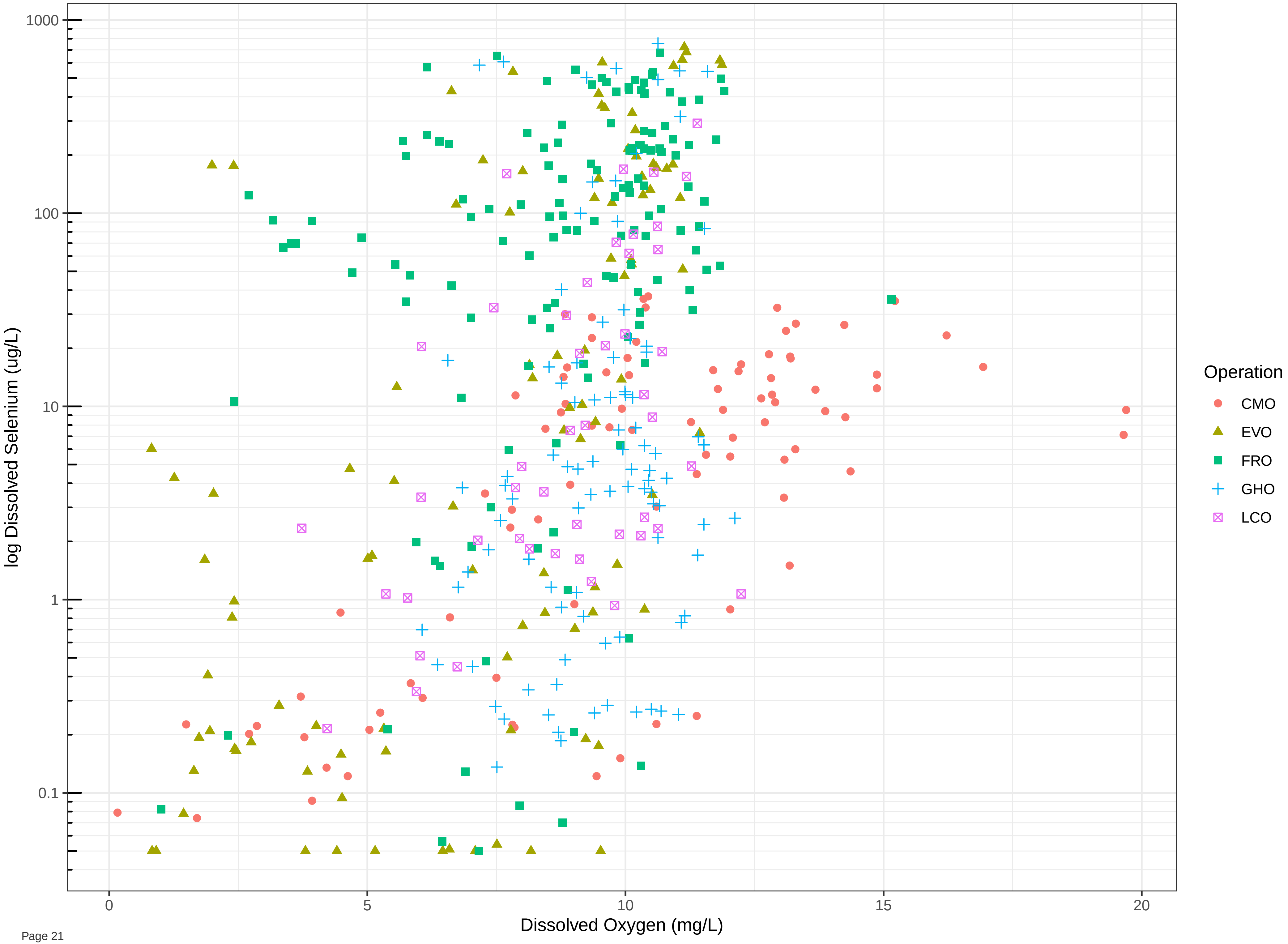

log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

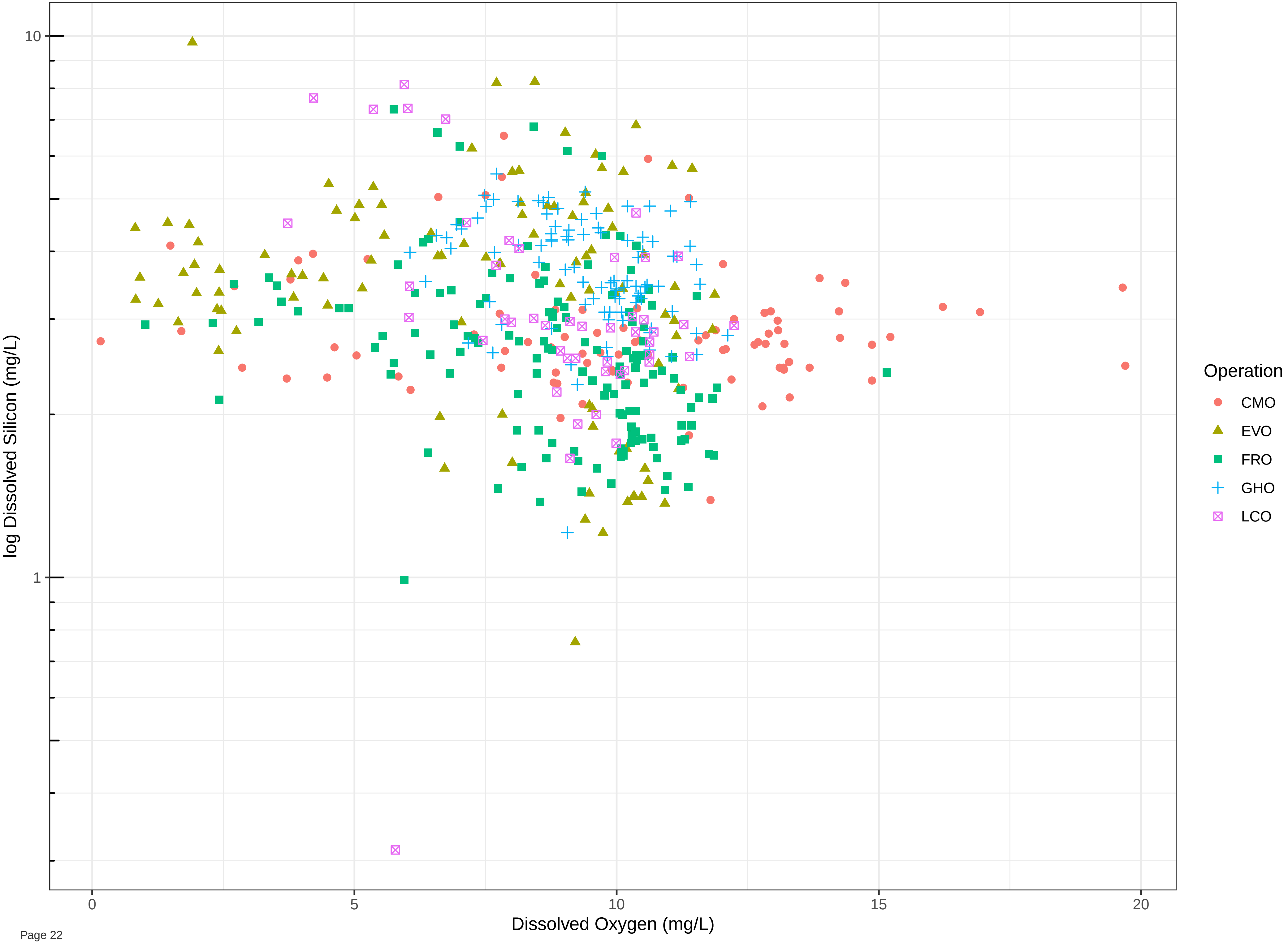

log Dissolved Molybdenum (mg/L)
0.01
0.001
1e−04
Dissolved Oxygen (mg/L)
0
5
10
15
20
Operation
CMO
EVO
FRO
GHO
LCO



log Dissolved Nickel (mg/L)
0.1
0.01
0.001
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO


log Dissolved Potassium (mg/L)
10
1
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

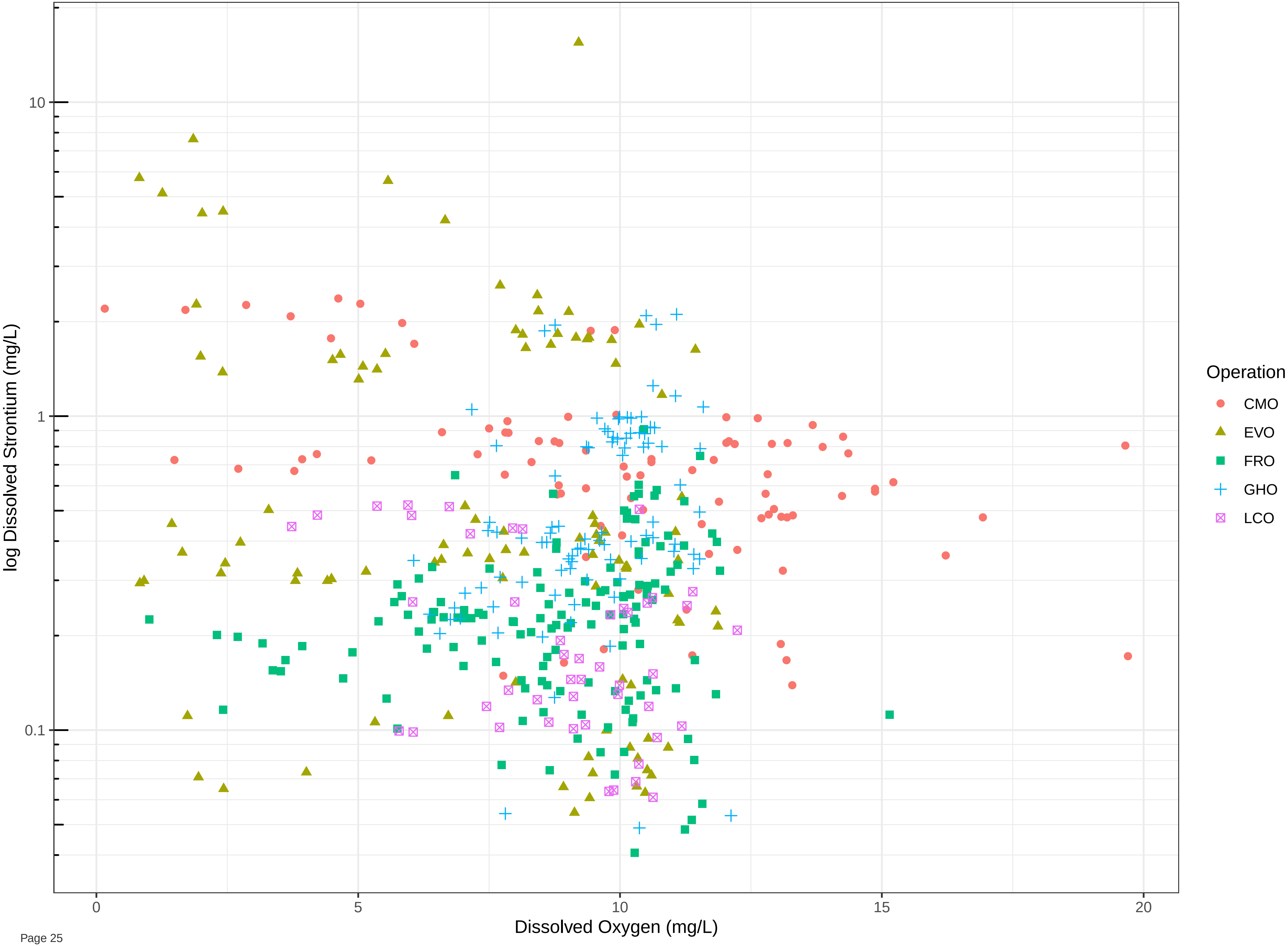

1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

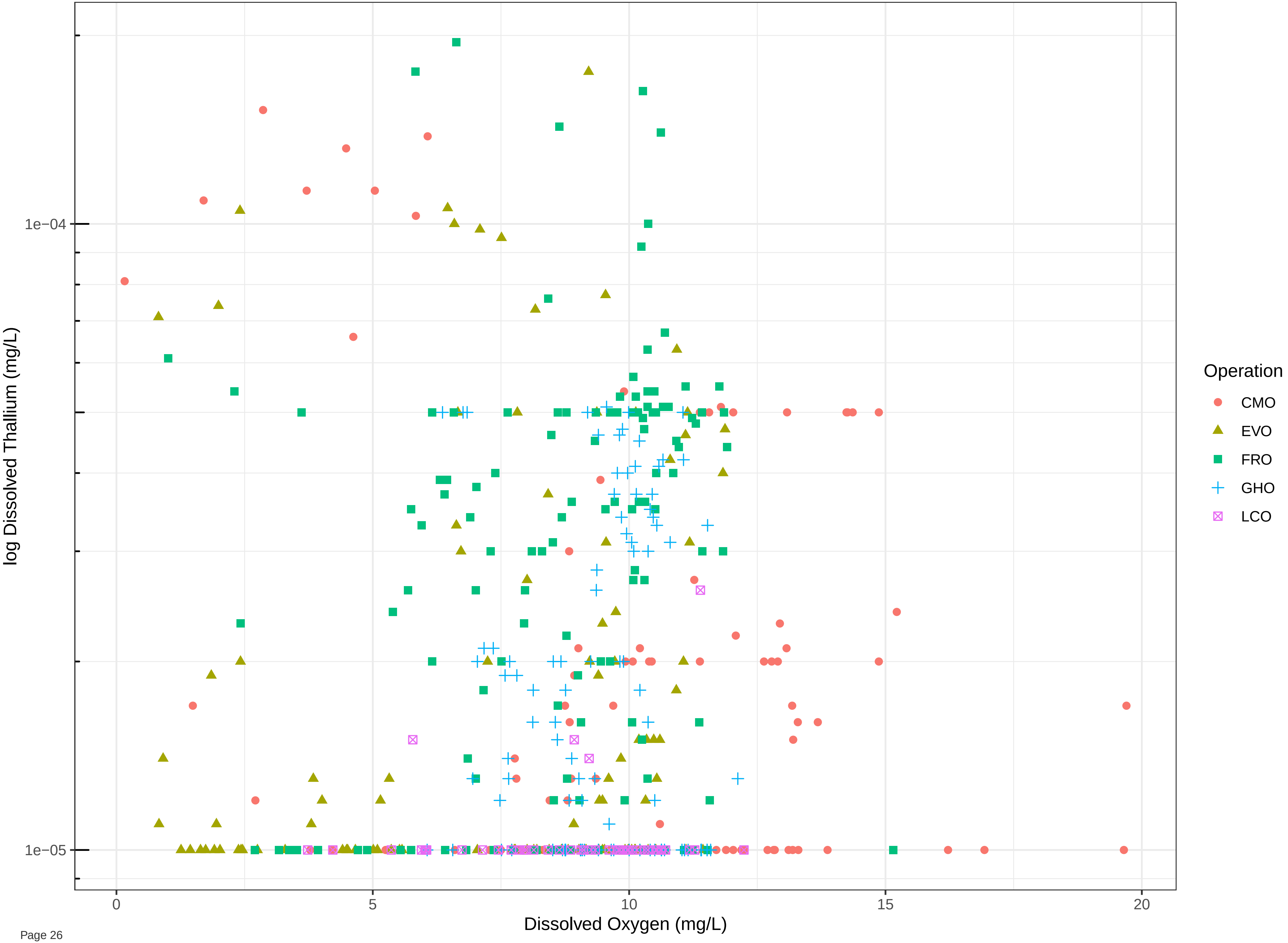


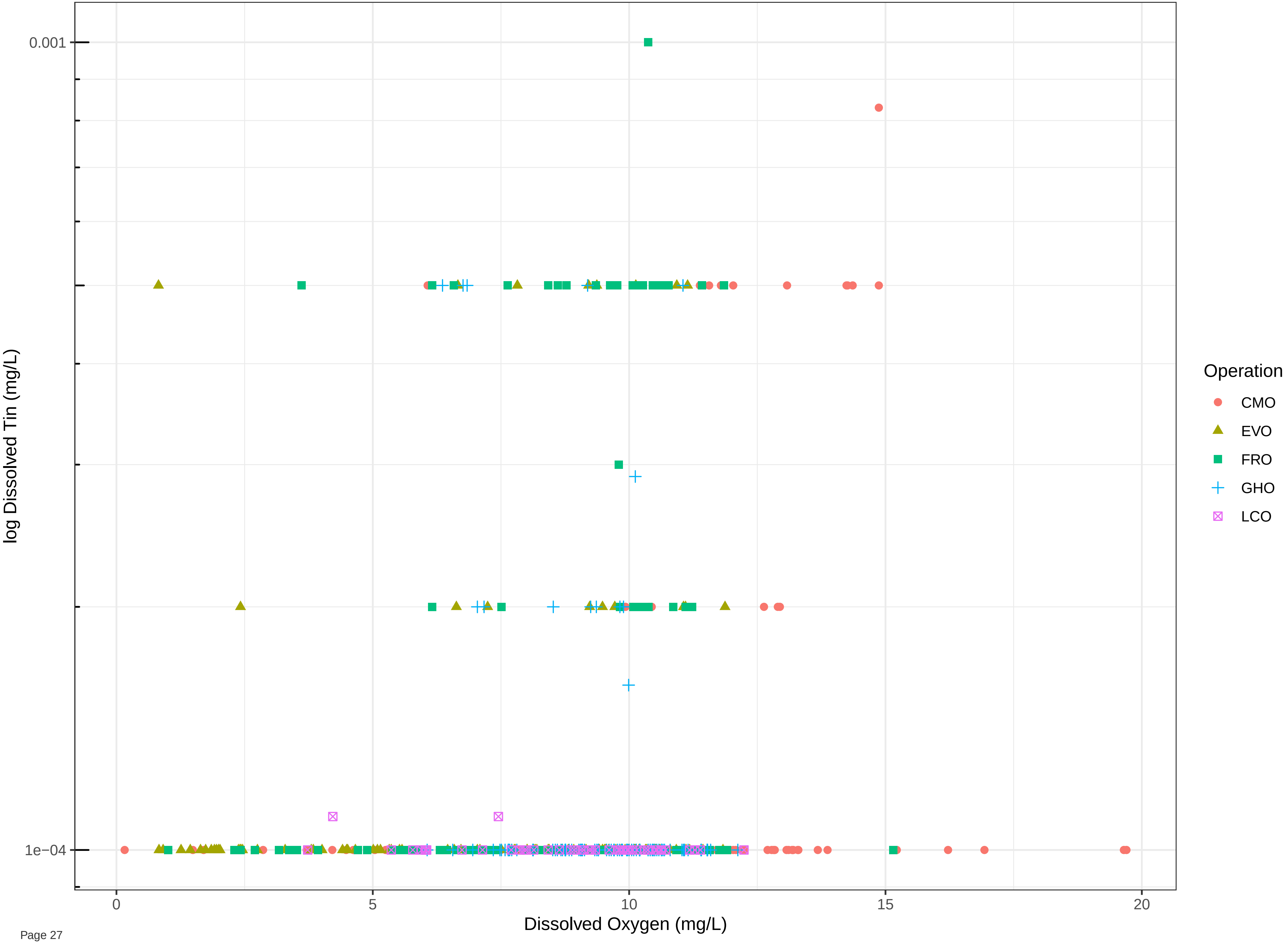
10
1
log Dissolved Silicon (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

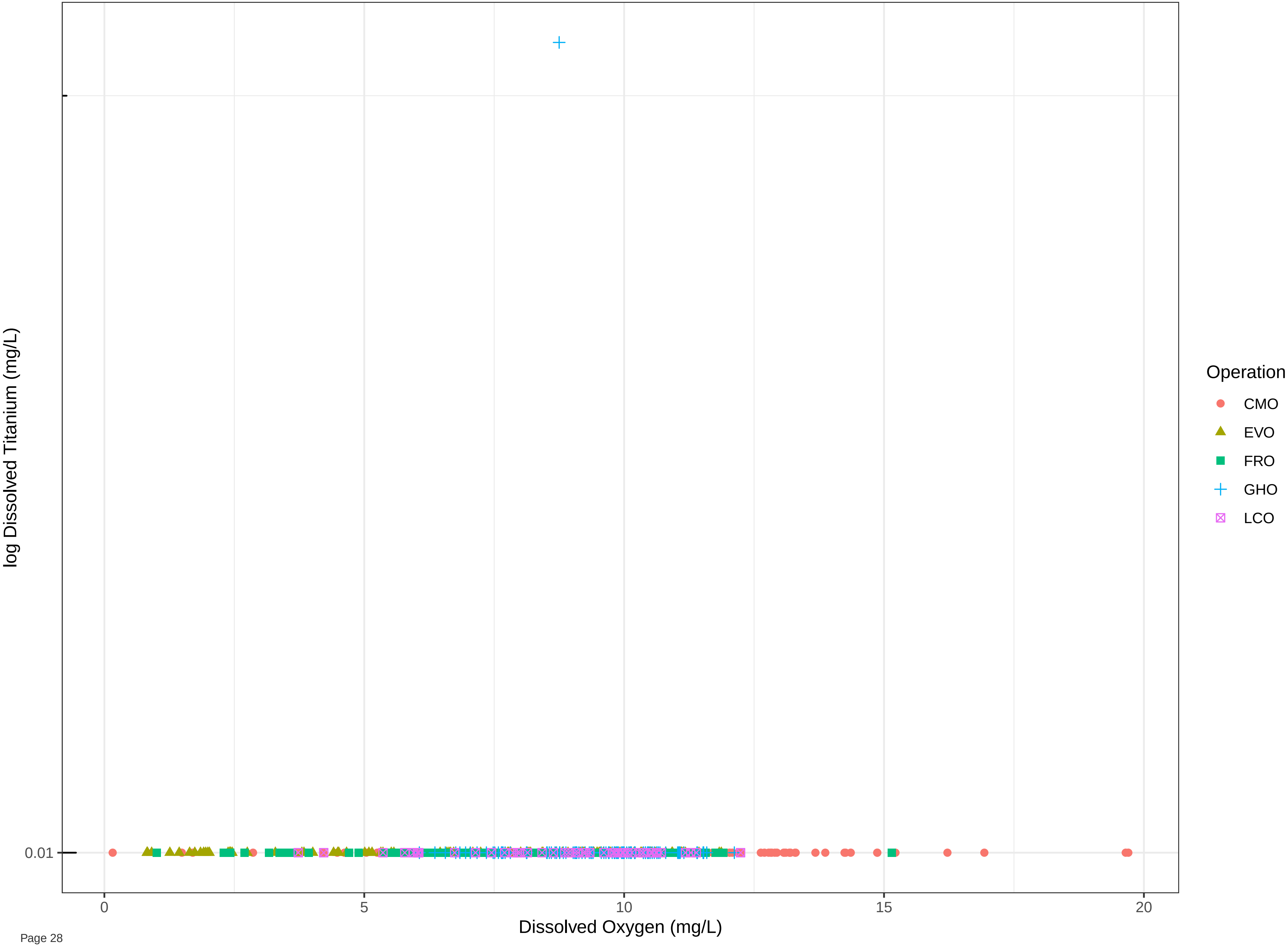

1e−04
1e−05
log Dissolved Silver (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

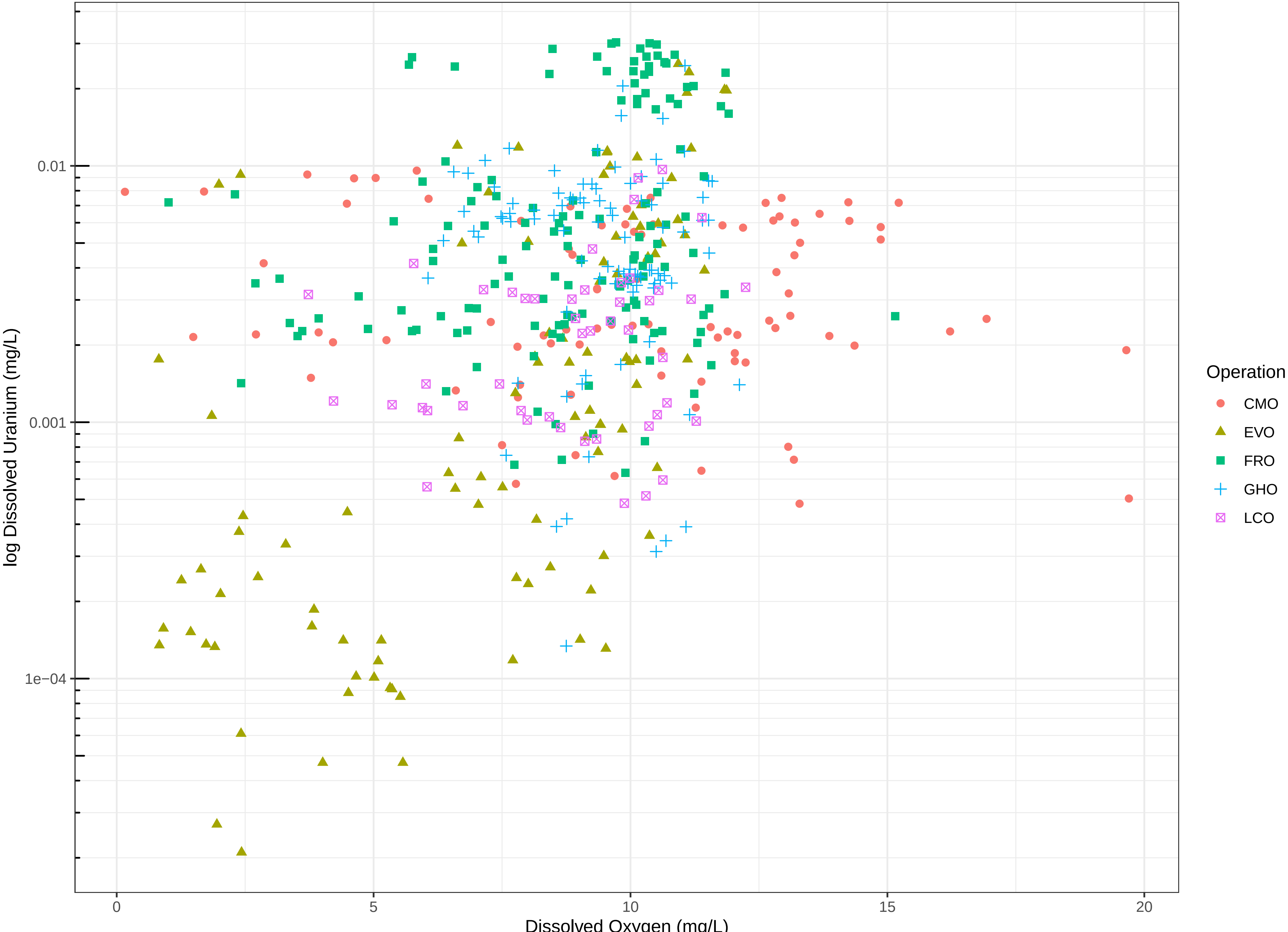

log Dissolved Sodium (mg/L)
100
10
1
Dissolved Oxygen (mg/L)
0
5
10
15
20
Operation
● CMO
▲ EVO
■ FRO
+ GHO
☒ LCO


log Dissolved Strontium (mg/L)
10
1
0.1
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO


log Dissolved Thallium (mg/L)
1e−04
1e−05
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

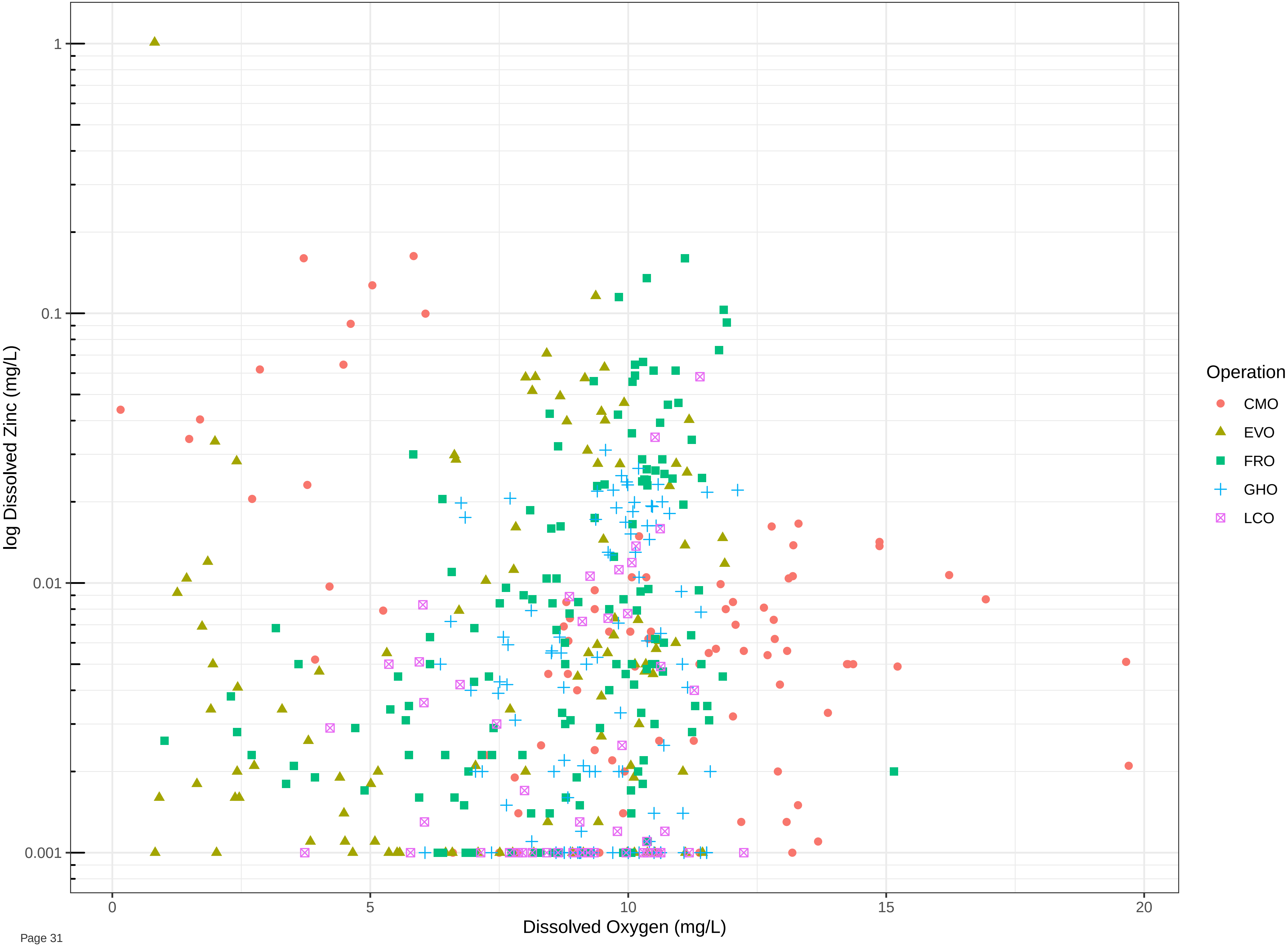

0.001
1e−04
log Dissolved Tin (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

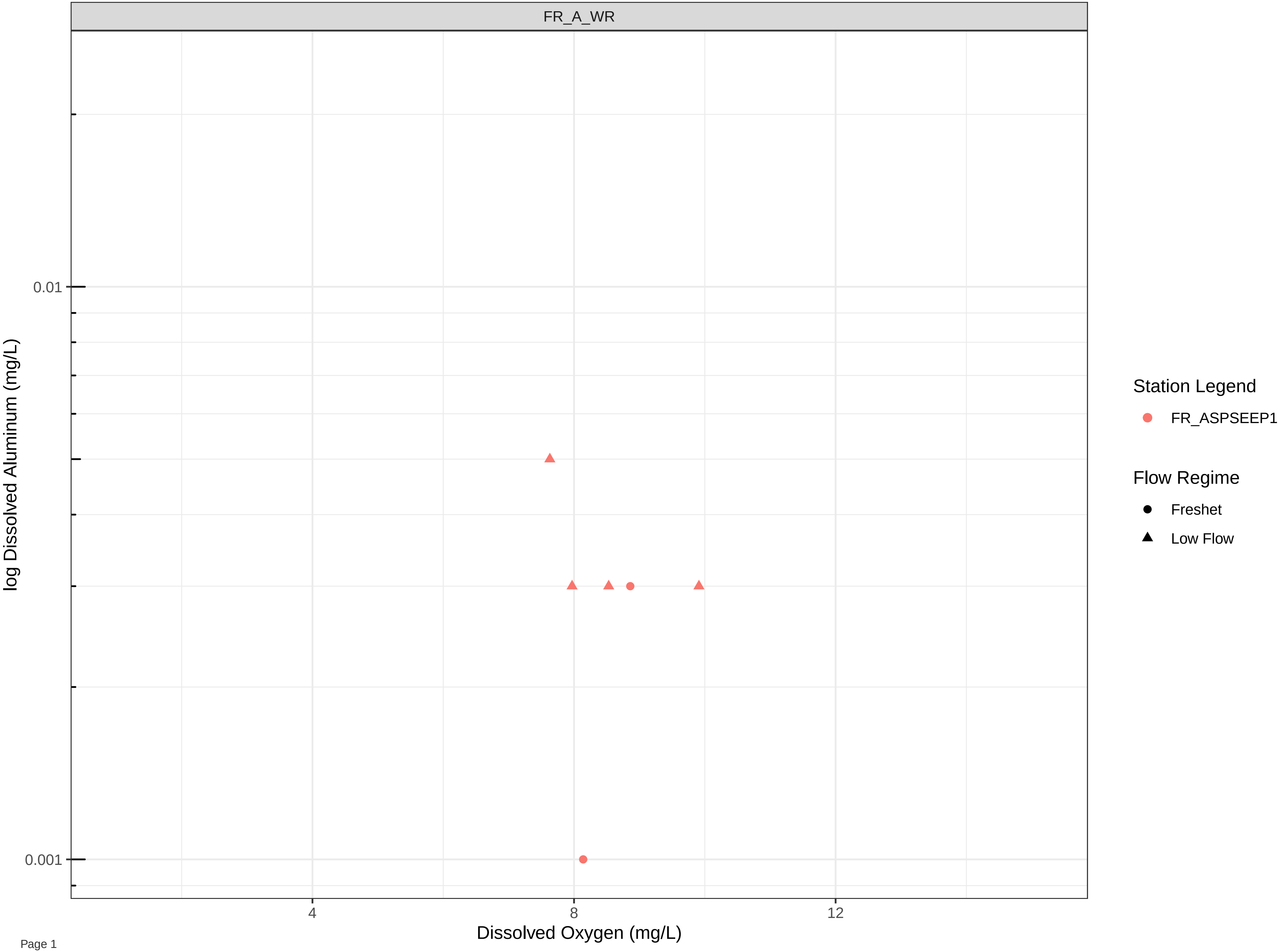

log Dissolved Titanium (mg/L)
0.01
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

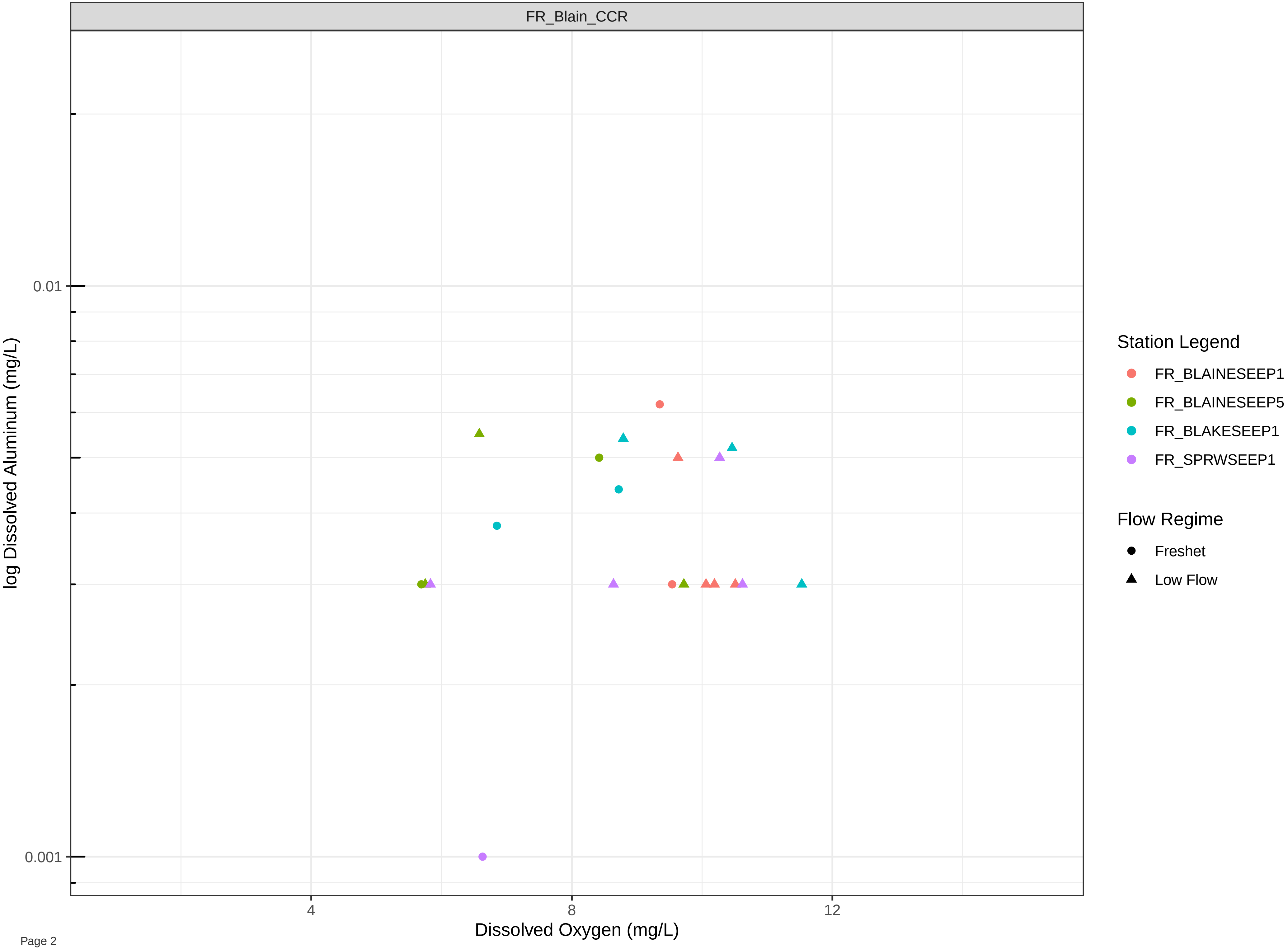


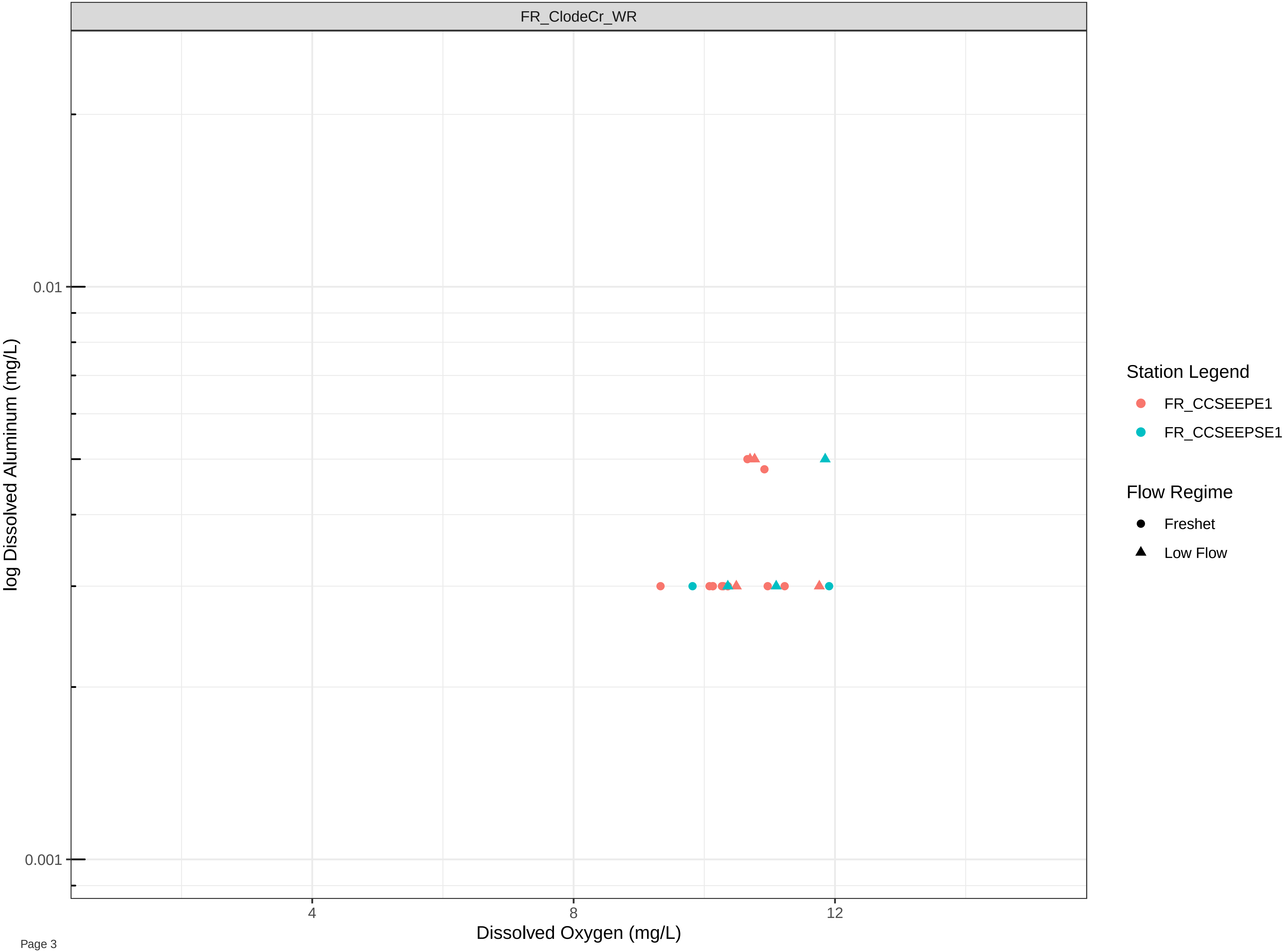
log Dissolved Uranium (mg/L)
0.01
0.001
1e−04
Dissolved Oxygen (mg/L)
0
5
10
15
20
Operation
CMO
EVO
FRO
GHO
LCO

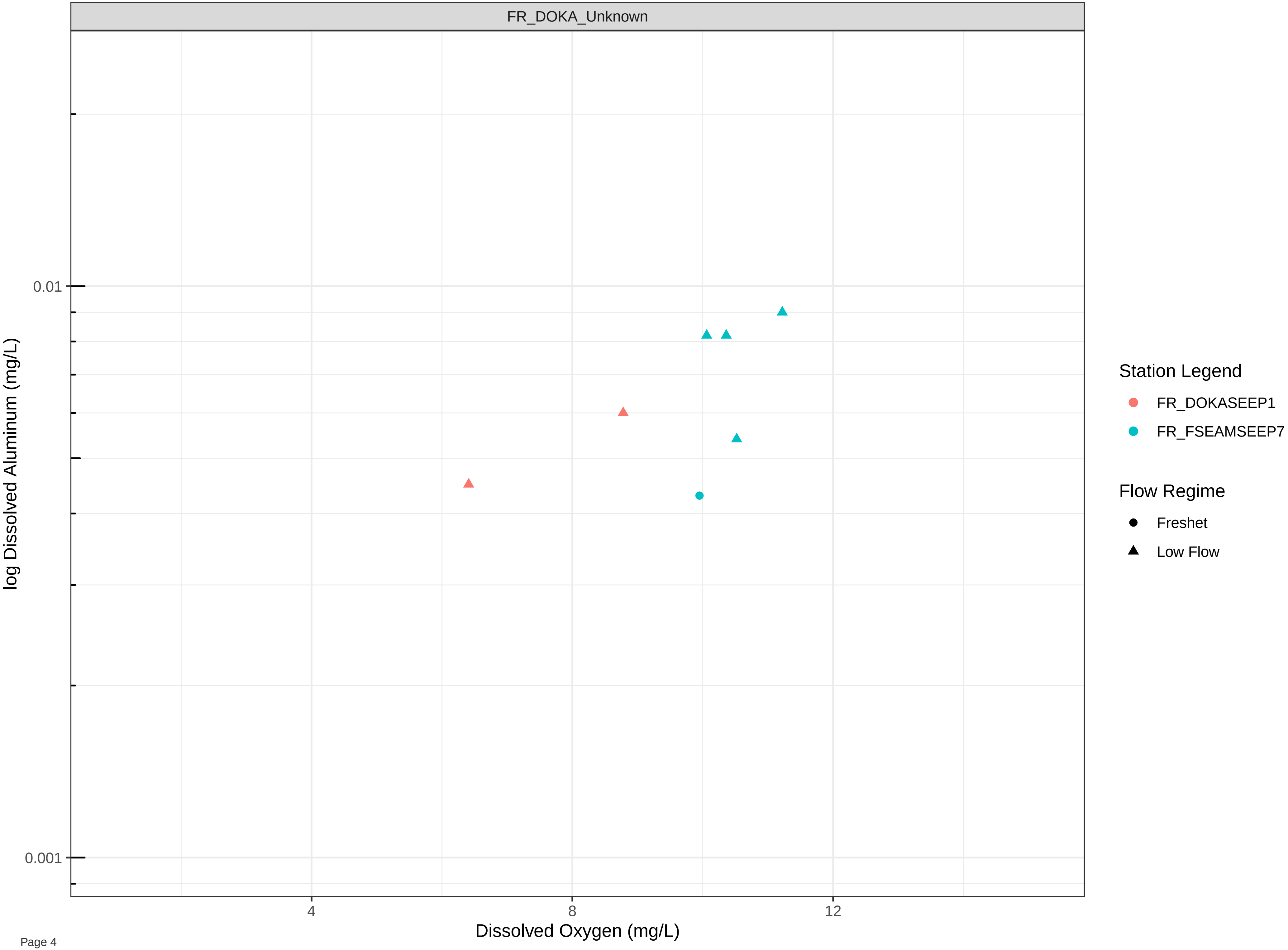

log Dissolved Vanadium (mg/L)
0.001
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

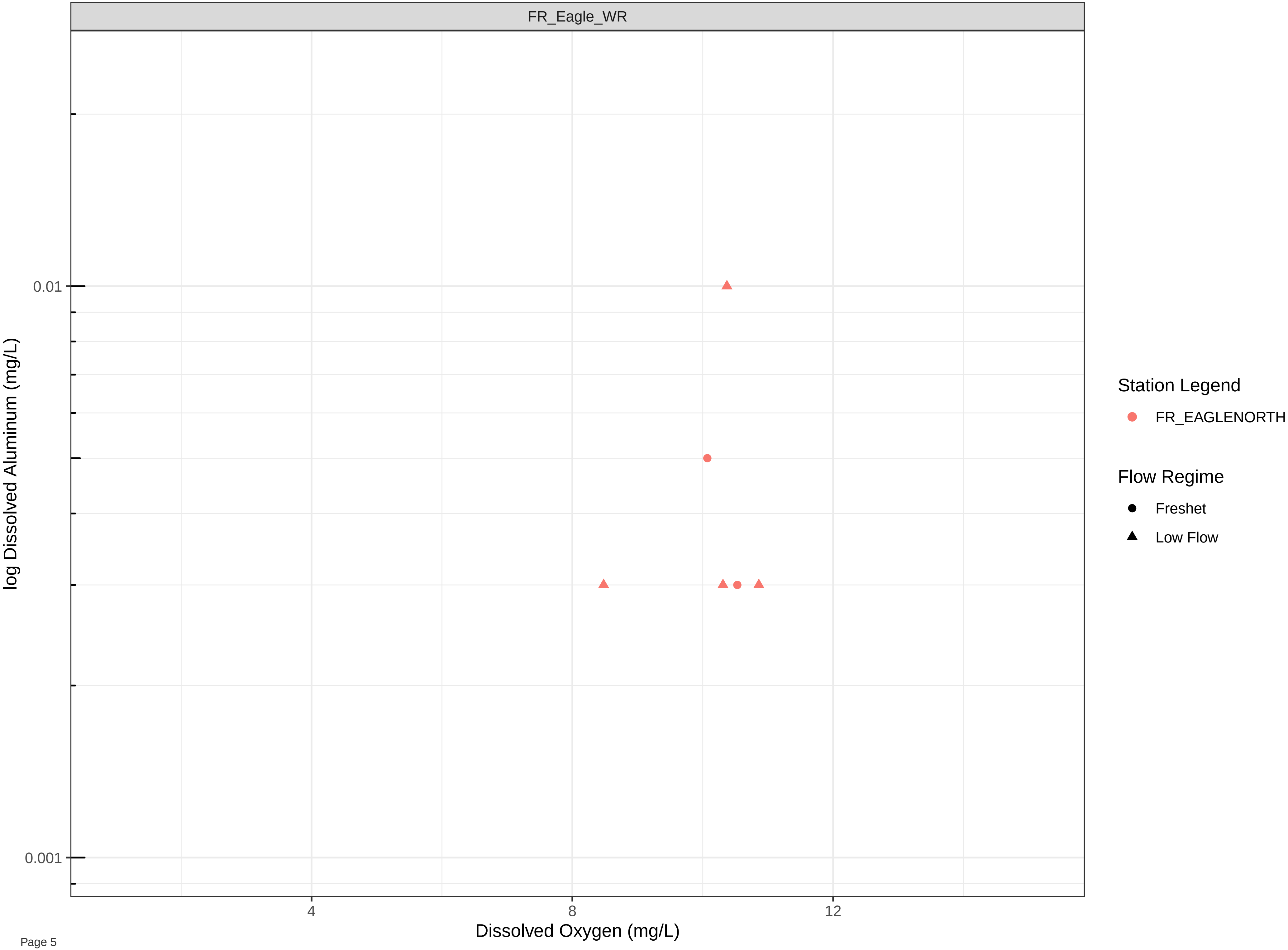

1
0.1
0.01
0.001
log Dissolved Zinc (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Operation
CMO
EVO
FRO
GHO
LCO

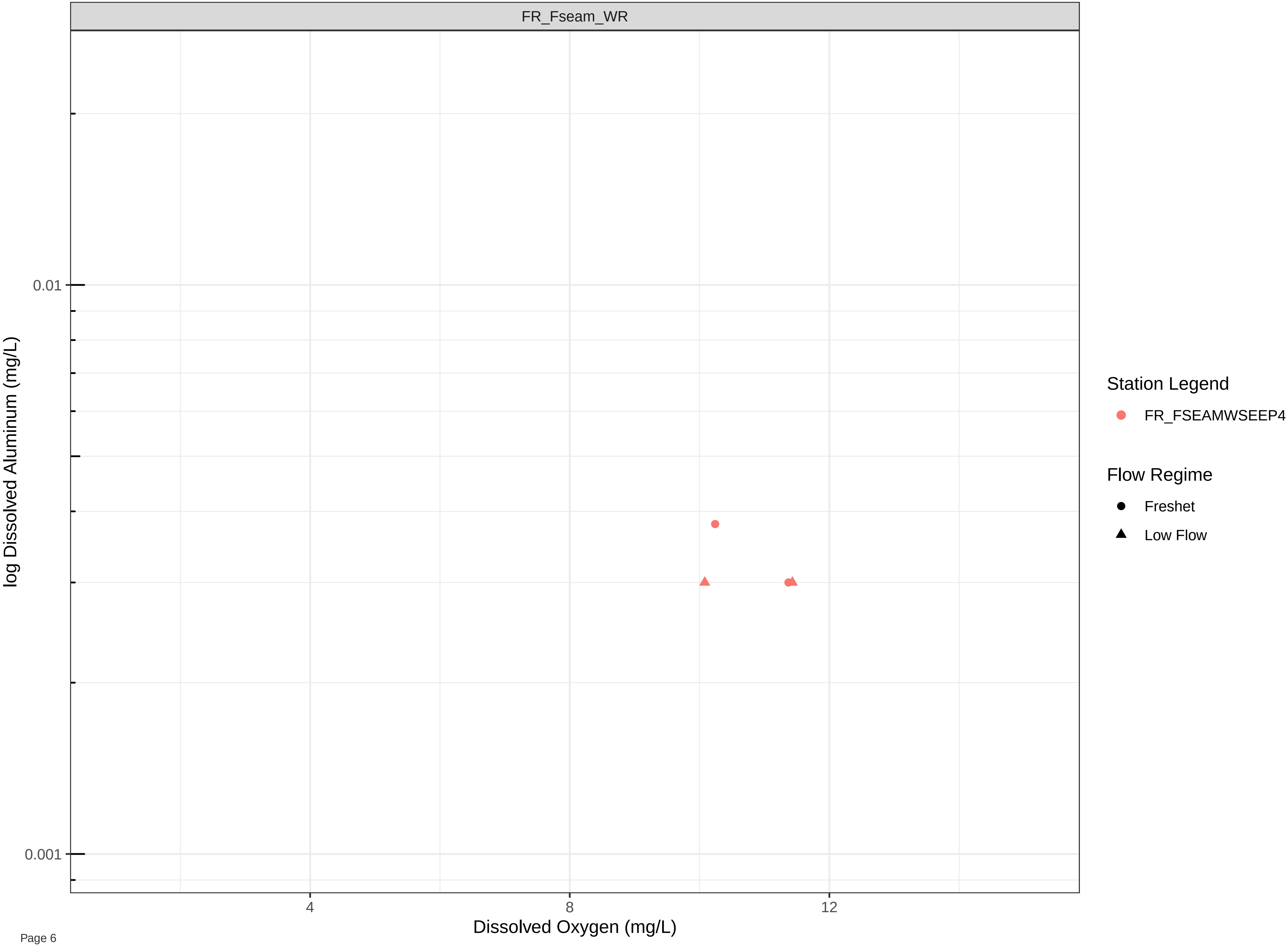

FR_A_WR
log Dissolved Aluminum (mg/L)
0.01
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

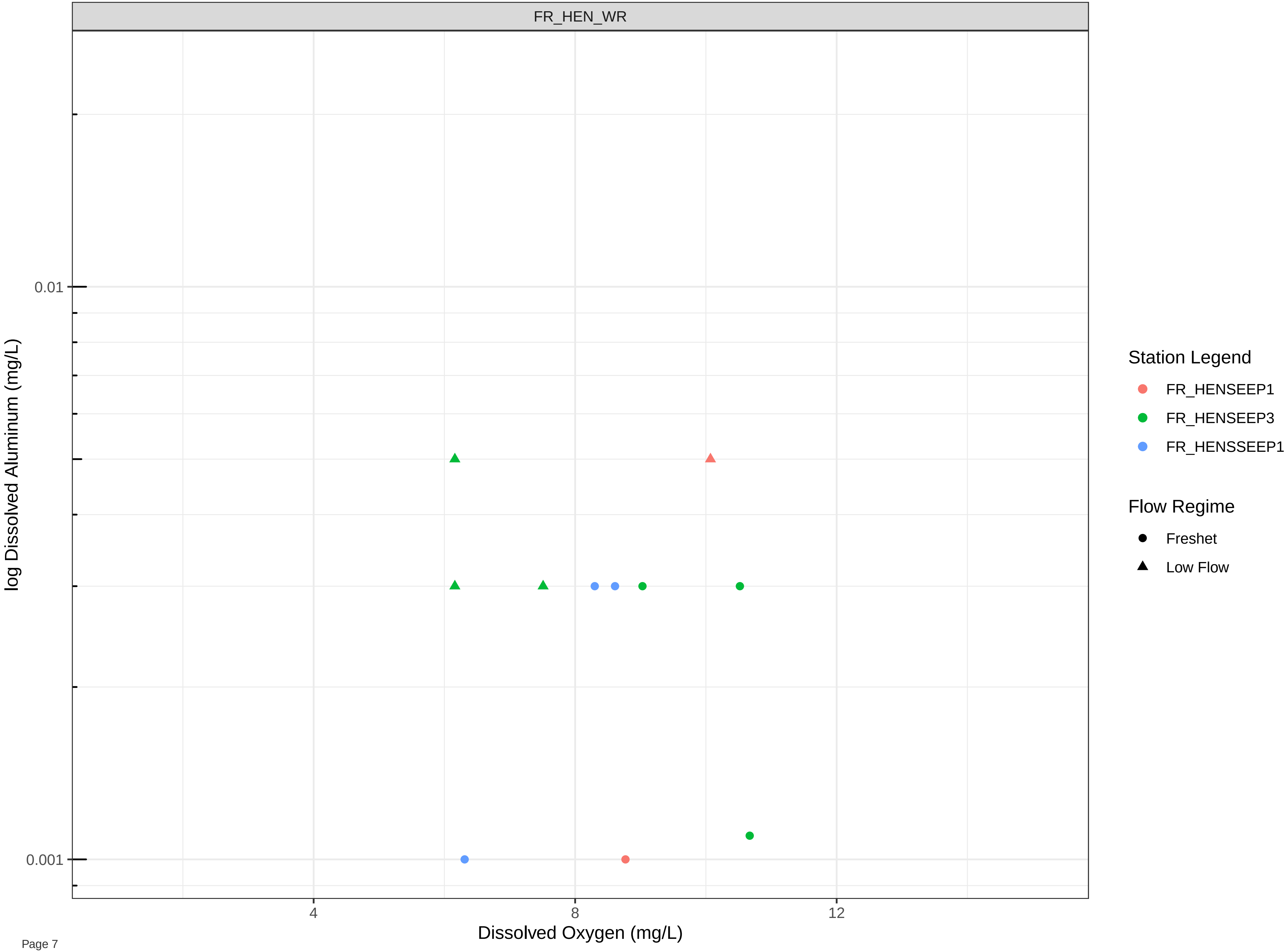

FR_Blain_CCR
log Dissolved Aluminum (mg/L)
0.01
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

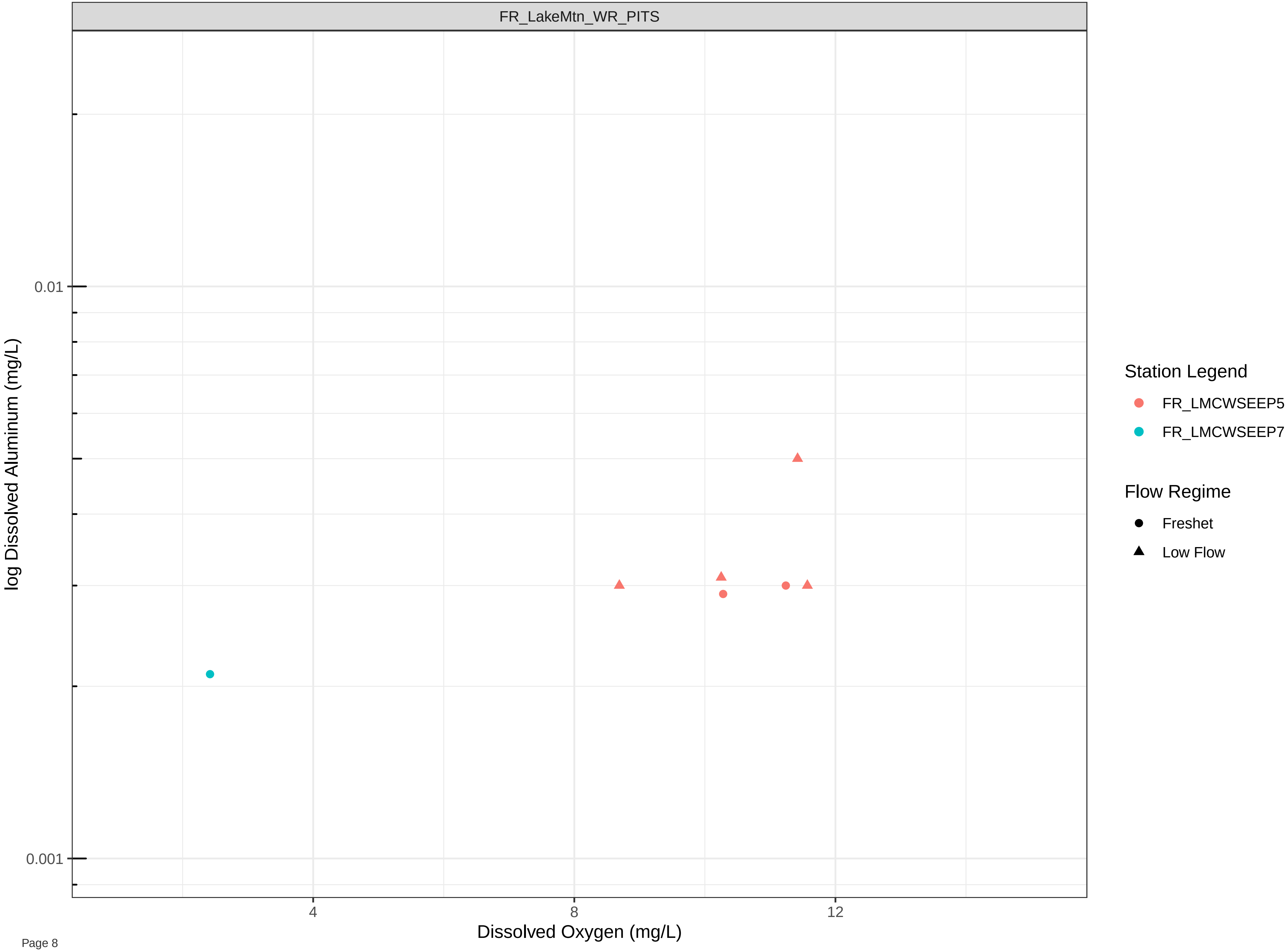

FR_ClodeCr_WR
log Dissolved Aluminum (mg/L)
0.01
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

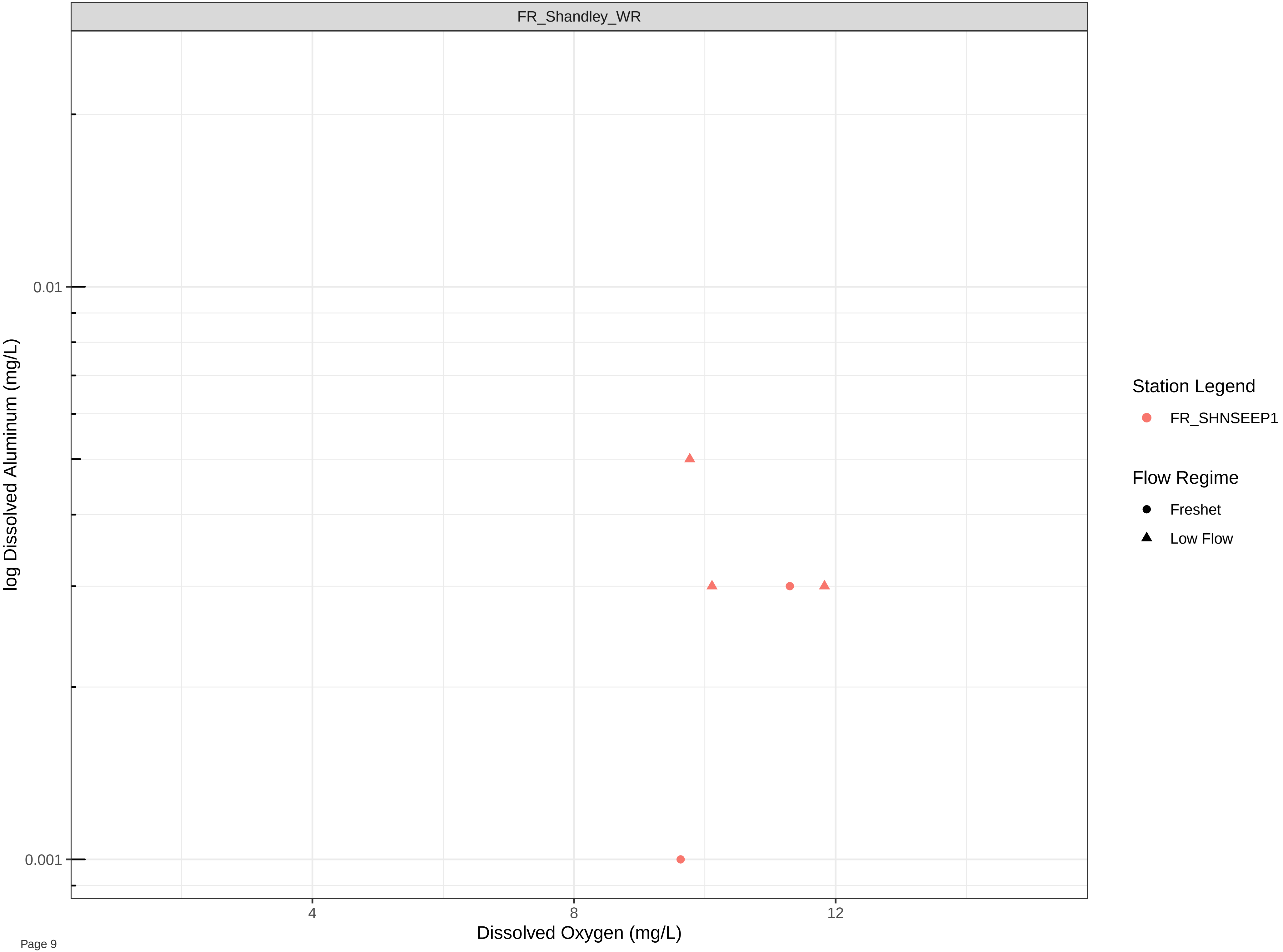

FR_DOKA_Unknown
log Dissolved Aluminum (mg/L)
0.01
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow

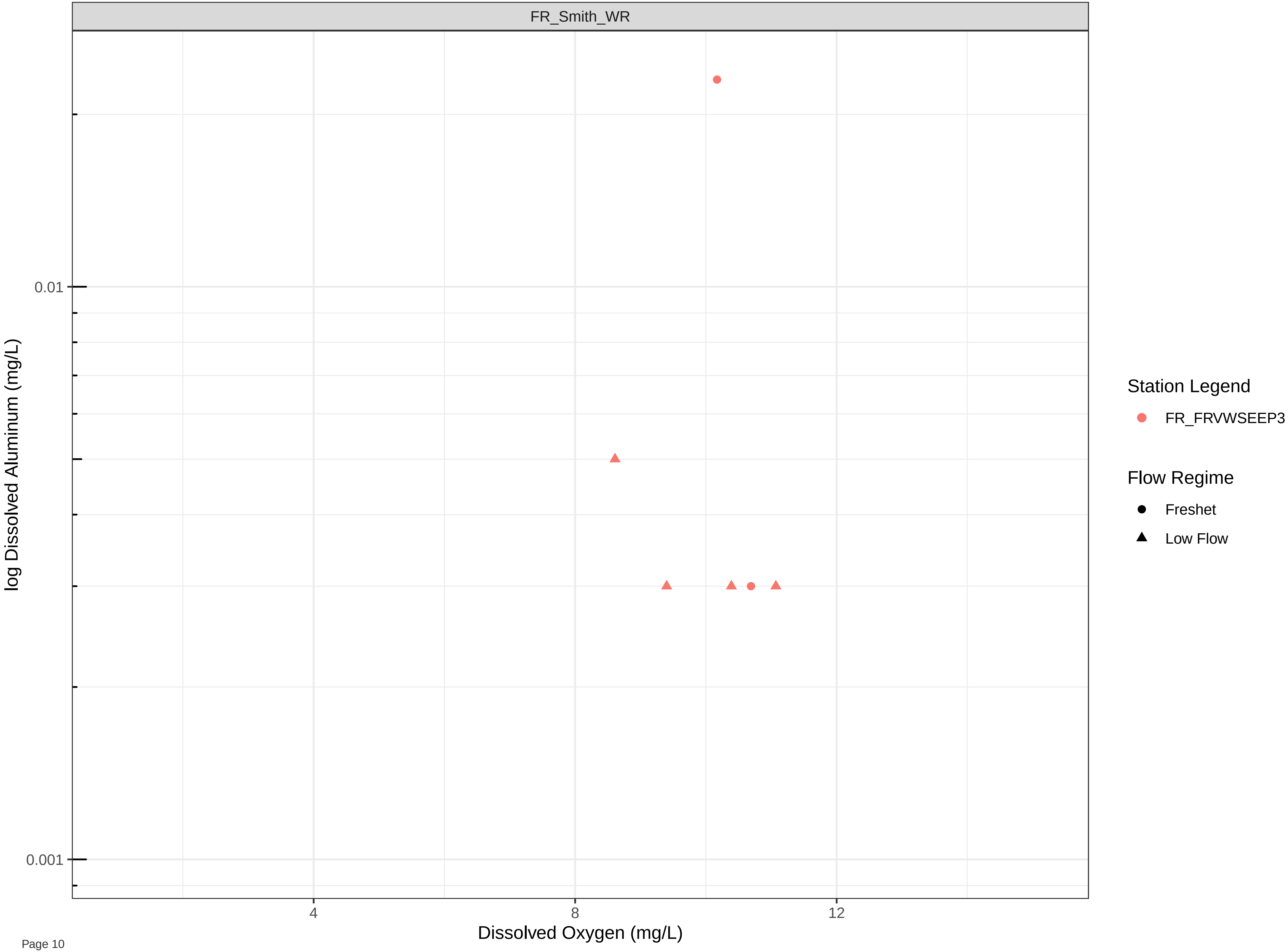

FR_Eagle_WR
0.01
0.001
log Dissolved Aluminum (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

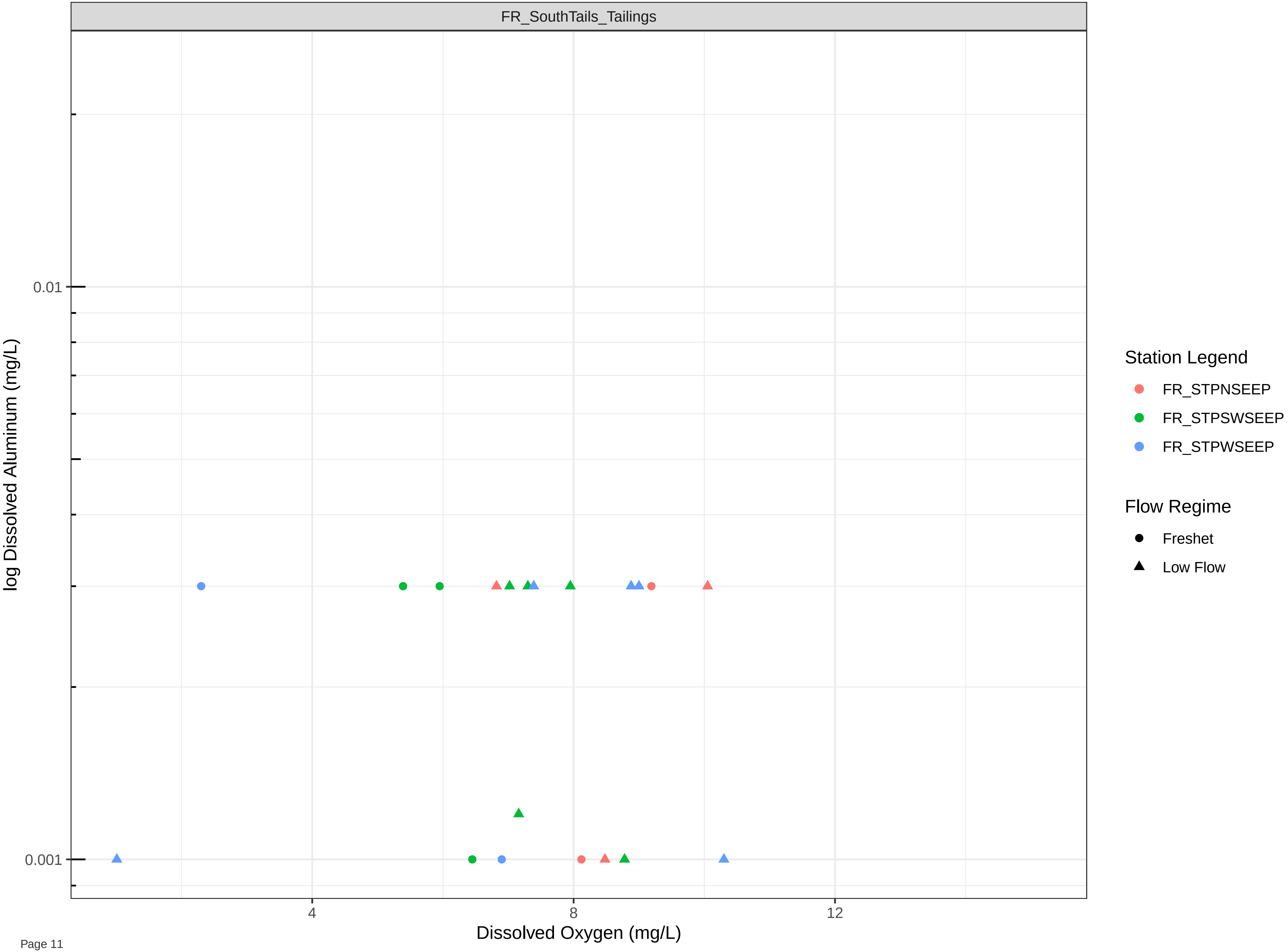

FR_Fseam_WR
log Dissolved Aluminum (mg/L)
0.01
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

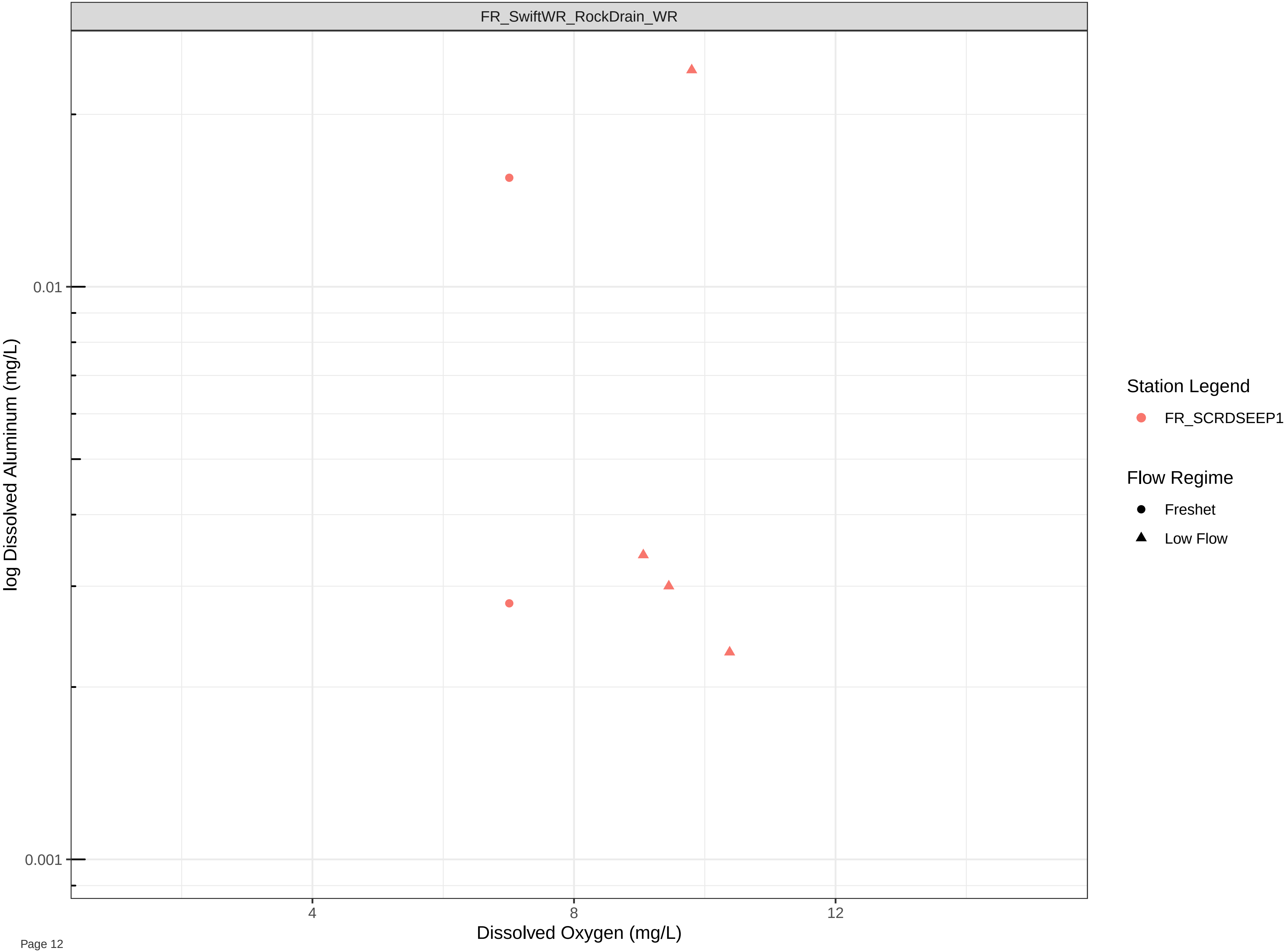

FR_HEN_WR
log Dissolved Aluminum (mg/L)
0.01
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

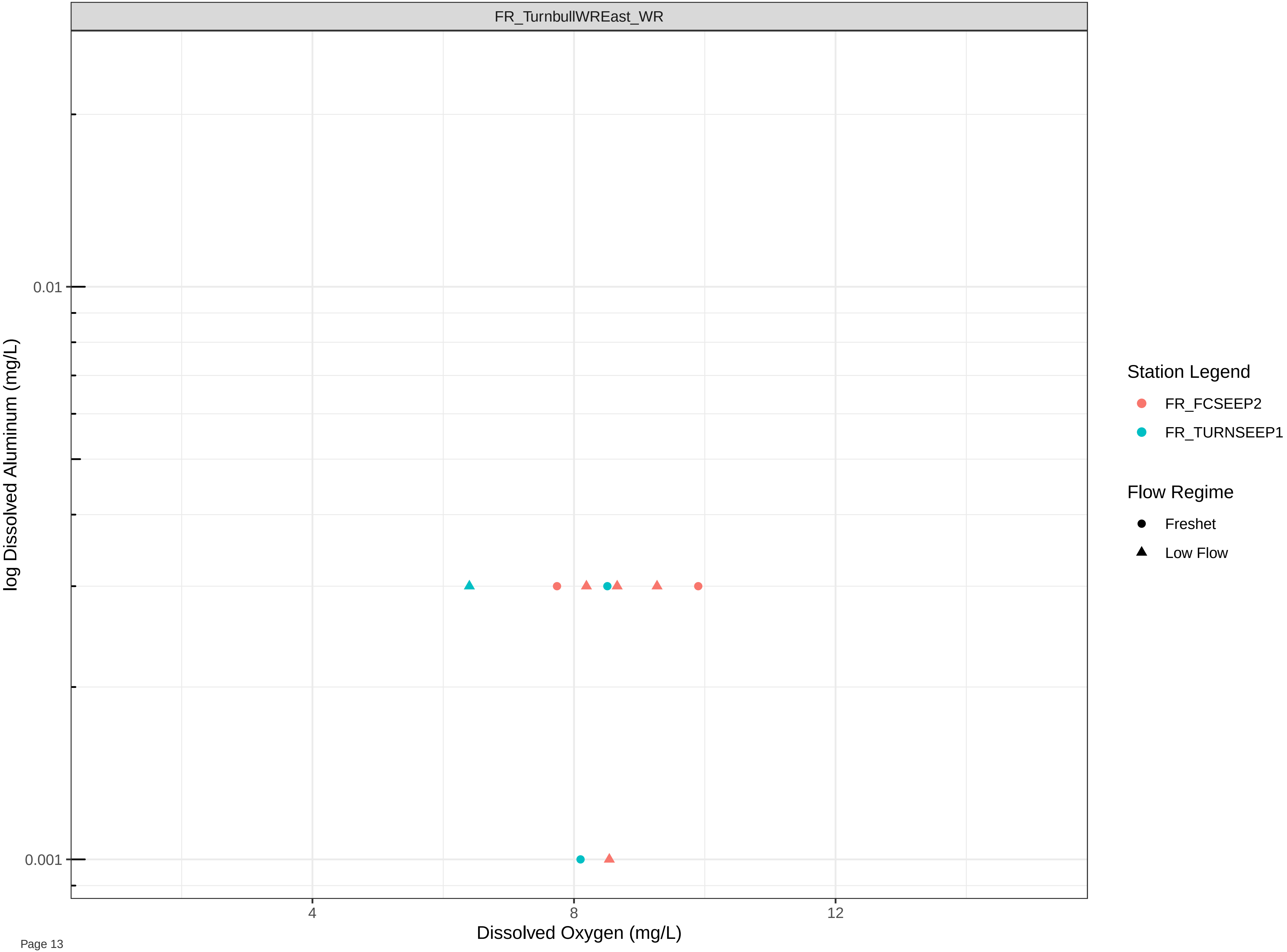

FR_LakeMtn_WR_PITS
log Dissolved Aluminum (mg/L)
0.01
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow

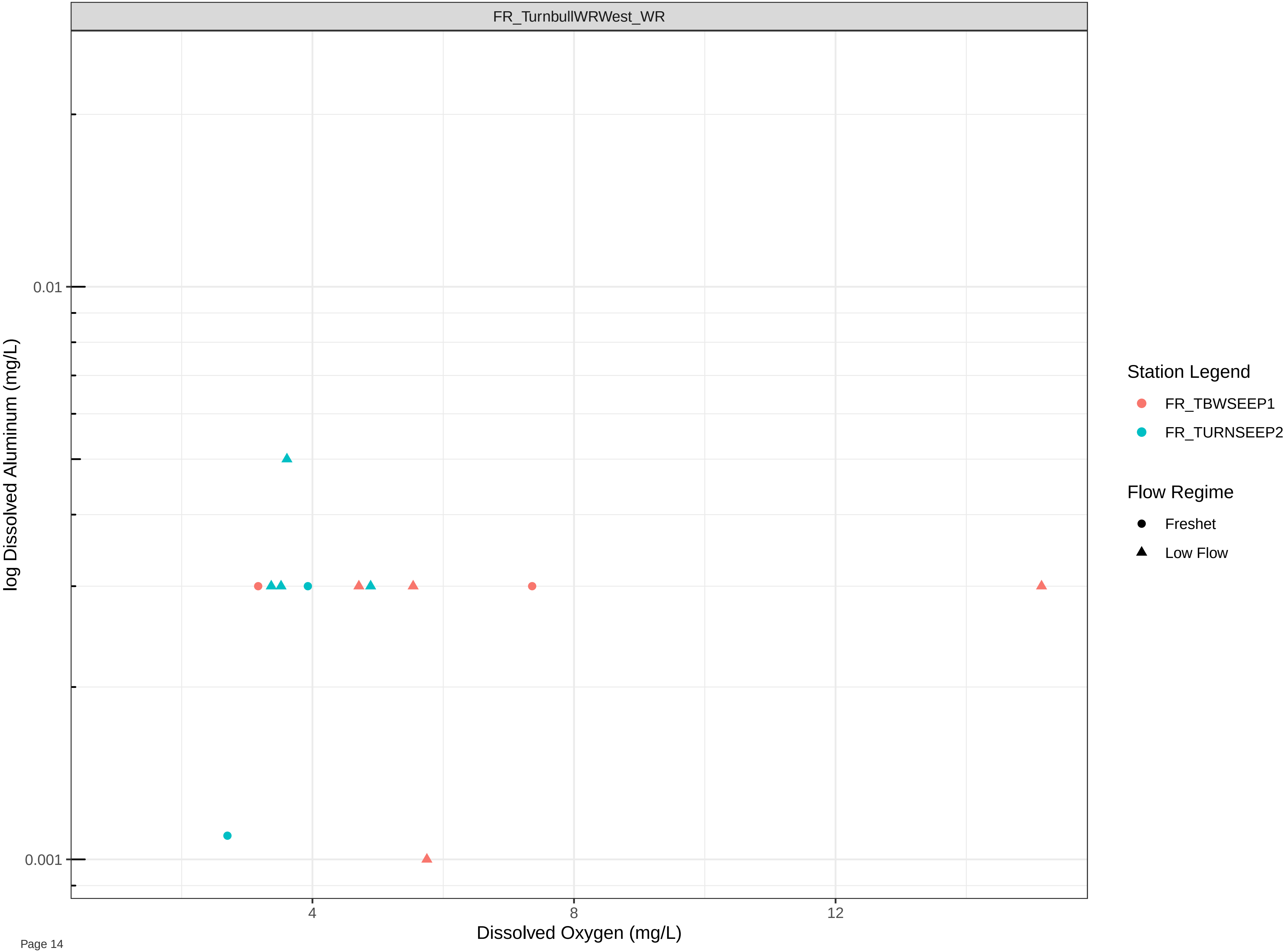

FR_Shandley_WR
log Dissolved Aluminum (mg/L)
0.01
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

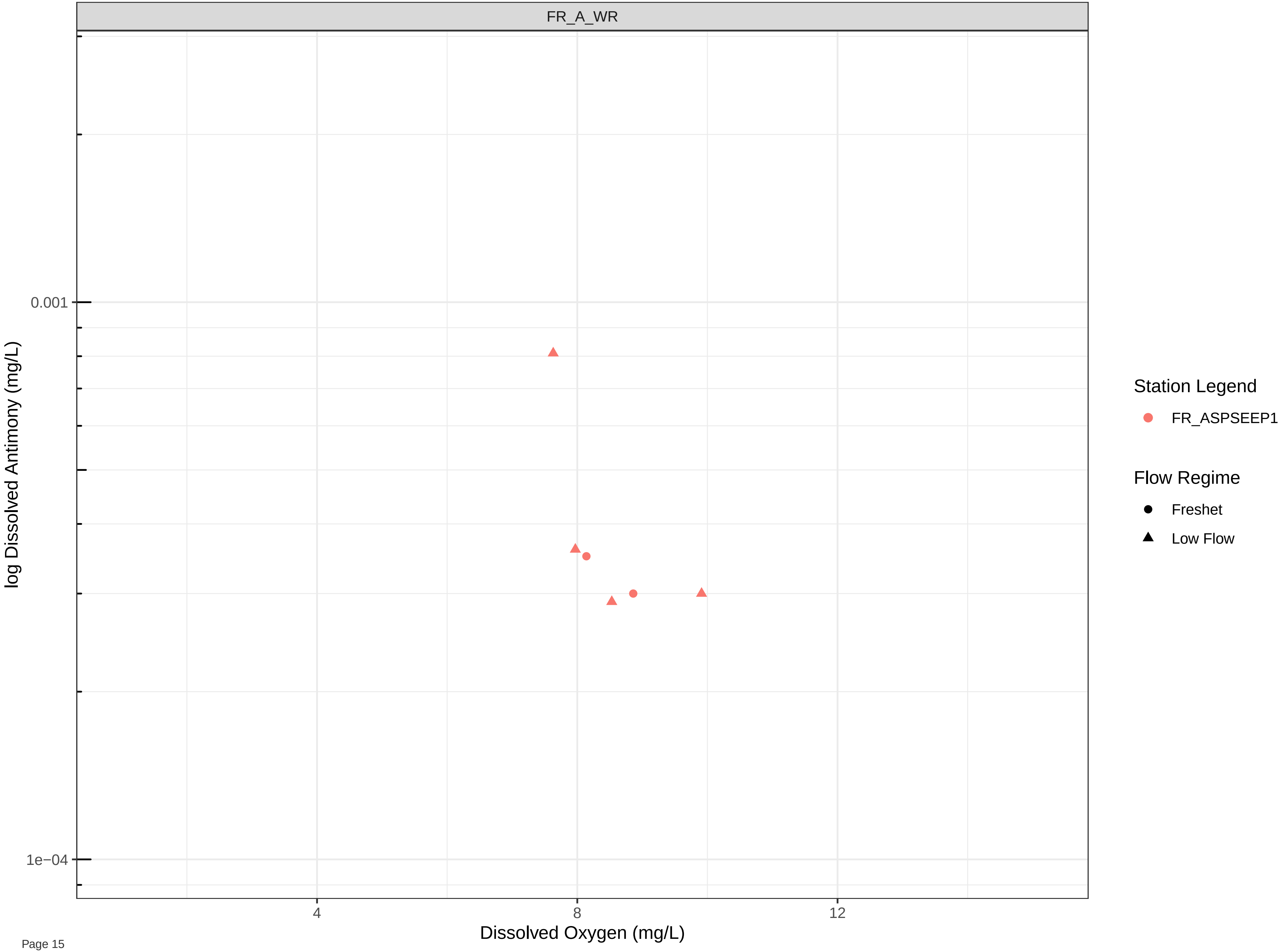

FR_Smith_WR
log Dissolved Aluminum (mg/L)
0.01
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

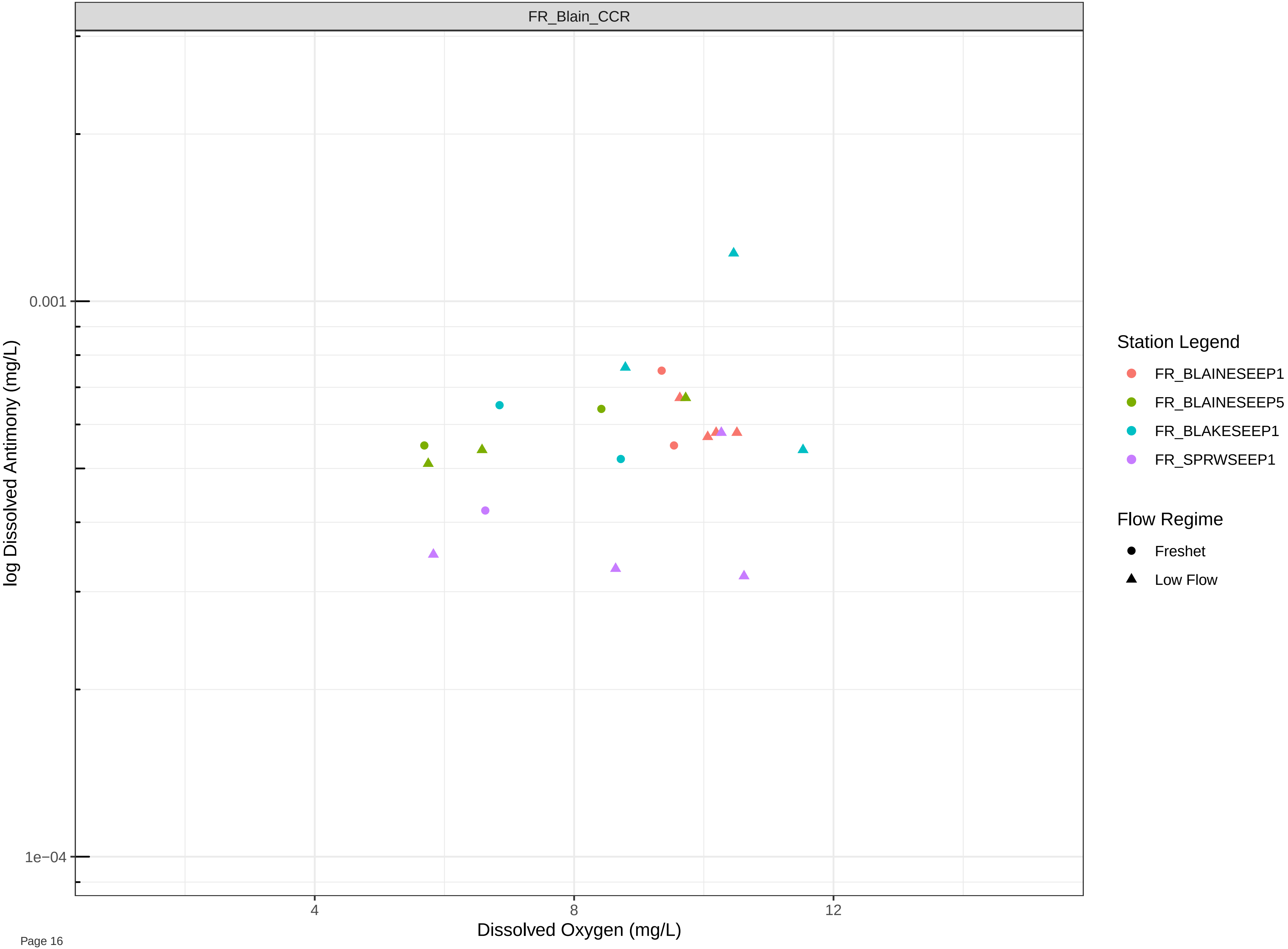

FR_SouthTails_Tailings
log Dissolved Aluminum (mg/L)
0.01
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_STPNSEEP
● FR_STPSWSEEP
● FR_STPWSEEP
Flow Regime
● Freshet
▲ Low Flow

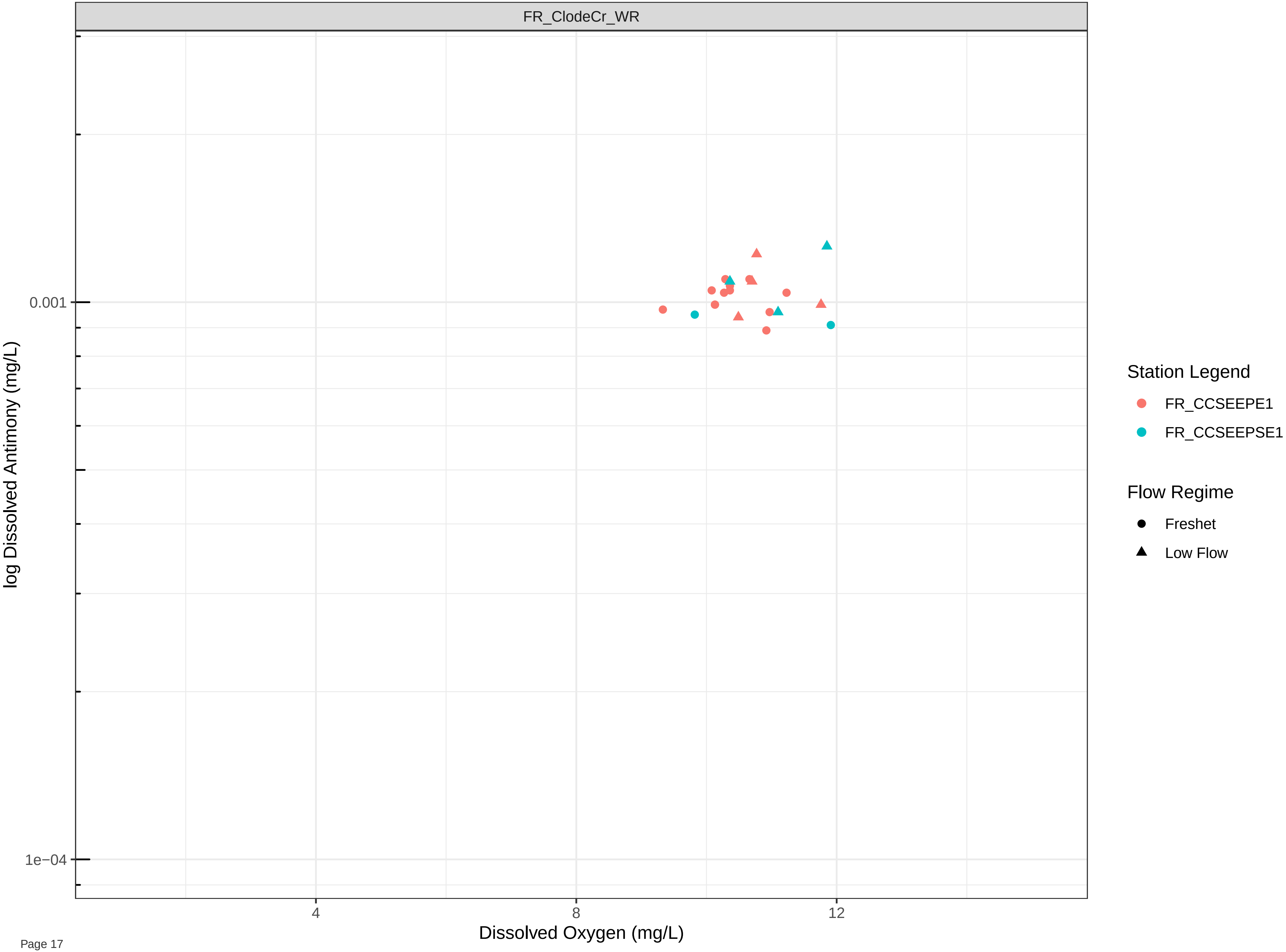

FR_SwiftWR_RockDrain_WR
log Dissolved Aluminum (mg/L)
0.01
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

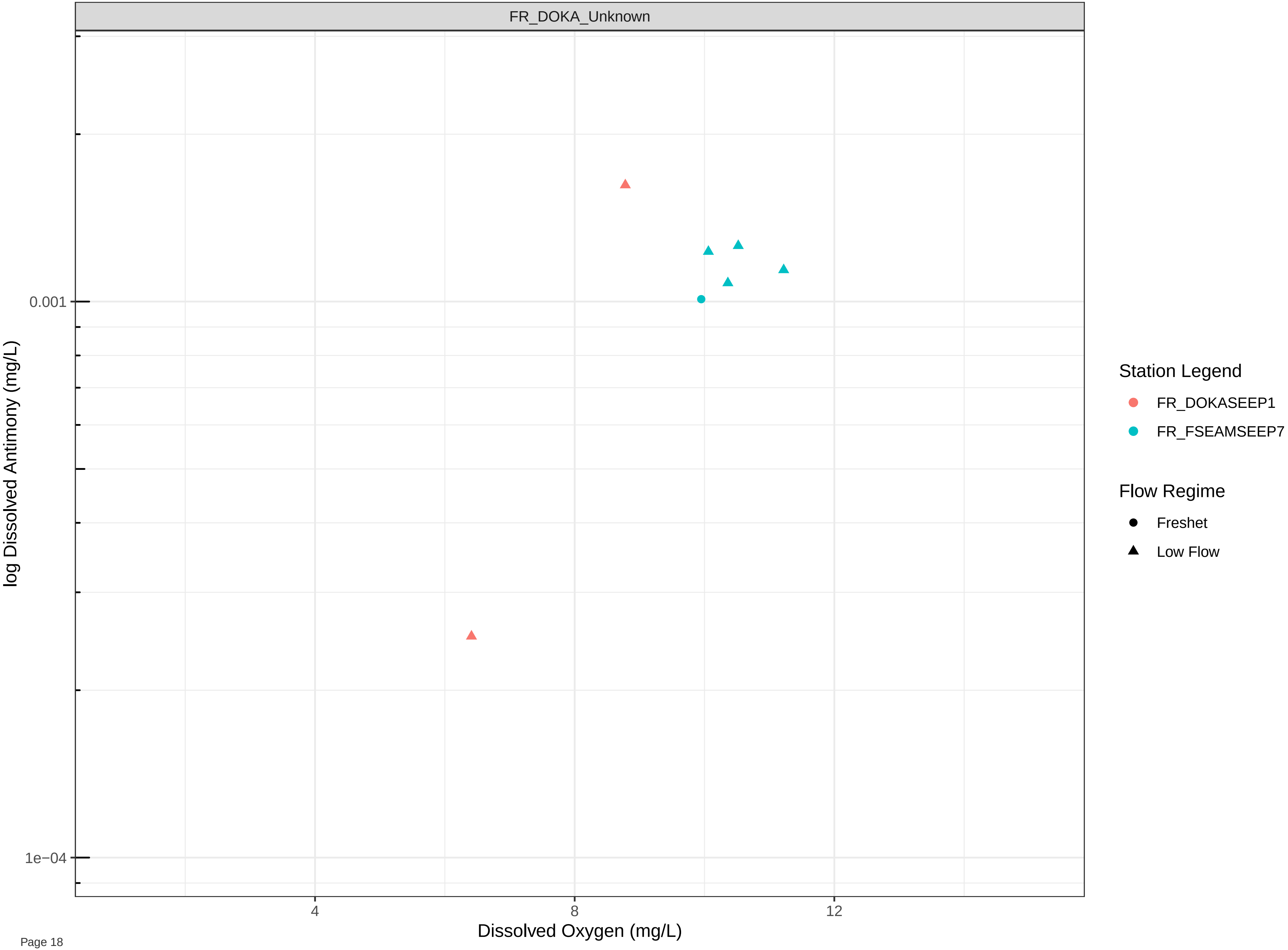

FR_TurnbullWREast_WR
log Dissolved Aluminum (mg/L)
0.01
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FCSEEP2
● FR_TURNSEEP1
Flow Regime
● Freshet
▲ Low Flow

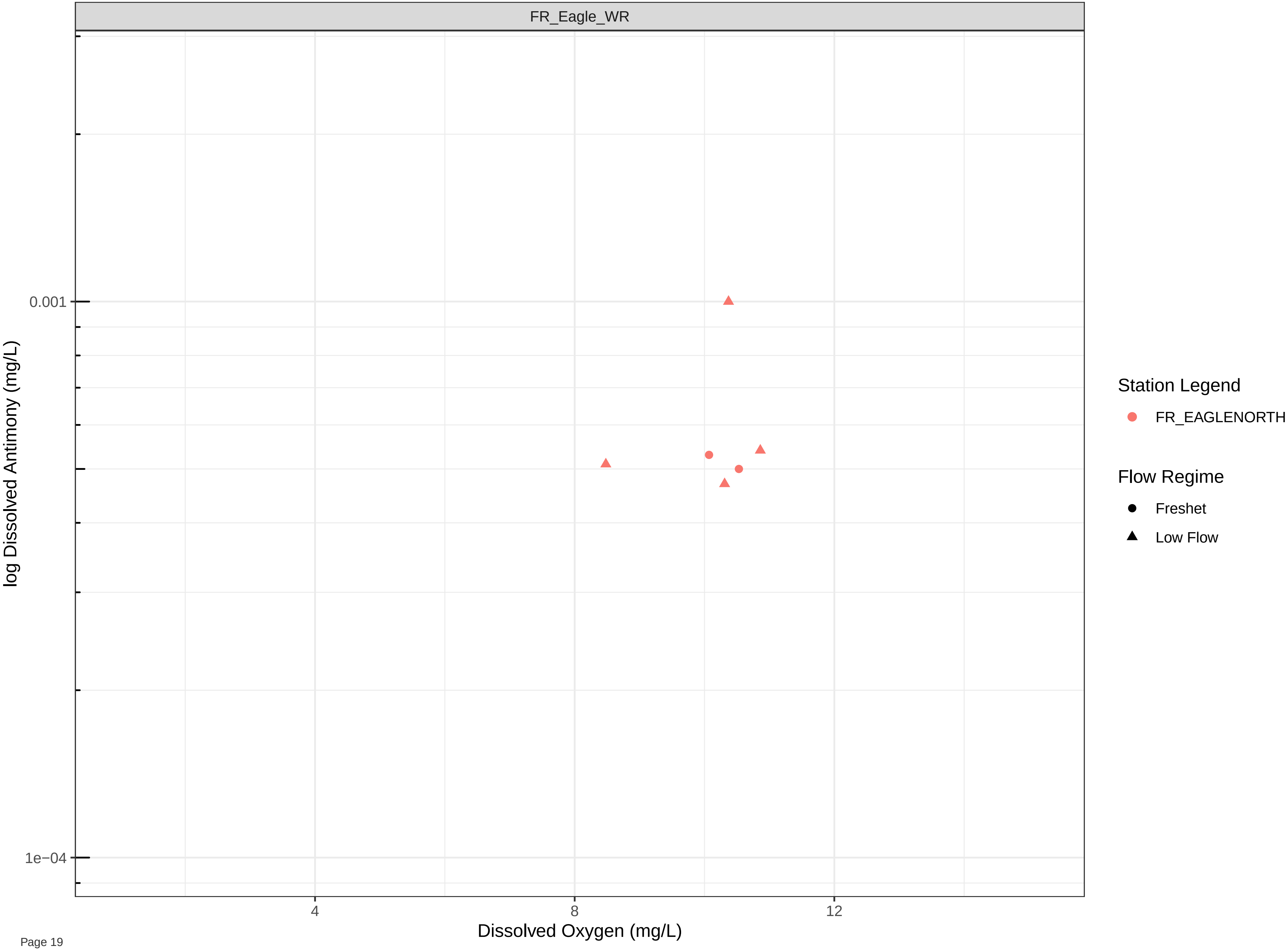

FR_TurnbullWRWest_WR
log Dissolved Aluminum (mg/L)
0.01
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

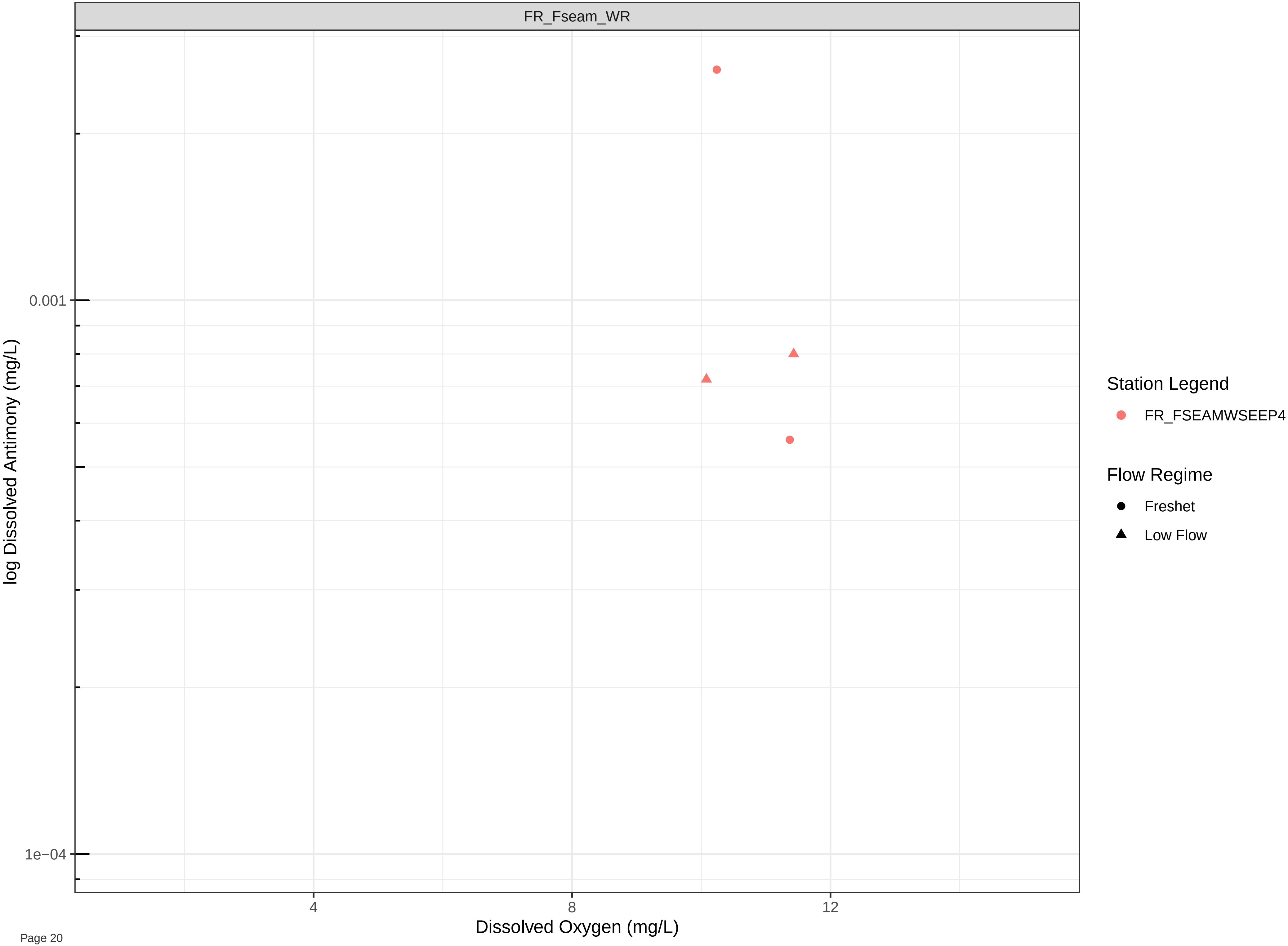

FR_A_WR
0.001
1e−04
log Dissolved Antimony (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

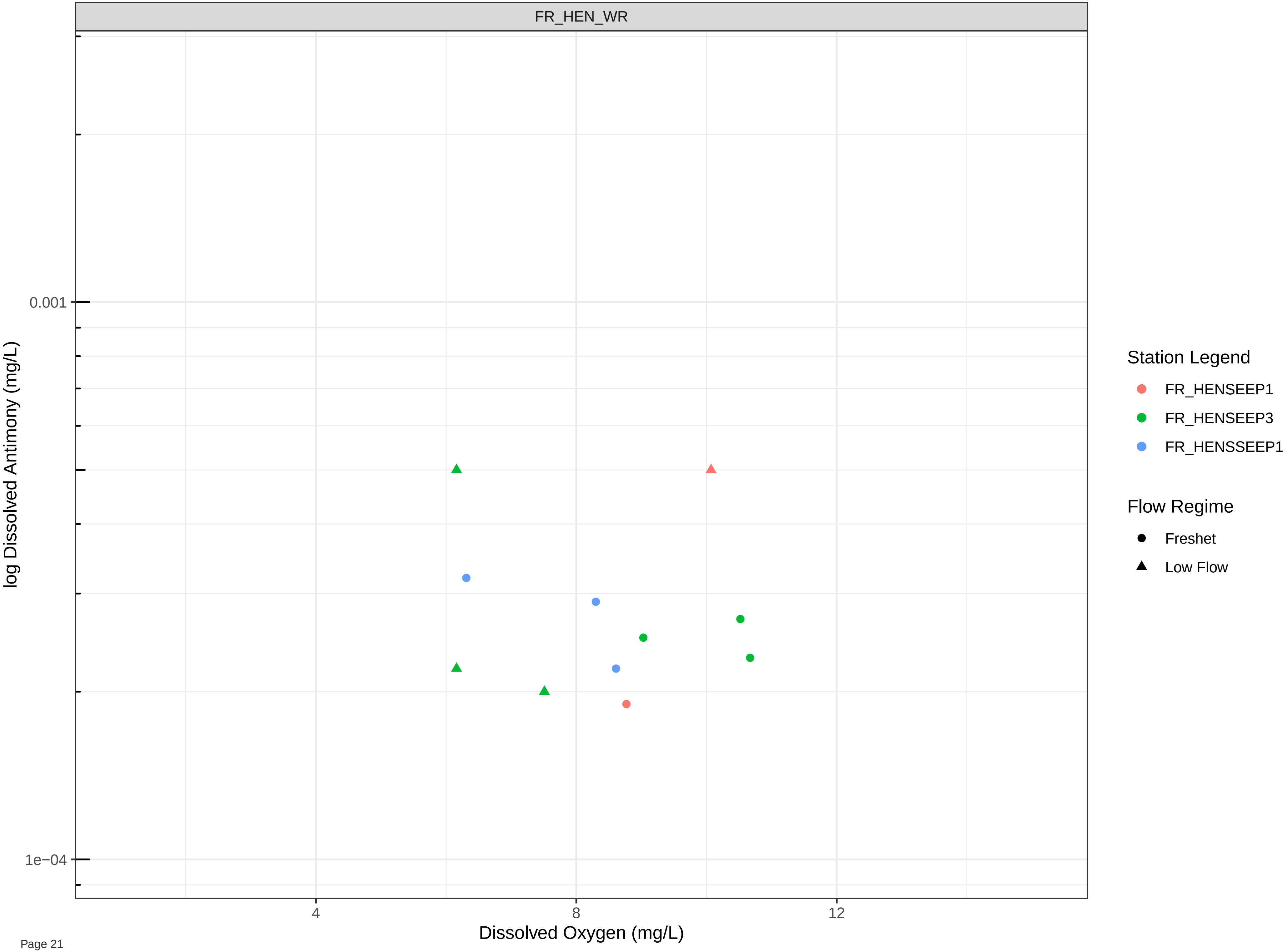

FR_Blain_CCR
log Dissolved Antimony (mg/L)
0.001
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow


FR_ClodeCr_WR
log Dissolved Antimony (mg/L)
0.001
1e−04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

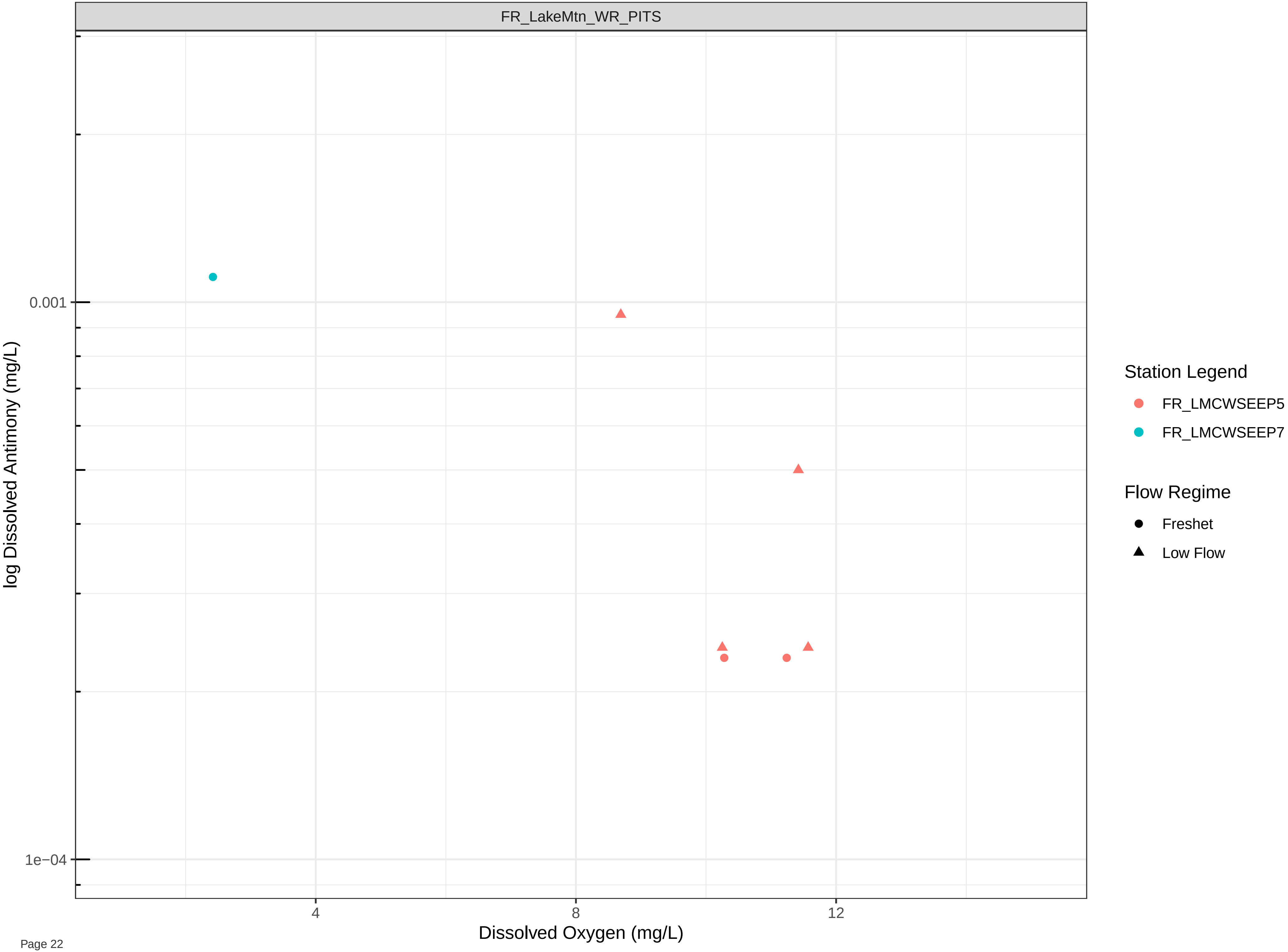

FR_DOKA_Unknown
log Dissolved Antimony (mg/L)
0.001
1e−04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow

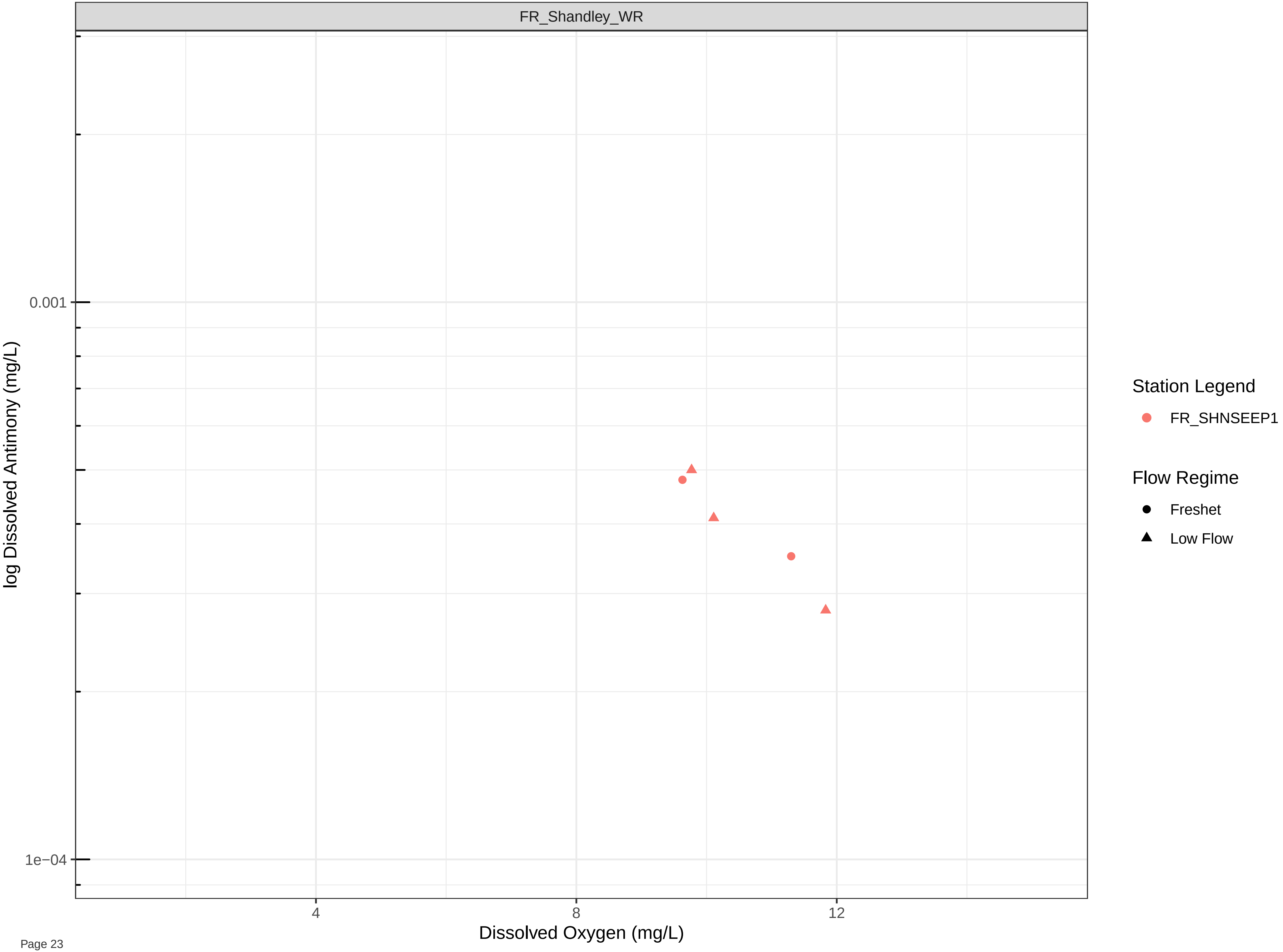

FR_Eagle_WR
log Dissolved Antimony (mg/L)
0.001
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

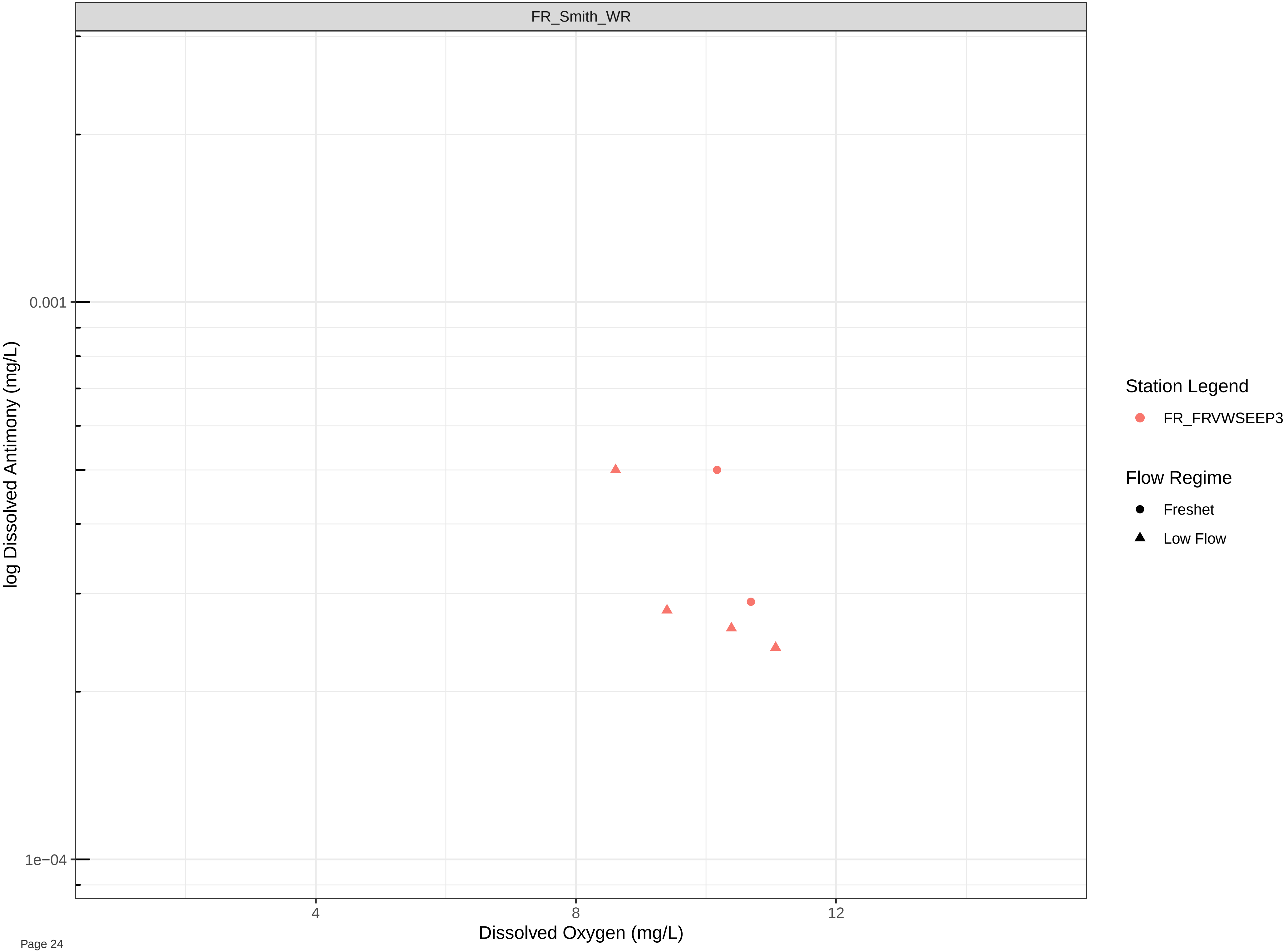

FR_Fseam_WR
0.001
1e−04
log Dissolved Antimony (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

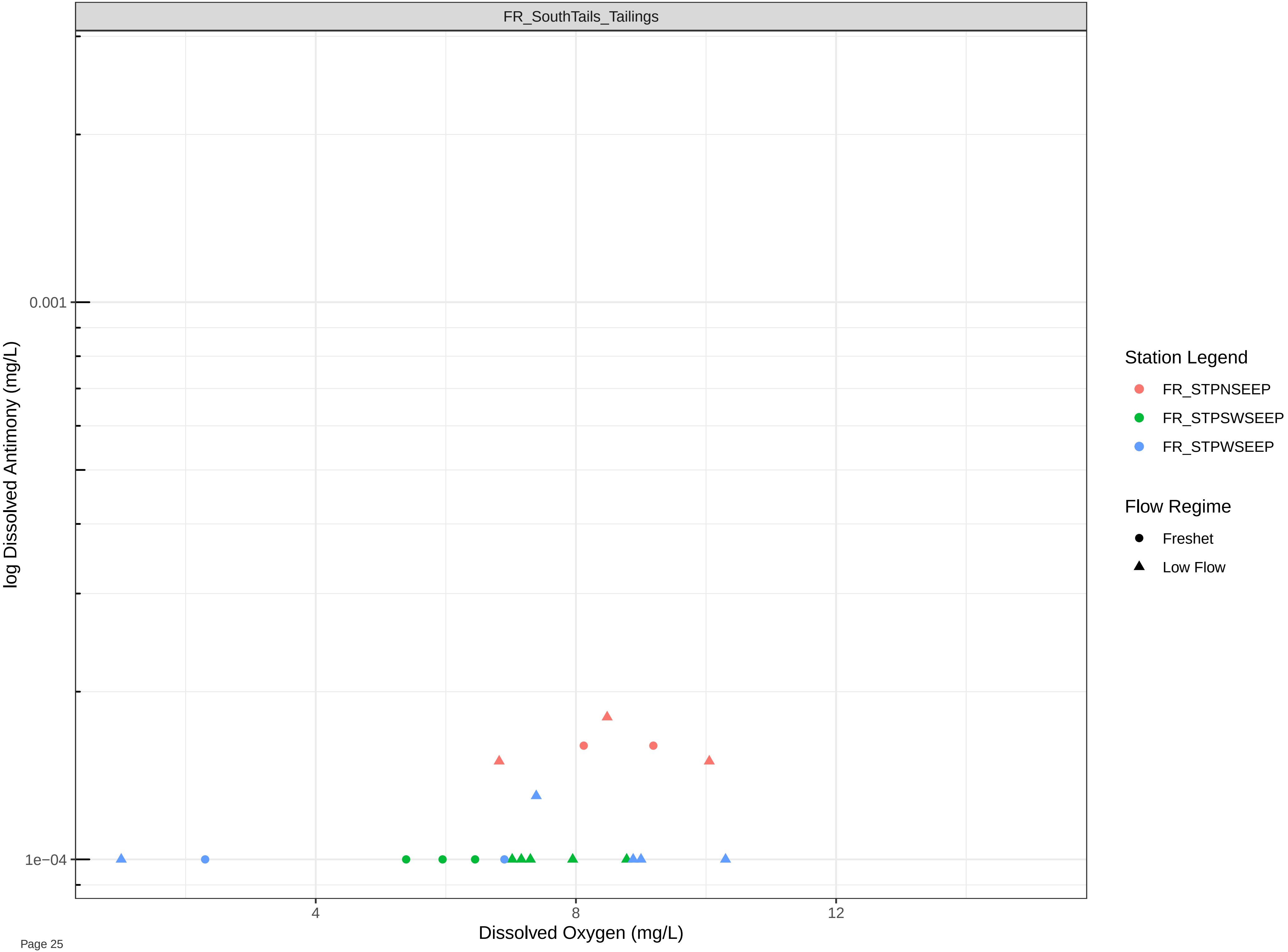


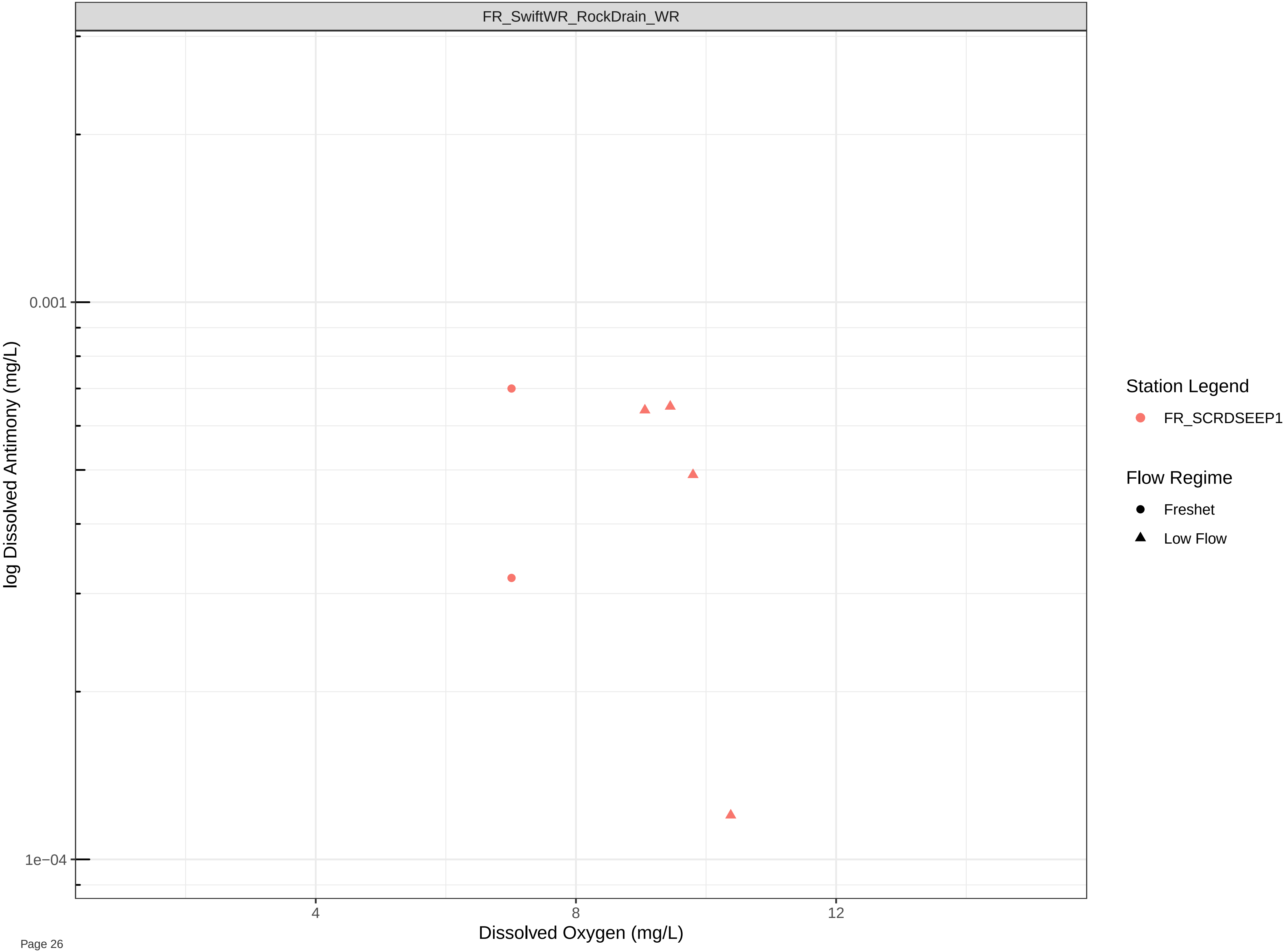
FR_HEN_WR
0.001
1e−04
log Dissolved Antimony (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

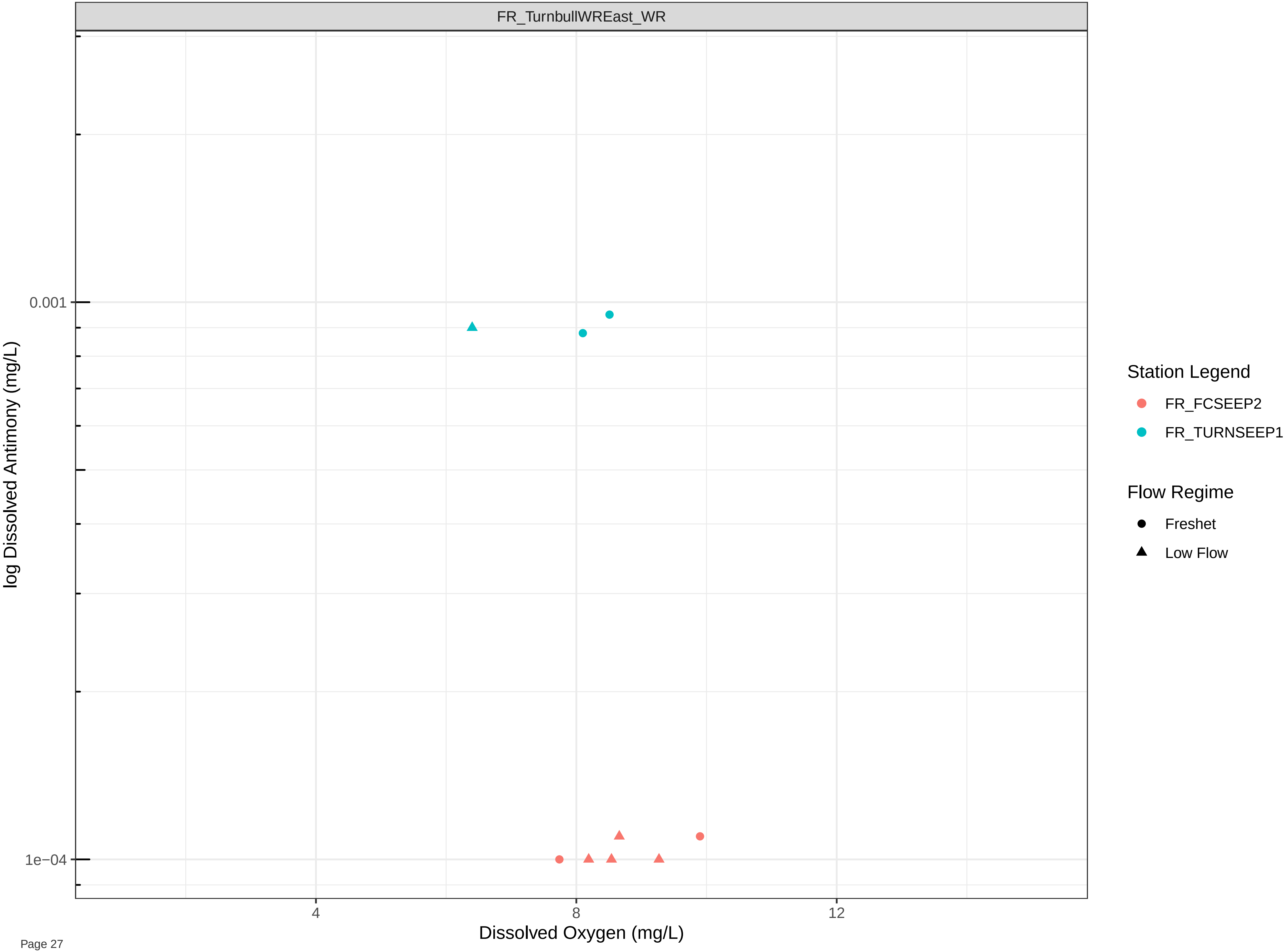

FR_LakeMtn_WR_PITS
log Dissolved Antimony (mg/L)
0.001
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow

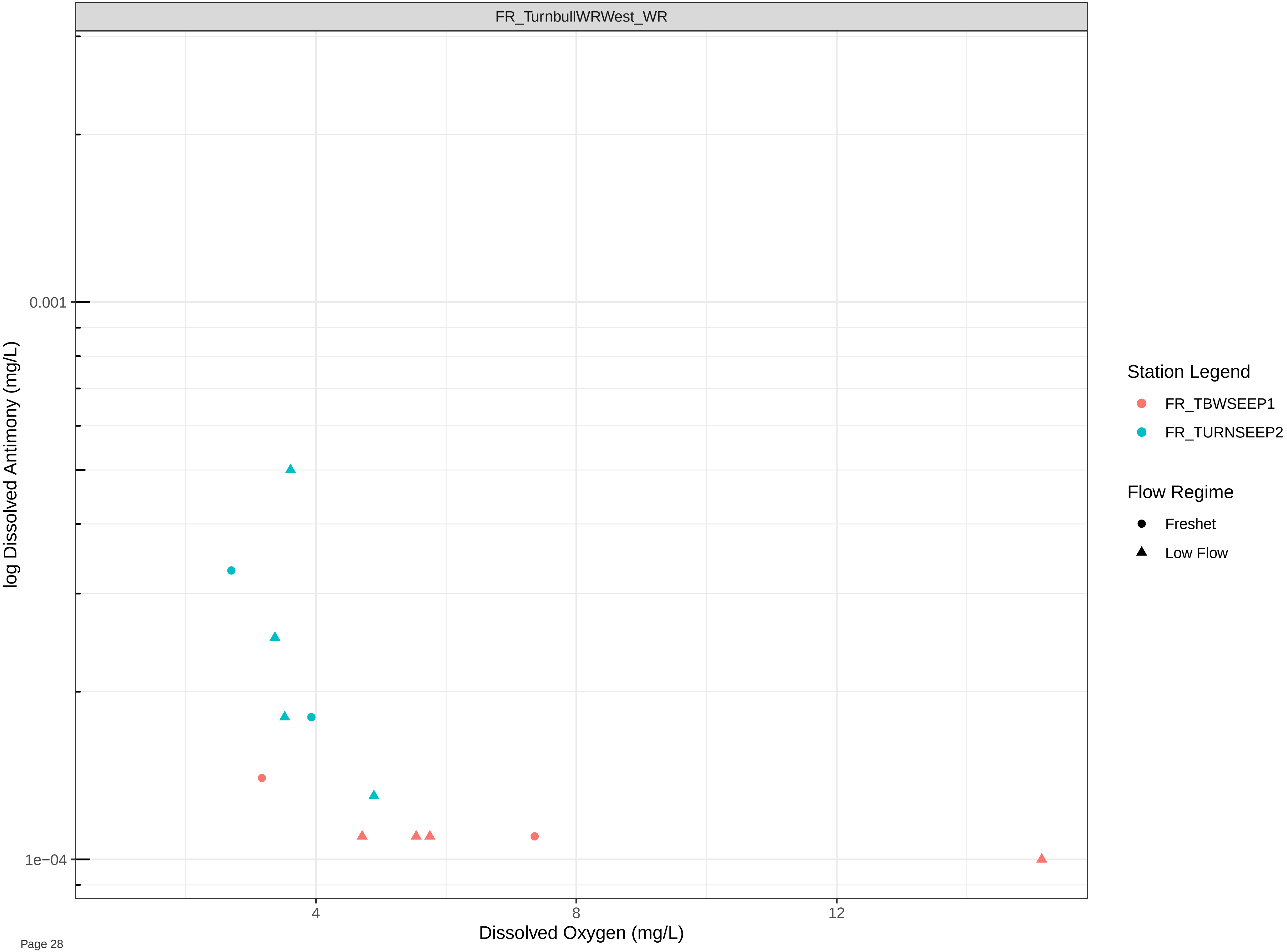

FR_Shandley_WR
log Dissolved Antimony (mg/L)
0.001
1e−04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

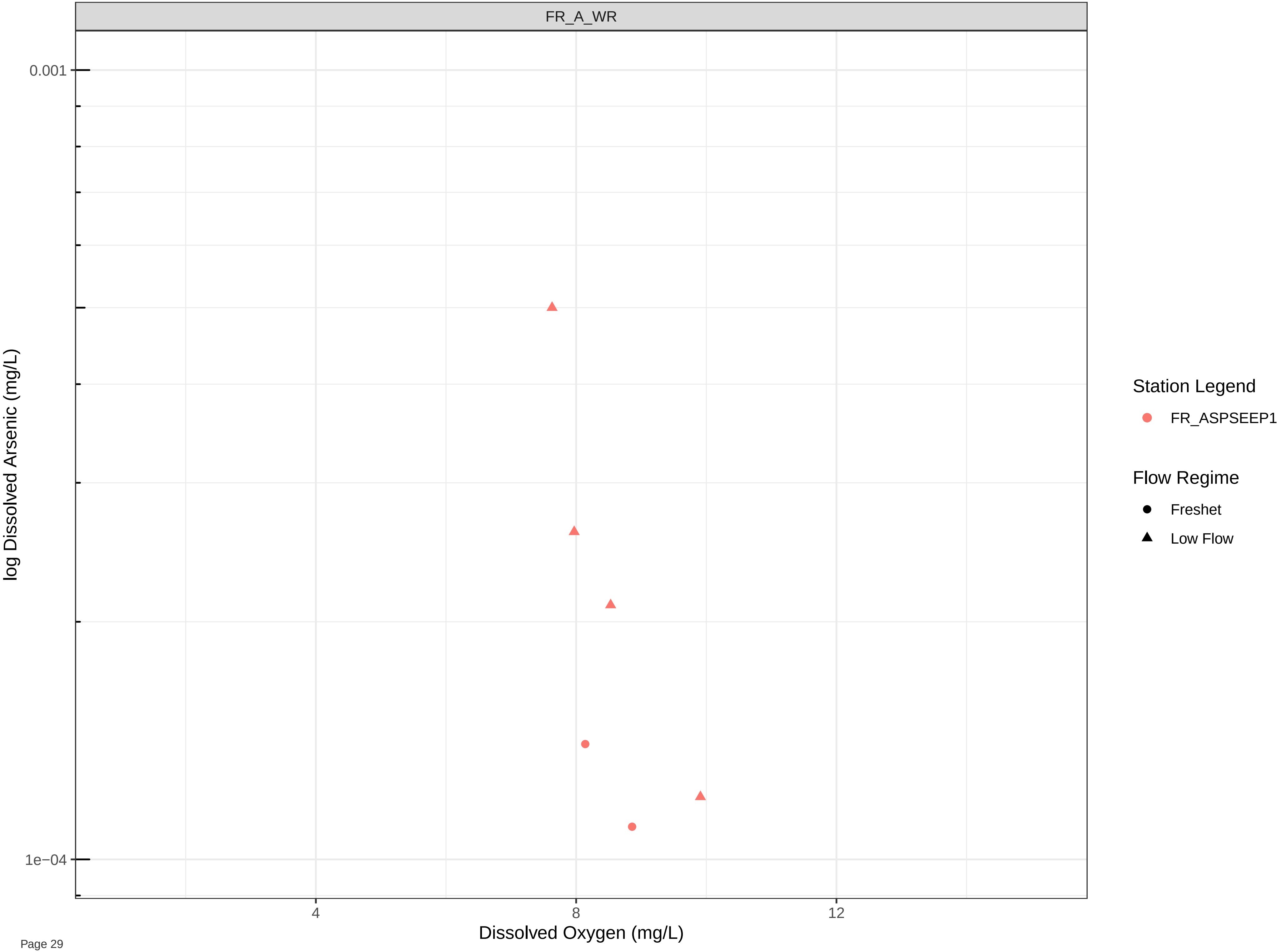

FR_Smith_WR
0.001
1e−04
log Dissolved Antimony (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow


FR_SouthTails_Tailings
log Dissolved Antimony (mg/L)
0.001
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_STPNSEEP
● FR_STPSWSEEP
● FR_STPWSEEP
Flow Regime
● Freshet
▲ Low Flow


FR_SwiftWR_RockDrain_WR
0.001
1e−04
log Dissolved Antimony (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWREast_WR
0.001
1e−04
log Dissolved Antimony (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWRWest_WR
log Dissolved Antimony (mg/L)
0.001
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_TBWSEEP1
● FR_TURNSEEP2
Flow Regime
● Freshet
▲ Low Flow


FR_A_WR
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1e−04
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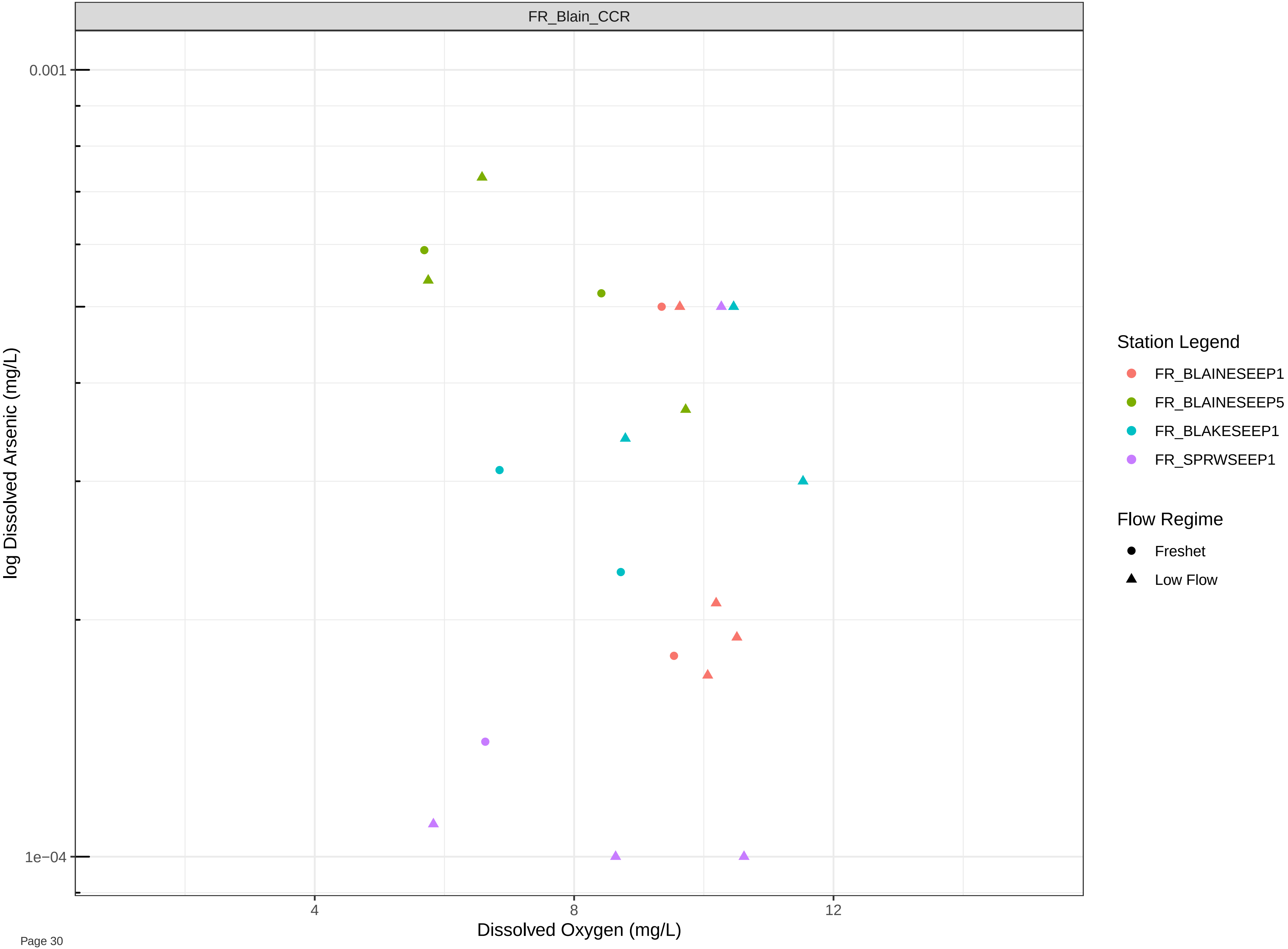
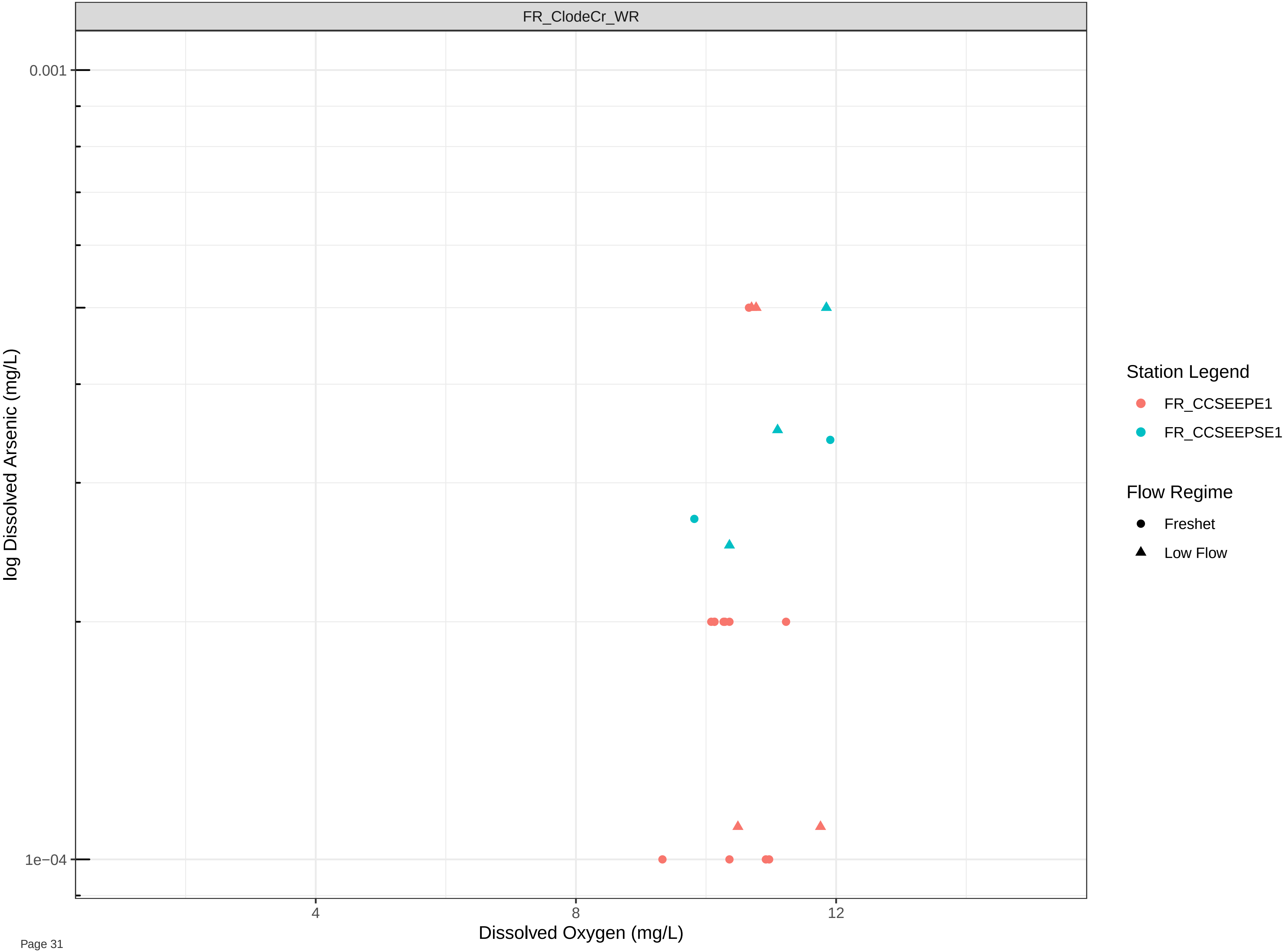
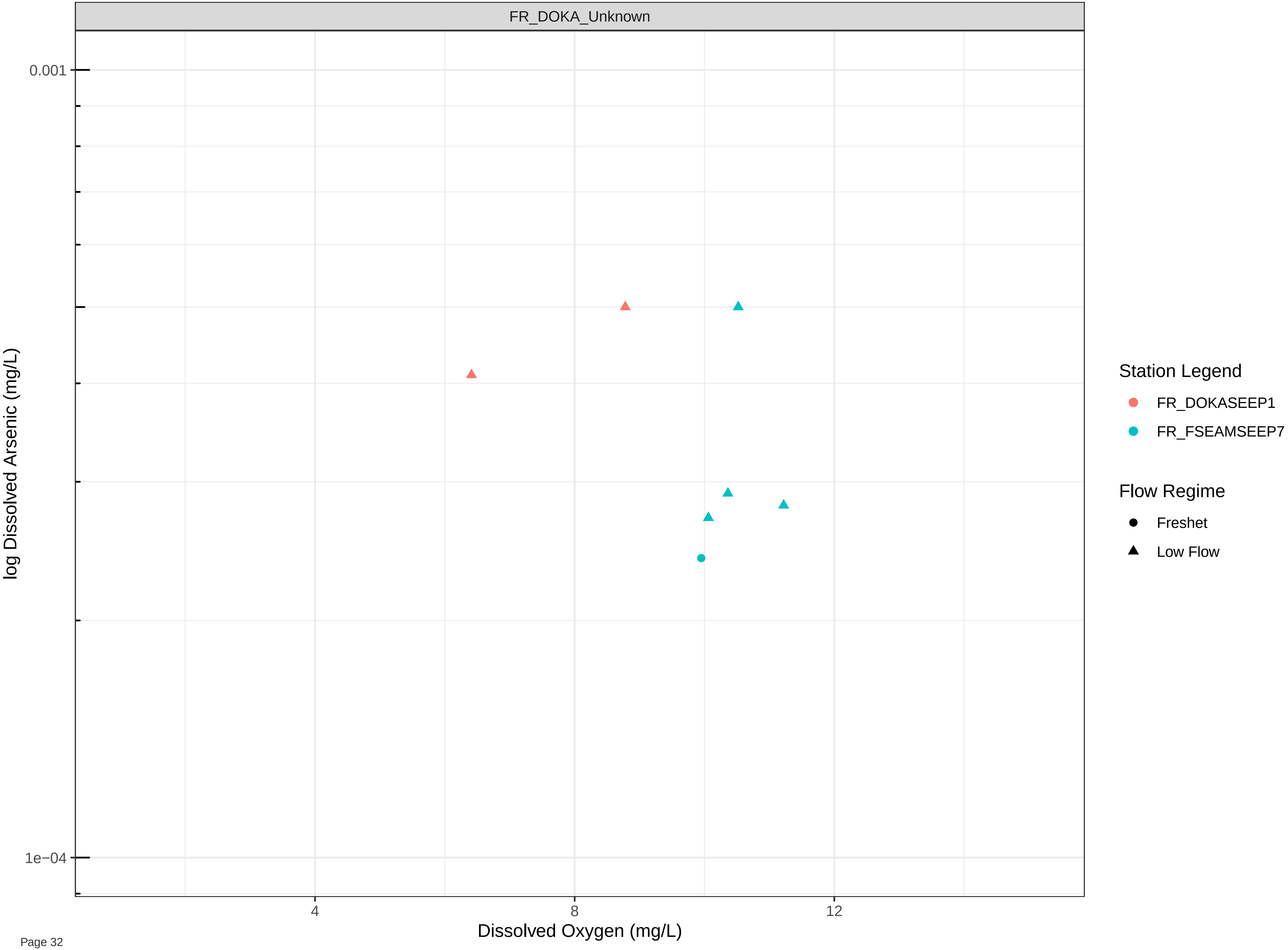
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow


FR_Blain_CCR
0.001
1e−04
log Dissolved Arsenic (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow


FR_ClodeCr_WR
0.001
1e−04
log Dissolved Arsenic (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow


FR_DOKA_Unknown
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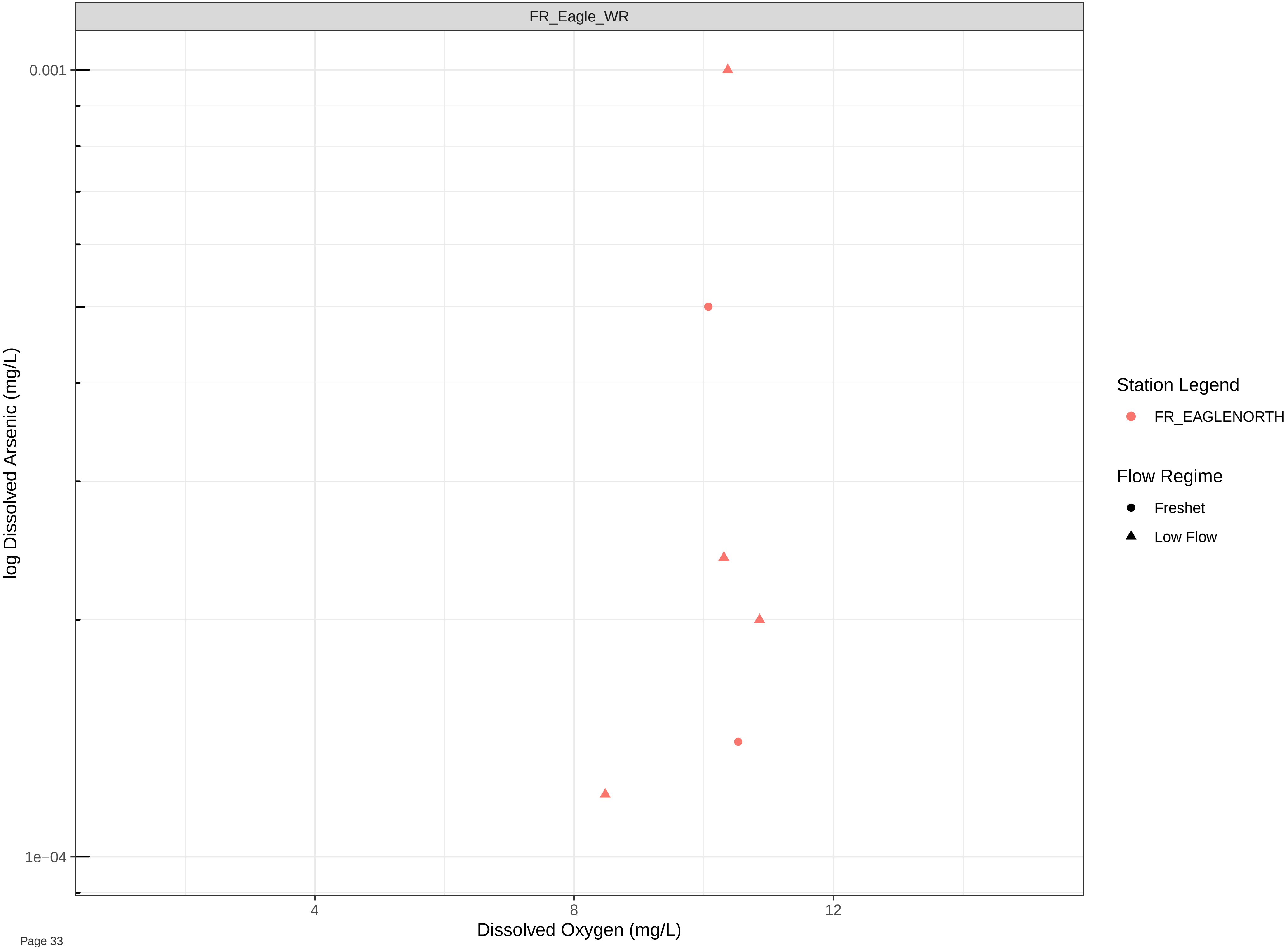
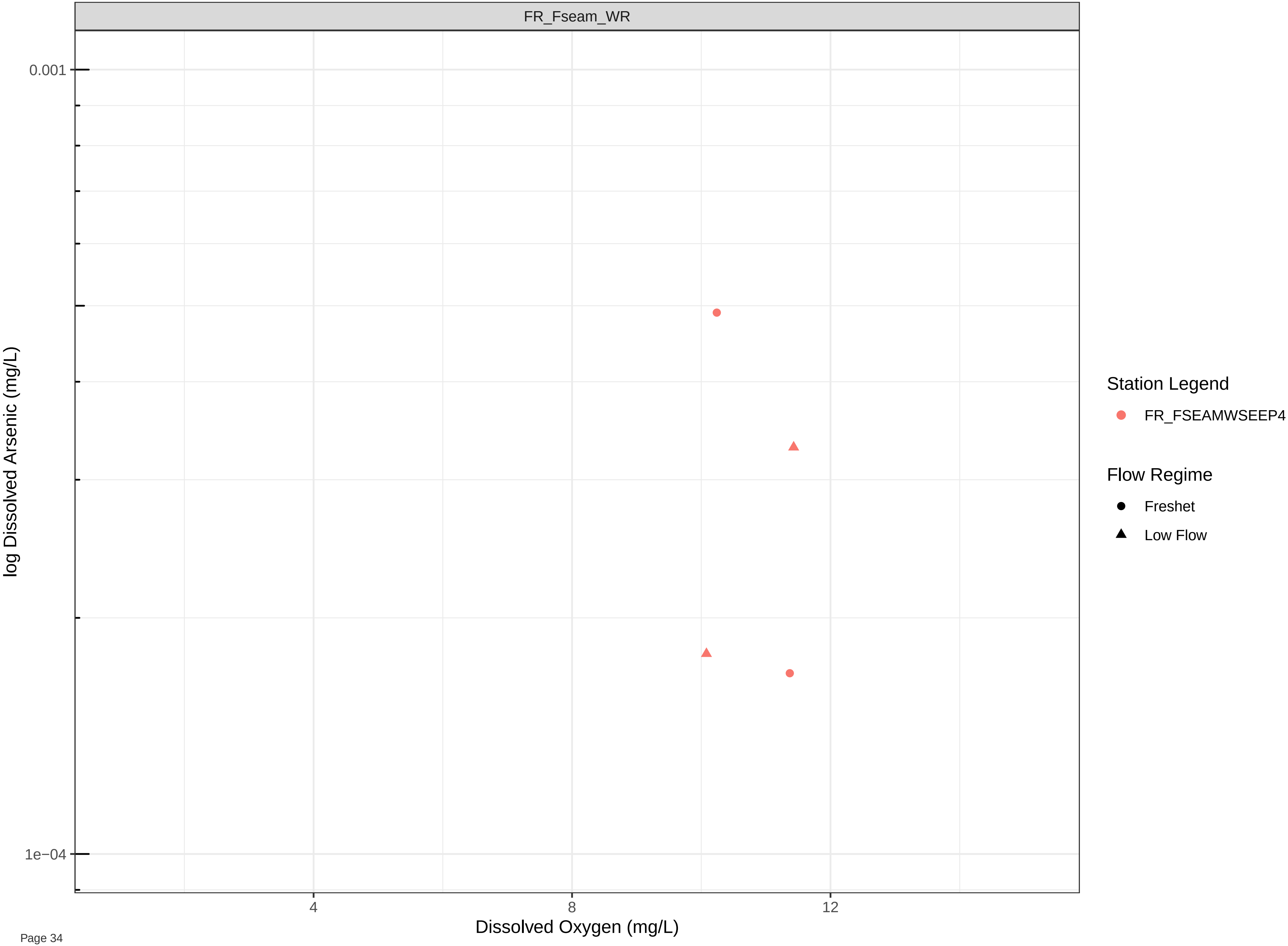
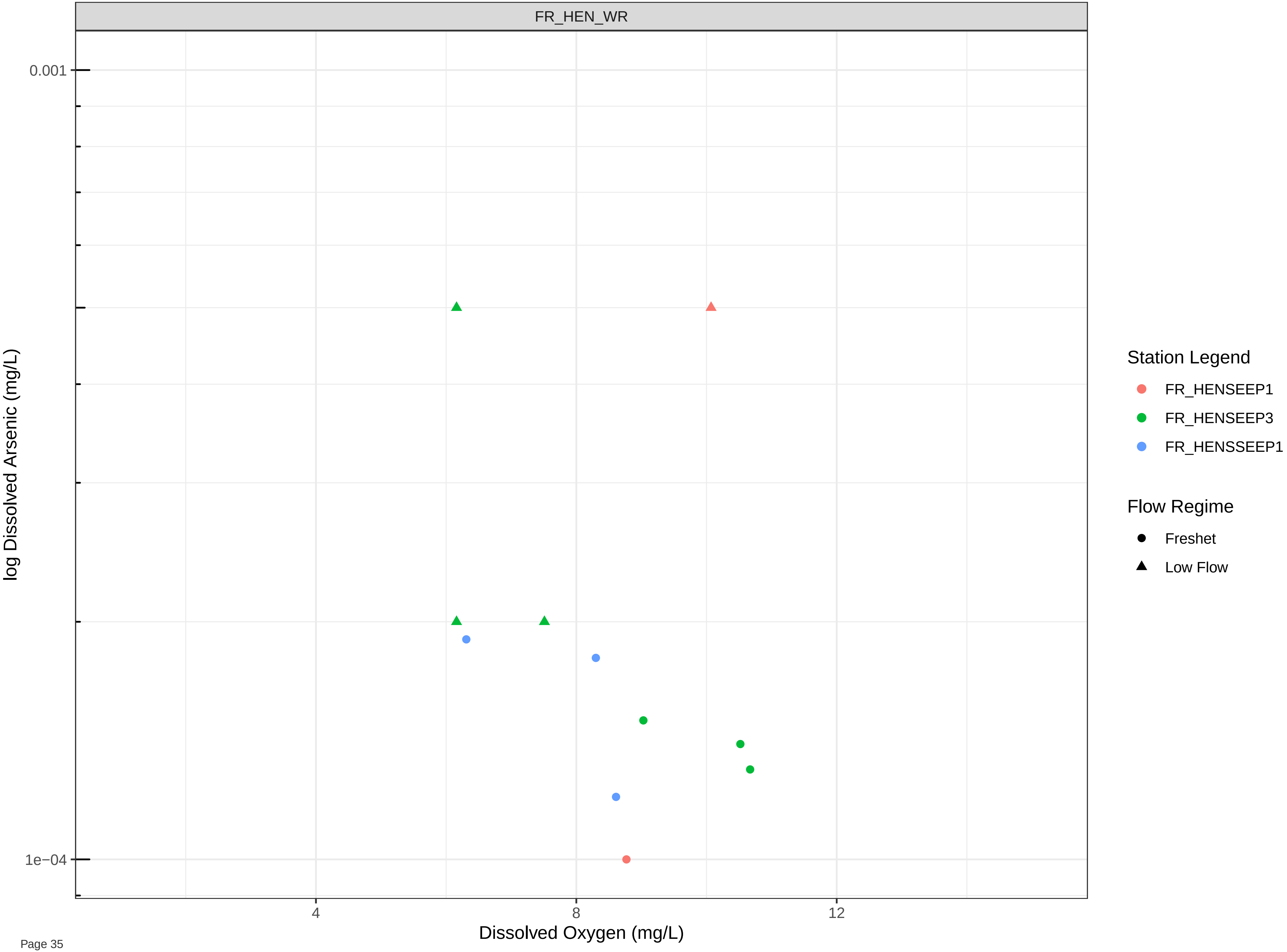
1e−04
log Dissolved Arsenic (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow


FR_Eagle_WR
0.001
1e−04
log Dissolved Arsenic (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow


FR_Fseam_WR
0.001
1e−04
log Dissolved Arsenic (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow


FR_HEN_WR
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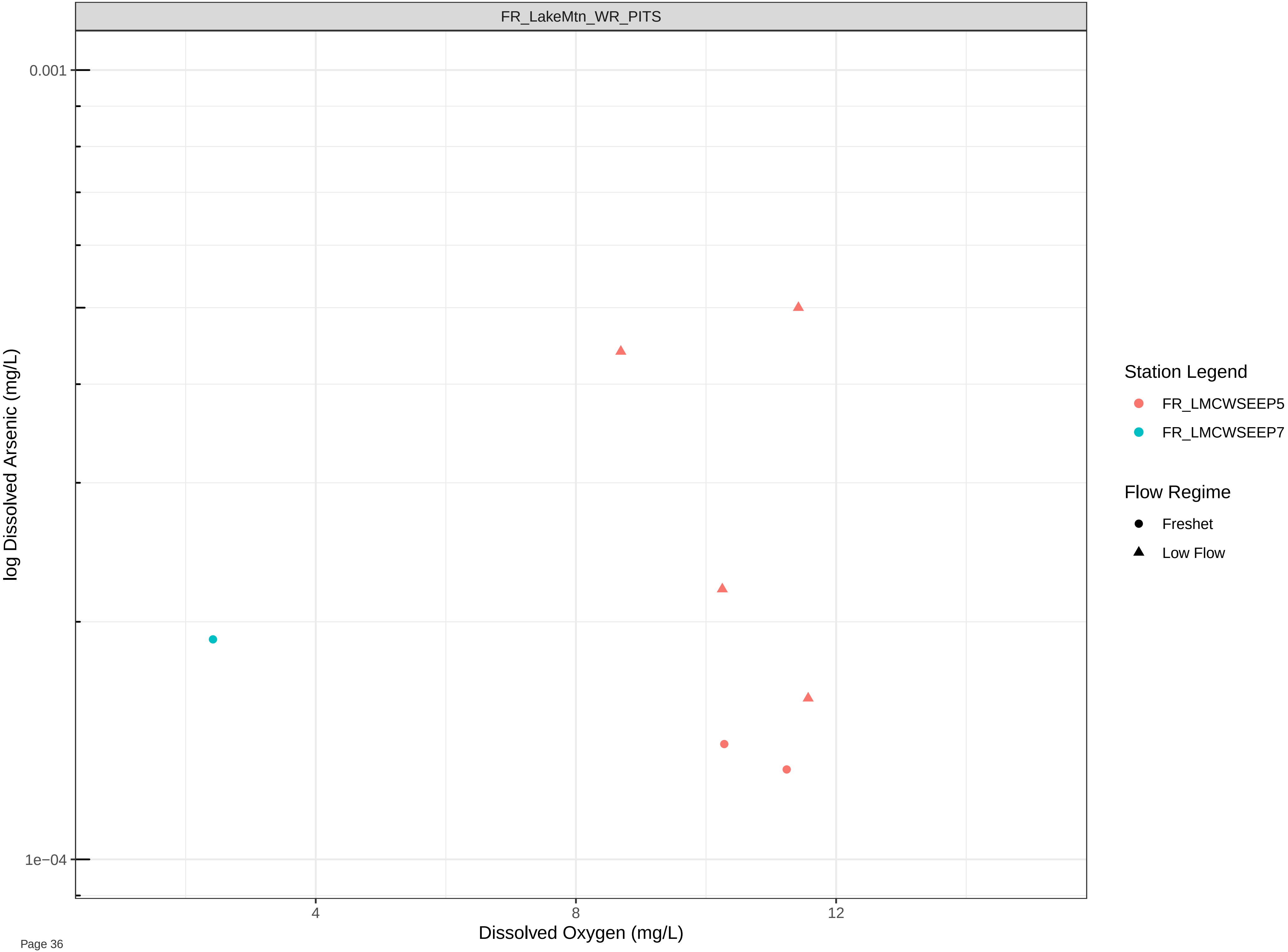
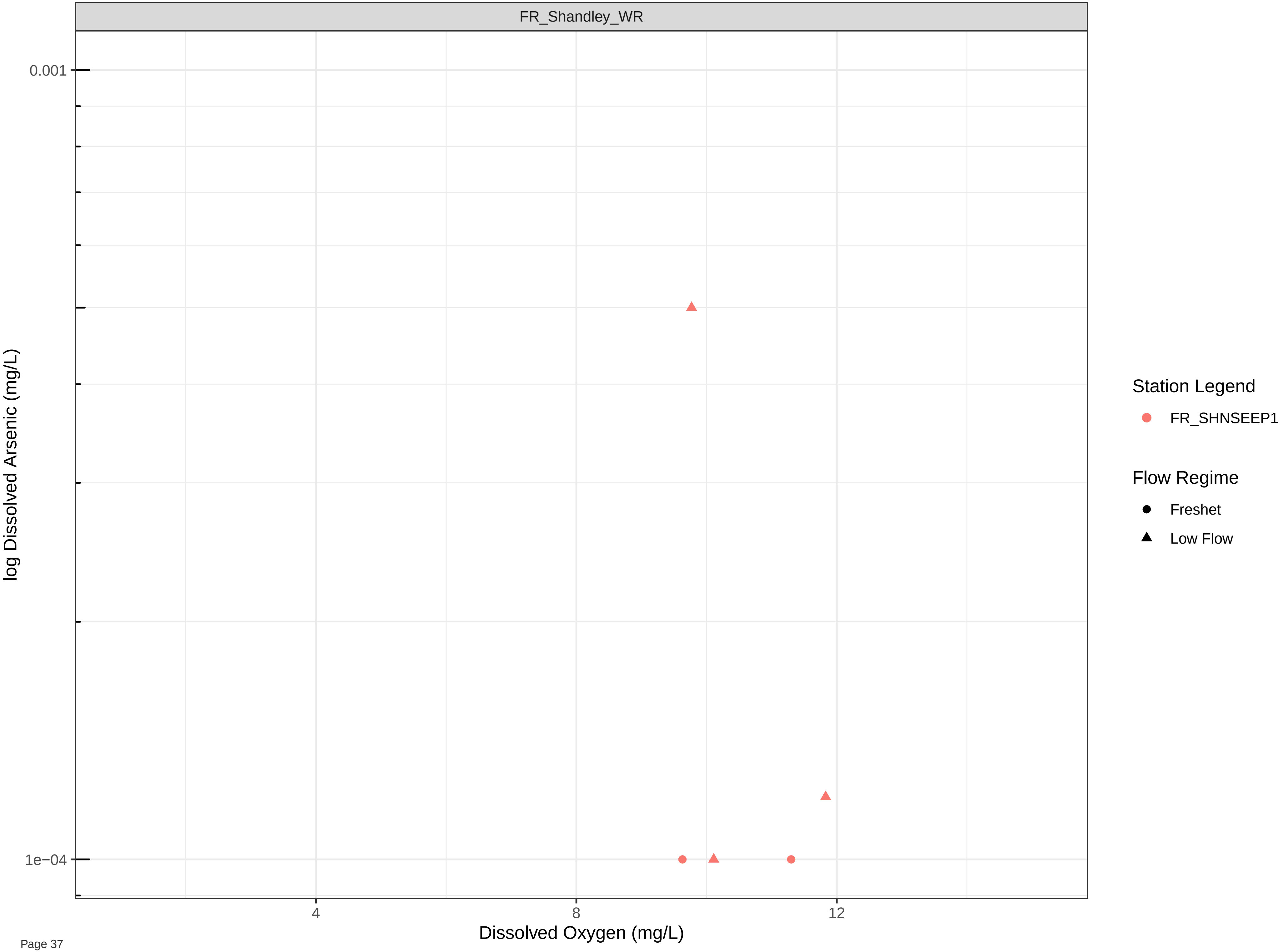
1e−04
log Dissolved Arsenic (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow


FR_LakeMtn_WR_PITS
0.001
1e−04
log Dissolved Arsenic (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow



FR_Shandley_WR
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1e−04
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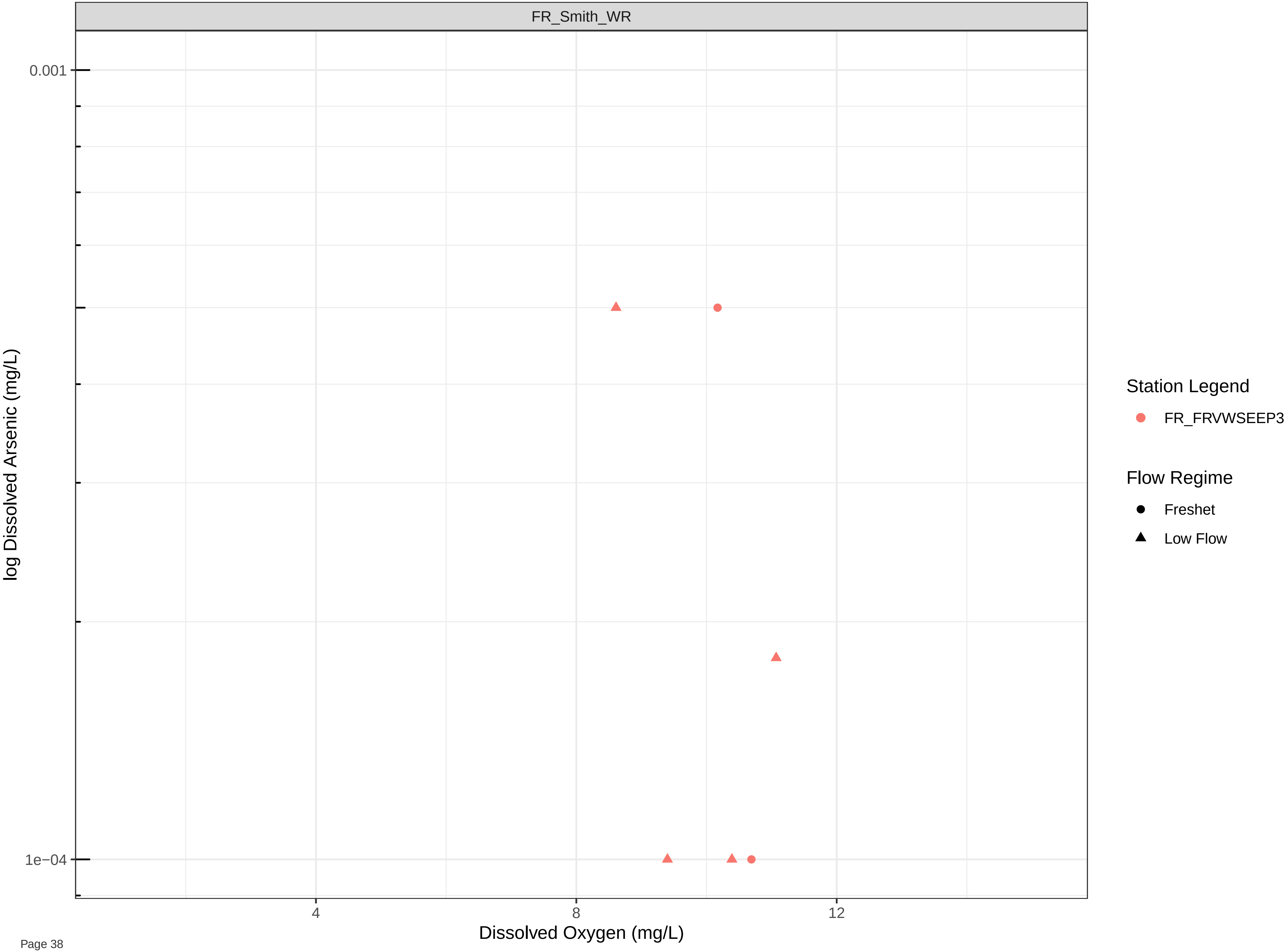
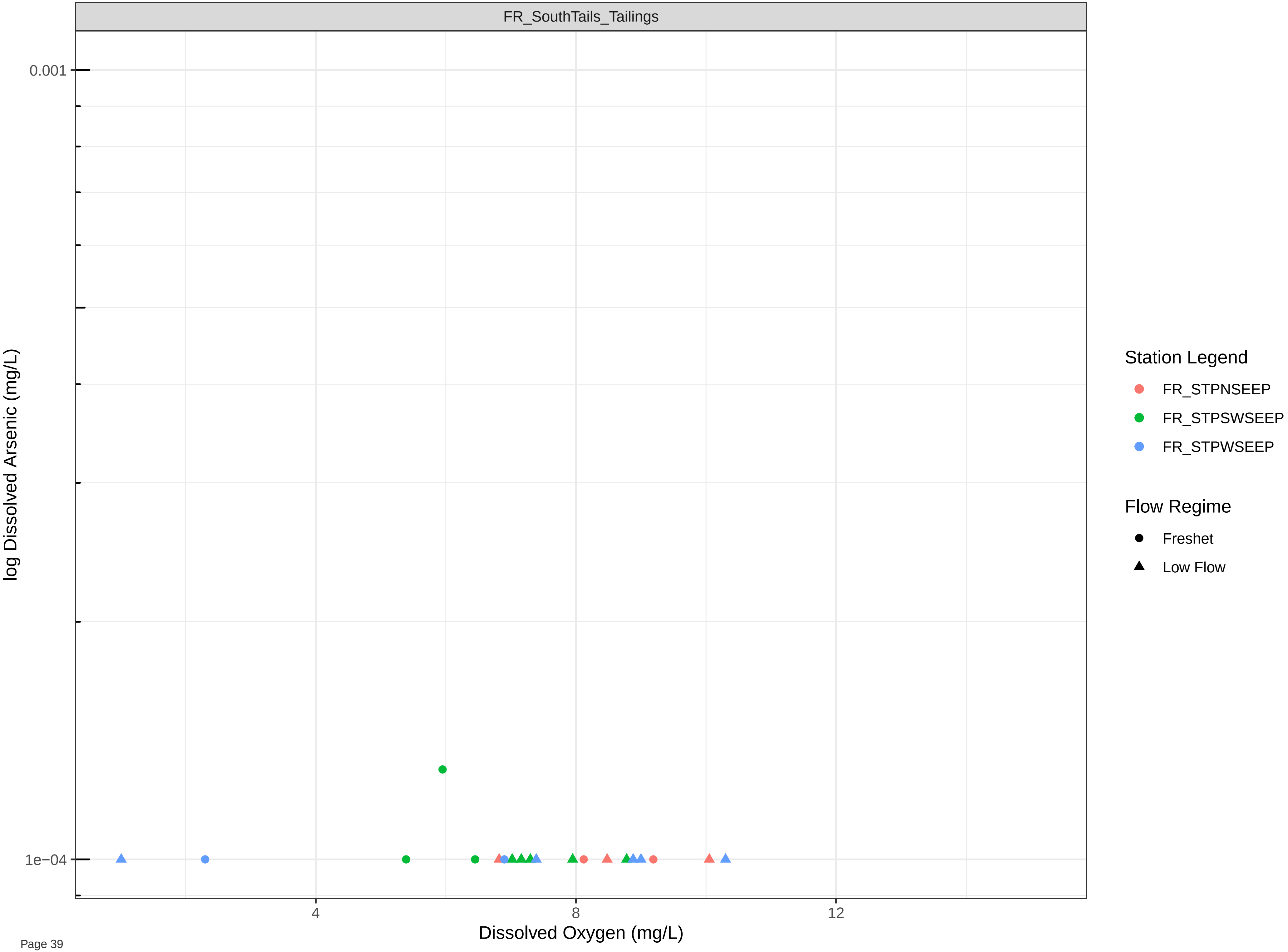
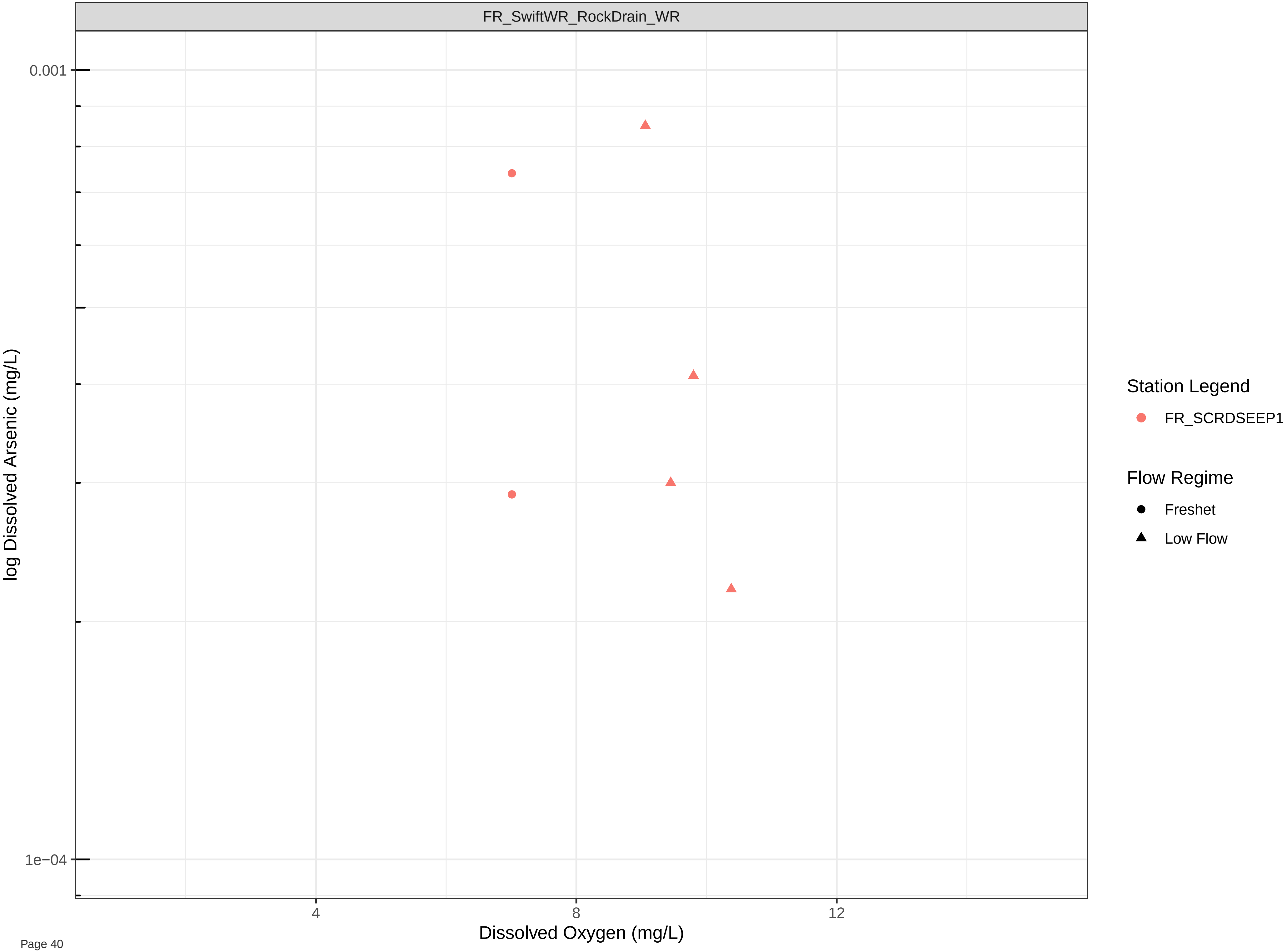
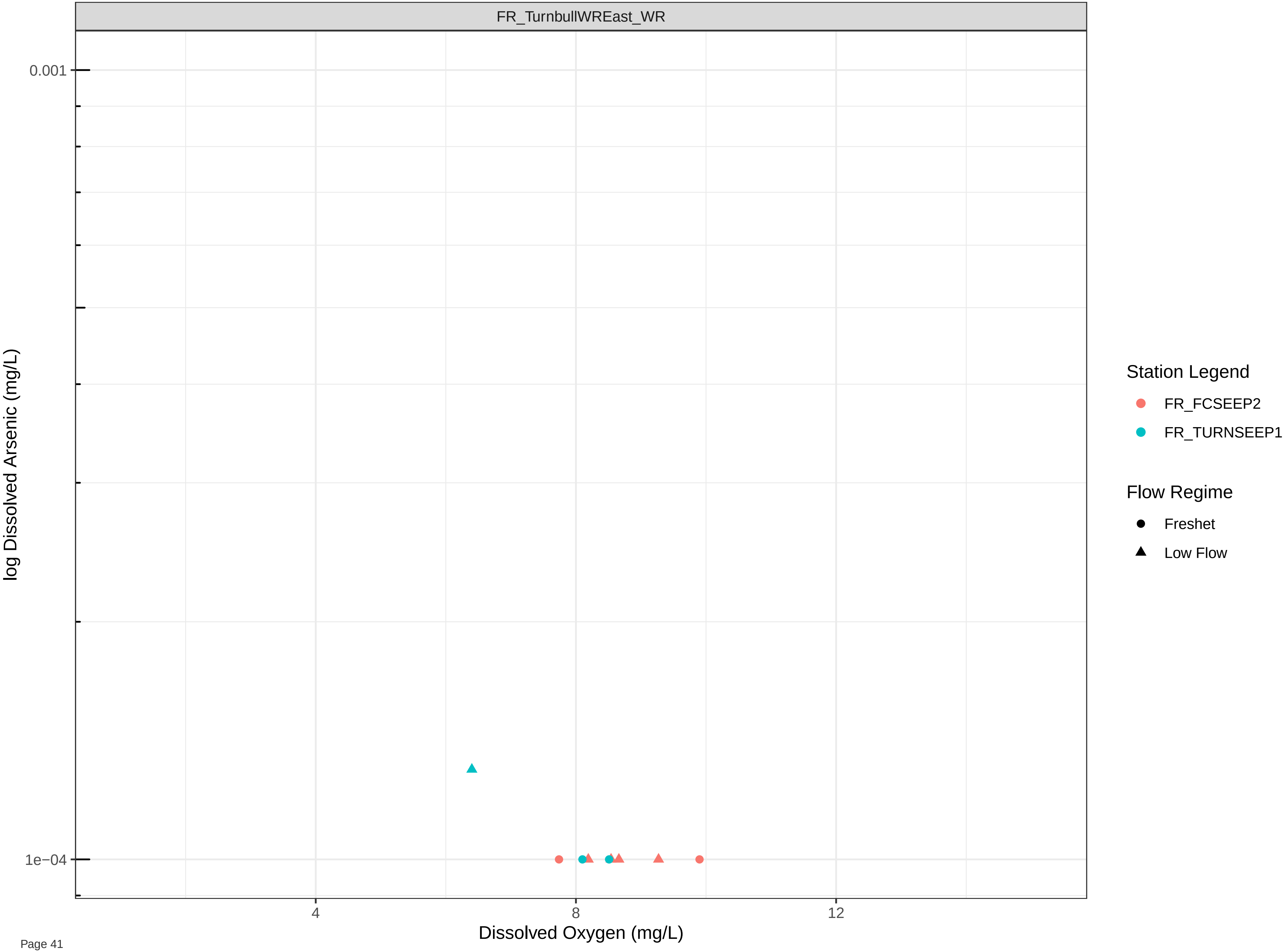
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

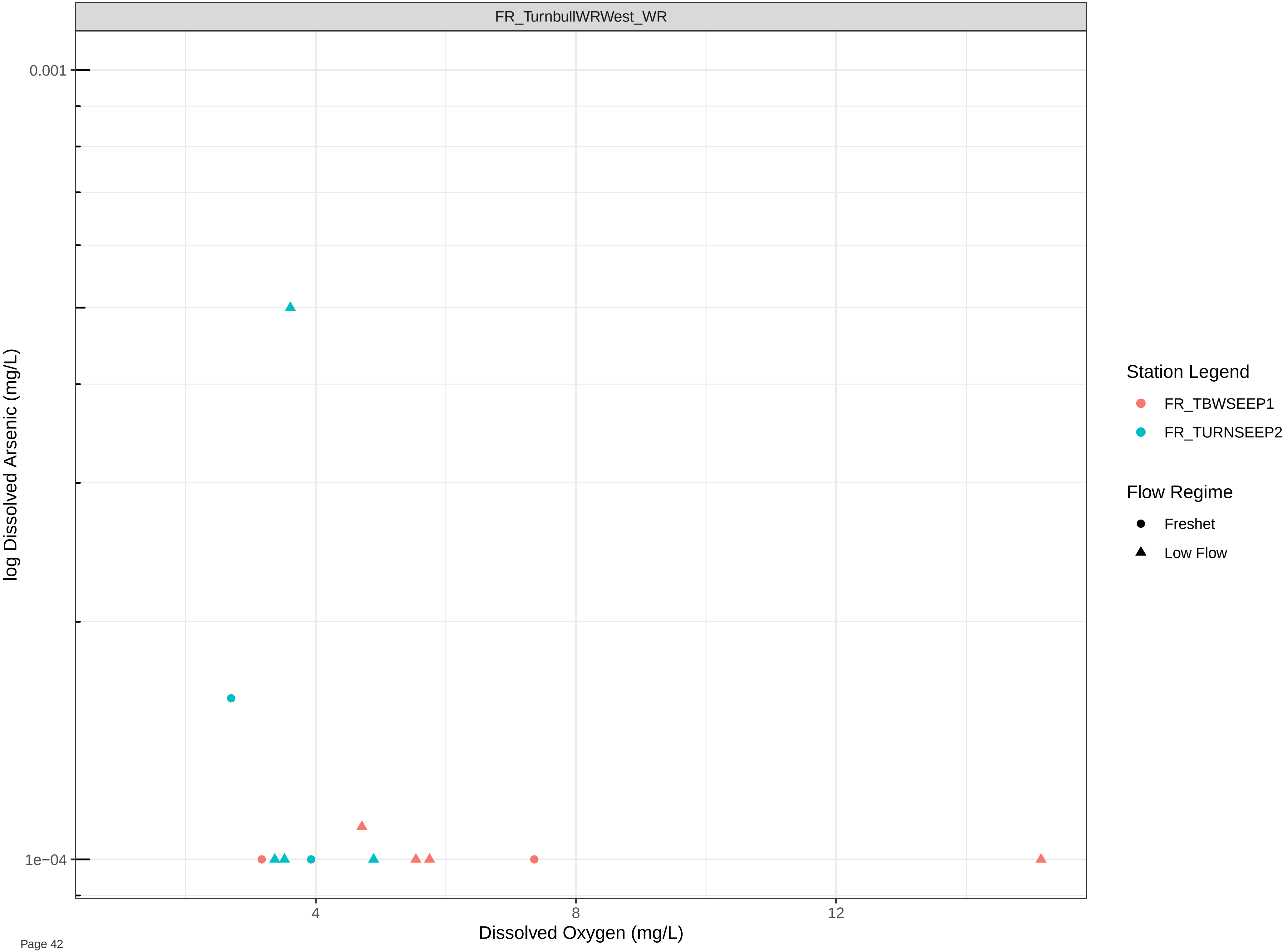

FR_Smith_WR
0.001
1e−04
log Dissolved Arsenic (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

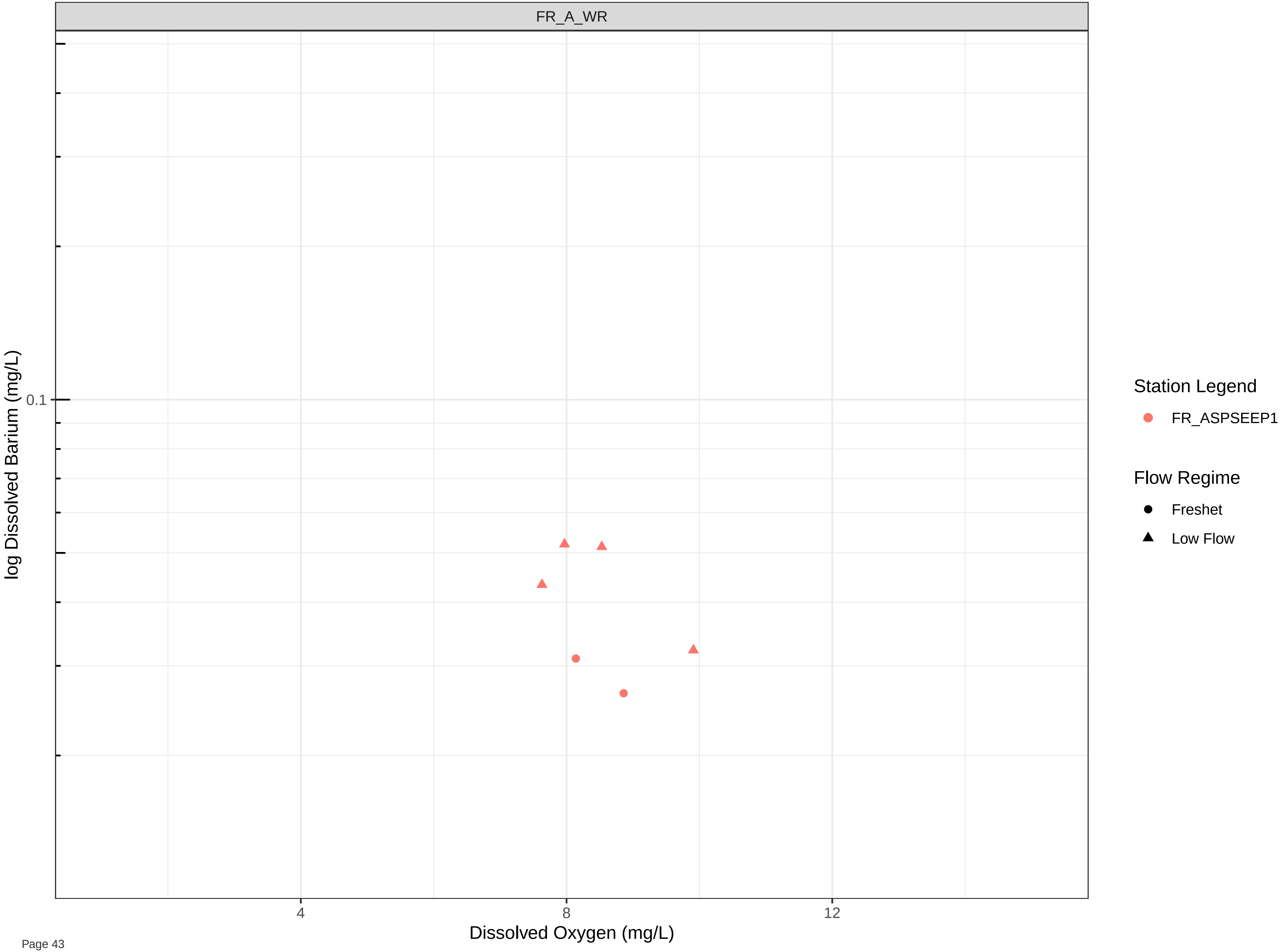


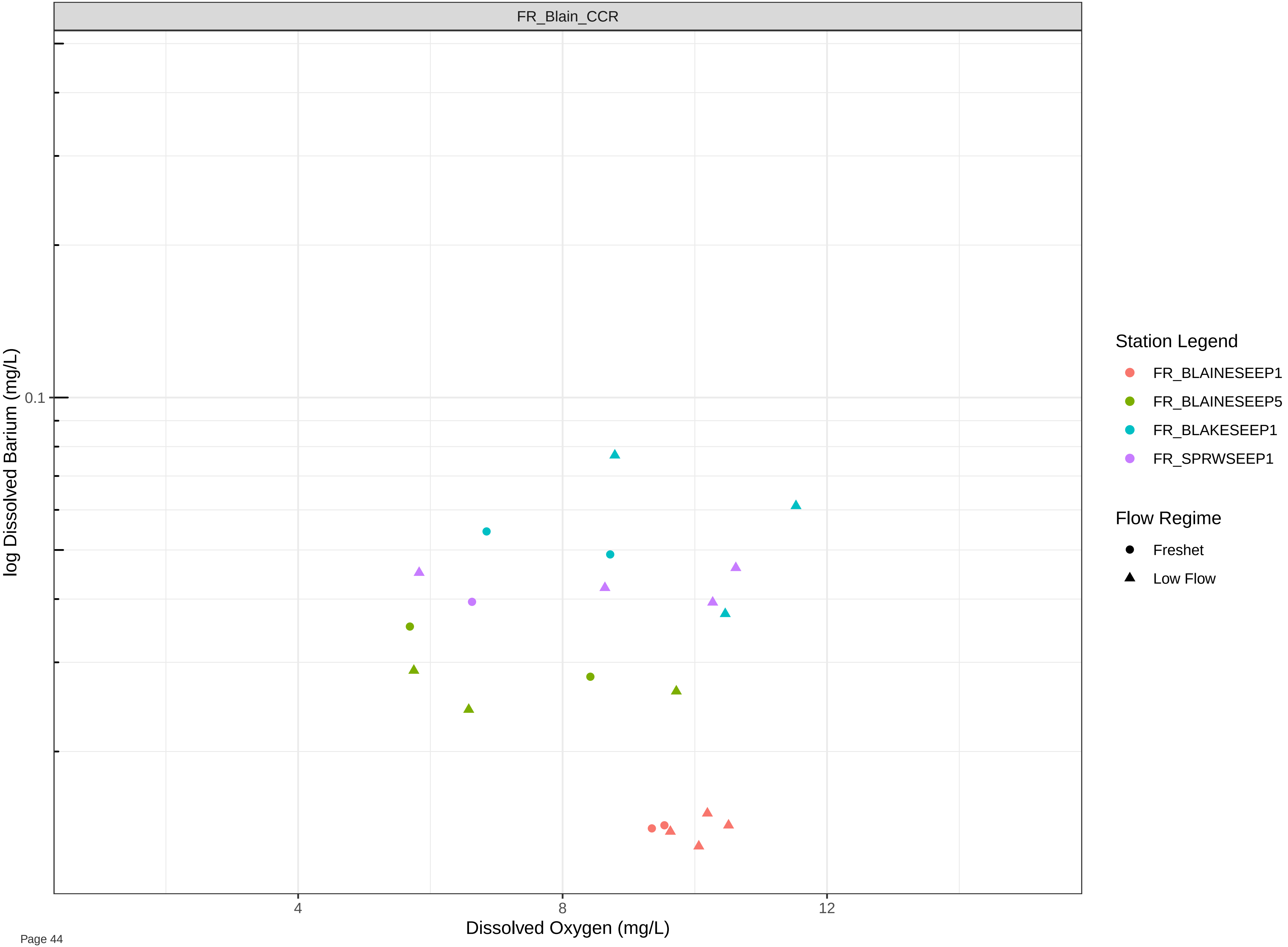
FR_SouthTails_Tailings
0.001
1e−04
log Dissolved Arsenic (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

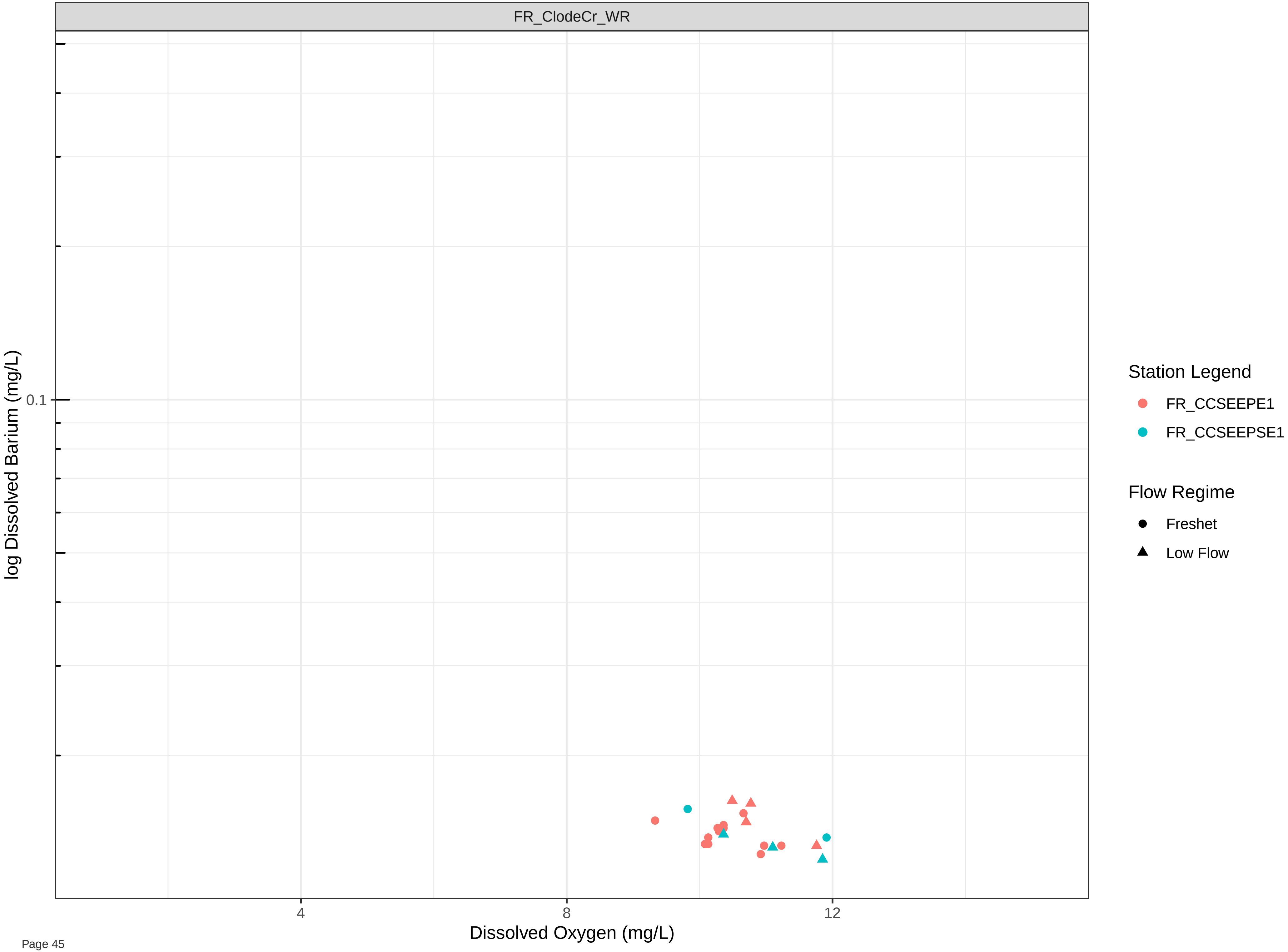

FR_SwiftWR_RockDrain_WR
0.001
1e−04
log Dissolved Arsenic (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

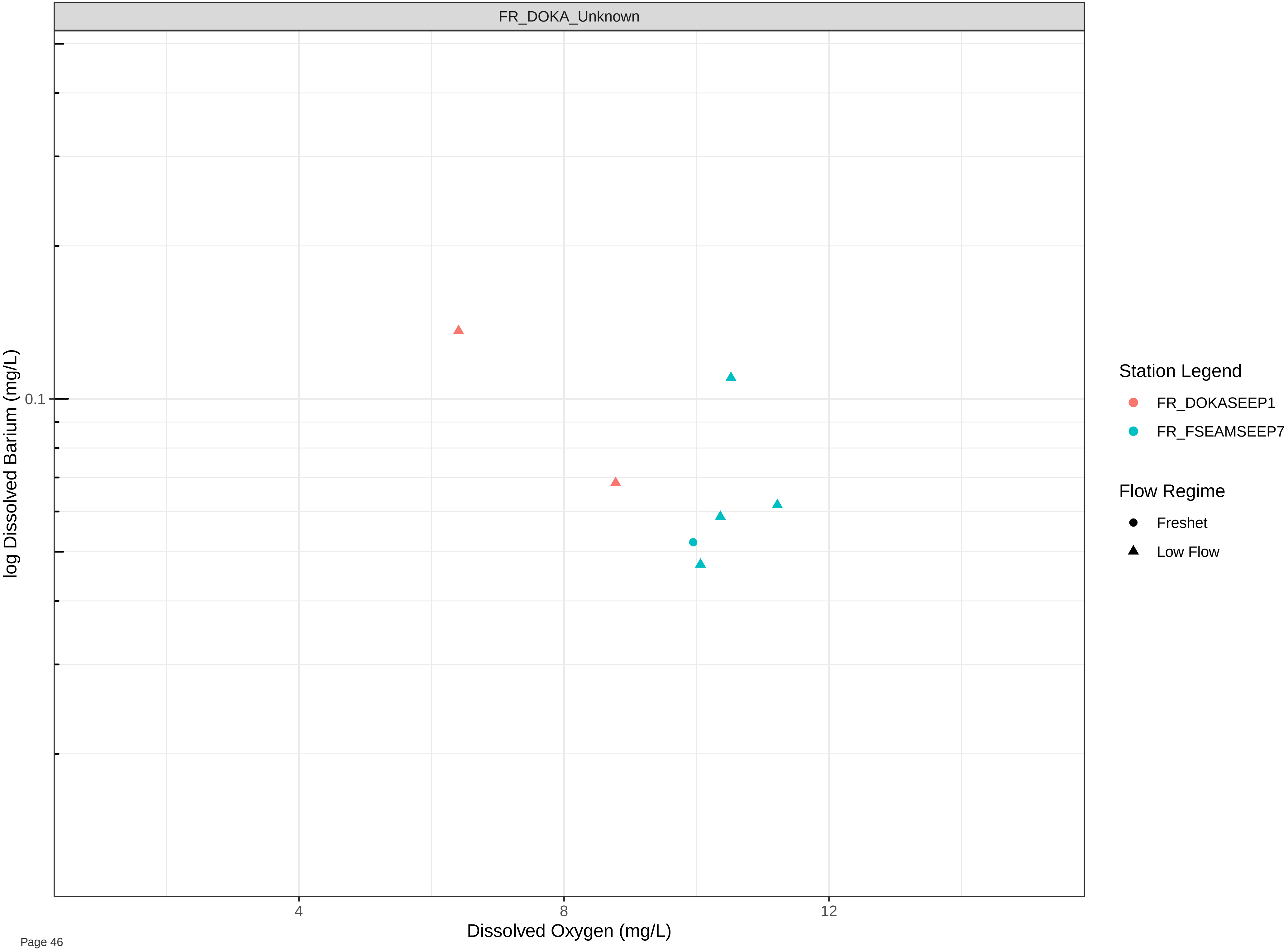

FR_TurnbullWREast_WR
0.001
1e−04
log Dissolved Arsenic (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

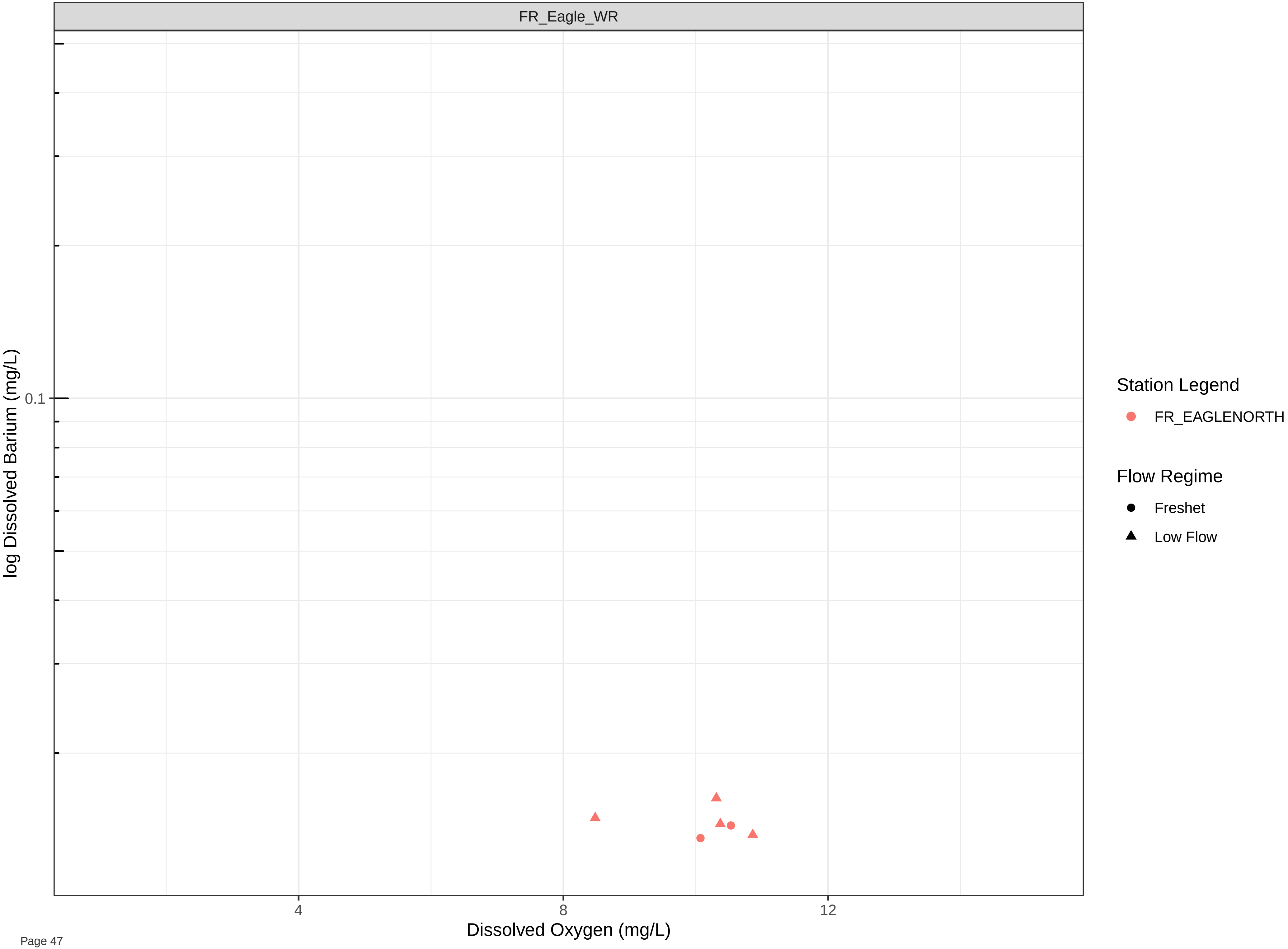

FR_TurnbullWRWest_WR
0.001
1e−04
log Dissolved Arsenic (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

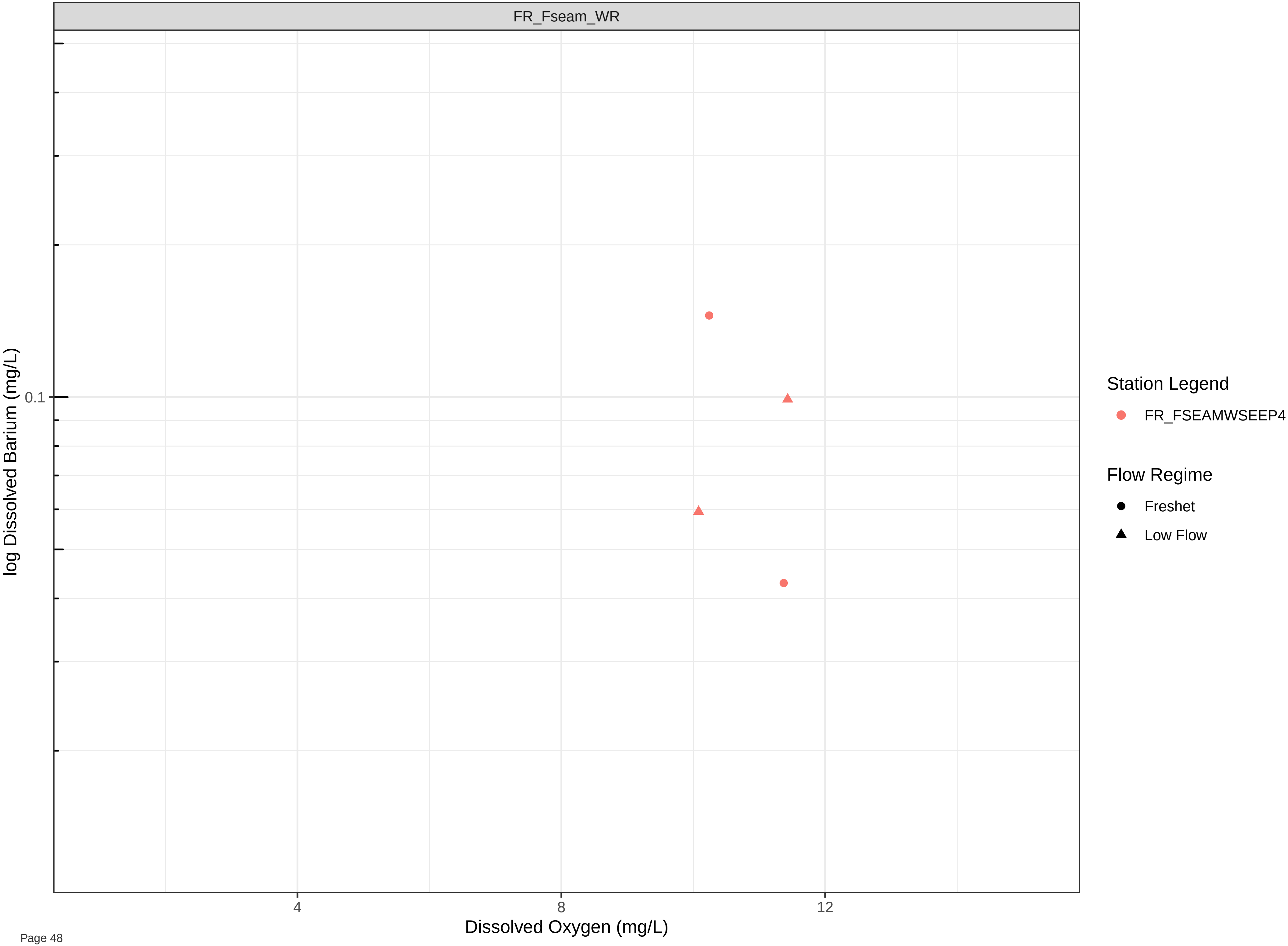

FR_A_WR
log Dissolved Barium (mg/L)
0.1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

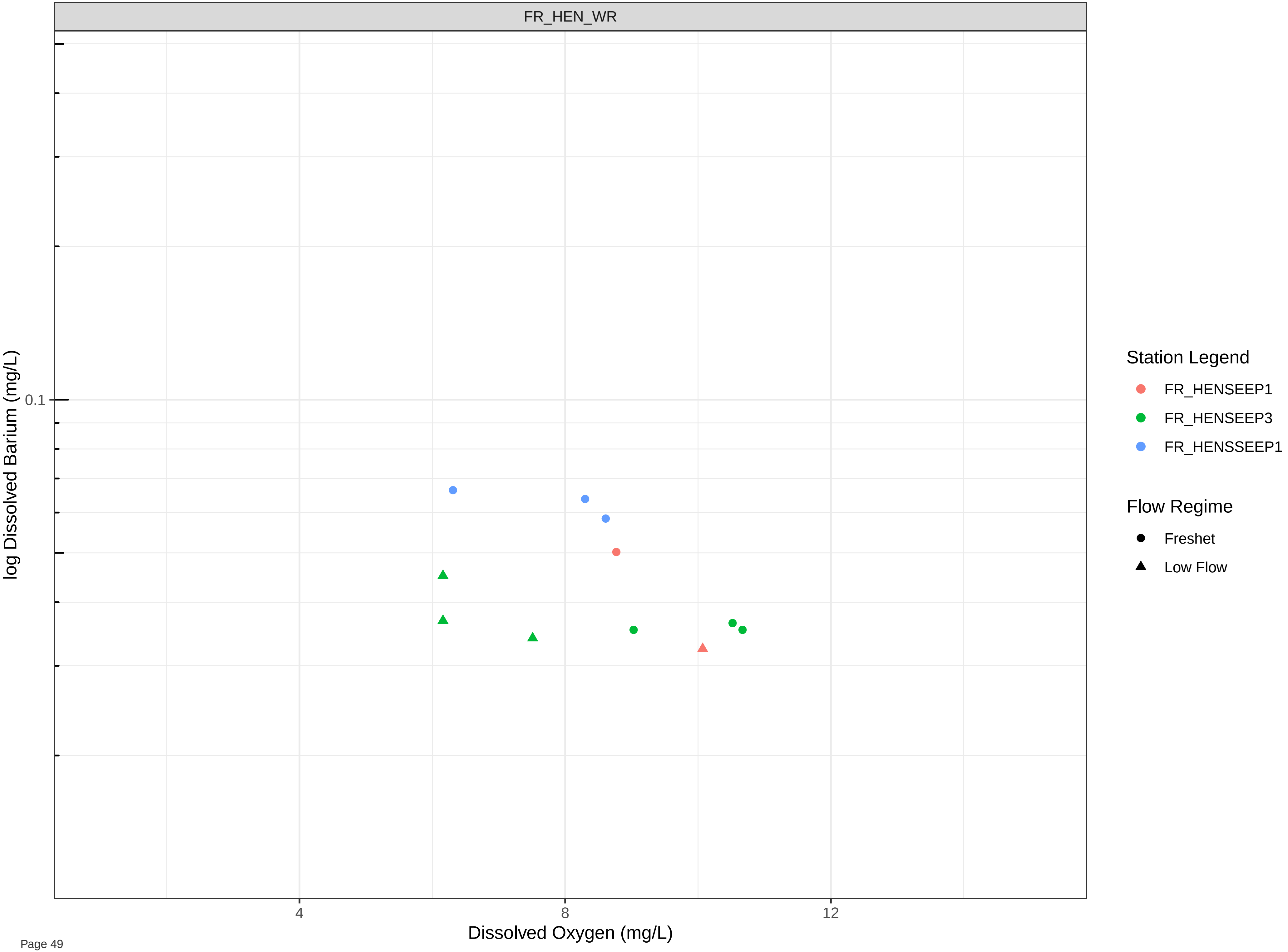

FR_Blain_CCR
log Dissolved Barium (mg/L)
0.1
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow

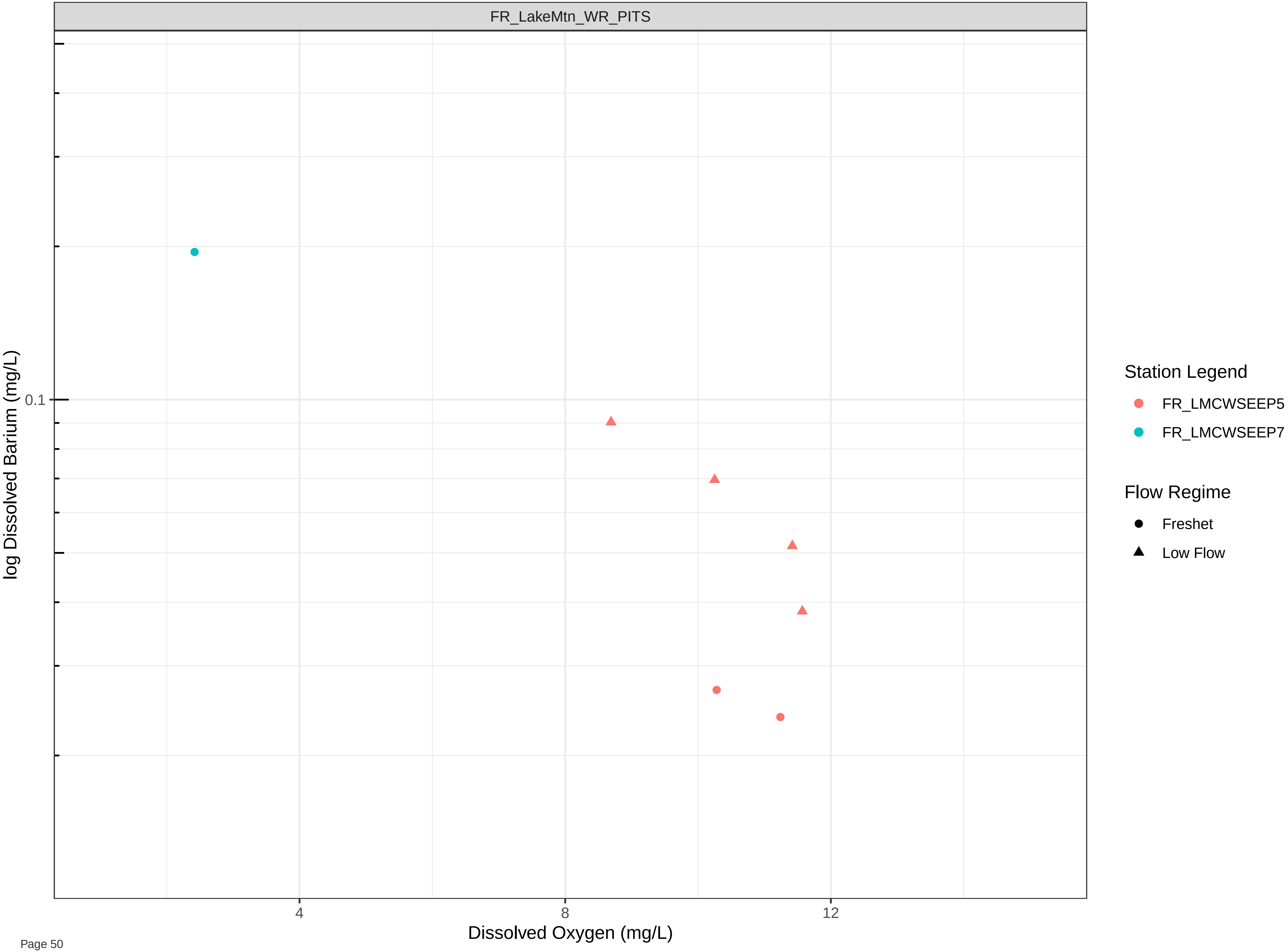

FR_ClodeCr_WR
log Dissolved Barium (mg/L)
0.1
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

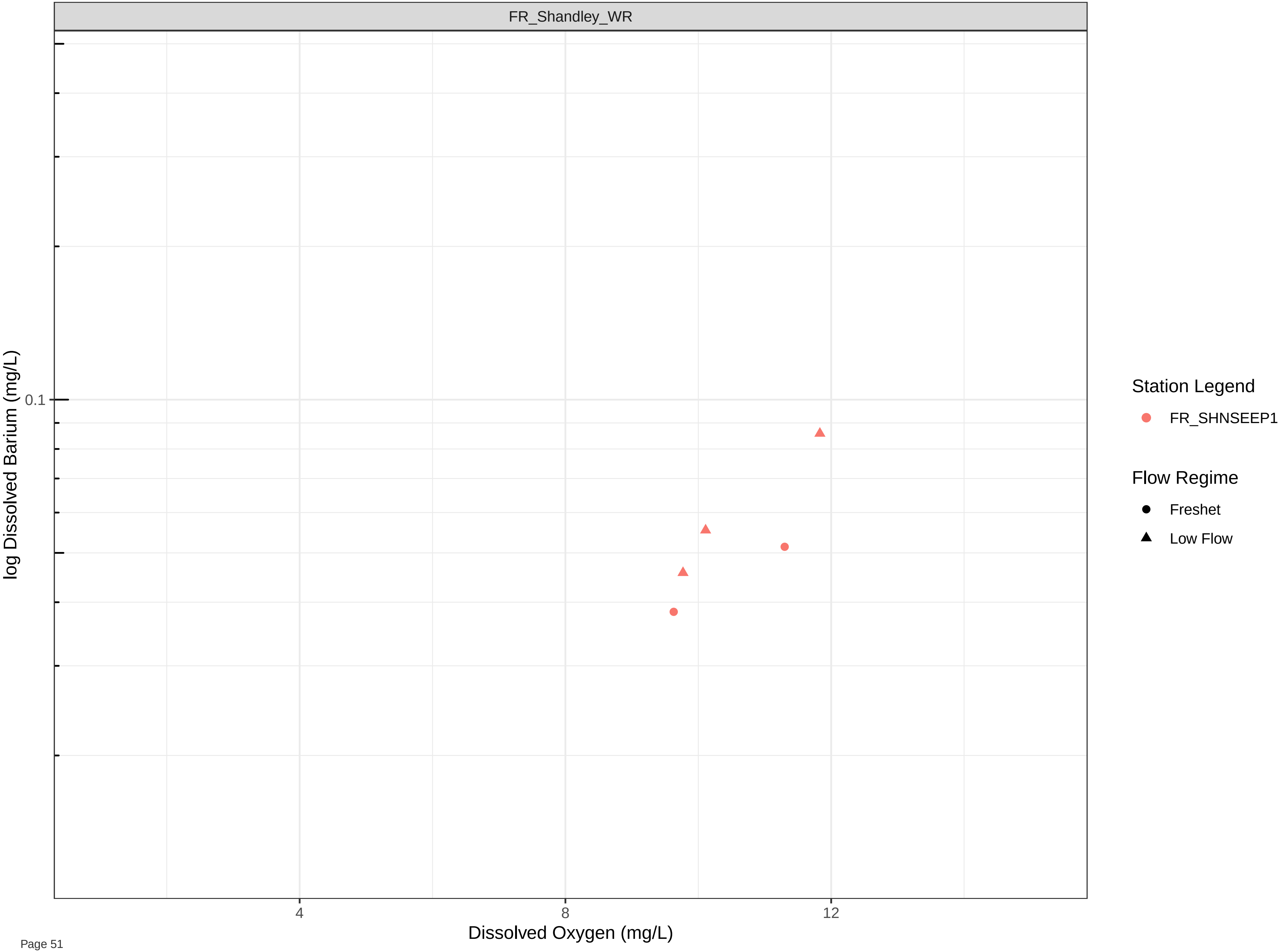

FR_DOKA_Unknown
log Dissolved Barium (mg/L)
0.1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow

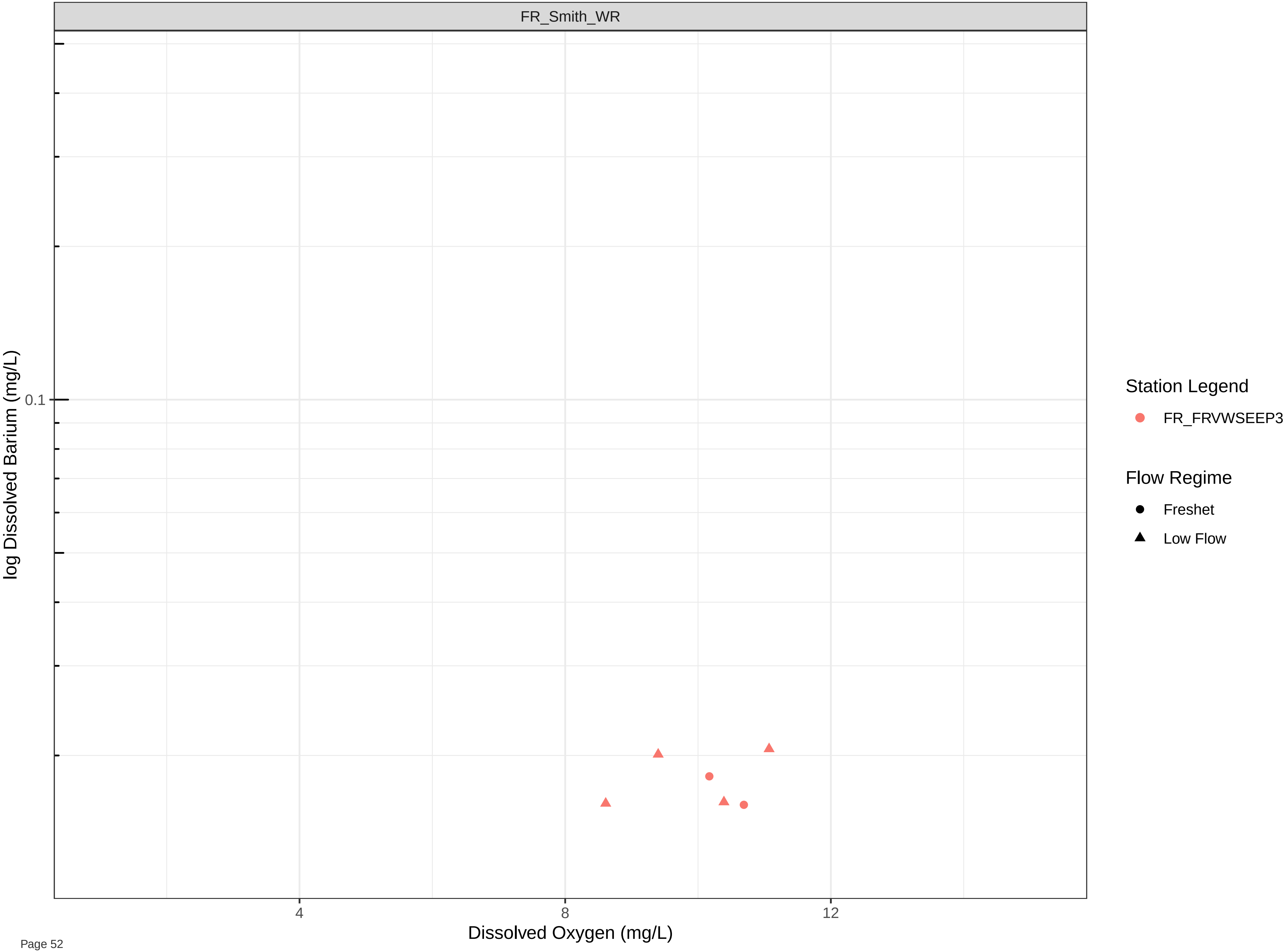

FR_Eagle_WR
log Dissolved Barium (mg/L)
0.1
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

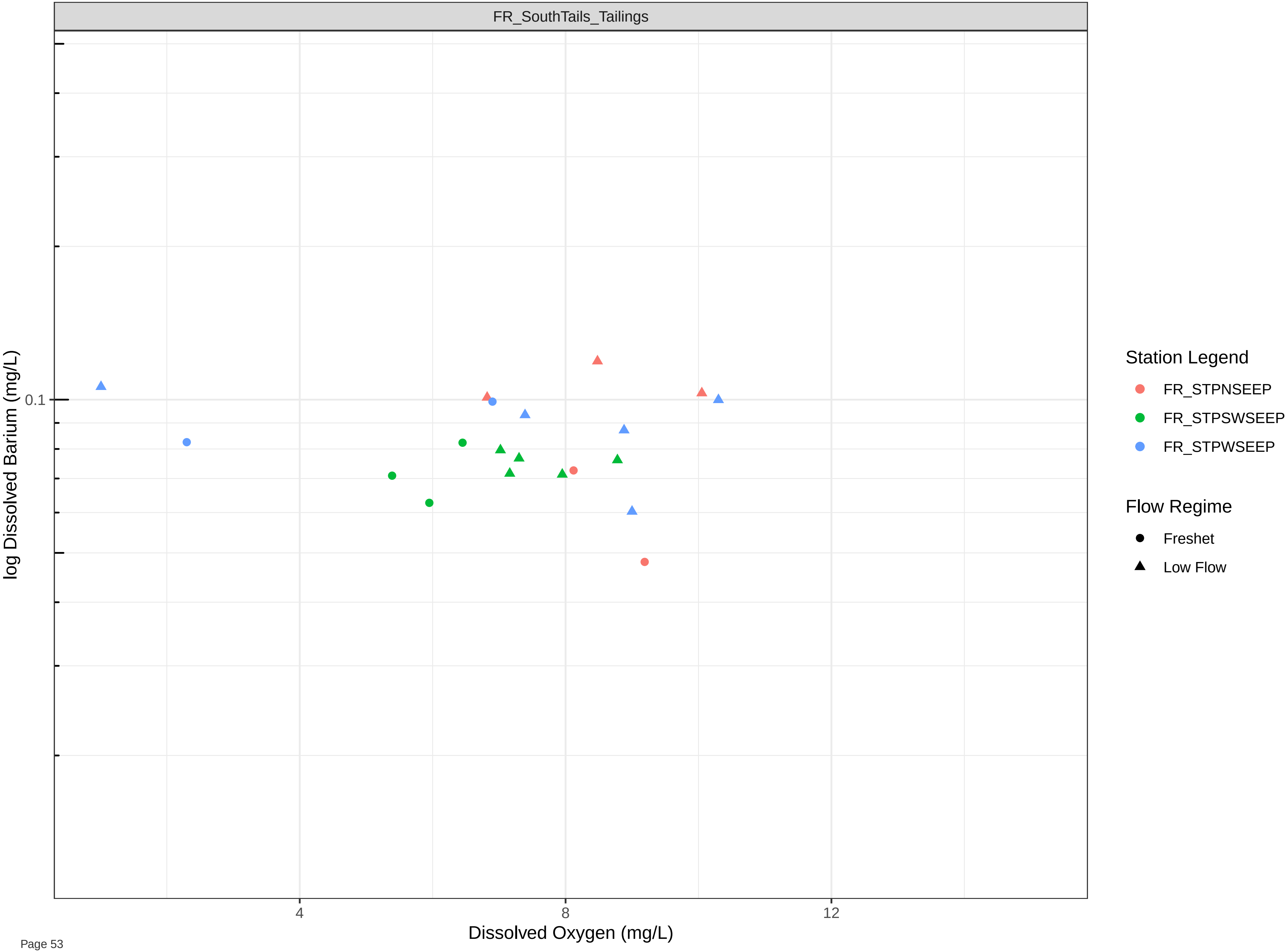

FR_Fseam_WR
log Dissolved Barium (mg/L)
0.1
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

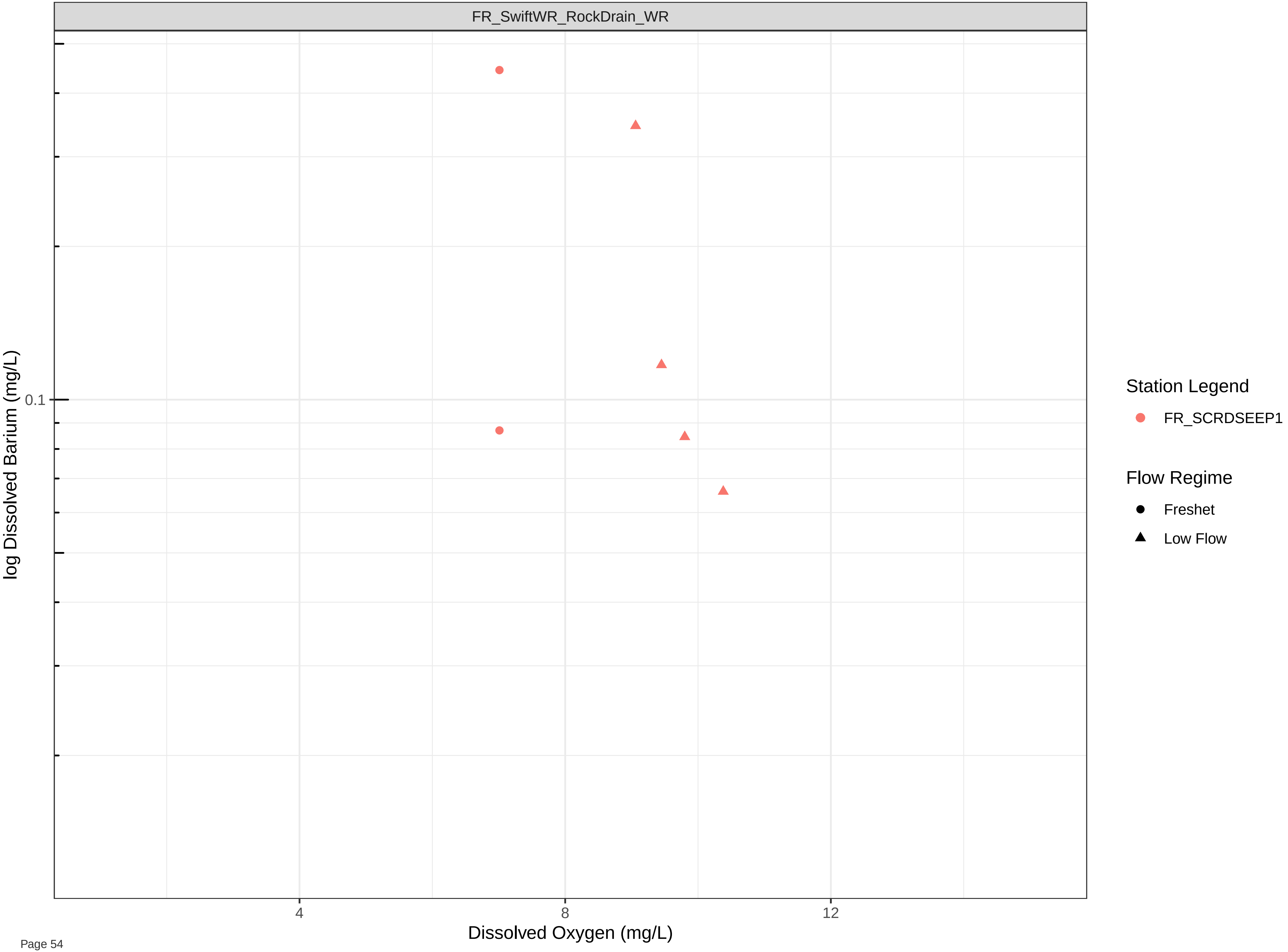

FR_HEN_WR
log Dissolved Barium (mg/L)
0.1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

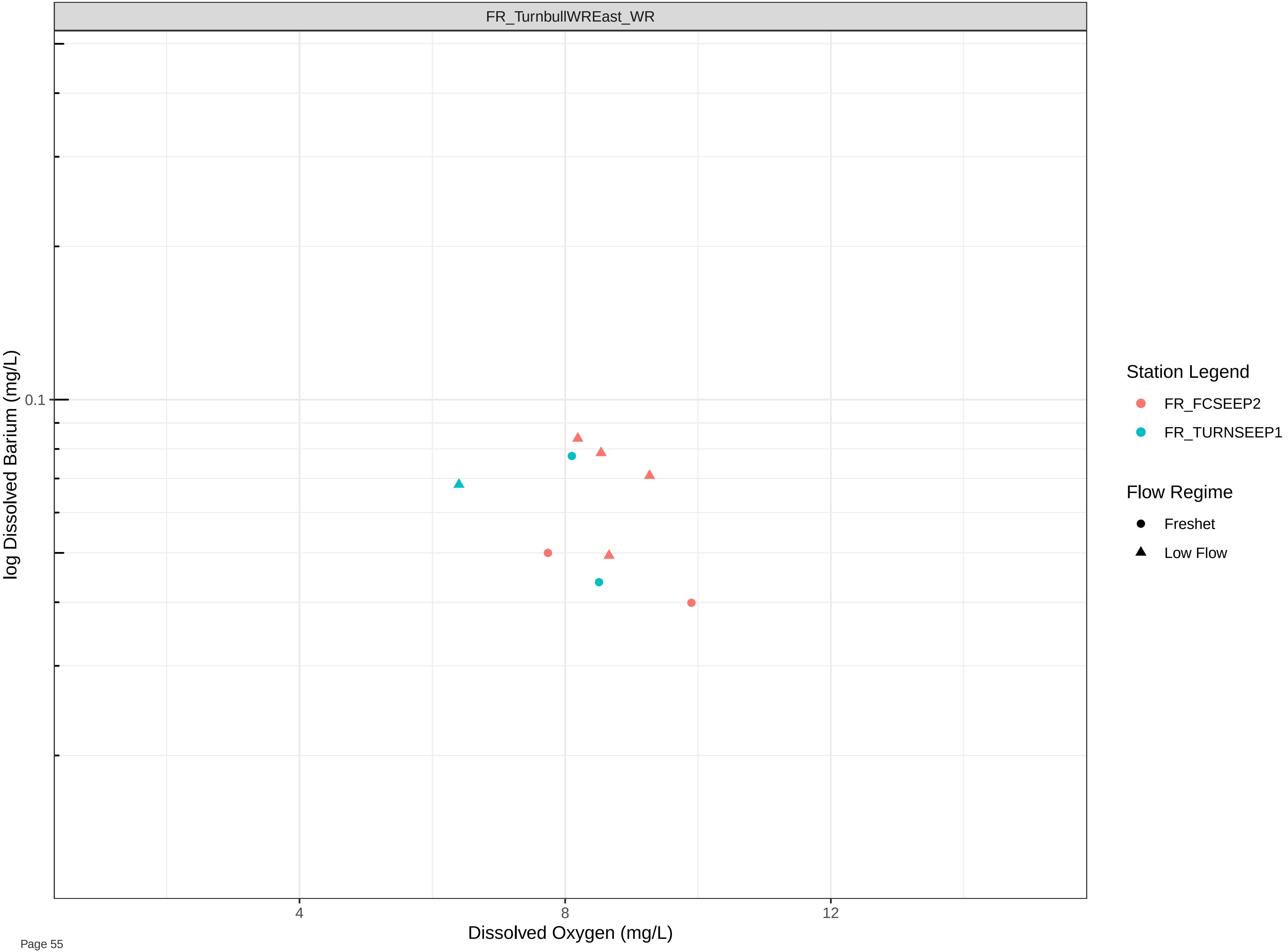

FR_LakeMtn_WR_PITS
log Dissolved Barium (mg/L)
0.1
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

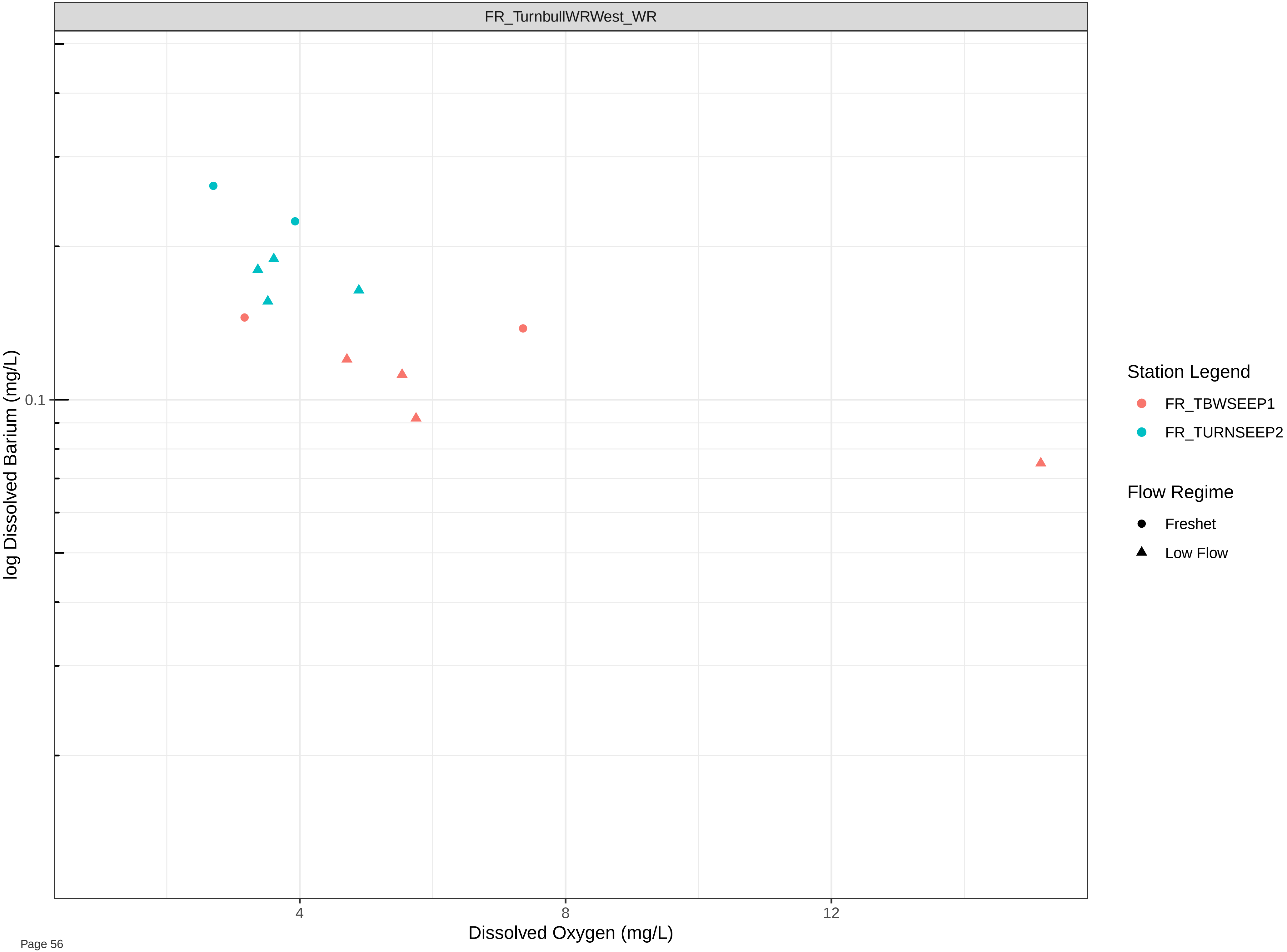

FR_Shandley_WR
log Dissolved Barium (mg/L)
0.1
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

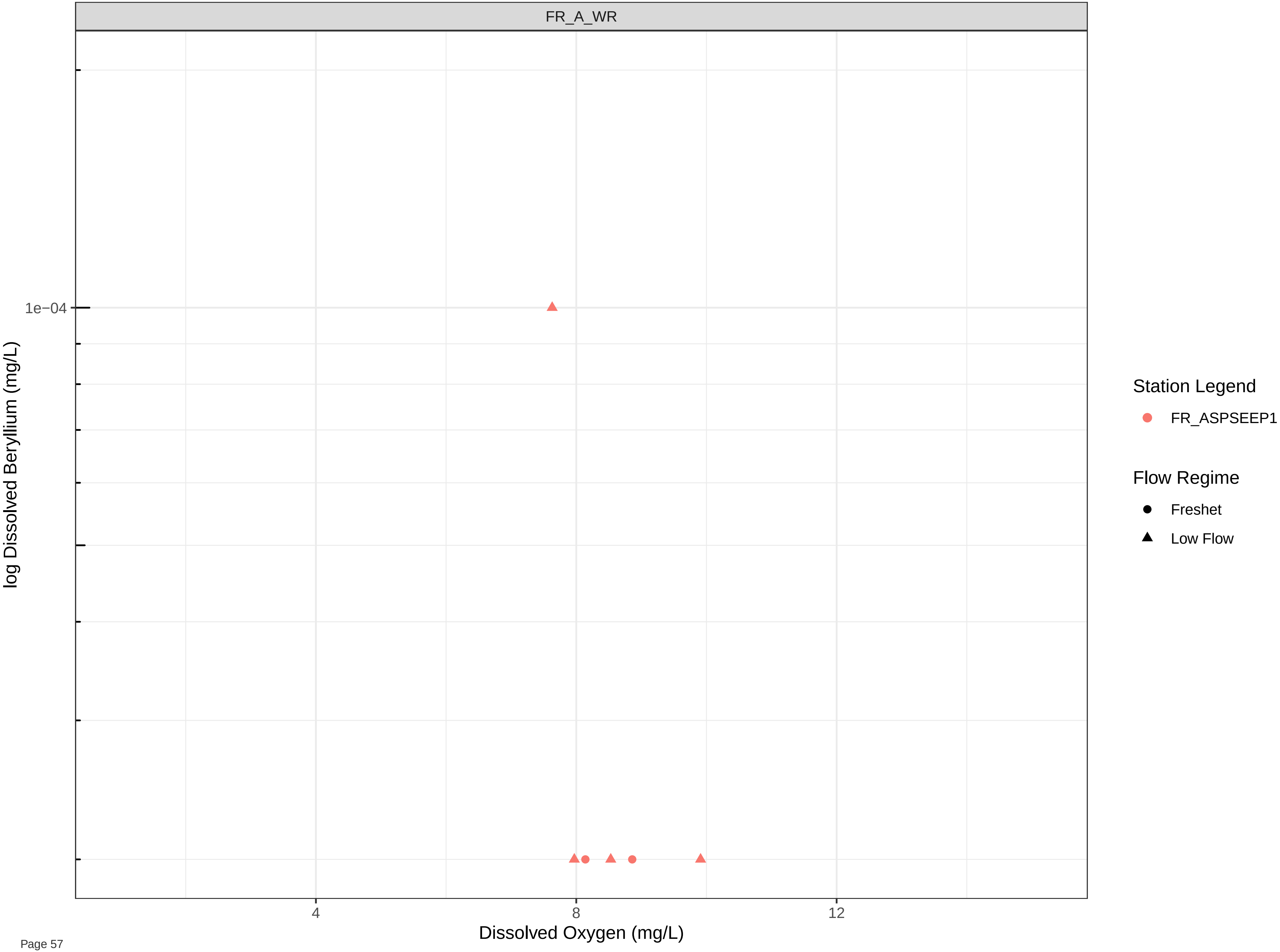

FR_Smith_WR
log Dissolved Barium (mg/L)
0.1
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

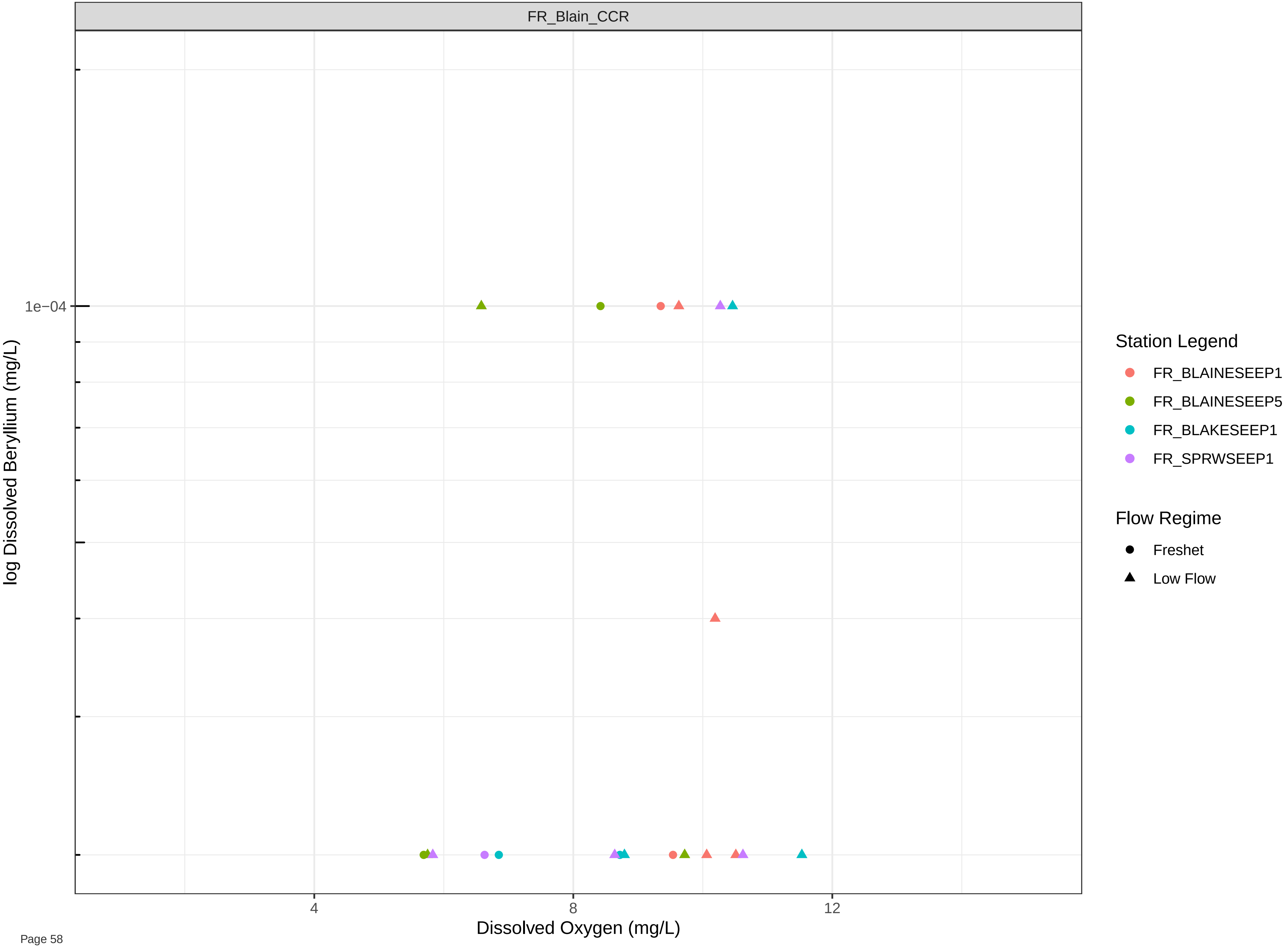

FR_SouthTails_Tailings
log Dissolved Barium (mg/L)
0.1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

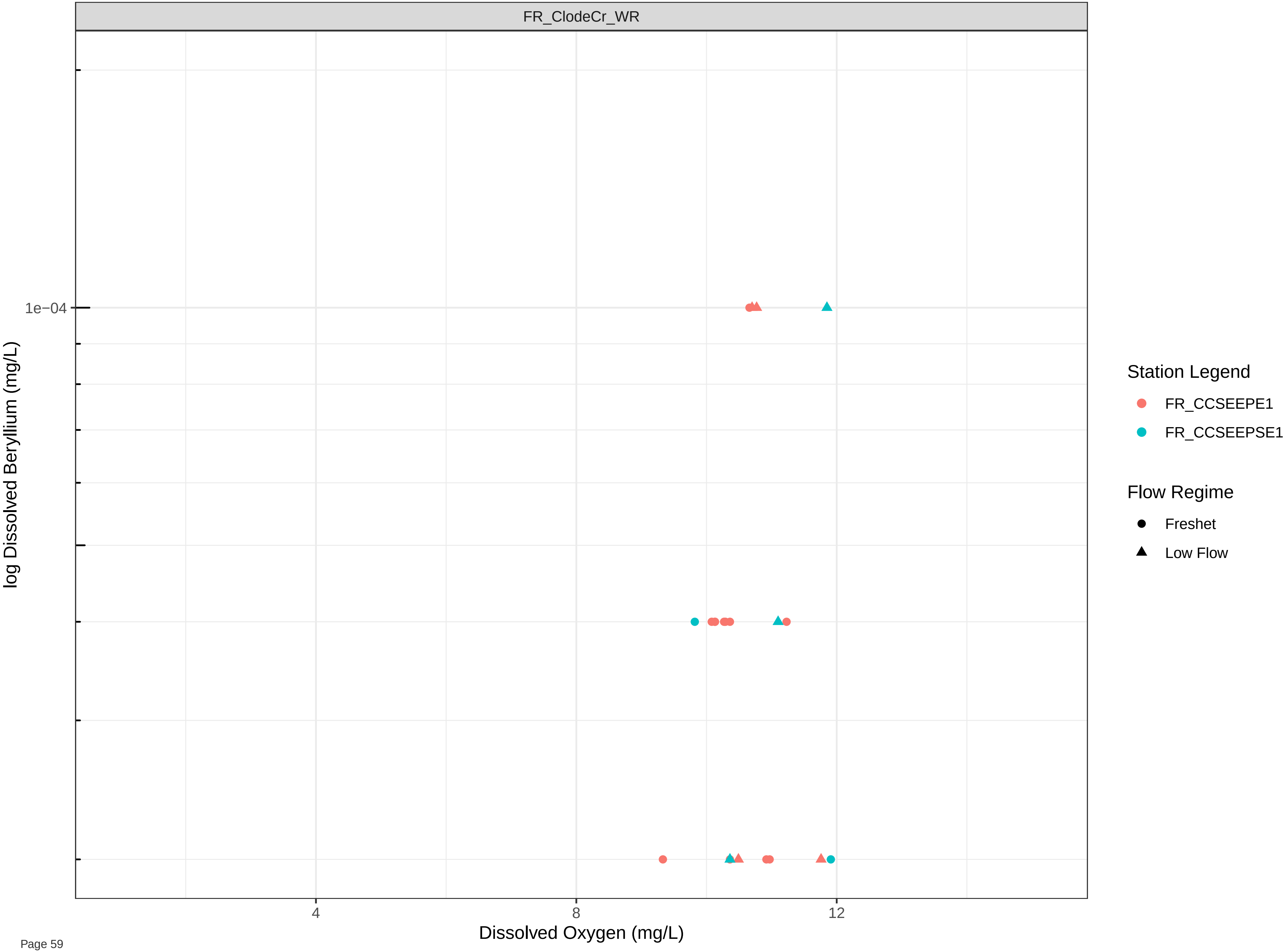

FR_SwiftWR_RockDrain_WR
log Dissolved Barium (mg/L)
0.1
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

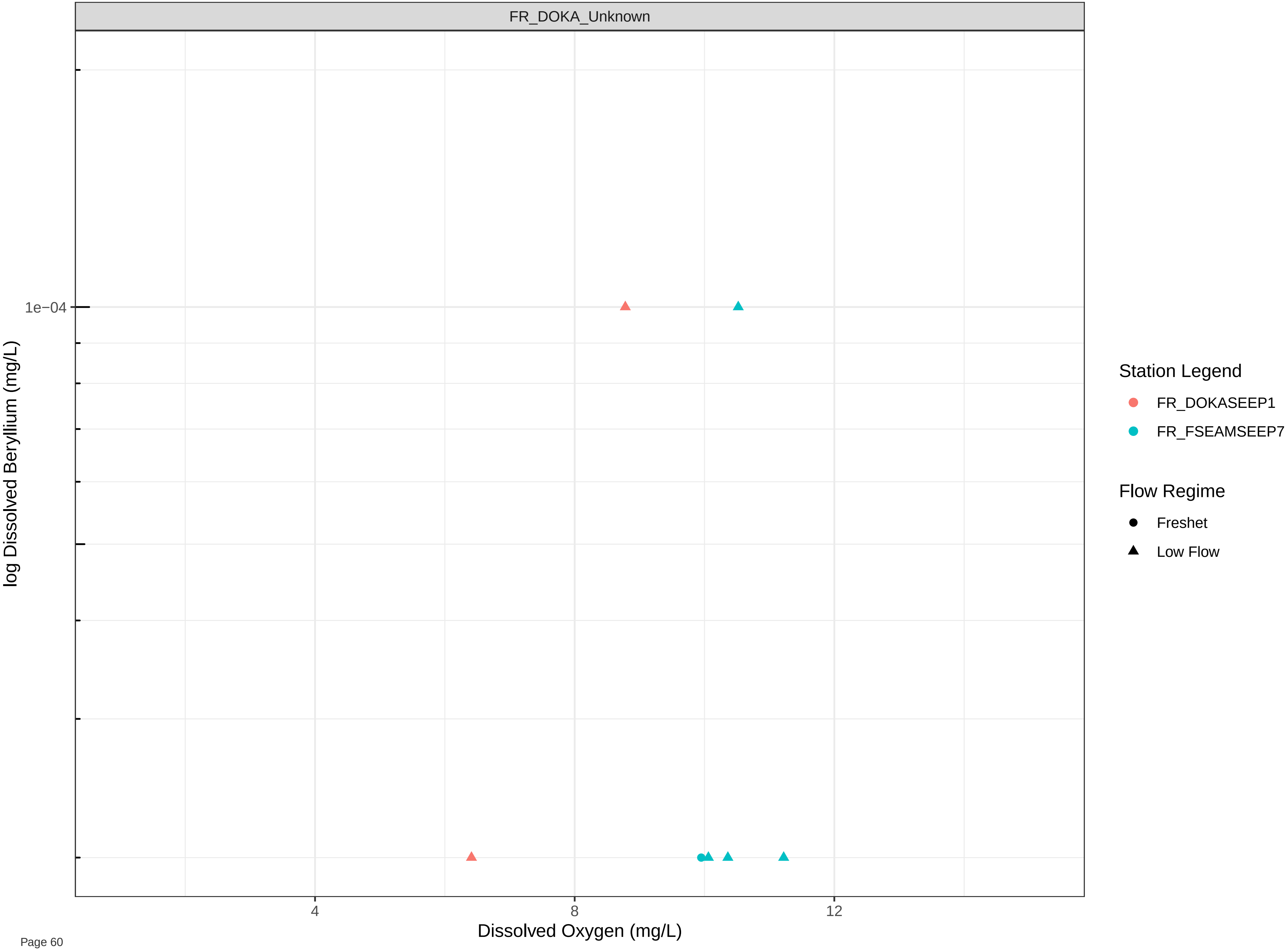

FR_TurnbullWREast_WR
log Dissolved Barium (mg/L)
0.1
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWRWest_WR
log Dissolved Barium (mg/L)
0.1
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_TBWSEEP1
● FR_TURNSEEP2
Flow Regime
● Freshet
▲ Low Flow


FR_A_WR
1e−04
log Dissolved Beryllium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow


FR_Blain_CCR
1e−04
log Dissolved Beryllium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_ClodeCr_WR
1e−04
log Dissolved Beryllium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow


FR_DOKA_Unknown
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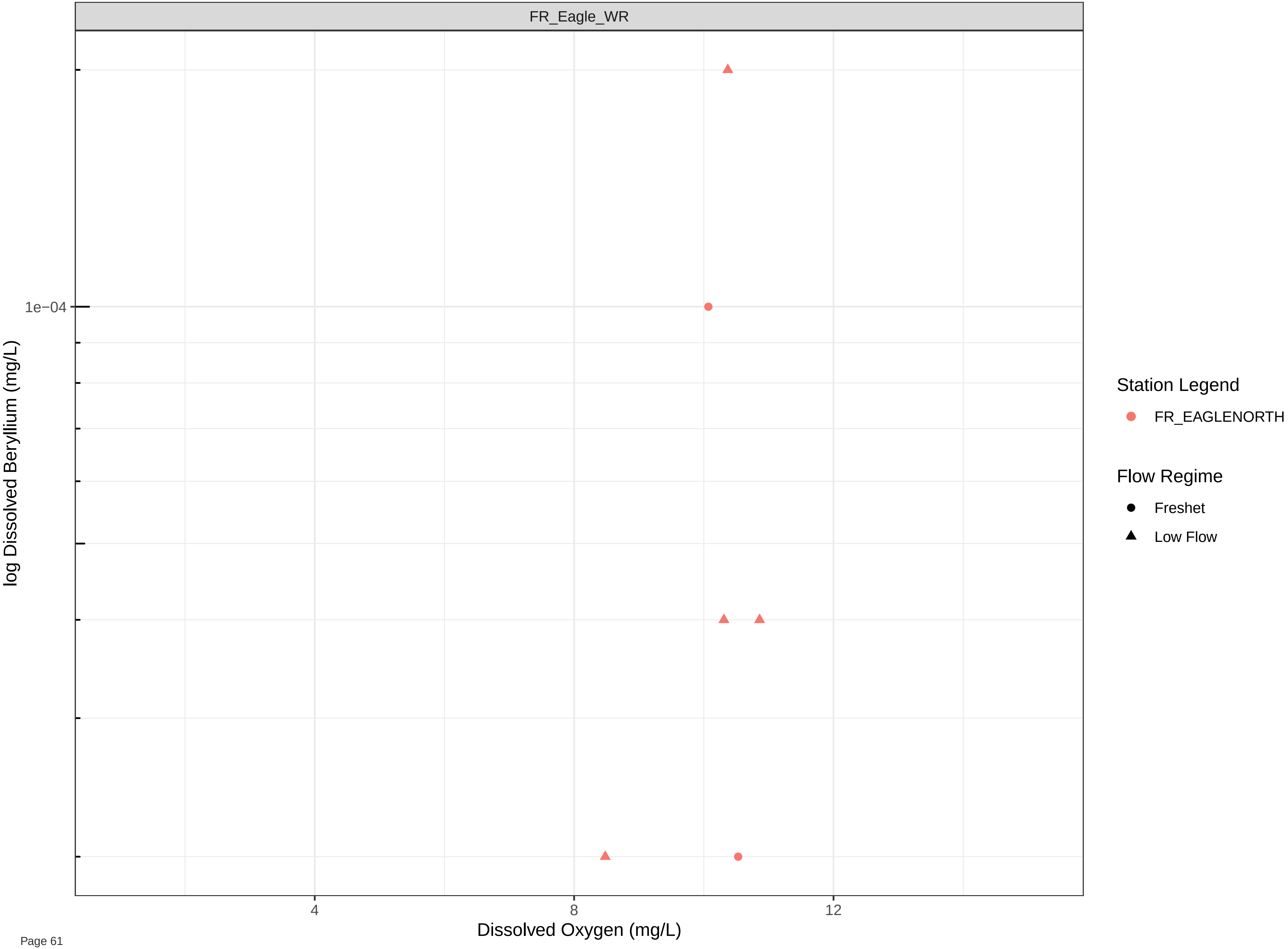
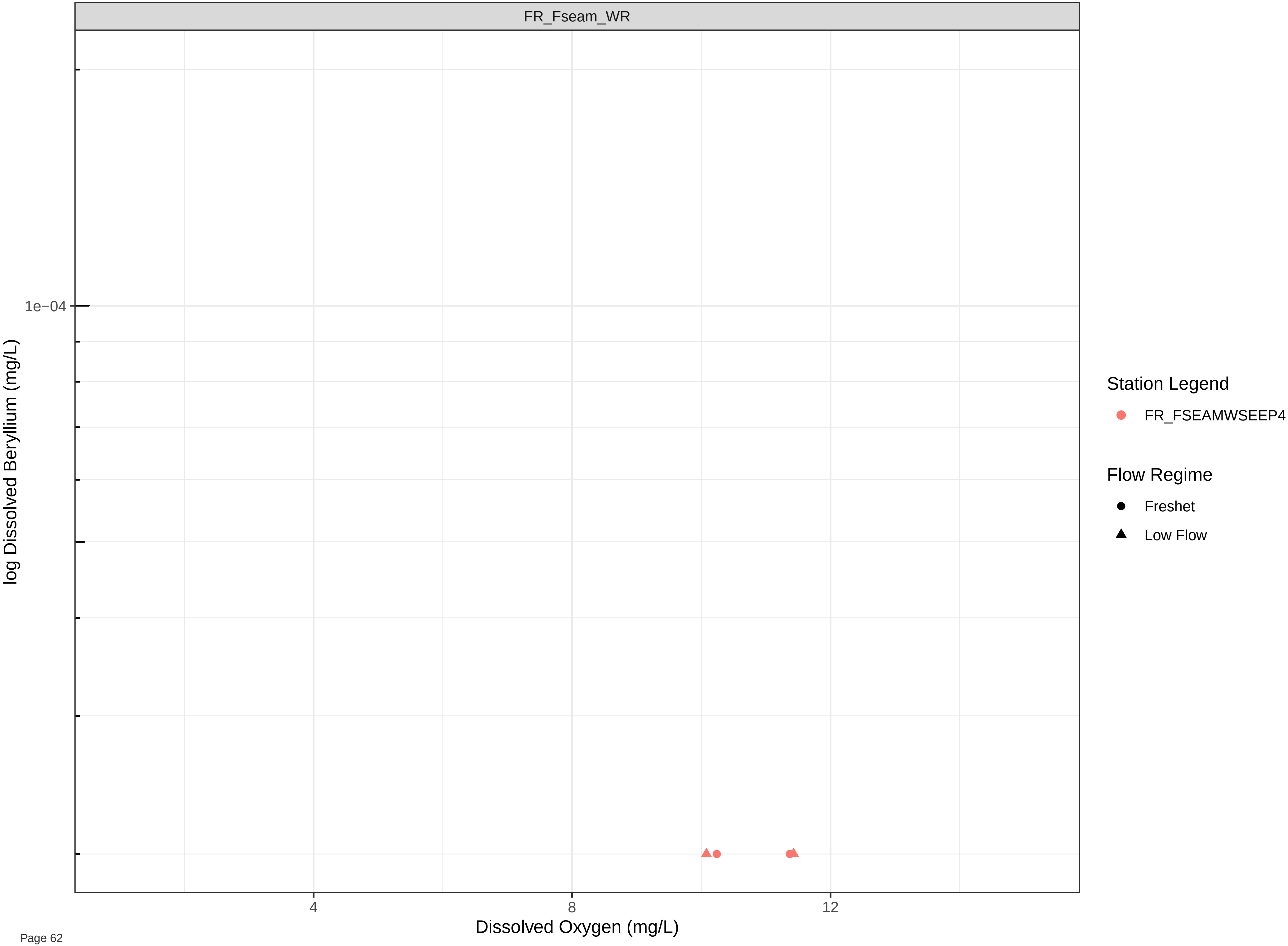
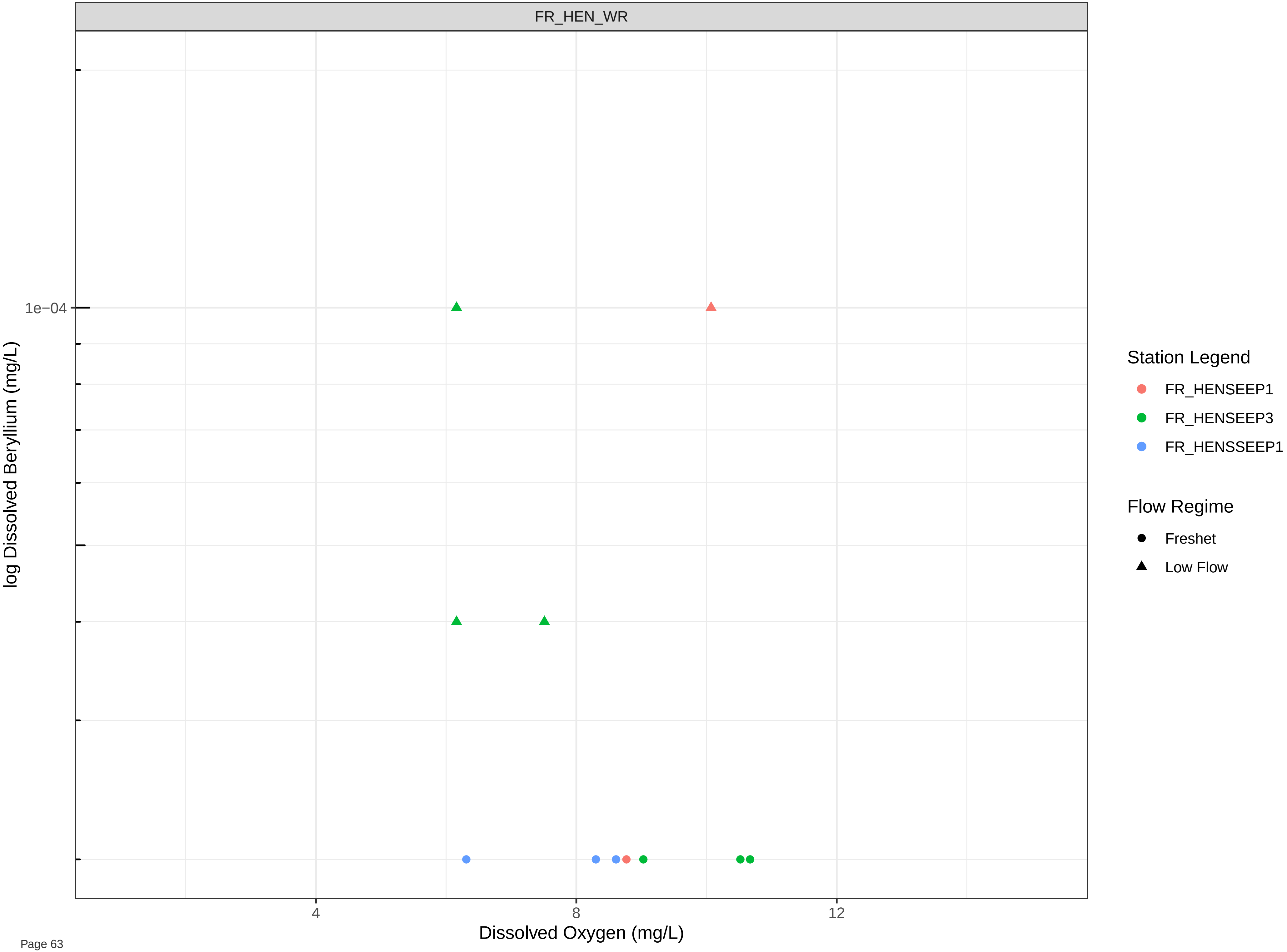
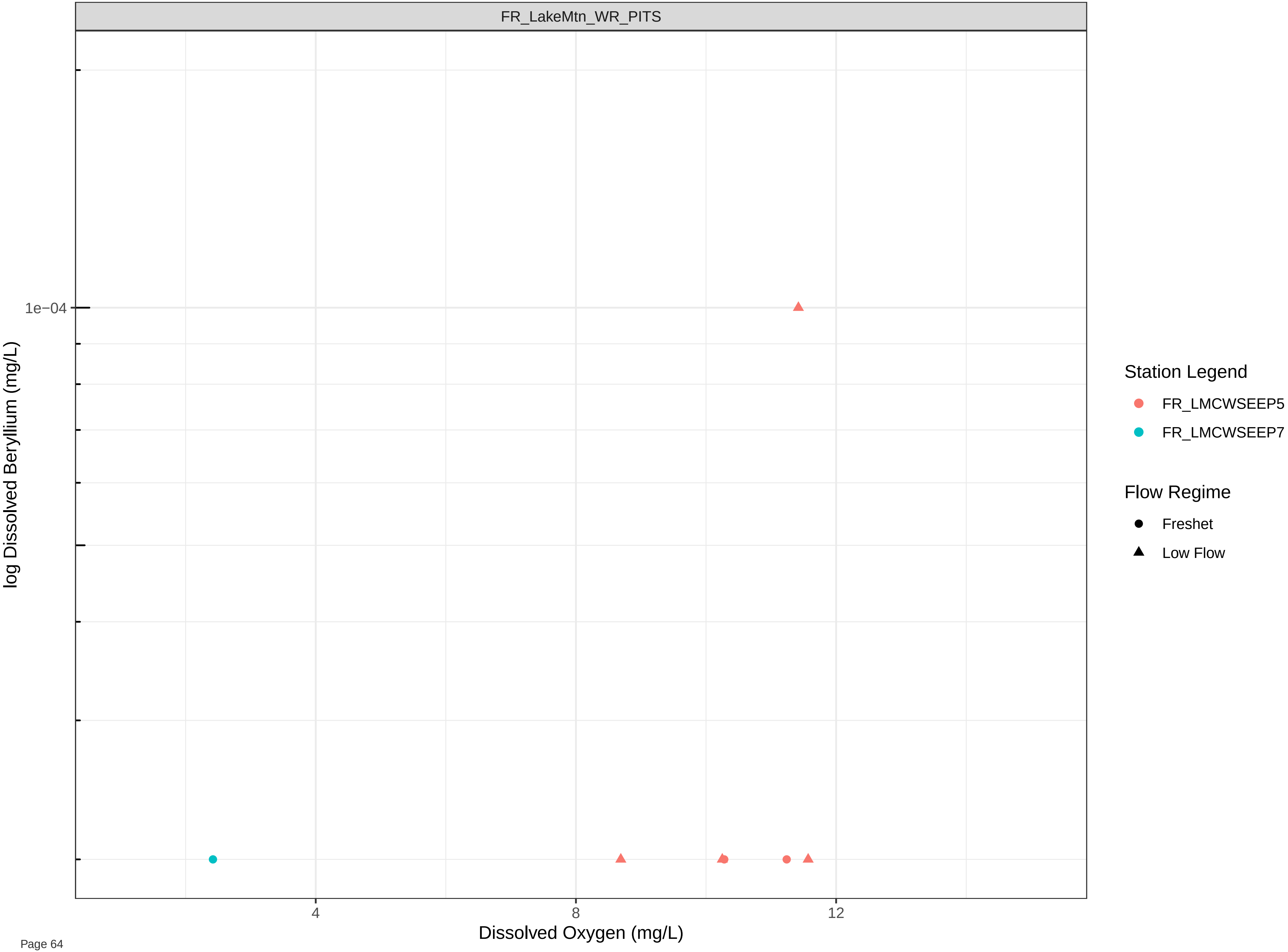
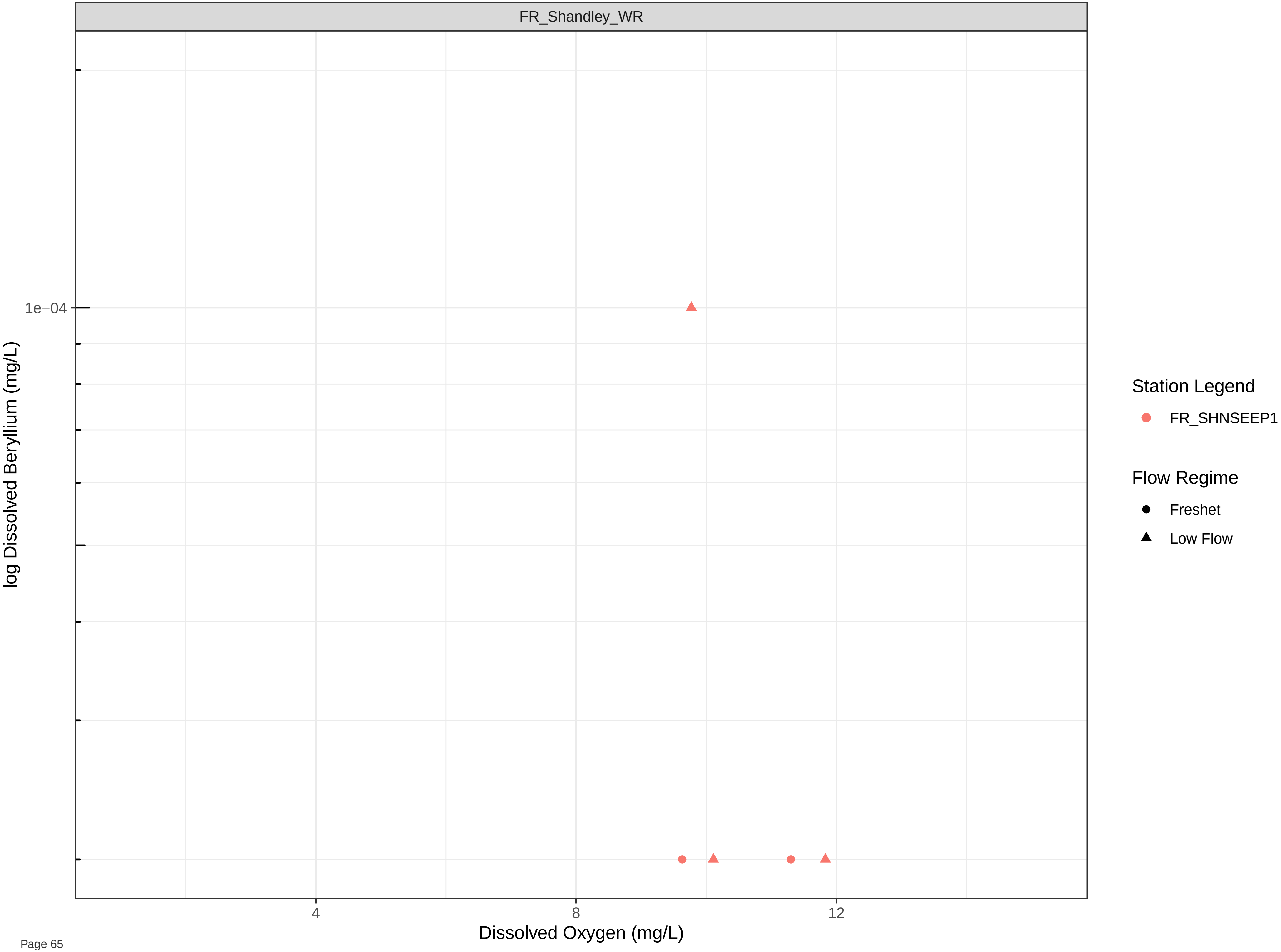
1e−04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

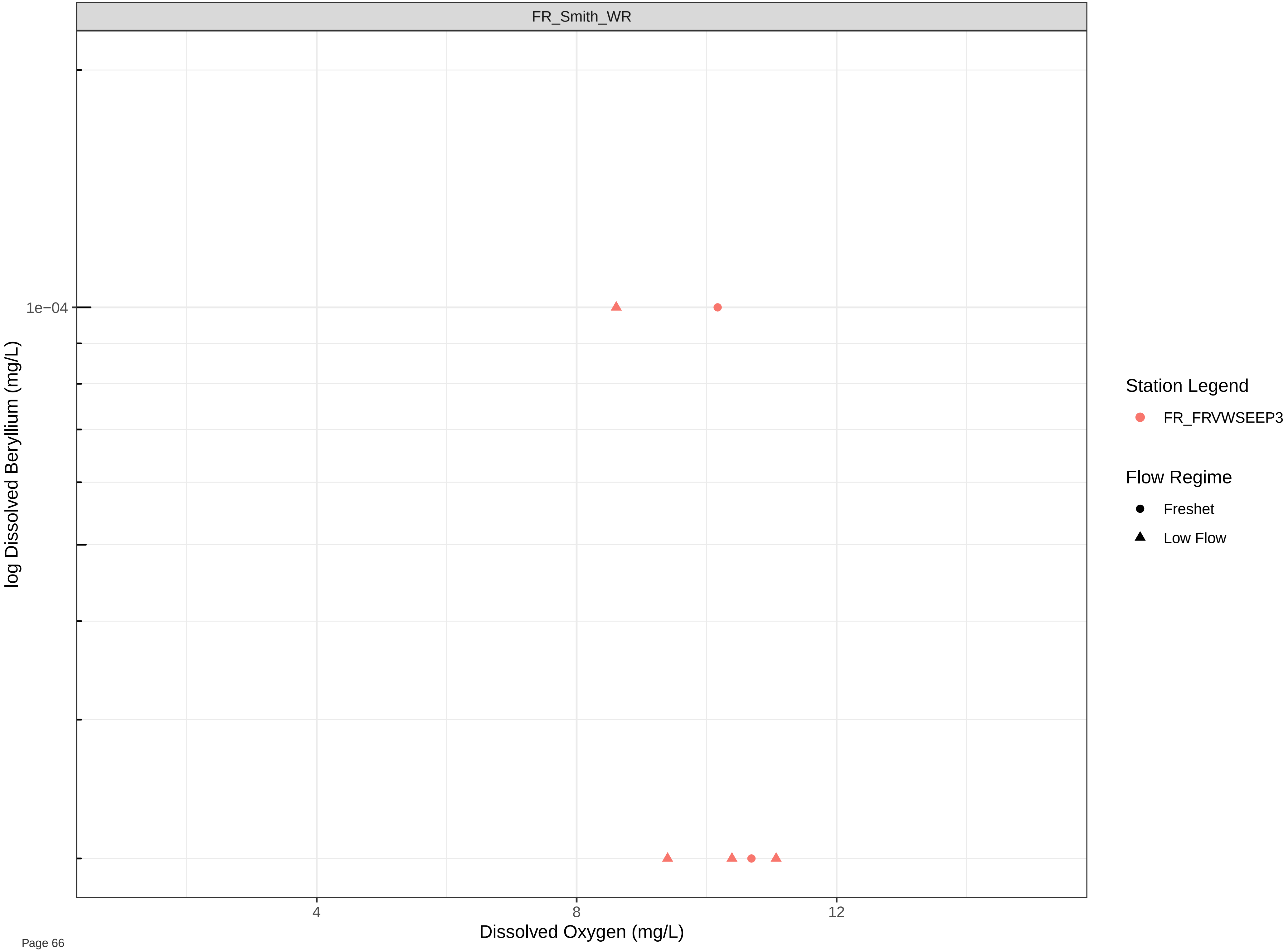

FR_Eagle_WR
1e−04
log Dissolved Beryllium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

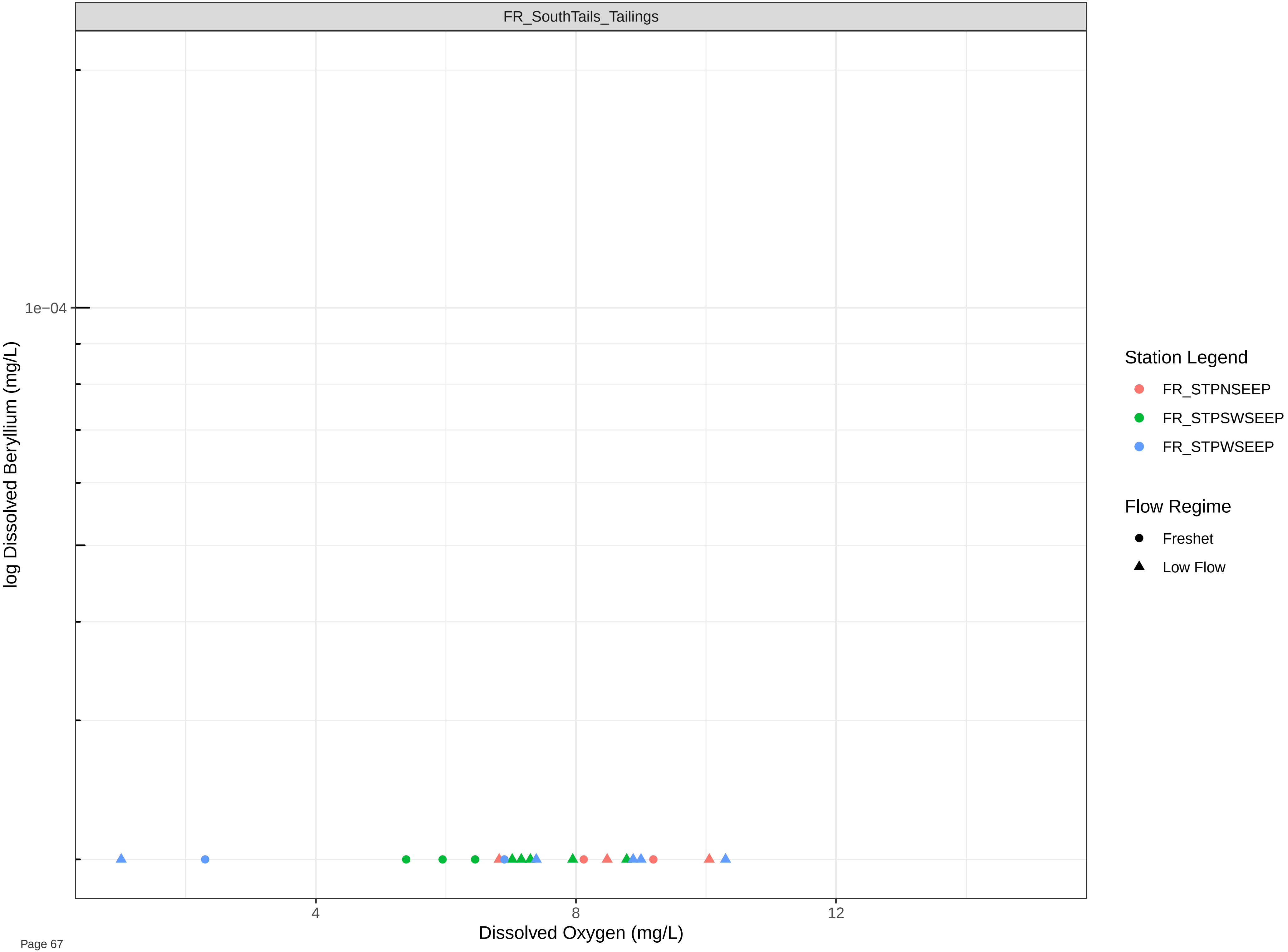

FR_Fseam_WR
1e−04
log Dissolved Beryllium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

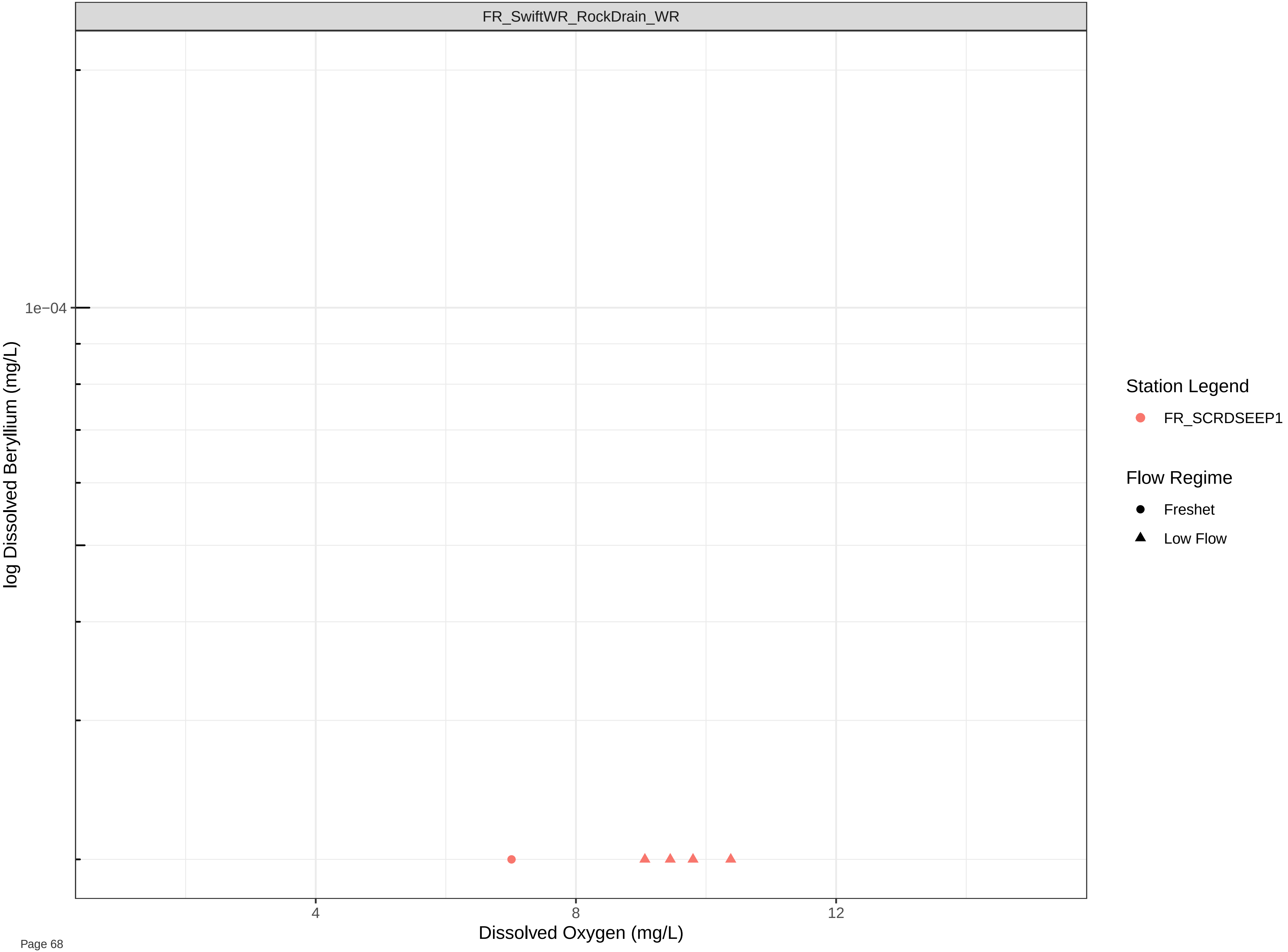

FR_HEN_WR
1e−04
log Dissolved Beryllium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

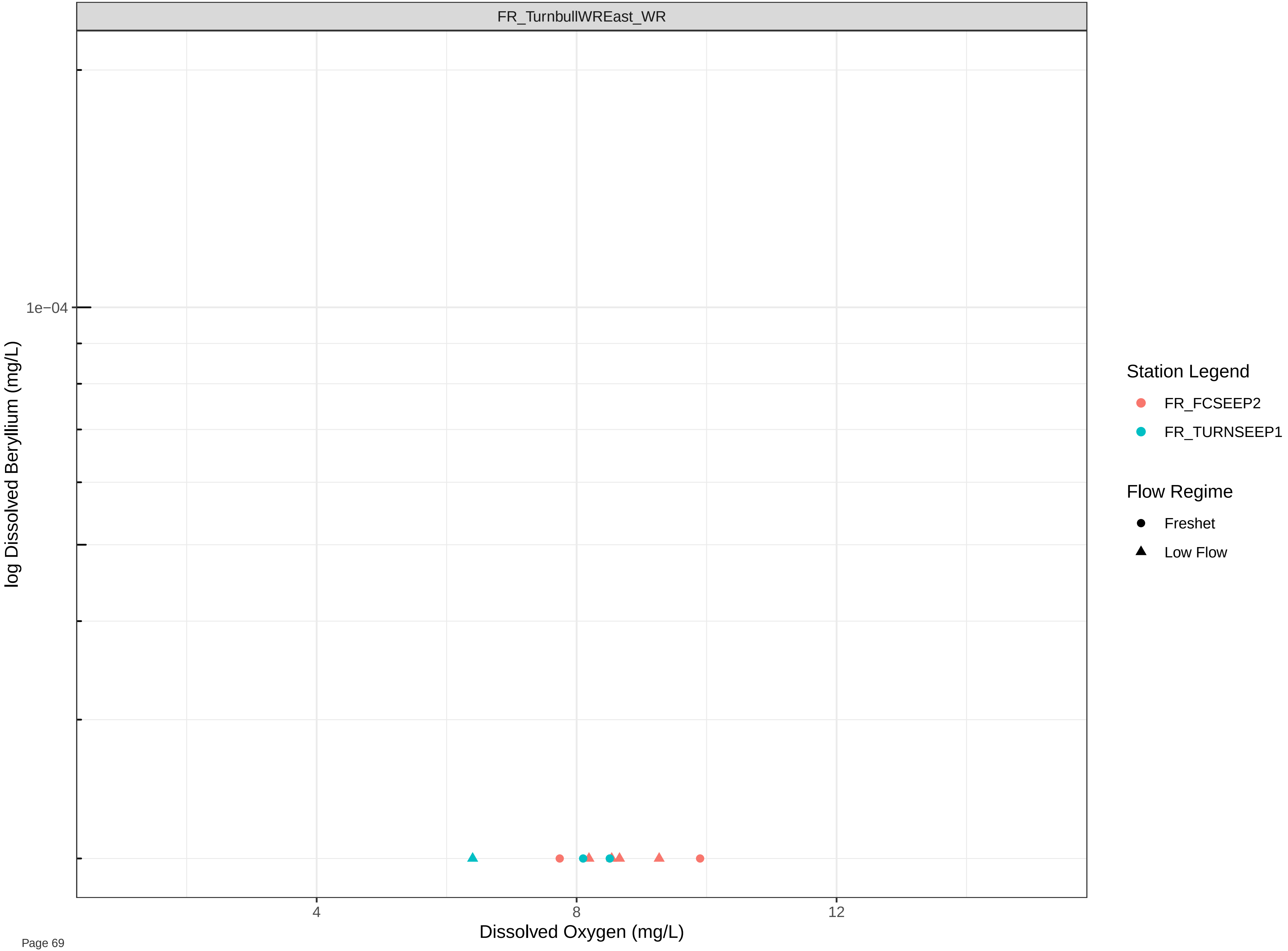

FR_LakeMtn_WR_PITS
1e−04
log Dissolved Beryllium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow

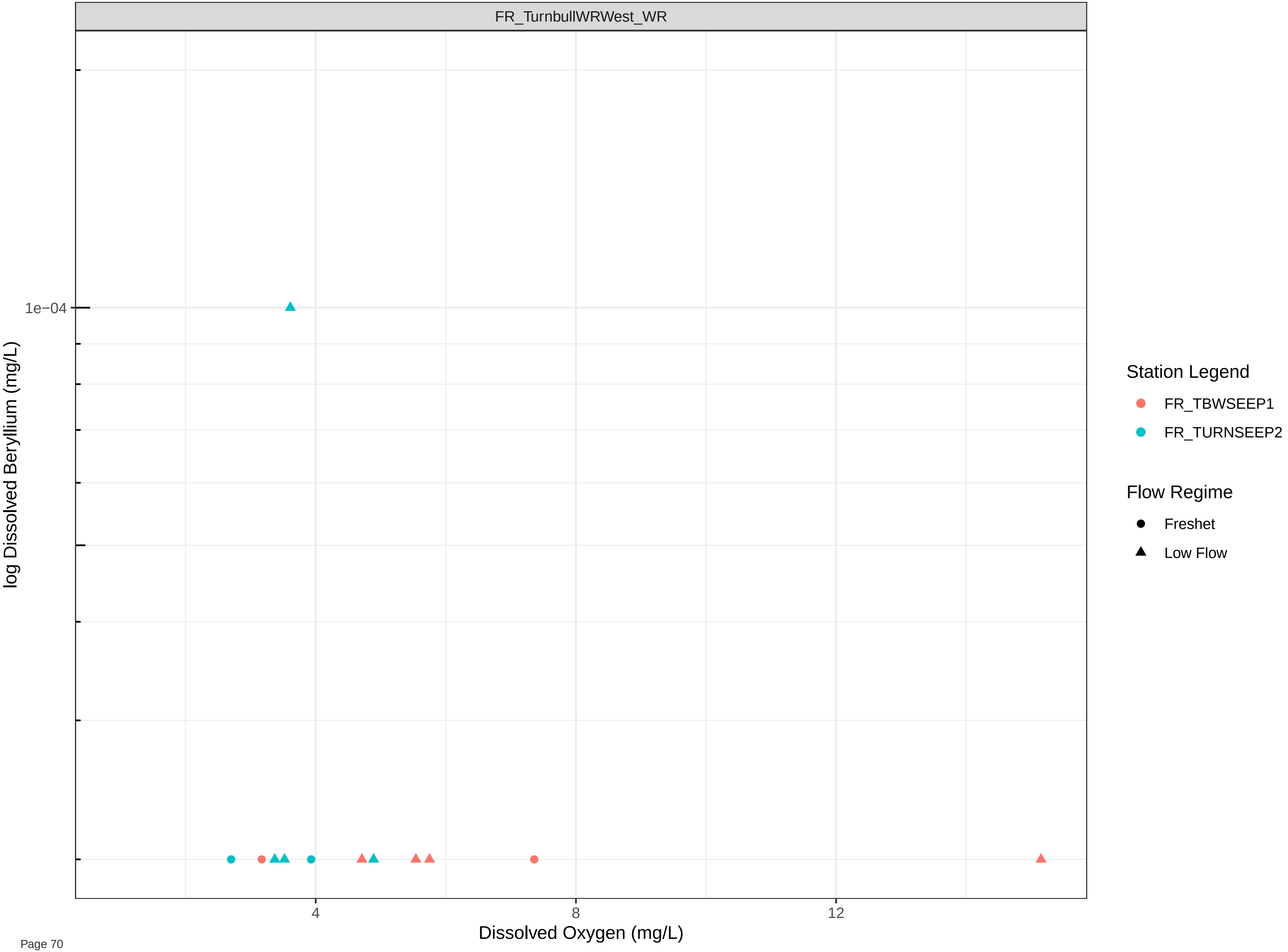

FR_Shandley_WR
1e−04
log Dissolved Beryllium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

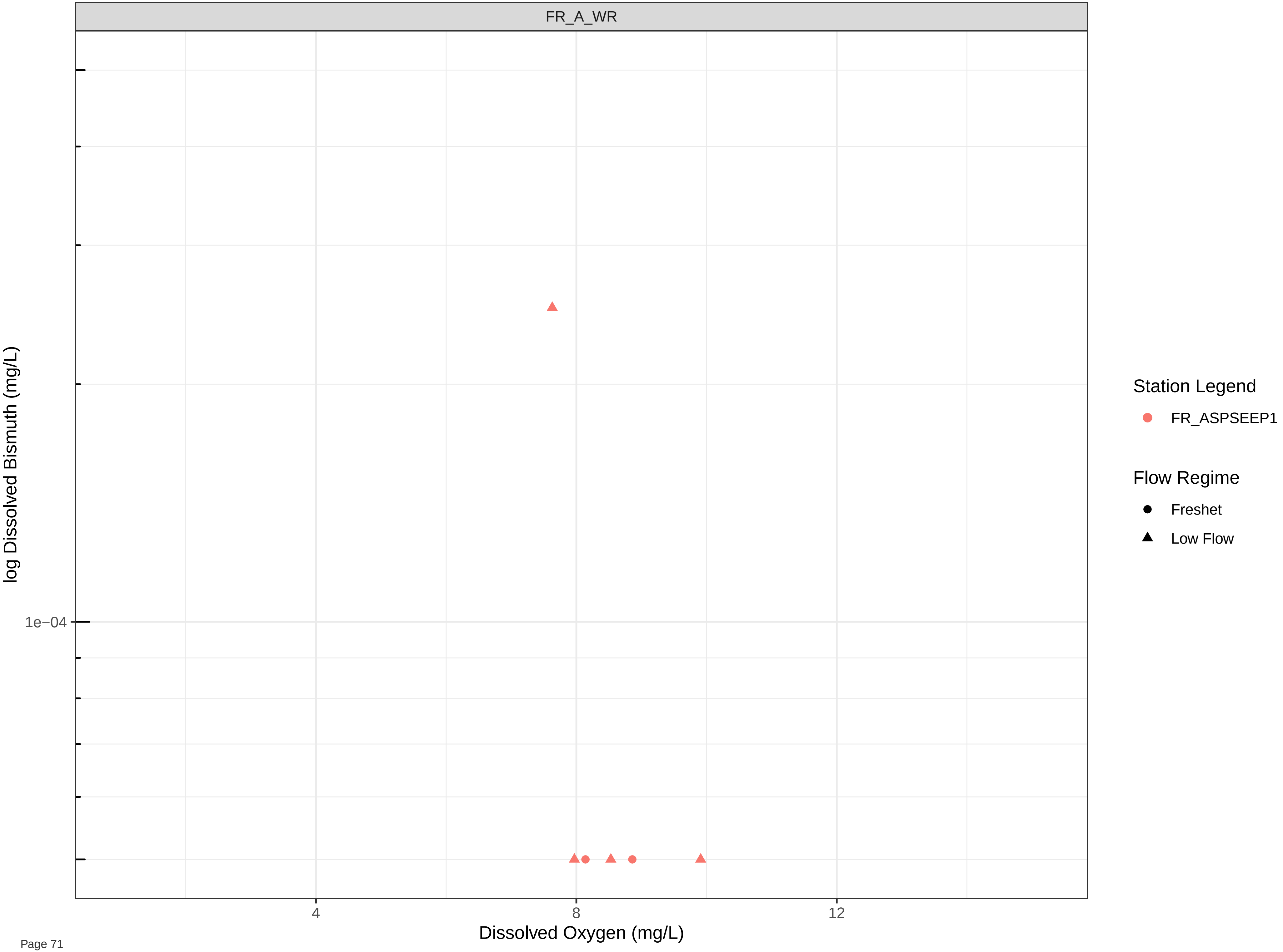

FR_Smith_WR
1e−04
log Dissolved Beryllium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

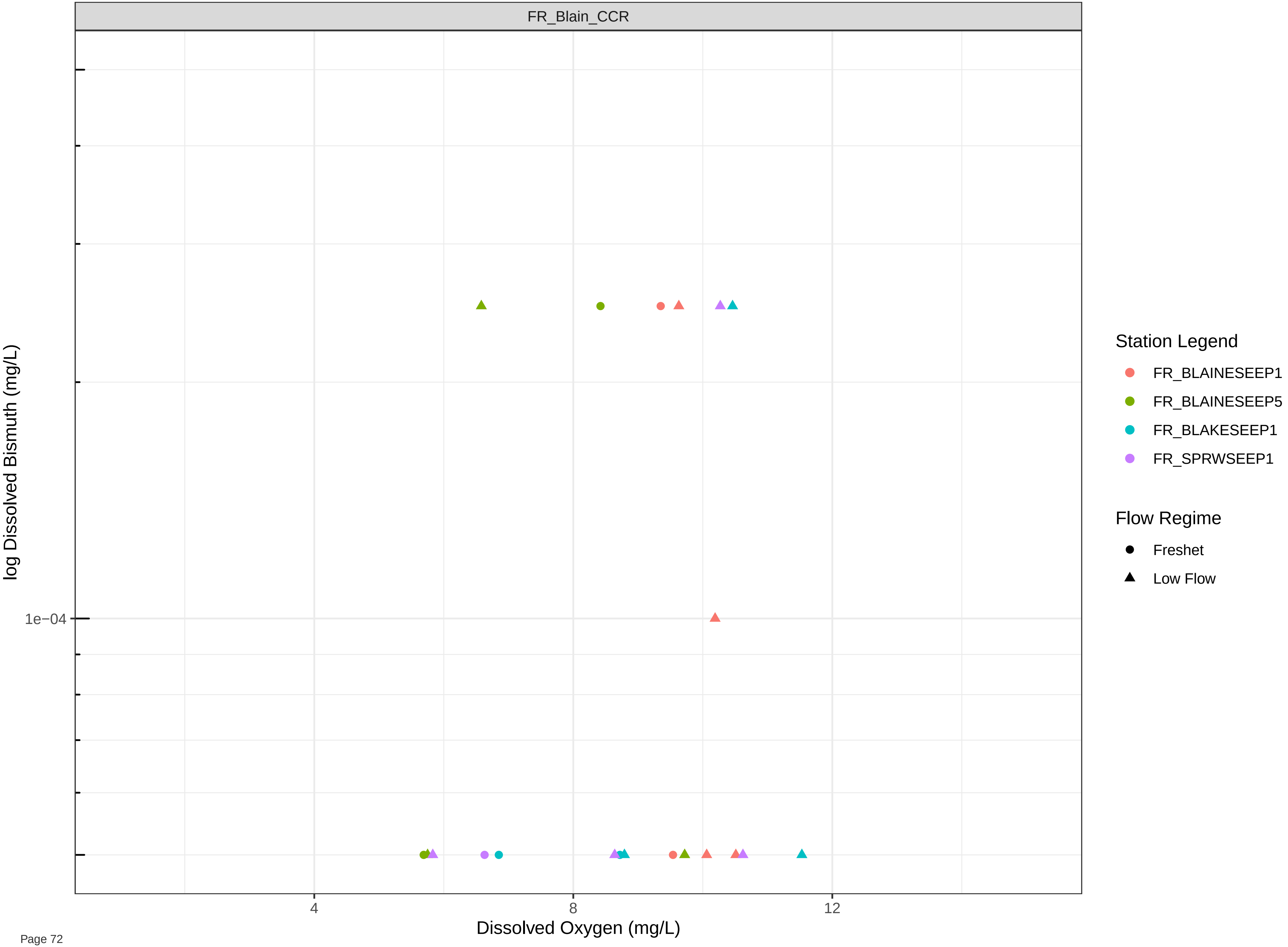

FR_SouthTails_Tailings
log Dissolved Beryllium (mg/L)
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

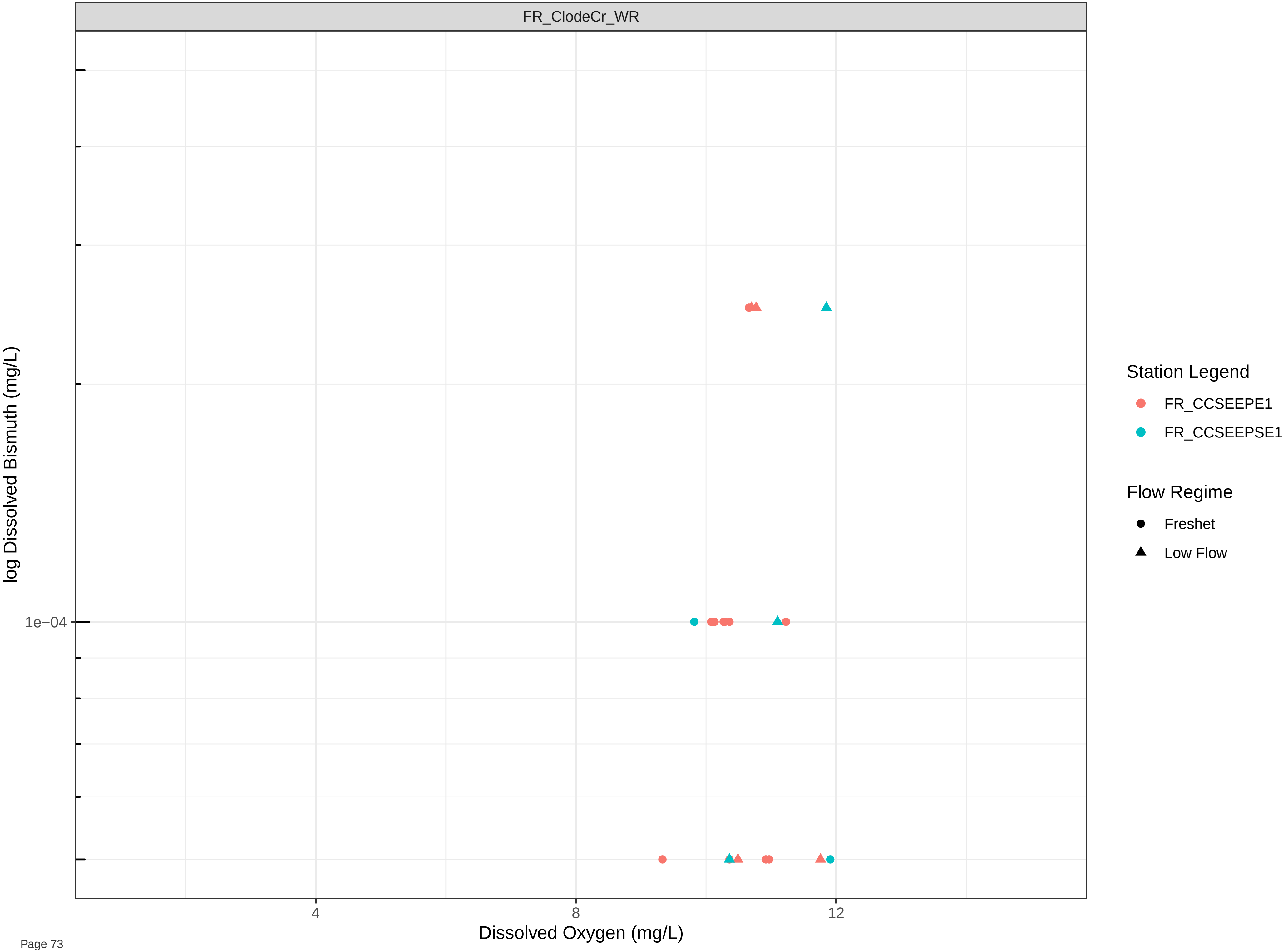

FR_SwiftWR_RockDrain_WR
1e−04
log Dissolved Beryllium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

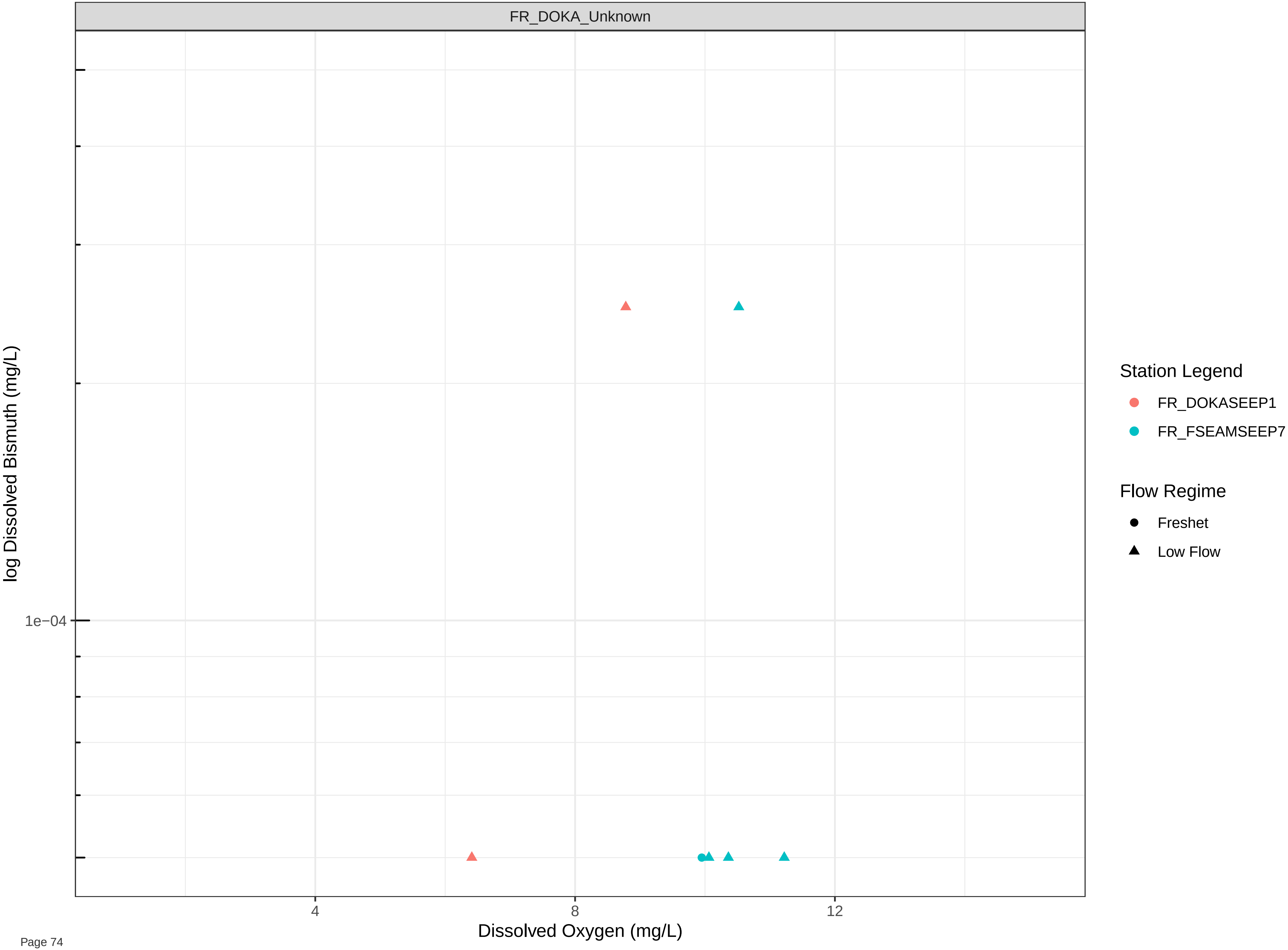

FR_TurnbullWREast_WR
1e−04
log Dissolved Beryllium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

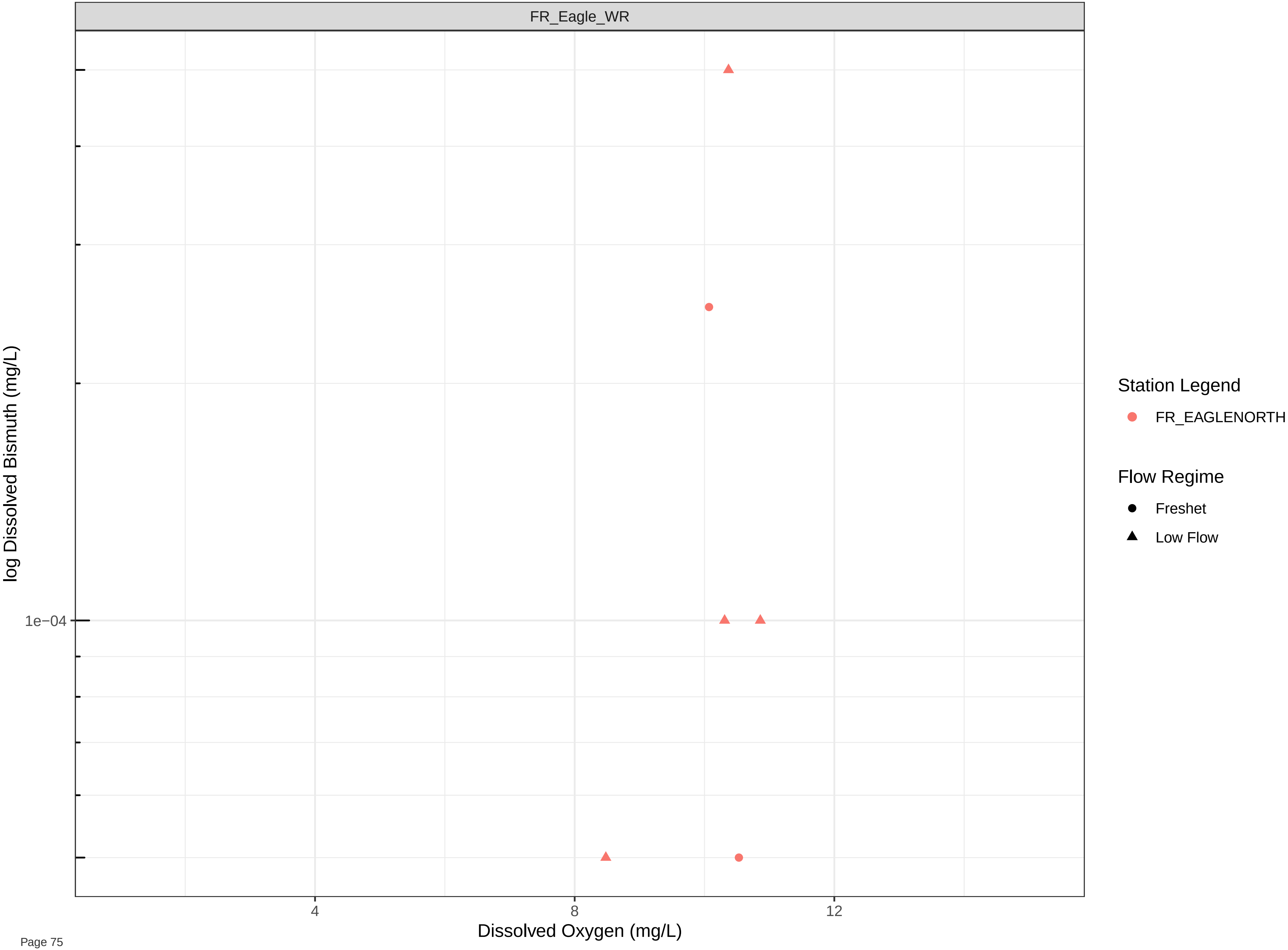

FR_TurnbullWRWest_WR
1e−04
log Dissolved Beryllium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

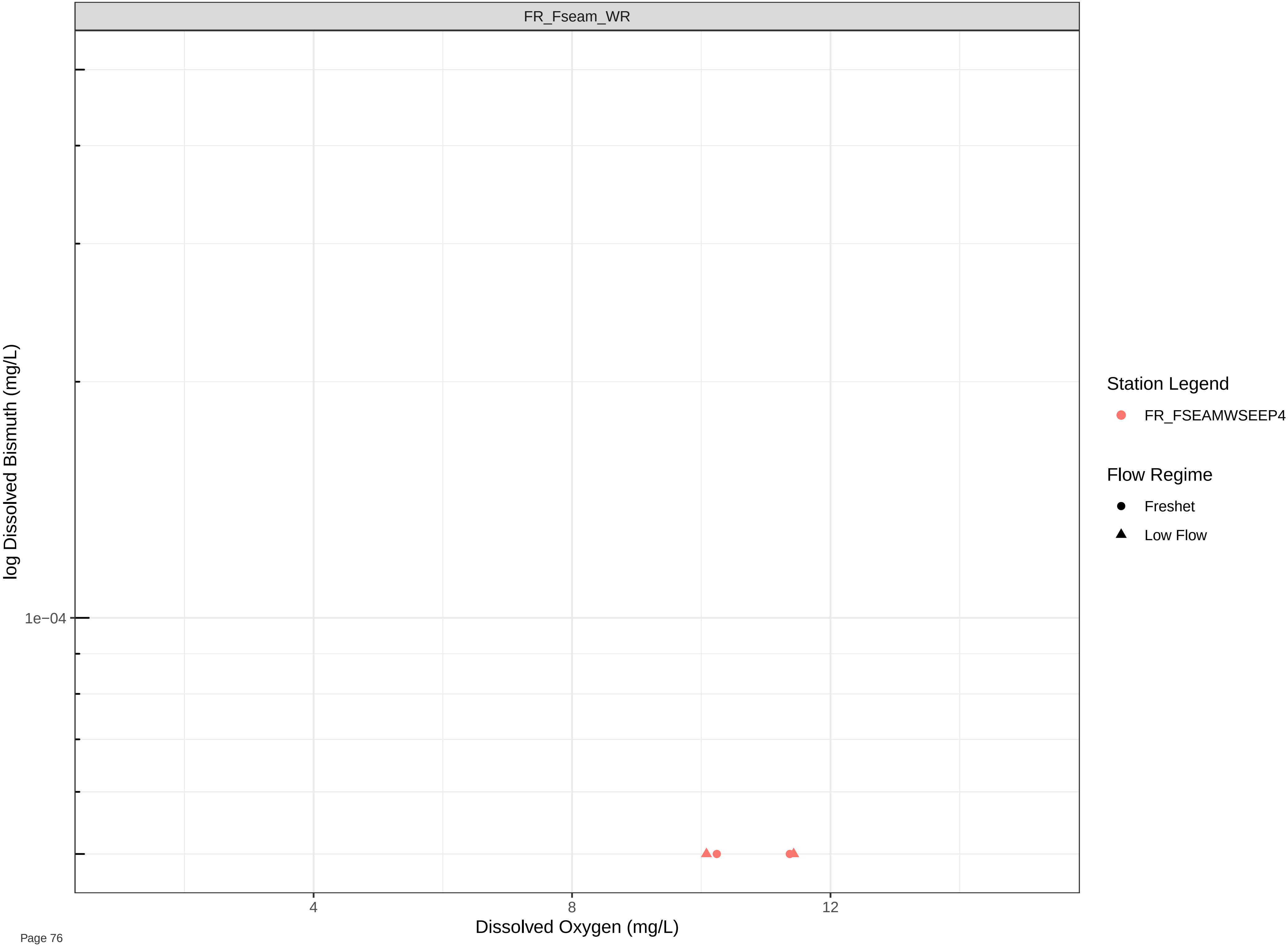

FR_A_WR
log Dissolved Bismuth (mg/L)
1e−04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

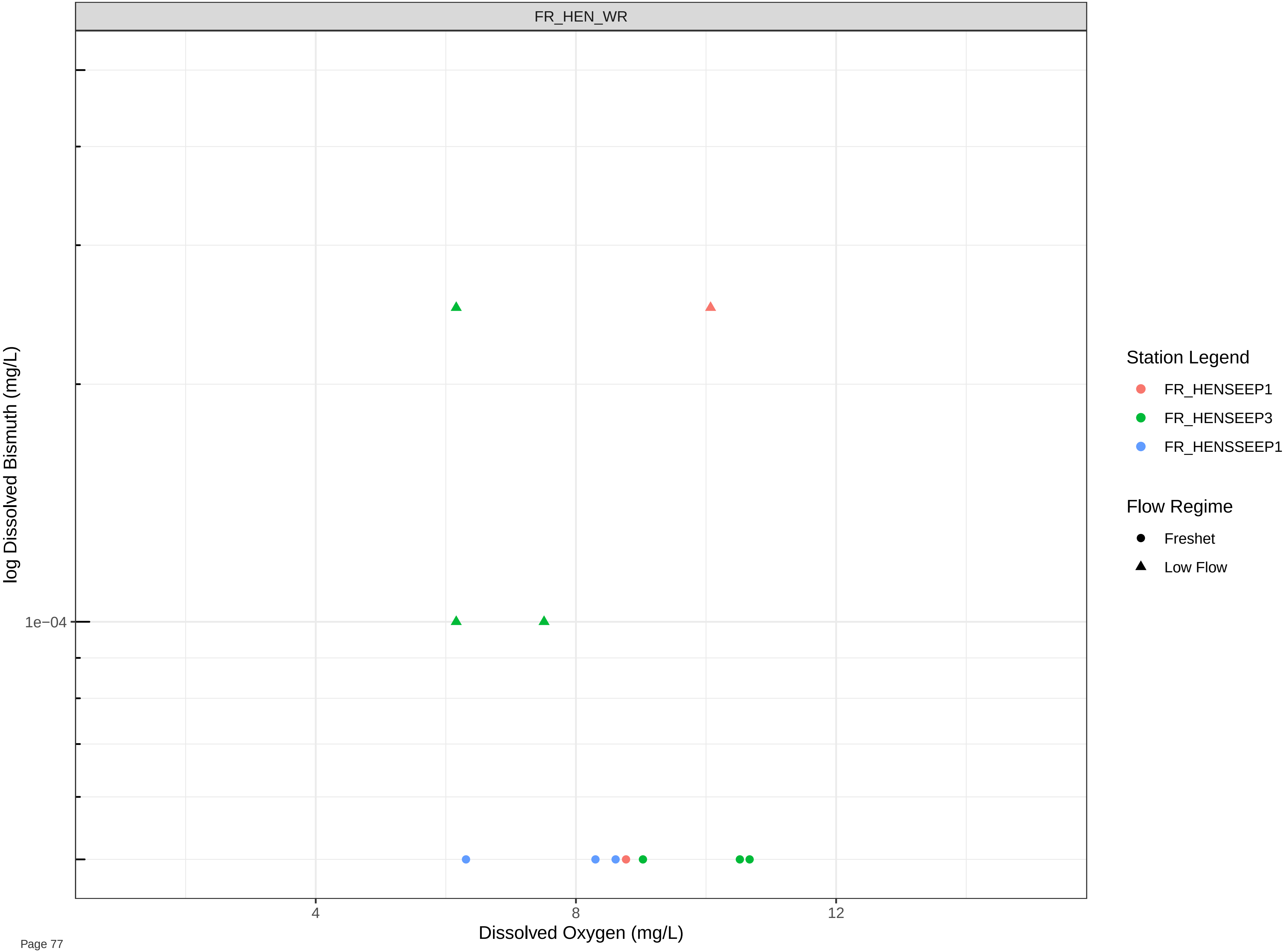

FR_Blain_CCR
log Dissolved Bismuth (mg/L)
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

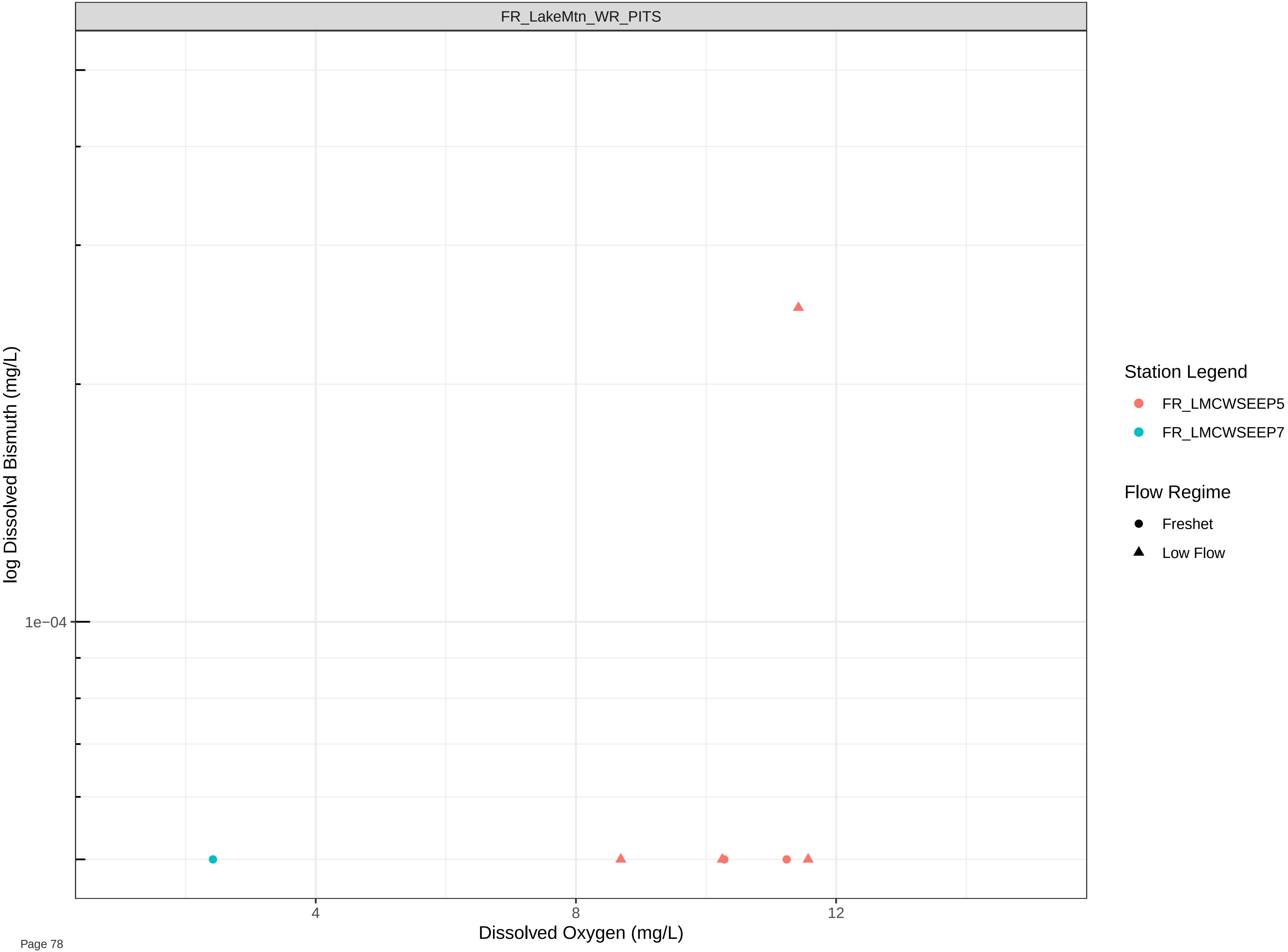

FR_ClodeCr_WR
log Dissolved Bismuth (mg/L)
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

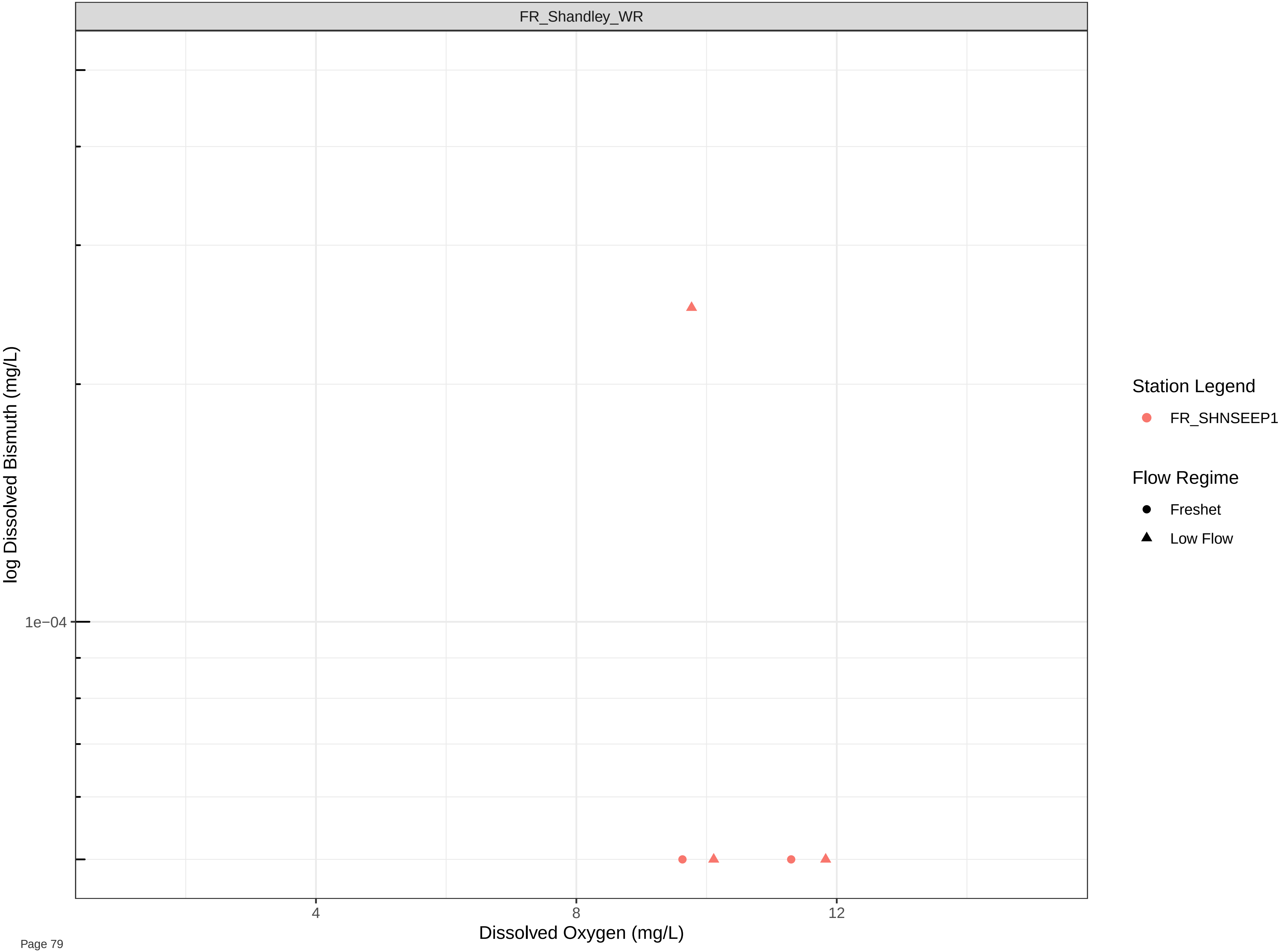

FR_DOKA_Unknown
log Dissolved Bismuth (mg/L)
1e−04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow

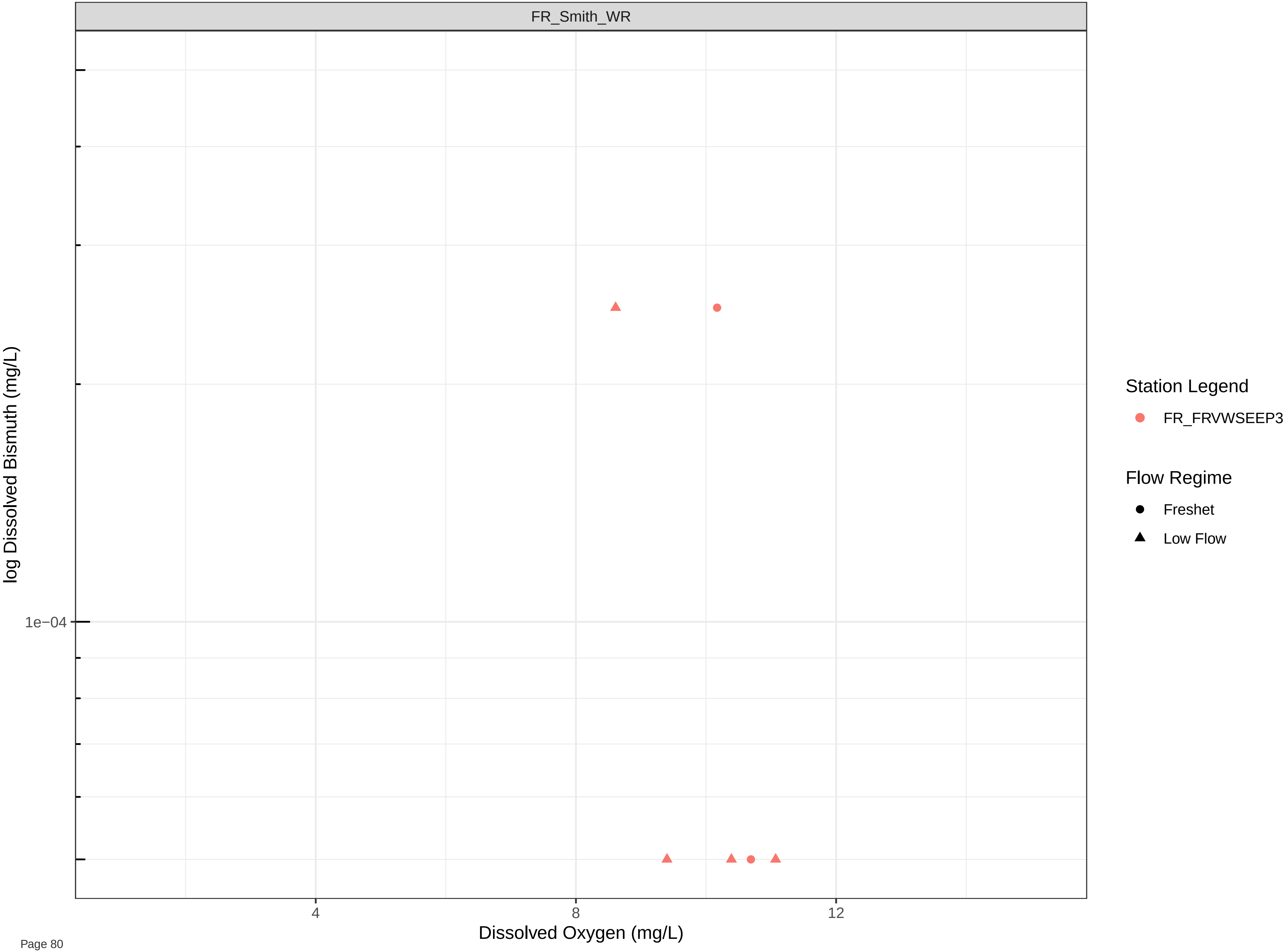

FR_Eagle_WR
log Dissolved Bismuth (mg/L)
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

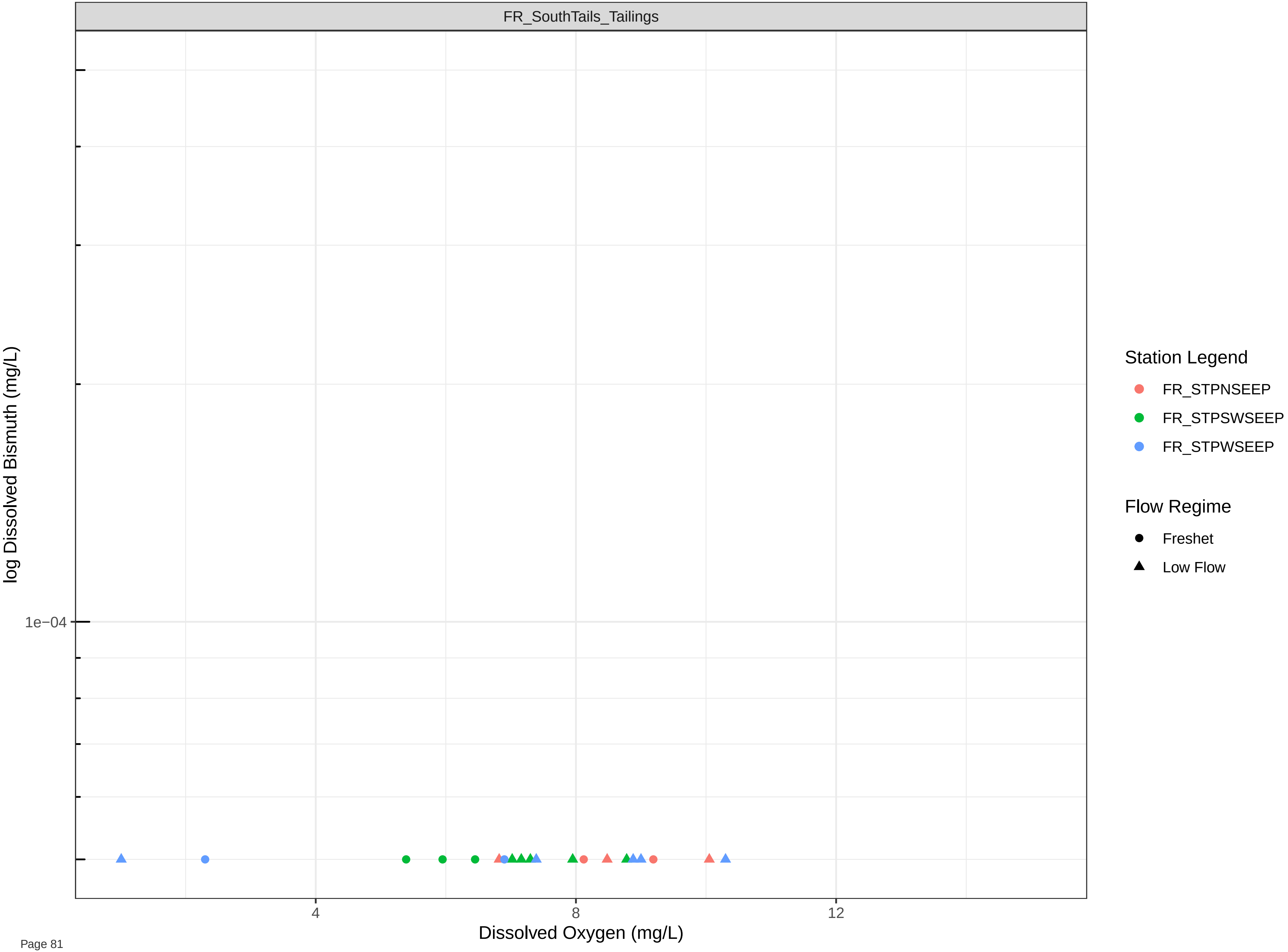

FR_Fseam_WR
log Dissolved Bismuth (mg/L)
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

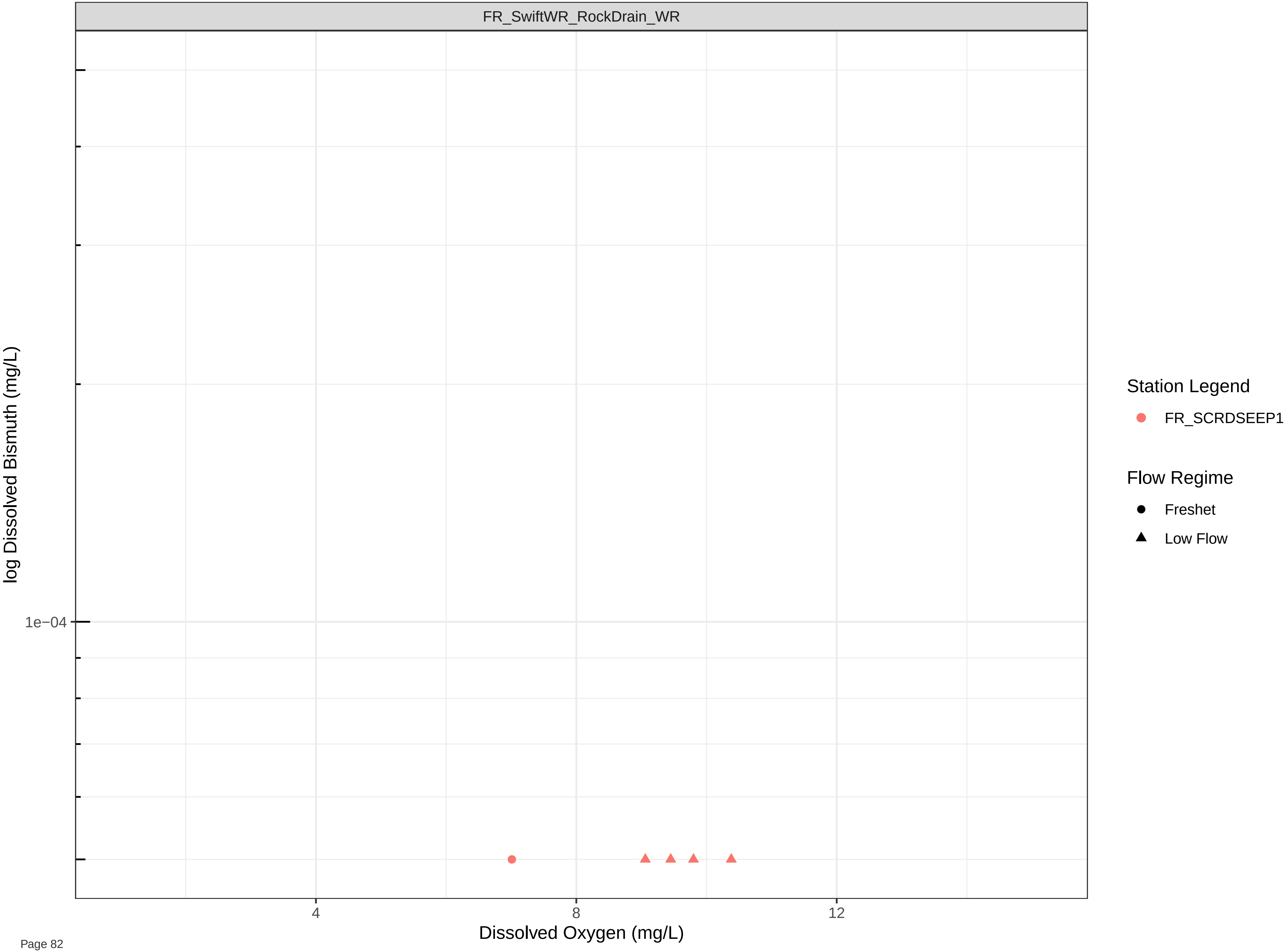

FR_HEN_WR
log Dissolved Bismuth (mg/L)
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

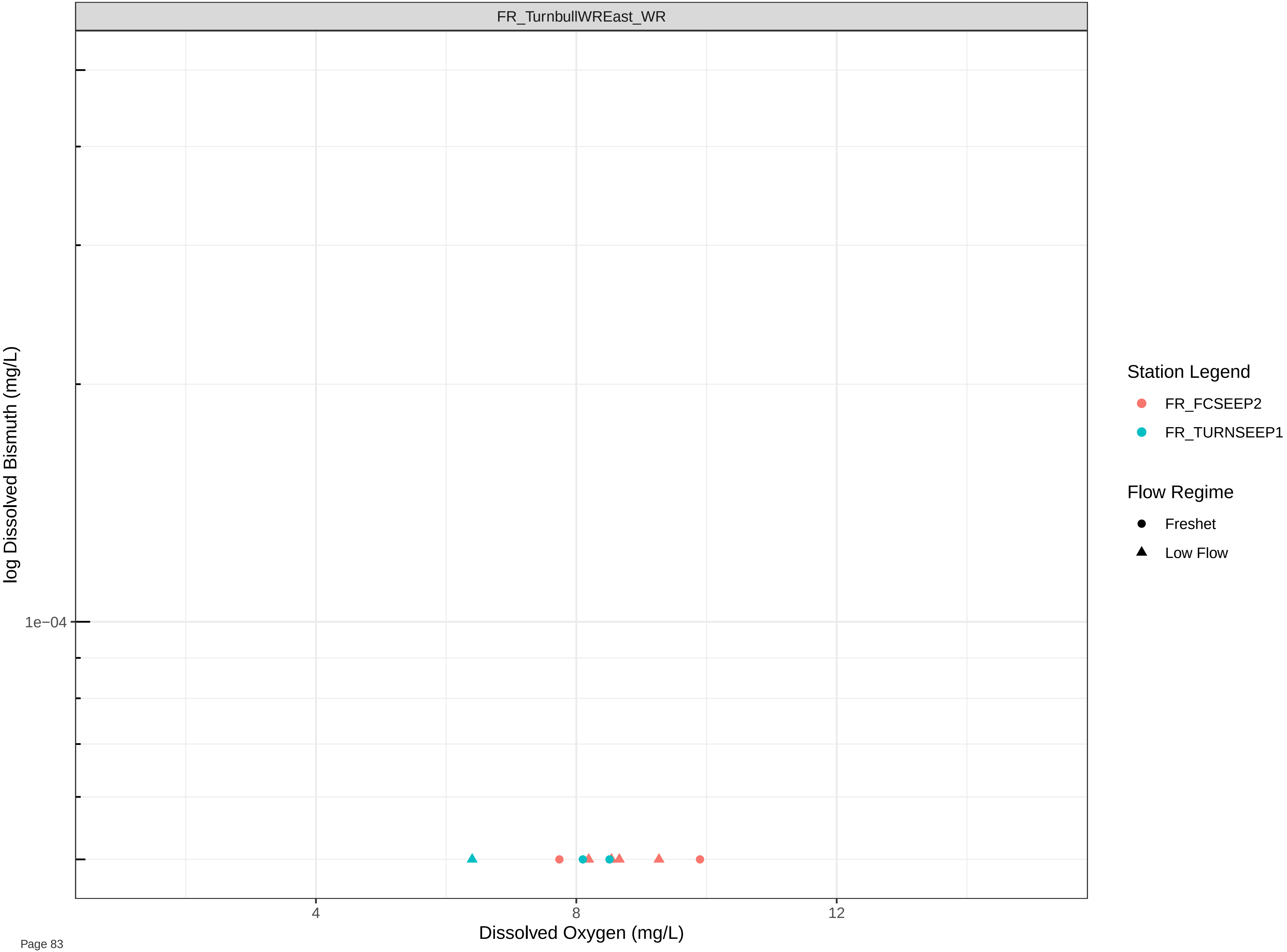

FR_LakeMtn_WR_PITS
log Dissolved Bismuth (mg/L)
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

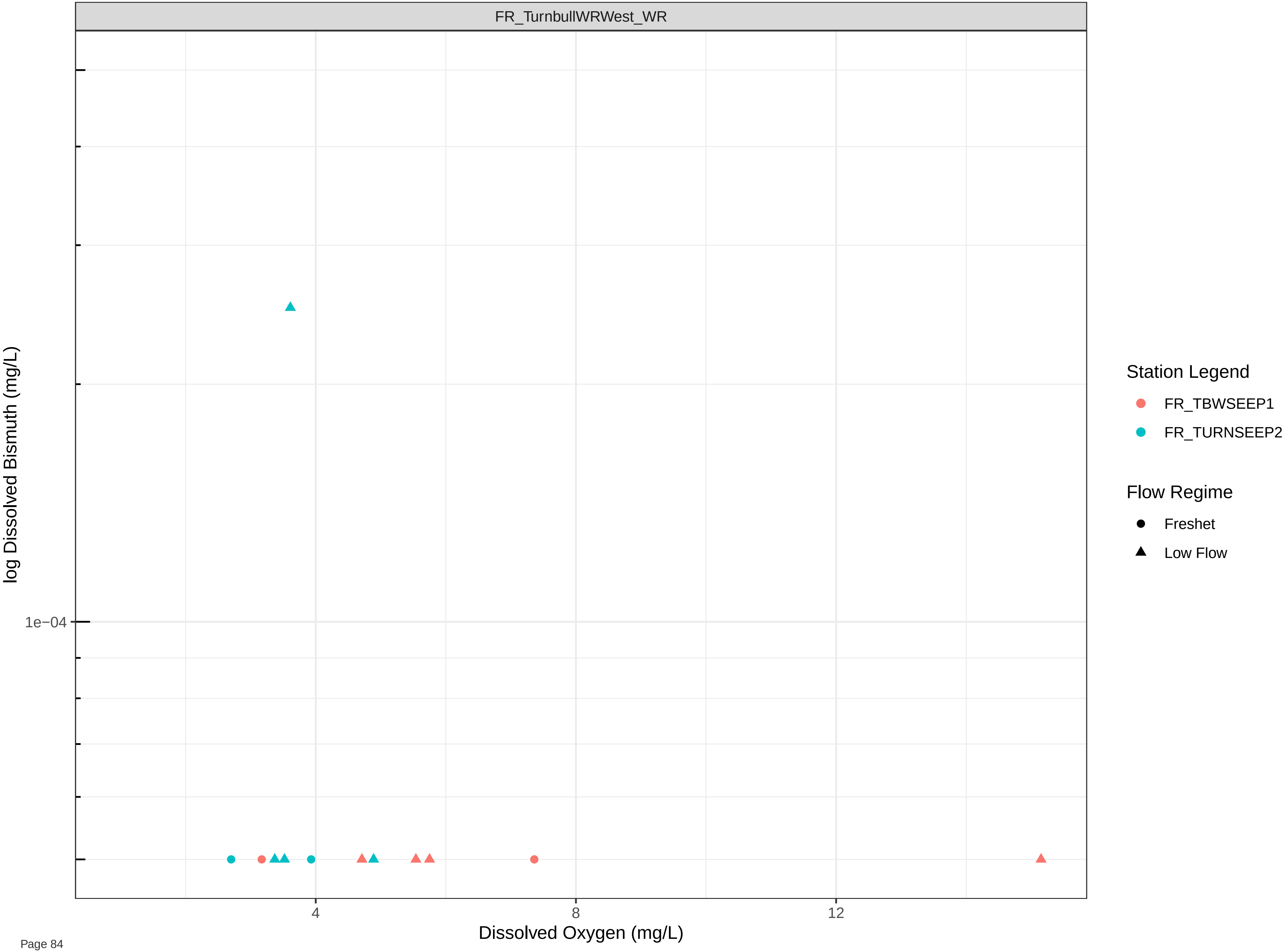

FR_Shandley_WR
log Dissolved Bismuth (mg/L)
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

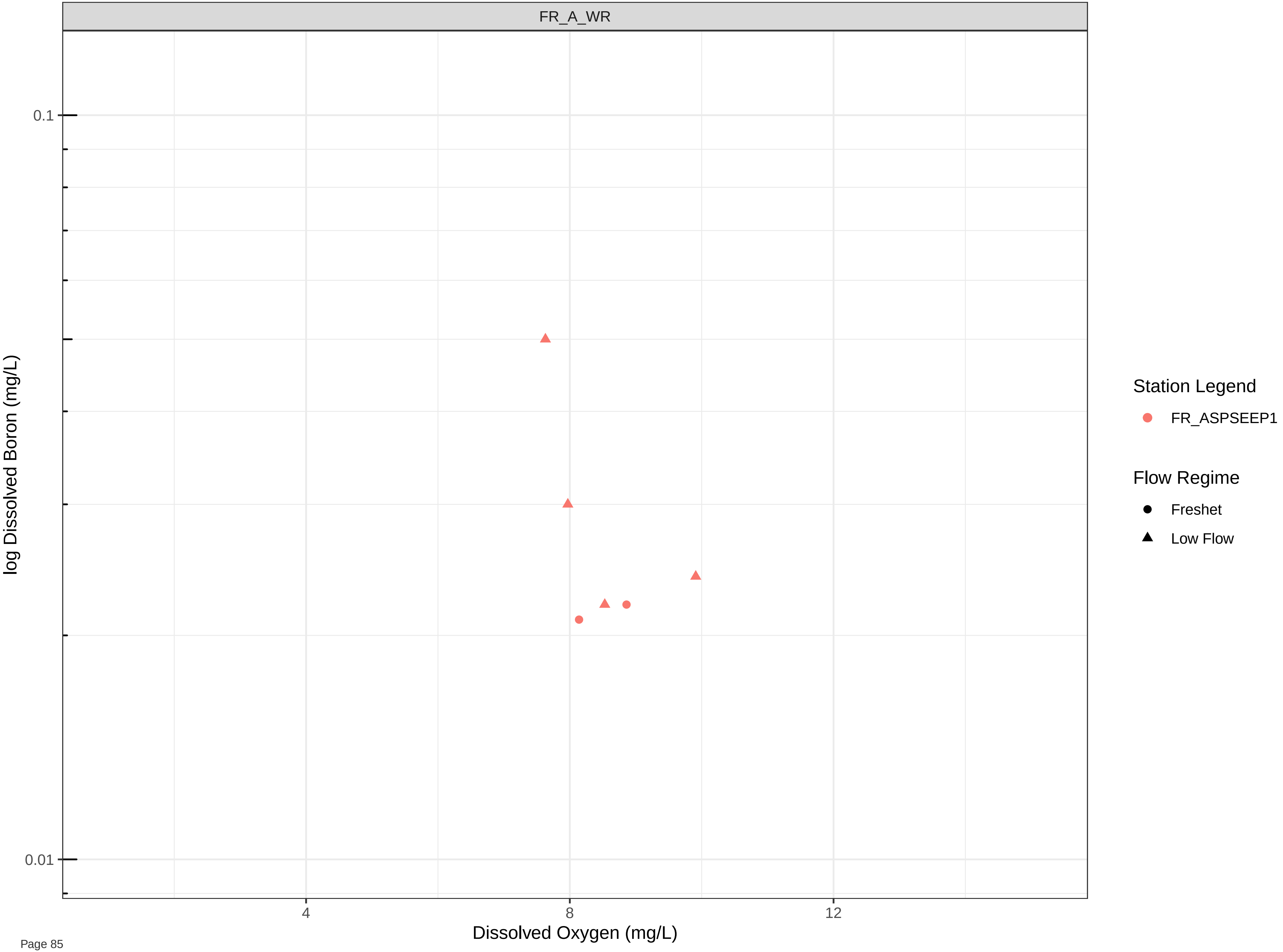

FR_Smith_WR
log Dissolved Bismuth (mg/L)
1e−04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

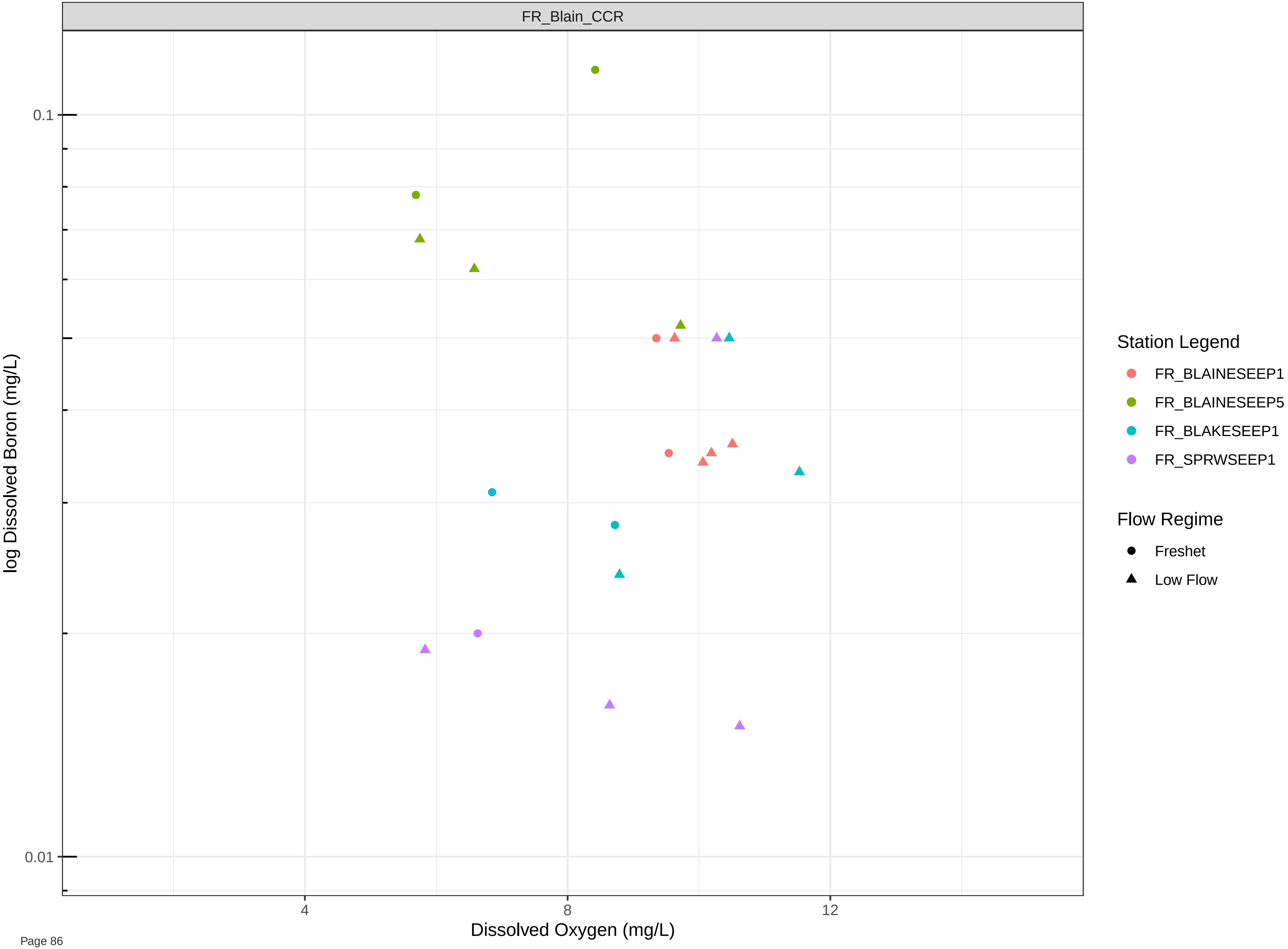

FR_SouthTails_Tailings
log Dissolved Bismuth (mg/L)
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

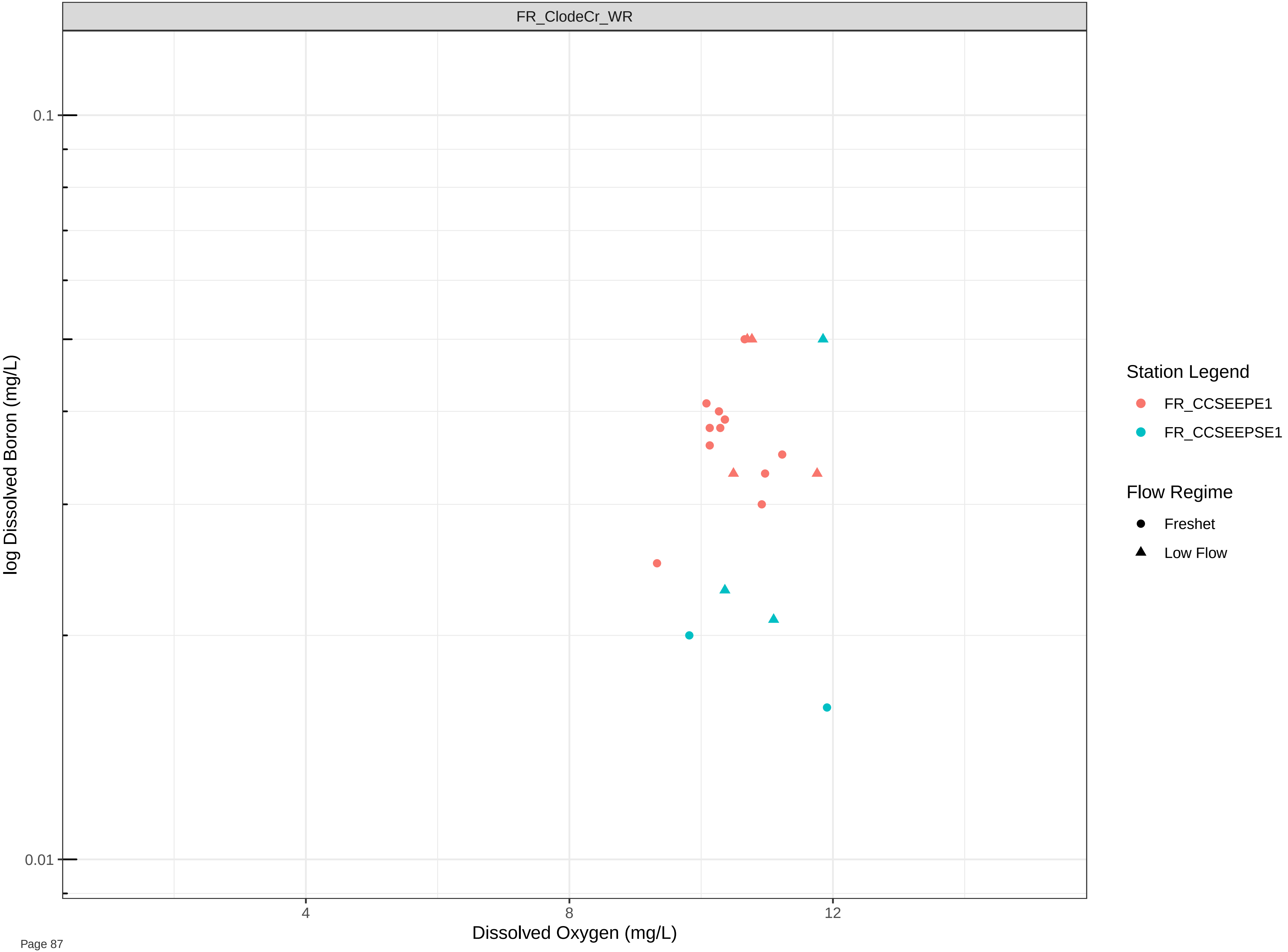

FR_SwiftWR_RockDrain_WR
log Dissolved Bismuth (mg/L)
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWREast_WR
log Dissolved Bismuth (mg/L)
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FCSEEP2
● FR_TURNSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_TurnbullWRWest_WR
log Dissolved Bismuth (mg/L)
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow


FR_A_WR
0.1
0.01
4
8
12
Dissolved Oxygen (mg/L)
log Dissolved Boron (mg/L)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow


FR_Blain_CCR
log Dissolved Boron (mg/L)
0.1
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow


FR_ClodeCr_WR
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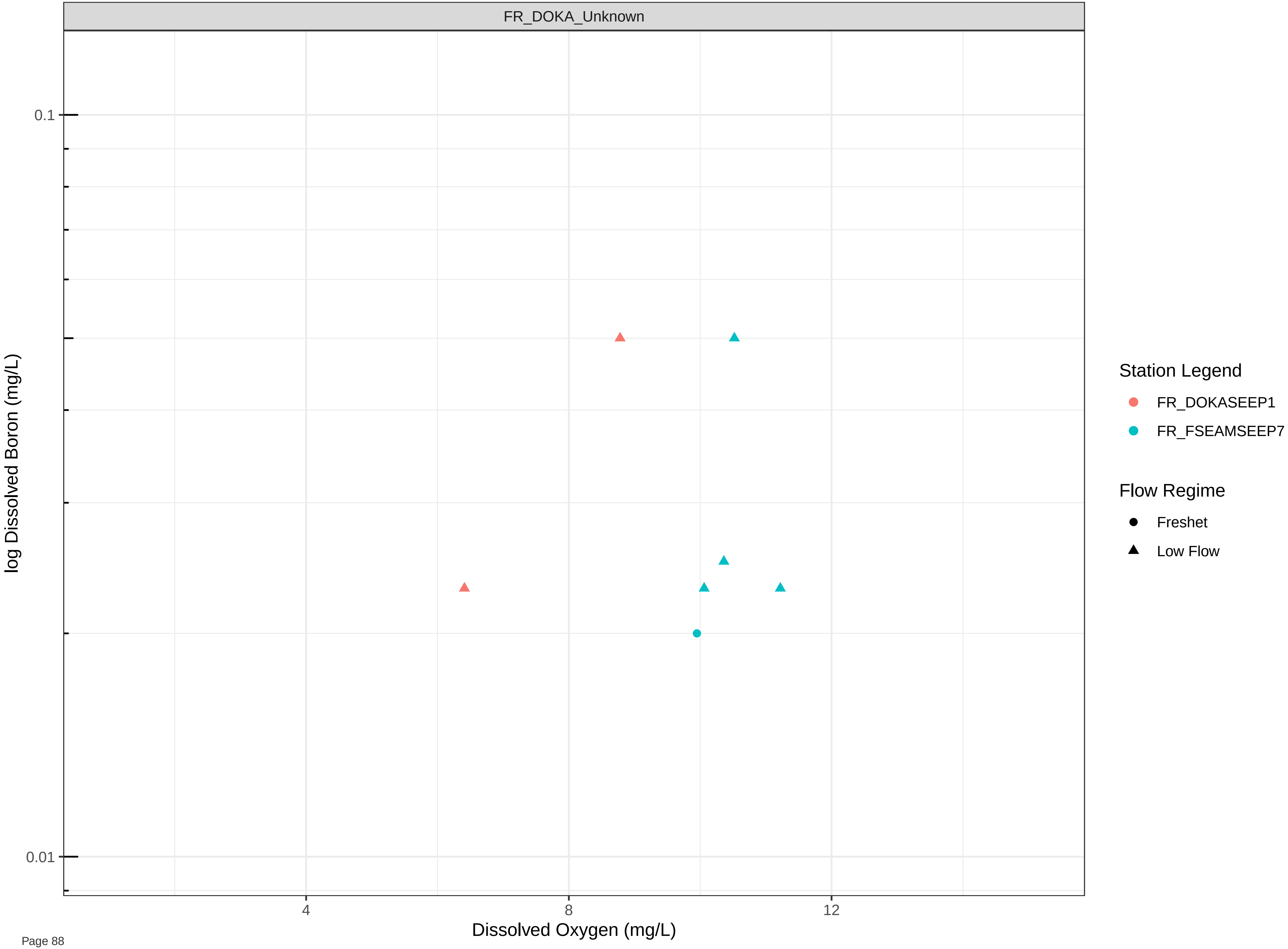
0.01
log Dissolved Boron (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow


FR_DOKA_Unknown
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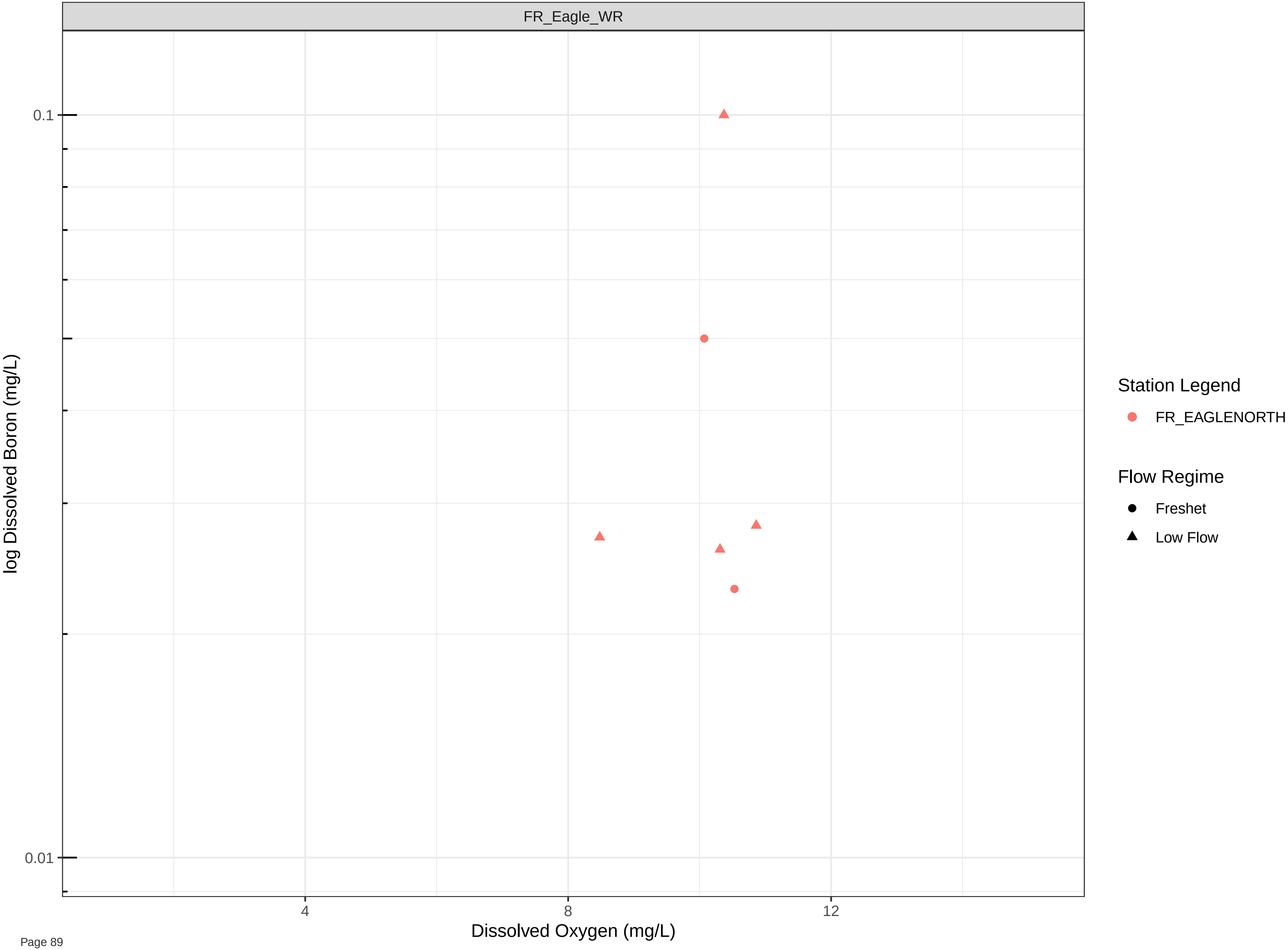
0.01
log Dissolved Boron (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow


FR_Eagle_WR
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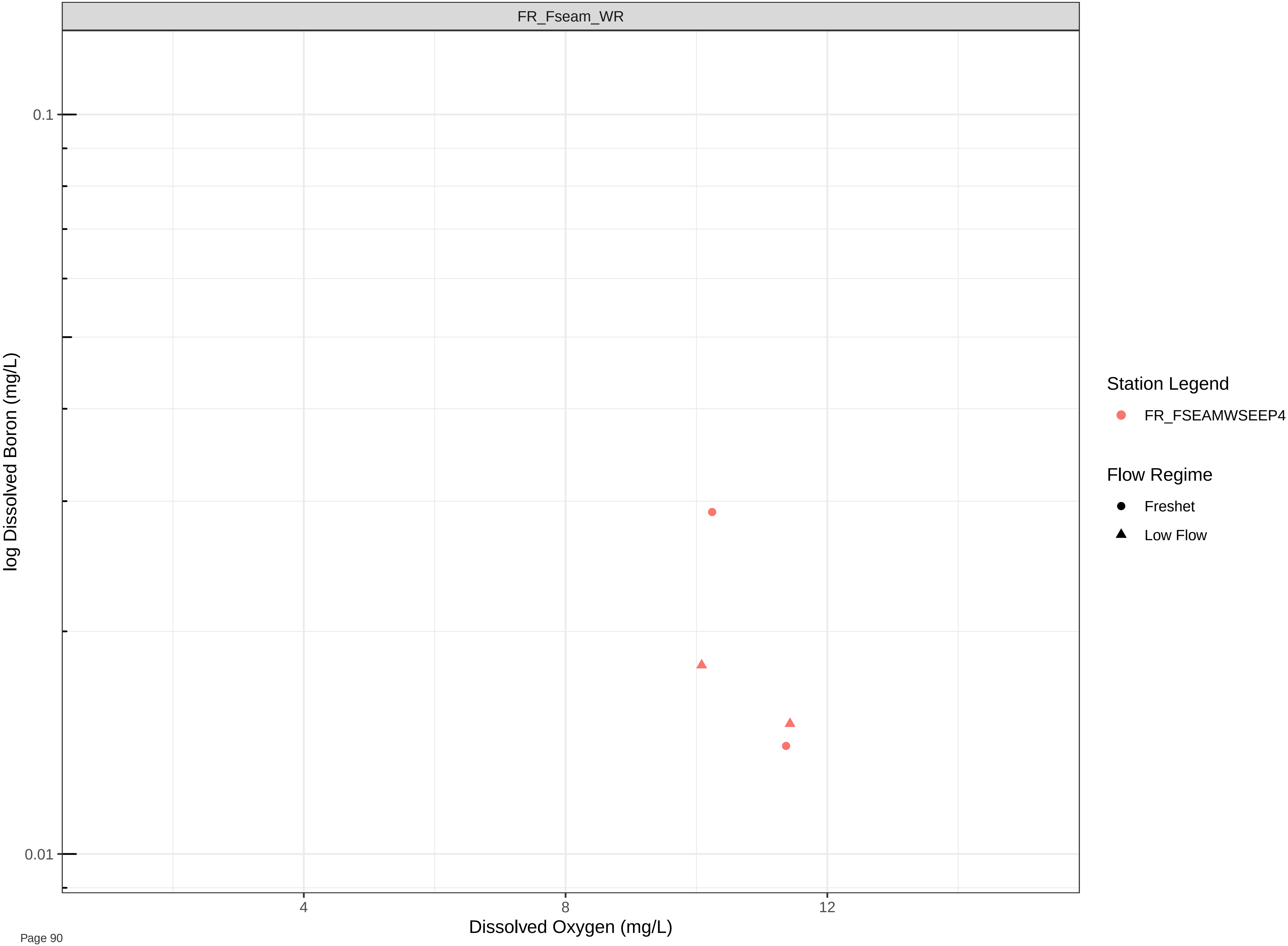
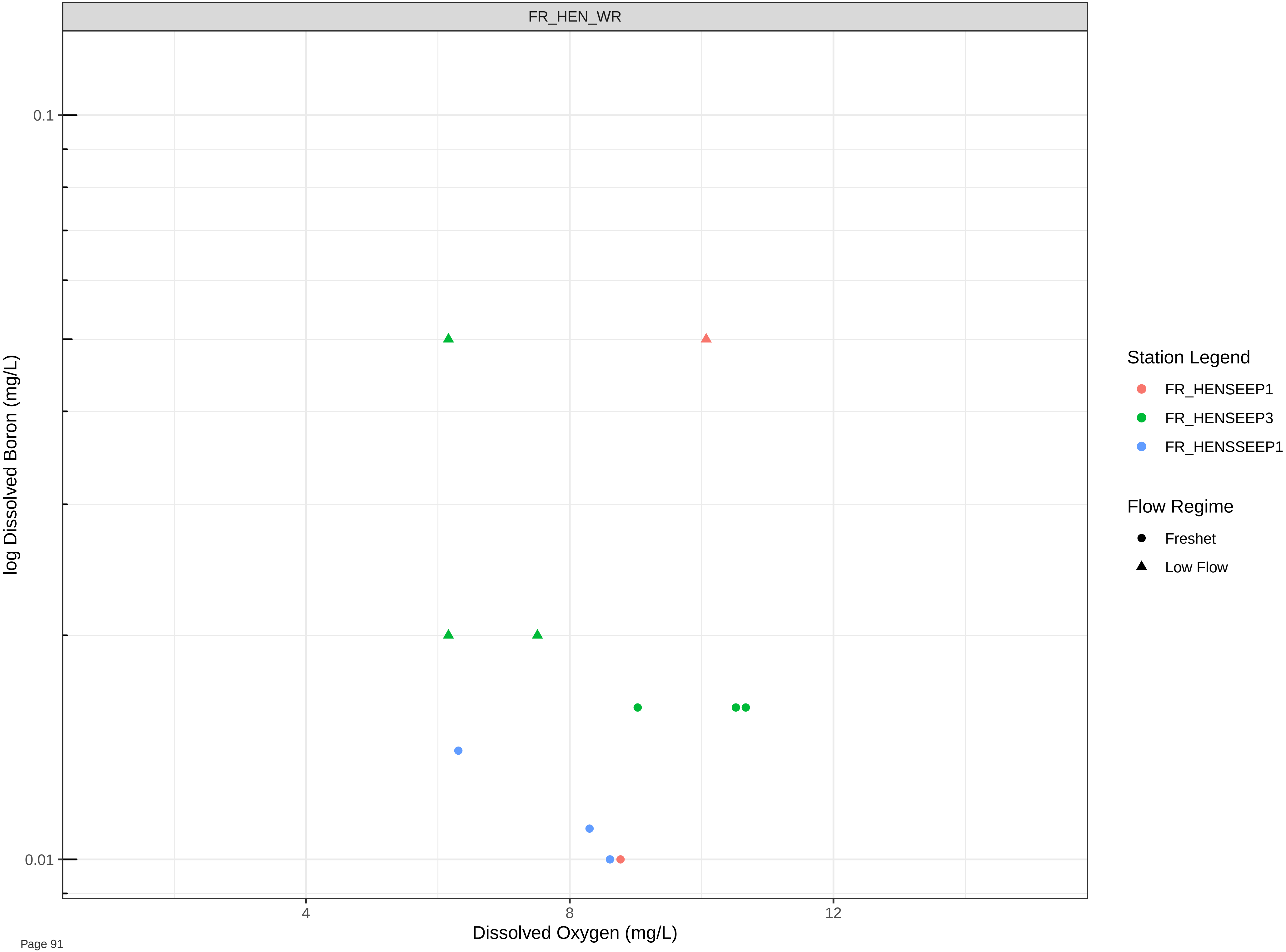
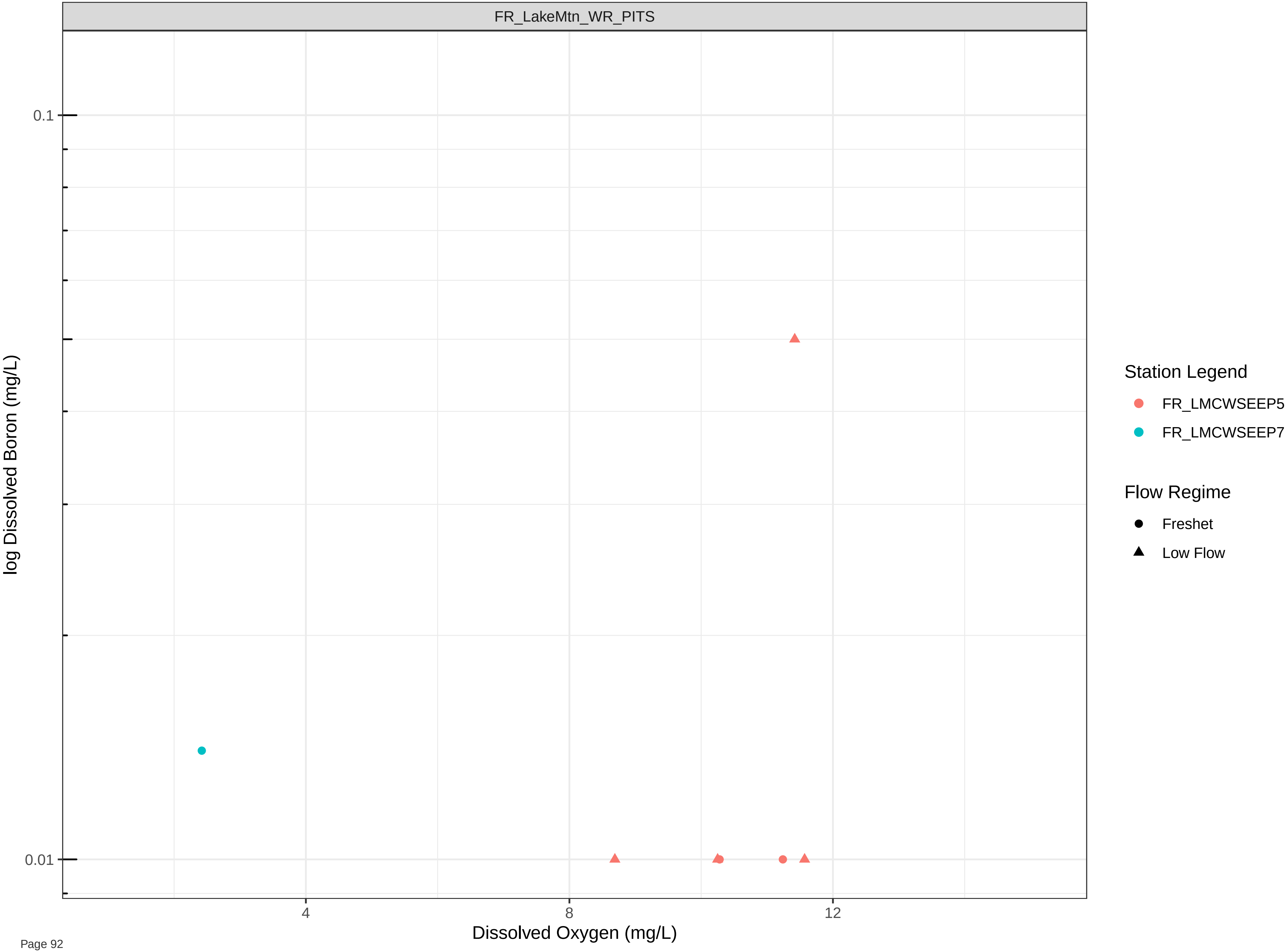
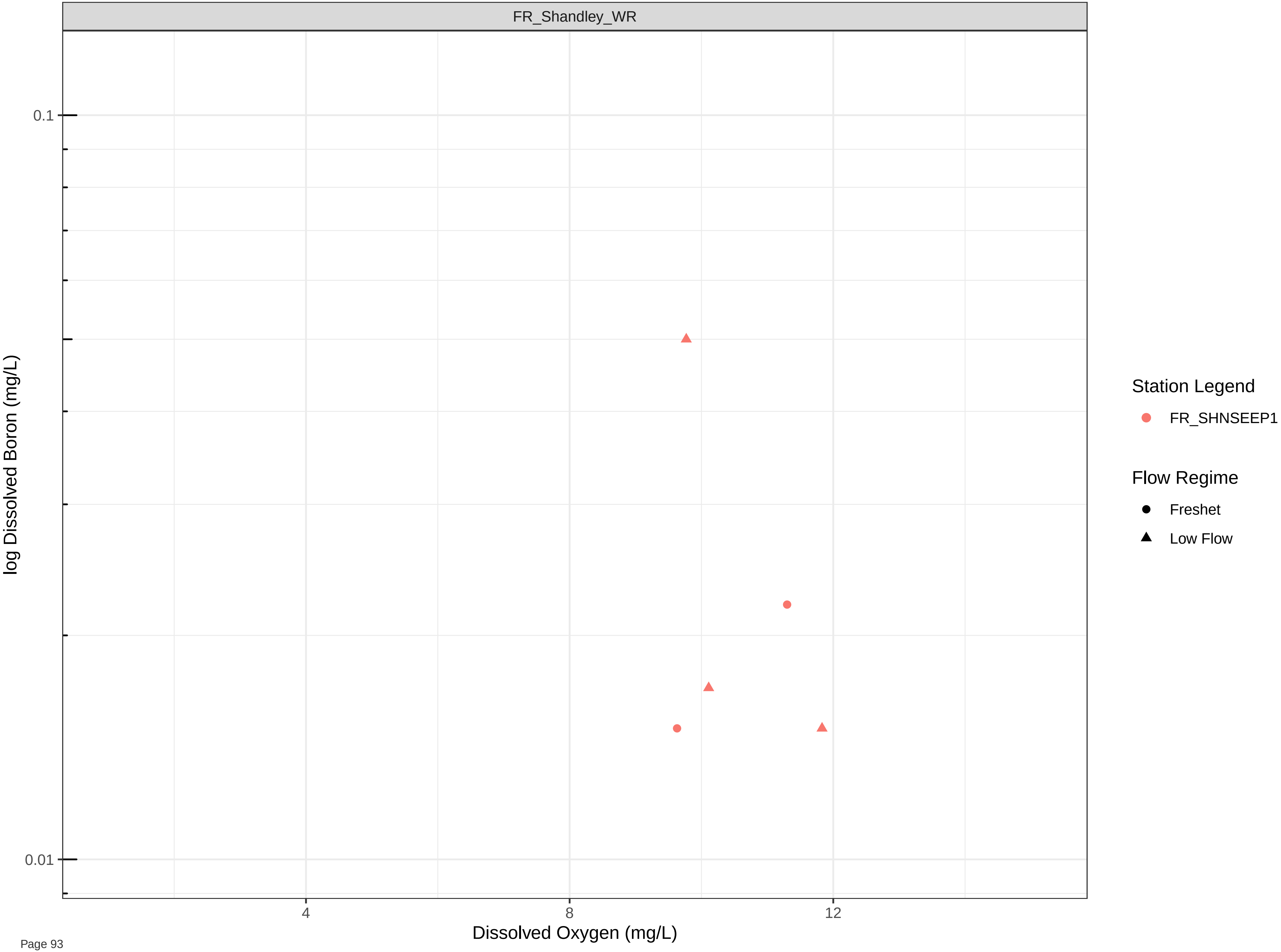
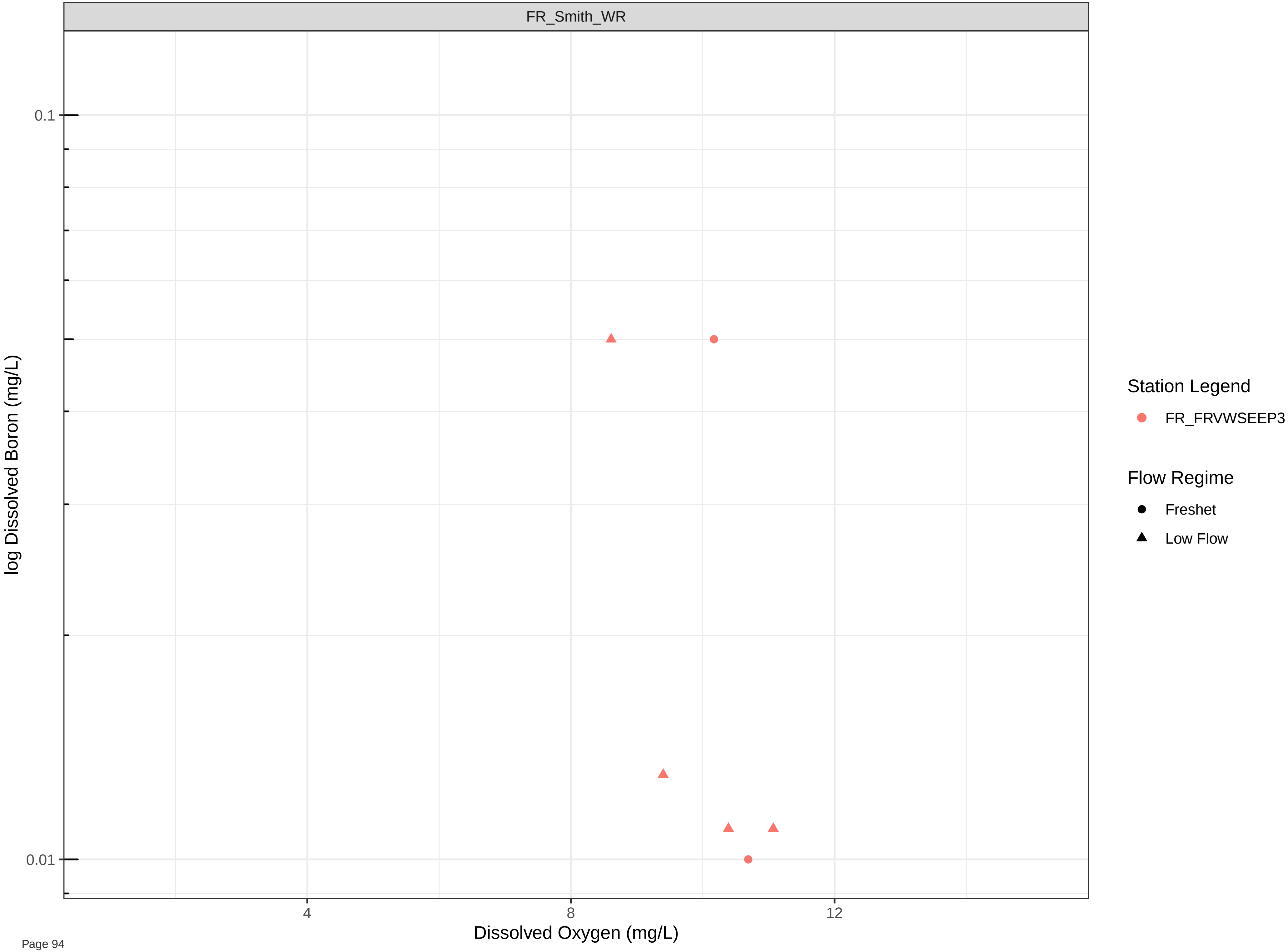
0.01
log Dissolved Boron (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

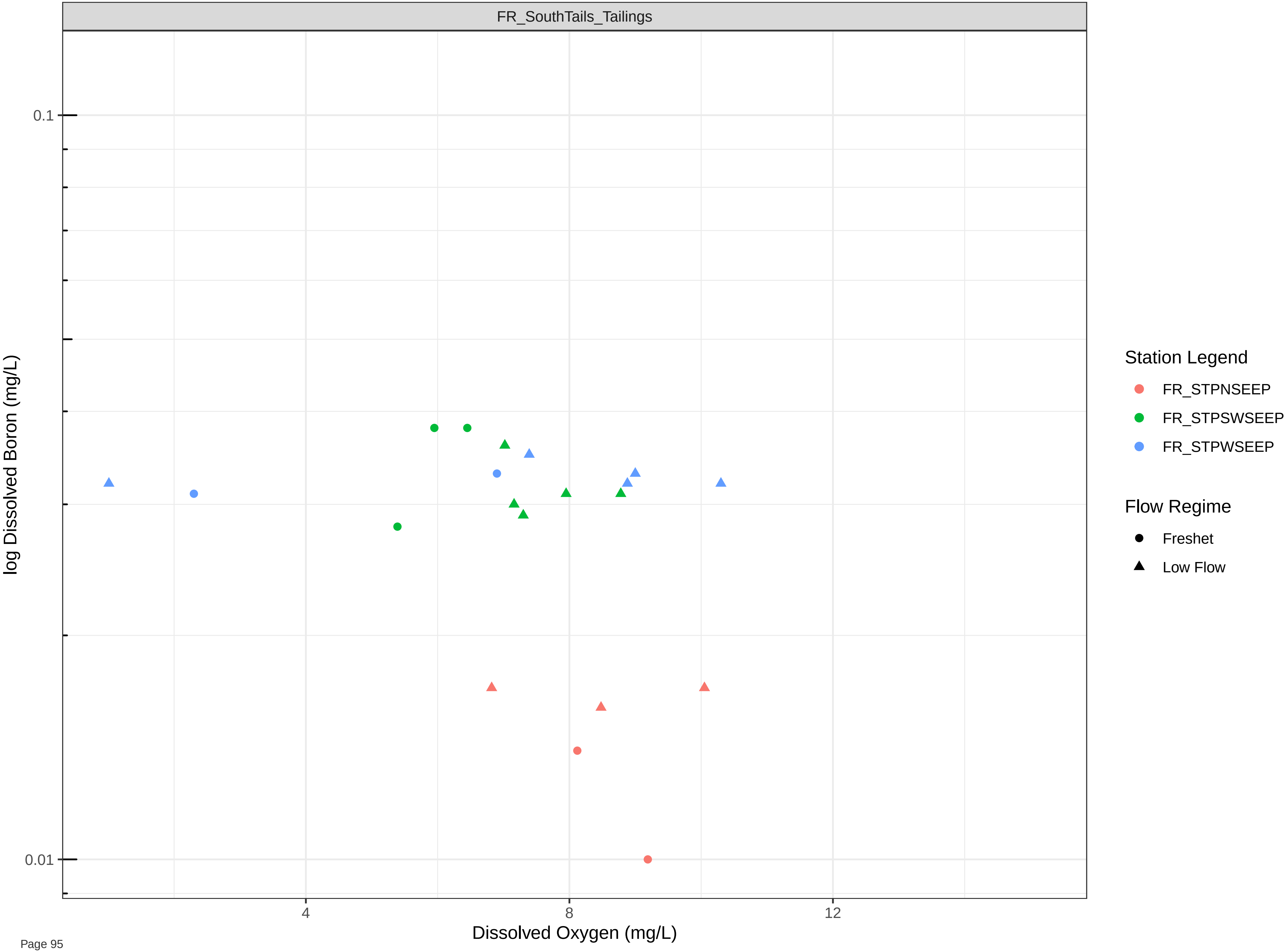

FR_Fseam_WR
0.1
0.01
log Dissolved Boron (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow


FR_HEN_WR
log Dissolved Boron (mg/L)
0.1
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow


FR_LakeMtn_WR_PITS
log Dissolved Boron (mg/L)
0.1
0.01
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow


FR_Shandley_WR
log Dissolved Boron (mg/L)
0.1
0.01
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow


FR_Smith_WR
0.1
0.01
log Dissolved Boron (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow


FR_SouthTails_Tailings
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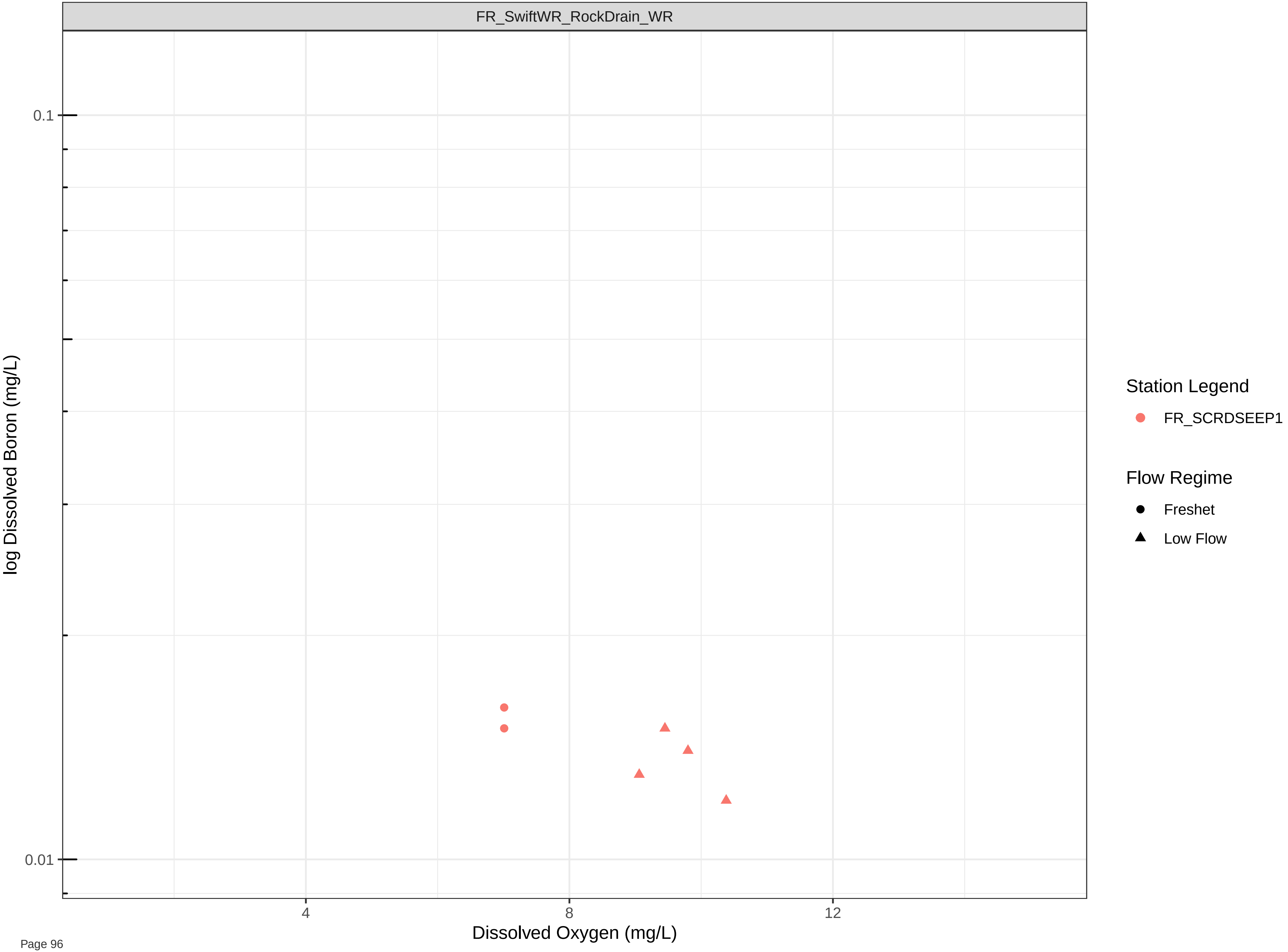
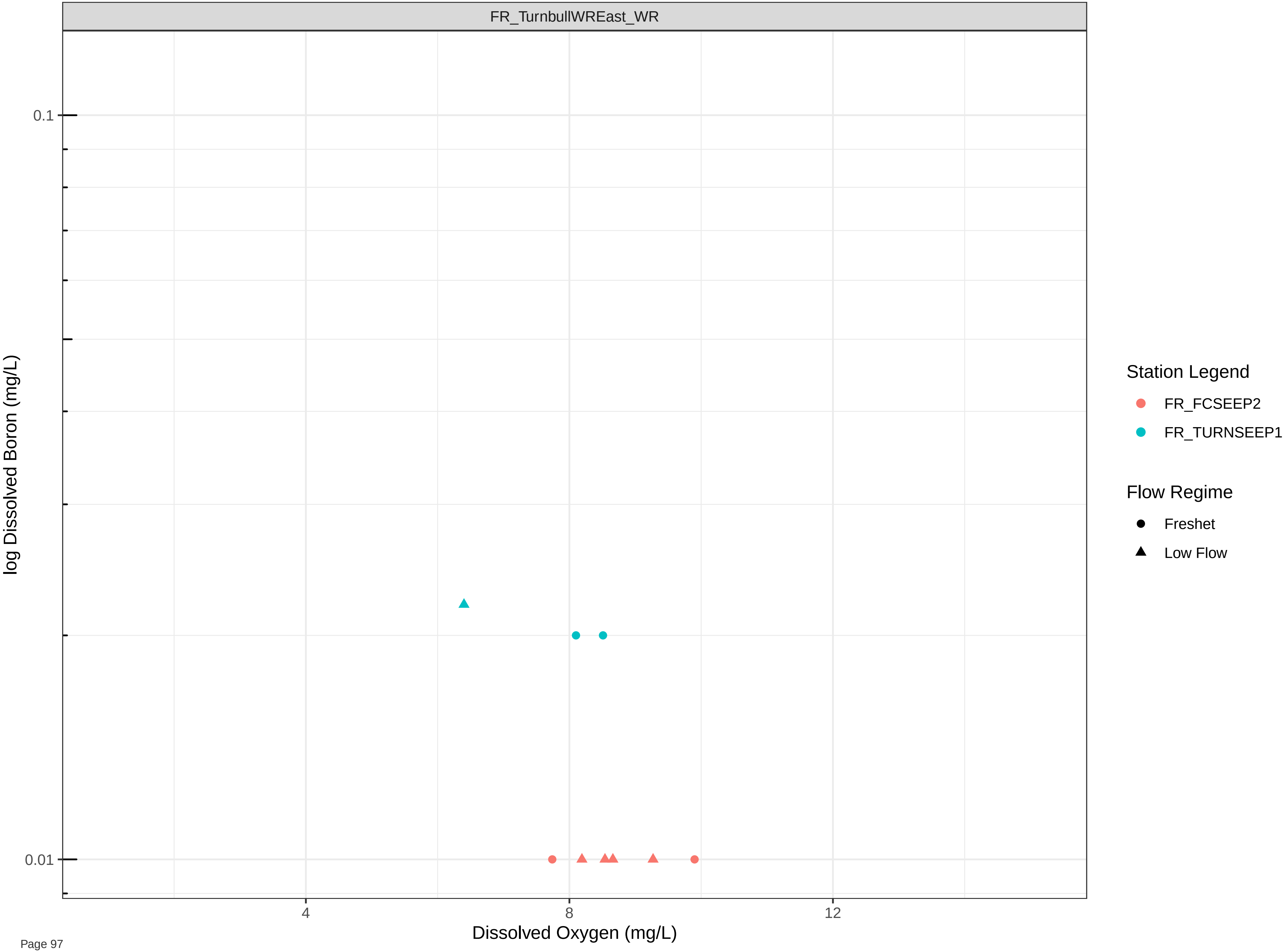
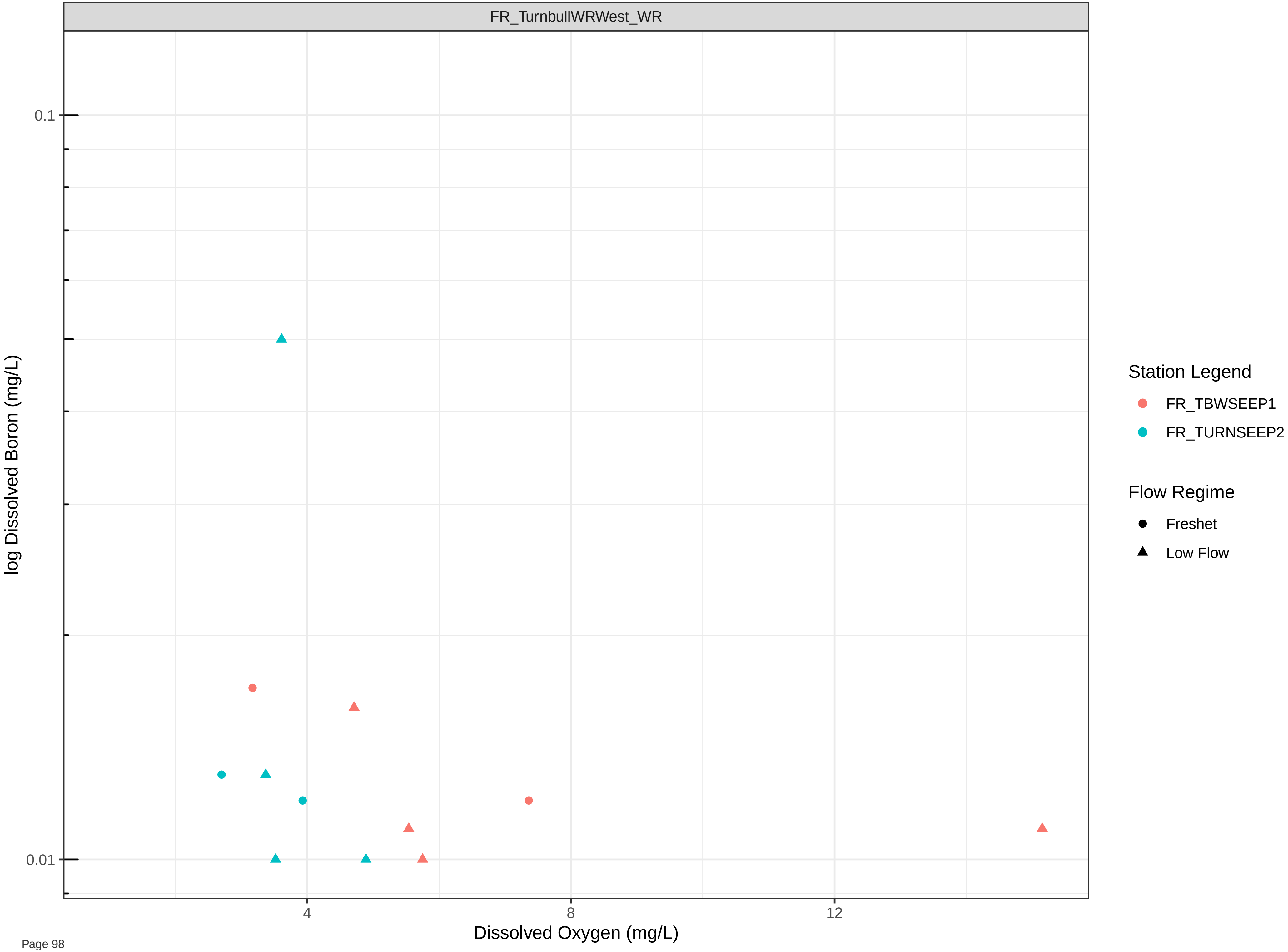
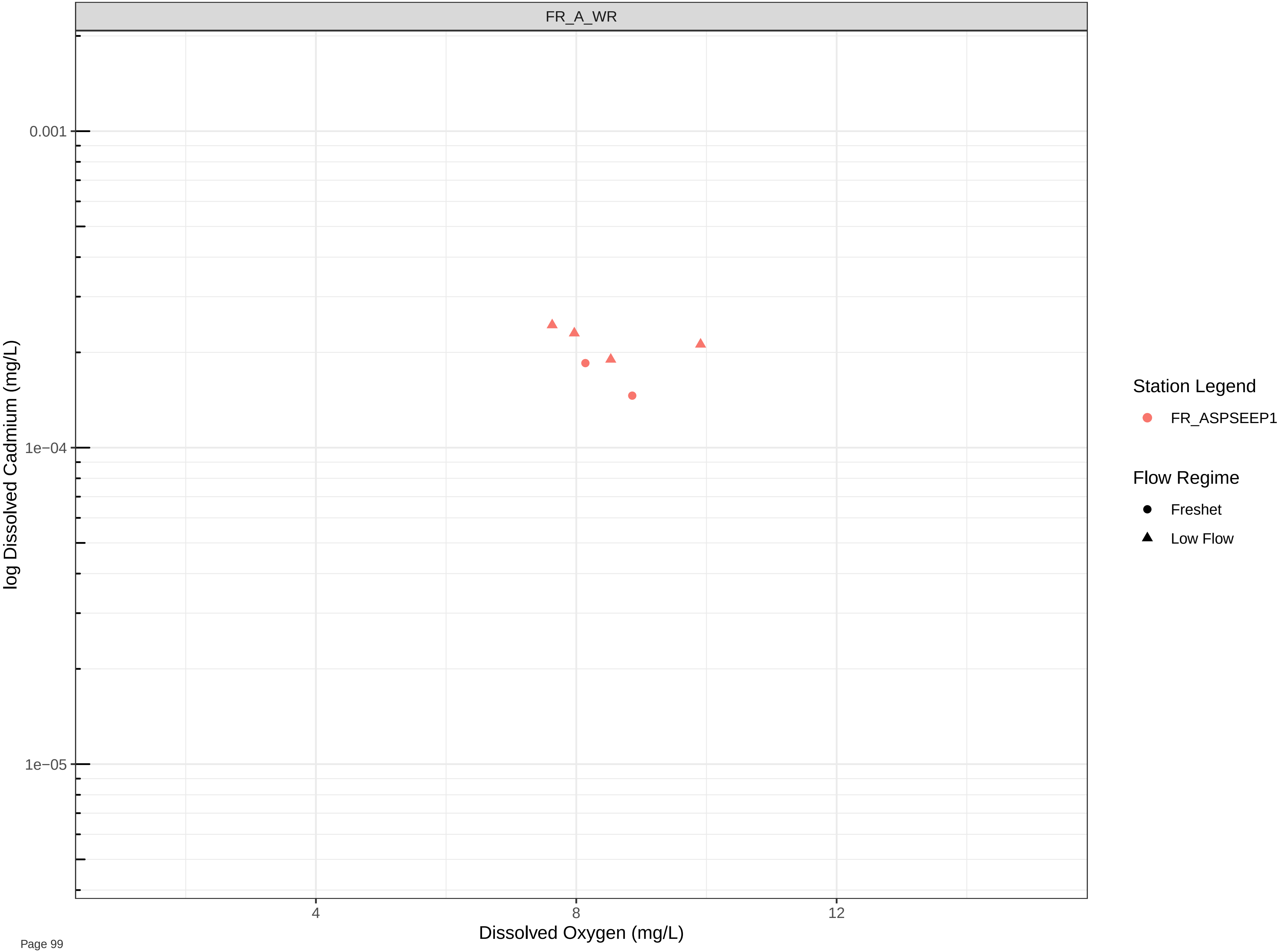
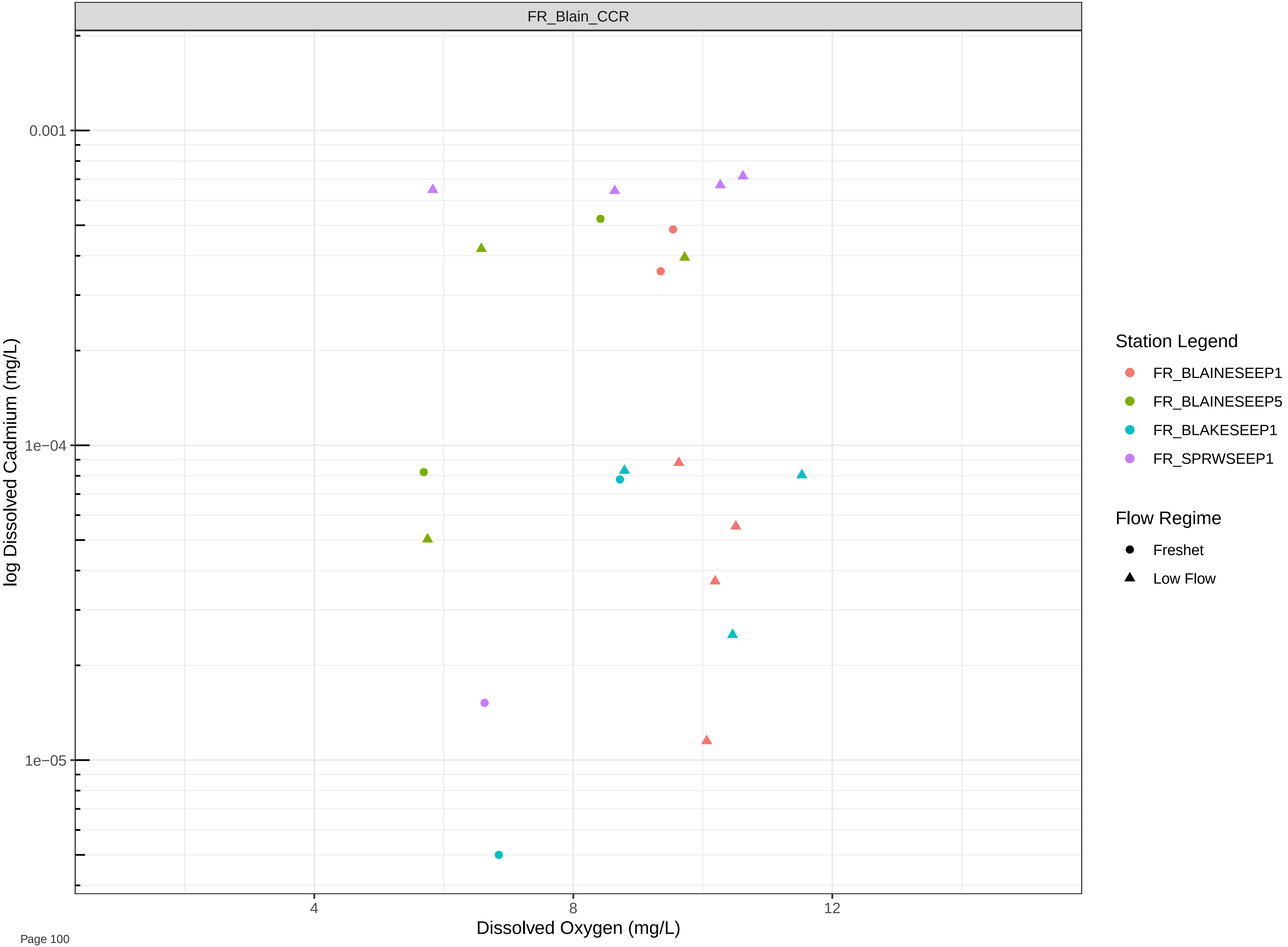
0.01
log Dissolved Boron (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

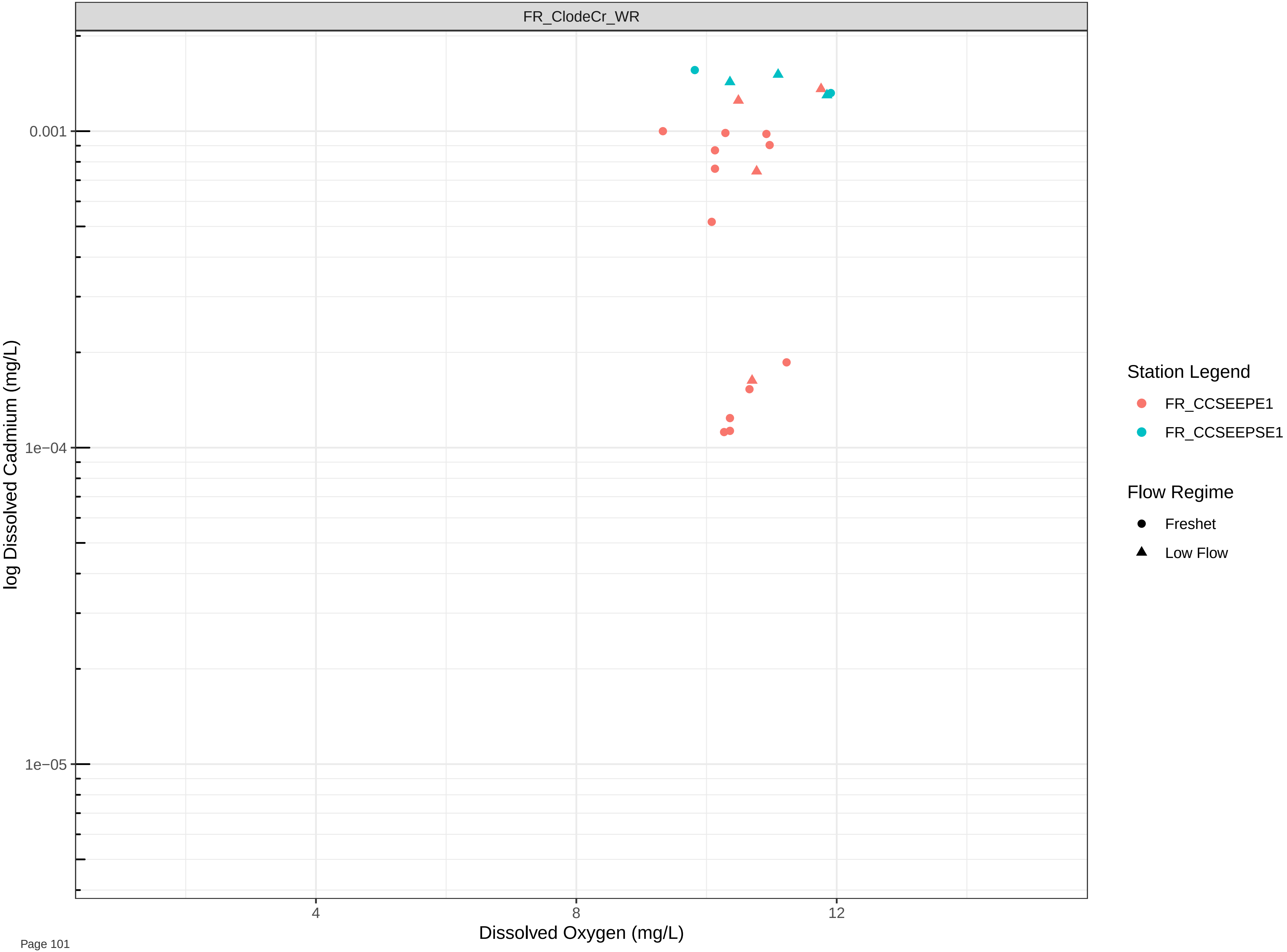

FR_SwiftWR_RockDrain_WR
0.1
0.01
log Dissolved Boron (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWREast_WR
0.1
0.01
log Dissolved Boron (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWRWest_WR
log Dissolved Boron (mg/L)
0.1
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow


FR_A_WR
0.001
1e−04
1e−05
log Dissolved Cadmium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow


FR_Blain_CCR
0.001
1e−04
1e−05
log Dissolved Cadmium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_ClodeCr_WR
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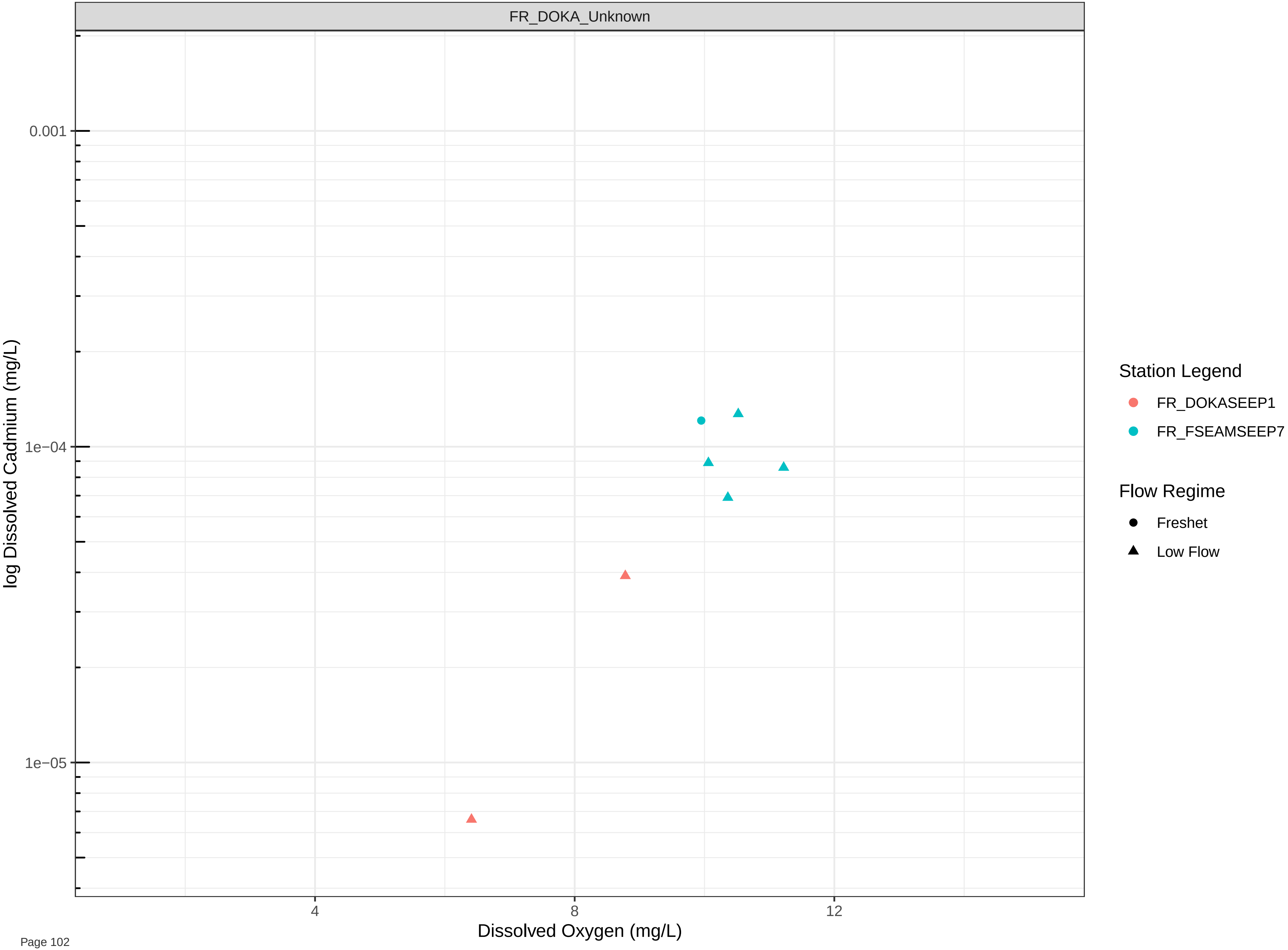
1e−04
1e−05
log Dissolved Cadmium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow


FR_DOKA_Unknown
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0.001
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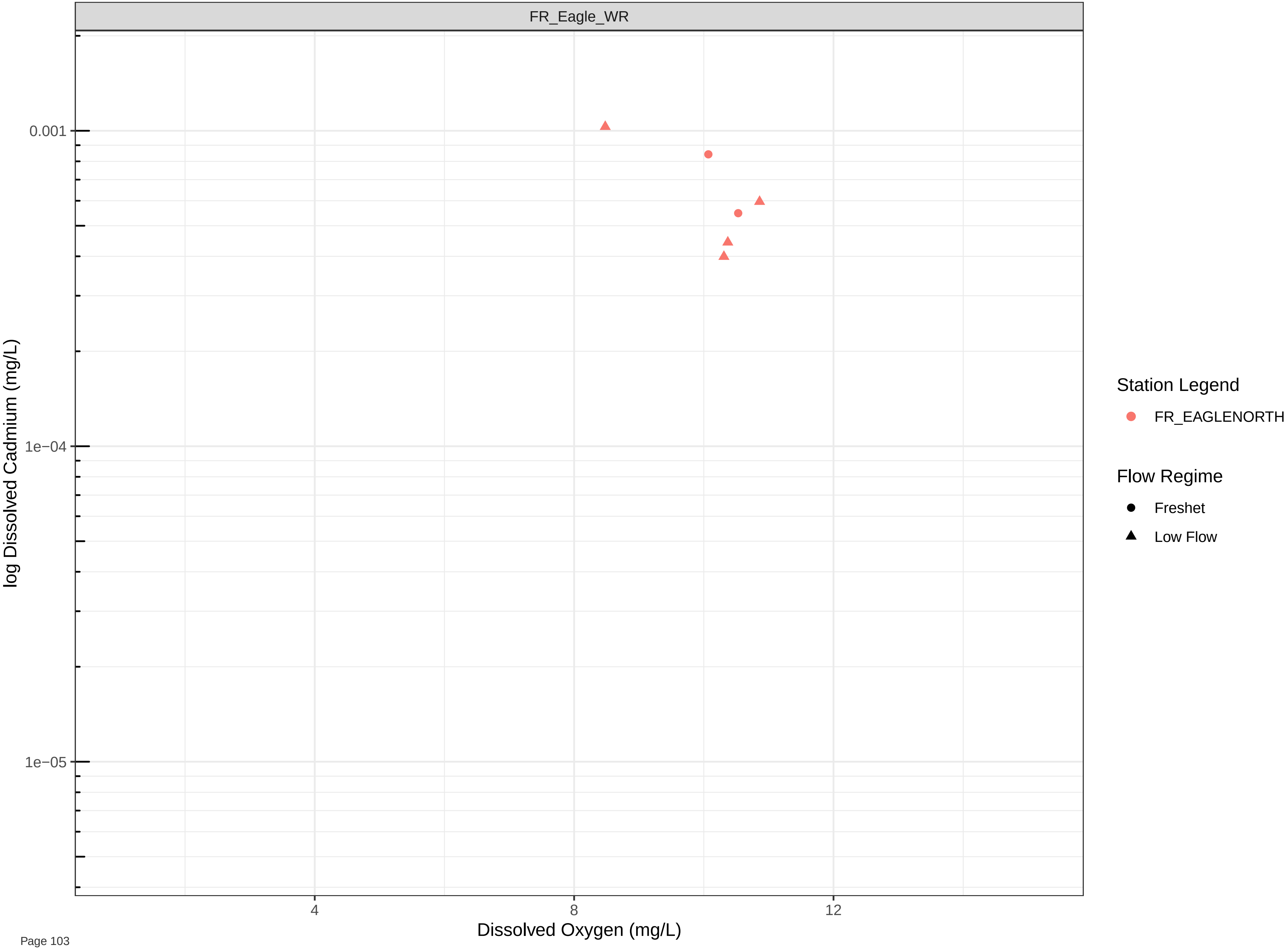
1e−05
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow


FR_Eagle_WR
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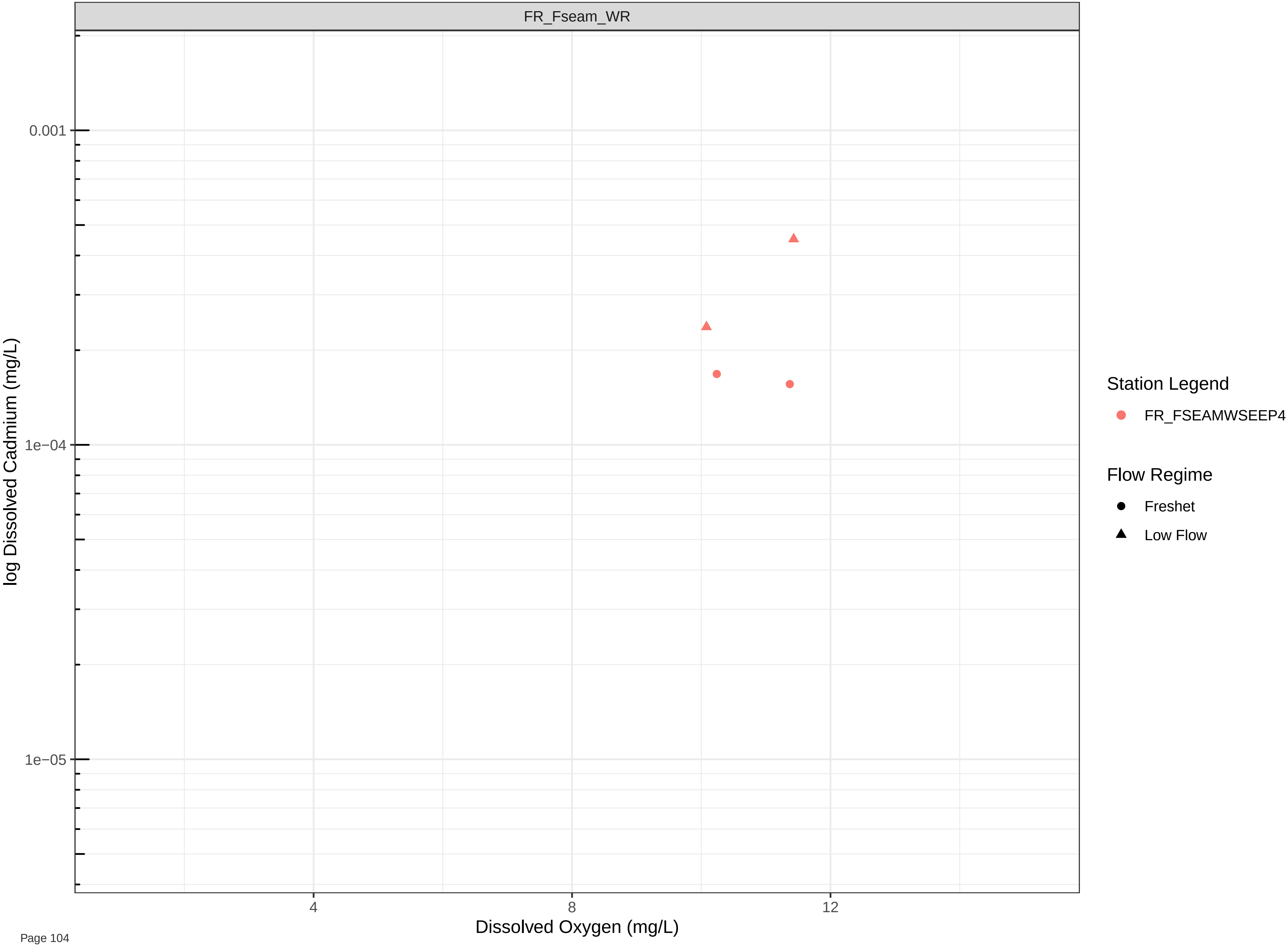
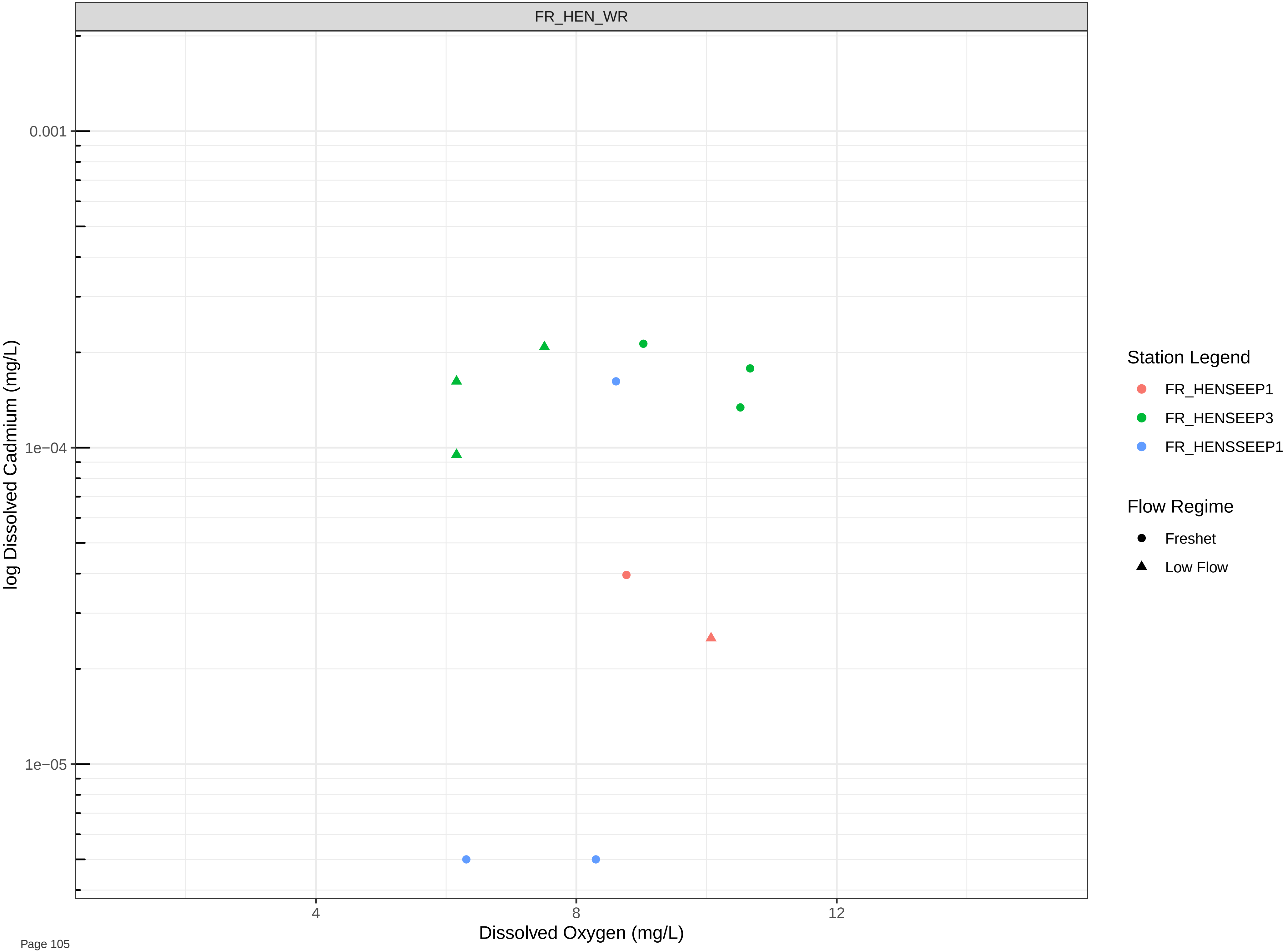
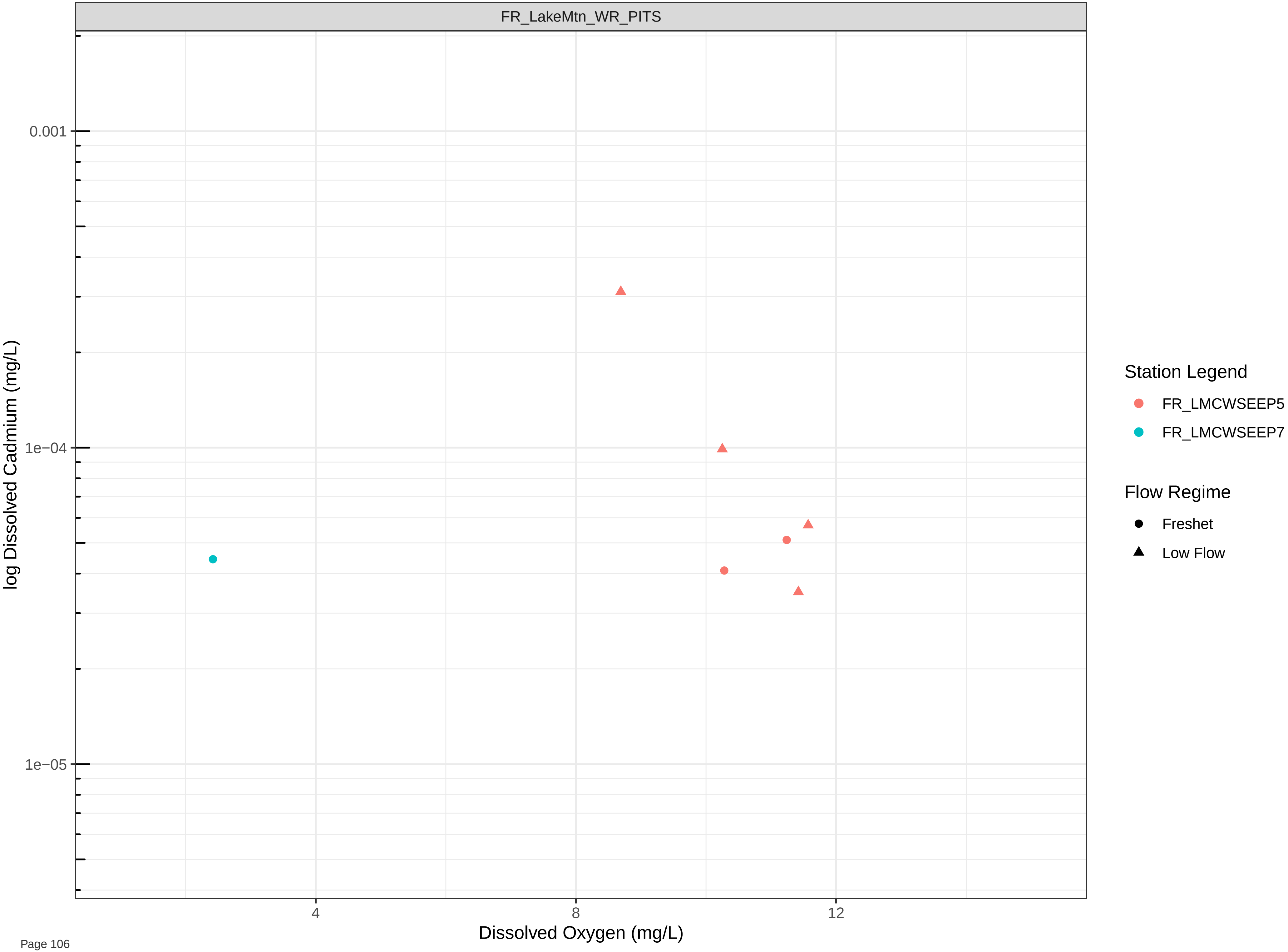
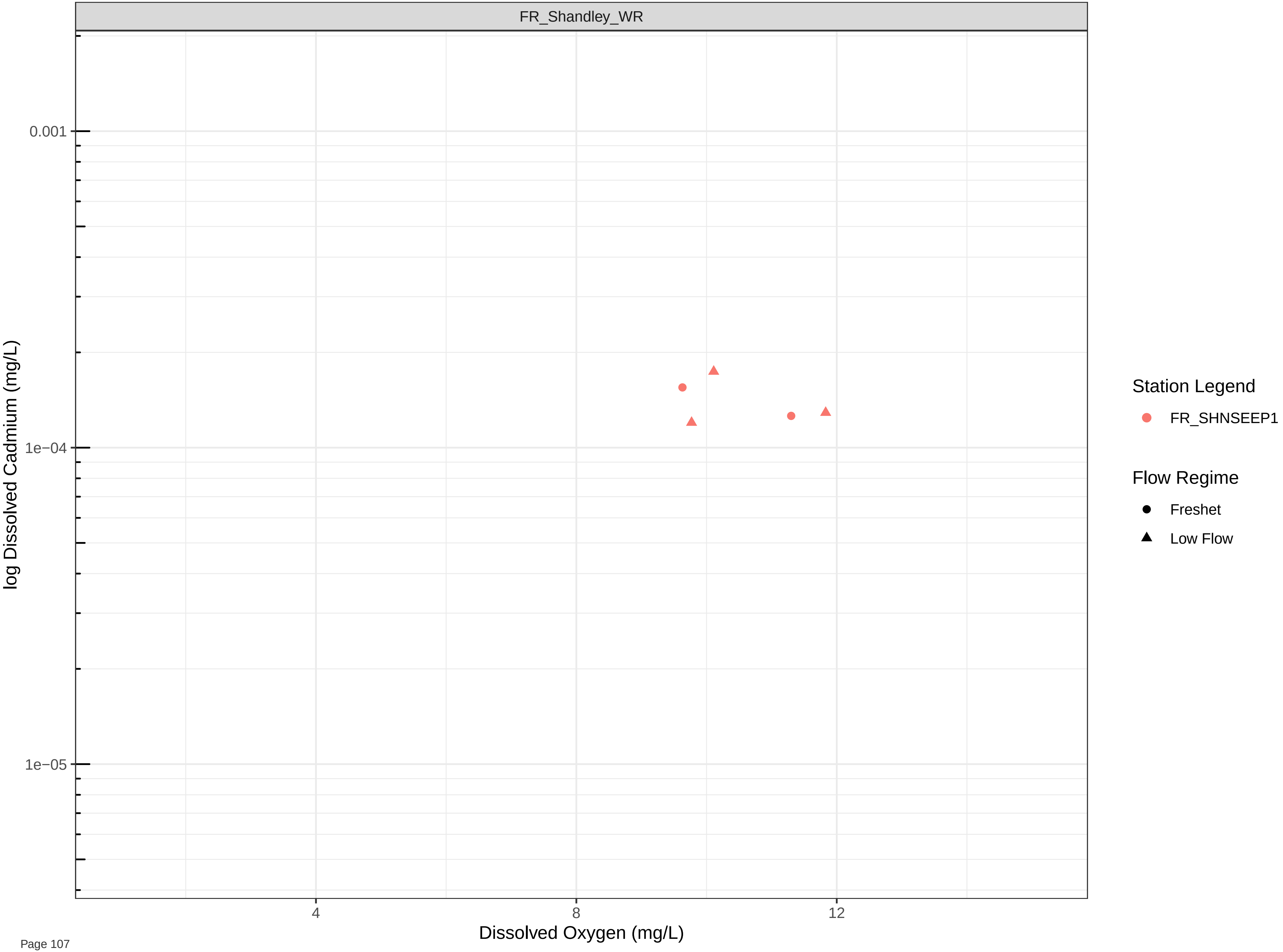
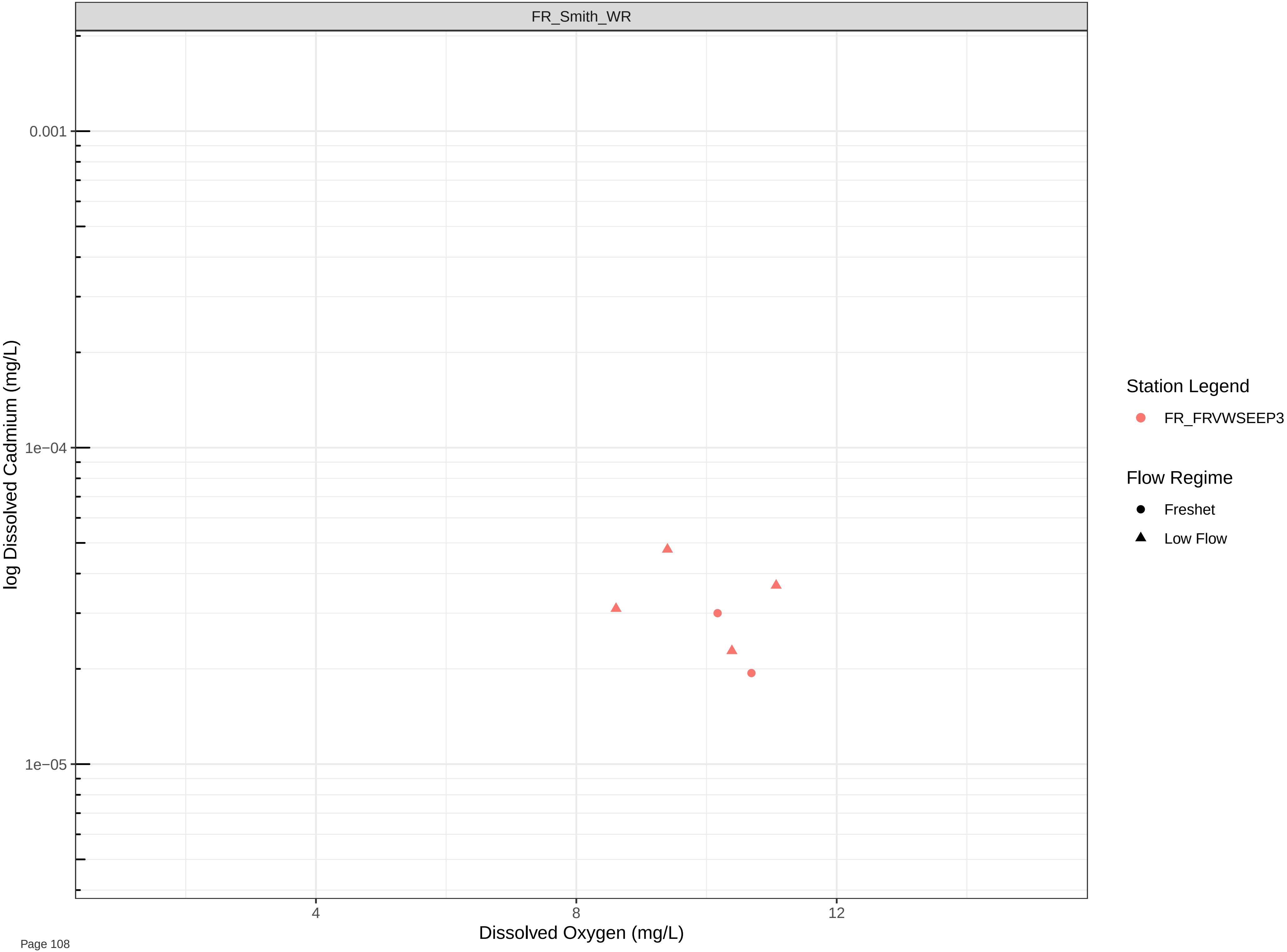
1e−04
1e−05
log Dissolved Cadmium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

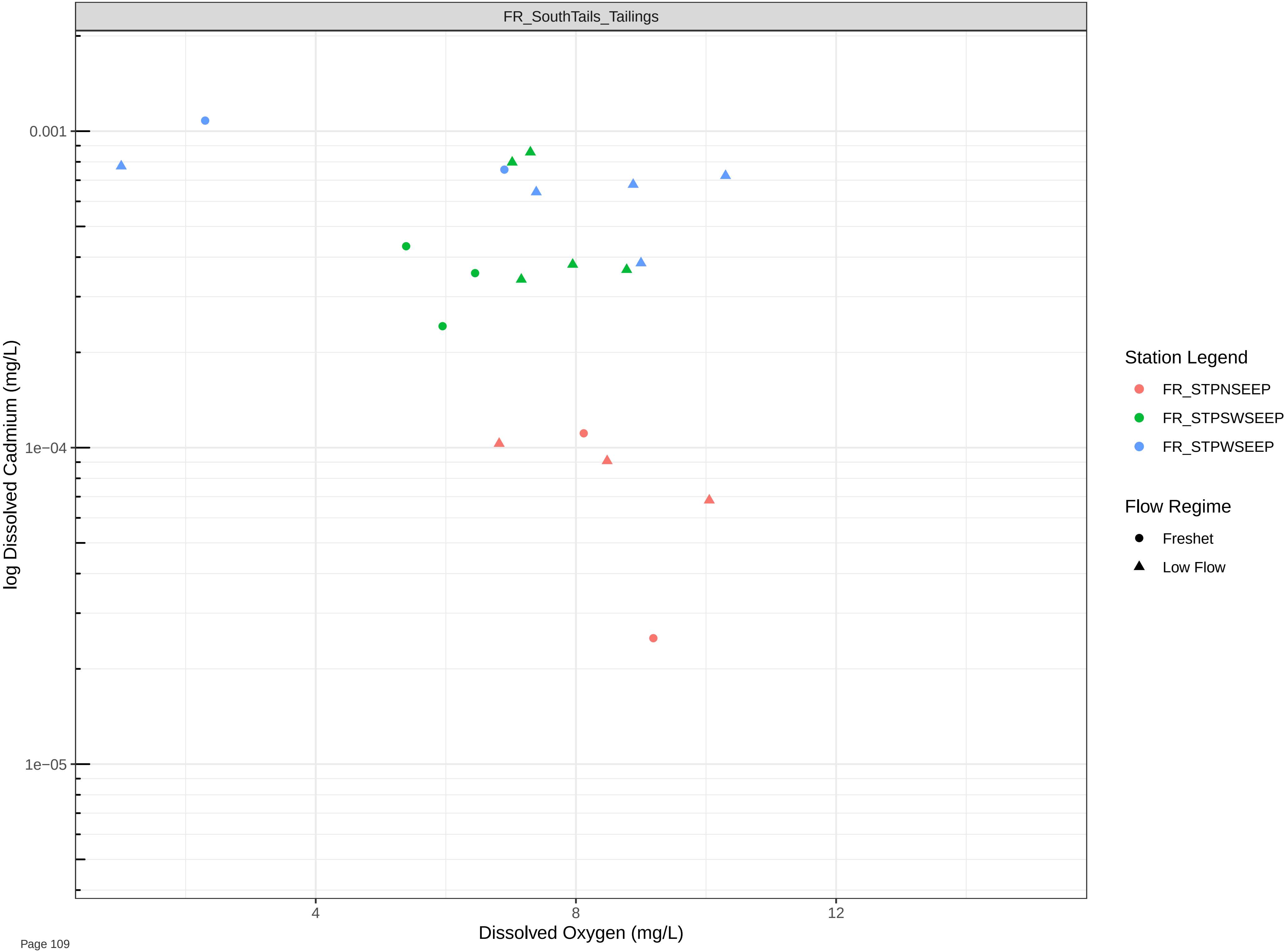

FR_Fseam_WR
0.001
1e−04
1e−05
log Dissolved Cadmium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow


FR_HEN_WR
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow


FR_LakeMtn_WR_PITS
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow


FR_Shandley_WR
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_Smith_WR
0.001
1e−04
1e−05
log Dissolved Cadmium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow


FR_SouthTails_Tailings
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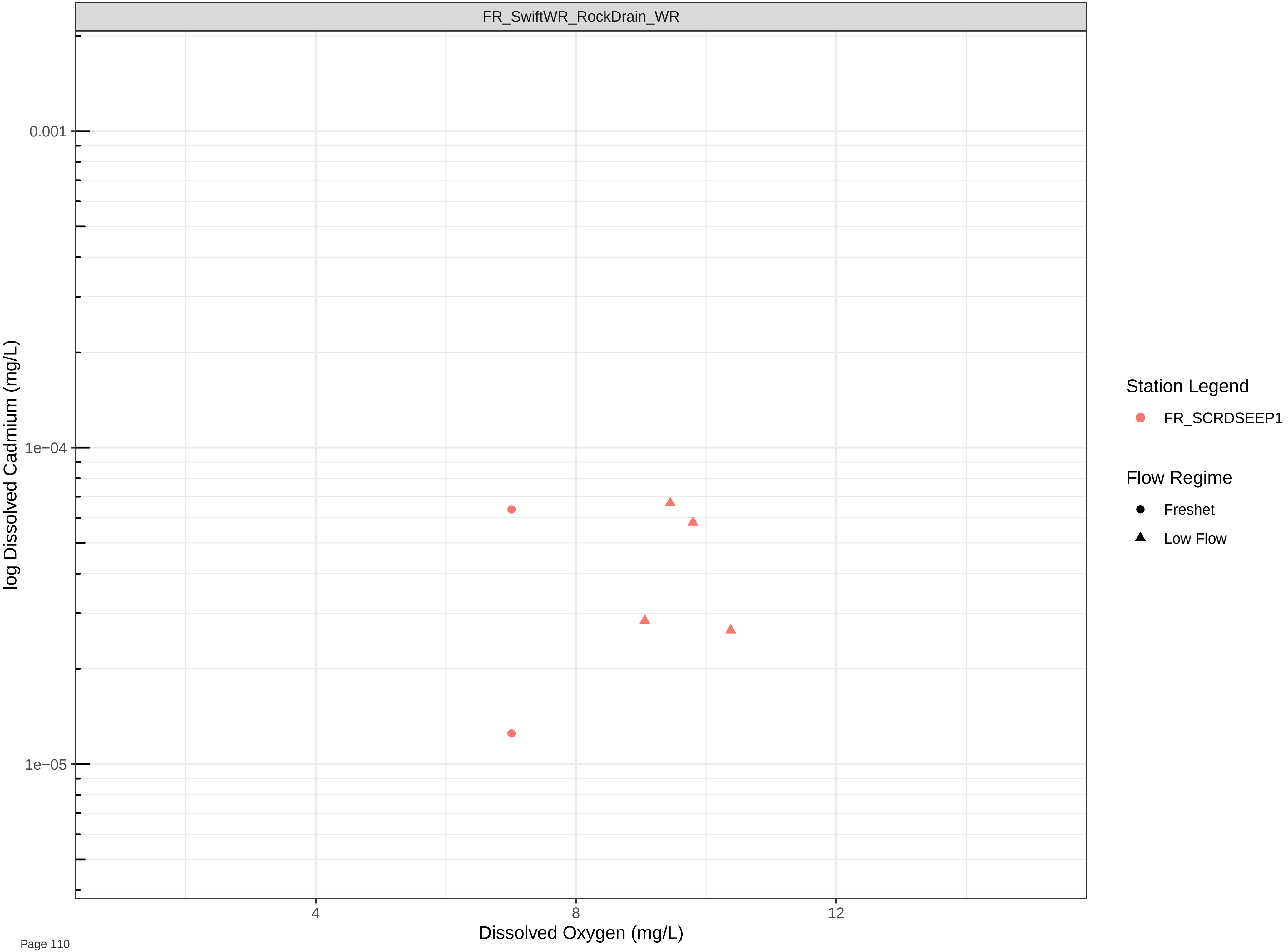
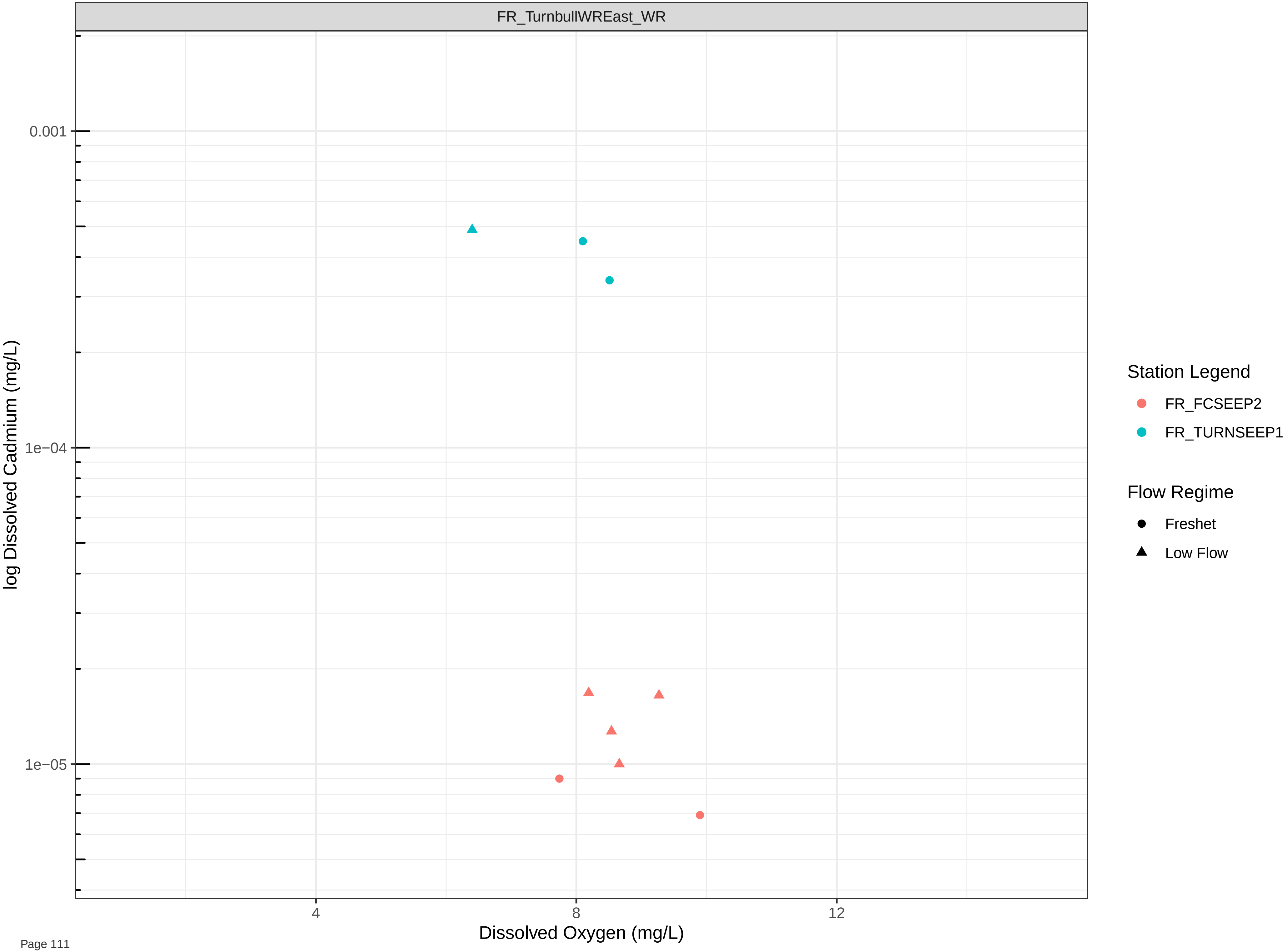
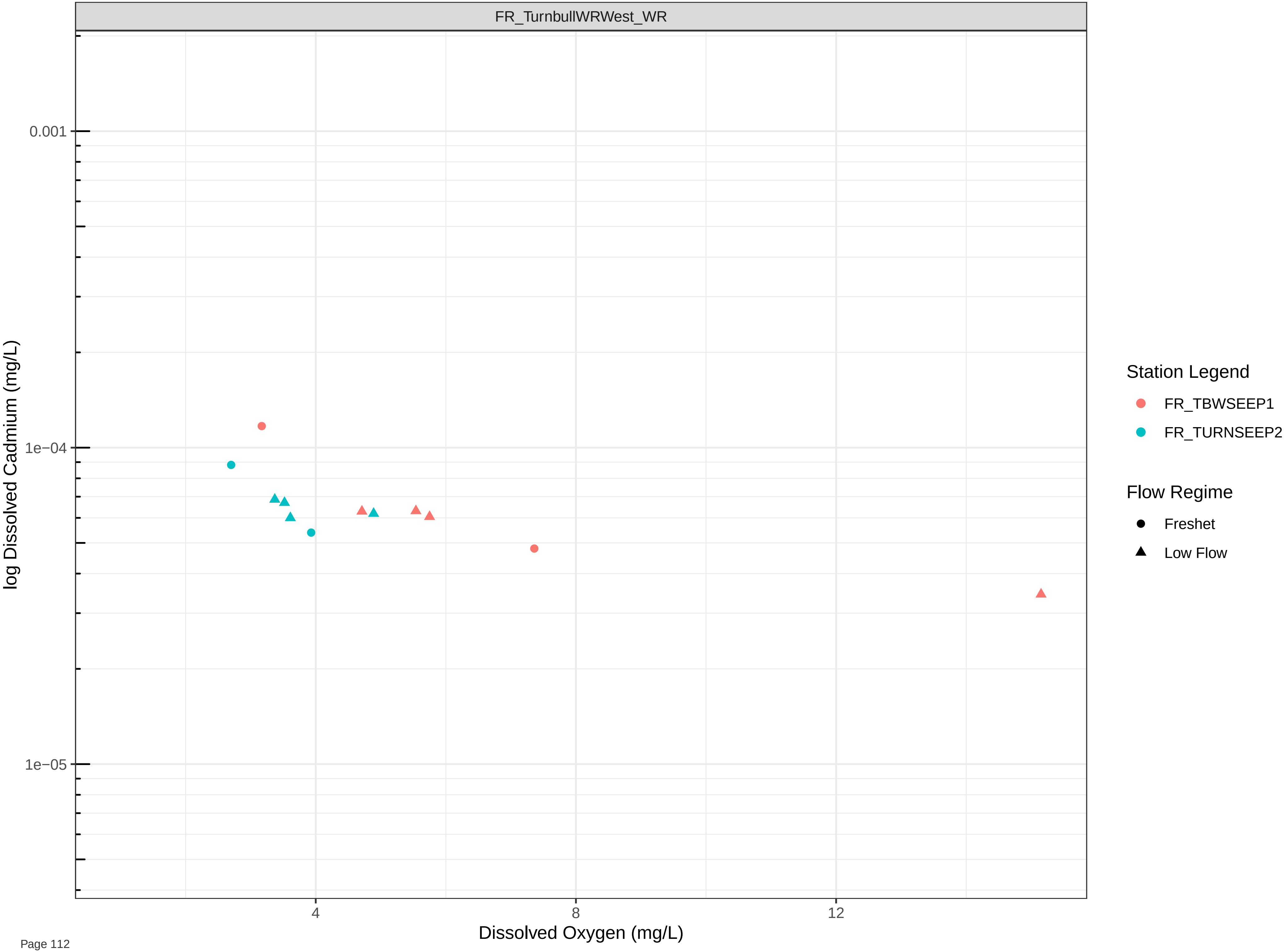
1e−05
log Dissolved Cadmium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow


FR_SwiftWR_RockDrain_WR
0.001
1e−04
1e−05
4
8
12
Dissolved Oxygen (mg/L)
log Dissolved Cadmium (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWREast_WR
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWRWest_WR
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1e−05
log Dissolved Cadmium (mg/L)
4
8
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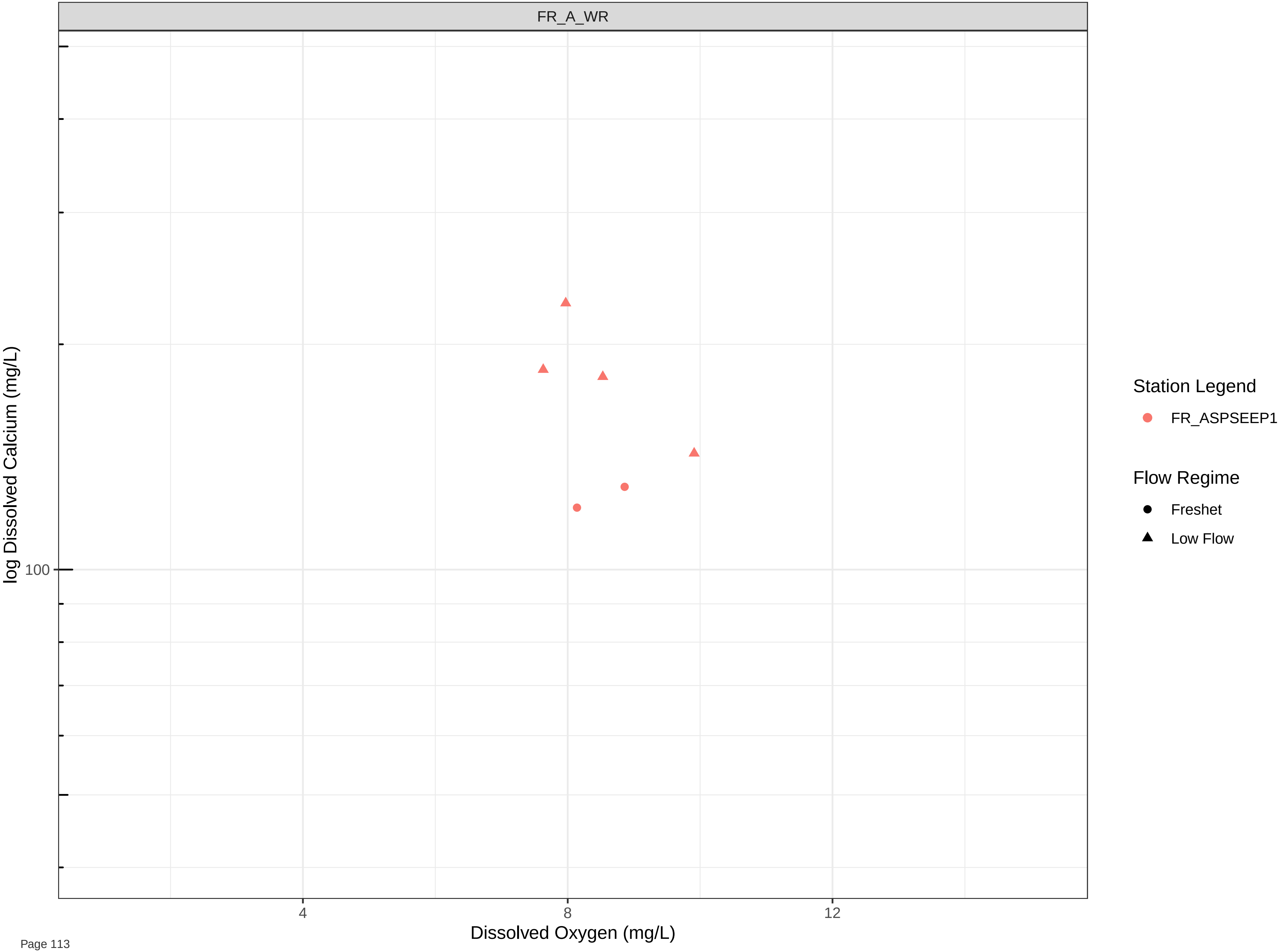
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow


FR_A_WR
log Dissolved Calcium (mg/L)
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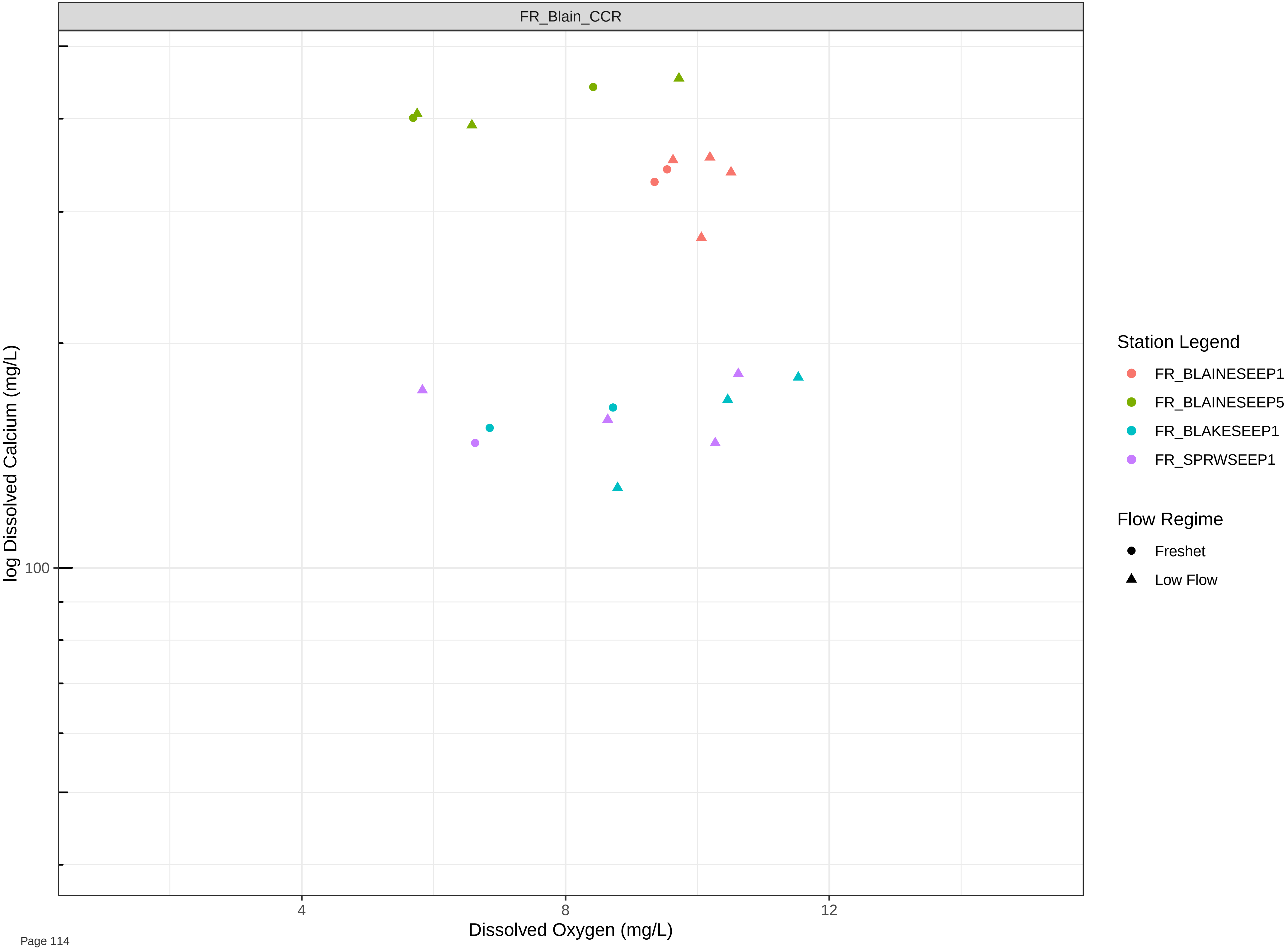
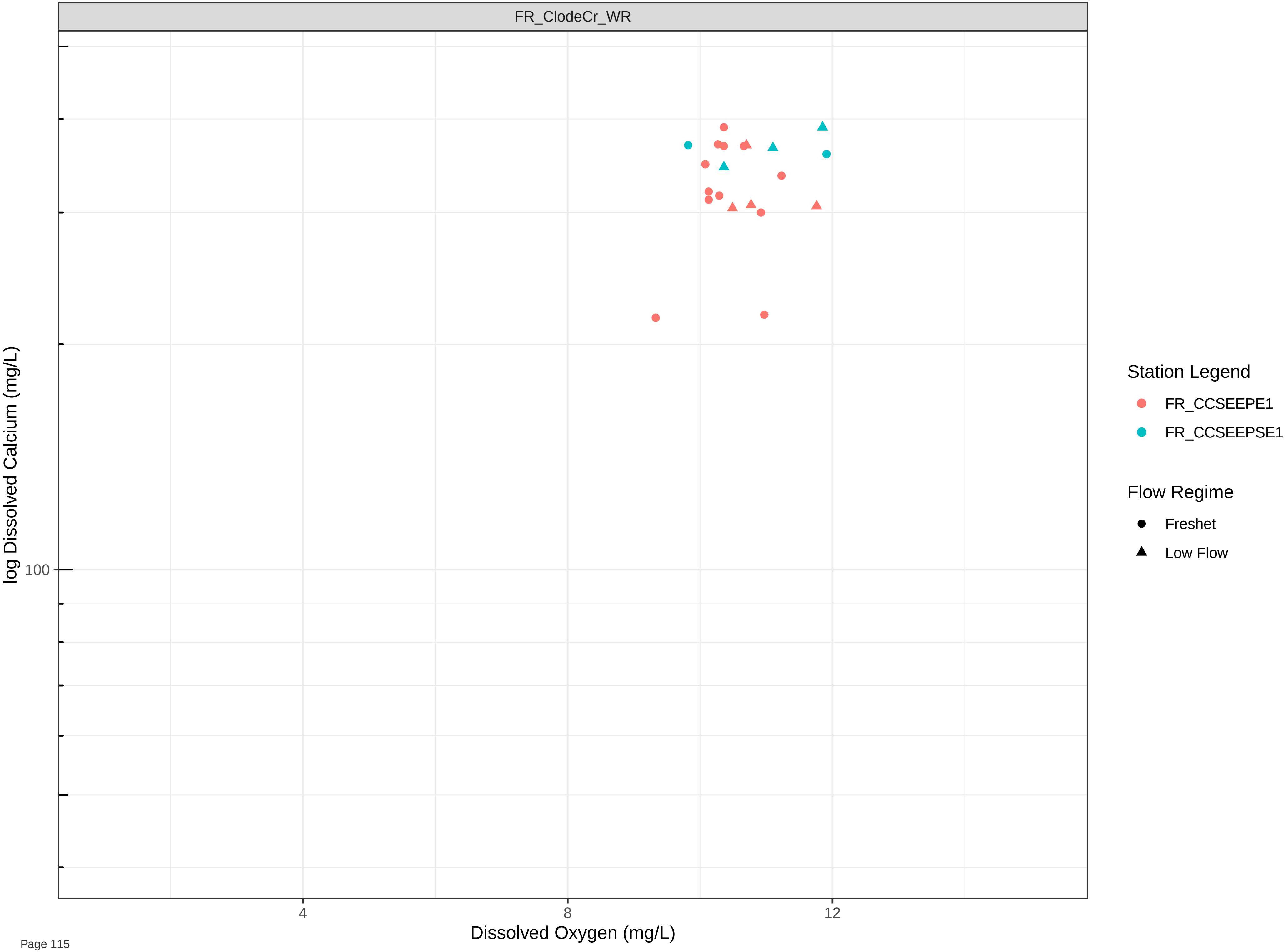
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_Blain_CCR
log Dissolved Calcium (mg/L)
100
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow


FR_ClodeCr_WR
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4
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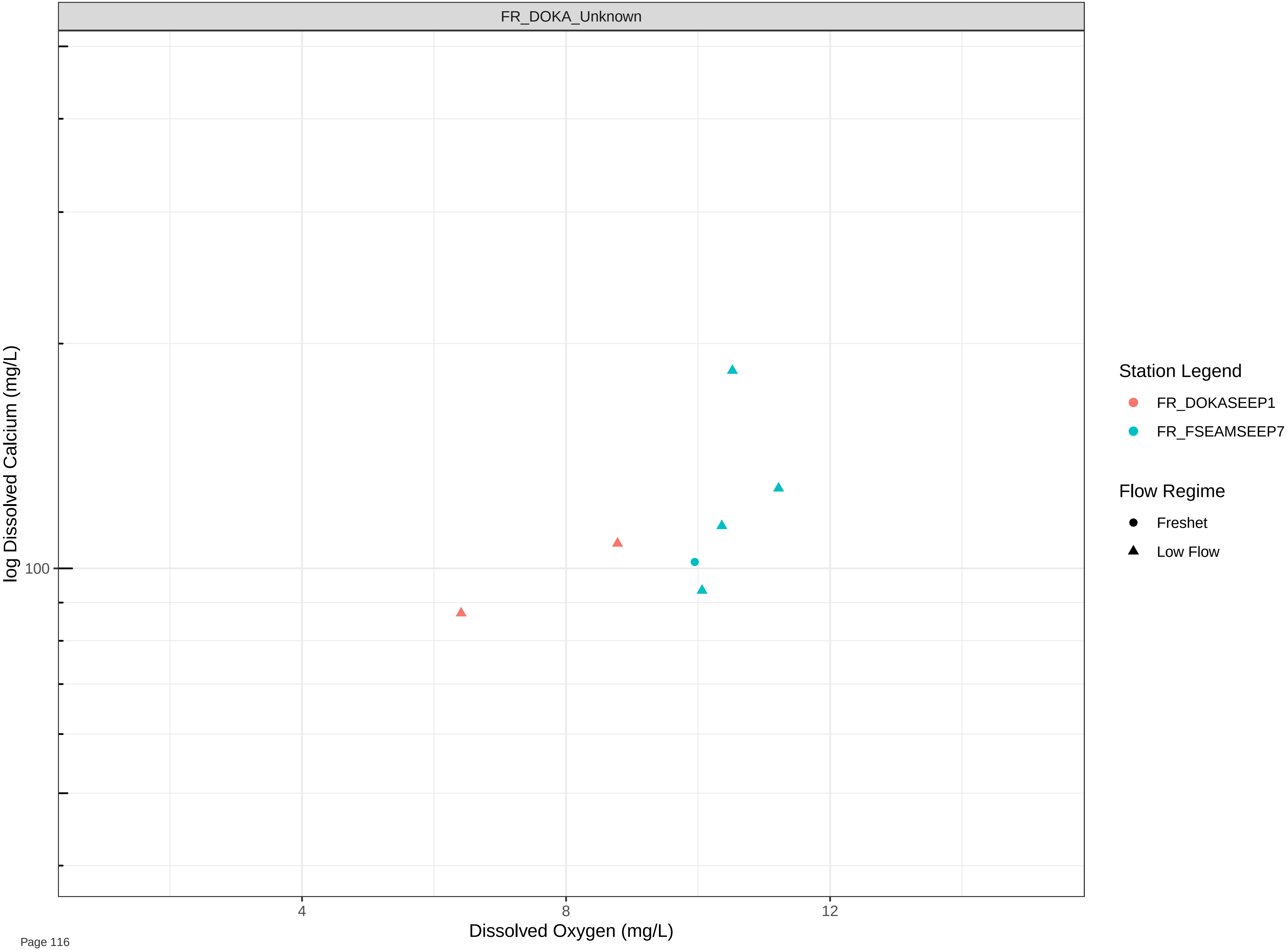
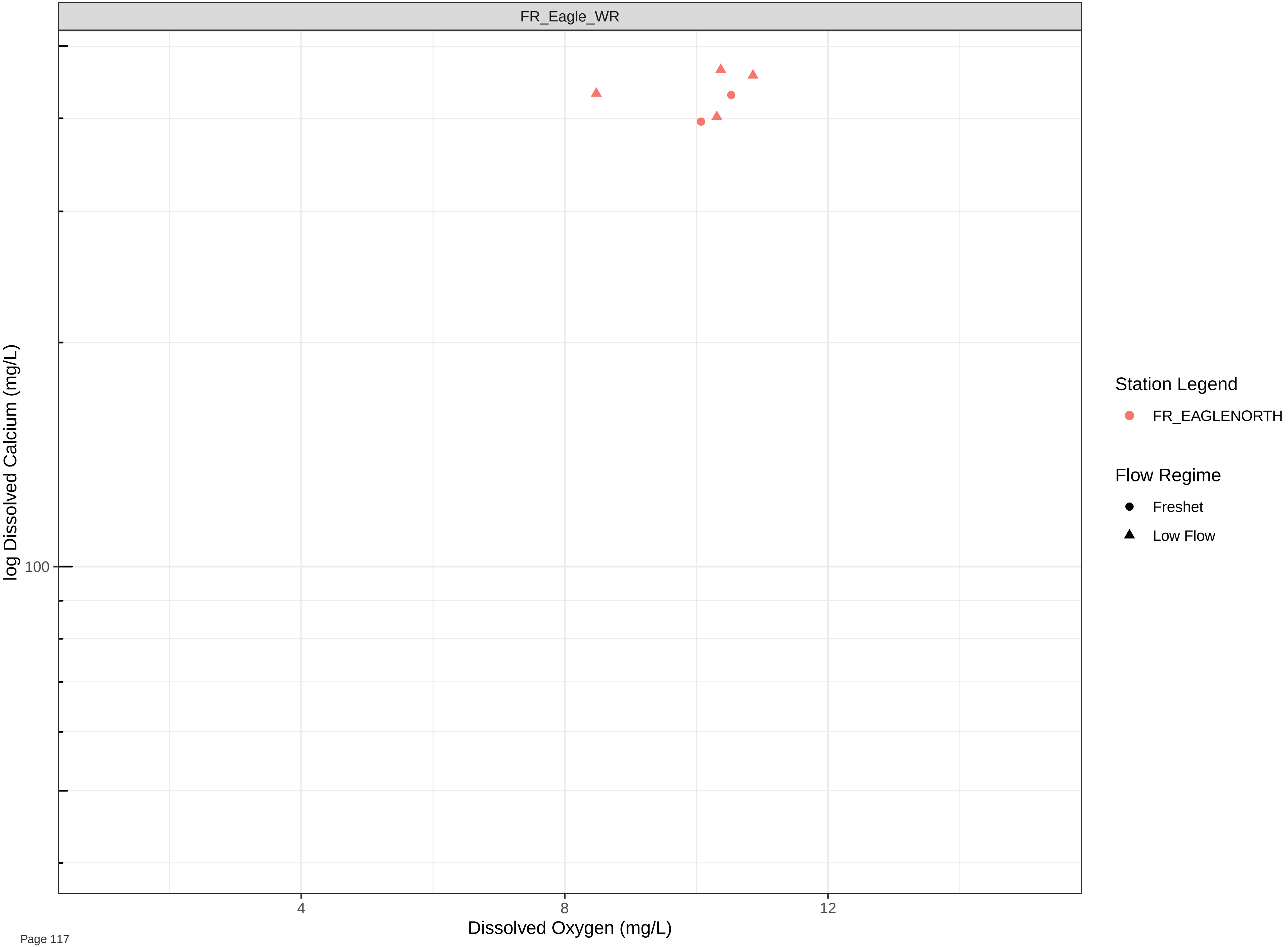
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow


FR_DOKA_Unknown
log Dissolved Calcium (mg/L)
100
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow


FR_Eagle_WR
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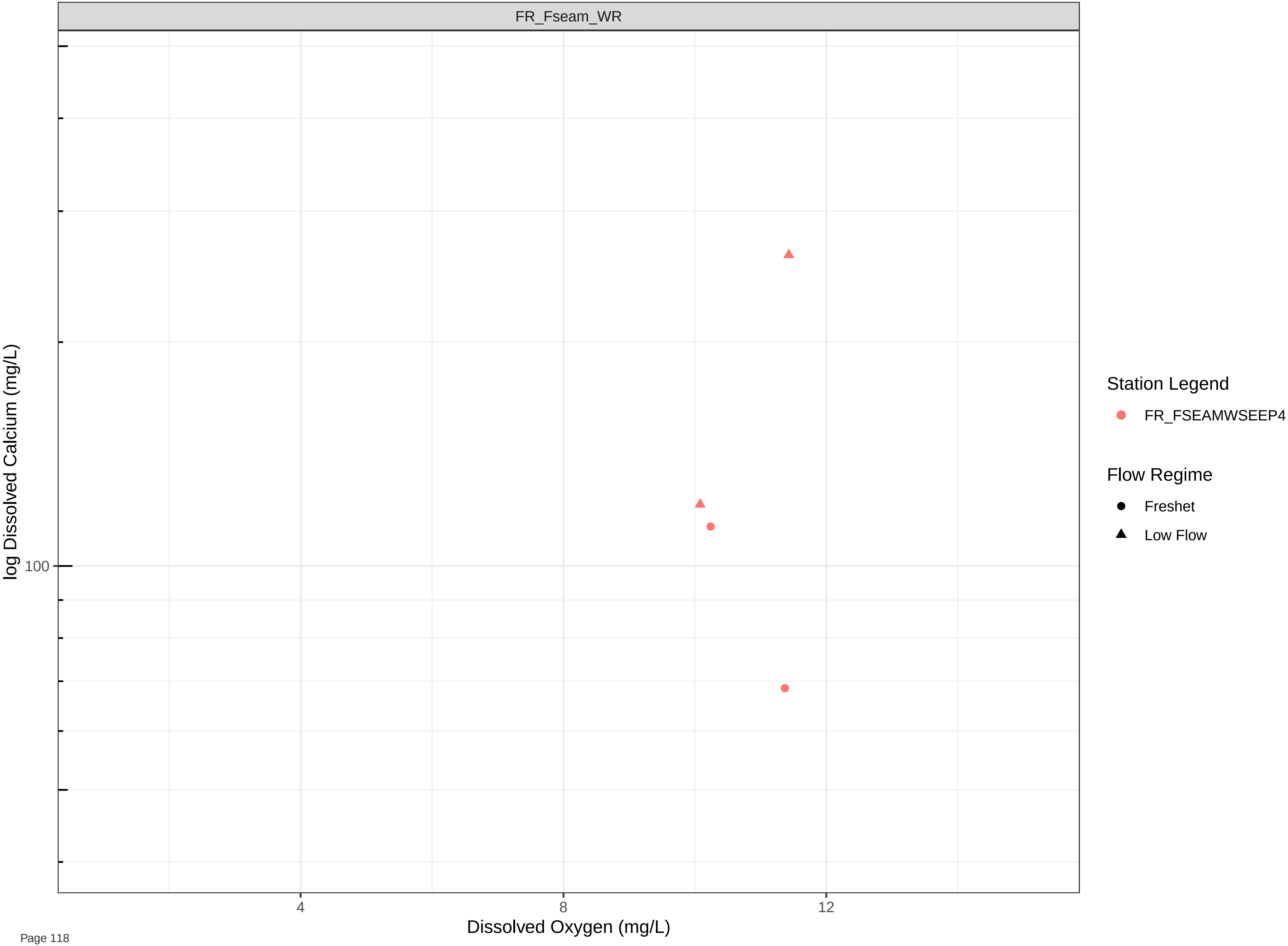
100
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow


FR_Fseam_WR
log Dissolved Calcium (mg/L)
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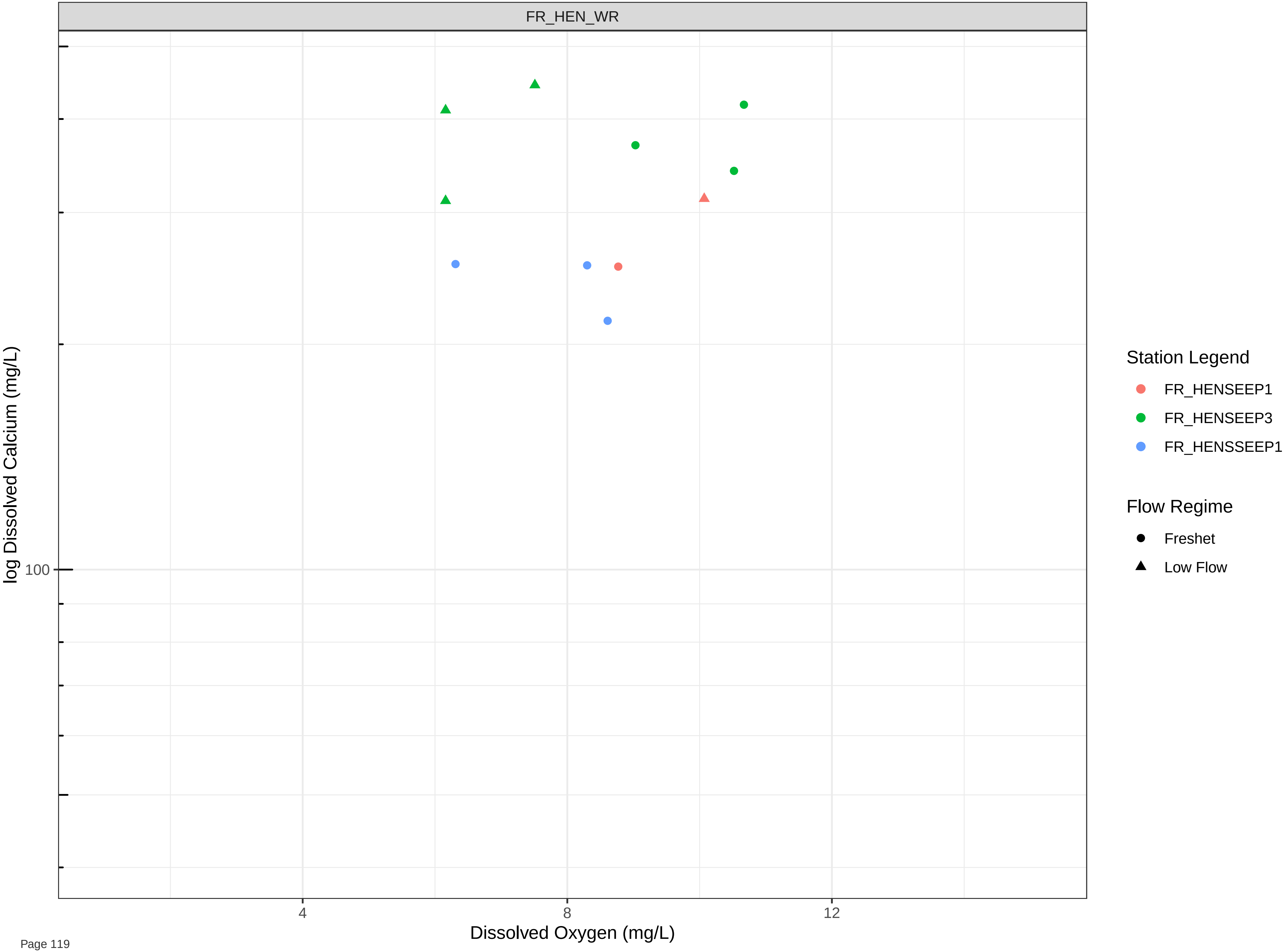
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow


FR_HEN_WR
log Dissolved Calcium (mg/L)
100
Dissolved Oxygen (mg/L)
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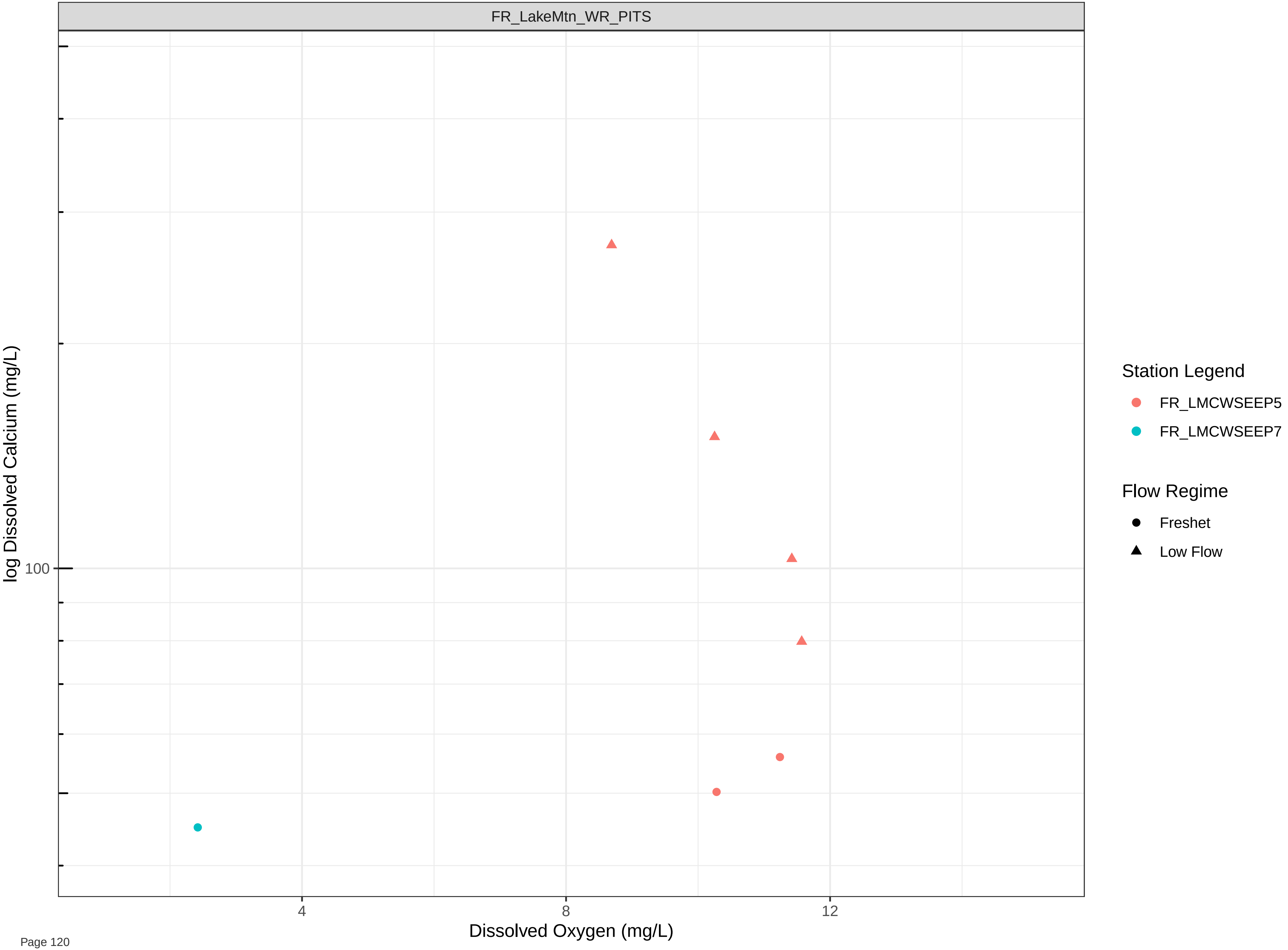
8
12
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow


FR_LakeMtn_WR_PITS
log Dissolved Calcium (mg/L)
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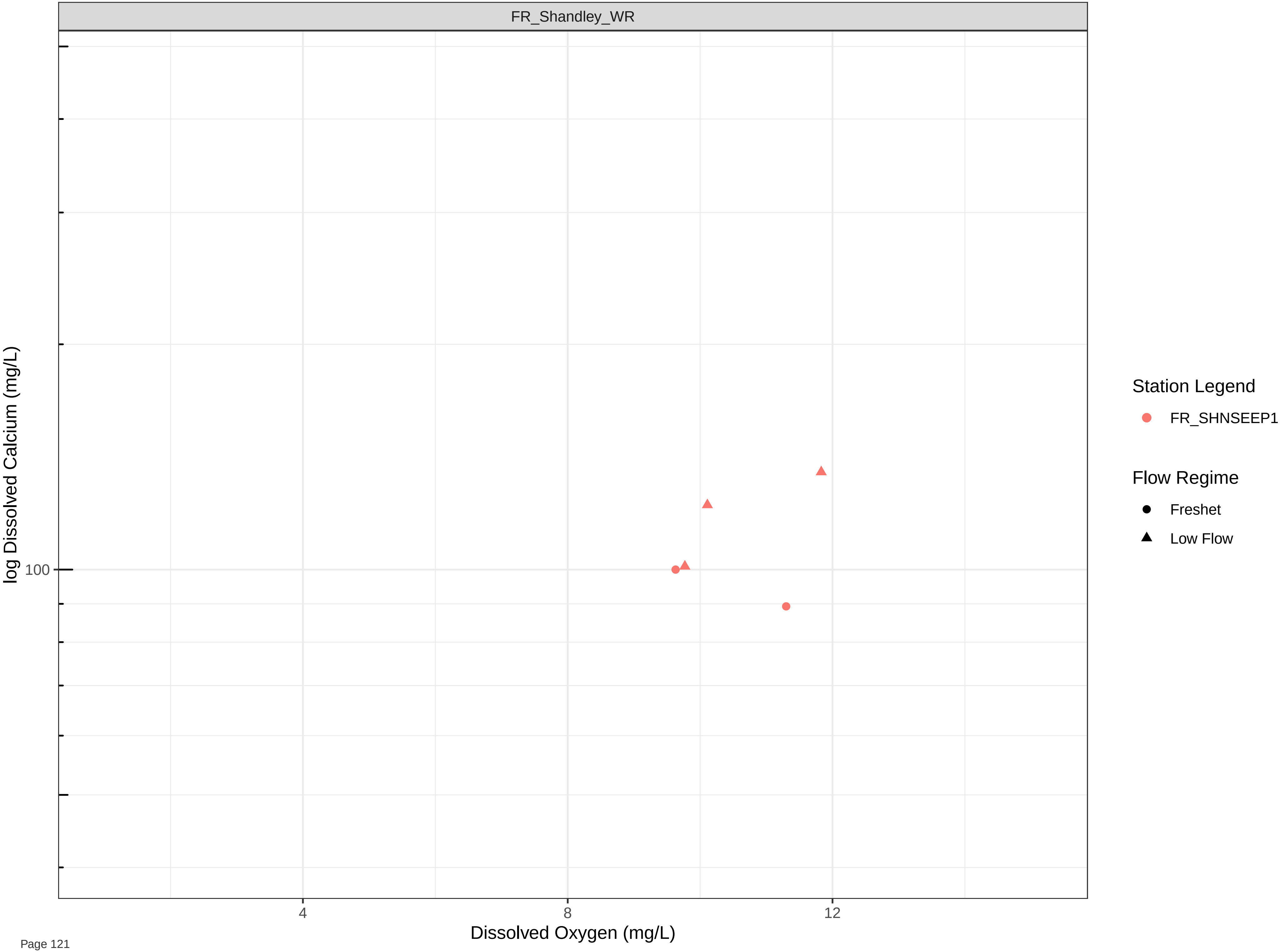
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow


FR_Shandley_WR
log Dissolved Calcium (mg/L)
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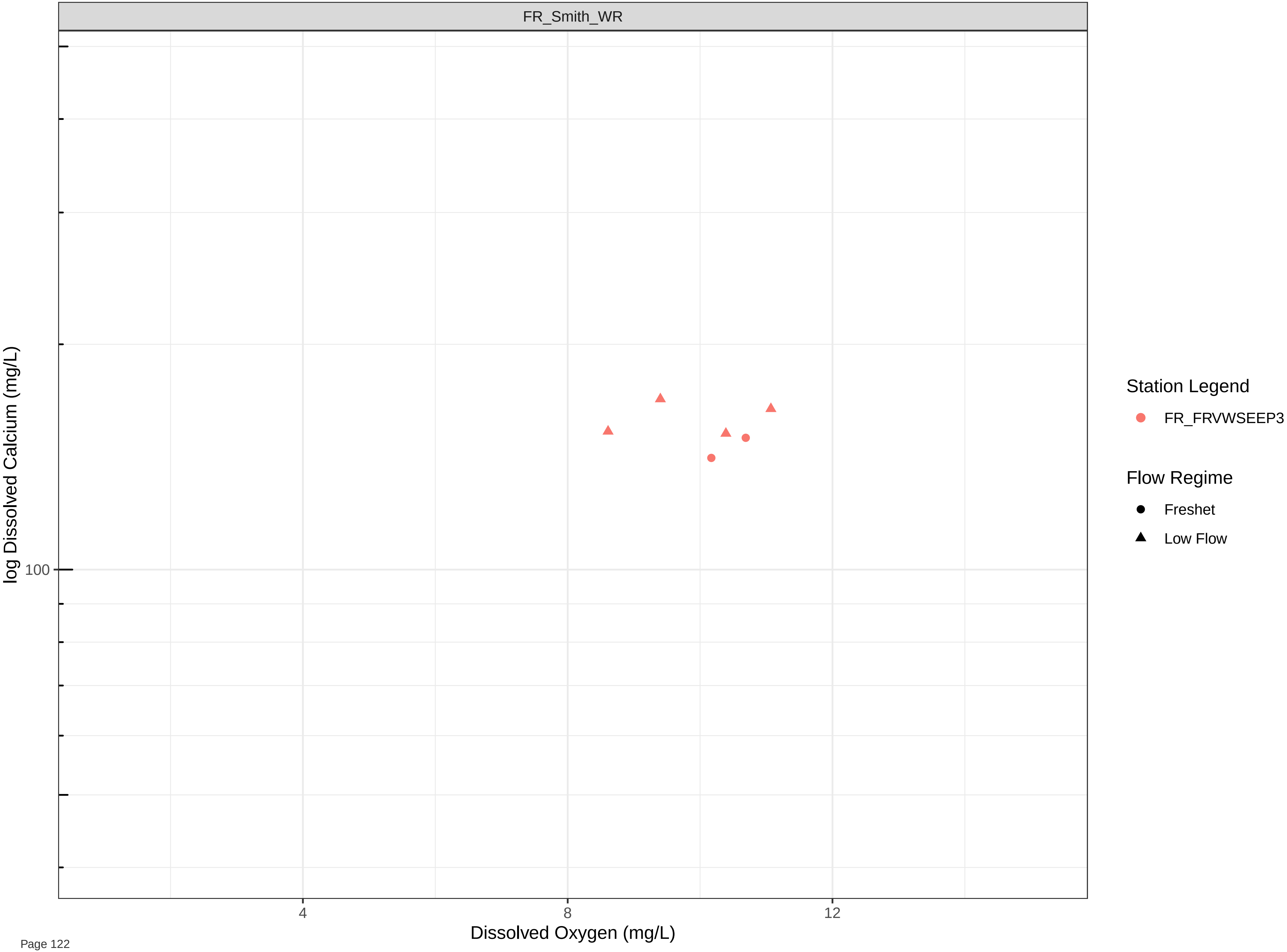
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_Smith_WR
log Dissolved Calcium (mg/L)
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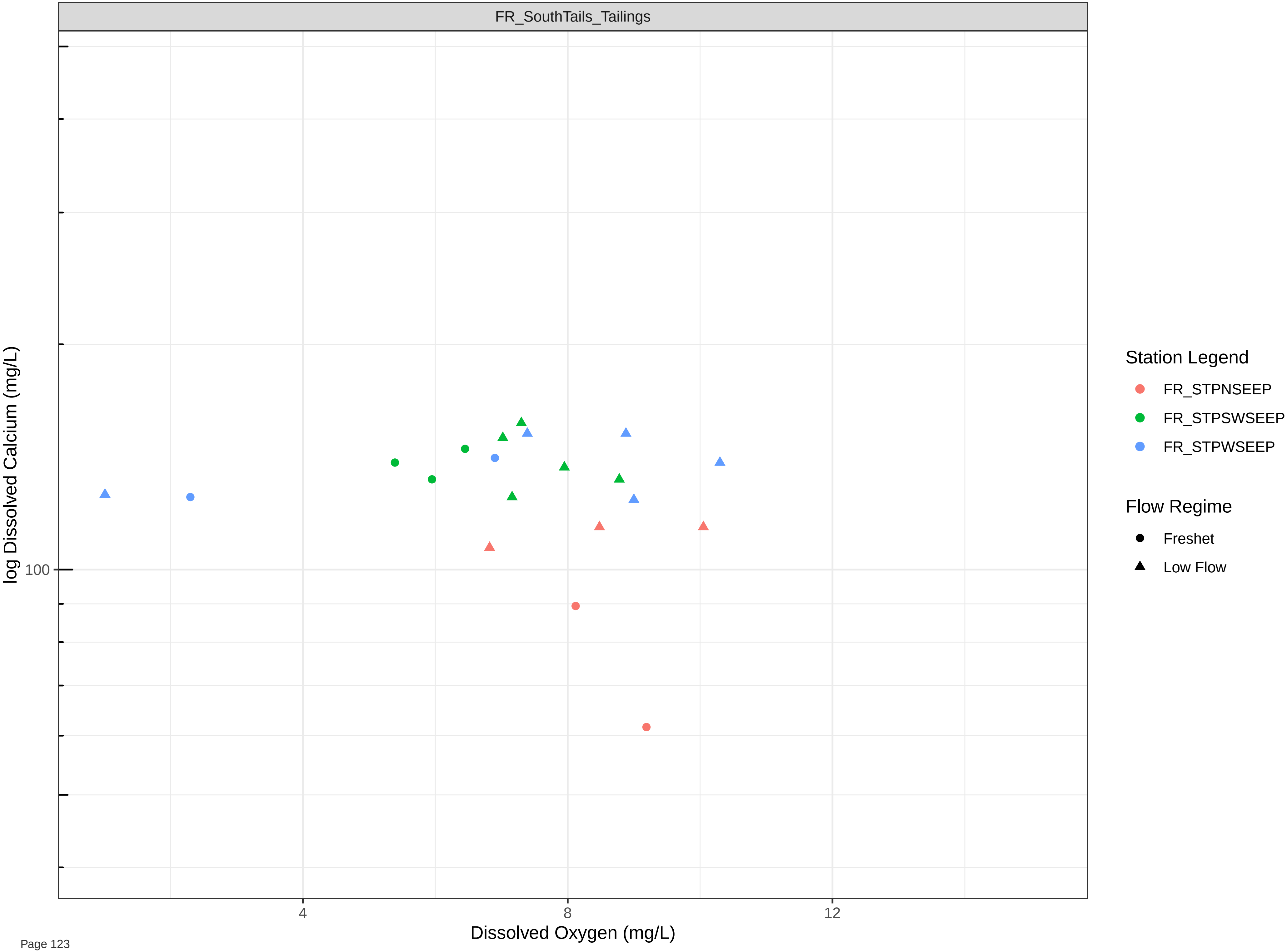
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow


FR_SouthTails_Tailings
log Dissolved Calcium (mg/L)
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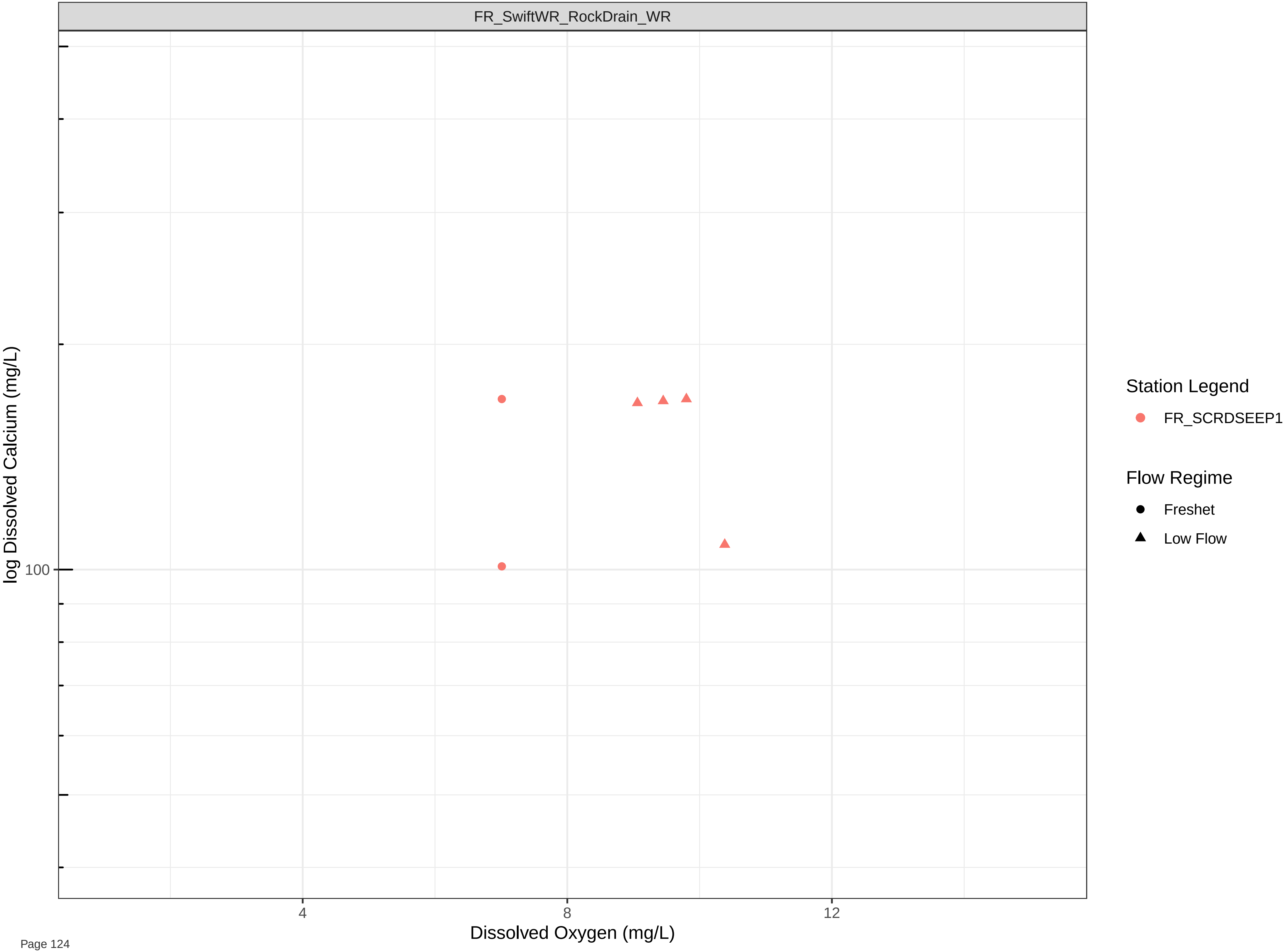
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_STPNSEEP
● FR_STPSWSEEP
● FR_STPWSEEP
Flow Regime
● Freshet
▲ Low Flow


FR_SwiftWR_RockDrain_WR
log Dissolved Calcium (mg/L)
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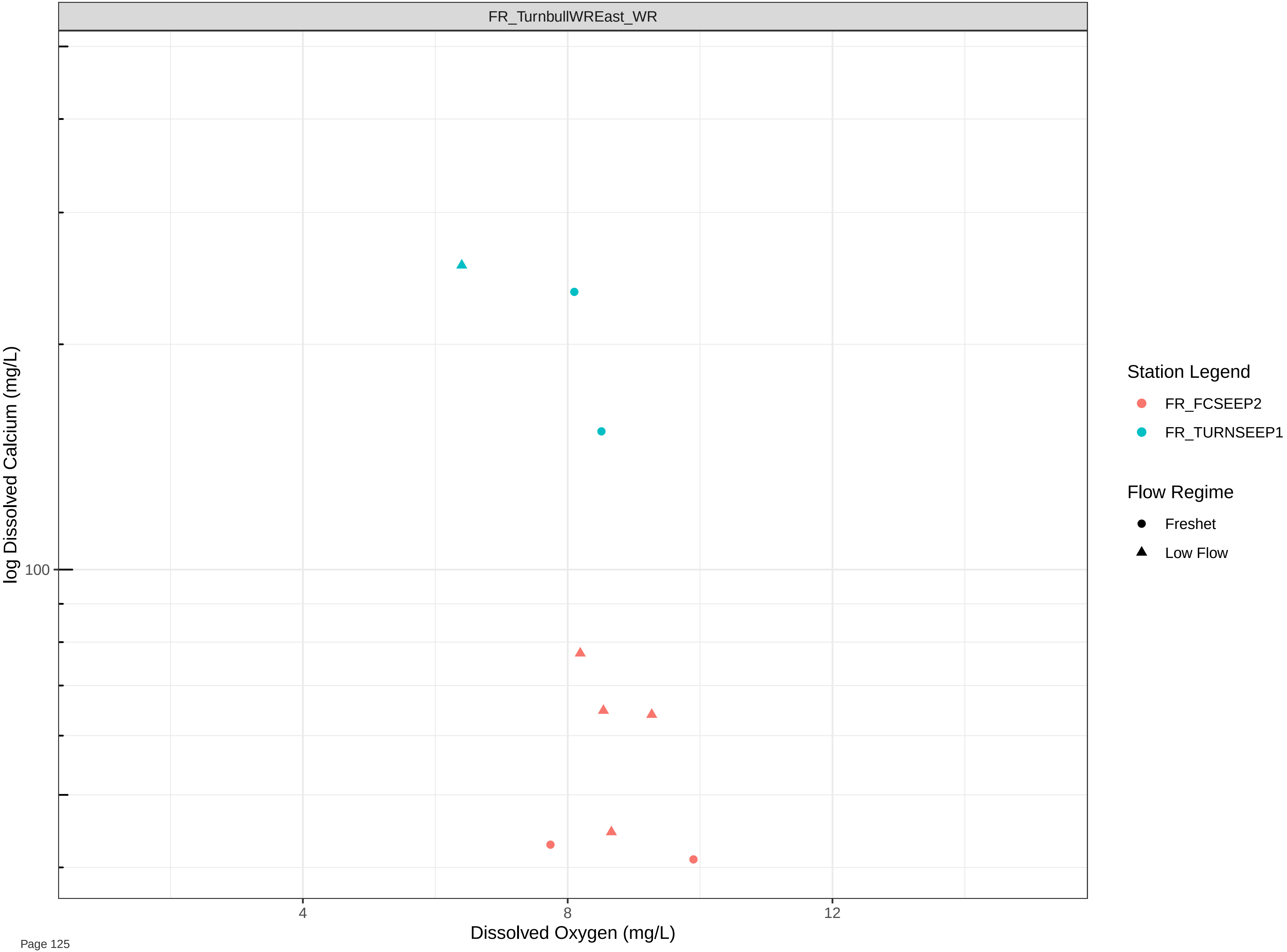
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWREast_WR
log Dissolved Calcium (mg/L)
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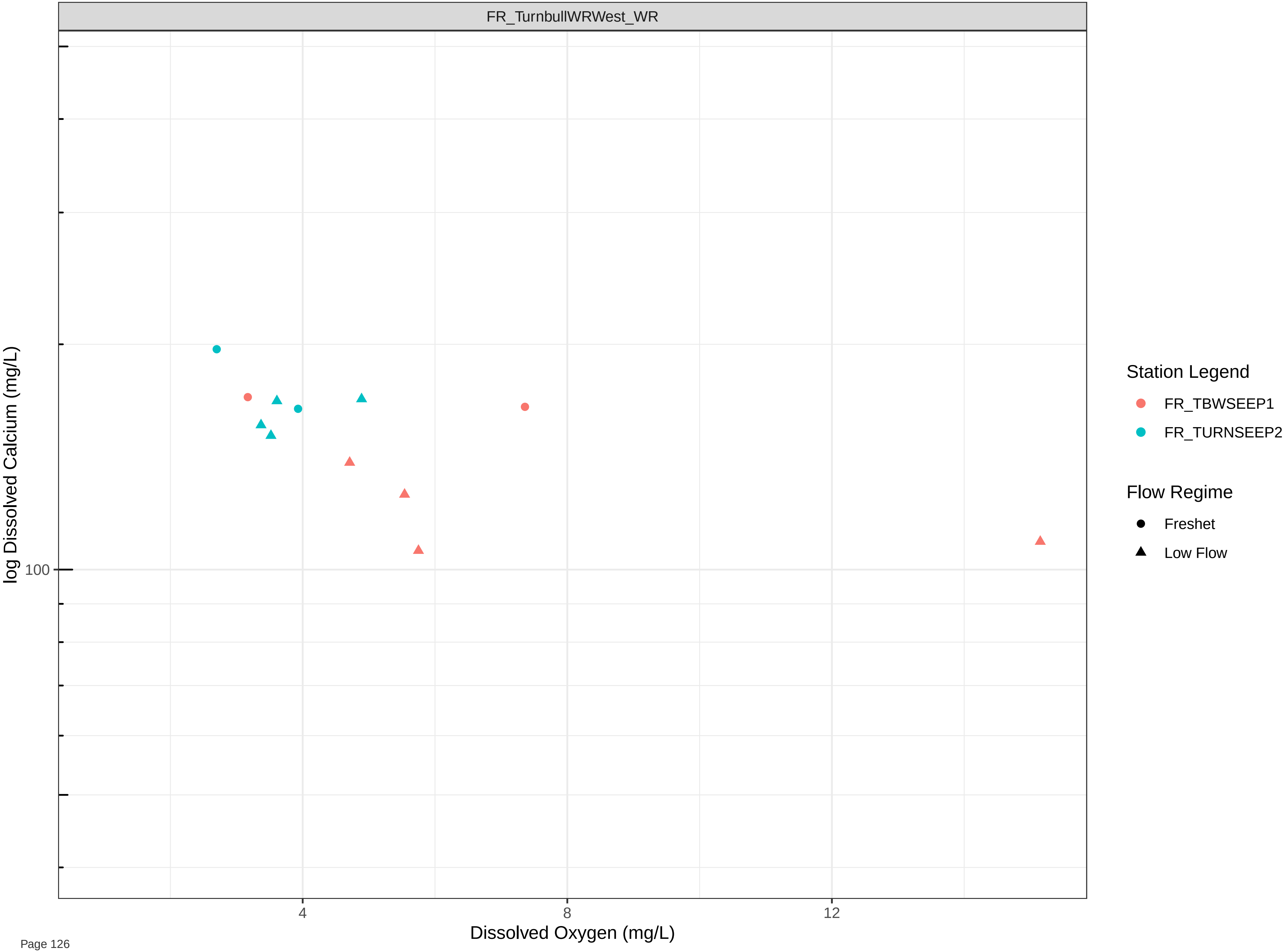
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FCSEEP2
● FR_TURNSEEP1
Flow Regime
● Freshet
▲ Low Flow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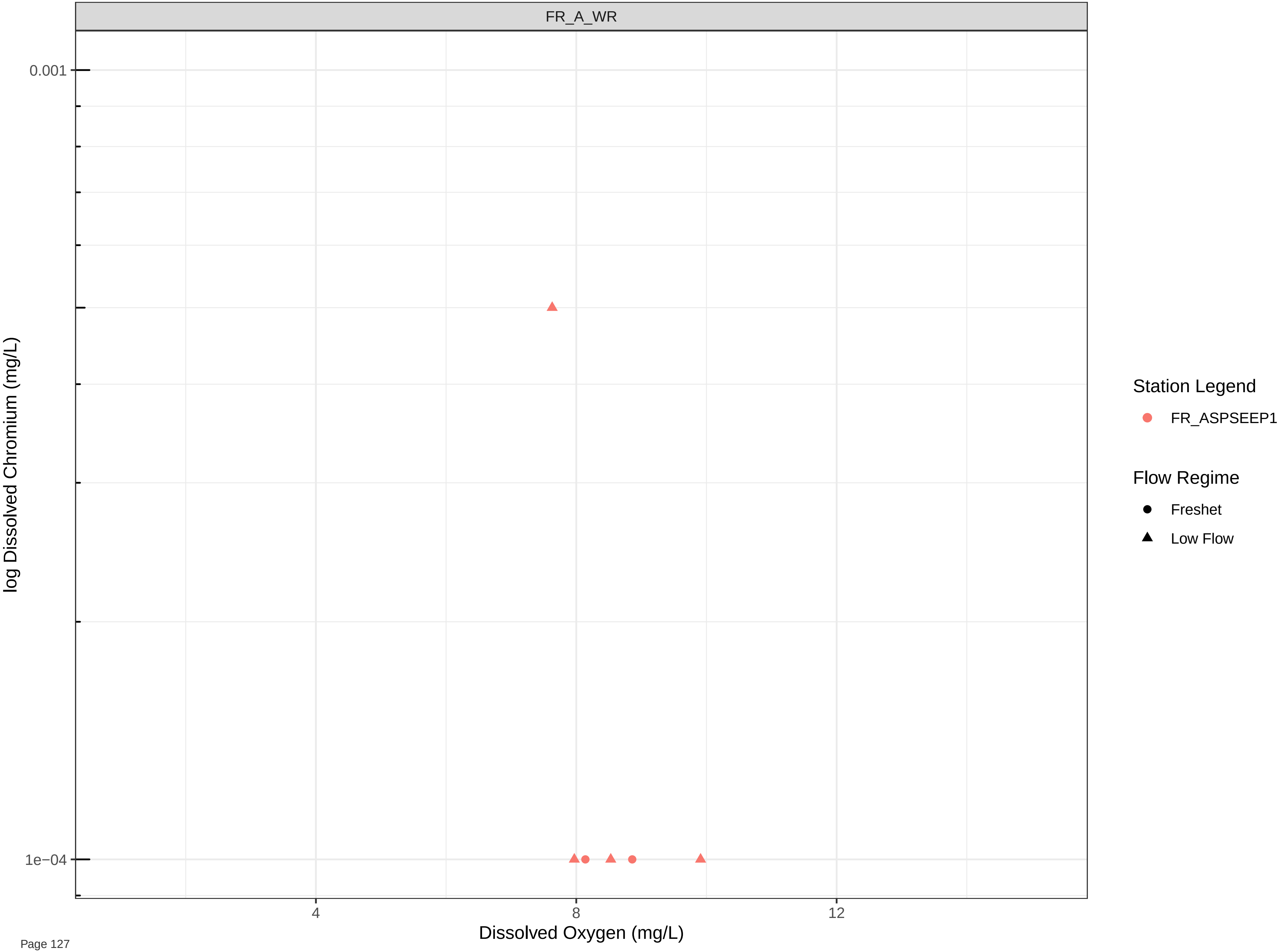
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow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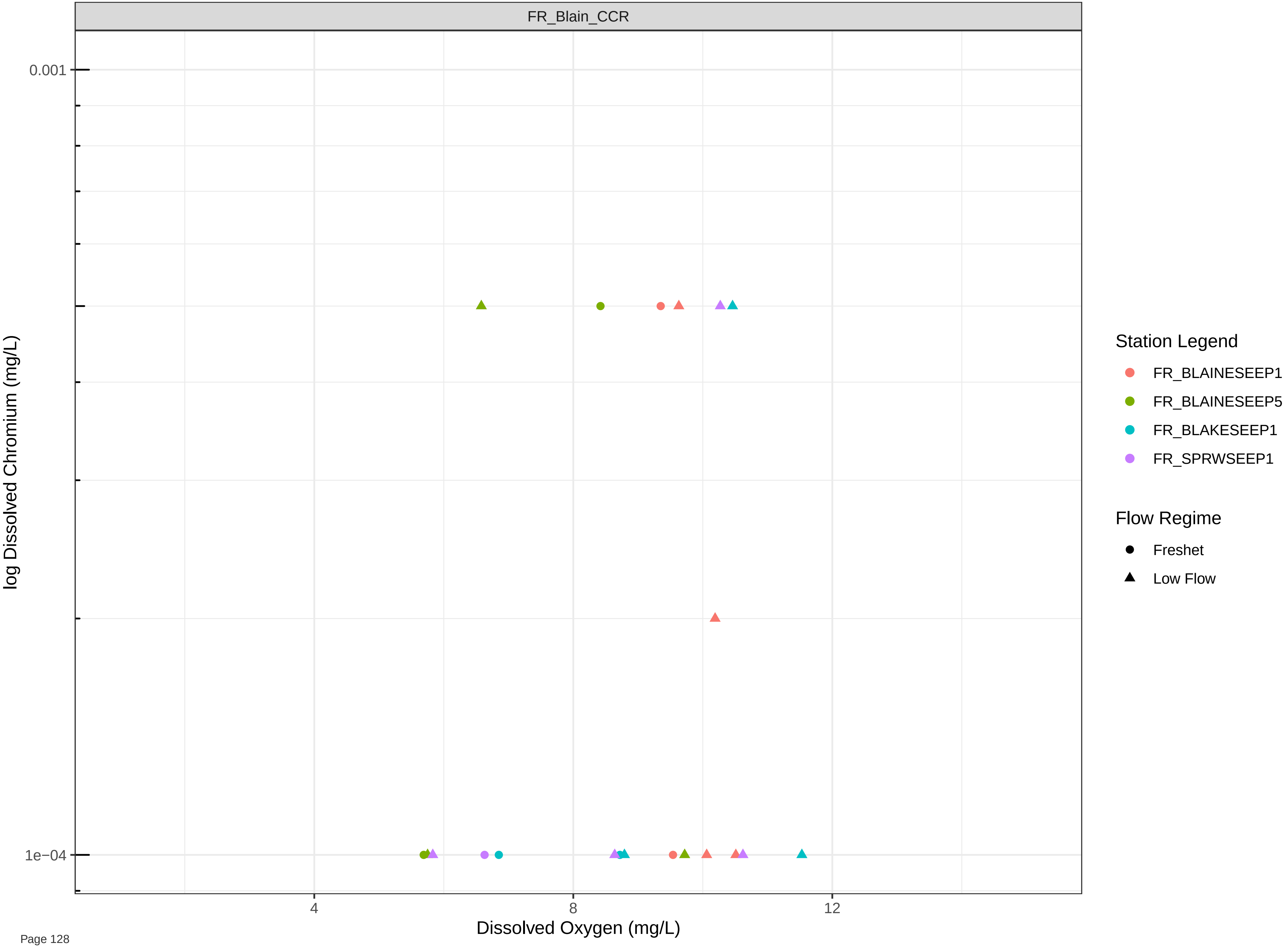
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_Blain_CCR
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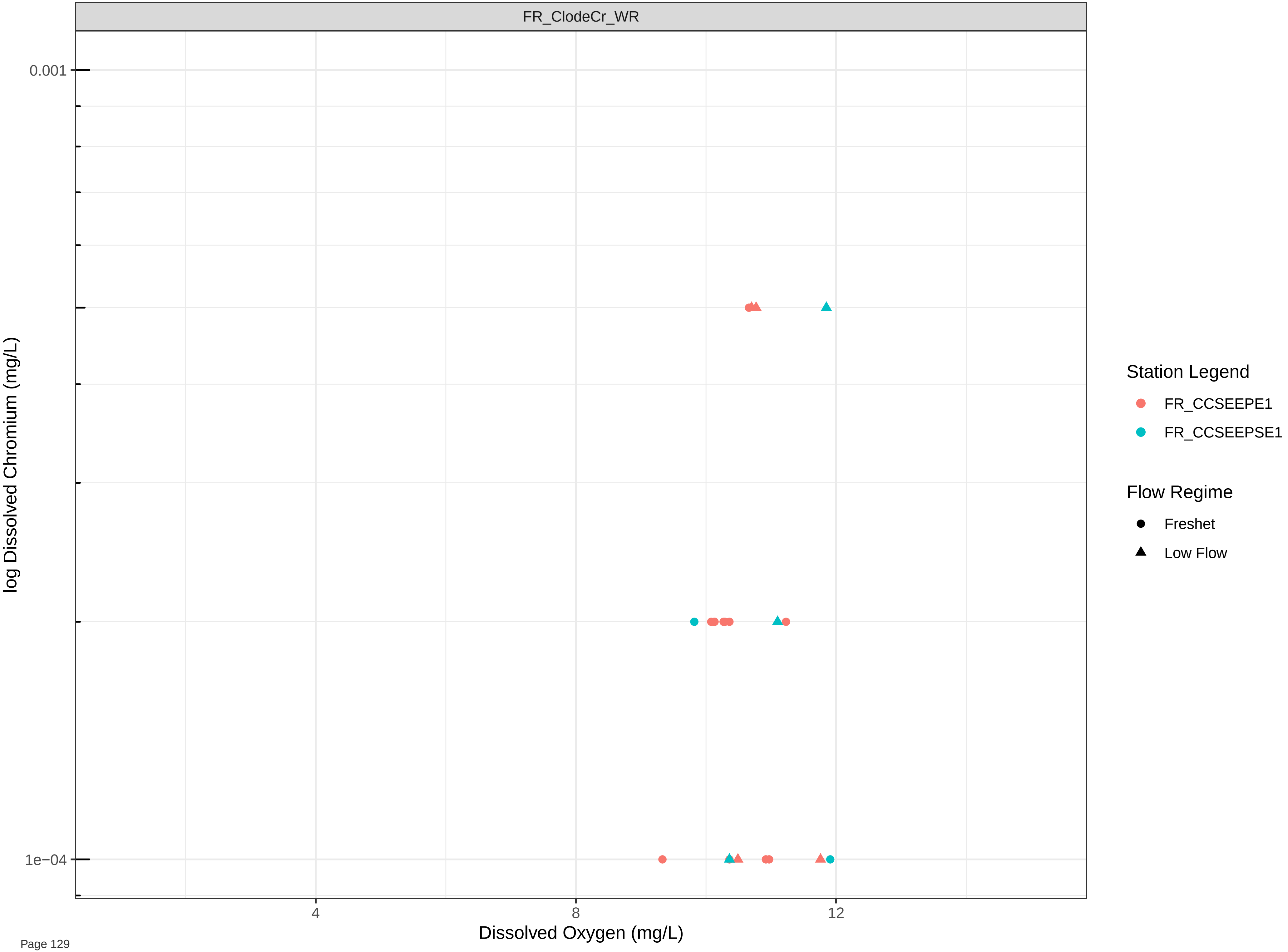
log Dissolved Chromium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_ClodeCr_WR
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log Dissolved Chromium (mg/L)
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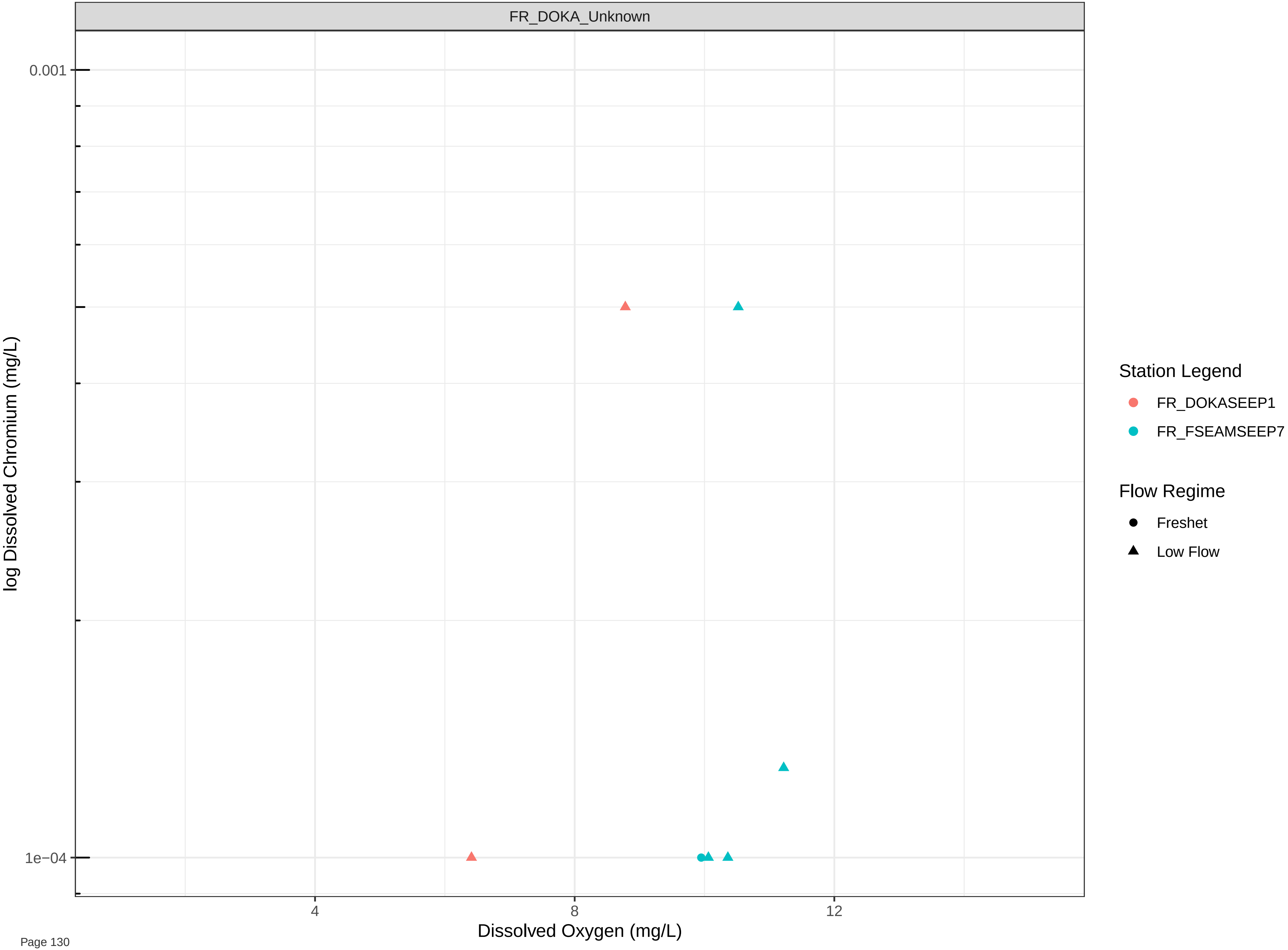
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow


FR_DOKA_Unknown
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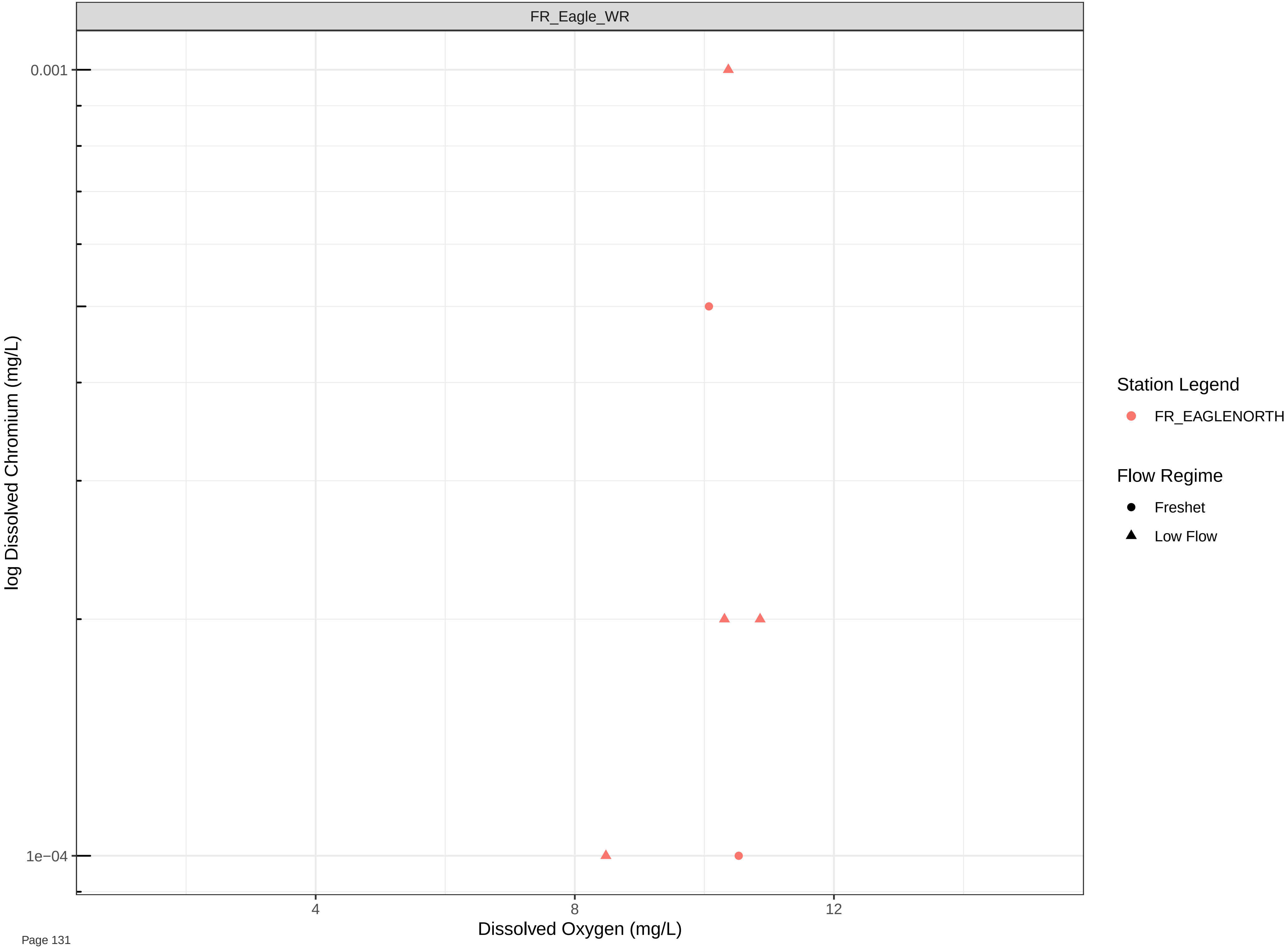
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow


FR_Eagle_WR
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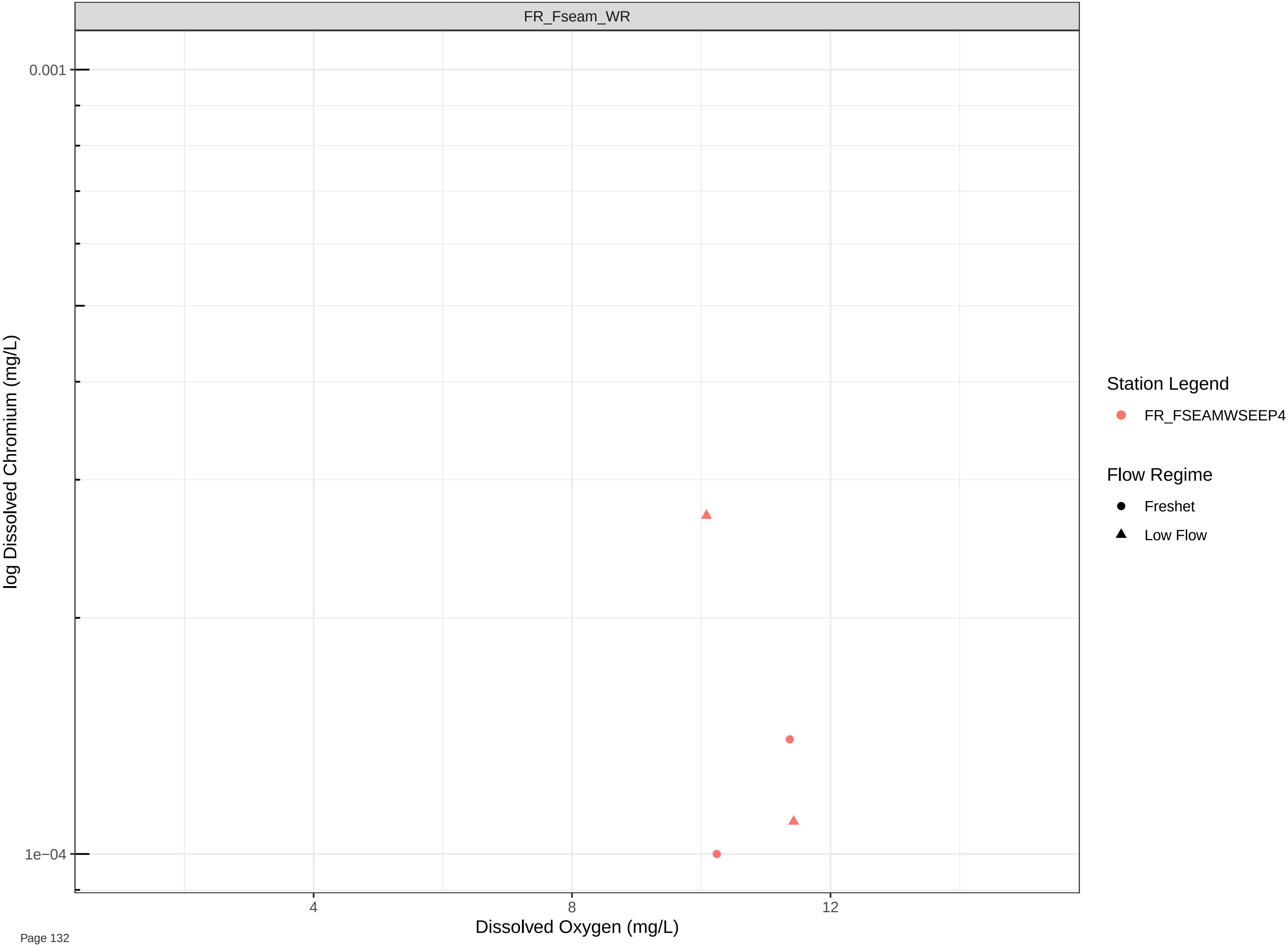
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow


FR_Fseam_WR
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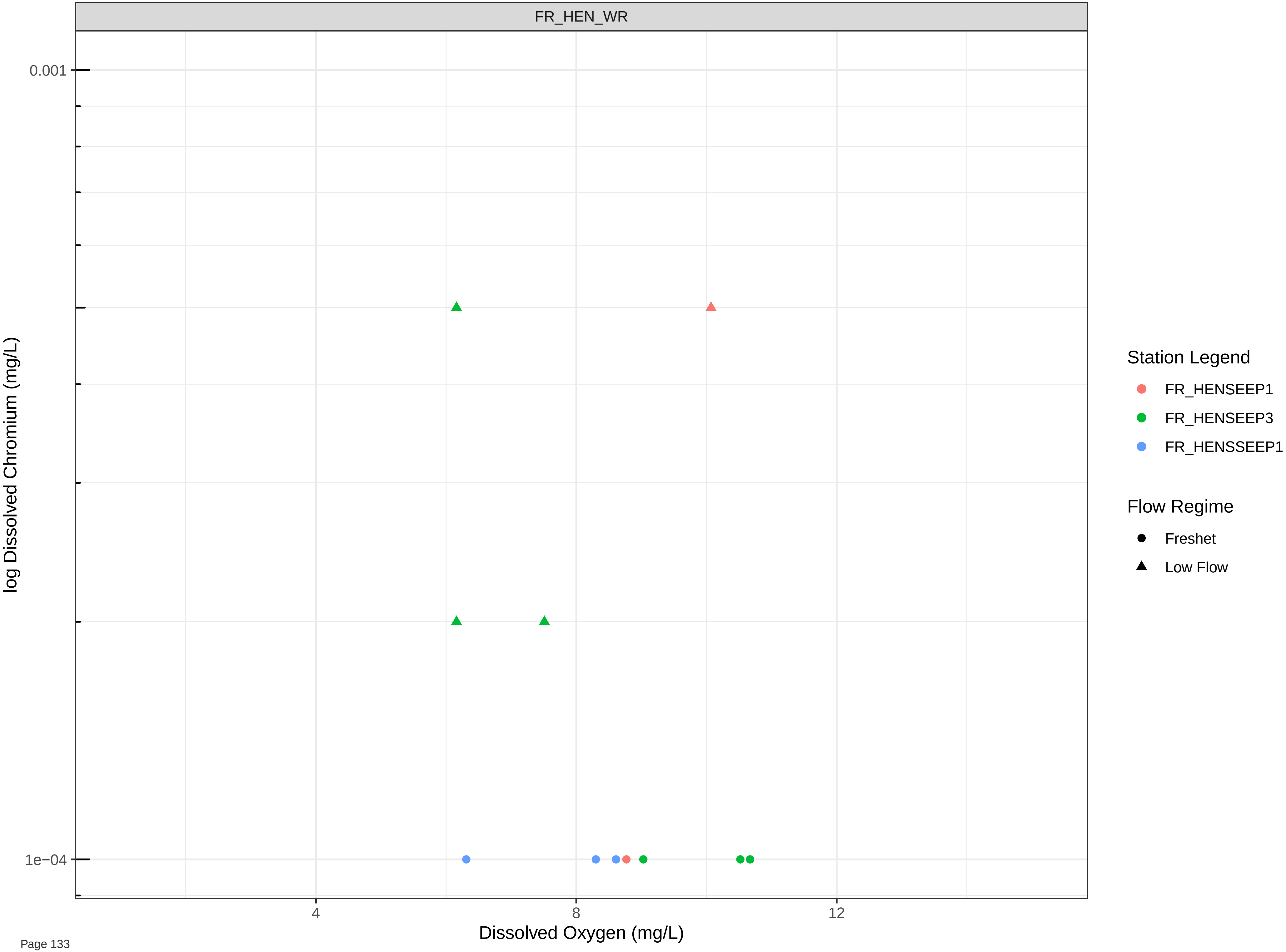
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow


FR_HEN_WR
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log Dissolved Chromium (mg/L)
4
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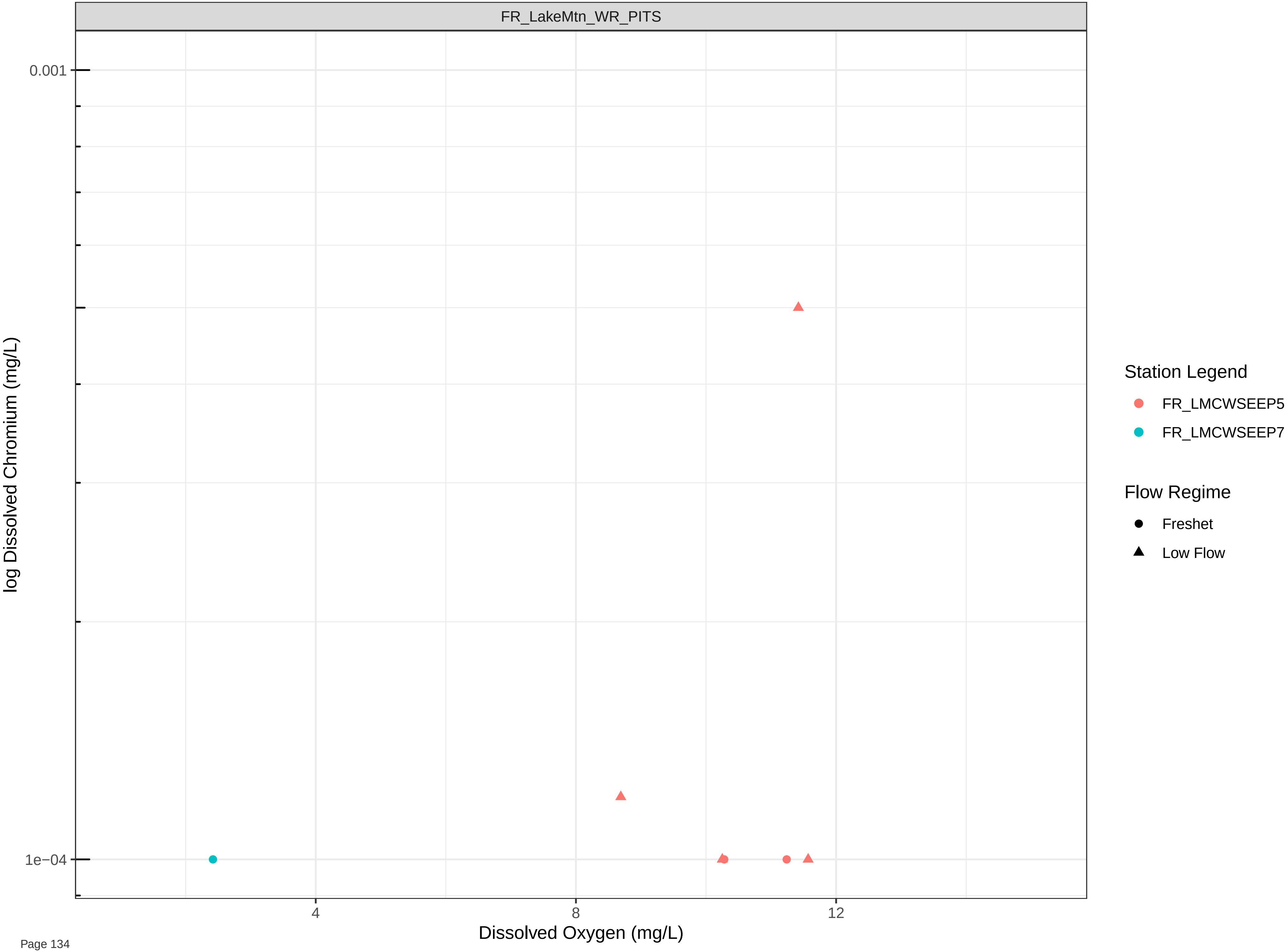
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow


FR_LakeMtn_WR_PITS
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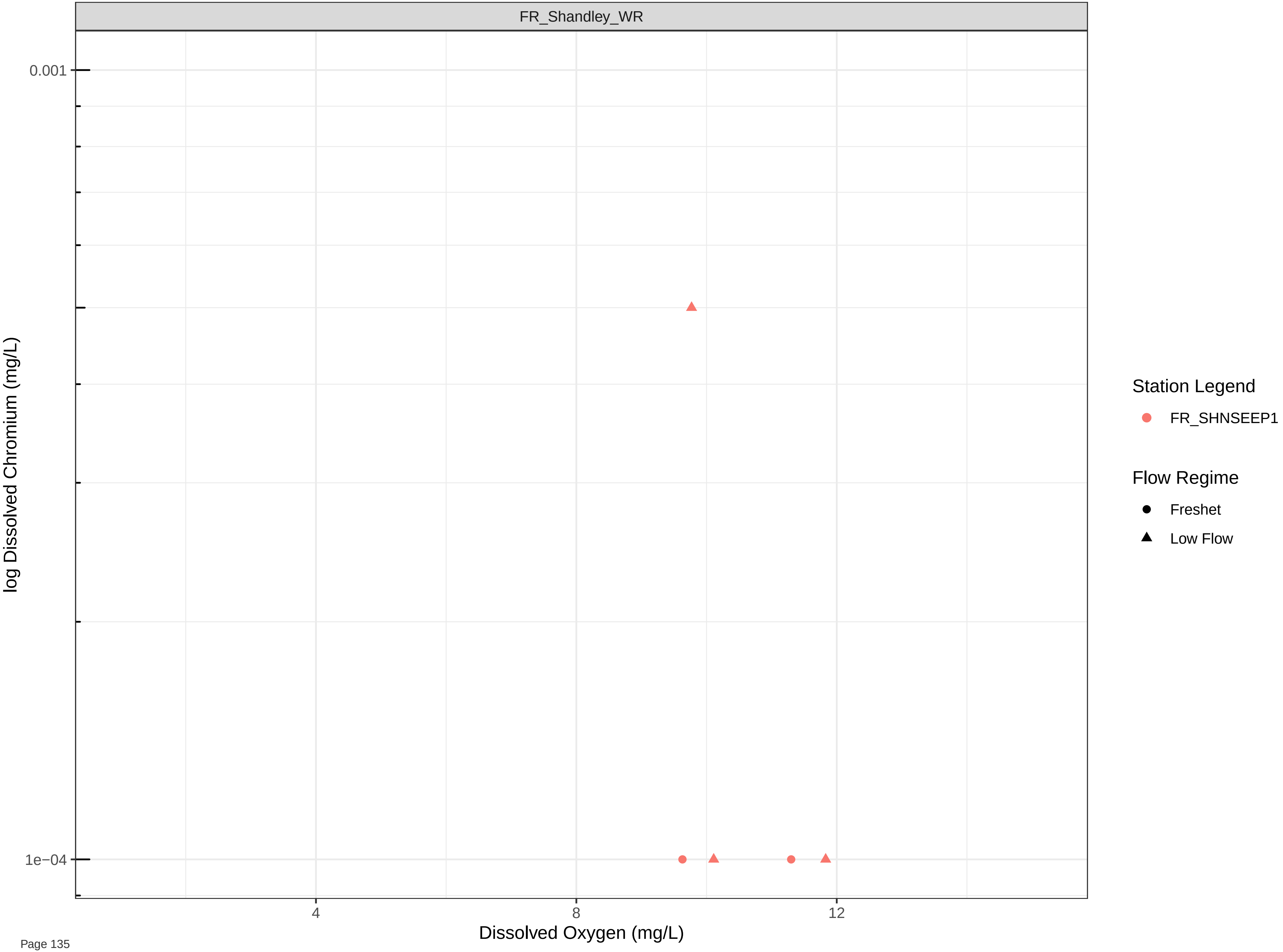
1e−04
log Dissolved Chromium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow


FR_Shandley_WR
log Dissolved Chromium (mg/L)
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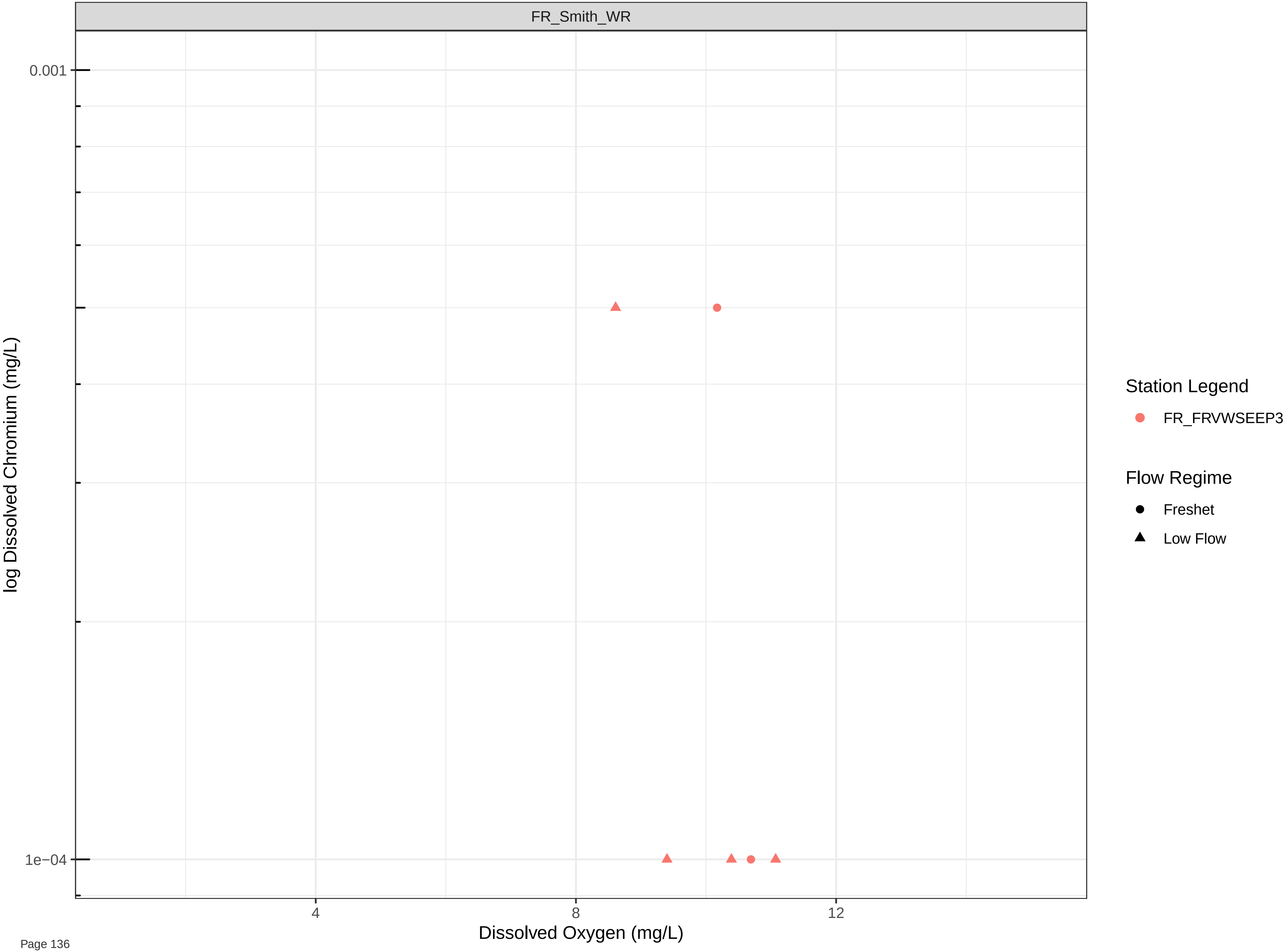
1e−04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_Smith_WR
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log Dissolved Chromium (mg/L)
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8
12
Dissolved Oxygen (mg/L)
Station Legend
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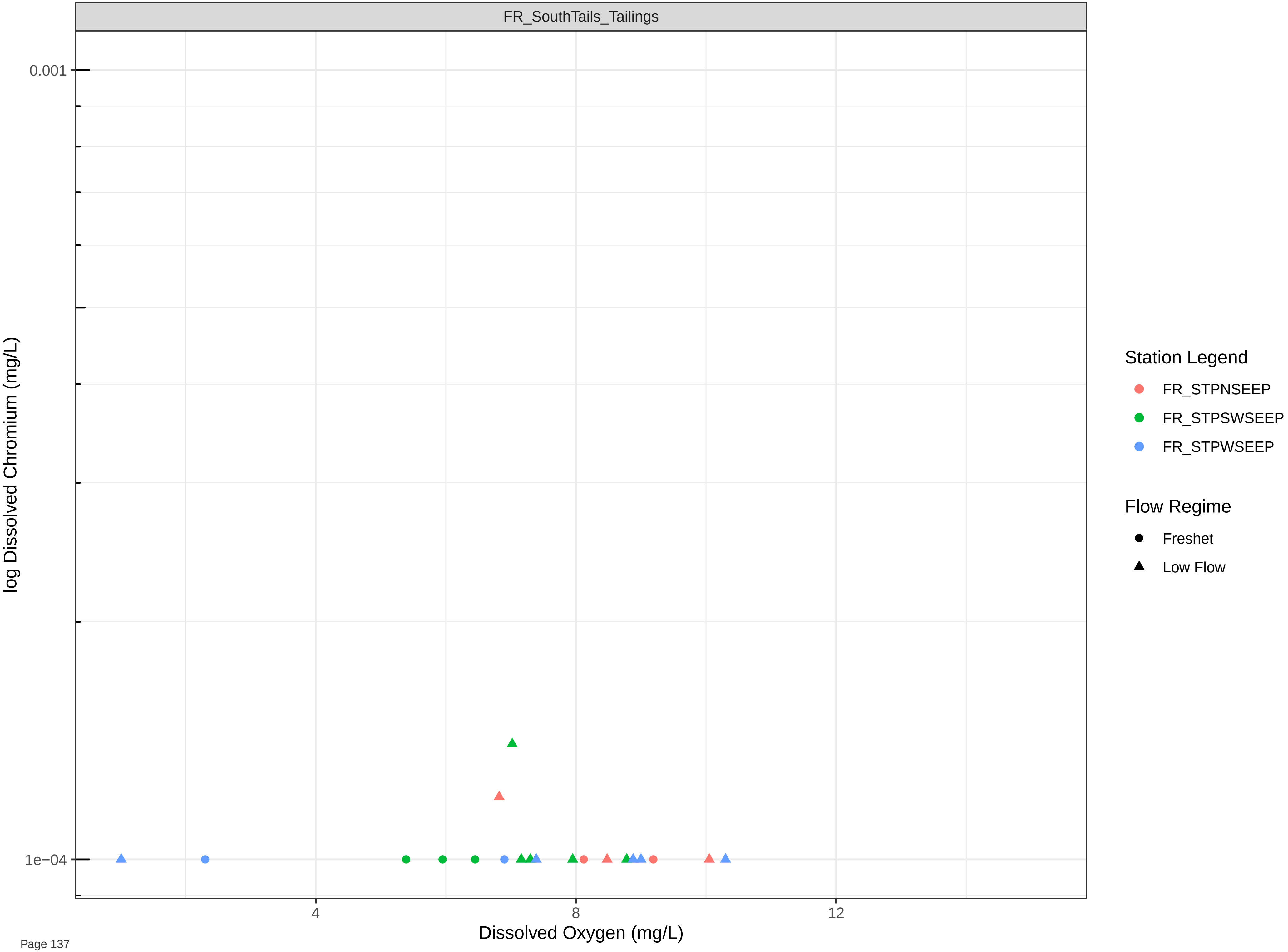
Flow Regime
● Freshet
▲ Low Flow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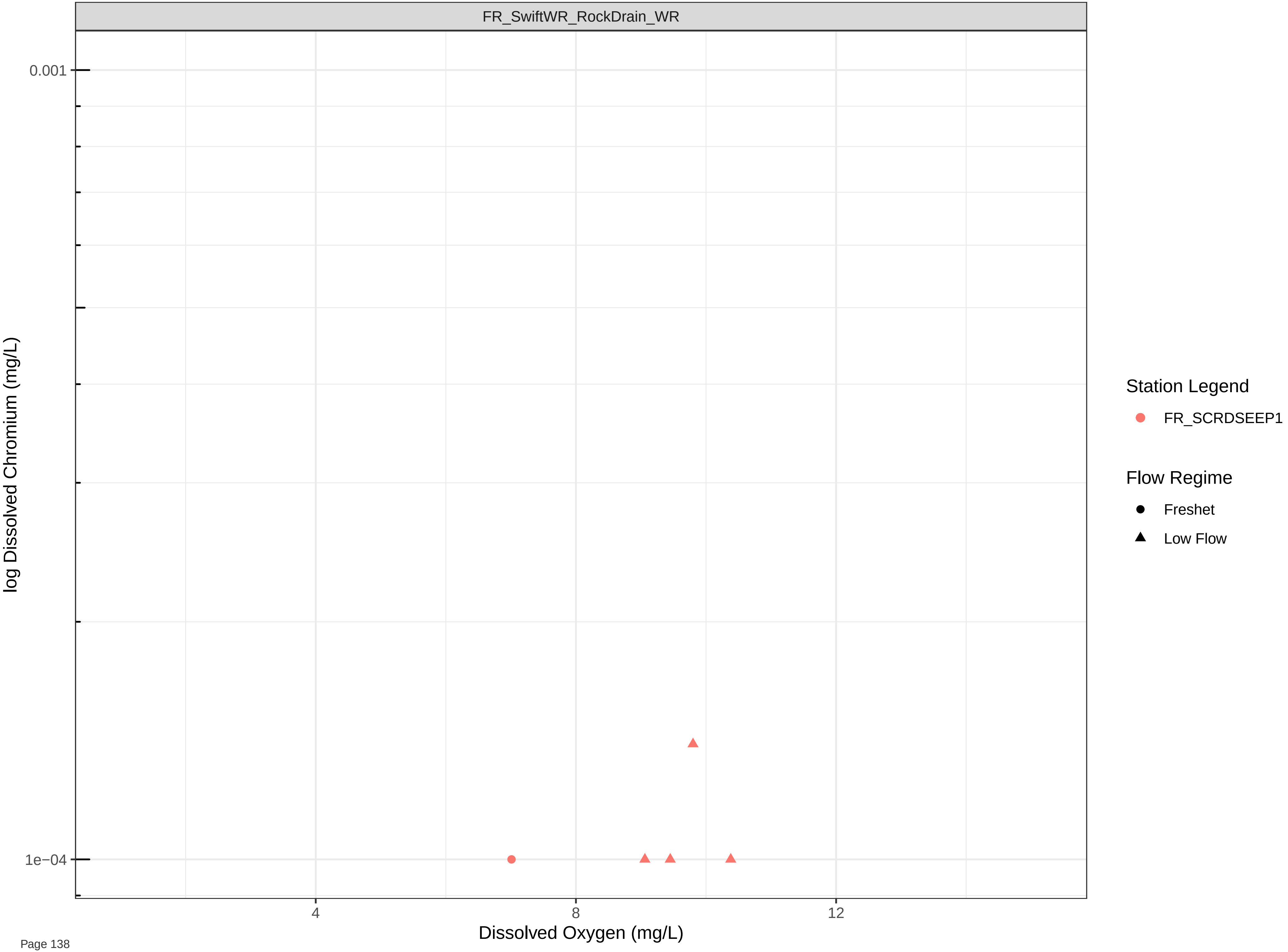
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow


FR_SwiftWR_RockDrain_WR
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log Dissolved Chromium (mg/L)
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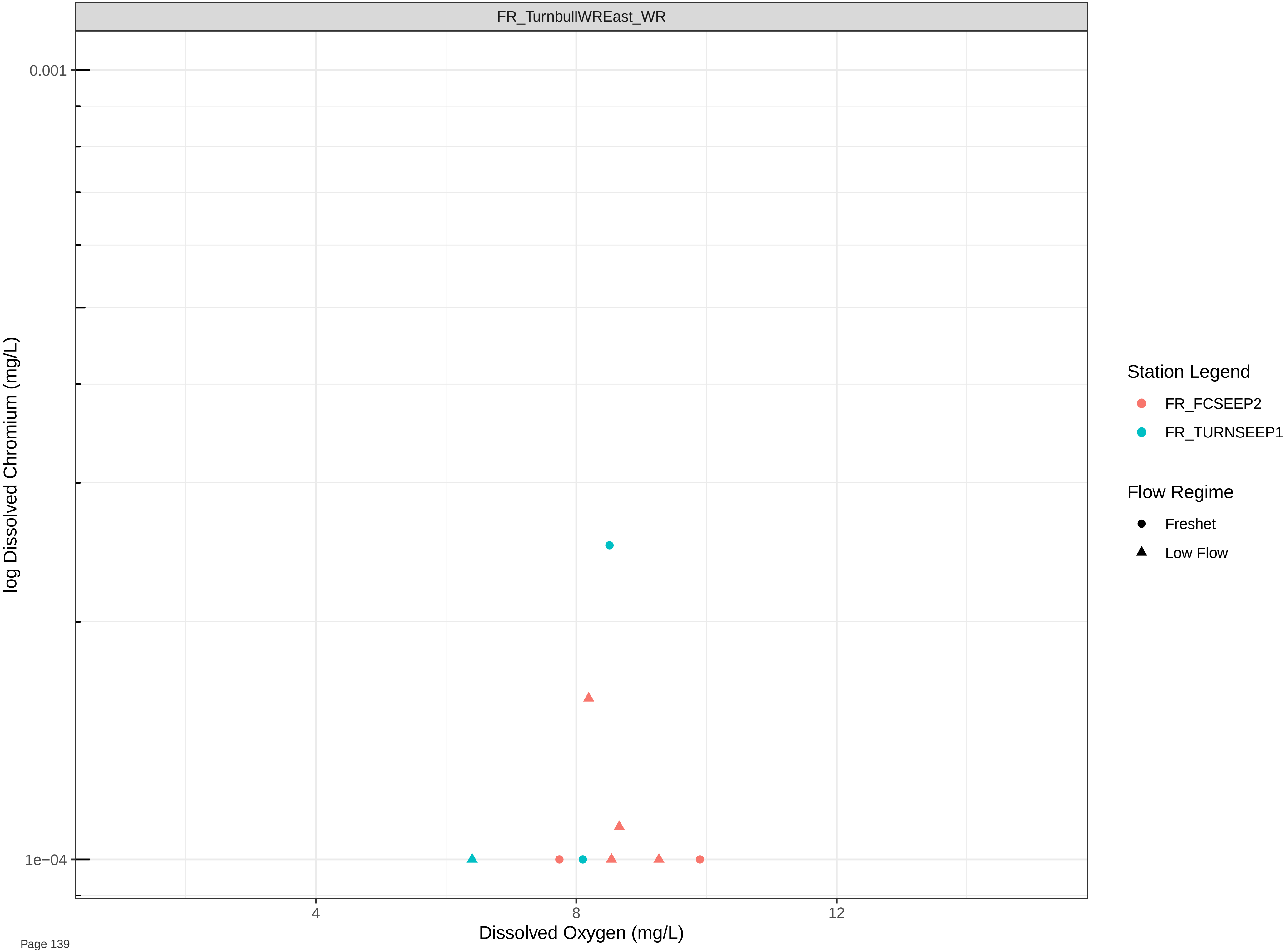
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_TurnbullWREast_WR
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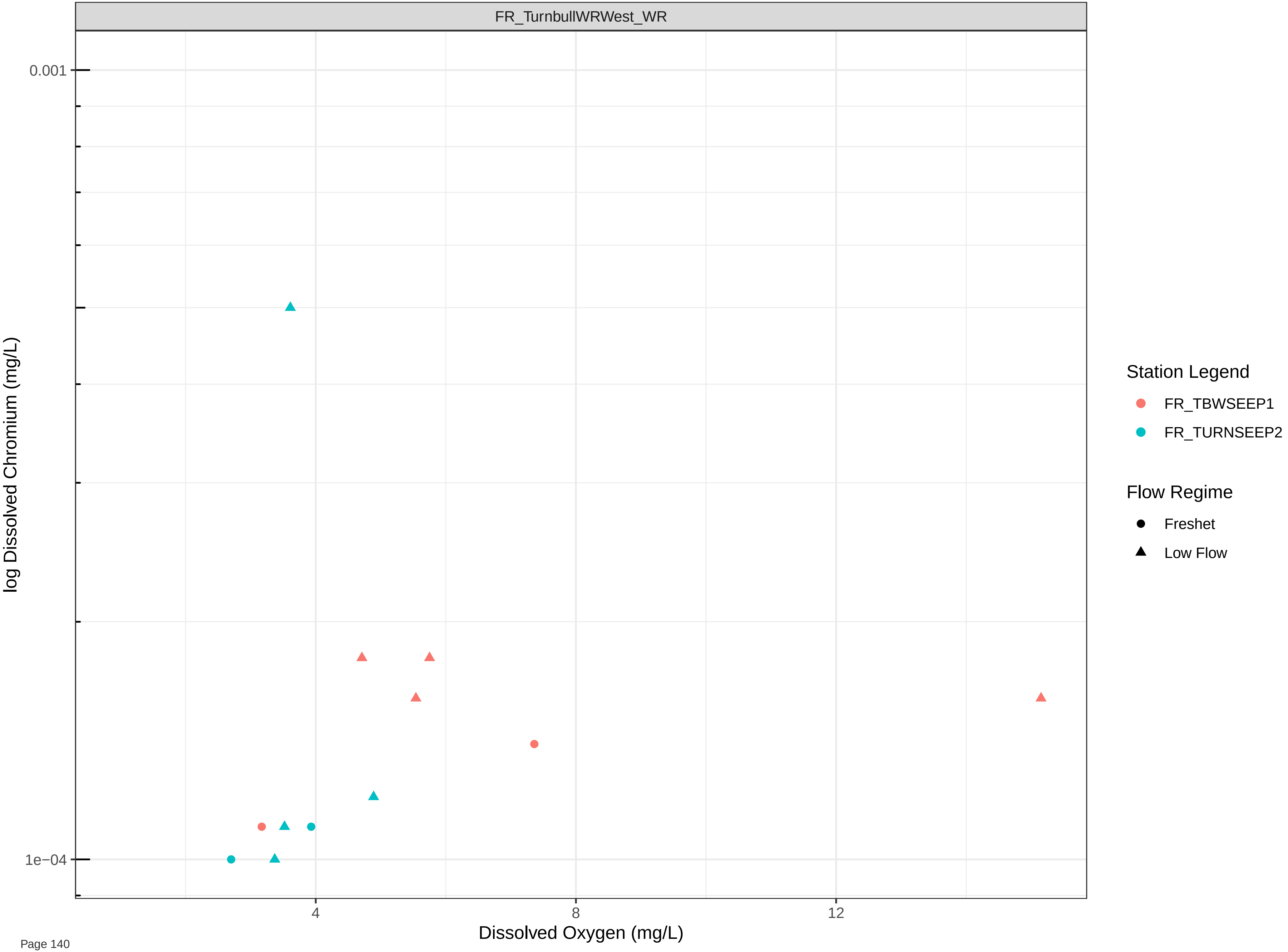
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FCSEEP2
● FR_TURNSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_TurnbullWRWest_WR
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log Dissolved Chromium (mg/L)
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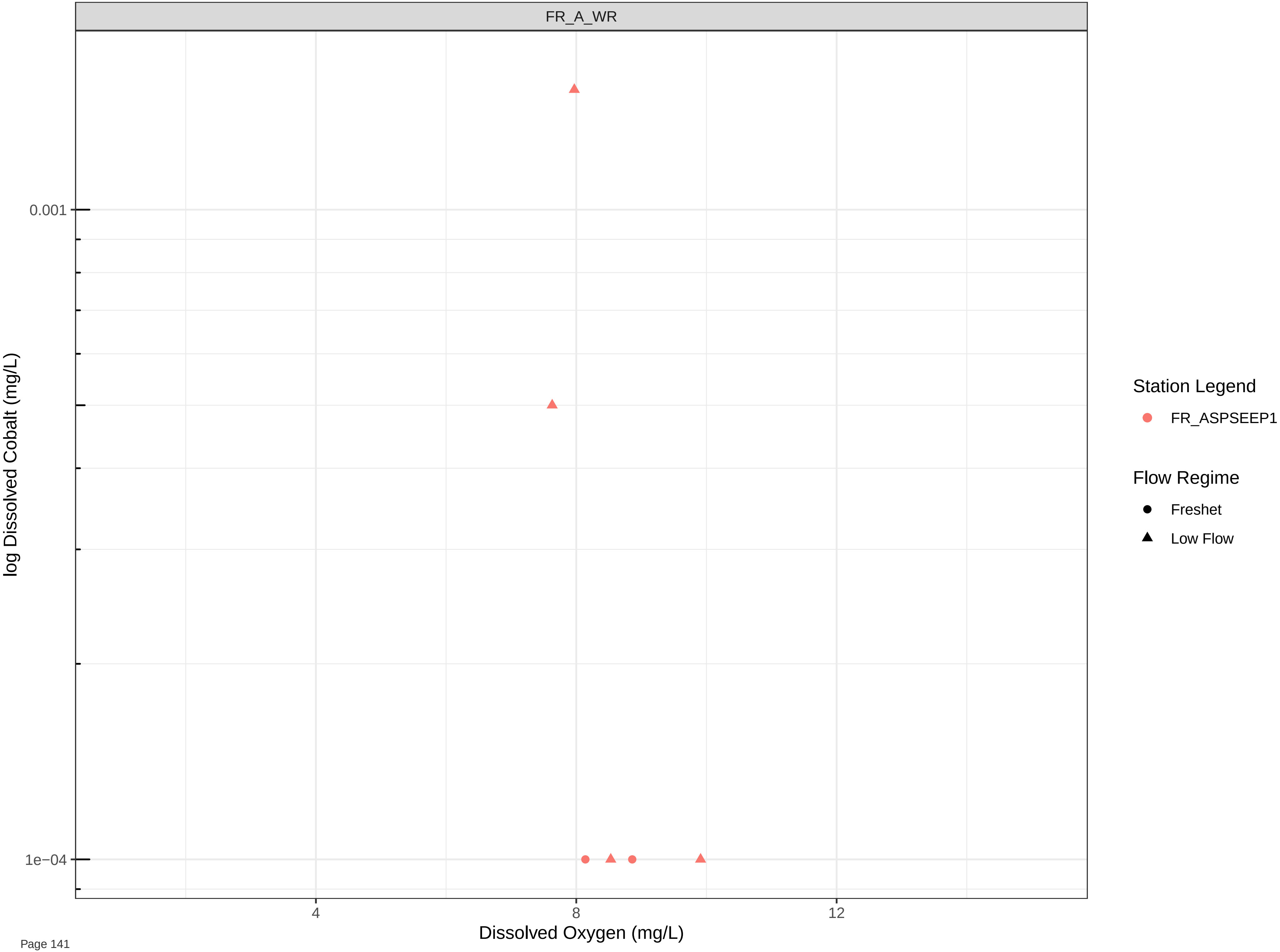
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow


FR_A_WR
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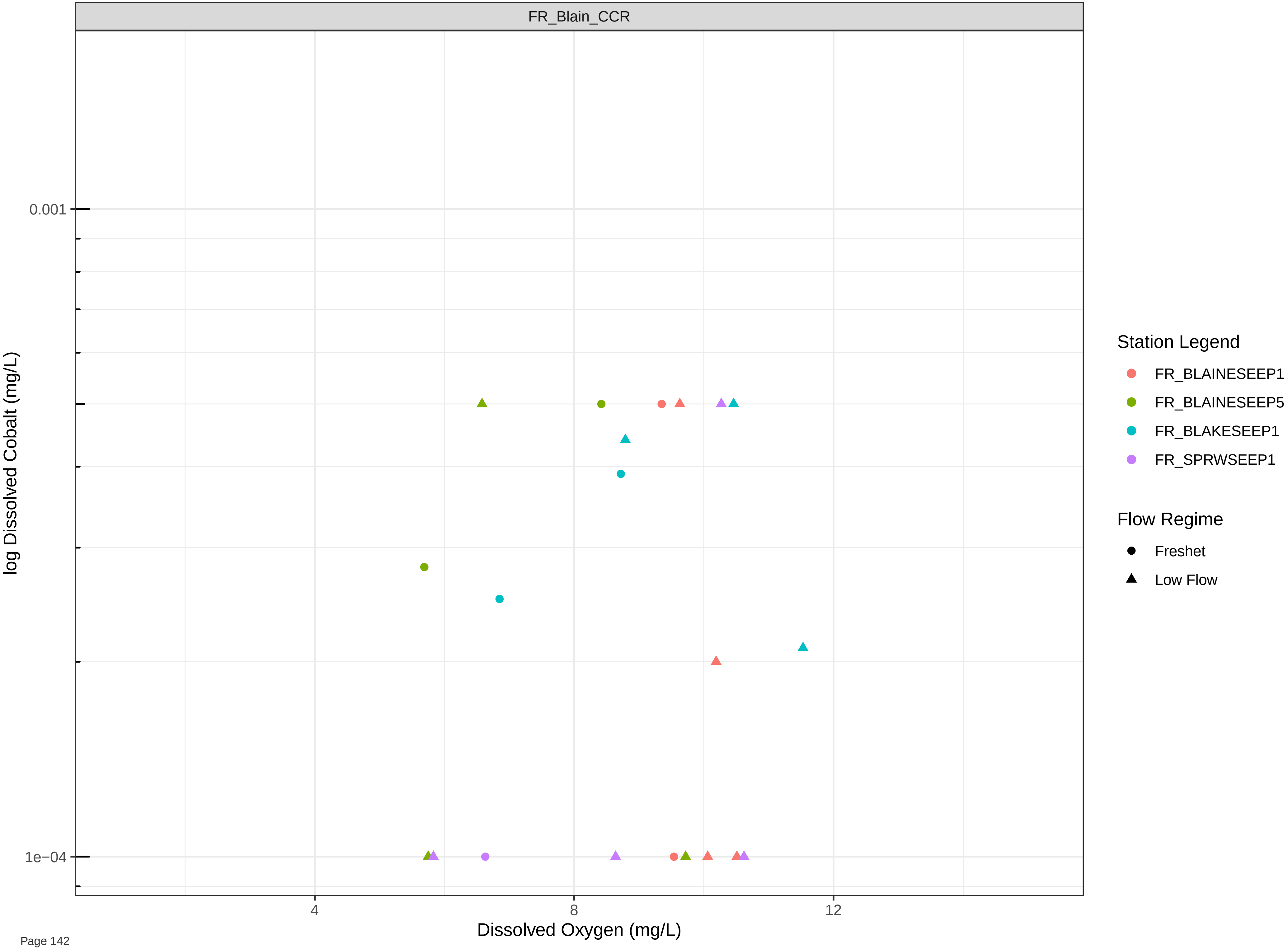
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_Blain_CCR
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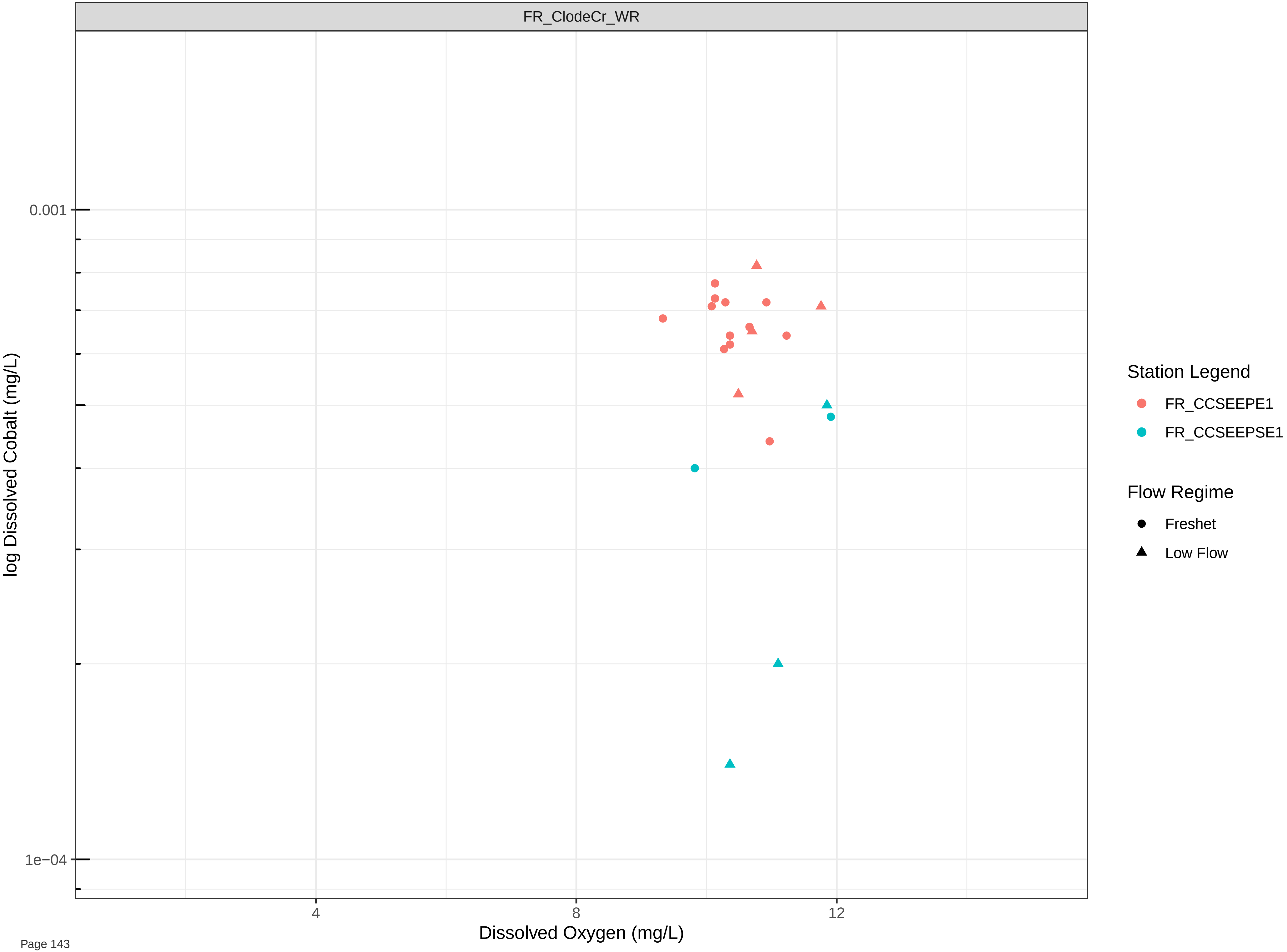
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow


FR_ClodeCr_WR
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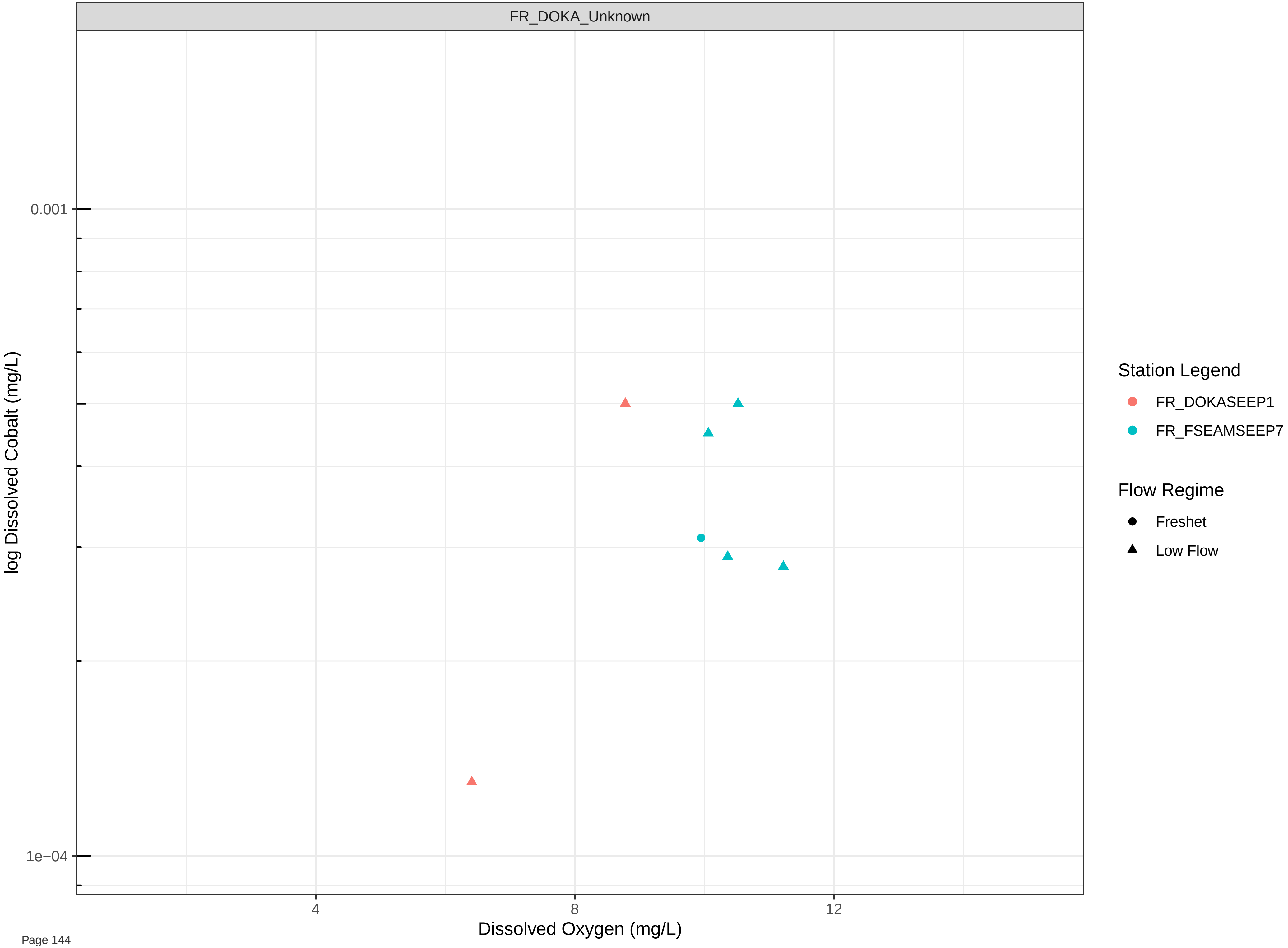
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
4
8
12
Station Legend
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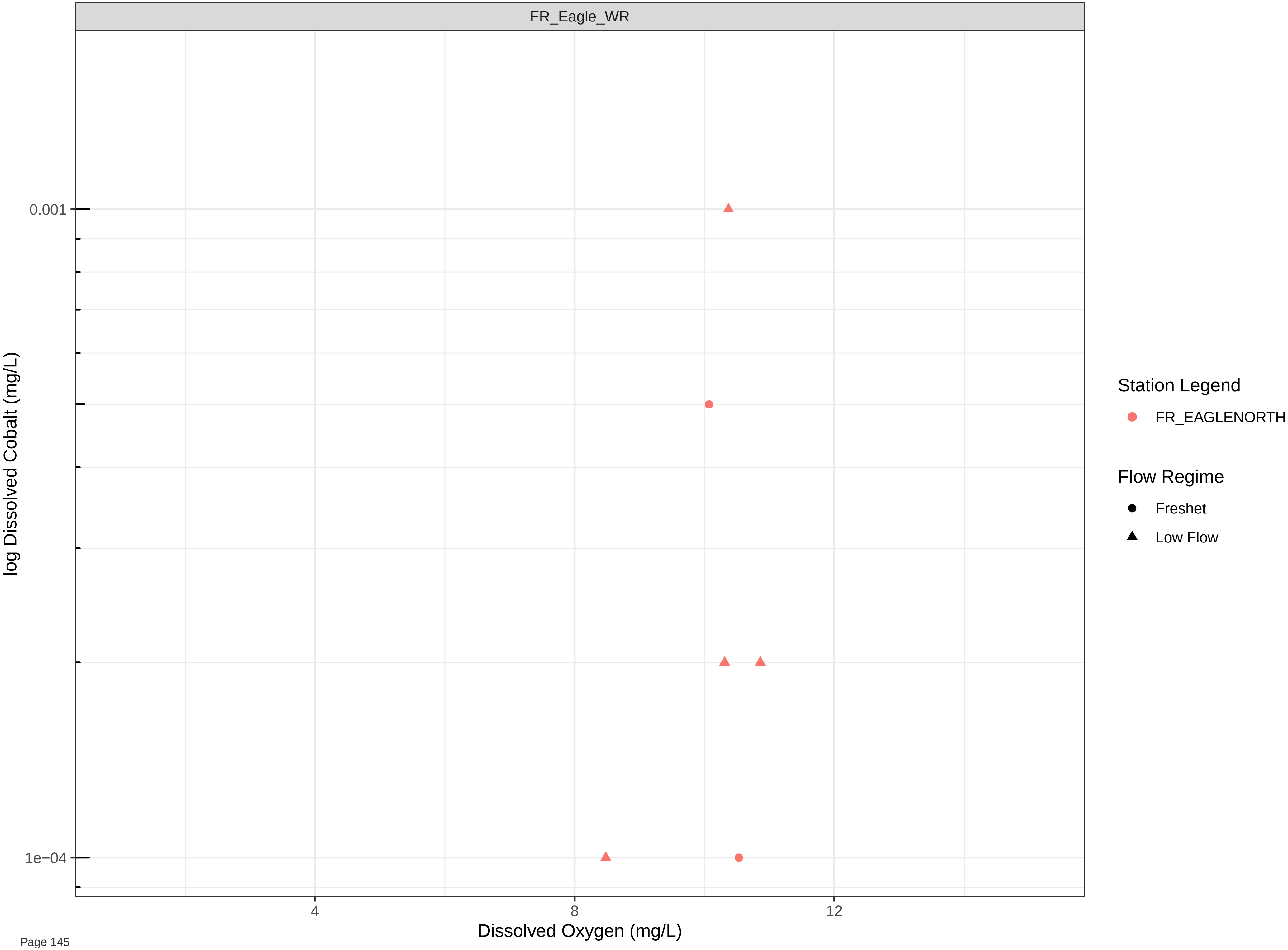
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow


FR_Eagle_WR
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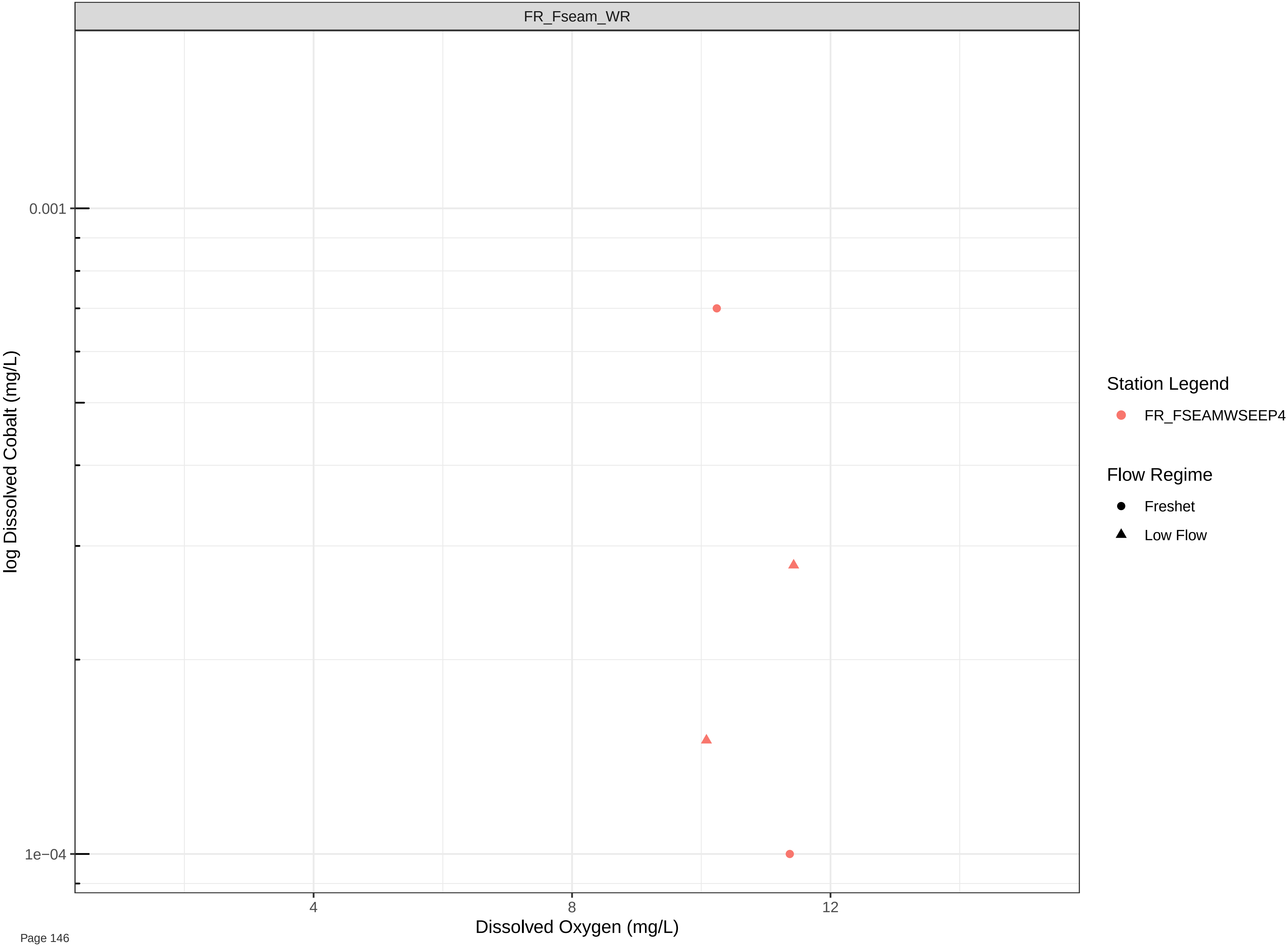
log Dissolved Cobalt (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow


FR_Fseam_WR
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log Dissolved Cobalt (mg/L)
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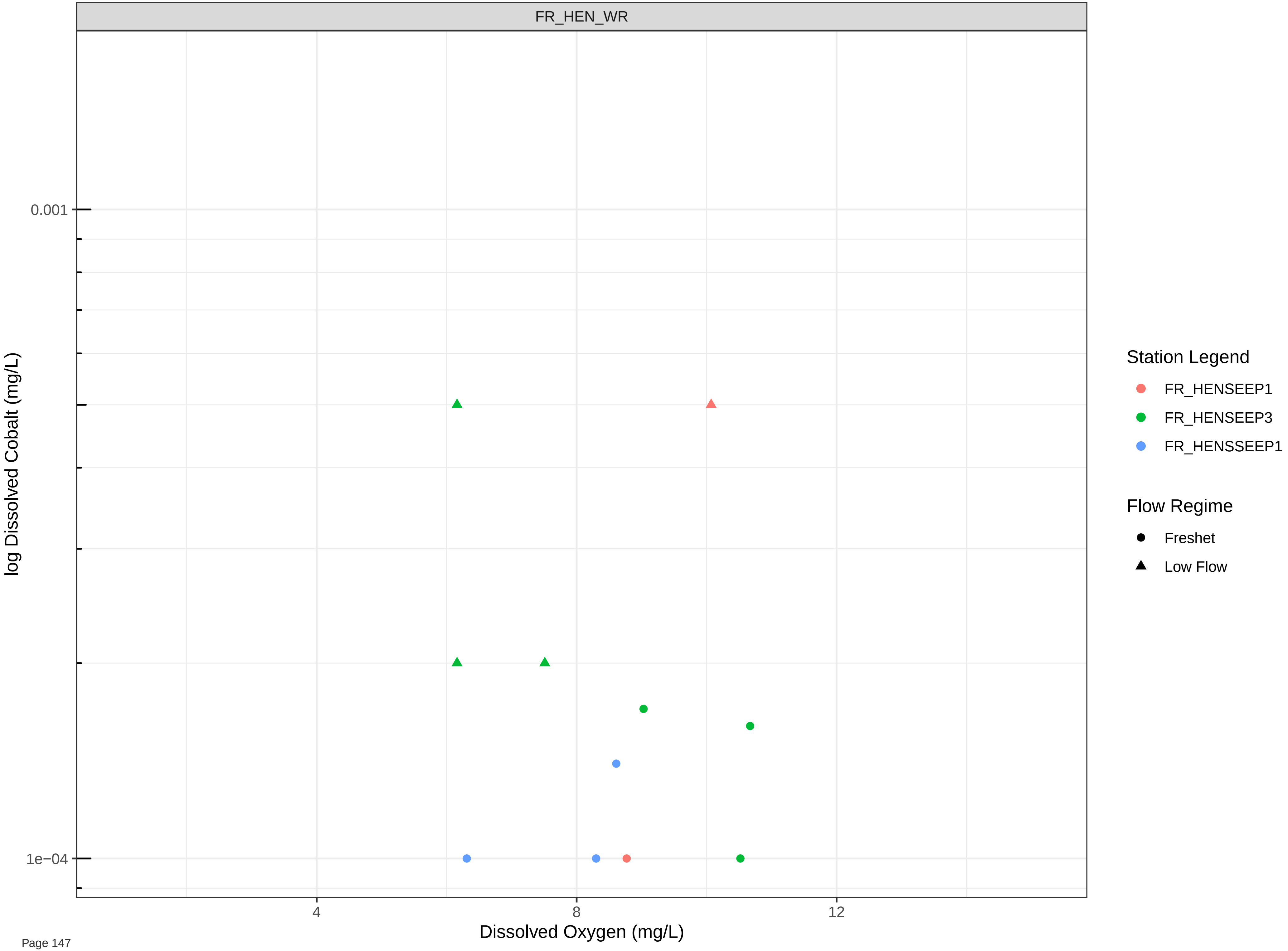
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow


FR_HEN_WR
log Dissolved Cobalt (mg/L)
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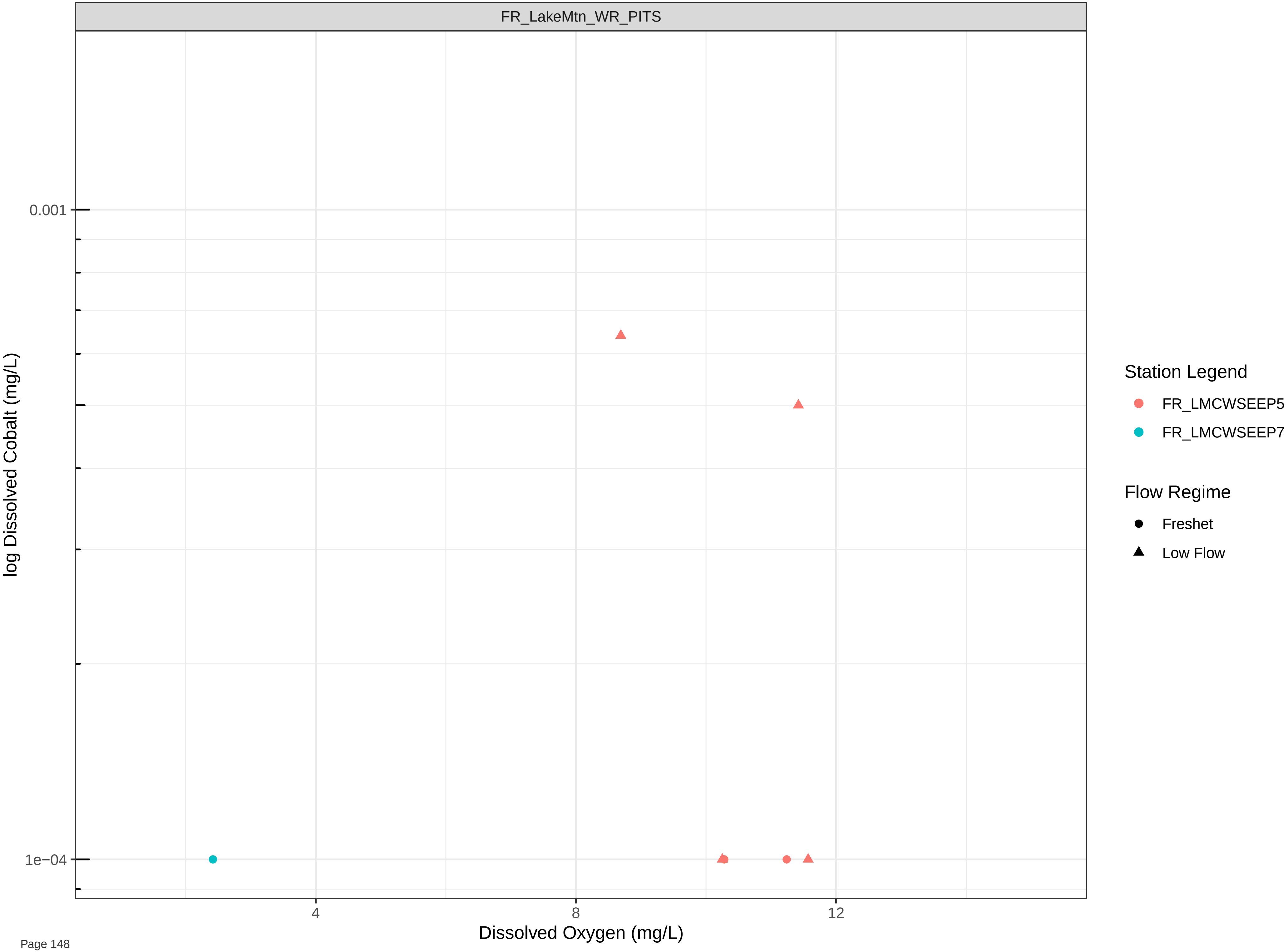
1e−04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow


FR_LakeMtn_WR_PITS
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log Dissolved Cobalt (mg/L)
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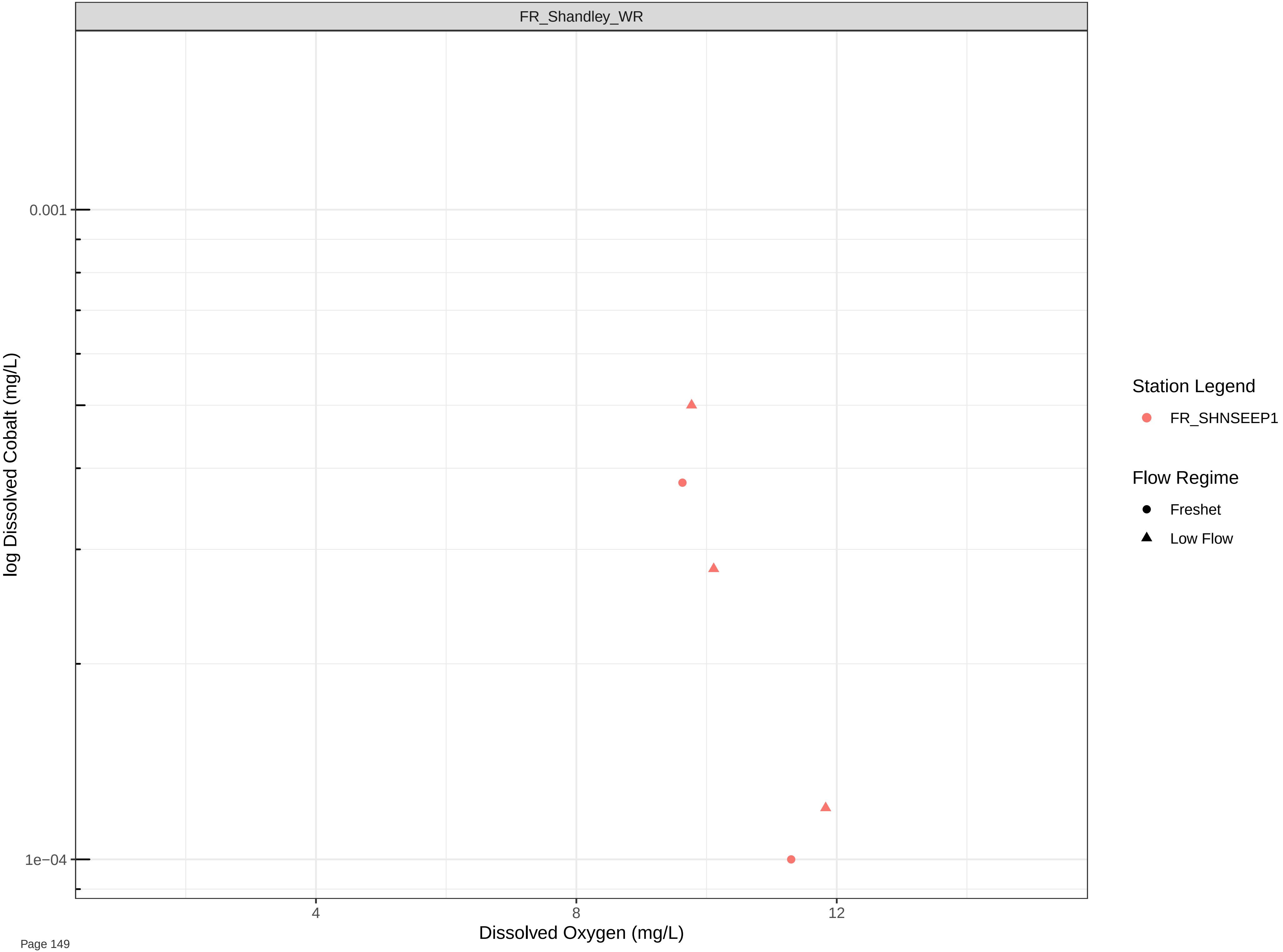
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow


FR_Shandley_WR
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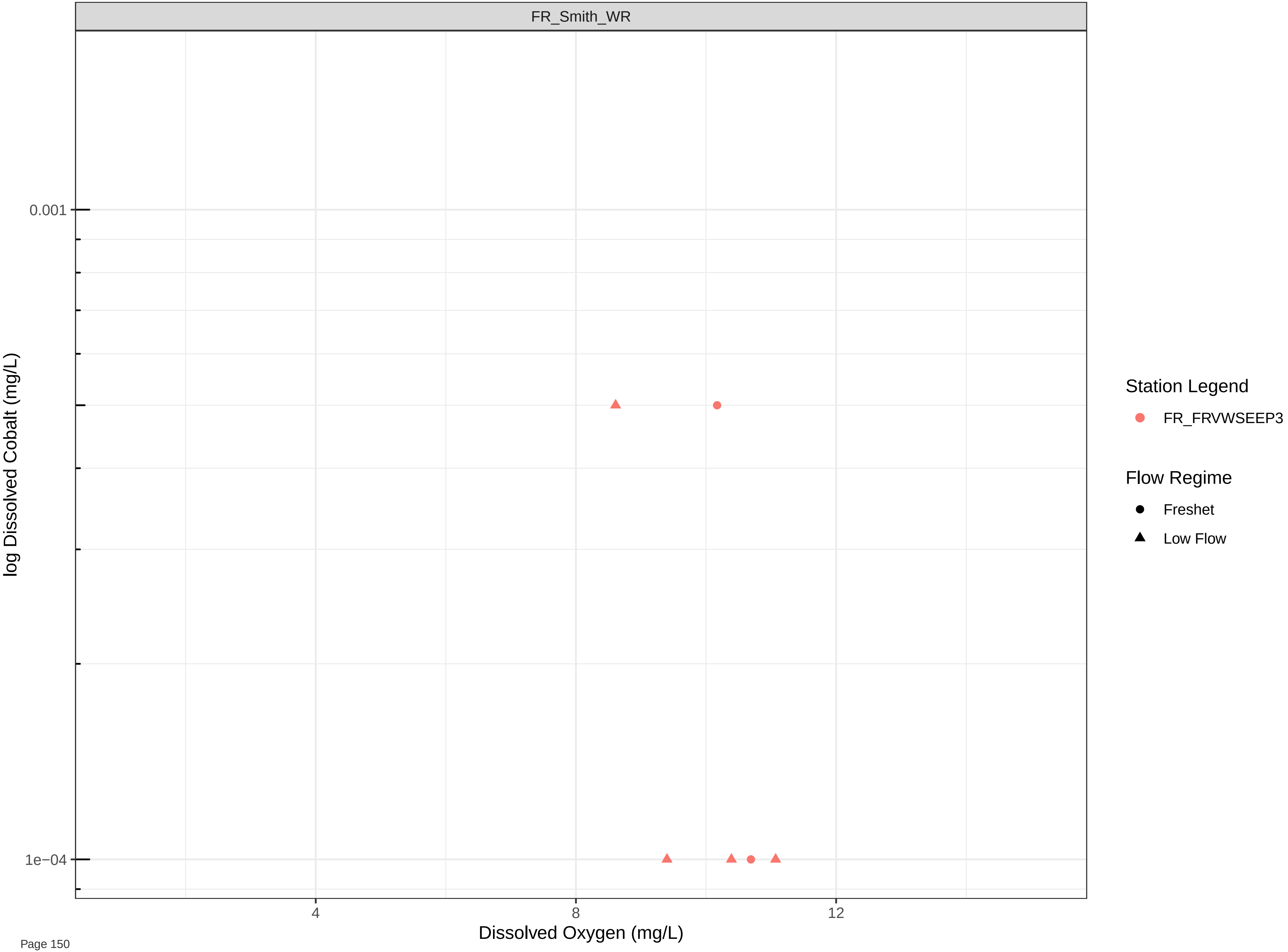
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow


FR_Smith_WR
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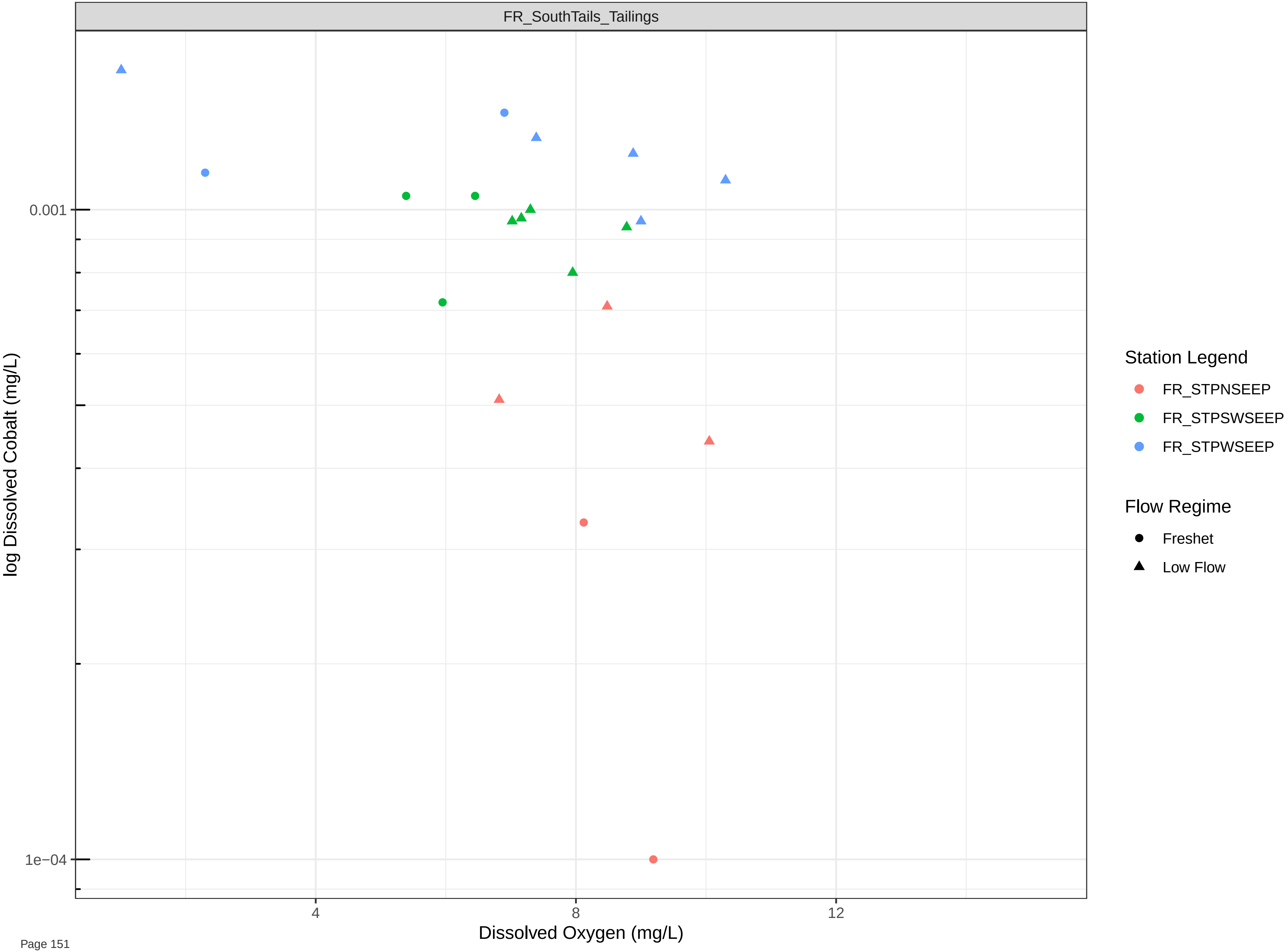
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow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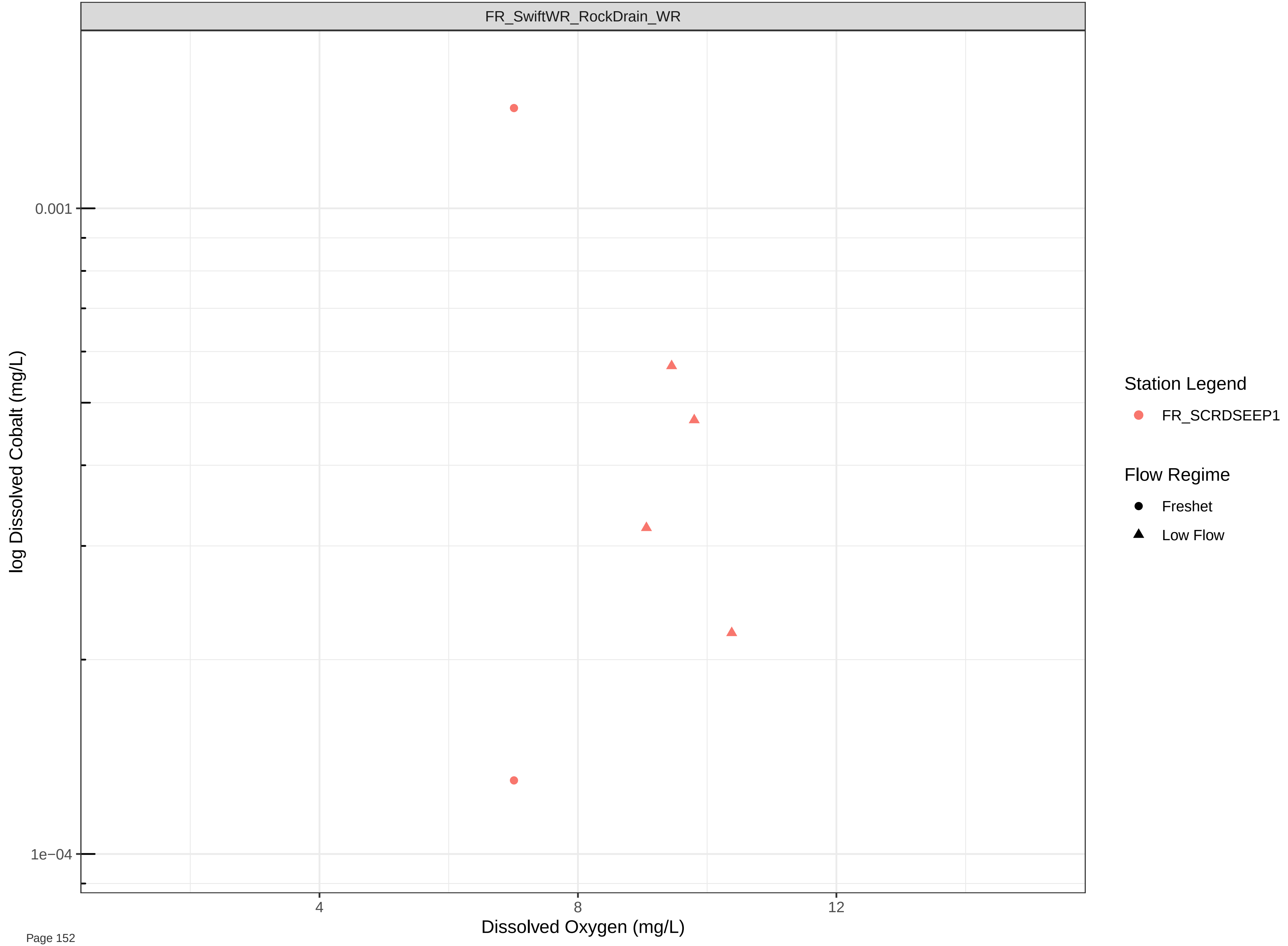
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_STPNSEEP
● FR_STPSWSEEP
● FR_STPWSEEP
Flow Regime
● Freshet
▲ Low Flow


FR_SwiftWR_RockDrain_WR
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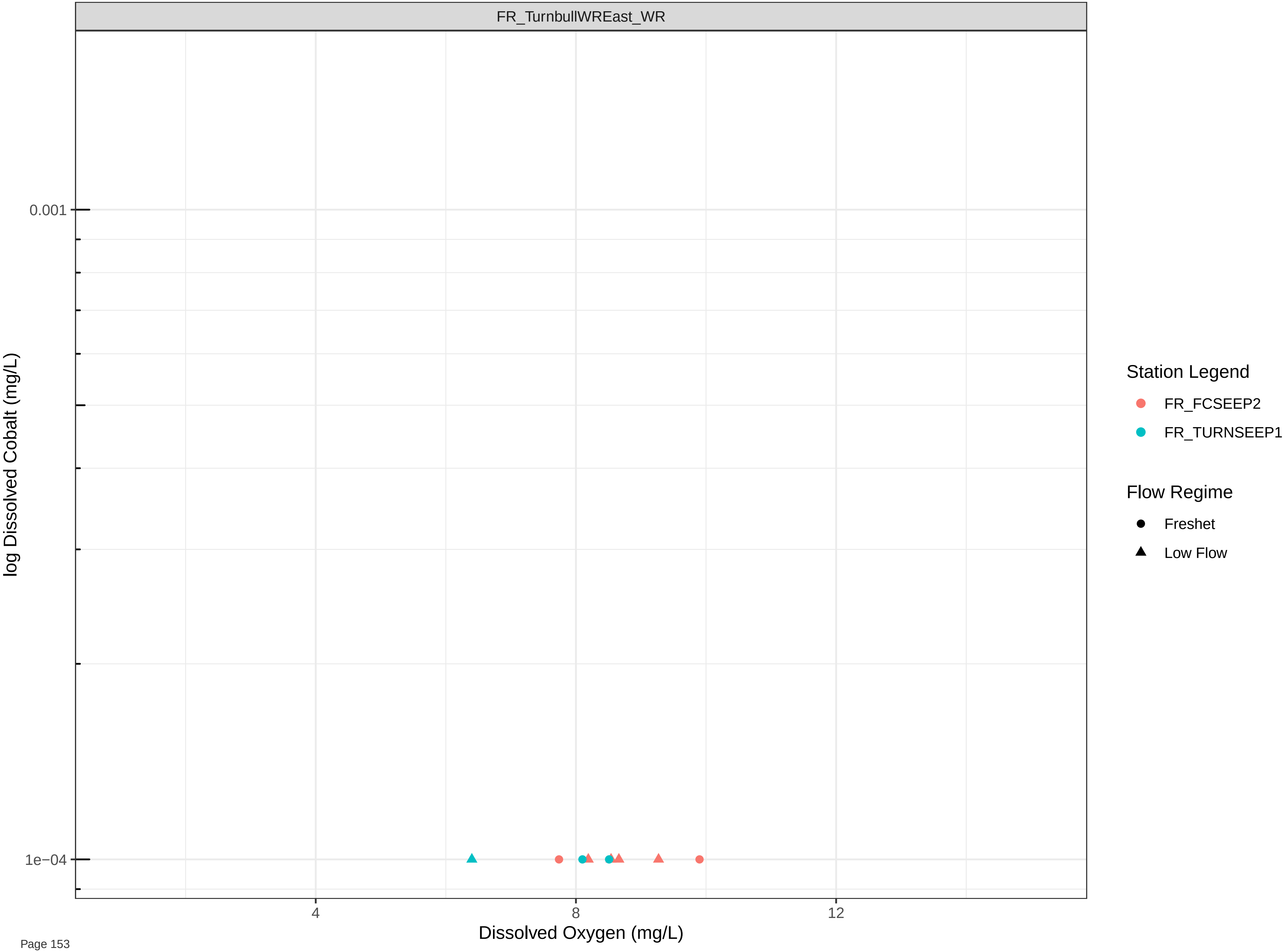
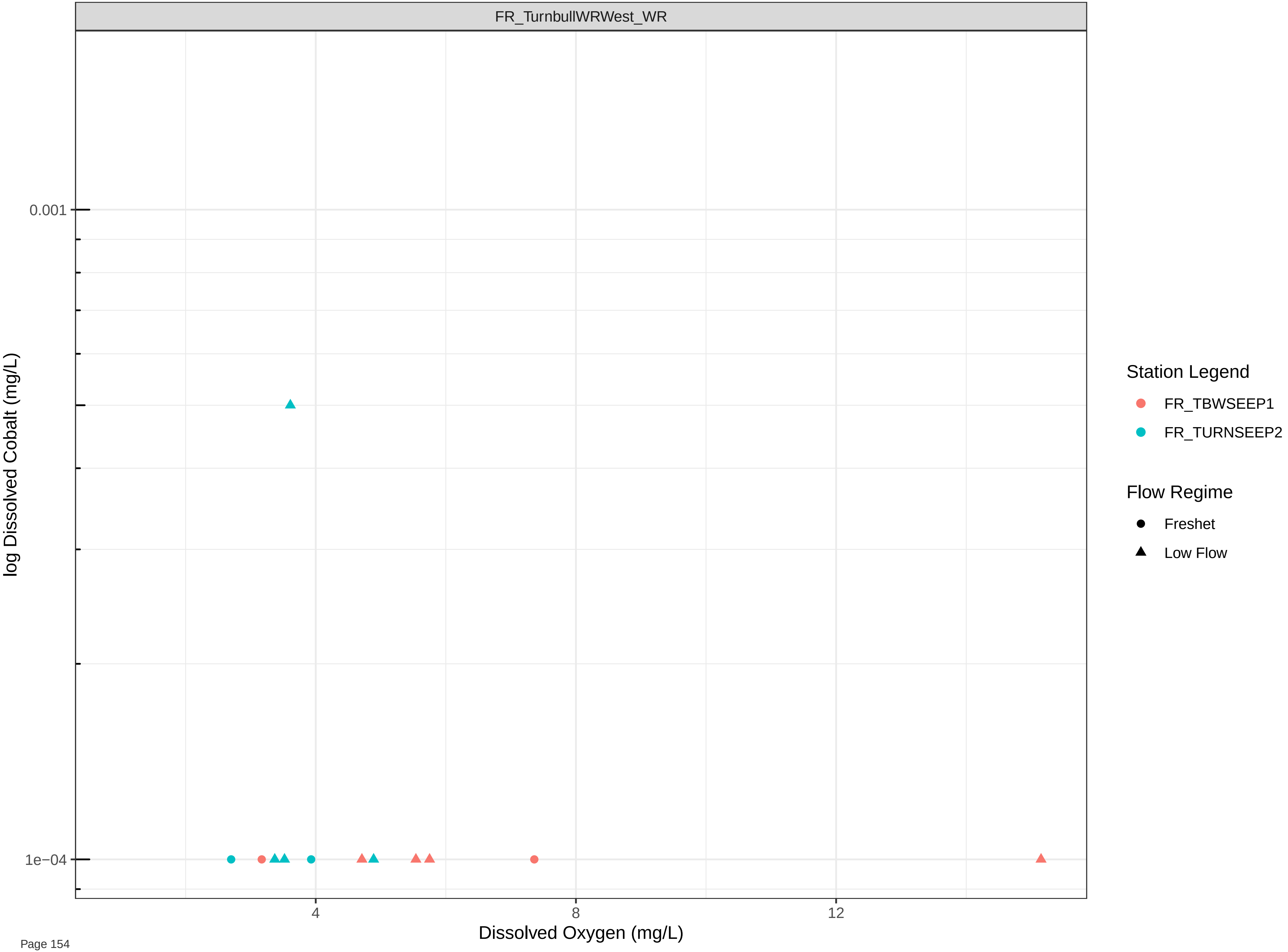
1e−04
log Dissolved Cobalt (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_TurnbullWREast_WR
0.001
1e−04
4
8
12
Dissolved Oxygen (mg/L)
log Dissolved Cobalt (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow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log Dissolved Cobalt (mg/L)
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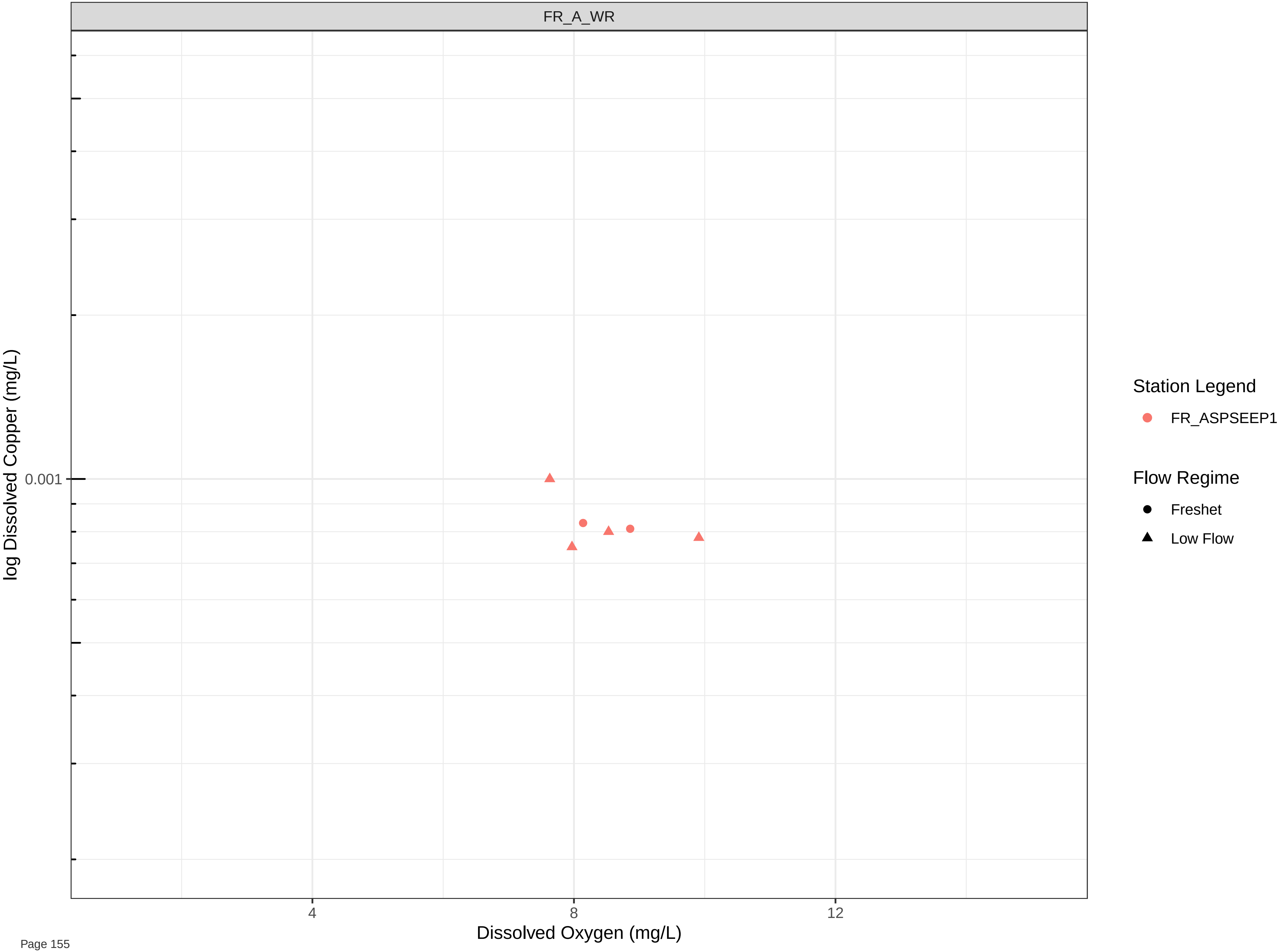
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow


FR_A_WR
0.001
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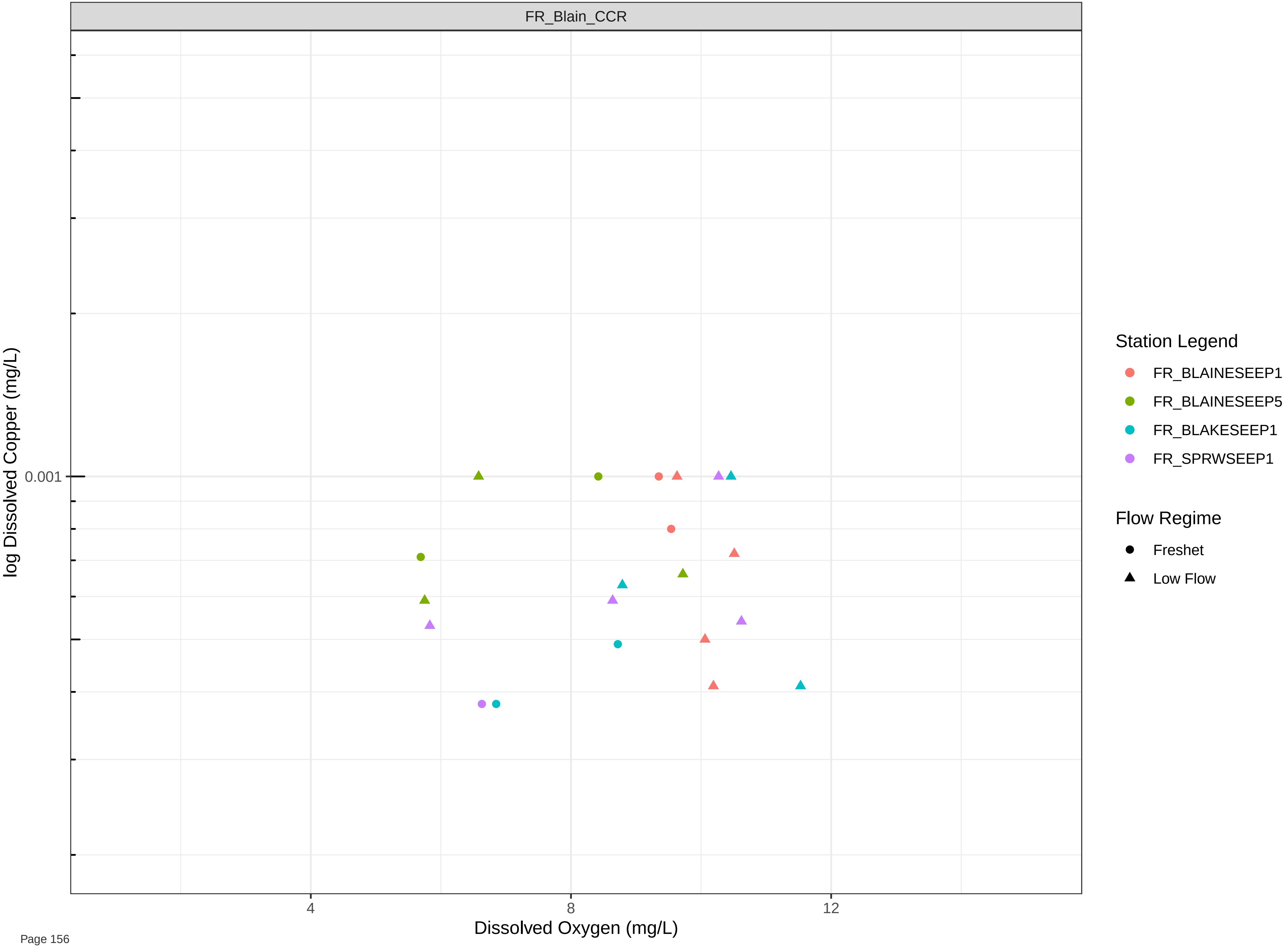
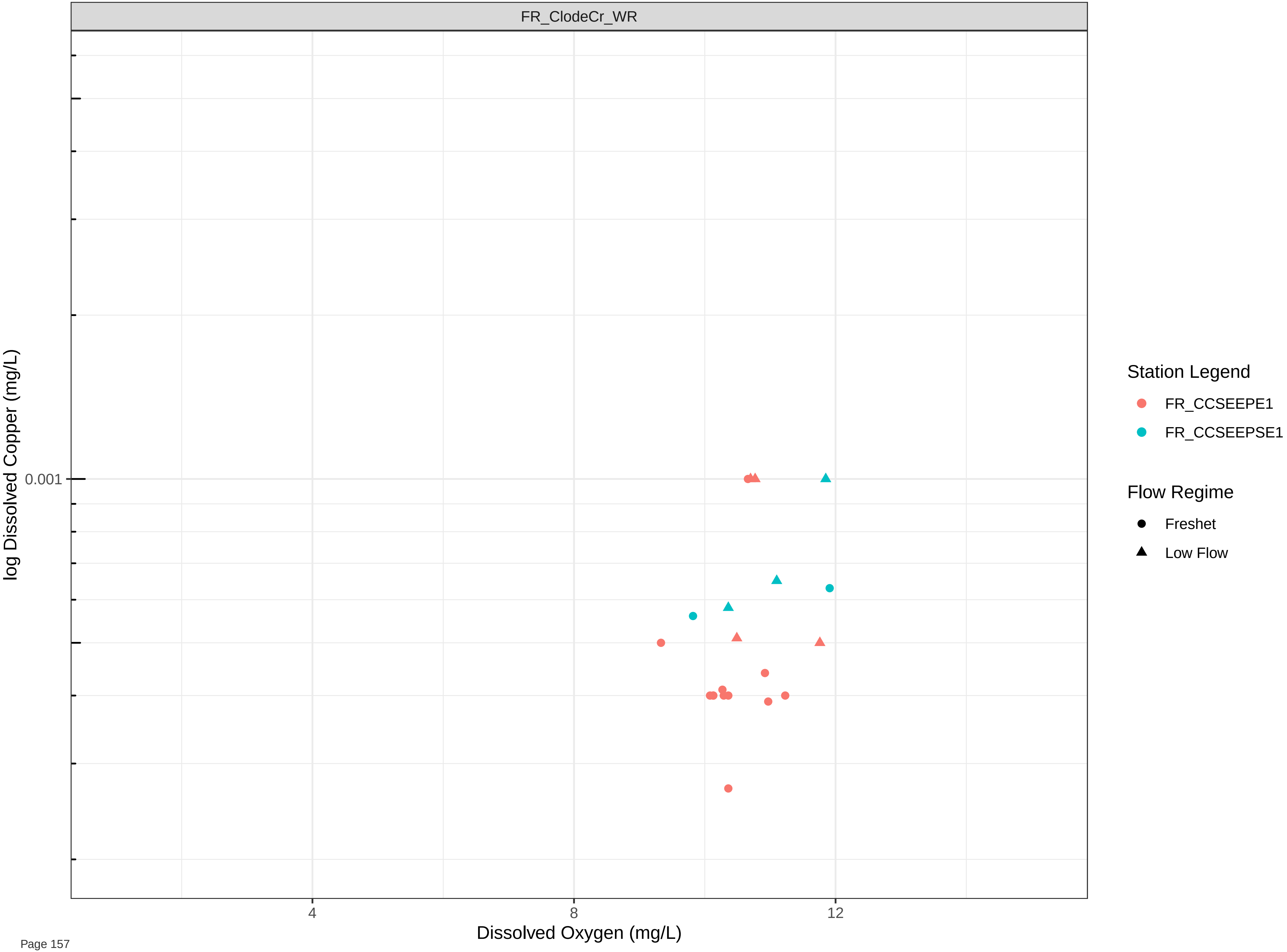
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow


FR_Blain_CCR
log Dissolved Copper (mg/L)
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow


FR_ClodeCr_WR
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0.001
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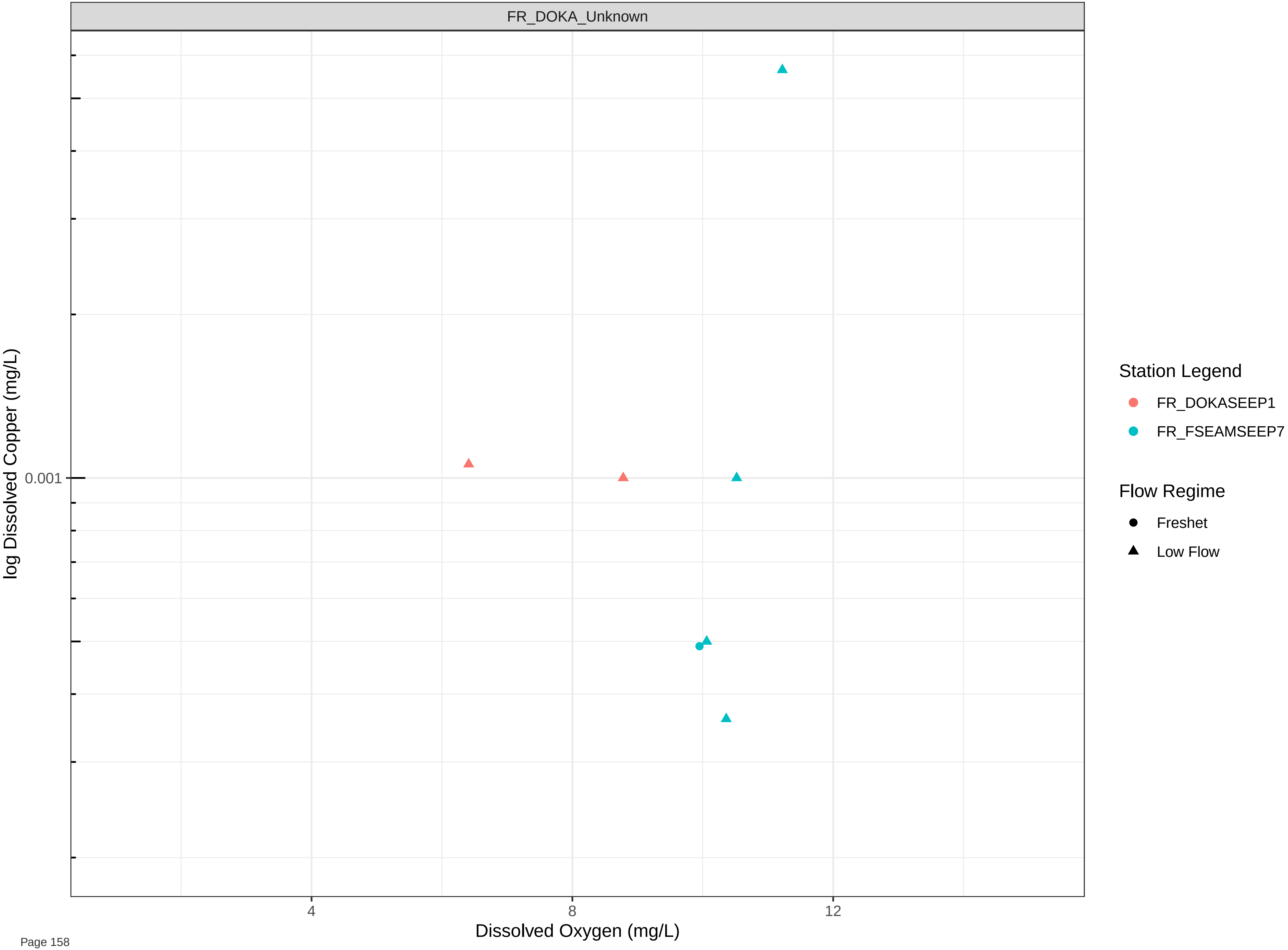
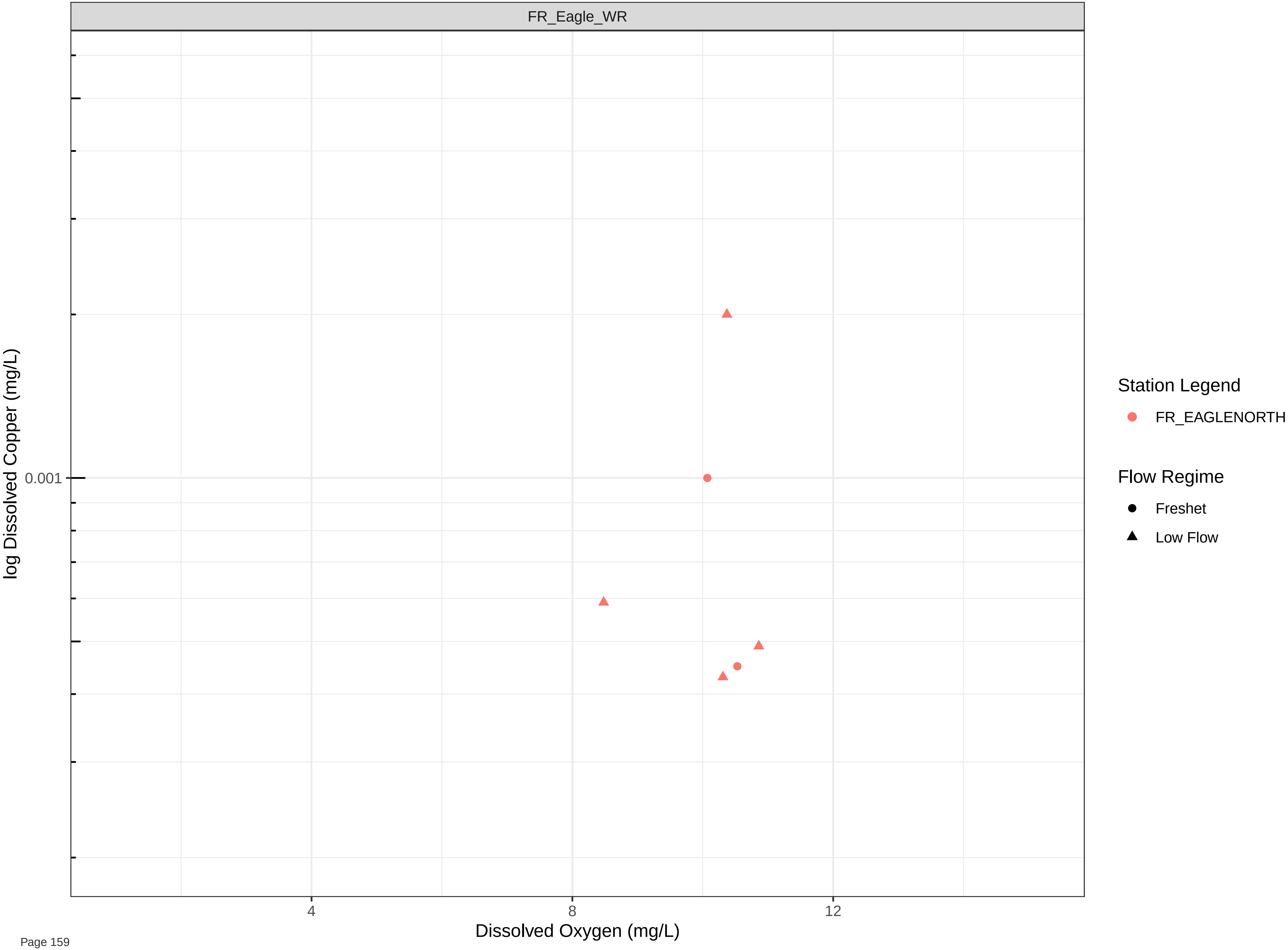
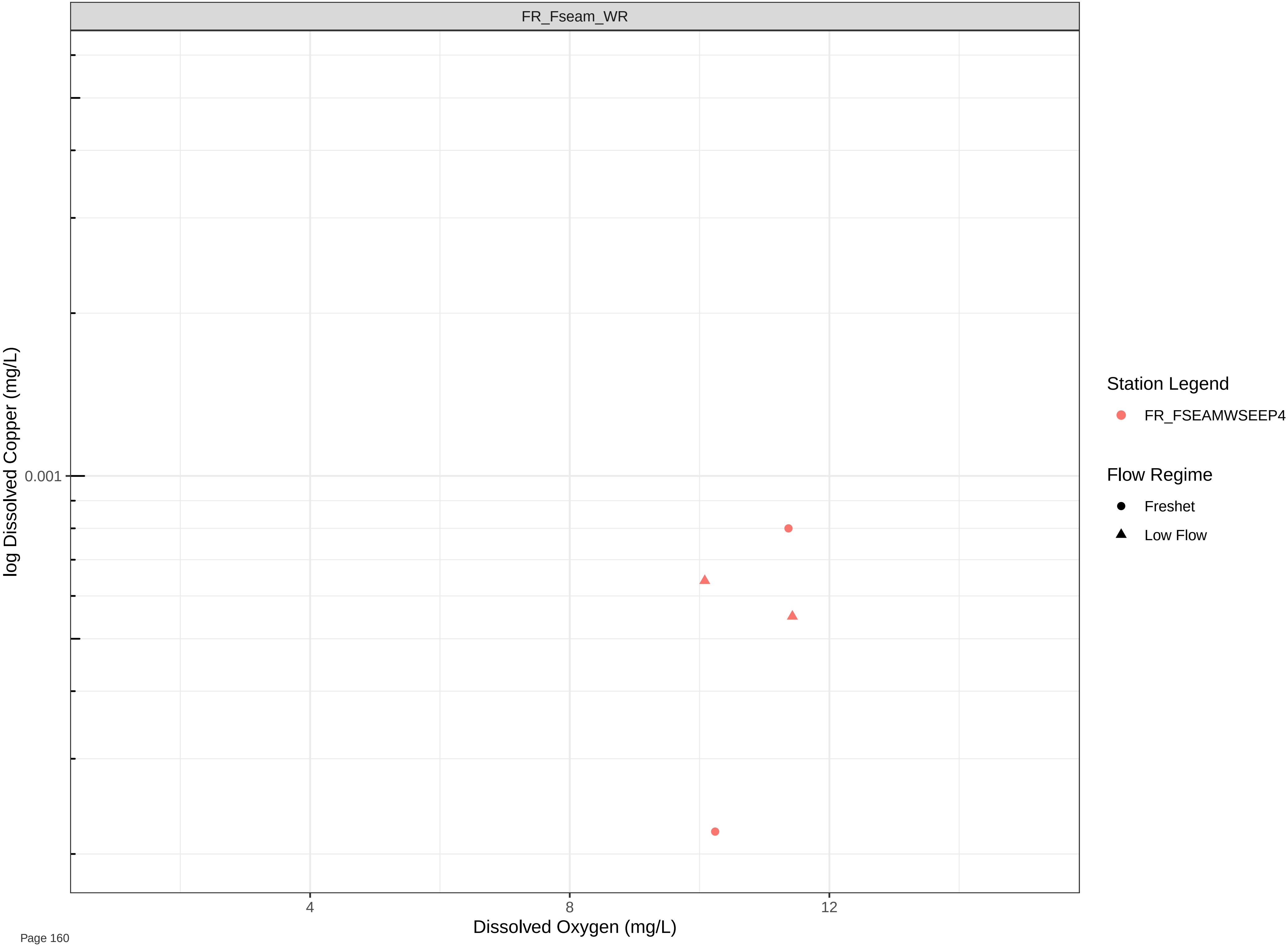
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow


FR_DOKA_Unknown
log Dissolved Copper (mg/L)
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow


FR_Eagle_WR
log Dissolved Copper (mg/L)
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow


FR_Fseam_WR
log Dissolved Copper (mg/L)
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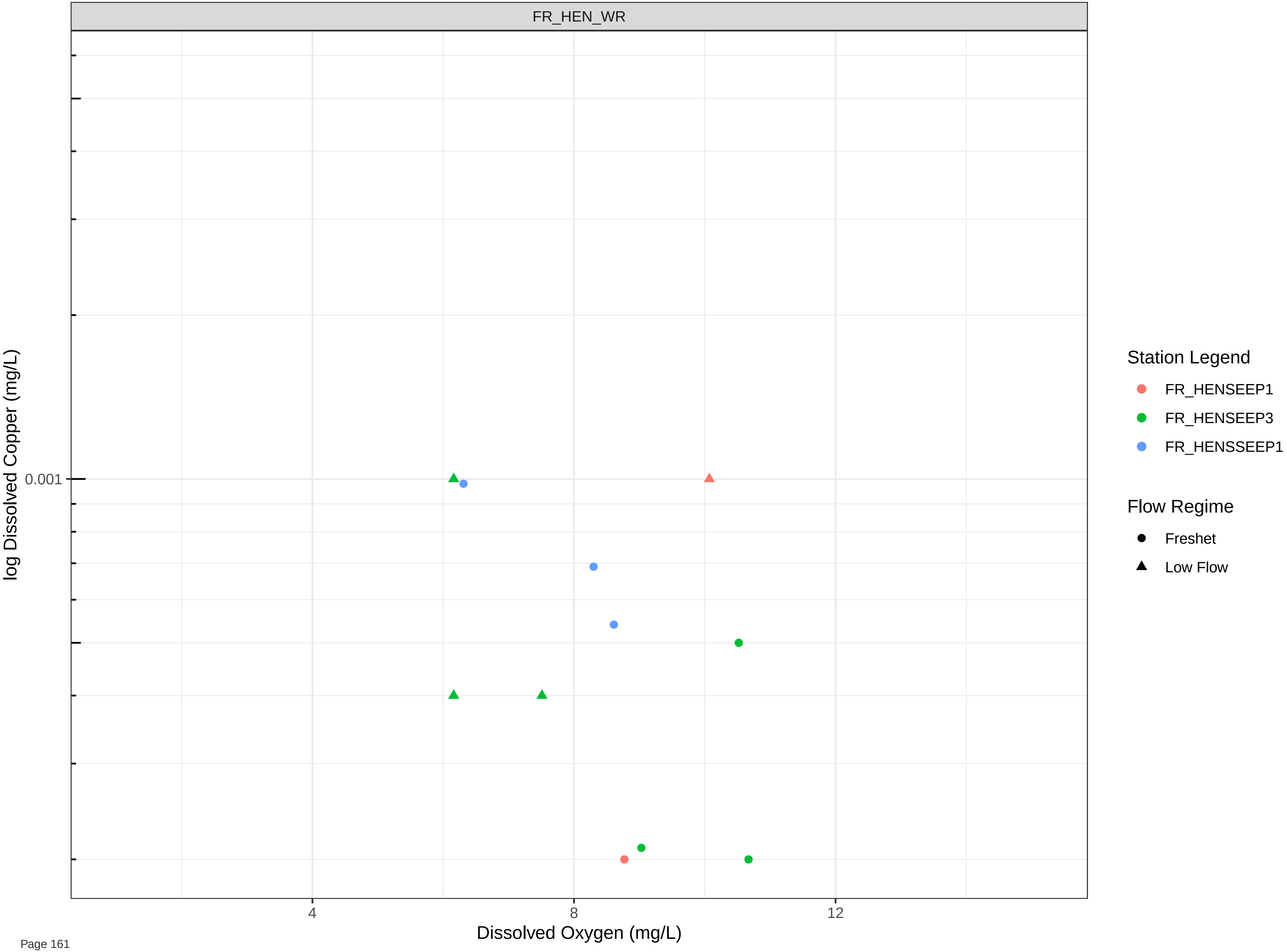
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow


FR_HEN_WR
log Dissolved Copper (mg/L)
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8
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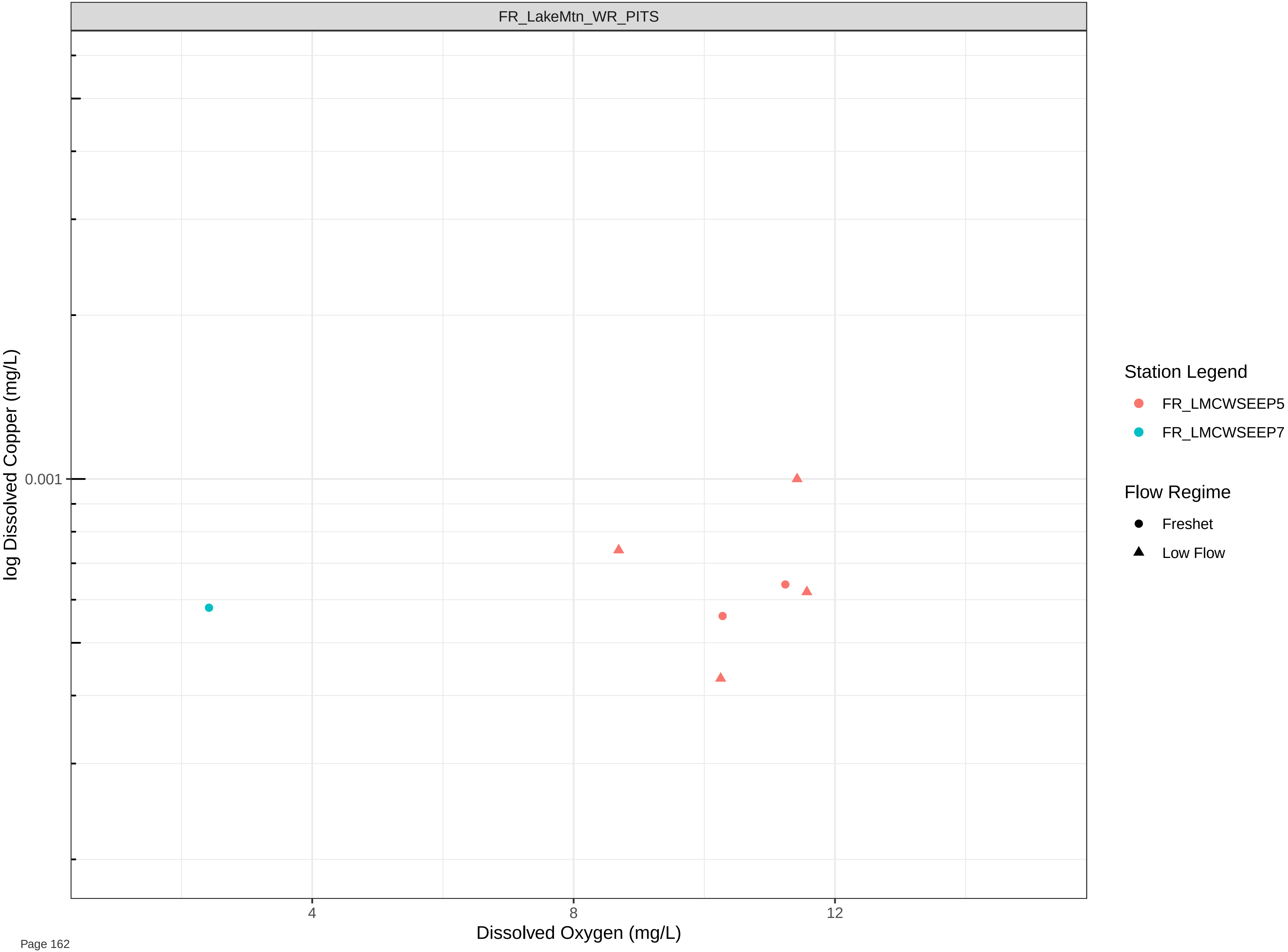
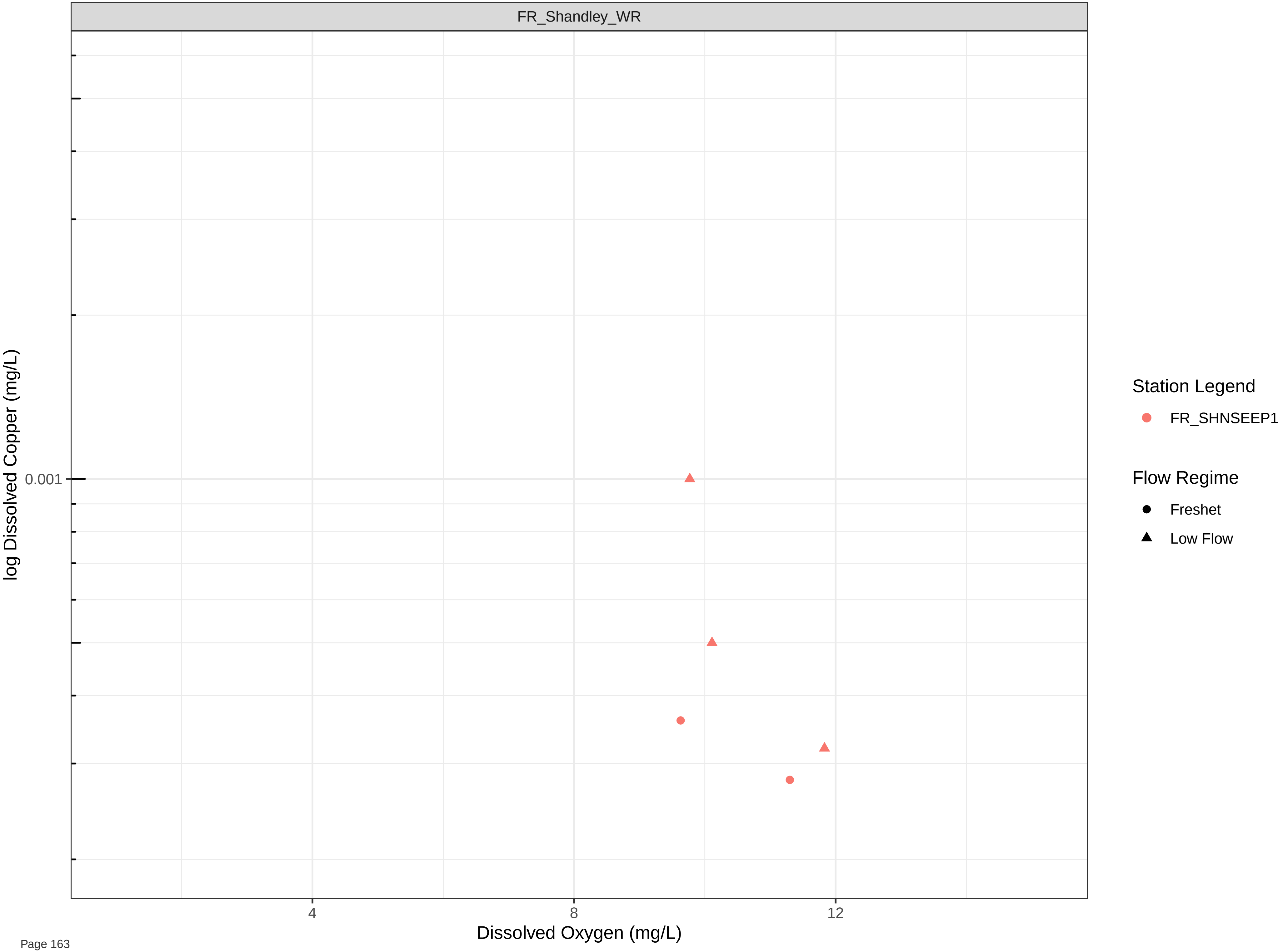
Dissolved Oxygen (mg/L)
Station Legend
● FR_HENSEEP1
● FR_HENSEEP3
● FR_HENSSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_LakeMtn_WR_PITS
log Dissolved Copper (mg/L)
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow


FR_Shandley_WR
log Dissolved Copper (mg/L)
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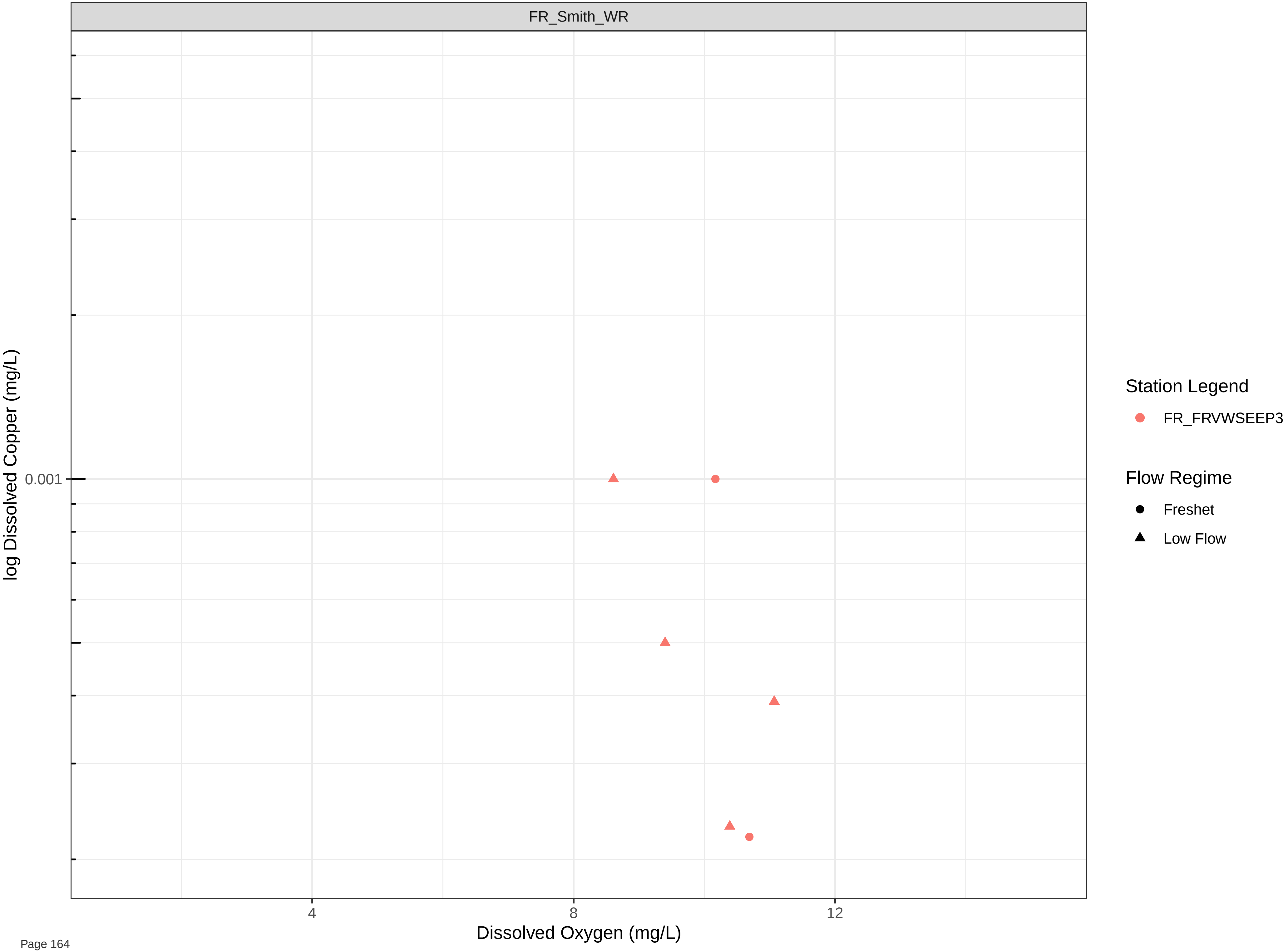
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_Smith_WR
log Dissolved Copper (mg/L)
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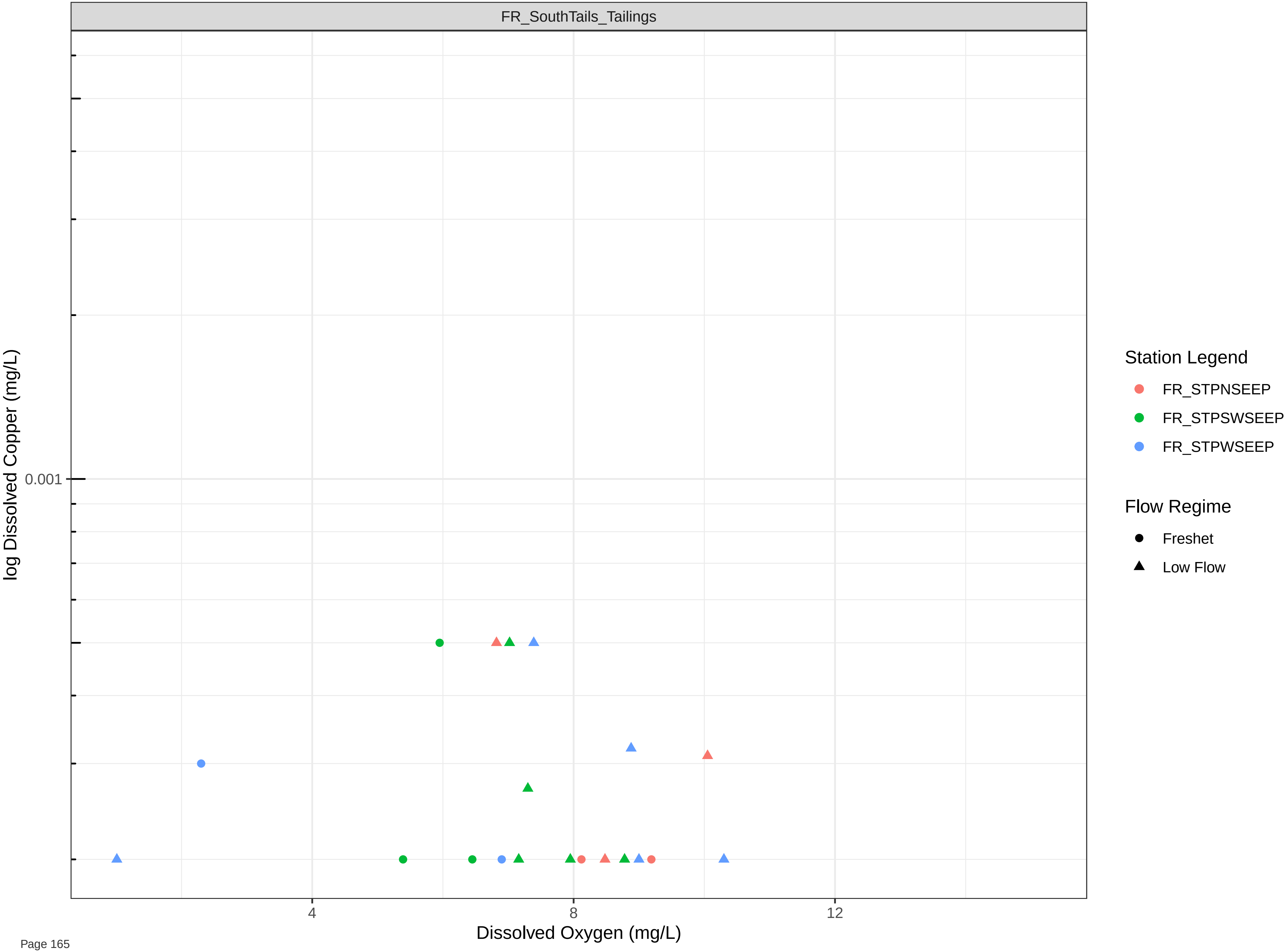
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow


FR_SouthTails_Tailings
log Dissolved Copper (mg/L)
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4
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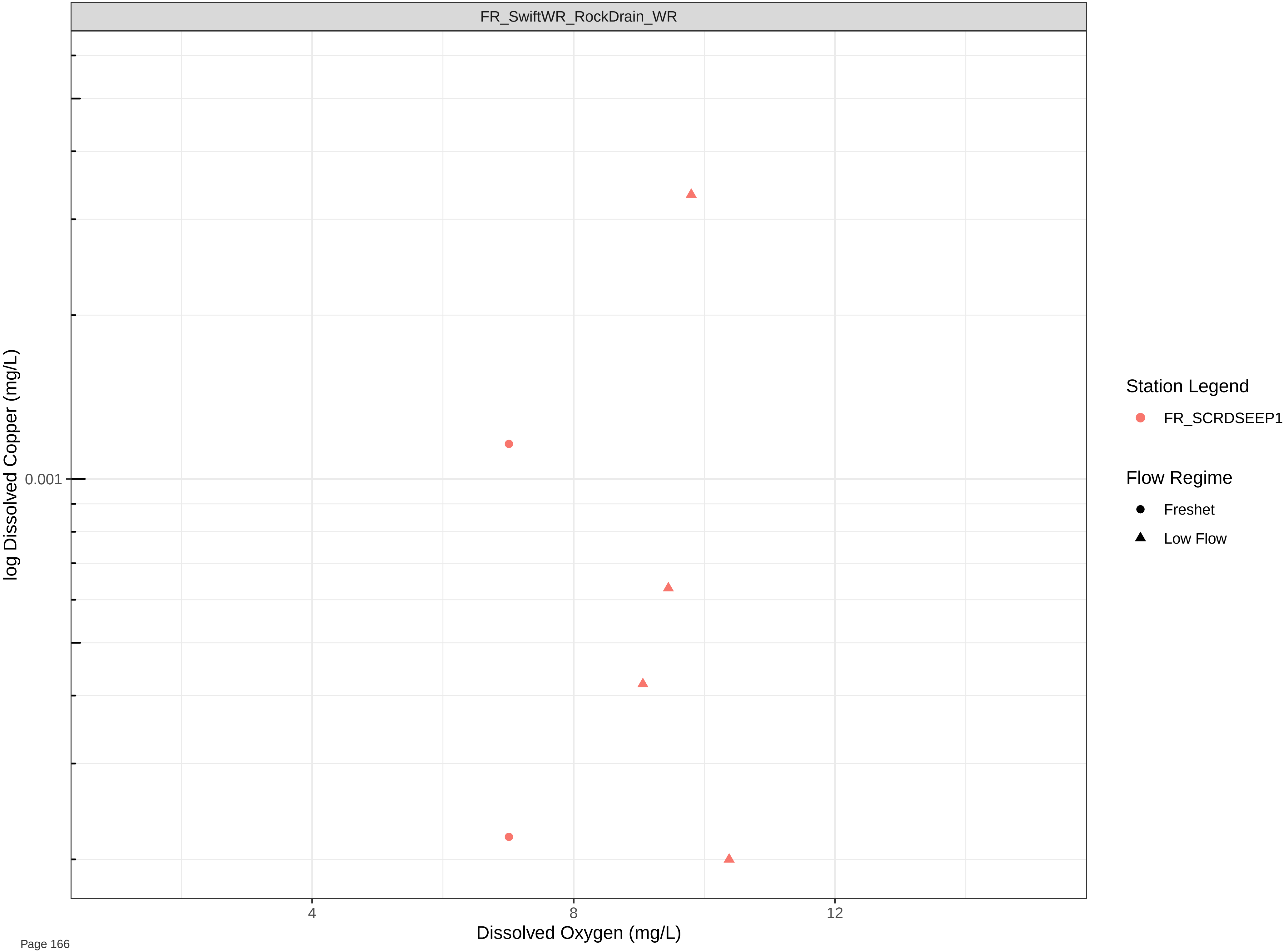
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow


FR_SwiftWR_RockDrain_WR
log Dissolved Copper (mg/L)
0.001
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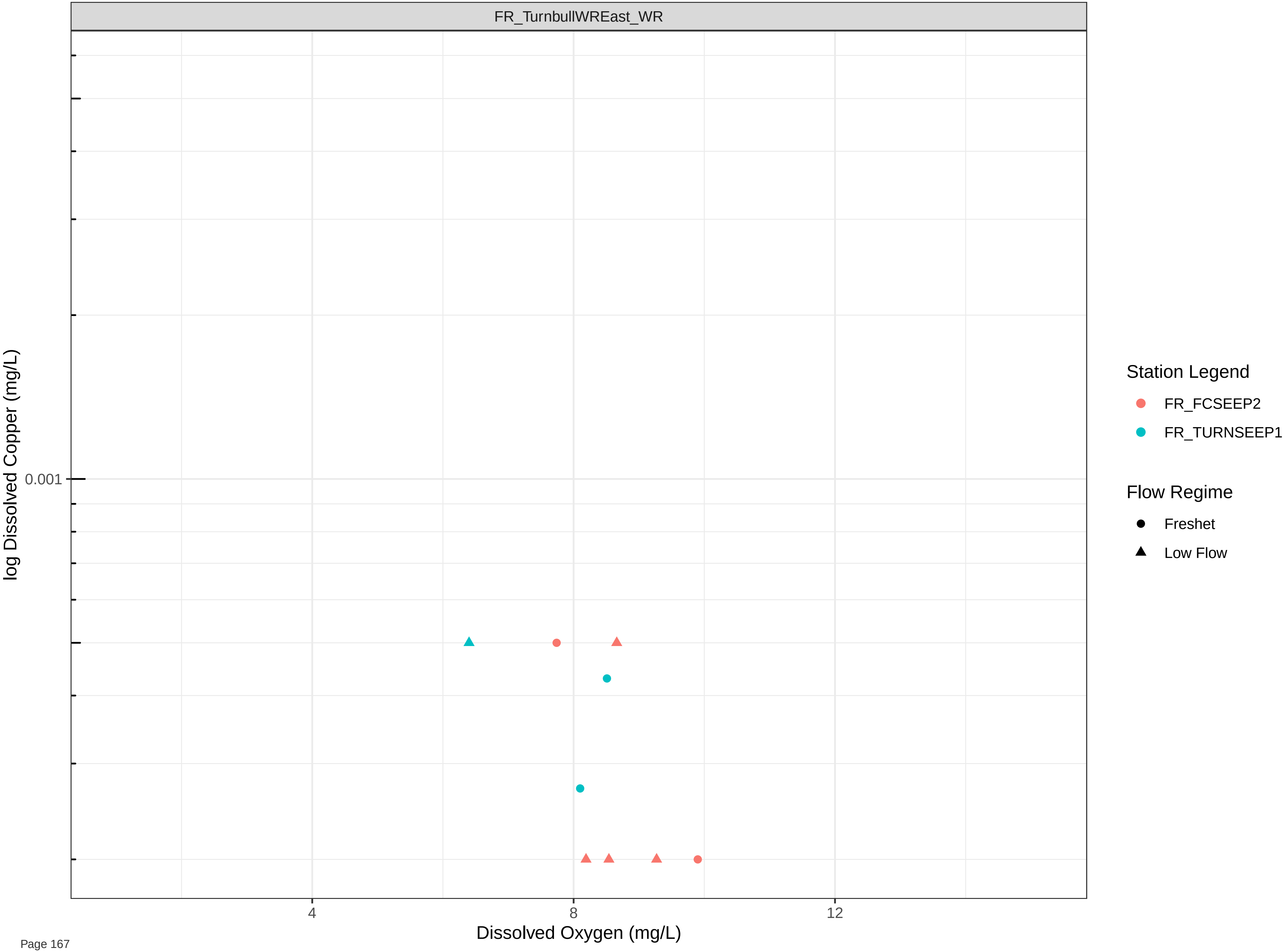
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_TurnbullWREast_WR
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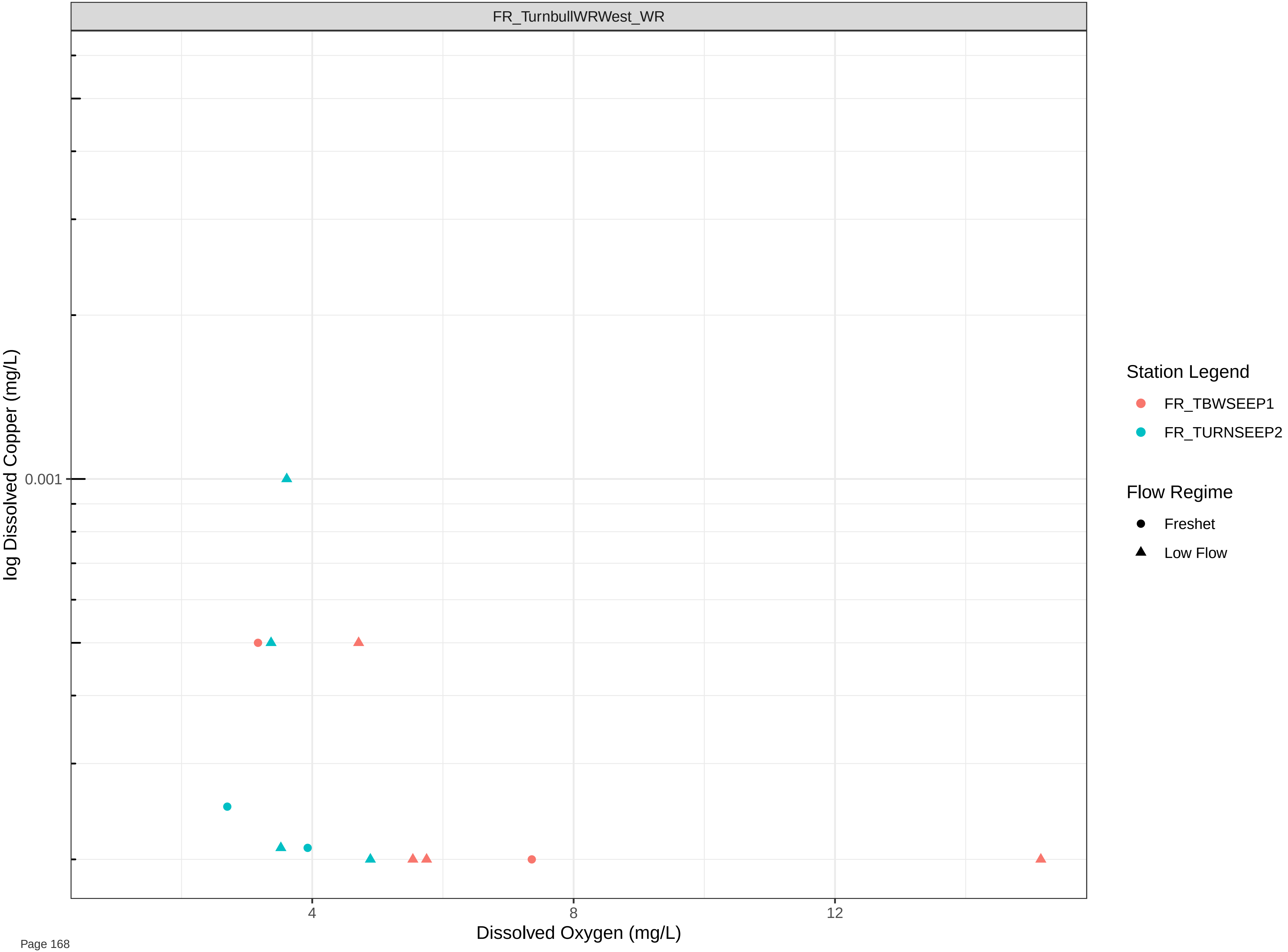
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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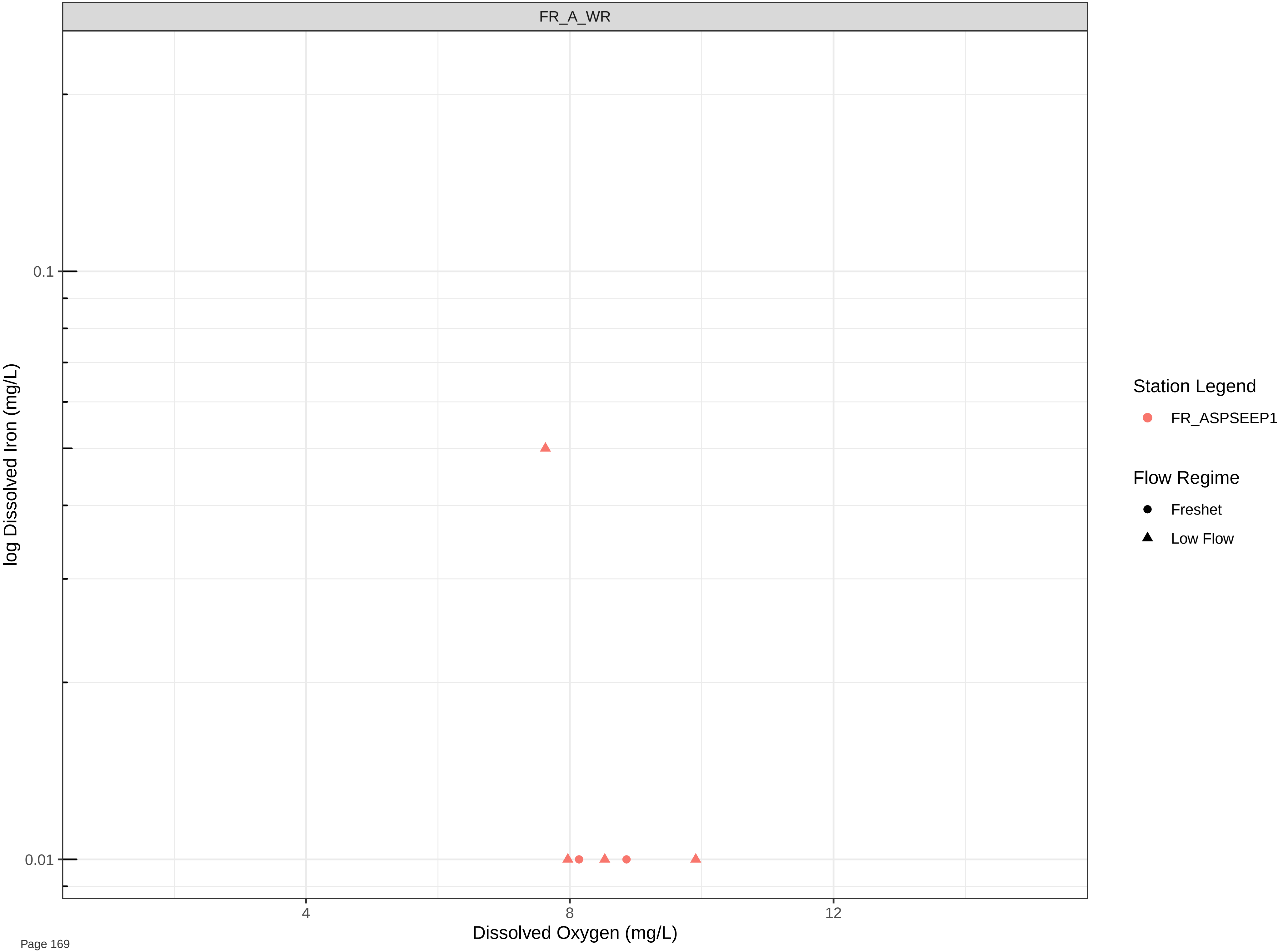
8
12
Station Legend
● FR_TBWSEEP1
● FR_TURNSEEP2
Flow Regime
● Freshet
▲ Low Flow


FR_A_WR
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0.01
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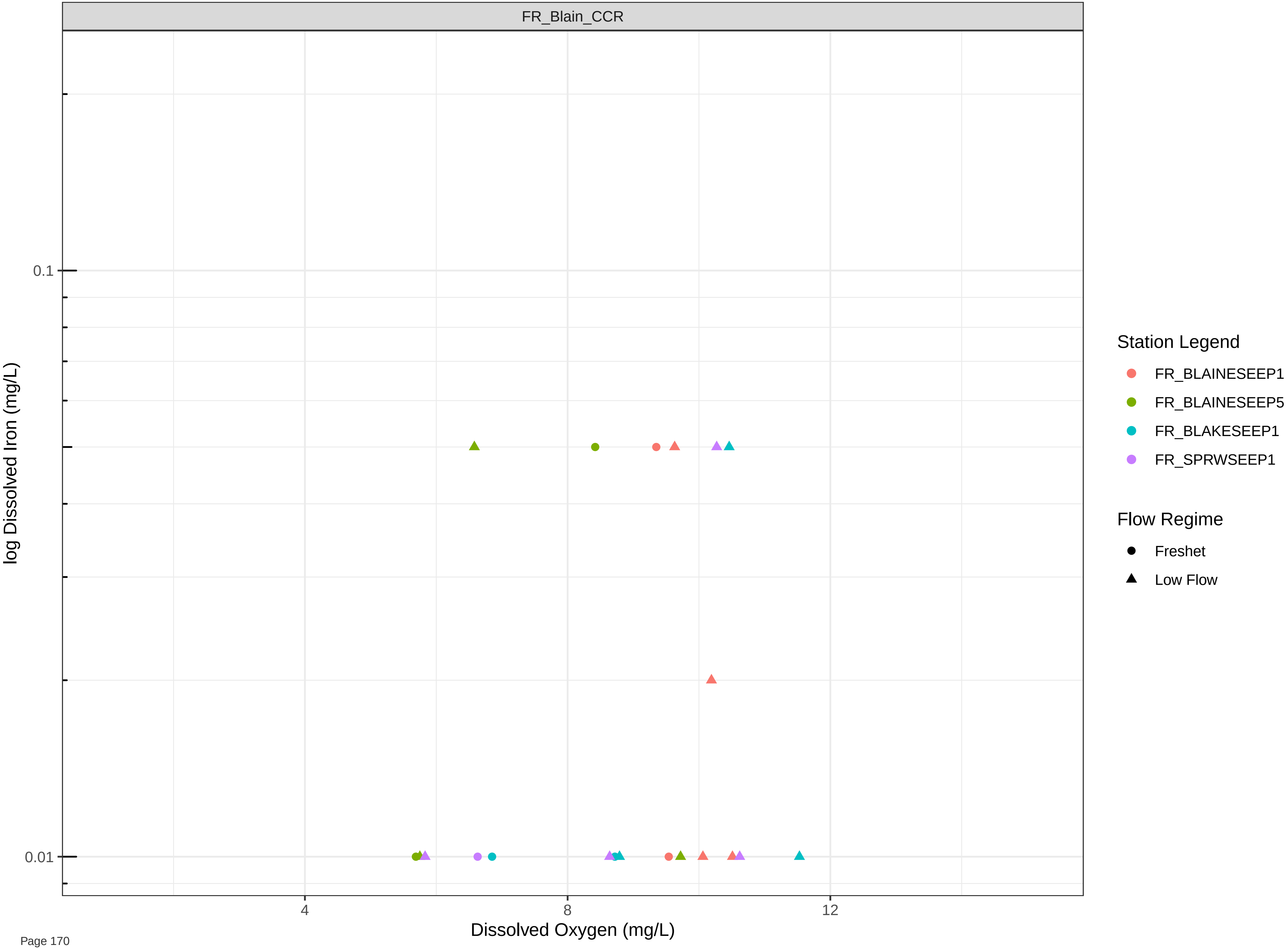
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_Blain_CCR
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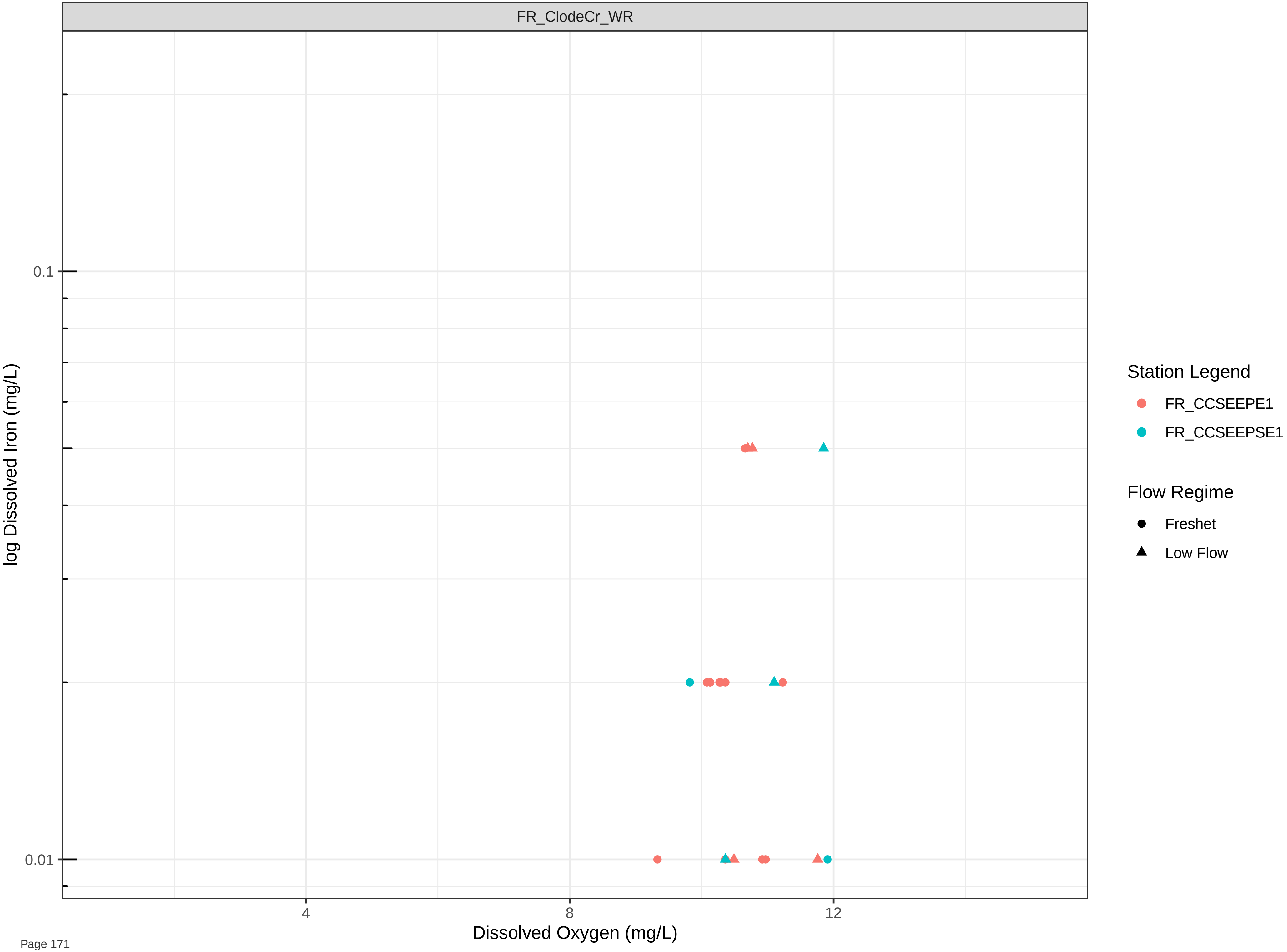
0.1
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_ClodeCr_WR
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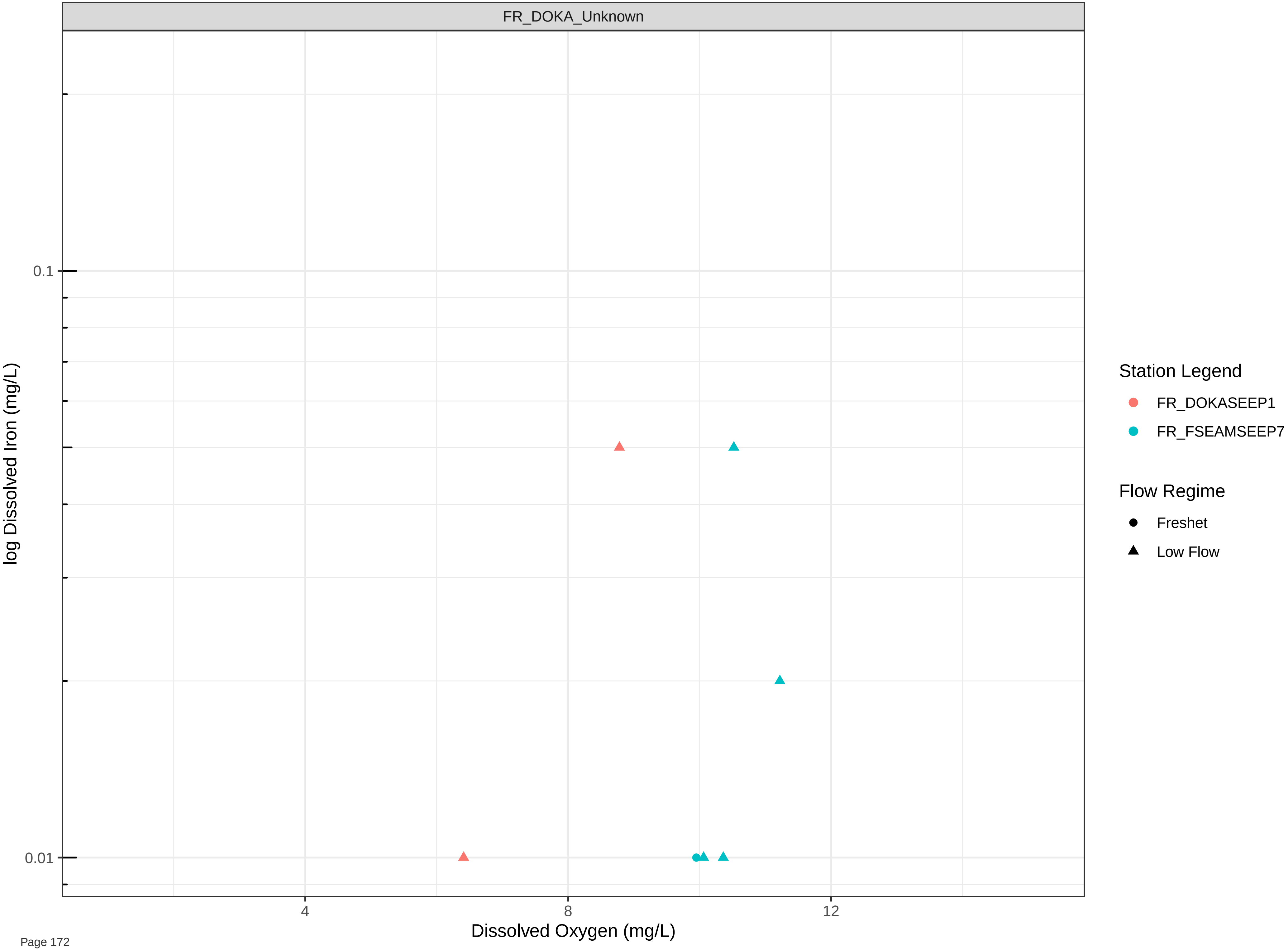
0.01
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow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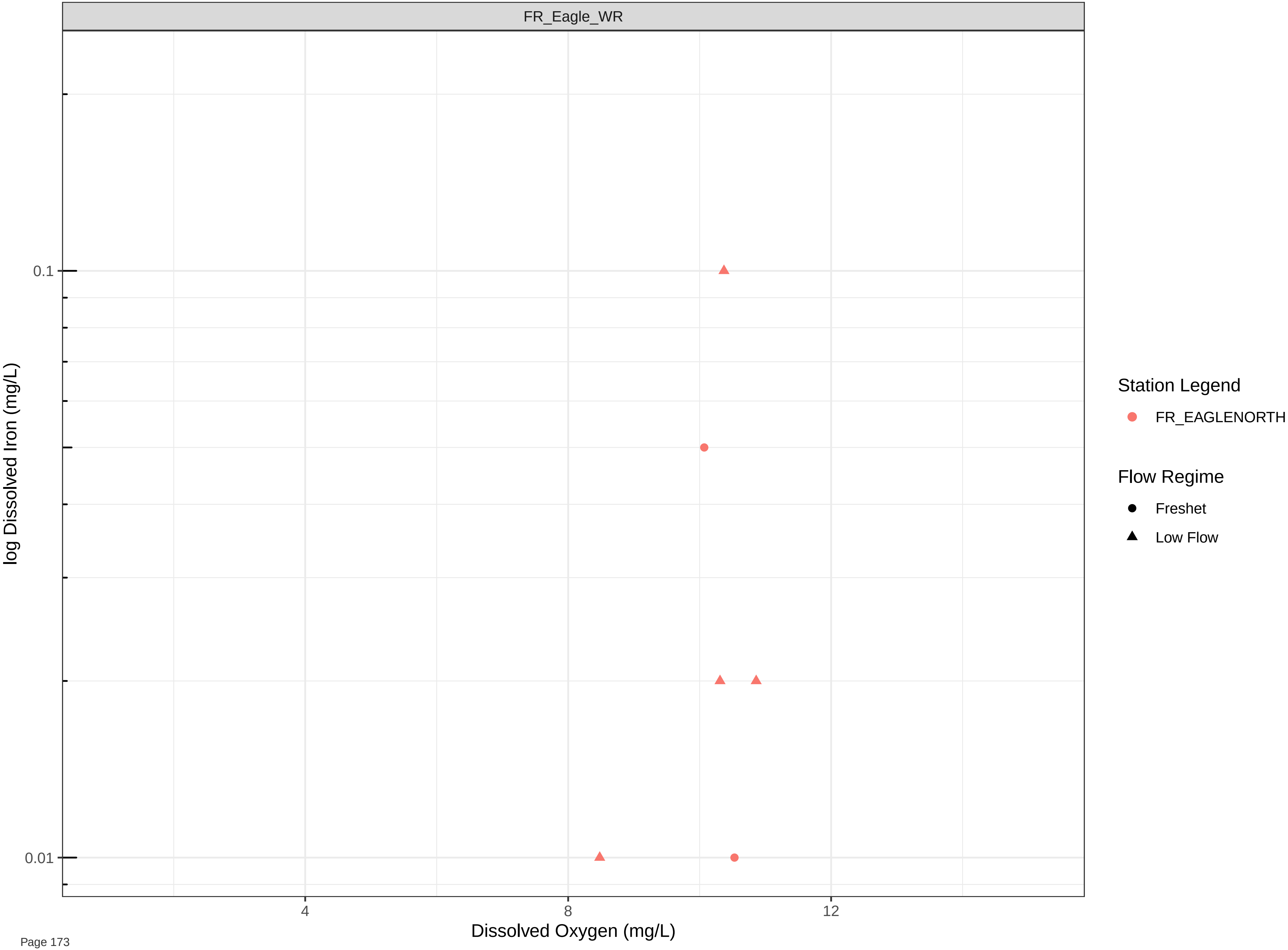
0.01
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow


FR_Eagle_WR
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0.01
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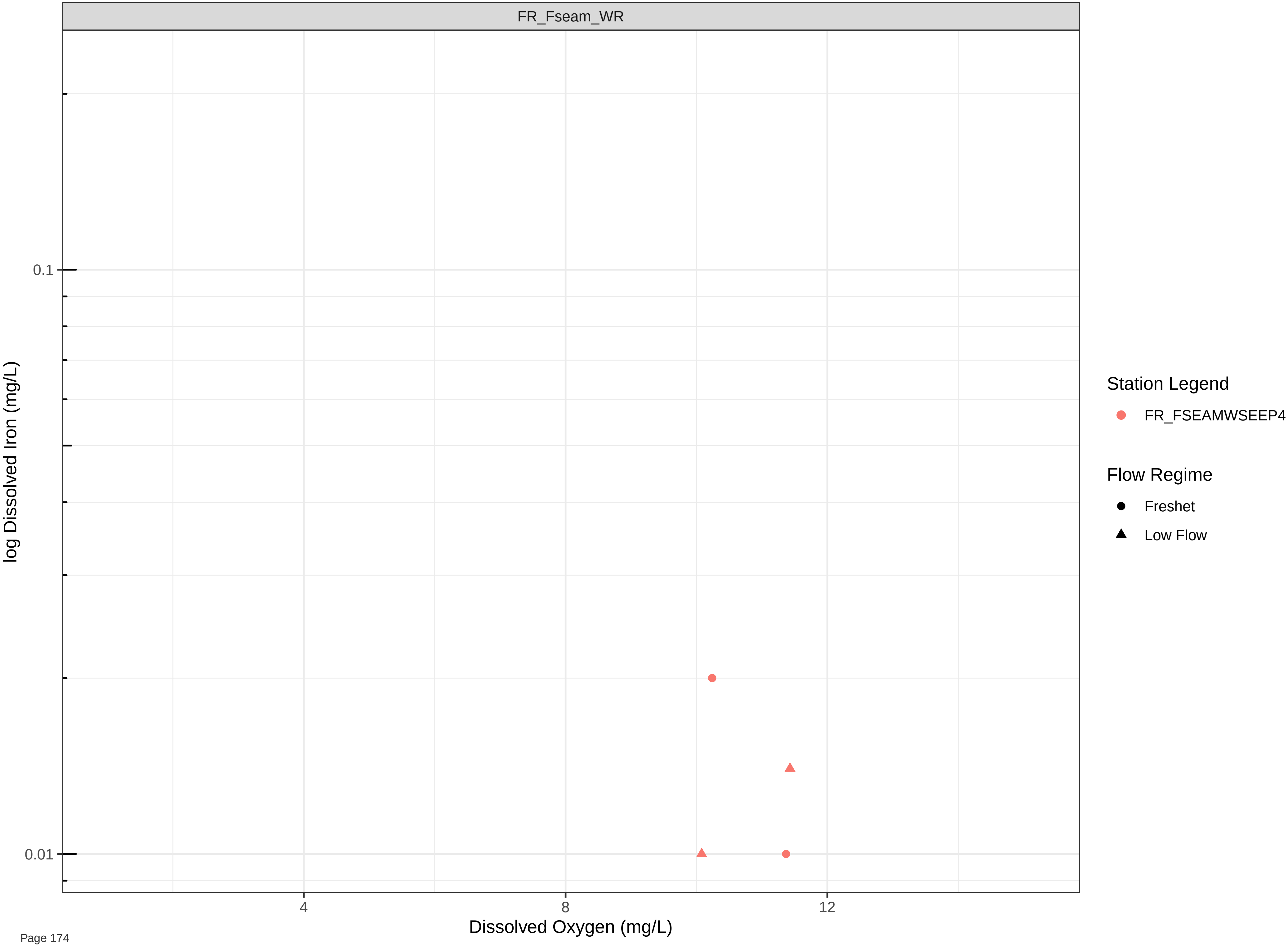
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow


FR_Fseam_WR
log Dissolved Iron (mg/L)
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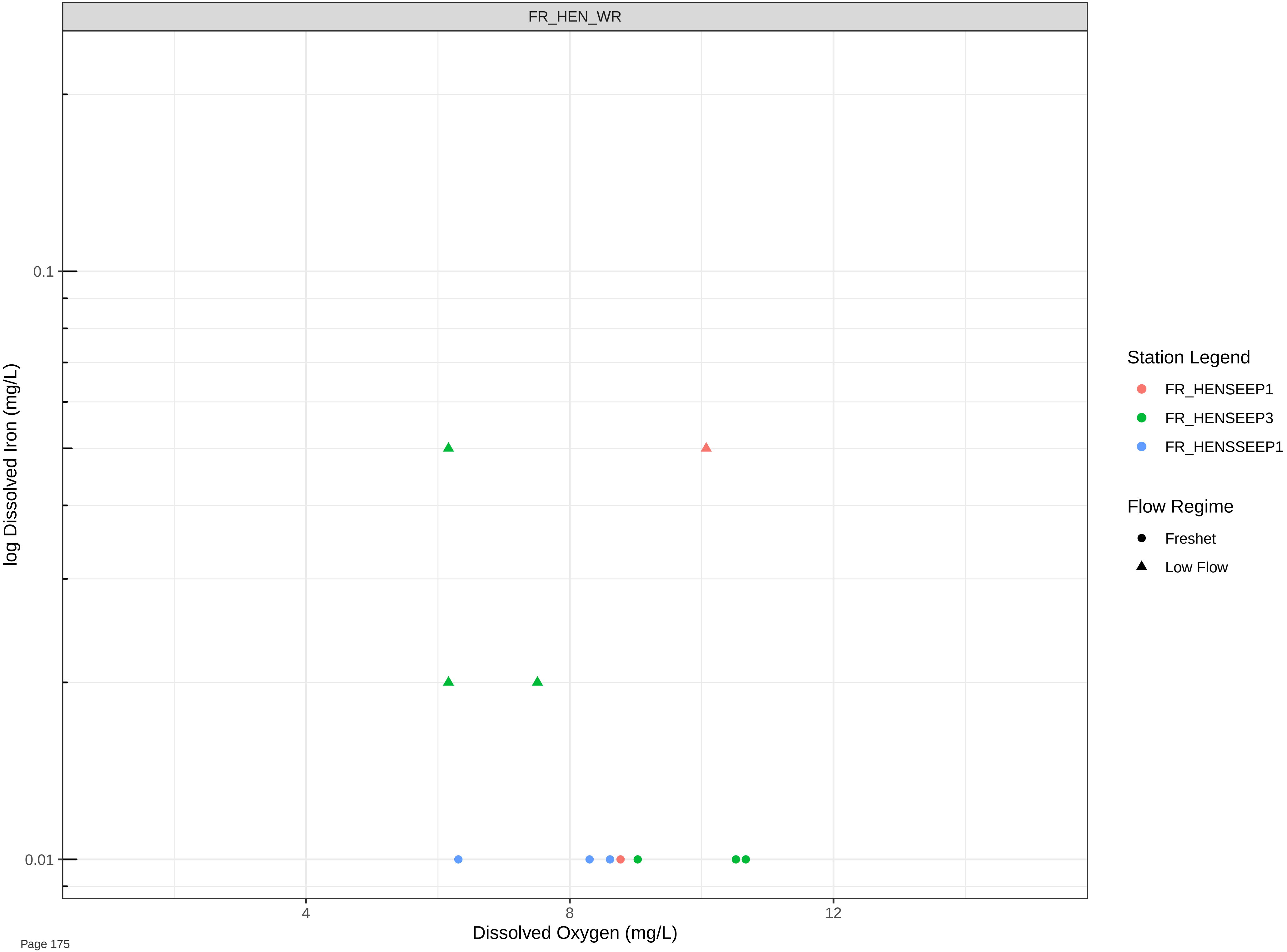
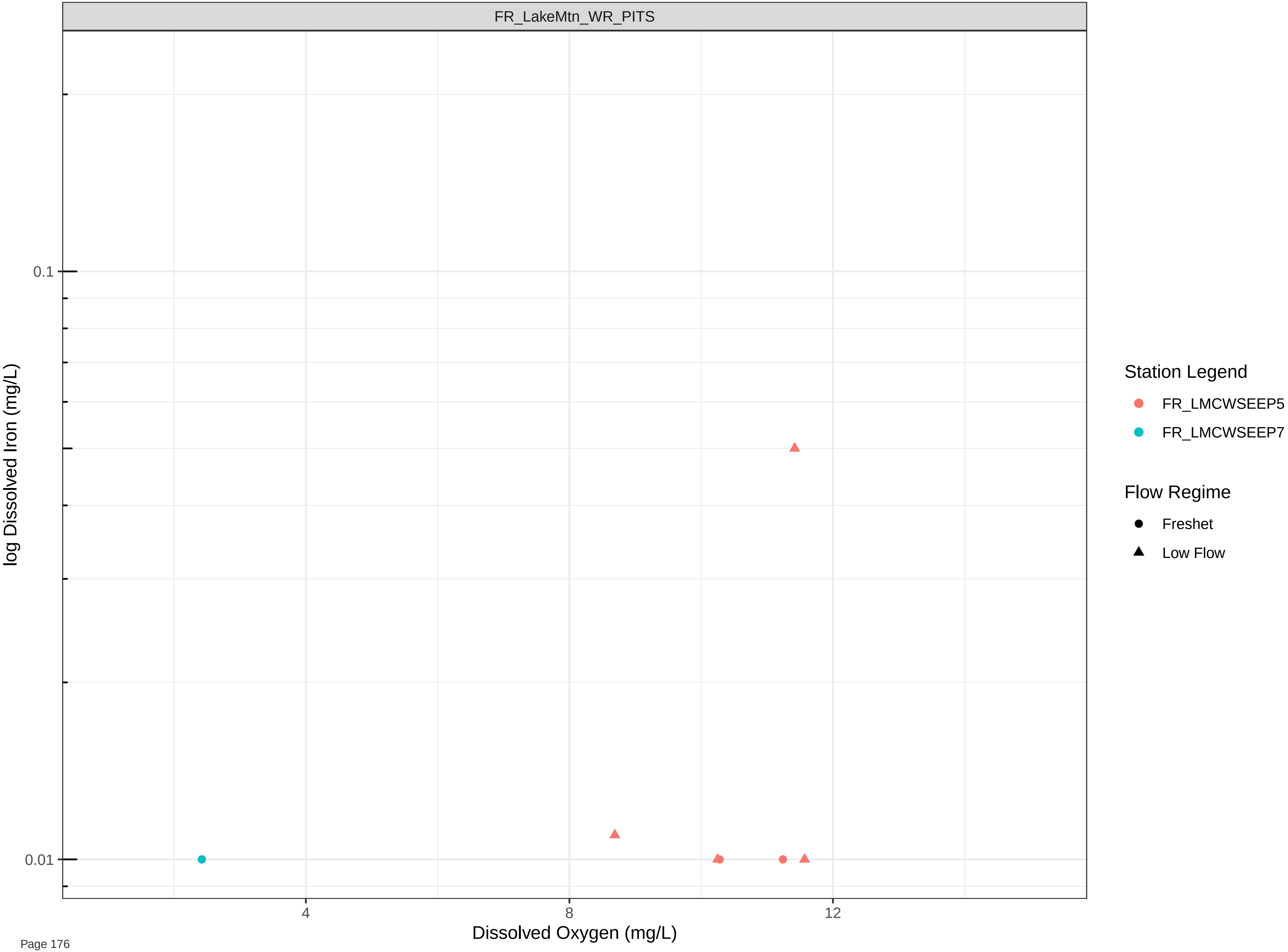
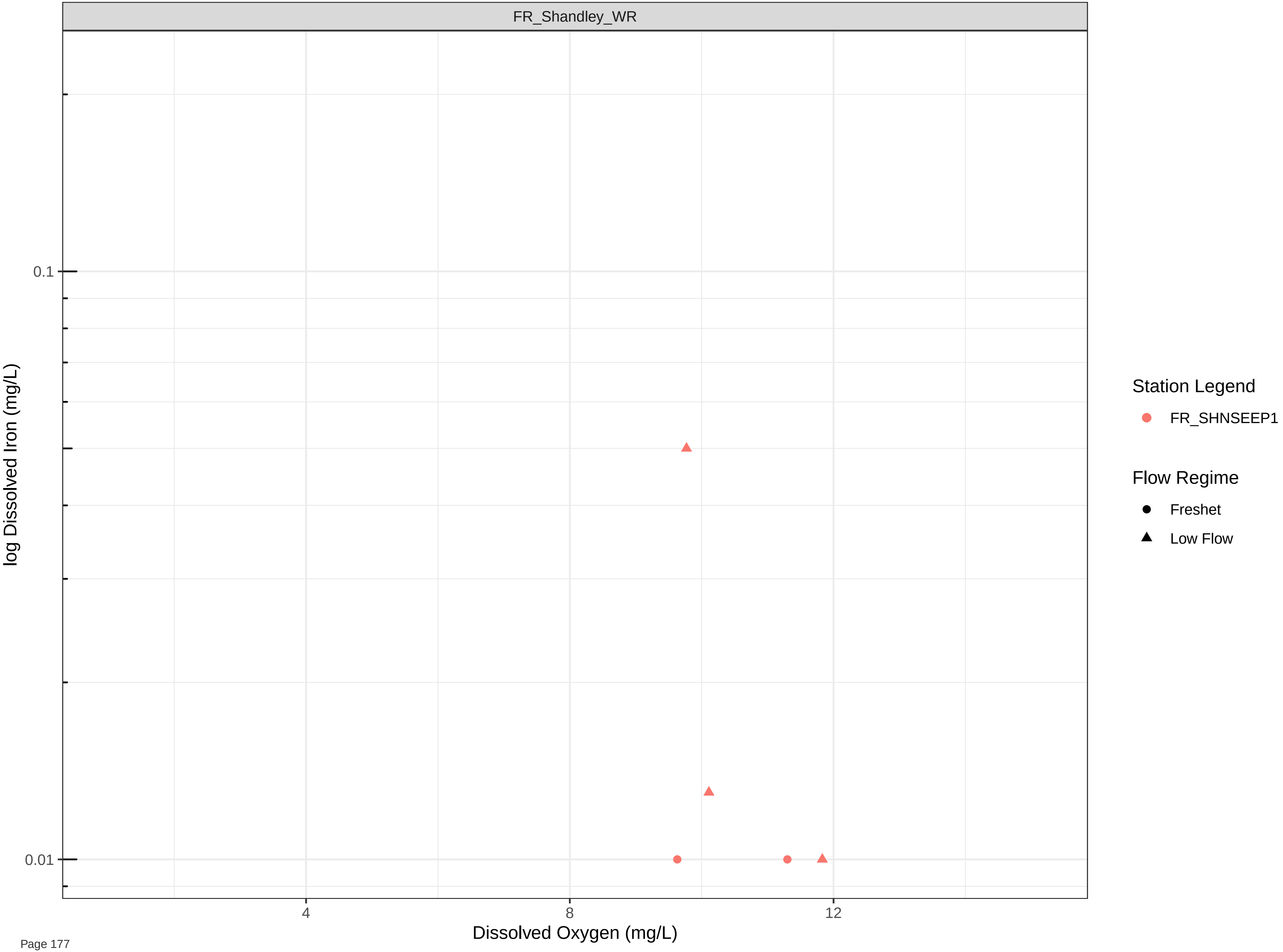
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow


FR_HEN_WR
log Dissolved Iron (mg/L)
0.1
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow


FR_LakeMtn_WR_PITS
log Dissolved Iron (mg/L)
0.1
0.01
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow


FR_Shandley_WR
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0.01
log Dissolved Iron (mg/L)
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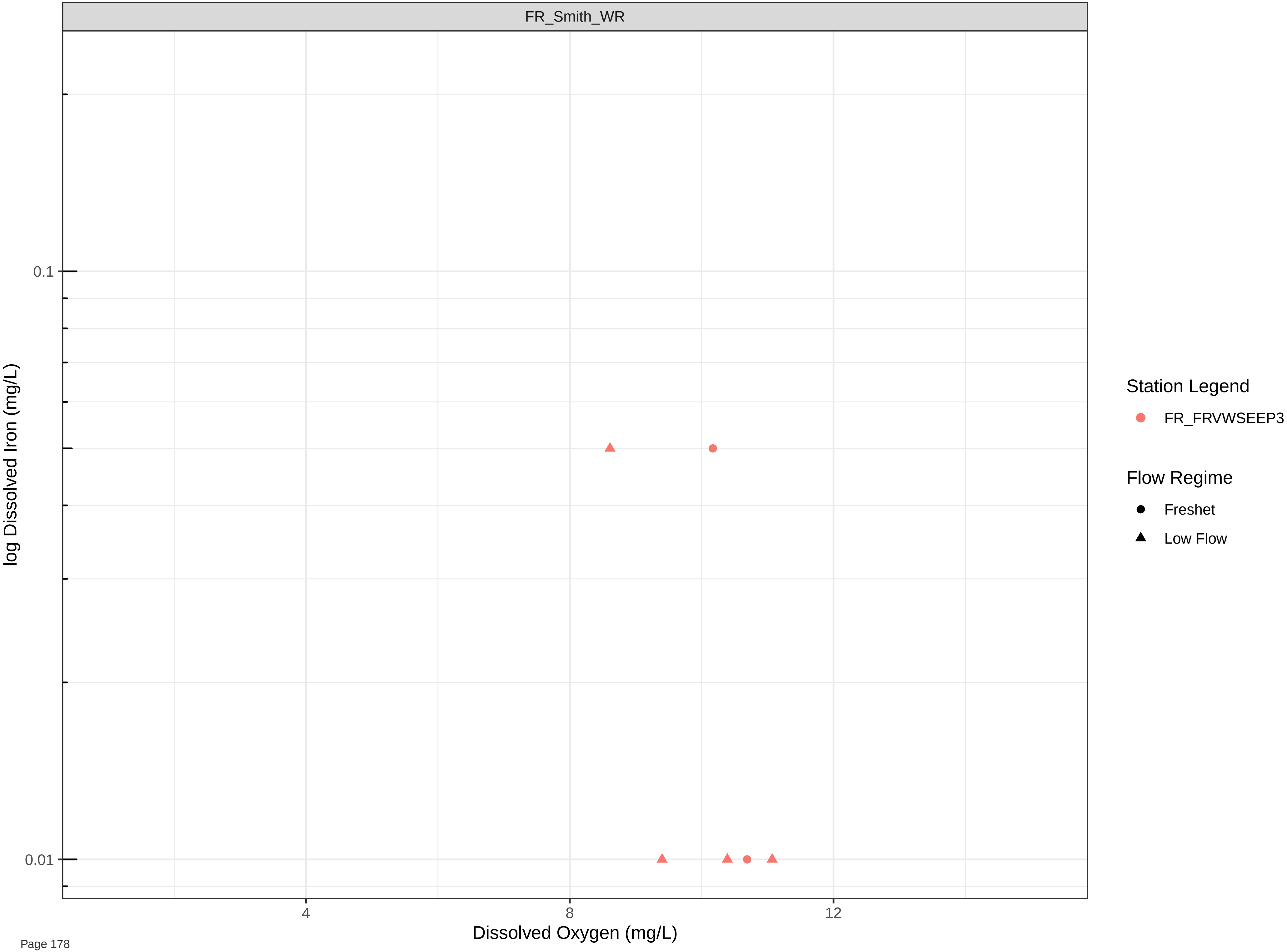
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow


FR_Smith_WR
log Dissolved Iron (mg/L)
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Dissolved Oxygen (mg/L)
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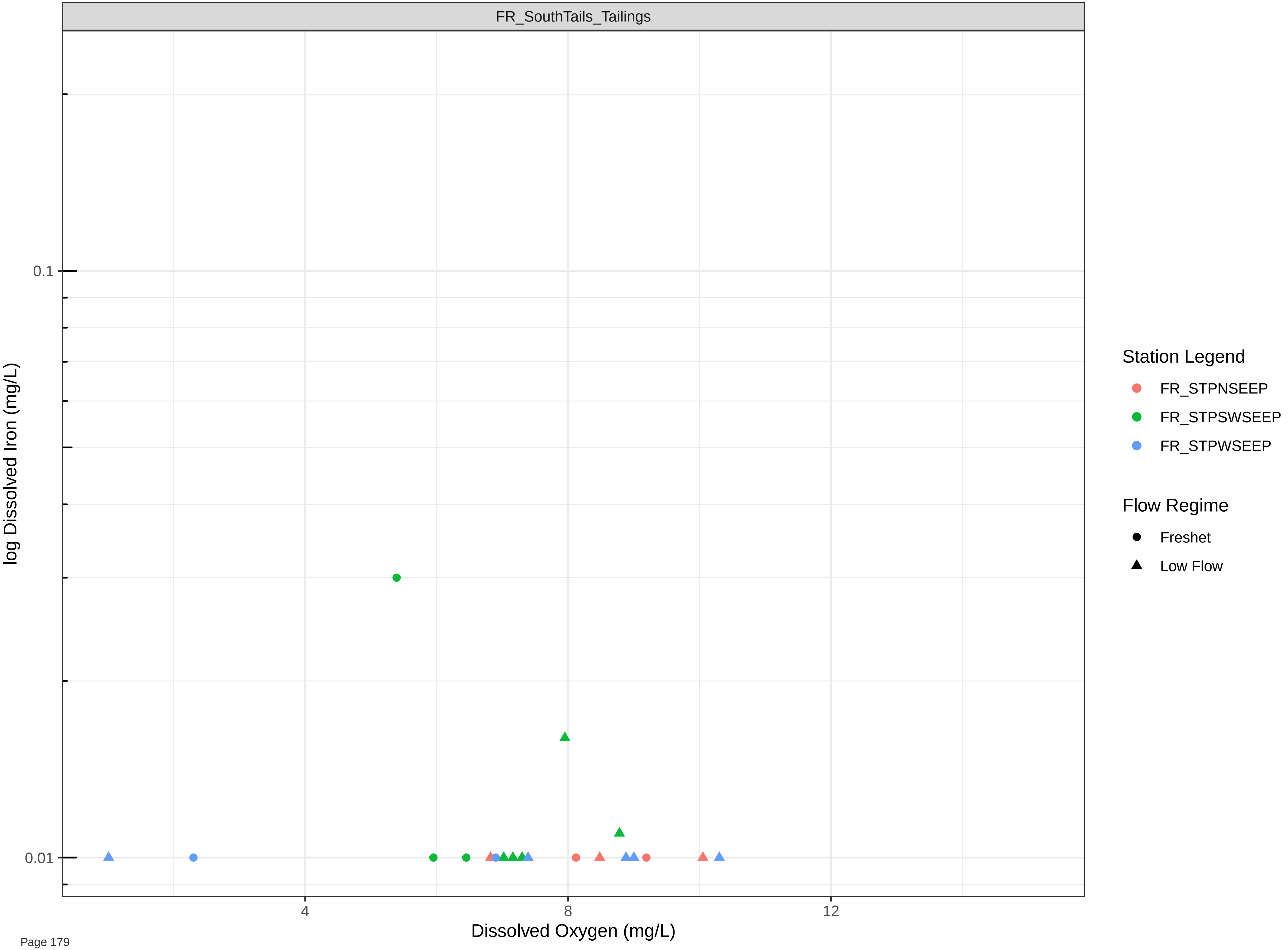
8
12
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow


FR_SouthTails_Tailings
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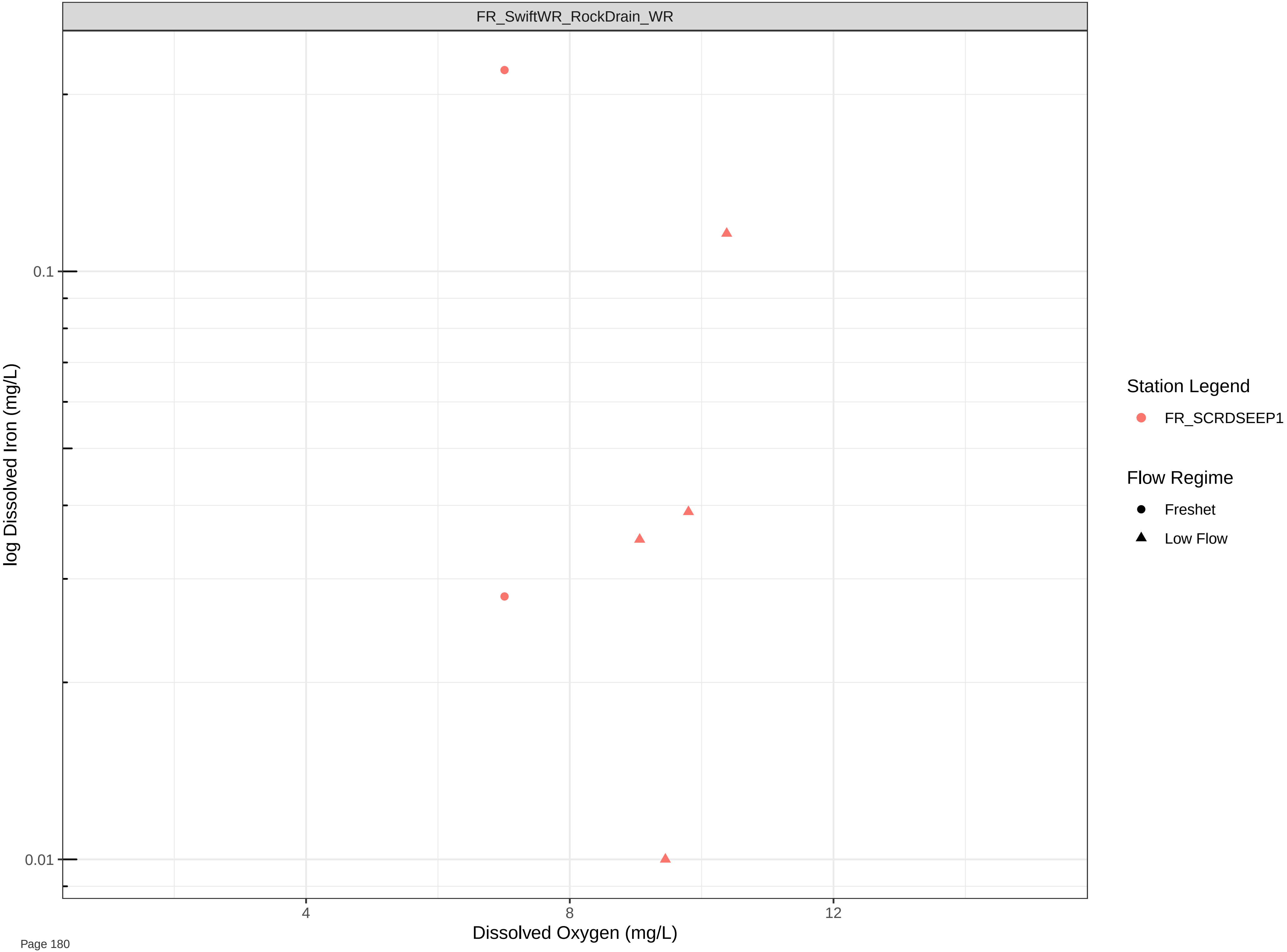
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_STPNSEEP
● FR_STPSWSEEP
● FR_STPWSEEP
Flow Regime
● Freshet
▲ Low Flow


FR_SwiftWR_RockDrain_WR
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Dissolved Oxygen (mg/L)
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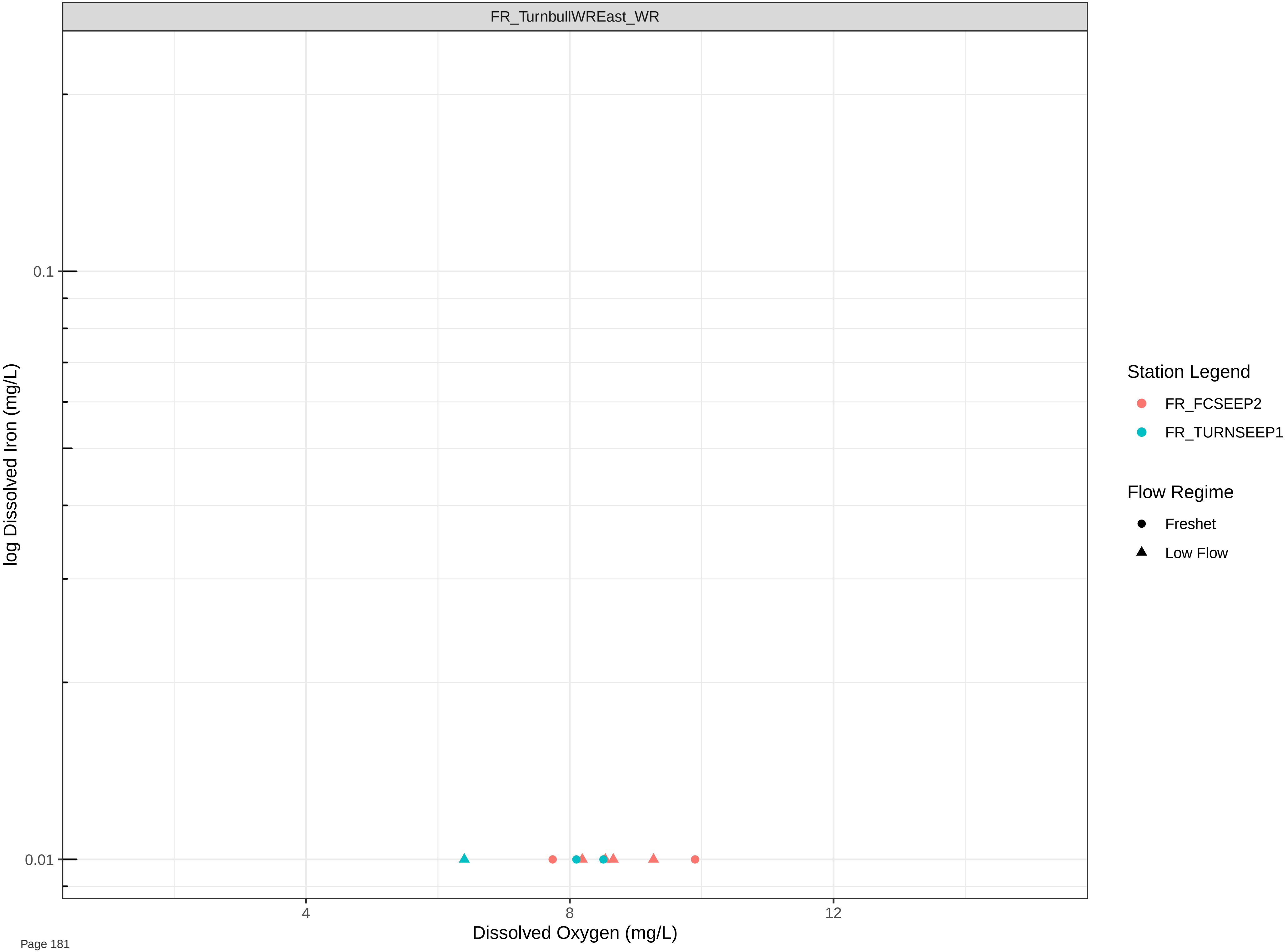
8
12
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_TurnbullWREast_WR
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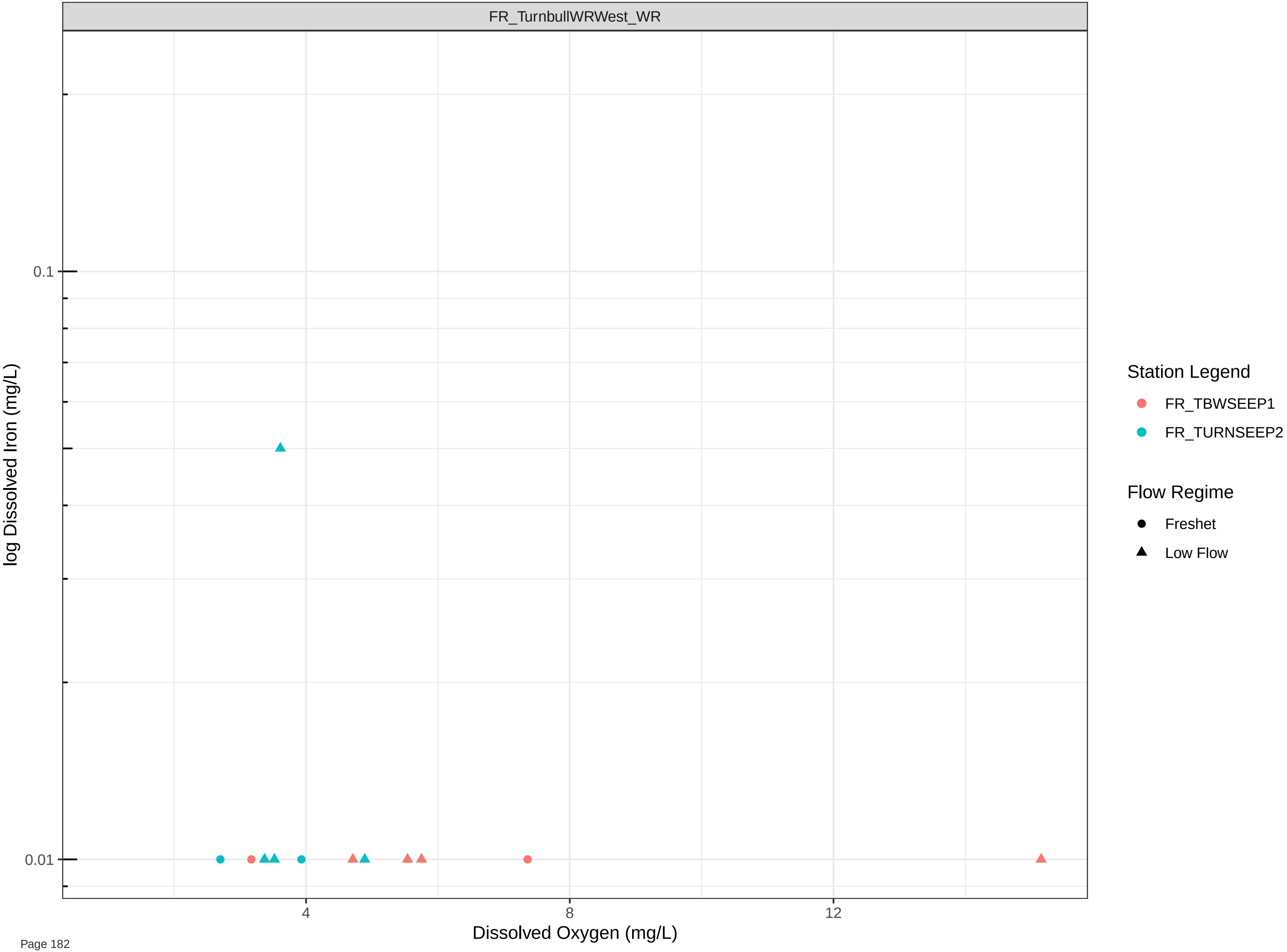
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWRWest_WR
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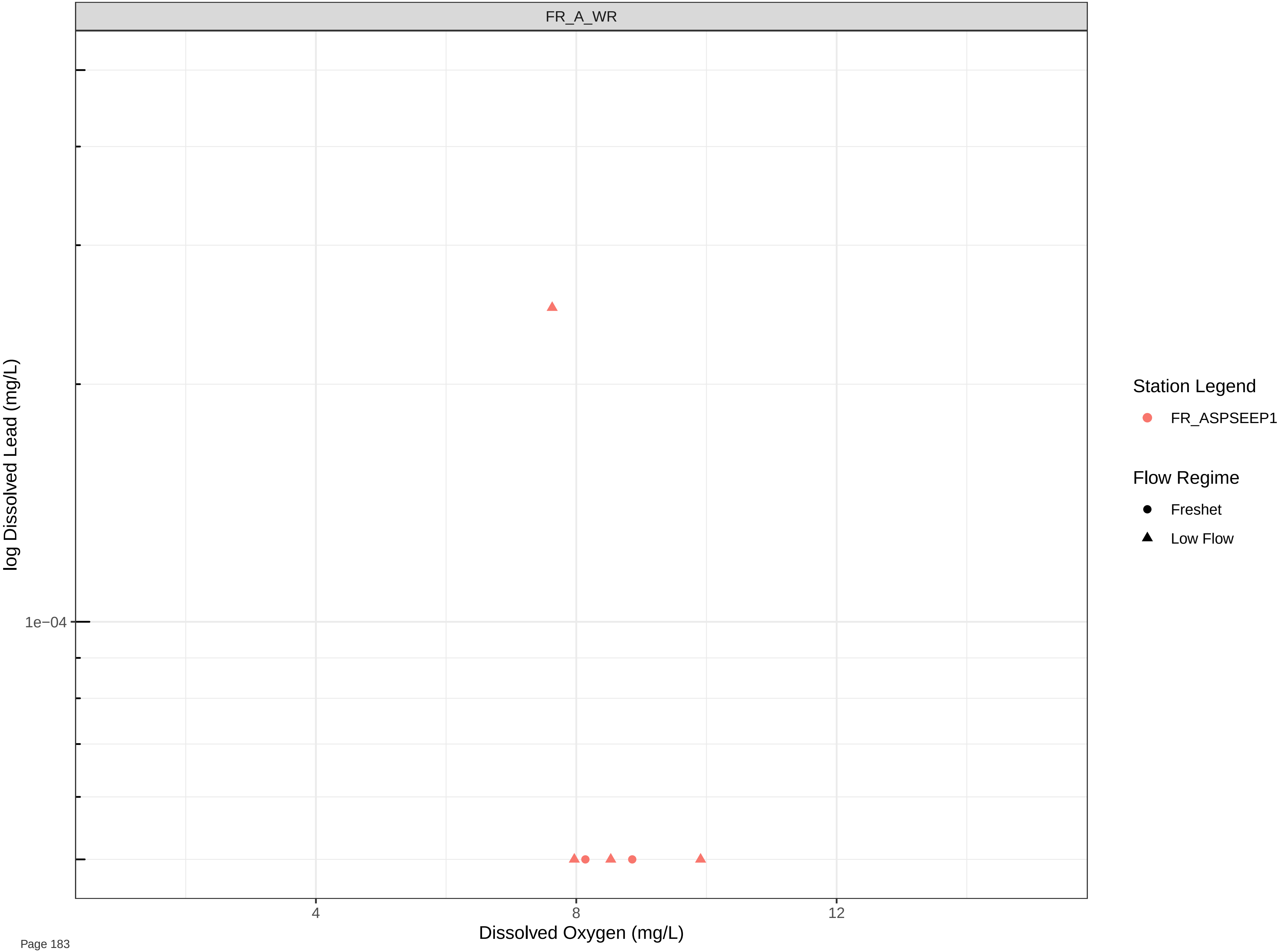
0.01
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_TBWSEEP1
● FR_TURNSEEP2
Flow Regime
● Freshet
▲ Low Flow


FR_A_WR
log Dissolved Lead (mg/L)
1e−04
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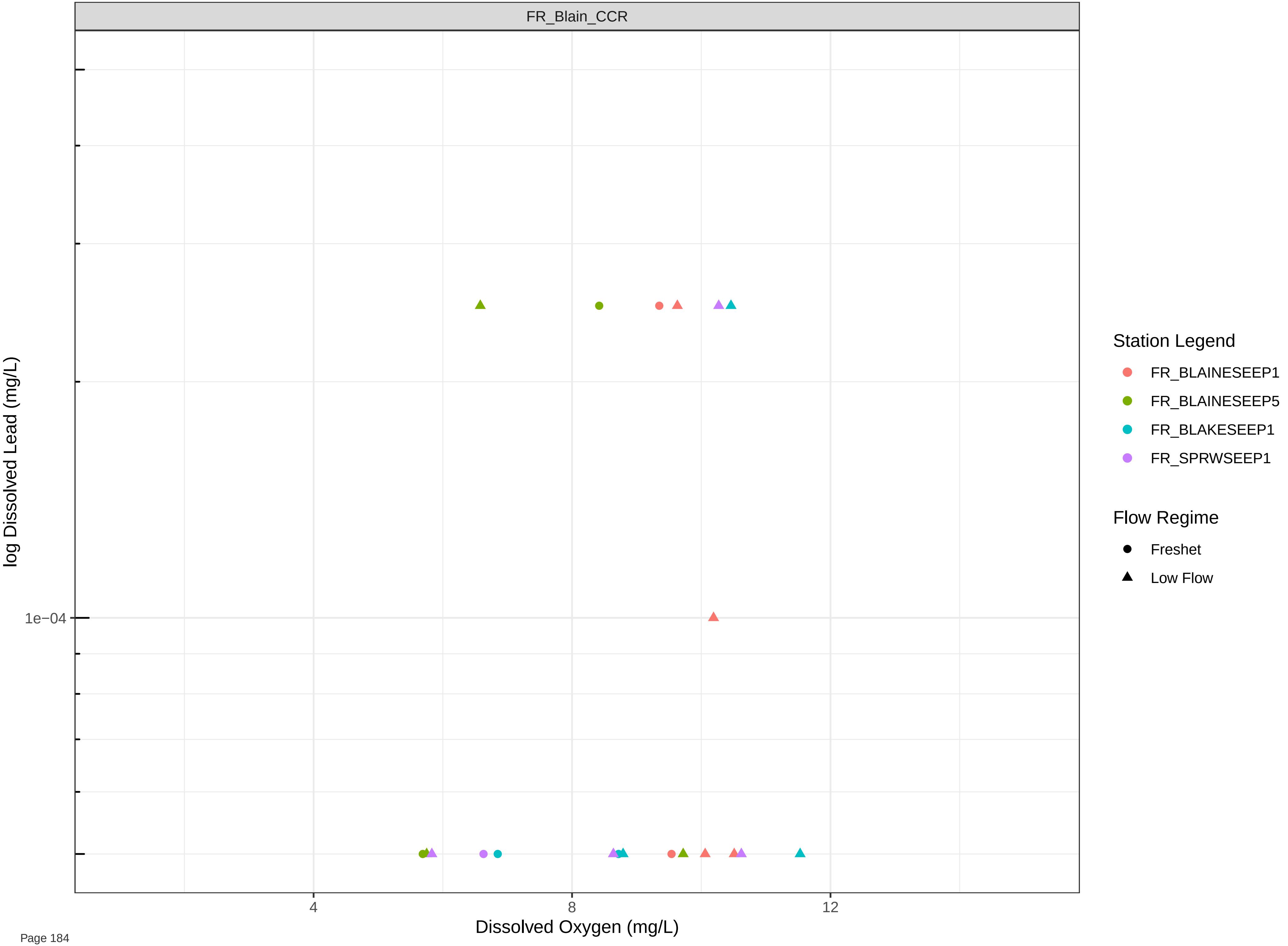
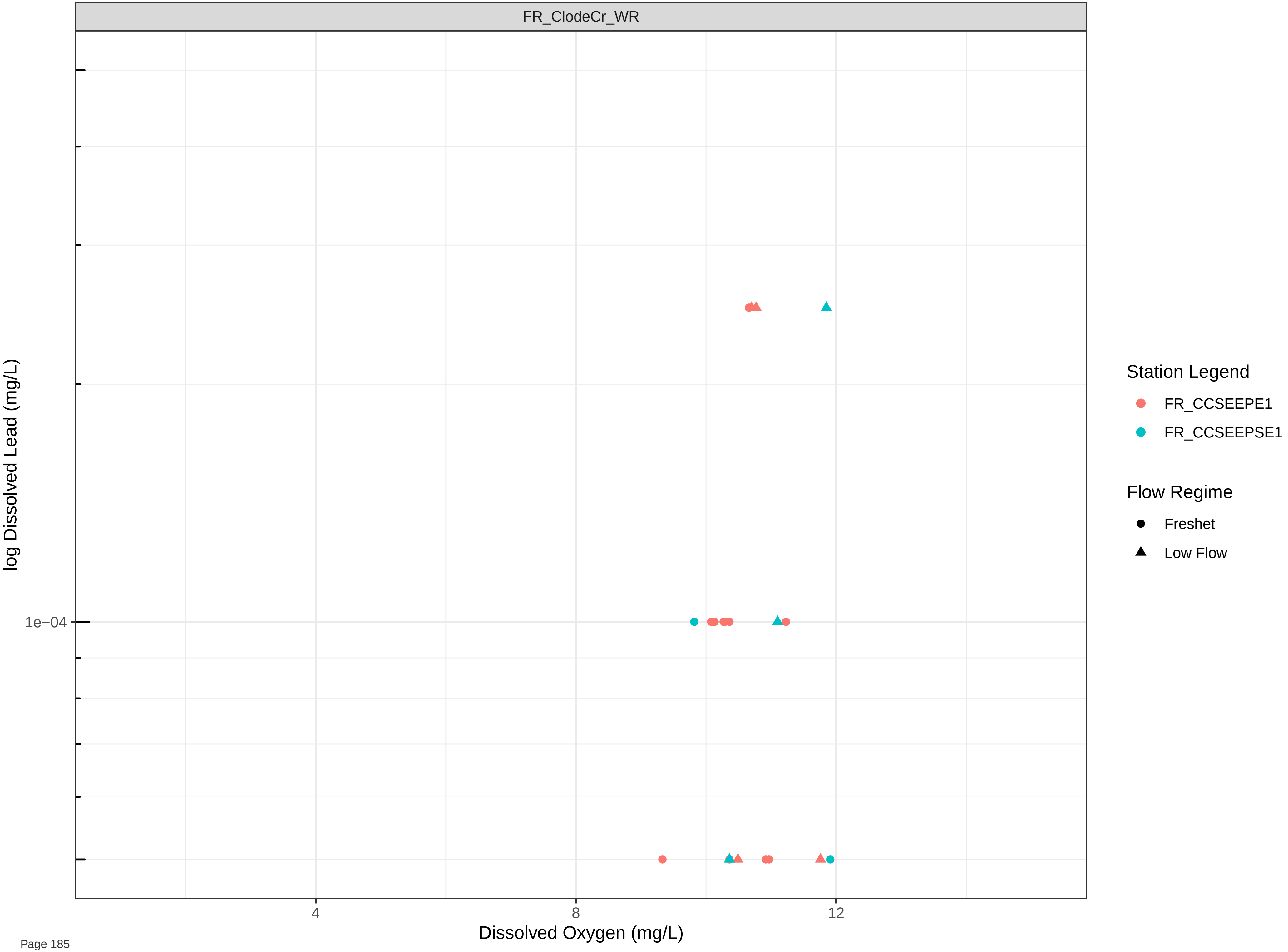
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_Blain_CCR
log Dissolved Lead (mg/L)
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_ClodeCr_WR
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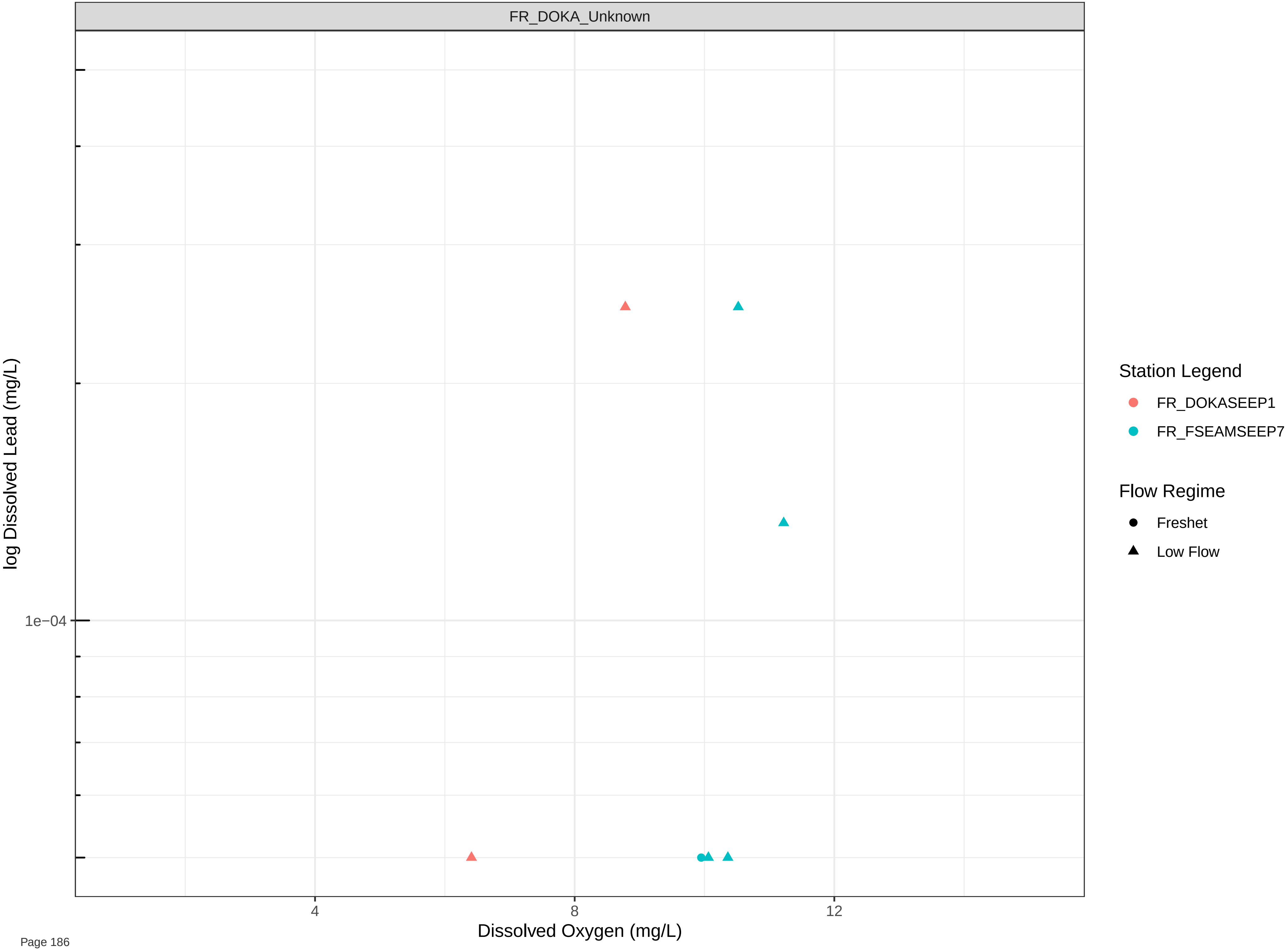
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow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1e−04
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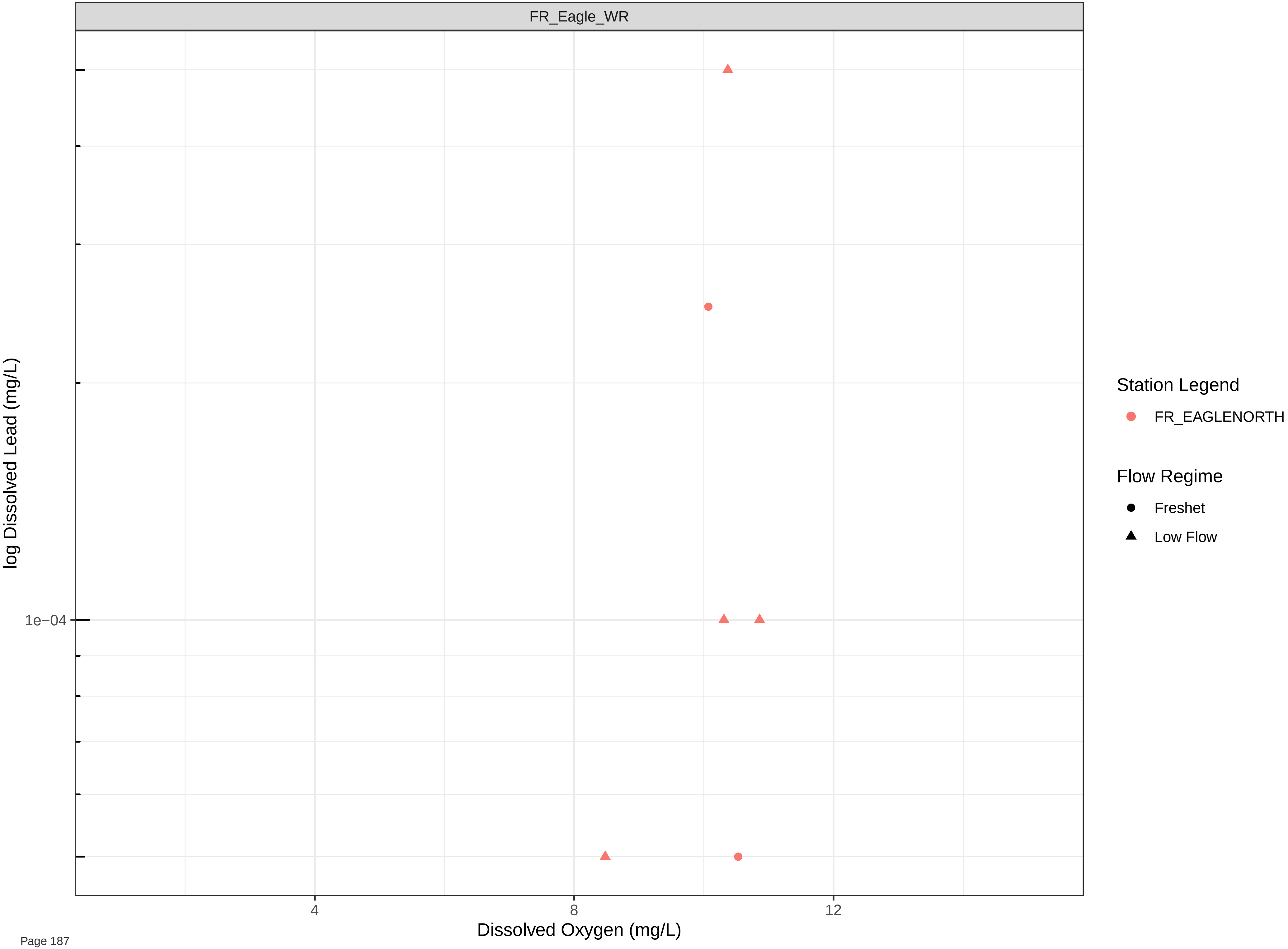
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow


FR_Eagle_WR
log Dissolved Lead (mg/L)
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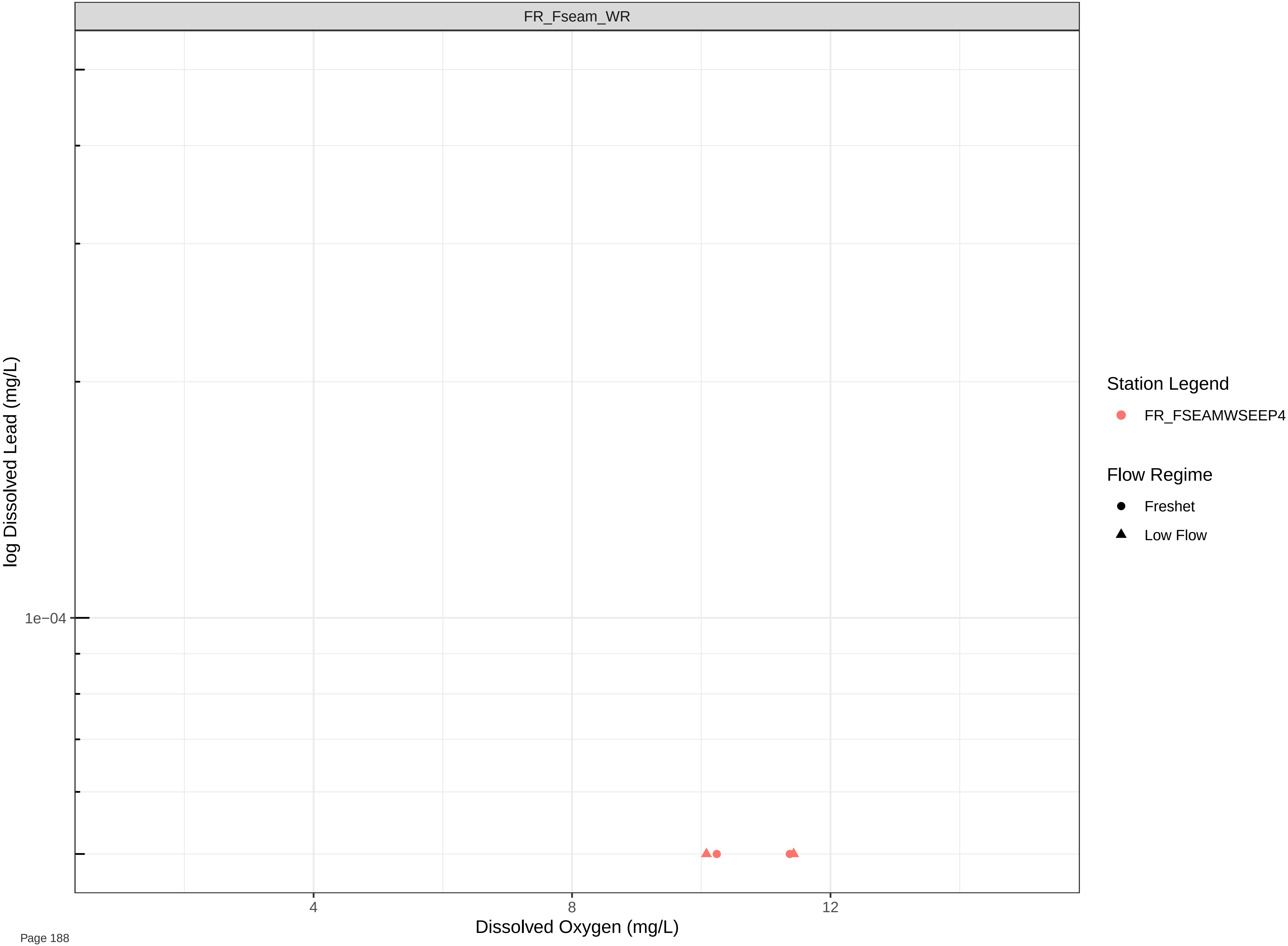
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow


FR_Fseam_WR
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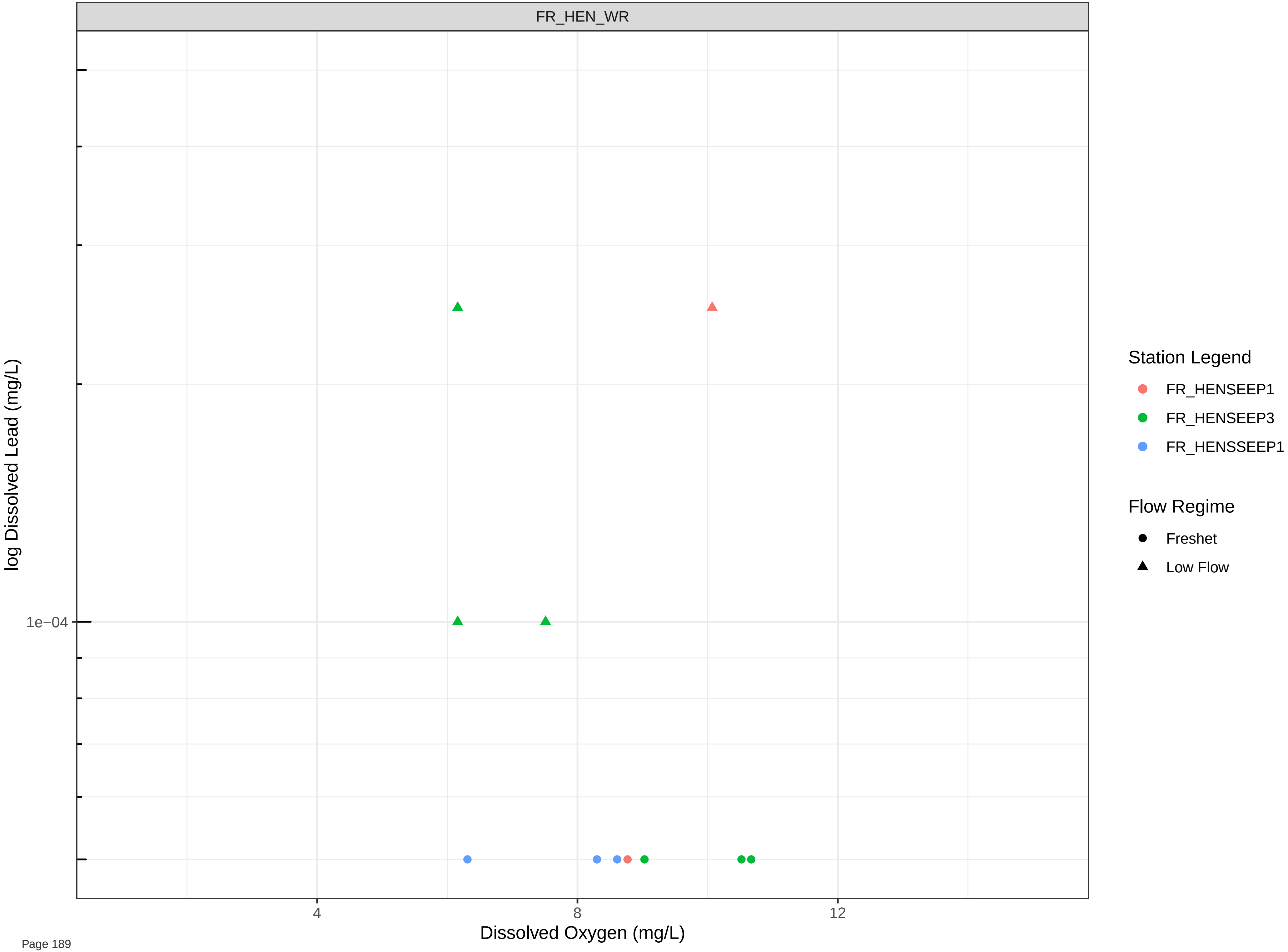
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow


FR_HEN_WR
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4
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Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
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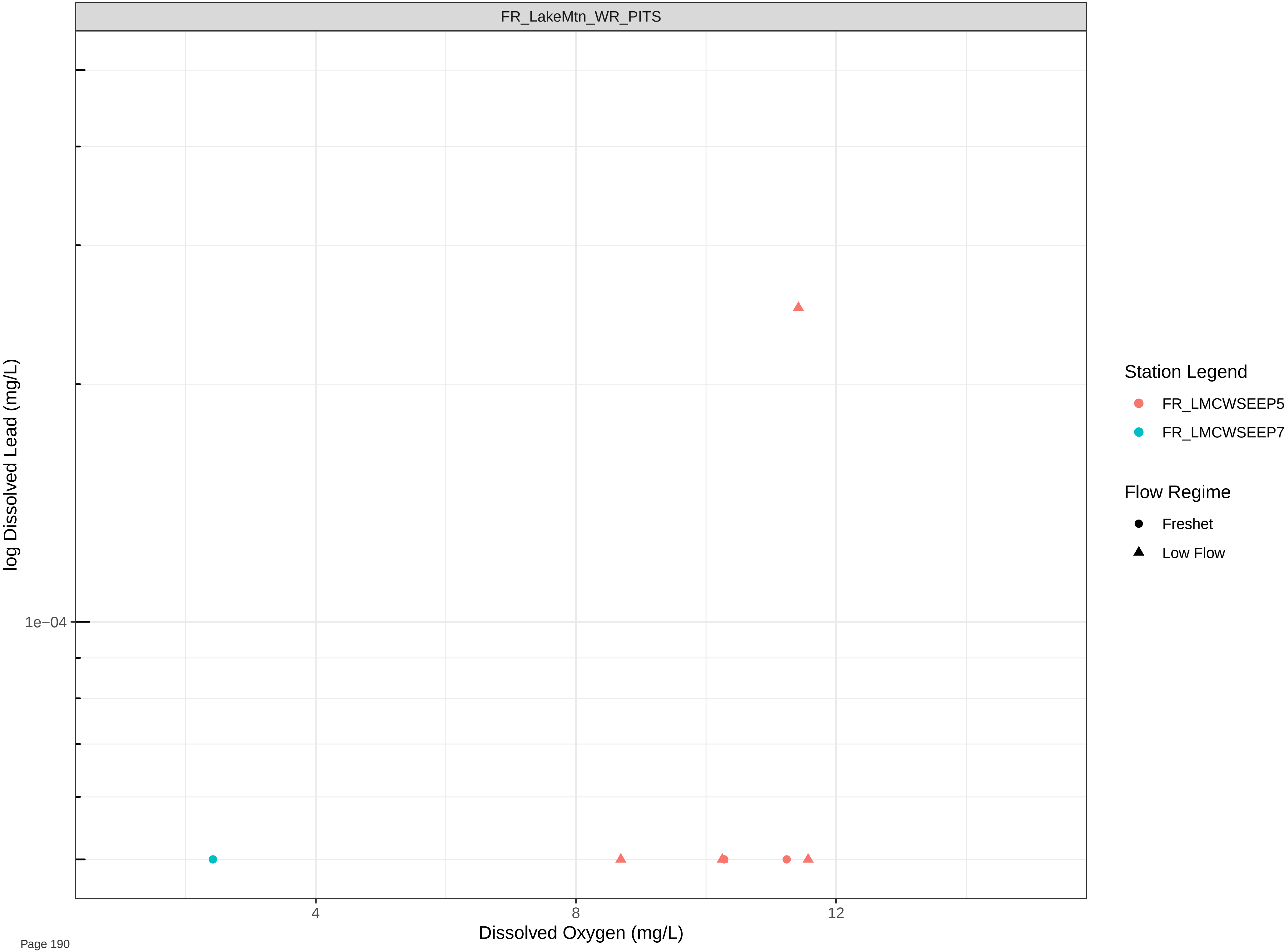
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow


FR_LakeMtn_WR_PITS
log Dissolved Lead (mg/L)
1e−04
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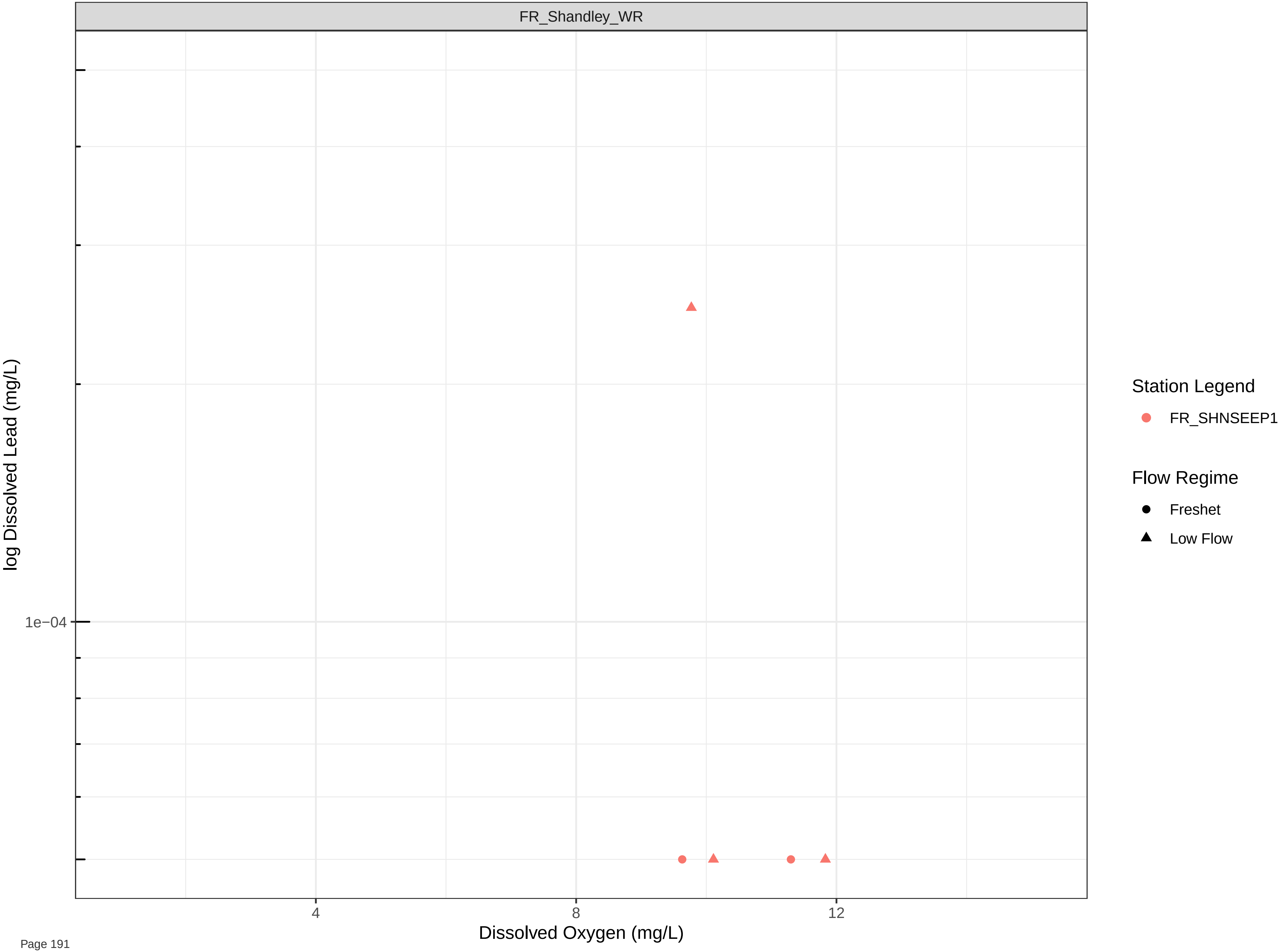
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow


FR_Shandley_WR
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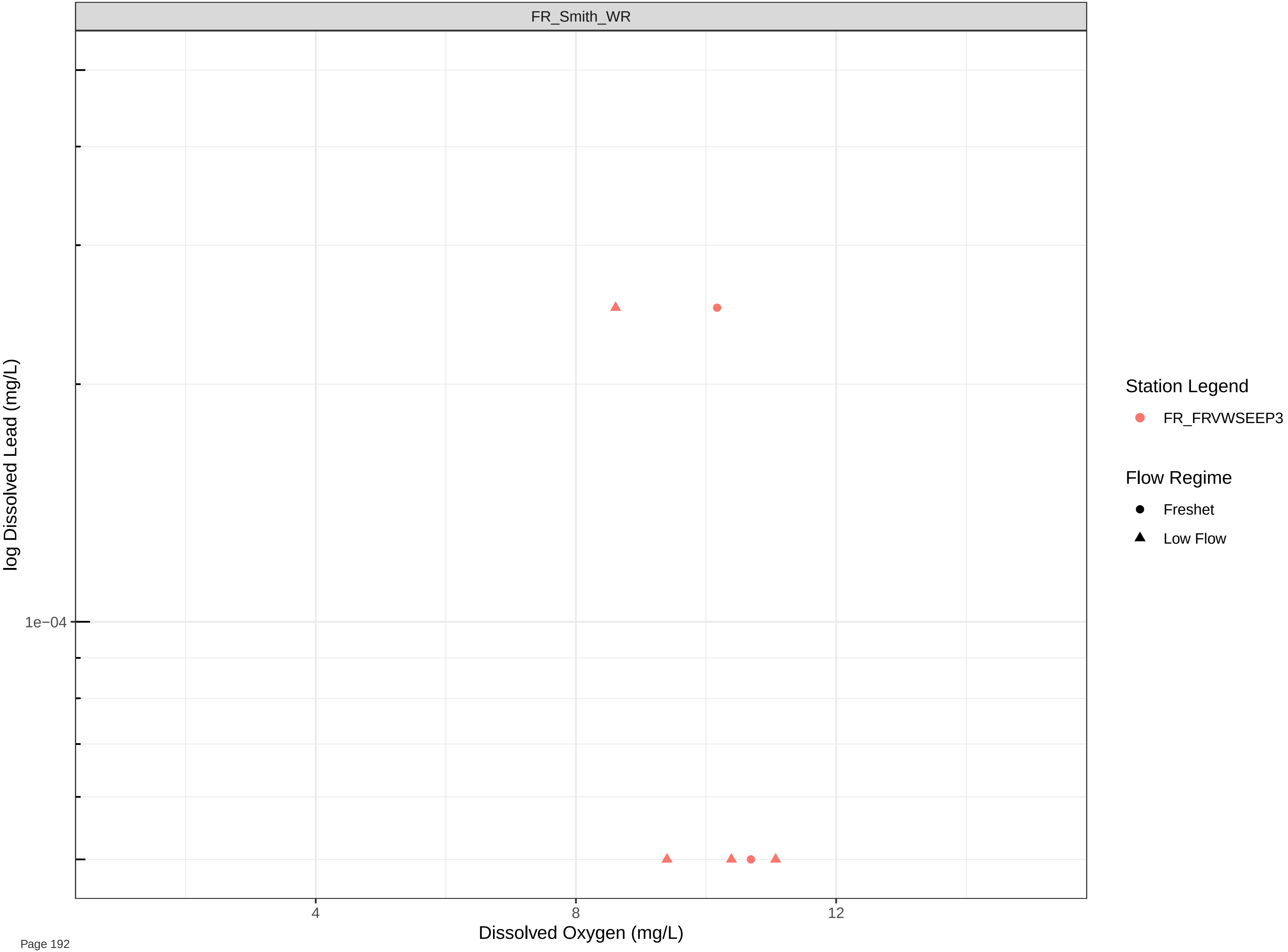
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_Smith_WR
log Dissolved Lead (mg/L)
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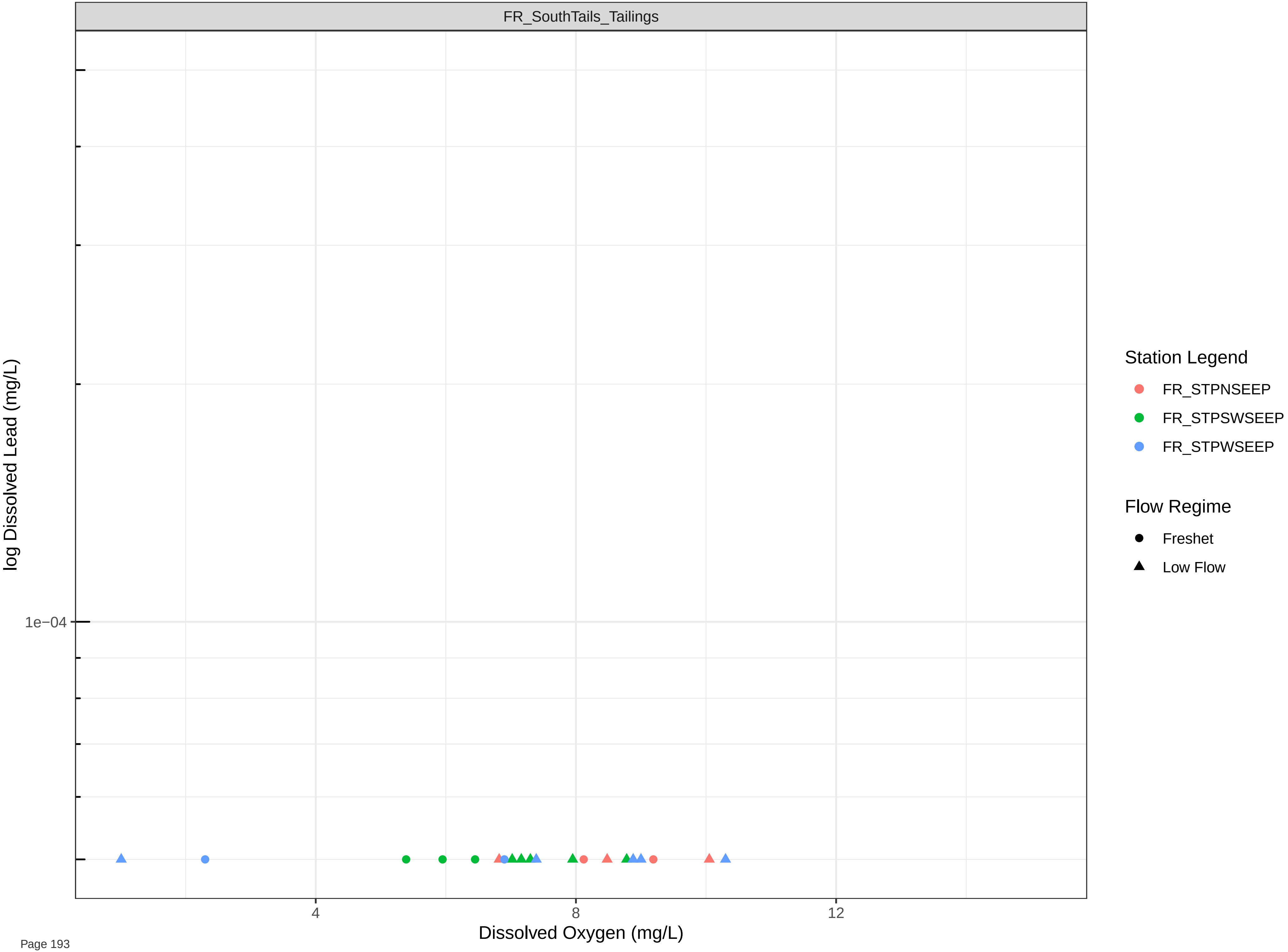
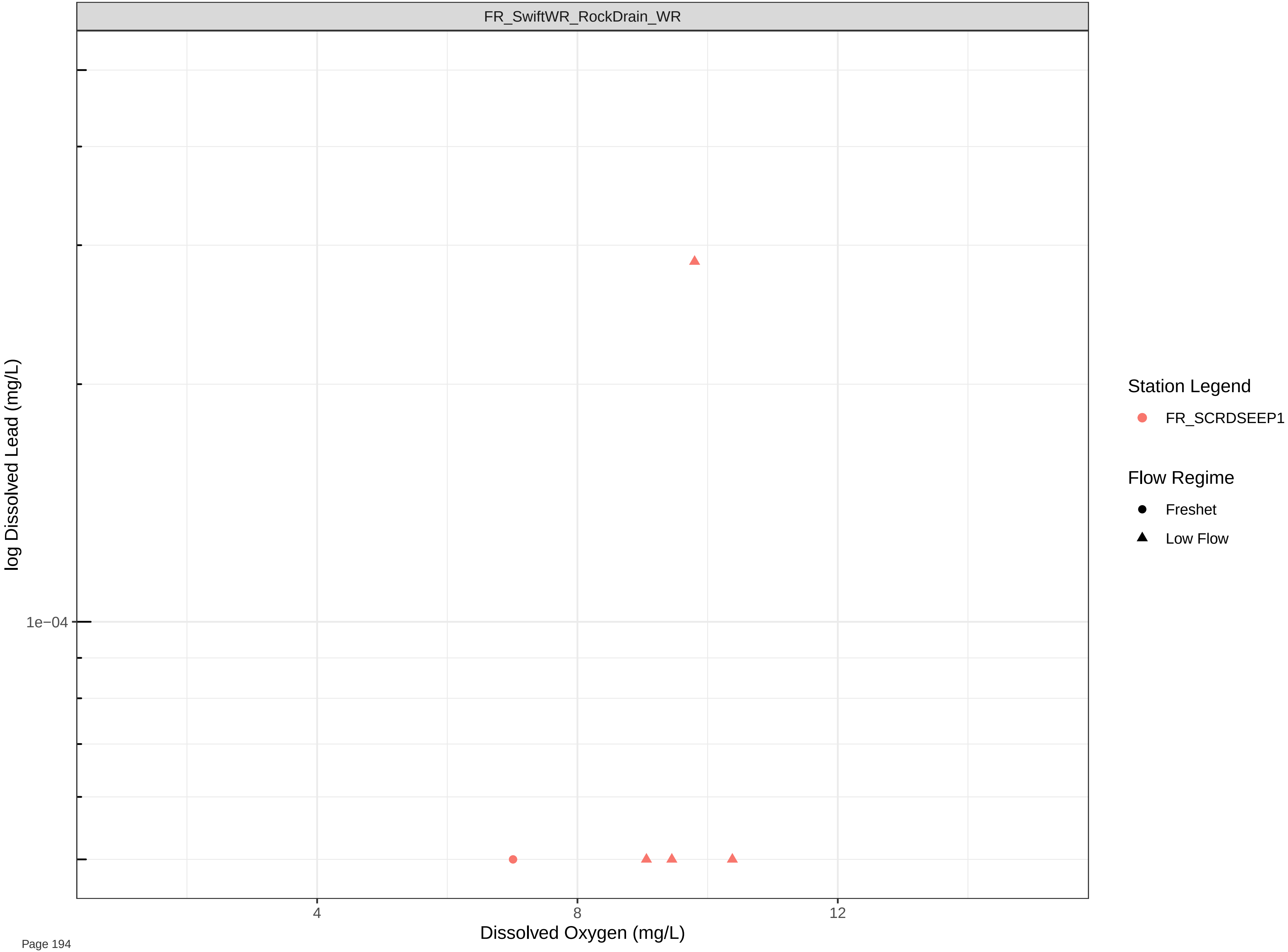
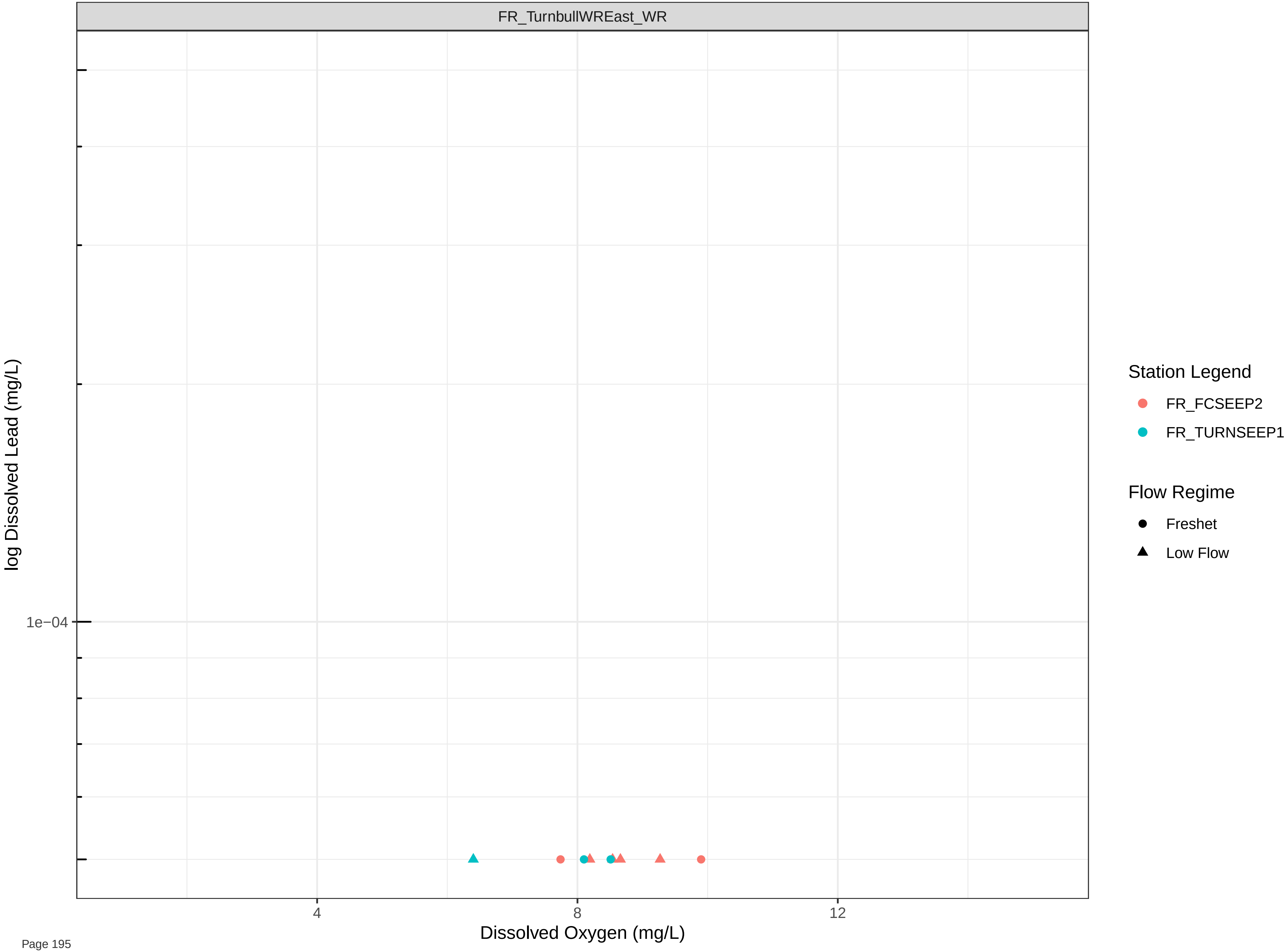
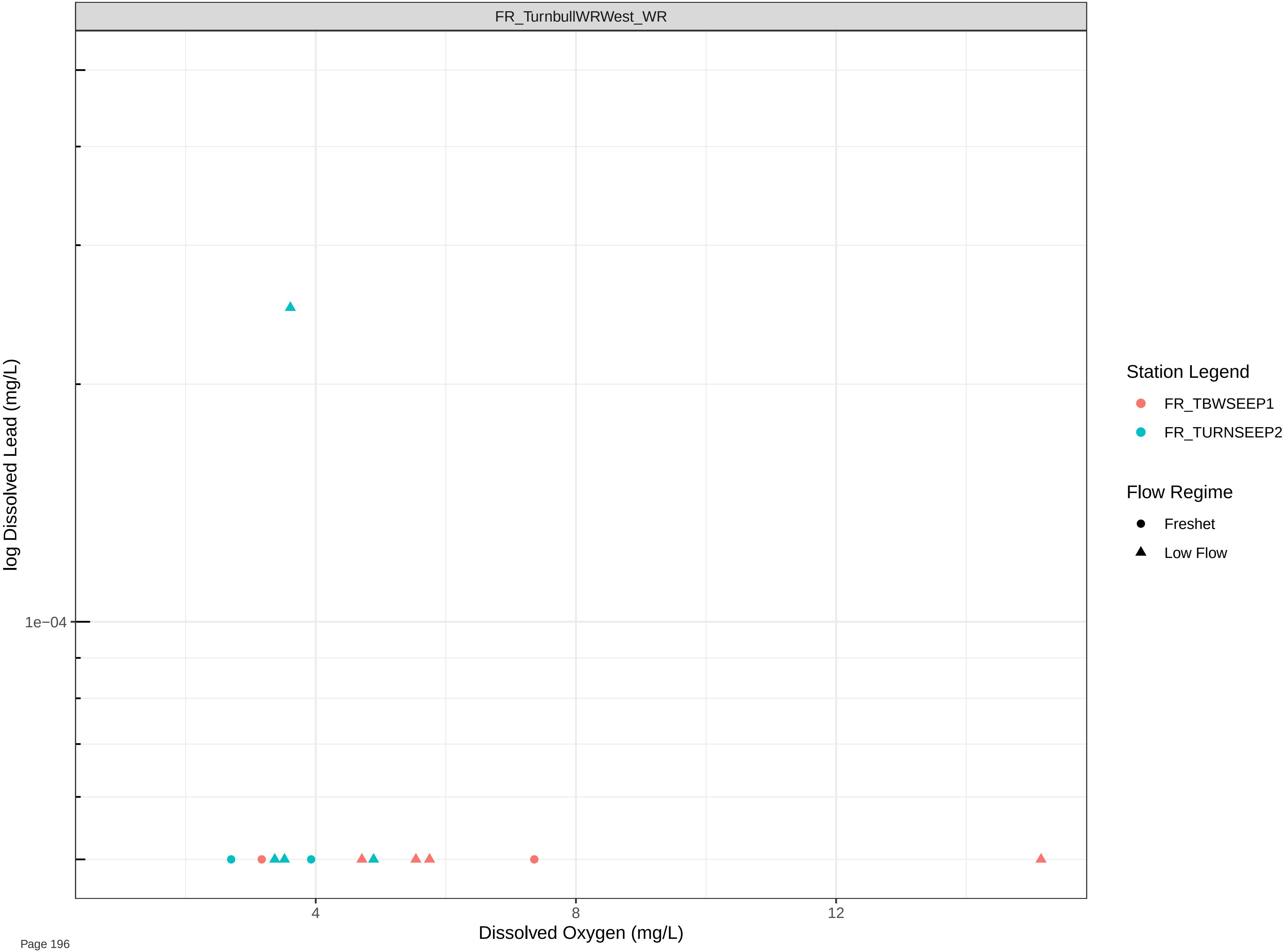
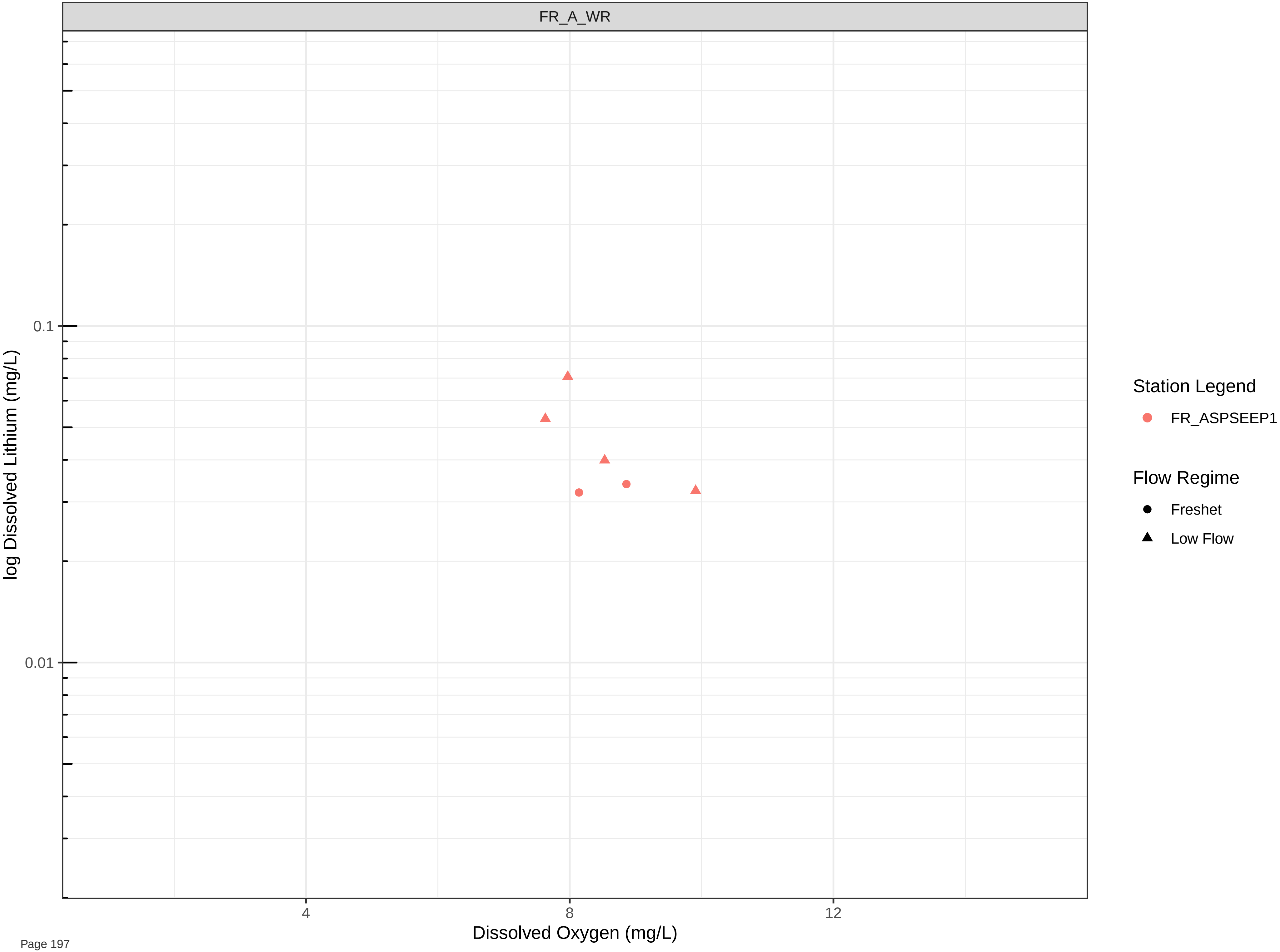
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

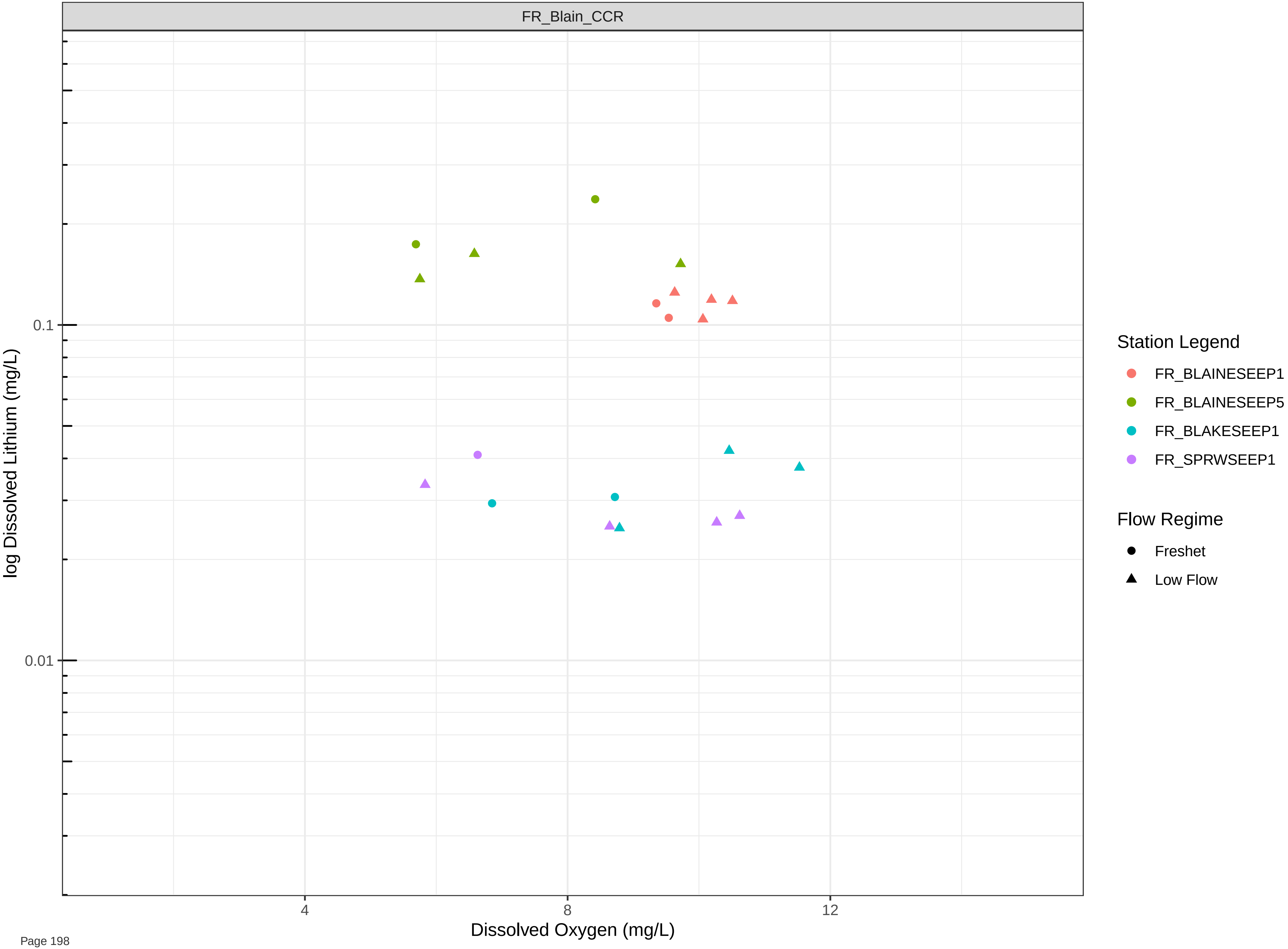

FR_SouthTails_Tailings
log Dissolved Lead (mg/L)
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

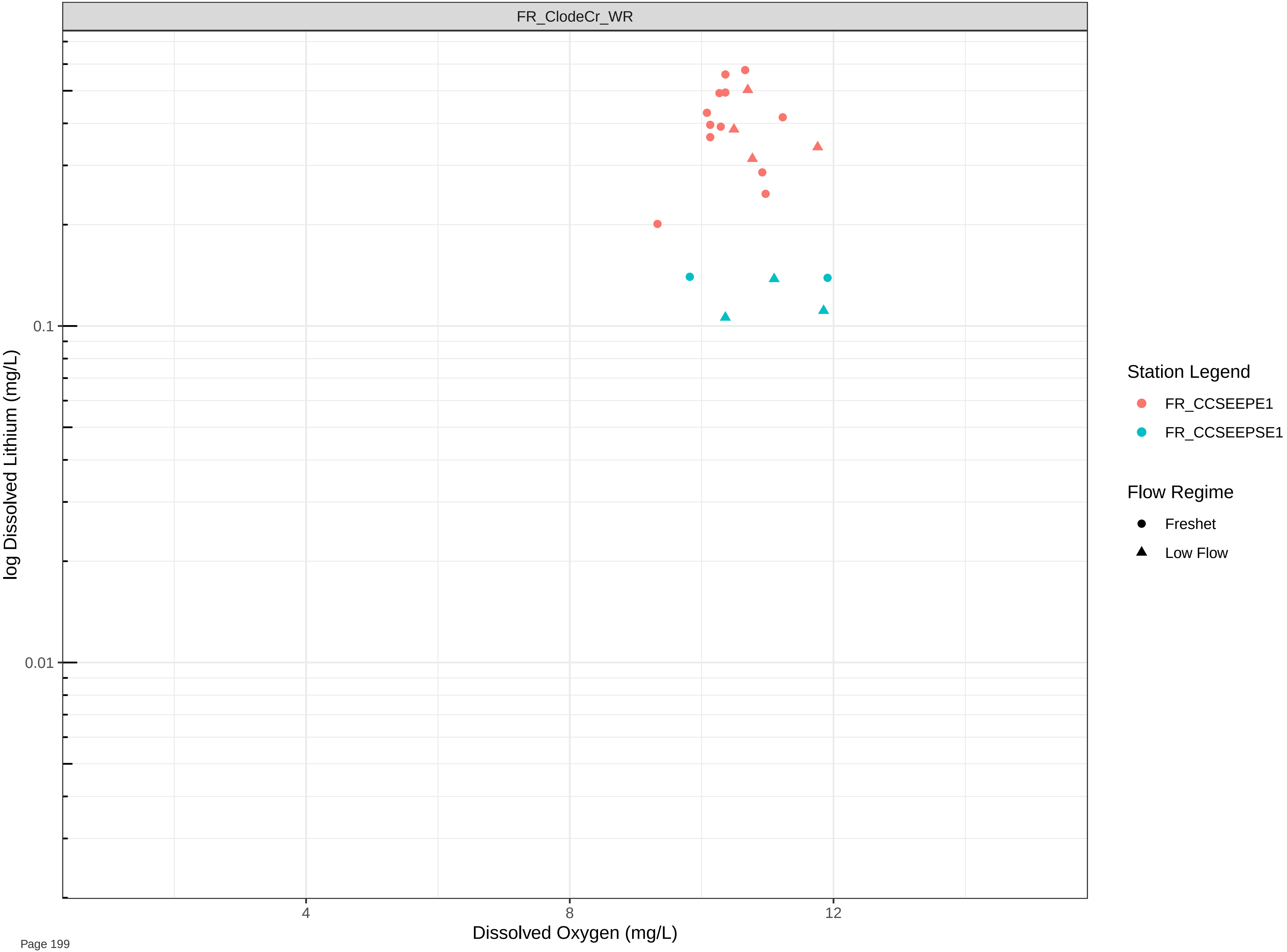

FR_SwiftWR_RockDrain_WR
log Dissolved Lead (mg/L)
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

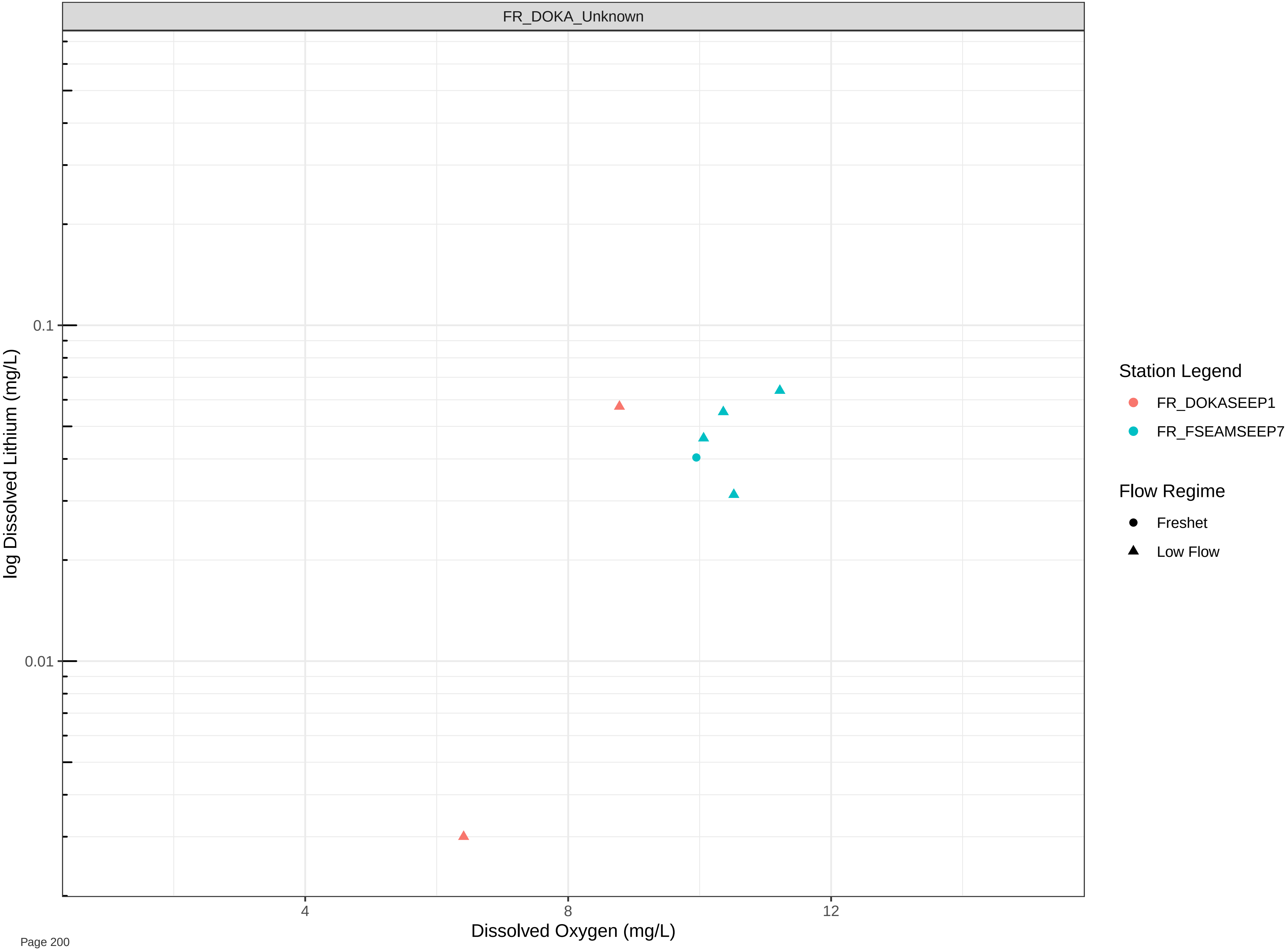

FR_TurnbullWREast_WR
log Dissolved Lead (mg/L)
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

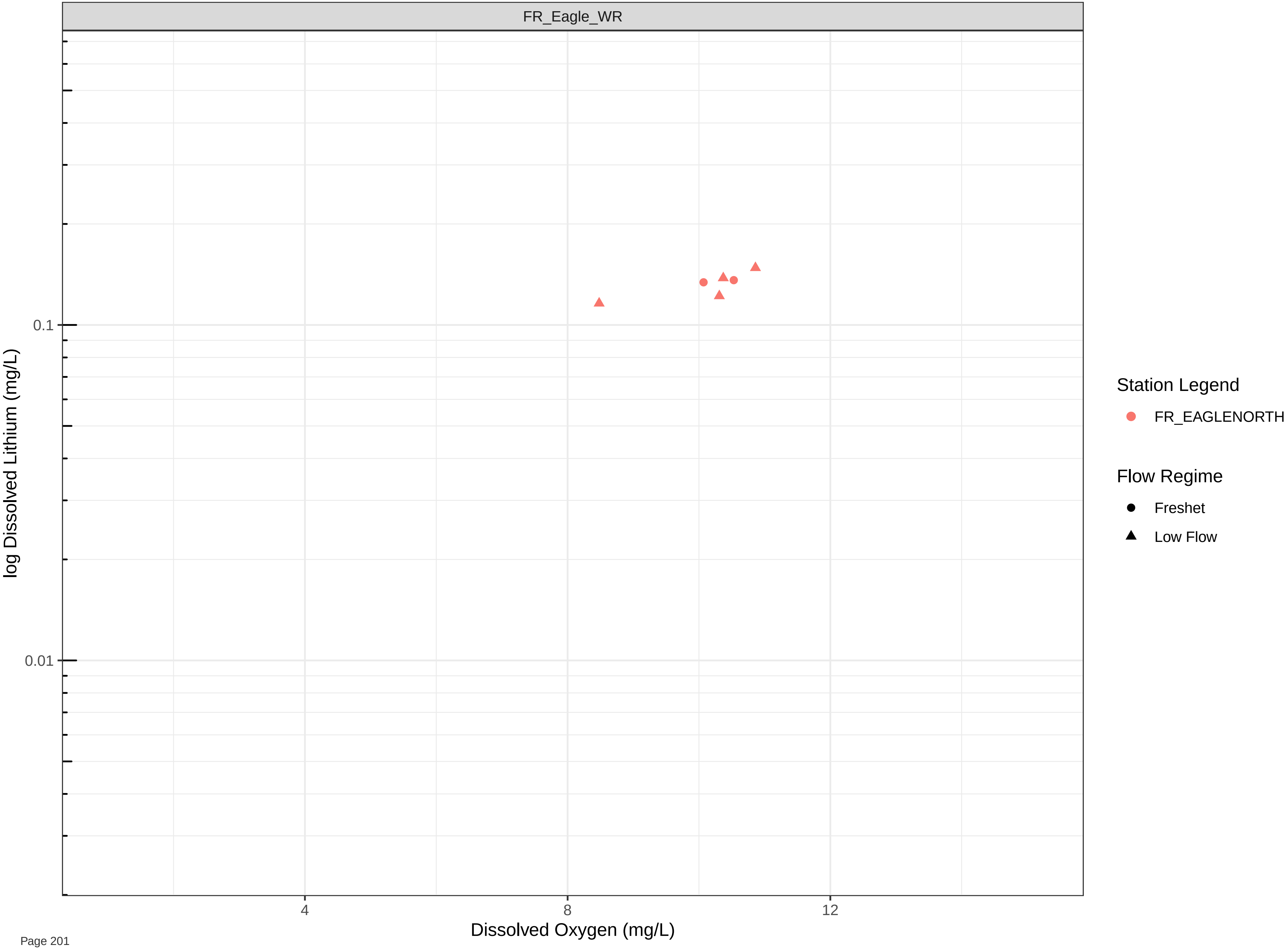

FR_TurnbullWRWest_WR
log Dissolved Lead (mg/L)
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

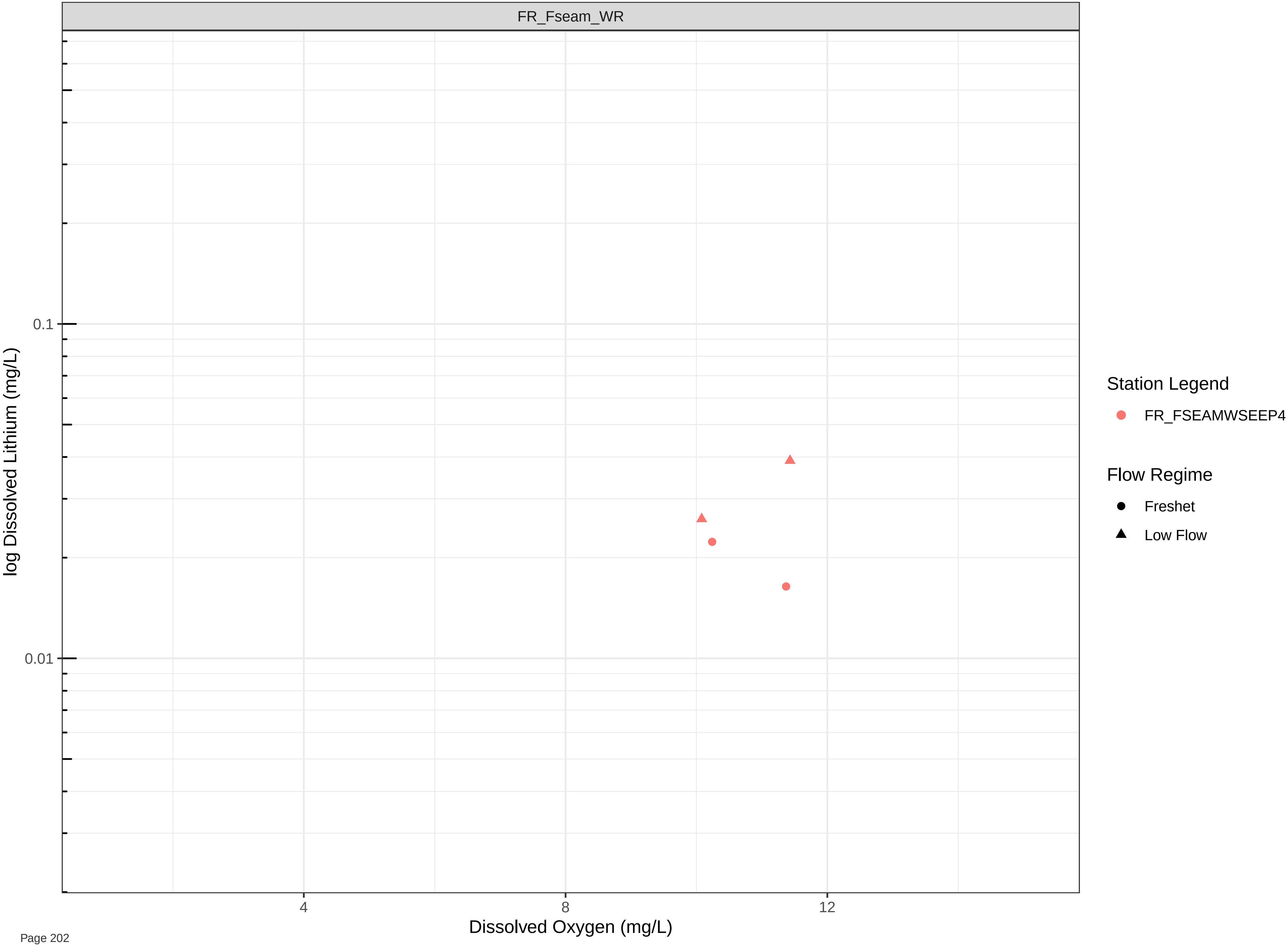

FR_A_WR
log Dissolved Lithium (mg/L)
0.1
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

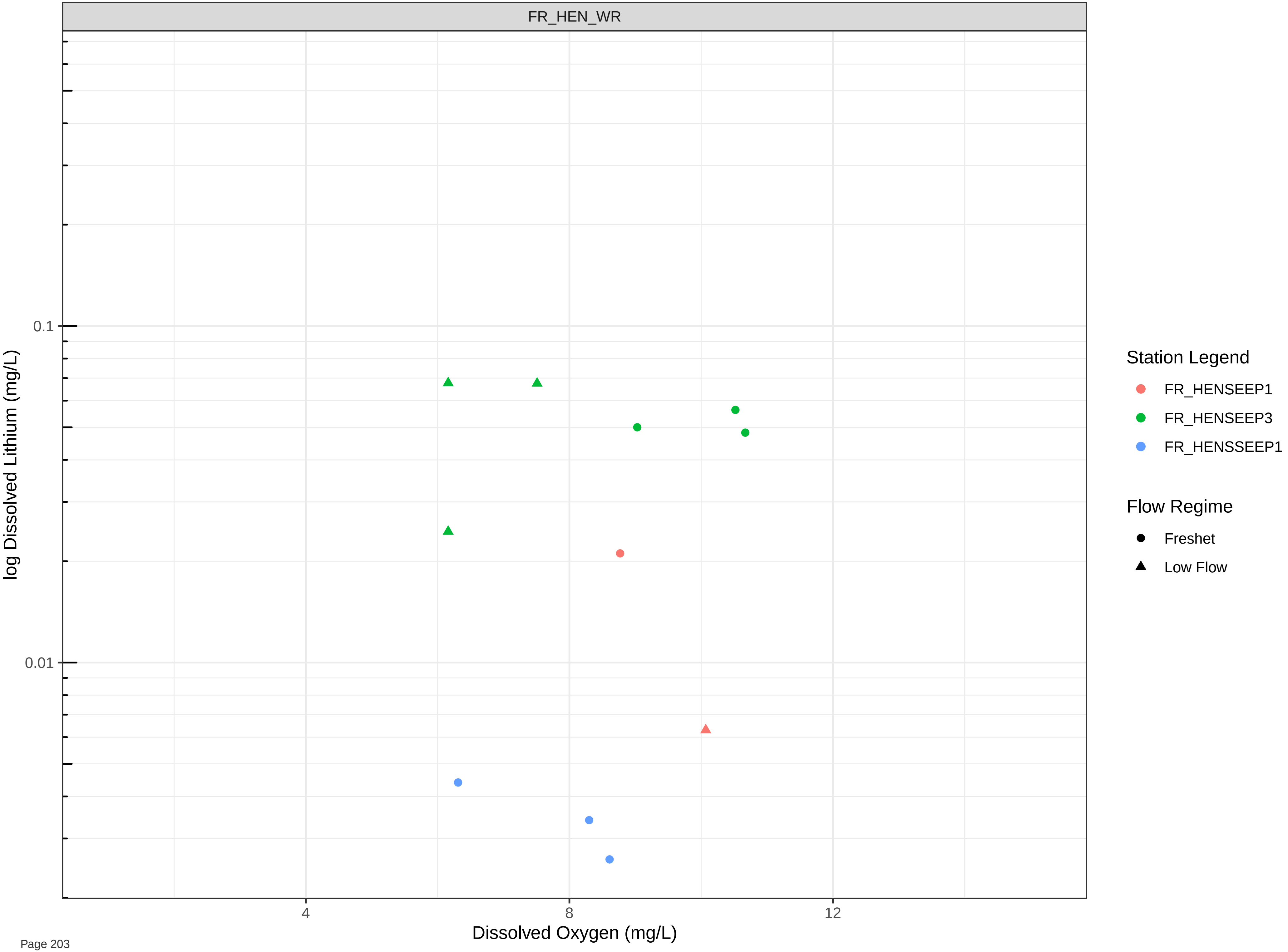

FR_Blain_CCR
log Dissolved Lithium (mg/L)
0.1
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

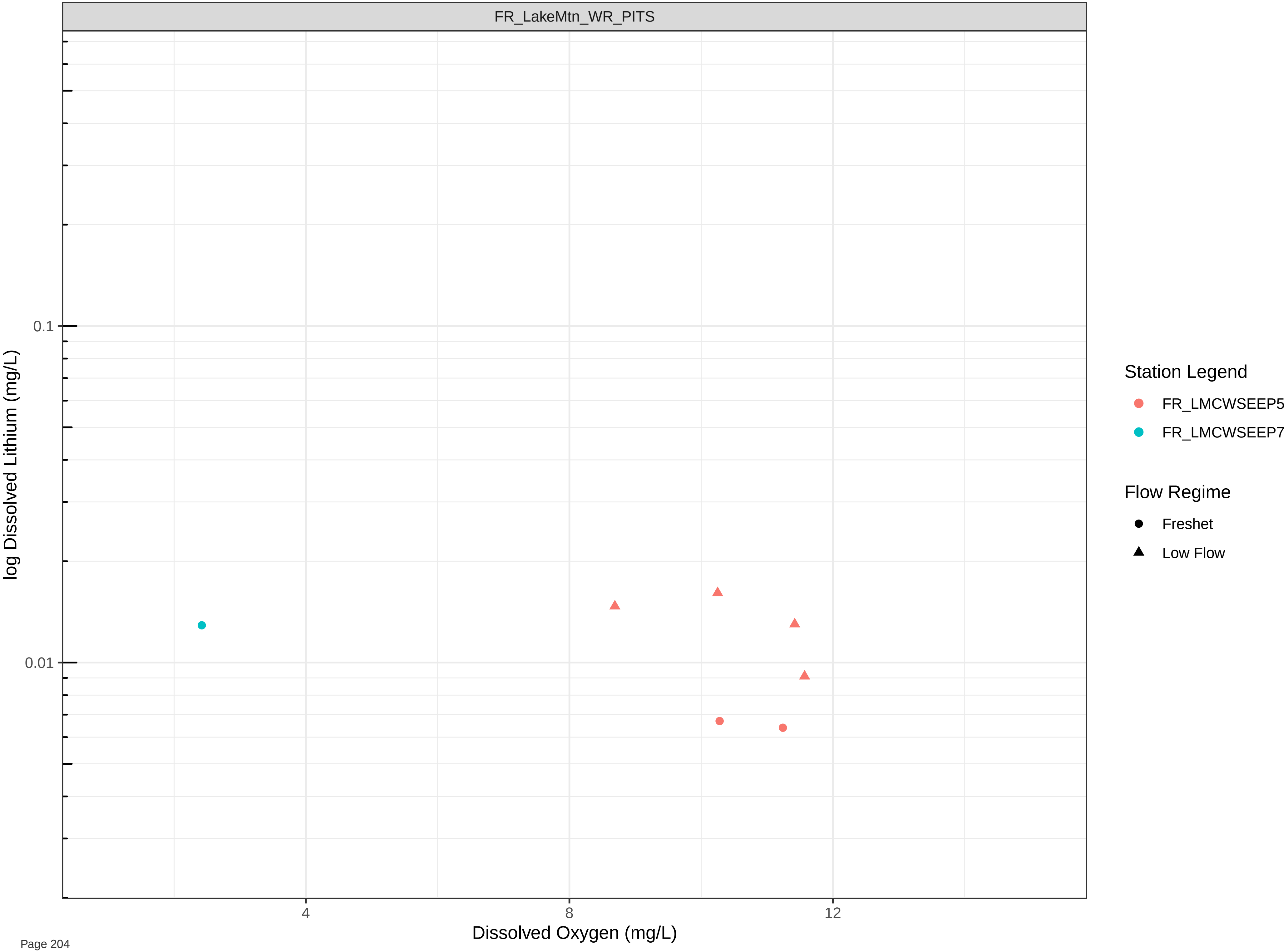

FR_ClodeCr_WR
log Dissolved Lithium (mg/L)
0.1
0.01
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

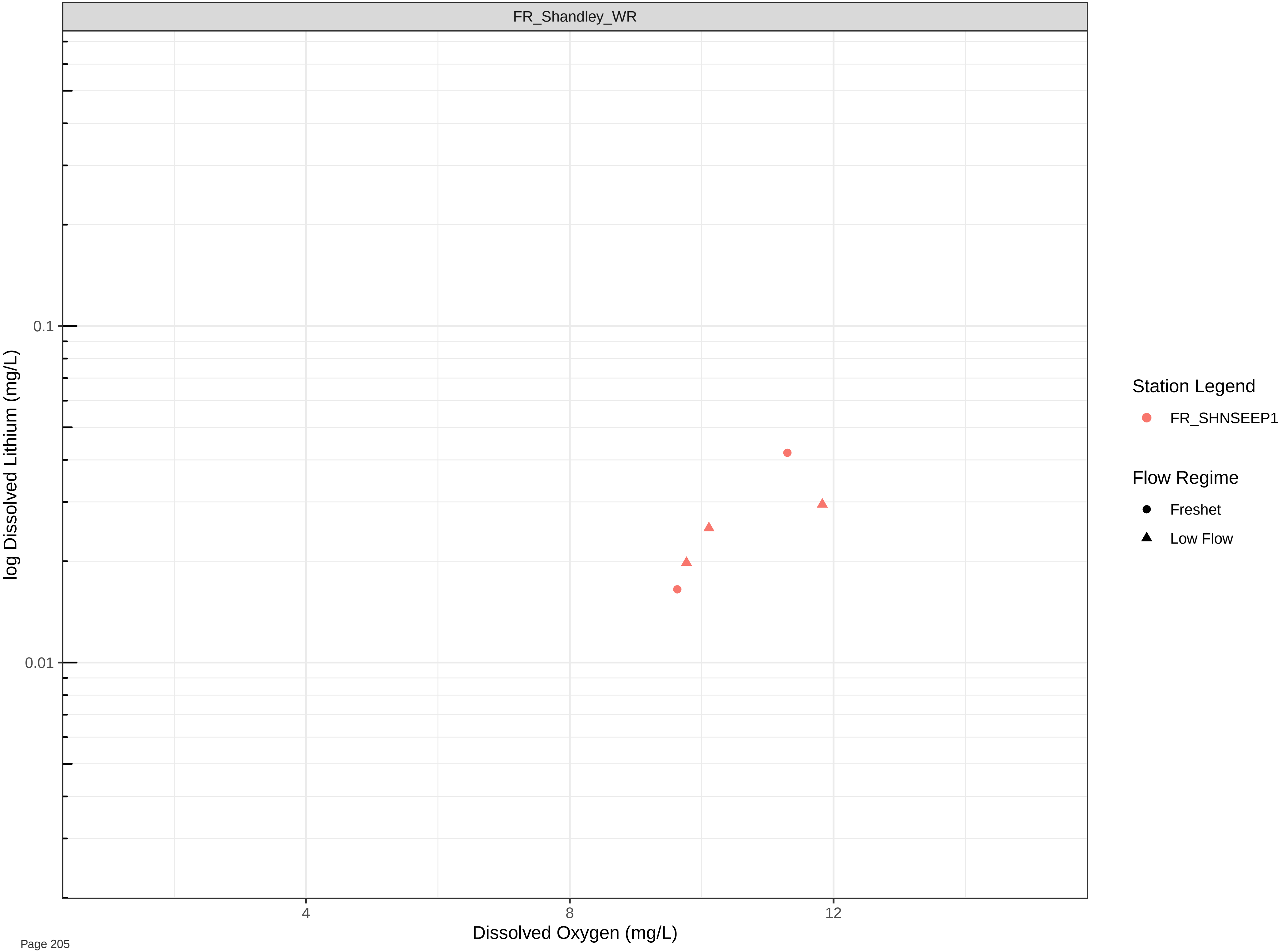

FR_DOKA_Unknown
log Dissolved Lithium (mg/L)
0.1
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

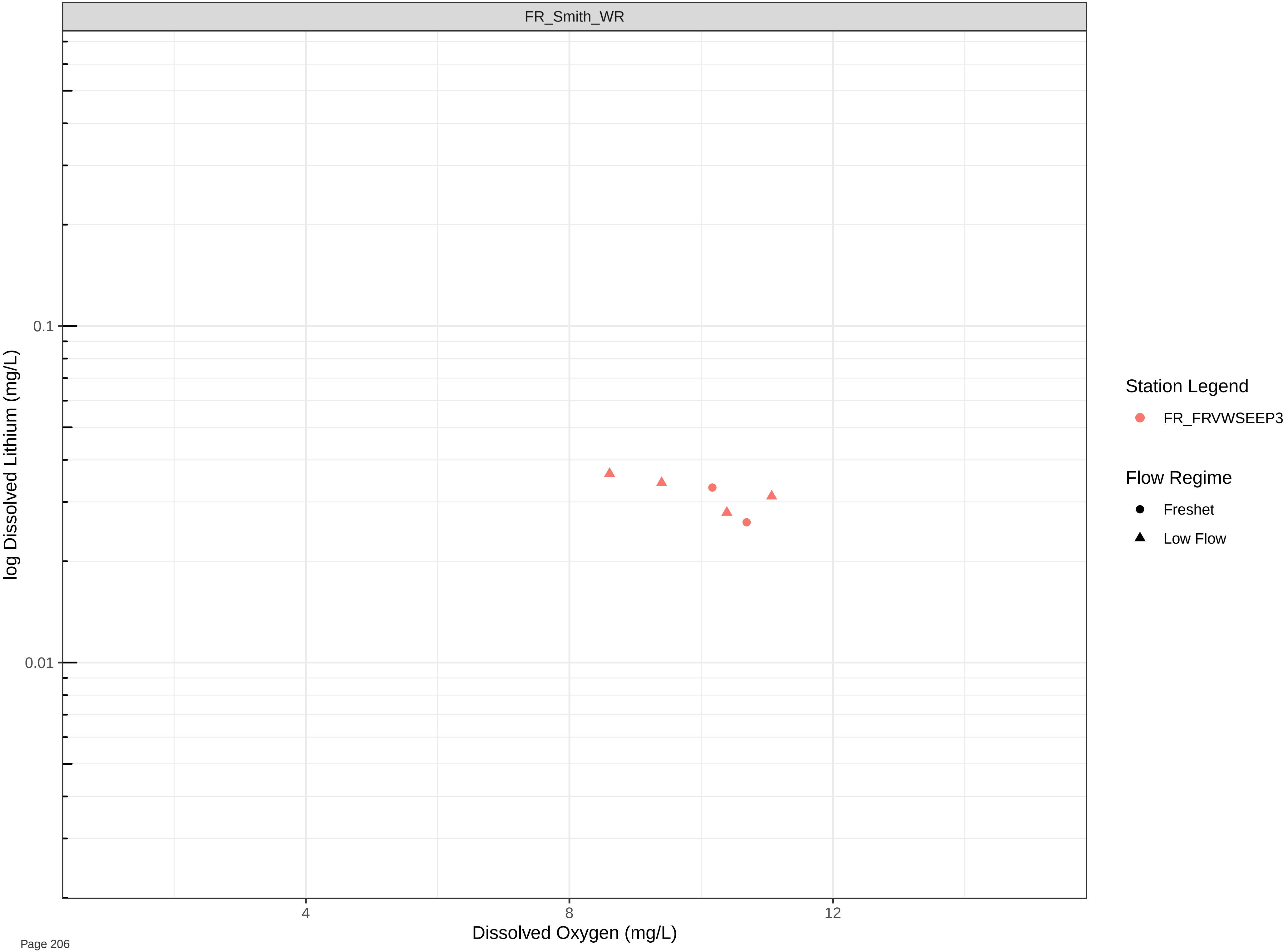

FR_Eagle_WR
0.1
0.01
log Dissolved Lithium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow


FR_Fseam_WR
log Dissolved Lithium (mg/L)
0.1
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow


FR_HEN_WR
log Dissolved Lithium (mg/L)
0.1
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow


FR_LakeMtn_WR_PITS
log Dissolved Lithium (mg/L)
0.1
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow


FR_Shandley_WR
0.1
0.01
log Dissolved Lithium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow


FR_Smith_WR
log Dissolved Lithium (mg/L)
0.1
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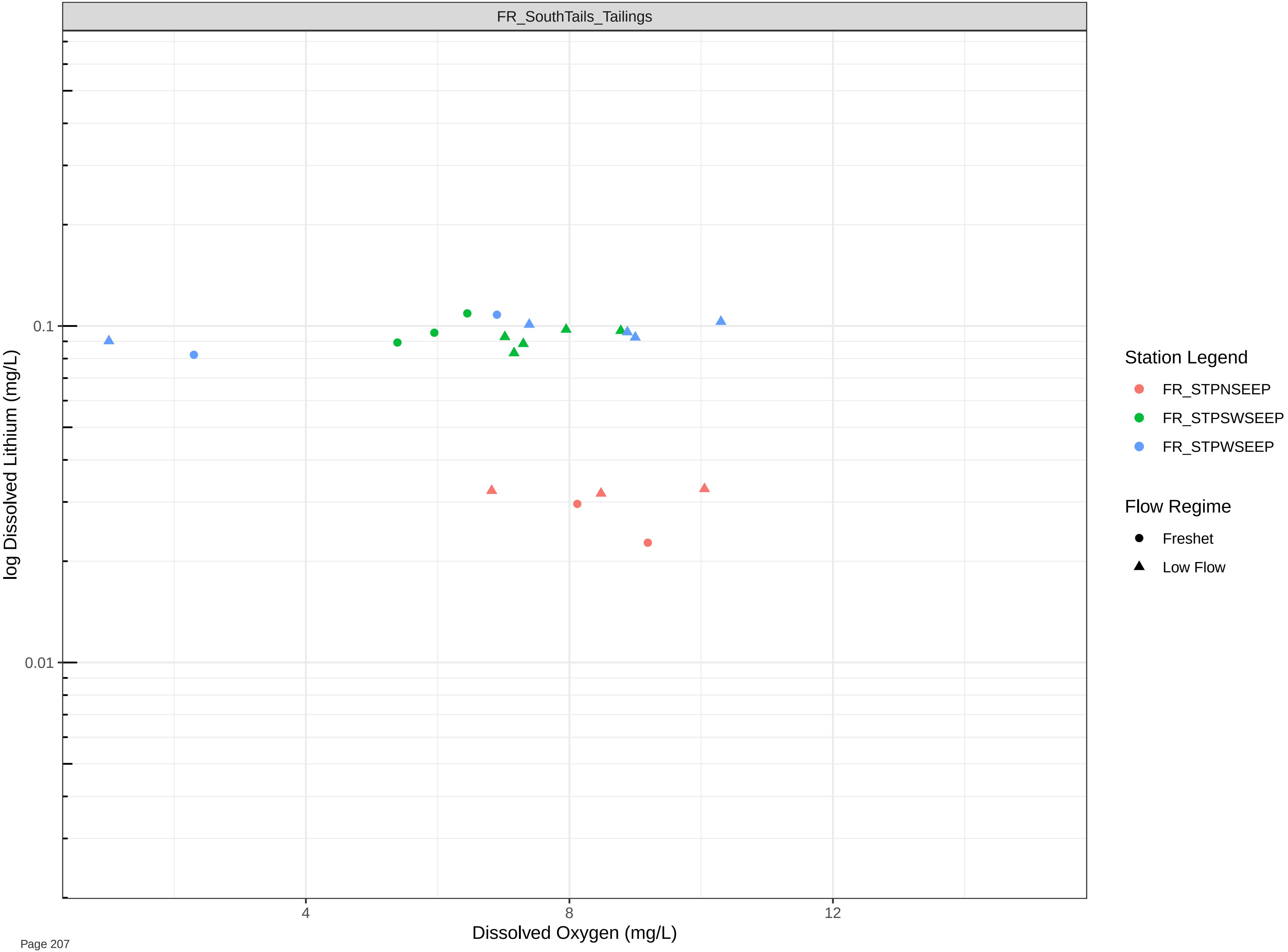
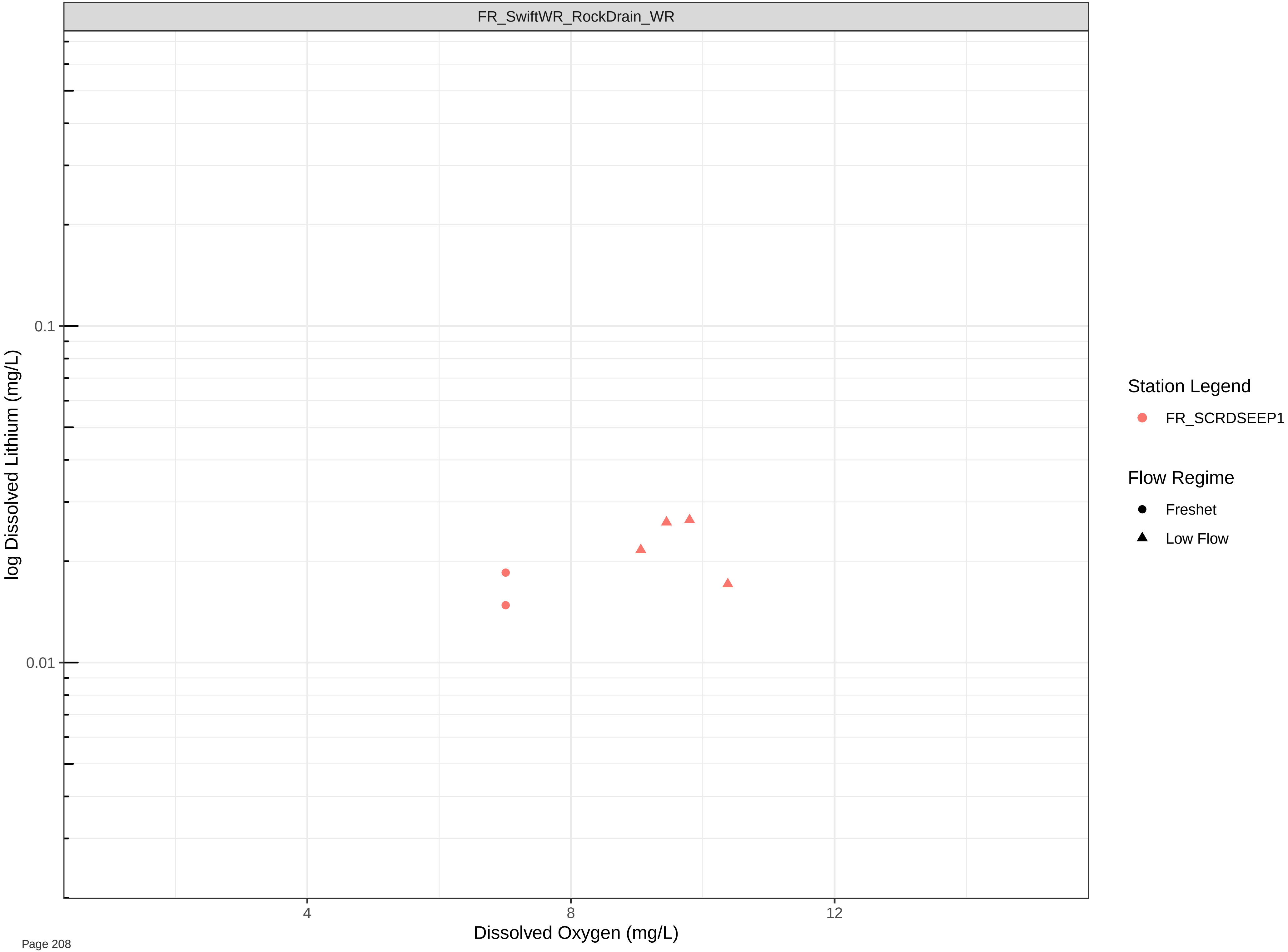
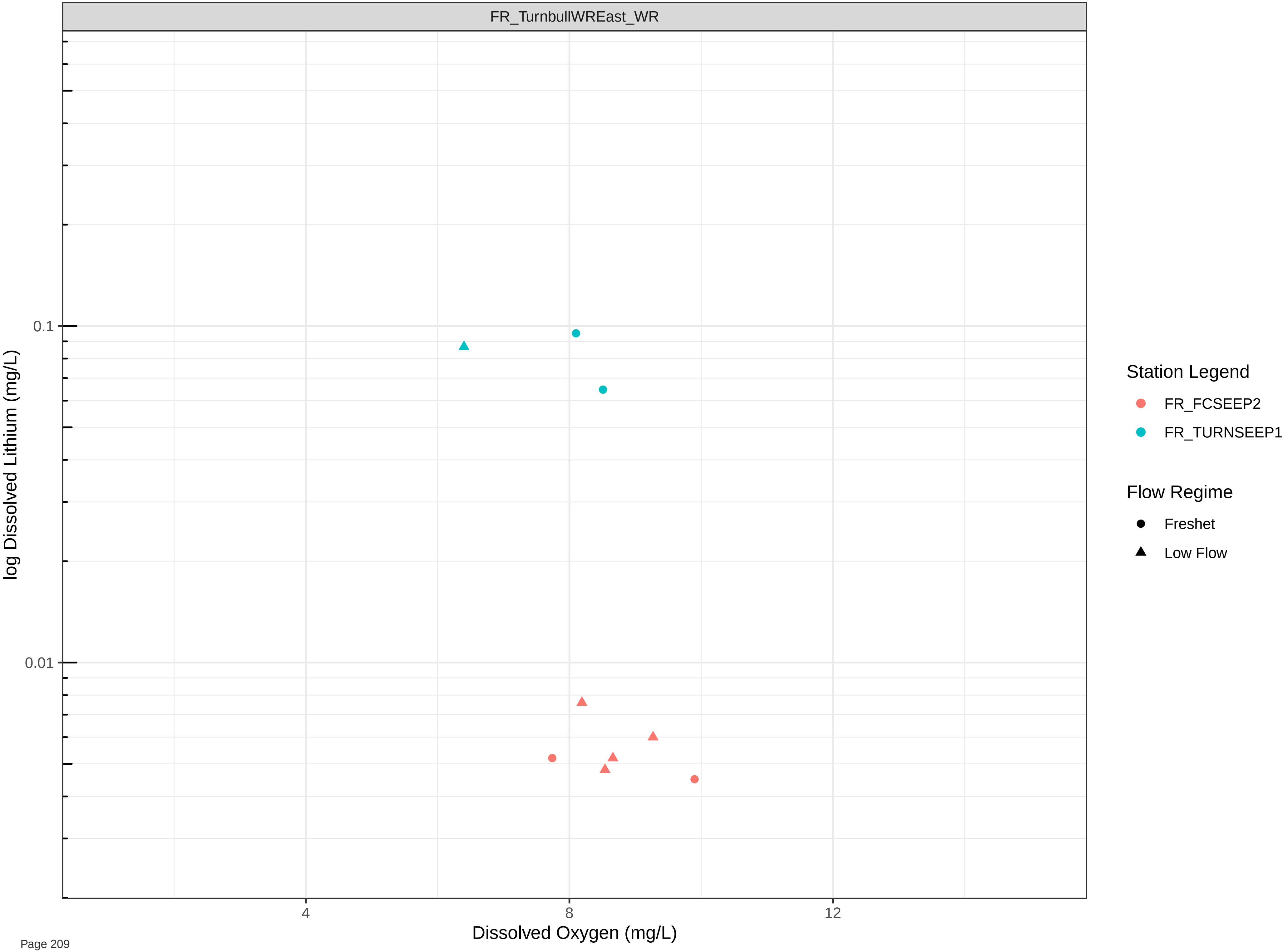
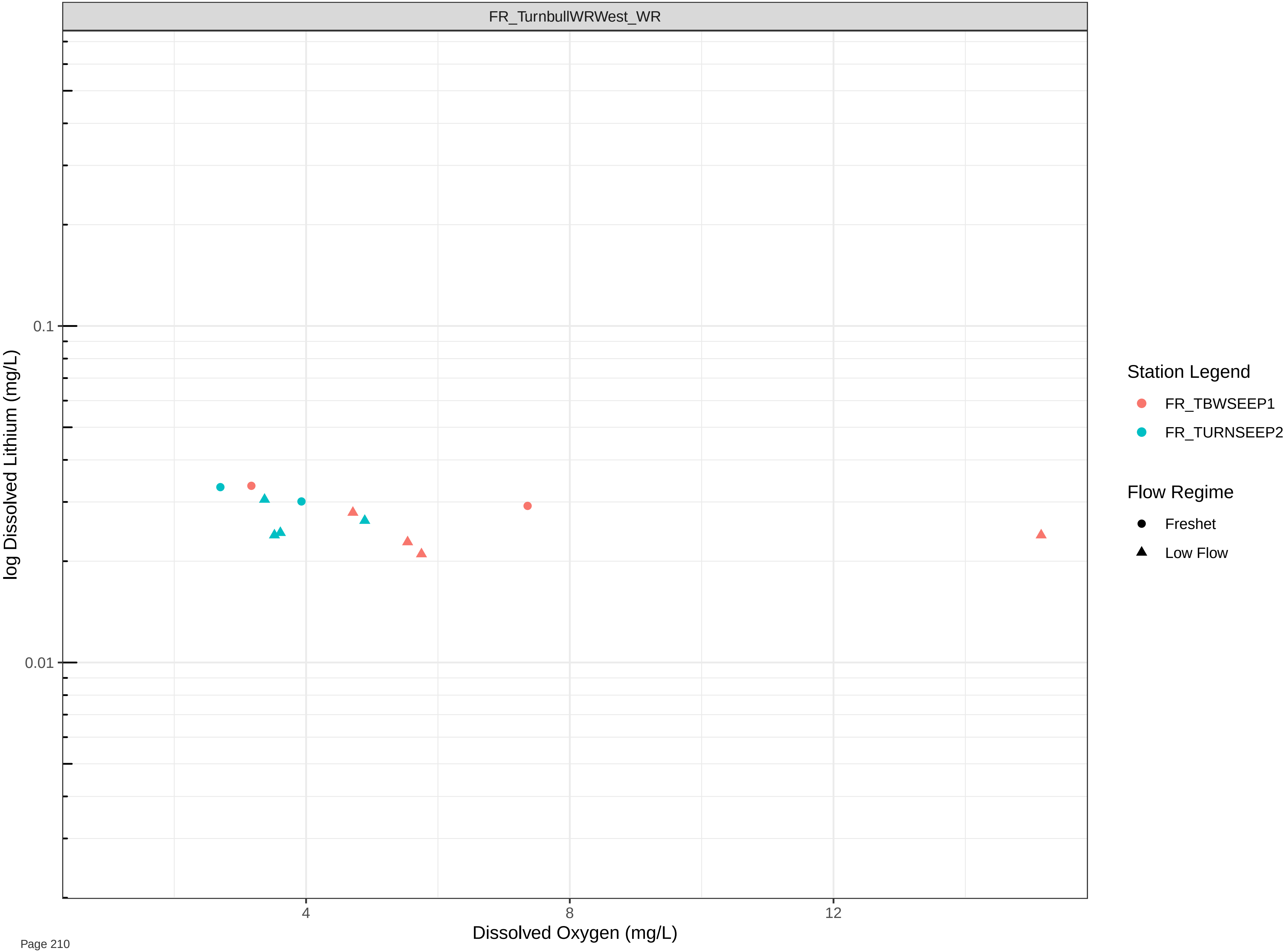
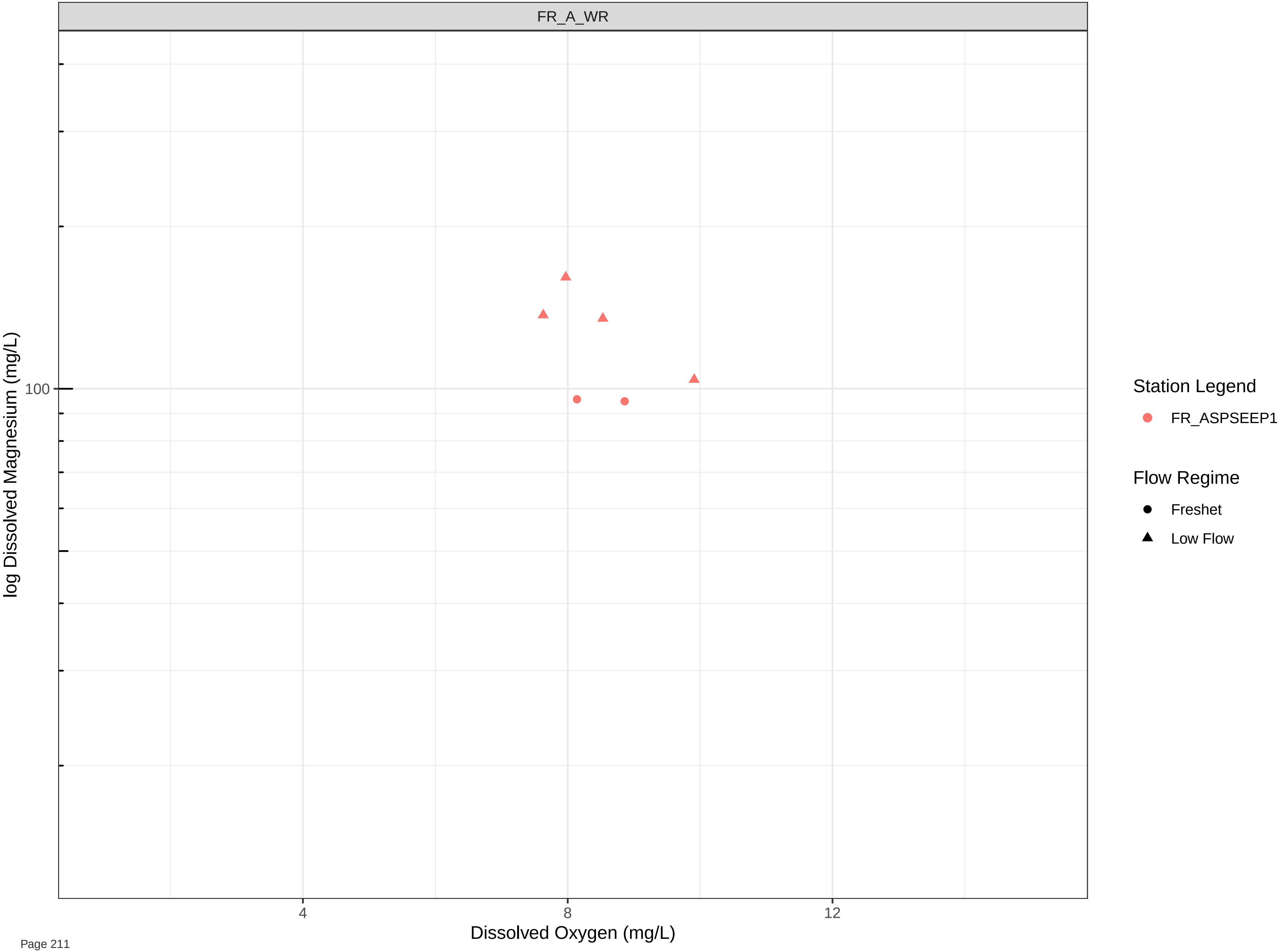
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

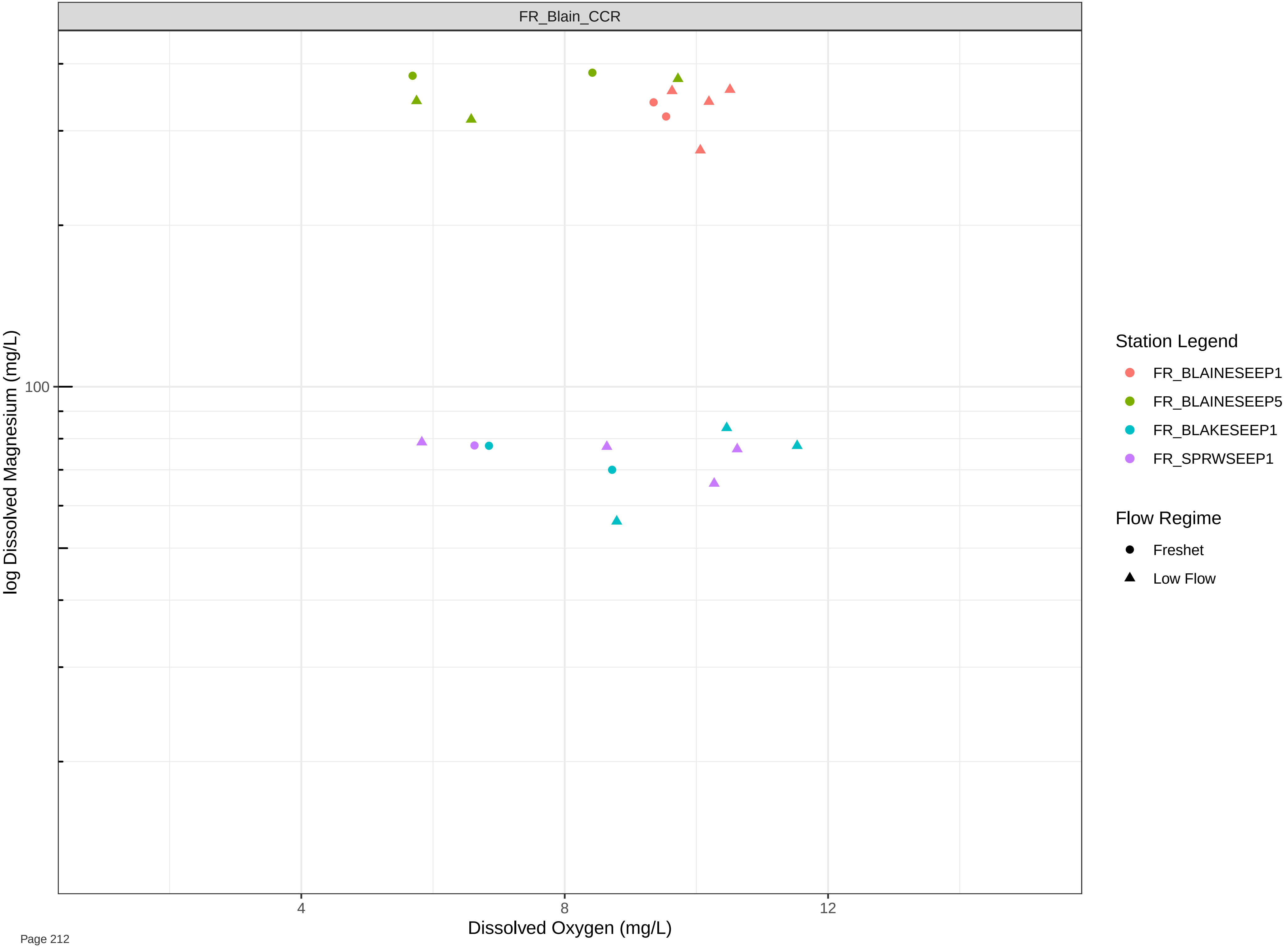

FR_SouthTails_Tailings
log Dissolved Lithium (mg/L)
0.1
0.01
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

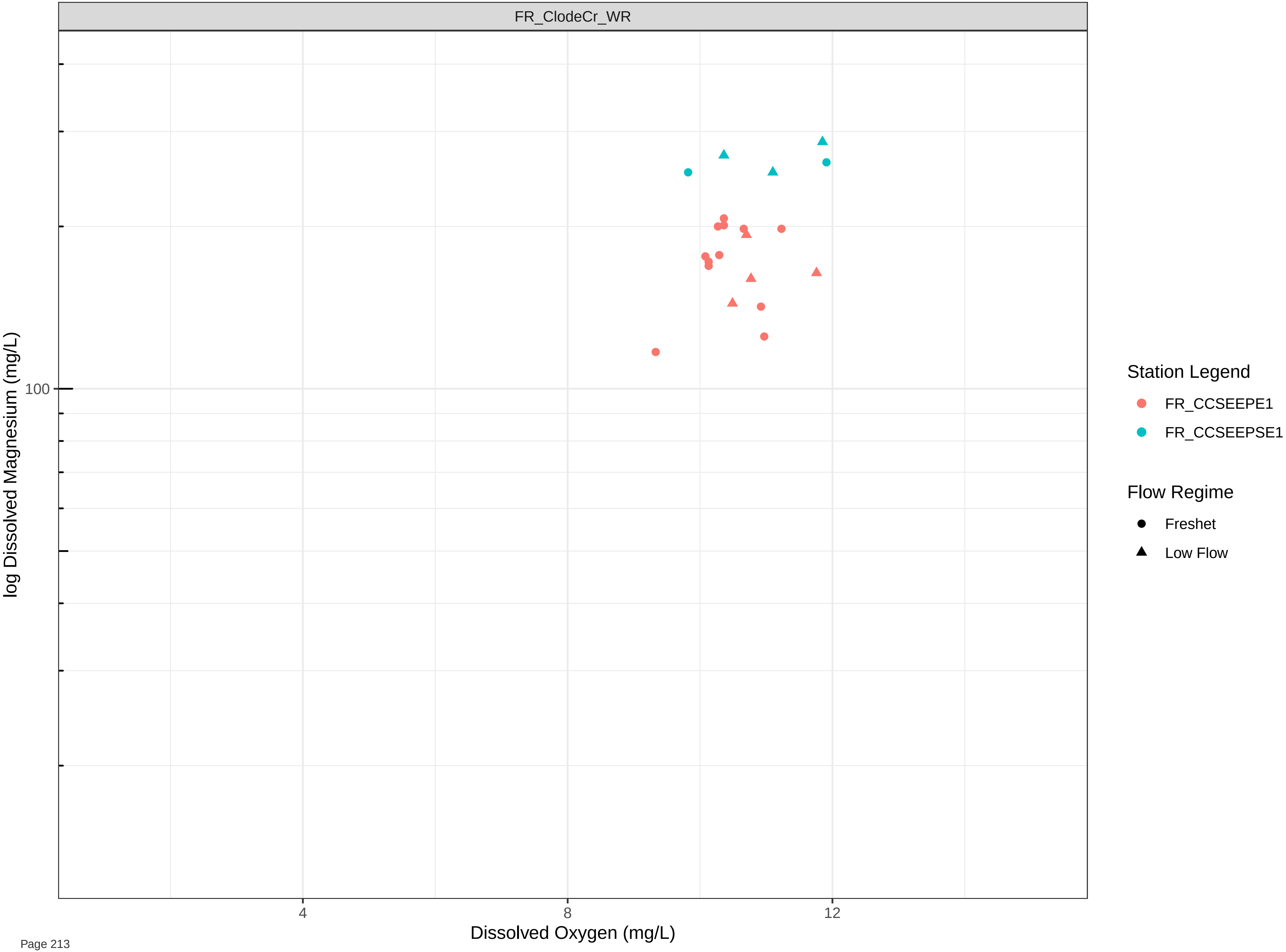

FR_SwiftWR_RockDrain_WR
log Dissolved Lithium (mg/L)
0.1
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

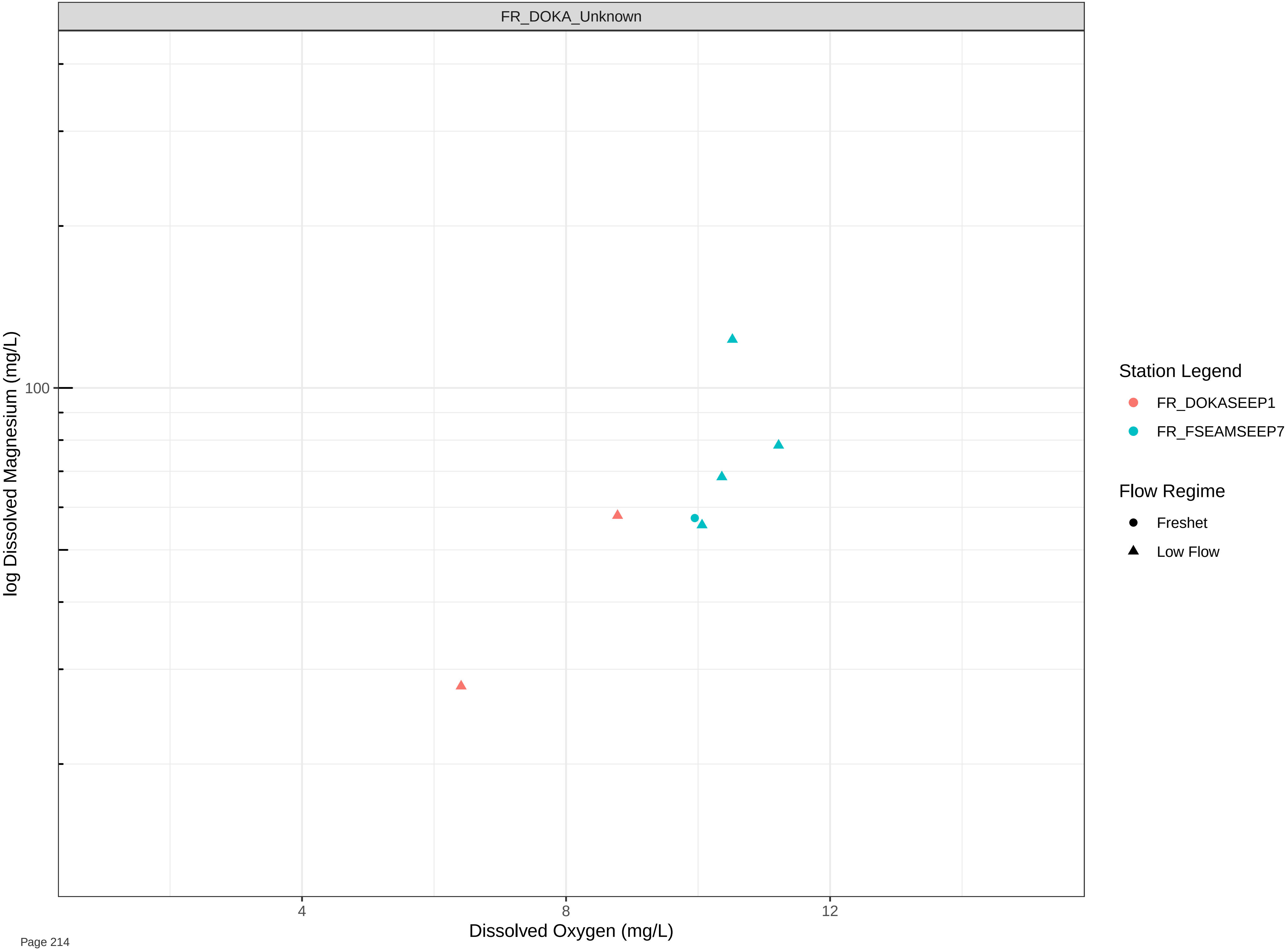

FR_TurnbullWREast_WR
log Dissolved Lithium (mg/L)
0.1
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FCSEEP2
● FR_TURNSEEP1
Flow Regime
● Freshet
▲ Low Flow

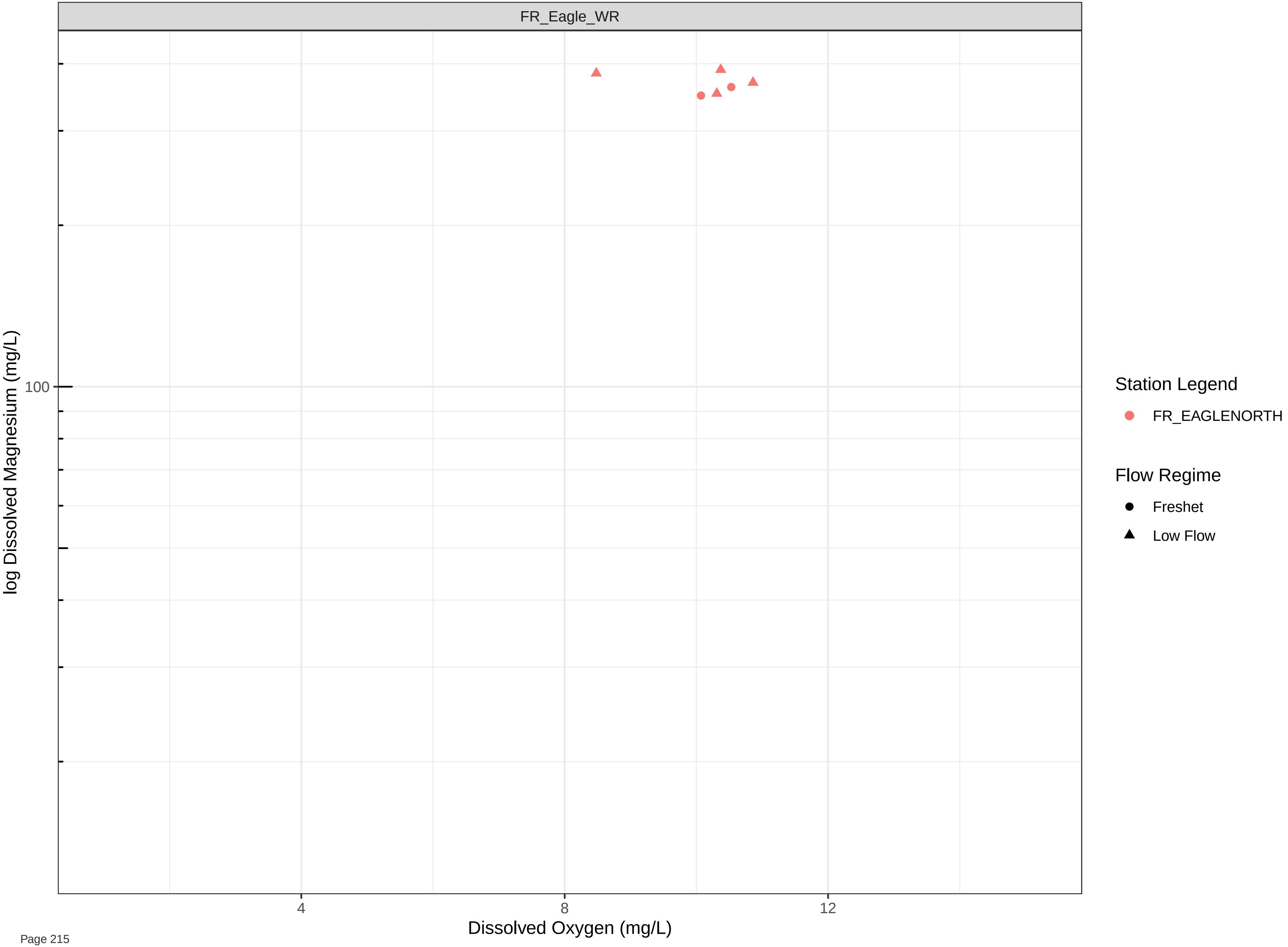

FR_TurnbullWRWest_WR
log Dissolved Lithium (mg/L)
0.1
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_TBWSEEP1
● FR_TURNSEEP2
Flow Regime
● Freshet
▲ Low Flow

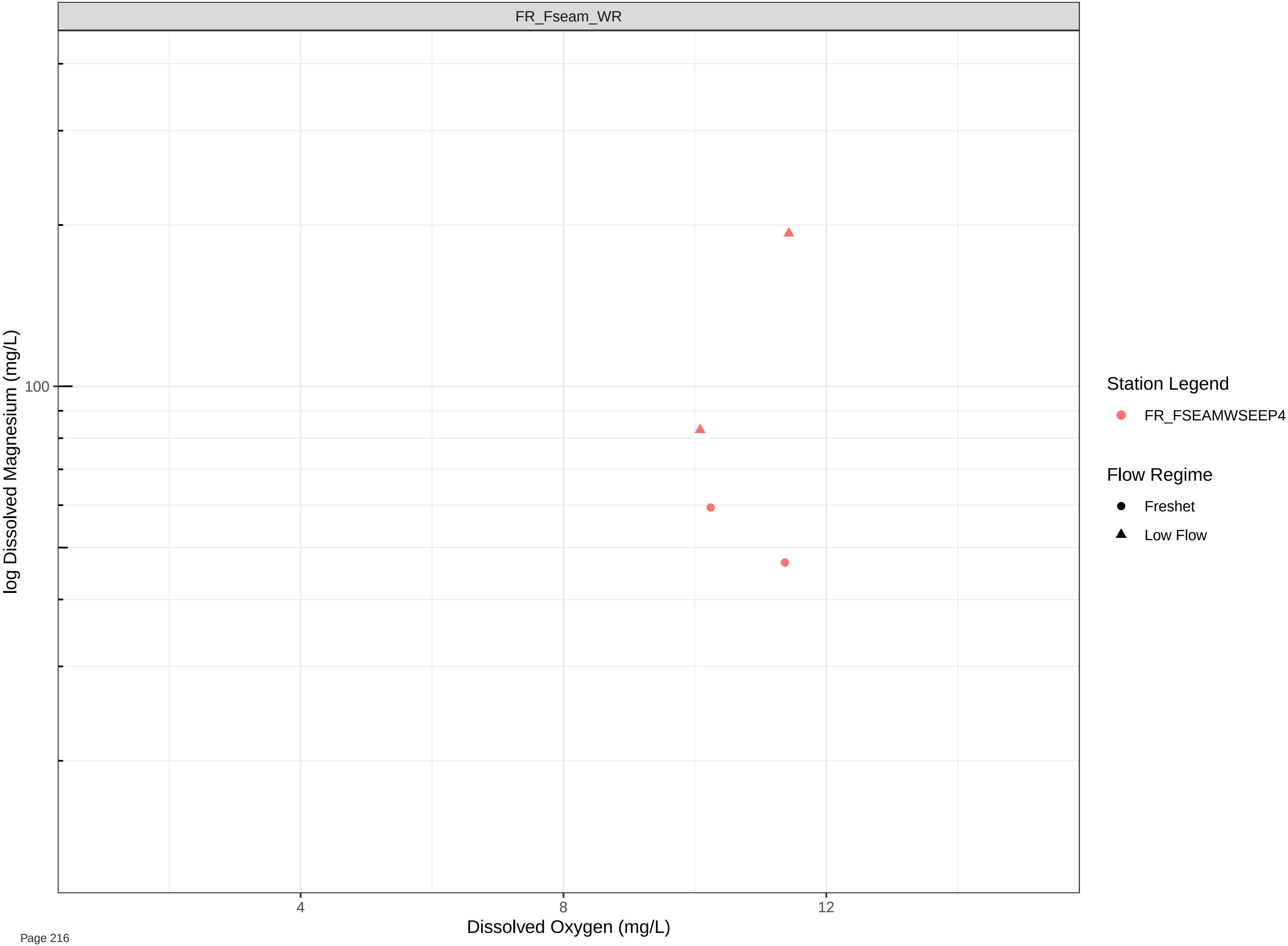

FR_A_WR
log Dissolved Magnesium (mg/L)
100
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

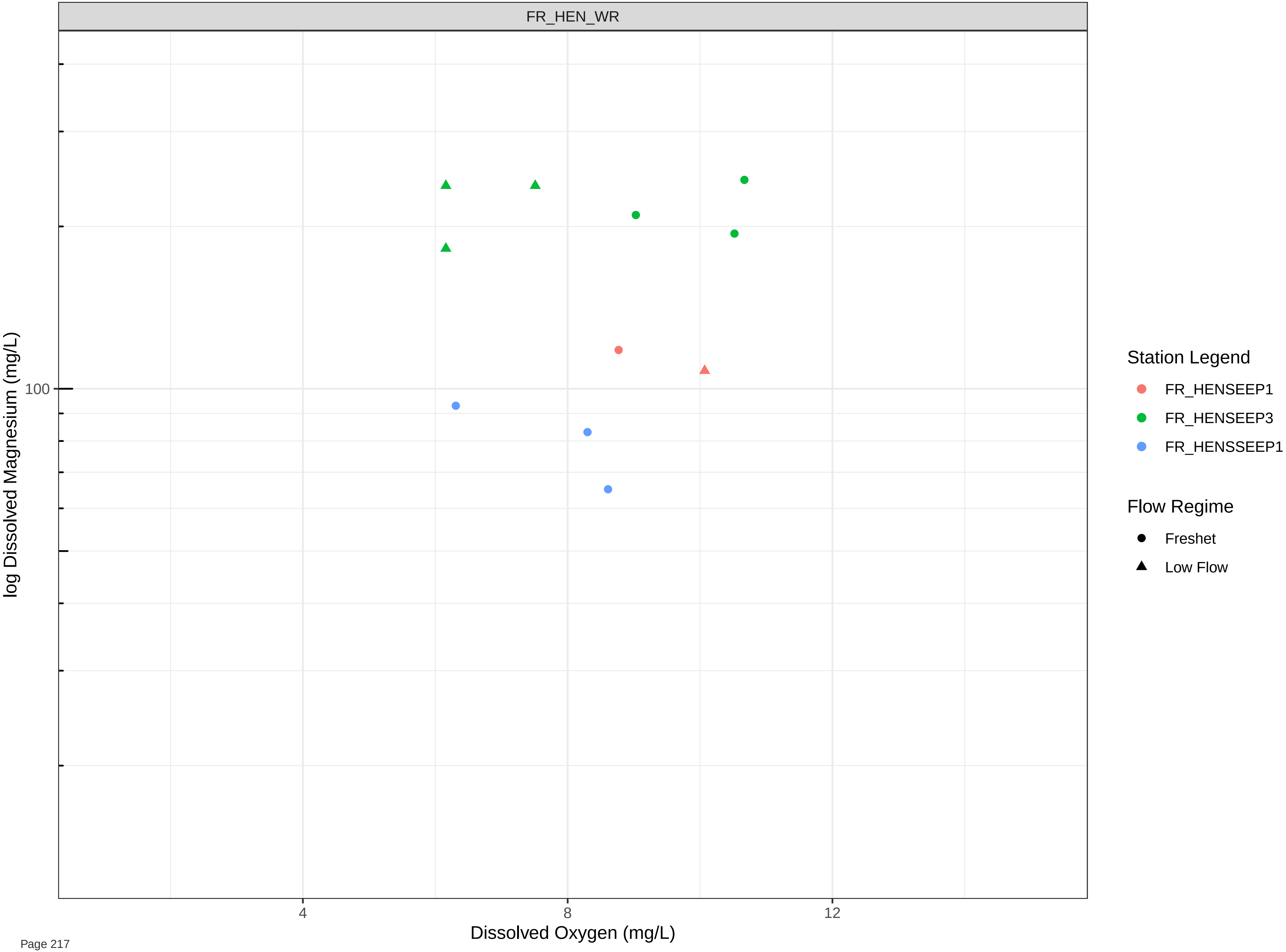

FR_Blain_CCR
log Dissolved Magnesium (mg/L)
100
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow

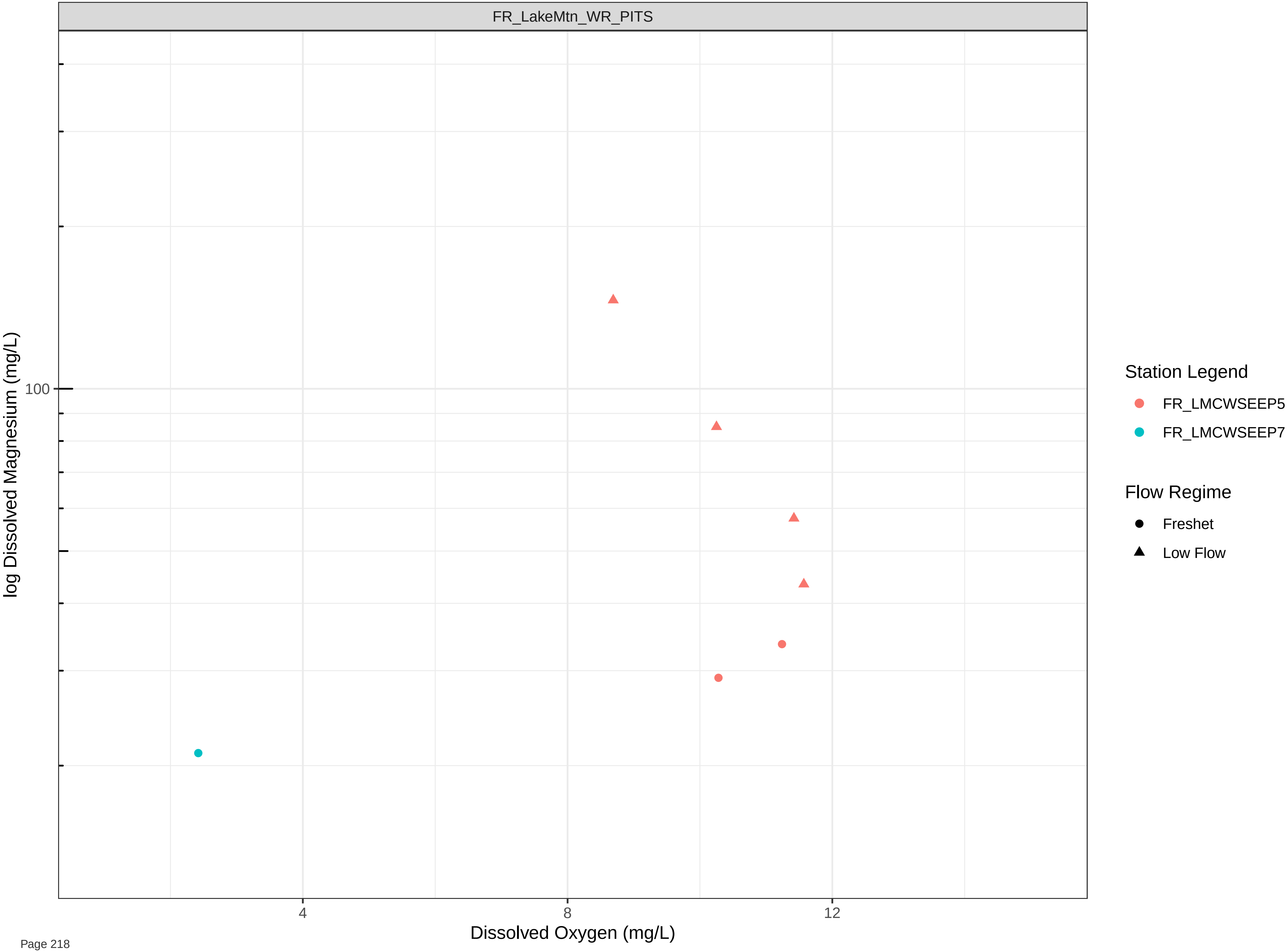

FR_ClodeCr_WR
log Dissolved Magnesium (mg/L)
100
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

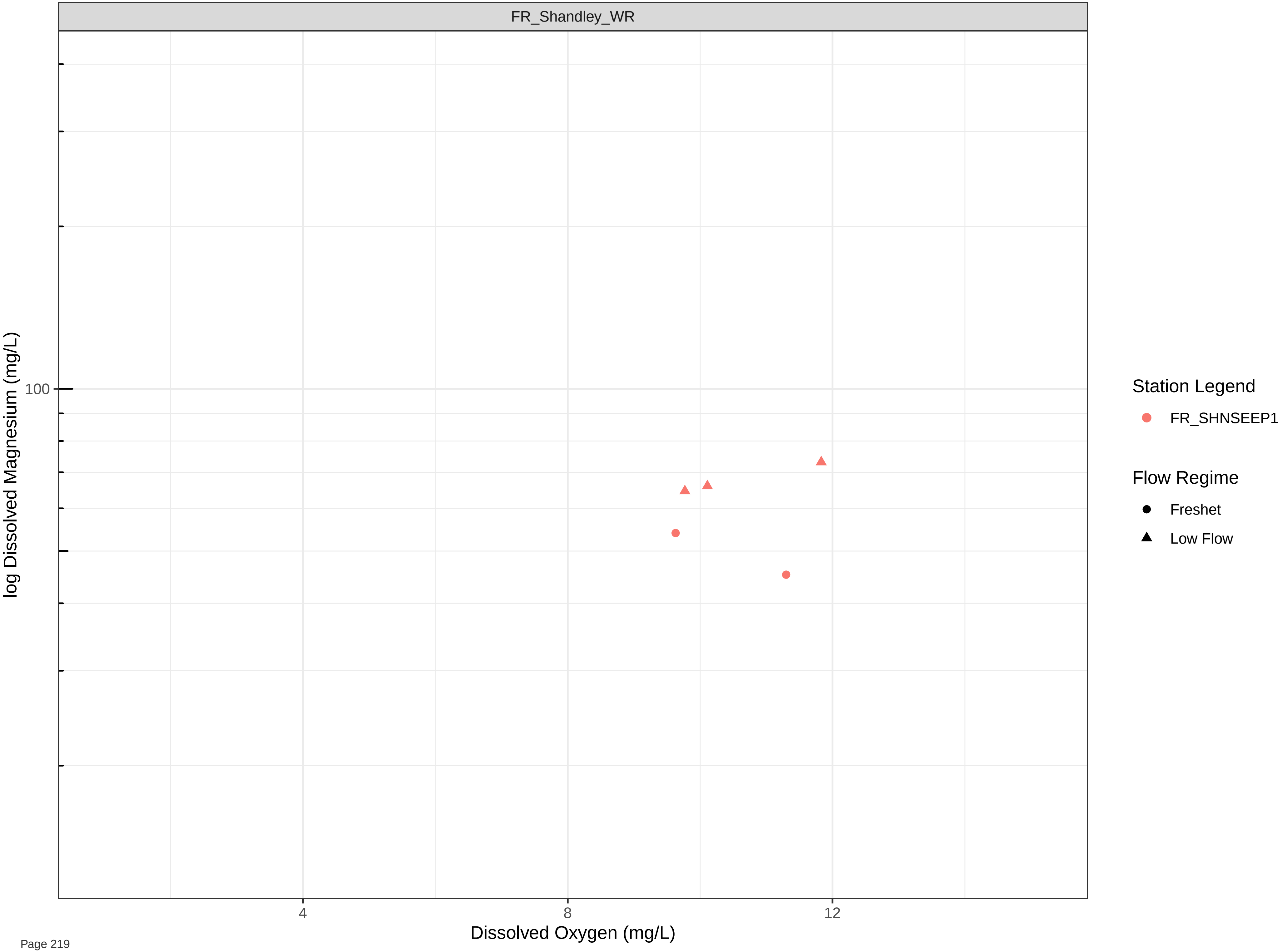

FR_DOKA_Unknown
log Dissolved Magnesium (mg/L)
100
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow

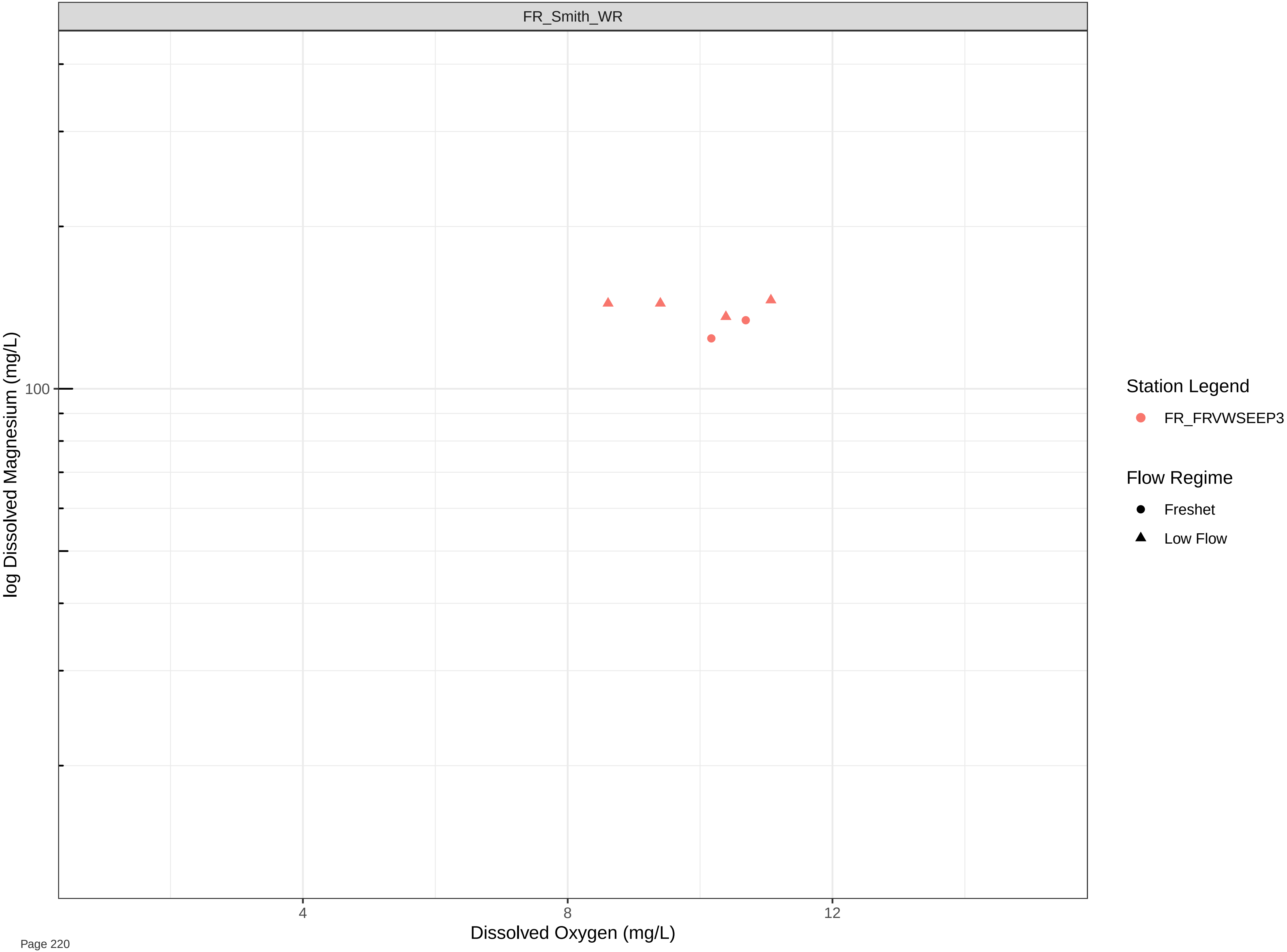

FR_Eagle_WR
log Dissolved Magnesium (mg/L)
100
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

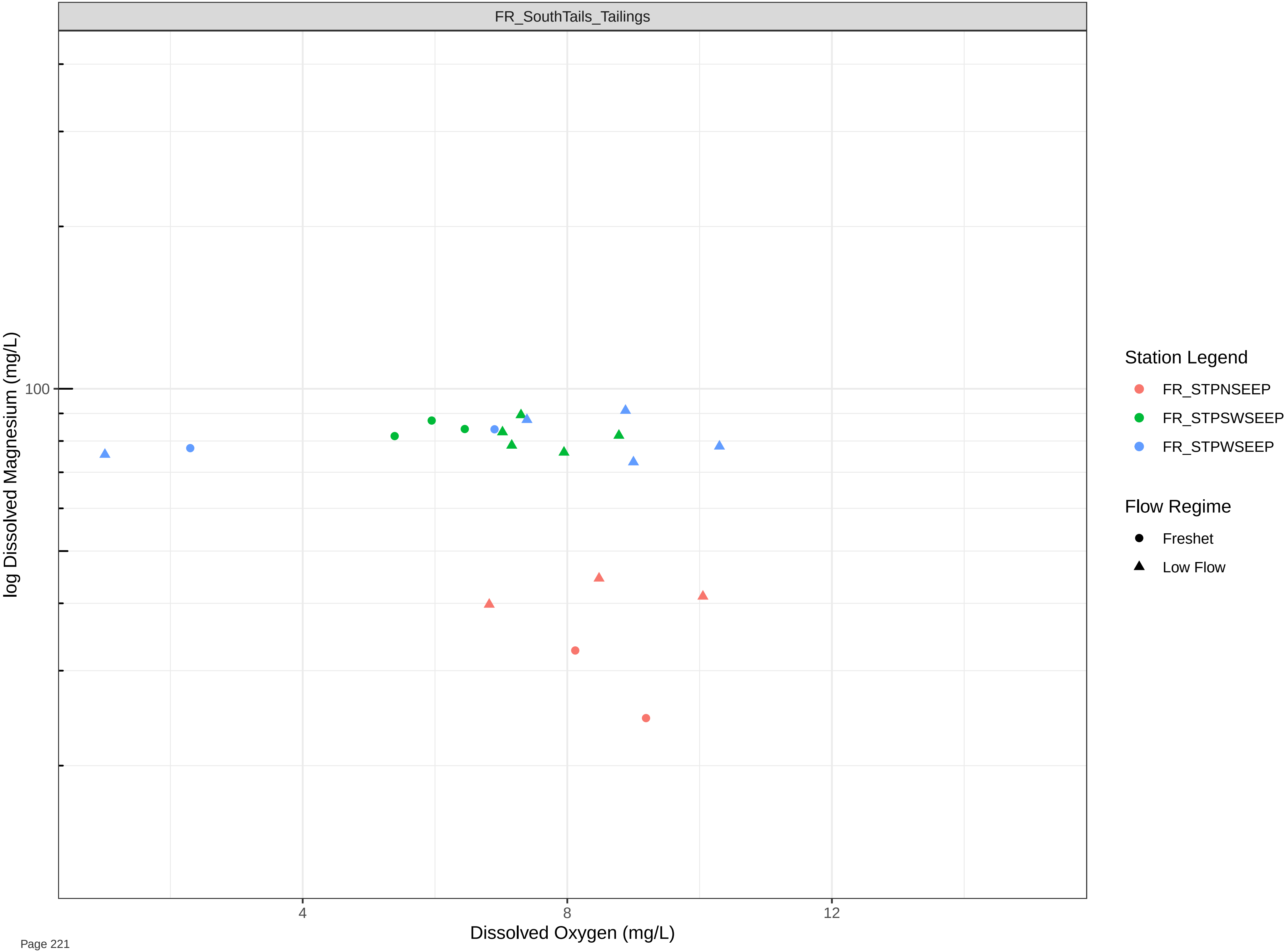

FR_Fseam_WR
log Dissolved Magnesium (mg/L)
100
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

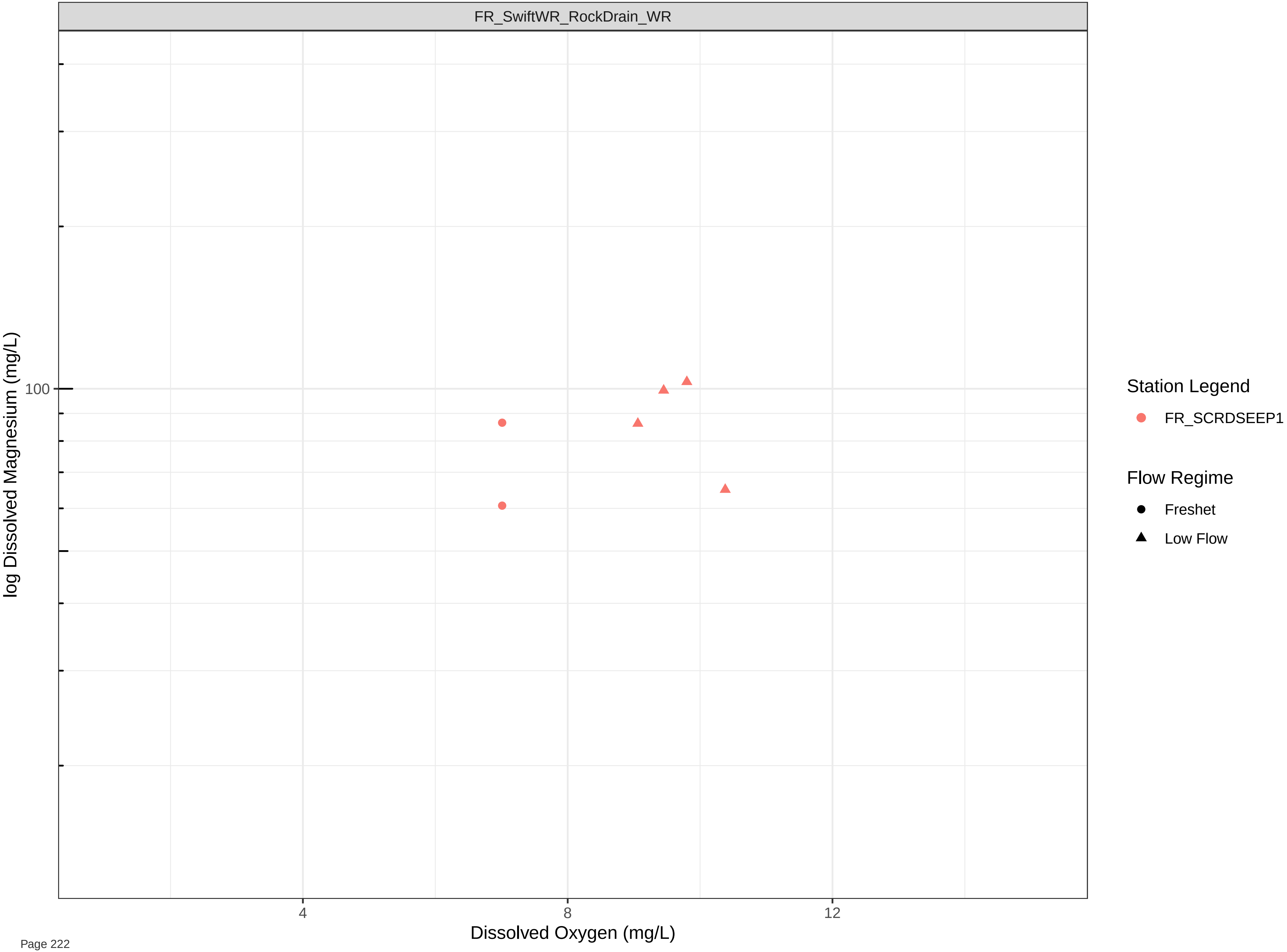

FR_HEN_WR
log Dissolved Magnesium (mg/L)
100
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

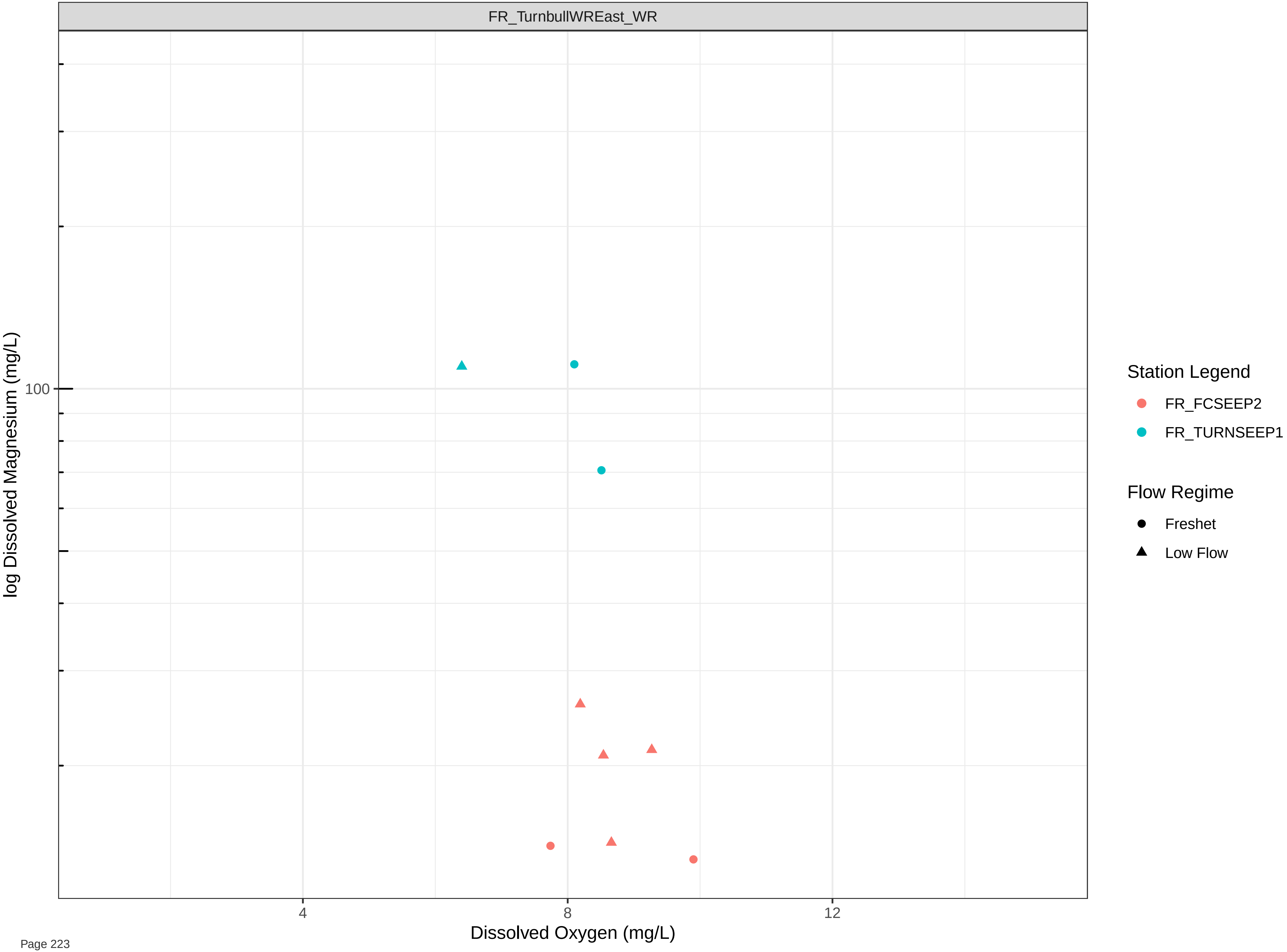

FR_LakeMtn_WR_PITS
log Dissolved Magnesium (mg/L)
100
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow

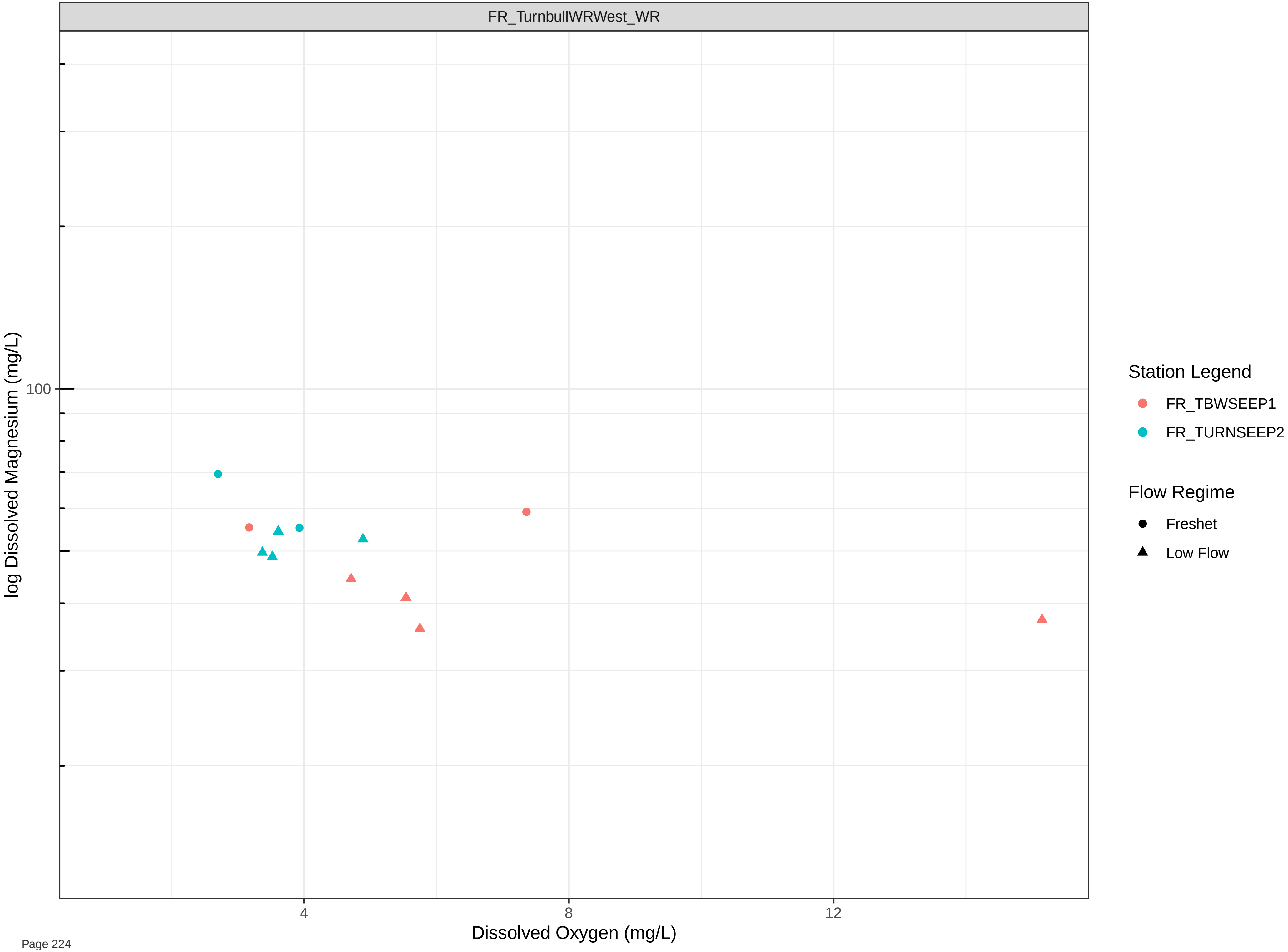

FR_Shandley_WR
log Dissolved Magnesium (mg/L)
100
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

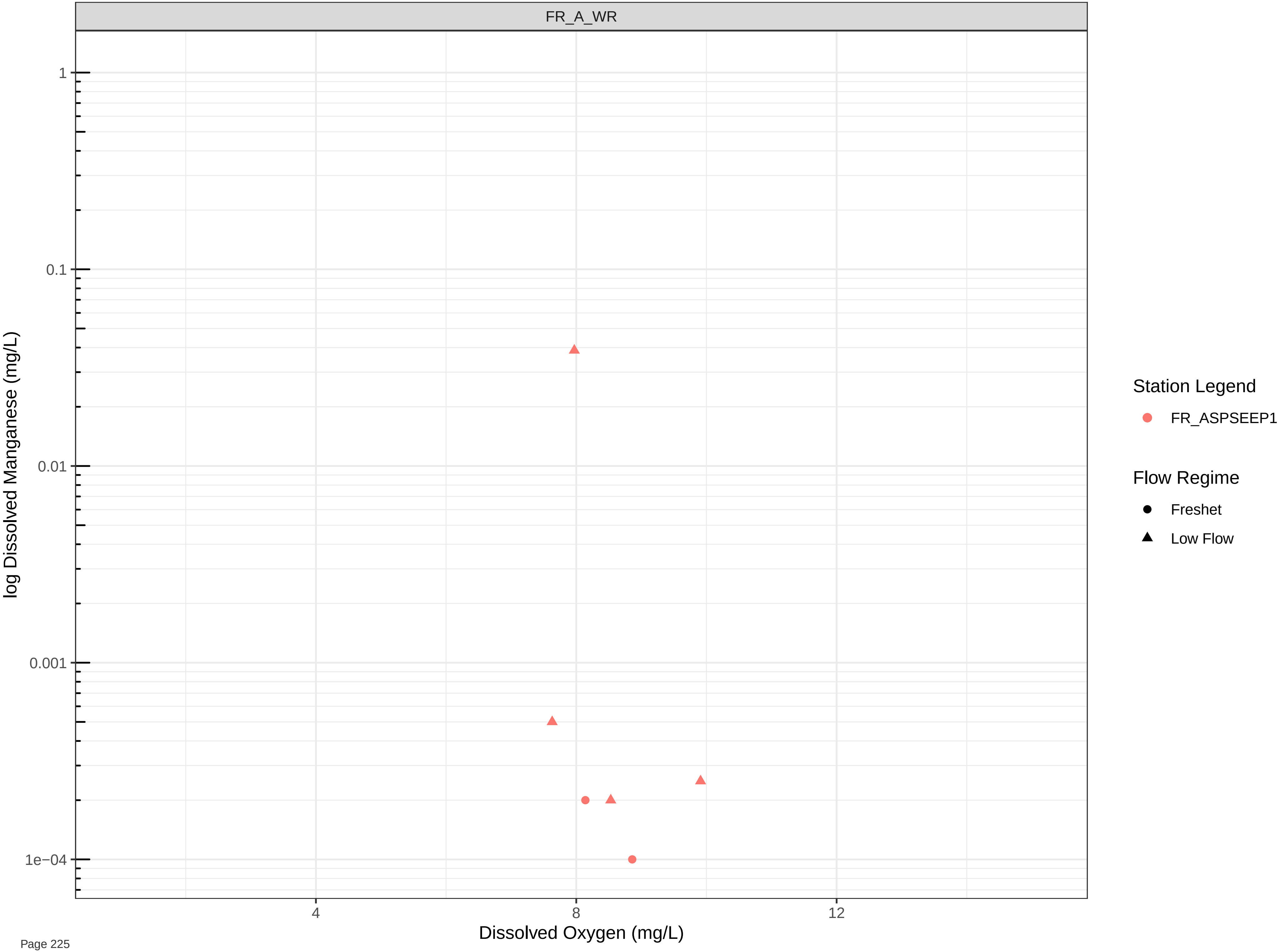

FR_Smith_WR
log Dissolved Magnesium (mg/L)
100
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

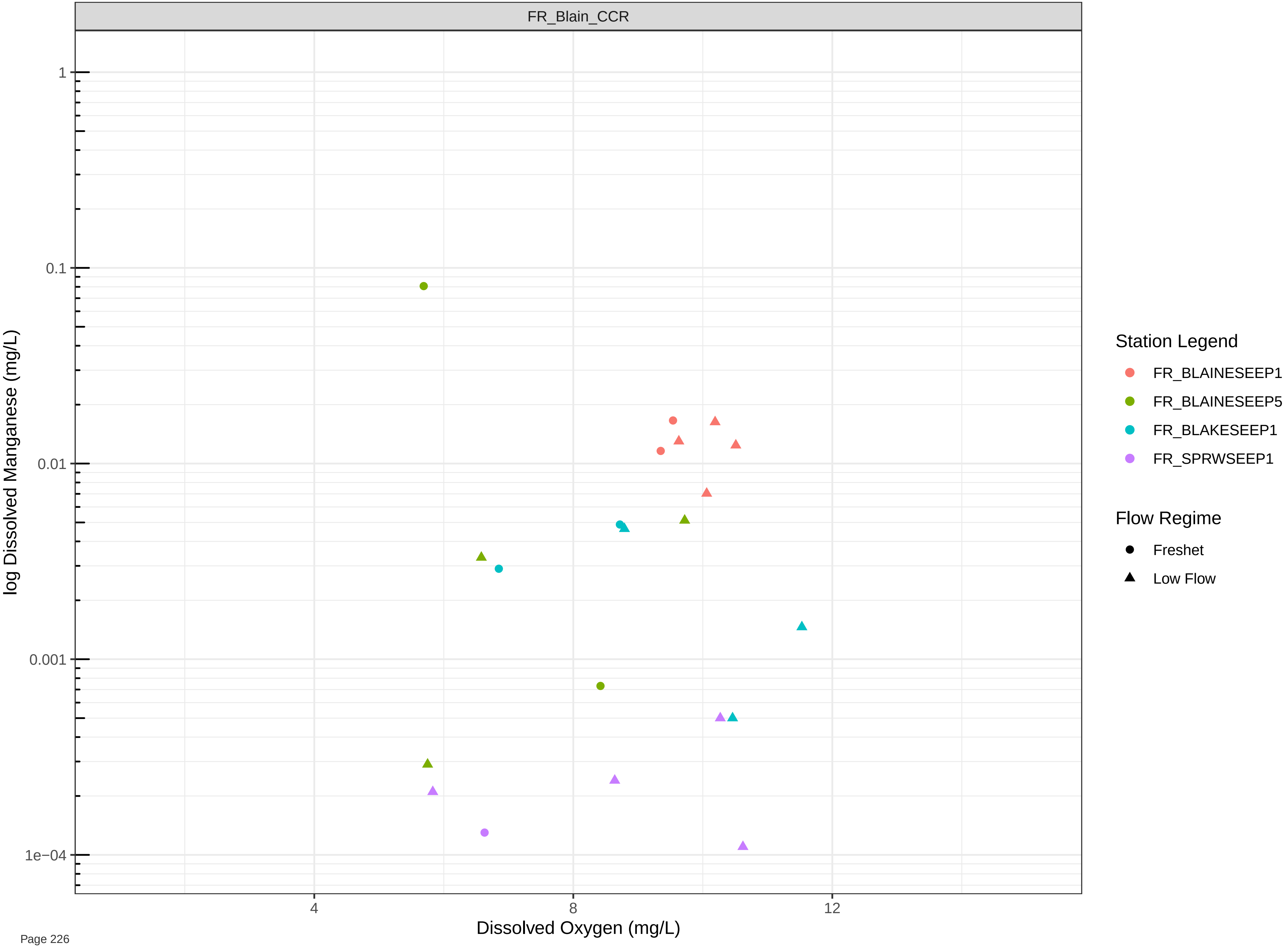

FR_SouthTails_Tailings
log Dissolved Magnesium (mg/L)
100
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

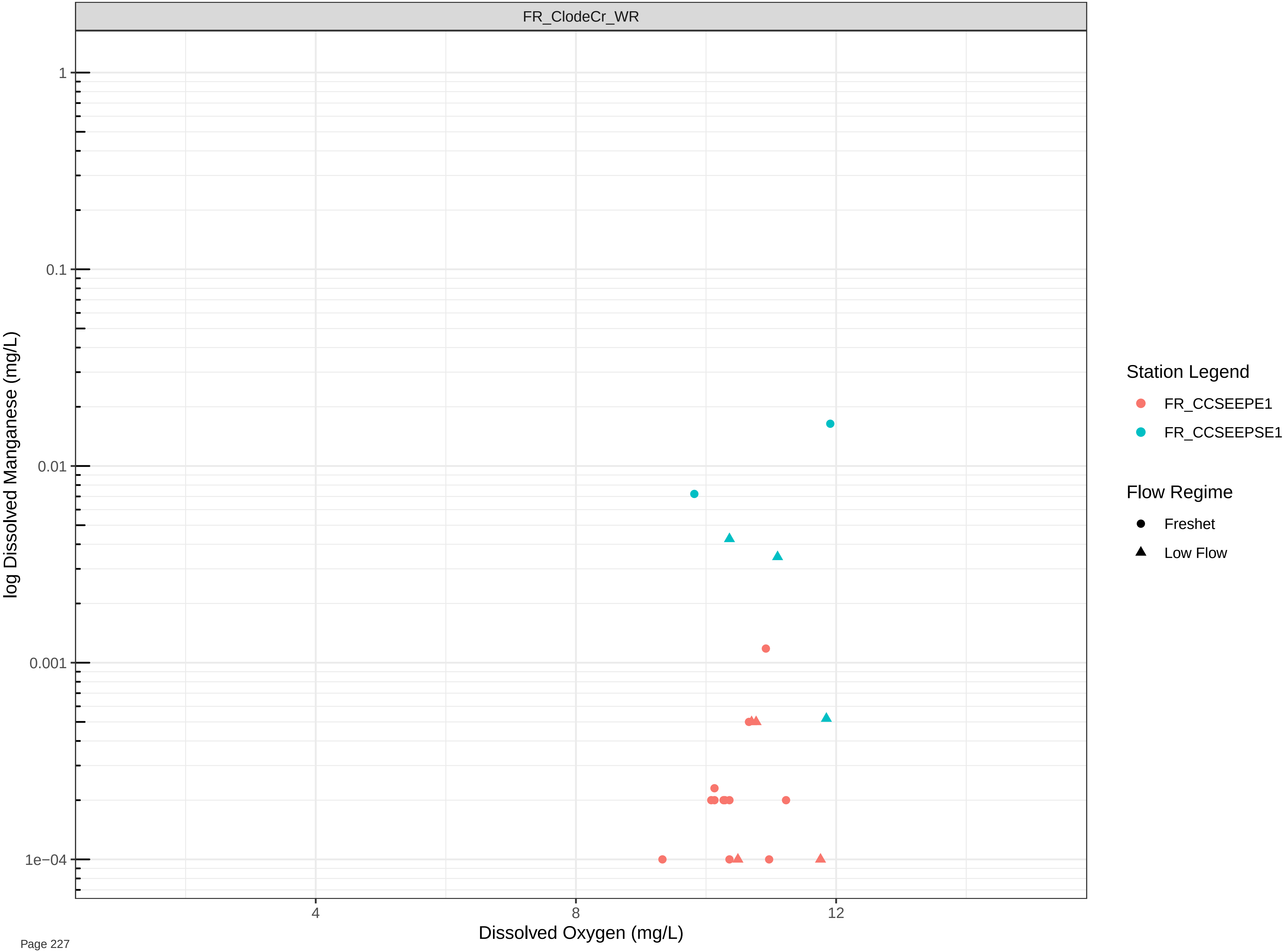

FR_SwiftWR_RockDrain_WR
log Dissolved Magnesium (mg/L)
100
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

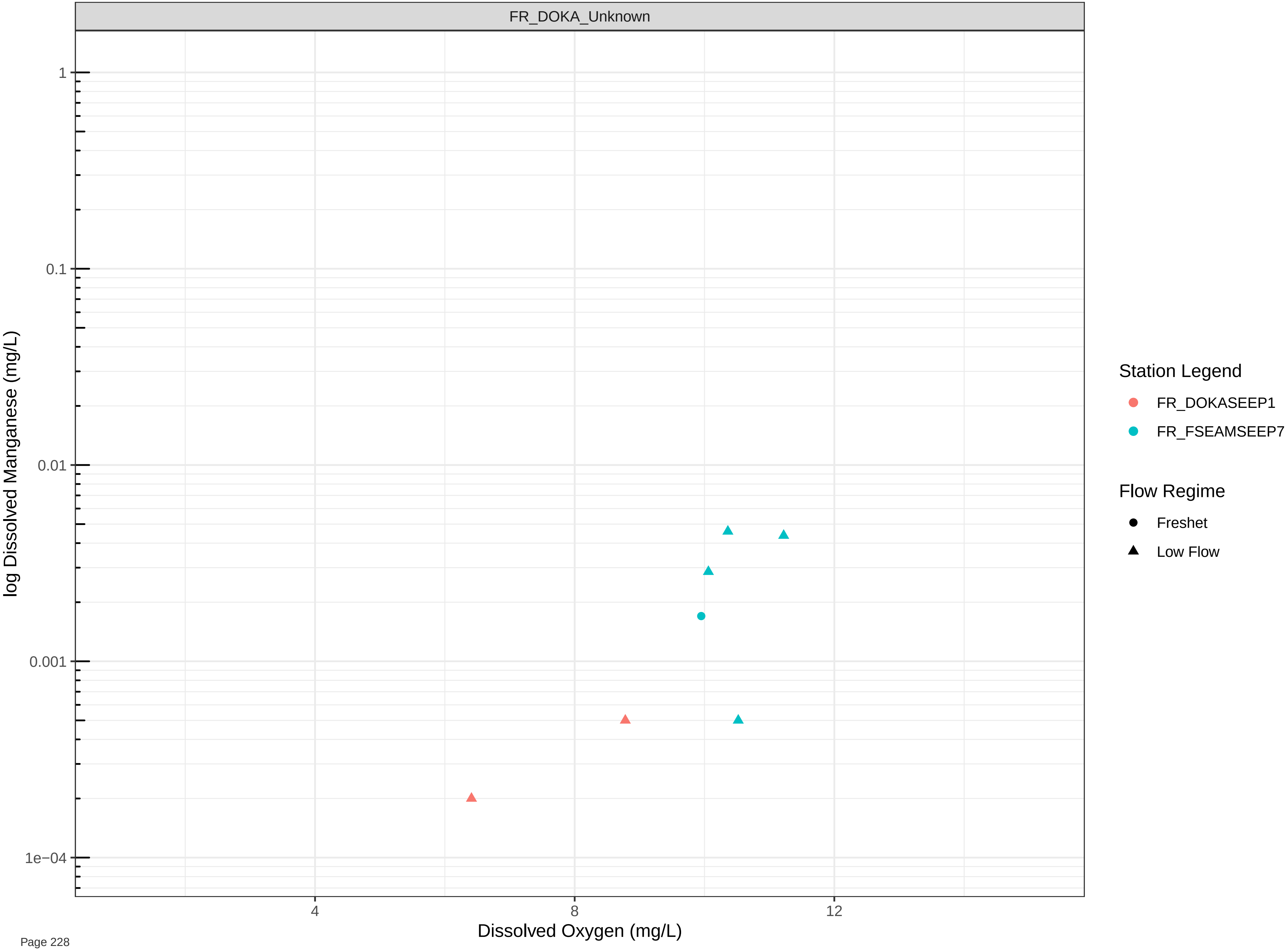

FR_TurnbullWREast_WR
log Dissolved Magnesium (mg/L)
100
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

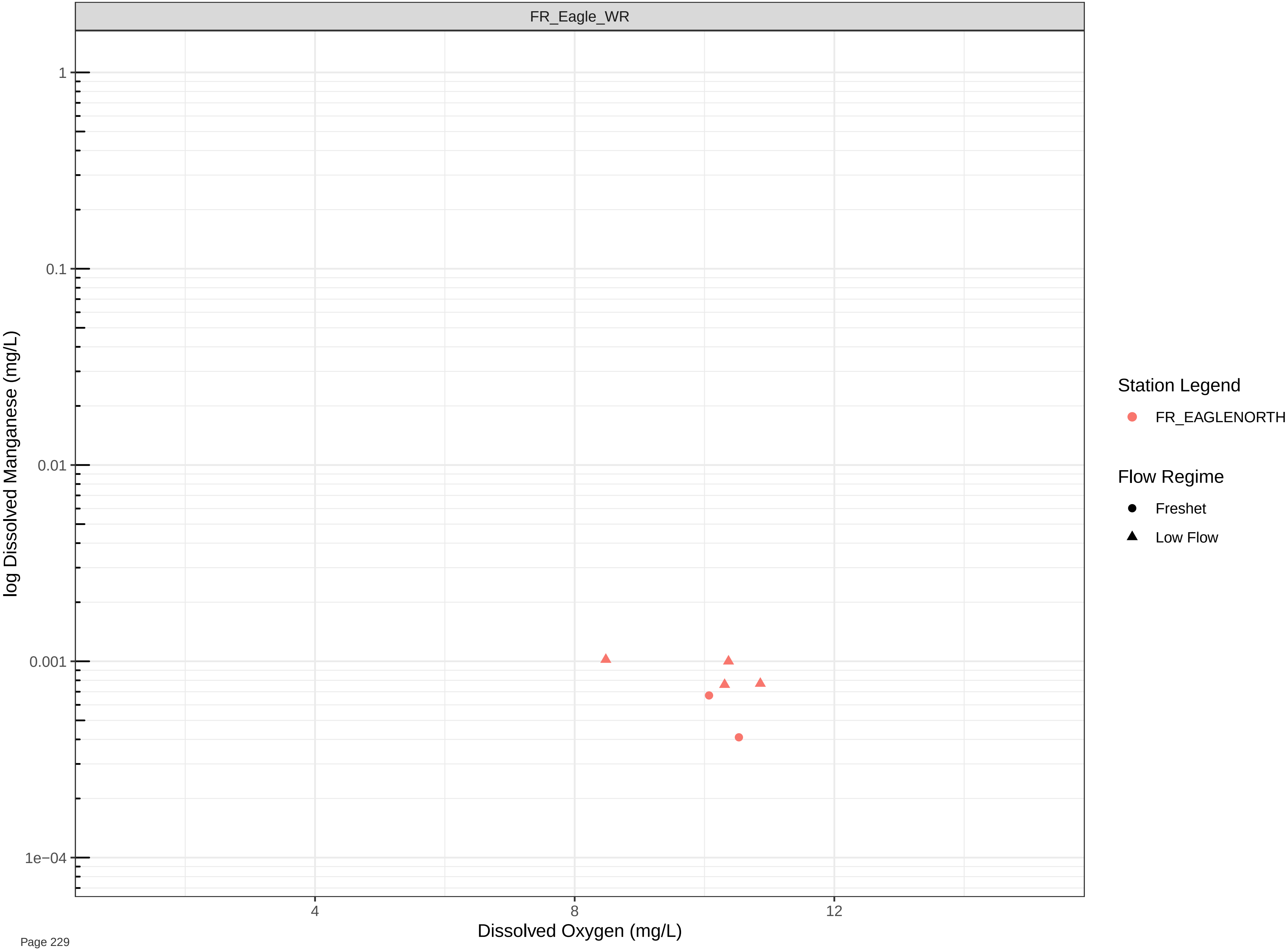

FR_TurnbullWRWest_WR
log Dissolved Magnesium (mg/L)
100
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

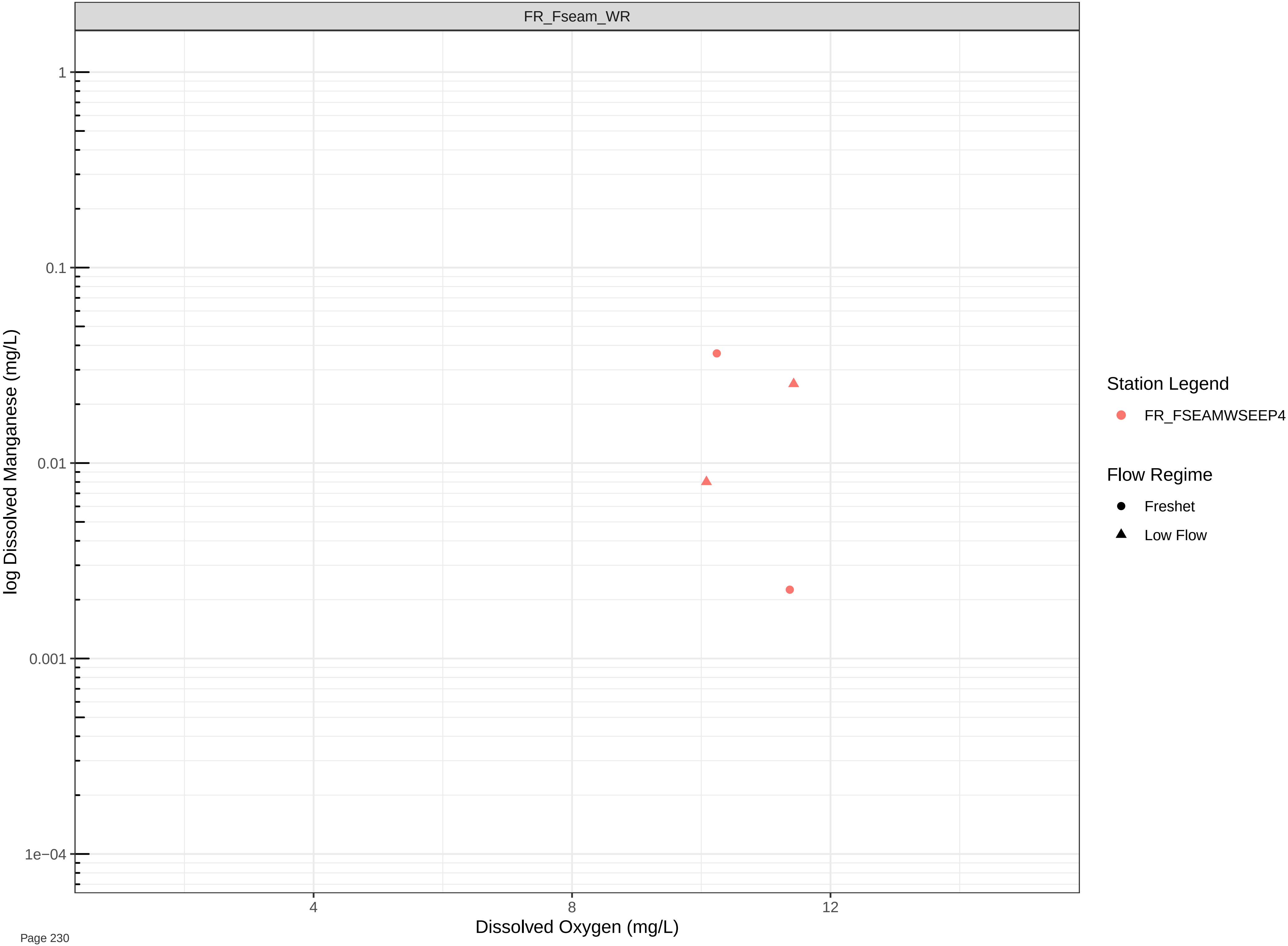

FR_A_WR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

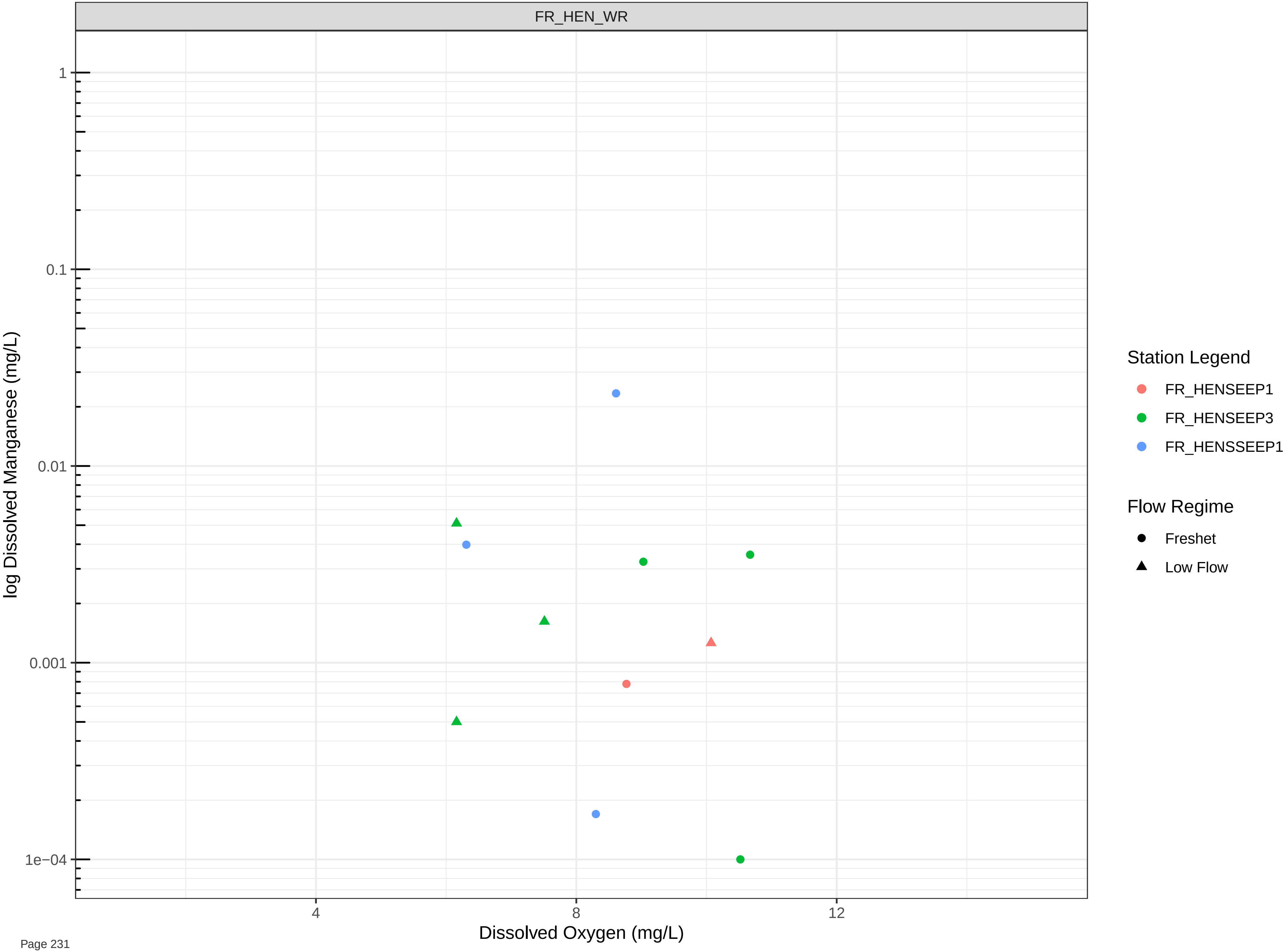

FR_Blain_CCR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

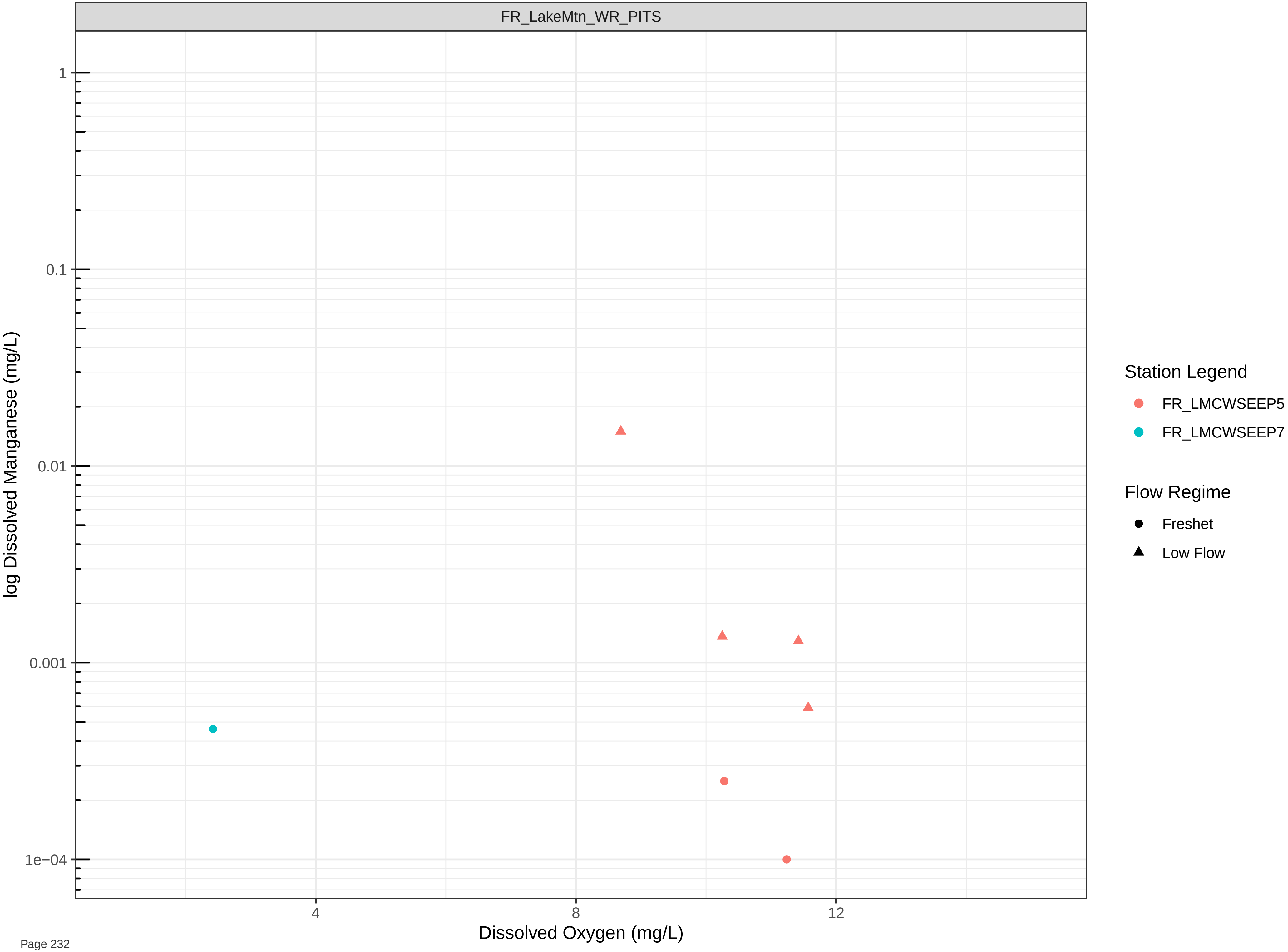

FR_ClodeCr_WR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

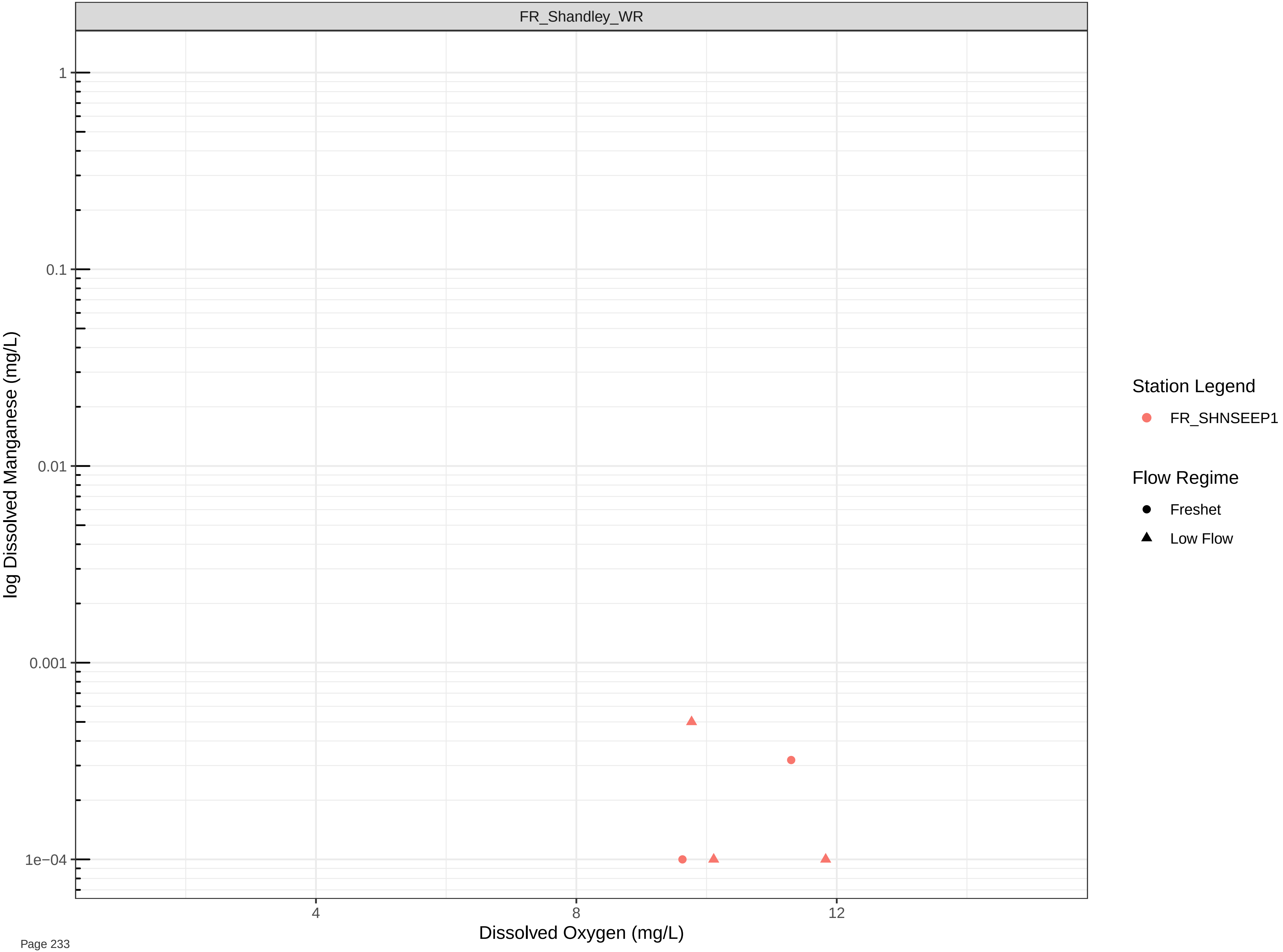

FR_DOKA_Unknown
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

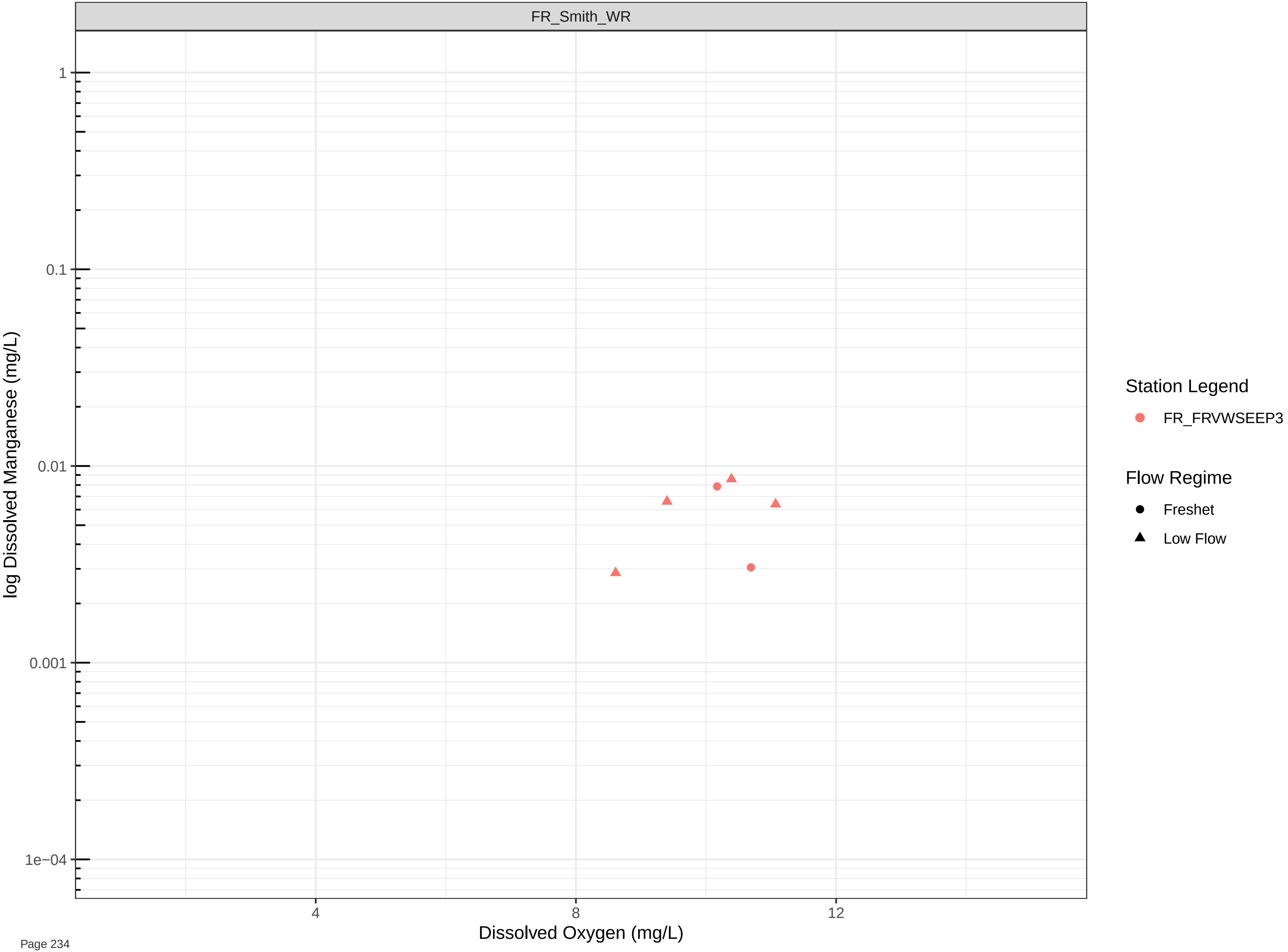

FR_Eagle_WR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

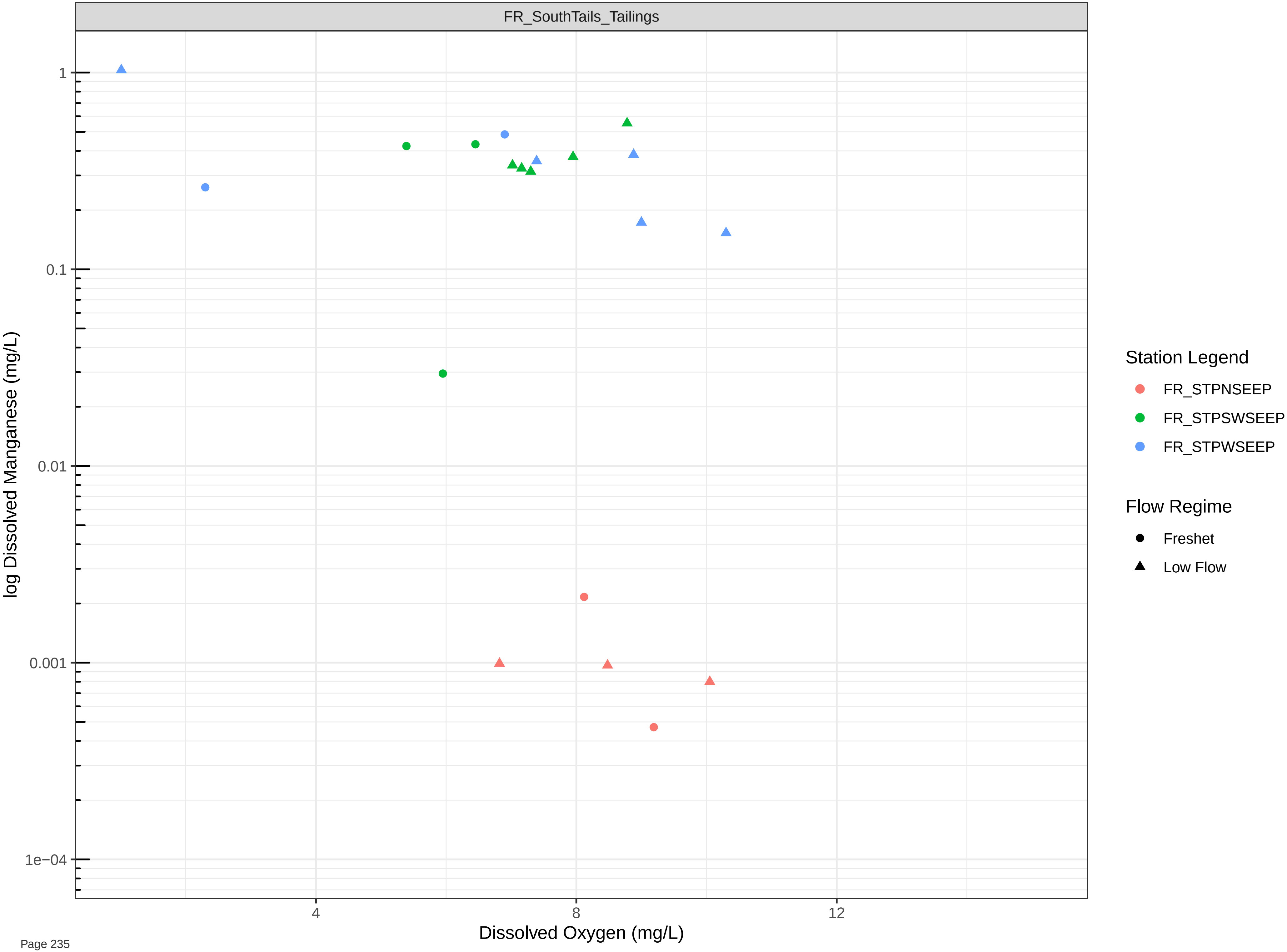

FR_Fseam_WR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

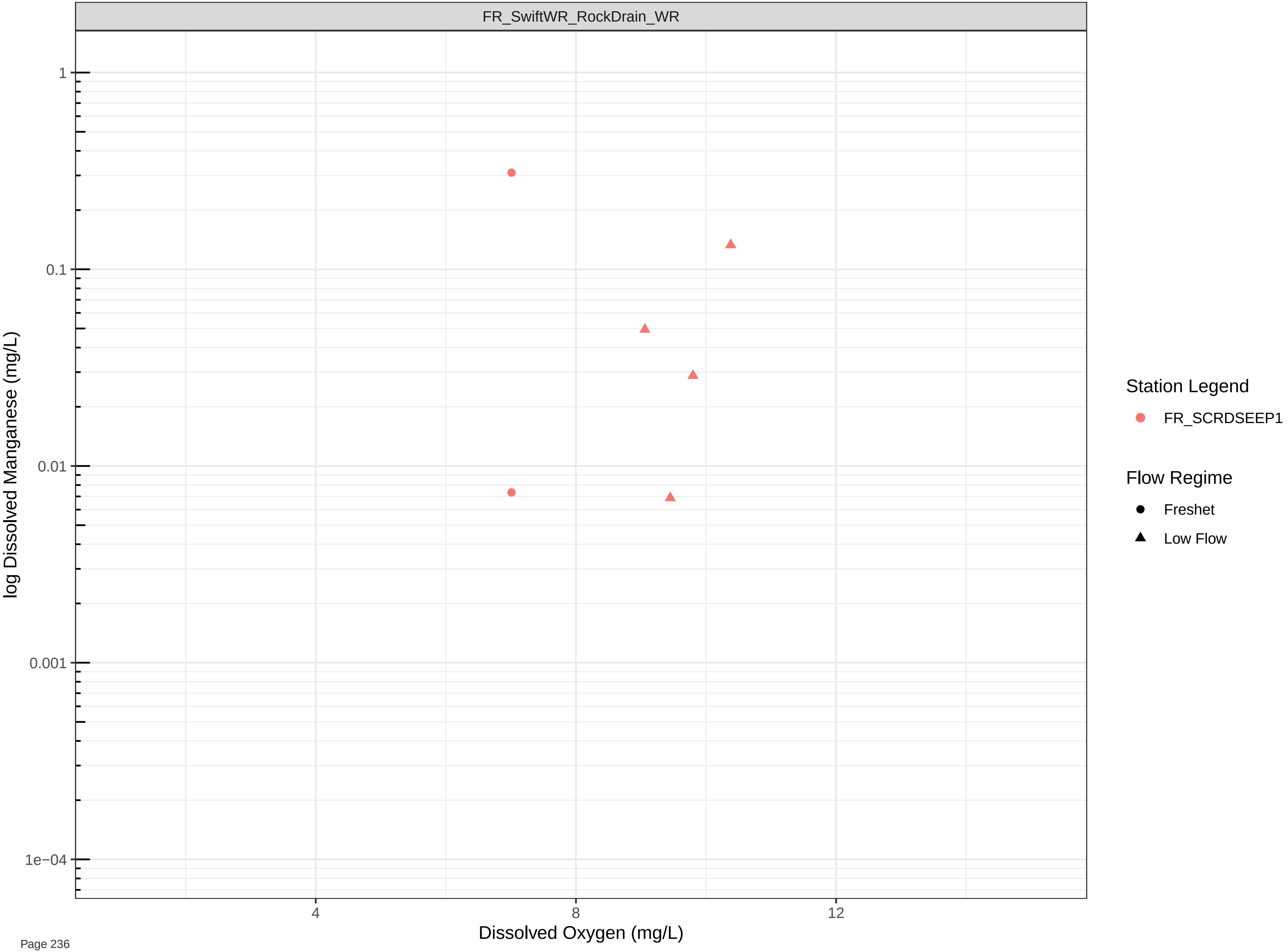

FR_HEN_WR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

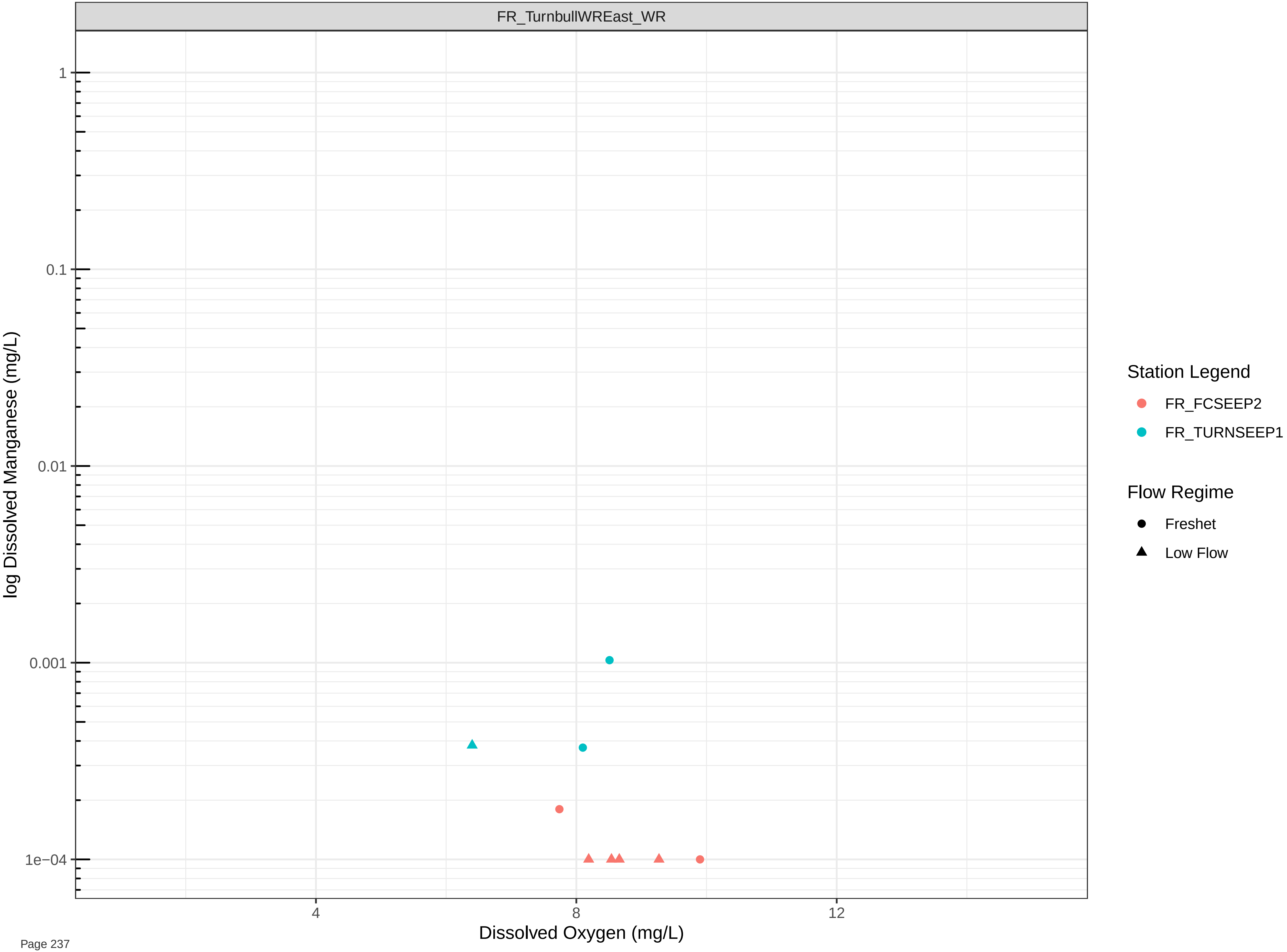

FR_LakeMtn_WR_PITS
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow

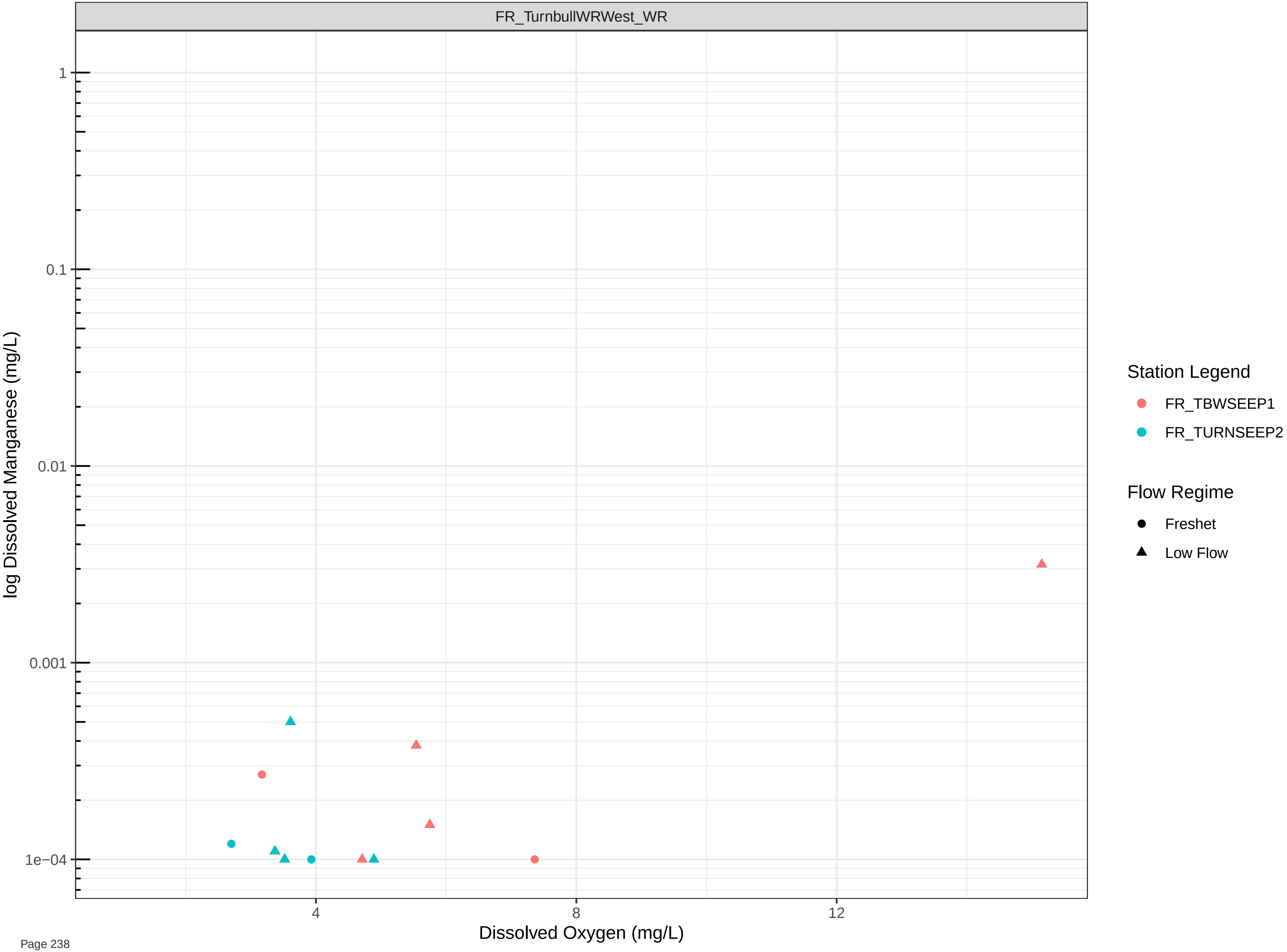

FR_Shandley_WR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow


FR_Smith_WR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow


FR_SouthTails_Tailings
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow


FR_SwiftWR_RockDrain_WR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_TurnbullWREast_WR
1
0.1
0.01
0.001
1e−04
log Dissolved Manganese (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWRWest_WR
log Dissolved Manganese (mg/L)
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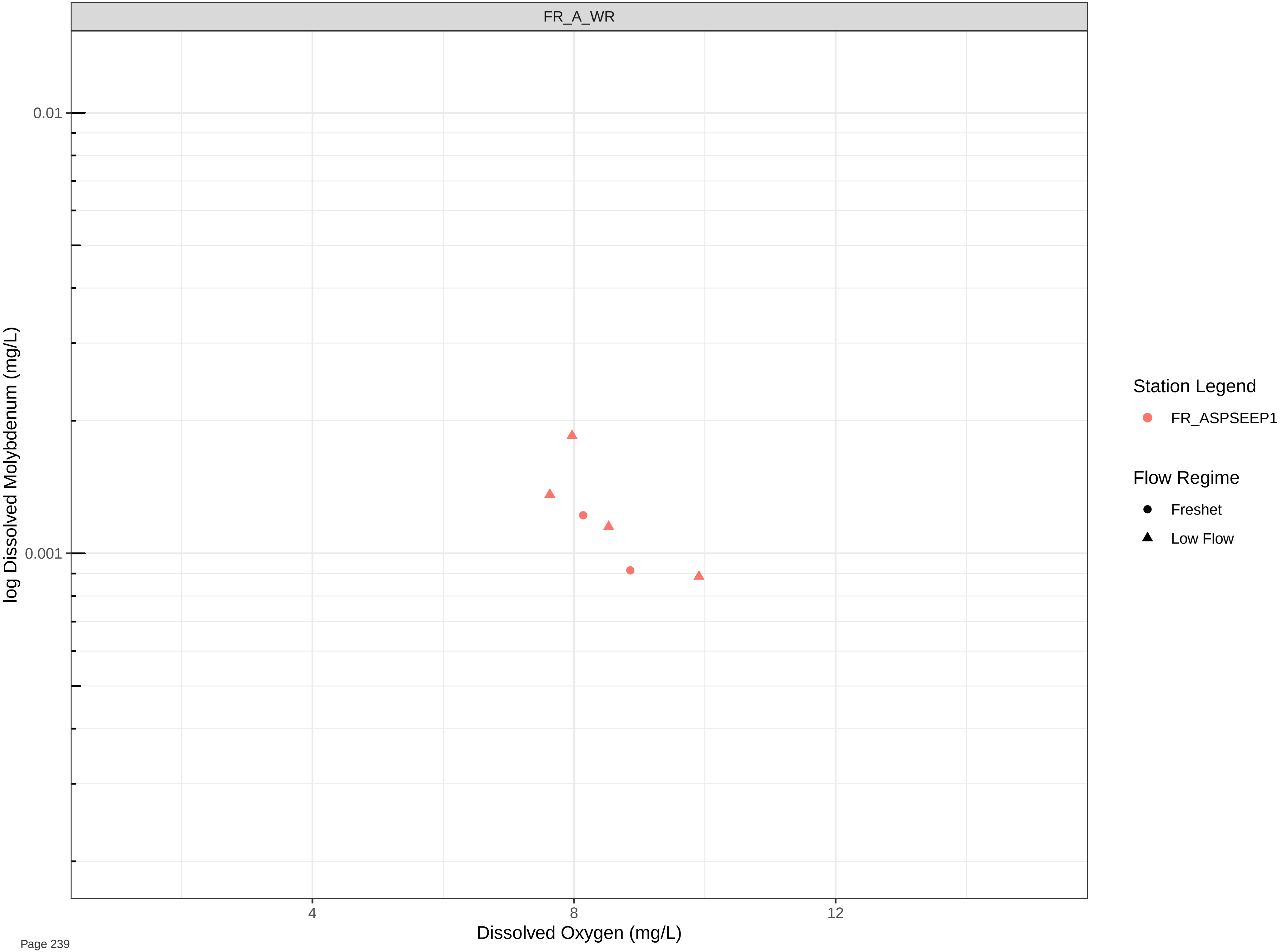
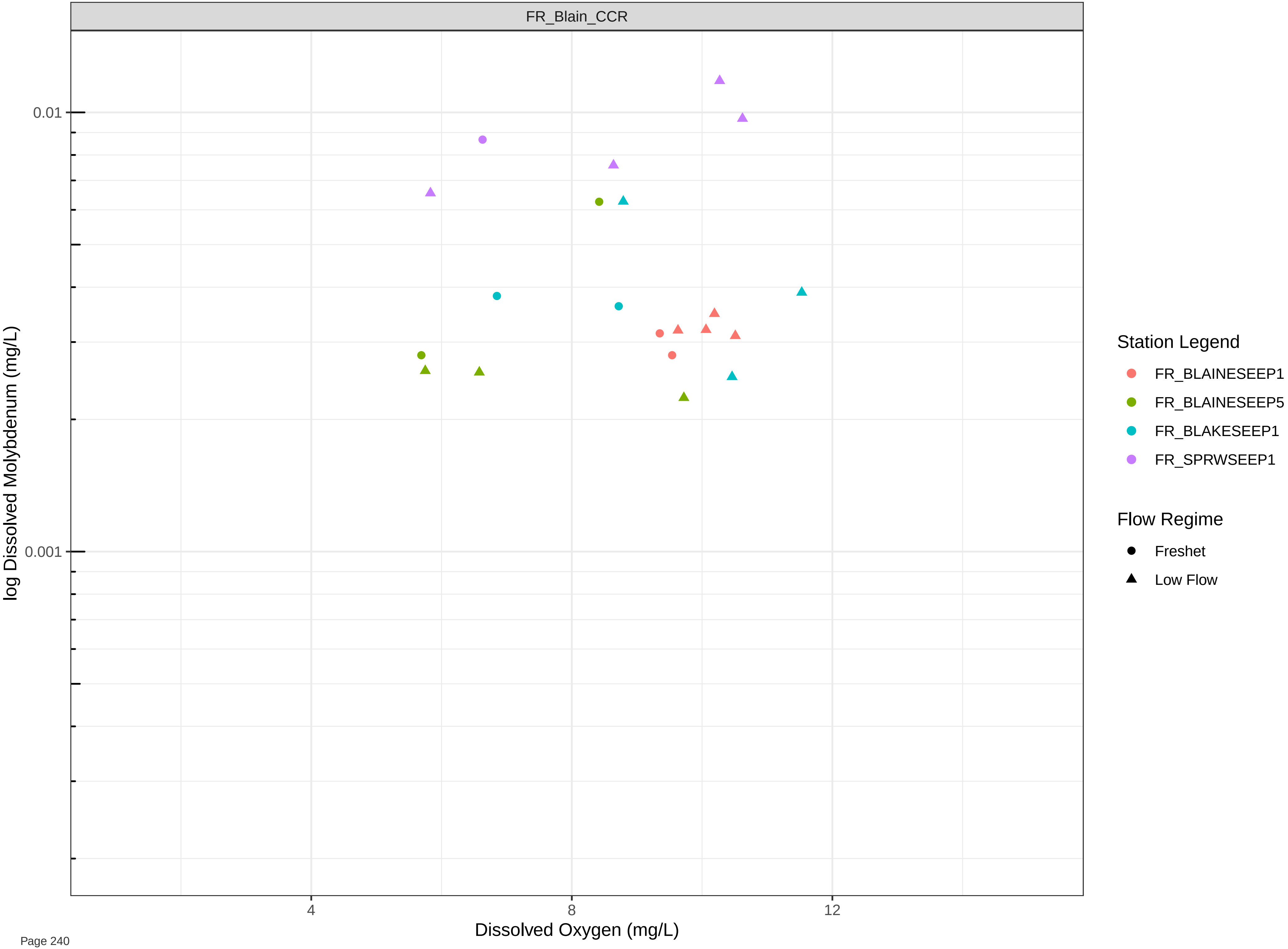
0.1
0.01
0.001
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow


FR_A_WR
0.01
0.001
log Dissolved Molybdenum (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_Blain_CCR
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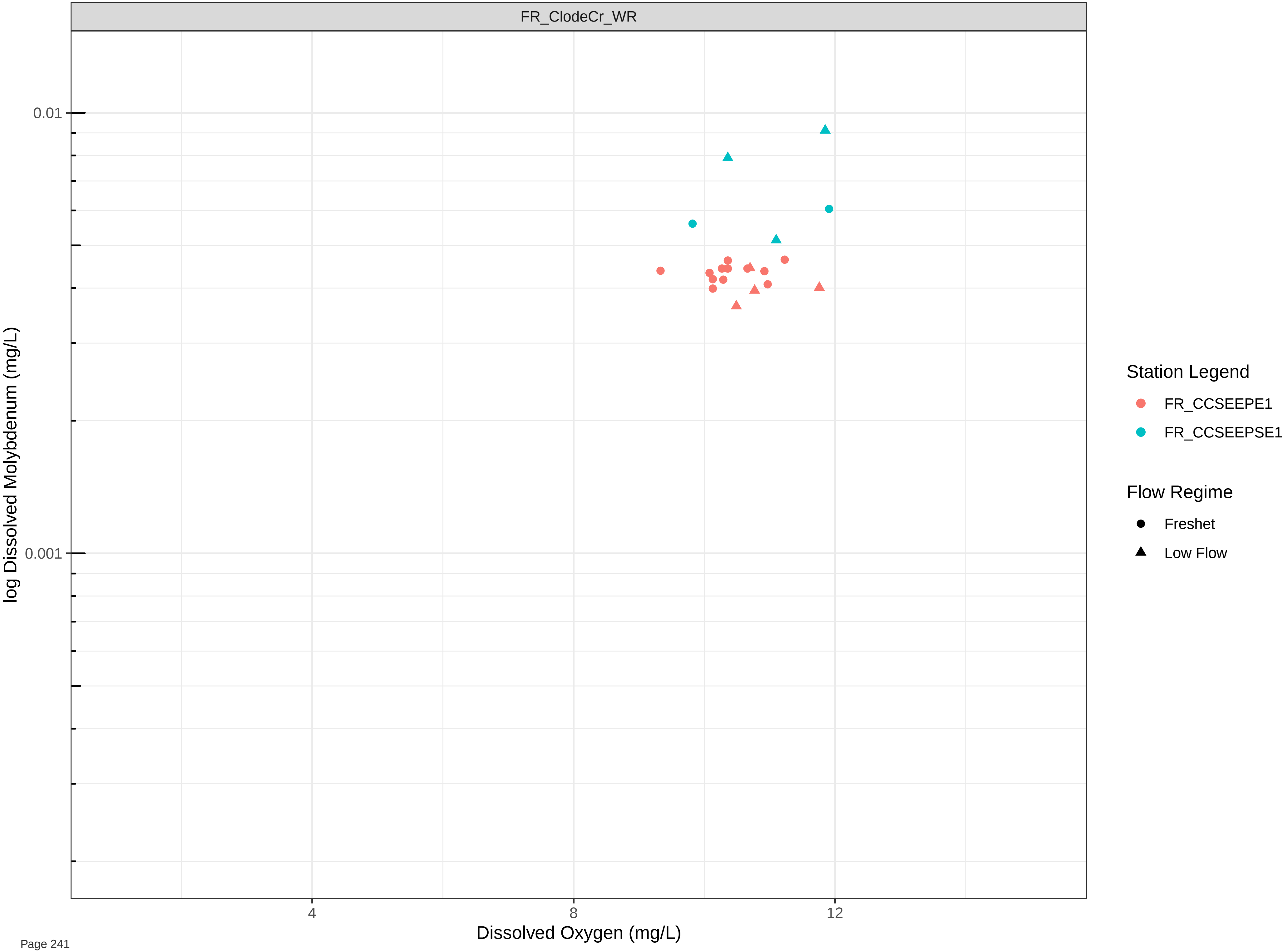
0.001
log Dissolved Molybdenum (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_ClodeCr_WR
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0.001
log Dissolved Molybdenum (mg/L)
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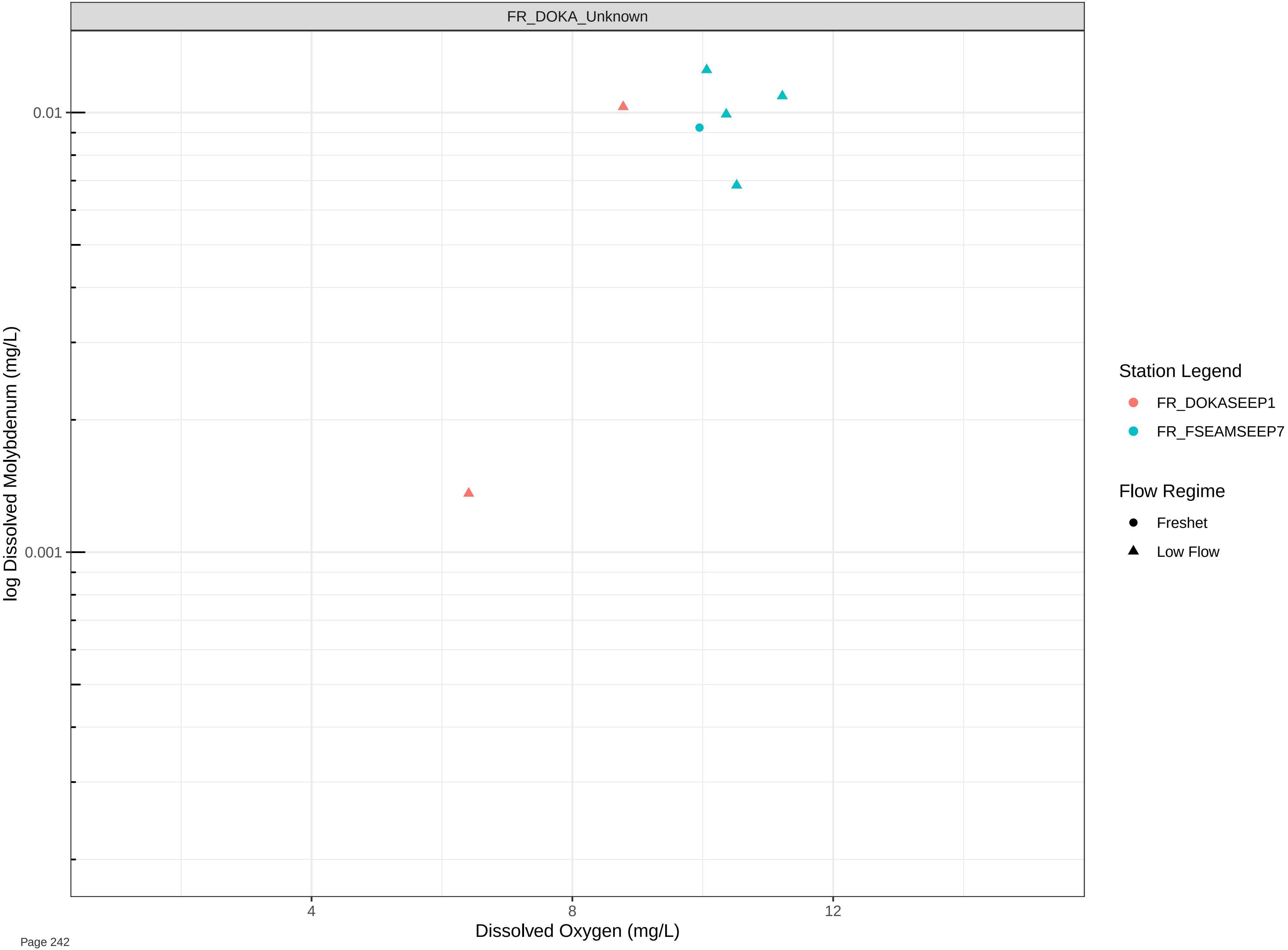
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow


FR_DOKA_Unknown
log Dissolved Molybdenum (mg/L)
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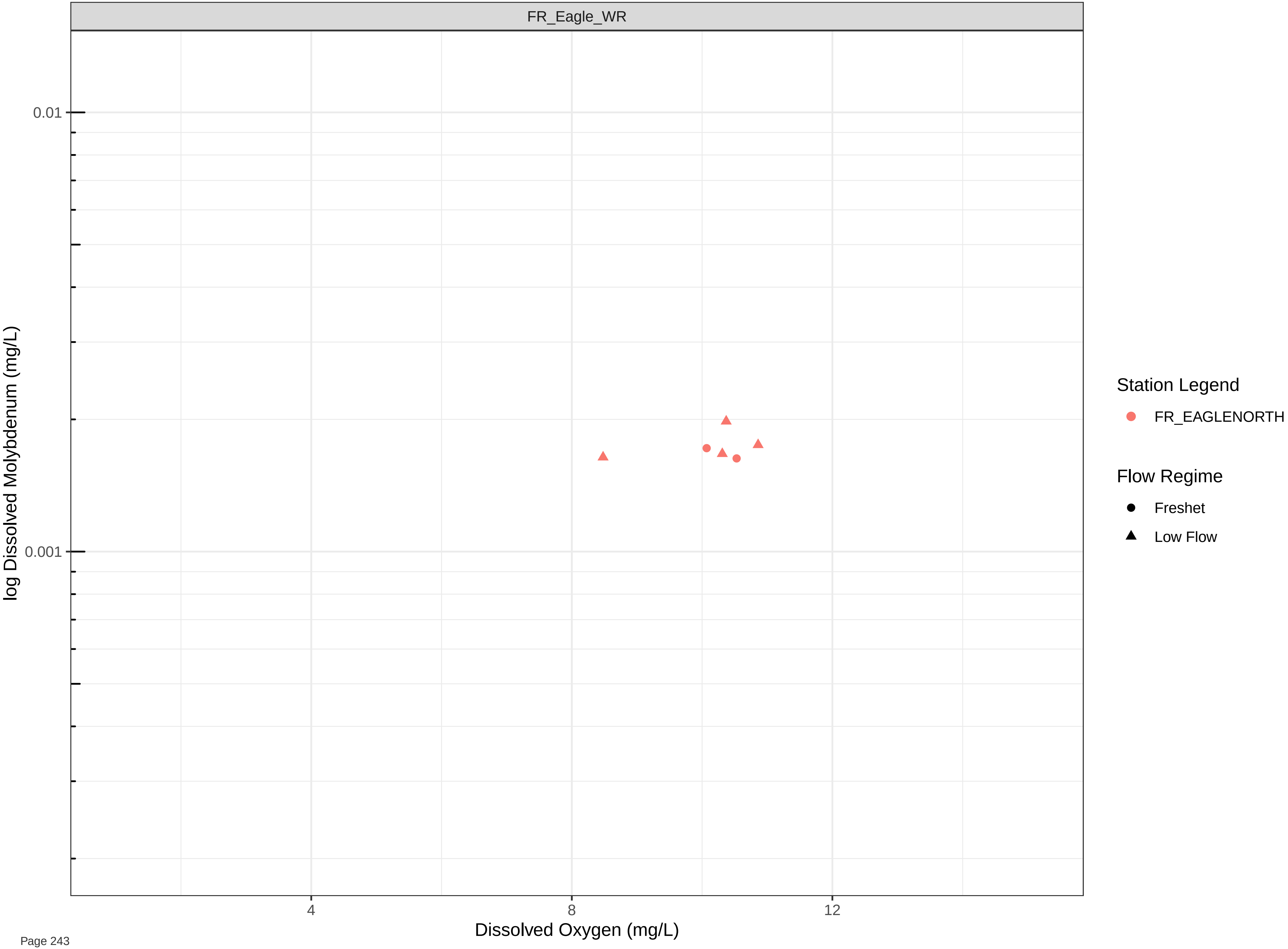
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow


FR_Eagle_WR
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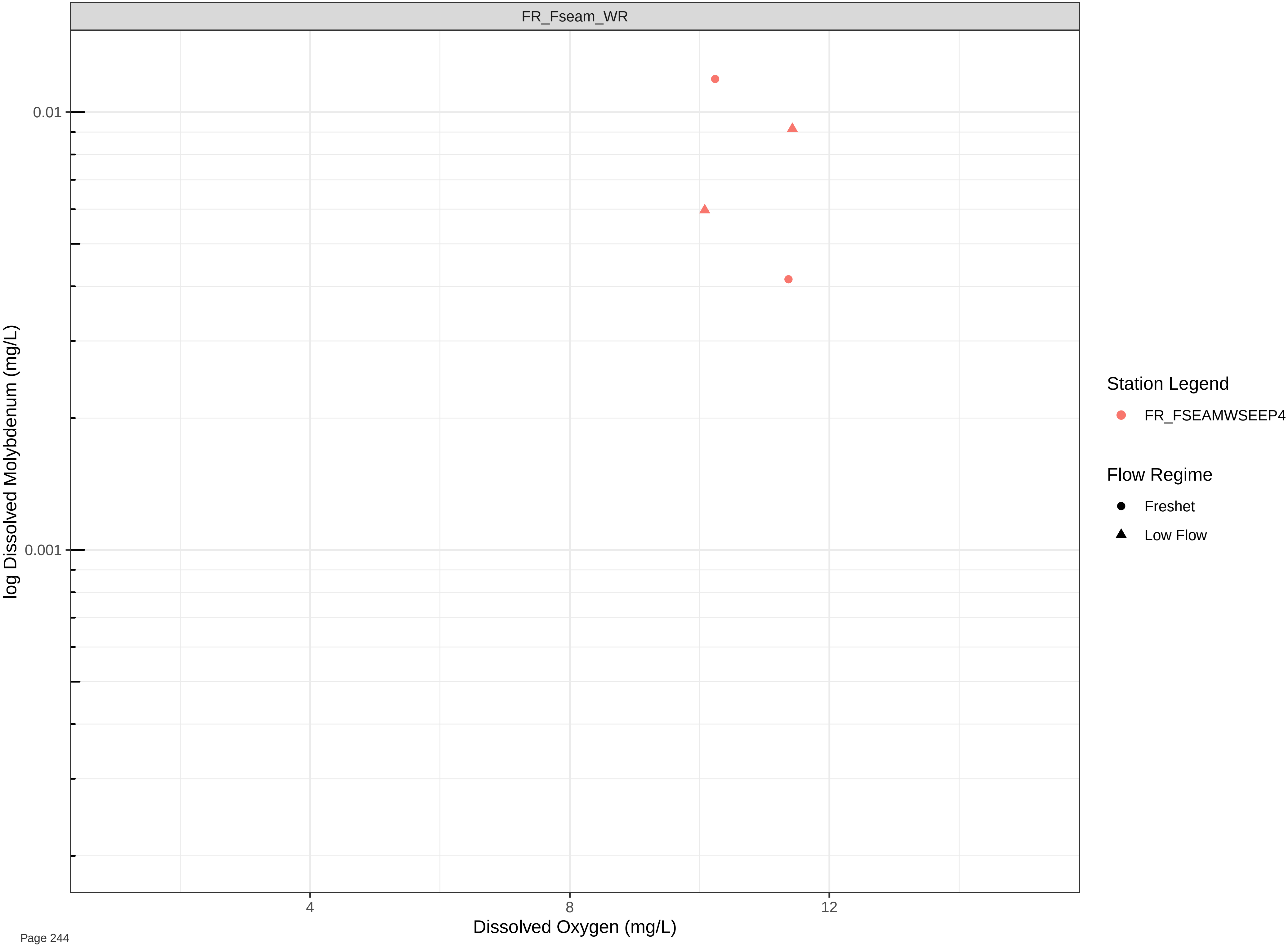
0.001
log Dissolved Molybdenum (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow


FR_Fseam_WR
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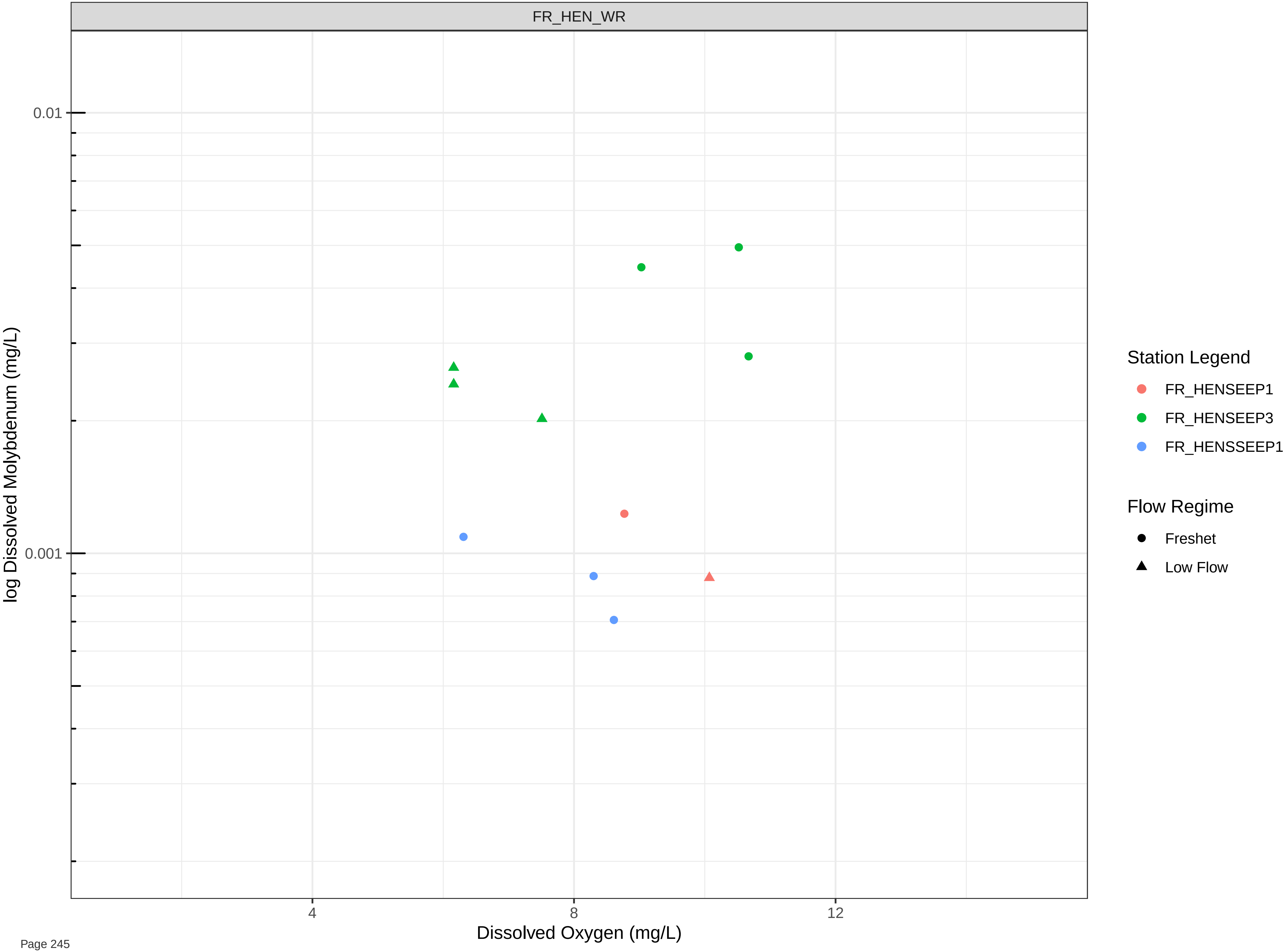
0.001
log Dissolved Molybdenum (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow


FR_HEN_WR
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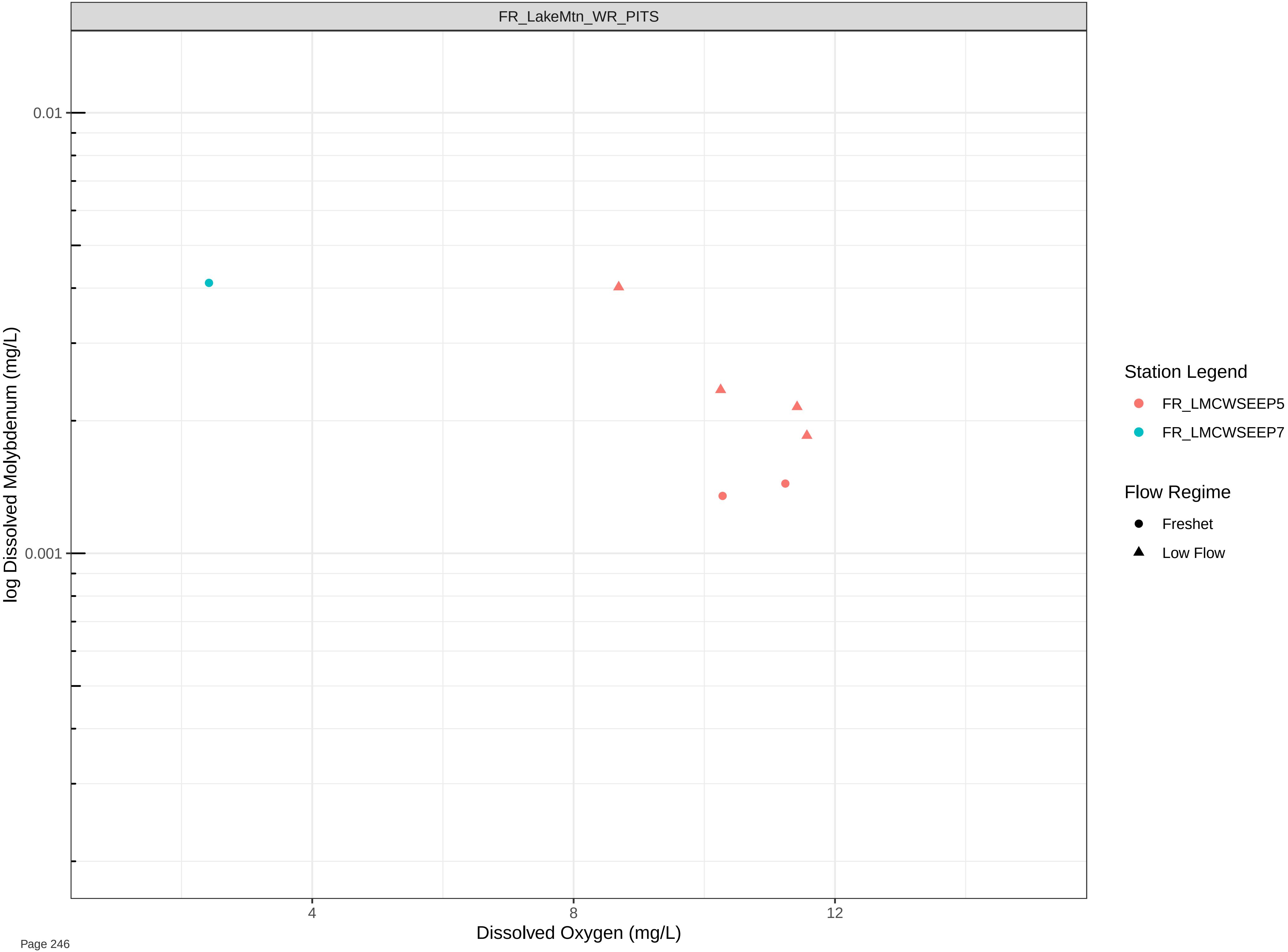
0.001
log Dissolved Molybdenum (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_HENSEEP1
● FR_HENSEEP3
● FR_HENSSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_LakeMtn_WR_PITS
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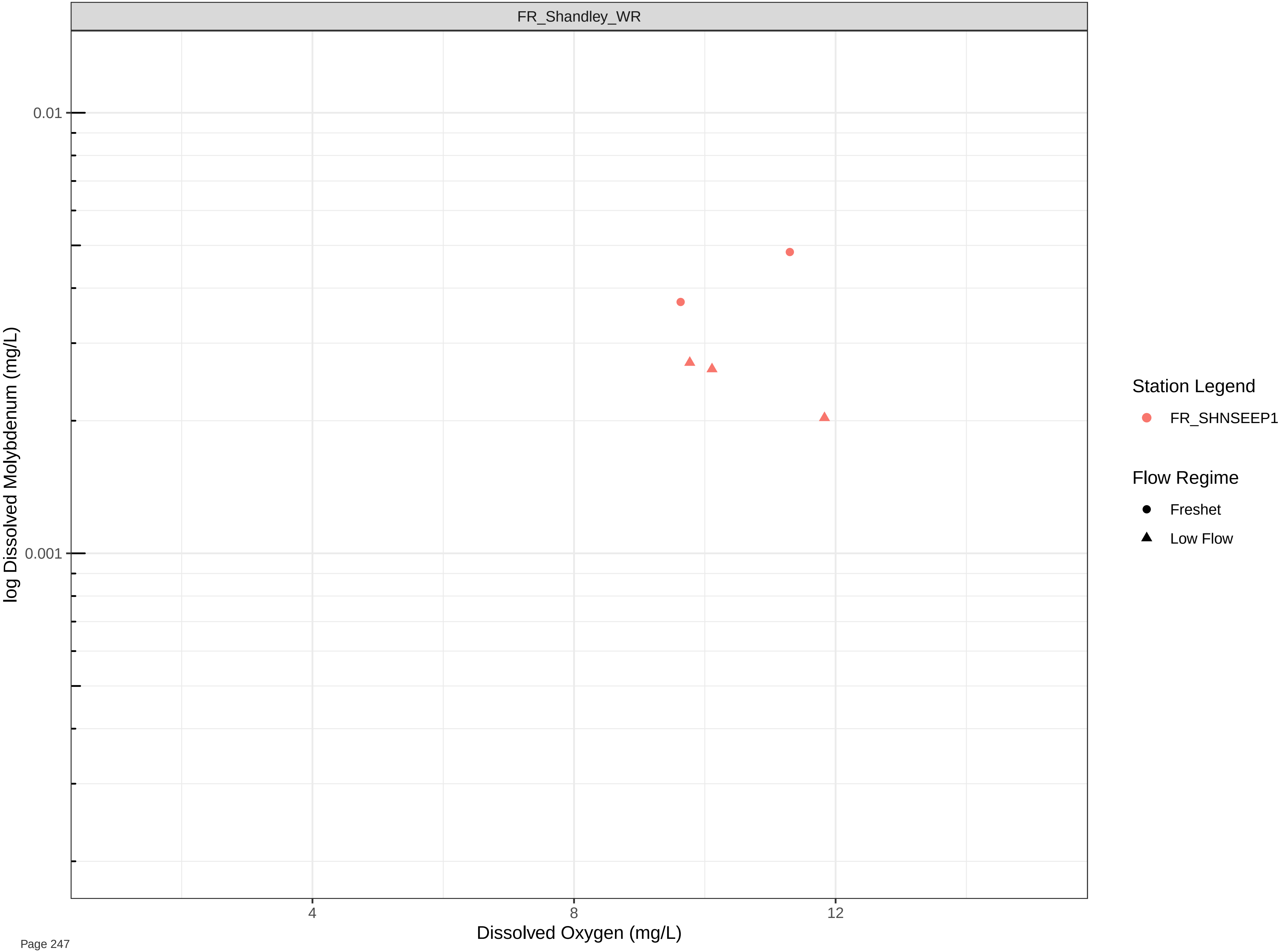
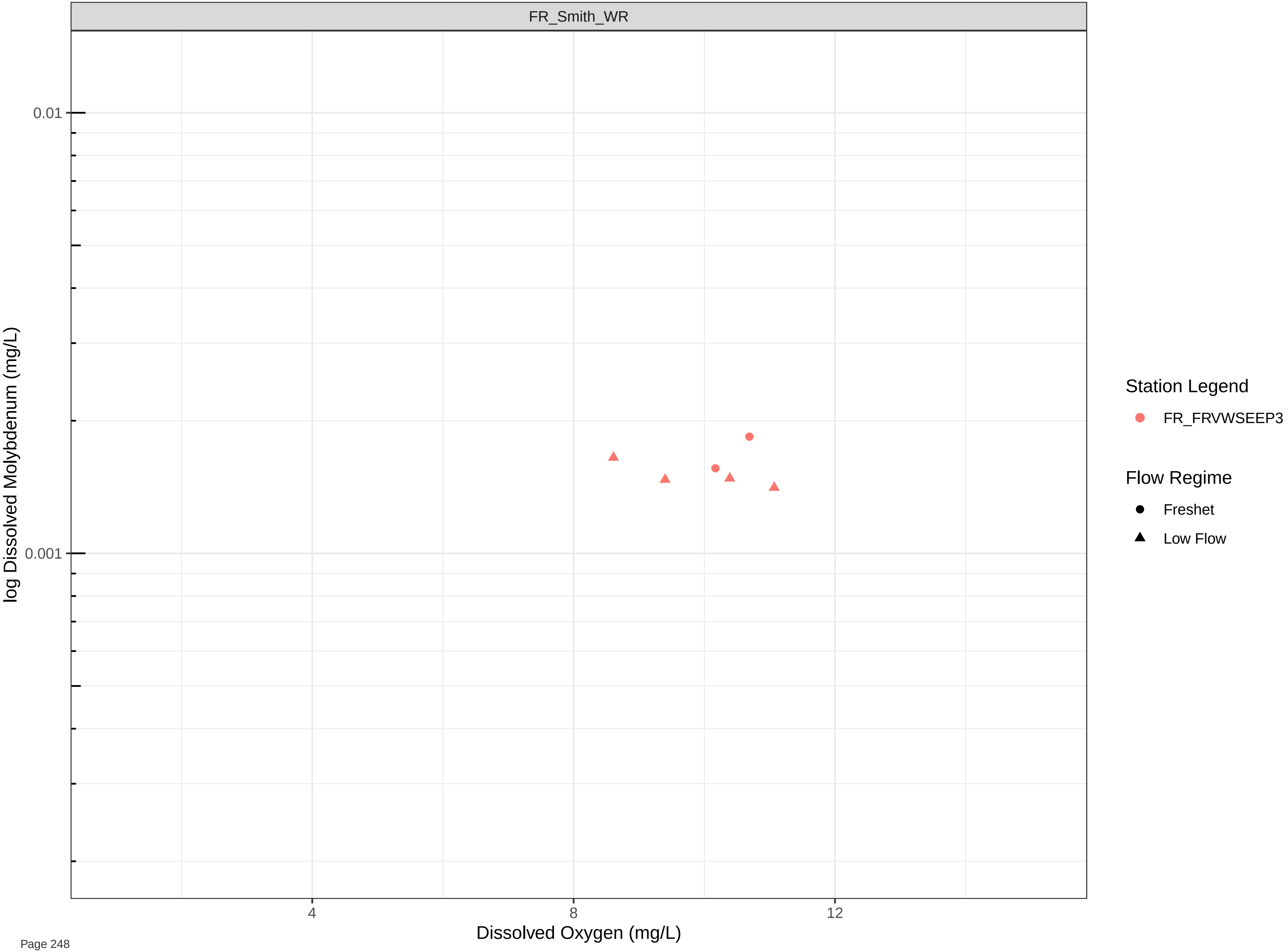
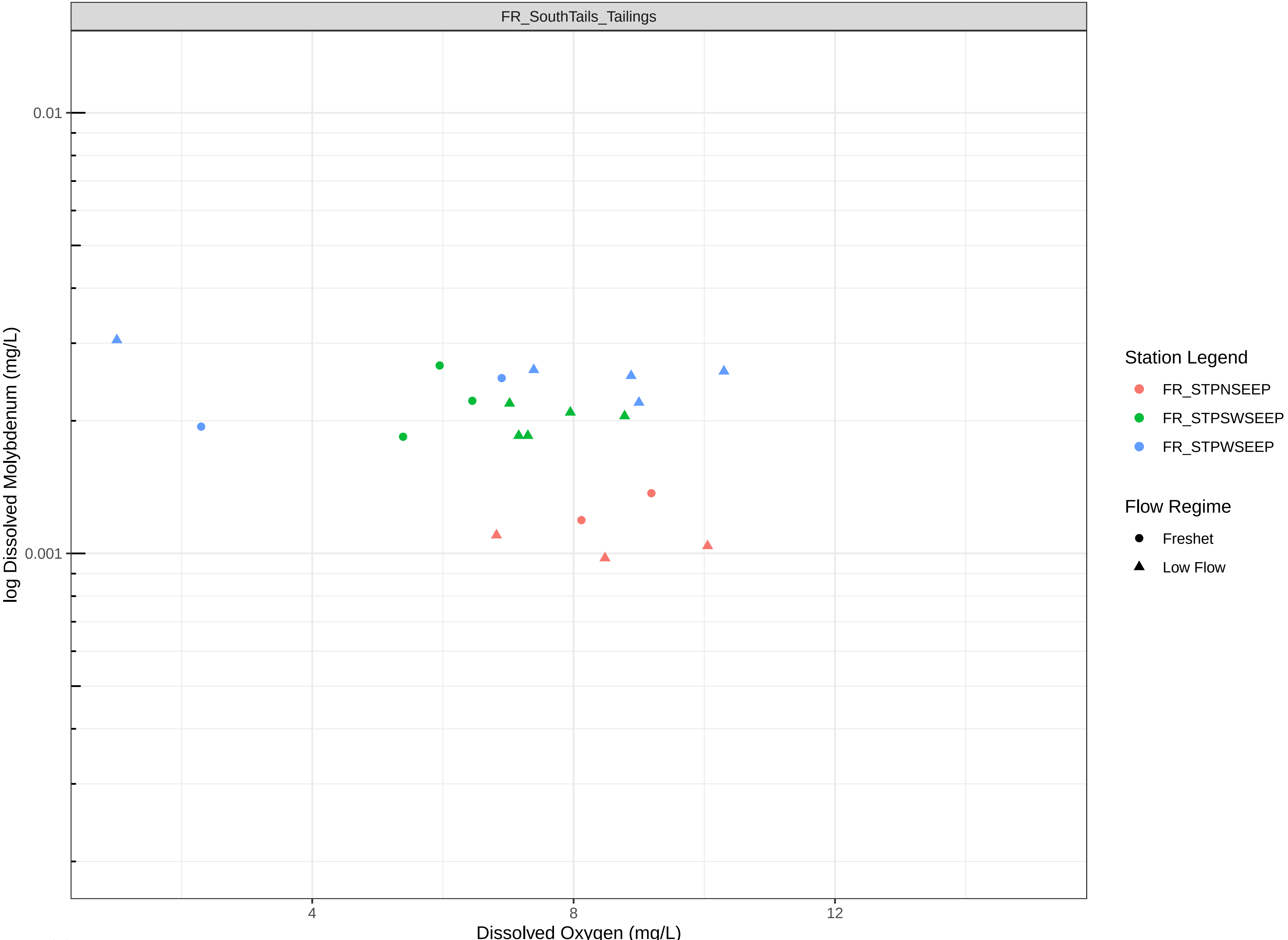
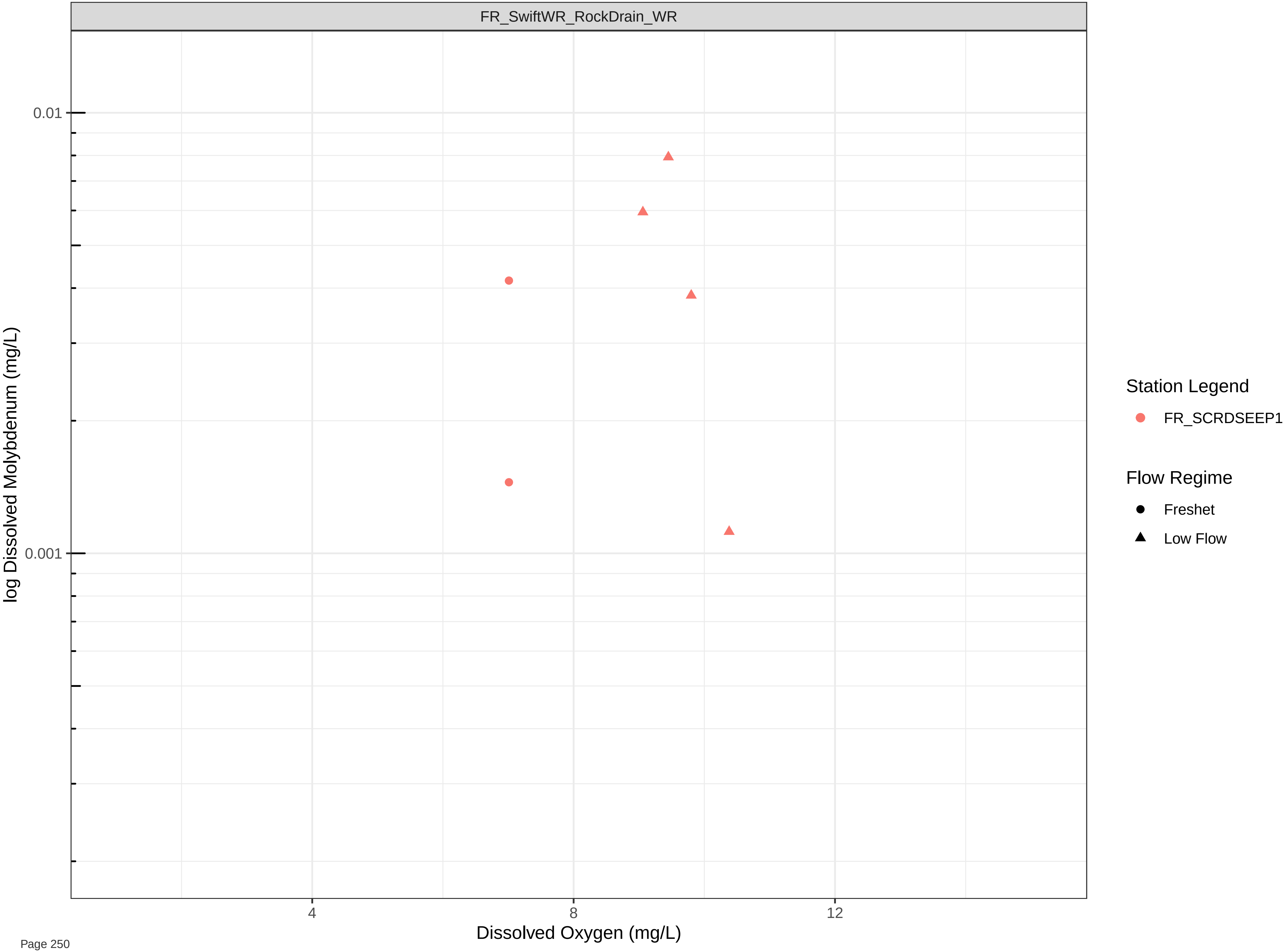
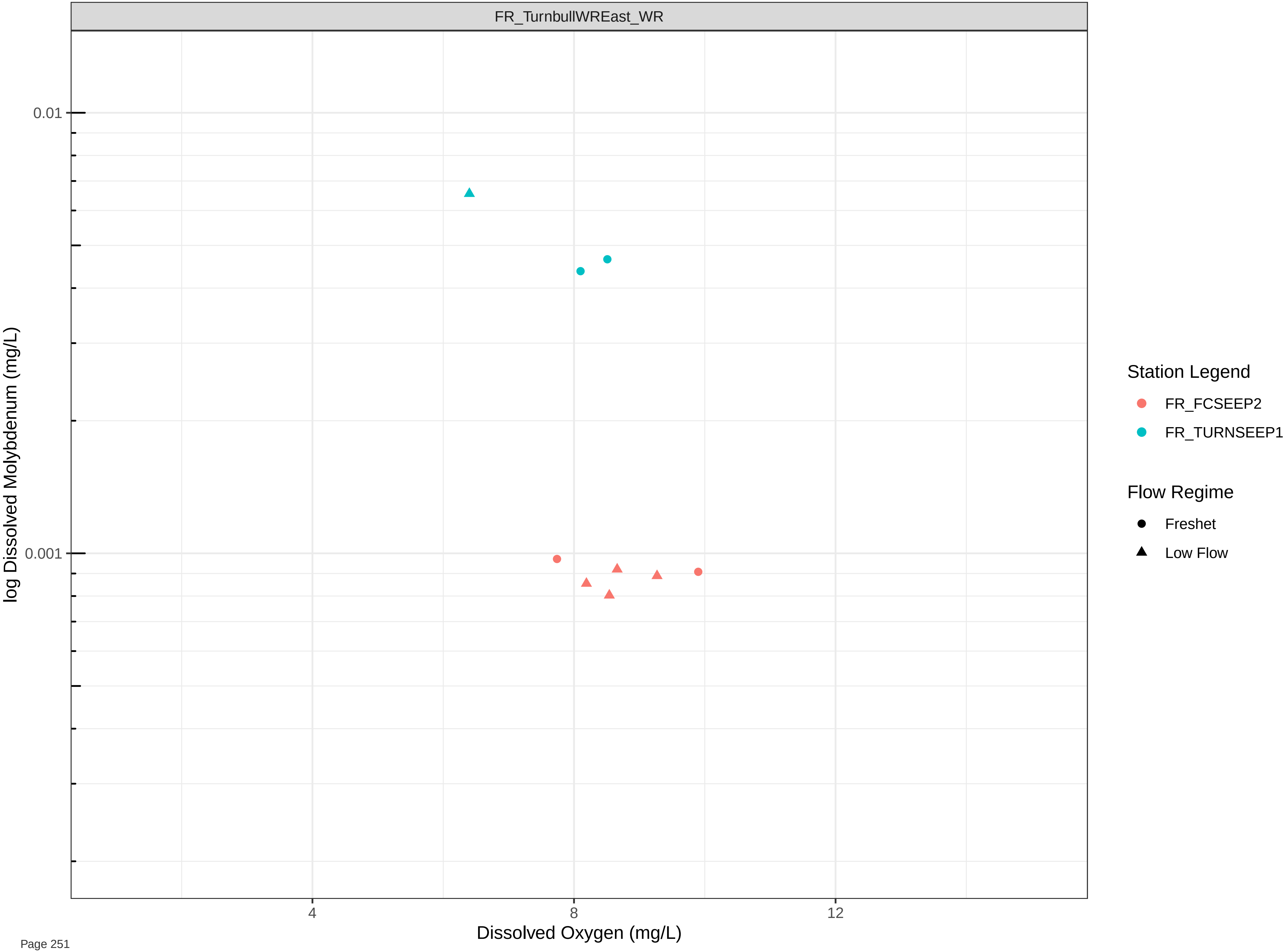
0.001
log Dissolved Molybdenum (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow


FR_Shandley_WR
0.01
0.001
log Dissolved Molybdenum (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow


FR_Smith_WR
log Dissolved Molybdenum (mg/L)
0.01
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow


FR_SouthTails_Tailings
log Dissolved Molybdenum (mg/L)
0.01
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow


FR_SwiftWR_RockDrain_WR
0.01
0.001
log Dissolved Molybdenum (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_TurnbullWREast_WR
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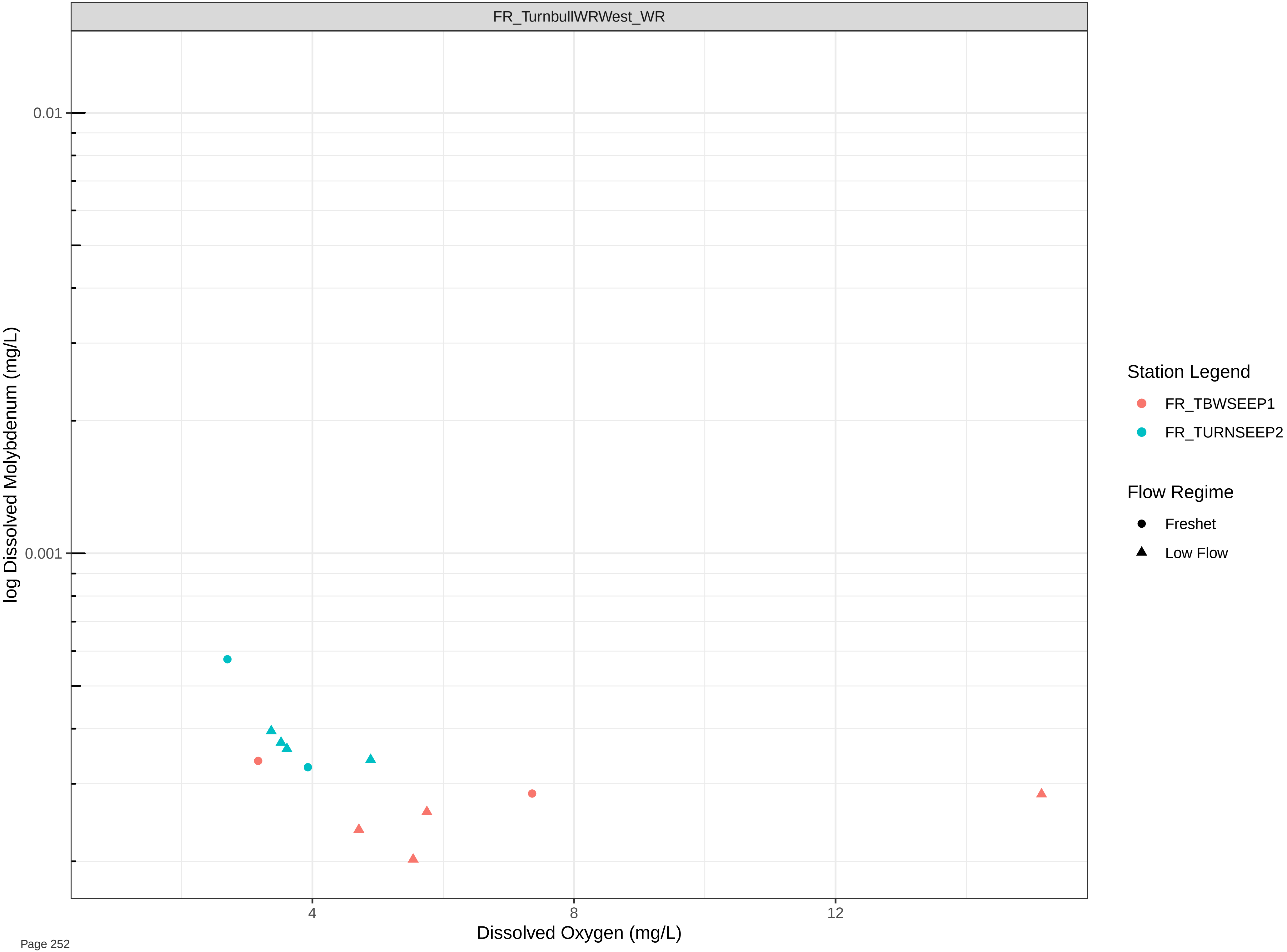
0.001
log Dissolved Molybdenum (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FCSEEP2
● FR_TURNSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_TurnbullWRWest_WR
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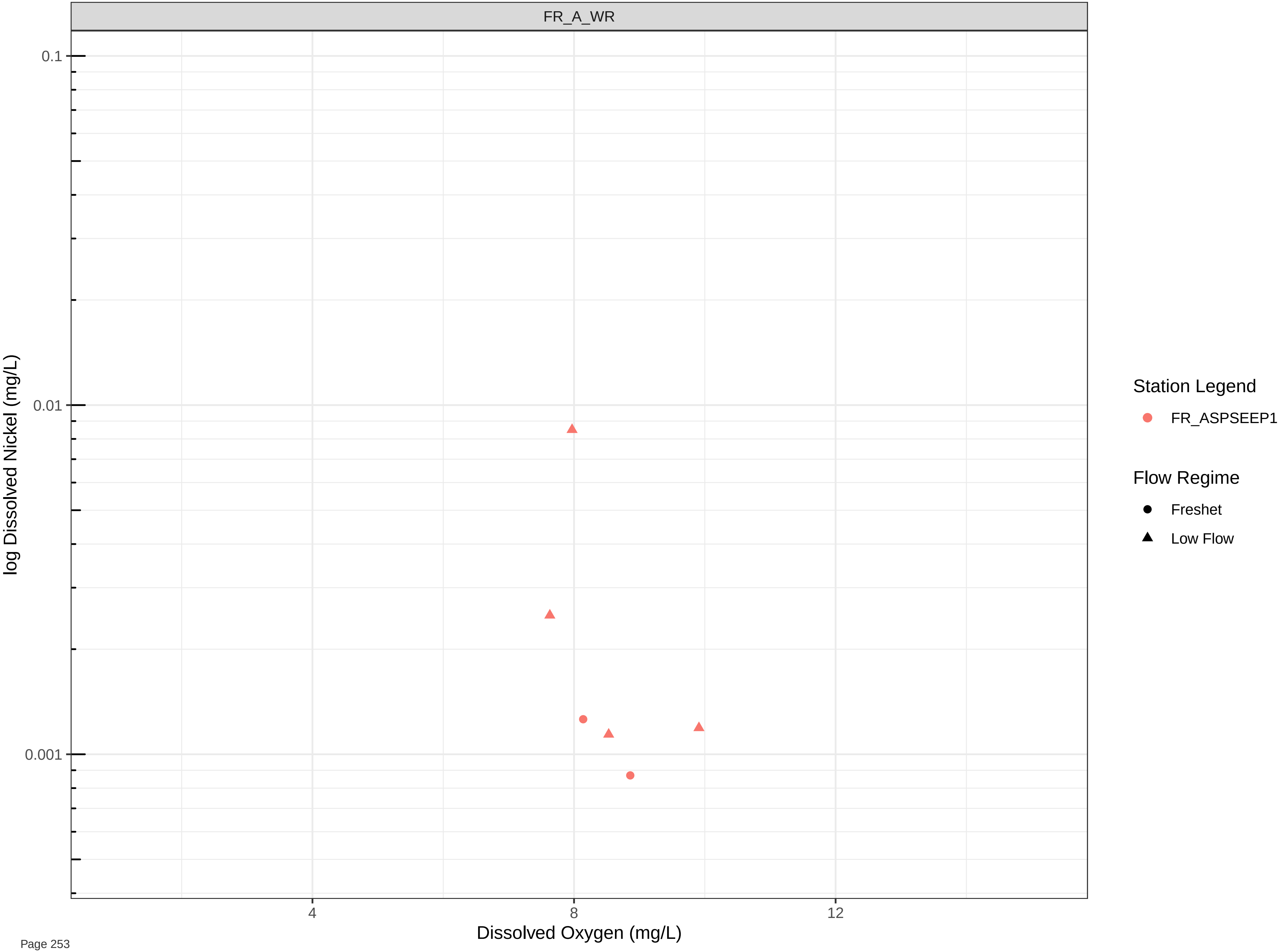
0.001
log Dissolved Molybdenum (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow


FR_A_WR
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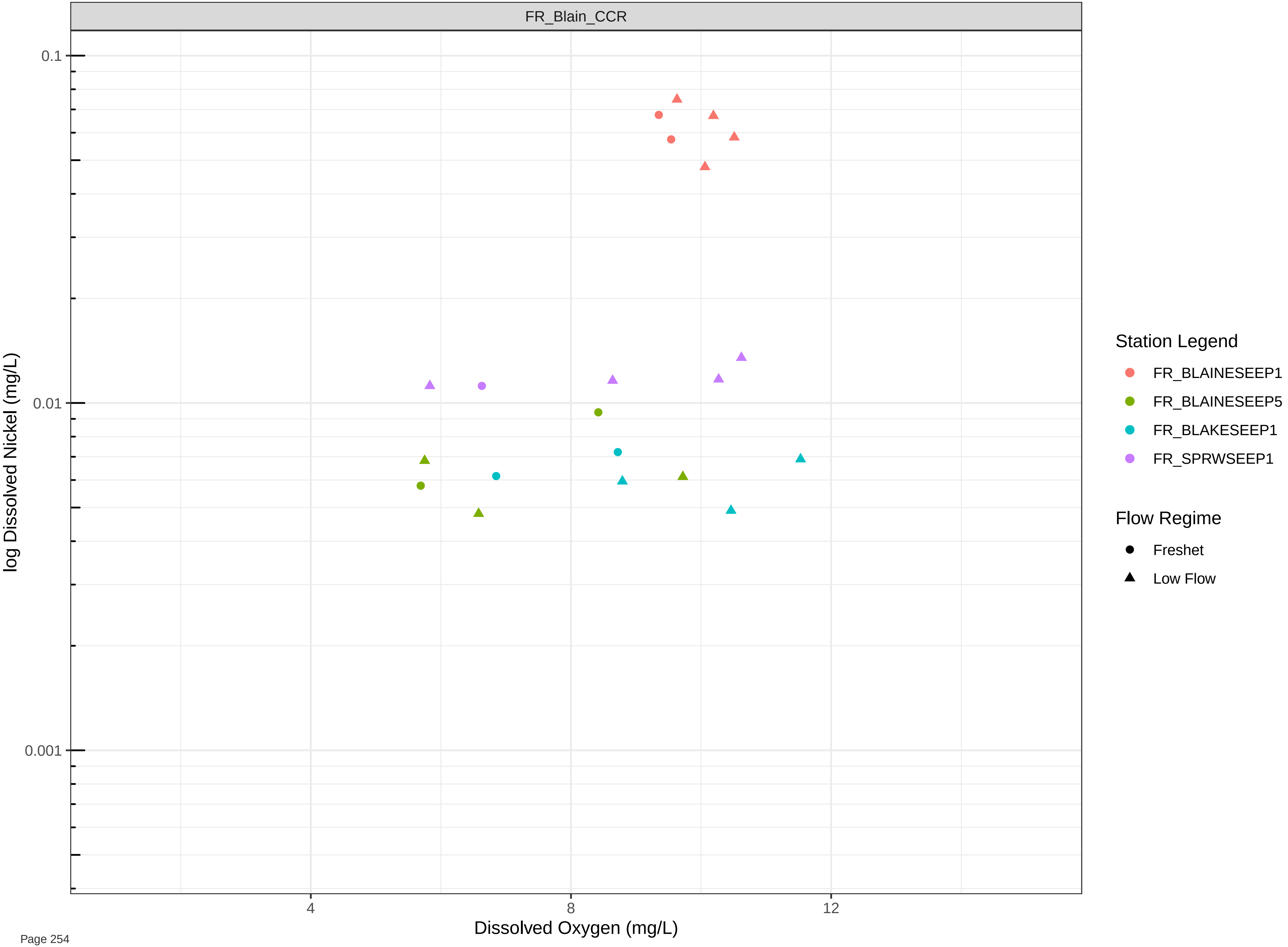
0.01
0.001
4
8
12
log Dissolved Nickel (mg/L)
Dissolved Oxygen (mg/L)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow


FR_Blain_CCR
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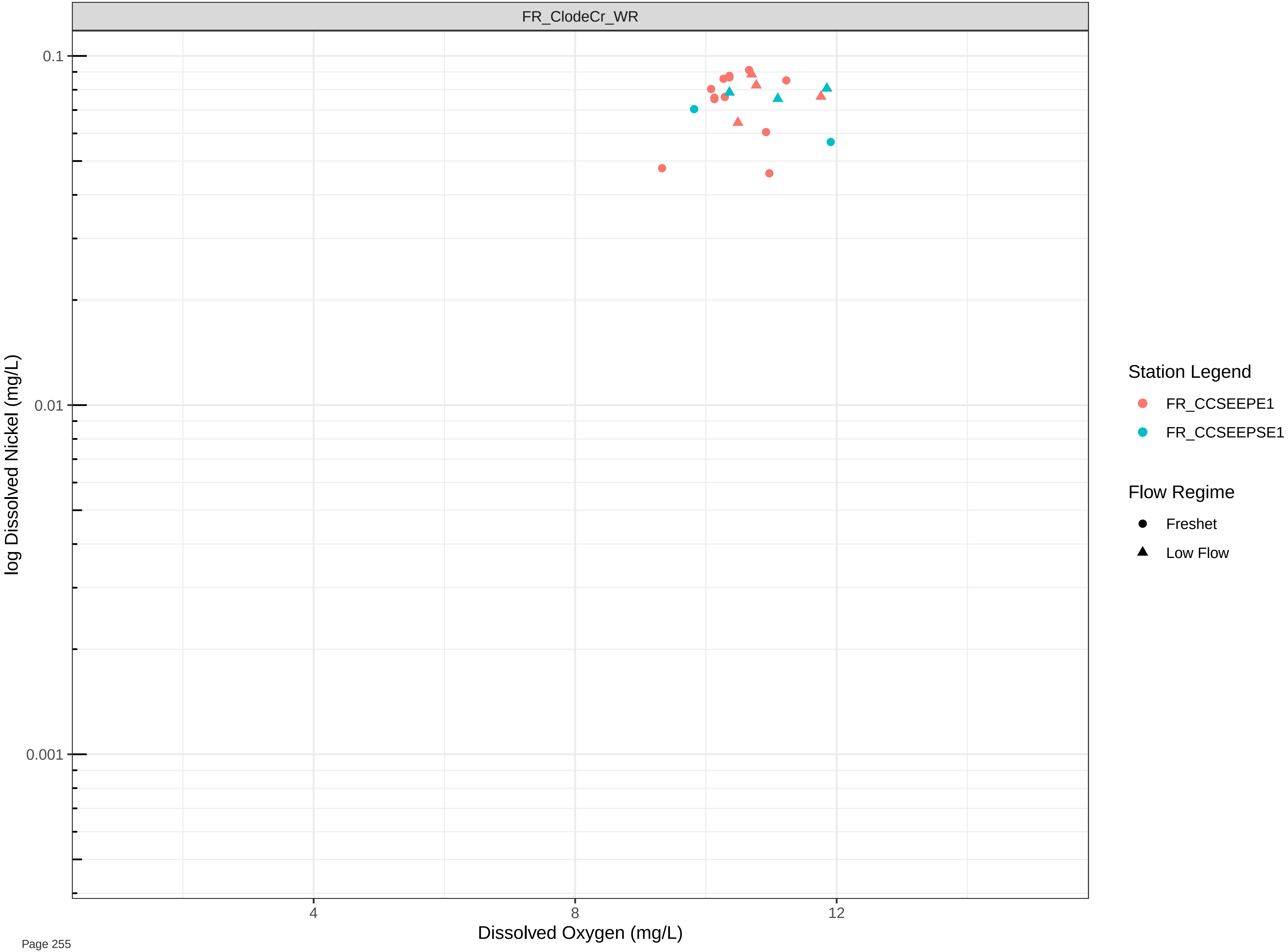
0.01
0.001
log Dissolved Nickel (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow


FR_ClodeCr_WR
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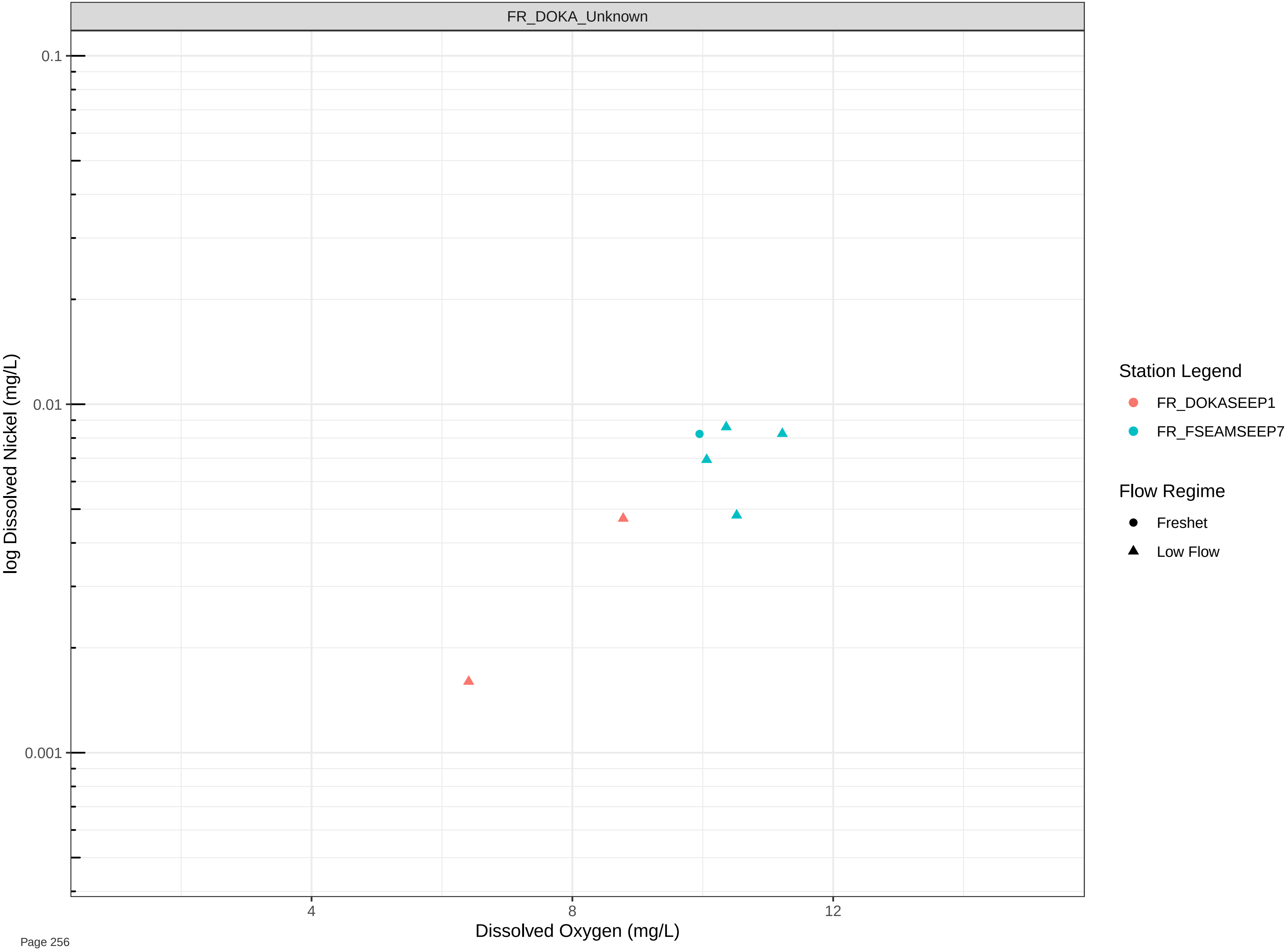
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow


FR_DOKA_Unknown
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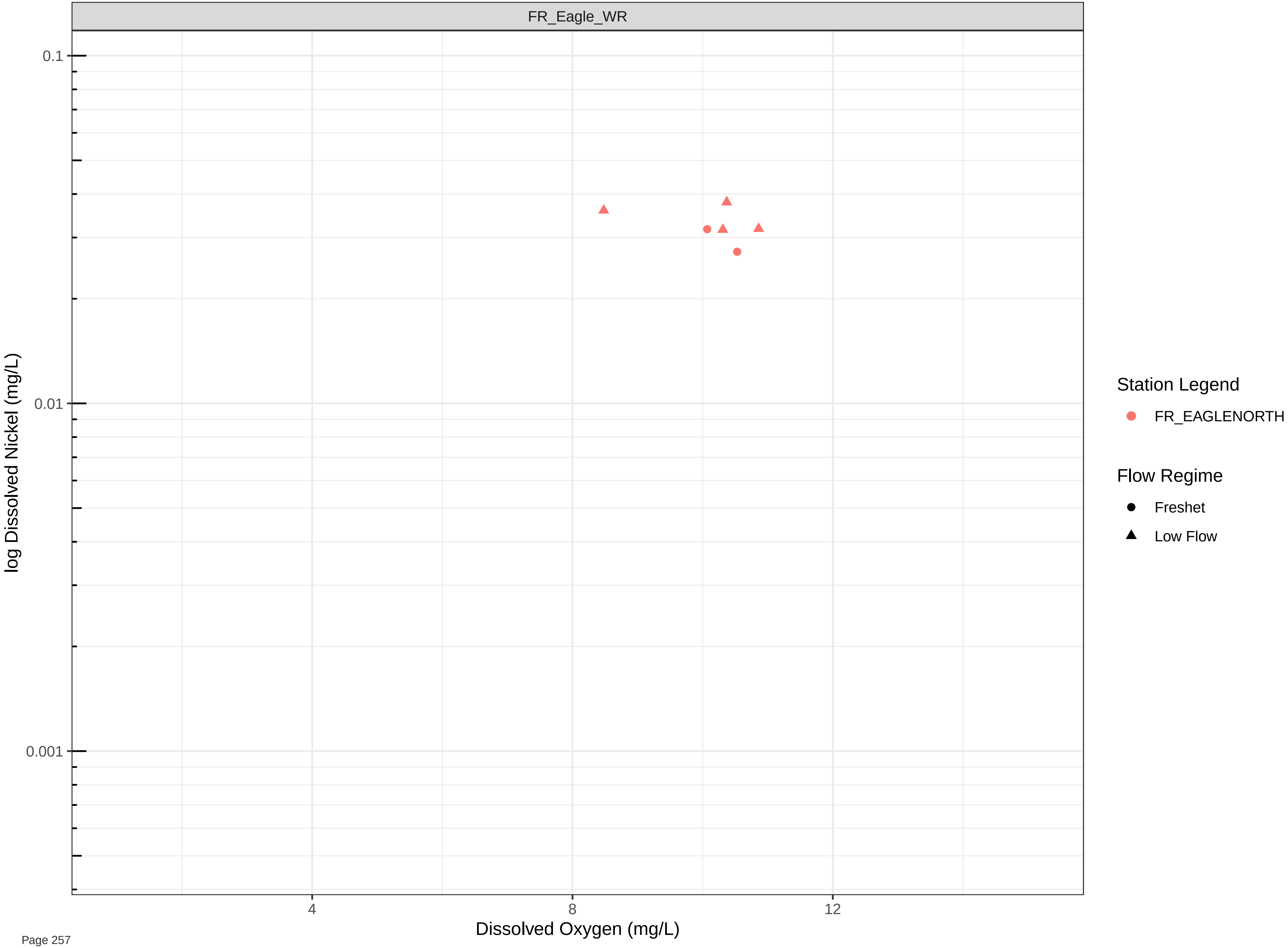
0.01
0.001
log Dissolved Nickel (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow


FR_Eagle_WR
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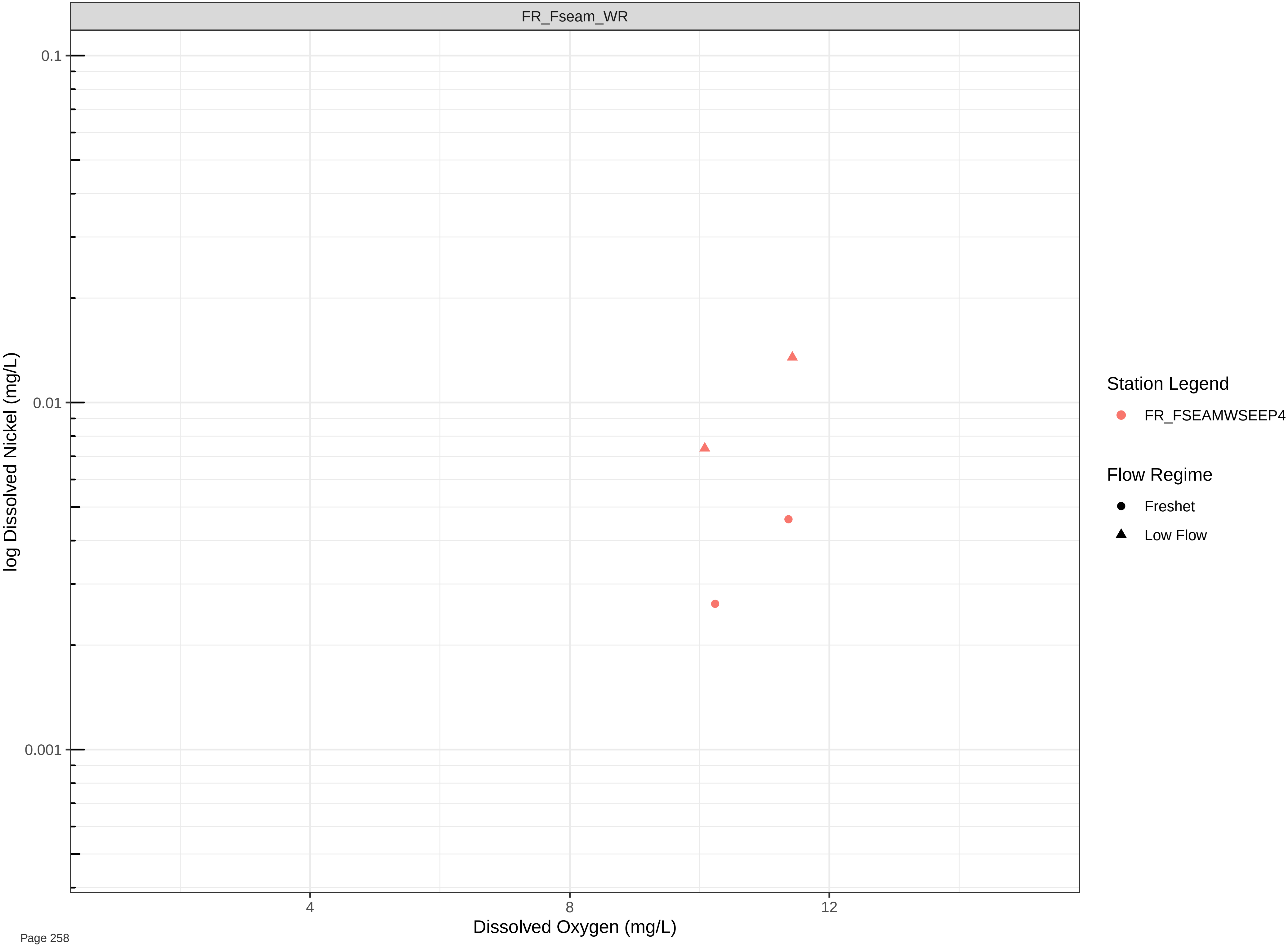
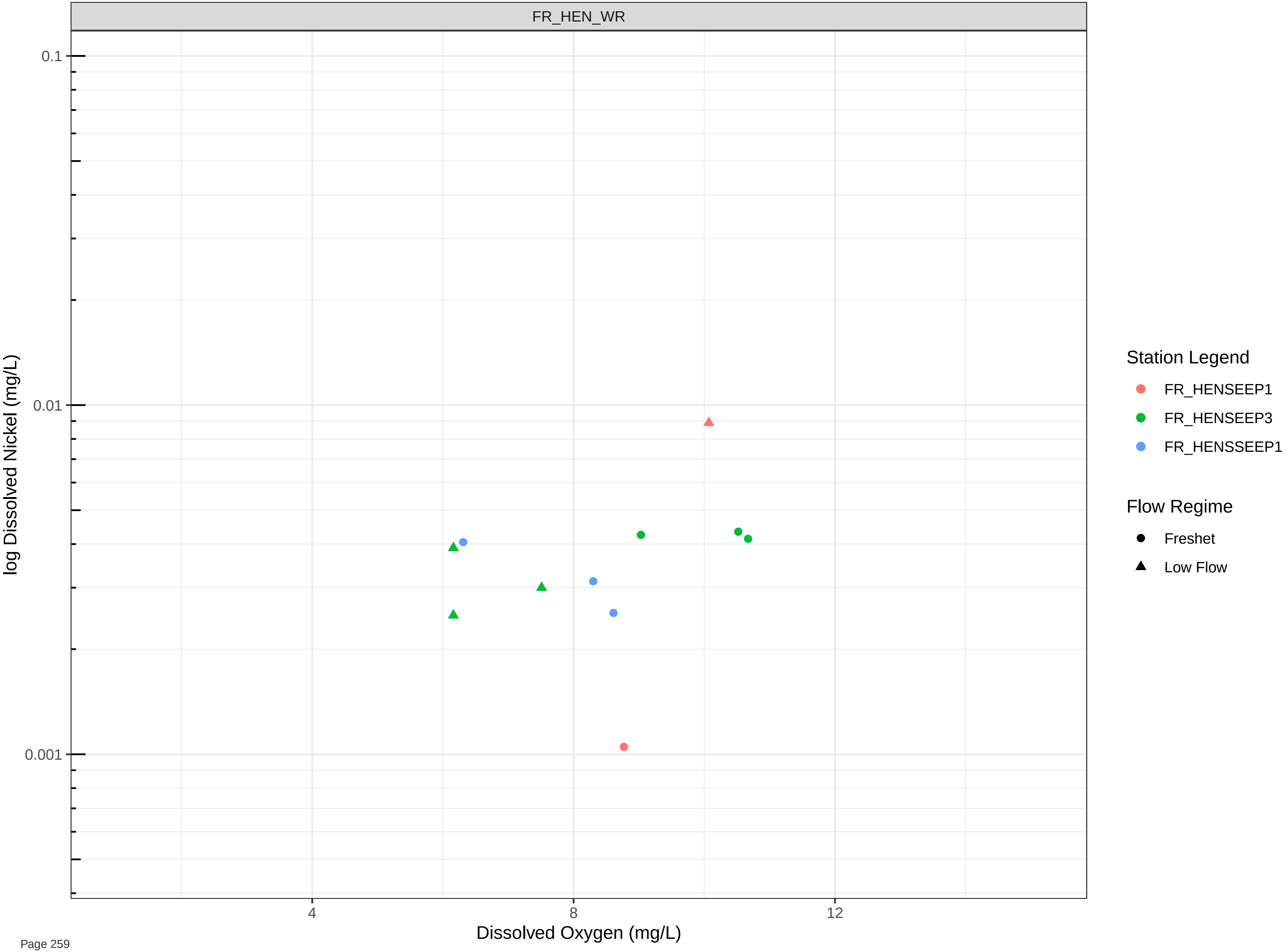
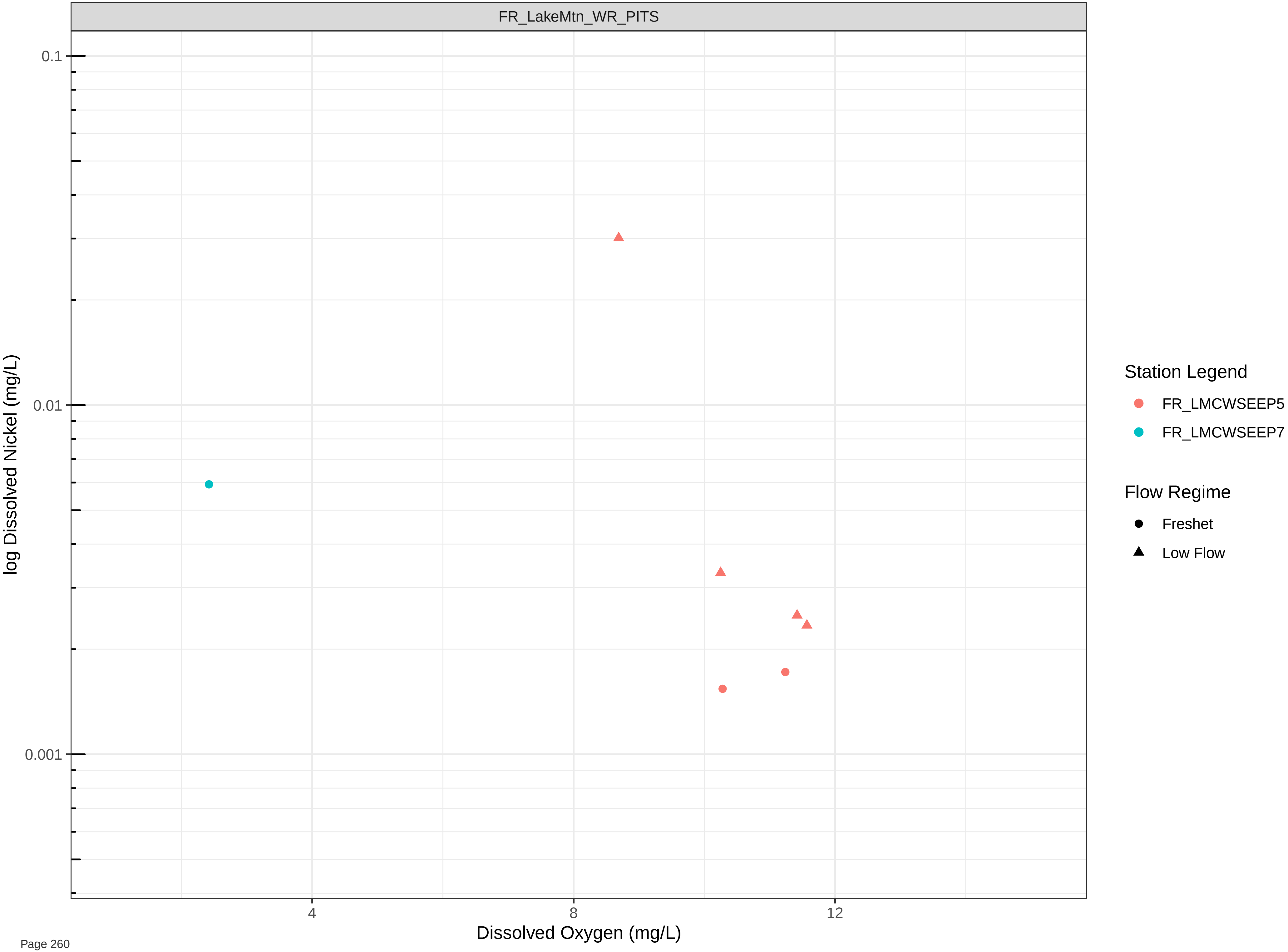
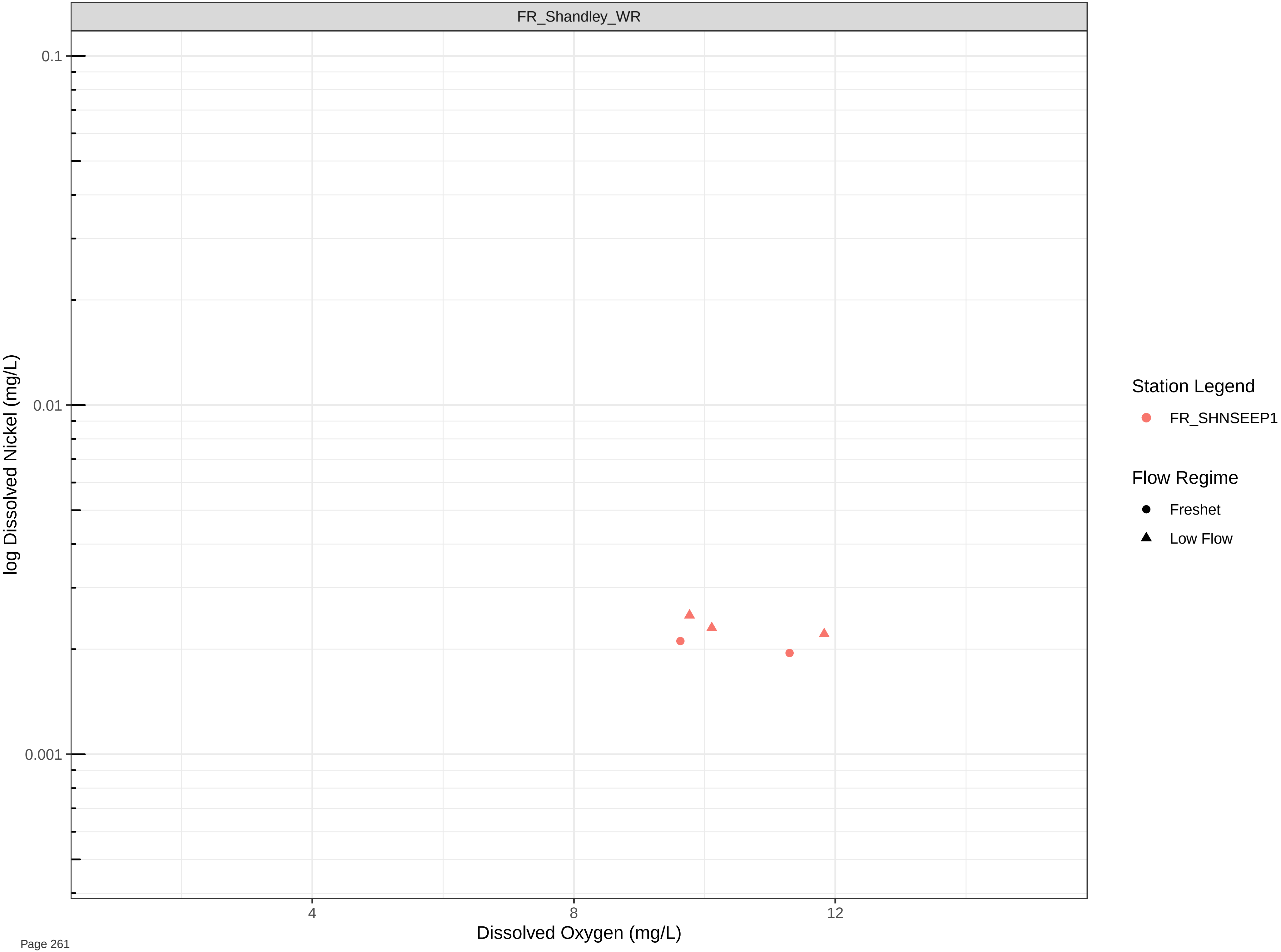
0.01
0.001
log Dissolved Nickel (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow


FR_Fseam_WR
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow


FR_HEN_WR
0.1
0.01
0.001
log Dissolved Nickel (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow


FR_LakeMtn_WR_PITS
0.1
0.01
0.001
log Dissolved Nickel (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow


FR_Shandley_WR
log Dissolved Nickel (mg/L)
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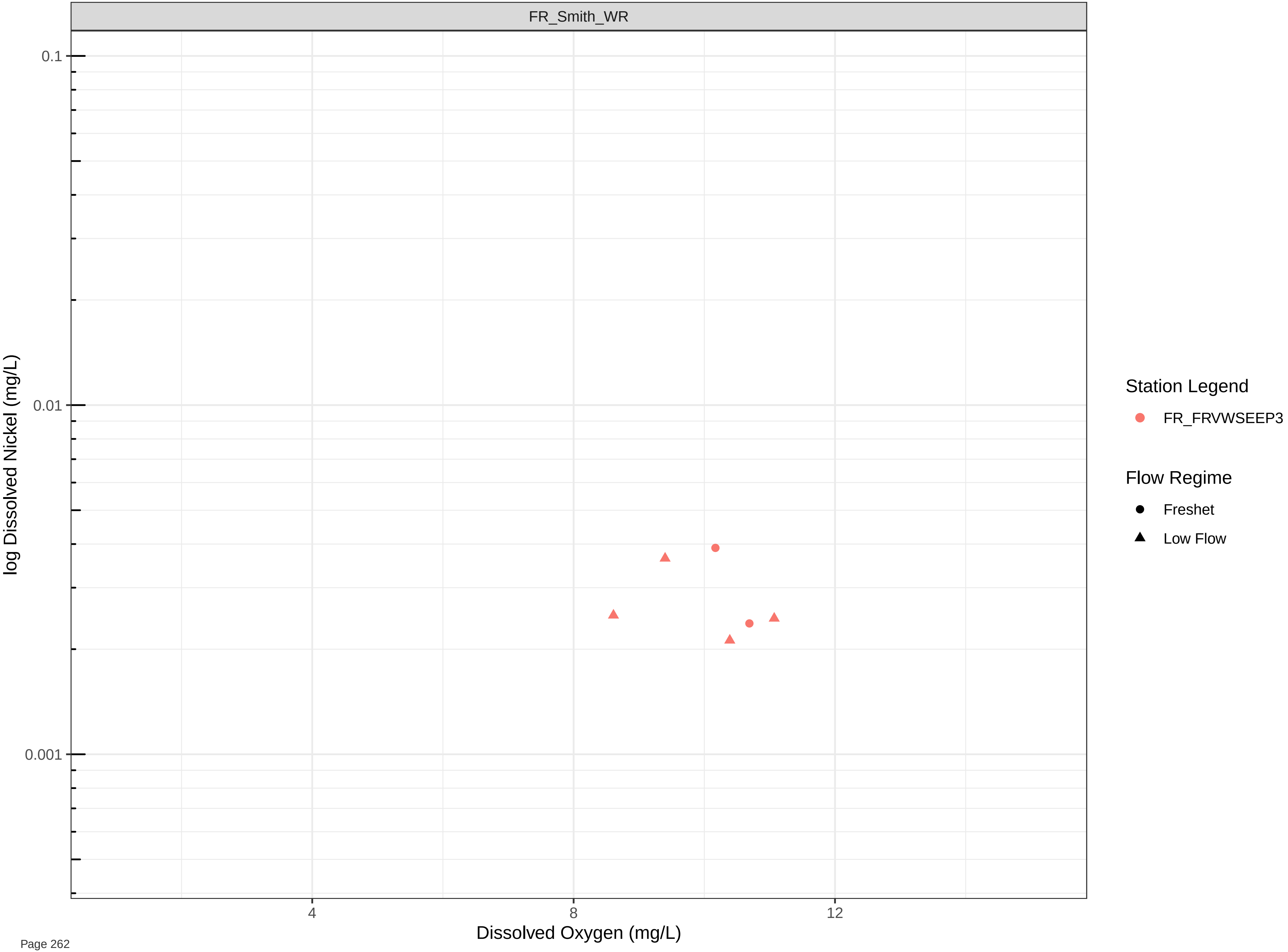
0.01
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_Smith_WR
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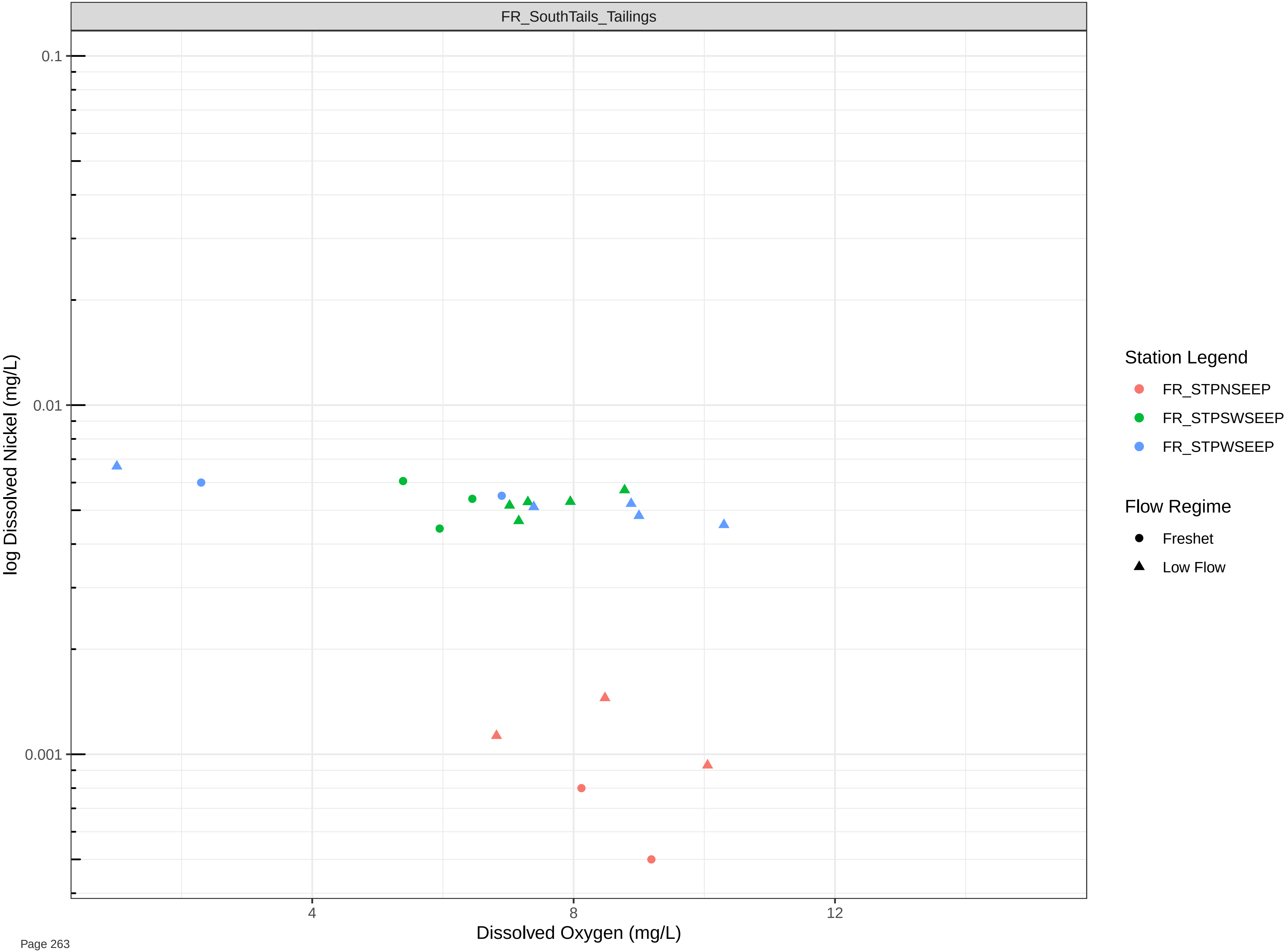
log Dissolved Nickel (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow


FR_SouthTails_Tailings
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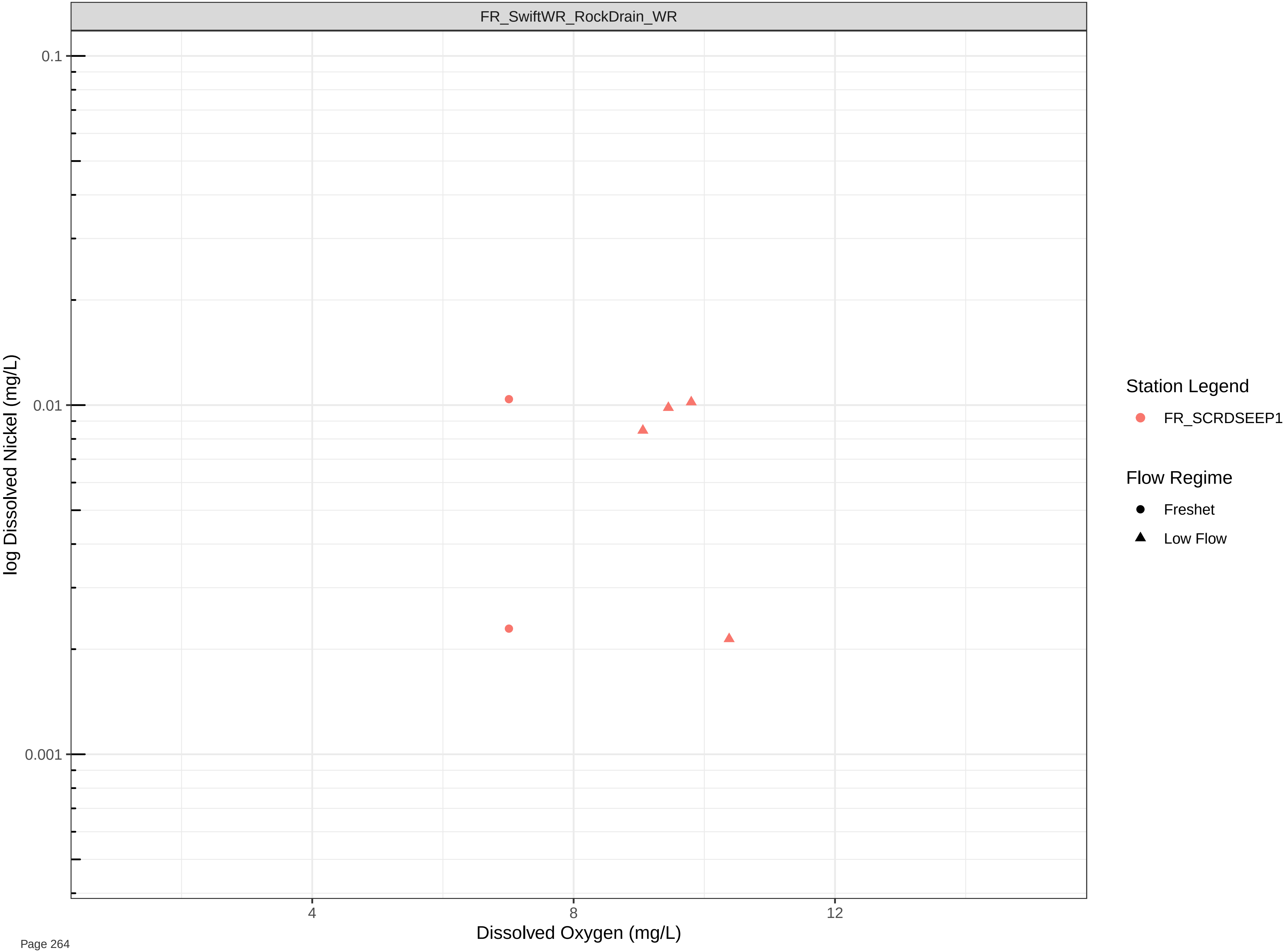
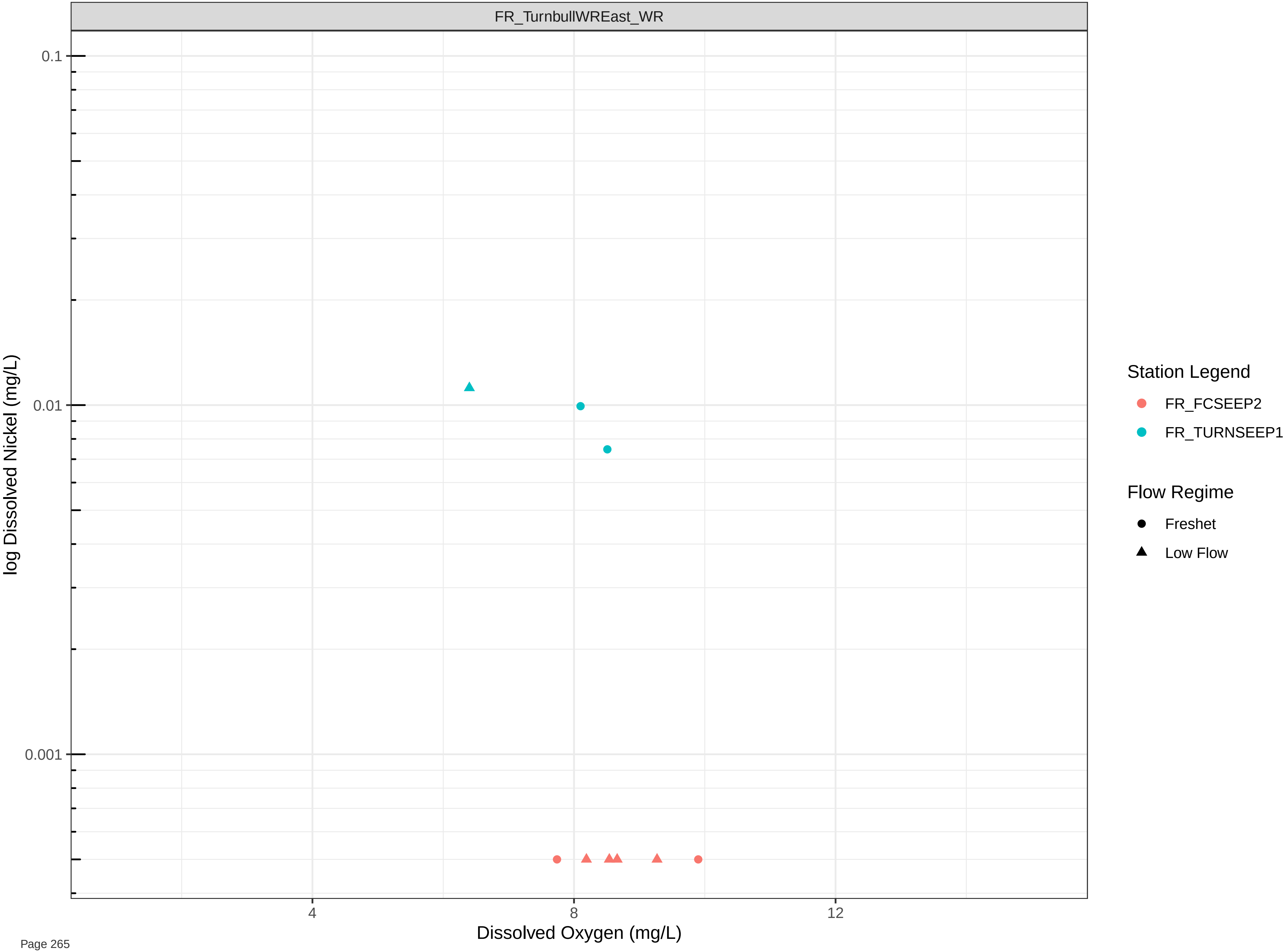
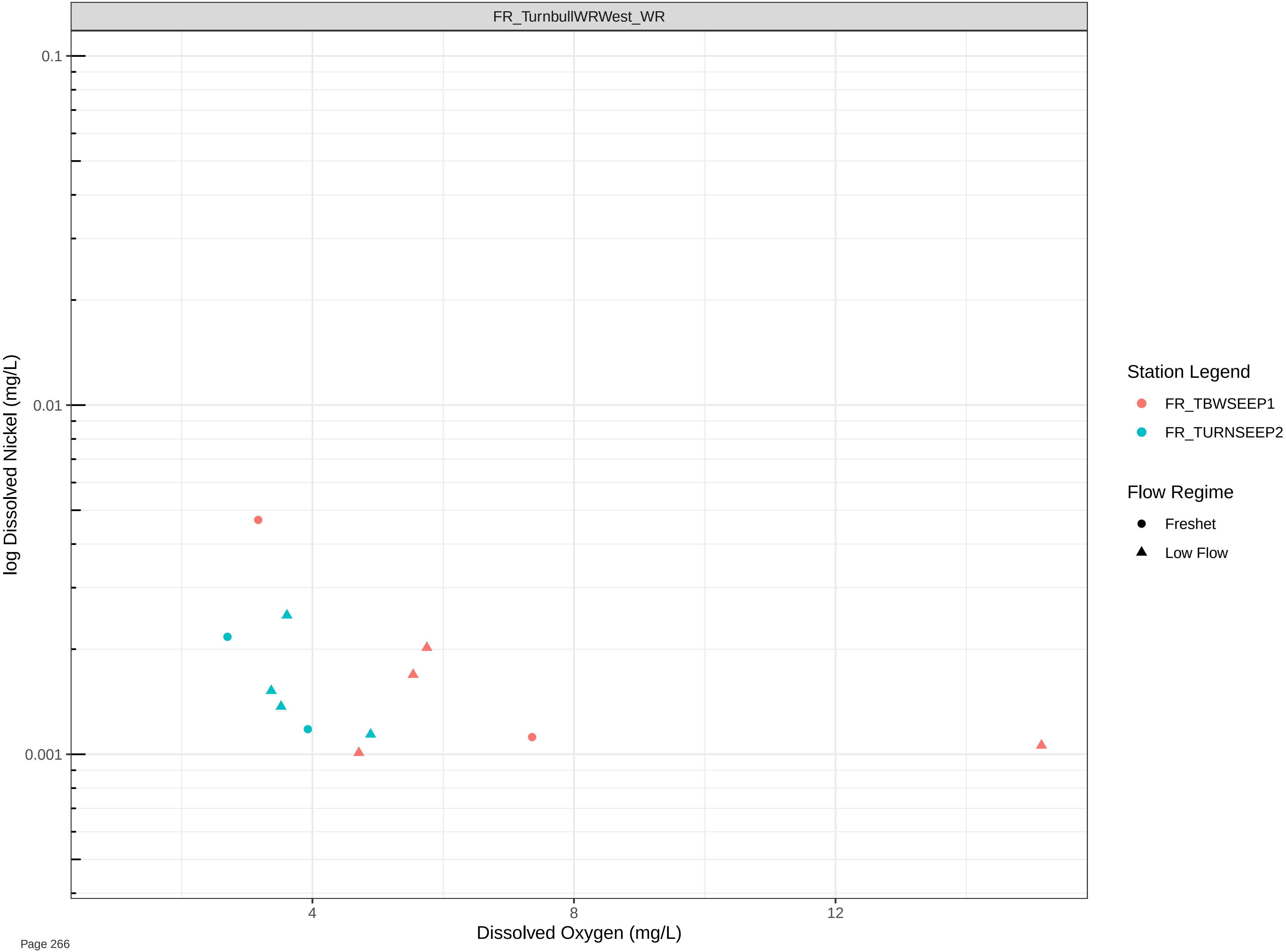
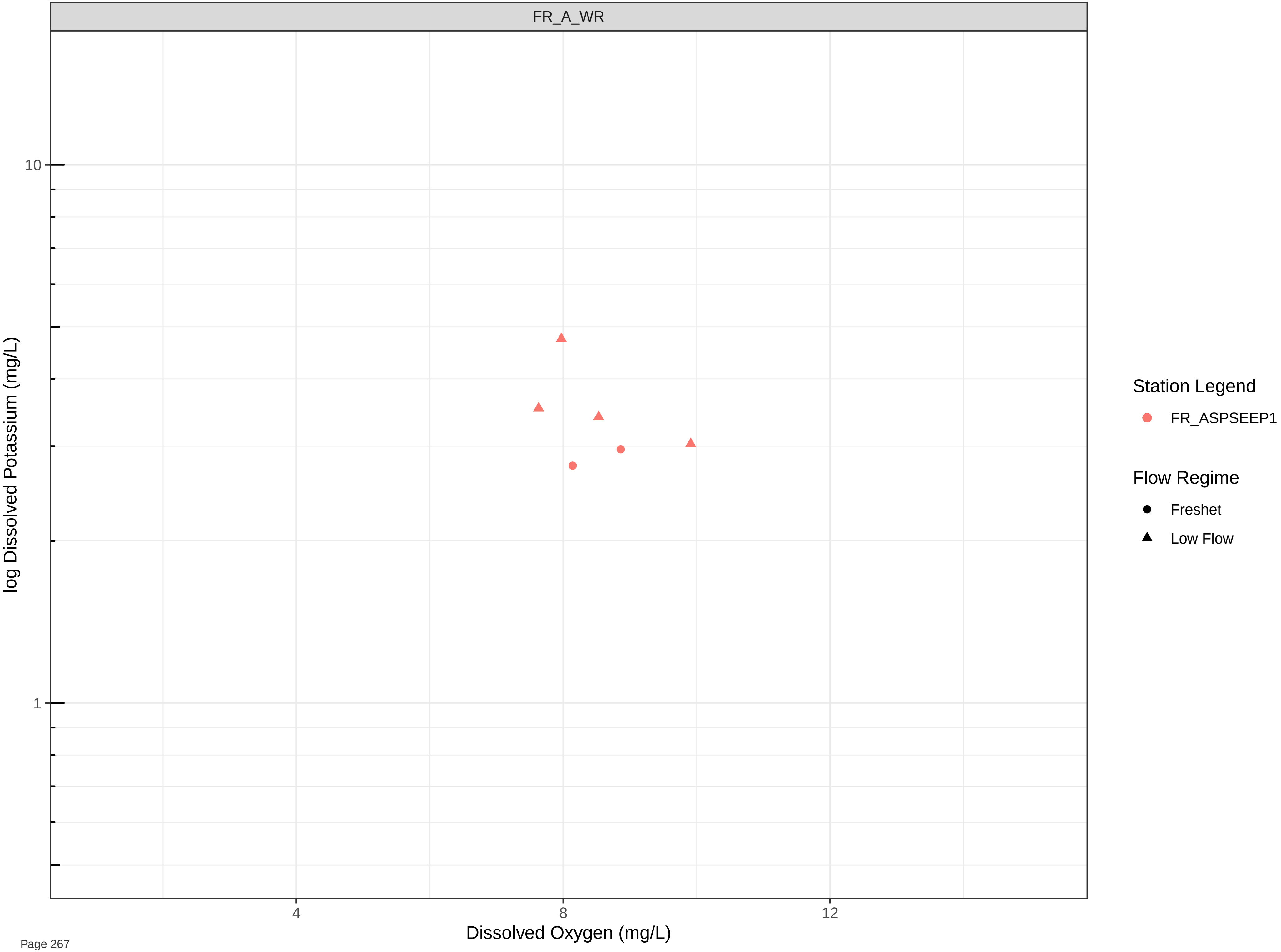
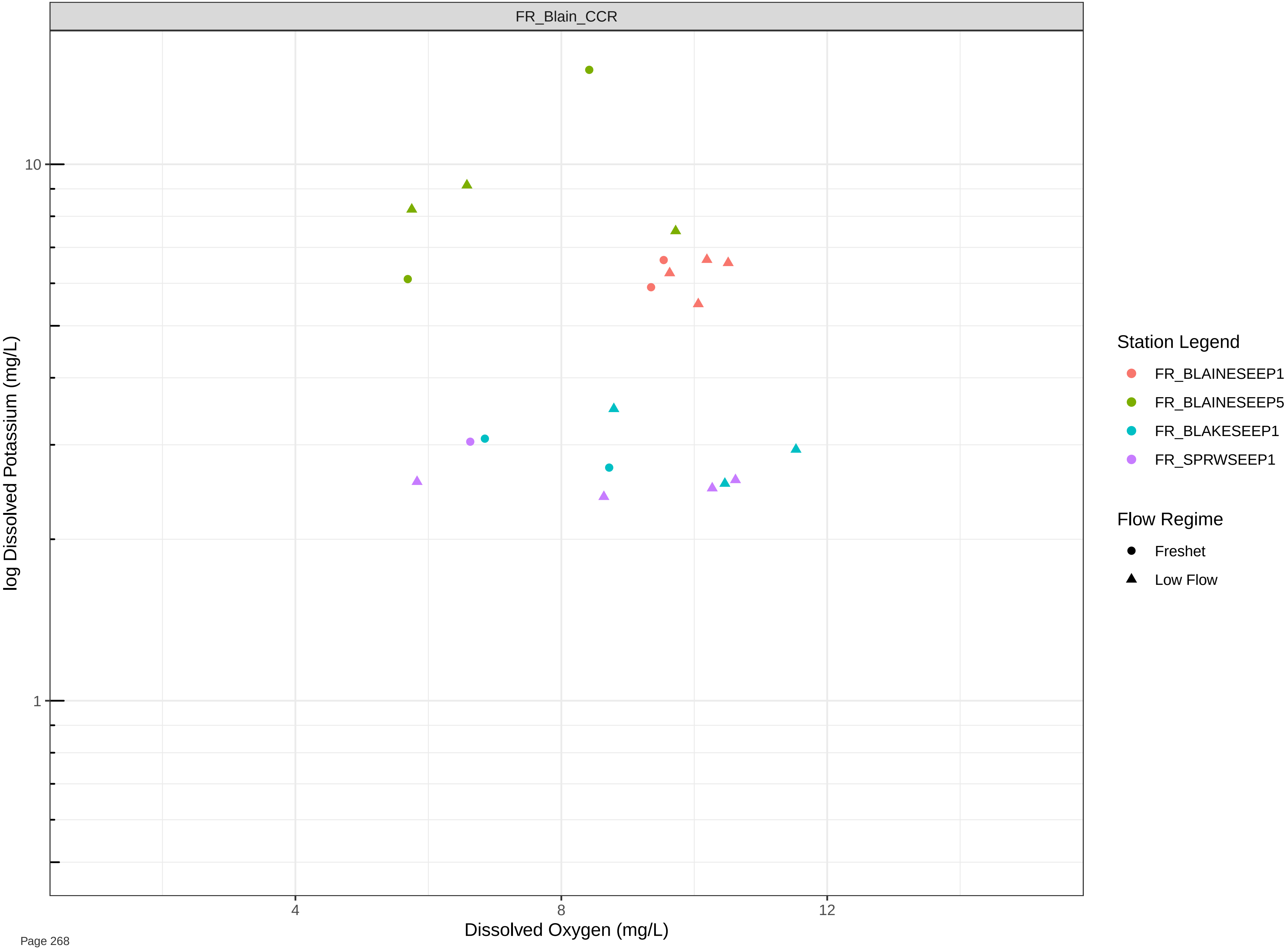
0.001
log Dissolved Nickel (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

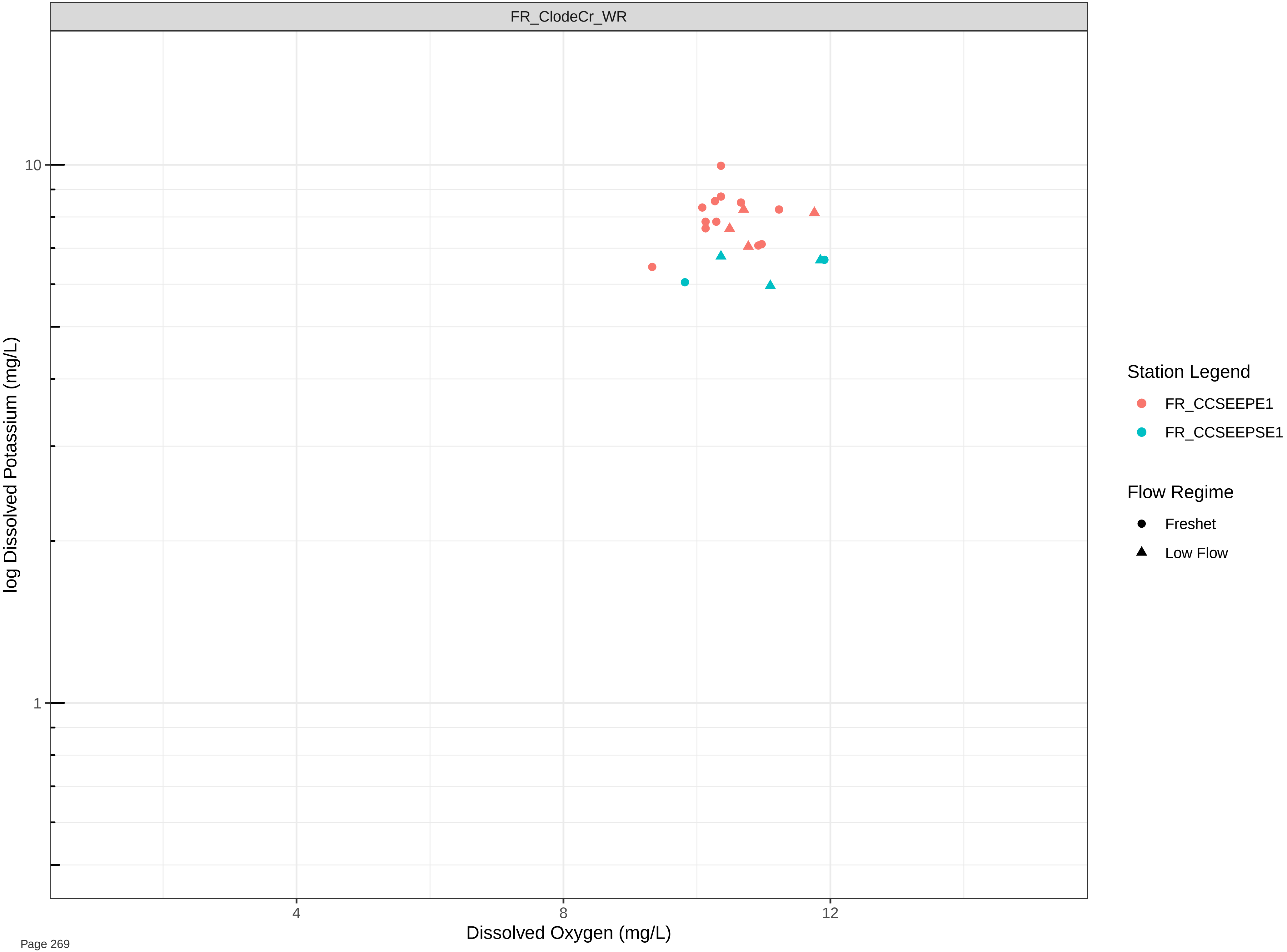

FR_SwiftWR_RockDrain_WR
0.1
0.01
0.001
log Dissolved Nickel (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

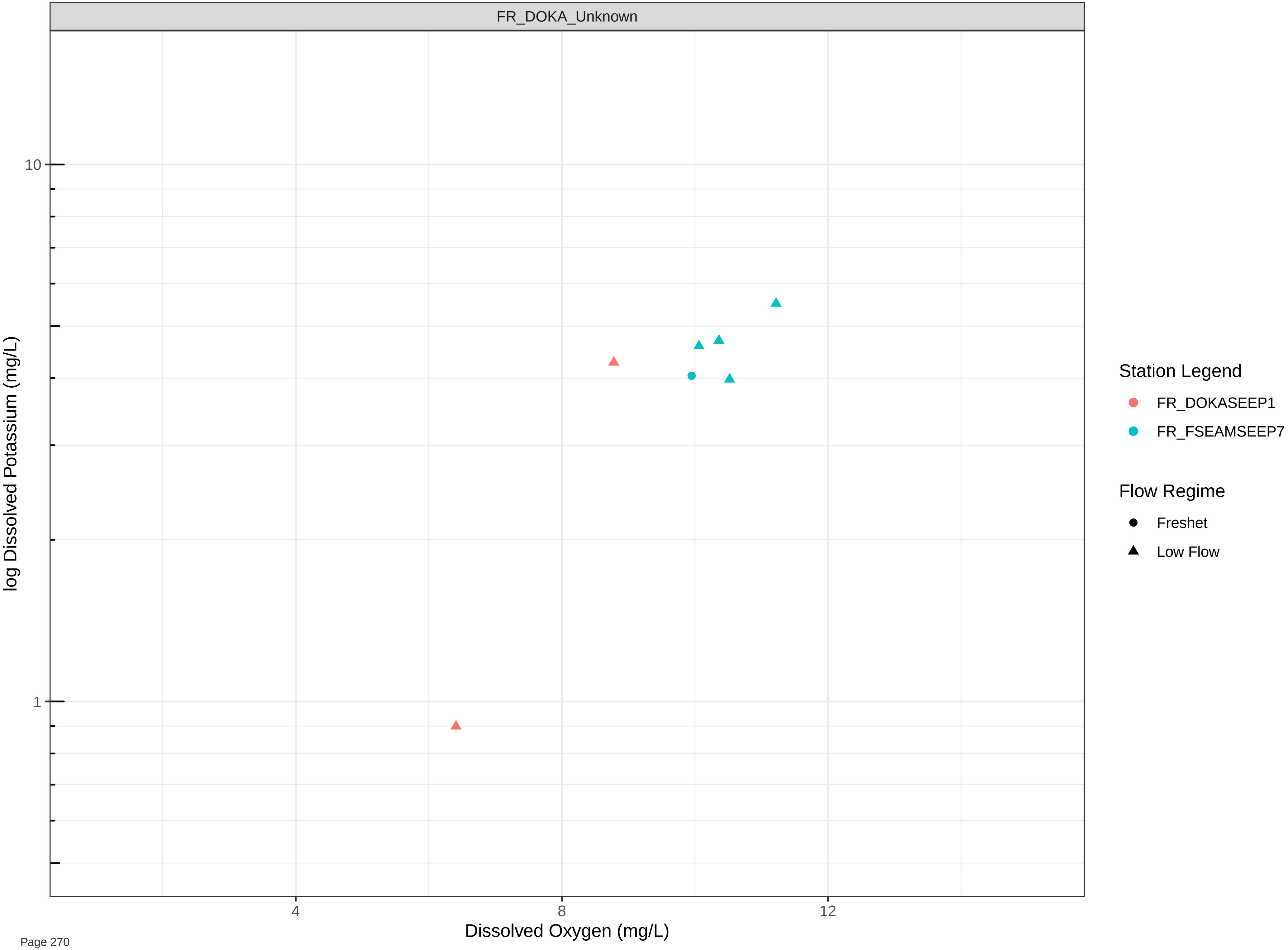

FR_TurnbullWREast_WR
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FCSEEP2
● FR_TURNSEEP1
Flow Regime
● Freshet
▲ Low Flow

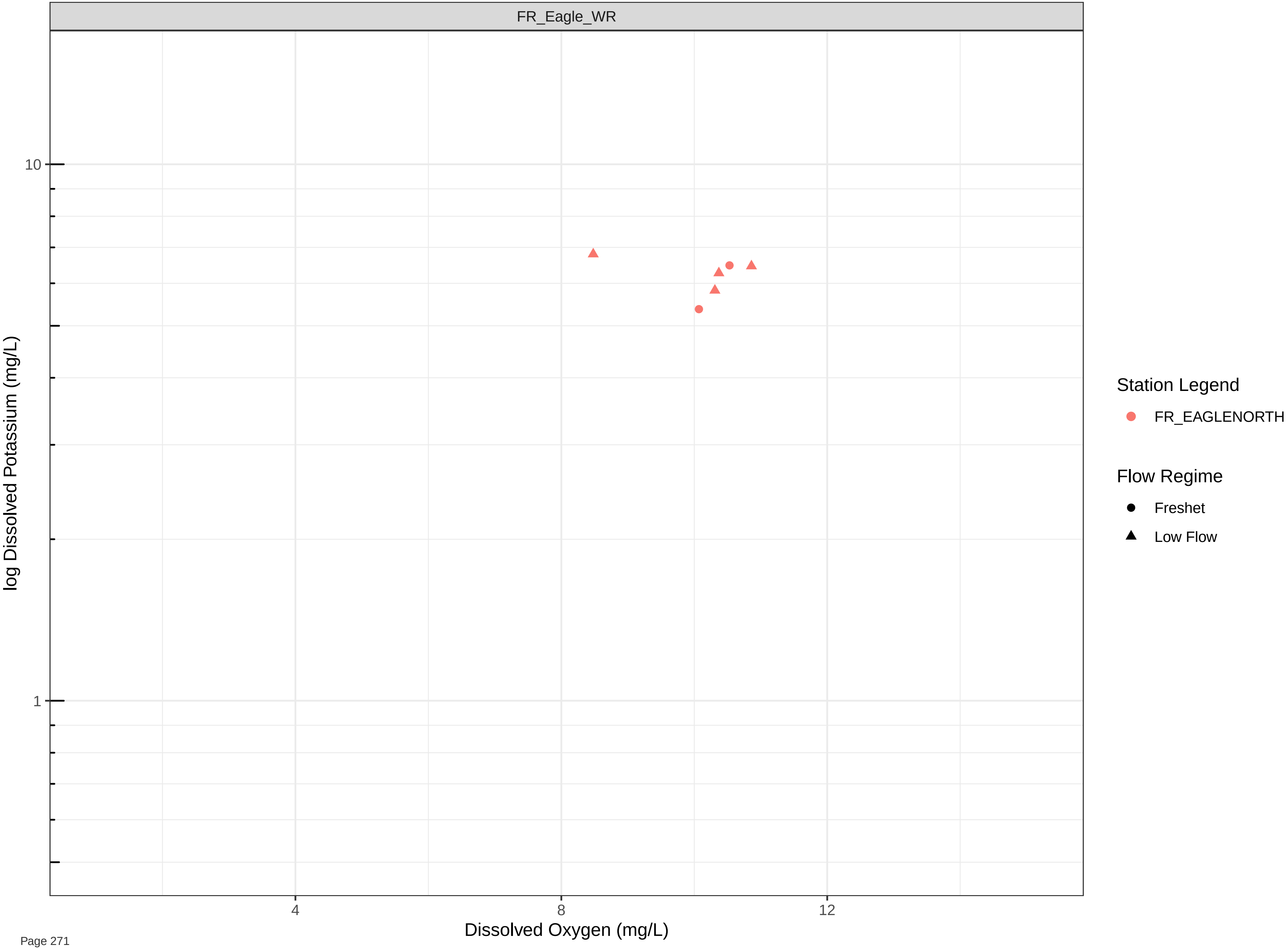

FR_TurnbullWRWest_WR
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_TBWSEEP1
● FR_TURNSEEP2
Flow Regime
● Freshet
▲ Low Flow

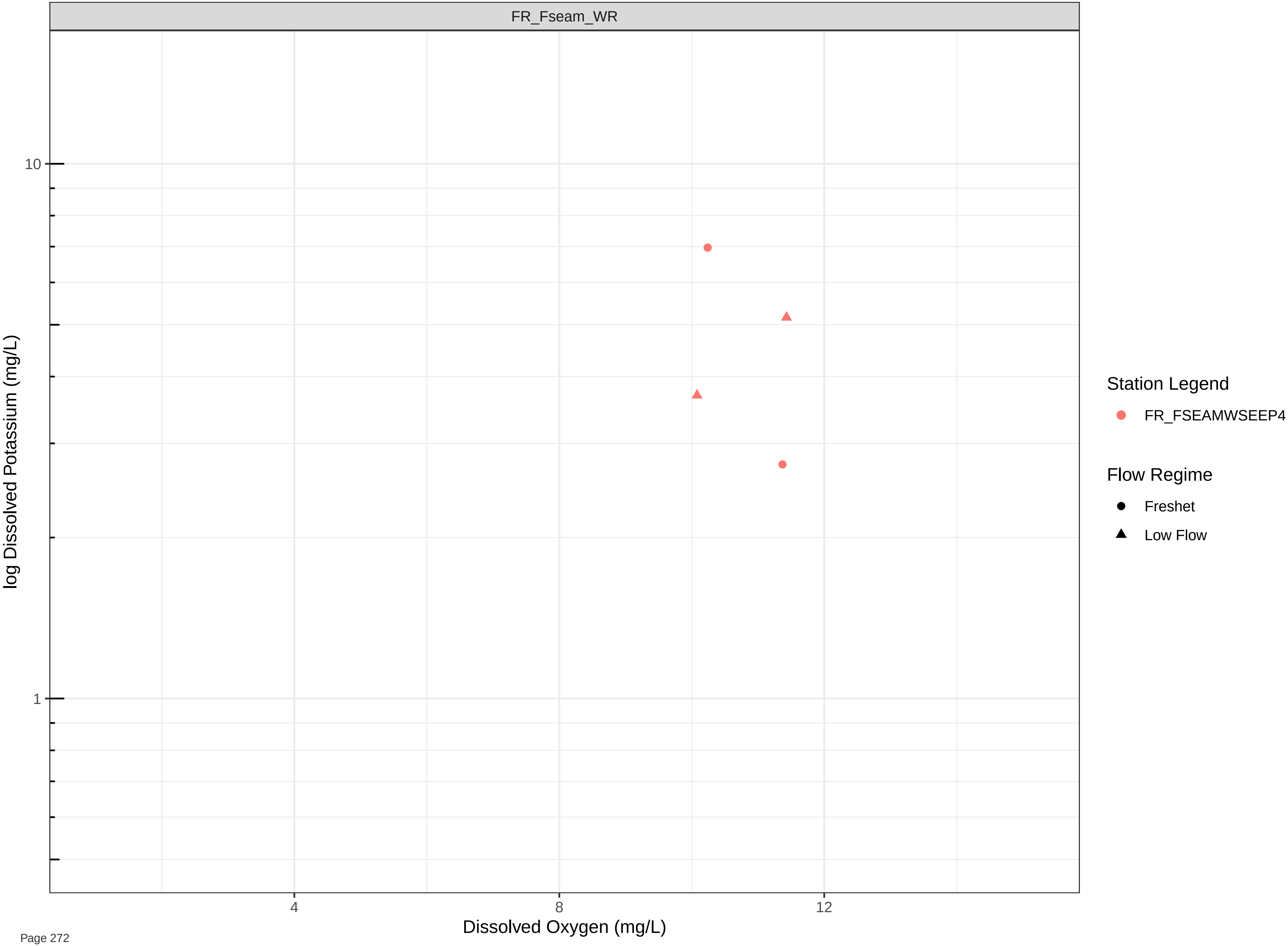

FR_A_WR
10
1
log Dissolved Potassium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

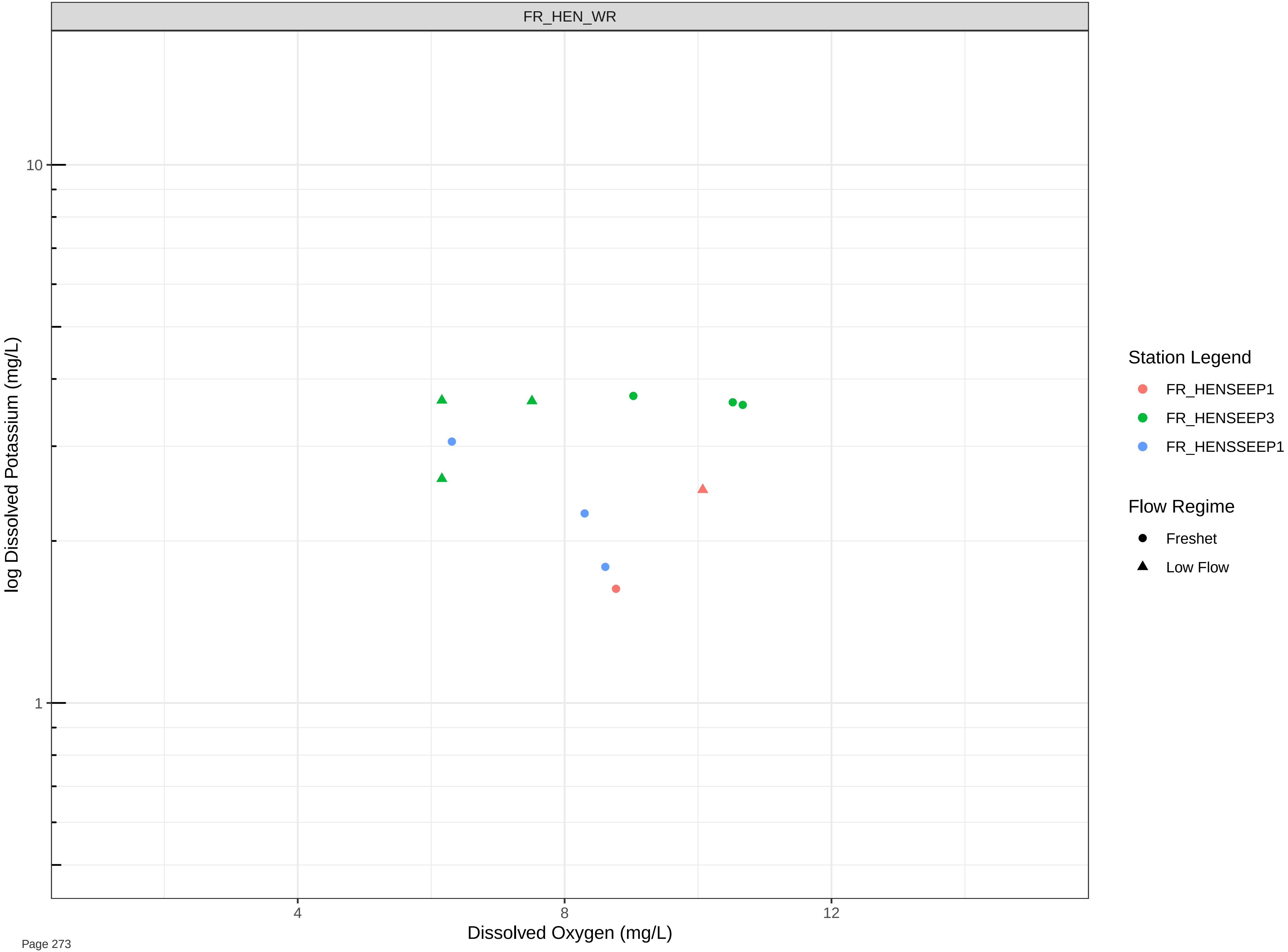

FR_Blain_CCR
log Dissolved Potassium (mg/L)
10
1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

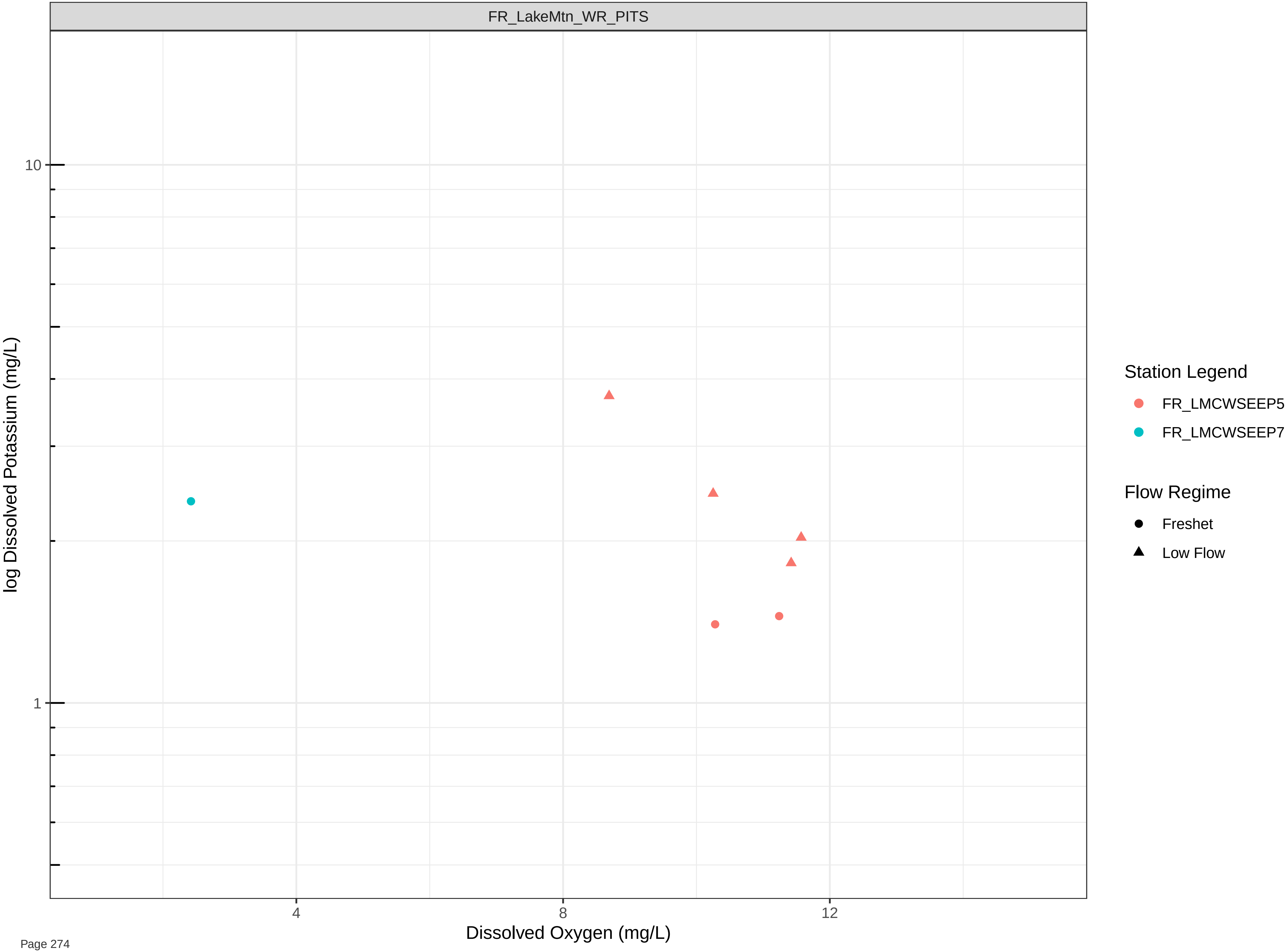

FR_ClodeCr_WR
log Dissolved Potassium (mg/L)
10
1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

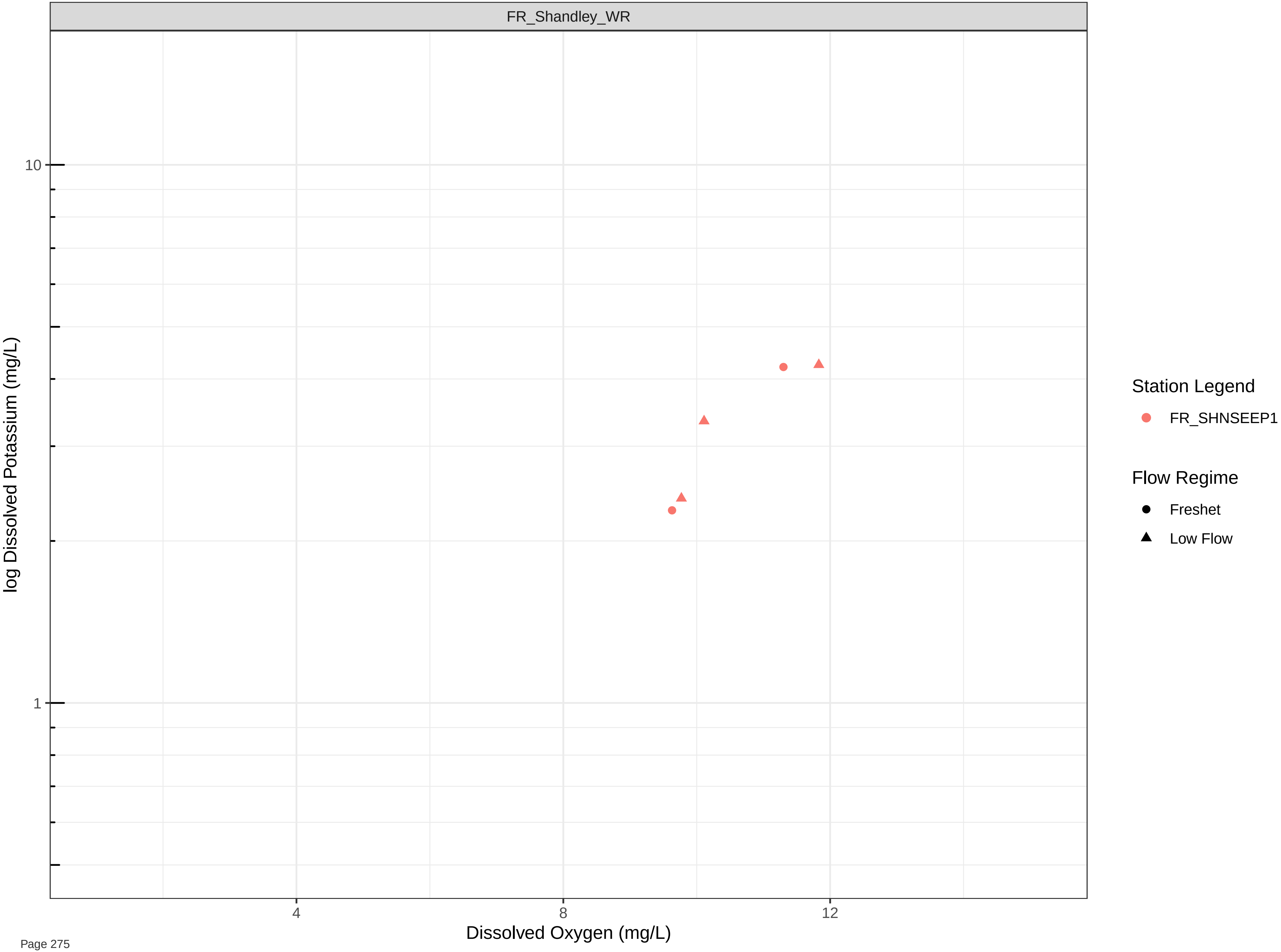

FR_DOKA_Unknown
log Dissolved Potassium (mg/L)
10
1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

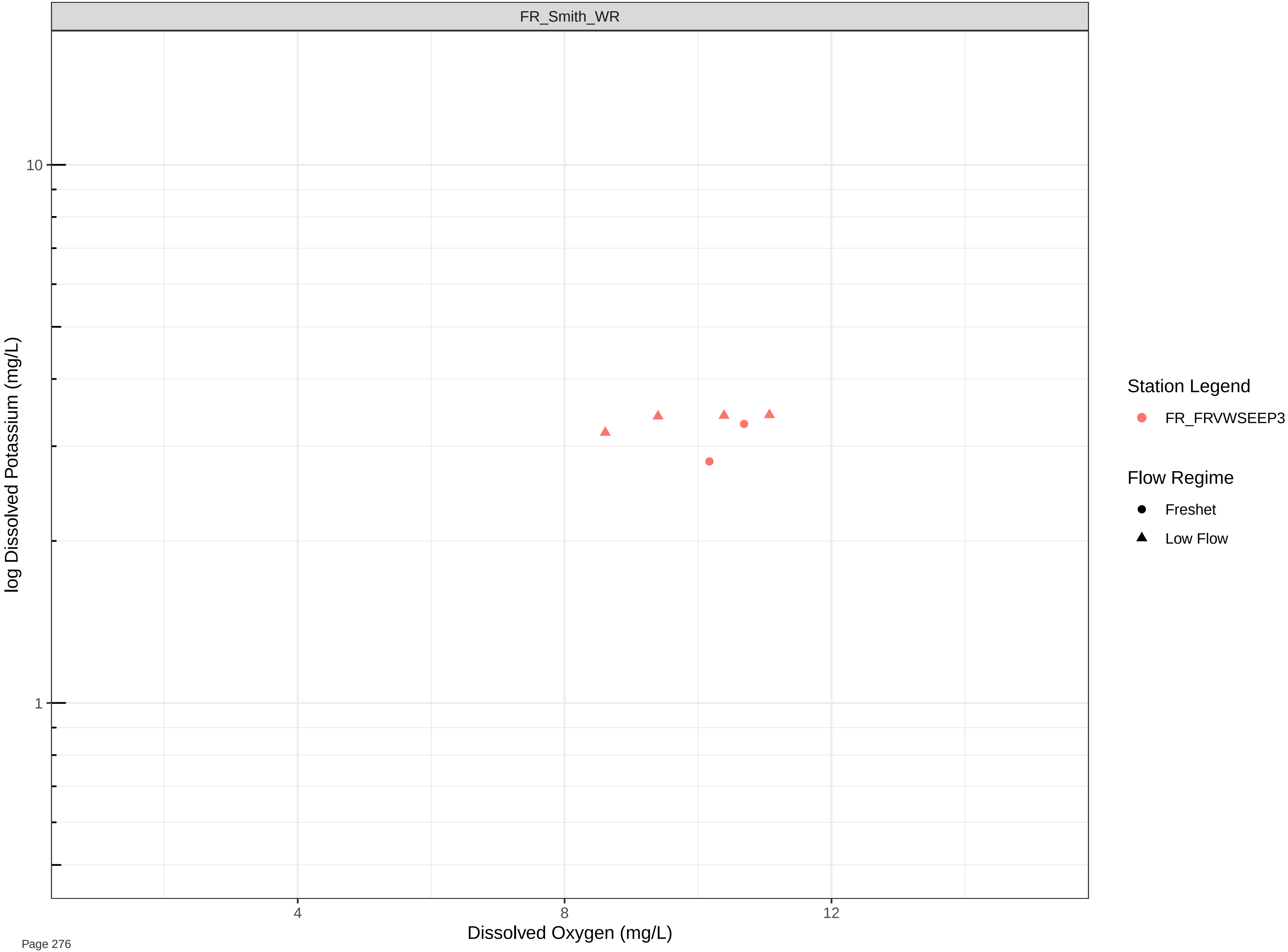

FR_Eagle_WR
log Dissolved Potassium (mg/L)
10
1
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

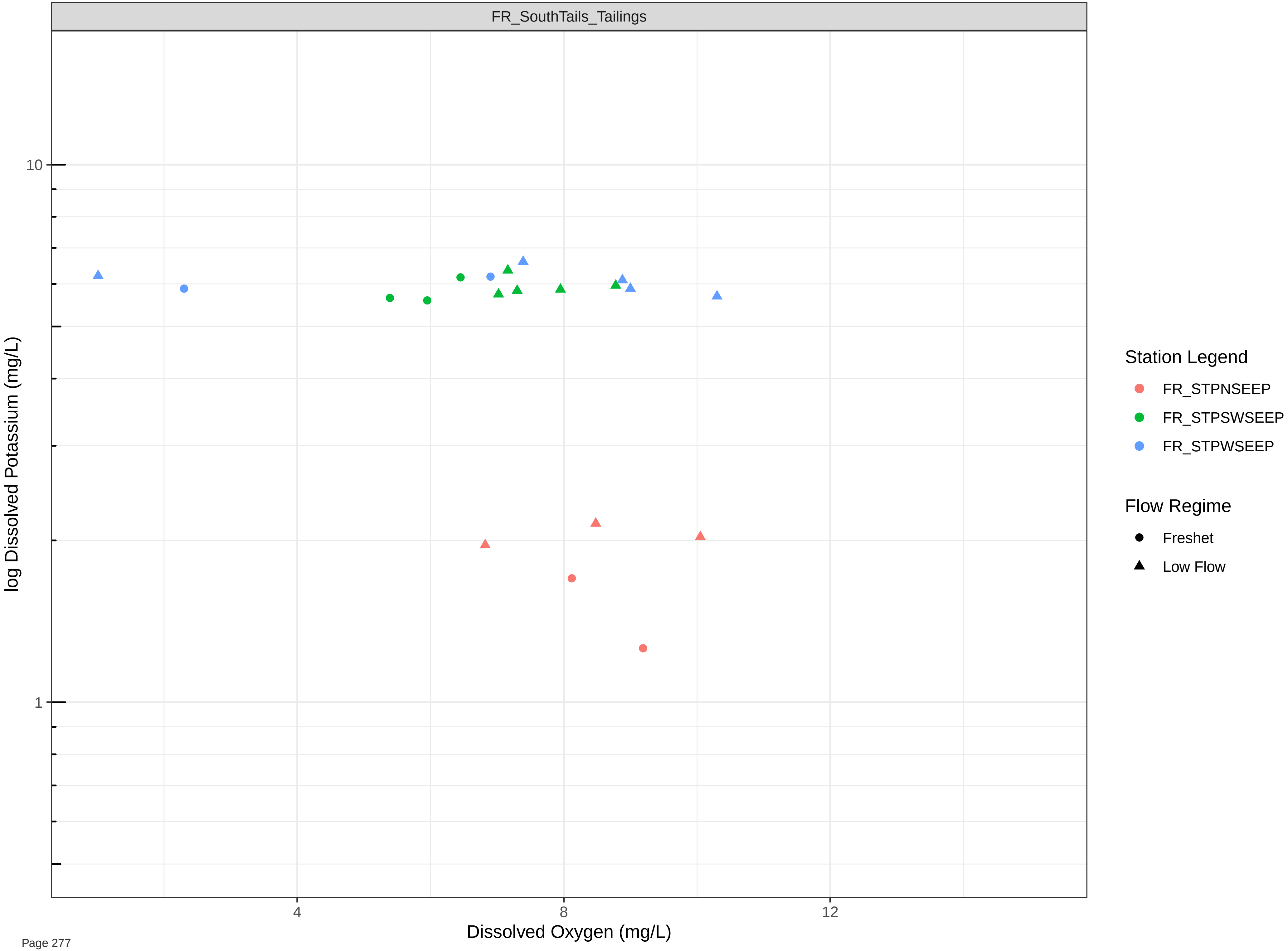

FR_Fseam_WR
10
1
log Dissolved Potassium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow


FR_HEN_WR
10
1
log Dissolved Potassium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow


FR_LakeMtn_WR_PITS
log Dissolved Potassium (mg/L)
10
1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow


FR_Shandley_WR
log Dissolved Potassium (mg/L)
10
1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow


FR_Smith_WR
10
1
log Dissolved Potassium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow


FR_SouthTails_Tailings
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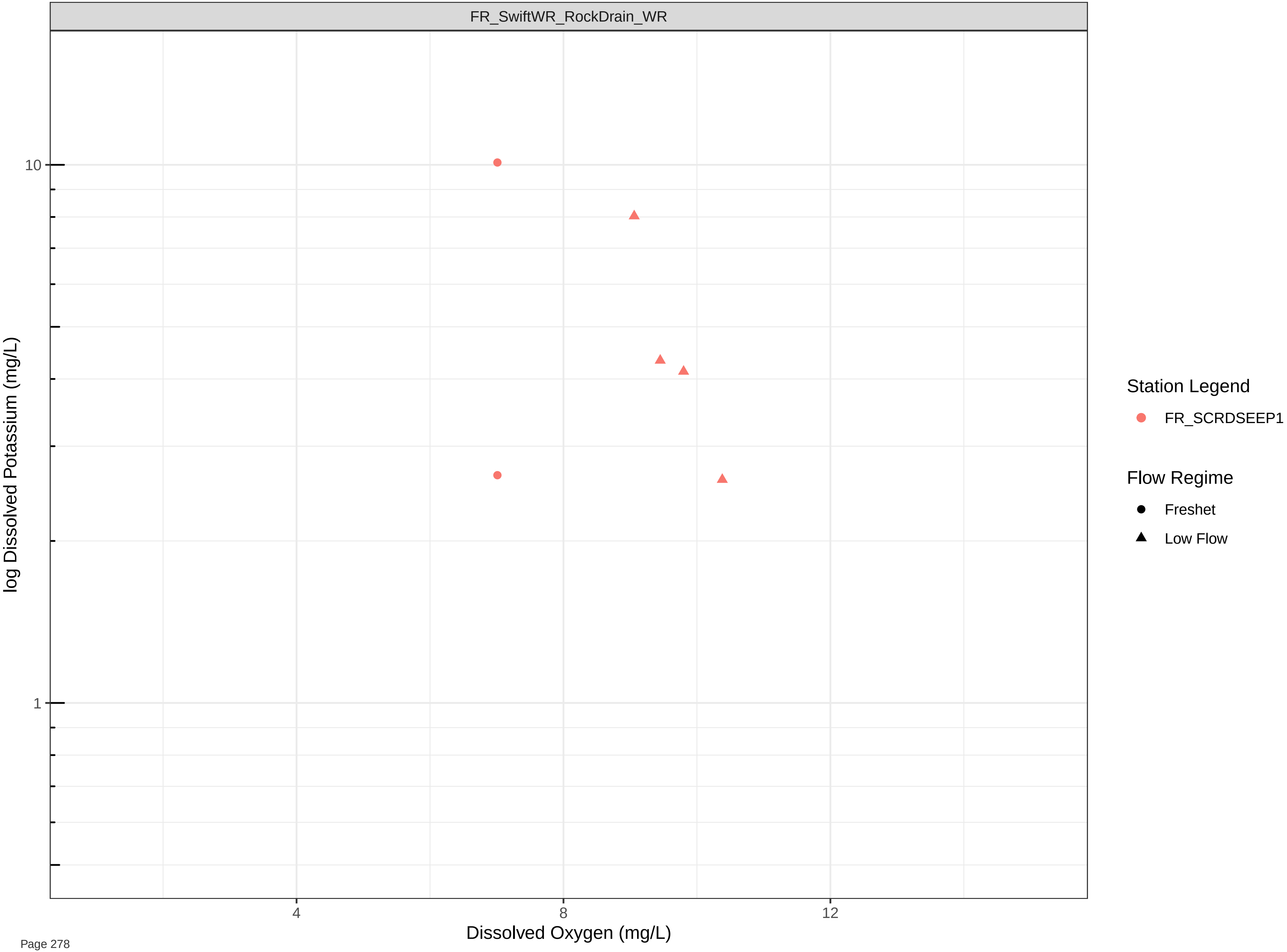
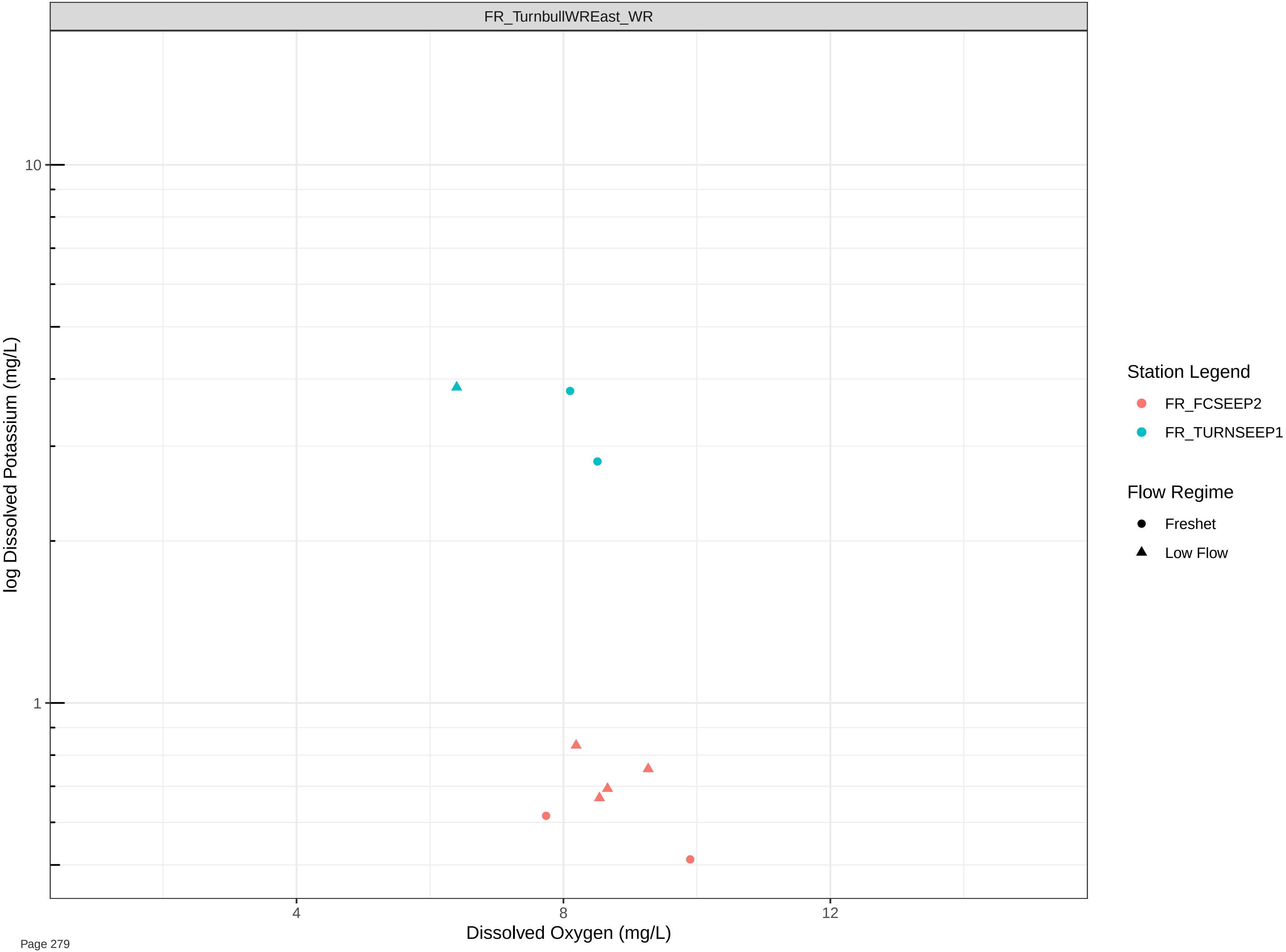
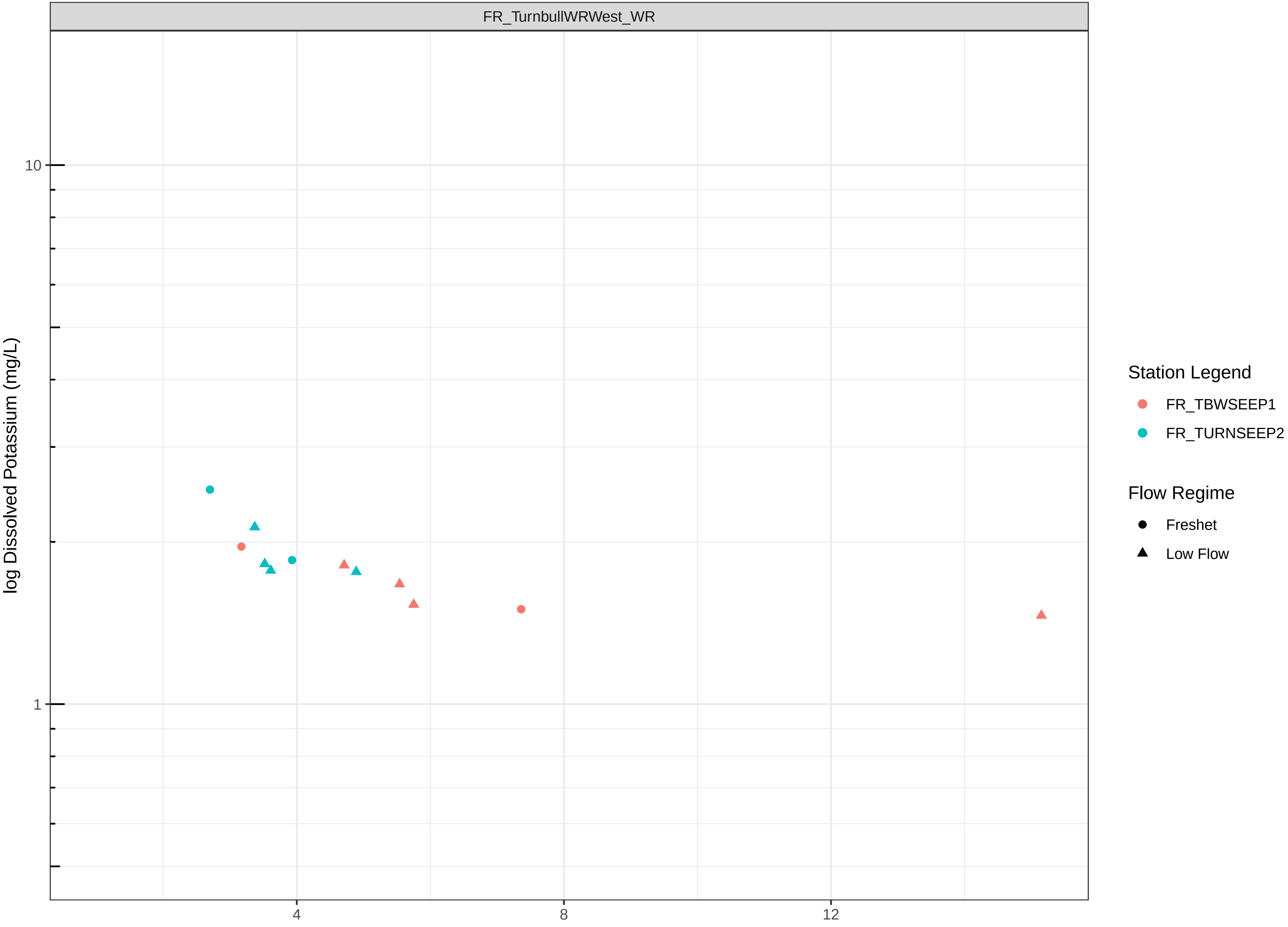
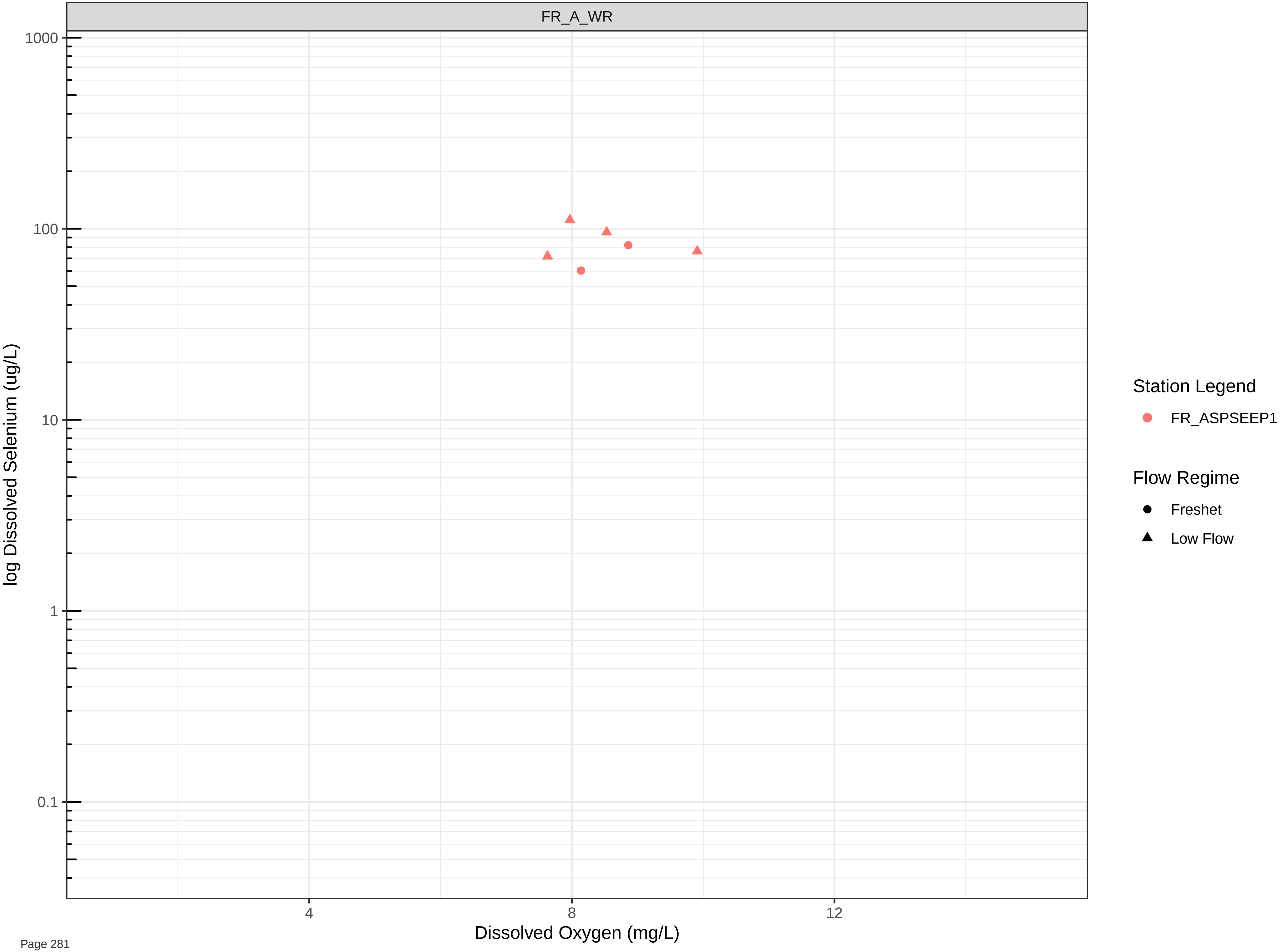
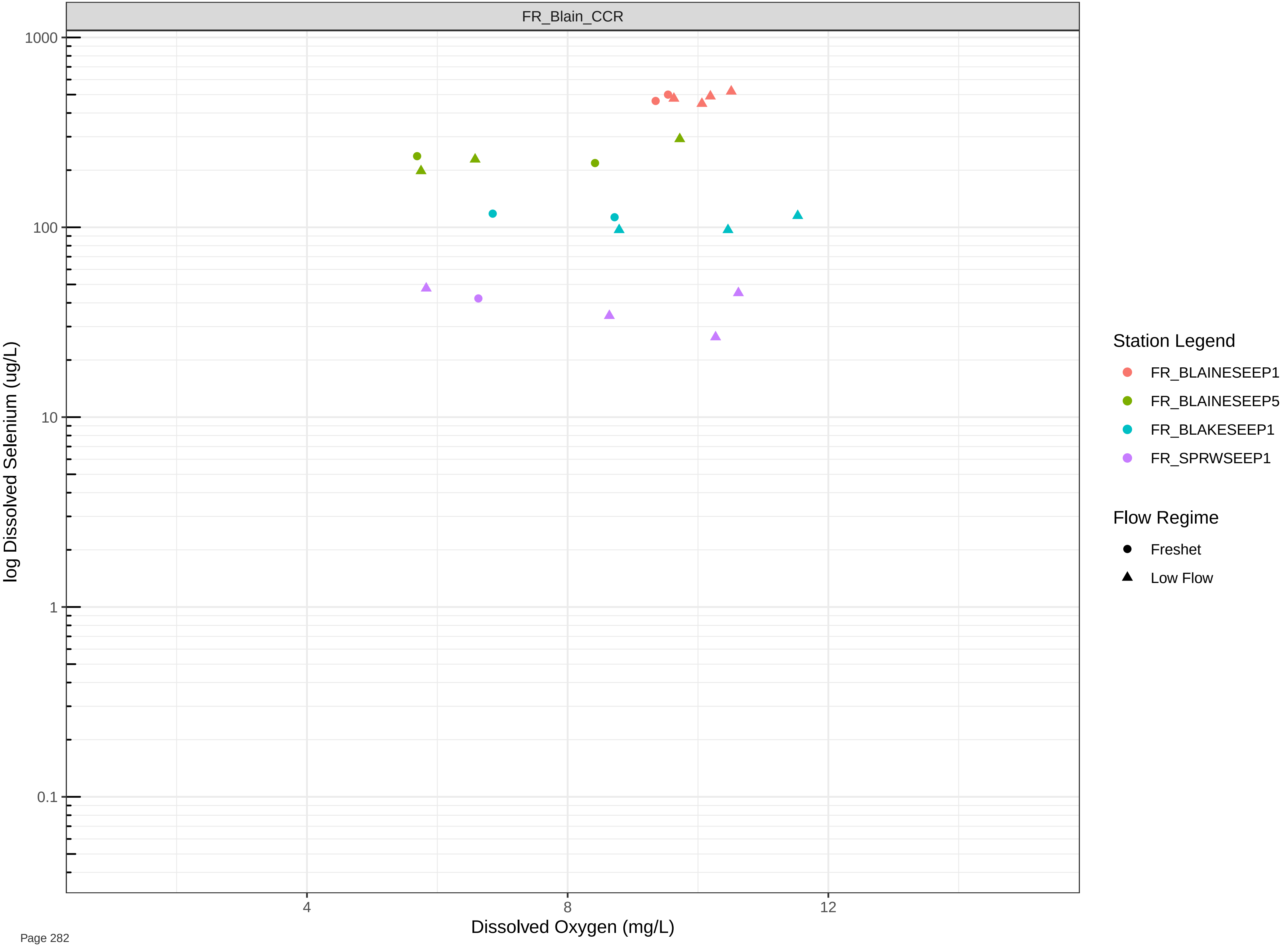
10
1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

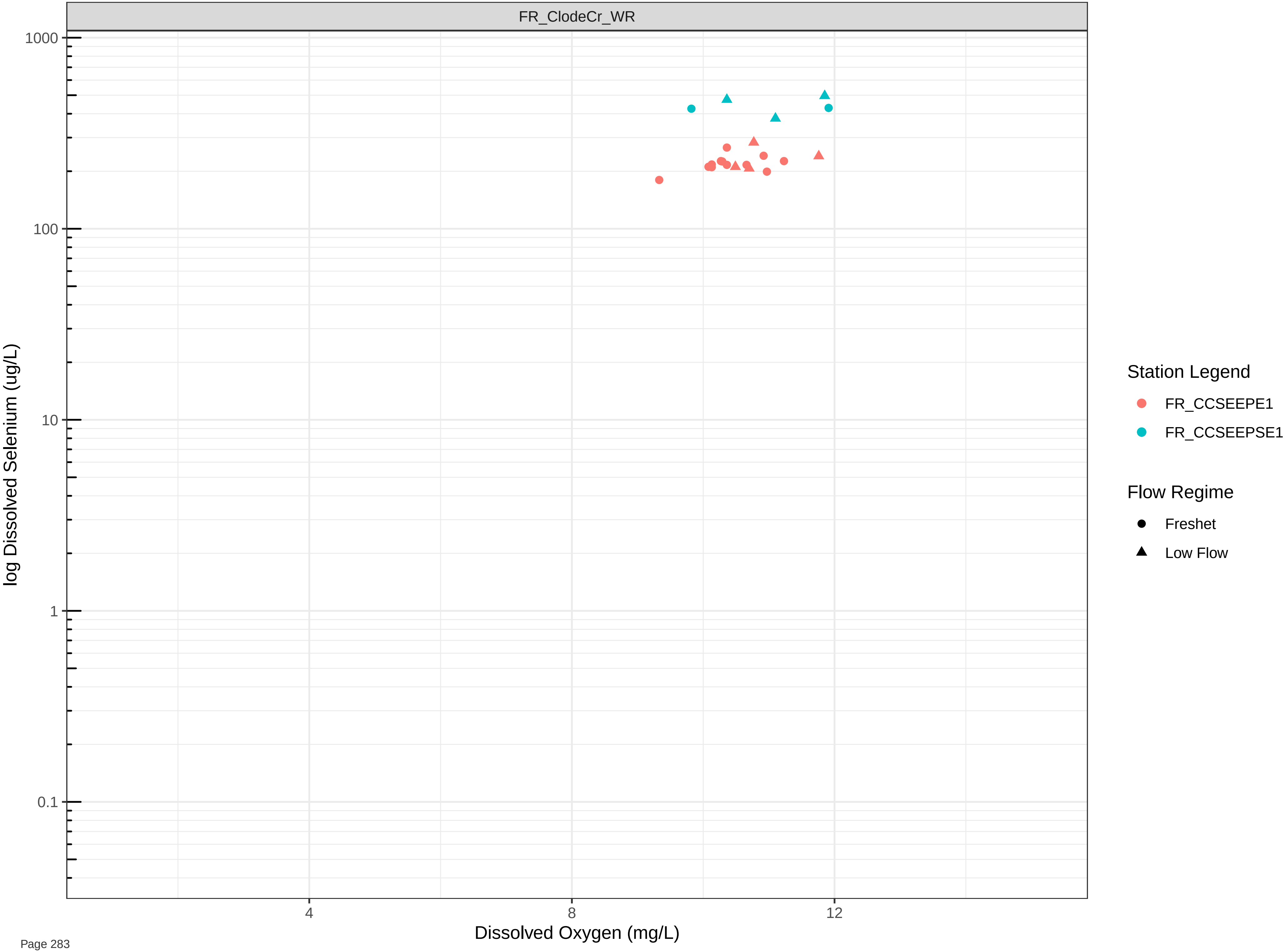

FR_SwiftWR_RockDrain_WR
10
1
log Dissolved Potassium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

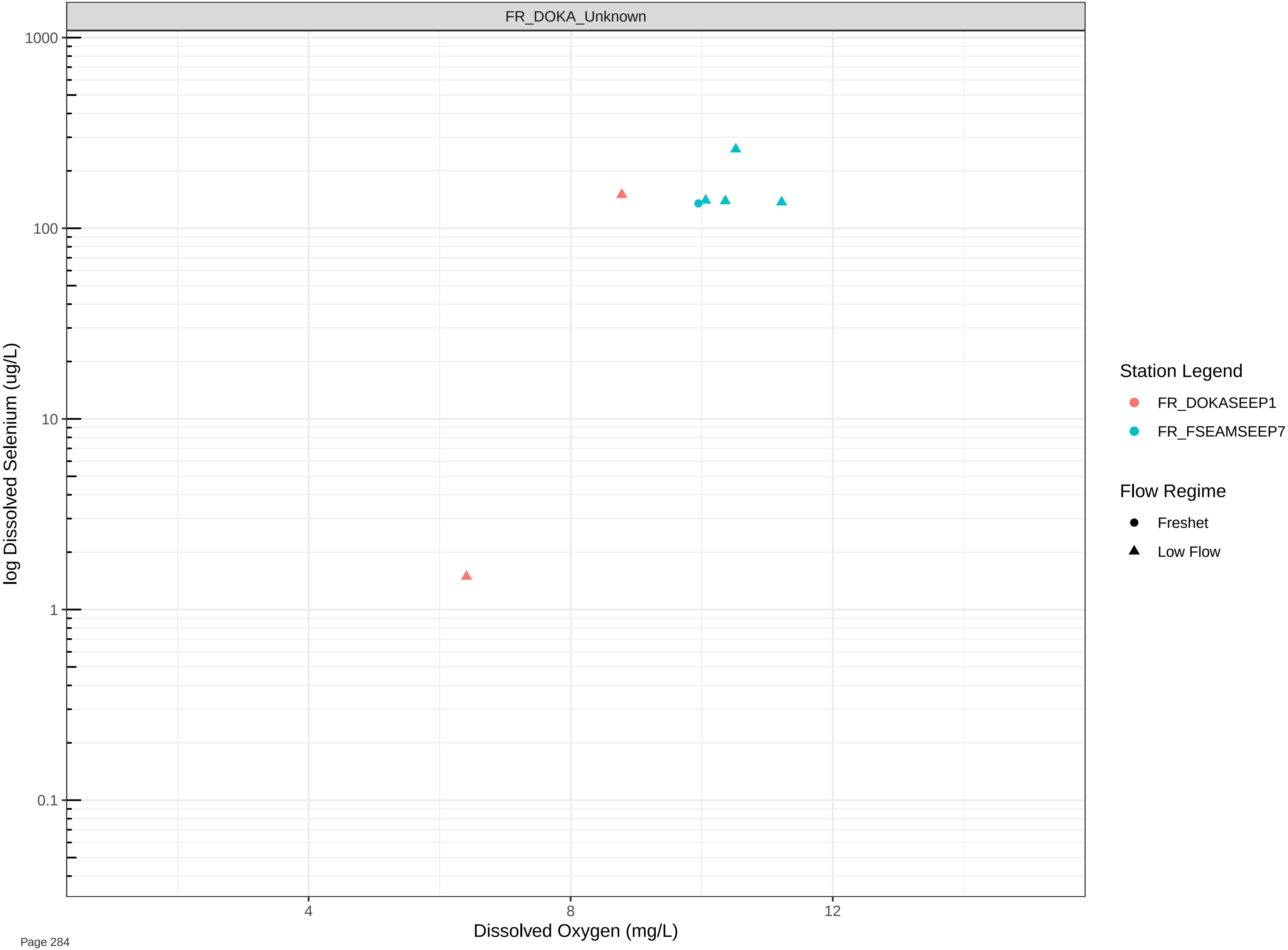

FR_TurnbullWREast_WR
10
1
4
8
12
log Dissolved Potassium (mg/L)
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

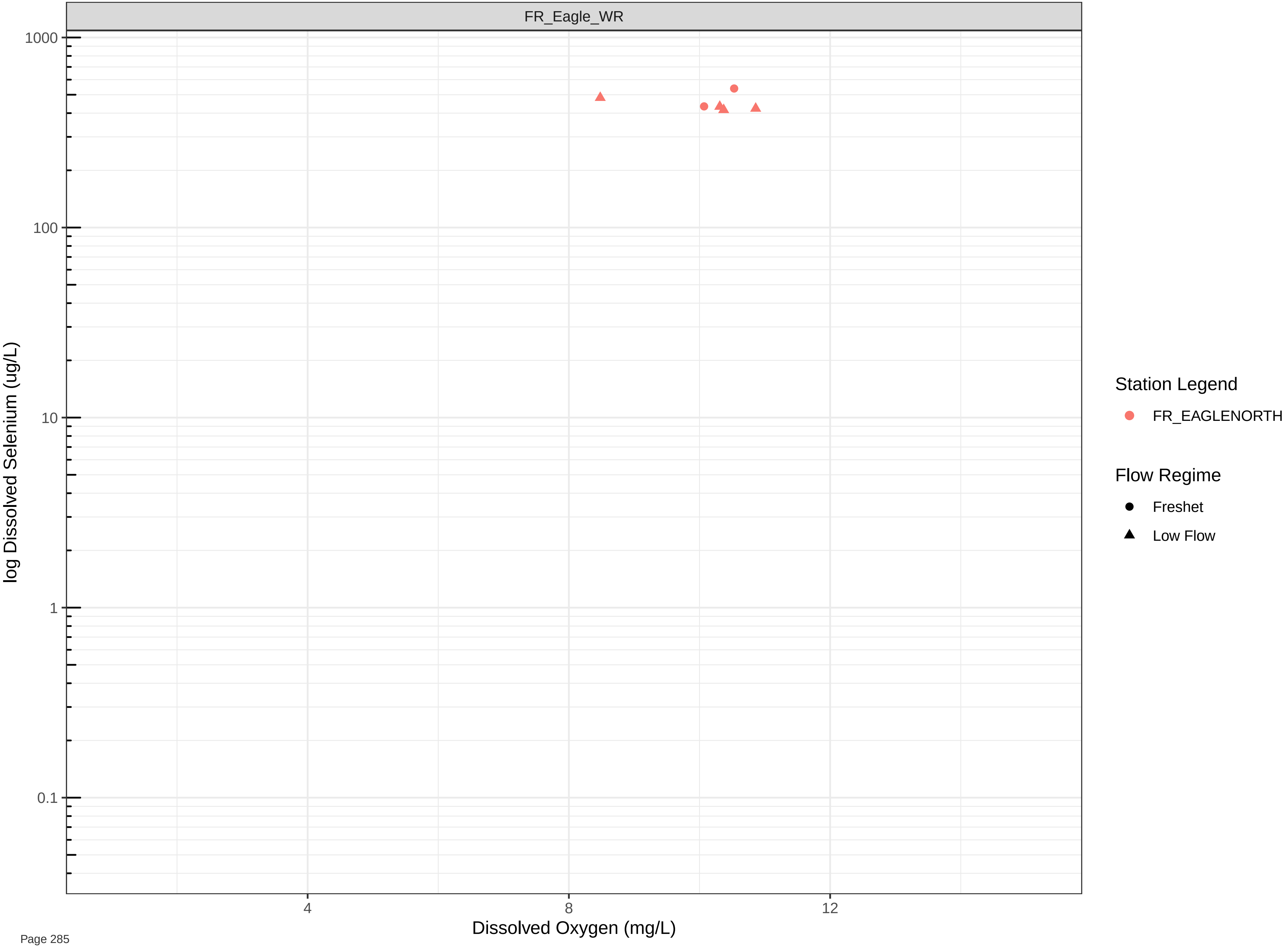

FR_TurnbullWRWest_WR
10
1
log Dissolved Potassium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

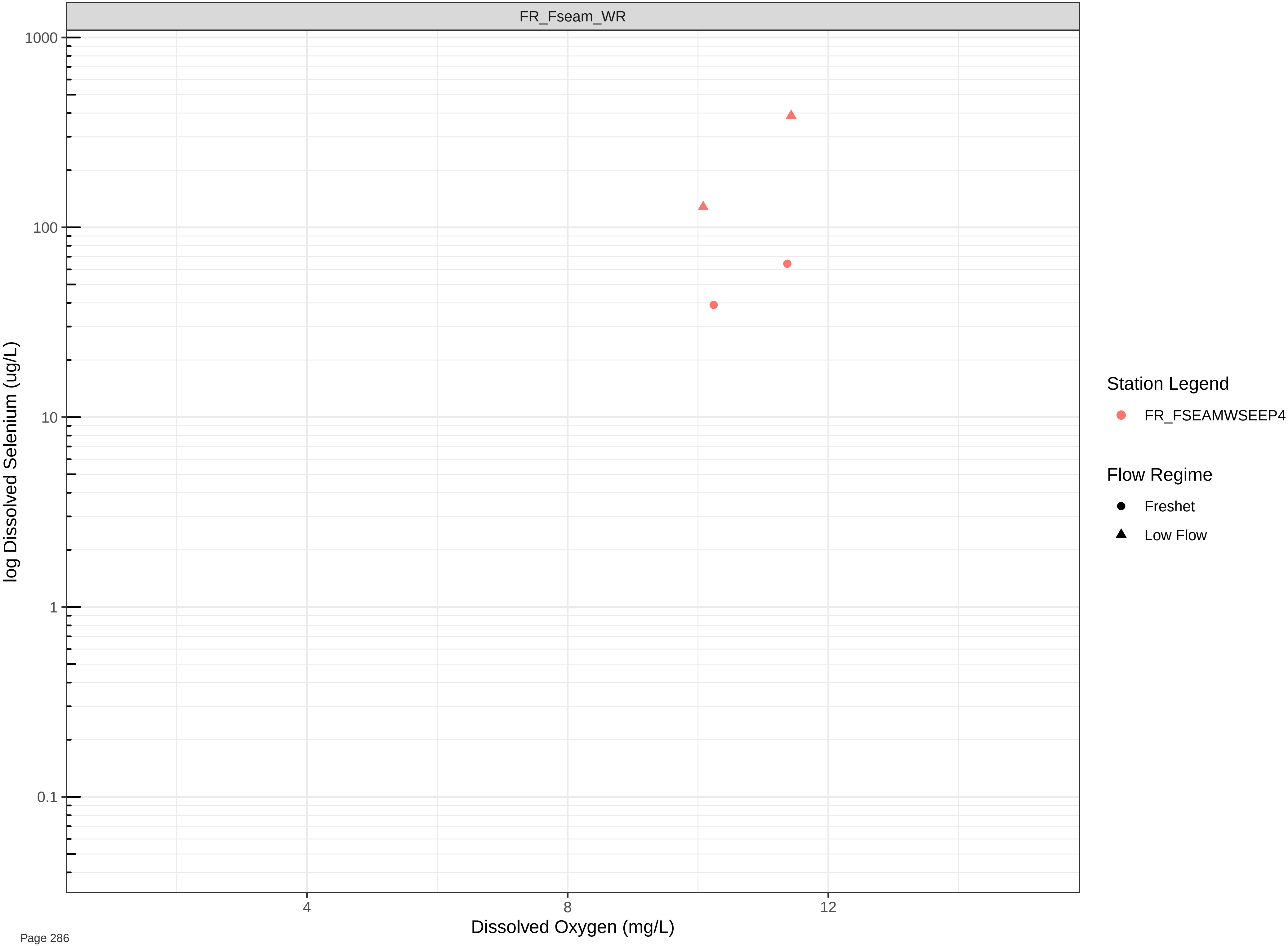

FR_A_WR
log Dissolved Selenium (ug/L)
1000
100
10
1
0.1
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

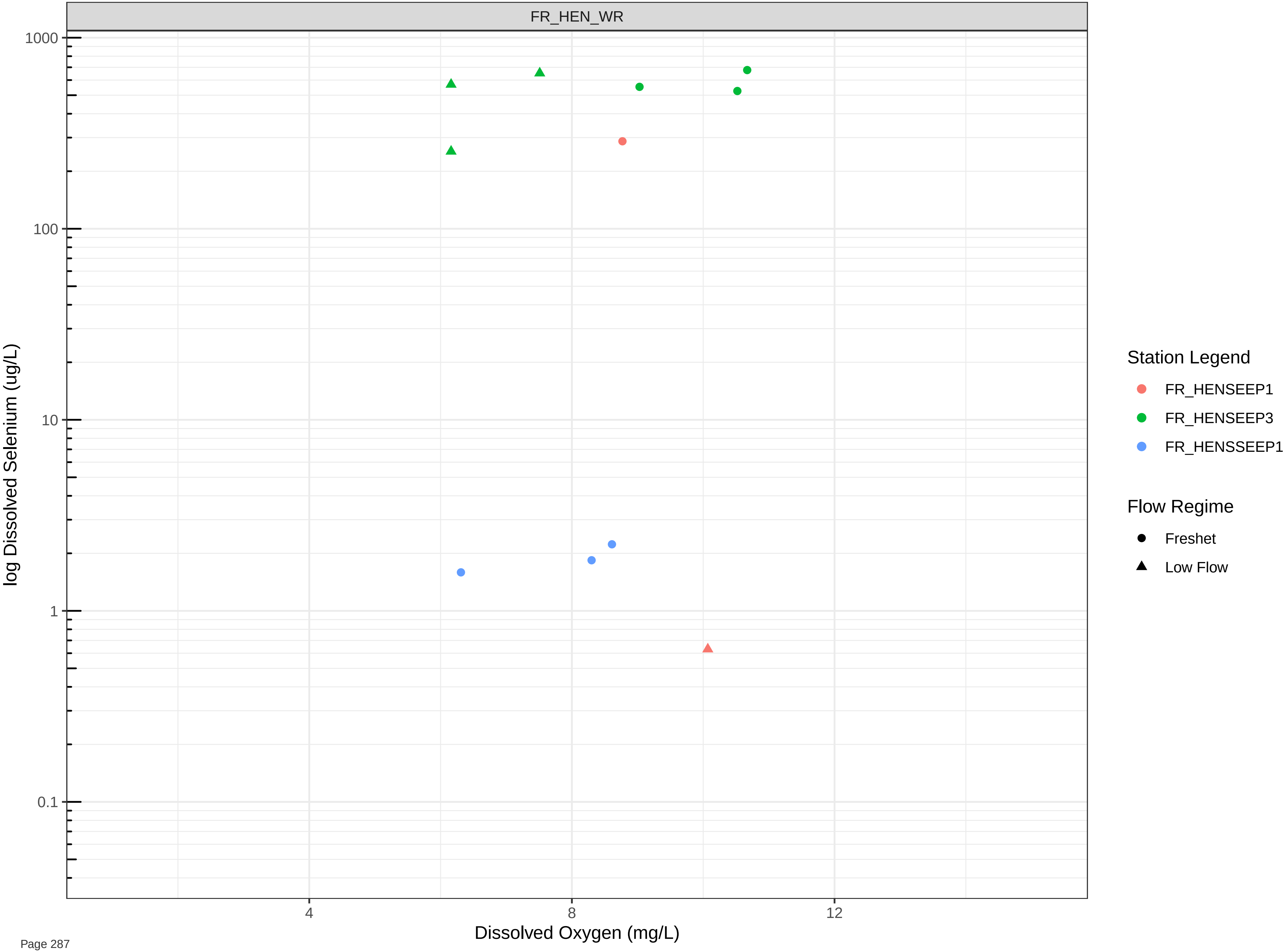

FR_Blain_CCR
log Dissolved Selenium (ug/L)
1000
100
10
1
0.1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

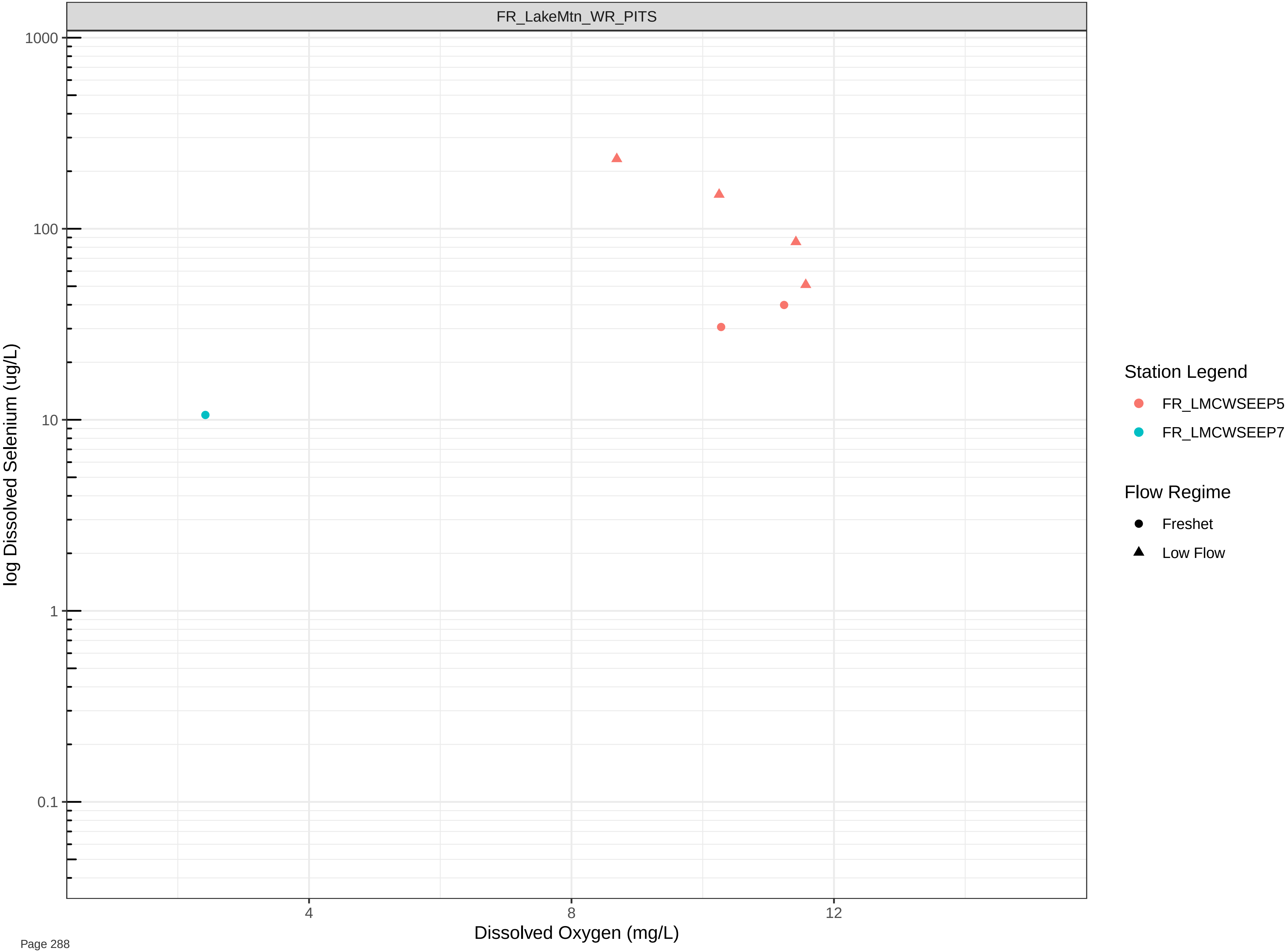

FR_ClodeCr_WR
log Dissolved Selenium (ug/L)
1000
100
10
1
0.1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

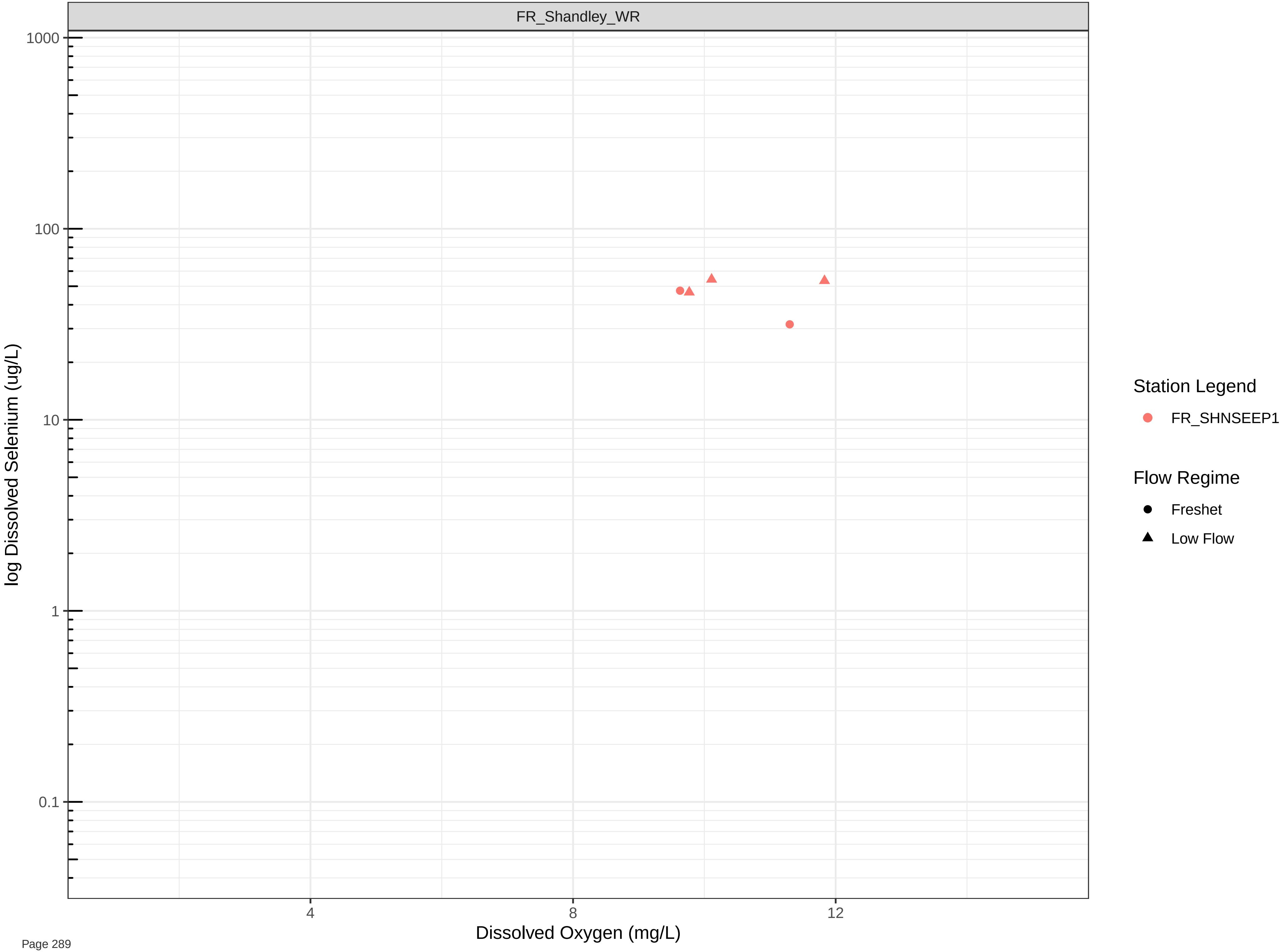

FR_DOKA_Unknown
1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow

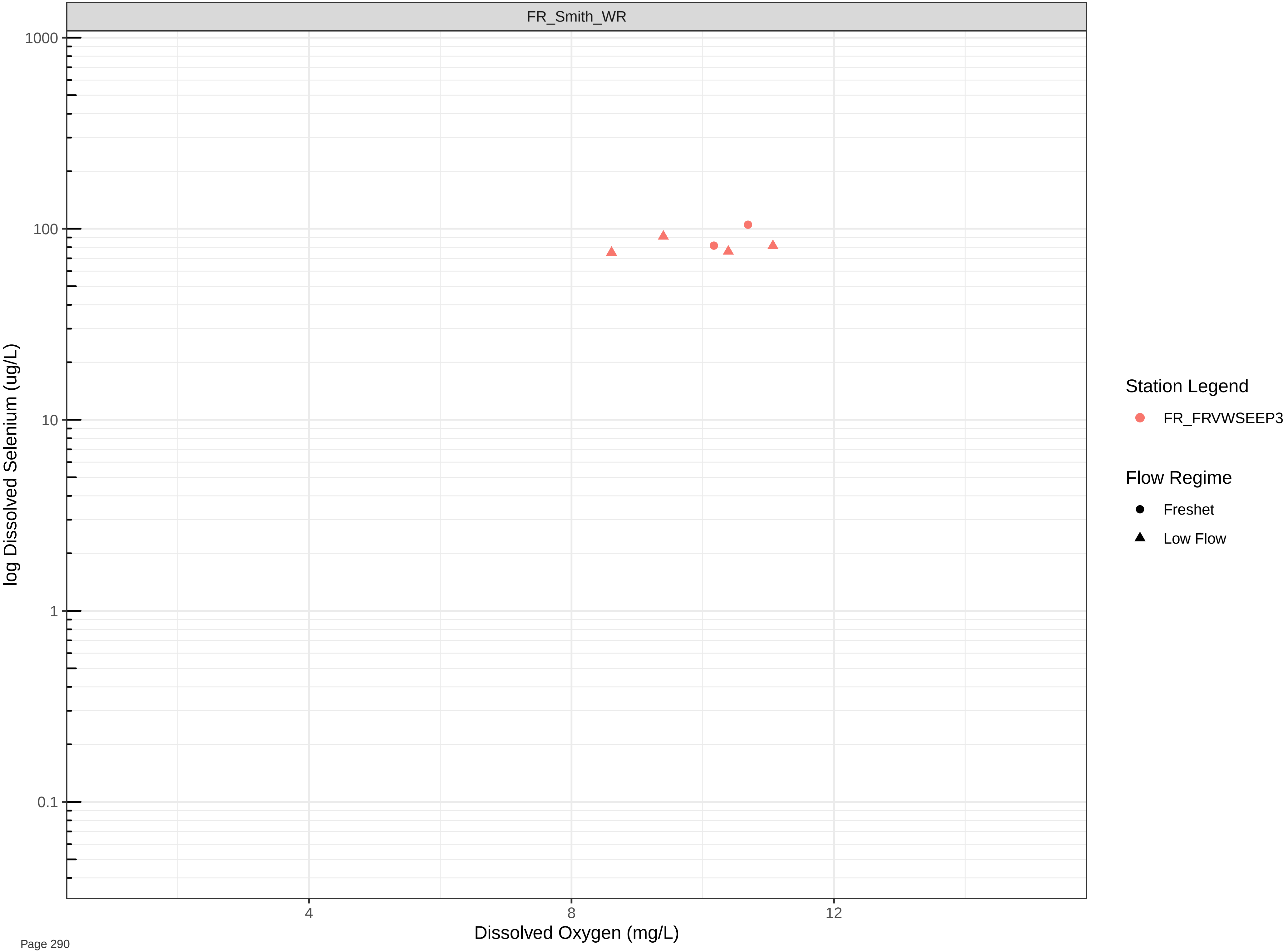

FR_Eagle_WR
1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

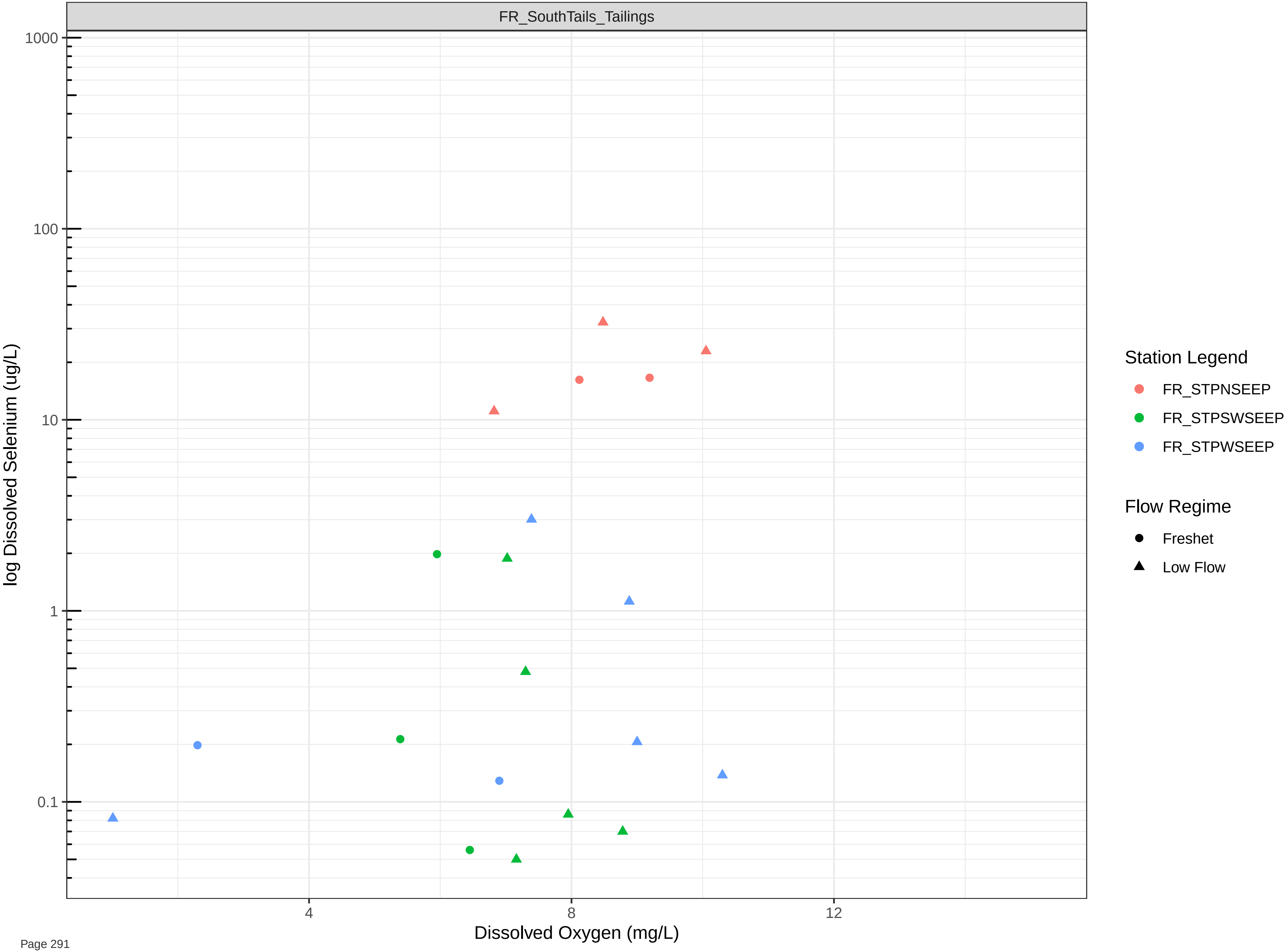

FR_Fseam_WR
1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

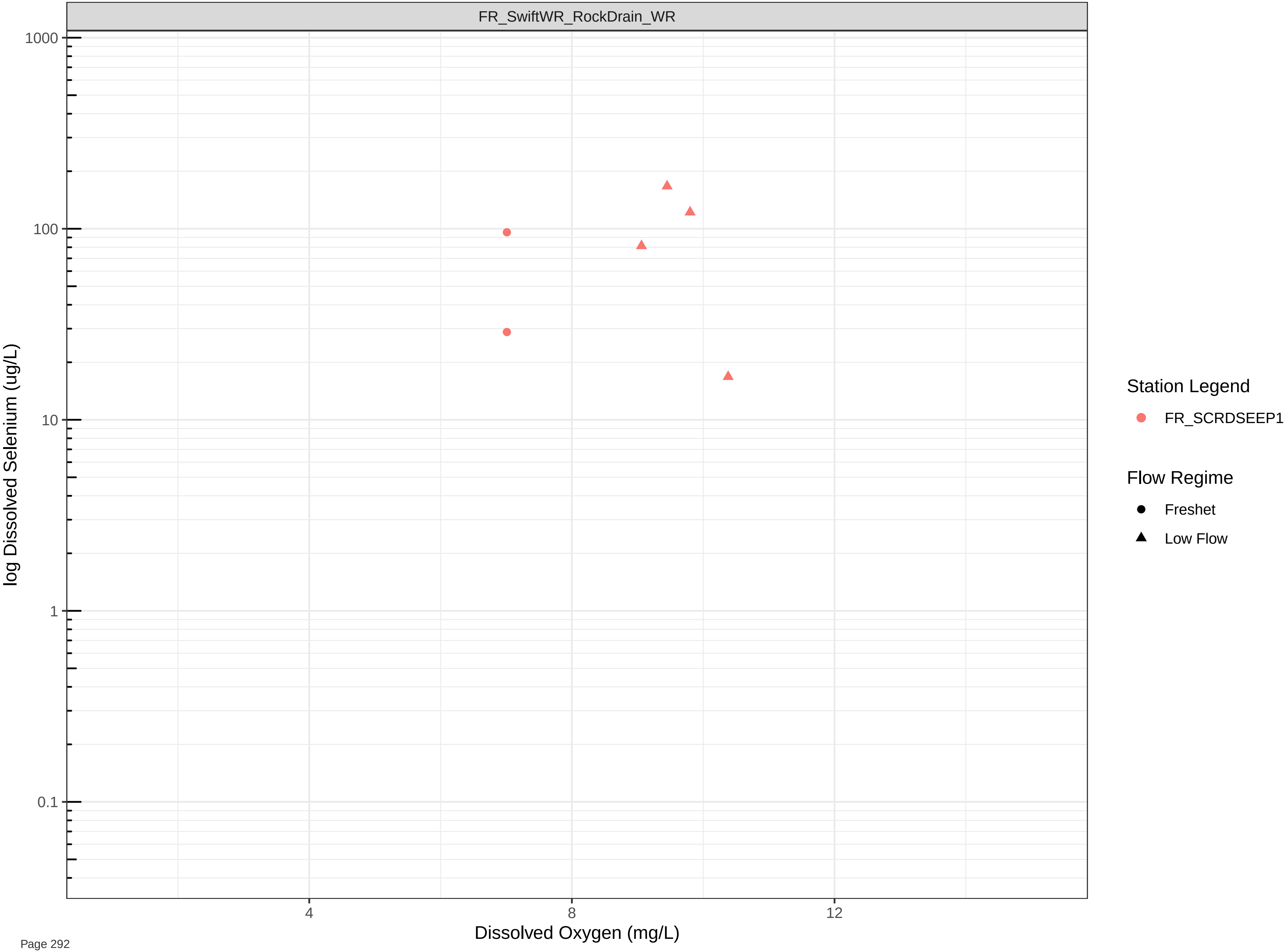

FR_HEN_WR
1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

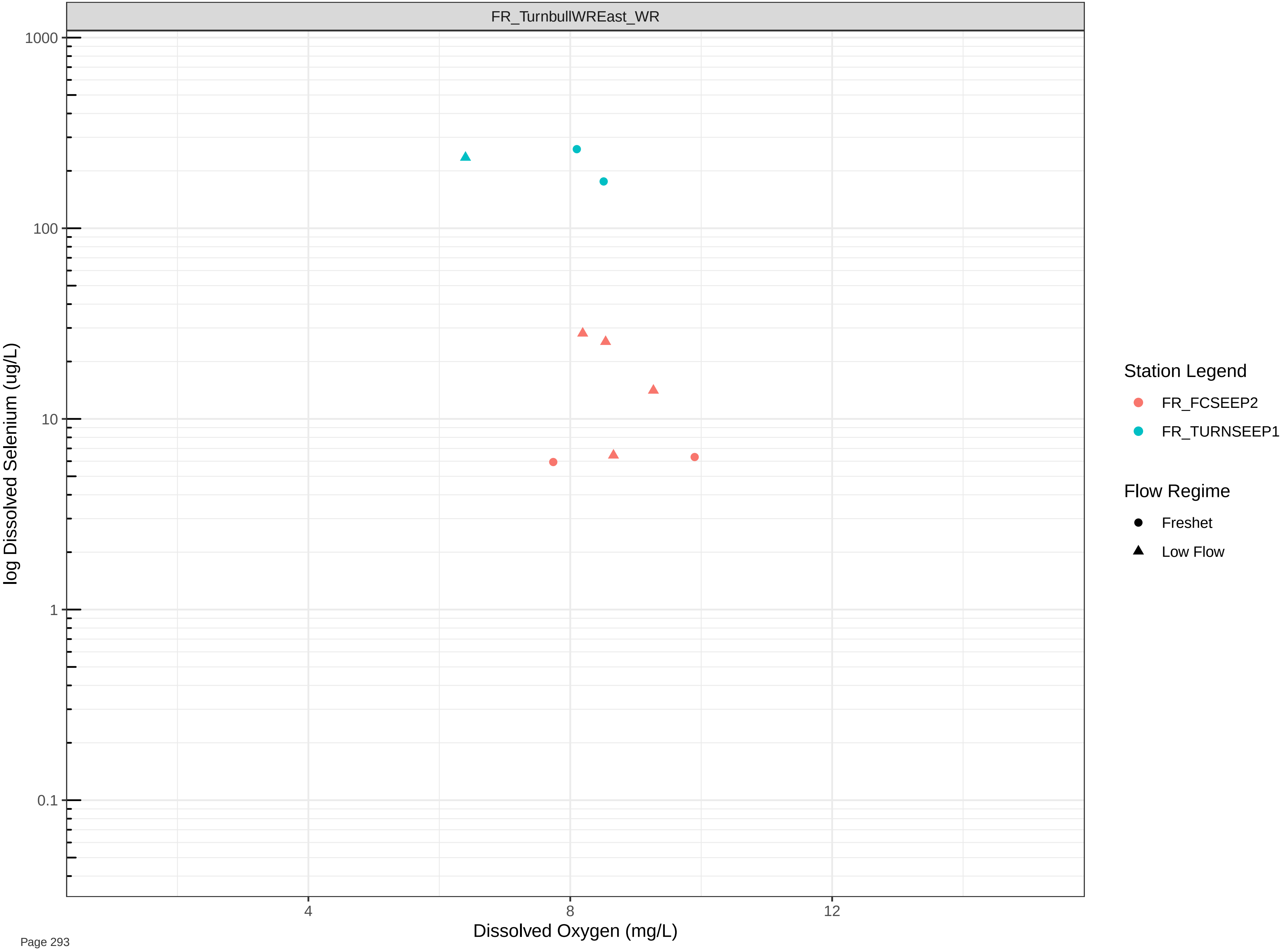

FR_LakeMtn_WR_PITS
1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

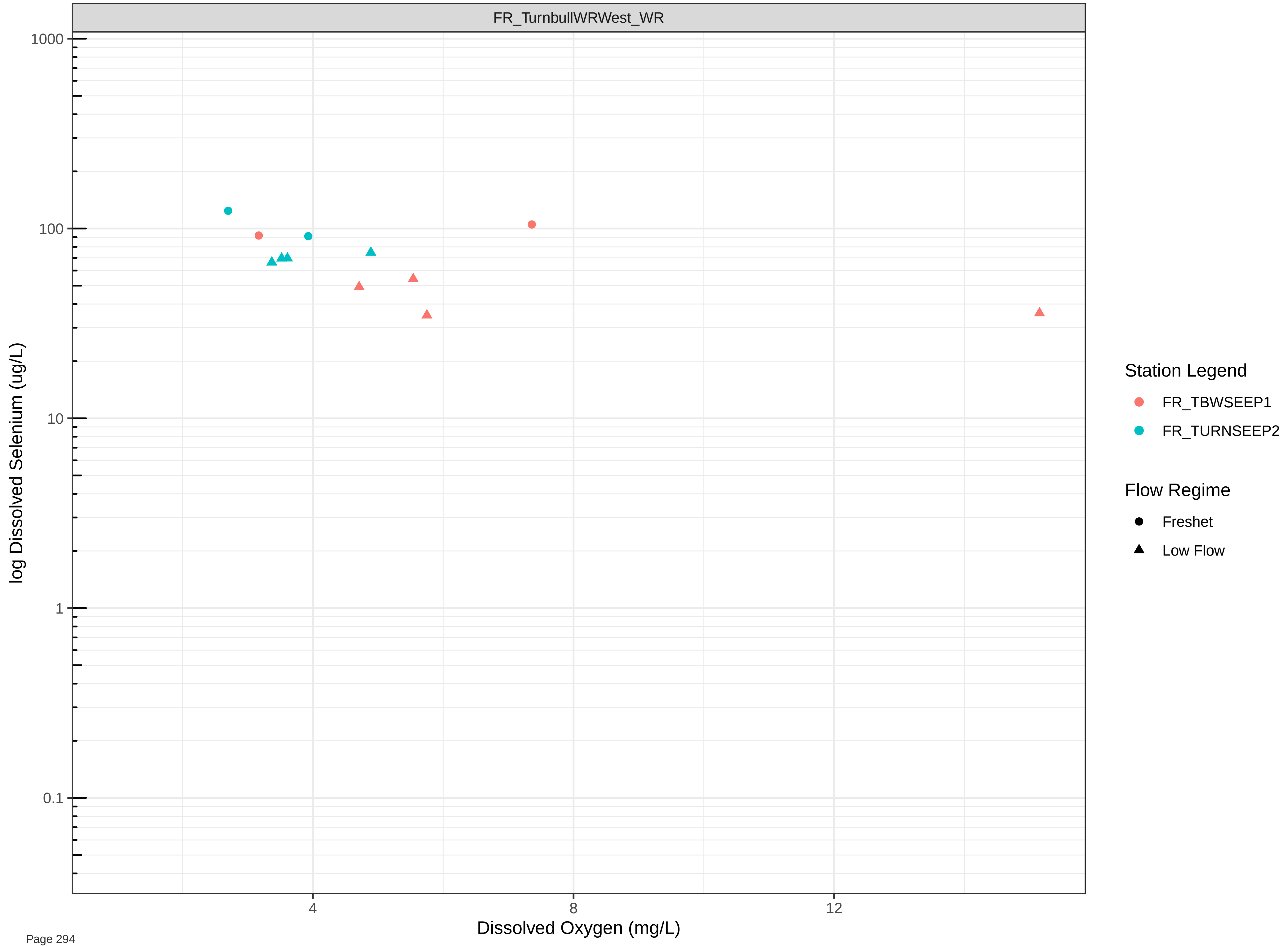

FR_Shandley_WR
1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

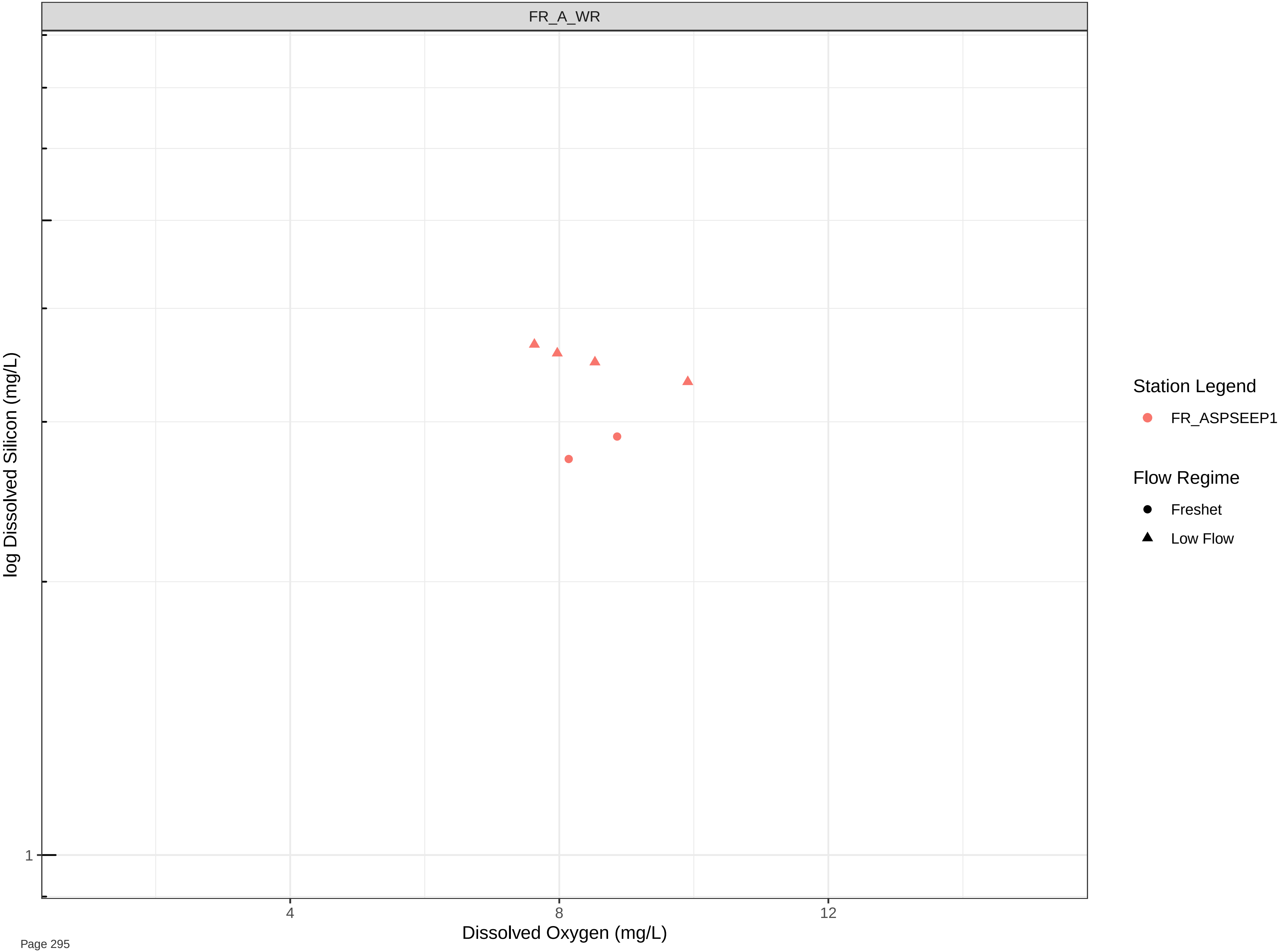

FR_Smith_WR
1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

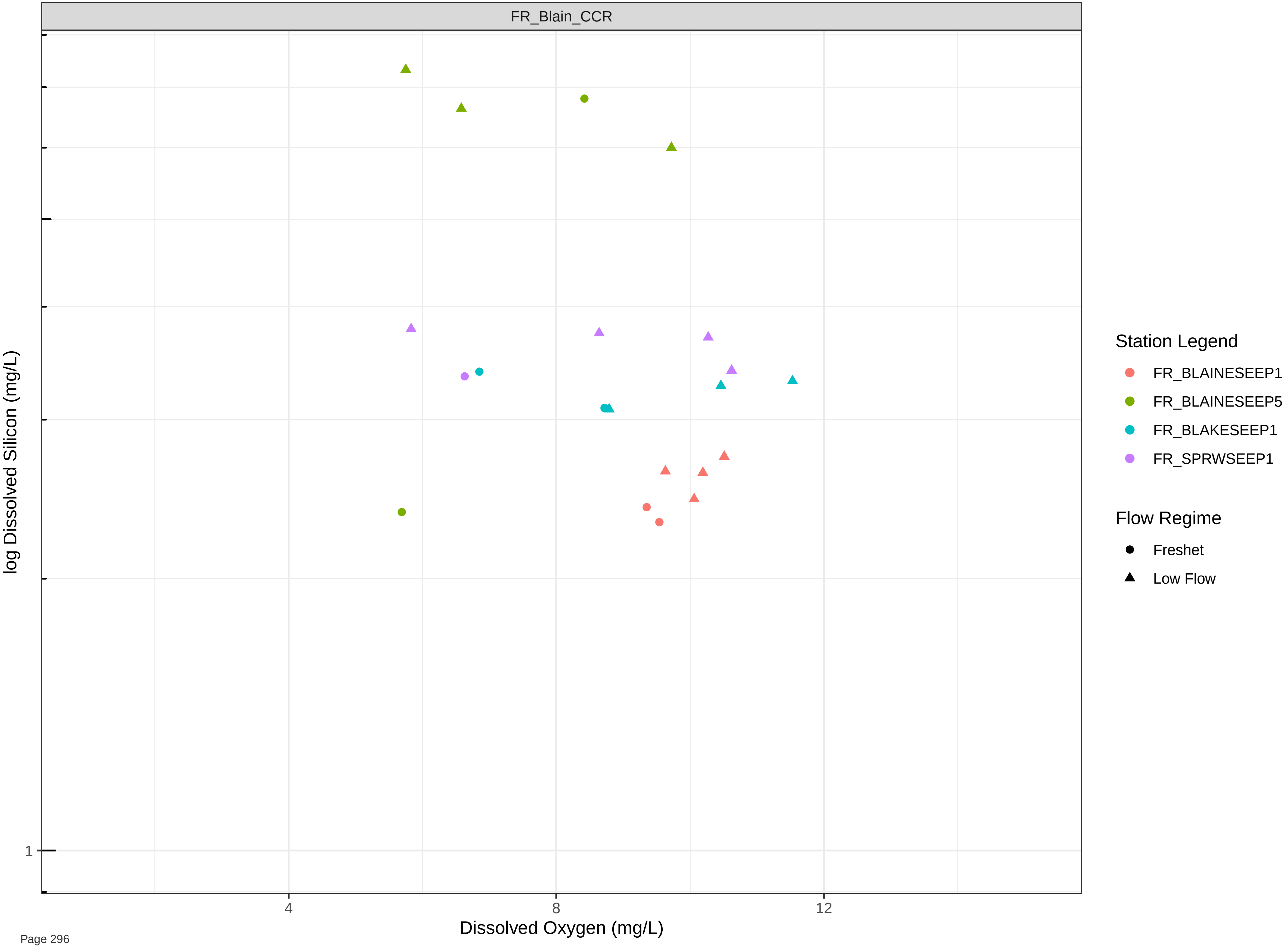

FR_SouthTails_Tailings
log Dissolved Selenium (ug/L)
1000
100
10
1
0.1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

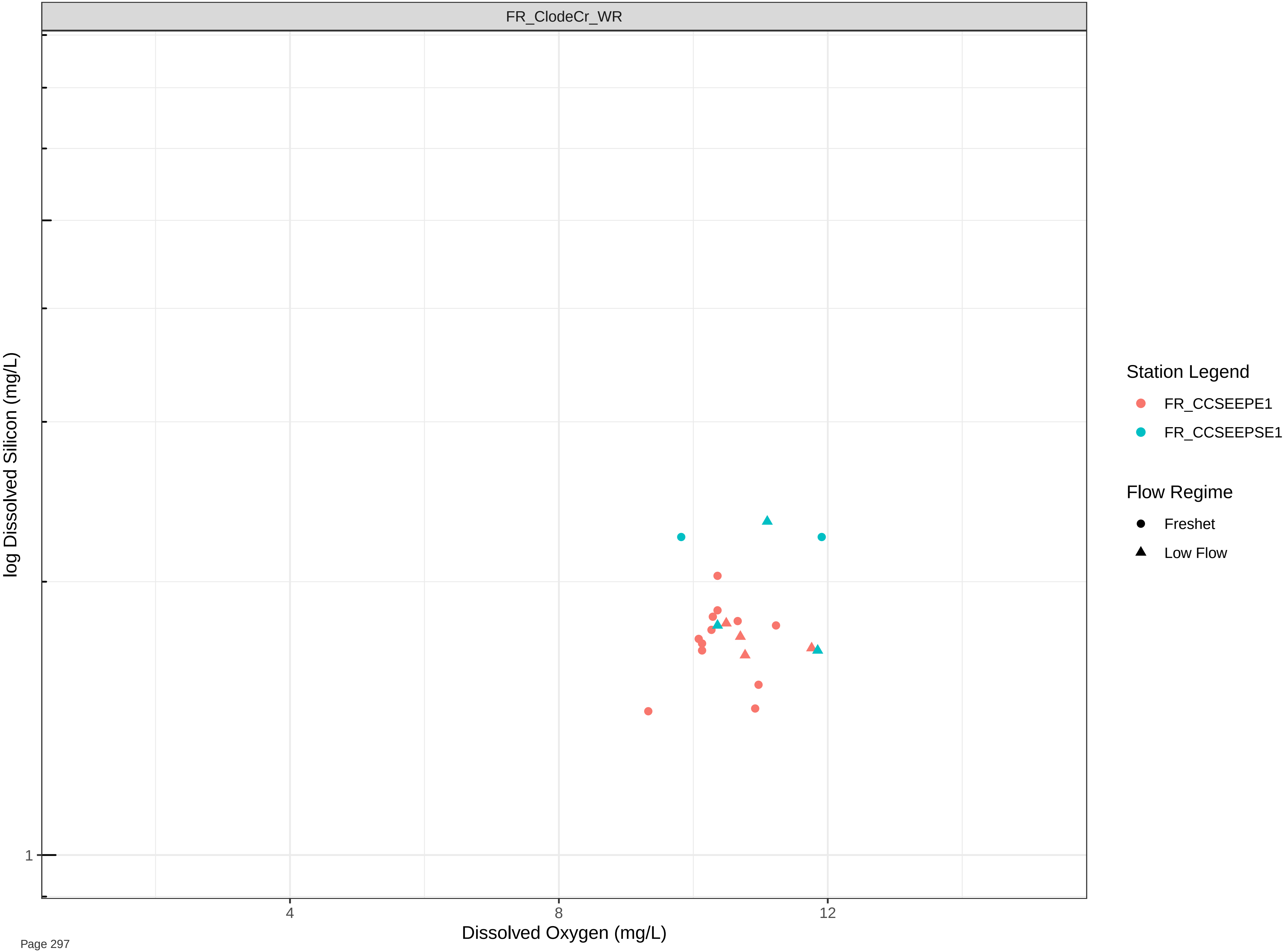

FR_SwiftWR_RockDrain_WR
log Dissolved Selenium (ug/L)
1000
100
10
1
0.1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

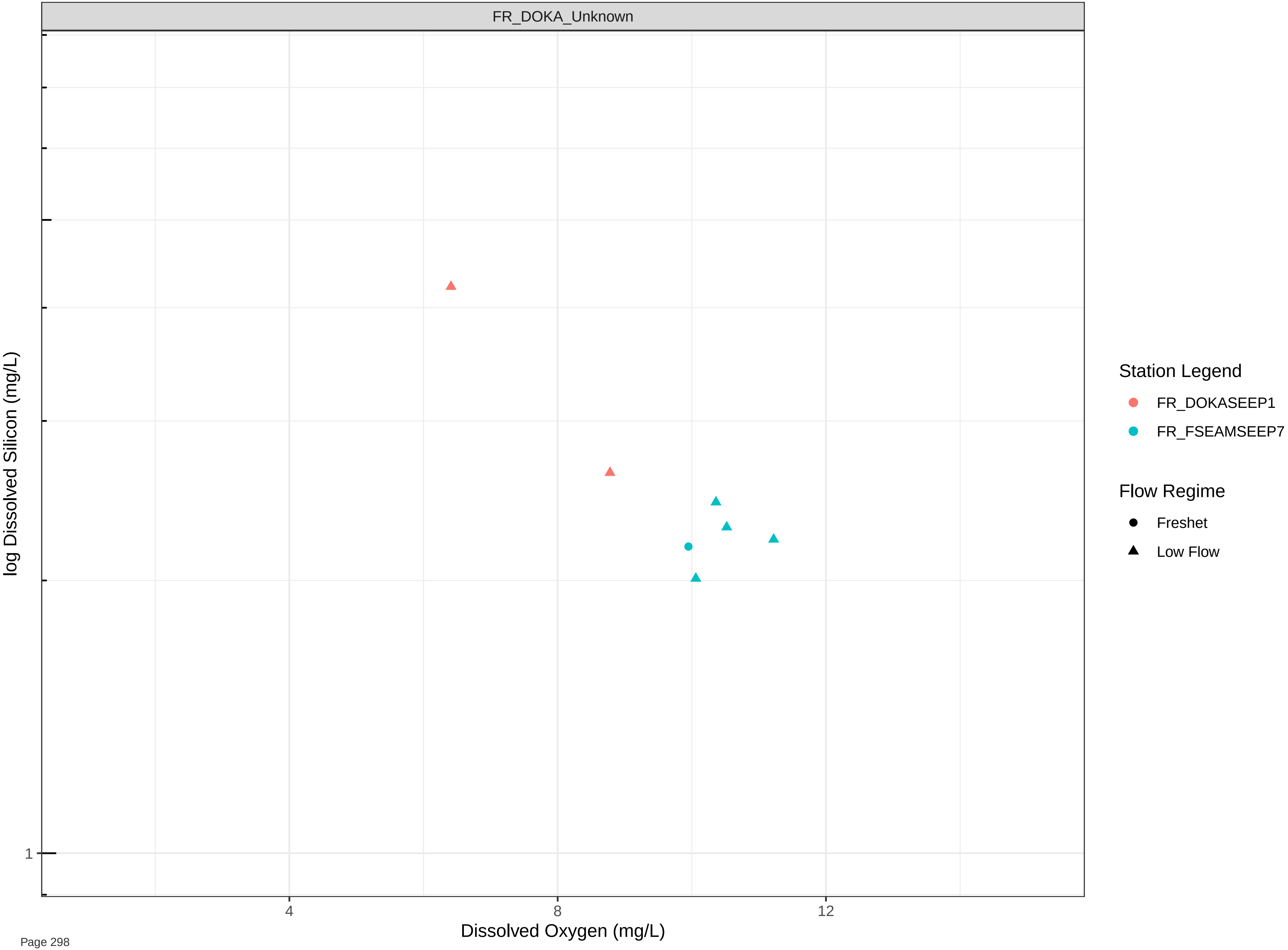

FR_TurnbullWREast_WR
1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

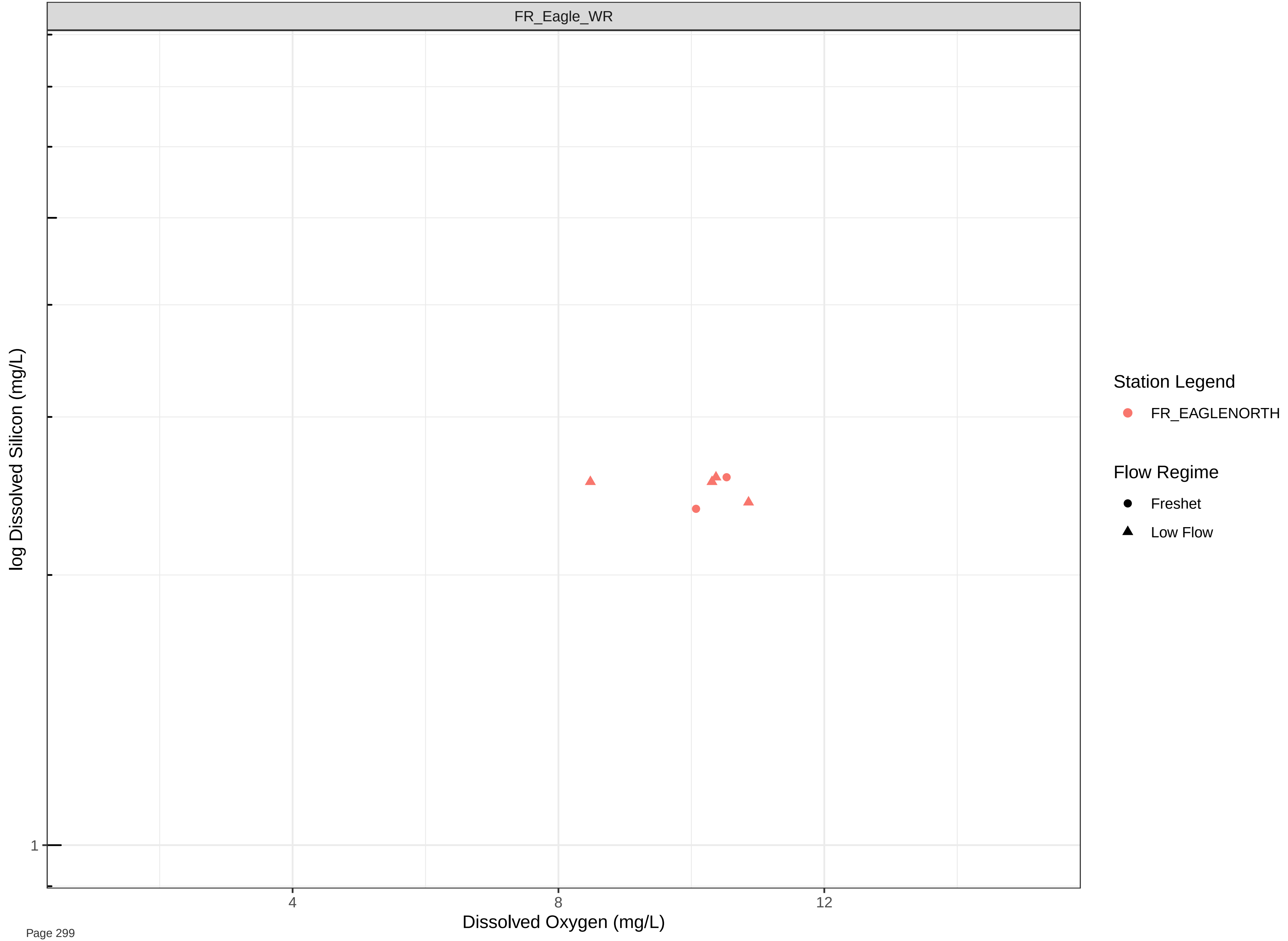

FR_TurnbullWRWest_WR
1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_TBWSEEP1
● FR_TURNSEEP2
Flow Regime
● Freshet
▲ Low Flow

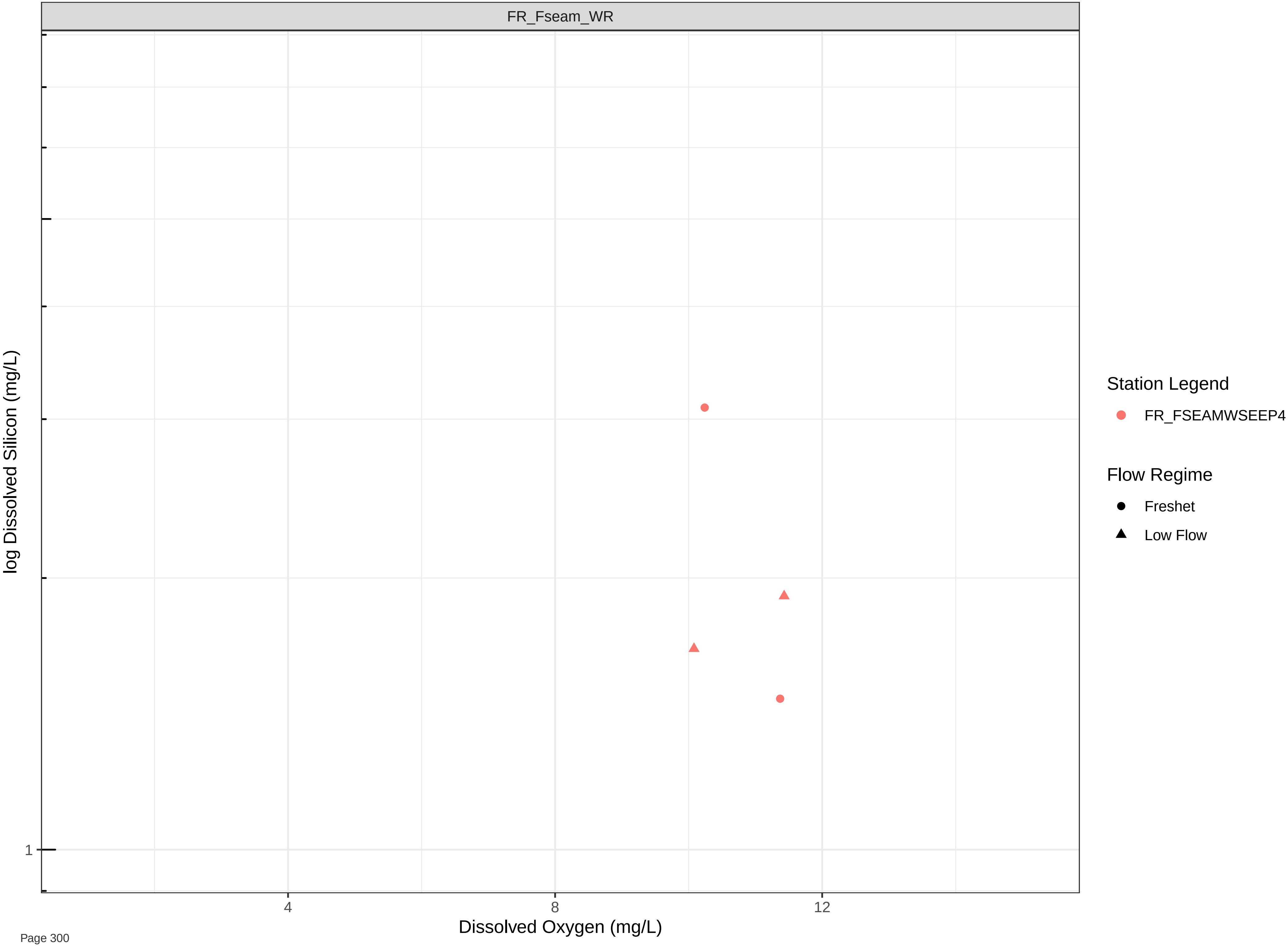

FR_A_WR
log Dissolved Silicon (mg/L)
1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

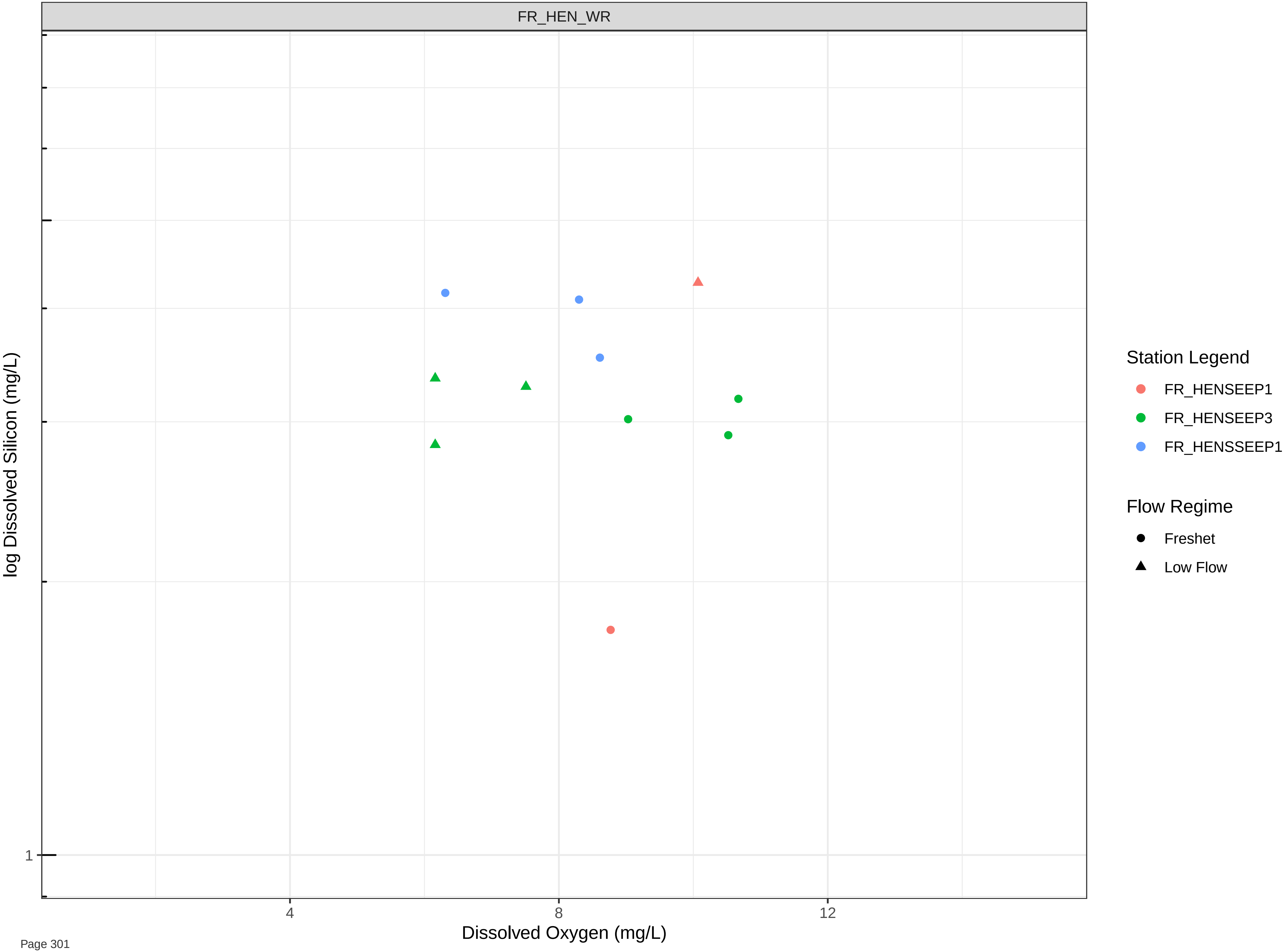

FR_Blain_CCR
log Dissolved Silicon (mg/L)
1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow

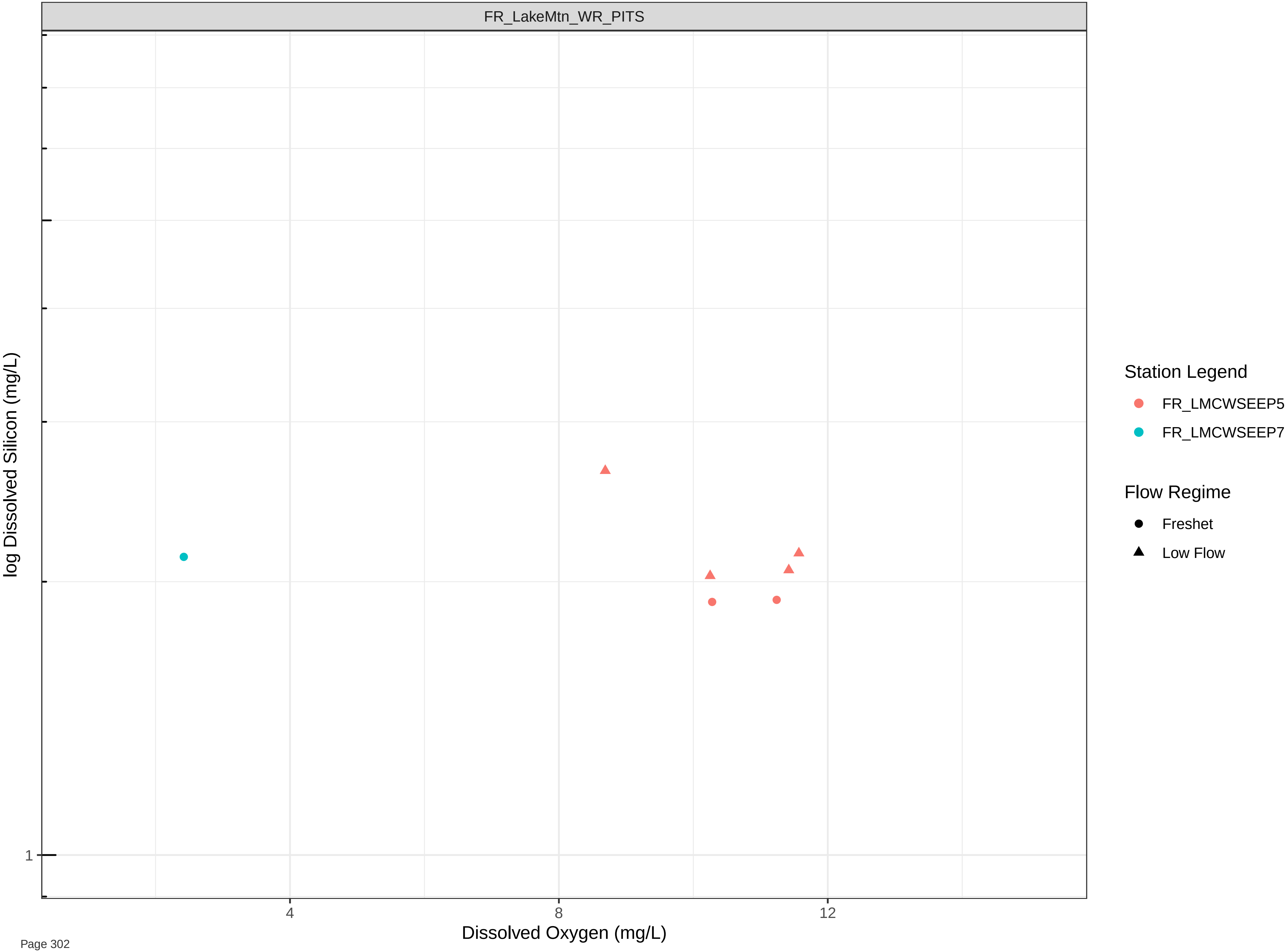

FR_ClodeCr_WR
log Dissolved Silicon (mg/L)
1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

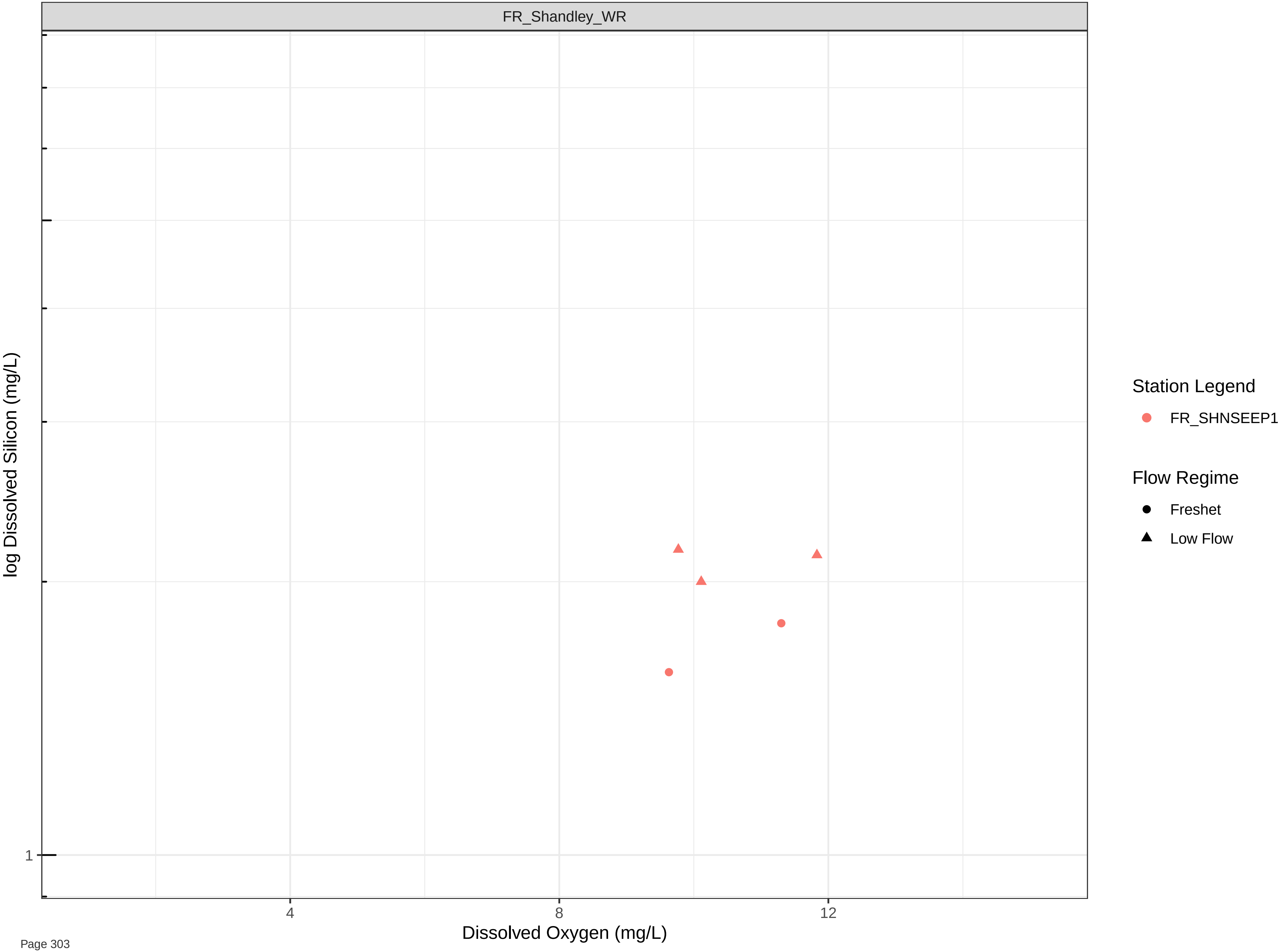

FR_DOKA_Unknown
log Dissolved Silicon (mg/L)
1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

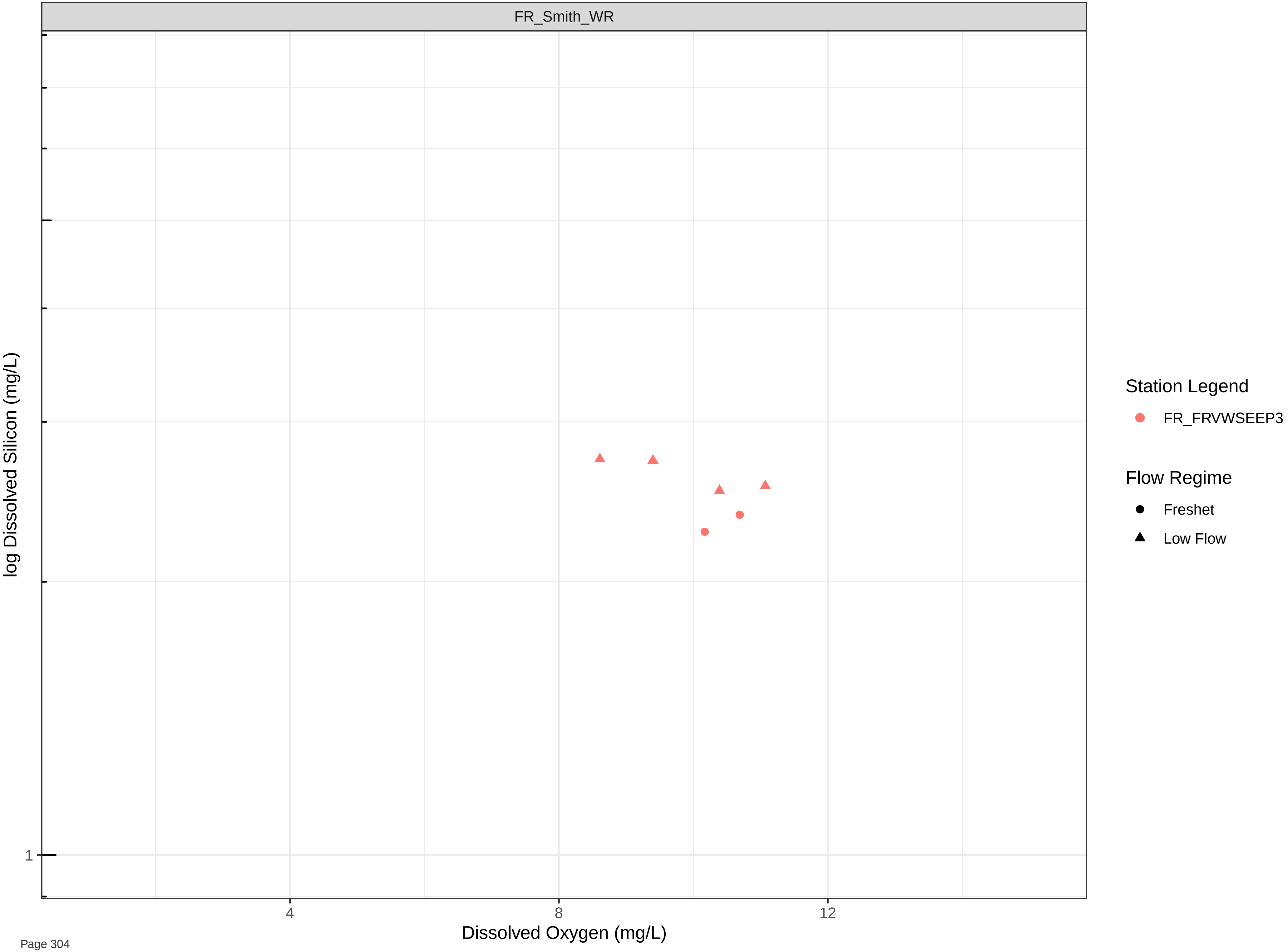

FR_Eagle_WR
log Dissolved Silicon (mg/L)
1
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow


FR_Fseam_WR
log Dissolved Silicon (mg/L)
1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow


FR_HEN_WR
log Dissolved Silicon (mg/L)
1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow


FR_LakeMtn_WR_PITS
log Dissolved Silicon (mg/L)
1
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow


FR_Shandley_WR
log Dissolved Silicon (mg/L)
1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow


FR_Smith_WR
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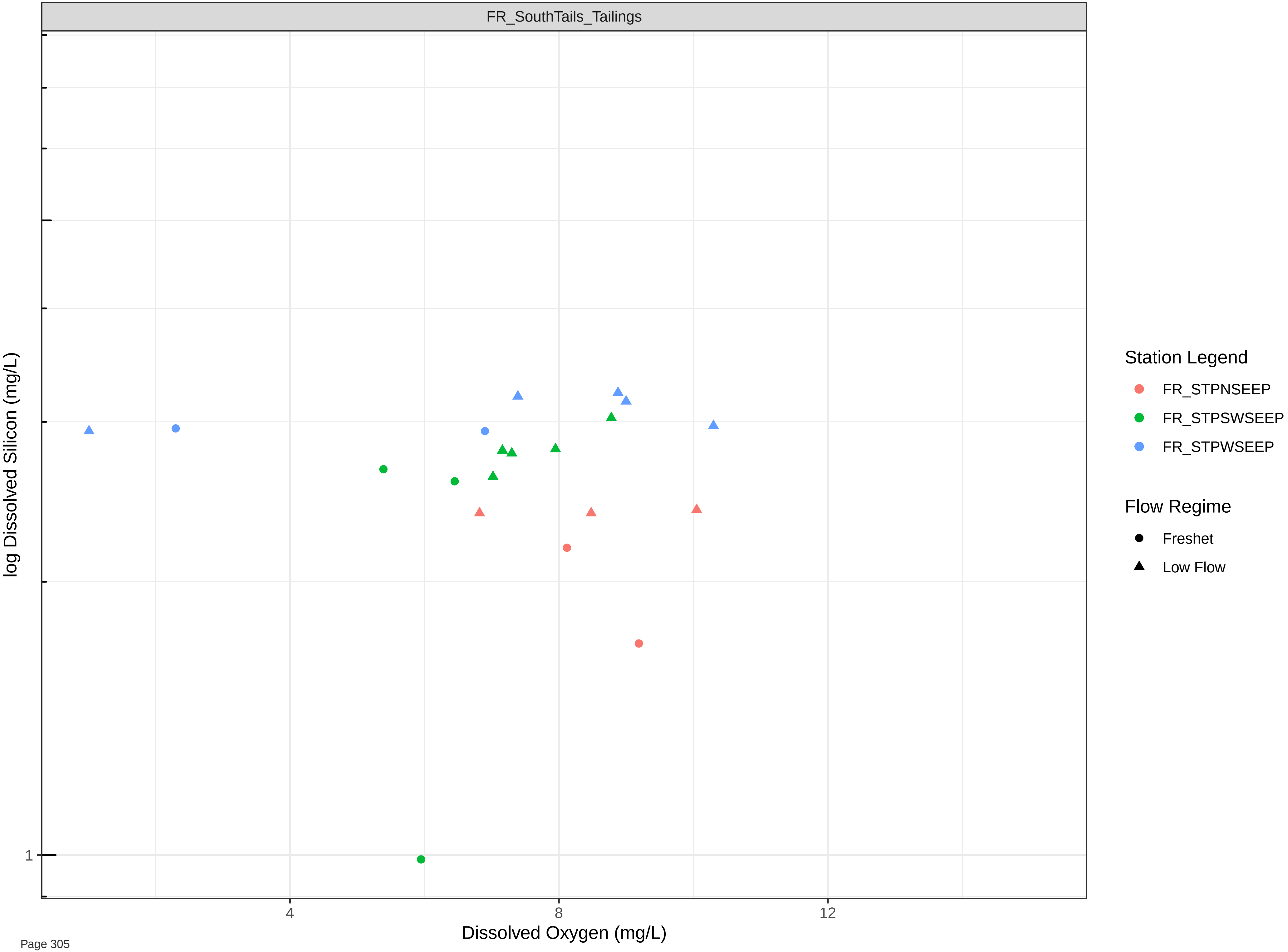
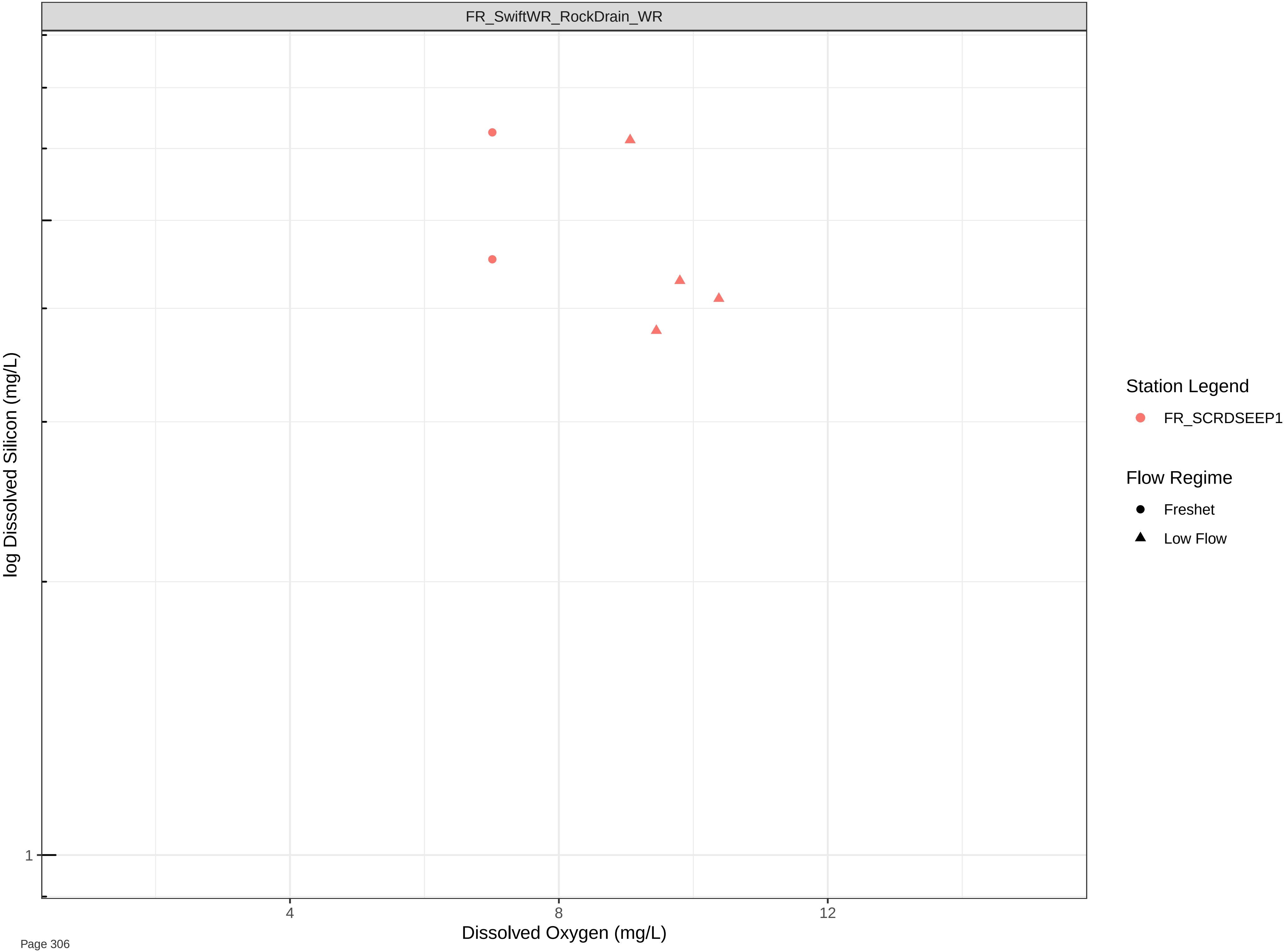
1
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow


FR_SouthTails_Tailings
log Dissolved Silicon (mg/L)
1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_STPNSEEP
● FR_STPSWSEEP
● FR_STPWSEEP
Flow Regime
● Freshet
▲ Low Flow


FR_SwiftWR_RockDrain_WR
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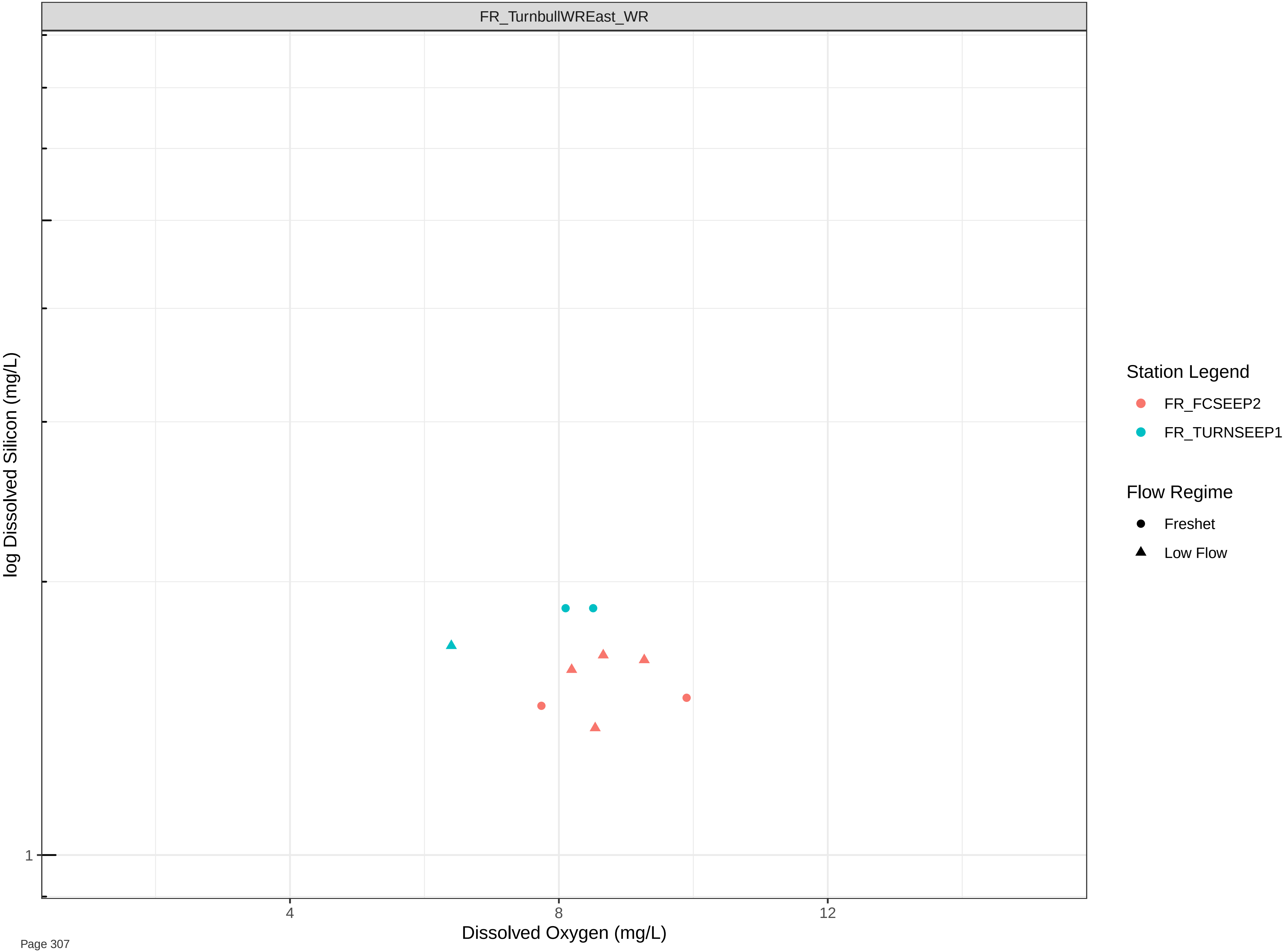
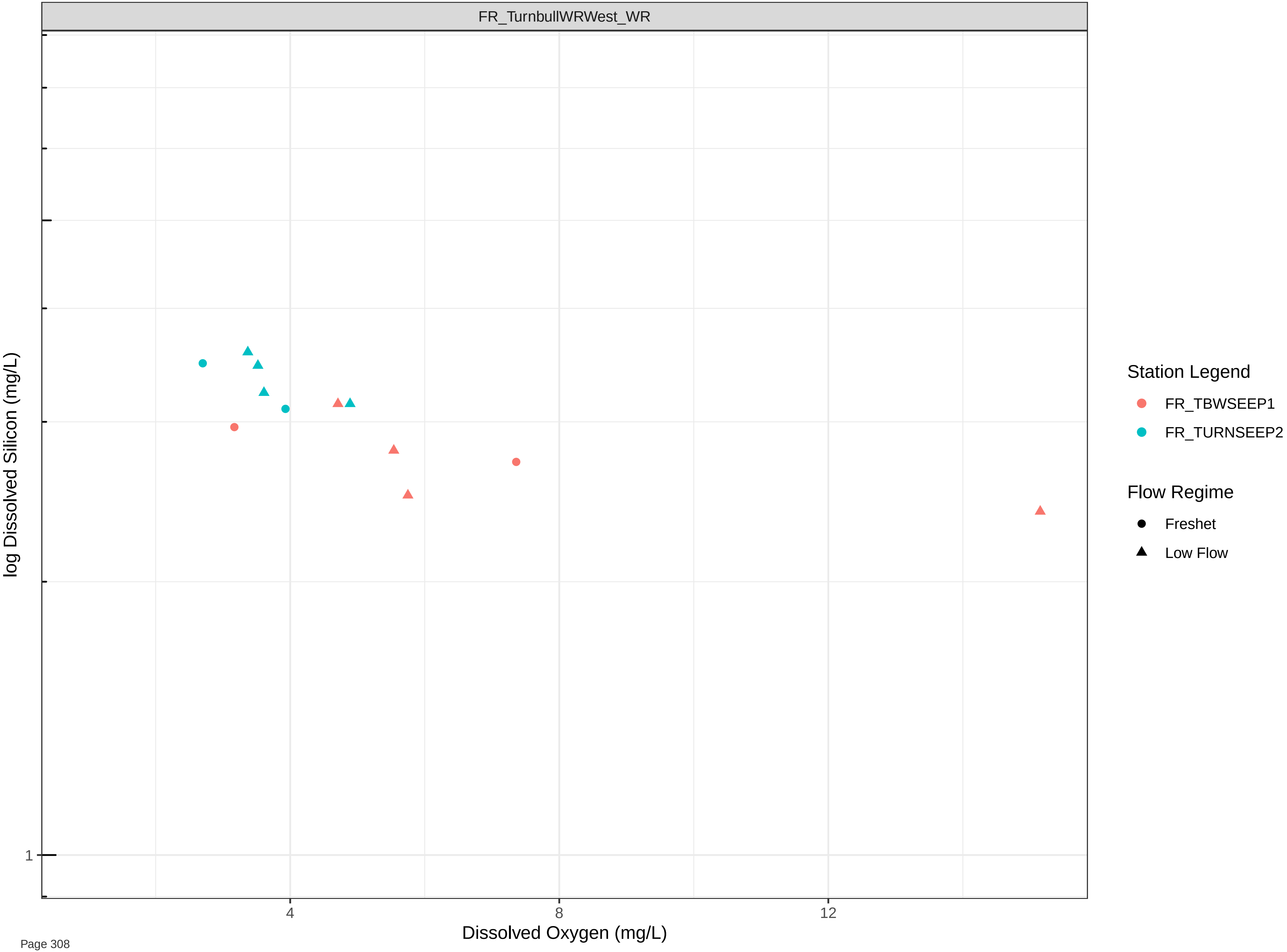
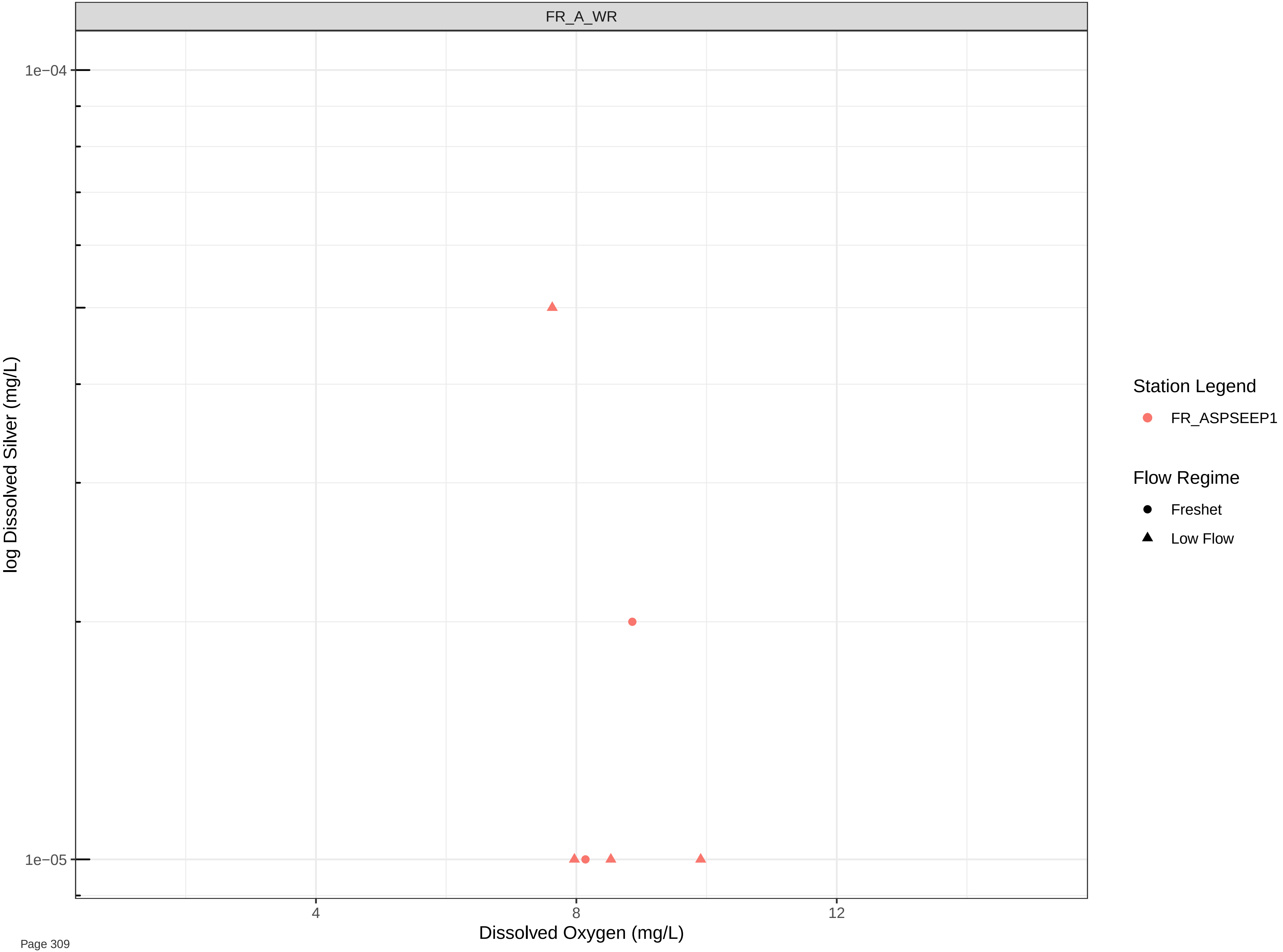
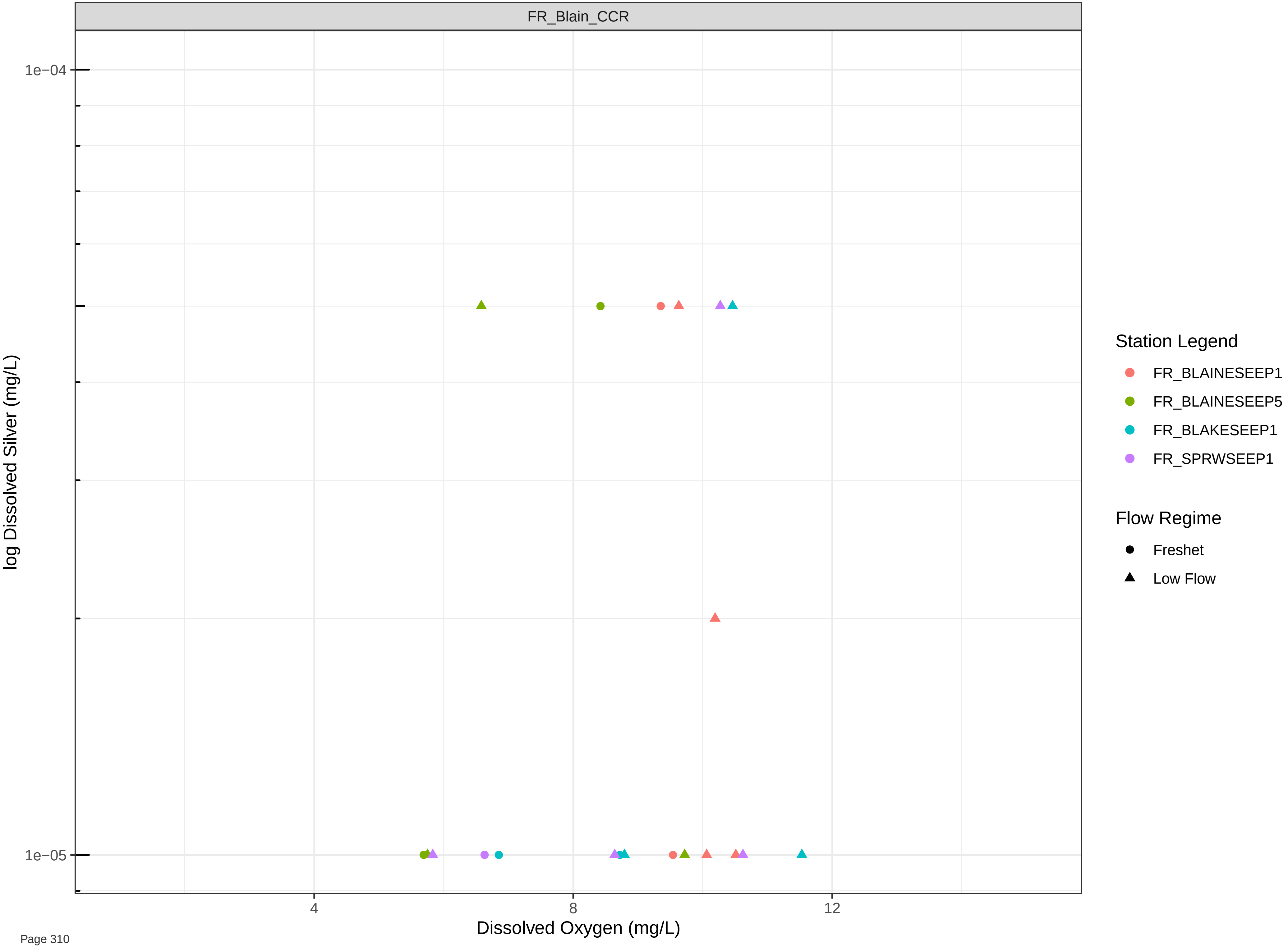
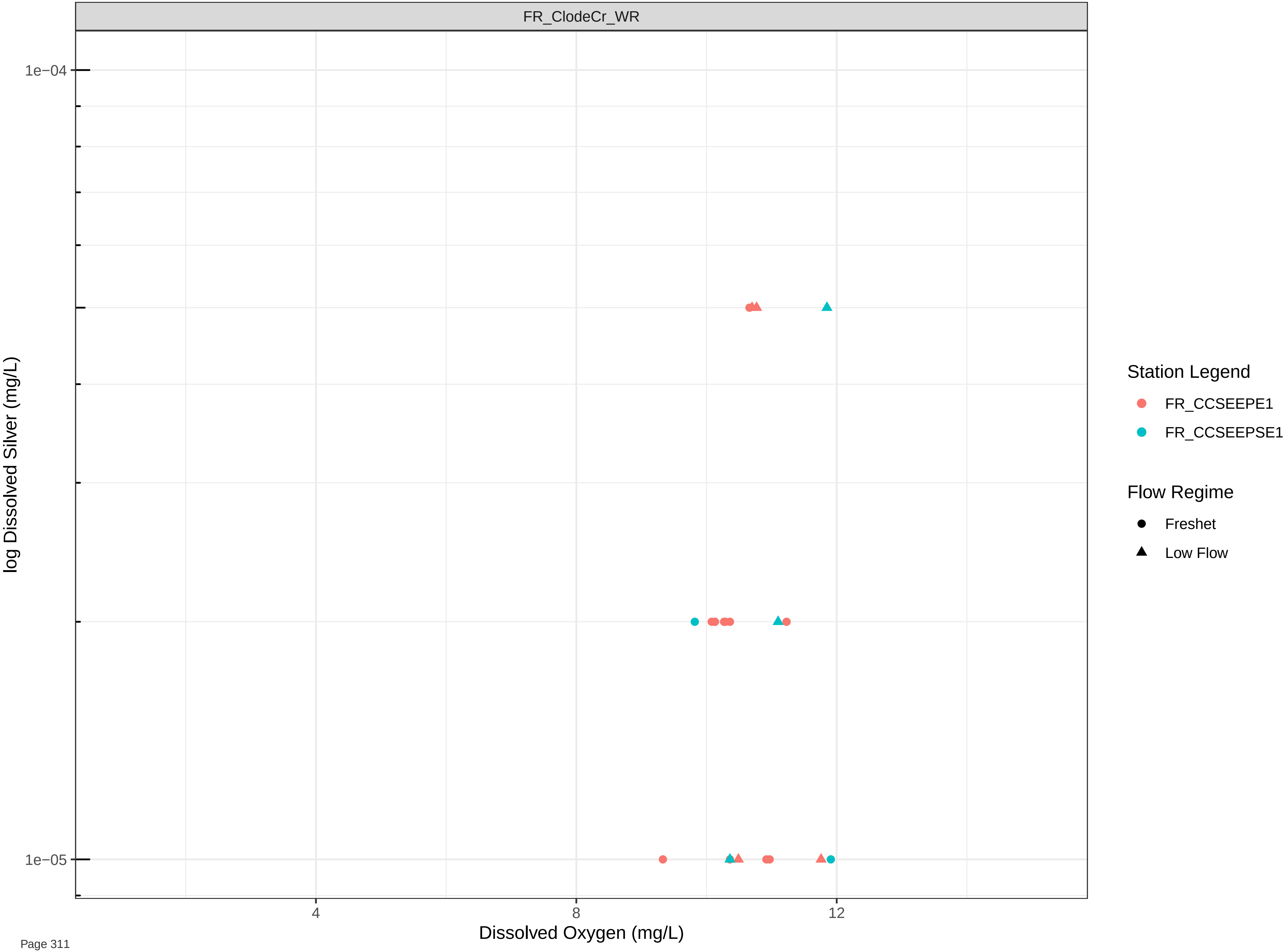
1
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

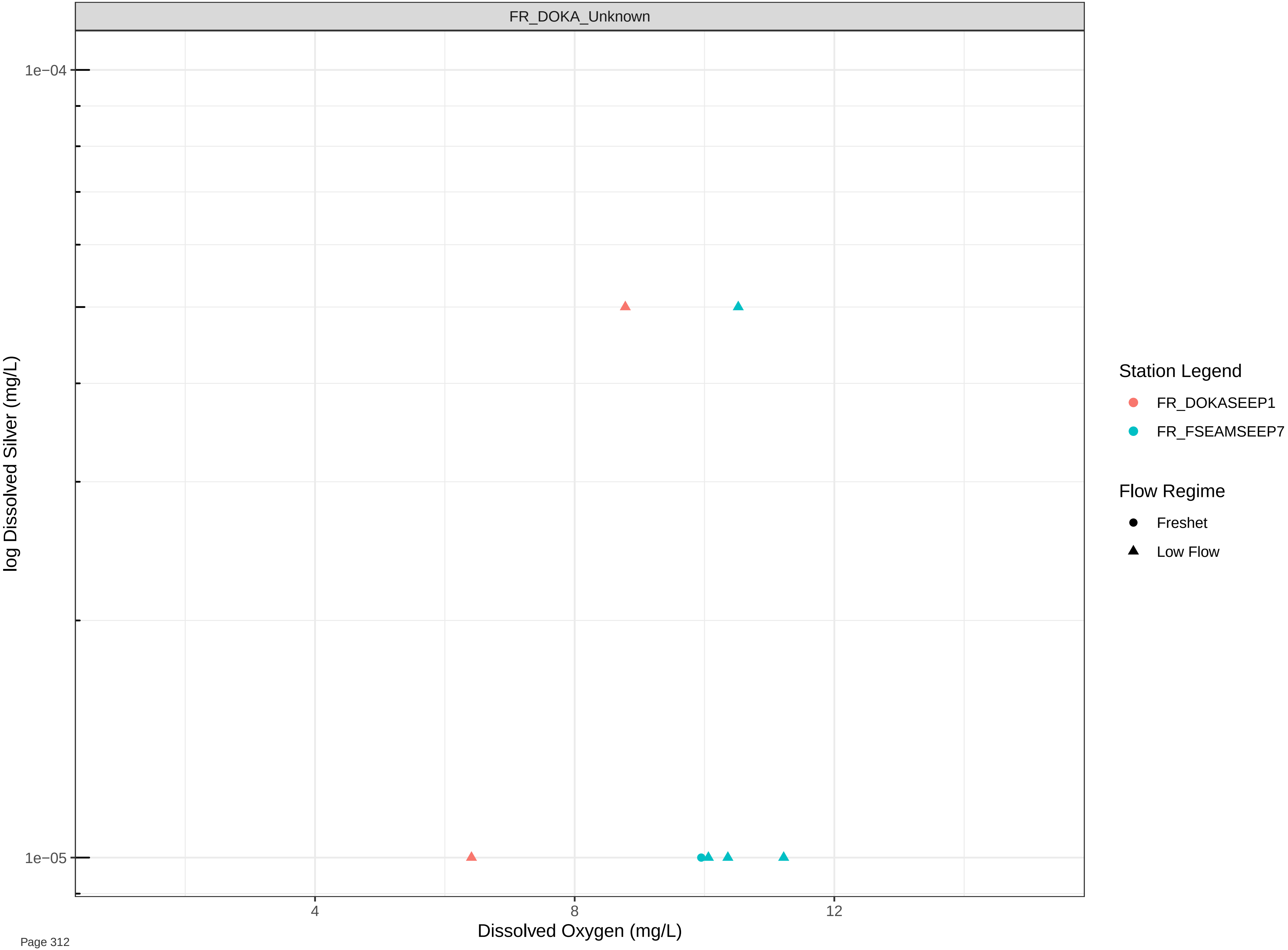

FR_TurnbullWREast_WR
log Dissolved Silicon (mg/L)
1
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

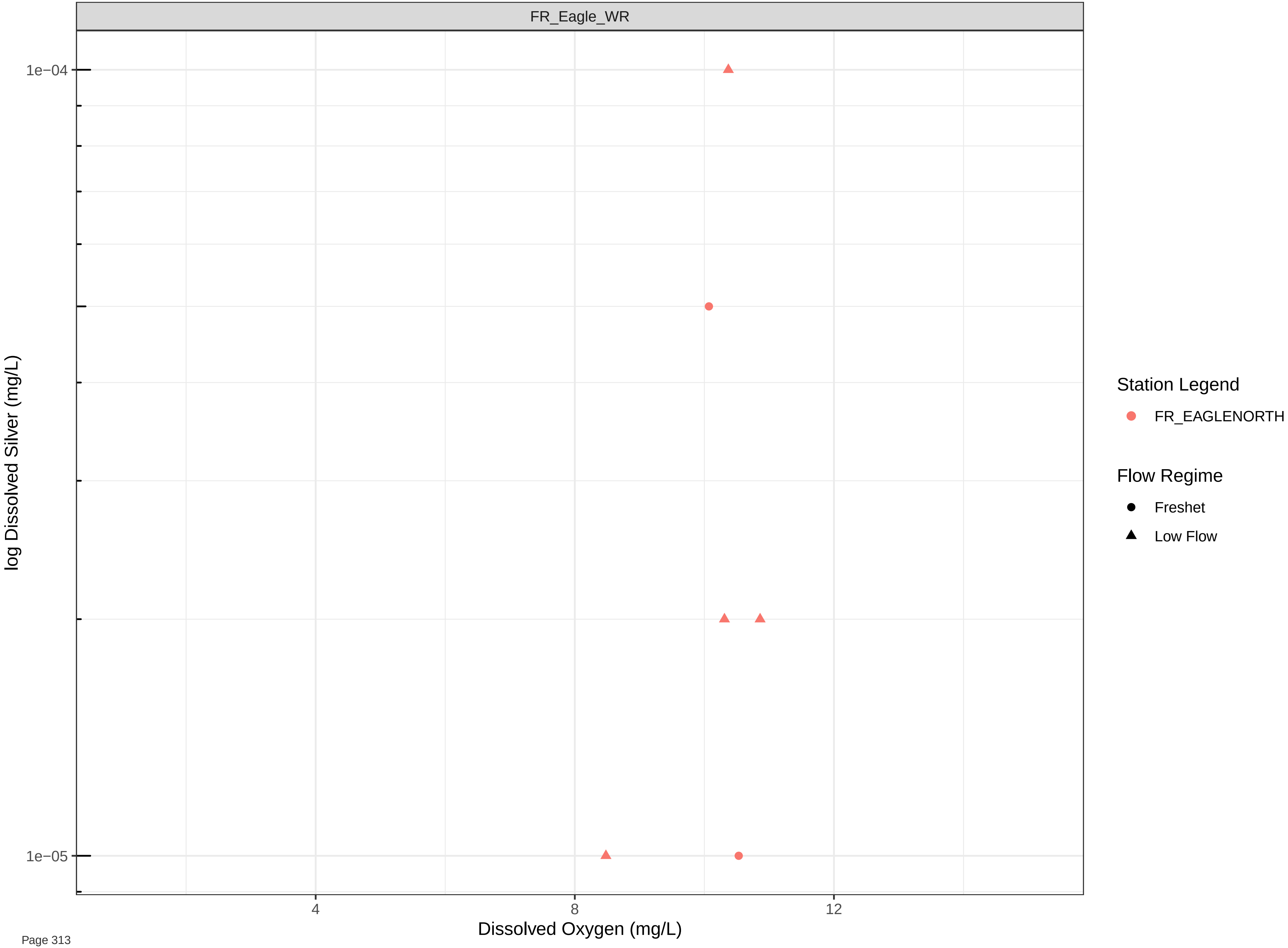

FR_TurnbullWRWest_WR
log Dissolved Silicon (mg/L)
1
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

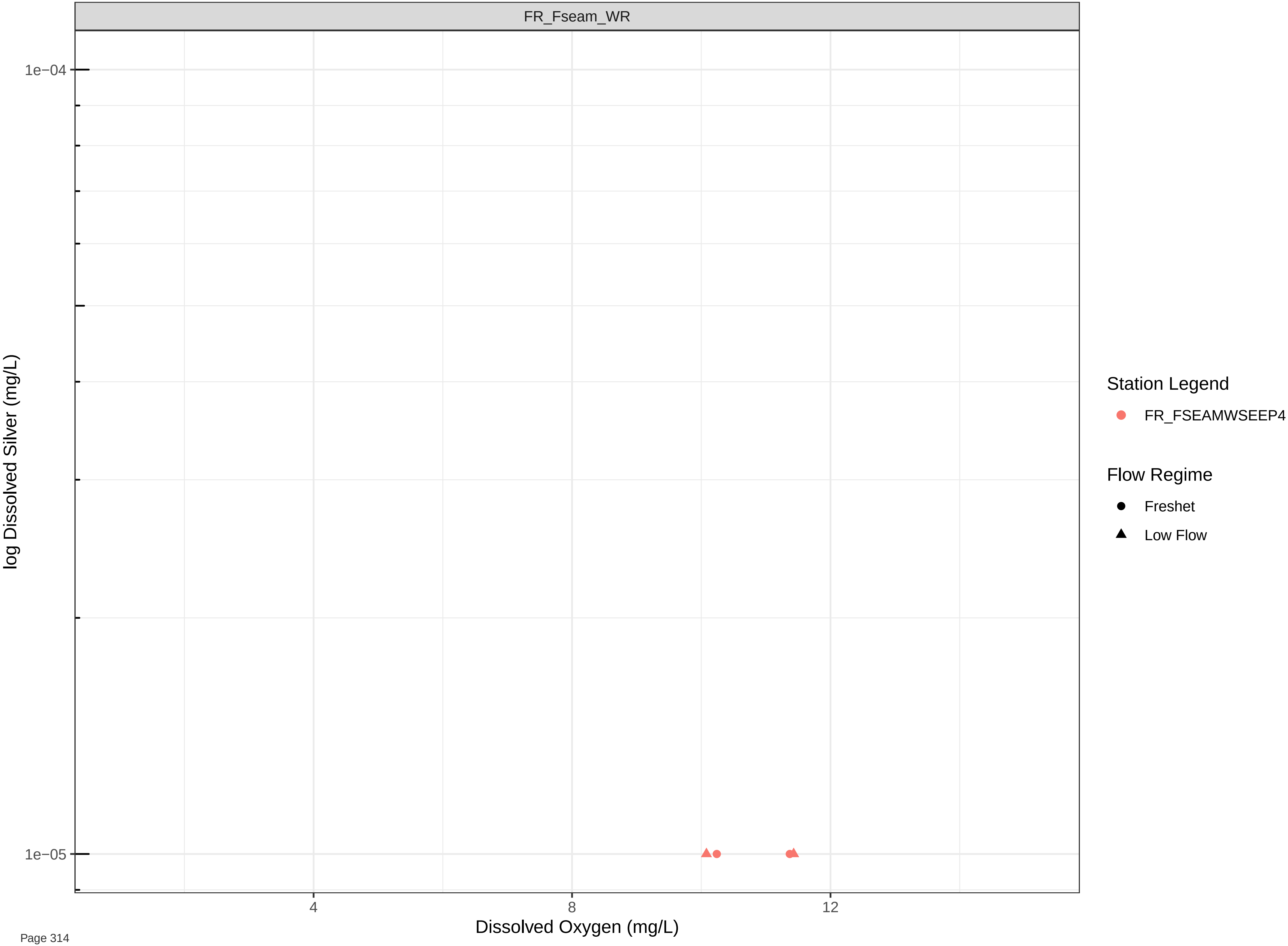

FR_A_WR
1e−04
1e−05
log Dissolved Silver (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

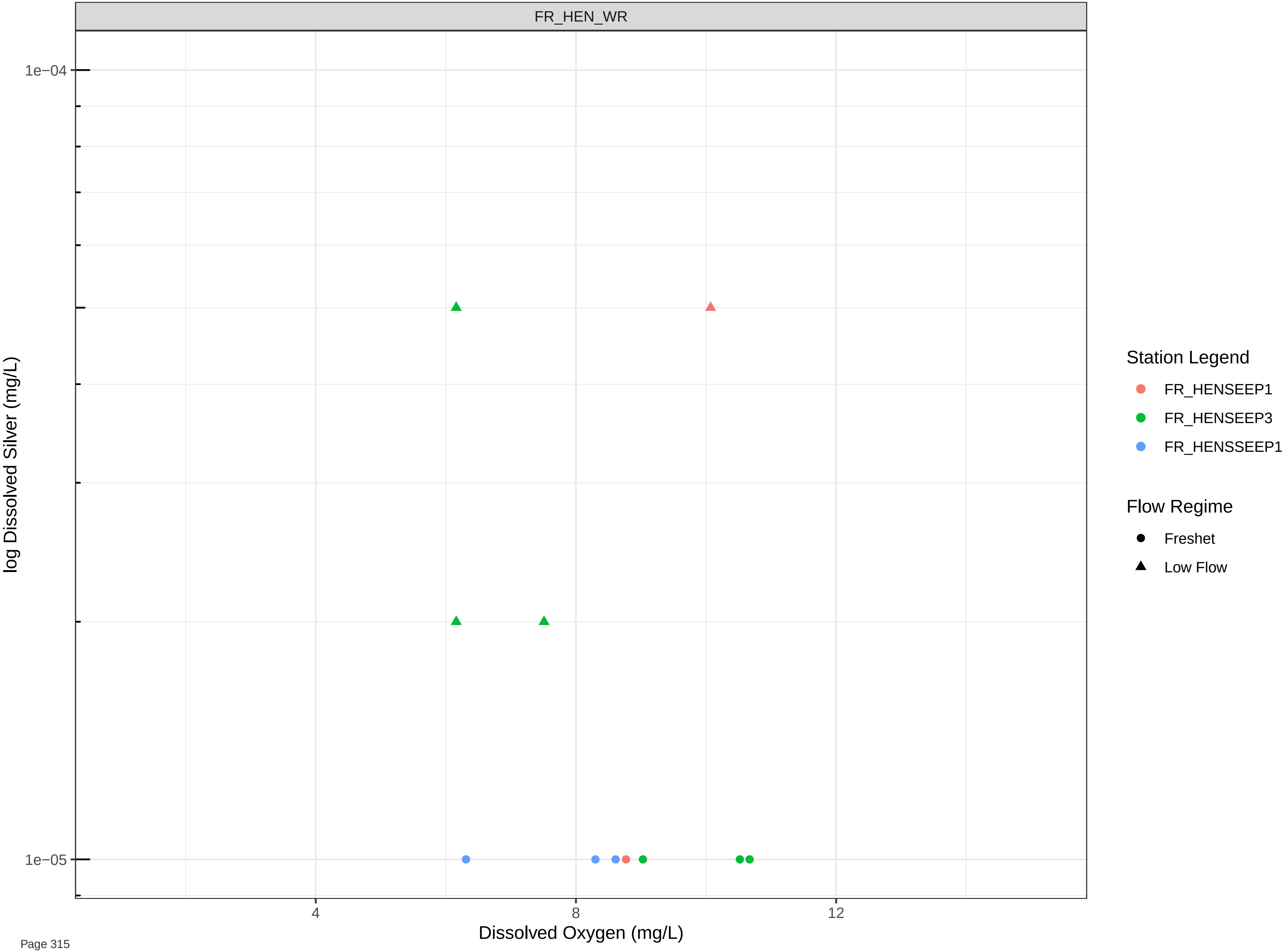

FR_Blain_CCR
1e−04
1e−05
log Dissolved Silver (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

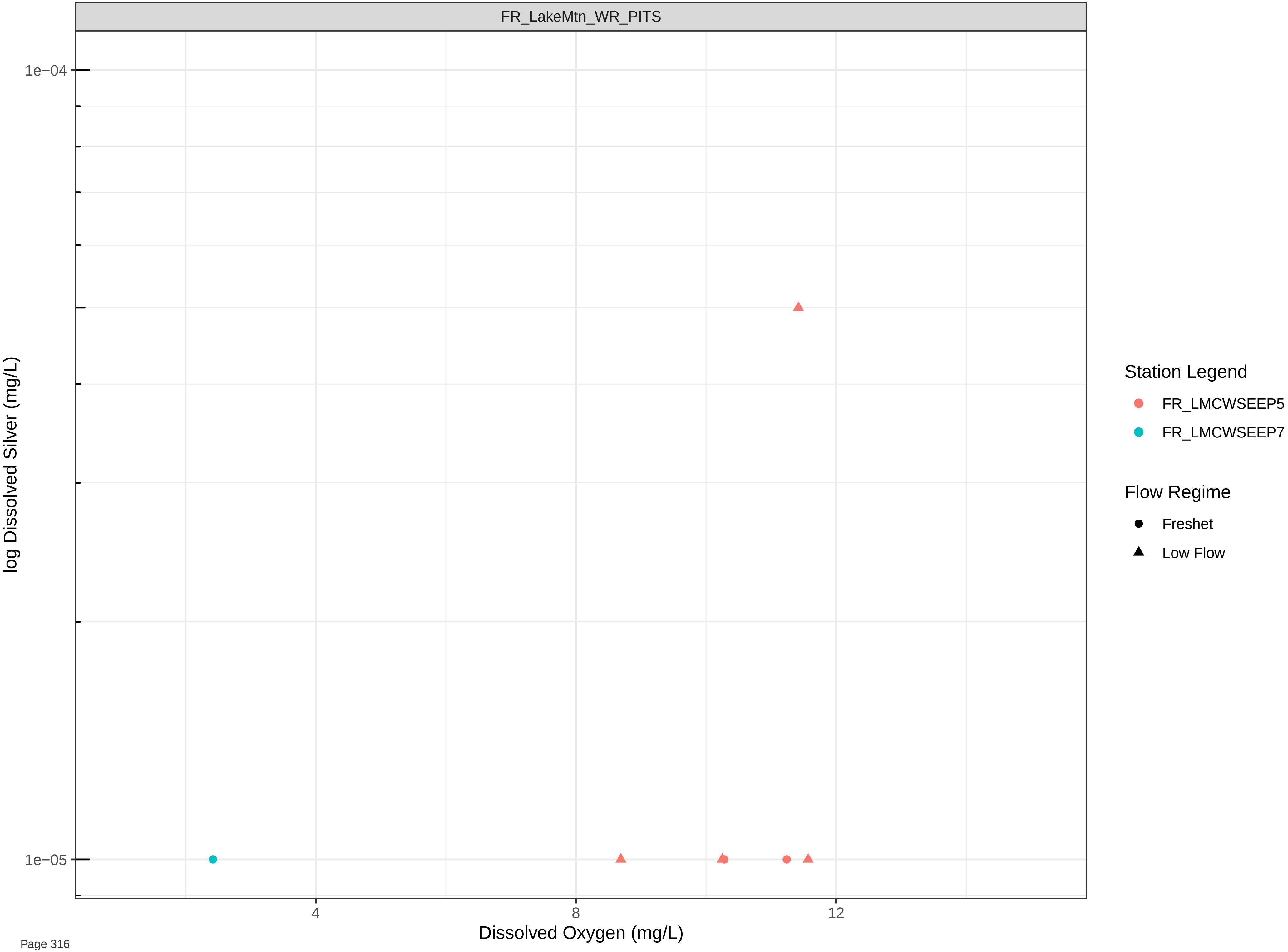

FR_ClodeCr_WR
1e−04
1e−05
log Dissolved Silver (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

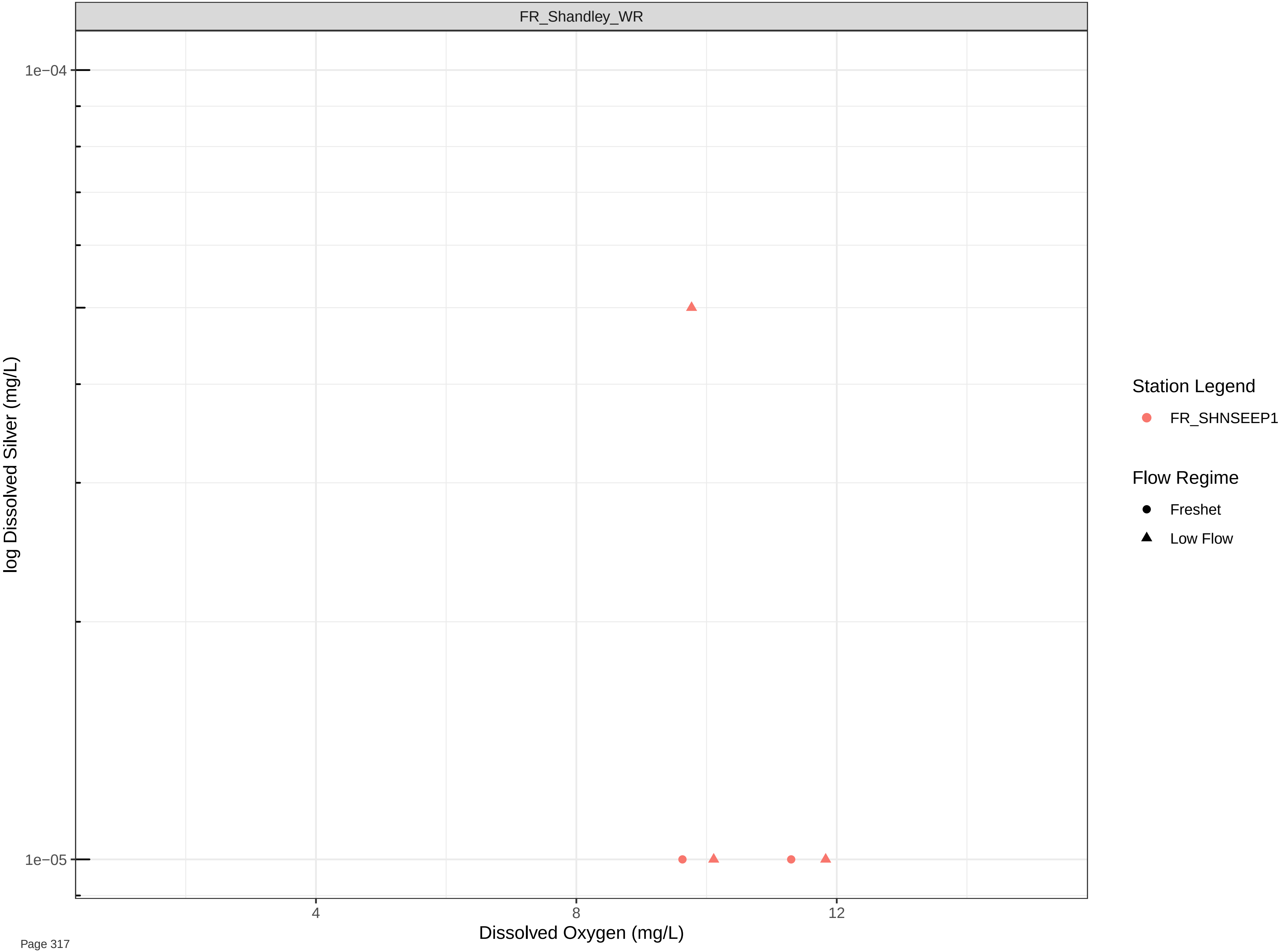

FR_DOKA_Unknown
1e−04
1e−05
log Dissolved Silver (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow


FR_Eagle_WR
1e−04
1e−05
log Dissolved Silver (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

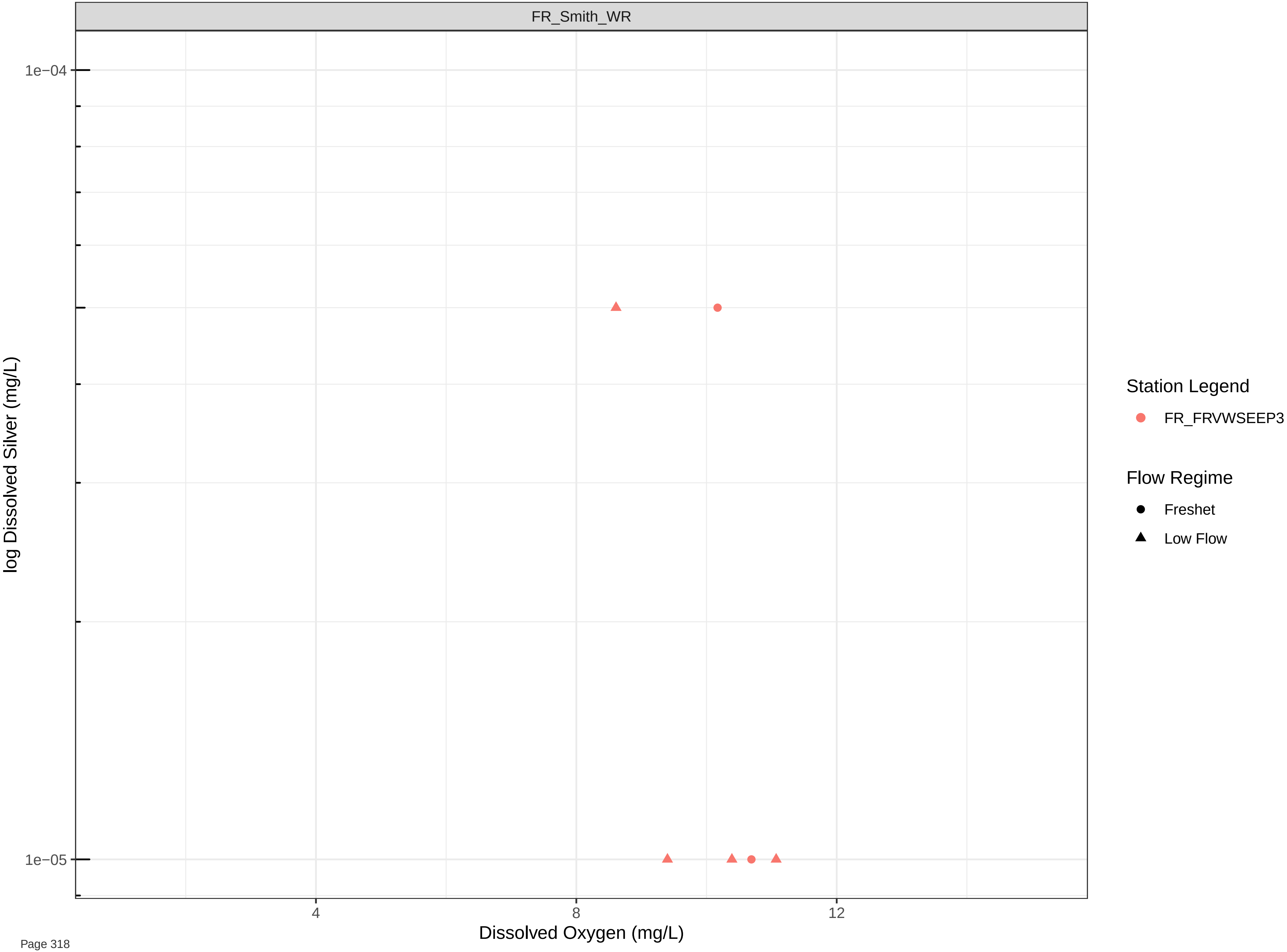

FR_Fseam_WR
1e−04
1e−05
log Dissolved Silver (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

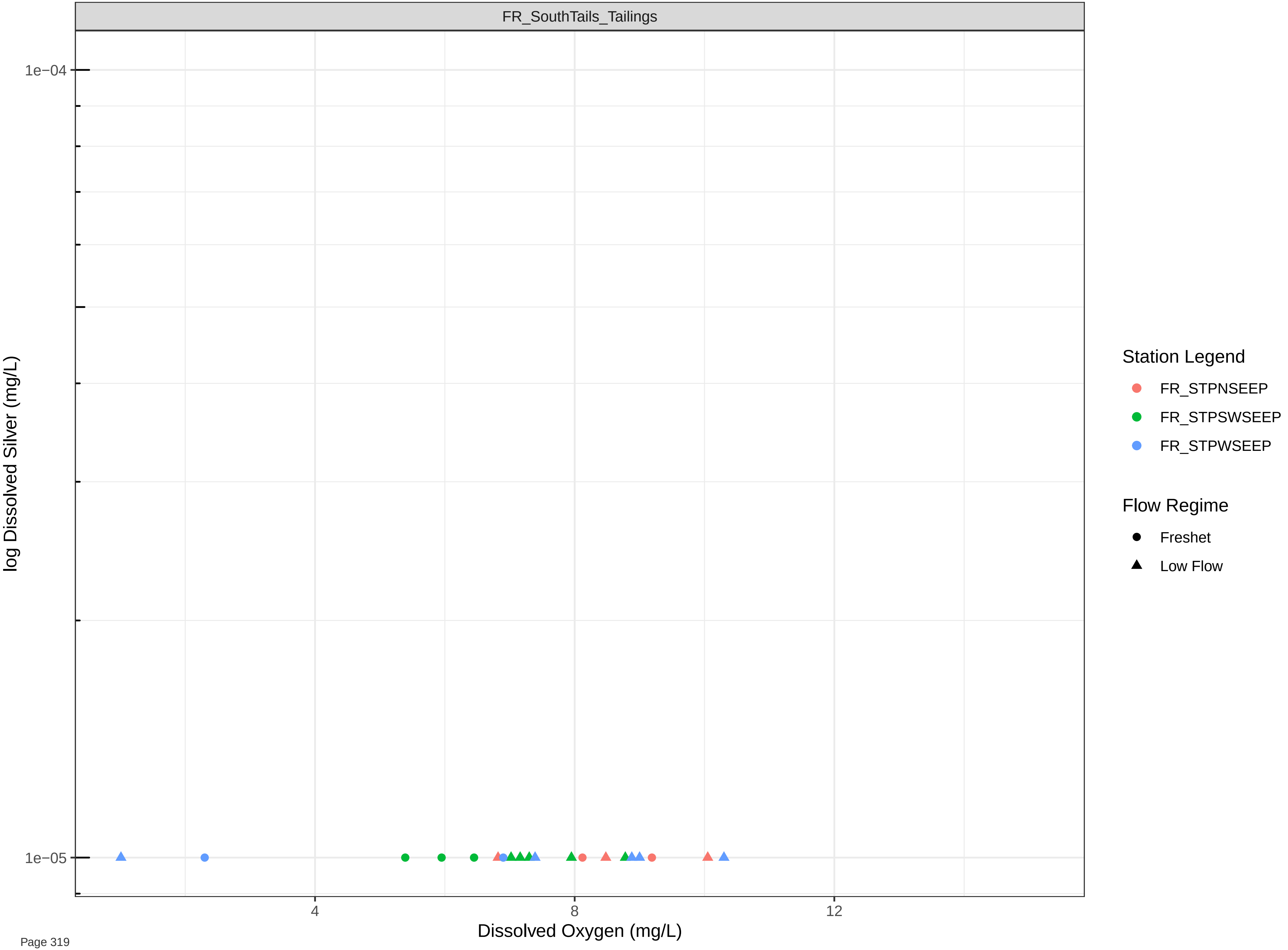

FR_HEN_WR
1e−04
1e−05
4
8
12
log Dissolved Silver (mg/L)
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

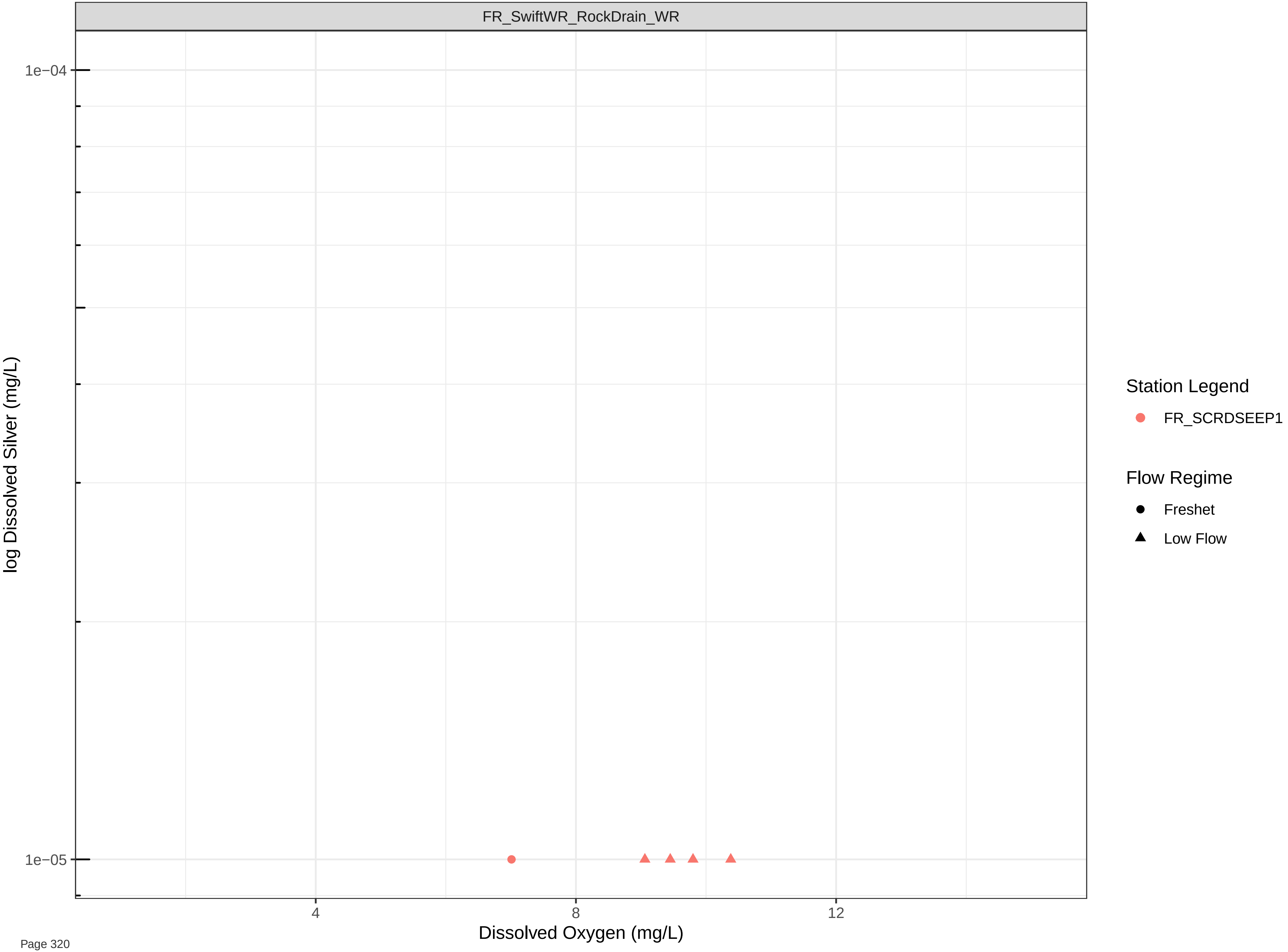

FR_LakeMtn_WR_PITS
log Dissolved Silver (mg/L)
1e−04
1e−05
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

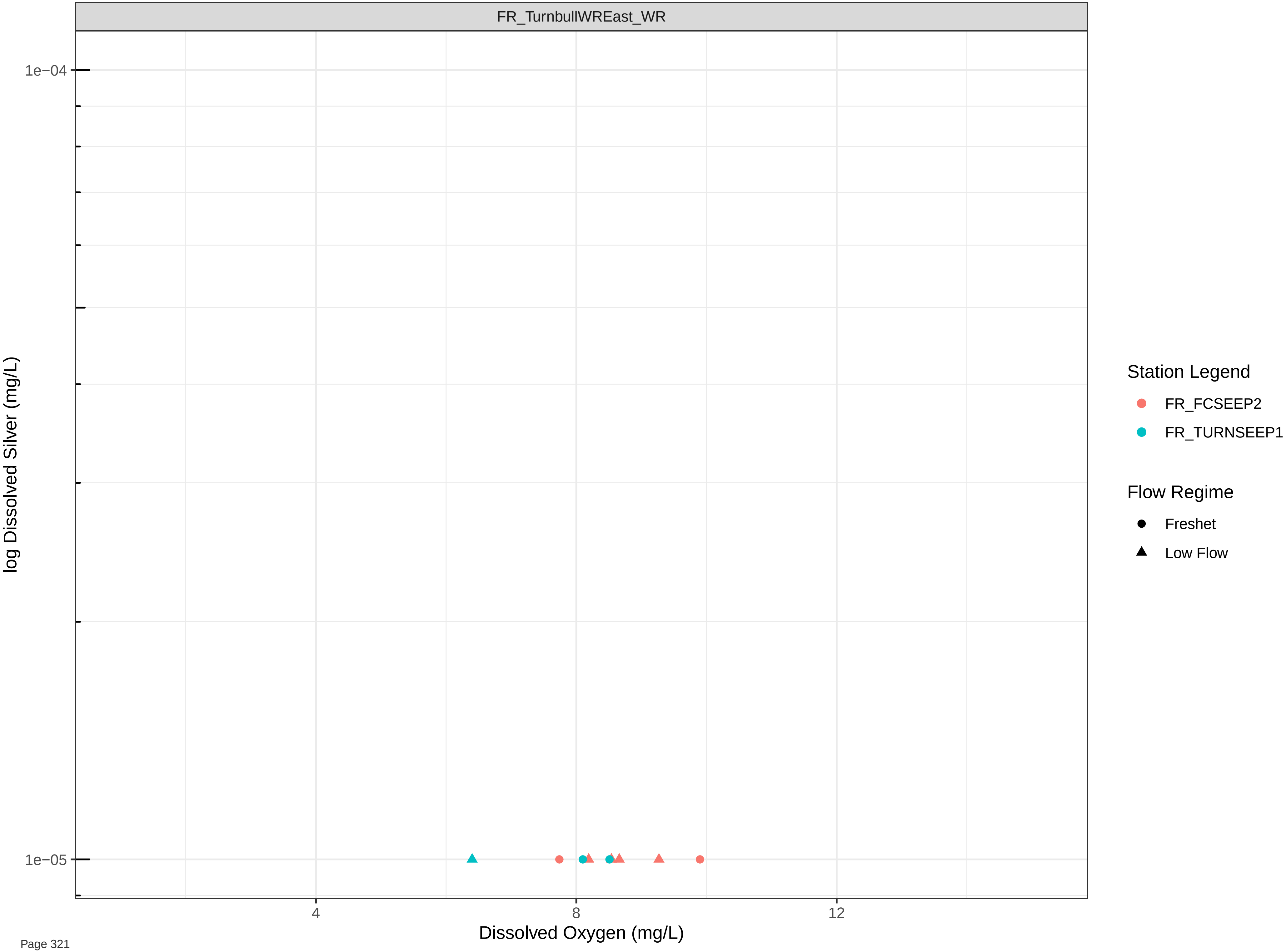


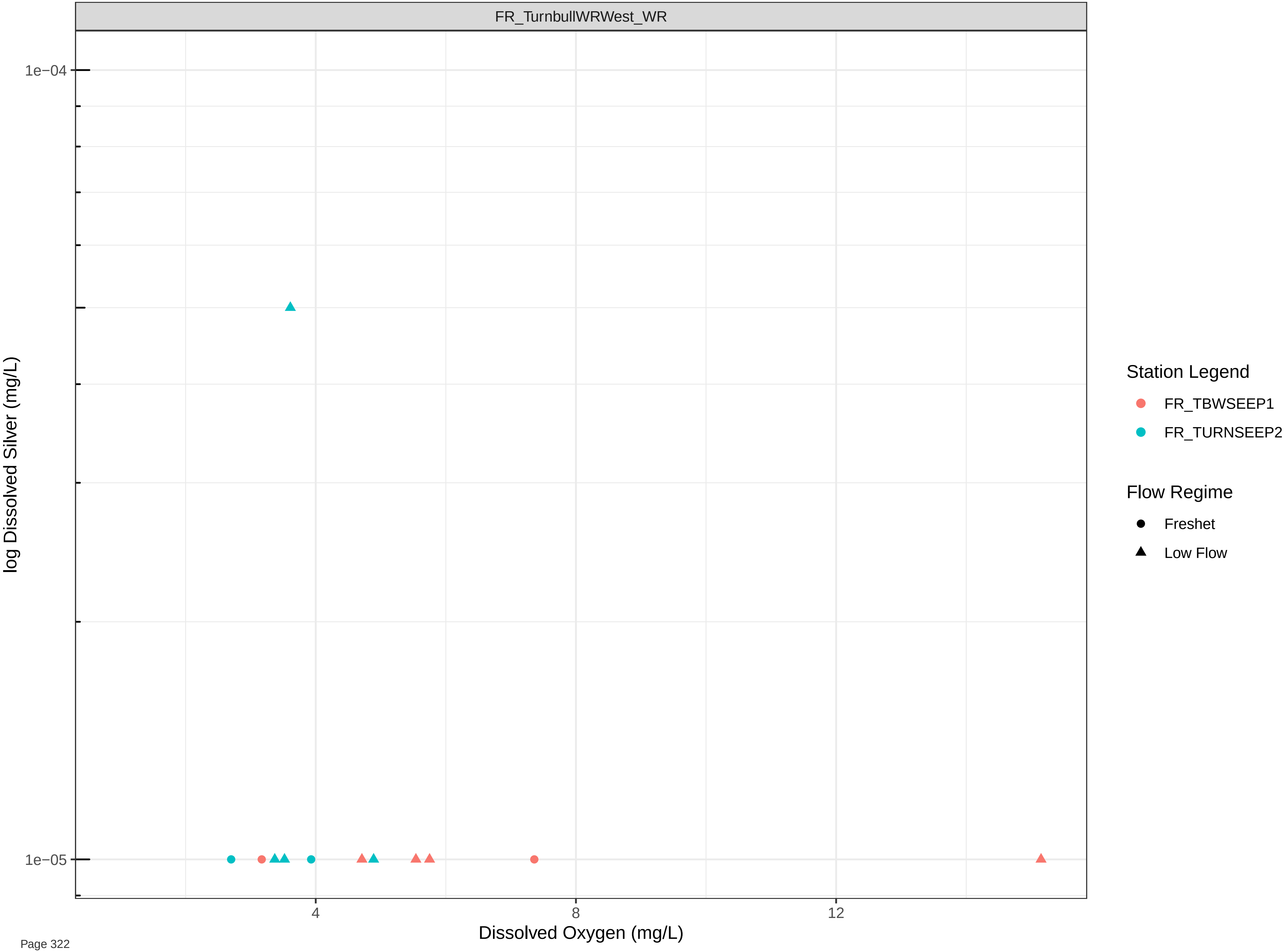
FR_Shandley_WR
1e−04
1e−05
log Dissolved Silver (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

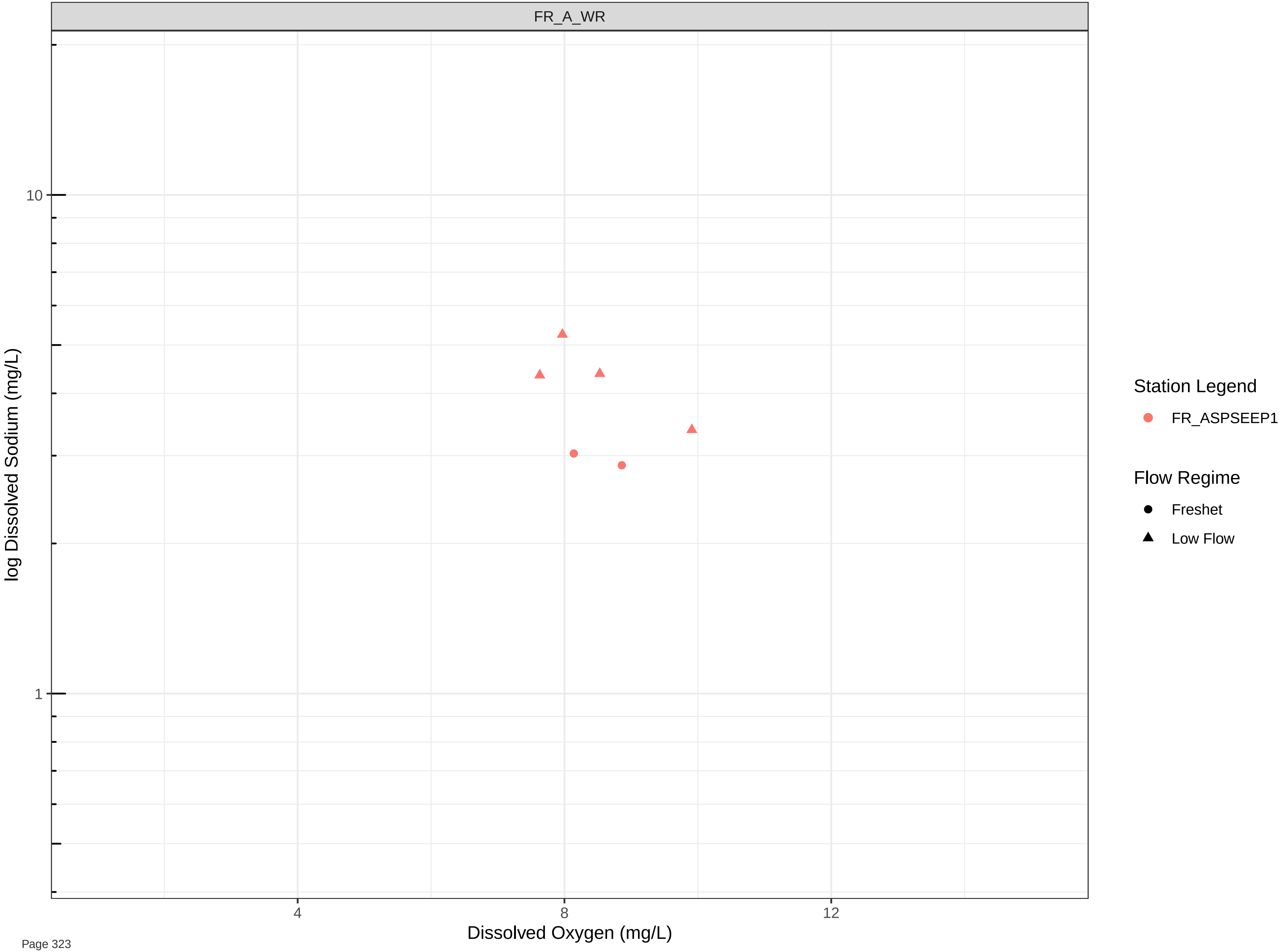

FR_Smith_WR
1e−04
1e−05
log Dissolved Silver (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

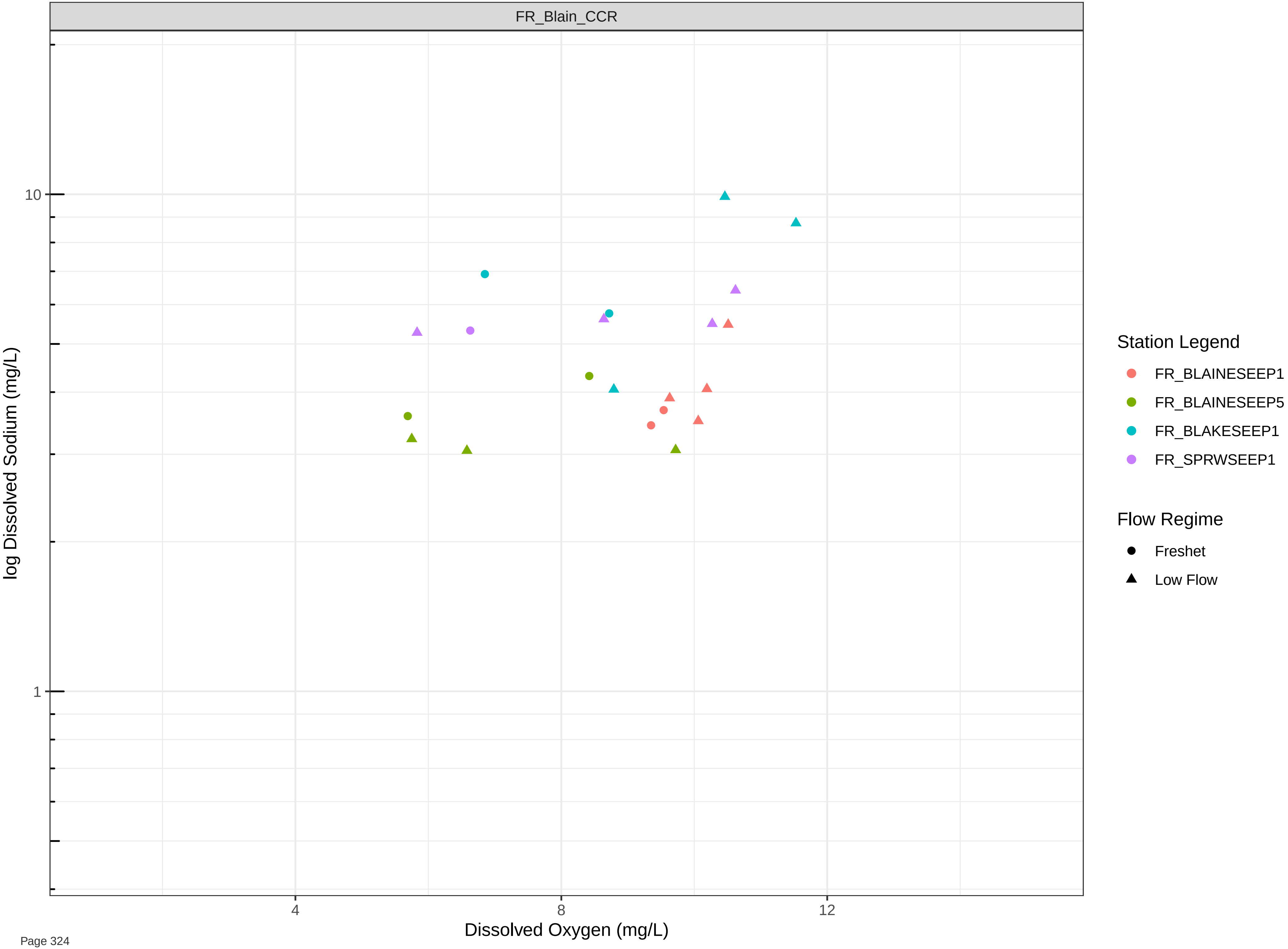

FR_SouthTails_Tailings
1e−04
1e−05
log Dissolved Silver (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

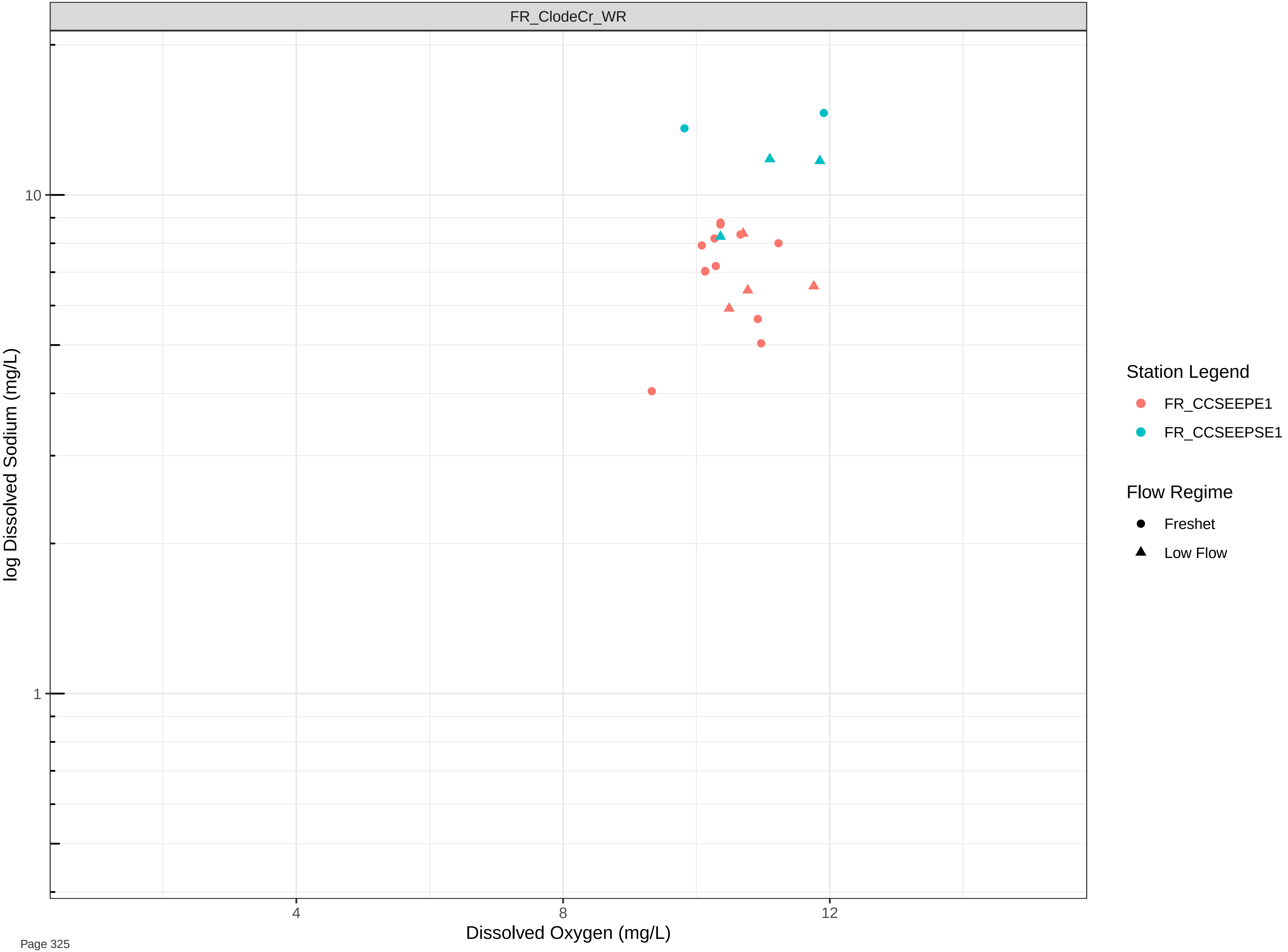

FR_SwiftWR_RockDrain_WR
1e−04
1e−05
log Dissolved Silver (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

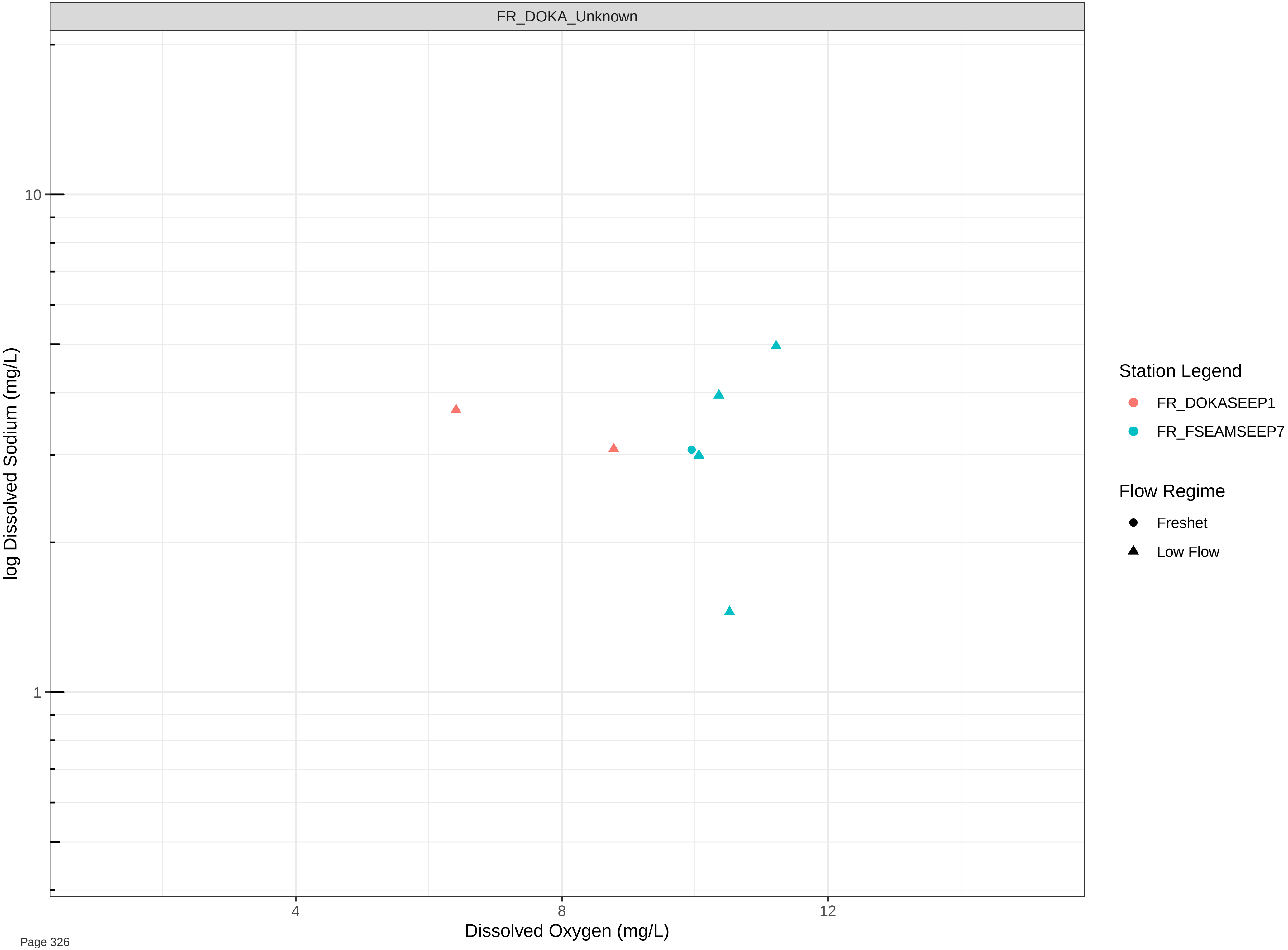

FR_TurnbullWREast_WR
1e−04
1e−05
log Dissolved Silver (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

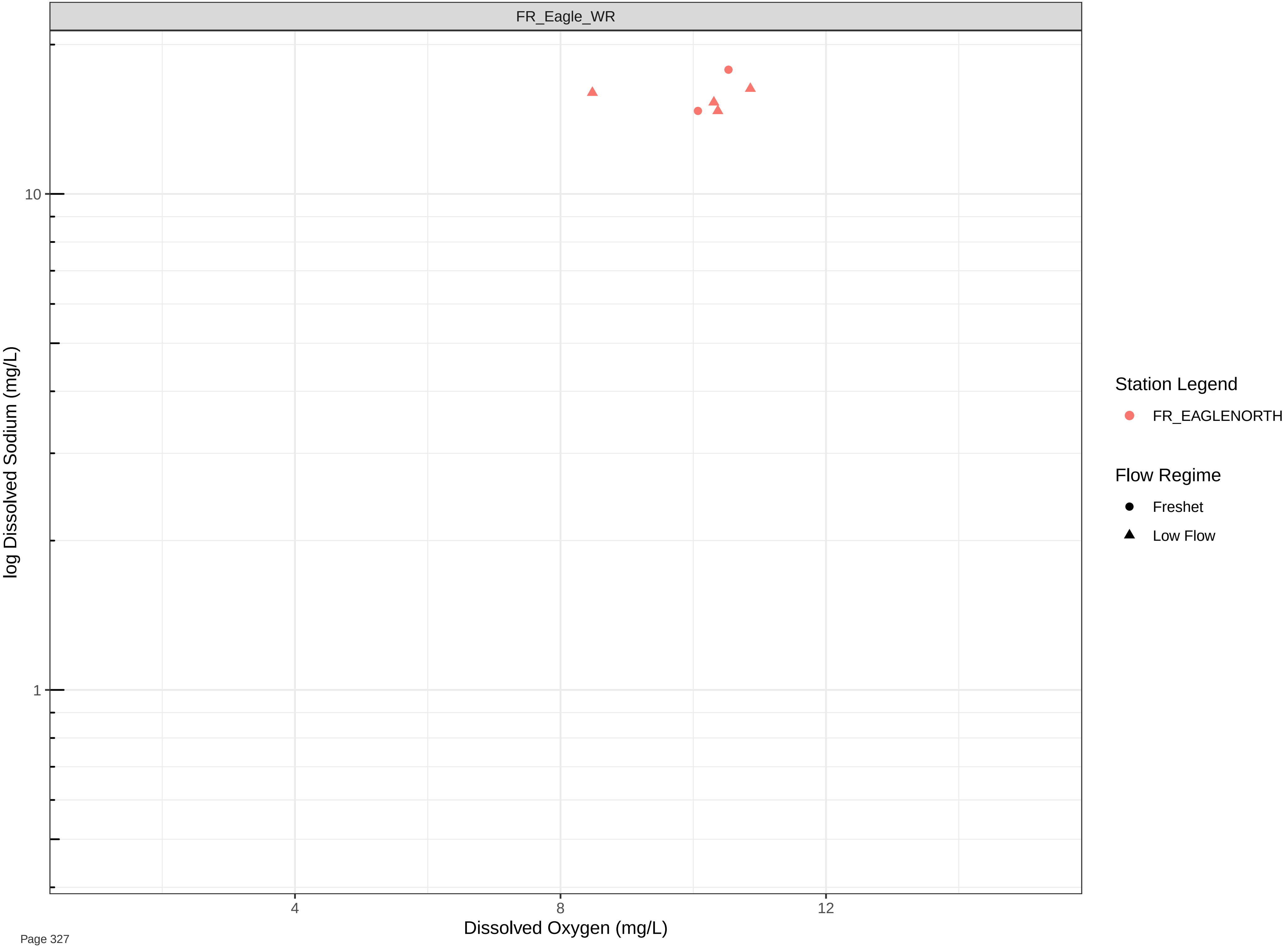

FR_TurnbullWRWest_WR
1e−04
1e−05
log Dissolved Silver (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

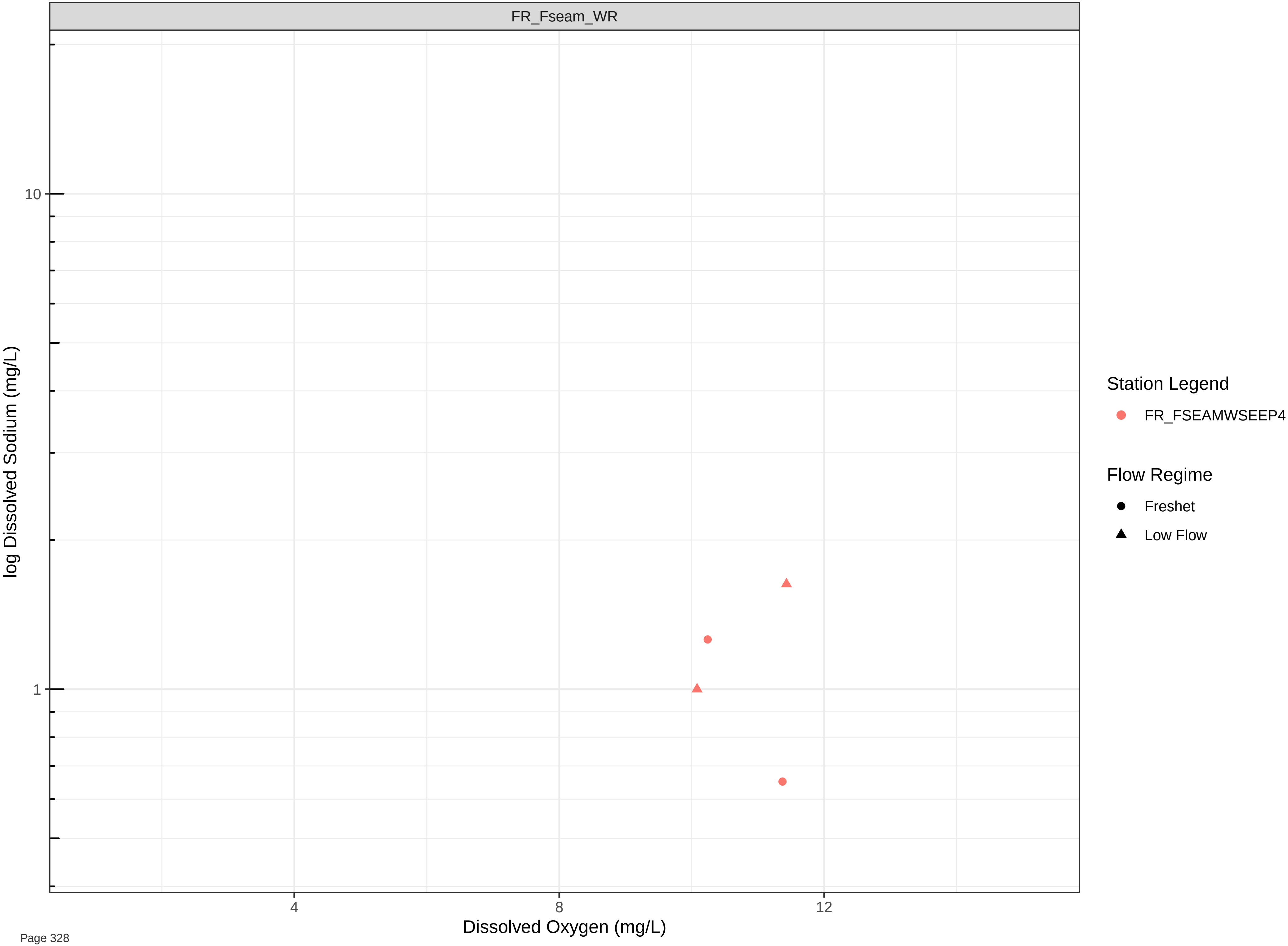

FR_A_WR
10
1
log Dissolved Sodium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

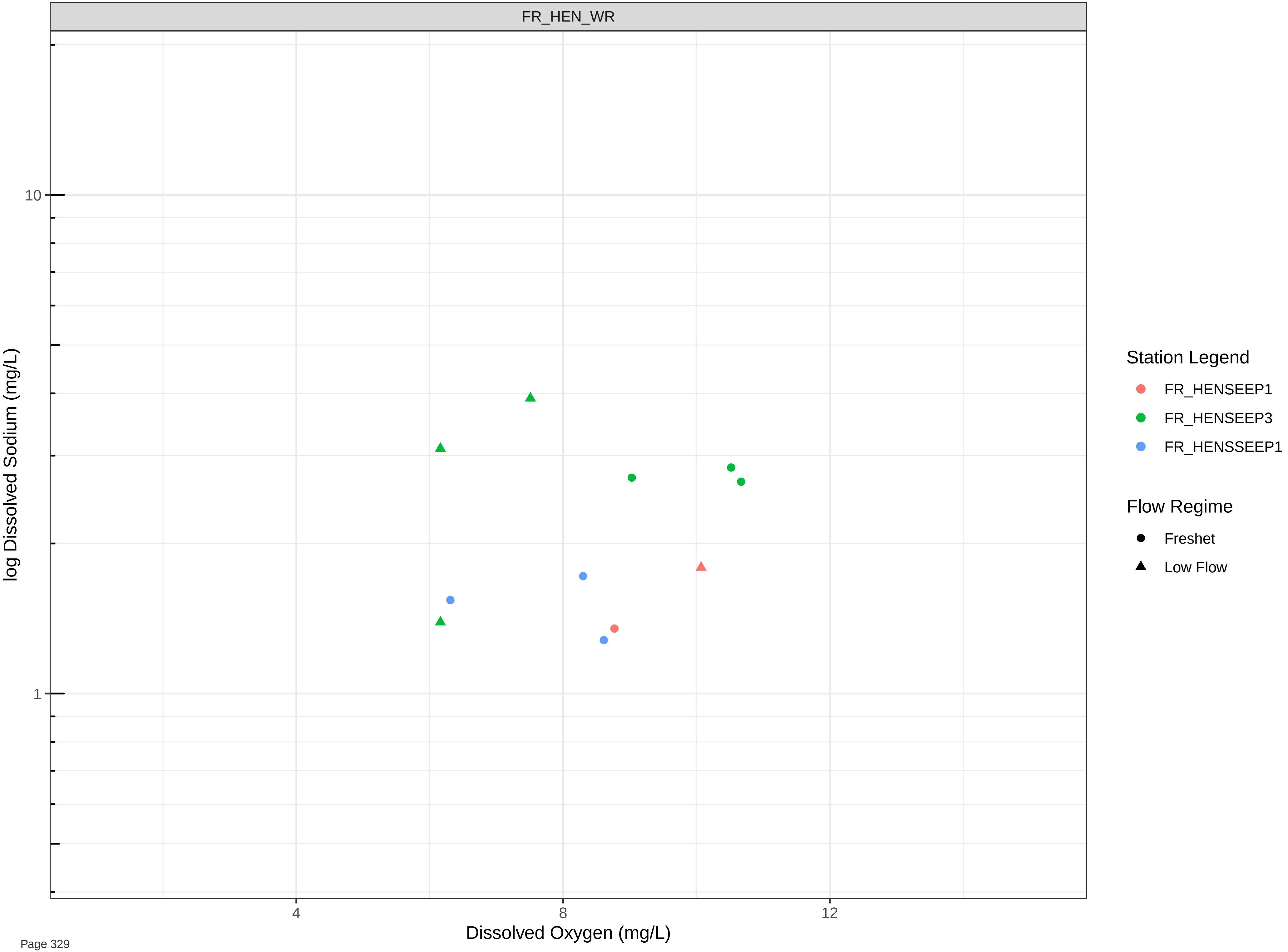

FR_Blain_CCR
log Dissolved Sodium (mg/L)
10
1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow

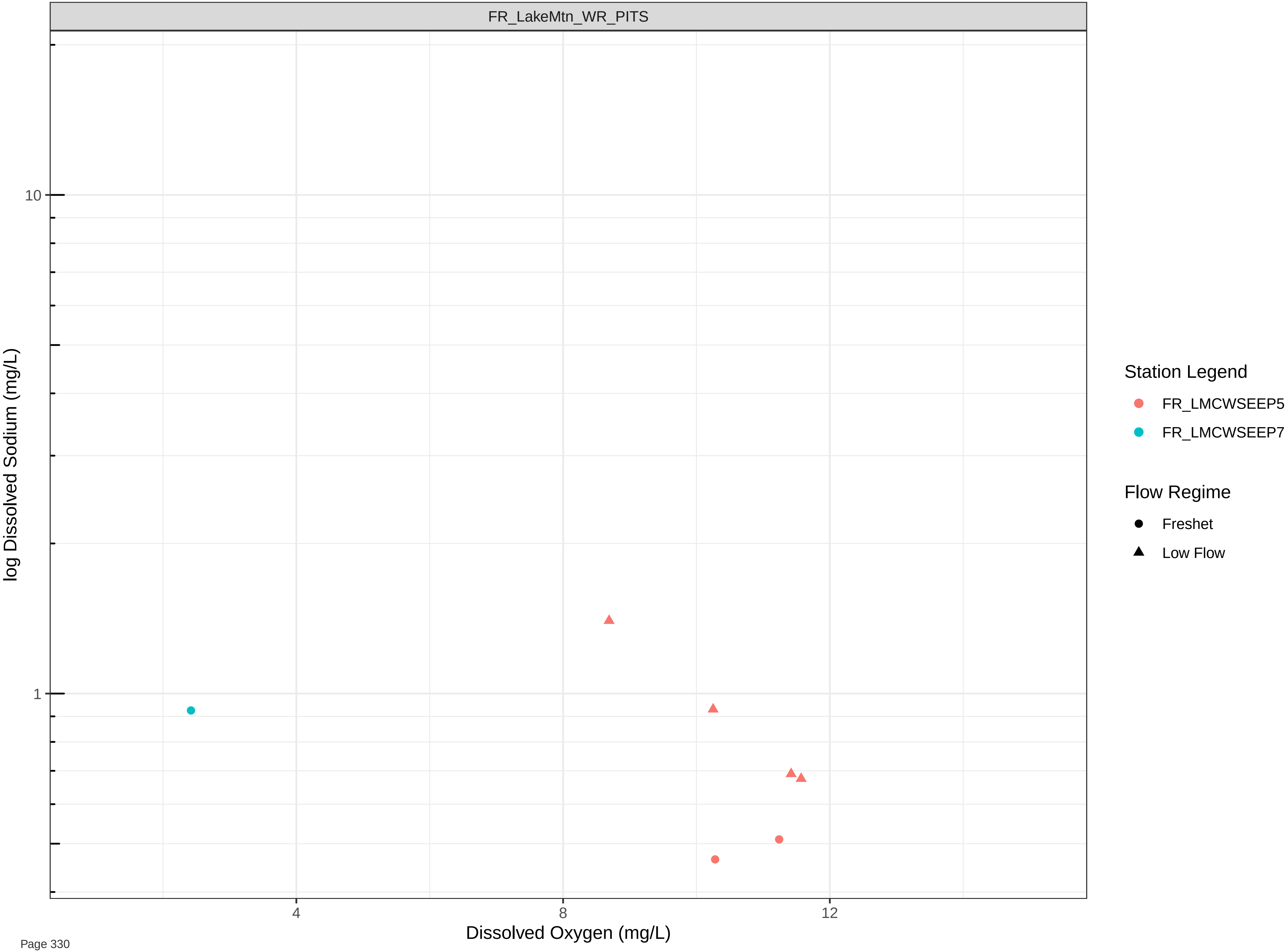

FR_ClodeCr_WR
log Dissolved Sodium (mg/L)
10
1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

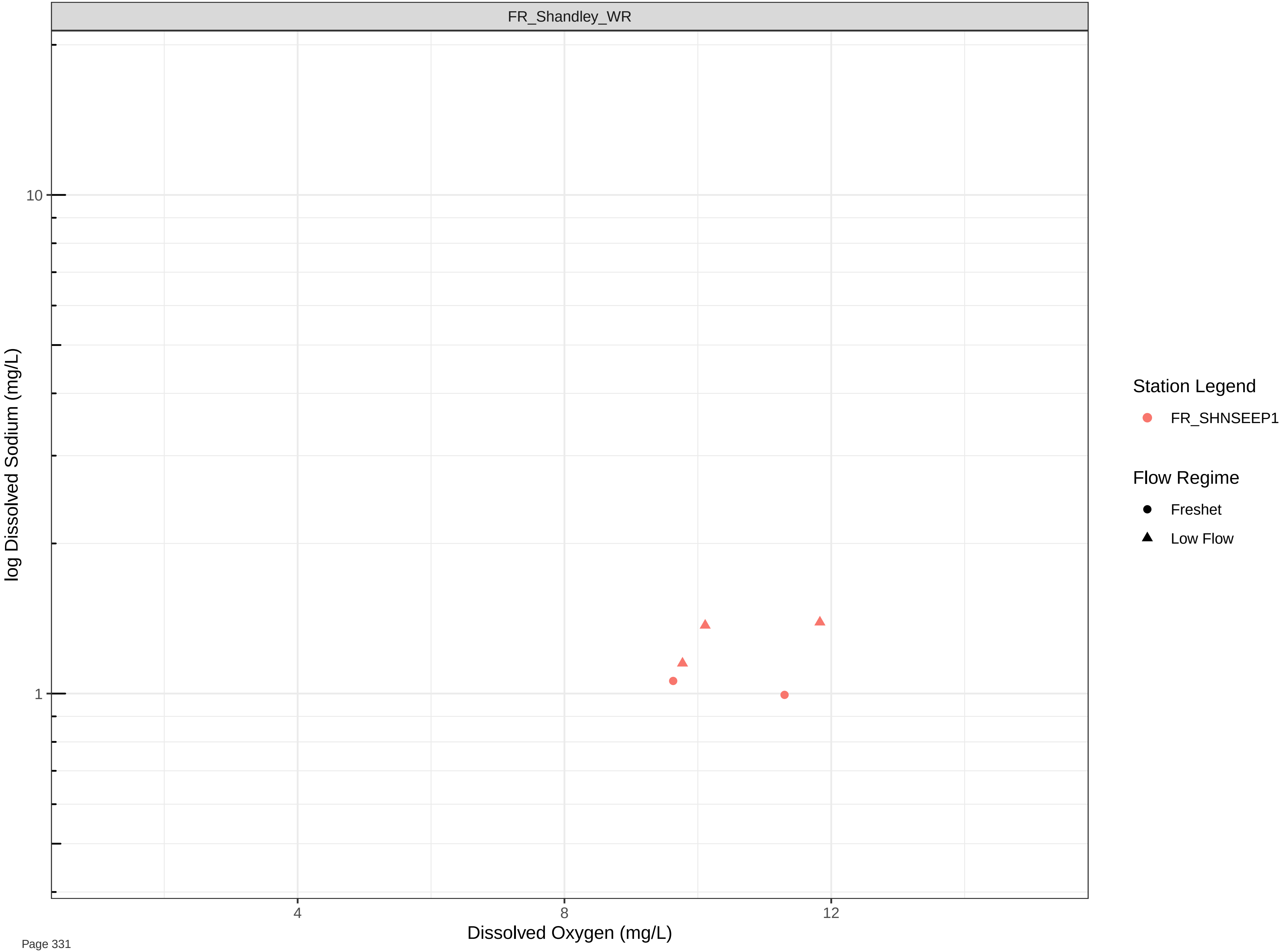

FR_DOKA_Unknown
log Dissolved Sodium (mg/L)
10
1
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow


FR_Eagle_WR
log Dissolved Sodium (mg/L)
10
1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow


FR_Fseam_WR
log Dissolved Sodium (mg/L)
10
1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow


FR_HEN_WR
log Dissolved Sodium (mg/L)
10
1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow


FR_LakeMtn_WR_PITS
log Dissolved Sodium (mg/L)
10
1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow


FR_Shandley_WR
log Dissolved Sodium (mg/L)
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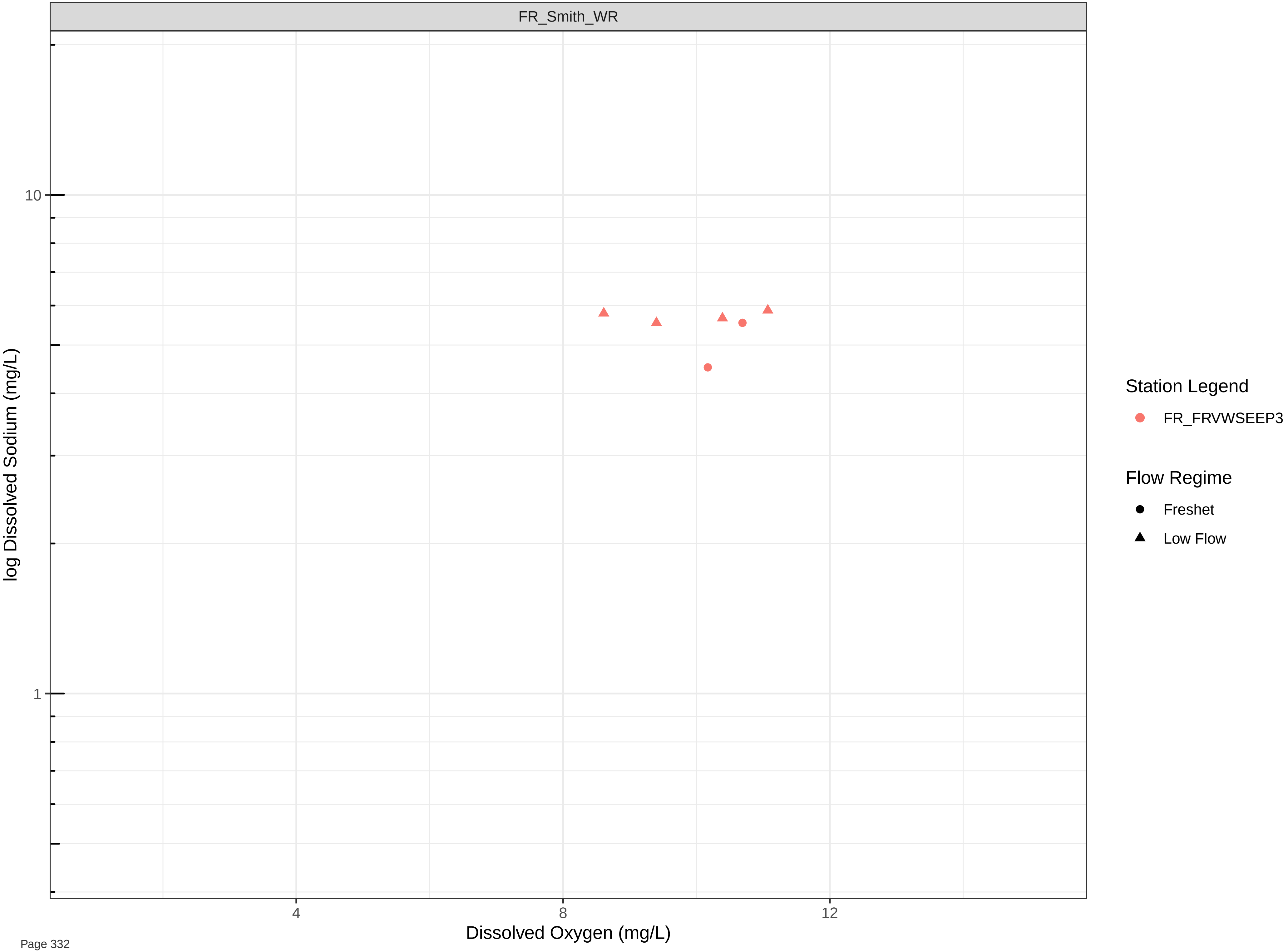
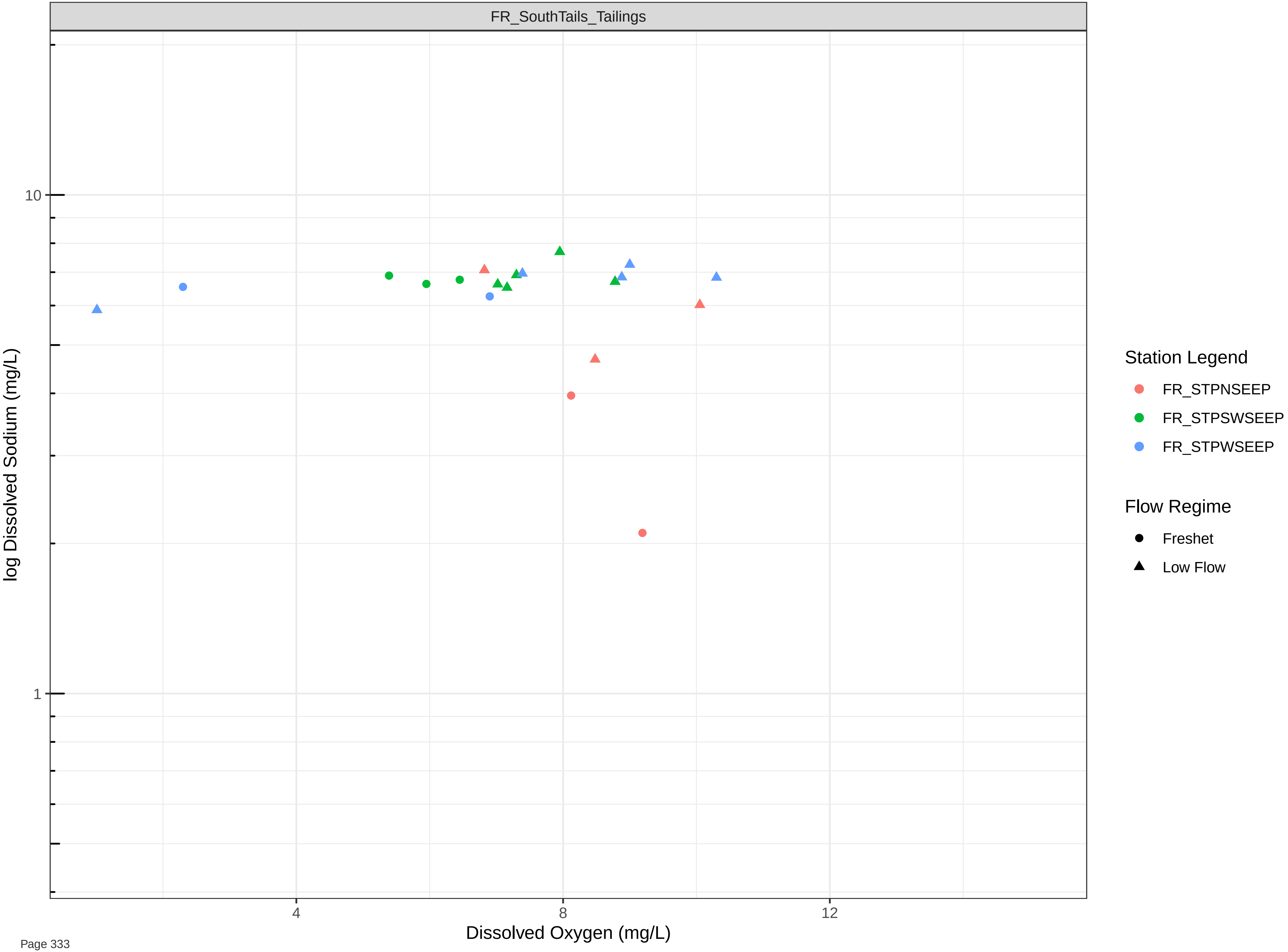
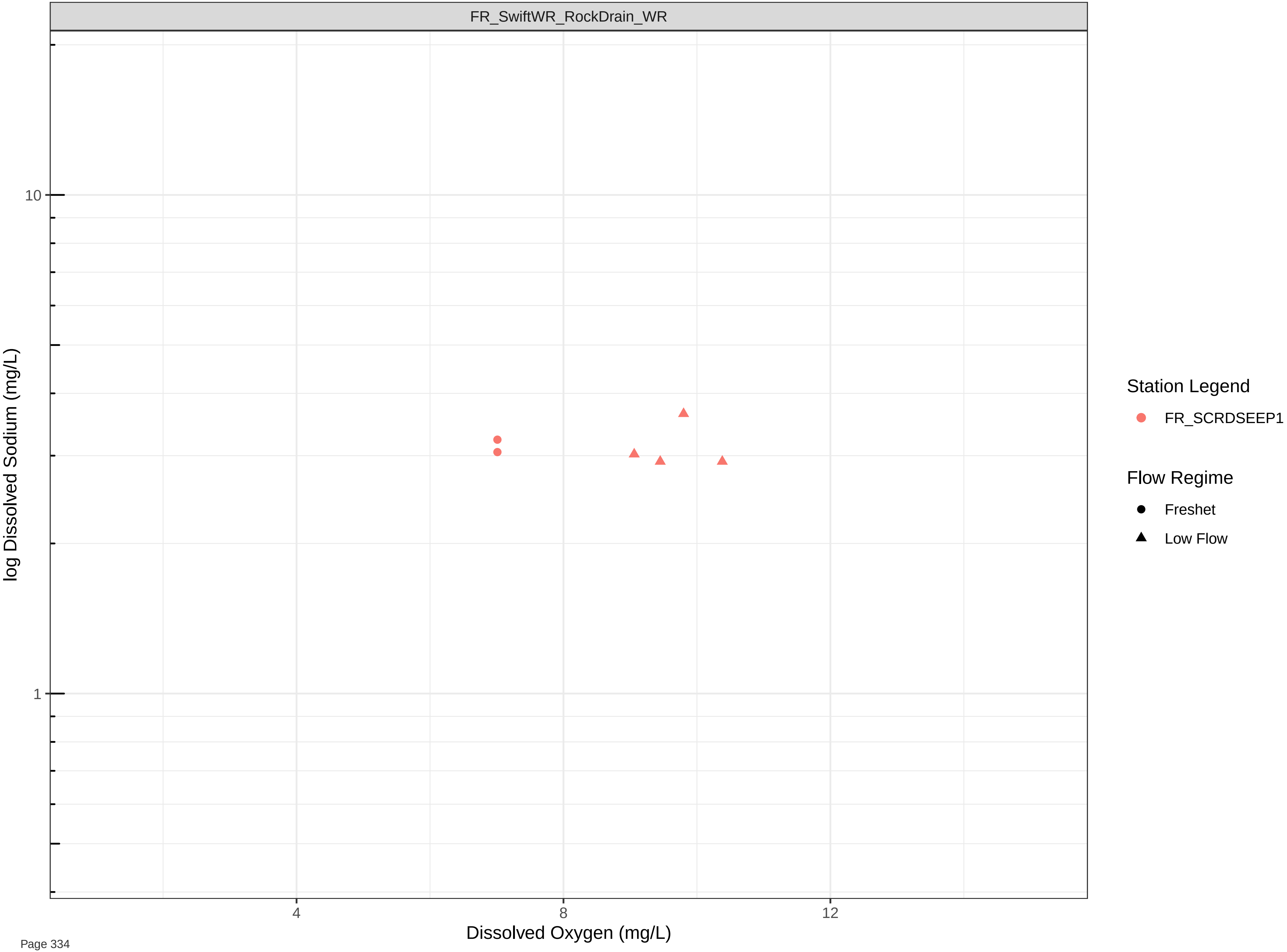
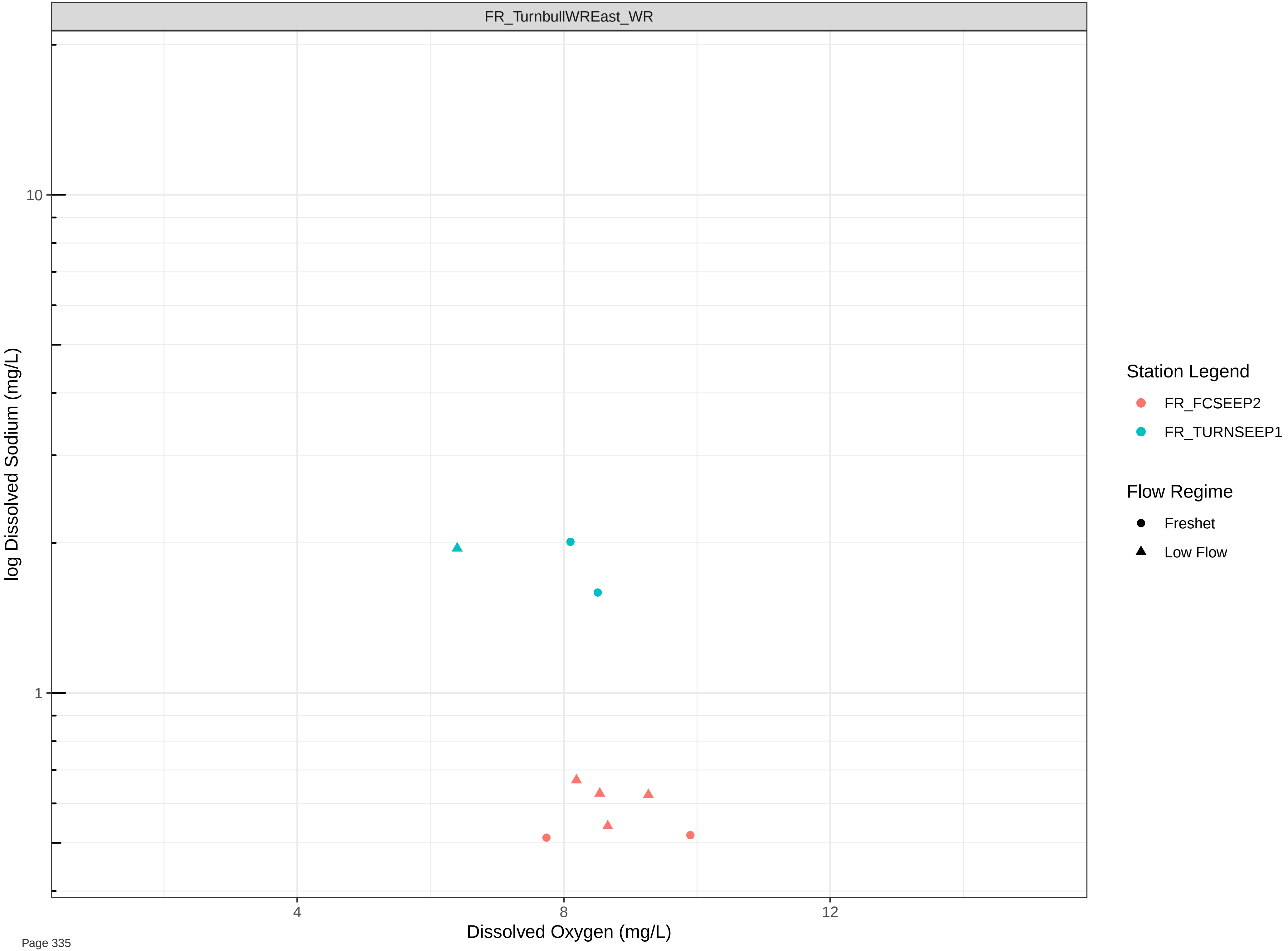
1
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

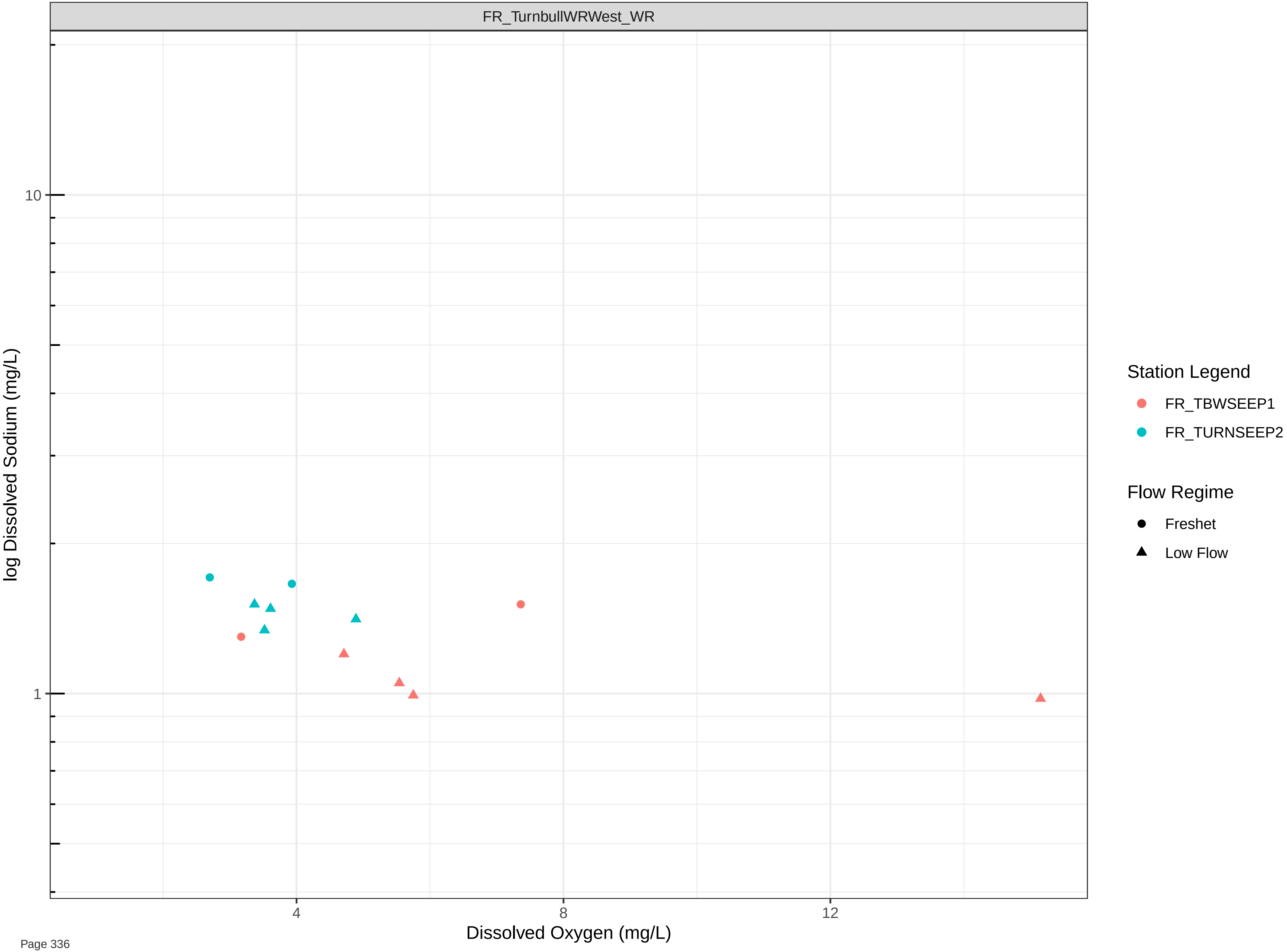


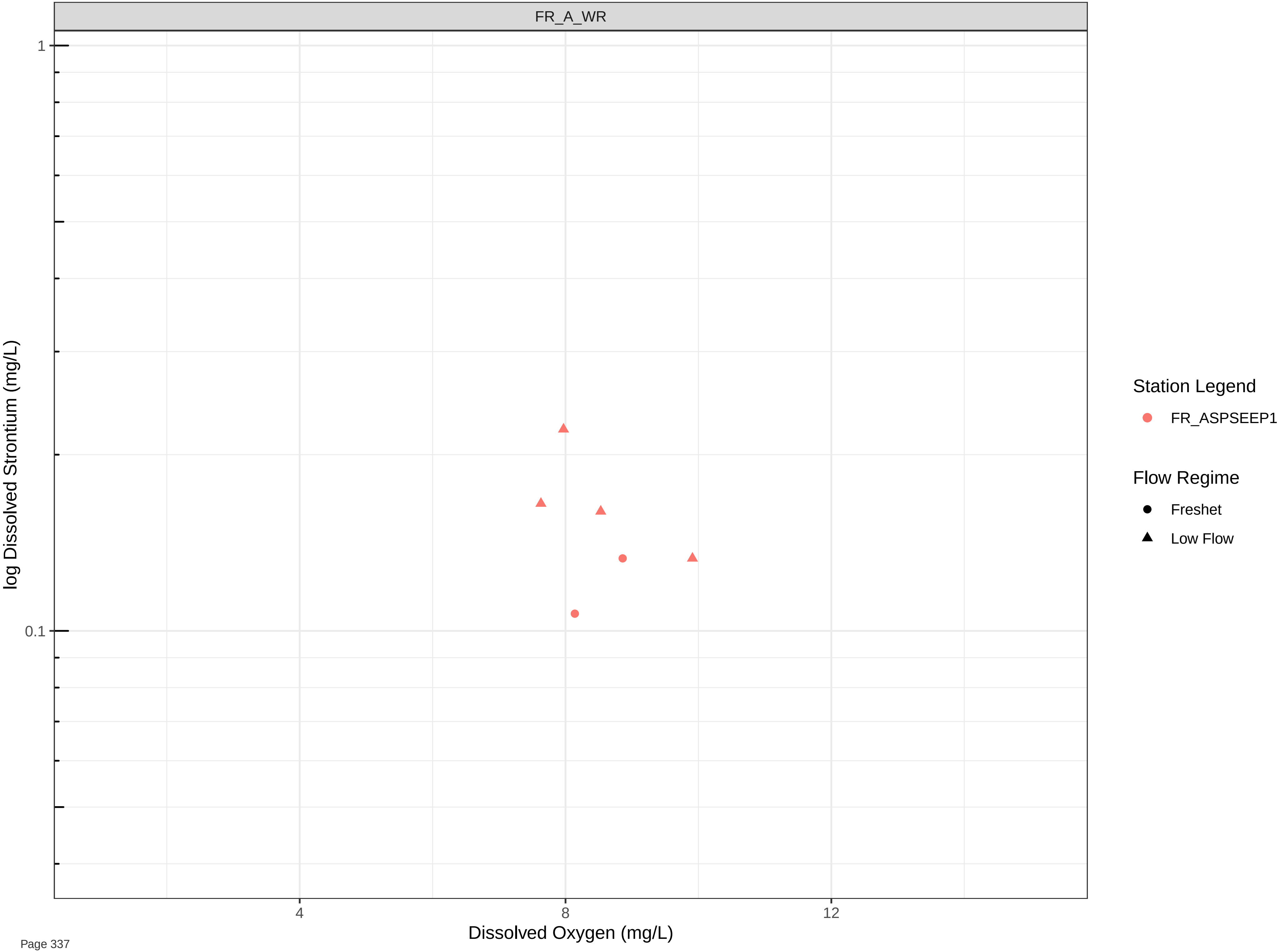
FR_Smith_WR
10
1
log Dissolved Sodium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

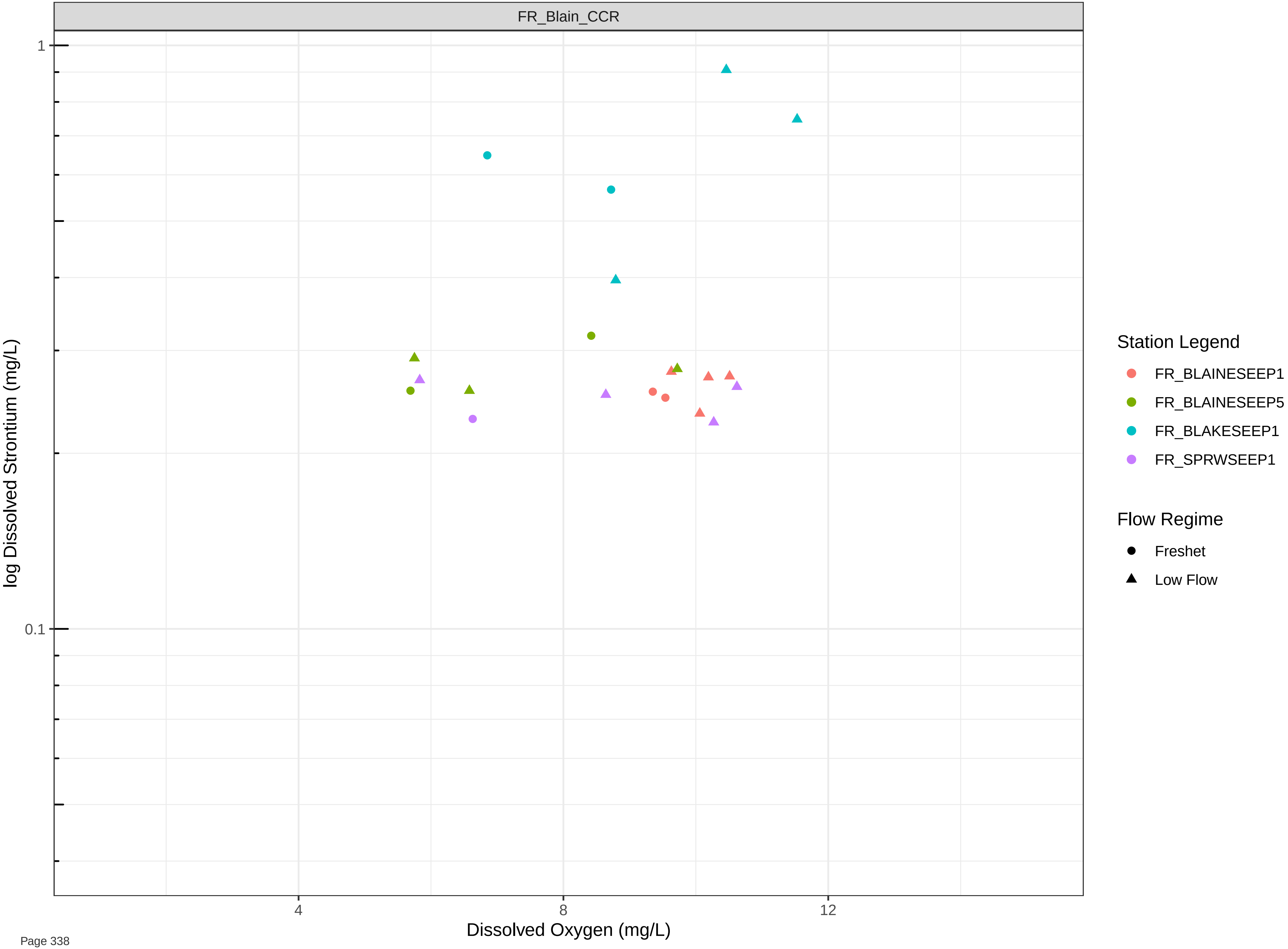

FR_SouthTails_Tailings
log Dissolved Sodium (mg/L)
10
1
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

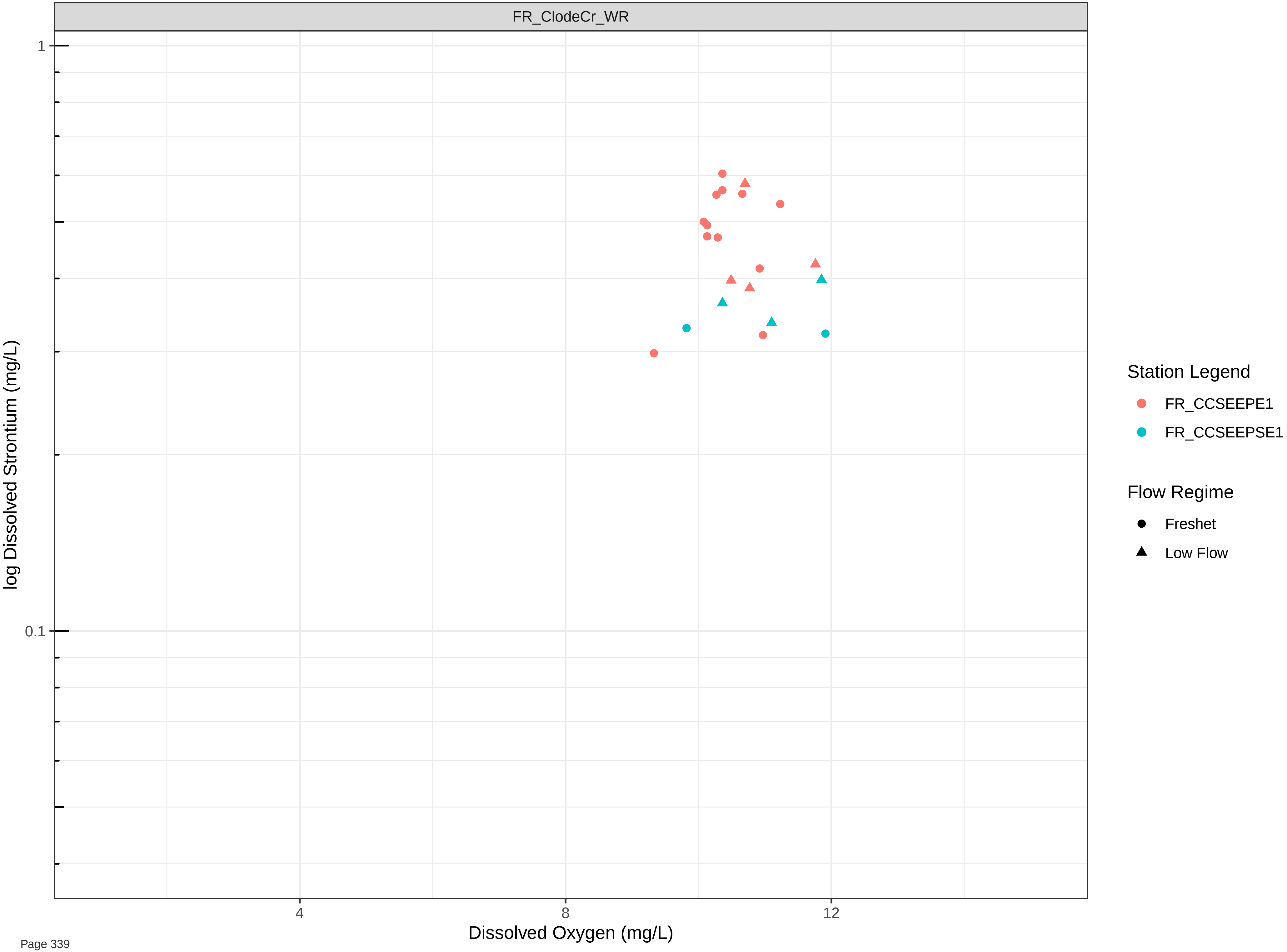

FR_SwiftWR_RockDrain_WR
log Dissolved Sodium (mg/L)
10
1
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWREast_WR
10
1
log Dissolved Sodium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWRWest_WR
log Dissolved Sodium (mg/L)
10
1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow


FR_A_WR
1
0.1
log Dissolved Strontium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_Blain_CCR
log Dissolved Strontium (mg/L)
1
0.1
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow


FR_ClodeCr_WR
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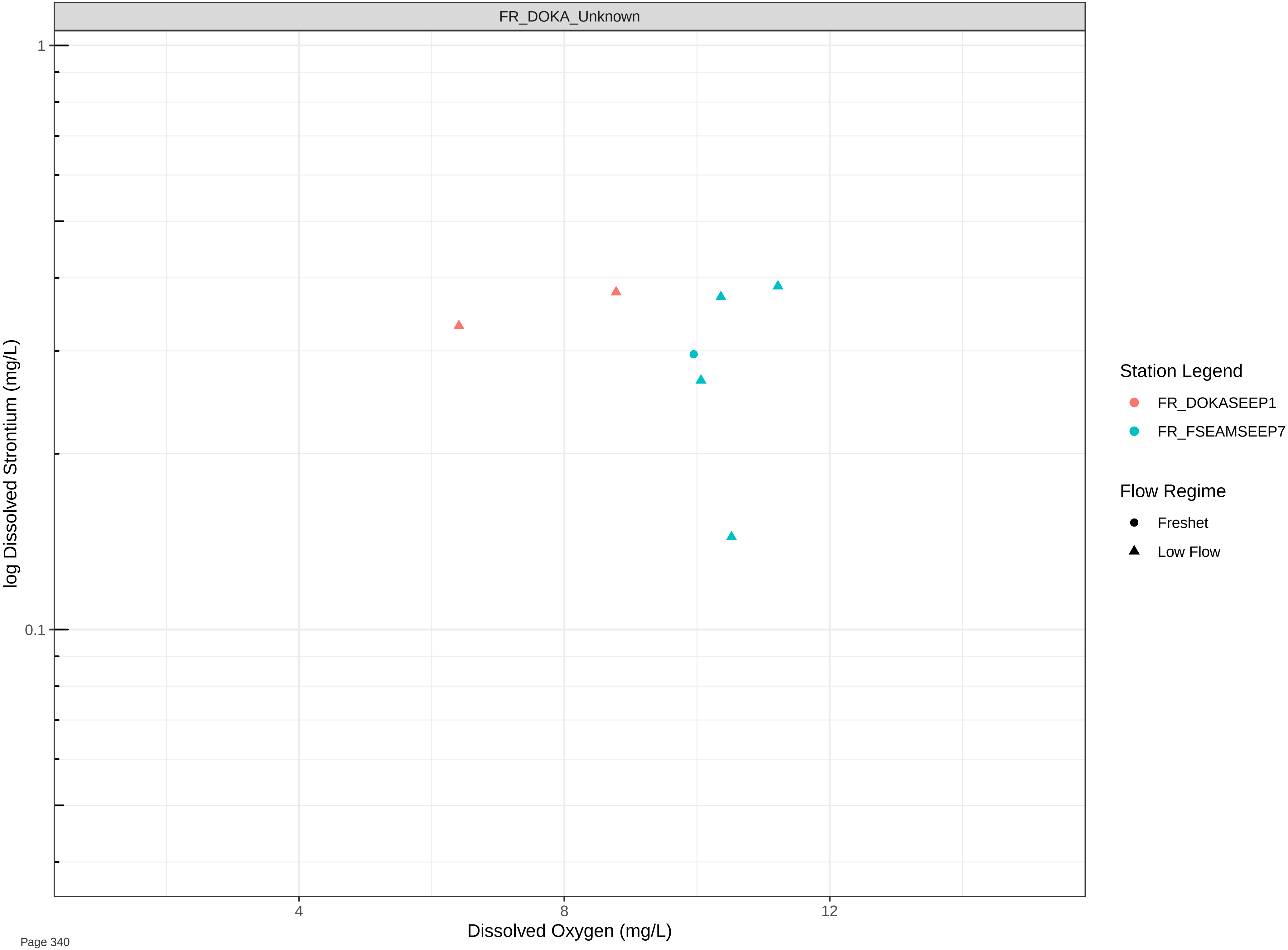
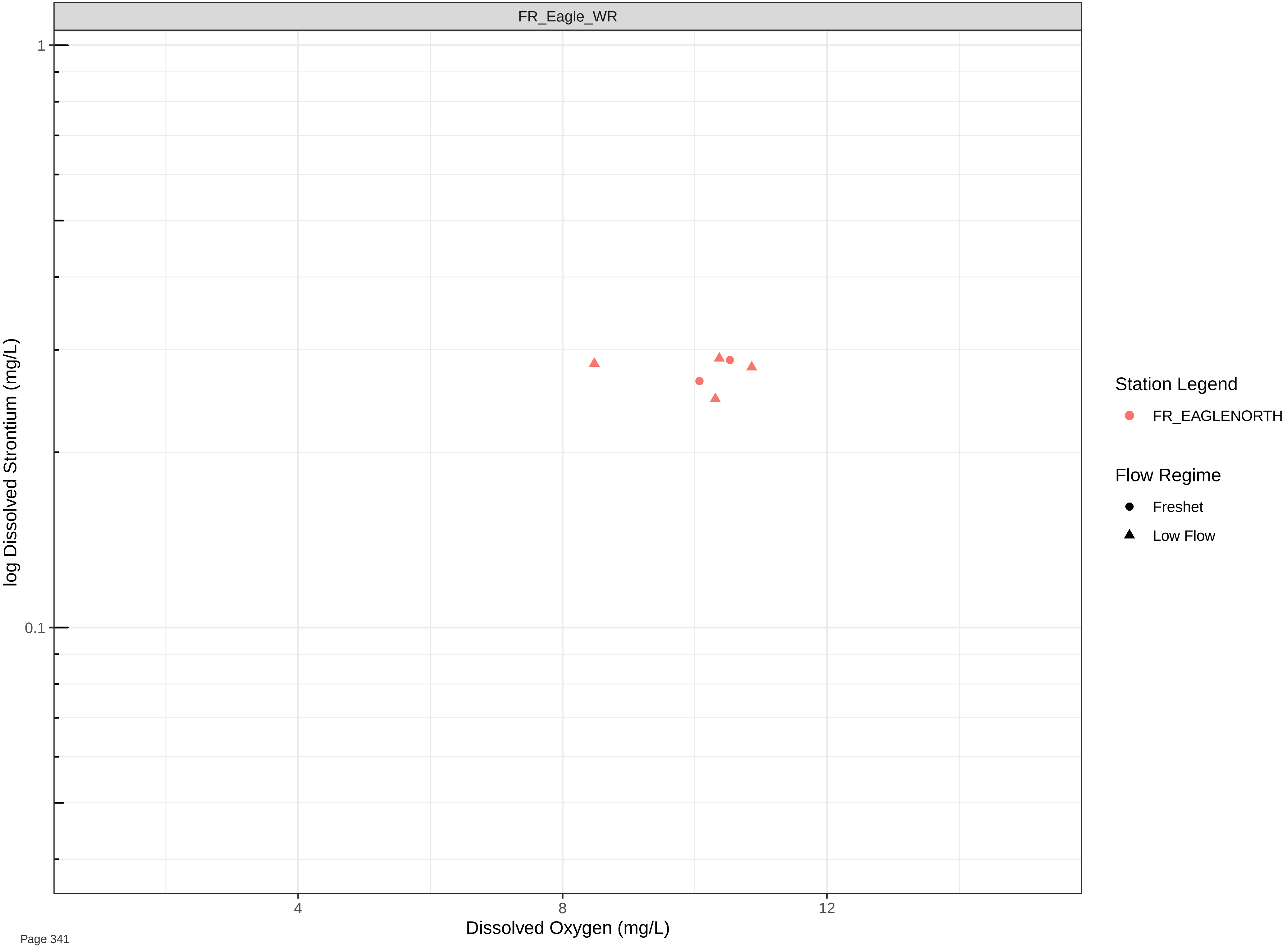
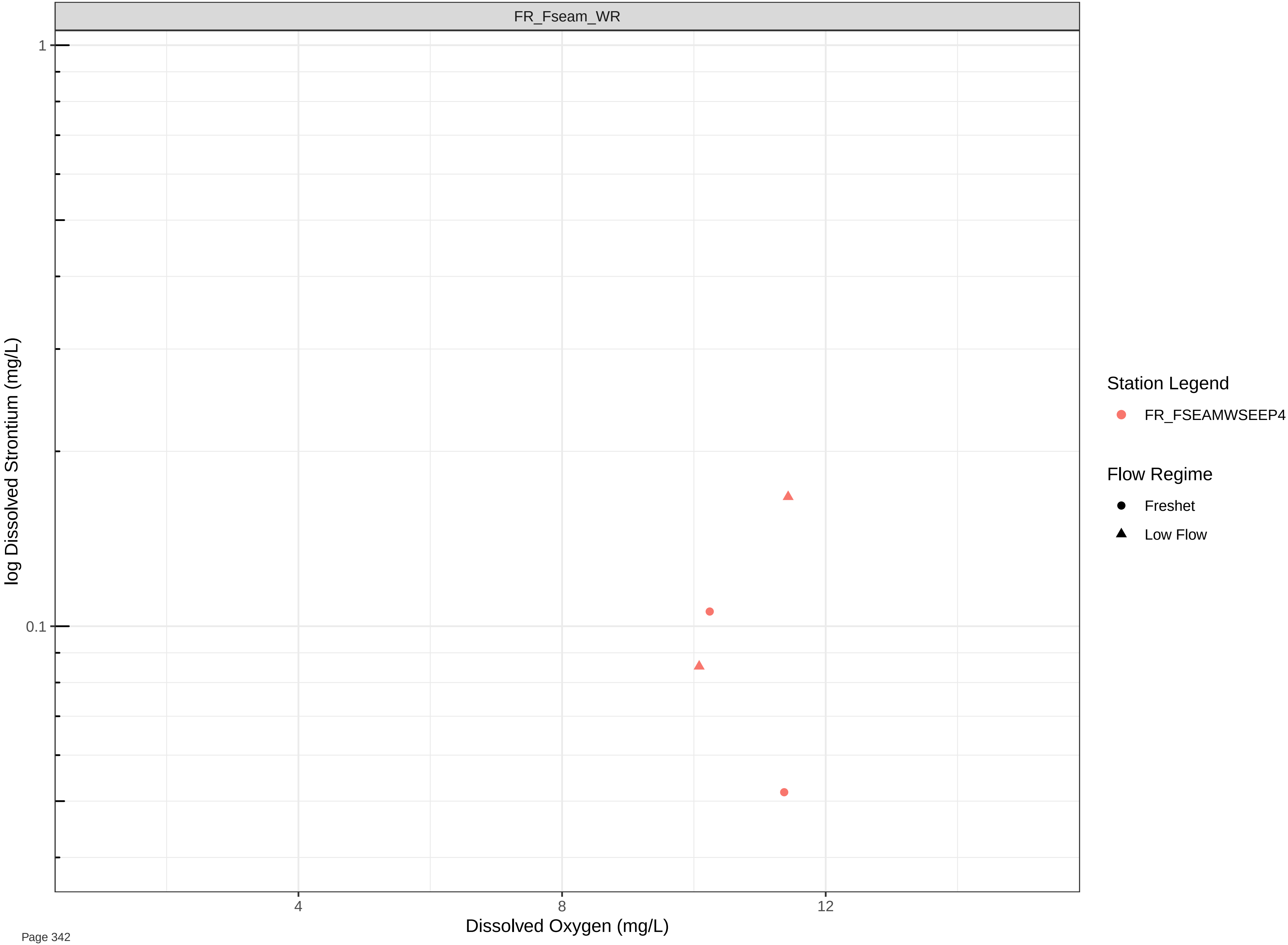
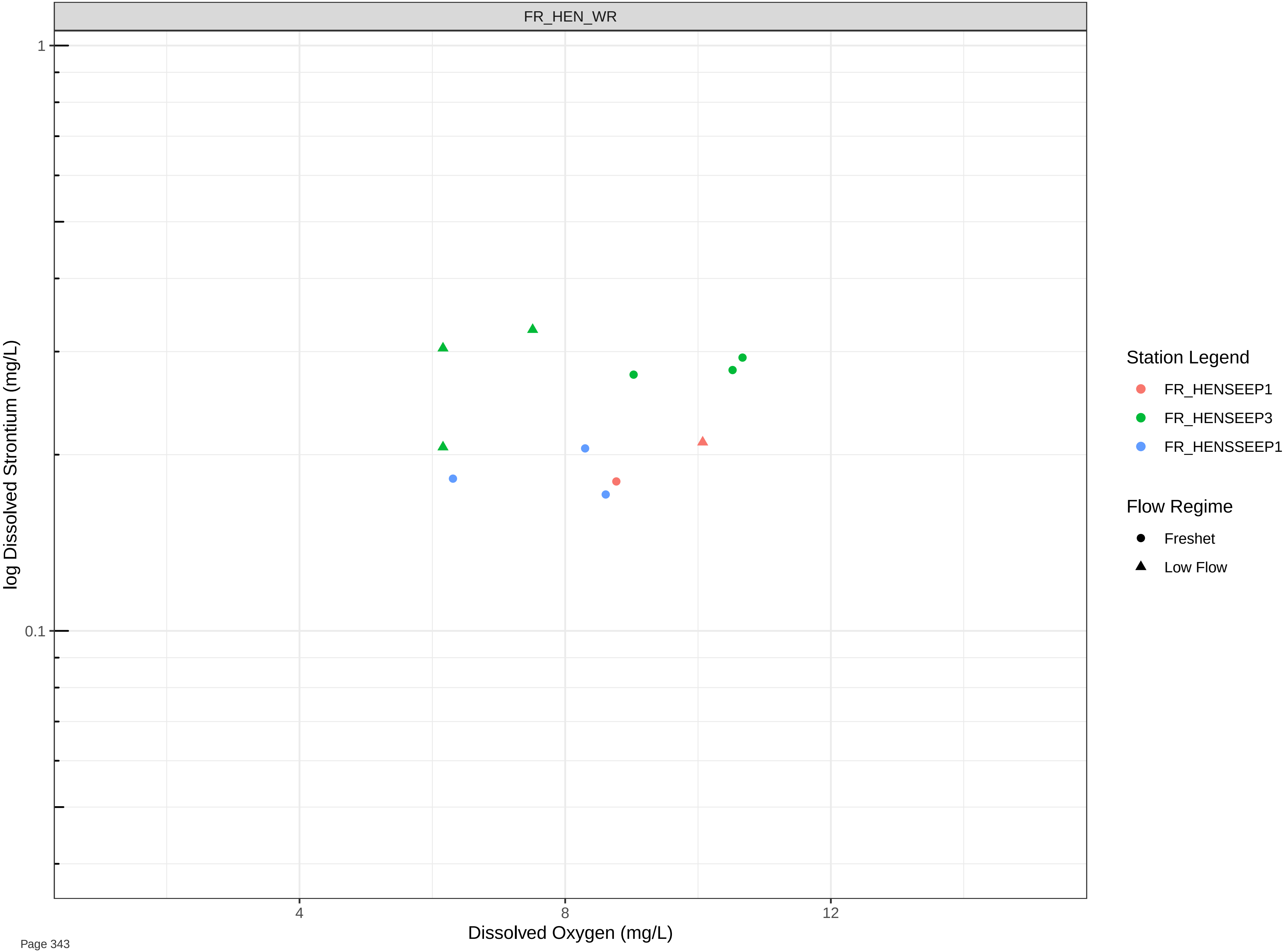
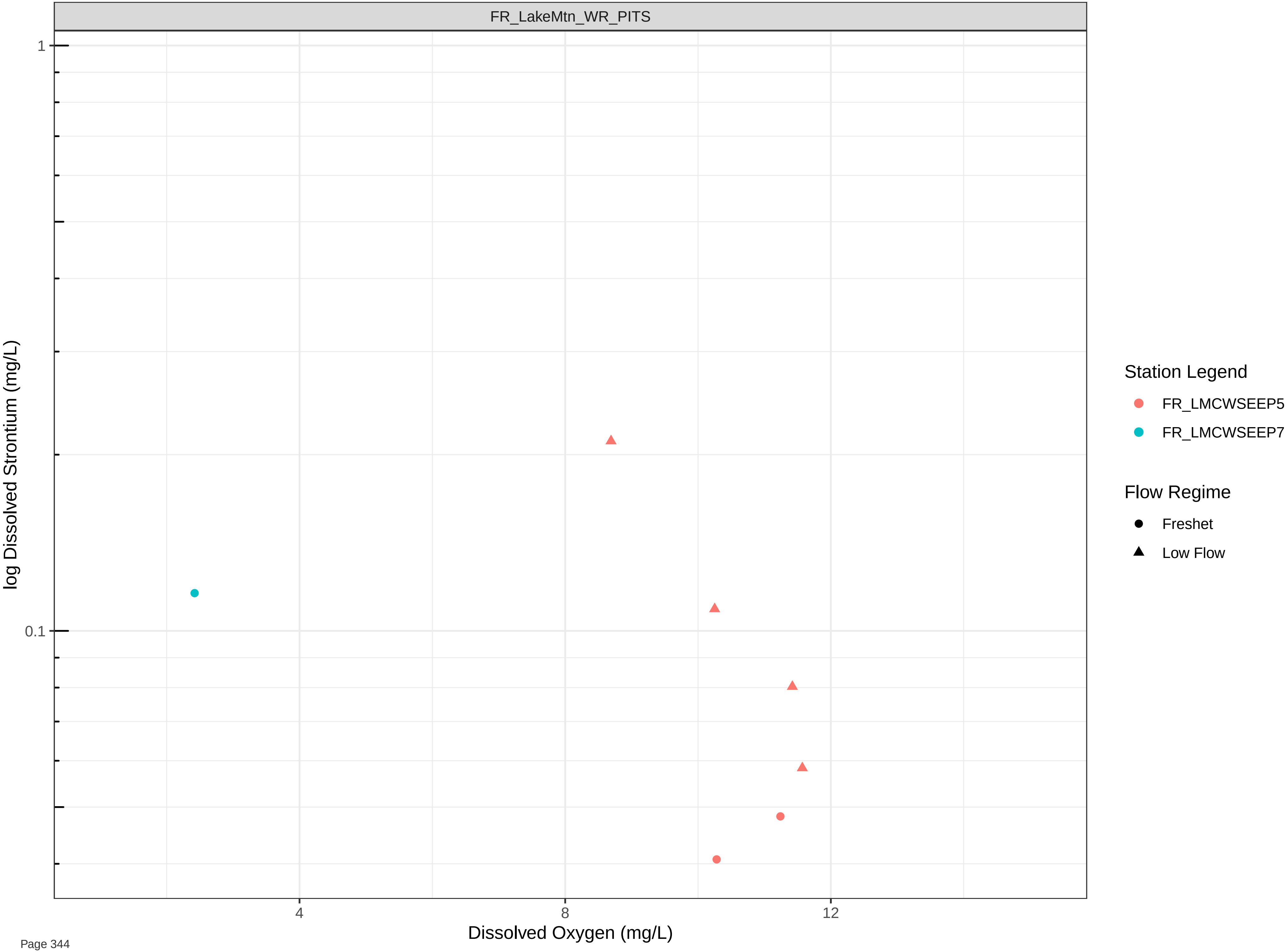
0.1
log Dissolved Strontium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

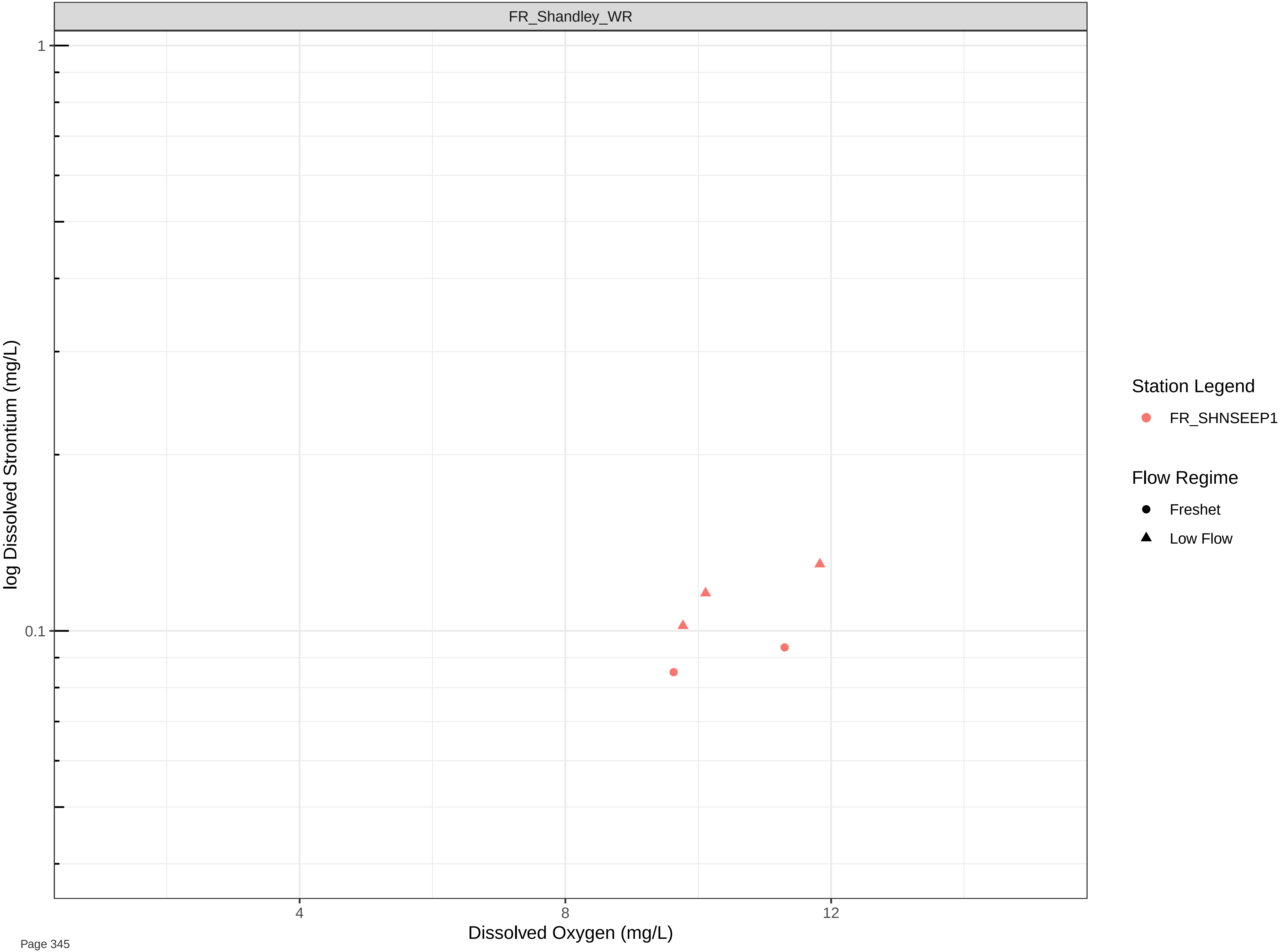

FR_DOKA_Unknown
1
0.1
log Dissolved Strontium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

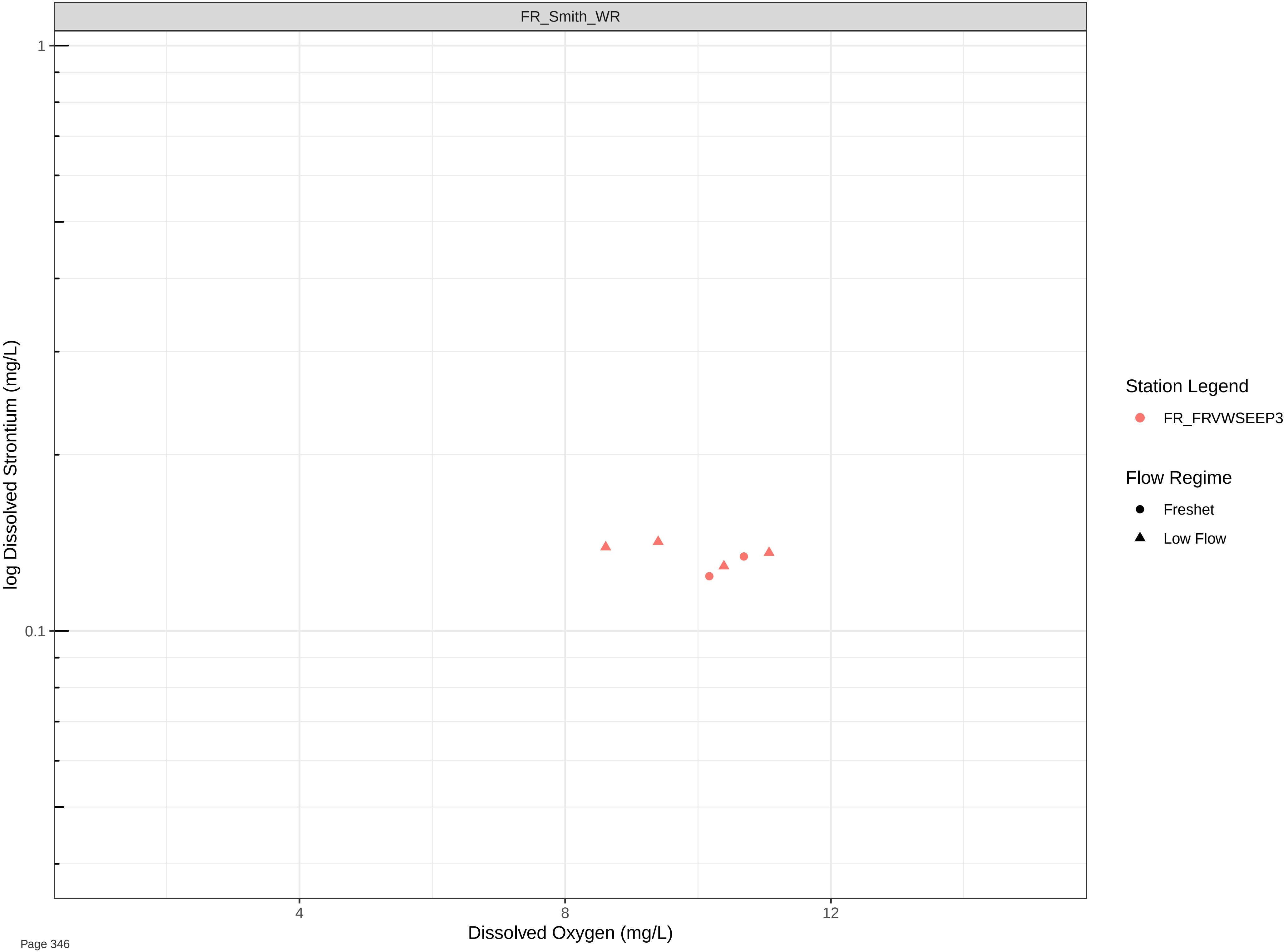

FR_Eagle_WR
log Dissolved Strontium (mg/L)
1
0.1
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

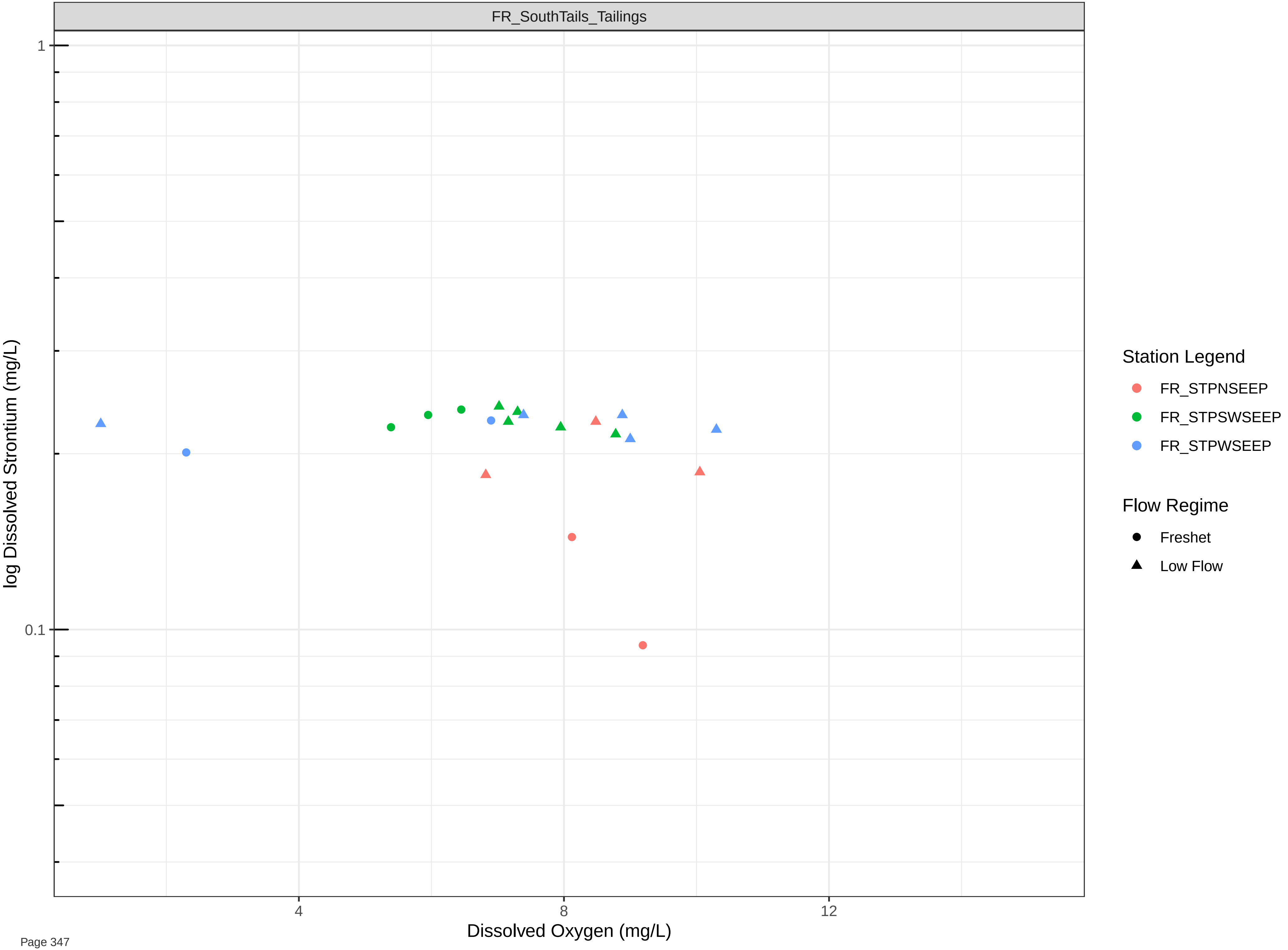

FR_Fseam_WR
log Dissolved Strontium (mg/L)
1
0.1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow


FR_HEN_WR
1
0.1
log Dissolved Strontium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow


FR_LakeMtn_WR_PITS
1
0.1
log Dissolved Strontium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow


FR_Shandley_WR
1
0.1
log Dissolved Strontium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_Smith_WR
1
0.1
log Dissolved Strontium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow


FR_SouthTails_Tailings
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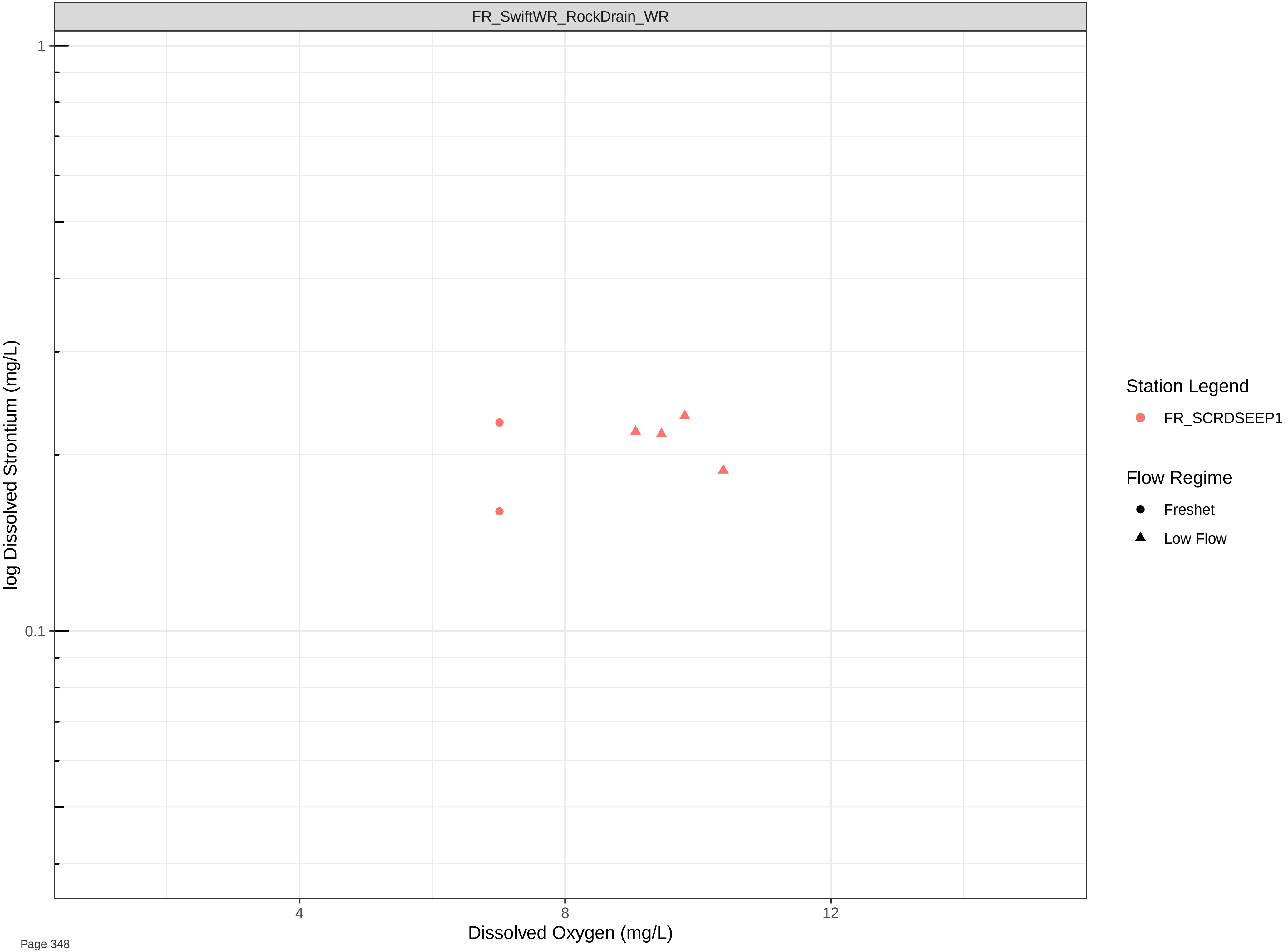
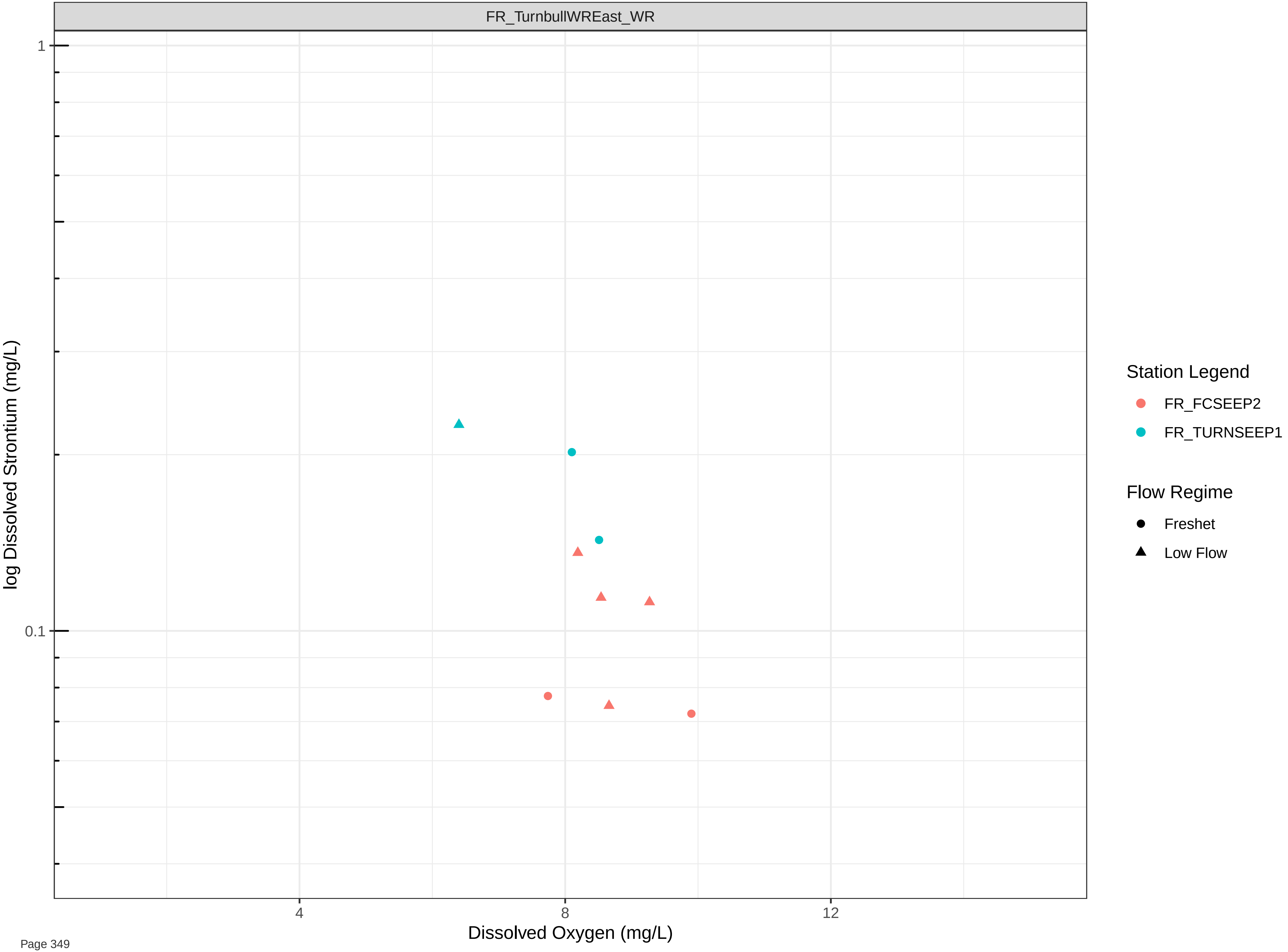
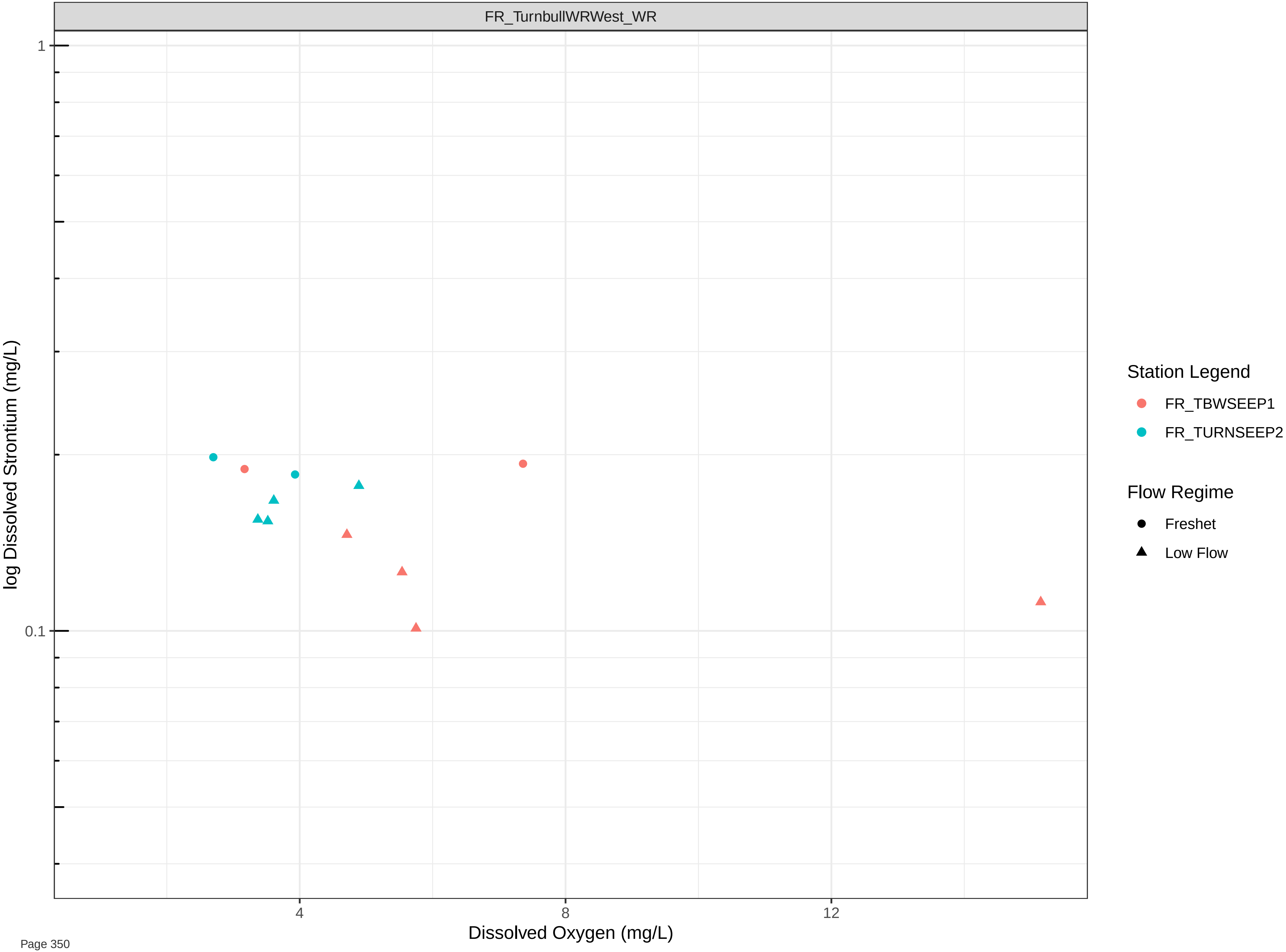
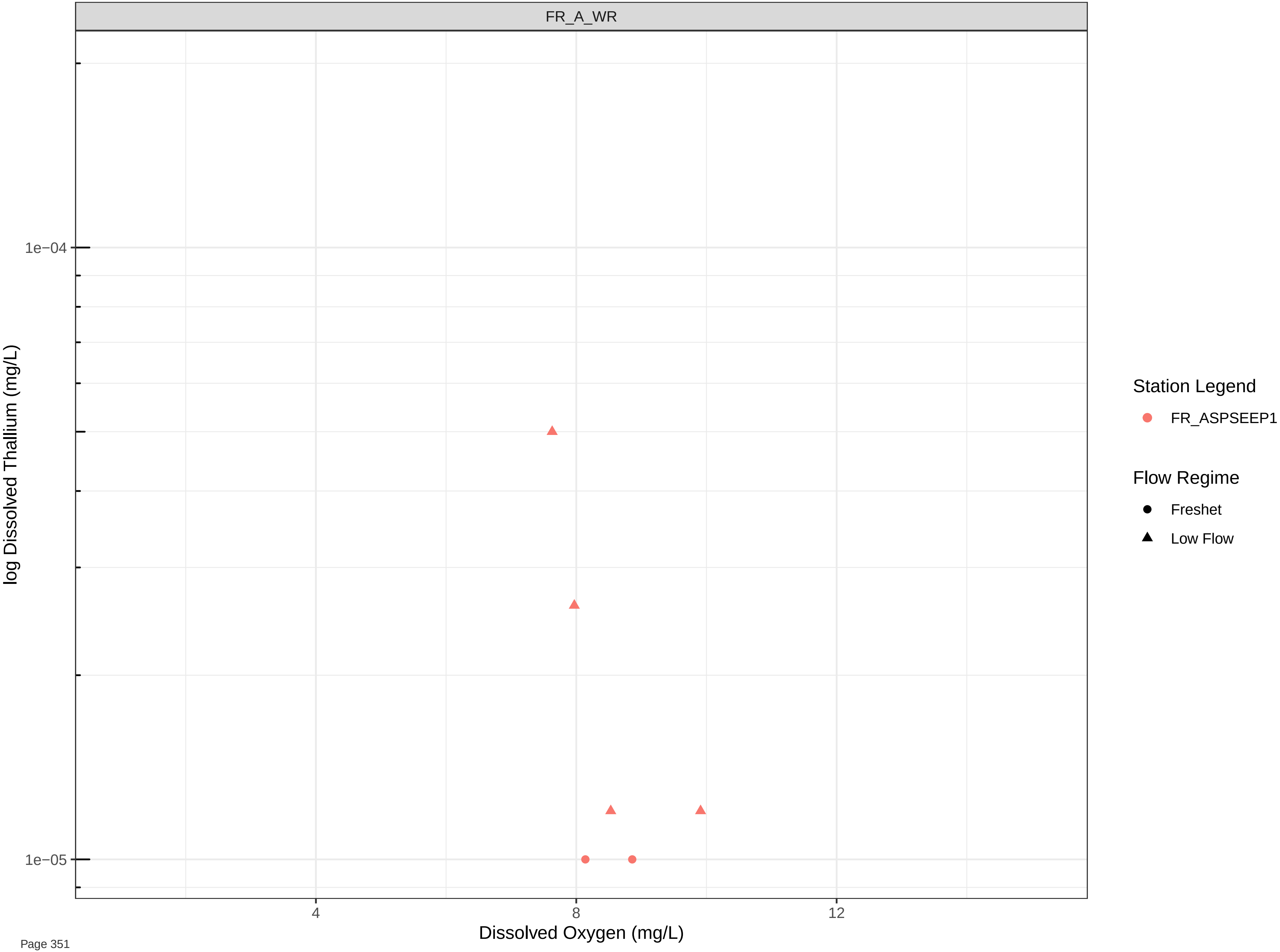
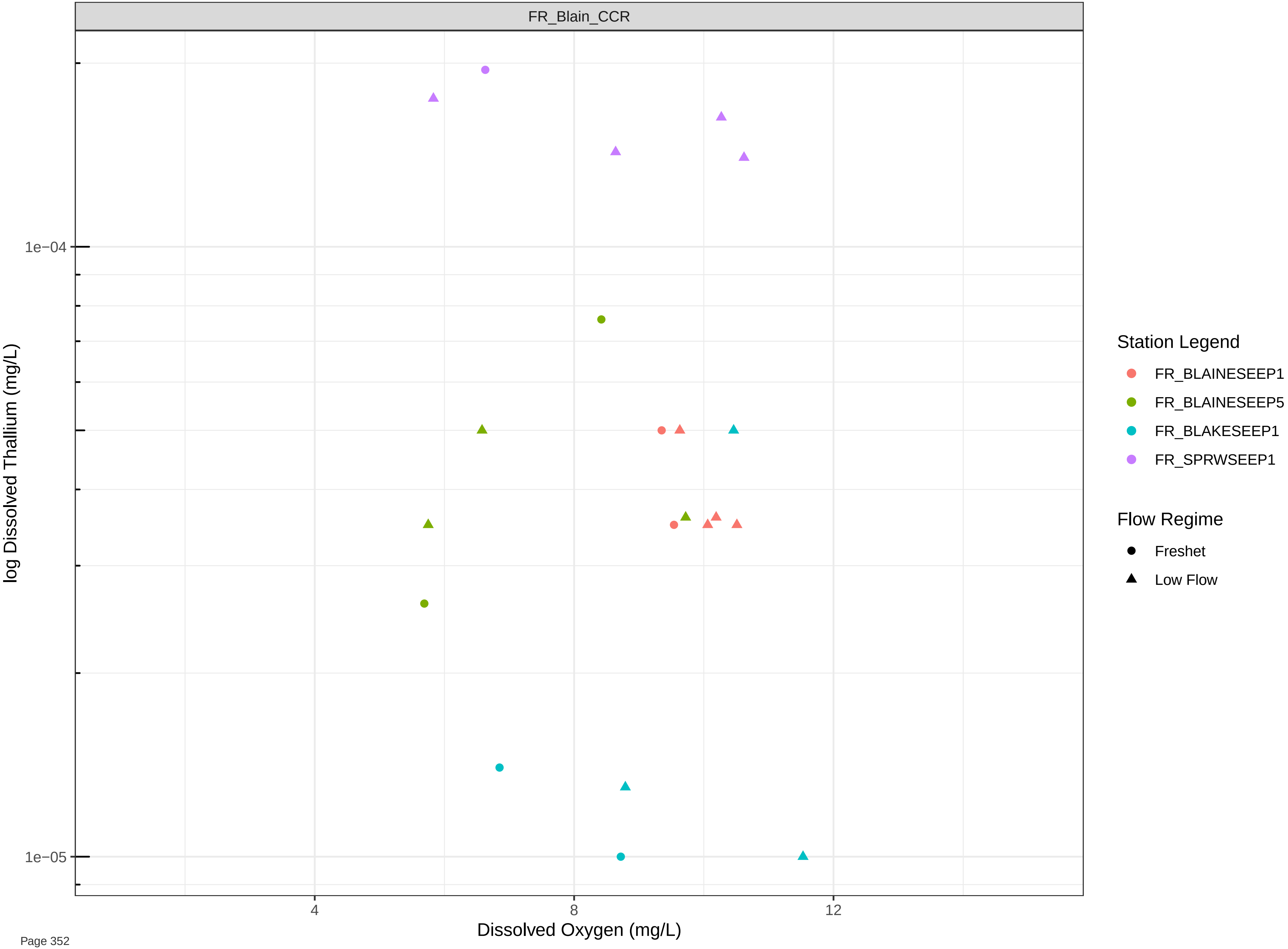
0.1
log Dissolved Strontium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

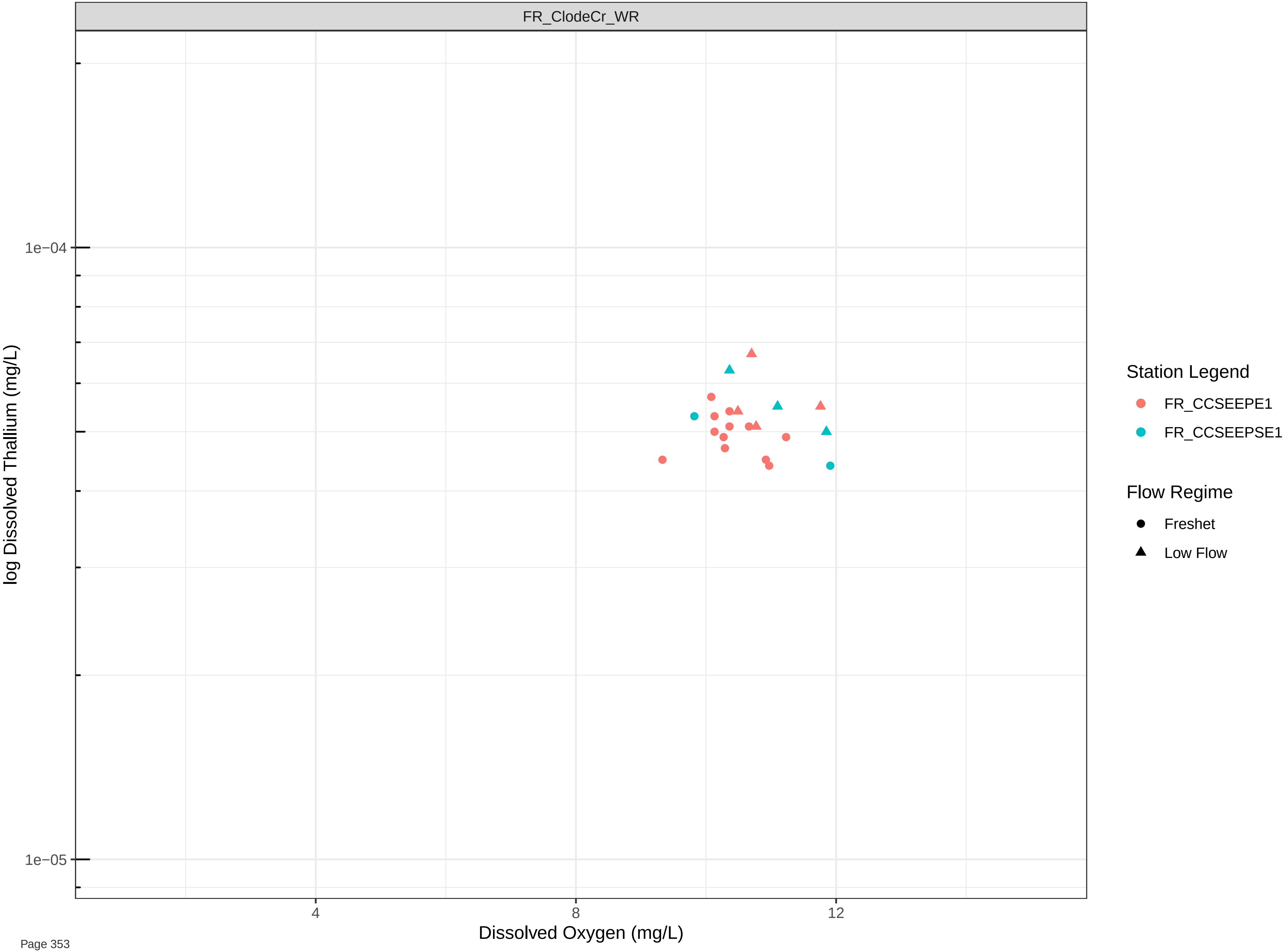

FR_SwiftWR_RockDrain_WR
1
0.1
log Dissolved Strontium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWREast_WR
1
0.1
4
8
12
log Dissolved Strontium (mg/L)
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWRWest_WR
log Dissolved Strontium (mg/L)
1
0.1
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_TBWSEEP1
● FR_TURNSEEP2
Flow Regime
● Freshet
▲ Low Flow


FR_A_WR
1e−04
1e−05
log Dissolved Thallium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_Blain_CCR
log Dissolved Thallium (mg/L)
1e−04
1e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow


FR_ClodeCr_WR
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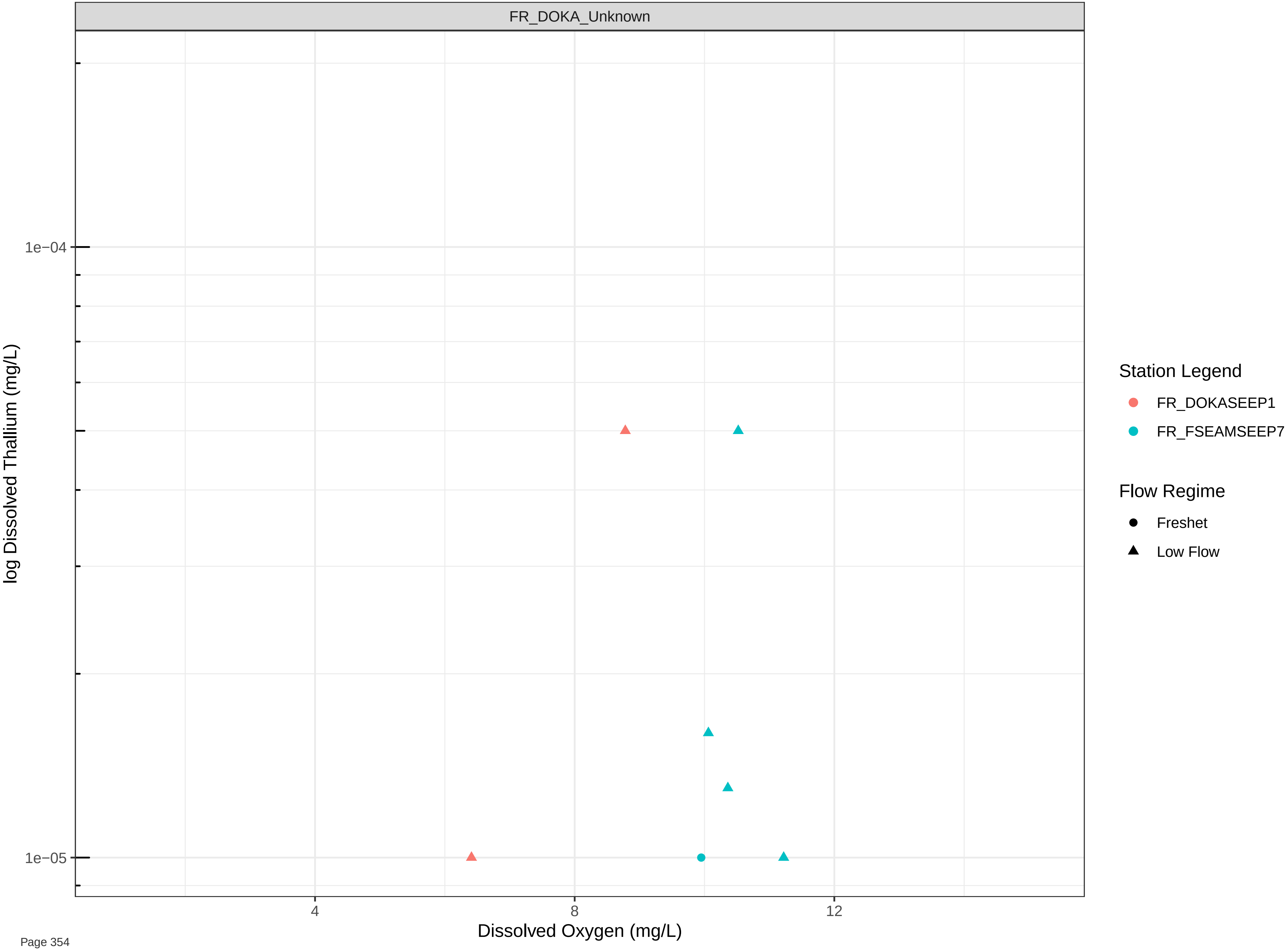
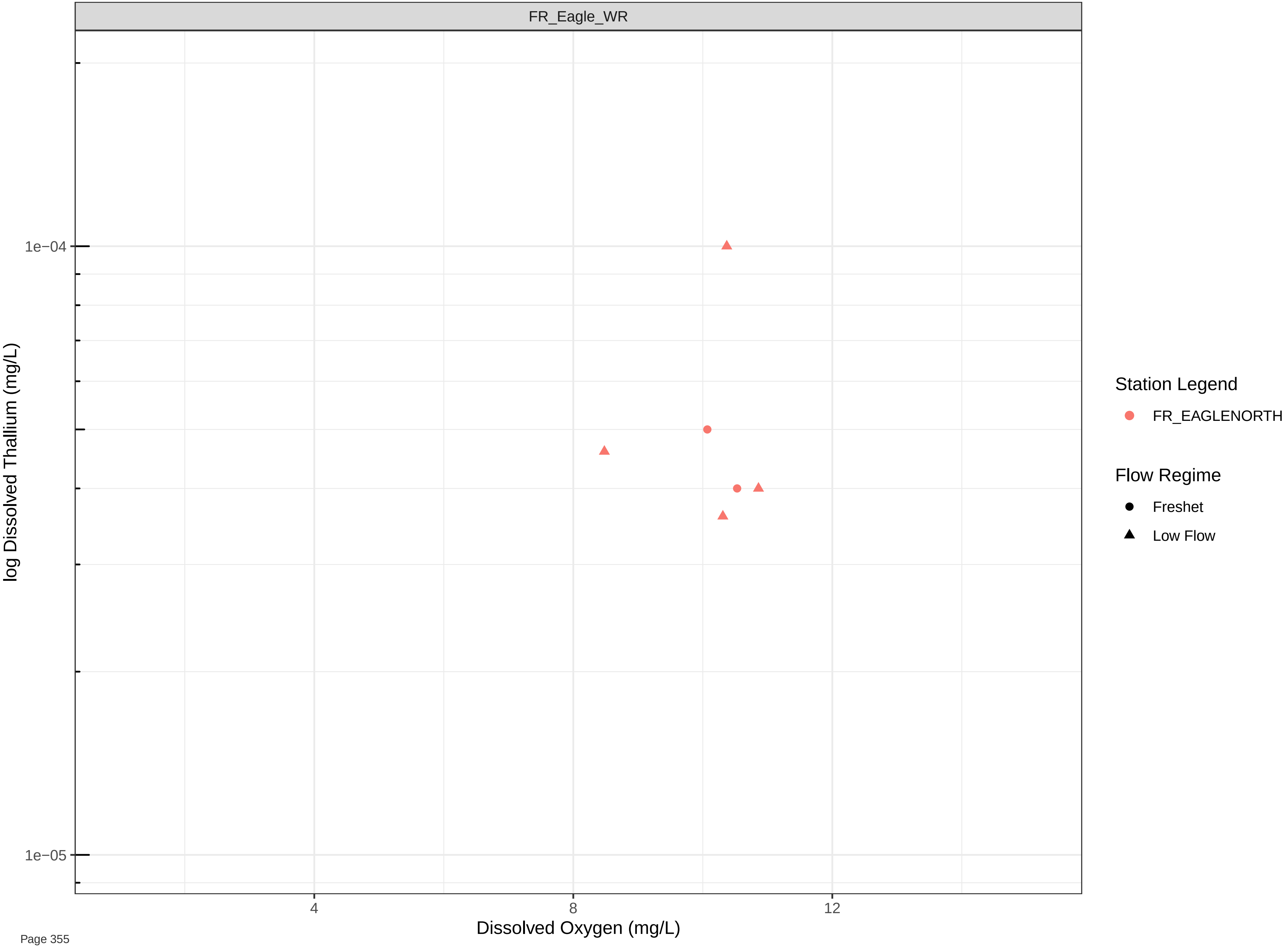
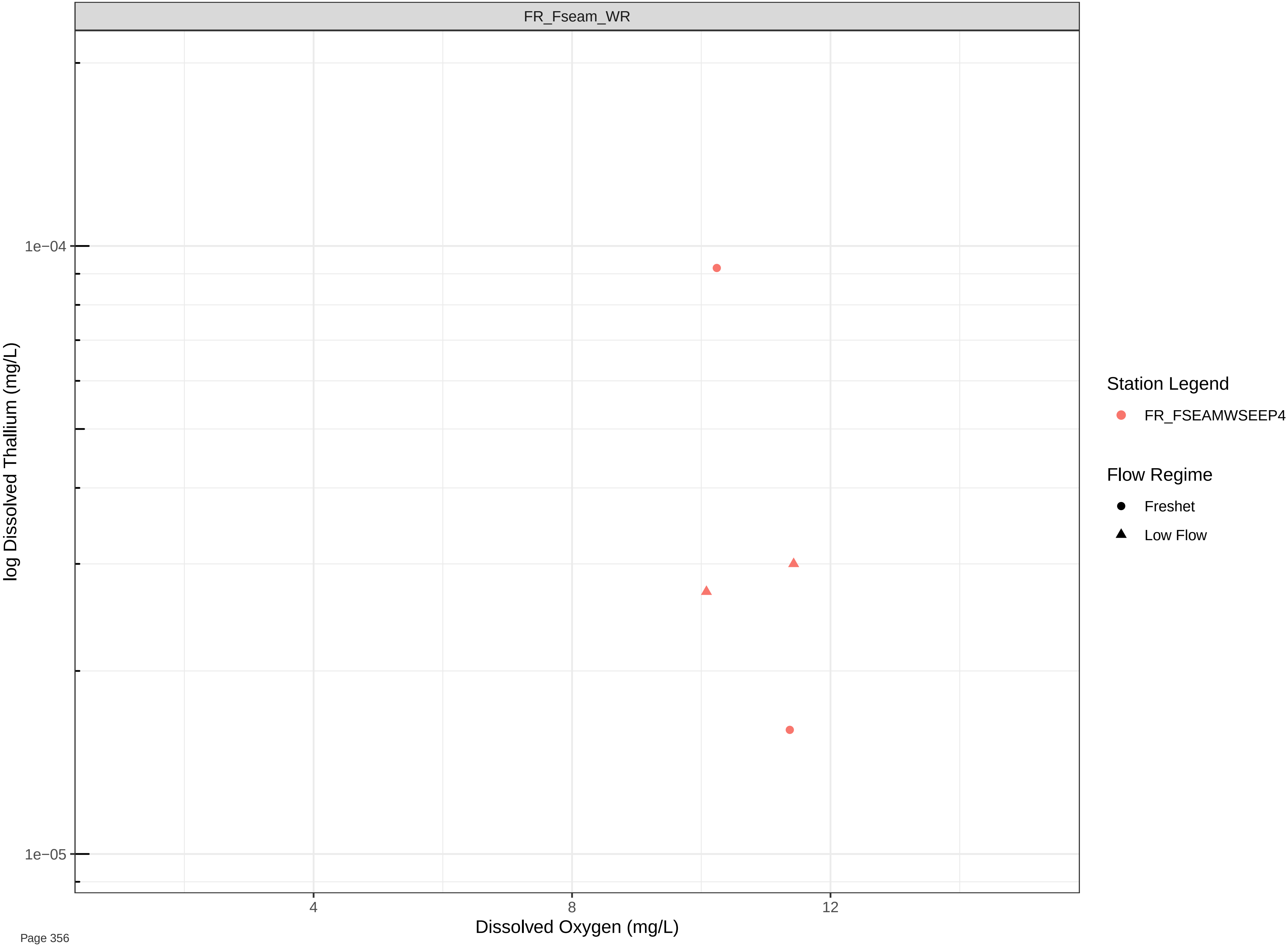
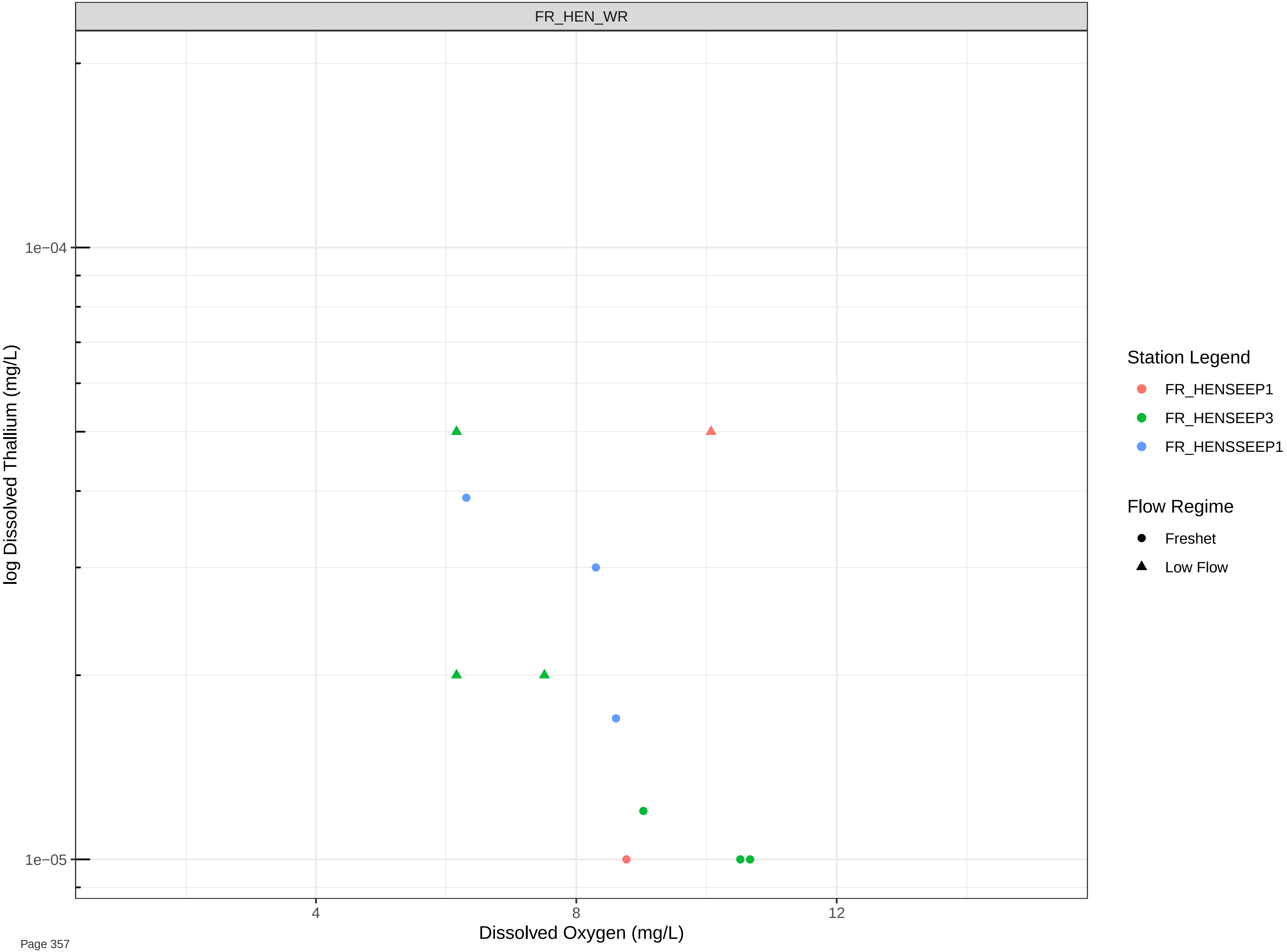
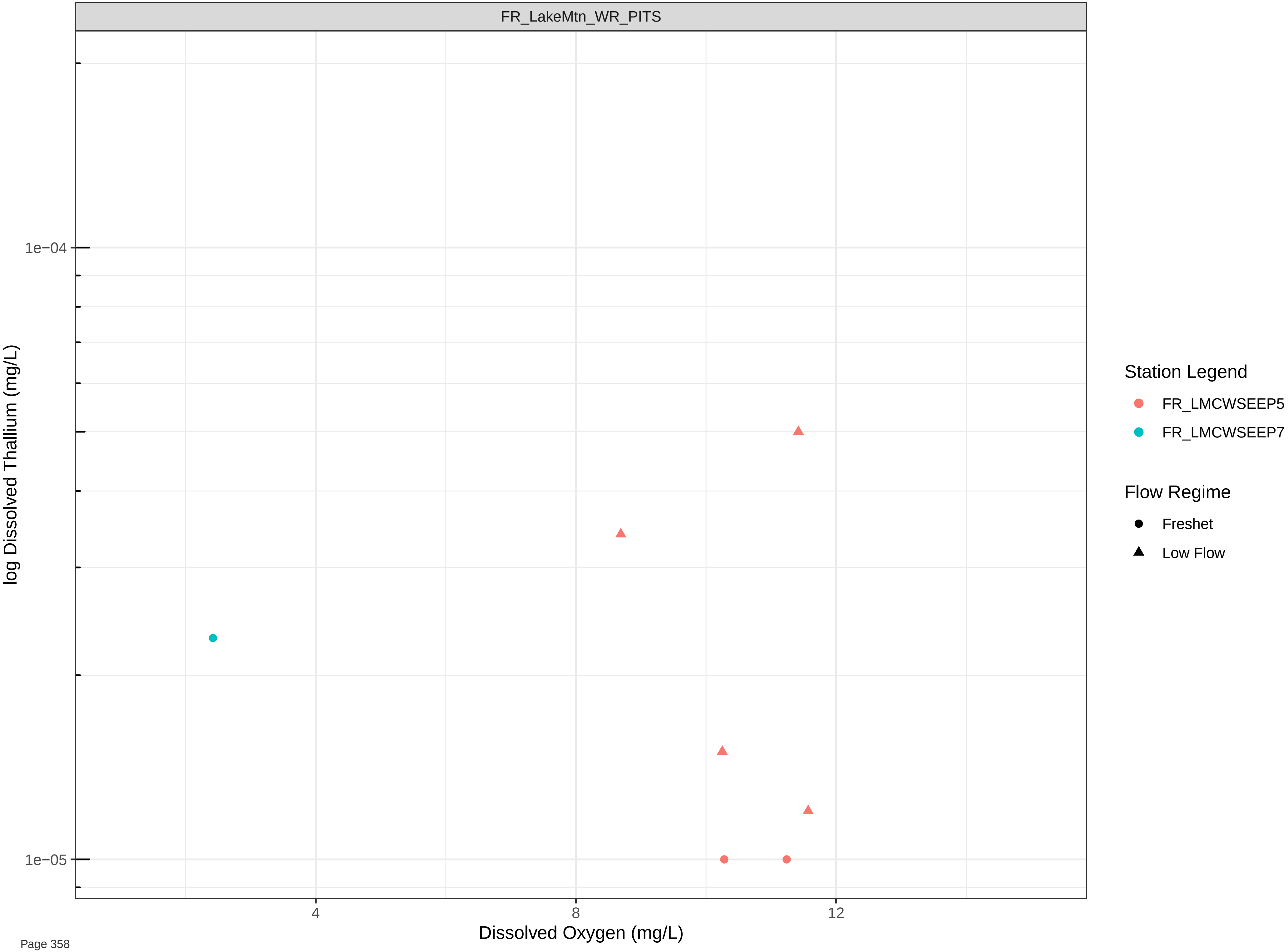
1e−05
log Dissolved Thallium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

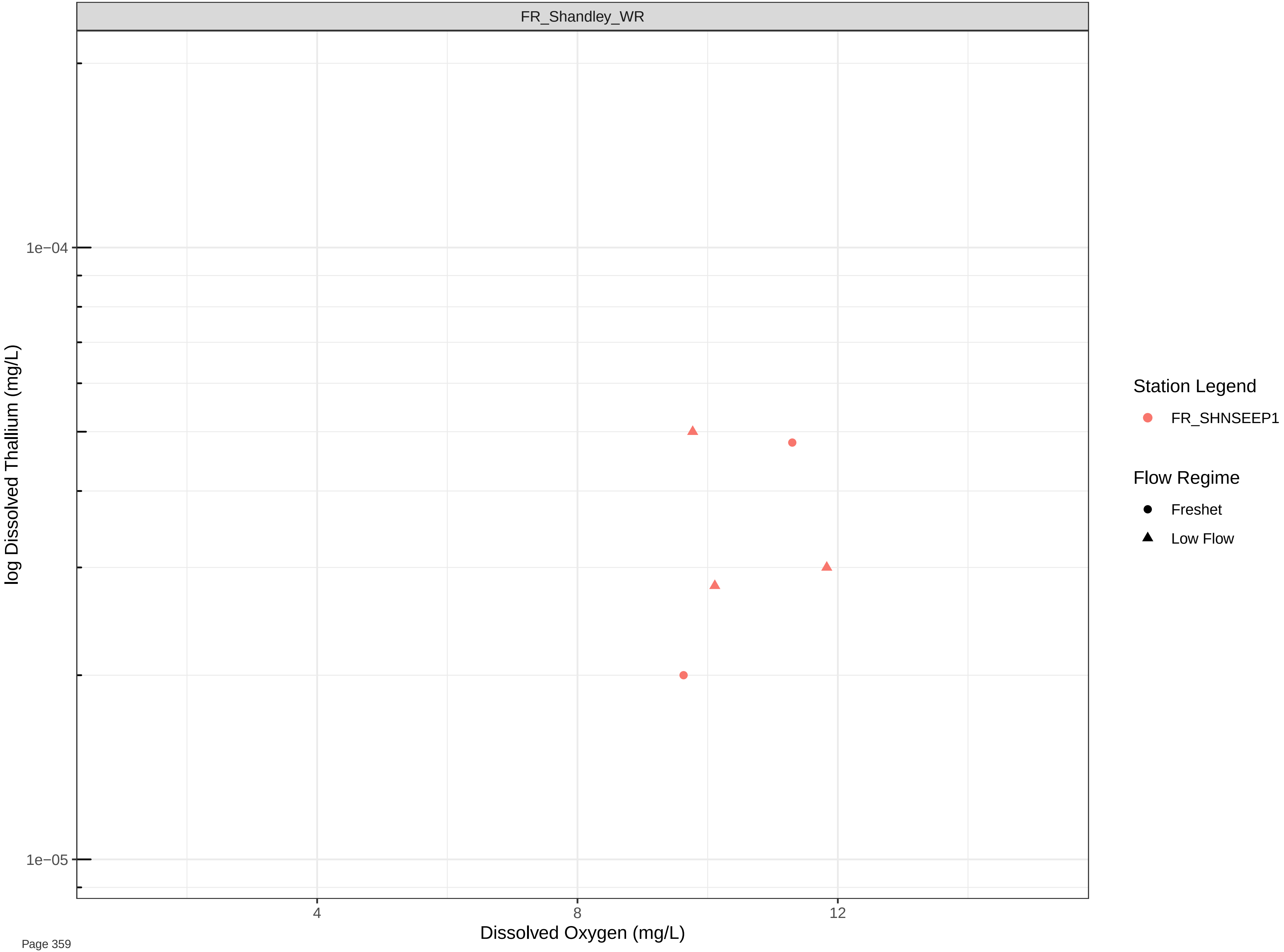

FR_DOKA_Unknown
log Dissolved Thallium (mg/L)
1e−04
1e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

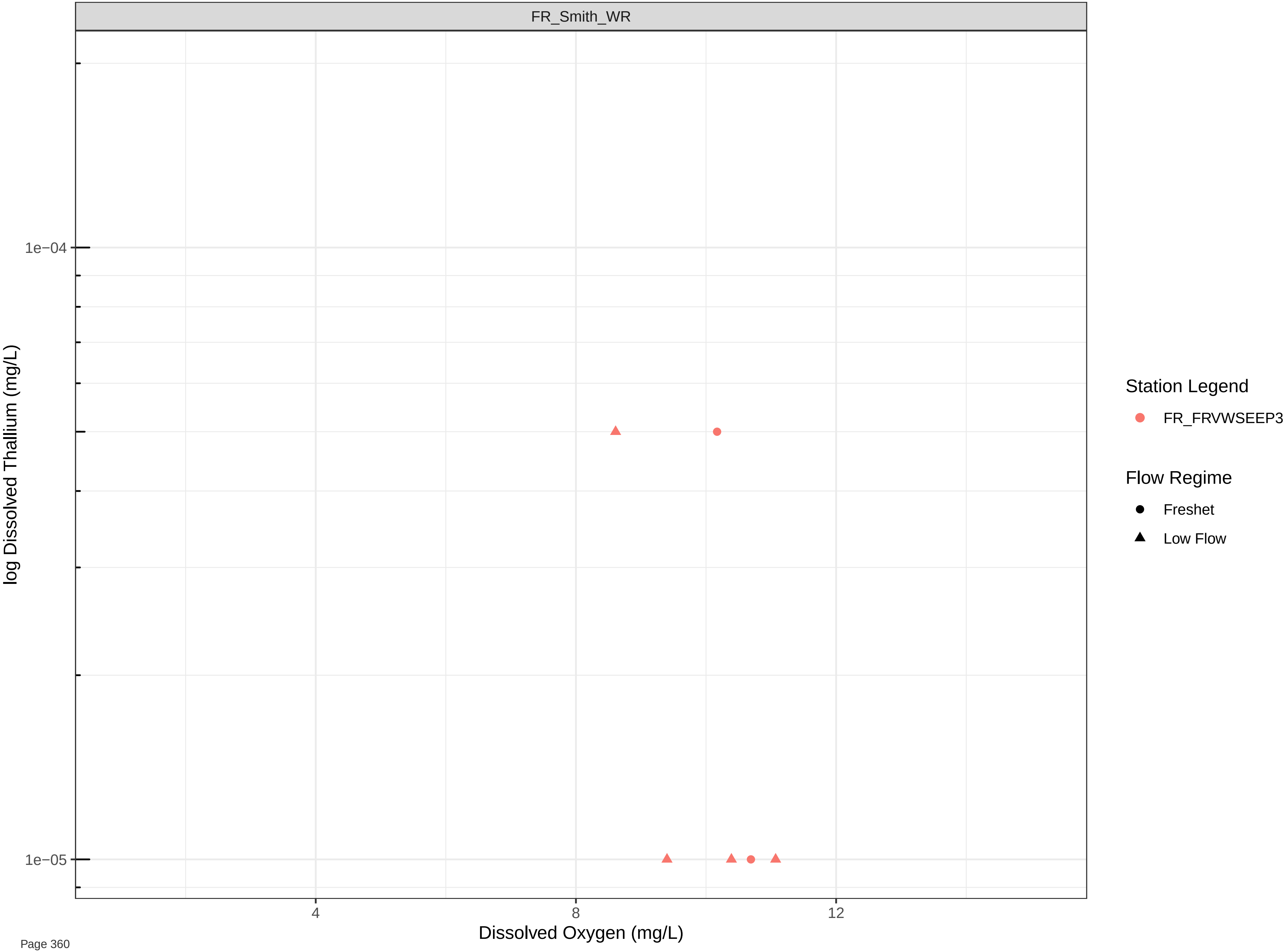

FR_Eagle_WR
log Dissolved Thallium (mg/L)
1e−04
1e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

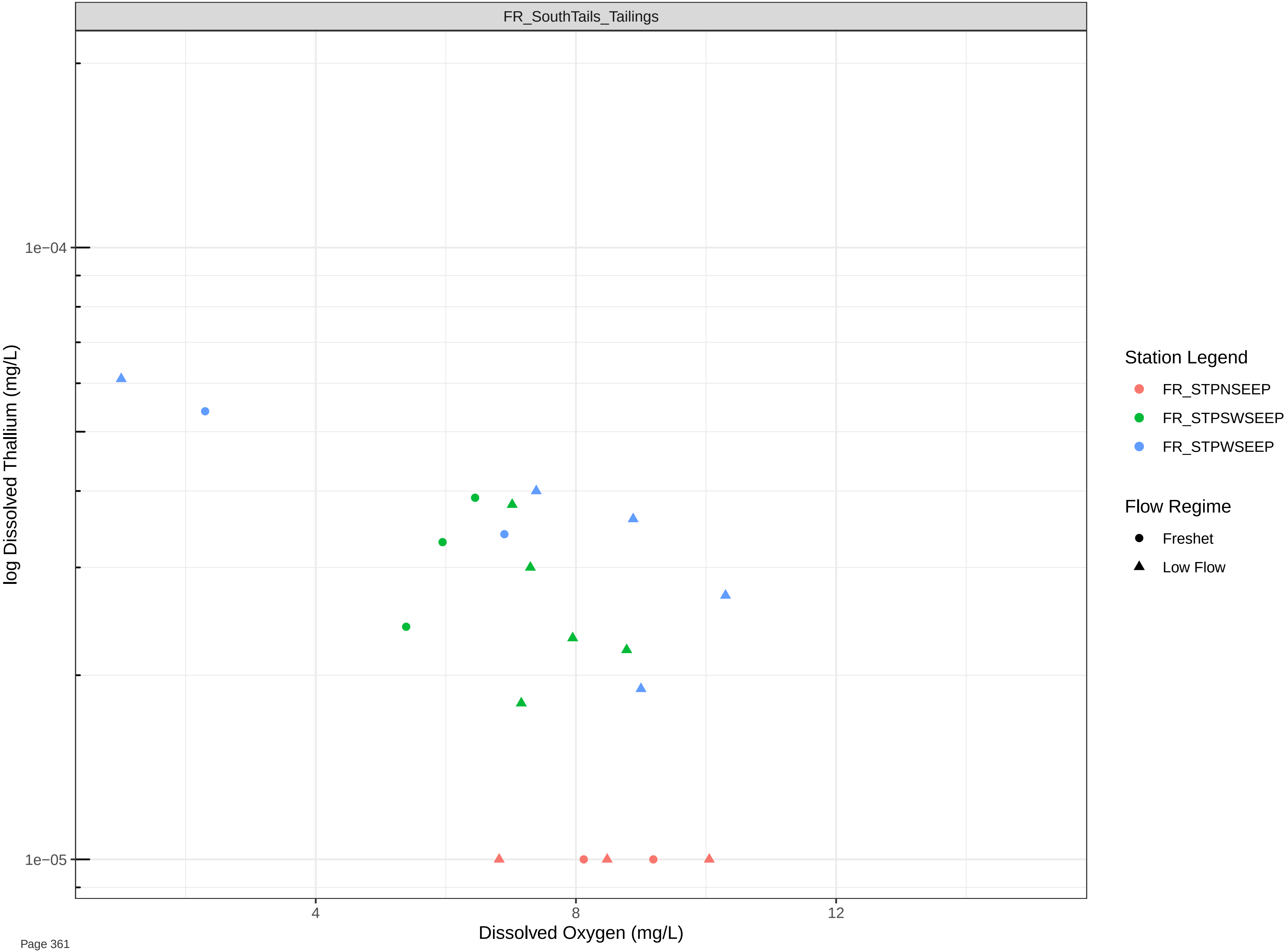

FR_Fseam_WR
log Dissolved Thallium (mg/L)
1e−04
1e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

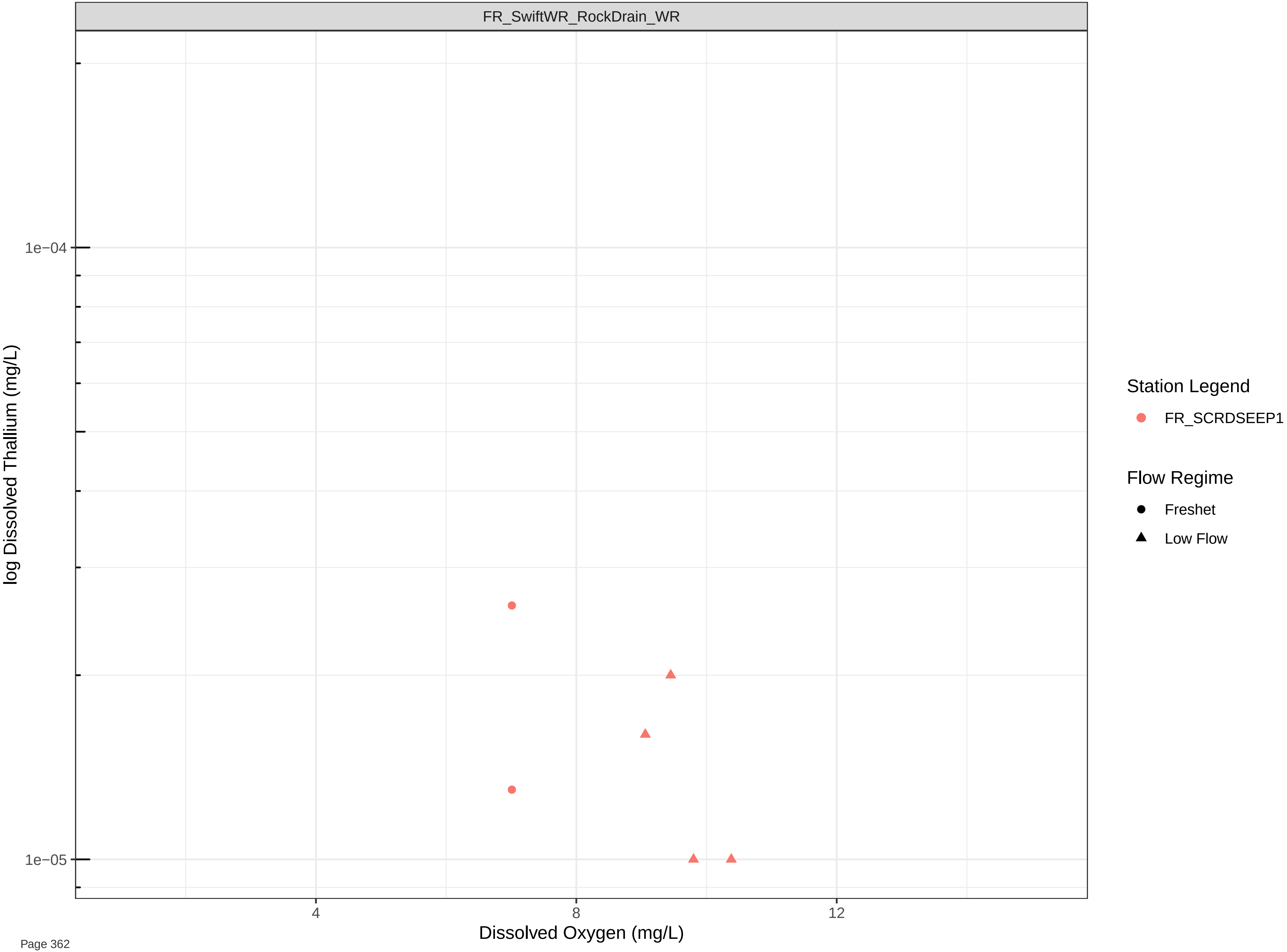

FR_HEN_WR
log Dissolved Thallium (mg/L)
1e−04
1e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

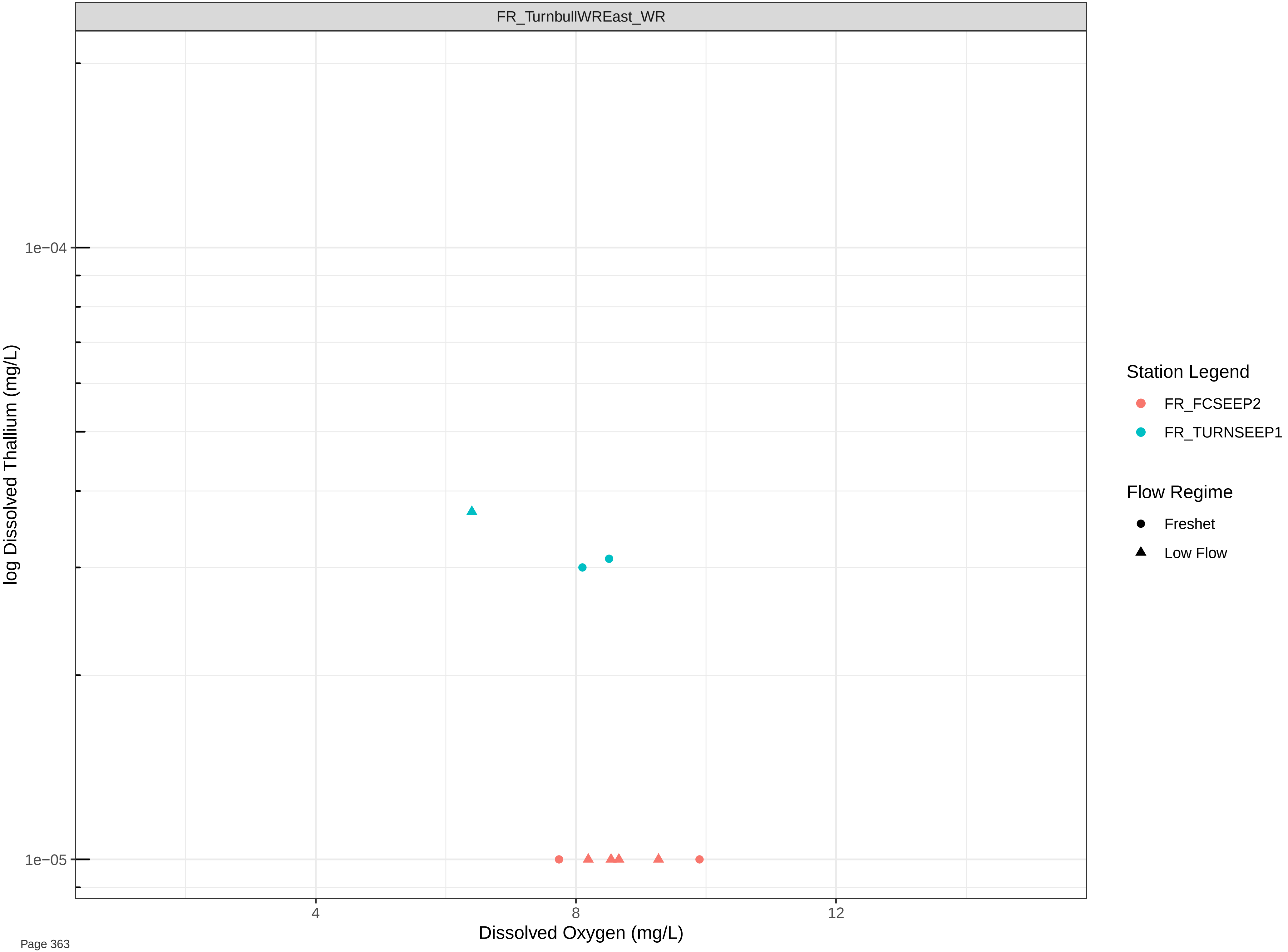

FR_LakeMtn_WR_PITS
log Dissolved Thallium (mg/L)
1e−04
1e−05
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

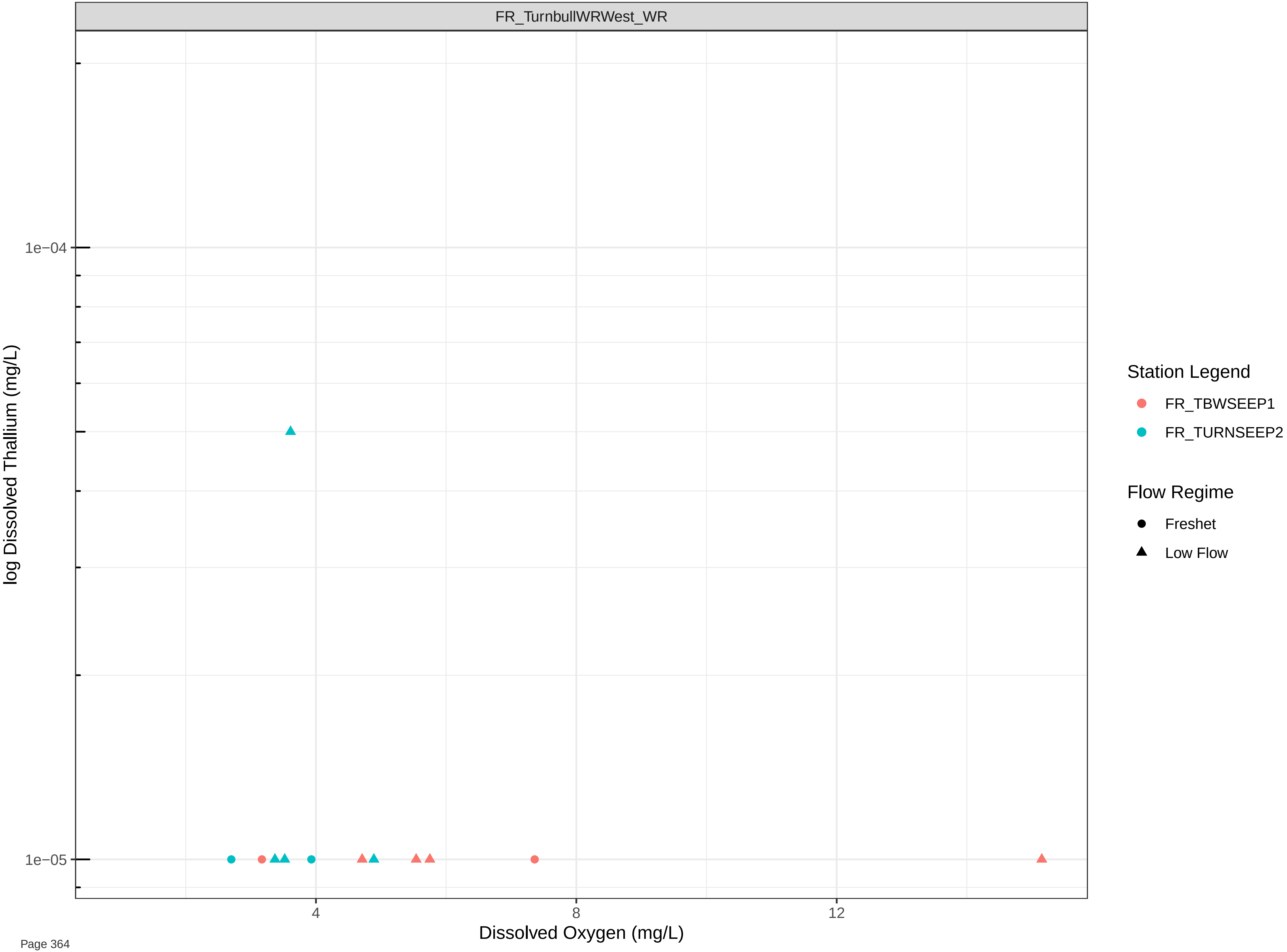

FR_Shandley_WR
log Dissolved Thallium (mg/L)
1e−04
1e−05
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

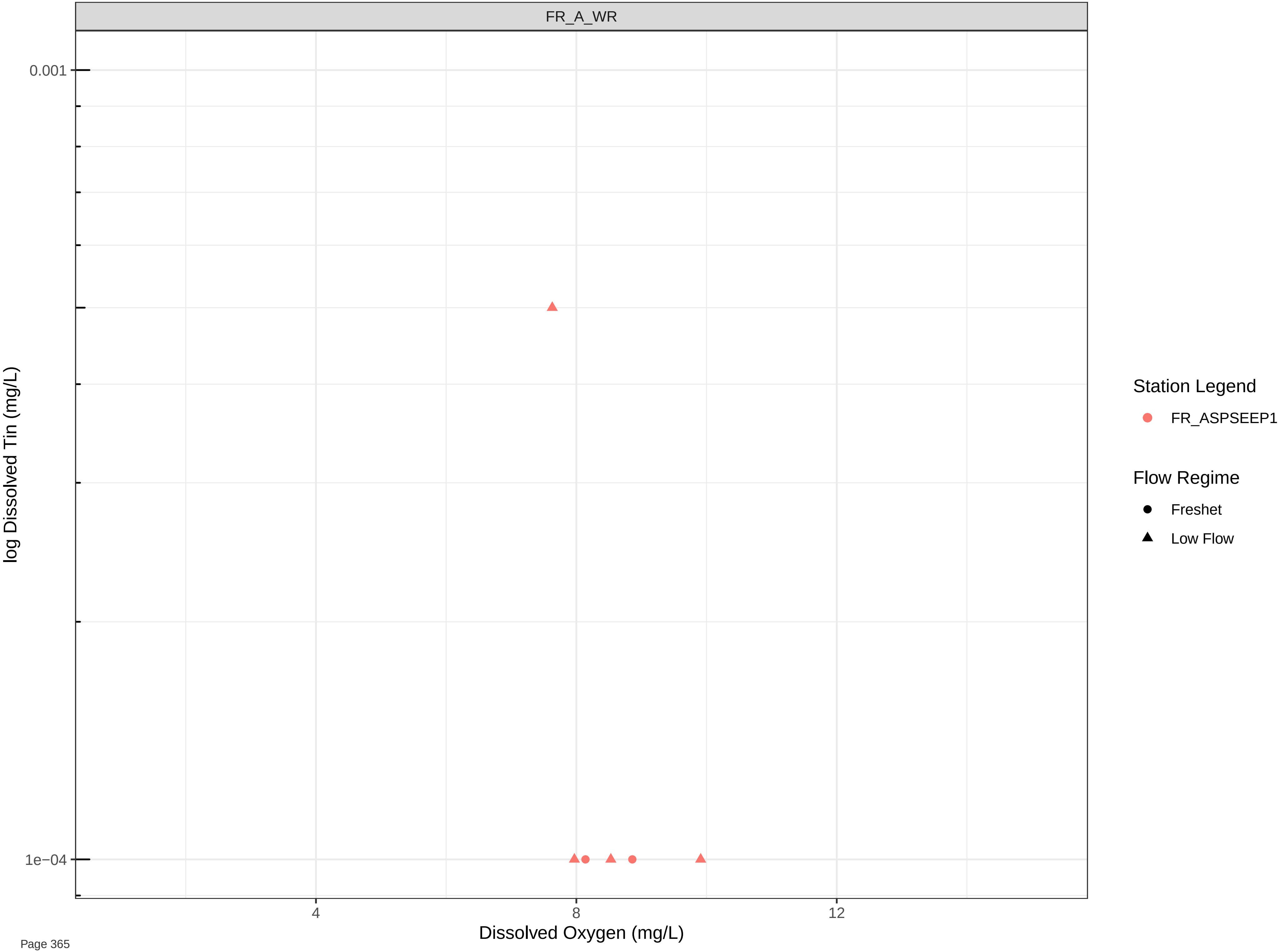

FR_Smith_WR
log Dissolved Thallium (mg/L)
1e−04
1e−05
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

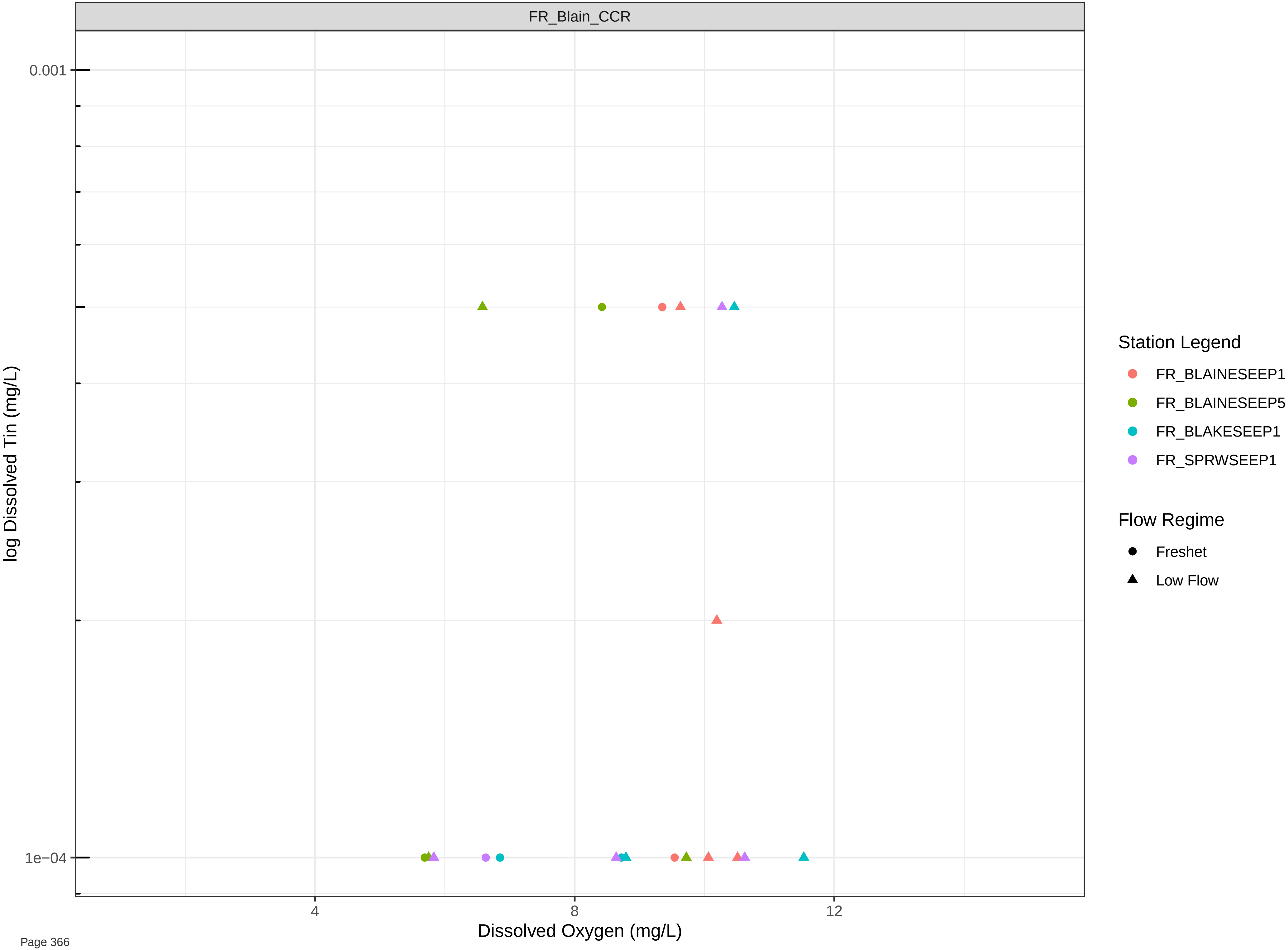

FR_SouthTails_Tailings
log Dissolved Thallium (mg/L)
1e−04
1e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

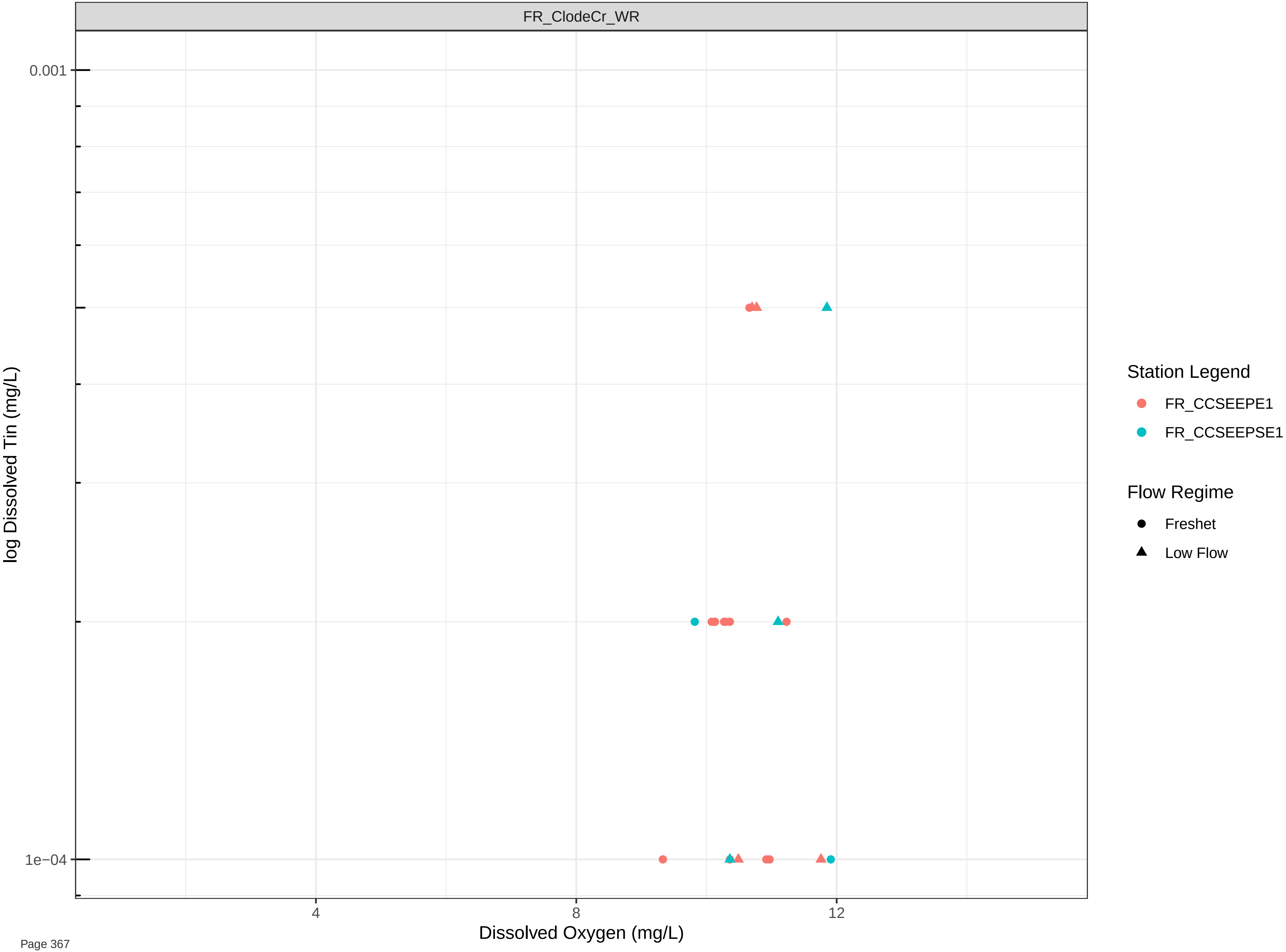

FR_SwiftWR_RockDrain_WR
log Dissolved Thallium (mg/L)
1e−04
1e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_TurnbullWREast_WR
log Dissolved Thallium (mg/L)
1e−04
1e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWRWest_WR
log Dissolved Thallium (mg/L)
1e−04
1e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow


FR_A_WR
0.001
1e−04
log Dissolved Tin (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow


FR_Blain_CCR
0.001
1e−04
log Dissolved Tin (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_ClodeCr_WR
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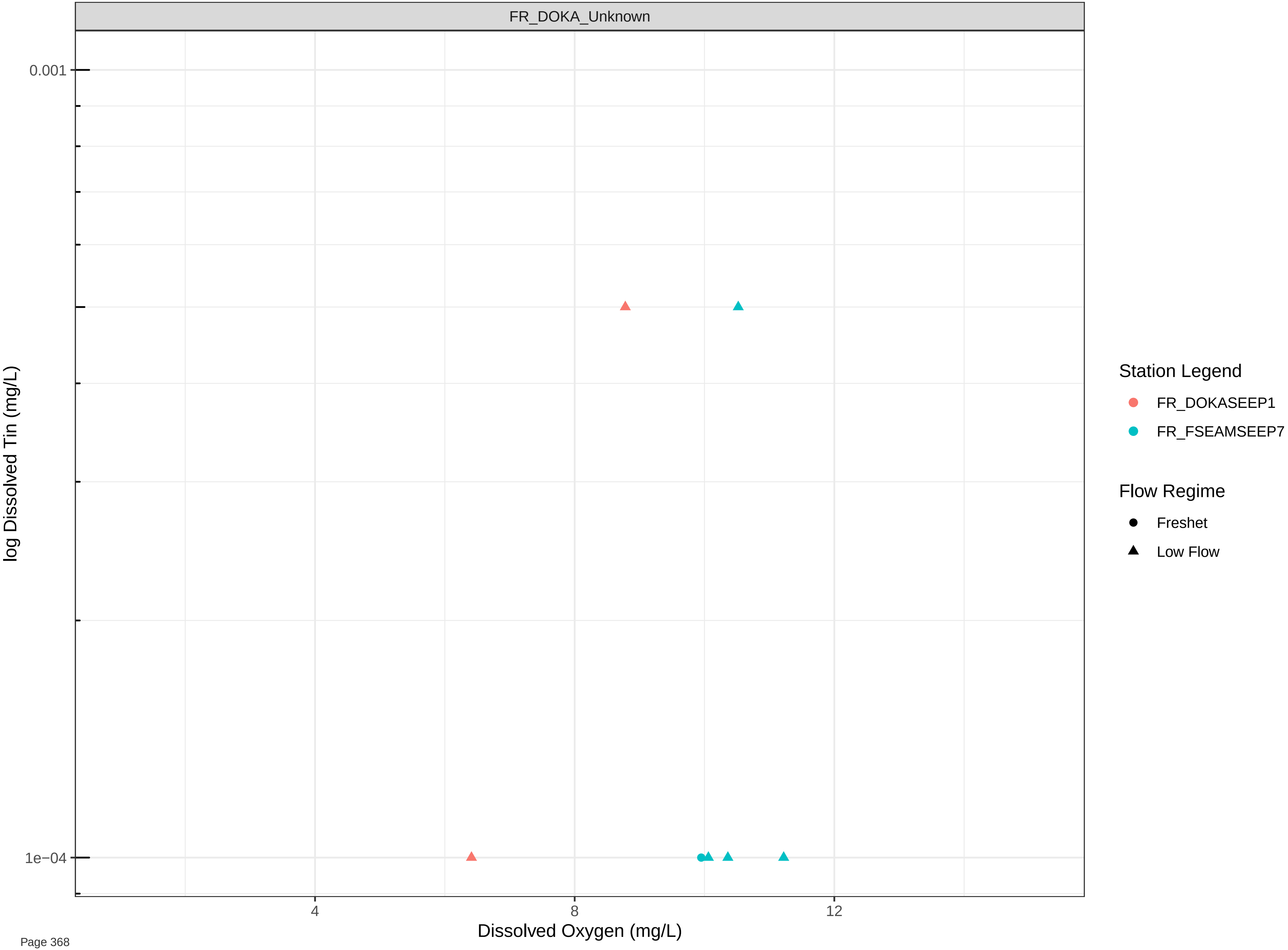
1e−04
log Dissolved Tin (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow


FR_DOKA_Unknown
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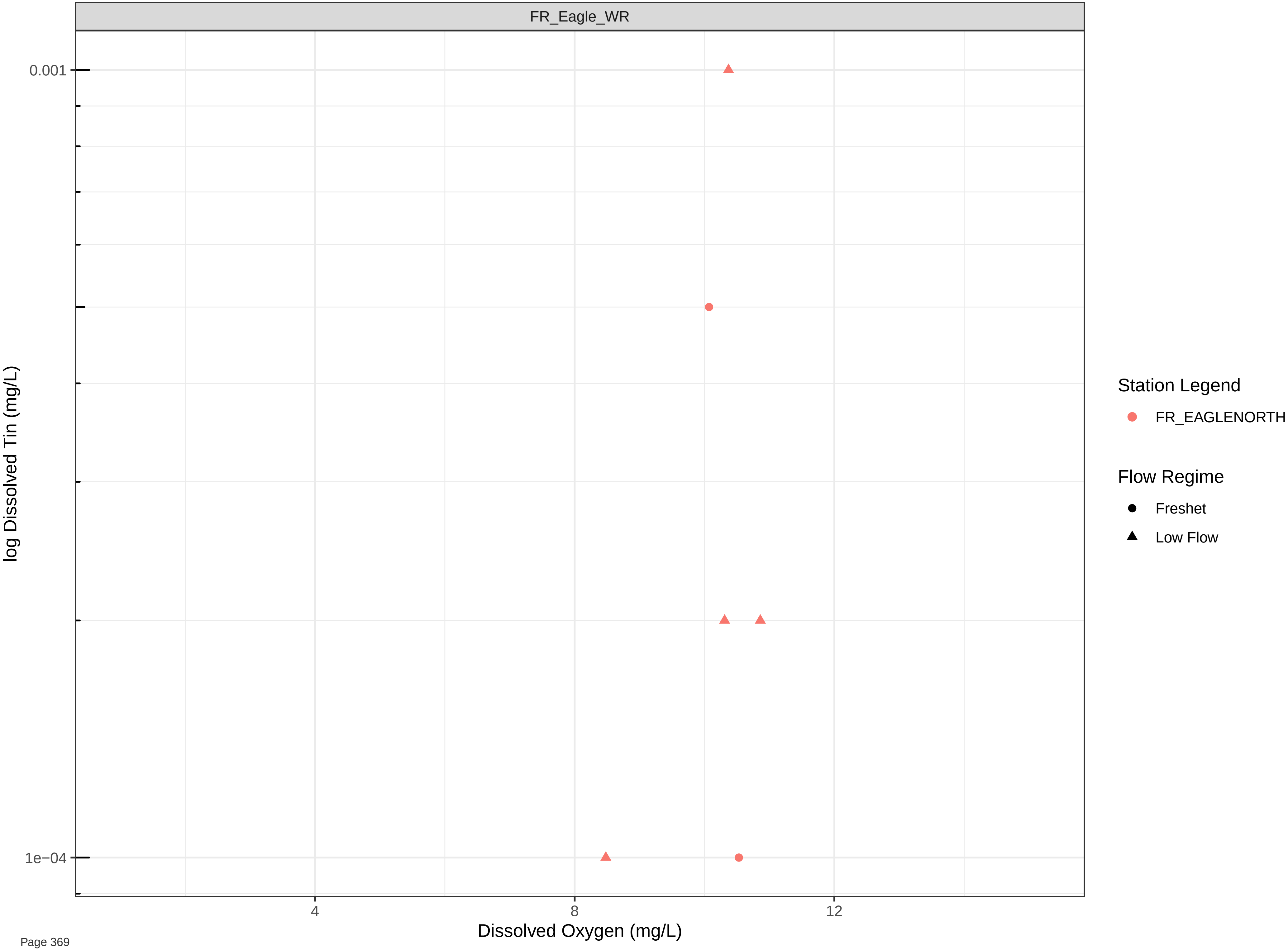
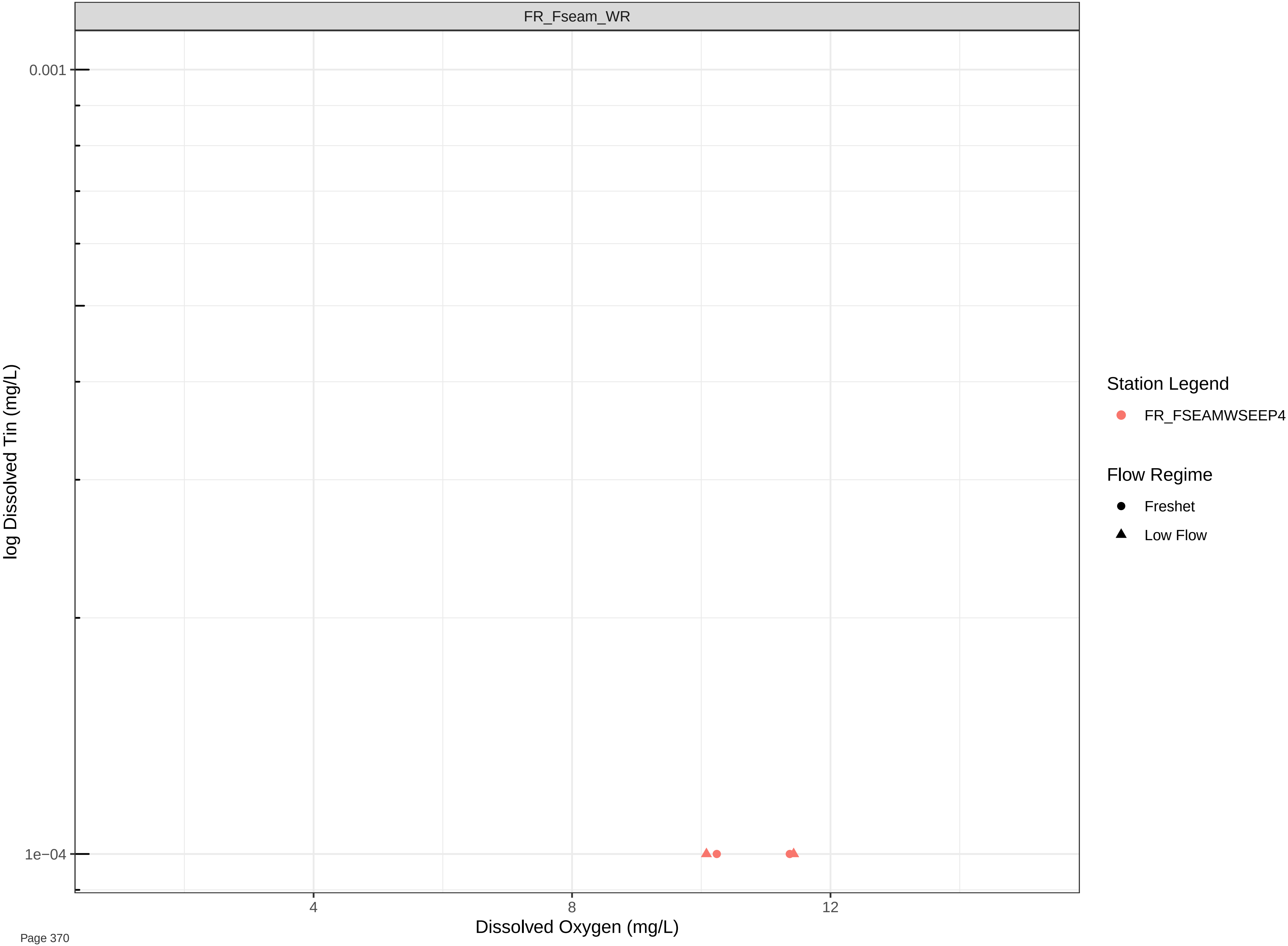
log Dissolved Tin (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow


FR_Eagle_WR
0.001
1e−04
log Dissolved Tin (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow


FR_Fseam_WR
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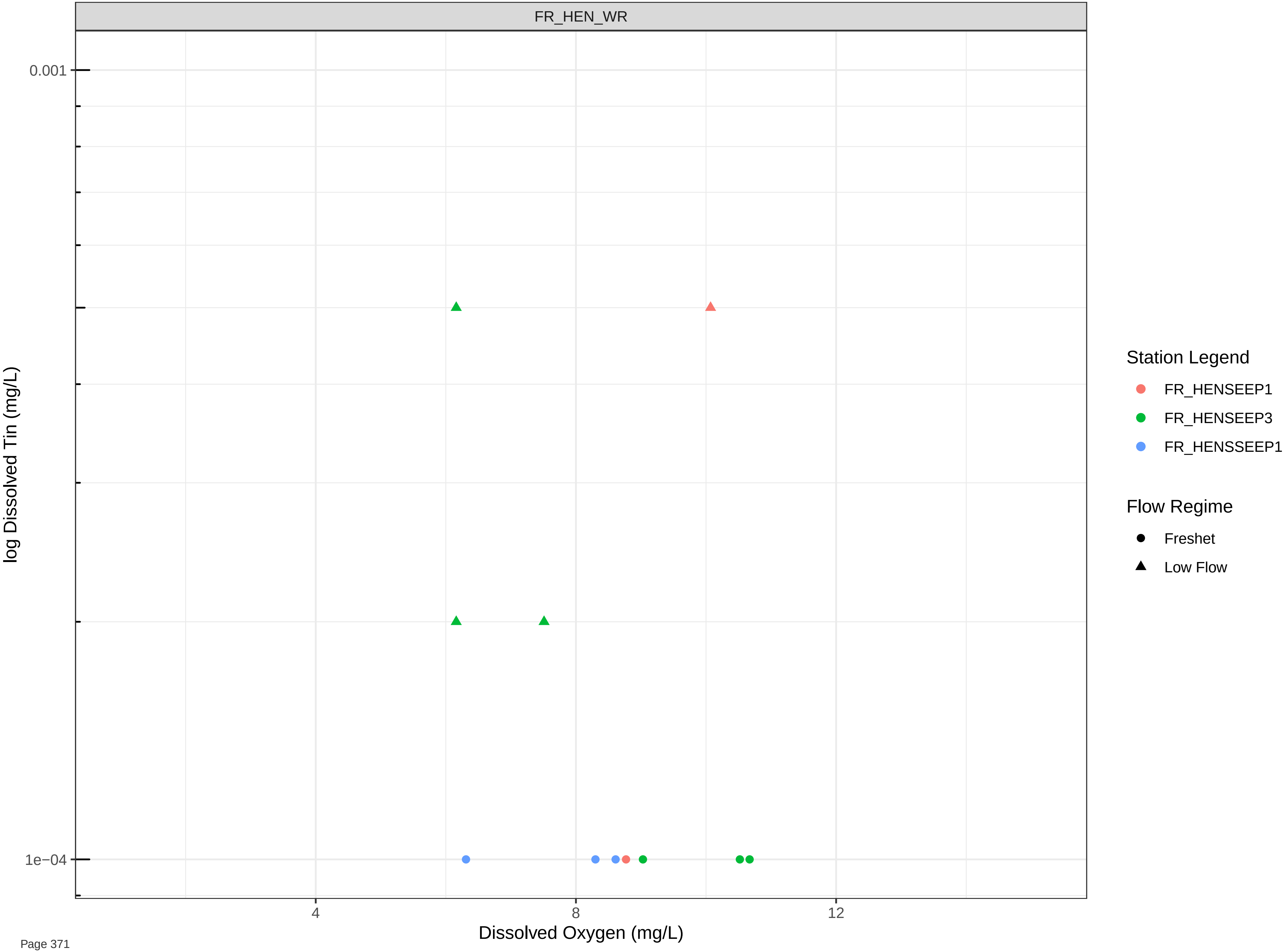
1e−04
log Dissolved Tin (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow


FR_HEN_WR
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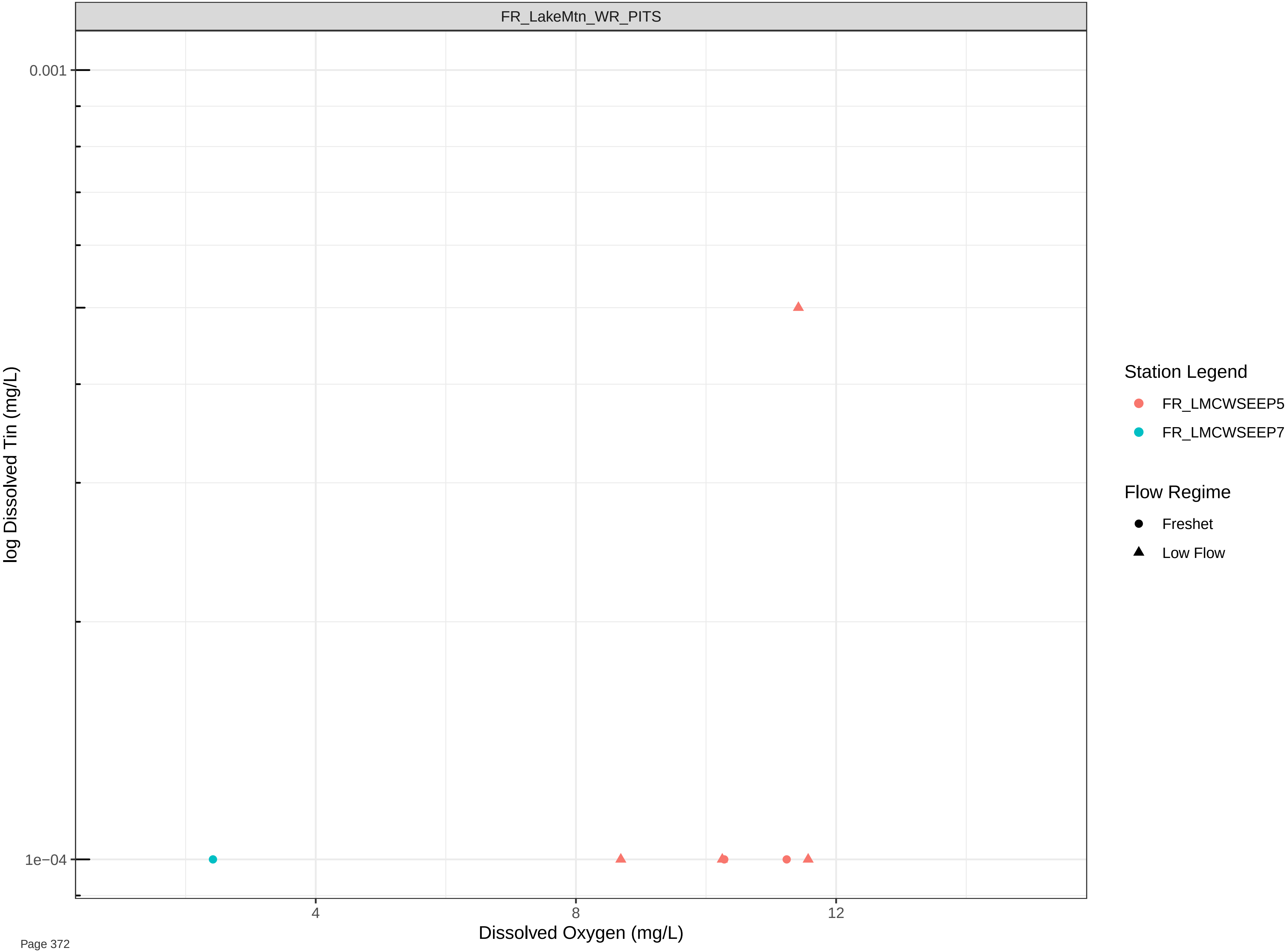
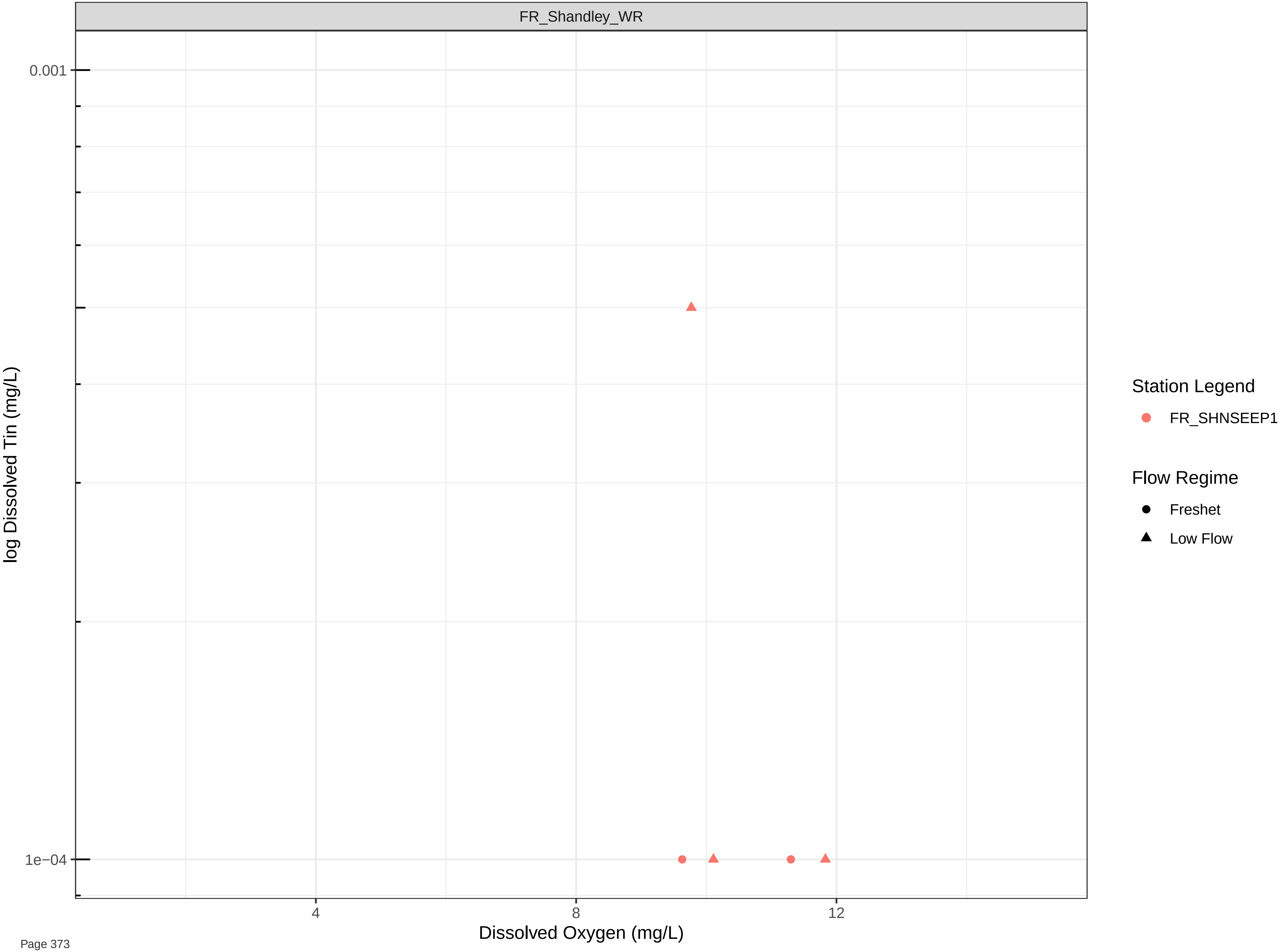
1e−04
log Dissolved Tin (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow


FR_LakeMtn_WR_PITS
0.001
1e−04
log Dissolved Tin (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow


FR_Shandley_WR
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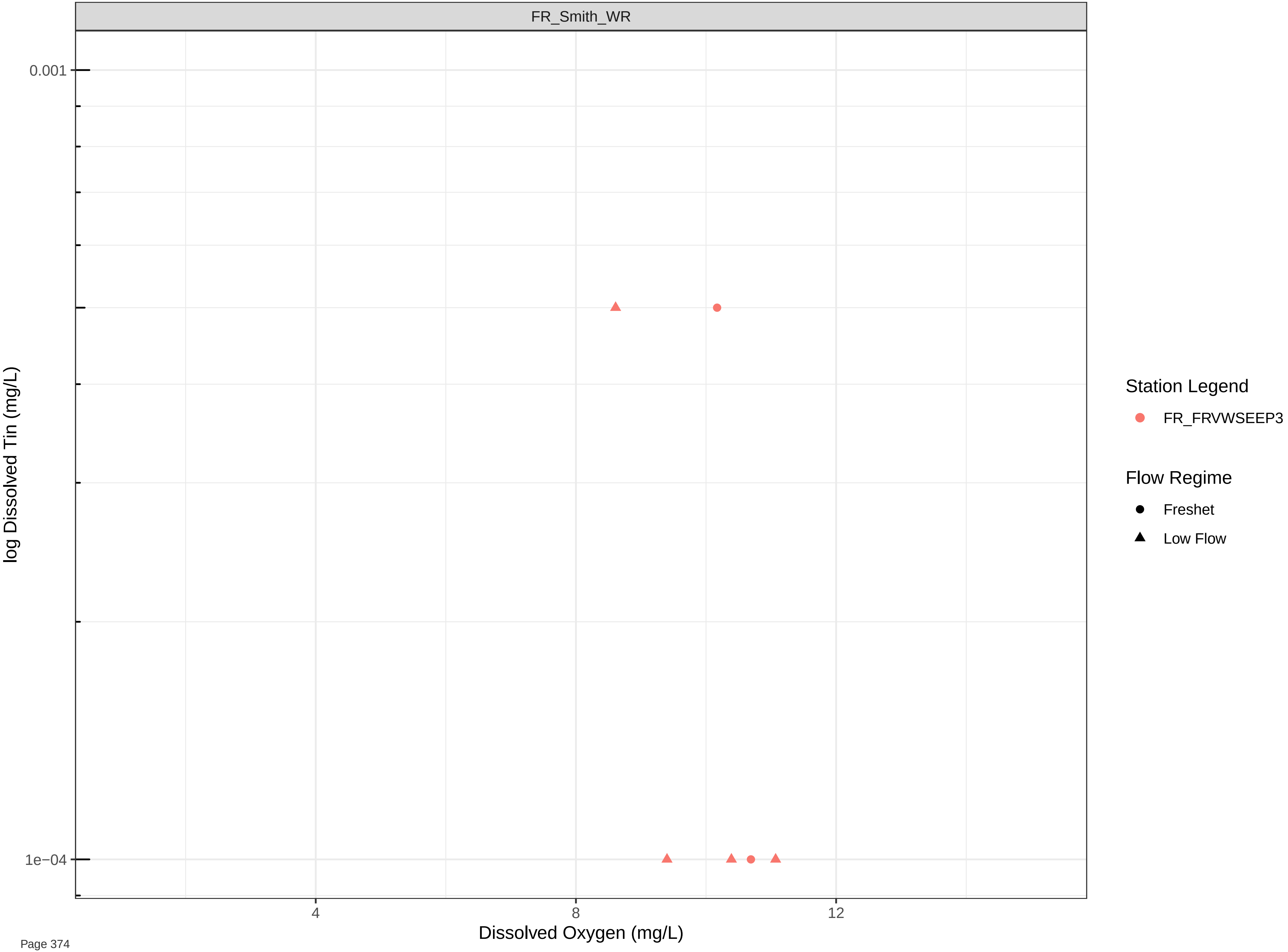
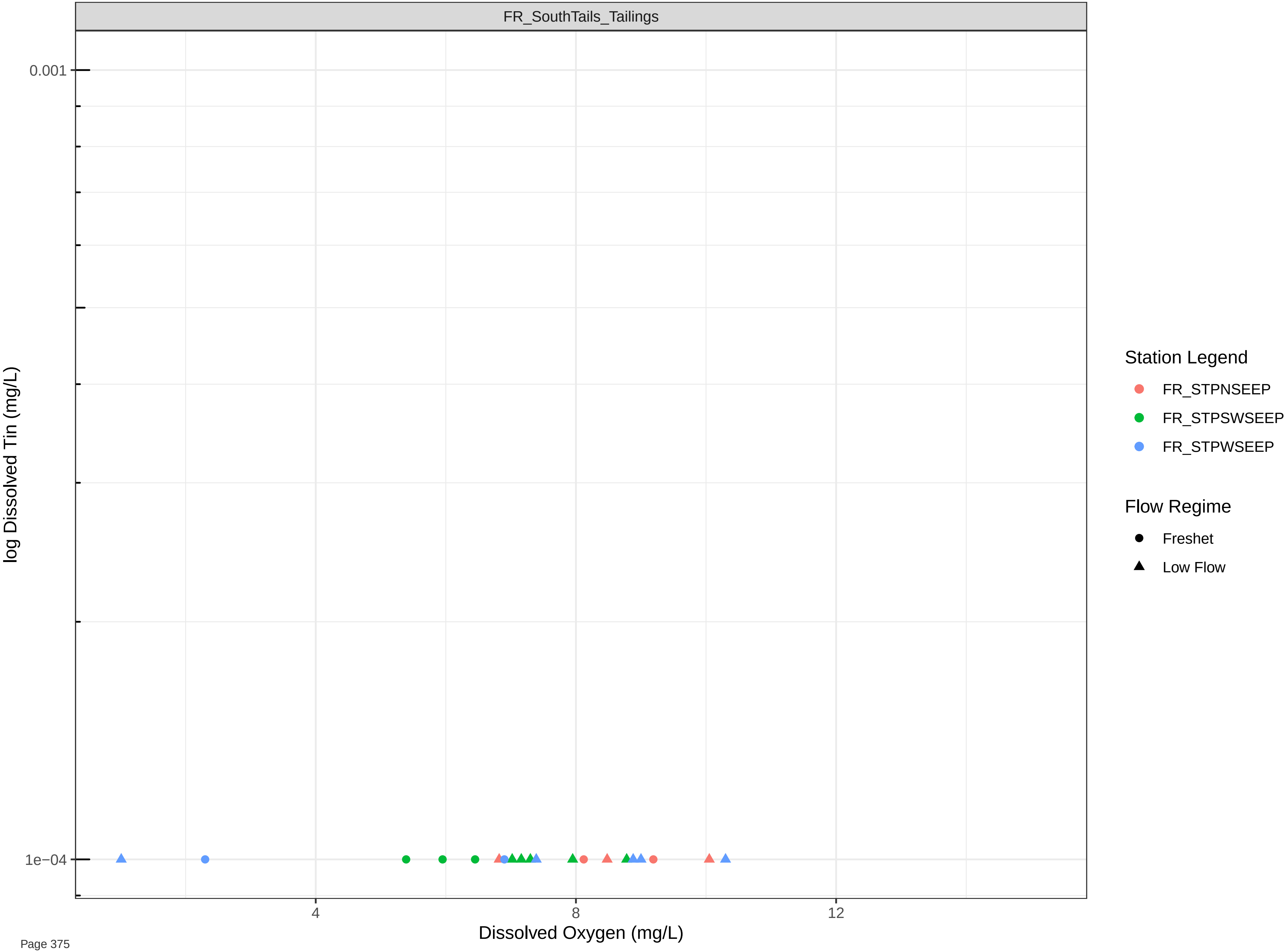
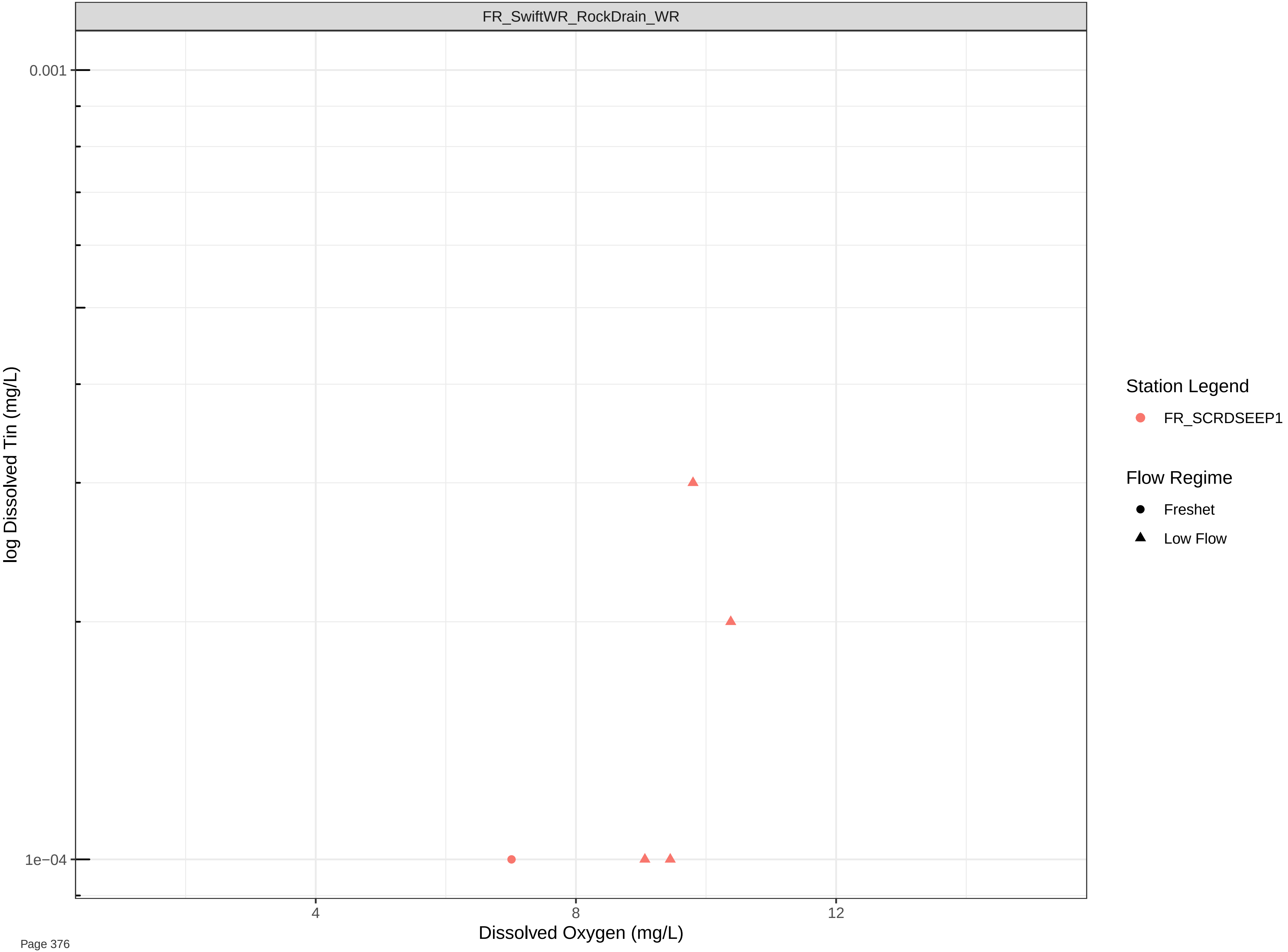
1e−04
log Dissolved Tin (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow


FR_Smith_WR
0.001
1e−04
4
8
12
log Dissolved Tin (mg/L)
Dissolved Oxygen (mg/L)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow


FR_SouthTails_Tailings
log Dissolved Tin (mg/L)
0.001
1e−04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow


FR_SwiftWR_RockDrain_WR
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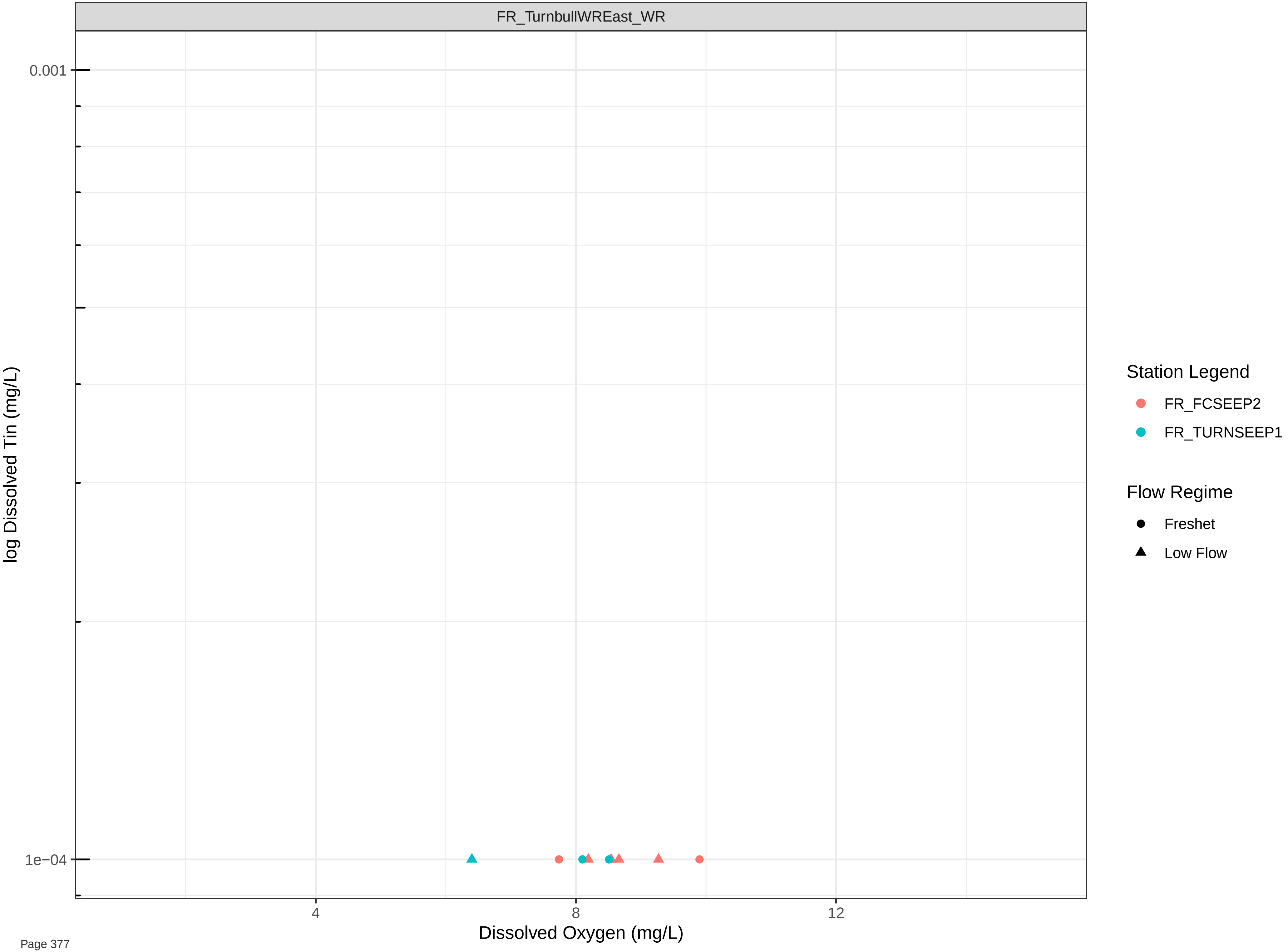
1e−04
log Dissolved Tin (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWREast_WR
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1e−04
log Dissolved Tin (mg/L)
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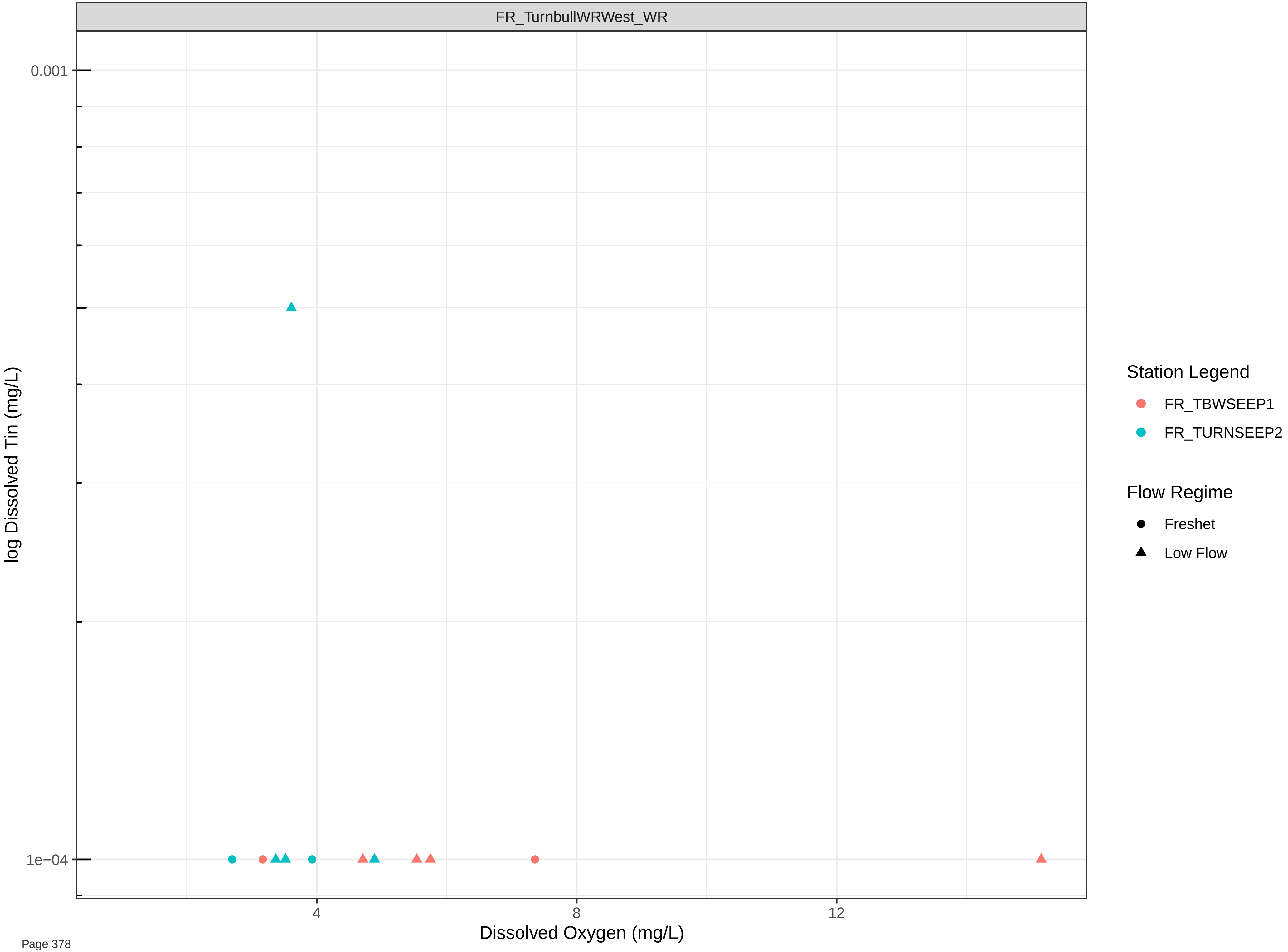
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FCSEEP2
● FR_TURNSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_TurnbullWRWest_WR
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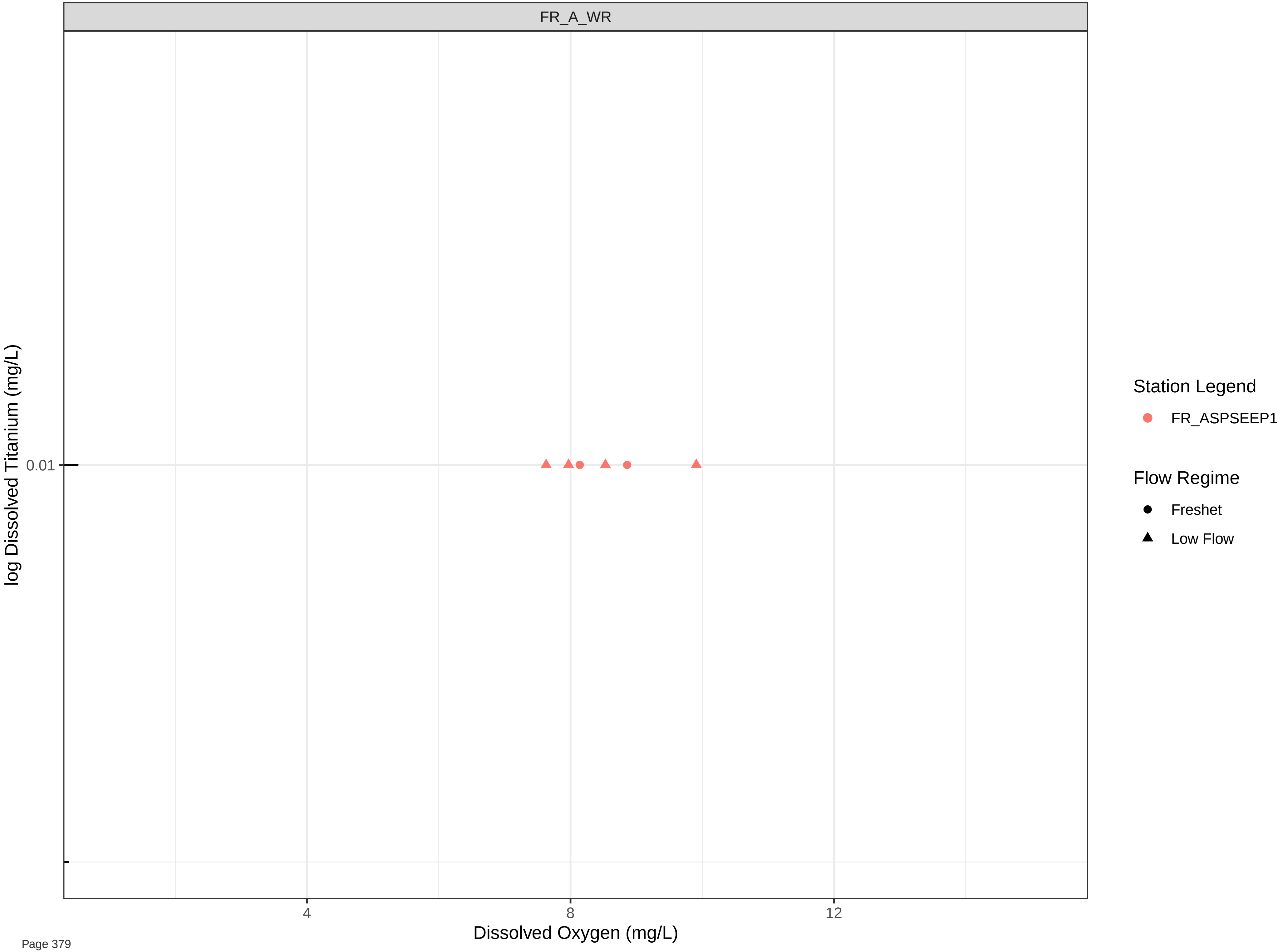
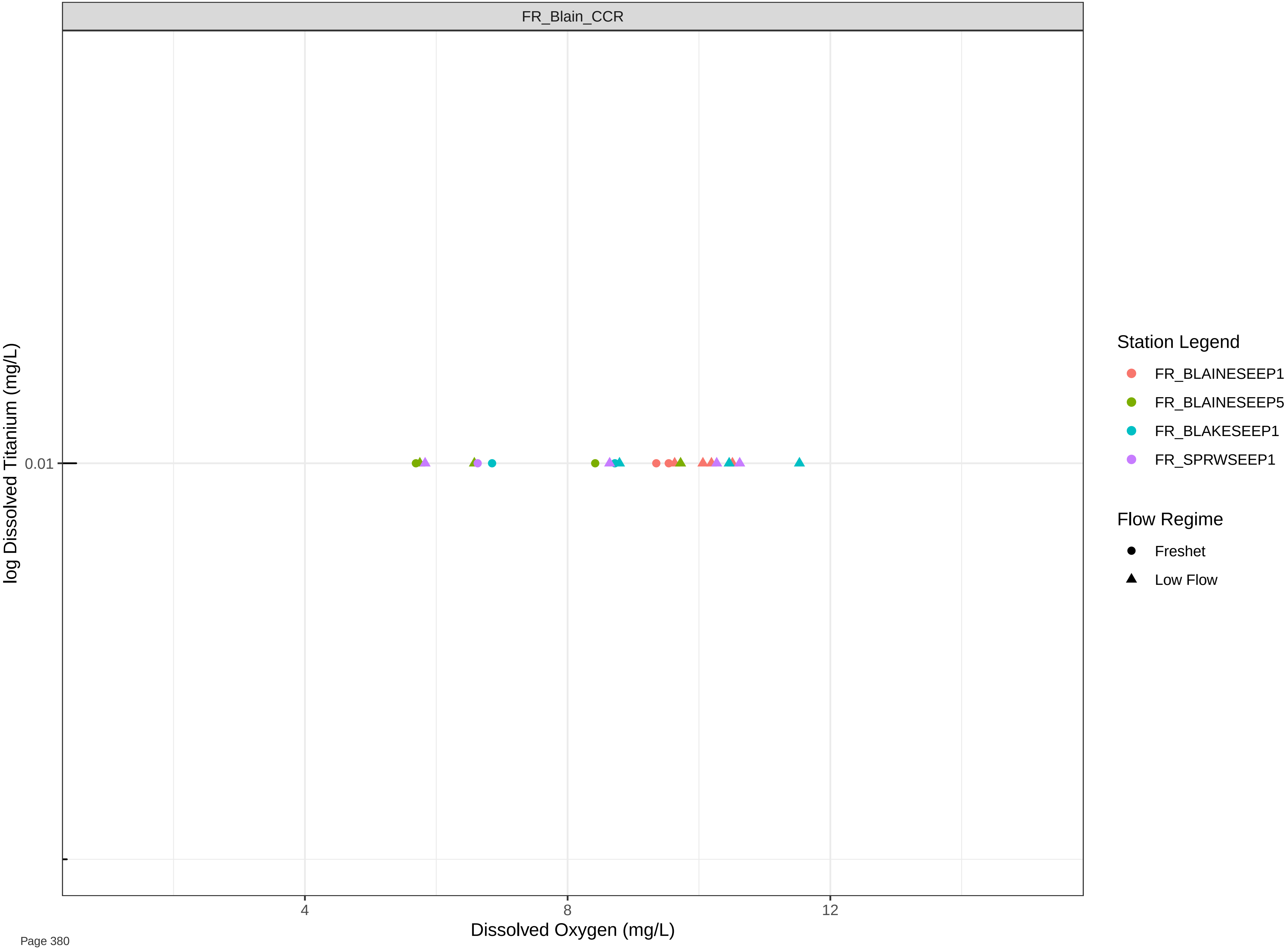
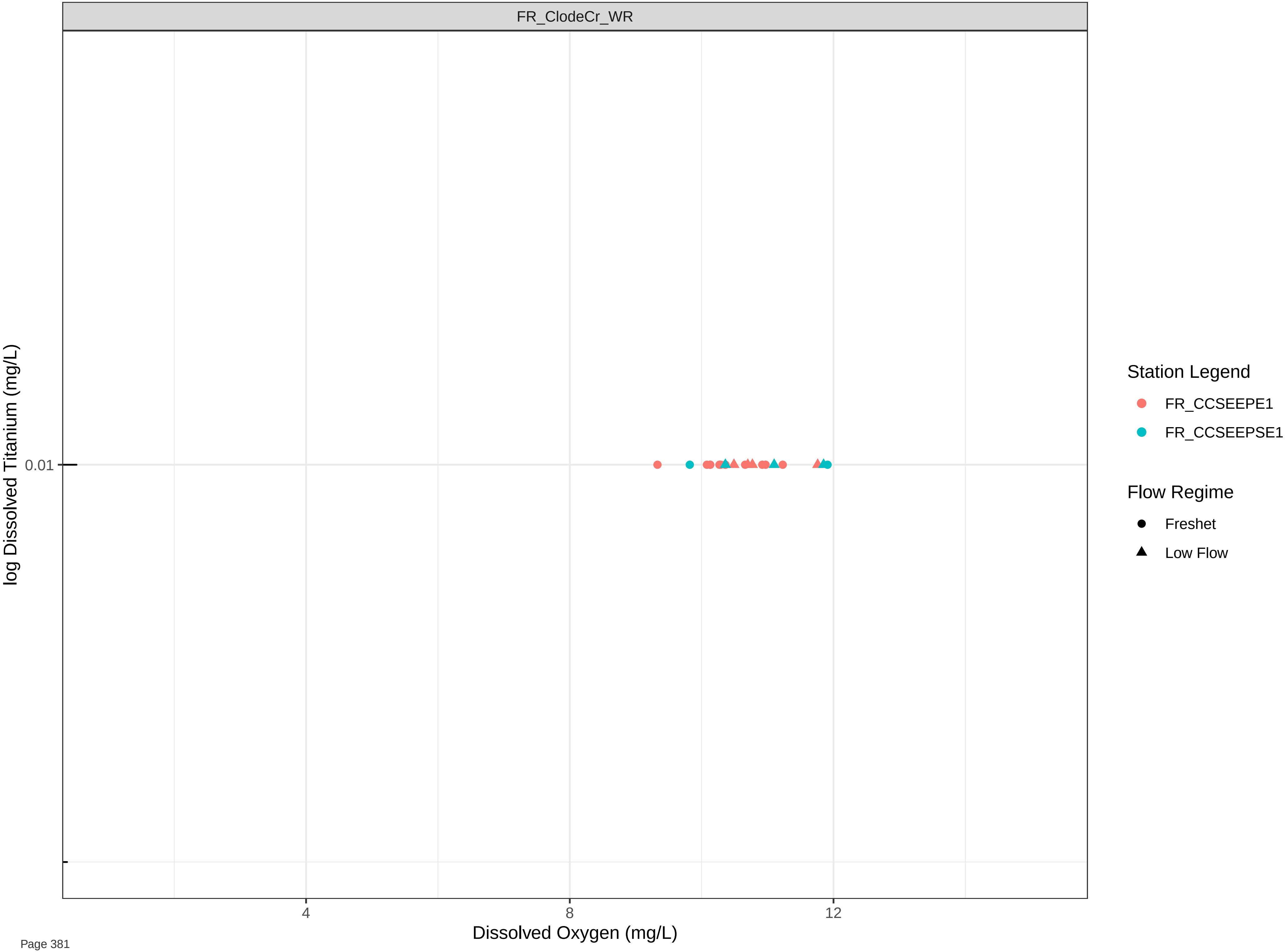
1e−04
log Dissolved Tin (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_TBWSEEP1
● FR_TURNSEEP2
Flow Regime
● Freshet
▲ Low Flow


FR_A_WR
log Dissolved Titanium (mg/L)
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow


FR_Blain_CCR
log Dissolved Titanium (mg/L)
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow


FR_ClodeCr_WR
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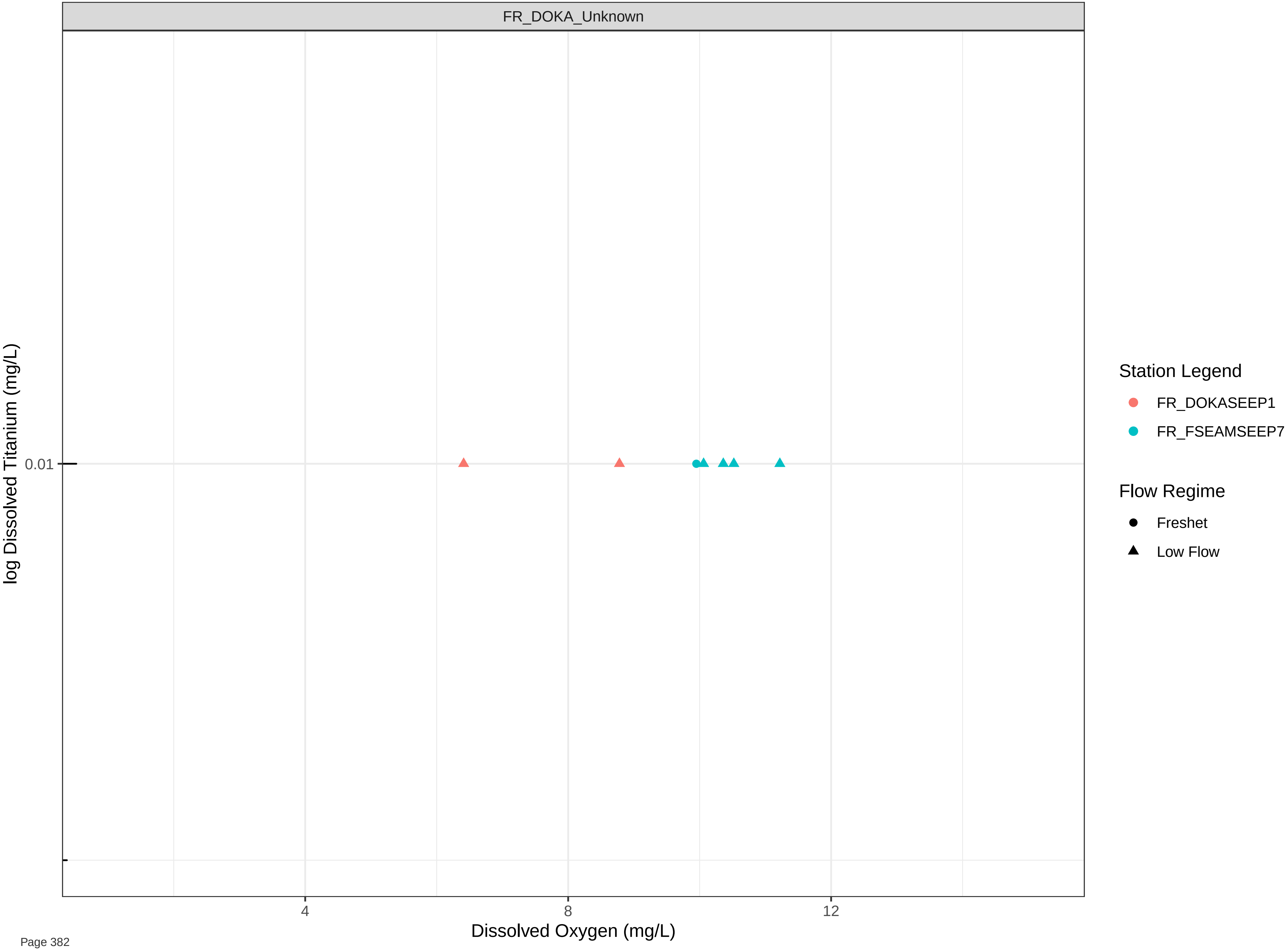
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow


FR_DOKA_Unknown
log Dissolved Titanium (mg/L)
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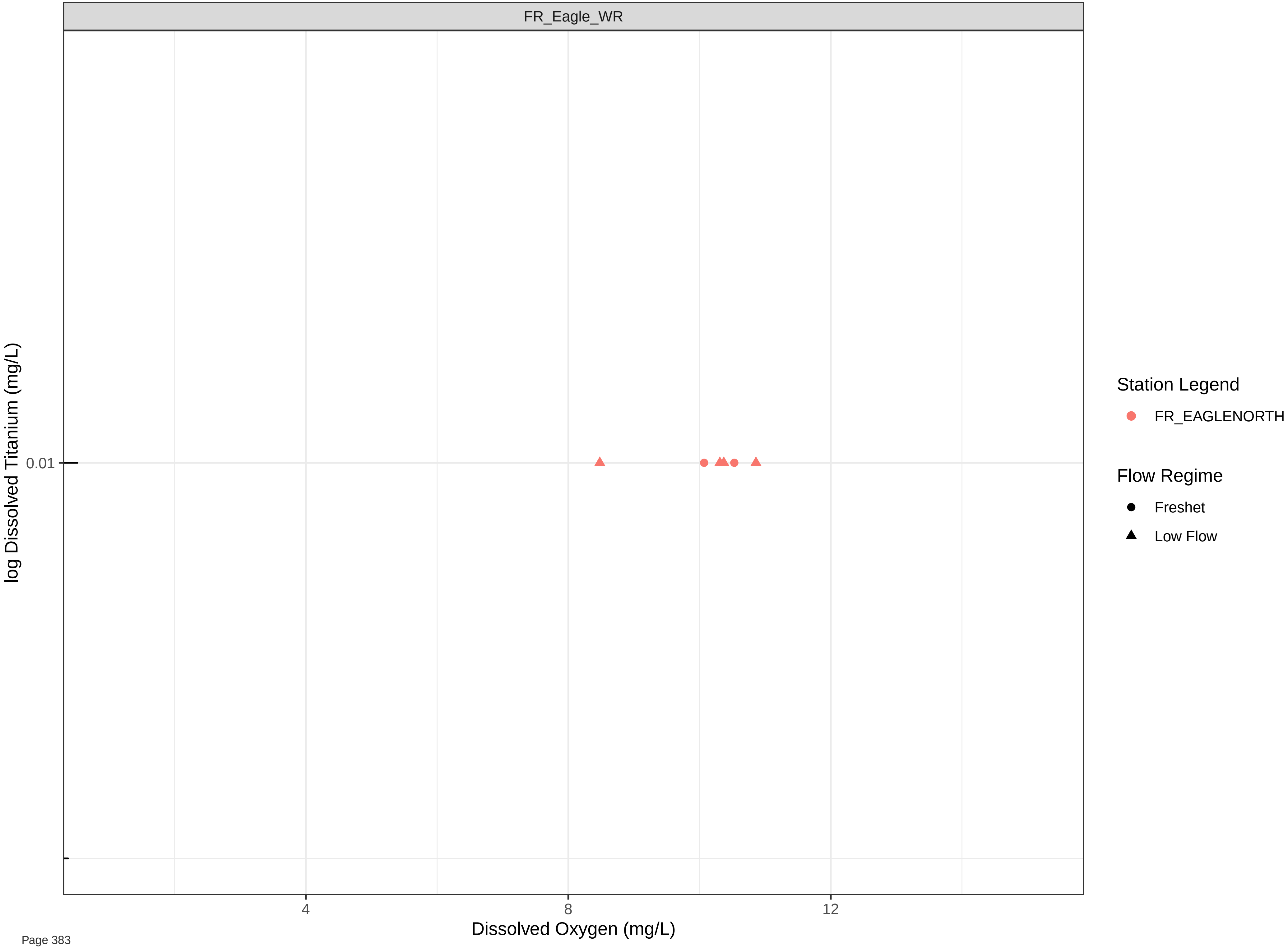
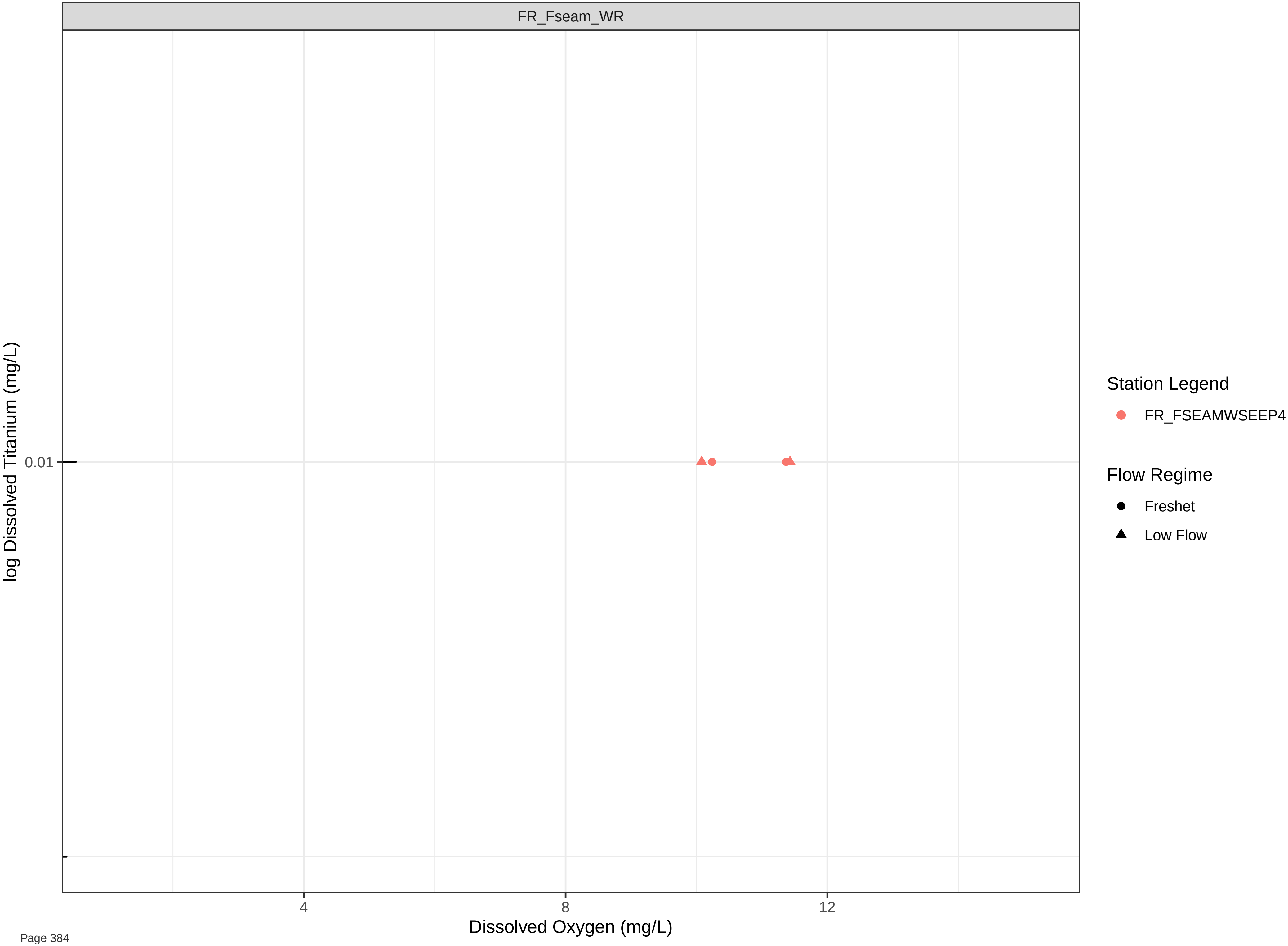
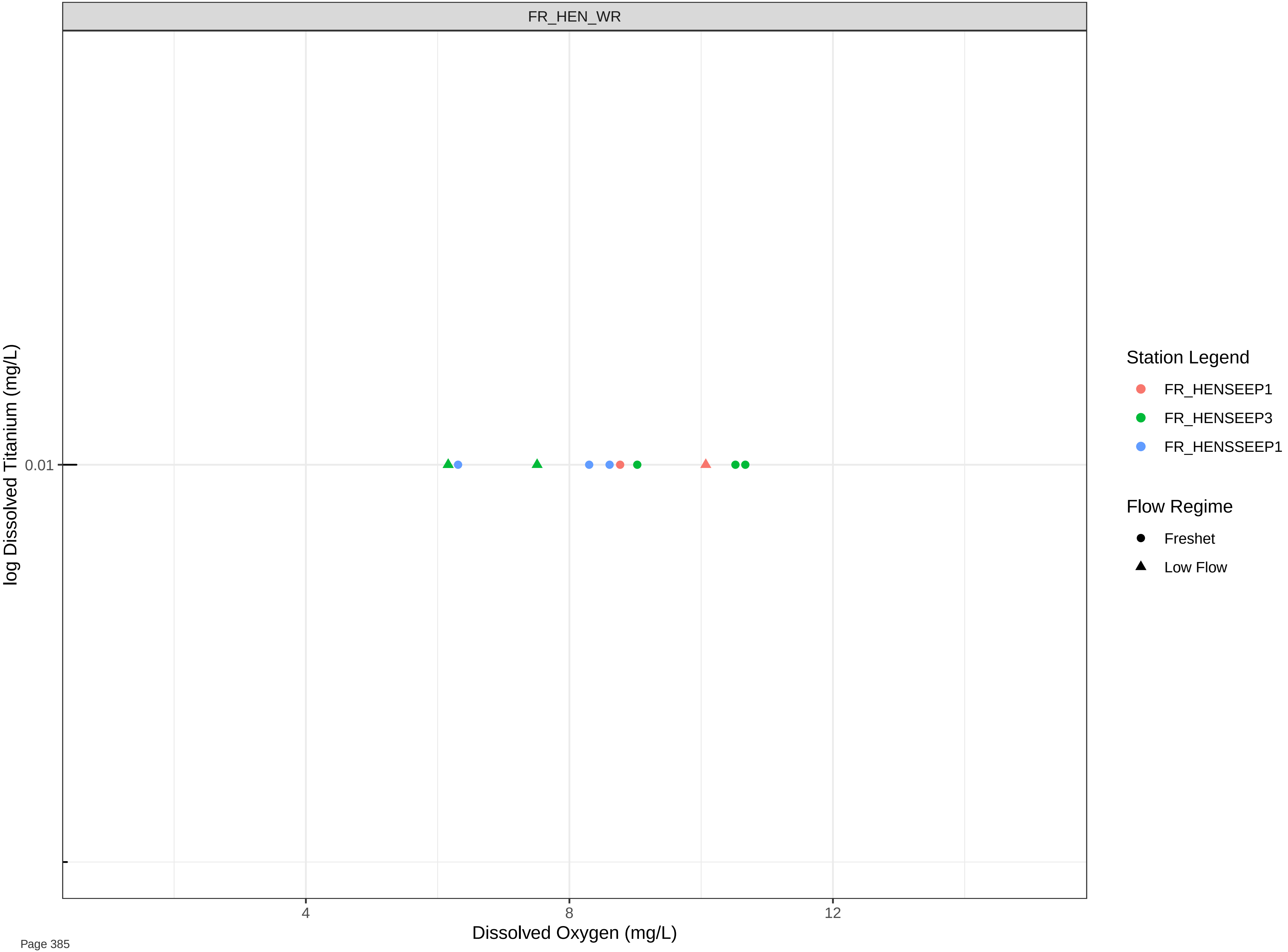
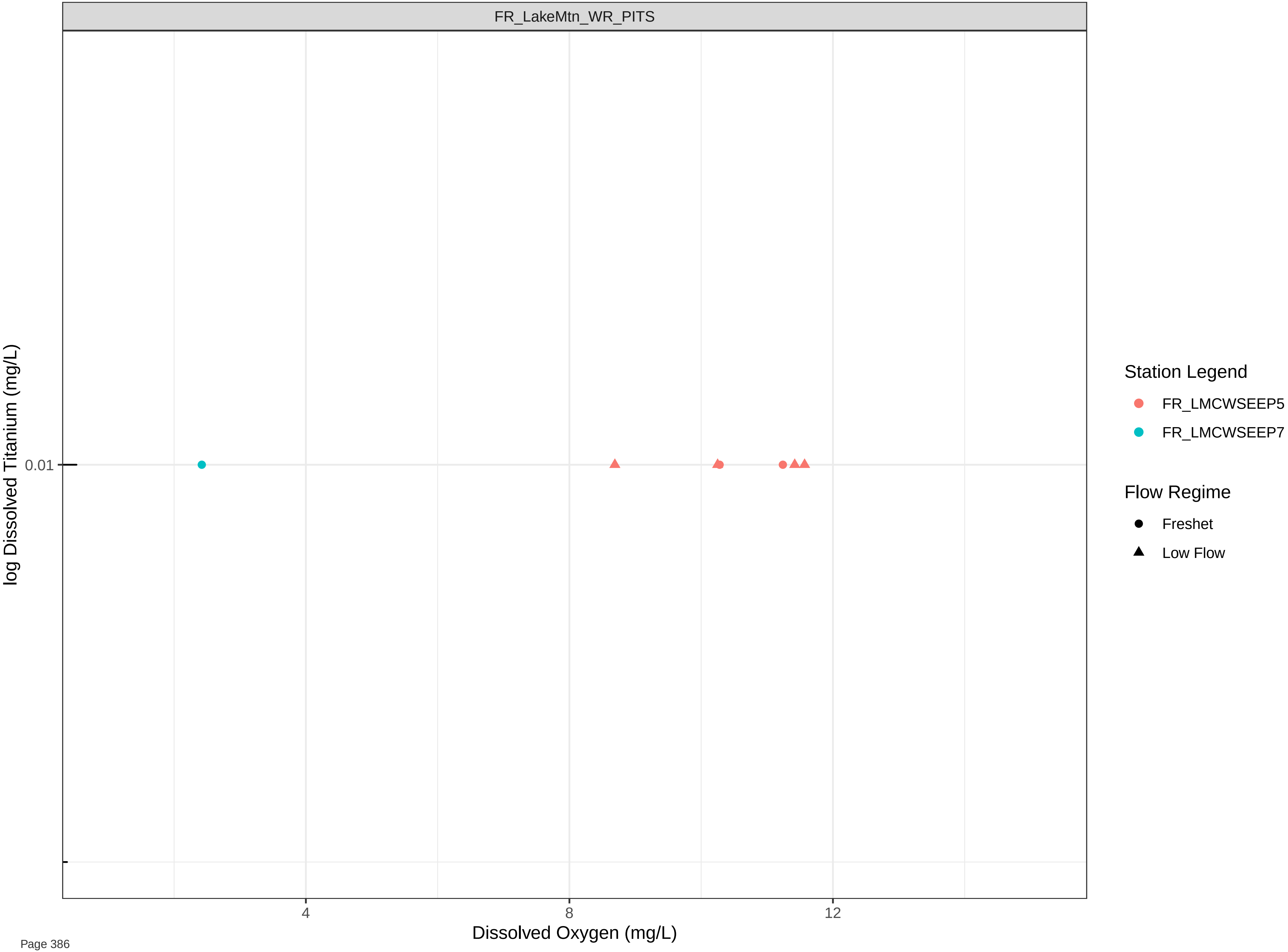
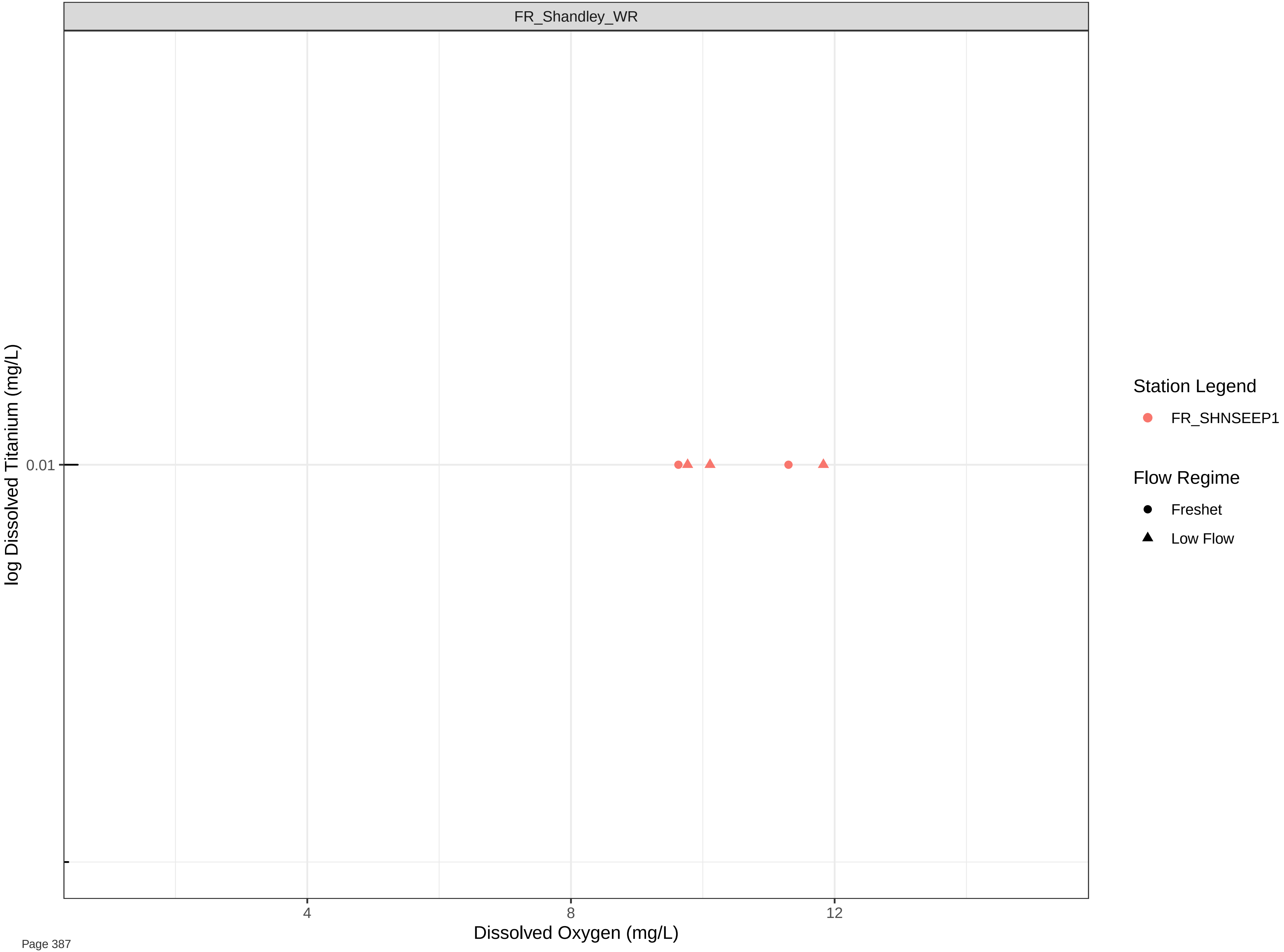
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

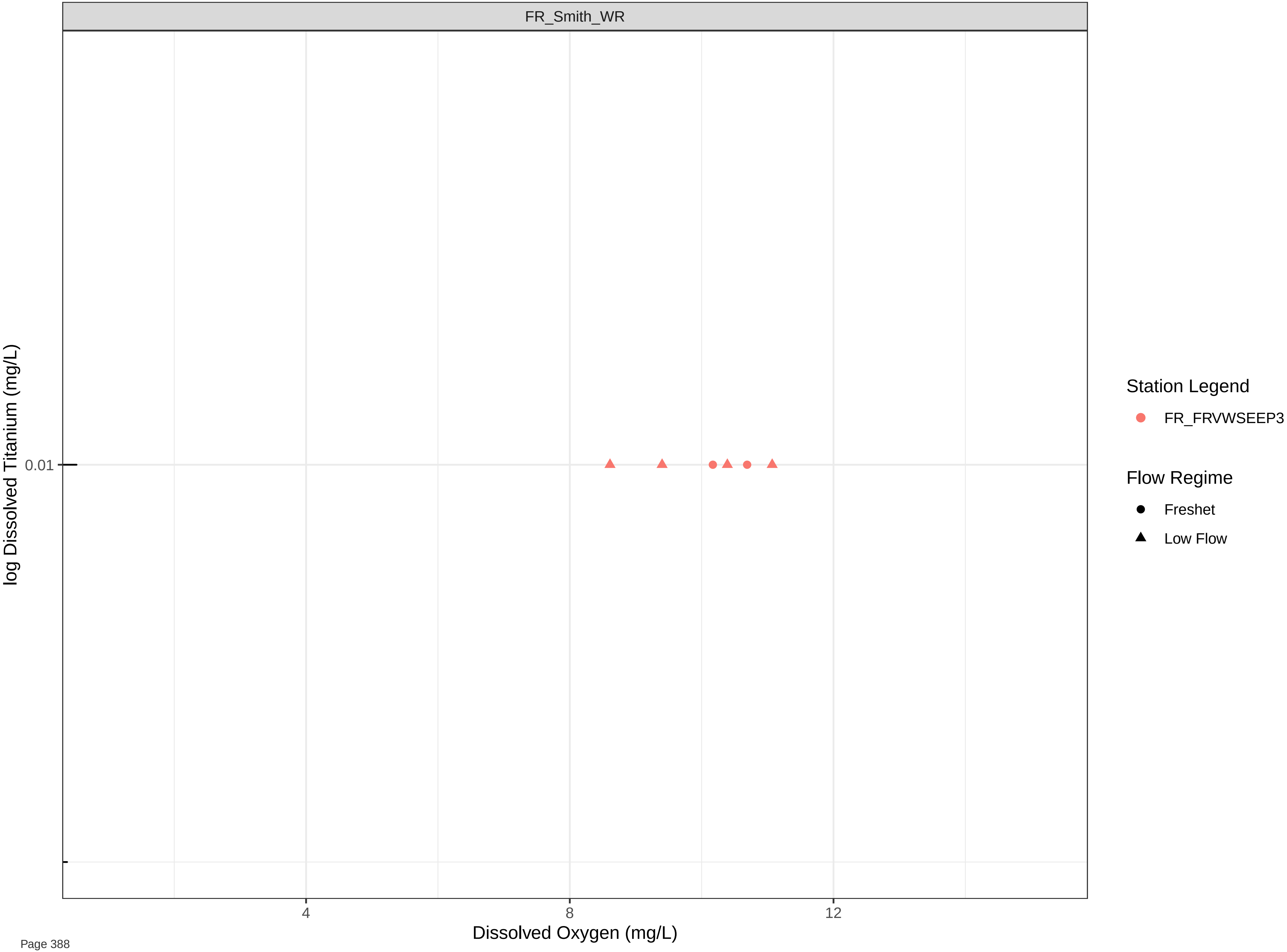

FR_Eagle_WR
log Dissolved Titanium (mg/L)
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow


FR_Fseam_WR
log Dissolved Titanium (mg/L)
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow


FR_HEN_WR
log Dissolved Titanium (mg/L)
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow


FR_LakeMtn_WR_PITS
log Dissolved Titanium (mg/L)
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow


FR_Shandley_WR
log Dissolved Titanium (mg/L)
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_Smith_WR
log Dissolved Titanium (mg/L)
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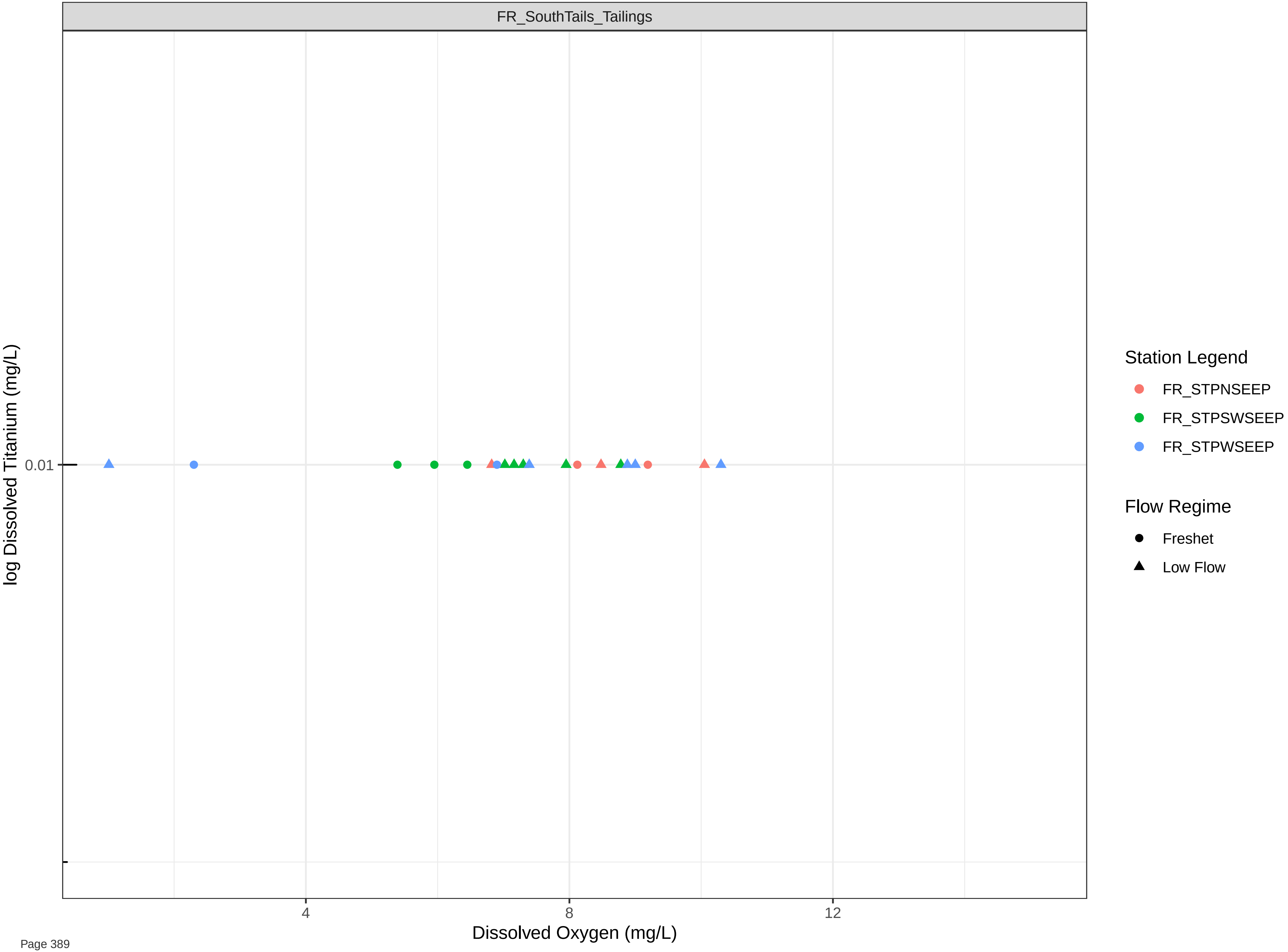
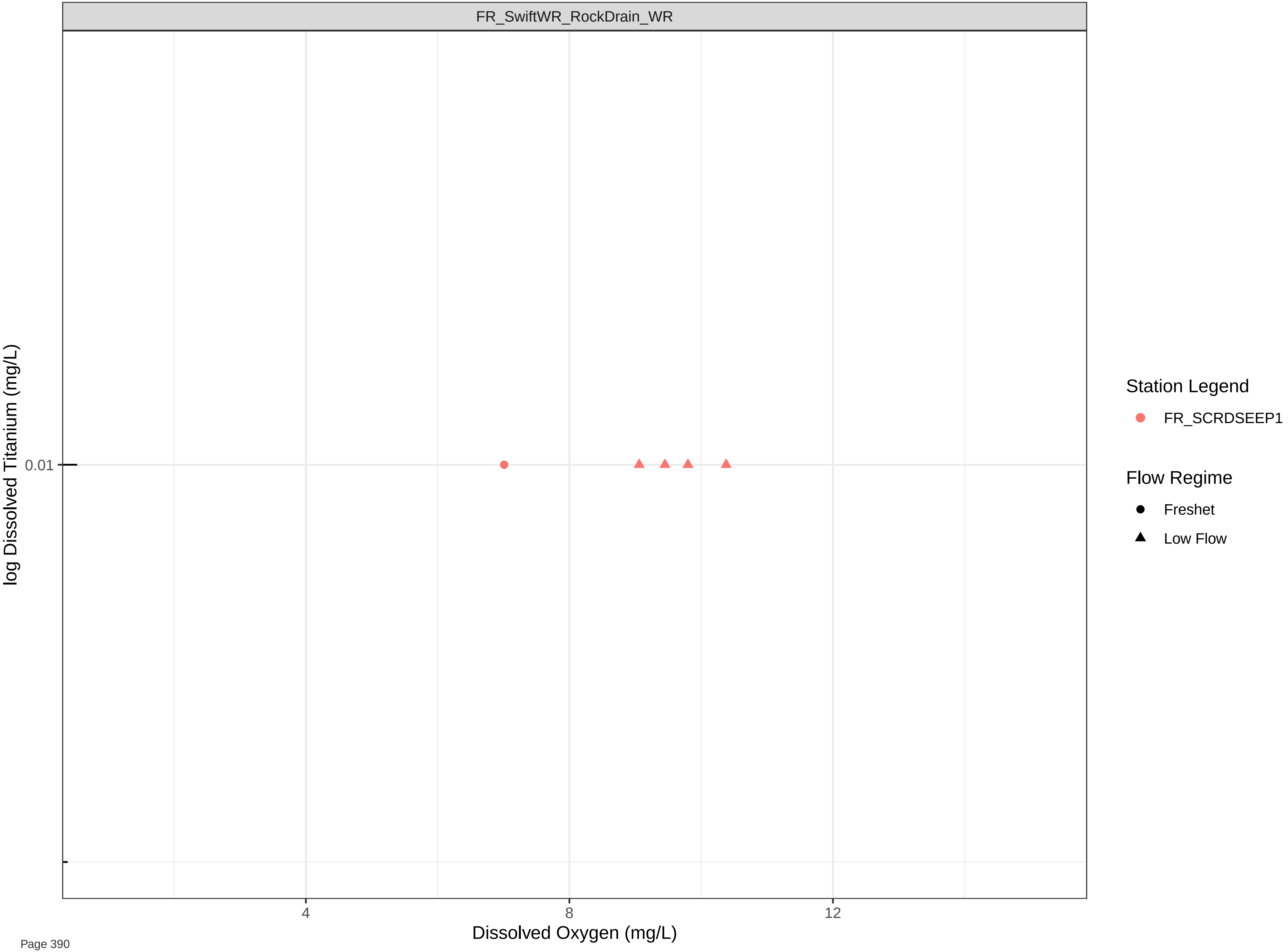
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow


FR_SouthTails_Tailings
log Dissolved Titanium (mg/L)
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow


FR_SwiftWR_RockDrain_WR
log Dissolved Titanium (mg/L)
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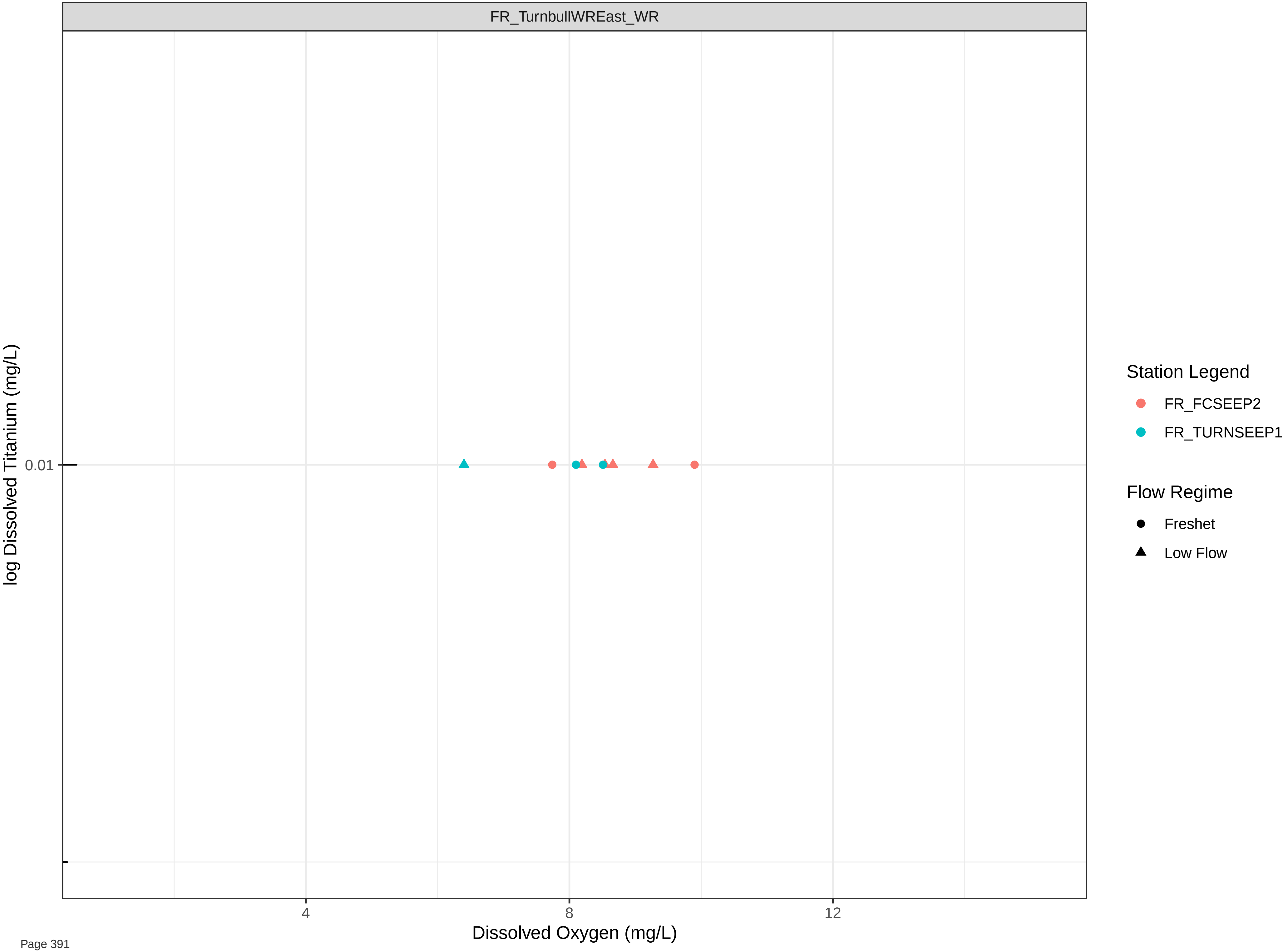
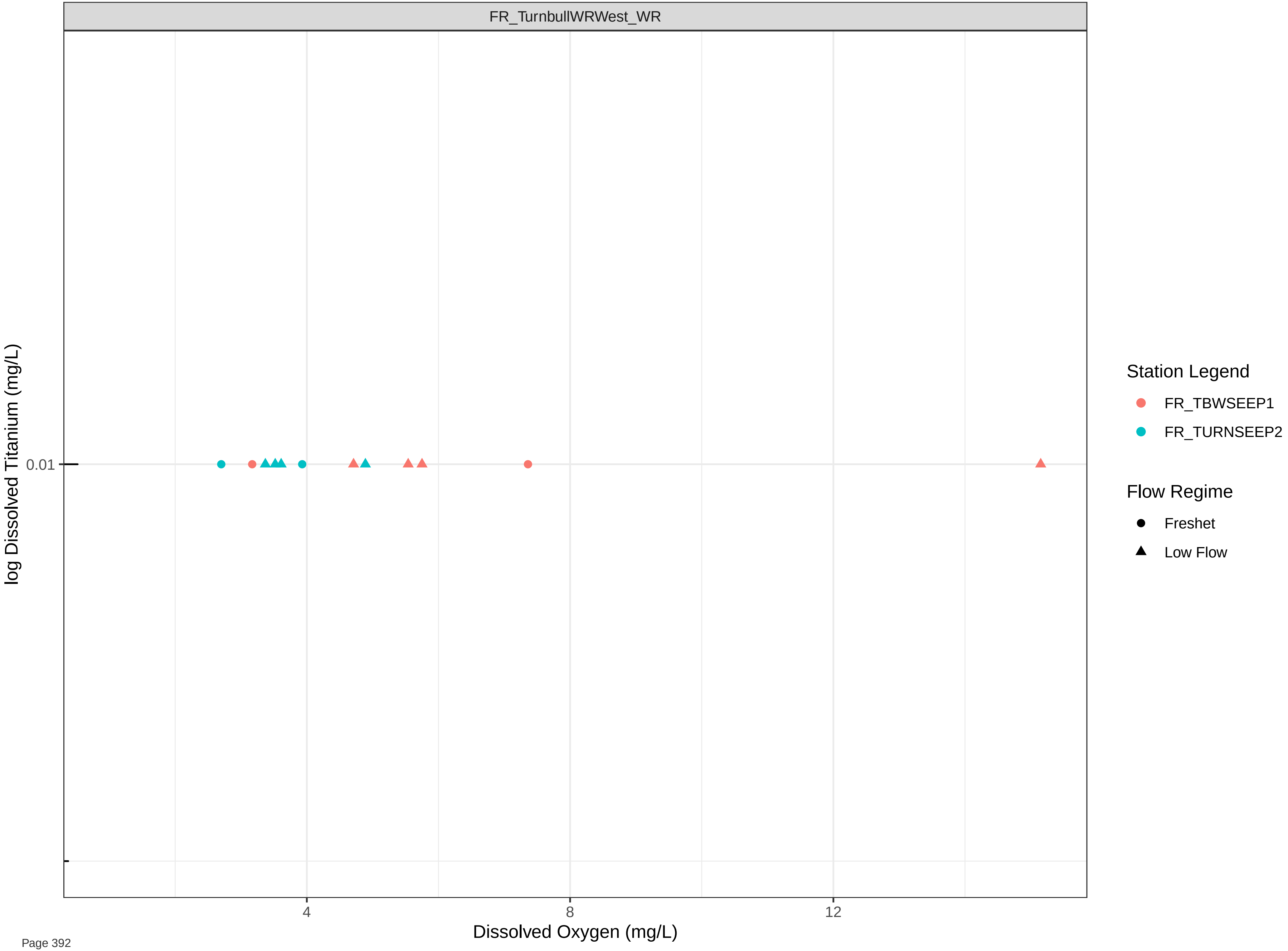
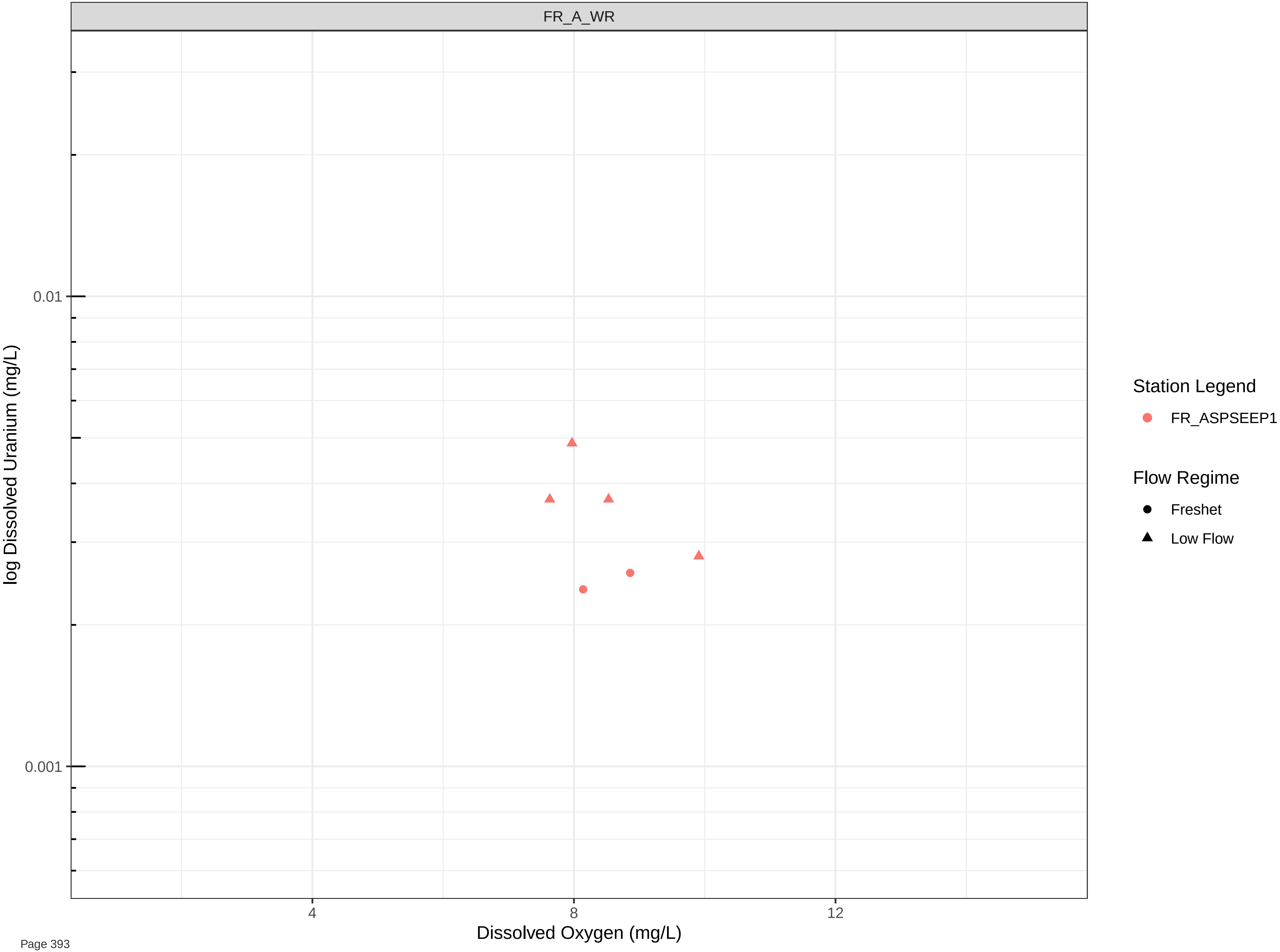
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWREast_WR
log Dissolved Titanium (mg/L)
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWRWest_WR
log Dissolved Titanium (mg/L)
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_TBWSEEP1
● FR_TURNSEEP2
Flow Regime
● Freshet
▲ Low Flow


FR_A_WR
log Dissolved Uranium (mg/L)
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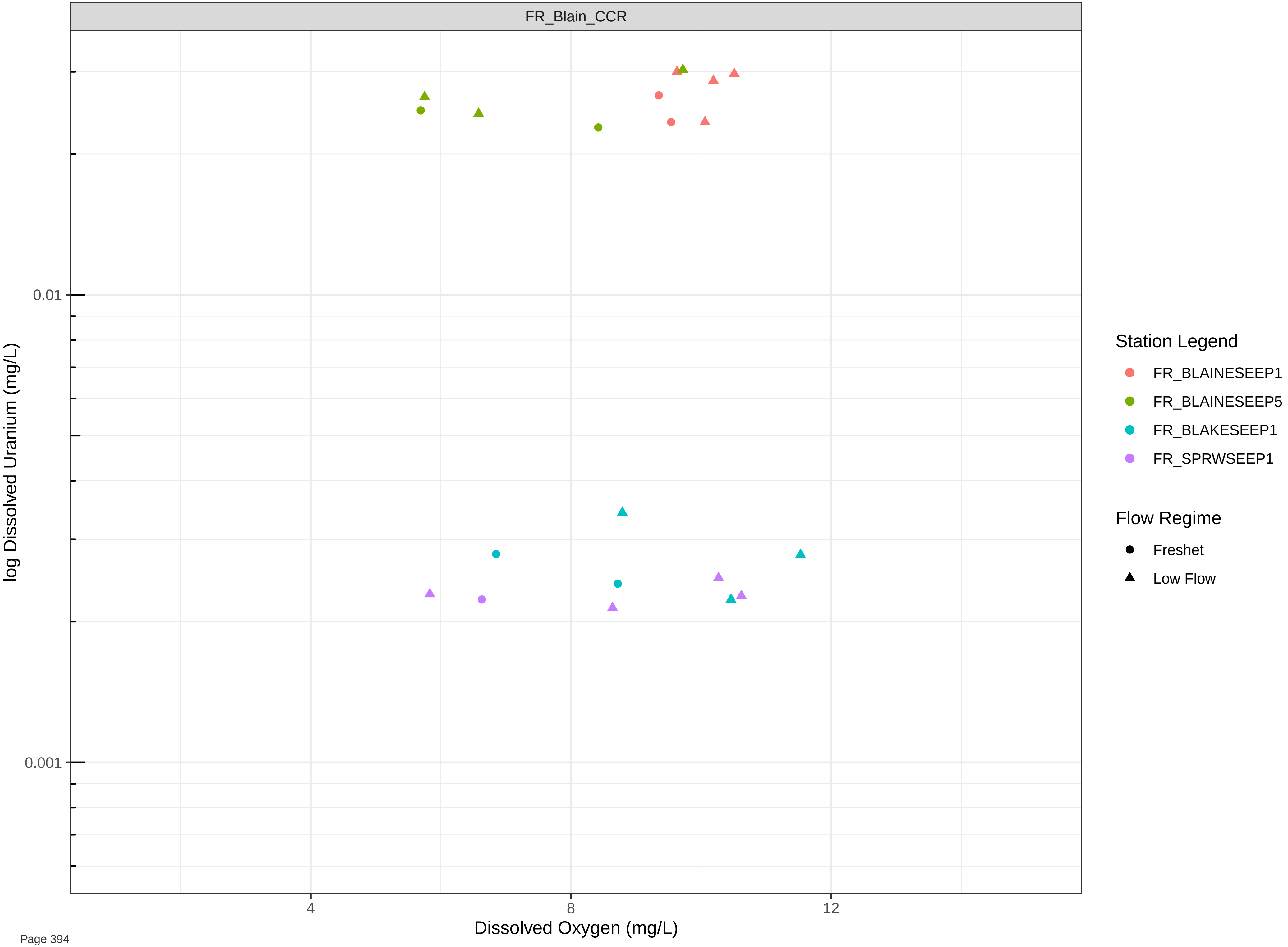
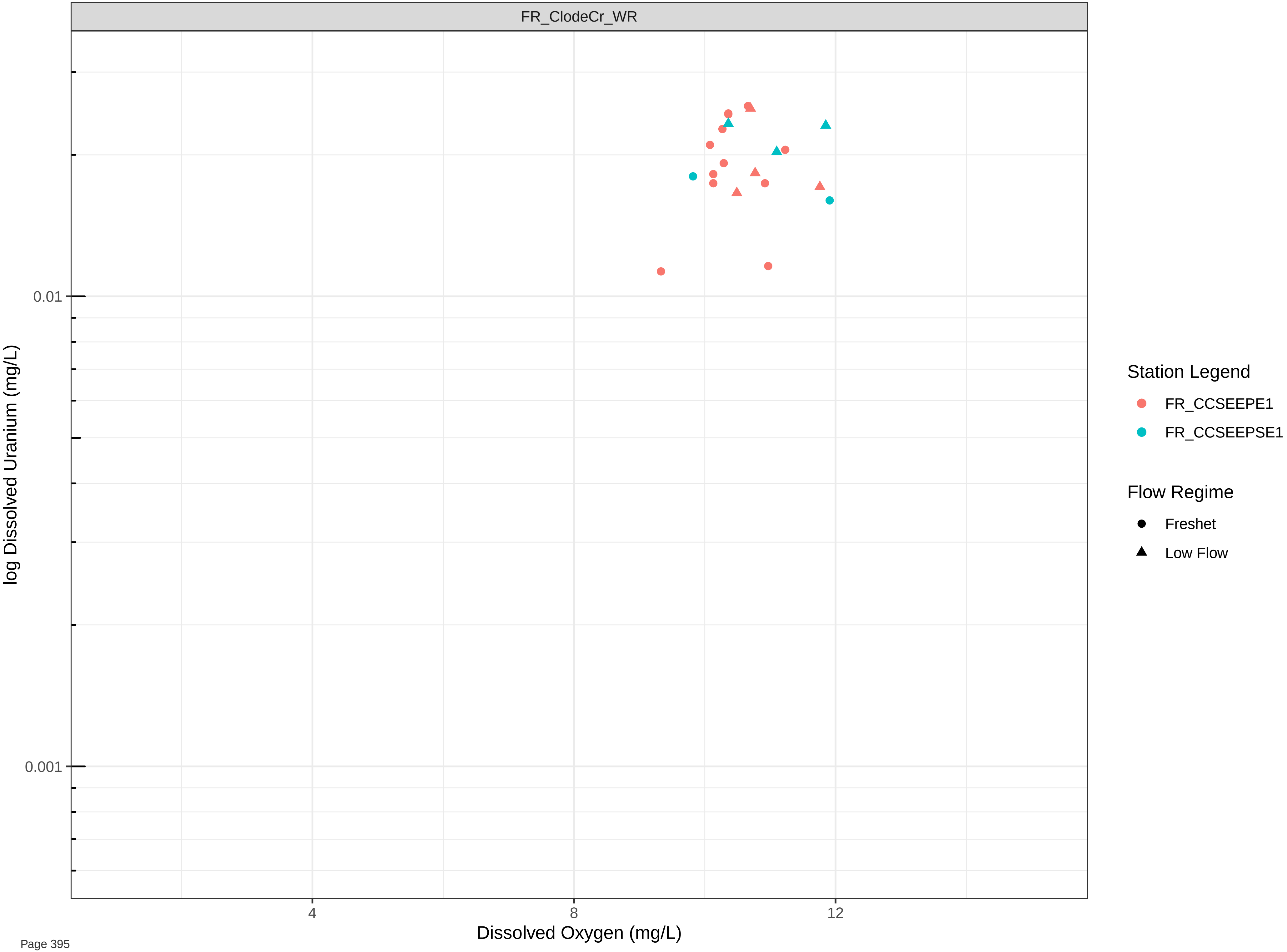
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_Blain_CCR
log Dissolved Uranium (mg/L)
0.01
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_ClodeCr_WR
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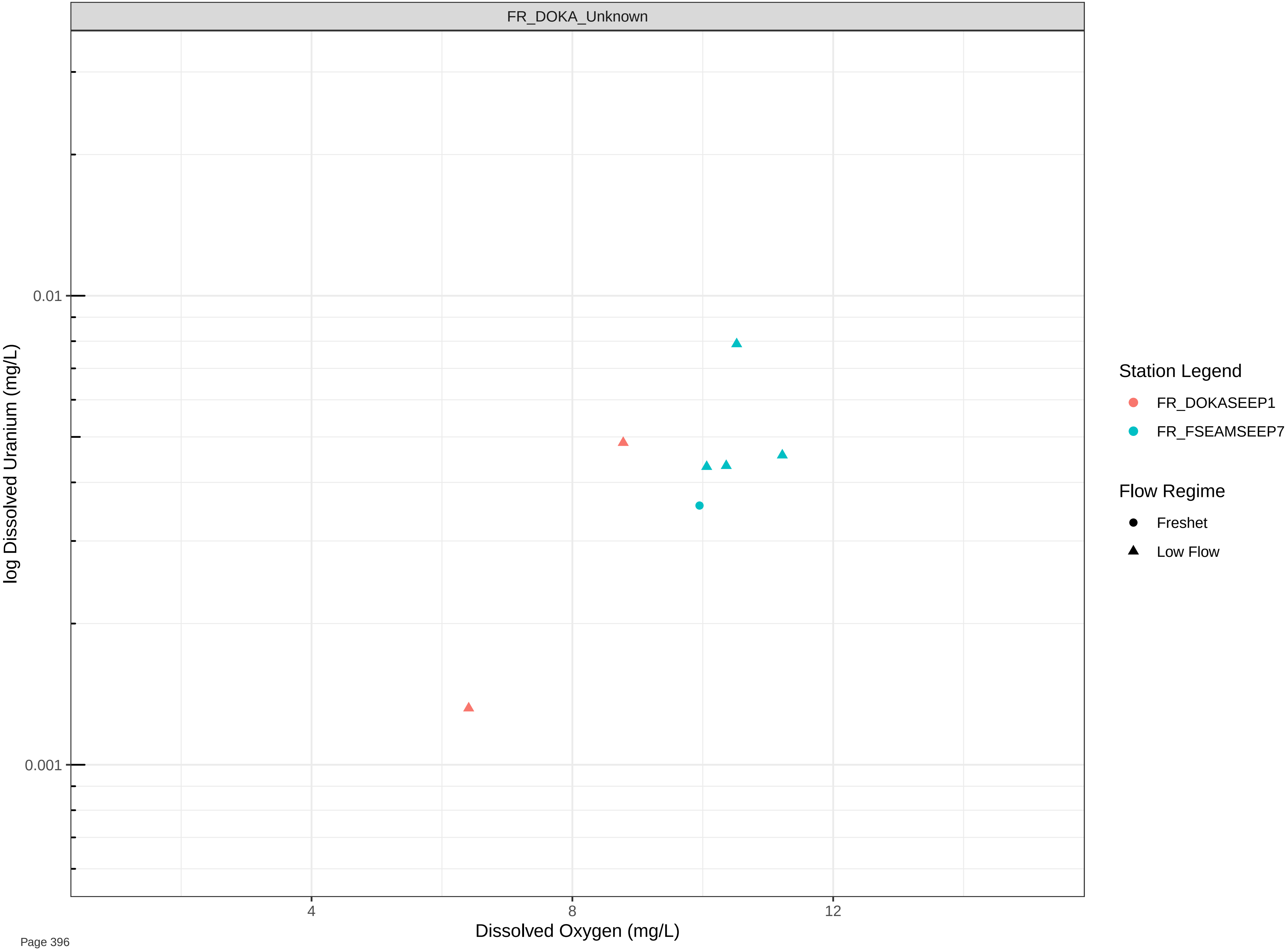
0.01
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow


FR_DOKA_Unknown
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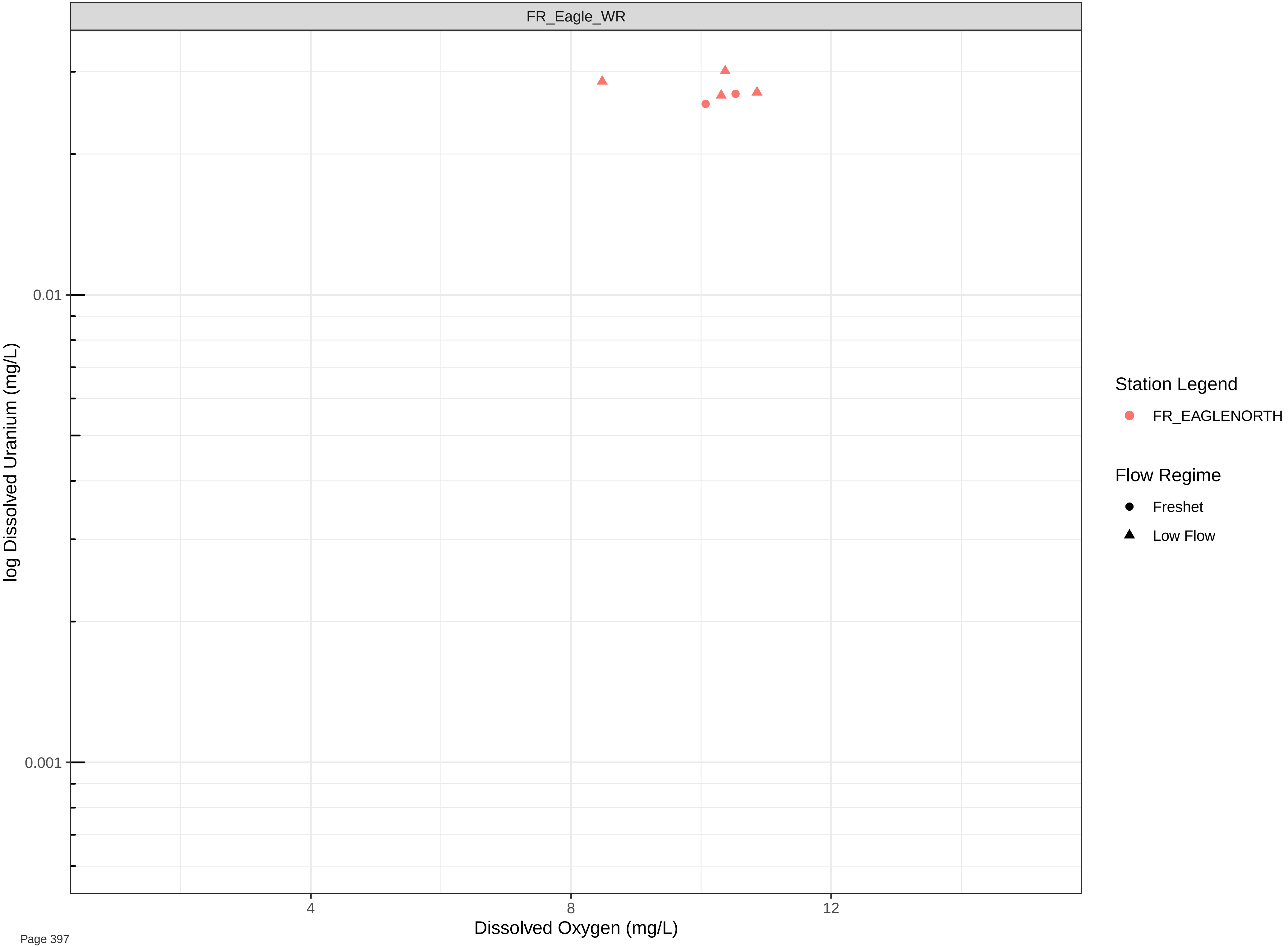
0.01
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow


FR_Eagle_WR
log Dissolved Uranium (mg/L)
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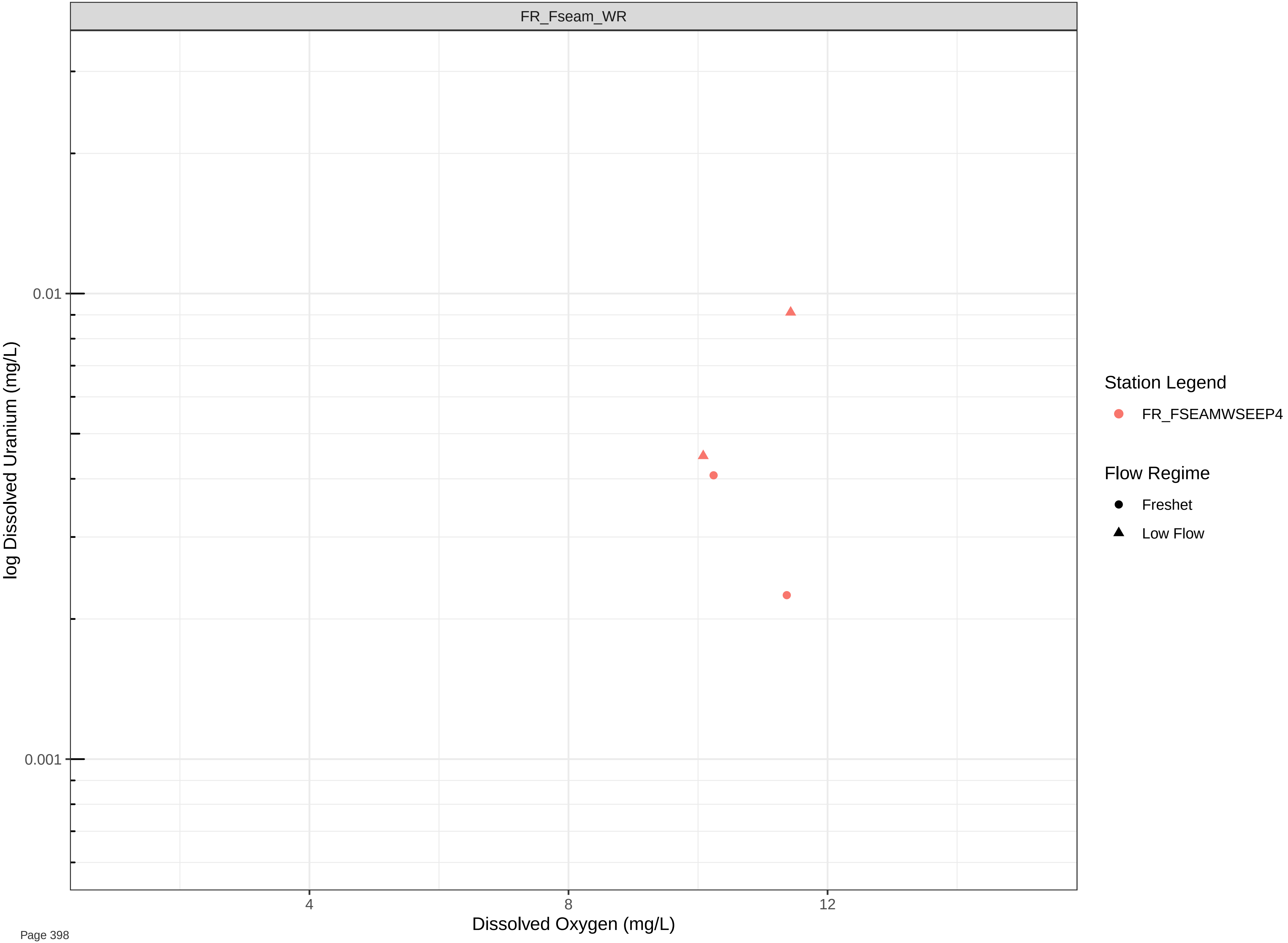
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow


FR_Fseam_WR
log Dissolved Uranium (mg/L)
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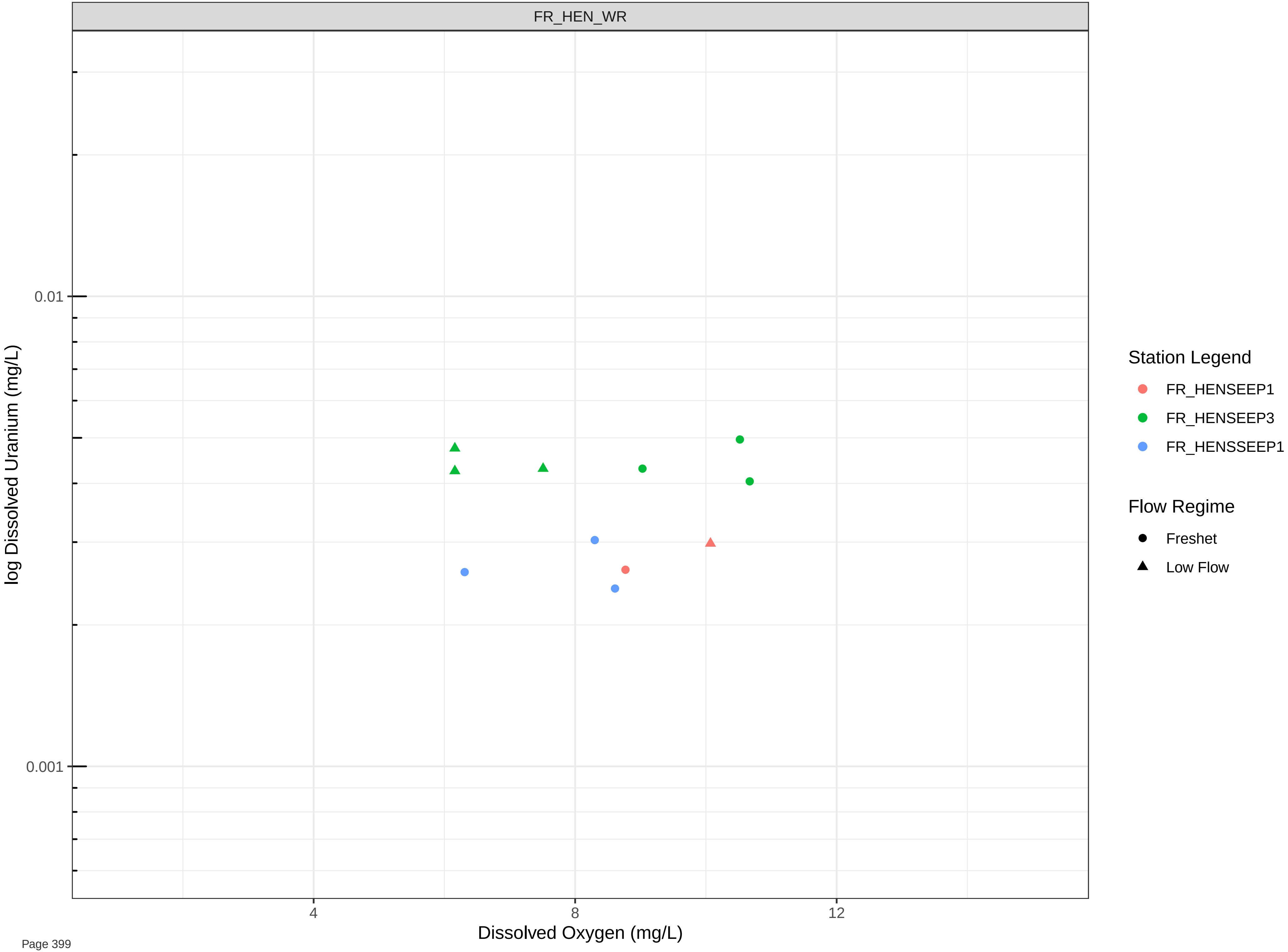
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow


FR_HEN_WR
log Dissolved Uranium (mg/L)
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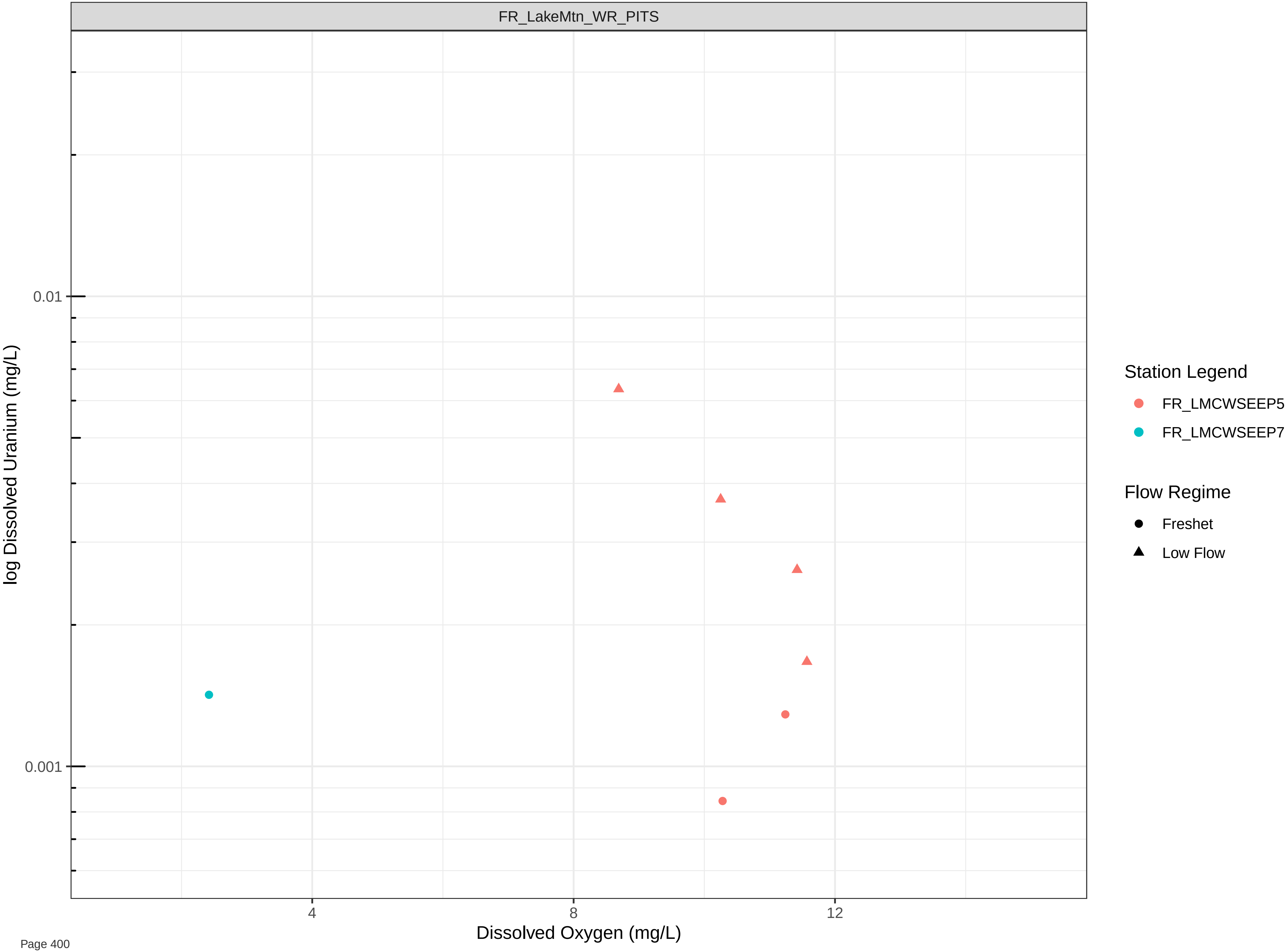
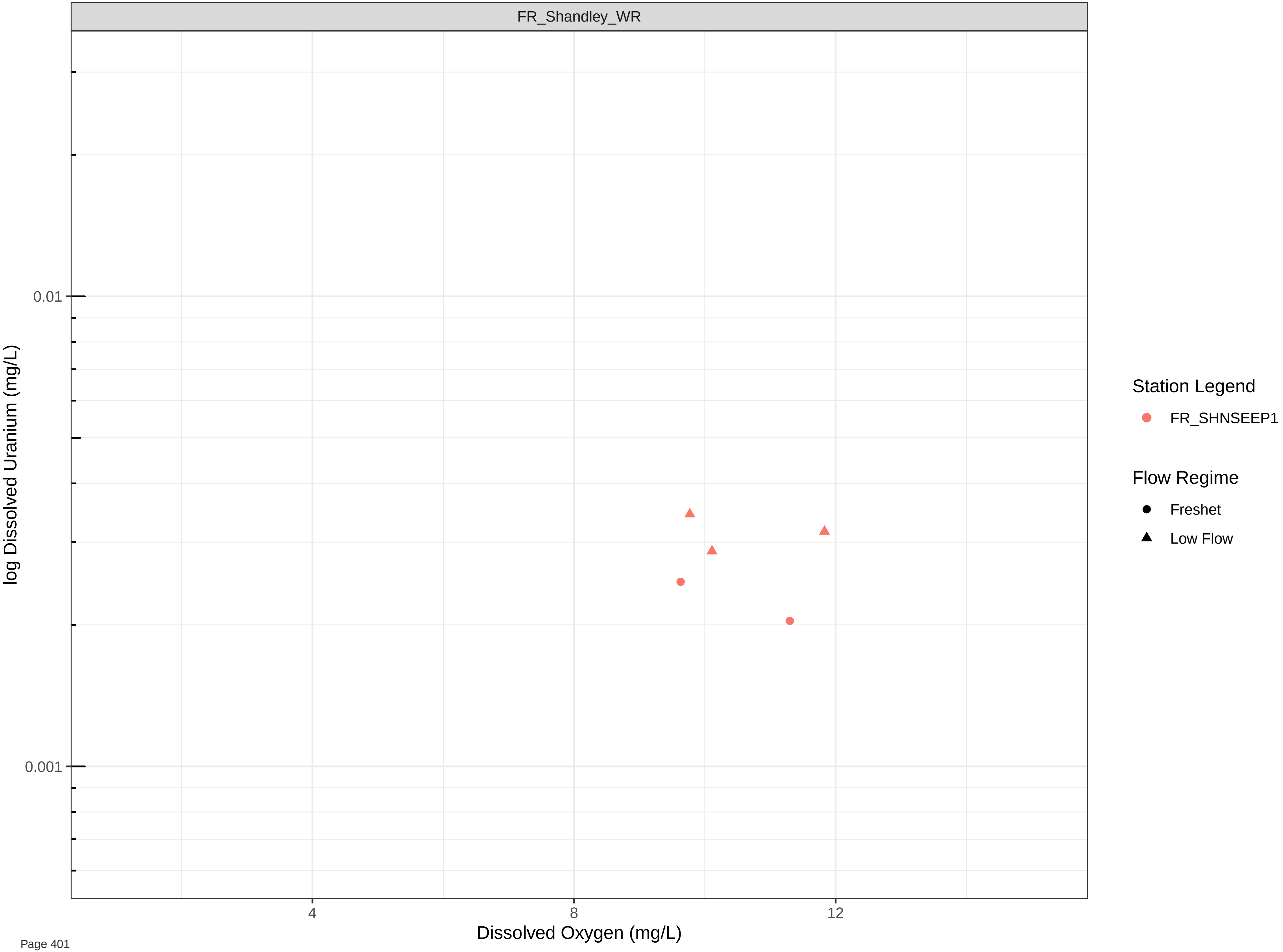
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow


FR_LakeMtn_WR_PITS
0.01
0.001
4
8
12
Dissolved Oxygen (mg/L)
log Dissolved Uranium (mg/L)
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow


FR_Shandley_WR
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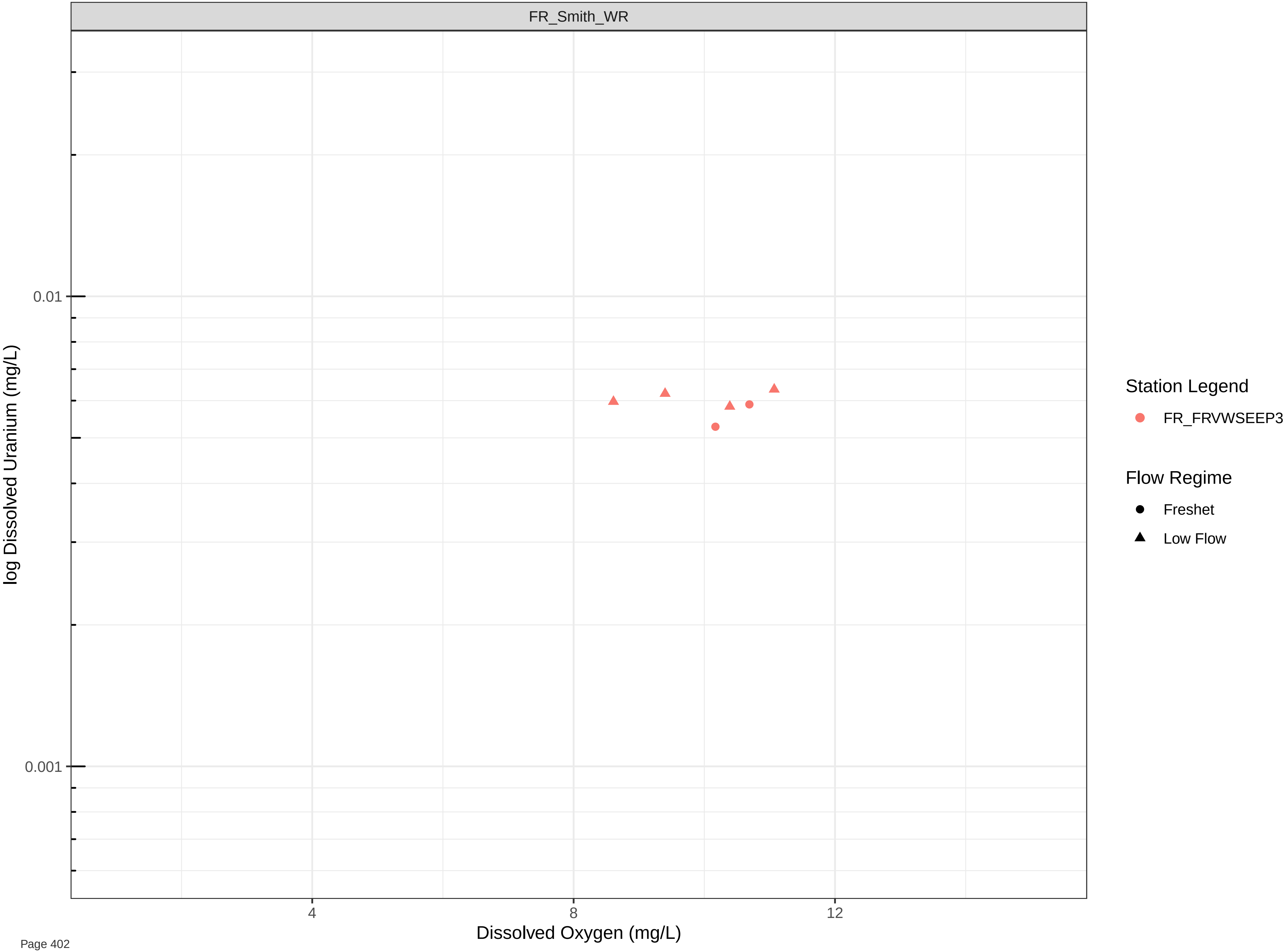
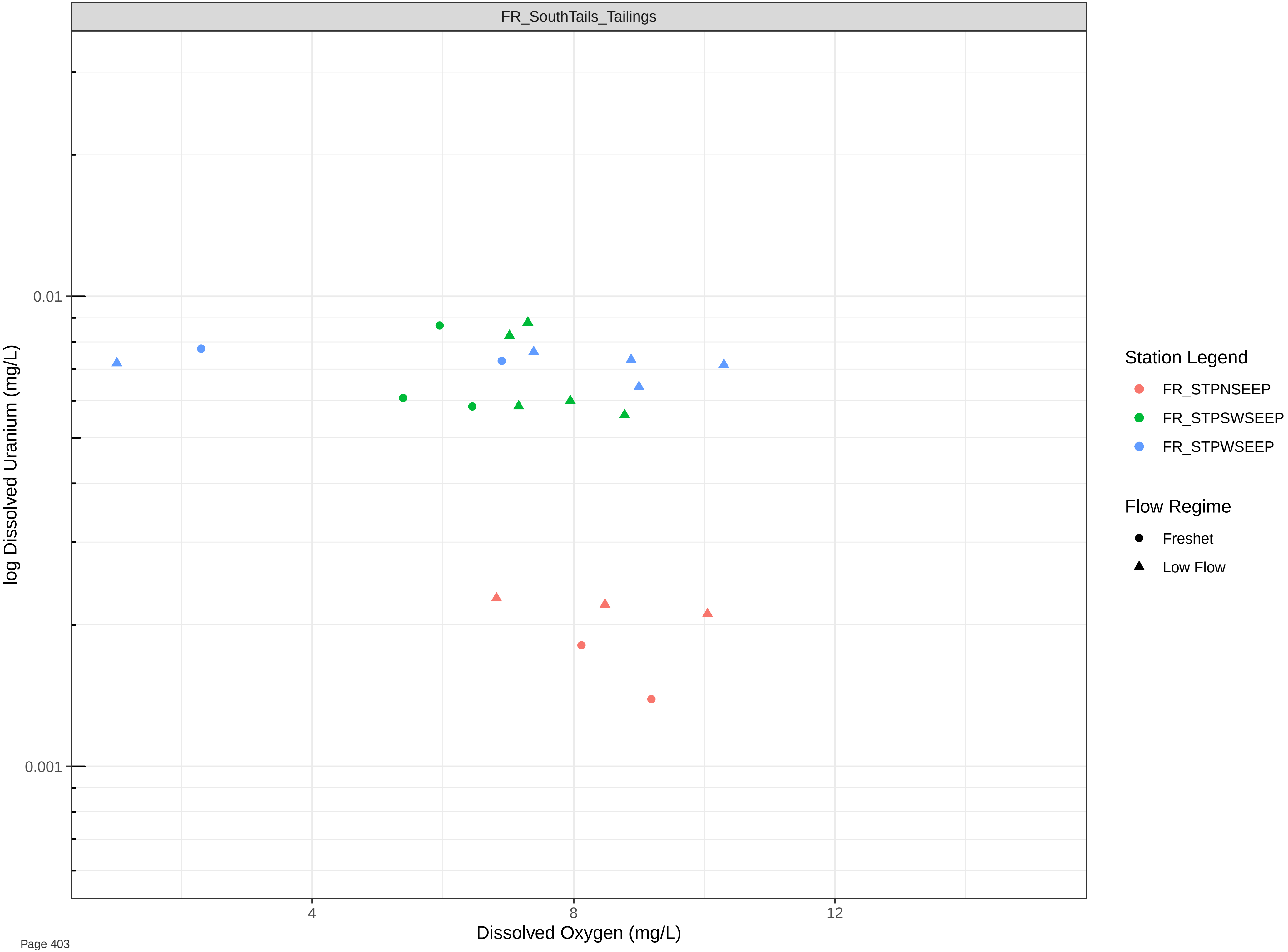
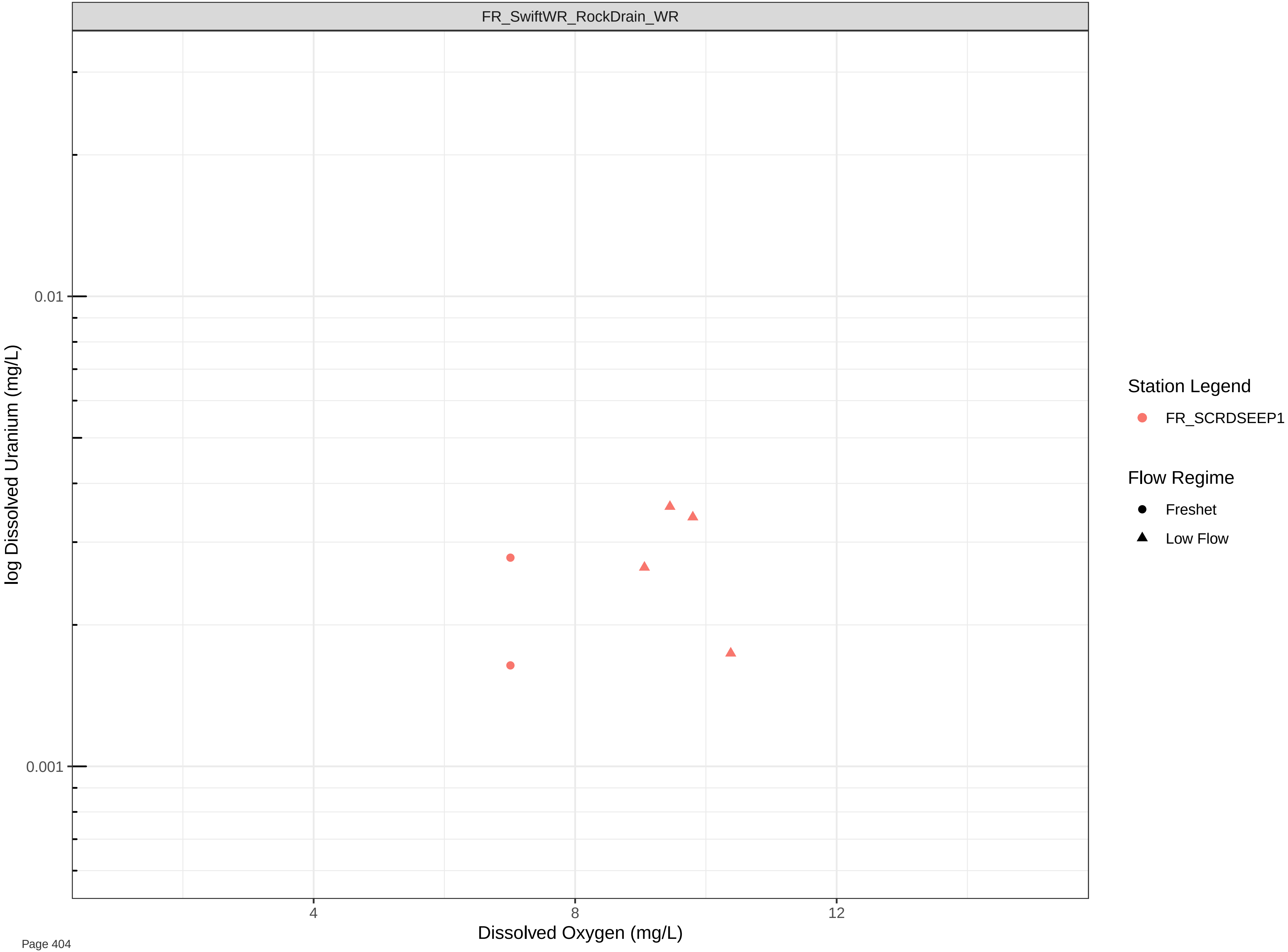
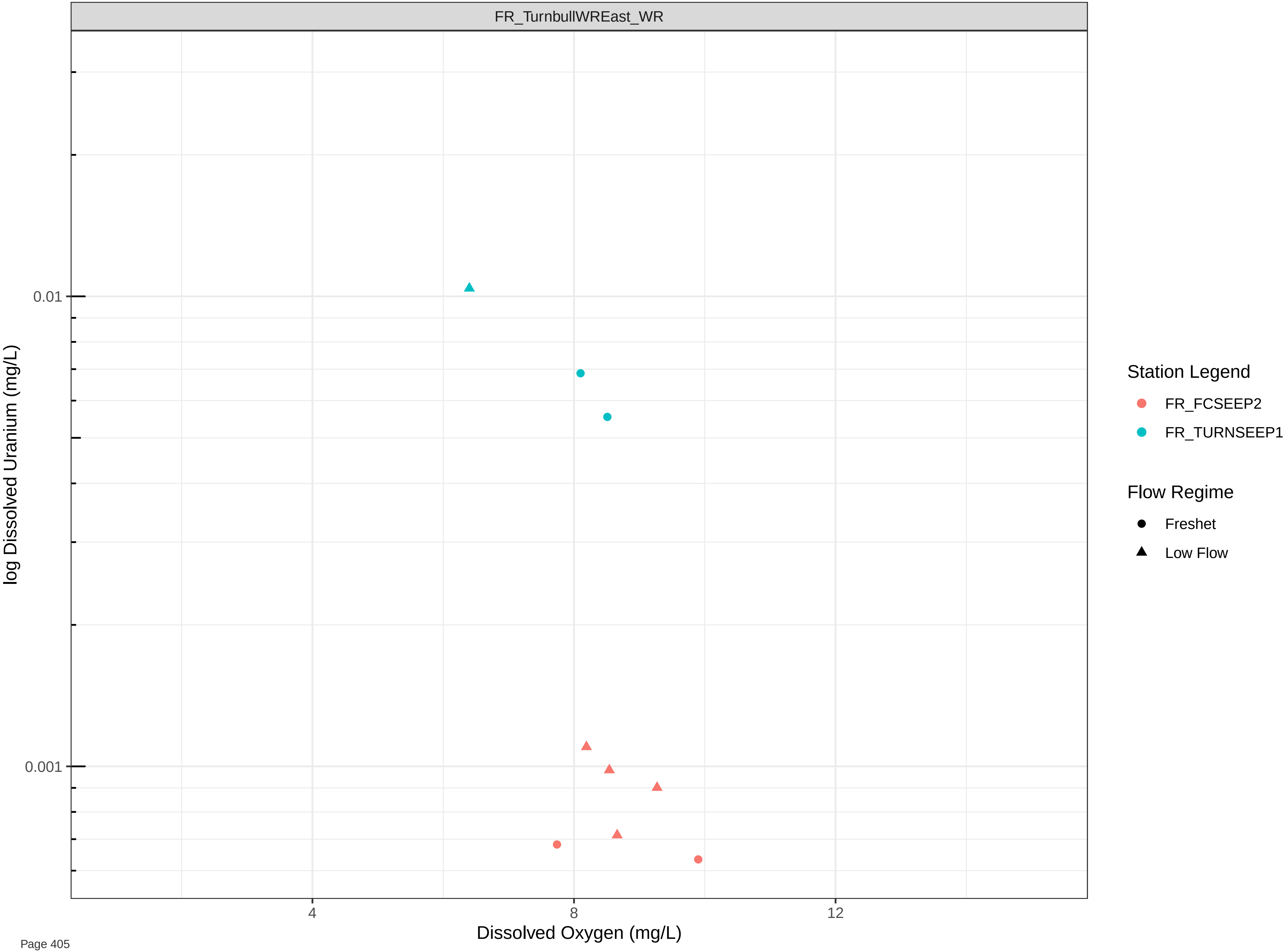
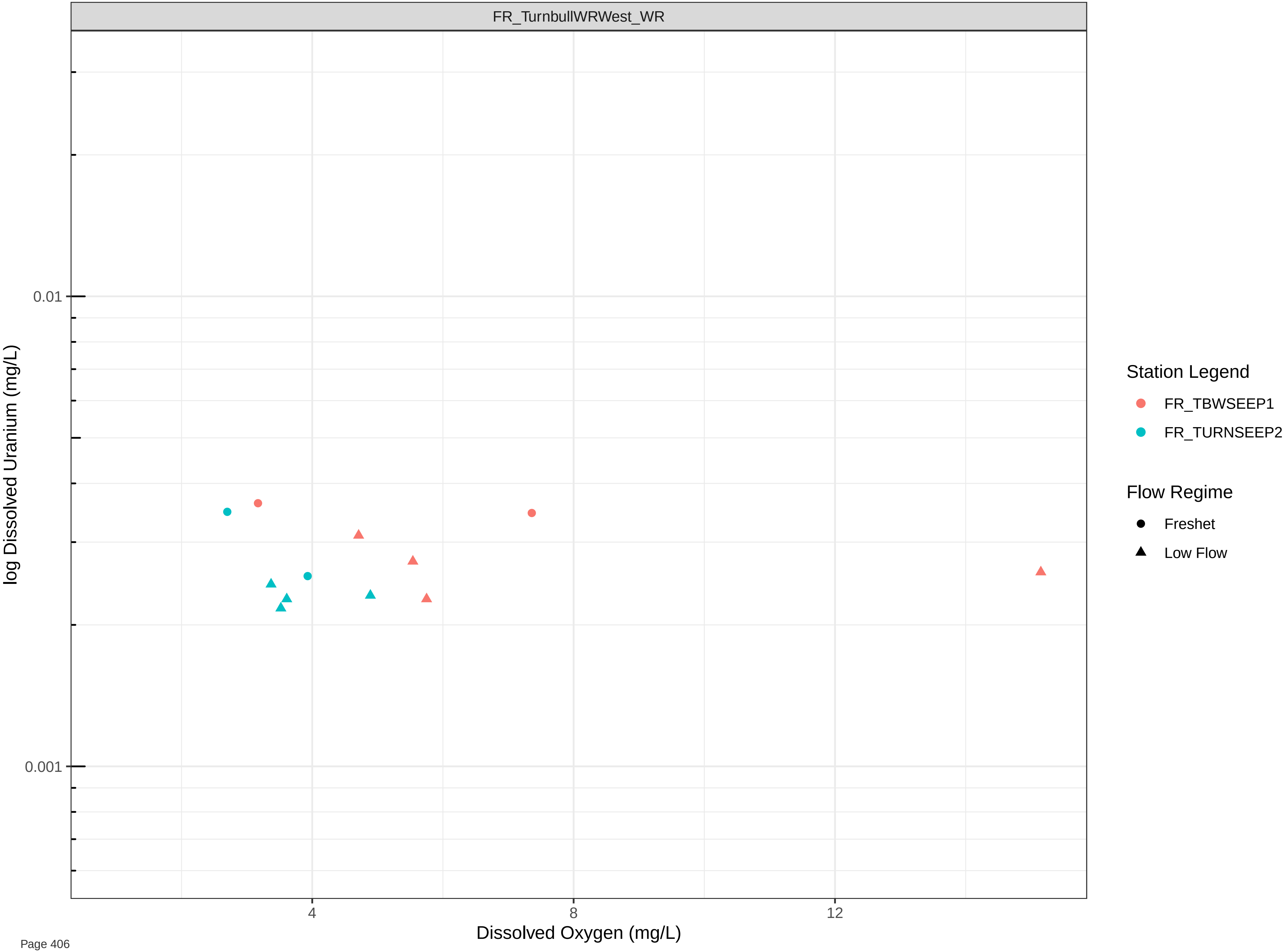
0.001
log Dissolved Uranium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

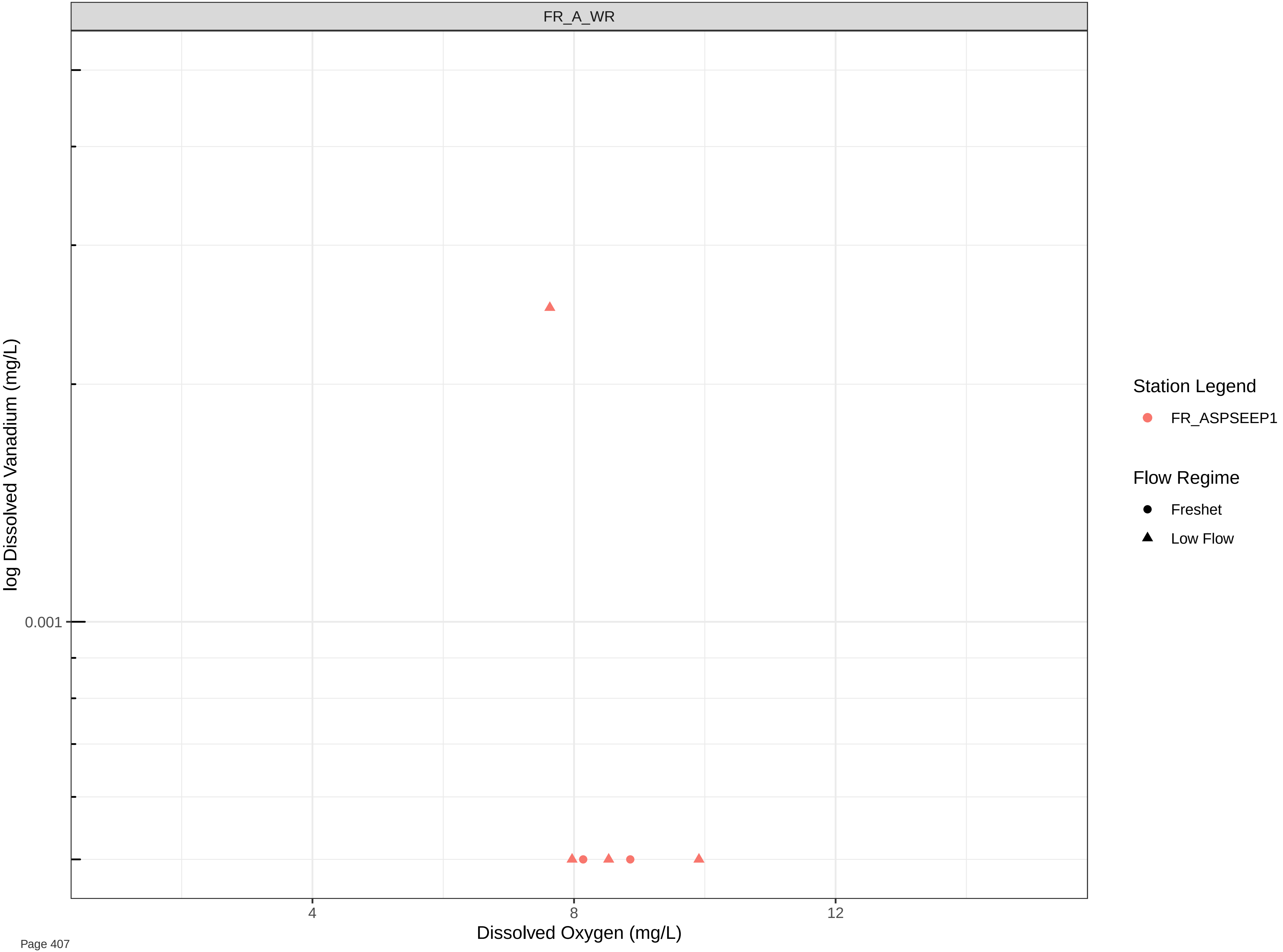

FR_Smith_WR
log Dissolved Uranium (mg/L)
0.01
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

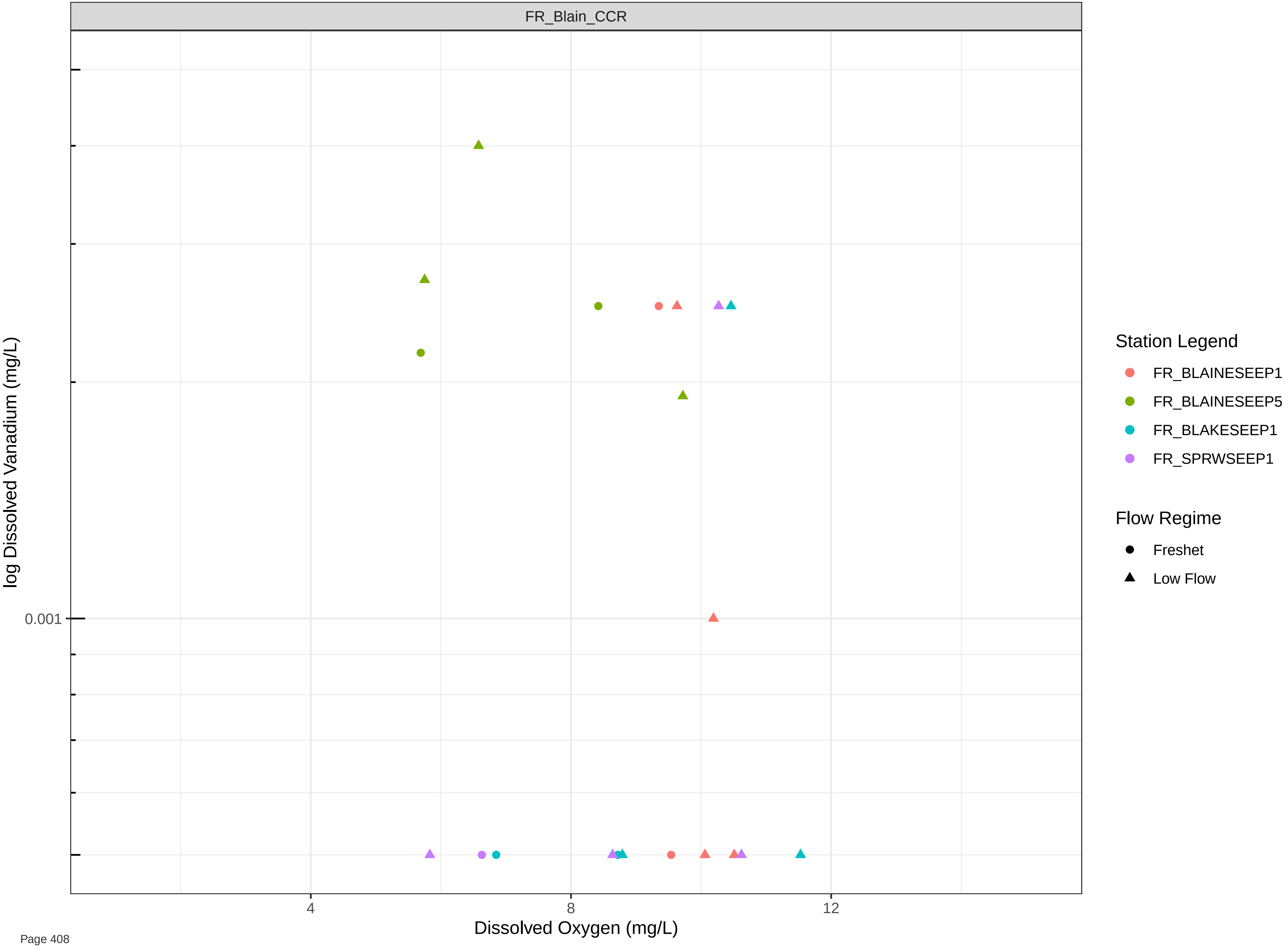

FR_SouthTails_Tailings
log Dissolved Uranium (mg/L)
0.01
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

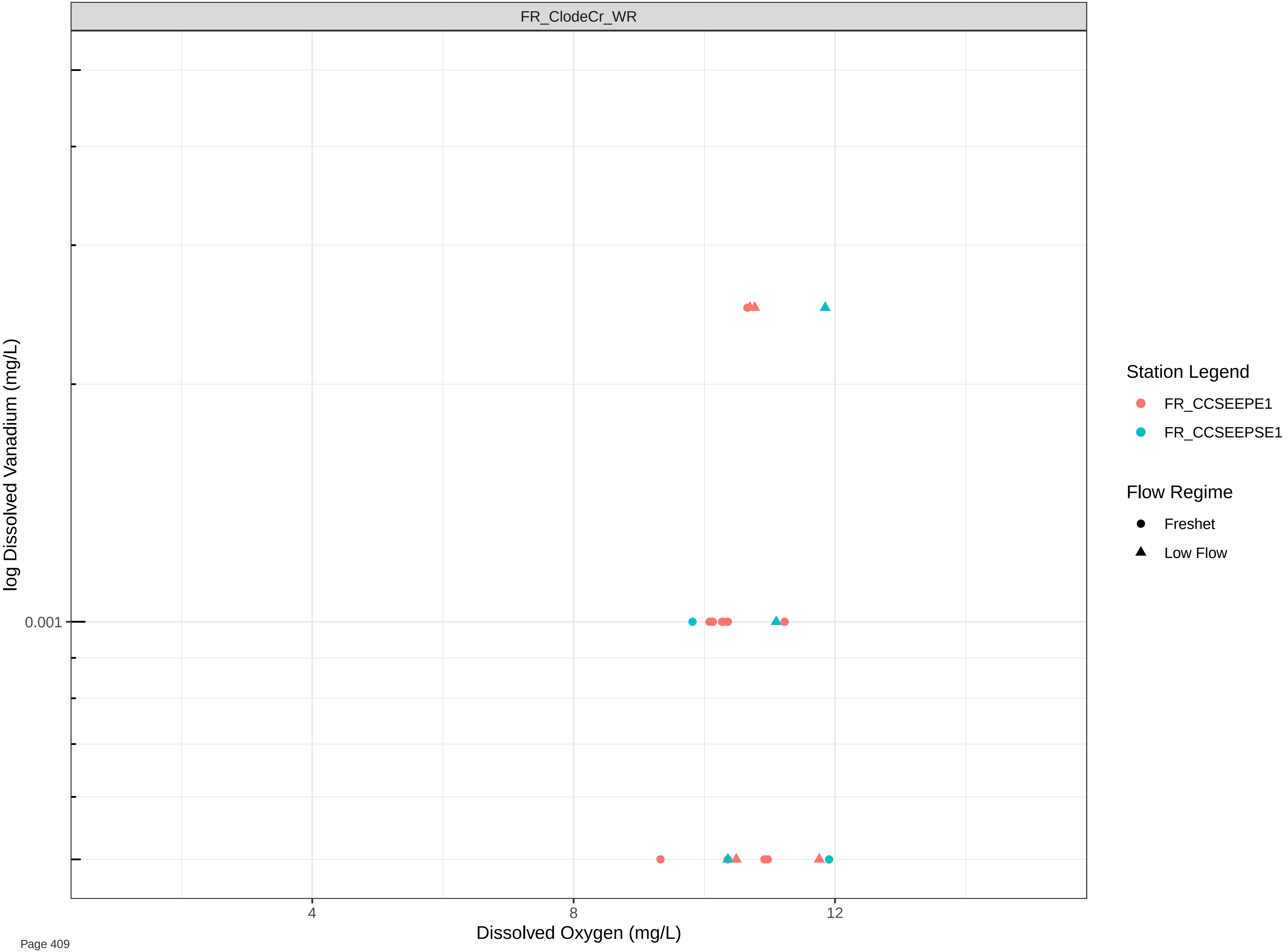

FR_SwiftWR_RockDrain_WR
log Dissolved Uranium (mg/L)
0.01
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

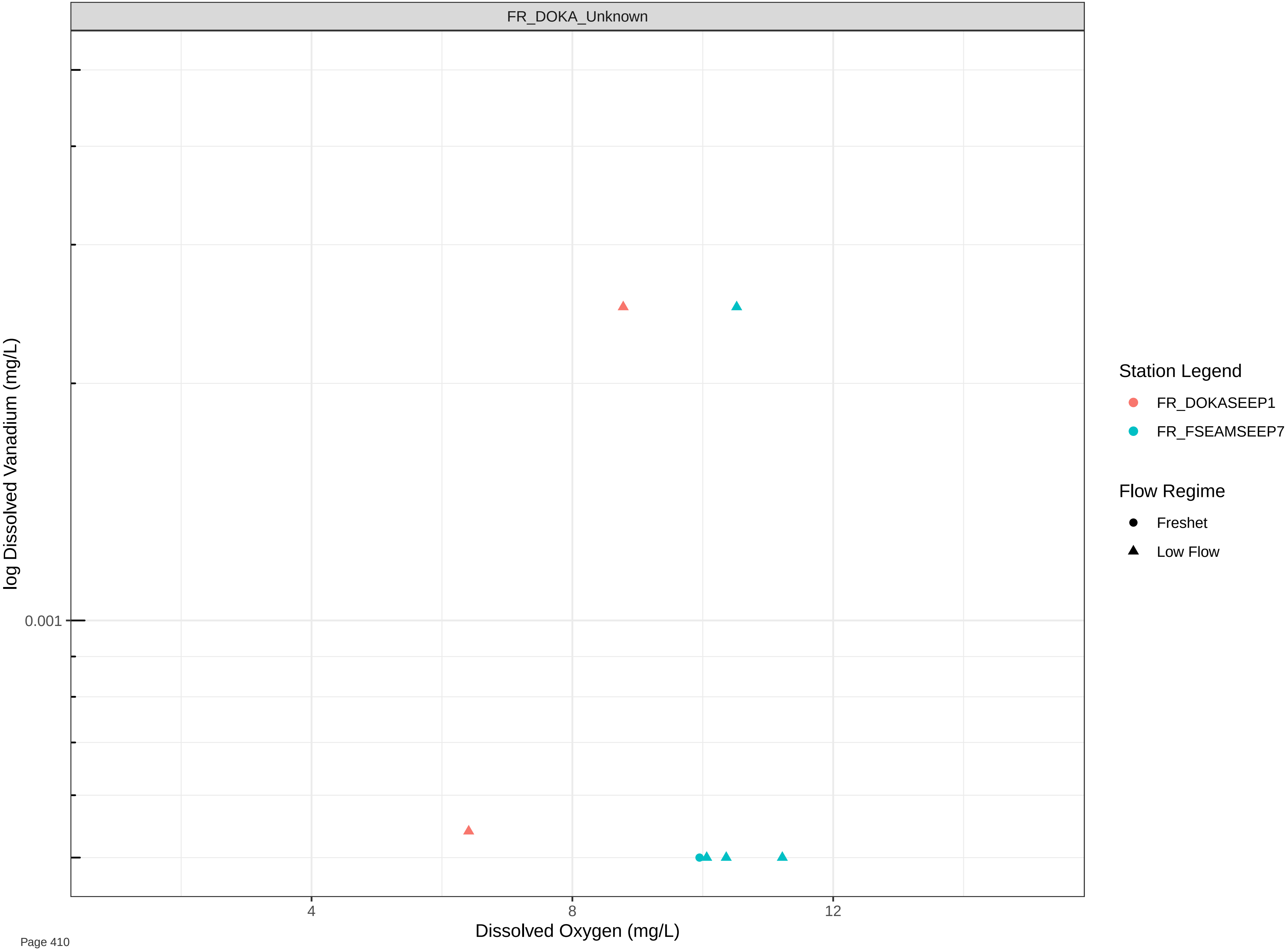

FR_TurnbullWREast_WR
log Dissolved Uranium (mg/L)
0.01
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FCSEEP2
● FR_TURNSEEP1
Flow Regime
● Freshet
▲ Low Flow

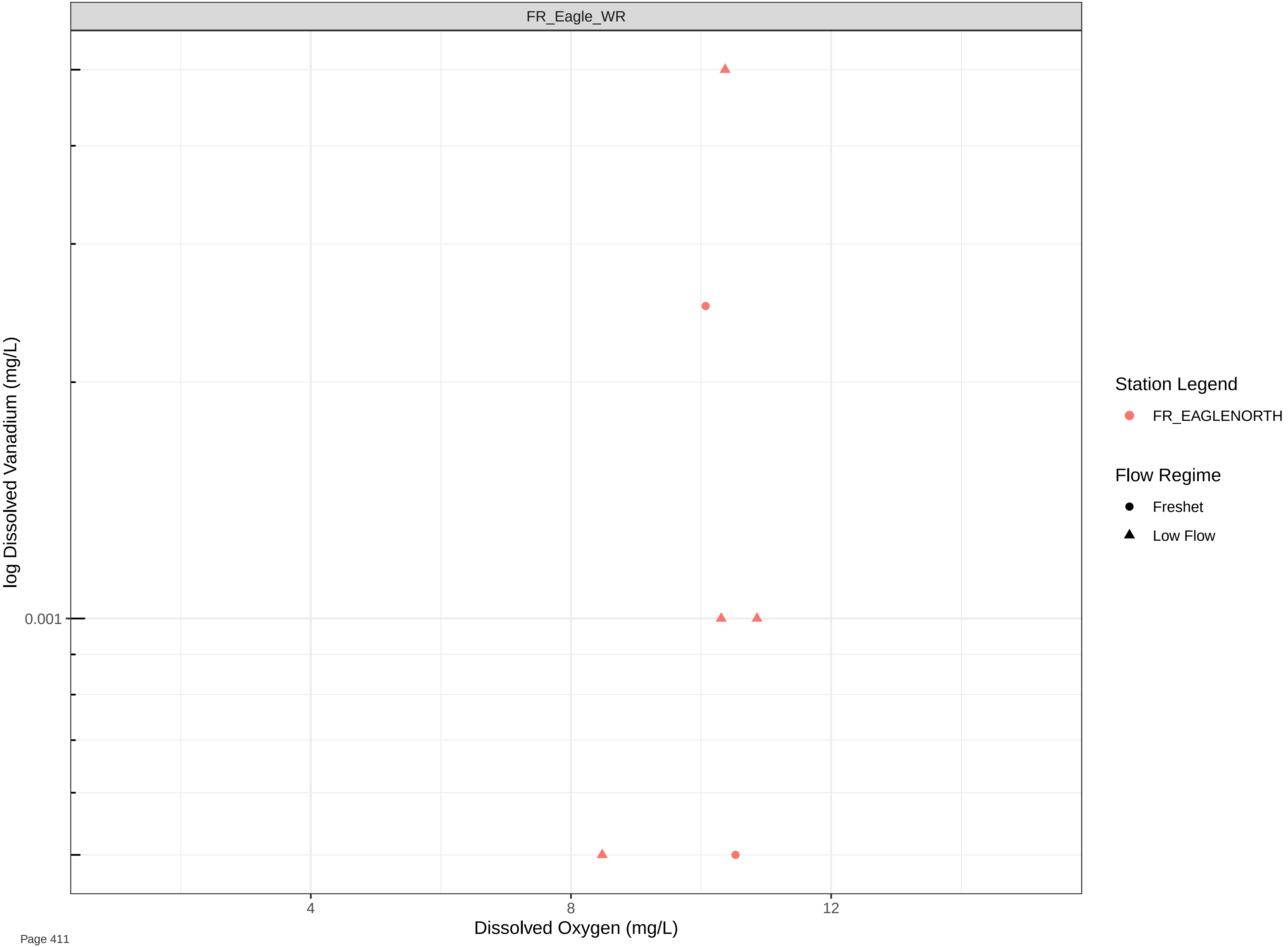

FR_TurnbullWRWest_WR
log Dissolved Uranium (mg/L)
0.01
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_TBWSEEP1
● FR_TURNSEEP2
Flow Regime
● Freshet
▲ Low Flow

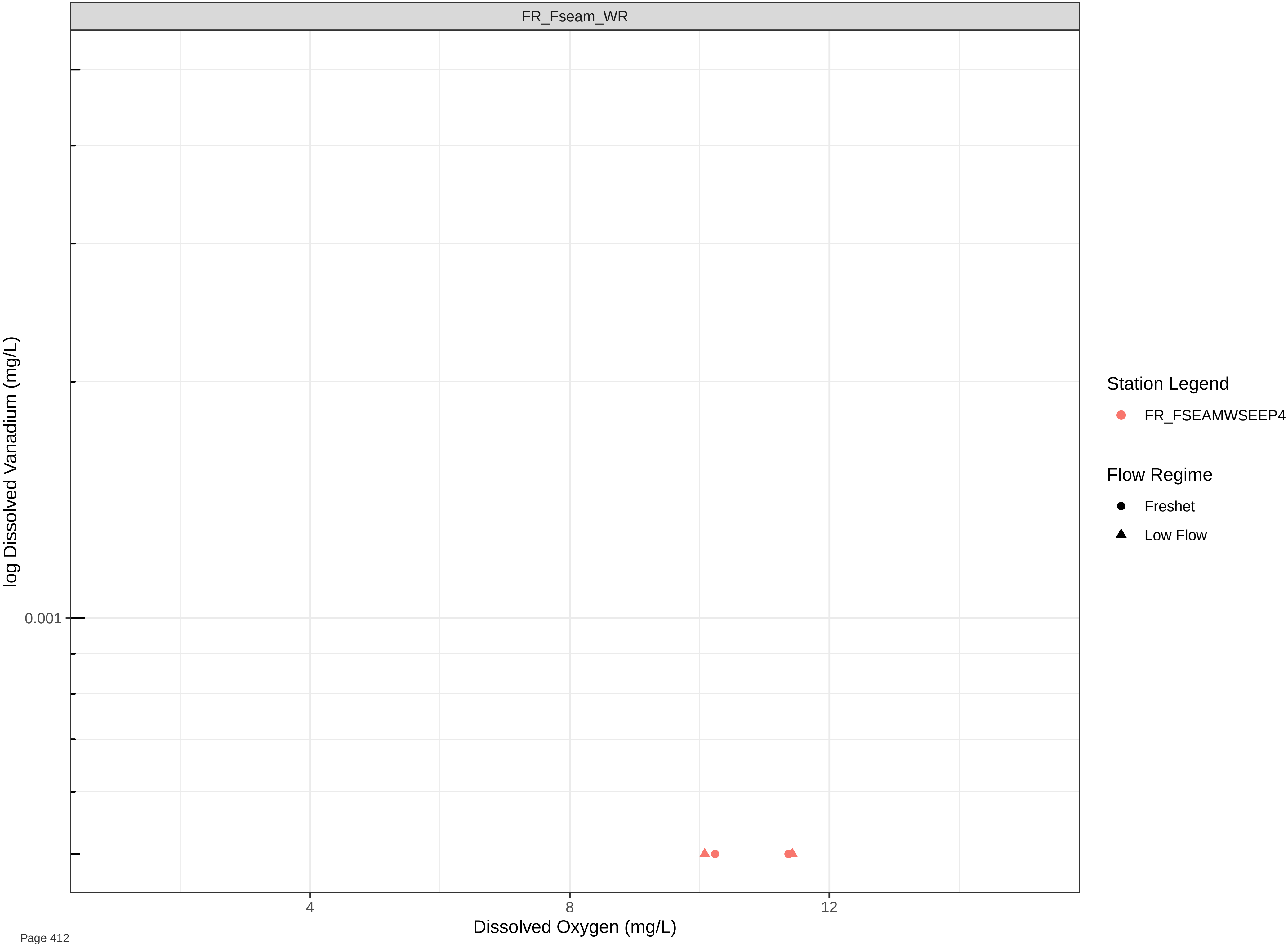

FR_A_WR
log Dissolved Vanadium (mg/L)
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

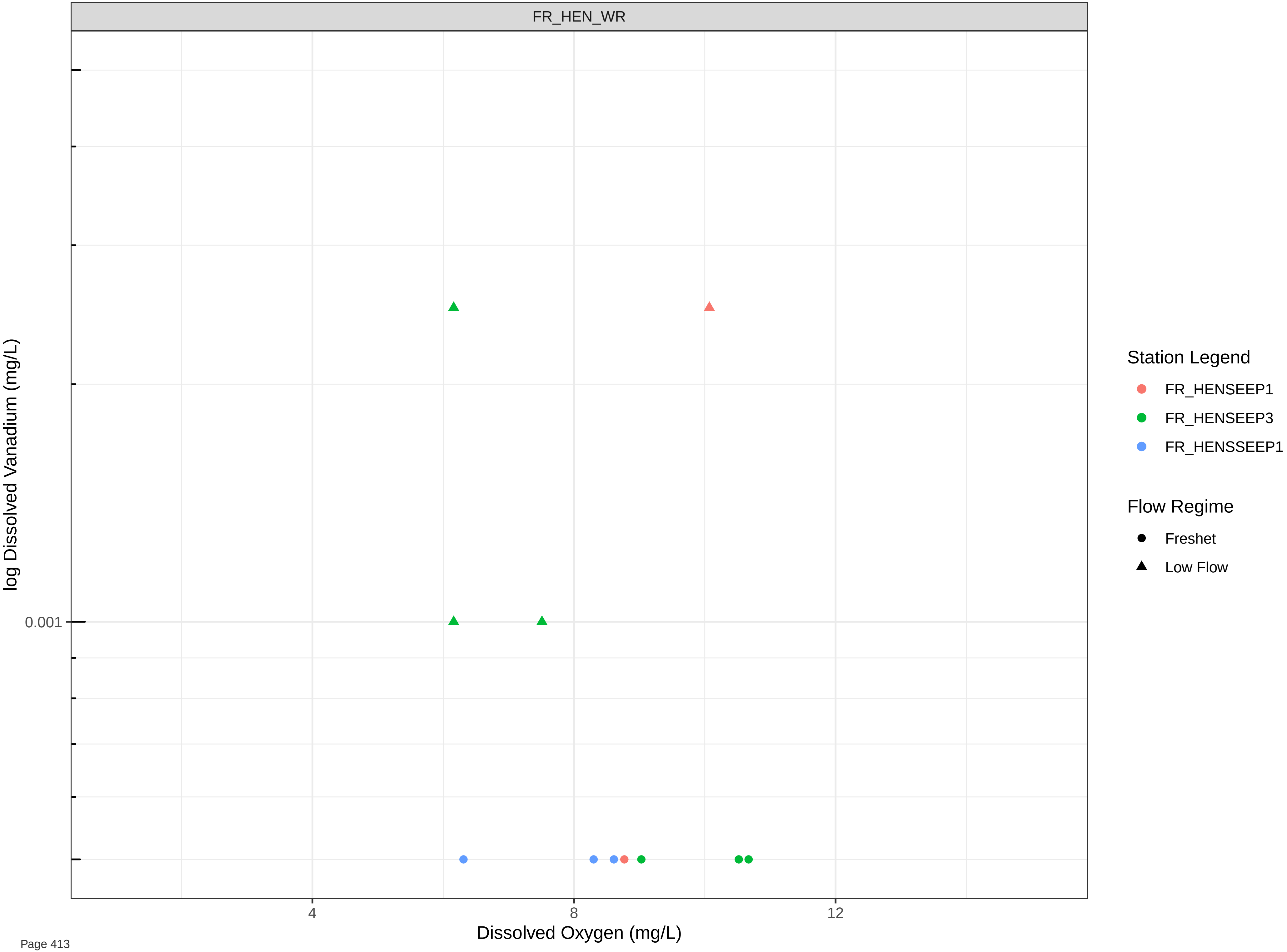

FR_Blain_CCR
log Dissolved Vanadium (mg/L)
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

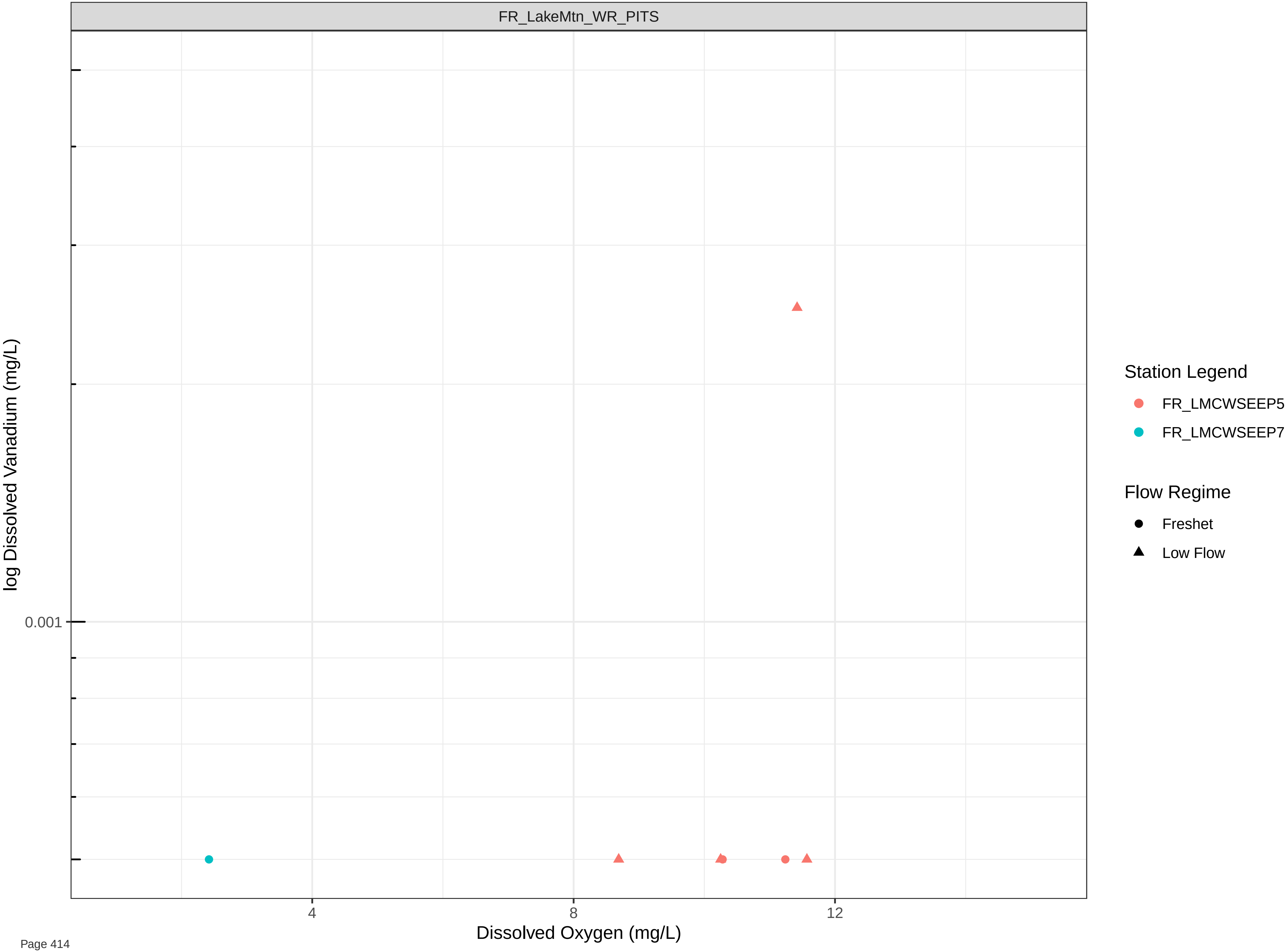

FR_ClodeCr_WR
log Dissolved Vanadium (mg/L)
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

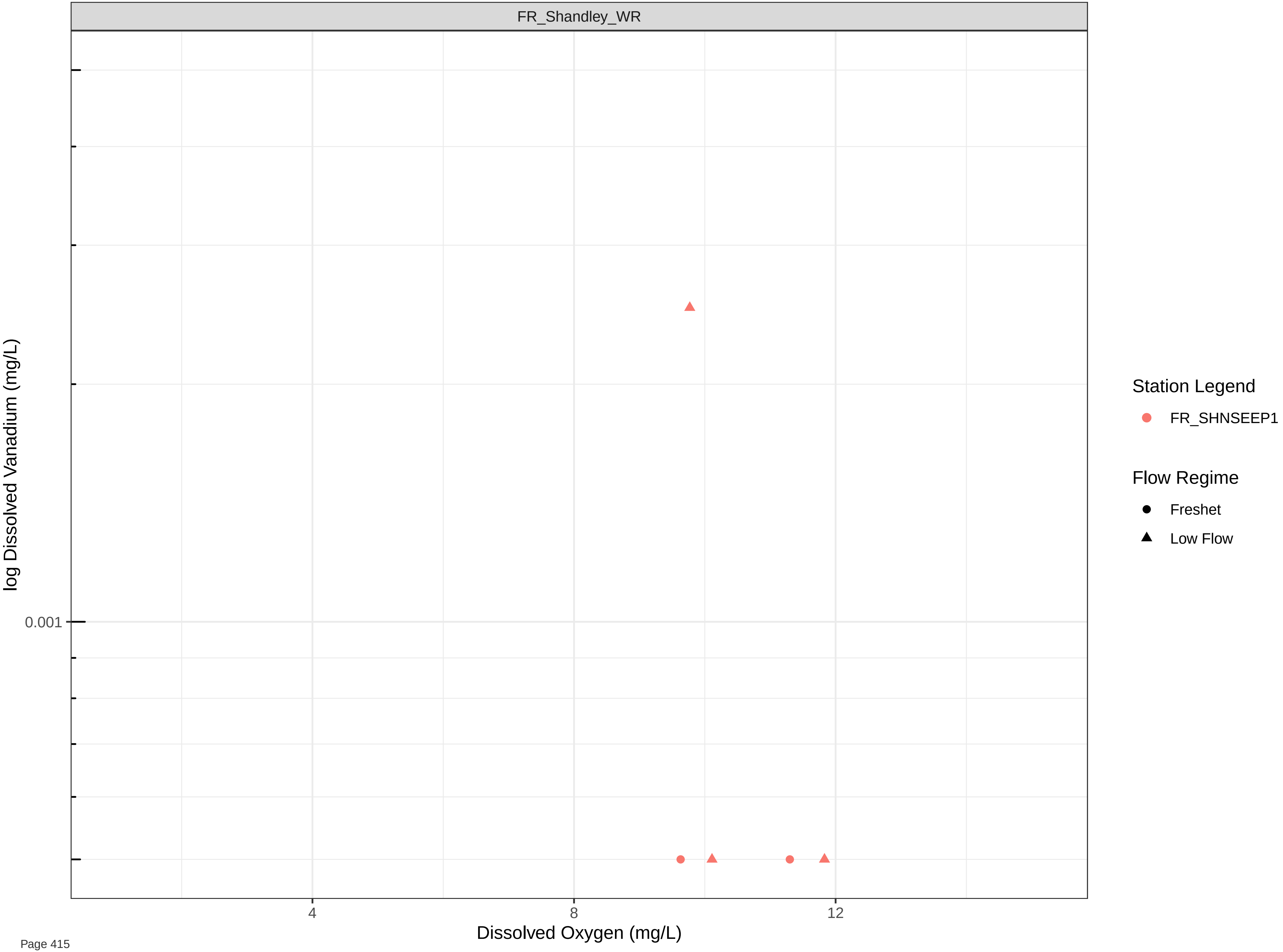

FR_DOKA_Unknown
log Dissolved Vanadium (mg/L)
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

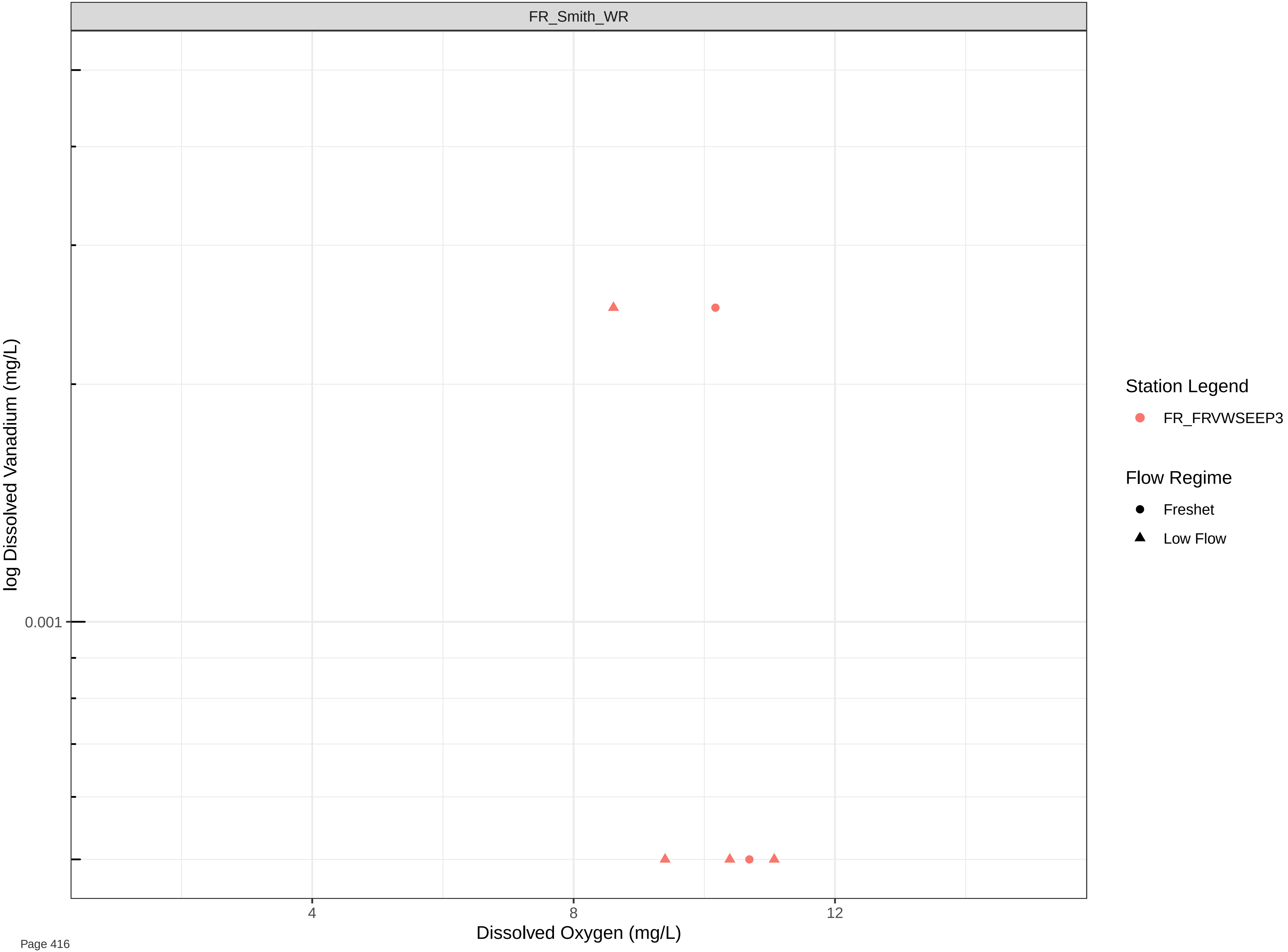

FR_Eagle_WR
log Dissolved Vanadium (mg/L)
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

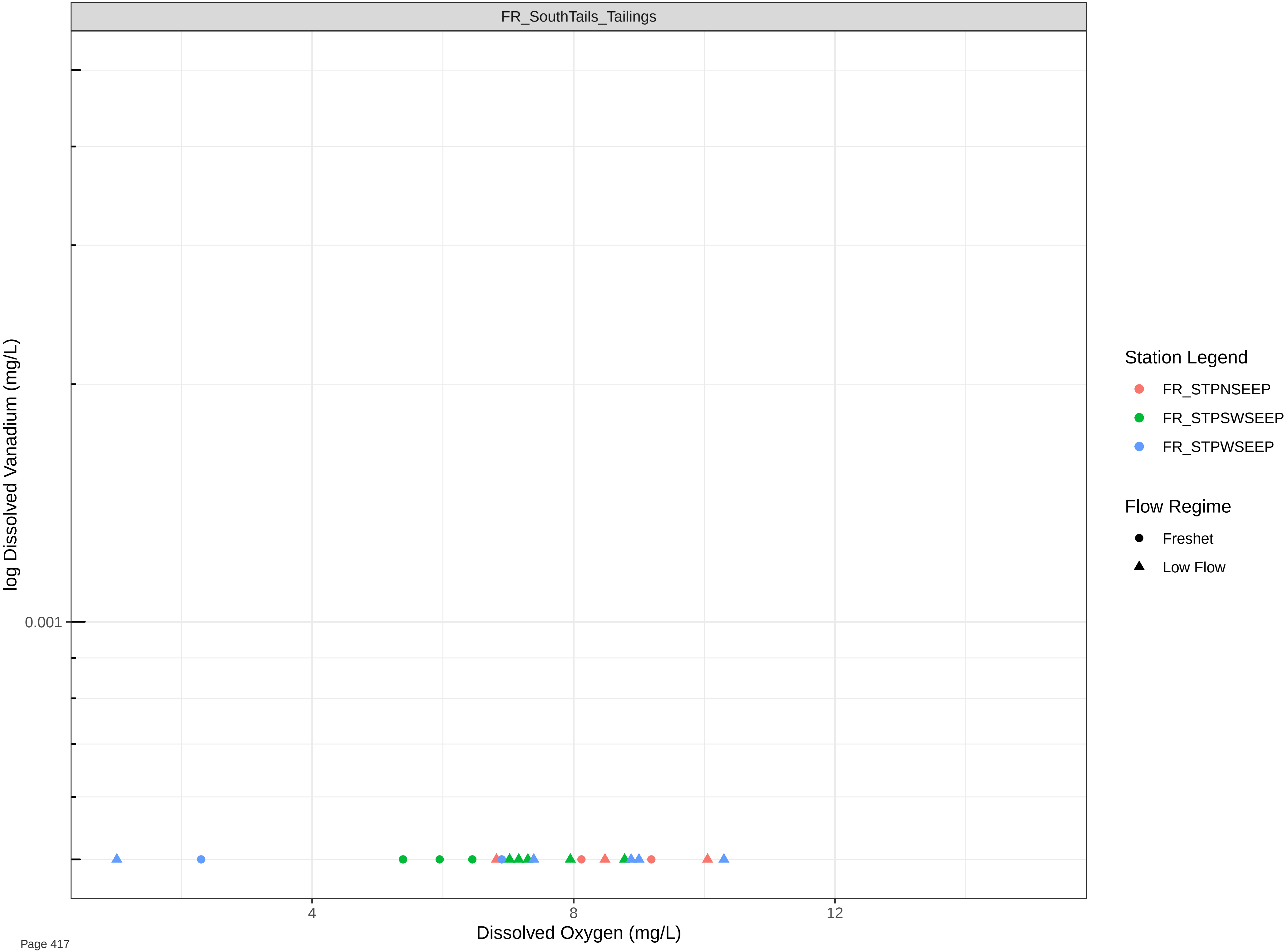

FR_Fseam_WR
log Dissolved Vanadium (mg/L)
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

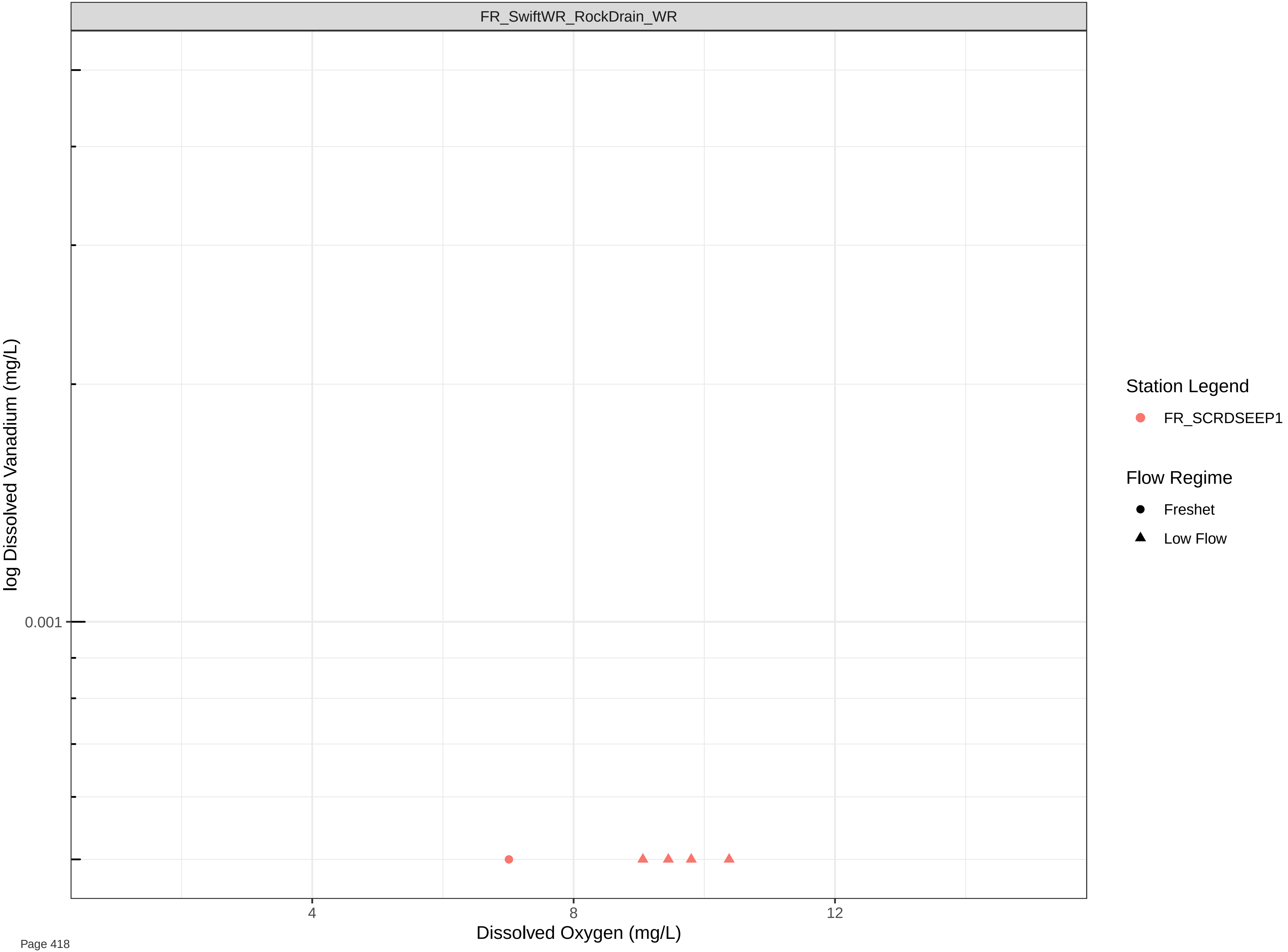

FR_HEN_WR
log Dissolved Vanadium (mg/L)
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow


FR_LakeMtn_WR_PITS
log Dissolved Vanadium (mg/L)
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow


FR_Shandley_WR
log Dissolved Vanadium (mg/L)
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_Smith_WR
log Dissolved Vanadium (mg/L)
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow


FR_SouthTails_Tailings
log Dissolved Vanadium (mg/L)
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow


FR_SwiftWR_RockDrain_WR
log Dissolved Vanadium (mg/L)
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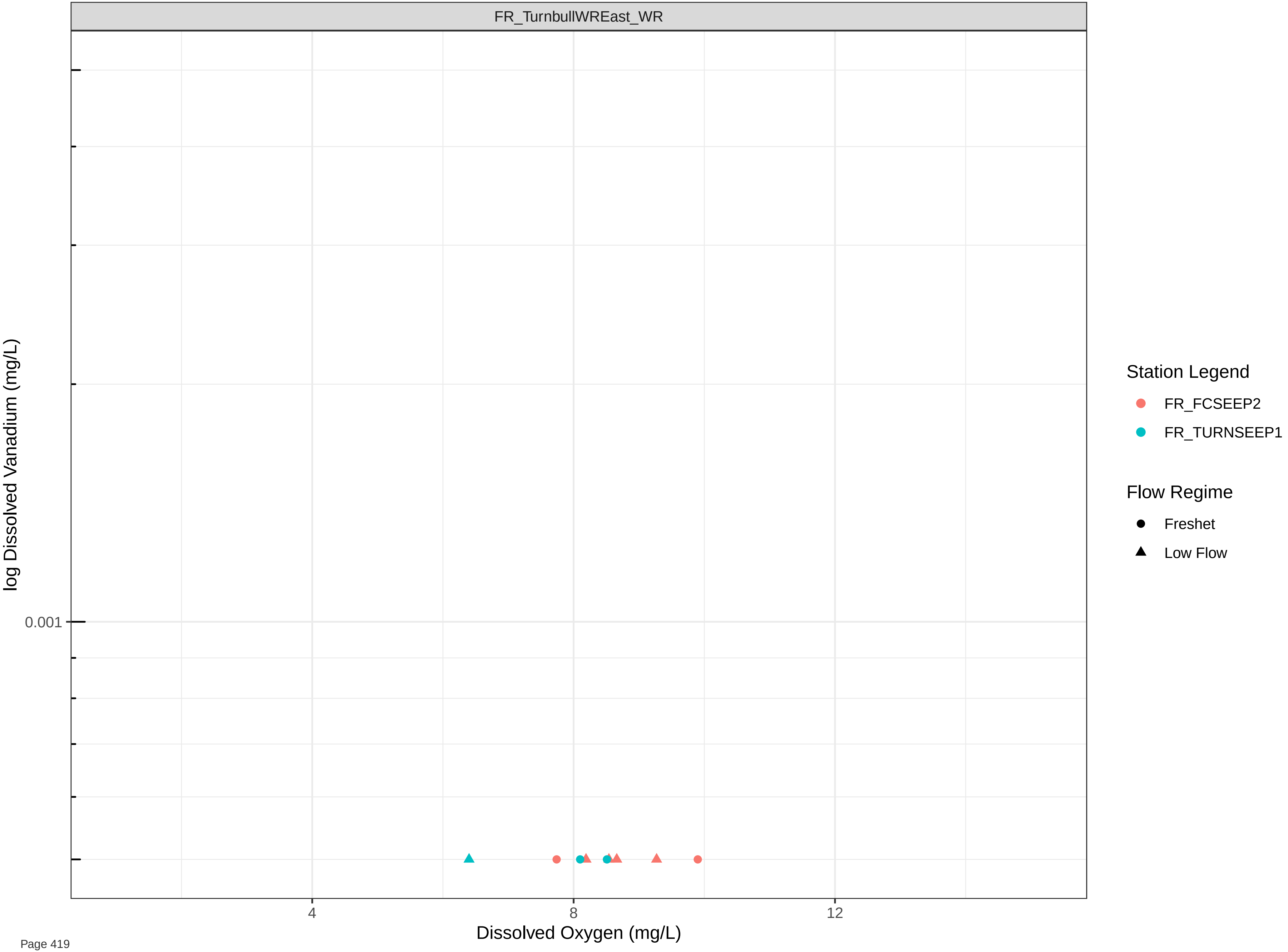
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWREast_WR
log Dissolved Vanadium (mg/L)
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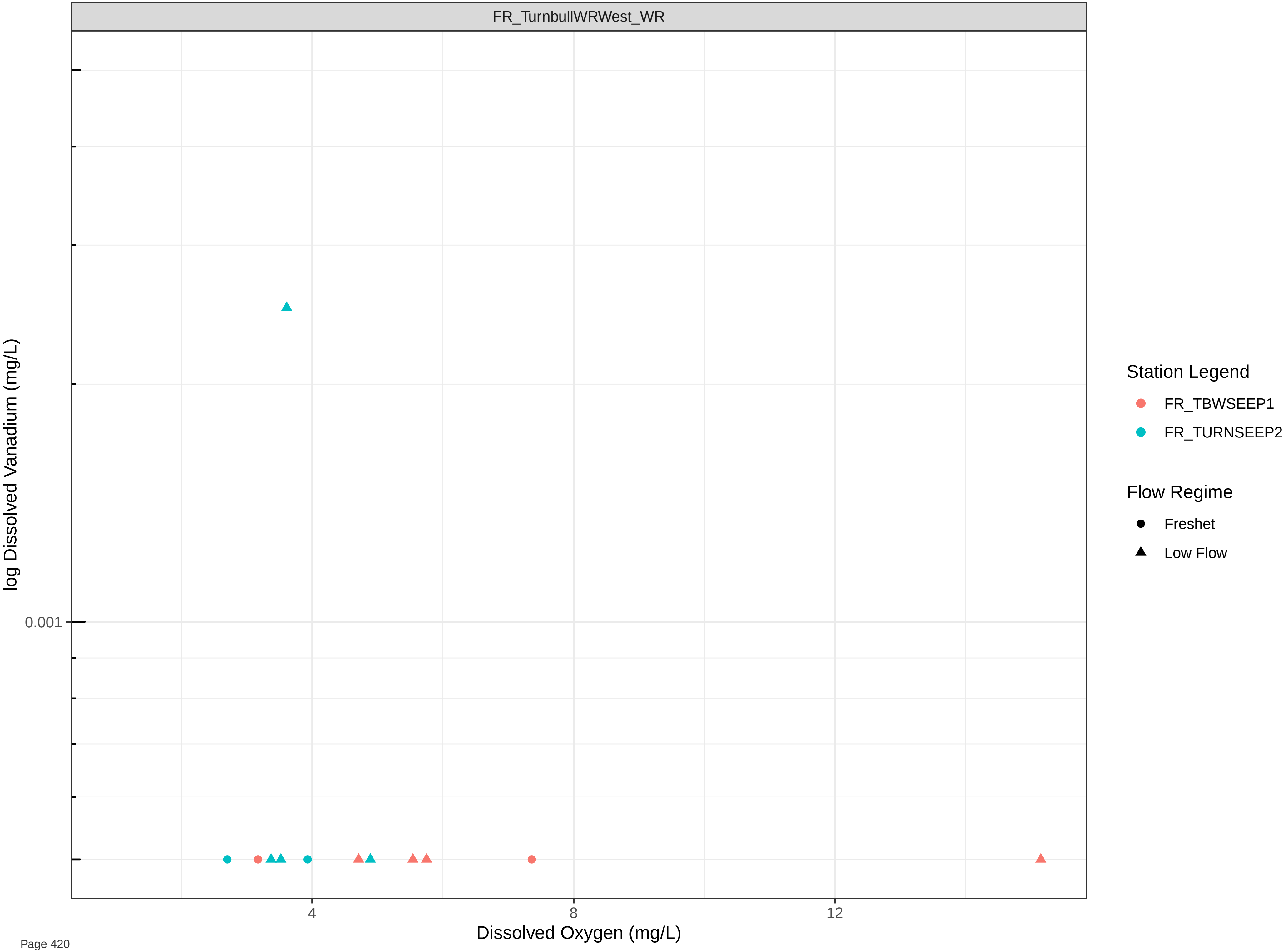
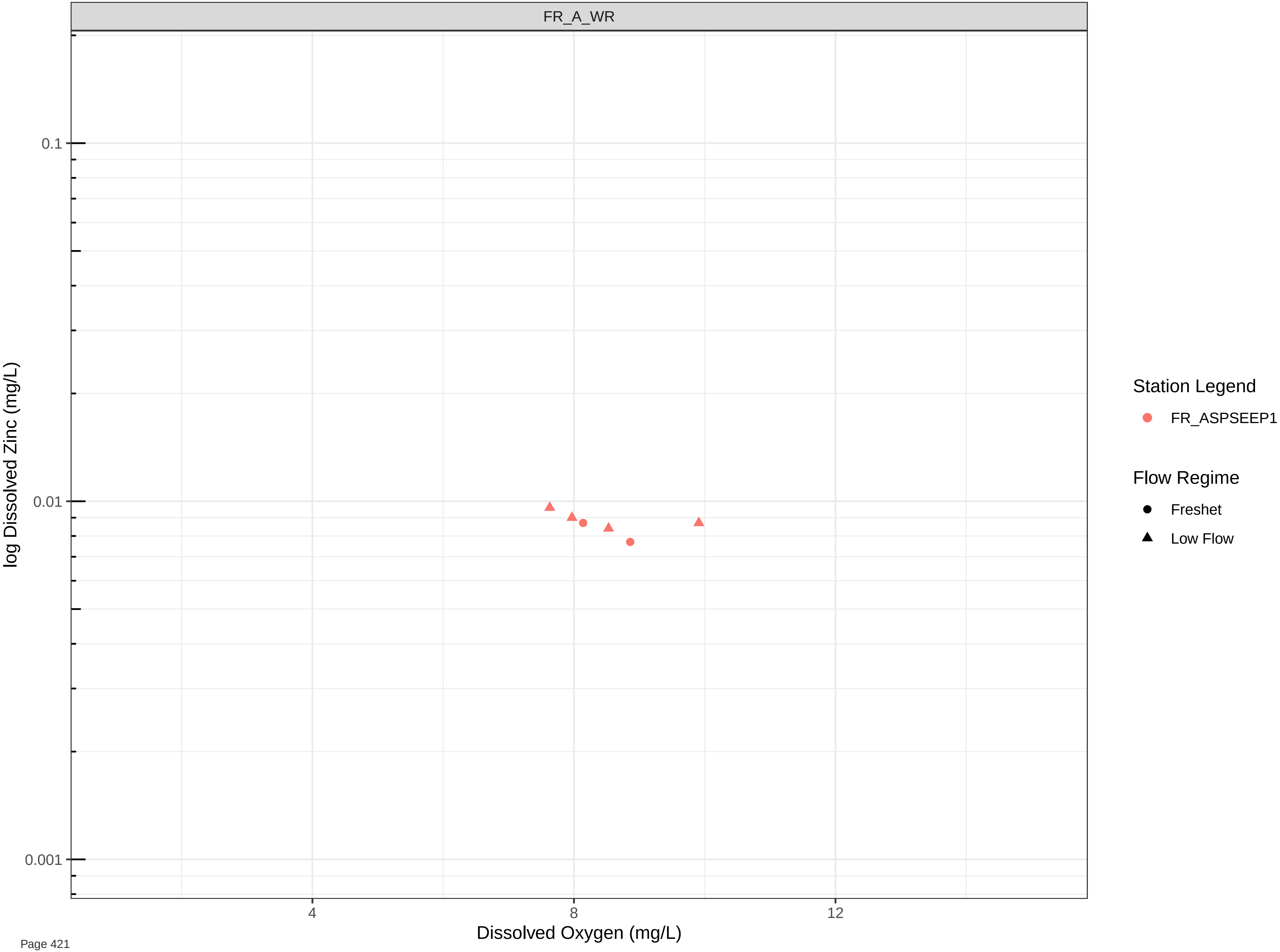
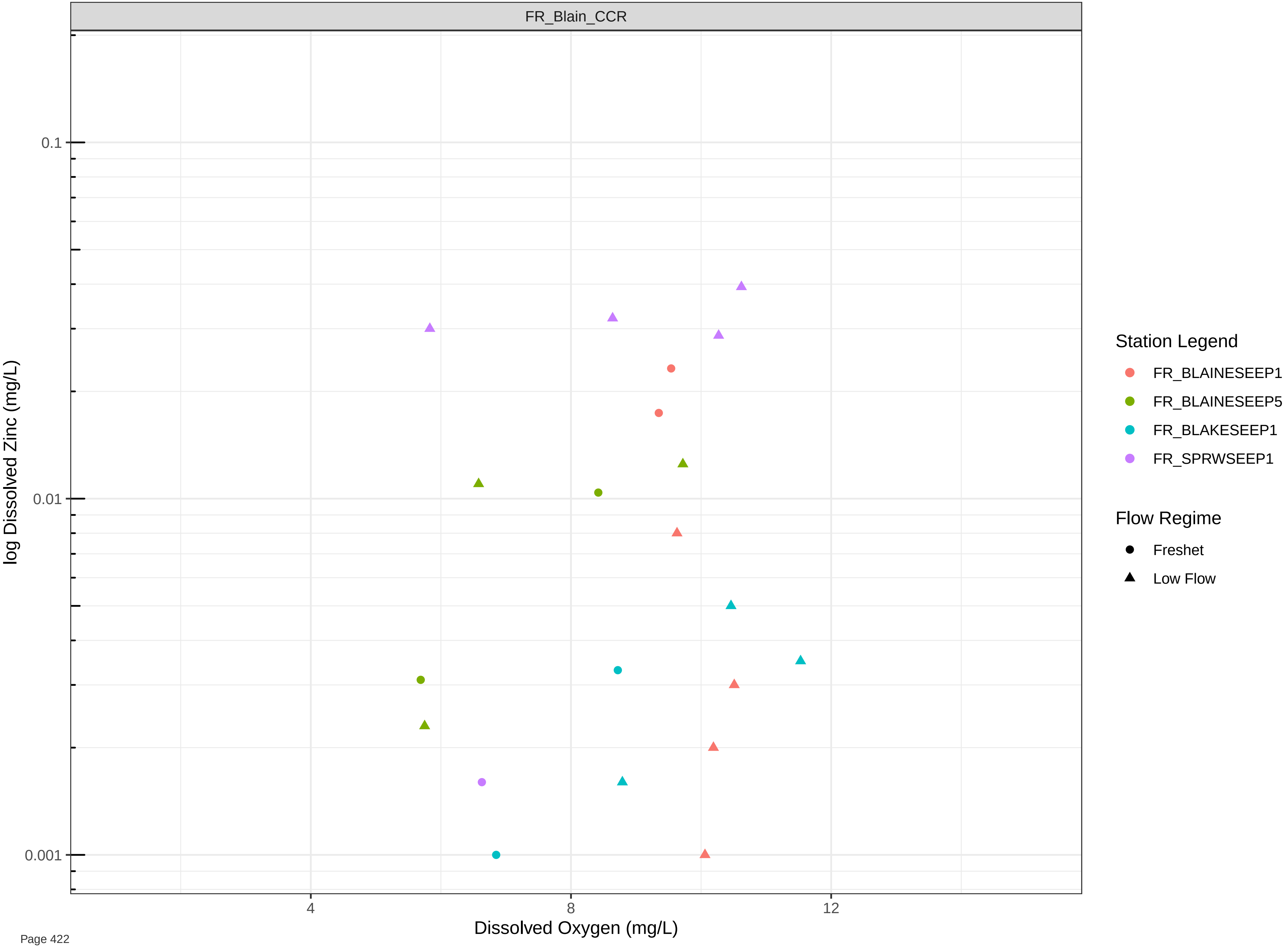
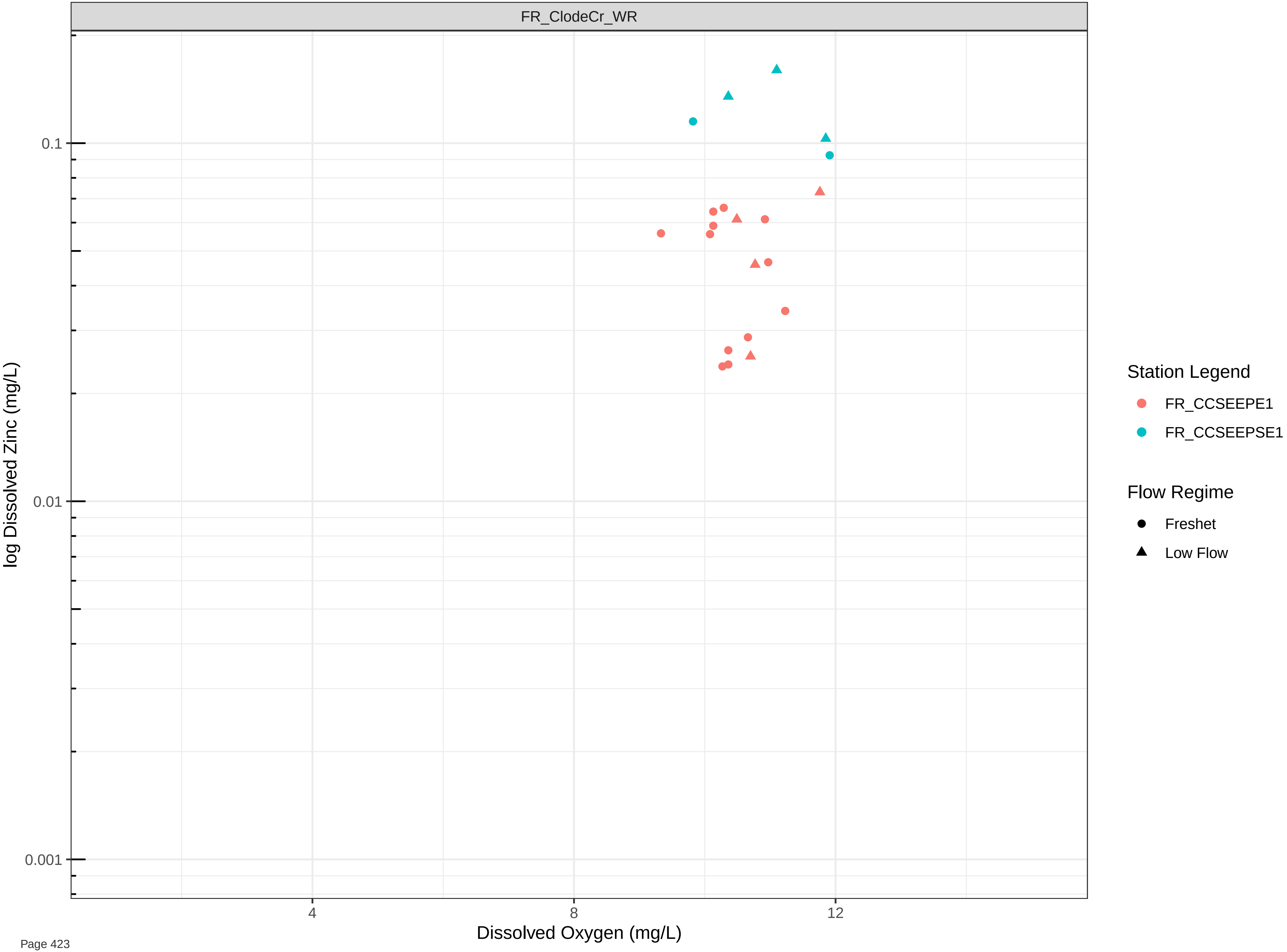
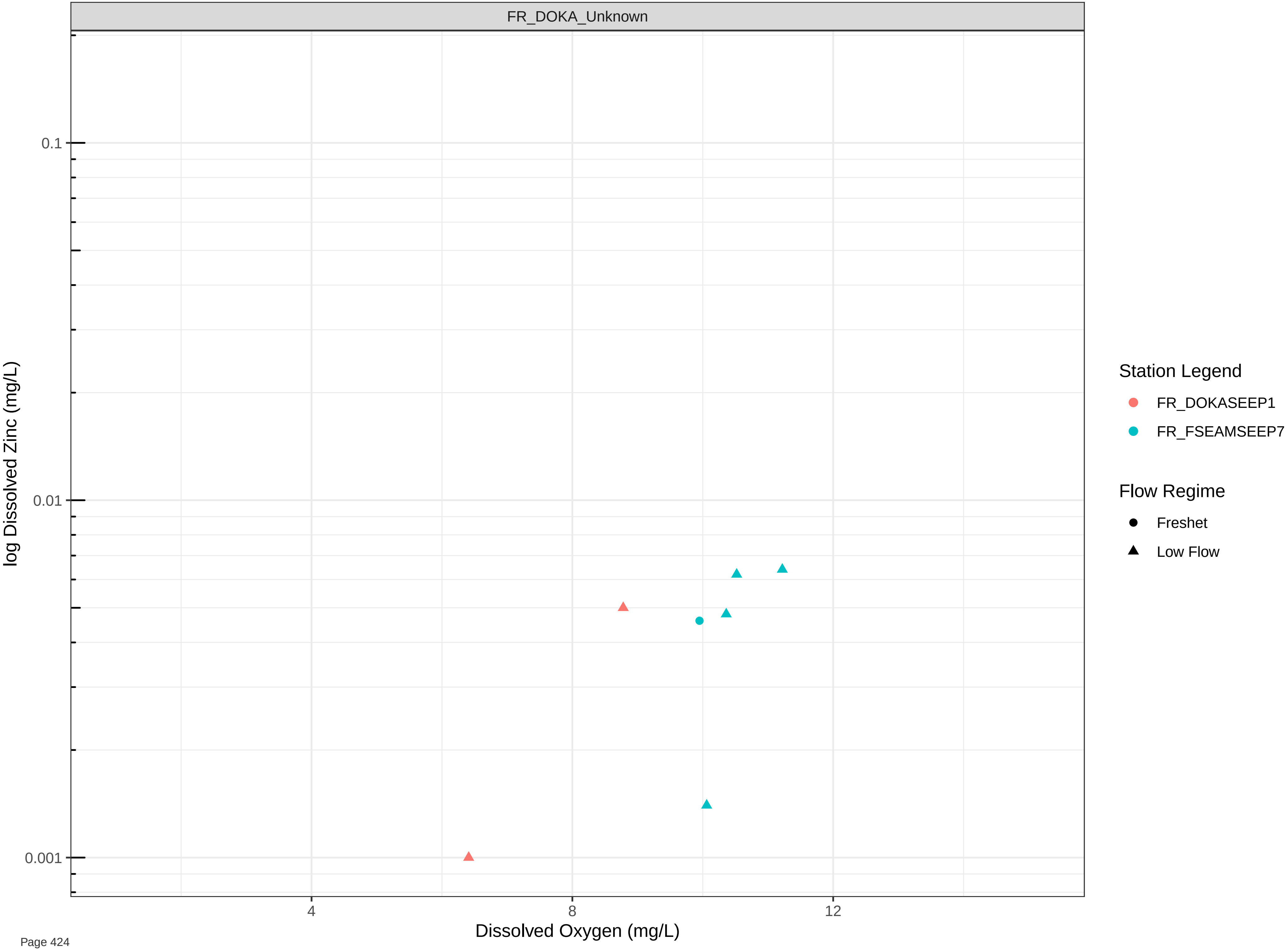
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

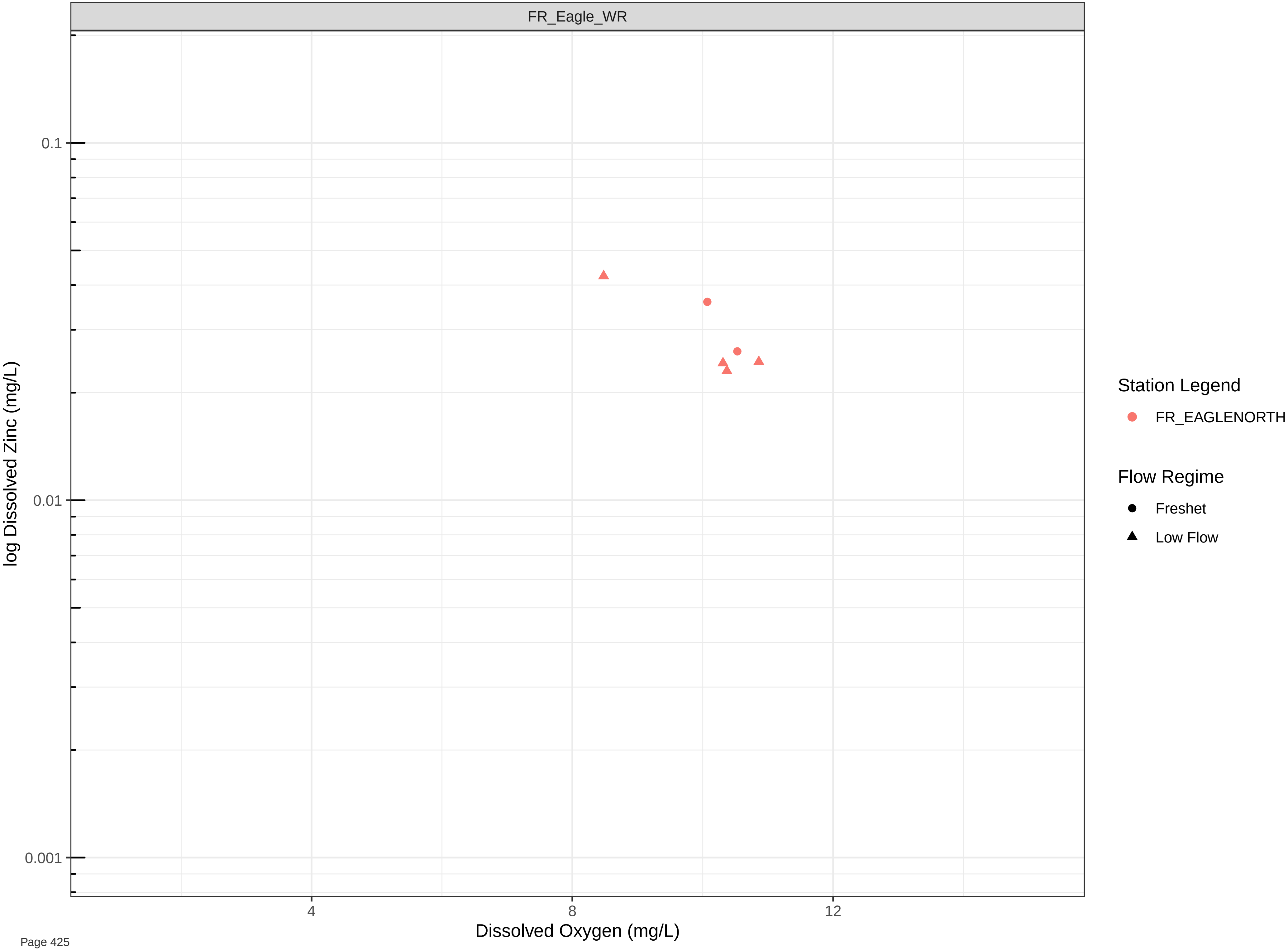

FR_TurnbullWRWest_WR
log Dissolved Vanadium (mg/L)
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

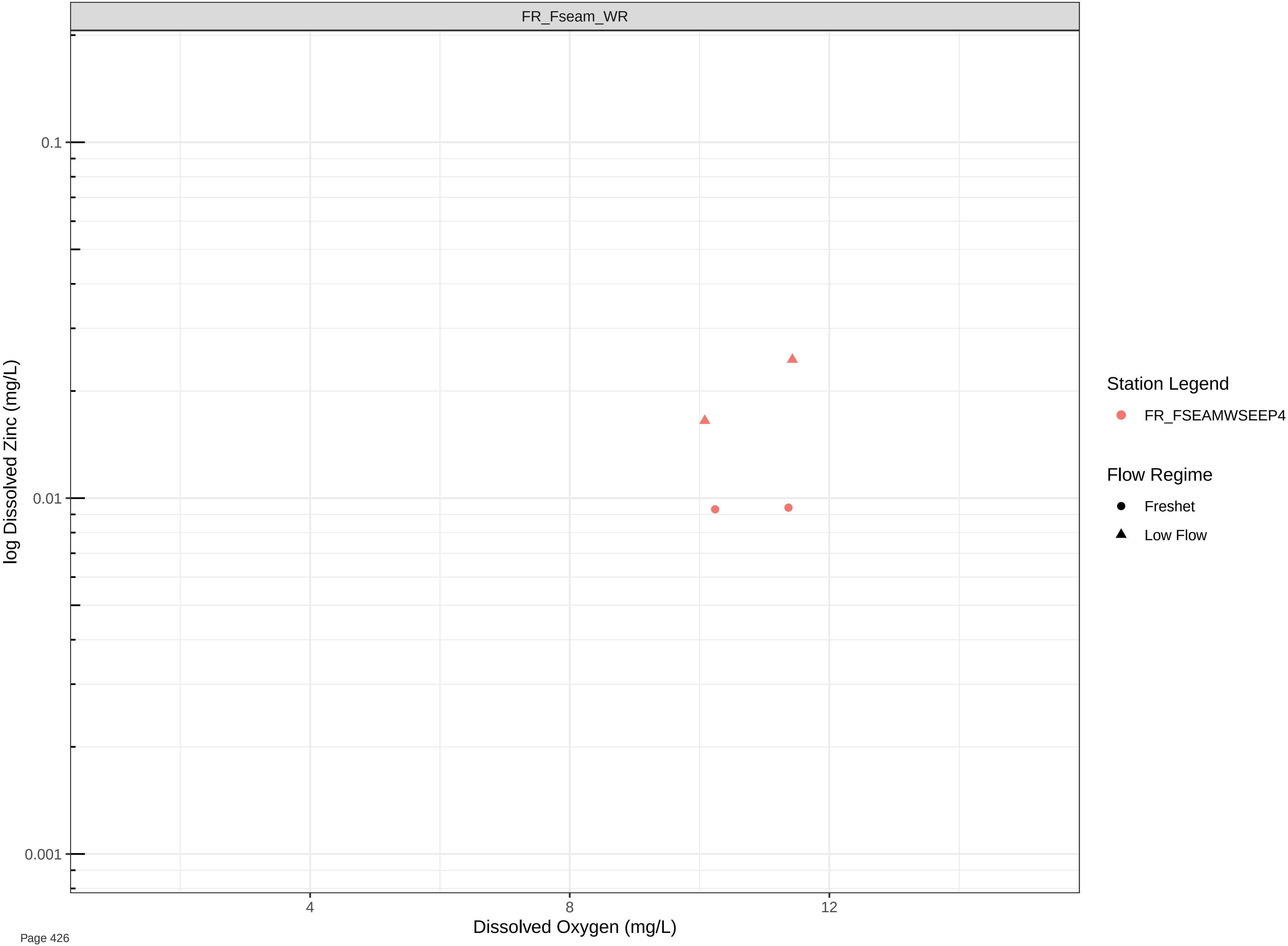

FR_A_WR
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

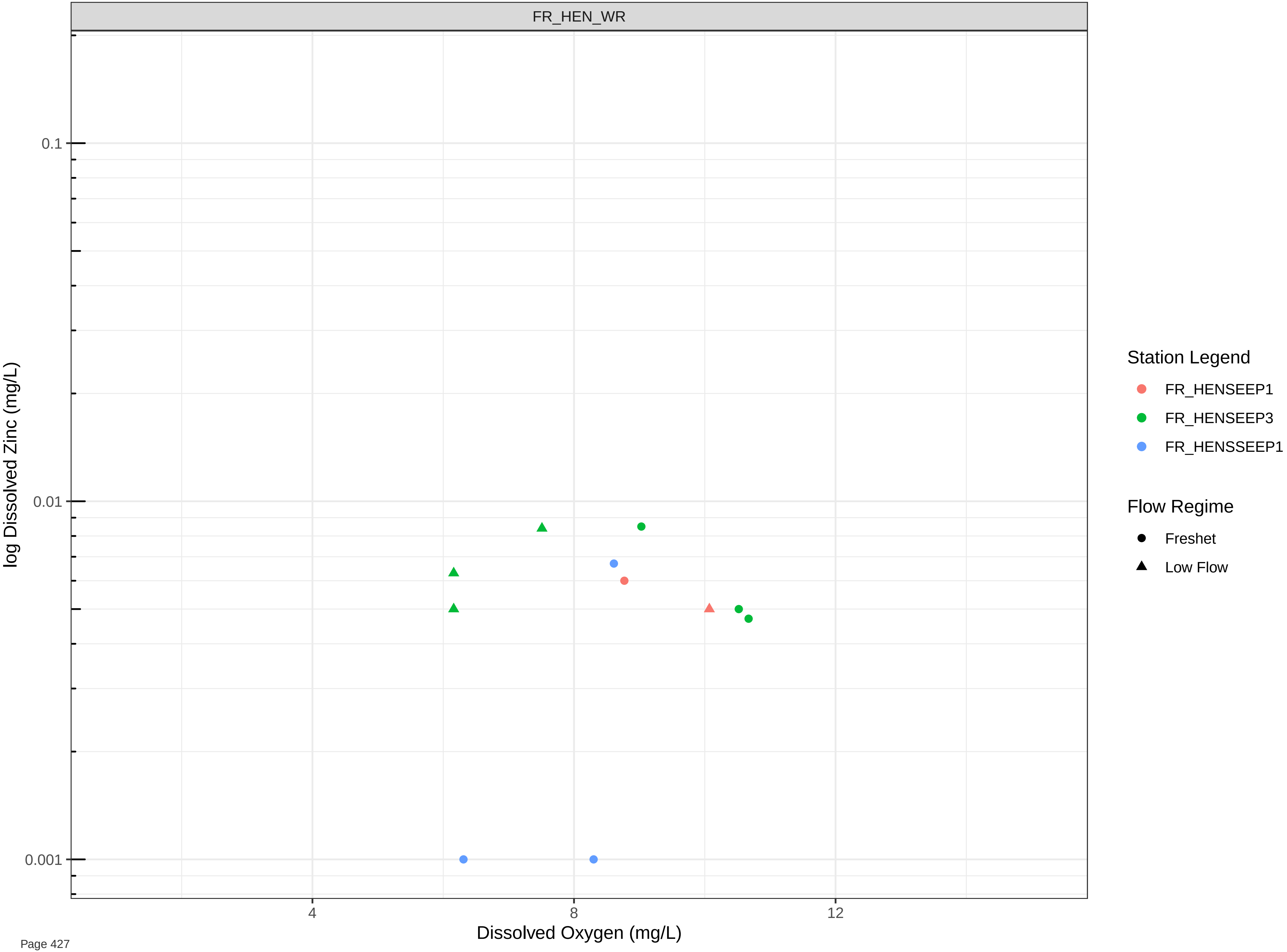

FR_Blain_CCR
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

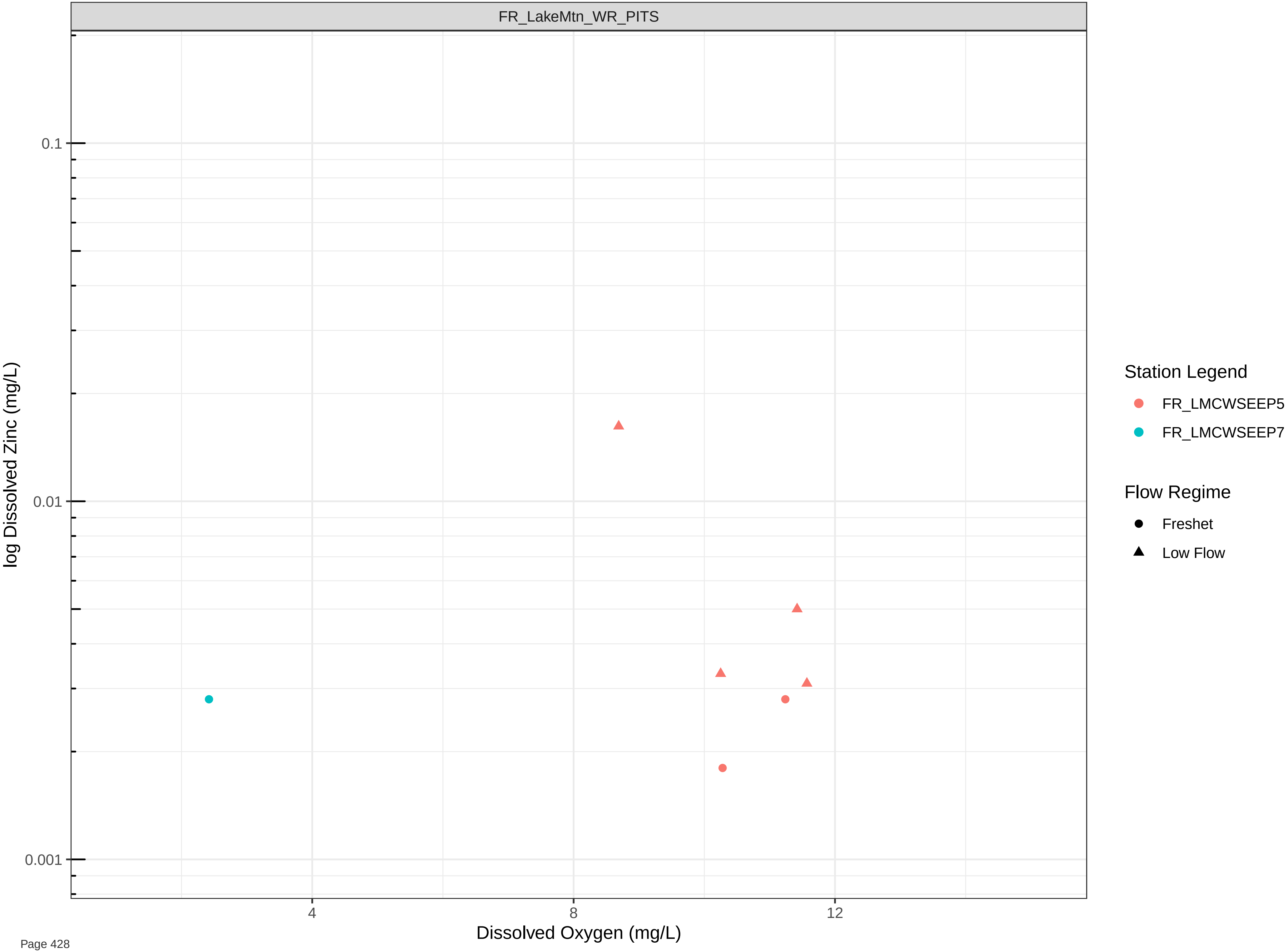

FR_ClodeCr_WR
0.1
0.01
0.001
log Dissolved Zinc (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

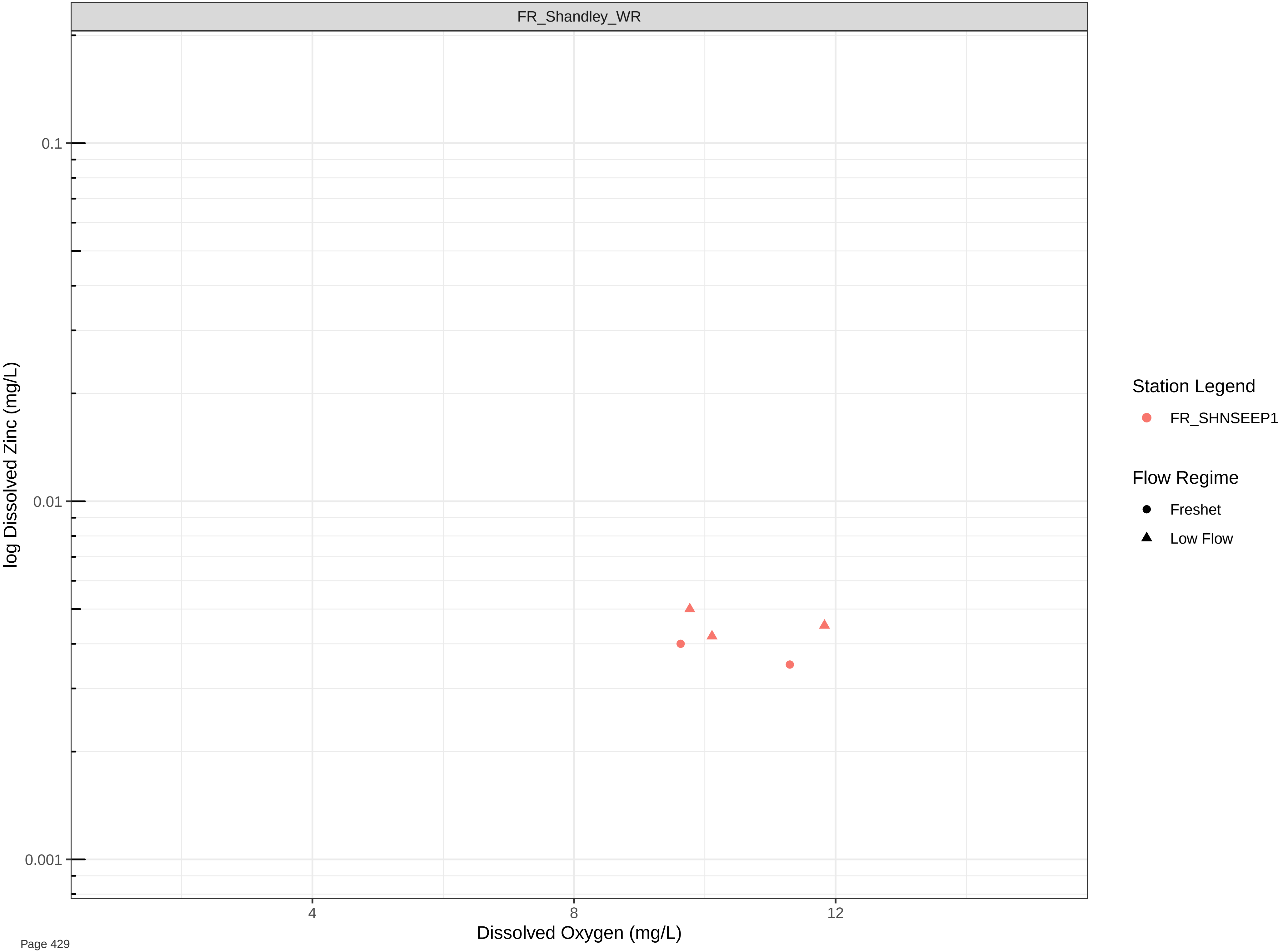

FR_DOKA_Unknown
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

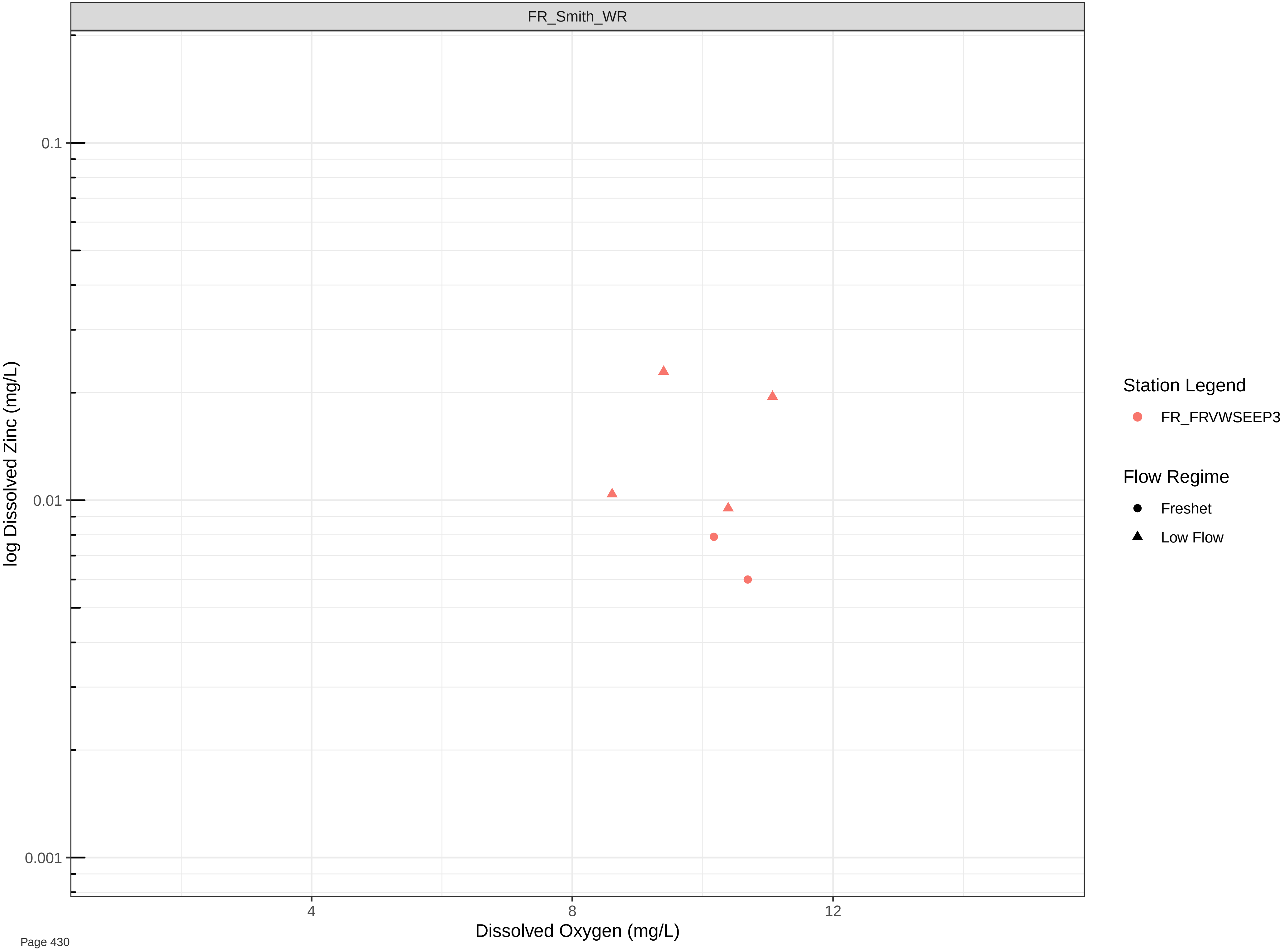

FR_Eagle_WR
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

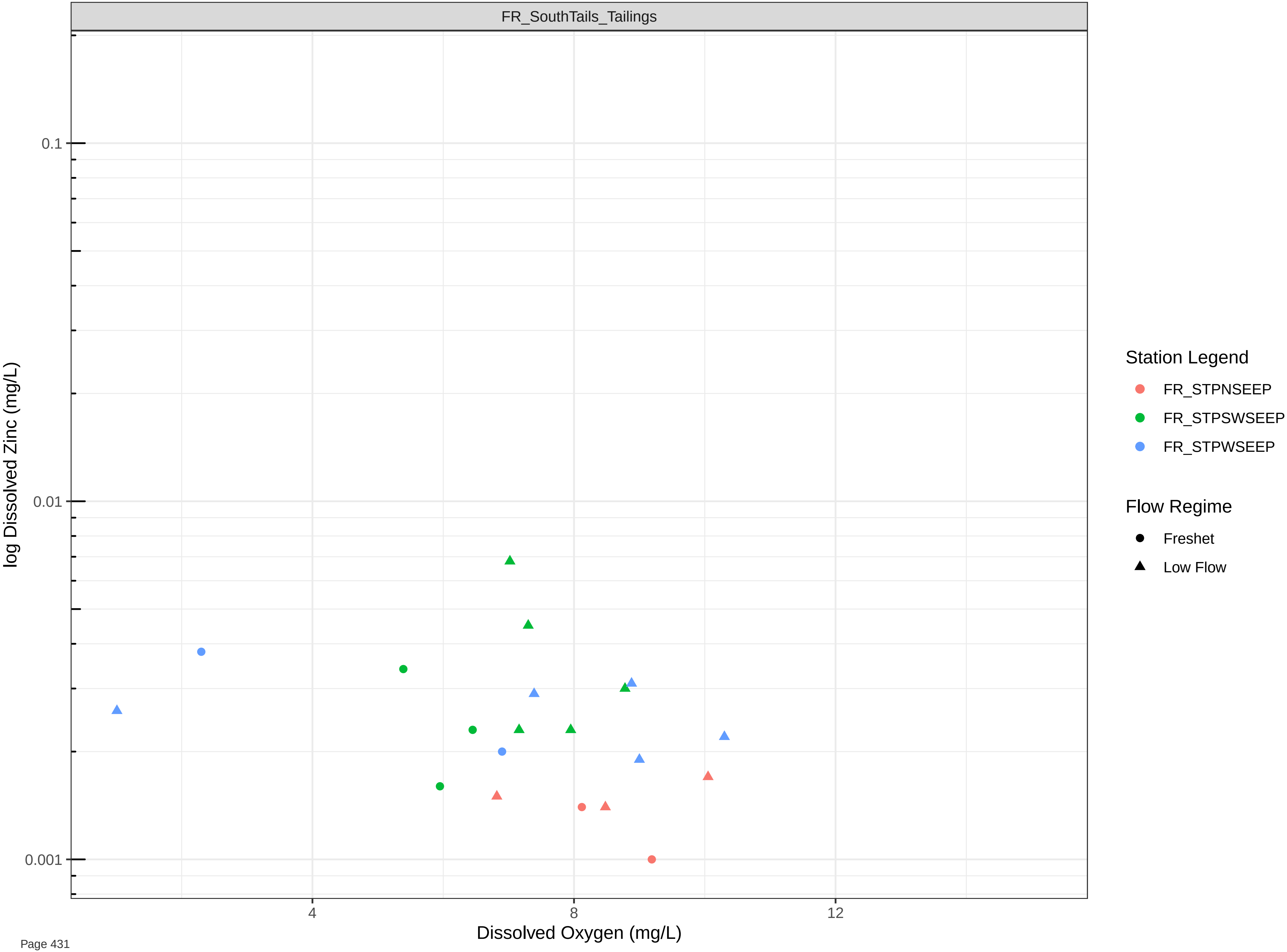

FR_Fseam_WR
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

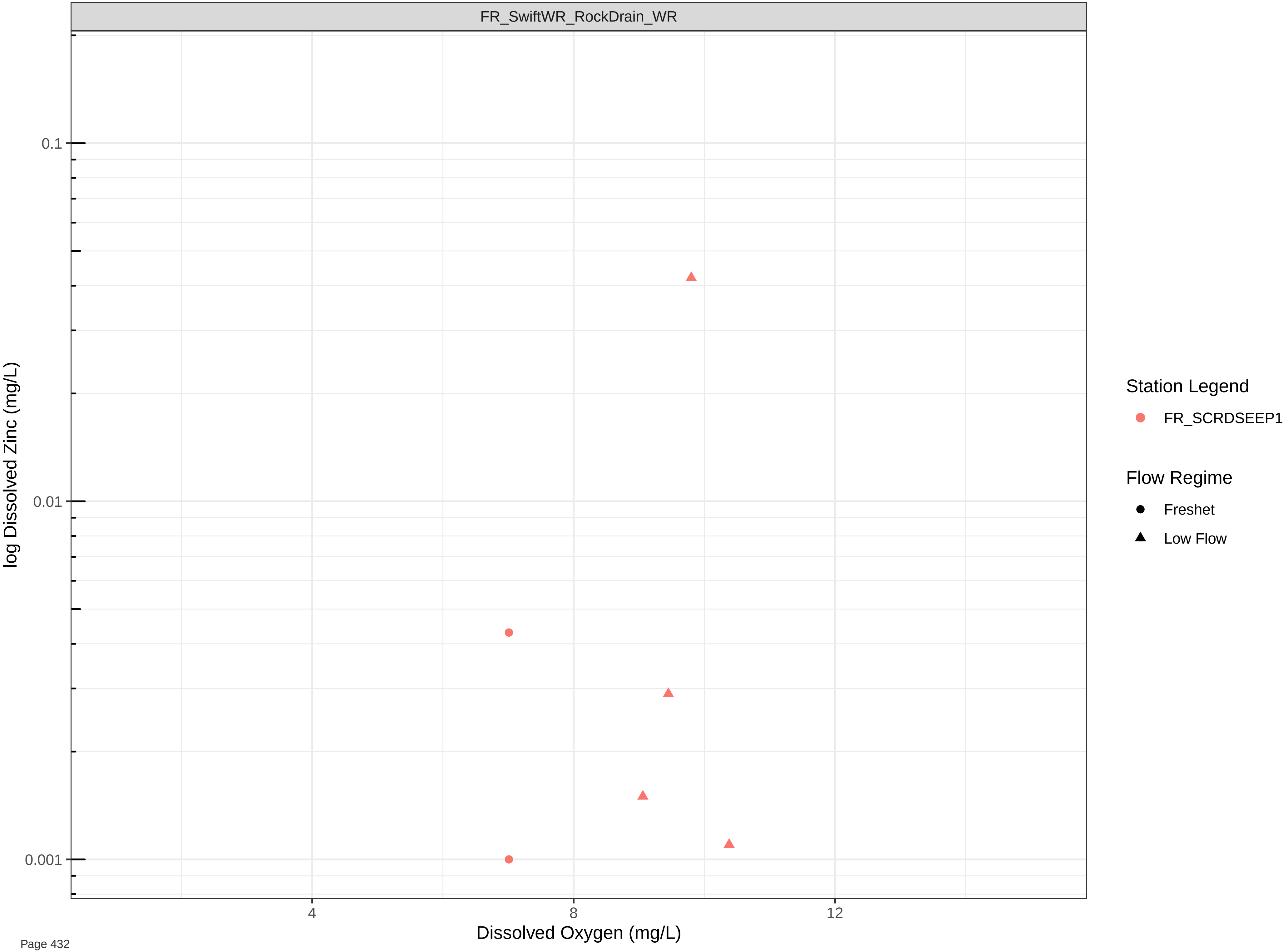

FR_HEN_WR
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

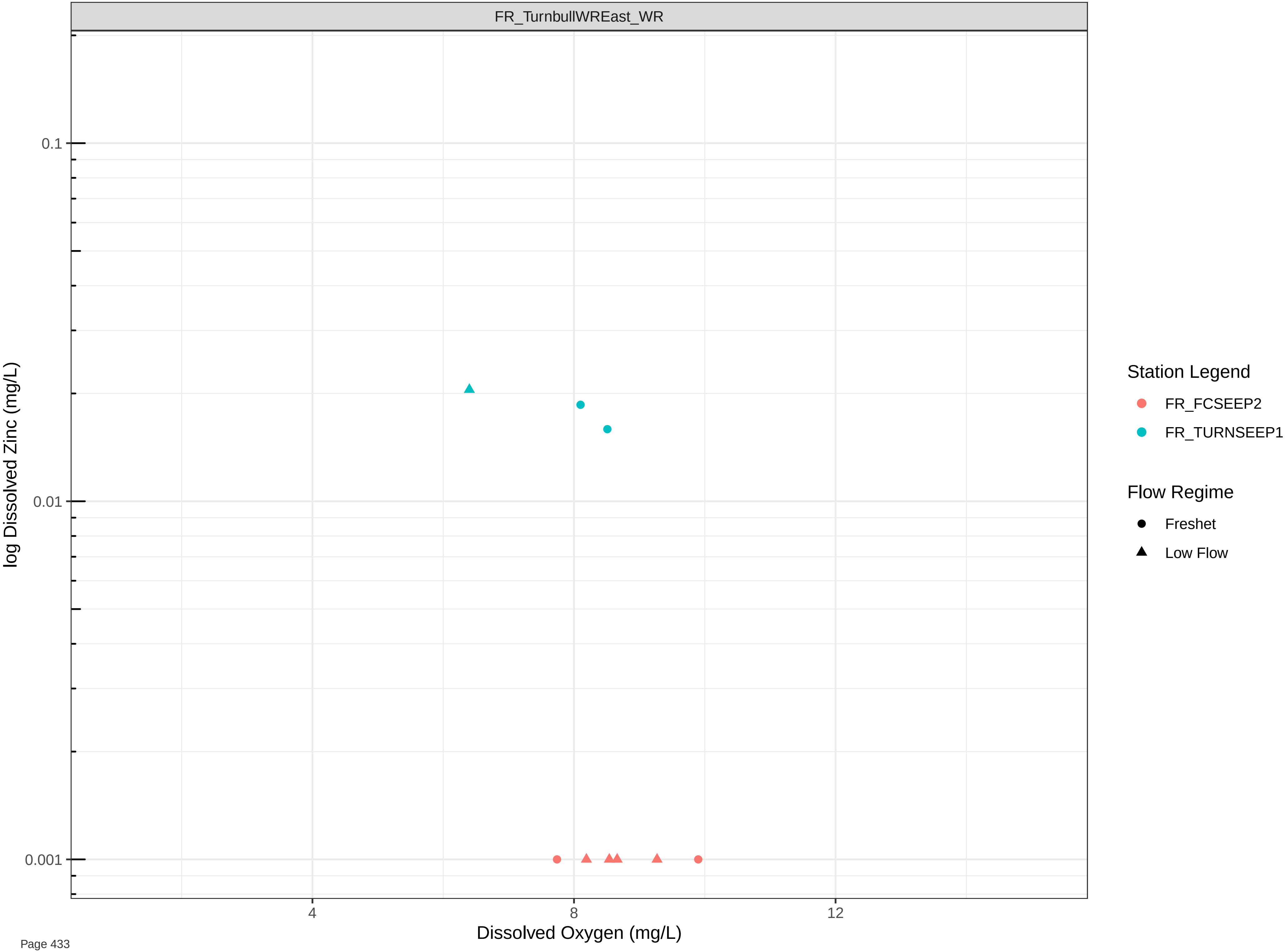

FR_LakeMtn_WR_PITS
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

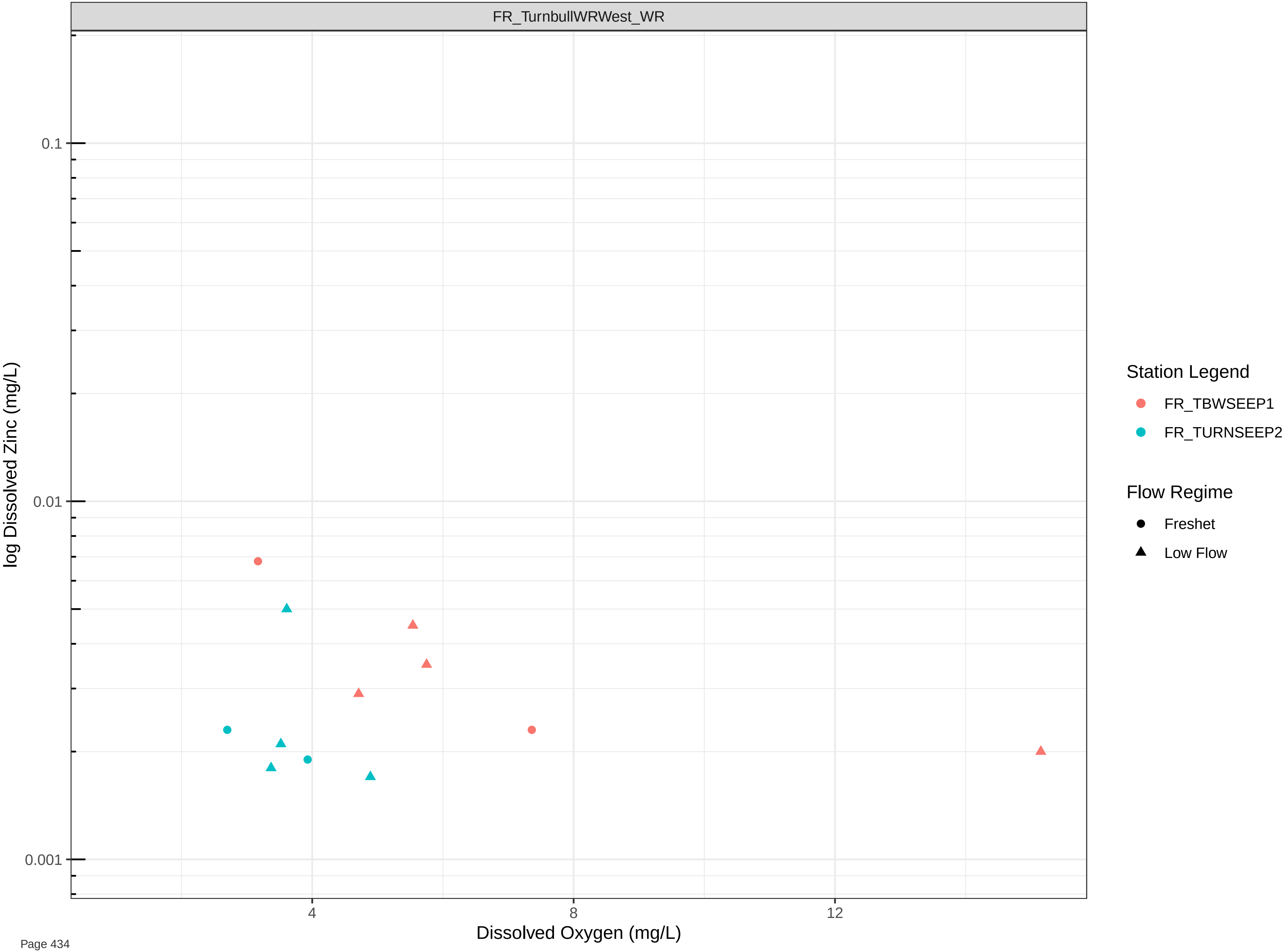

FR_Shandley_WR
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

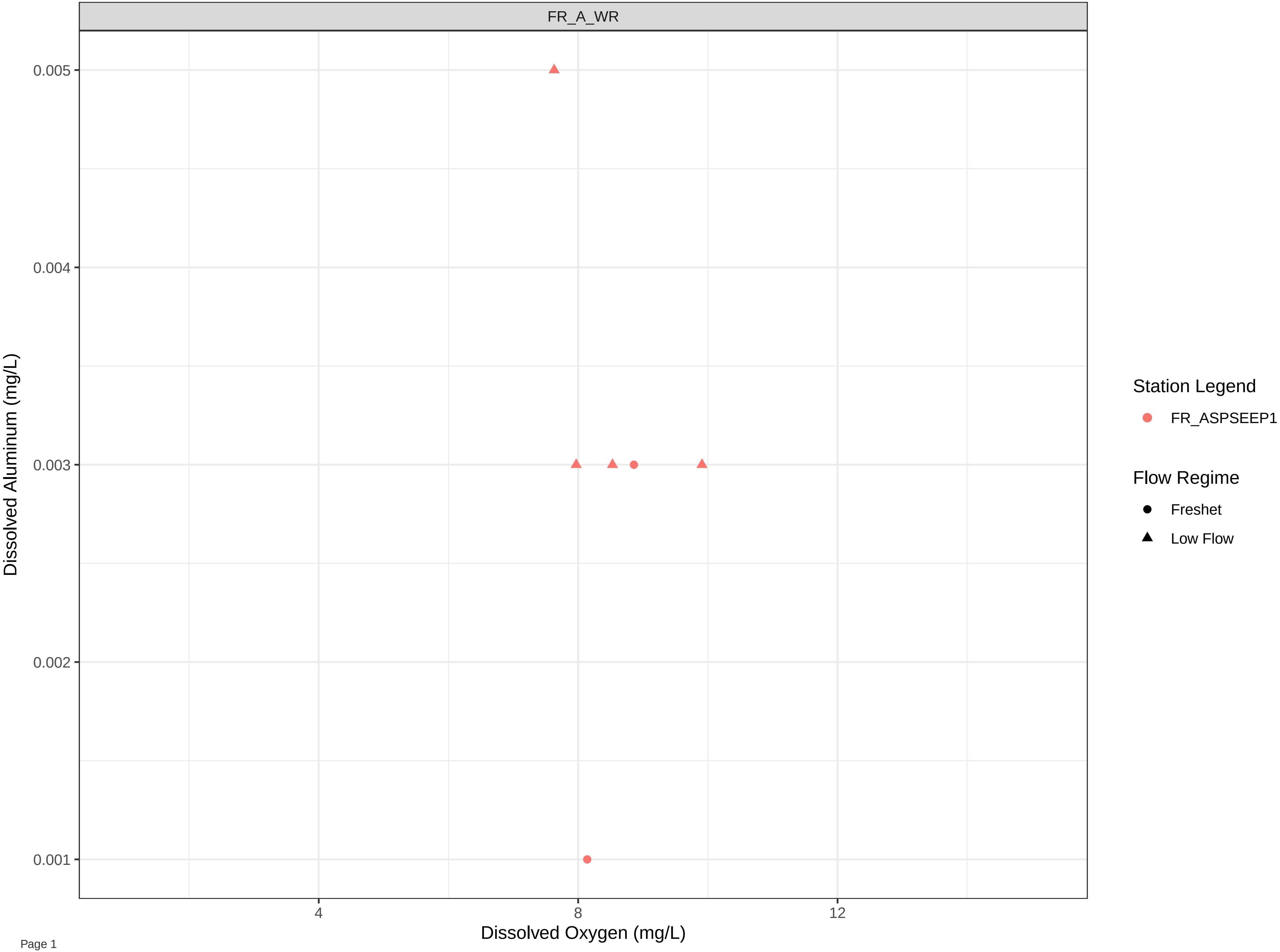

FR_Smith_WR
0.1
0.01
0.001
log Dissolved Zinc (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

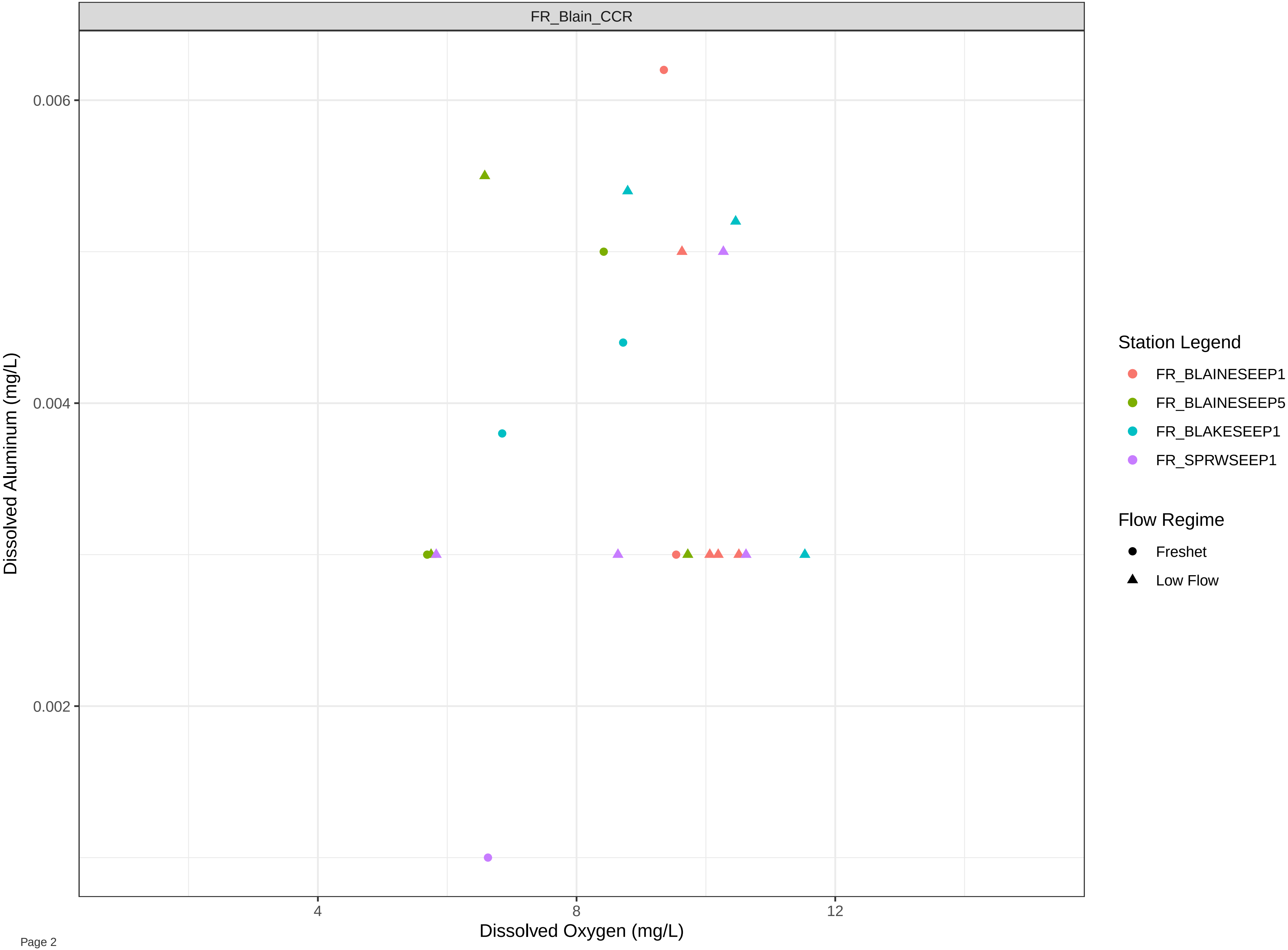

FR_SouthTails_Tailings
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_STPNSEEP
● FR_STPSWSEEP
● FR_STPWSEEP
Flow Regime
● Freshet
▲ Low Flow

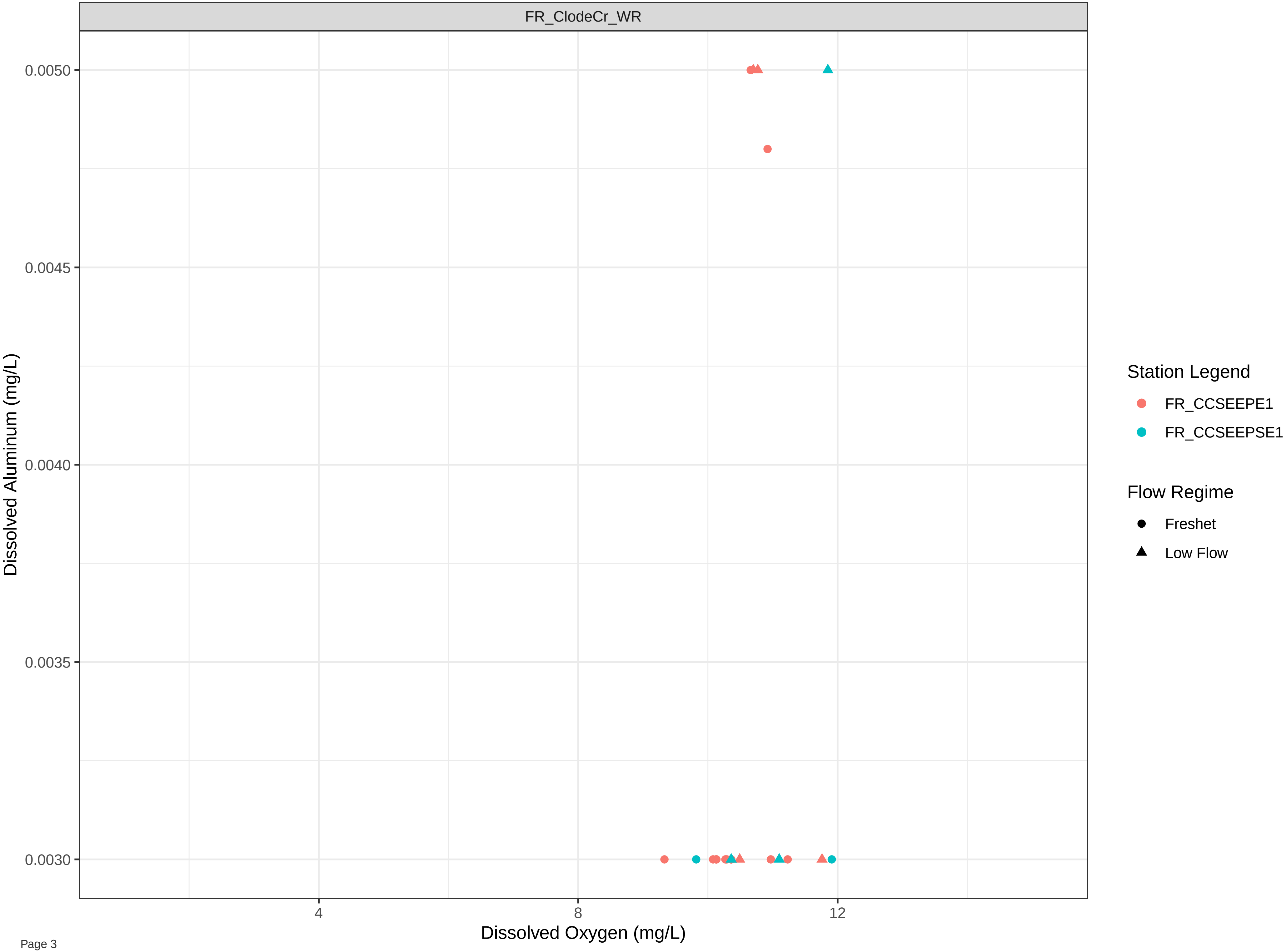

FR_SwiftWR_RockDrain_WR
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

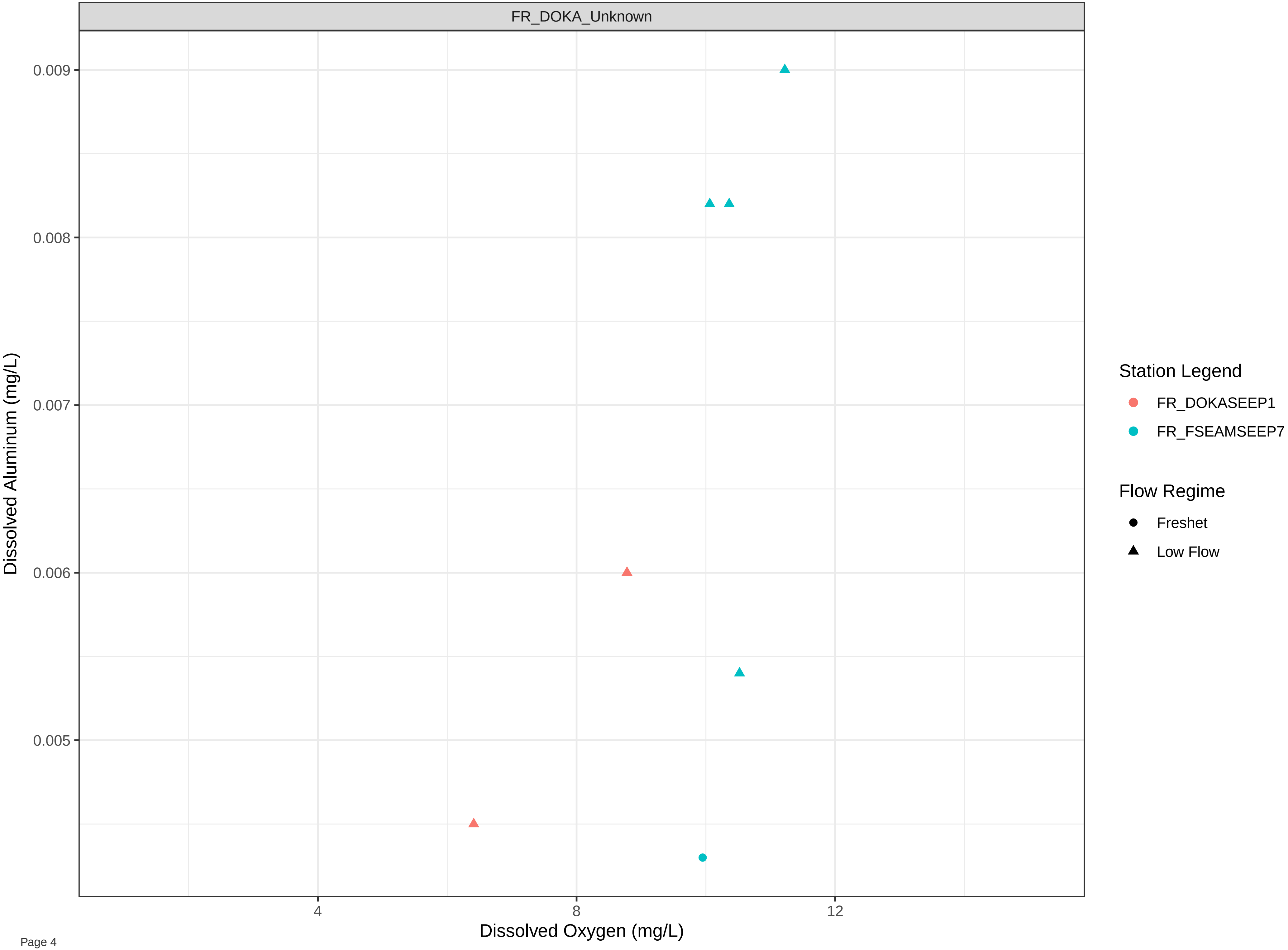

FR_TurnbullWREast_WR
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

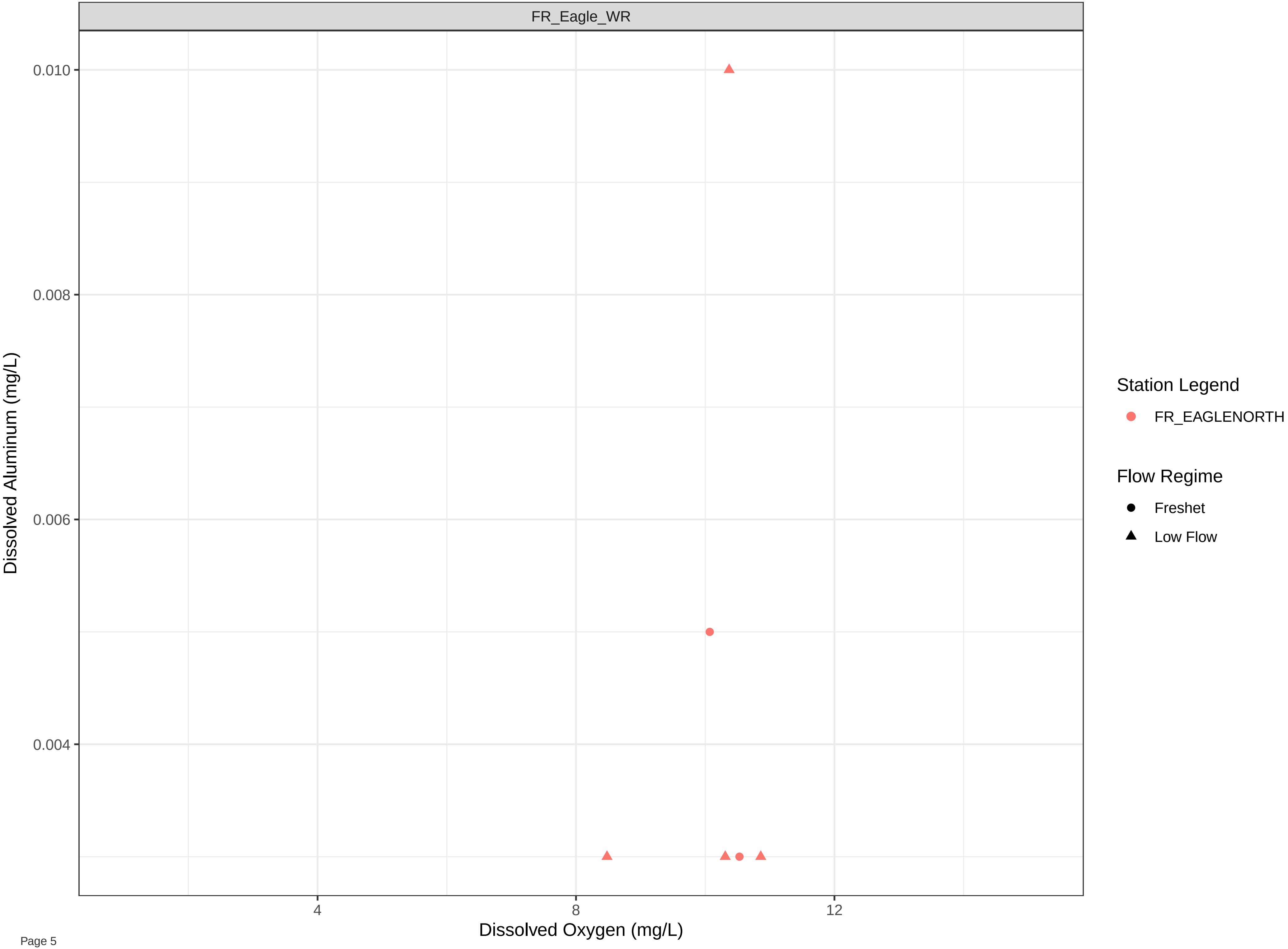

FR_TurnbullWRWest_WR
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_TBWSEEP1
● FR_TURNSEEP2
Flow Regime
● Freshet
▲ Low Flow

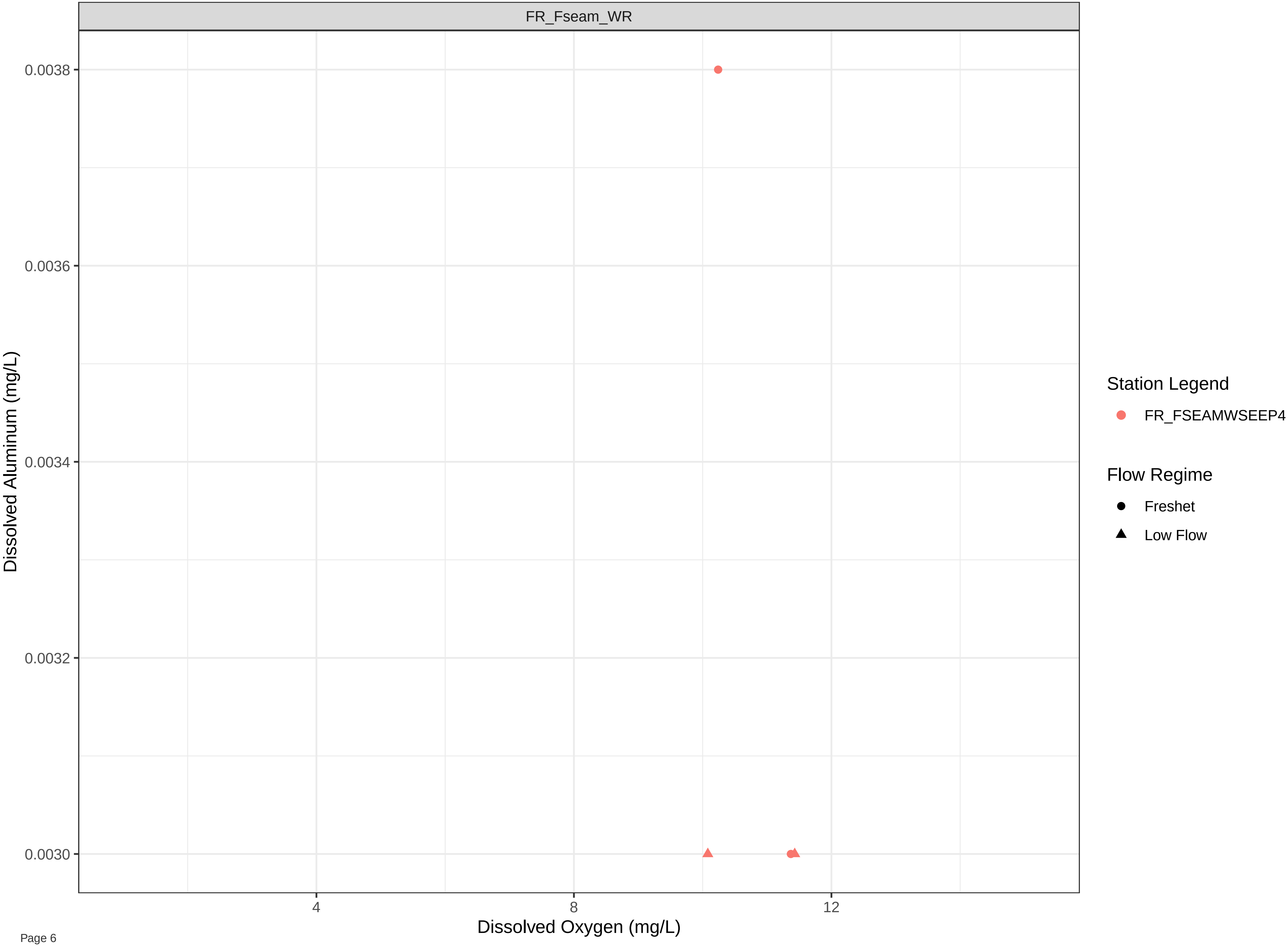

FR_A_WR
Dissolved Aluminum (mg/L)
0.005
0.004
0.003
0.002
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

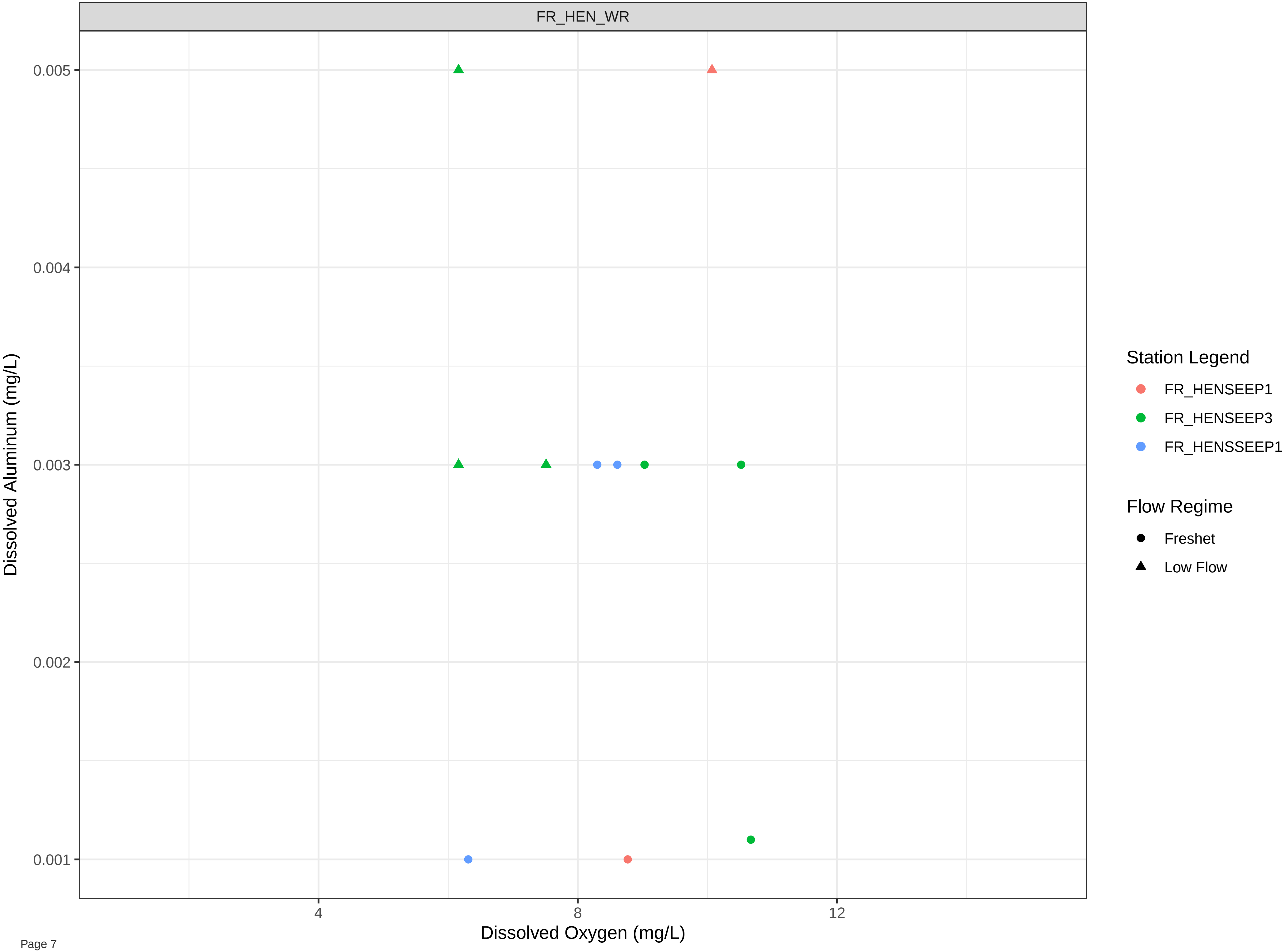

FR_Blain_CCR
0.006
0.004
0.002
Dissolved Aluminum (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

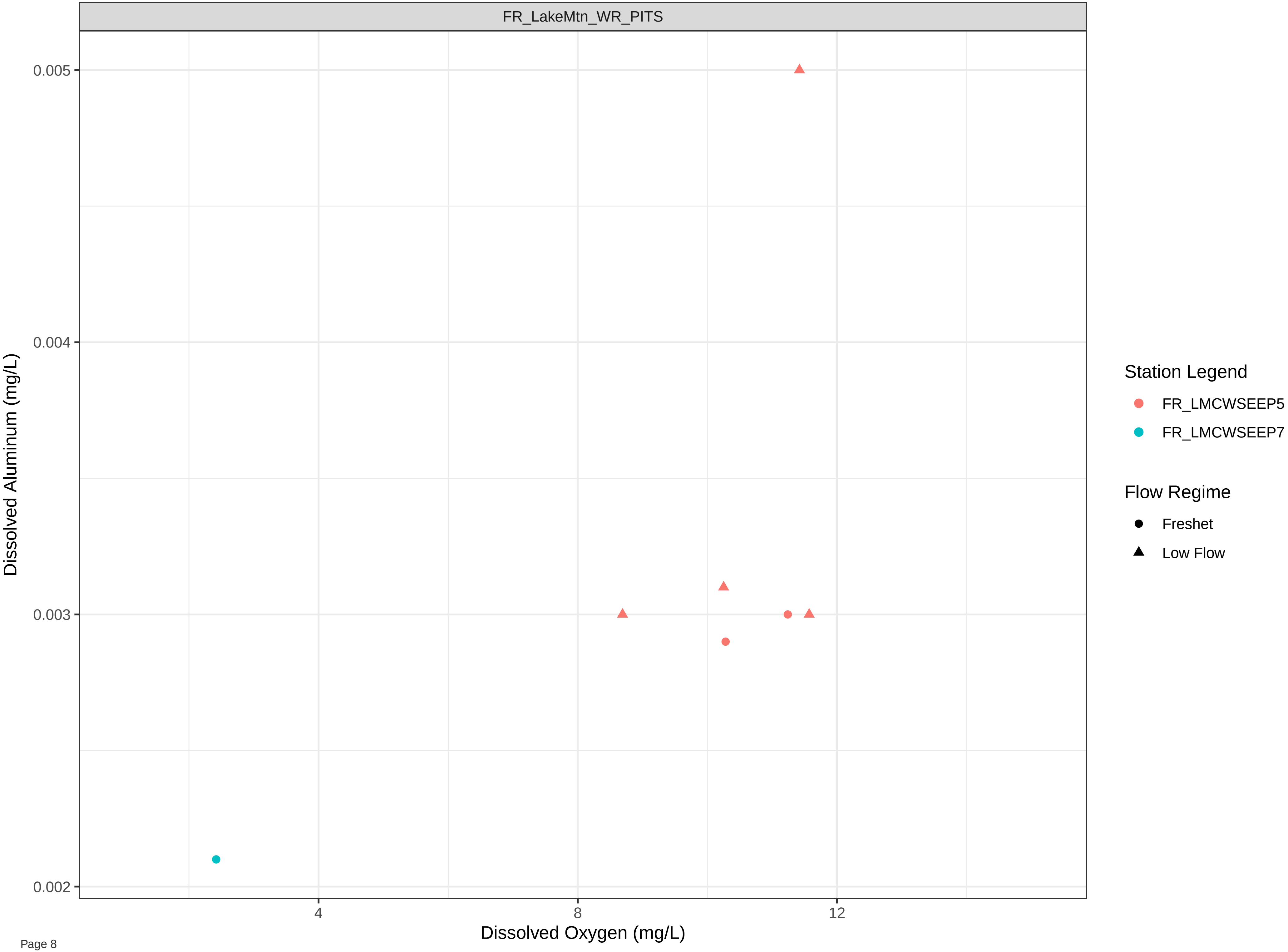

FR_ClodeCr_WR
Dissolved Aluminum (mg/L)
0.0050
0.0045
0.0040
0.0035
0.0030
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

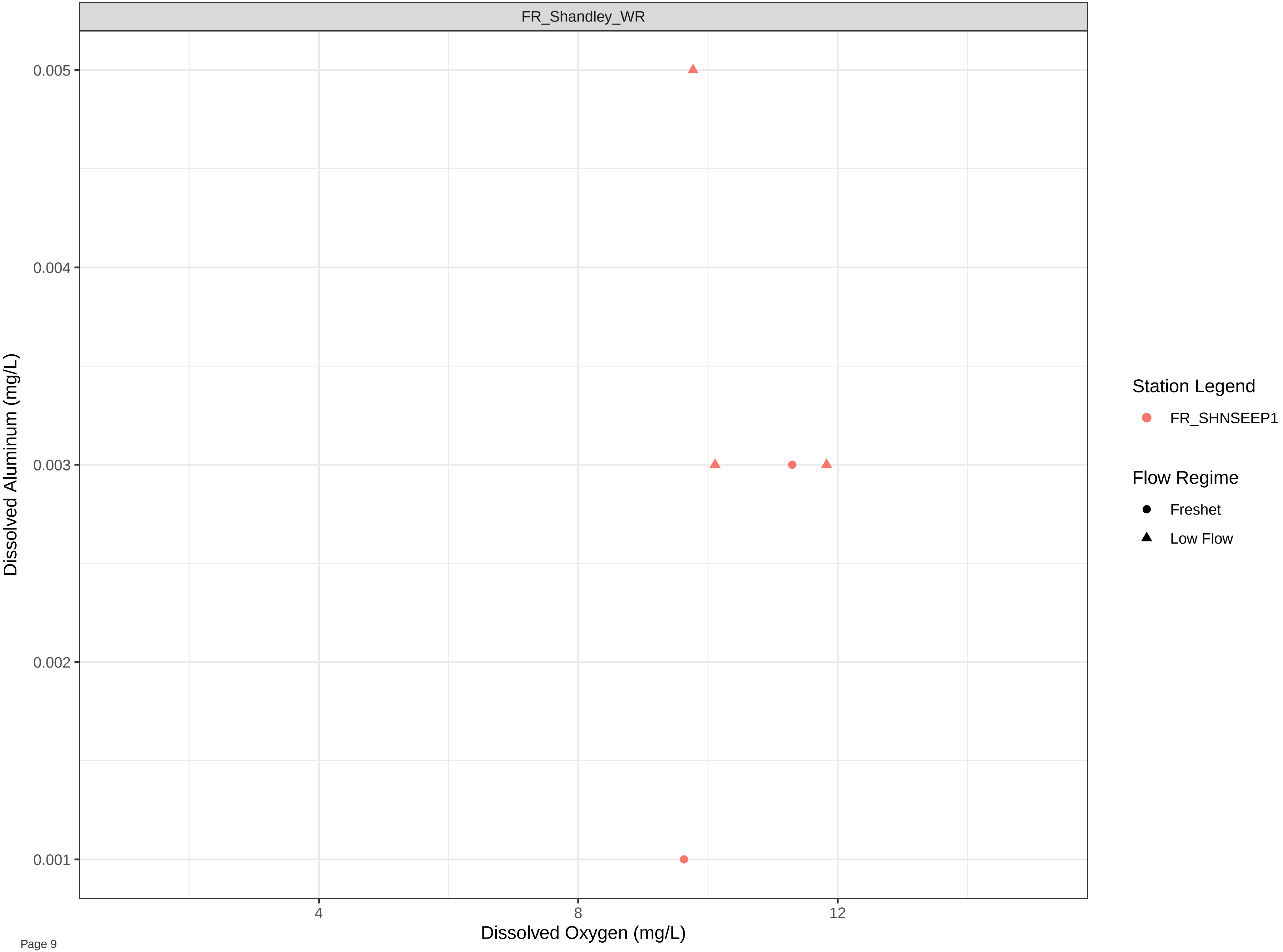

FR_DOKA_Unknown
Dissolved Aluminum (mg/L)
0.009
0.008
0.007
0.006
0.005
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

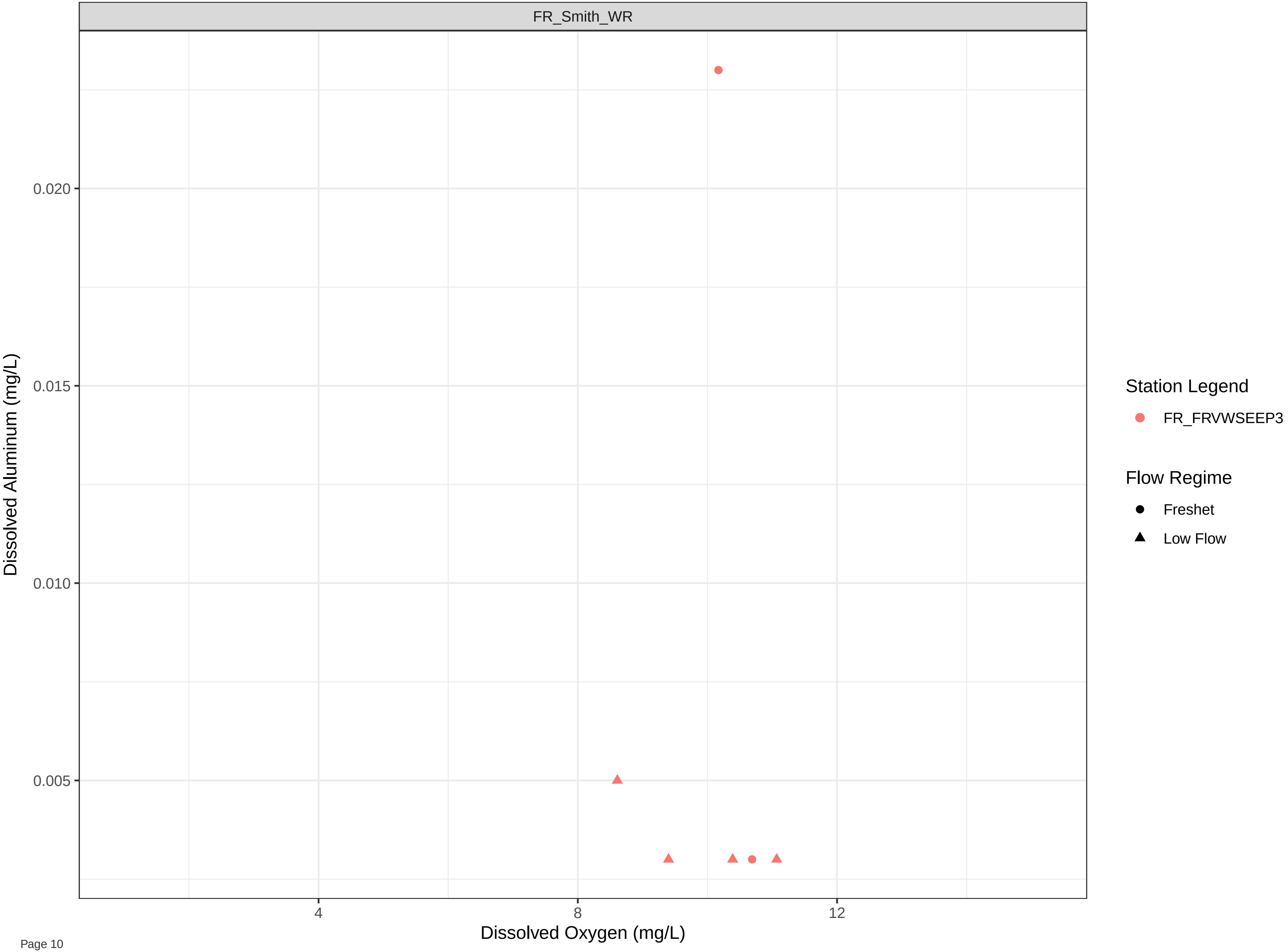

FR_Eagle_WR
0.010
0.008
0.006
0.004
Dissolved Aluminum (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

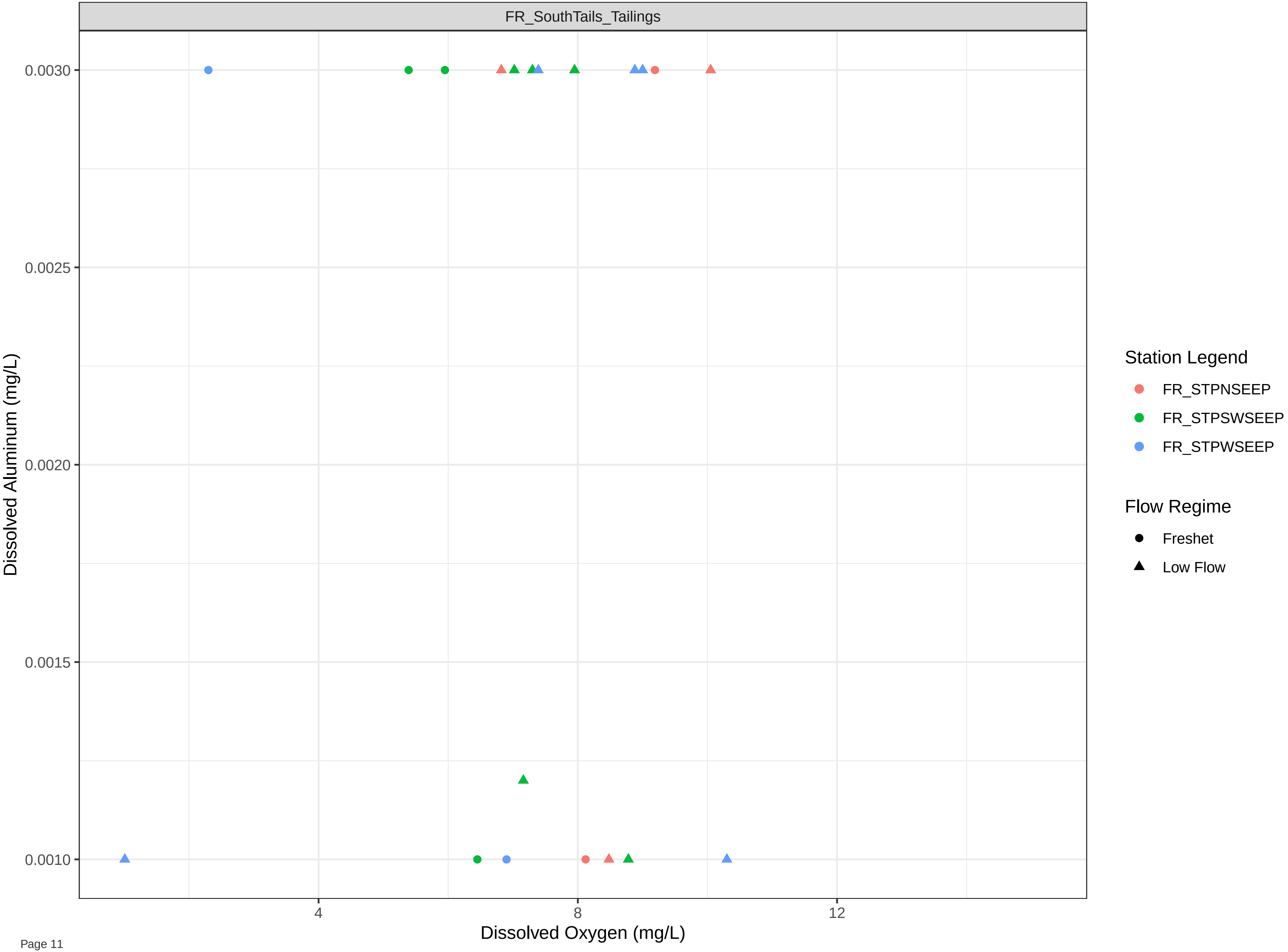

FR_Fseam_WR
Dissolved Aluminum (mg/L)
0.0038
0.0036
0.0034
0.0032
0.0030
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

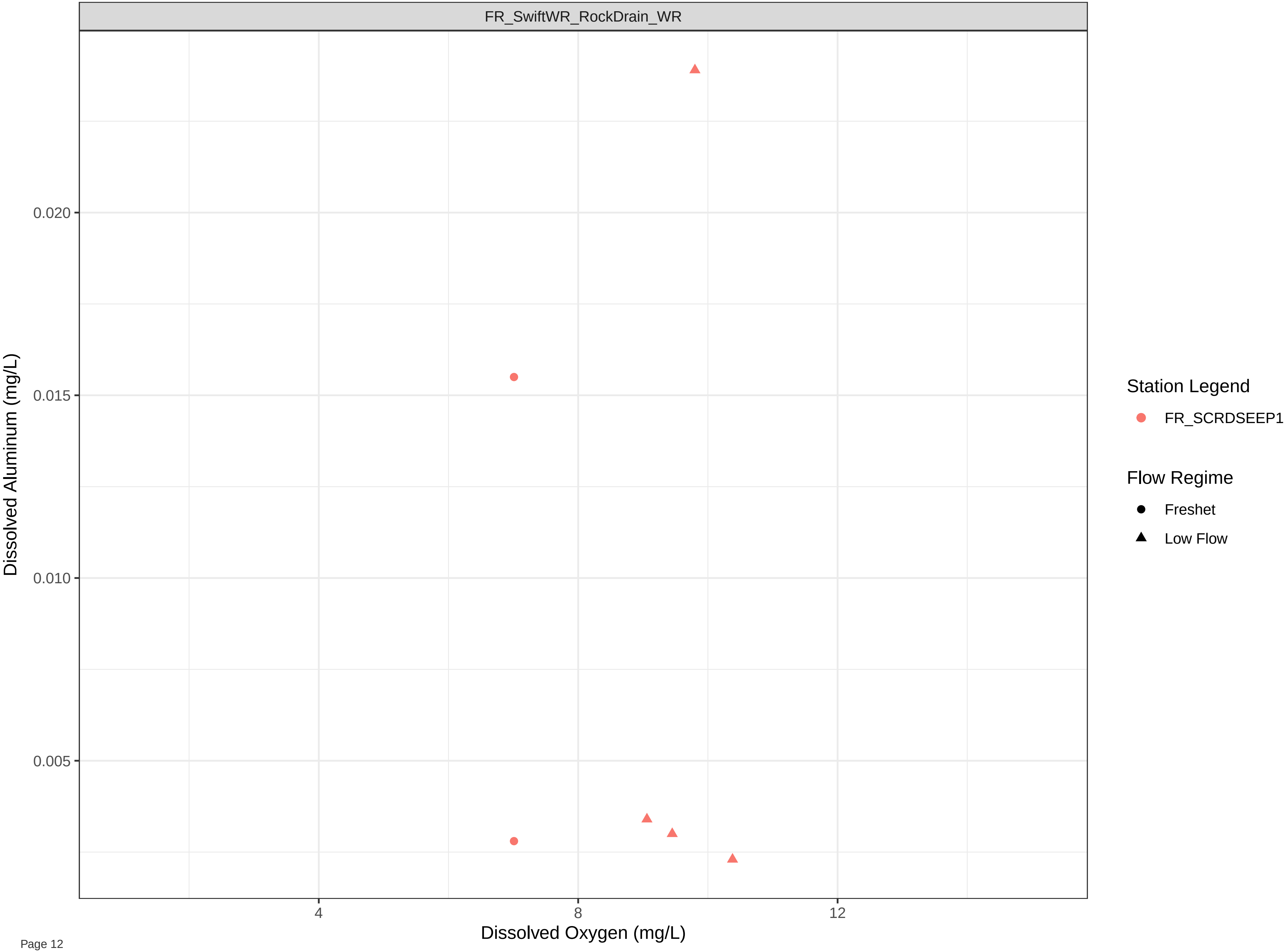

FR_HEN_WR
0.005
0.004
0.003
0.002
0.001
Dissolved Aluminum (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

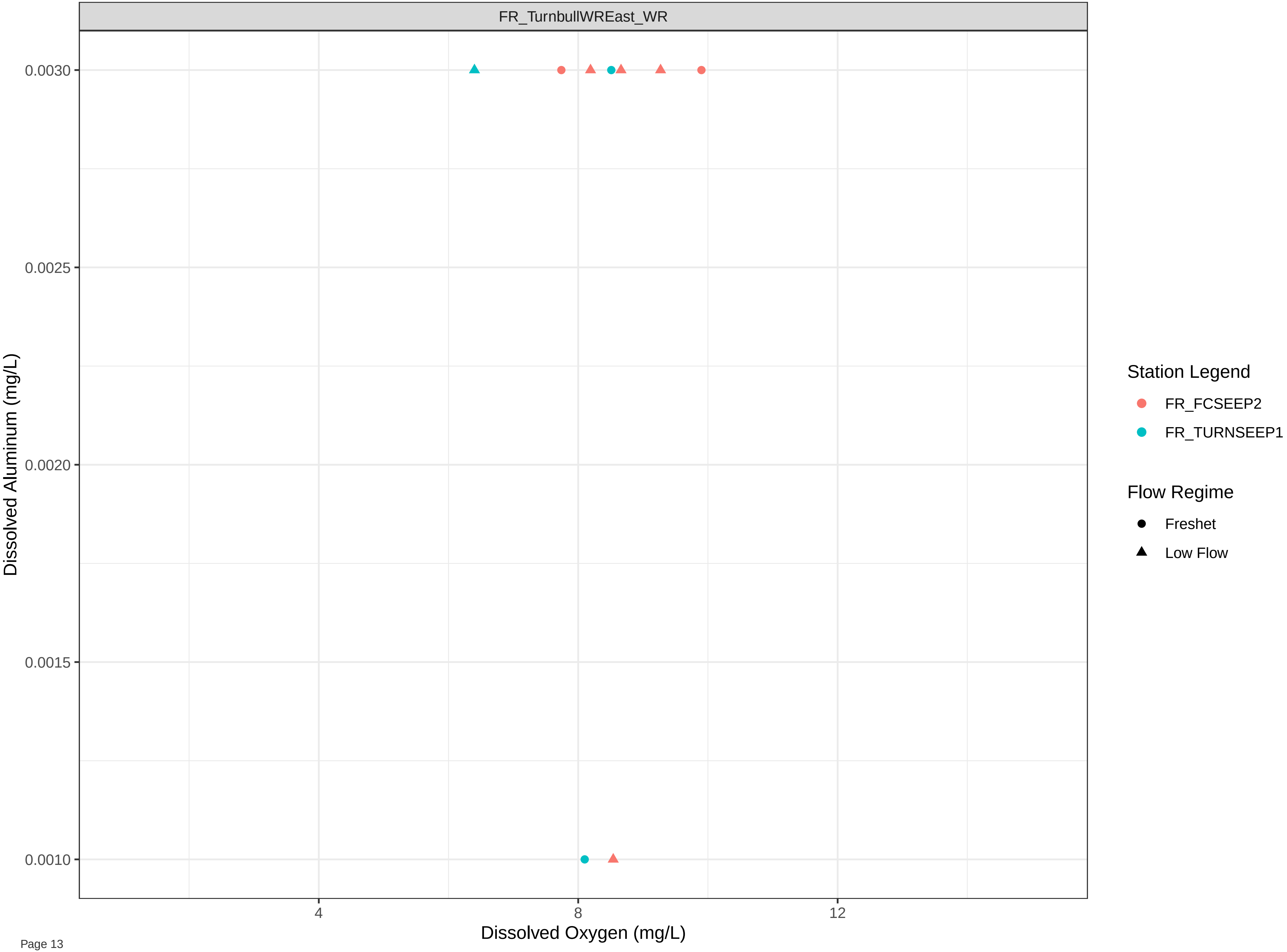

FR_LakeMtn_WR_PITS
Dissolved Aluminum (mg/L)
0.005
0.004
0.003
0.002
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

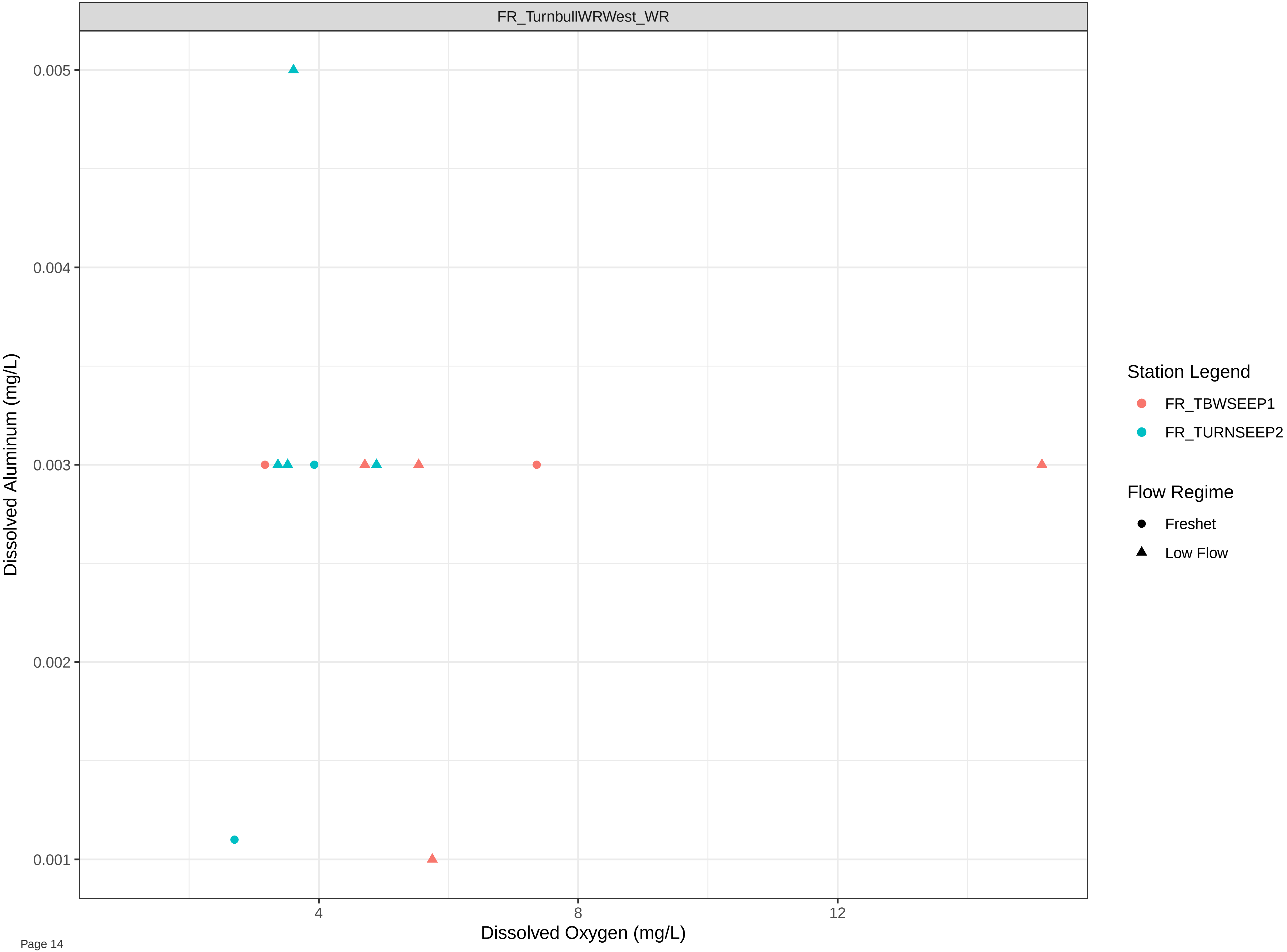

FR_Shandley_WR
Dissolved Aluminum (mg/L)
0.005
0.004
0.003
0.002
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

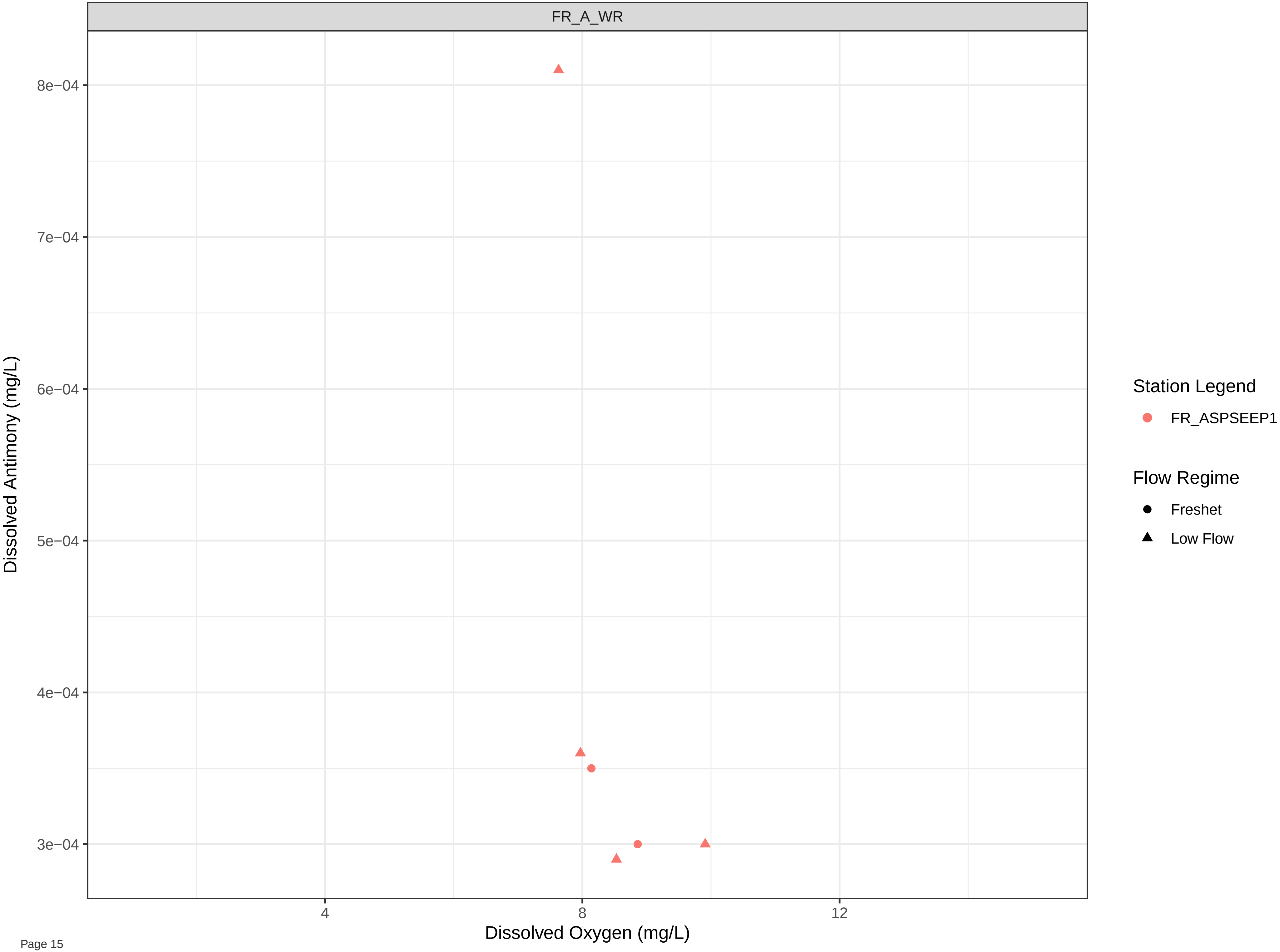

FR_Smith_WR
Dissolved Aluminum (mg/L)
0.020
0.015
0.010
0.005
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

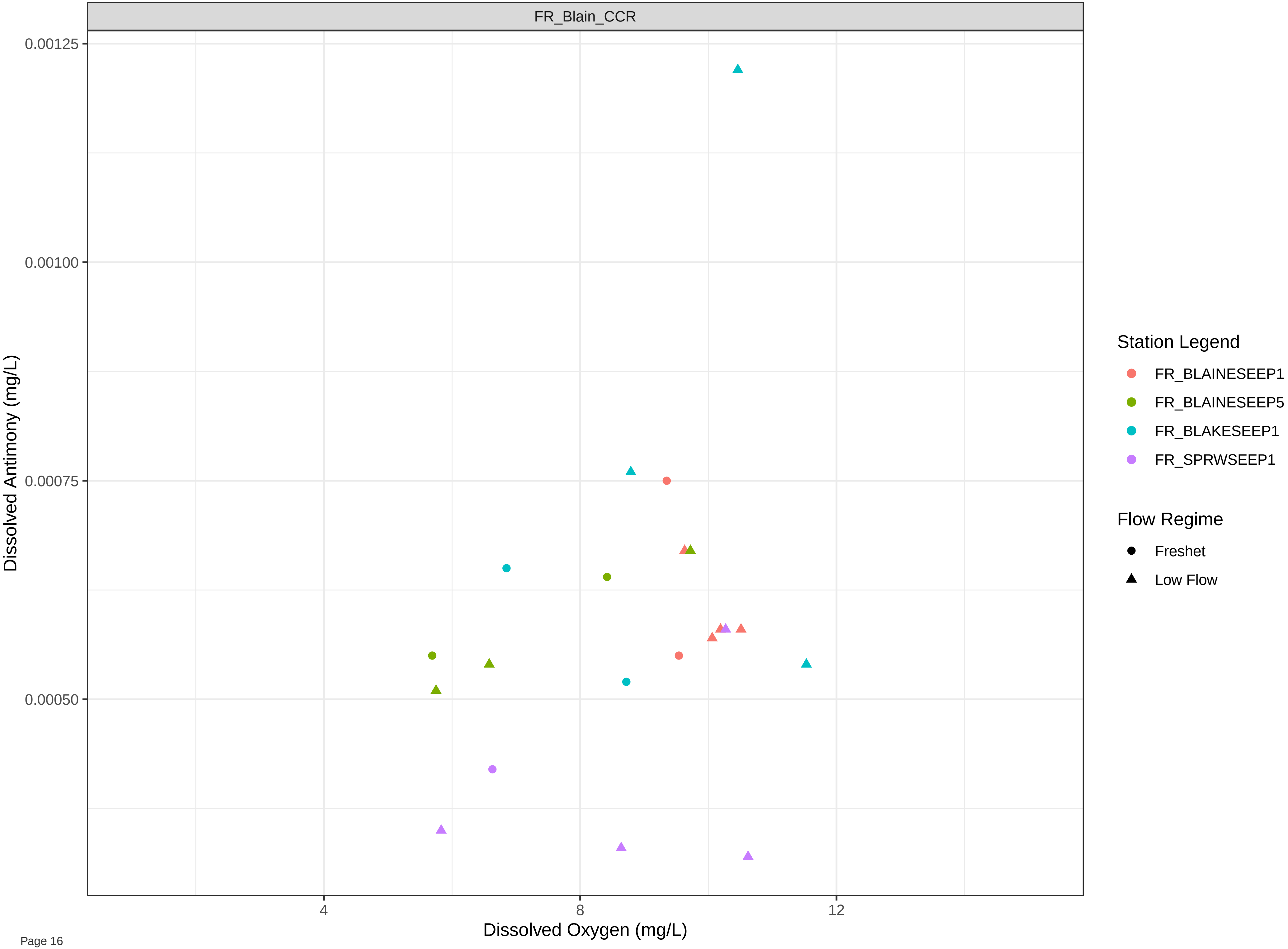

FR_SouthTails_Tailings
0.0030
0.0025
0.0020
0.0015
0.0010
Dissolved Aluminum (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

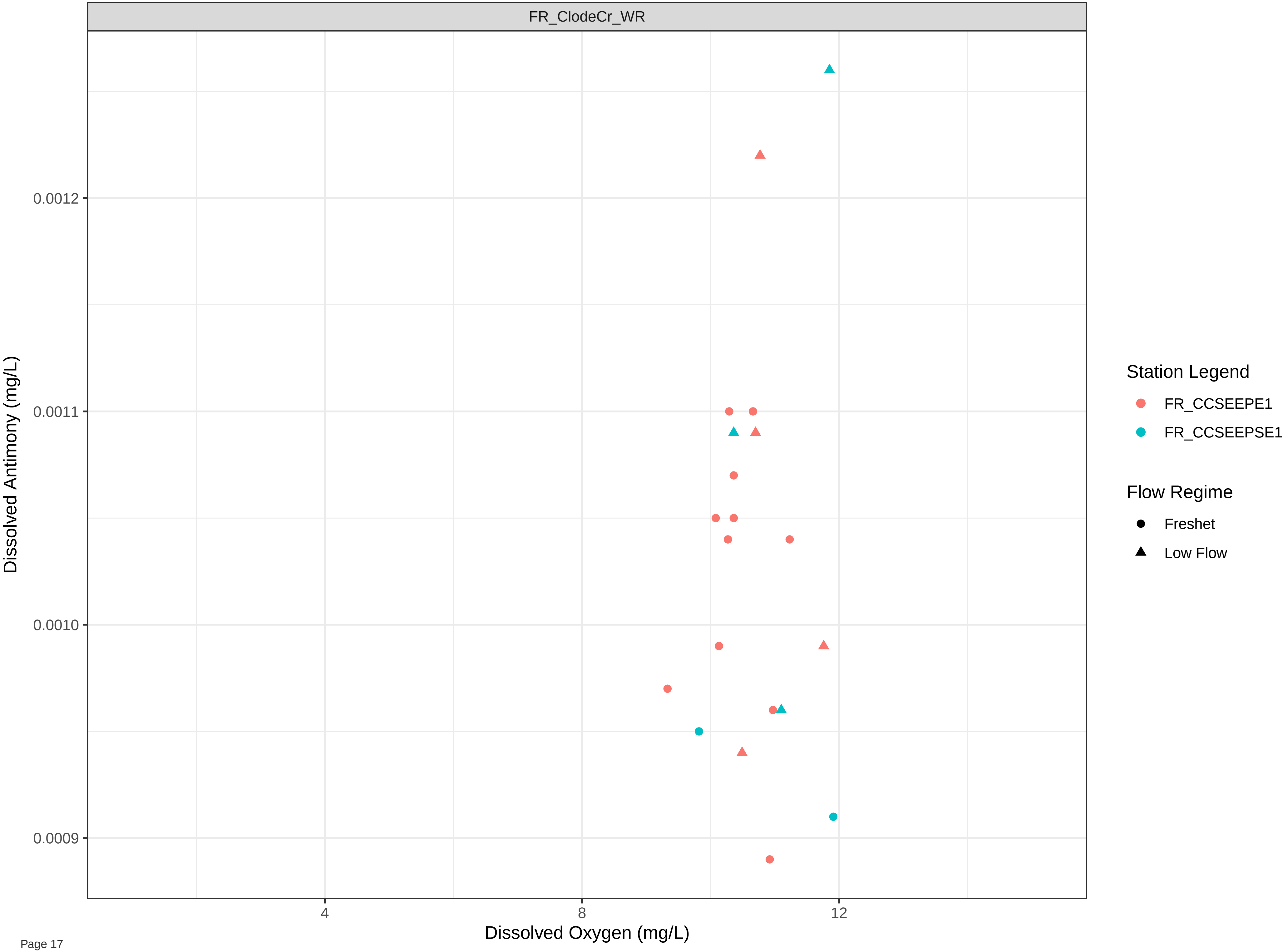

FR_SwiftWR_RockDrain_WR
Dissolved Aluminum (mg/L)
0.020
0.015
0.010
0.005
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

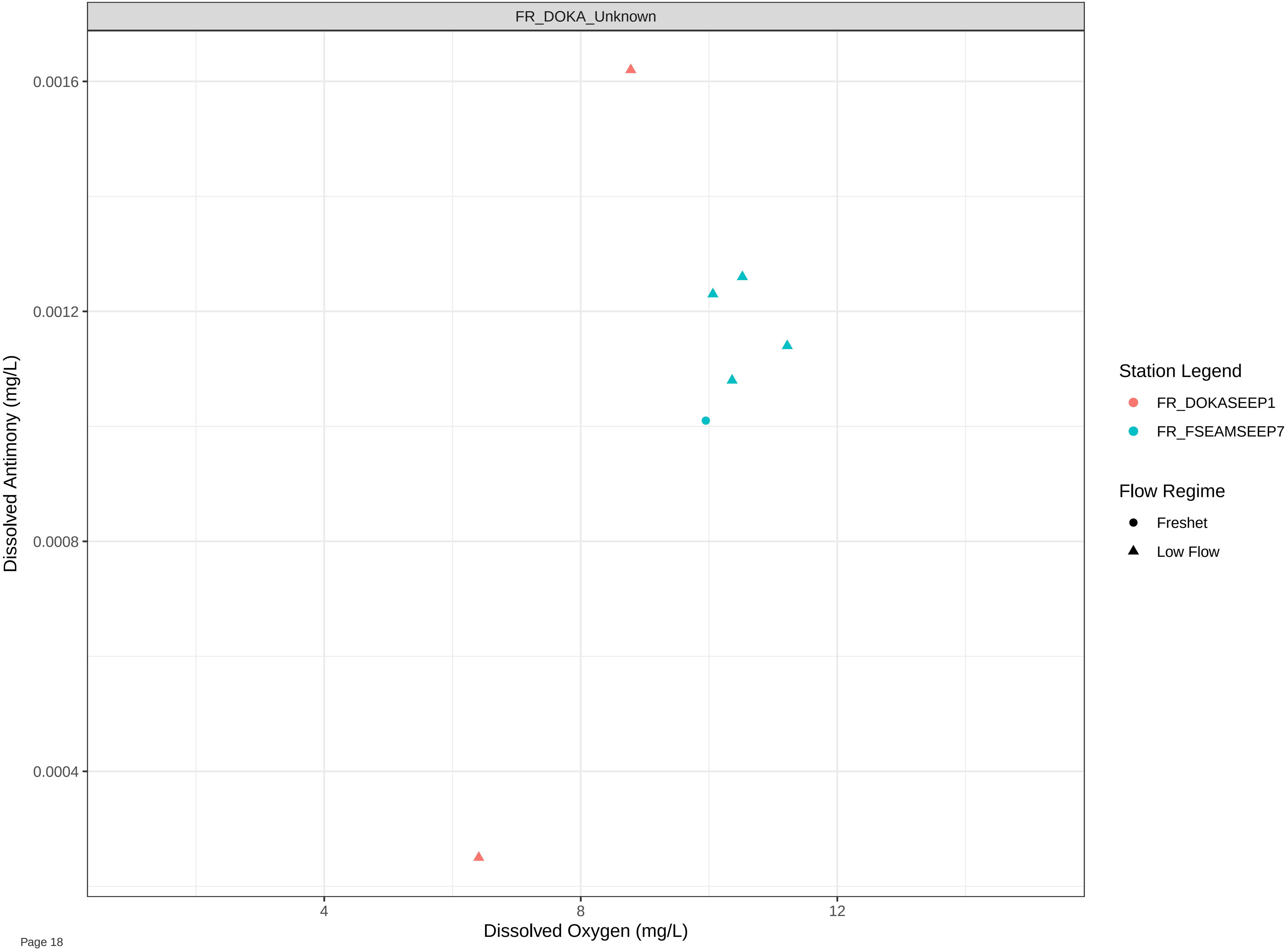

FR_TurnbullWREast_WR
0.0030
0.0025
0.0020
0.0015
0.0010
Dissolved Aluminum (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

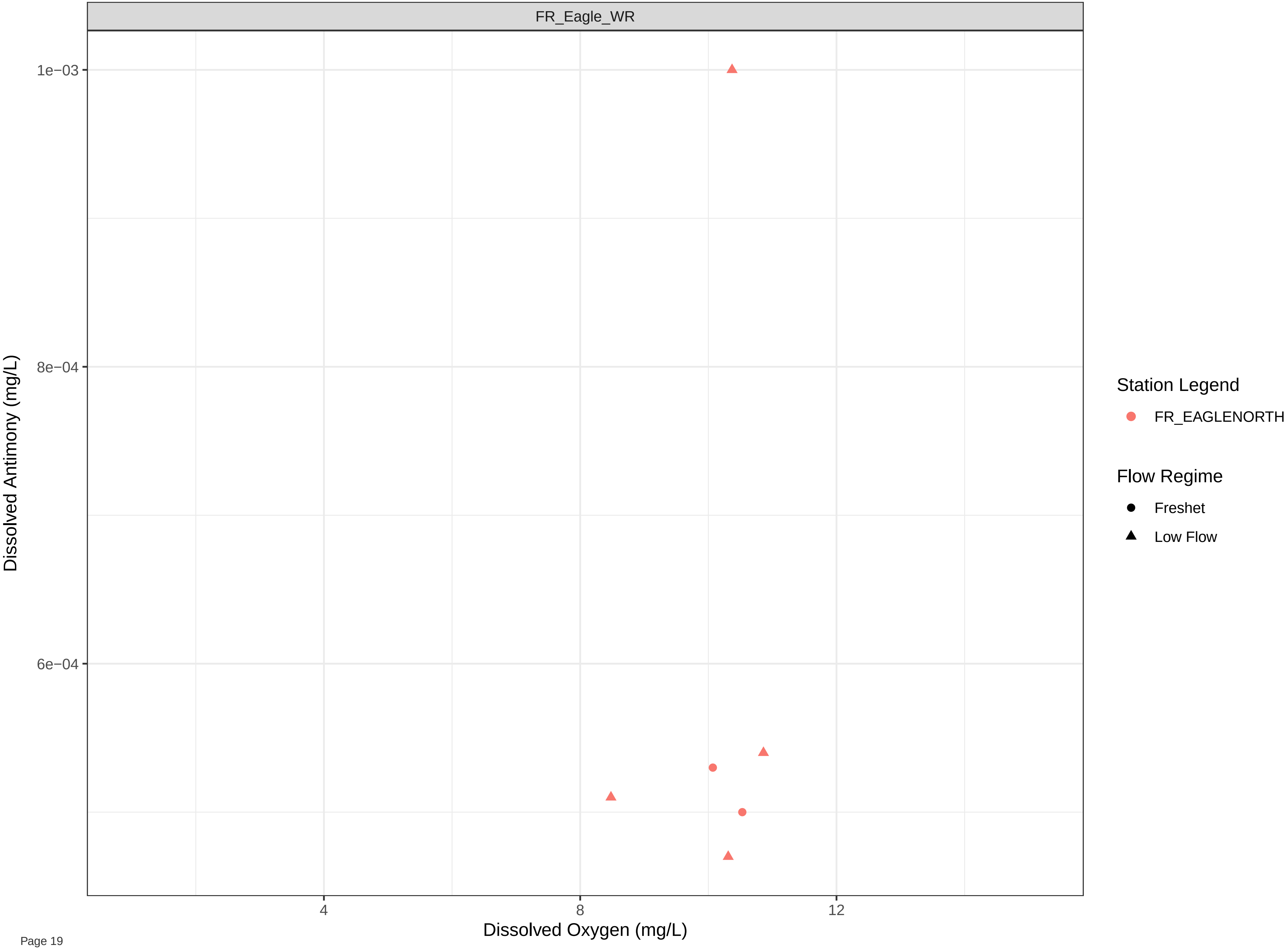

FR_TurnbullWRWest_WR
0.005
0.004
0.003
0.002
0.001
Dissolved Aluminum (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

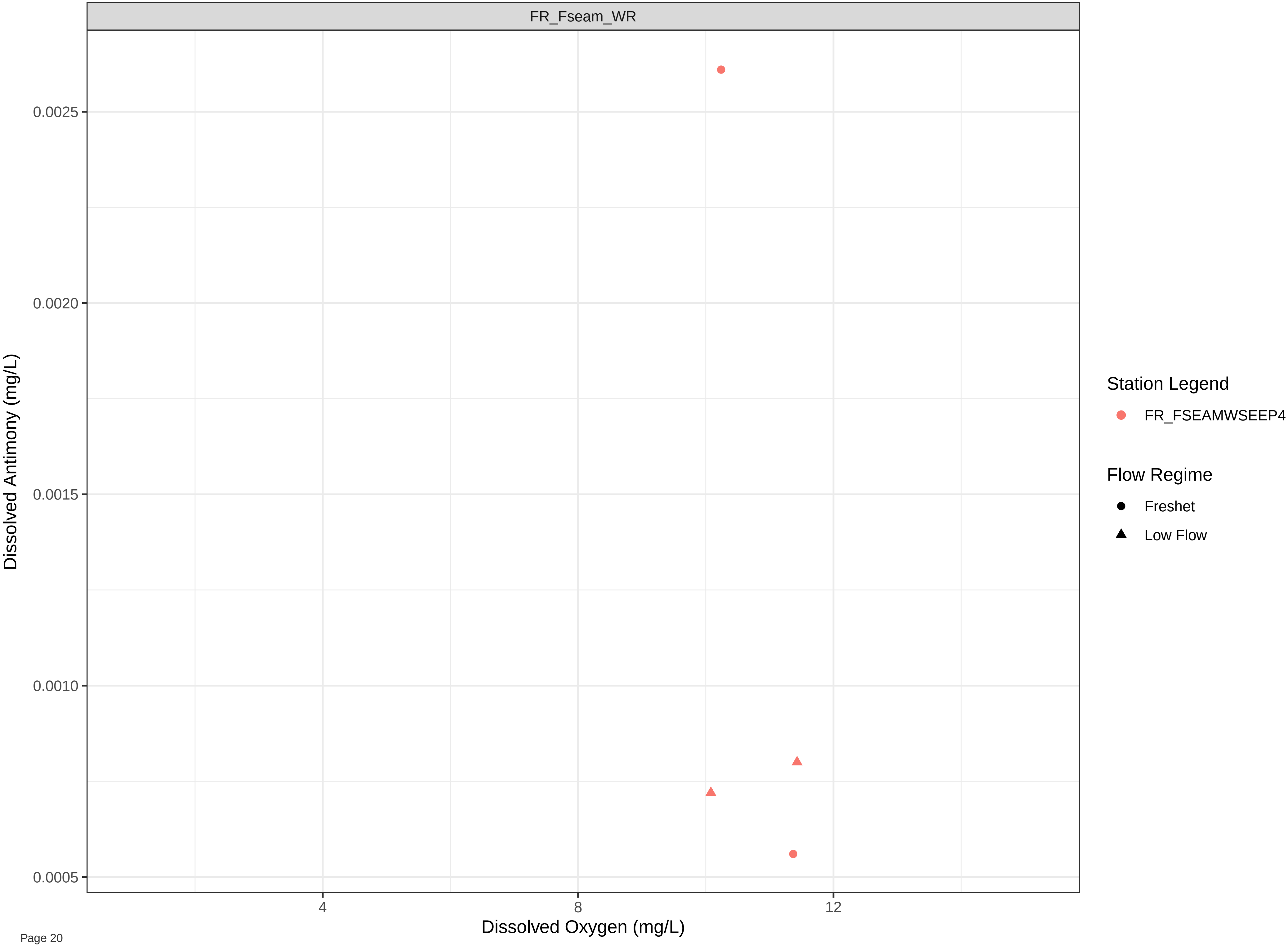

FR_A_WR
8e−04
7e−04
6e−04
5e−04
4e−04
3e−04
Dissolved Antimony (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

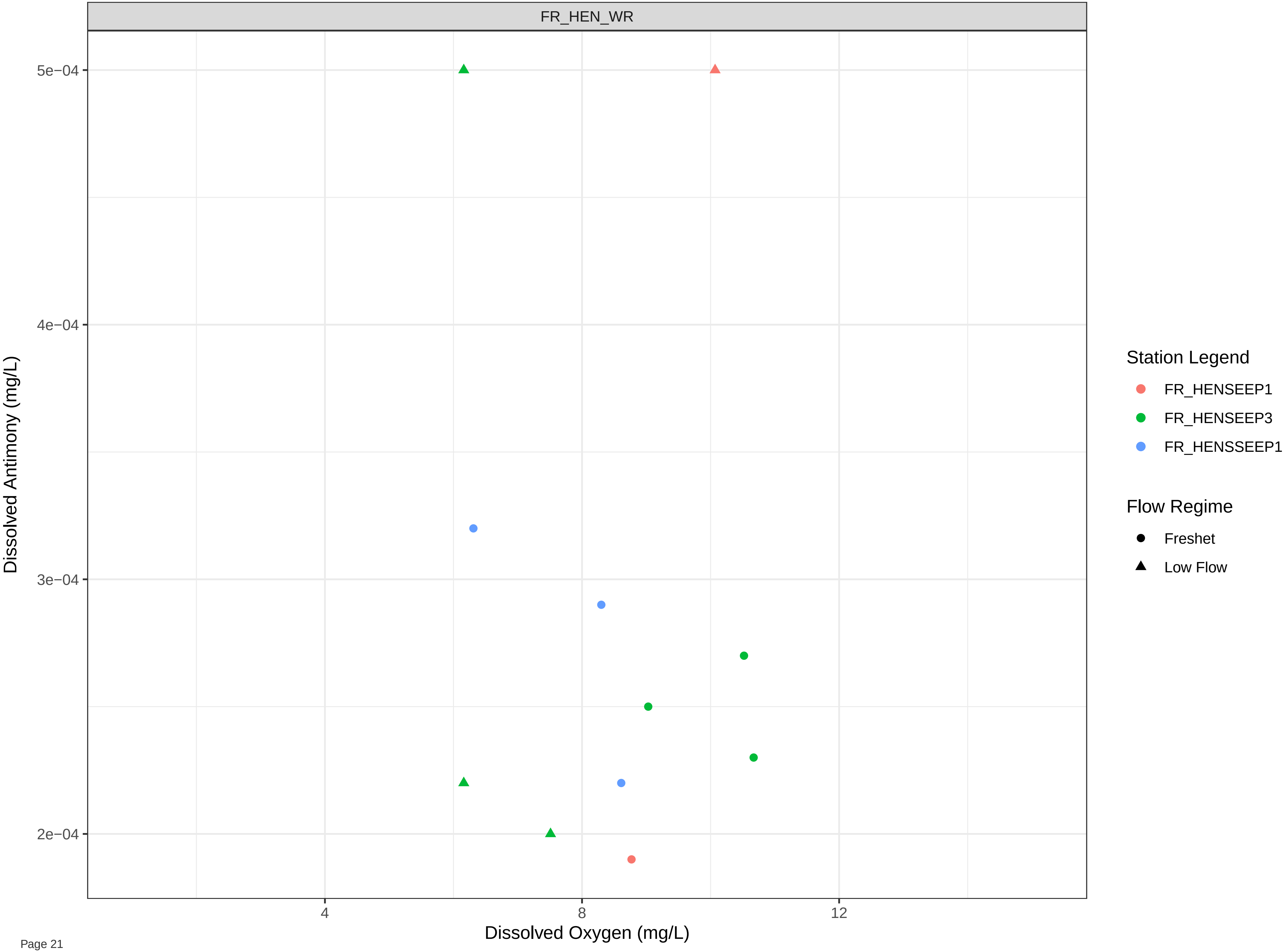

FR_Blain_CCR
Dissolved Antimony (mg/L)
0.00125
0.00100
0.00075
0.00050
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

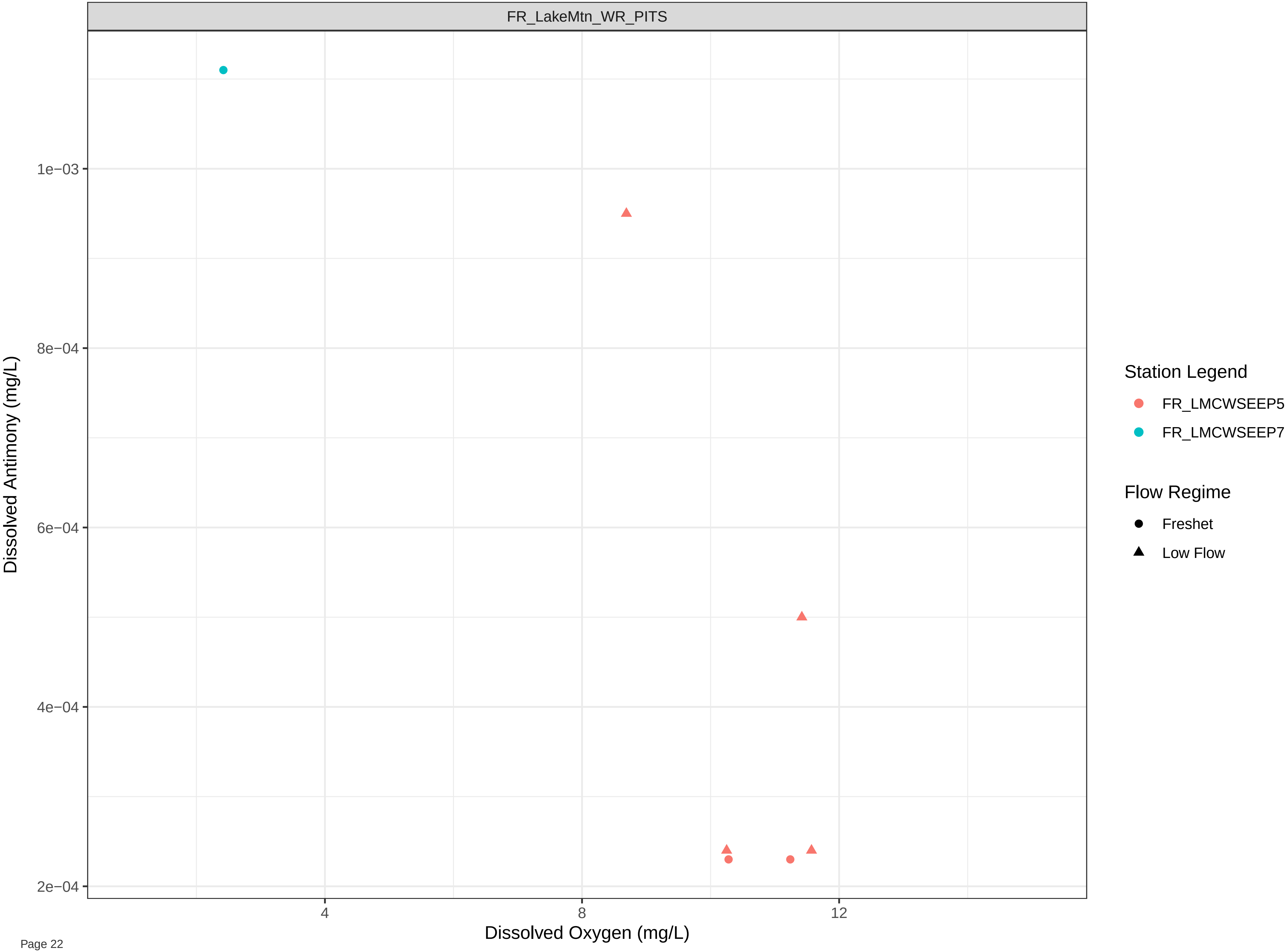

FR_ClodeCr_WR
Dissolved Antimony (mg/L)
0.0012
0.0011
0.0010
0.0009
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

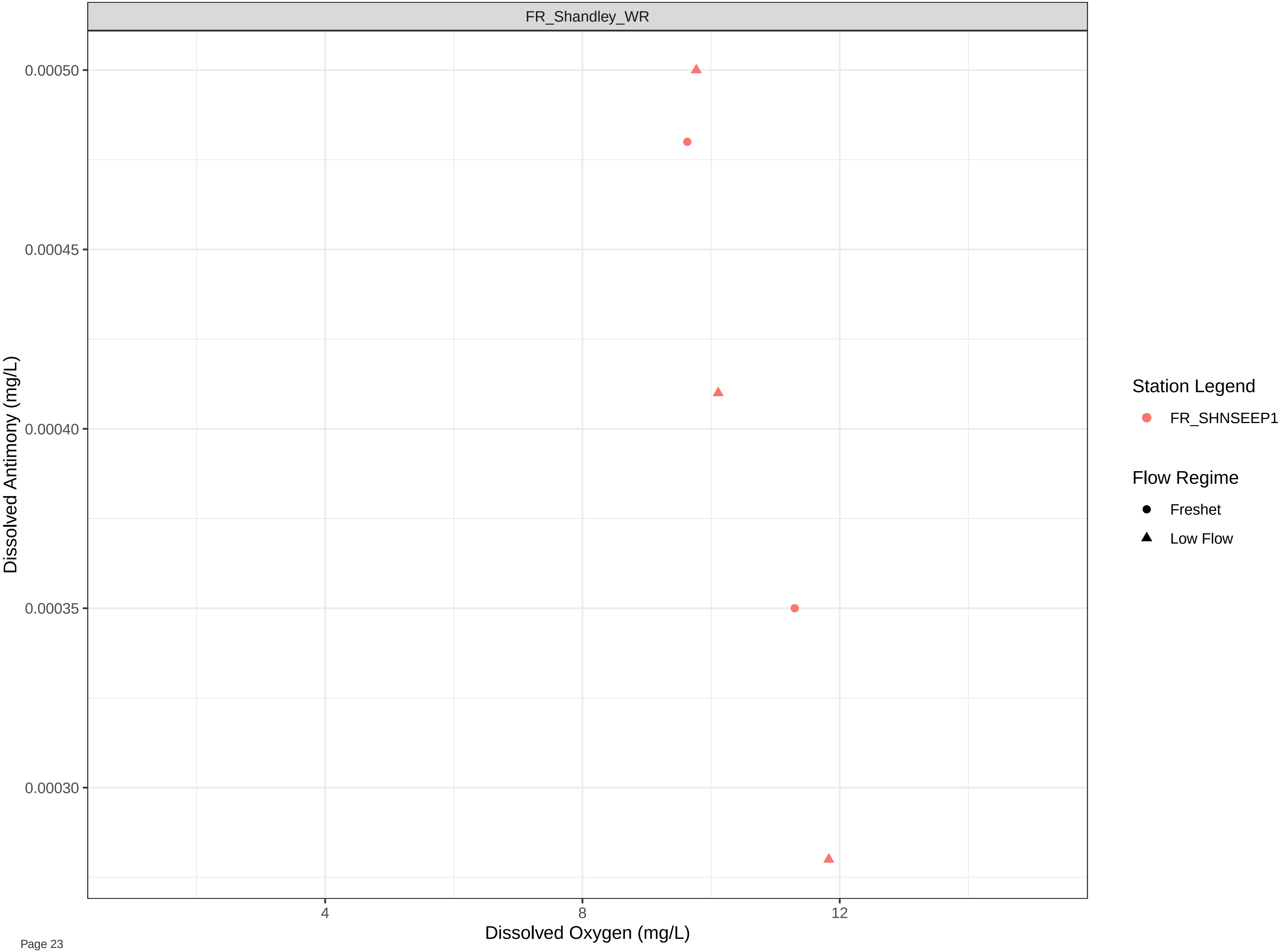

FR_DOKA_Unknown
0.0016
0.0012
0.0008
0.0004
Dissolved Antimony (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

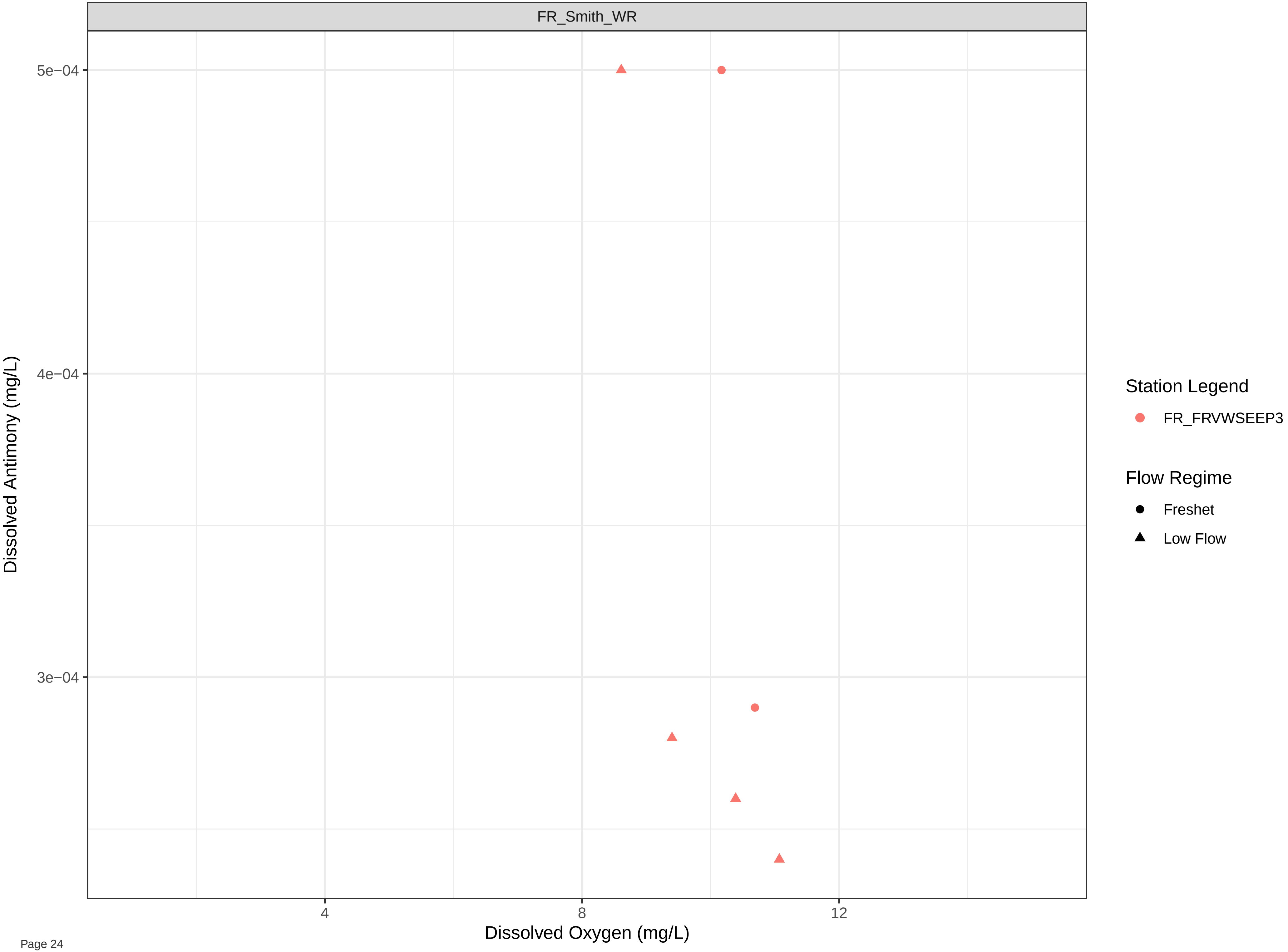

FR_Eagle_WR
1e−03
8e−04
6e−04
Dissolved Antimony (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

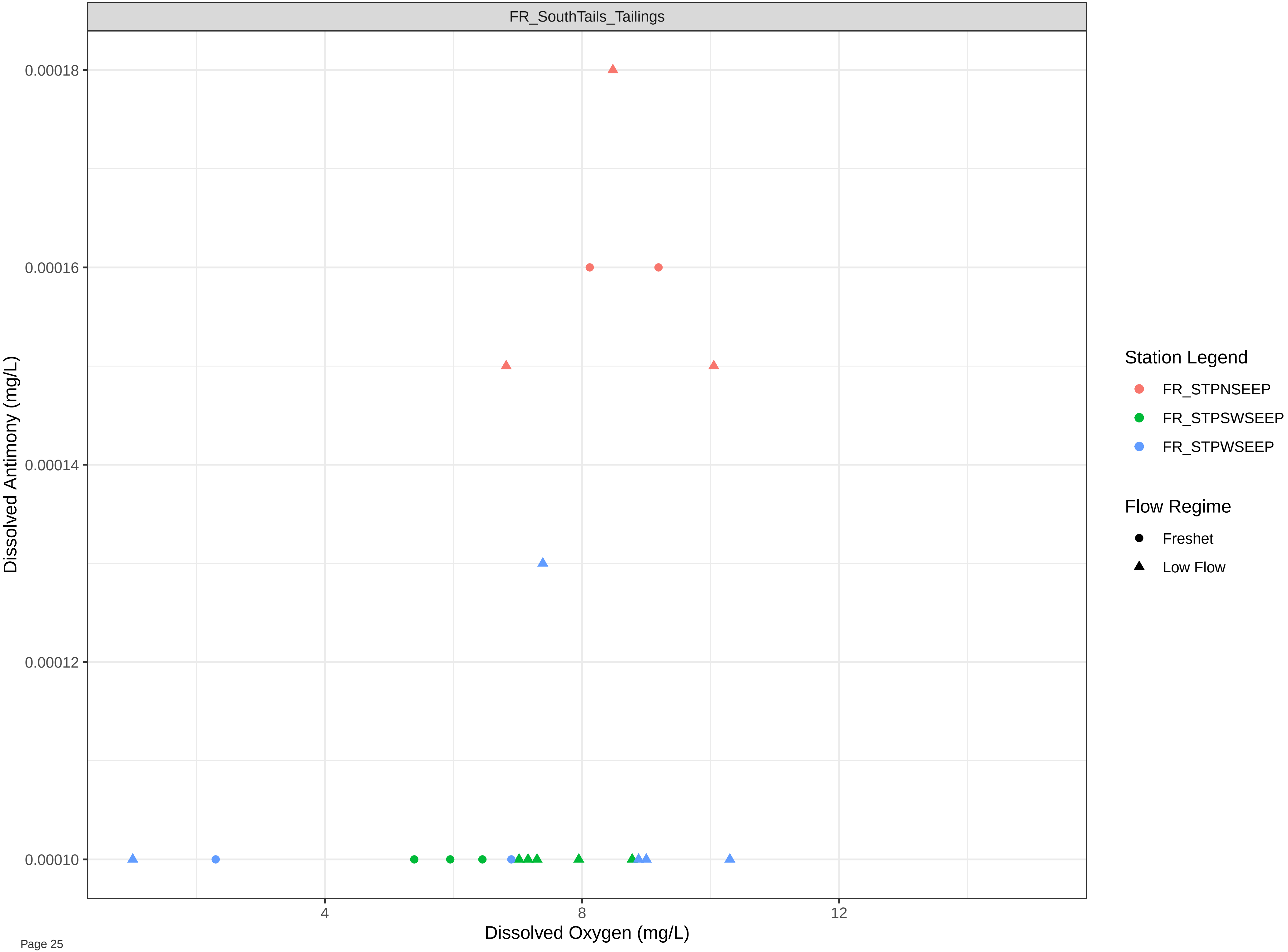

FR_Fseam_WR
Dissolved Antimony (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

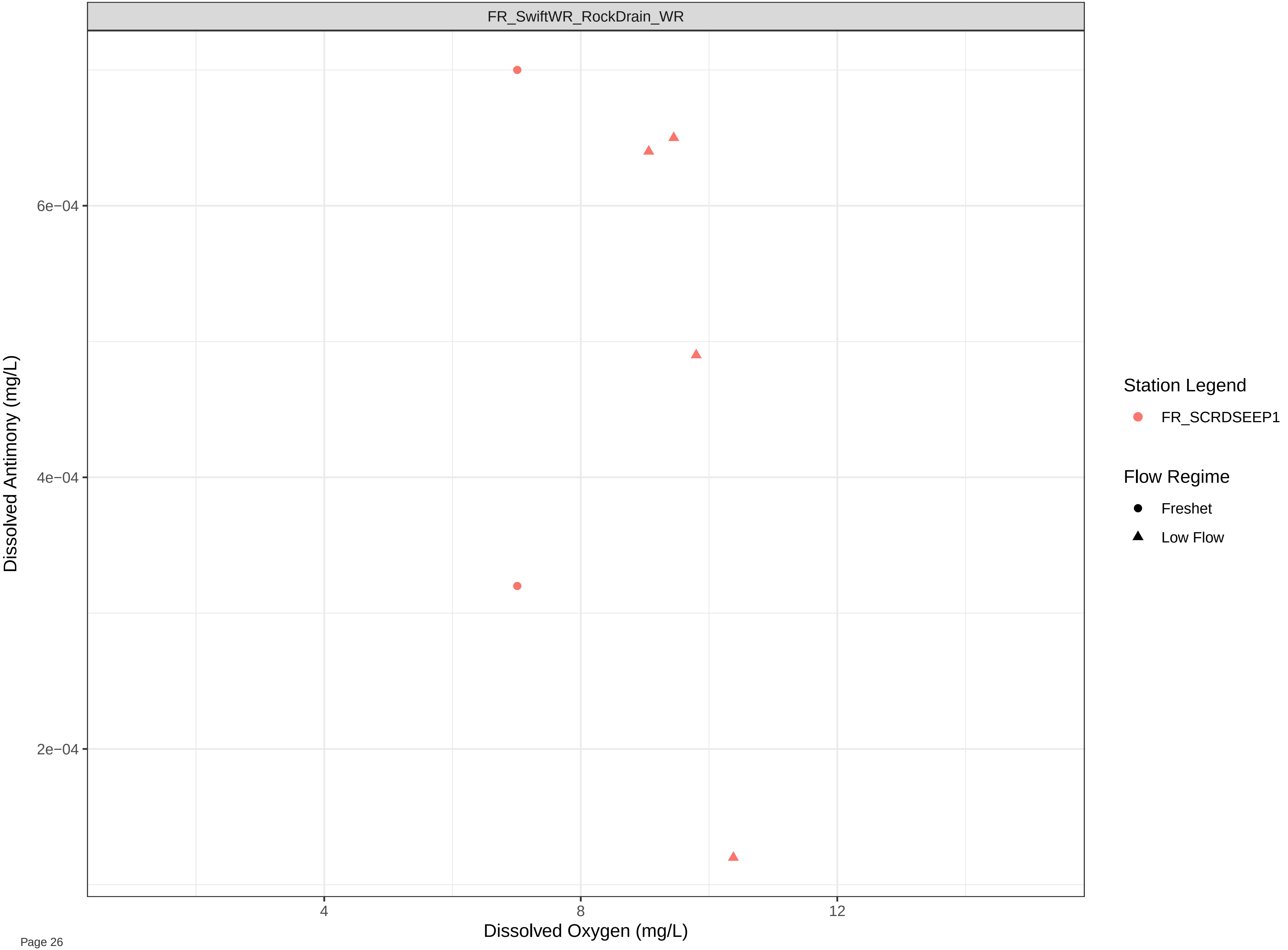

FR_HEN_WR
5e−04
4e−04
3e−04
2e−04
Dissolved Antimony (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

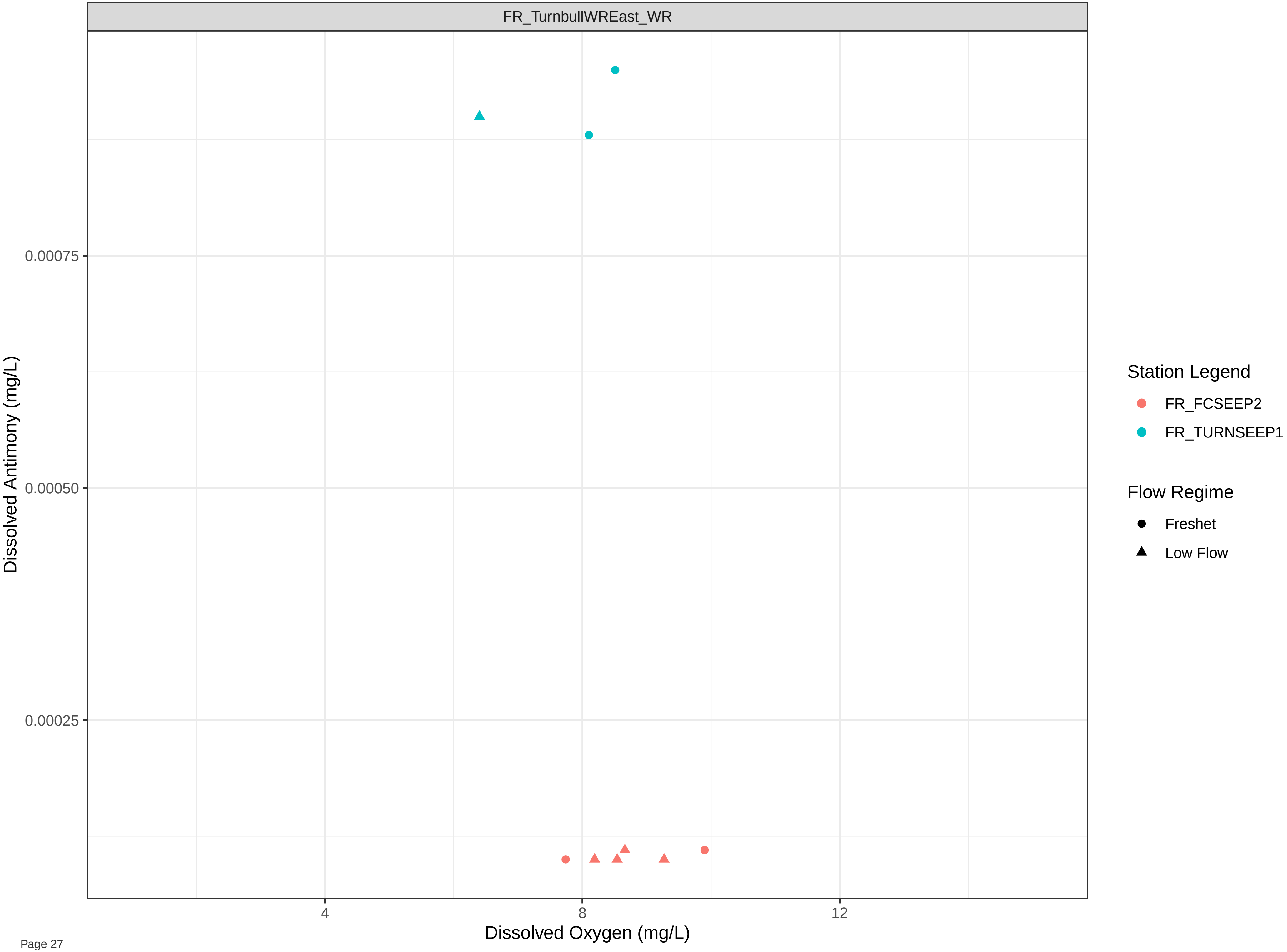

FR_LakeMtn_WR_PITS
Dissolved Antimony (mg/L)
1e−03
8e−04
6e−04
4e−04
2e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

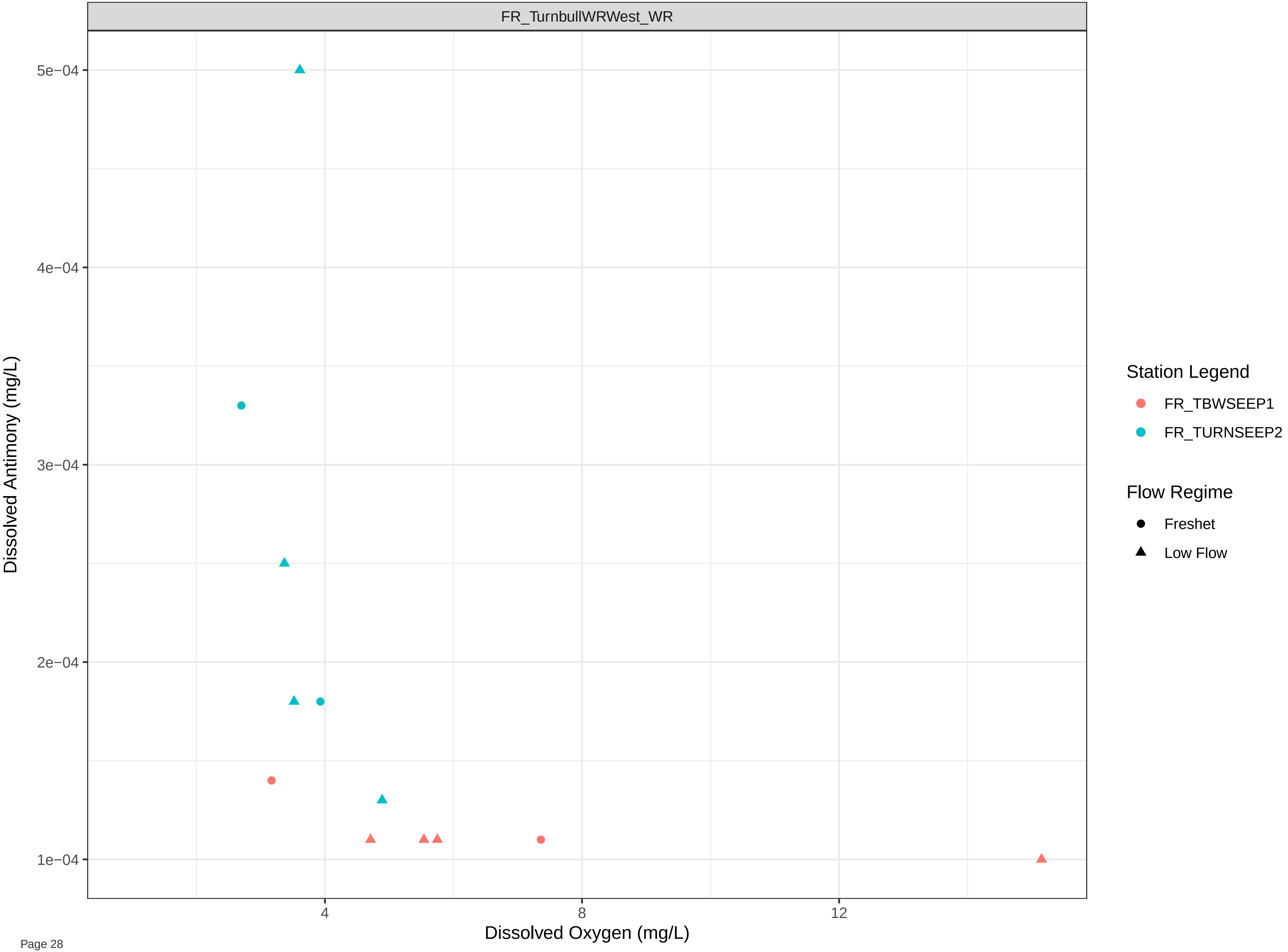

FR_Shandley_WR
Dissolved Antimony (mg/L)
0.00050
0.00045
0.00040
0.00035
0.00030
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

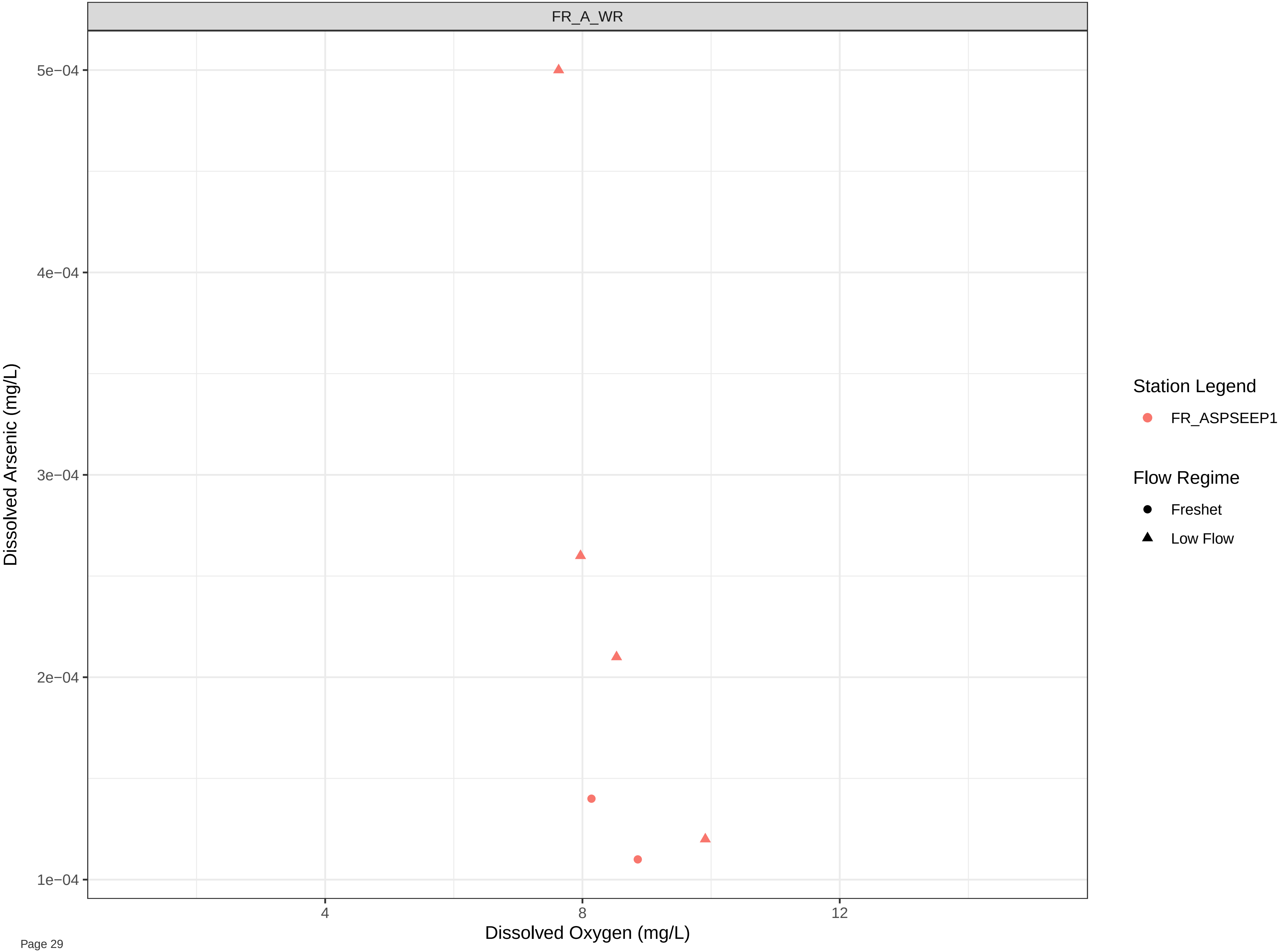

FR_Smith_WR
5e−04
4e−04
3e−04
Dissolved Antimony (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

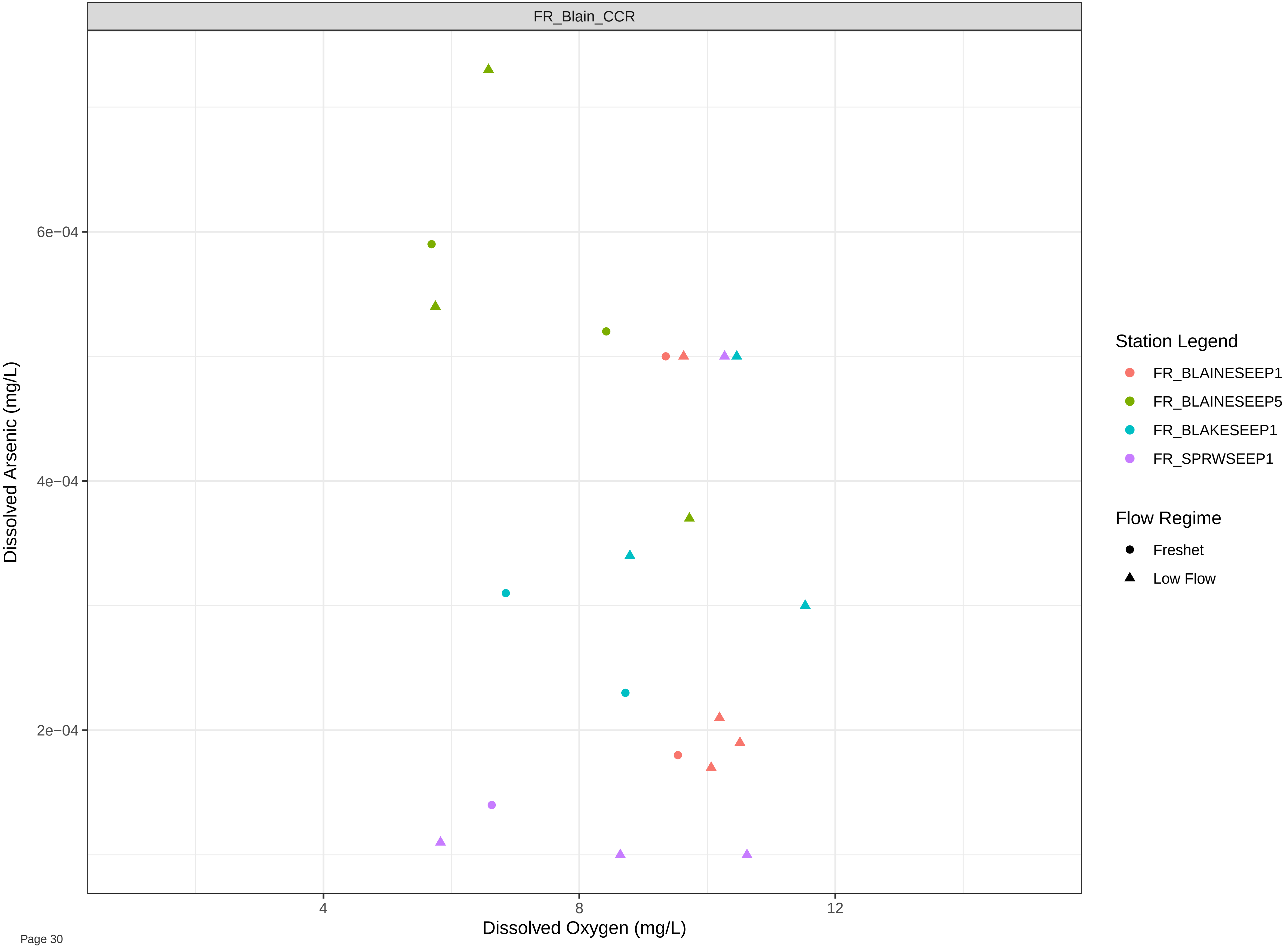

FR_SouthTails_Tailings
Dissolved Antimony (mg/L)
0.00018
0.00016
0.00014
0.00012
0.00010
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

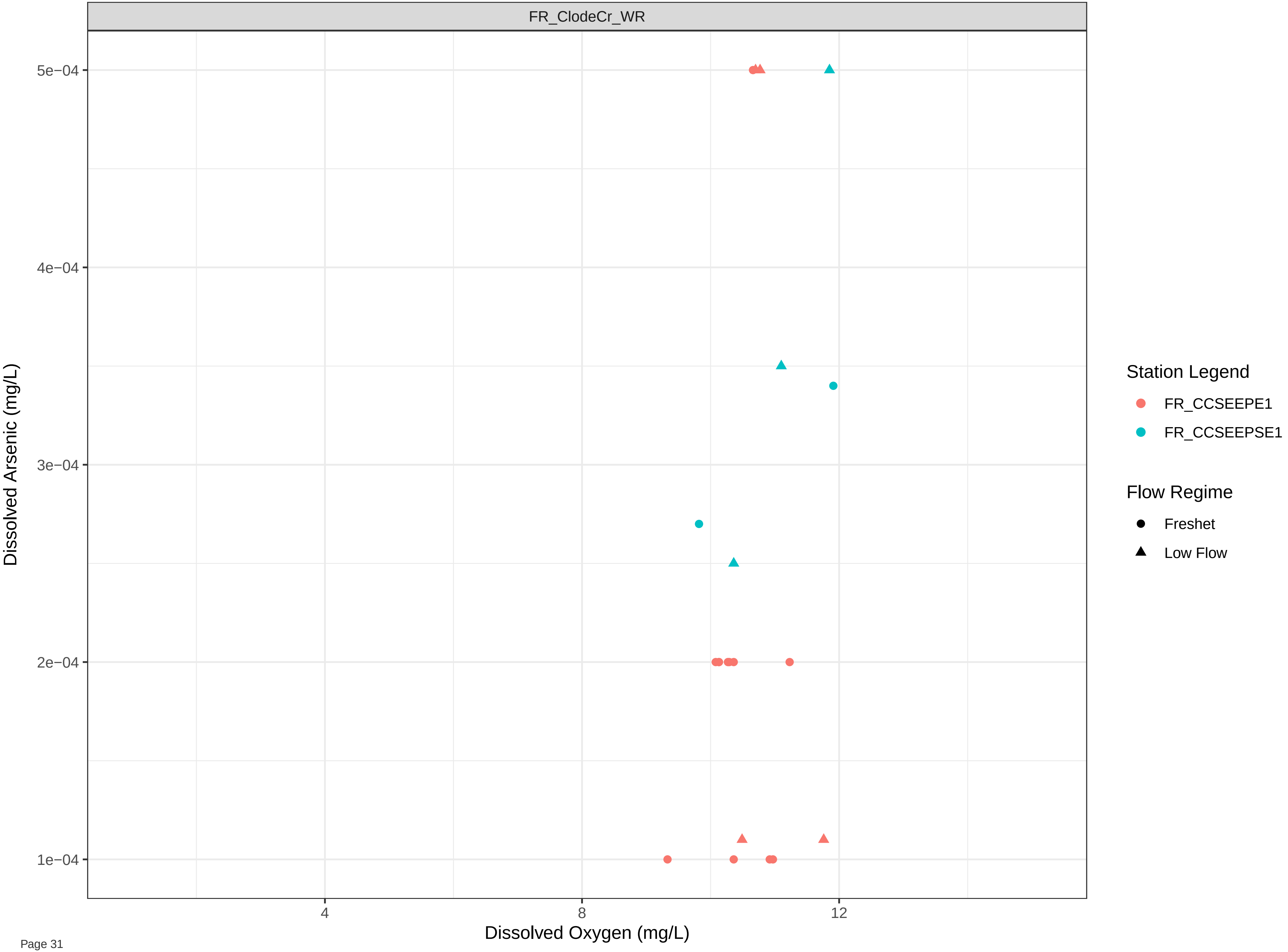

FR_SwiftWR_RockDrain_WR
Dissolved Antimony (mg/L)
6e−04
4e−04
2e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

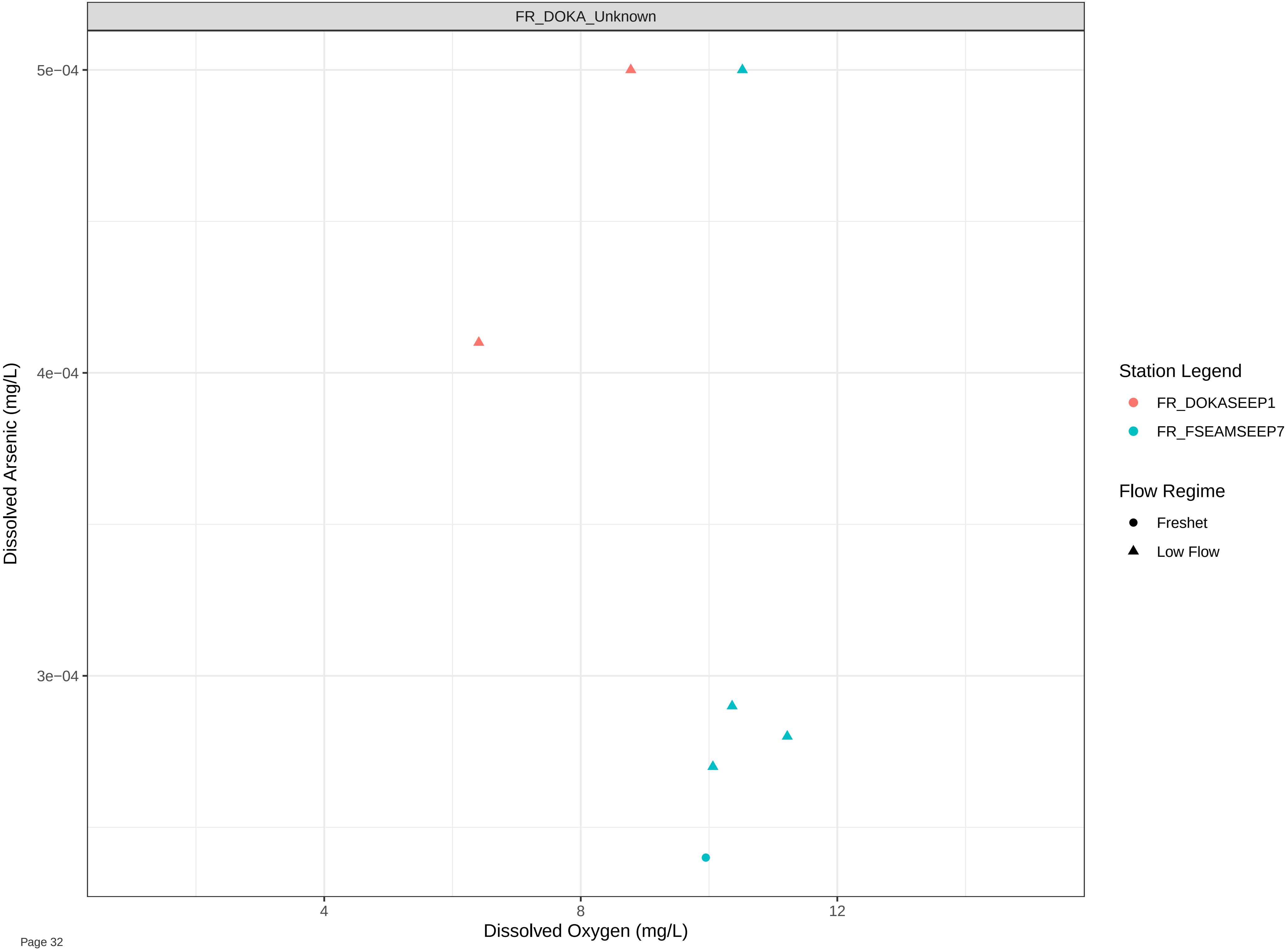

FR_TurnbullWREast_WR
Dissolved Antimony (mg/L)
0.00075
0.00050
0.00025
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

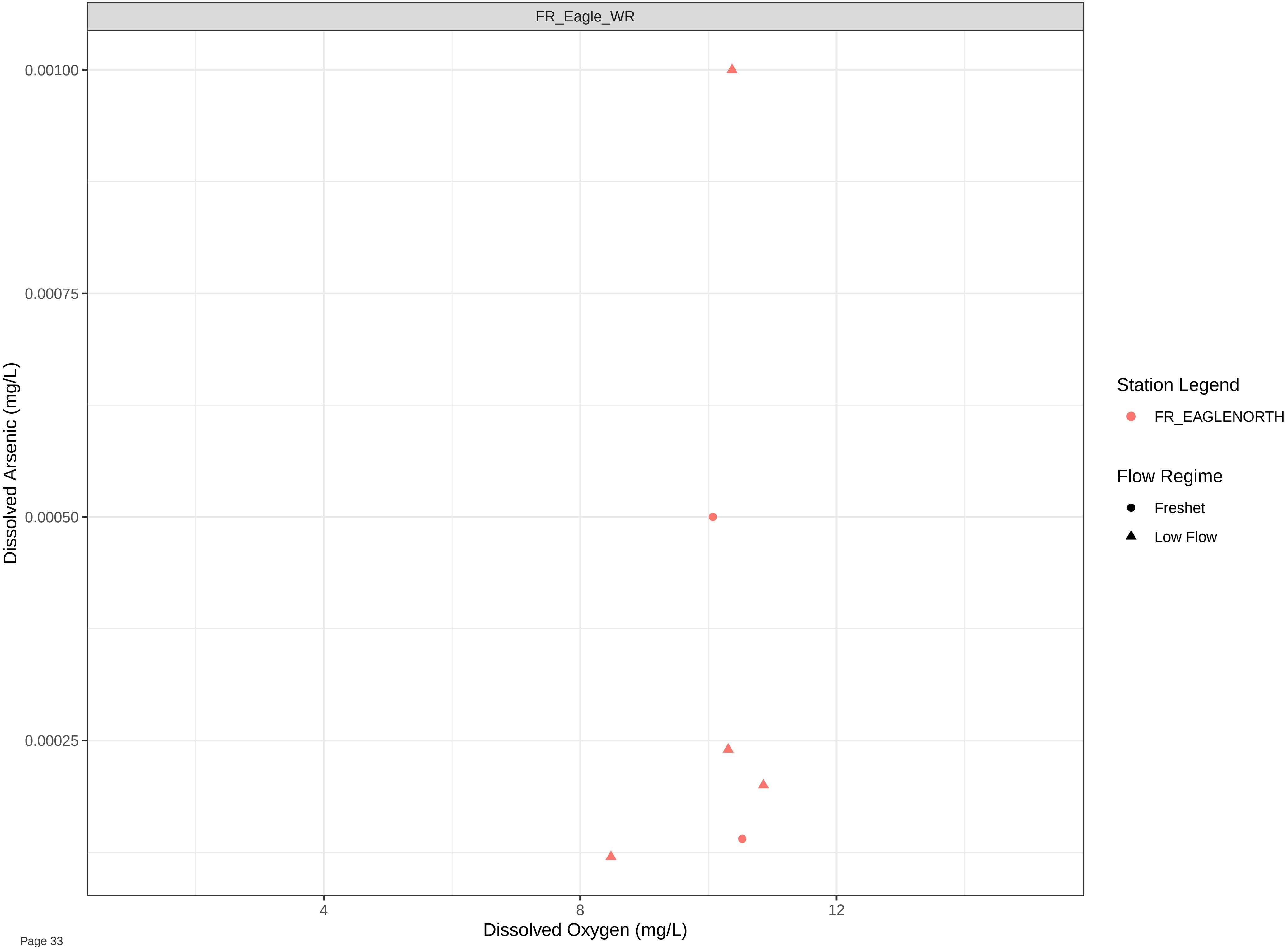

FR_TurnbullWRWest_WR
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Antimony (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

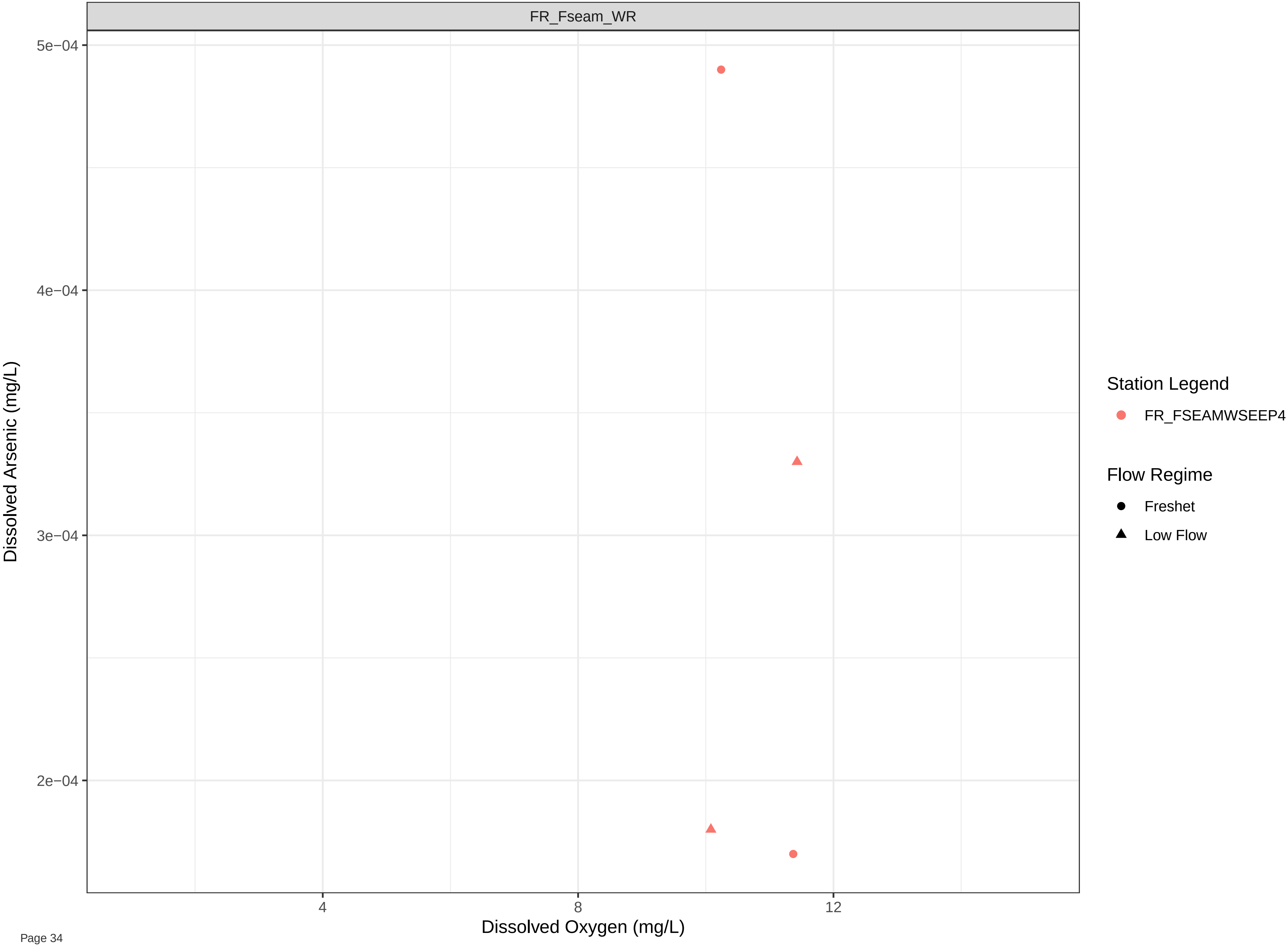

FR_A_WR
Dissolved Arsenic (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

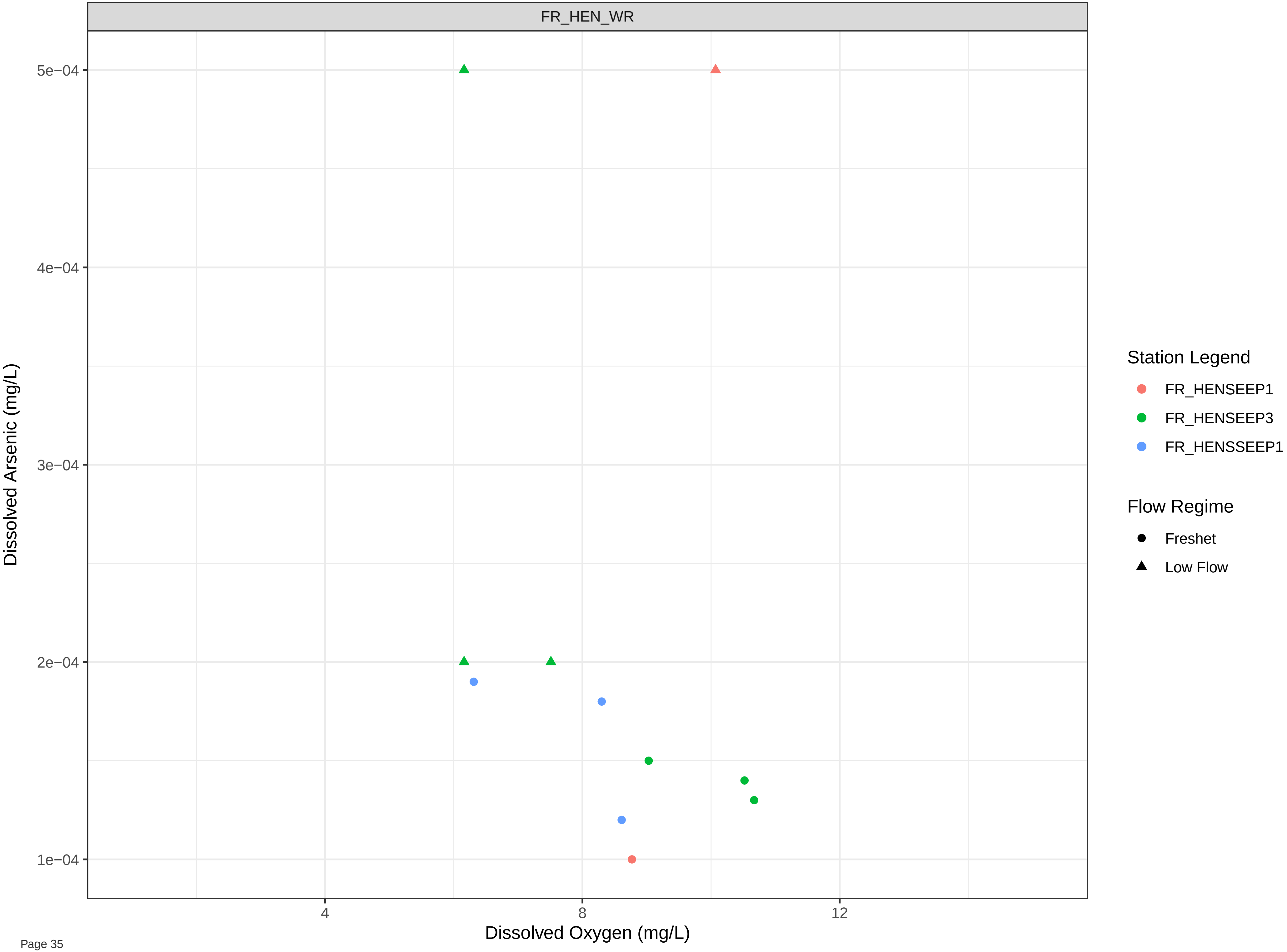

FR_Blain_CCR
Dissolved Arsenic (mg/L)
6e−04
4e−04
2e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

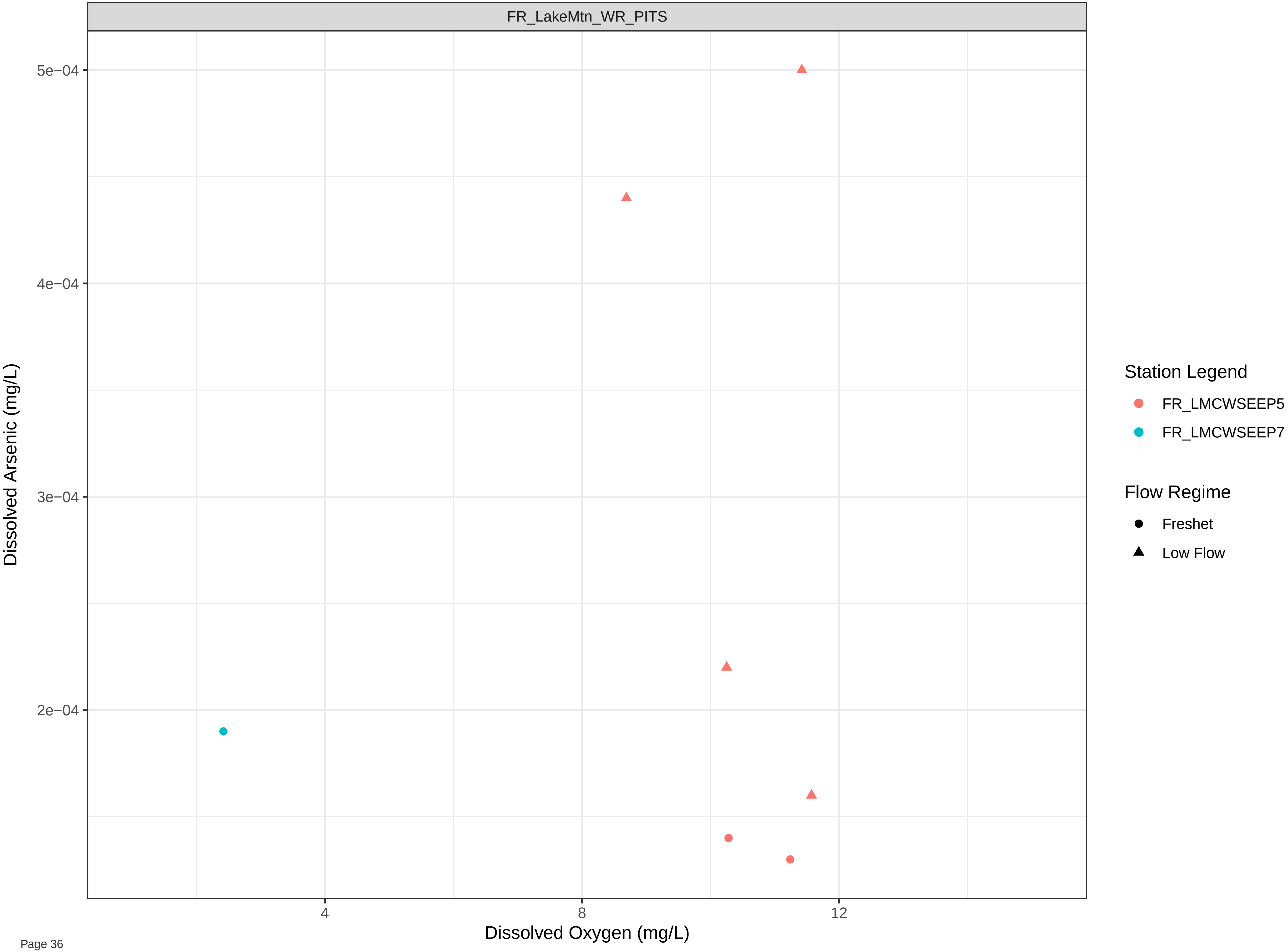

FR_ClodeCr_WR
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Arsenic (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

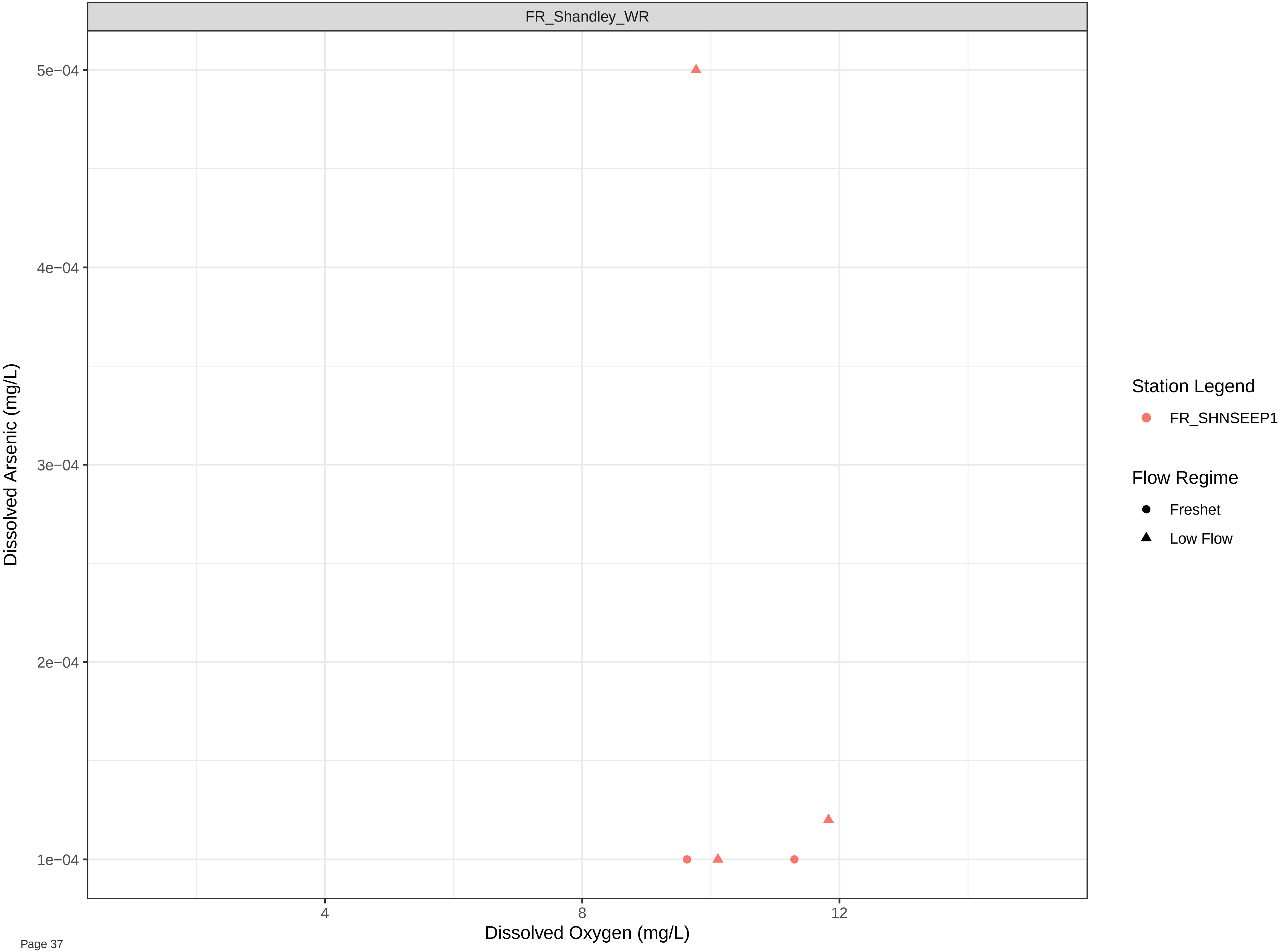

FR_DOKA_Unknown
5e−04
4e−04
3e−04
Dissolved Arsenic (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

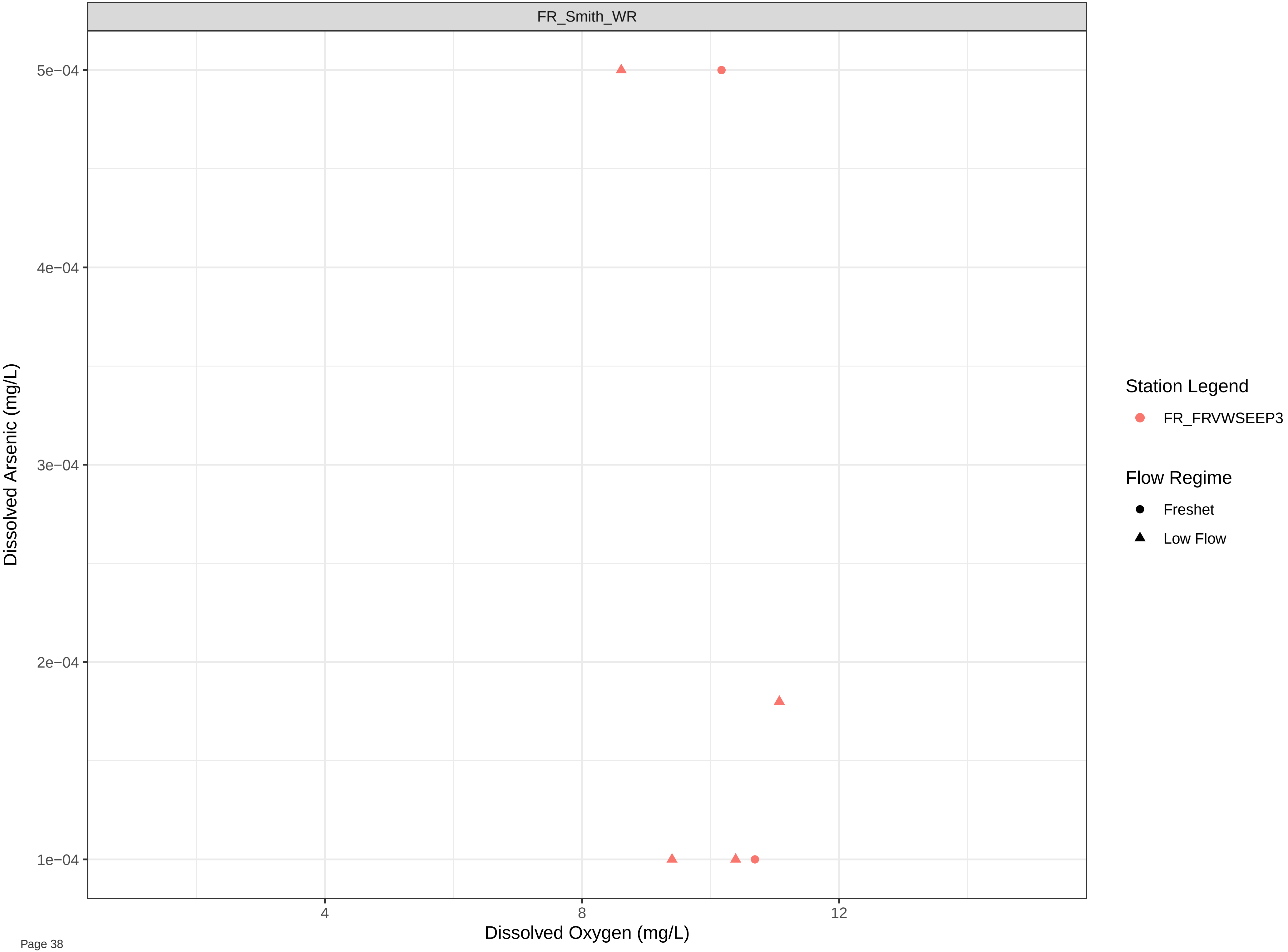

FR_Eagle_WR
Dissolved Arsenic (mg/L)
0.00100
0.00075
0.00050
0.00025
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

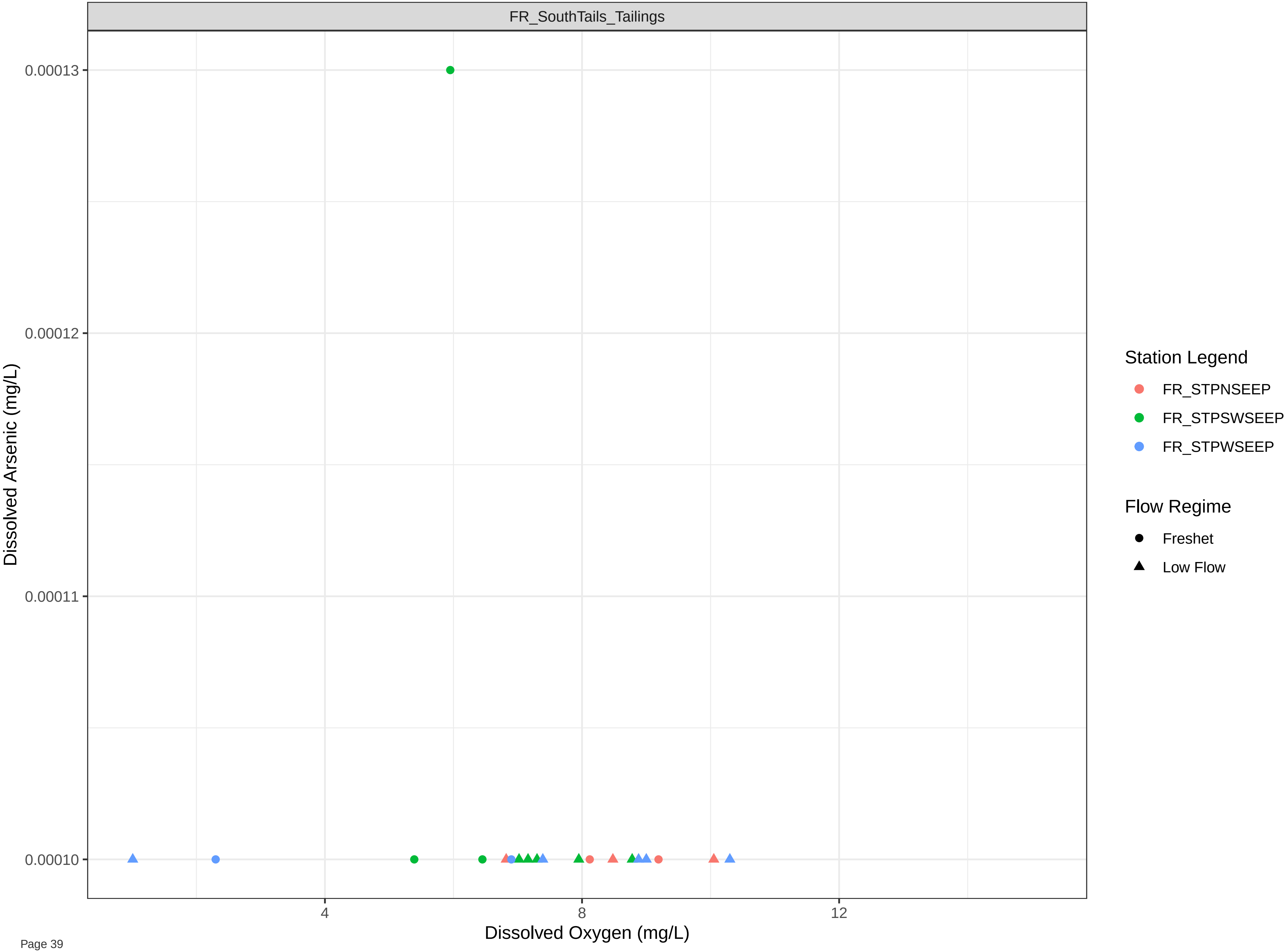

FR_Fseam_WR
Dissolved Arsenic (mg/L)
5e−04
4e−04
3e−04
2e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

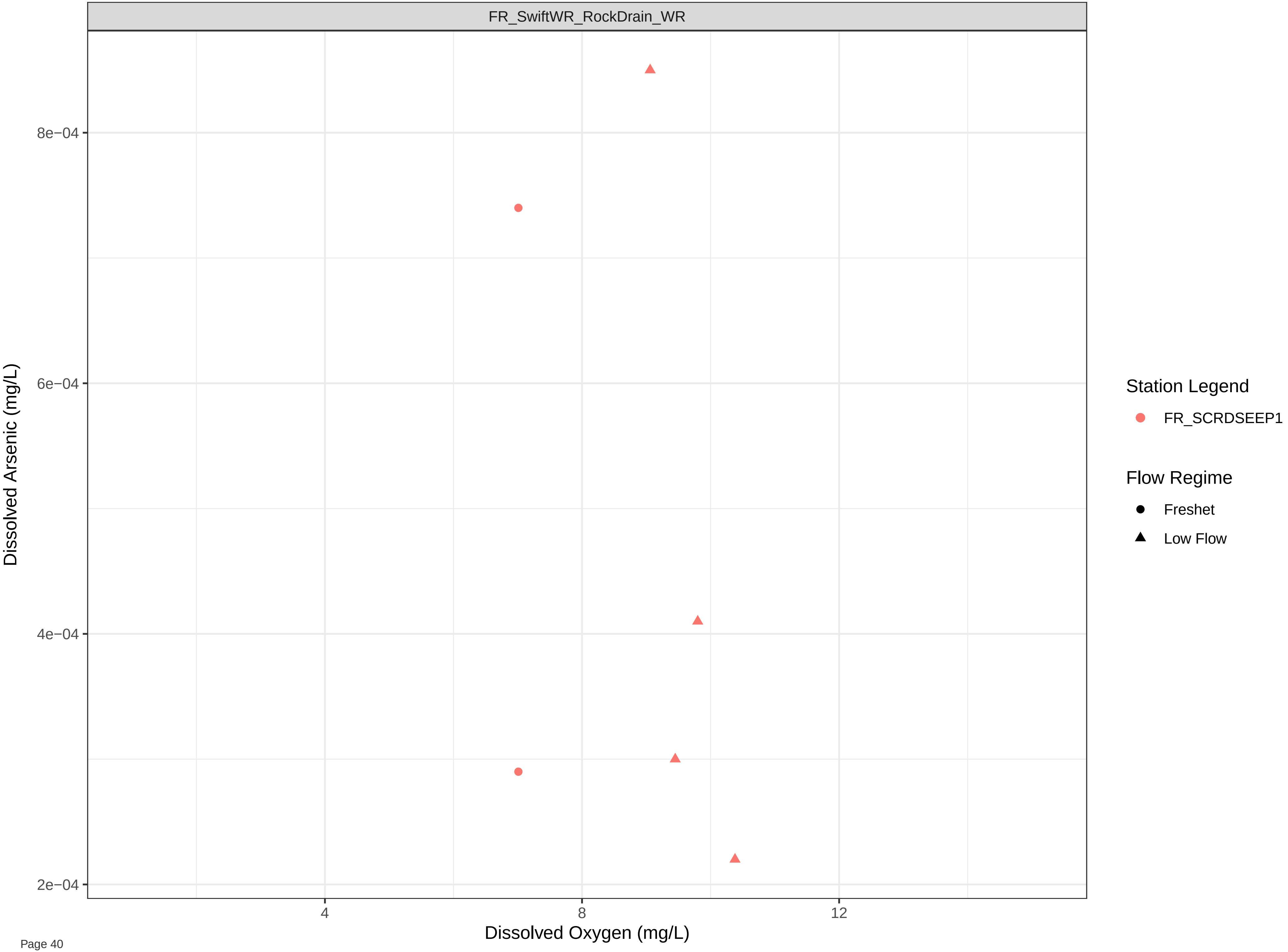

FR_HEN_WR
Dissolved Arsenic (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

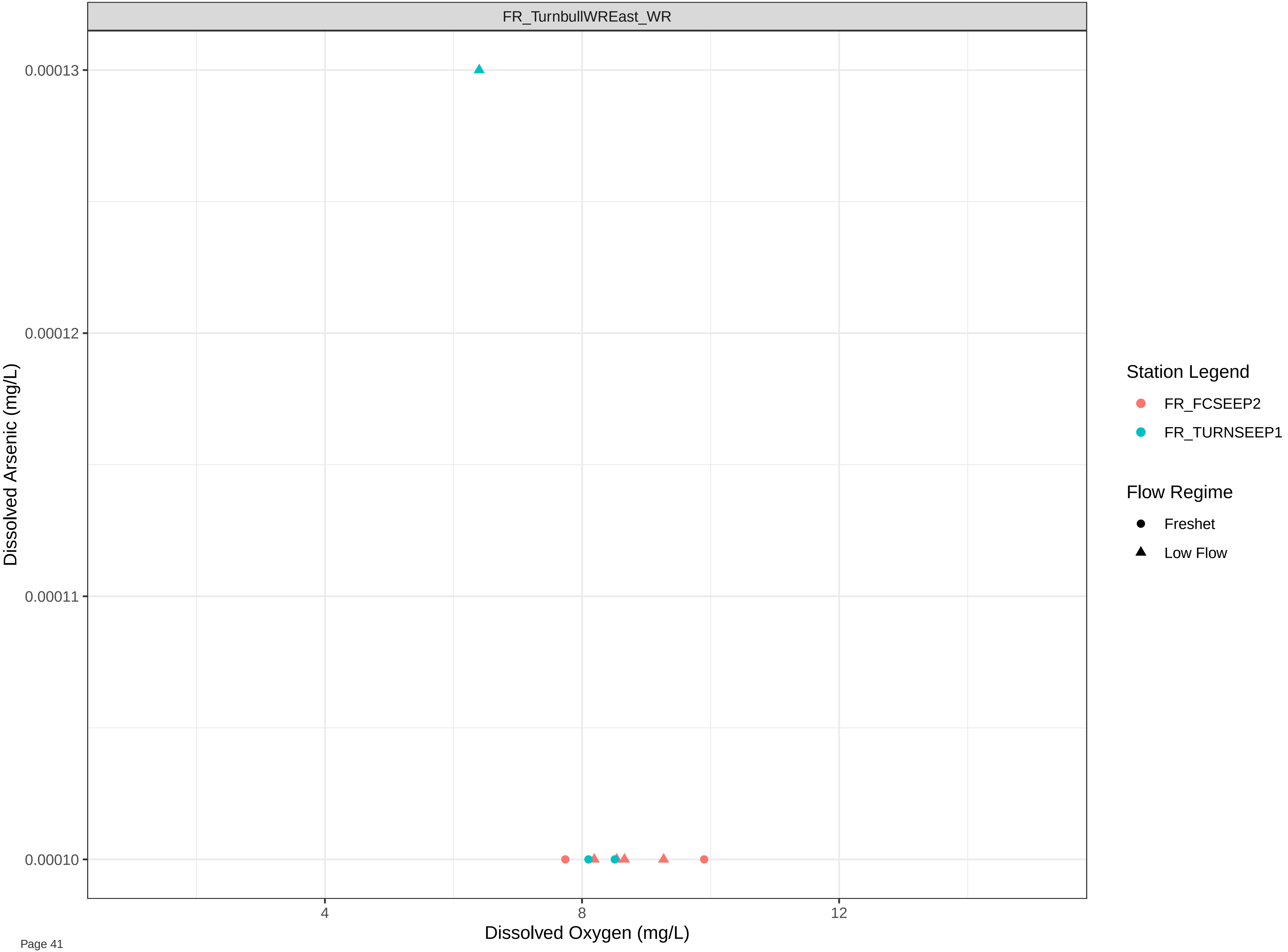

FR_LakeMtn_WR_PITS
Dissolved Arsenic (mg/L)
5e−04
4e−04
3e−04
2e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

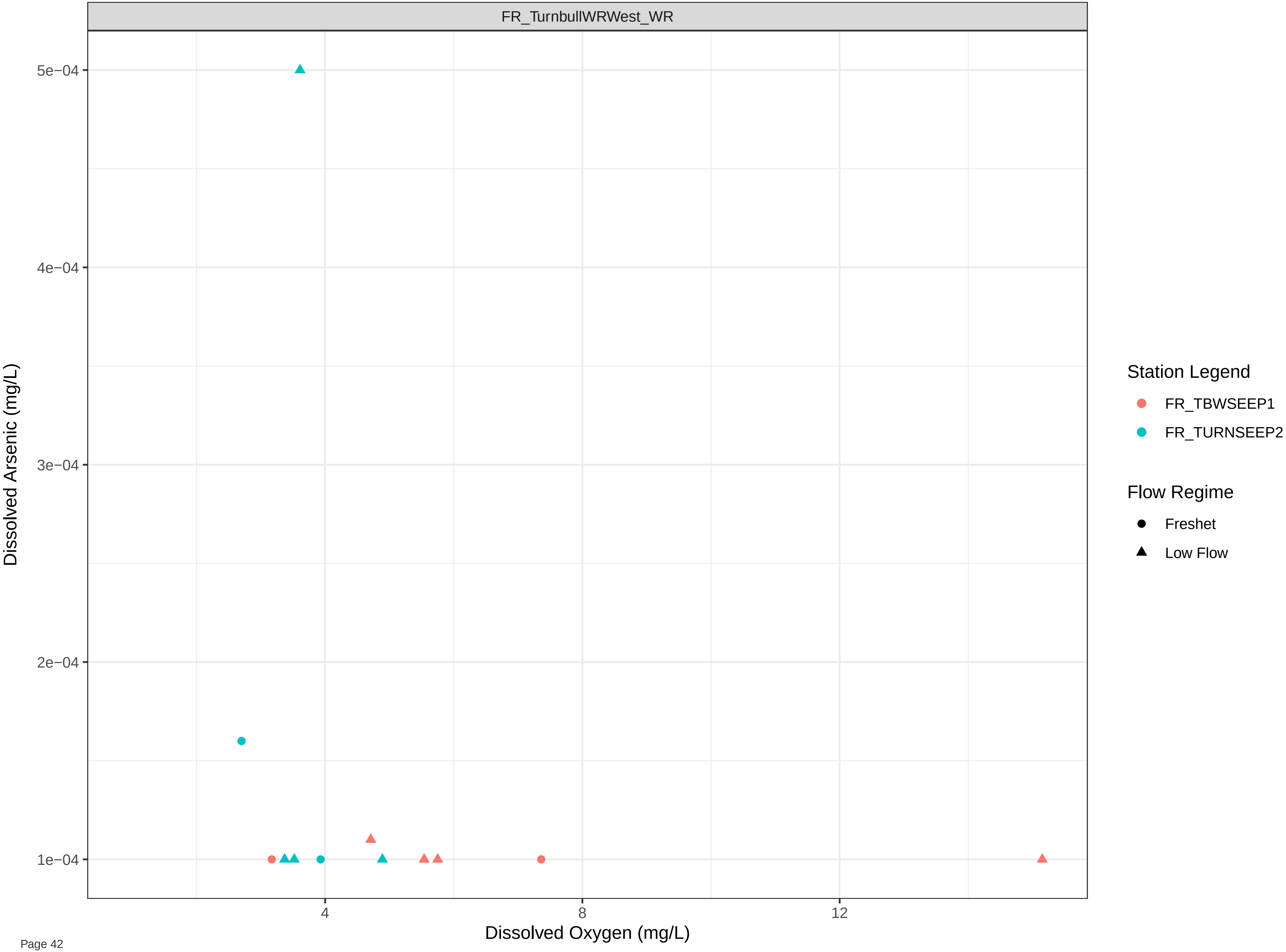

FR_Shandley_WR
Dissolved Arsenic (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

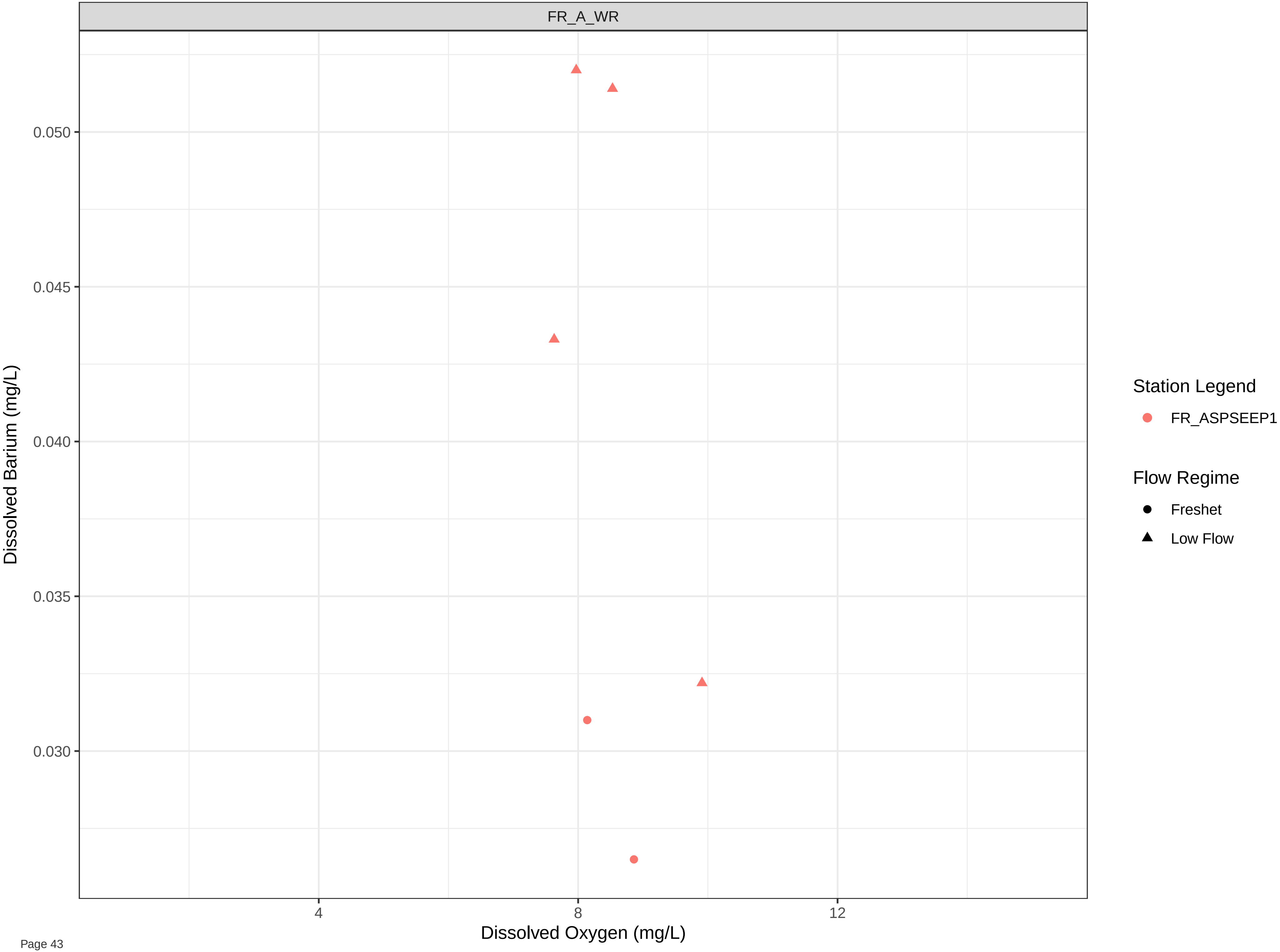

FR_Smith_WR
Dissolved Arsenic (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

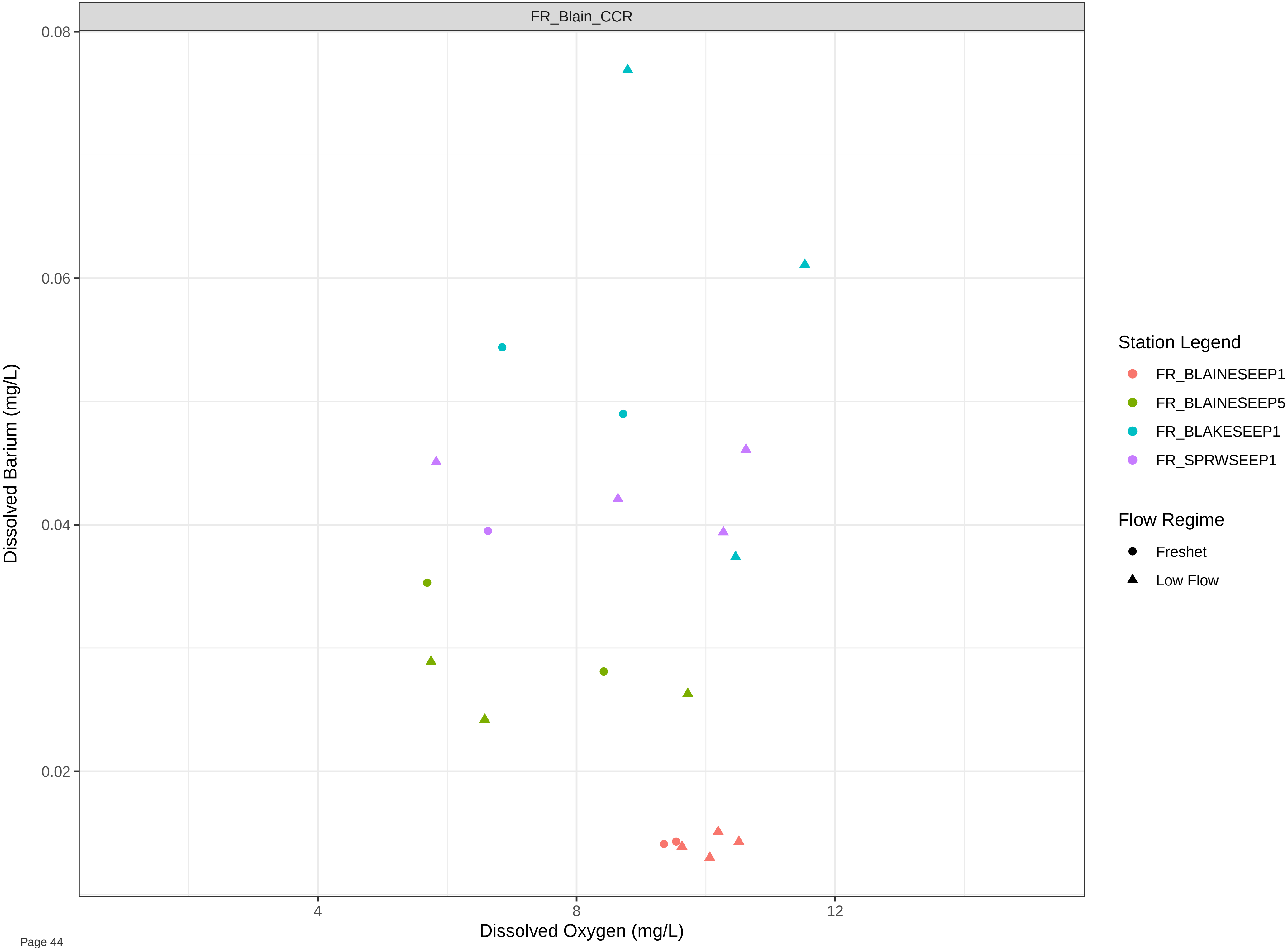

FR_SouthTails_Tailings
0.00013
0.00012
0.00011
0.00010
Dissolved Arsenic (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

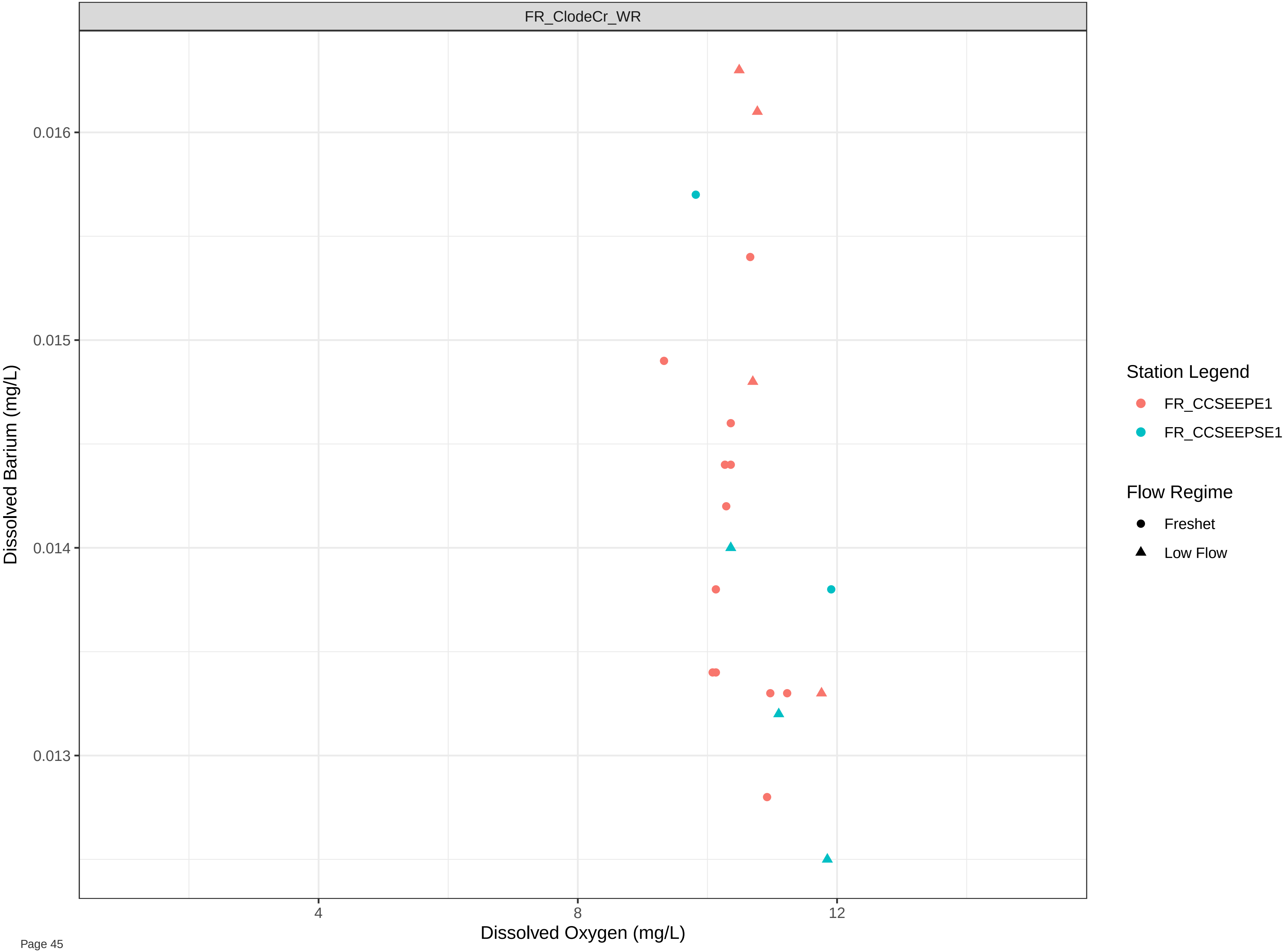

FR_SwiftWR_RockDrain_WR
Dissolved Arsenic (mg/L)
8e−04
6e−04
4e−04
2e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

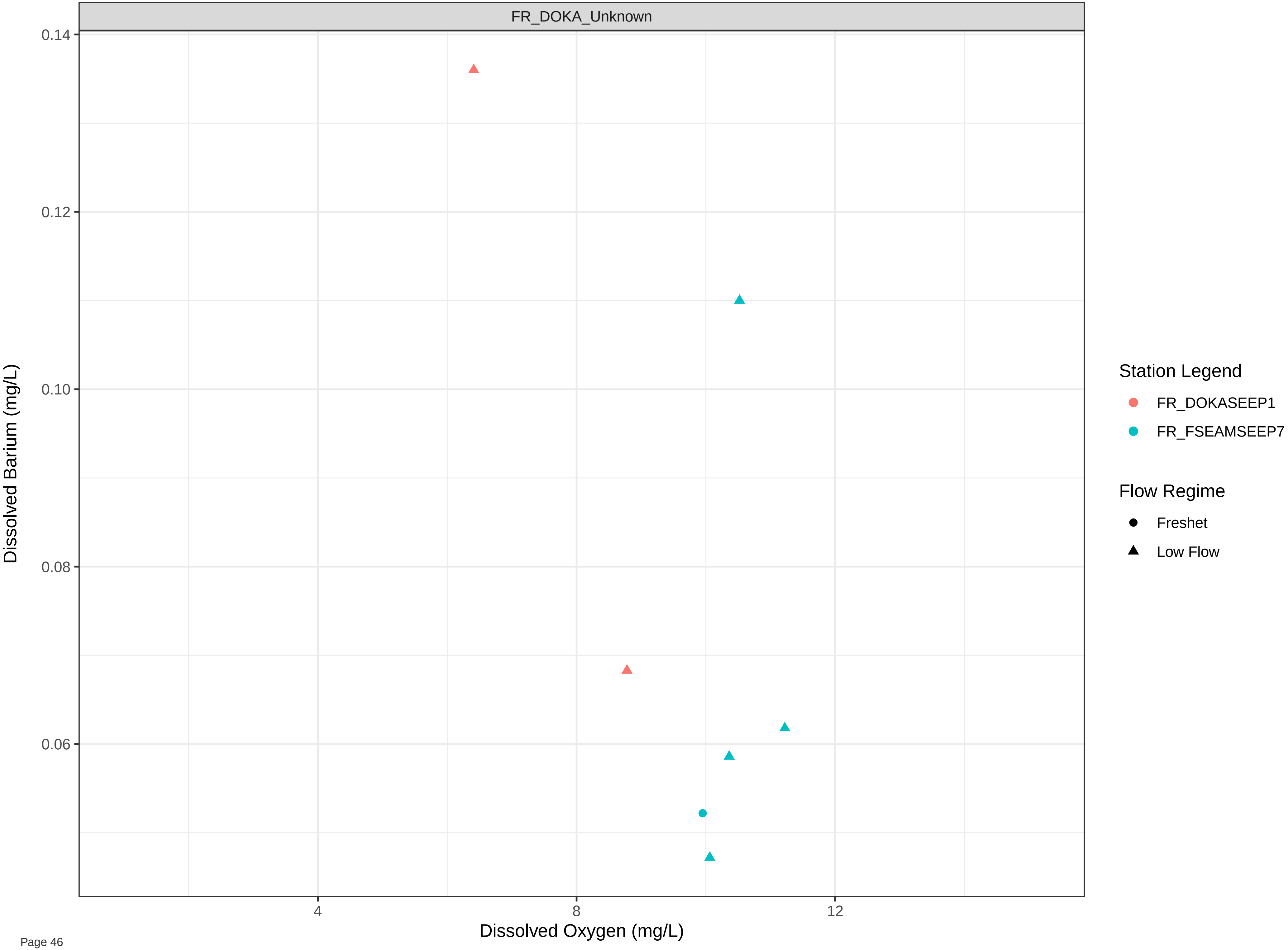

FR_TurnbullWREast_WR
Dissolved Arsenic (mg/L)
0.00013
0.00012
0.00011
0.00010
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

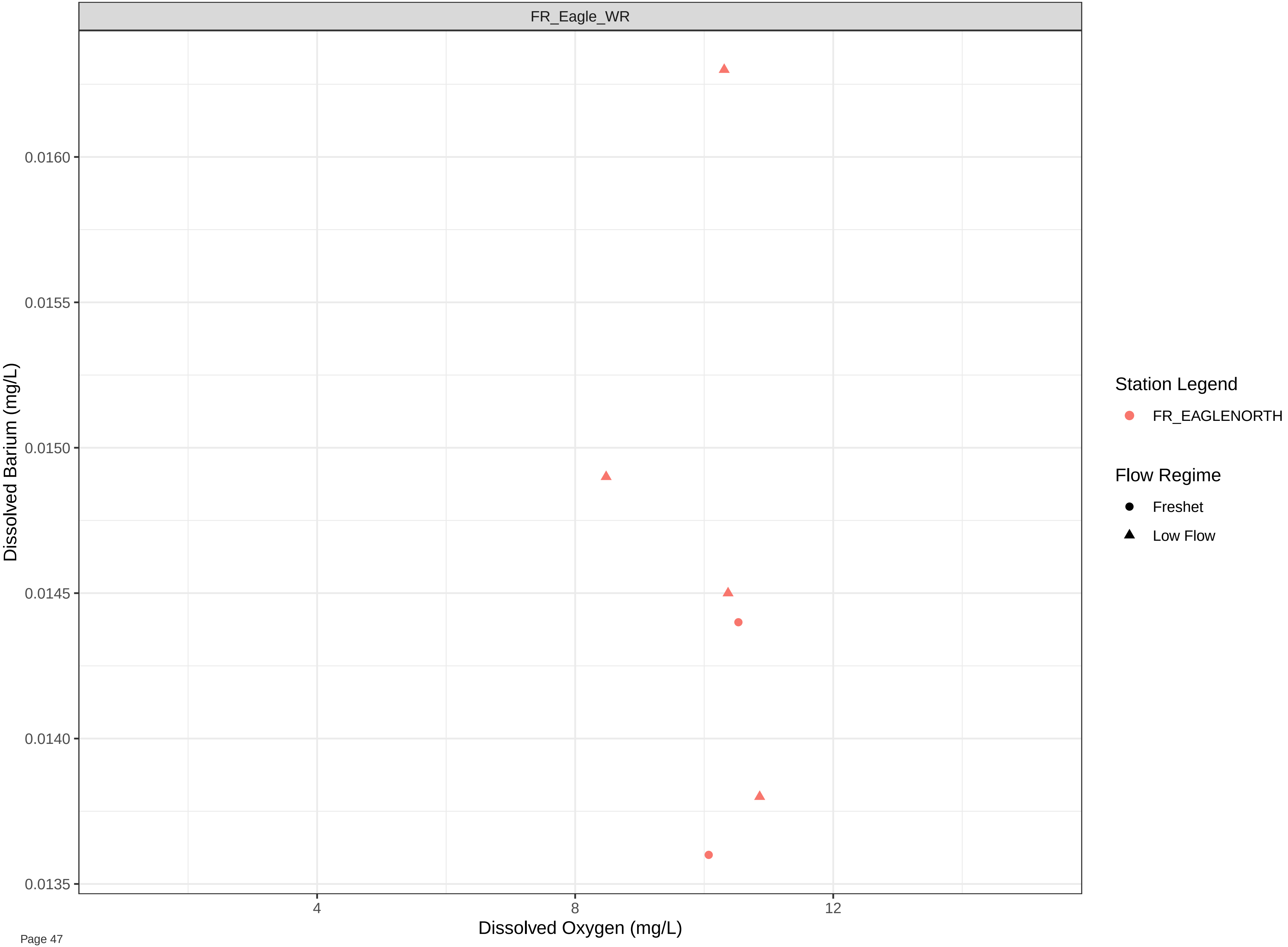

FR_TurnbullWRWest_WR
Dissolved Arsenic (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_TBWSEEP1
● FR_TURNSEEP2
Flow Regime
● Freshet
▲ Low Flow

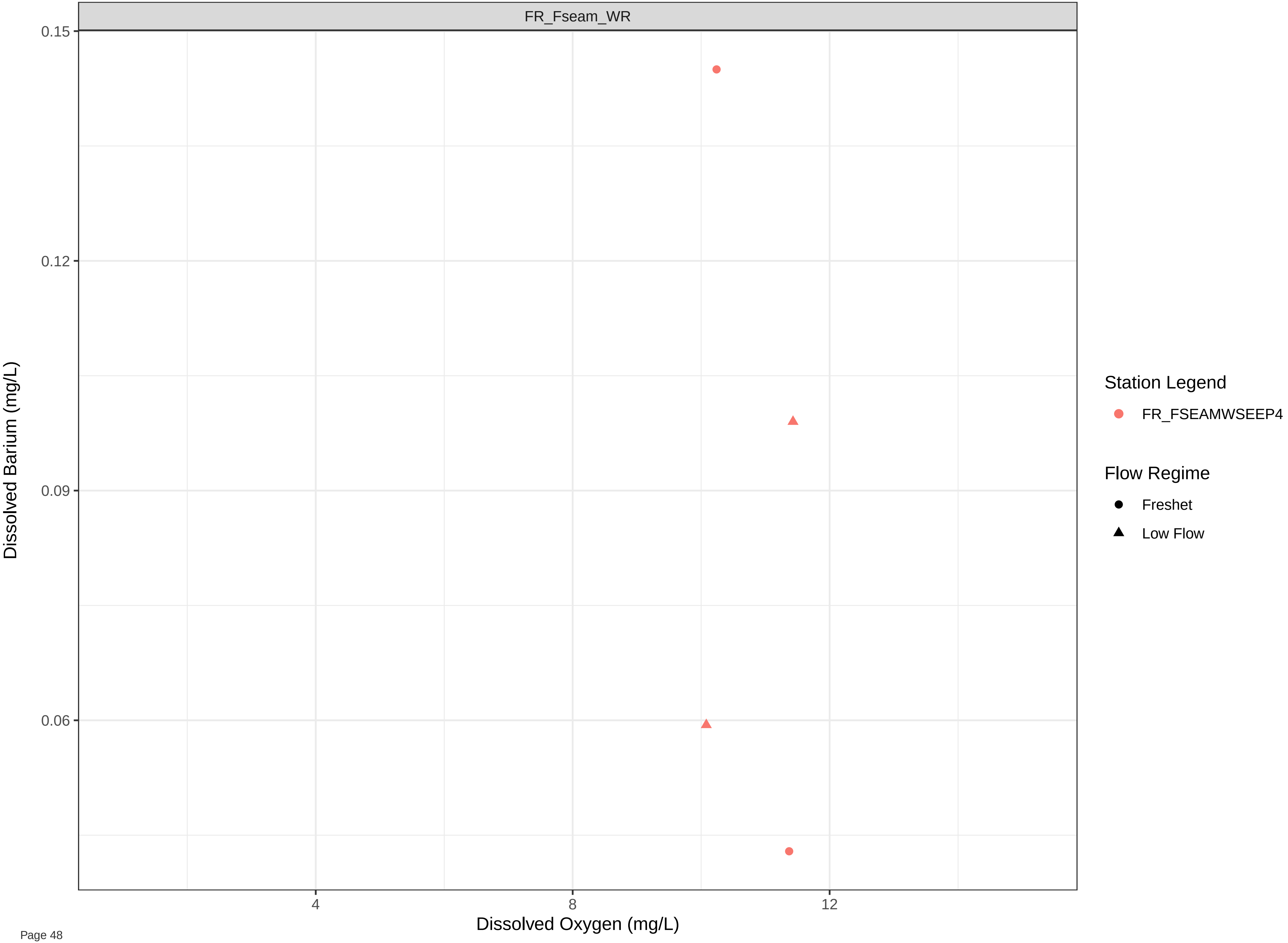

FR_A_WR
Dissolved Barium (mg/L)
0.050
0.045
0.040
0.035
0.030
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow


FR_Blain_CCR
Dissolved Barium (mg/L)
0.08
0.06
0.04
0.02
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

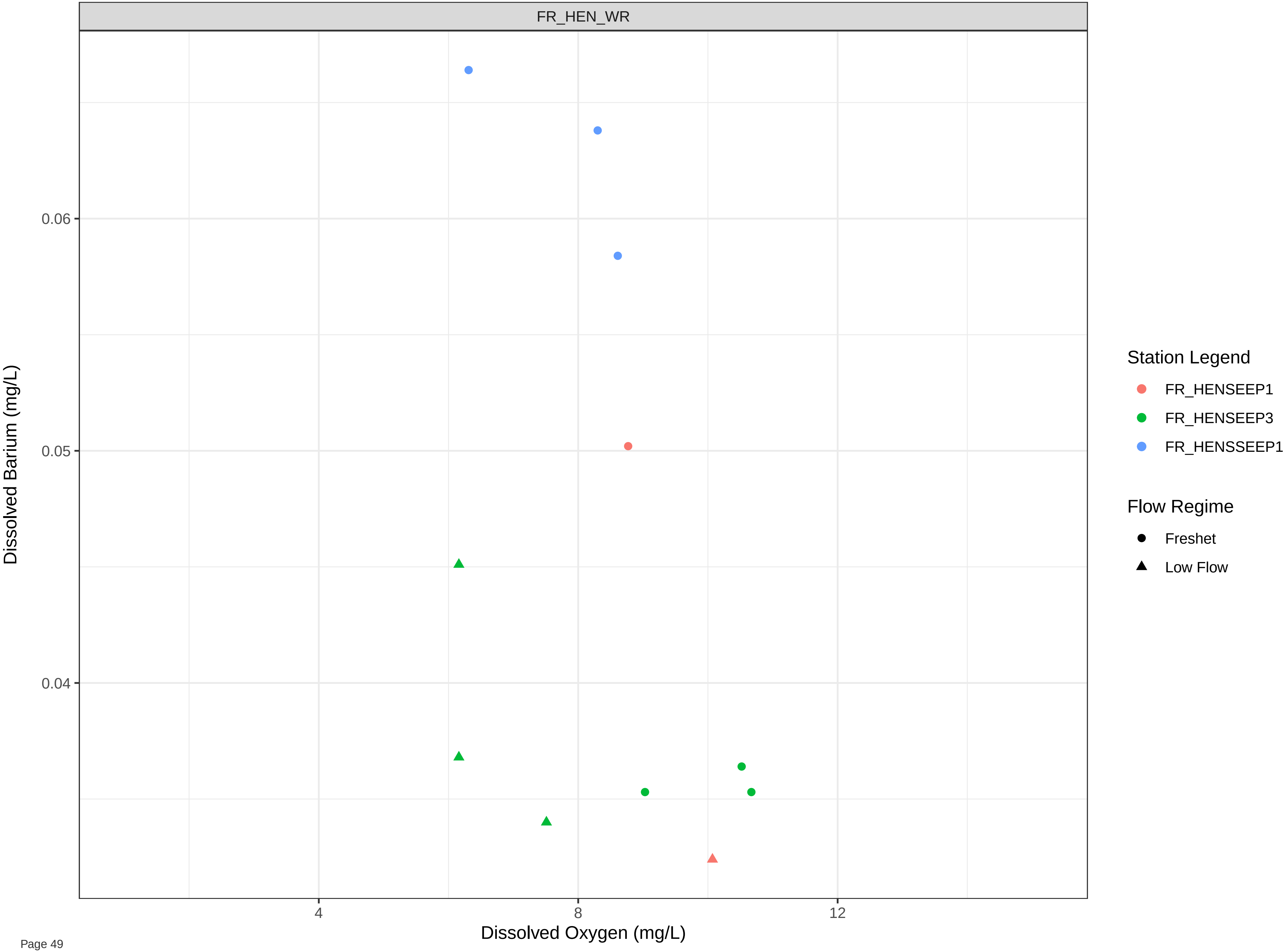

FR_ClodeCr_WR
Dissolved Barium (mg/L)
0.016
0.015
0.014
0.013
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

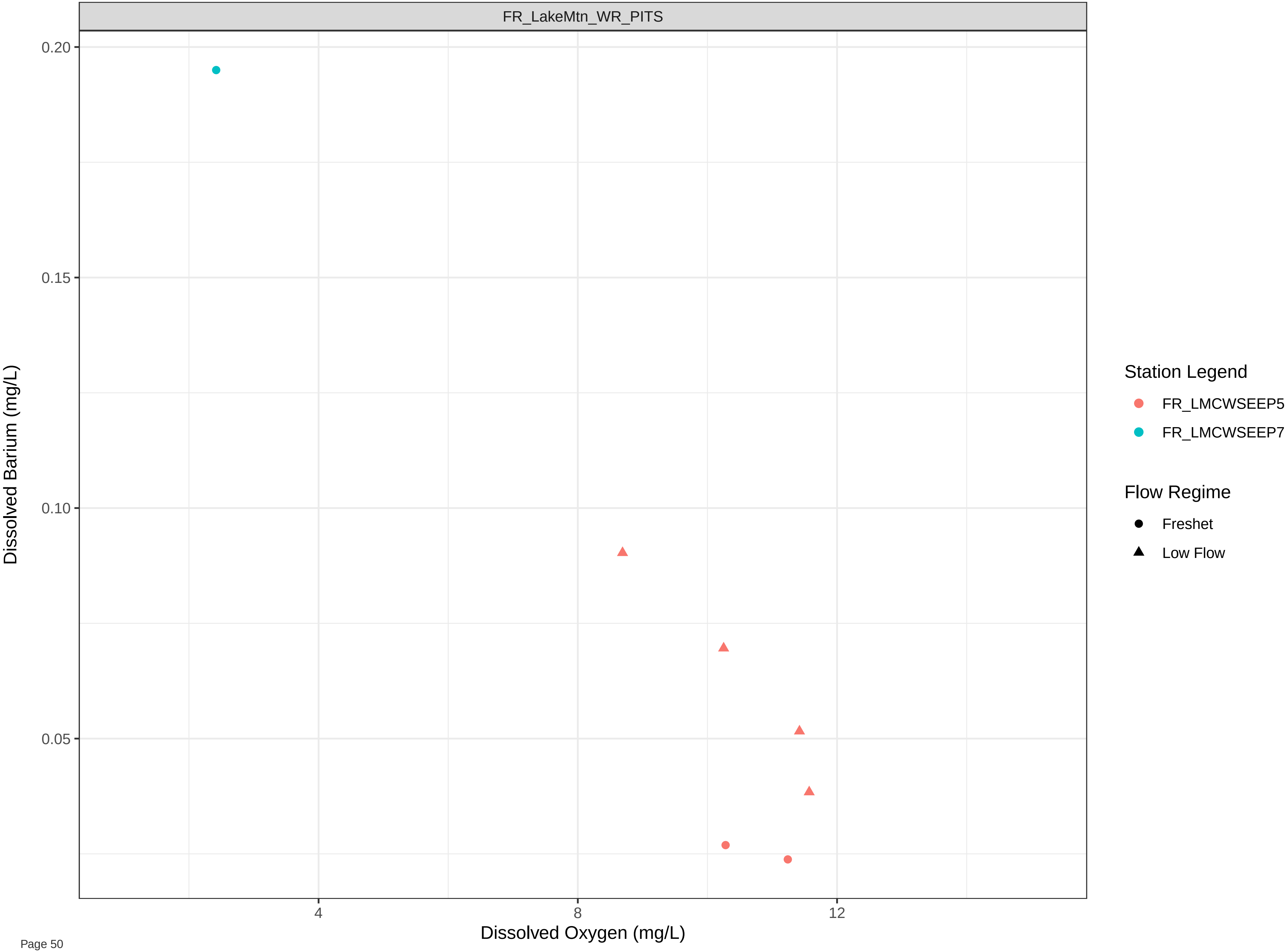

FR_DOKA_Unknown
0.14
0.12
0.10
0.08
0.06
Dissolved Barium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

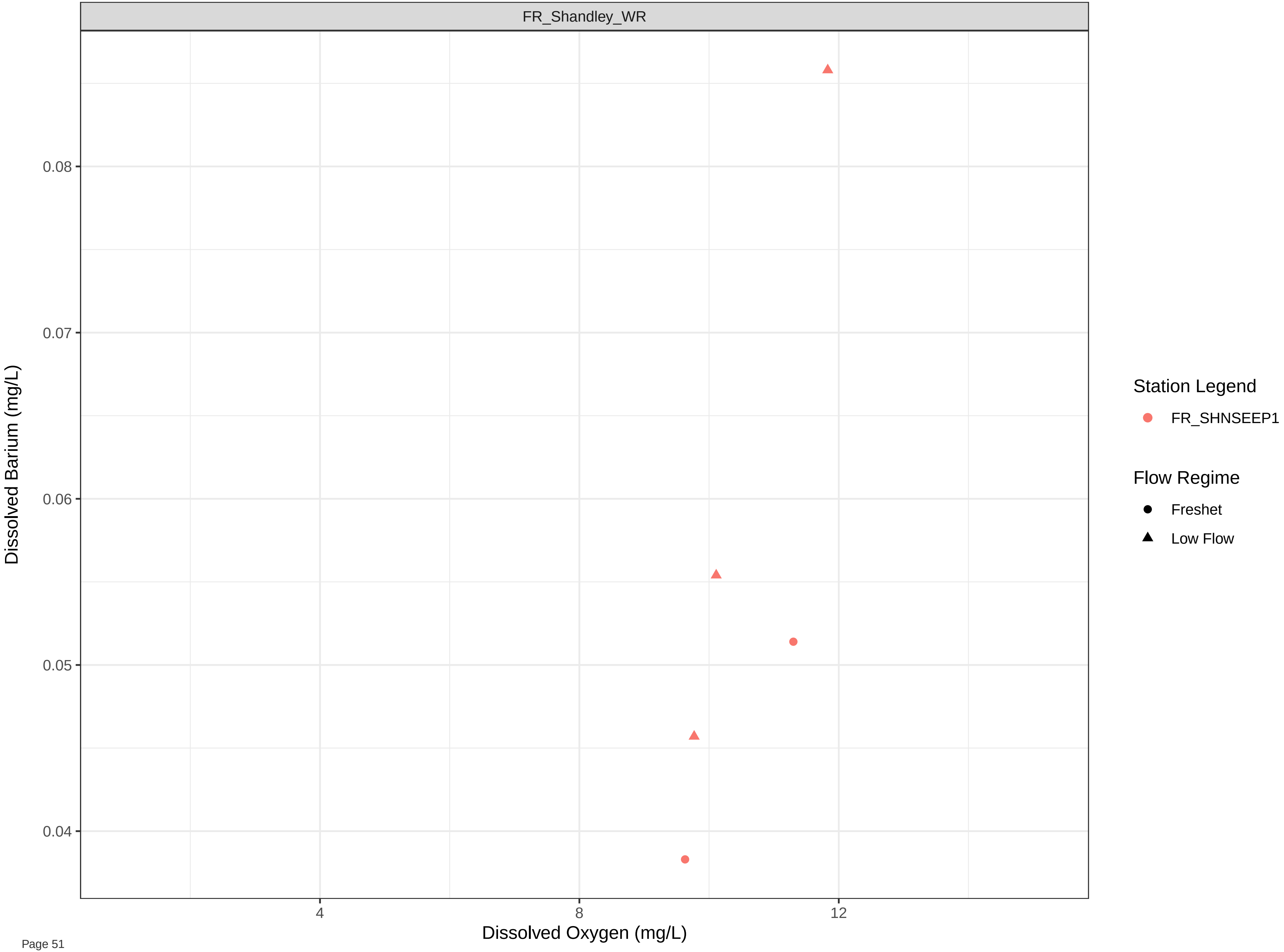

FR_Eagle_WR
Dissolved Barium (mg/L)
0.0160
0.0155
0.0150
0.0145
0.0140
0.0135
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

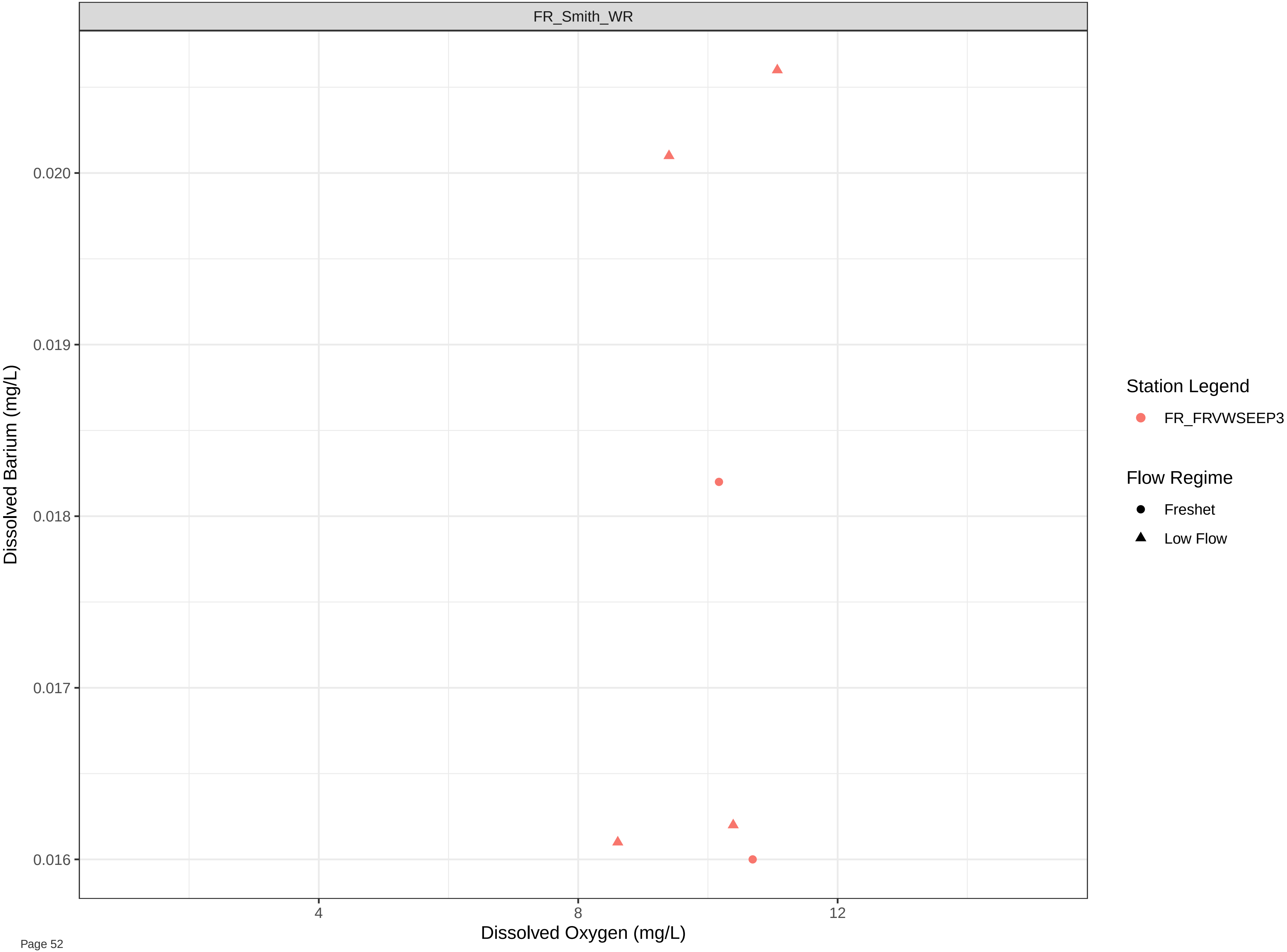


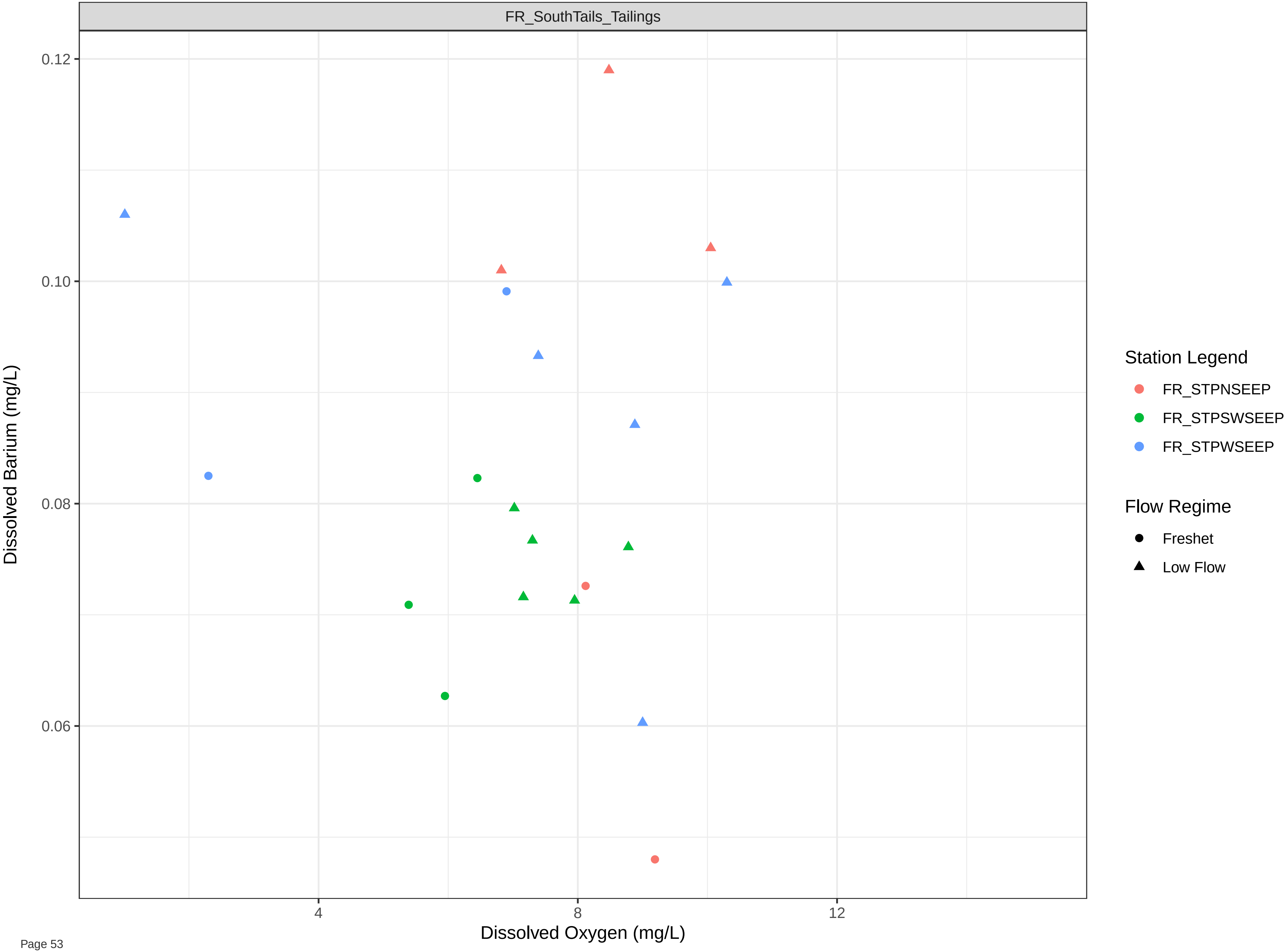
FR_Fseam_WR
0.15
0.12
0.09
0.06
Dissolved Barium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

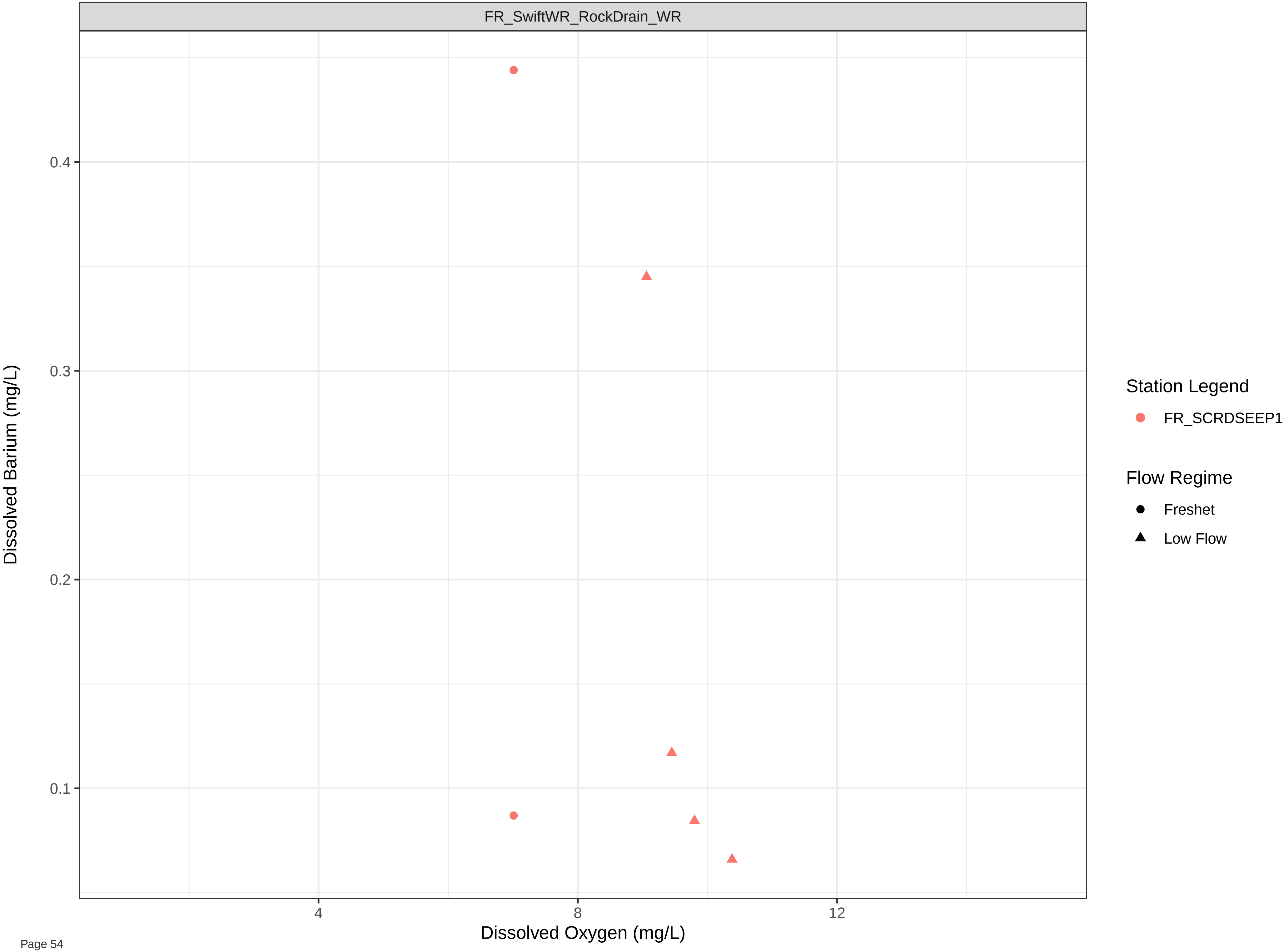

FR_HEN_WR
Dissolved Barium (mg/L)
0.06
0.05
0.04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_HENSEEP1
● FR_HENSEEP3
● FR_HENSSEEP1
Flow Regime
● Freshet
▲ Low Flow

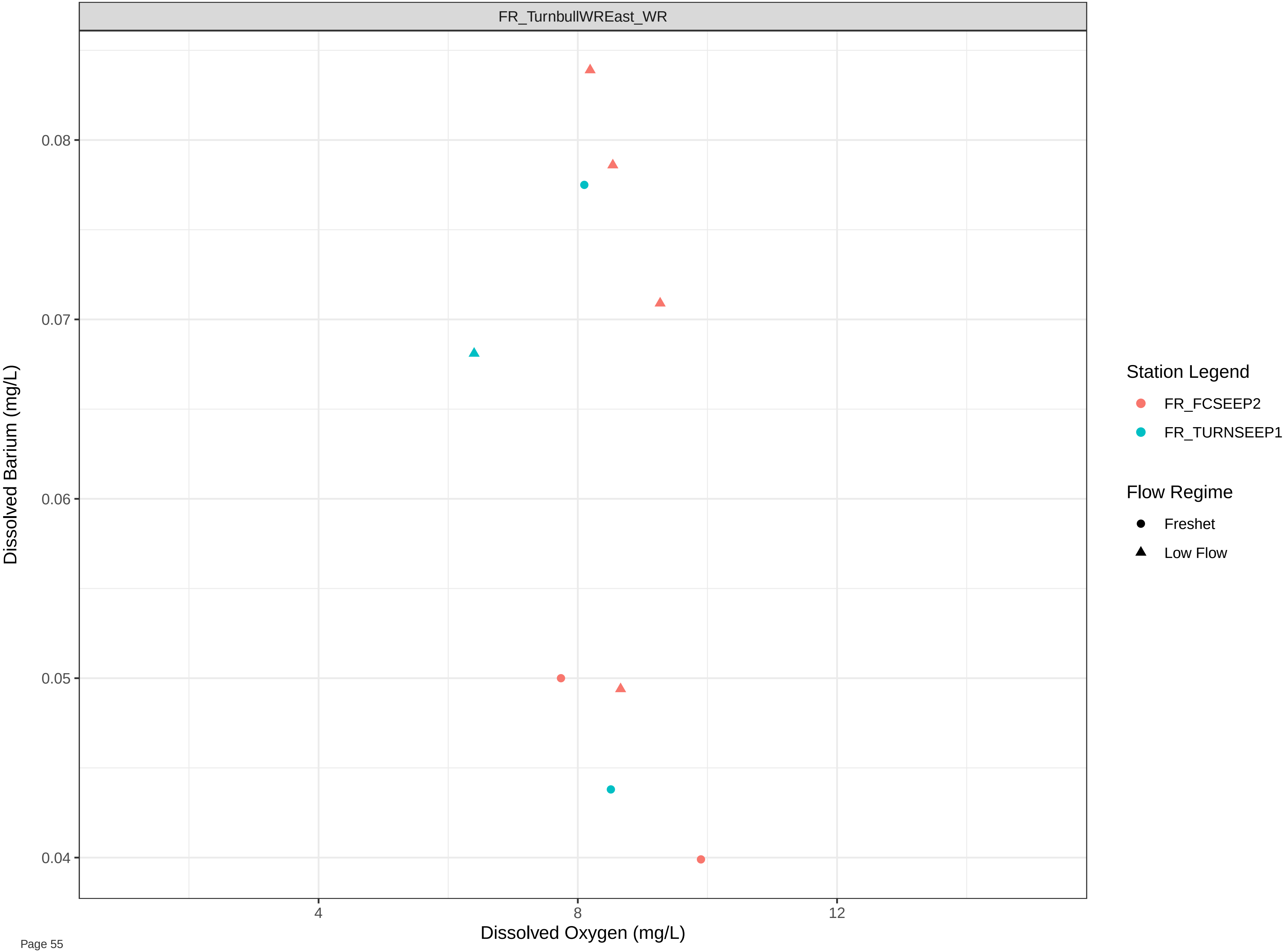

FR_LakeMtn_WR_PITS
Dissolved Barium (mg/L)
0.20
0.15
0.10
0.05
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

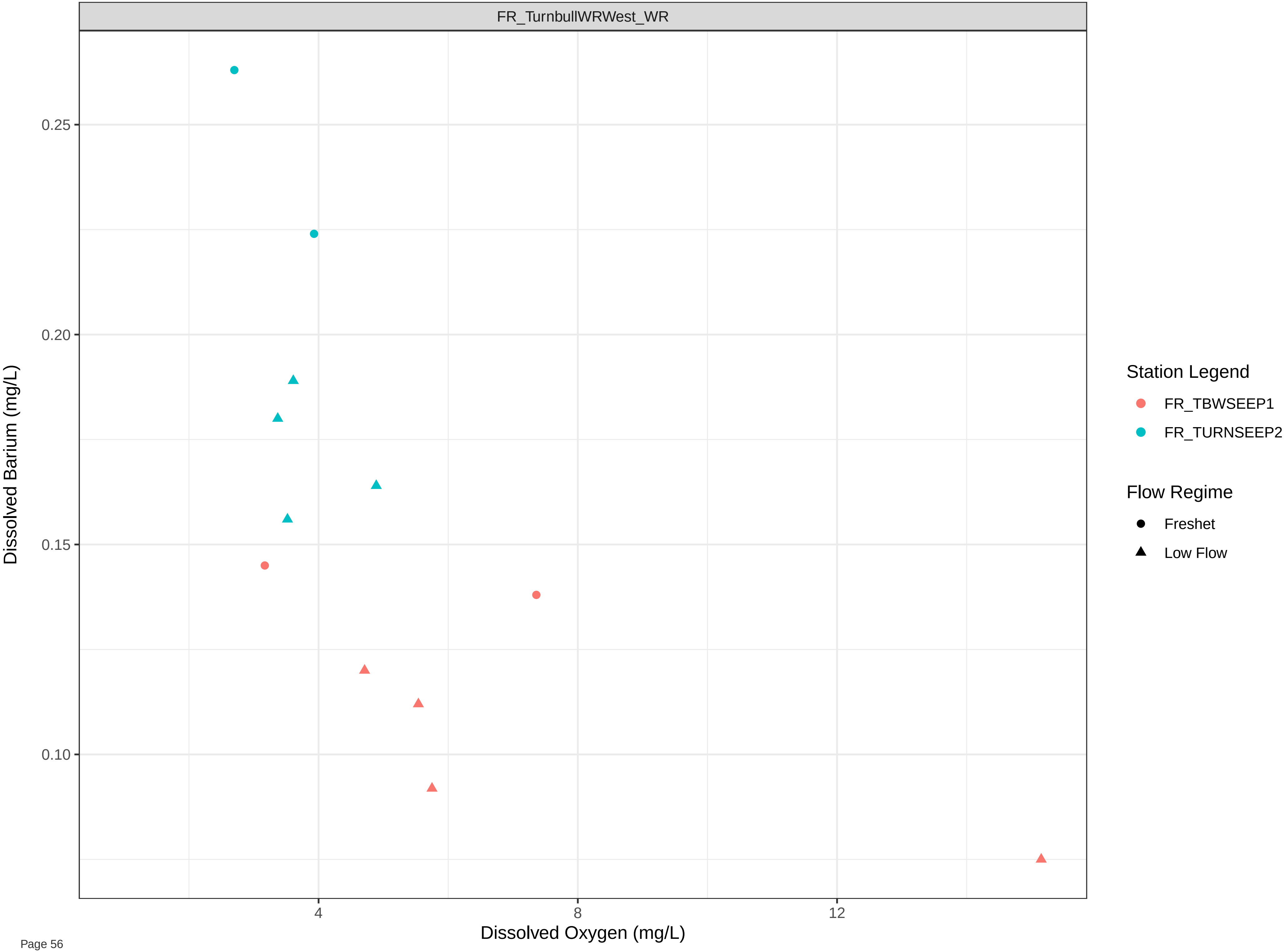

FR_Shandley_WR
0.08
0.07
0.06
0.05
0.04
Dissolved Barium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

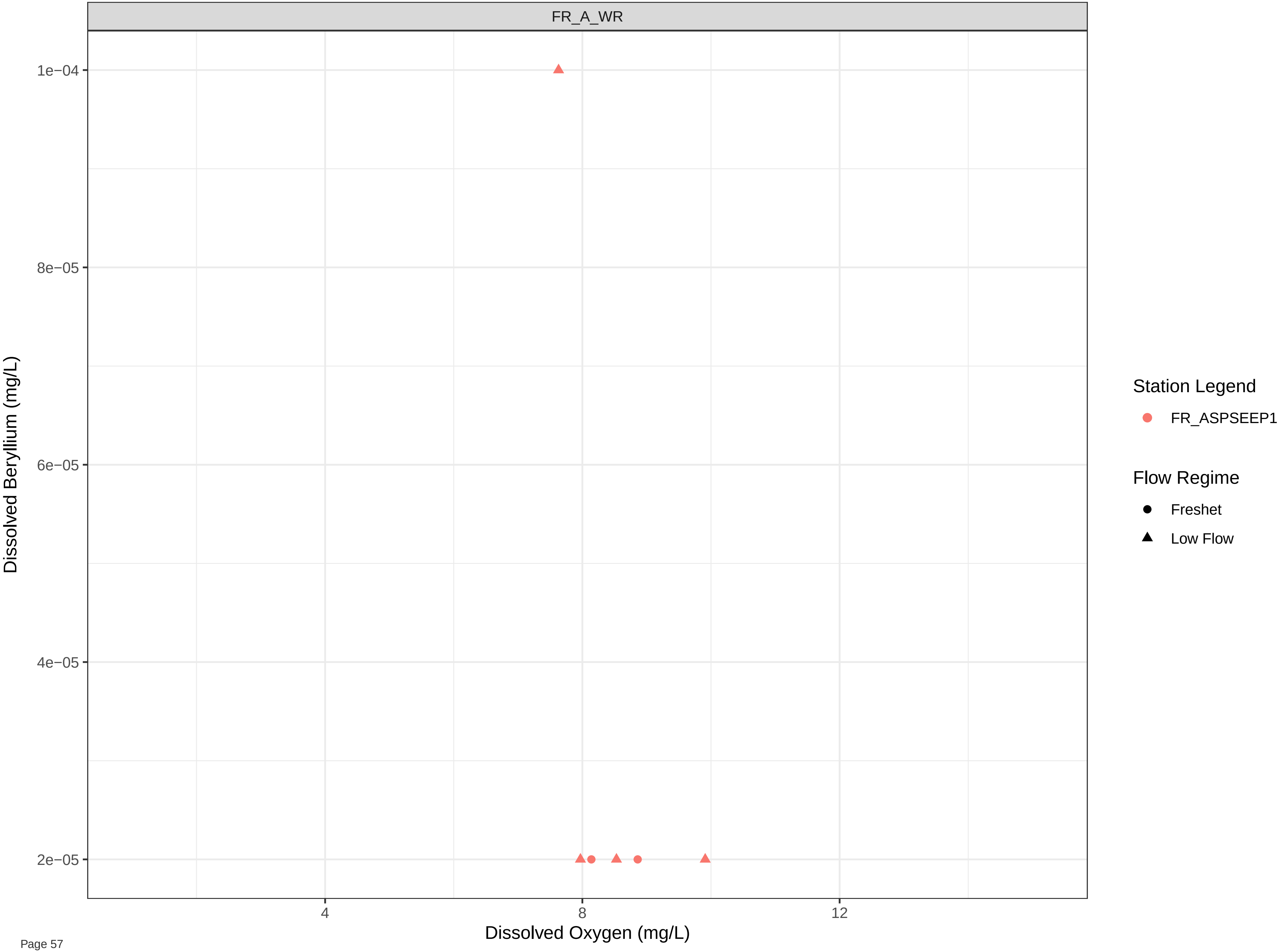

FR_Smith_WR
Dissolved Barium (mg/L)
0.020
0.019
0.018
0.017
0.016
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

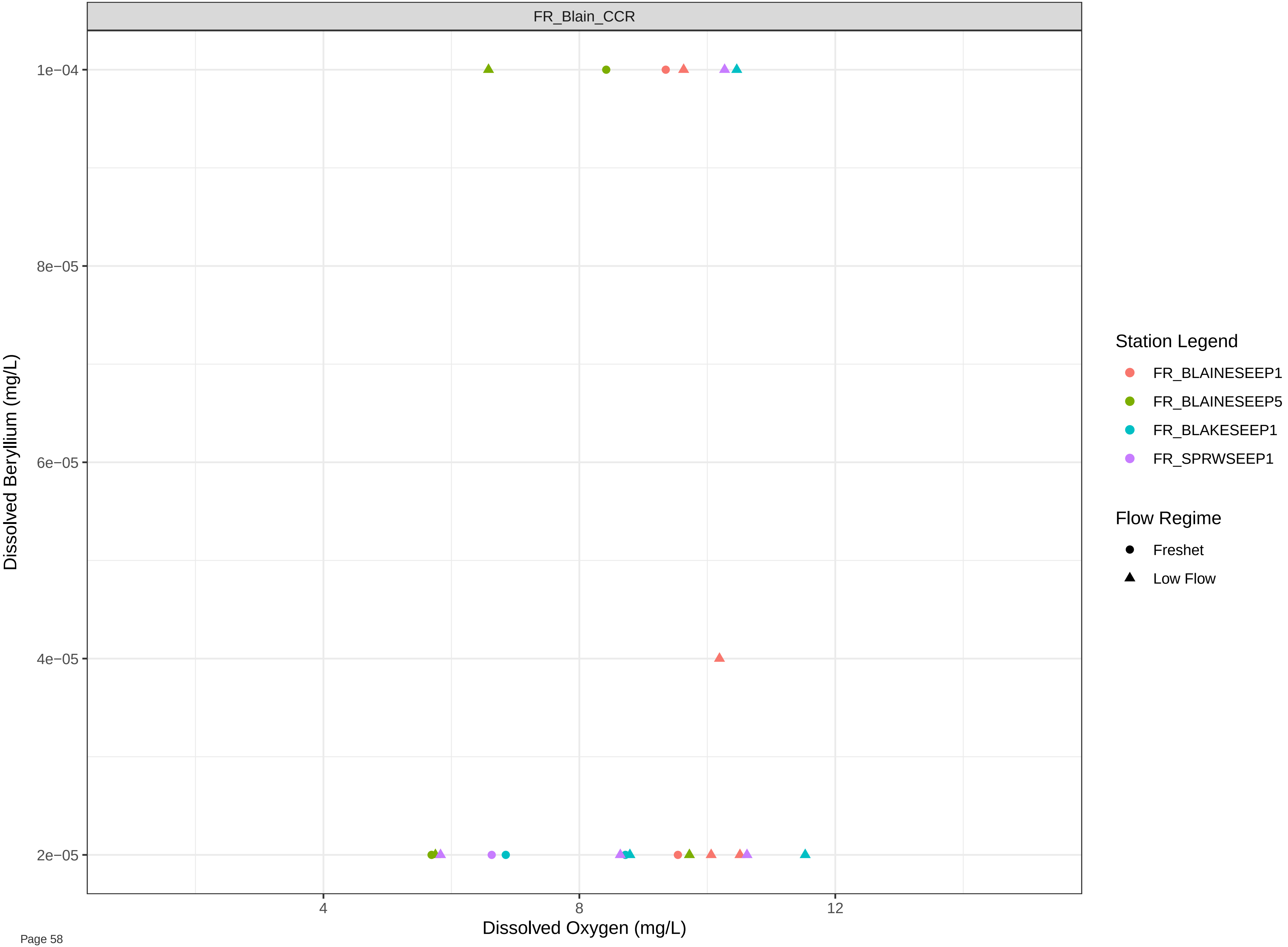

FR_SouthTails_Tailings
0.12
0.10
0.08
0.06
Dissolved Barium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

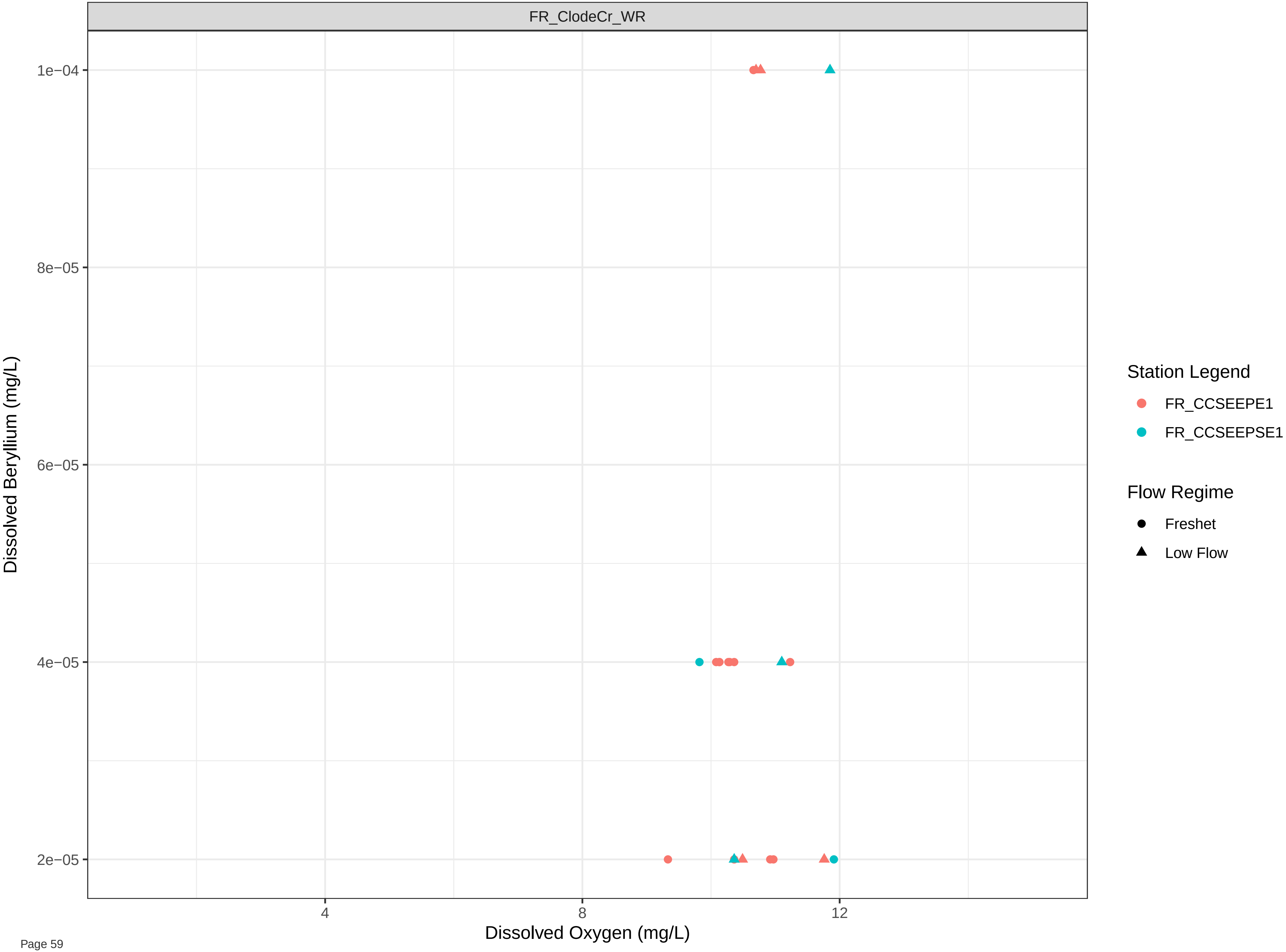

FR_SwiftWR_RockDrain_WR
Dissolved Barium (mg/L)
0.4
0.3
0.2
0.1
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

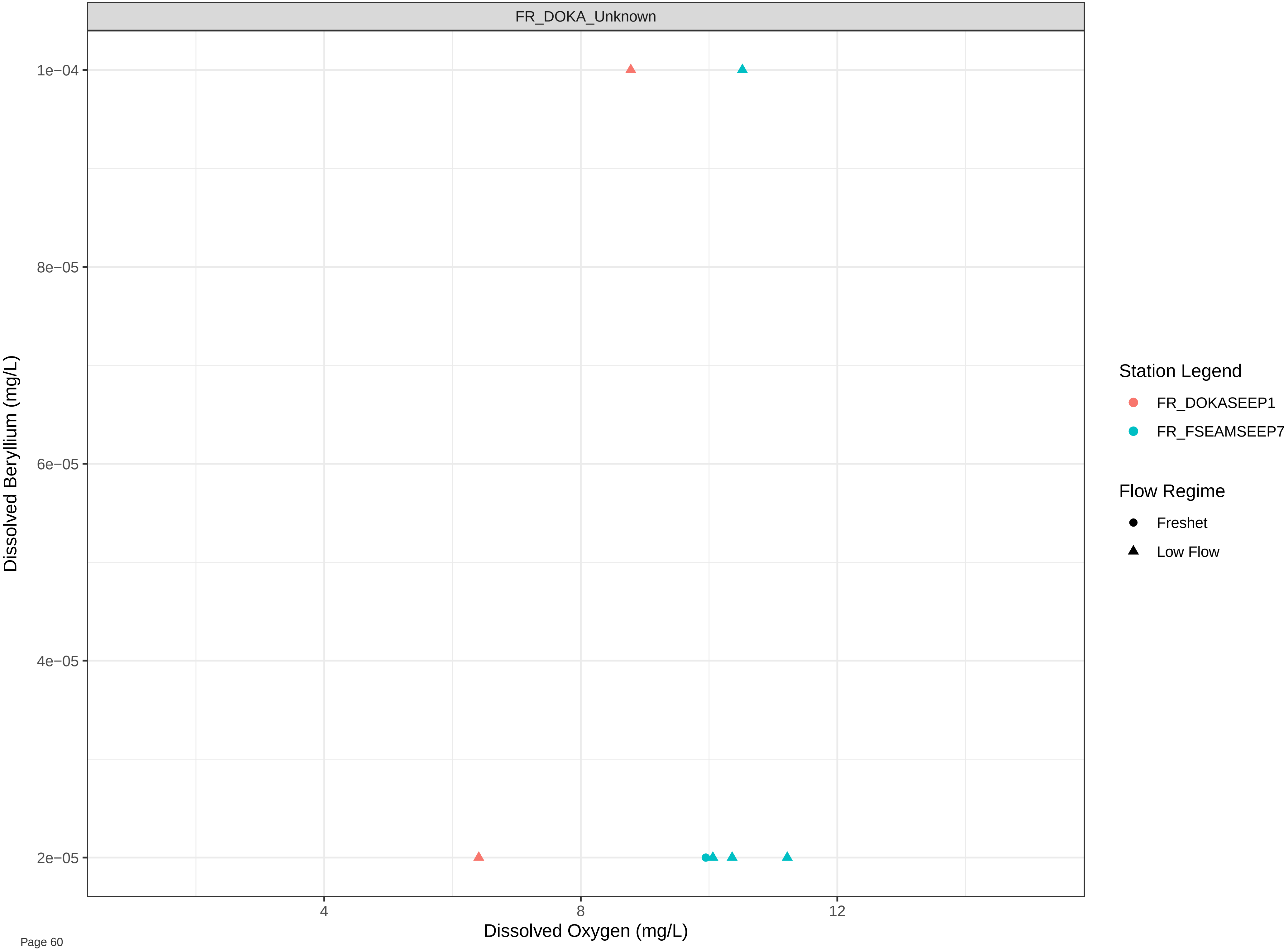

FR_TurnbullWREast_WR
Dissolved Barium (mg/L)
0.08
0.07
0.06
0.05
0.04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_FCSEEP2
● FR_TURNSEEP1
Flow Regime
● Freshet
▲ Low Flow

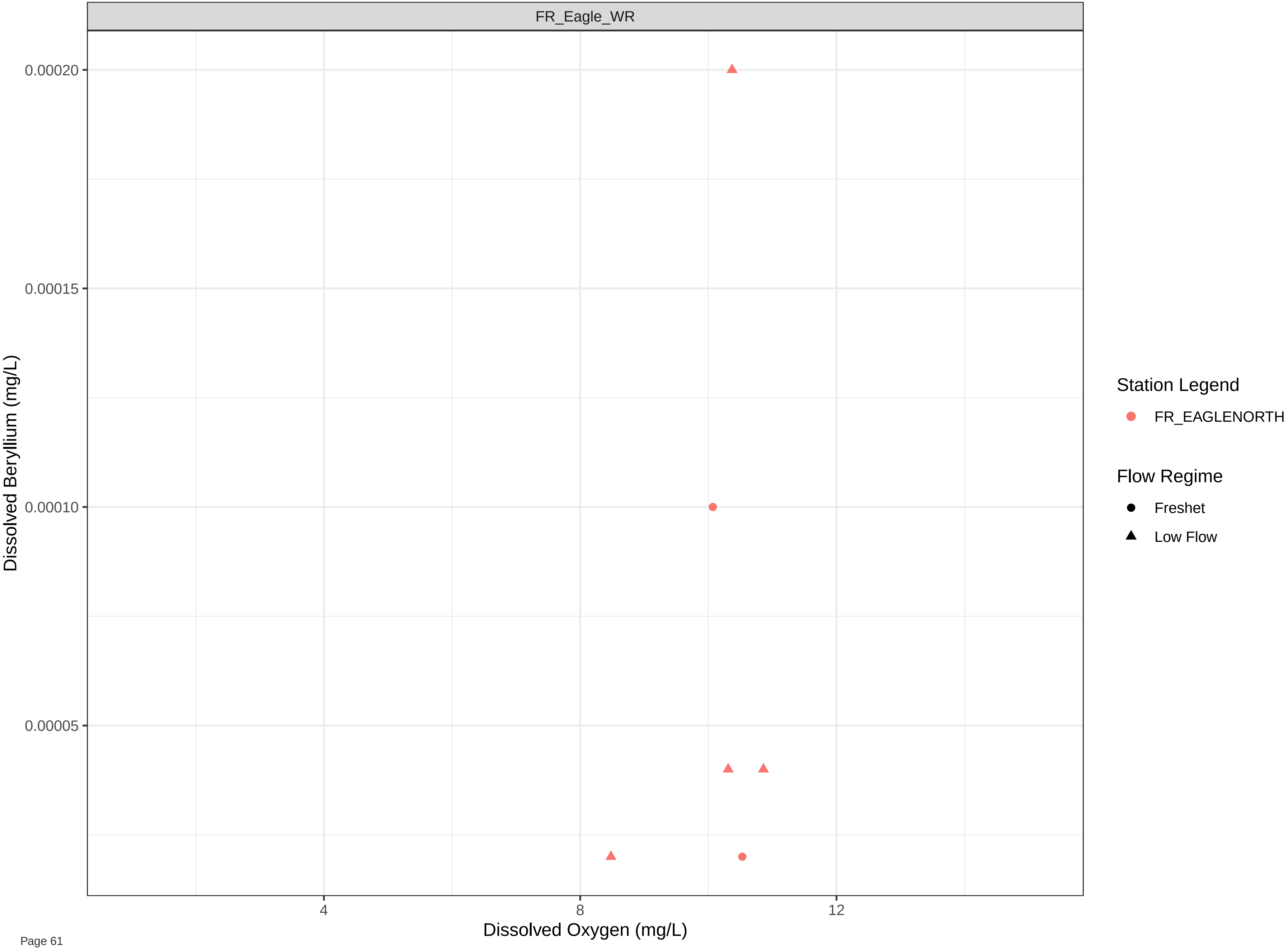

FR_TurnbullWRWest_WR
Dissolved Barium (mg/L)
0.25
0.20
0.15
0.10
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_TBWSEEP1
● FR_TURNSEEP2
Flow Regime
● Freshet
▲ Low Flow

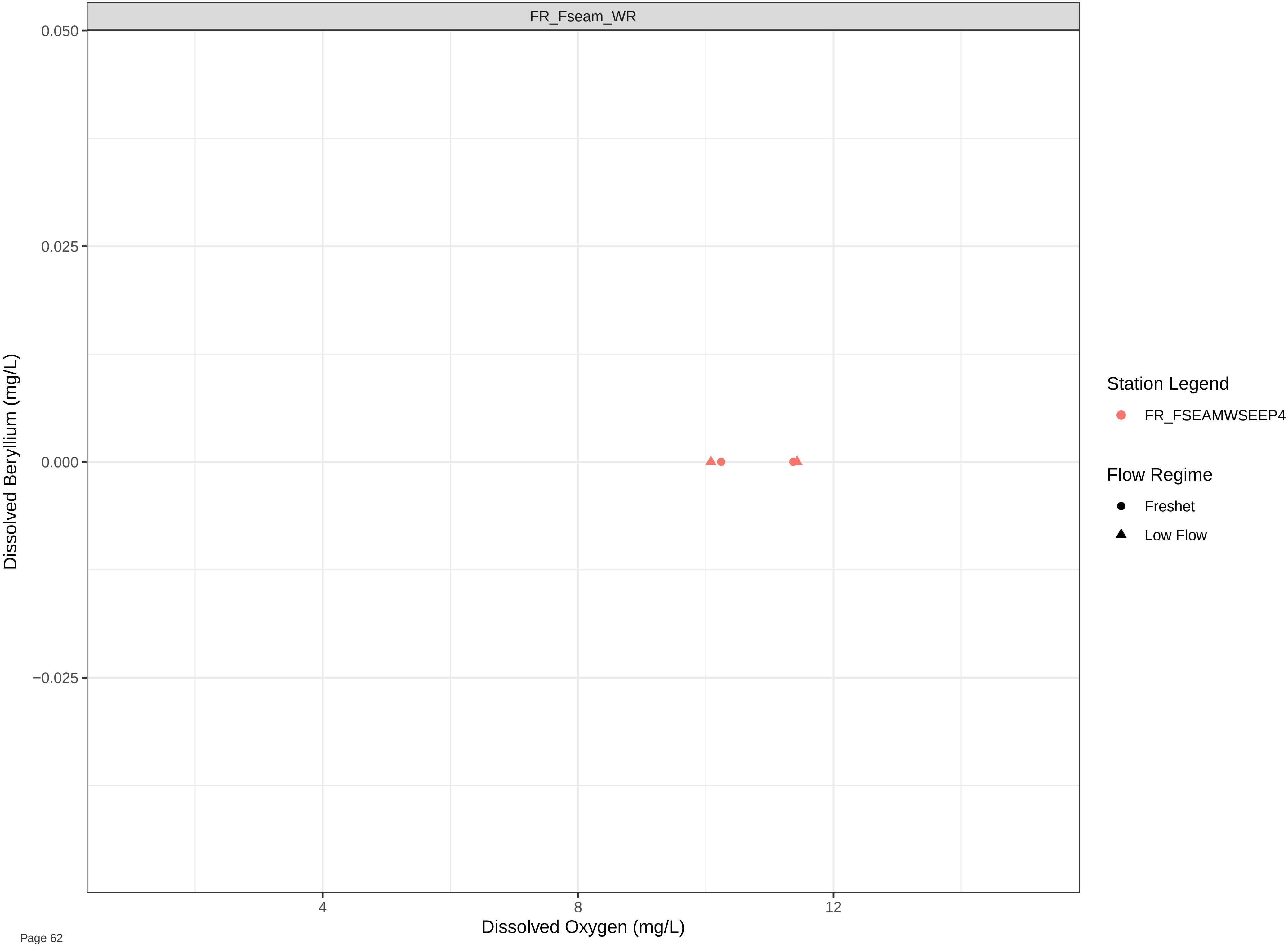

FR_A_WR
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

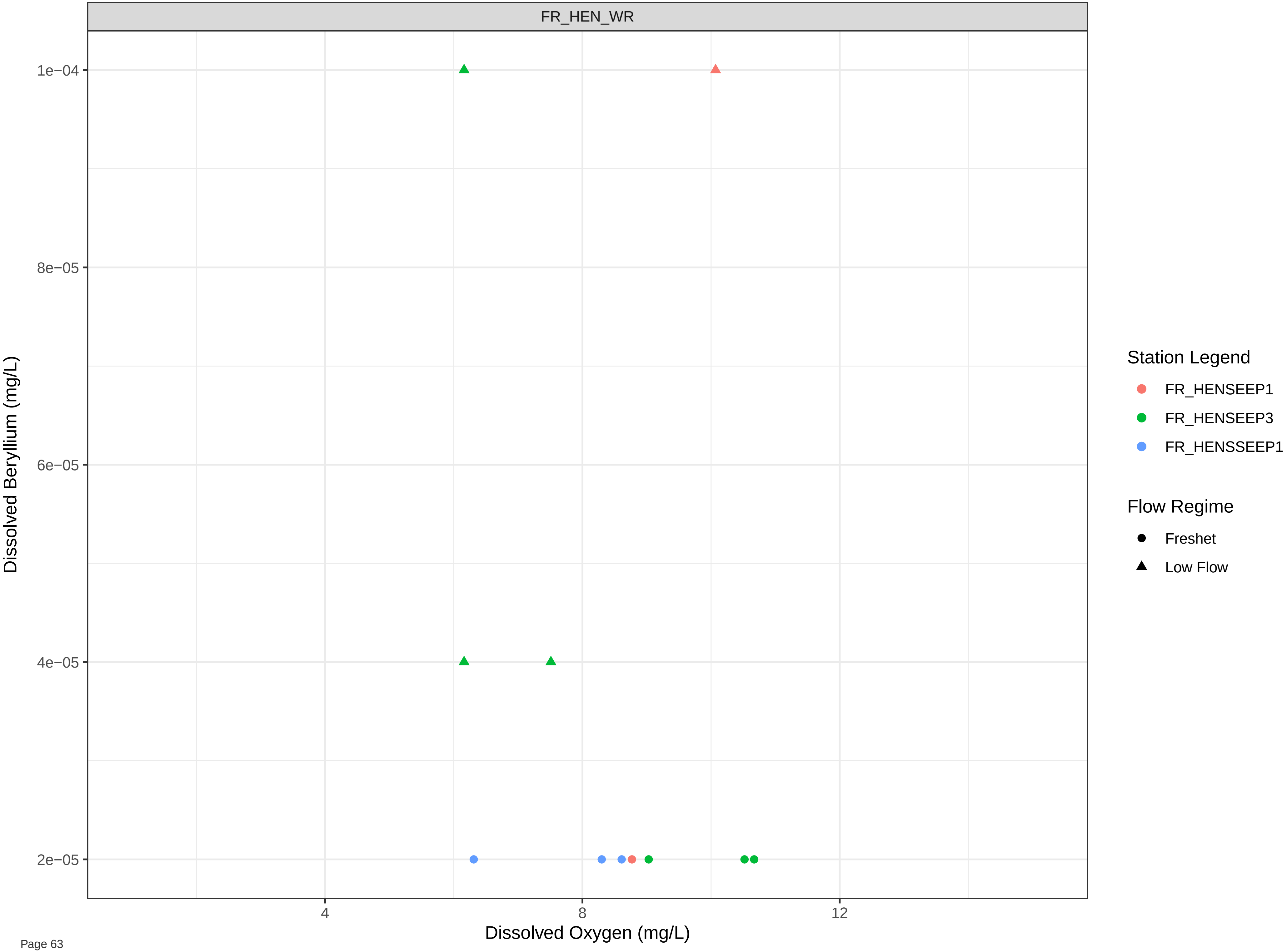

FR_Blain_CCR
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow

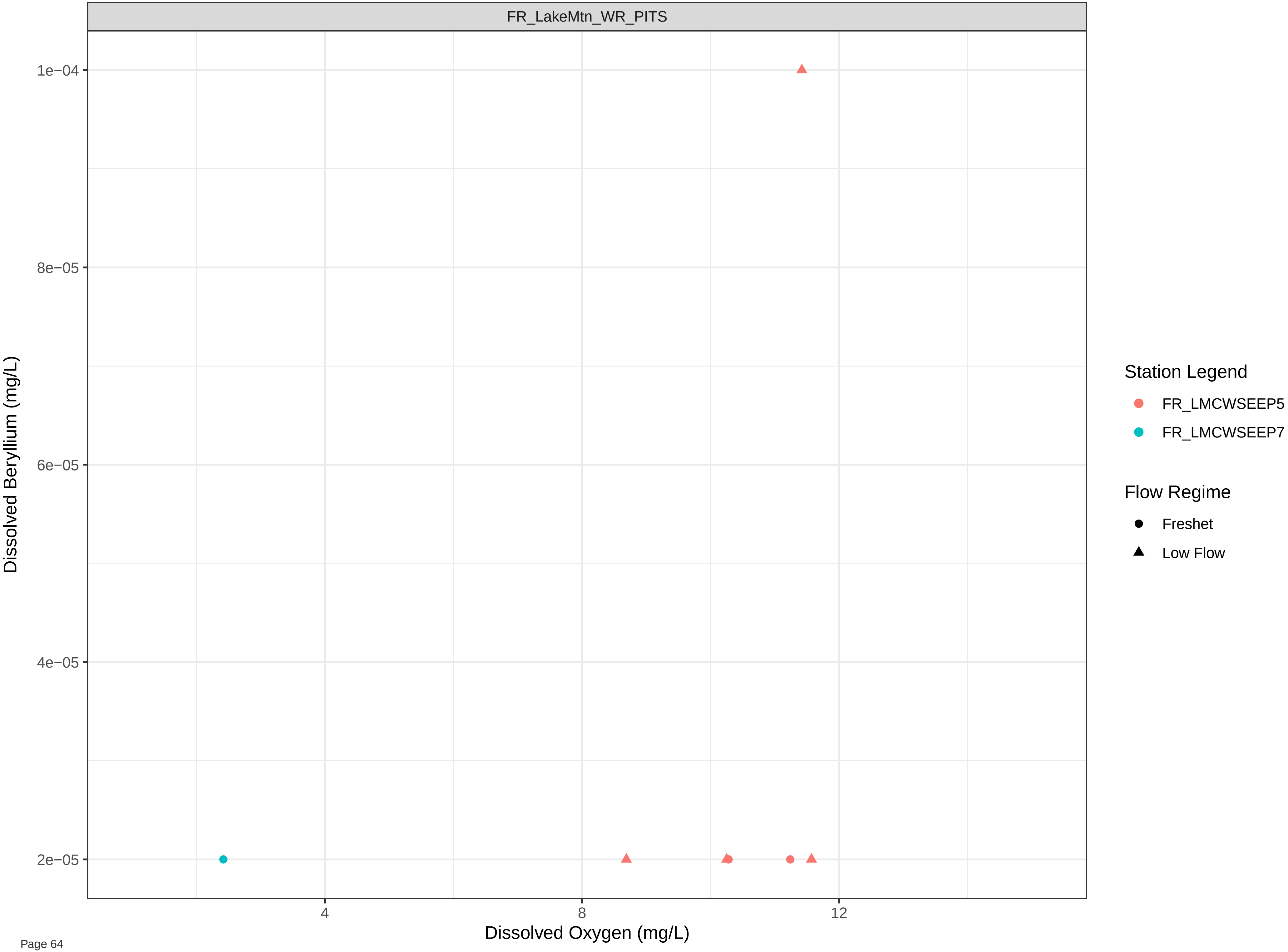

FR_ClodeCr_WR
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

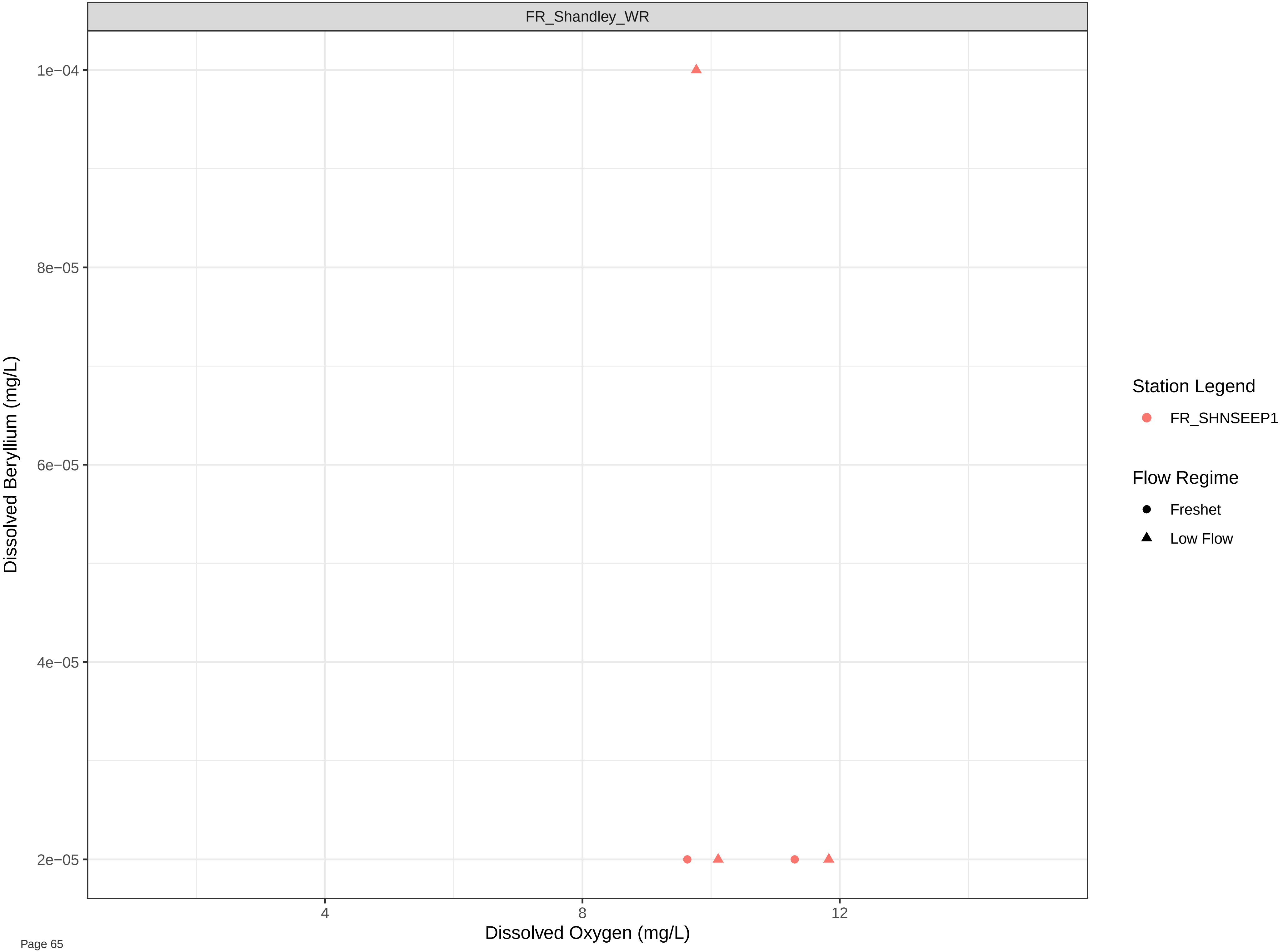

FR_DOKA_Unknown
1e−04
8e−05
6e−05
4e−05
2e−05
Dissolved Beryllium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

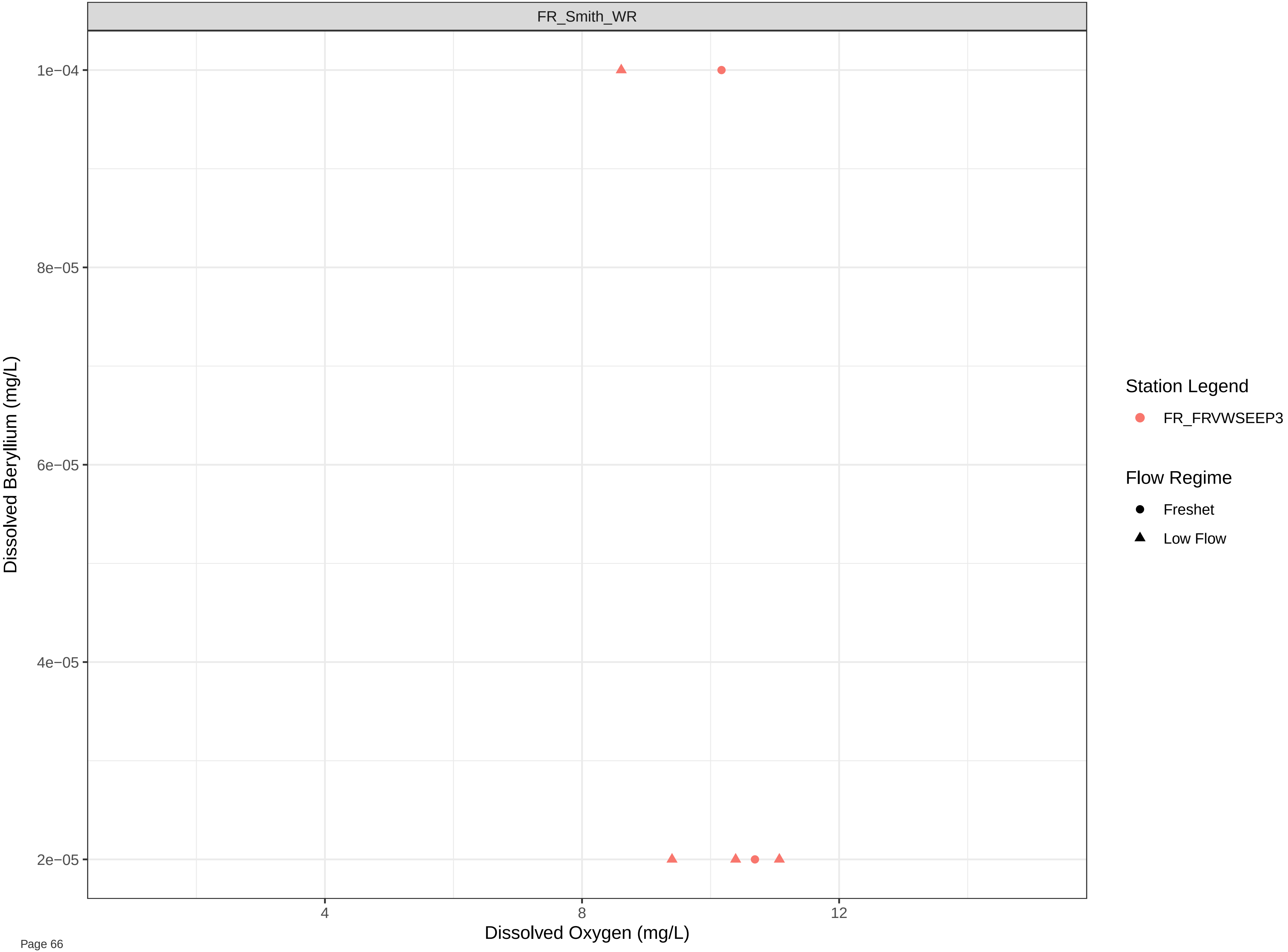

FR_Eagle_WR
Dissolved Beryllium (mg/L)
0.00020
0.00015
0.00010
0.00005
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

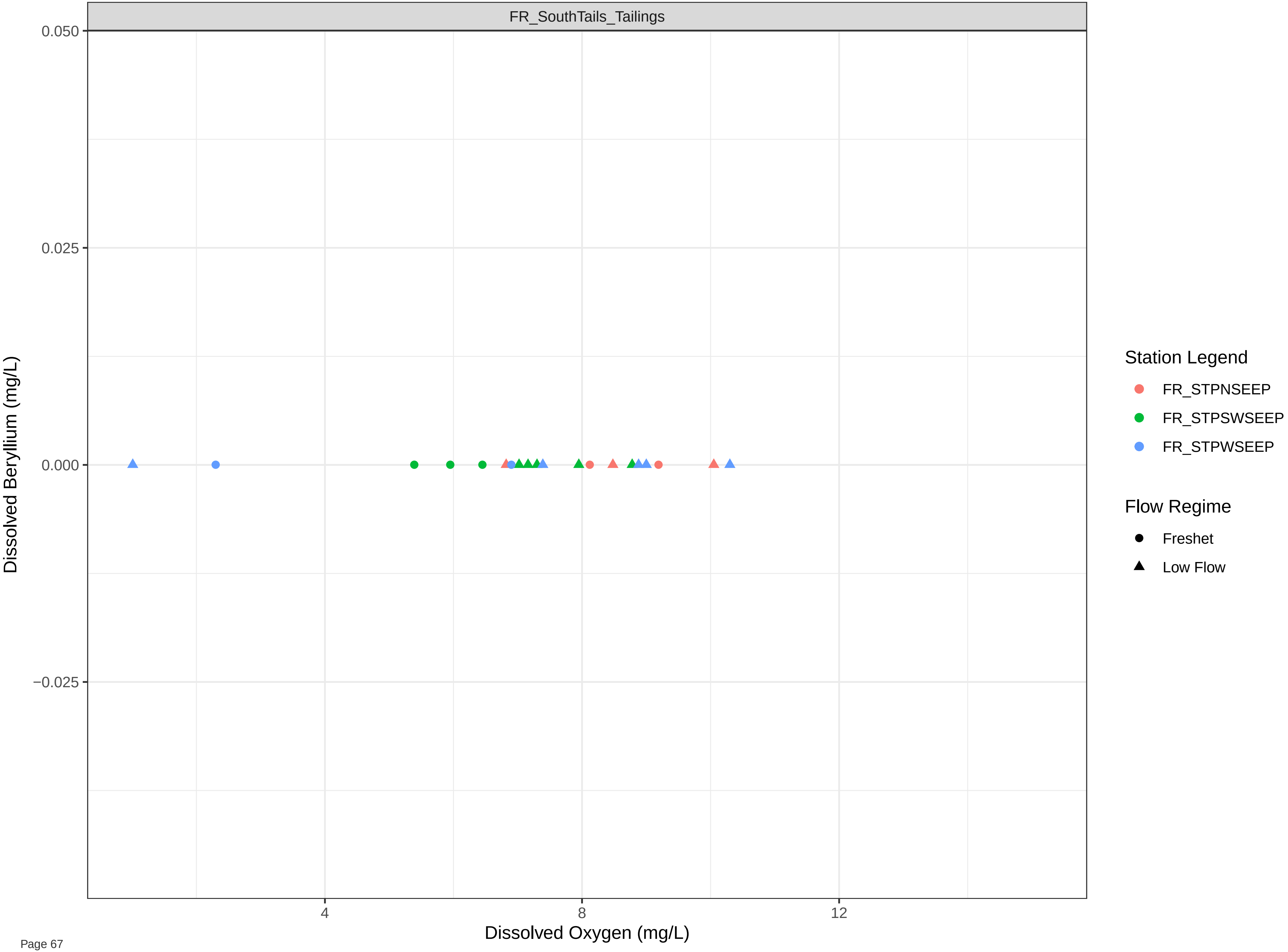

FR_Fseam_WR
0.050
0.025
0.000
−0.025
Dissolved Beryllium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

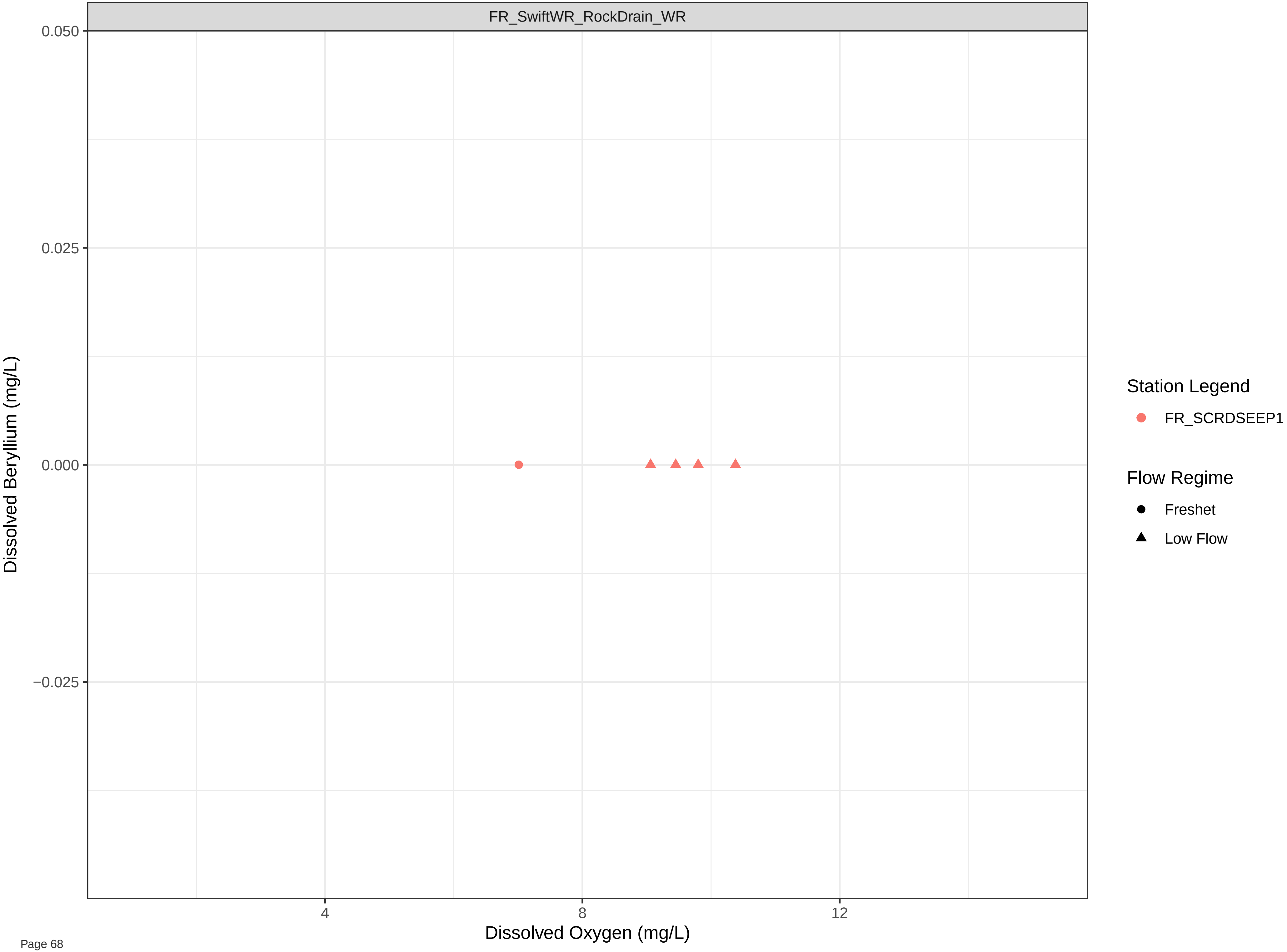

FR_HEN_WR
1e−04
8e−05
6e−05
4e−05
2e−05
4
8
12
Dissolved Oxygen (mg/L)
Dissolved Beryllium (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

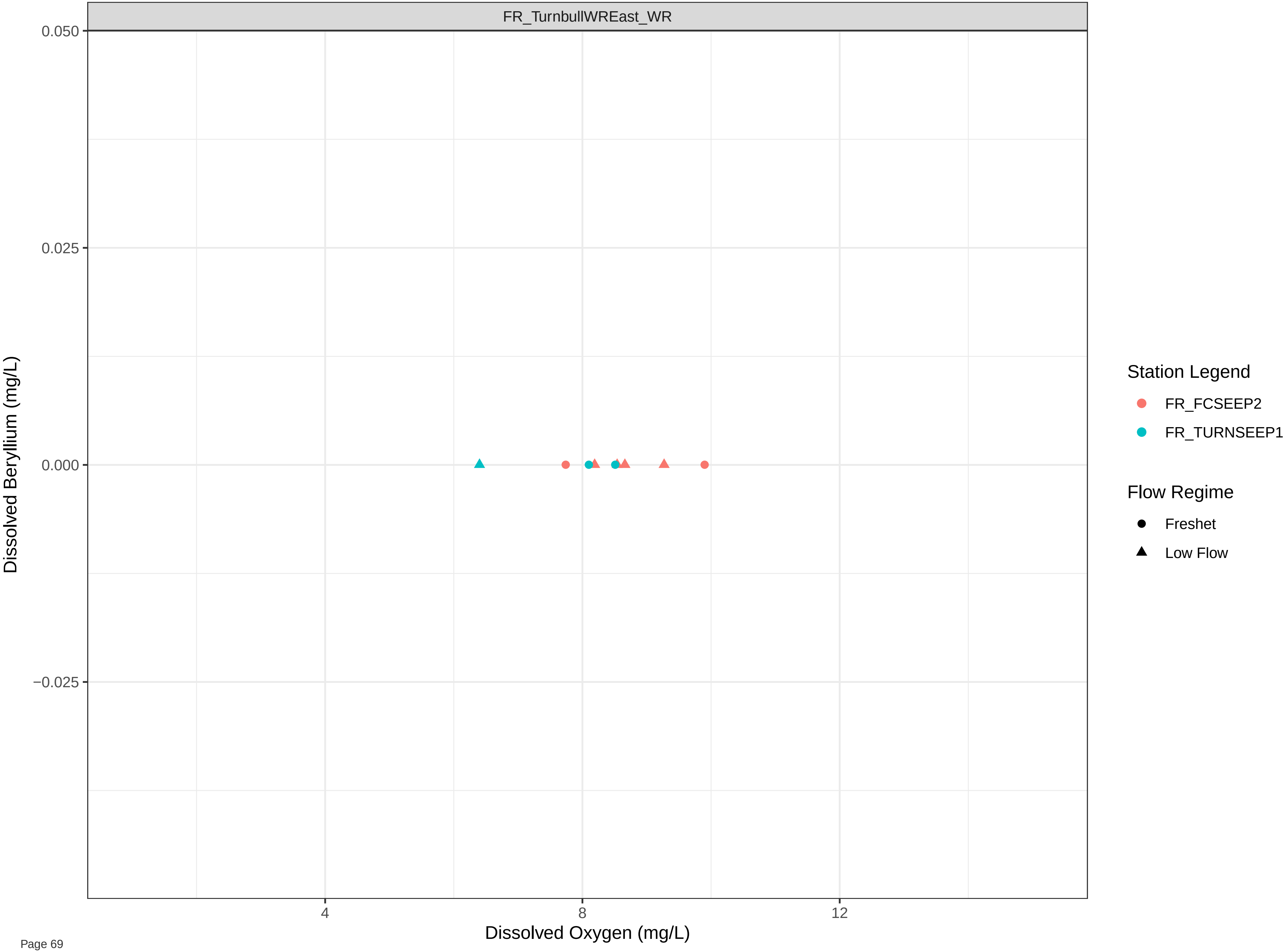

FR_LakeMtn_WR_PITS
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

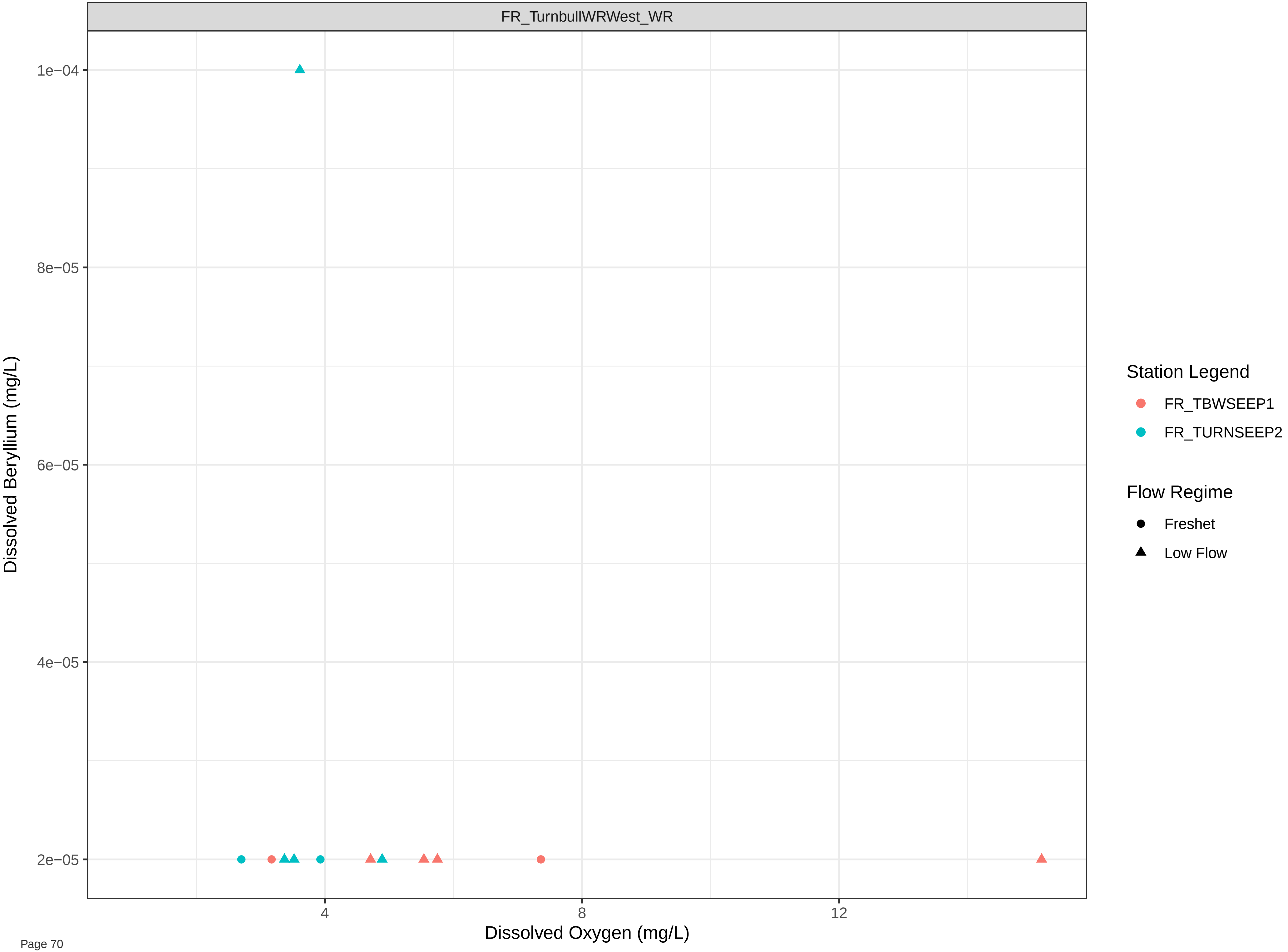

FR_Shandley_WR
1e−04
8e−05
6e−05
4e−05
2e−05
Dissolved Beryllium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

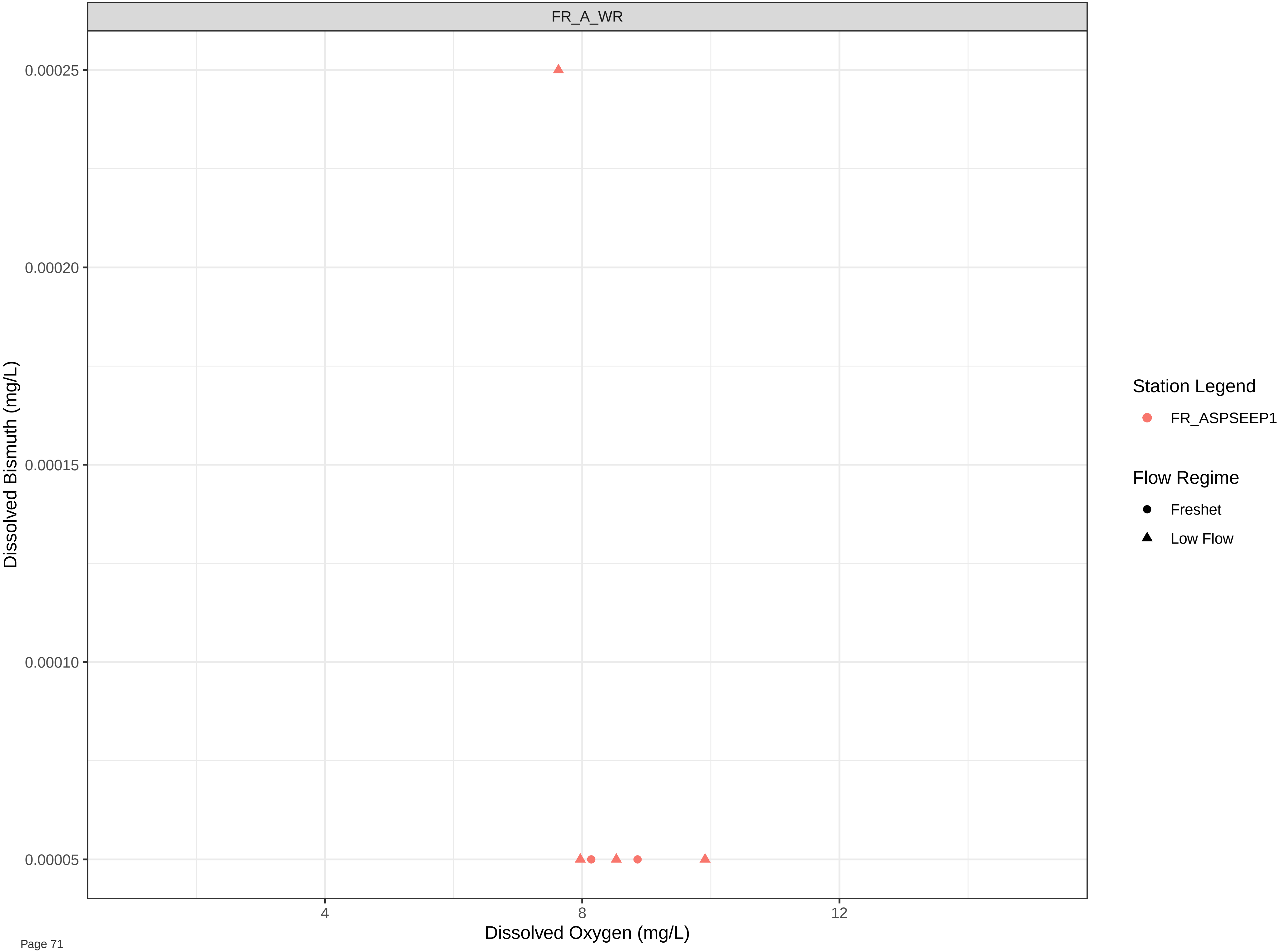

FR_Smith_WR
1e−04
8e−05
6e−05
4e−05
2e−05
Dissolved Beryllium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

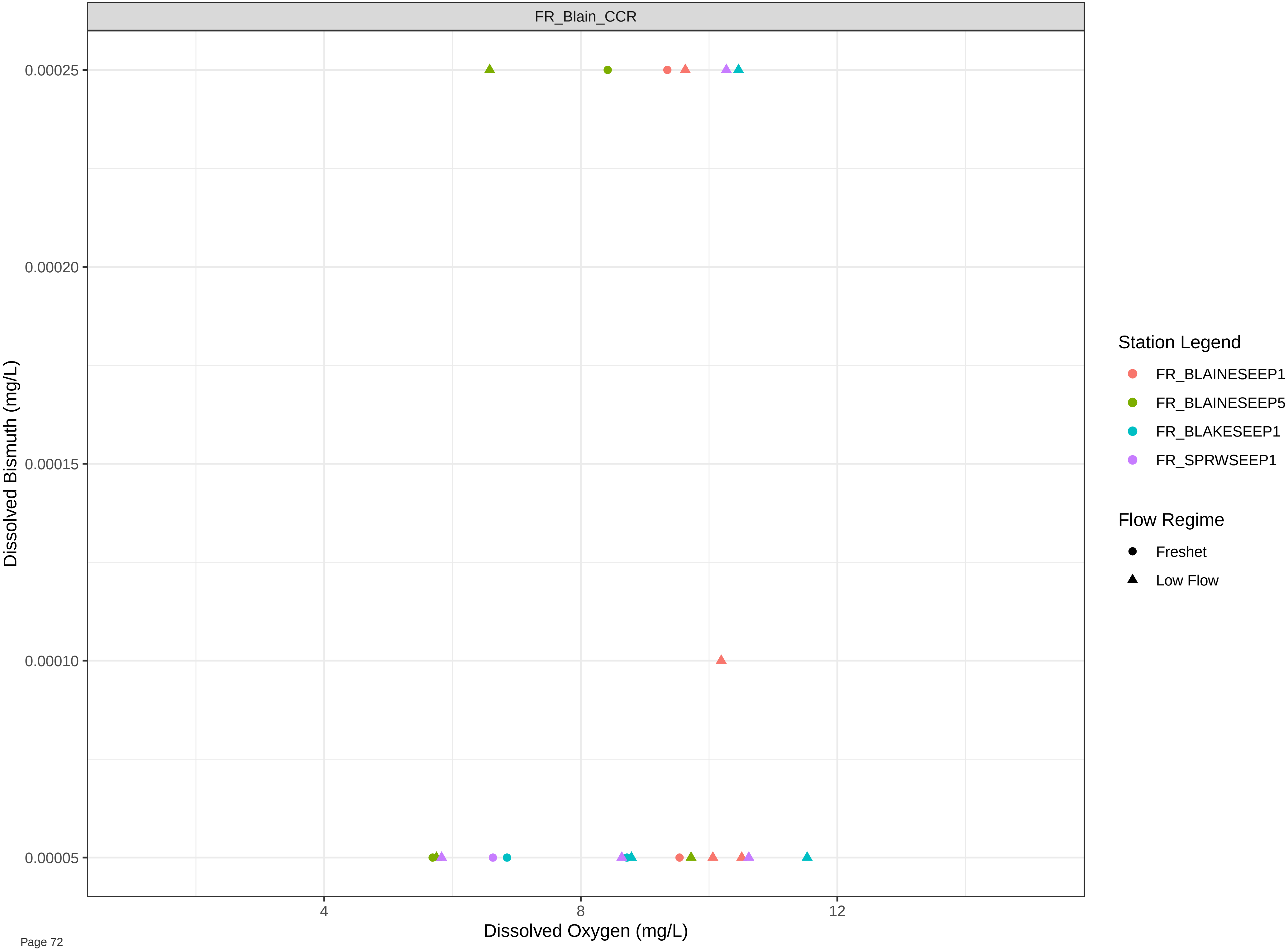

FR_SouthTails_Tailings
0.050
0.025
0.000
−0.025
Dissolved Beryllium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

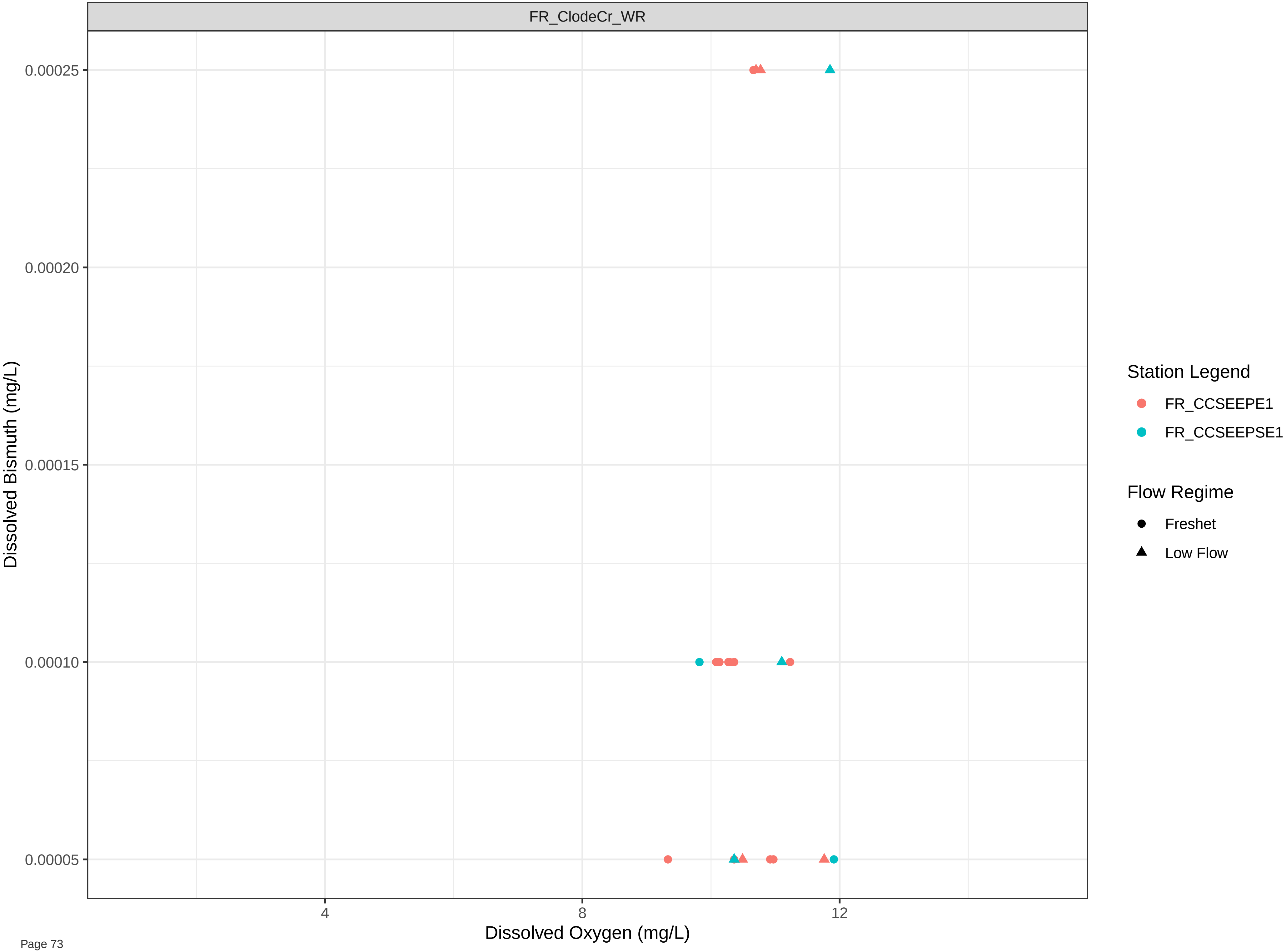

FR_SwiftWR_RockDrain_WR
Dissolved Beryllium (mg/L)
0.050
0.025
0.000
−0.025
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

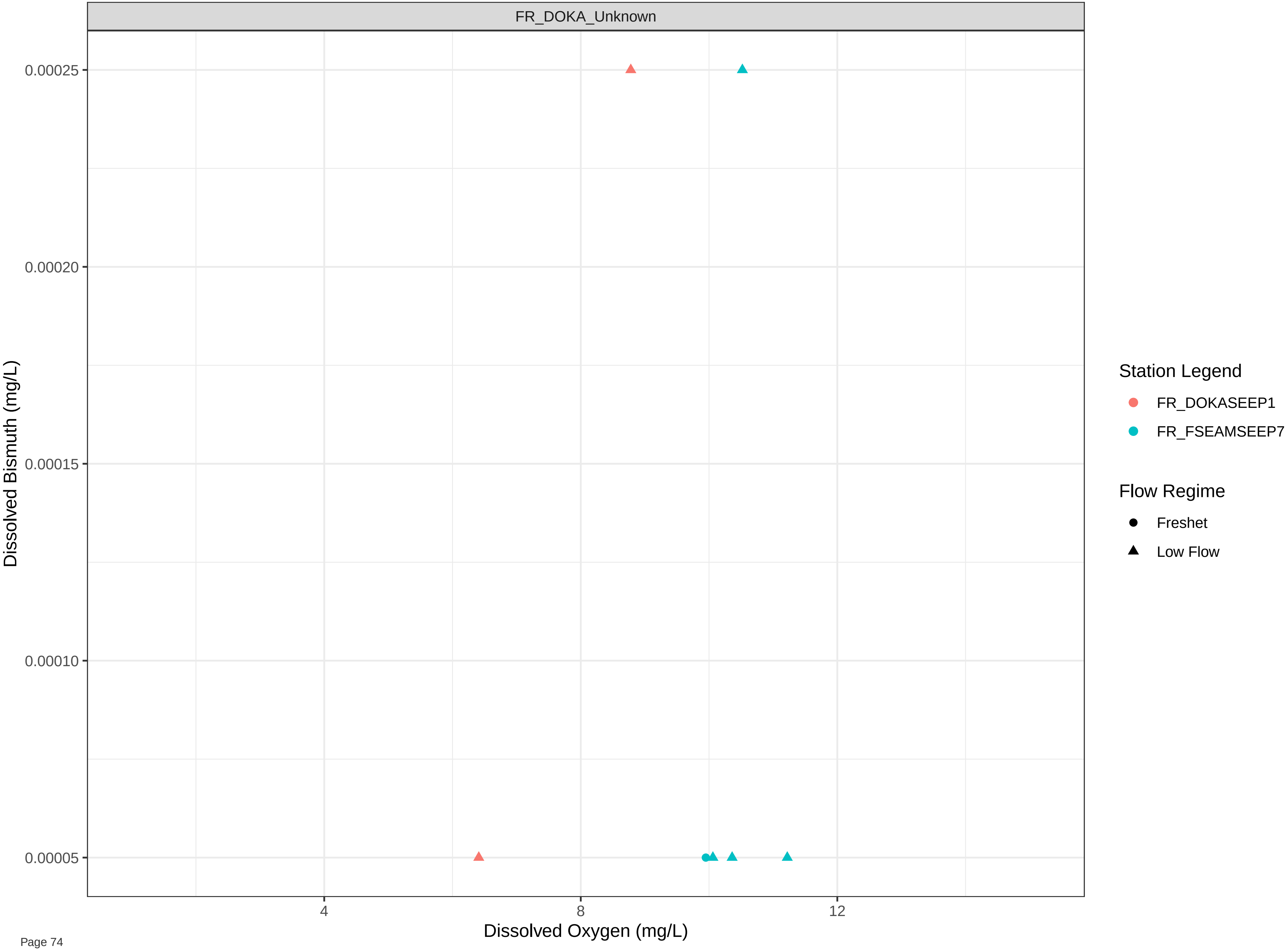

FR_TurnbullWREast_WR
Dissolved Beryllium (mg/L)
0.050
0.025
0.000
−0.025
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

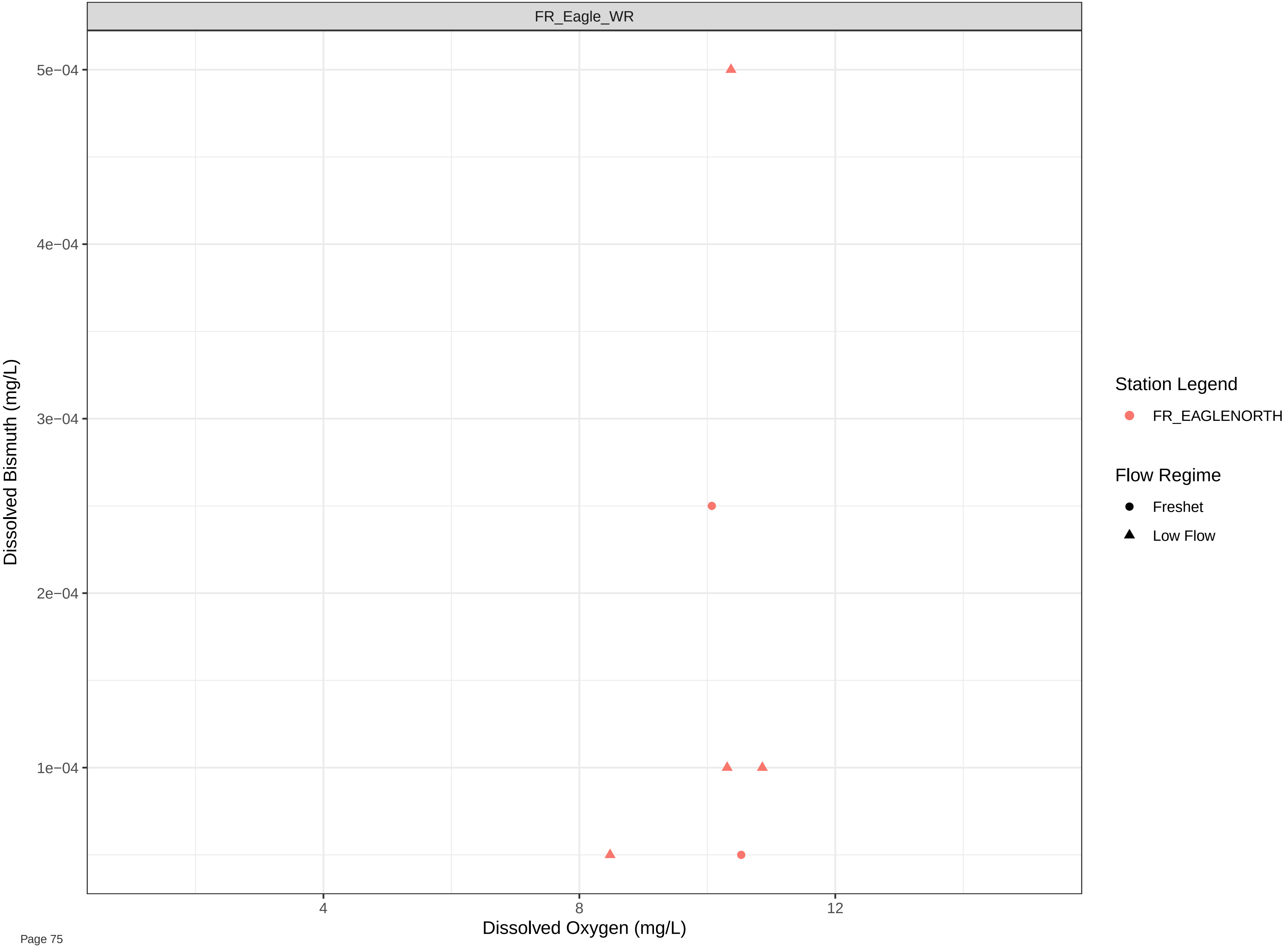

FR_TurnbullWRWest_WR
1e−04
8e−05
6e−05
4e−05
2e−05
4
8
12
Dissolved Beryllium (mg/L)
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

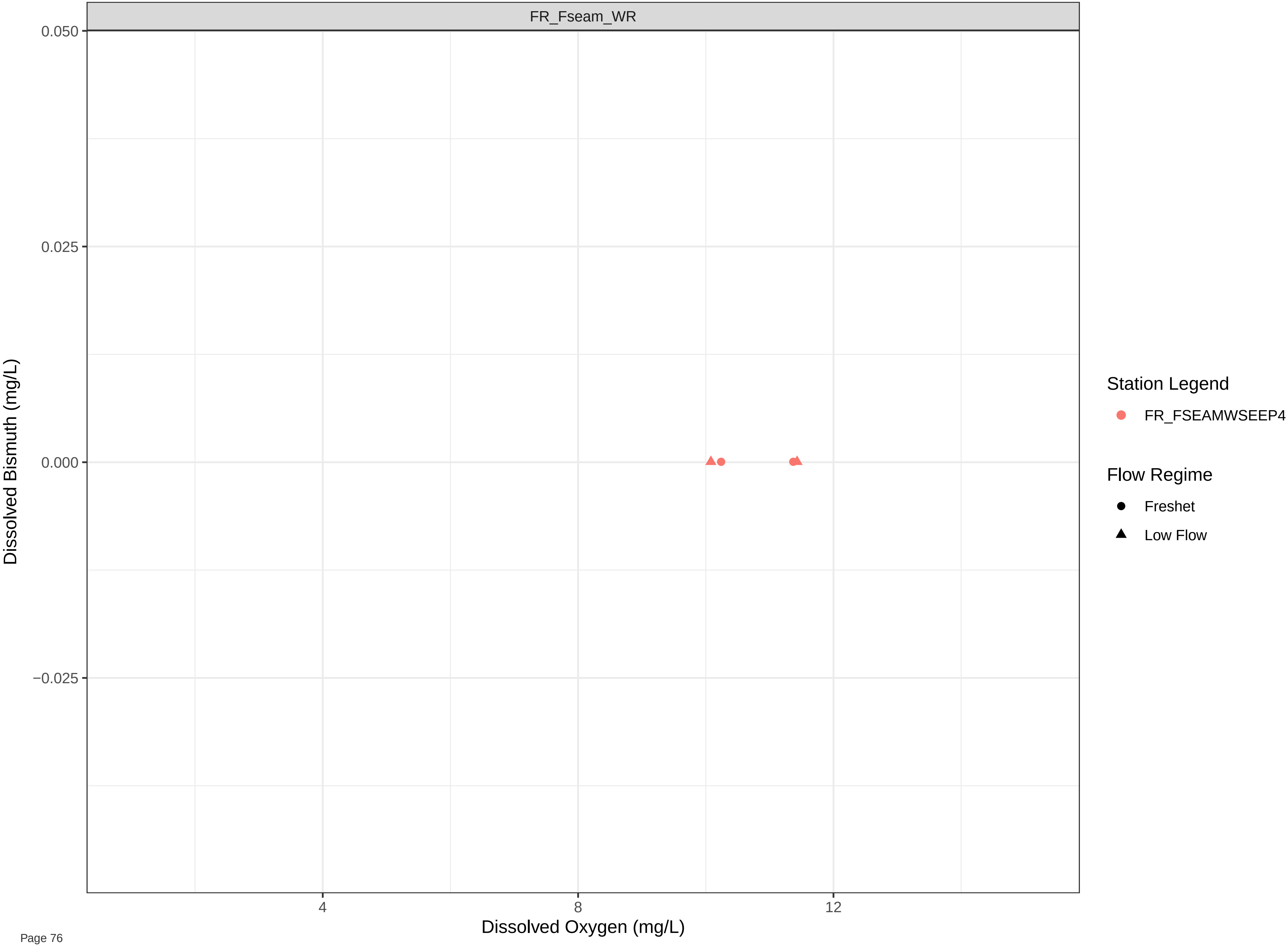

FR_A_WR
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Bismuth (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

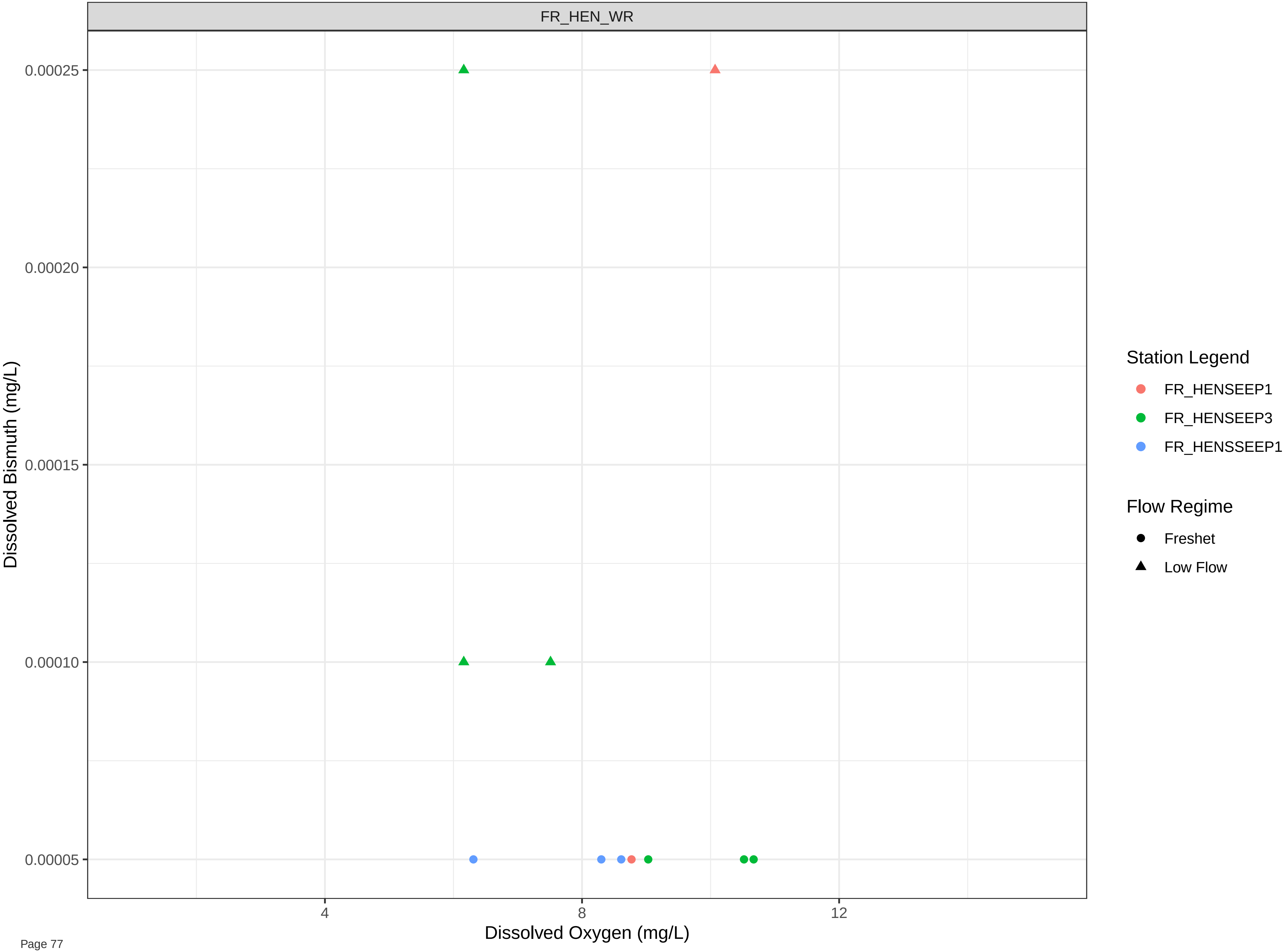

FR_Blain_CCR
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow

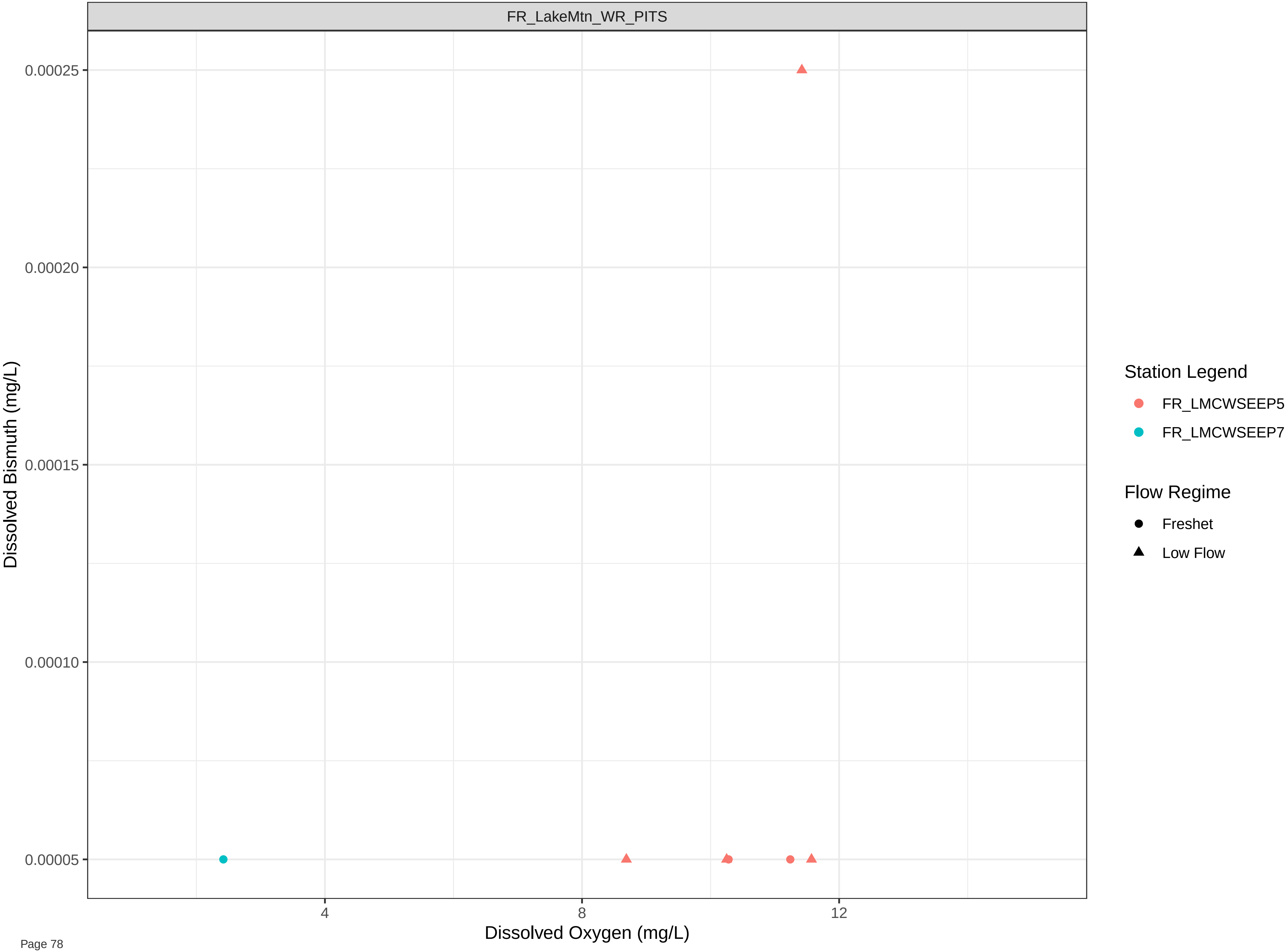

FR_ClodeCr_WR
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

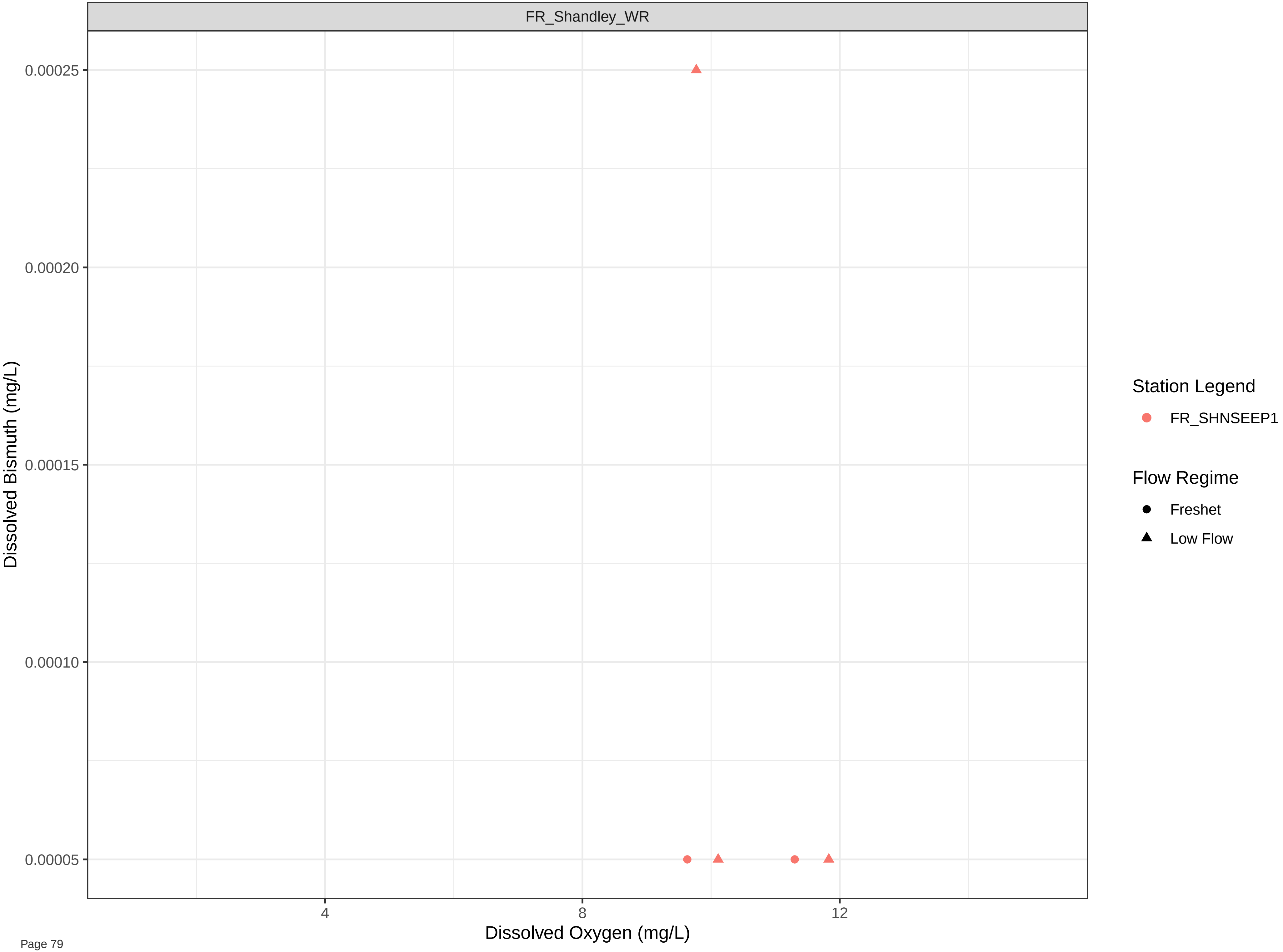

FR_DOKA_Unknown
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow

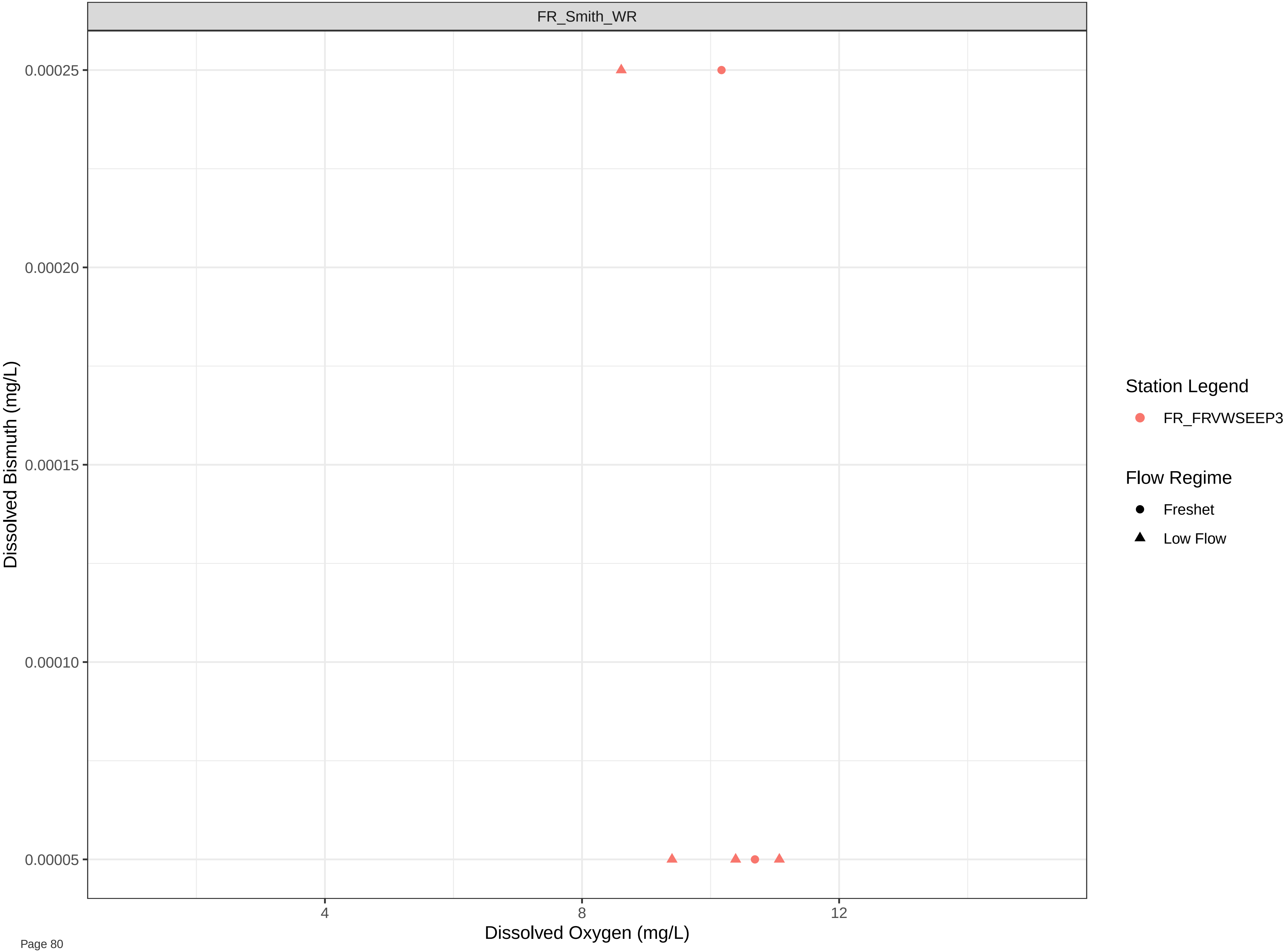

FR_Eagle_WR
Dissolved Bismuth (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

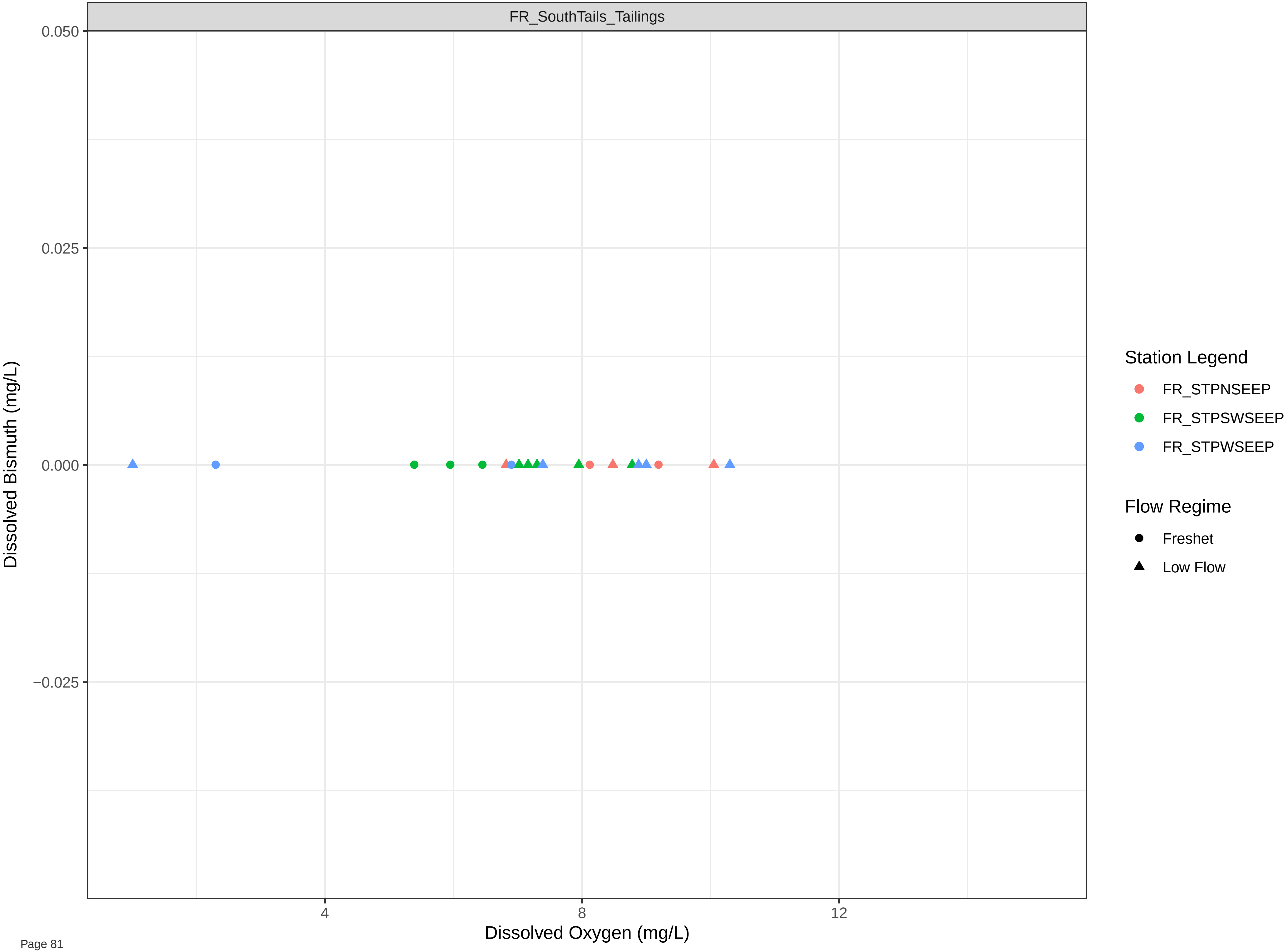

FR_Fseam_WR
Dissolved Bismuth (mg/L)
0.050
0.025
0.000
−0.025
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

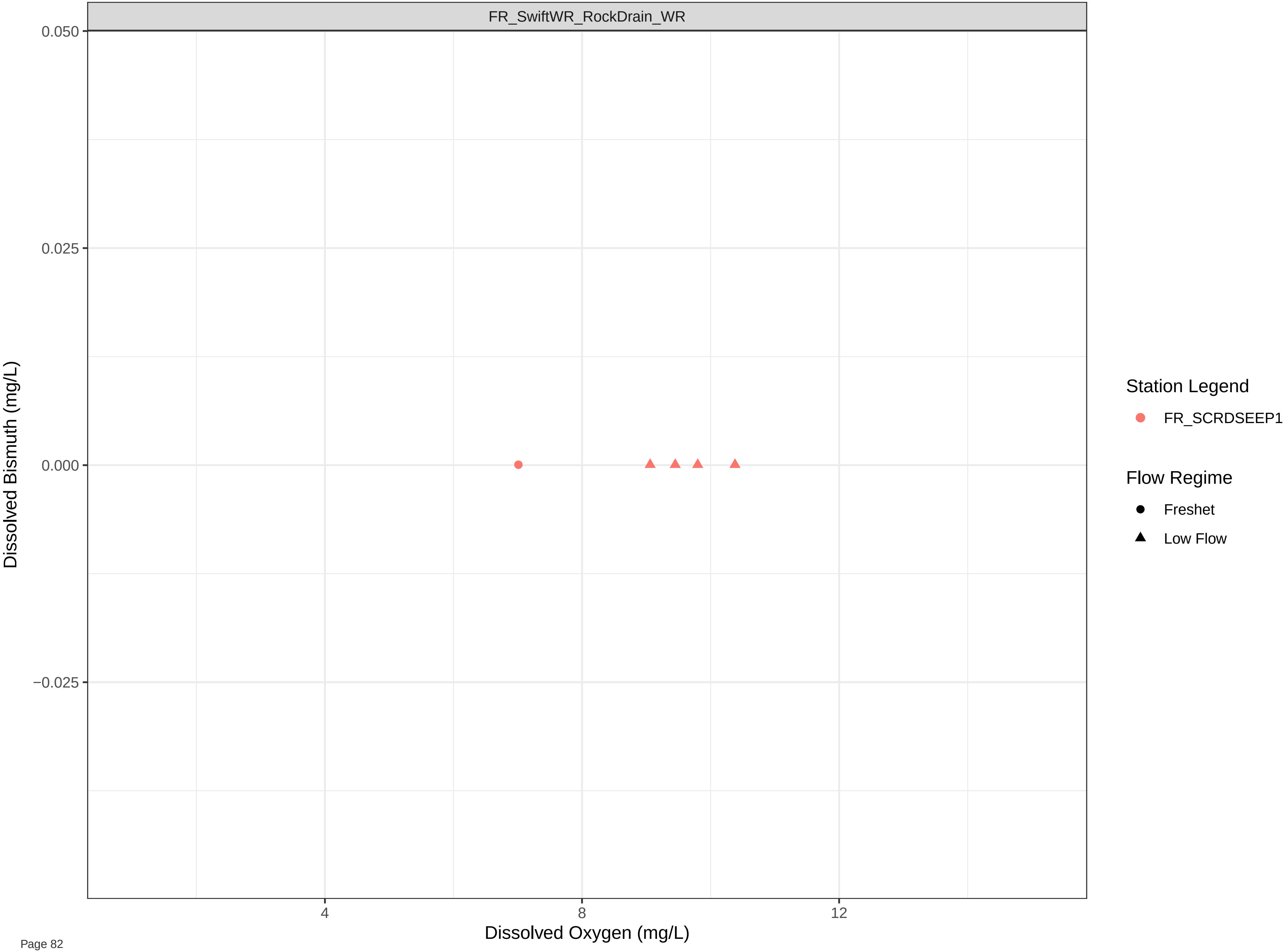

FR_HEN_WR
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

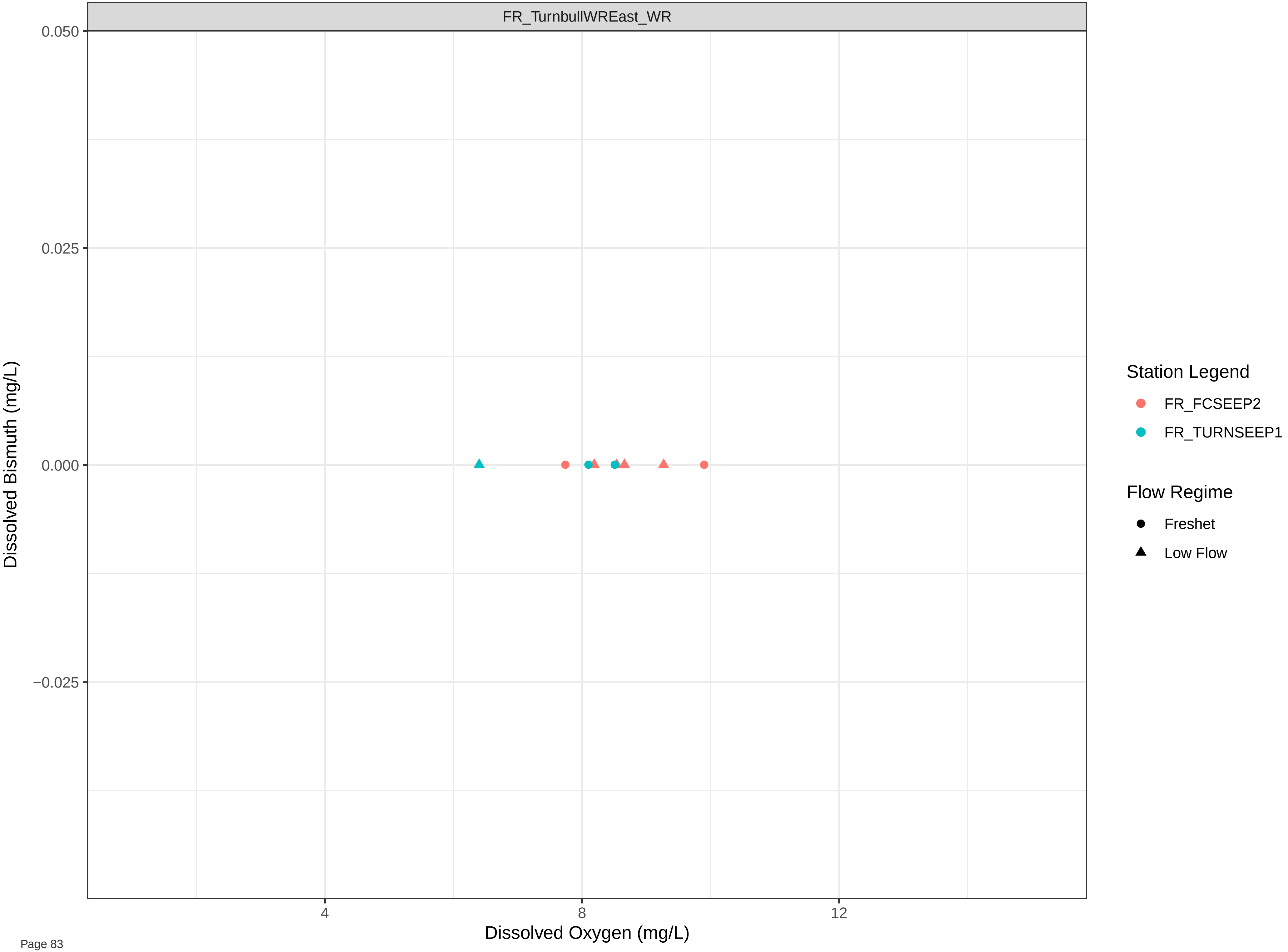

FR_LakeMtn_WR_PITS
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

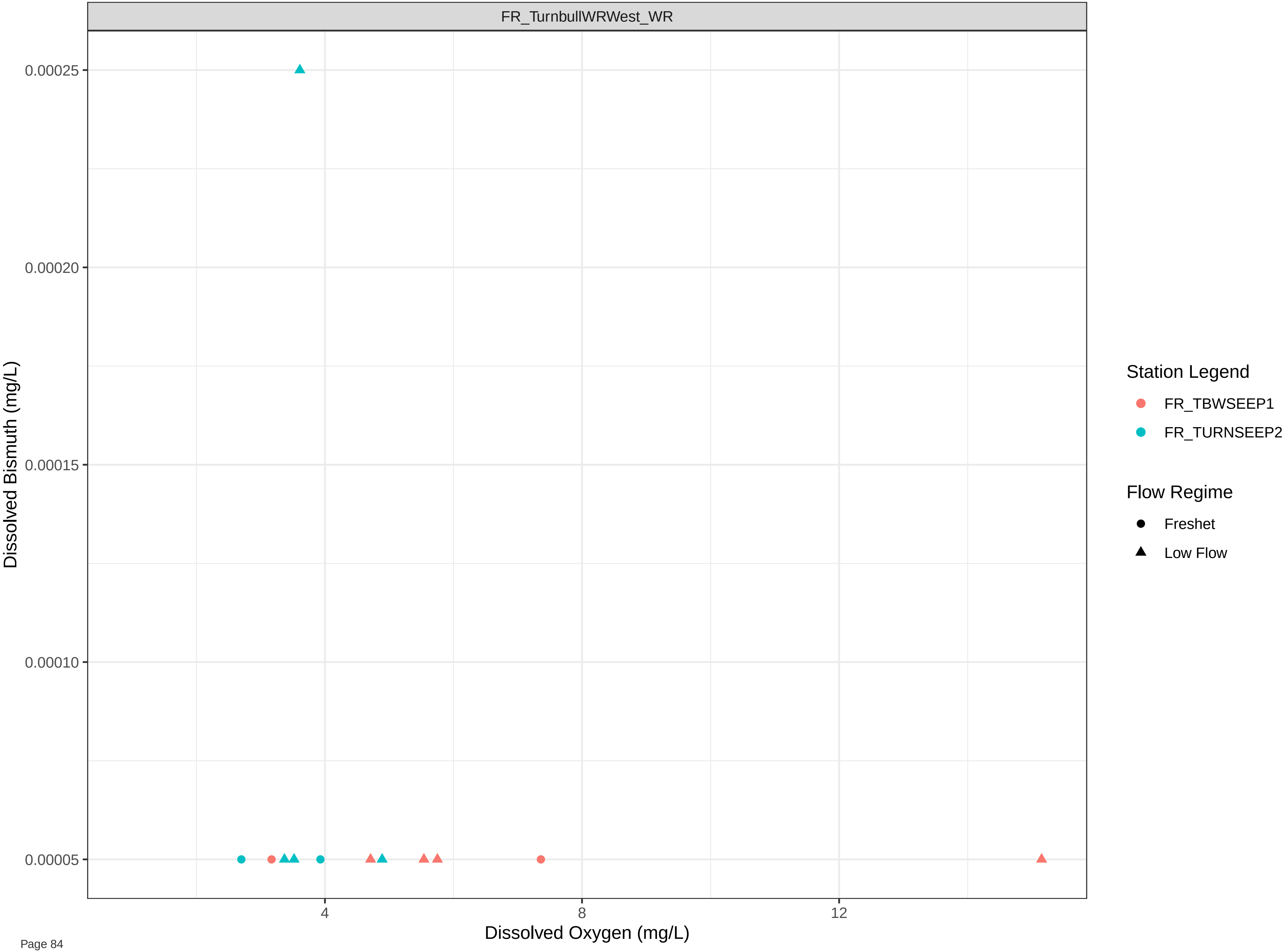

FR_Shandley_WR
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Bismuth (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

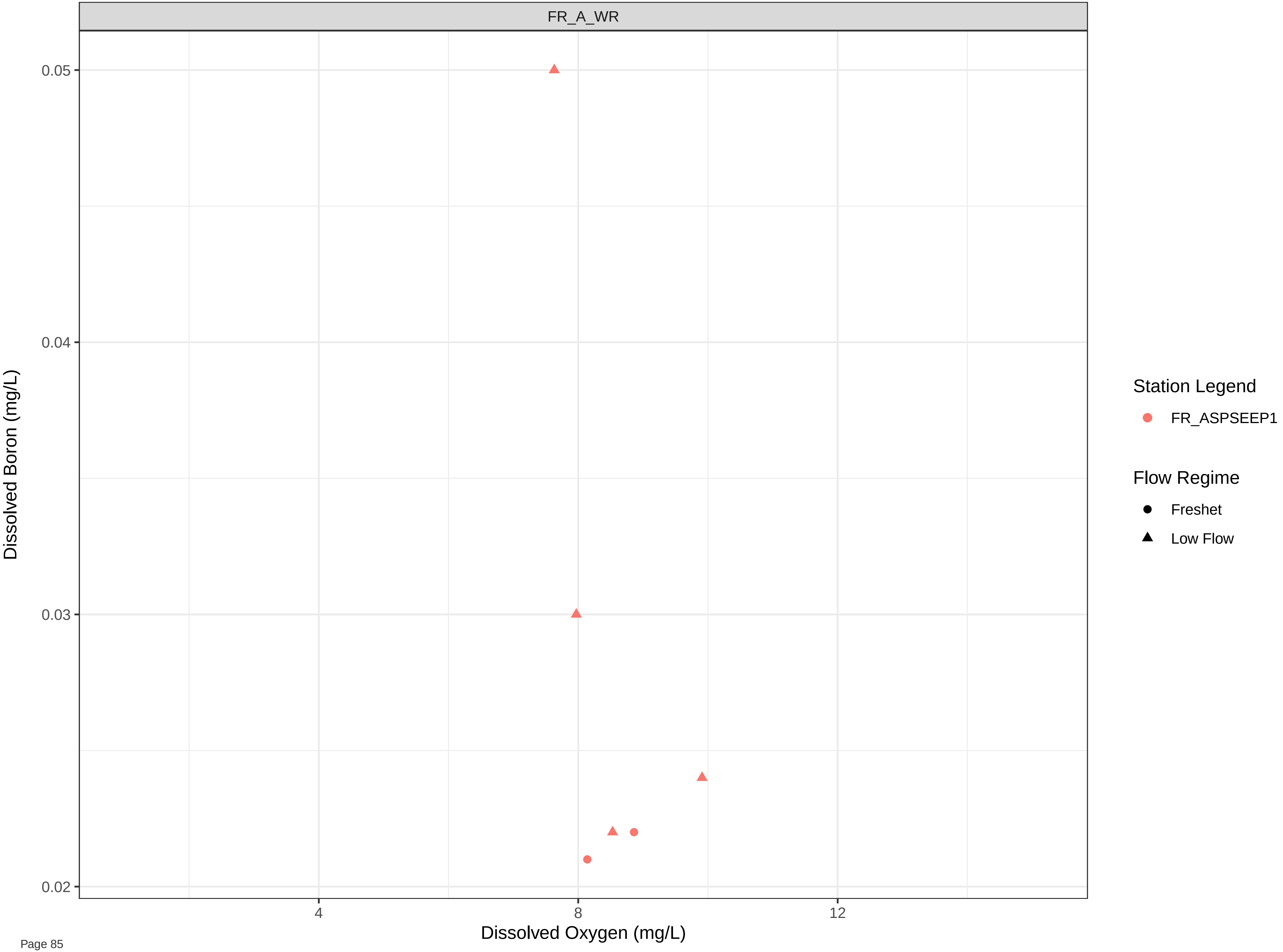

FR_Smith_WR
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

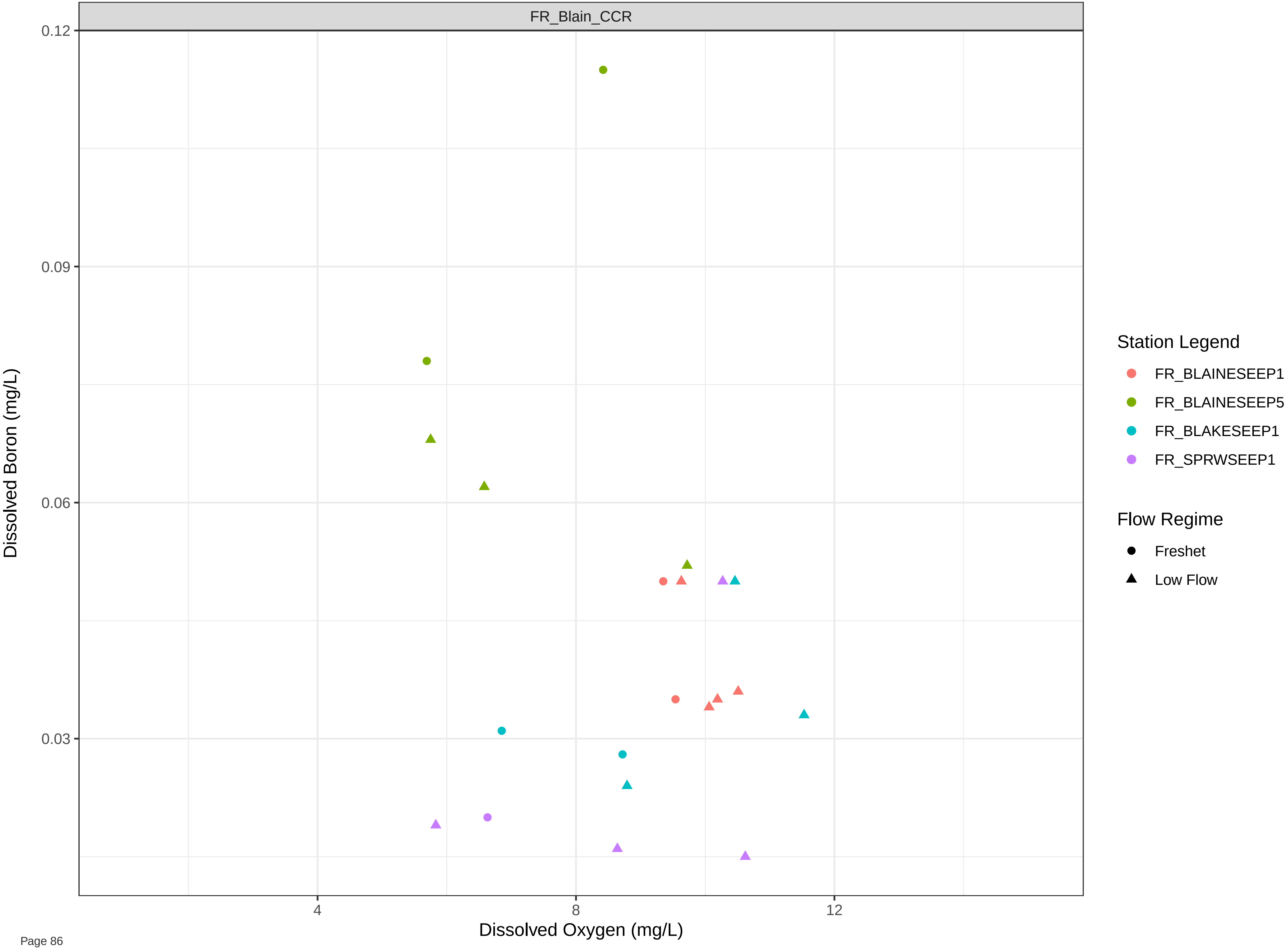

FR_SouthTails_Tailings
Dissolved Bismuth (mg/L)
0.050
0.025
0.000
−0.025
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

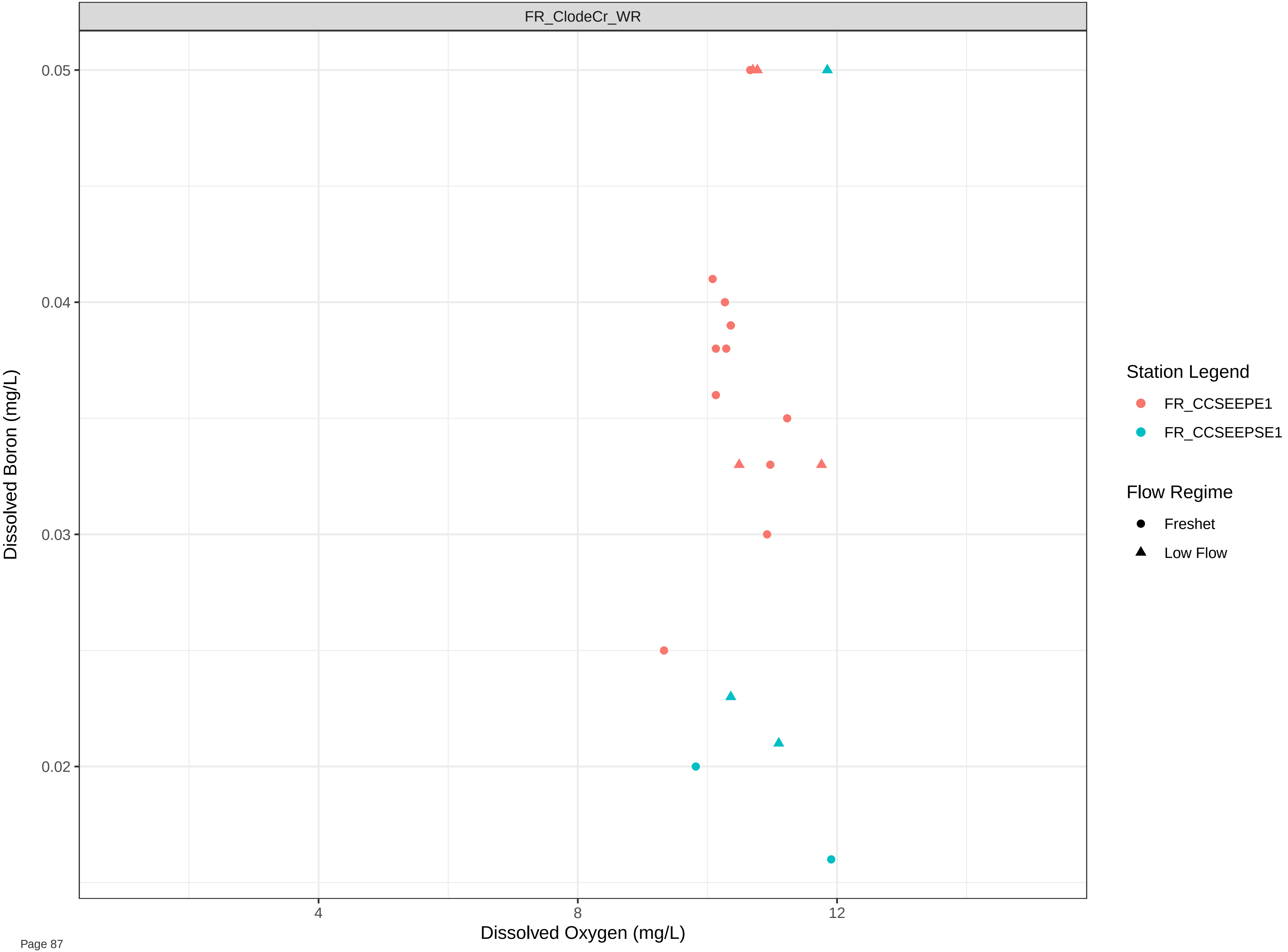

FR_SwiftWR_RockDrain_WR
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

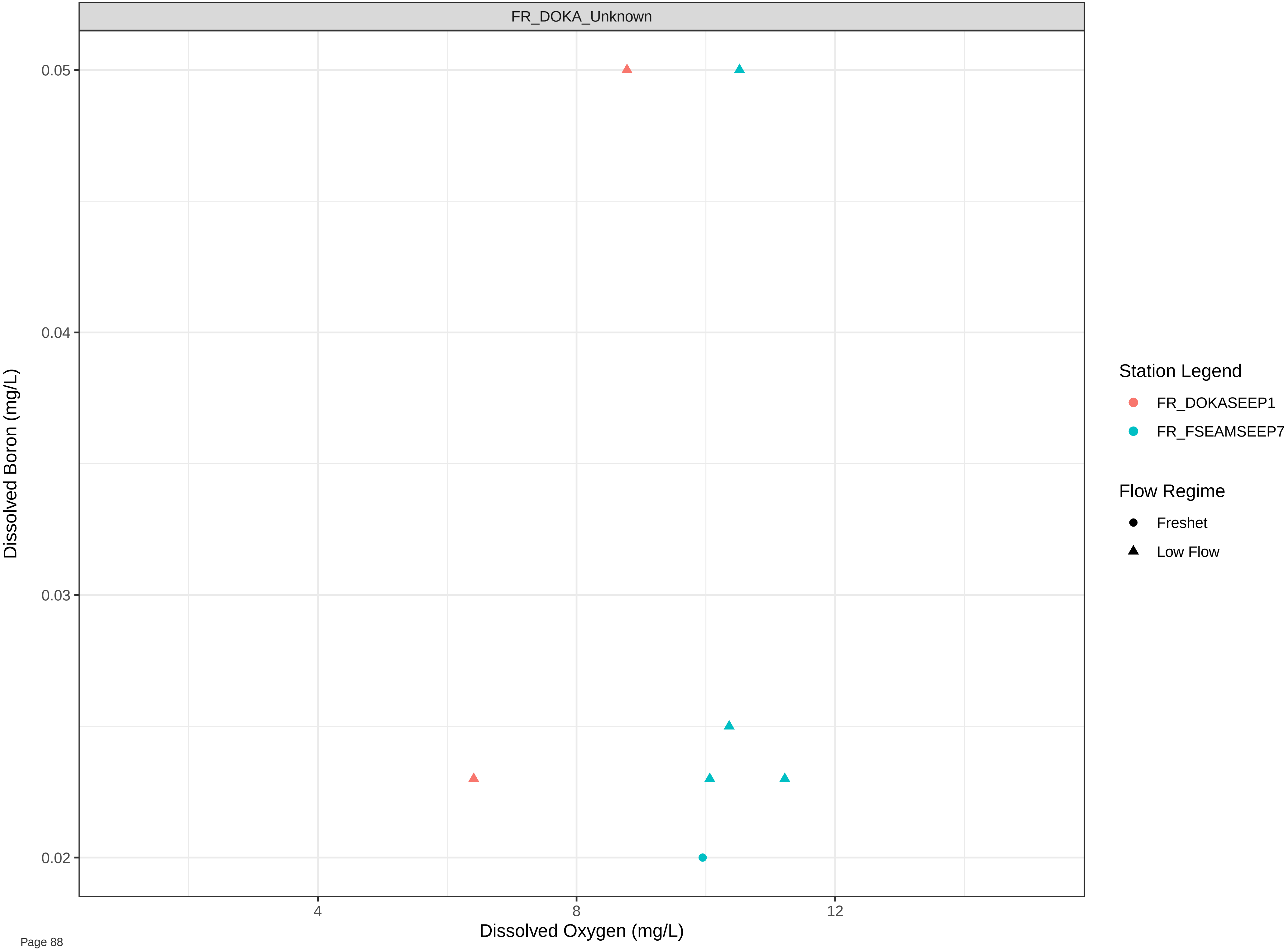

FR_TurnbullWREast_WR
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

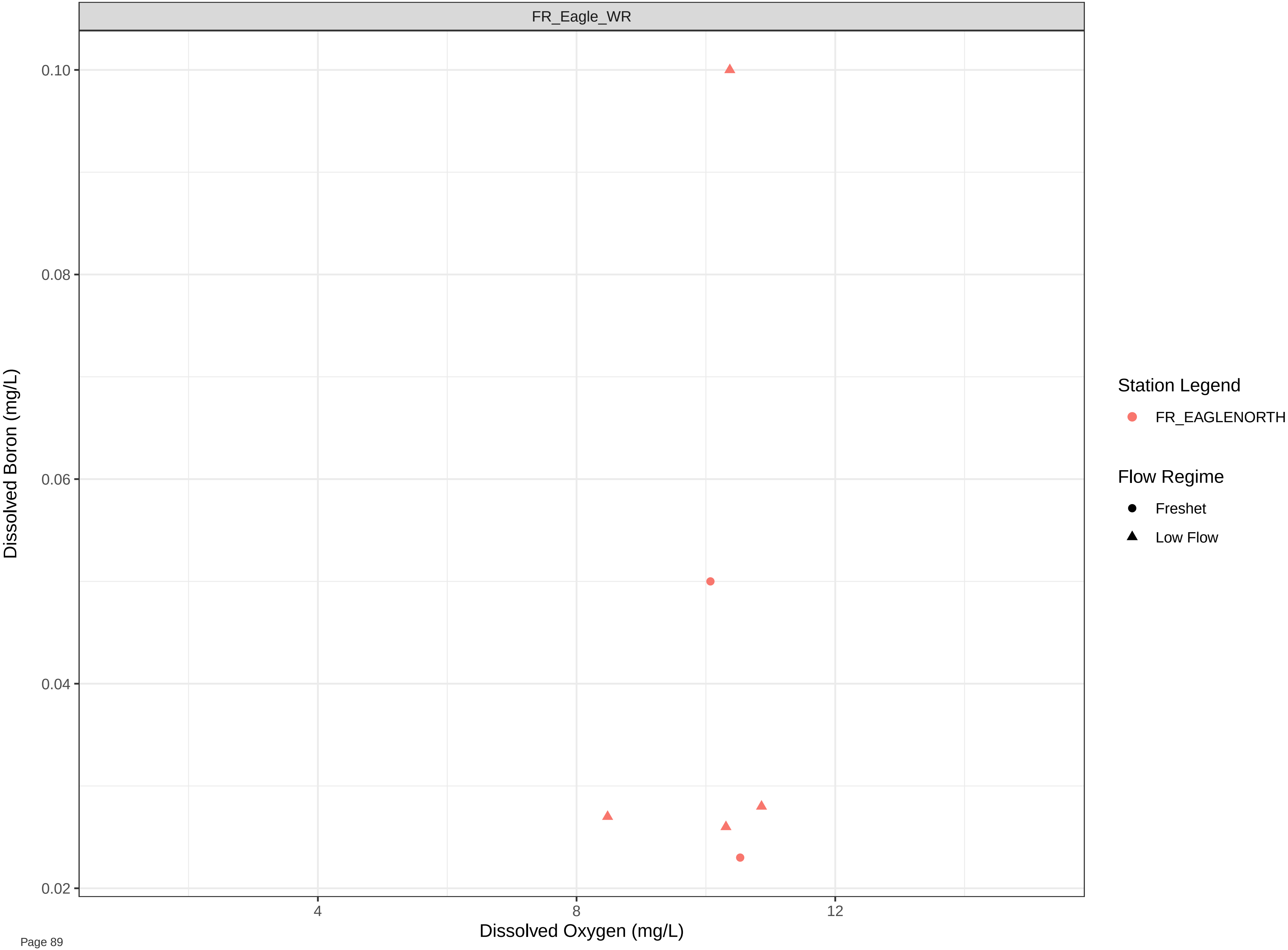

FR_TurnbullWRWest_WR
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Bismuth (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

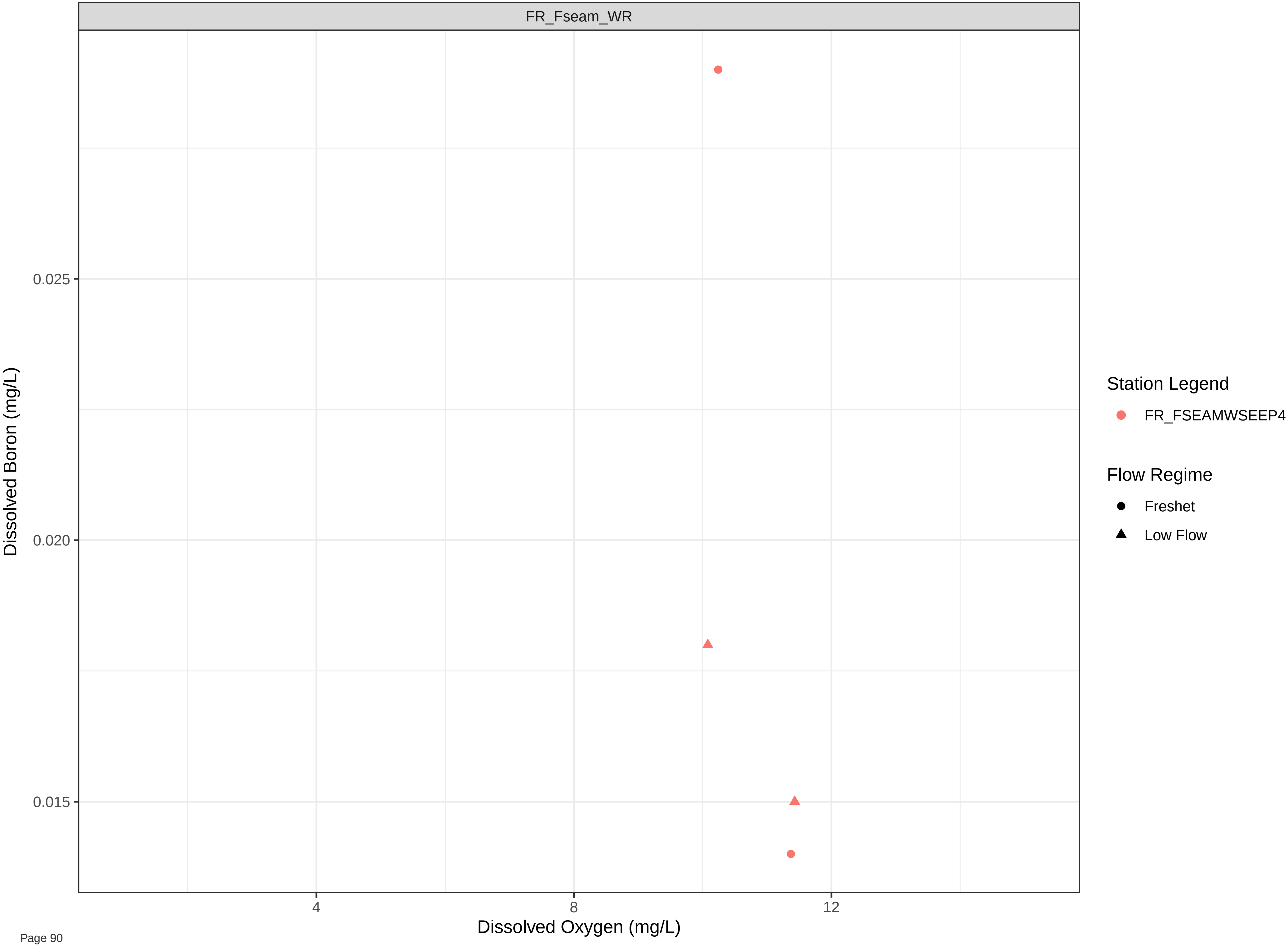

FR_A_WR
0.05
0.04
0.03
0.02
Dissolved Boron (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

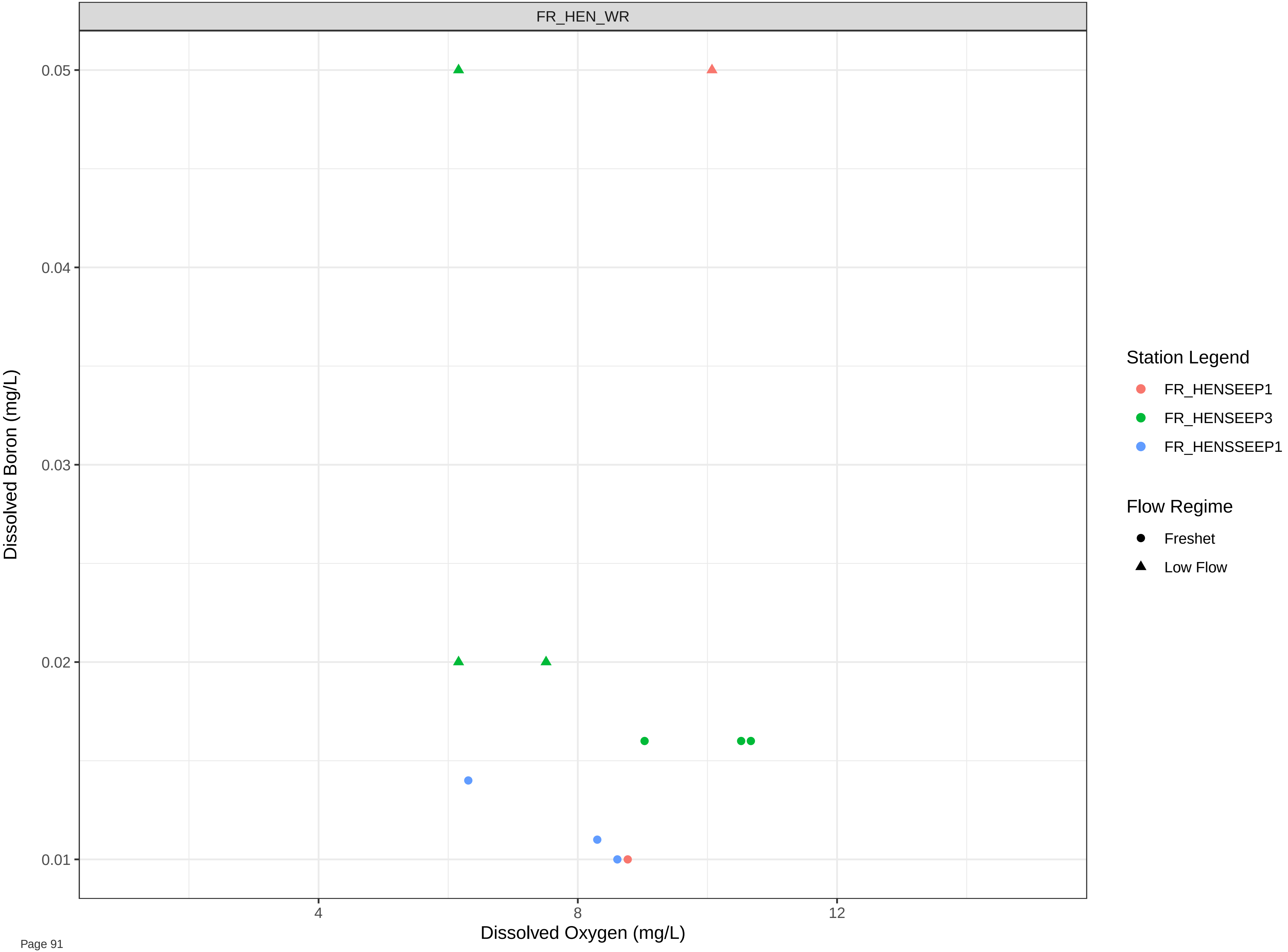

FR_Blain_CCR
0.12
0.09
0.06
0.03
Dissolved Boron (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow

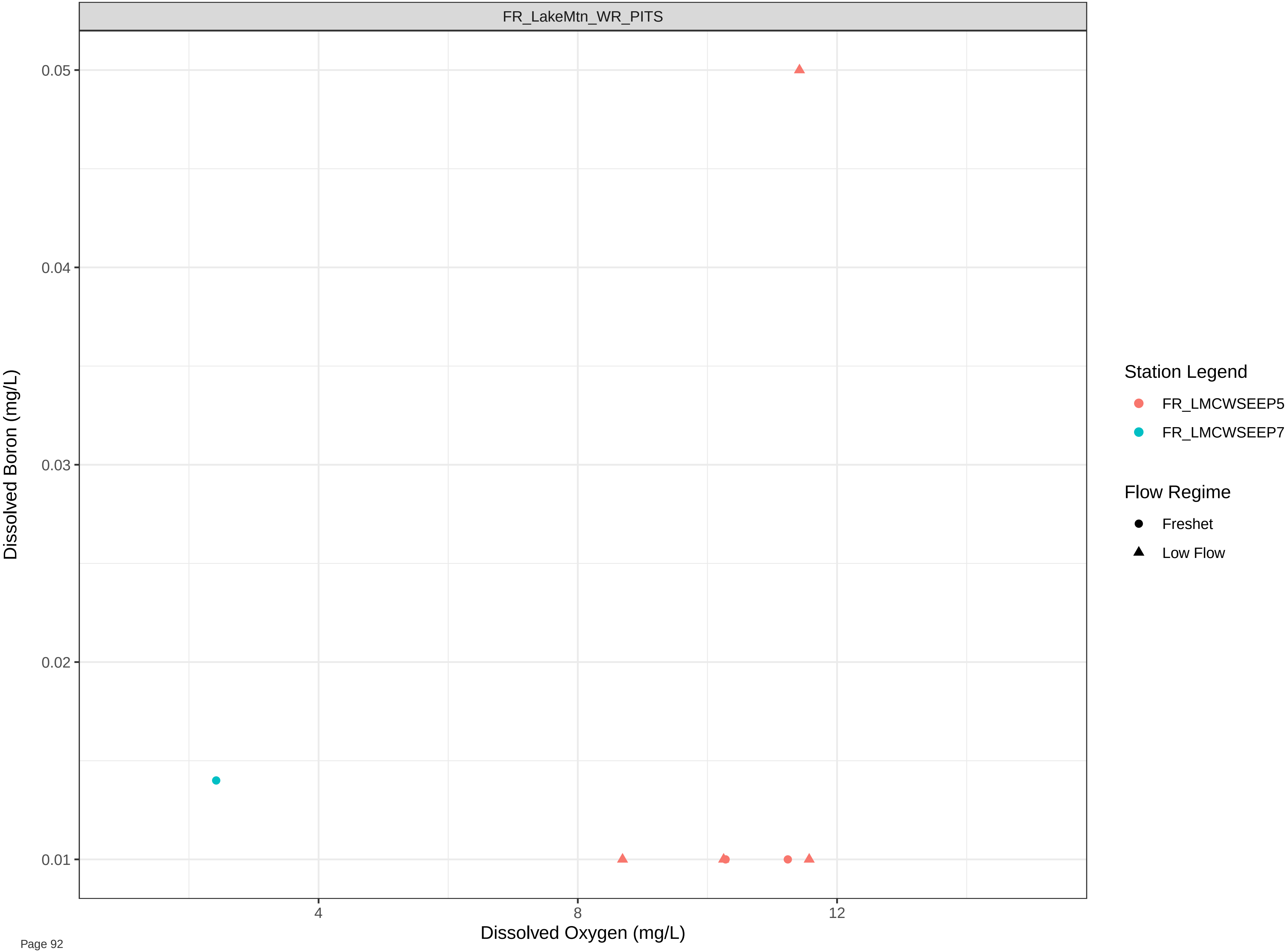

FR_ClodeCr_WR
Dissolved Boron (mg/L)
0.05
0.04
0.03
0.02
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

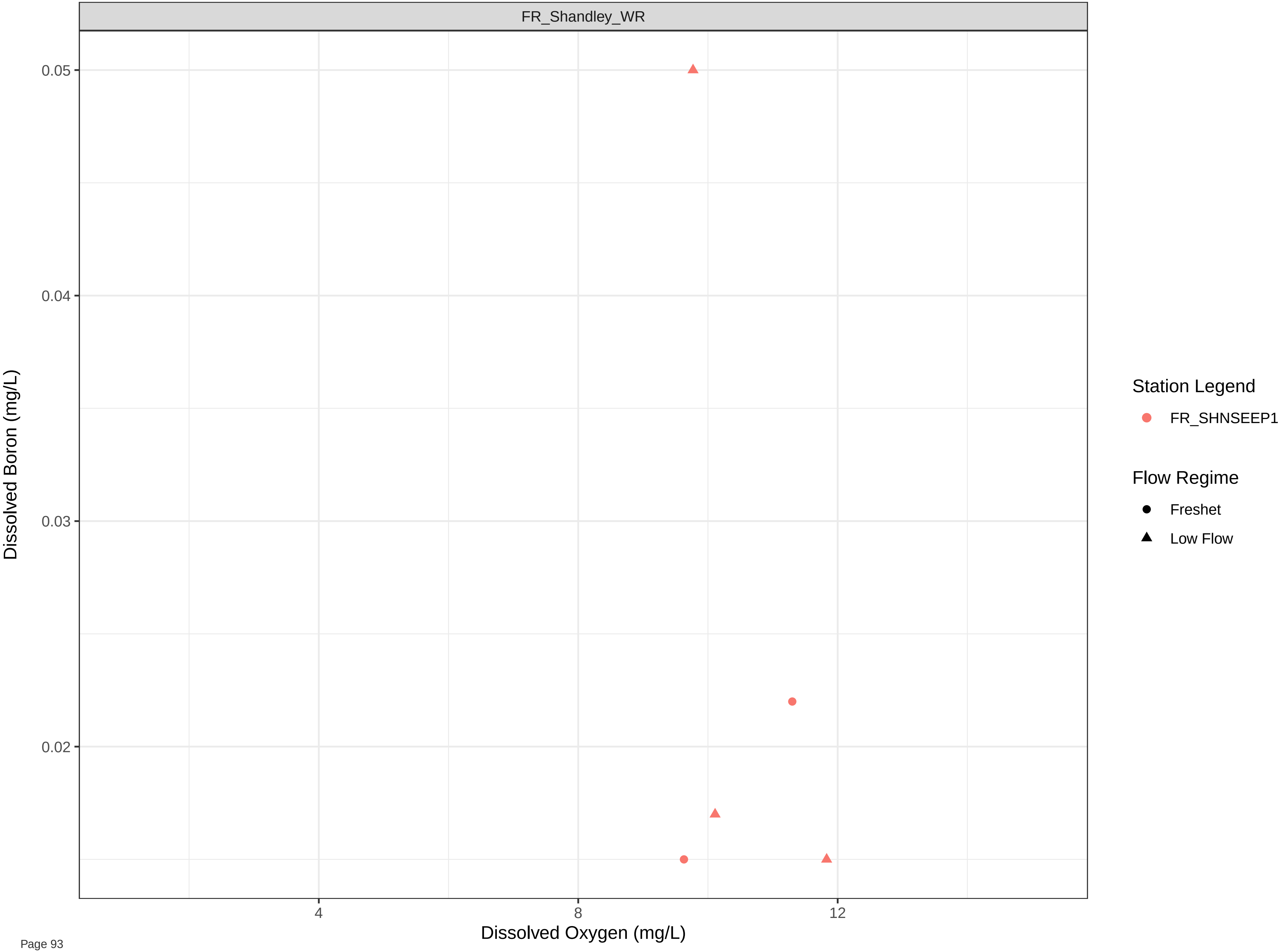

FR_DOKA_Unknown
Dissolved Boron (mg/L)
0.05
0.04
0.03
0.02
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

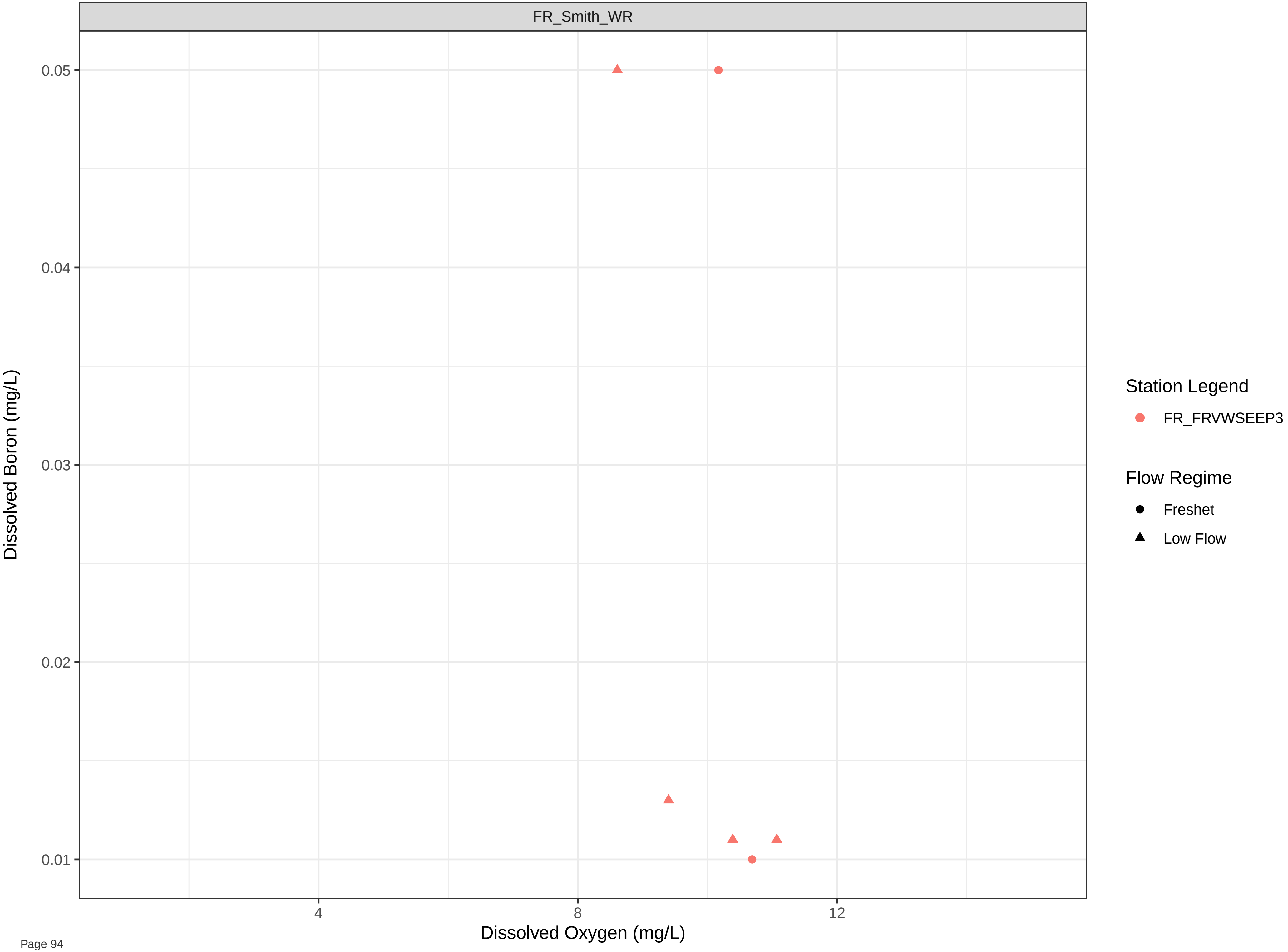

FR_Eagle_WR
Dissolved Boron (mg/L)
0.10
0.08
0.06
0.04
0.02
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

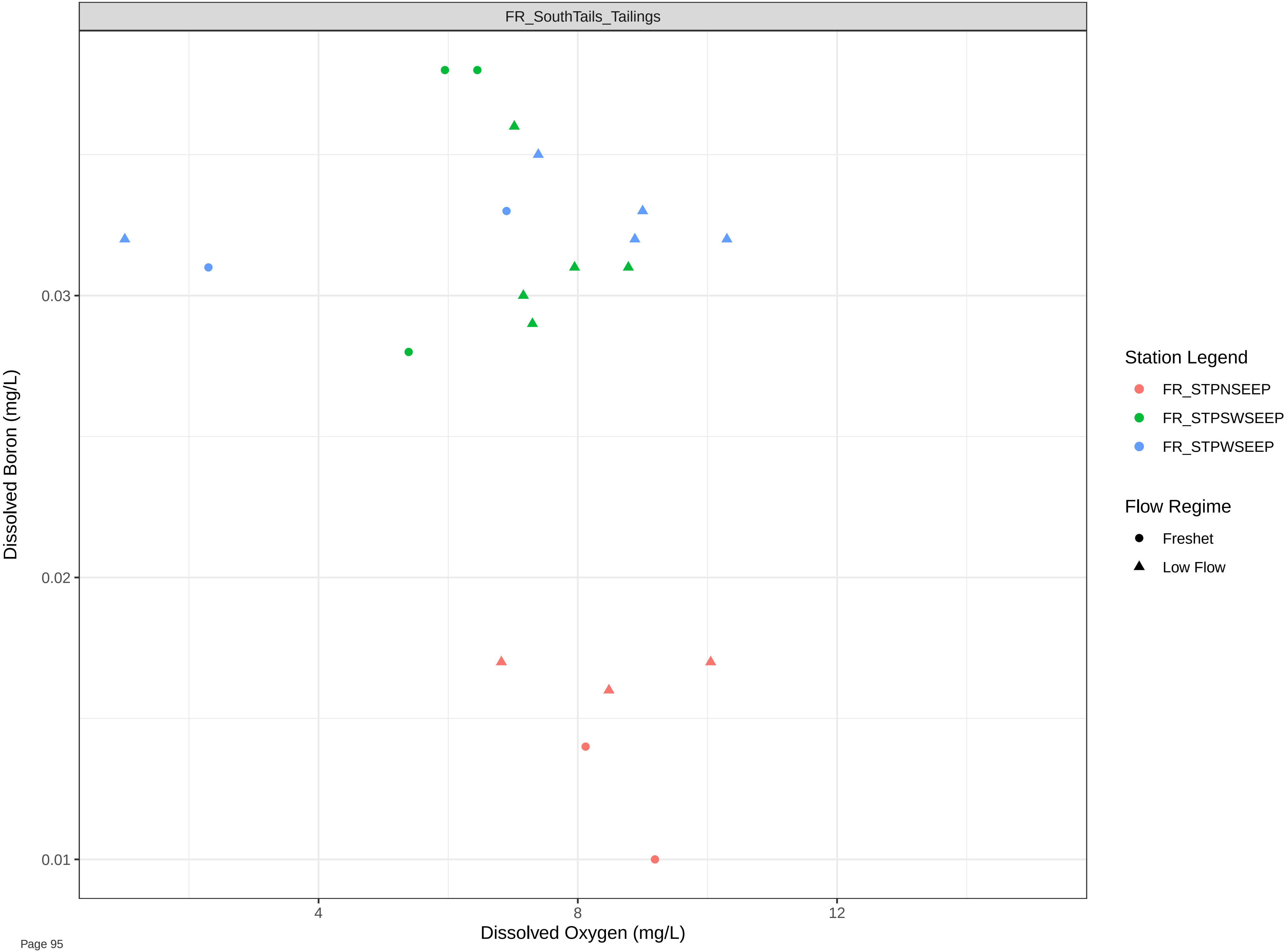

FR_Fseam_WR
Dissolved Boron (mg/L)
0.025
0.020
0.015
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

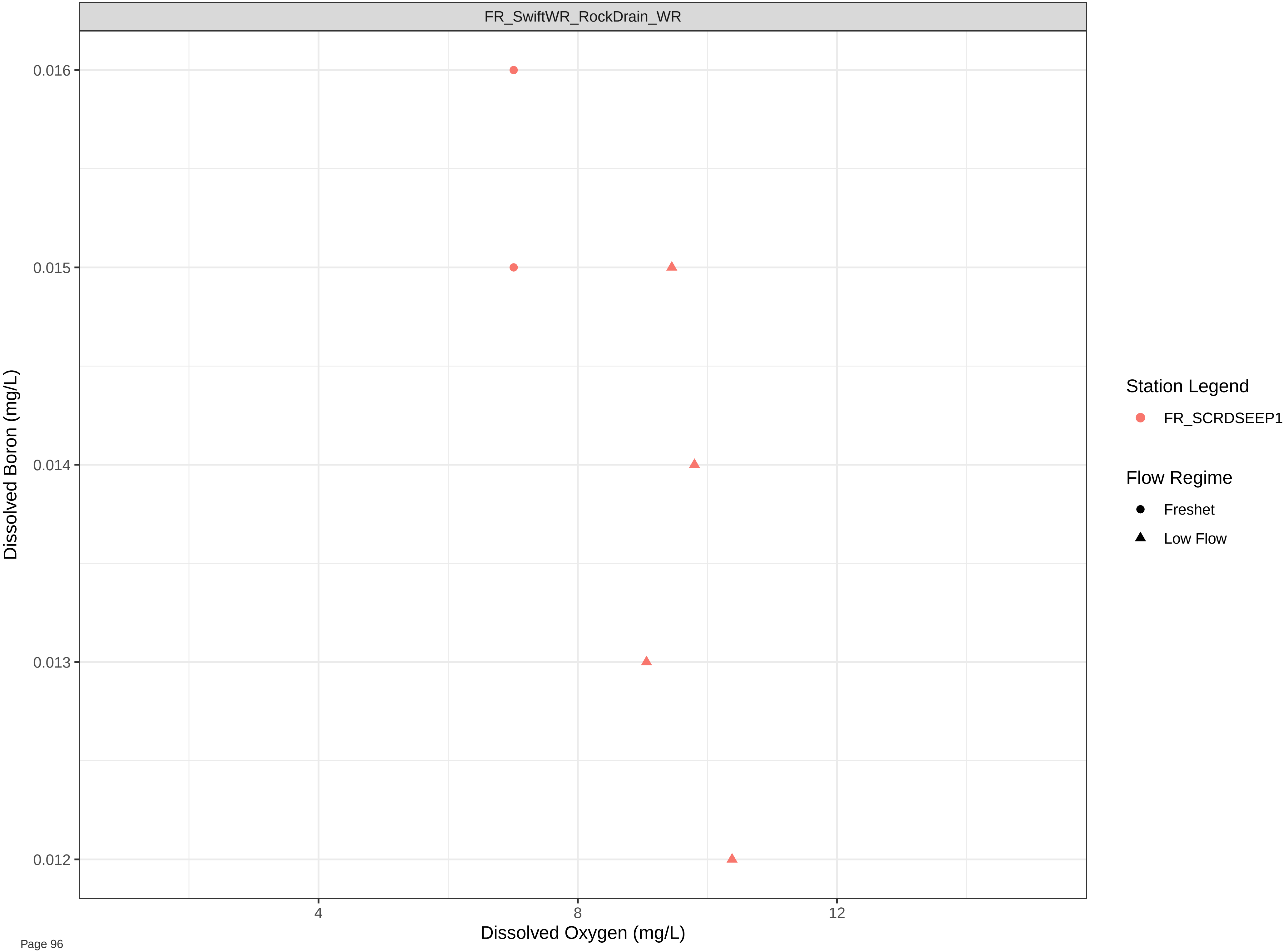

FR_HEN_WR
Dissolved Boron (mg/L)
0.05
0.04
0.03
0.02
0.01
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

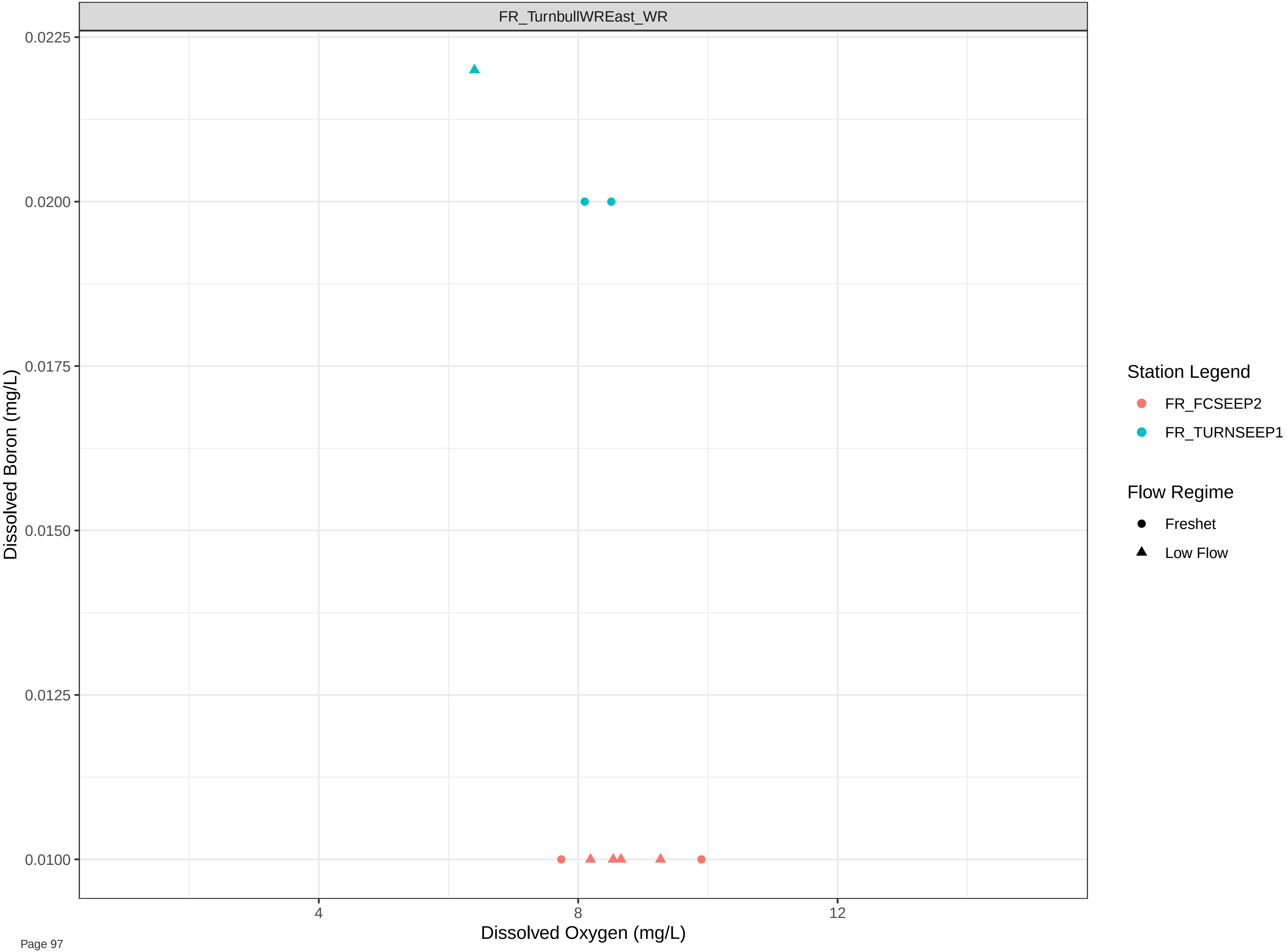

FR_LakeMtn_WR_PITS
Dissolved Boron (mg/L)
0.05
0.04
0.03
0.02
0.01
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

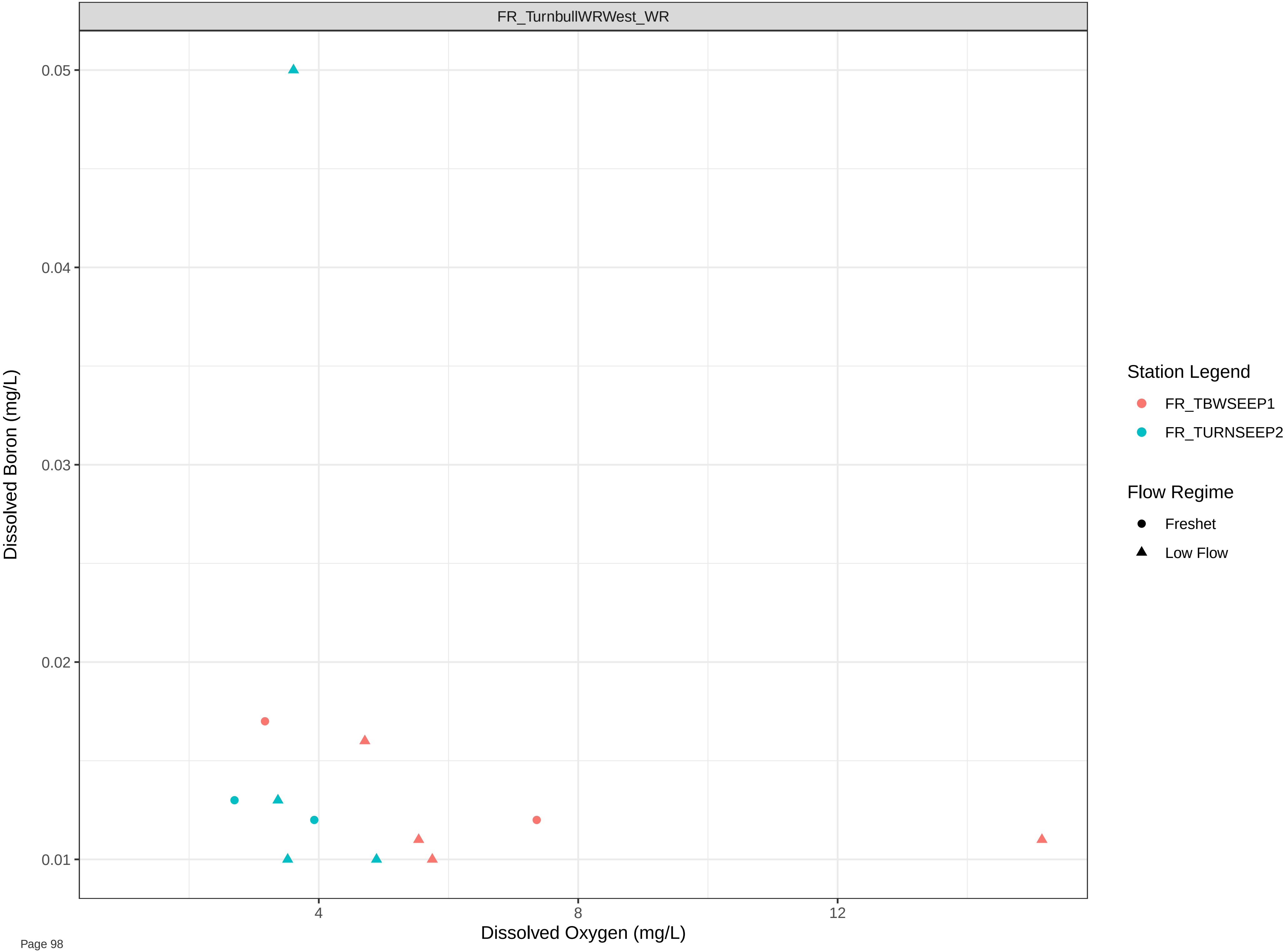

FR_Shandley_WR
0.05
0.04
0.03
0.02
Dissolved Boron (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

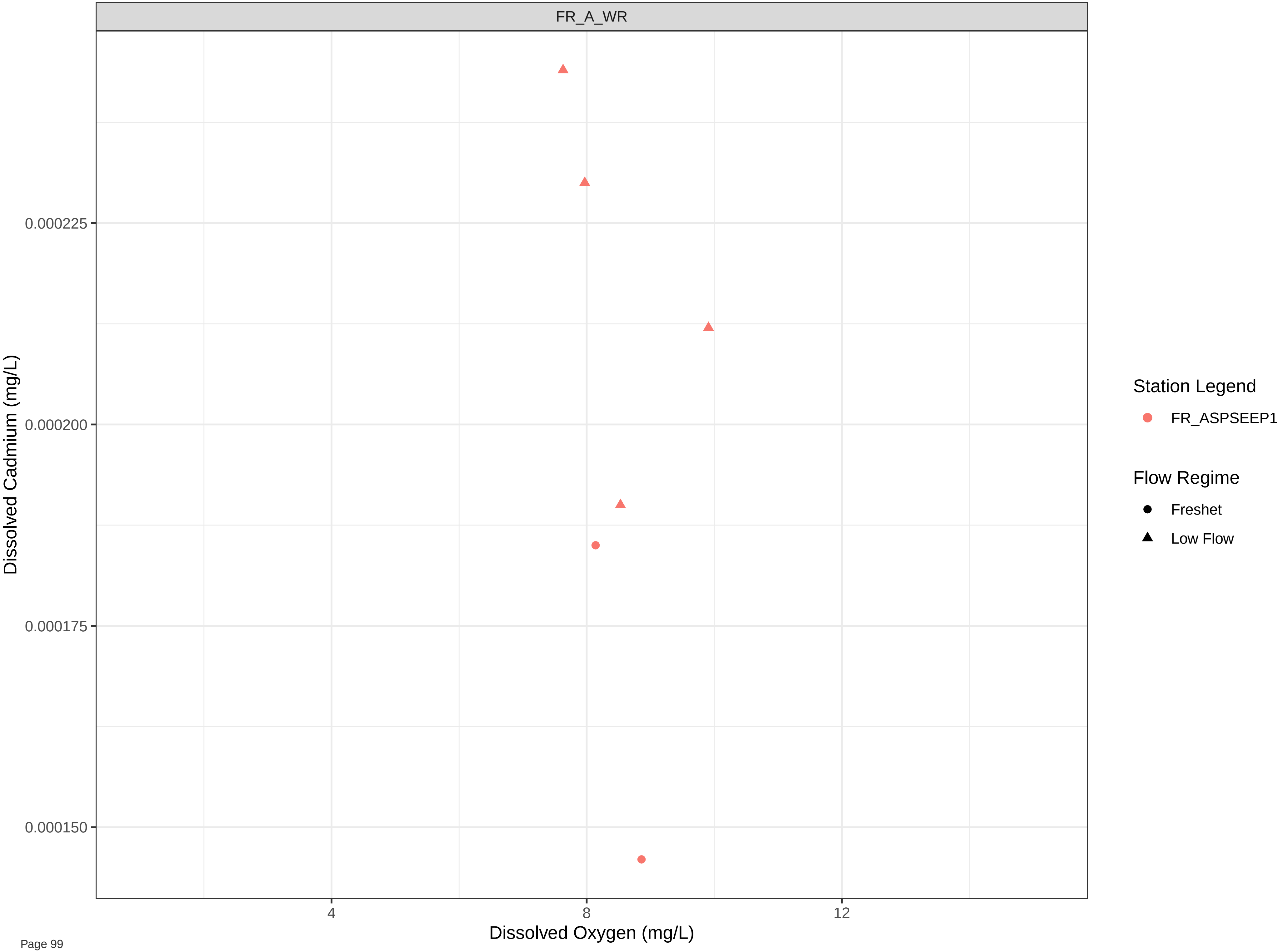

FR_Smith_WR
Dissolved Boron (mg/L)
0.05
0.04
0.03
0.02
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

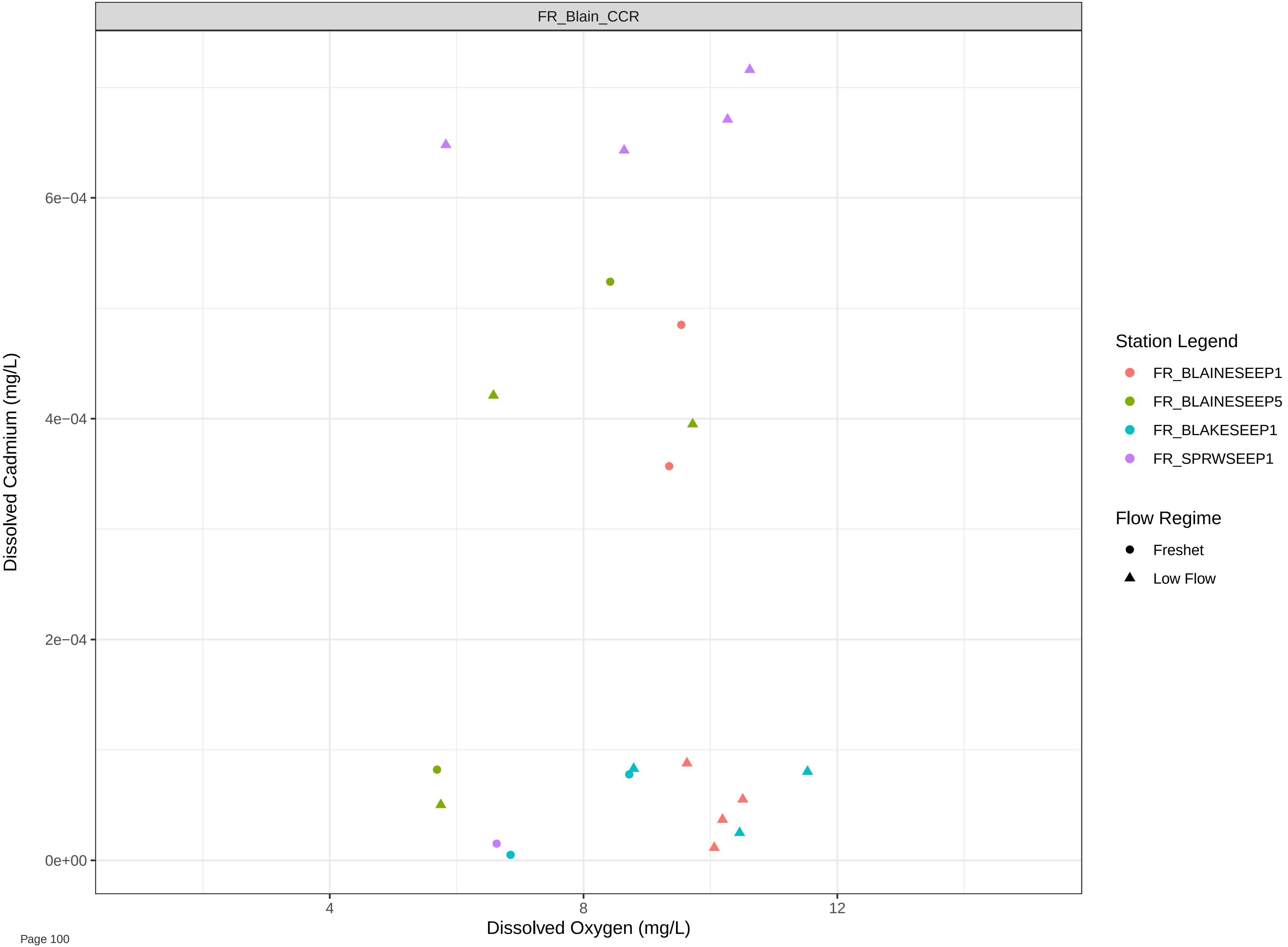

FR_SouthTails_Tailings
Dissolved Boron (mg/L)
0.03
0.02
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

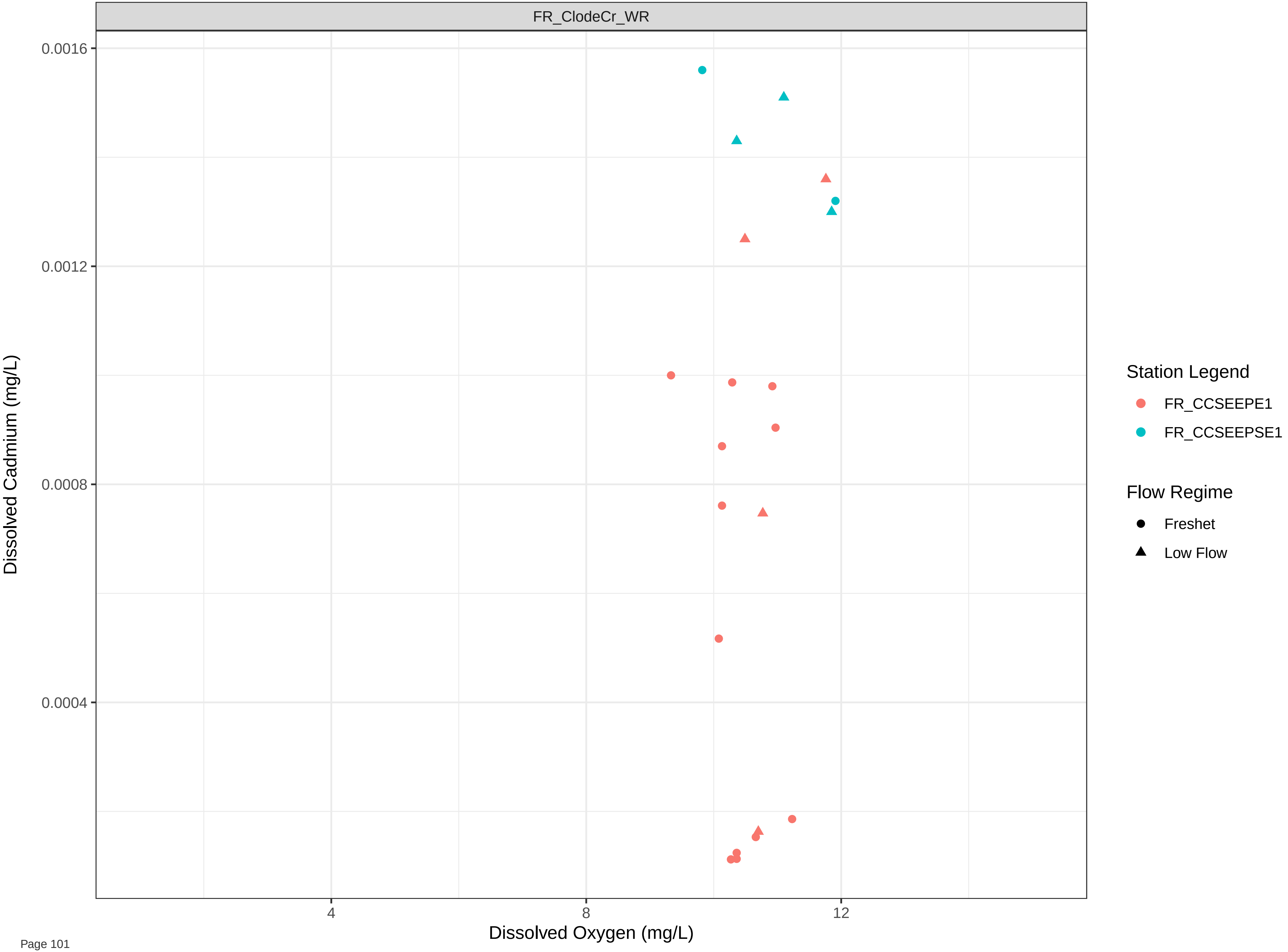

FR_SwiftWR_RockDrain_WR
Dissolved Boron (mg/L)
0.016
0.015
0.014
0.013
0.012
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

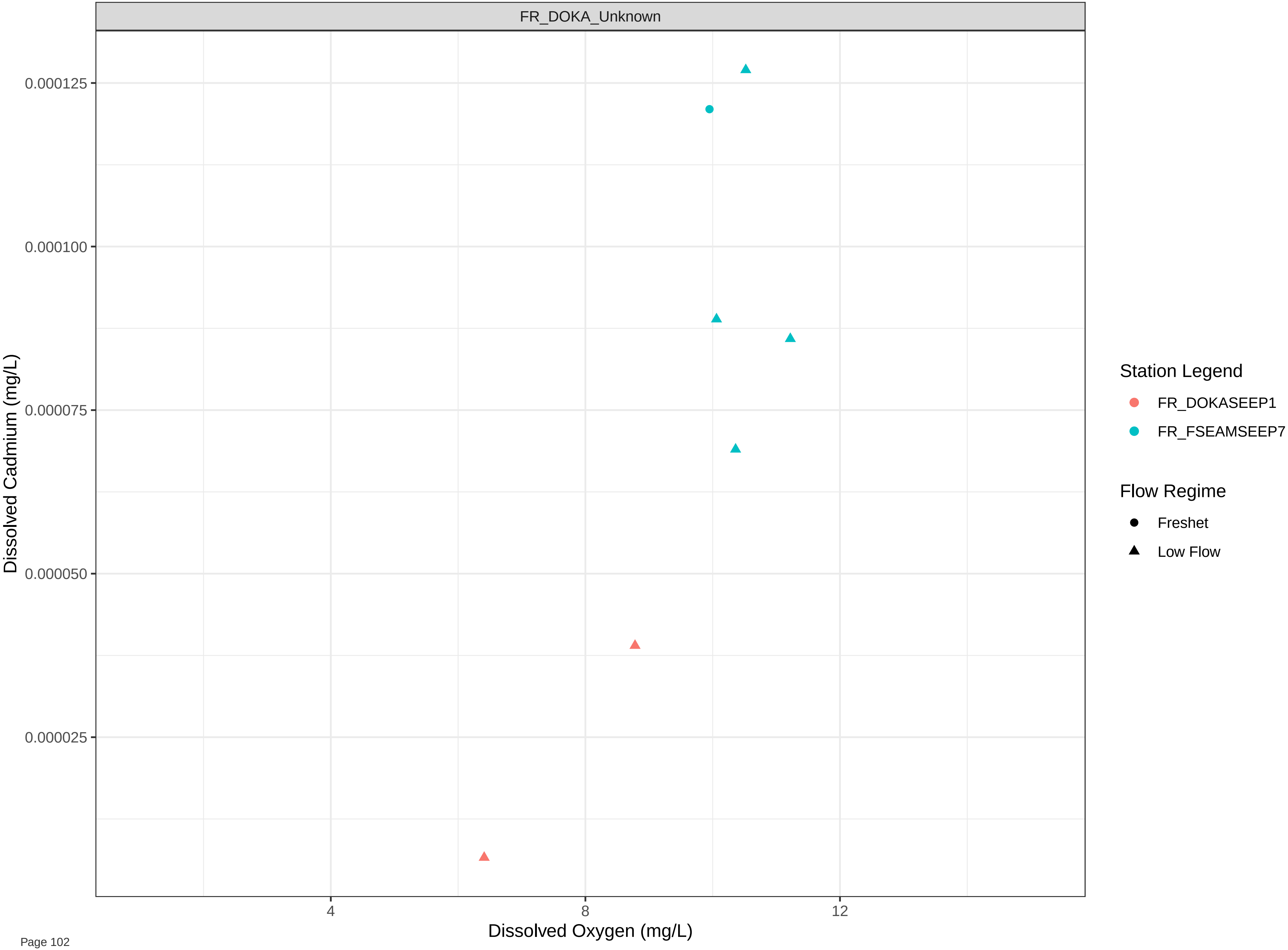

FR_TurnbullWREast_WR
0.0225
0.0200
0.0175
0.0150
0.0125
0.0100
Dissolved Boron (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

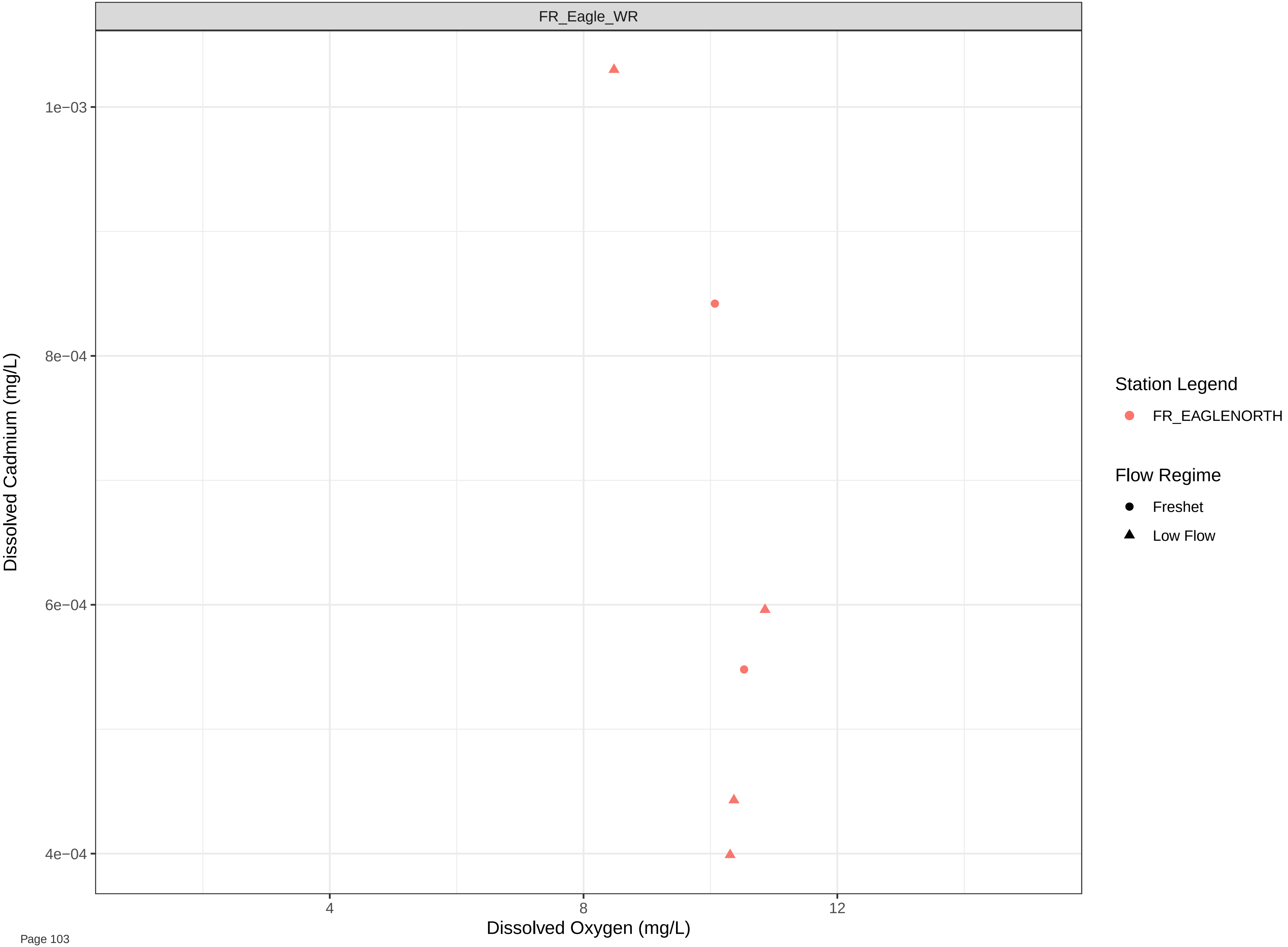

FR_TurnbullWRWest_WR
Dissolved Boron (mg/L)
0.05
0.04
0.03
0.02
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

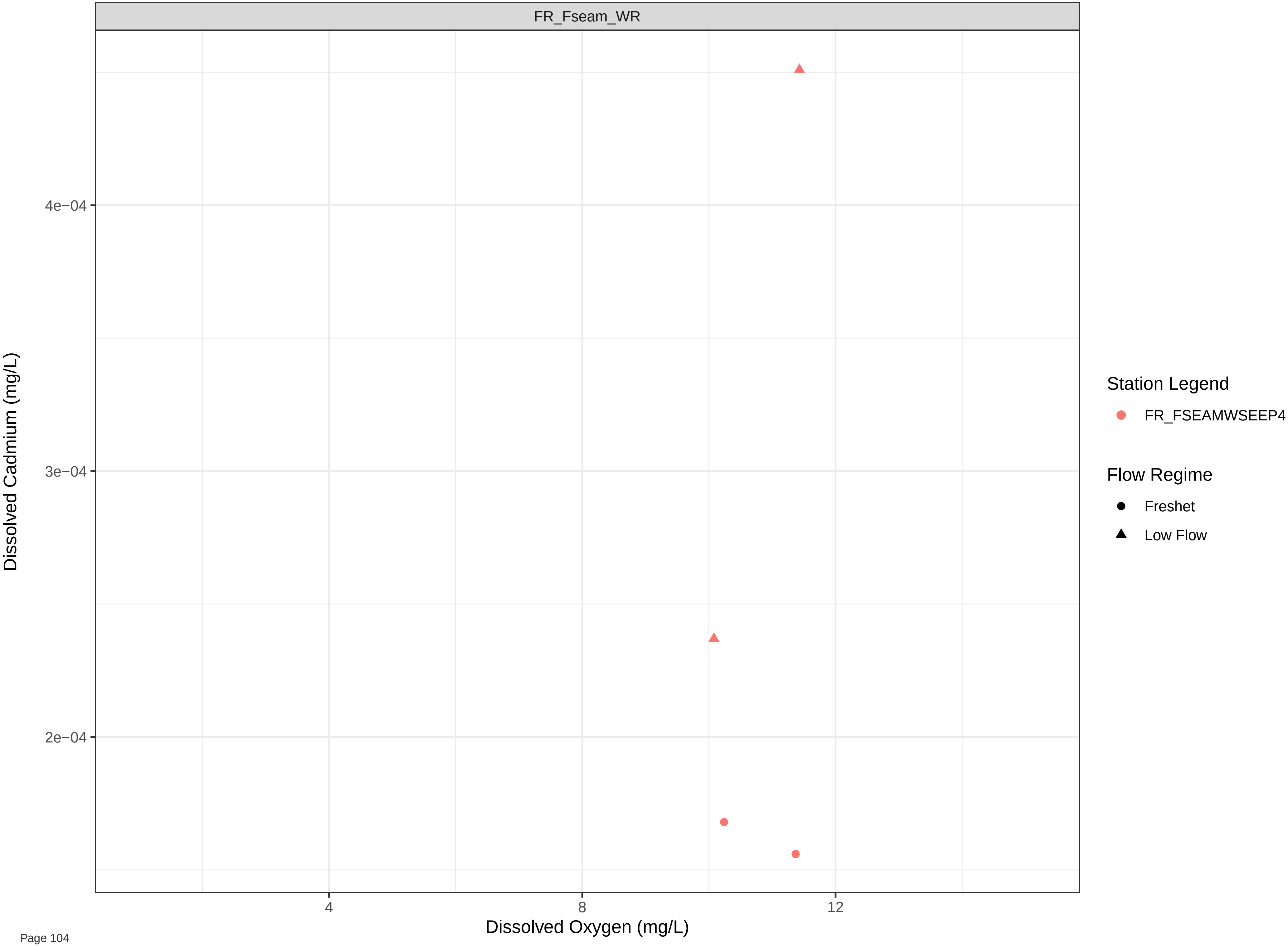

FR_A_WR
Dissolved Cadmium (mg/L)
0.000225
0.000200
0.000175
0.000150
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

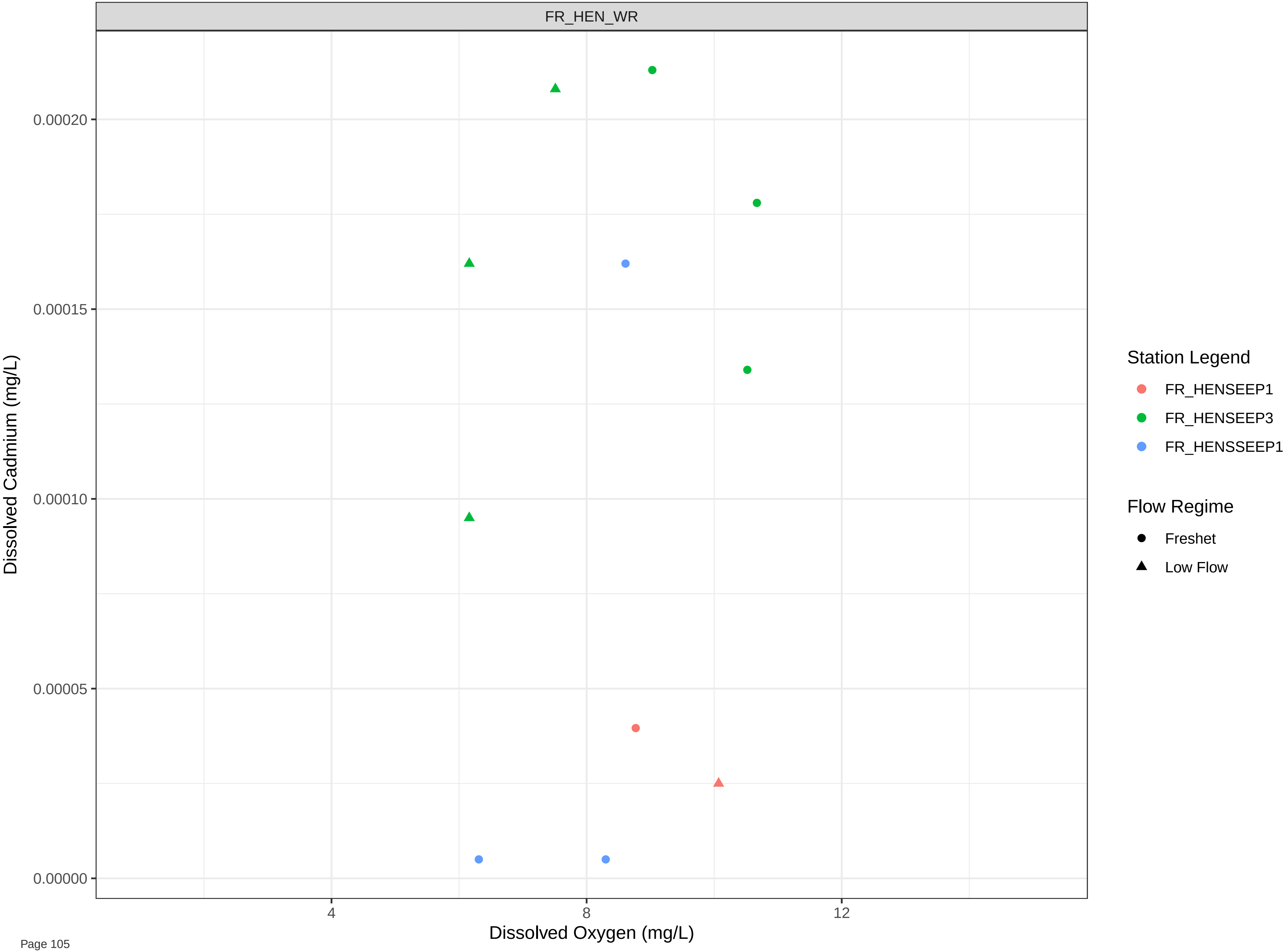

FR_Blain_CCR
Dissolved Cadmium (mg/L)
6e−04
4e−04
2e−04
0e+00
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow


FR_ClodeCr_WR
0.0016
0.0012
0.0008
0.0004
Dissolved Cadmium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

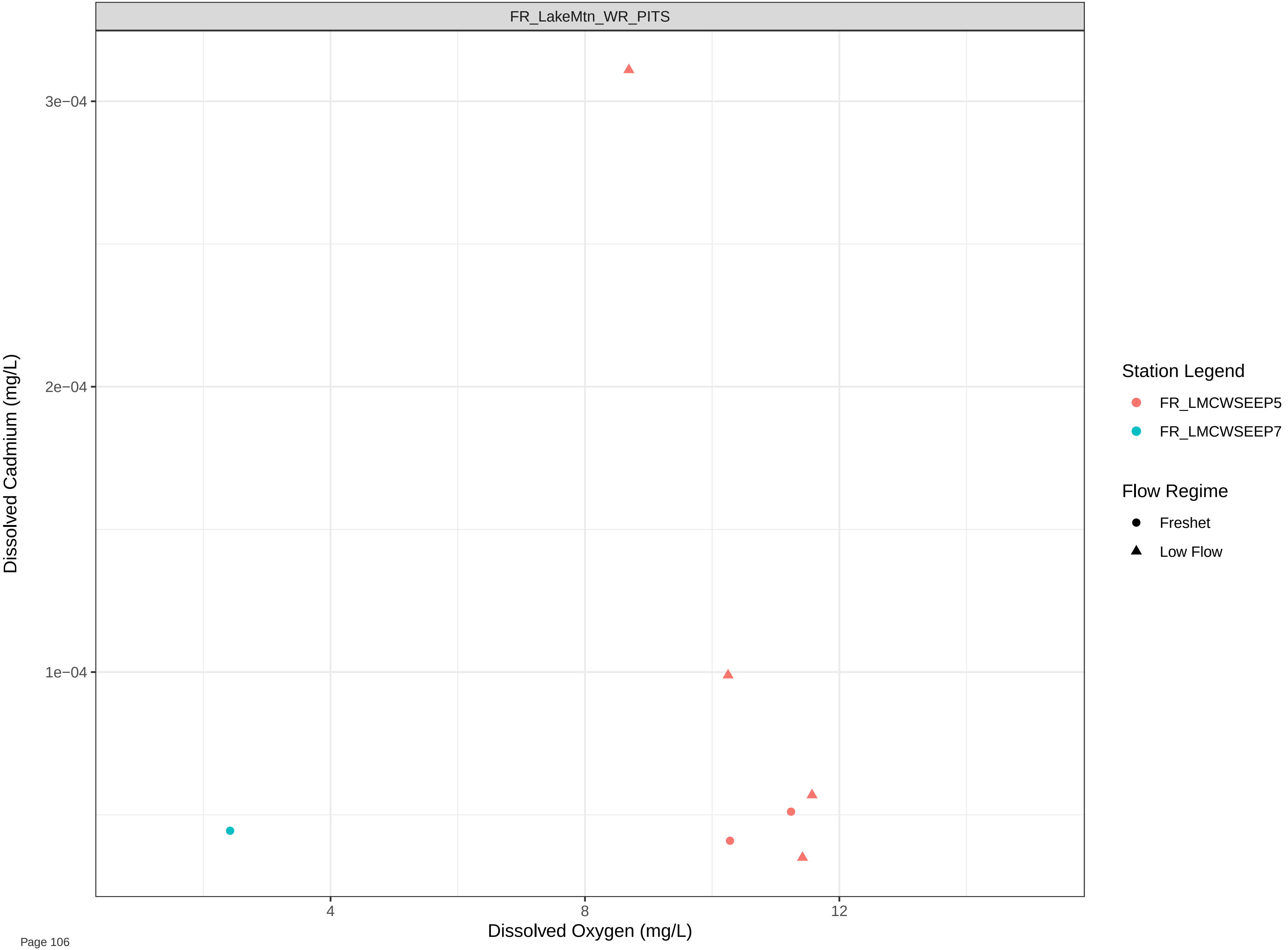

FR_DOKA_Unknown
0.000125
0.000100
0.000075
0.000050
0.000025
Dissolved Cadmium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow

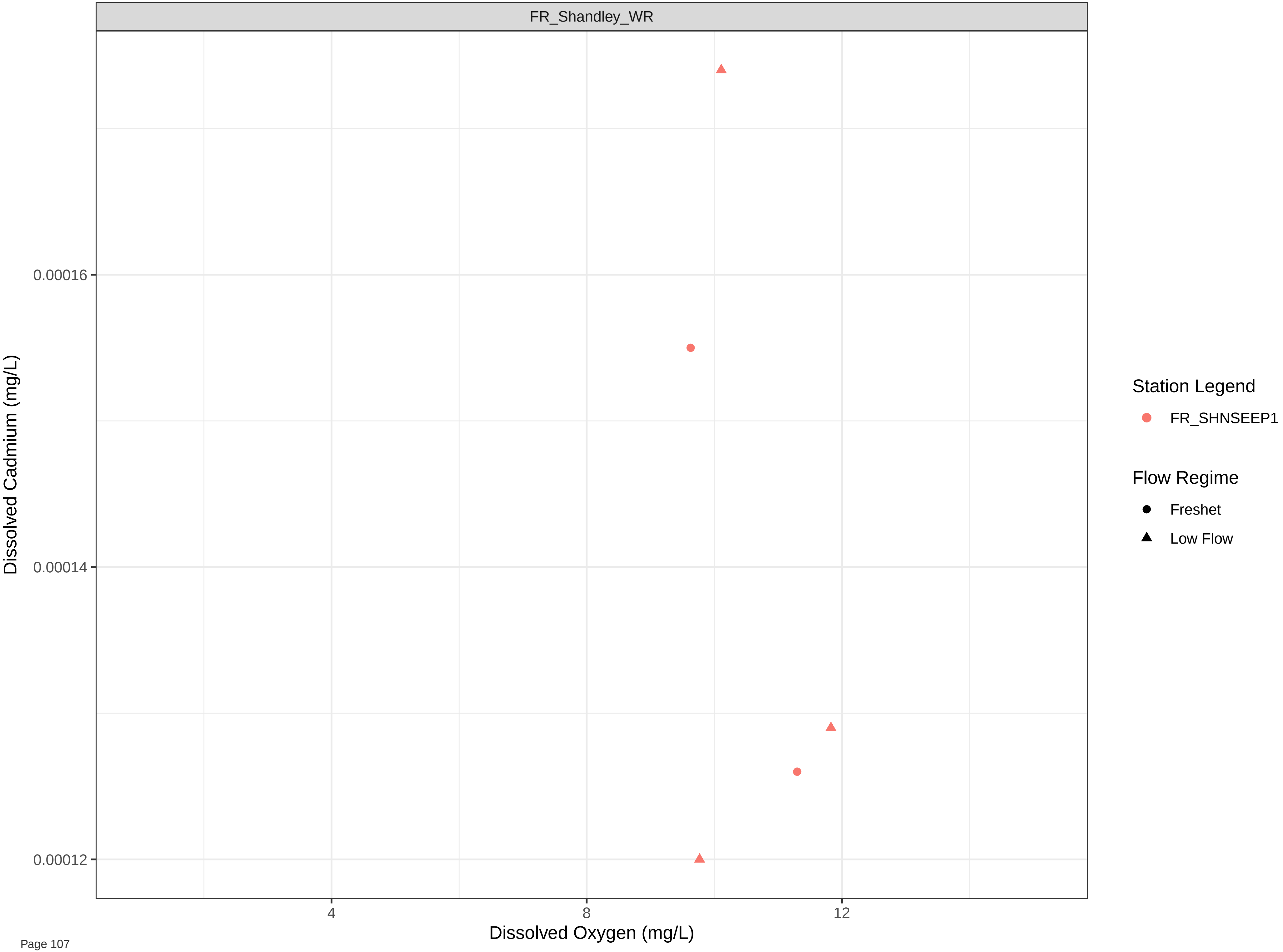

FR_Eagle_WR
Dissolved Cadmium (mg/L)
1e−03
8e−04
6e−04
4e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

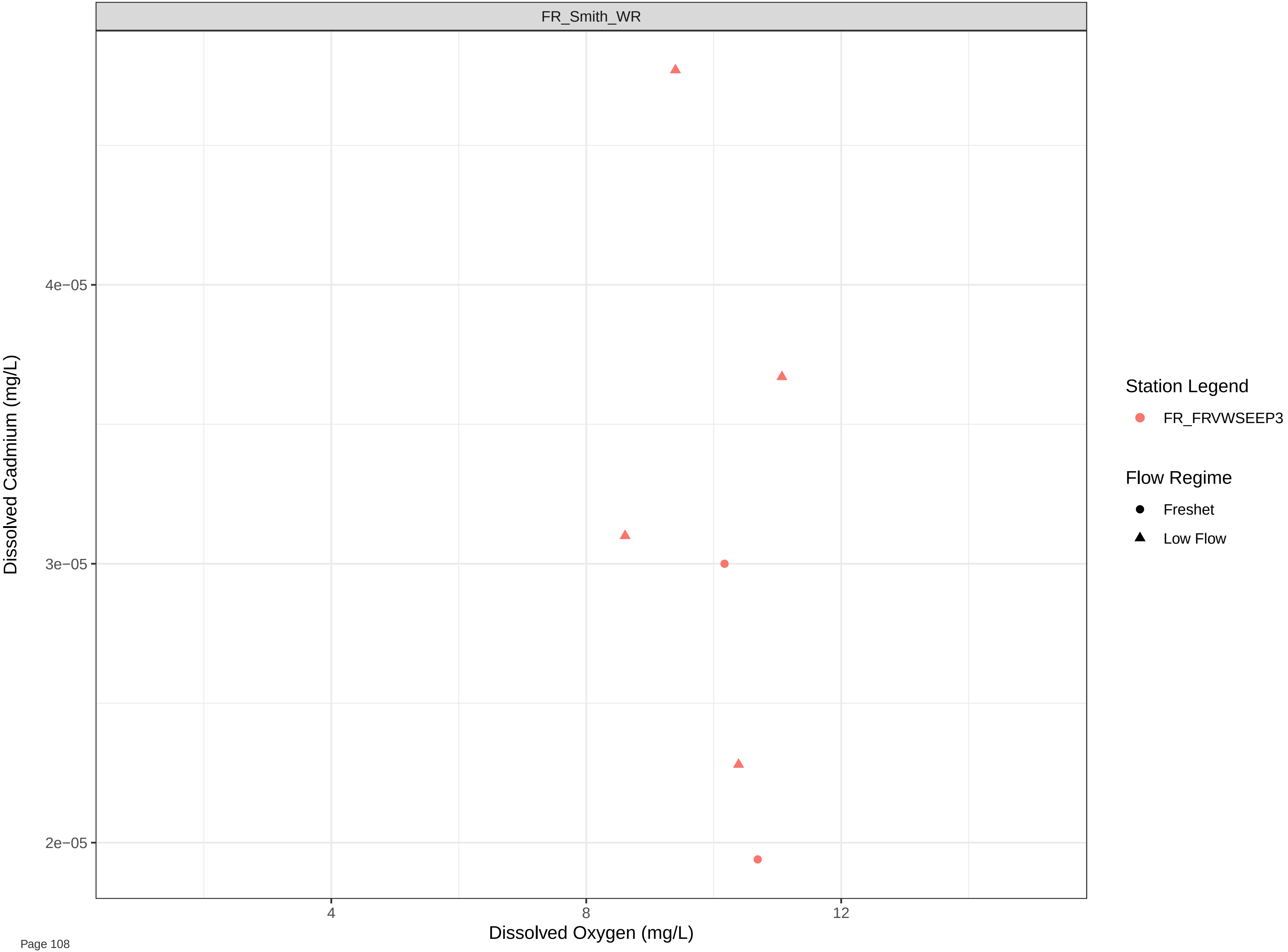

FR_Fseam_WR
4e−04
3e−04
2e−04
4
8
12
Dissolved Oxygen (mg/L)
Dissolved Cadmium (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

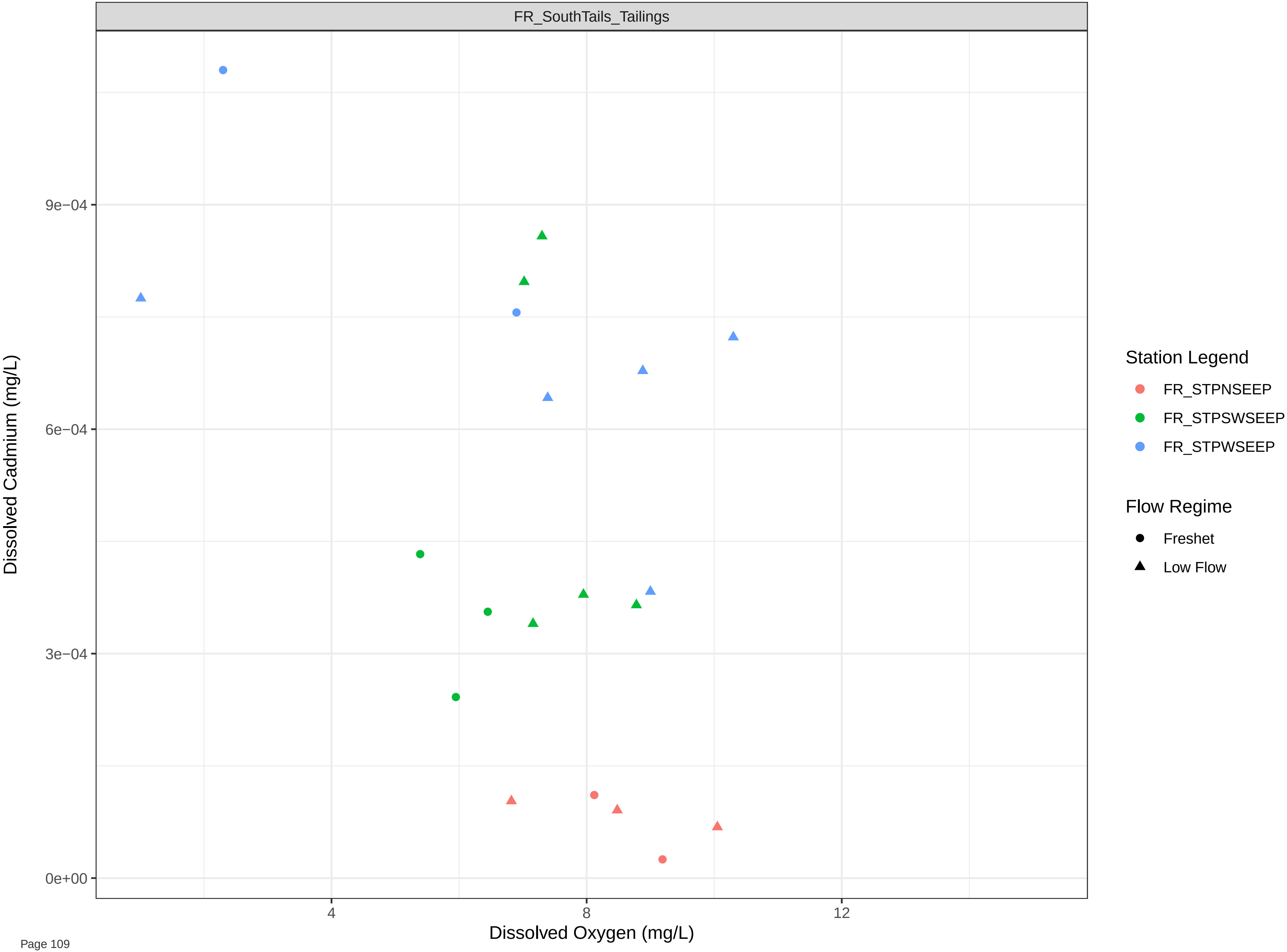


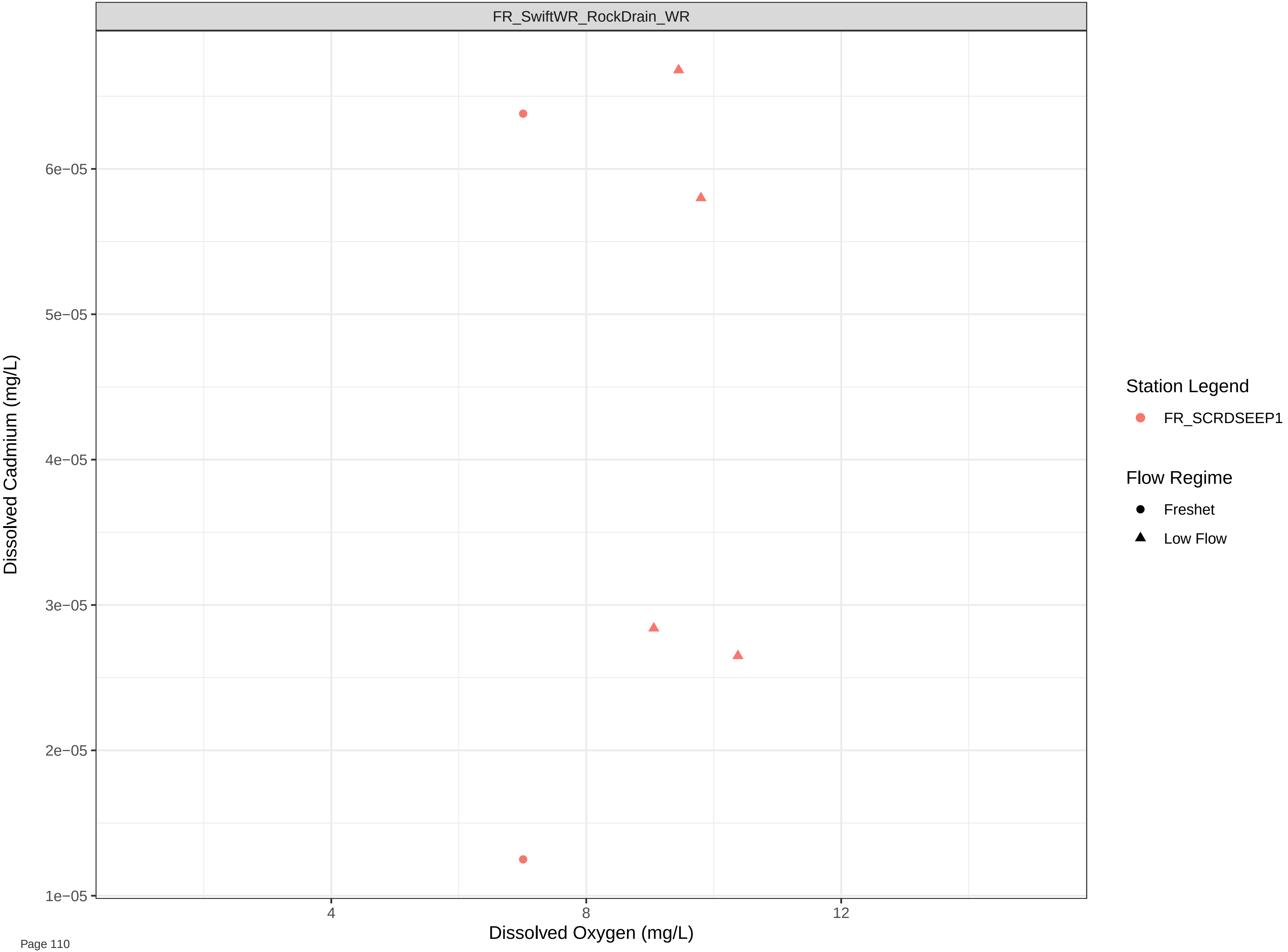
FR_HEN_WR
Dissolved Cadmium (mg/L)
0.00020
0.00015
0.00010
0.00005
0.00000
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

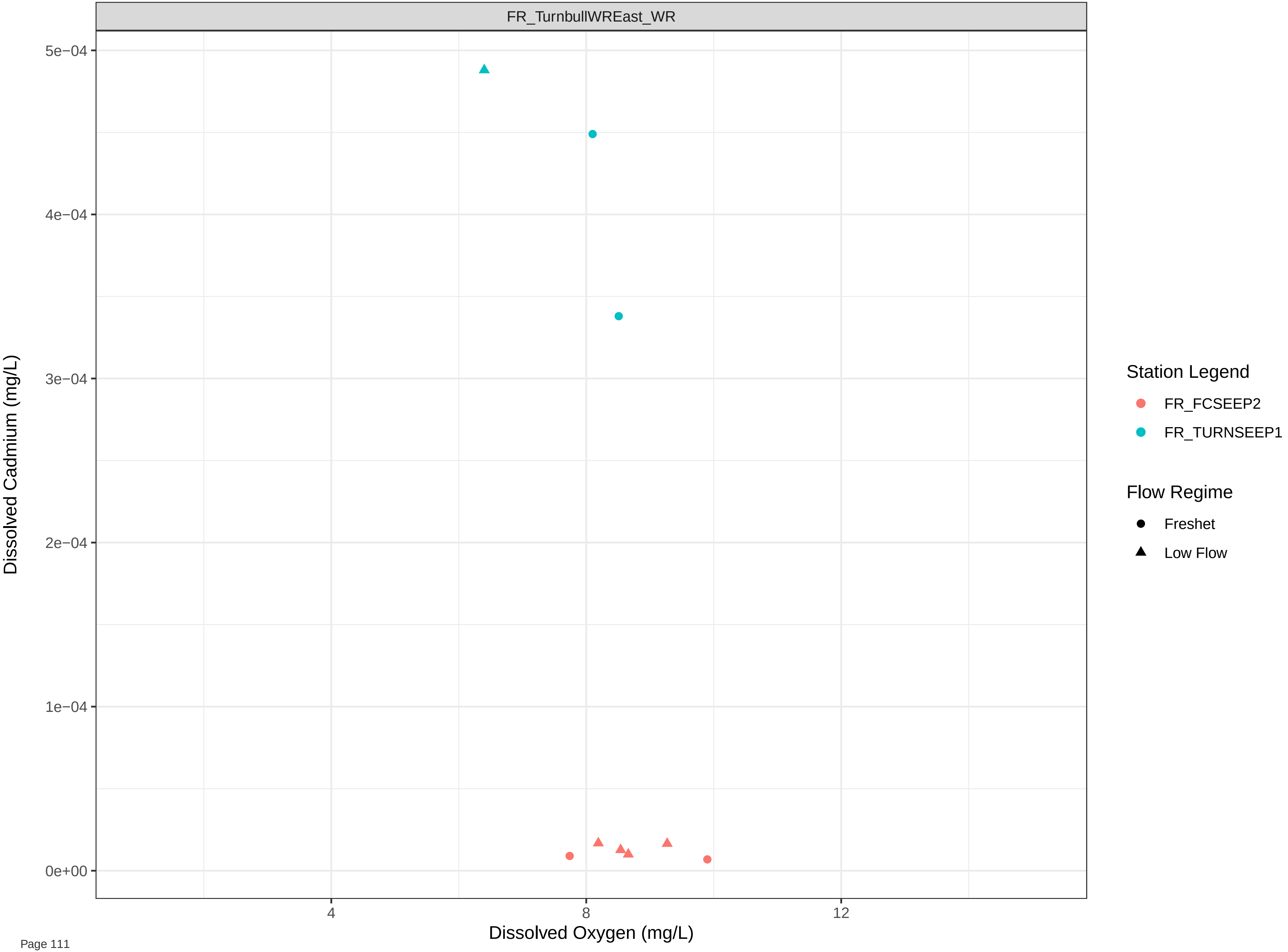

FR_LakeMtn_WR_PITS
3e−04
2e−04
1e−04
Dissolved Cadmium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow

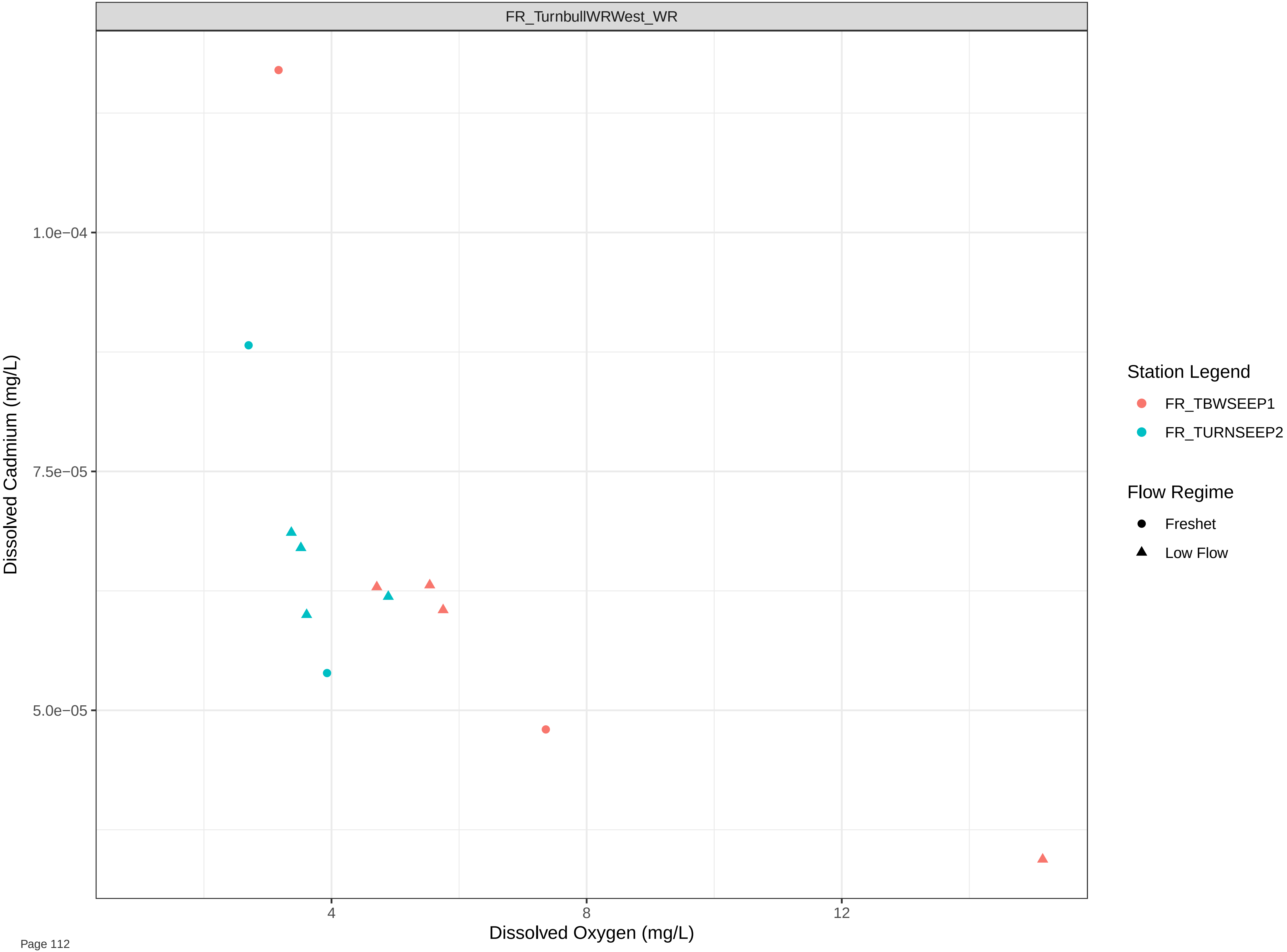

FR_Shandley_WR
Dissolved Cadmium (mg/L)
0.00016
0.00014
0.00012
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

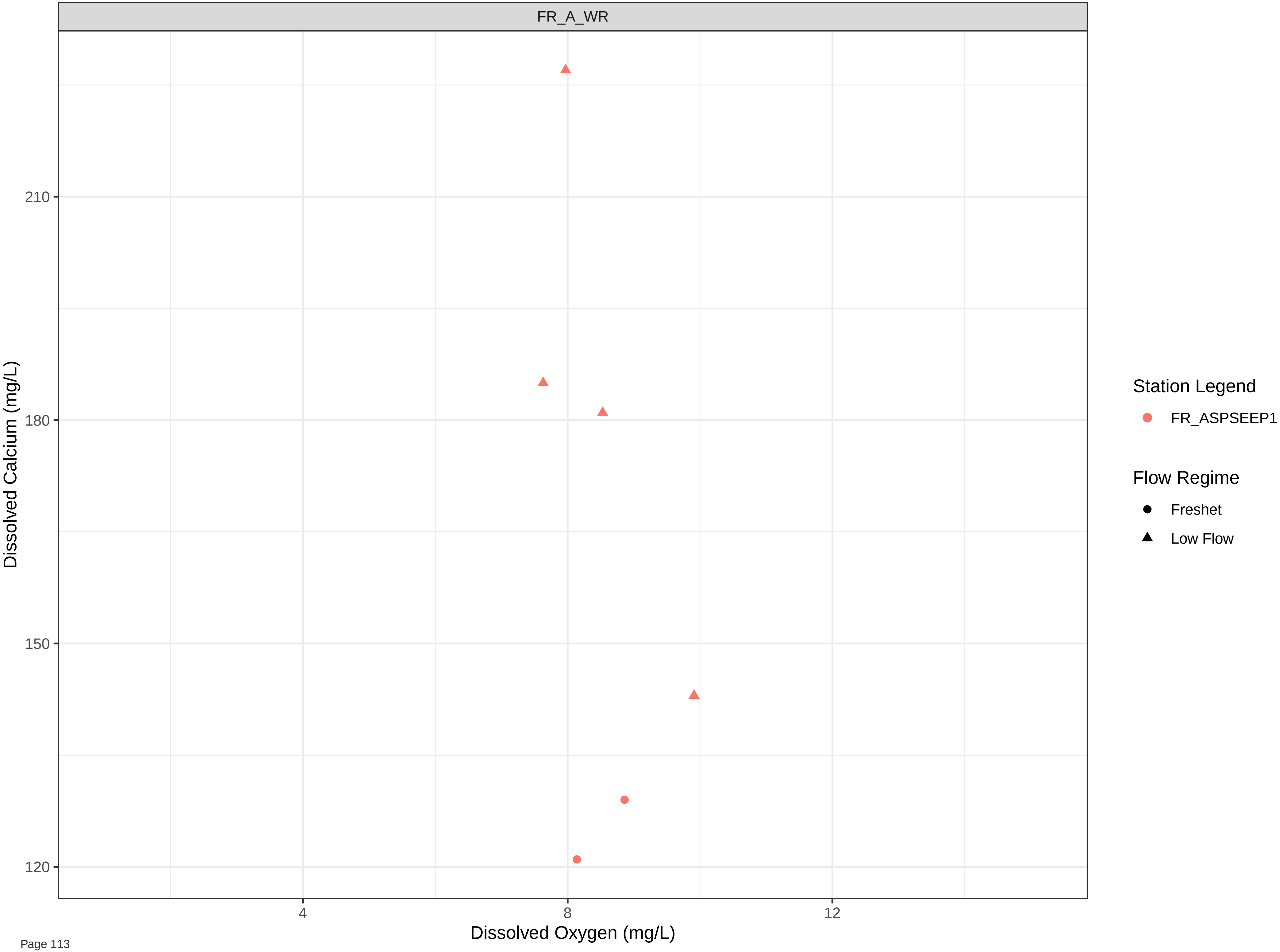

FR_Smith_WR
Dissolved Cadmium (mg/L)
4e−05
3e−05
2e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

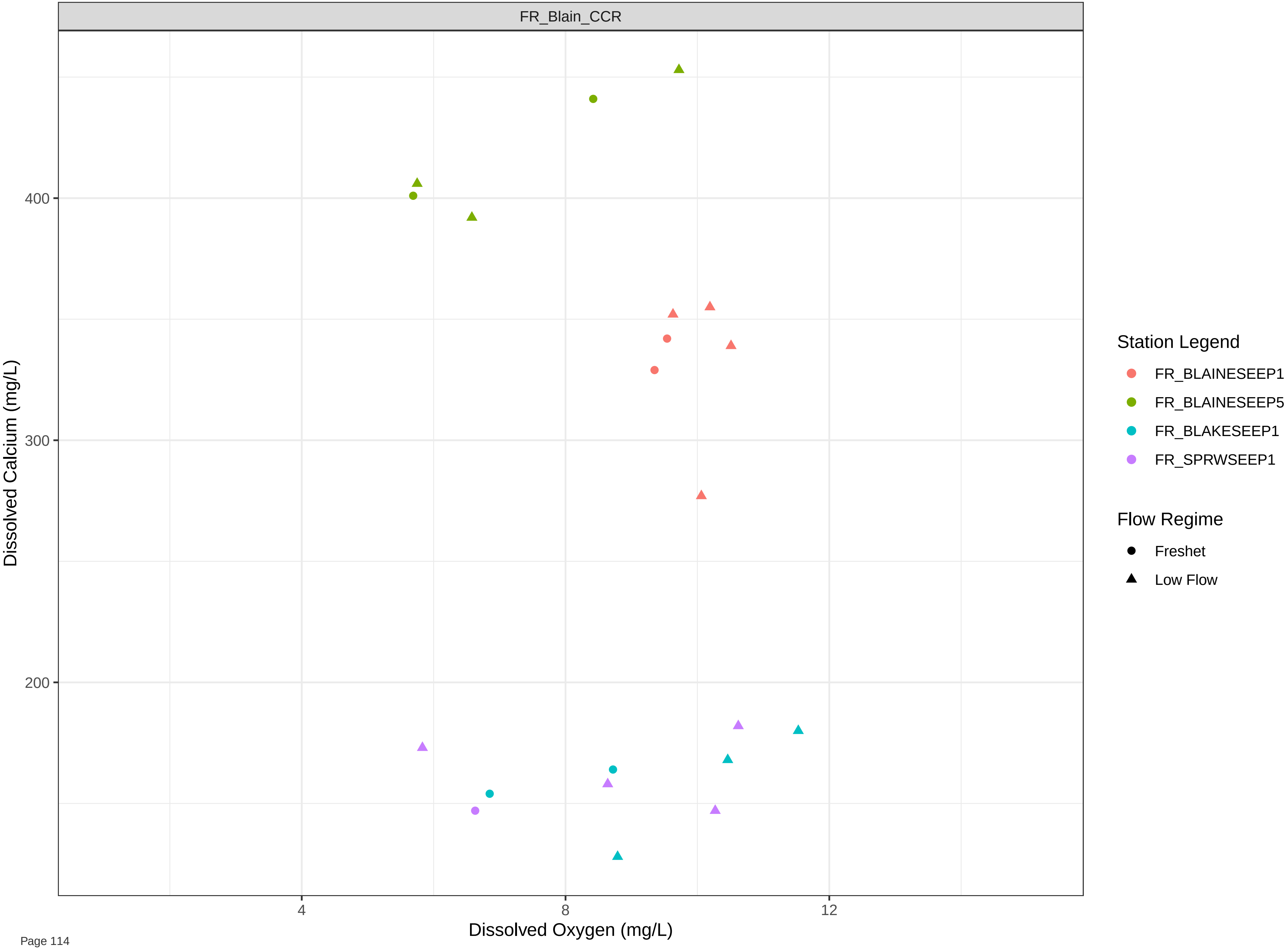

FR_SouthTails_Tailings
Dissolved Cadmium (mg/L)
9e−04
6e−04
3e−04
0e+00
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

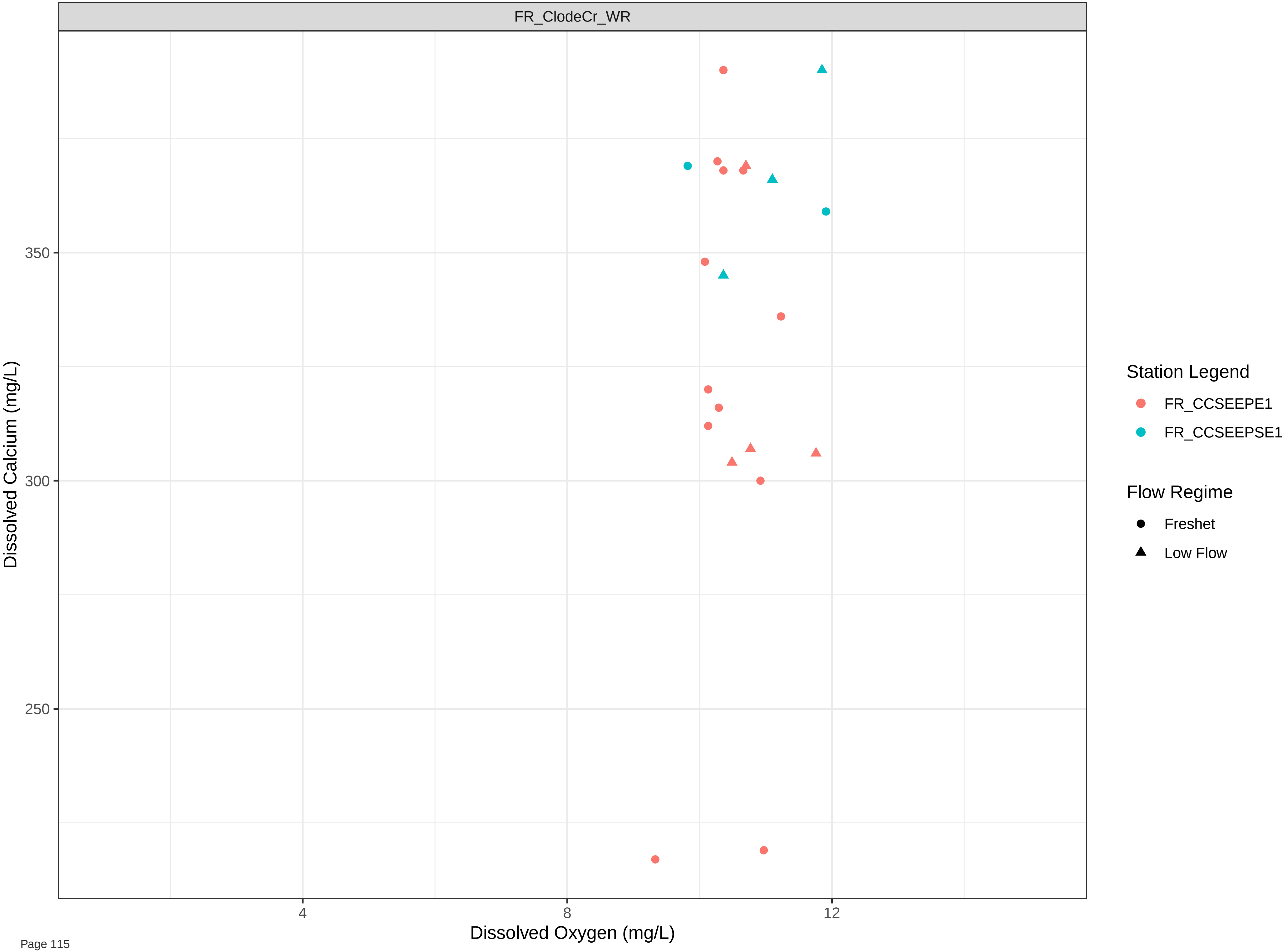

FR_SwiftWR_RockDrain_WR
Dissolved Cadmium (mg/L)
6e−05
5e−05
4e−05
3e−05
2e−05
1e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

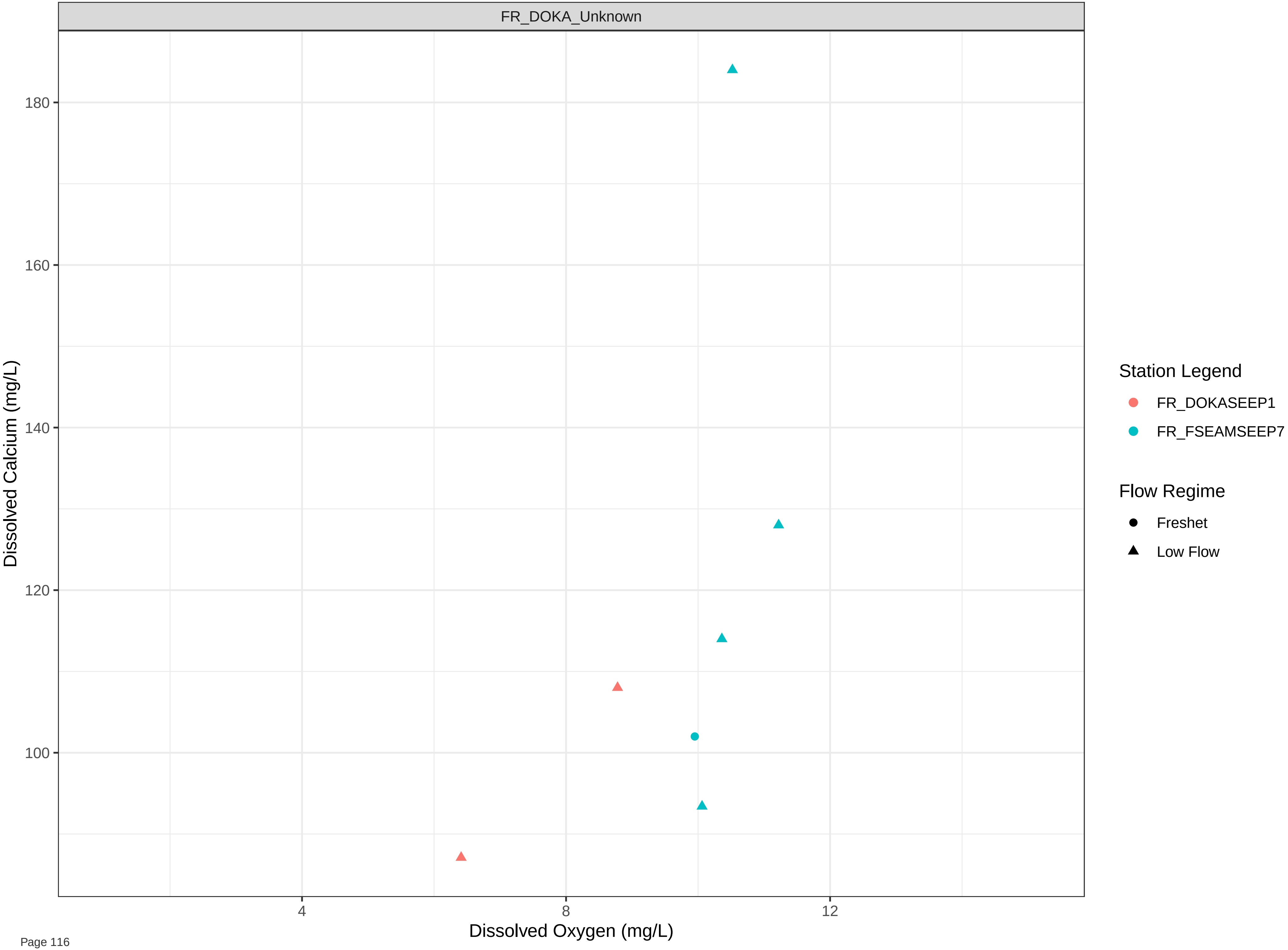

FR_TurnbullWREast_WR
5e−04
4e−04
3e−04
2e−04
1e−04
0e+00
Dissolved Cadmium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FCSEEP2
● FR_TURNSEEP1
Flow Regime
● Freshet
▲ Low Flow

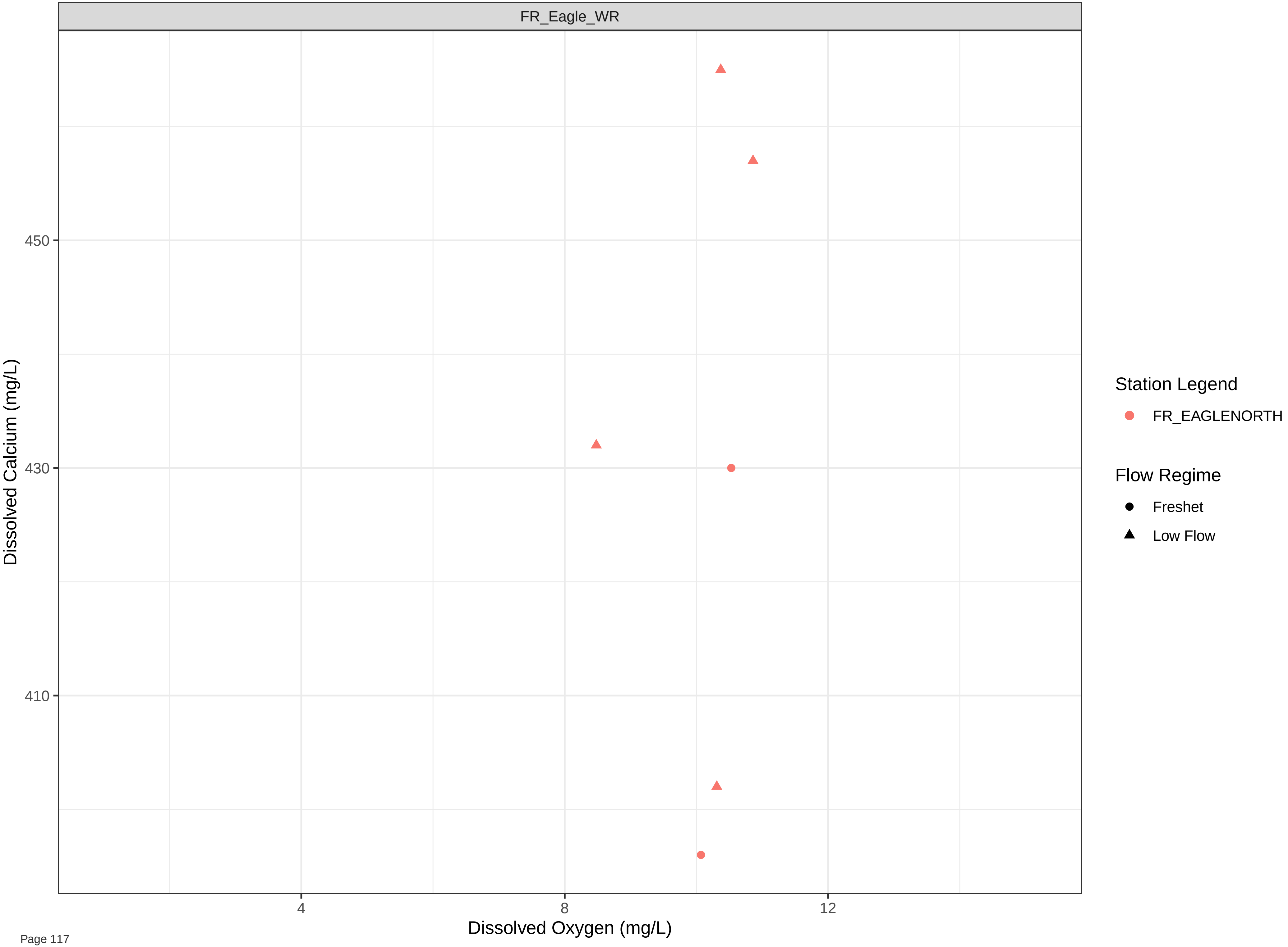

FR_TurnbullWRWest_WR
Dissolved Cadmium (mg/L)
1.0e−04
7.5e−05
5.0e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

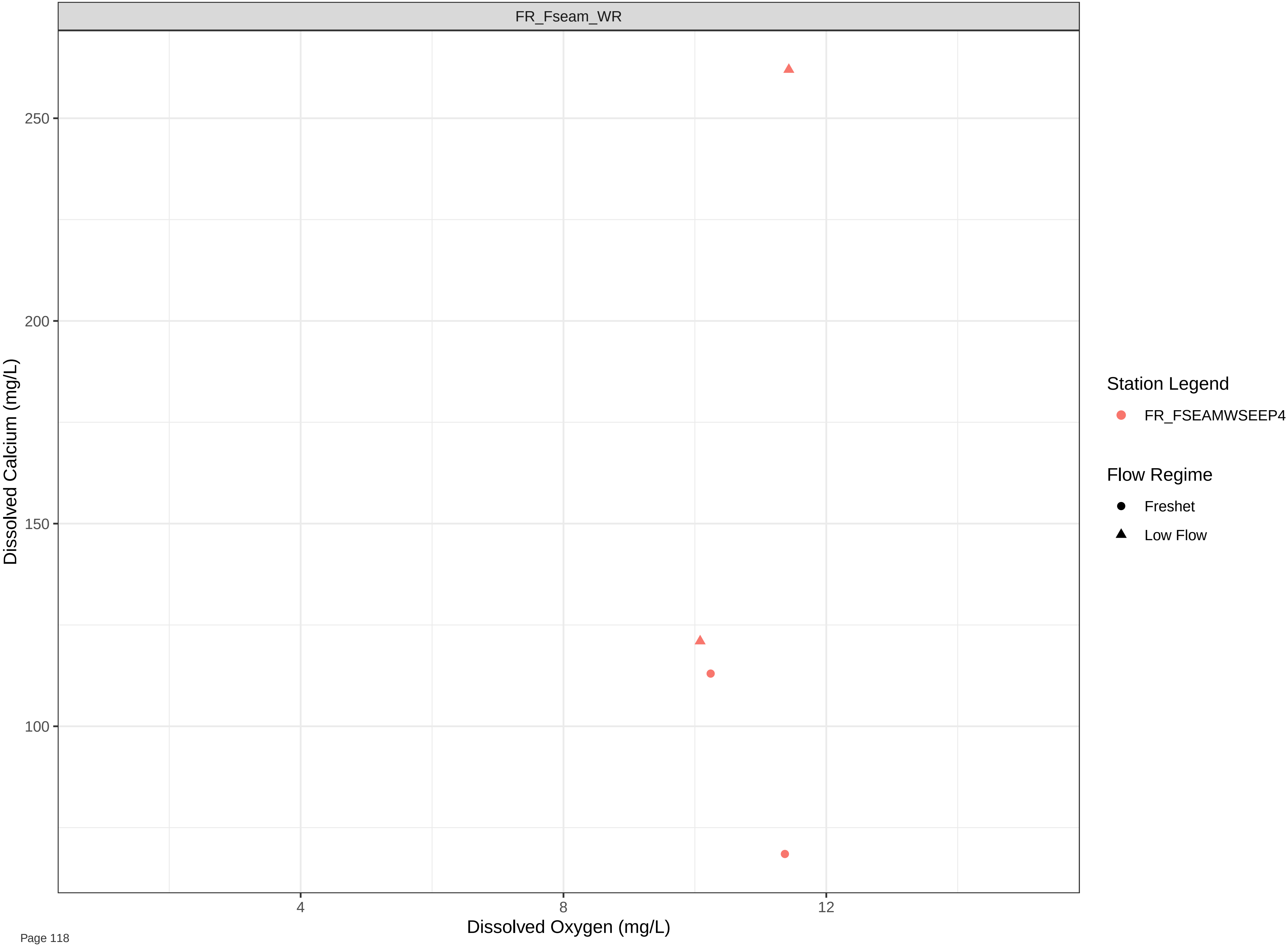

FR_A_WR
210
180
150
120
4
8
12
Dissolved Oxygen (mg/L)
Dissolved Calcium (mg/L)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

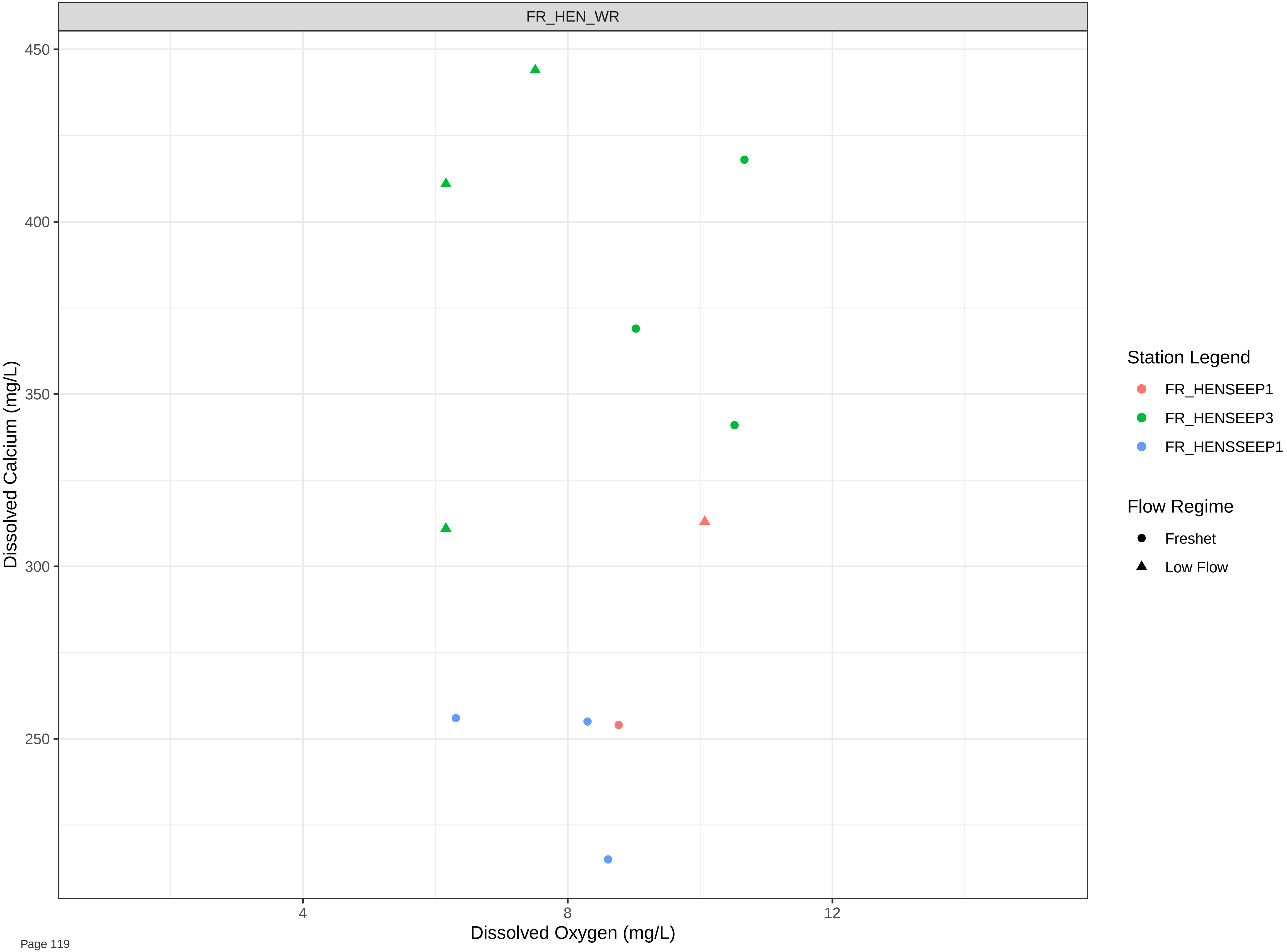

FR_Blain_CCR
Dissolved Calcium (mg/L)
400
300
200
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

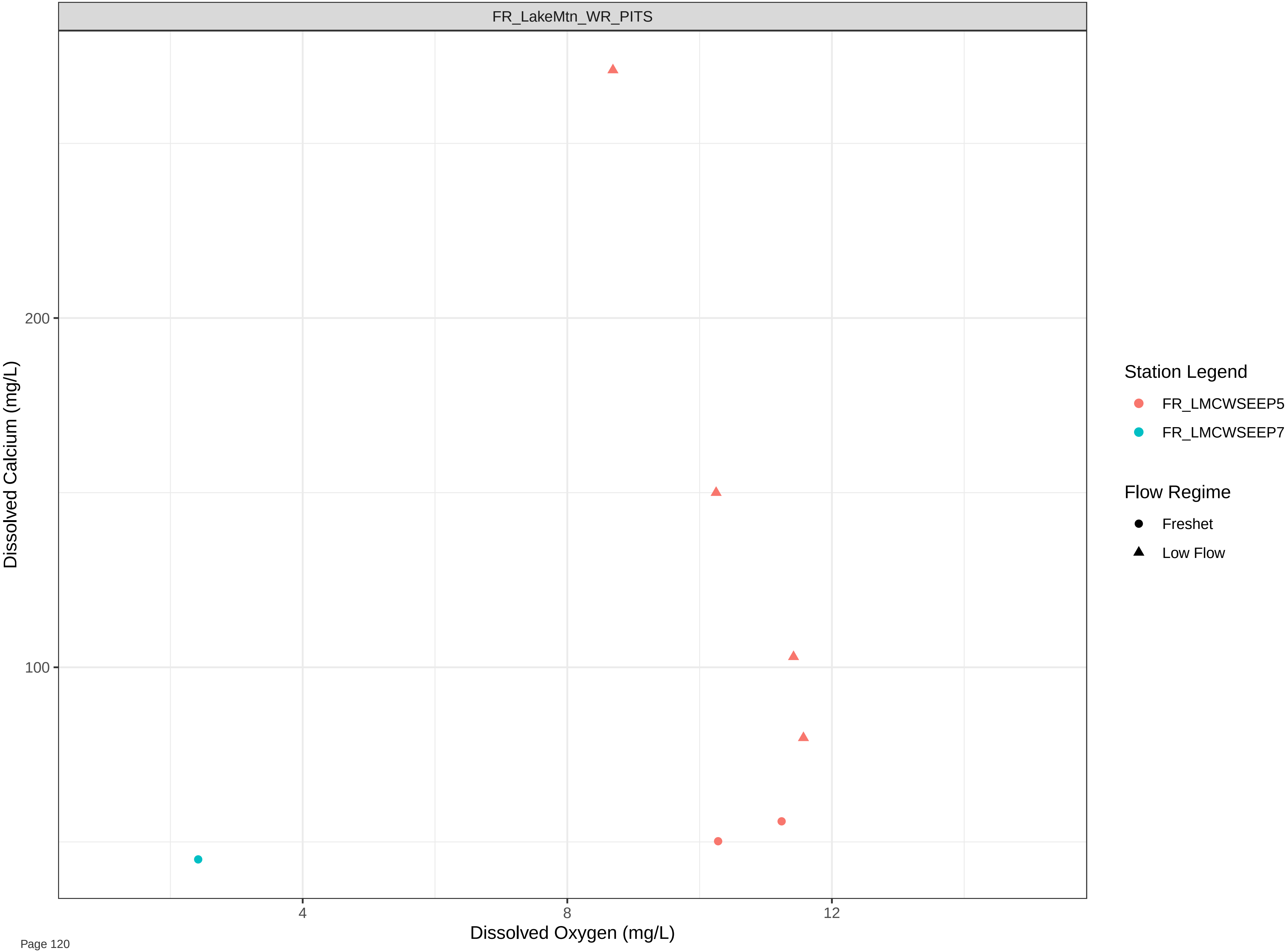

FR_ClodeCr_WR
Dissolved Calcium (mg/L)
350
300
250
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

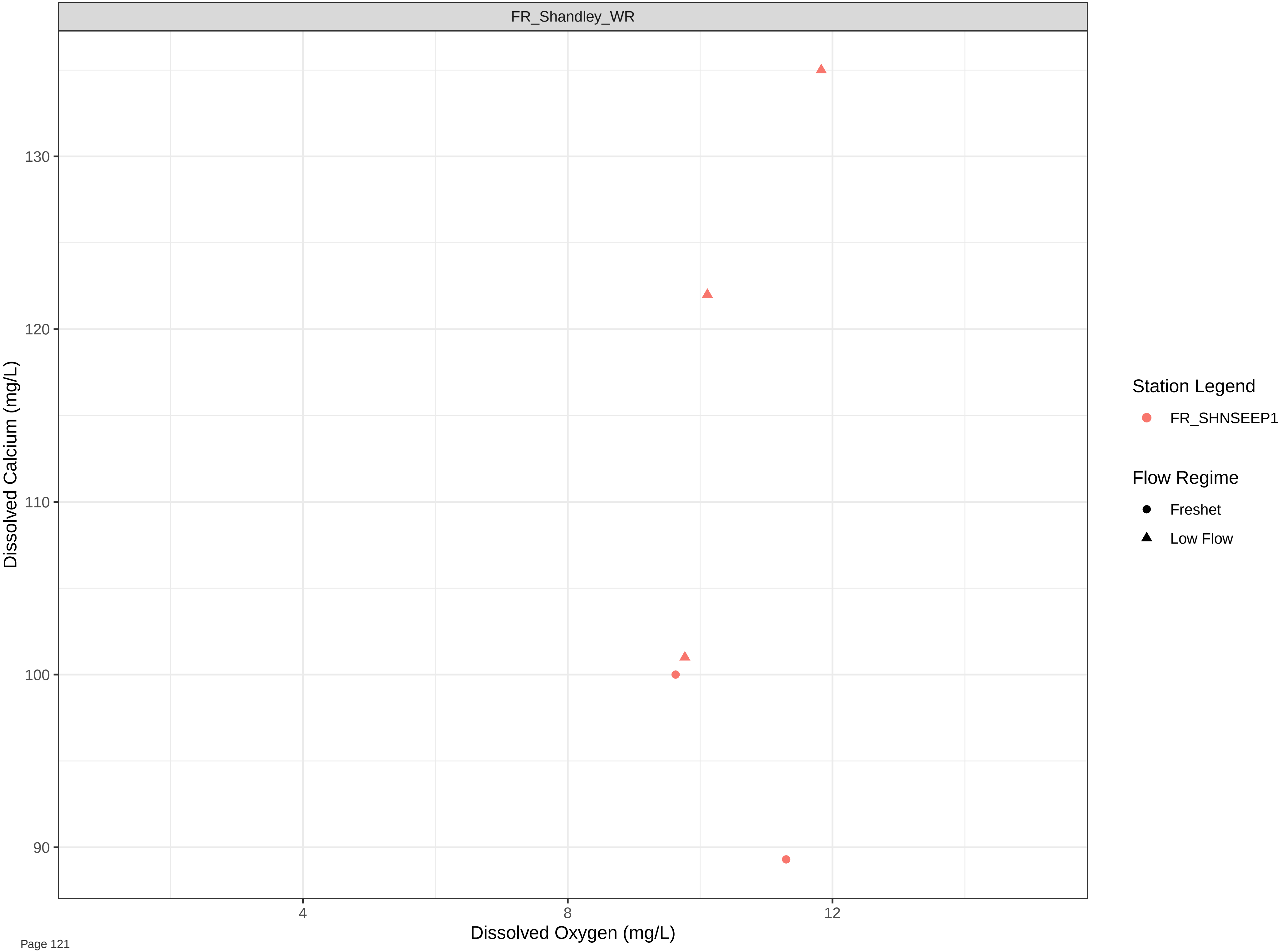

FR_DOKA_Unknown
Dissolved Calcium (mg/L)
180
160
140
120
100
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

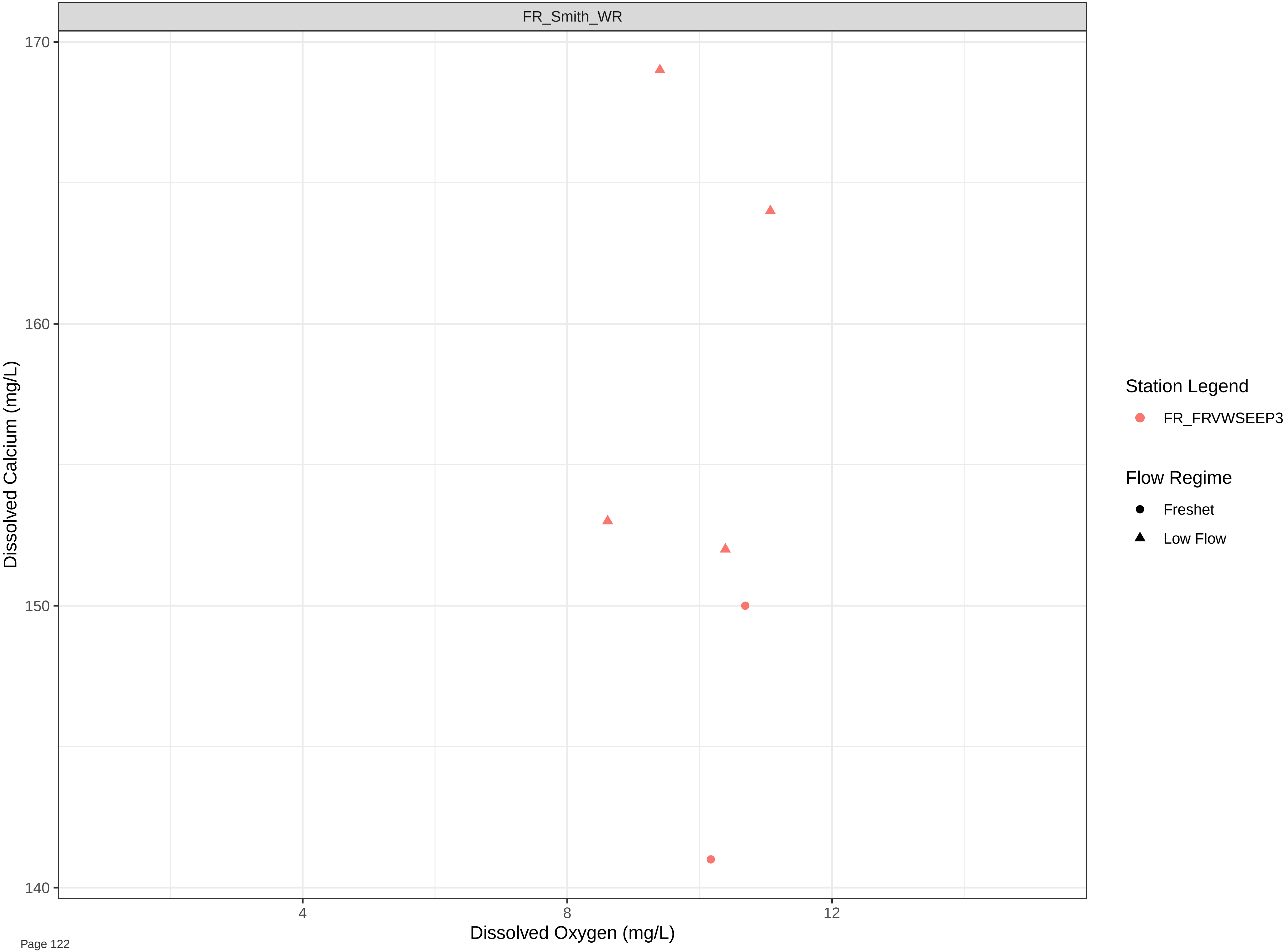

FR_Eagle_WR
Dissolved Calcium (mg/L)
450
430
410
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

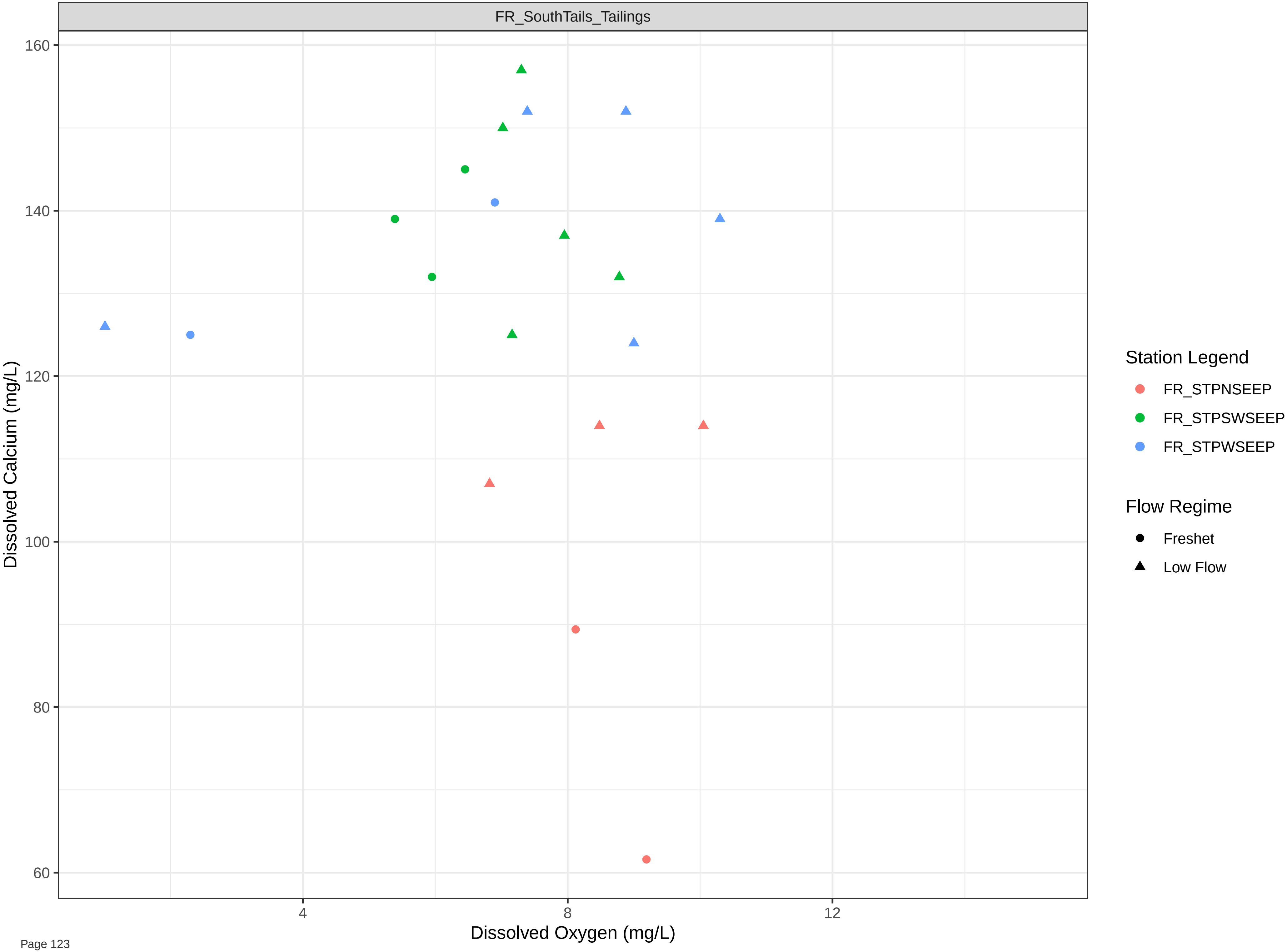

FR_Fseam_WR
Dissolved Calcium (mg/L)
250
200
150
100
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

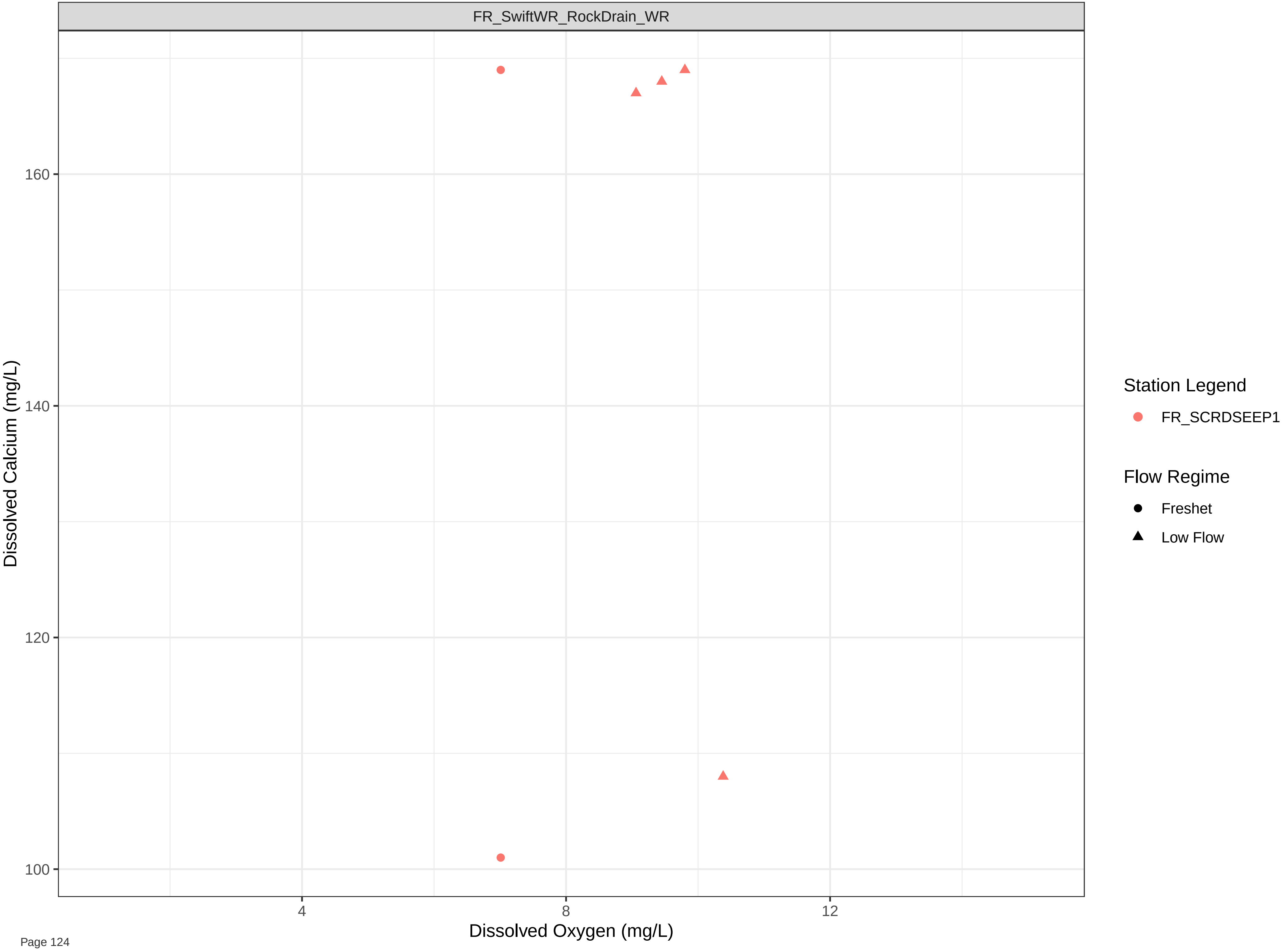

FR_HEN_WR
Dissolved Calcium (mg/L)
450
400
350
300
250
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

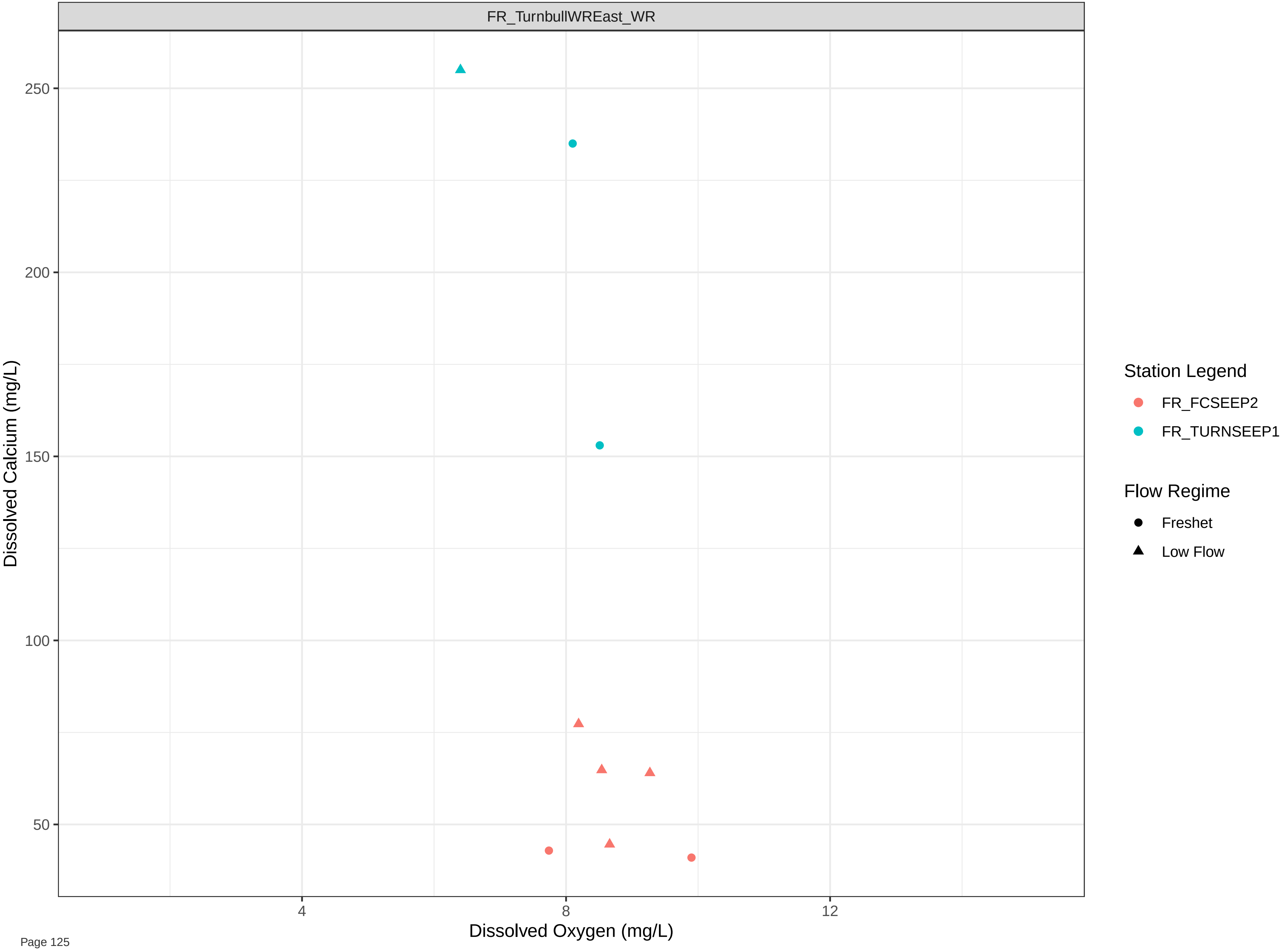

FR_LakeMtn_WR_PITS
Dissolved Calcium (mg/L)
200
100
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow

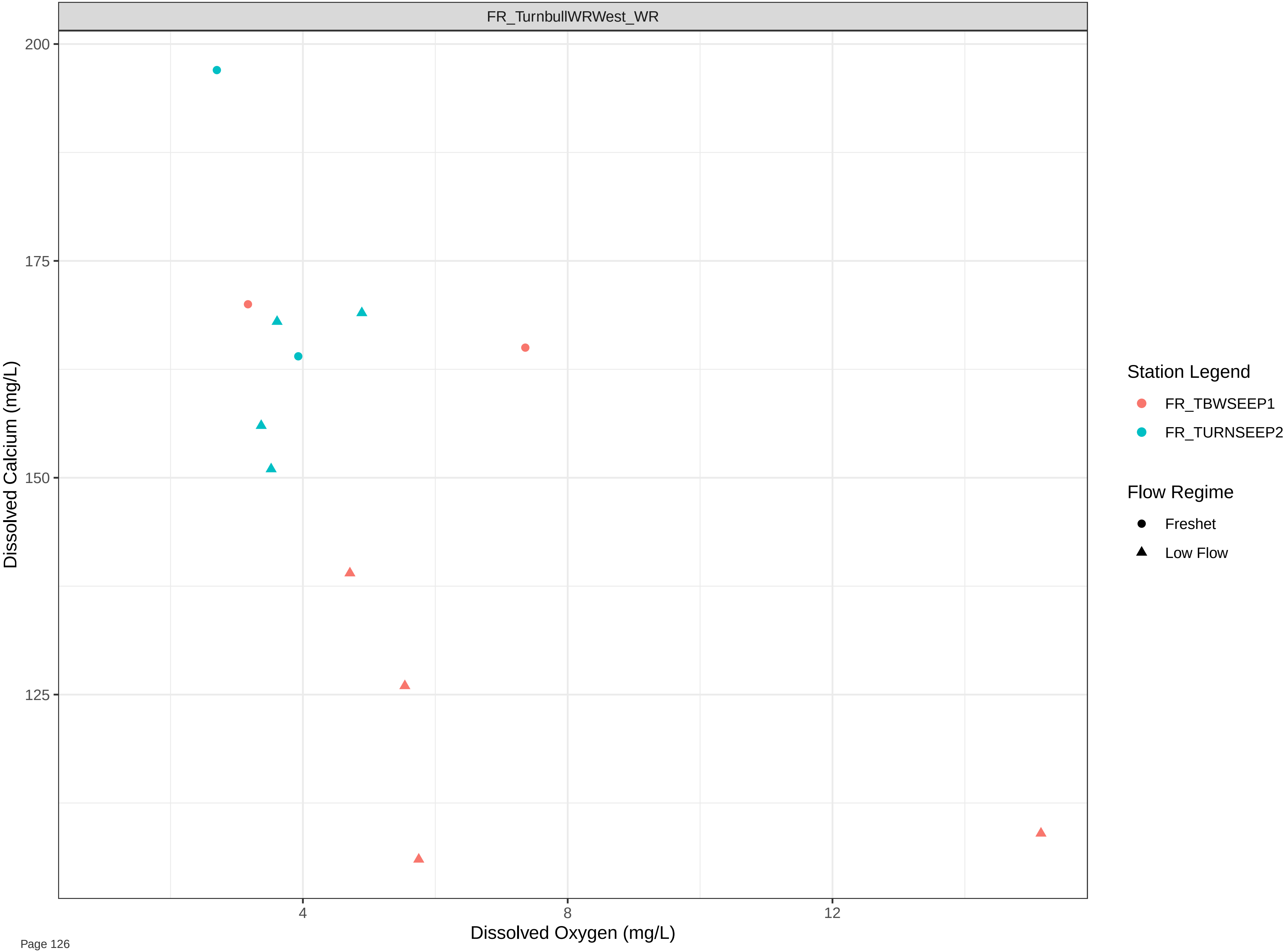

FR_Shandley_WR
130
120
110
100
90
4
8
12
Dissolved Calcium (mg/L)
Dissolved Oxygen (mg/L)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

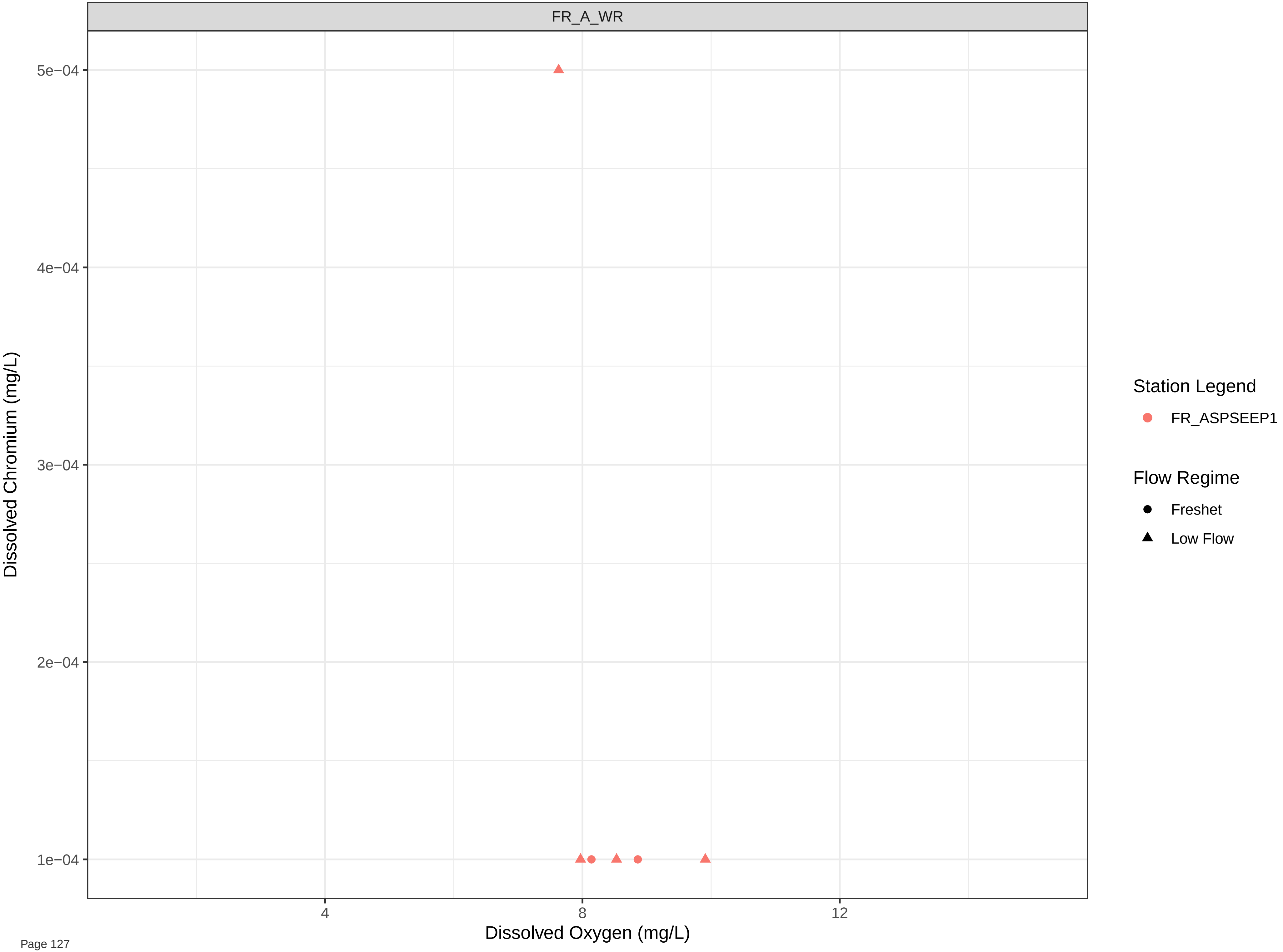

FR_Smith_WR
Dissolved Calcium (mg/L)
170
160
150
140
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

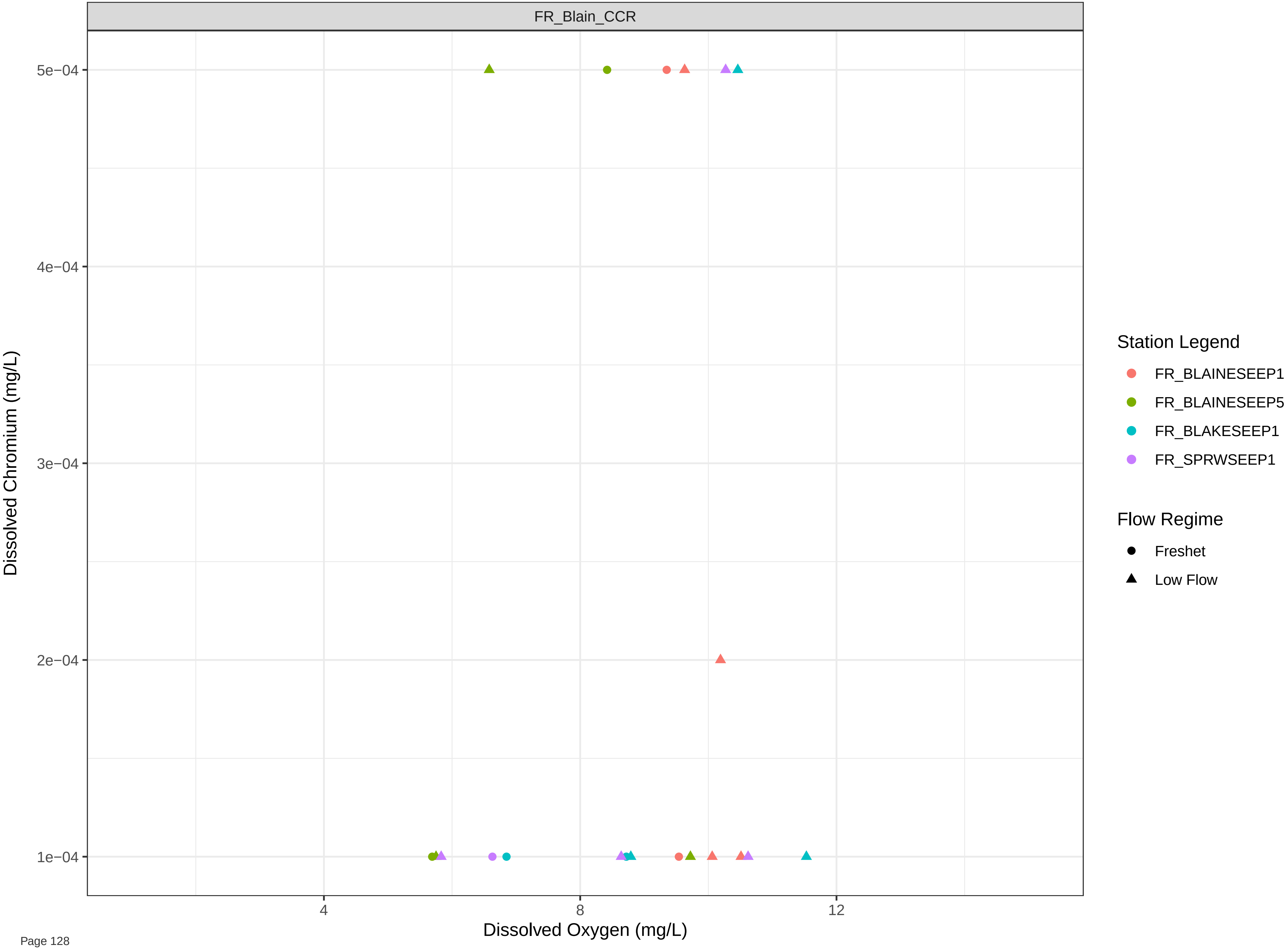

FR_SouthTails_Tailings
160
140
120
100
80
60
4
8
12
Dissolved Oxygen (mg/L)
Dissolved Calcium (mg/L)
Station Legend
● FR_STPNSEEP
● FR_STPSWSEEP
● FR_STPWSEEP
Flow Regime
● Freshet
▲ Low Flow

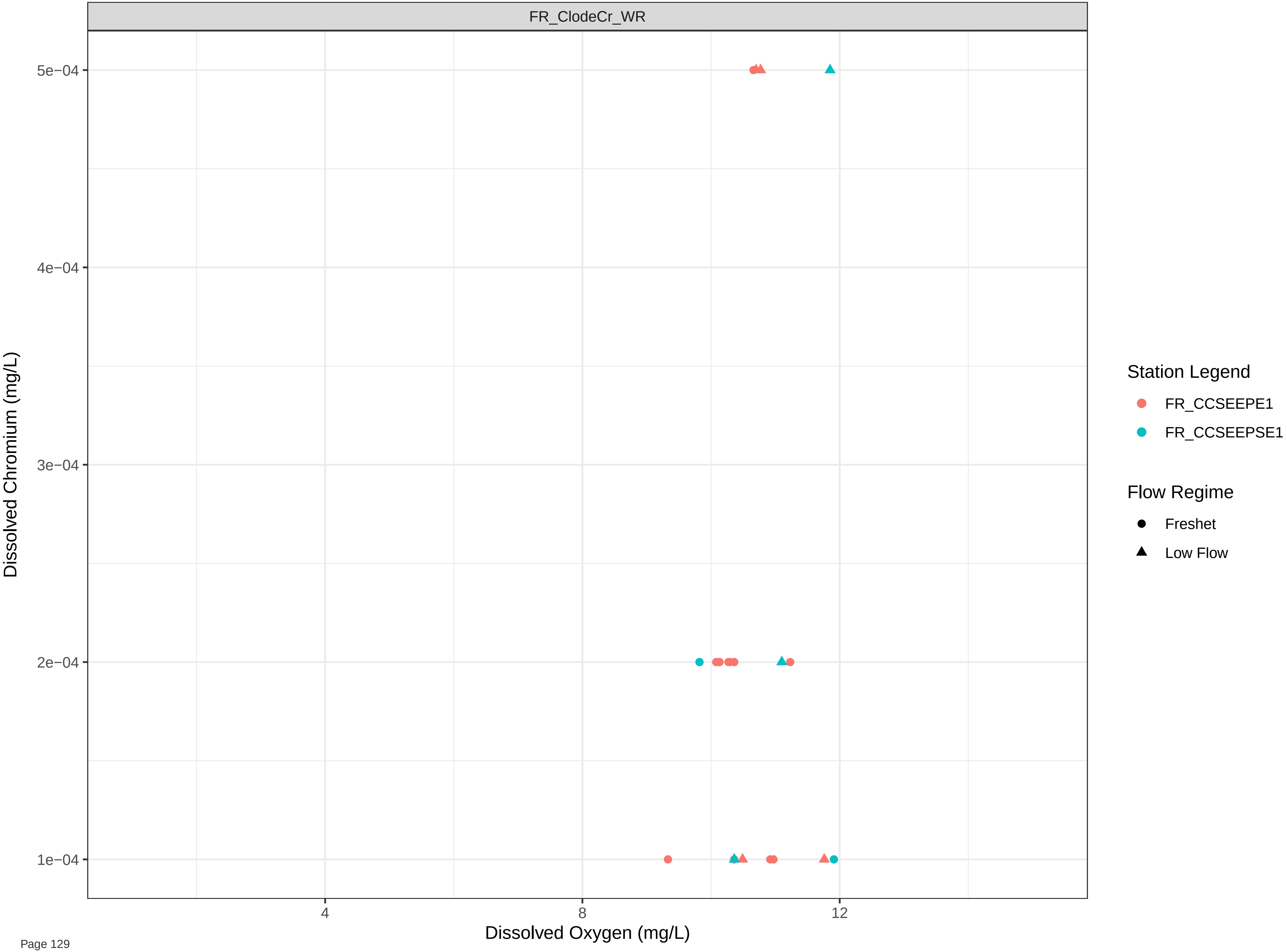

FR_SwiftWR_RockDrain_WR
Dissolved Calcium (mg/L)
160
140
120
100
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

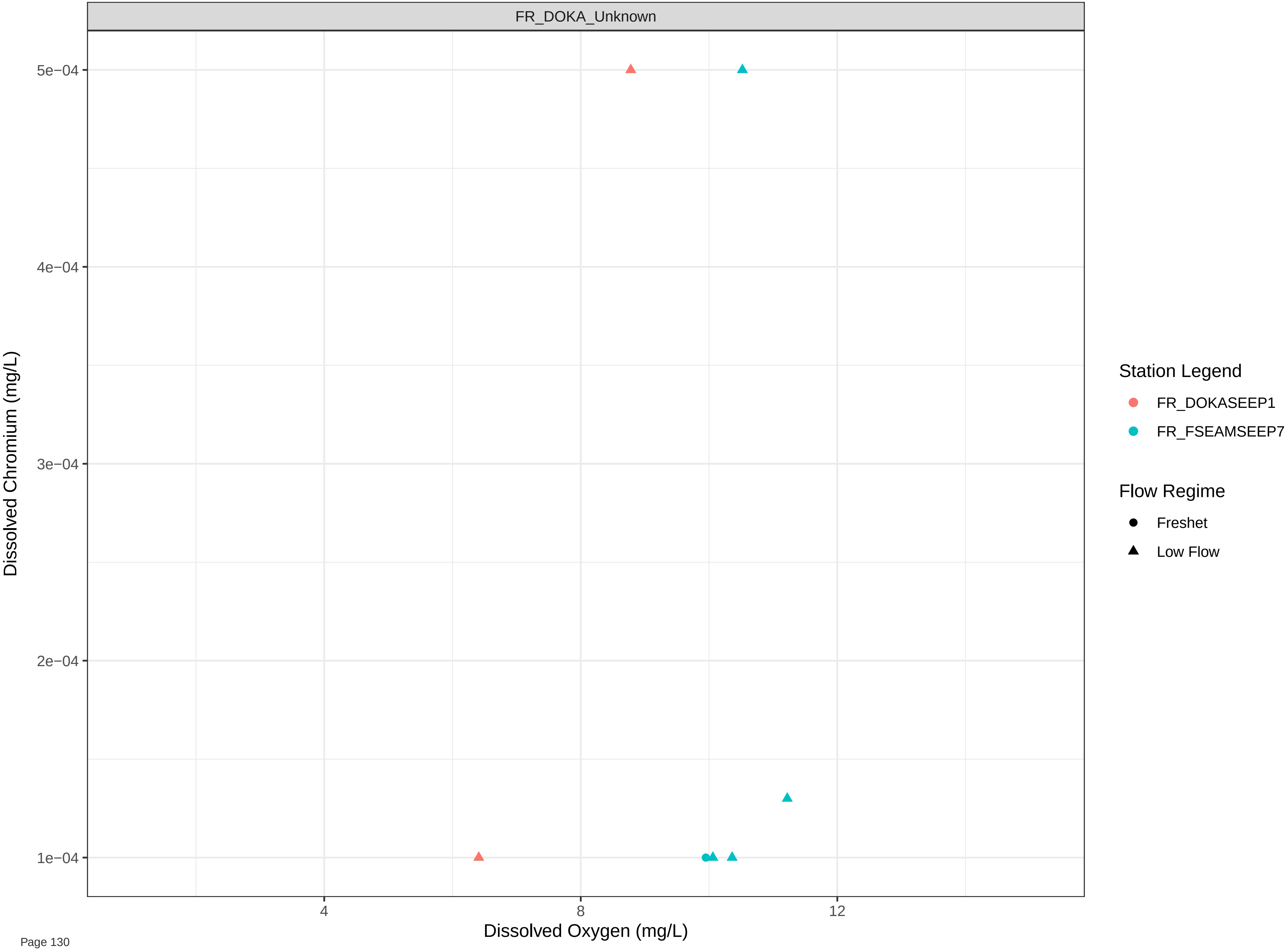

FR_TurnbullWREast_WR
Dissolved Calcium (mg/L)
250
200
150
100
50
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

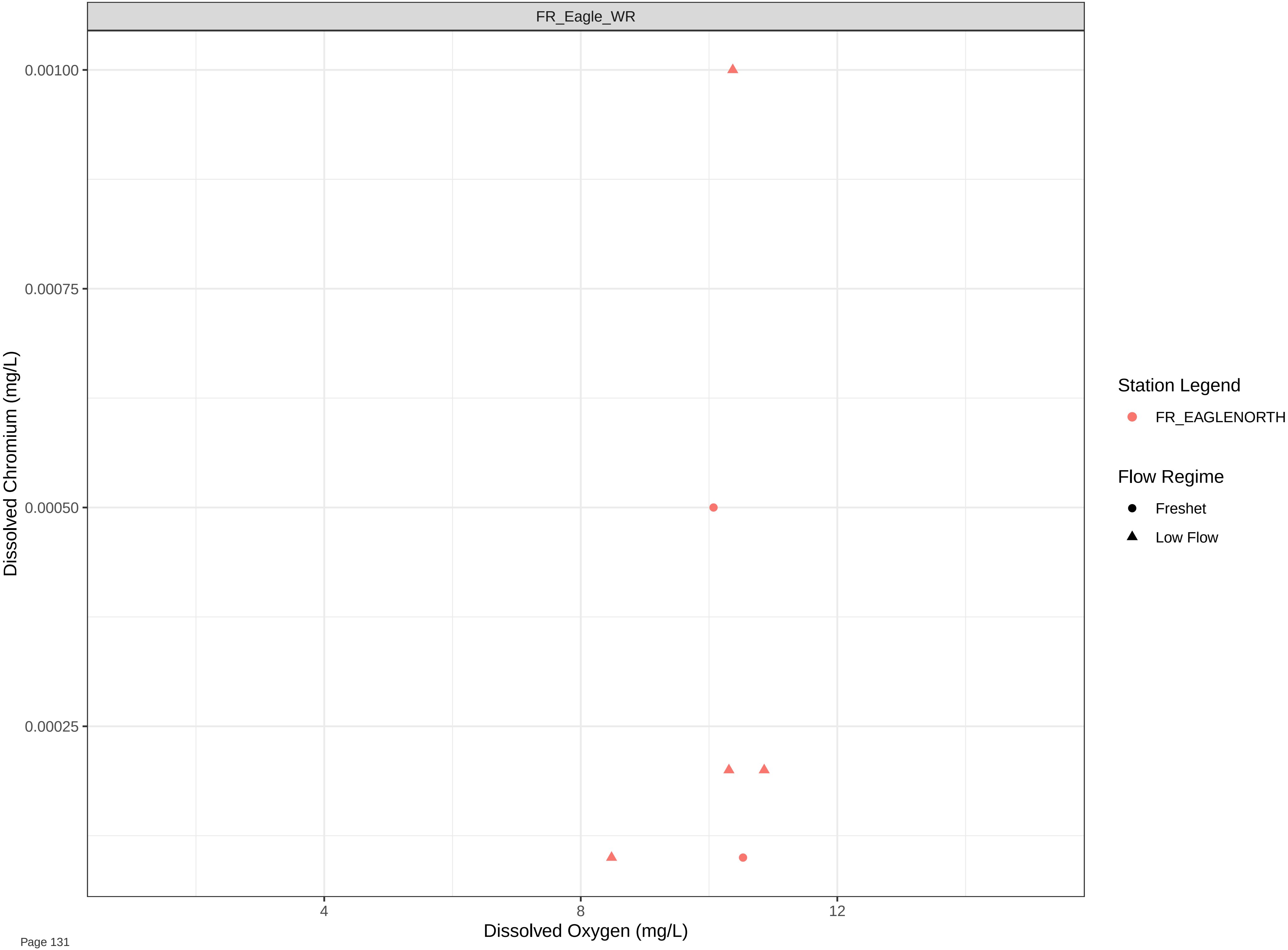

FR_TurnbullWRWest_WR
200
175
150
125
4
8
12
Dissolved Oxygen (mg/L)
Dissolved Calcium (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

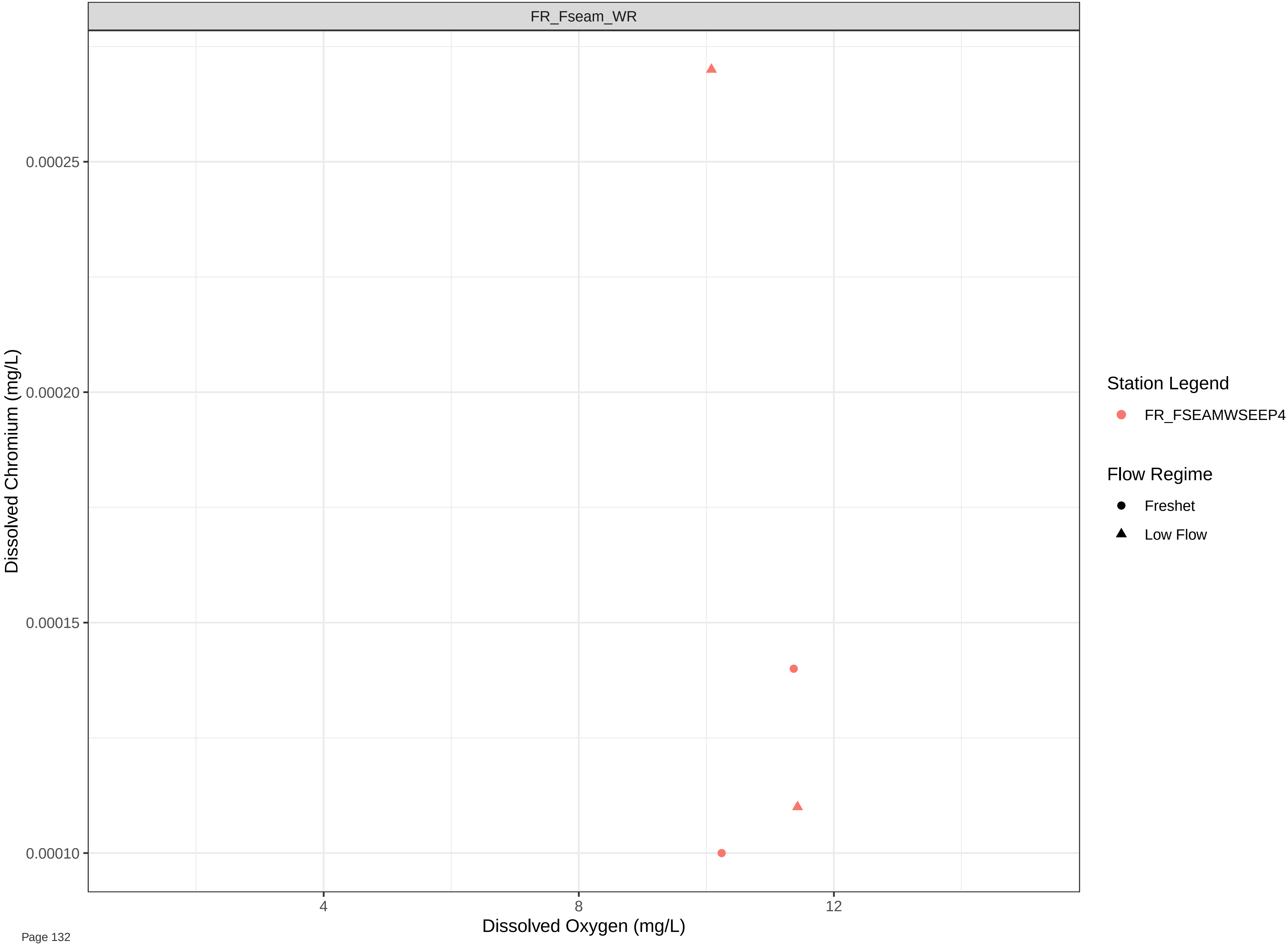

FR_A_WR
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

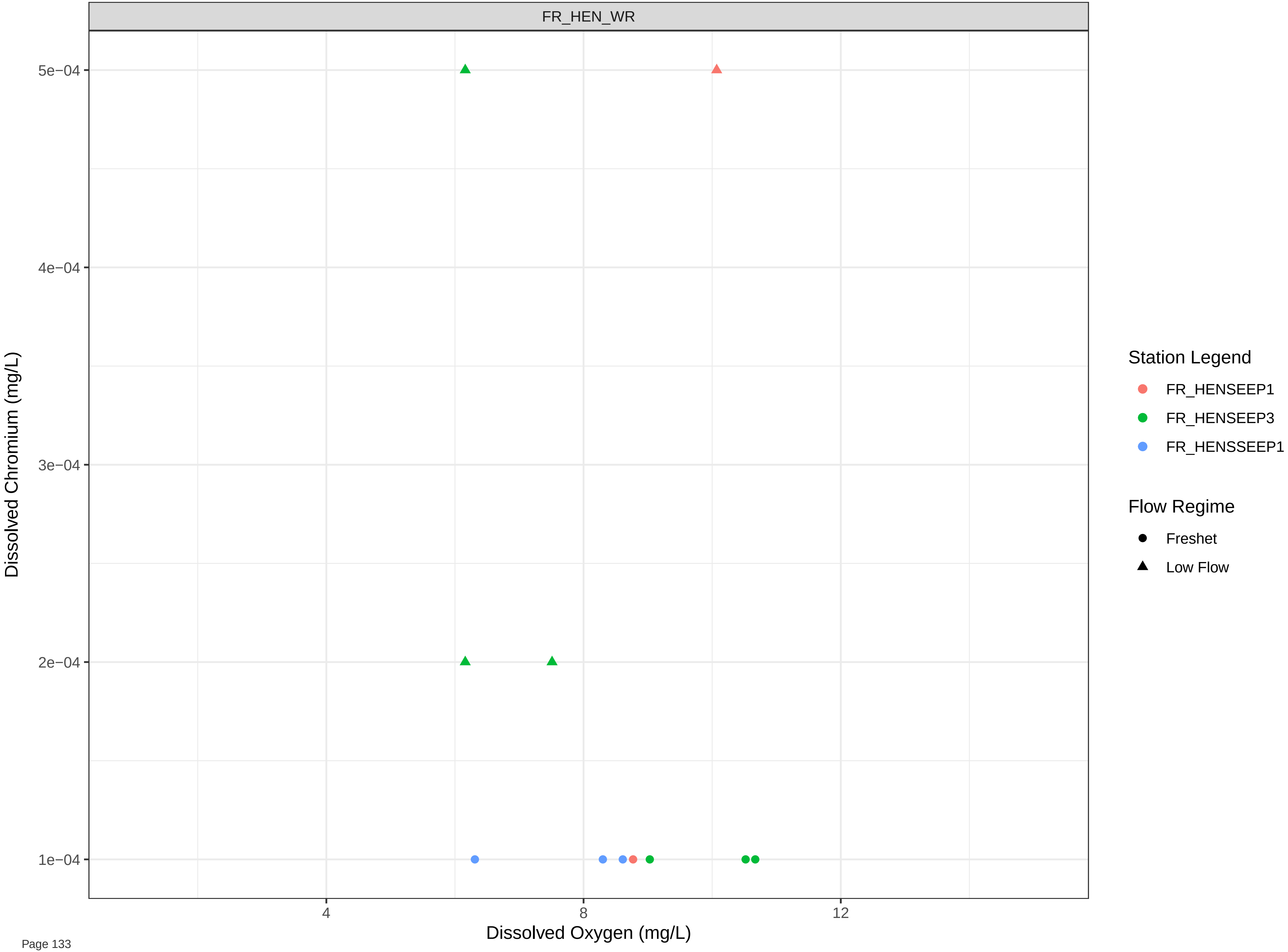

FR_Blain_CCR
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Chromium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

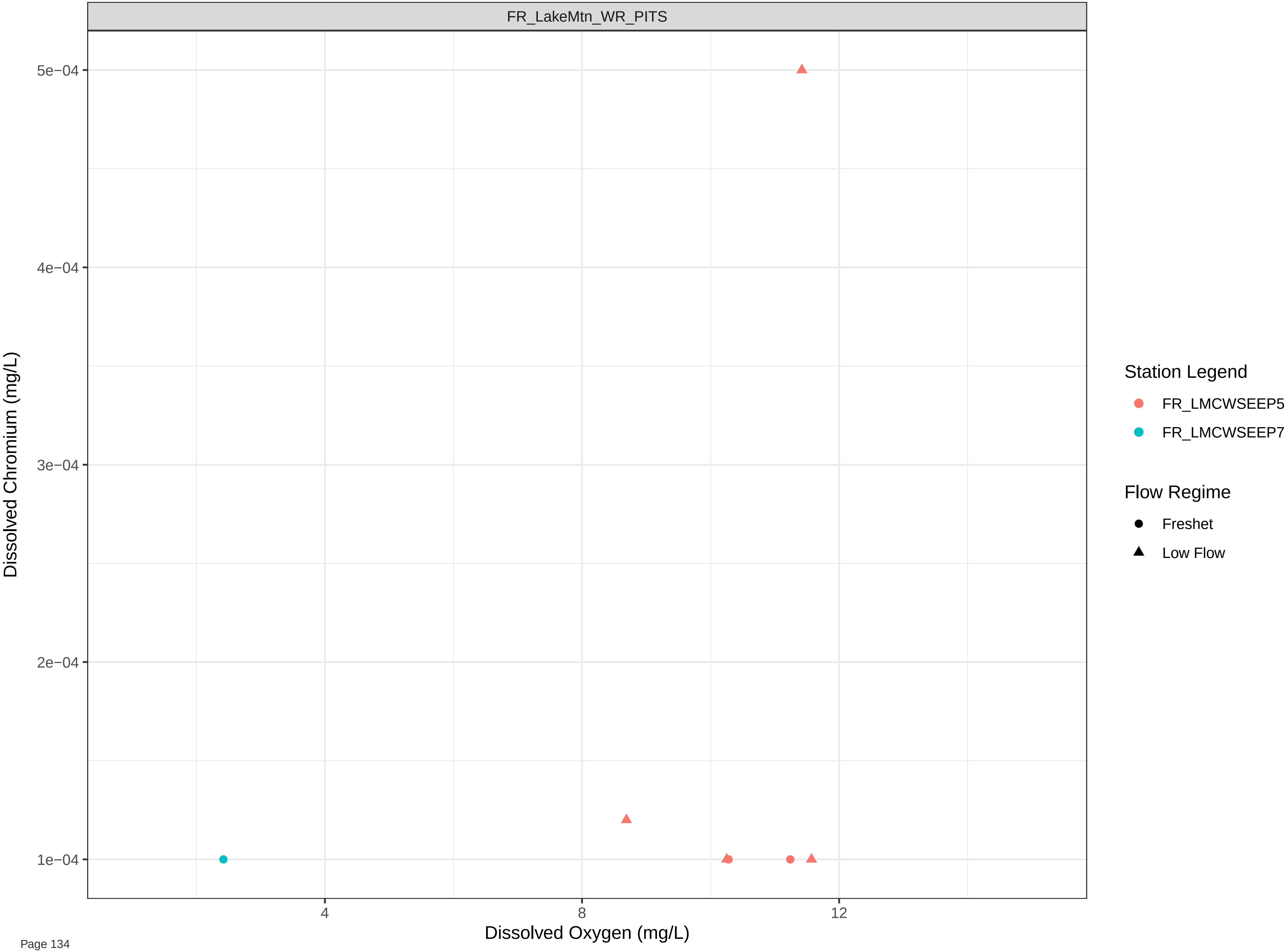

FR_ClodeCr_WR
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

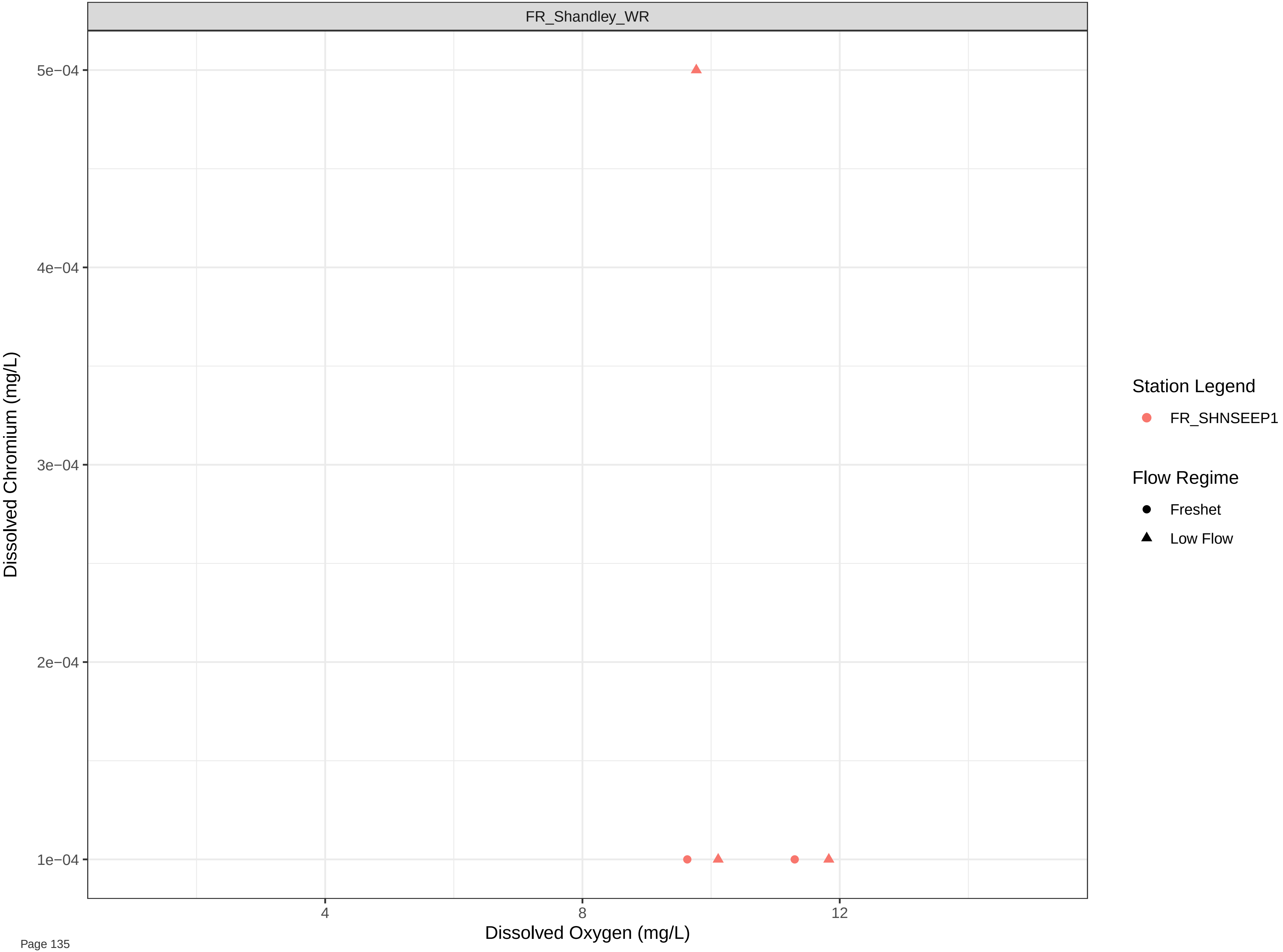

FR_DOKA_Unknown
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

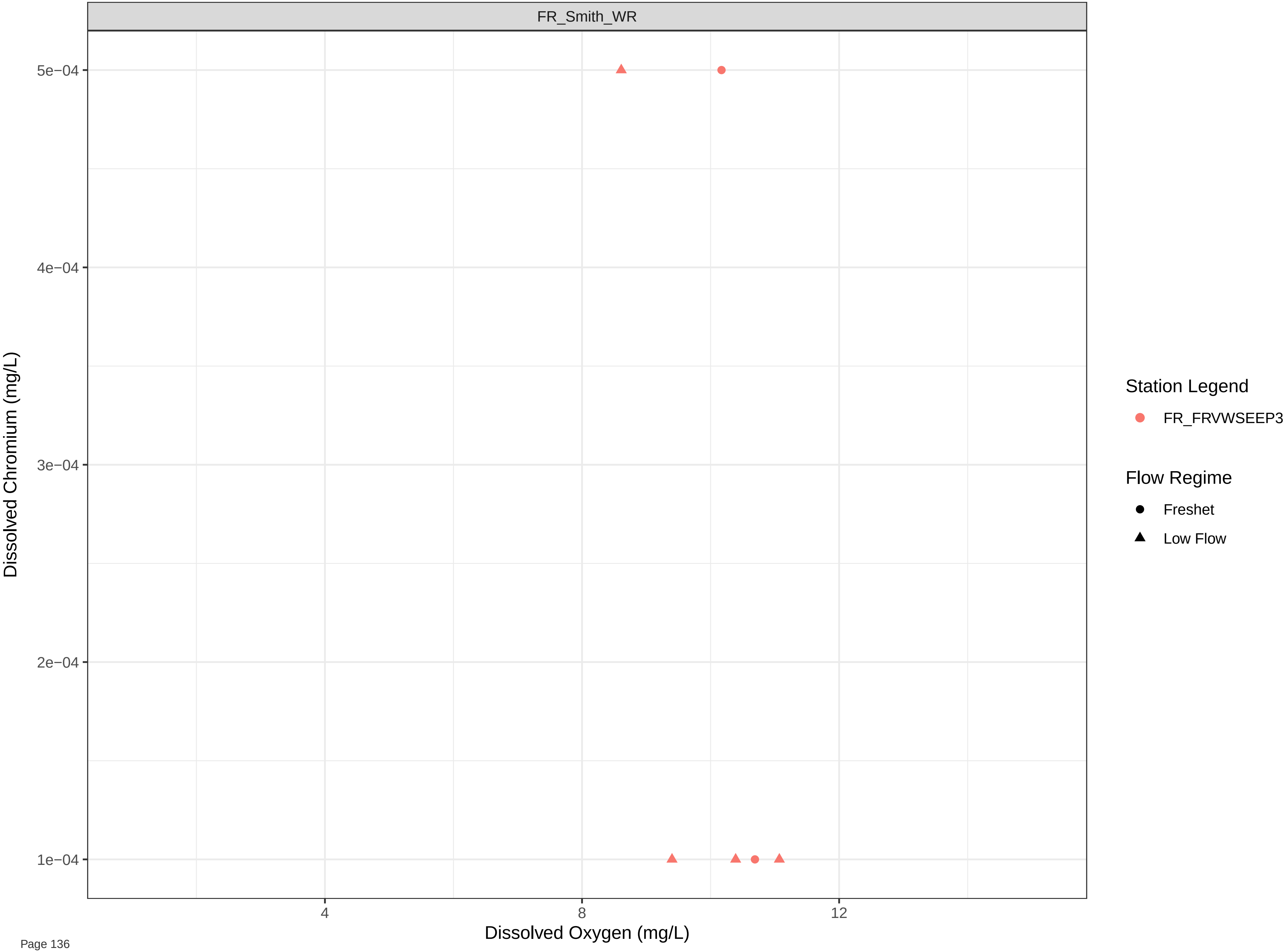

FR_Eagle_WR
0.00100
0.00075
0.00050
0.00025
Dissolved Chromium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

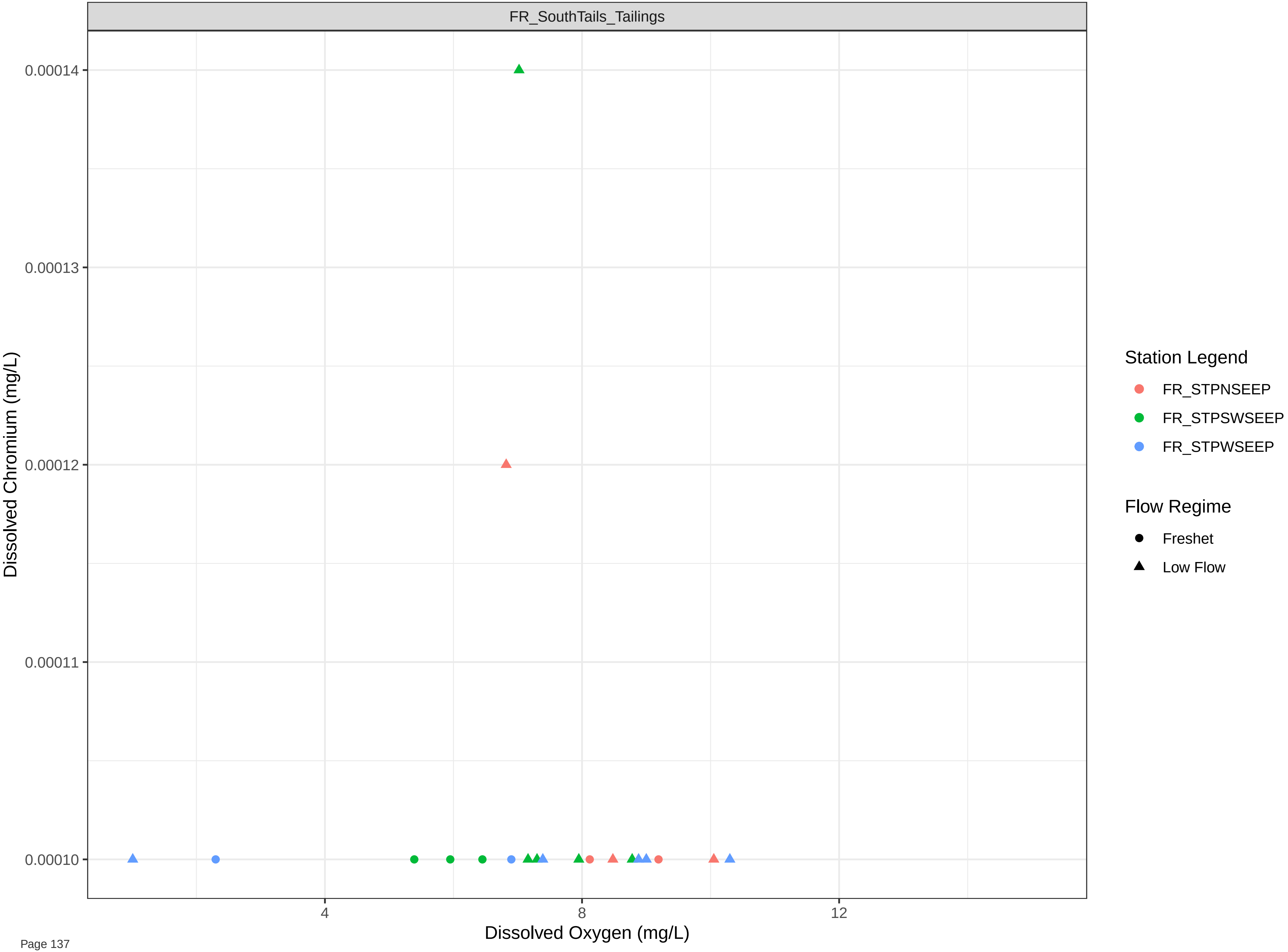

FR_Fseam_WR
Dissolved Chromium (mg/L)
0.00025
0.00020
0.00015
0.00010
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

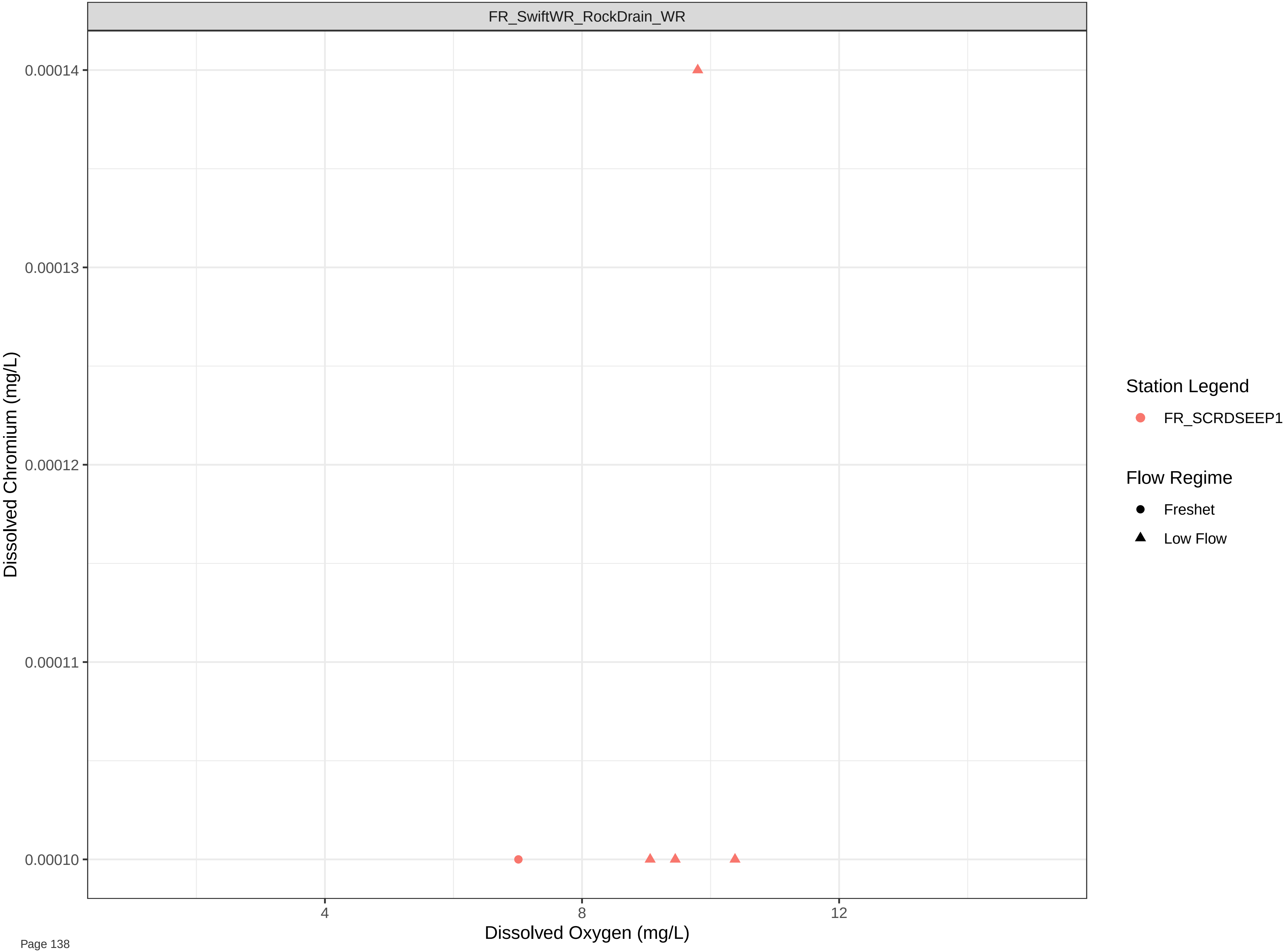

FR_HEN_WR
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Chromium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

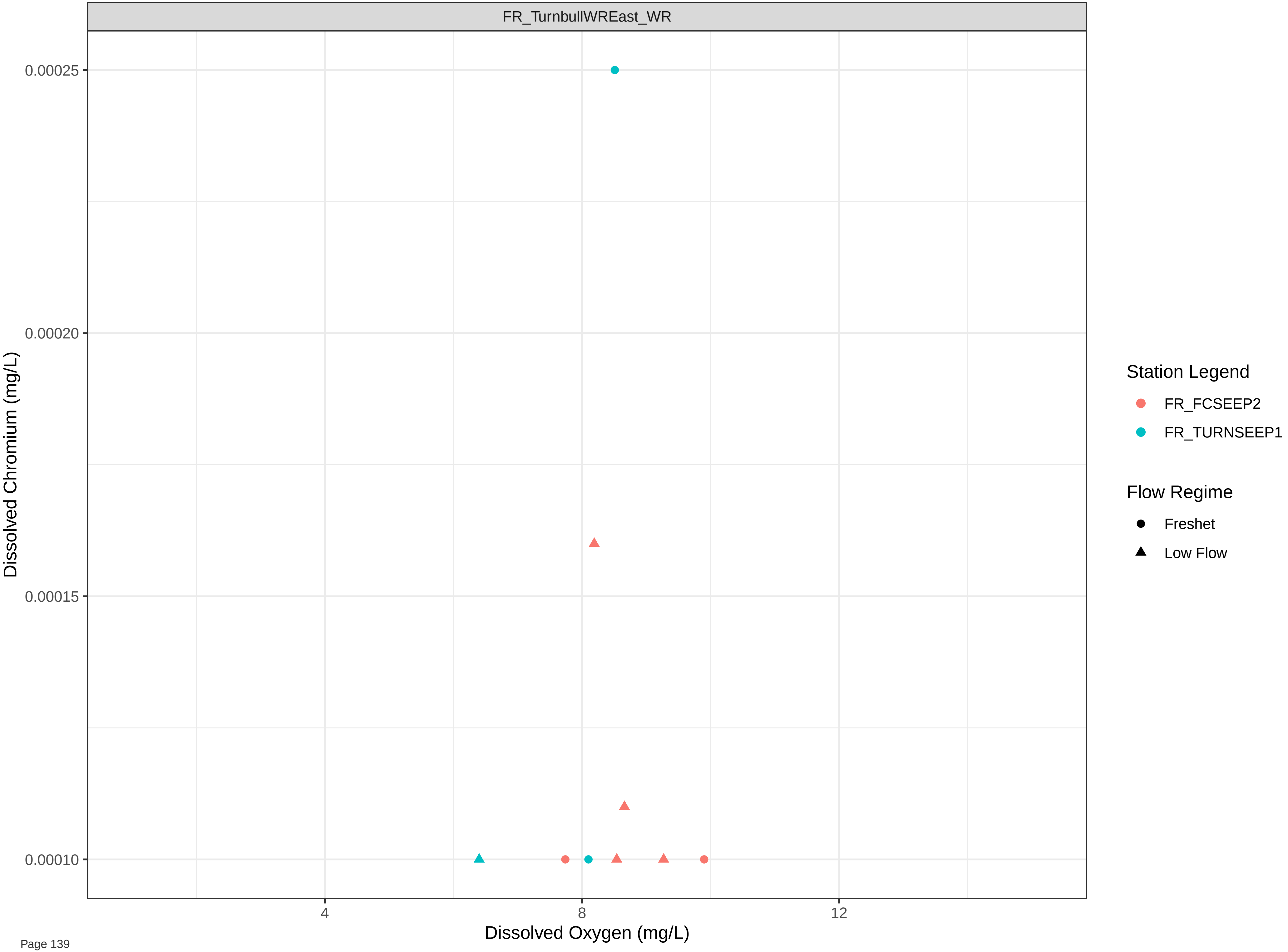

FR_LakeMtn_WR_PITS
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

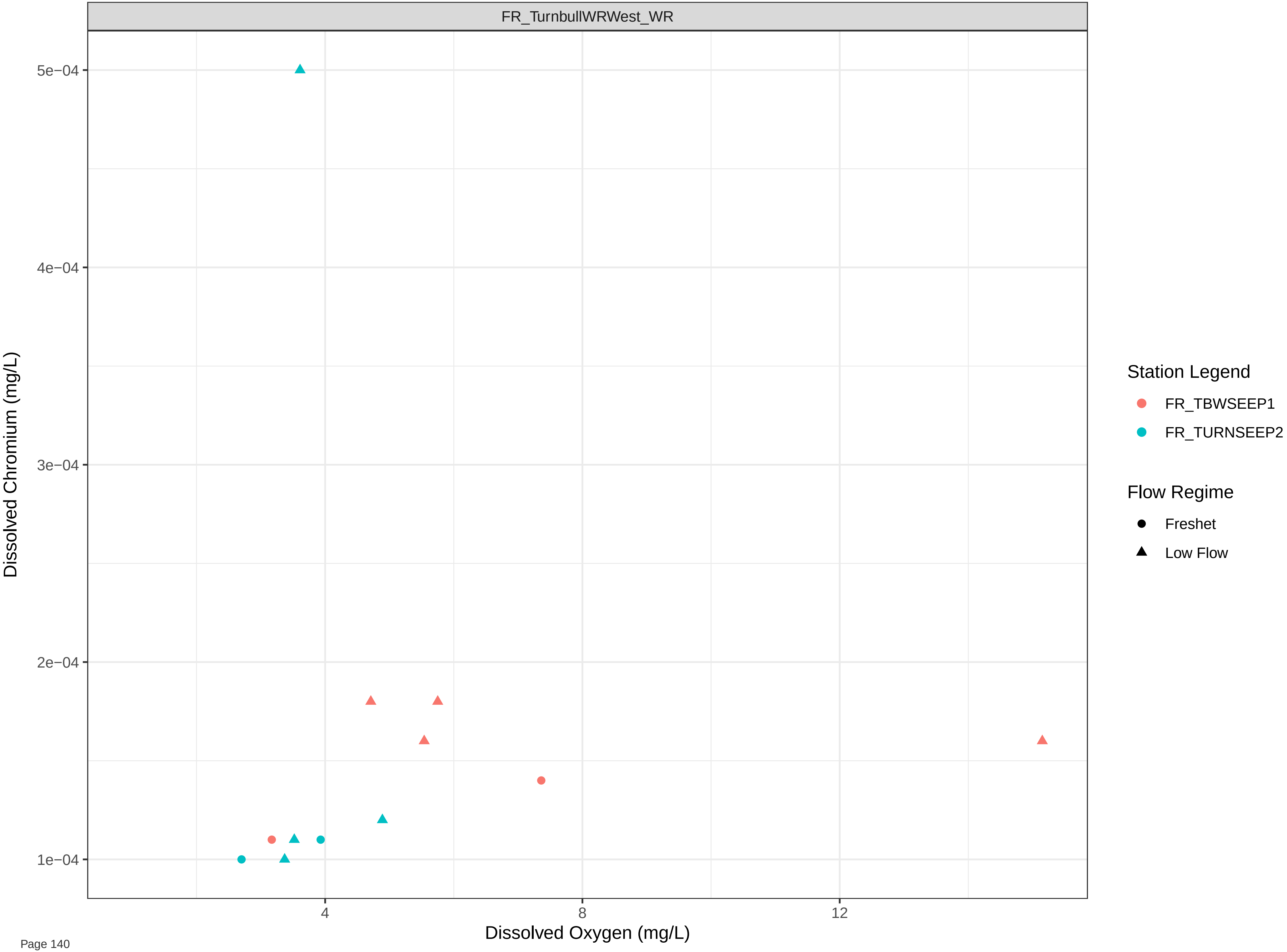

FR_Shandley_WR
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

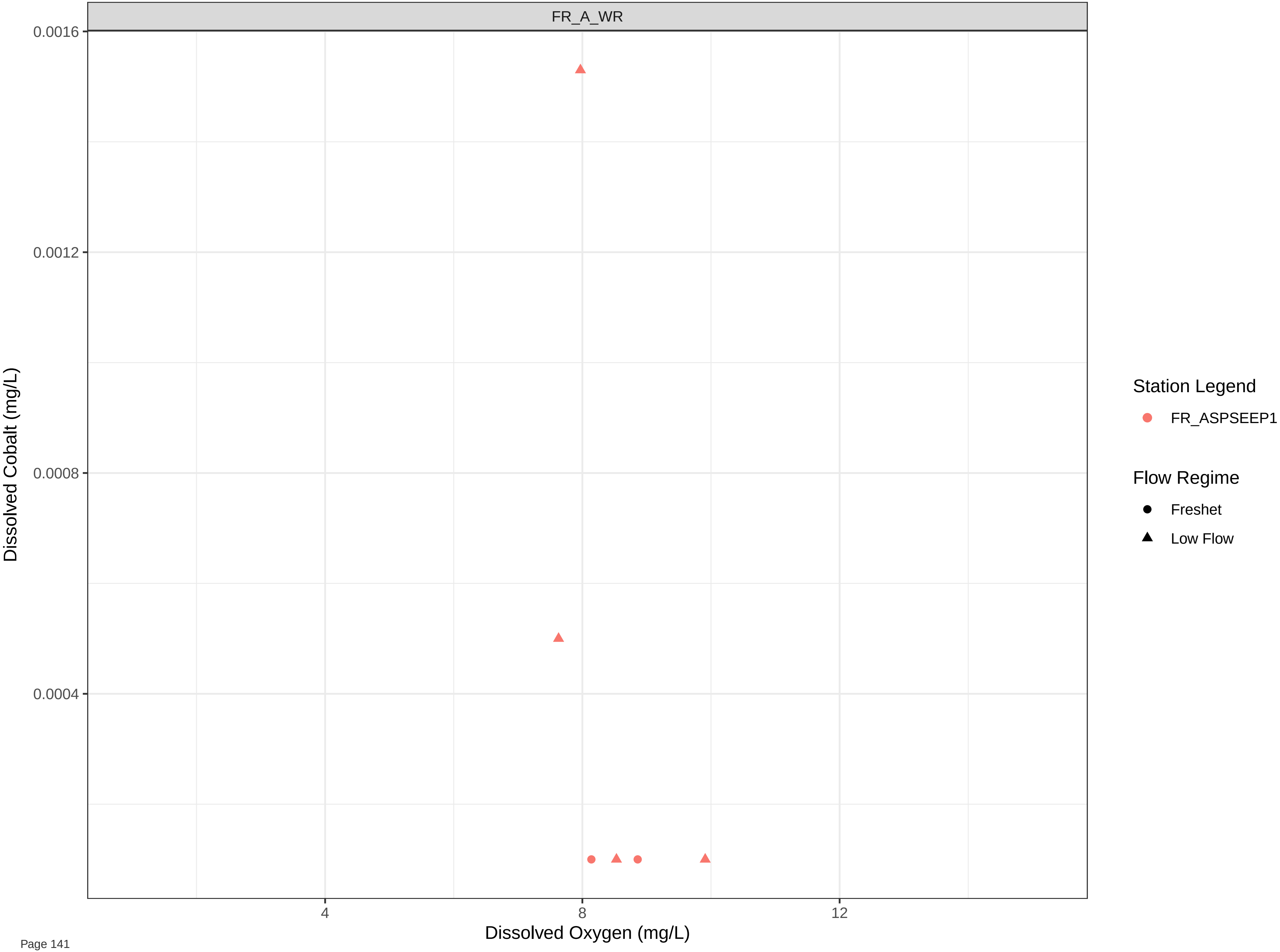

FR_Smith_WR
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

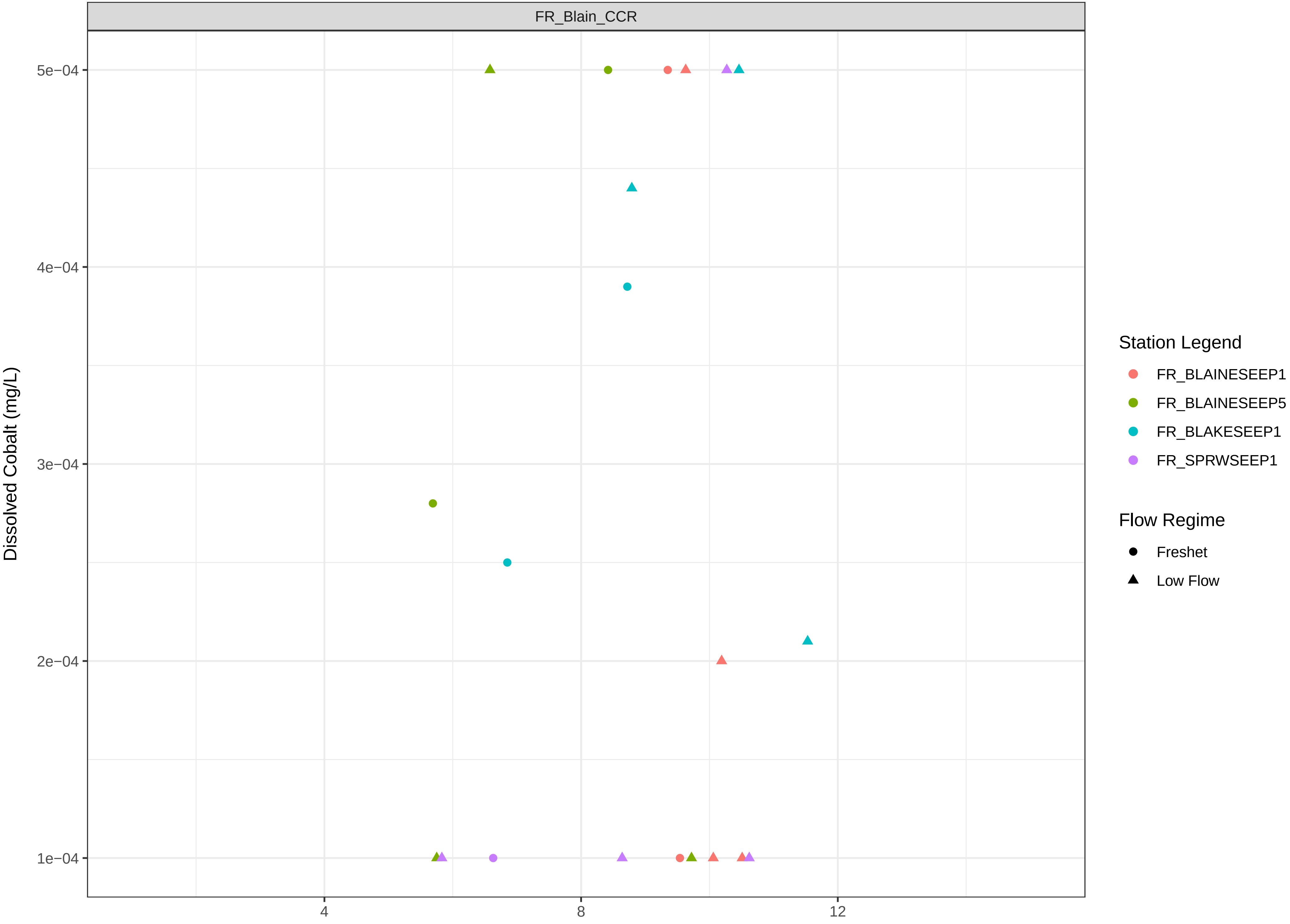

FR_SouthTails_Tailings
Dissolved Chromium (mg/L)
0.00014
0.00013
0.00012
0.00011
0.00010
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

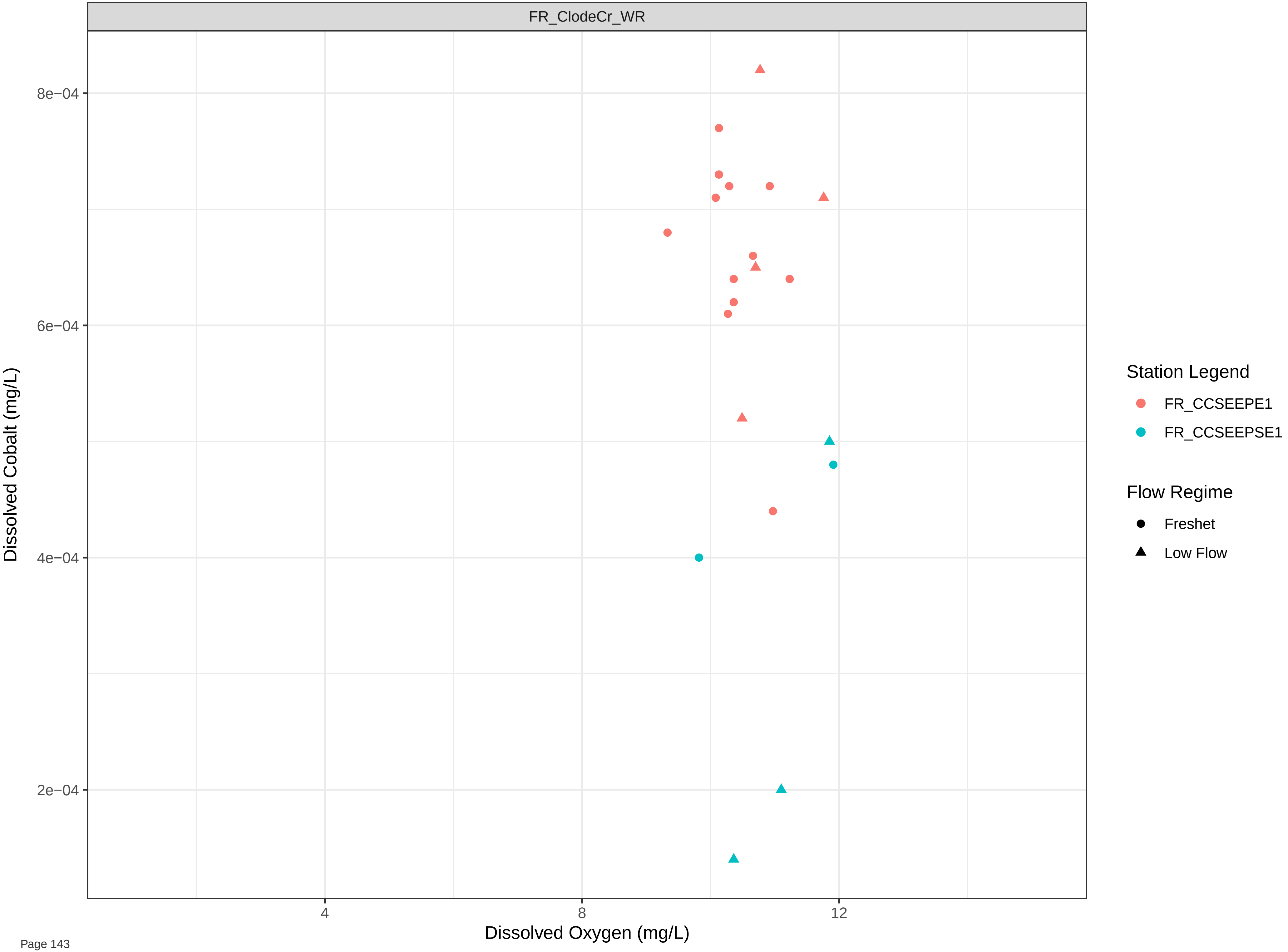

FR_SwiftWR_RockDrain_WR
0.00014
0.00013
0.00012
0.00011
0.00010
Dissolved Chromium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

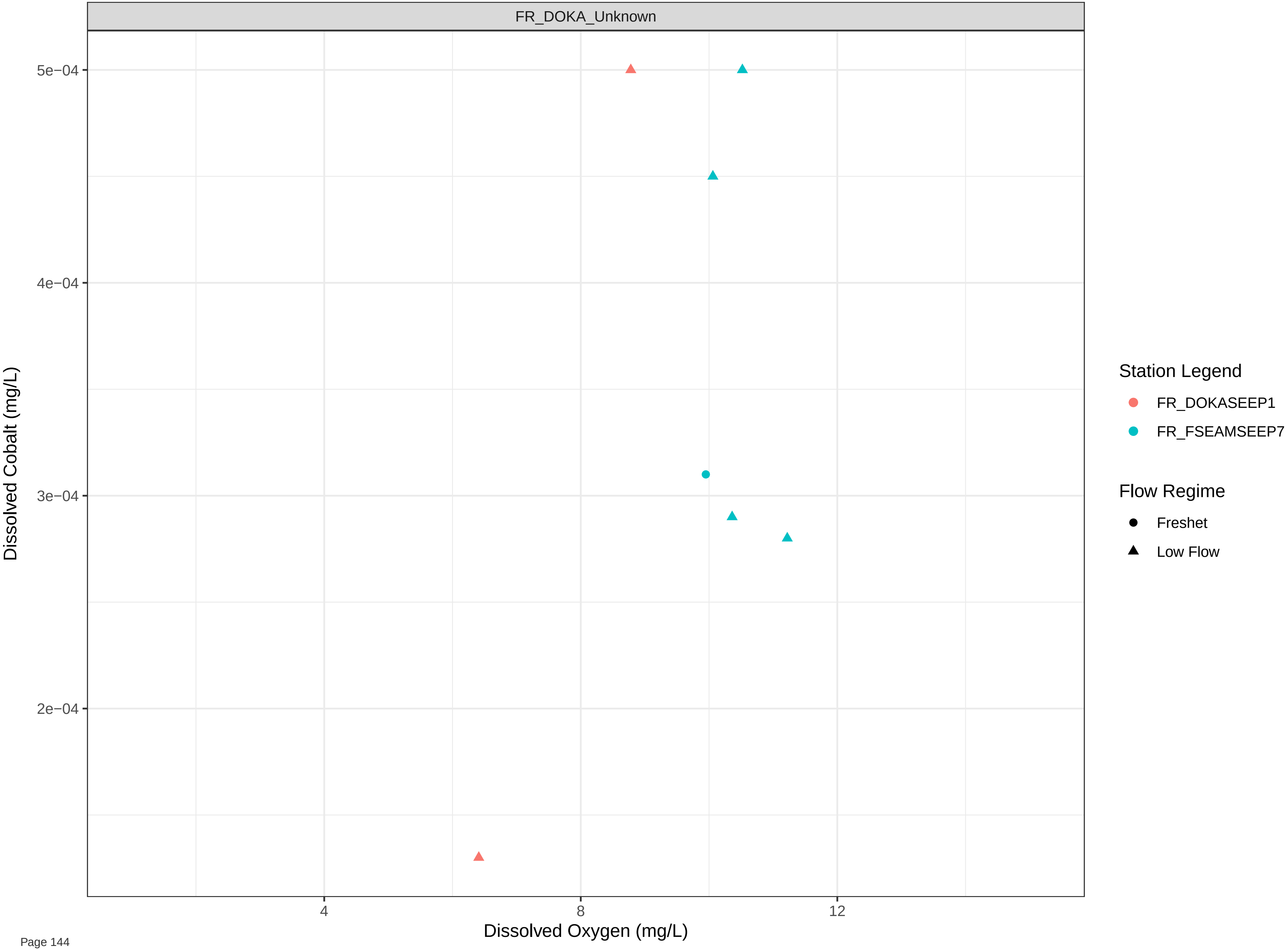

FR_TurnbullWREast_WR
Dissolved Chromium (mg/L)
0.00025
0.00020
0.00015
0.00010
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

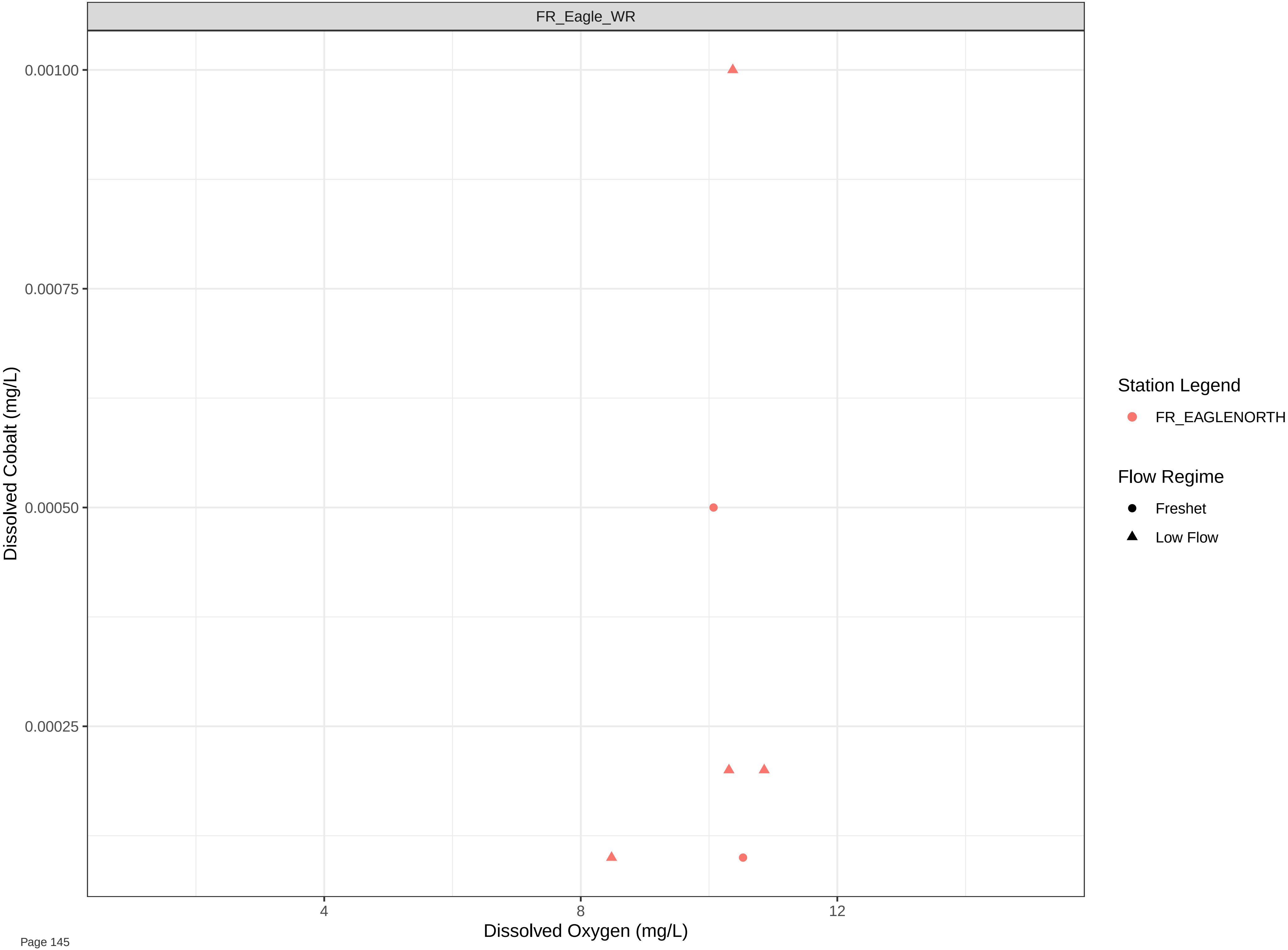

FR_TurnbullWRWest_WR
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

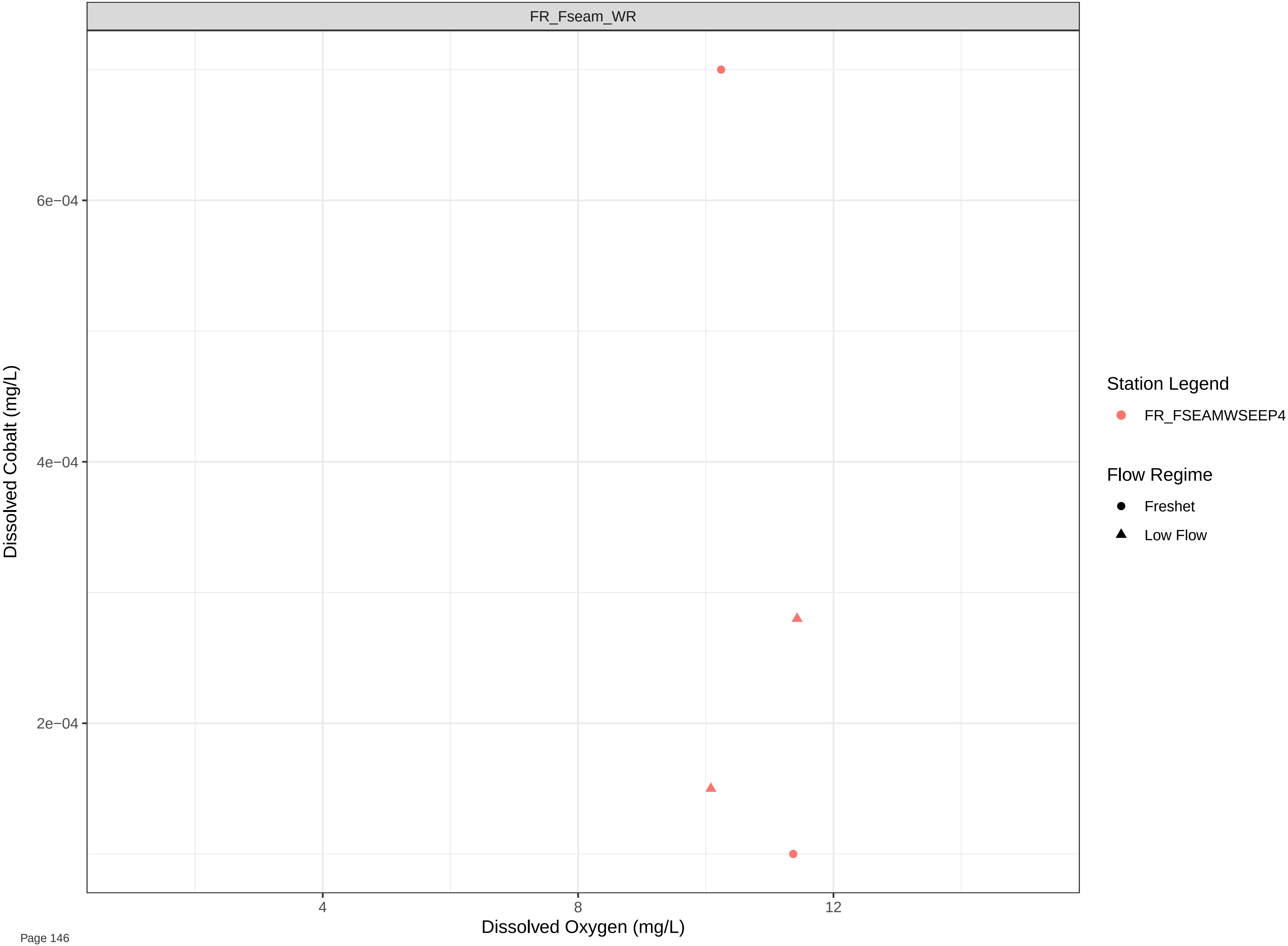

FR_A_WR
Dissolved Cobalt (mg/L)
0.0016
0.0012
0.0008
0.0004
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

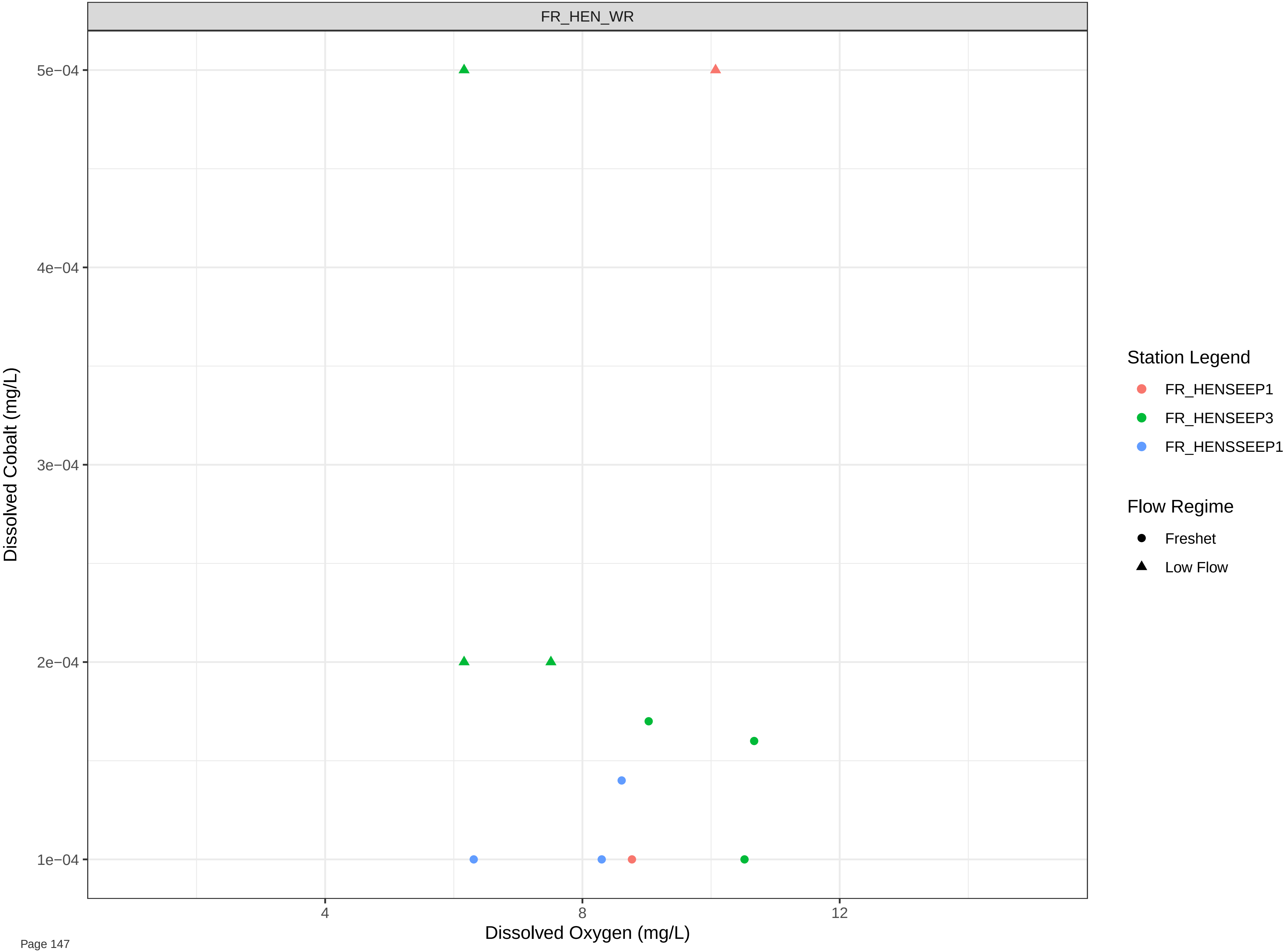

FR_Blain_CCR
Dissolved Cobalt (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

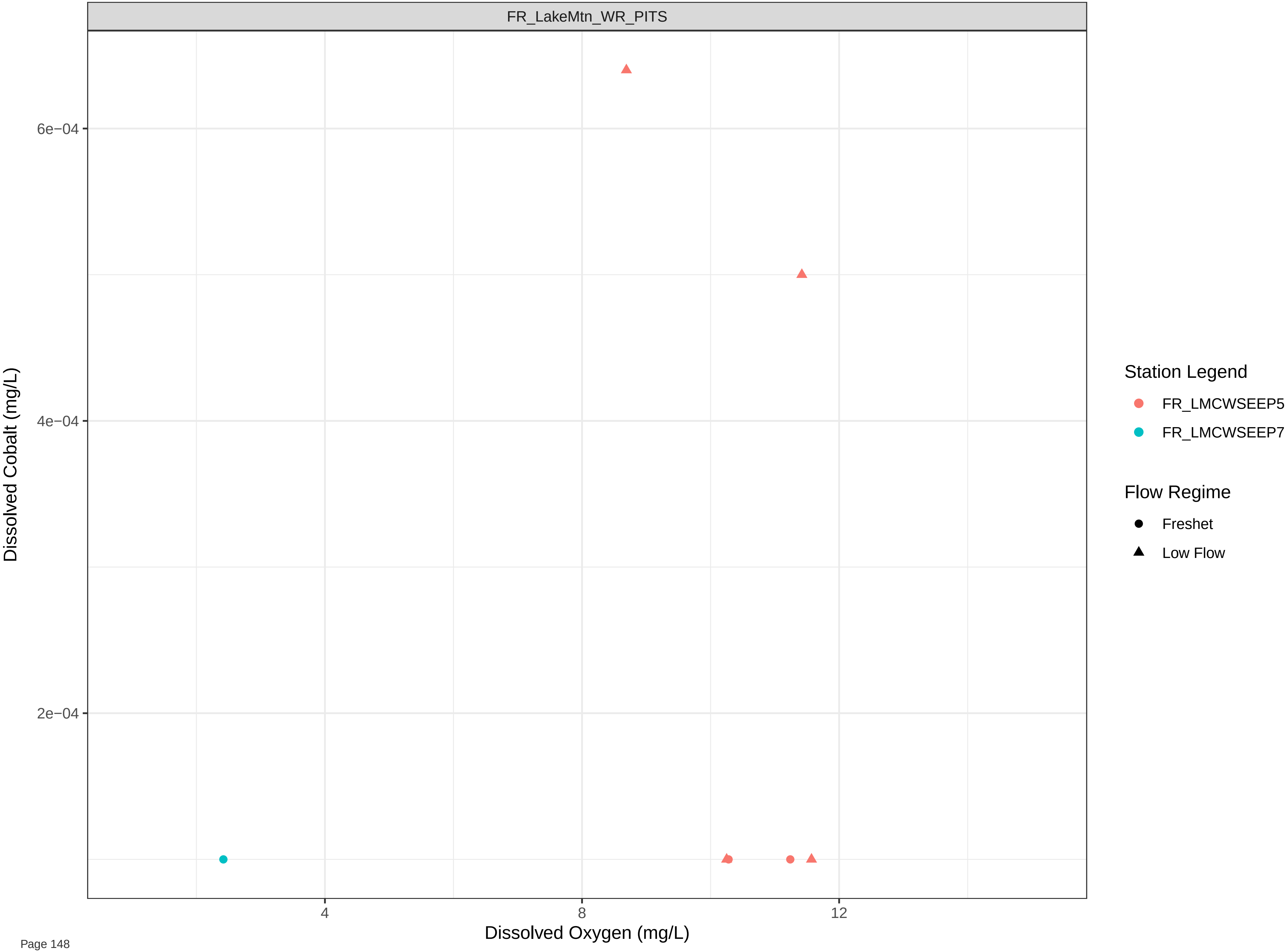

FR_ClodeCr_WR
8e−04
6e−04
4e−04
2e−04
Dissolved Cobalt (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

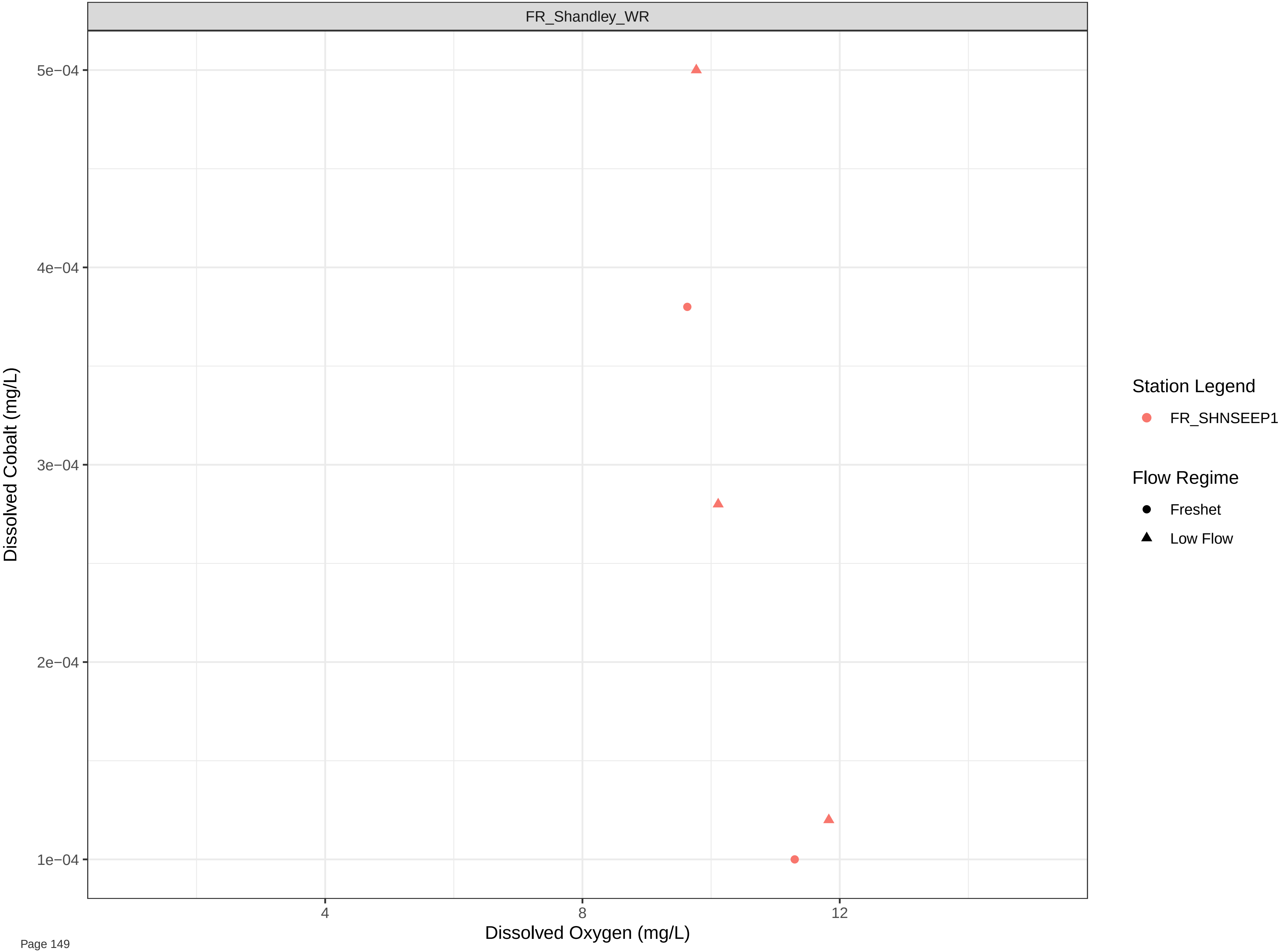

FR_DOKA_Unknown
Dissolved Cobalt (mg/L)
5e−04
4e−04
3e−04
2e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

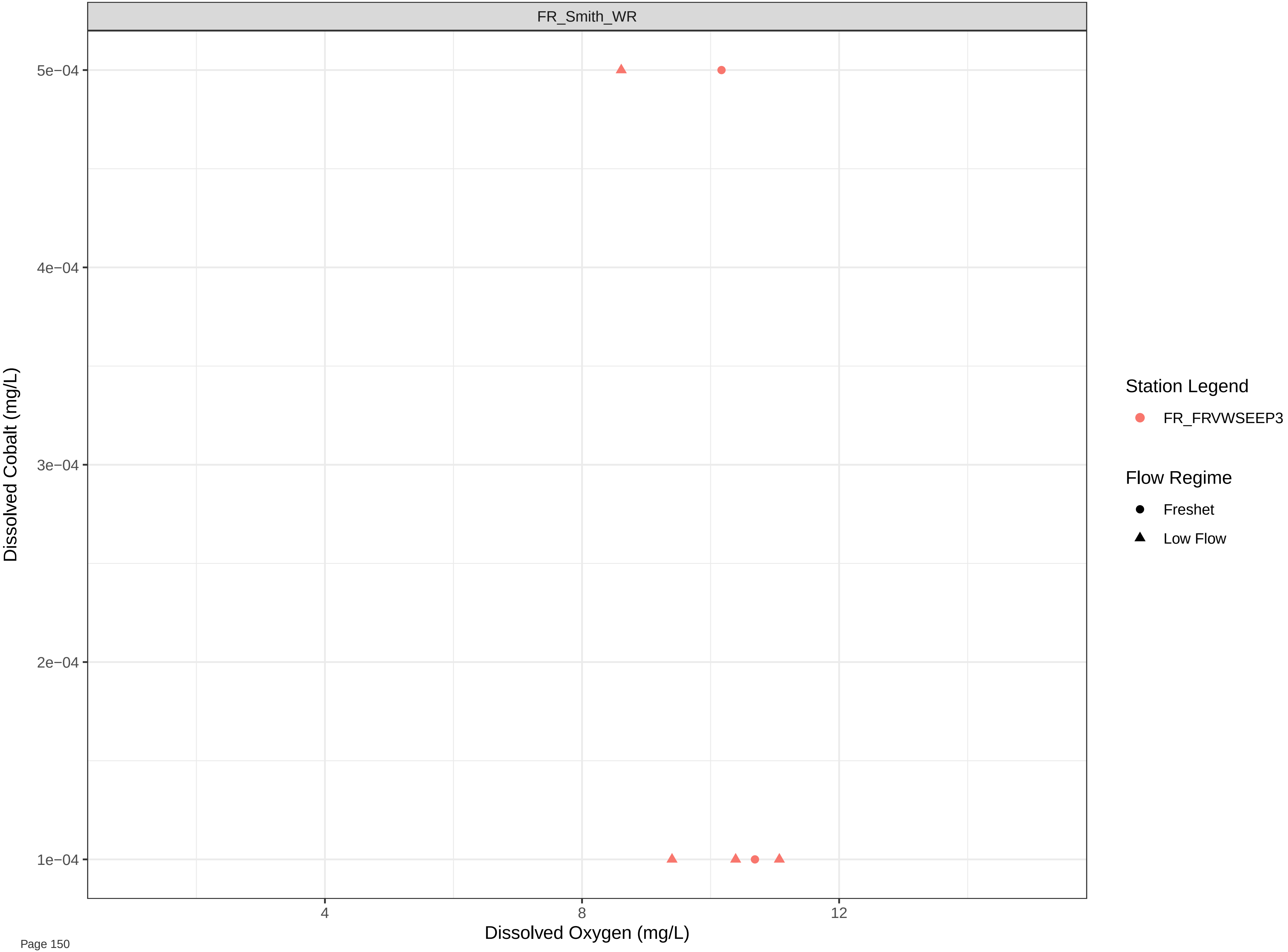

FR_Eagle_WR
Dissolved Cobalt (mg/L)
0.00100
0.00075
0.00050
0.00025
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

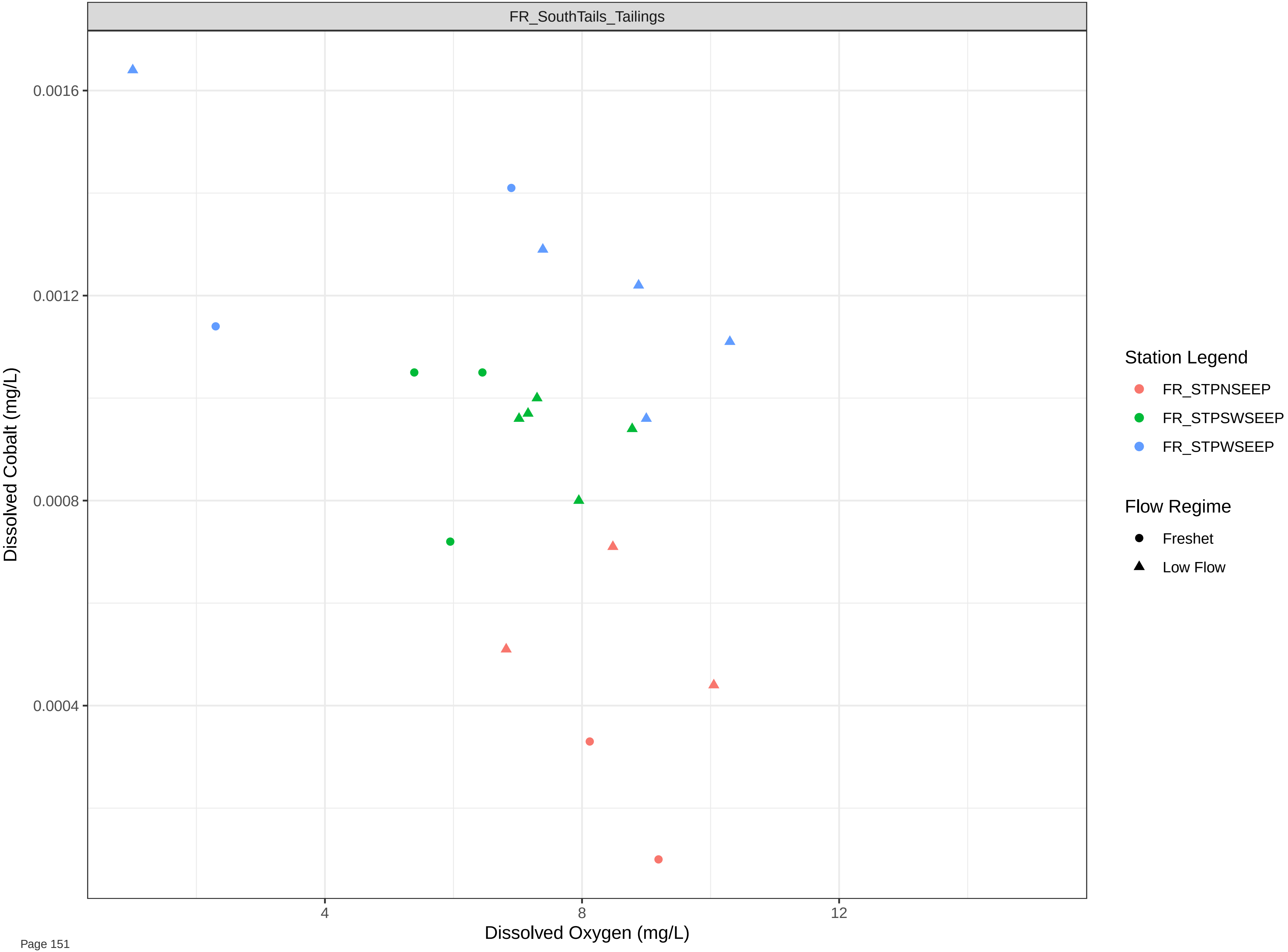

FR_Fseam_WR
Dissolved Cobalt (mg/L)
6e−04
4e−04
2e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

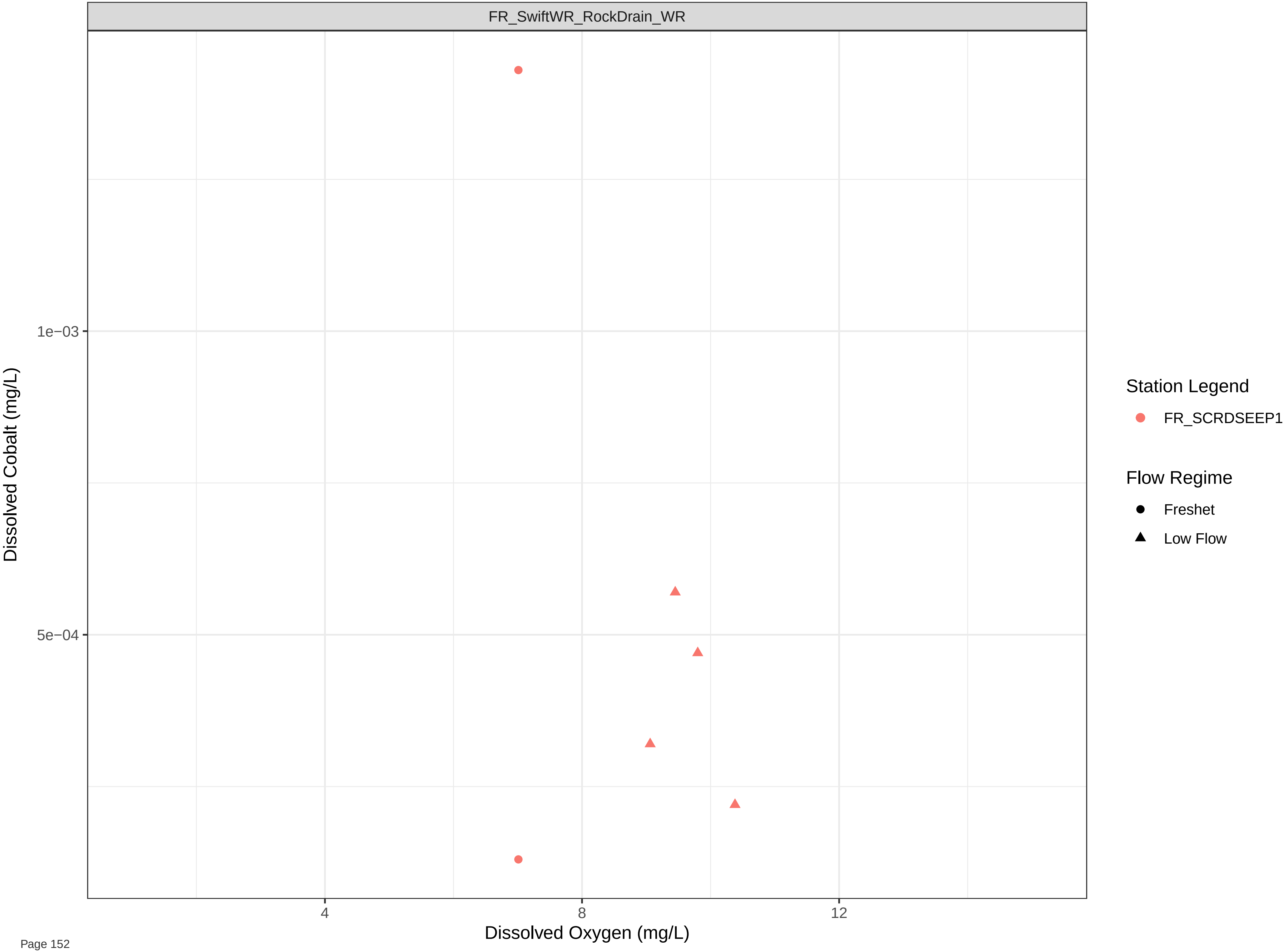

FR_HEN_WR
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Cobalt (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

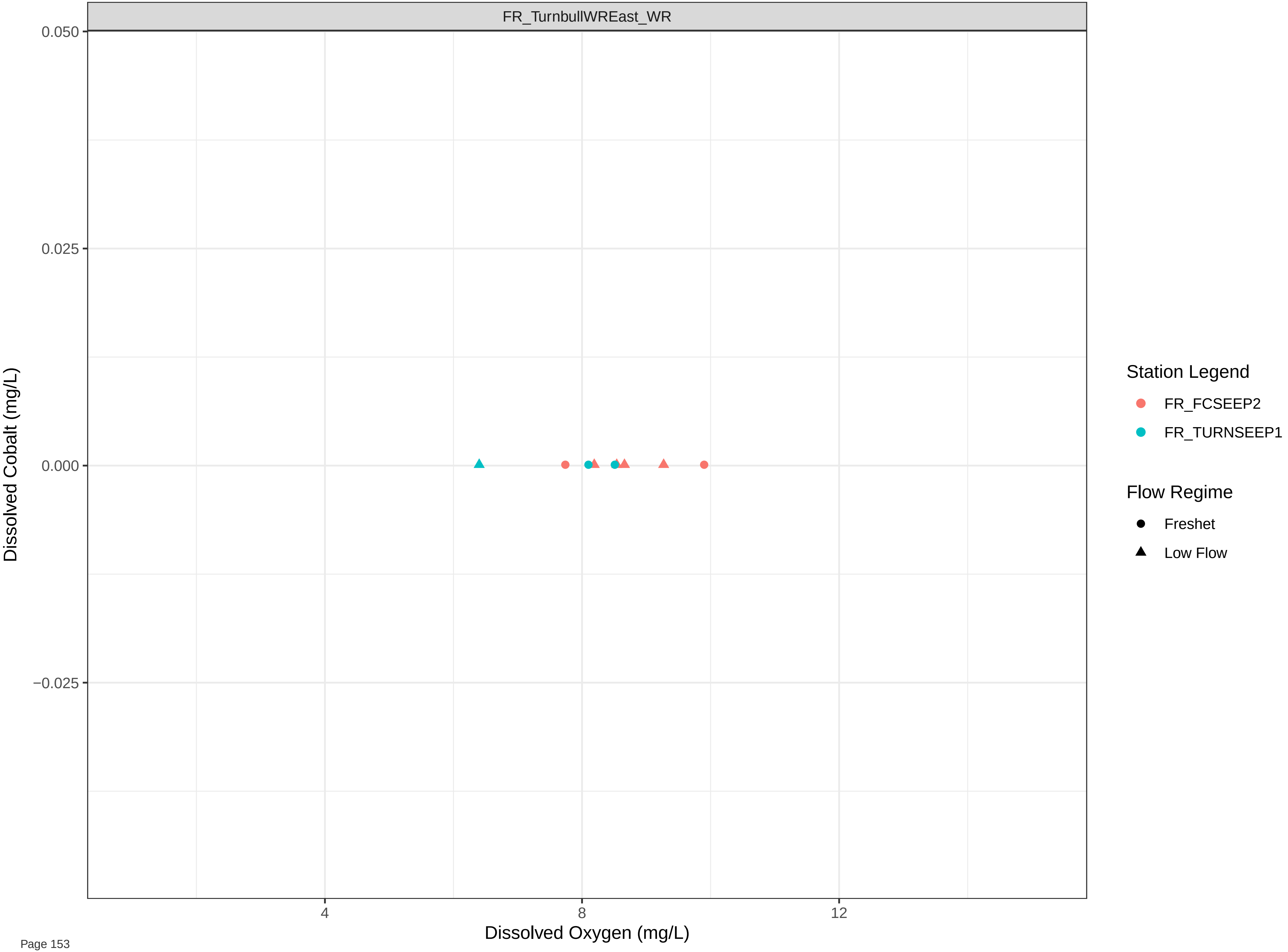

FR_LakeMtn_WR_PITS
6e−04
4e−04
2e−04
4
8
12
Dissolved Cobalt (mg/L)
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

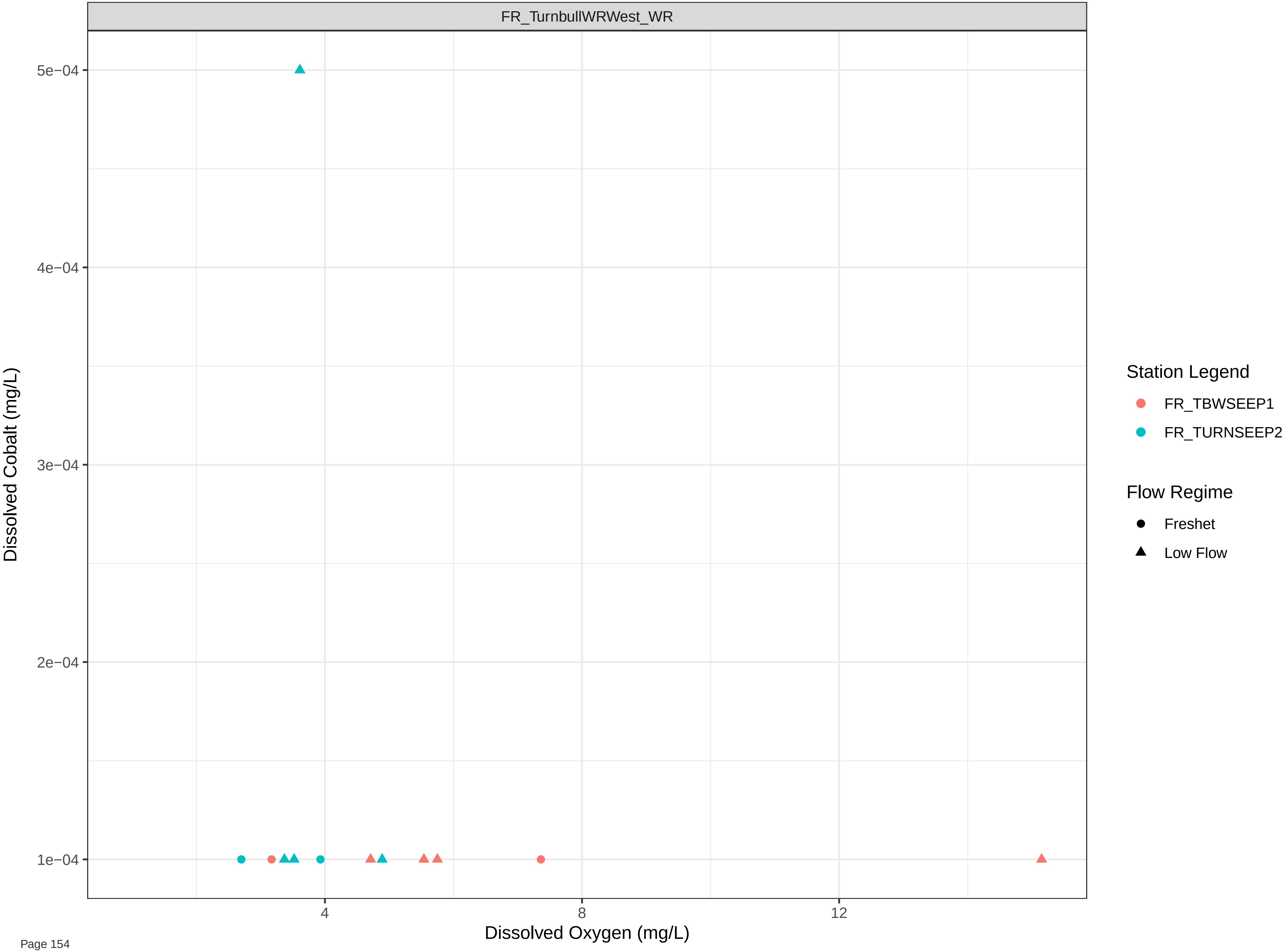

FR_Shandley_WR
Dissolved Cobalt (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

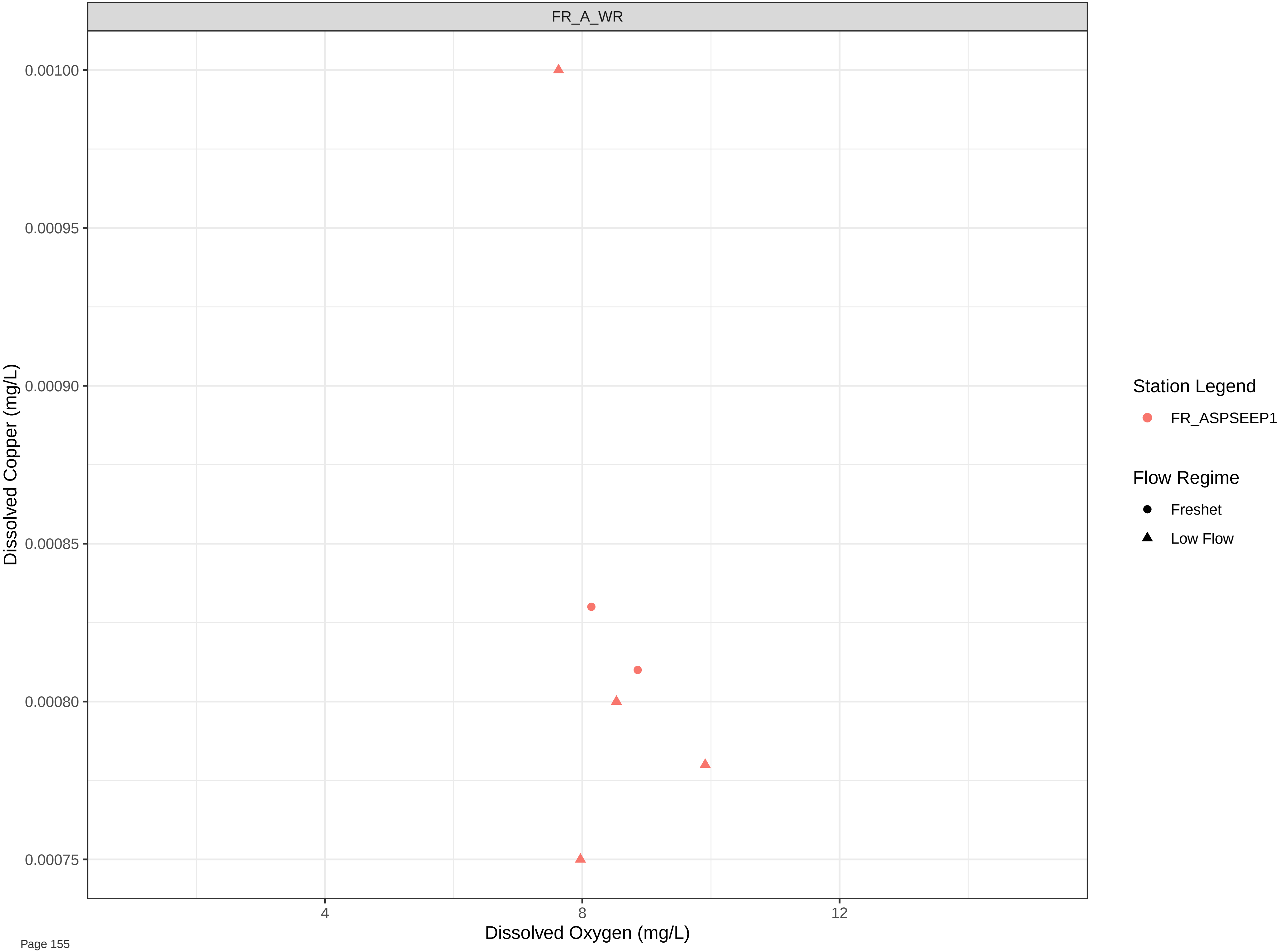

FR_Smith_WR
Dissolved Cobalt (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

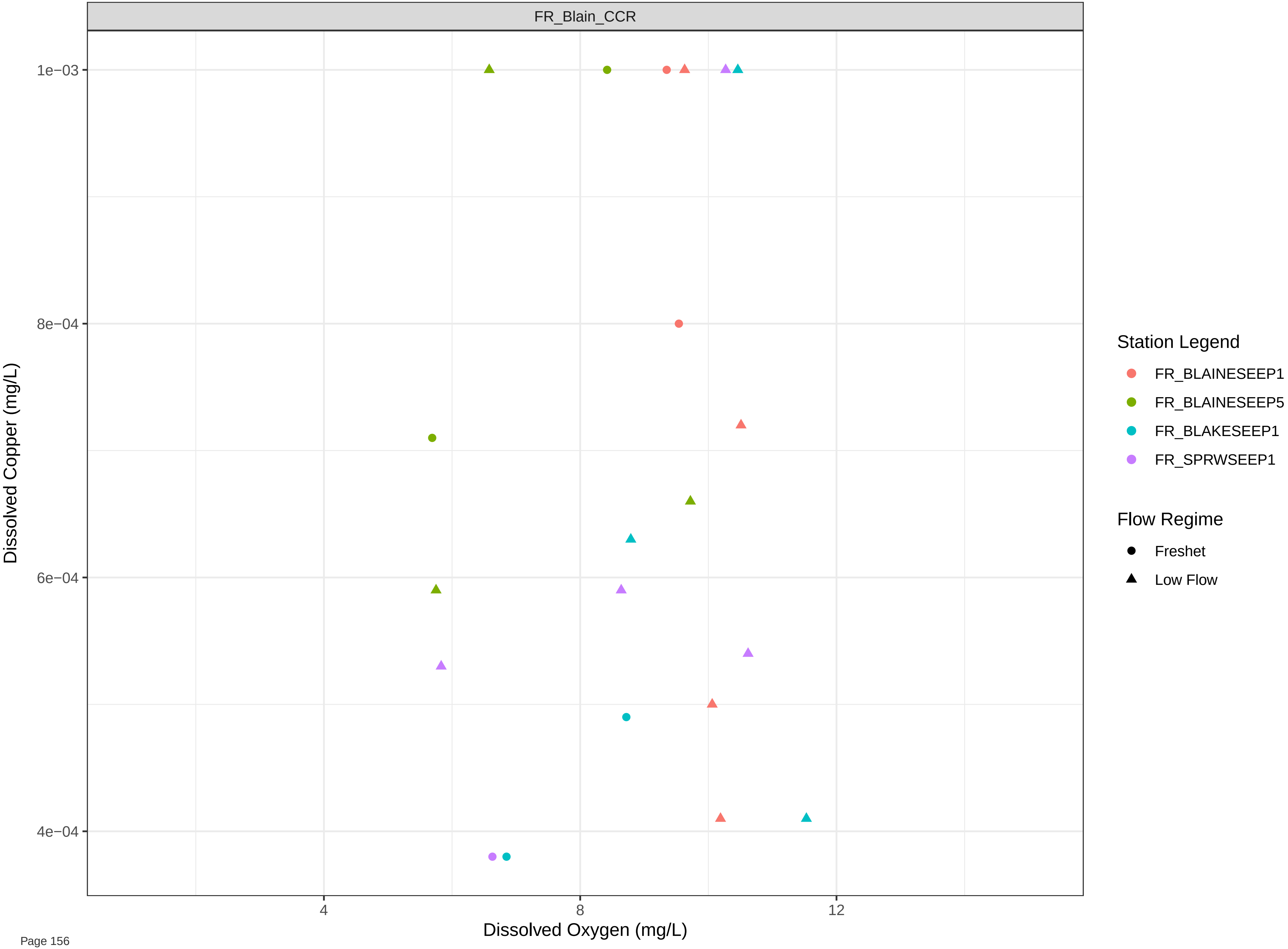

FR_SouthTails_Tailings
Dissolved Cobalt (mg/L)
0.0016
0.0012
0.0008
0.0004
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

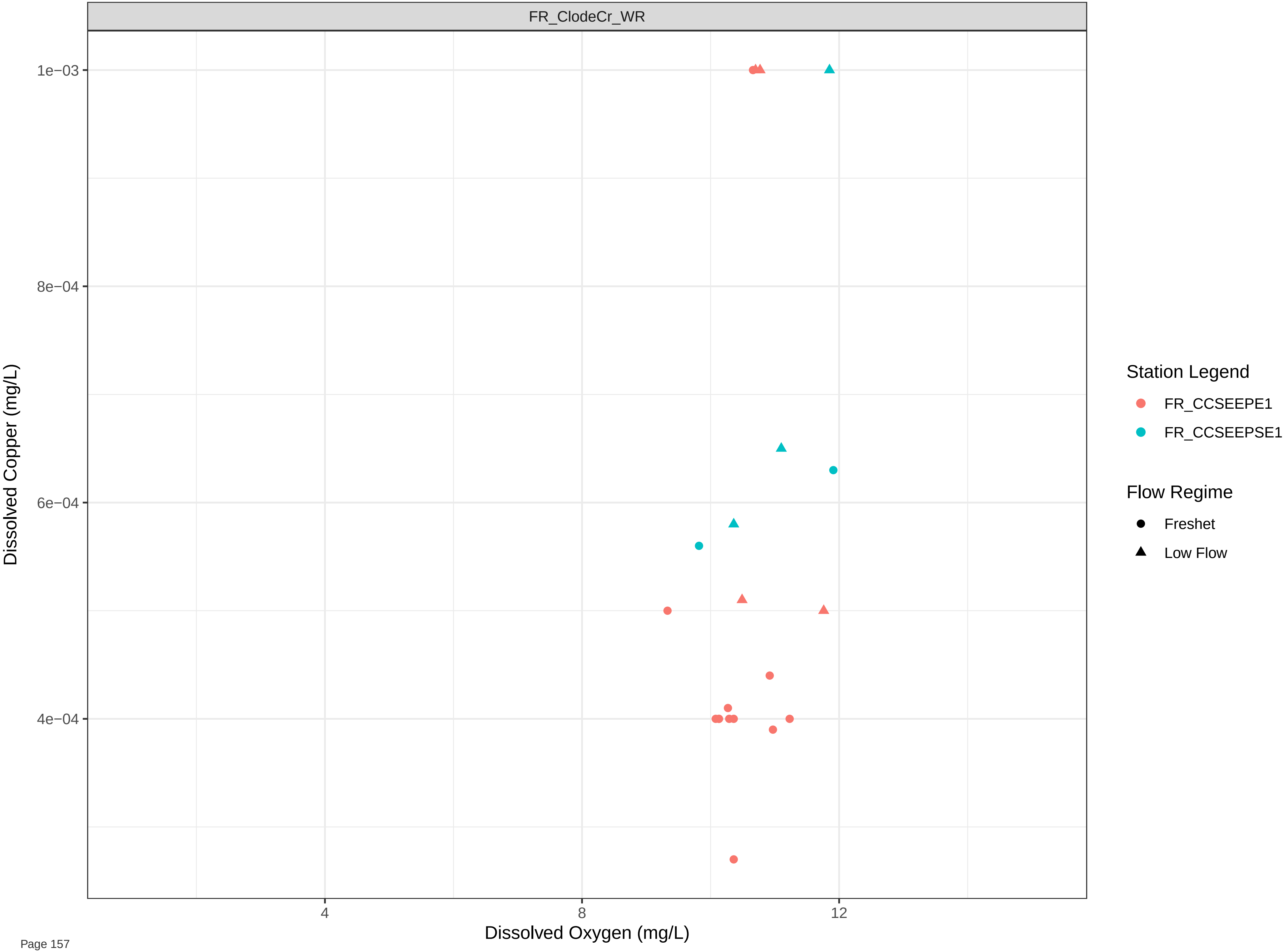

FR_SwiftWR_RockDrain_WR
Dissolved Cobalt (mg/L)
1e−03
5e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

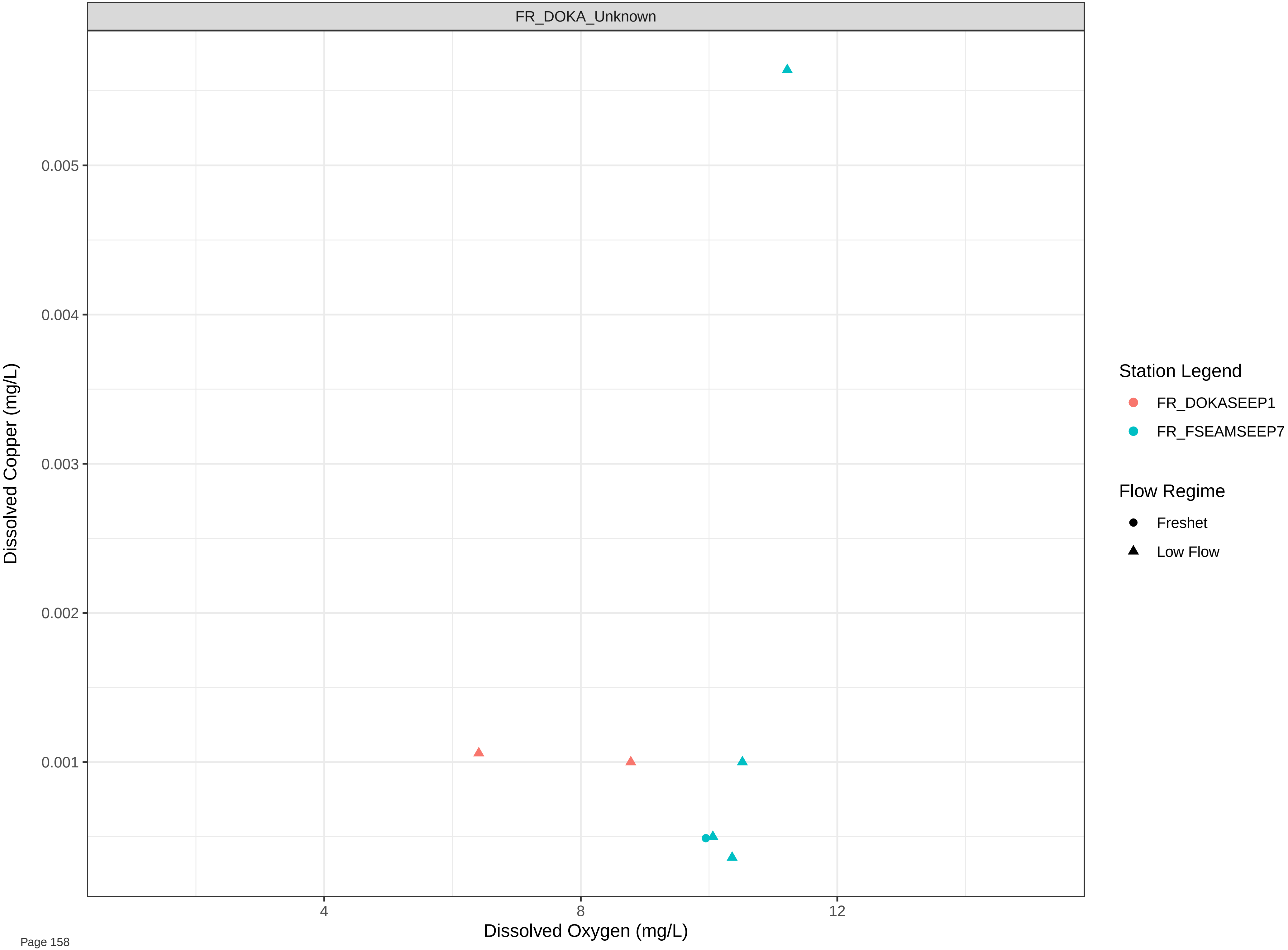

FR_TurnbullWREast_WR
Dissolved Cobalt (mg/L)
0.050
0.025
0.000
−0.025
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

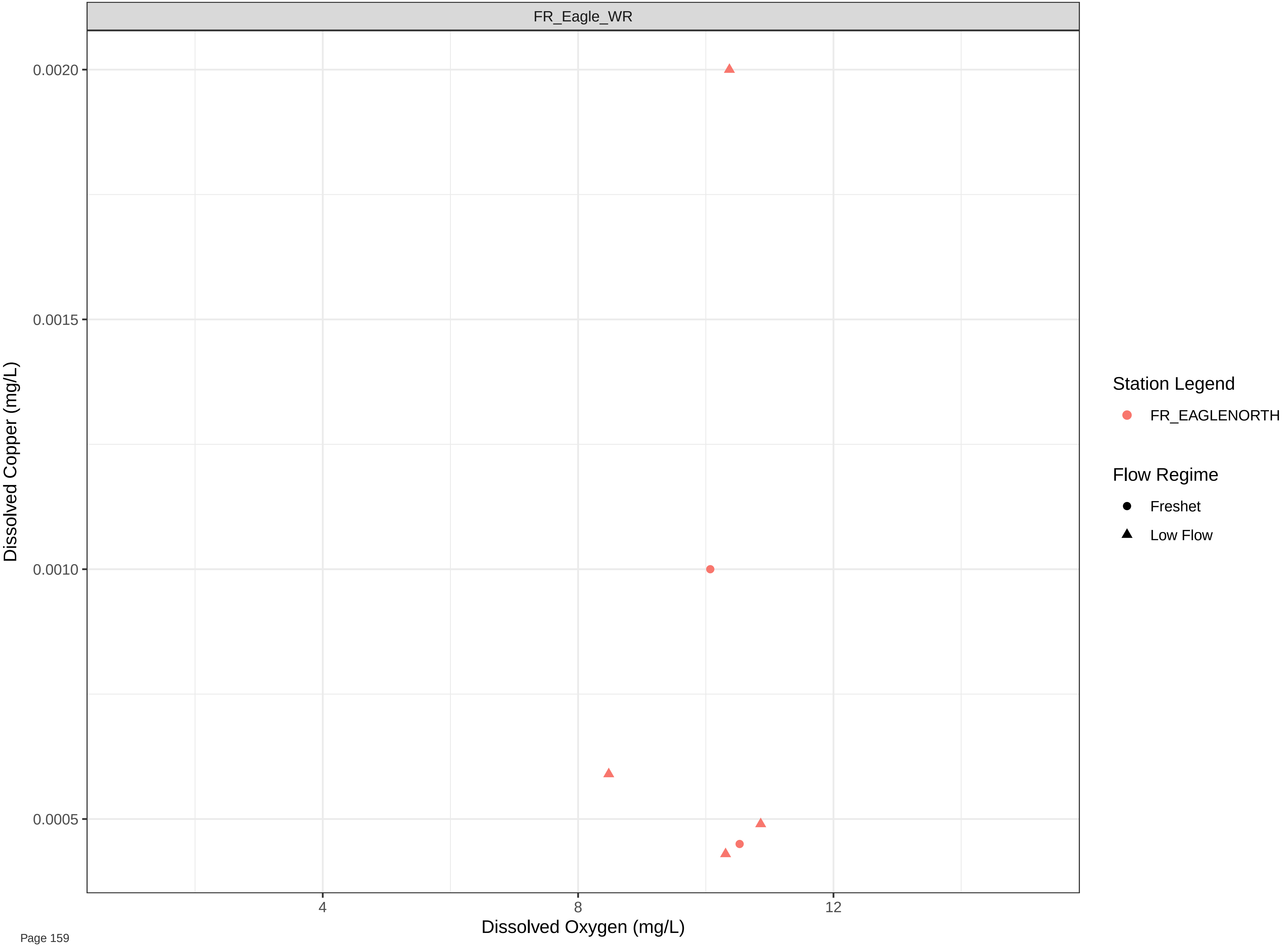

FR_TurnbullWRWest_WR
Dissolved Cobalt (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

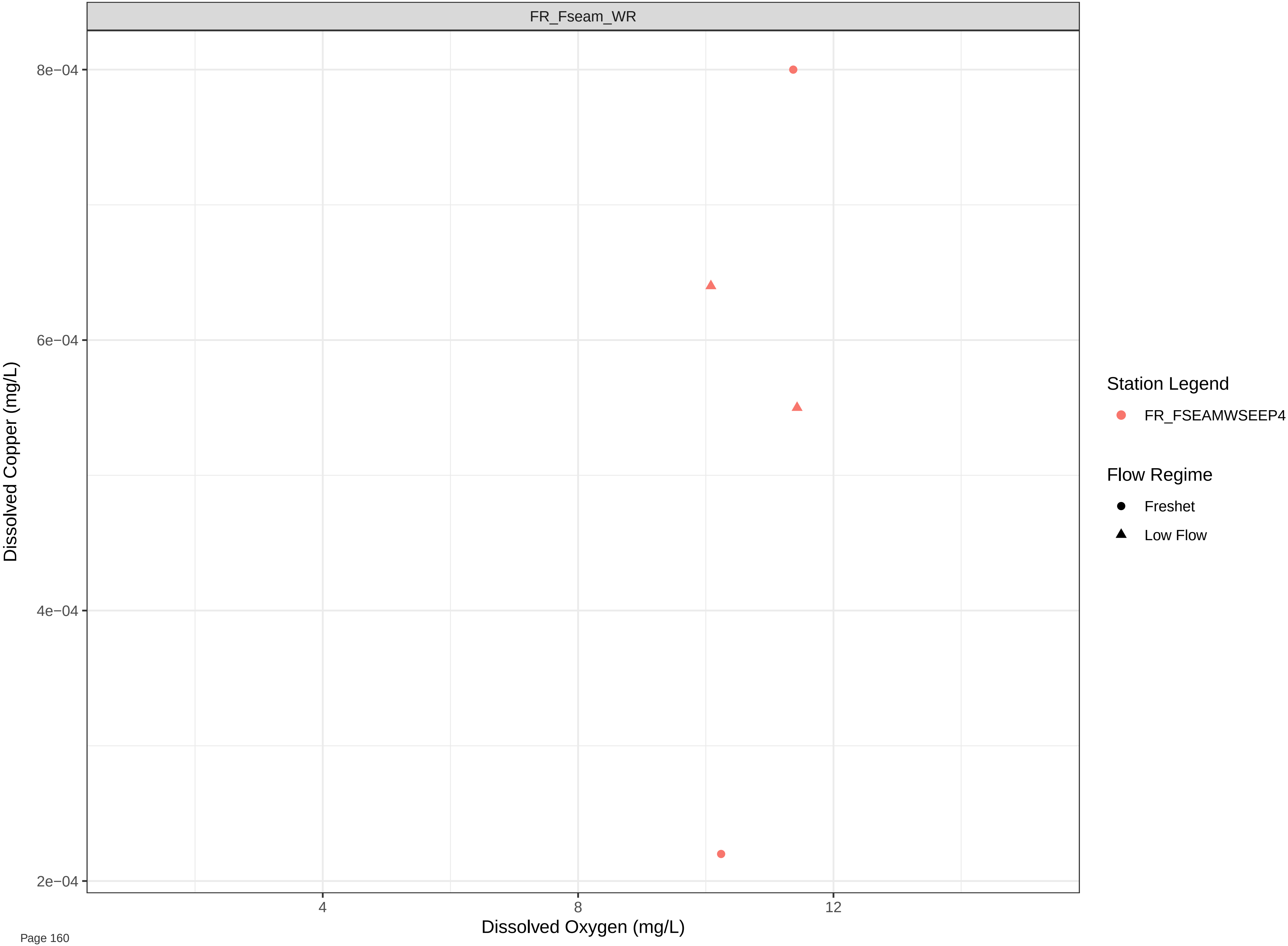

FR_A_WR
Dissolved Copper (mg/L)
0.00100
0.00095
0.00090
0.00085
0.00080
0.00075
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

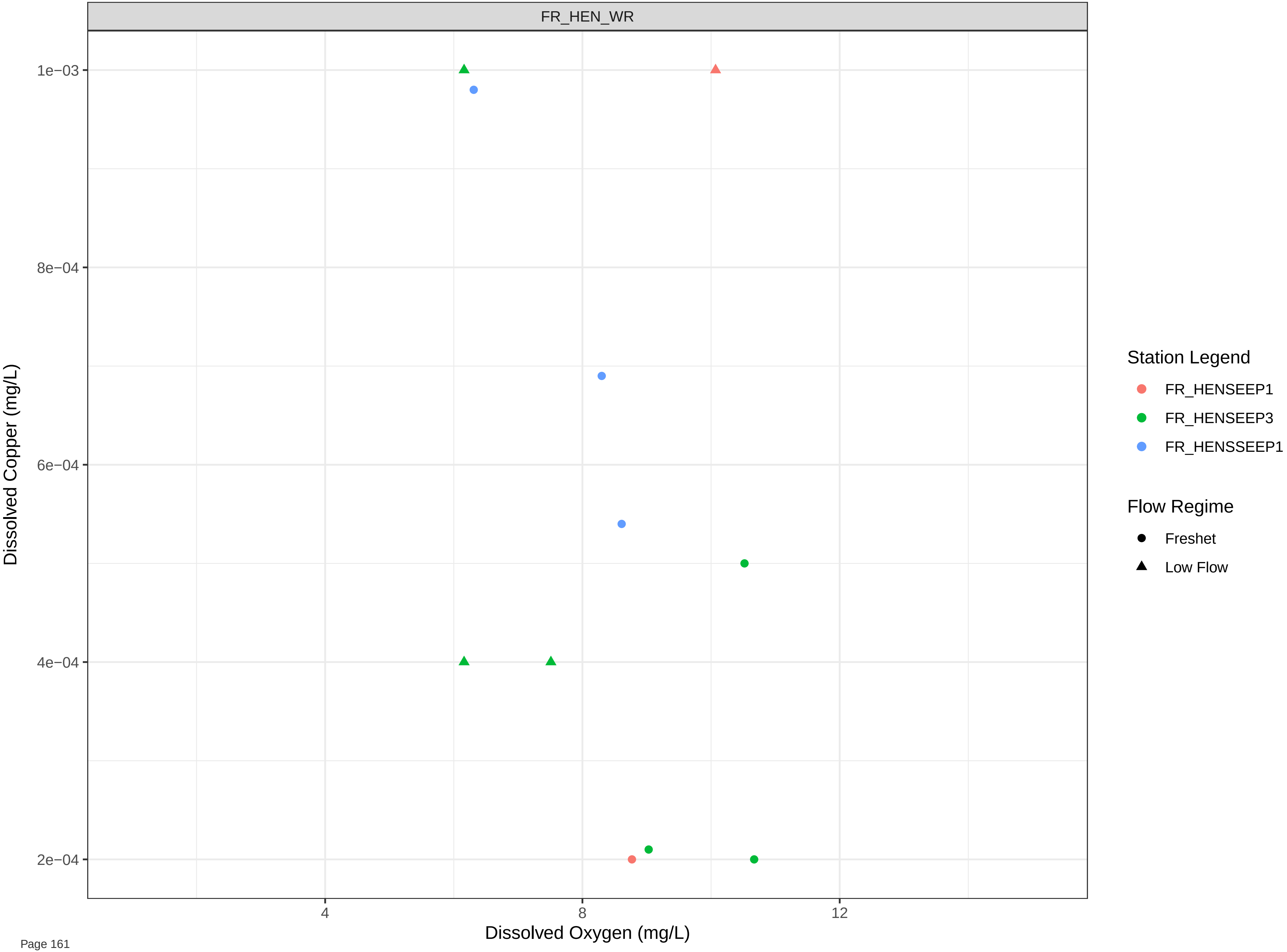

FR_Blain_CCR
1e−03
8e−04
6e−04
4e−04
Dissolved Copper (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow

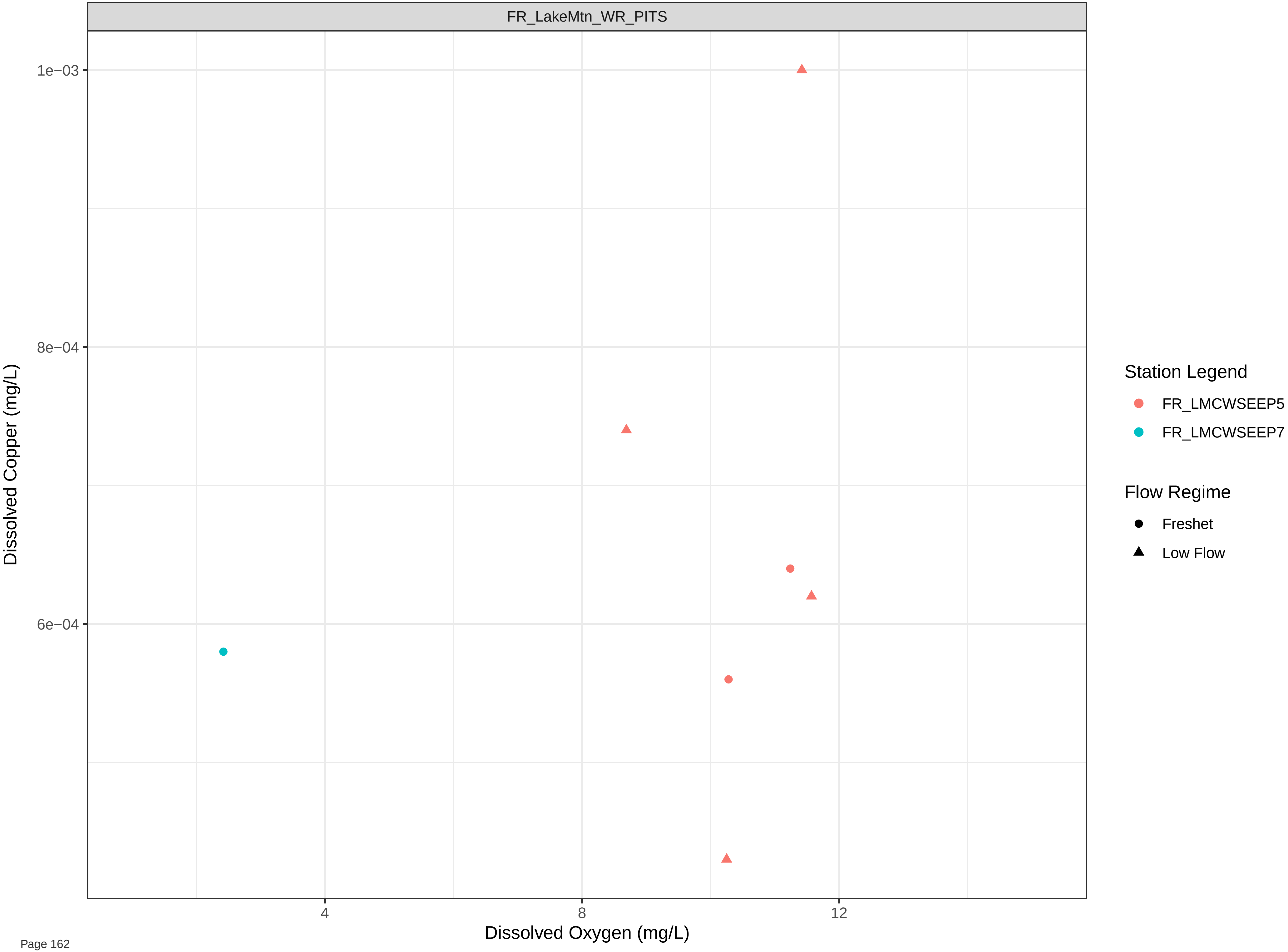

FR_ClodeCr_WR
Dissolved Copper (mg/L)
1e−03
8e−04
6e−04
4e−04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

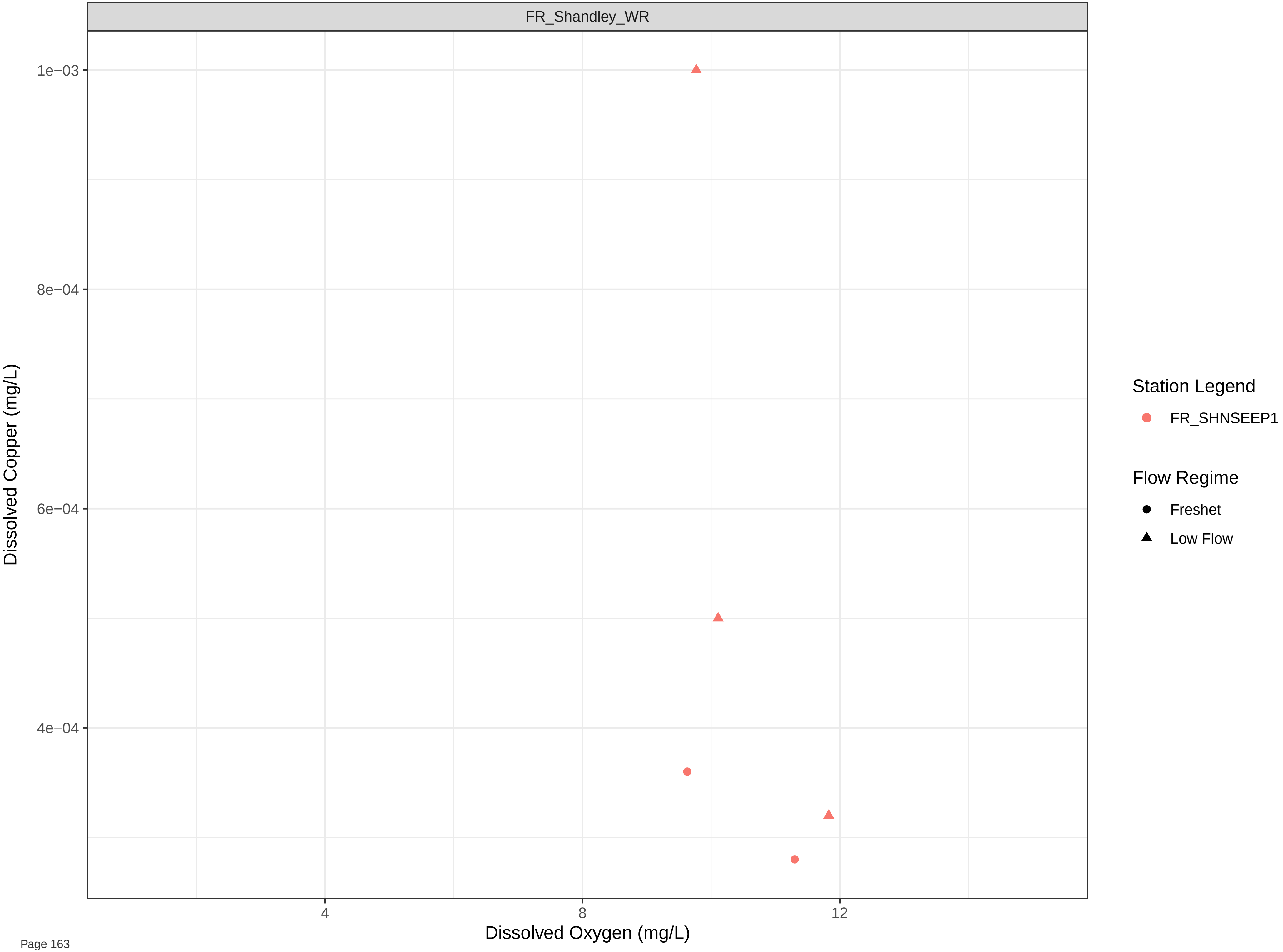

FR_DOKA_Unknown
Dissolved Copper (mg/L)
0.005
0.004
0.003
0.002
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

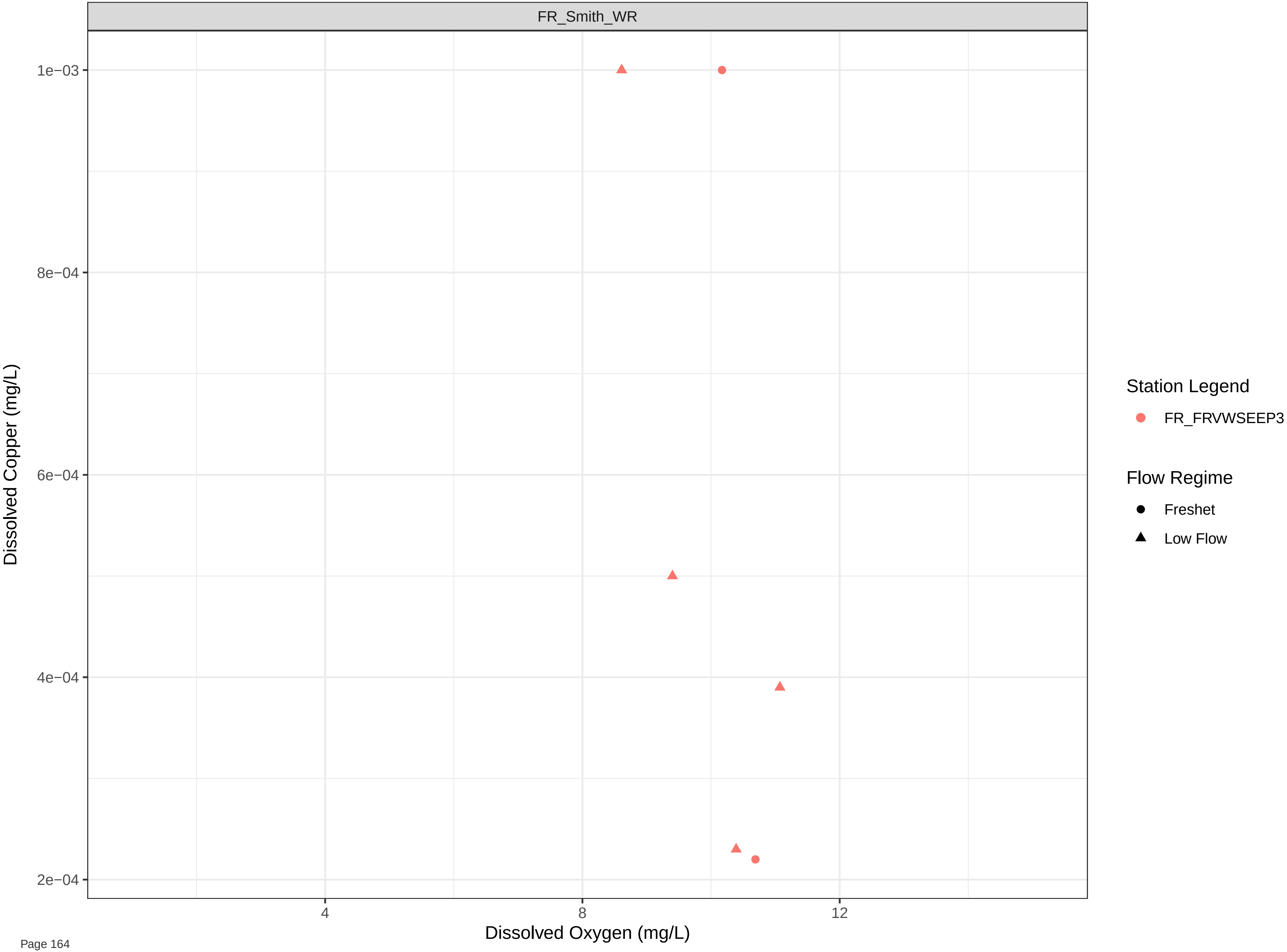

FR_Eagle_WR
Dissolved Copper (mg/L)
0.0020
0.0015
0.0010
0.0005
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

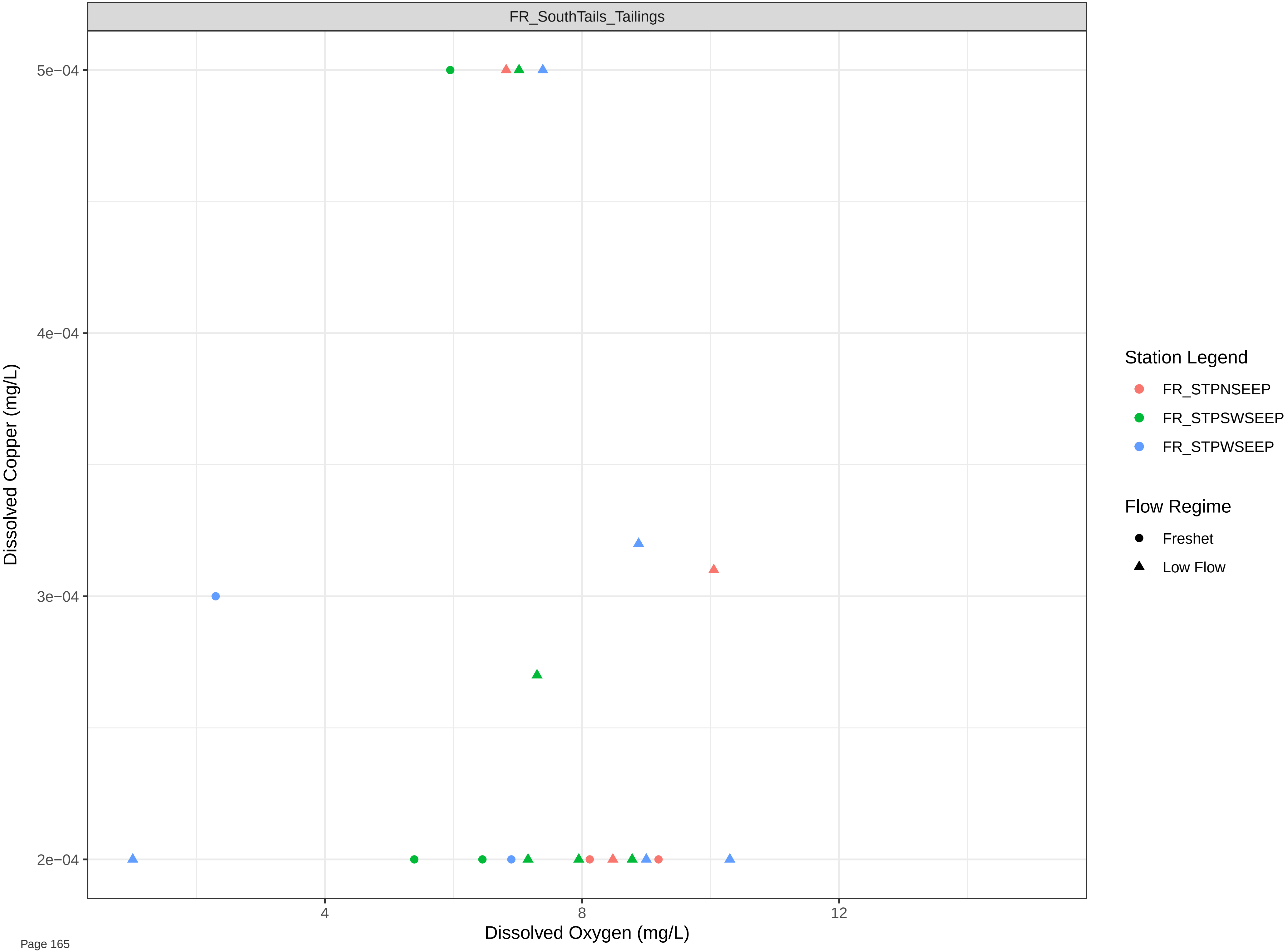

FR_Fseam_WR
Dissolved Copper (mg/L)
8e−04
6e−04
4e−04
2e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

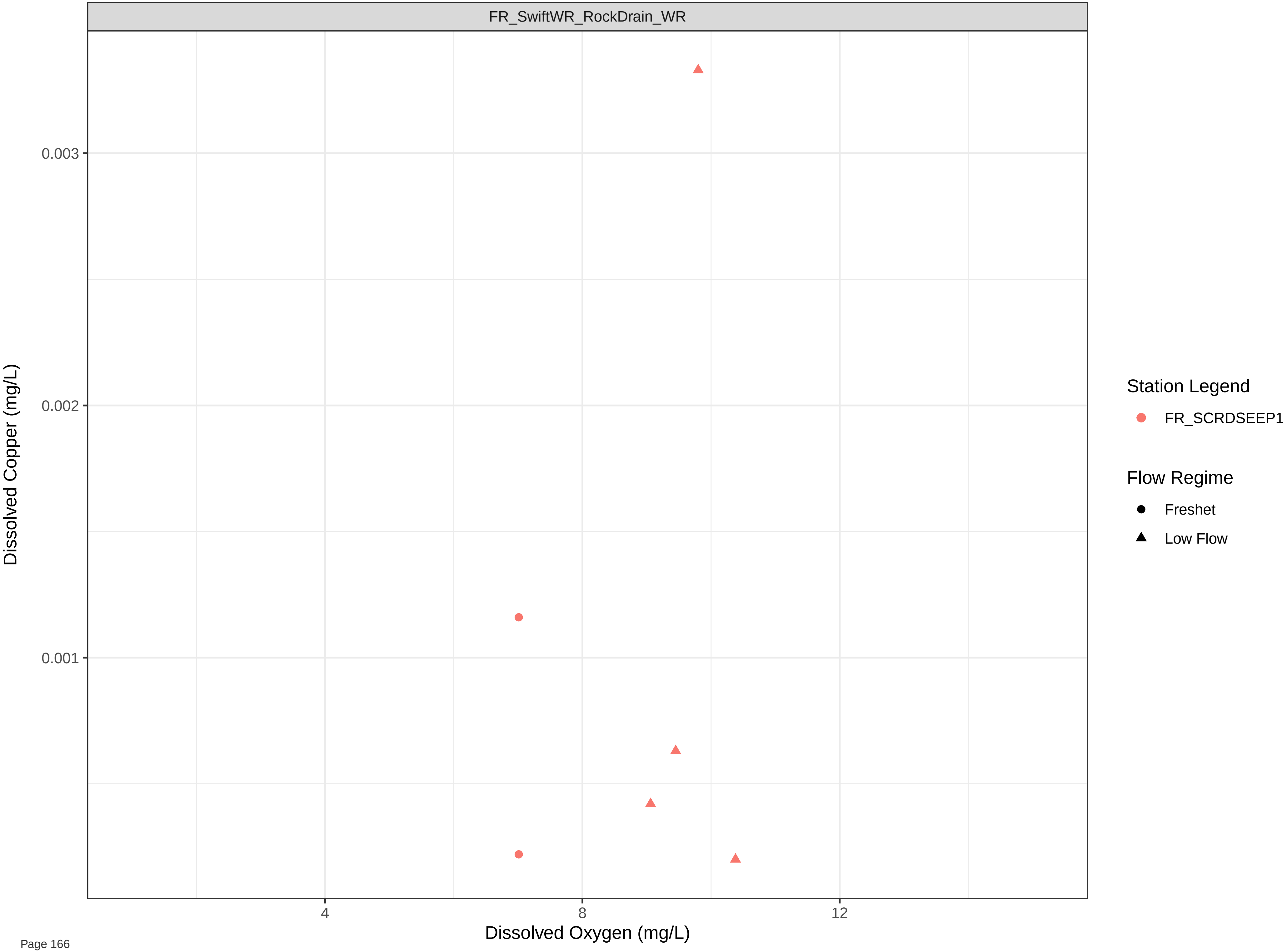

FR_HEN_WR
1e−03
8e−04
6e−04
4e−04
2e−04
Dissolved Copper (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

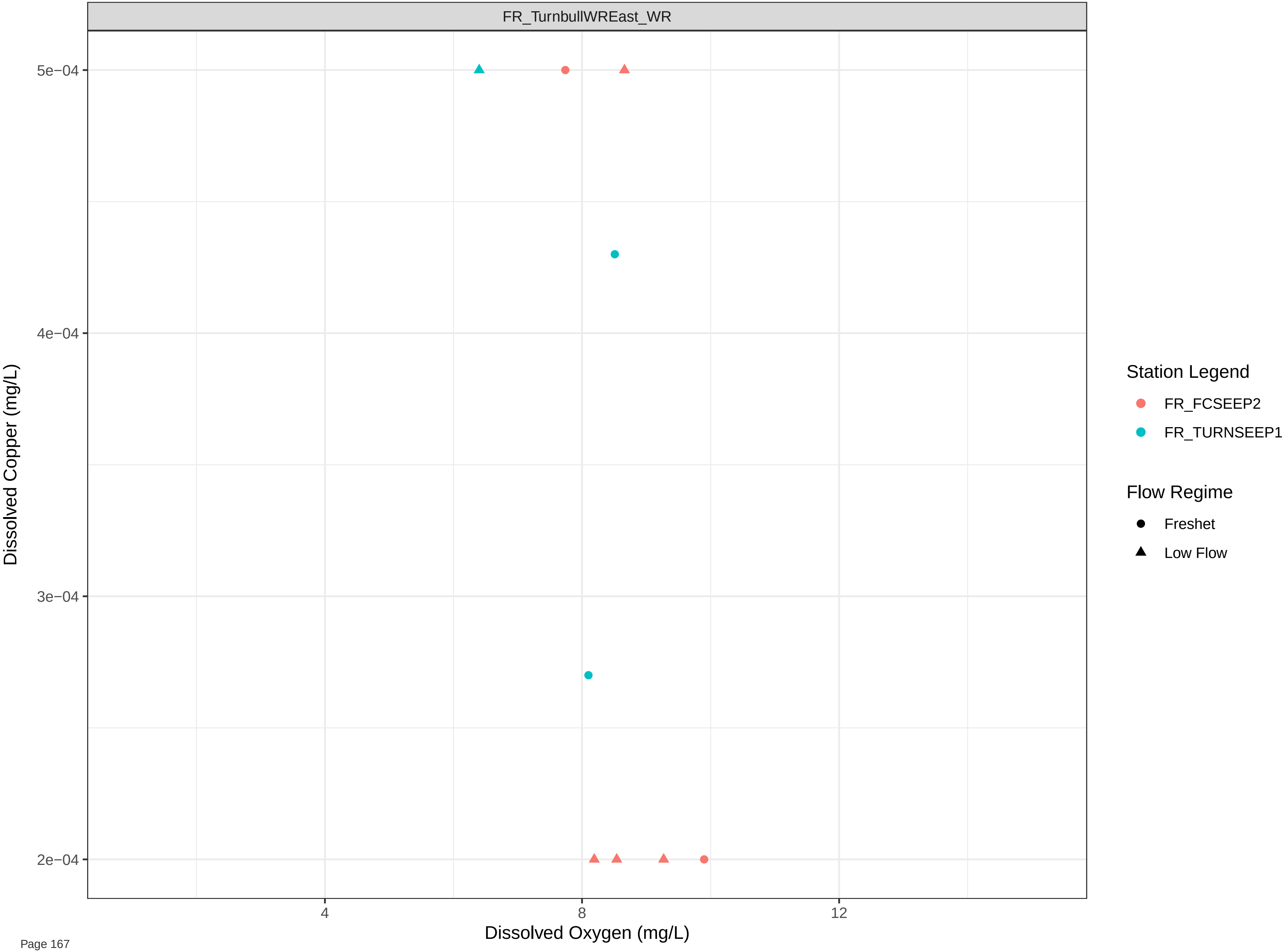

FR_LakeMtn_WR_PITS
1e−03
8e−04
6e−04
Dissolved Copper (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

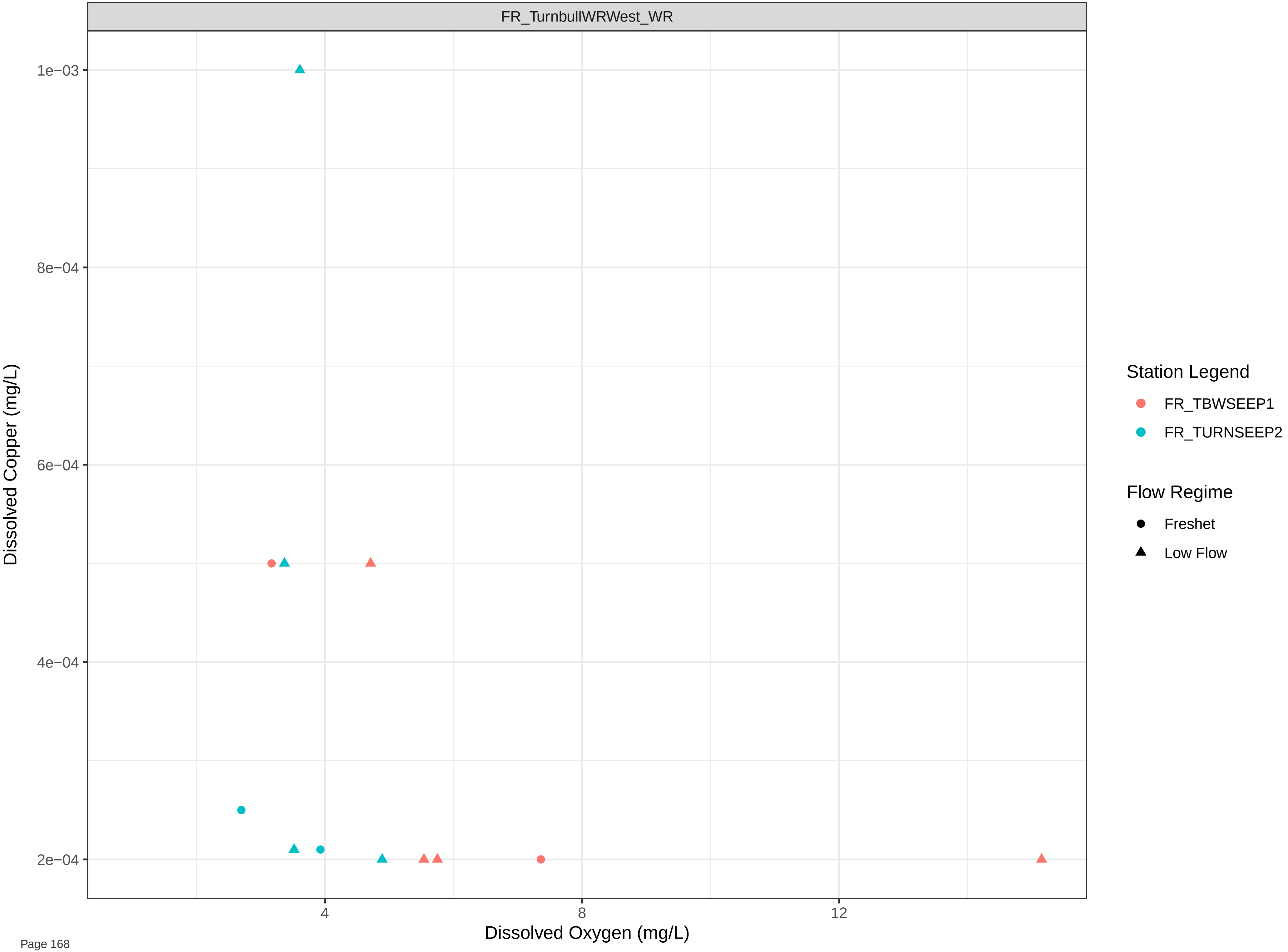

FR_Shandley_WR
Dissolved Copper (mg/L)
1e−03
8e−04
6e−04
4e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

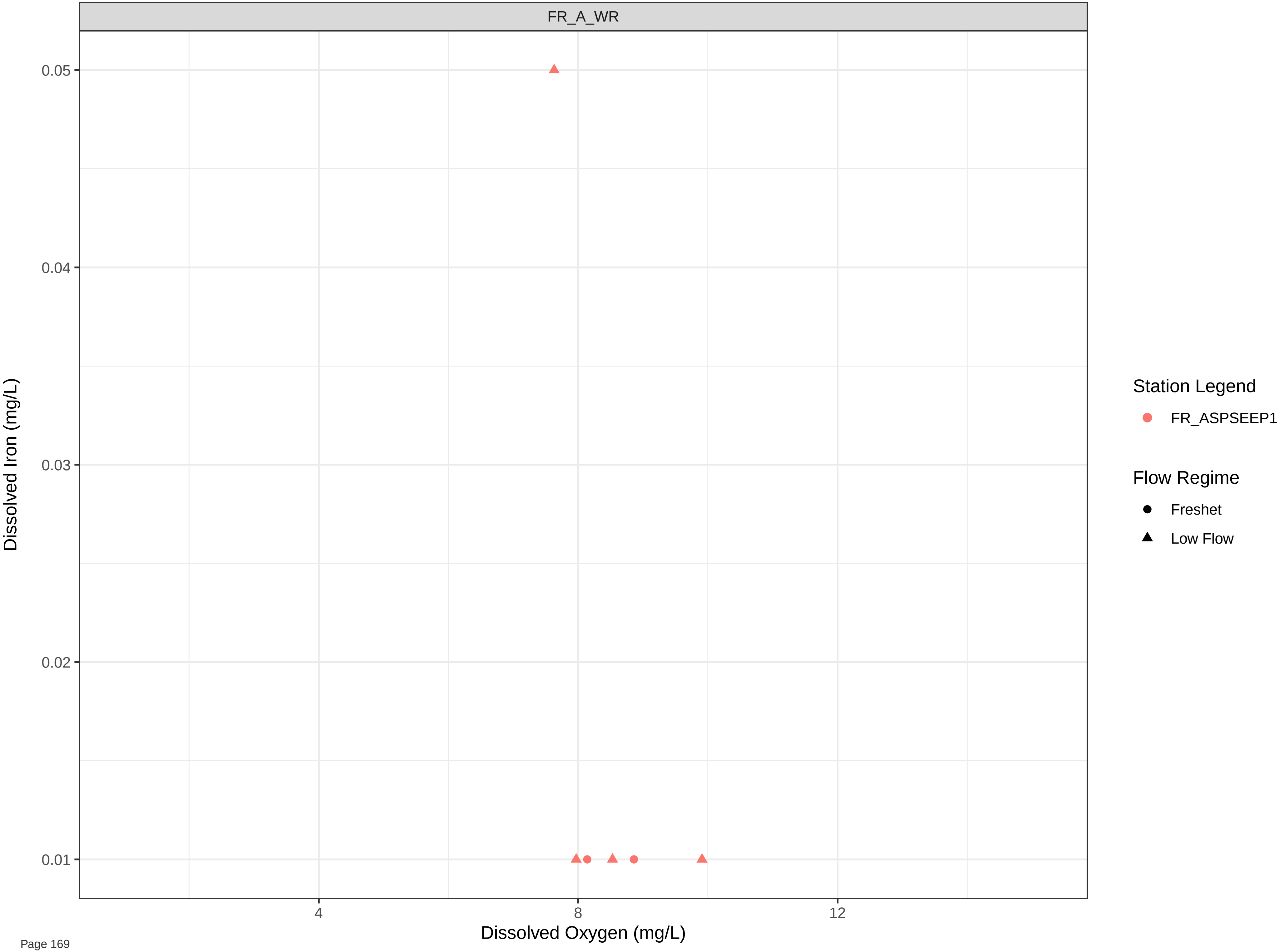

FR_Smith_WR
Dissolved Copper (mg/L)
1e−03
8e−04
6e−04
4e−04
2e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

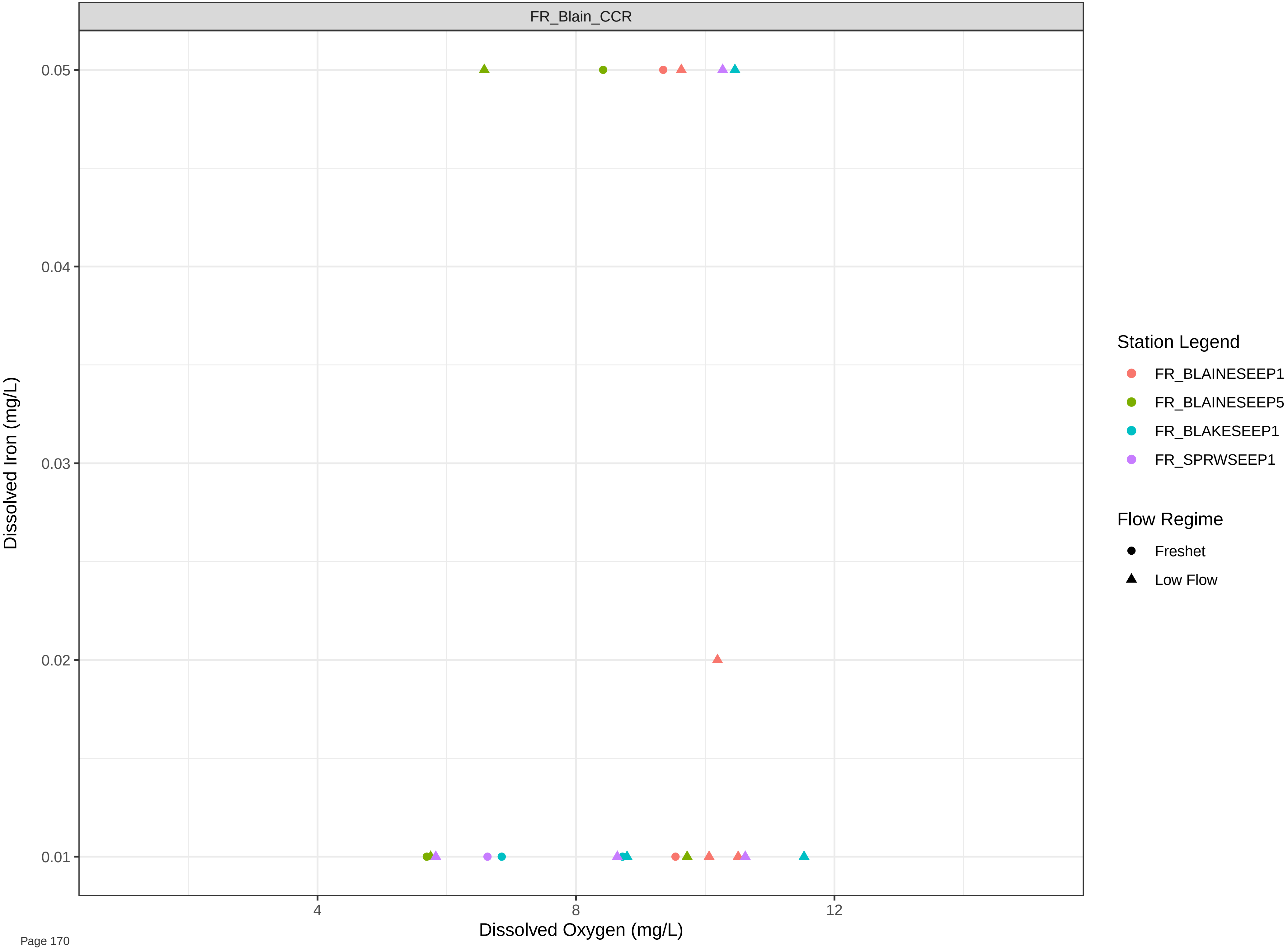

FR_SouthTails_Tailings
Dissolved Copper (mg/L)
5e−04
4e−04
3e−04
2e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

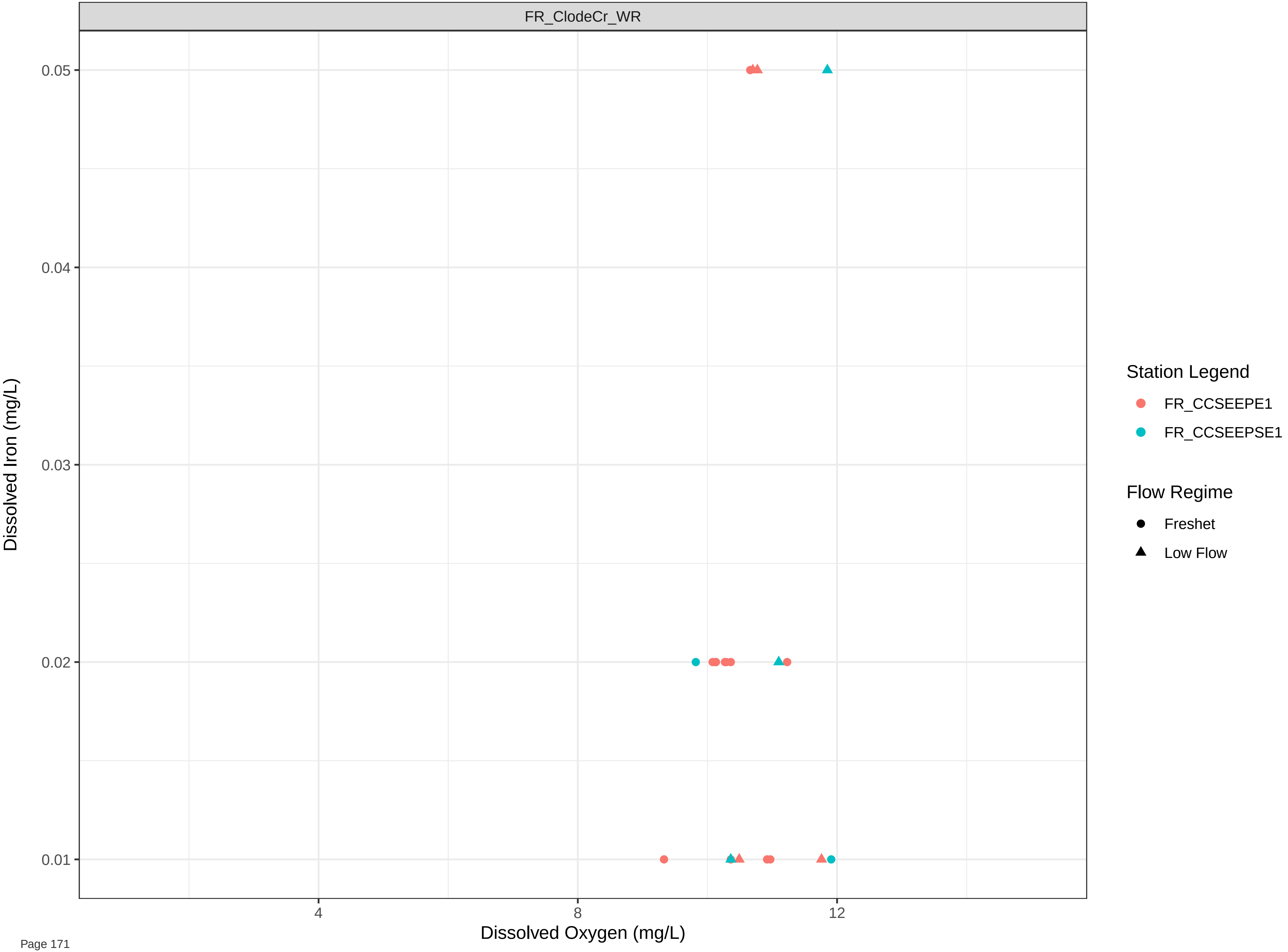

FR_SwiftWR_RockDrain_WR
Dissolved Copper (mg/L)
0.003
0.002
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

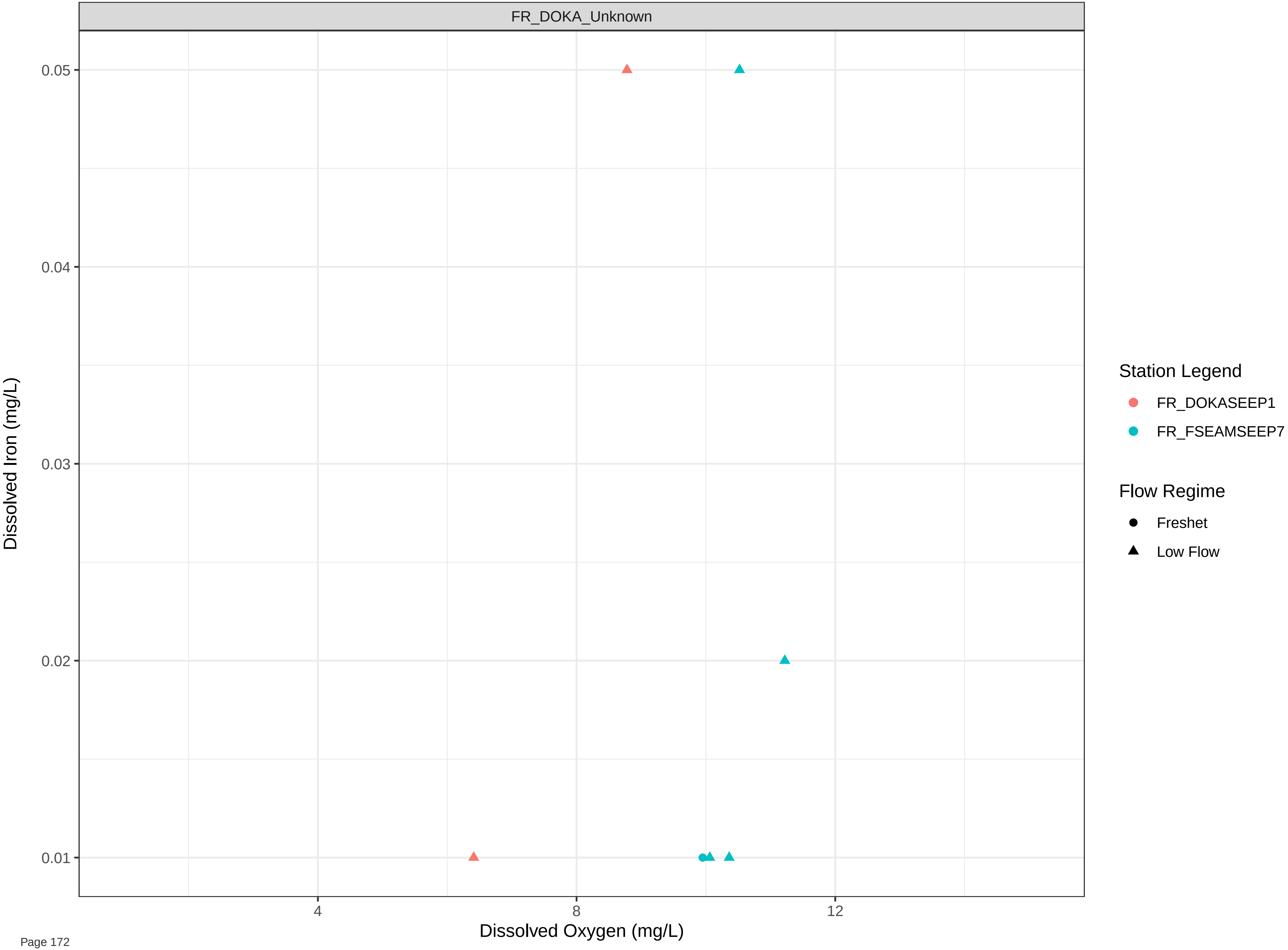

FR_TurnbullWREast_WR
5e−04
4e−04
3e−04
2e−04
Dissolved Copper (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

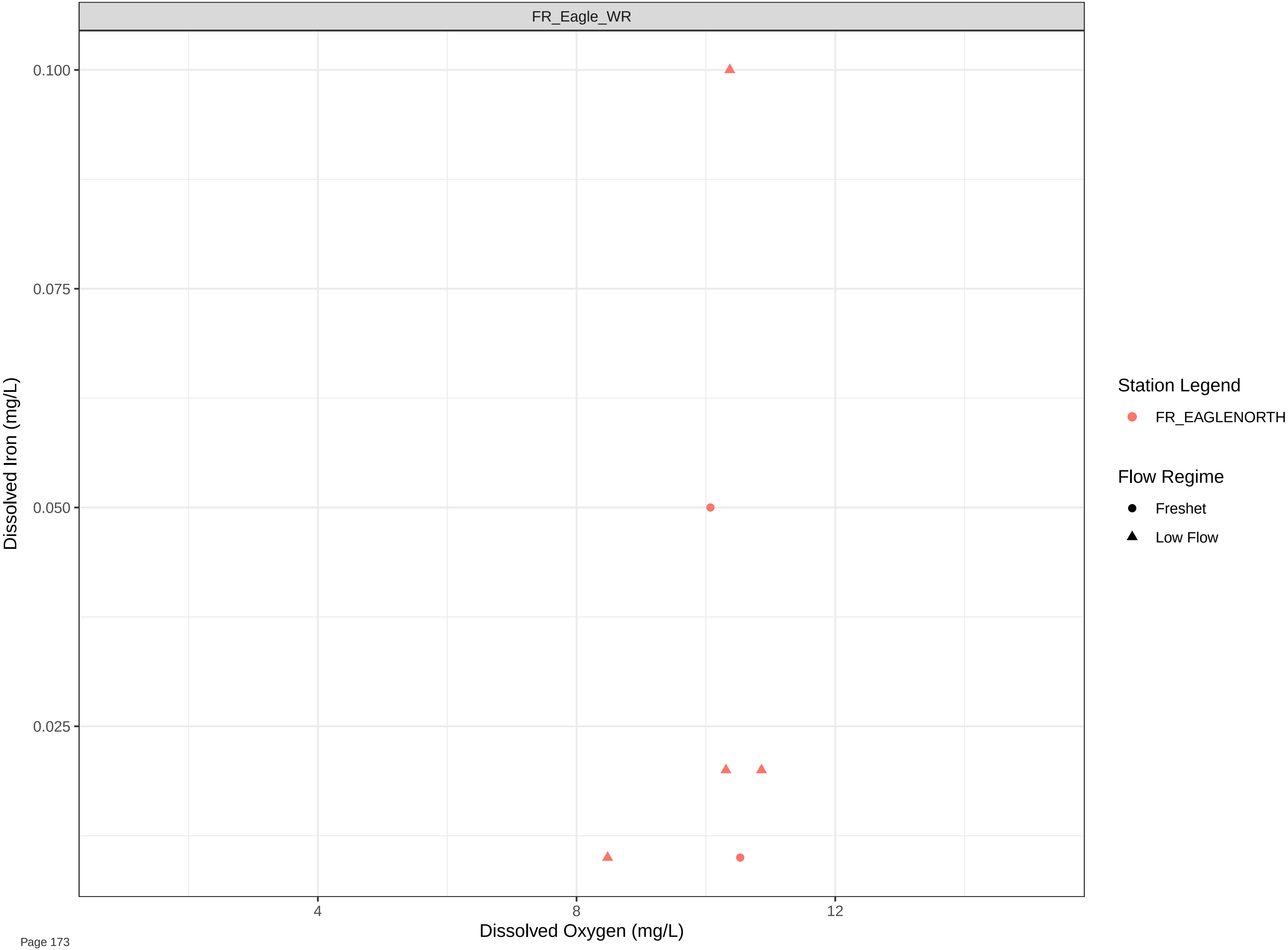

FR_TurnbullWRWest_WR
Dissolved Copper (mg/L)
1e−03
8e−04
6e−04
4e−04
2e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

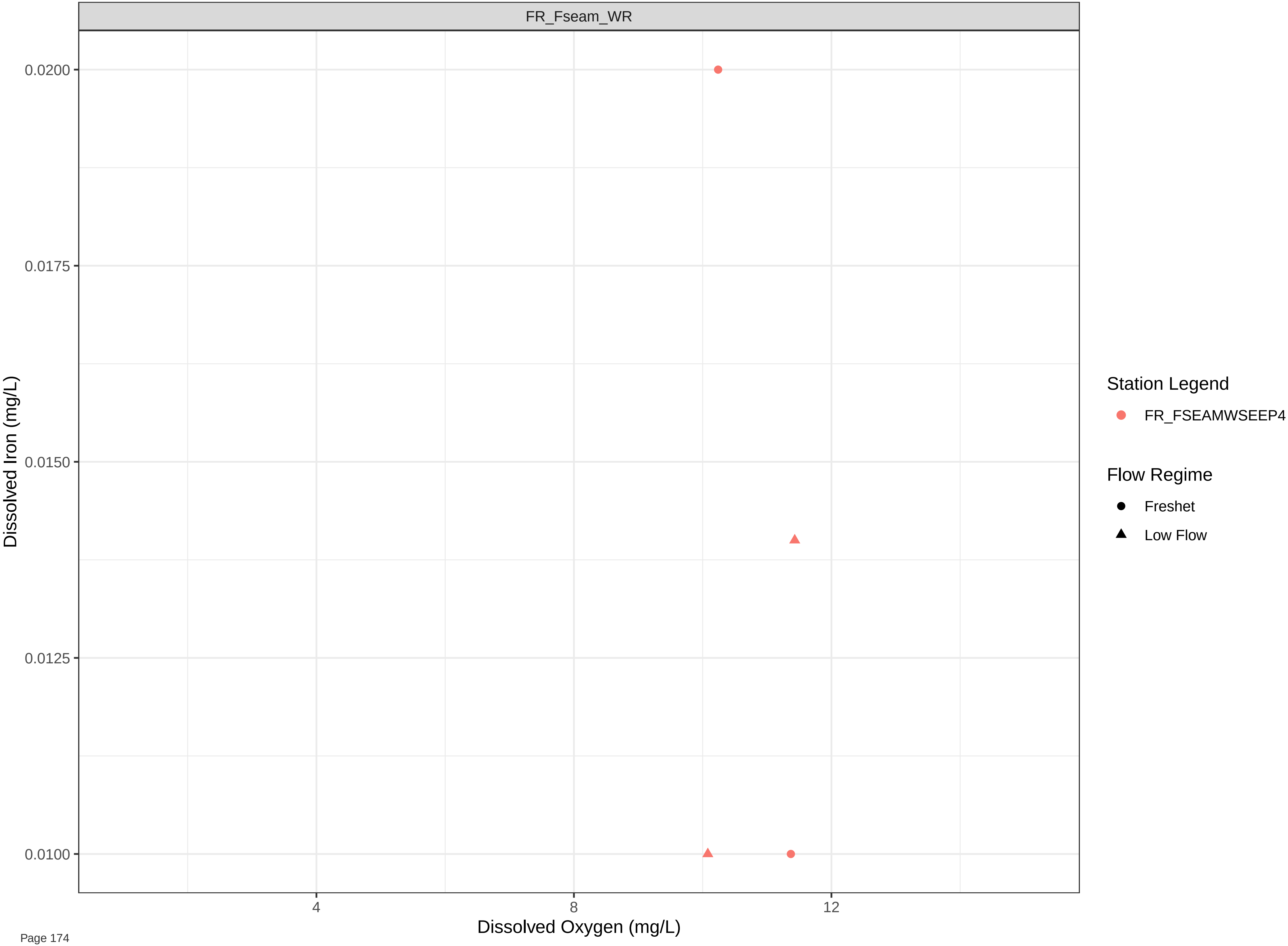

FR_A_WR
Dissolved Iron (mg/L)
0.05
0.04
0.03
0.02
0.01
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

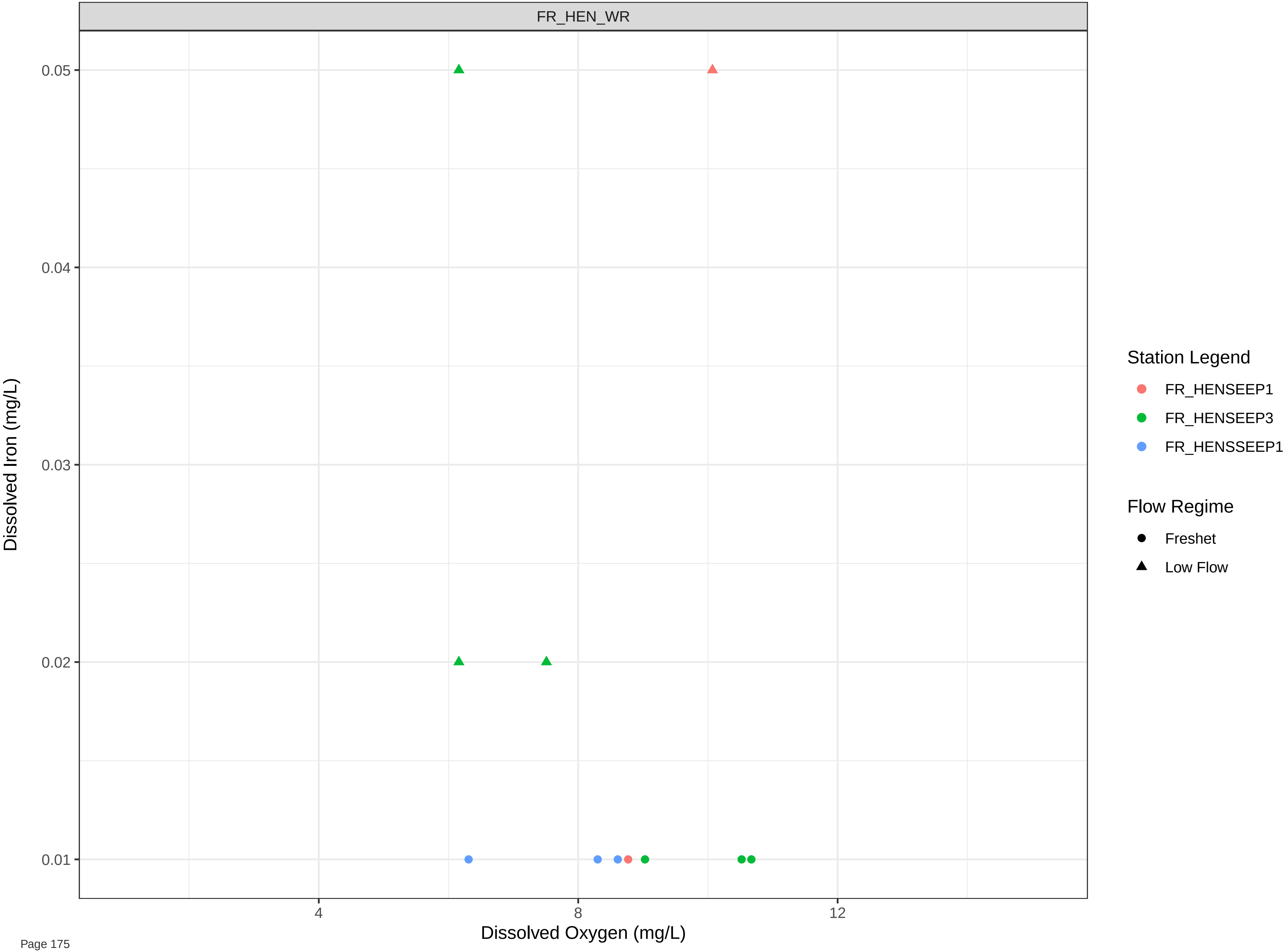

FR_Blain_CCR
Dissolved Iron (mg/L)
0.05
0.04
0.03
0.02
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow

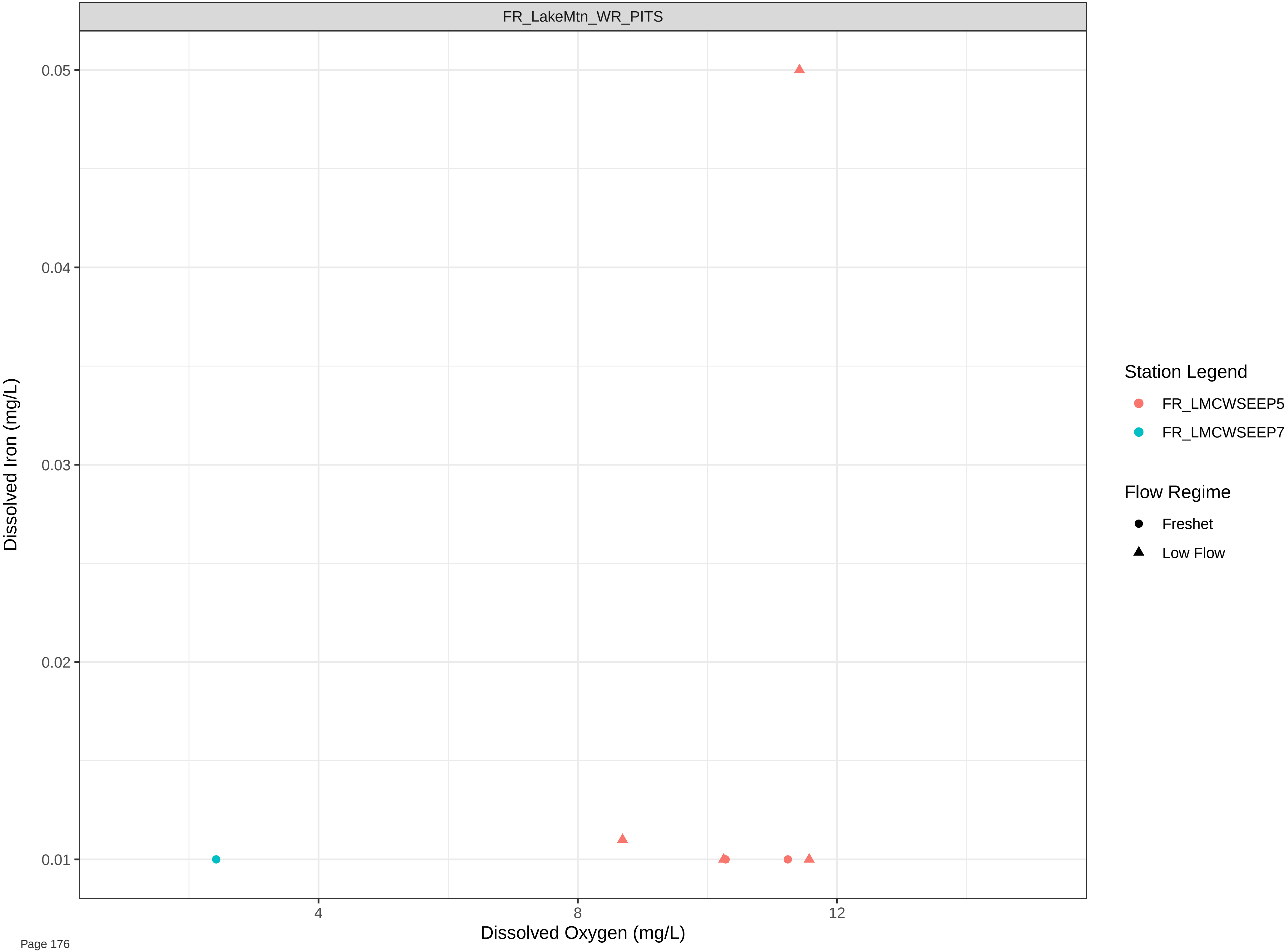

FR_ClodeCr_WR
Dissolved Iron (mg/L)
0.05
0.04
0.03
0.02
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

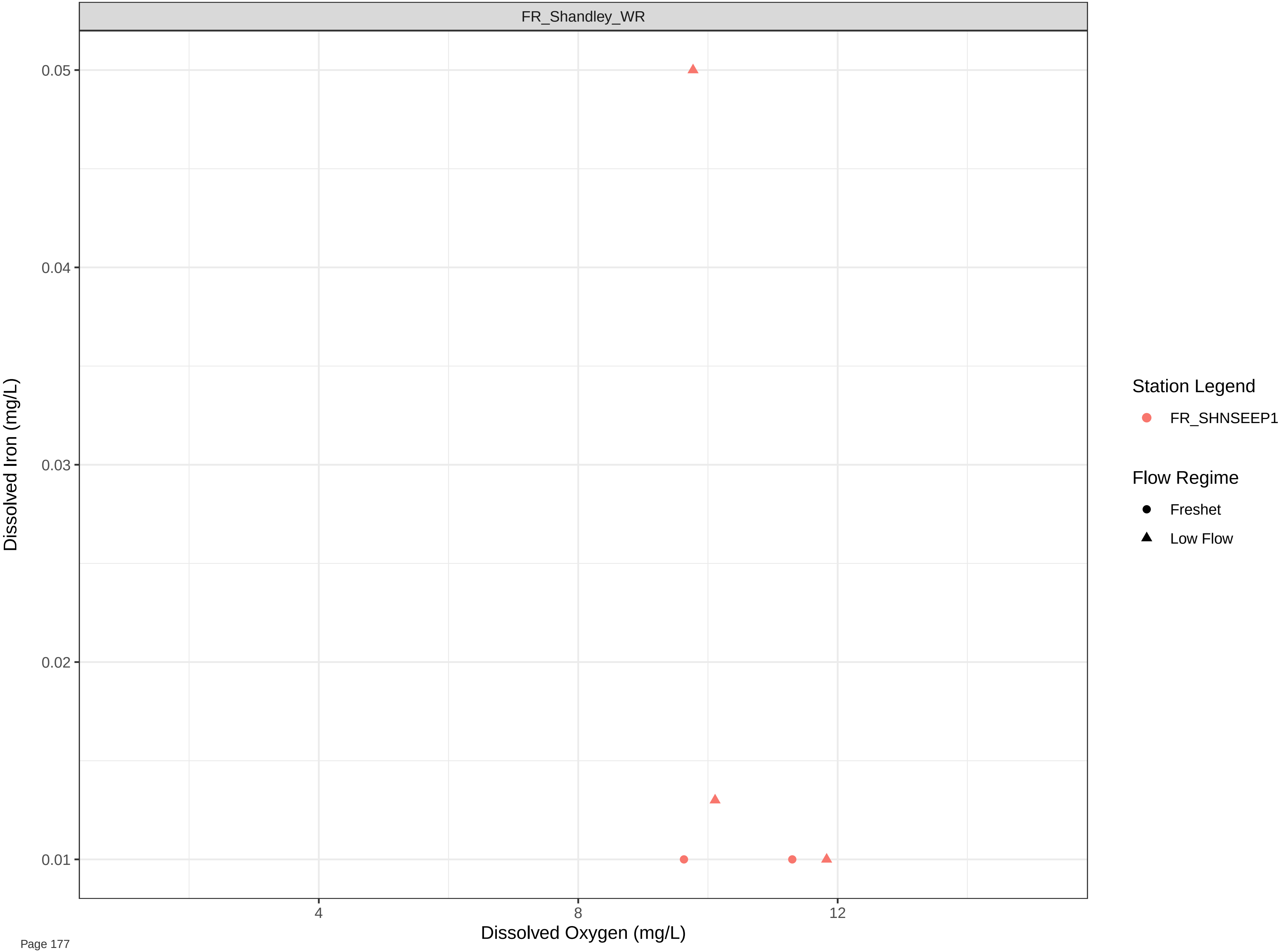

FR_DOKA_Unknown
Dissolved Iron (mg/L)
0.05
0.04
0.03
0.02
0.01
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

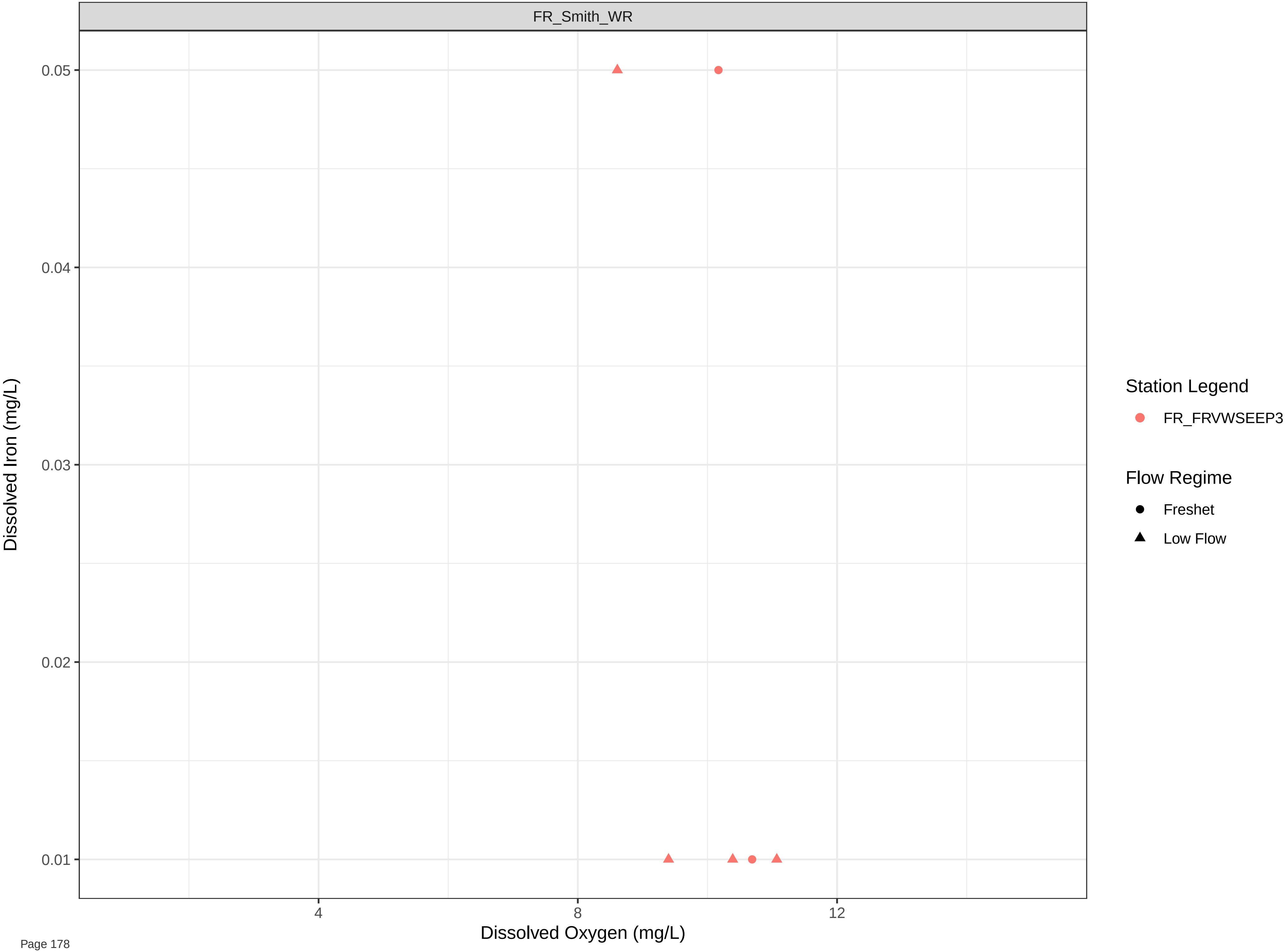

FR_Eagle_WR
0.100
0.075
0.050
0.025
Dissolved Iron (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

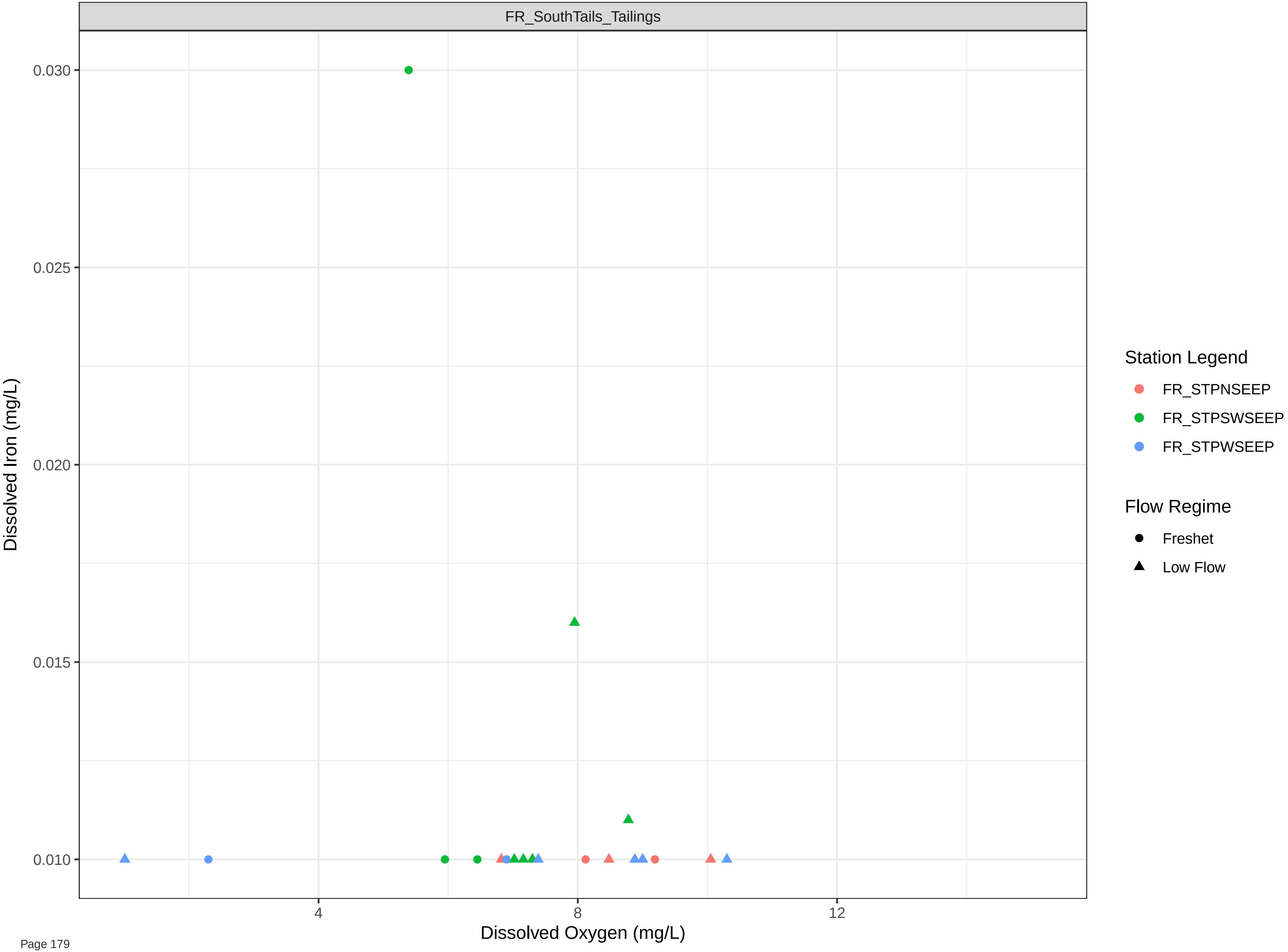

FR_Fseam_WR
0.0200
0.0175
0.0150
0.0125
0.0100
Dissolved Iron (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

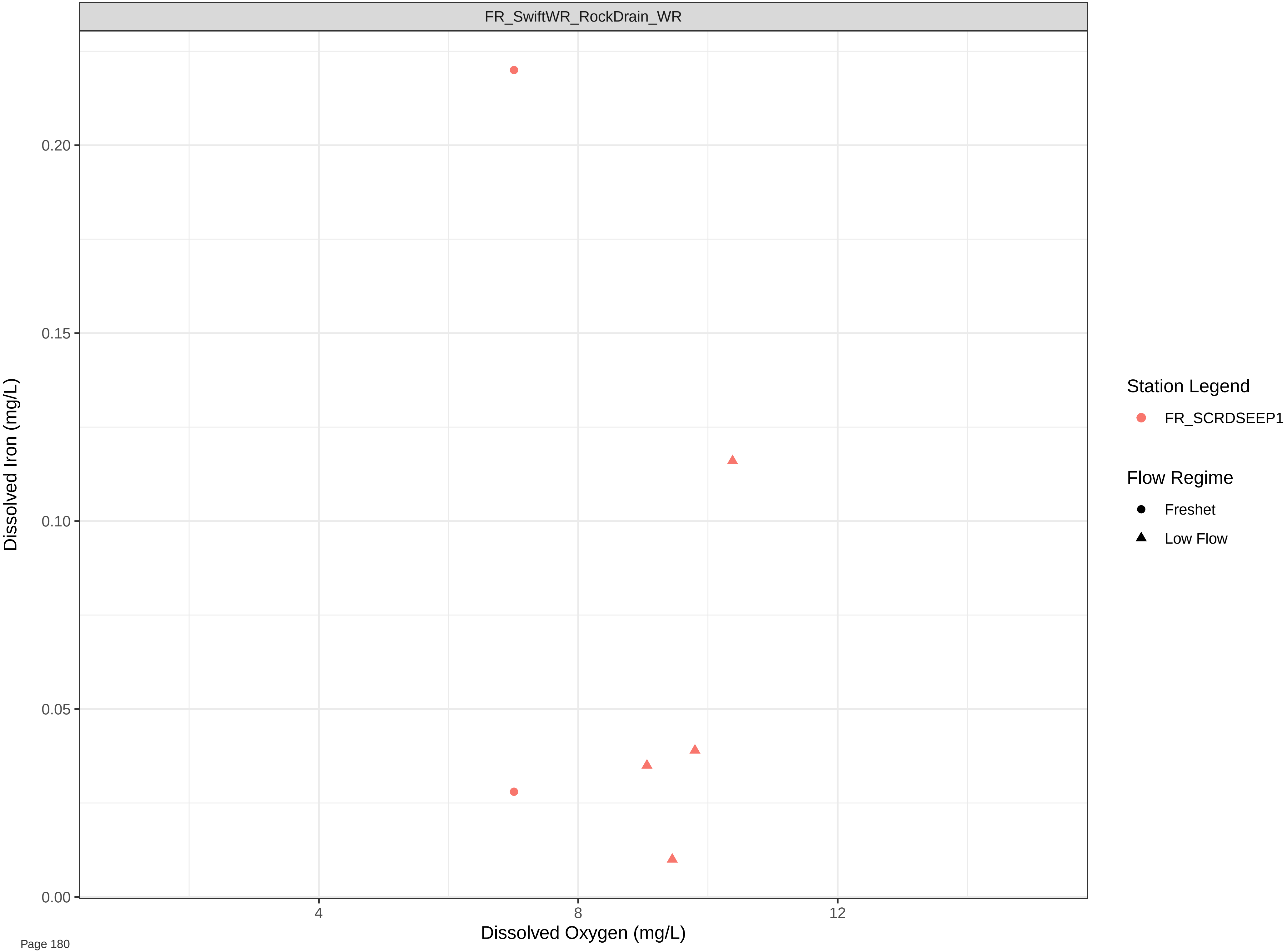

FR_HEN_WR
Dissolved Iron (mg/L)
0.05
0.04
0.03
0.02
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

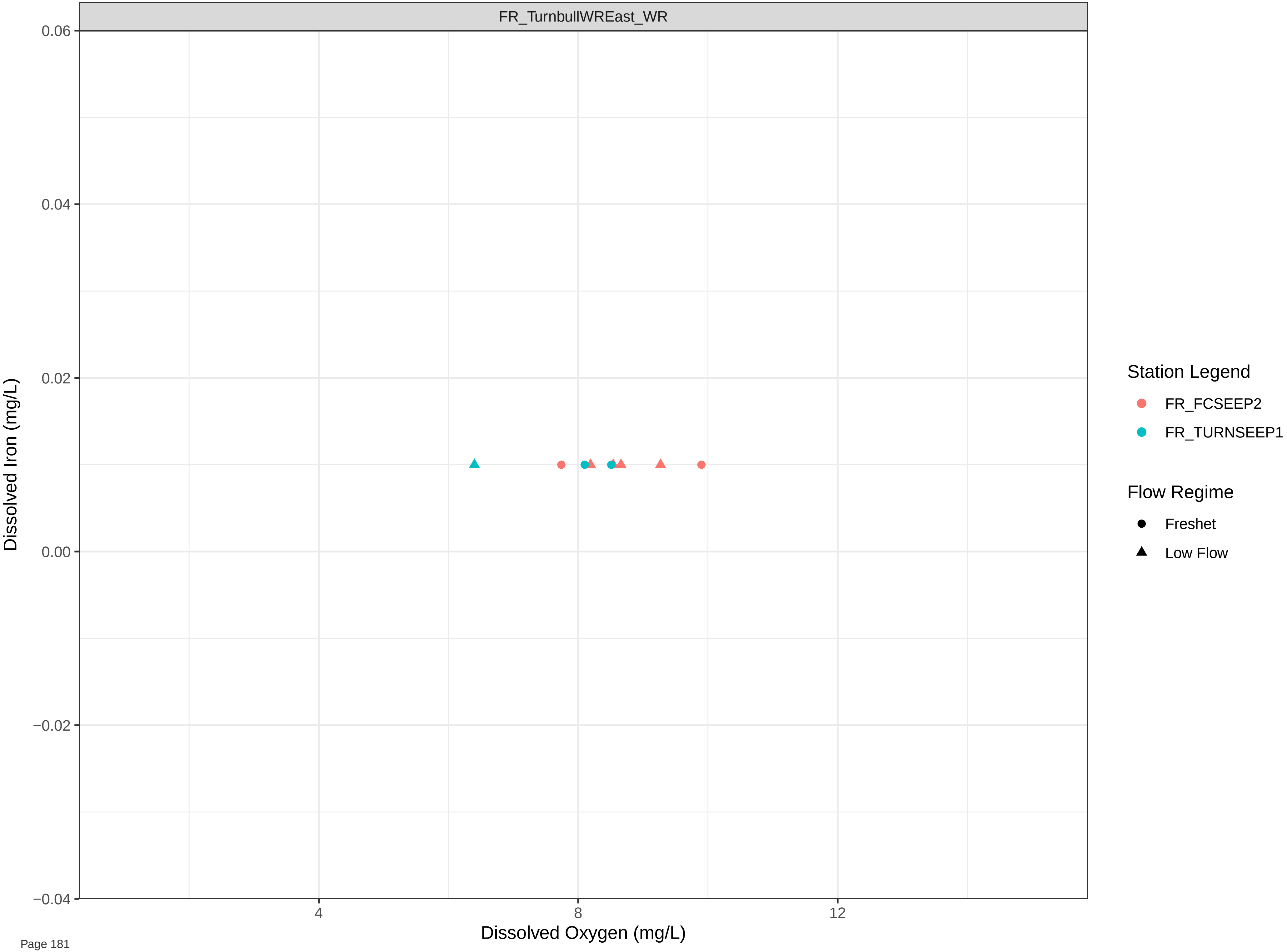

FR_LakeMtn_WR_PITS
Dissolved Iron (mg/L)
0.05
0.04
0.03
0.02
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

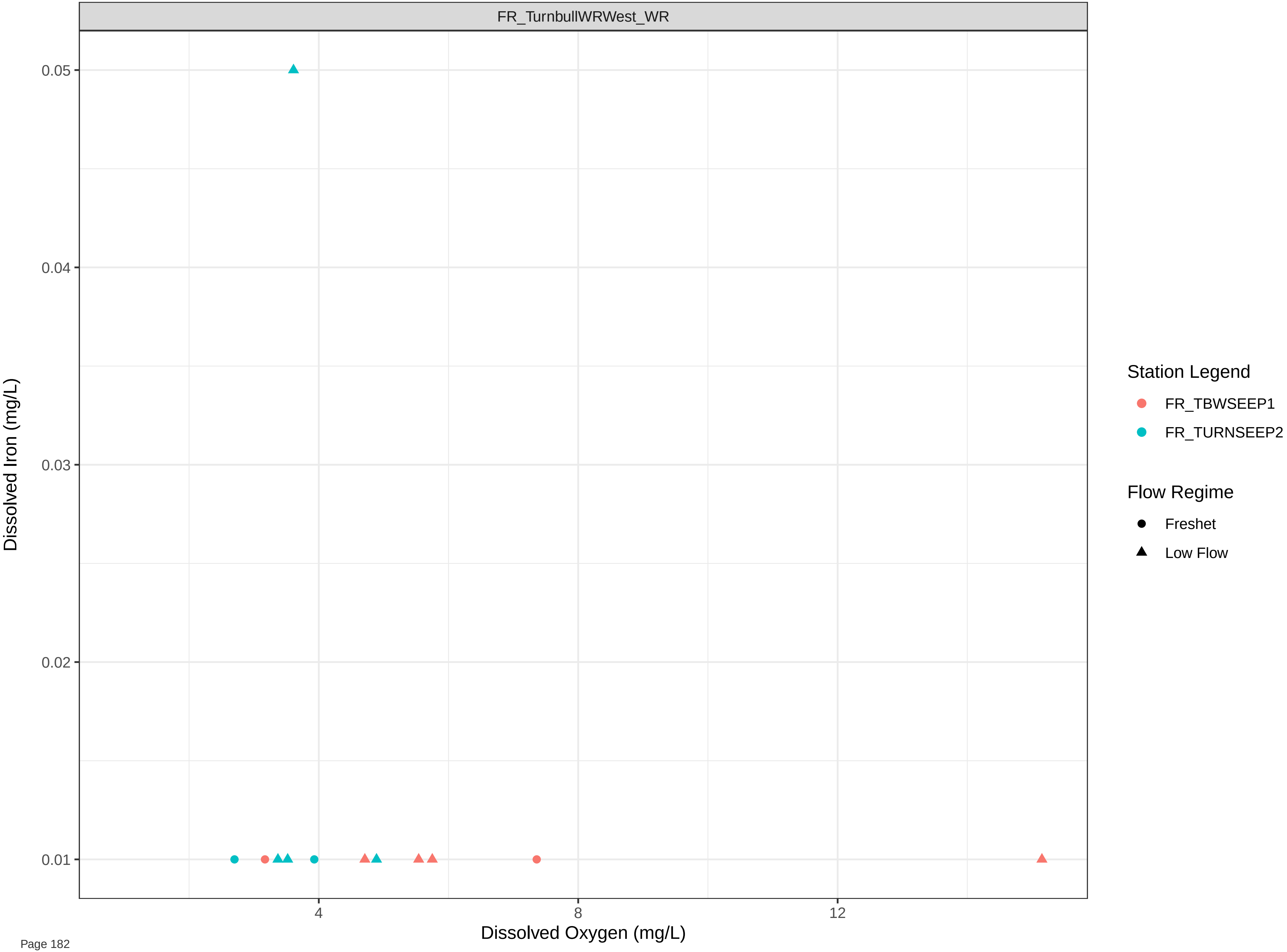

FR_Shandley_WR
Dissolved Iron (mg/L)
0.05
0.04
0.03
0.02
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

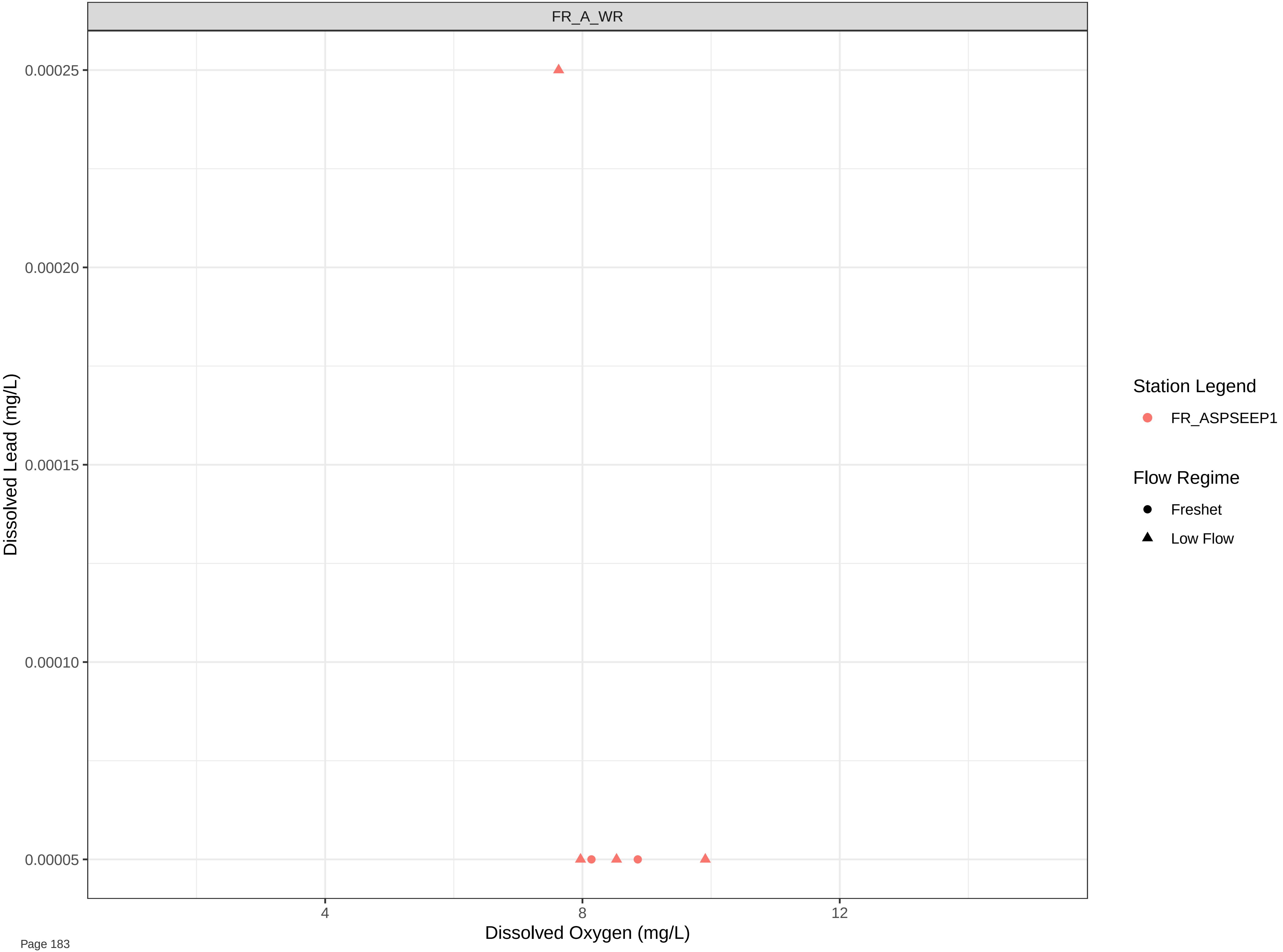

FR_Smith_WR
0.05
0.04
0.03
0.02
0.01
Dissolved Iron (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

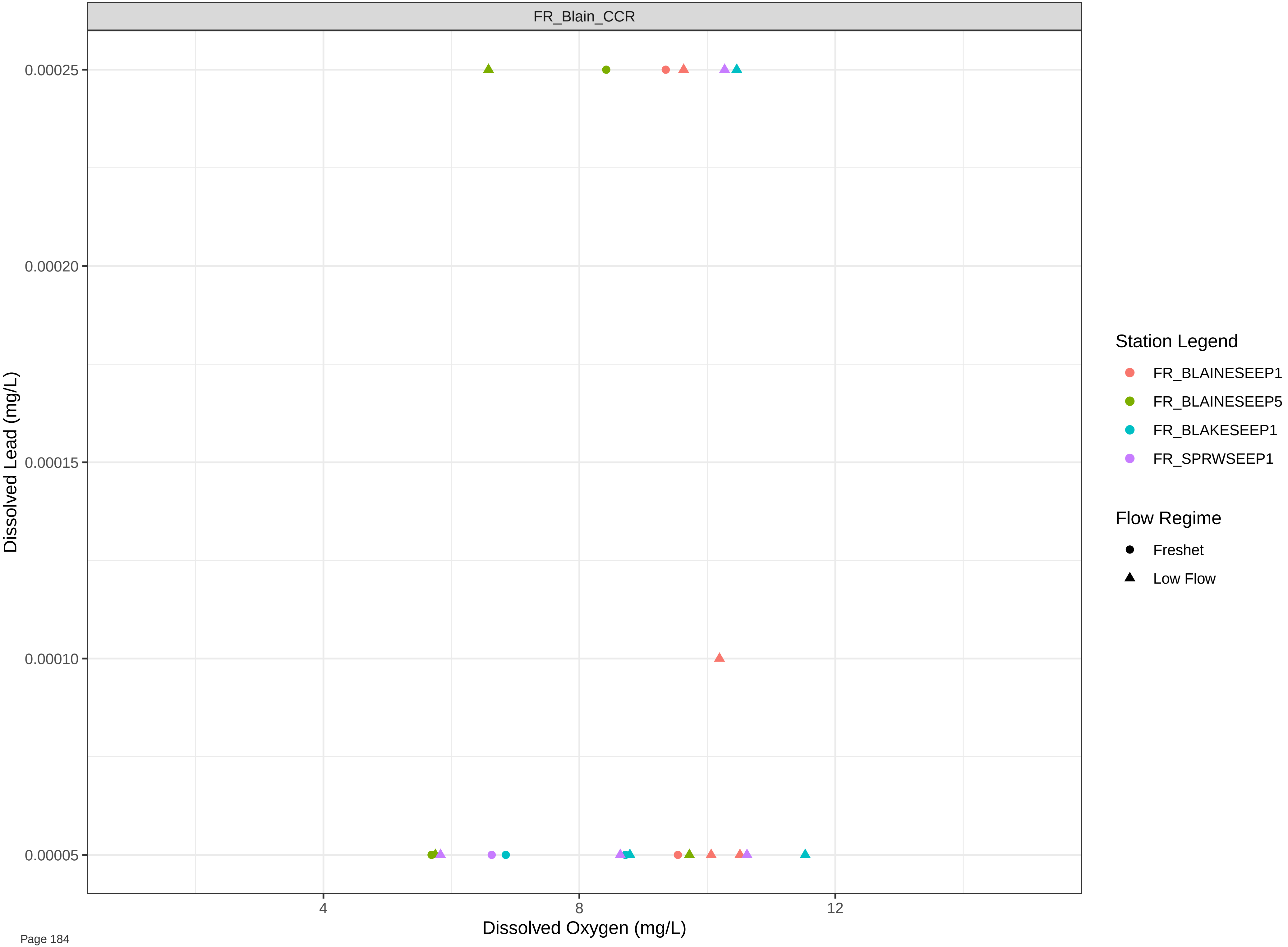

FR_SouthTails_Tailings
Dissolved Iron (mg/L)
0.030
0.025
0.020
0.015
0.010
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

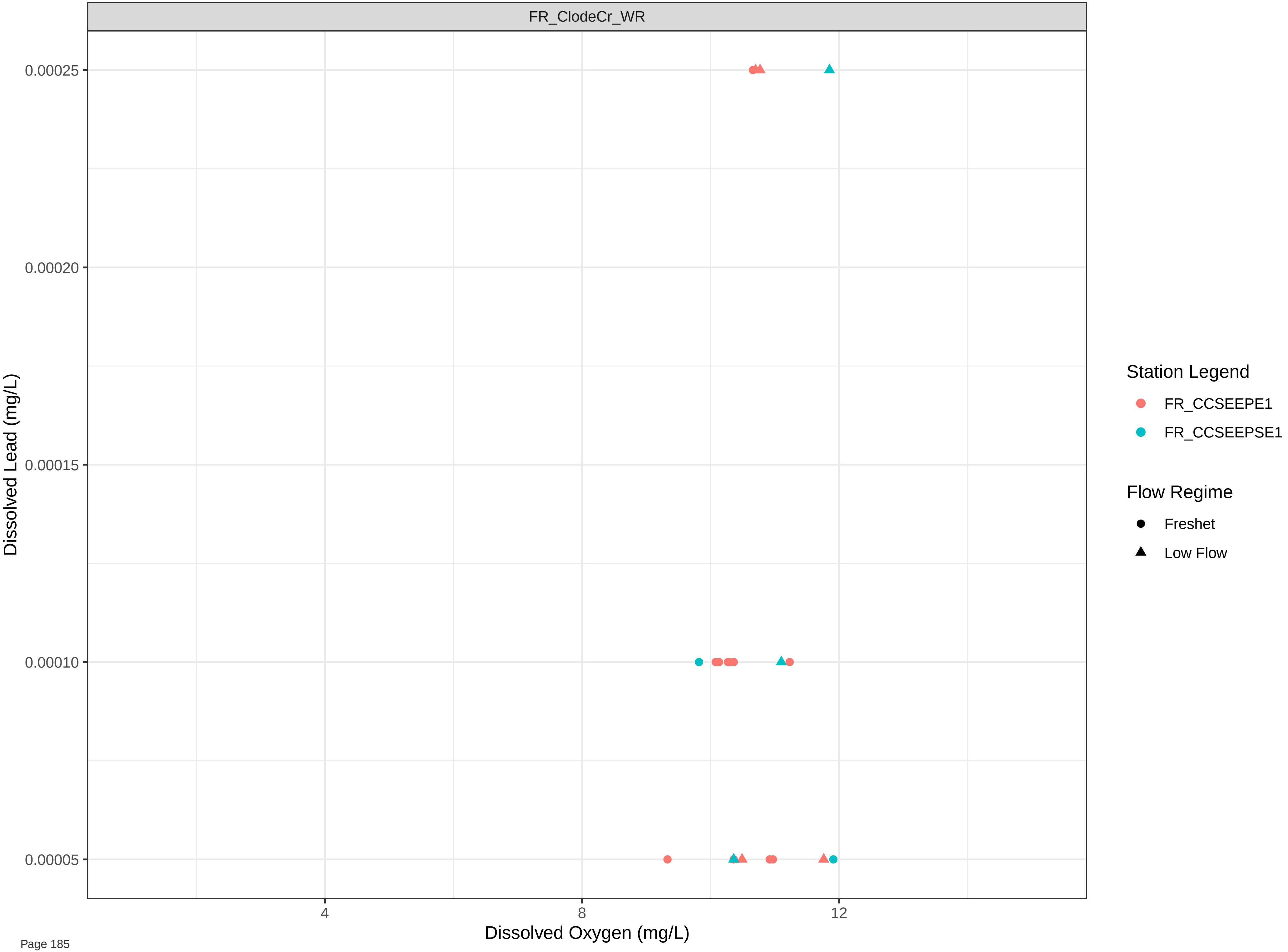

FR_SwiftWR_RockDrain_WR
Dissolved Iron (mg/L)
0.20
0.15
0.10
0.05
0.00
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

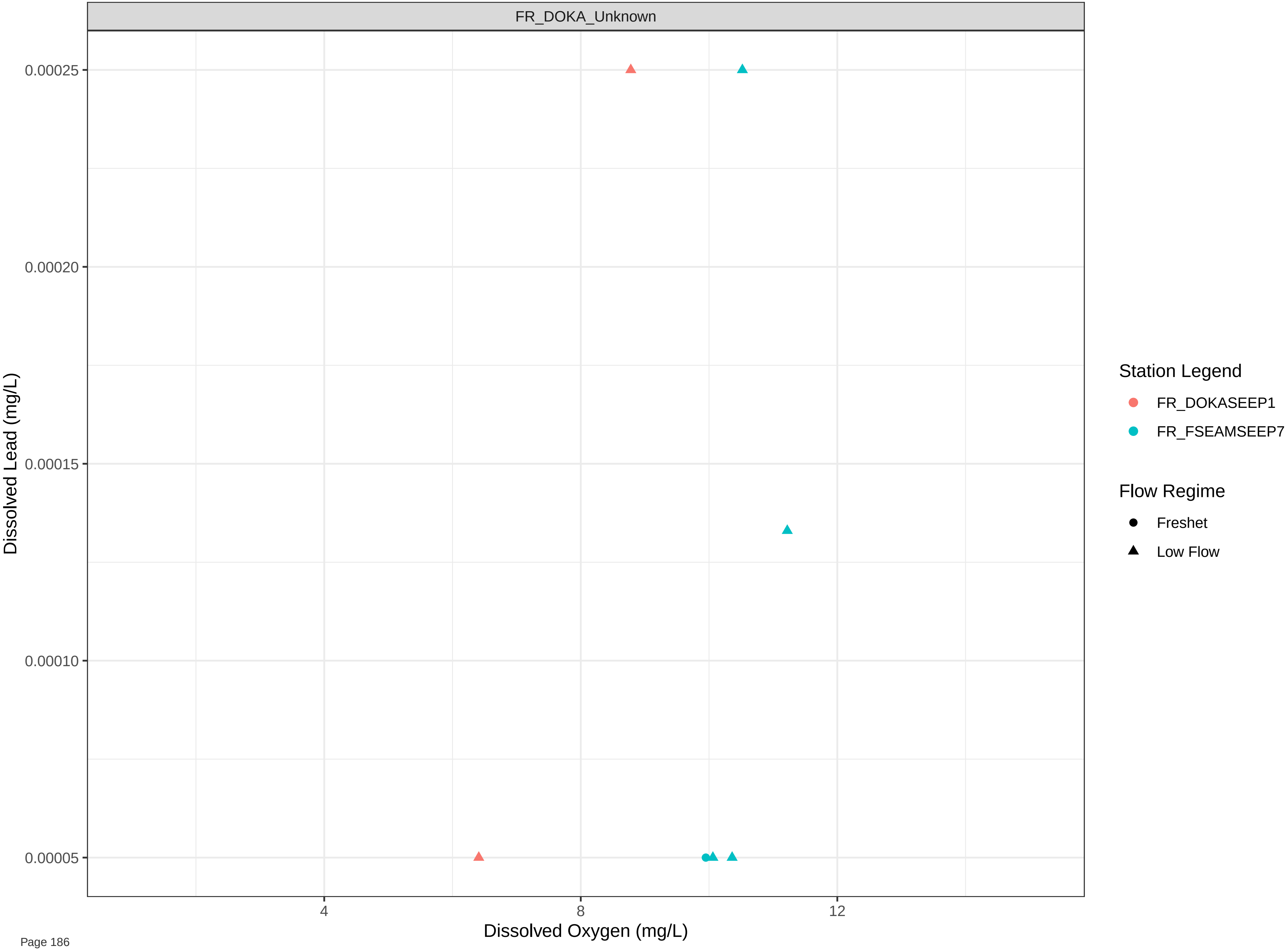

FR_TurnbullWREast_WR
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Iron (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

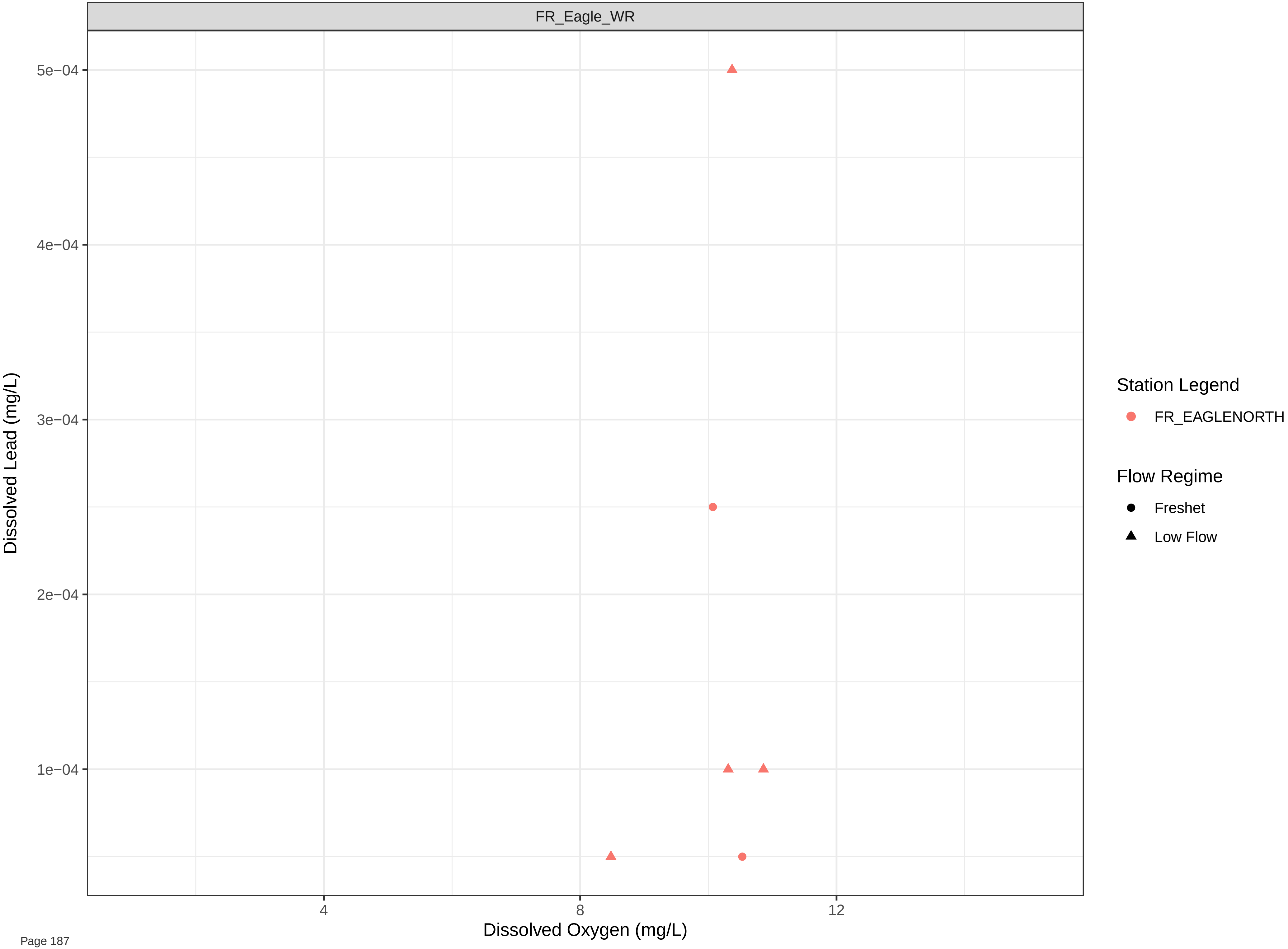

FR_TurnbullWRWest_WR
Dissolved Iron (mg/L)
0.05
0.04
0.03
0.02
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

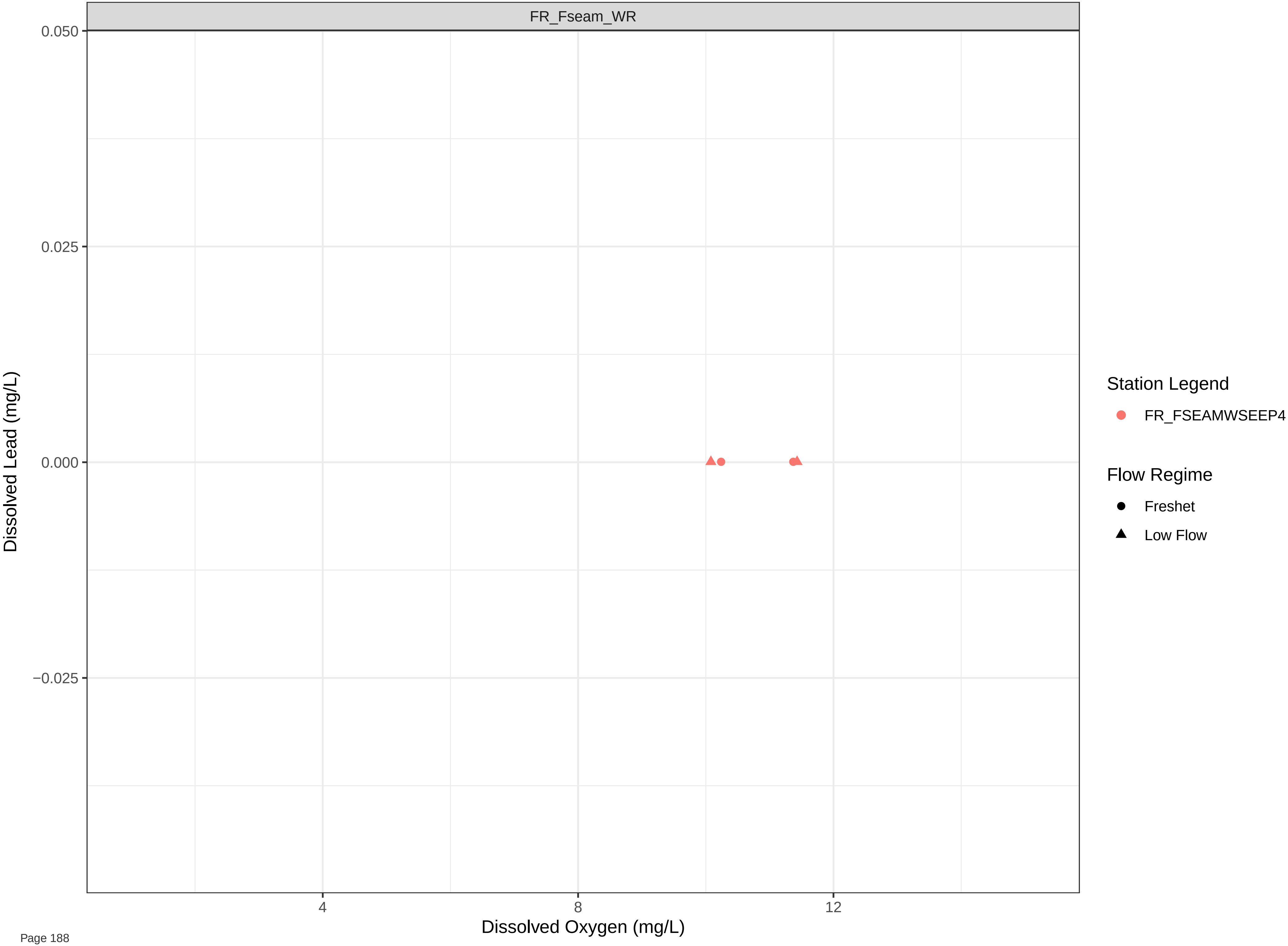

FR_A_WR
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Lead (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

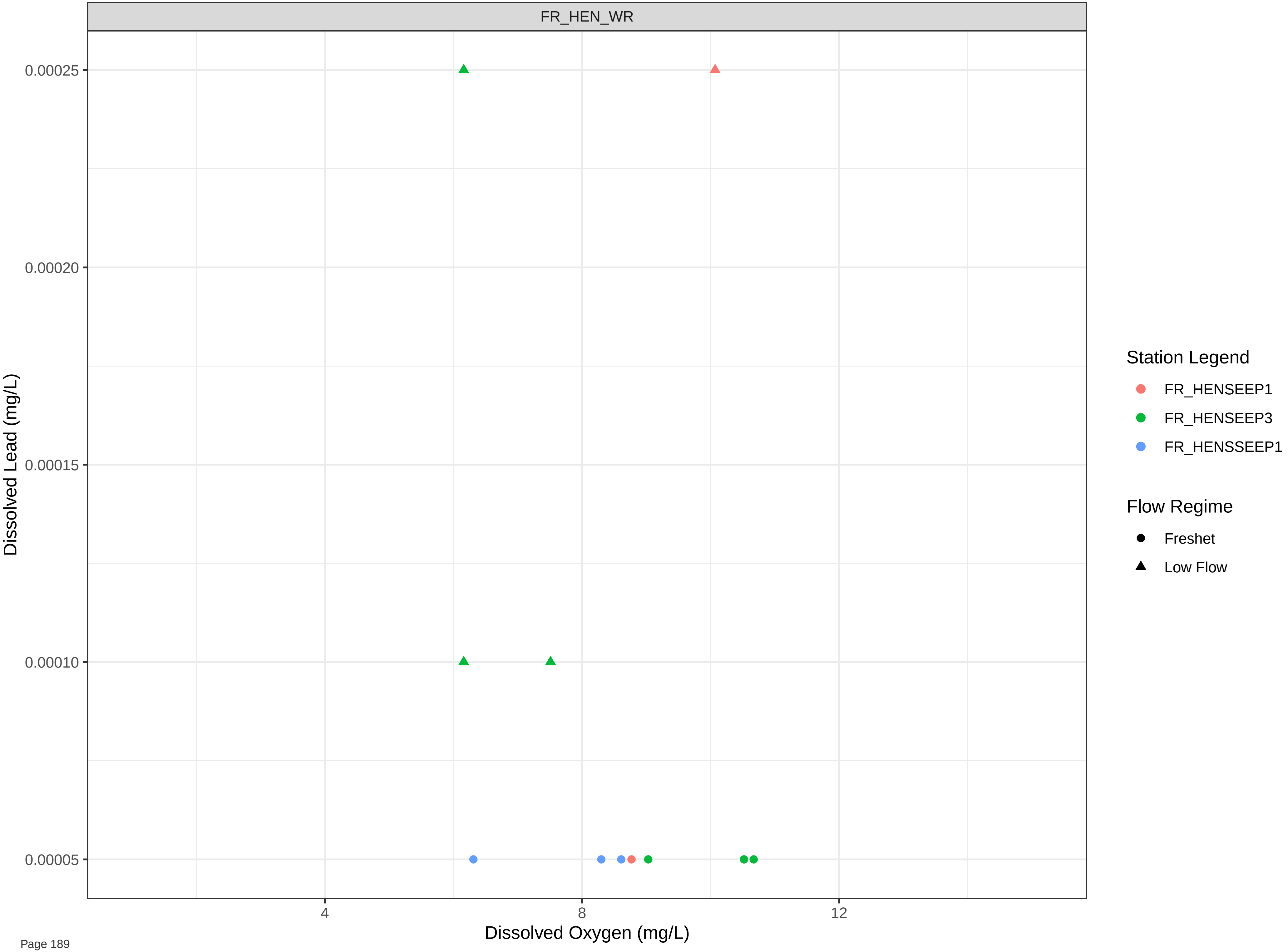

FR_Blain_CCR
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Lead (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

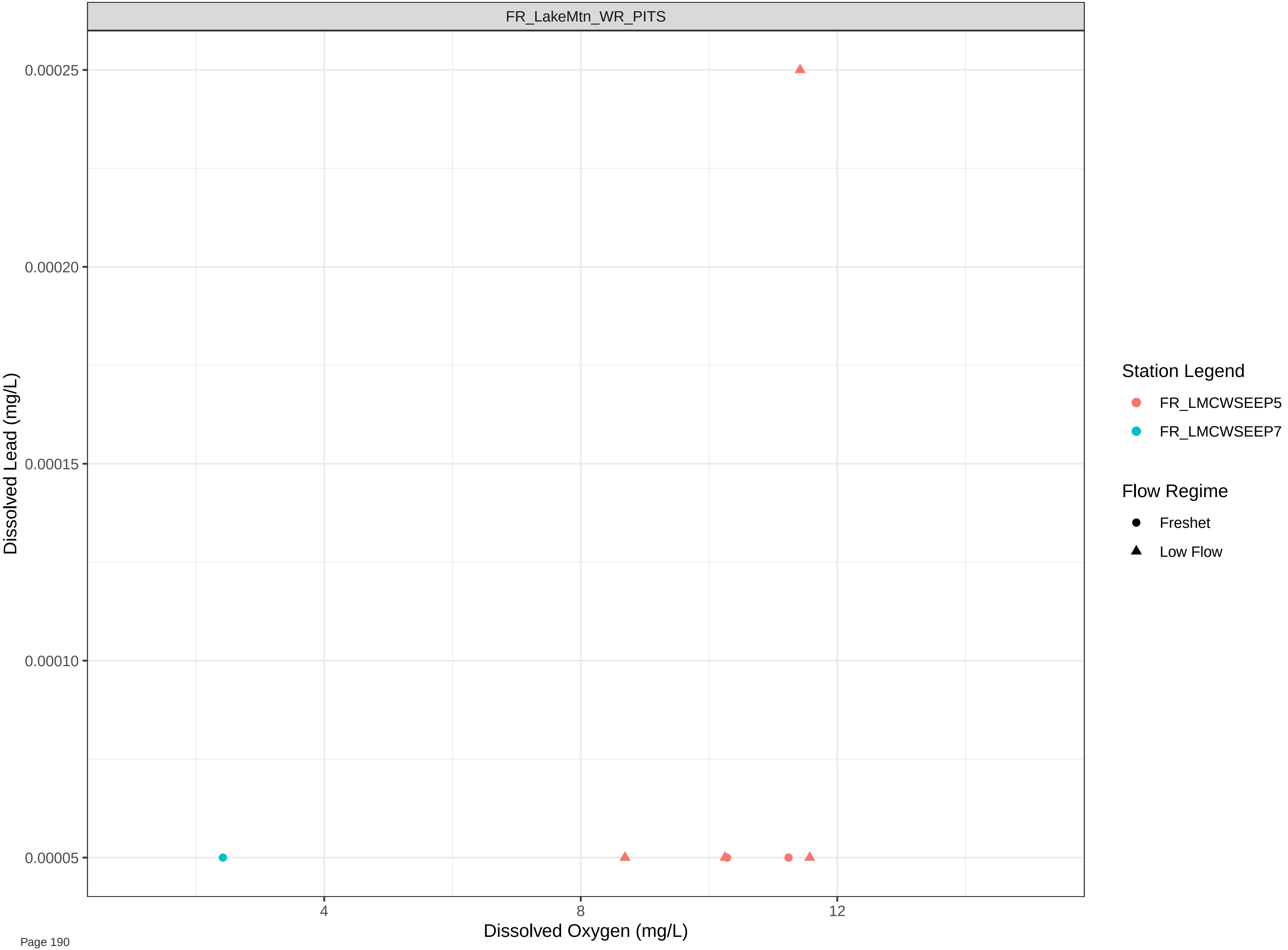

FR_ClodeCr_WR
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

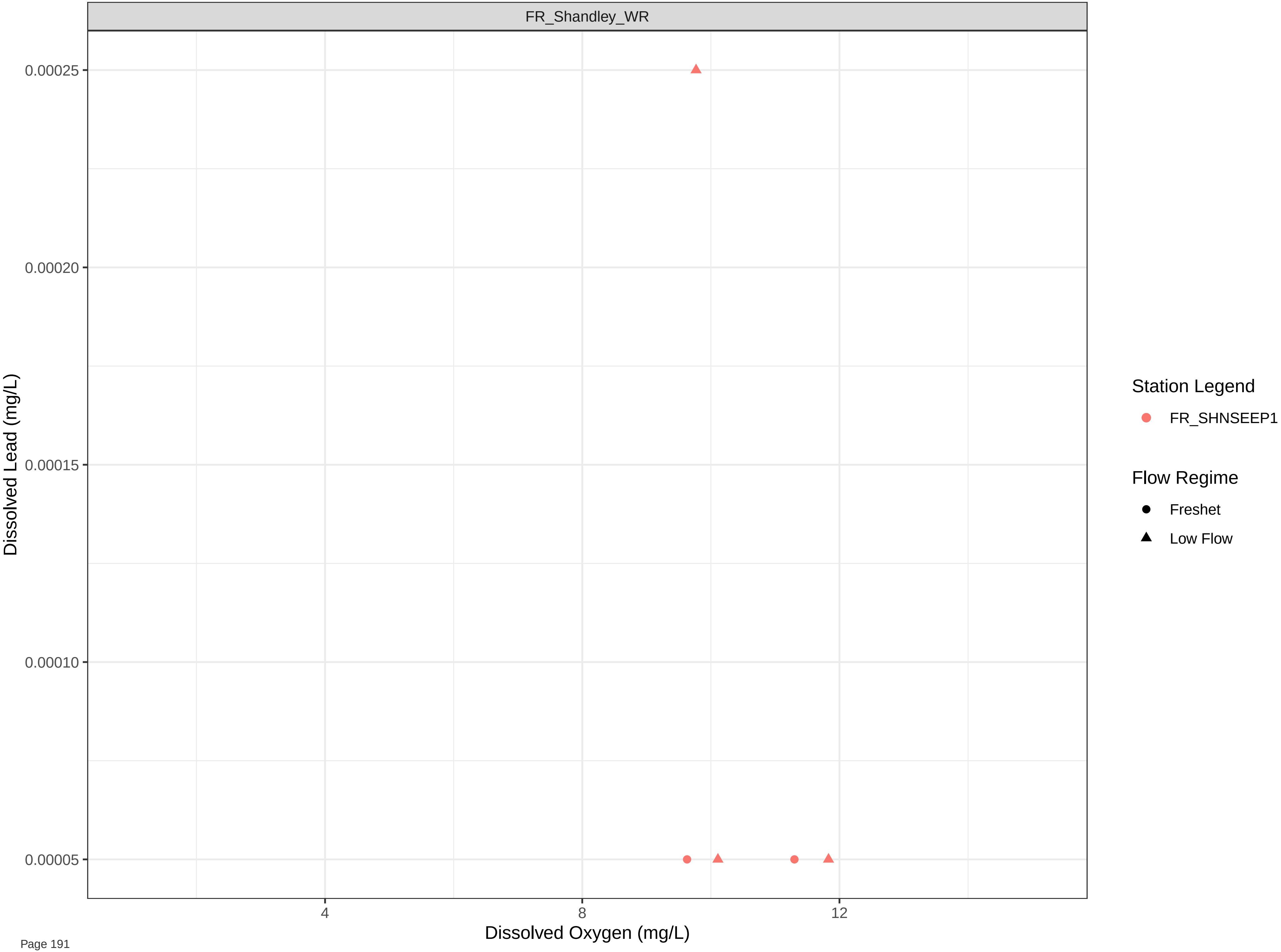

FR_DOKA_Unknown
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

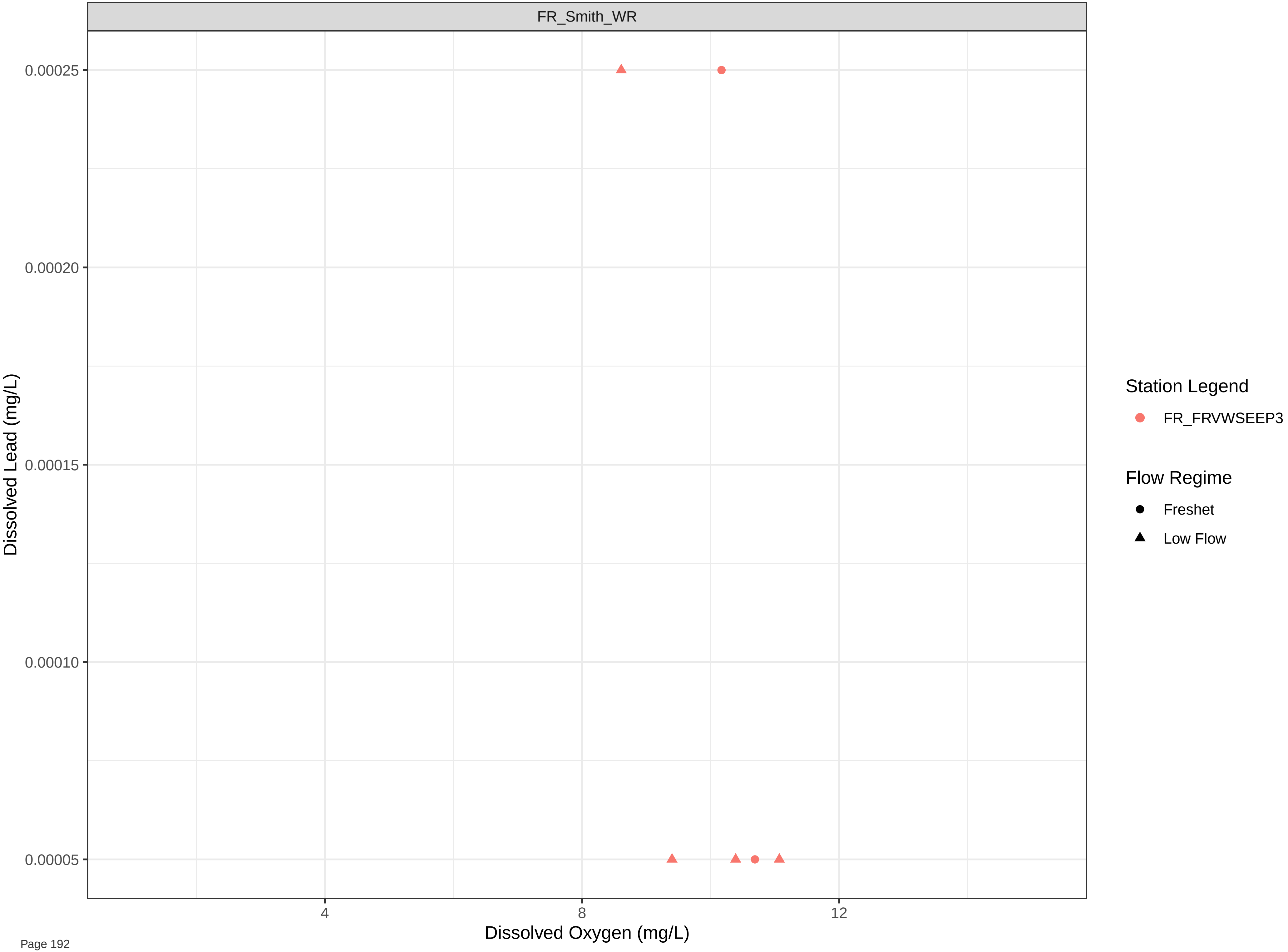

FR_Eagle_WR
Dissolved Lead (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

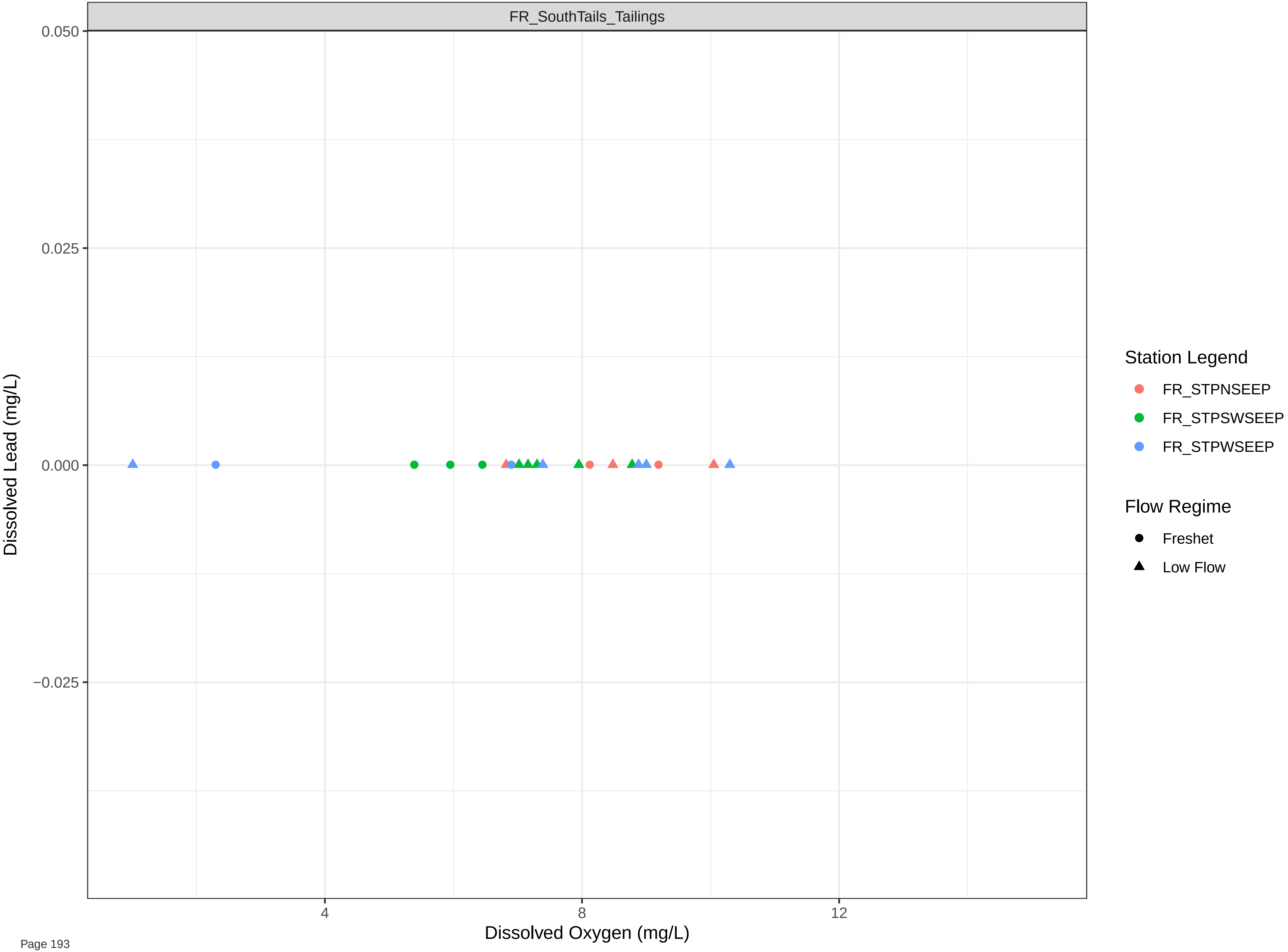

FR_Fseam_WR
0.050
0.025
0.000
−0.025
Dissolved Lead (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

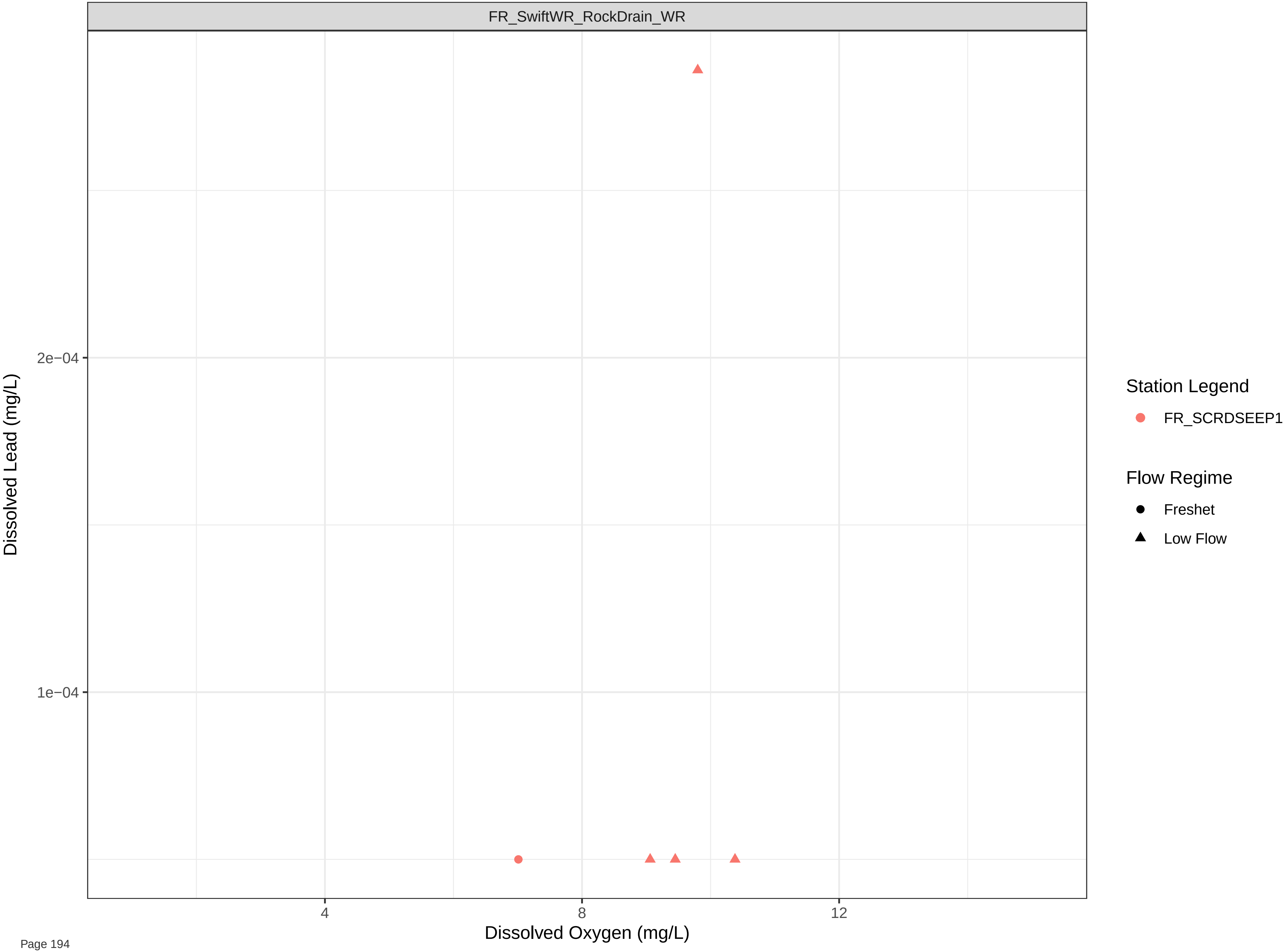

FR_HEN_WR
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Lead (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

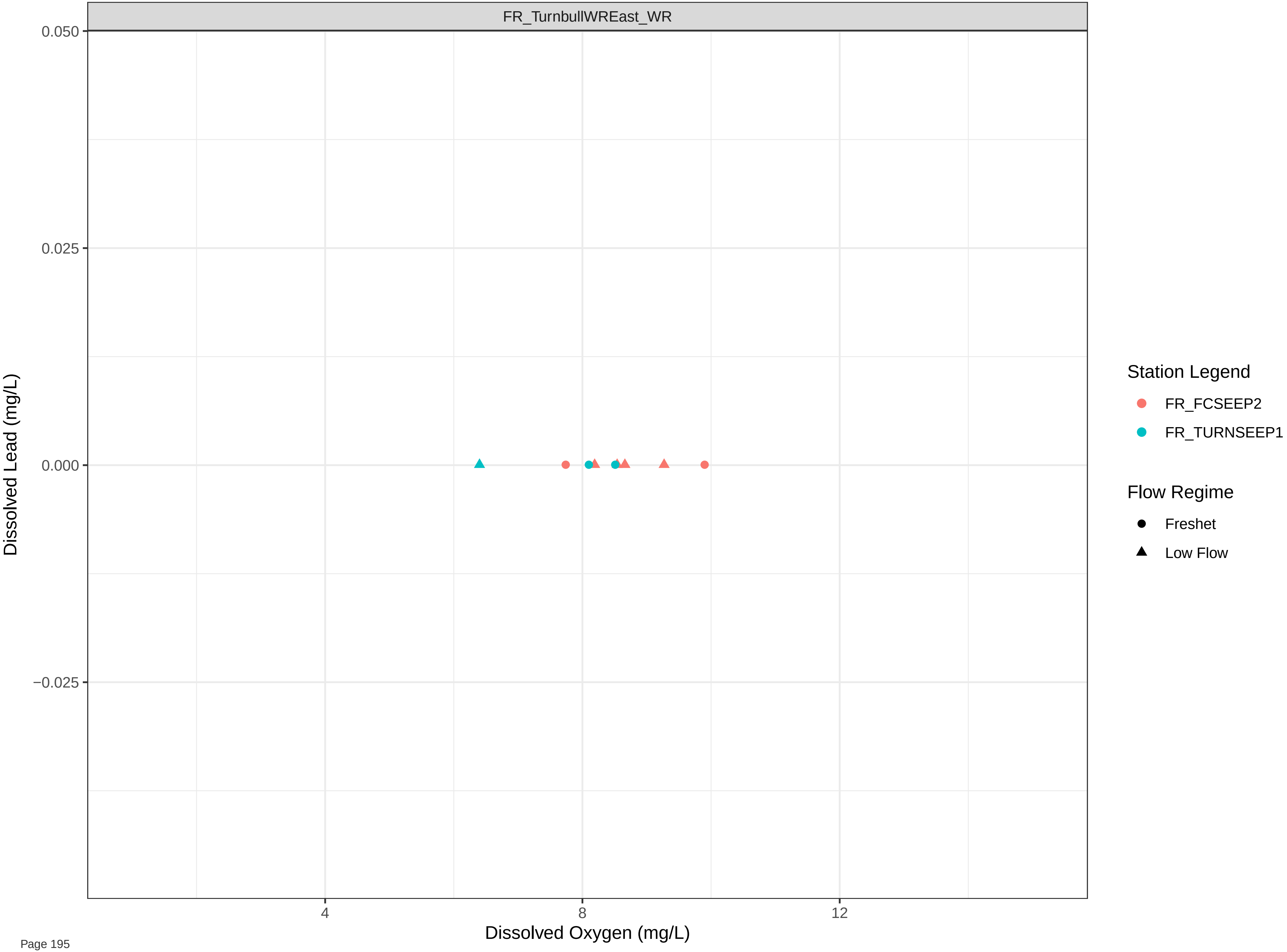

FR_LakeMtn_WR_PITS
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

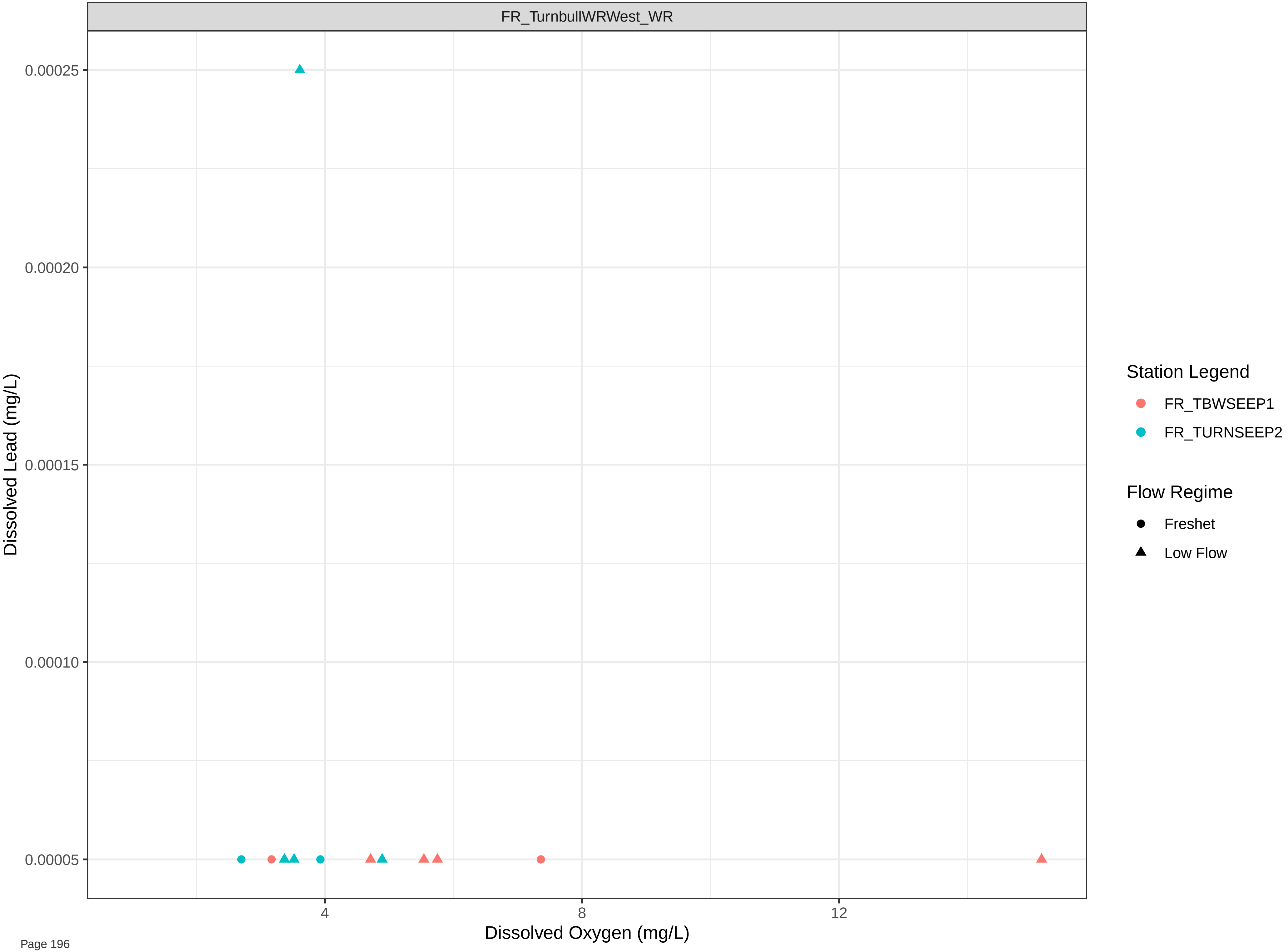

FR_Shandley_WR
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Lead (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

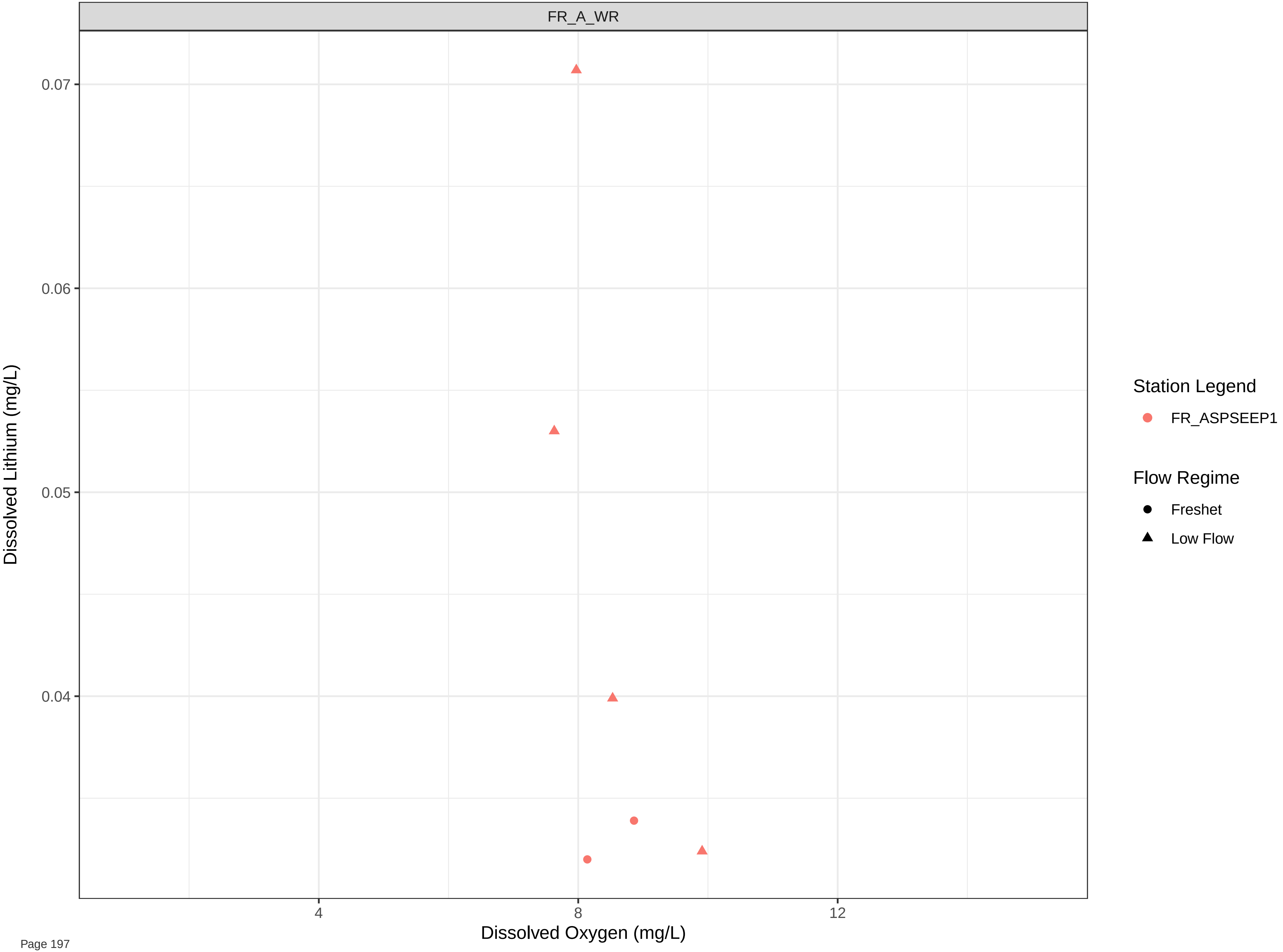

FR_Smith_WR
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

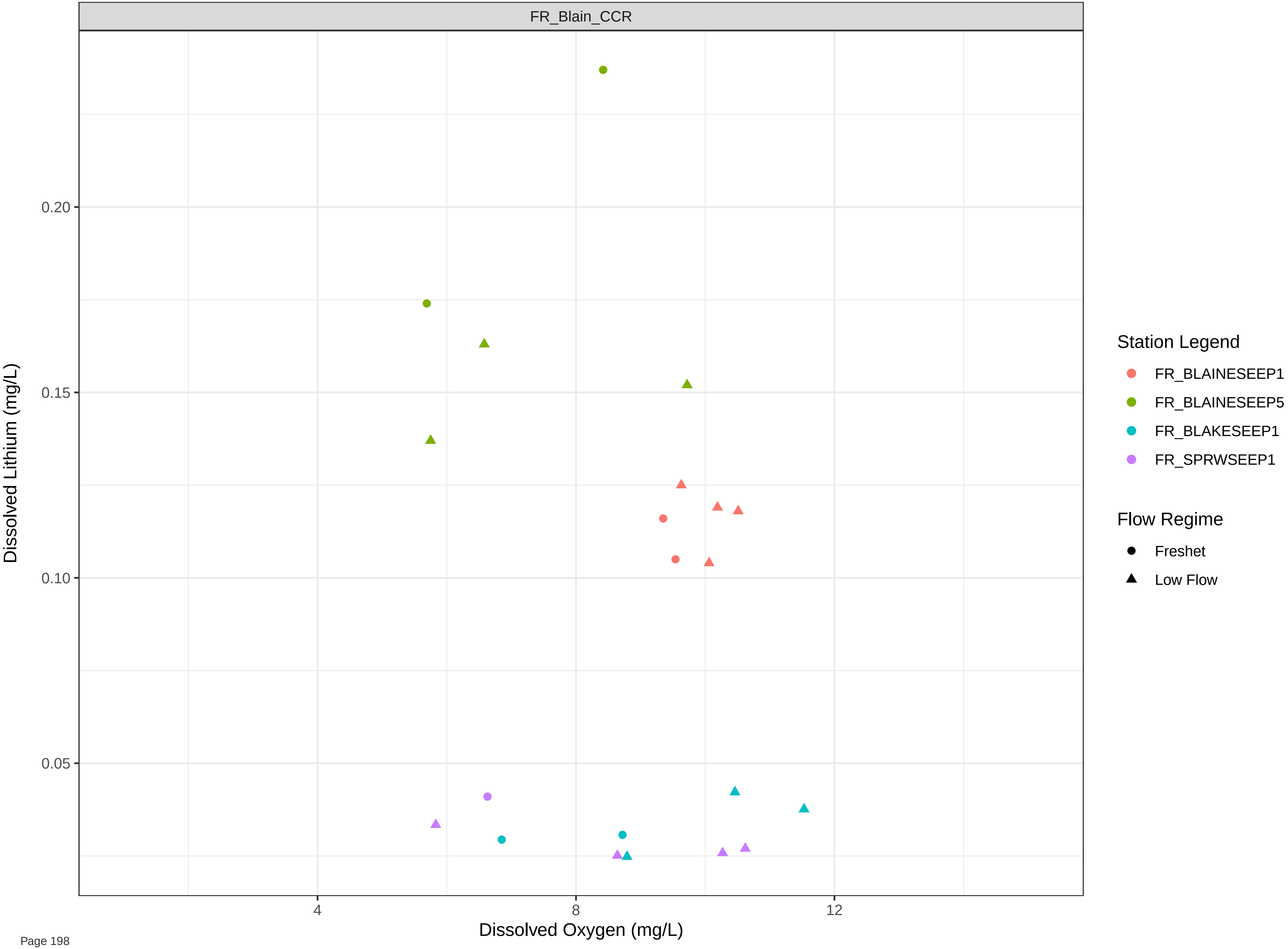

FR_SouthTails_Tailings
0.050
0.025
0.000
−0.025
Dissolved Lead (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

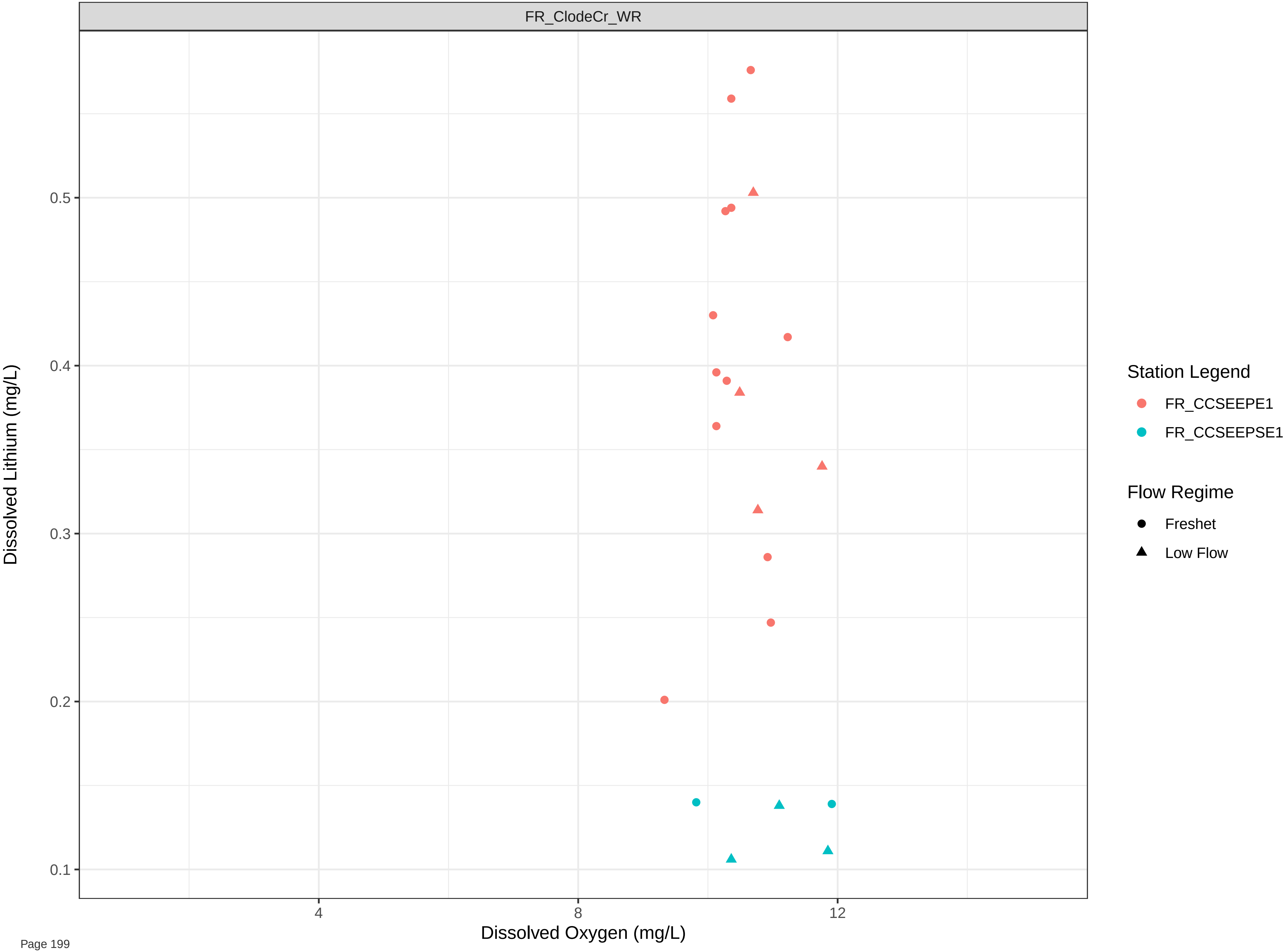

FR_SwiftWR_RockDrain_WR
Dissolved Lead (mg/L)
2e−04
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

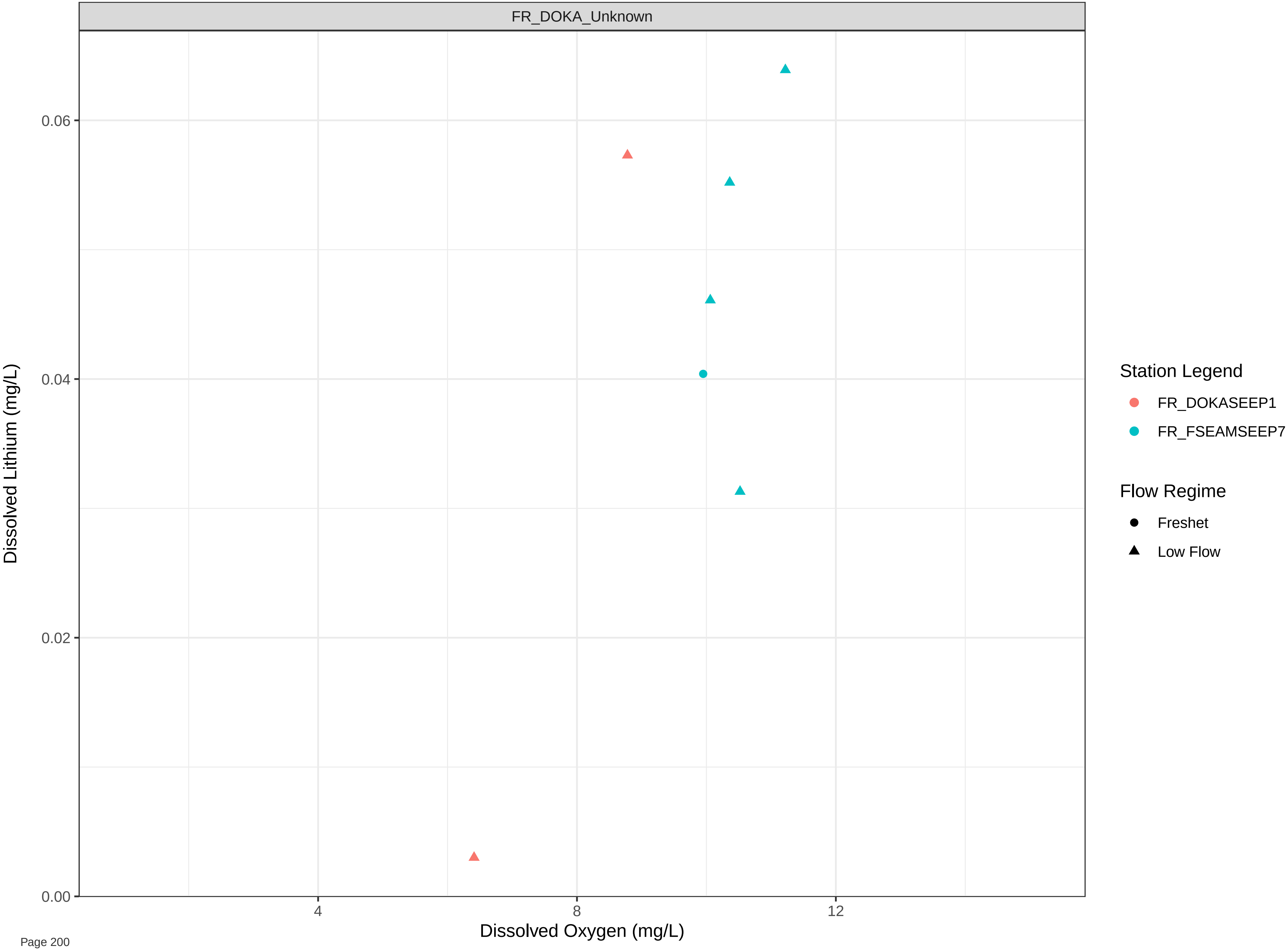

FR_TurnbullWREast_WR
0.050
0.025
0.000
−0.025
Dissolved Lead (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow


FR_TurnbullWRWest_WR
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Lead (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

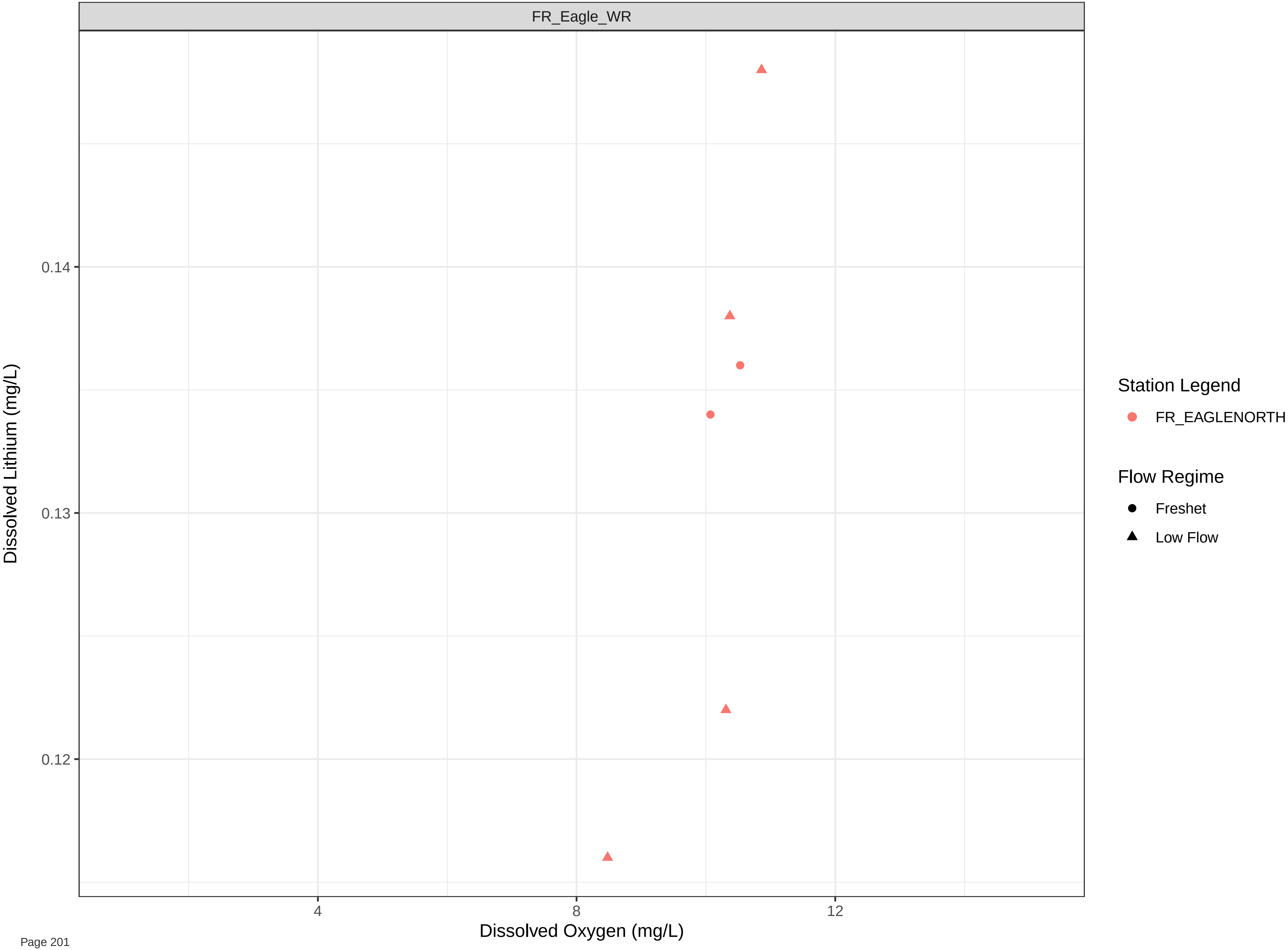

FR_A_WR
0.07
0.06
0.05
0.04
Dissolved Lithium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

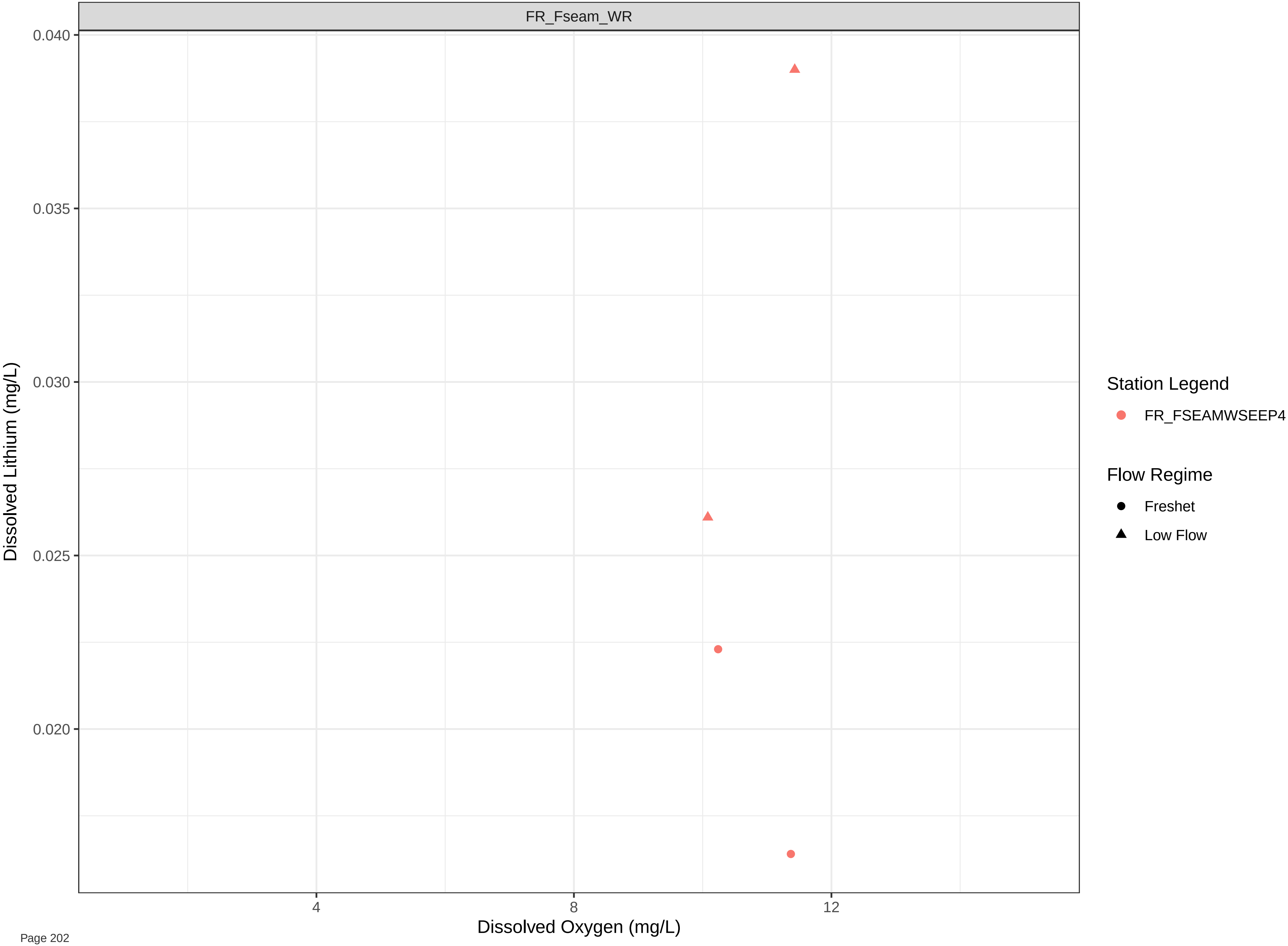

FR_Blain_CCR
Dissolved Lithium (mg/L)
0.20
0.15
0.10
0.05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

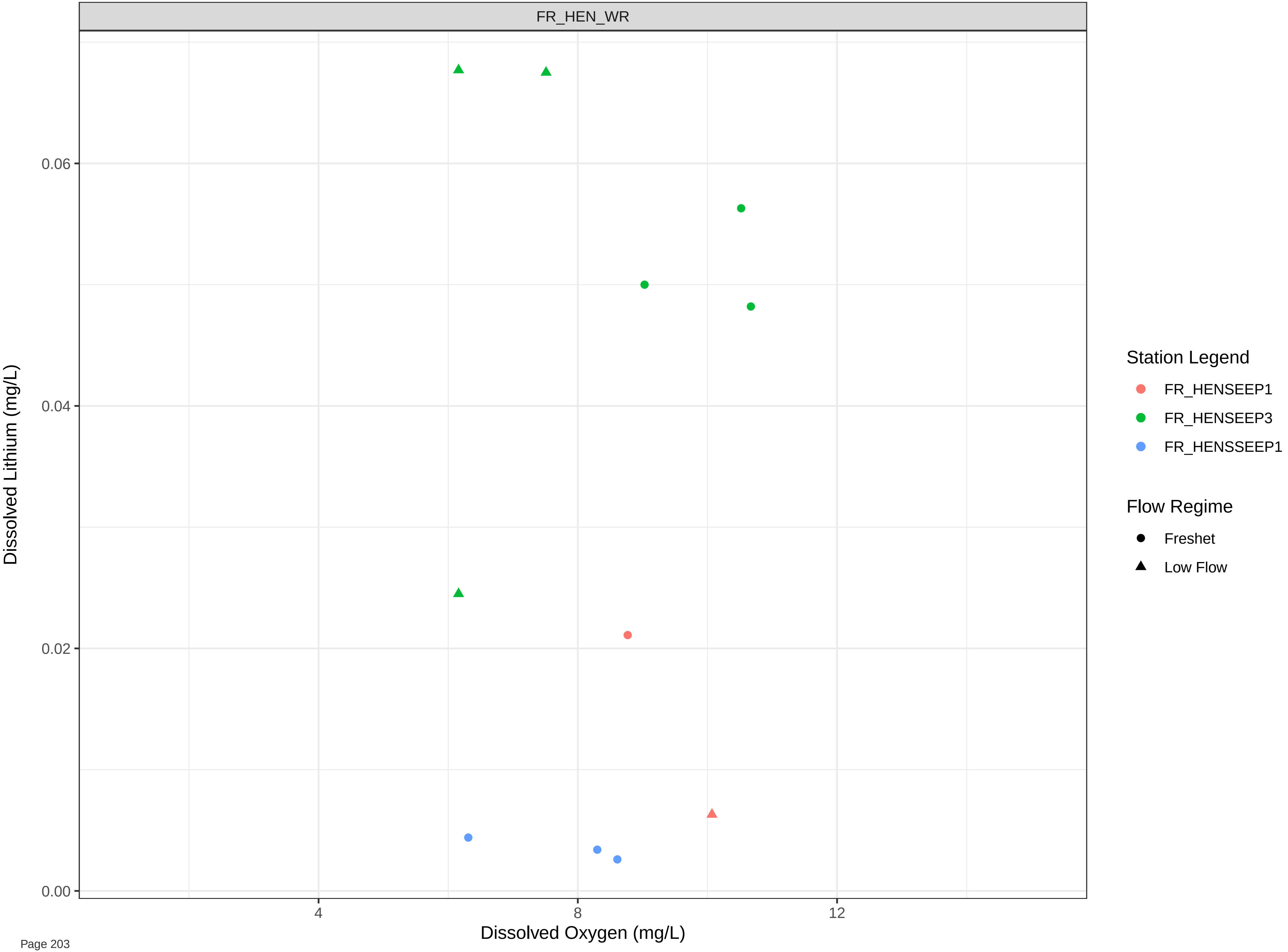

FR_ClodeCr_WR
Dissolved Lithium (mg/L)
0.5
0.4
0.3
0.2
0.1
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

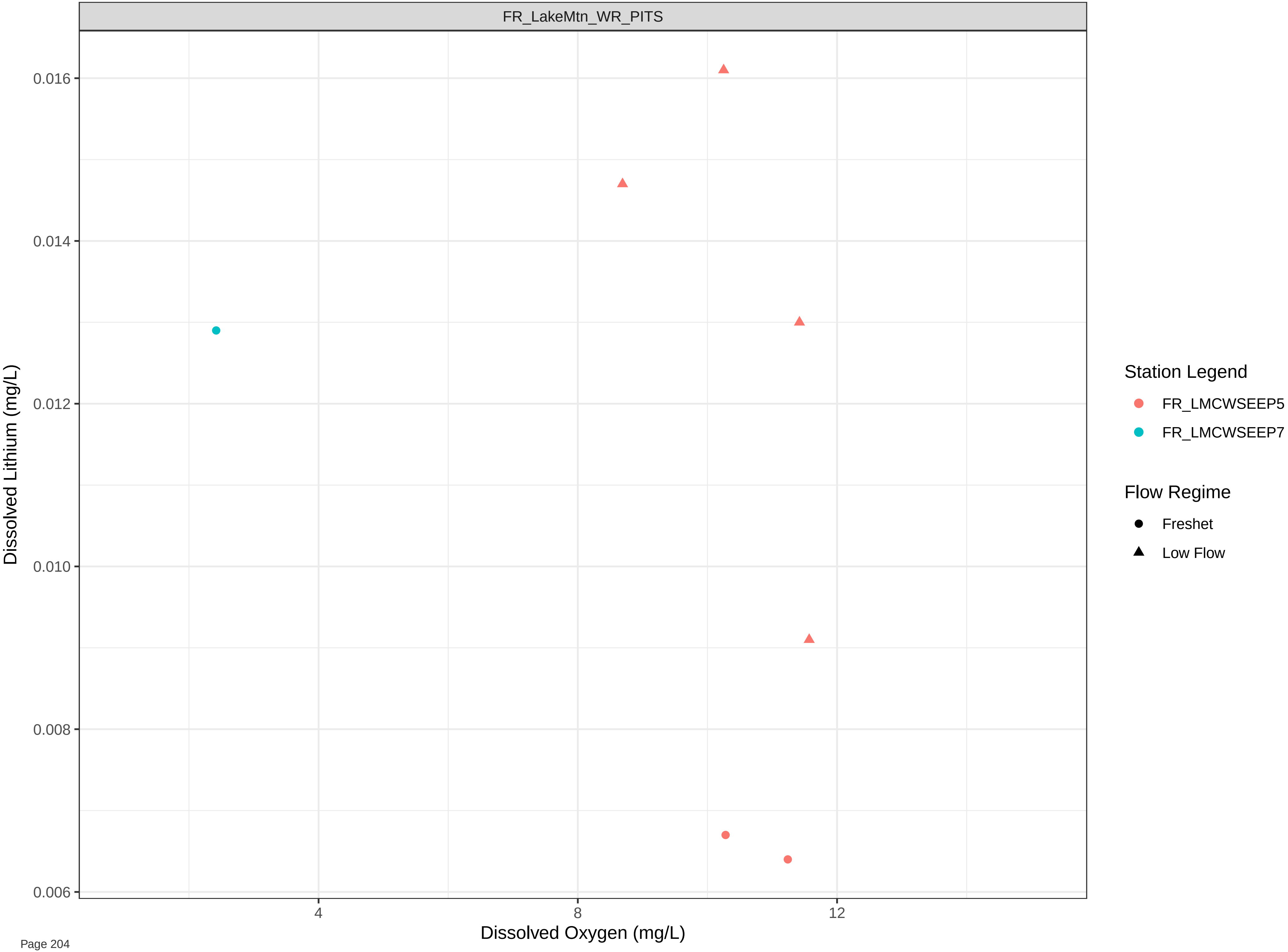


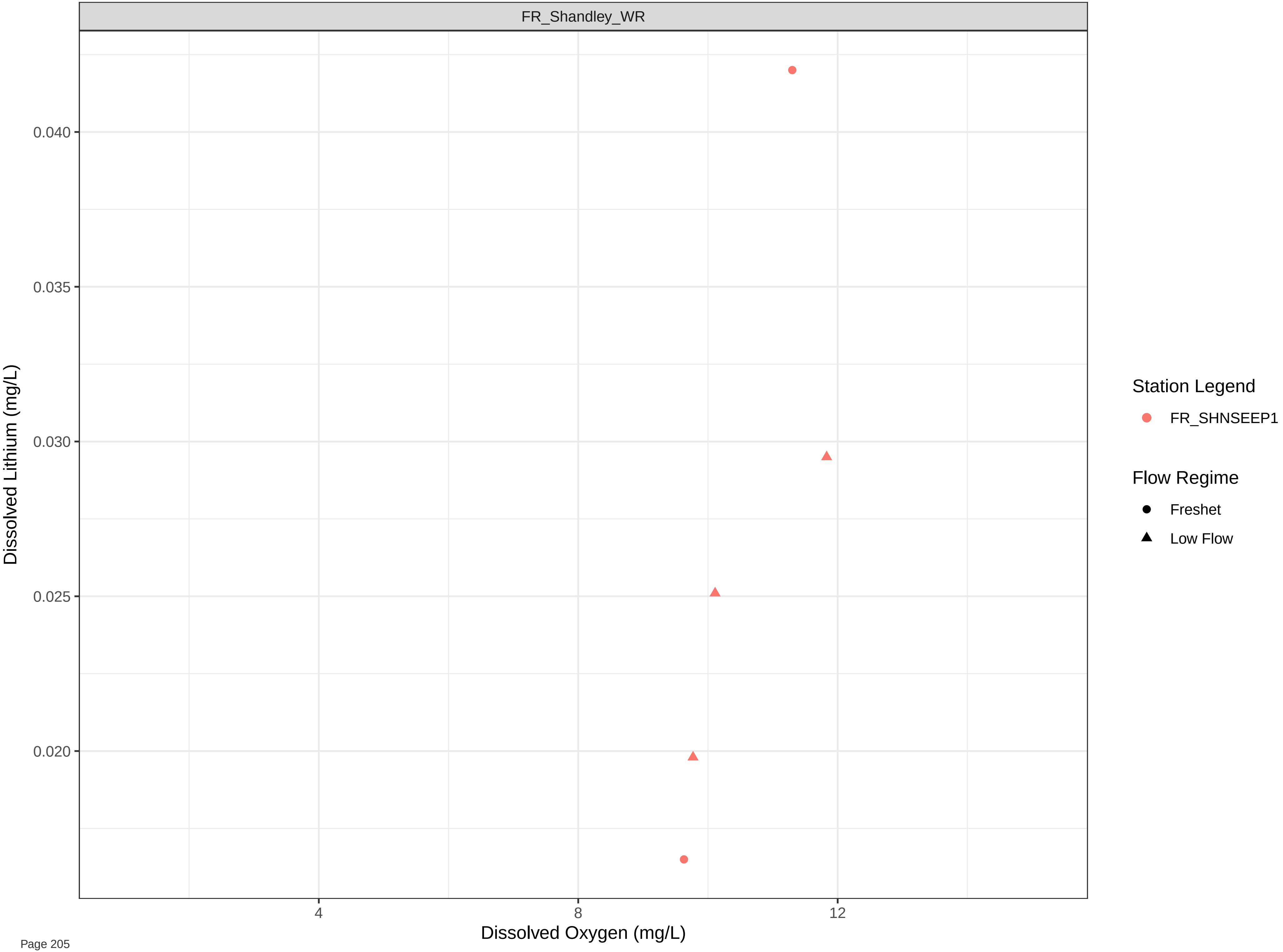
FR_DOKA_Unknown
Dissolved Lithium (mg/L)
0.06
0.04
0.02
0.00
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

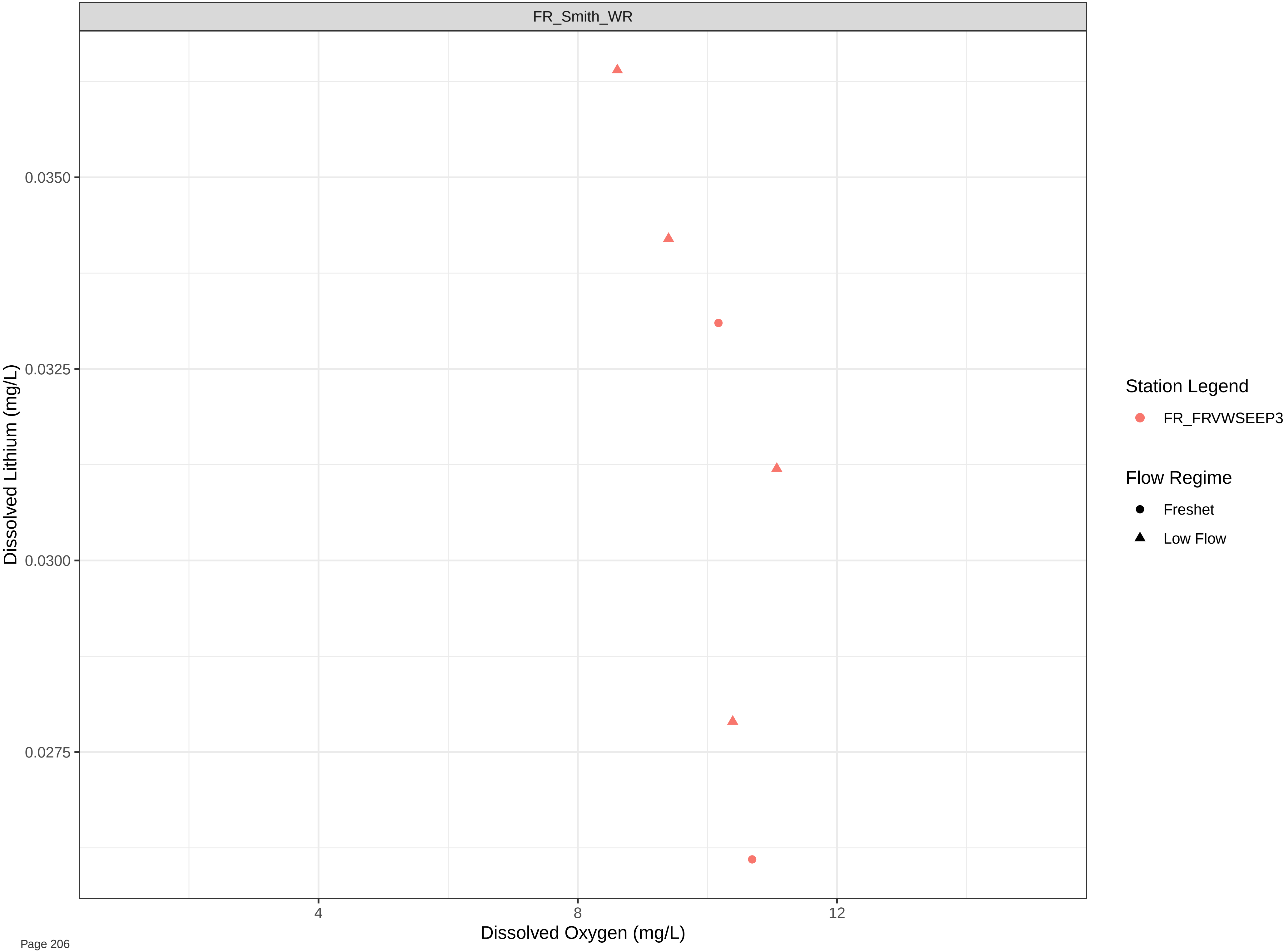

FR_Eagle_WR
Dissolved Lithium (mg/L)
0.14
0.13
0.12
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

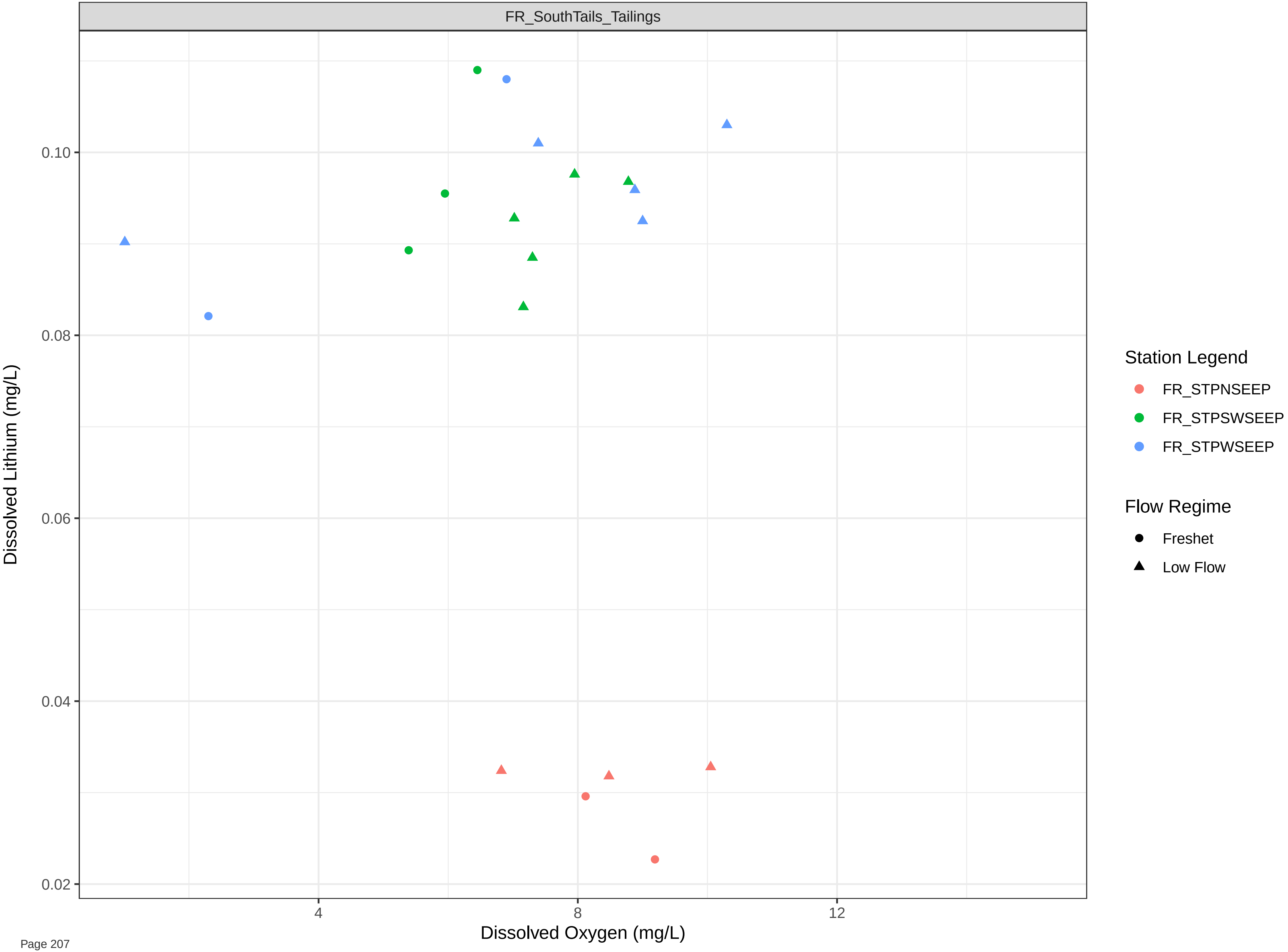

FR_Fseam_WR
0.040
0.035
0.030
0.025
0.020
Dissolved Lithium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

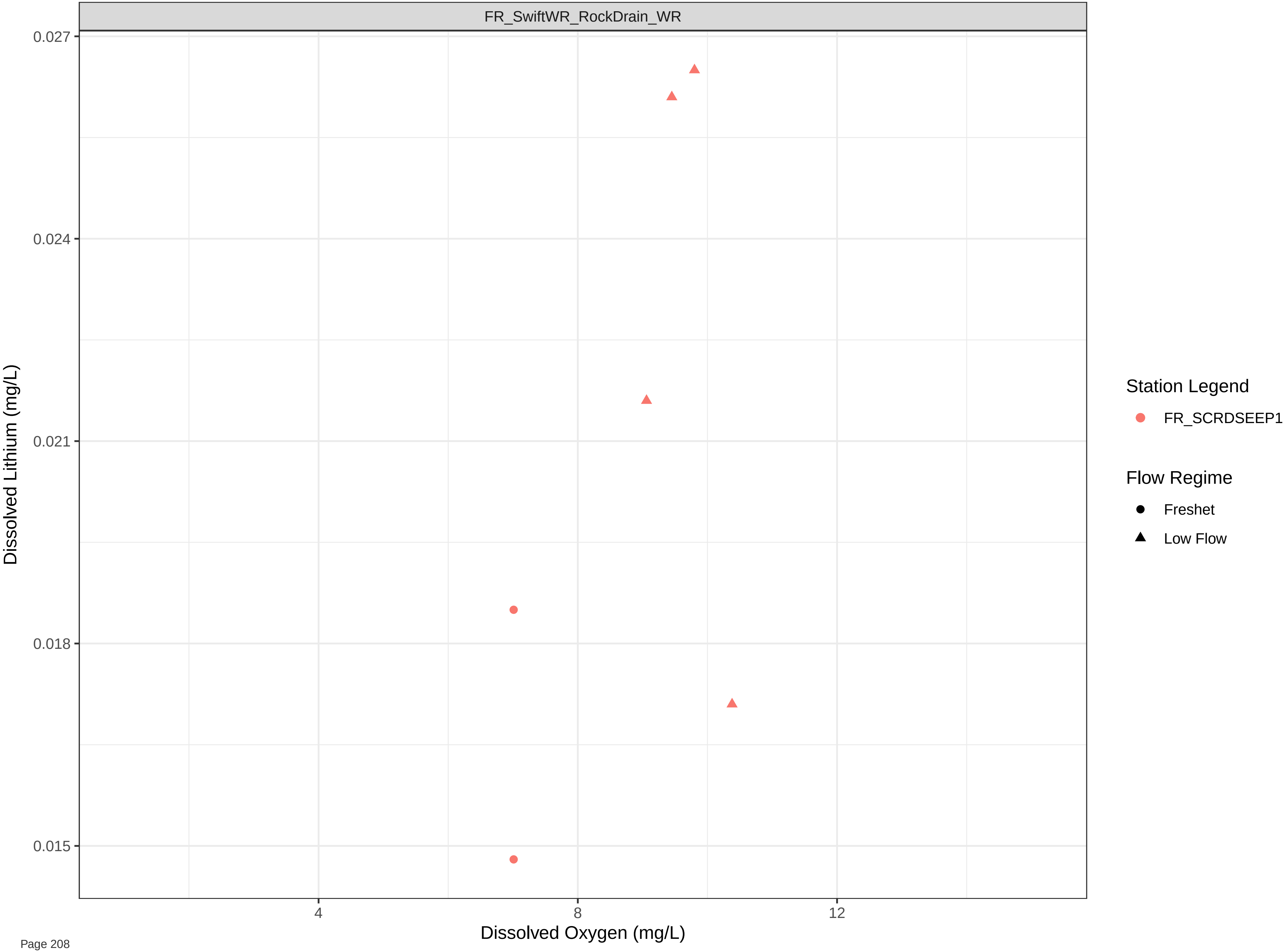

FR_HEN_WR
Dissolved Lithium (mg/L)
0.00
0.02
0.04
0.06
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

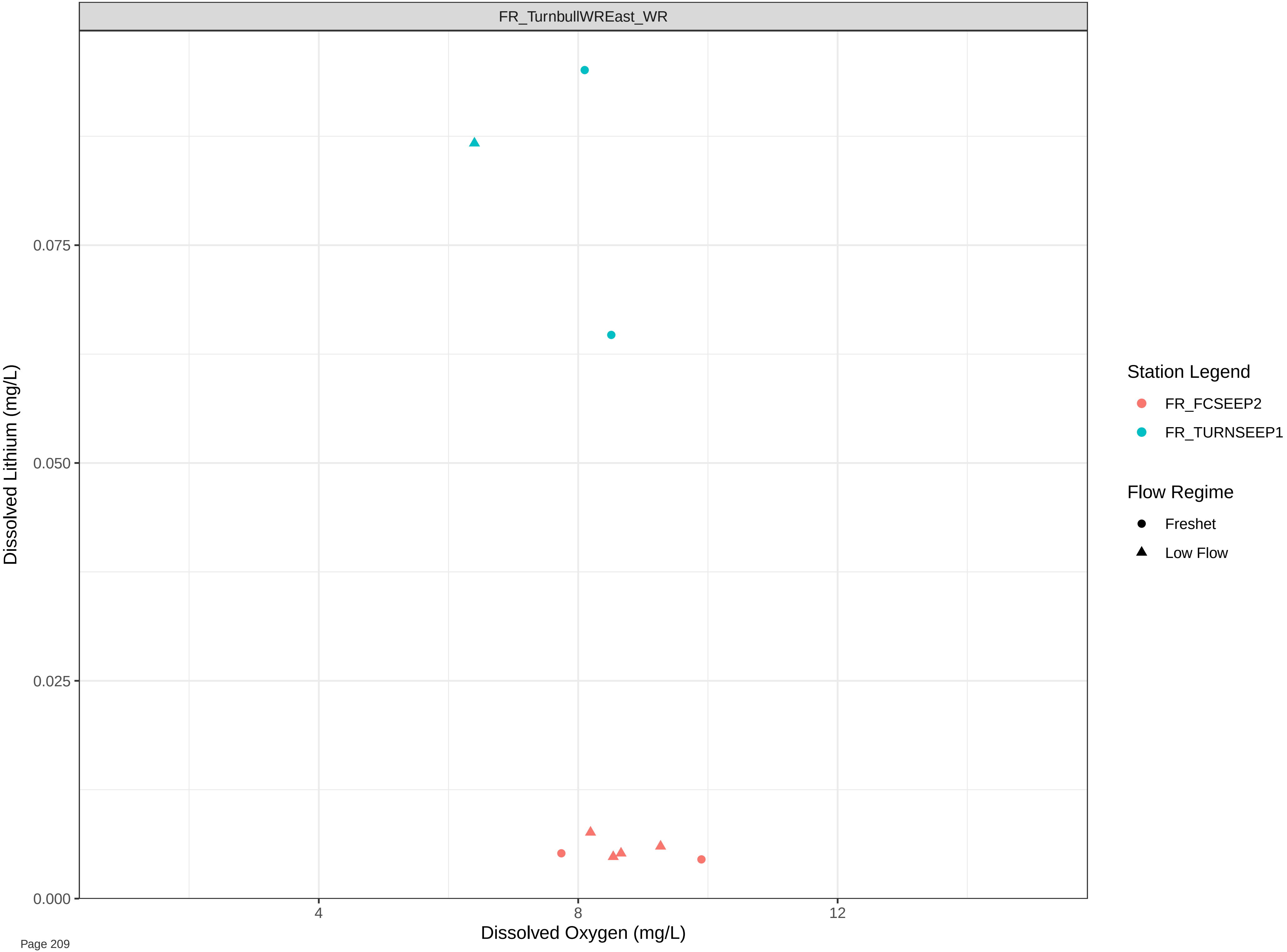

FR_LakeMtn_WR_PITS
Dissolved Lithium (mg/L)
0.016
0.014
0.012
0.010
0.008
0.006
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow

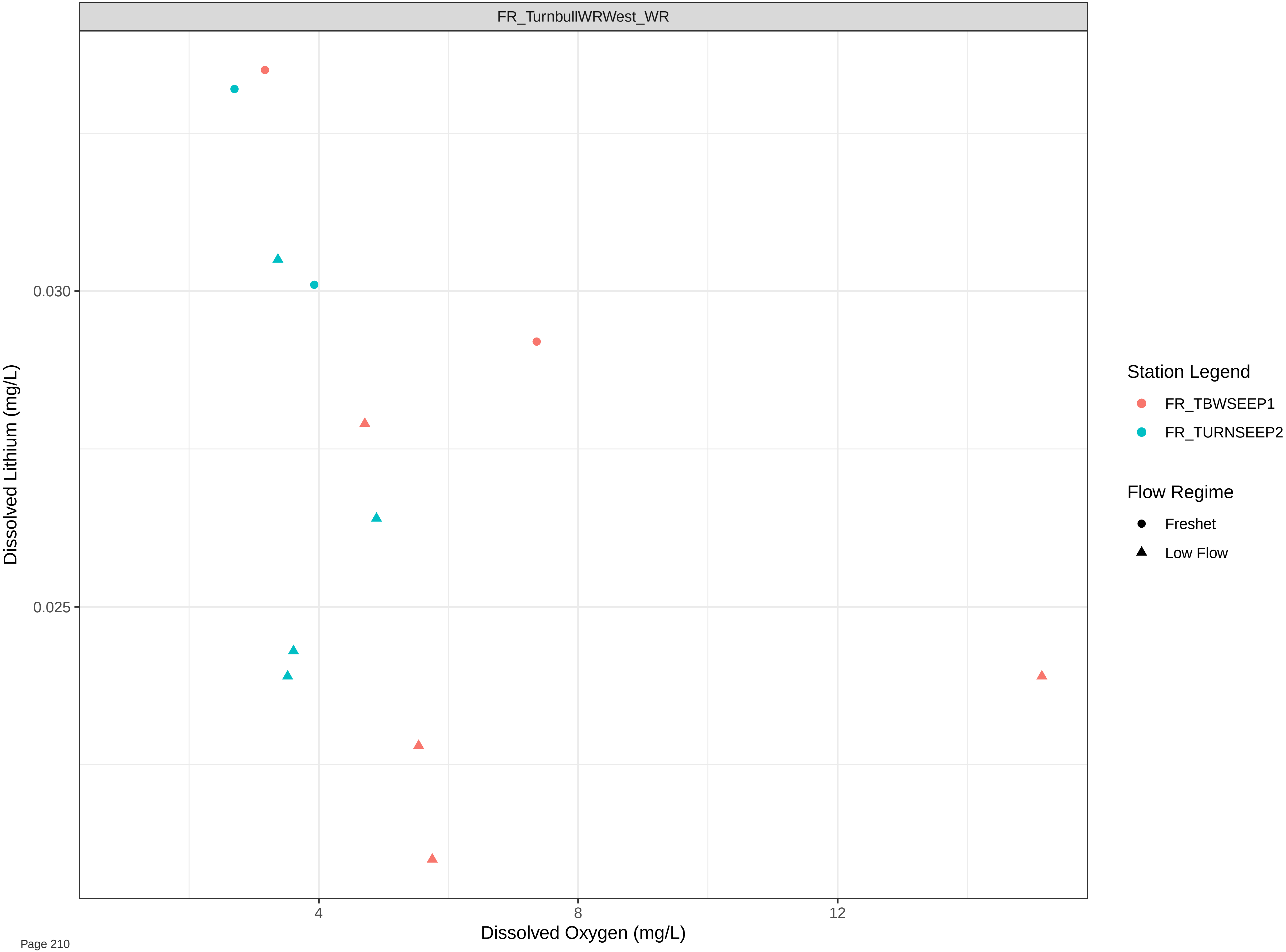

FR_Shandley_WR
Dissolved Lithium (mg/L)
0.040
0.035
0.030
0.025
0.020
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

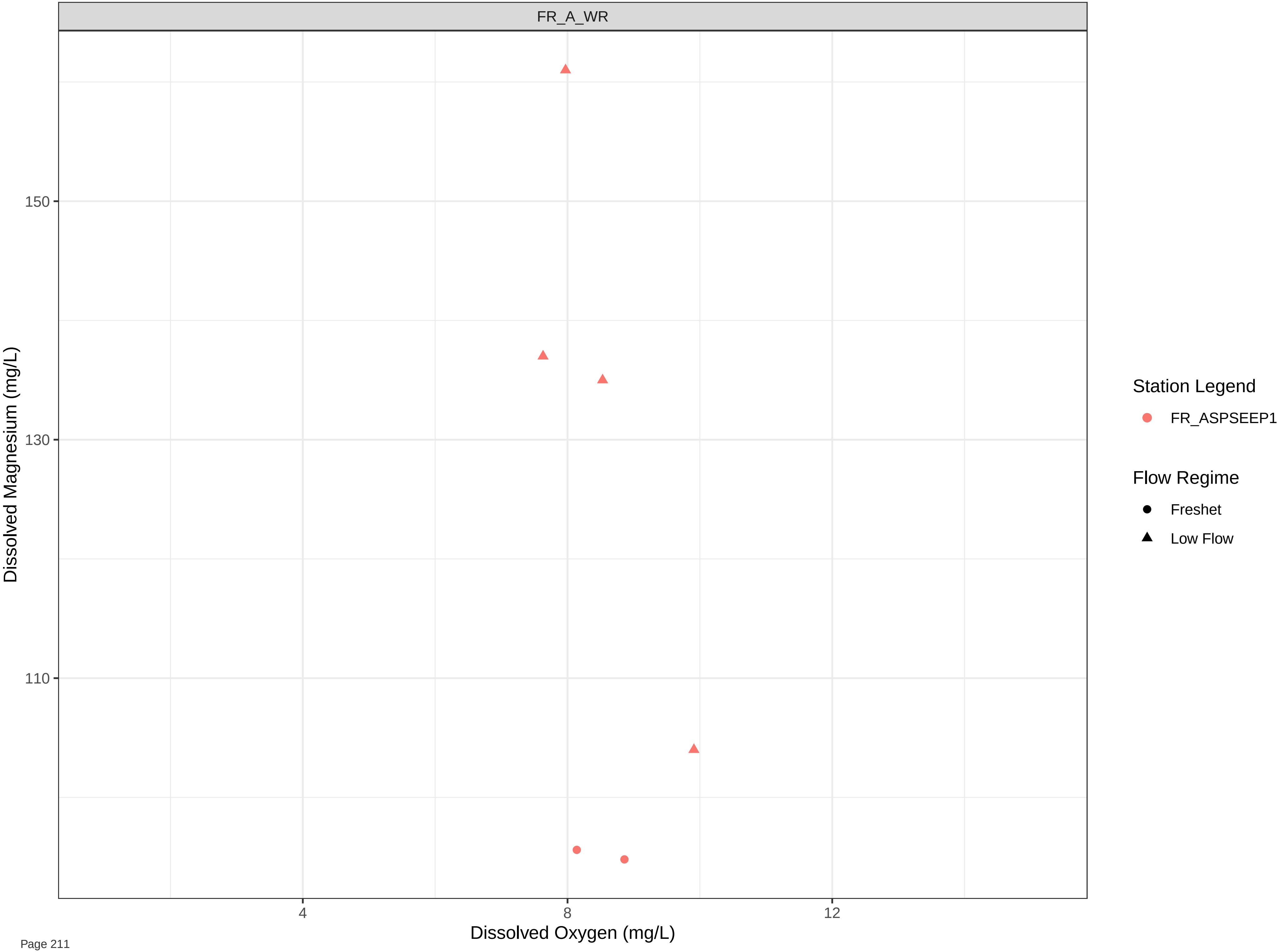

FR_Smith_WR
Dissolved Lithium (mg/L)
0.0350
0.0325
0.0300
0.0275
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

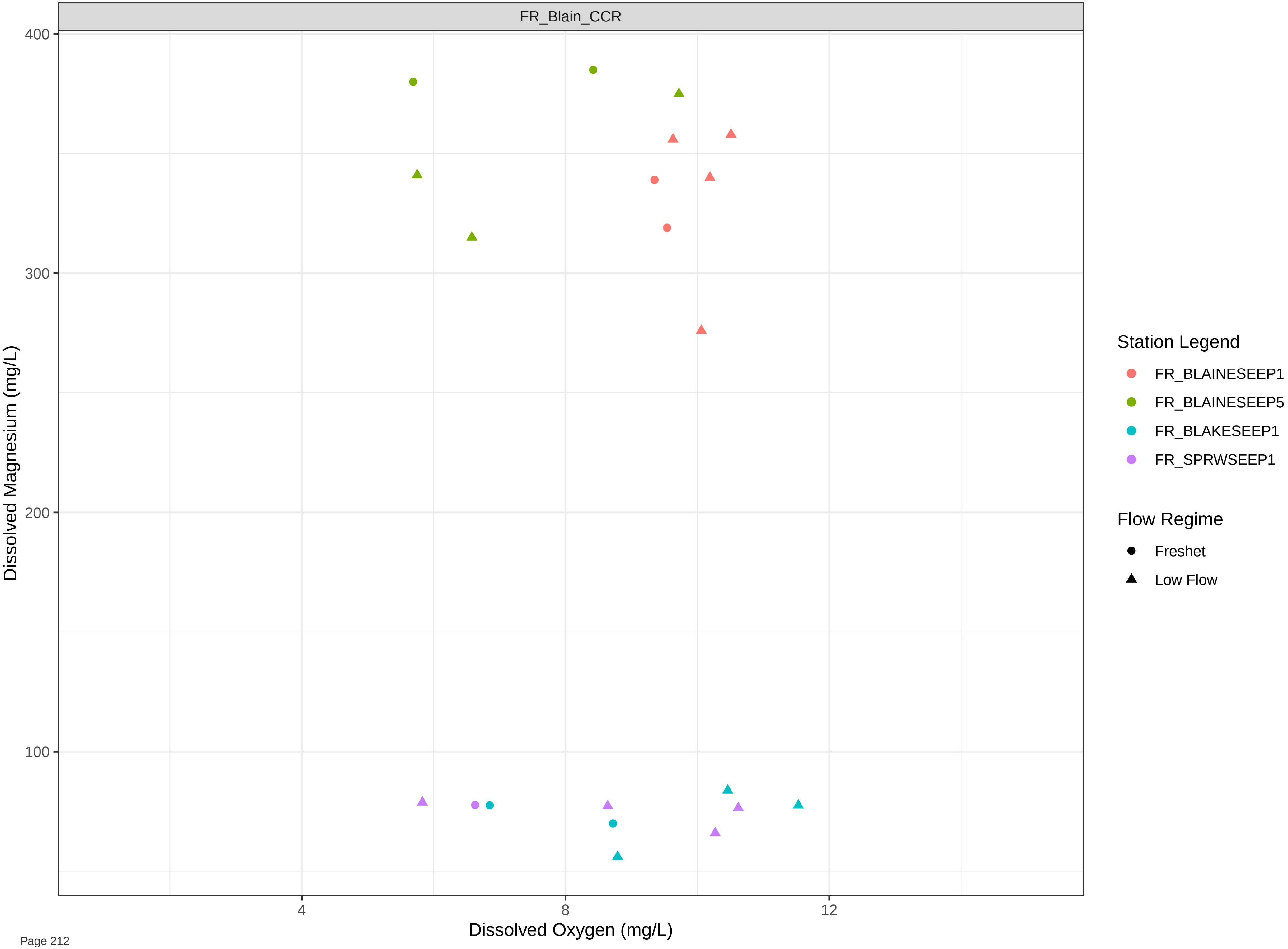

FR_SouthTails_Tailings
Dissolved Lithium (mg/L)
0.10
0.08
0.06
0.04
0.02
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

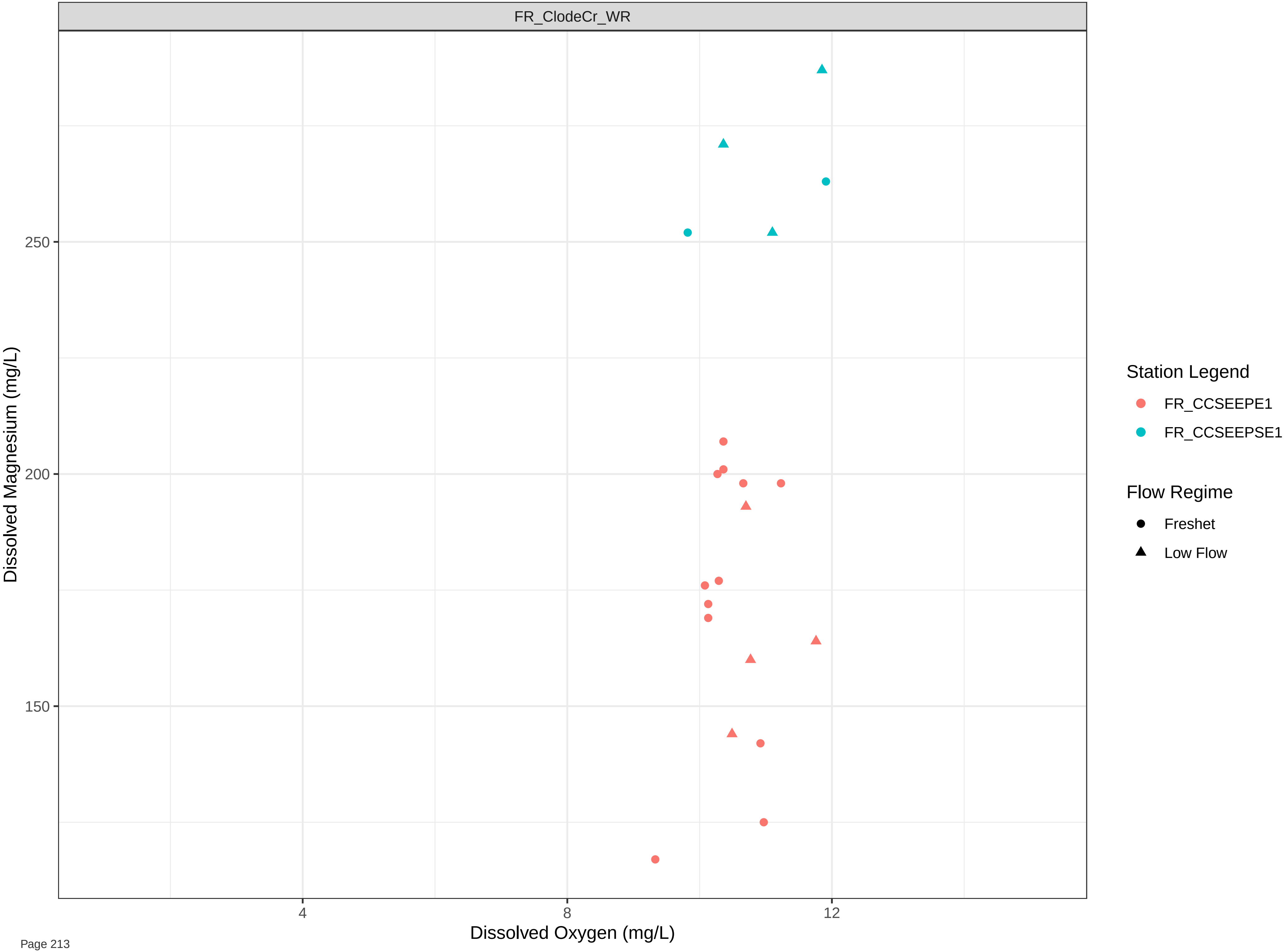

FR_SwiftWR_RockDrain_WR
0.027
0.024
0.021
0.018
0.015
Dissolved Lithium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

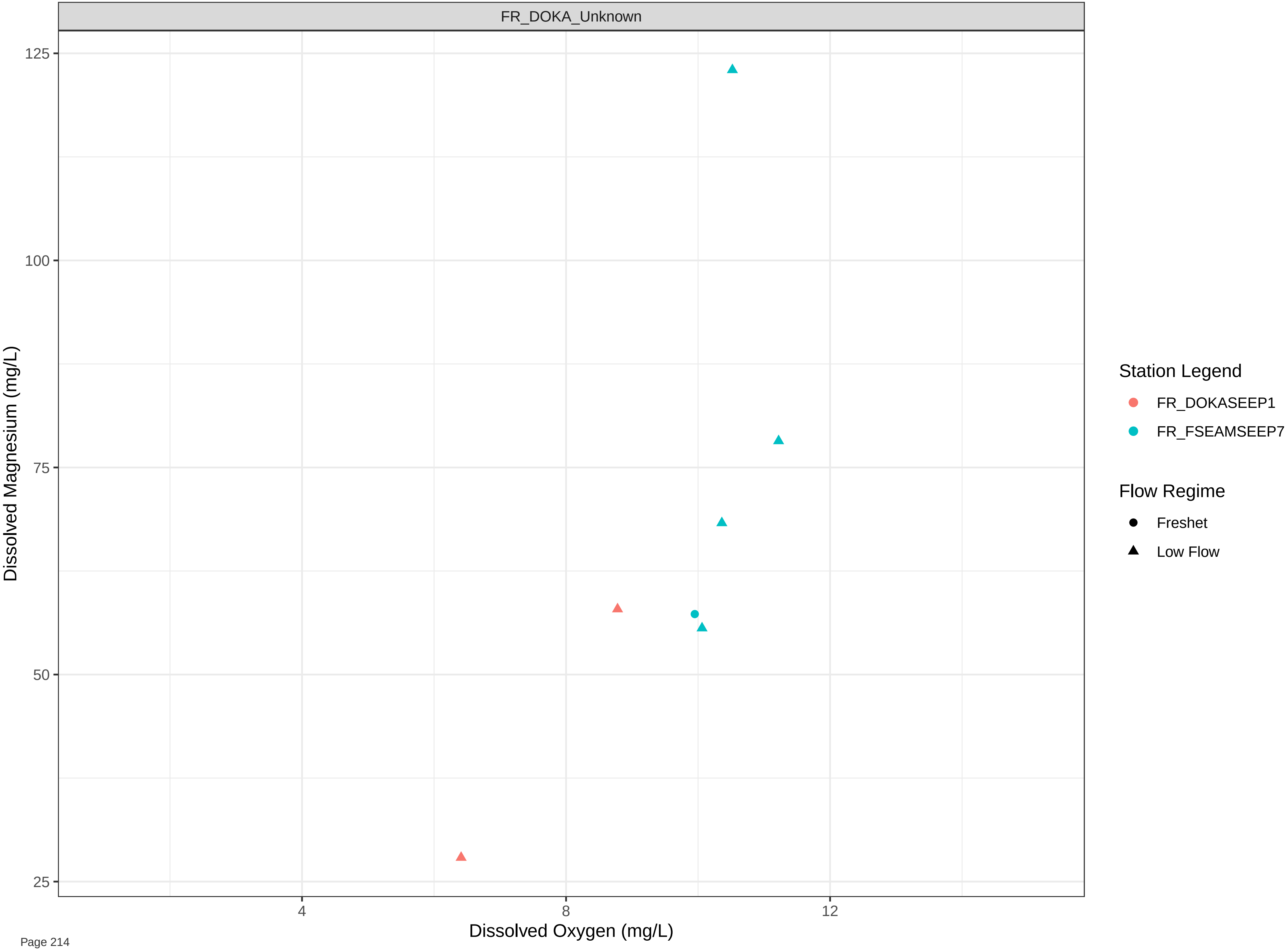

FR_TurnbullWREast_WR
Dissolved Lithium (mg/L)
0.000
0.025
0.050
0.075
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

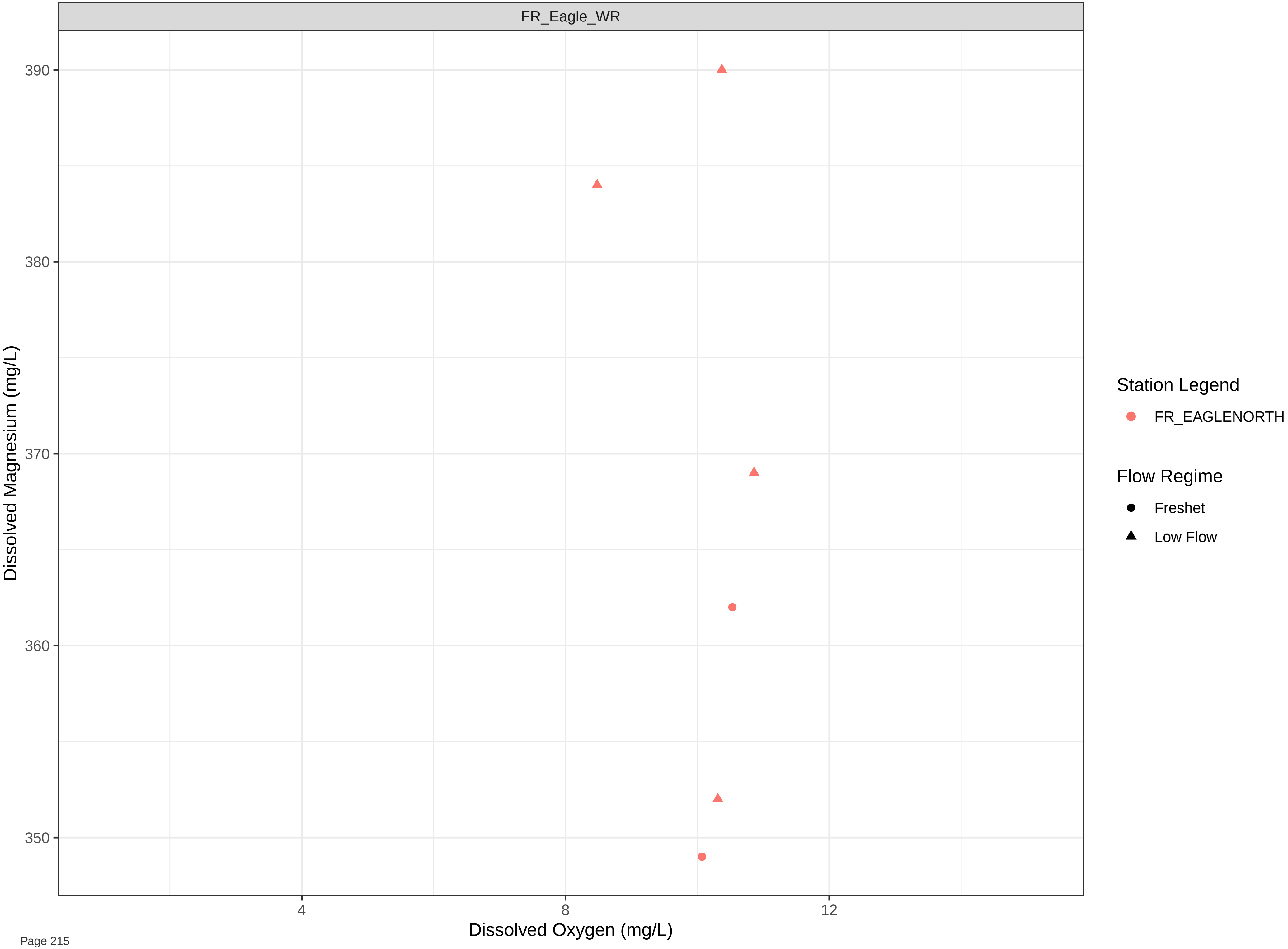

FR_TurnbullWRWest_WR
Dissolved Lithium (mg/L)
0.030
0.025
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

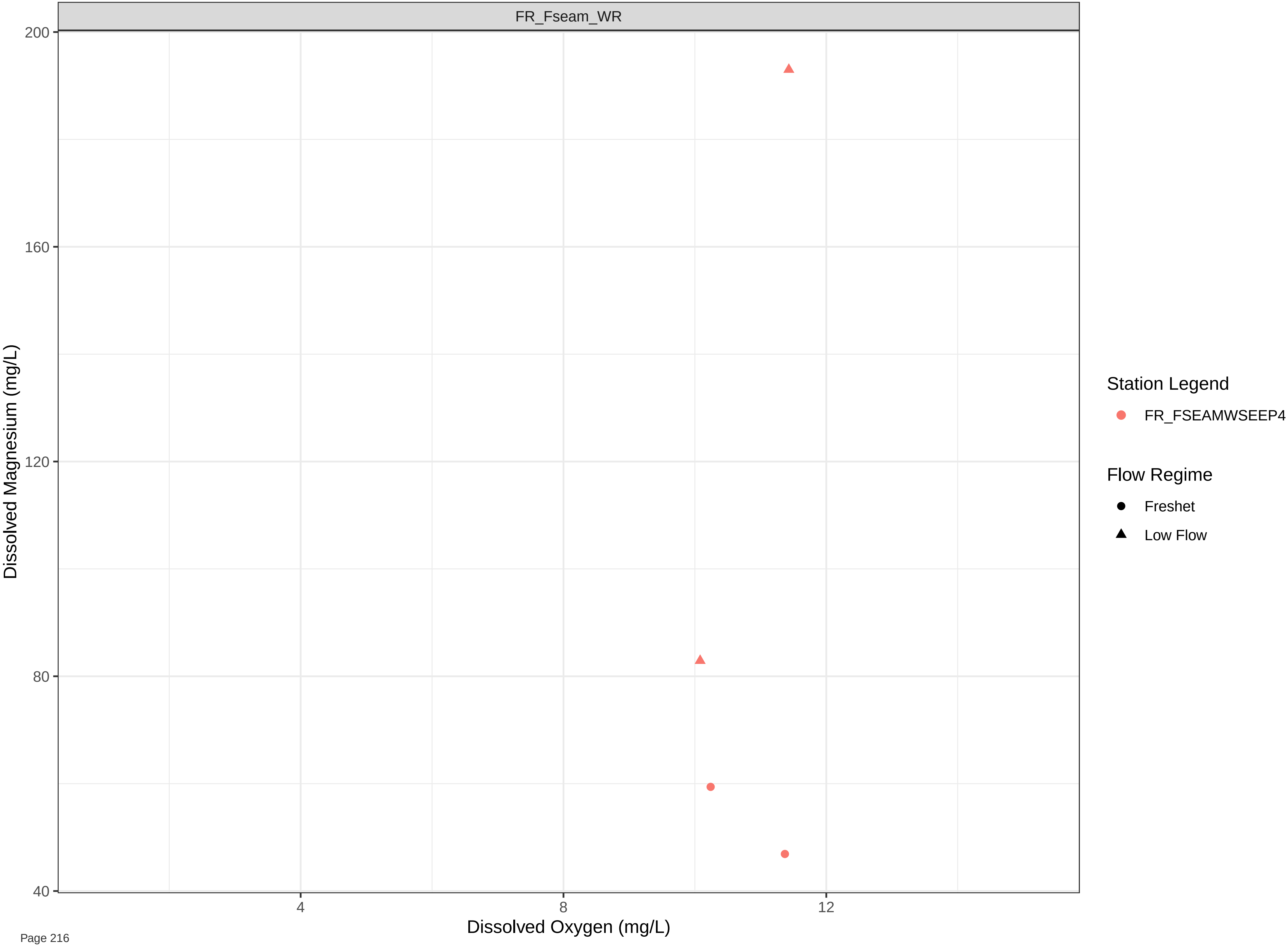

FR_A_WR
Dissolved Magnesium (mg/L)
150
130
110
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

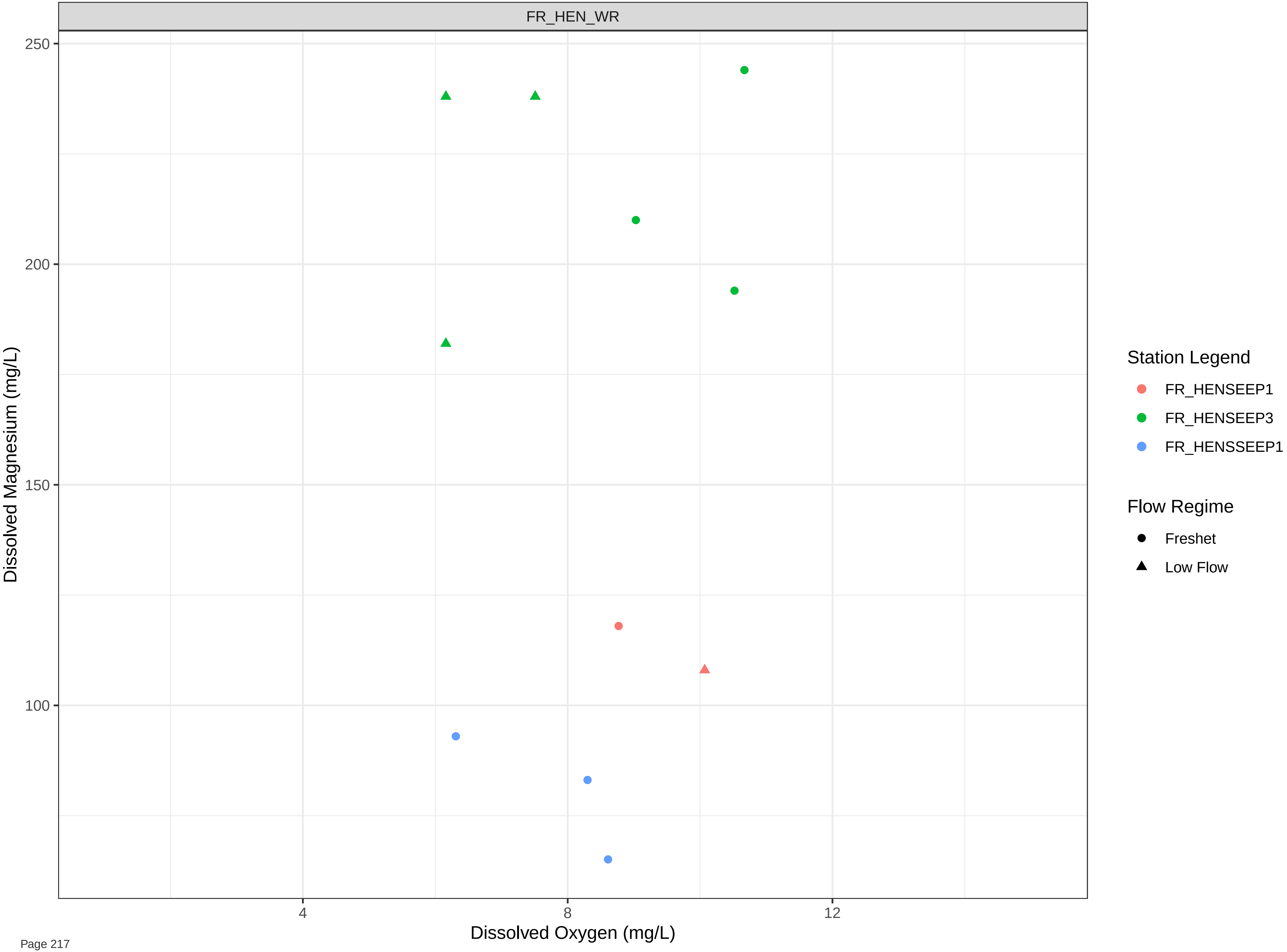

FR_Blain_CCR
400
300
200
100
Dissolved Magnesium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow

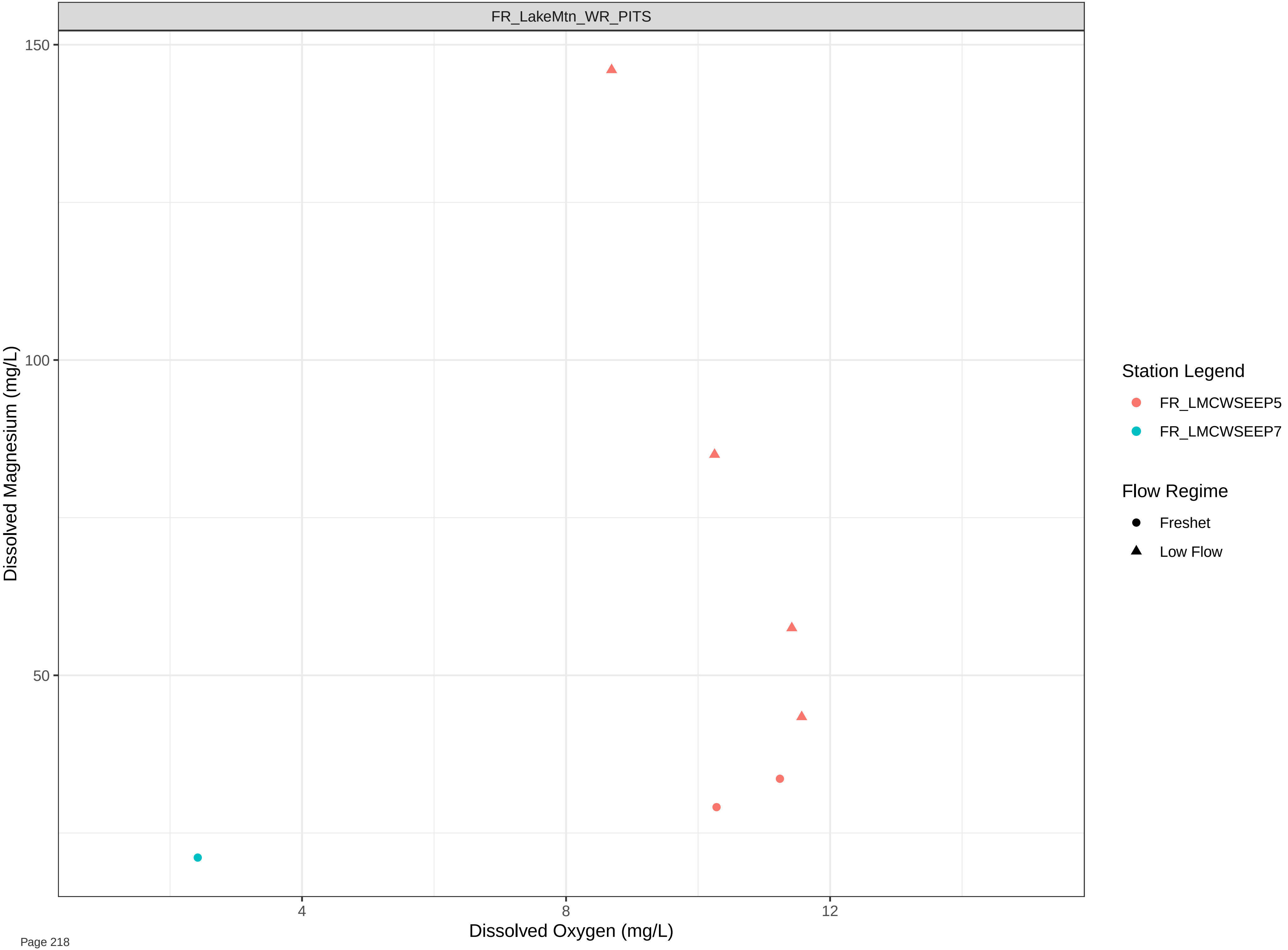

FR_ClodeCr_WR
Dissolved Magnesium (mg/L)
250
200
150
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

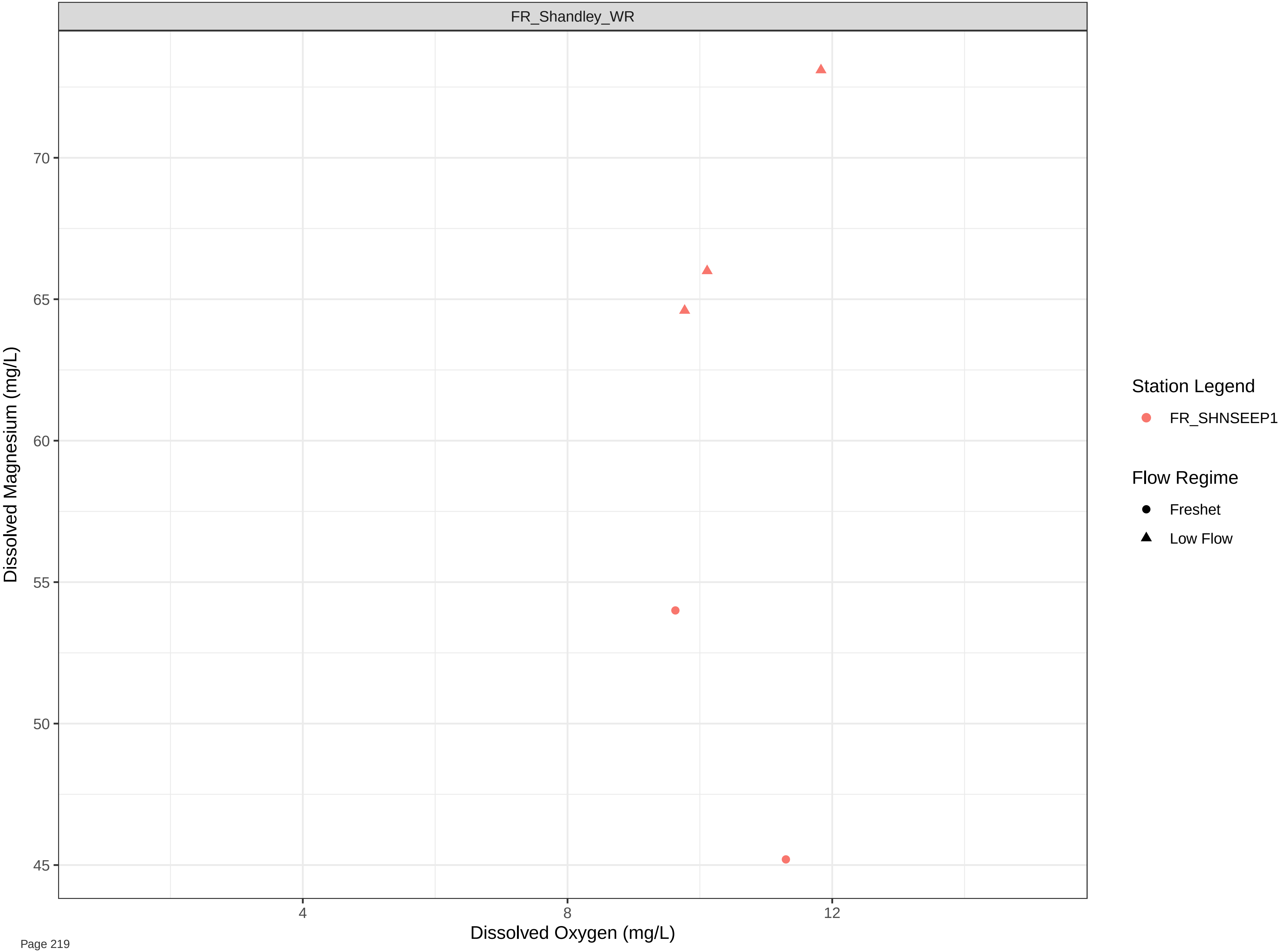

FR_DOKA_Unknown
125
100
75
50
25
4
8
12
Dissolved Magnesium (mg/L)
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

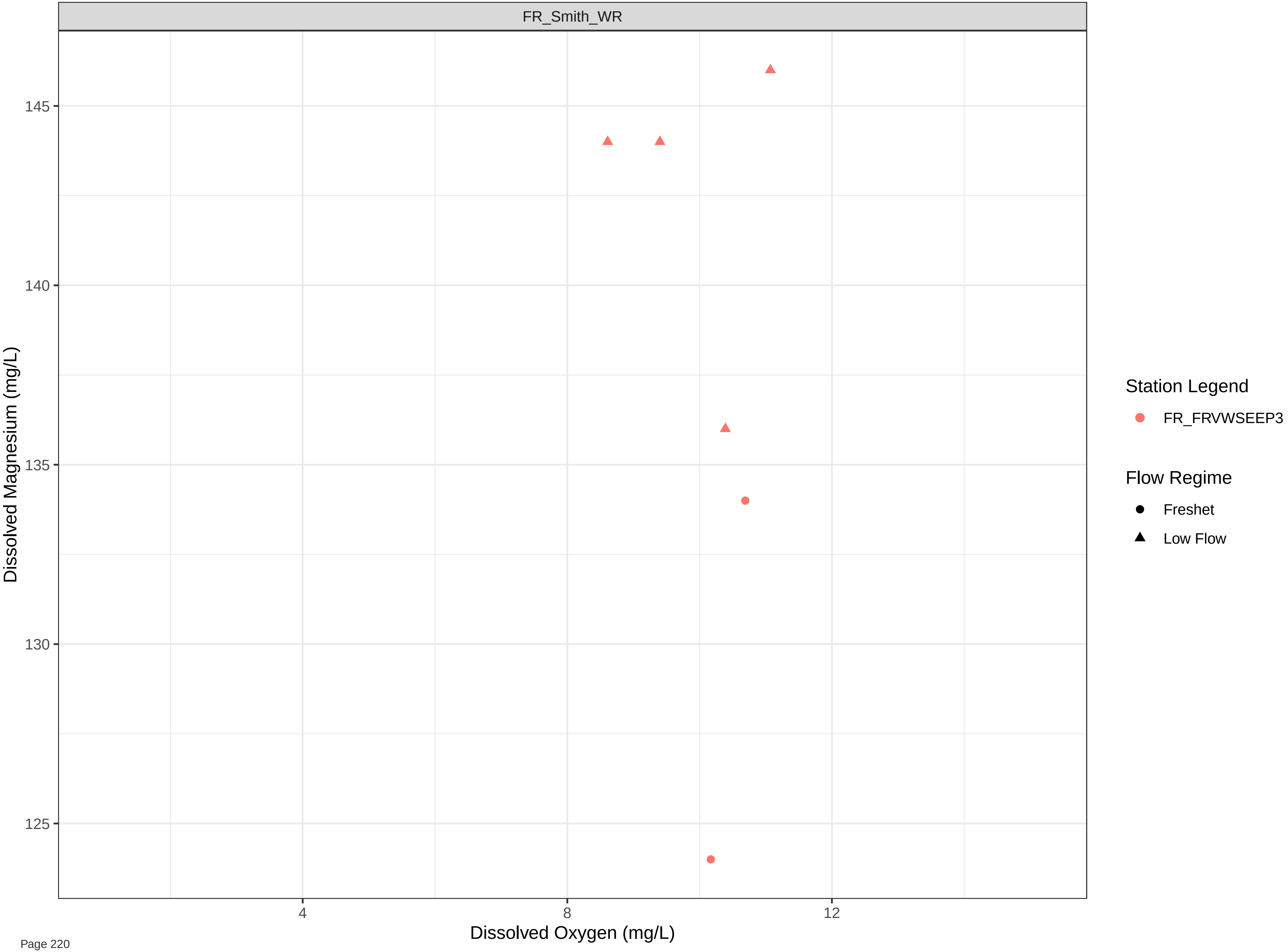

FR_Eagle_WR
390
380
370
360
350
Dissolved Magnesium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

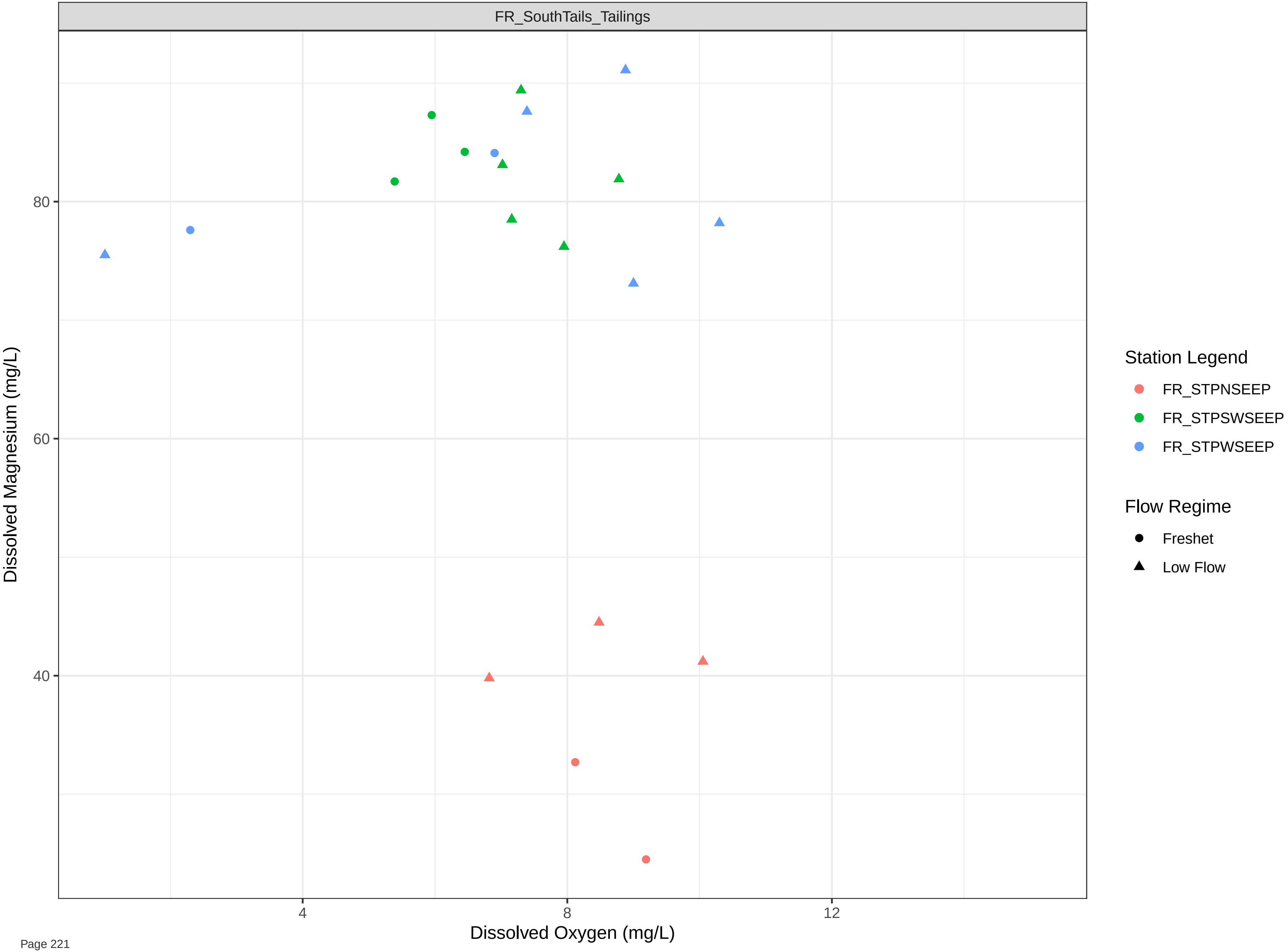

FR_Fseam_WR
Dissolved Magnesium (mg/L)
200
160
120
80
40
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

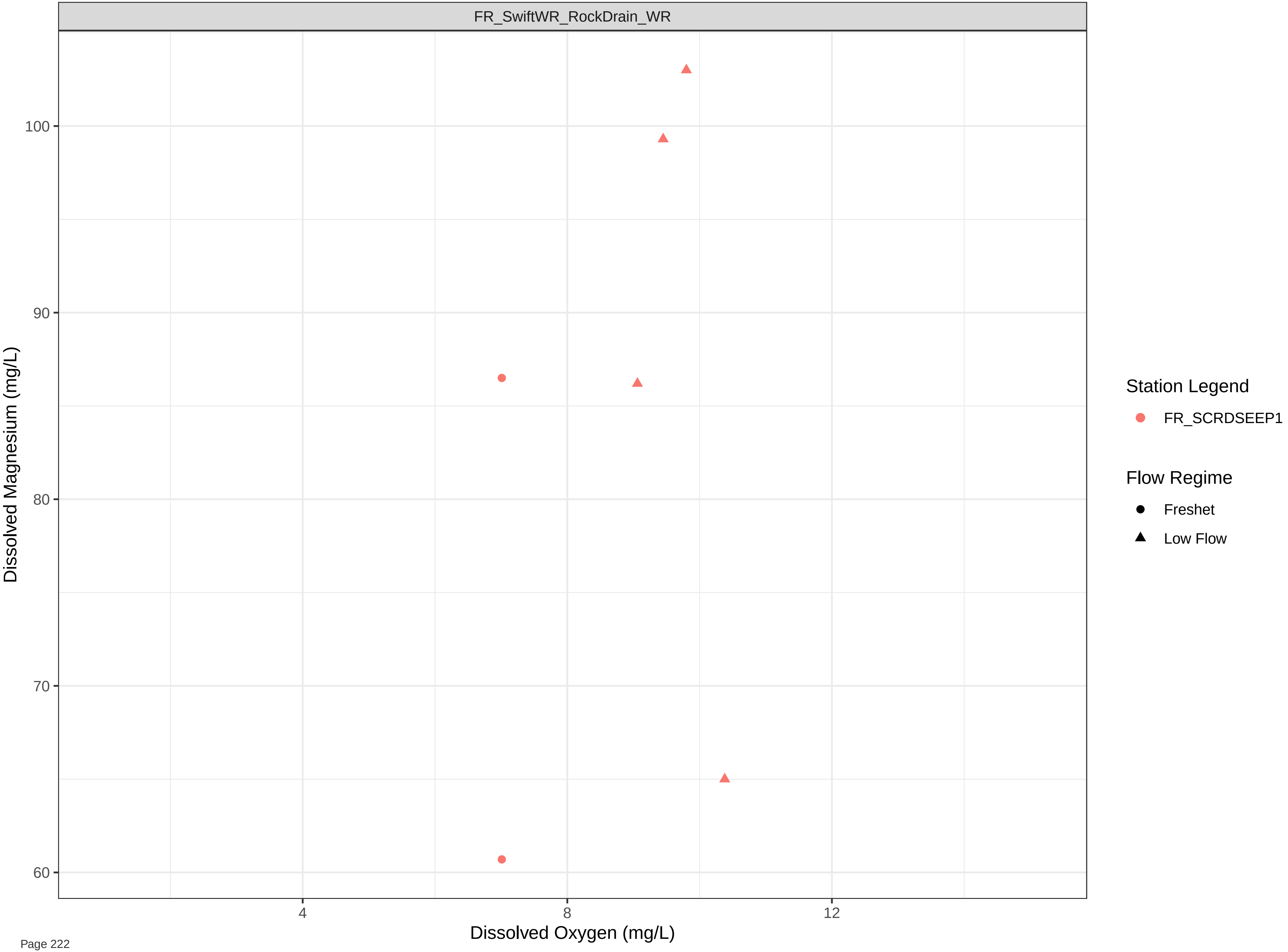

FR_HEN_WR
Dissolved Magnesium (mg/L)
250
200
150
100
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

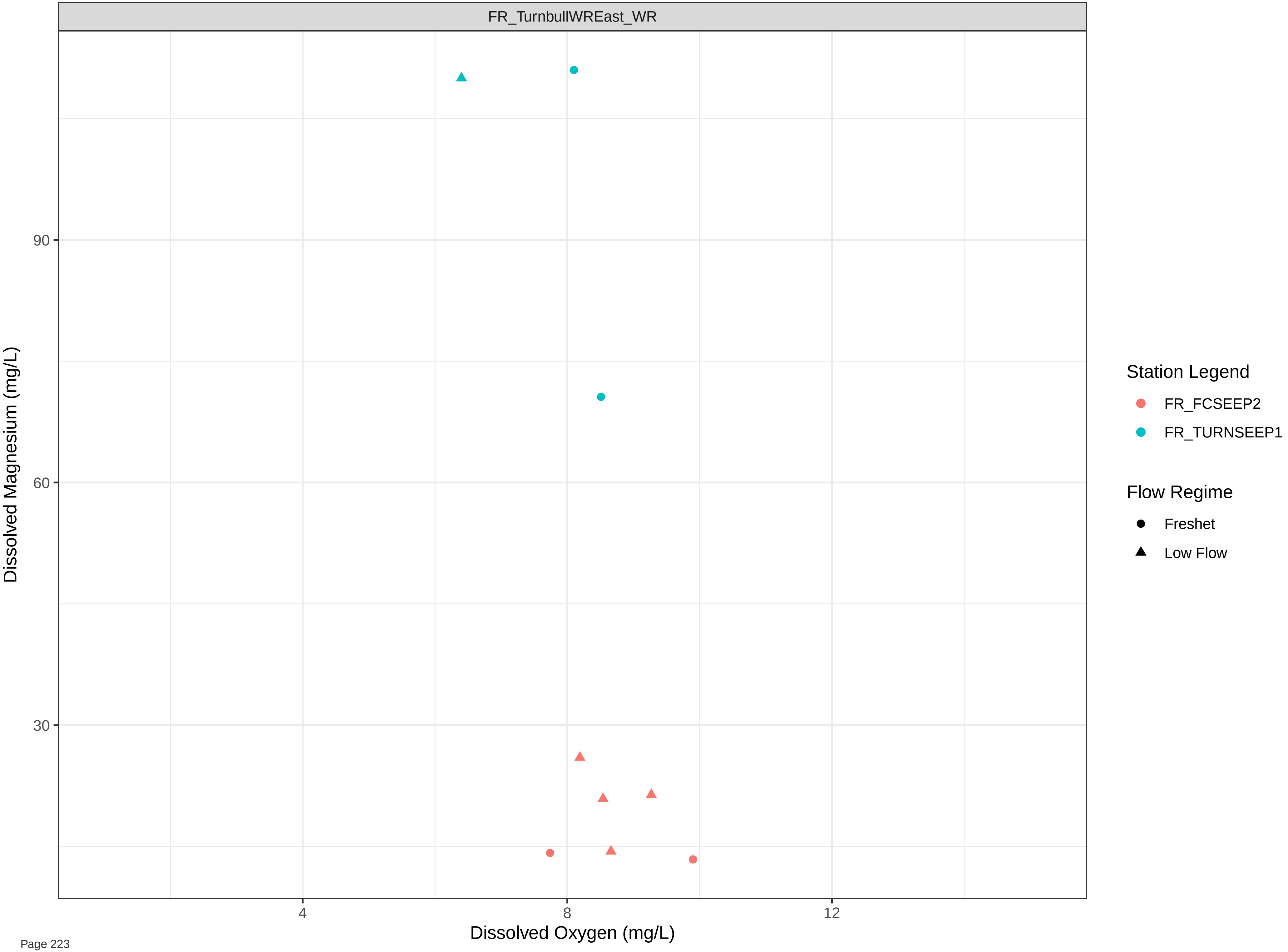

FR_LakeMtn_WR_PITS
150
100
50
Dissolved Magnesium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

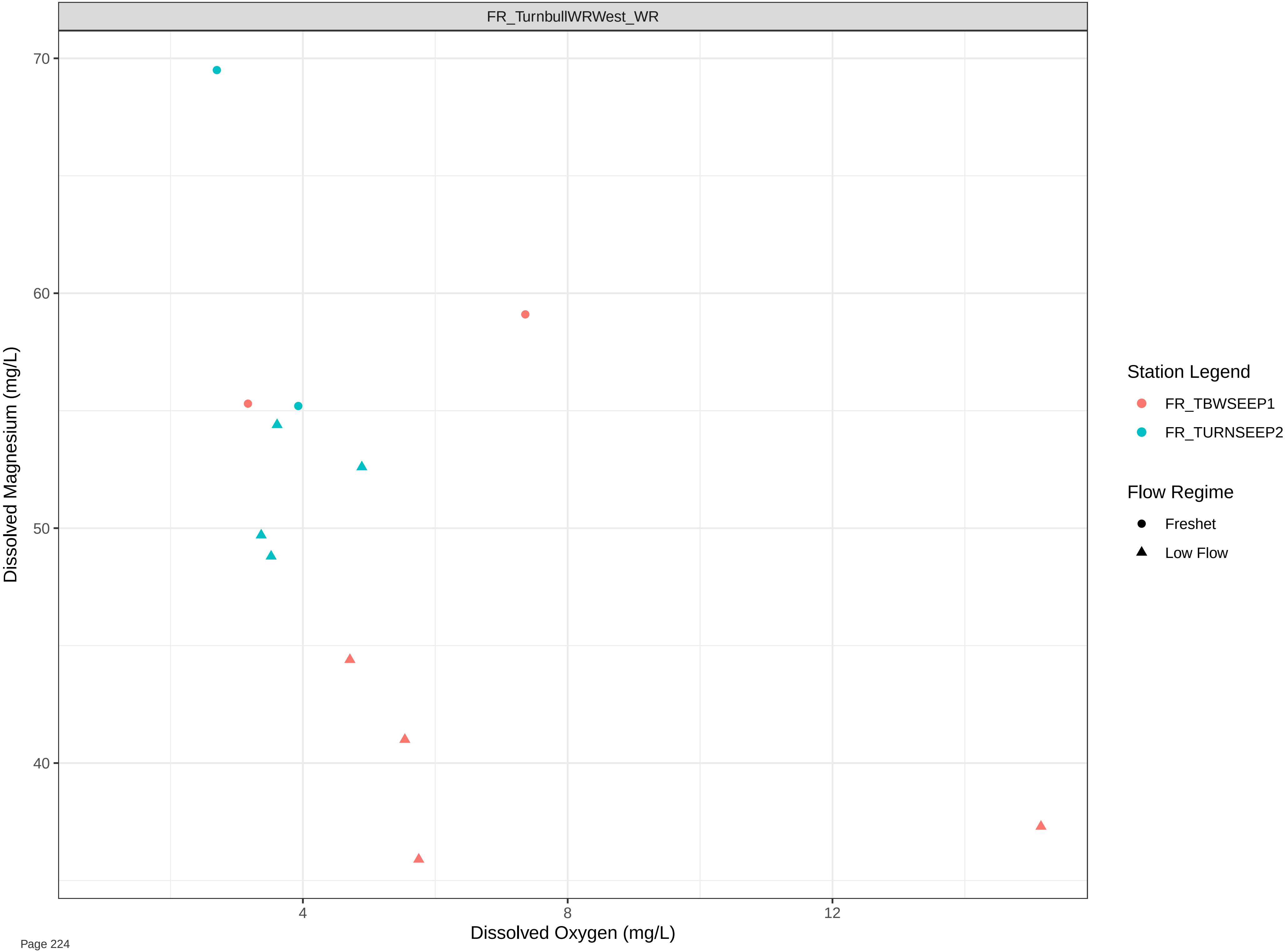

FR_Shandley_WR
Dissolved Magnesium (mg/L)
70
65
60
55
50
45
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

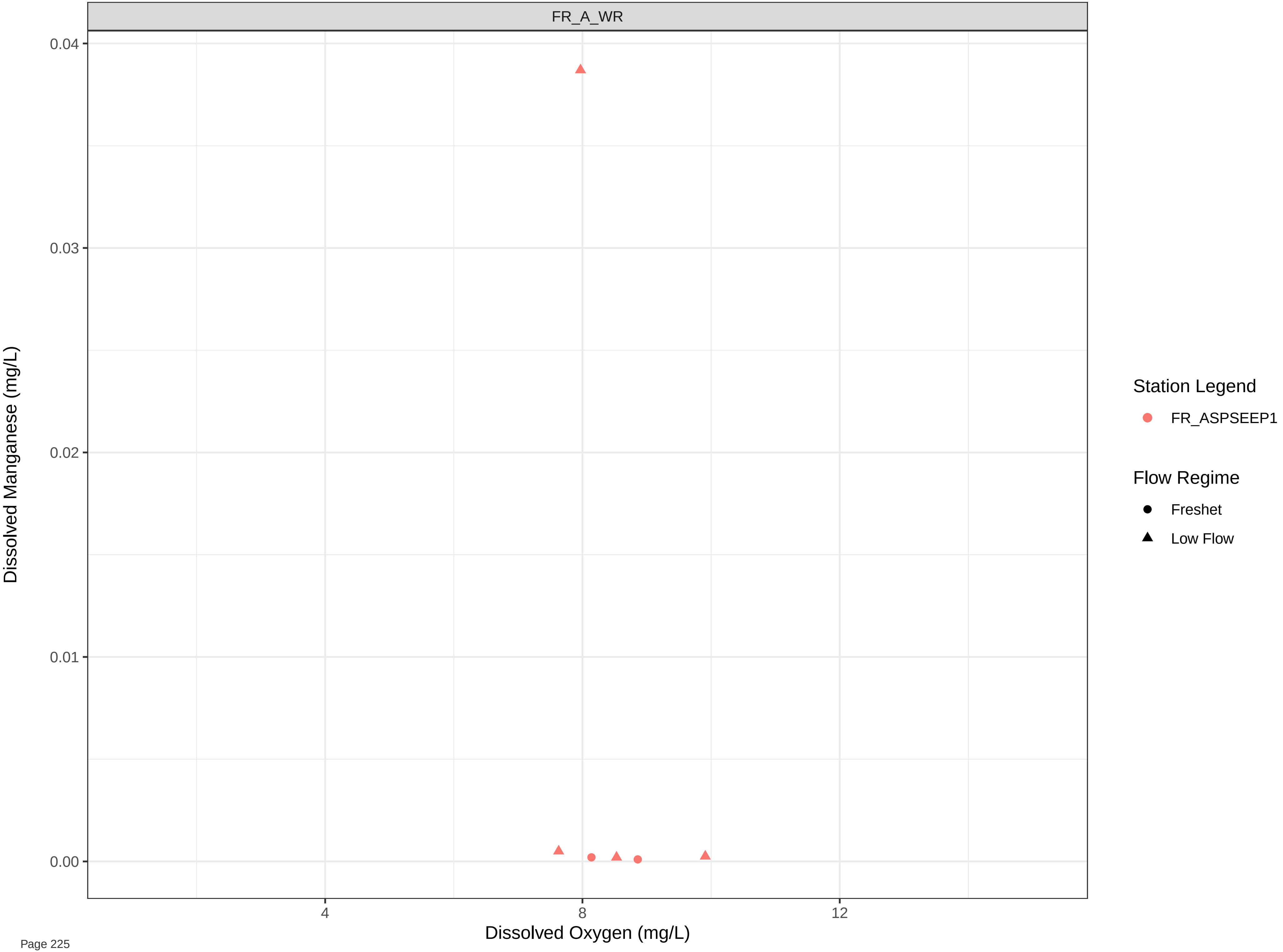

FR_Smith_WR
Dissolved Magnesium (mg/L)
145
140
135
130
125
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

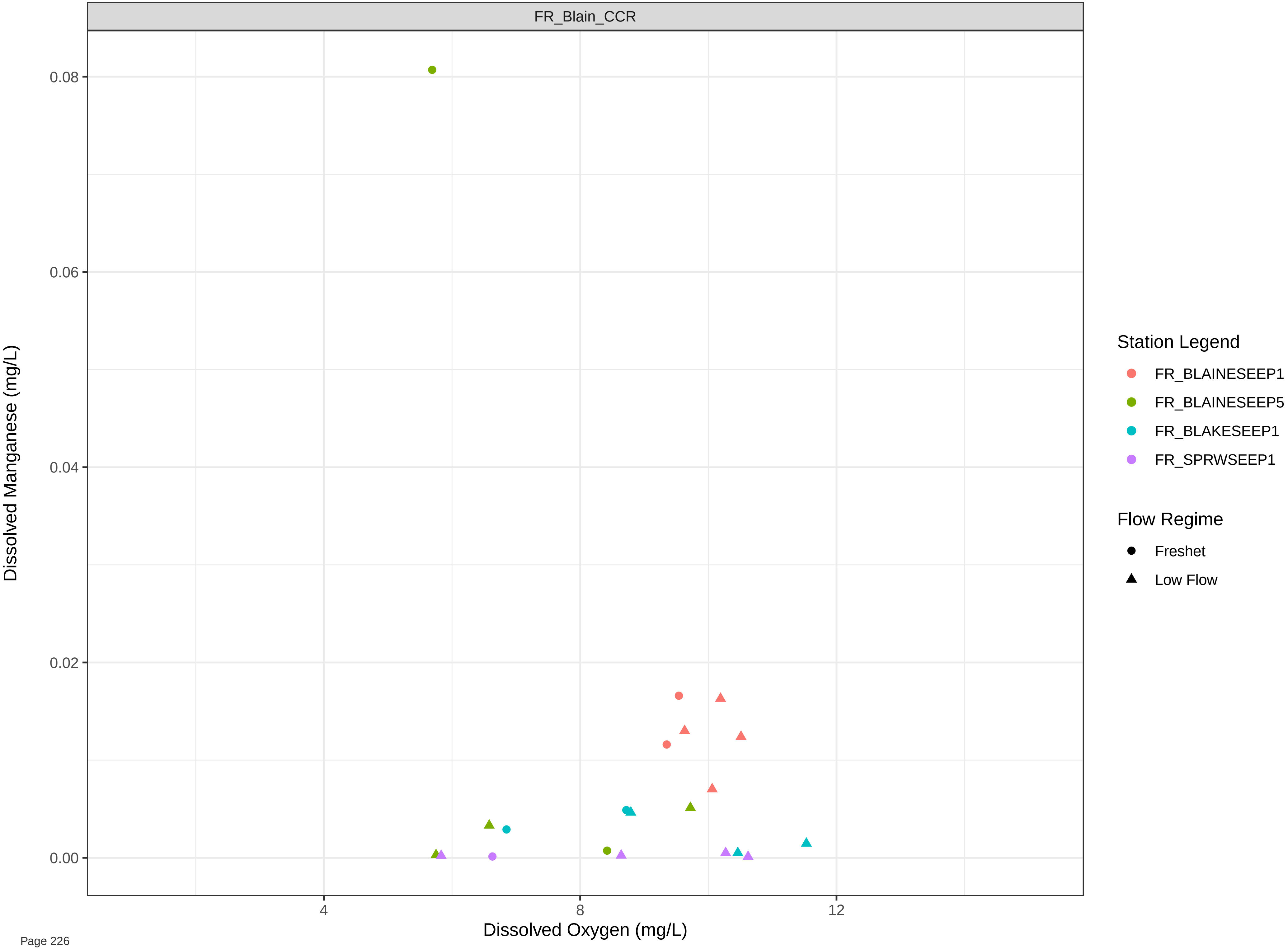

FR_SouthTails_Tailings
Dissolved Magnesium (mg/L)
80
60
40
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

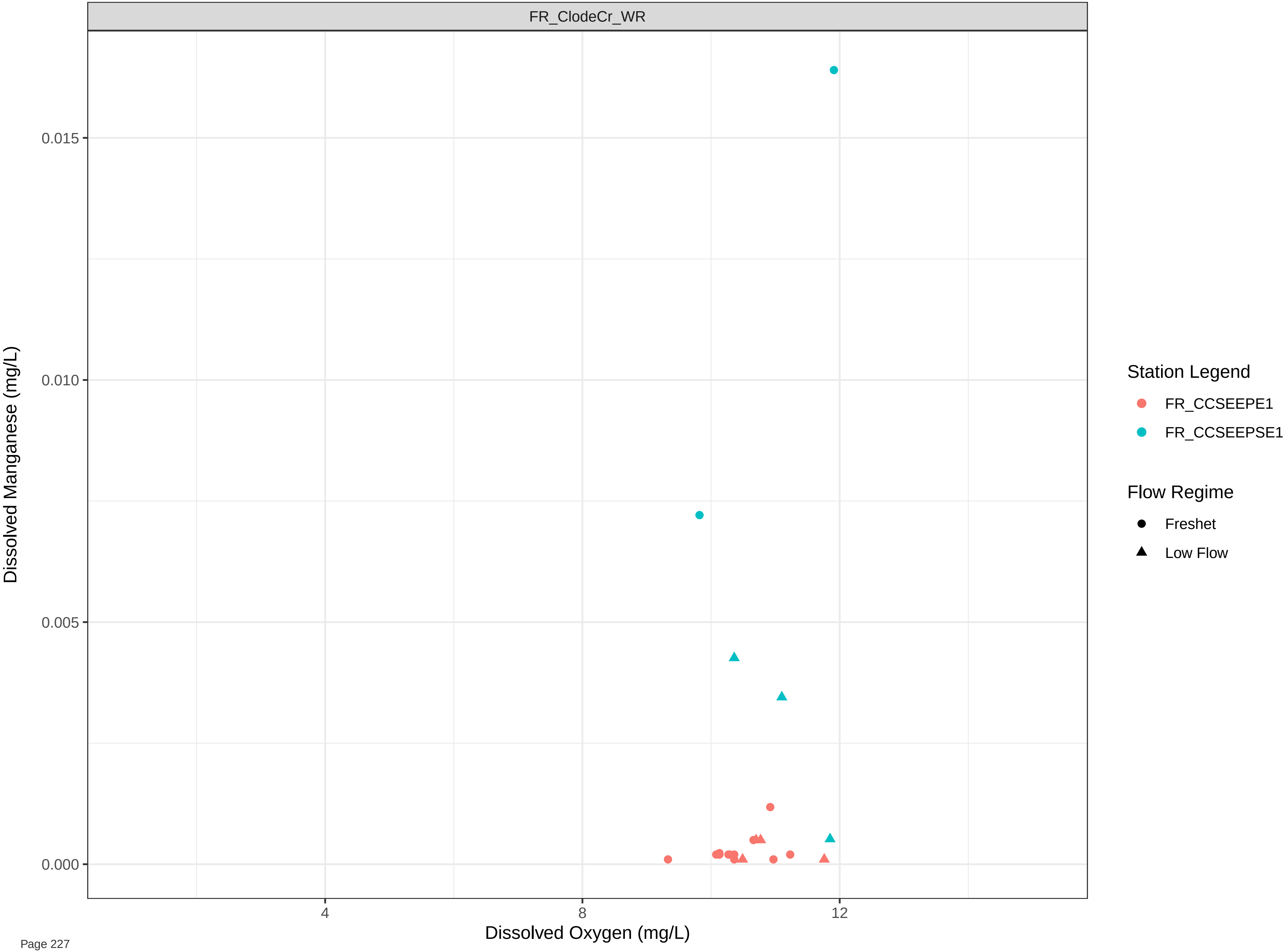

FR_SwiftWR_RockDrain_WR
Dissolved Magnesium (mg/L)
100
90
80
70
60
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

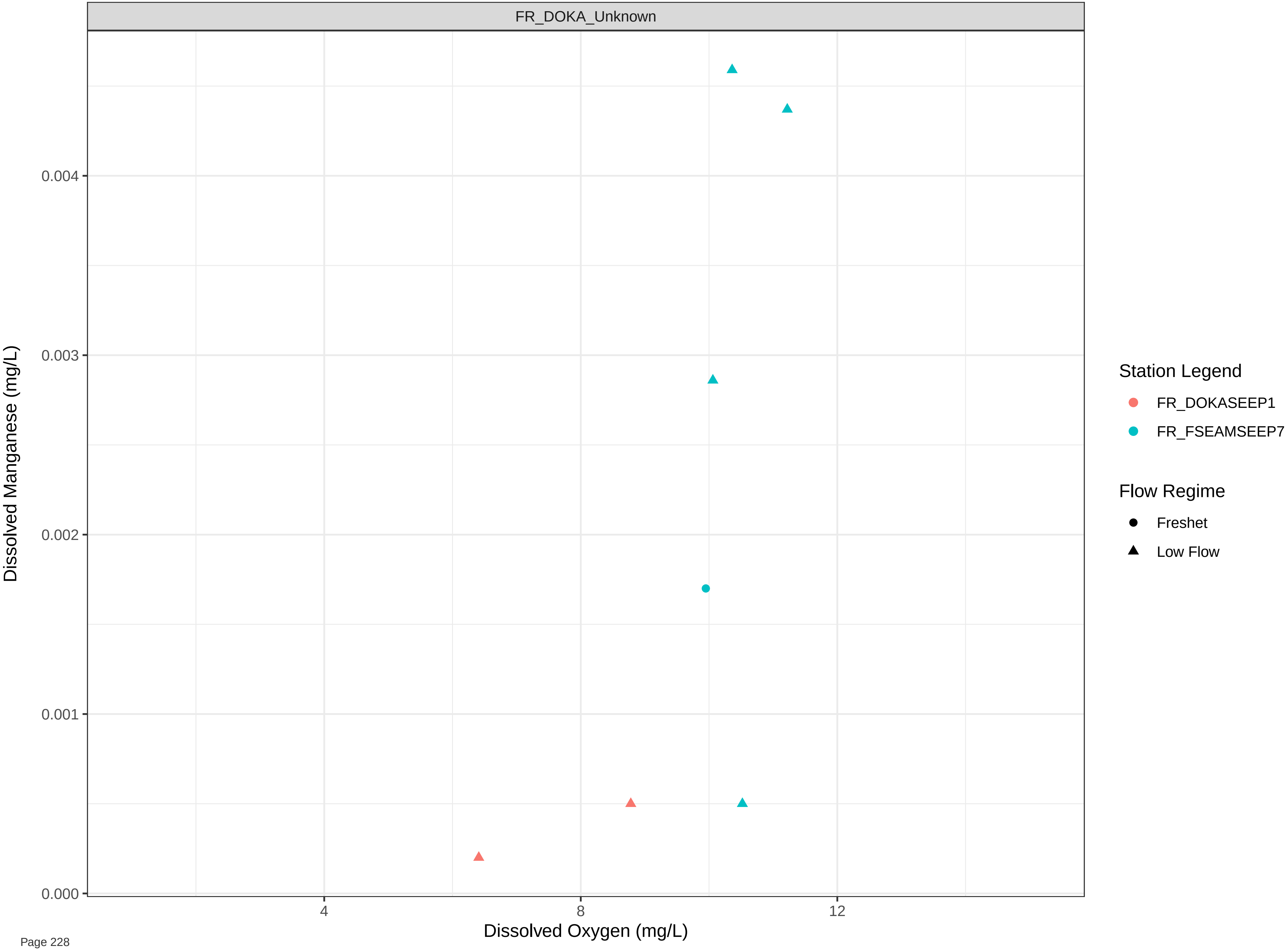

FR_TurnbullWREast_WR
Dissolved Magnesium (mg/L)
90
60
30
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_FCSEEP2
● FR_TURNSEEP1
Flow Regime
● Freshet
▲ Low Flow

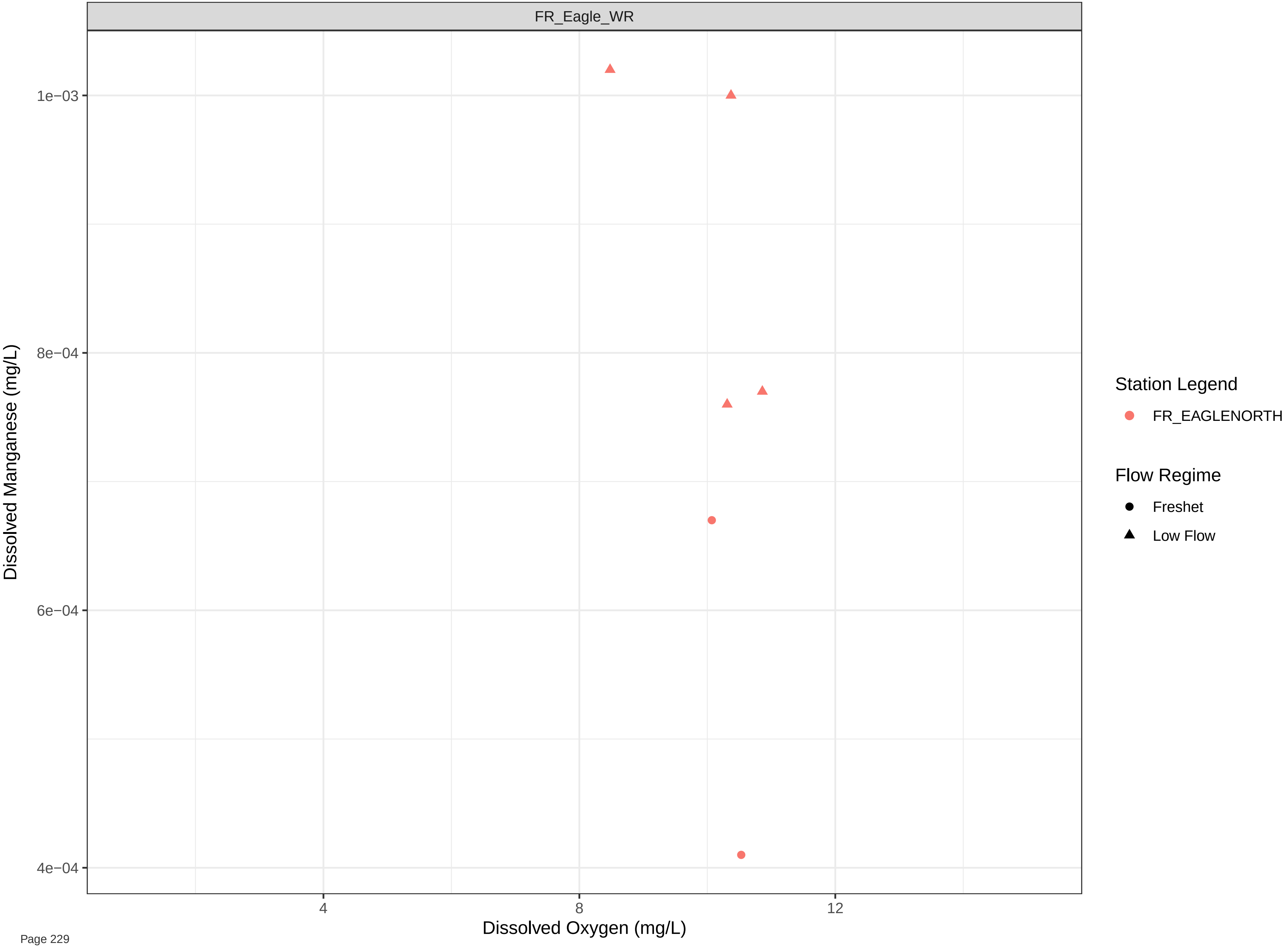

FR_TurnbullWRWest_WR
70
60
50
40
Dissolved Magnesium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

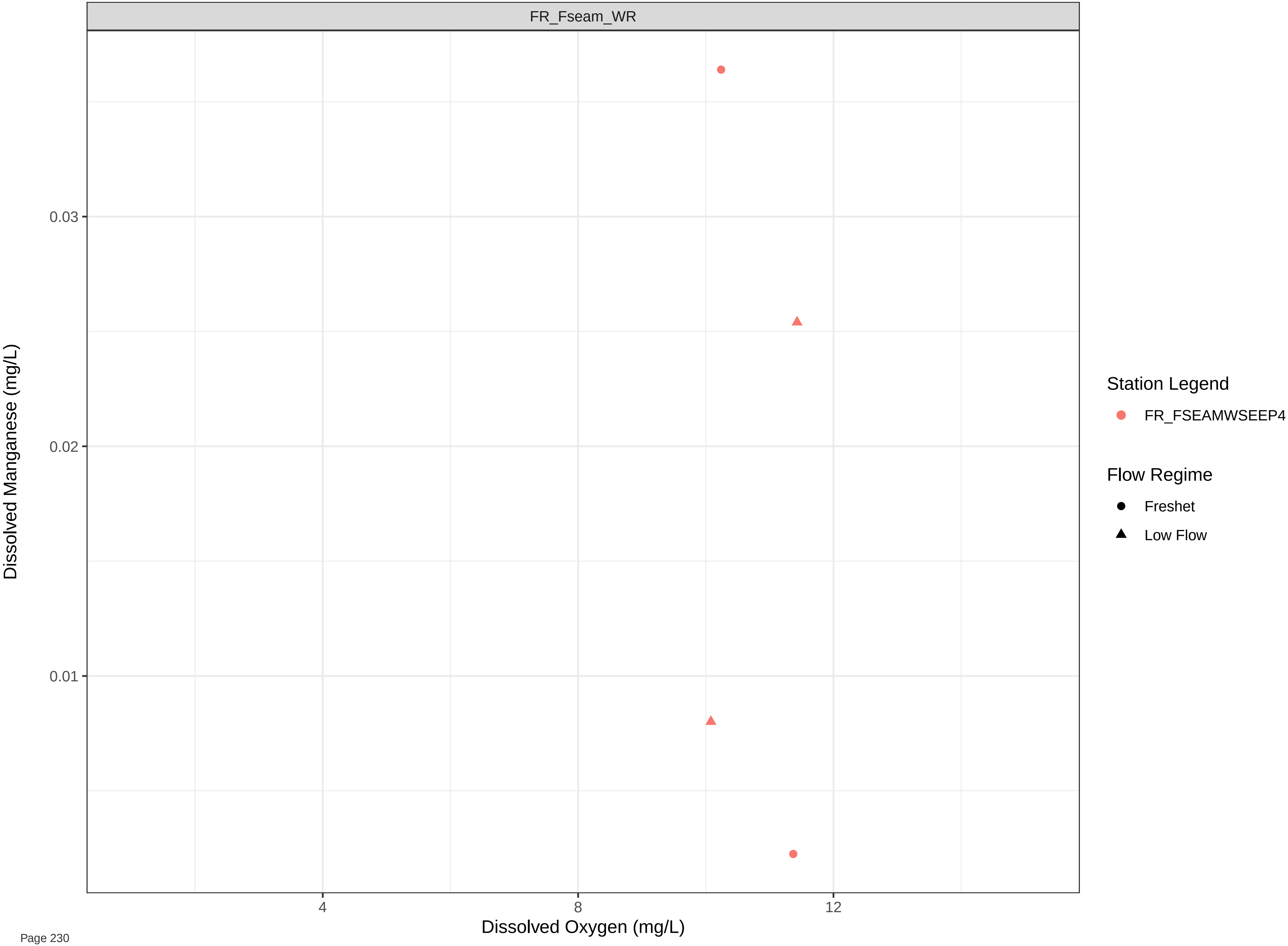

FR_A_WR
Dissolved Manganese (mg/L)
0.04
0.03
0.02
0.01
0.00
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

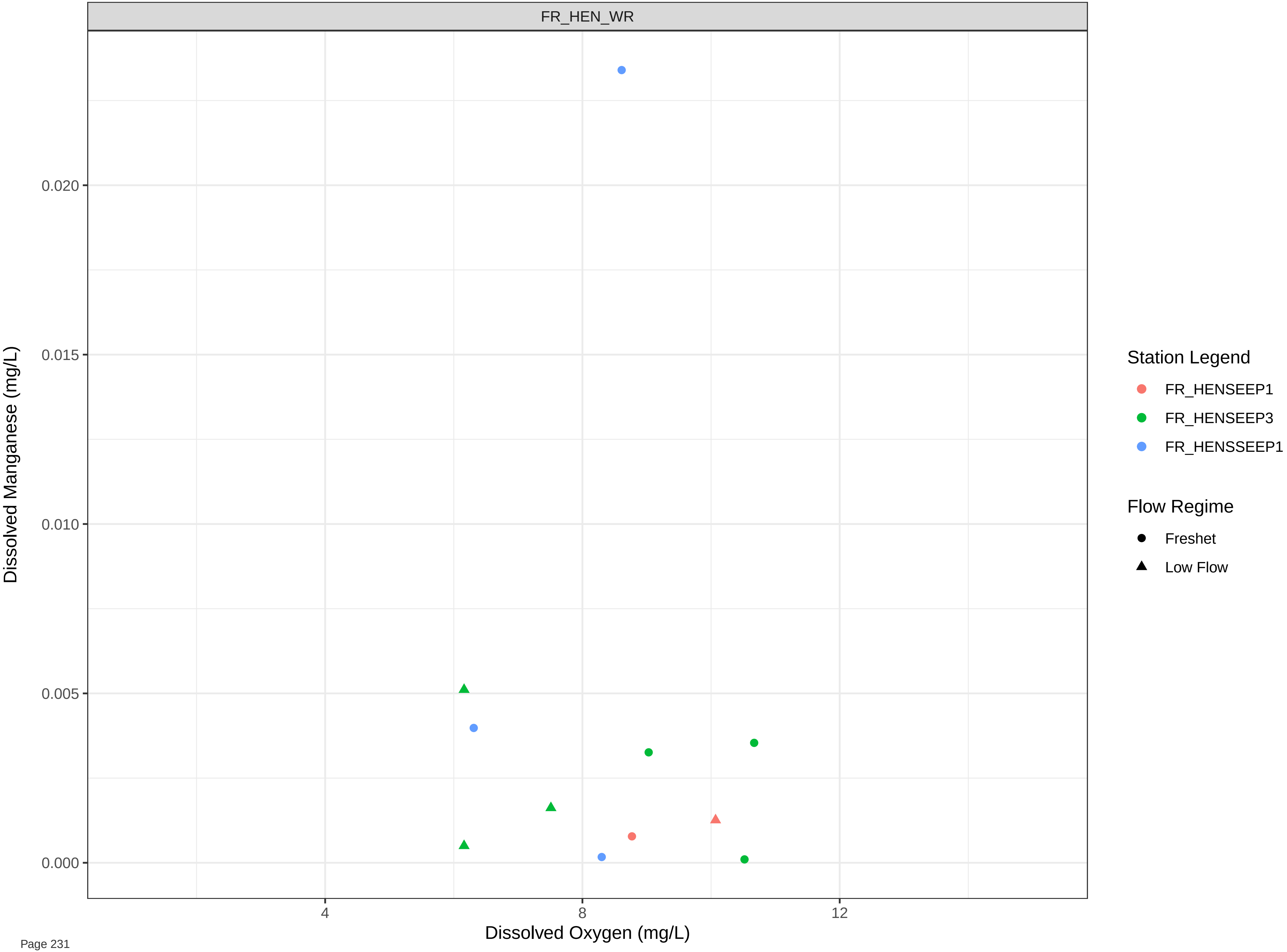

FR_Blain_CCR
Dissolved Manganese (mg/L)
0.08
0.06
0.04
0.02
0.00
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow

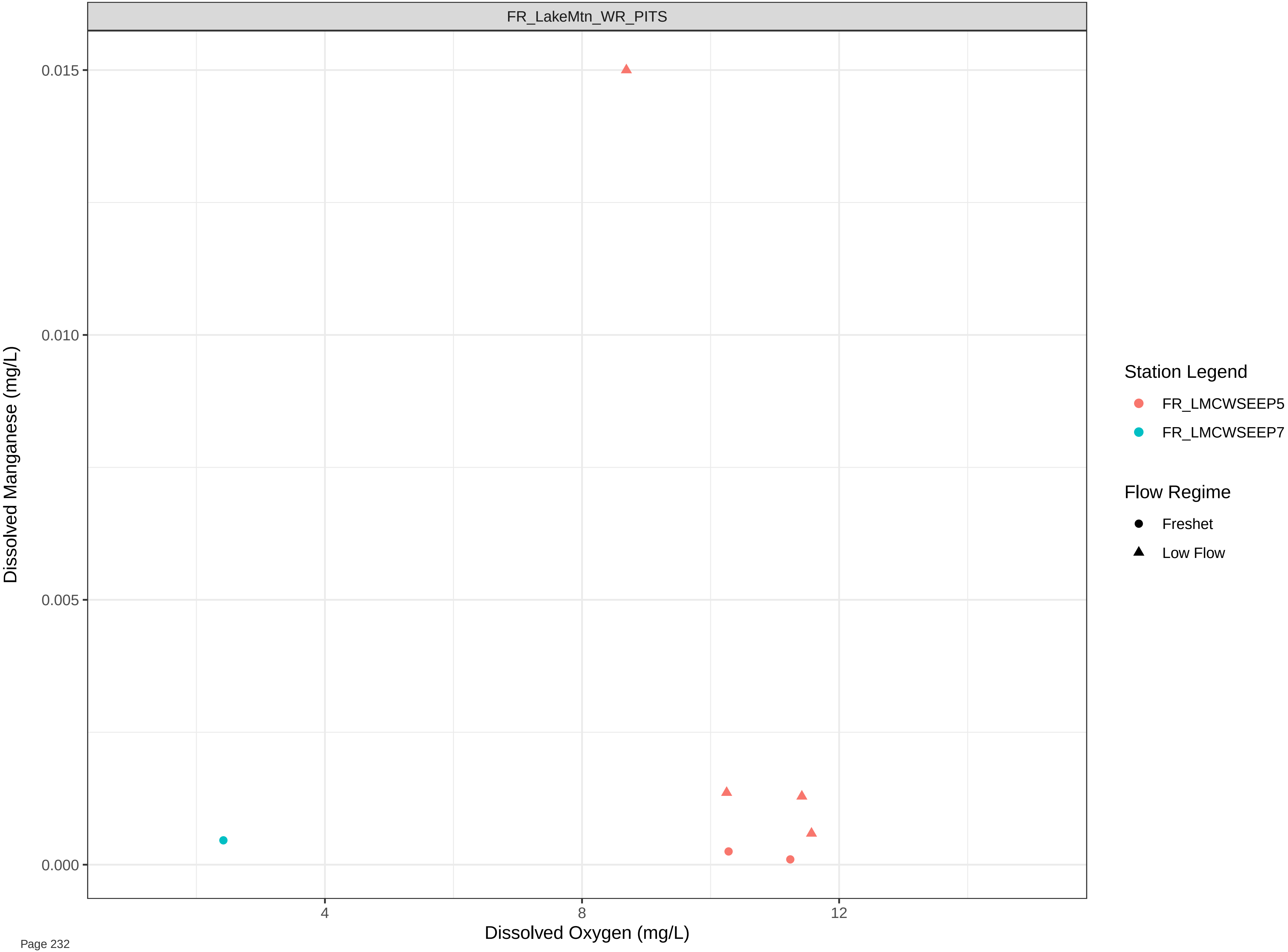

FR_ClodeCr_WR
Dissolved Manganese (mg/L)
0.015
0.010
0.005
0.000
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

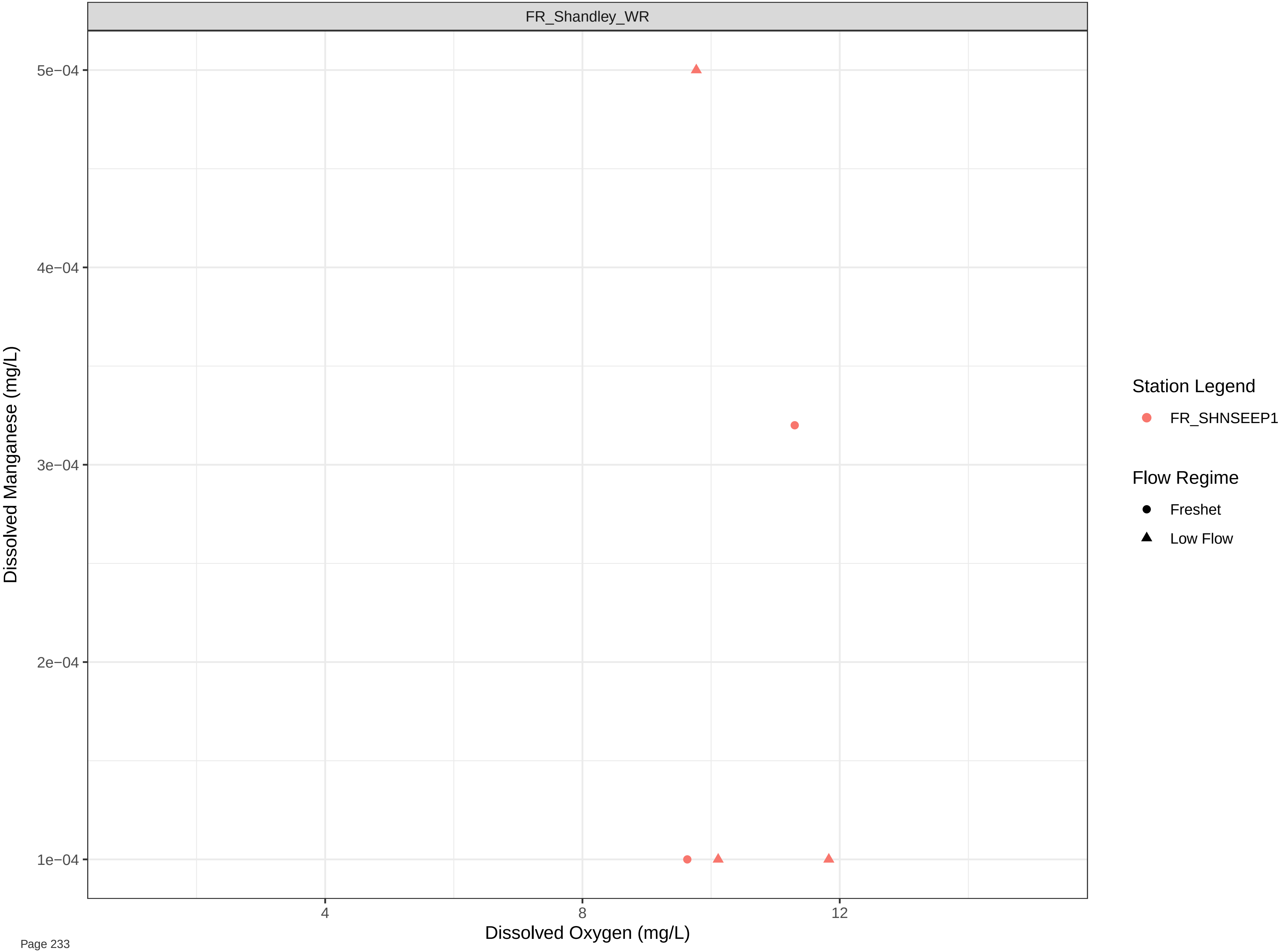

FR_DOKA_Unknown
Dissolved Manganese (mg/L)
0.000
0.001
0.002
0.003
0.004
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

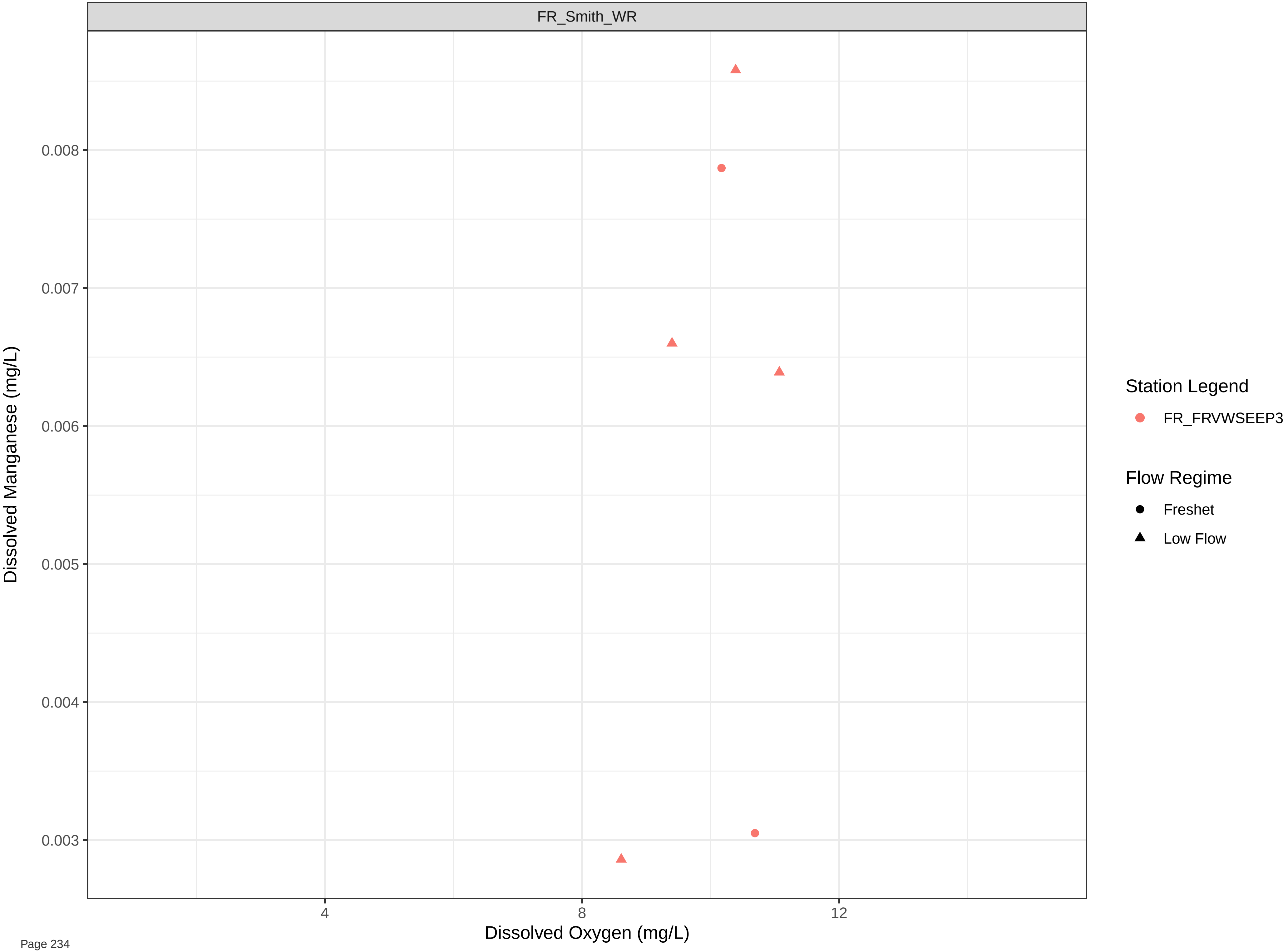

FR_Eagle_WR
Dissolved Manganese (mg/L)
1e−03
8e−04
6e−04
4e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

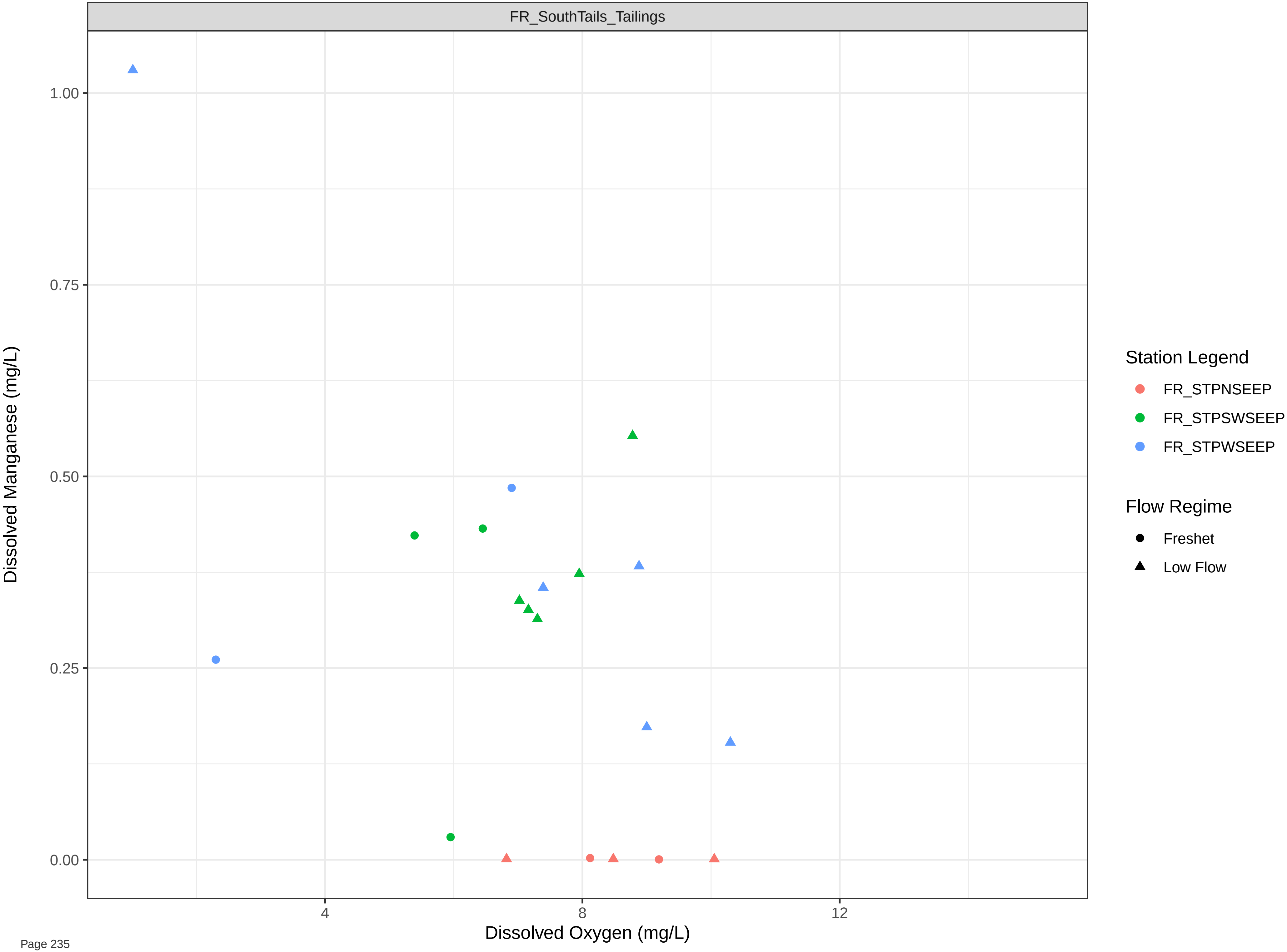

FR_Fseam_WR
Dissolved Manganese (mg/L)
0.03
0.02
0.01
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

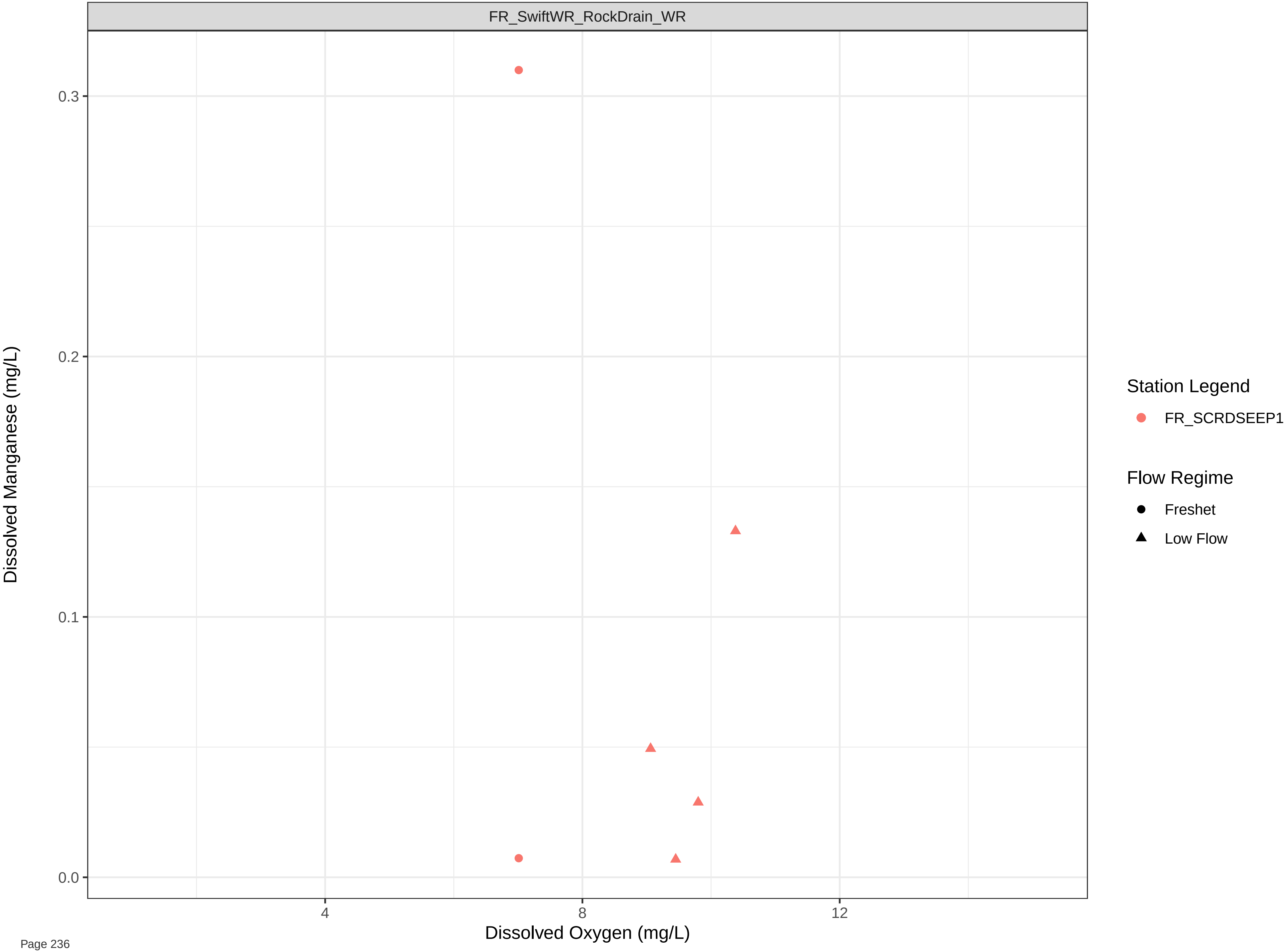

FR_HEN_WR
Dissolved Manganese (mg/L)
0.020
0.015
0.010
0.005
0.000
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

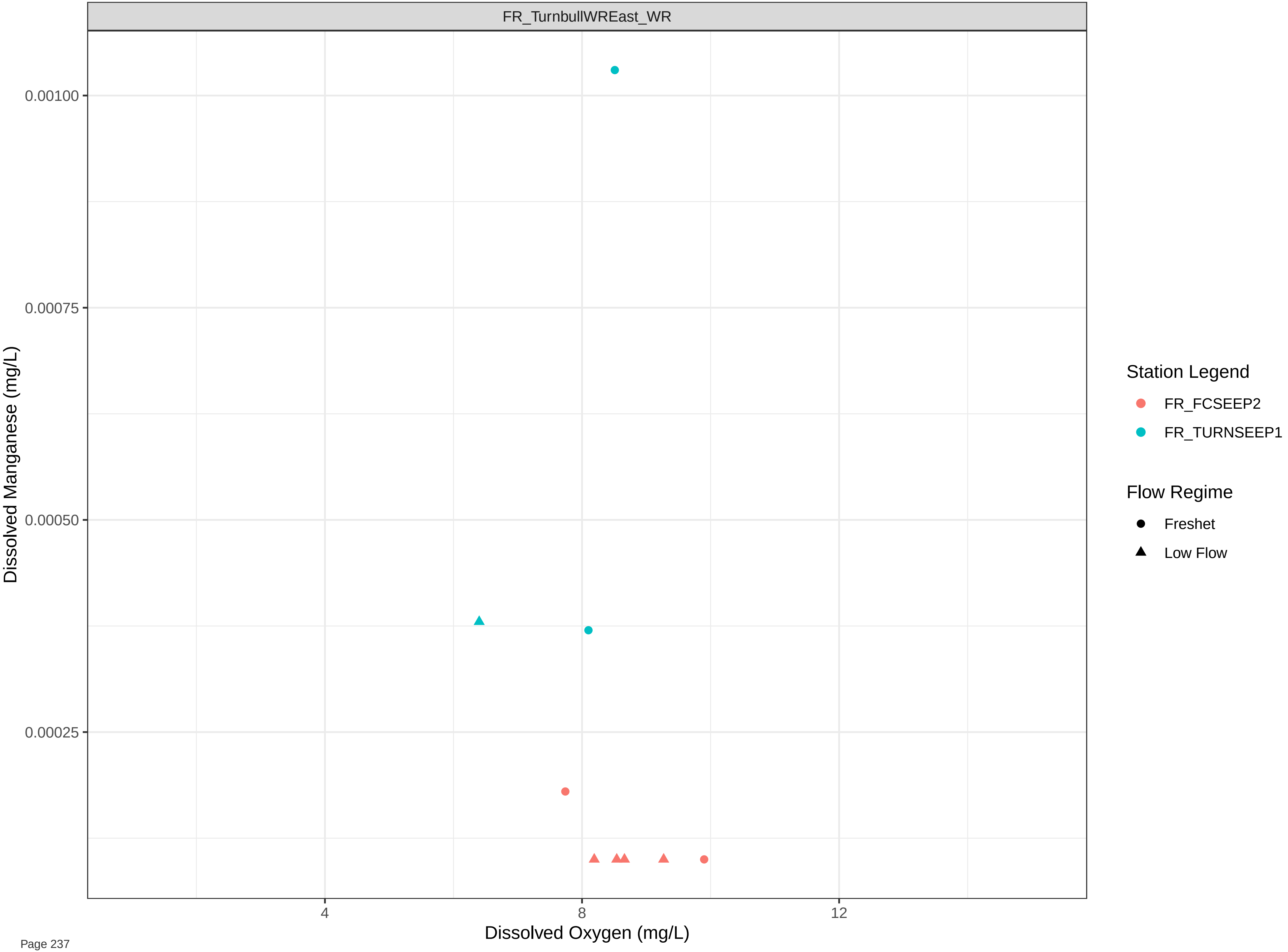

FR_LakeMtn_WR_PITS
Dissolved Manganese (mg/L)
0.015
0.010
0.005
0.000
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

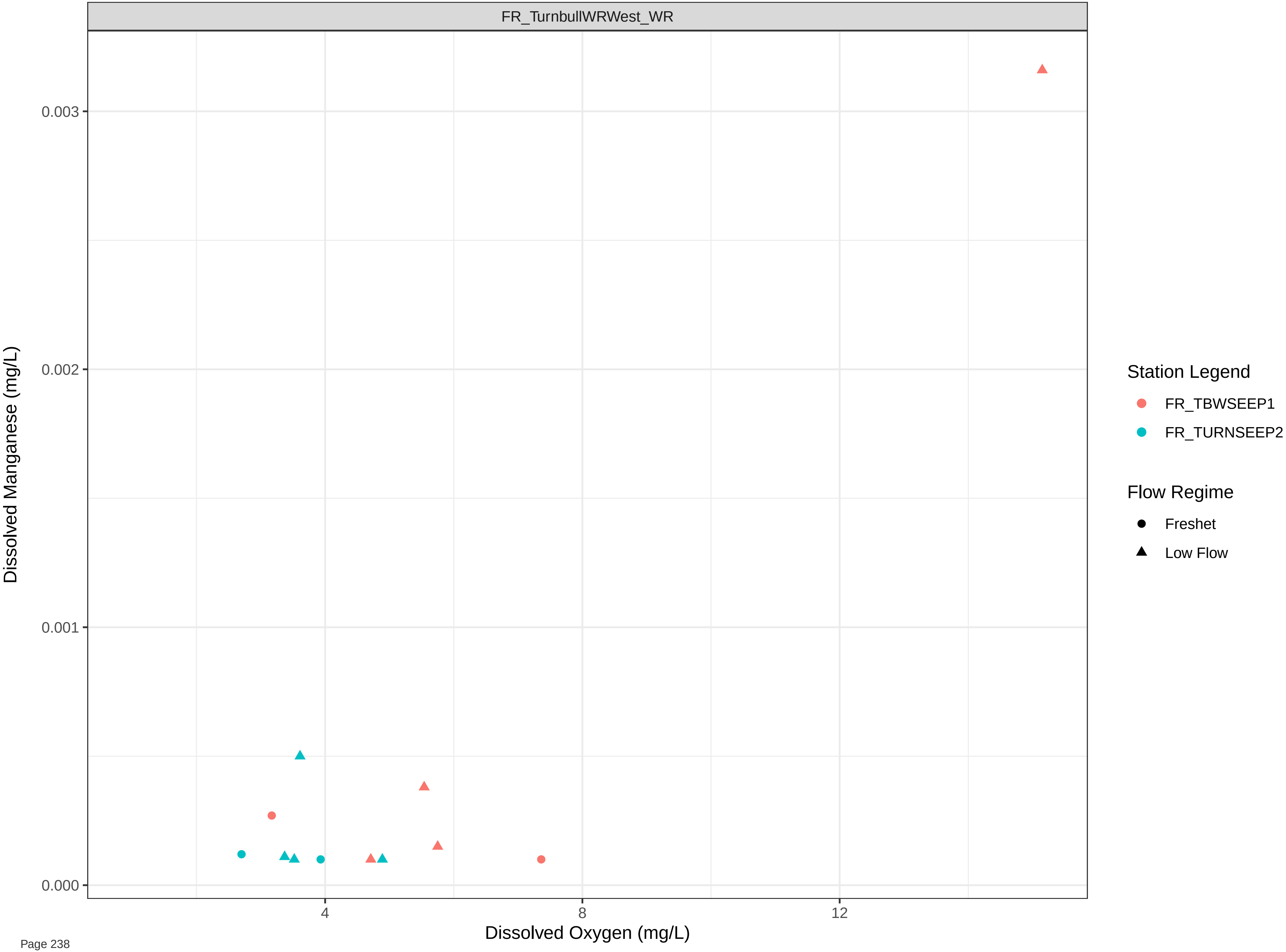

FR_Shandley_WR
Dissolved Manganese (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

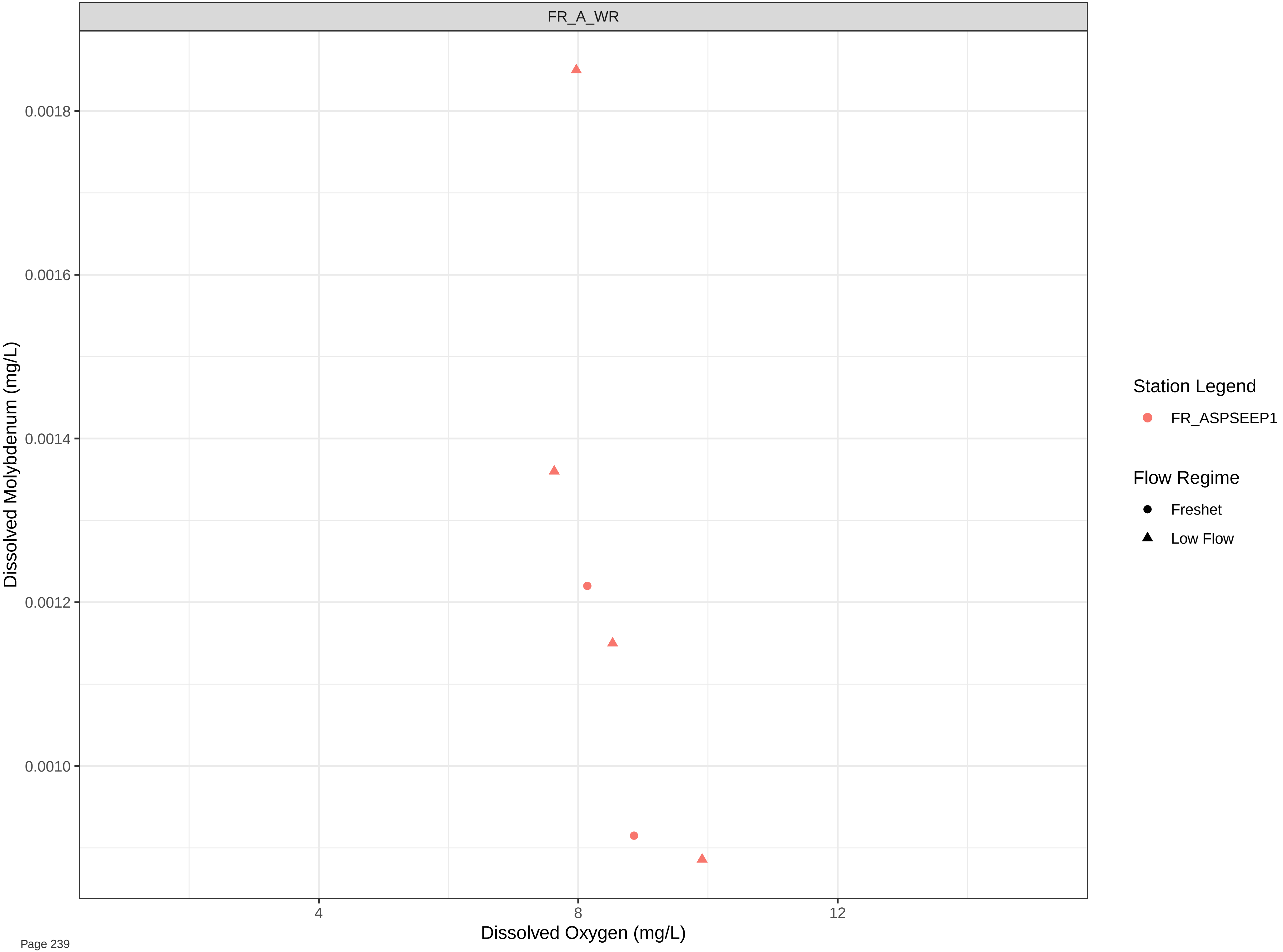

FR_Smith_WR
Dissolved Manganese (mg/L)
0.008
0.007
0.006
0.005
0.004
0.003
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

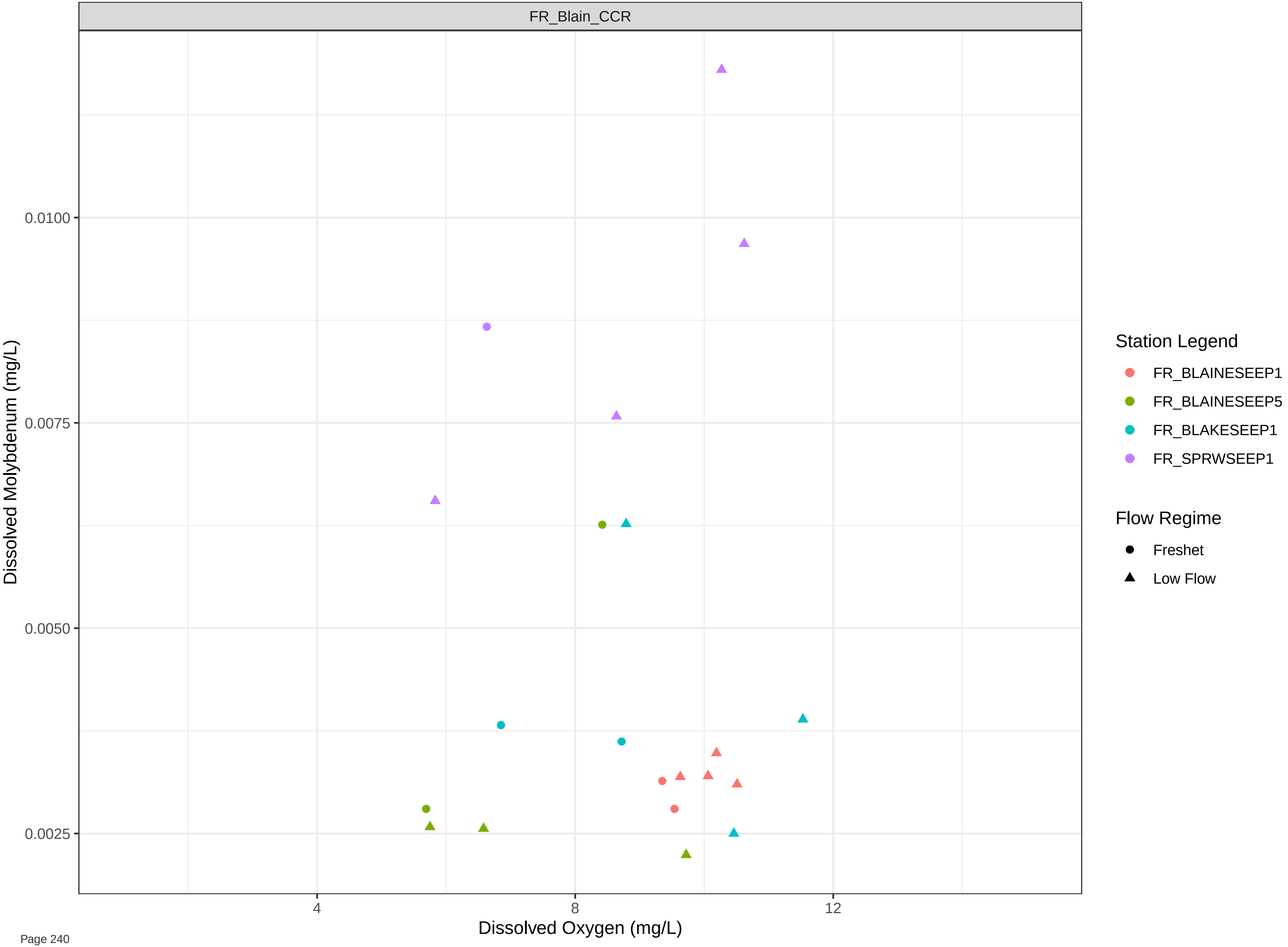

FR_SouthTails_Tailings
Dissolved Manganese (mg/L)
1.00
0.75
0.50
0.25
0.00
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

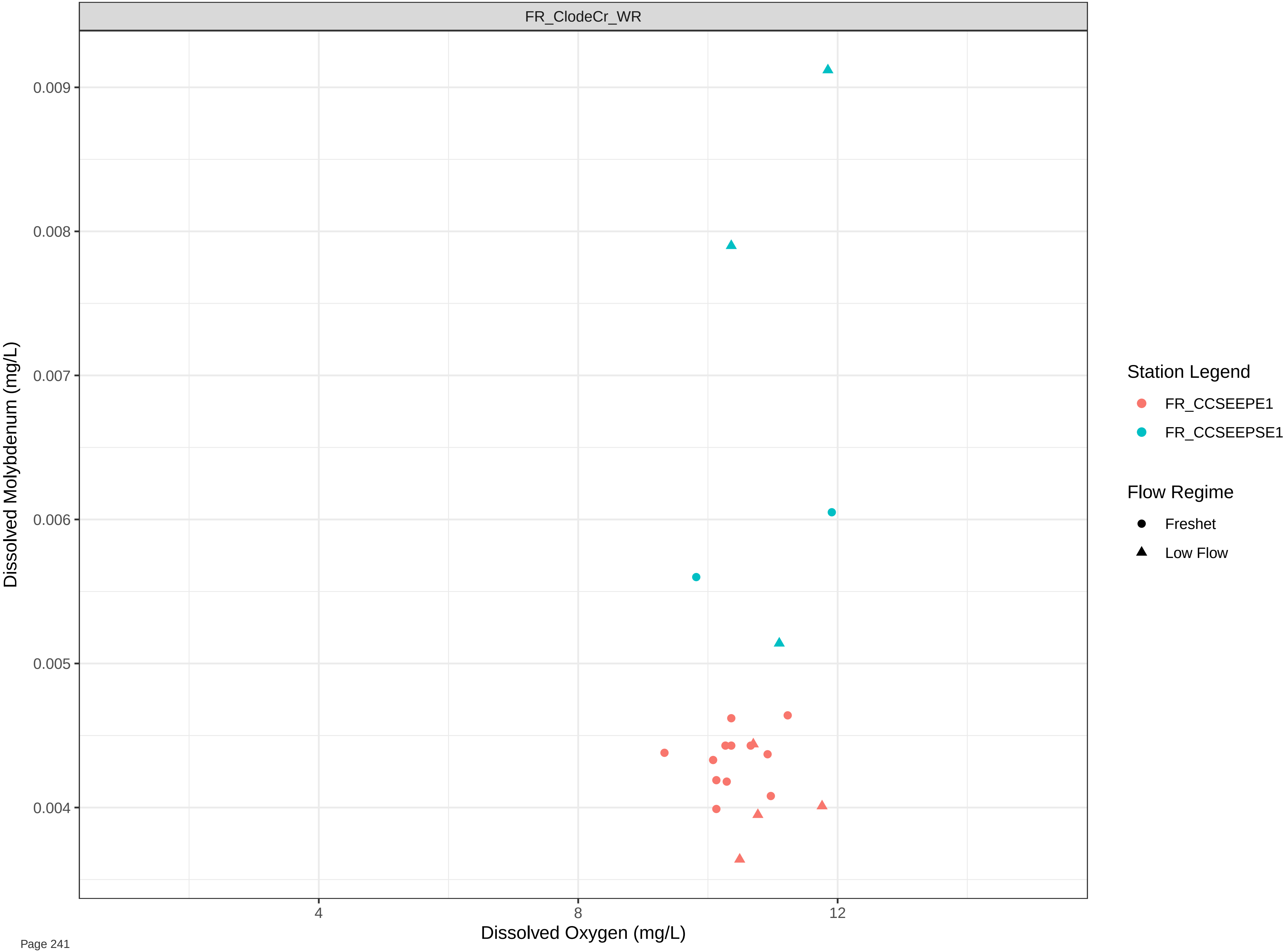

FR_SwiftWR_RockDrain_WR
Dissolved Manganese (mg/L)
0.3
0.2
0.1
0.0
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

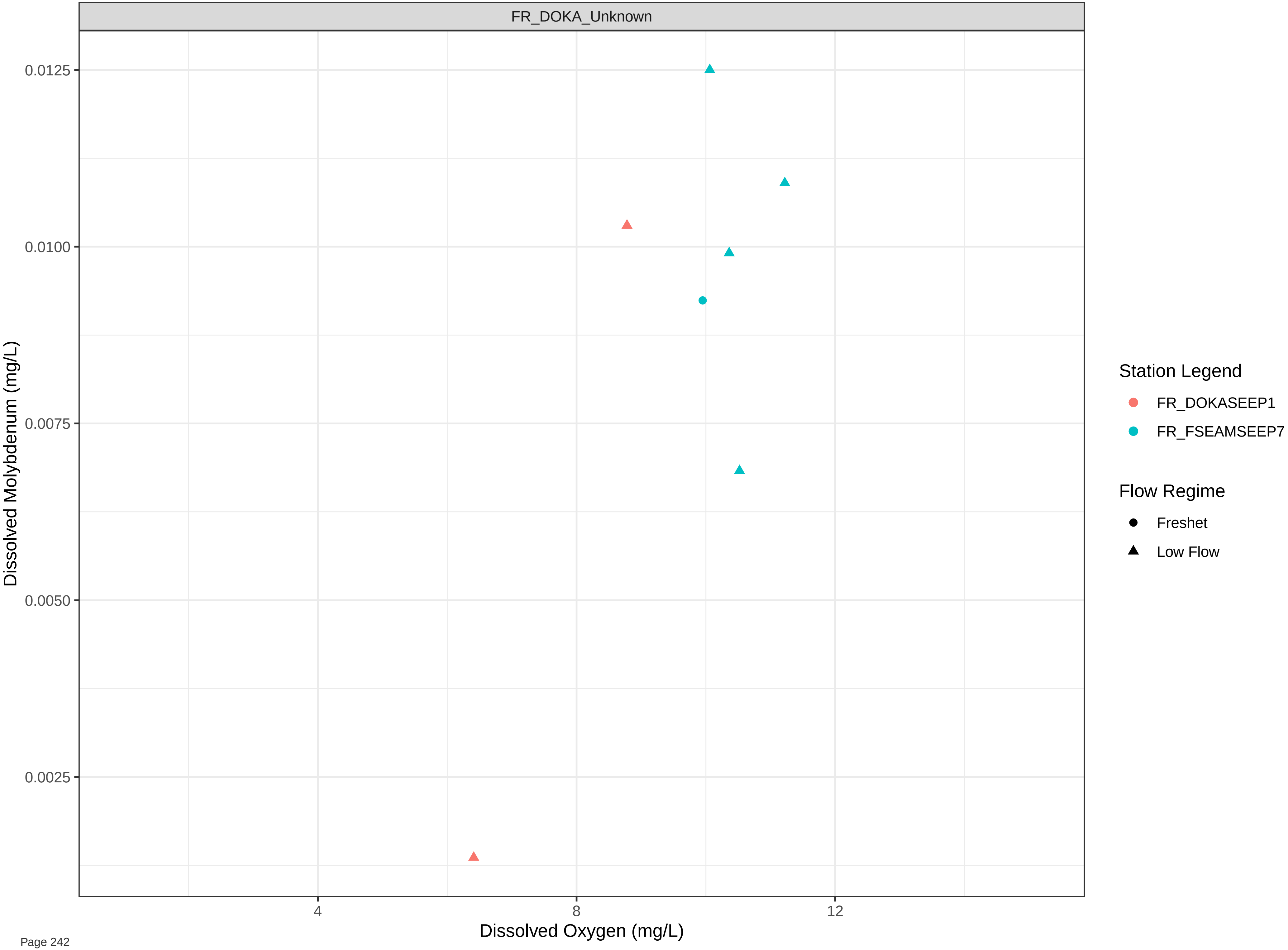

FR_TurnbullWREast_WR
0.00100
0.00075
0.00050
0.00025
Dissolved Manganese (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

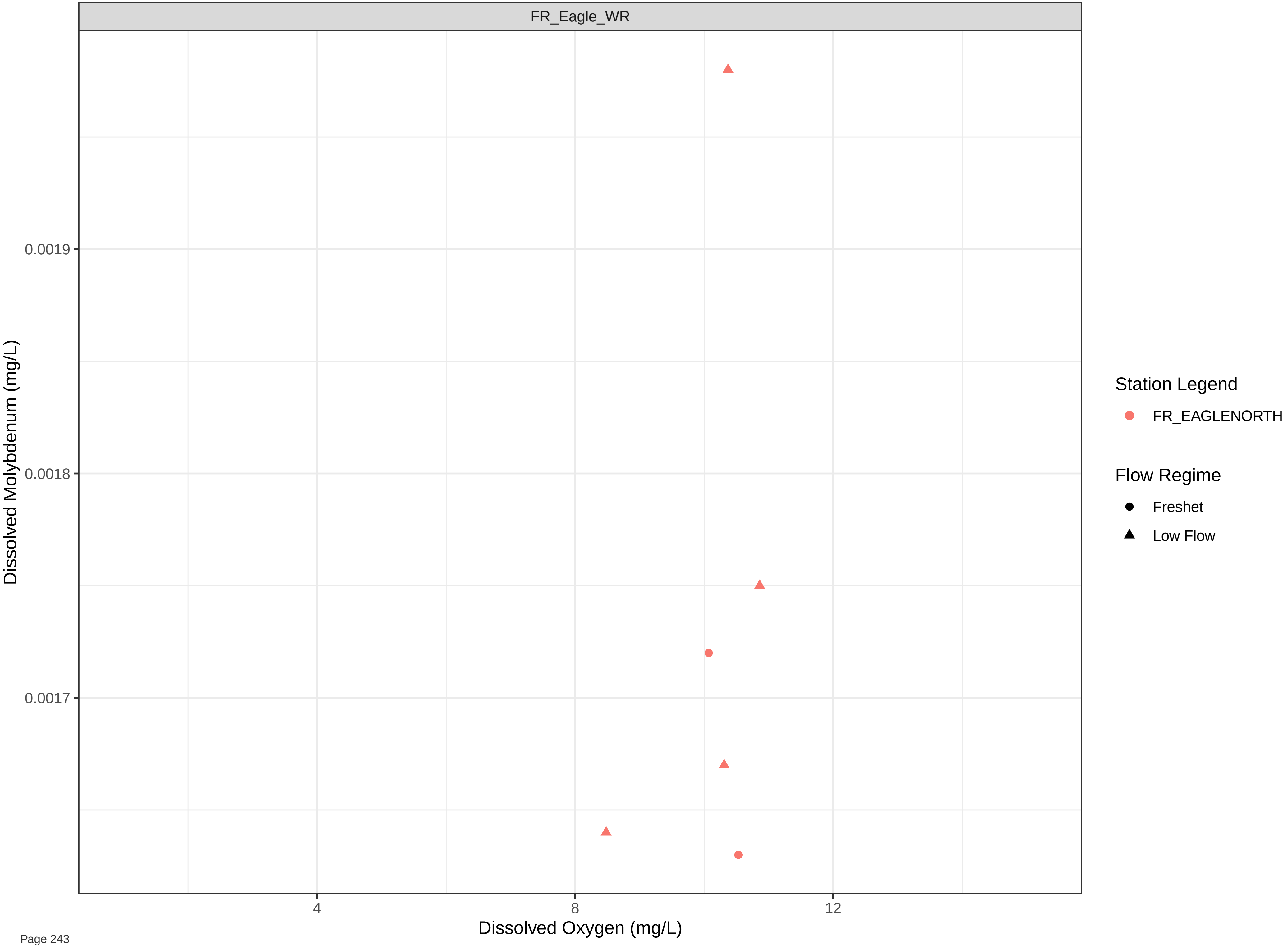

FR_TurnbullWRWest_WR
Dissolved Manganese (mg/L)
0.003
0.002
0.001
0.000
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_TBWSEEP1
● FR_TURNSEEP2
Flow Regime
● Freshet
▲ Low Flow

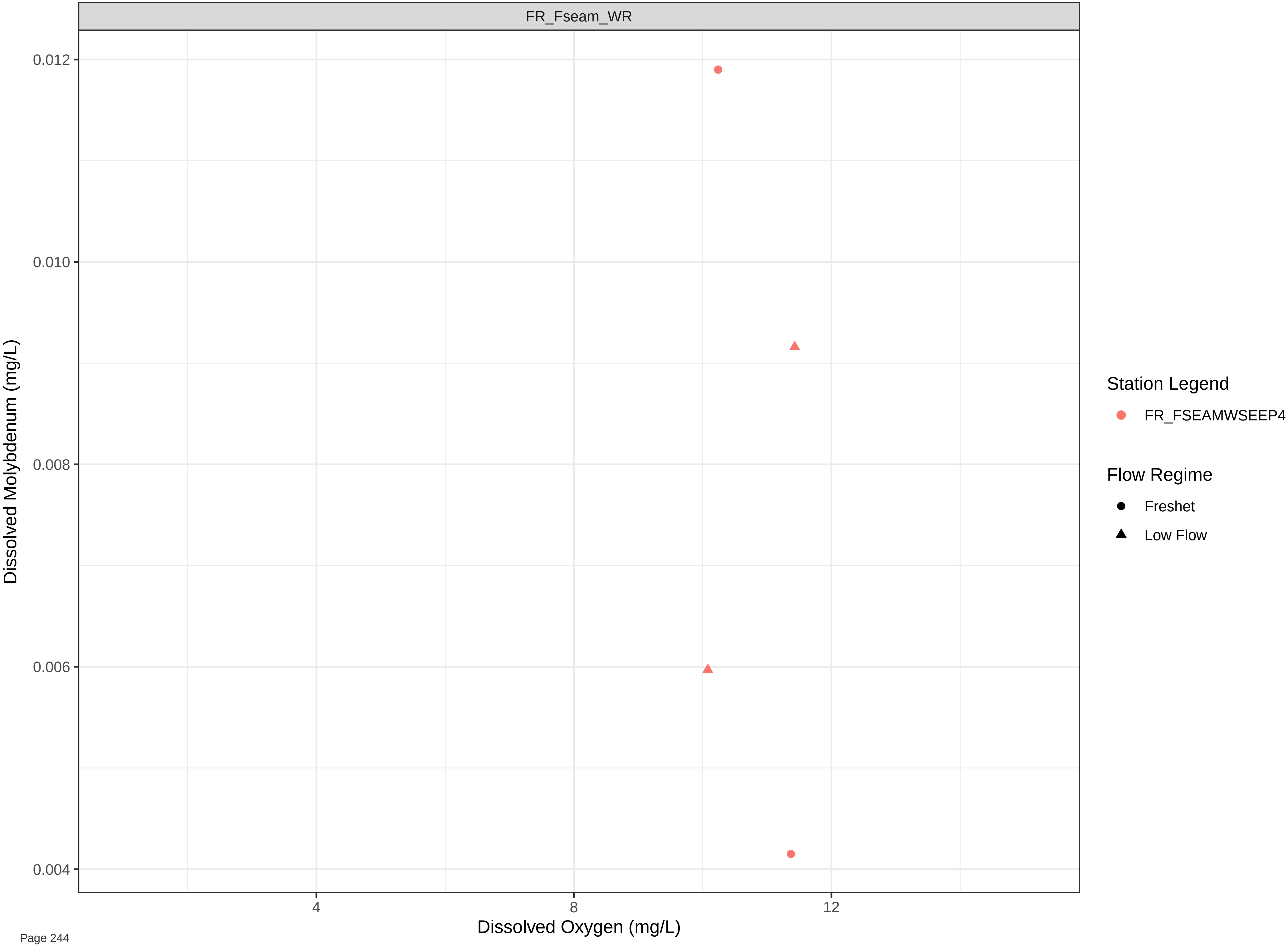

FR_A_WR
0.0018
0.0016
0.0014
0.0012
0.0010
Dissolved Molybdenum (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

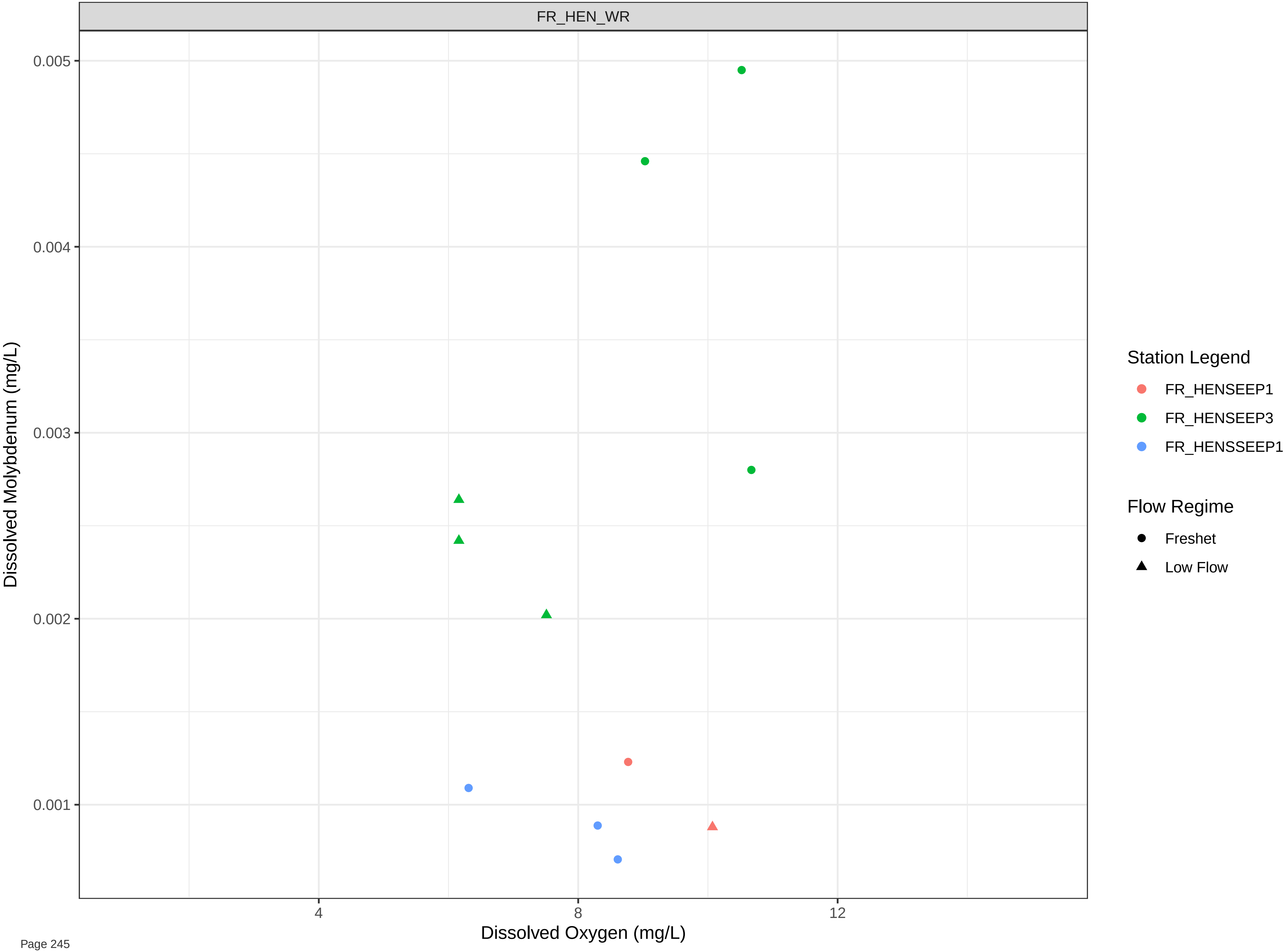

FR_Blain_CCR
Dissolved Molybdenum (mg/L)
0.0100
0.0075
0.0050
0.0025
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

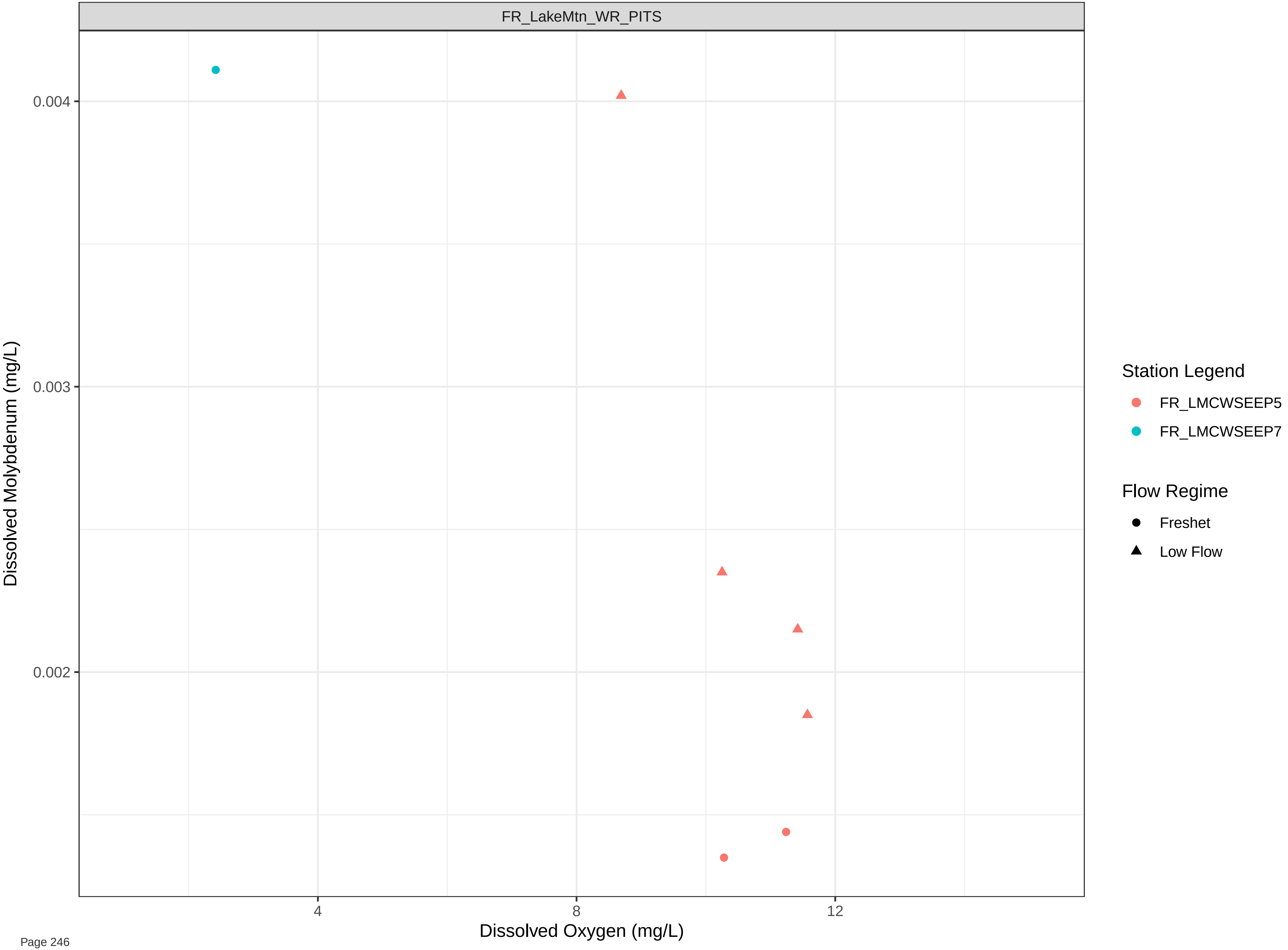

FR_ClodeCr_WR
Dissolved Molybdenum (mg/L)
0.009
0.008
0.007
0.006
0.005
0.004
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

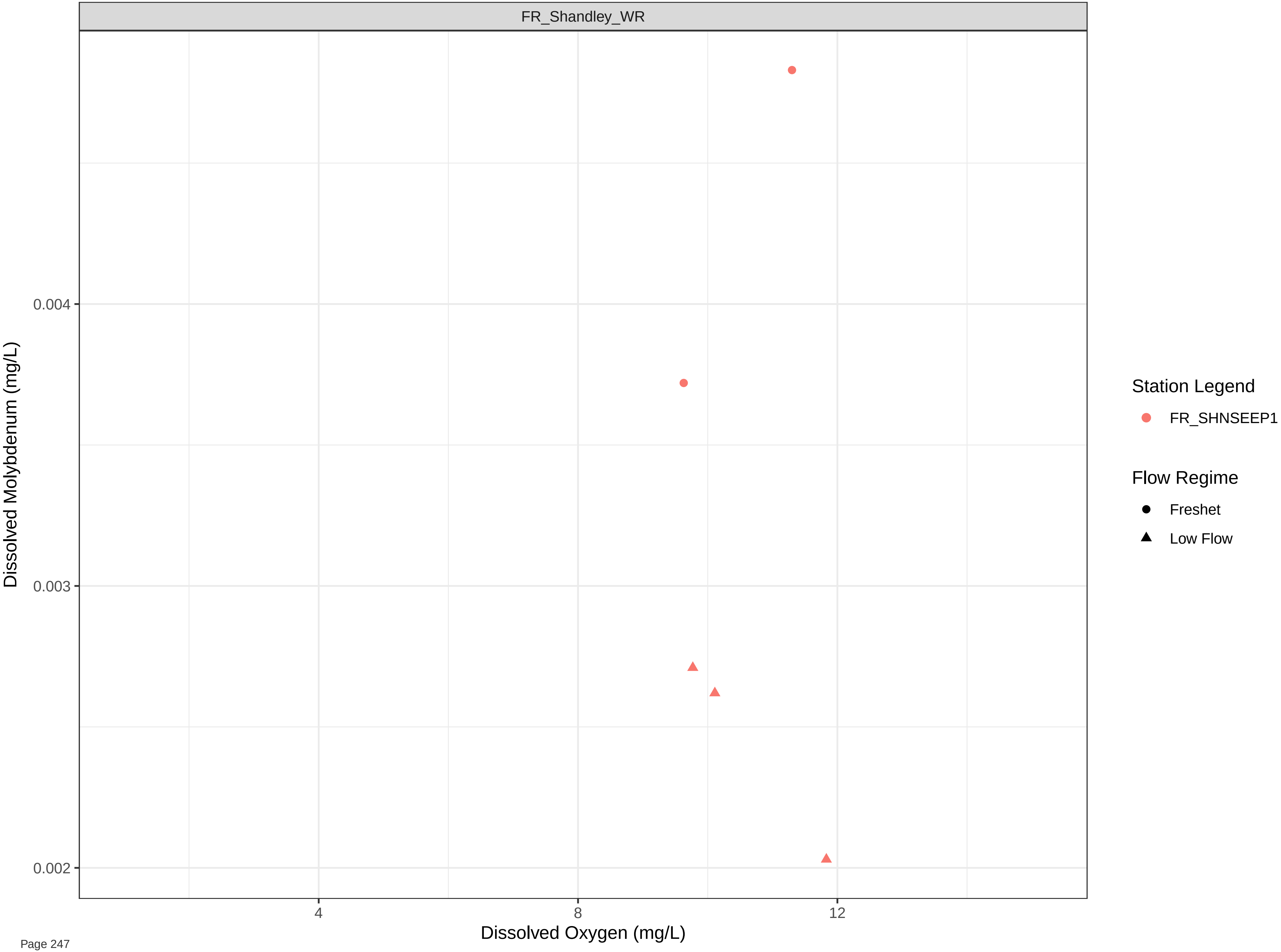

FR_DOKA_Unknown
Dissolved Molybdenum (mg/L)
0.0125
0.0100
0.0075
0.0050
0.0025
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow

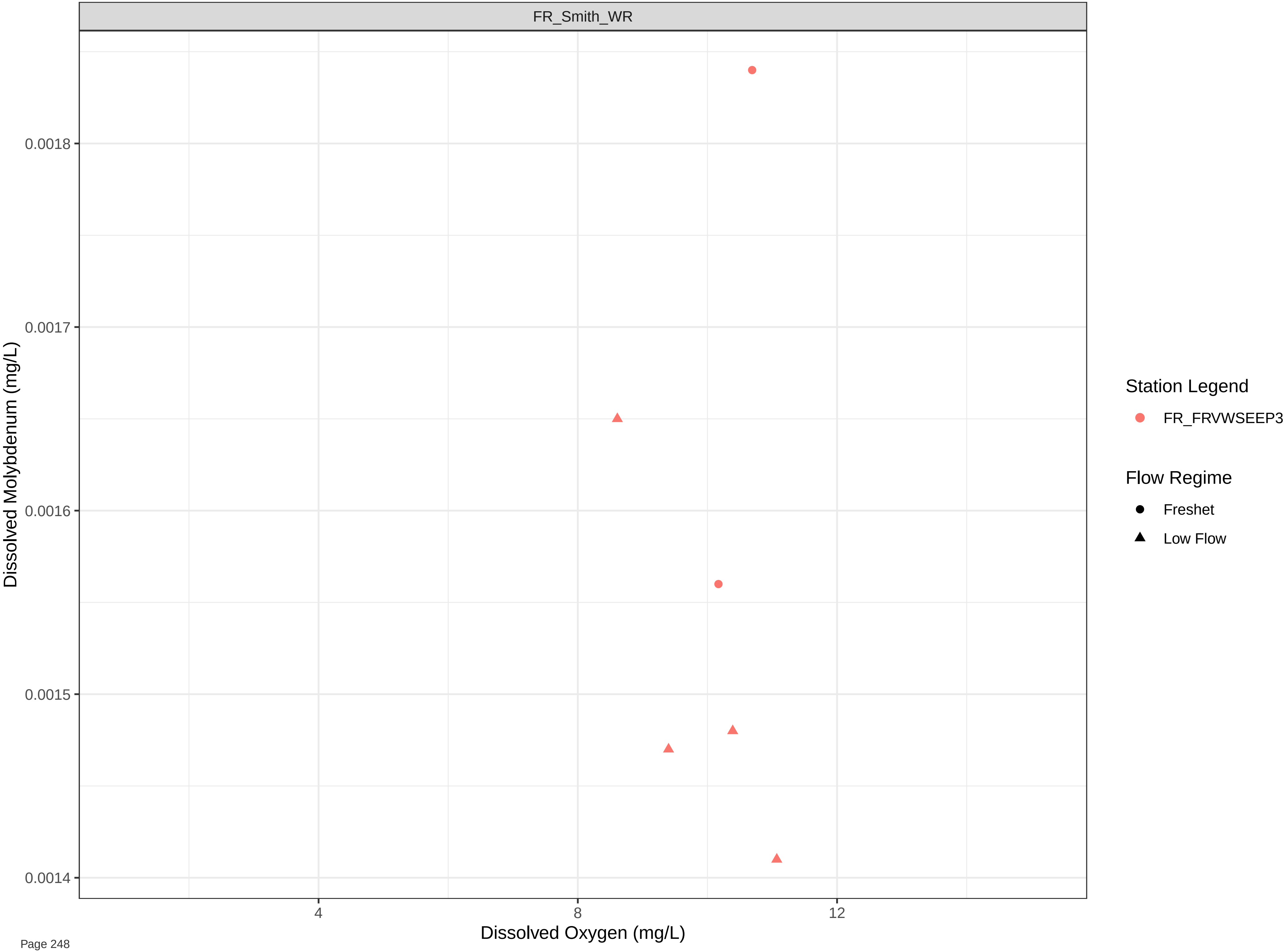

FR_Eagle_WR
Dissolved Molybdenum (mg/L)
0.0019
0.0018
0.0017
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

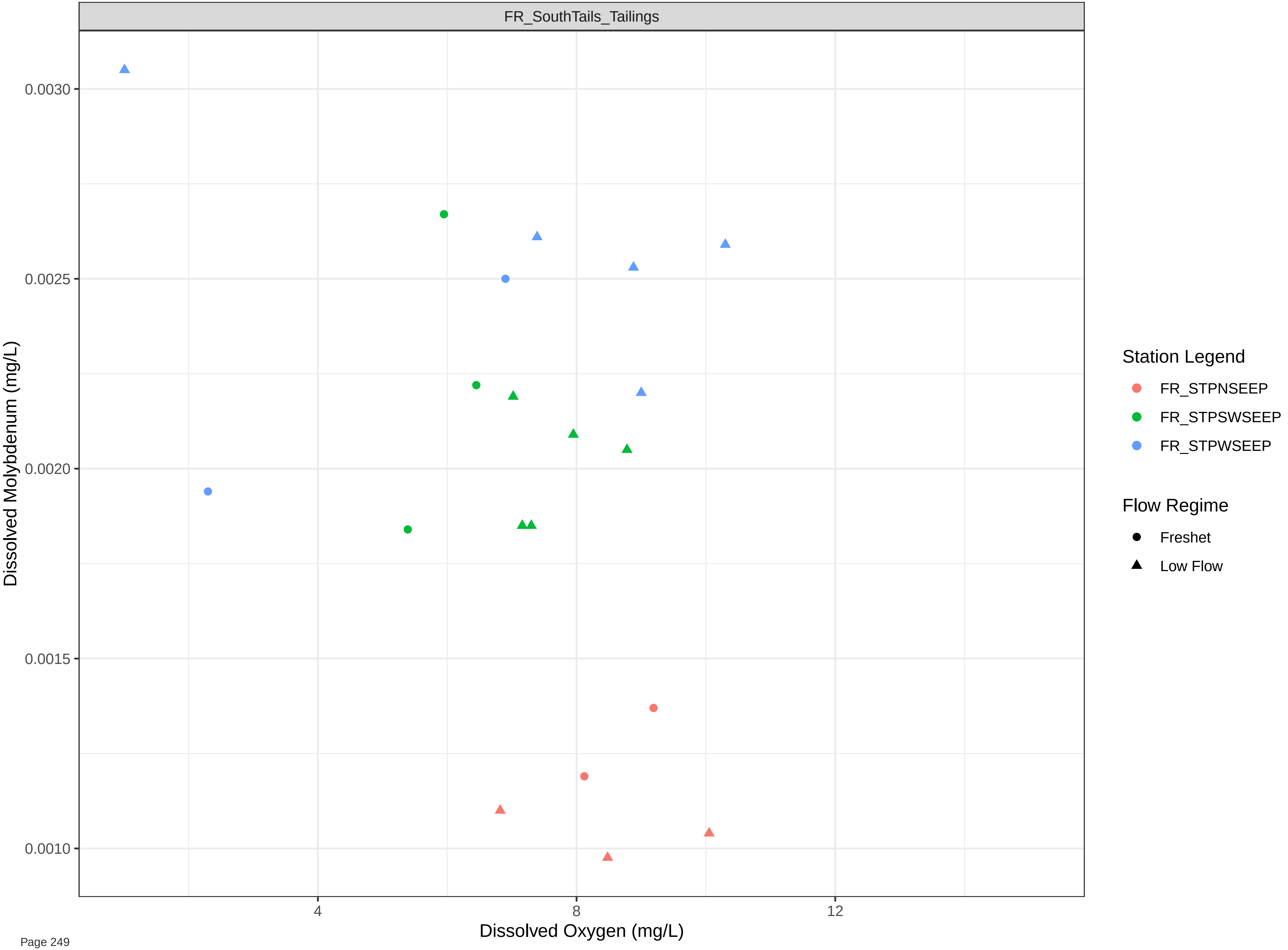

FR_Fseam_WR
0.012
0.010
0.008
0.006
0.004
Dissolved Molybdenum (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

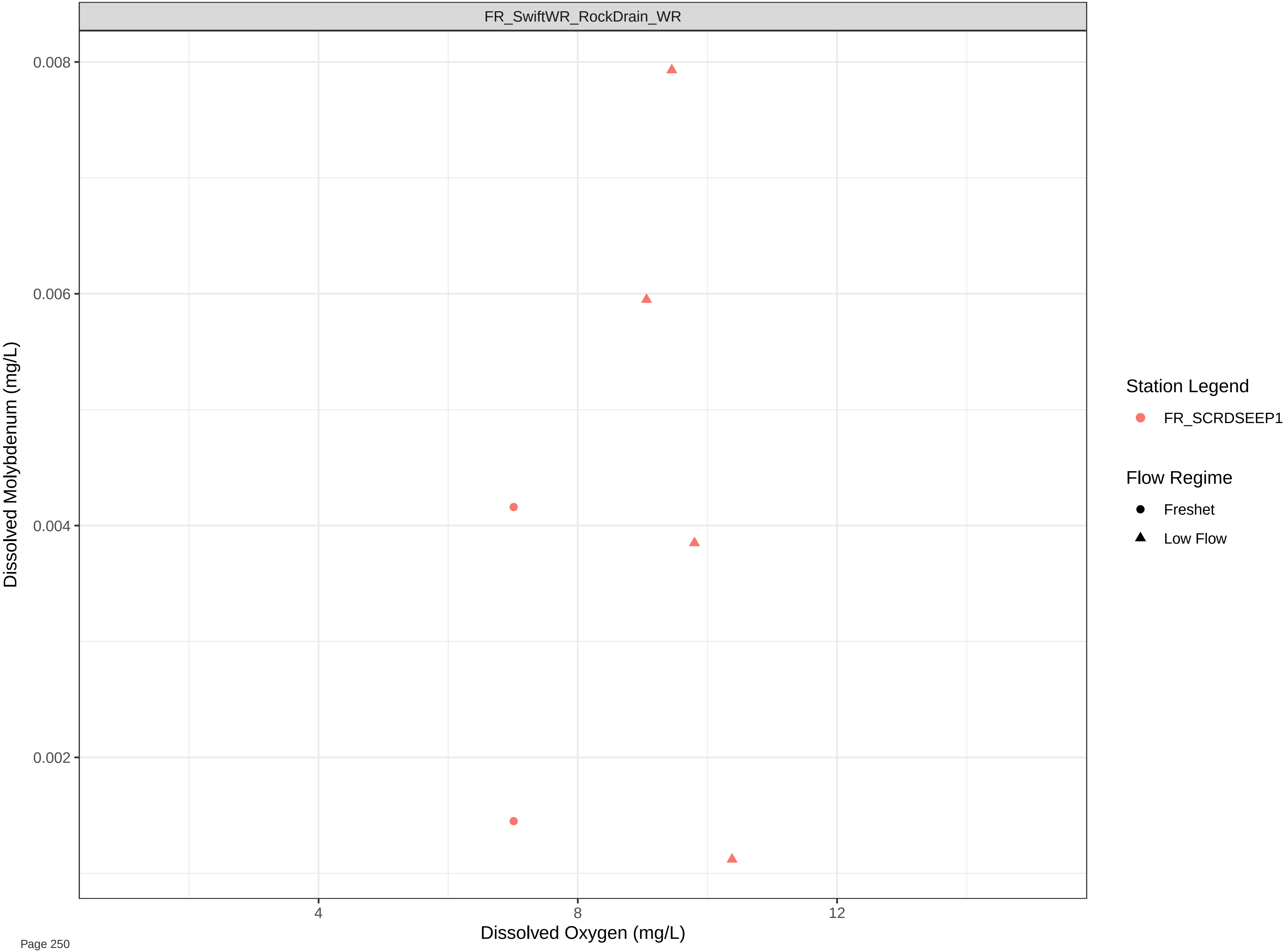

FR_HEN_WR
0.005
0.004
0.003
0.002
0.001
Dissolved Molybdenum (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

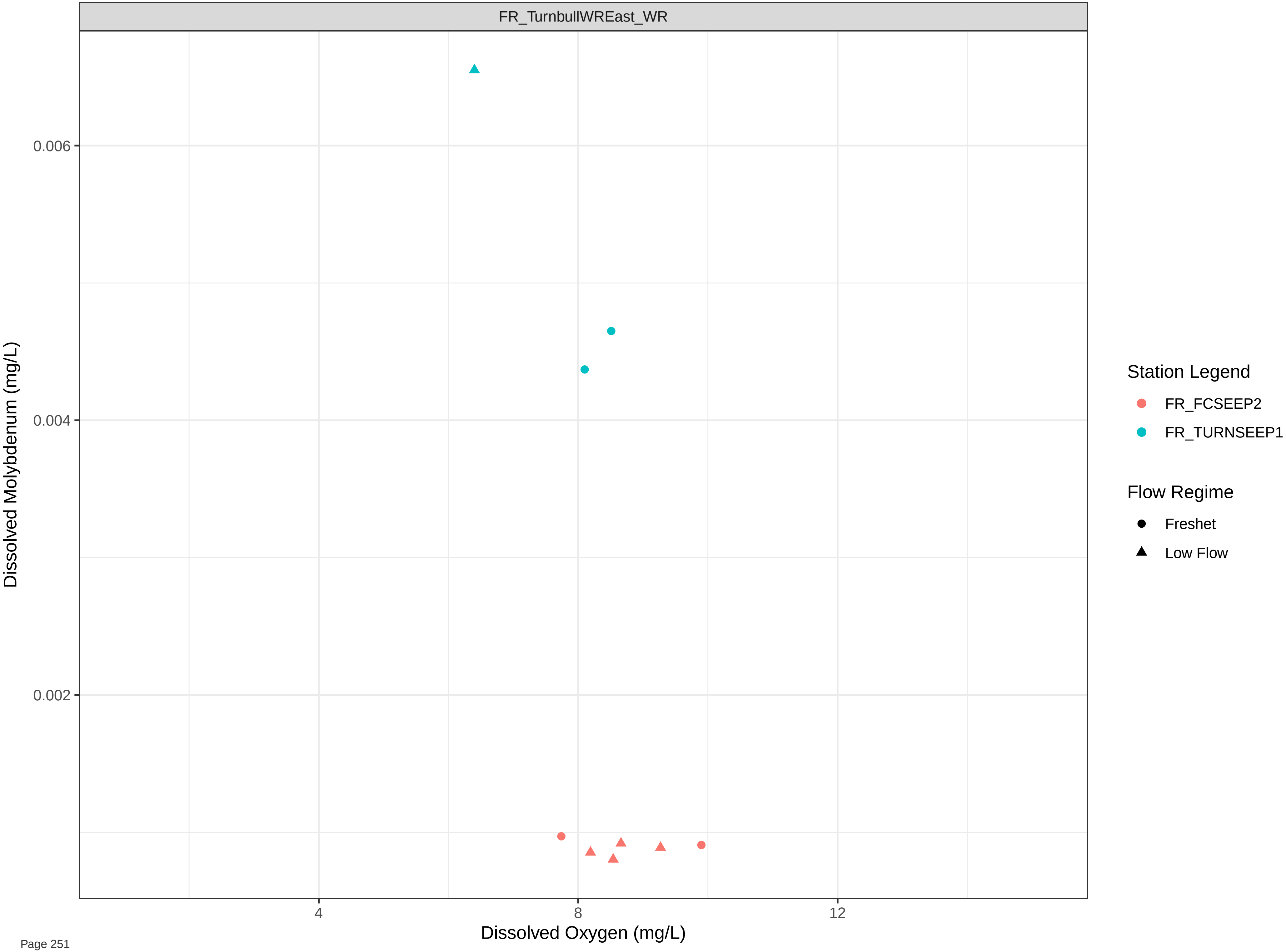

FR_LakeMtn_WR_PITS
Dissolved Molybdenum (mg/L)
0.004
0.003
0.002
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow

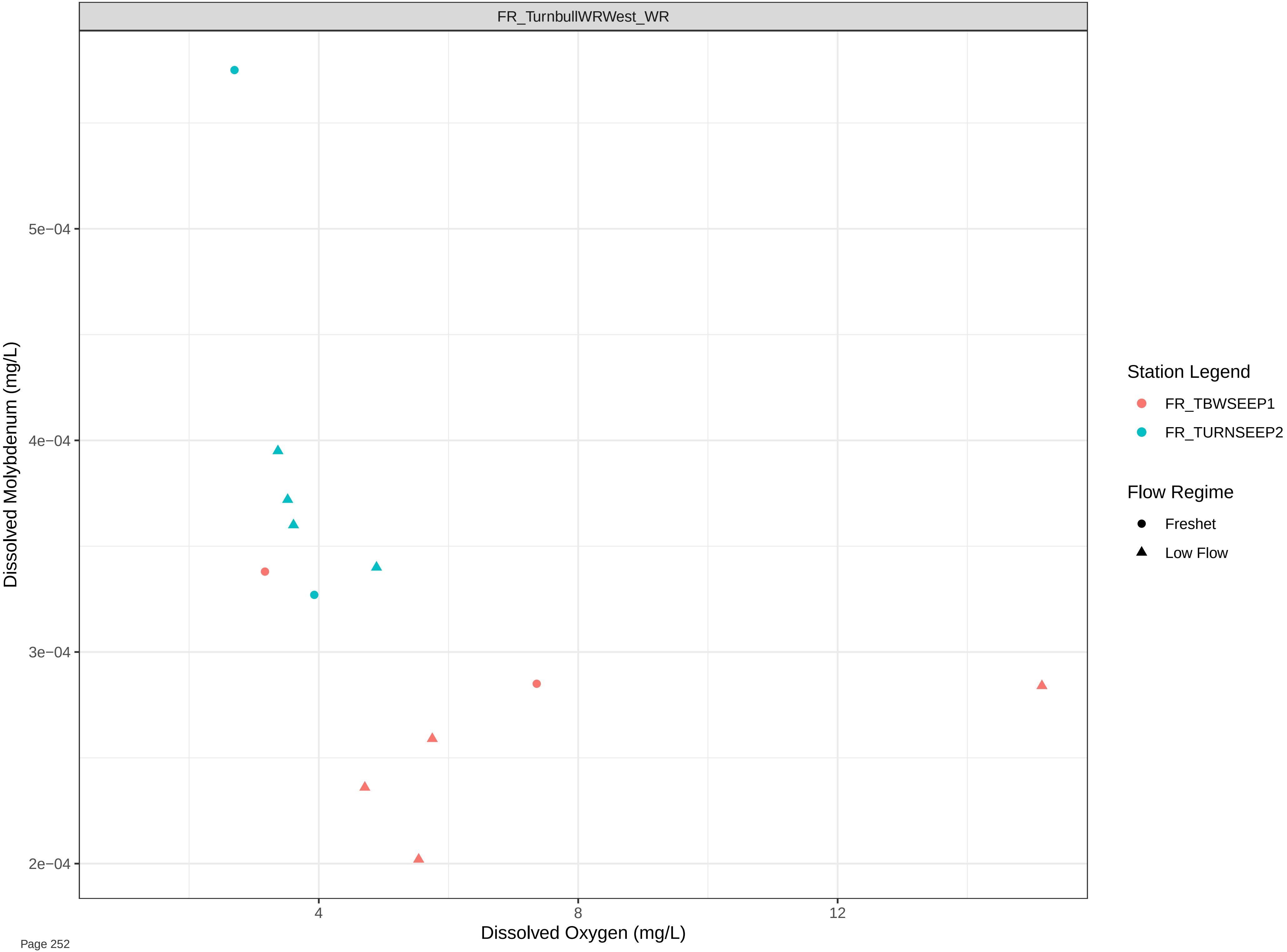

FR_Shandley_WR
Dissolved Molybdenum (mg/L)
0.004
0.003
0.002
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

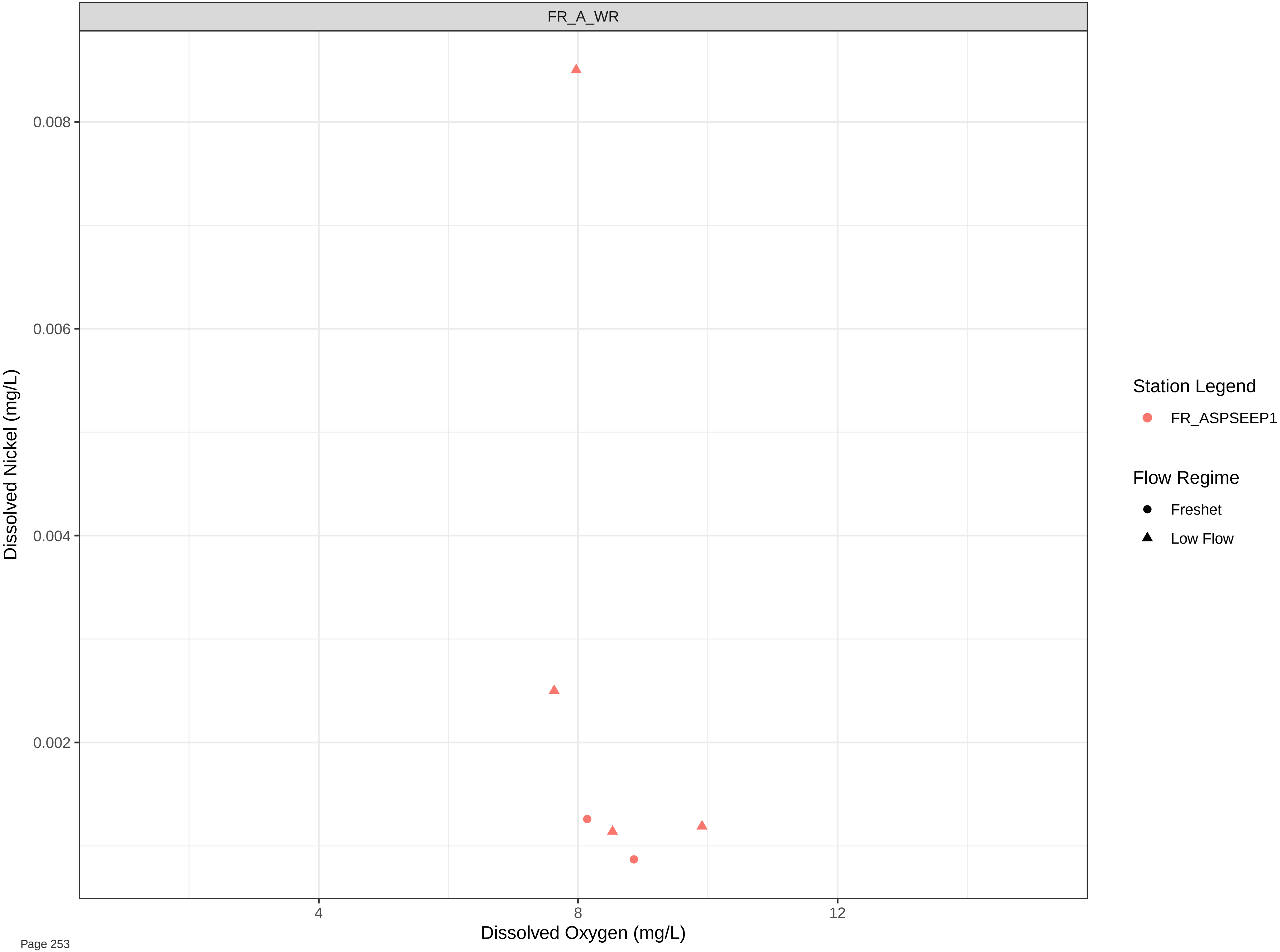

FR_Smith_WR
Dissolved Molybdenum (mg/L)
0.0018
0.0017
0.0016
0.0015
0.0014
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

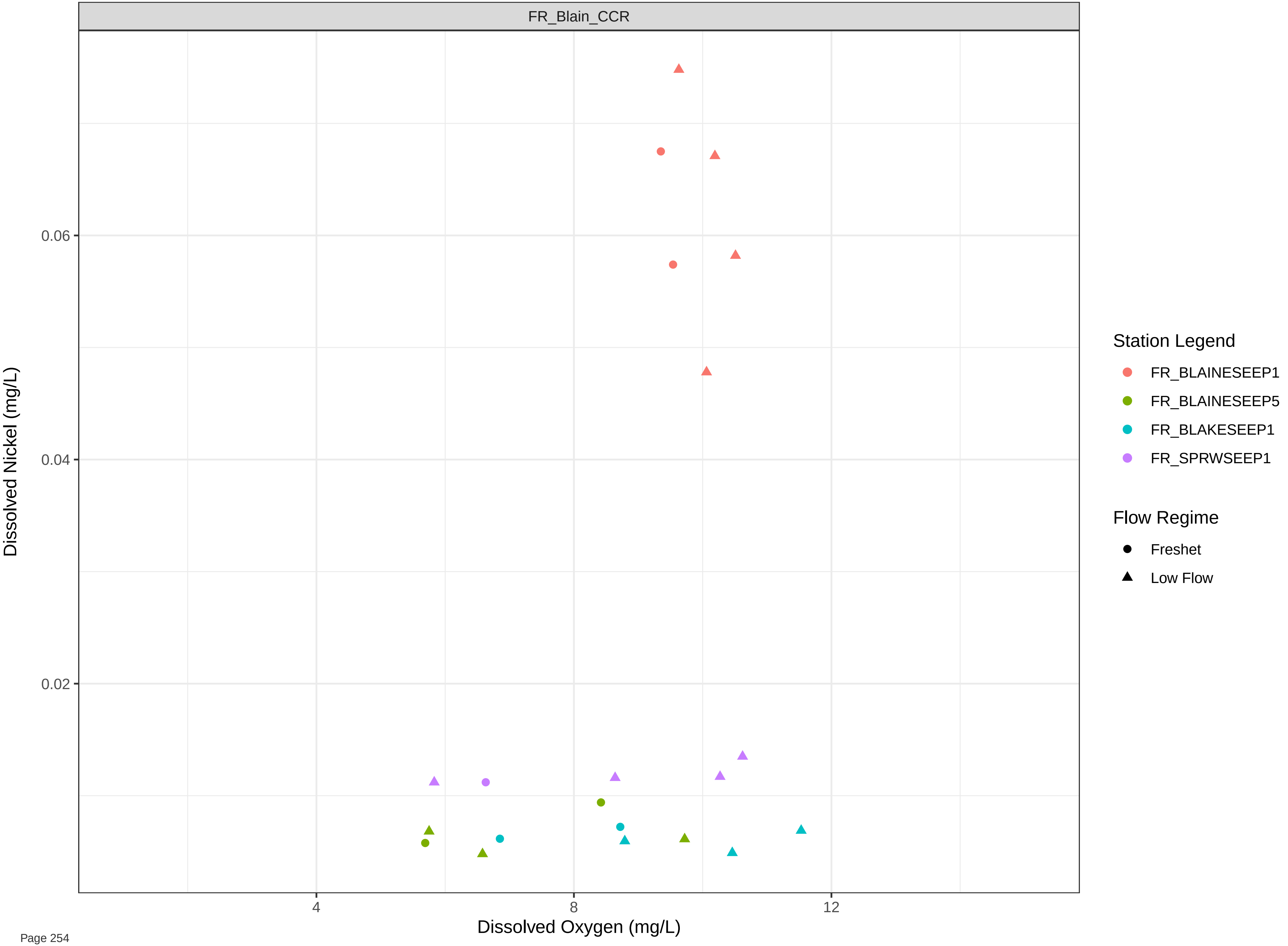

FR_SouthTails_Tailings
Dissolved Molybdenum (mg/L)
0.0030
0.0025
0.0020
0.0015
0.0010
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

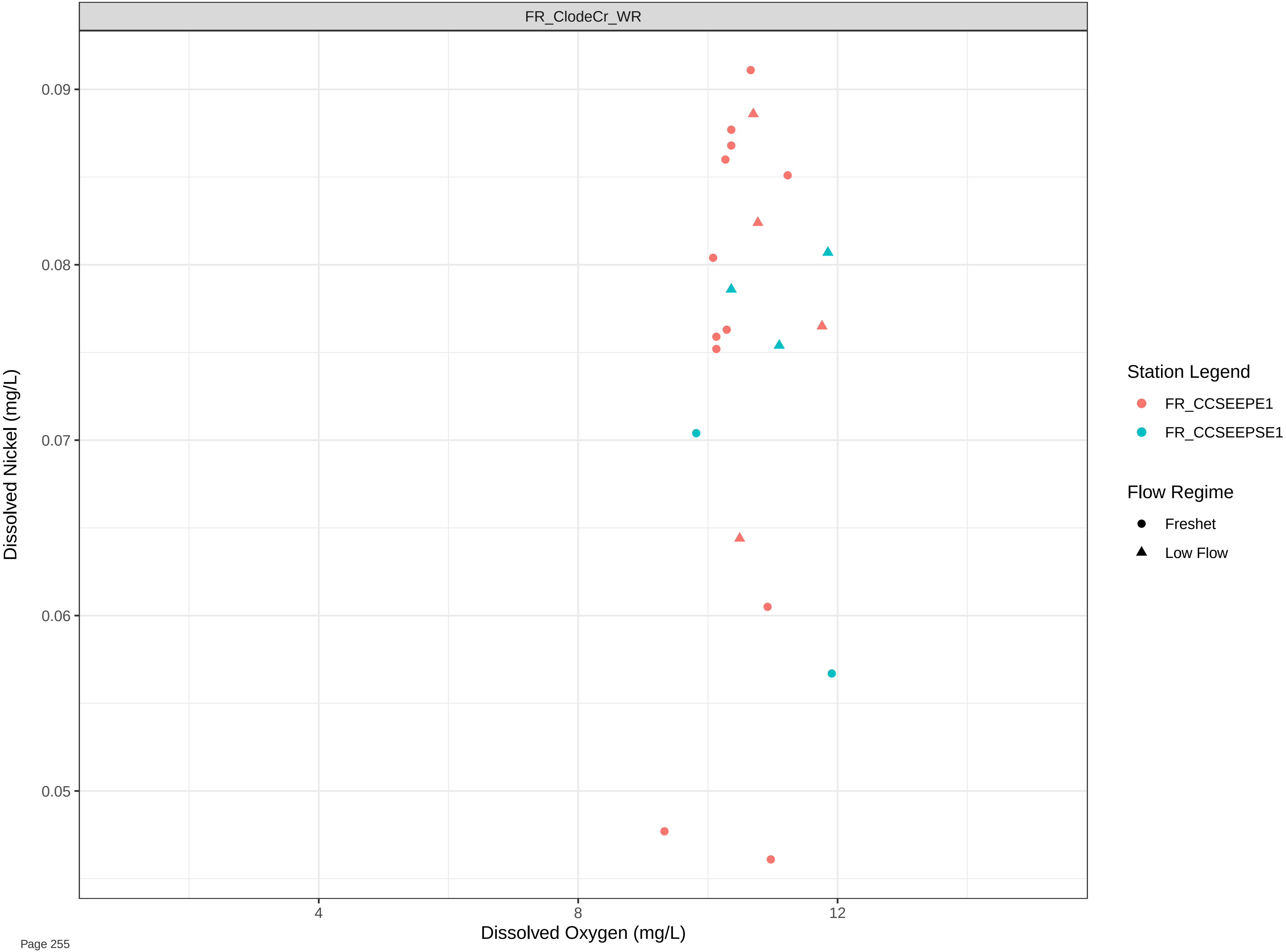

FR_SwiftWR_RockDrain_WR
0.008
0.006
0.004
0.002
Dissolved Molybdenum (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

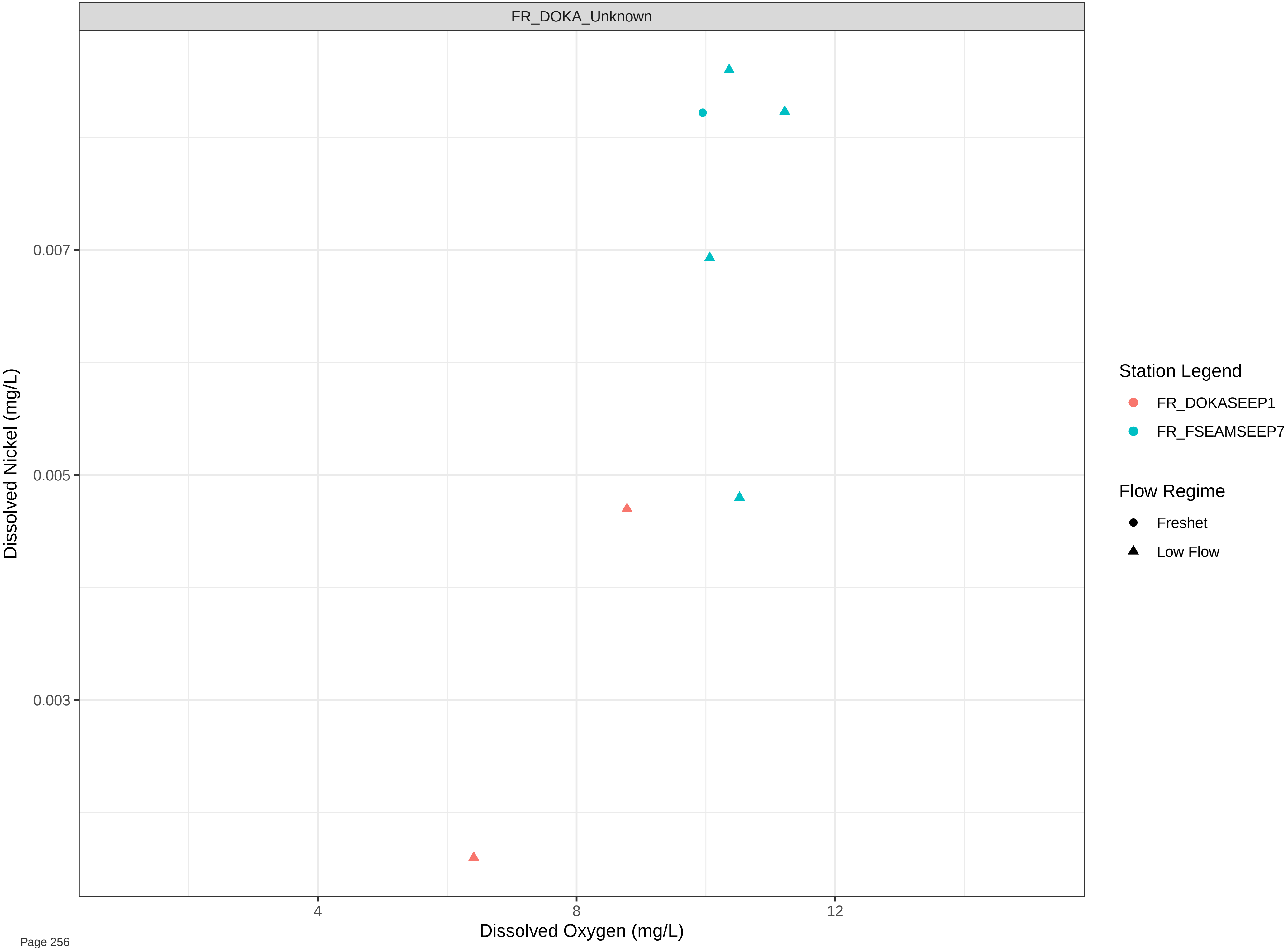

FR_TurnbullWREast_WR
0.006
0.004
0.002
4
8
12
Dissolved Molybdenum (mg/L)
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

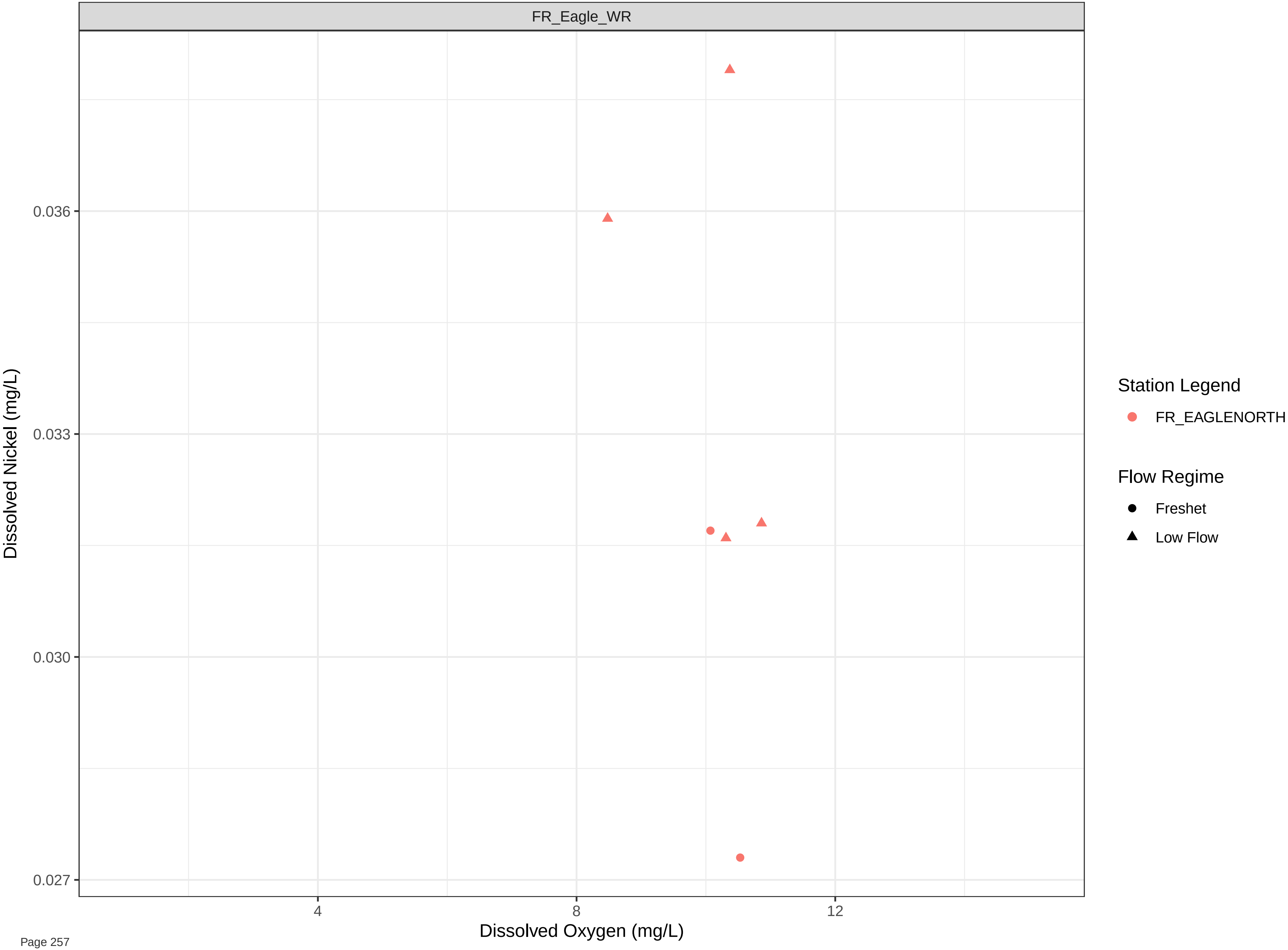

FR_TurnbullWRWest_WR
Dissolved Molybdenum (mg/L)
5e−04
4e−04
3e−04
2e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

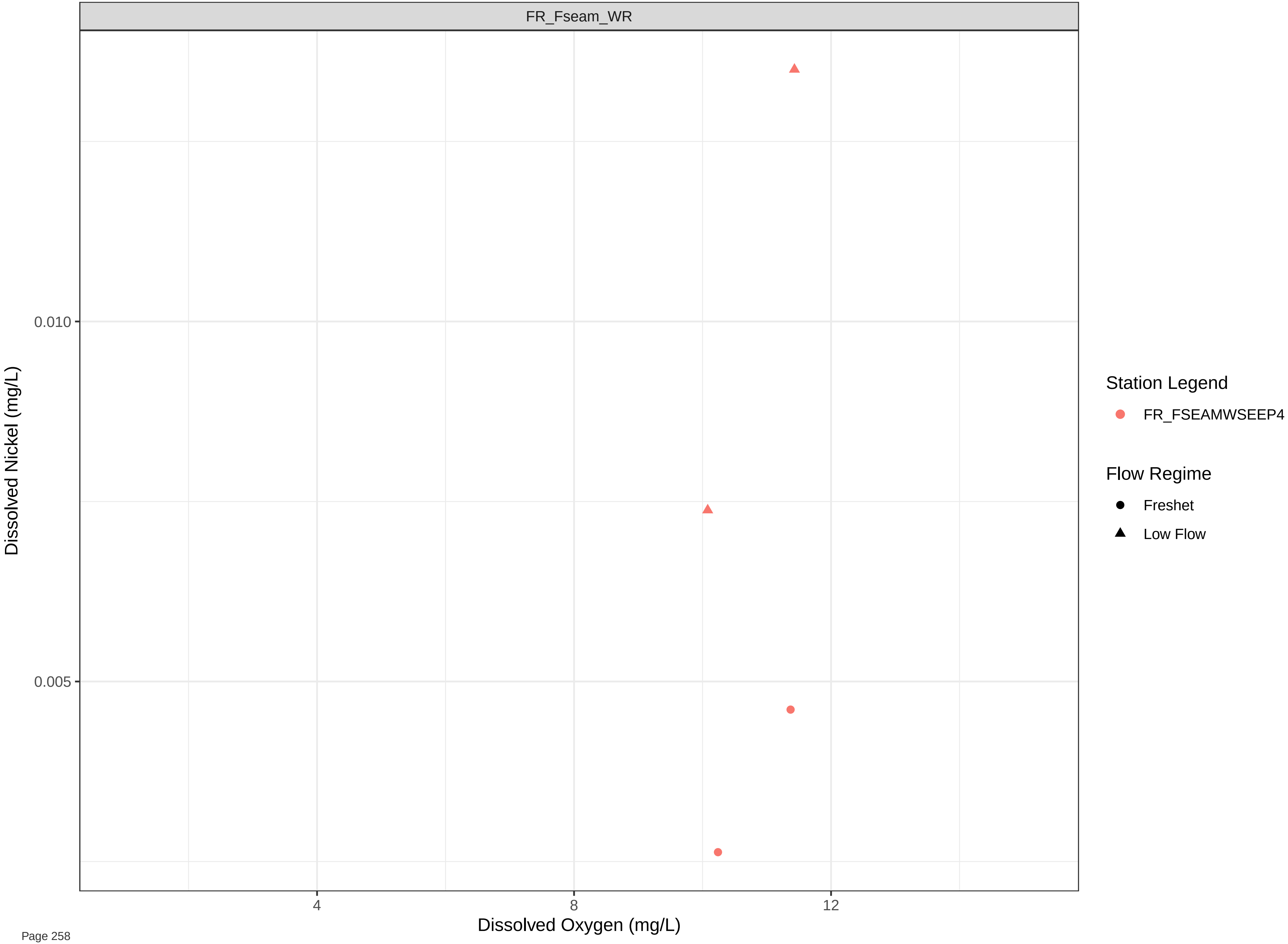

FR_A_WR
Dissolved Nickel (mg/L)
0.008
0.006
0.004
0.002
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

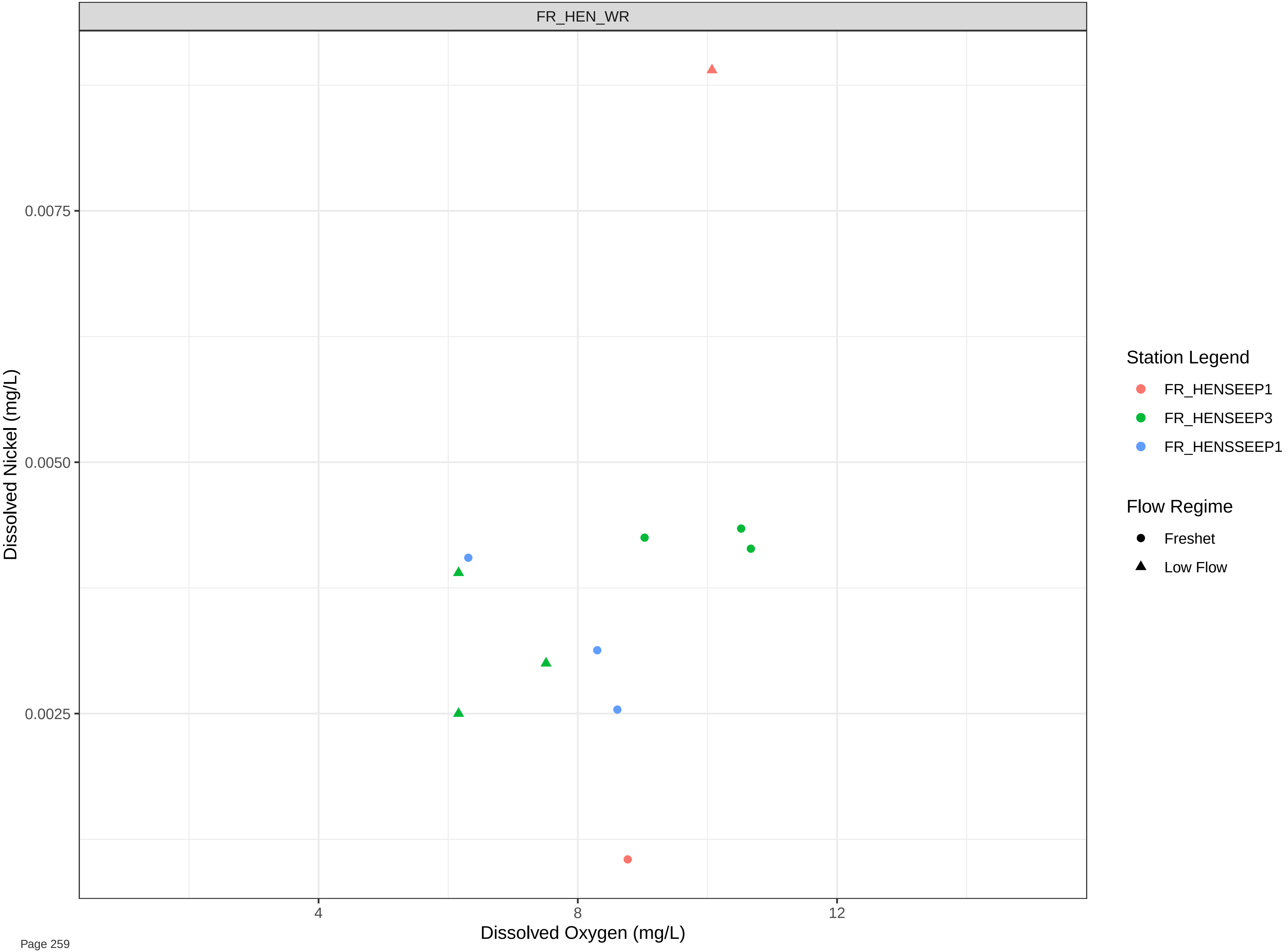

FR_Blain_CCR
Dissolved Nickel (mg/L)
0.06
0.04
0.02
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

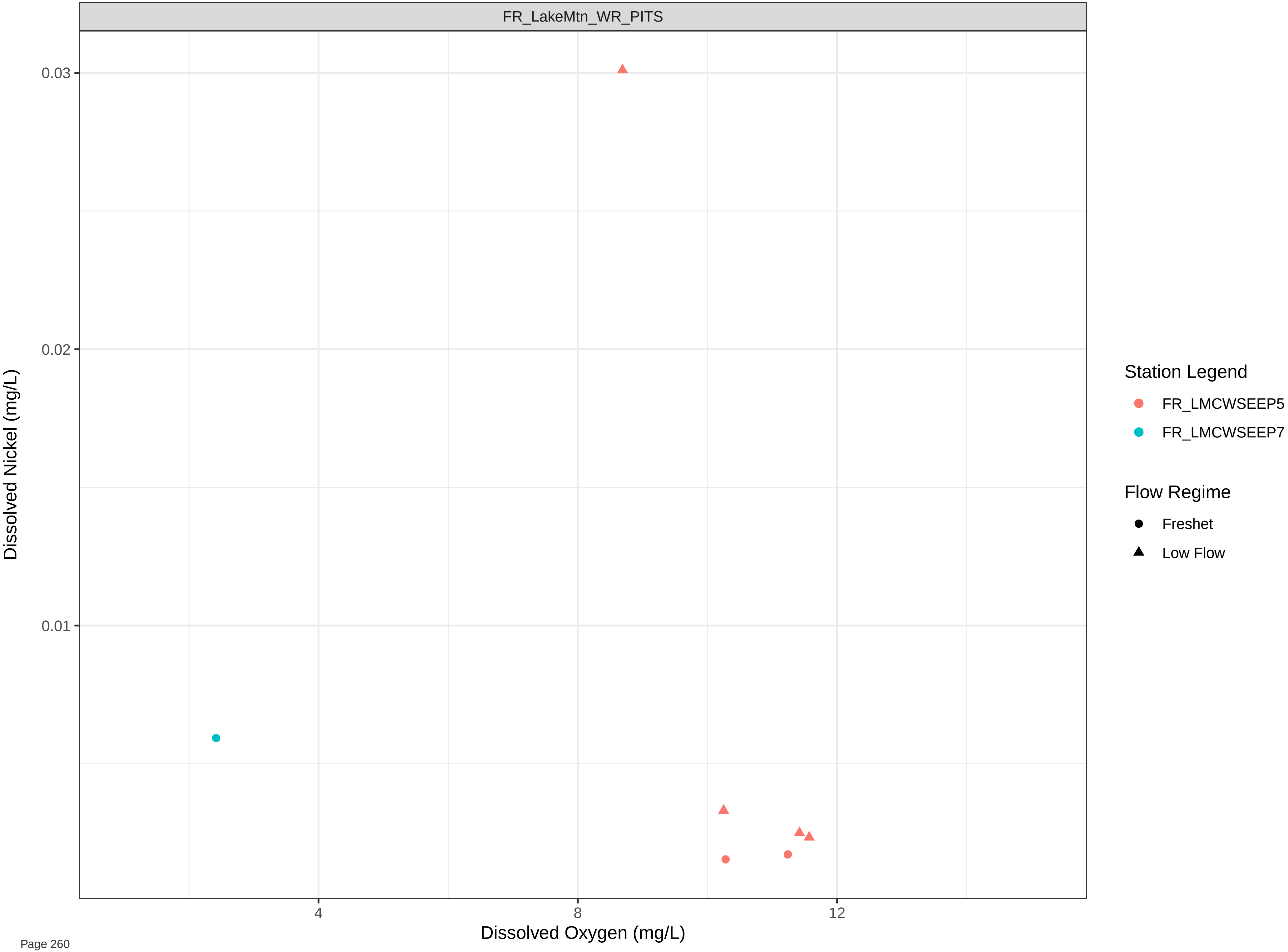

FR_ClodeCr_WR
Dissolved Nickel (mg/L)
0.09
0.08
0.07
0.06
0.05
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

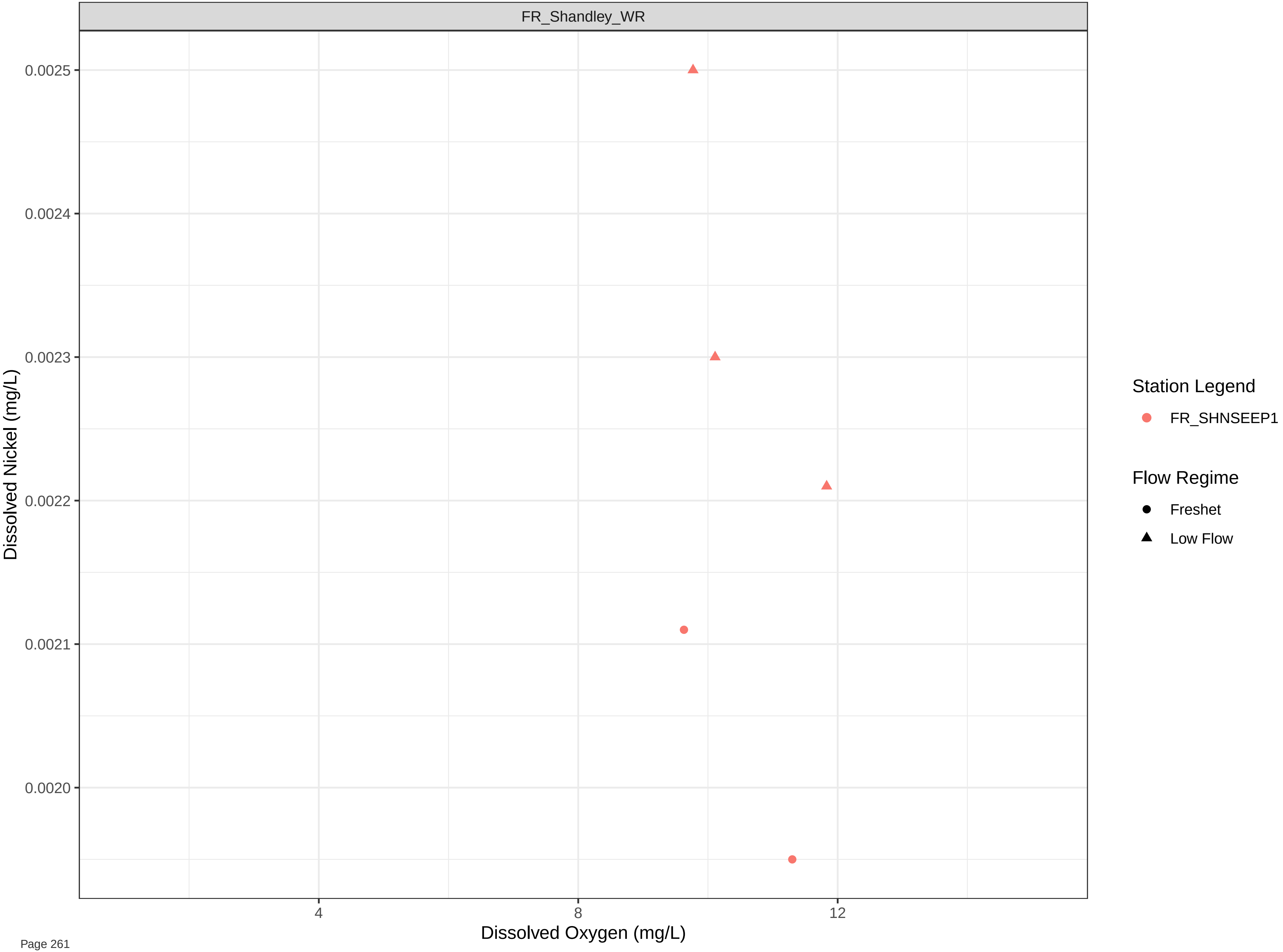

FR_DOKA_Unknown
Dissolved Nickel (mg/L)
0.007
0.005
0.003
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

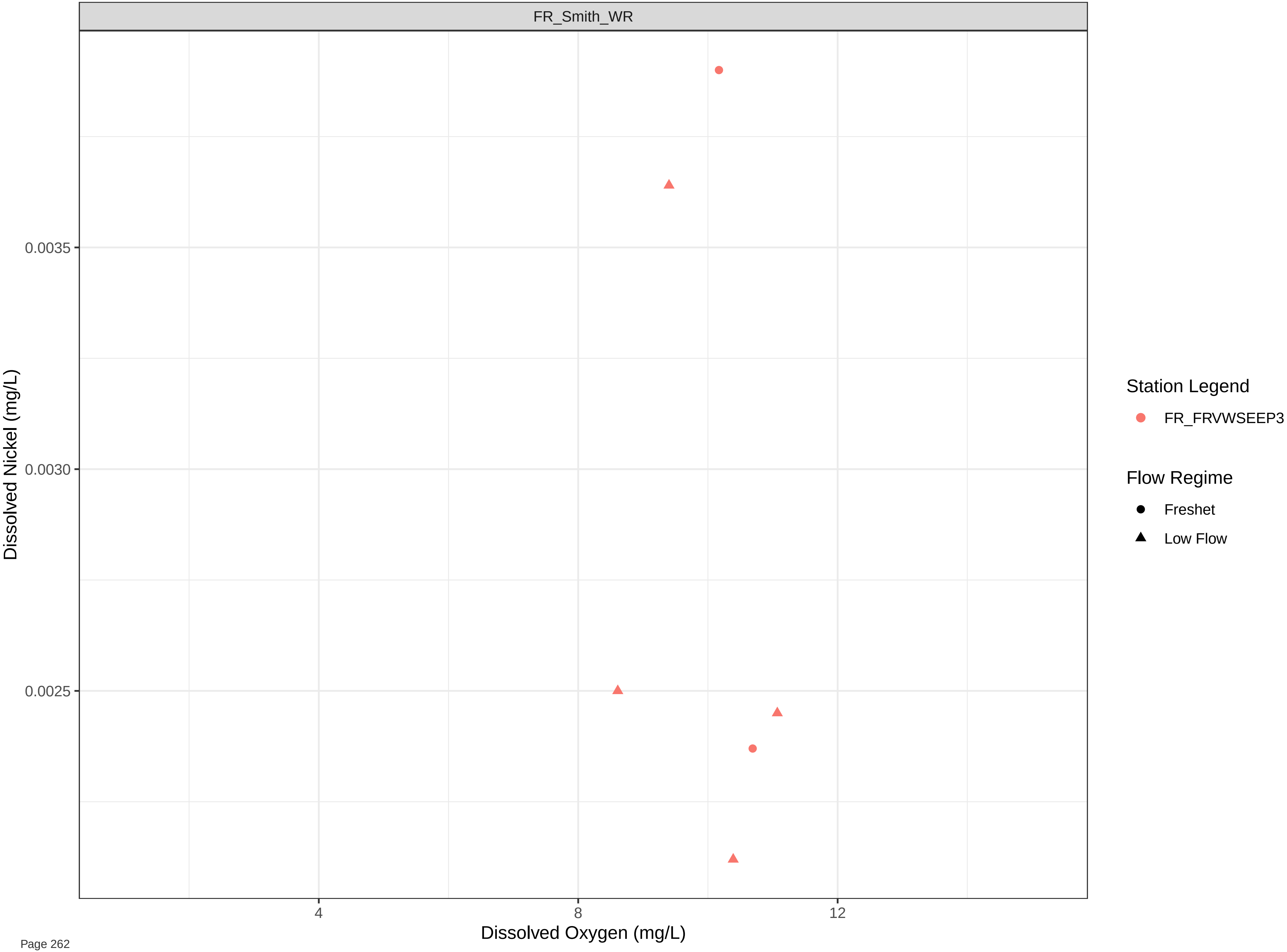

FR_Eagle_WR
Dissolved Nickel (mg/L)
0.036
0.033
0.030
0.027
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

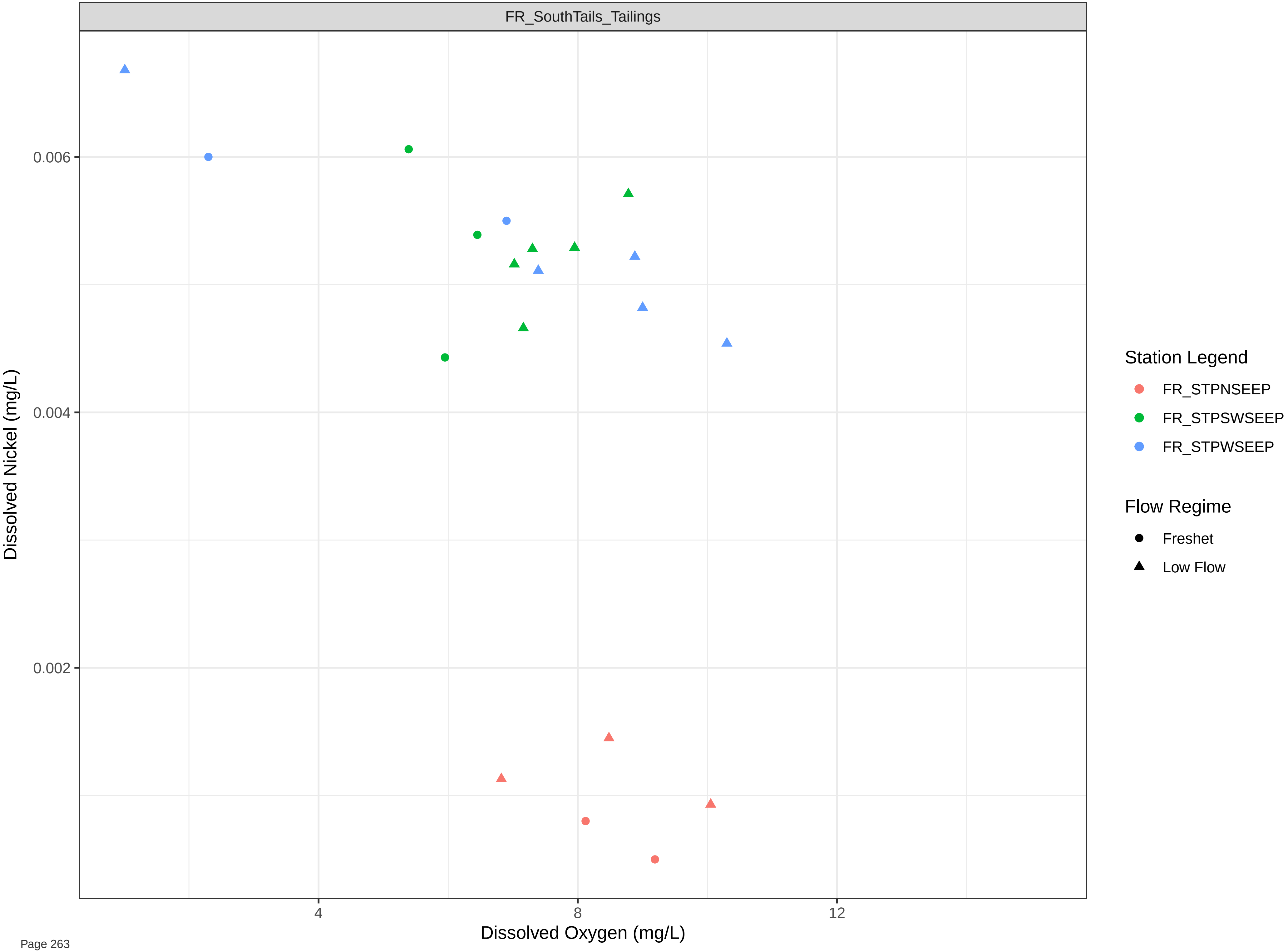

FR_Fseam_WR
Dissolved Nickel (mg/L)
0.010
0.005
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

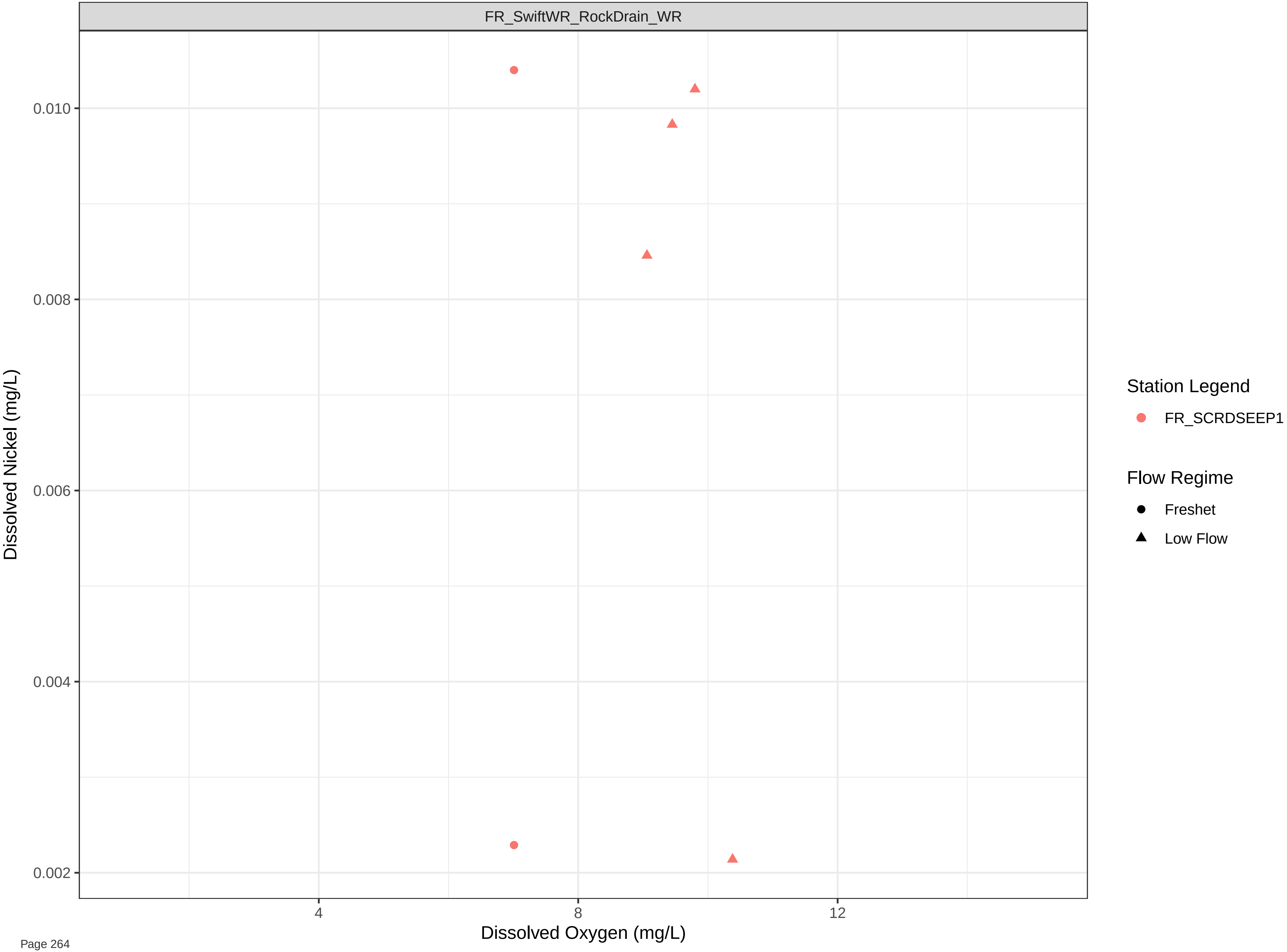

FR_HEN_WR
Dissolved Nickel (mg/L)
0.0075
0.0050
0.0025
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

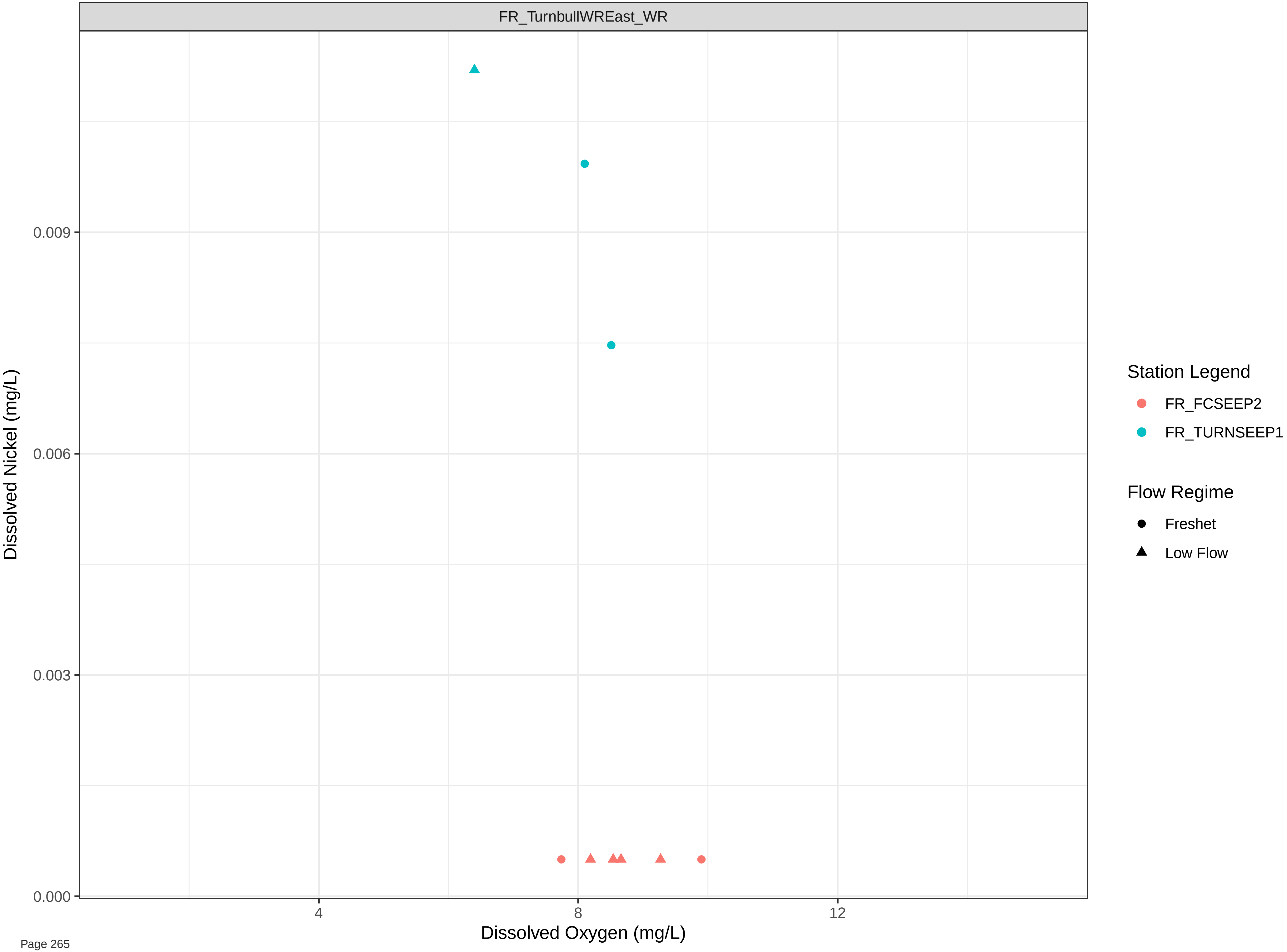

FR_LakeMtn_WR_PITS
0.03
0.02
0.01
Dissolved Nickel (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

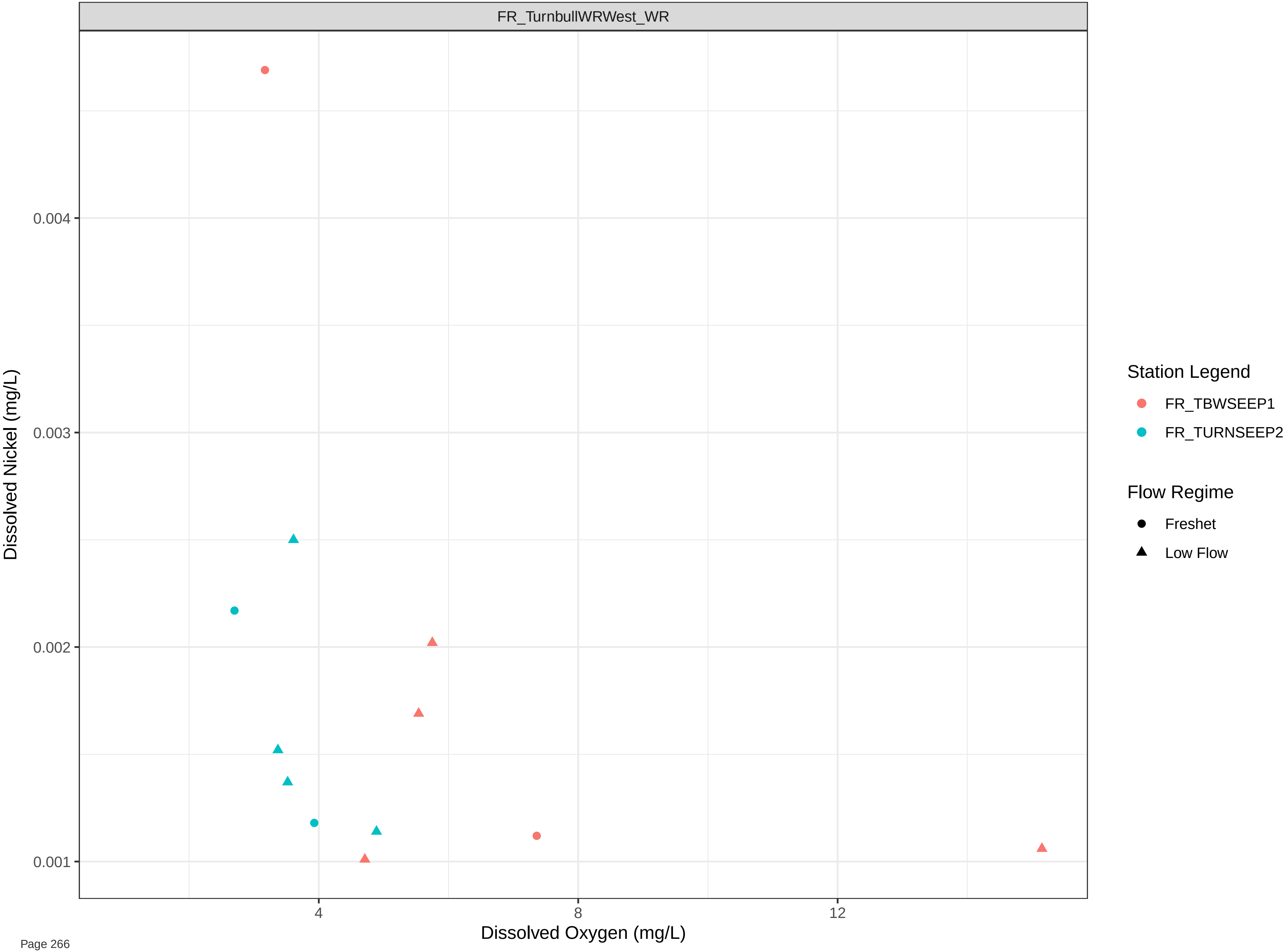

FR_Shandley_WR
Dissolved Nickel (mg/L)
0.0025
0.0024
0.0023
0.0022
0.0021
0.0020
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

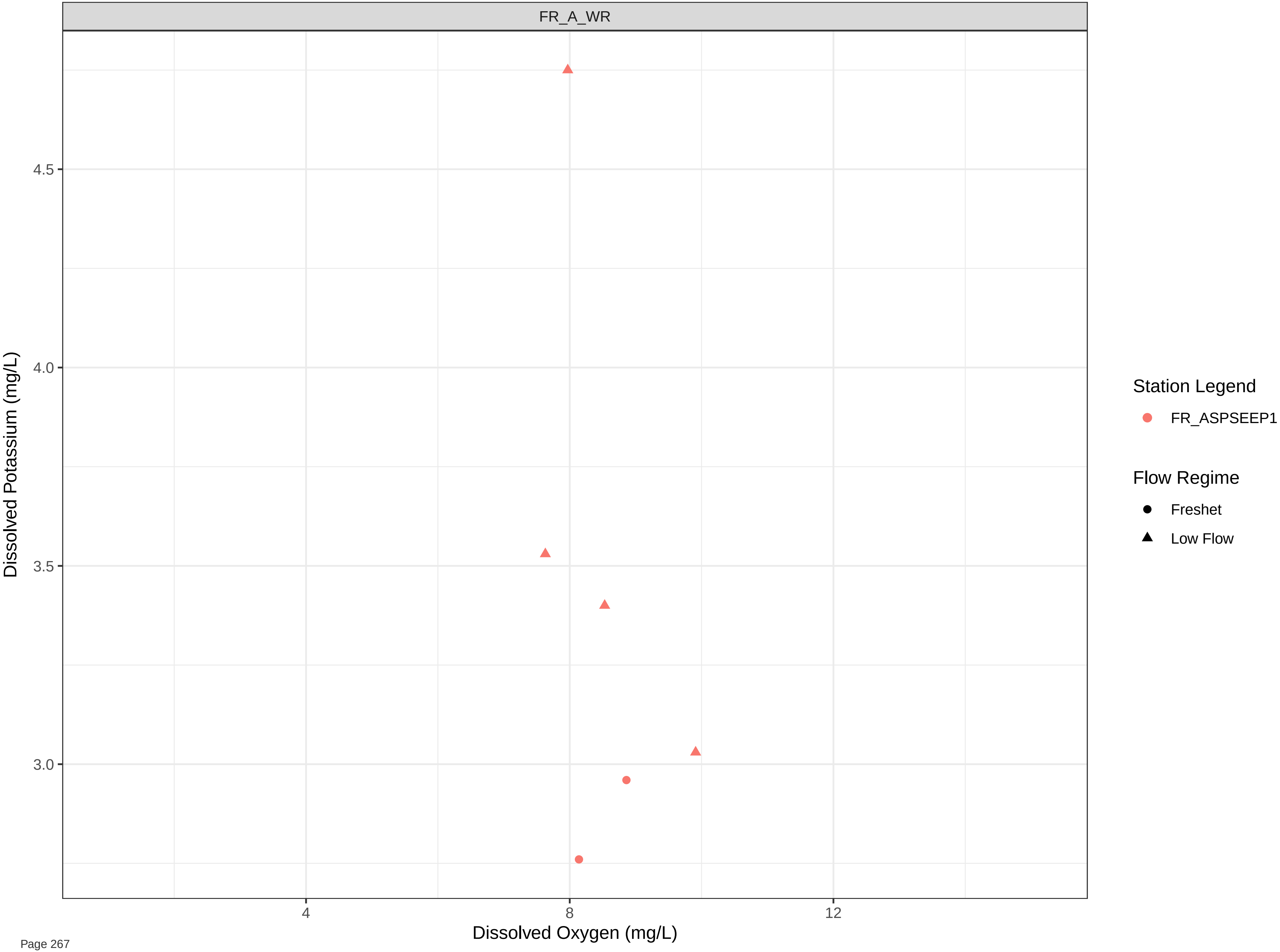

FR_Smith_WR
Dissolved Nickel (mg/L)
0.0035
0.0030
0.0025
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

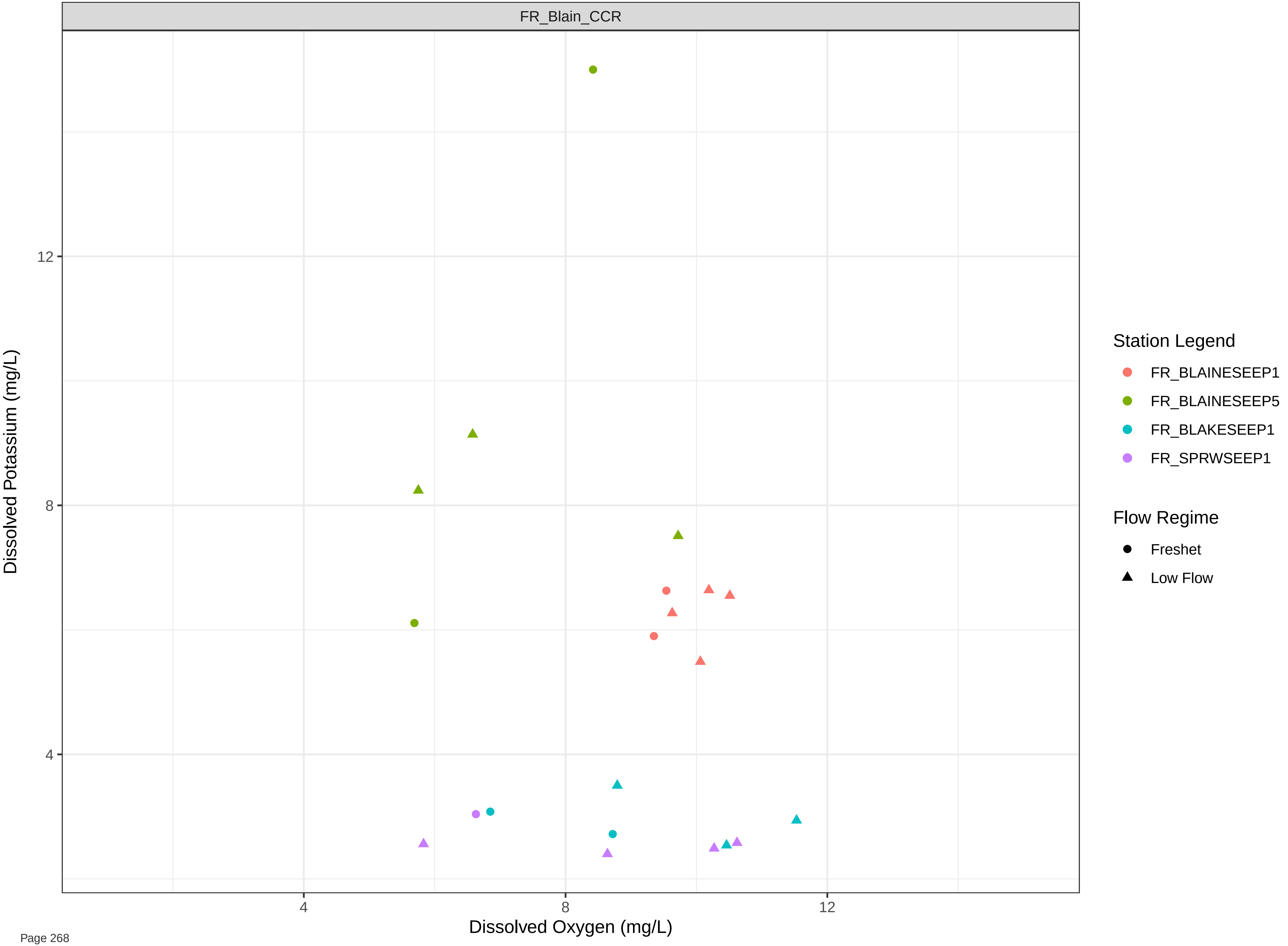

FR_SouthTails_Tailings
Dissolved Nickel (mg/L)
0.006
0.004
0.002
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_STPNSEEP
● FR_STPSWSEEP
● FR_STPWSEEP
Flow Regime
● Freshet
▲ Low Flow

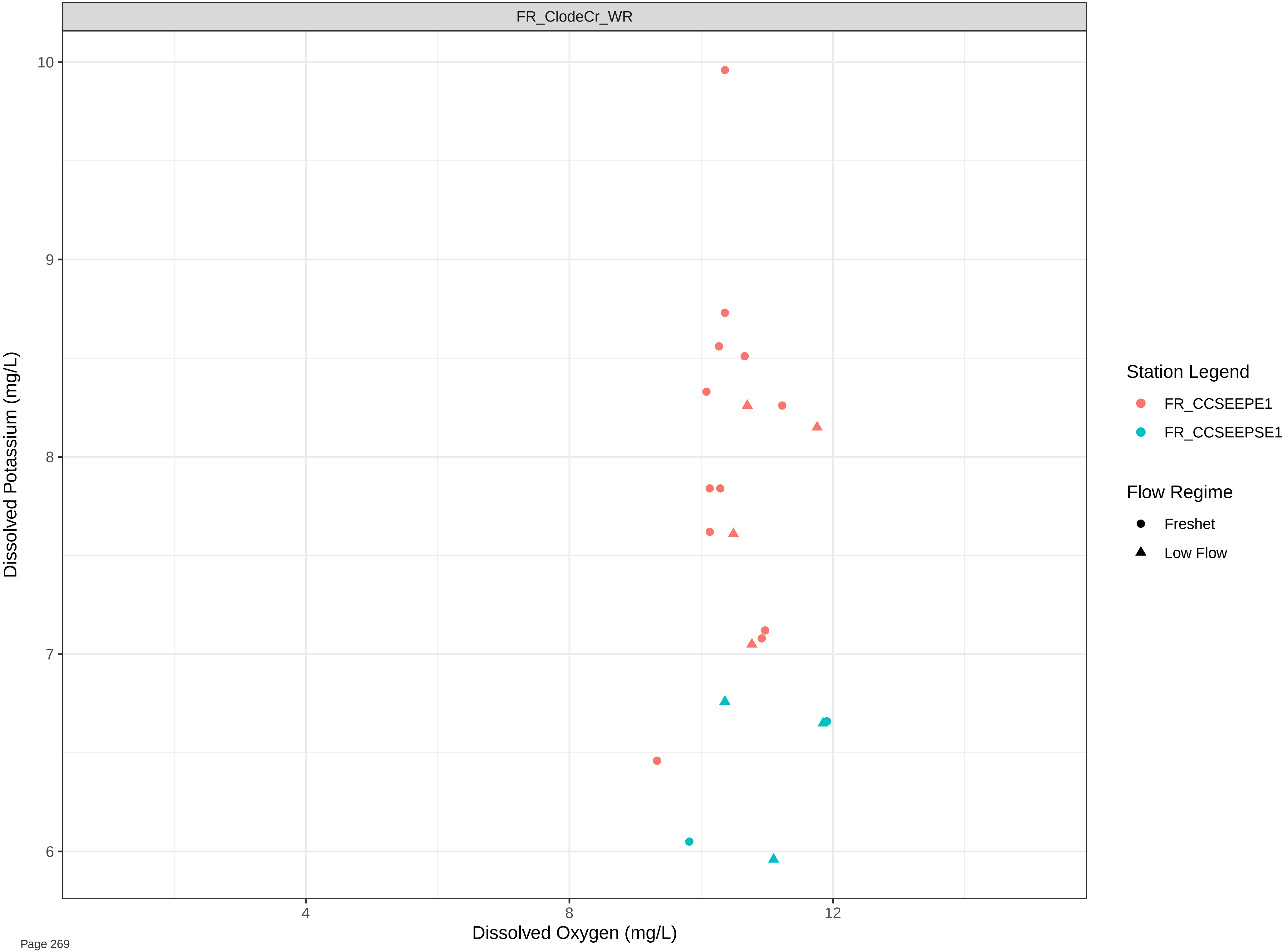

FR_SwiftWR_RockDrain_WR
0.010
0.008
0.006
0.004
0.002
Dissolved Nickel (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

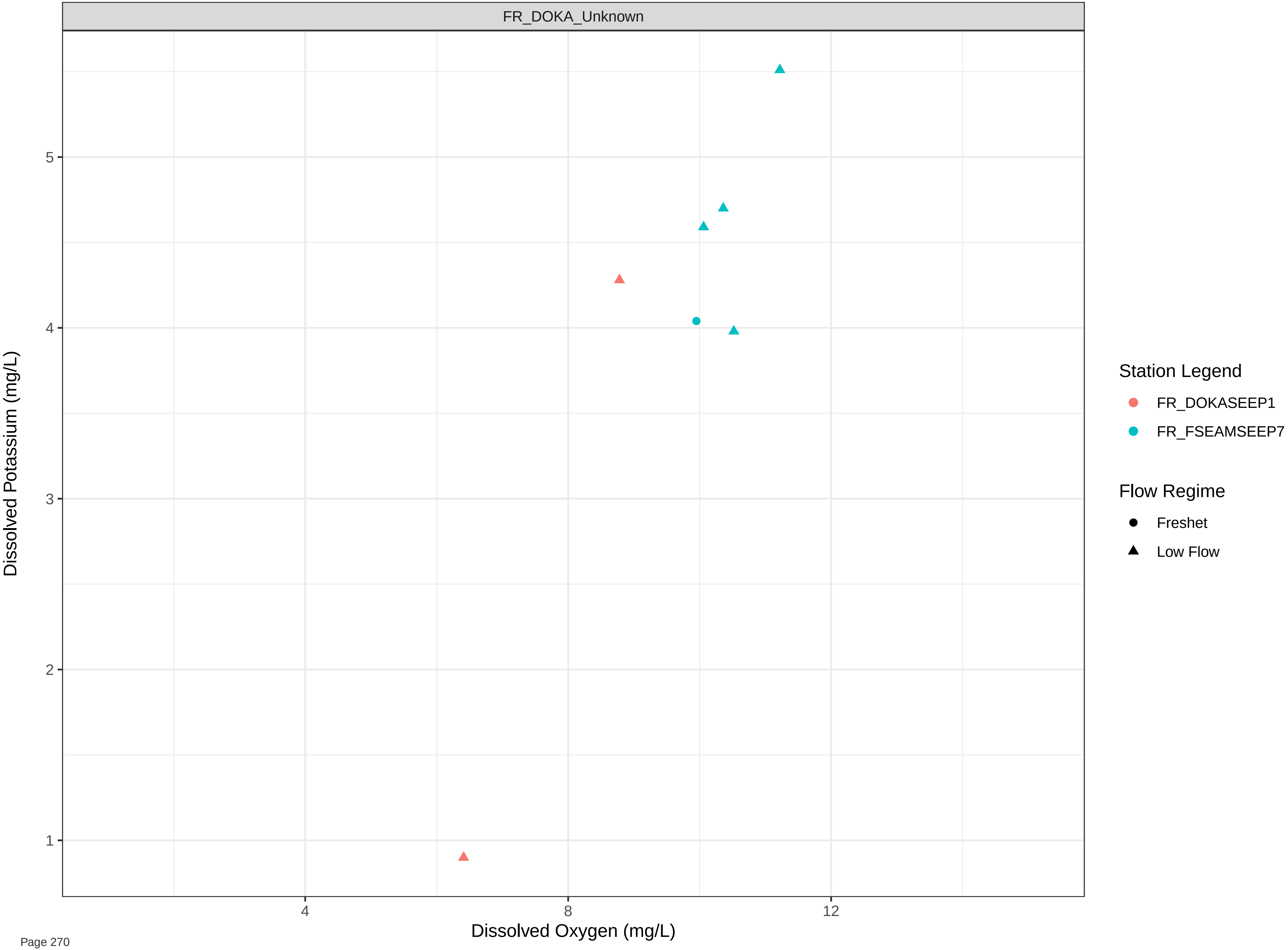

FR_TurnbullWREast_WR
Dissolved Nickel (mg/L)
0.000
0.003
0.006
0.009
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FCSEEP2
● FR_TURNSEEP1
Flow Regime
● Freshet
▲ Low Flow

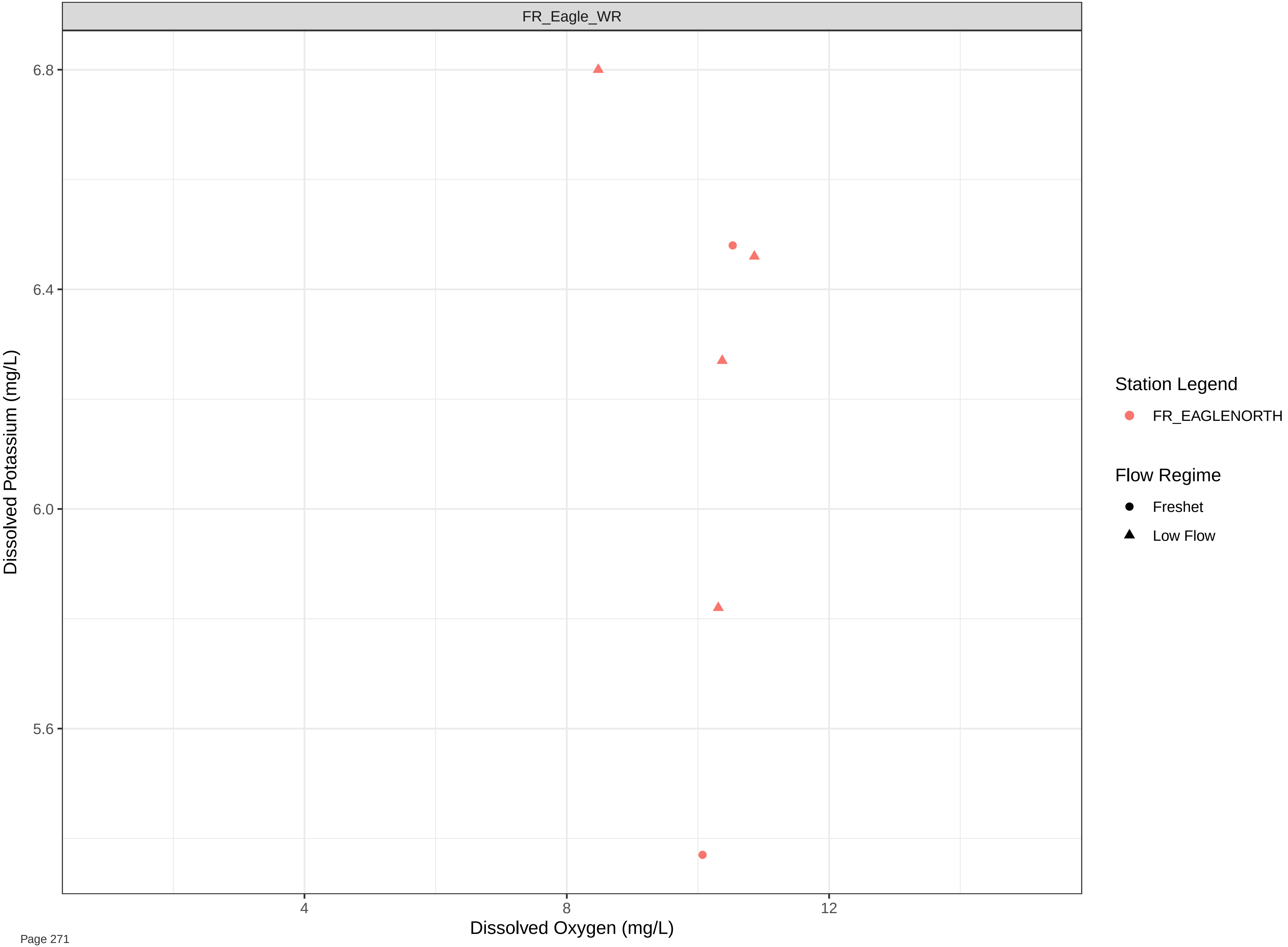

FR_TurnbullWRWest_WR
Dissolved Nickel (mg/L)
0.004
0.003
0.002
0.001
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

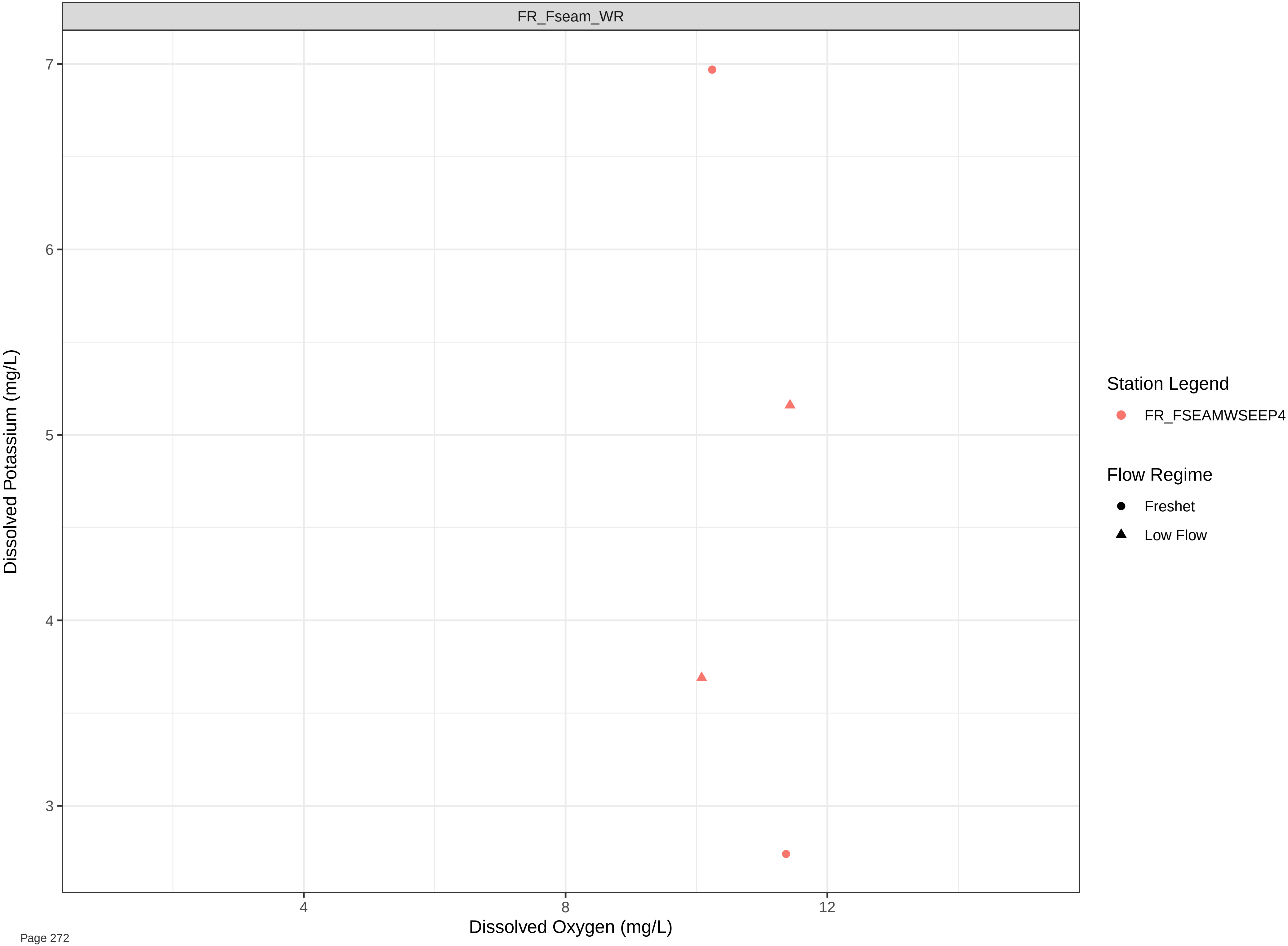

FR_A_WR
Dissolved Potassium (mg/L)
4.5
4.0
3.5
3.0
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

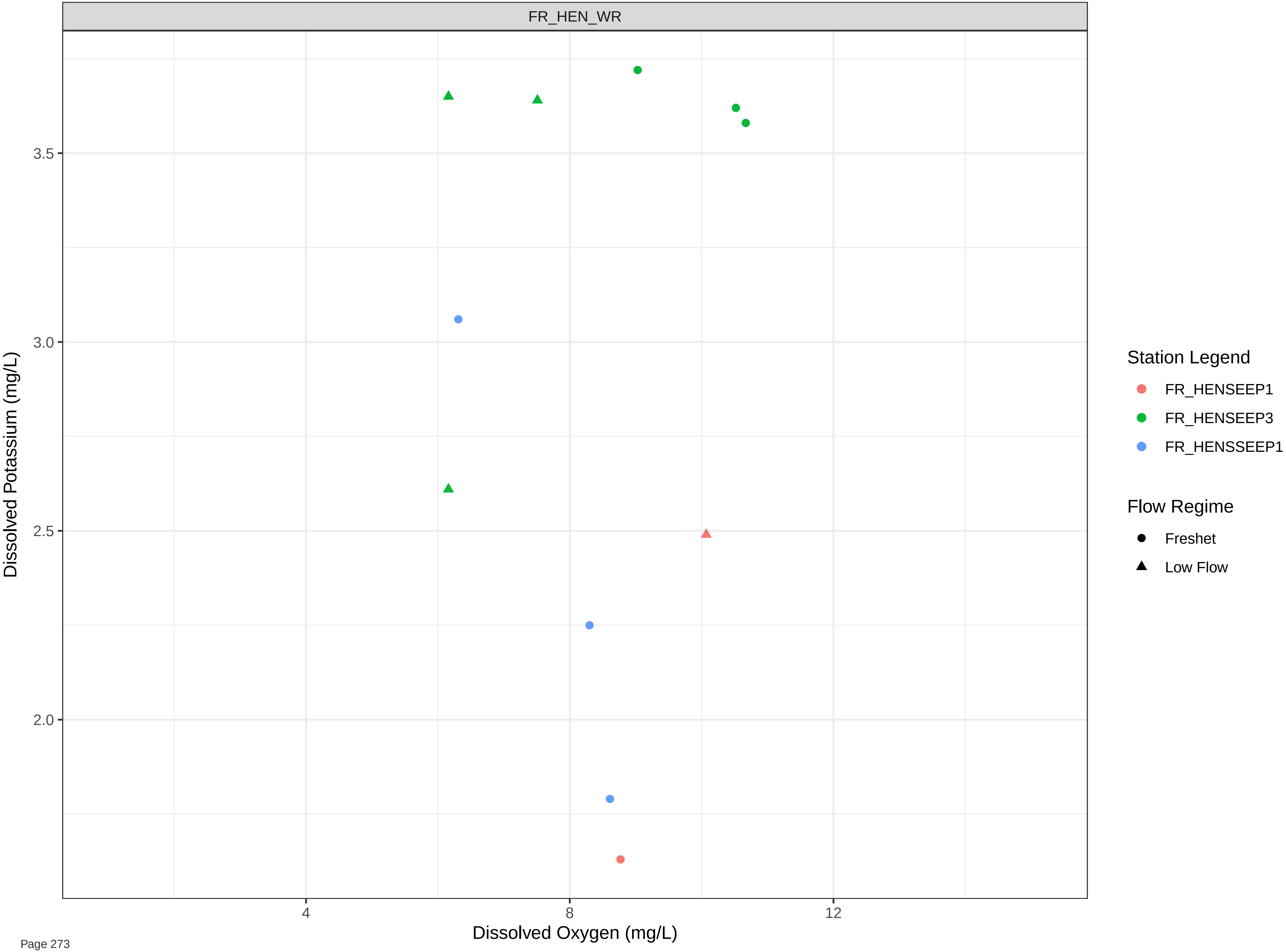

FR_Blain_CCR
Dissolved Potassium (mg/L)
12
8
4
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow

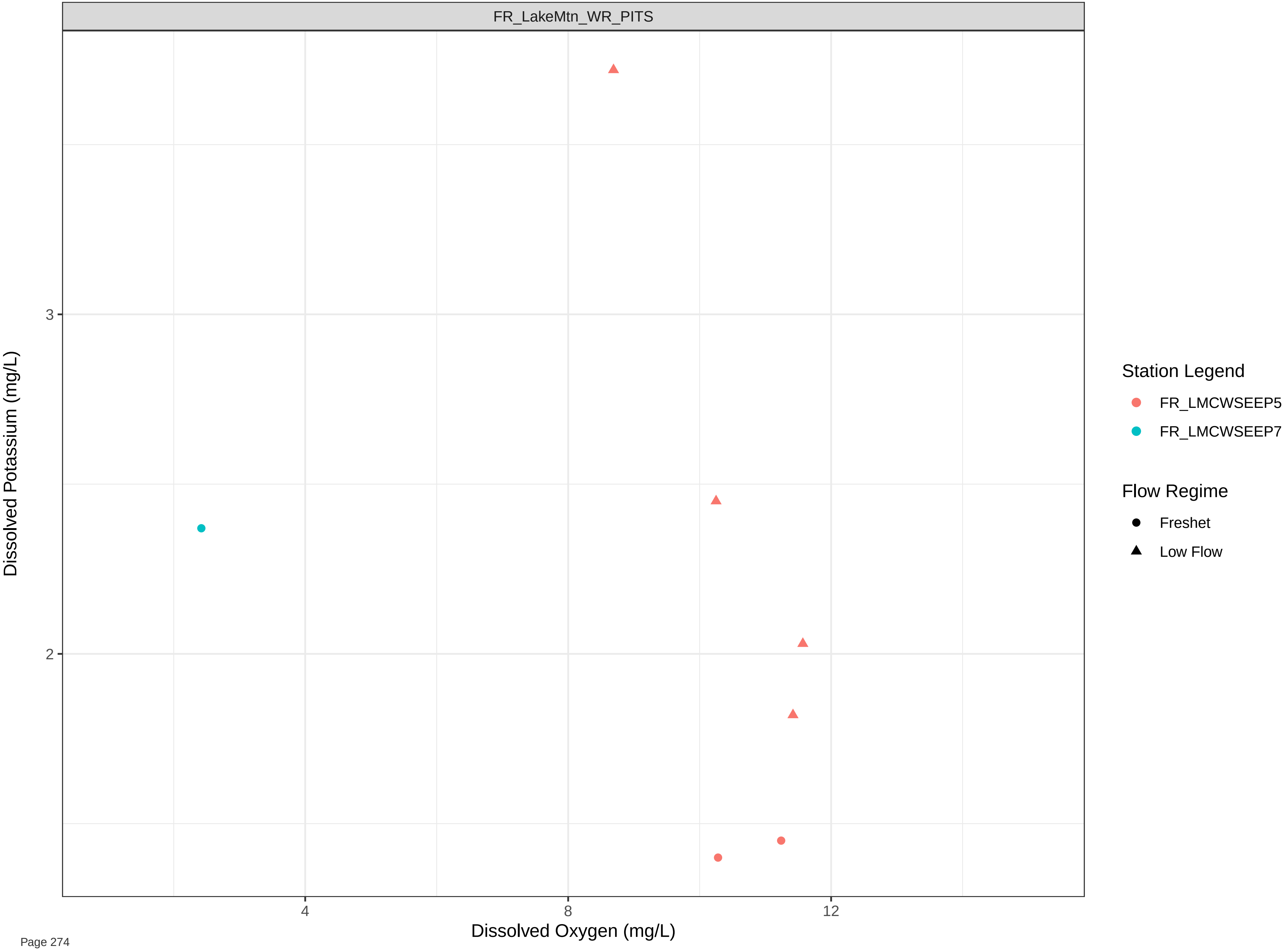

FR_ClodeCr_WR
Dissolved Potassium (mg/L)
10
9
8
7
6
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

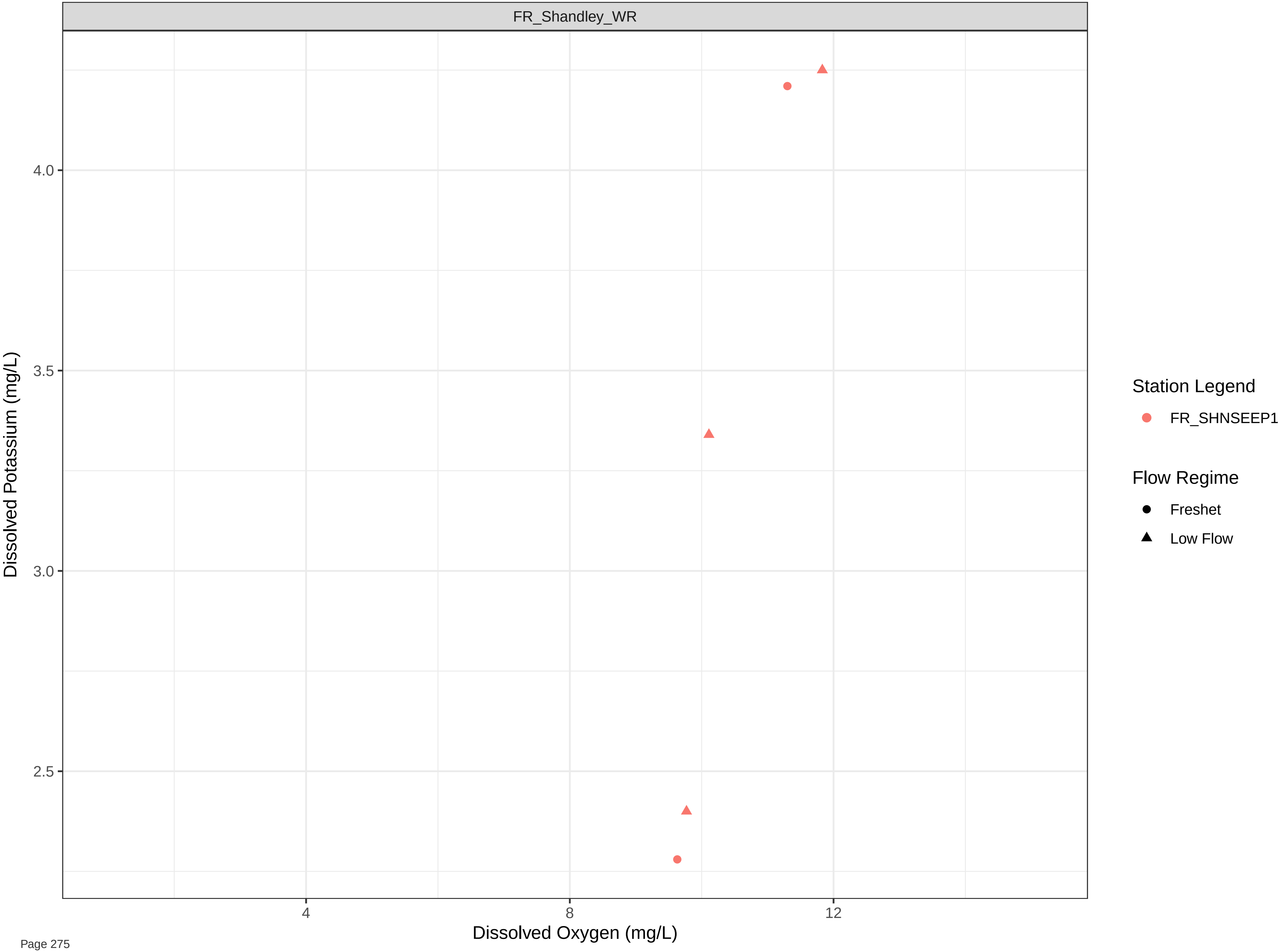

FR_DOKA_Unknown
Dissolved Potassium (mg/L)
1
2
3
4
5
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

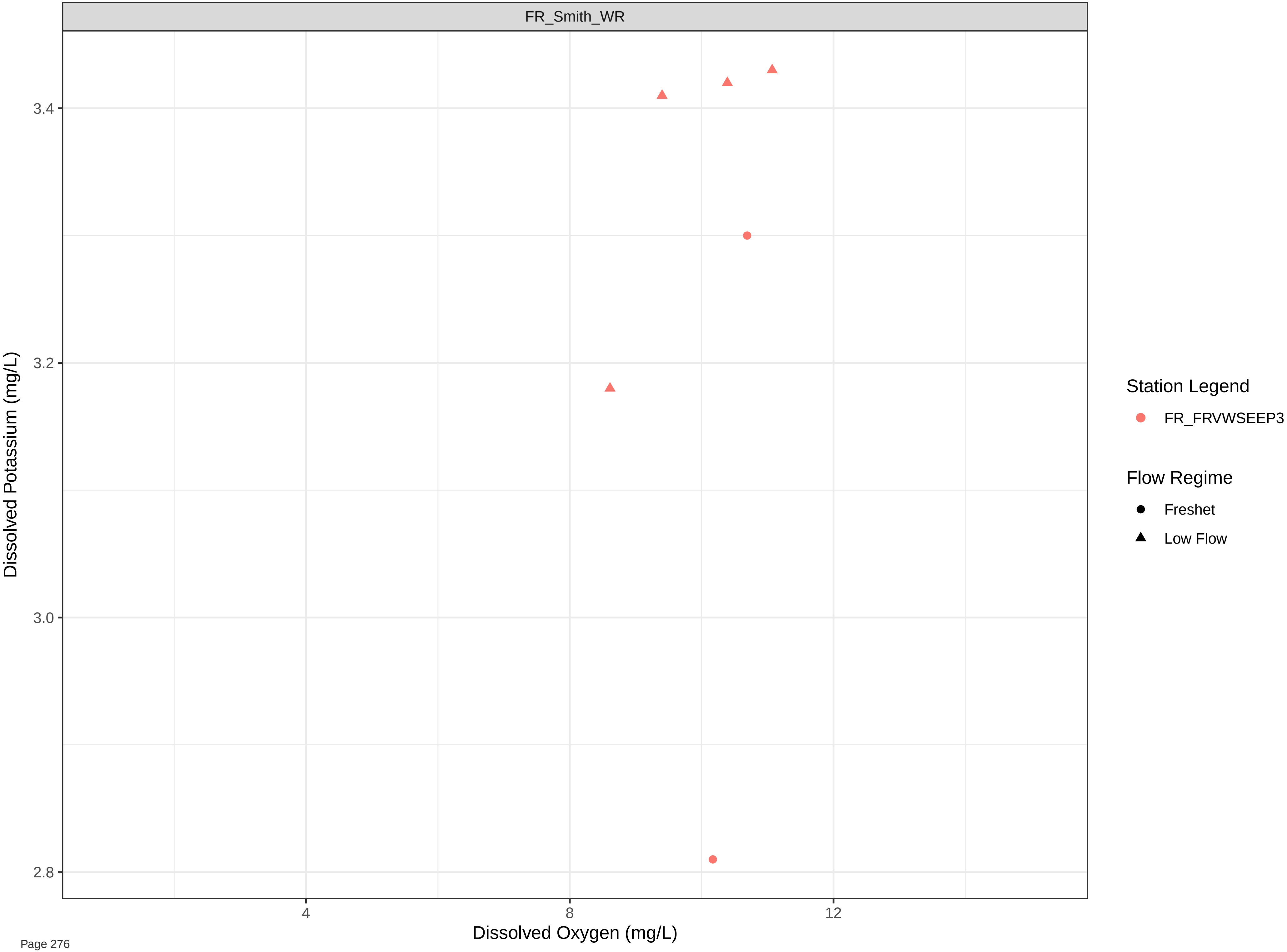

FR_Eagle_WR
Dissolved Potassium (mg/L)
6.8
6.4
6.0
5.6
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

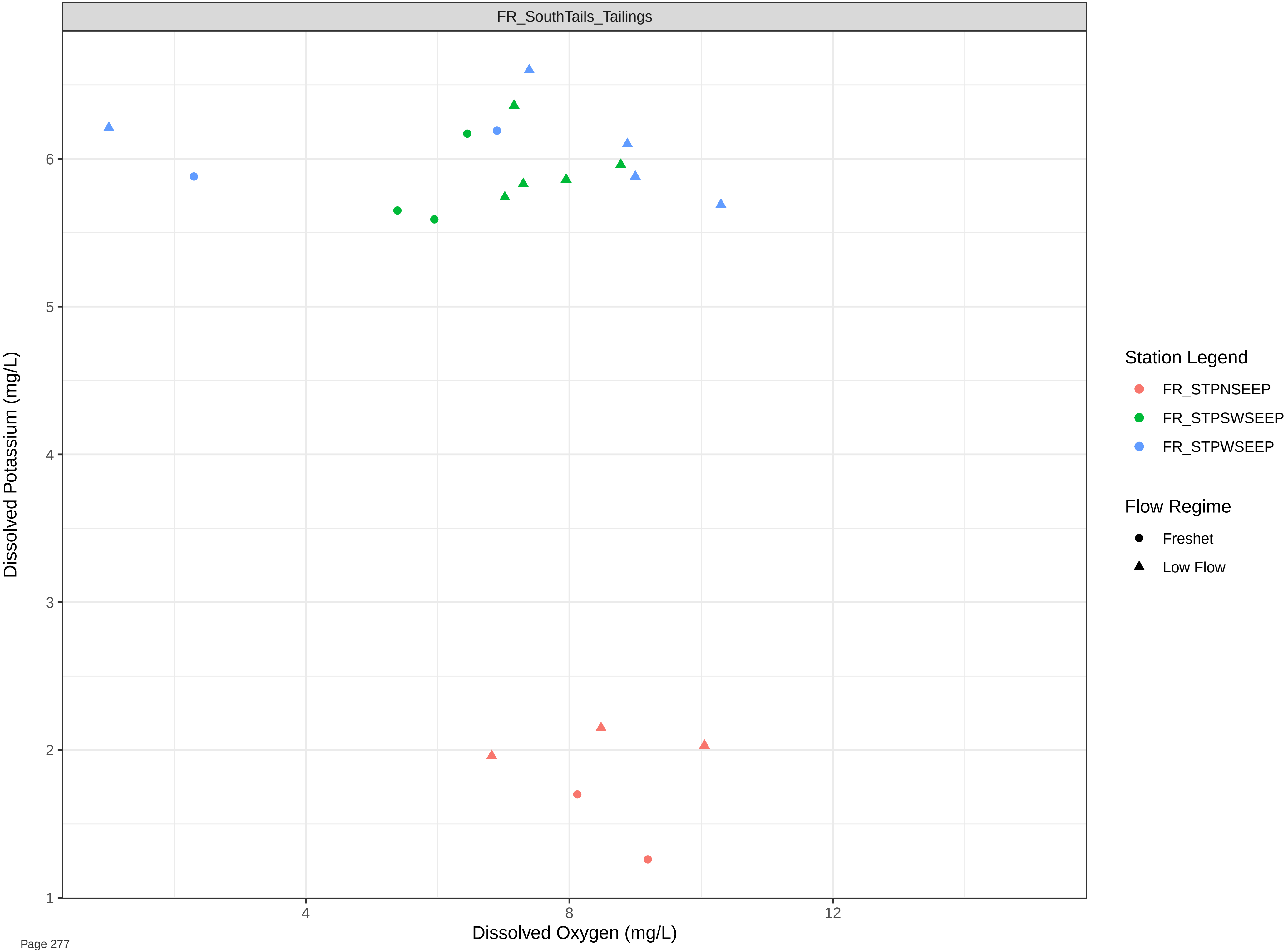

FR_Fseam_WR
7
6
5
4
3
Dissolved Potassium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

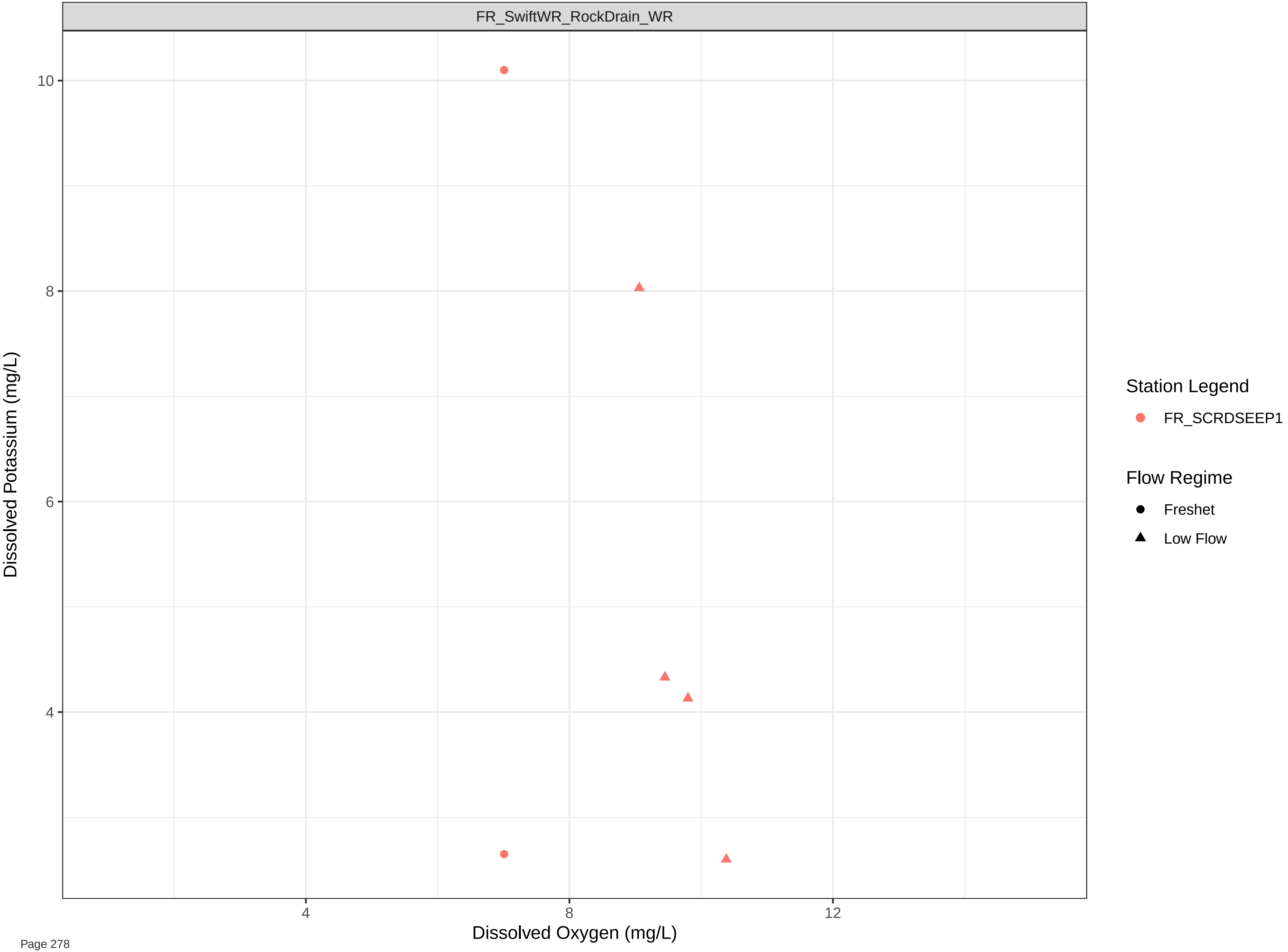

FR_HEN_WR
Dissolved Potassium (mg/L)
3.5
3.0
2.5
2.0
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

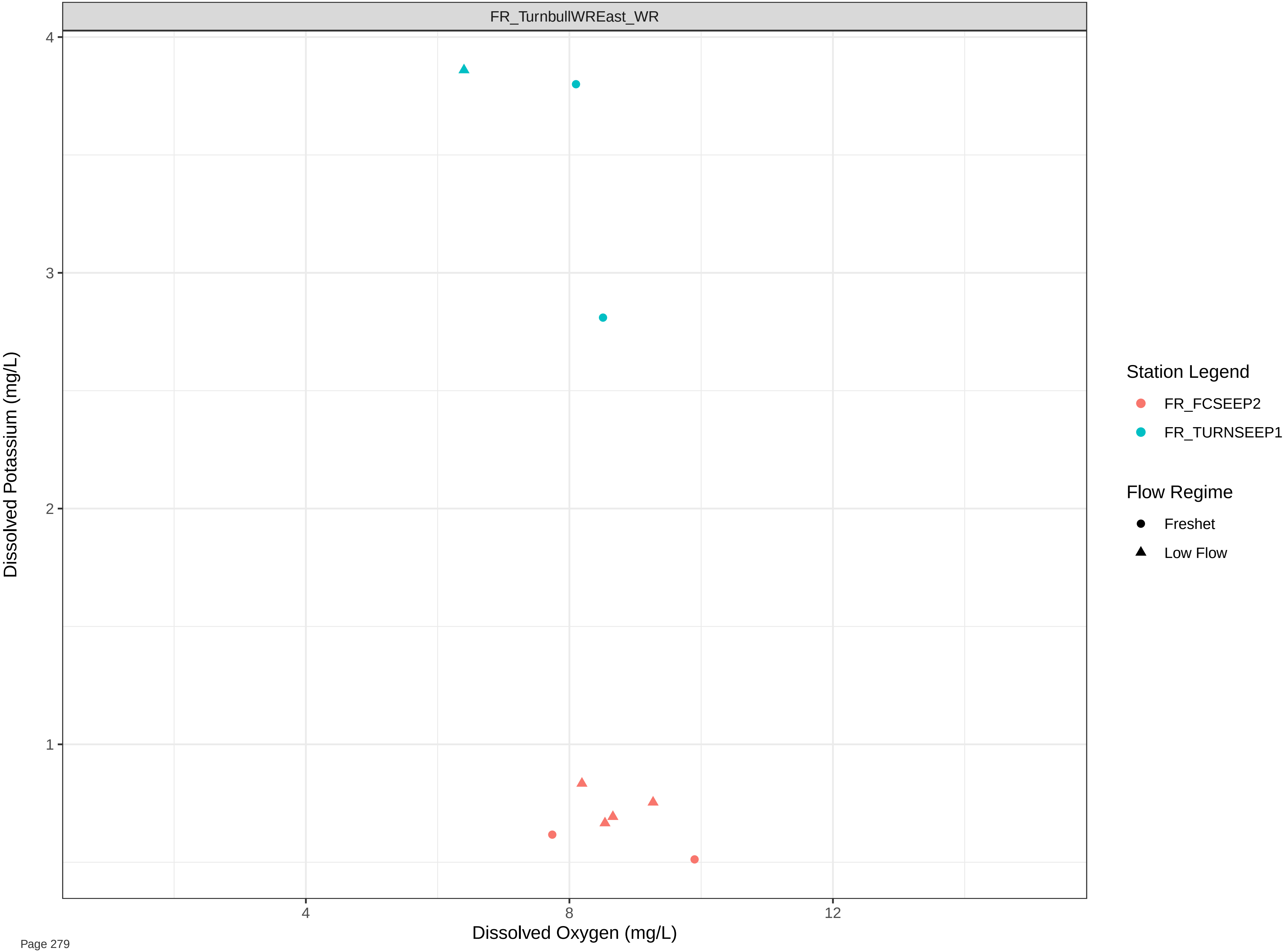

FR_LakeMtn_WR_PITS
Dissolved Potassium (mg/L)
3
2
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

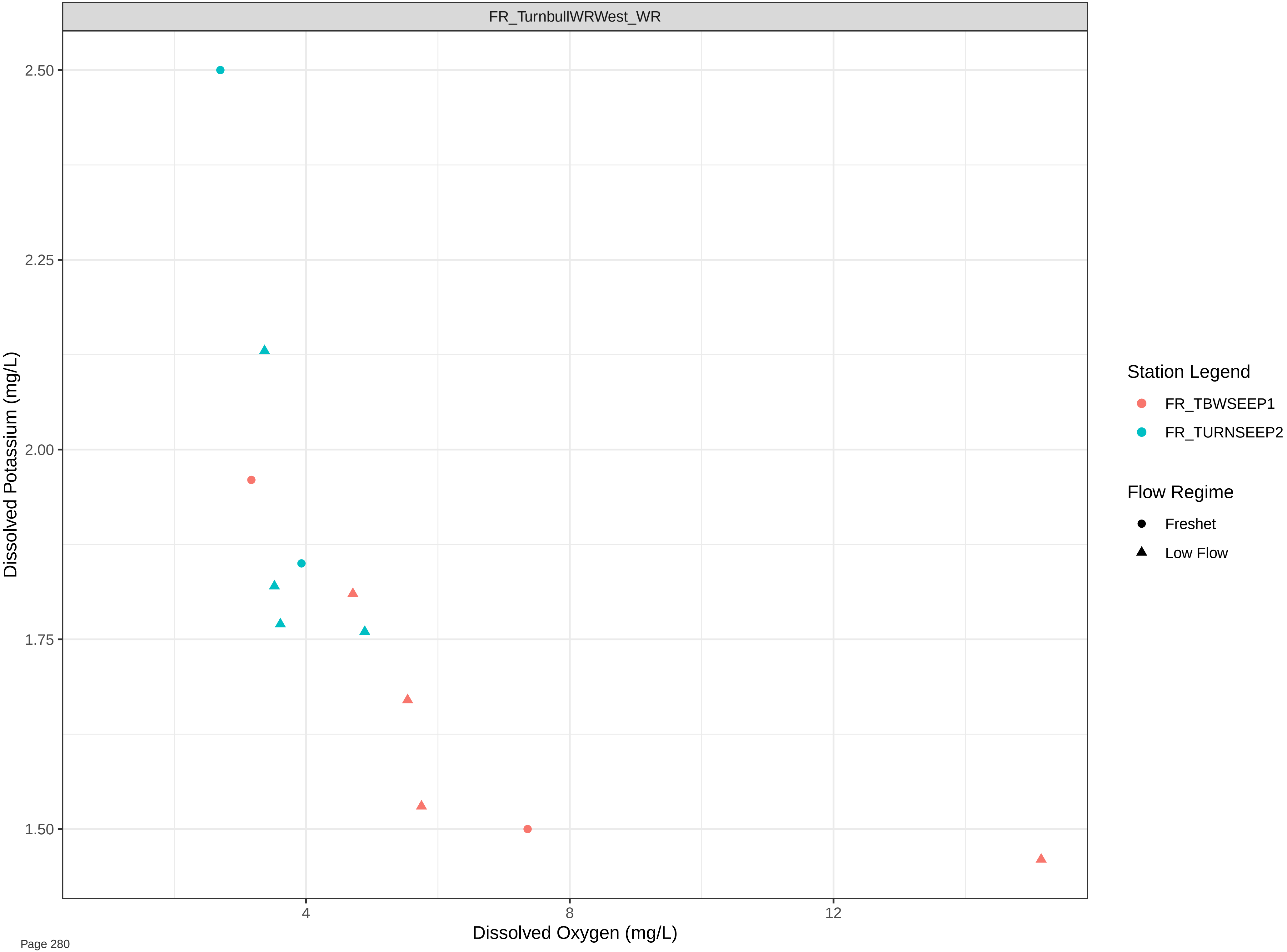

FR_Shandley_WR
Dissolved Potassium (mg/L)
4.0
3.5
3.0
2.5
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

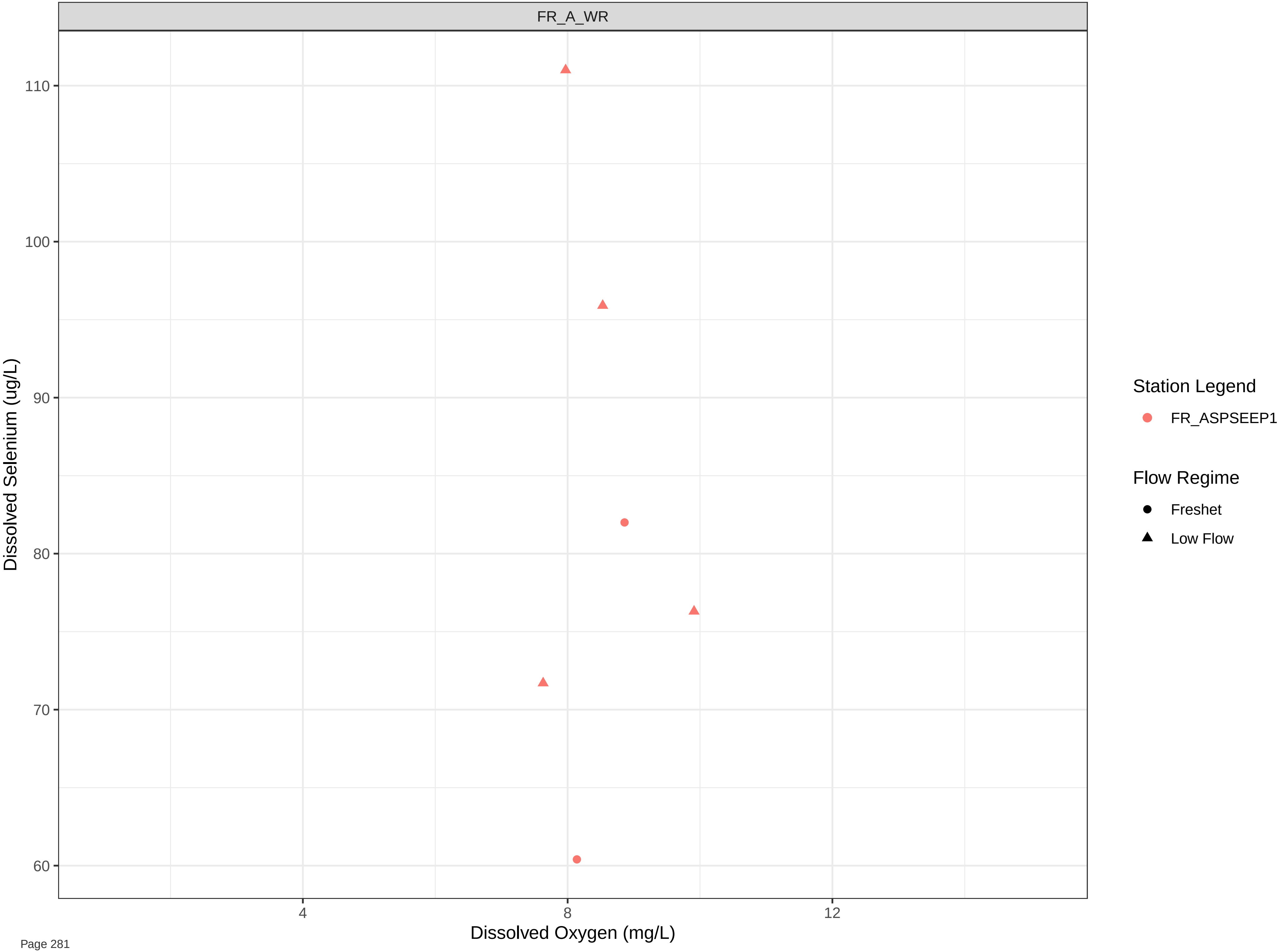

FR_Smith_WR
Dissolved Potassium (mg/L)
3.4
3.2
3.0
2.8
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

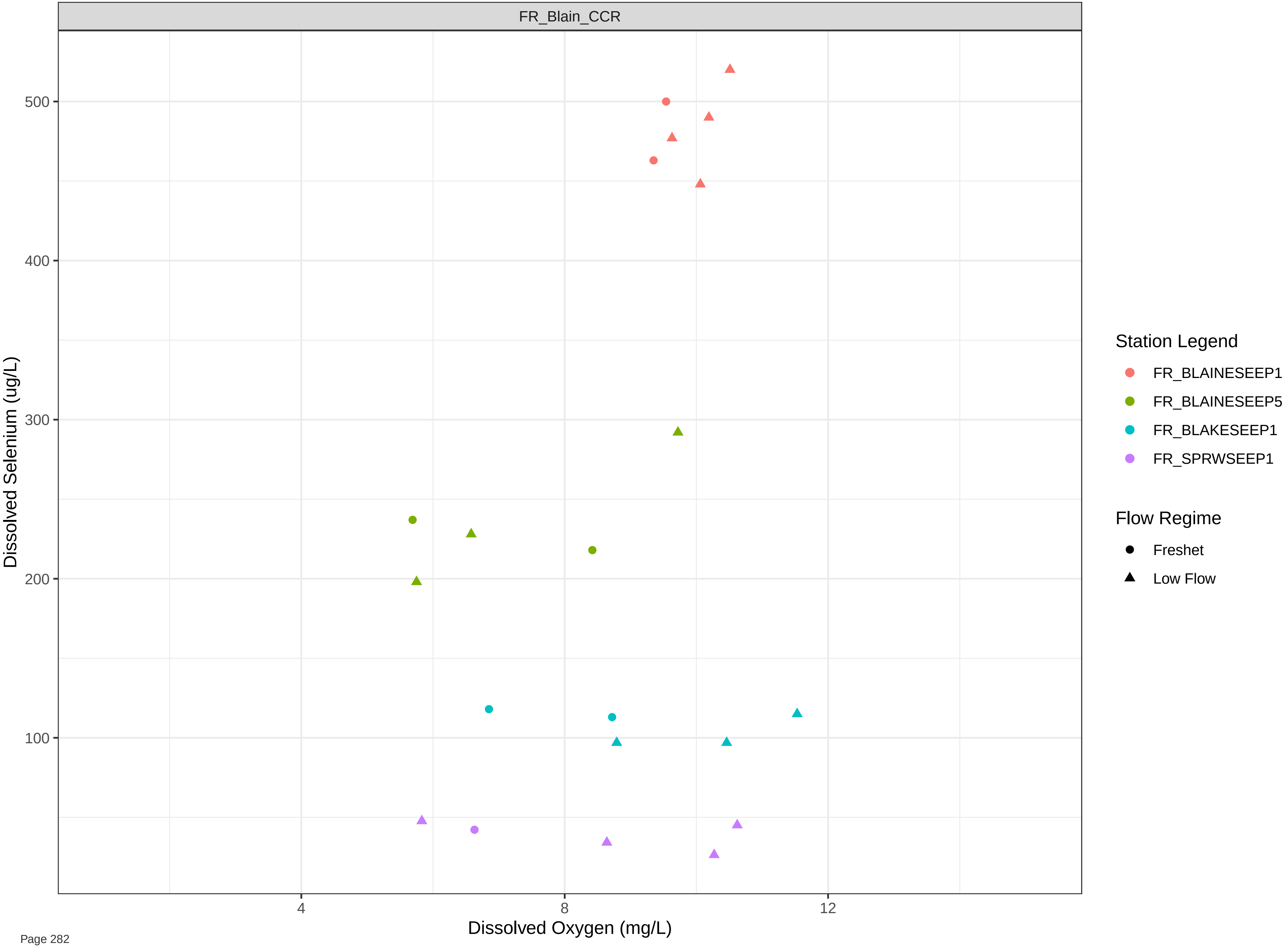

FR_SouthTails_Tailings
Dissolved Potassium (mg/L)
Dissolved Oxygen (mg/L)
1
2
3
4
5
6
4
8
12
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

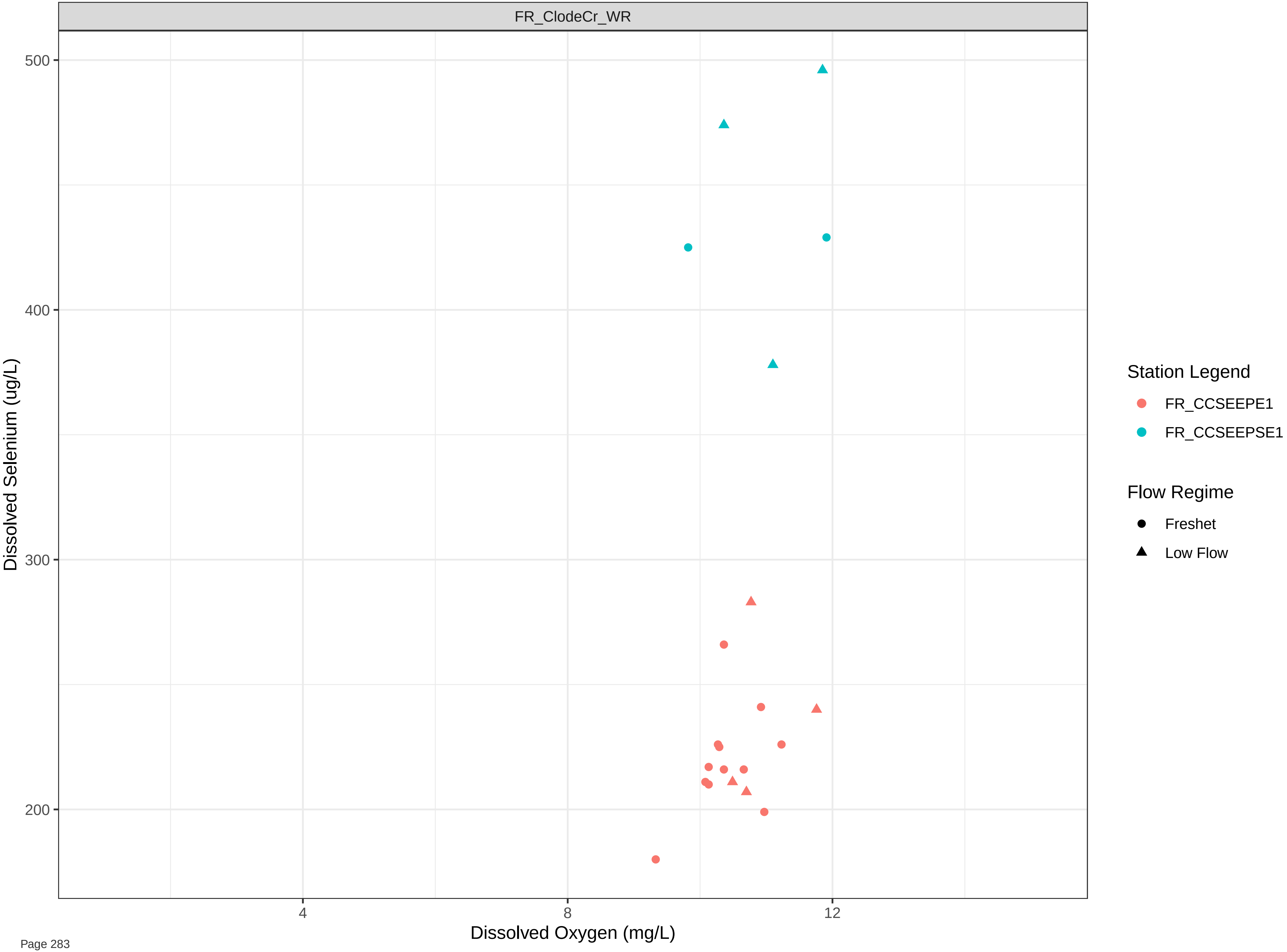

FR_SwiftWR_RockDrain_WR
Dissolved Potassium (mg/L)
10
8
6
4
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

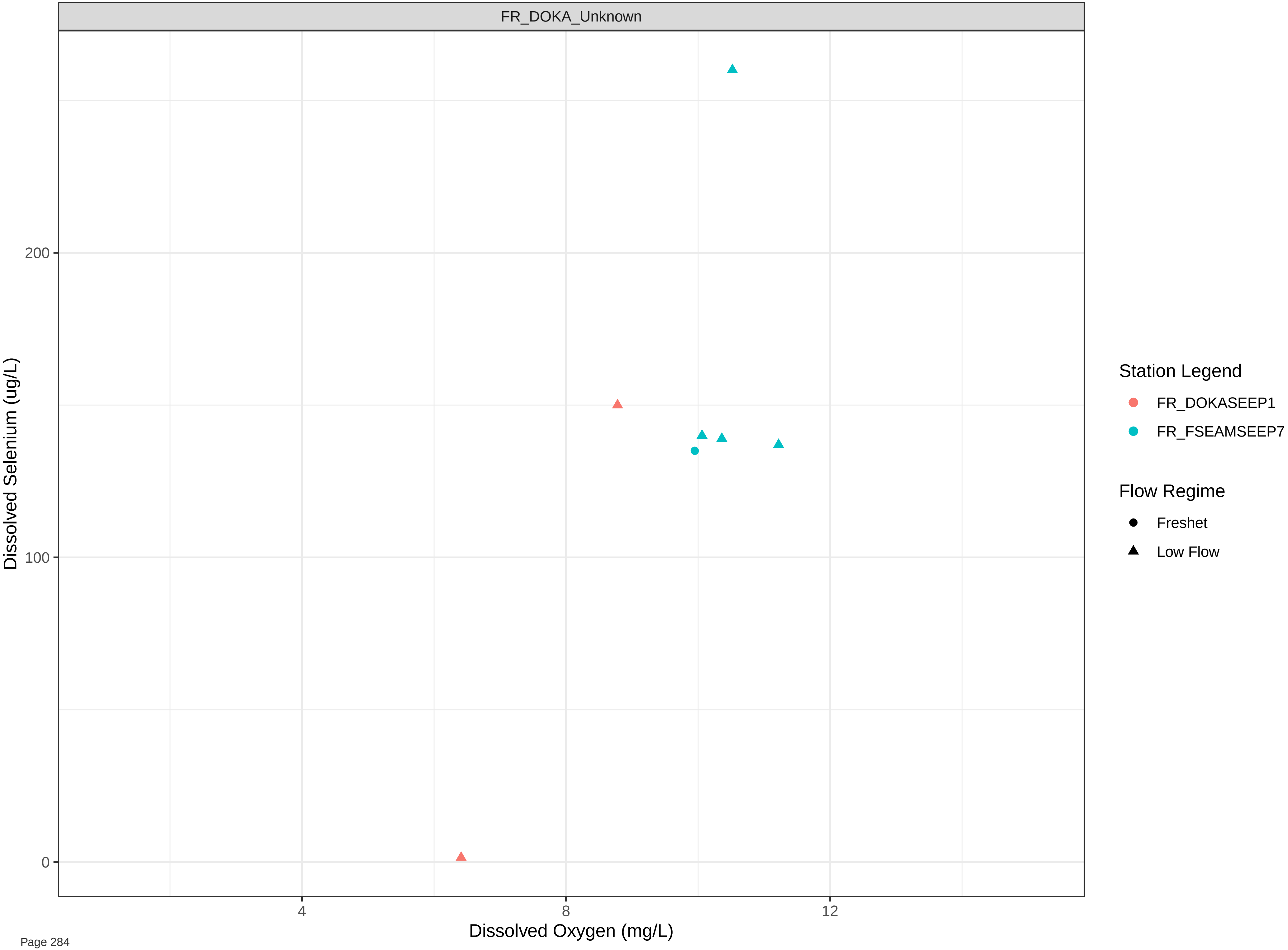

FR_TurnbullWREast_WR
Dissolved Potassium (mg/L)
4
3
2
1
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_FCSEEP2
● FR_TURNSEEP1
Flow Regime
● Freshet
▲ Low Flow

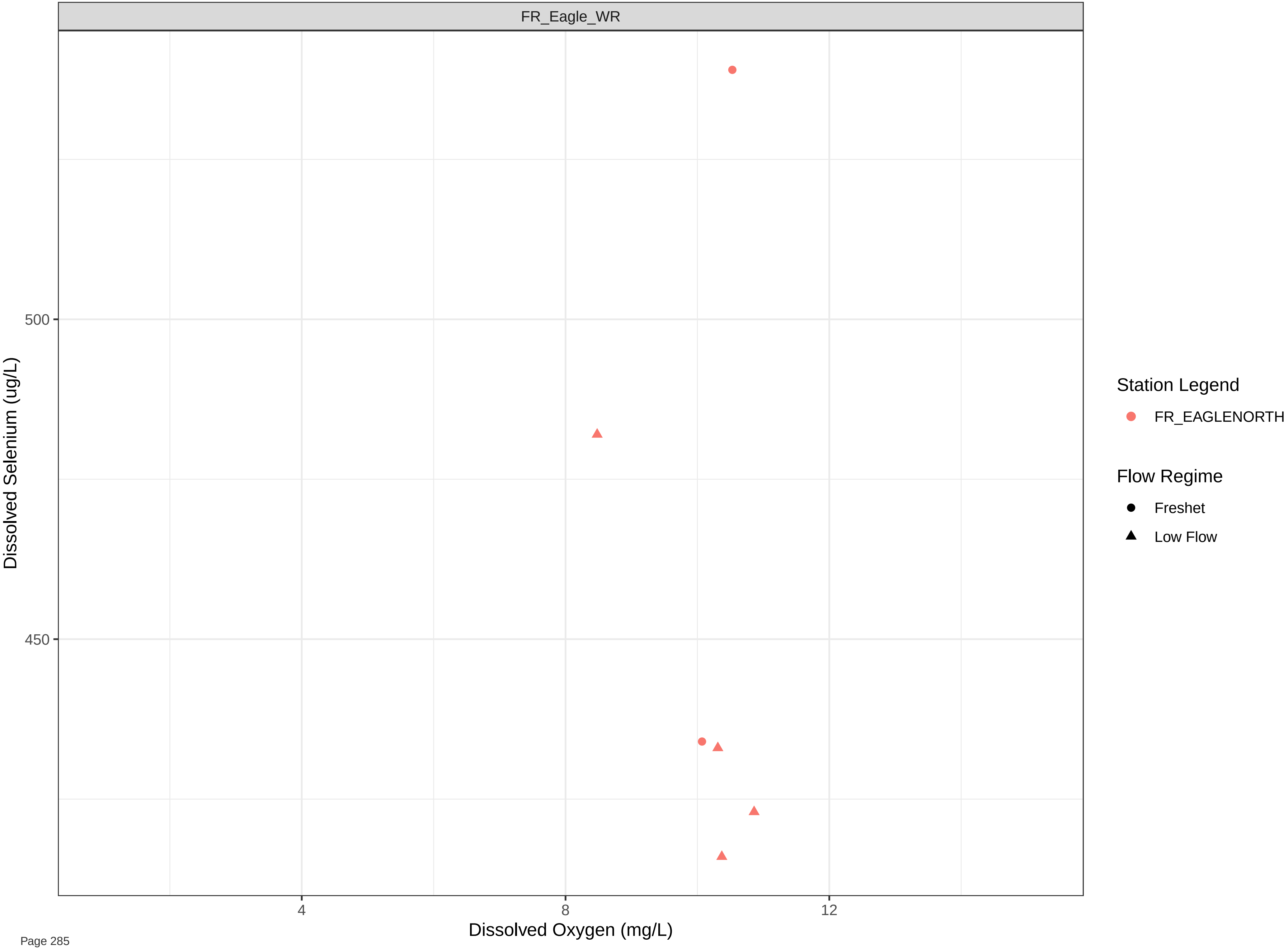

FR_TurnbullWRWest_WR
Dissolved Potassium (mg/L)
2.50
2.25
2.00
1.75
1.50
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

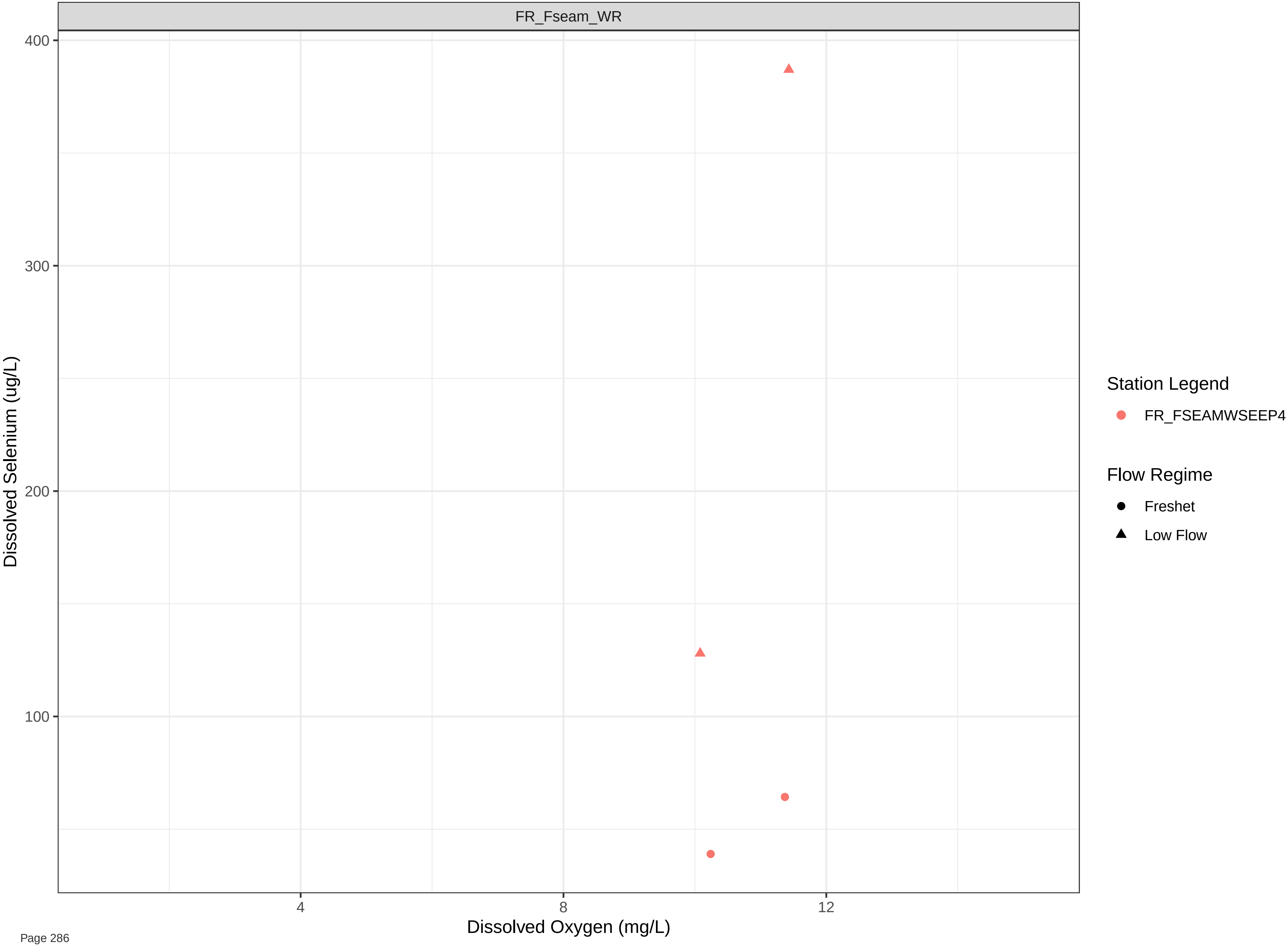

FR_A_WR
Dissolved Selenium (ug/L)
110
100
90
80
70
60
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

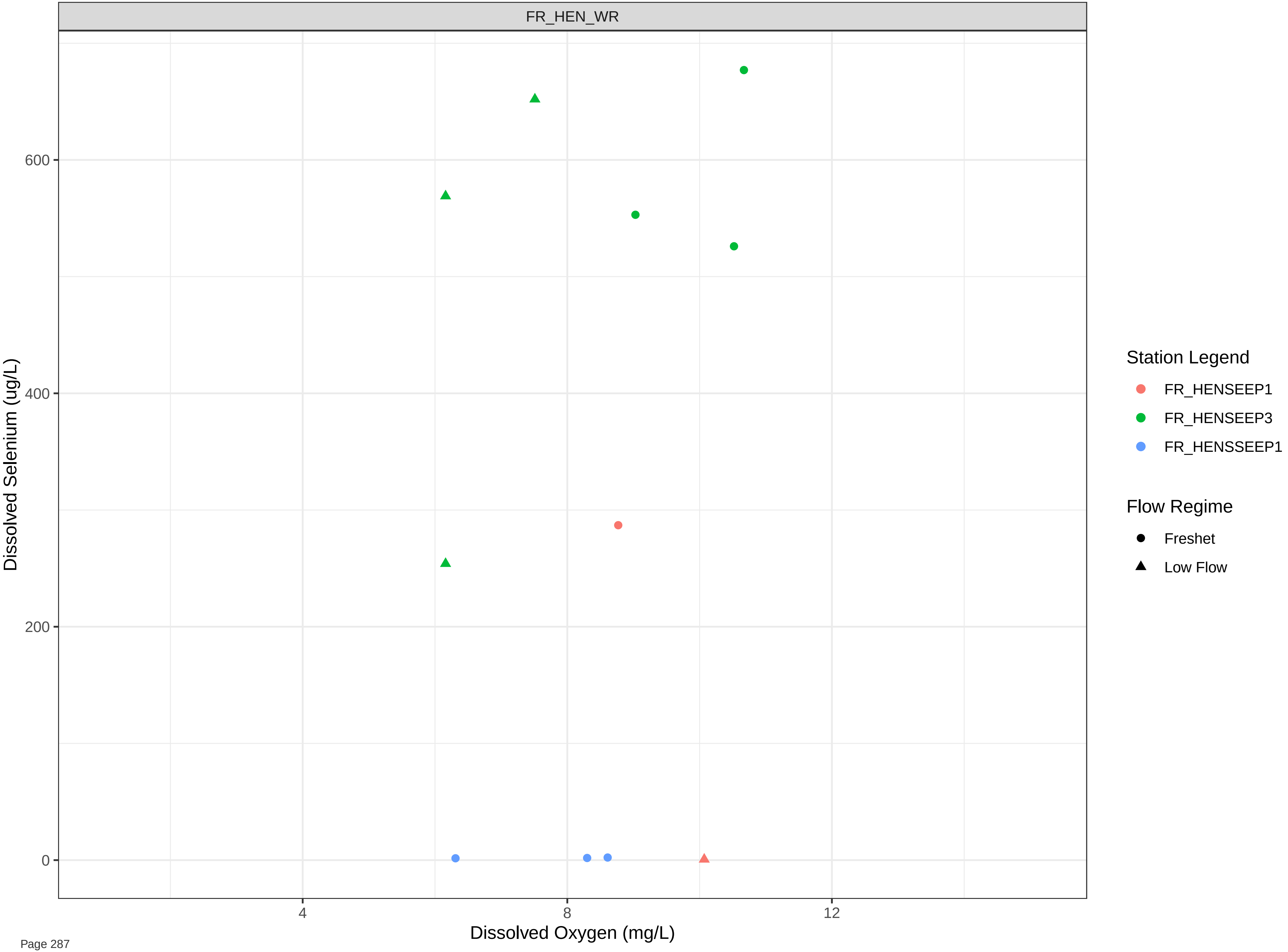

FR_Blain_CCR
Dissolved Selenium (ug/L)
500
400
300
200
100
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow

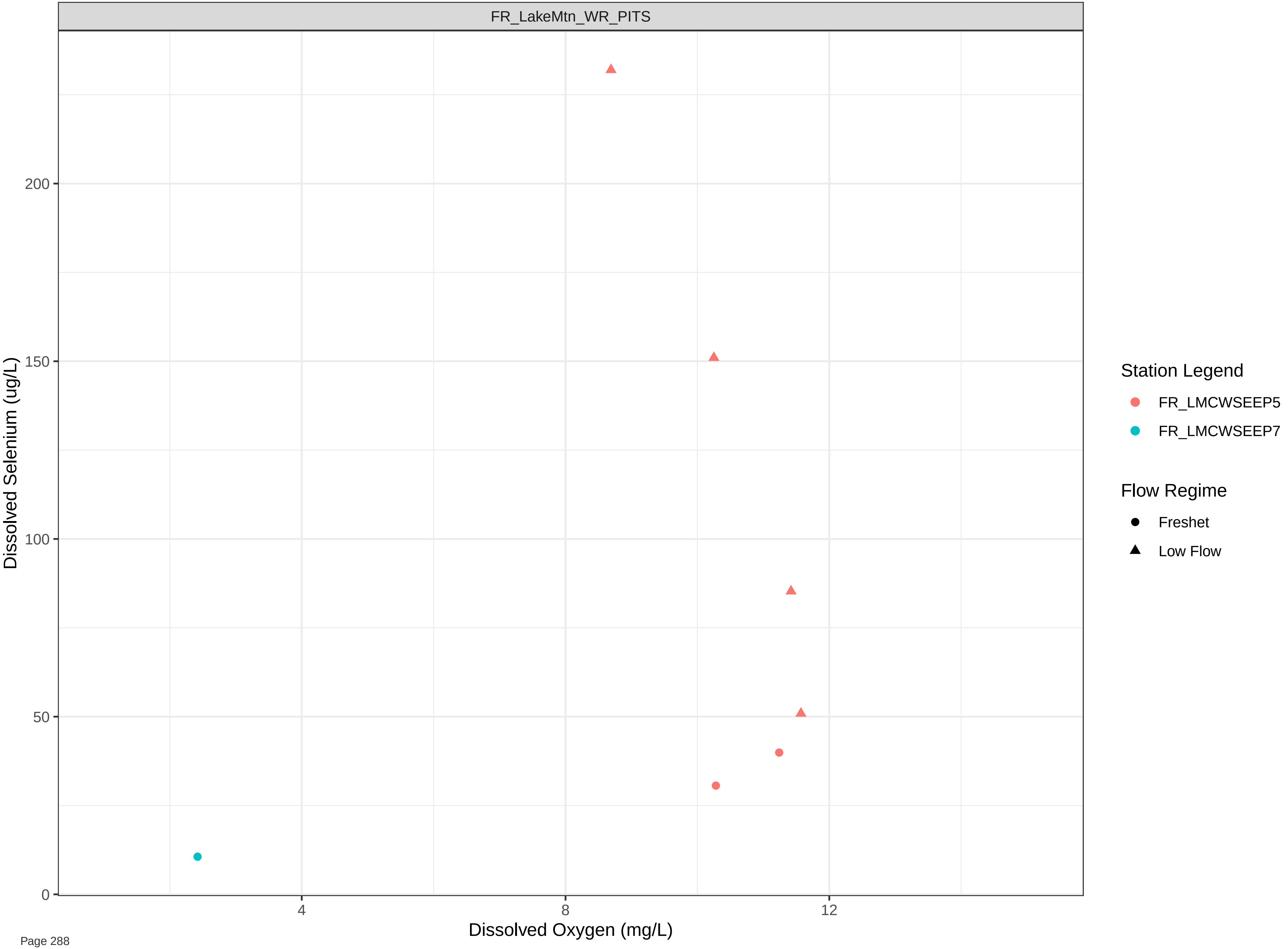

FR_ClodeCr_WR
Dissolved Selenium (ug/L)
500
400
300
200
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

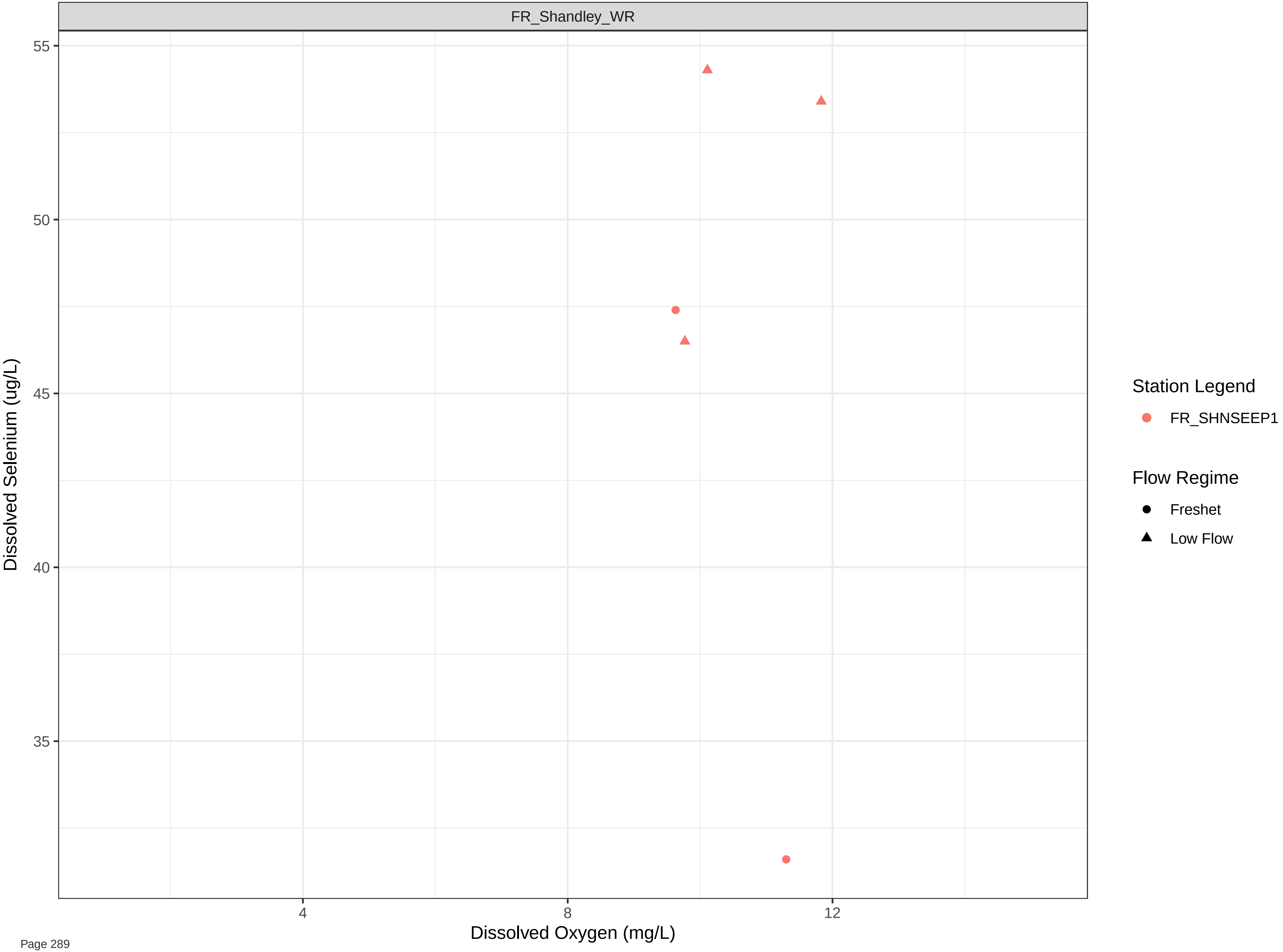

FR_DOKA_Unknown
Dissolved Selenium (ug/L)
200
100
0
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

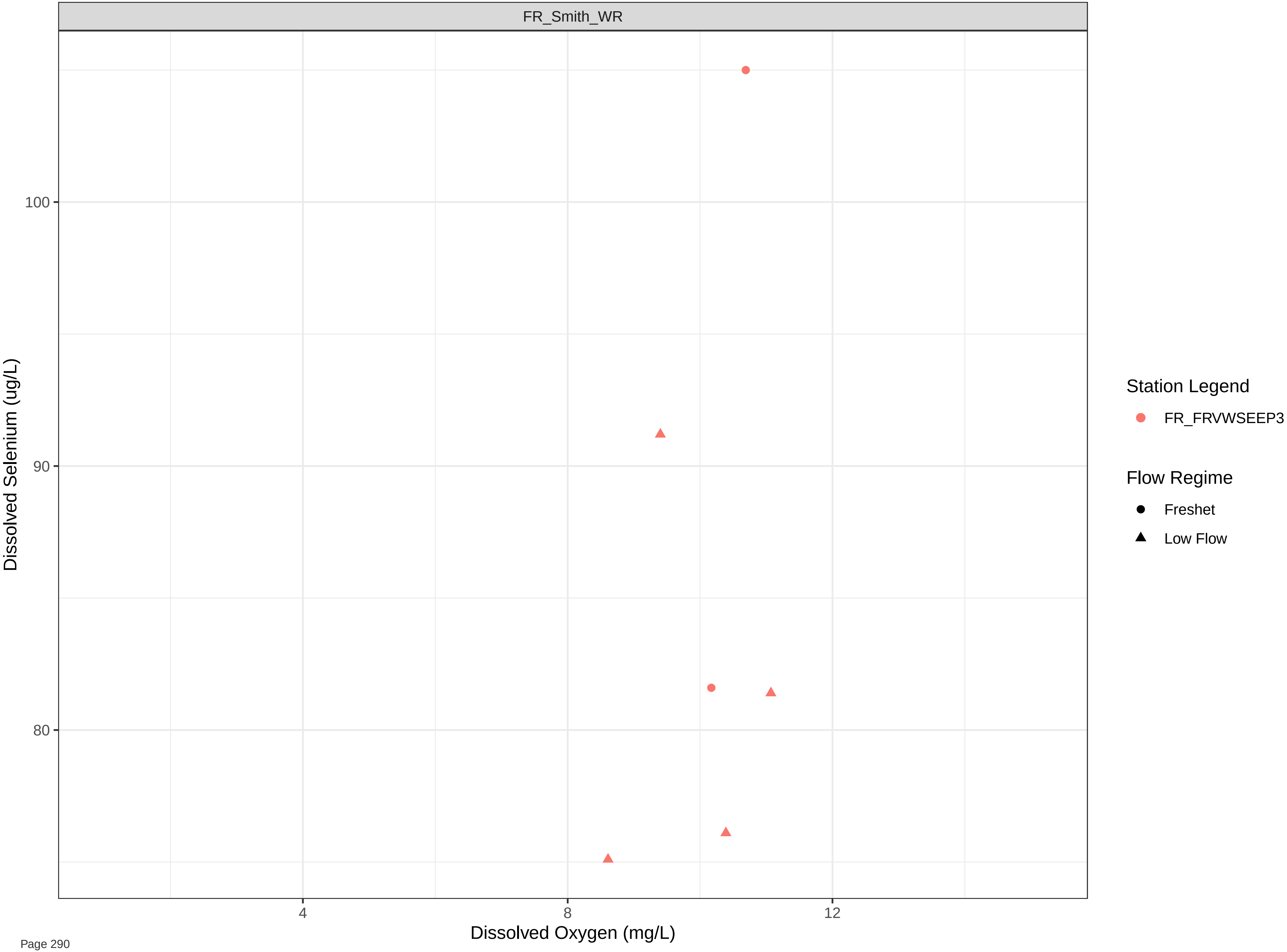

FR_Eagle_WR
Dissolved Selenium (ug/L)
500
450
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

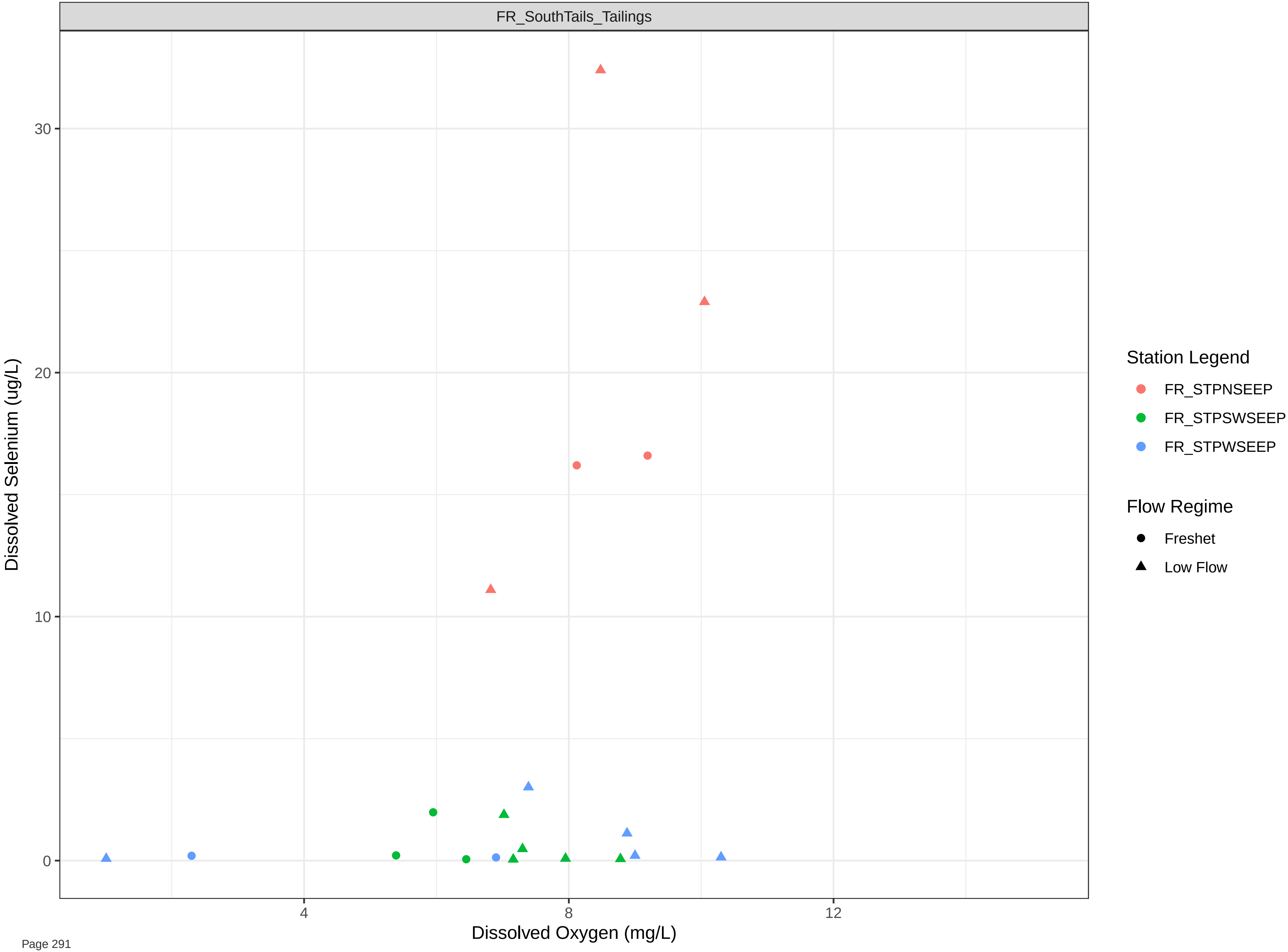

FR_Fseam_WR
400
300
200
100
4
8
12
Dissolved Selenium (ug/L)
Dissolved Oxygen (mg/L)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

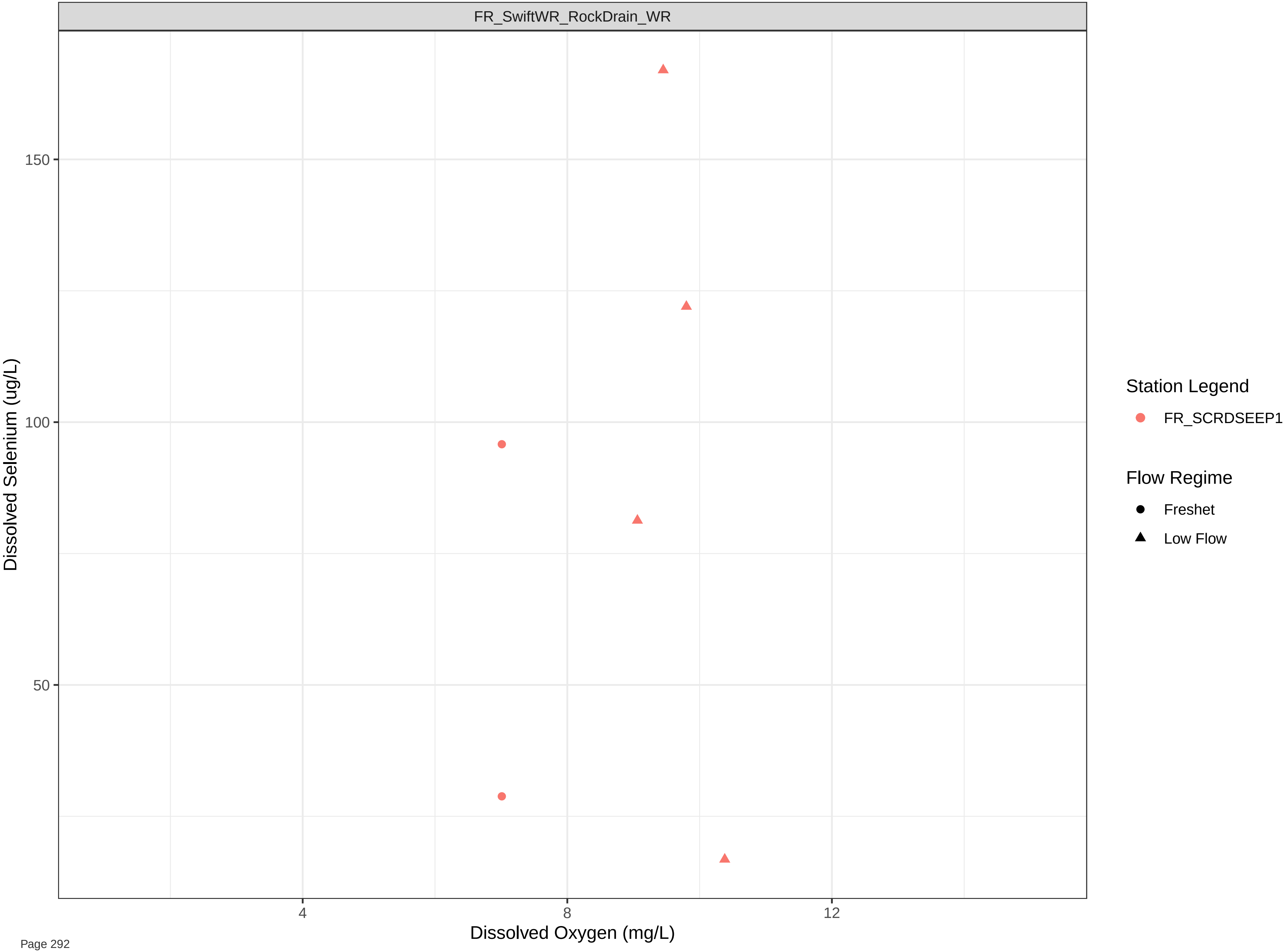

FR_HEN_WR
Dissolved Selenium (ug/L)
600
400
200
0
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

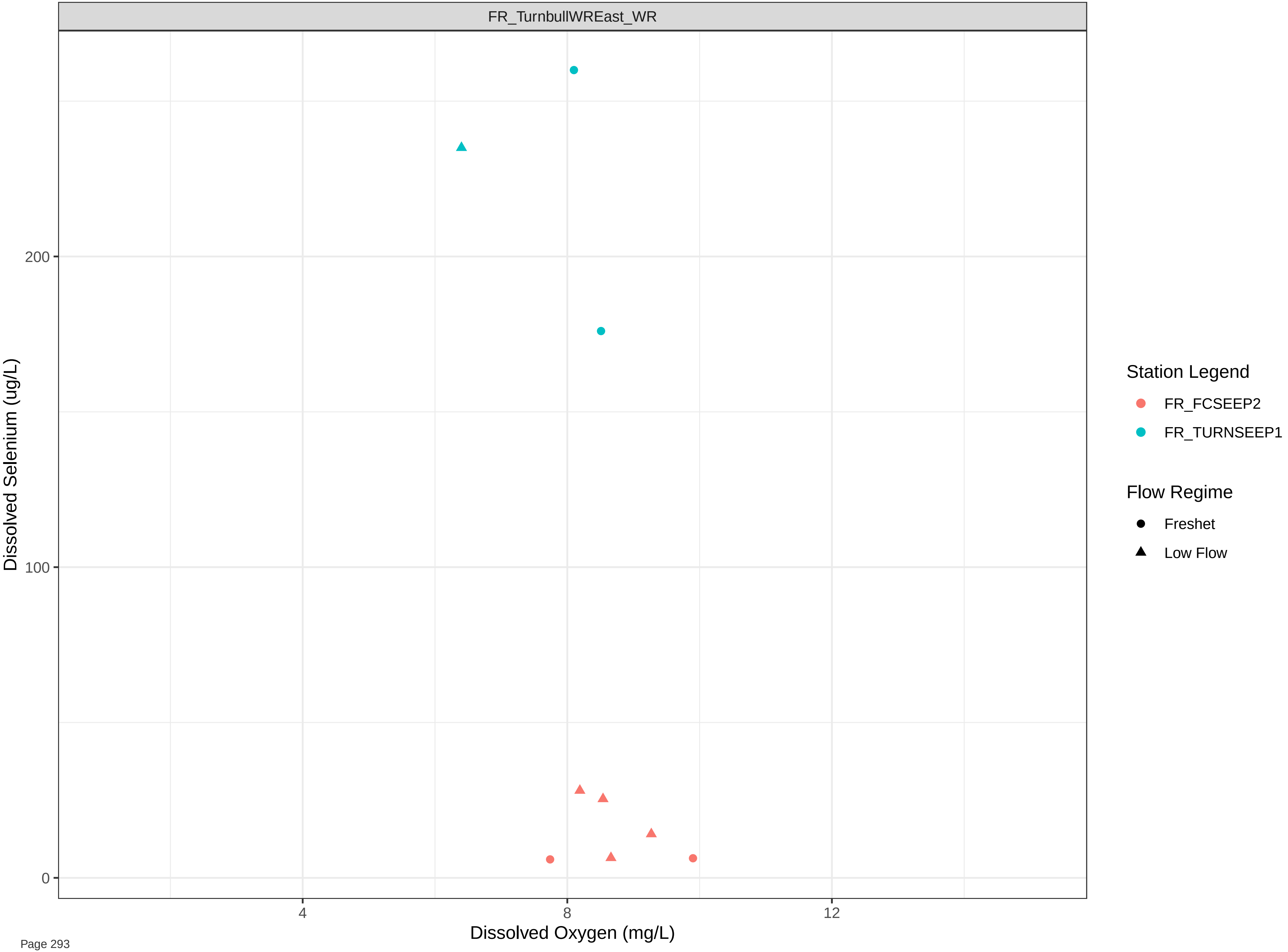

FR_LakeMtn_WR_PITS
Dissolved Selenium (ug/L)
200
150
100
50
0
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_LMCWSEEP5
● FR_LMCWSEEP7
Flow Regime
● Freshet
▲ Low Flow

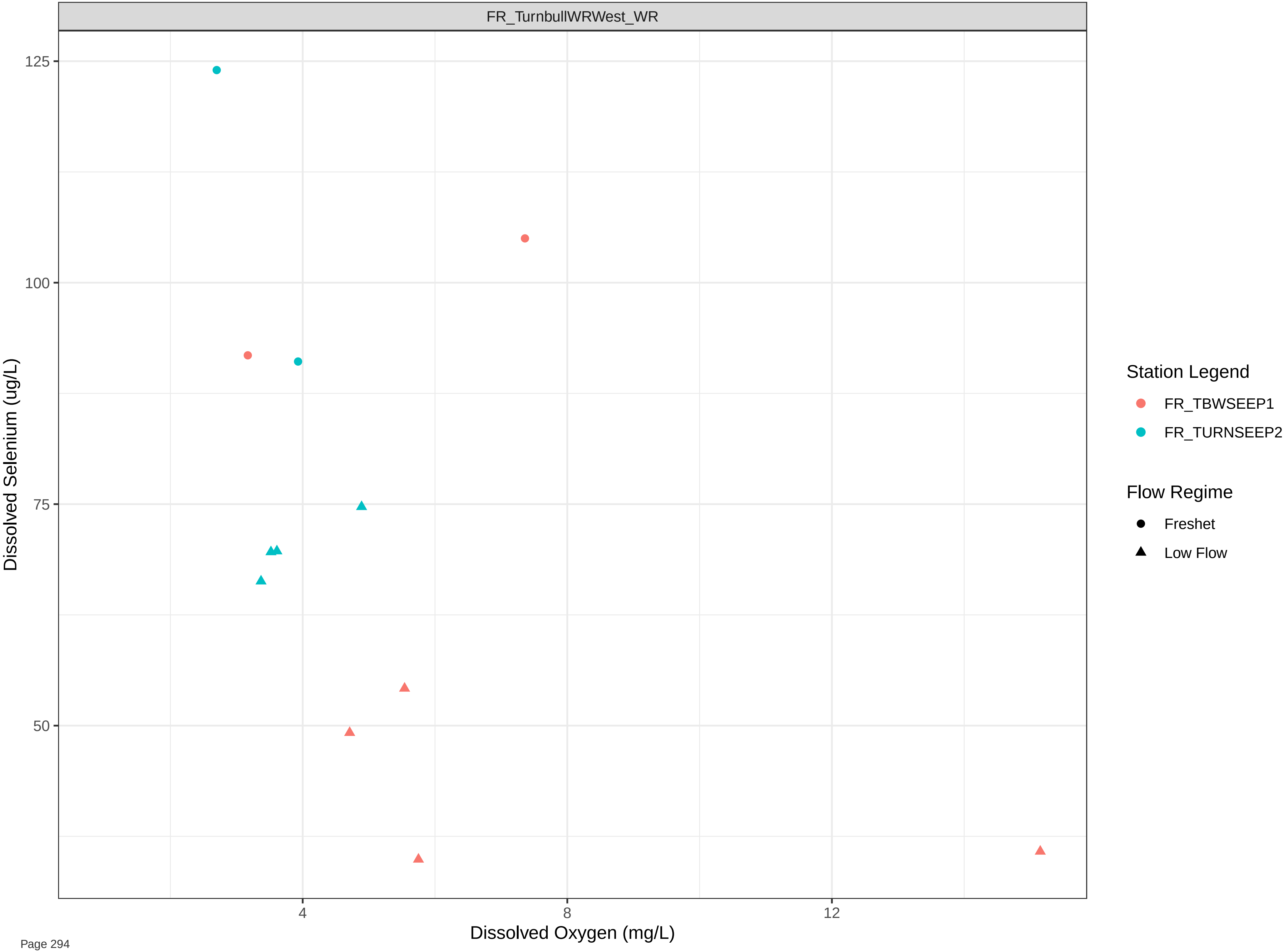

FR_Shandley_WR
Dissolved Selenium (ug/L)
55
50
45
40
35
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

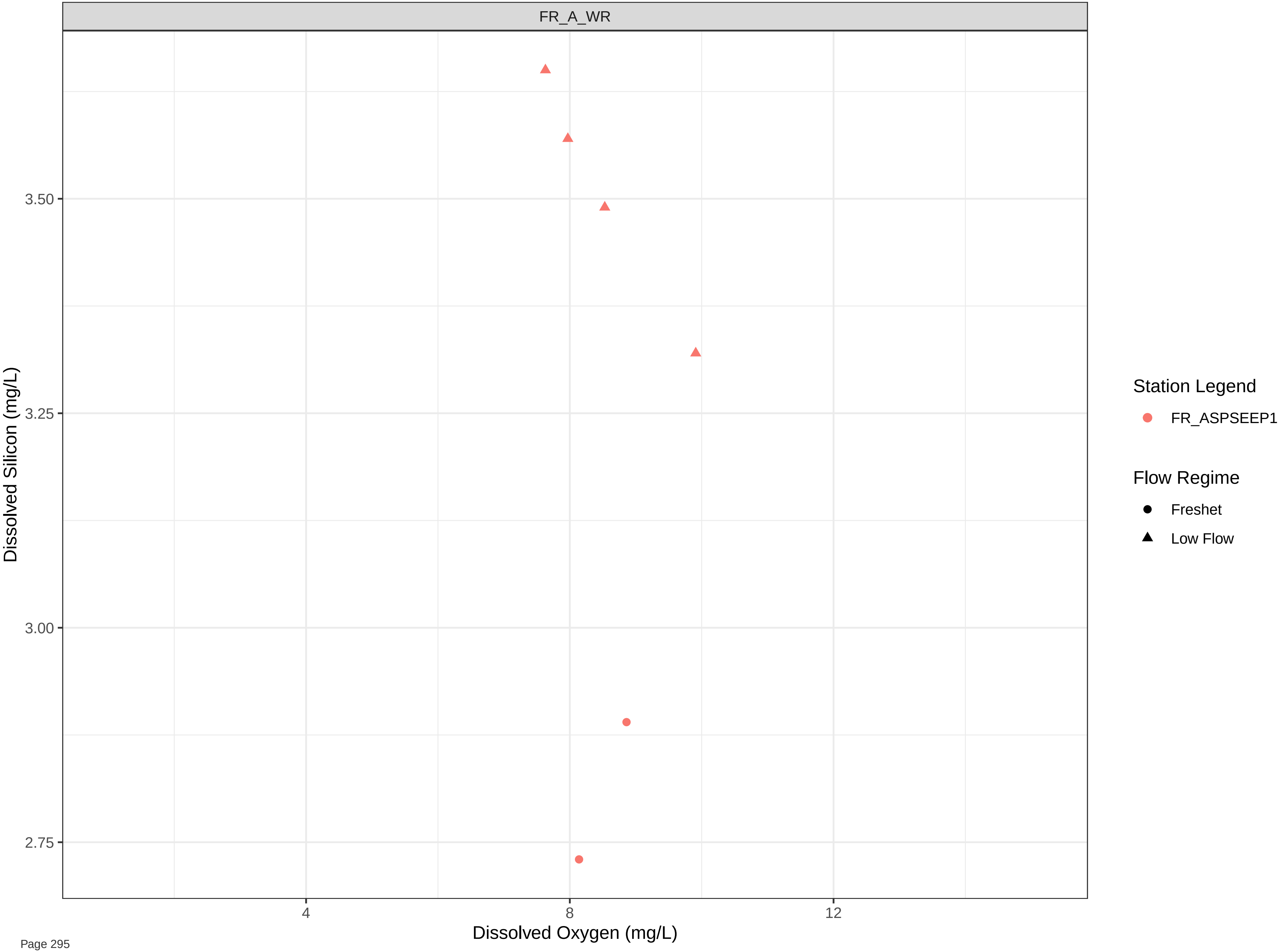

FR_Smith_WR
Dissolved Selenium (ug/L)
100
90
80
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

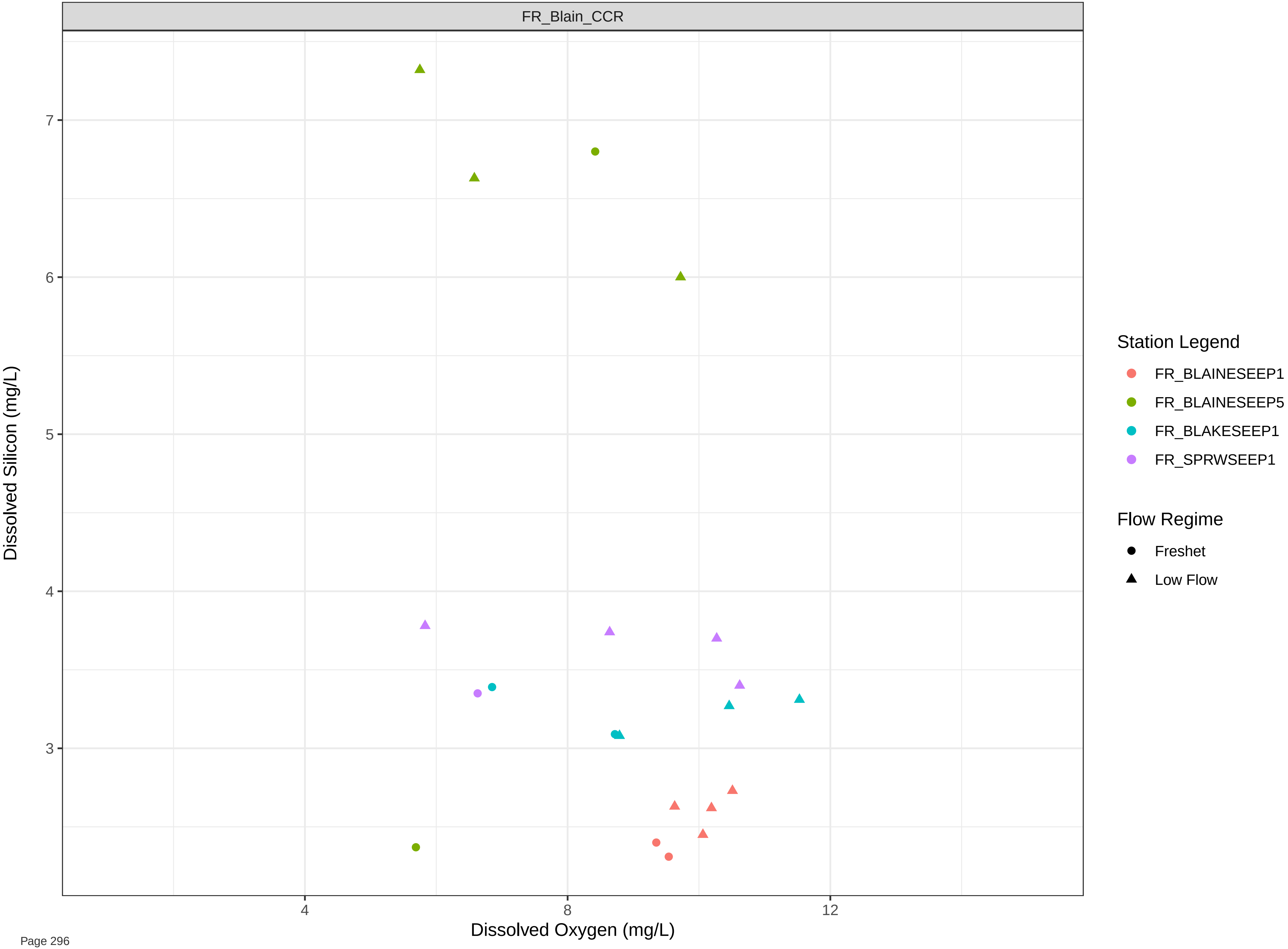

FR_SouthTails_Tailings
Dissolved Selenium (ug/L)
30
20
10
0
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

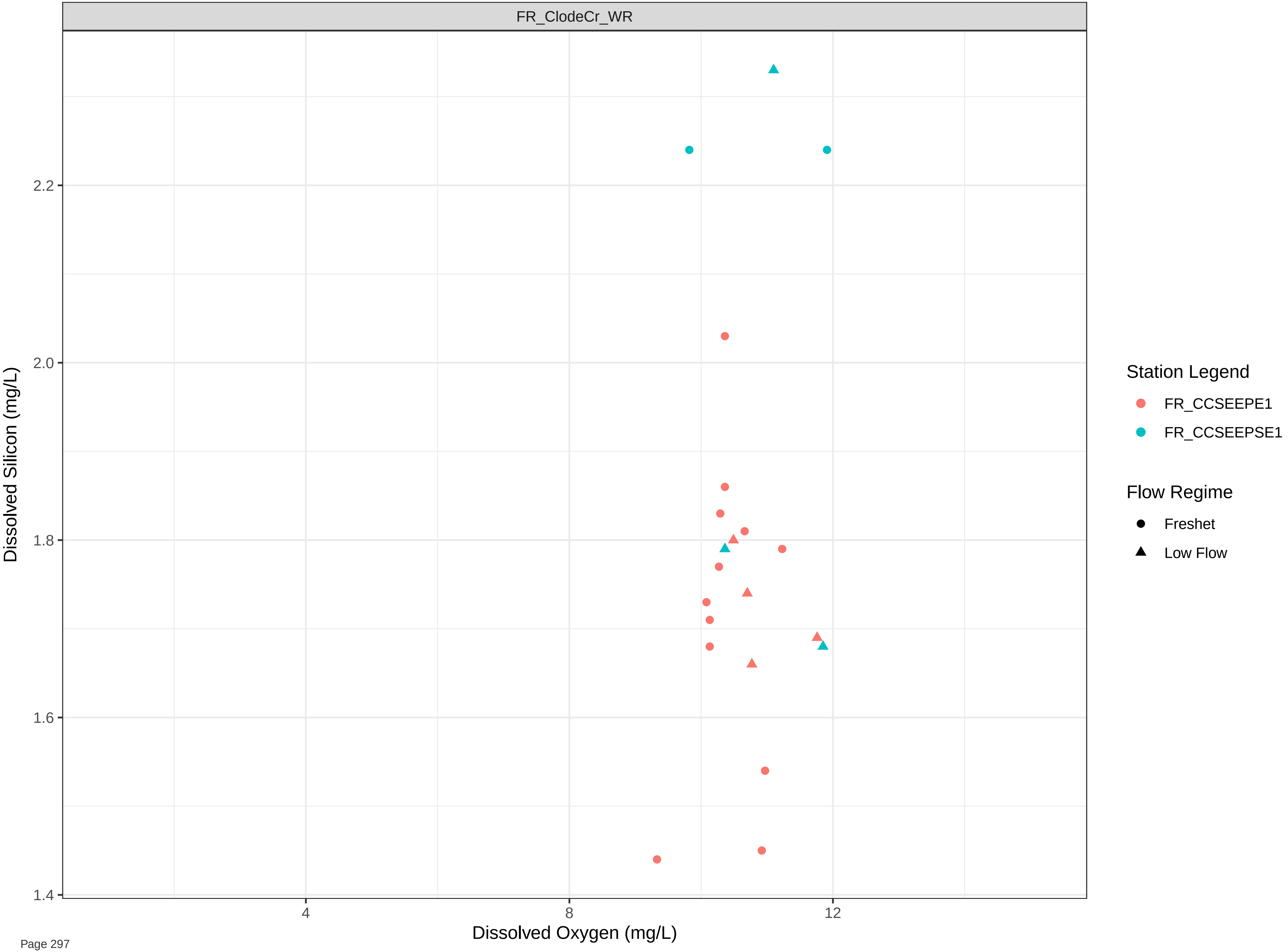

FR_SwiftWR_RockDrain_WR
Dissolved Selenium (ug/L)
150
100
50
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

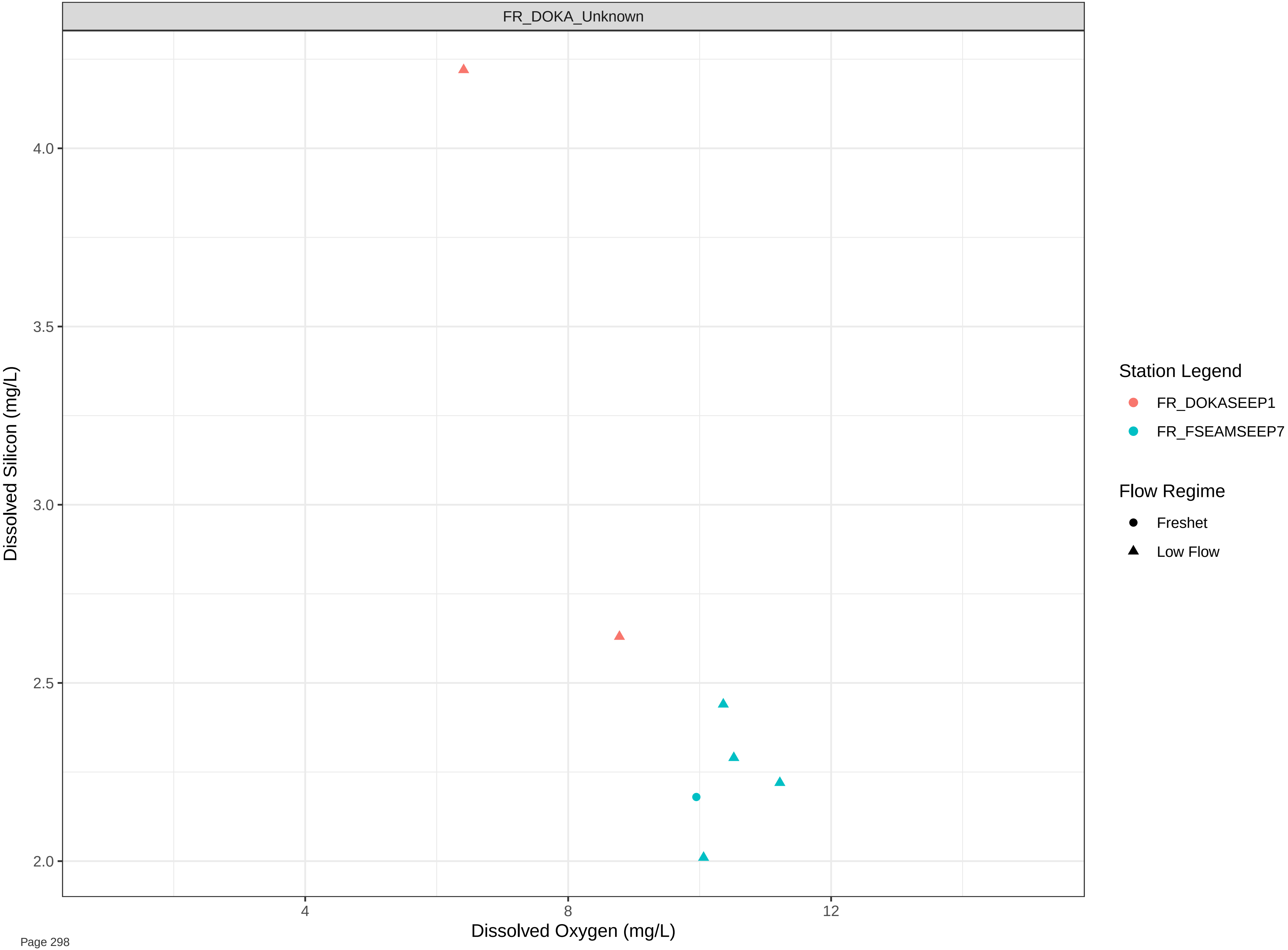

FR_TurnbullWREast_WR
Dissolved Selenium (ug/L)
200
100
0
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

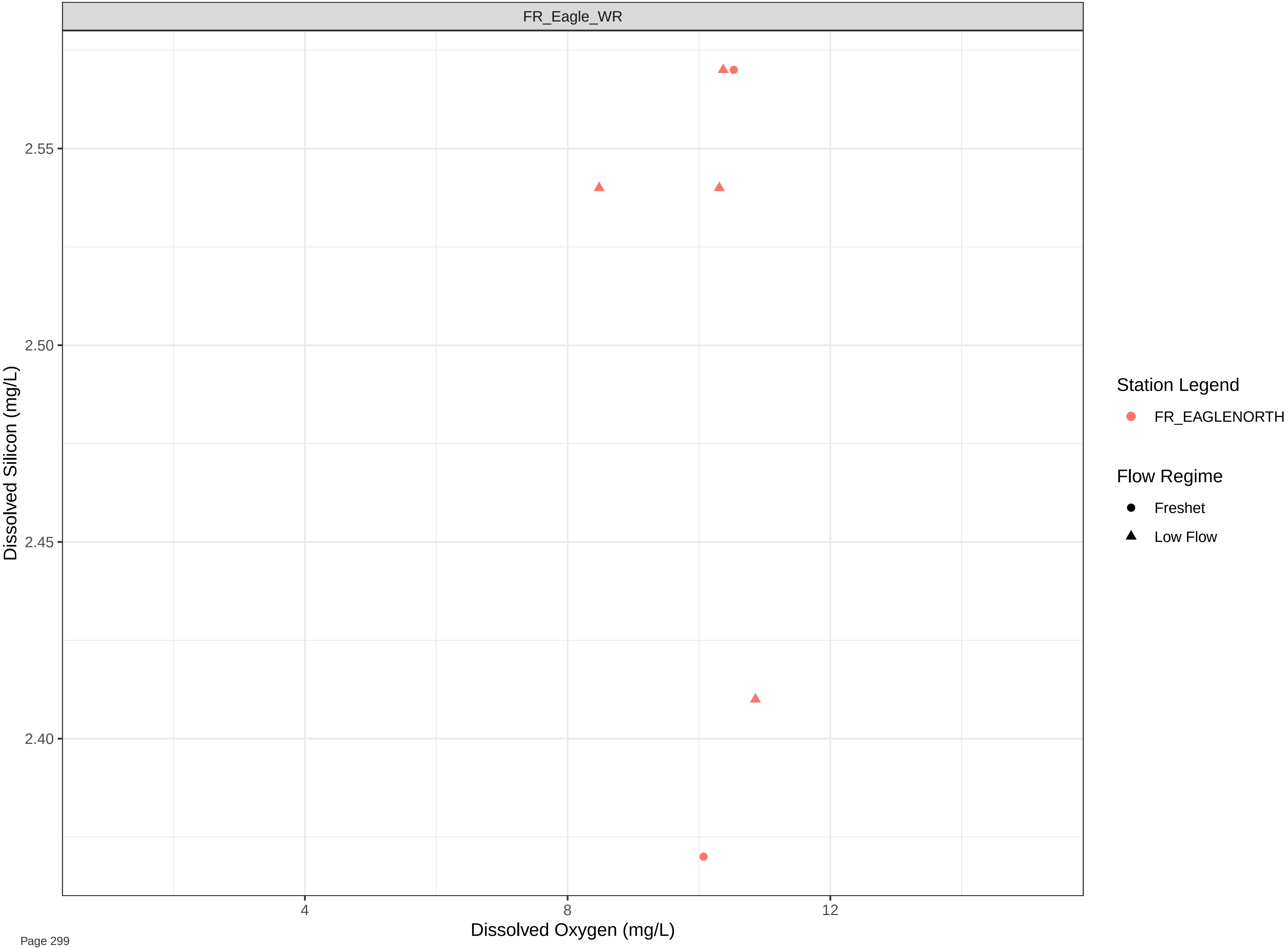

FR_TurnbullWRWest_WR
125
100
75
50
Dissolved Selenium (ug/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

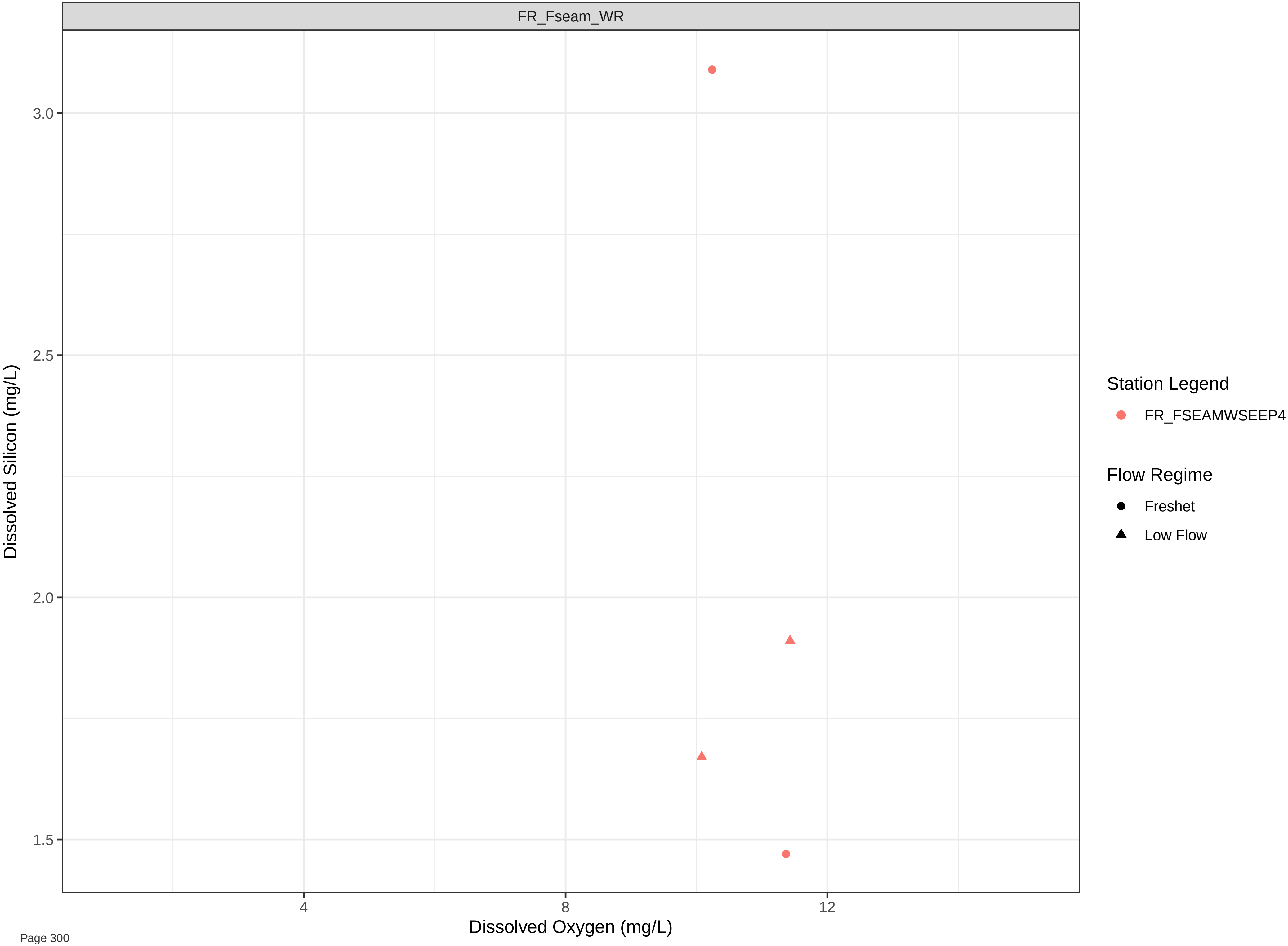

FR_A_WR
Dissolved Silicon (mg/L)
3.50
3.25
3.00
2.75
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

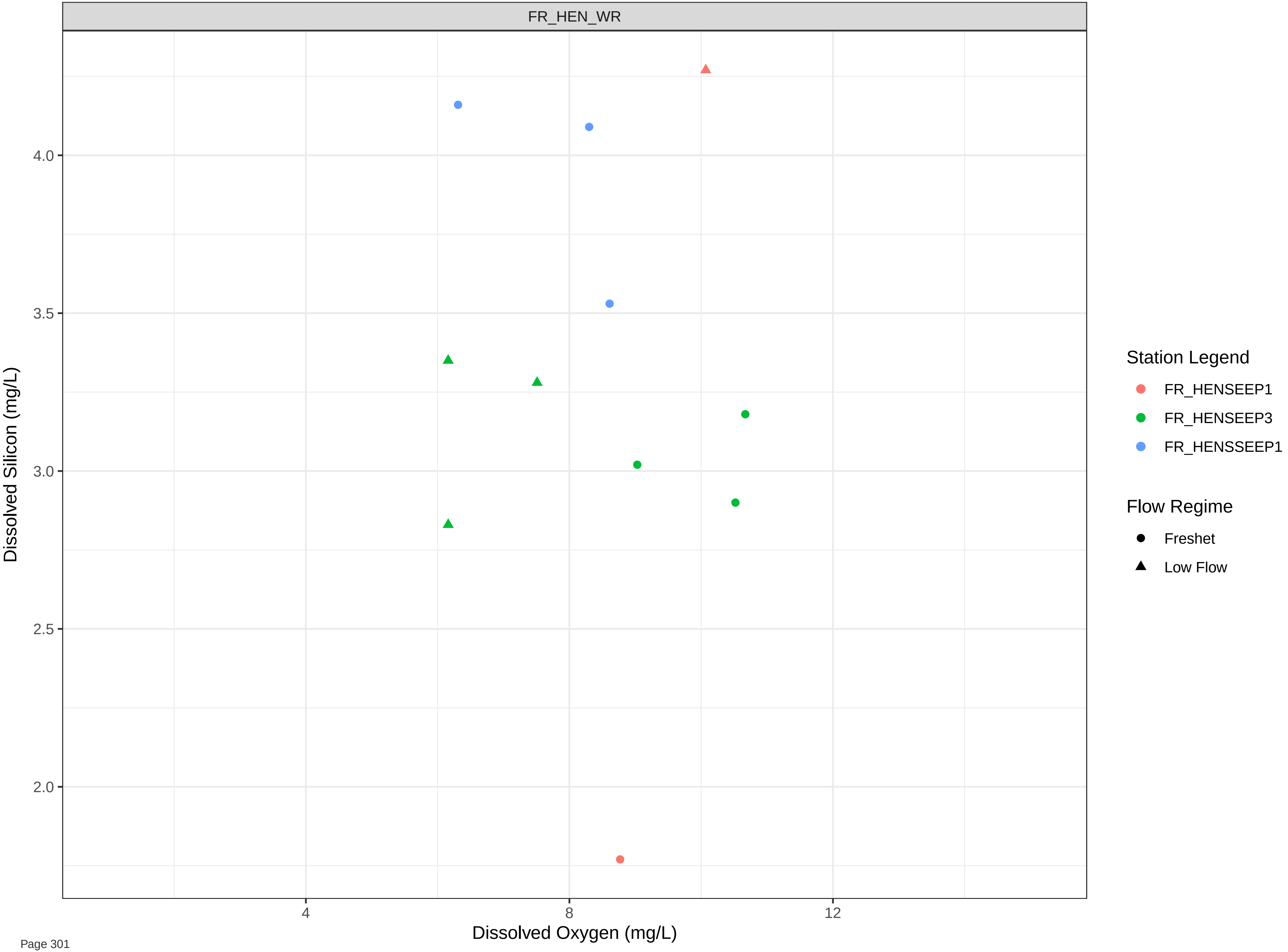

FR_Blain_CCR
Dissolved Silicon (mg/L)
7
6
5
4
3
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

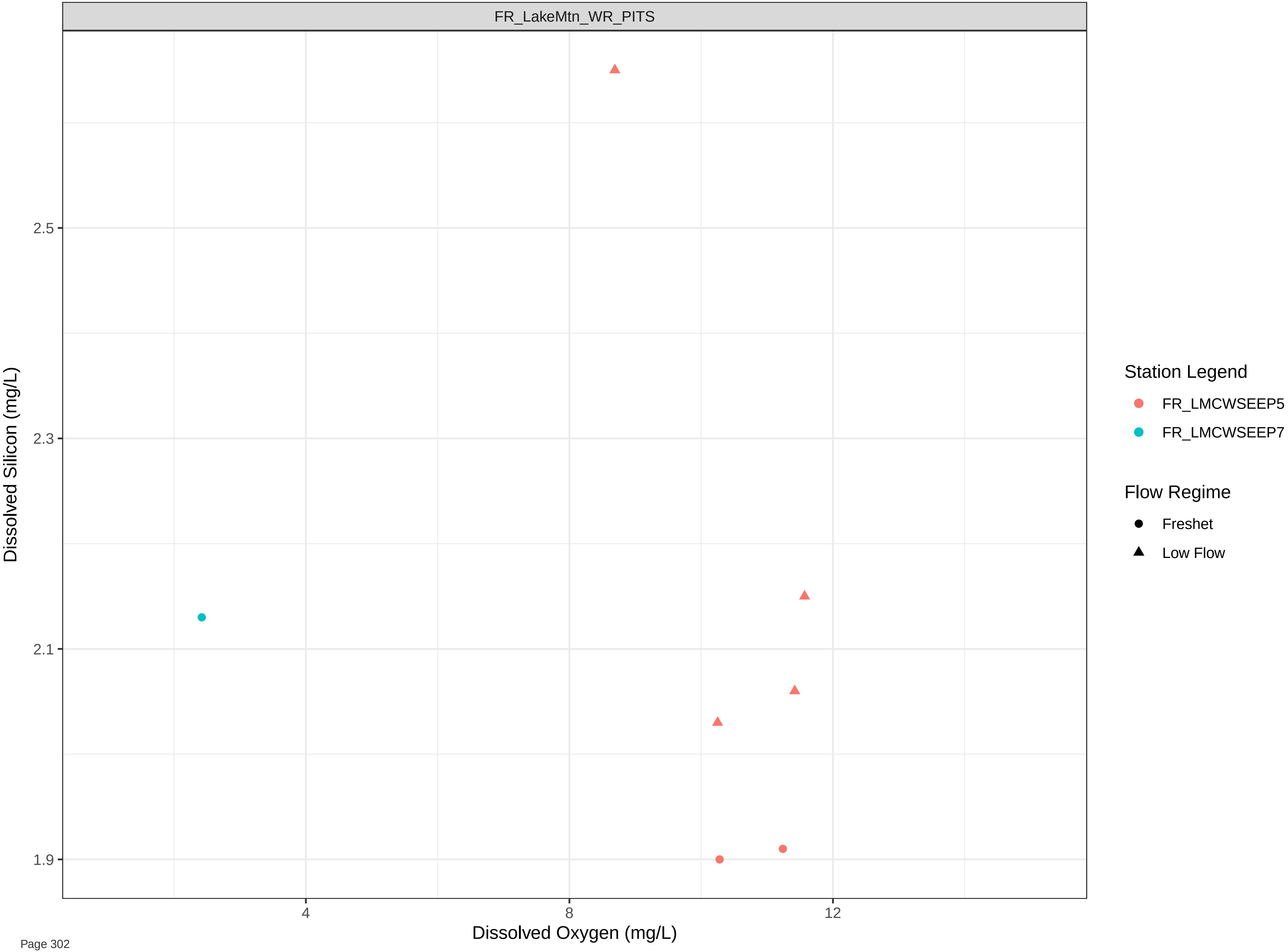

FR_ClodeCr_WR
Dissolved Silicon (mg/L)
2.2
2.0
1.8
1.6
1.4
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

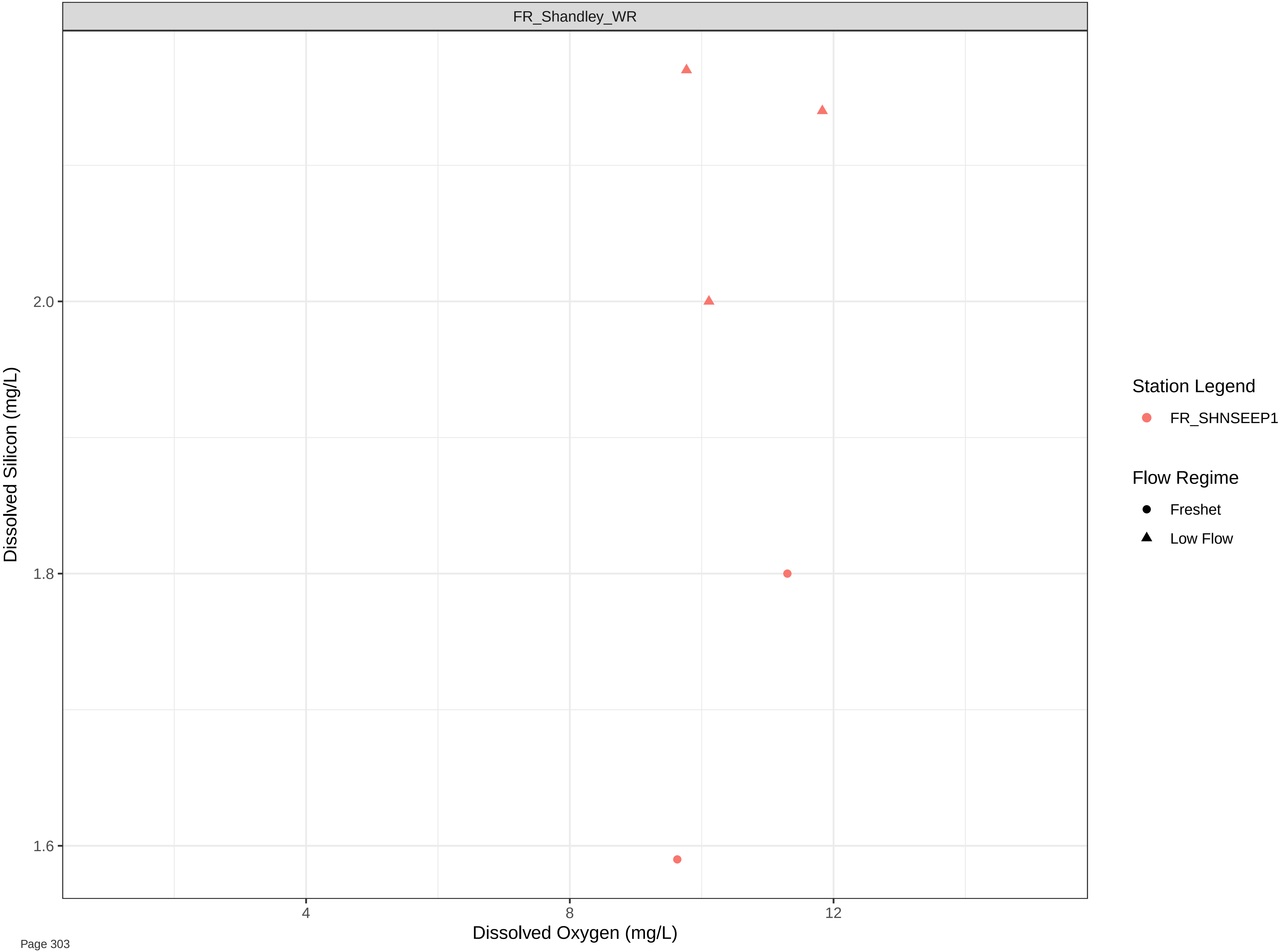

FR_DOKA_Unknown
Dissolved Silicon (mg/L)
4.0
3.5
3.0
2.5
2.0
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

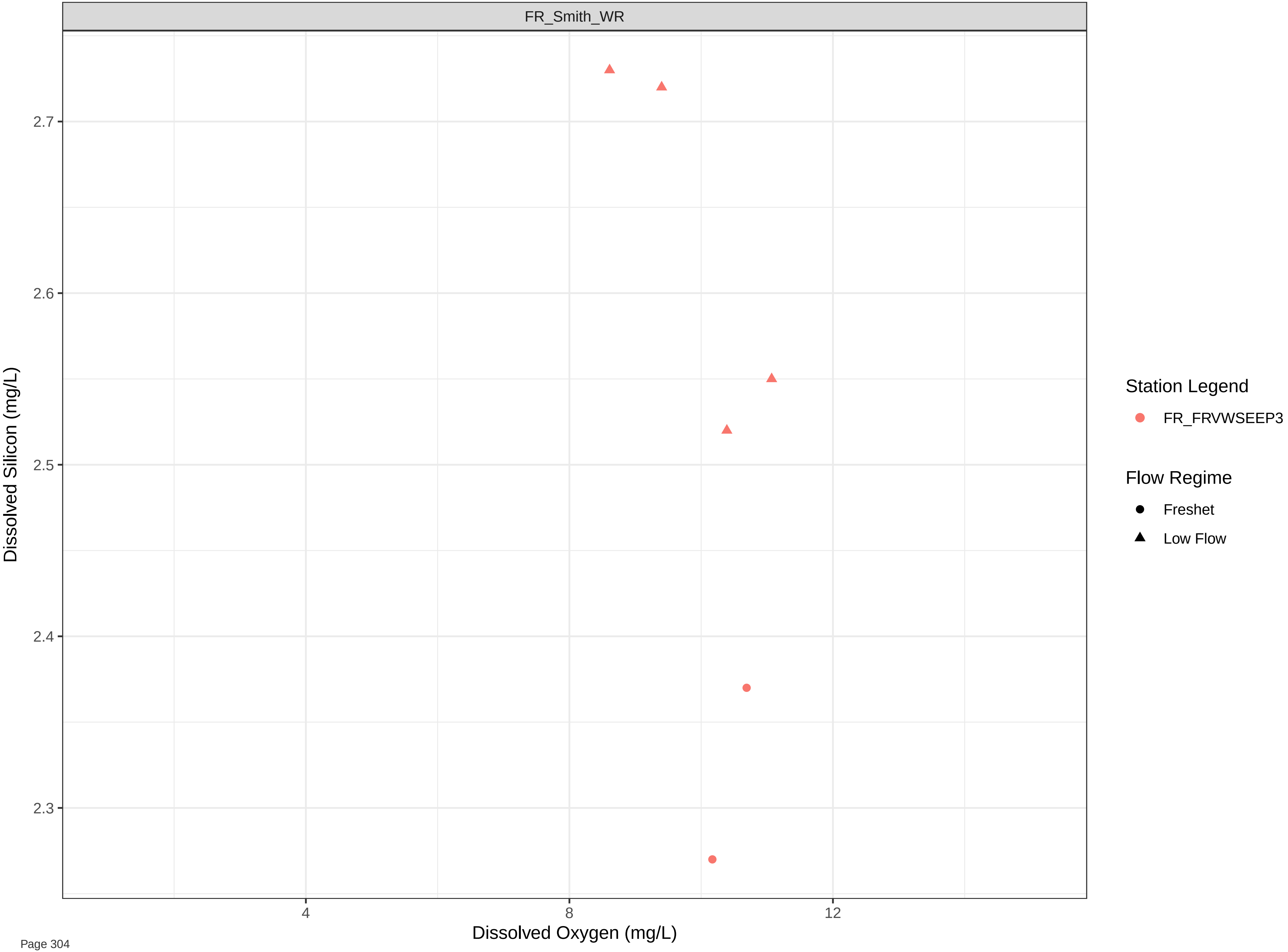

FR_Eagle_WR
Dissolved Silicon (mg/L)
2.55
2.50
2.45
2.40
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

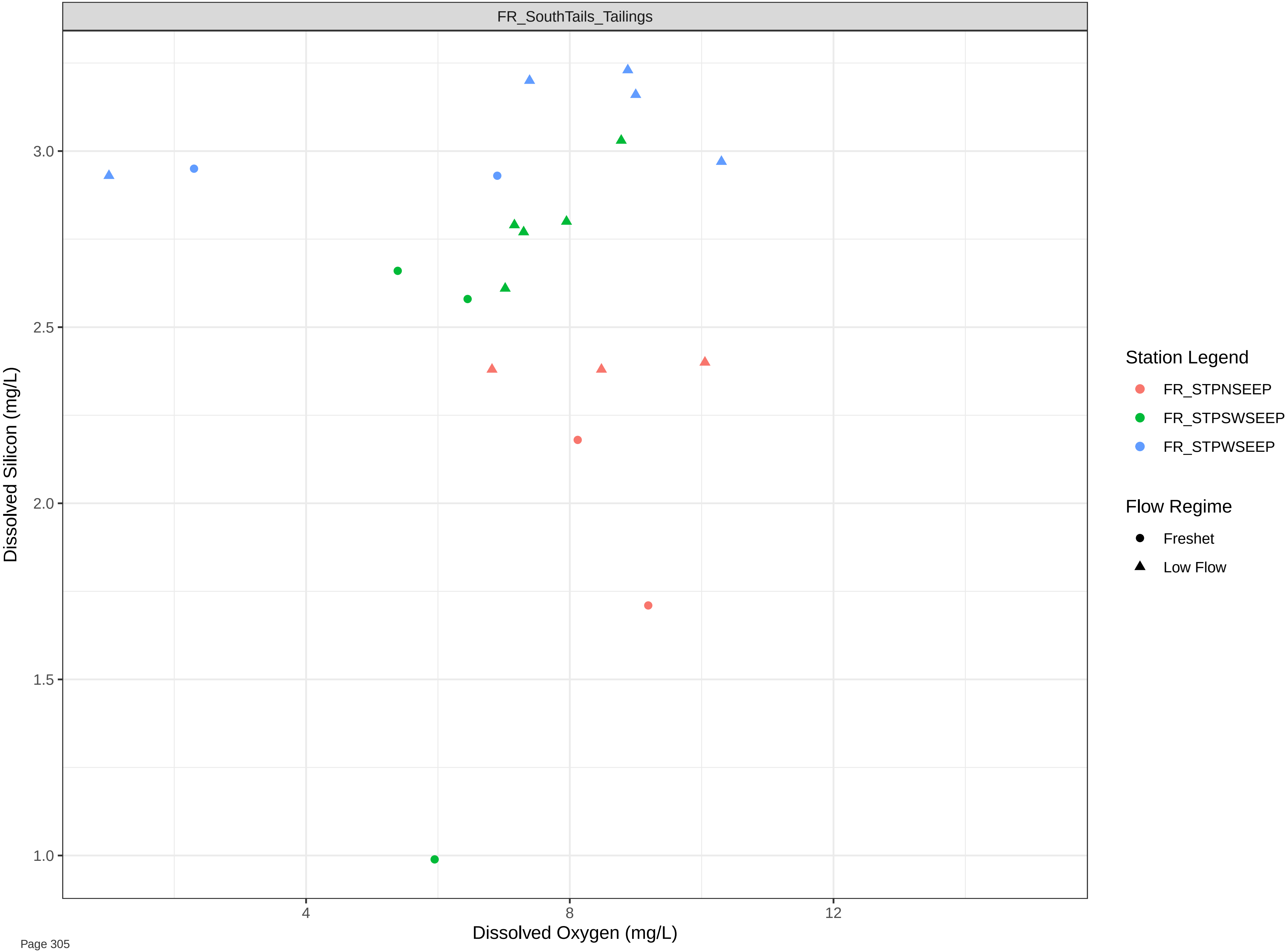

FR_Fseam_WR
Dissolved Silicon (mg/L)
3.0
2.5
2.0
1.5
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

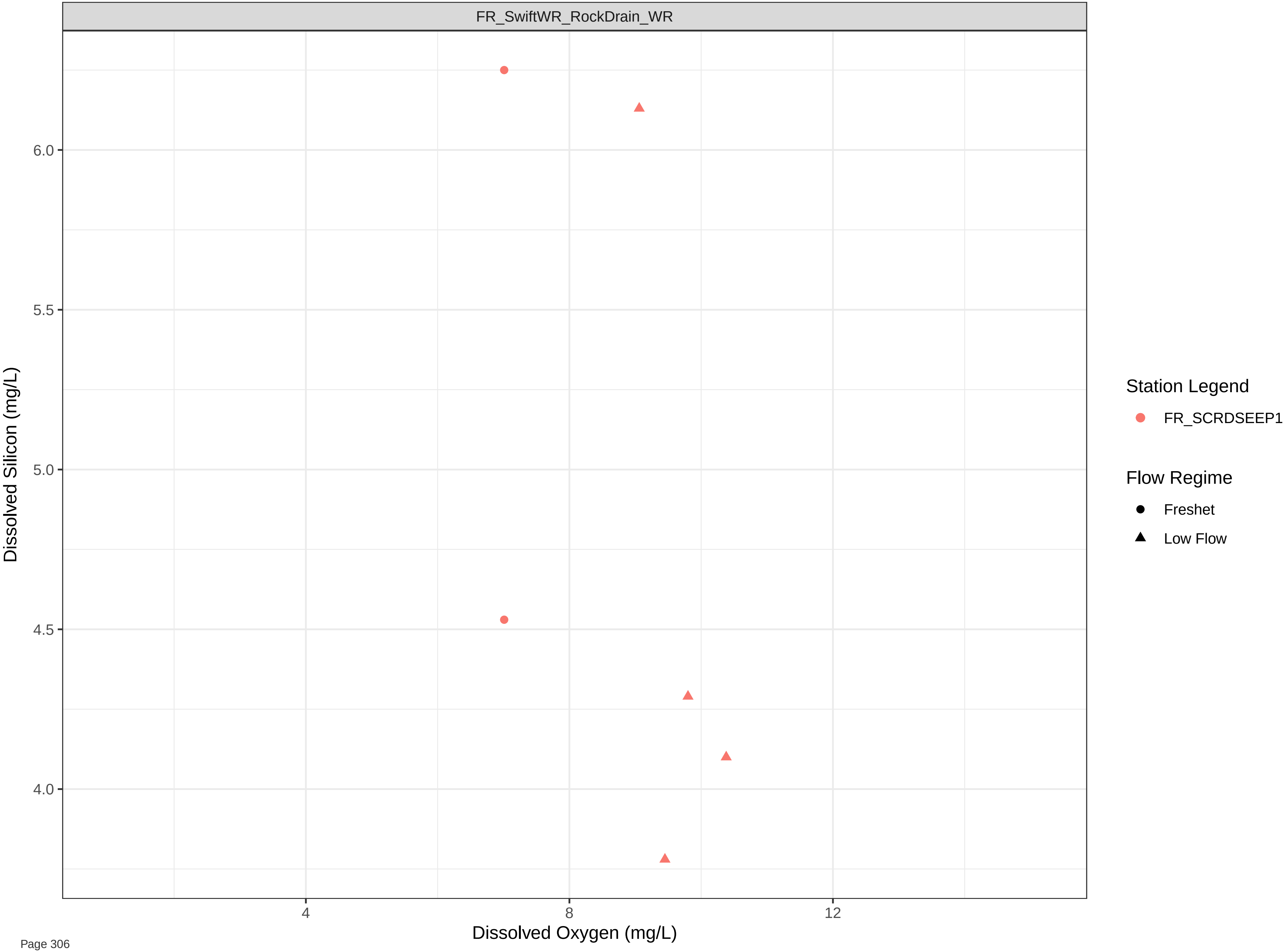

FR_HEN_WR
Dissolved Silicon (mg/L)
4.0
3.5
3.0
2.5
2.0
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

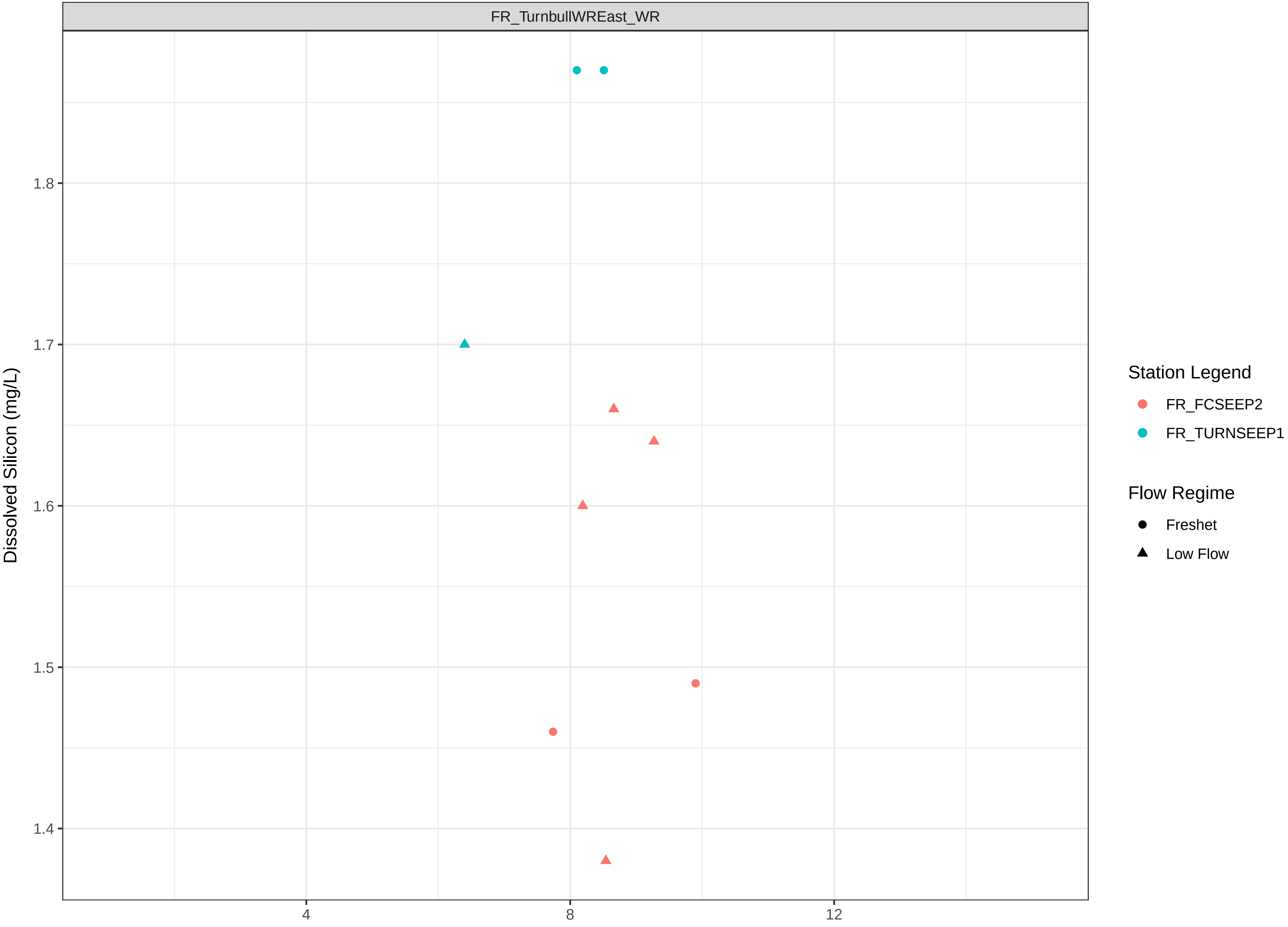

FR_LakeMtn_WR_PITS
Dissolved Silicon (mg/L)
2.5
2.3
2.1
1.9
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

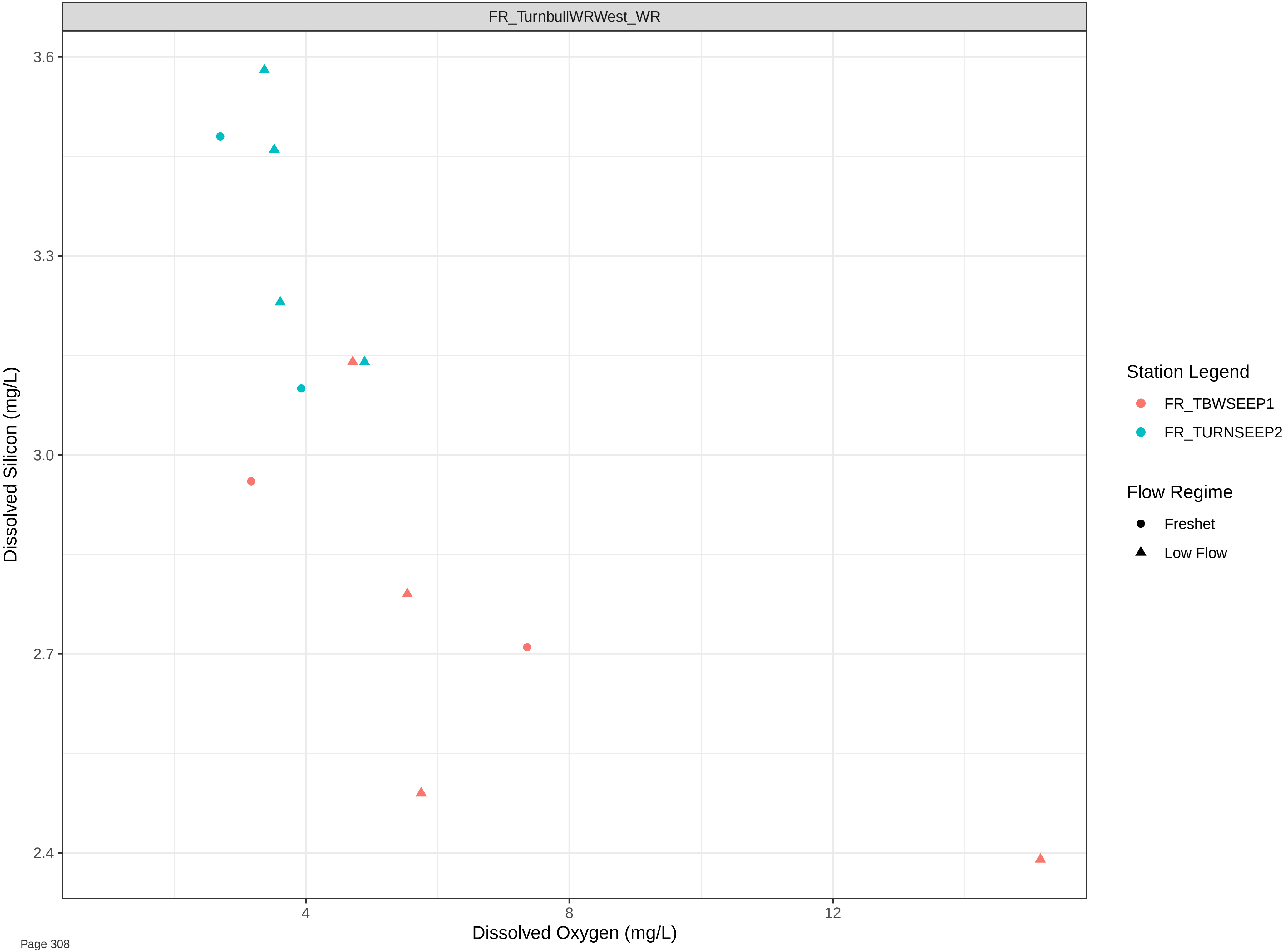

FR_Shandley_WR
Dissolved Silicon (mg/L)
2.0
1.8
1.6
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

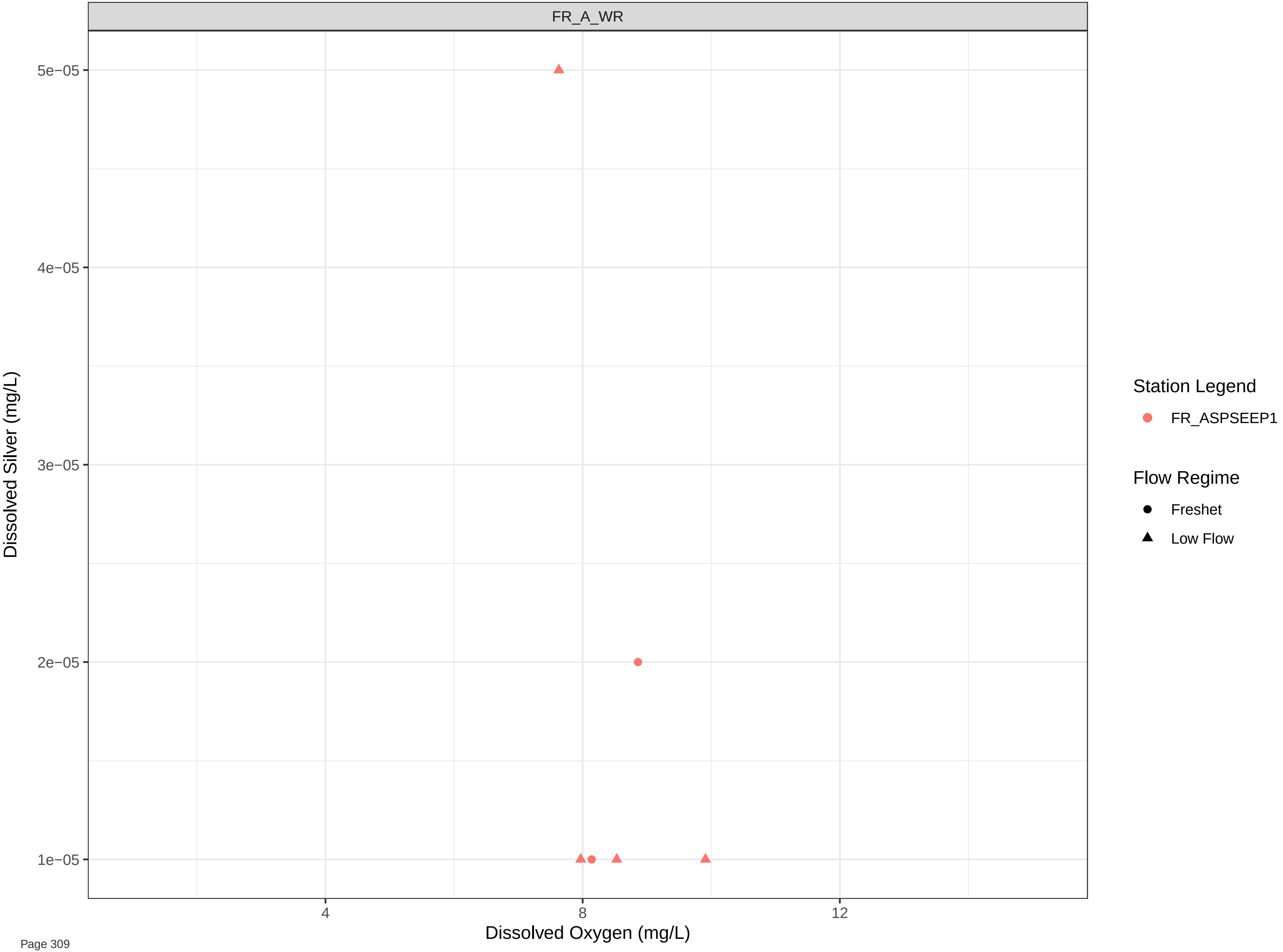

FR_Smith_WR
2.7
2.6
2.5
2.4
2.3
Dissolved Silicon (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

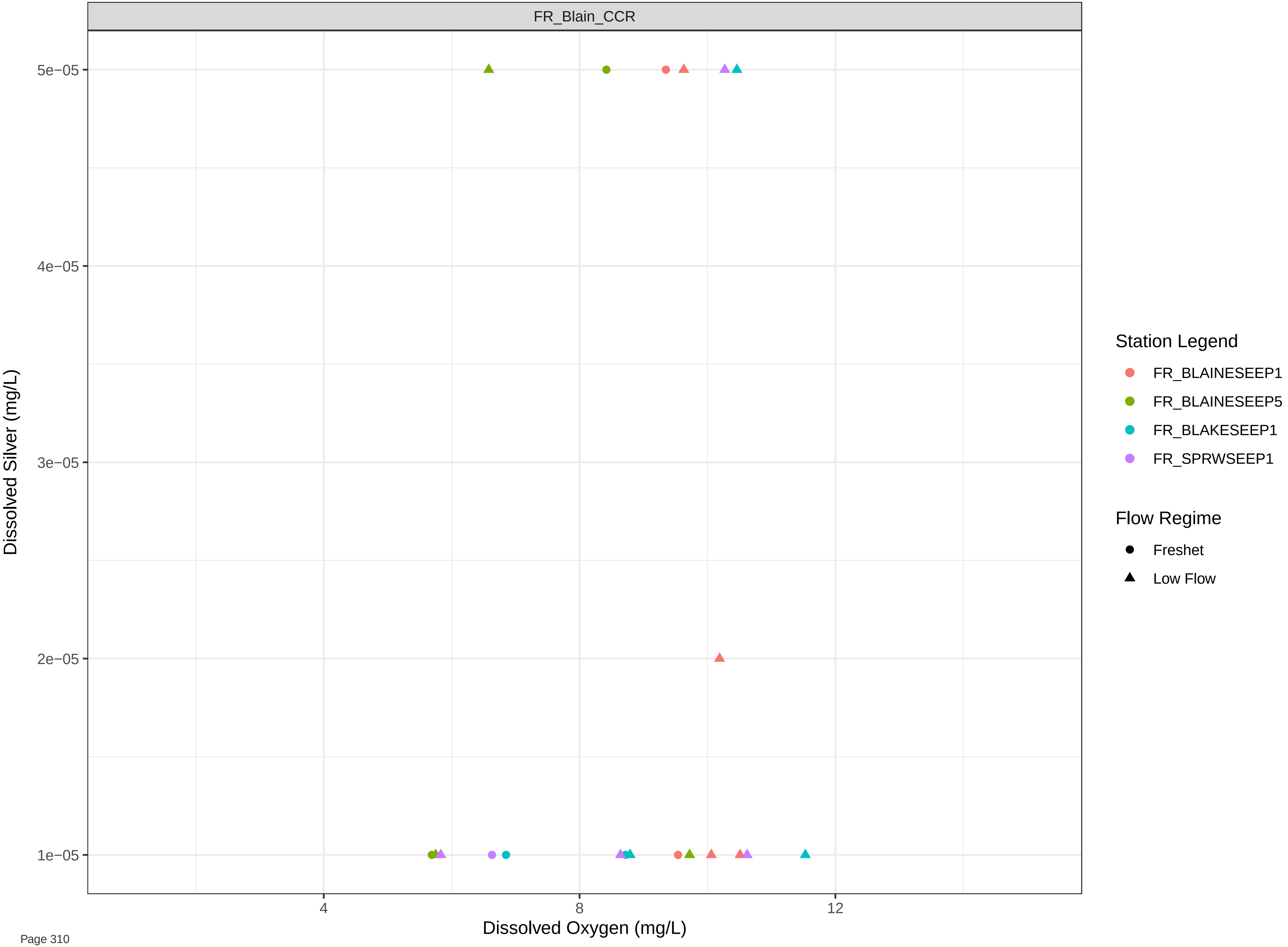

FR_SouthTails_Tailings
Dissolved Silicon (mg/L)
3.0
2.5
2.0
1.5
1.0
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

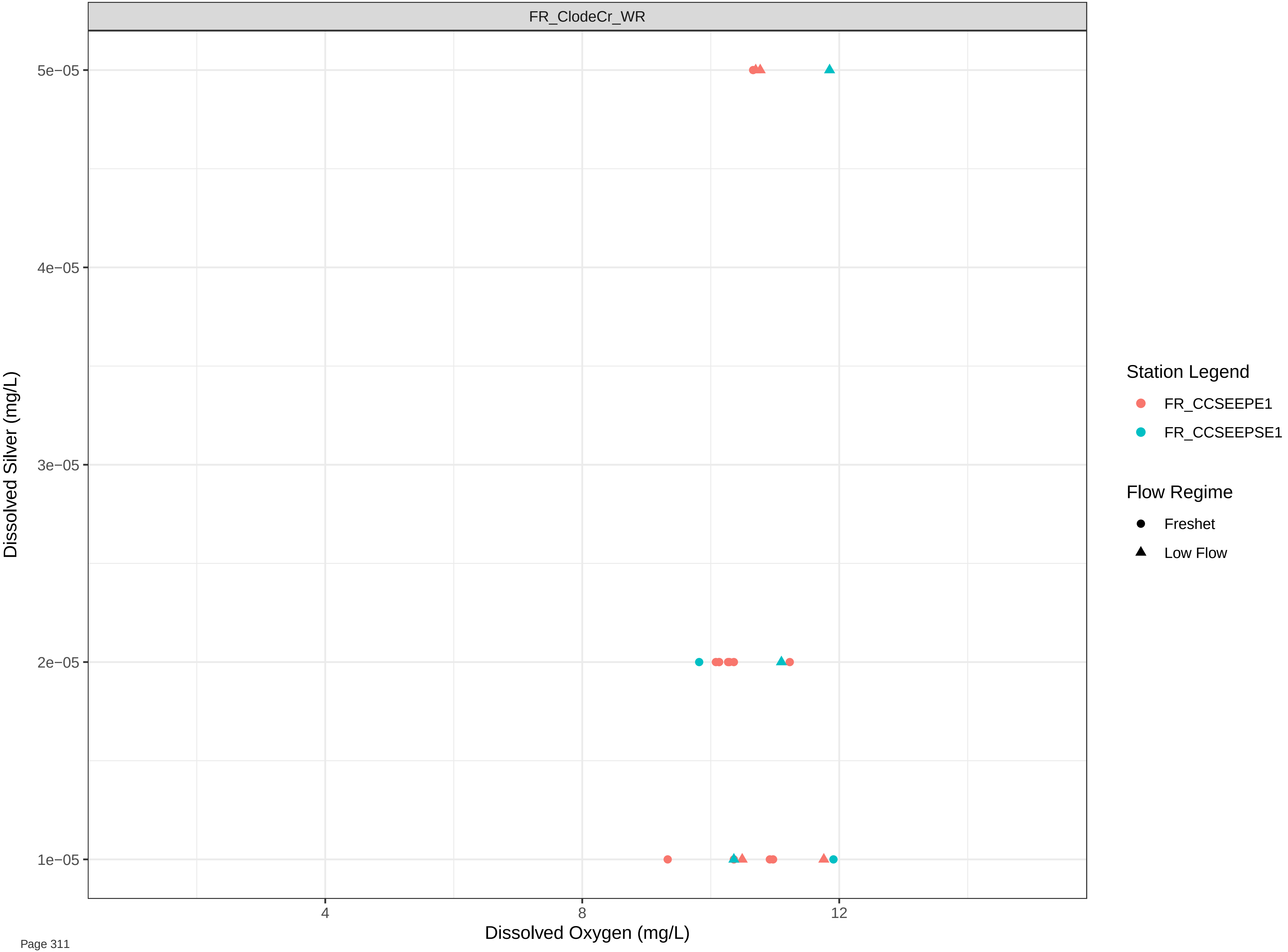

FR_SwiftWR_RockDrain_WR
Dissolved Silicon (mg/L)
6.0
5.5
5.0
4.5
4.0
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

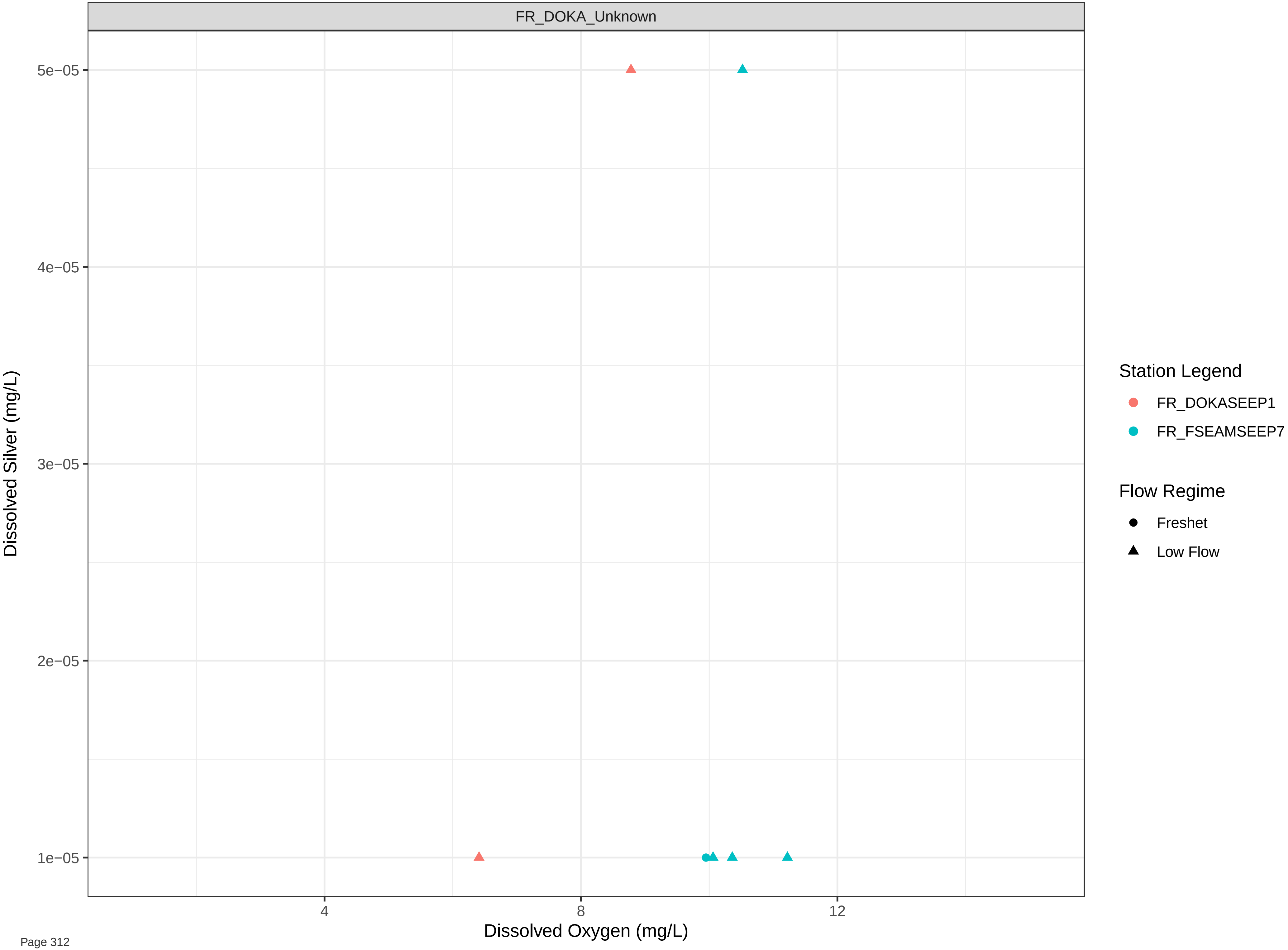

FR_TurnbullWREast_WR
Dissolved Silicon (mg/L)
1.8
1.7
1.6
1.5
1.4
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

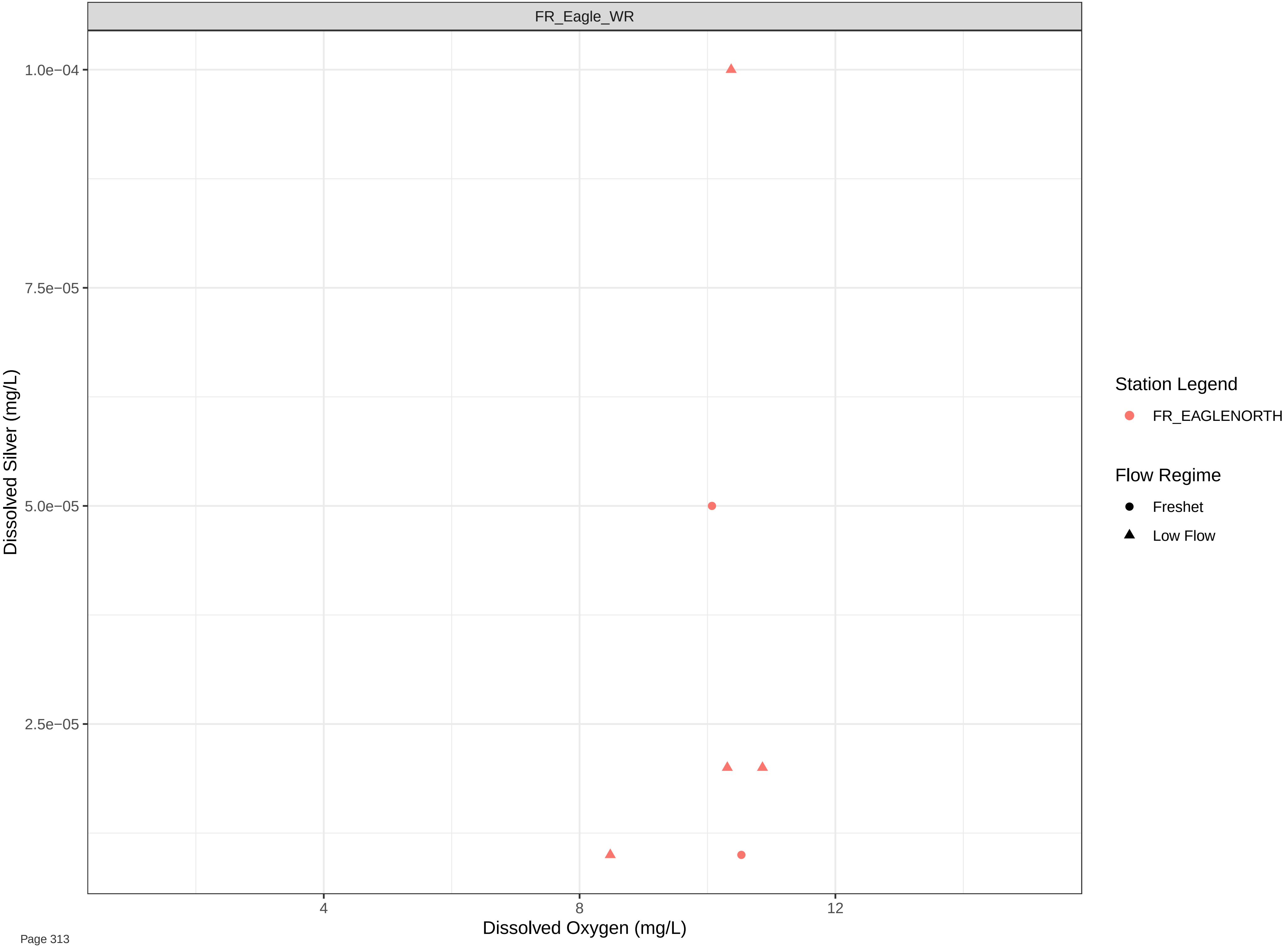

FR_TurnbullWRWest_WR
3.6
3.3
3.0
2.7
2.4
Dissolved Silicon (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

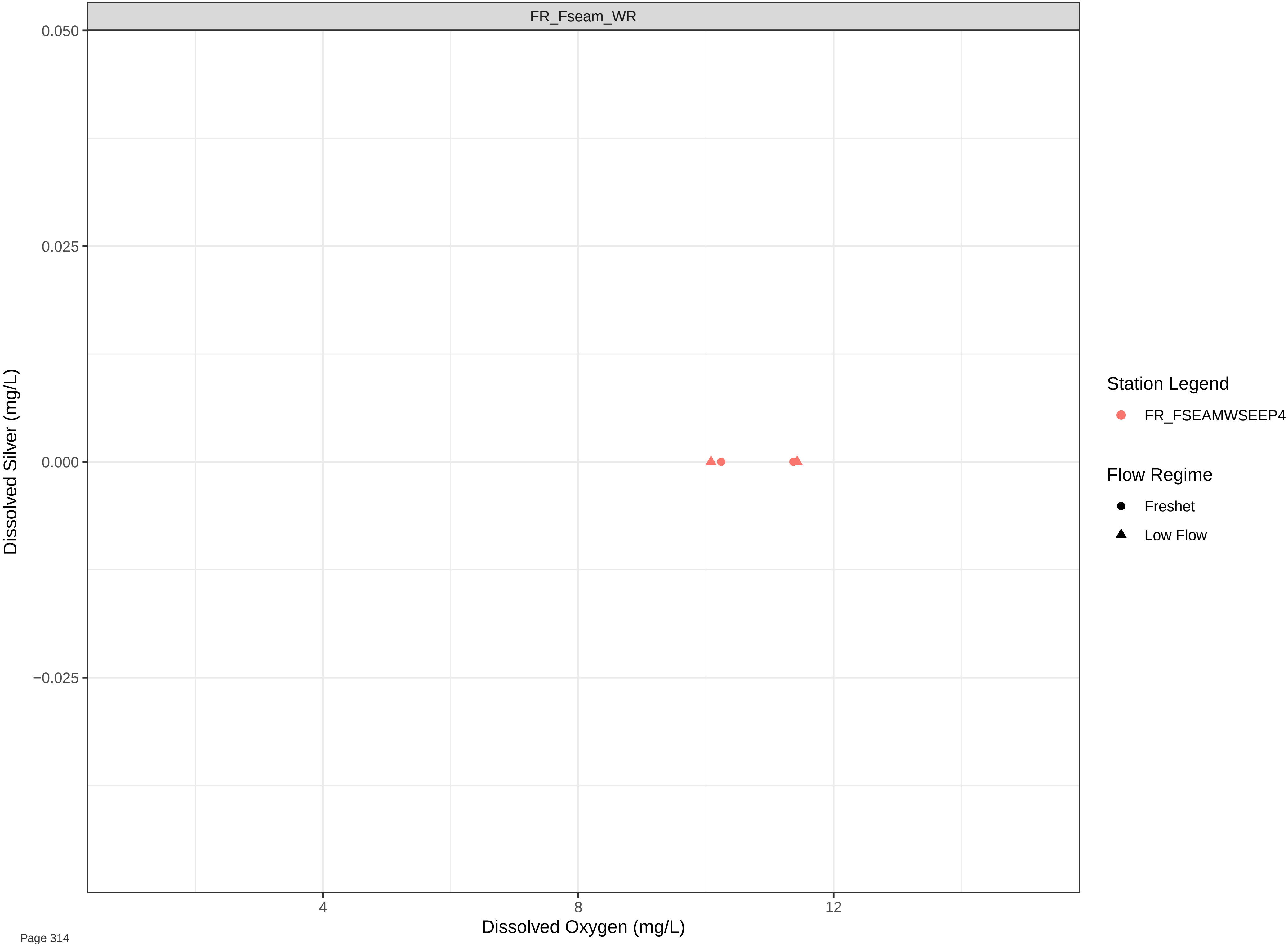

FR_A_WR
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

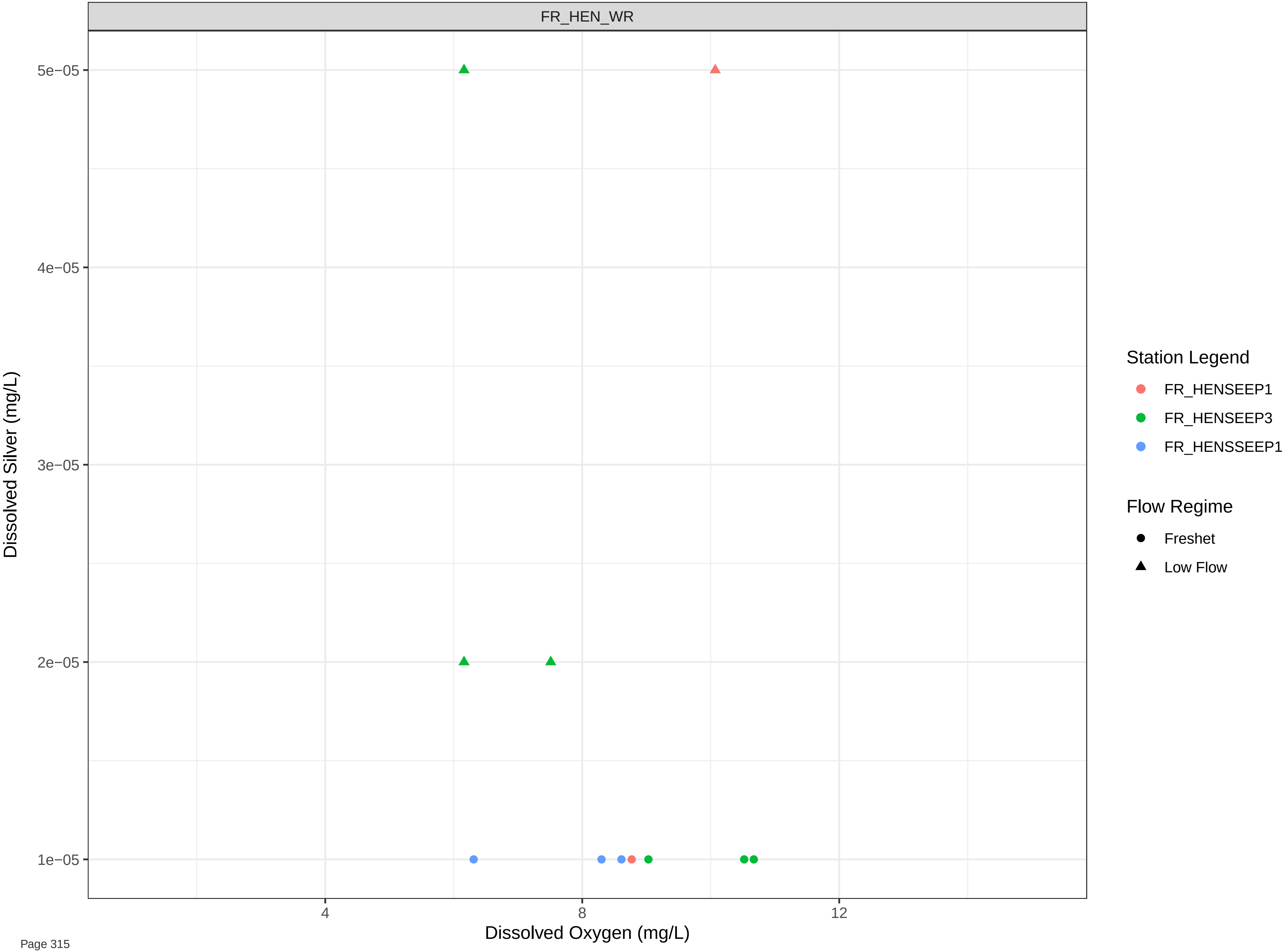

FR_Blain_CCR
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

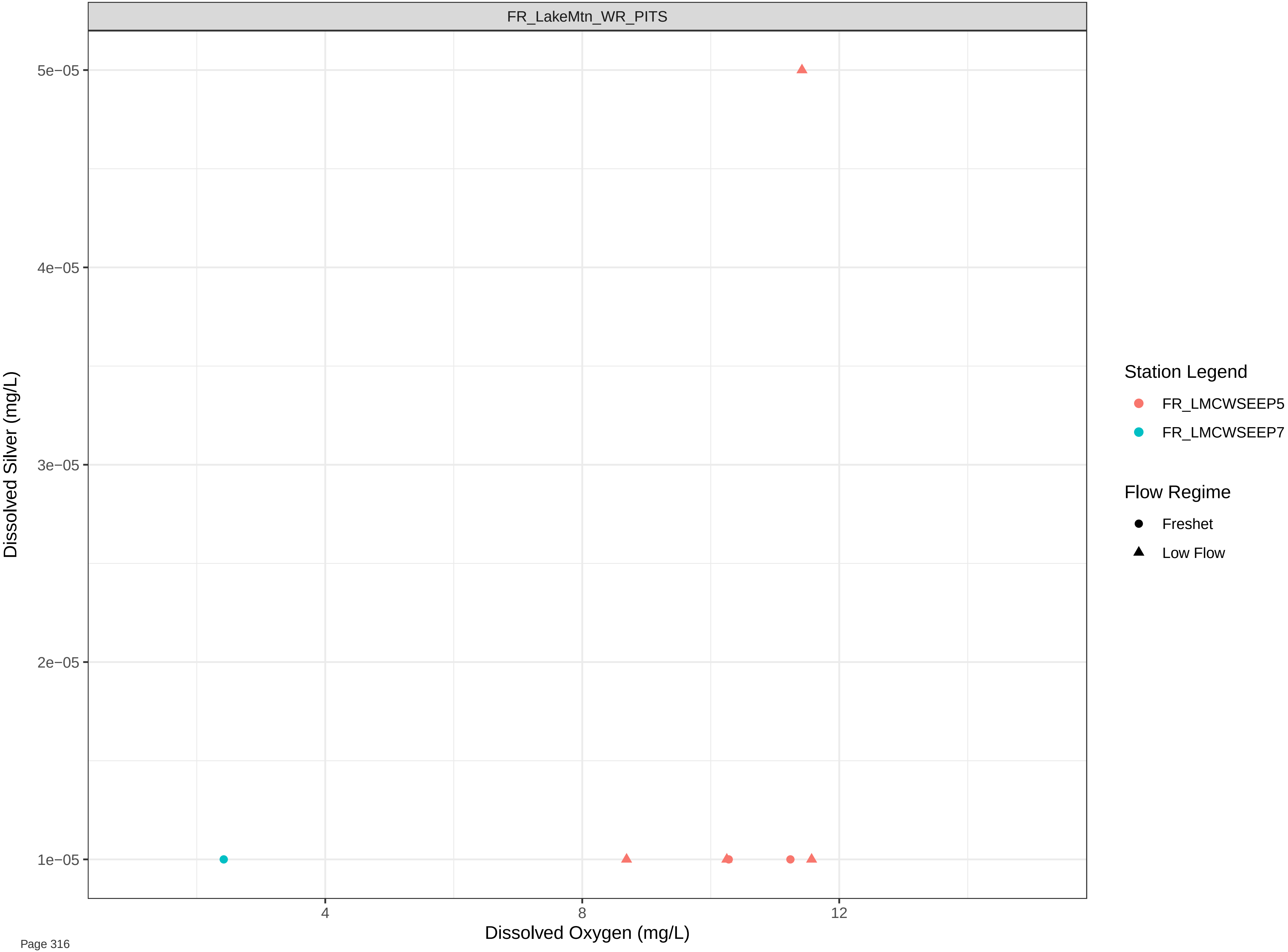

FR_ClodeCr_WR
5e−05
4e−05
3e−05
2e−05
1e−05
Dissolved Silver (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

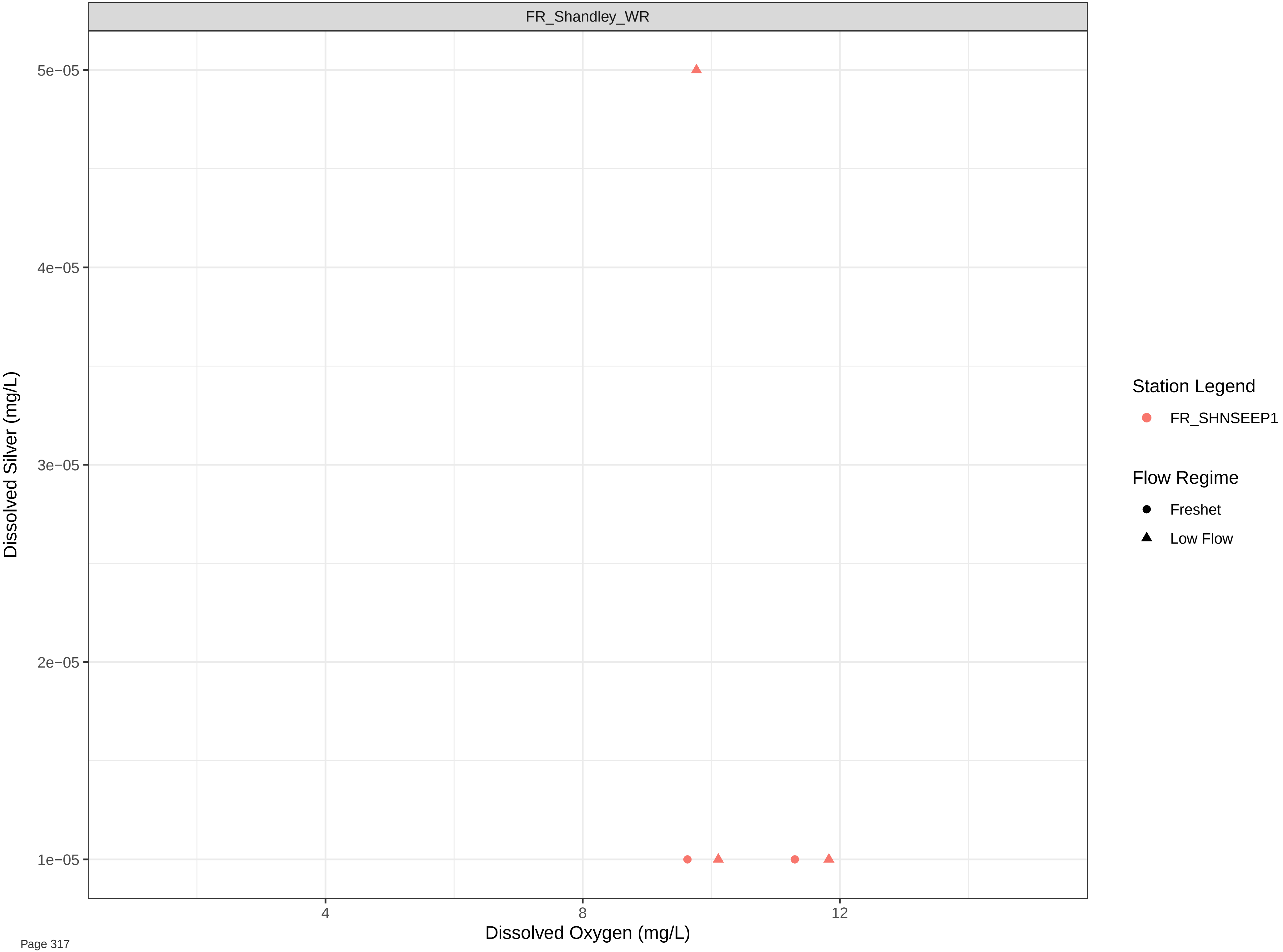

FR_DOKA_Unknown
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

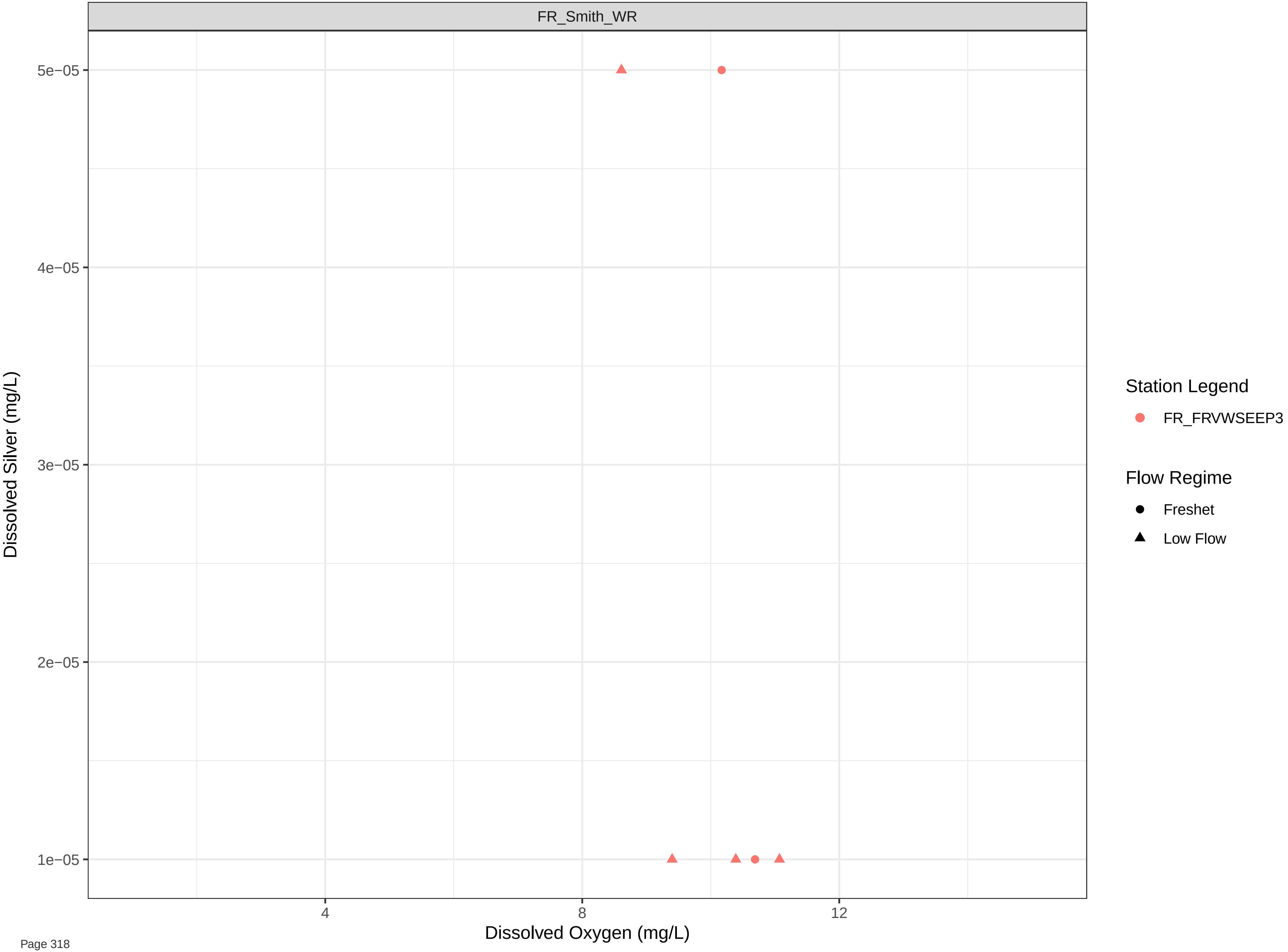

FR_Eagle_WR
Dissolved Silver (mg/L)
1.0e−04
7.5e−05
5.0e−05
2.5e−05
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

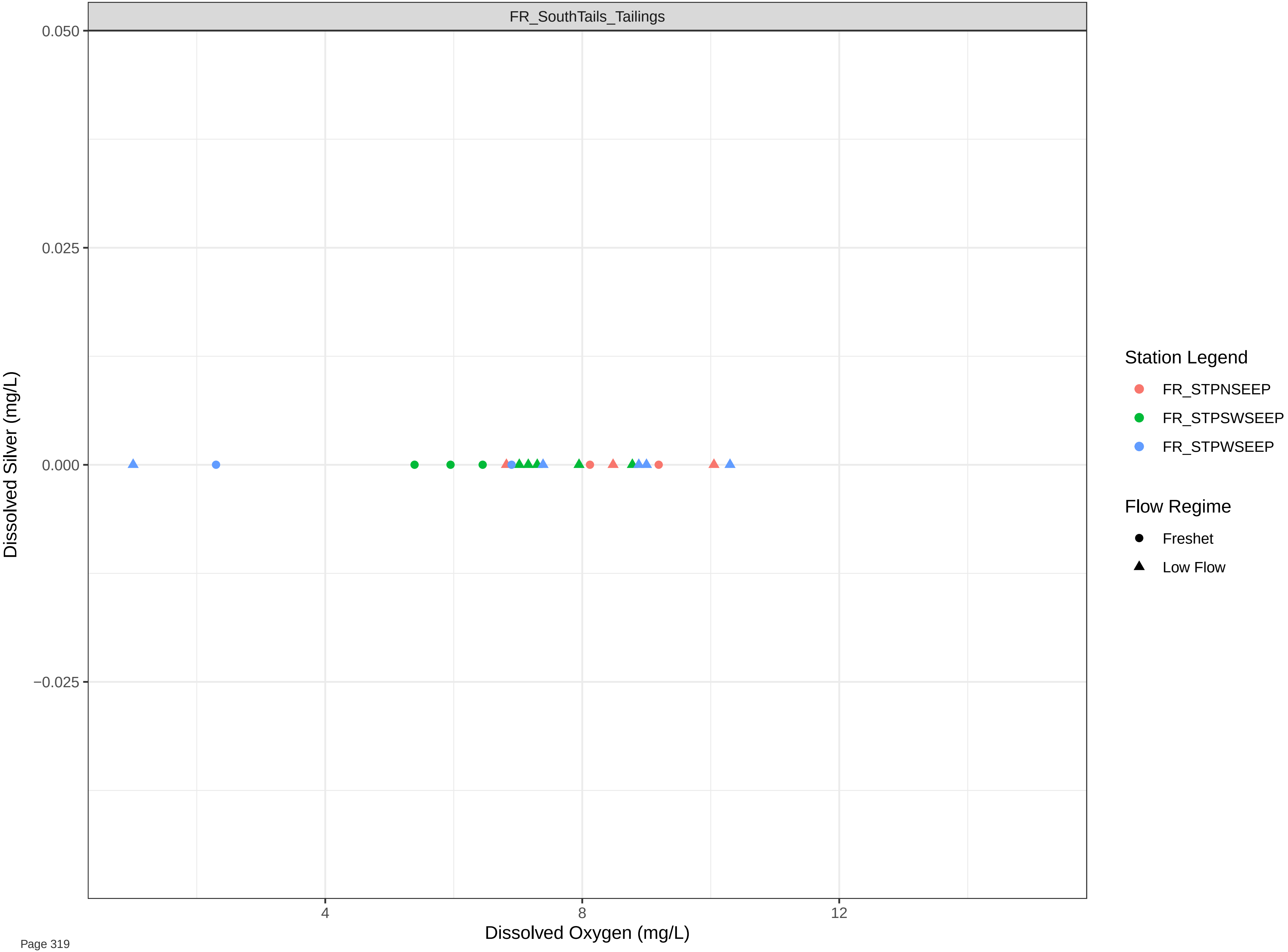

FR_Fseam_WR
0.050
0.025
0.000
−0.025
Dissolved Silver (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

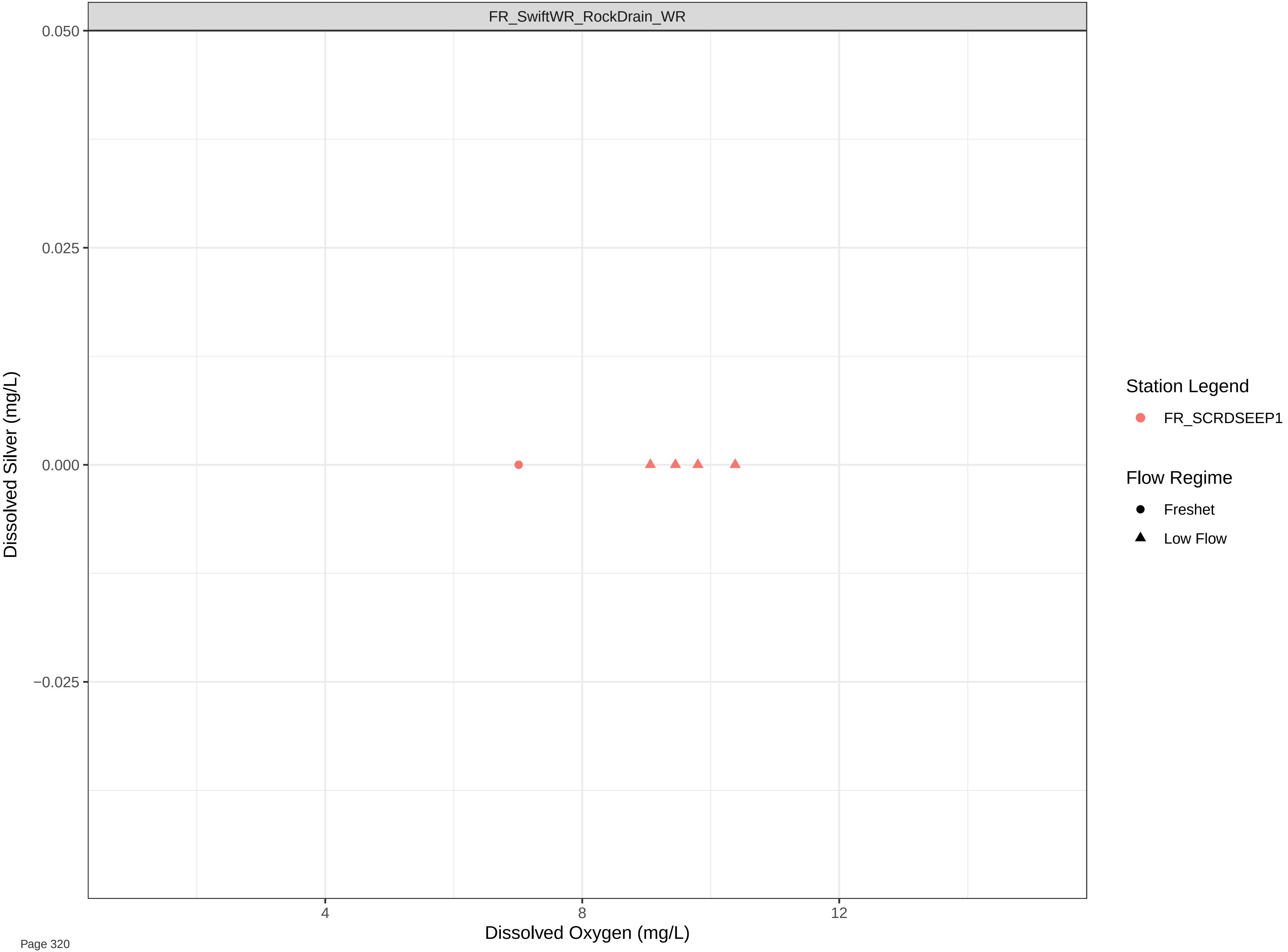

FR_HEN_WR
5e−05
4e−05
3e−05
2e−05
1e−05
Dissolved Silver (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

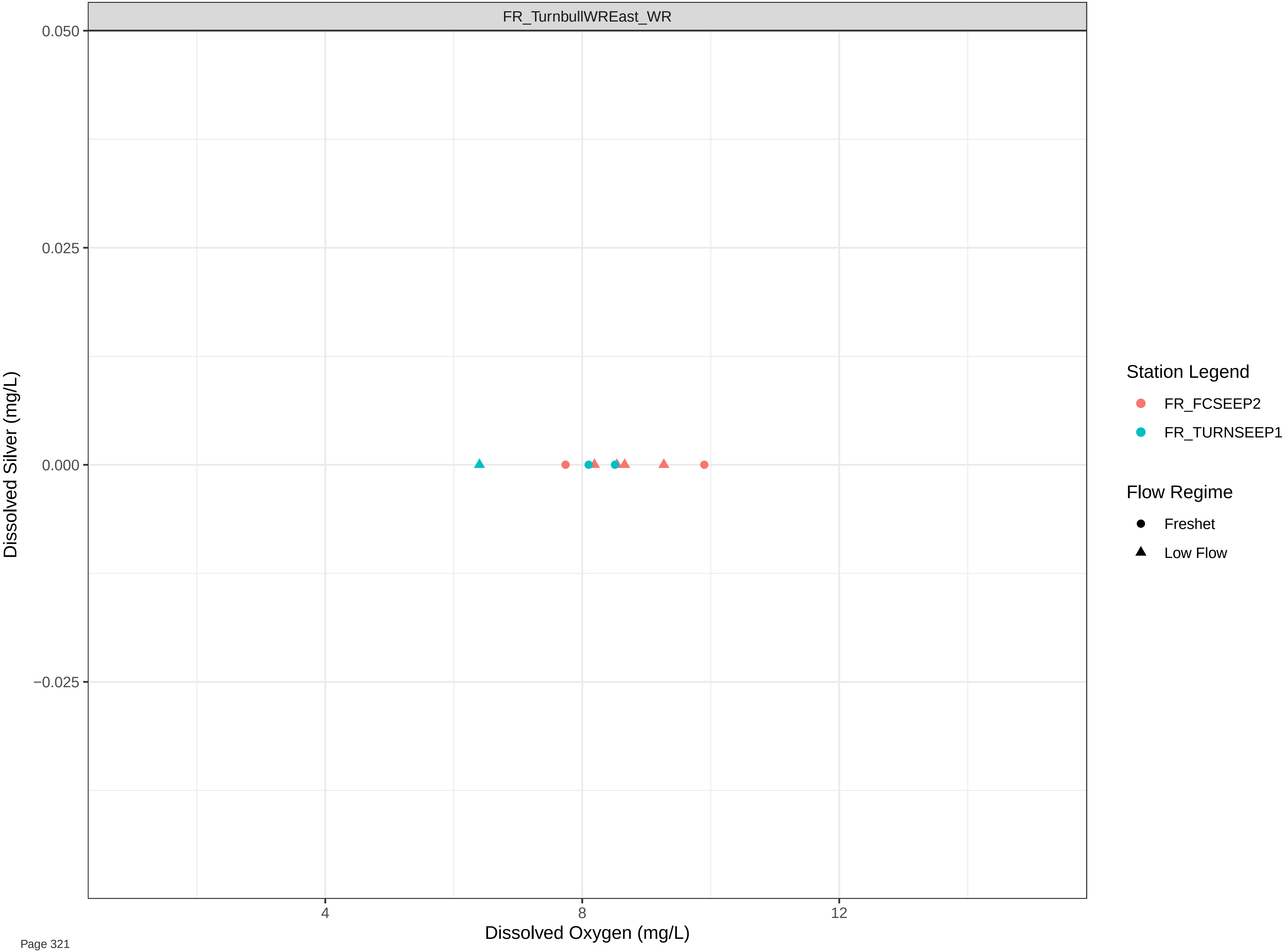

FR_LakeMtn_WR_PITS
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

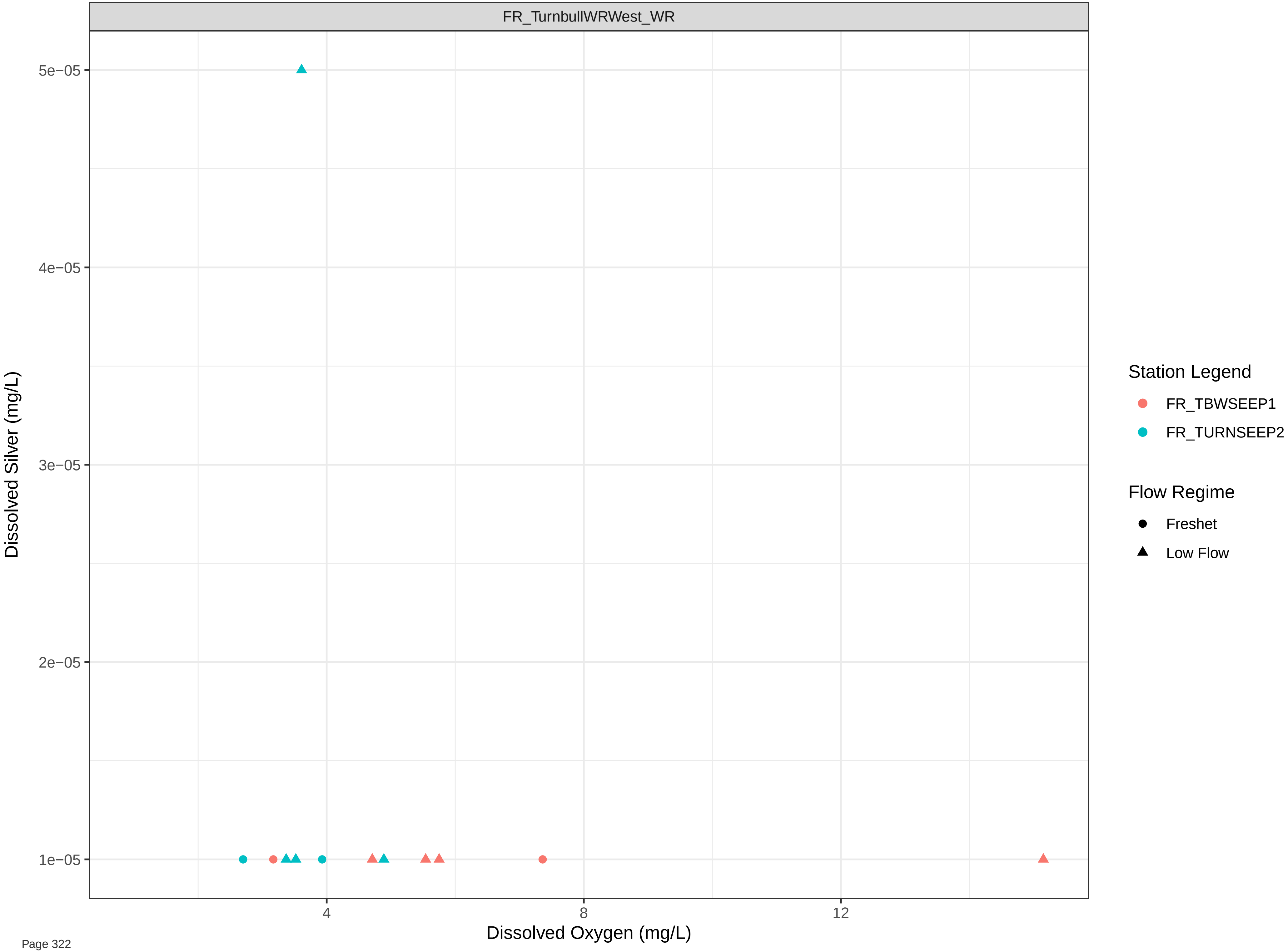

FR_Shandley_WR
5e−05
4e−05
3e−05
2e−05
1e−05
Dissolved Silver (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

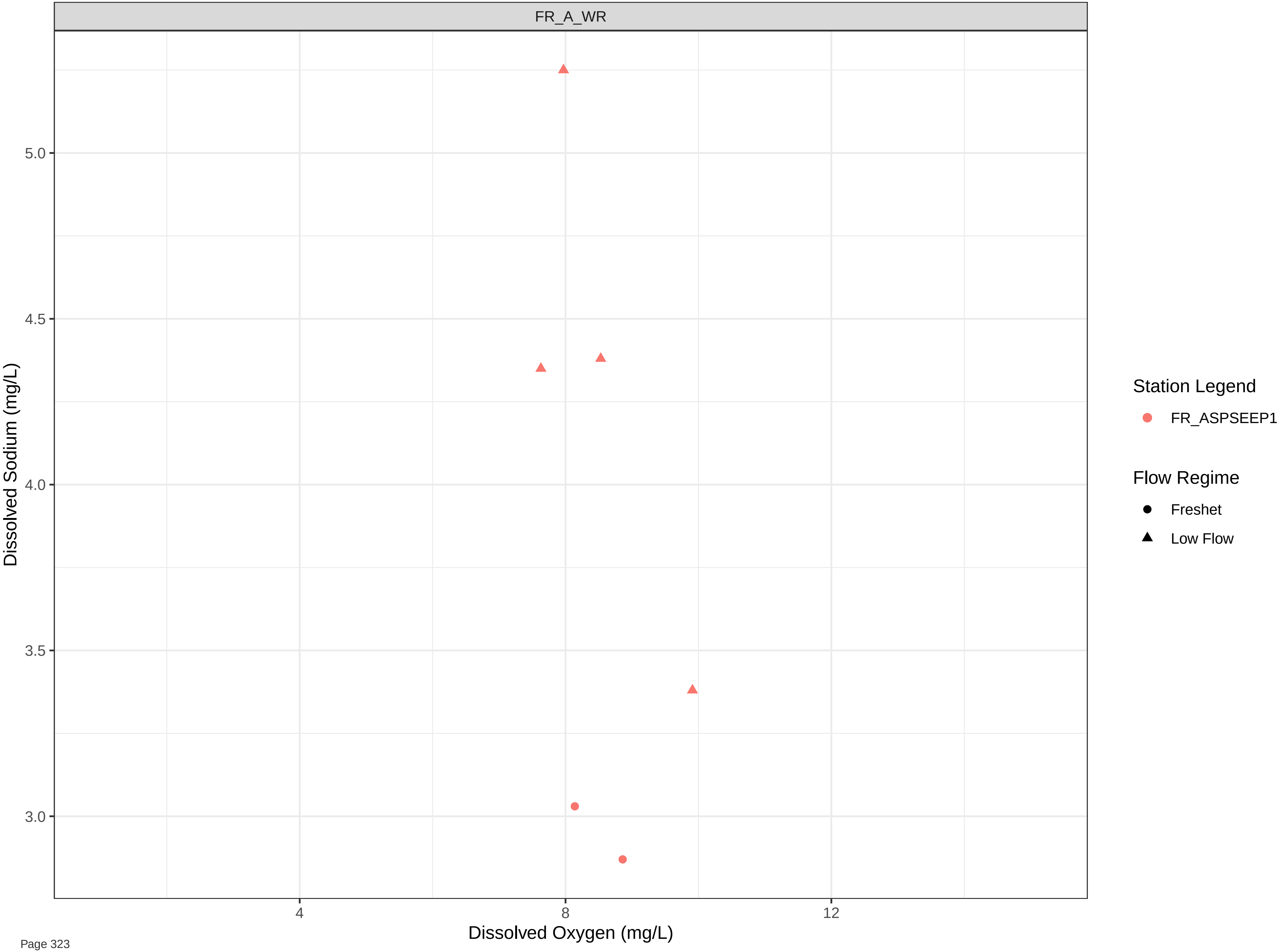

FR_Smith_WR
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

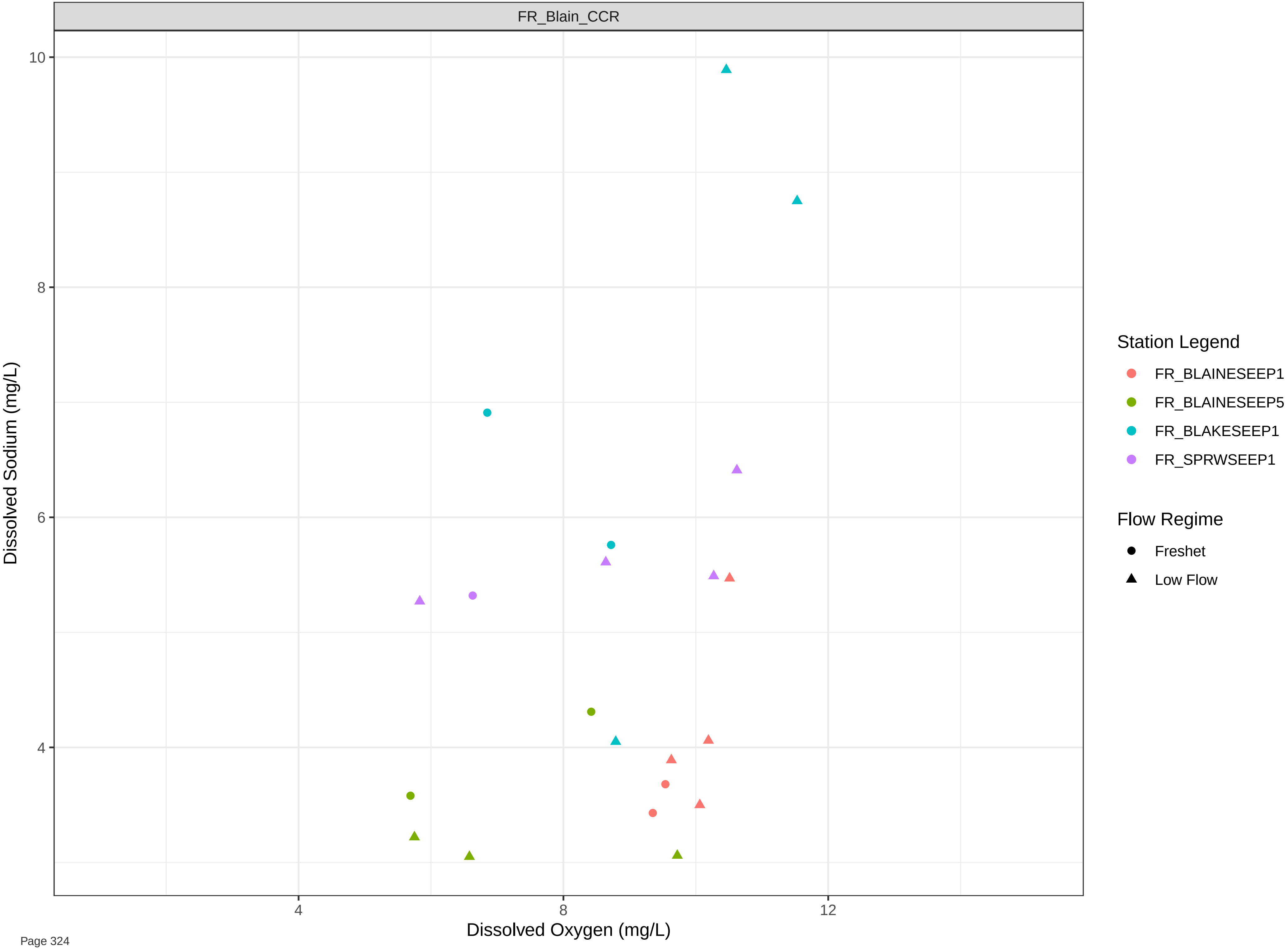

FR_SouthTails_Tailings
Dissolved Silver (mg/L)
0.050
0.025
0.000
−0.025
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

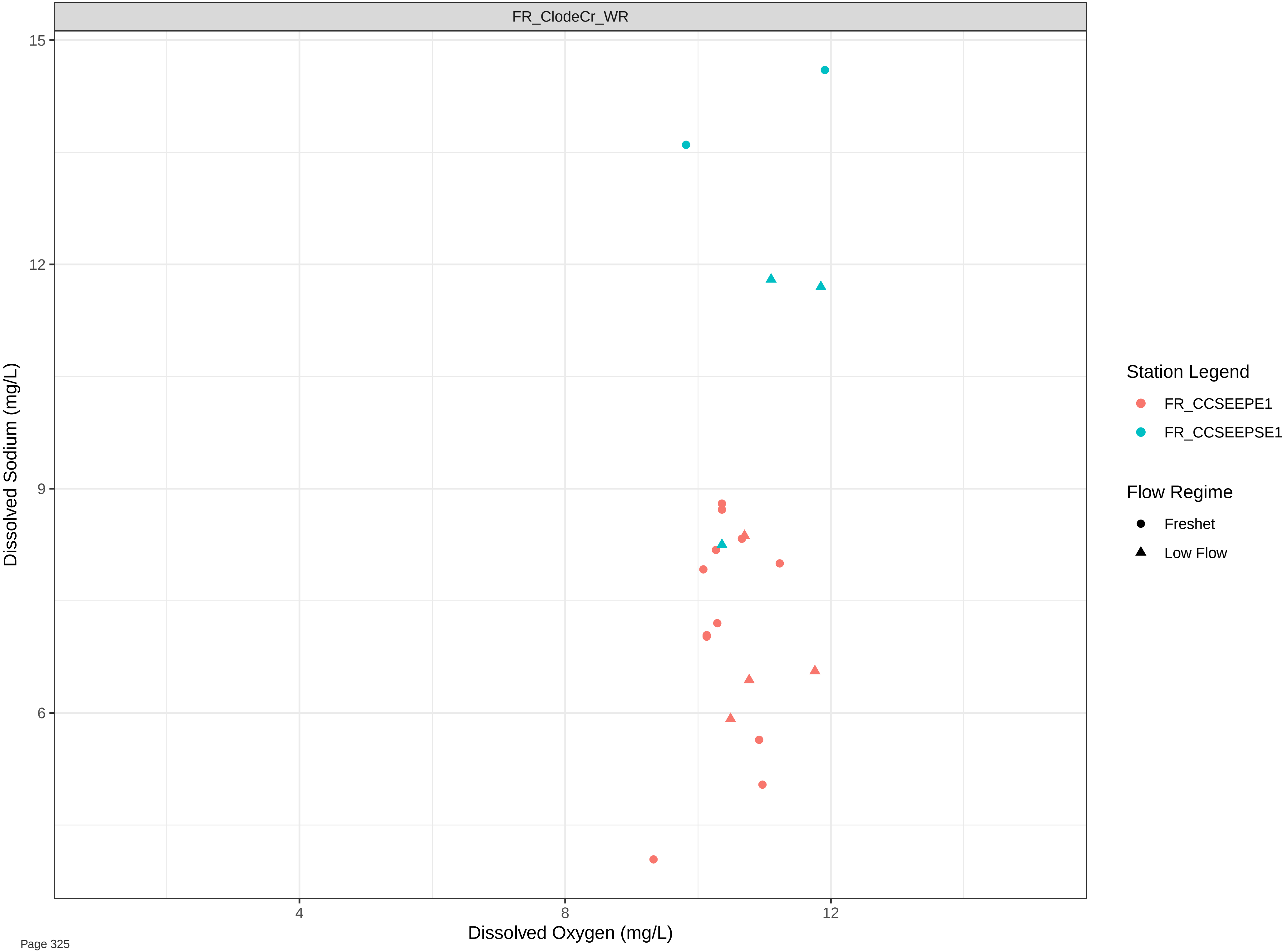

FR_SwiftWR_RockDrain_WR
0.050
0.025
0.000
−0.025
Dissolved Silver (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

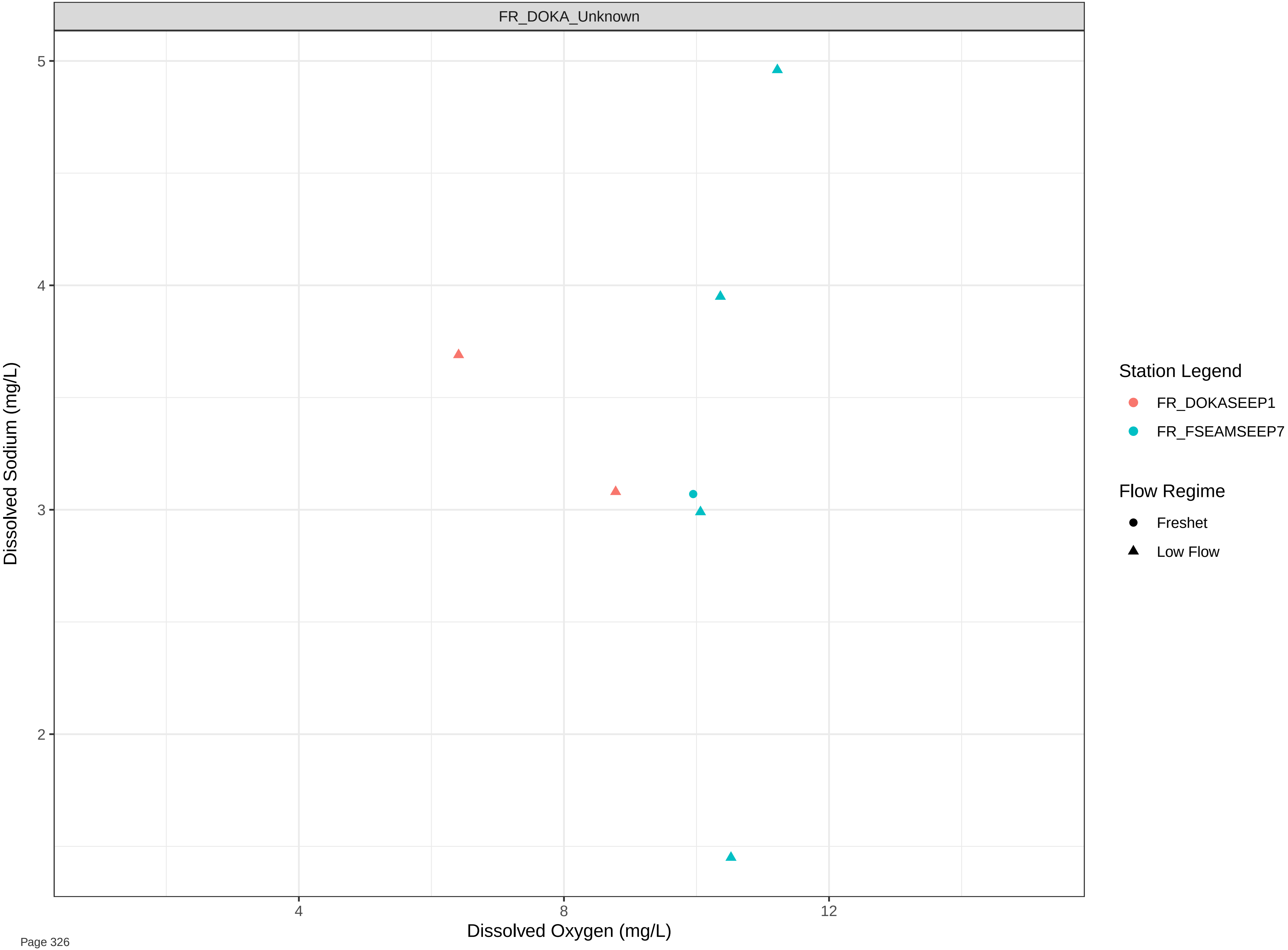

FR_TurnbullWREast_WR
0.050
0.025
0.000
−0.025
Dissolved Silver (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

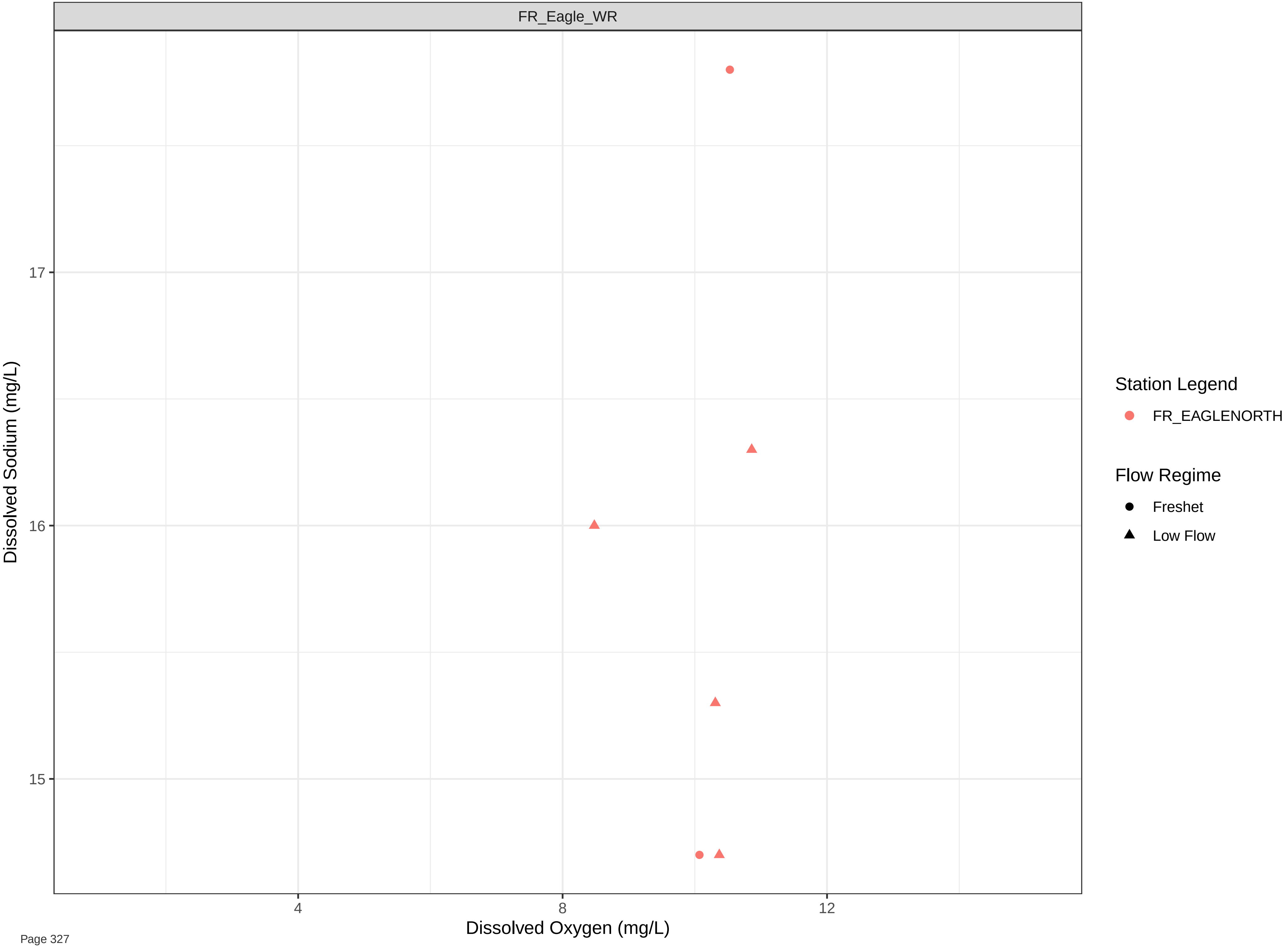

FR_TurnbullWRWest_WR
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

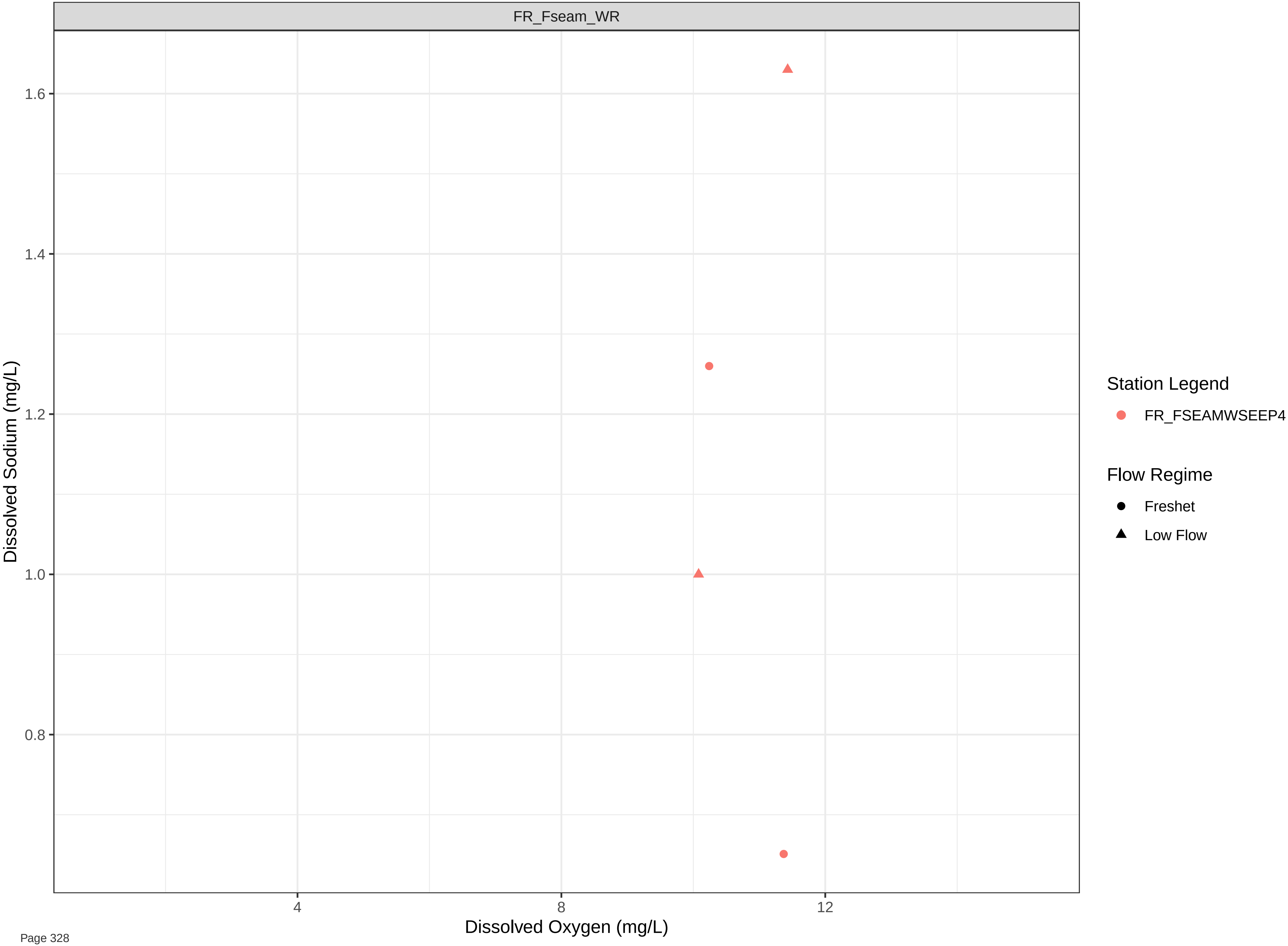

FR_A_WR
Dissolved Sodium (mg/L)
5.0
4.5
4.0
3.5
3.0
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

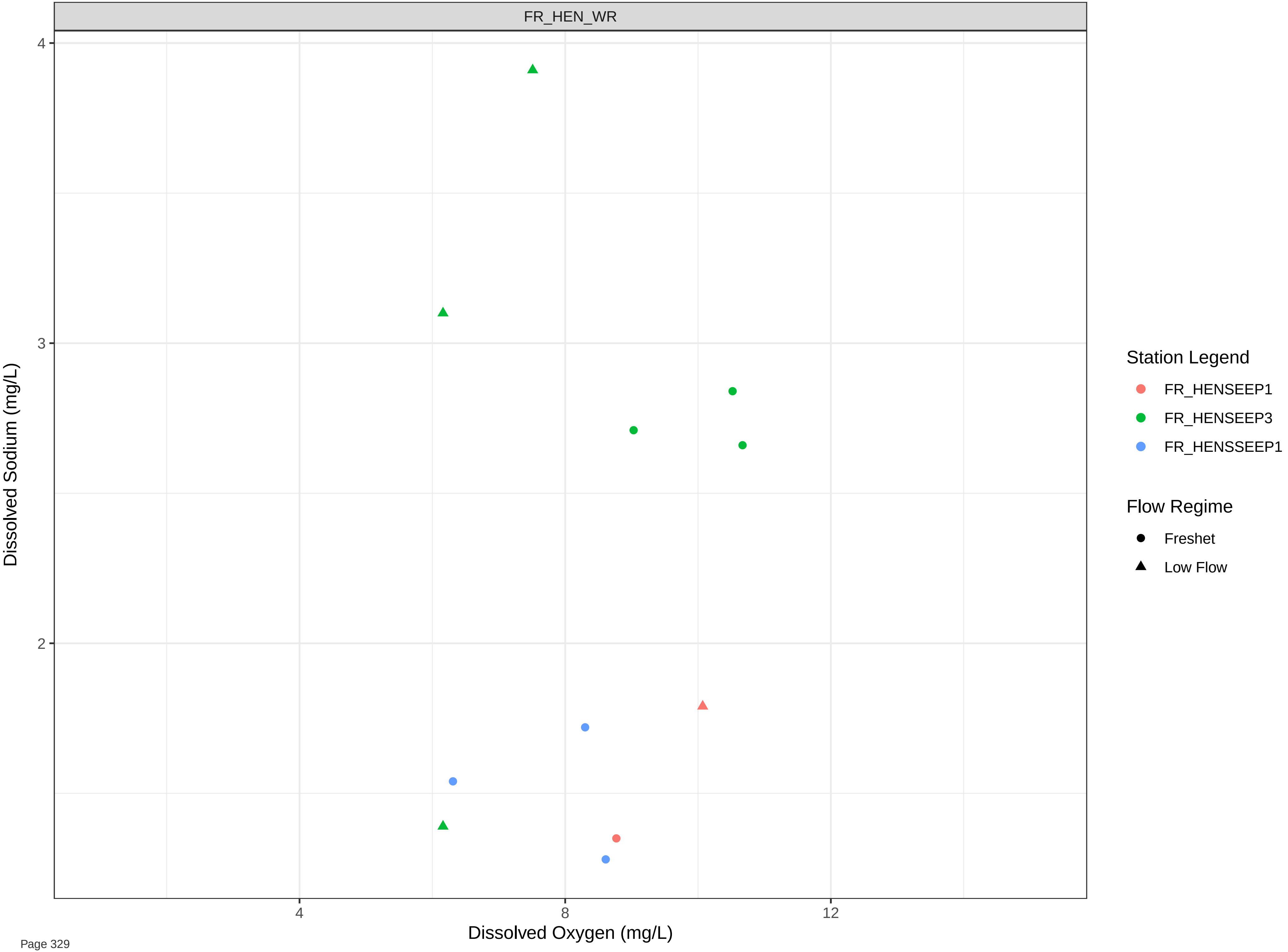

FR_Blain_CCR
Dissolved Sodium (mg/L)
10
8
6
4
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

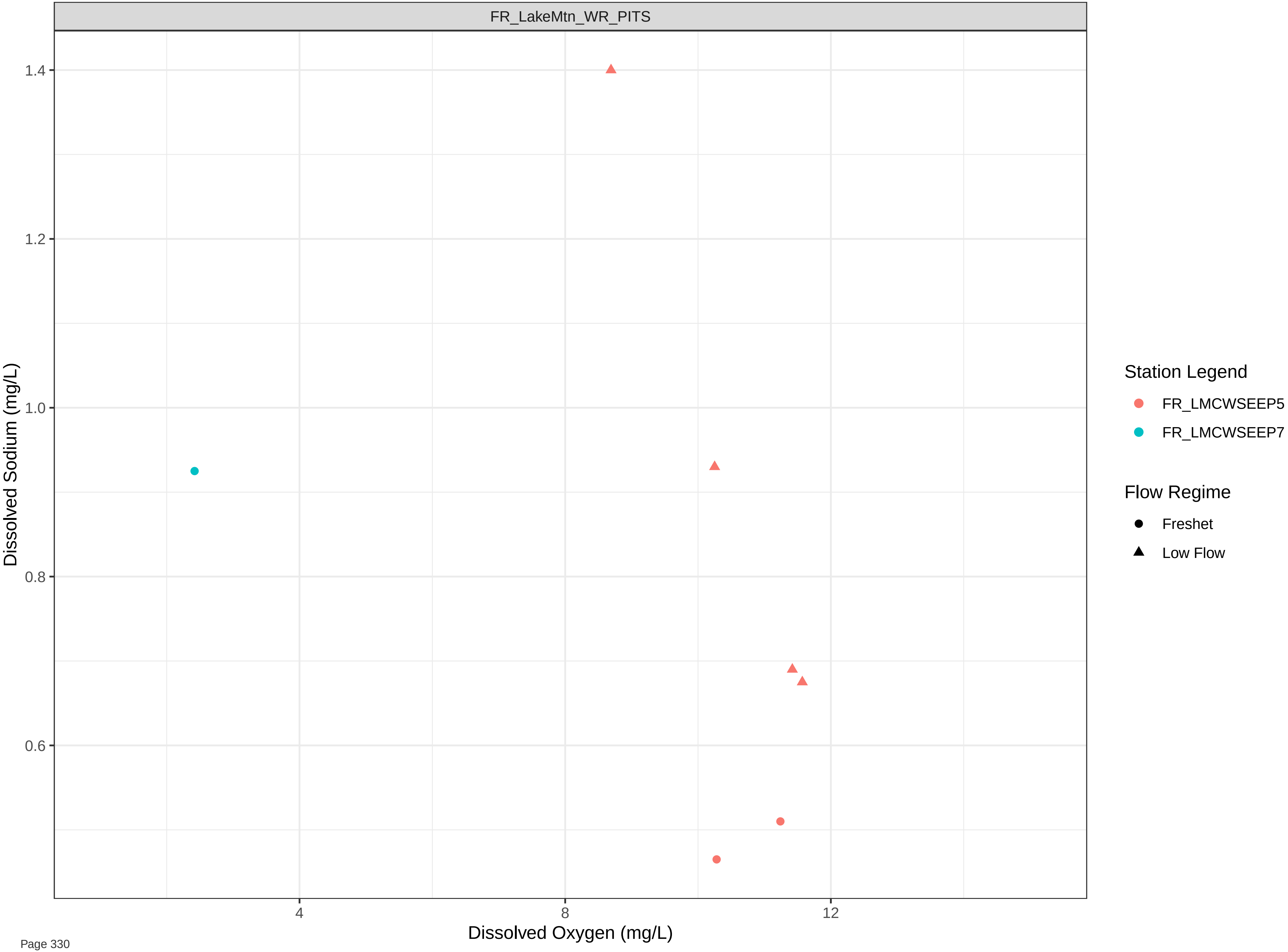

FR_ClodeCr_WR
Dissolved Sodium (mg/L)
15
12
9
6
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow


FR_DOKA_Unknown
5
4
3
2
Dissolved Sodium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

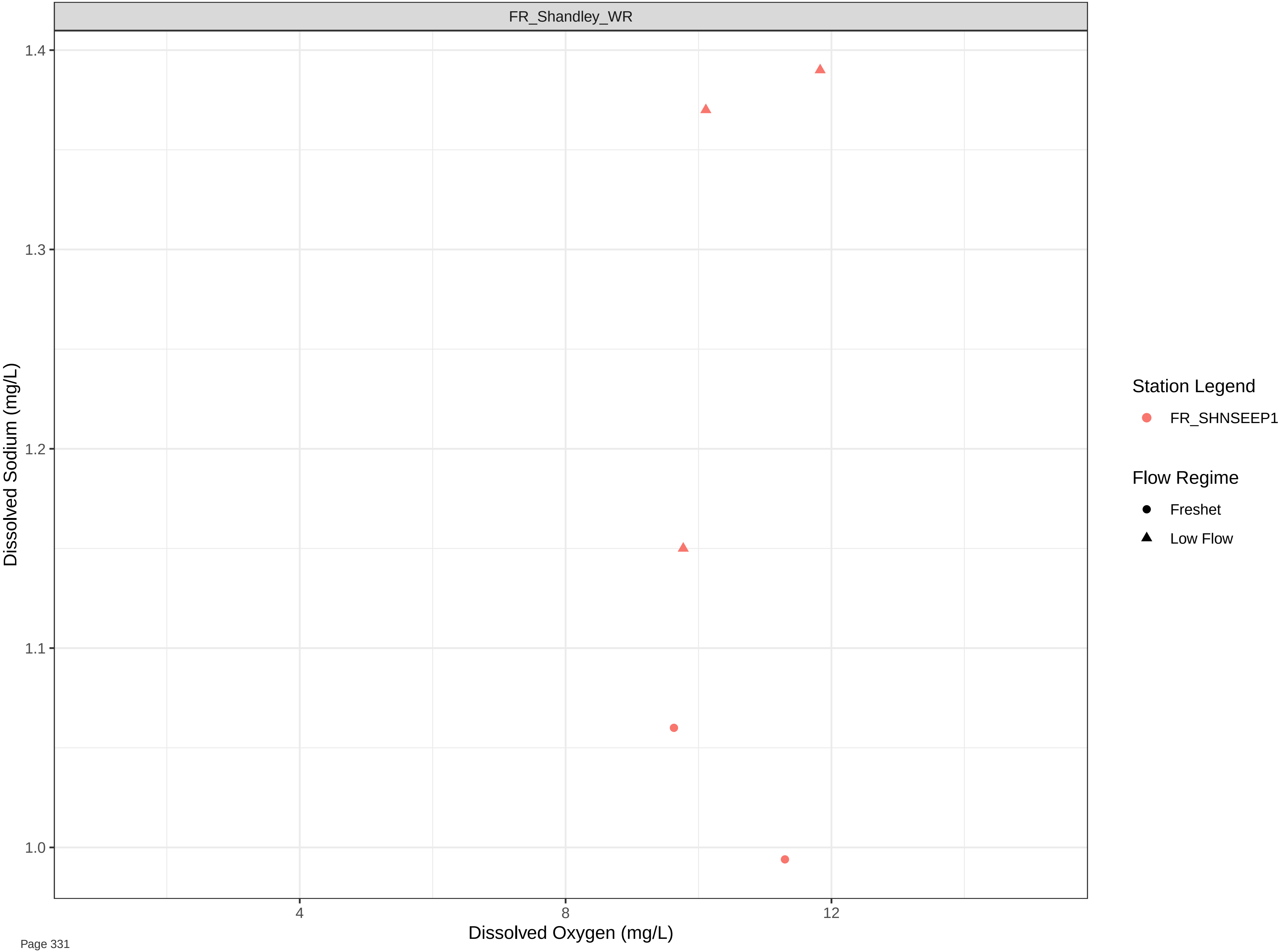

FR_Eagle_WR
Dissolved Sodium (mg/L)
17
16
15
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

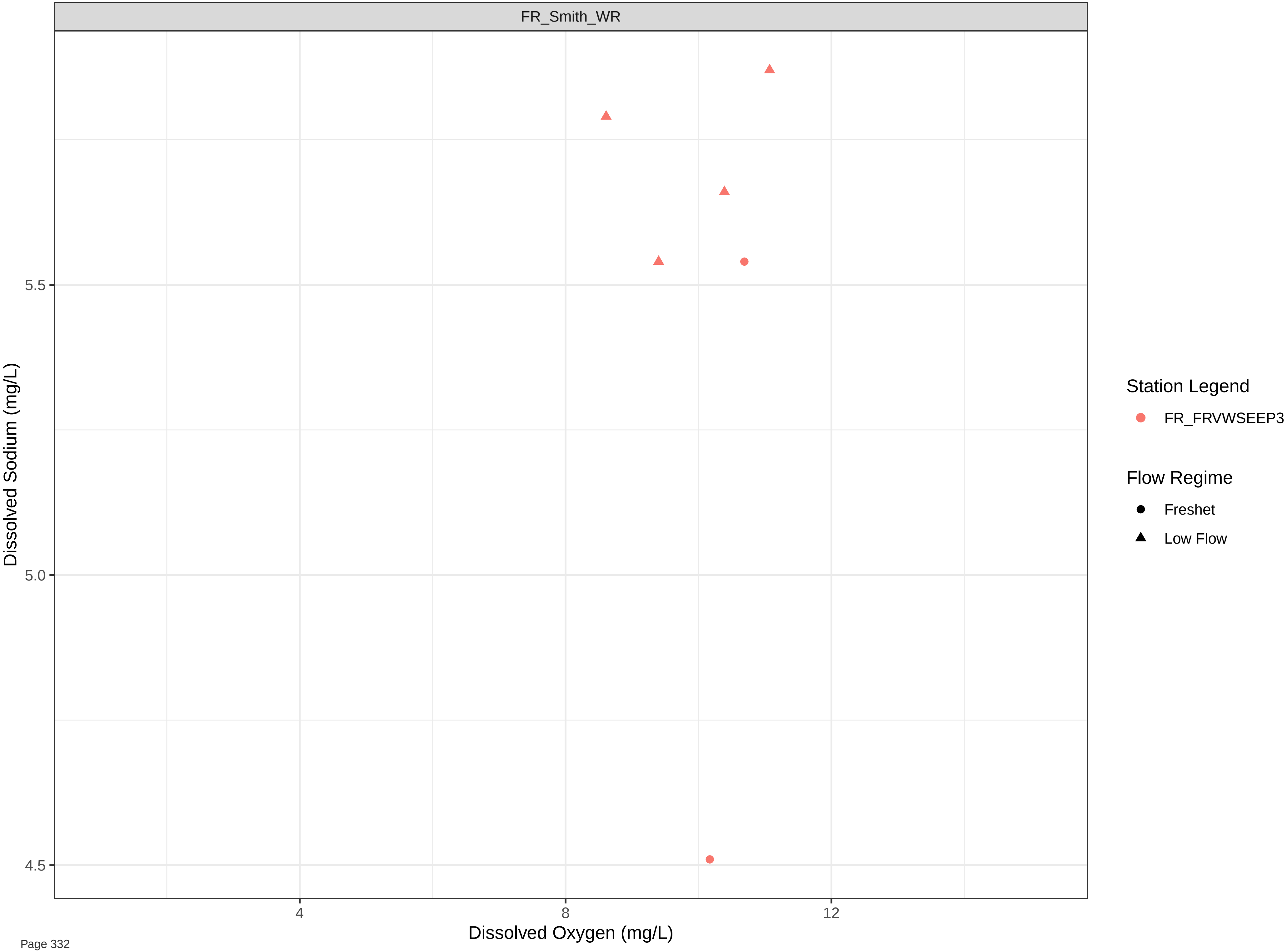

FR_Fseam_WR
1.6
1.4
1.2
1.0
0.8
Dissolved Sodium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

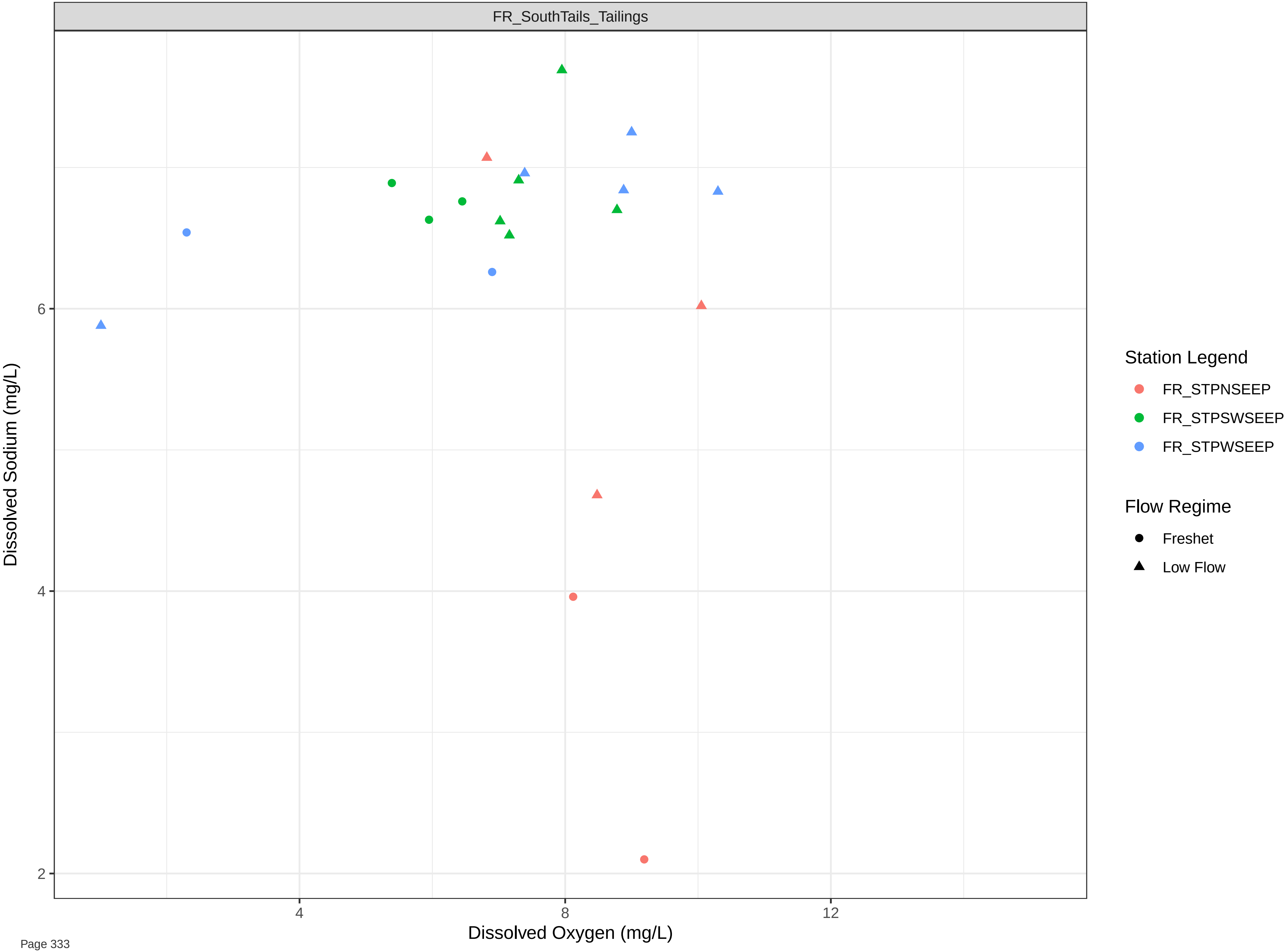

FR_HEN_WR
Dissolved Sodium (mg/L)
4
3
2
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

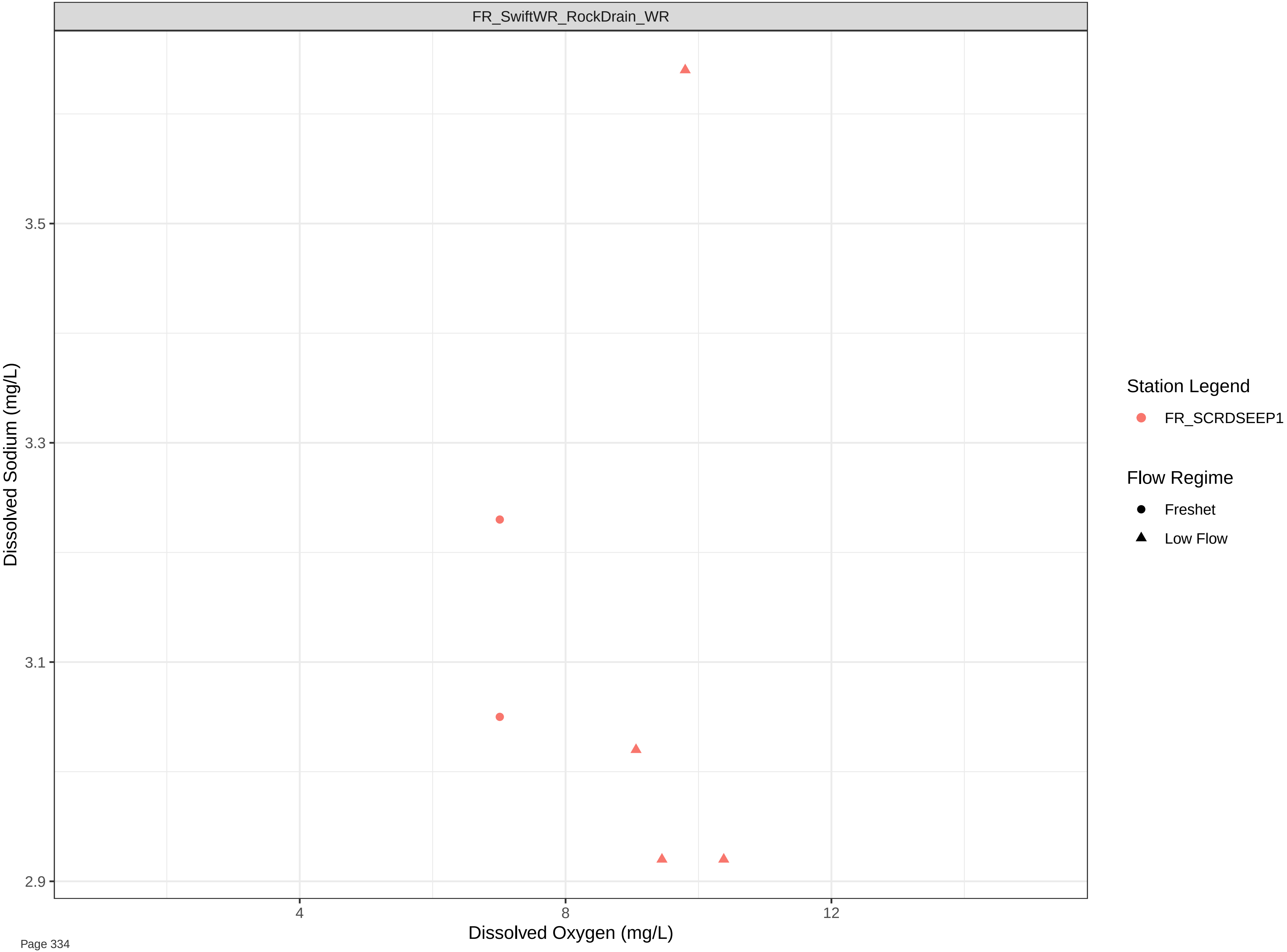


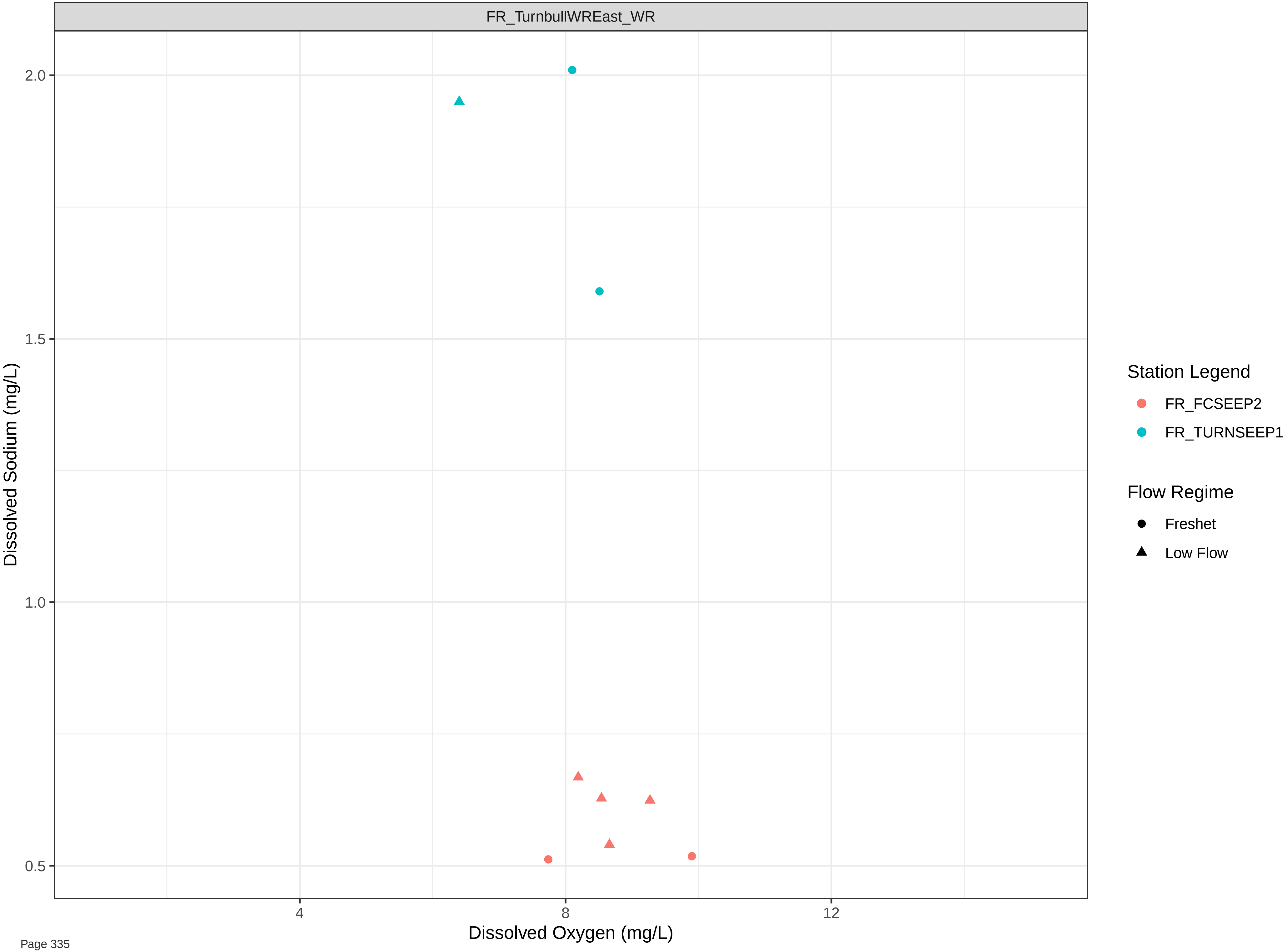
FR_LakeMtn_WR_PITS
Dissolved Sodium (mg/L)
1.4
1.2
1.0
0.8
0.6
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

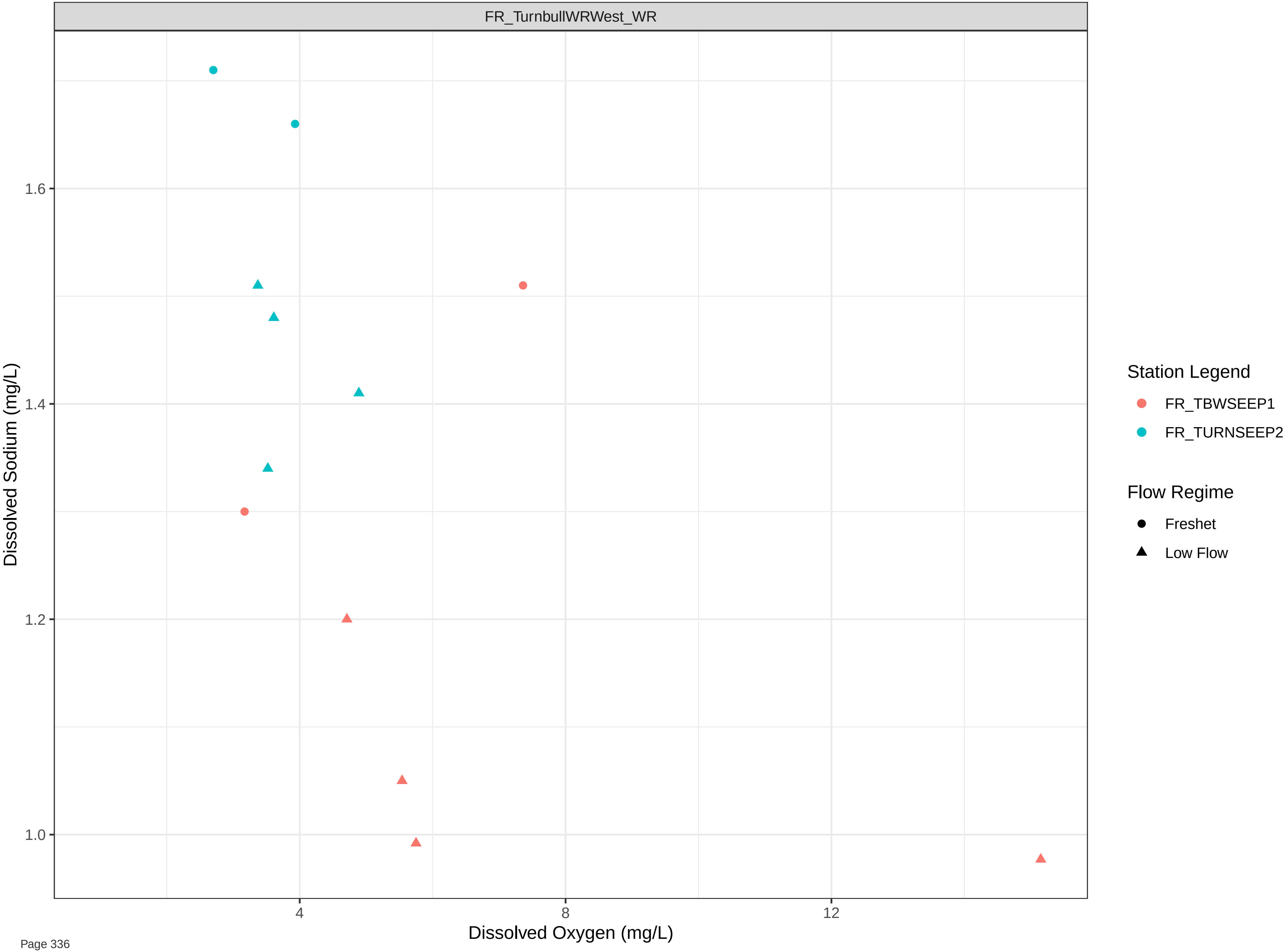

FR_Shandley_WR
Dissolved Sodium (mg/L)
1.4
1.3
1.2
1.1
1.0
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

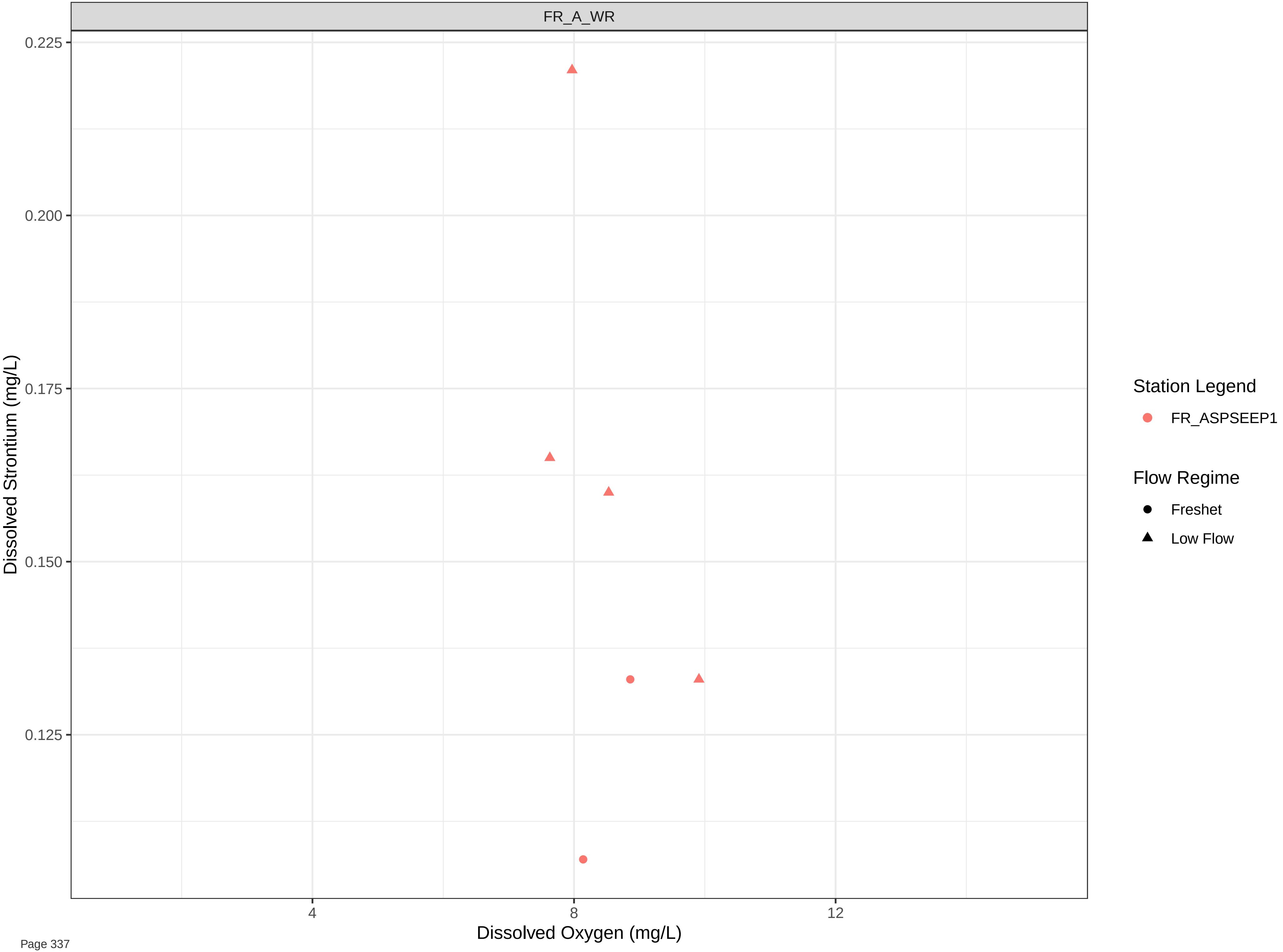

FR_Smith_WR
Dissolved Sodium (mg/L)
5.5
5.0
4.5
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

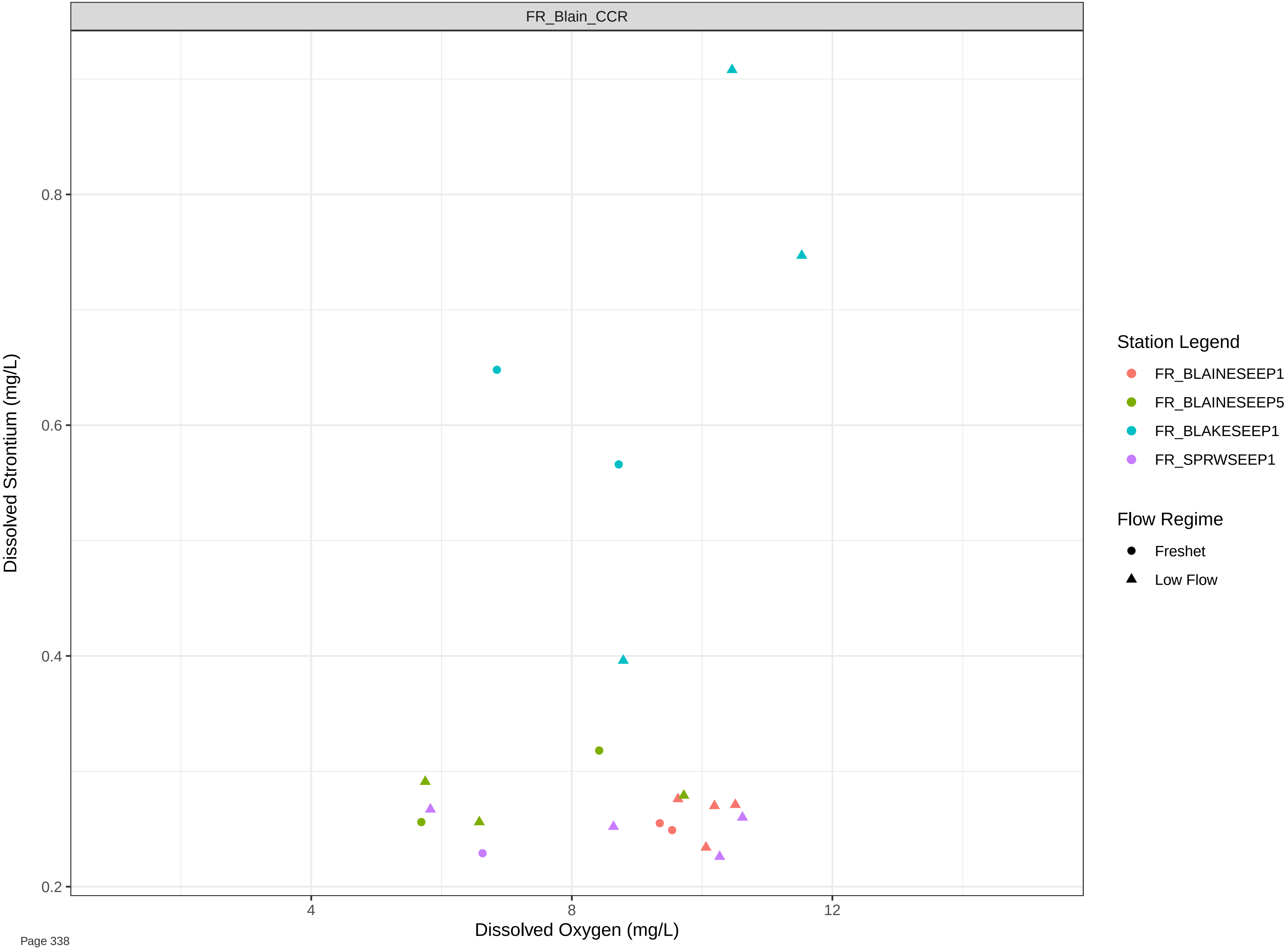

FR_SouthTails_Tailings
Dissolved Sodium (mg/L)
6
4
2
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

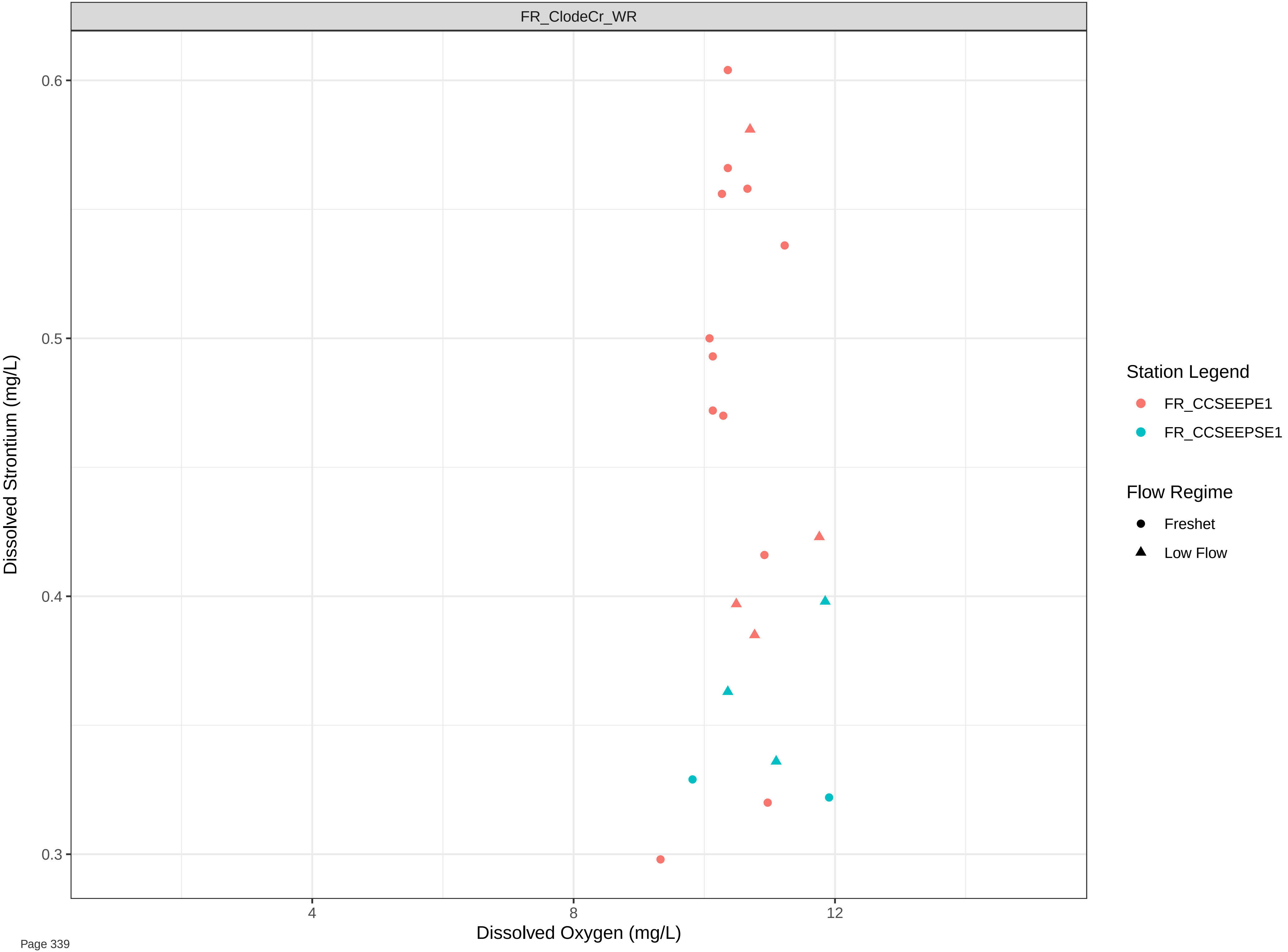

FR_SwiftWR_RockDrain_WR
Dissolved Sodium (mg/L)
3.5
3.3
3.1
2.9
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

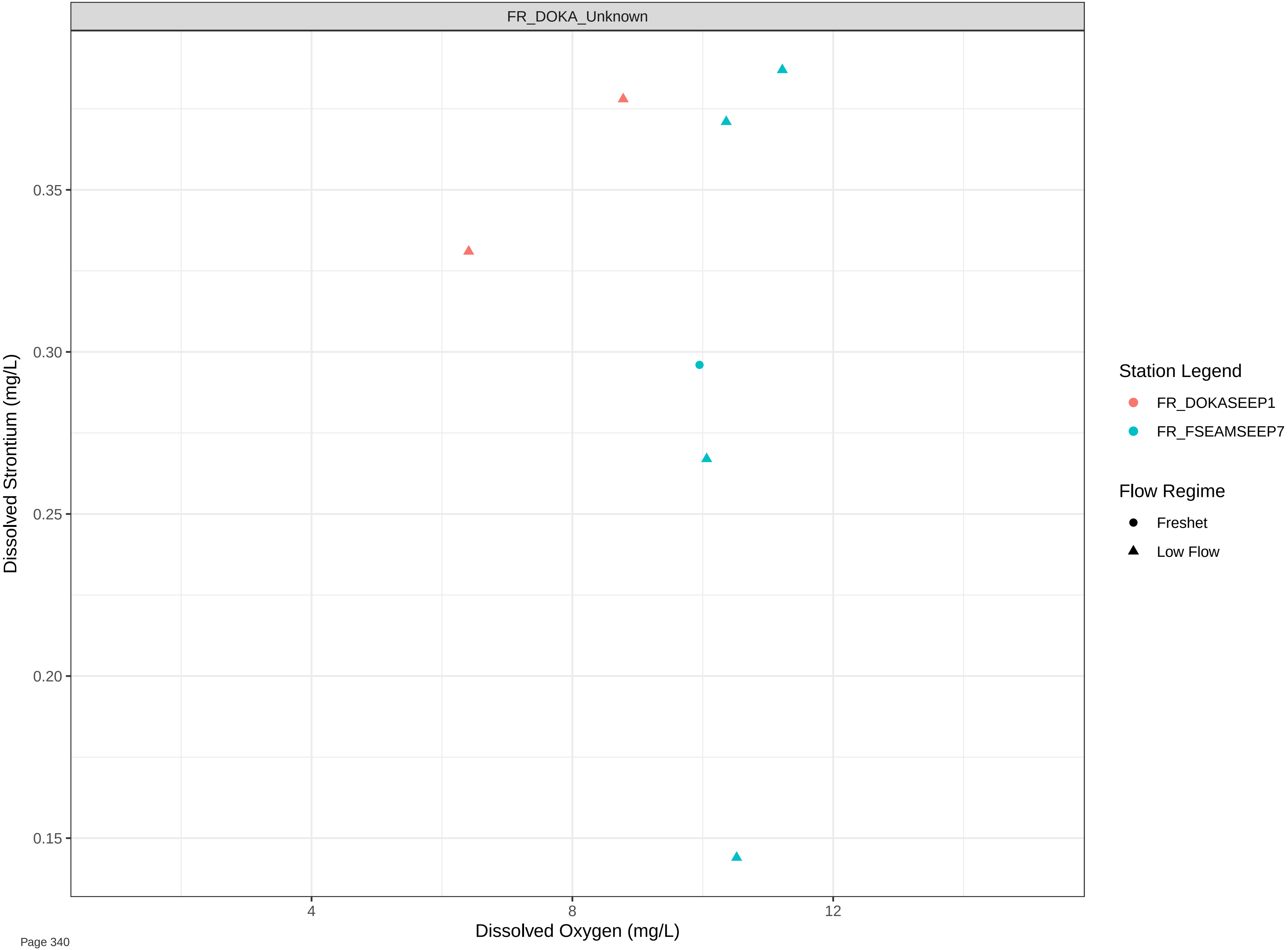

FR_TurnbullWREast_WR
Dissolved Sodium (mg/L)
2.0
1.5
1.0
0.5
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FCSEEP2
● FR_TURNSEEP1
Flow Regime
● Freshet
▲ Low Flow

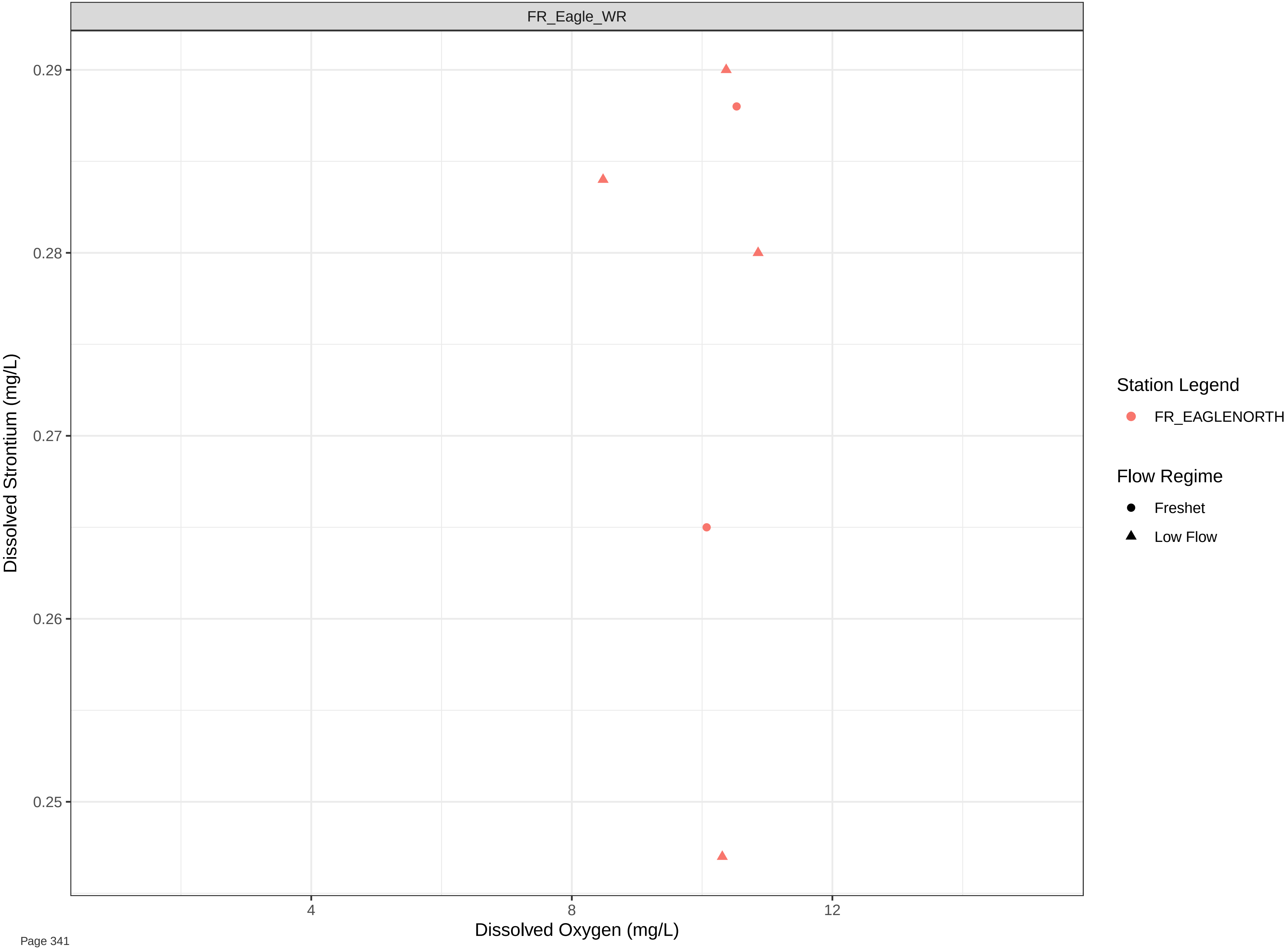

FR_TurnbullWRWest_WR
Dissolved Sodium (mg/L)
1.6
1.4
1.2
1.0
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

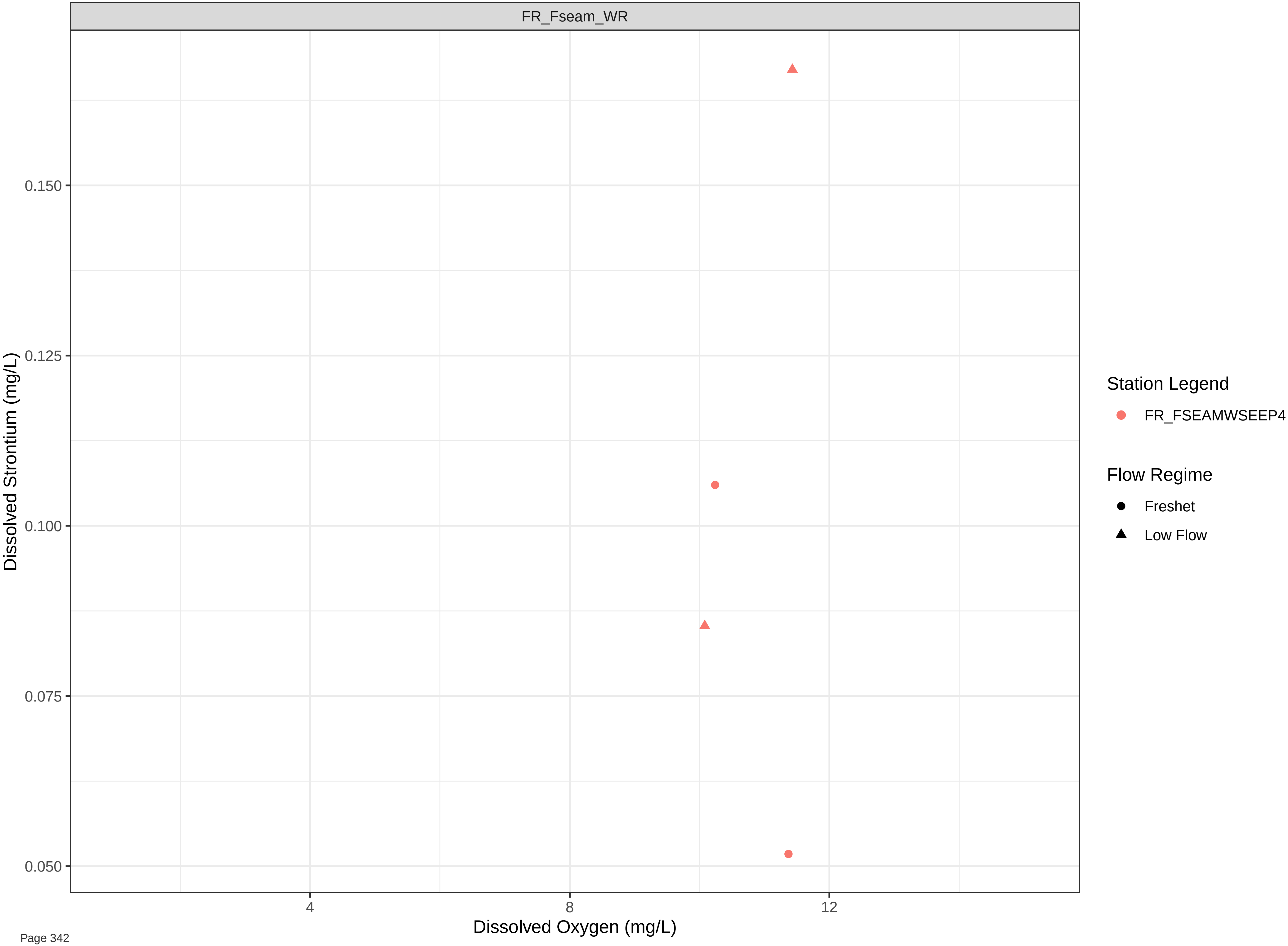

FR_A_WR
Dissolved Strontium (mg/L)
0.225
0.200
0.175
0.150
0.125
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

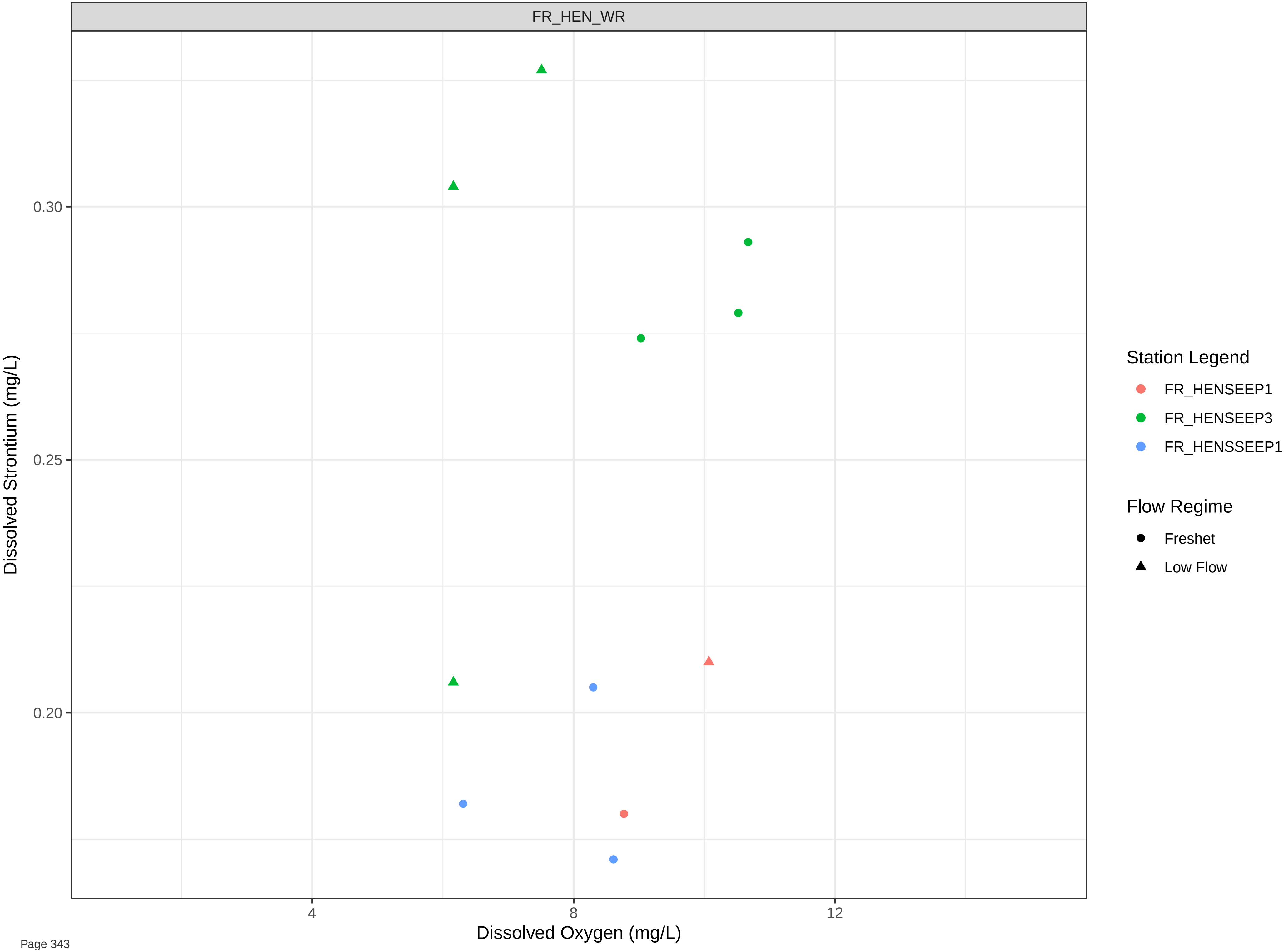

FR_Blain_CCR
Dissolved Strontium (mg/L)
0.2
0.4
0.6
0.8
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

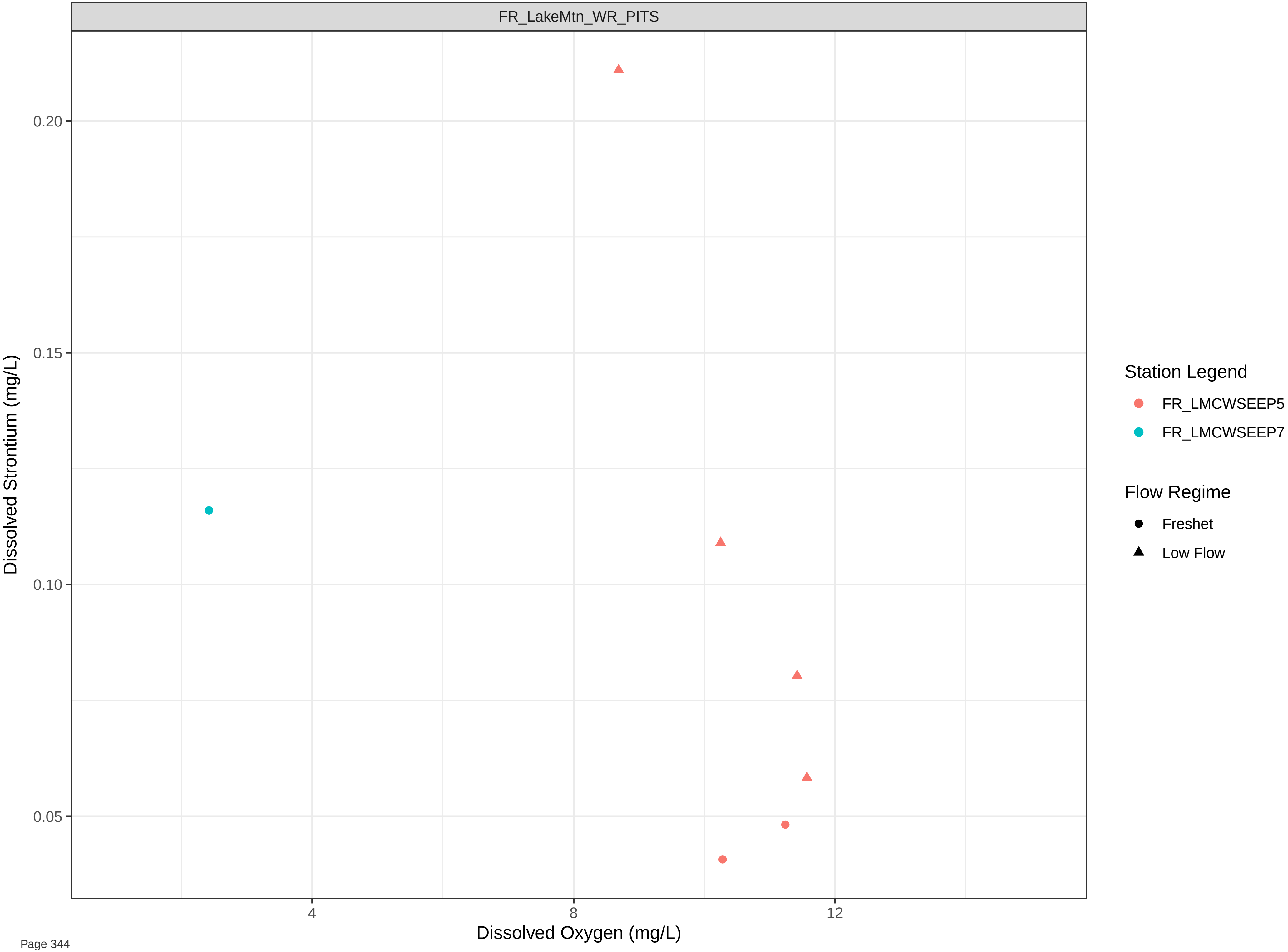

FR_ClodeCr_WR
Dissolved Strontium (mg/L)
0.6
0.5
0.4
0.3
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

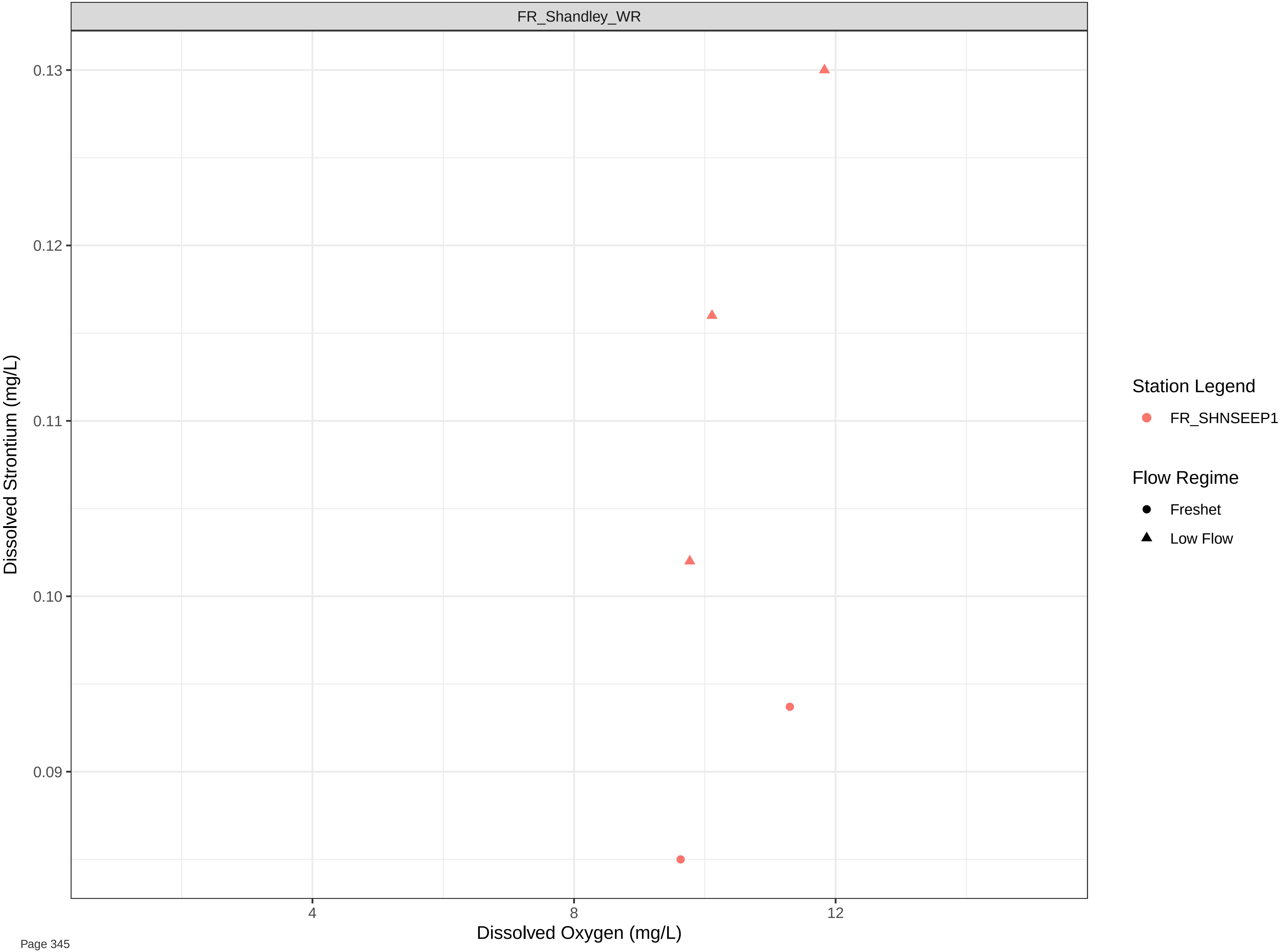

FR_DOKA_Unknown
Dissolved Strontium (mg/L)
0.35
0.30
0.25
0.20
0.15
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_DOKASEEP1
● FR_FSEAMSEEP7
Flow Regime
● Freshet
▲ Low Flow

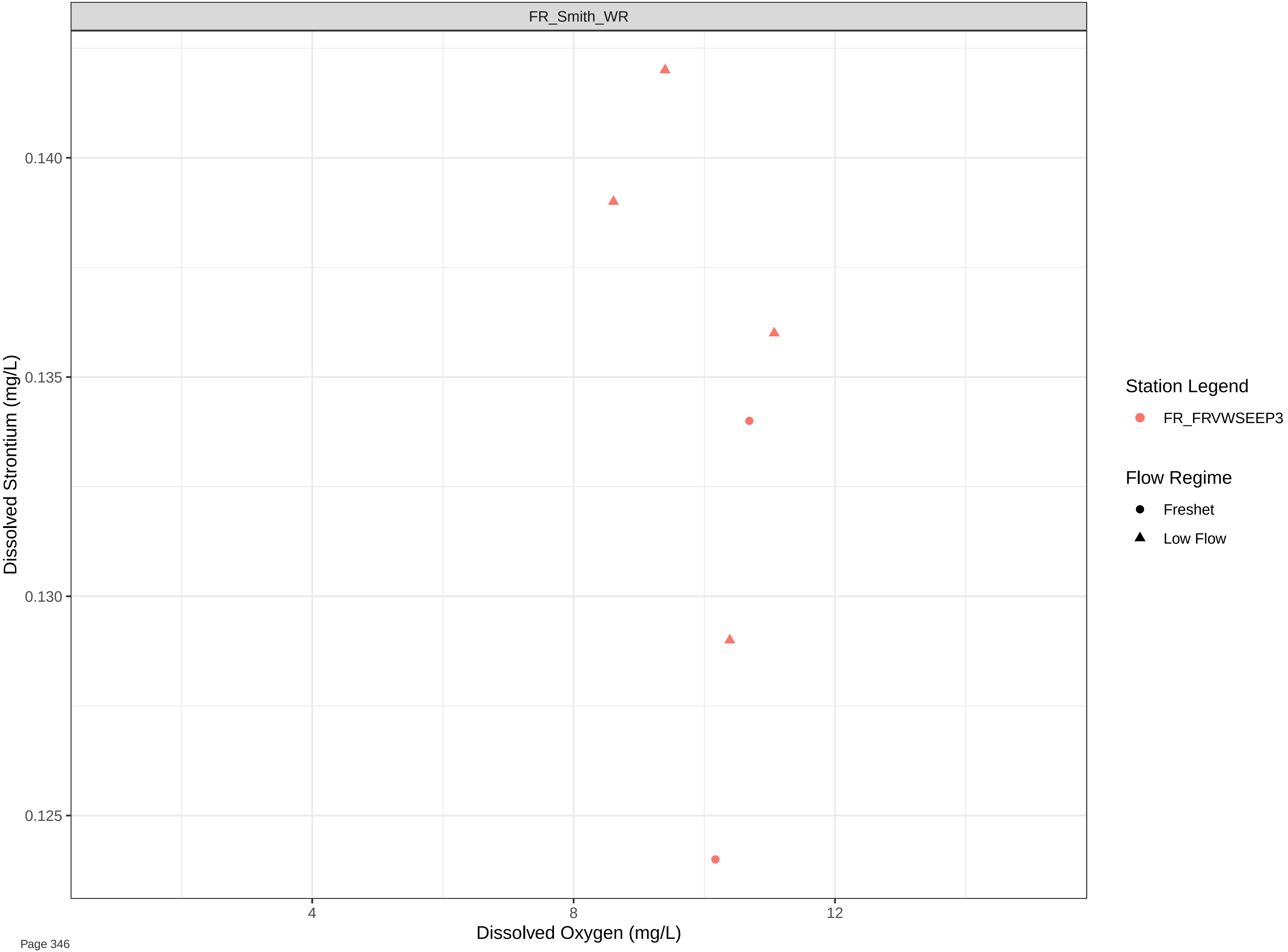

FR_Eagle_WR
Dissolved Strontium (mg/L)
0.29
0.28
0.27
0.26
0.25
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

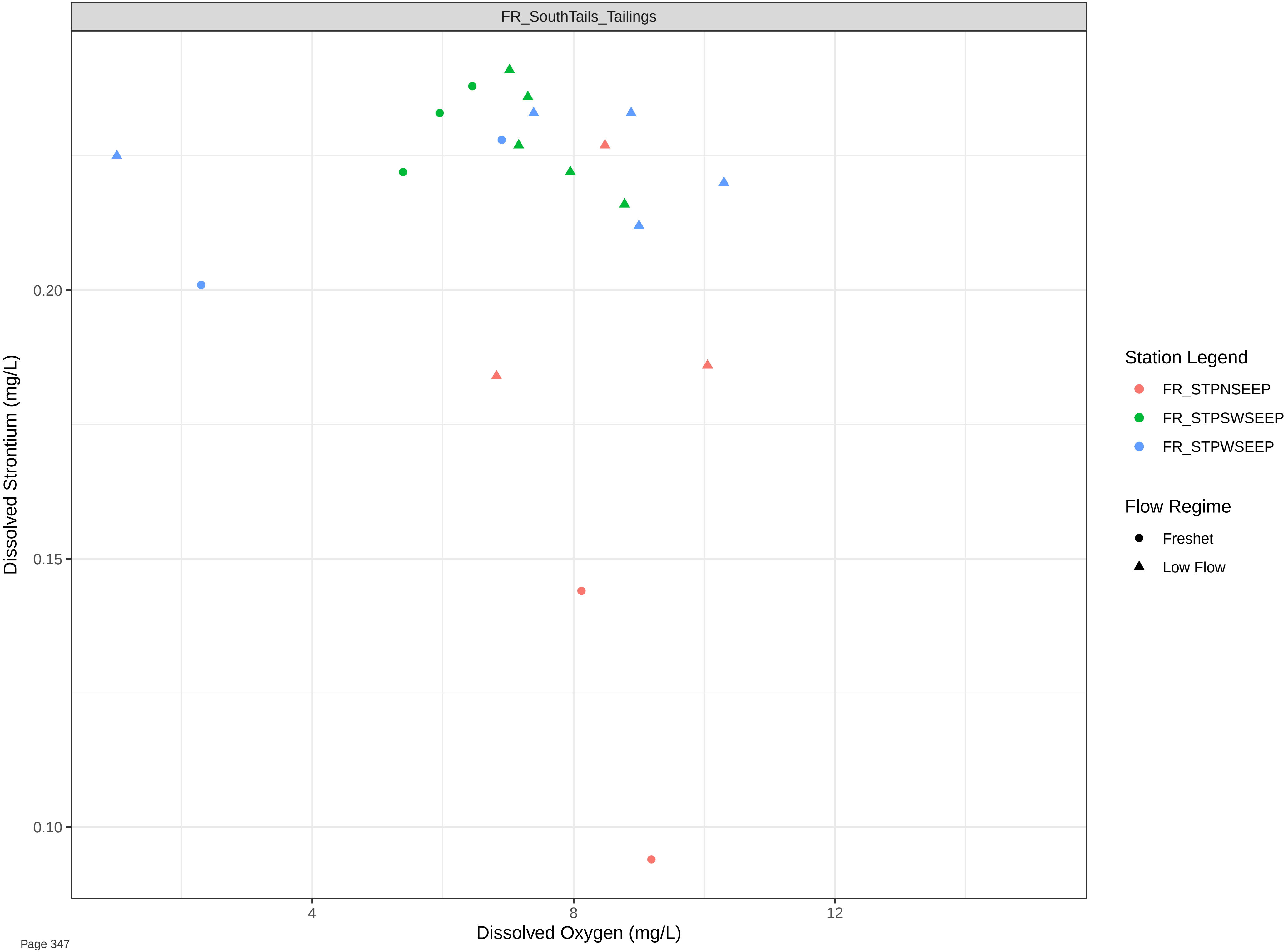

FR_Fseam_WR
Dissolved Strontium (mg/L)
0.150
0.125
0.100
0.075
0.050
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

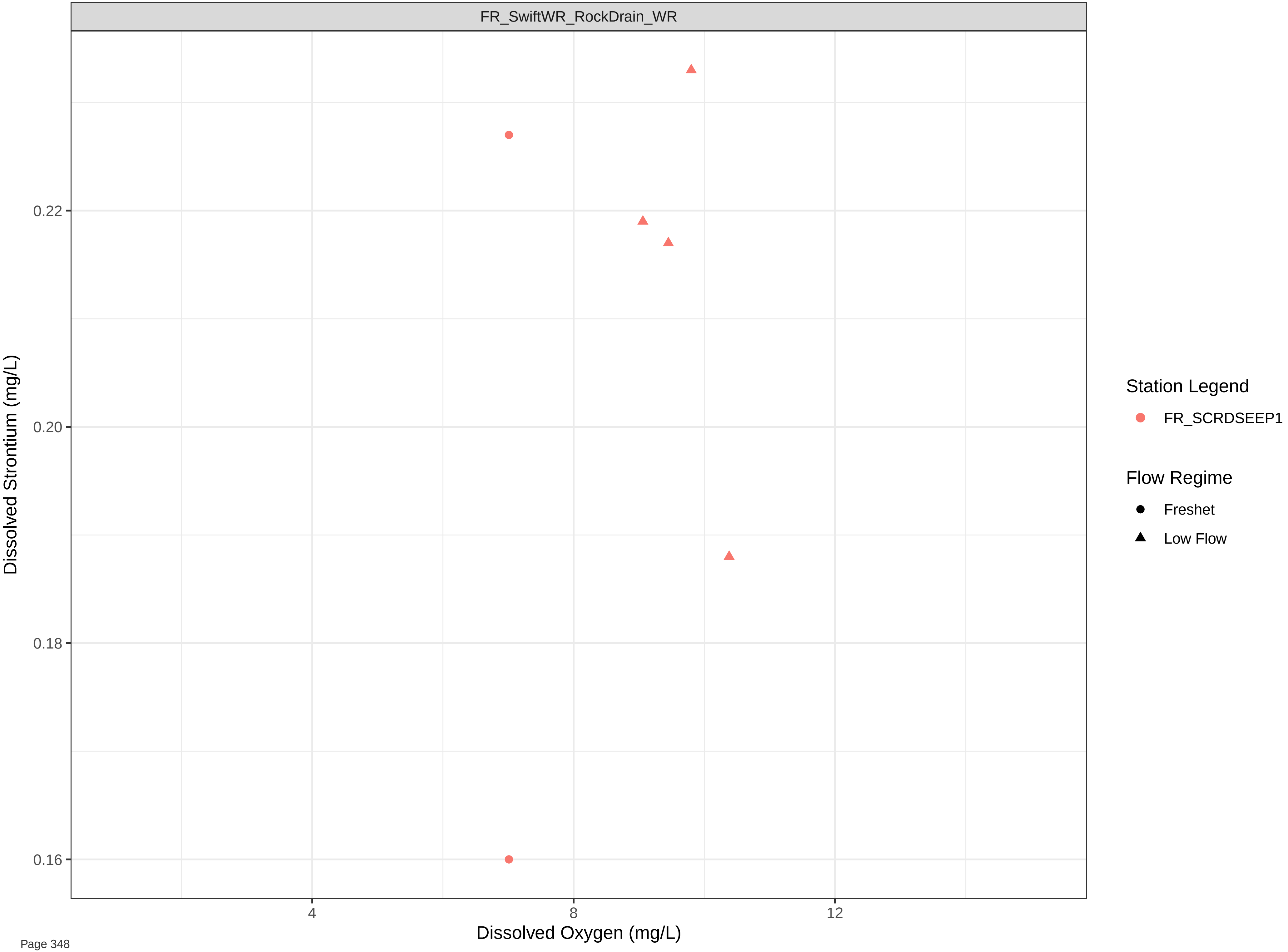

FR_HEN_WR
Dissolved Strontium (mg/L)
0.30
0.25
0.20
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

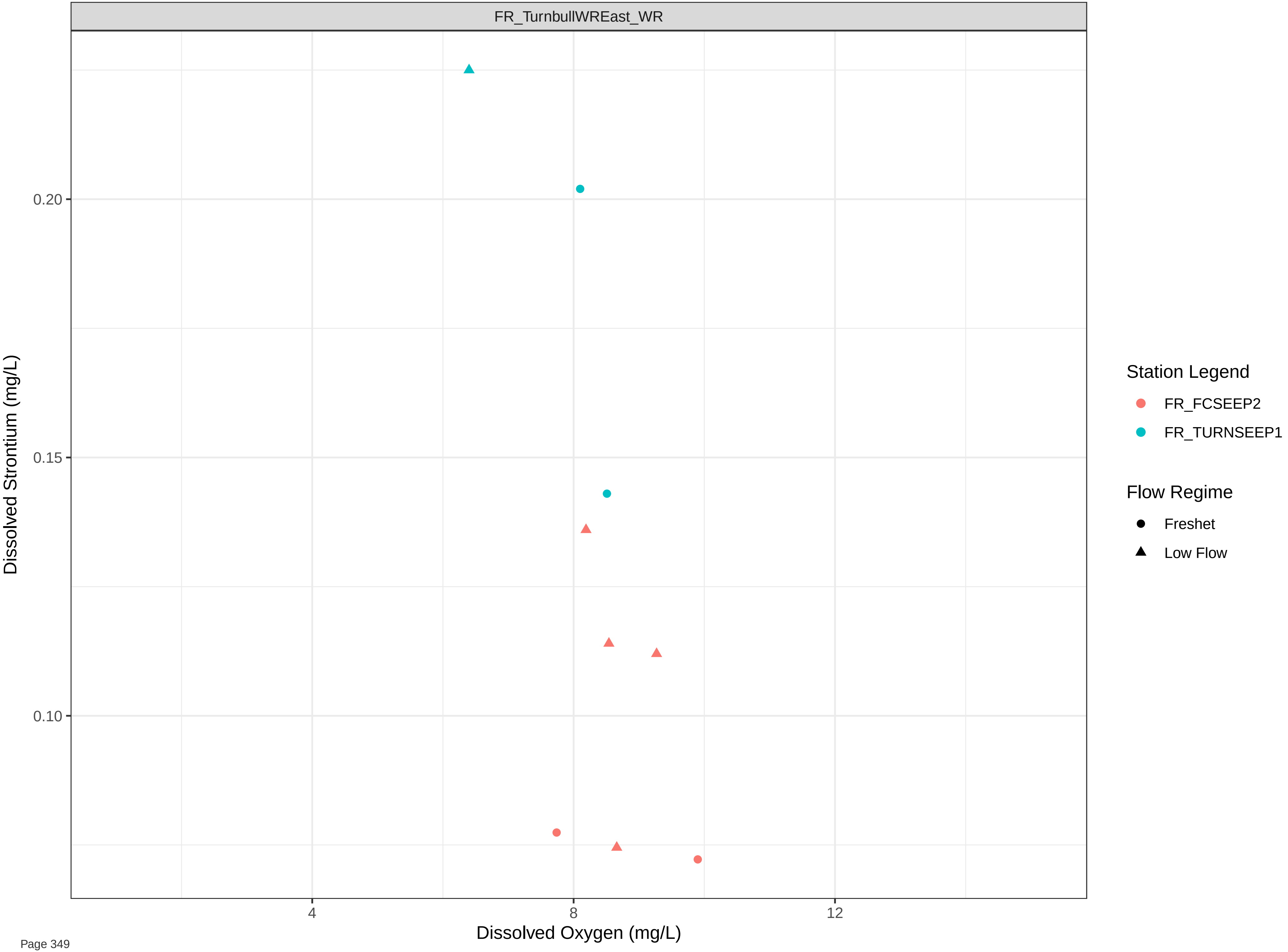

FR_LakeMtn_WR_PITS
Dissolved Strontium (mg/L)
0.20
0.15
0.10
0.05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

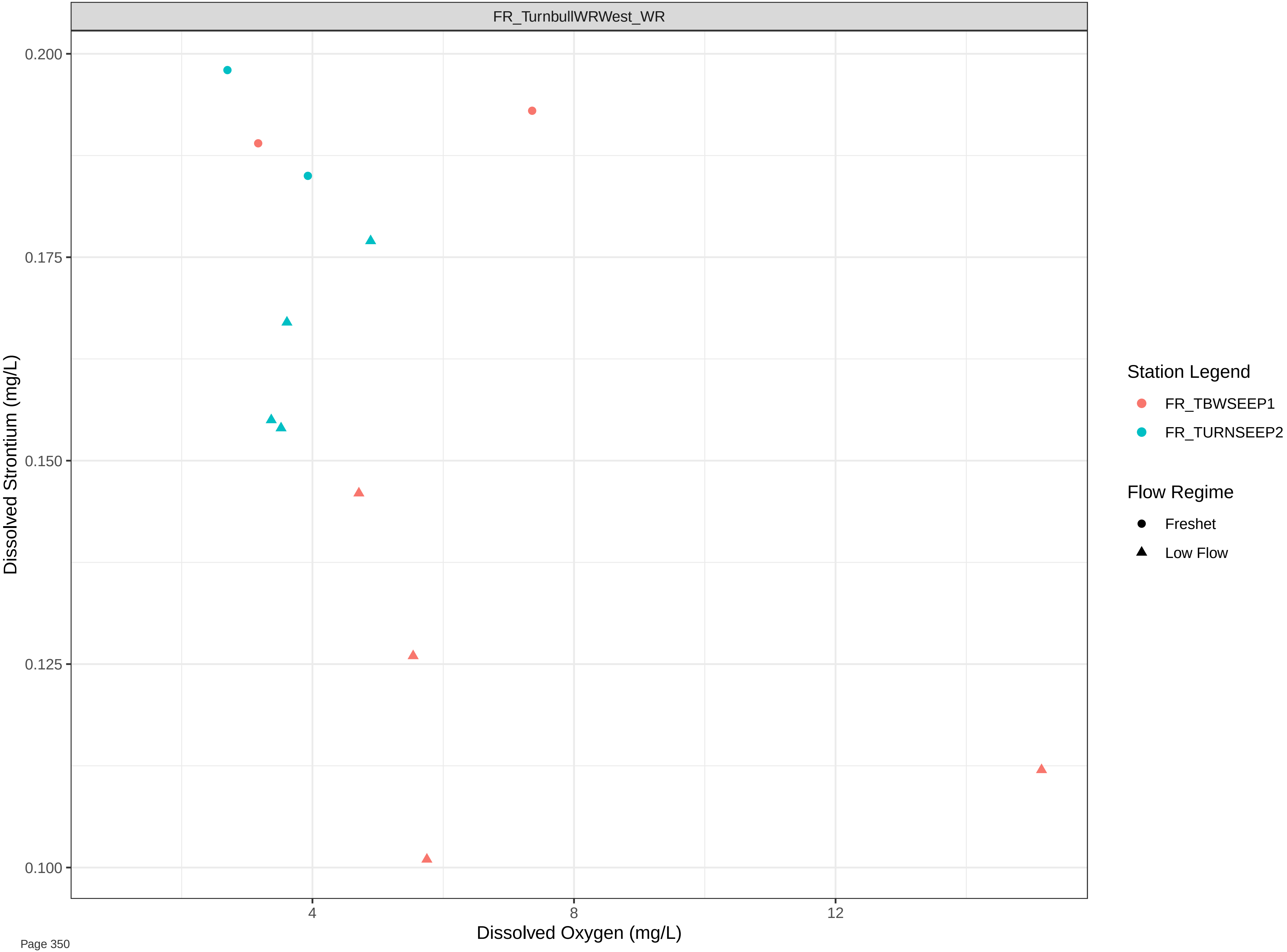

FR_Shandley_WR
Dissolved Strontium (mg/L)
0.13
0.12
0.11
0.10
0.09
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

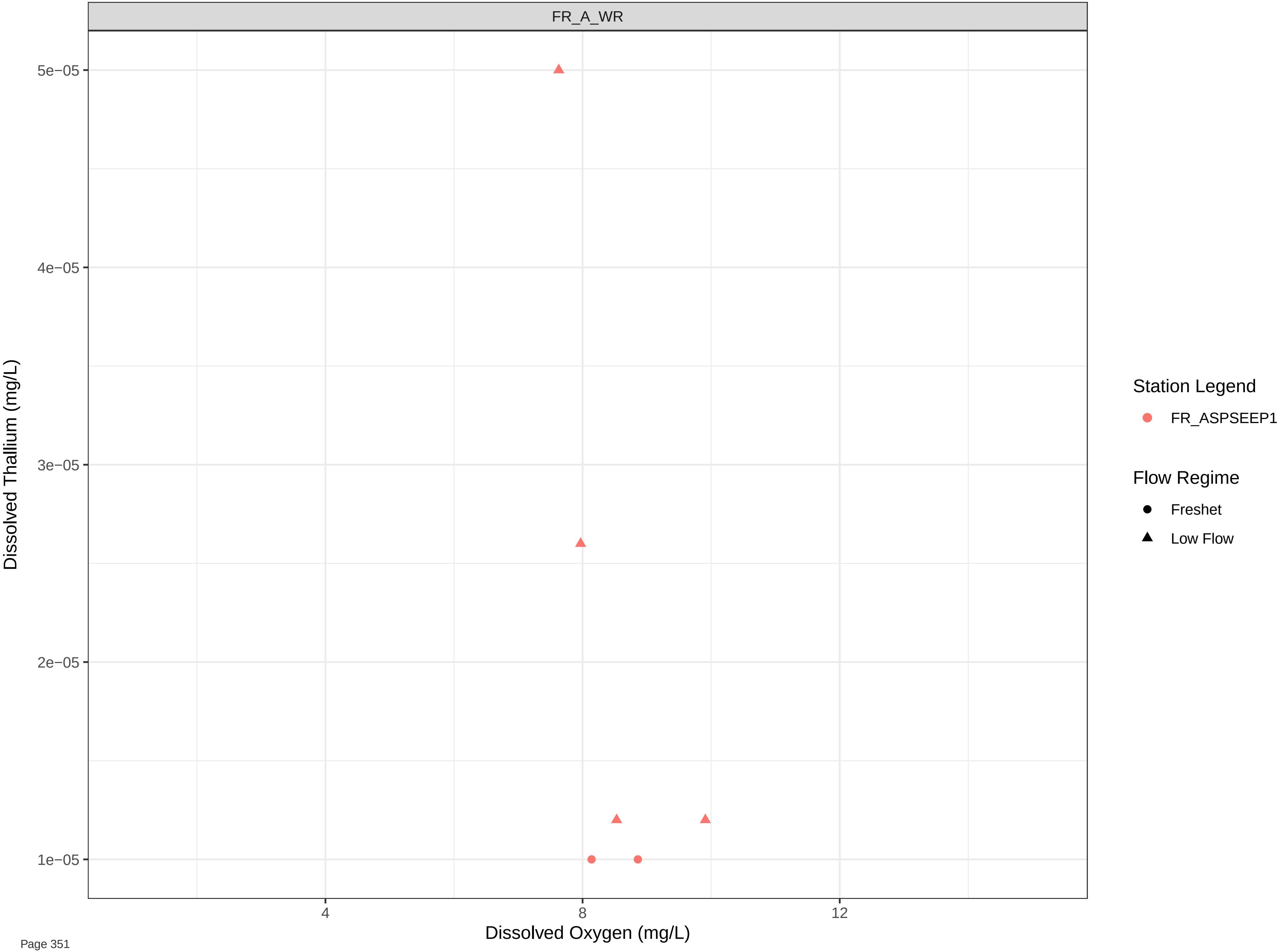

FR_Smith_WR
Dissolved Strontium (mg/L)
0.140
0.135
0.130
0.125
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

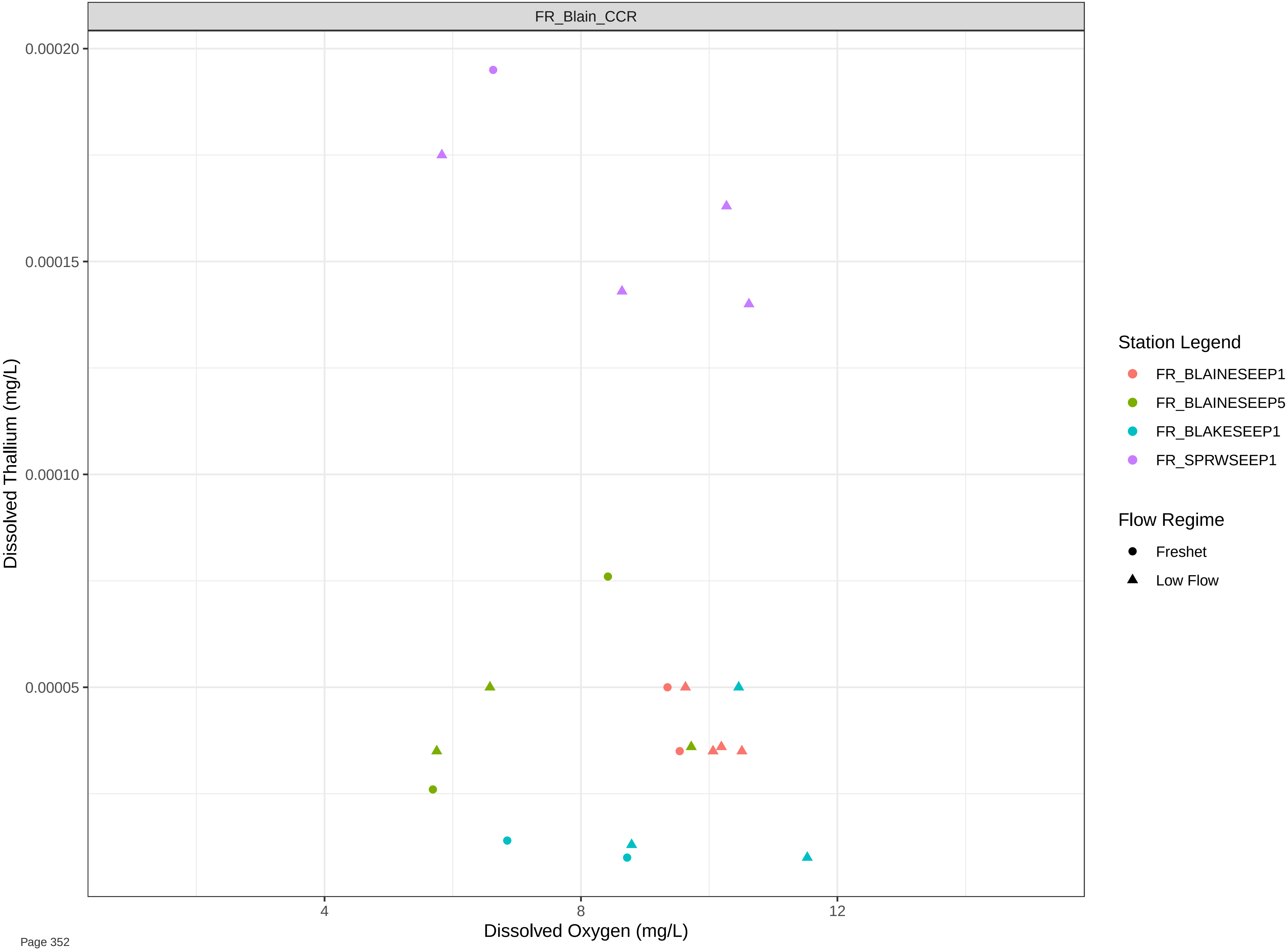

FR_SouthTails_Tailings
Dissolved Strontium (mg/L)
0.20
0.15
0.10
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

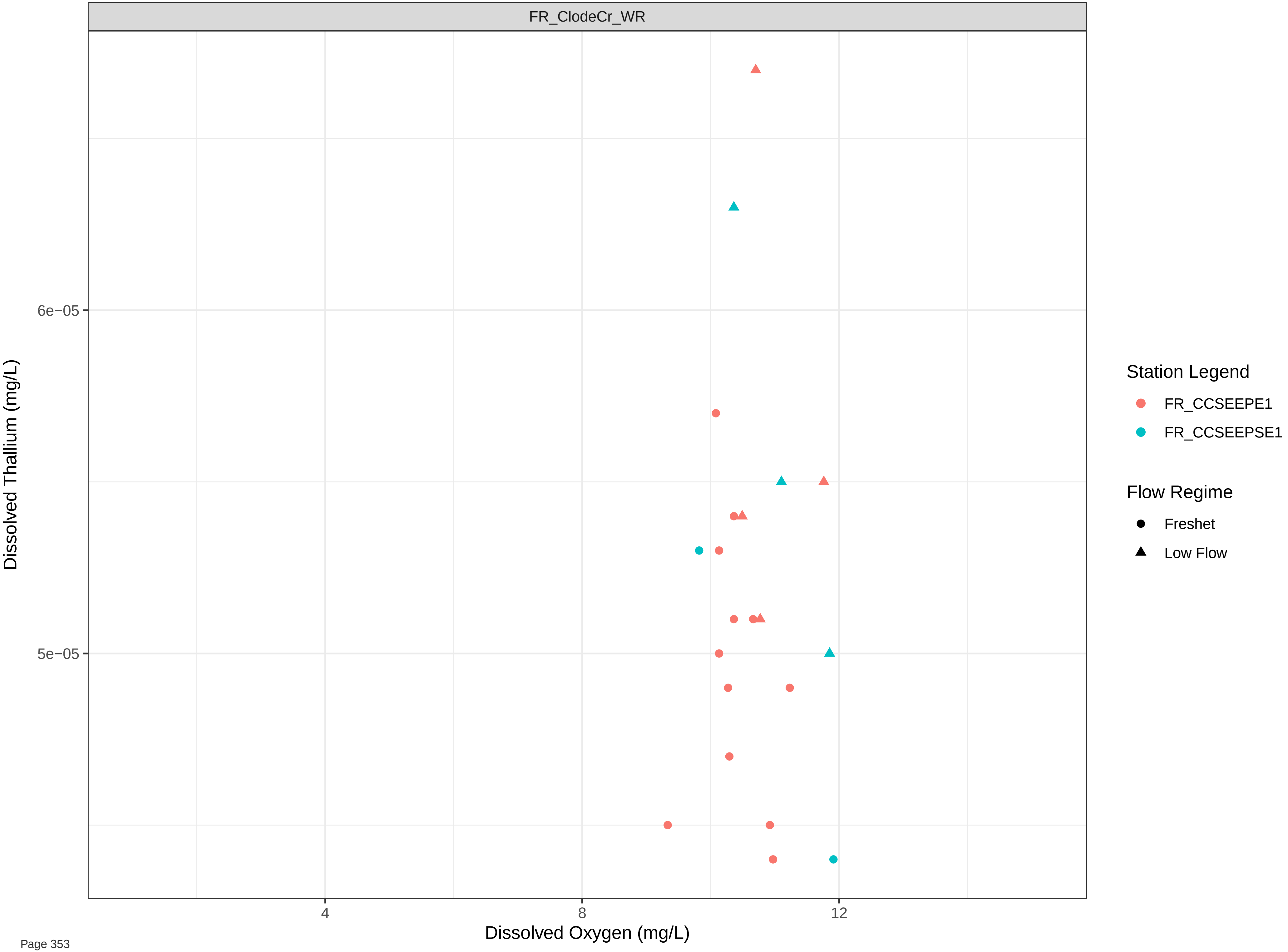

FR_SwiftWR_RockDrain_WR
Dissolved Strontium (mg/L)
0.22
0.20
0.18
0.16
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

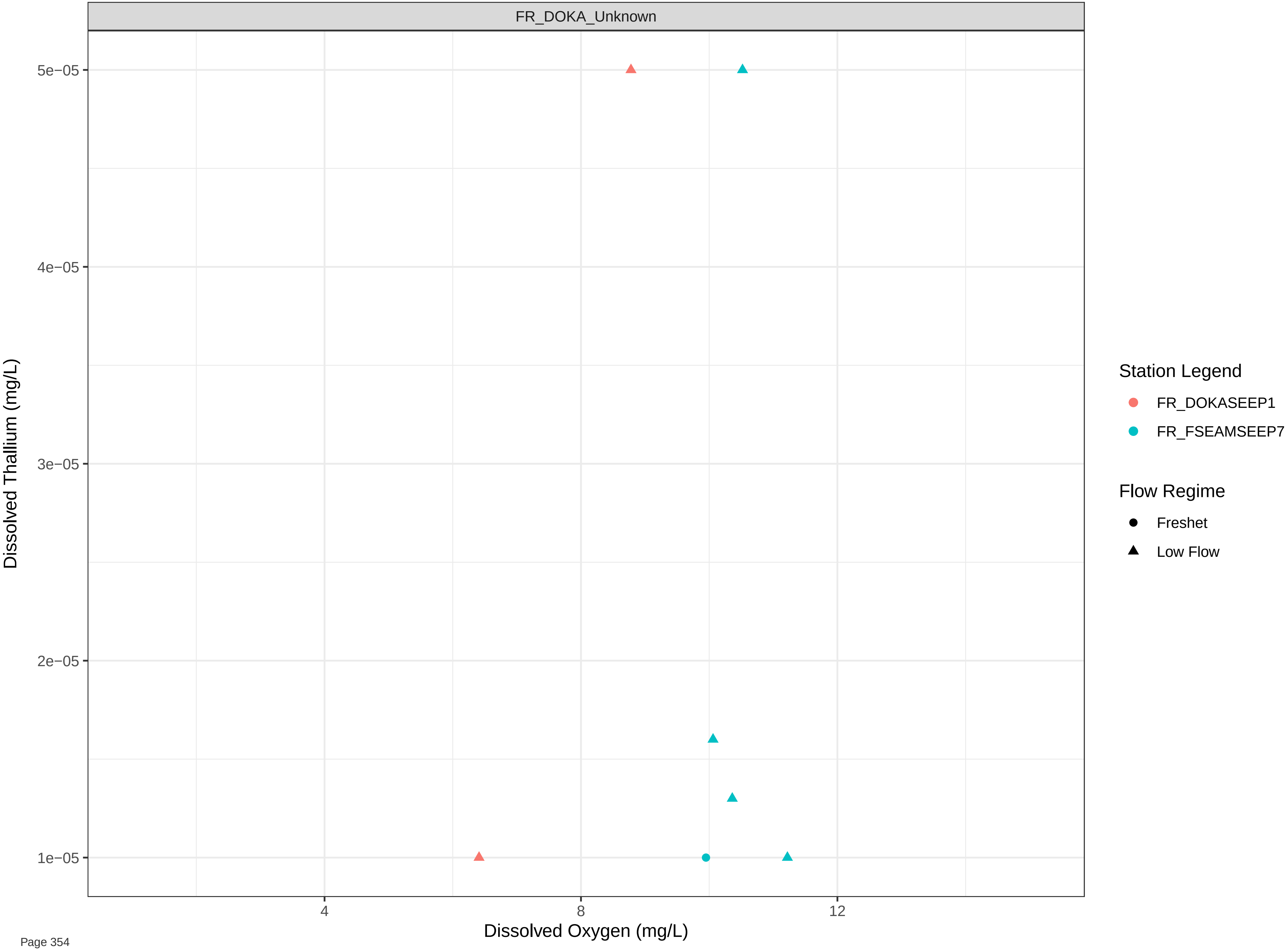

FR_TurnbullWREast_WR
Dissolved Strontium (mg/L)
0.20
0.15
0.10
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

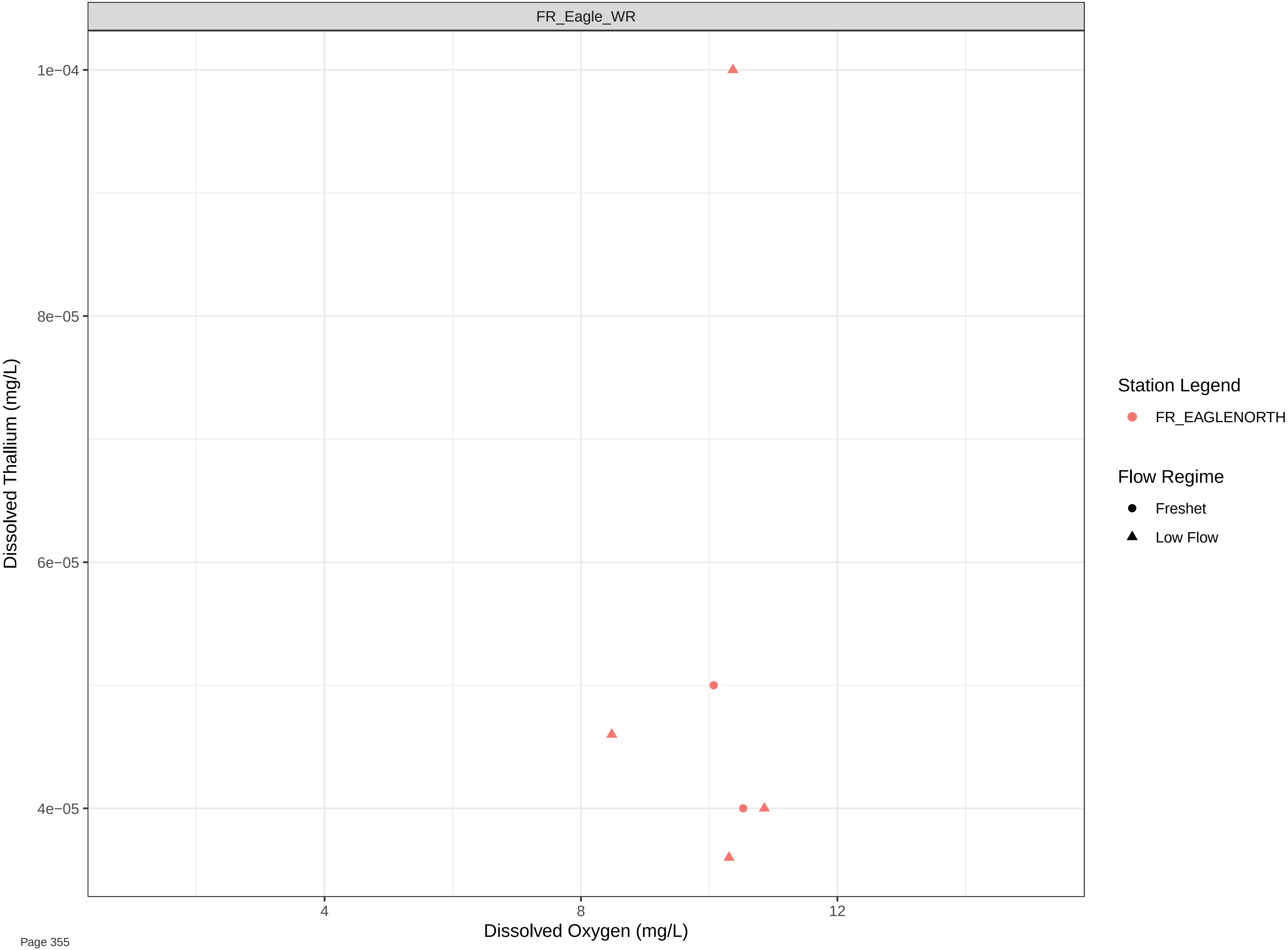

FR_TurnbullWRWest_WR
0.200
0.175
0.150
0.125
0.100
4
8
12
Dissolved Oxygen (mg/L)
Dissolved Strontium (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

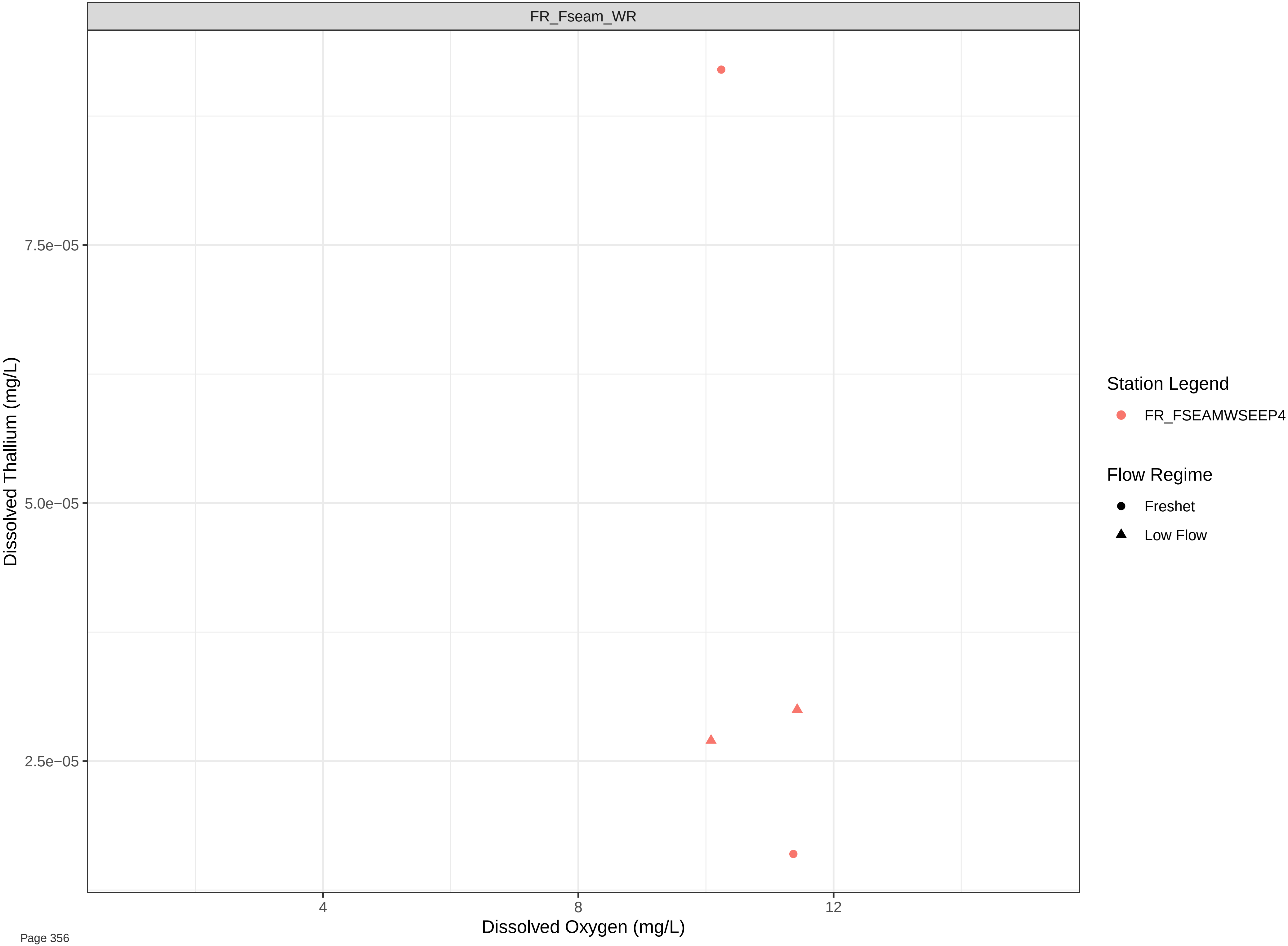

FR_A_WR
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

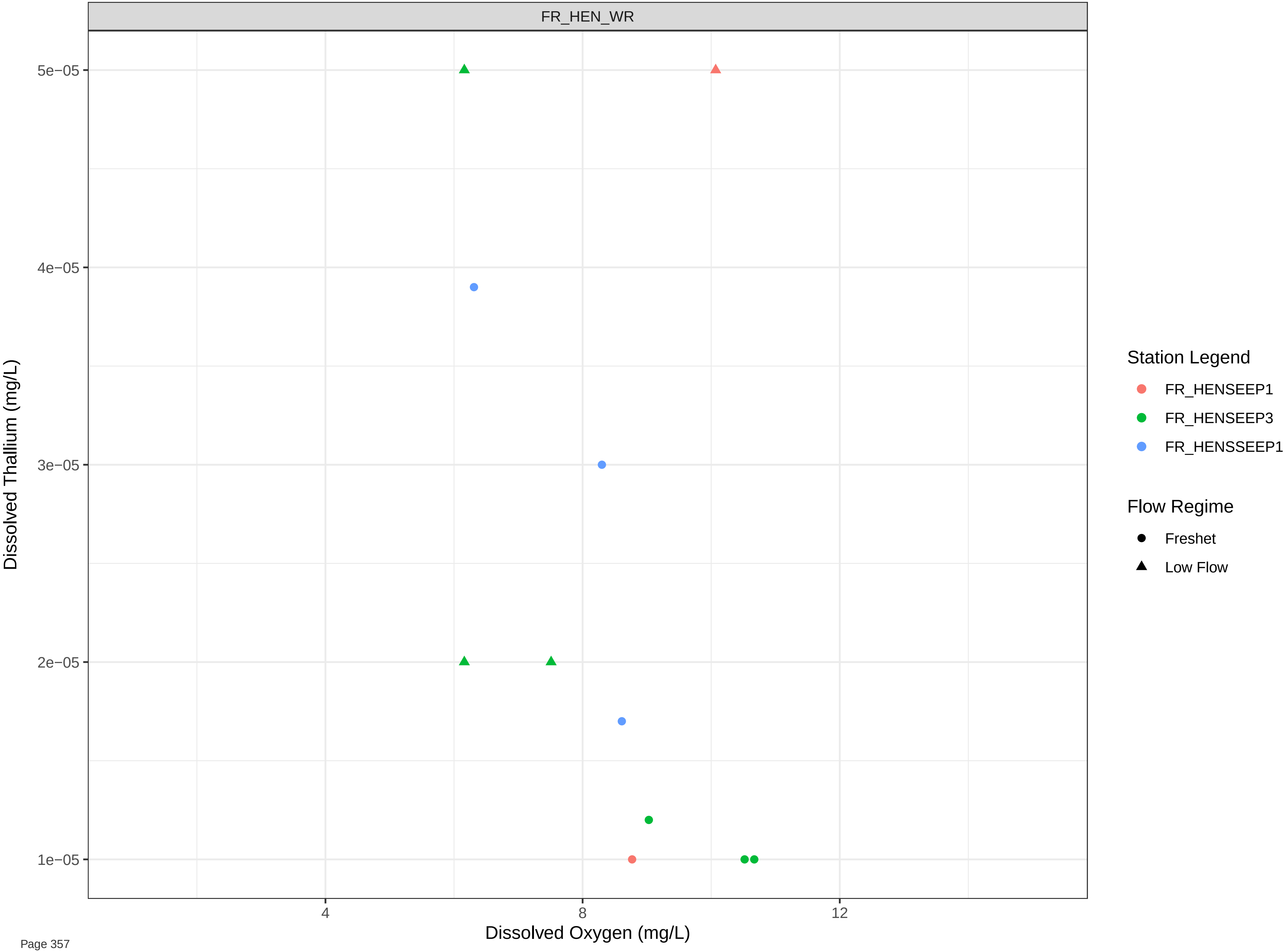

FR_Blain_CCR
0.00020
0.00015
0.00010
0.00005
Dissolved Thallium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

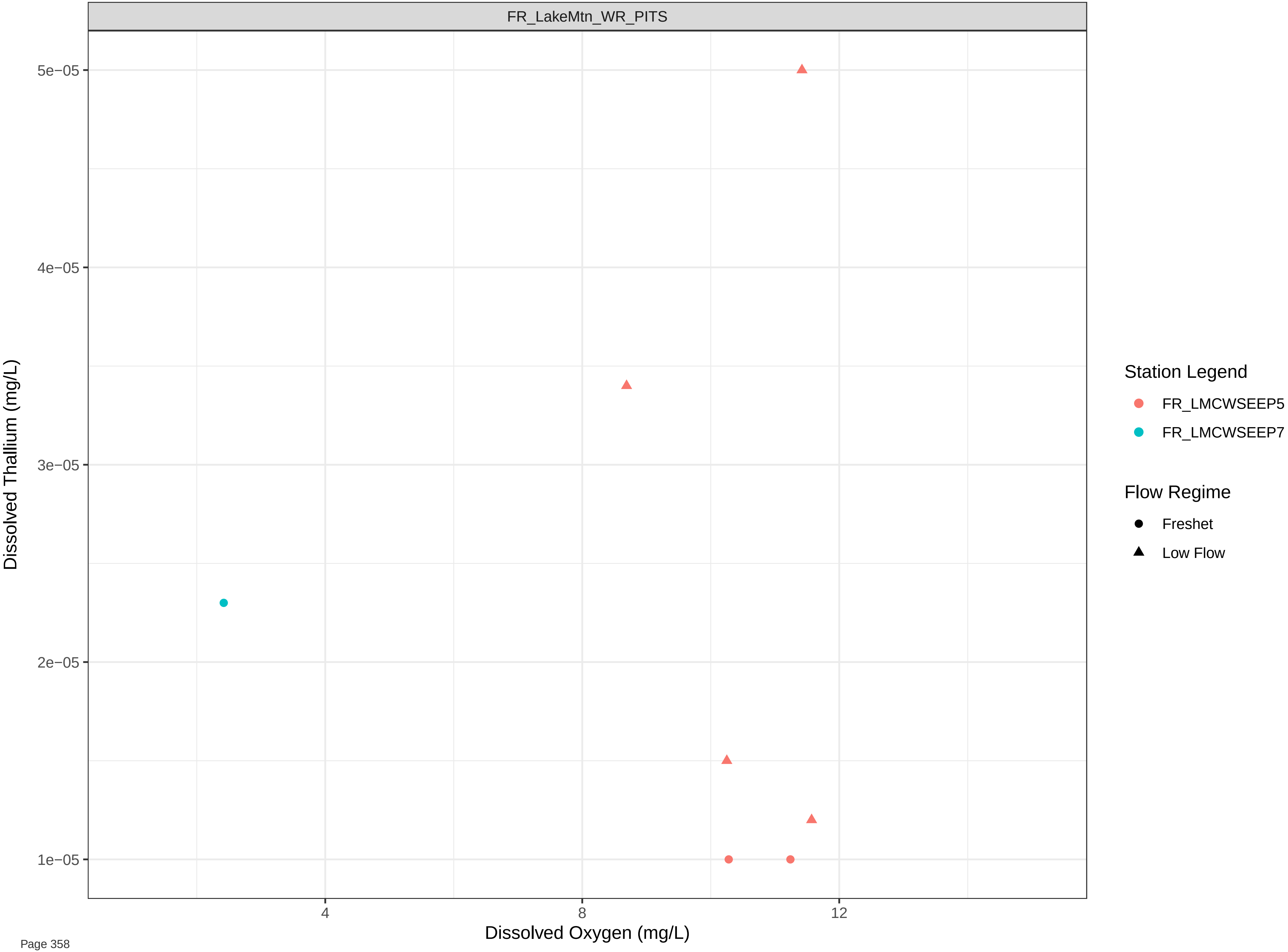

FR_ClodeCr_WR
Dissolved Thallium (mg/L)
6e−05
5e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

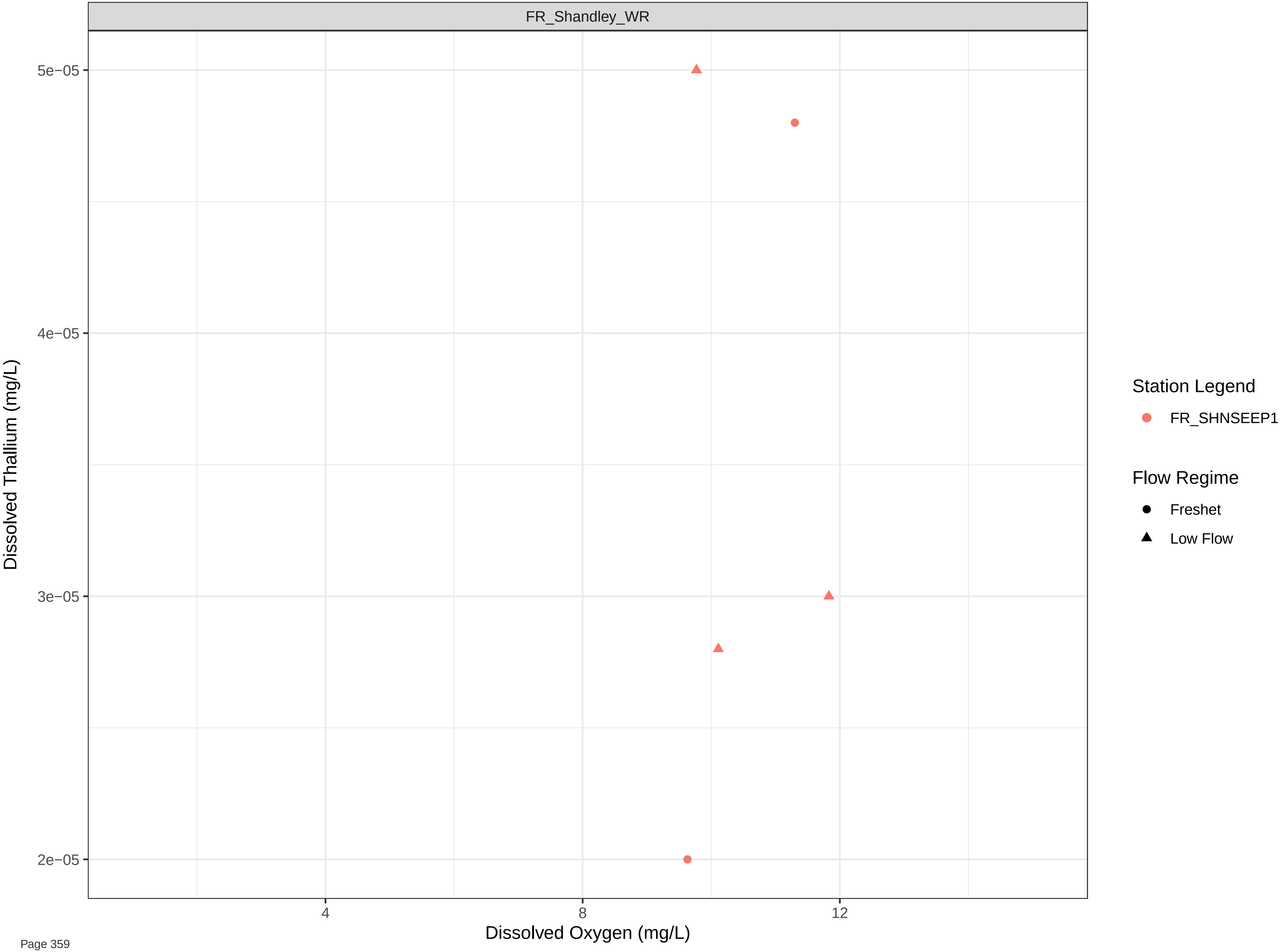

FR_DOKA_Unknown
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

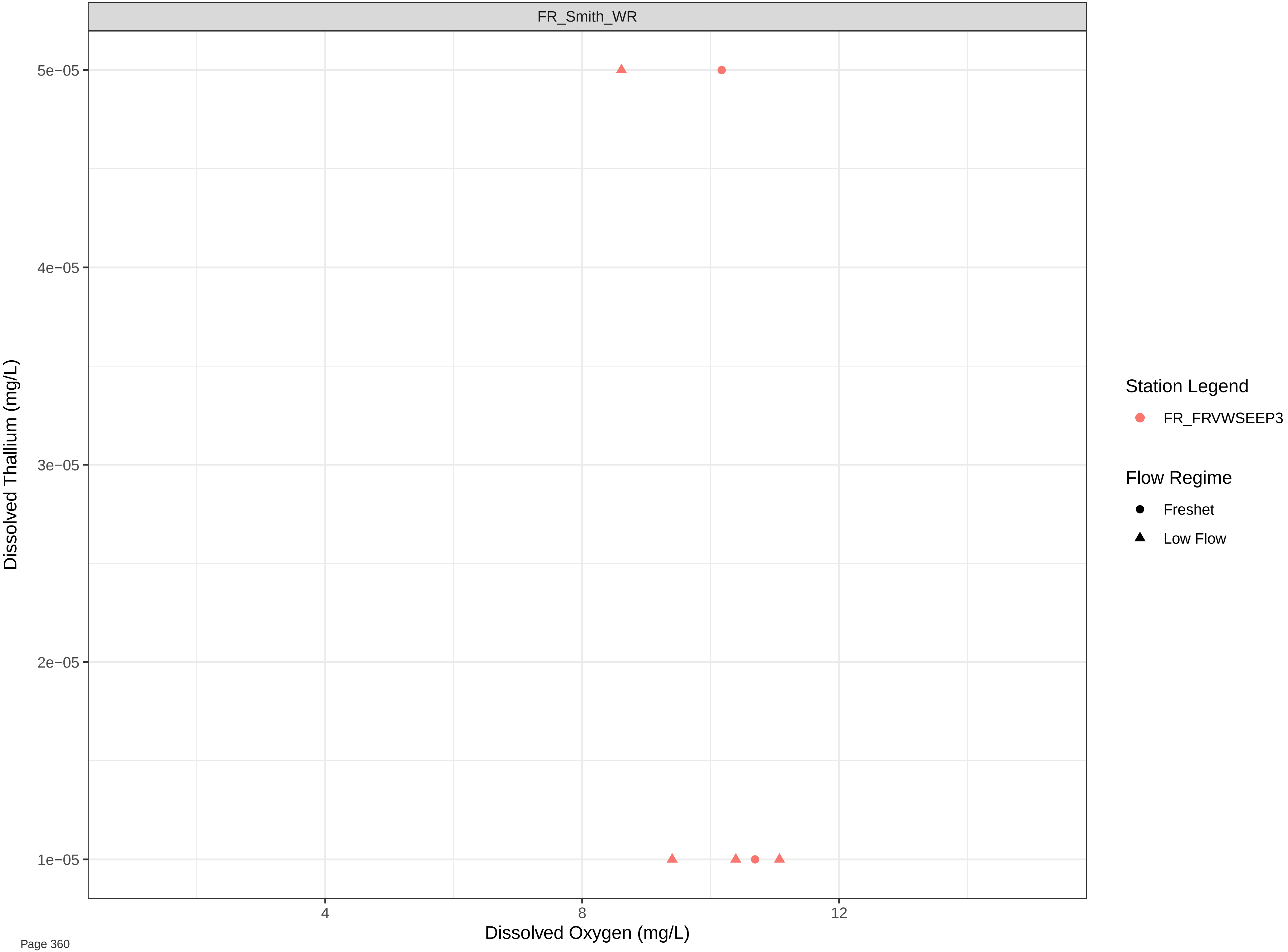

FR_Eagle_WR
Dissolved Thallium (mg/L)
1e−04
8e−05
6e−05
4e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

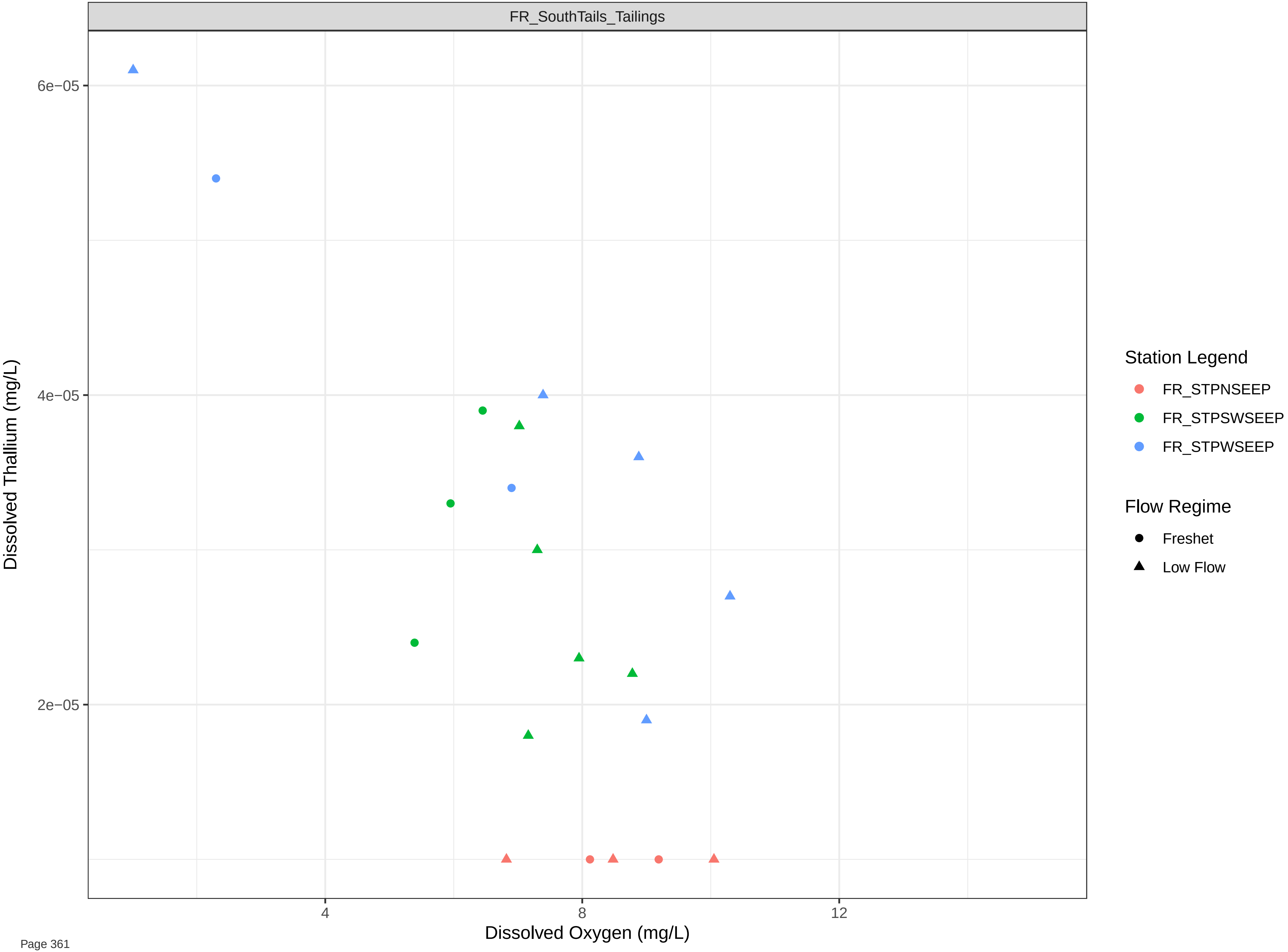

FR_Fseam_WR
Dissolved Thallium (mg/L)
7.5e−05
5.0e−05
2.5e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

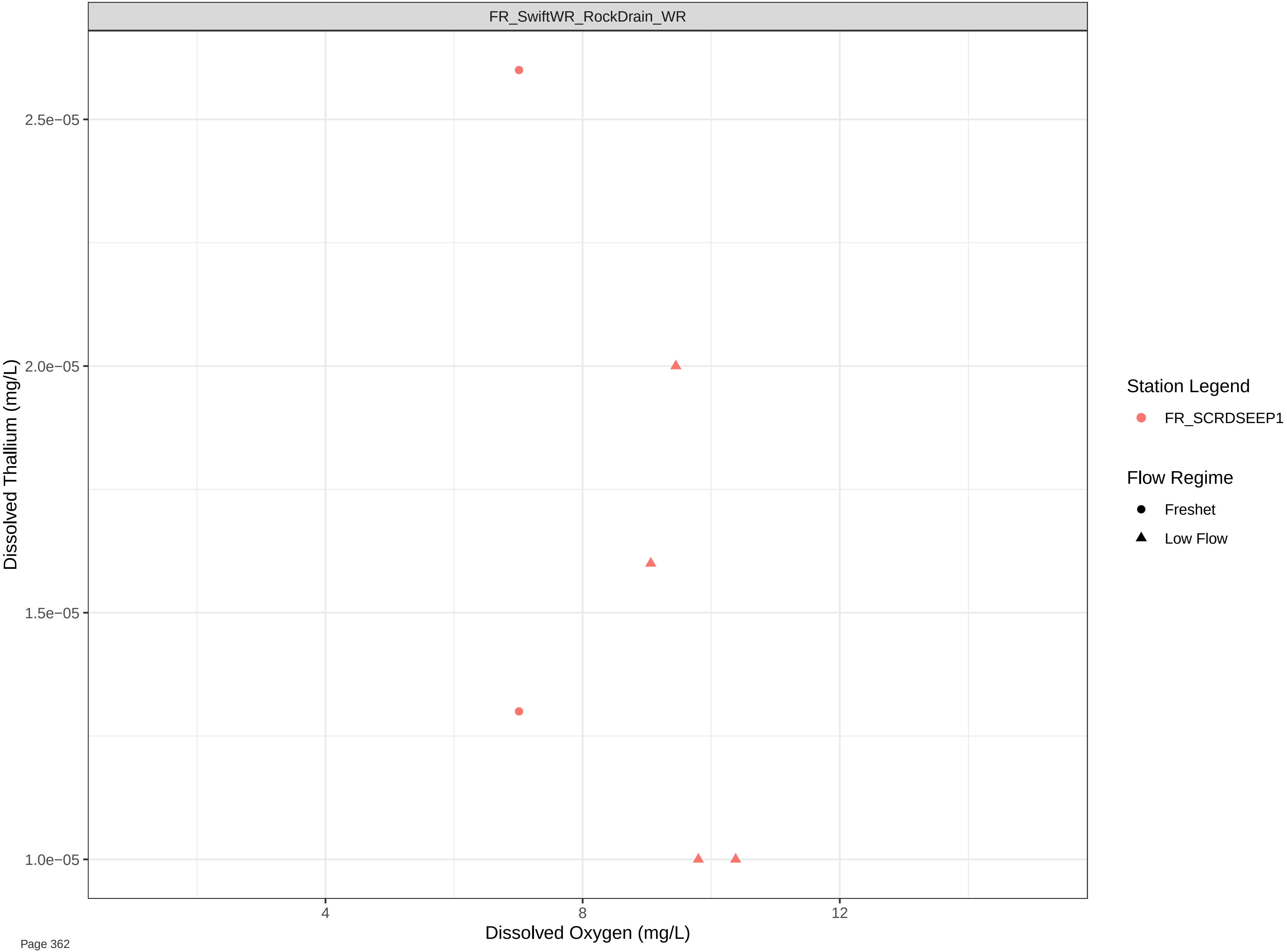

FR_HEN_WR
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

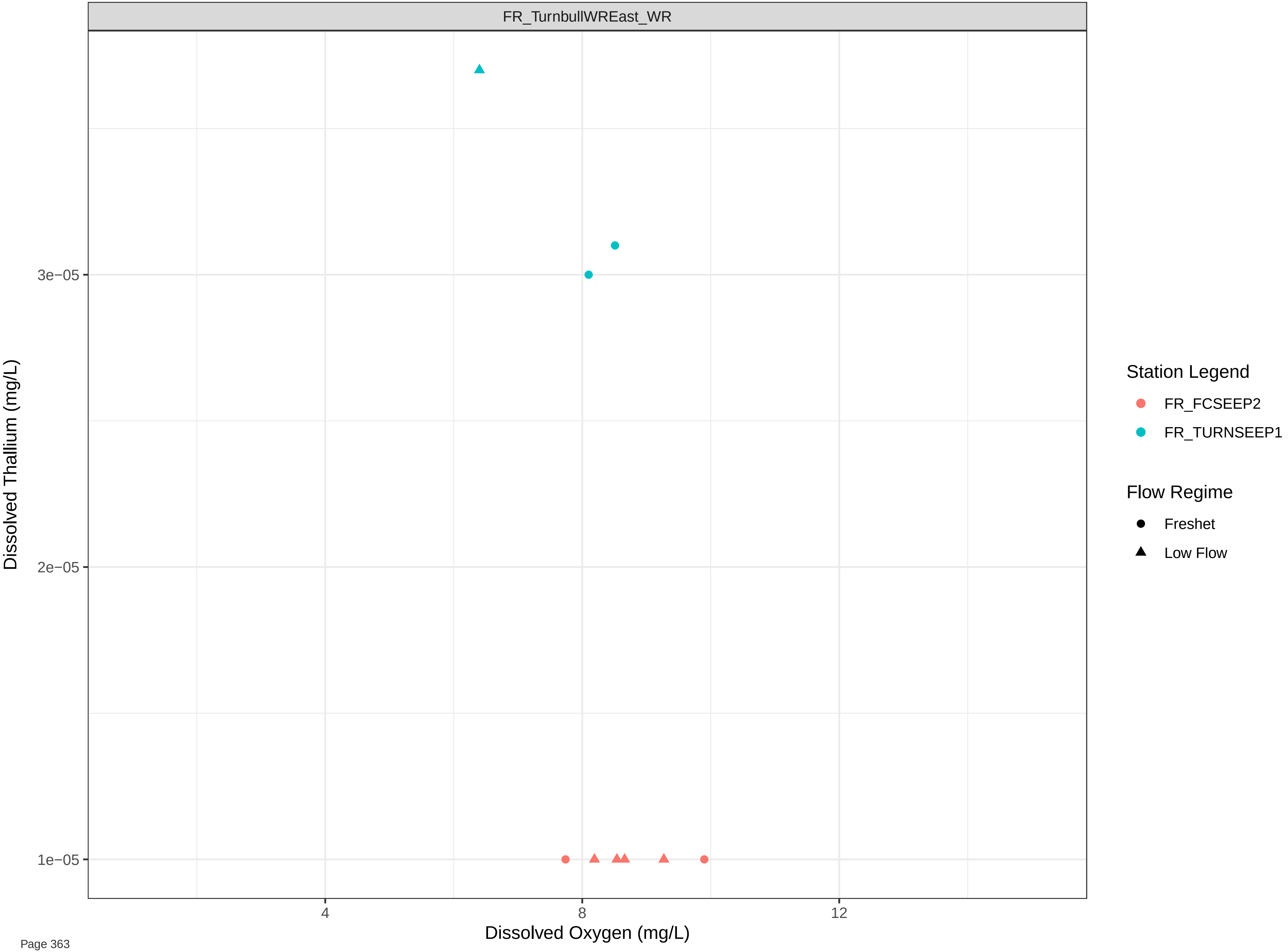

FR_LakeMtn_WR_PITS
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

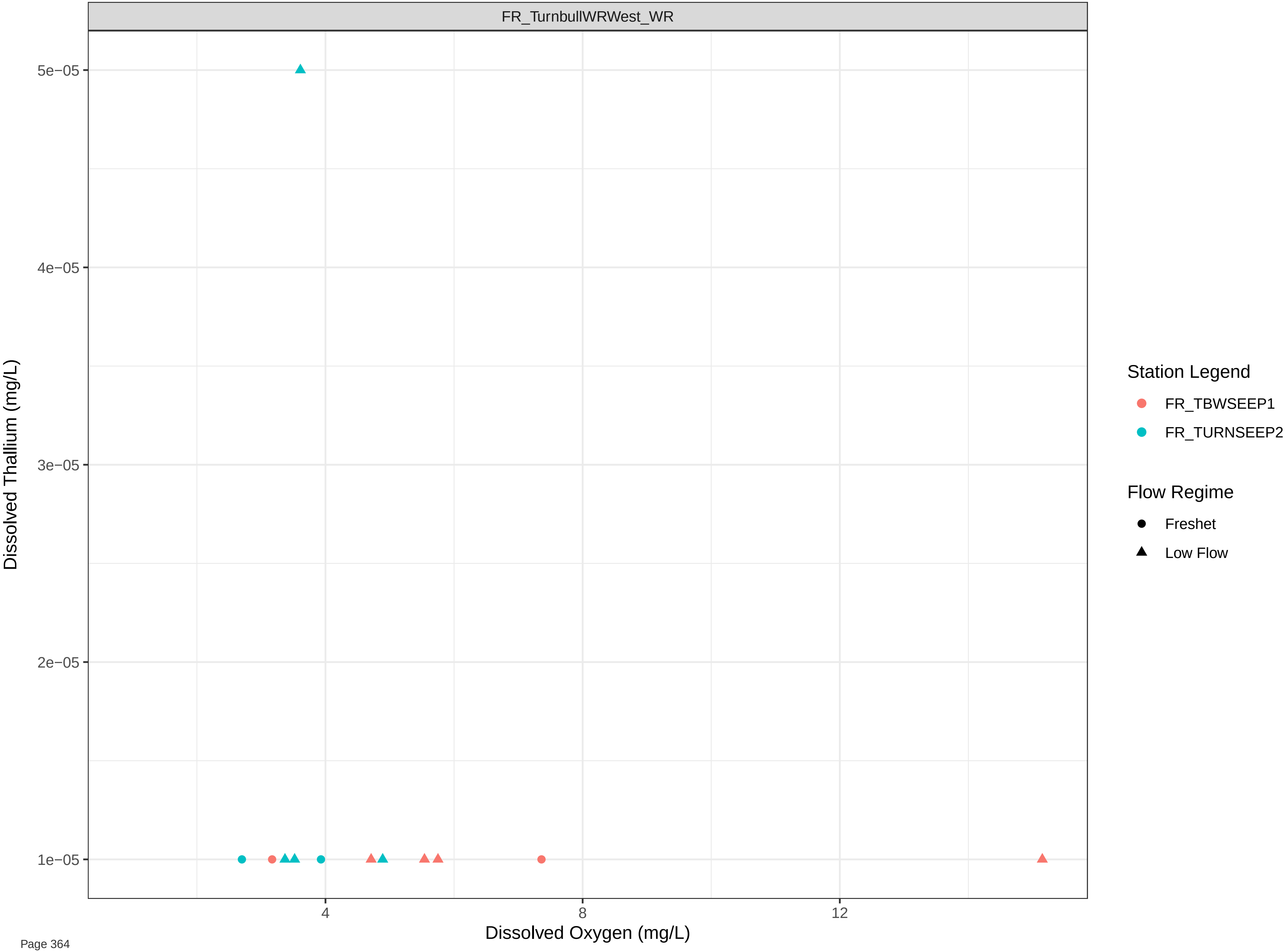

FR_Shandley_WR
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

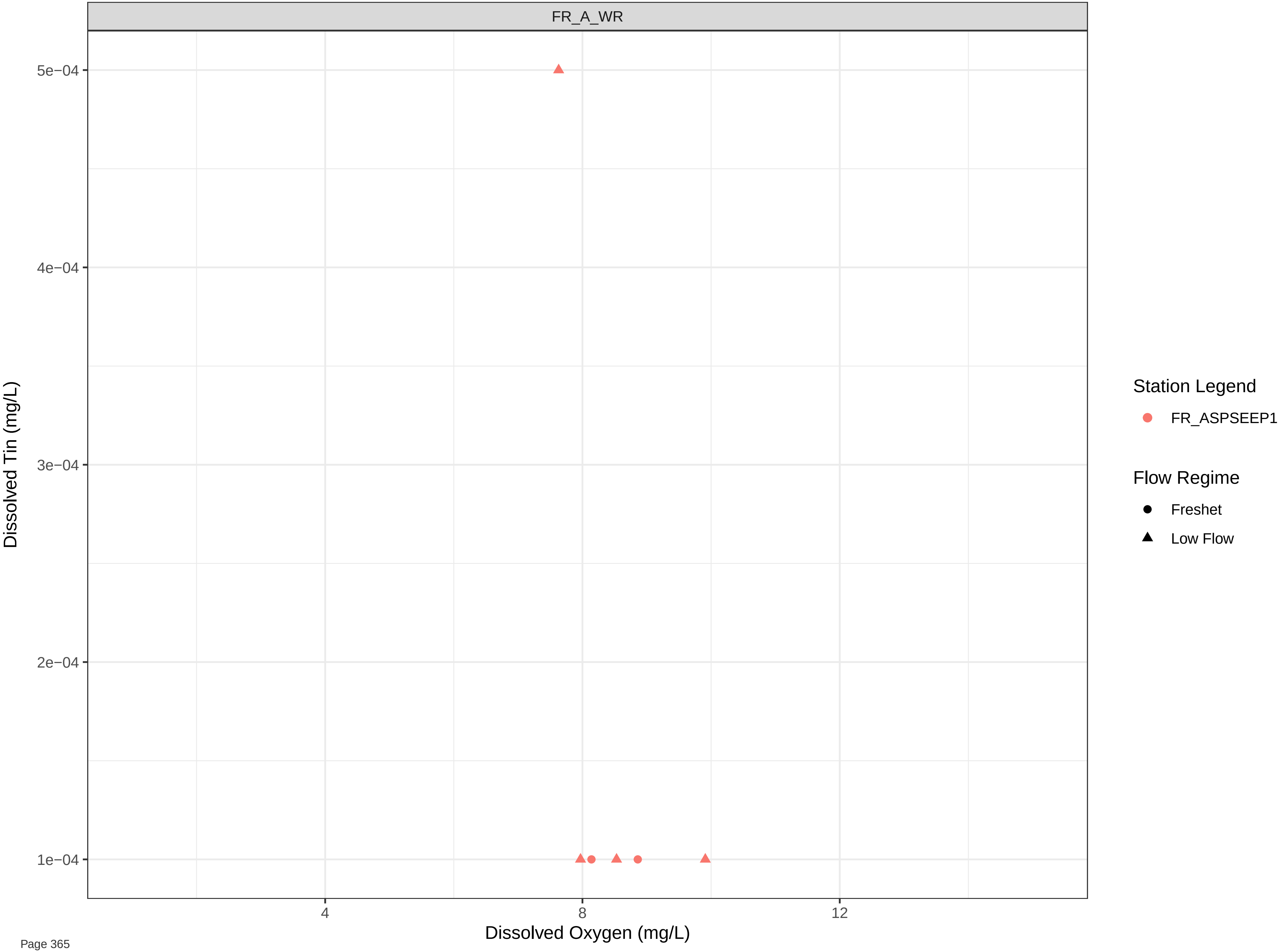

FR_Smith_WR
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

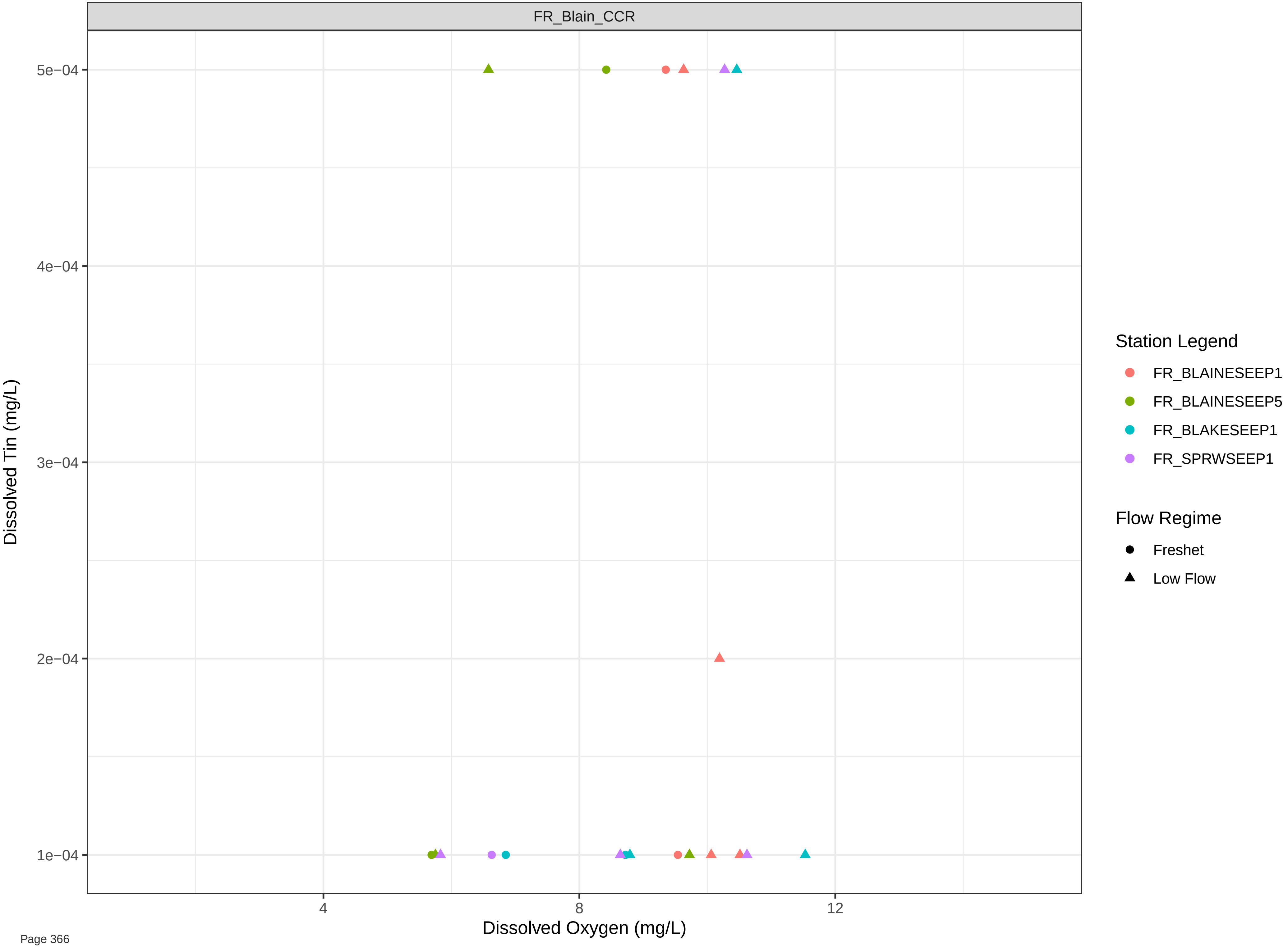

FR_SouthTails_Tailings
6e−05
4e−05
2e−05
Dissolved Thallium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

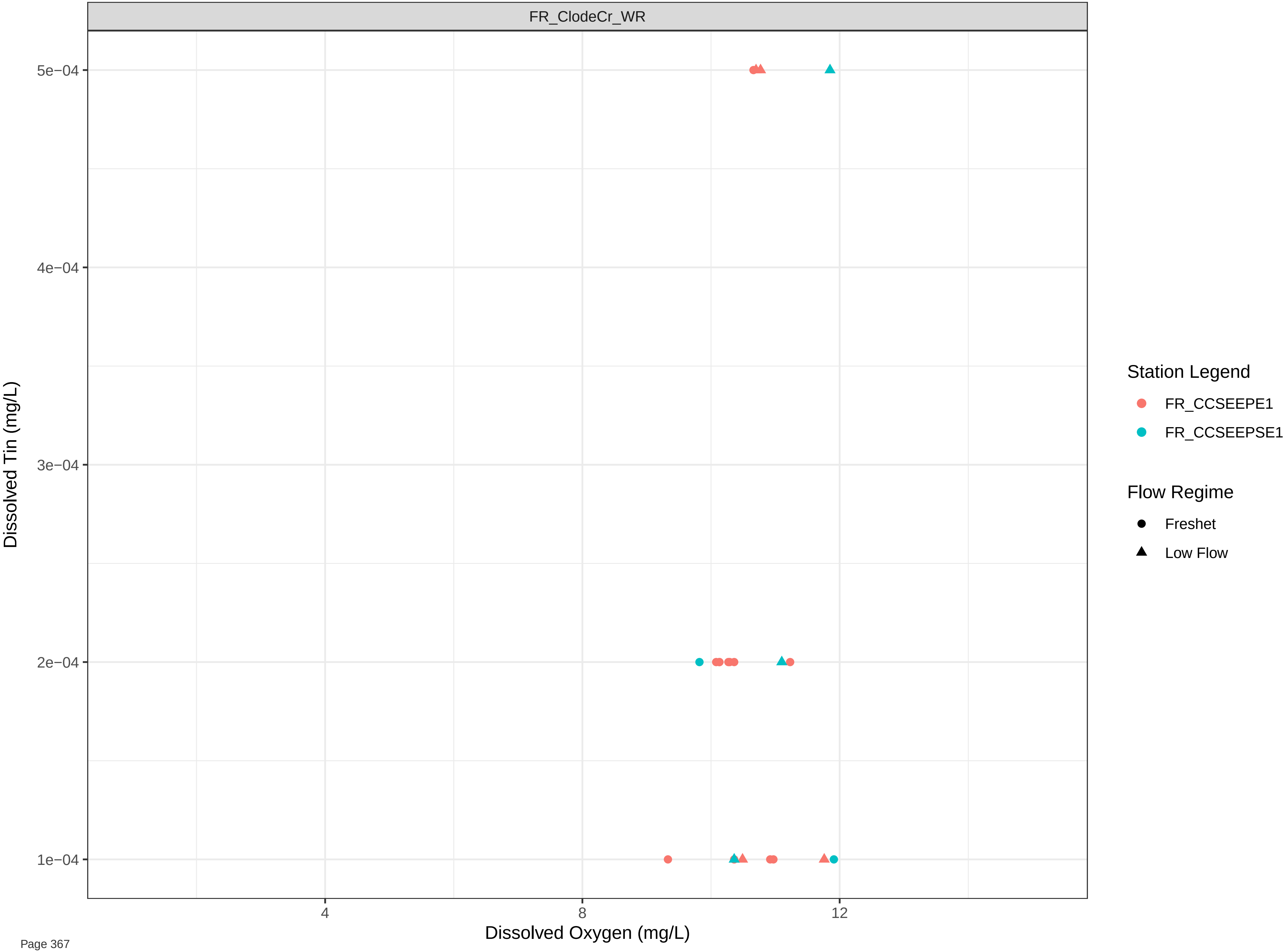

FR_SwiftWR_RockDrain_WR
Dissolved Thallium (mg/L)
2.5e−05
2.0e−05
1.5e−05
1.0e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

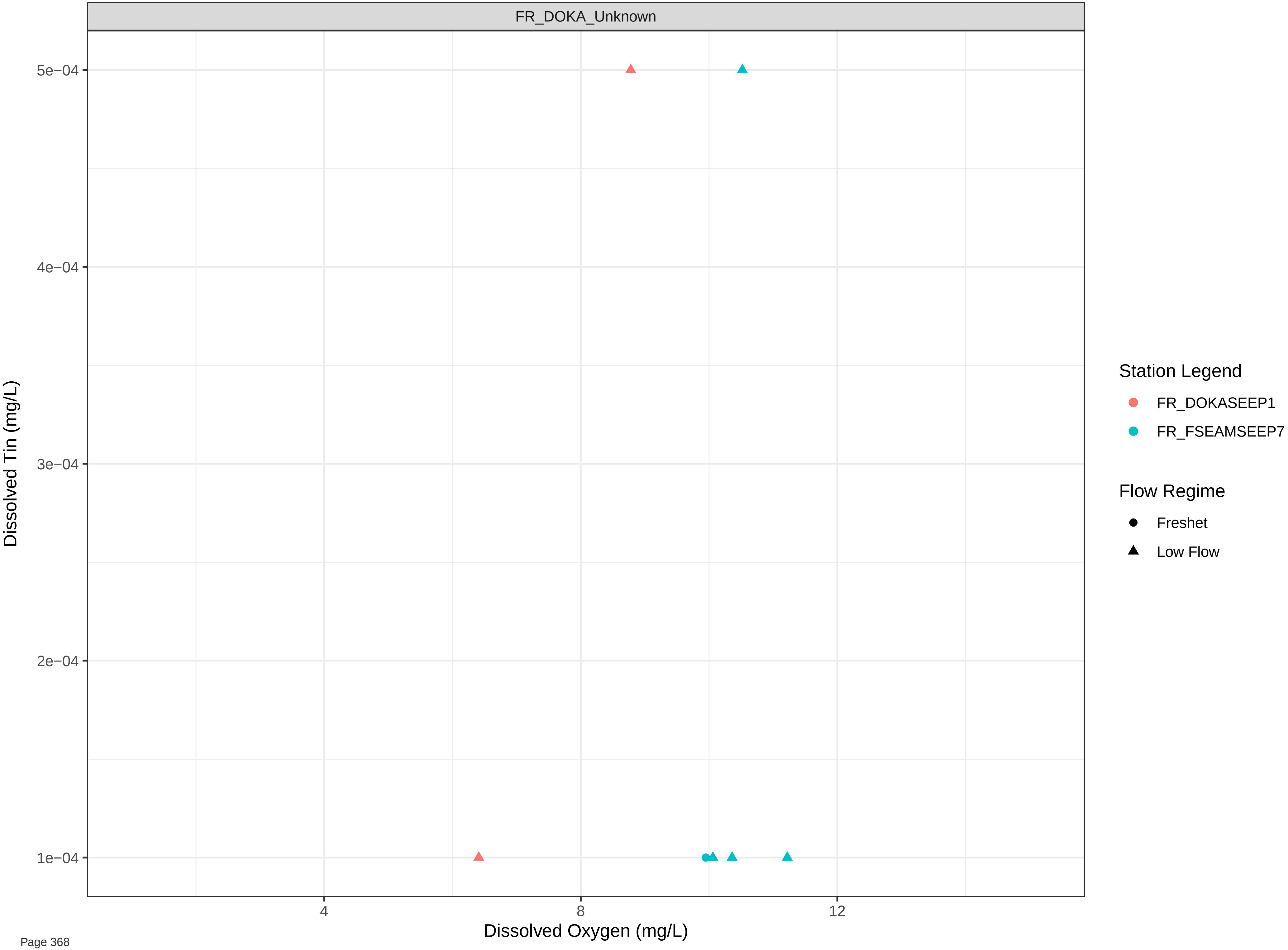

FR_TurnbullWREast_WR
Dissolved Thallium (mg/L)
3e−05
2e−05
1e−05
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

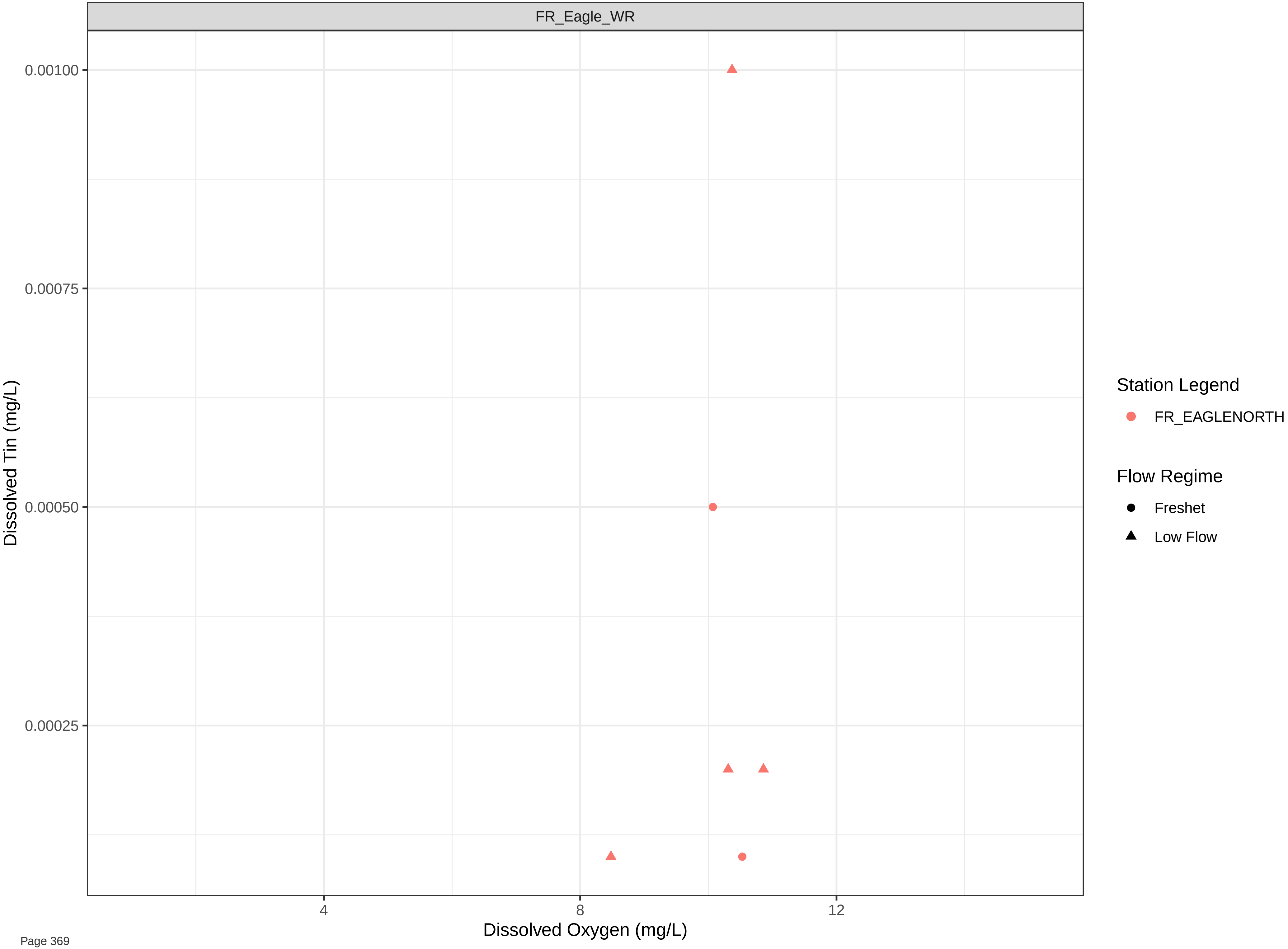

FR_TurnbullWRWest_WR
5e−05
4e−05
3e−05
2e−05
1e−05
Dissolved Thallium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

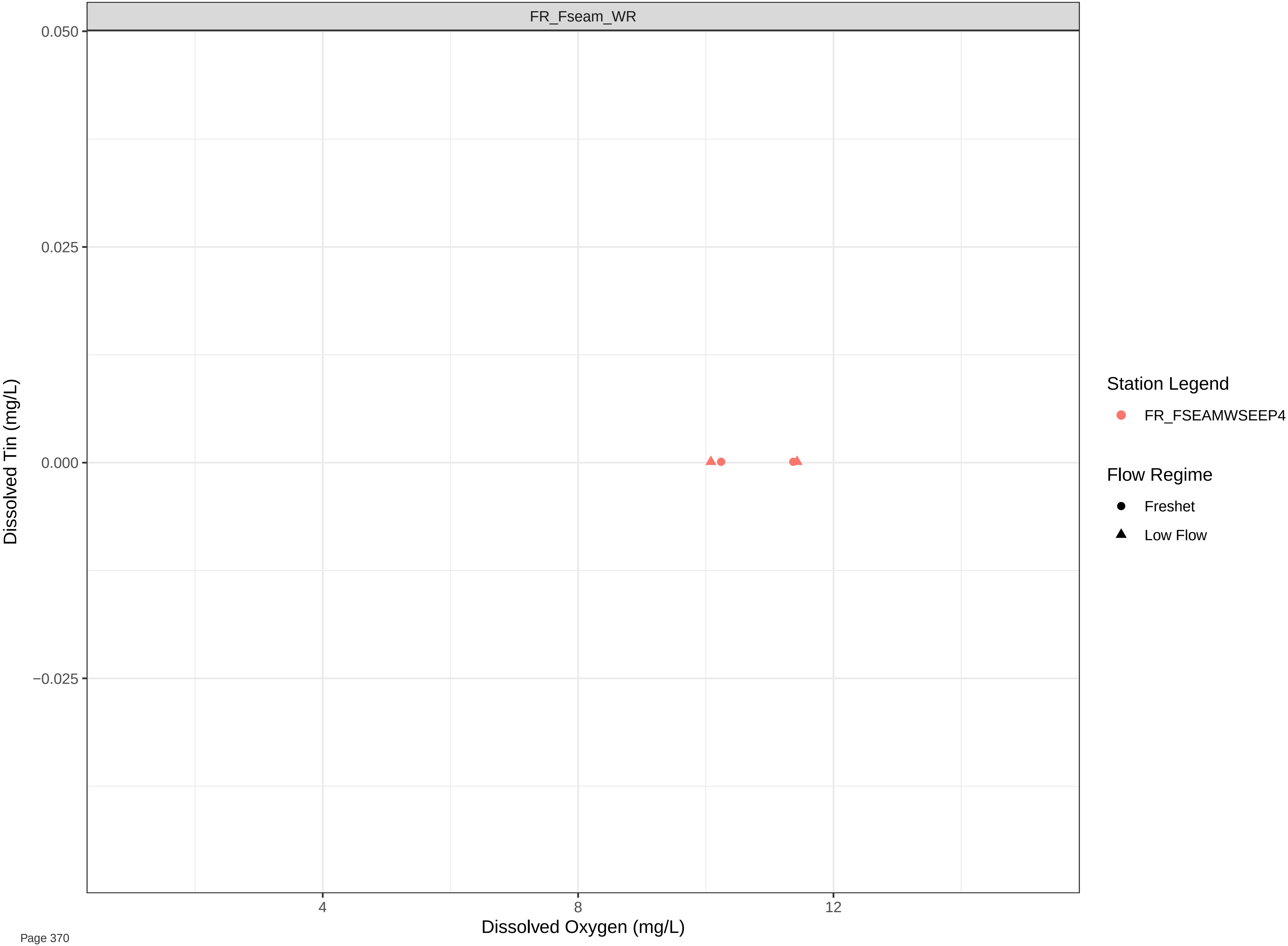

FR_A_WR
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_ASPSEEP1
Flow Regime
● Freshet
▲ Low Flow

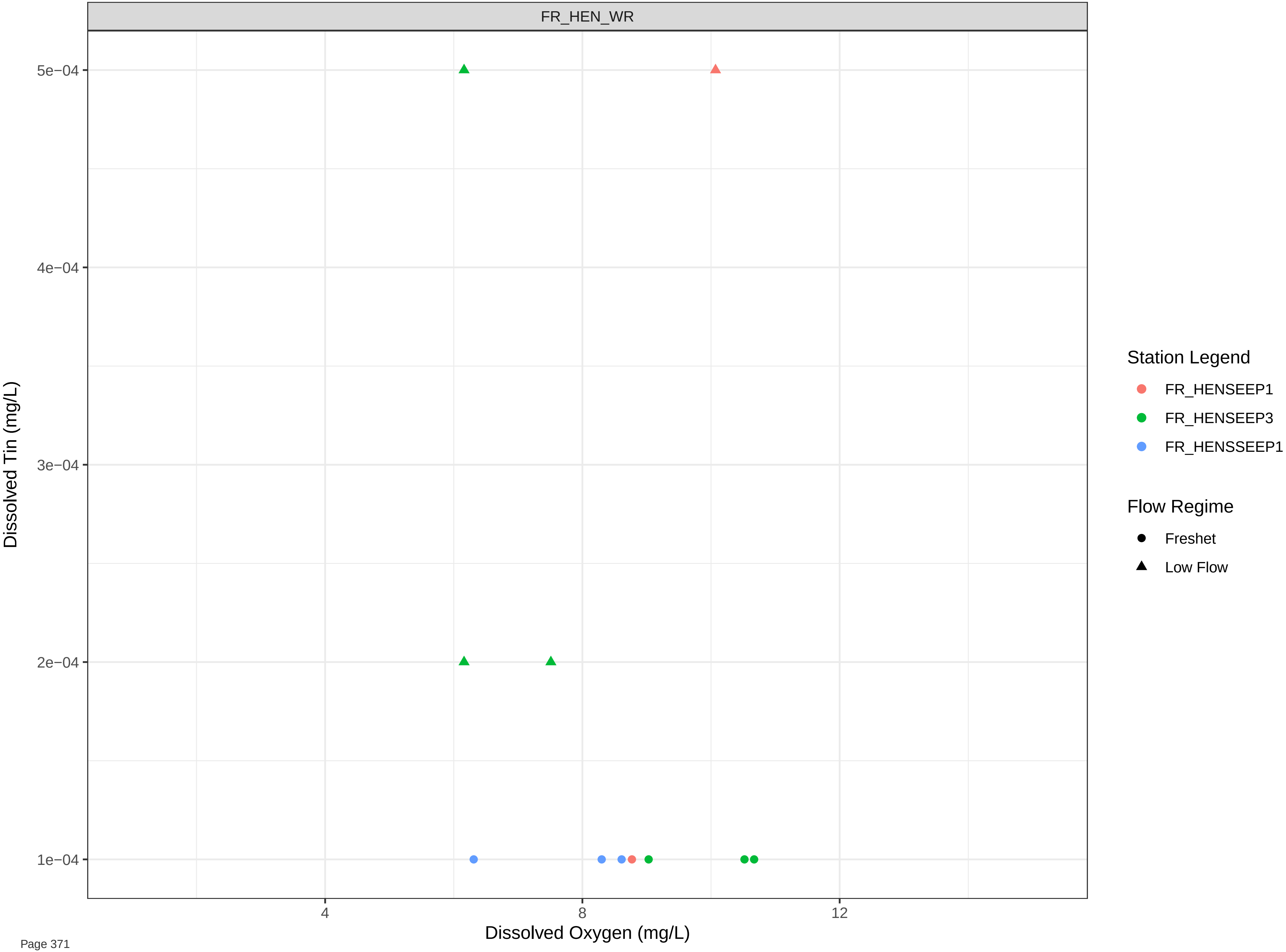

FR_Blain_CCR
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

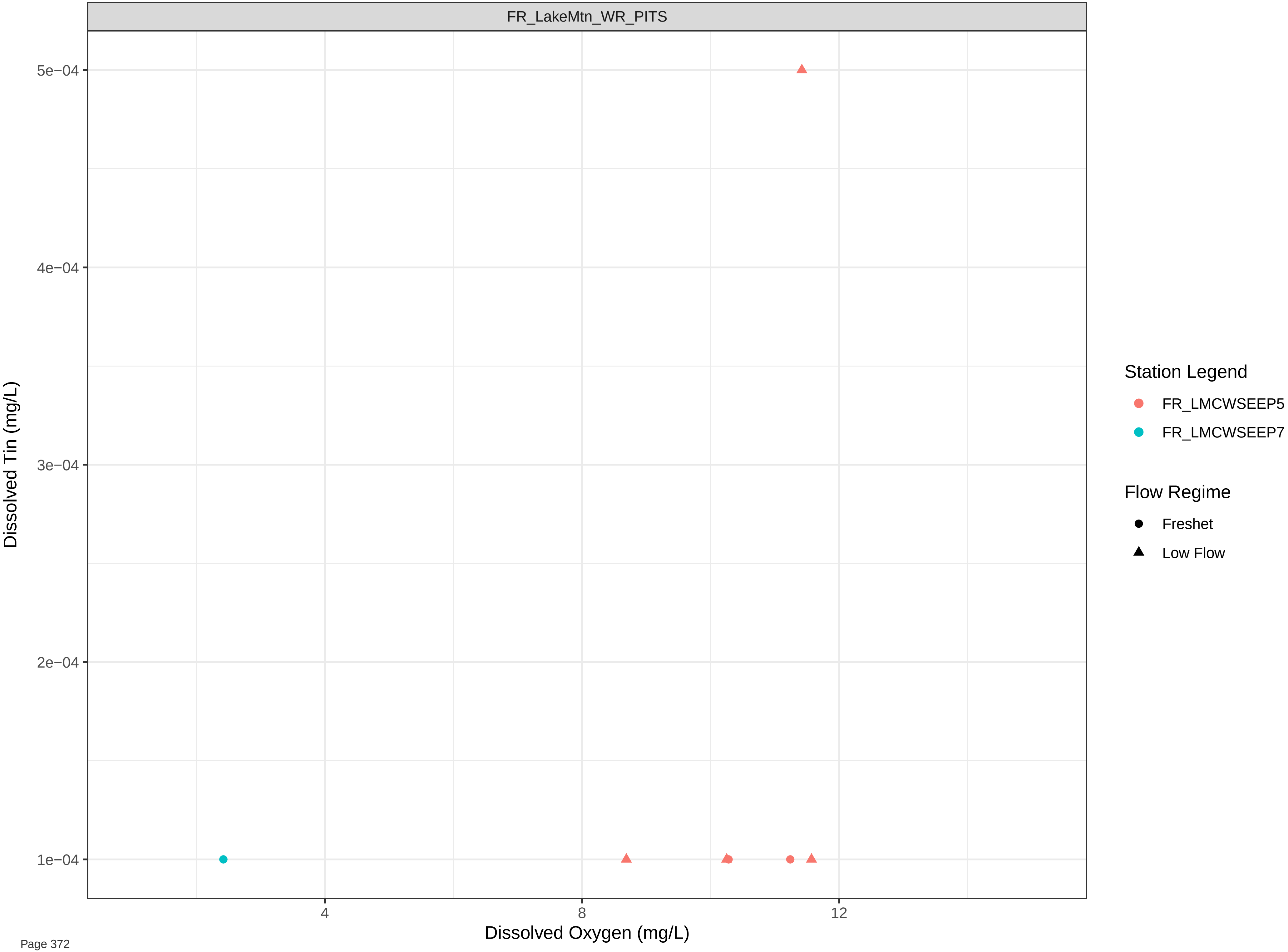

FR_ClodeCr_WR
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

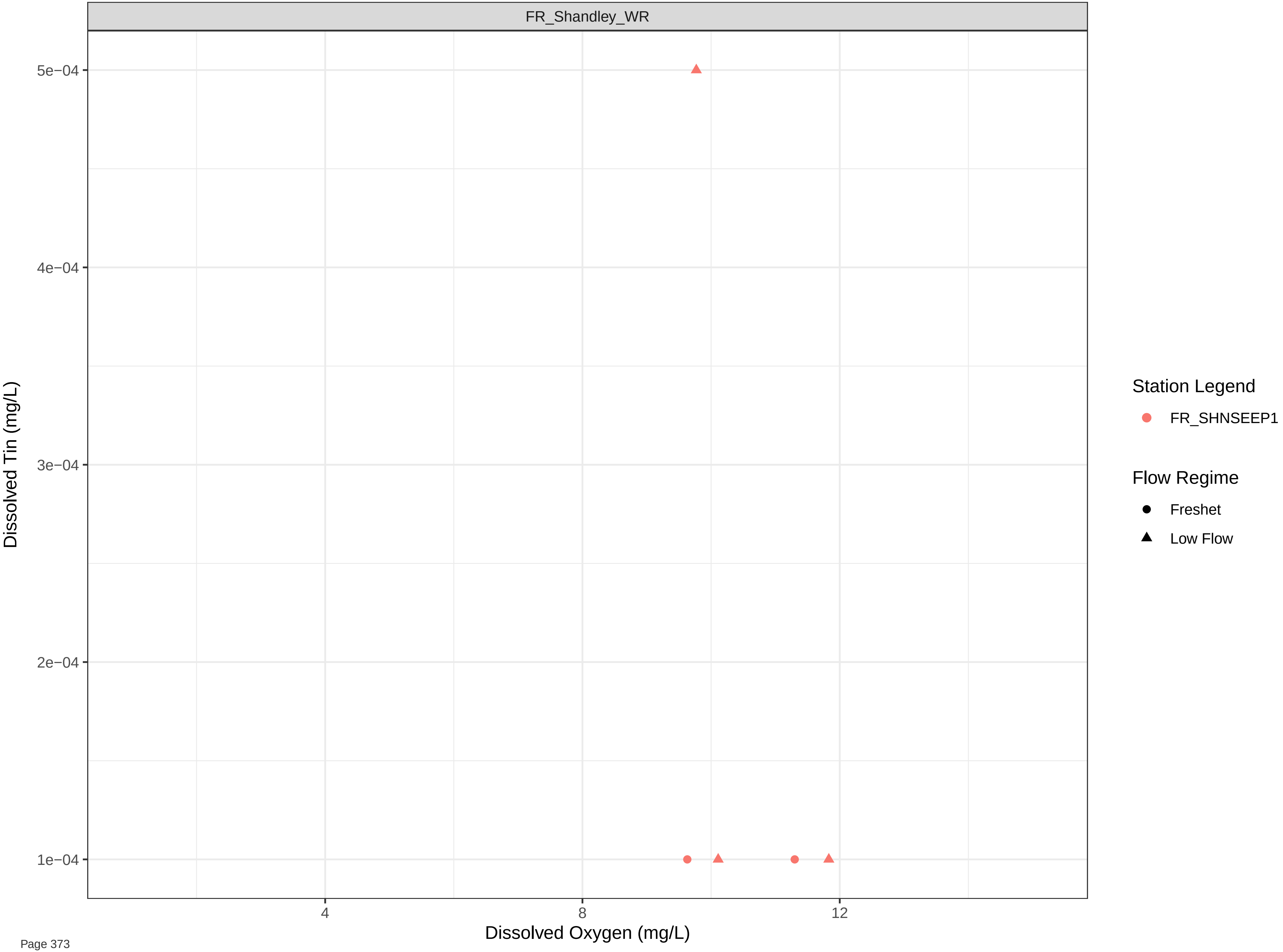

FR_DOKA_Unknown
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

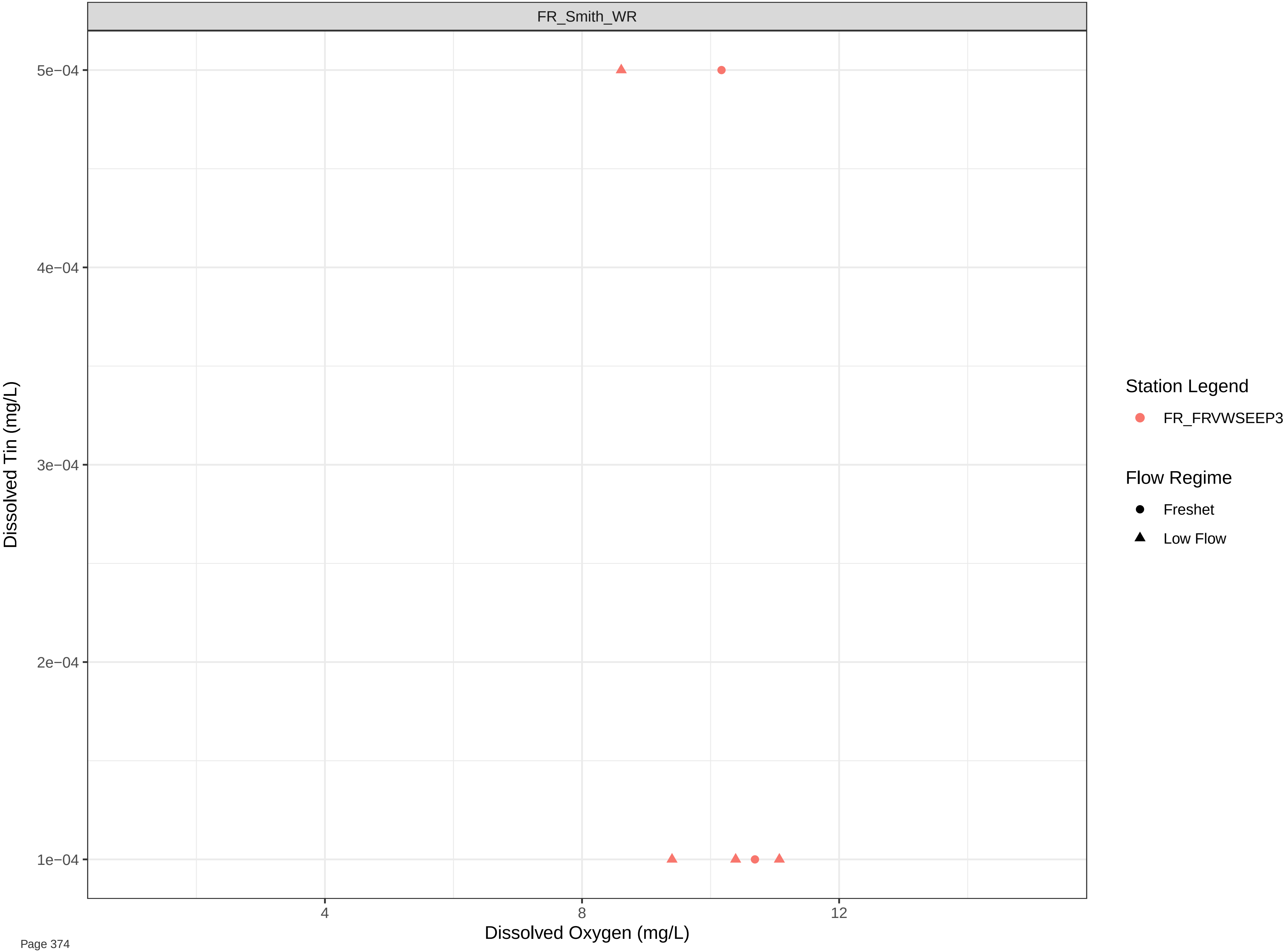

FR_Eagle_WR
Dissolved Tin (mg/L)
0.00100
0.00075
0.00050
0.00025
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

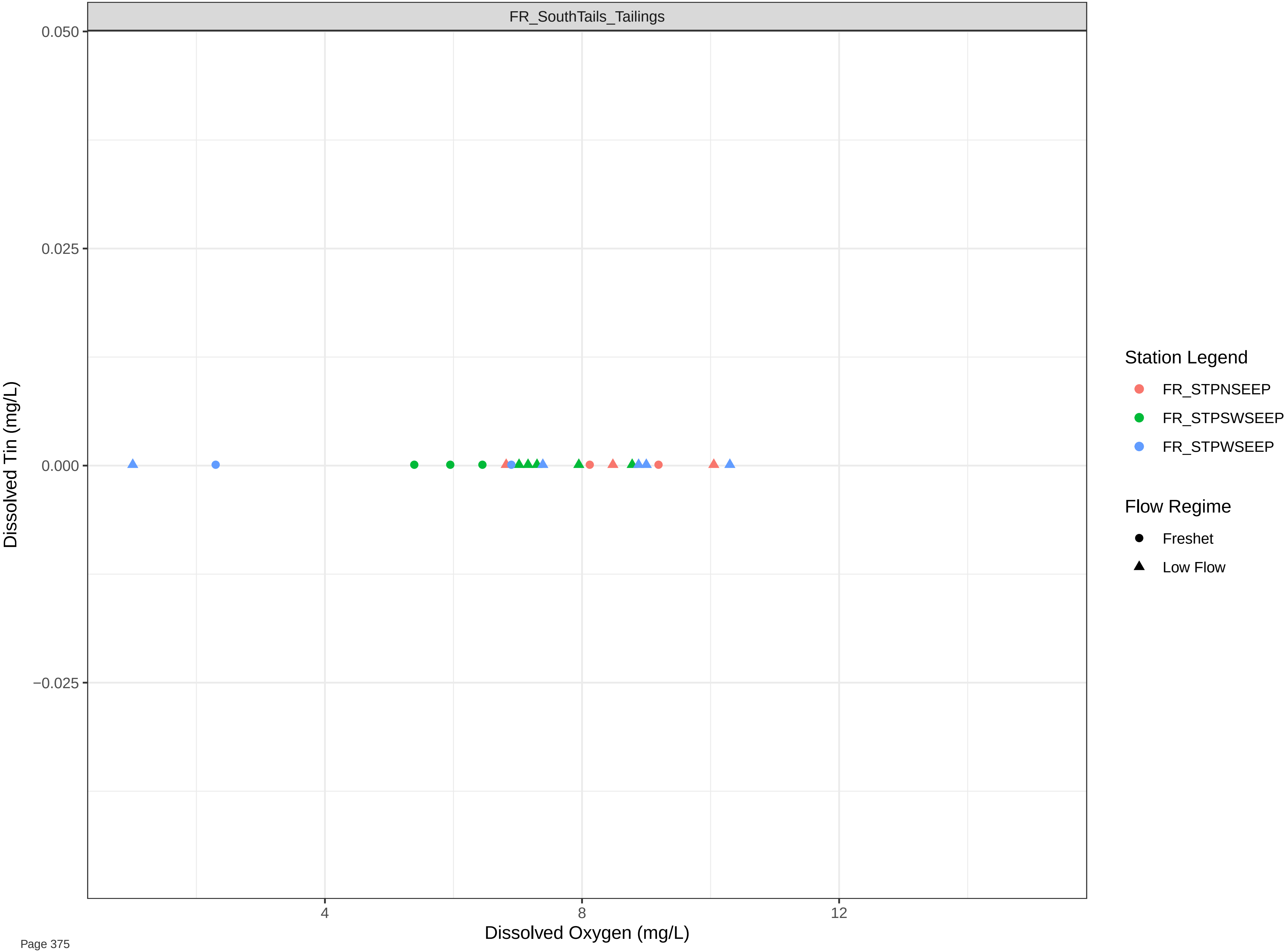

FR_Fseam_WR
Dissolved Tin (mg/L)
0.050
0.025
0.000
−0.025
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

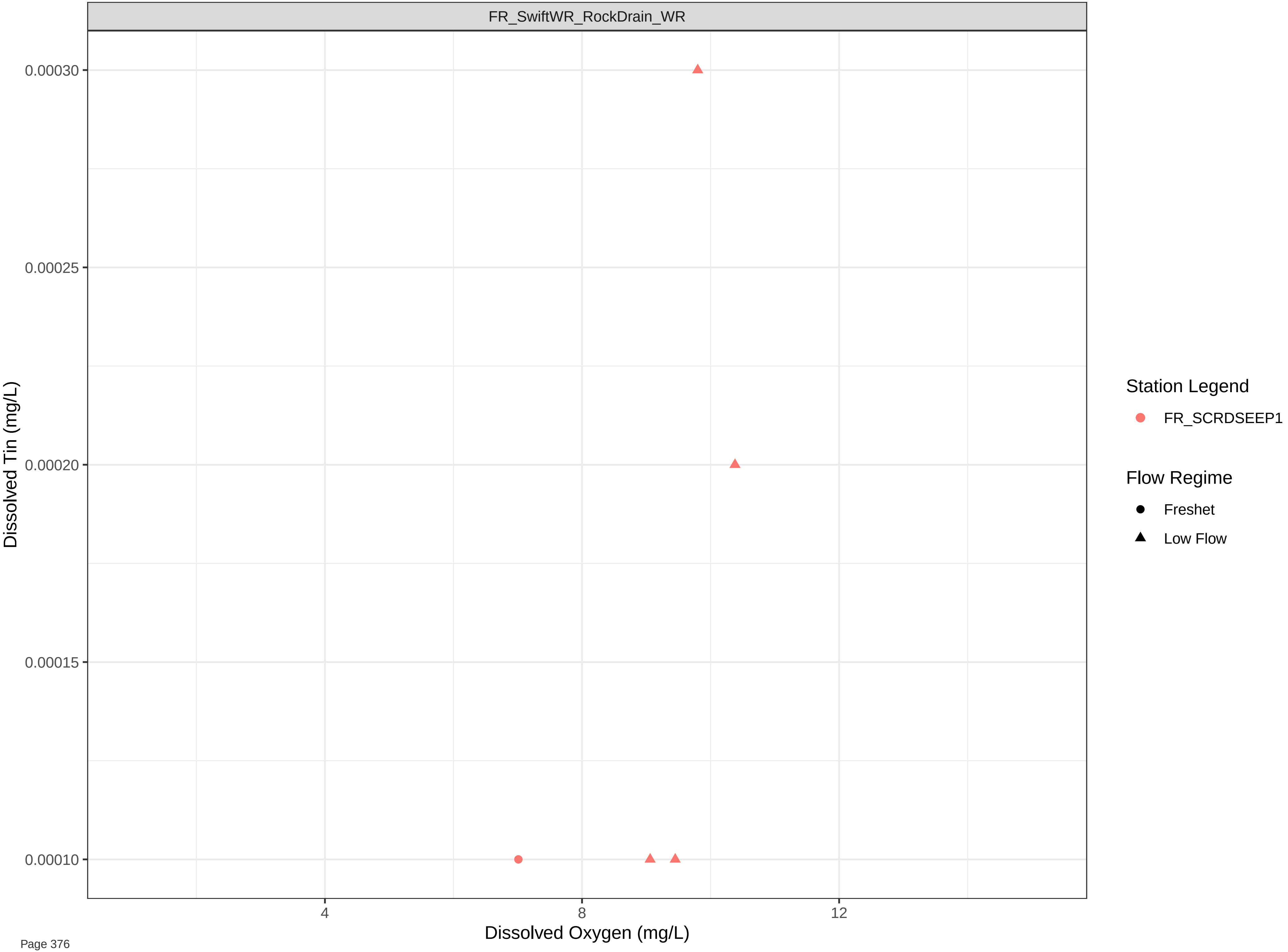

FR_HEN_WR
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

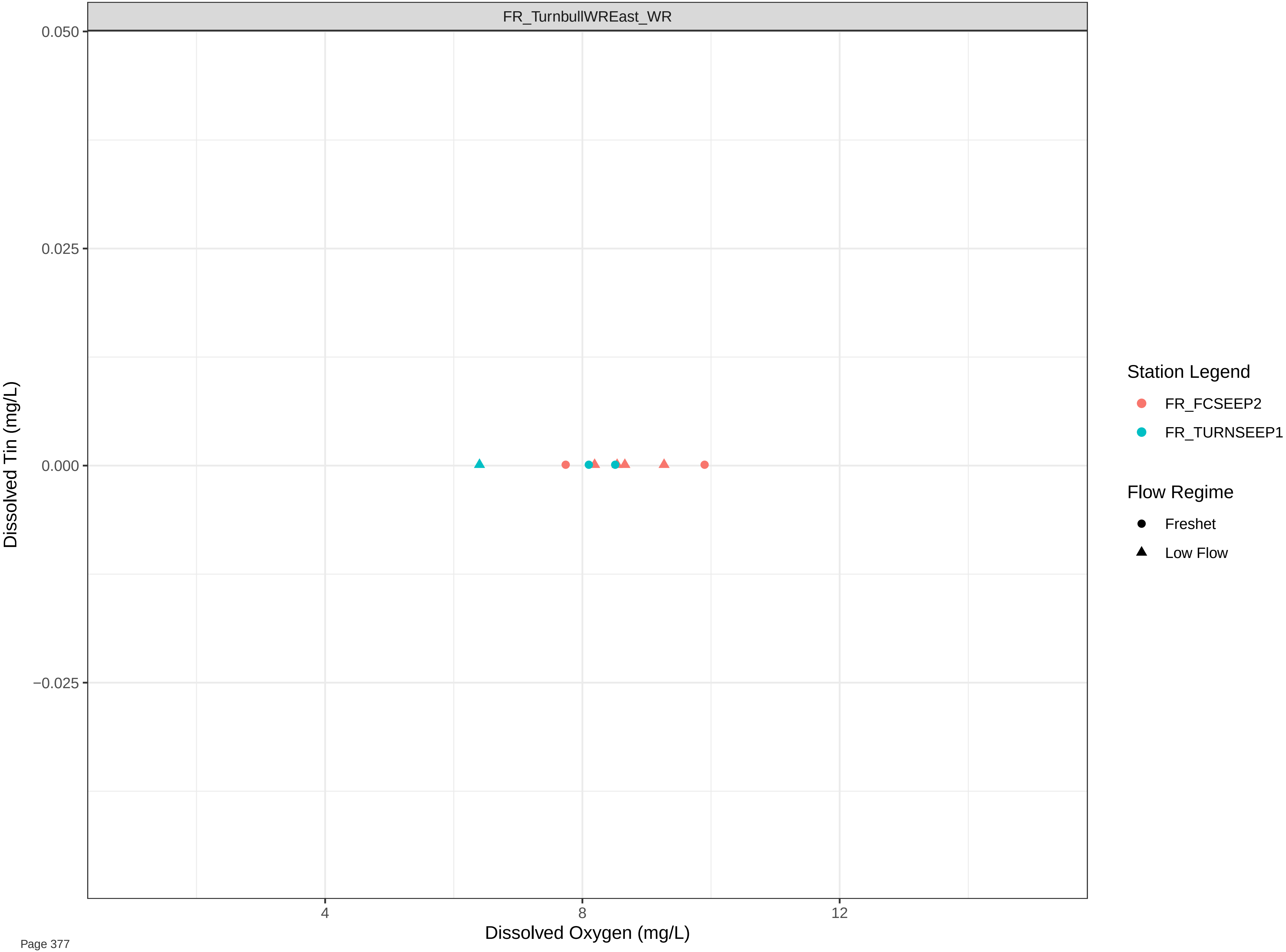

FR_LakeMtn_WR_PITS
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

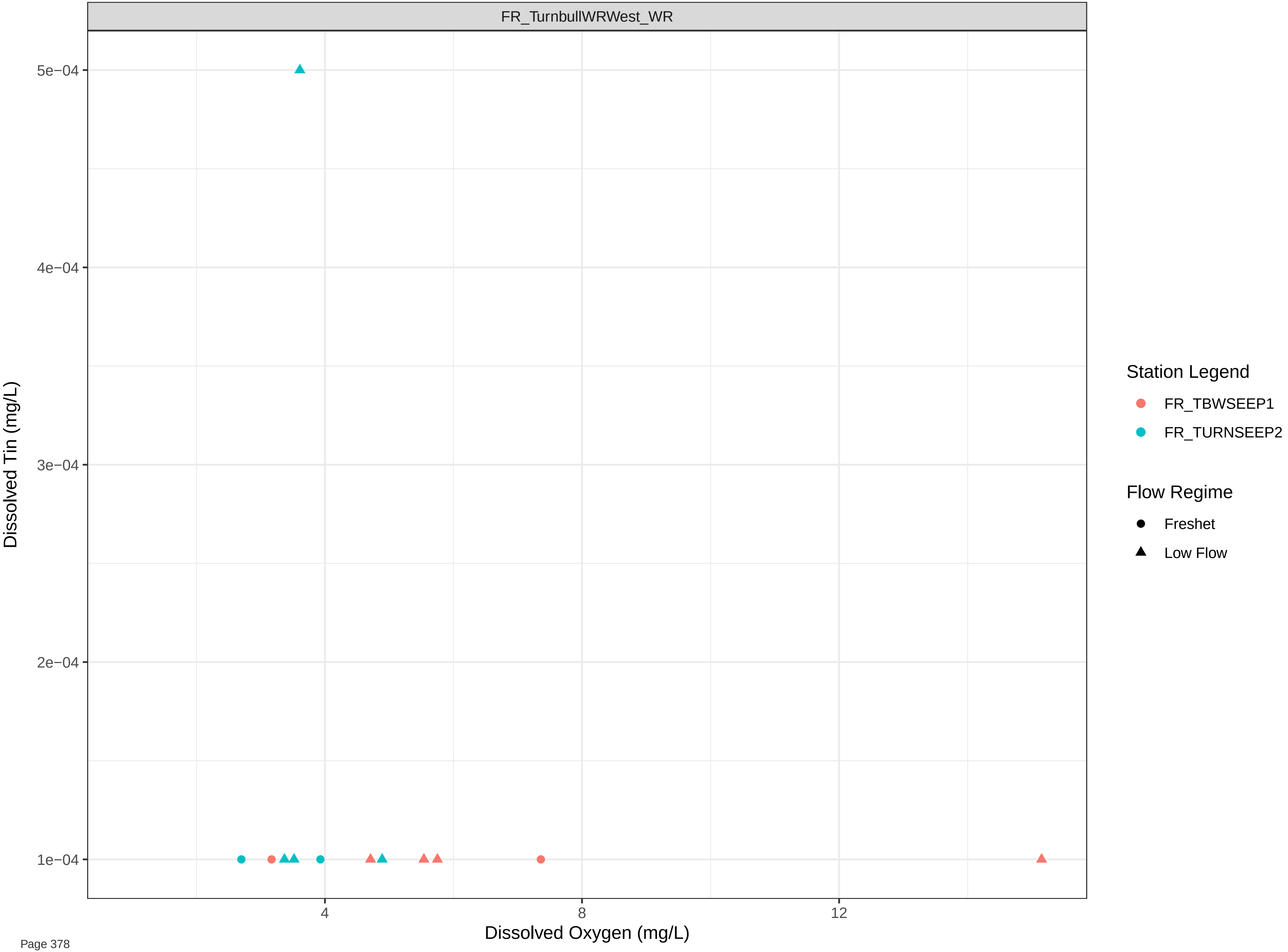

FR_Shandley_WR
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

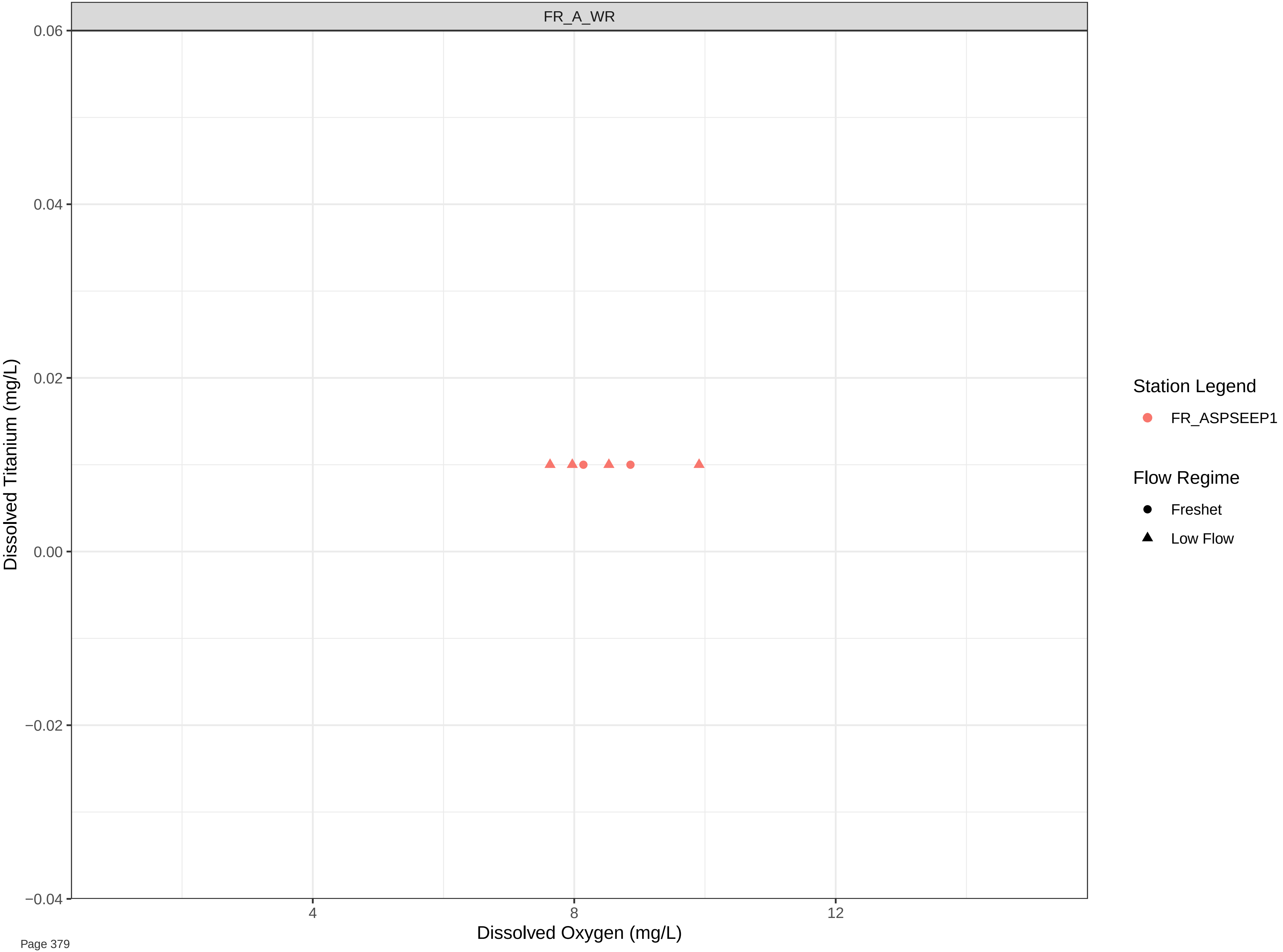

FR_Smith_WR
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Tin (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

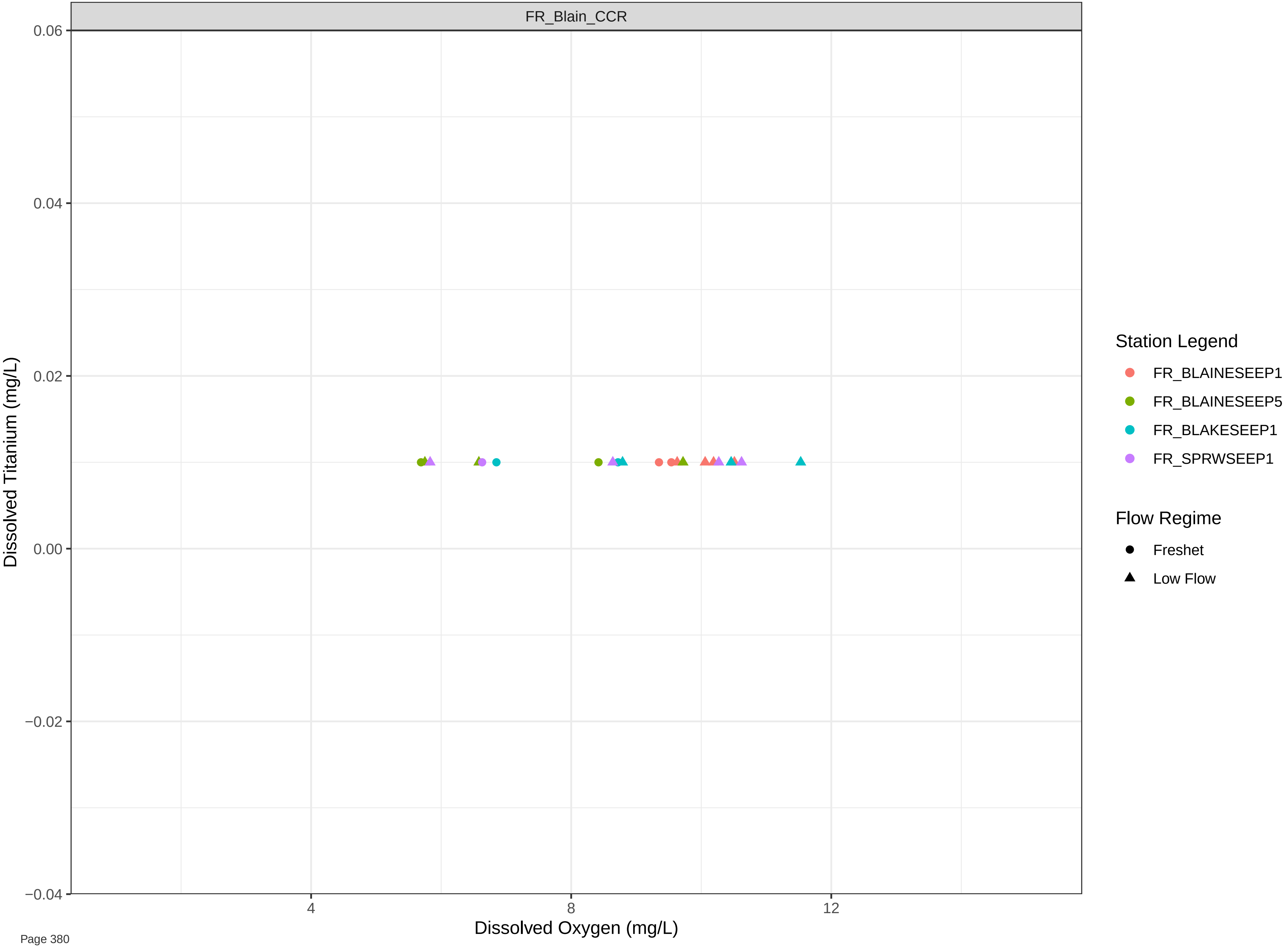

FR_SouthTails_Tailings
0.050
0.025
0.000
−0.025
Dissolved Tin (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

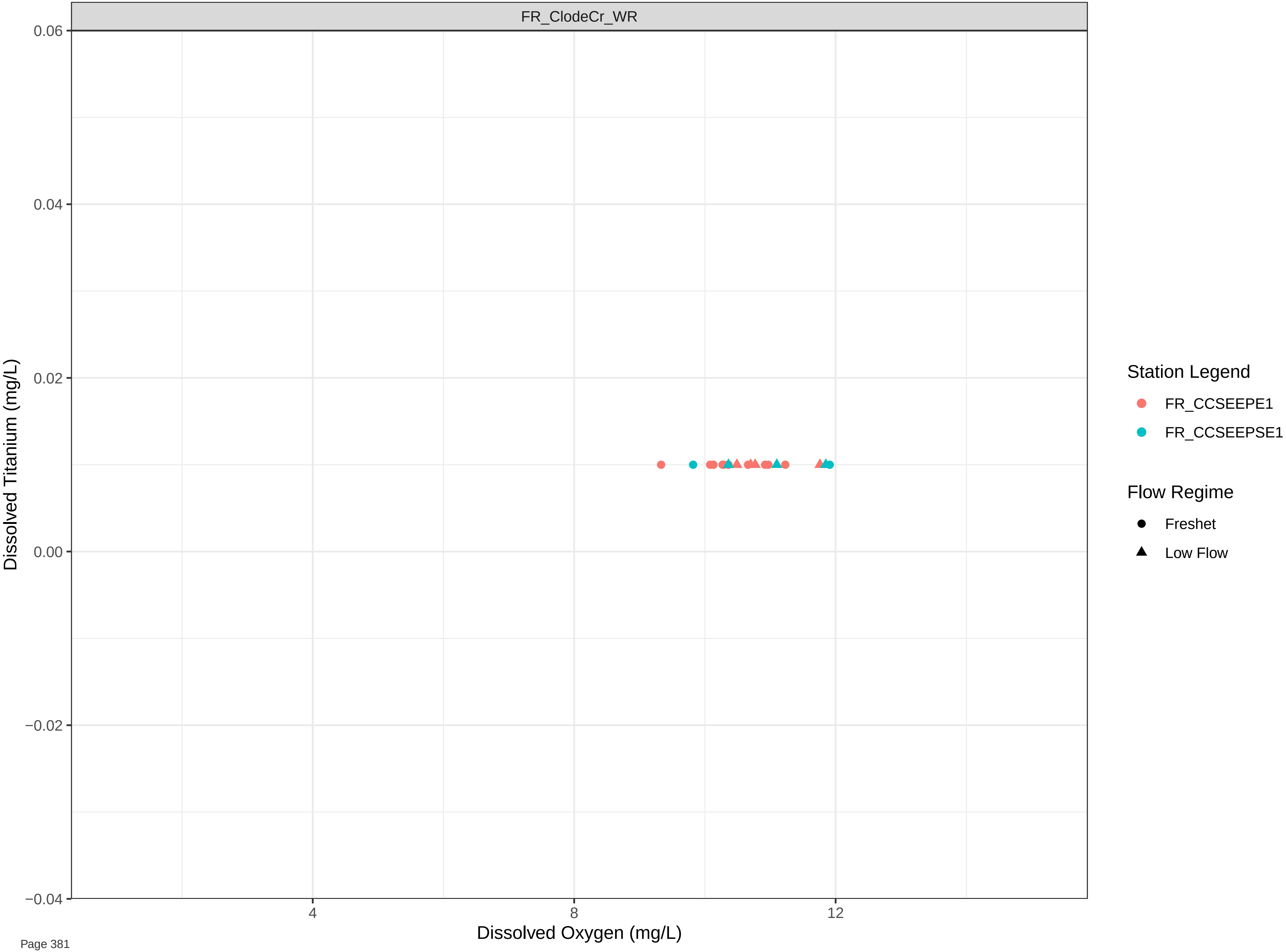

FR_SwiftWR_RockDrain_WR
Dissolved Tin (mg/L)
0.00030
0.00025
0.00020
0.00015
0.00010
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

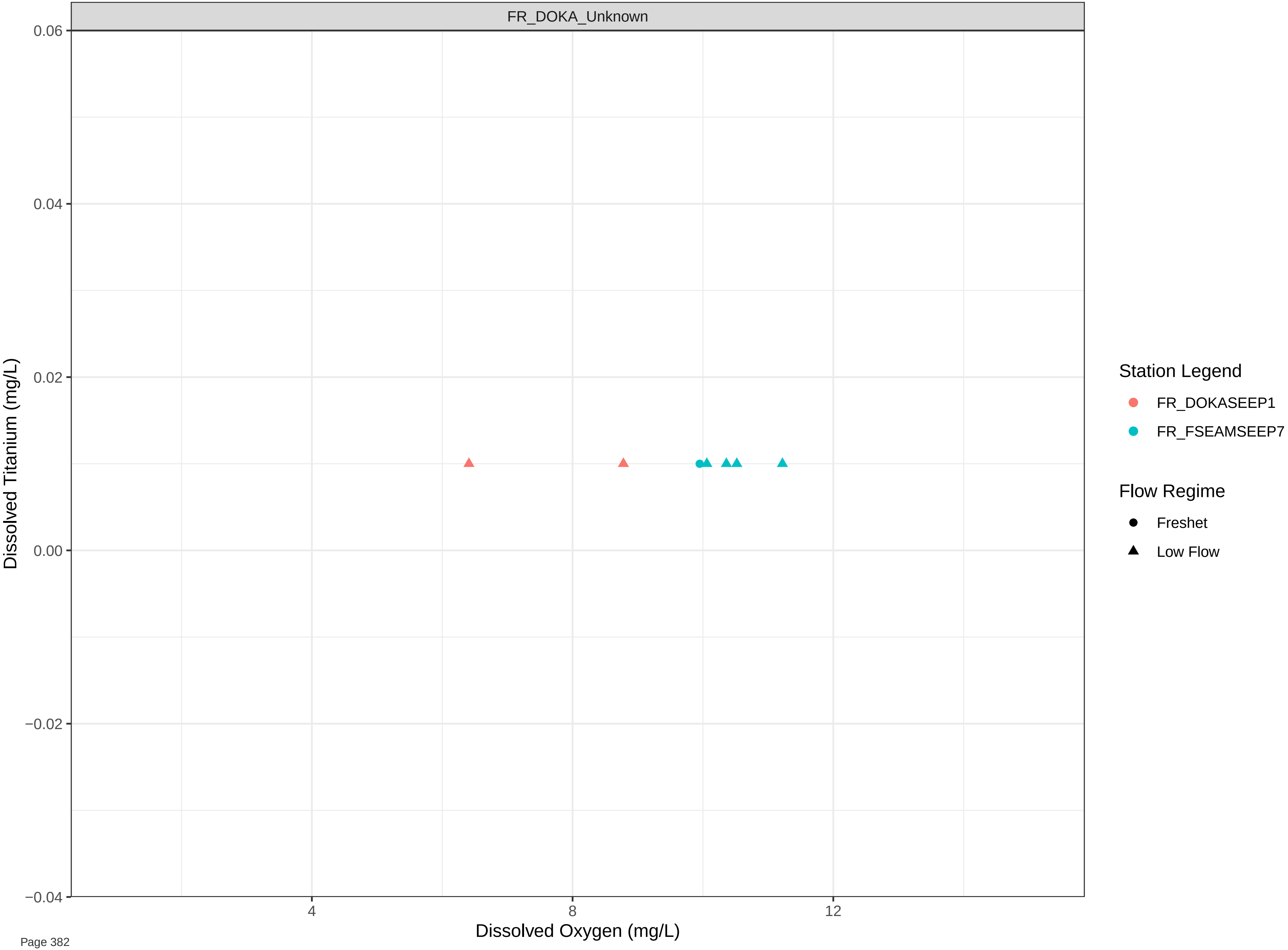

FR_TurnbullWREast_WR
0.050
0.025
0.000
−0.025
Dissolved Tin (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FCSEEP2
● FR_TURNSEEP1
Flow Regime
● Freshet
▲ Low Flow

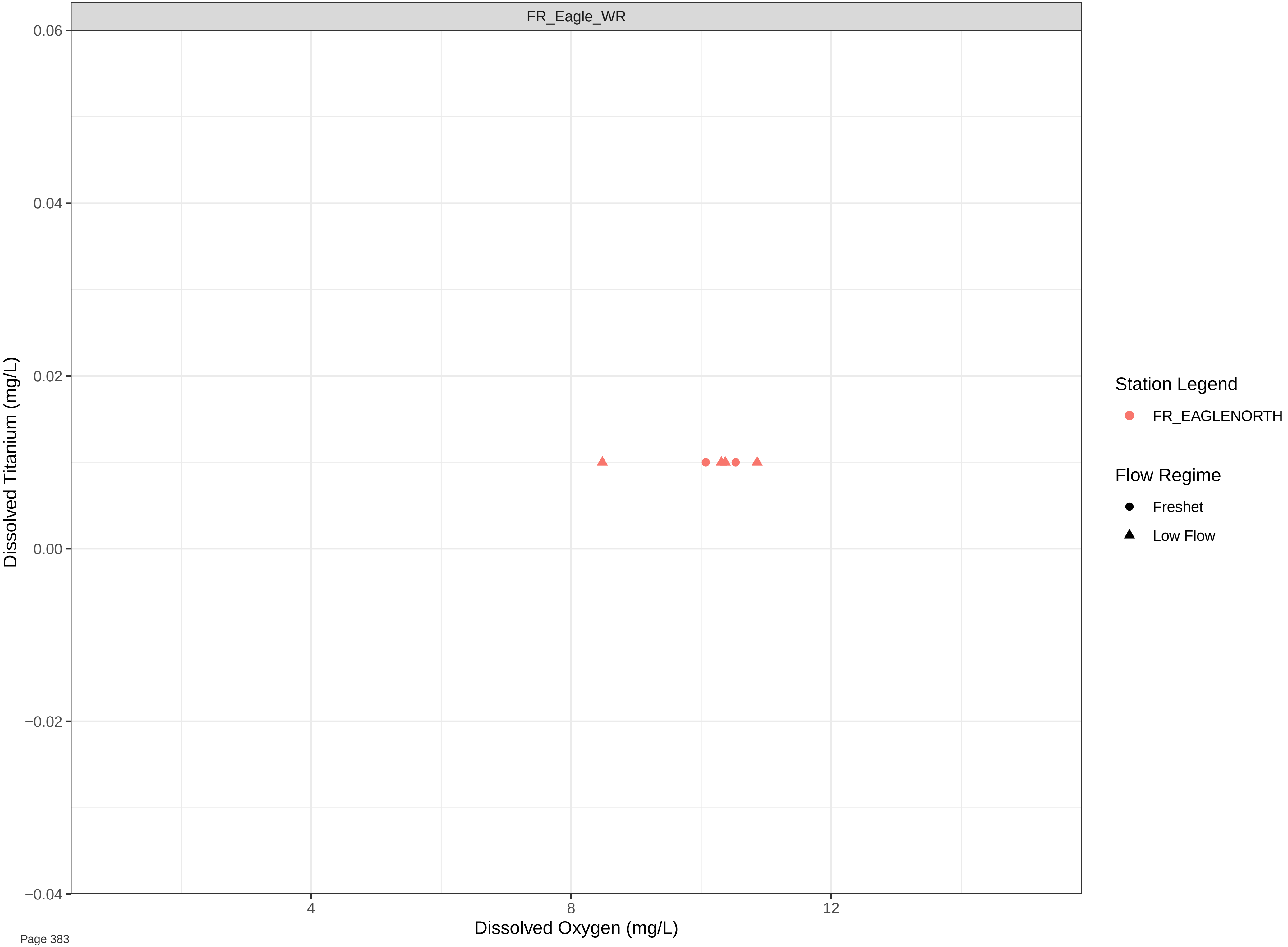

FR_TurnbullWRWest_WR
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

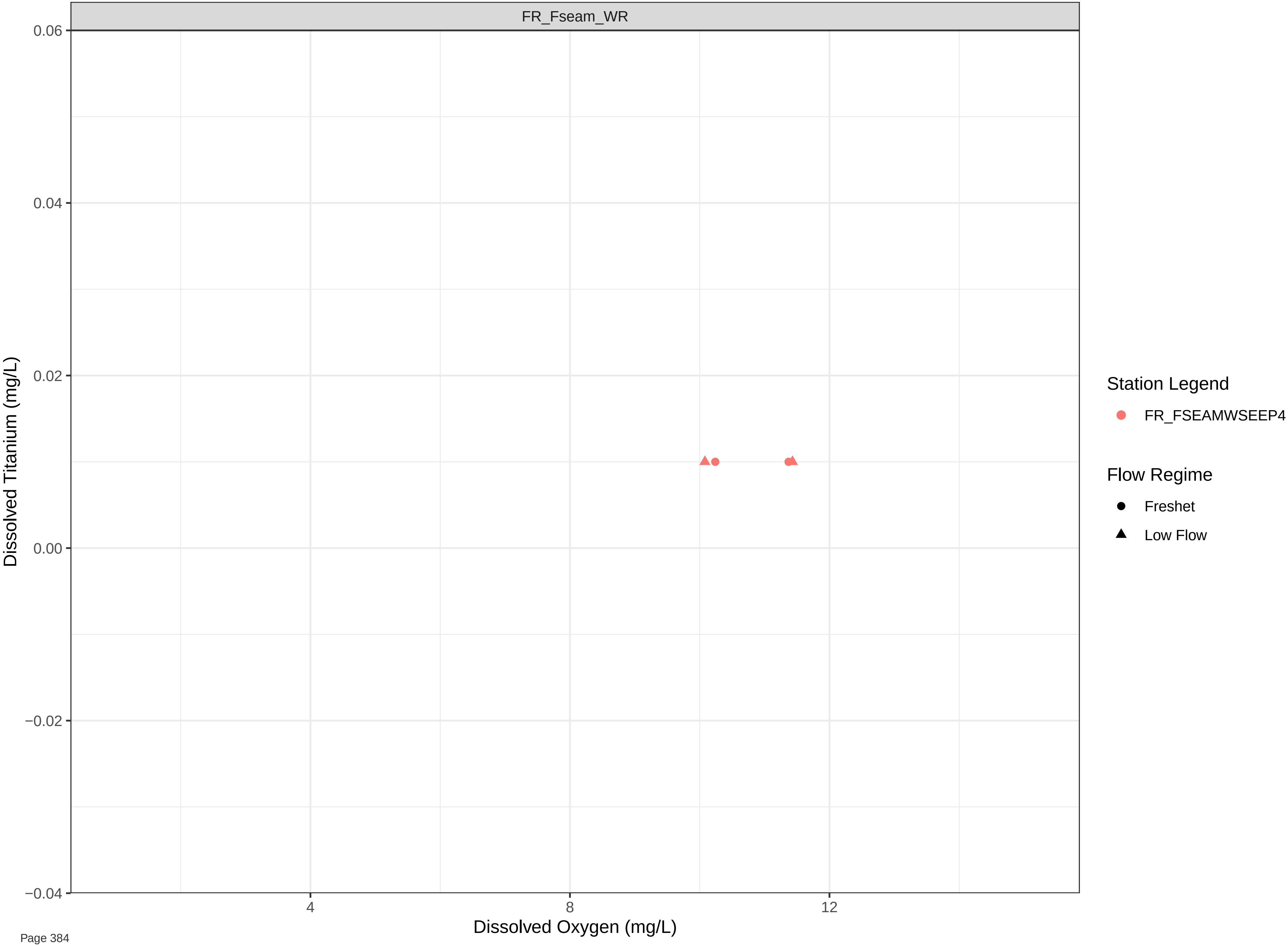

FR_A_WR
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

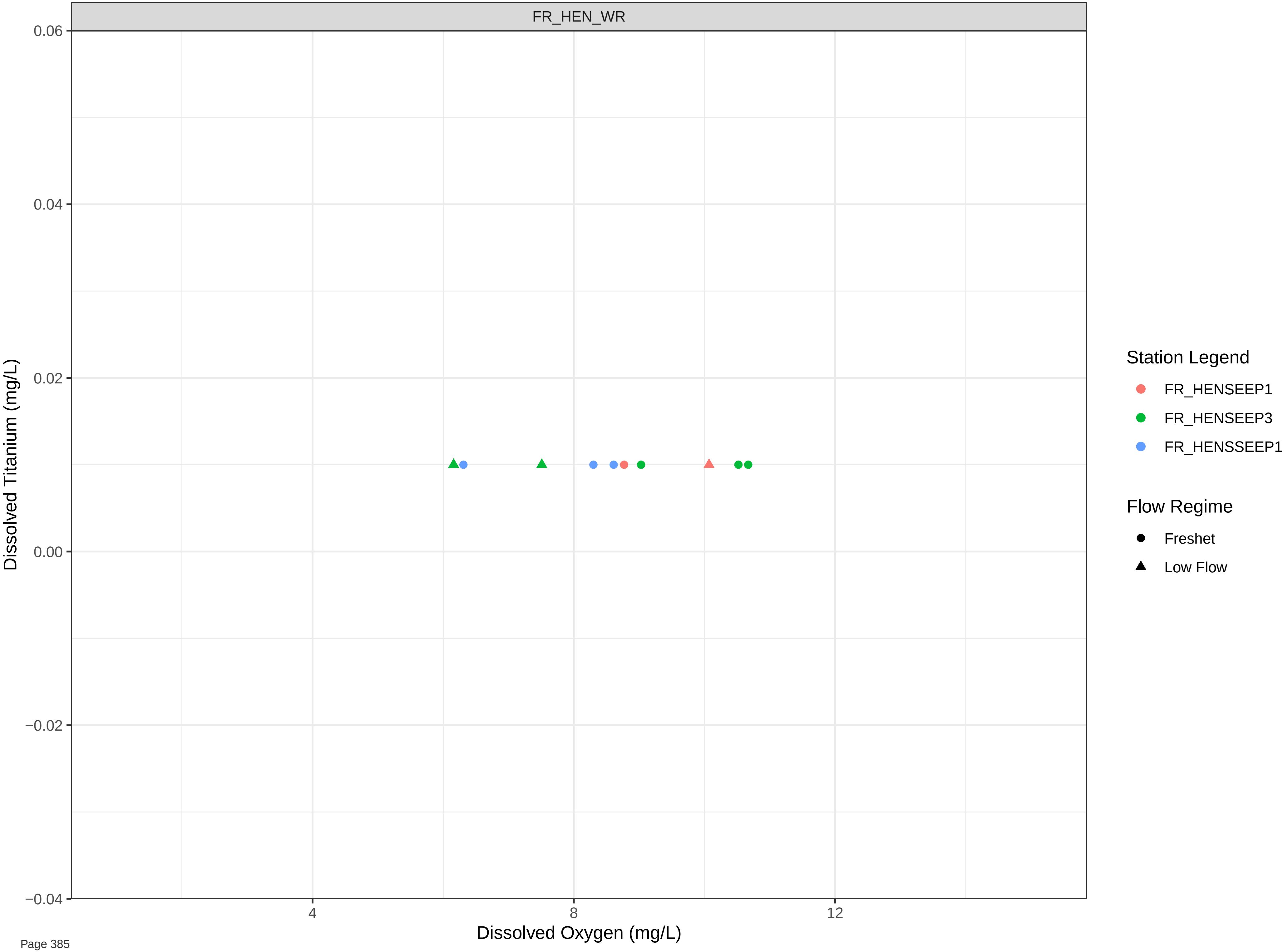

FR_Blain_CCR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow

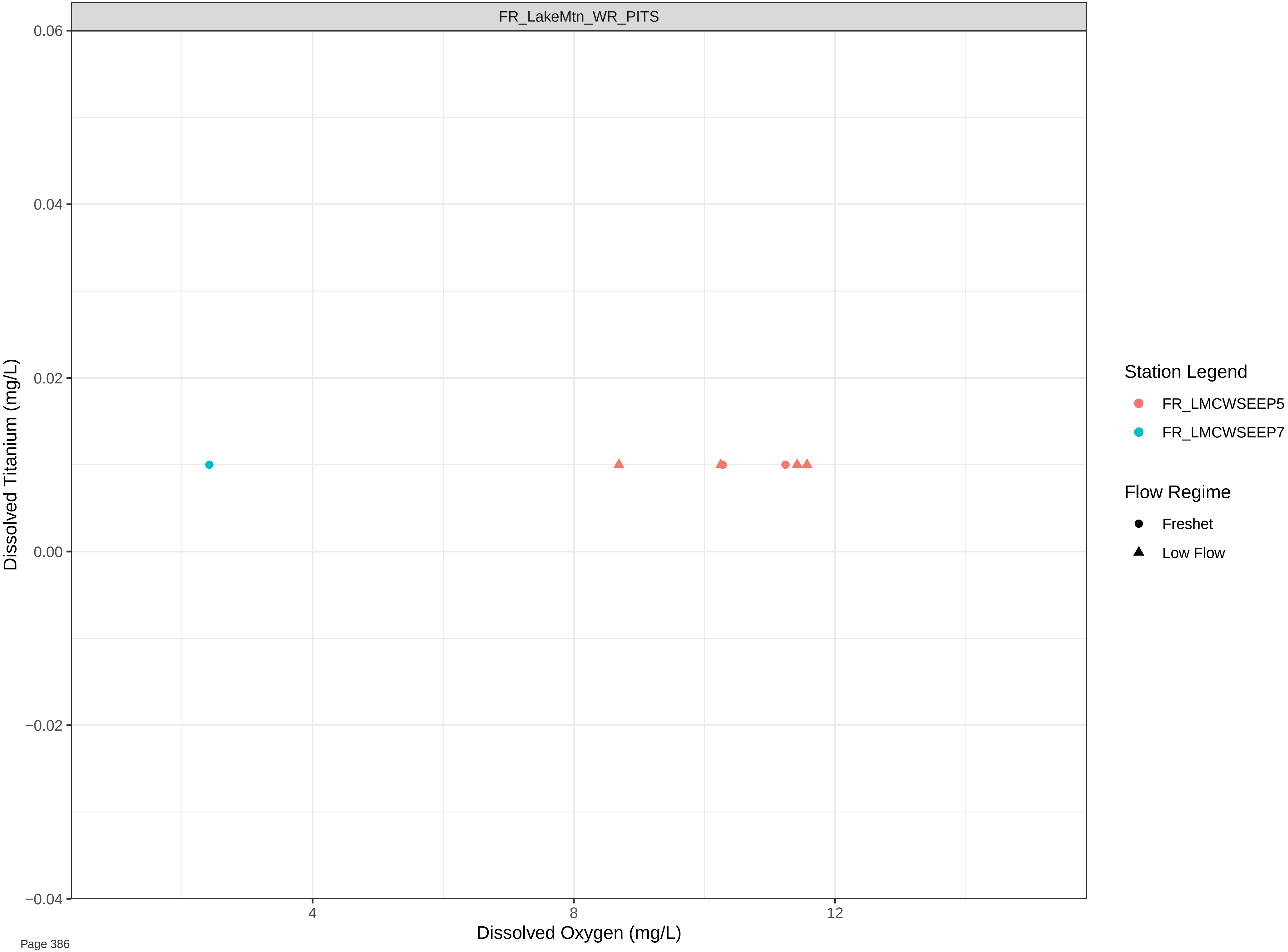

FR_ClodeCr_WR
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

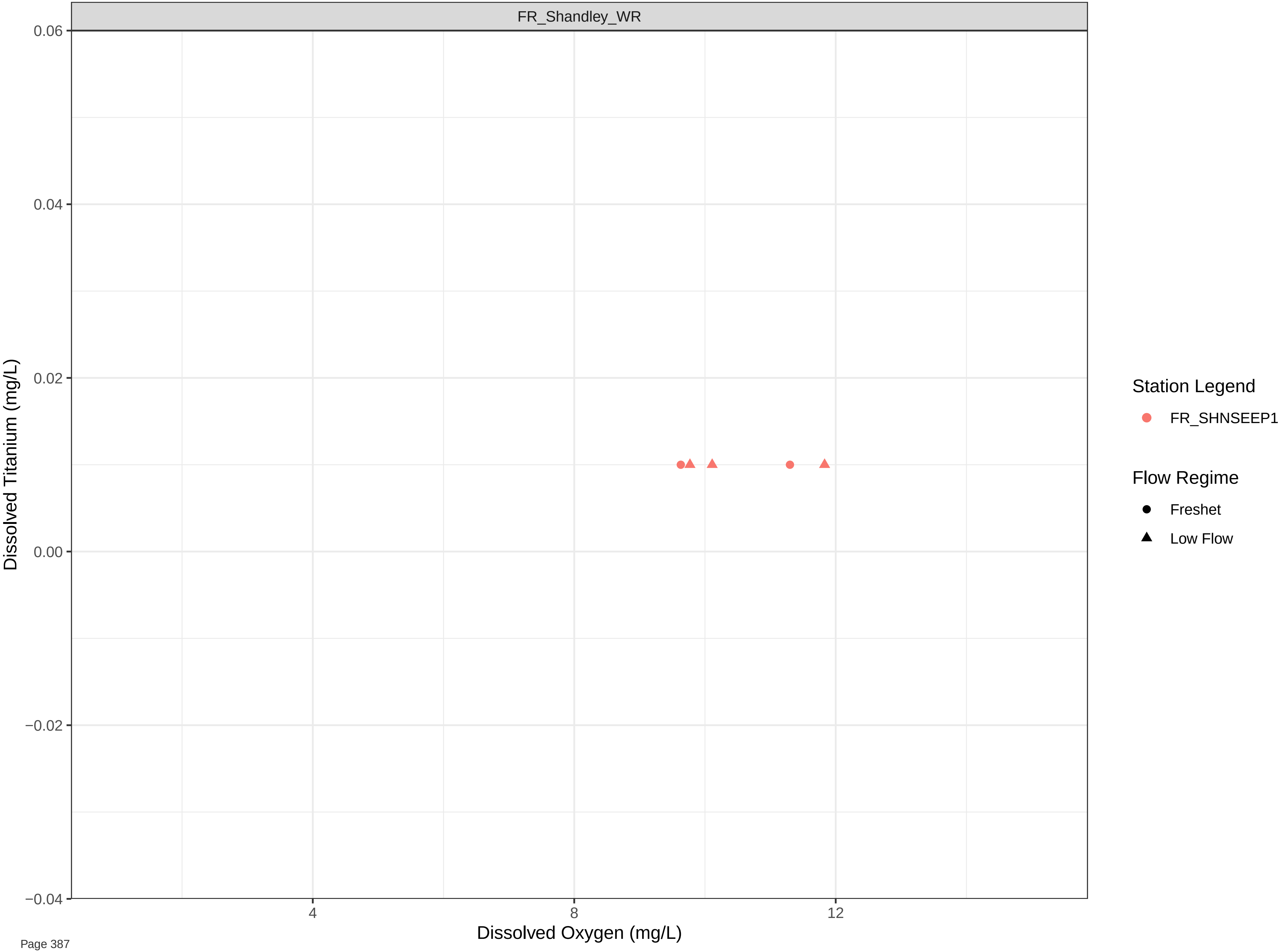

FR_DOKA_Unknown
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

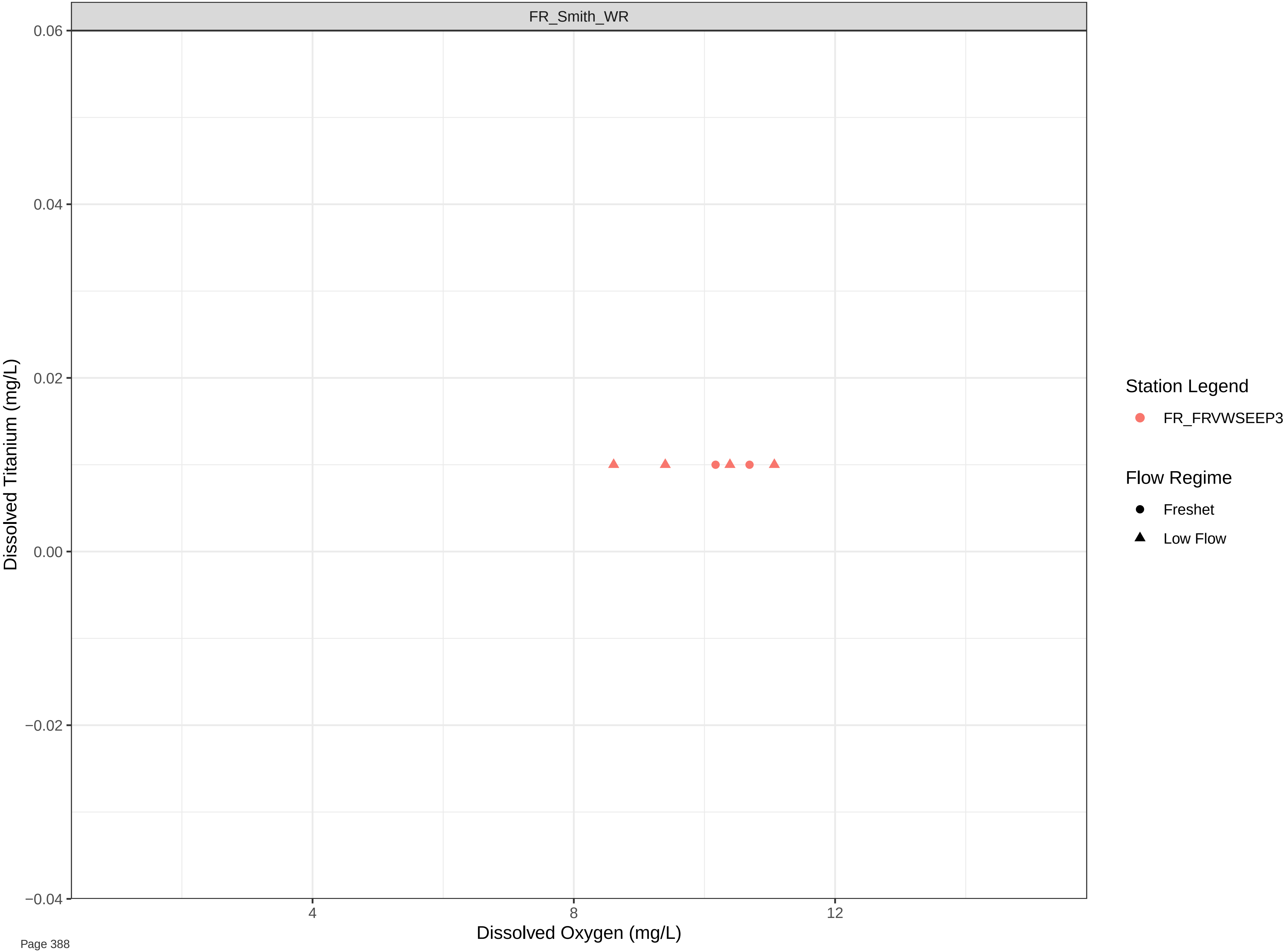

FR_Eagle_WR
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

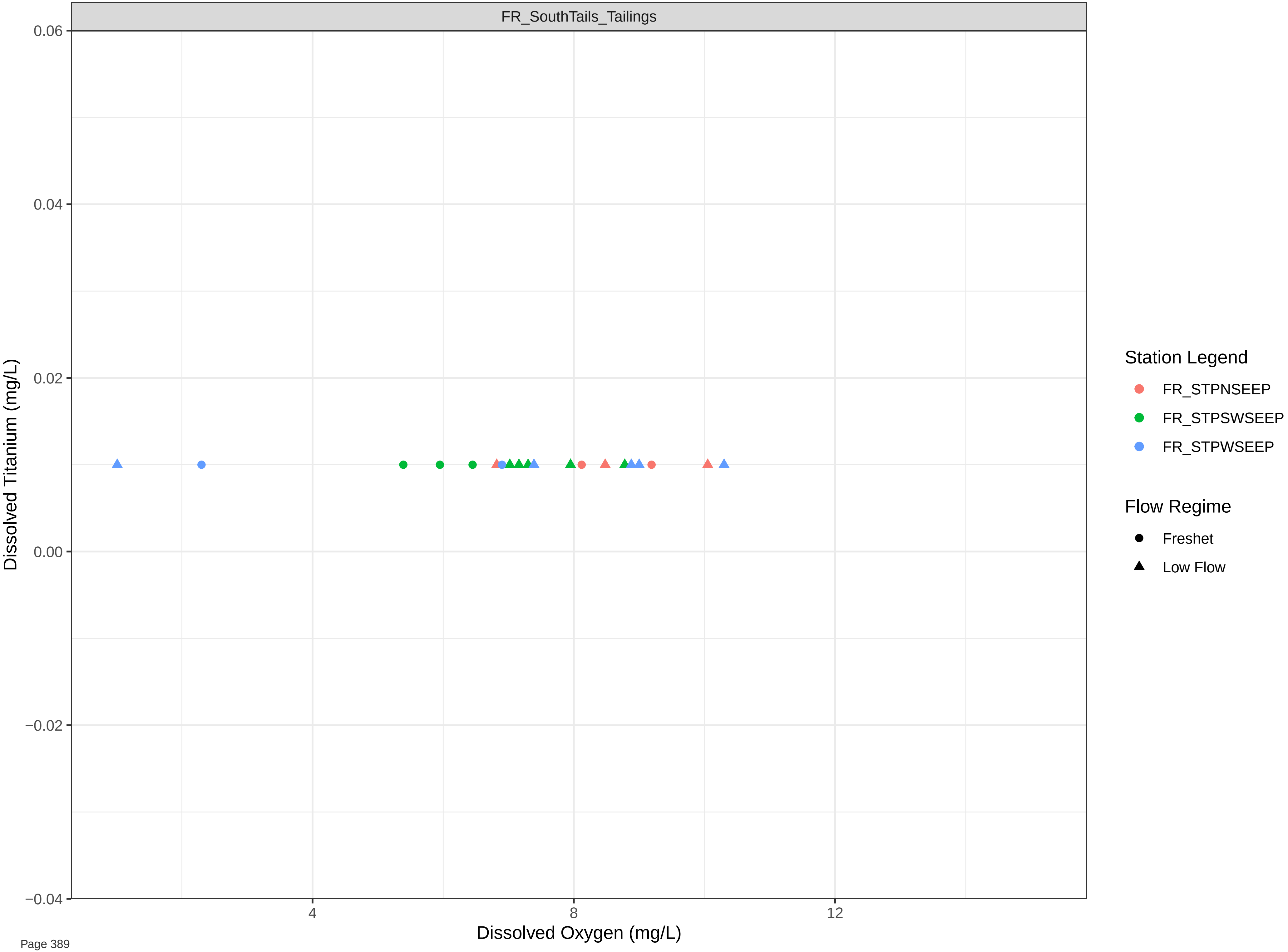

FR_Fseam_WR
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

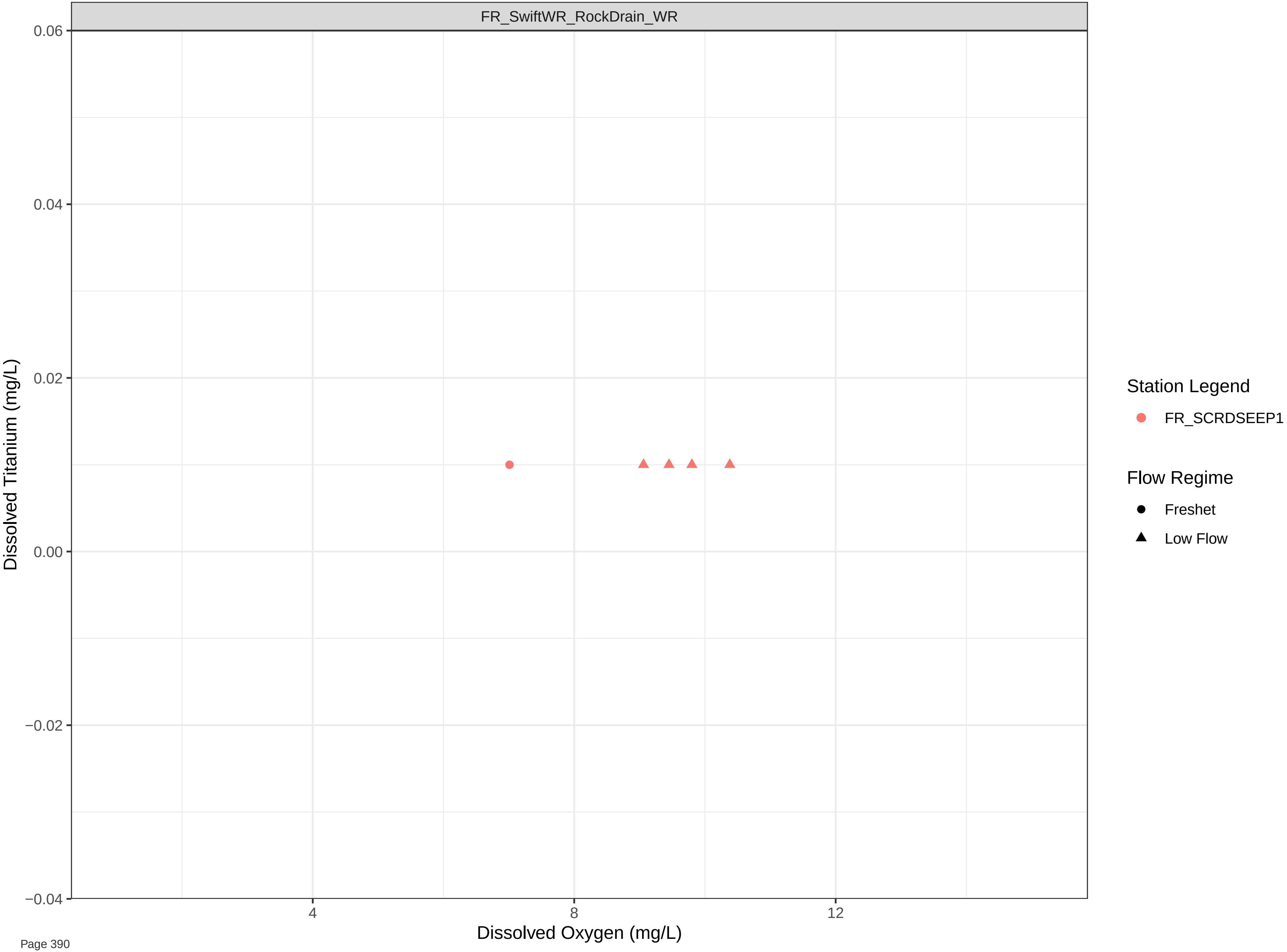

FR_HEN_WR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

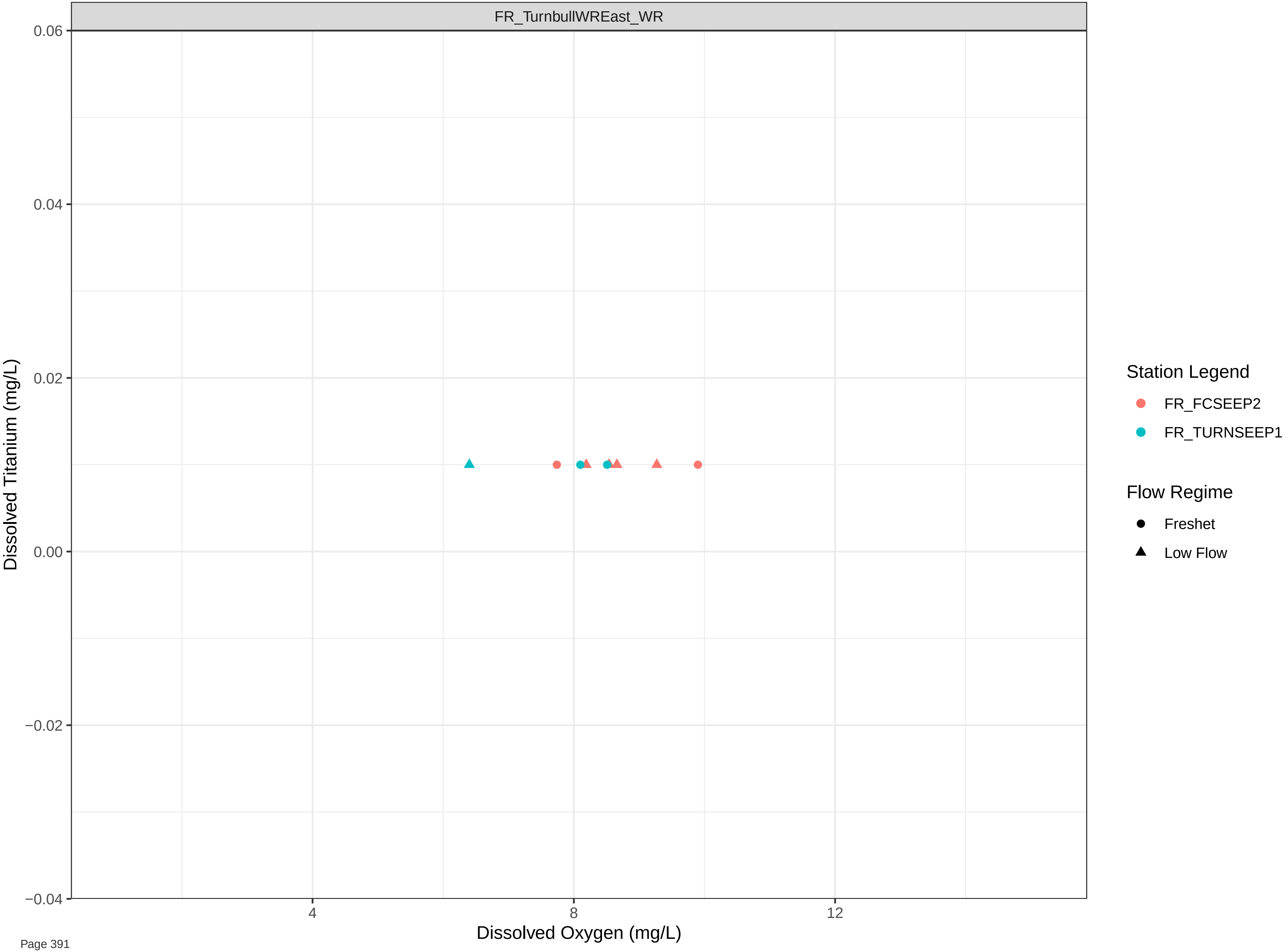

FR_LakeMtn_WR_PITS
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

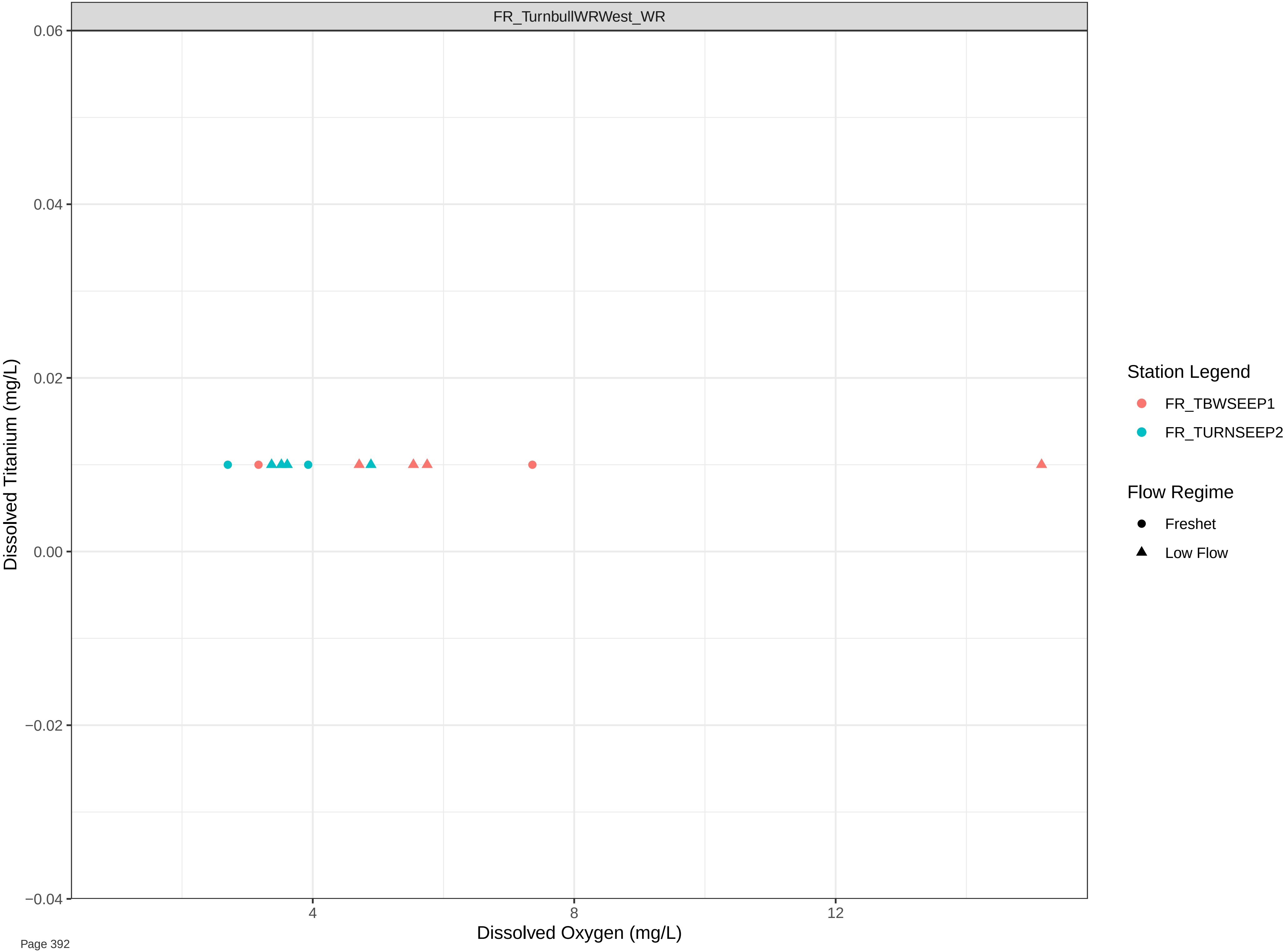

FR_Shandley_WR
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SHNSEEP1
Flow Regime
● Freshet
▲ Low Flow

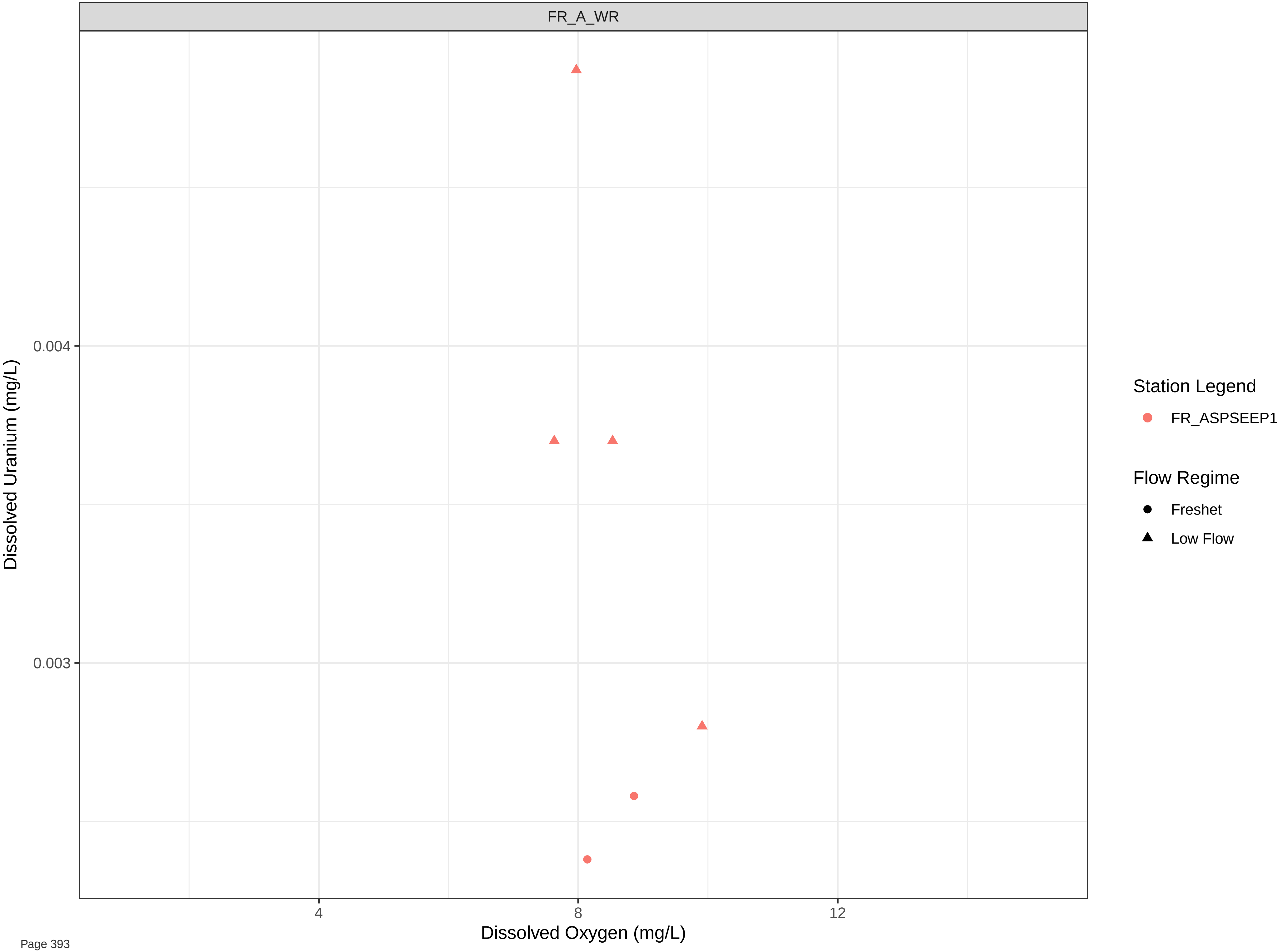

FR_Smith_WR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

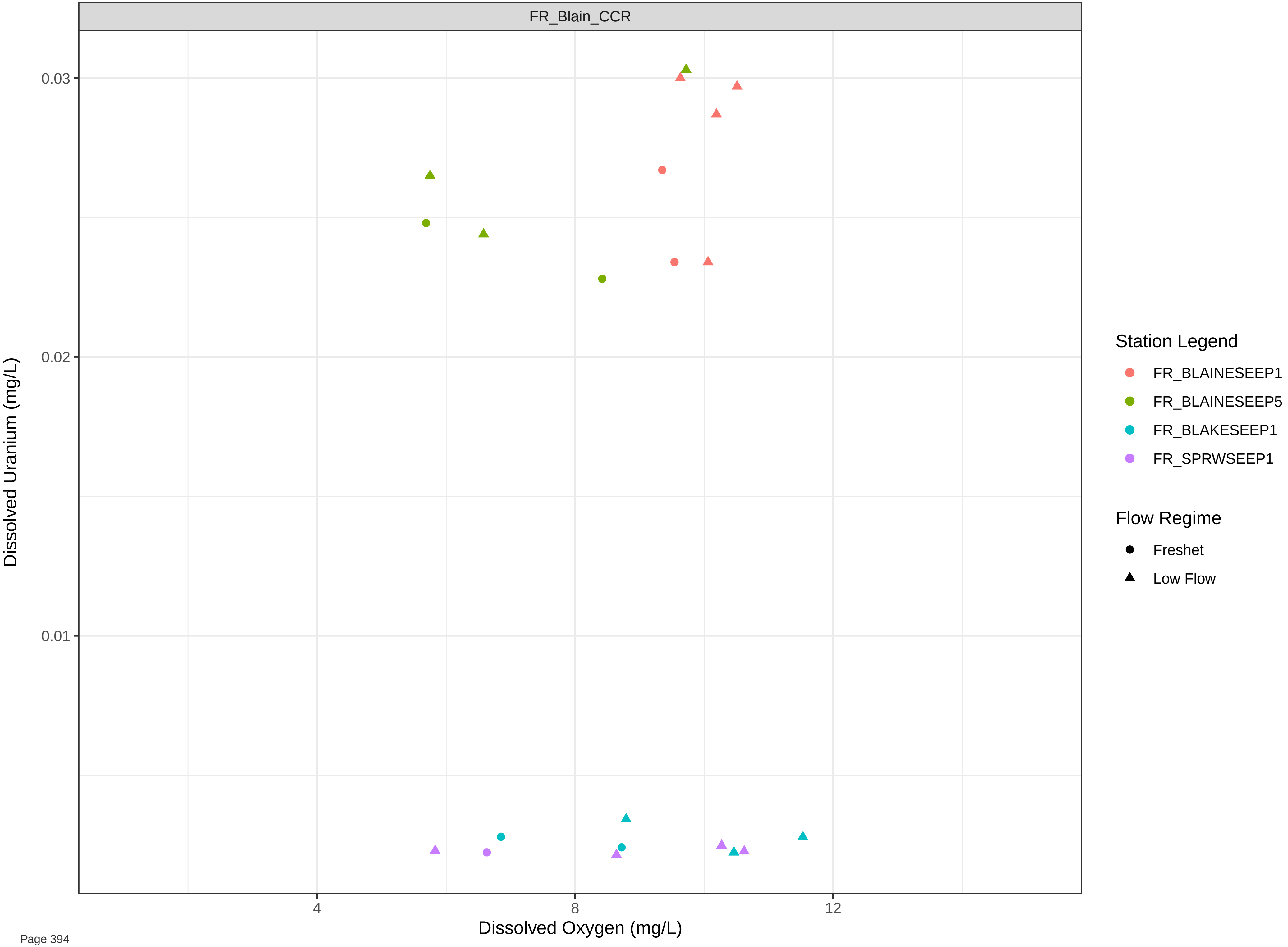

FR_SouthTails_Tailings
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

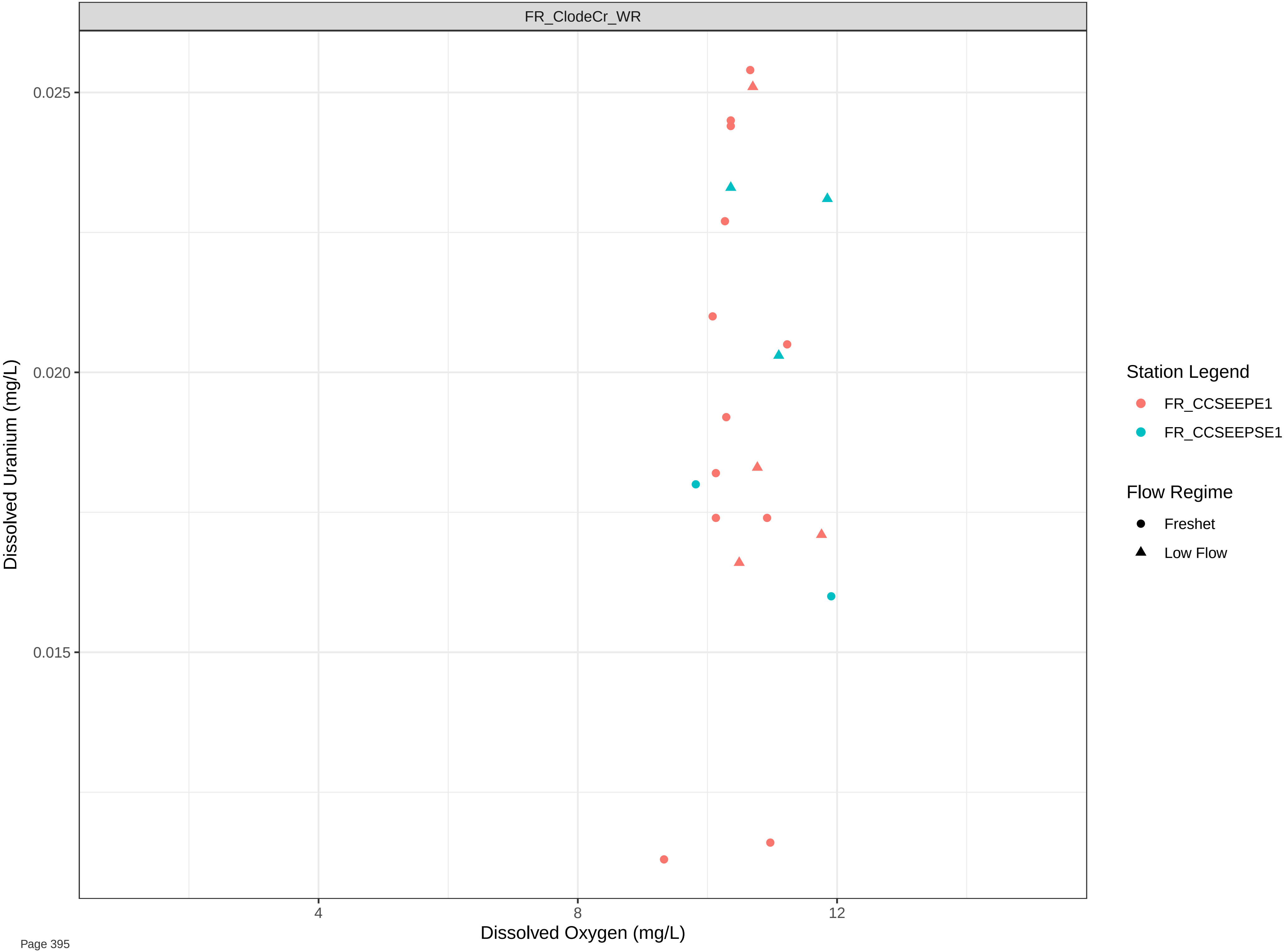

FR_SwiftWR_RockDrain_WR
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

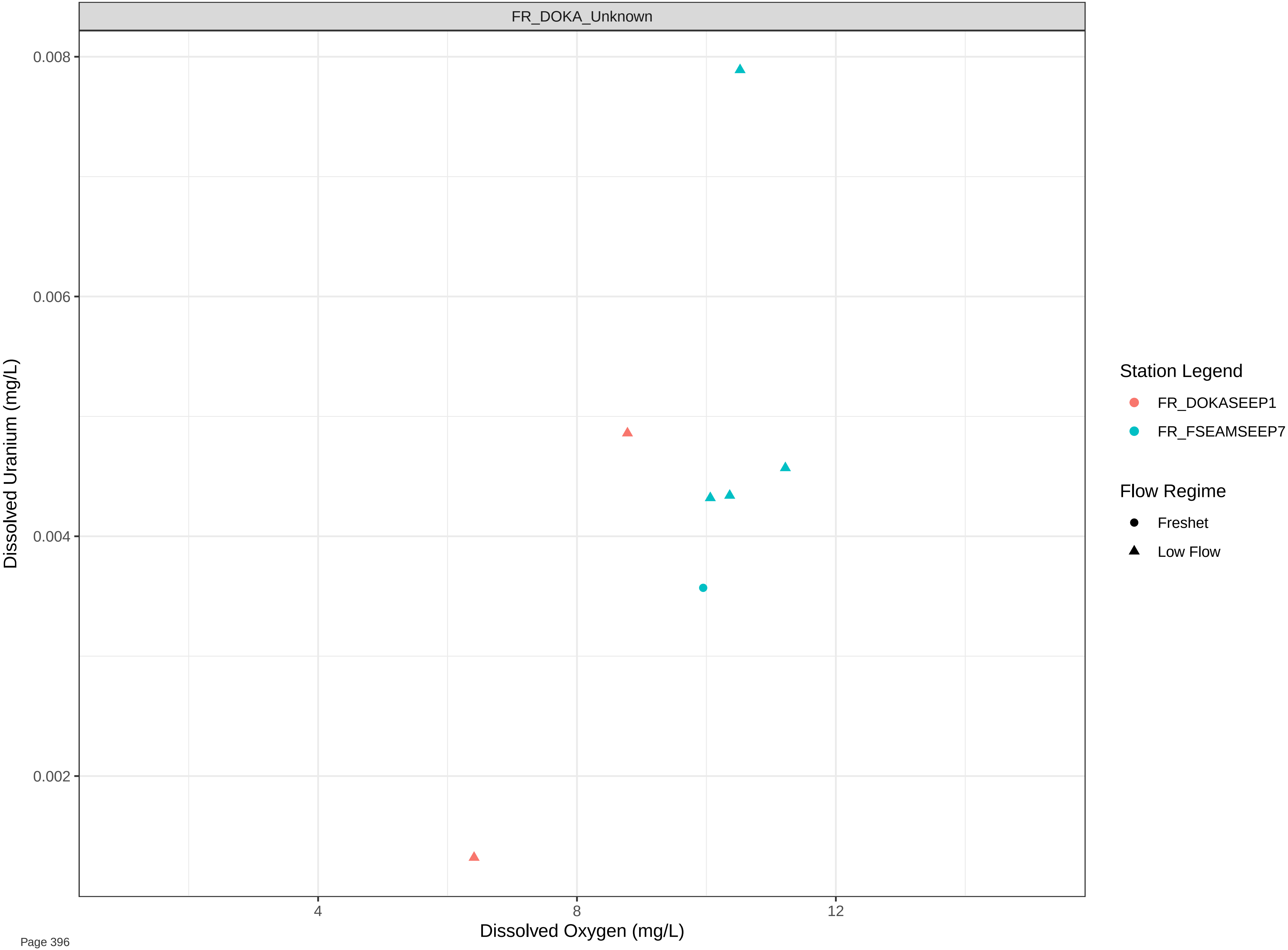

FR_TurnbullWREast_WR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

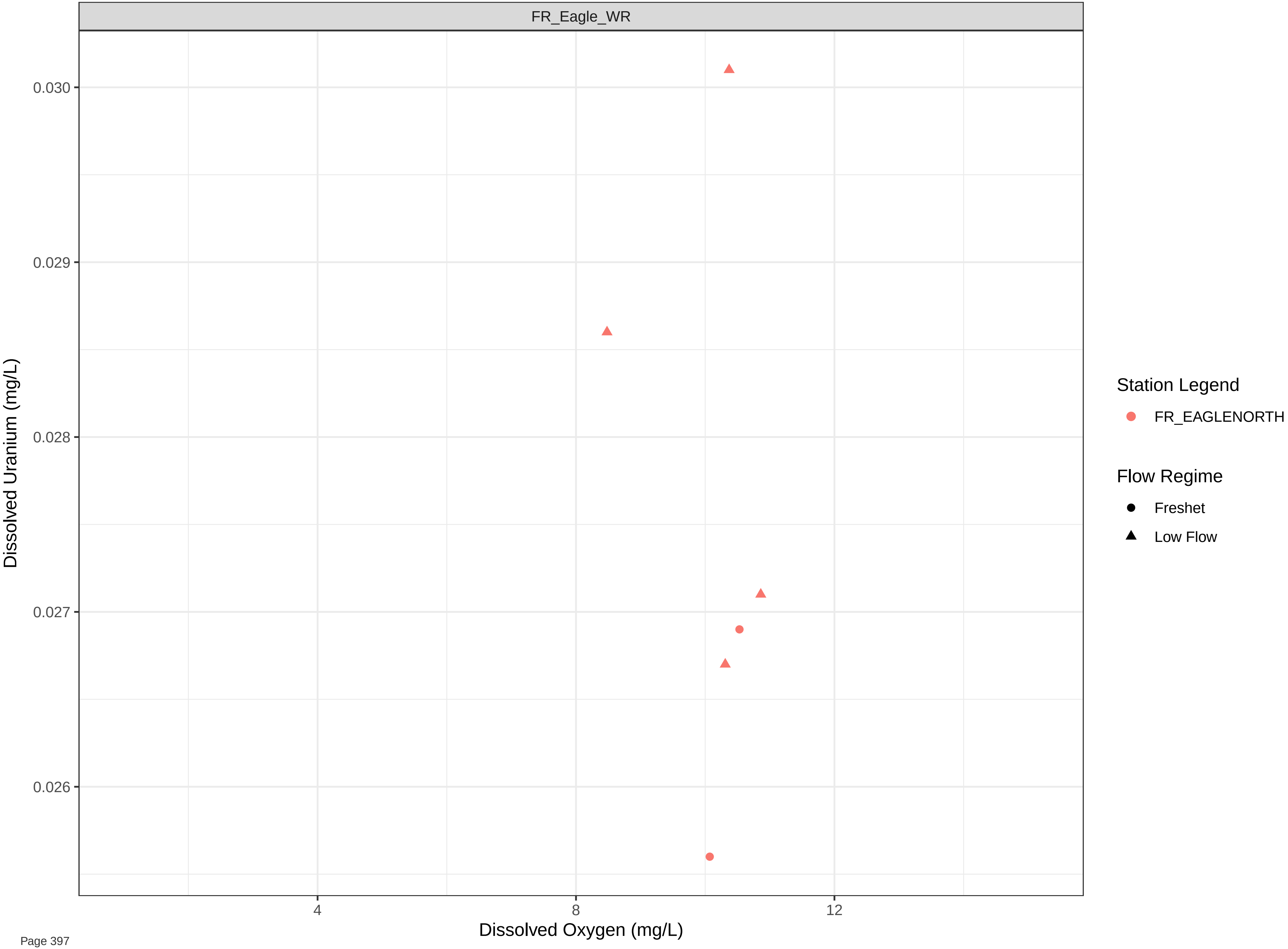

FR_TurnbullWRWest_WR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

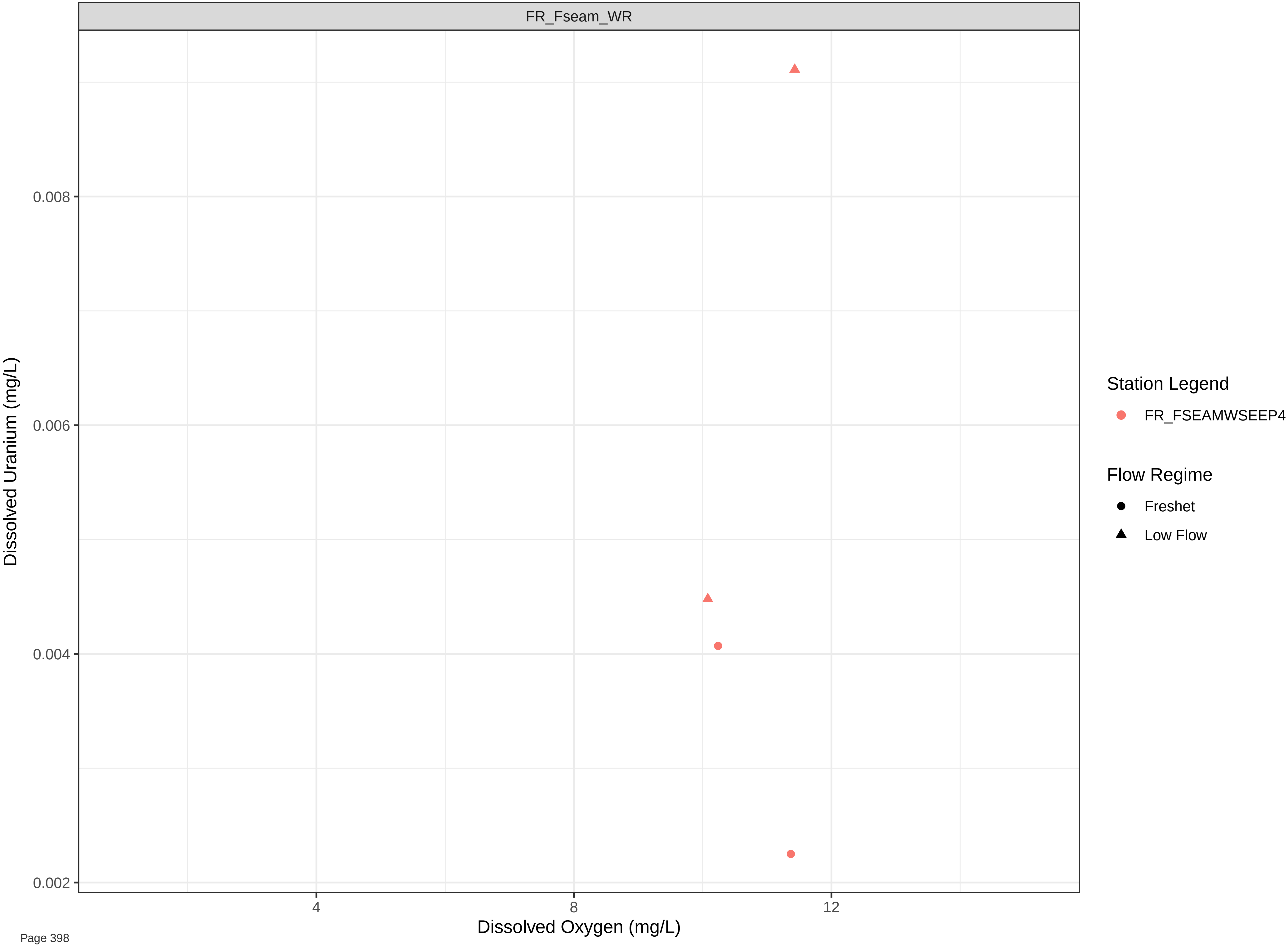

FR_A_WR
Dissolved Uranium (mg/L)
0.004
0.003
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

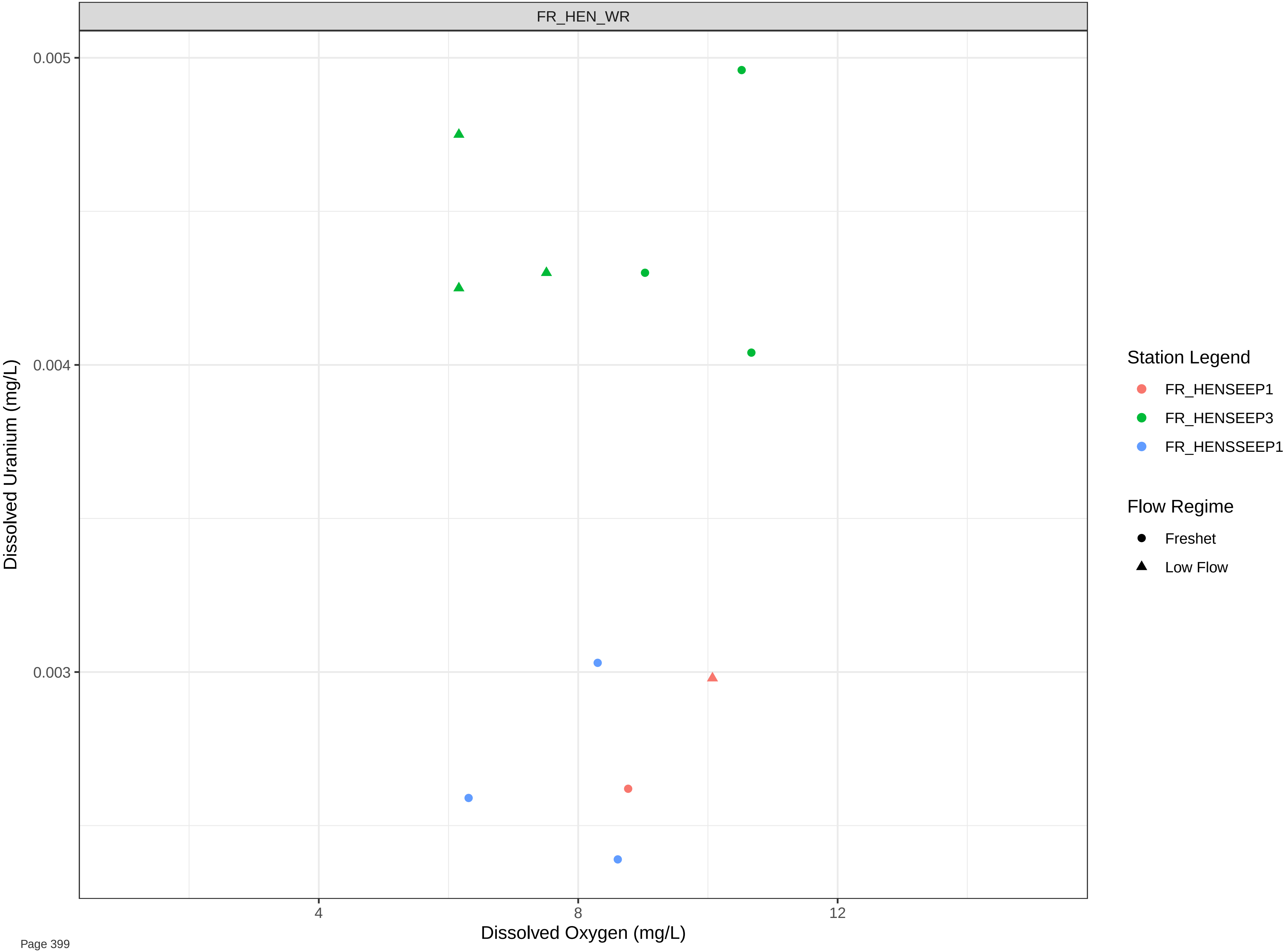

FR_Blain_CCR
0.03
0.02
0.01
Dissolved Uranium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_BLAINESEEP1
● FR_BLAINESEEP5
● FR_BLAKESEEP1
● FR_SPRWSEEP1
Flow Regime
● Freshet
▲ Low Flow

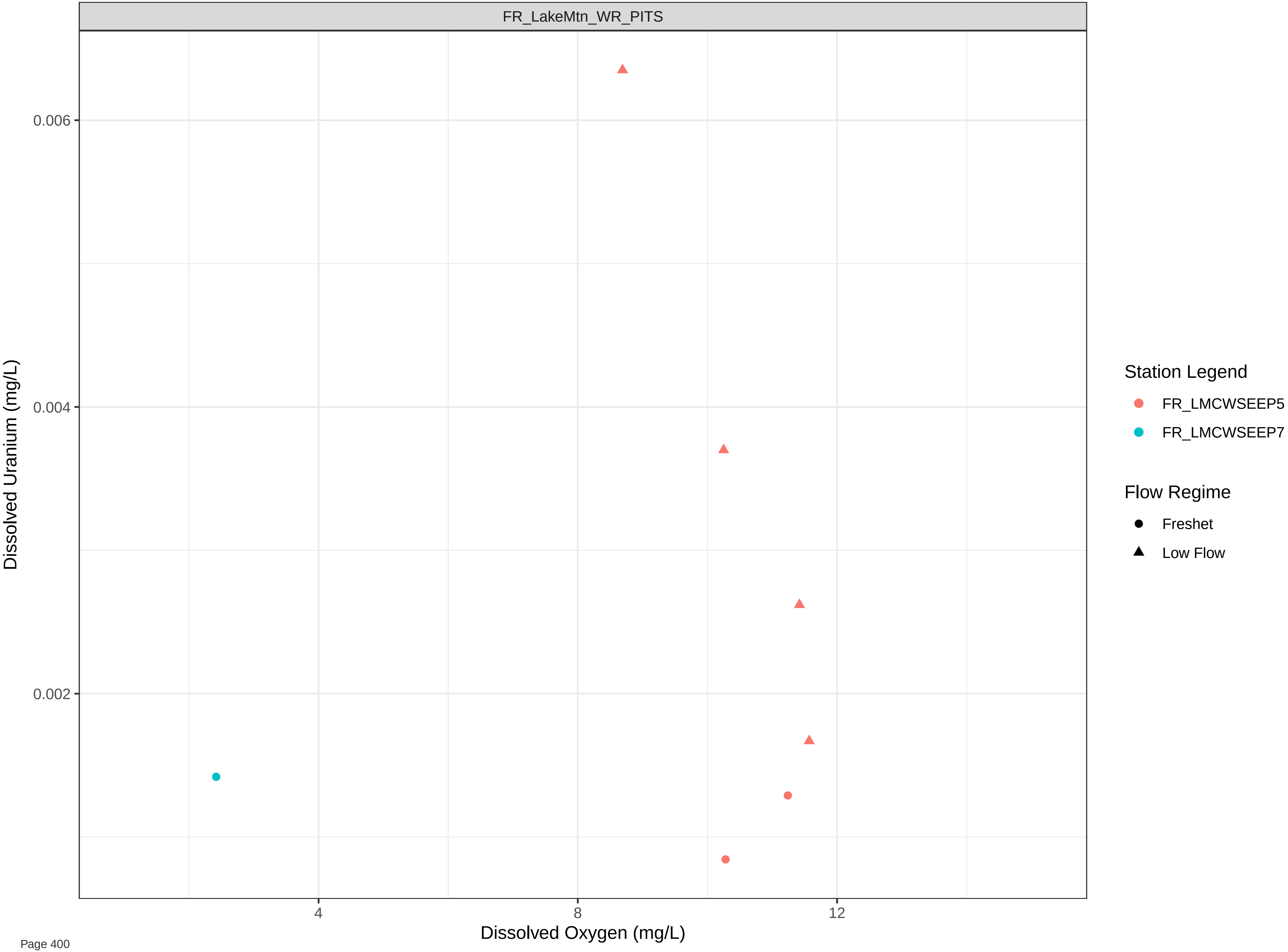

FR_ClodeCr_WR
0.025
0.020
0.015
Dissolved Uranium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_CCSEEPE1
● FR_CCSEEPSE1
Flow Regime
● Freshet
▲ Low Flow

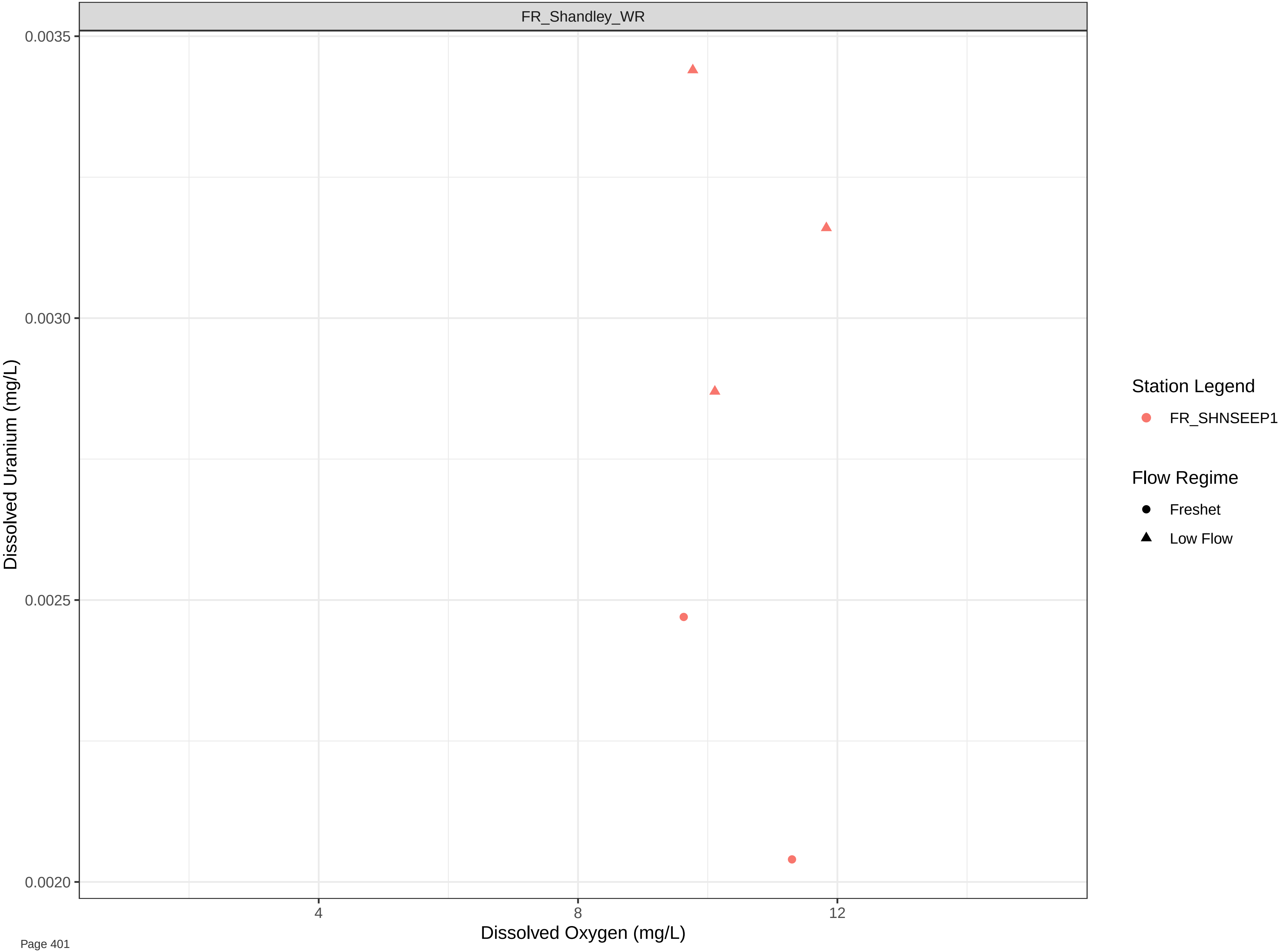

FR_DOKA_Unknown
0.008
0.006
0.004
0.002
Dissolved Uranium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

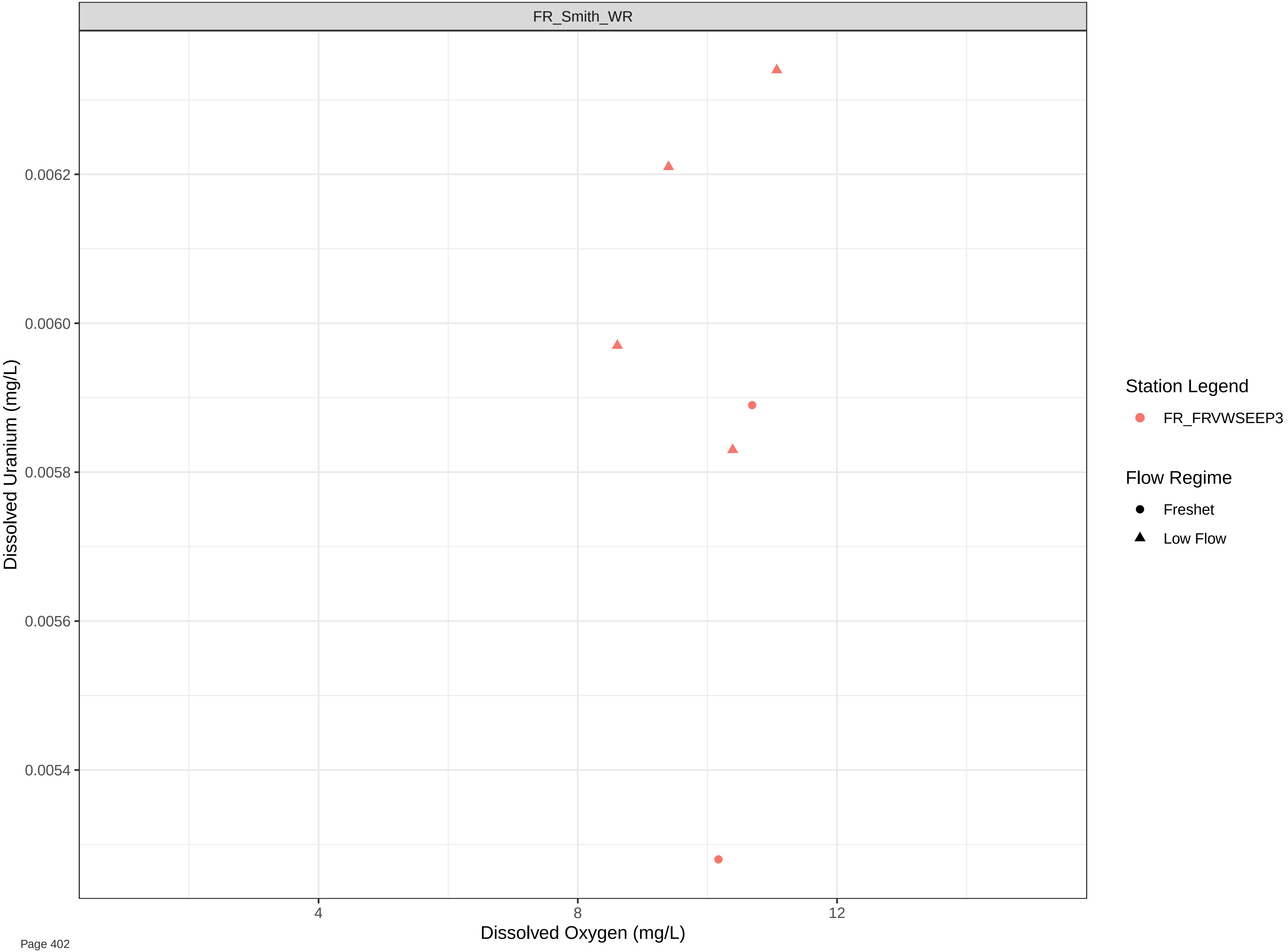

FR_Eagle_WR
Dissolved Uranium (mg/L)
0.030
0.029
0.028
0.027
0.026
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_EAGLENORTH
Flow Regime
Freshet
Low Flow

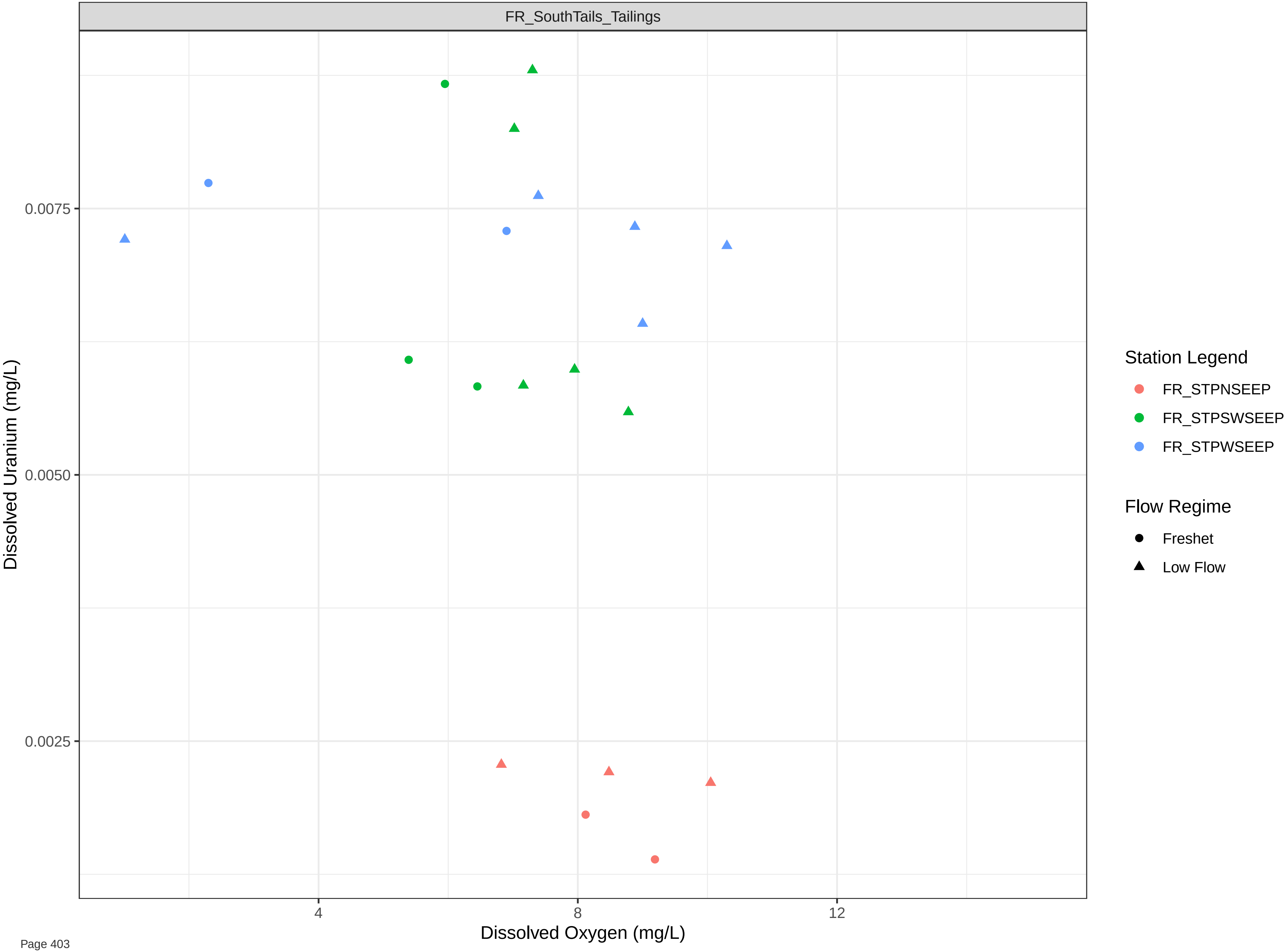

FR_Fseam_WR
Dissolved Uranium (mg/L)
0.008
0.006
0.004
0.002
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FSEAMWSEEP4
Flow Regime
● Freshet
▲ Low Flow

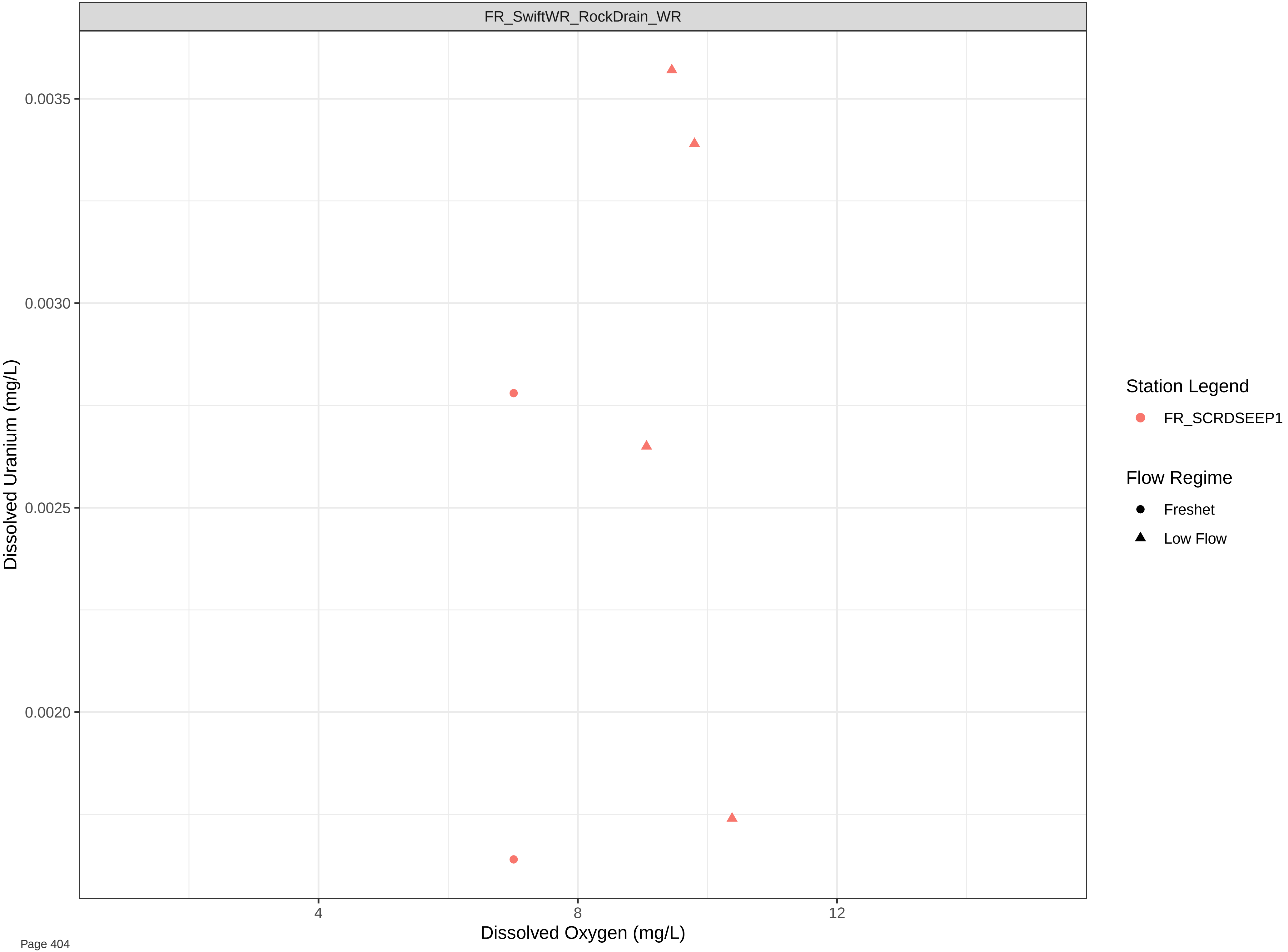

FR_HEN_WR
0.005
0.004
0.003
Dissolved Uranium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

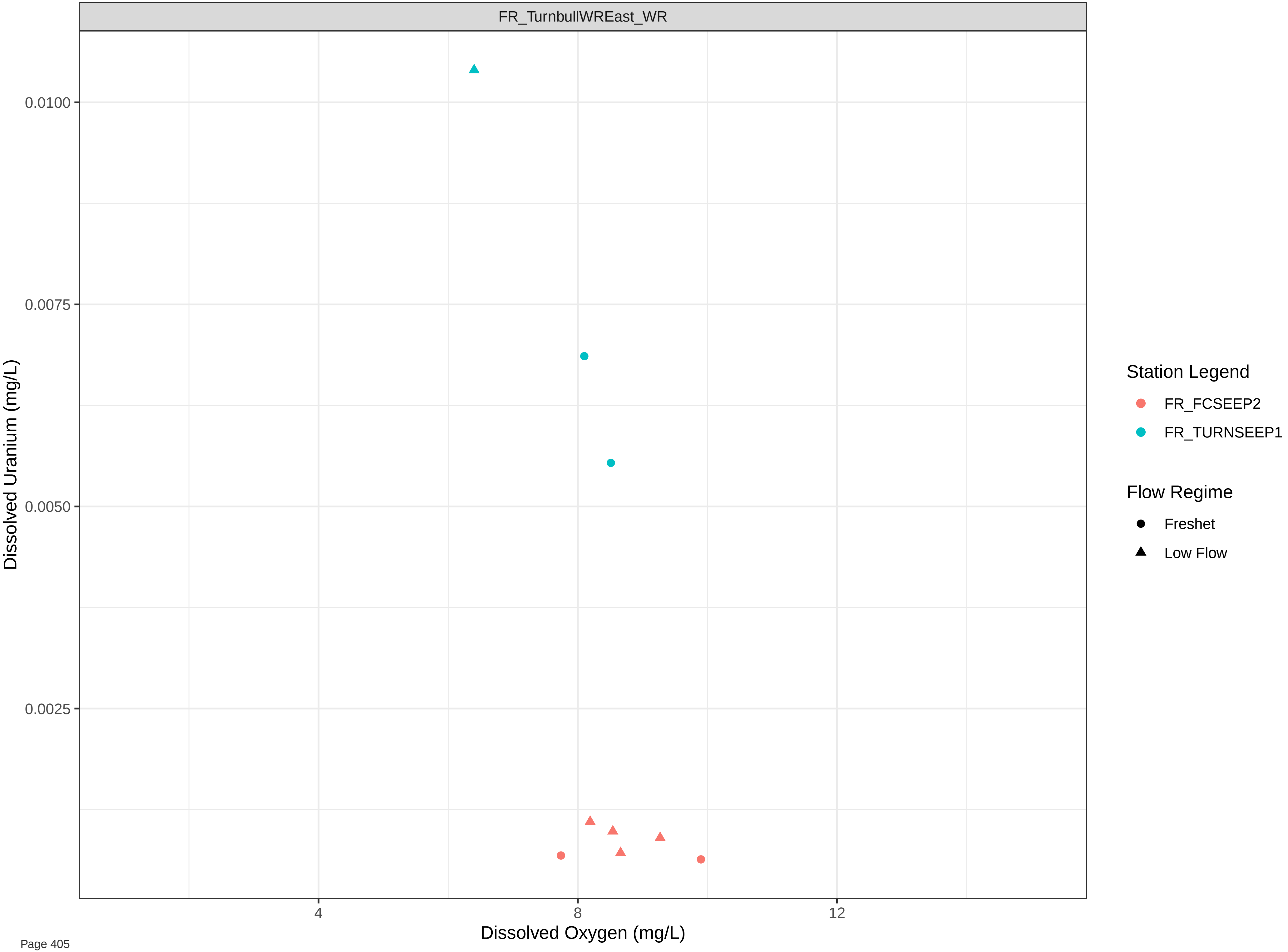

FR_LakeMtn_WR_PITS
Dissolved Uranium (mg/L)
0.006
0.004
0.002
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

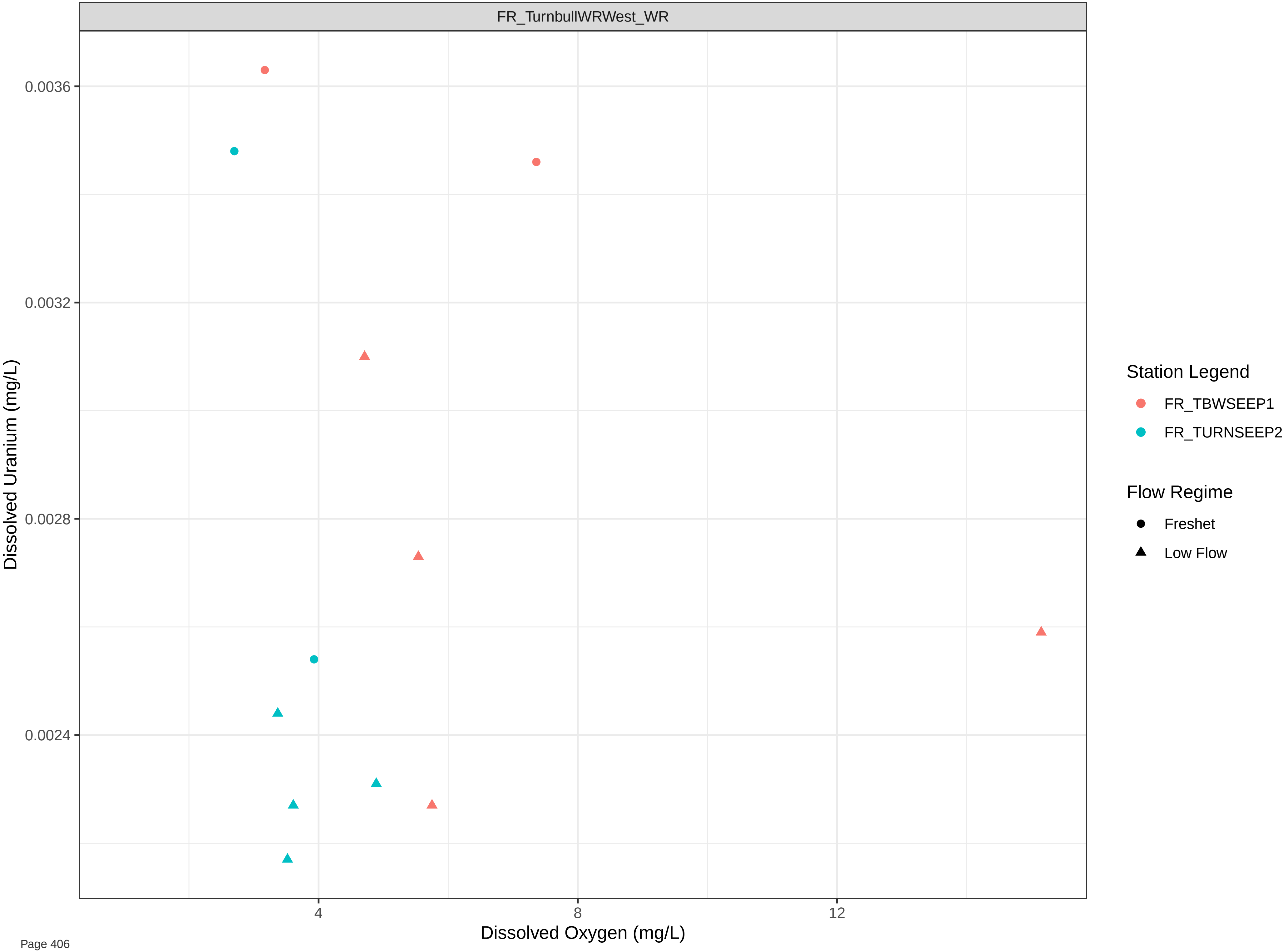

FR_Shandley_WR
0.0035
0.0030
0.0025
0.0020
Dissolved Uranium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

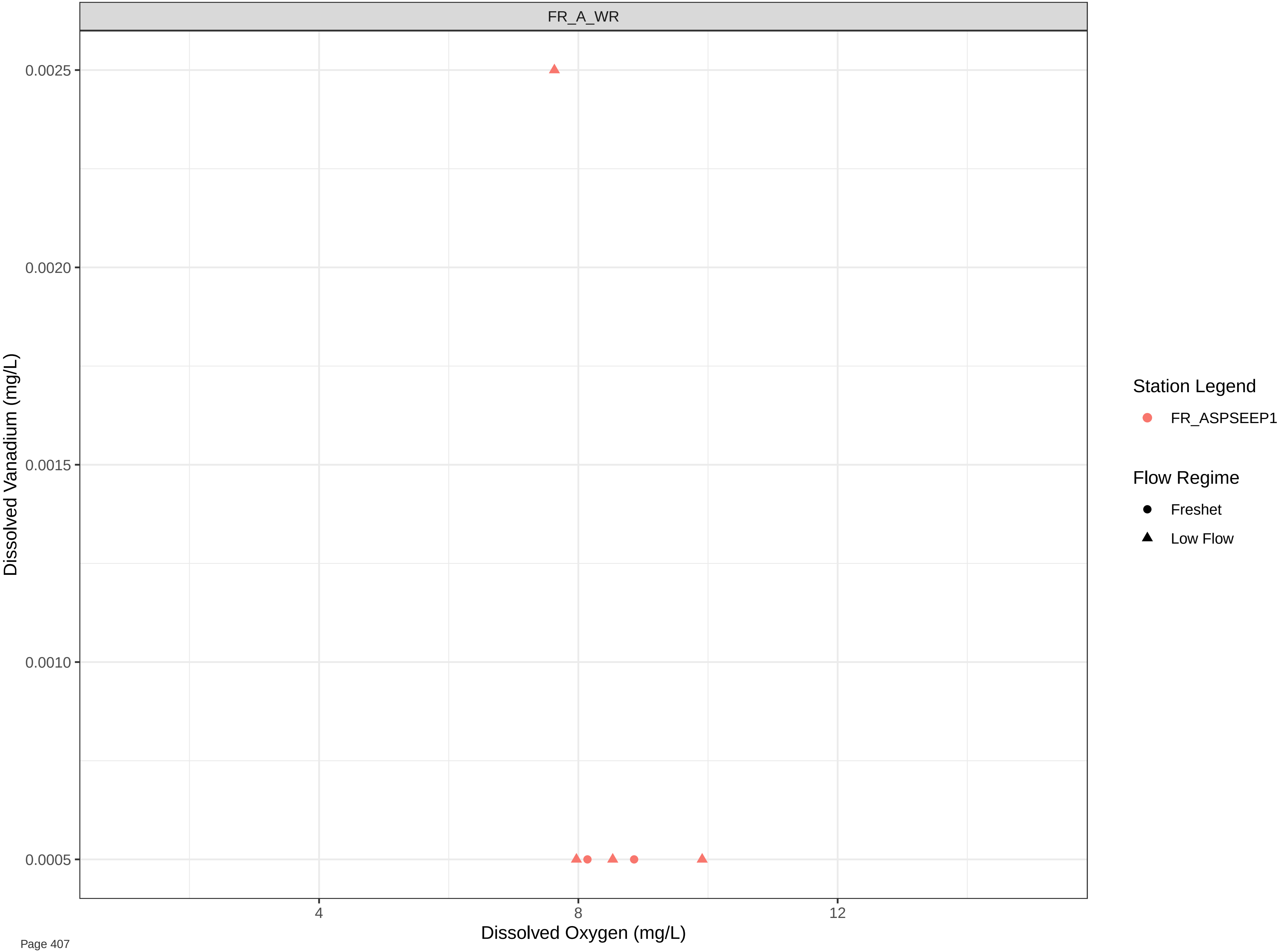

FR_Smith_WR
0.0062
0.0060
0.0058
0.0056
0.0054
Dissolved Uranium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_FRVWSEEP3
Flow Regime
● Freshet
▲ Low Flow

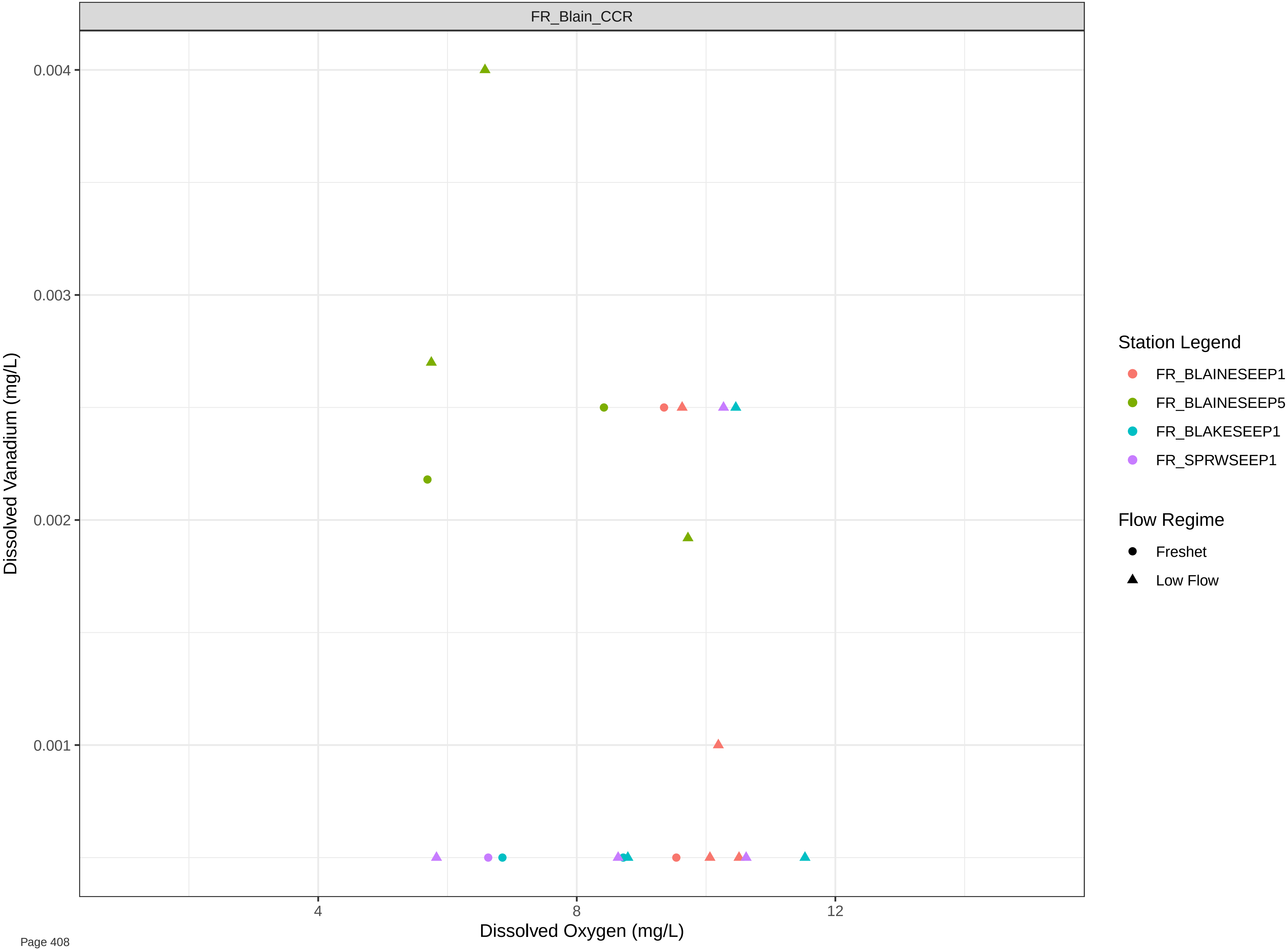

FR_SouthTails_Tailings
Dissolved Uranium (mg/L)
0.0075
0.0050
0.0025
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
● FR_STPNSEEP
● FR_STPSWSEEP
● FR_STPWSEEP
Flow Regime
● Freshet
▲ Low Flow

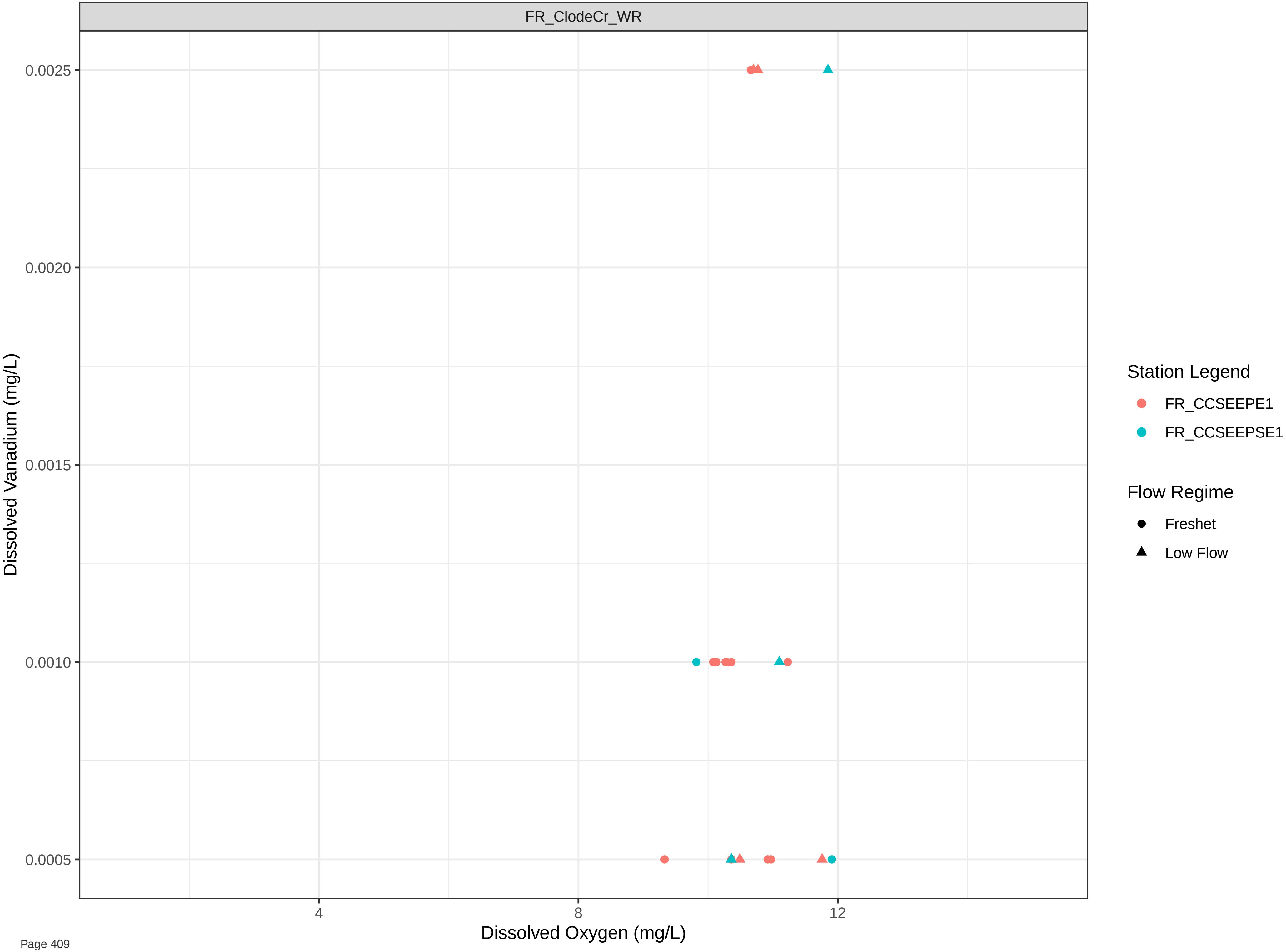

FR_SwiftWR_RockDrain_WR
Dissolved Uranium (mg/L)
0.0035
0.0030
0.0025
0.0020
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

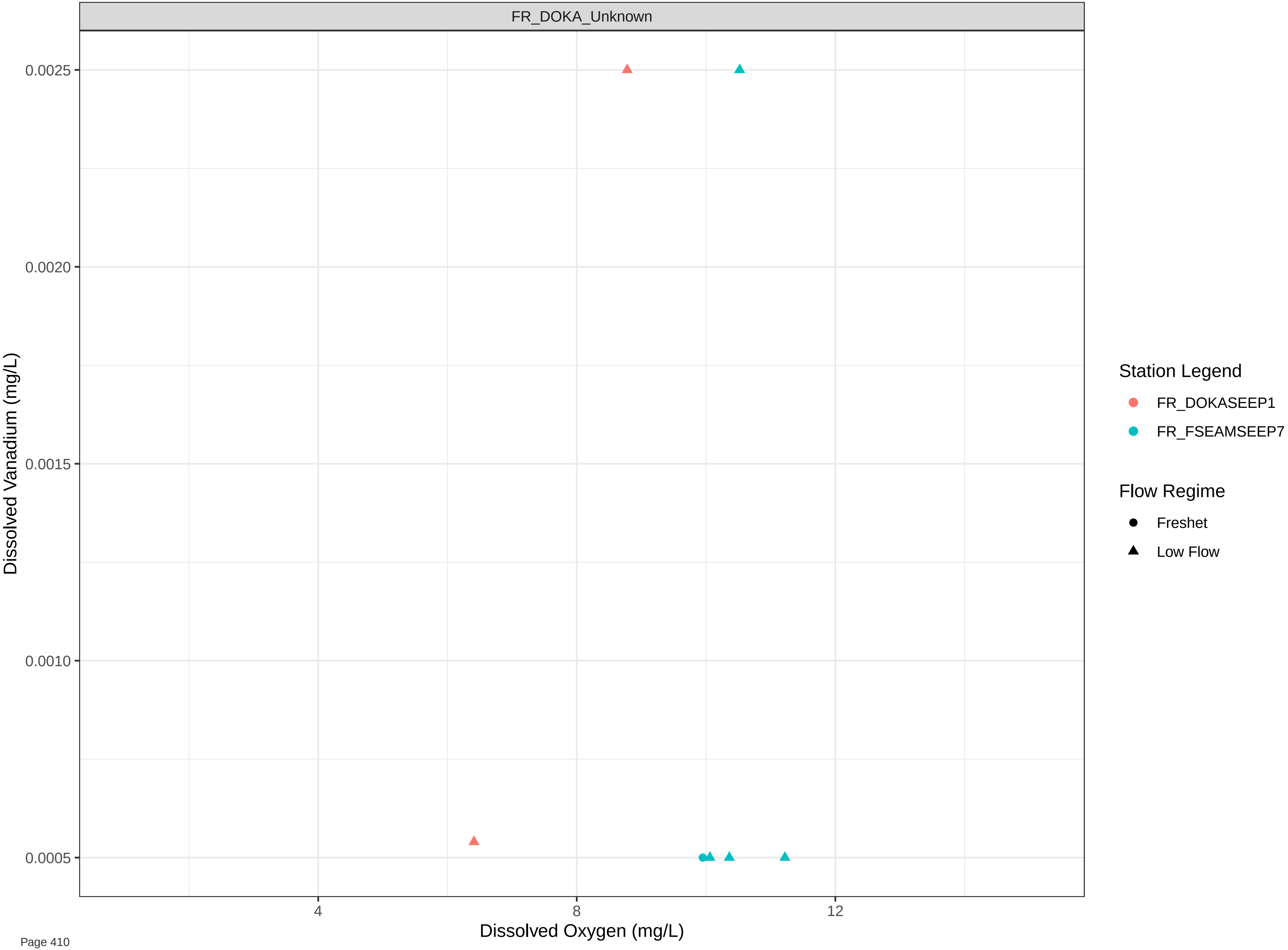

FR_TurnbullWREast_WR
Dissolved Uranium (mg/L)
0.0100
0.0075
0.0050
0.0025
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

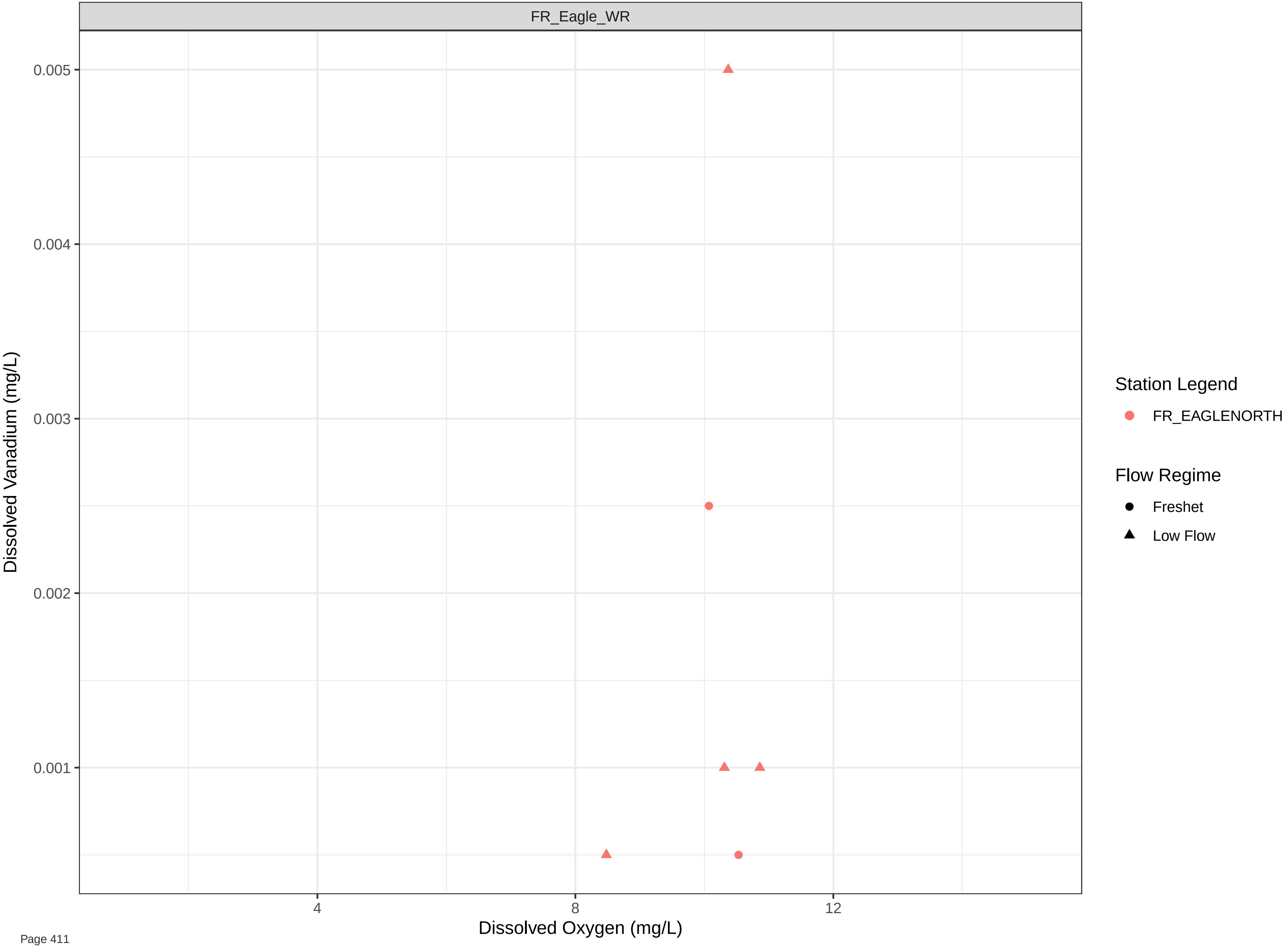

FR_TurnbullWRWest_WR
0.0036
0.0032
0.0028
0.0024
Dissolved Uranium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

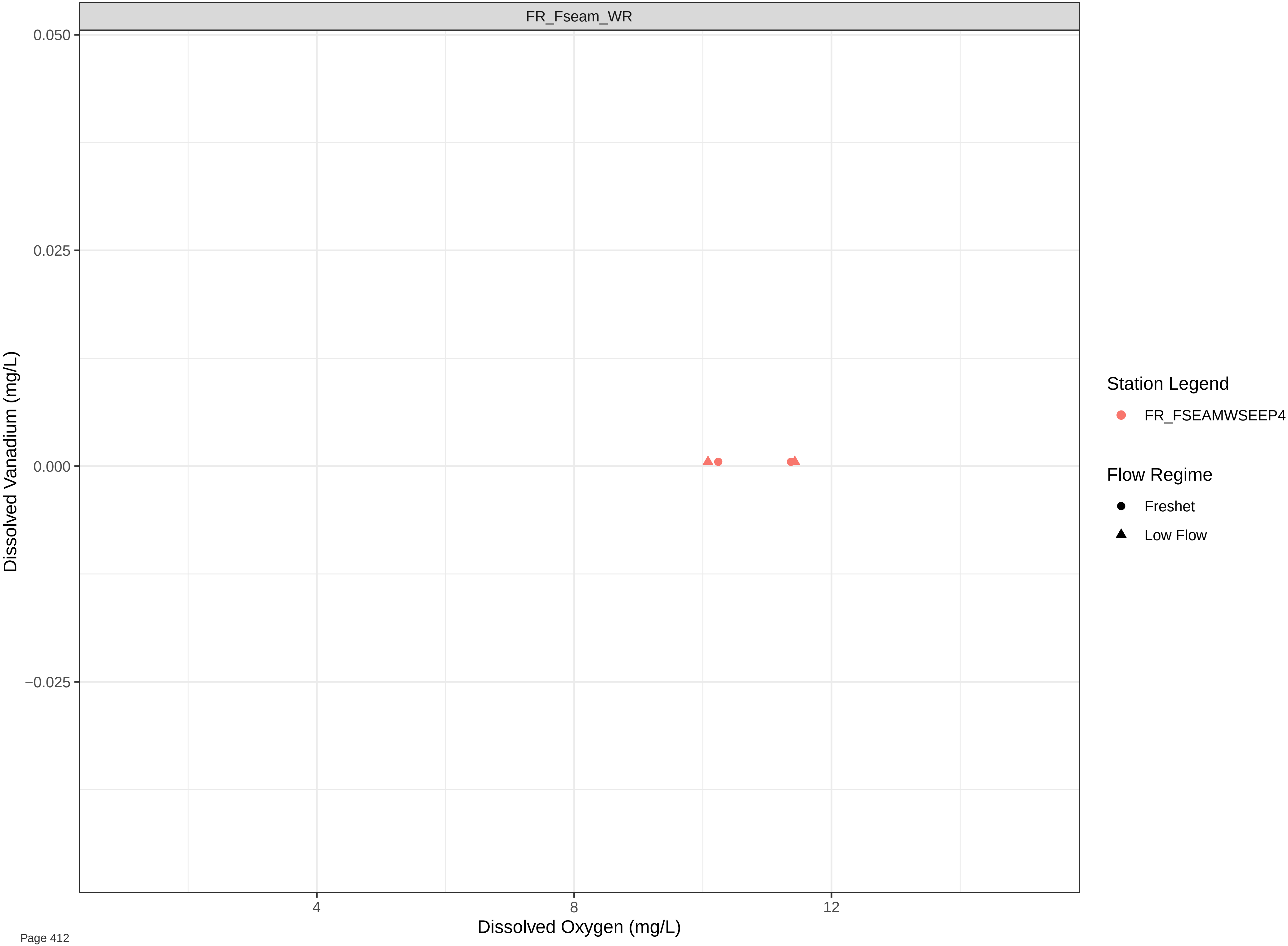

FR_A_WR
0.0025
0.0020
0.0015
0.0010
0.0005
Dissolved Vanadium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

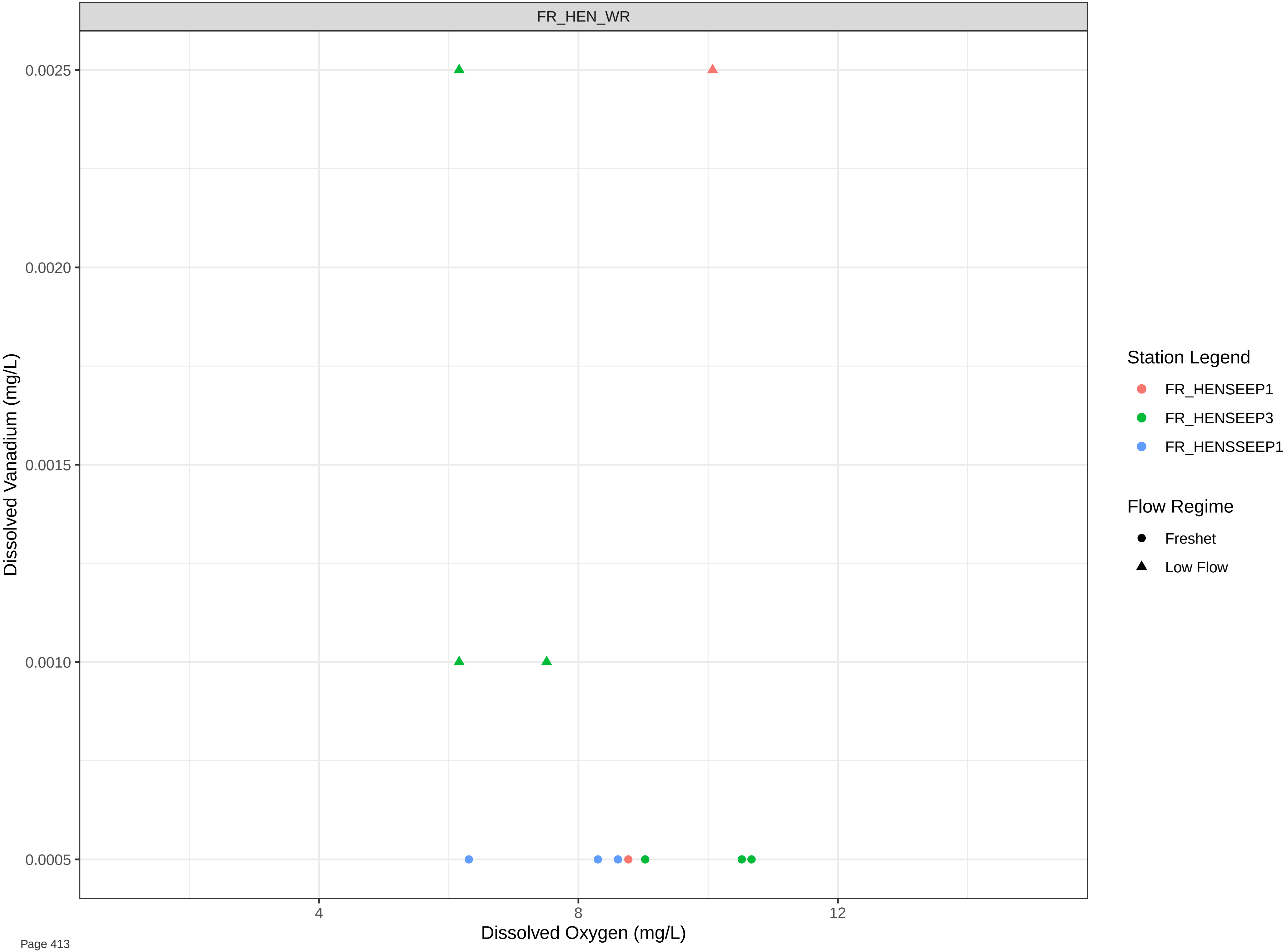

FR_Blain_CCR
Dissolved Vanadium (mg/L)
0.004
0.003
0.002
0.001
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

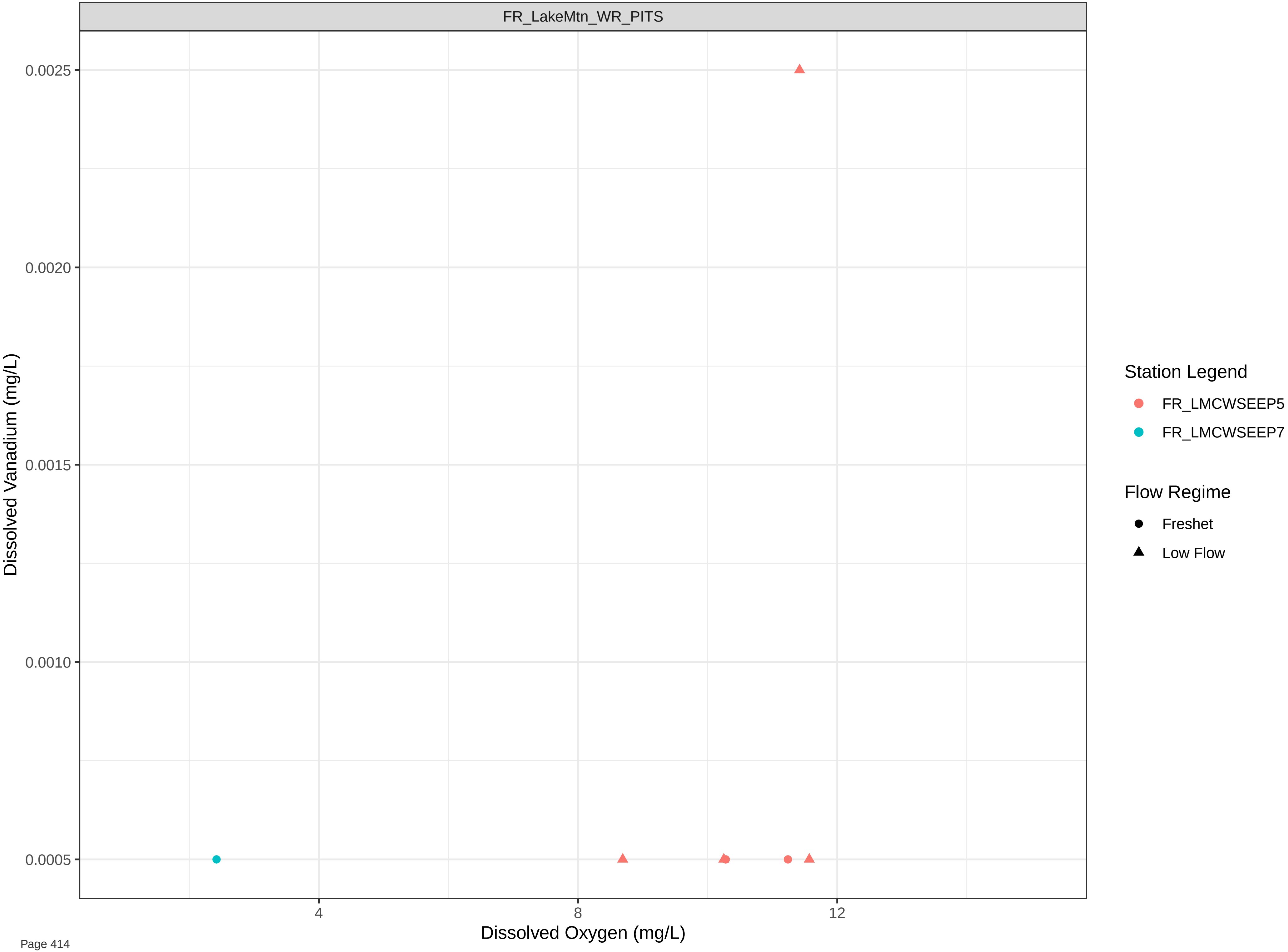

FR_ClodeCr_WR
0.0025
0.0020
0.0015
0.0010
0.0005
Dissolved Vanadium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

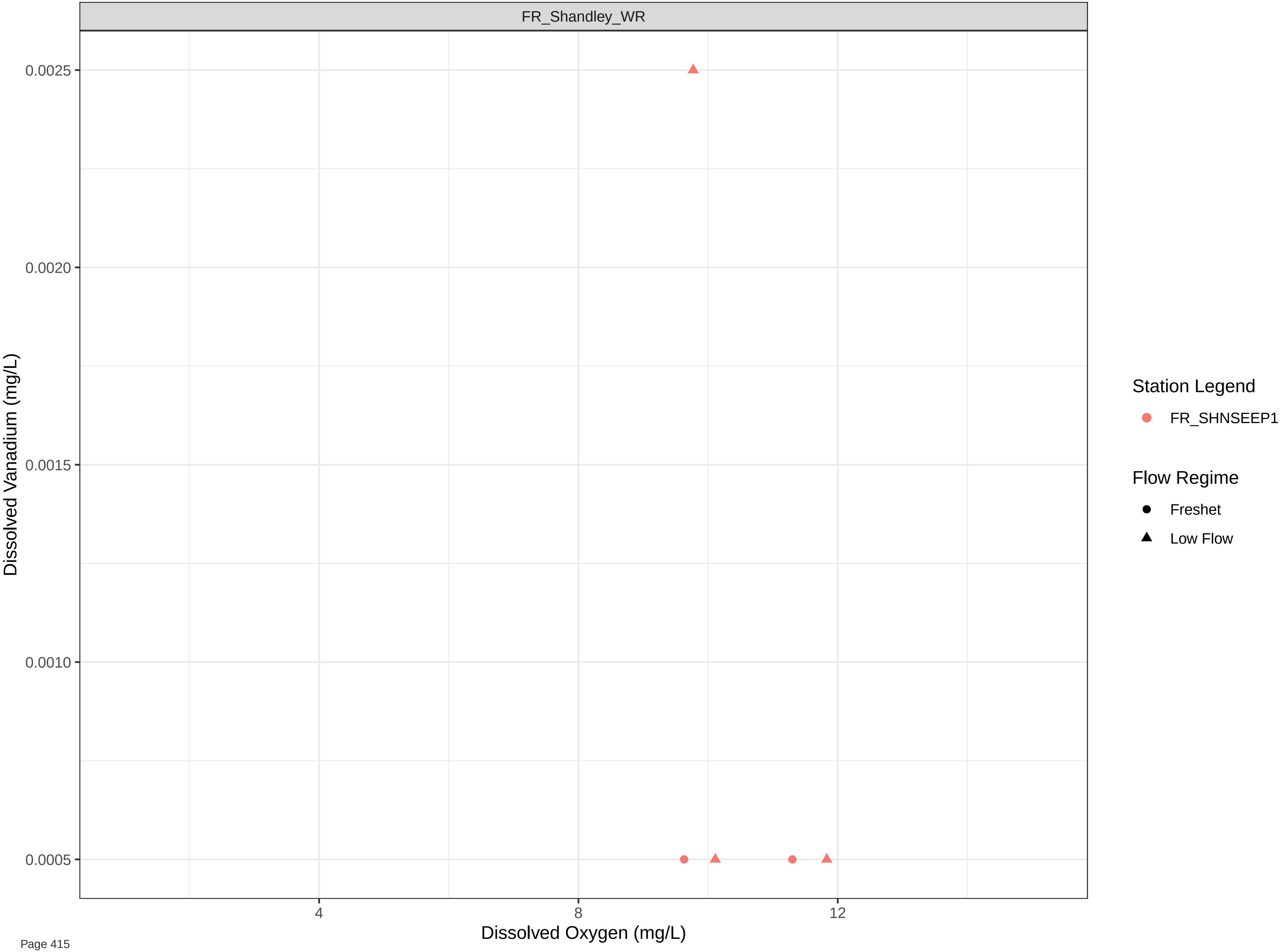

FR_DOKA_Unknown
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

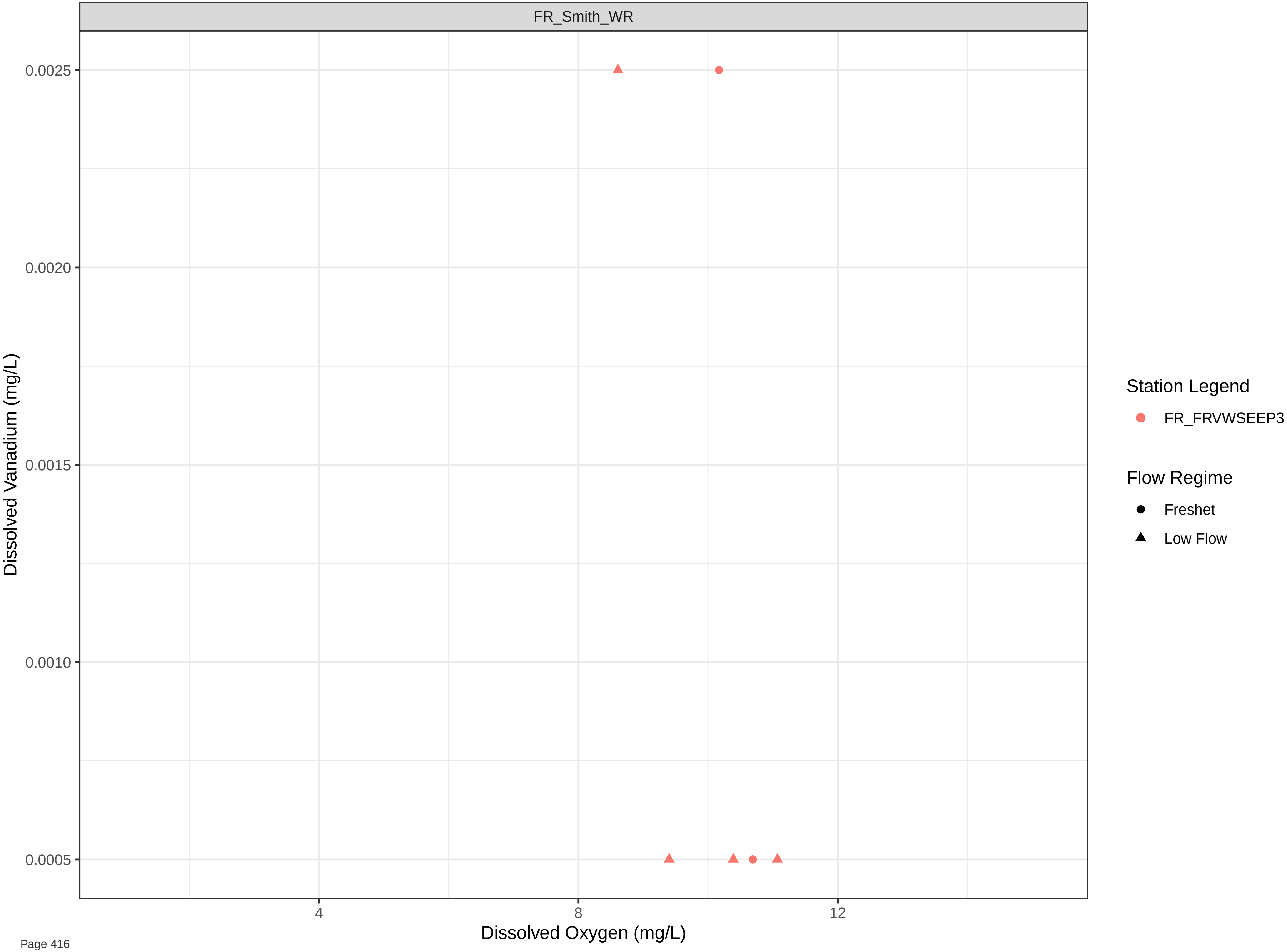

FR_Eagle_WR
0.005
0.004
0.003
0.002
0.001
Dissolved Vanadium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

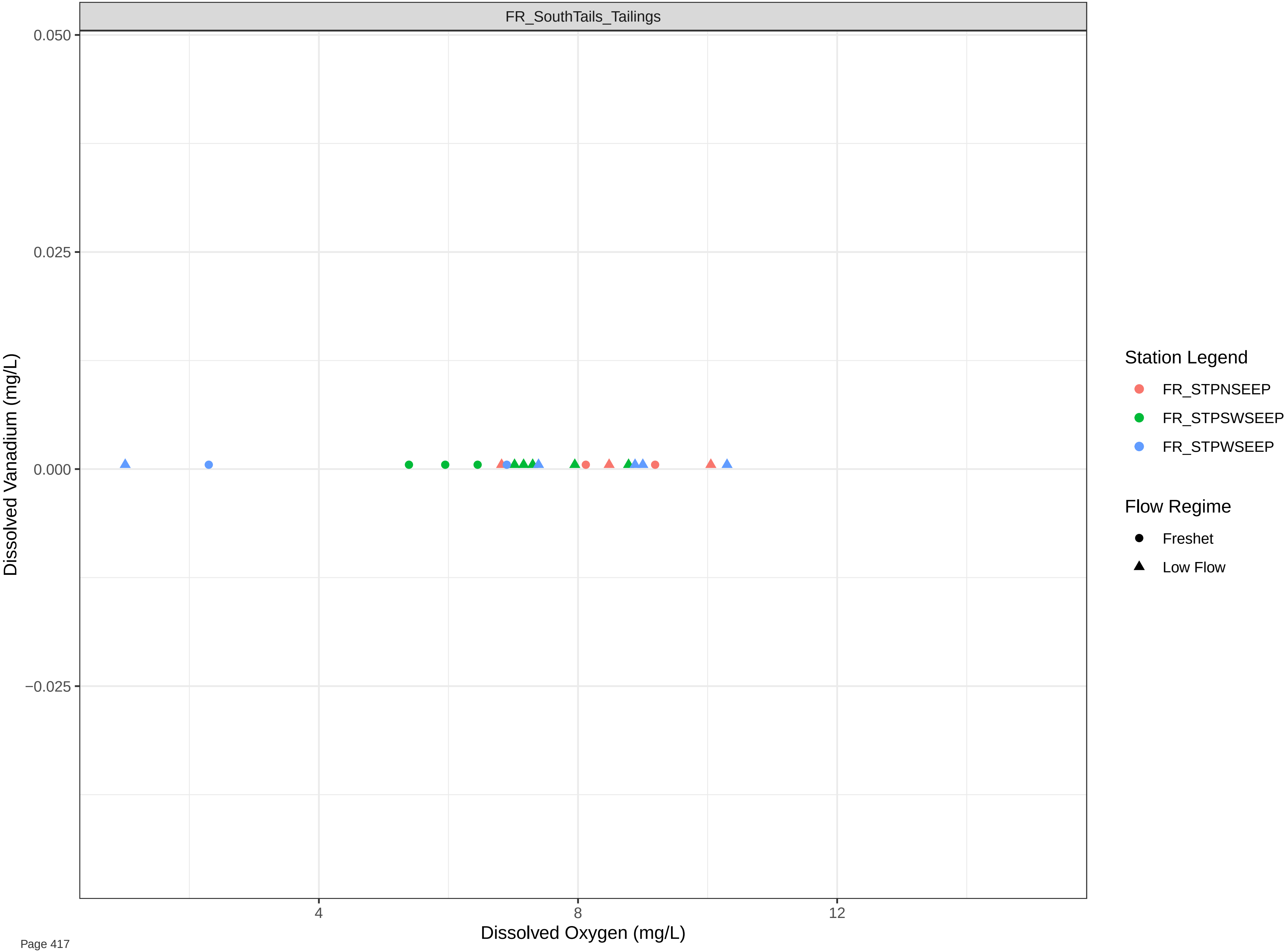

FR_Fseam_WR
0.050
0.025
0.000
−0.025
Dissolved Vanadium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

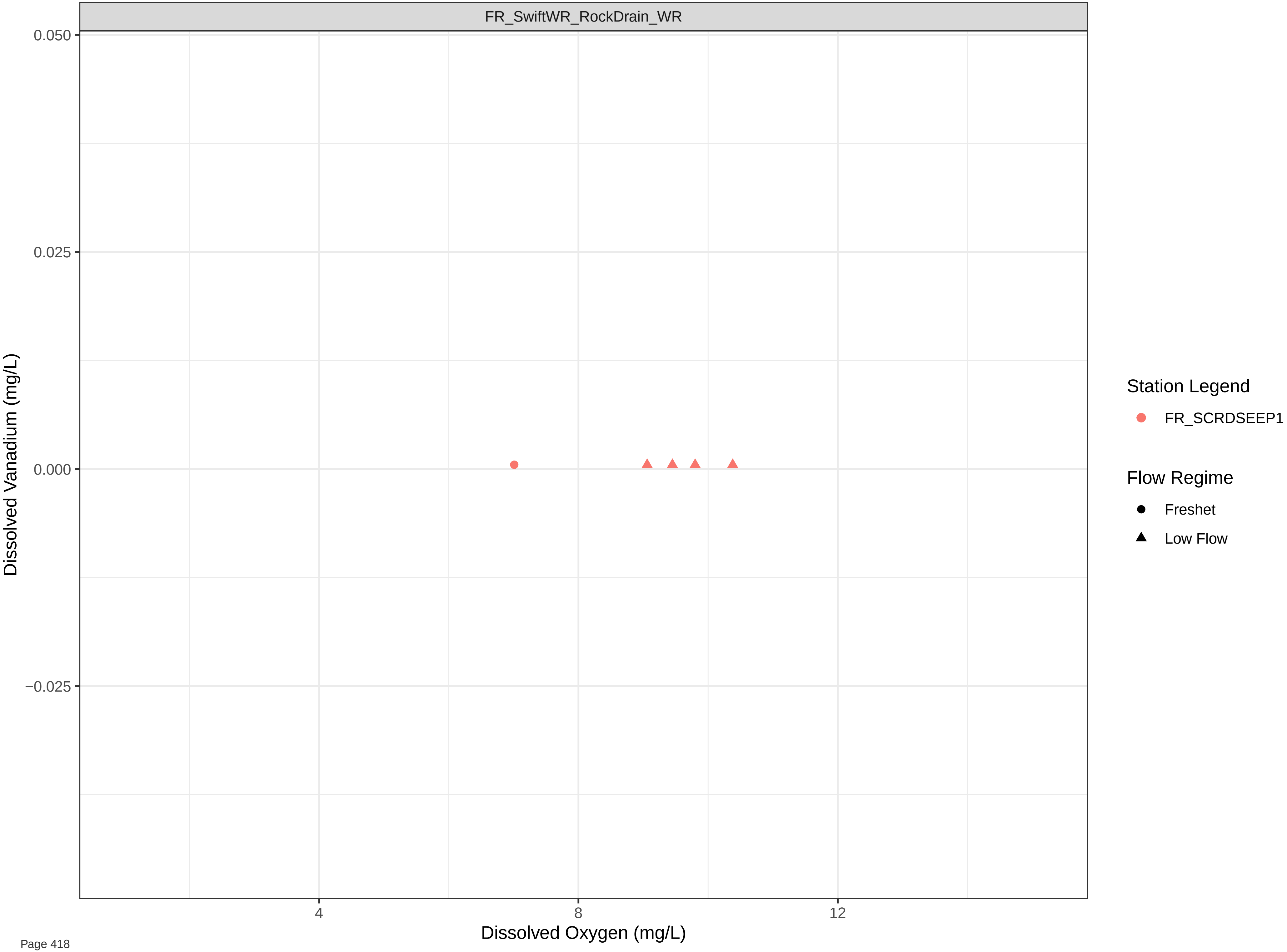

FR_HEN_WR
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

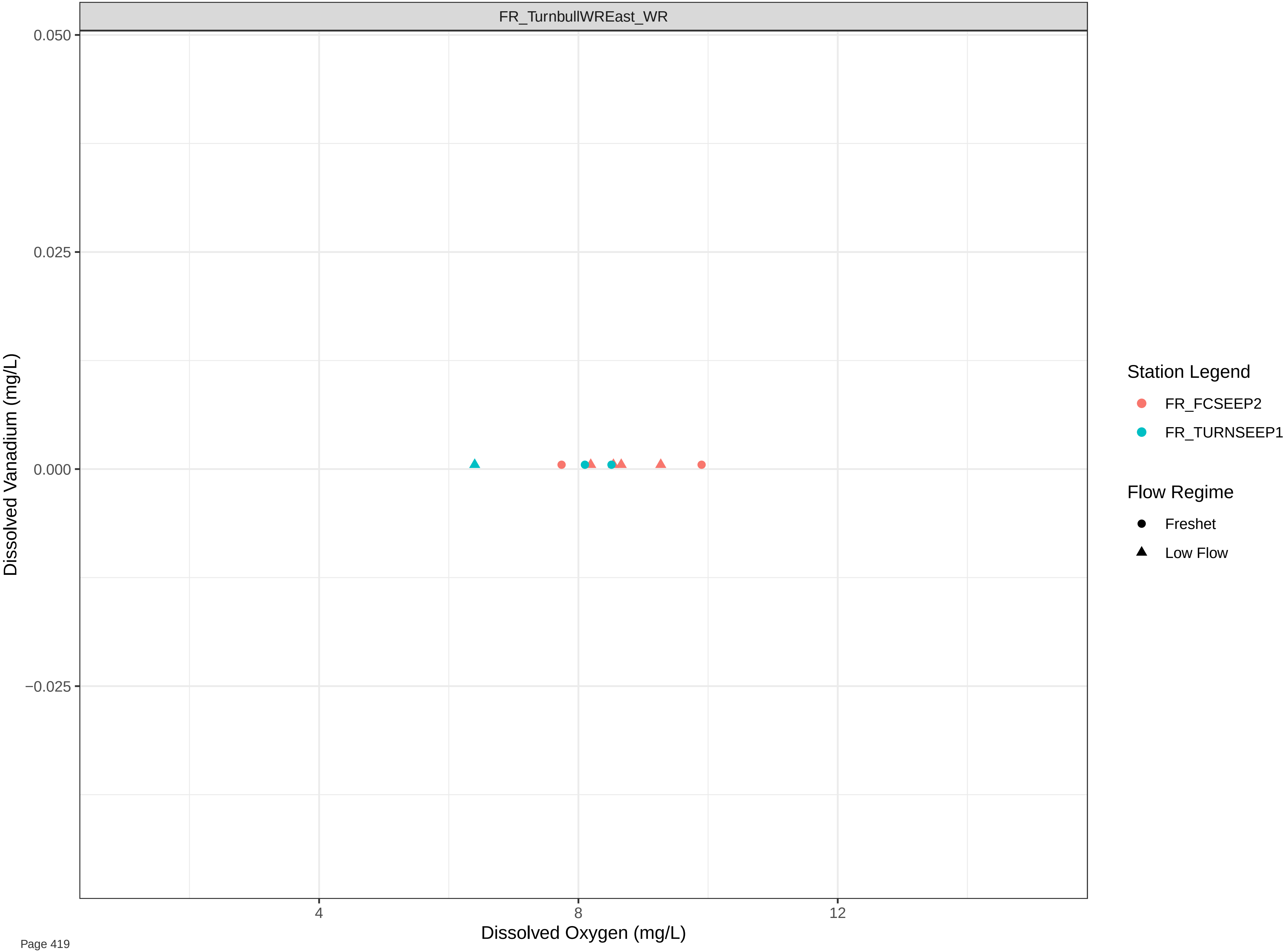

FR_LakeMtn_WR_PITS
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

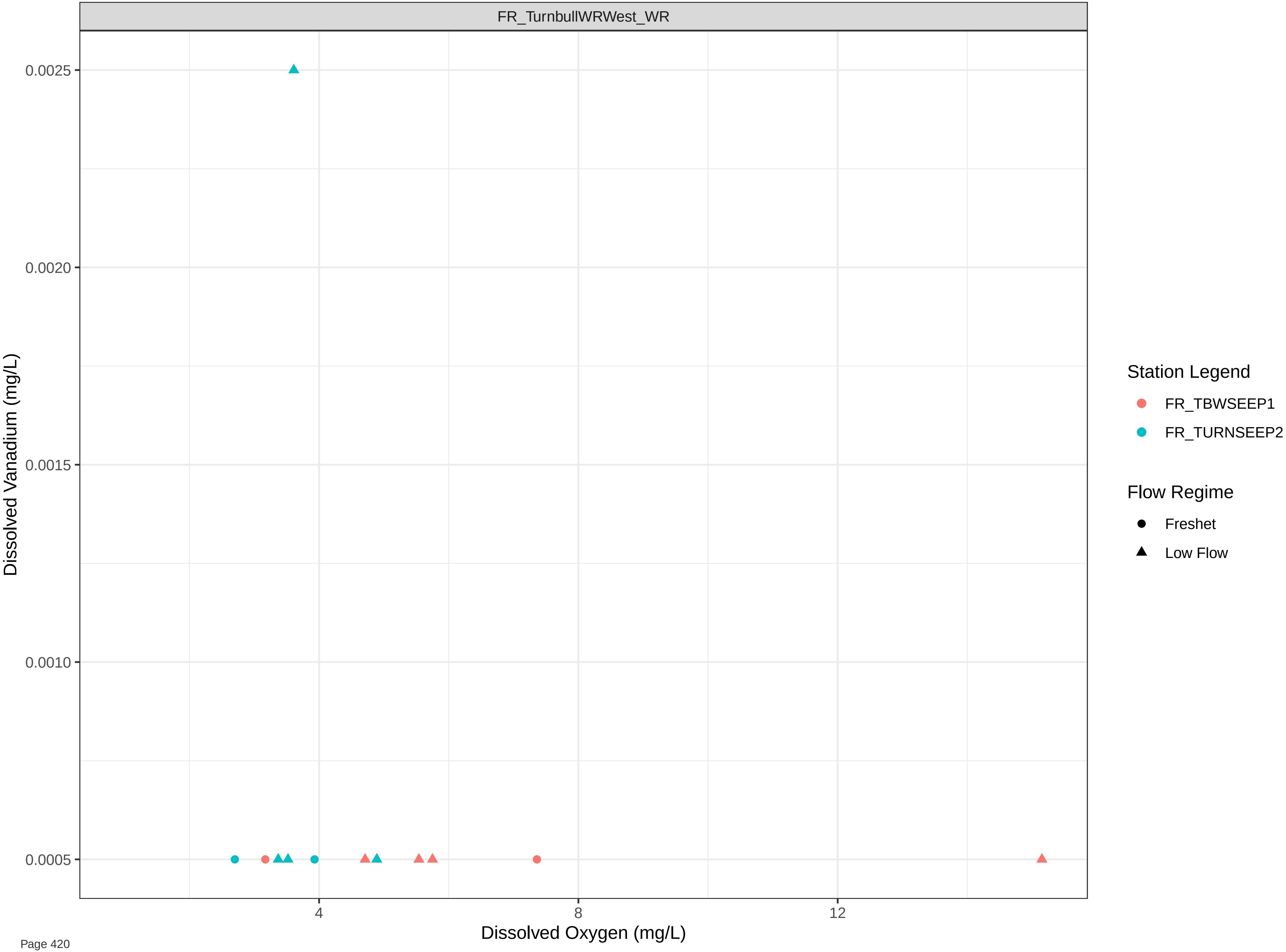

FR_Shandley_WR
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

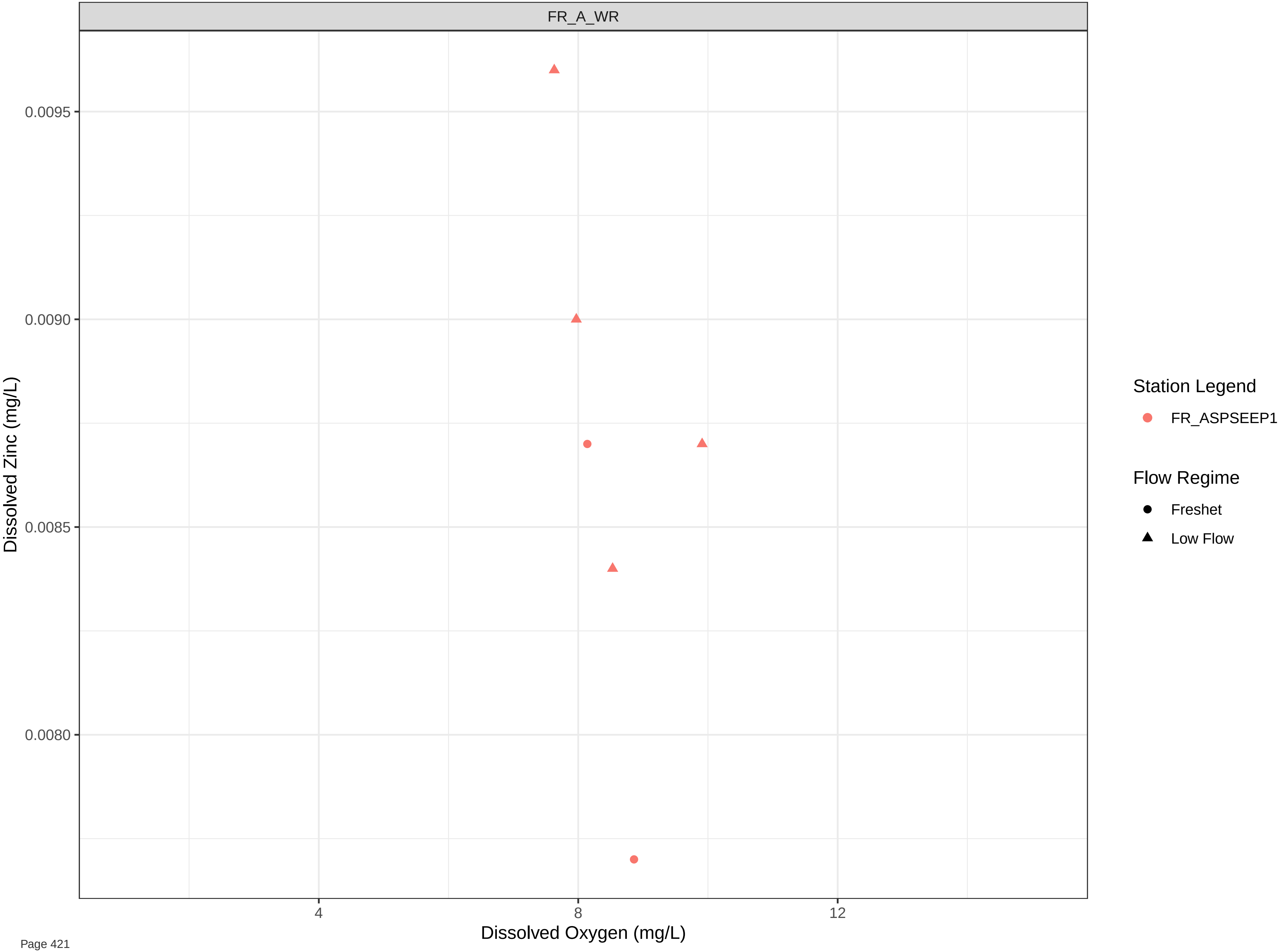

FR_Smith_WR
0.0025
0.0020
0.0015
0.0010
0.0005
Dissolved Vanadium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

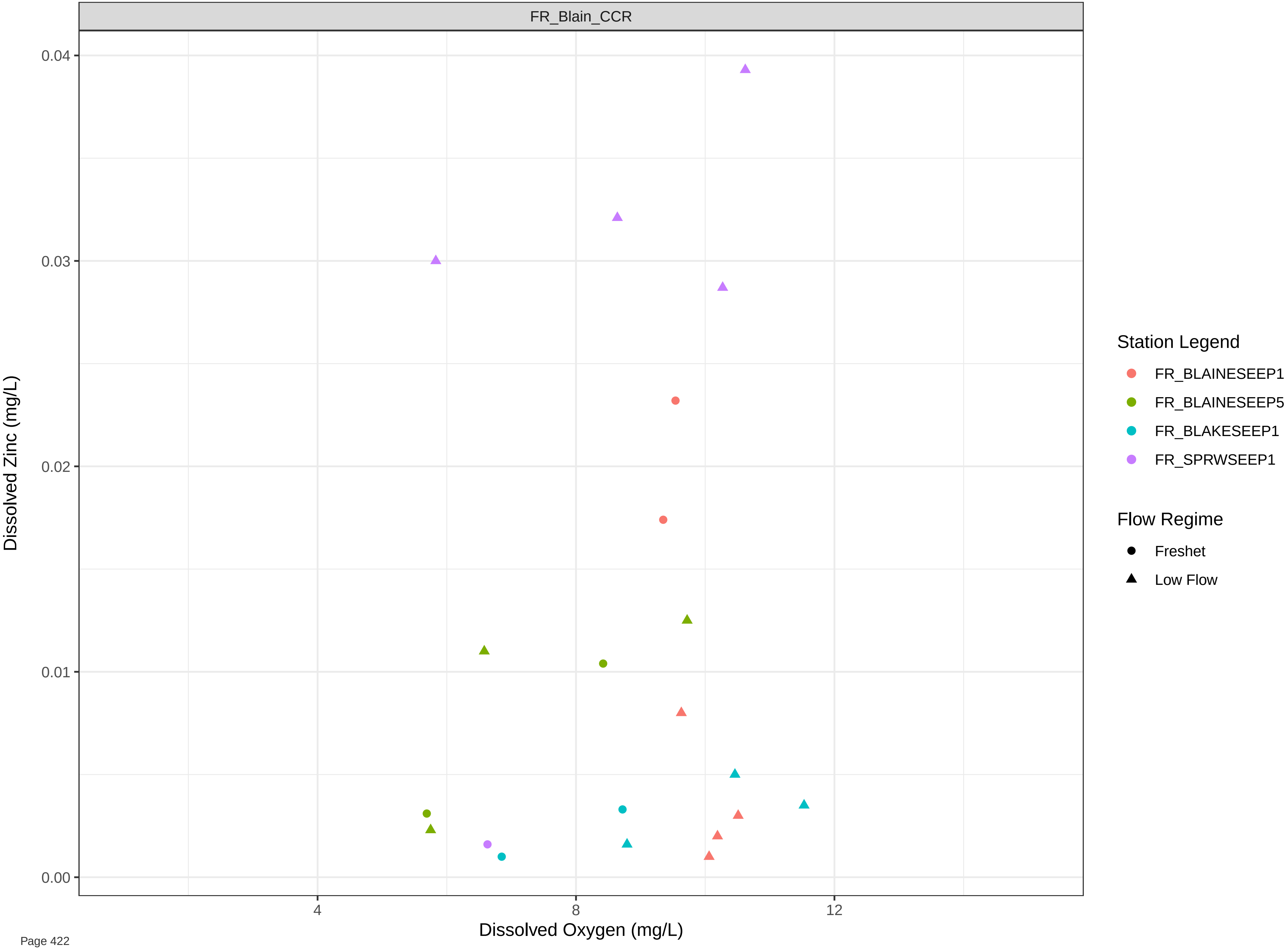

FR_SouthTails_Tailings
0.050
0.025
0.000
−0.025
Dissolved Vanadium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

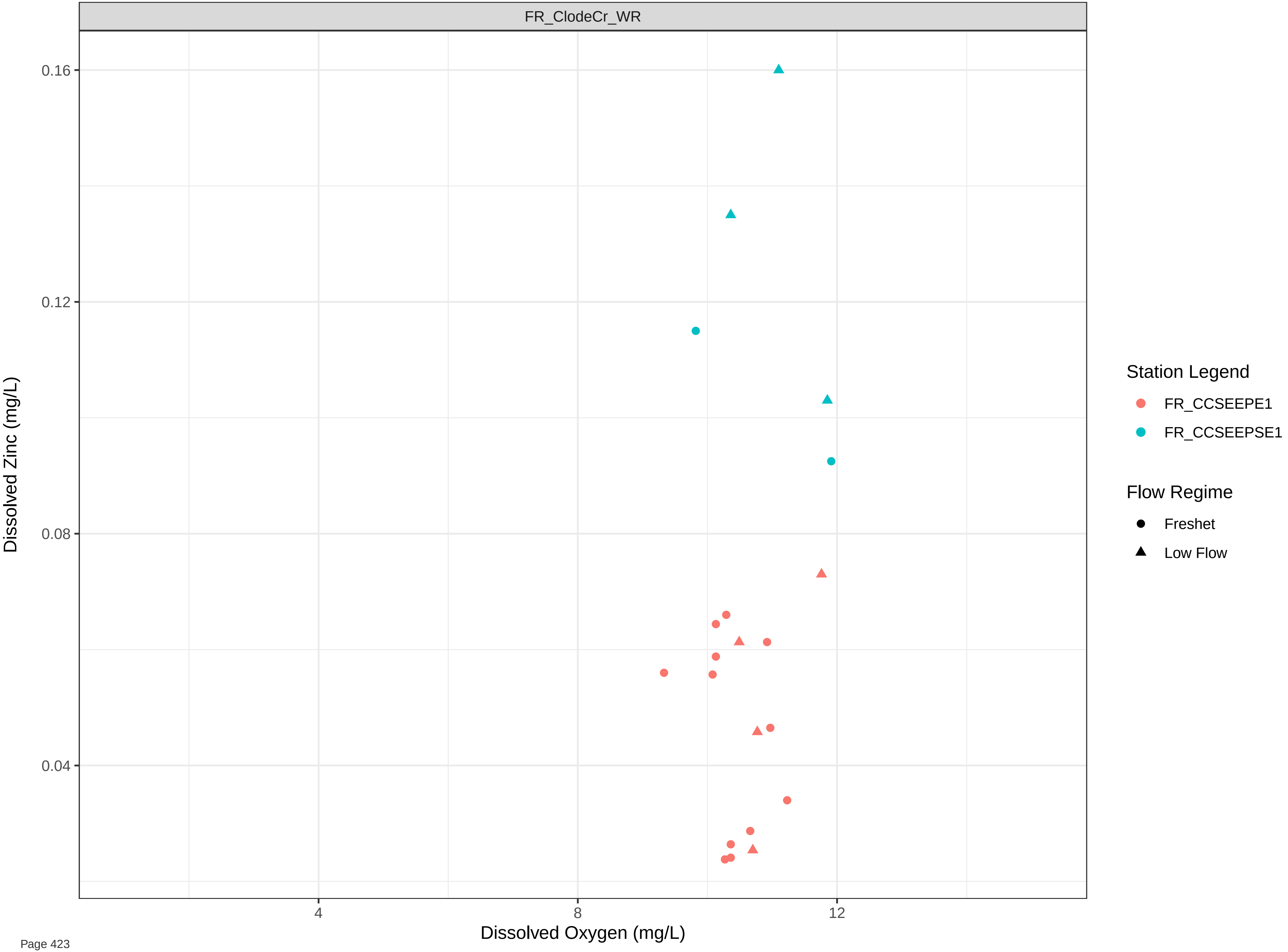

FR_SwiftWR_RockDrain_WR
0.050
0.025
0.000
−0.025
Dissolved Vanadium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SCRDSEEP1
Flow Regime
Freshet
Low Flow

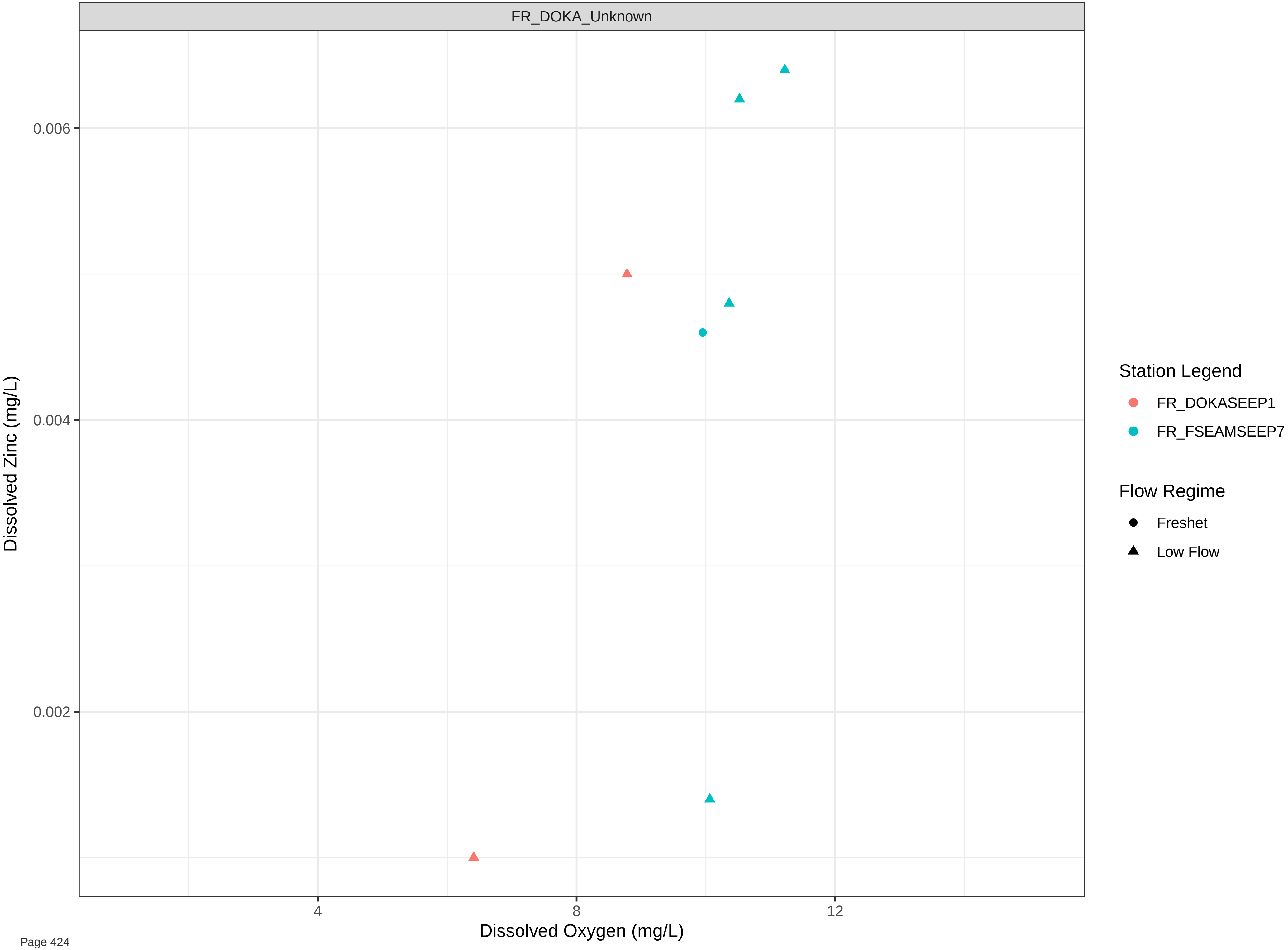

FR_TurnbullWREast_WR
0.050
0.025
0.000
−0.025
Dissolved Vanadium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

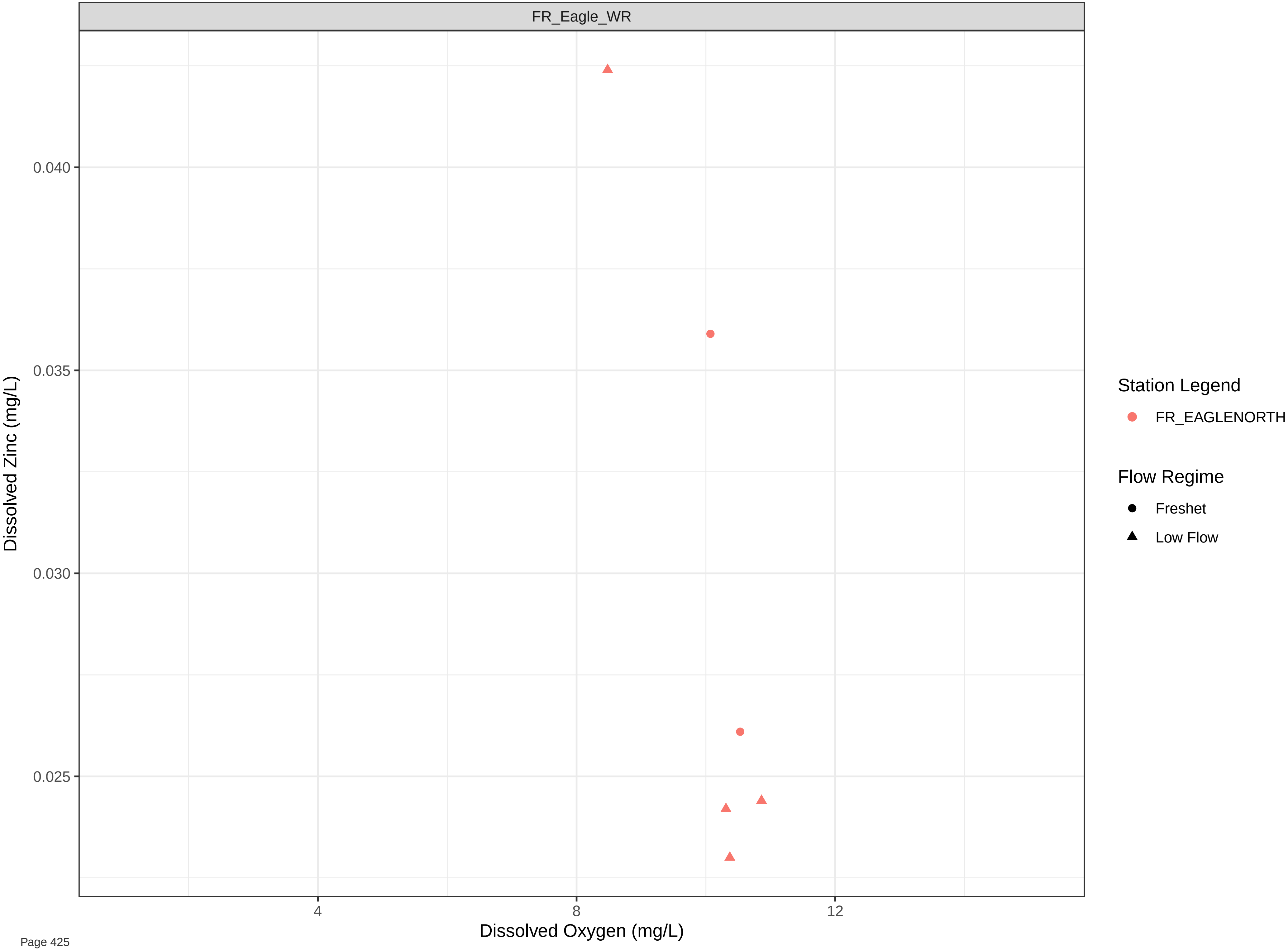

FR_TurnbullWRWest_WR
0.0025
0.0020
0.0015
0.0010
0.0005
Dissolved Vanadium (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

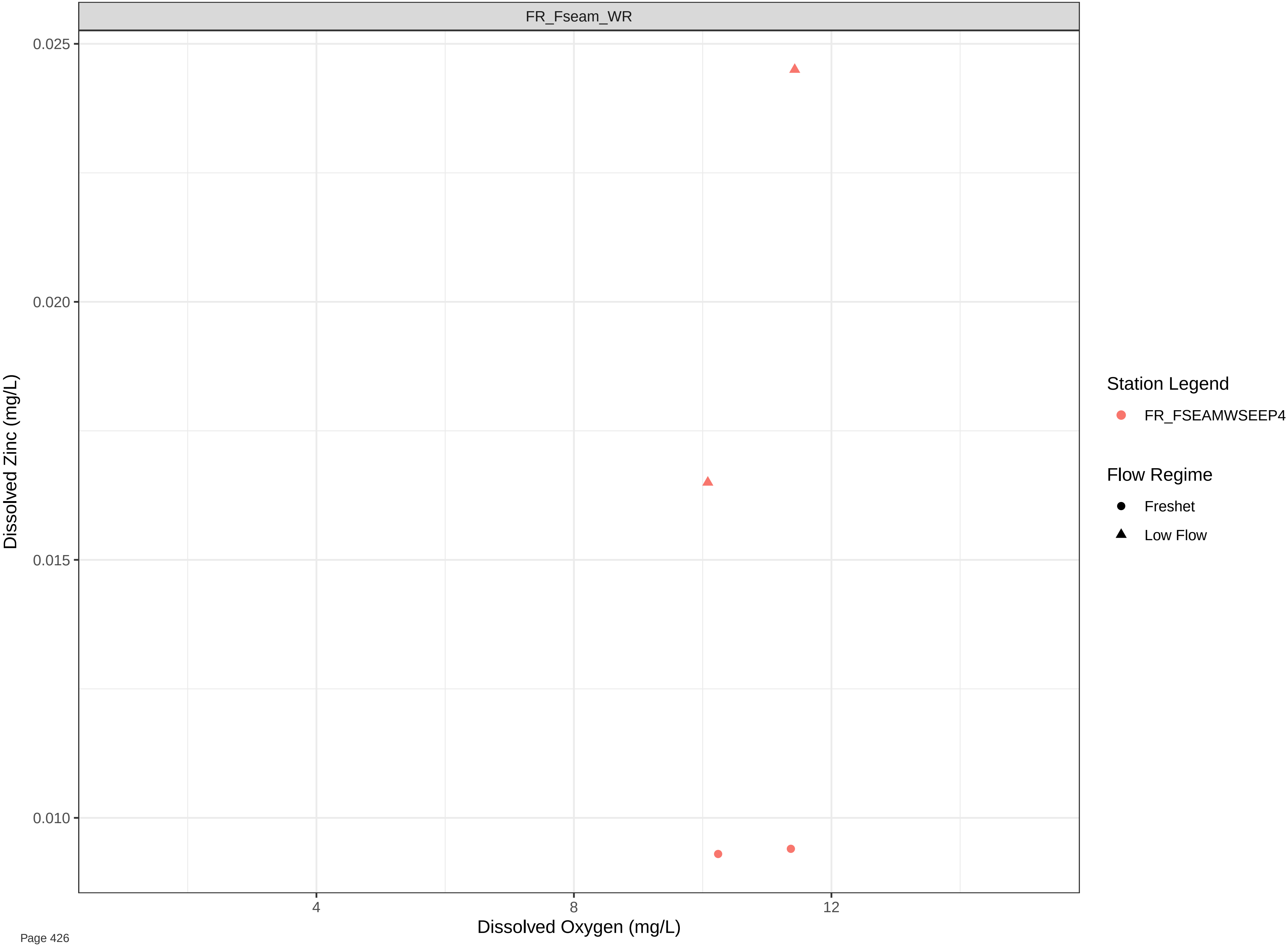

FR_A_WR
Dissolved Zinc (mg/L)
0.0095
0.0090
0.0085
0.0080
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_ASPSEEP1
Flow Regime
Freshet
Low Flow

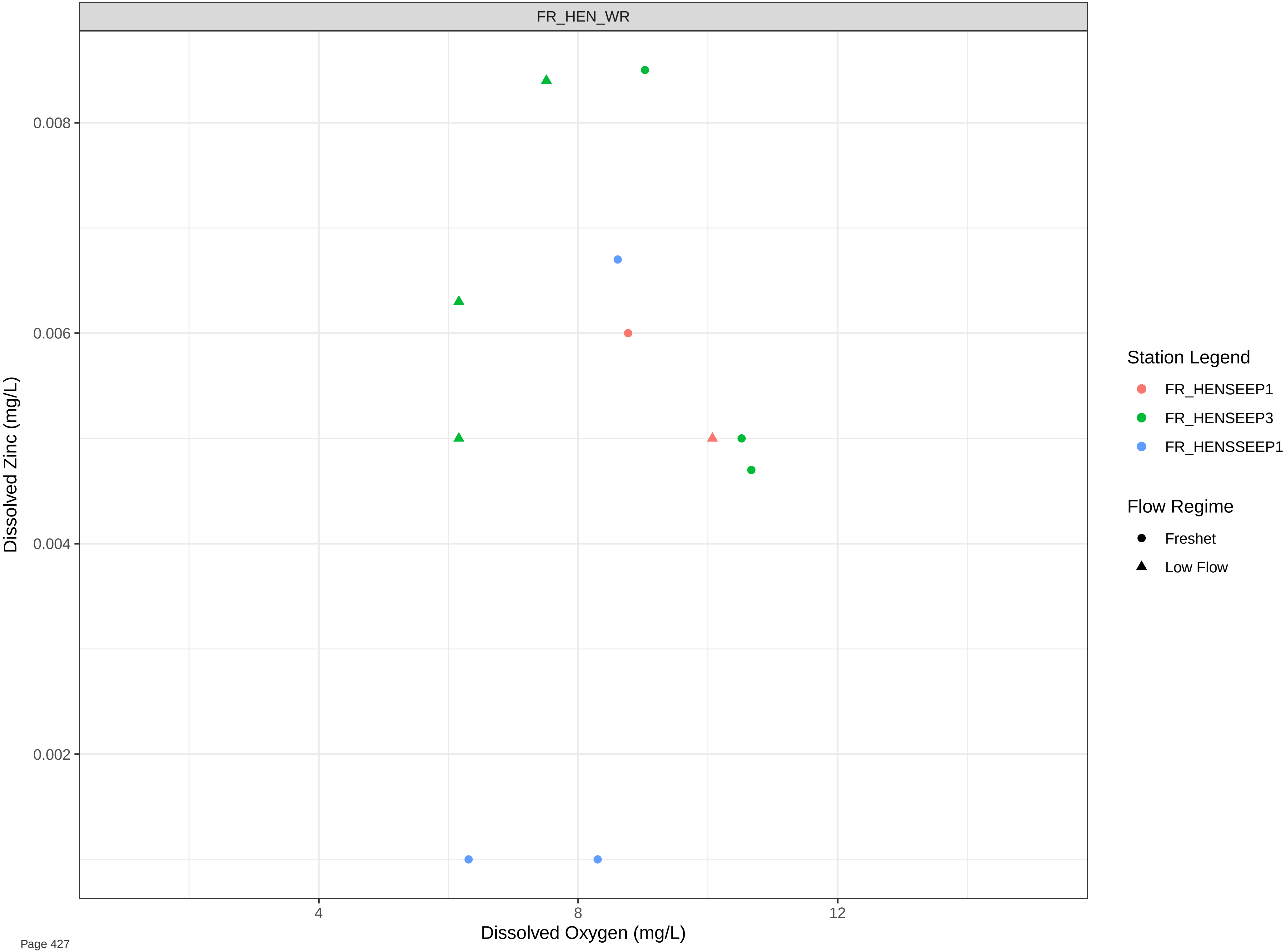

FR_Blain_CCR
Dissolved Zinc (mg/L)
0.04
0.03
0.02
0.01
0.00
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_BLAINESEEP1
FR_BLAINESEEP5
FR_BLAKESEEP1
FR_SPRWSEEP1
Flow Regime
Freshet
Low Flow

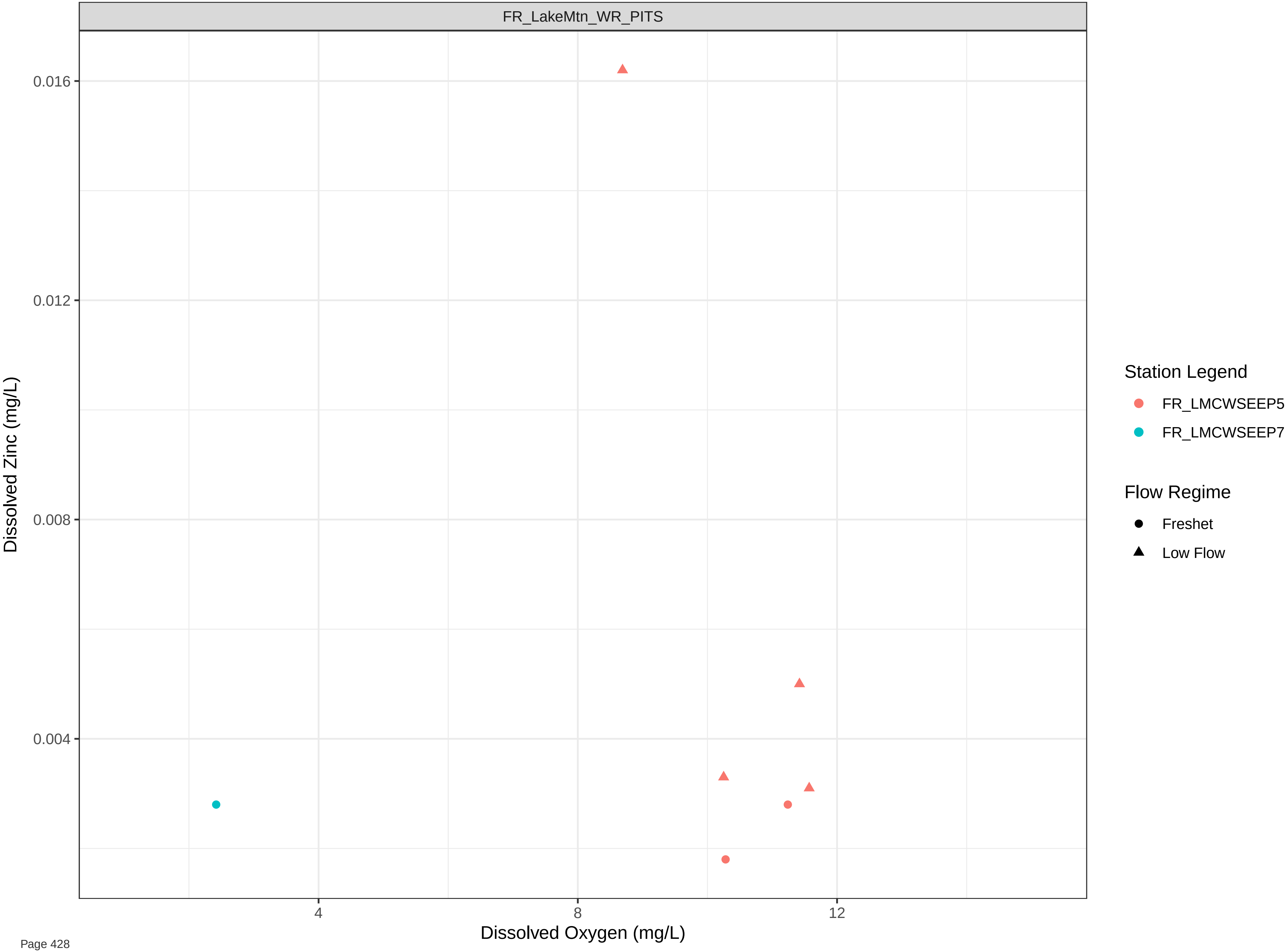

FR_ClodeCr_WR
0.16
0.12
0.08
0.04
Dissolved Zinc (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_CCSEEPE1
FR_CCSEEPSE1
Flow Regime
Freshet
Low Flow

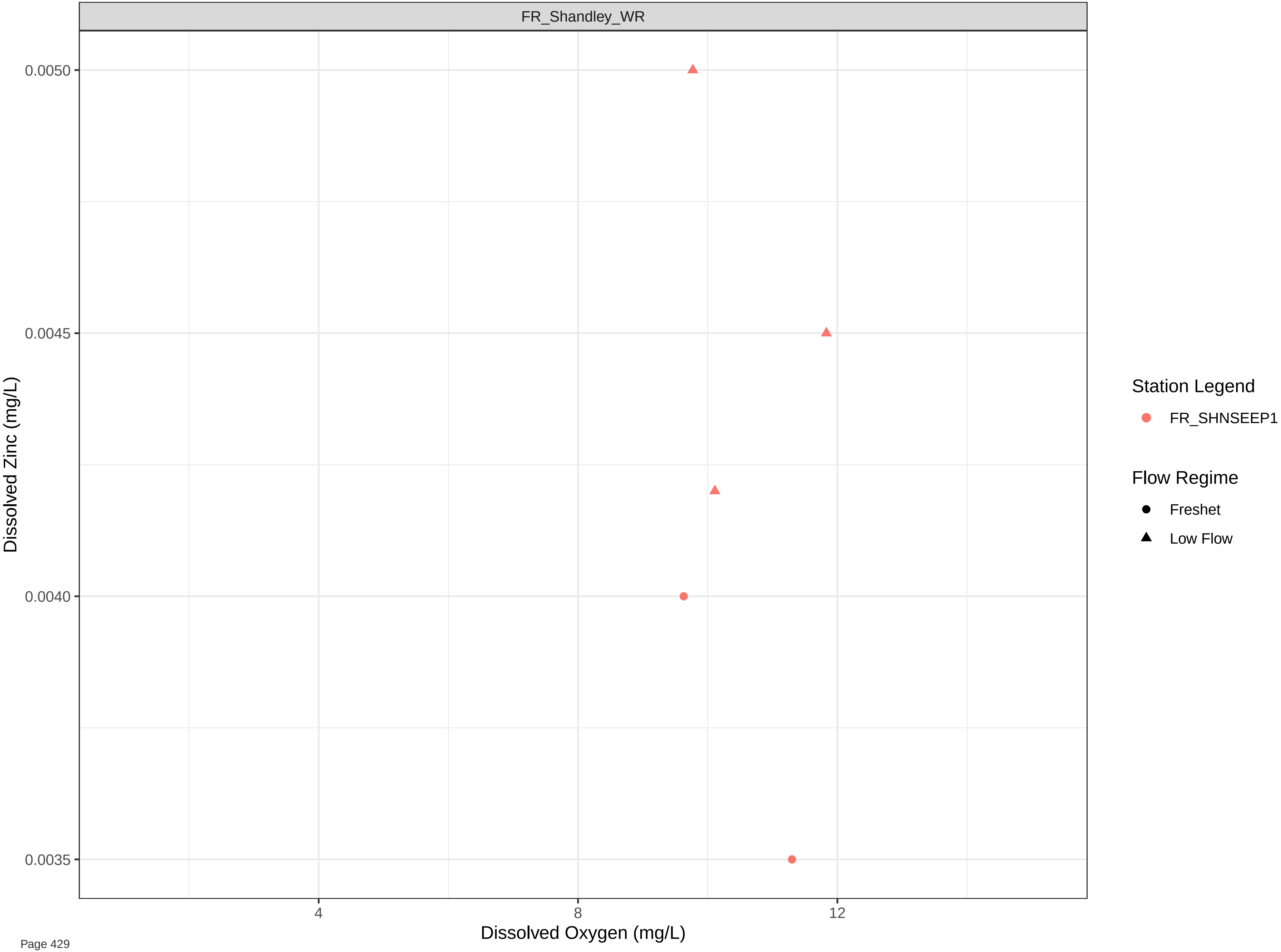

FR_DOKA_Unknown
0.006
0.004
0.002
4
8
12
Dissolved Zinc (mg/L)
Dissolved Oxygen (mg/L)
Station Legend
FR_DOKASEEP1
FR_FSEAMSEEP7
Flow Regime
Freshet
Low Flow

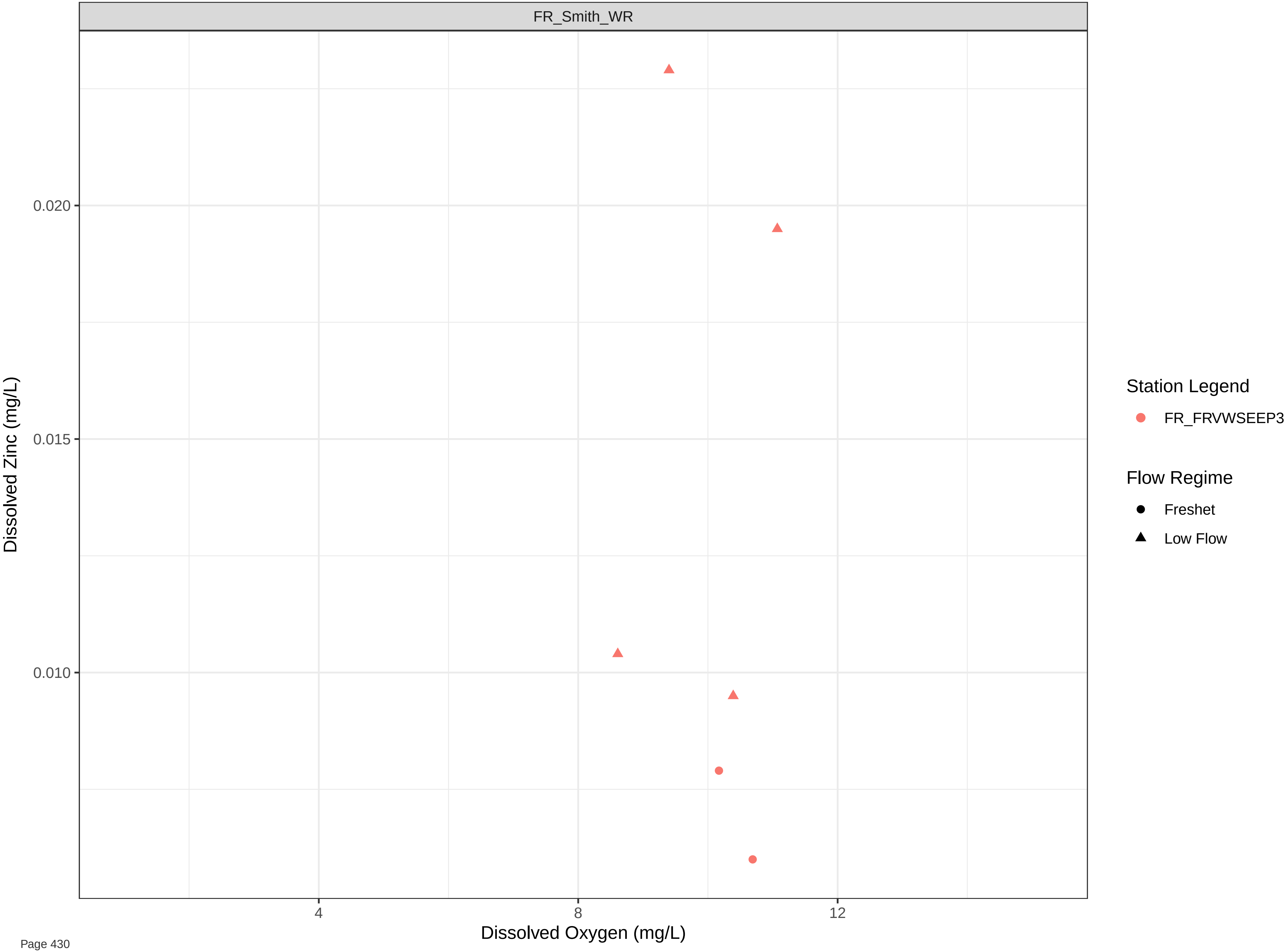

FR_Eagle_WR
0.040
0.035
0.030
0.025
Dissolved Zinc (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_EAGLENORTH
Flow Regime
● Freshet
▲ Low Flow

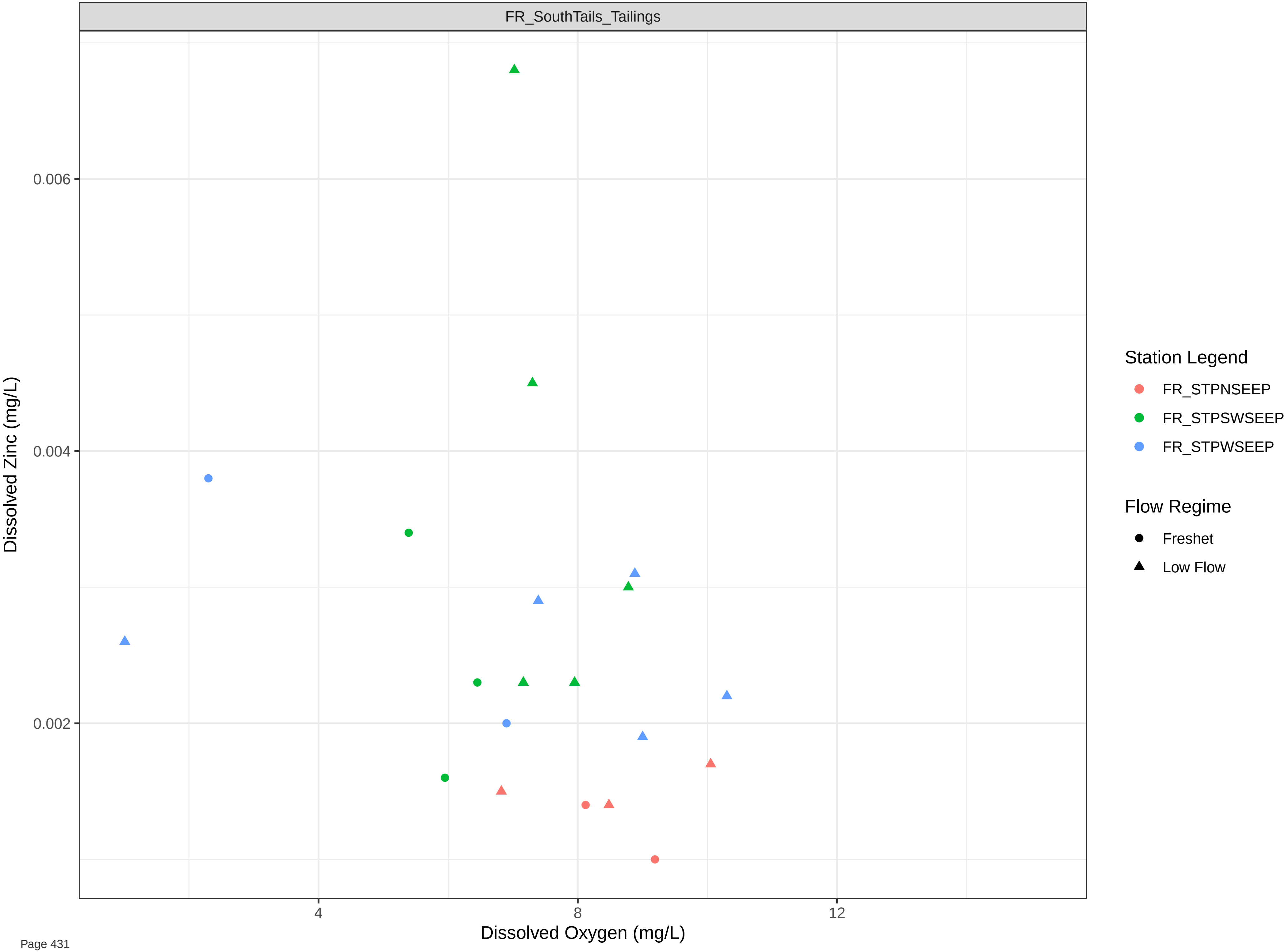

FR_Fseam_WR
0.025
0.020
0.015
0.010
Dissolved Zinc (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FSEAMWSEEP4
Flow Regime
Freshet
Low Flow

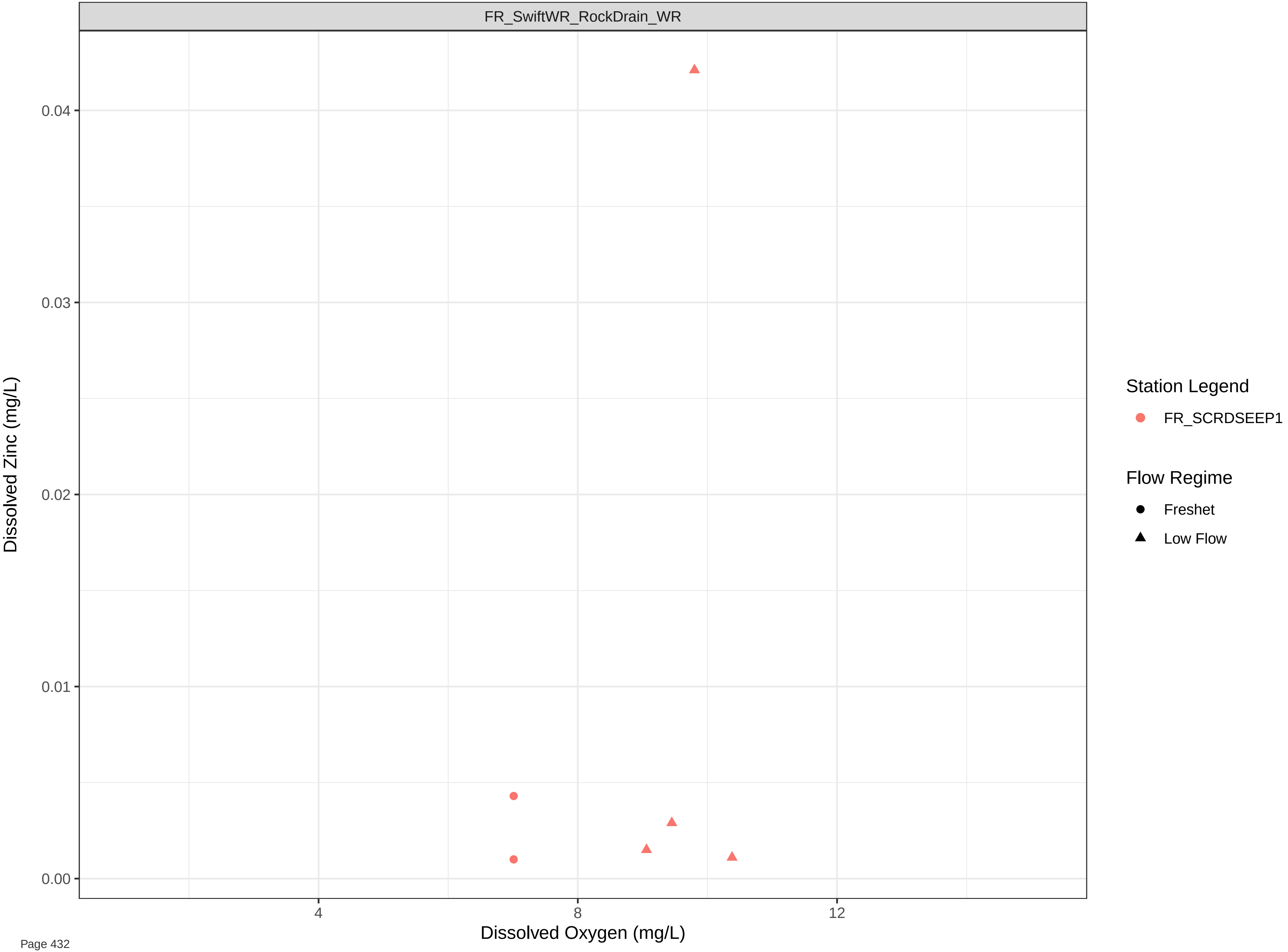

FR_HEN_WR
Dissolved Zinc (mg/L)
0.008
0.006
0.004
0.002
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_HENSEEP1
FR_HENSEEP3
FR_HENSSEEP1
Flow Regime
Freshet
Low Flow

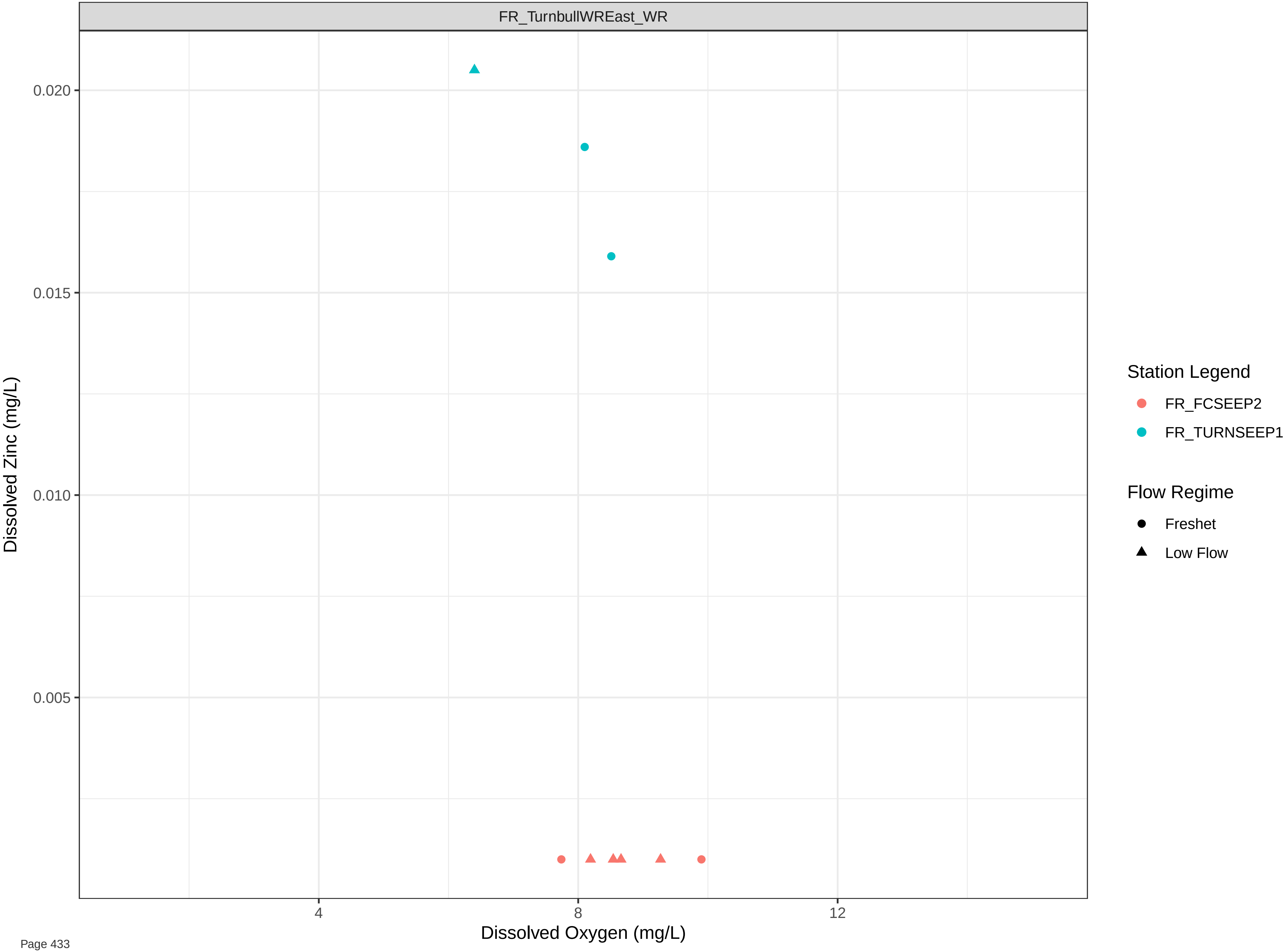

FR_LakeMtn_WR_PITS
0.016
0.012
0.008
0.004
4
8
12
Dissolved Oxygen (mg/L)
Dissolved Zinc (mg/L)
Station Legend
FR_LMCWSEEP5
FR_LMCWSEEP7
Flow Regime
Freshet
Low Flow

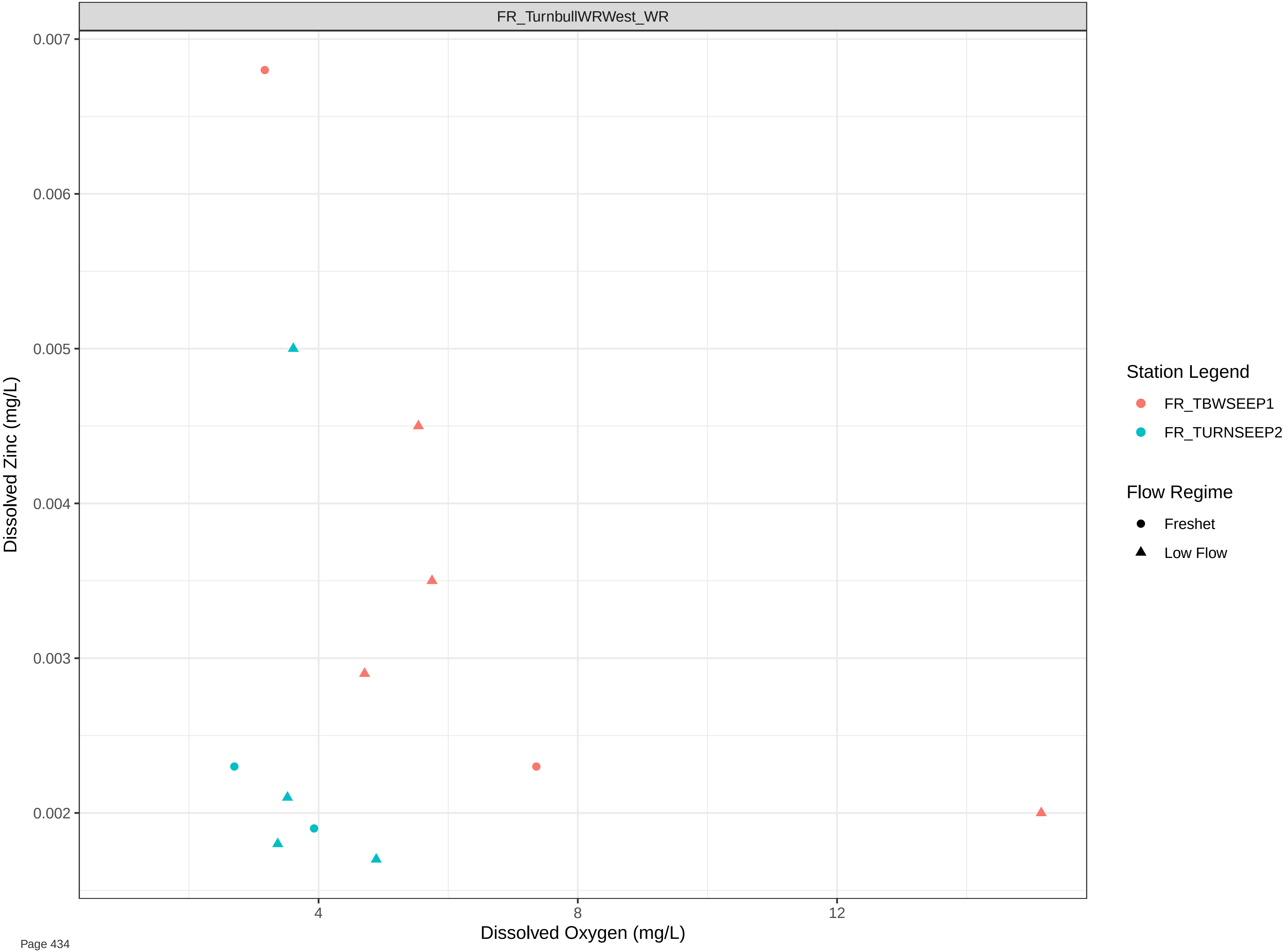

FR_Shandley_WR
0.0050
0.0045
0.0040
0.0035
Dissolved Zinc (mg/L)
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_SHNSEEP1
Flow Regime
Freshet
Low Flow

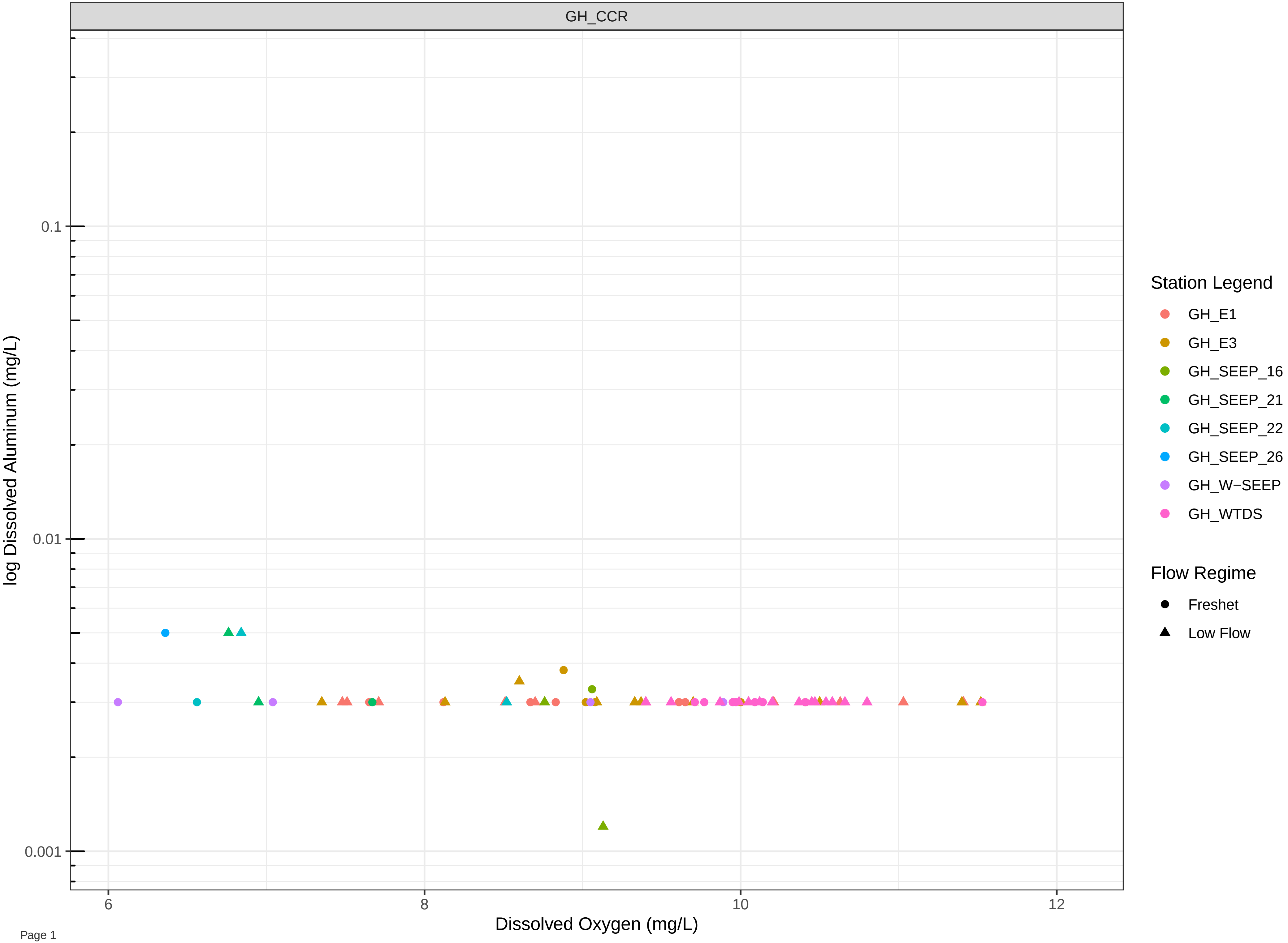

FR_Smith_WR
Dissolved Zinc (mg/L)
0.020
0.015
0.010
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FRVWSEEP3
Flow Regime
Freshet
Low Flow

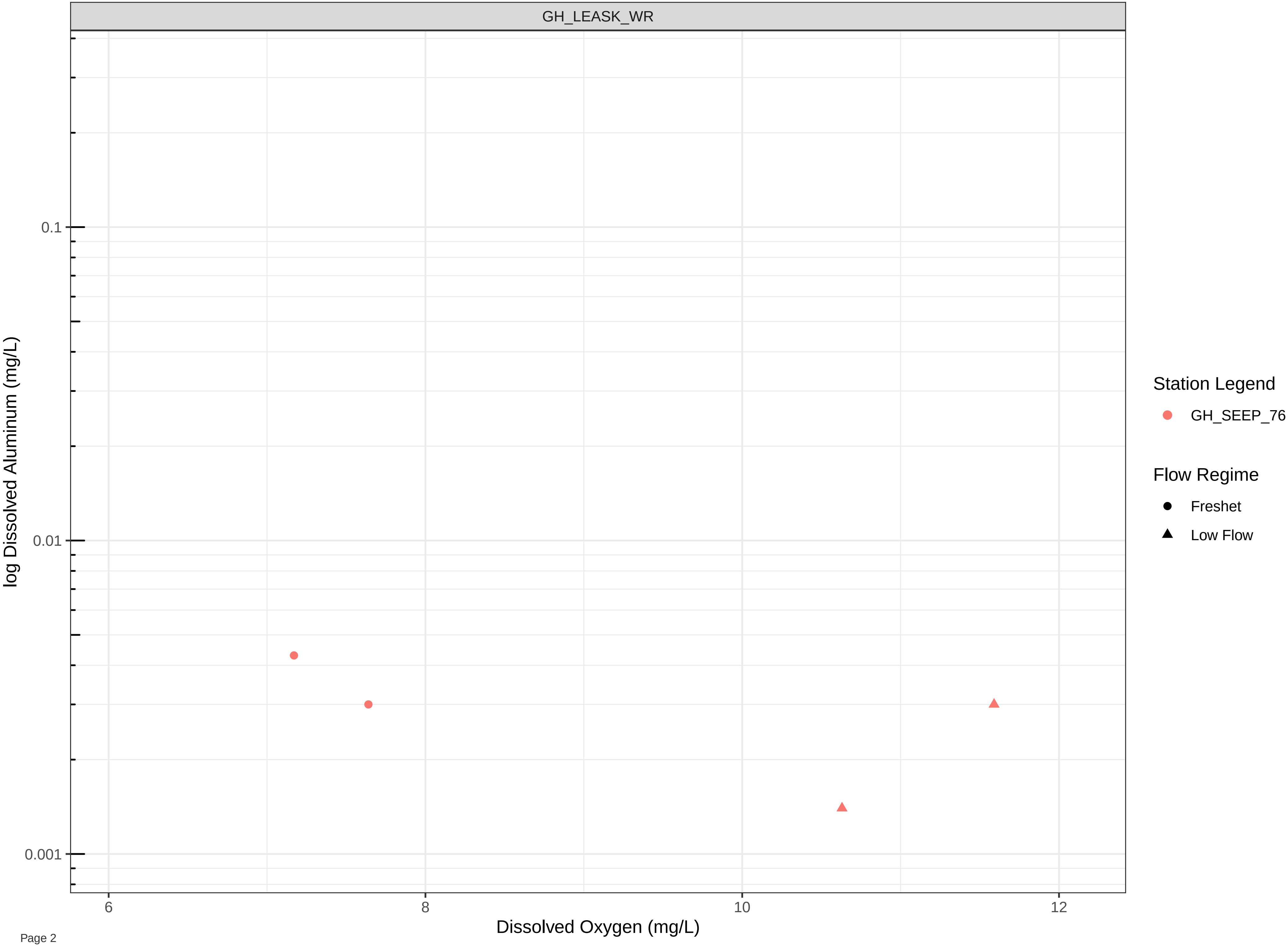

FR_SouthTails_Tailings
Dissolved Zinc (mg/L)
0.006
0.004
0.002
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_STPNSEEP
FR_STPSWSEEP
FR_STPWSEEP
Flow Regime
Freshet
Low Flow

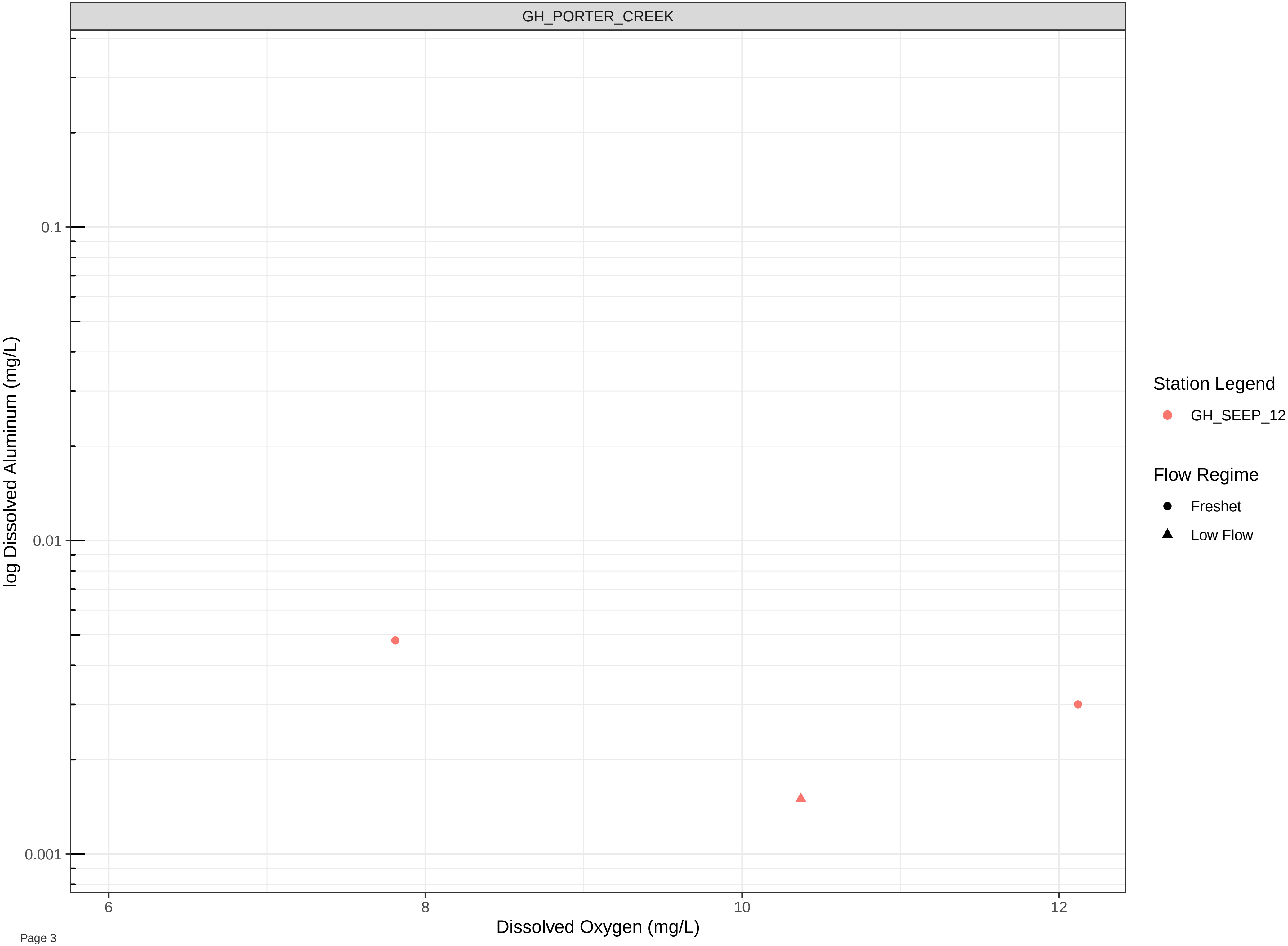

FR_SwiftWR_RockDrain_WR
Dissolved Zinc (mg/L)
0.04
0.03
0.02
0.01
0.00
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
● FR_SCRDSEEP1
Flow Regime
● Freshet
▲ Low Flow

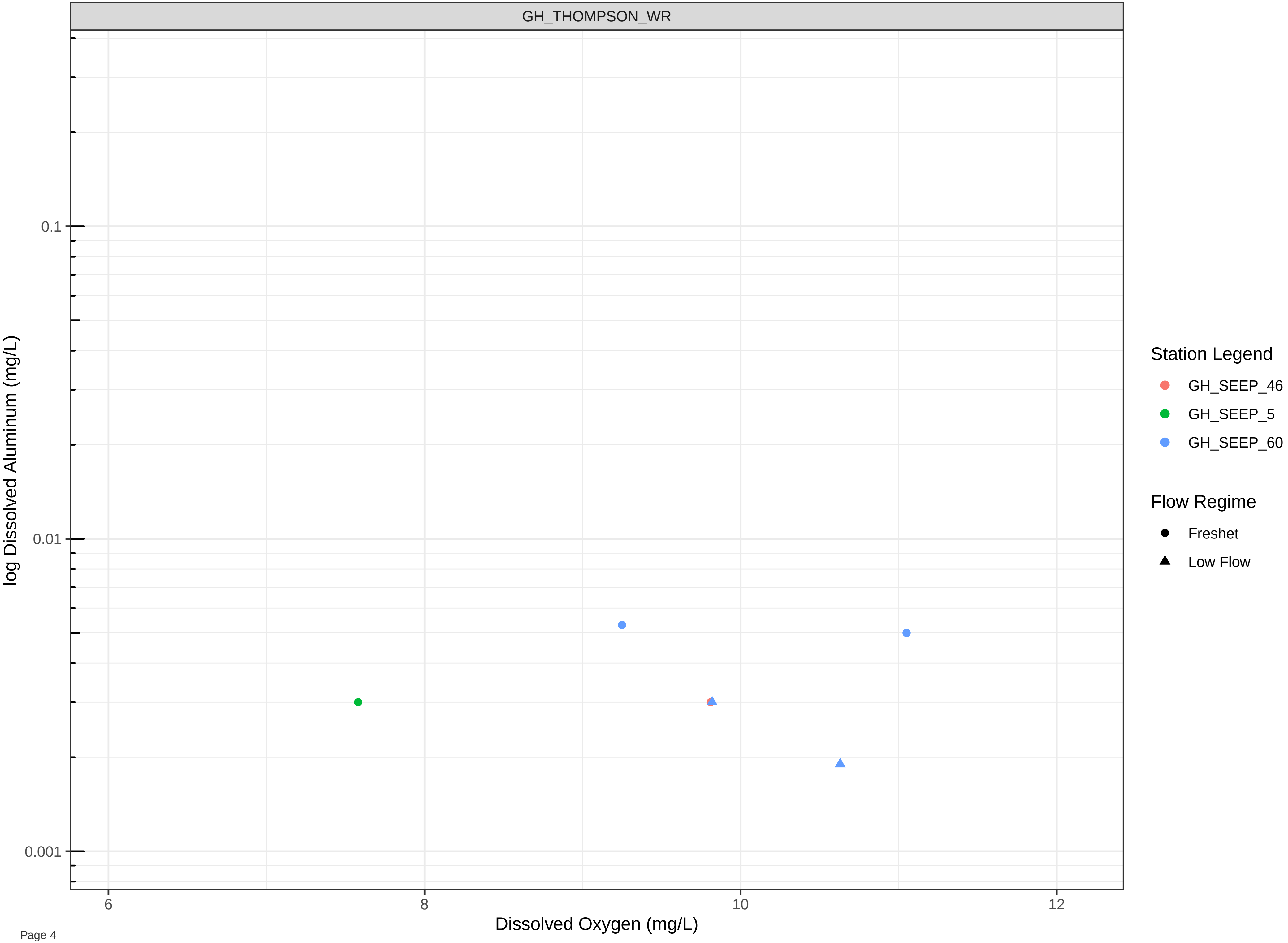

FR_TurnbullWREast_WR
Dissolved Zinc (mg/L)
0.020
0.015
0.010
0.005
4
8
12
Dissolved Oxygen (mg/L)
Station Legend
FR_FCSEEP2
FR_TURNSEEP1
Flow Regime
Freshet
Low Flow

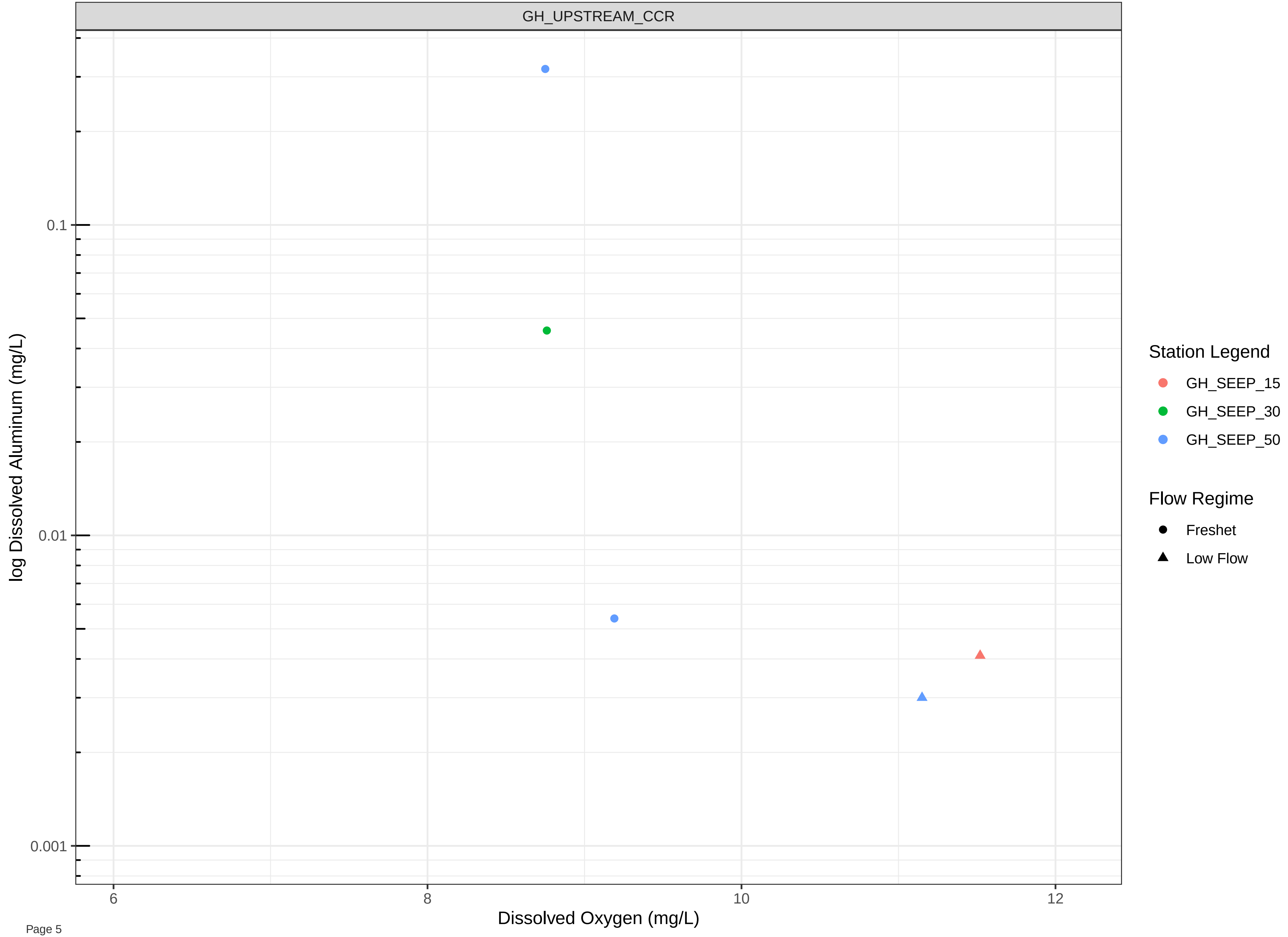

FR_TurnbullWRWest_WR
Dissolved Zinc (mg/L)
0.007
0.006
0.005
0.004
0.003
0.002
Dissolved Oxygen (mg/L)
4
8
12
Station Legend
FR_TBWSEEP1
FR_TURNSEEP2
Flow Regime
Freshet
Low Flow

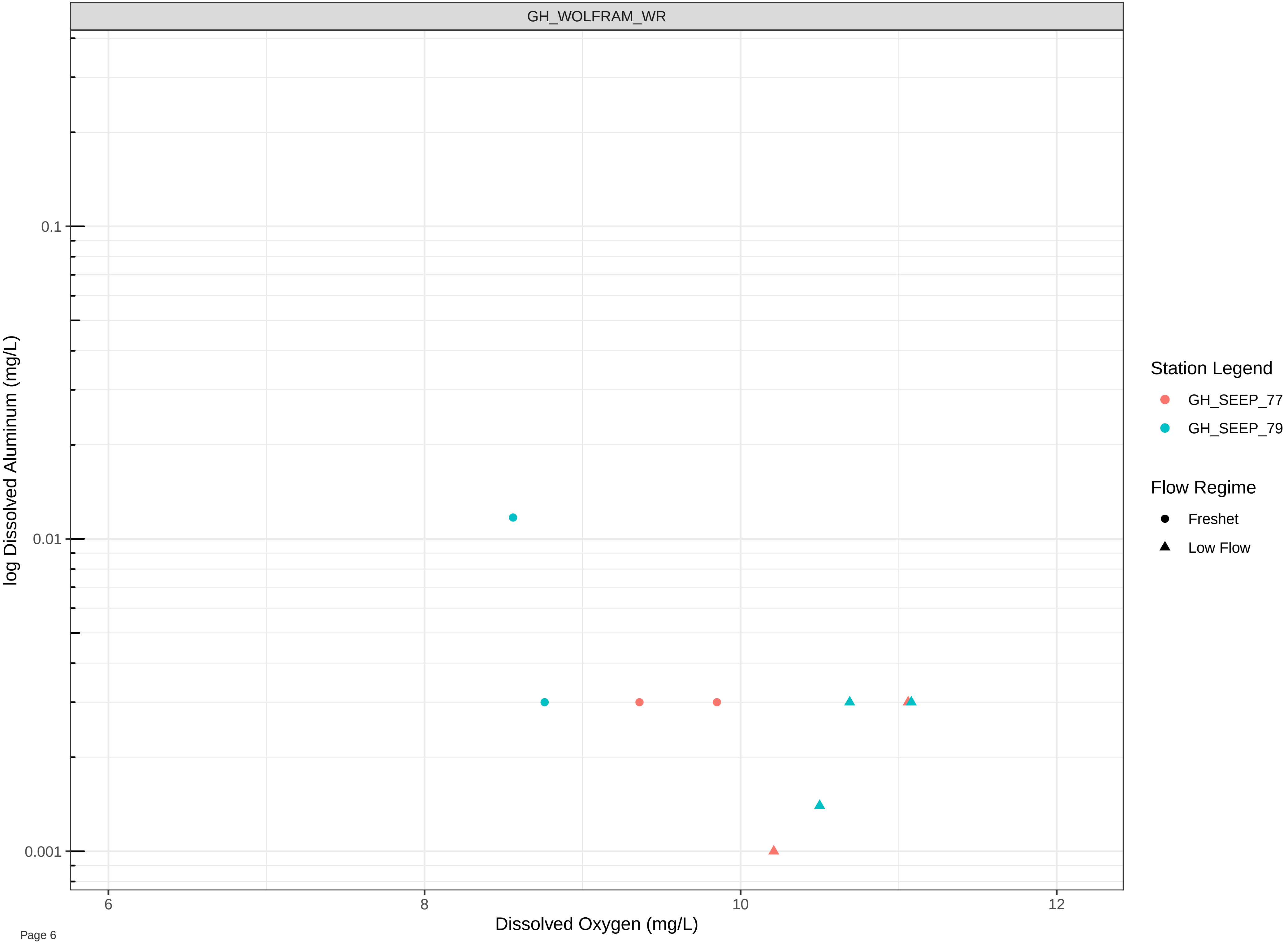

GH_CCR
log Dissolved Aluminum (mg/L)
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

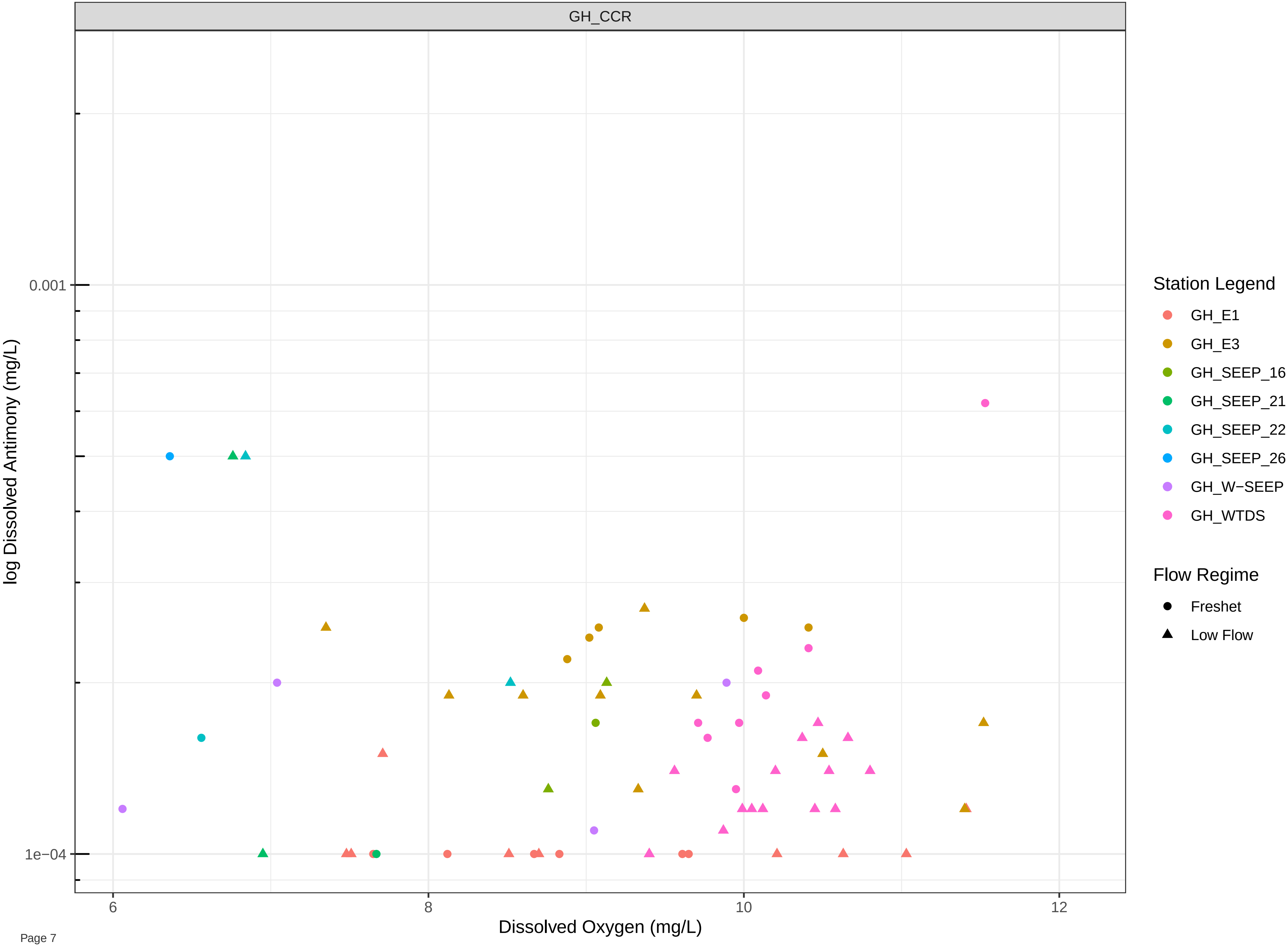

GH_LEASK_WR
log Dissolved Aluminum (mg/L)
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow

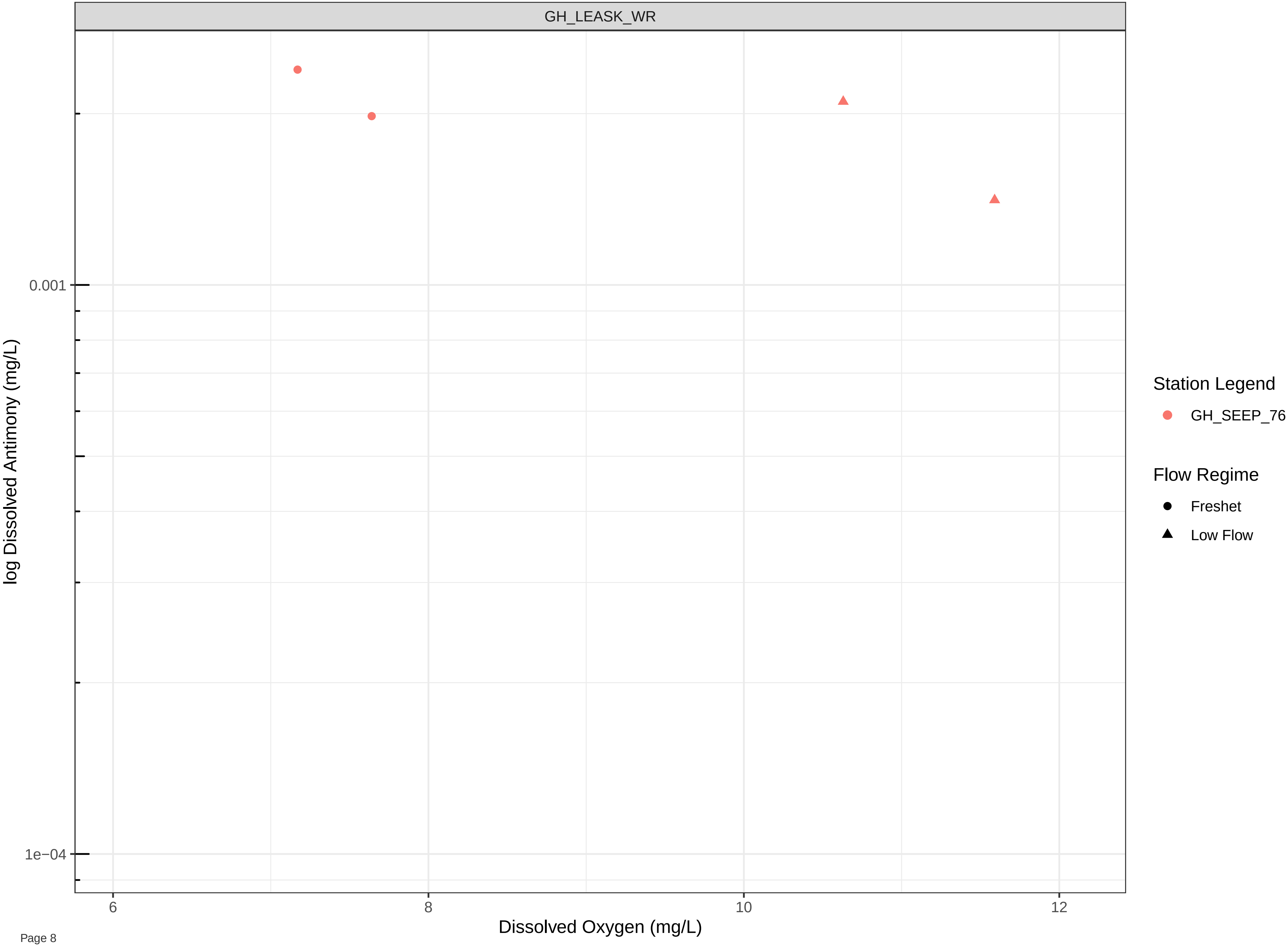

GH_PORTER_CREEK
0.1
0.01
0.001
log Dissolved Aluminum (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

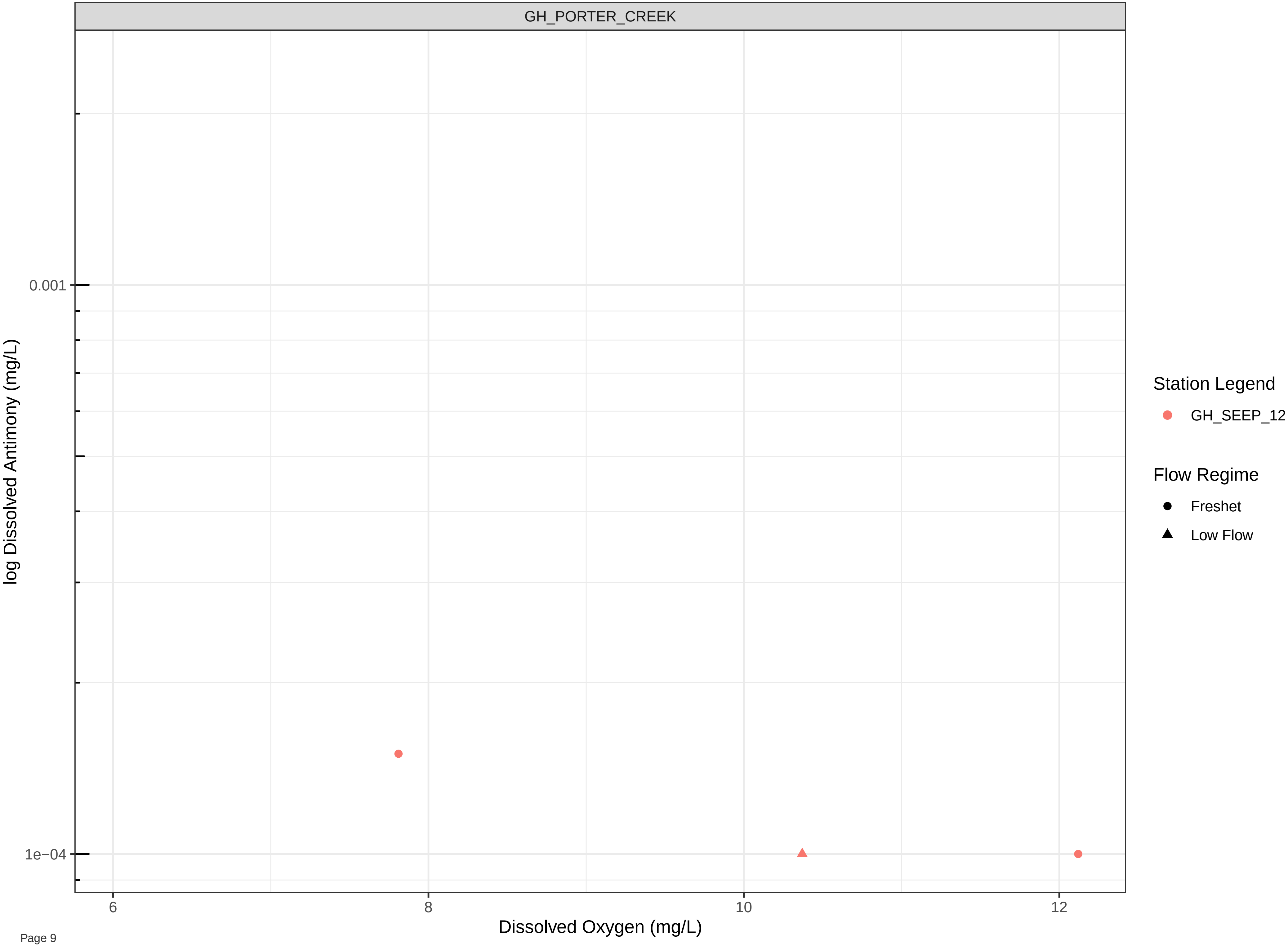

GH_THOMPSON_WR
log Dissolved Aluminum (mg/L)
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

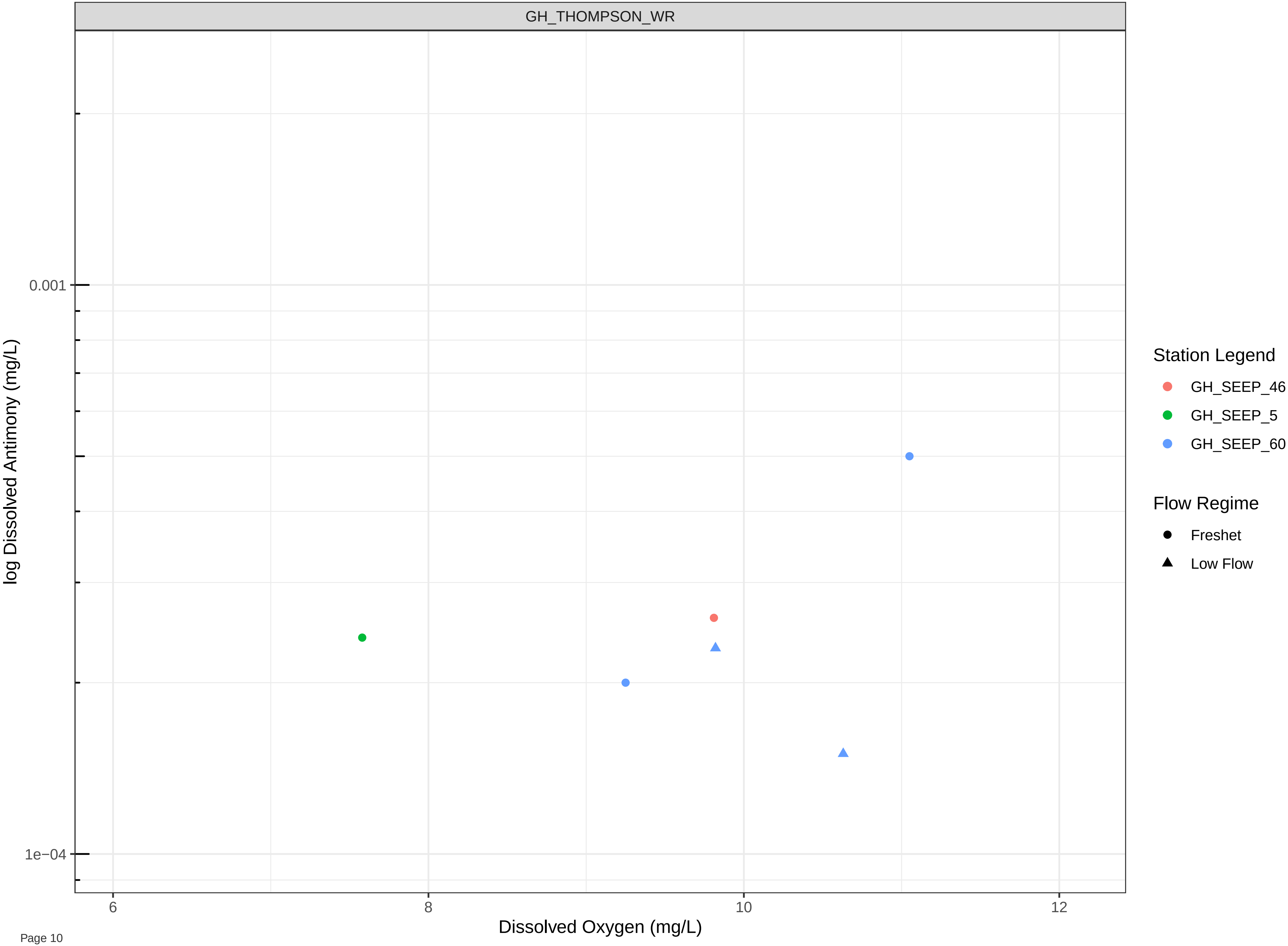

GH_UPSTREAM_CCR
log Dissolved Aluminum (mg/L)
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow


GH_WOLFRAM_WR
log Dissolved Aluminum (mg/L)
0.1
0.01
0.001
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow


GH_CCR
0.001
1e−04
log Dissolved Antimony (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow


GH_LEASK_WR
0.001
1e−04
log Dissolved Antimony (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow


GH_PORTER_CREEK
log Dissolved Antimony (mg/L)
0.001
1e−04
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow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0.001
1e−04
6
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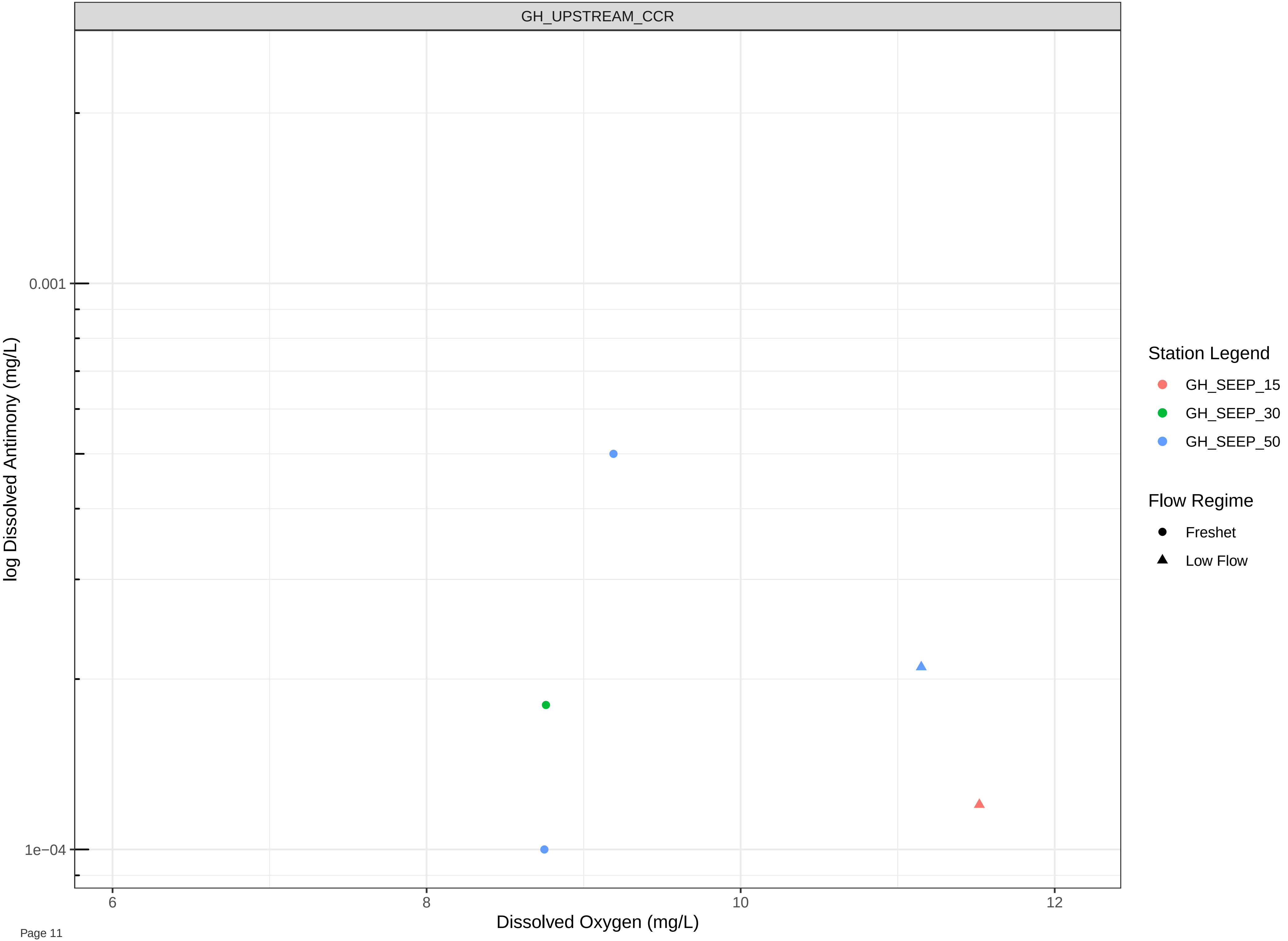
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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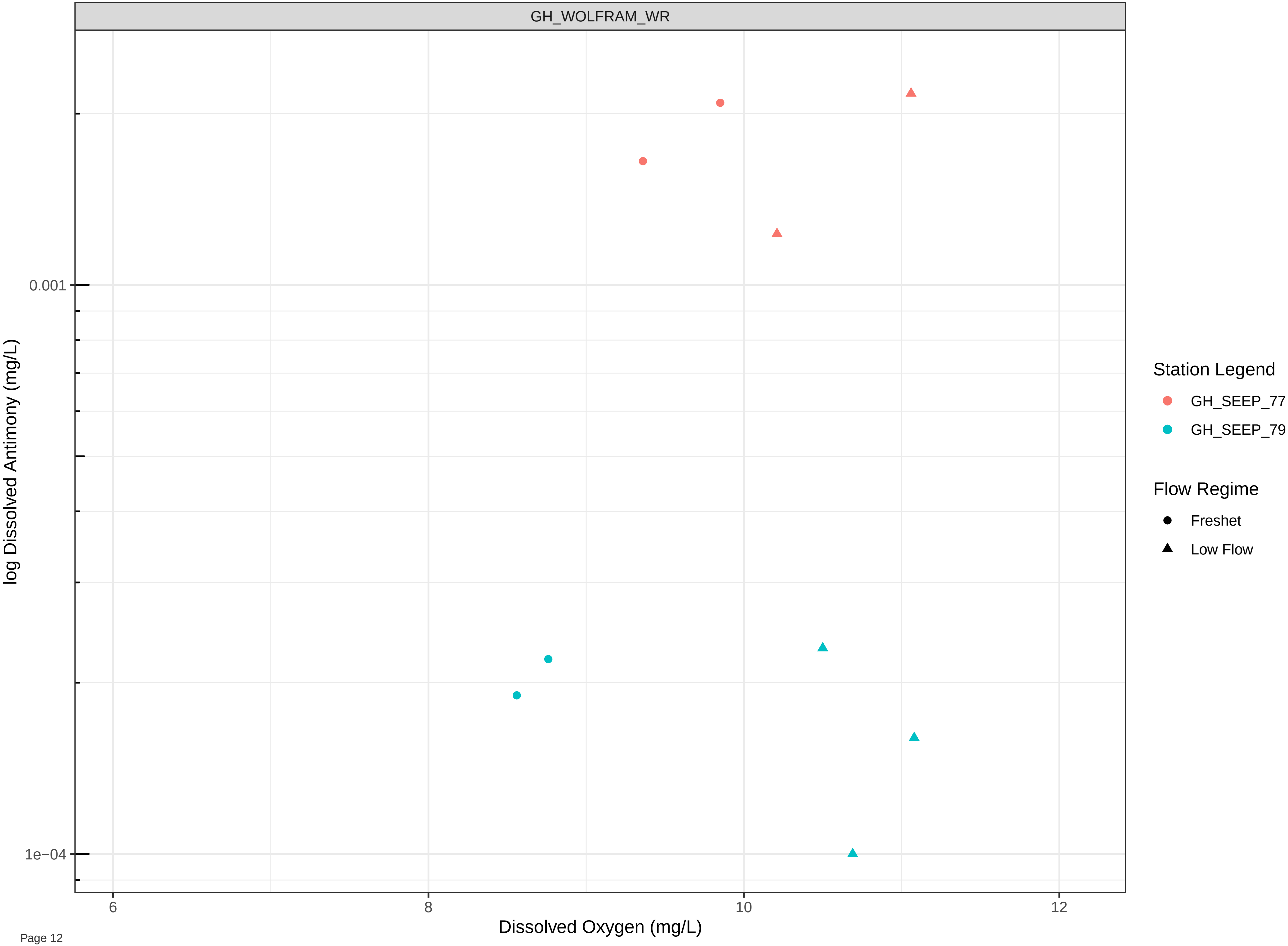
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow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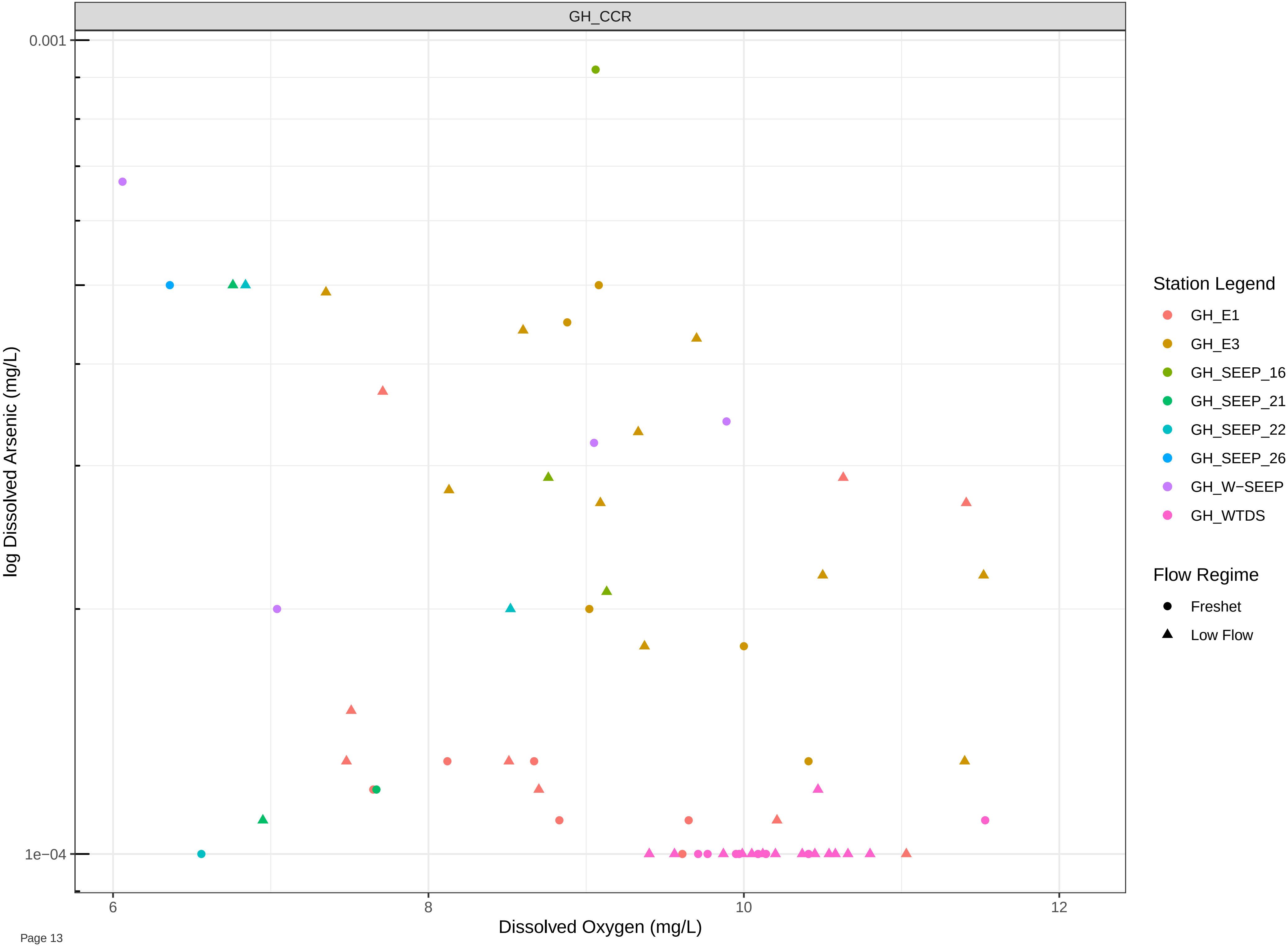
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow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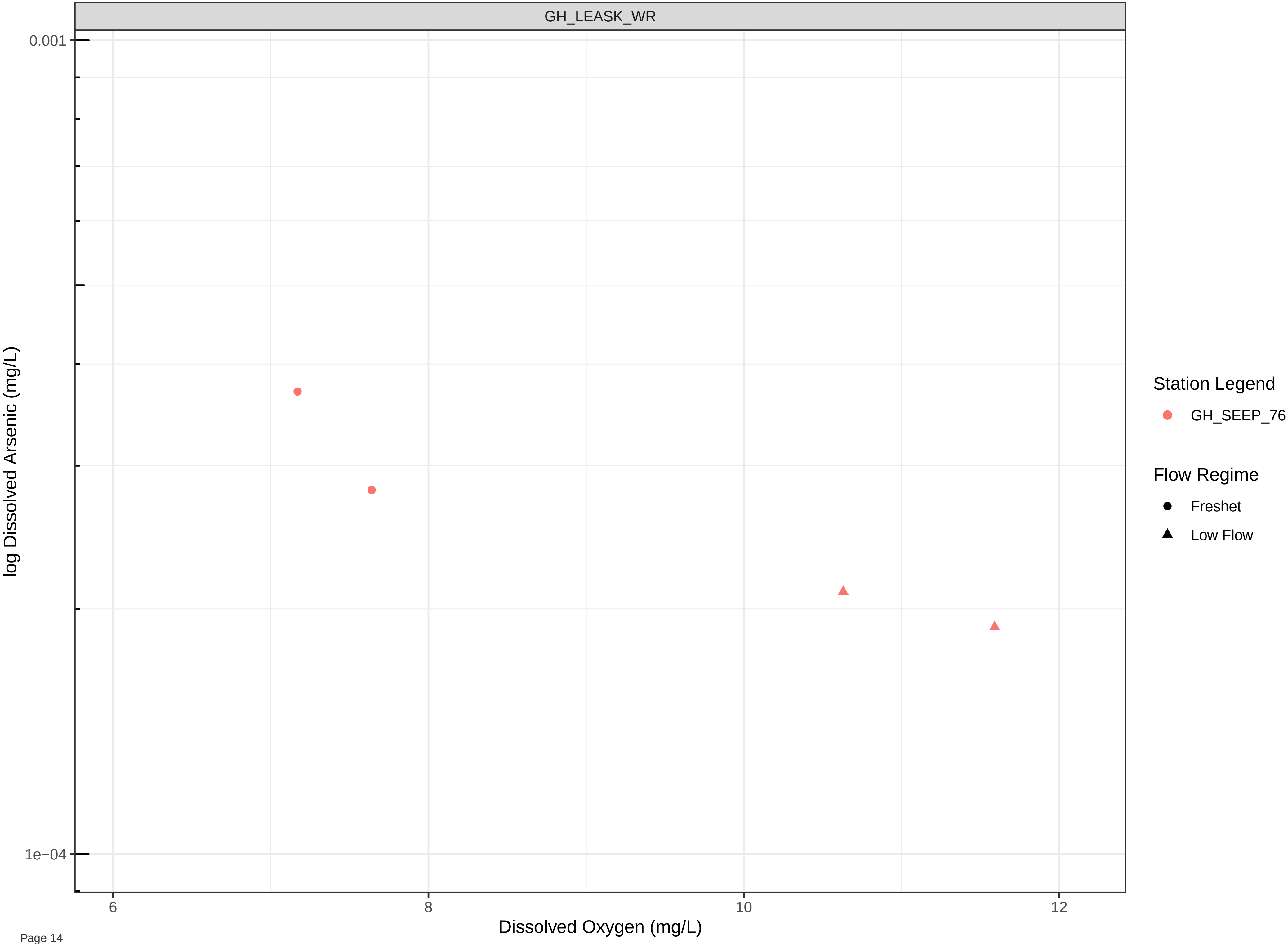
Dissolved Oxygen (mg/L)
Station Legend
● GH_E1
● GH_E3
● GH_SEEP_16
● GH_SEEP_21
● GH_SEEP_22
● GH_SEEP_26
● GH_W−SEEP
● GH_WTDS
Flow Regime
● Freshet
▲ Low Flow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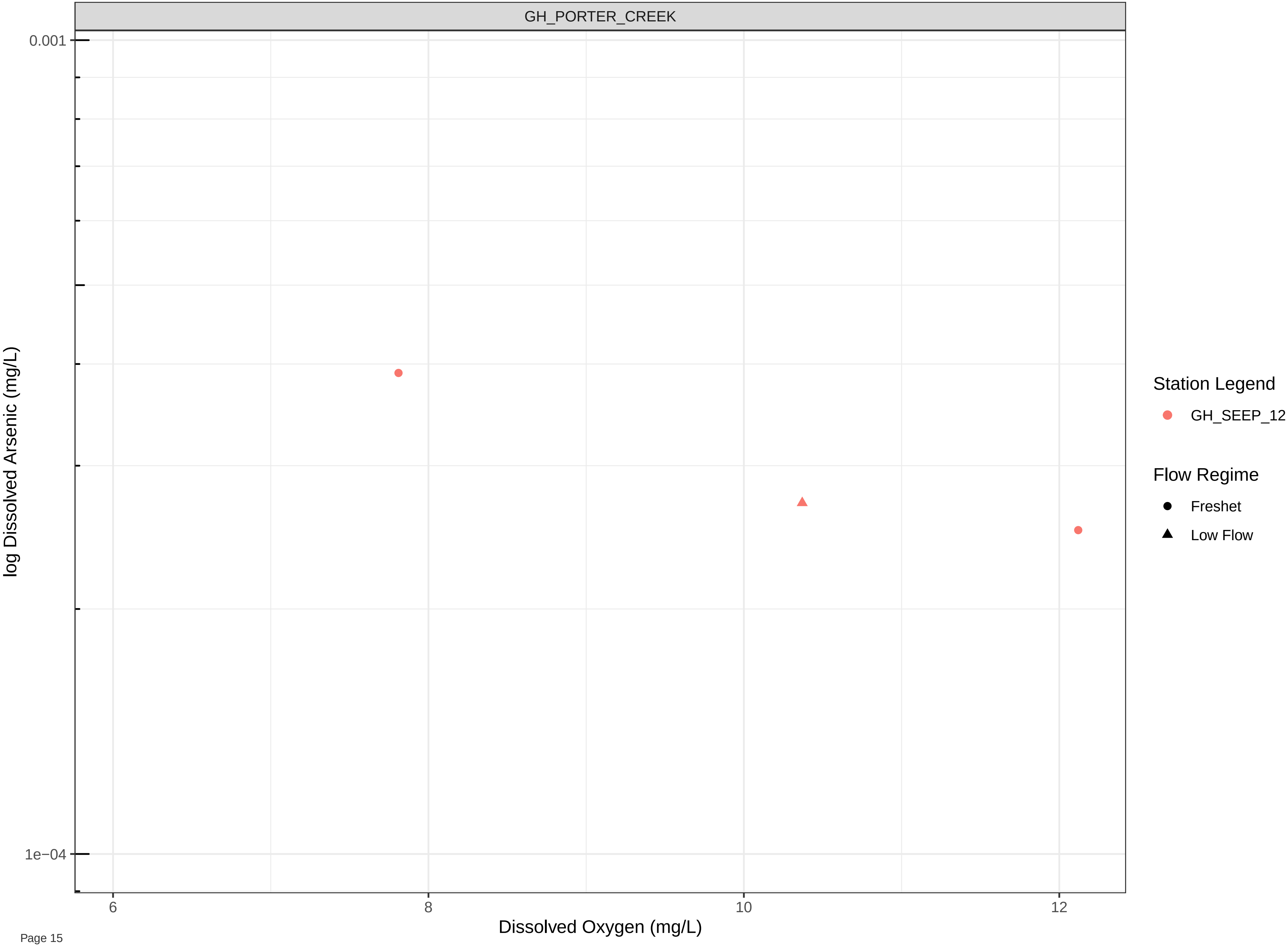
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow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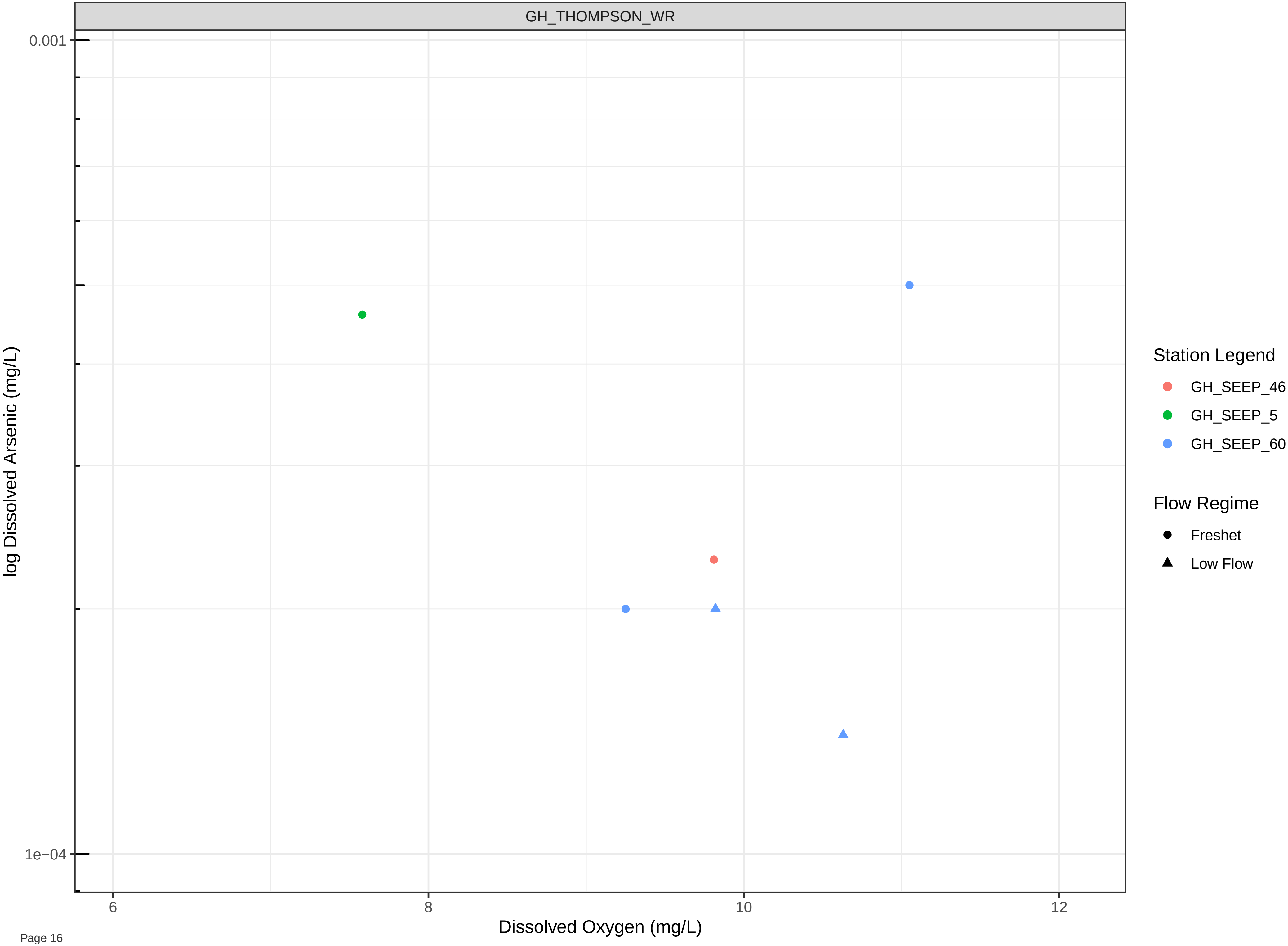
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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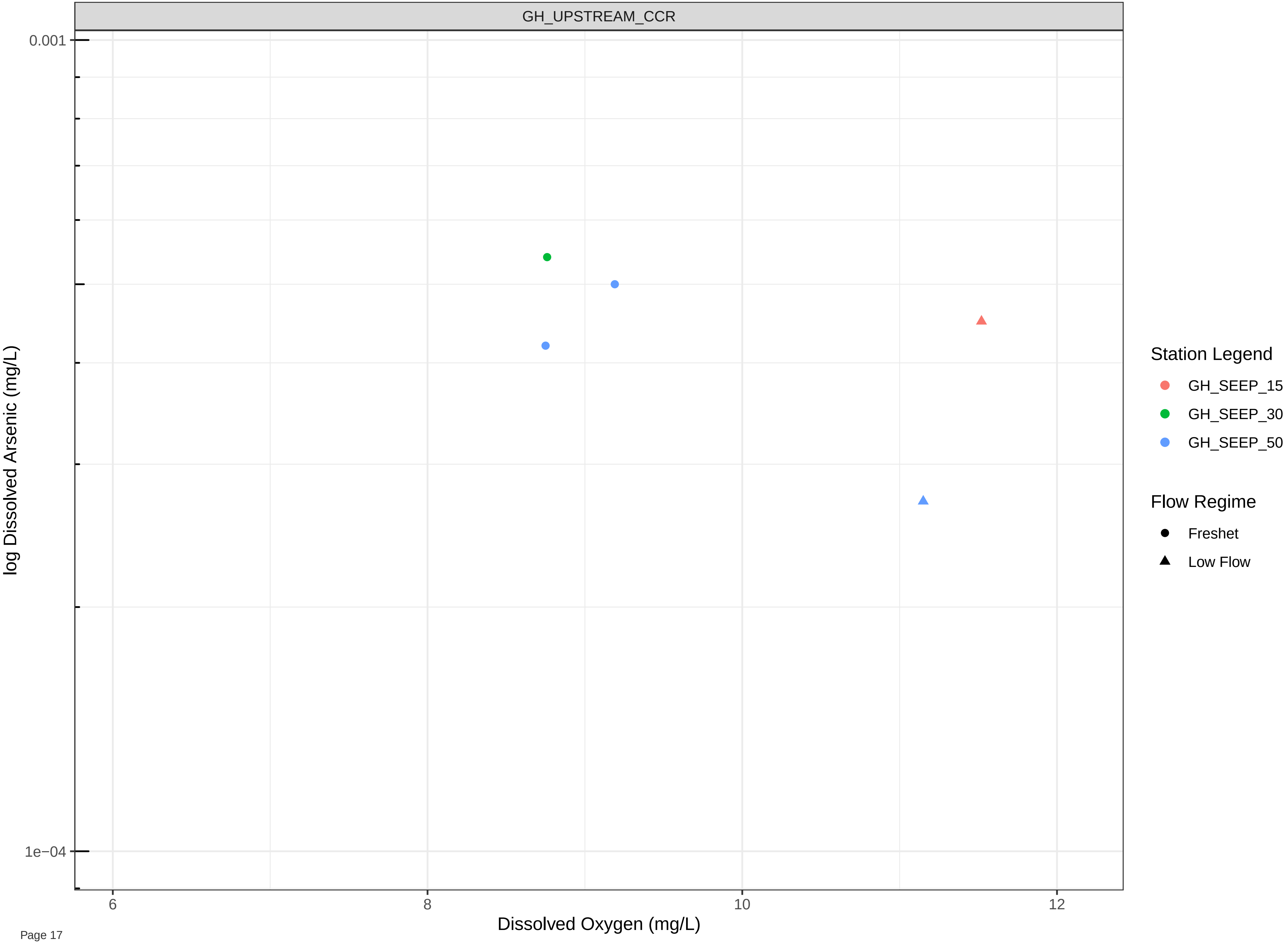
GH_SEEP_60
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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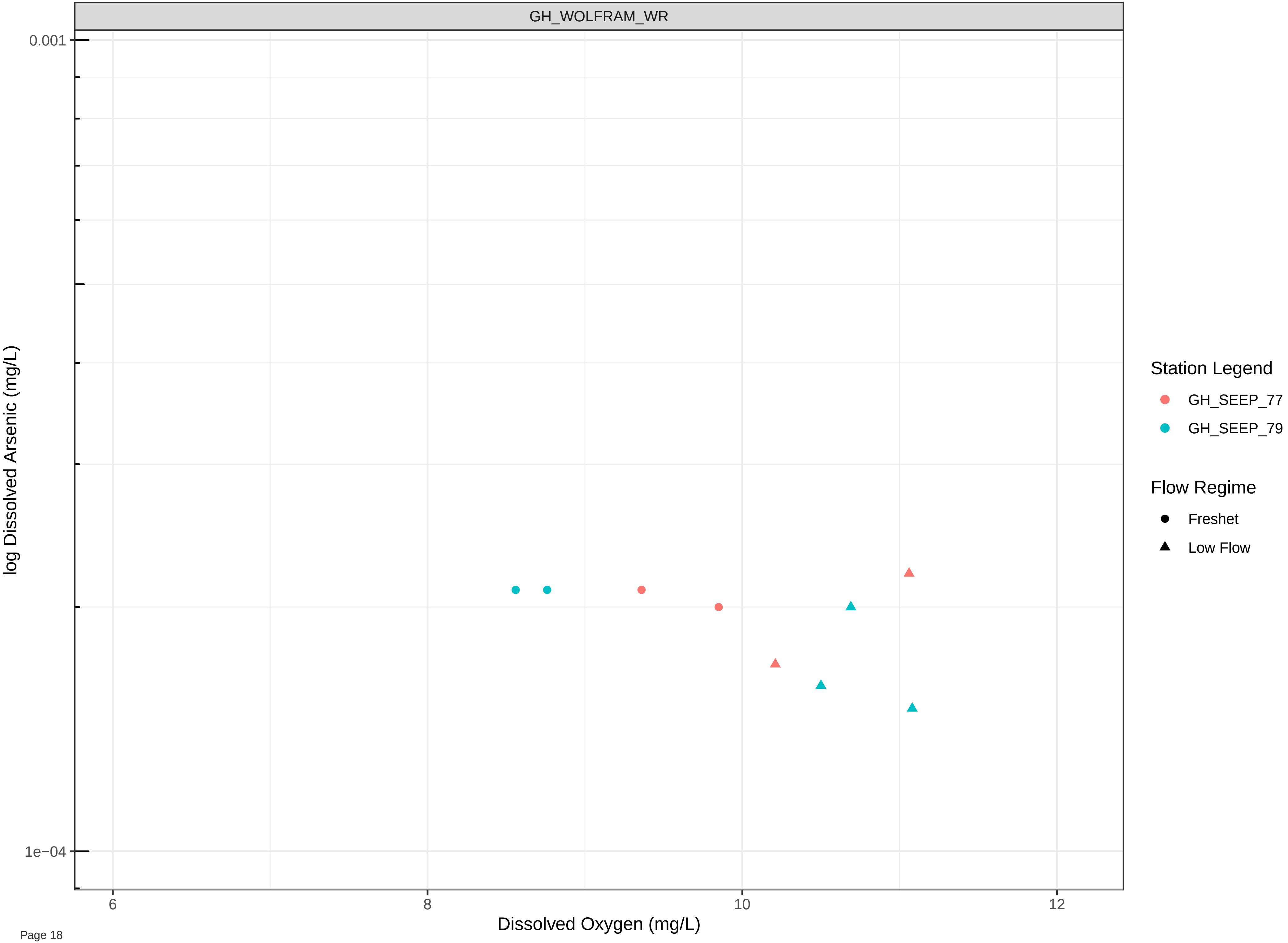
GH_SEEP_50
Flow Regime
Freshet
Low Flow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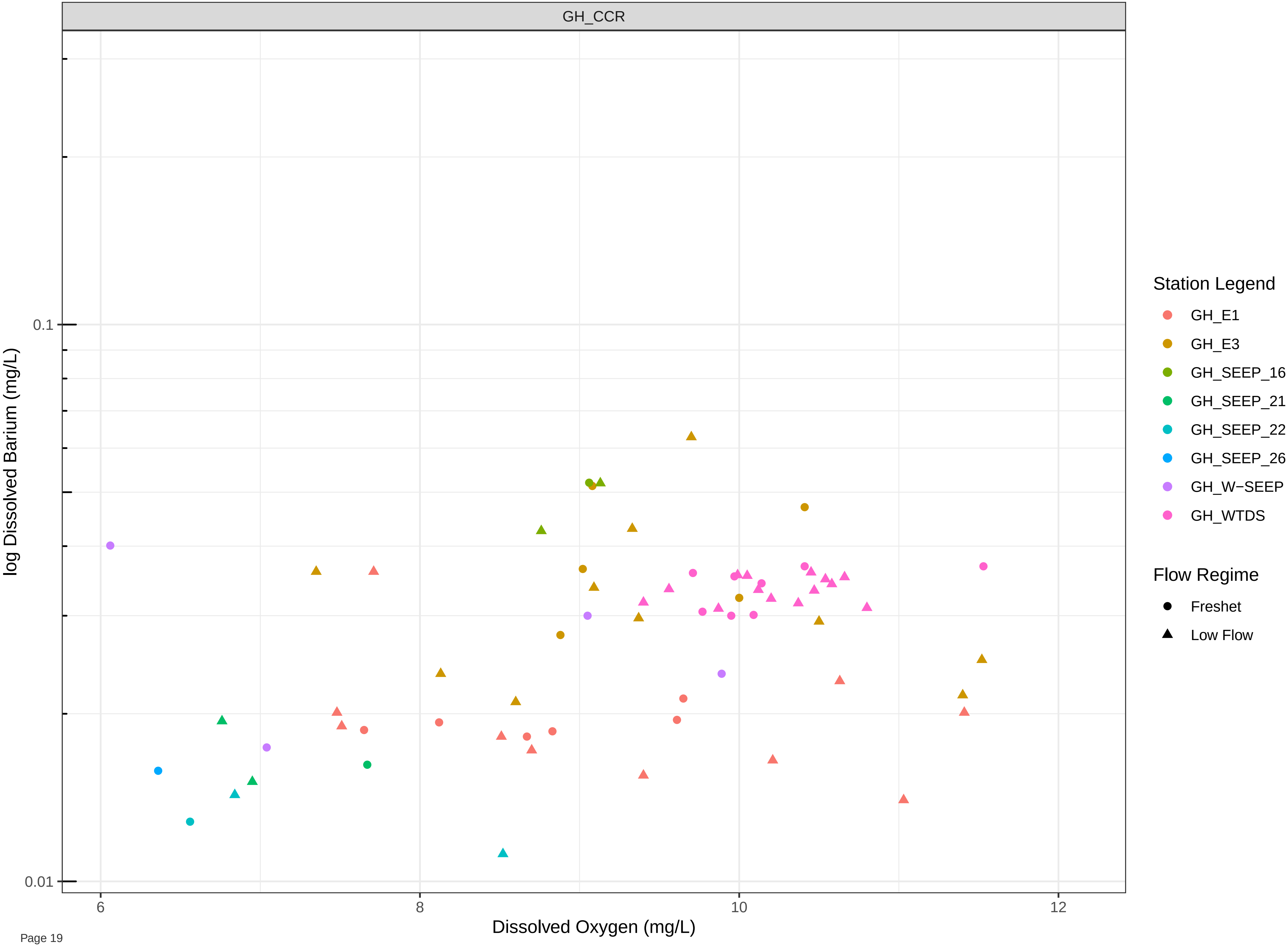
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow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10
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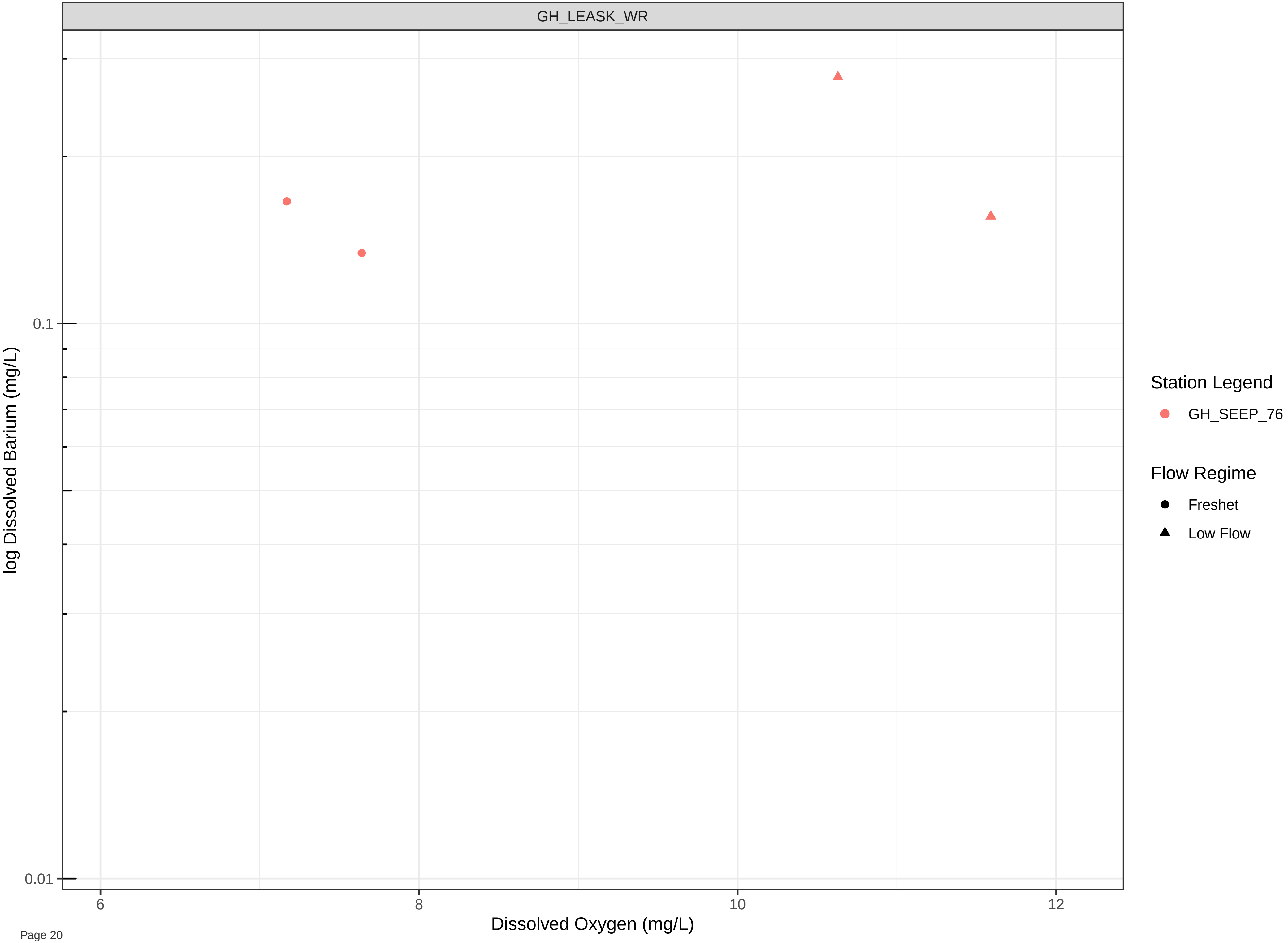
Dissolved Oxygen (mg/L)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow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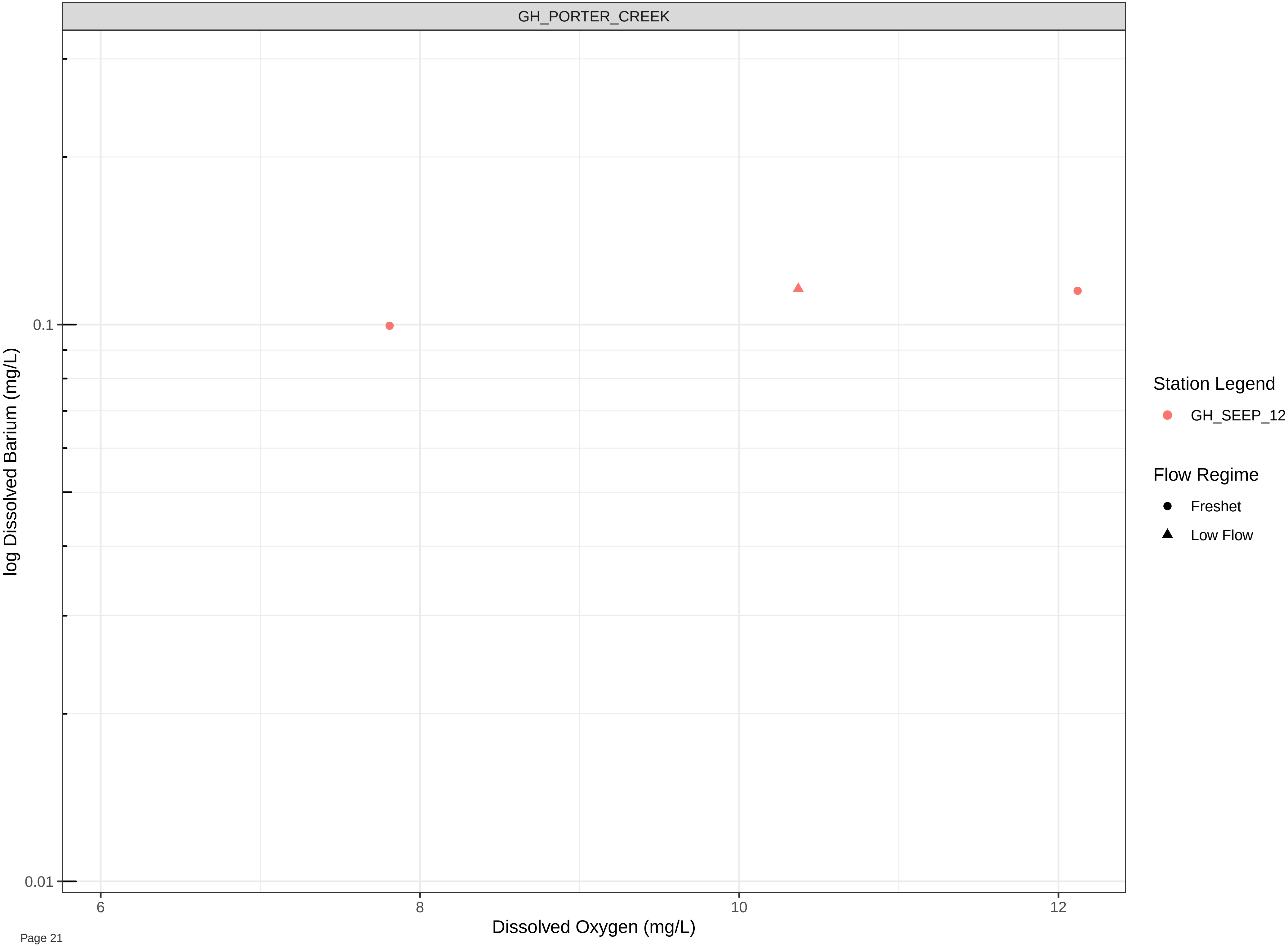
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow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Dissolved Oxygen (mg/L)
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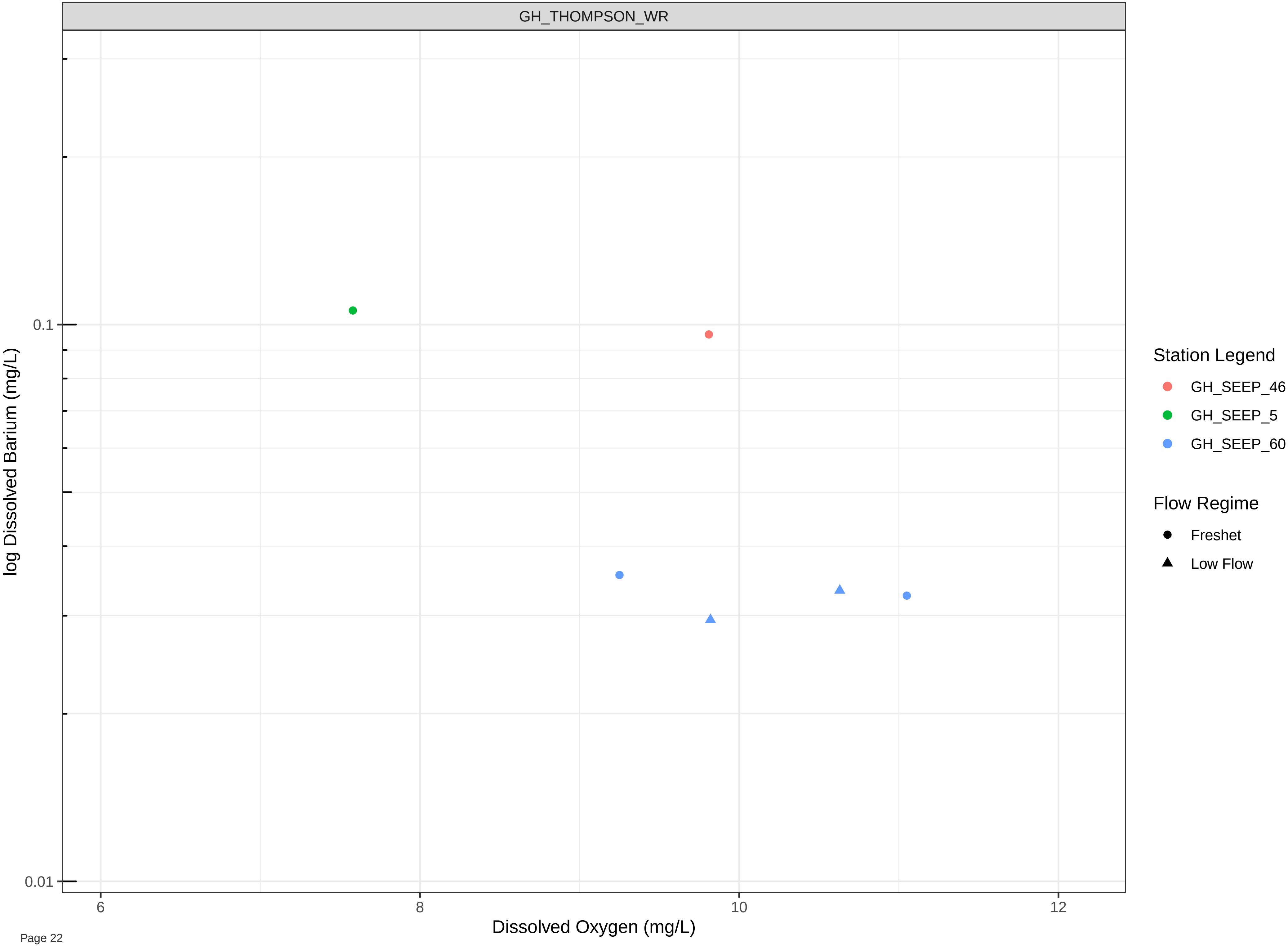
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow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Dissolved Oxygen (mg/L)
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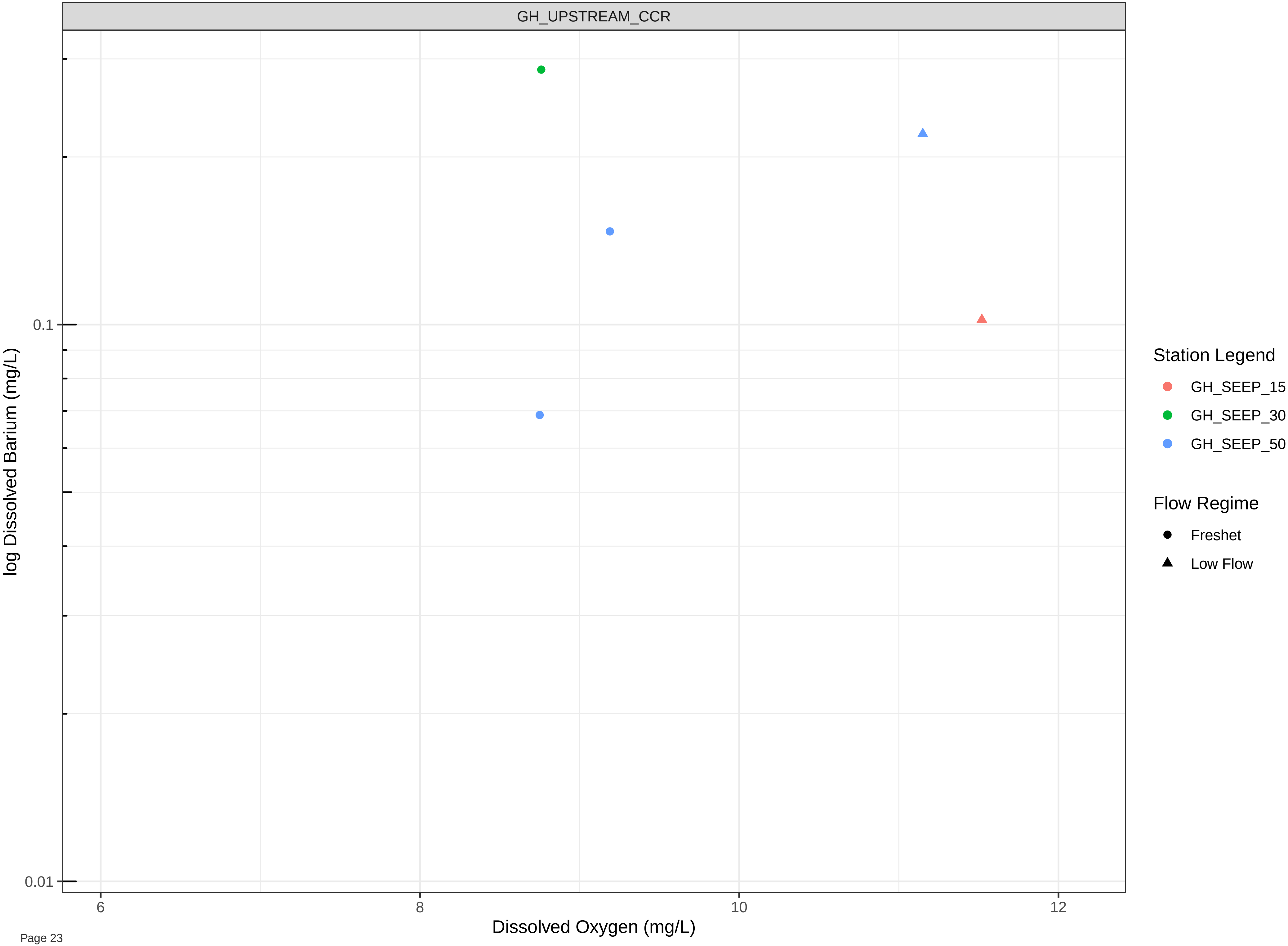
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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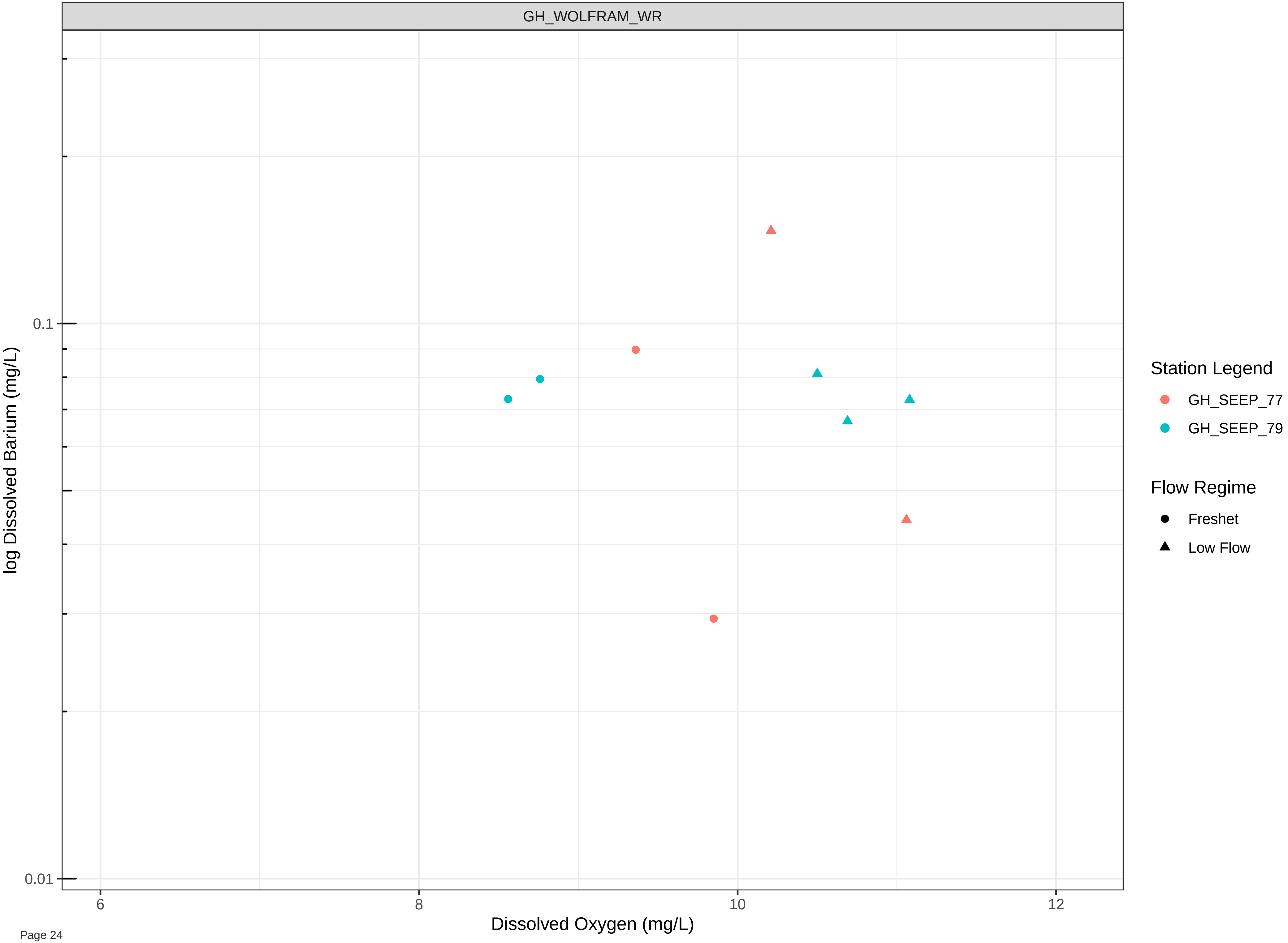
GH_SEEP_50
Flow Regime
Freshet
Low Flow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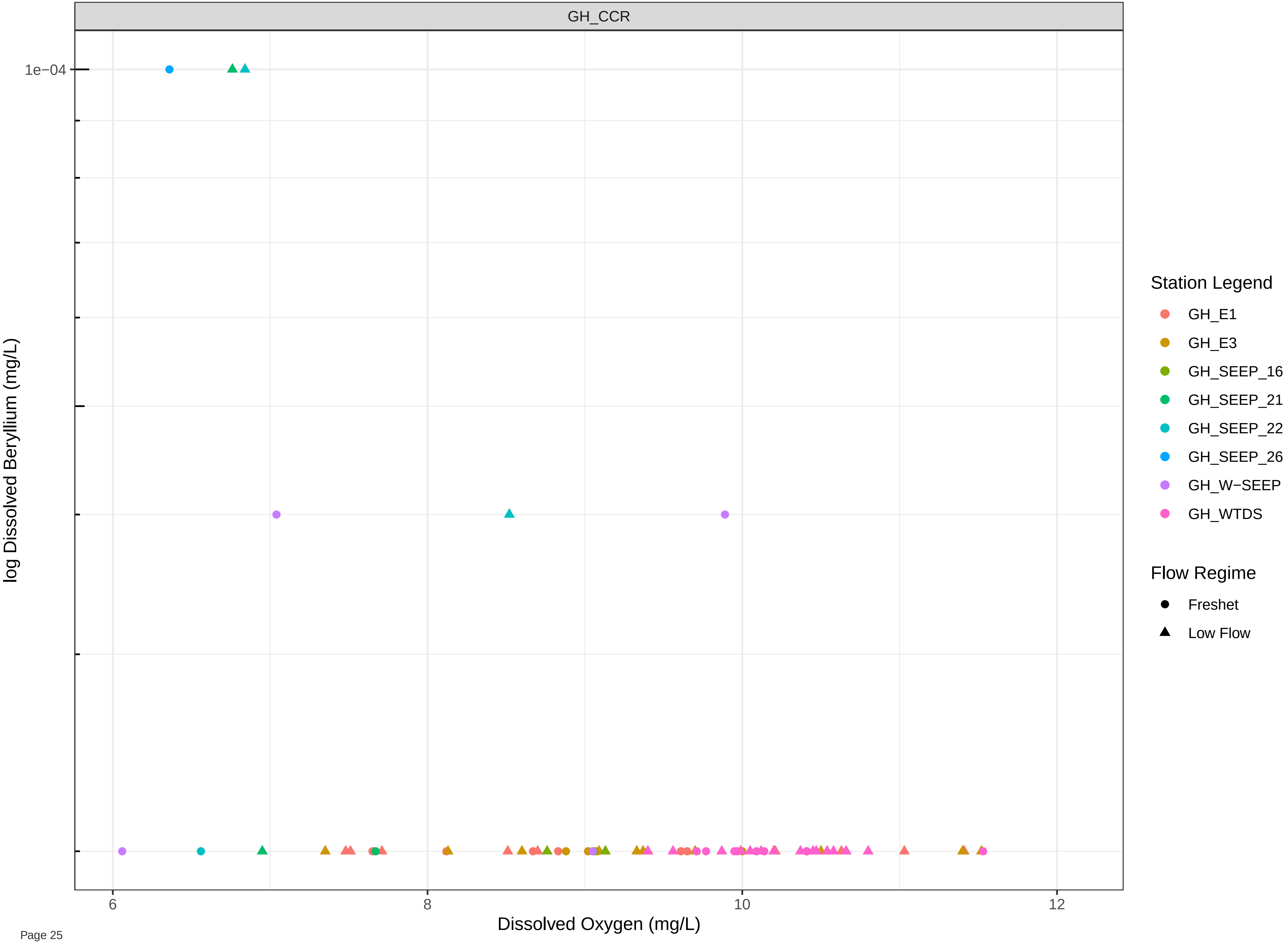
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_77
● GH_SEEP_79
Flow Regime
● Freshet
▲ Low Flow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10
12
Dissolved Oxygen (mg/L)
Station Legend
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GH_E3
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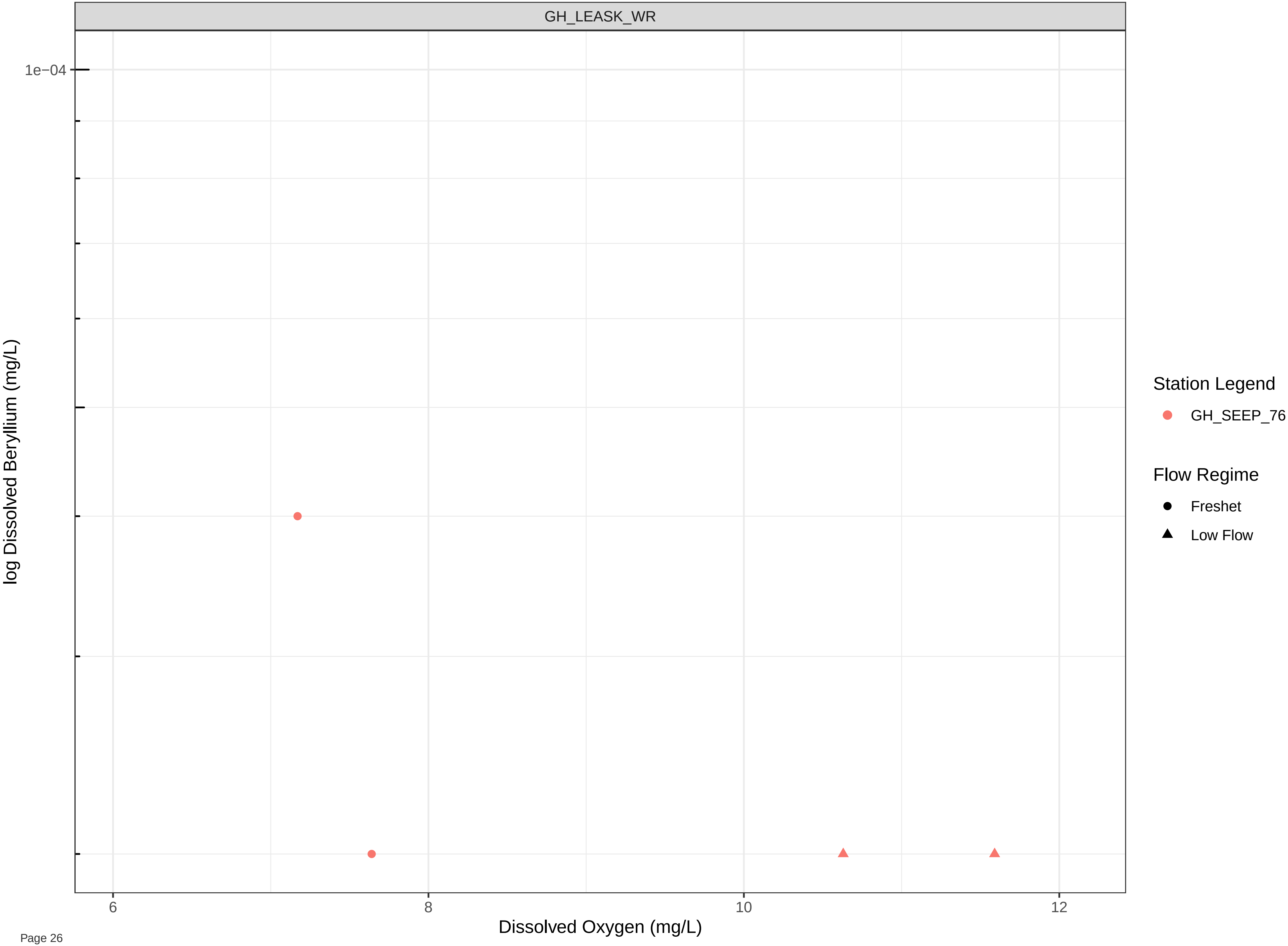
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow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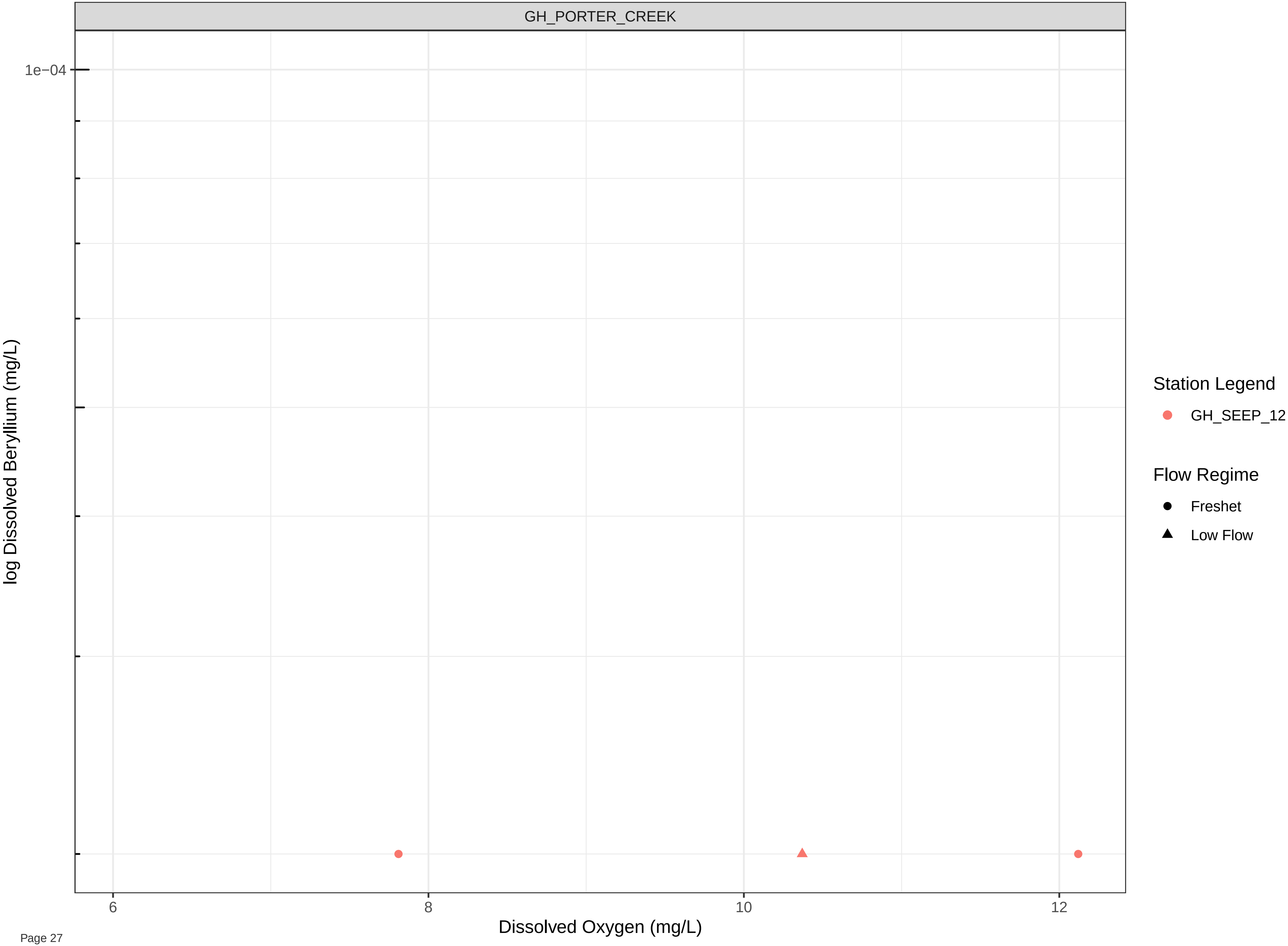
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow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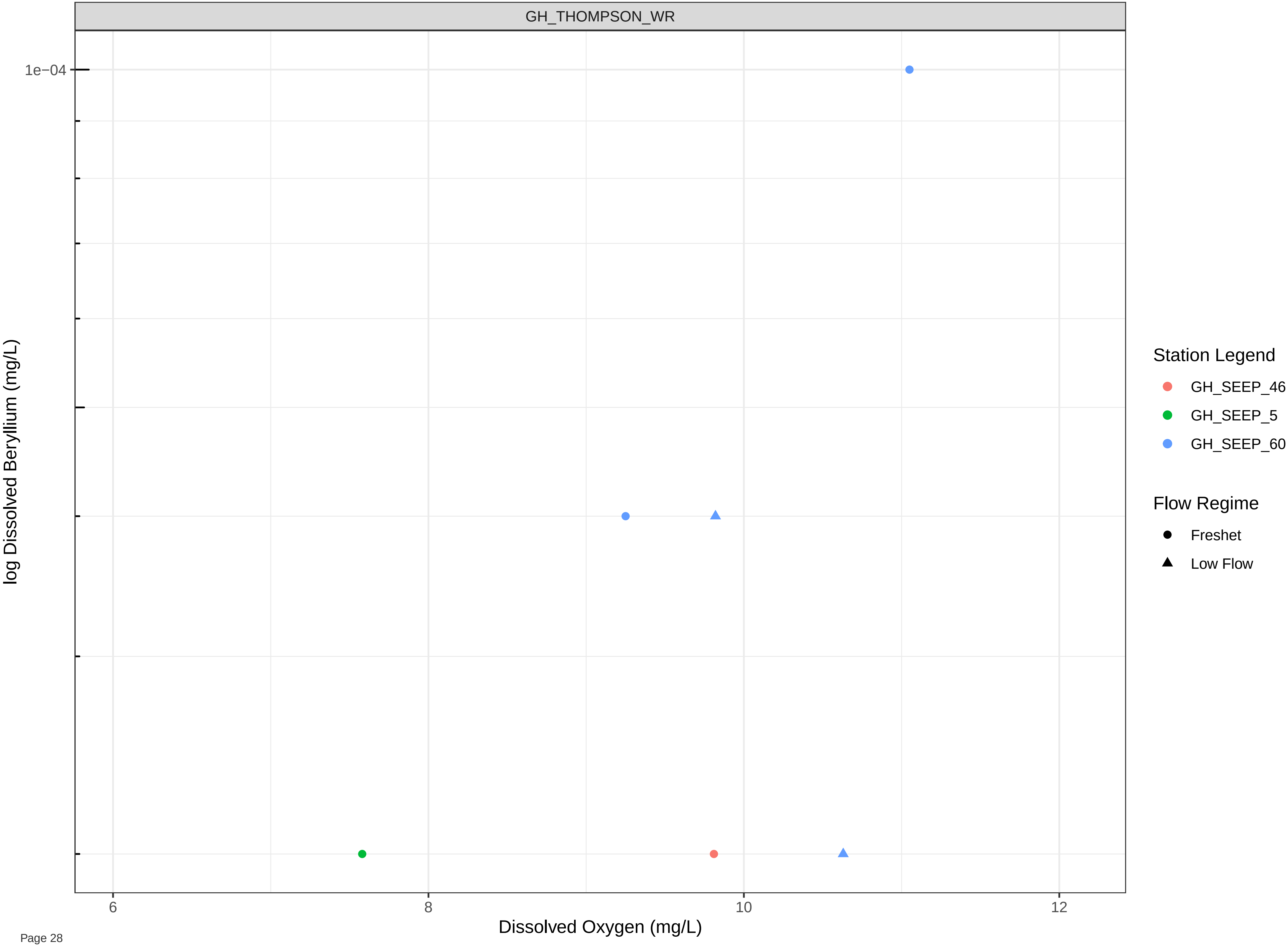
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow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10
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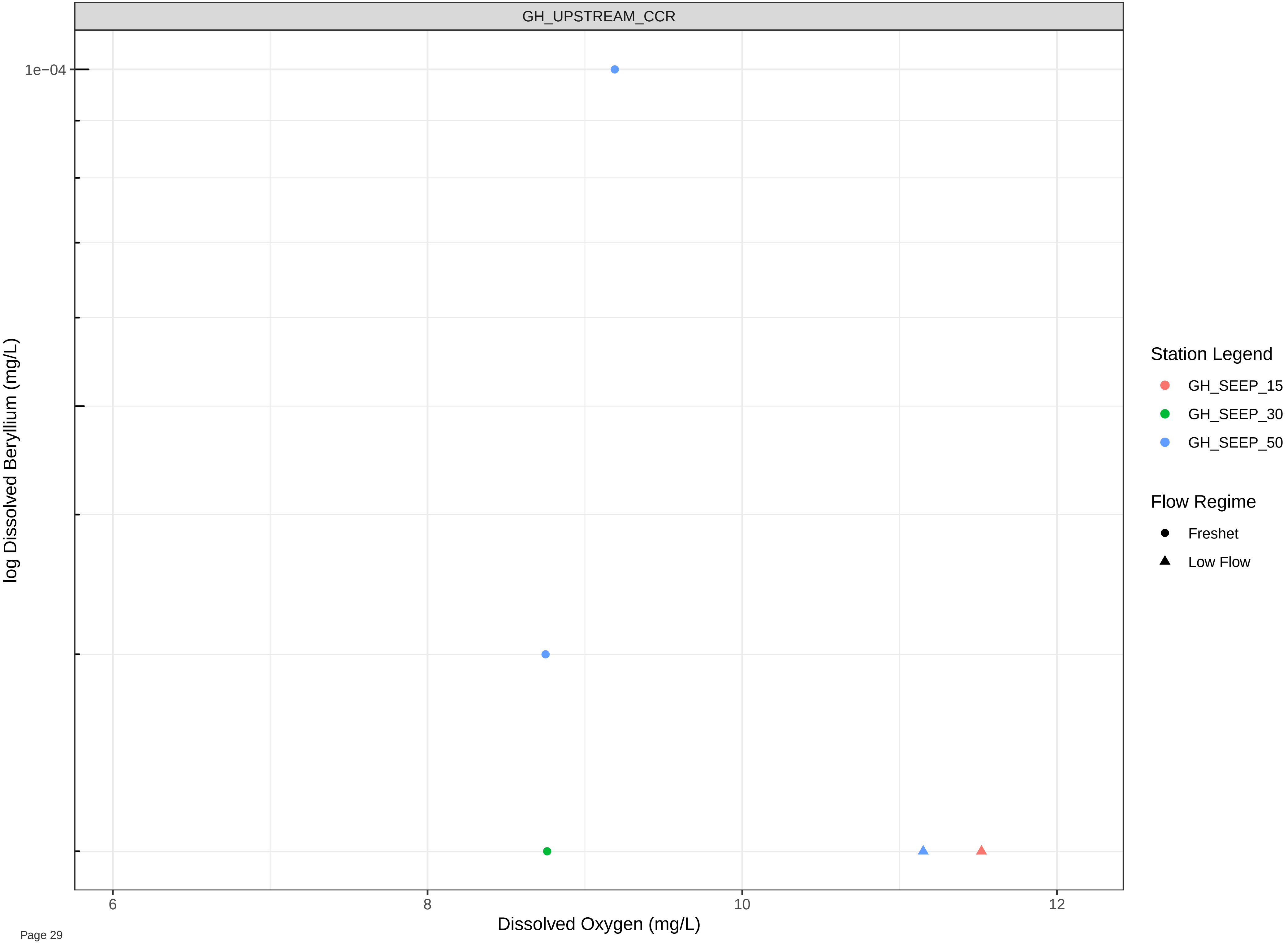
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_46
● GH_SEEP_5
● GH_SEEP_60
Flow Regime
● Freshet
▲ Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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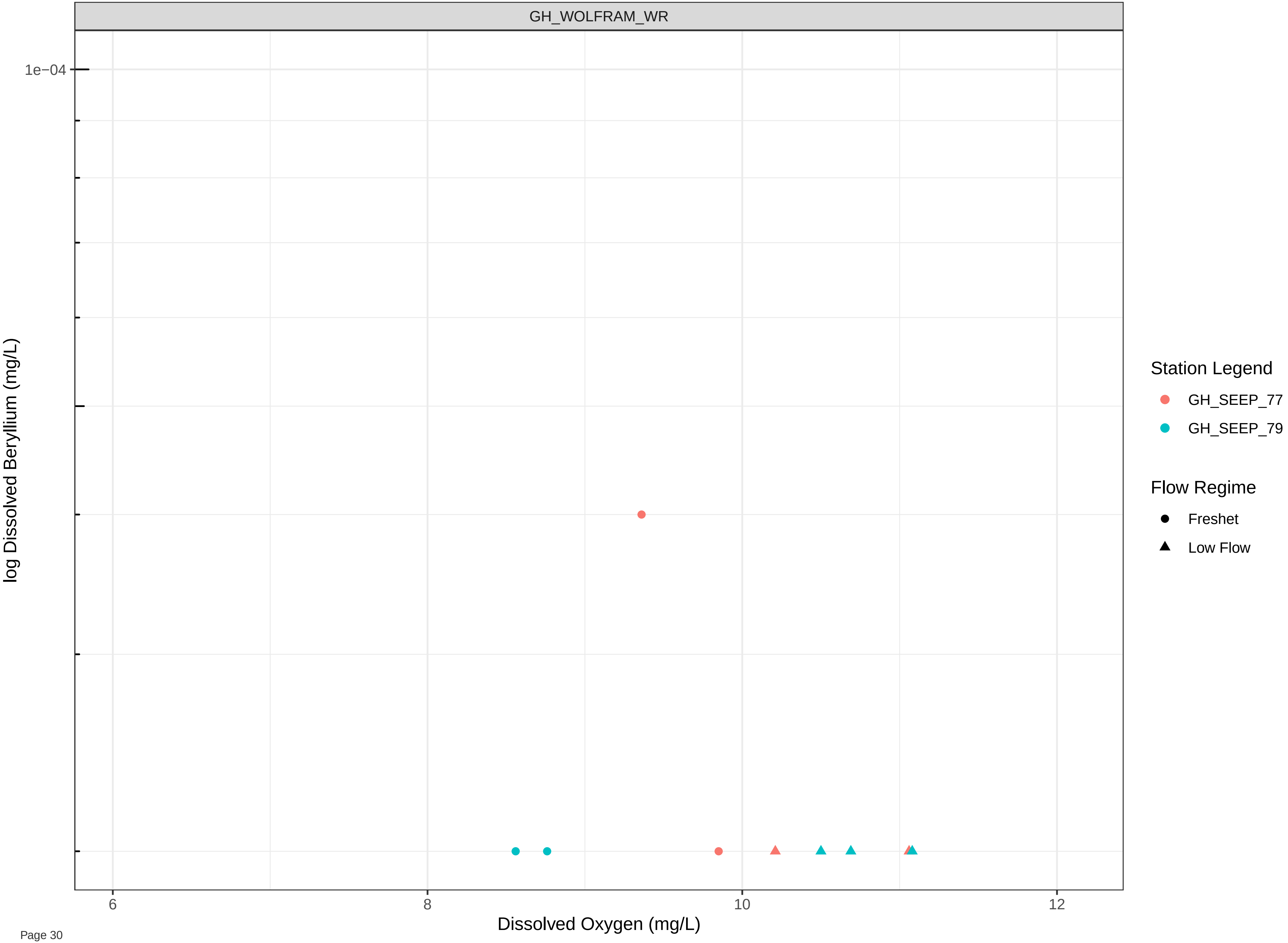
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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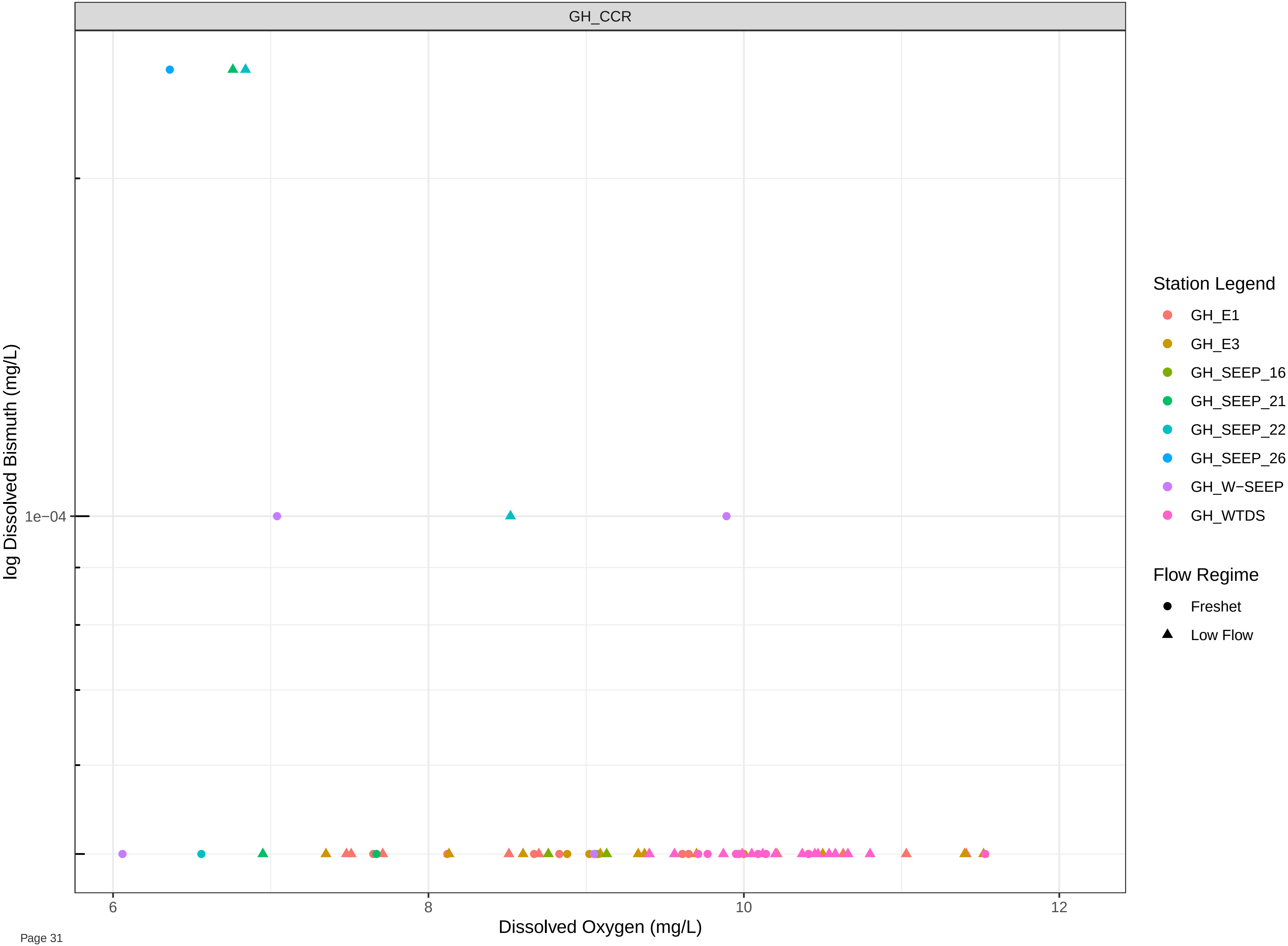
GH_SEEP_79
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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10
12
Station Legend
GH_E1
GH_E3
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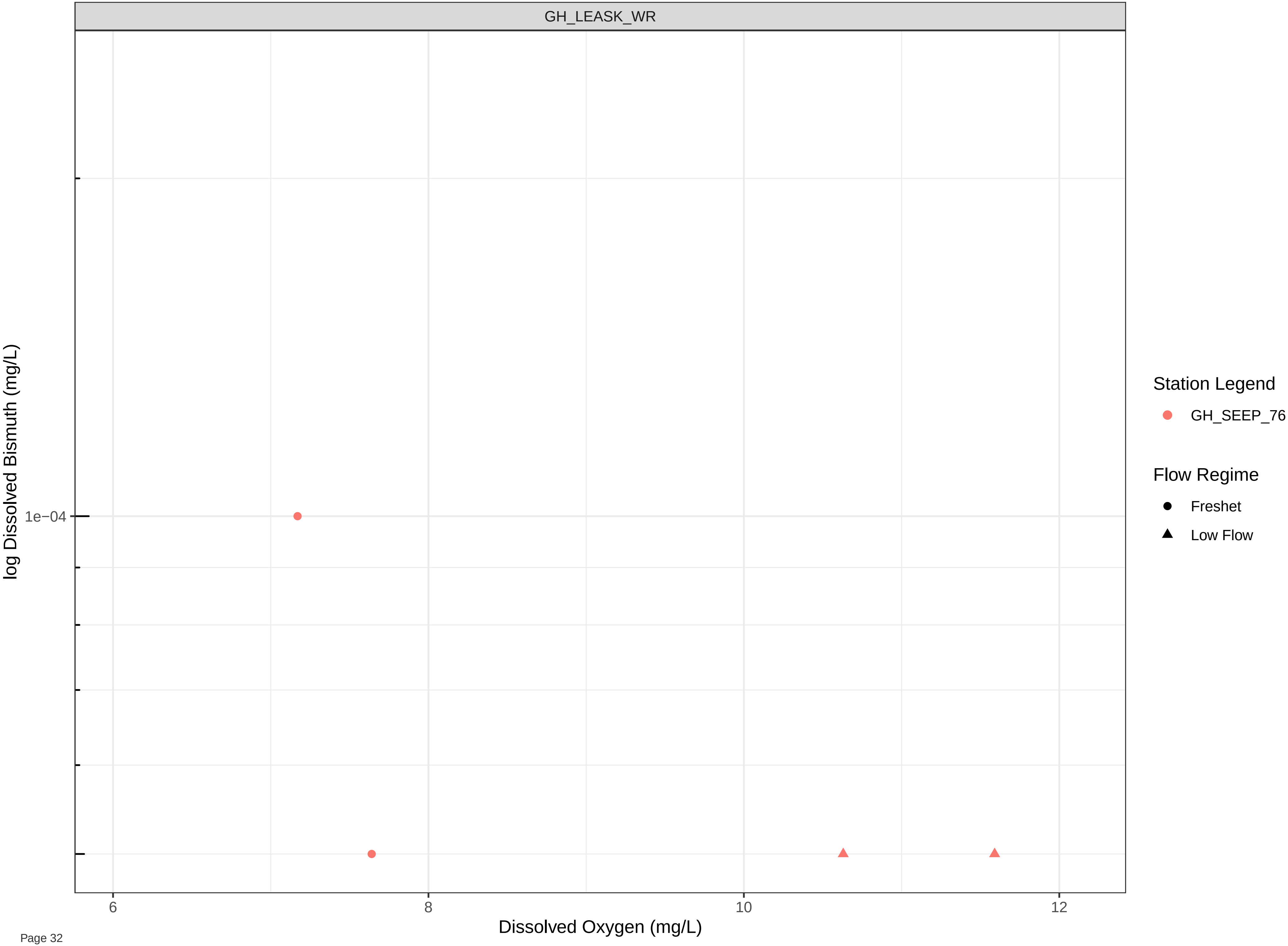
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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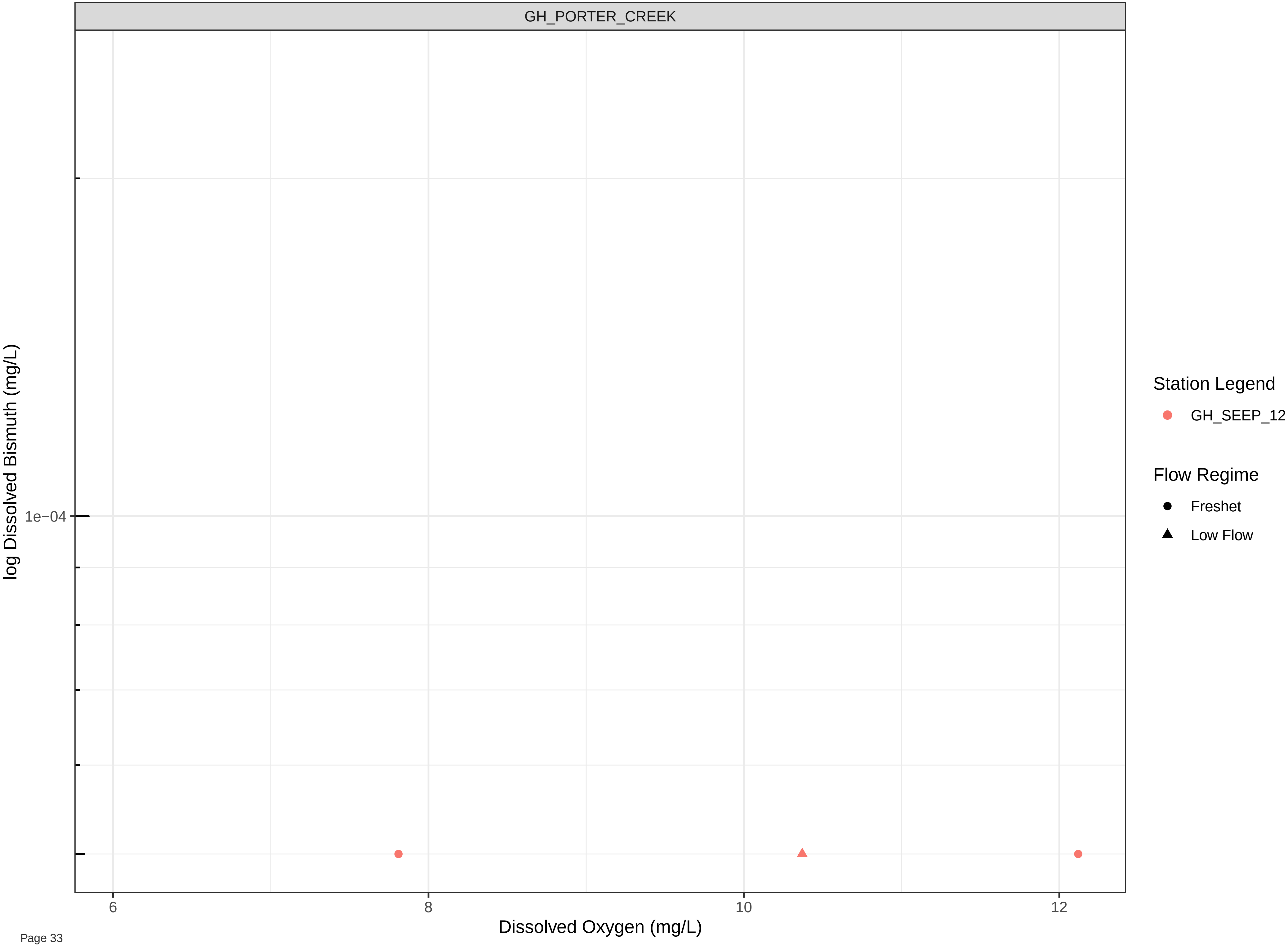
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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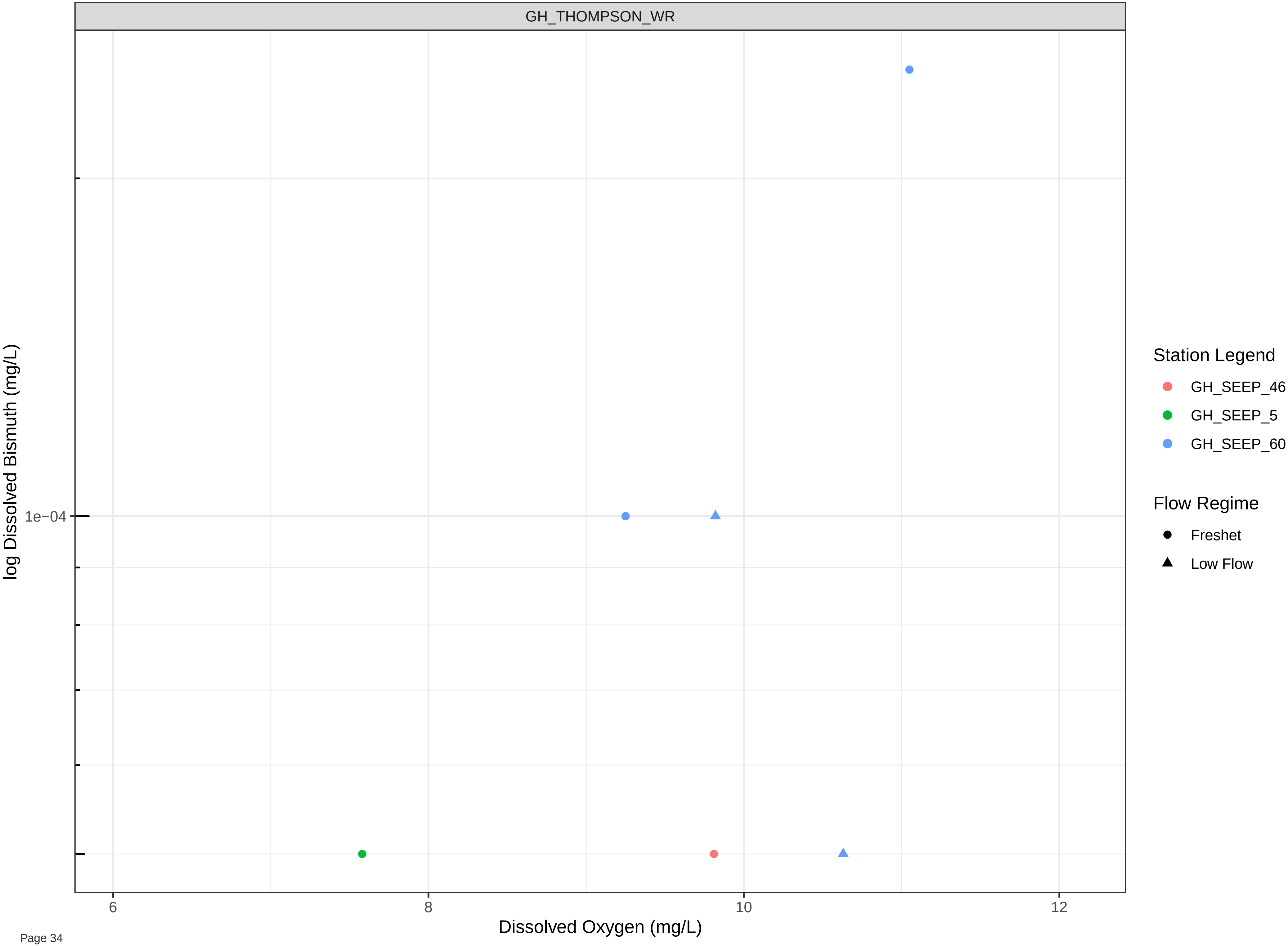
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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Station Legend
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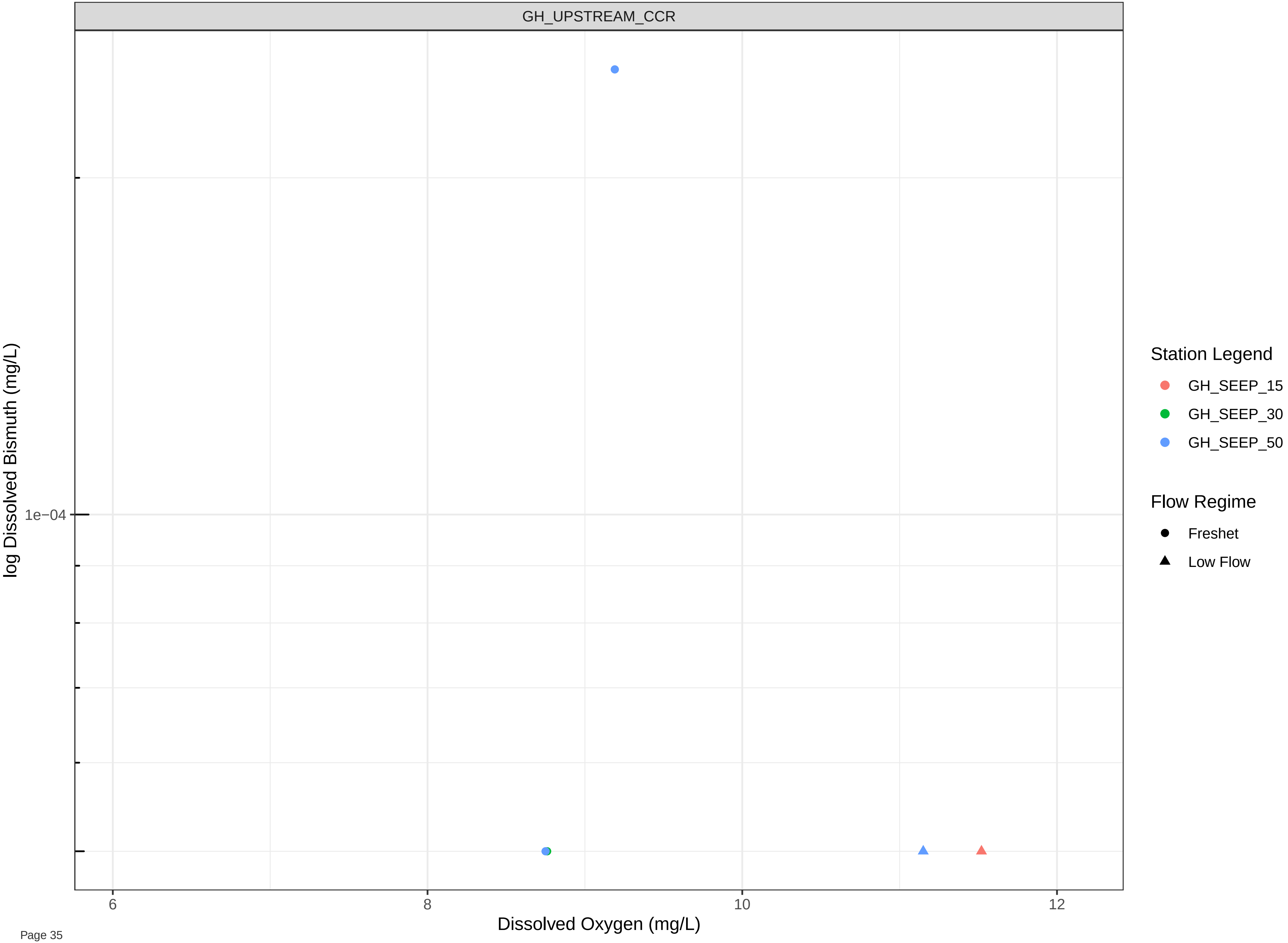
GH_SEEP_60
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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Station Legend
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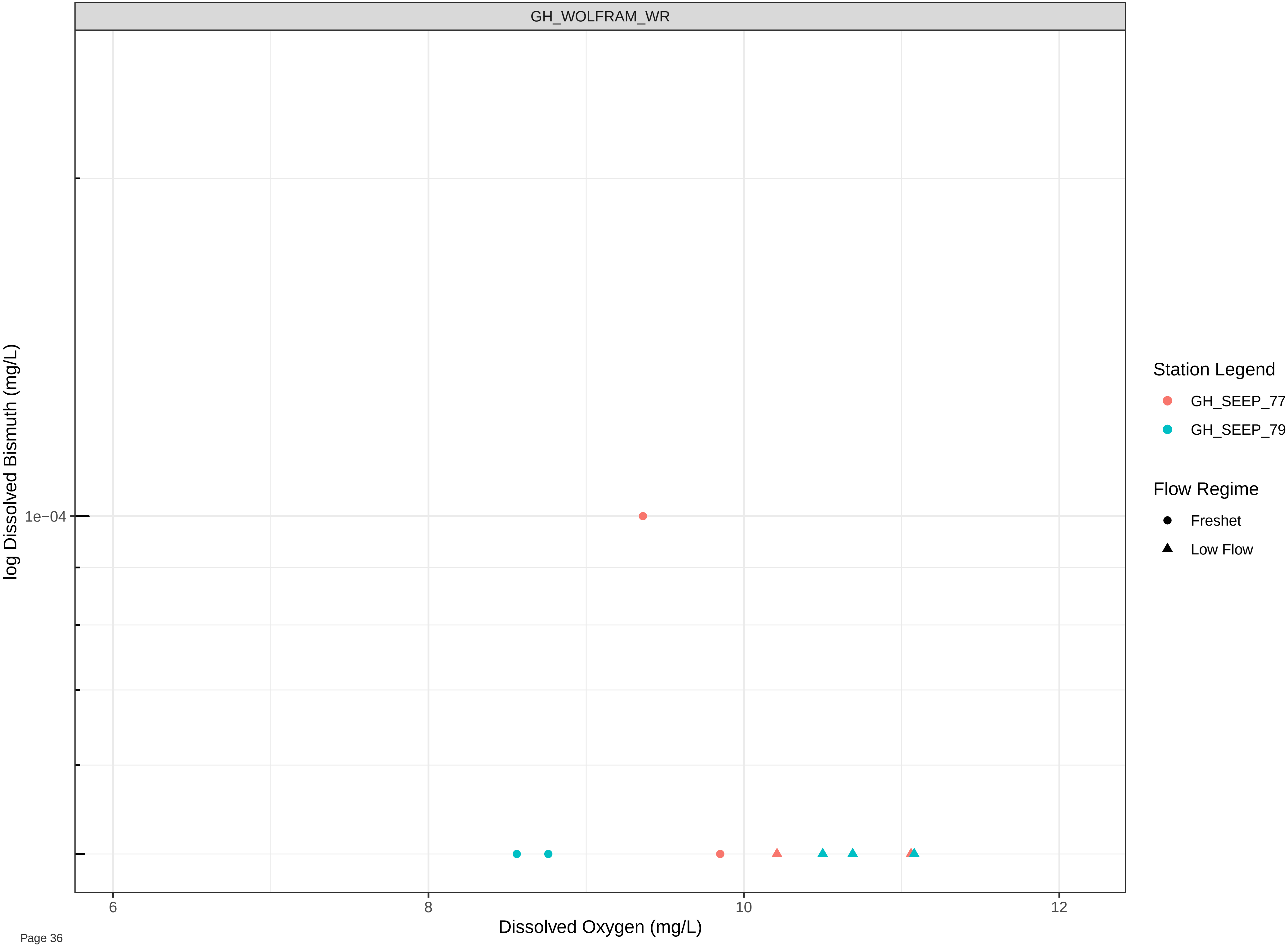
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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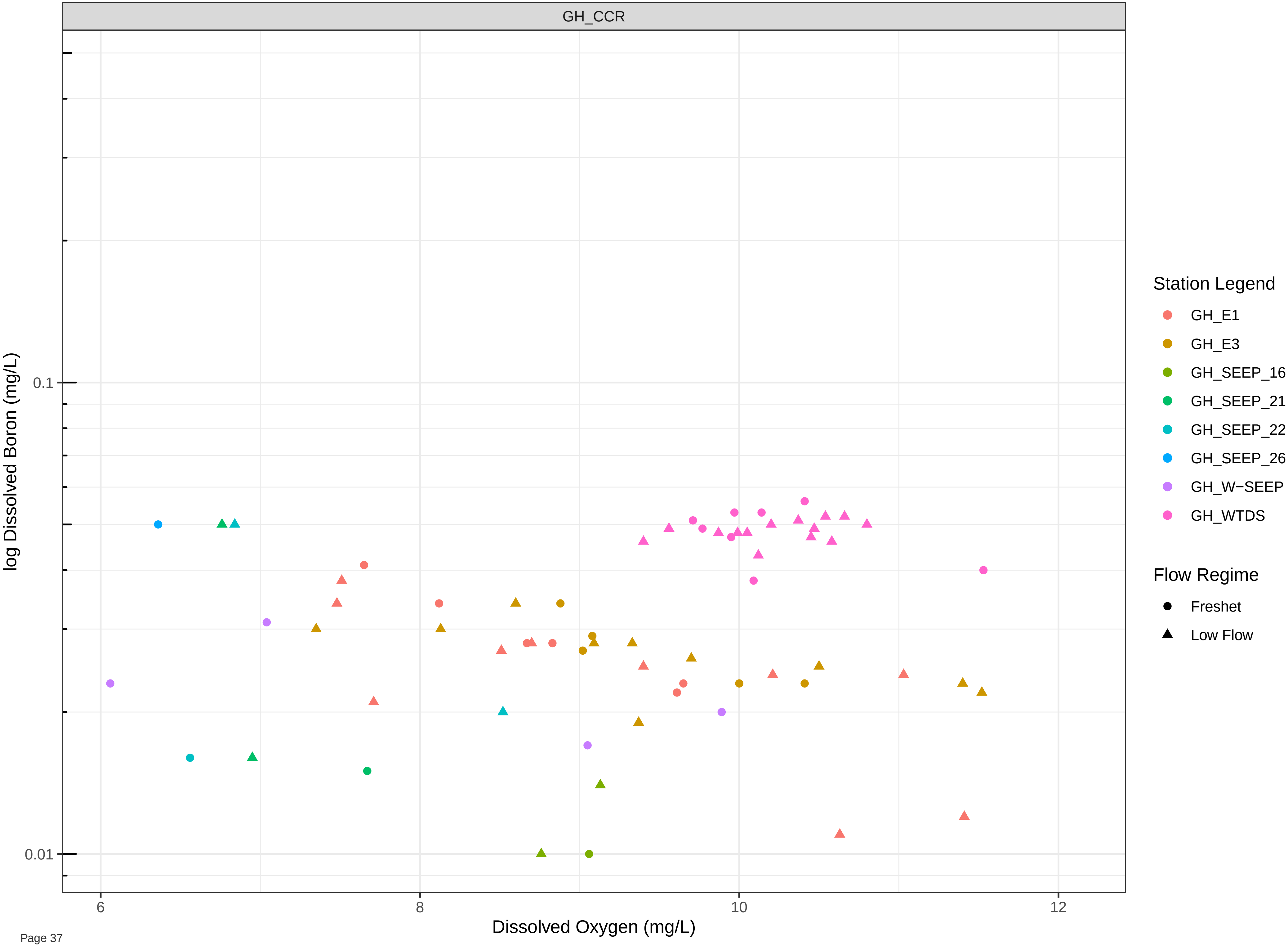
GH_SEEP_79
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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8
10
12
Station Legend
GH_E1
GH_E3
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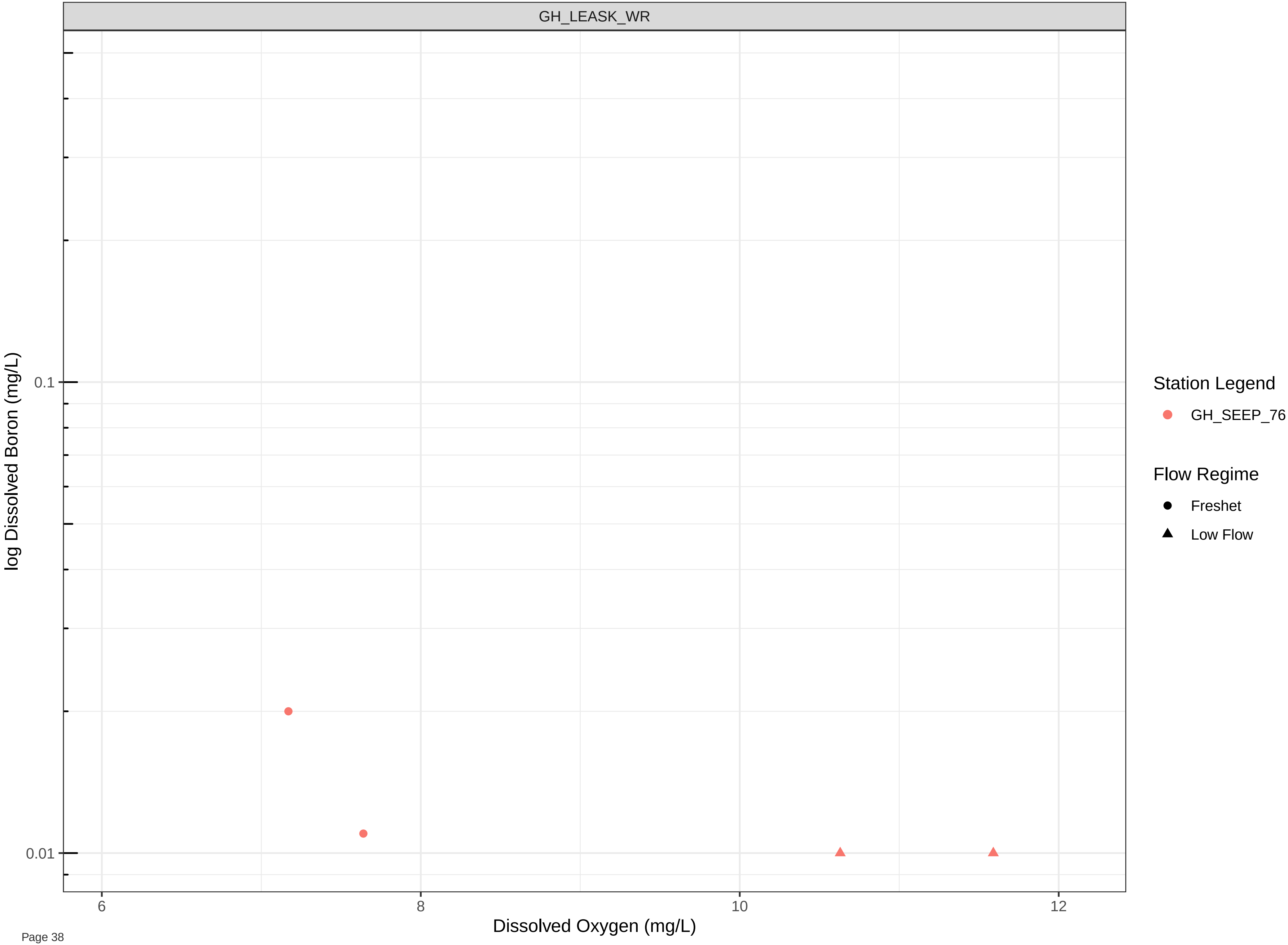
GH_WTDS
Flow Regime
Freshet
Low Flow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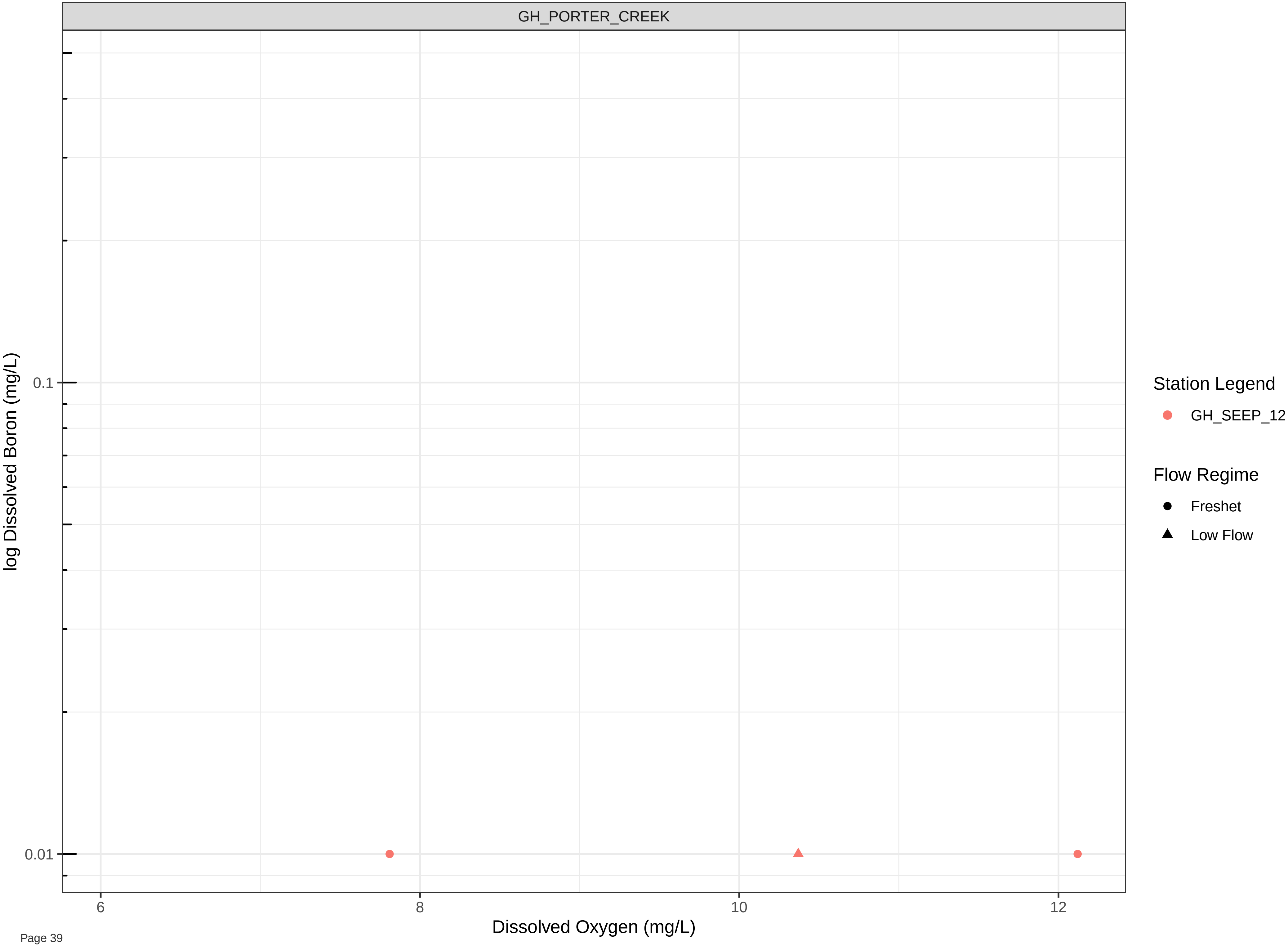
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow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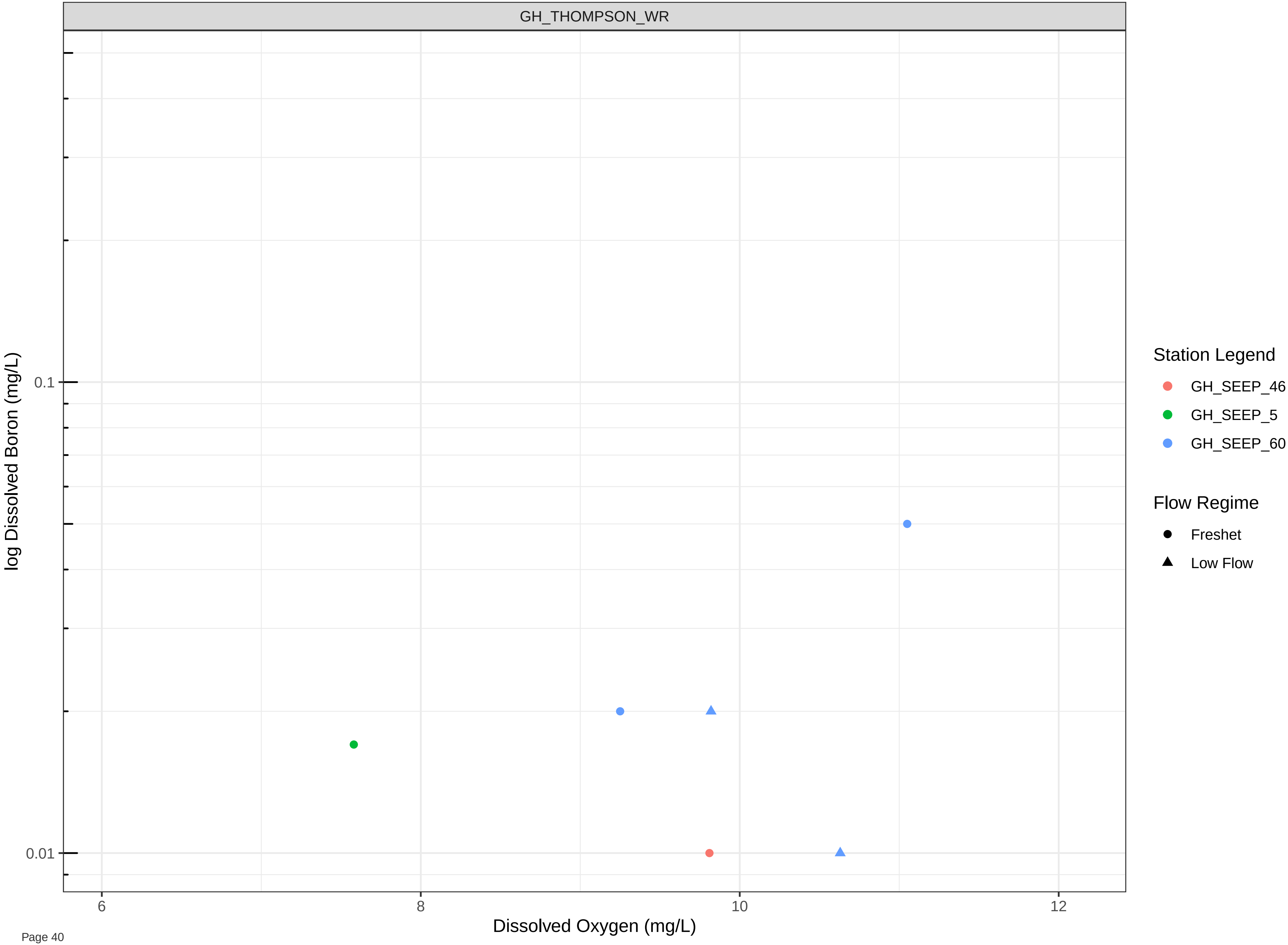
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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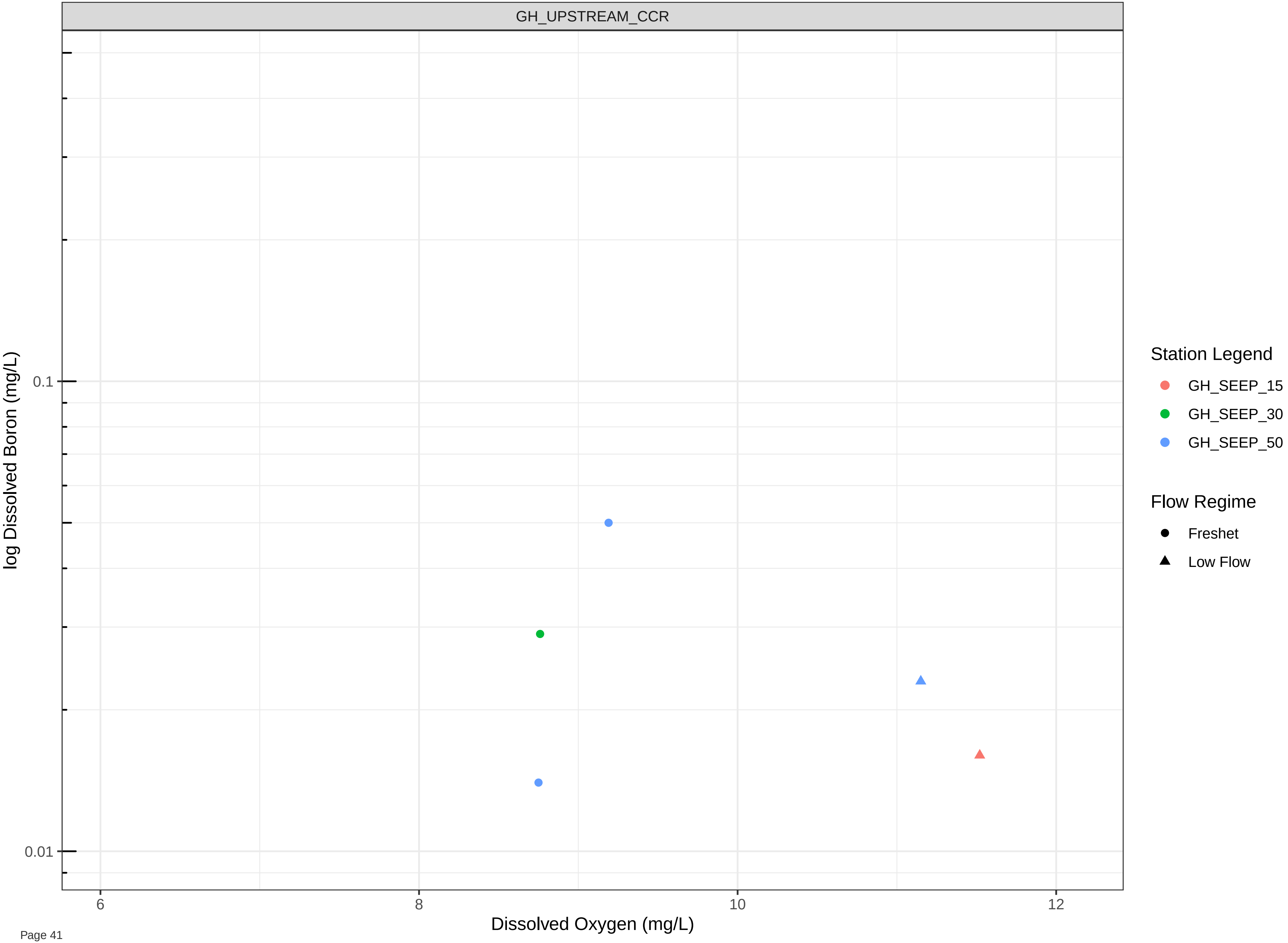
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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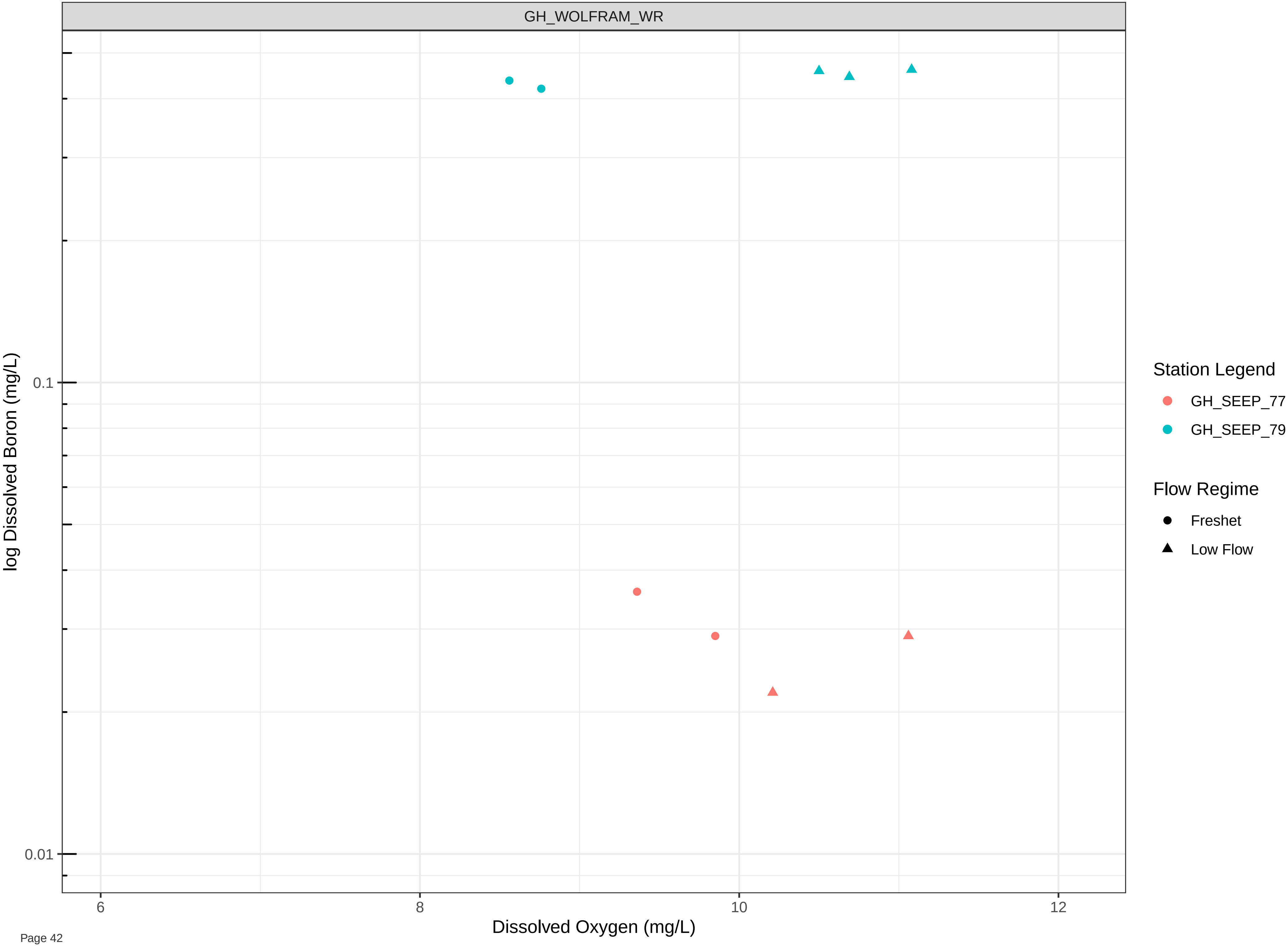
GH_SEEP_50
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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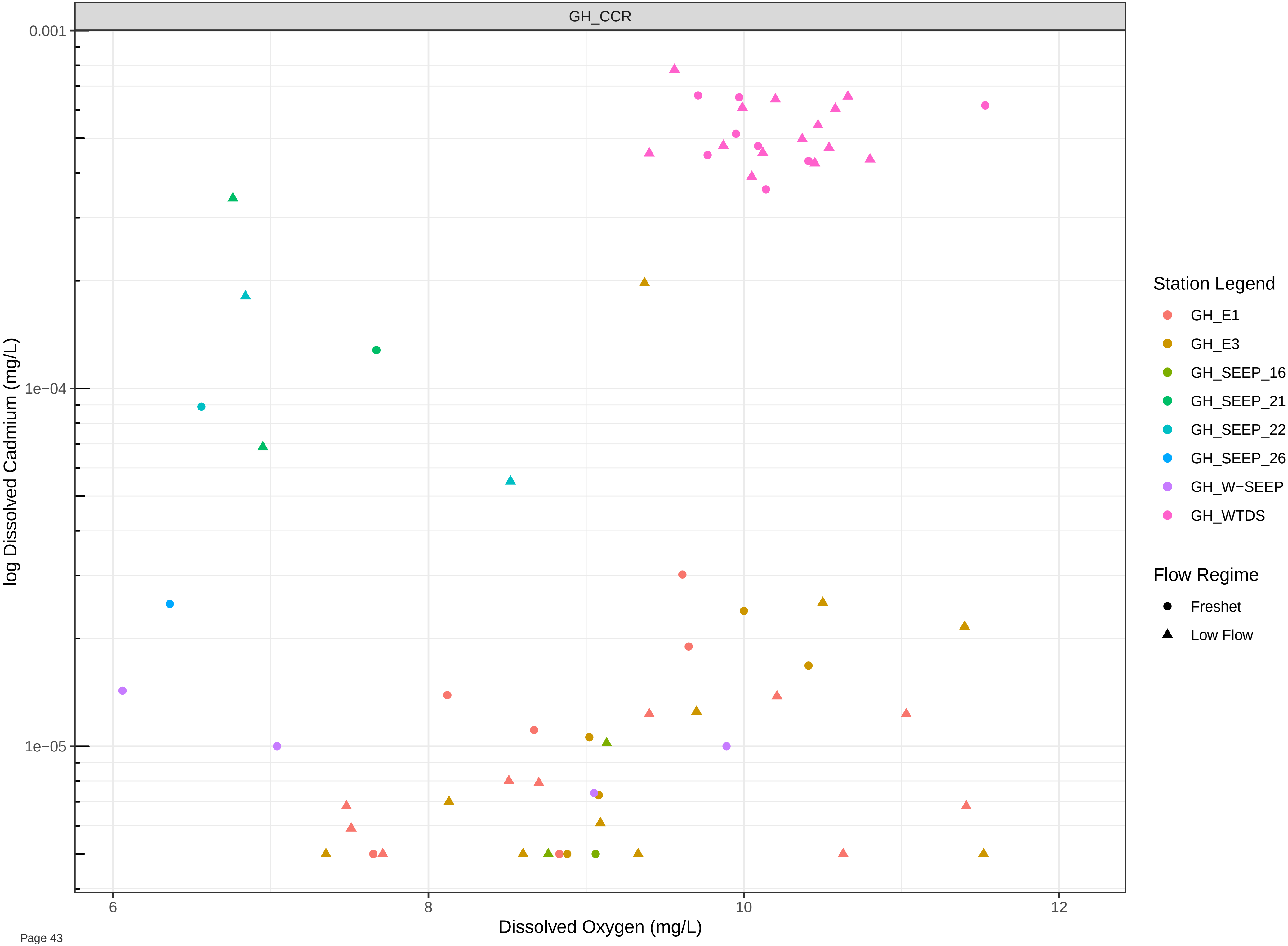
GH_SEEP_79
Flow Regime
Freshet
Low Flow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1e−05
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_E1
GH_E3
GH_SEEP_16
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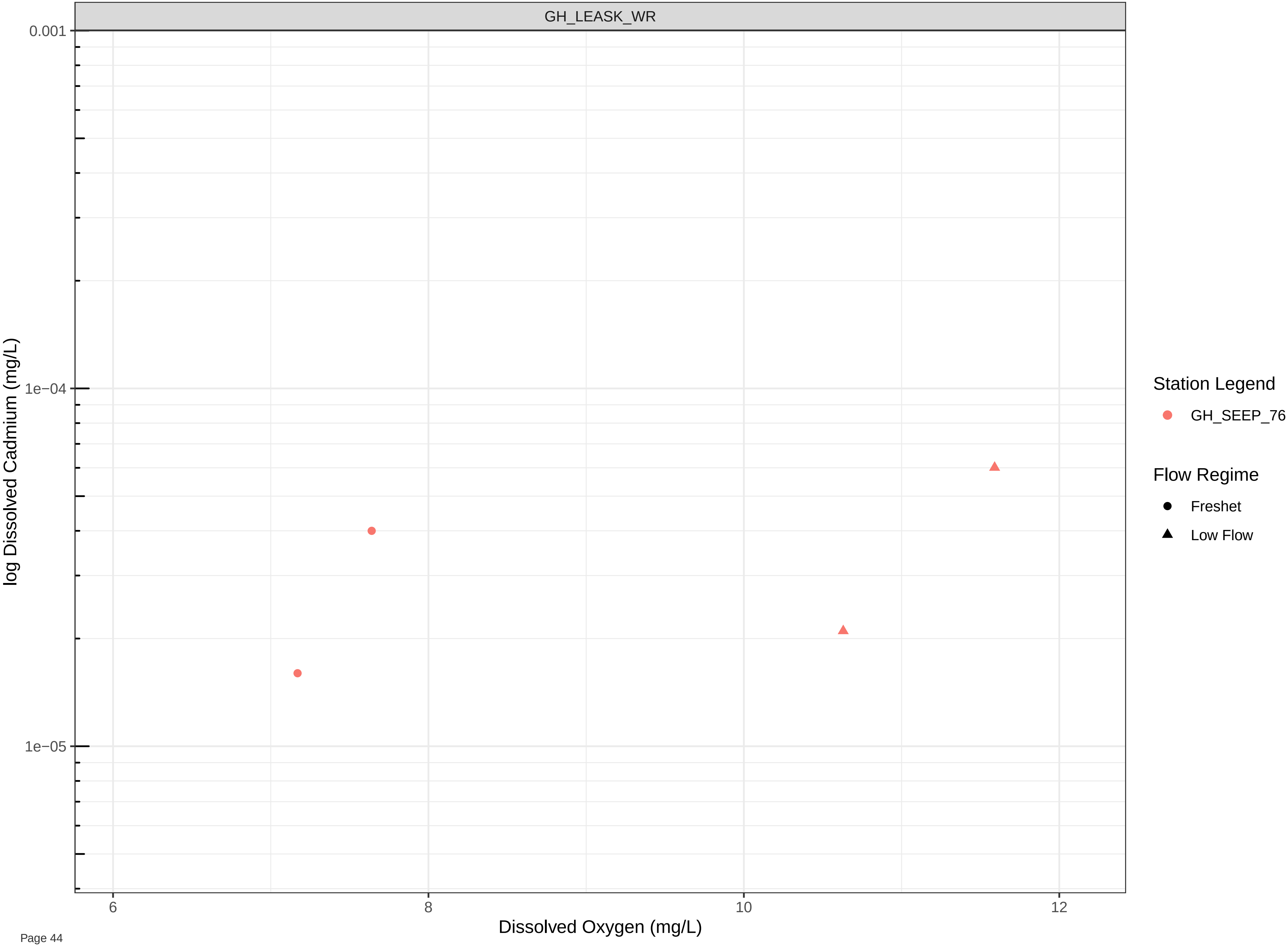
GH_WTDS
Flow Regime
Freshet
Low Flow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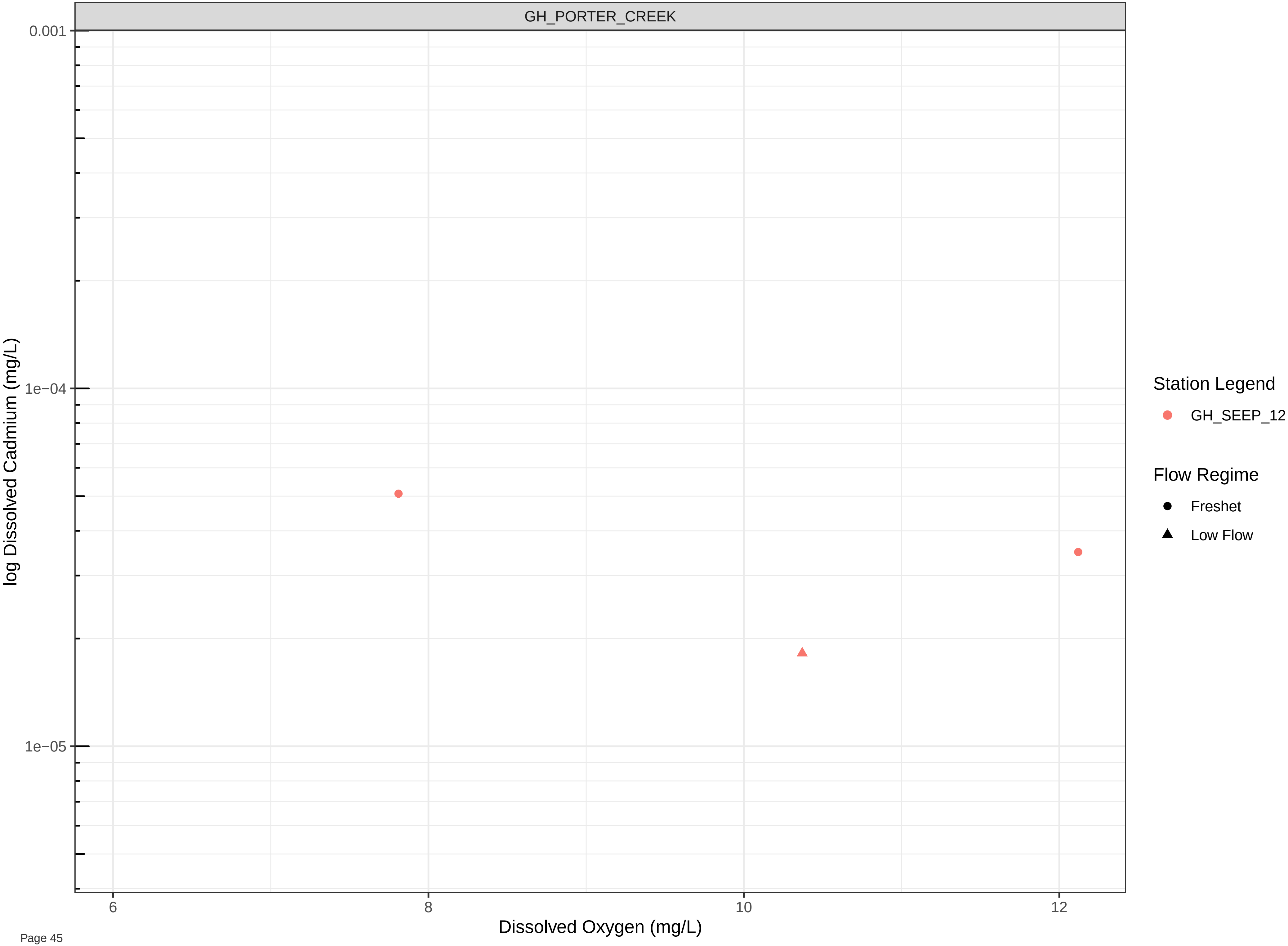
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow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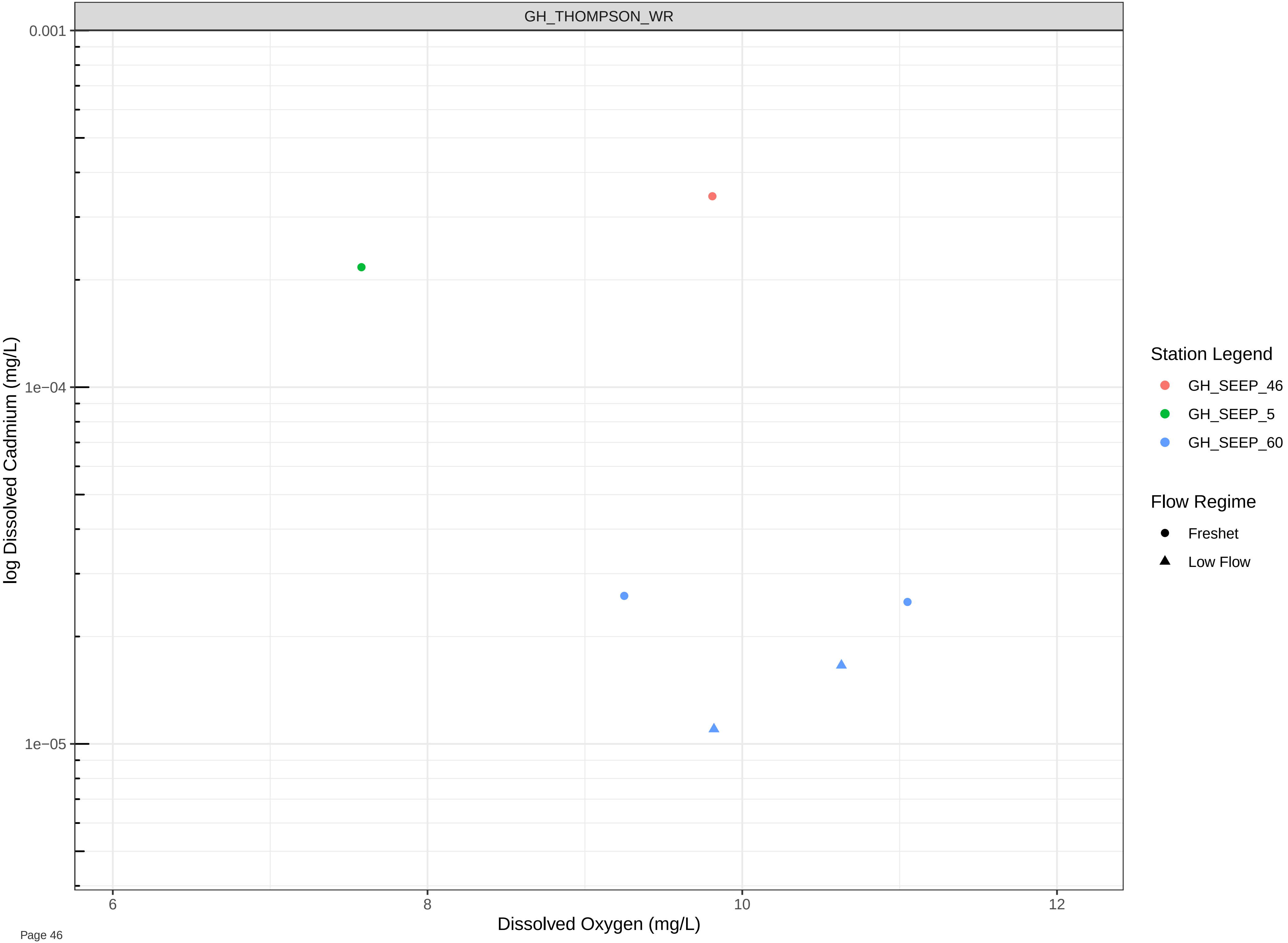
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow



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Dissolved Oxygen (mg/L)
Station Legend
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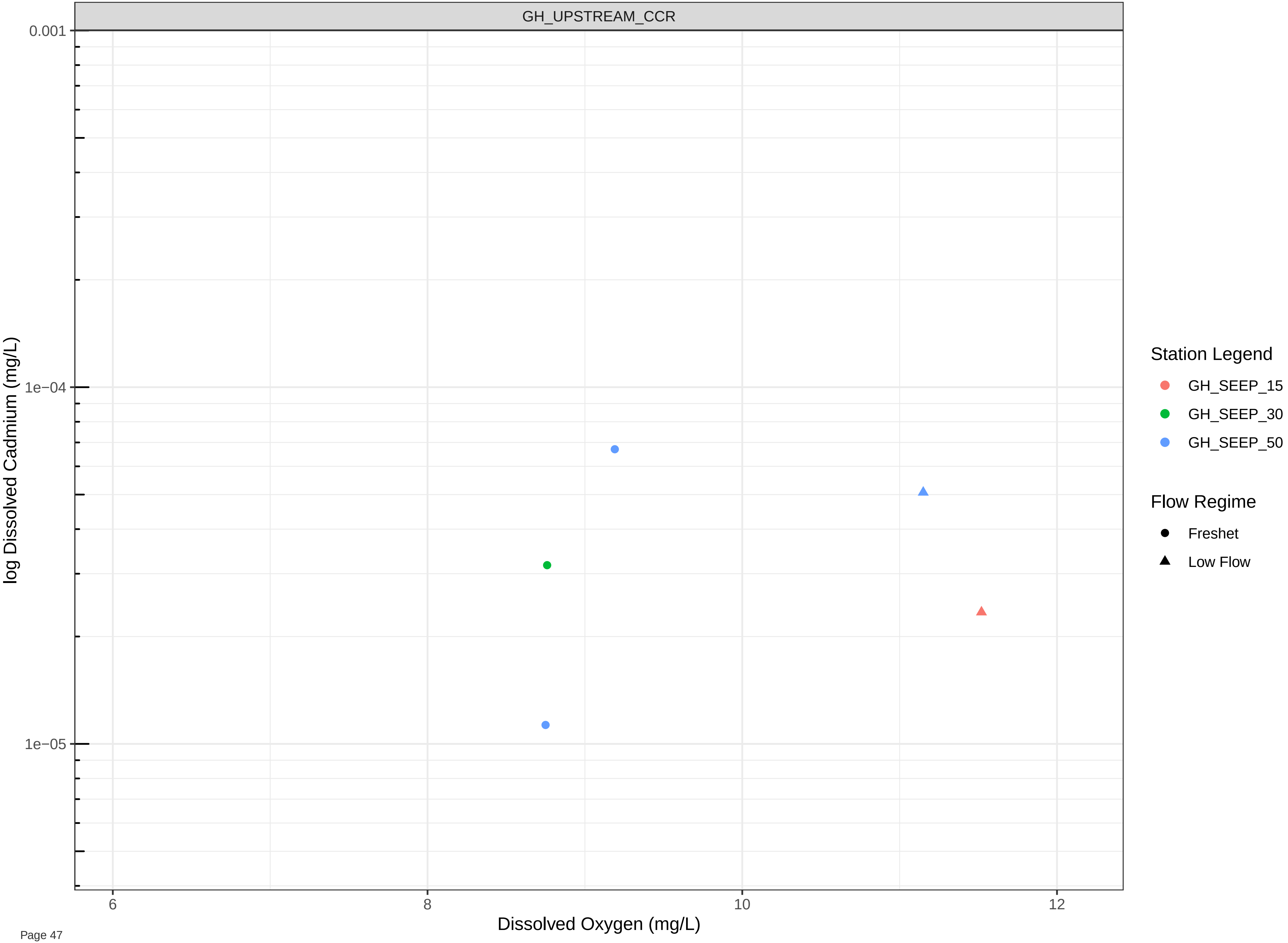
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow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log Dissolved Cadmium (mg/L)
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Dissolved Oxygen (mg/L)
Station Legend
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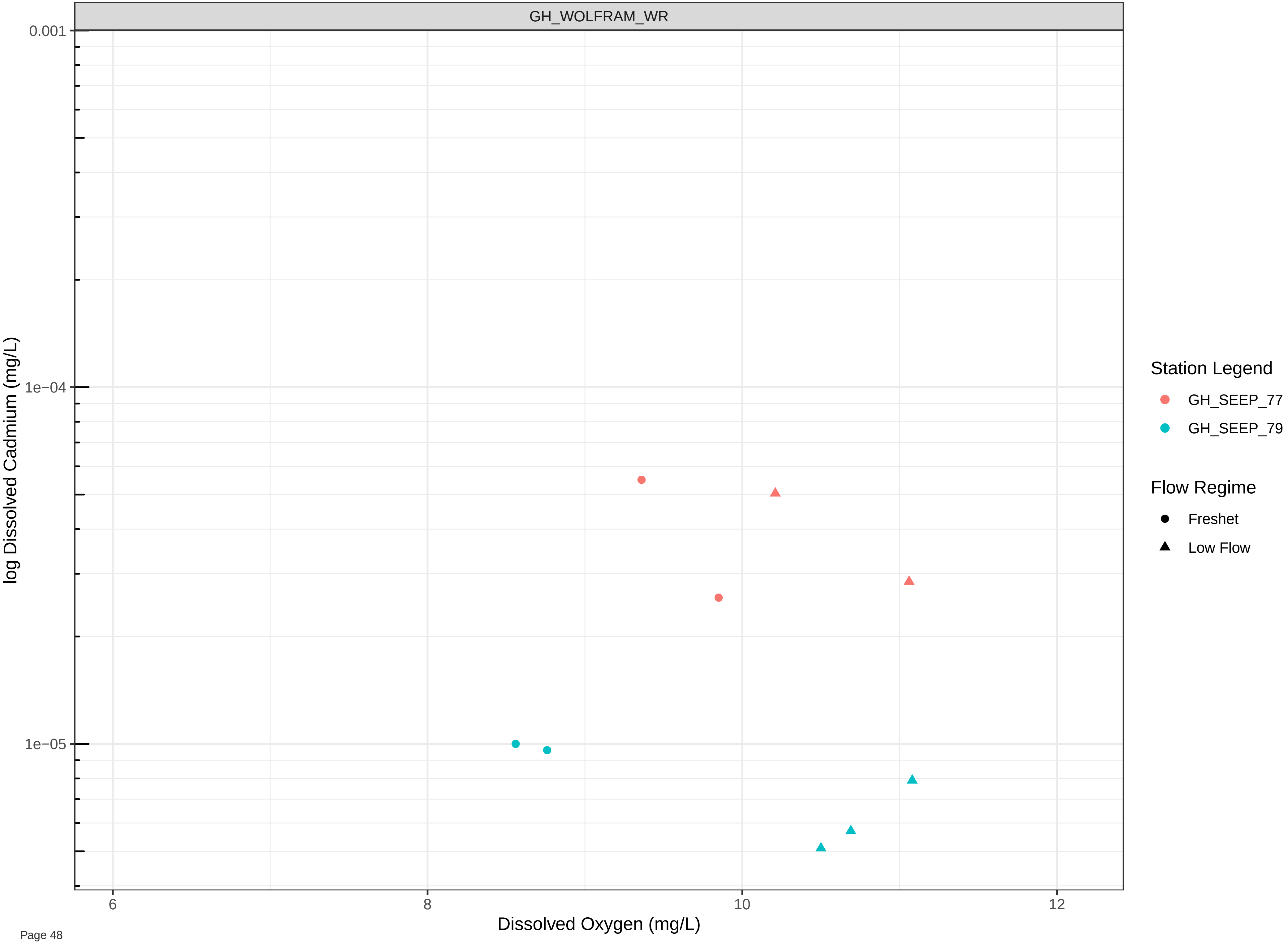
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow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log Dissolved Cadmium (mg/L)
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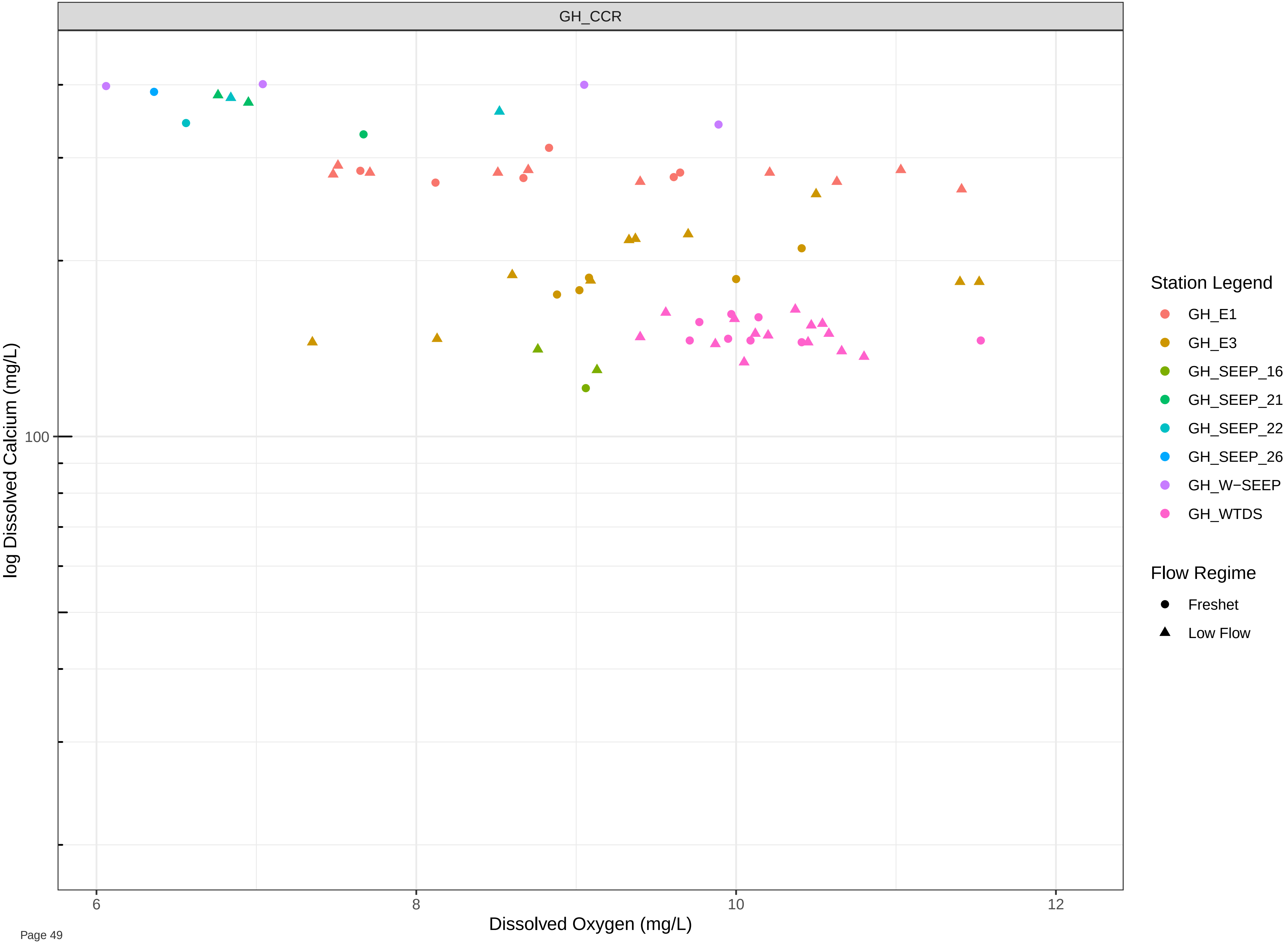
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow


GH_CCR
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Dissolved Oxygen (mg/L)
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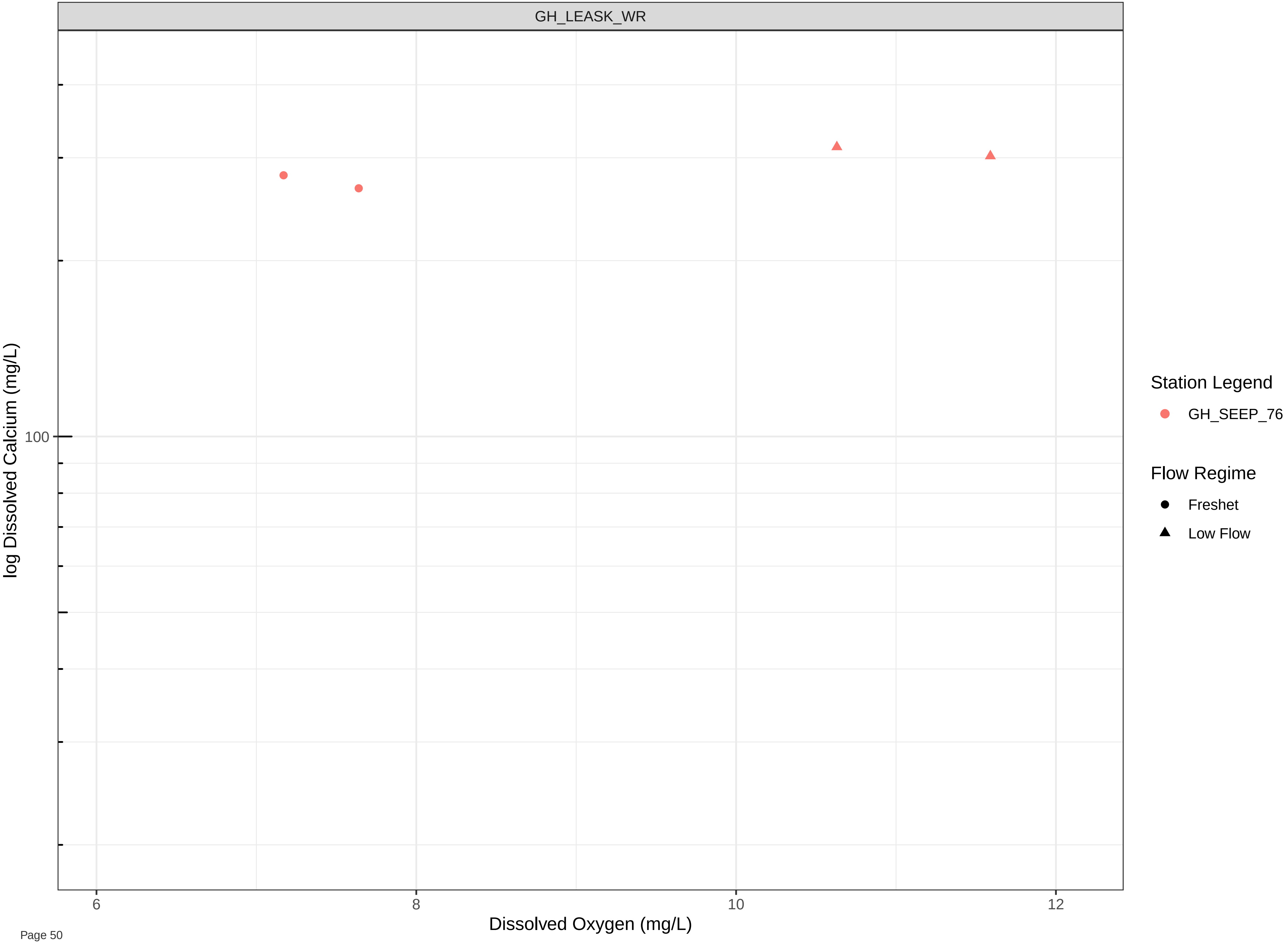
8
10
12
Station Legend
● GH_E1
● GH_E3
● GH_SEEP_16
● GH_SEEP_21
● GH_SEEP_22
● GH_SEEP_26
● GH_W−SEEP
● GH_WTDS
Flow Regime
● Freshet
▲ Low Flow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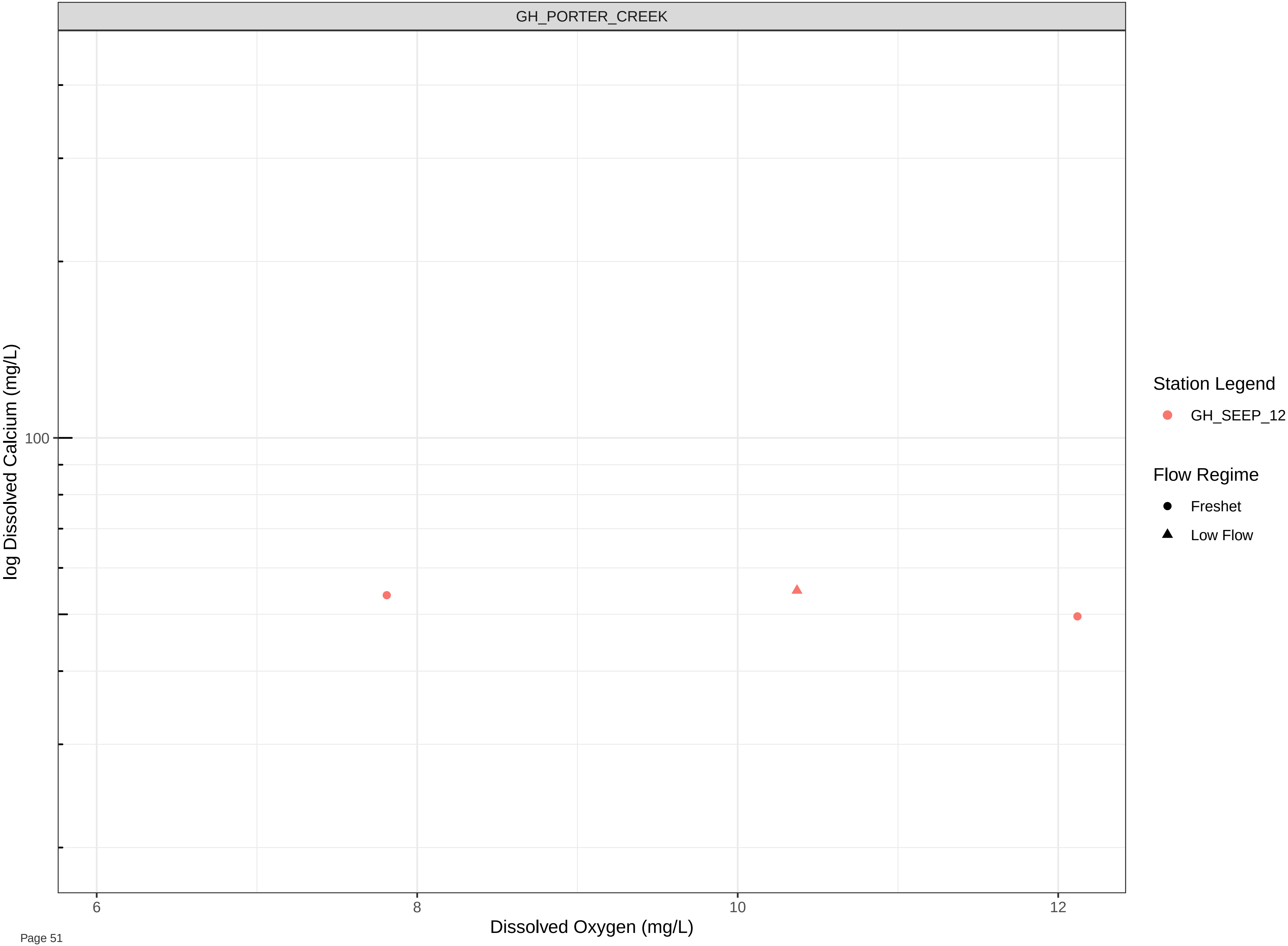
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow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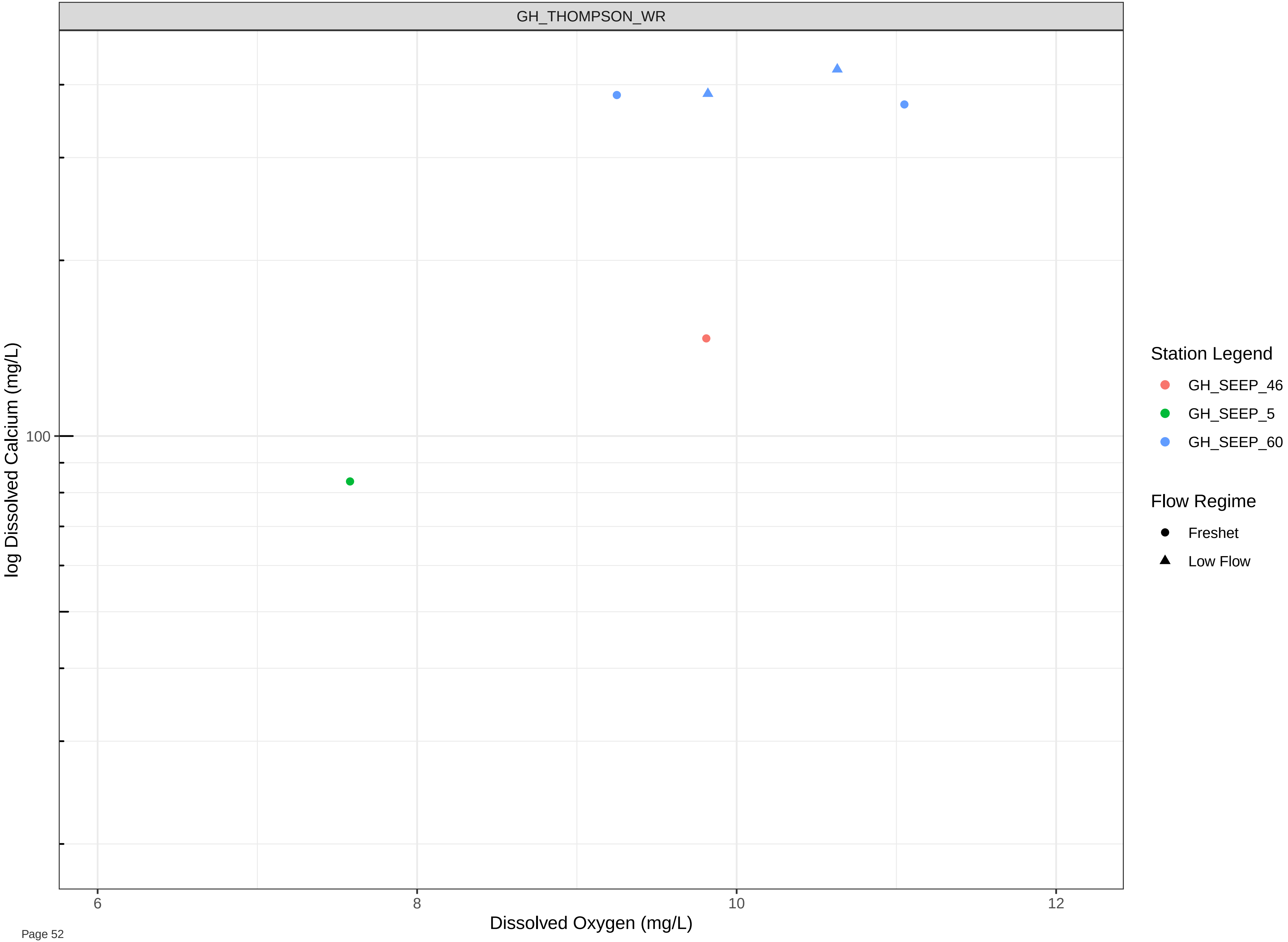
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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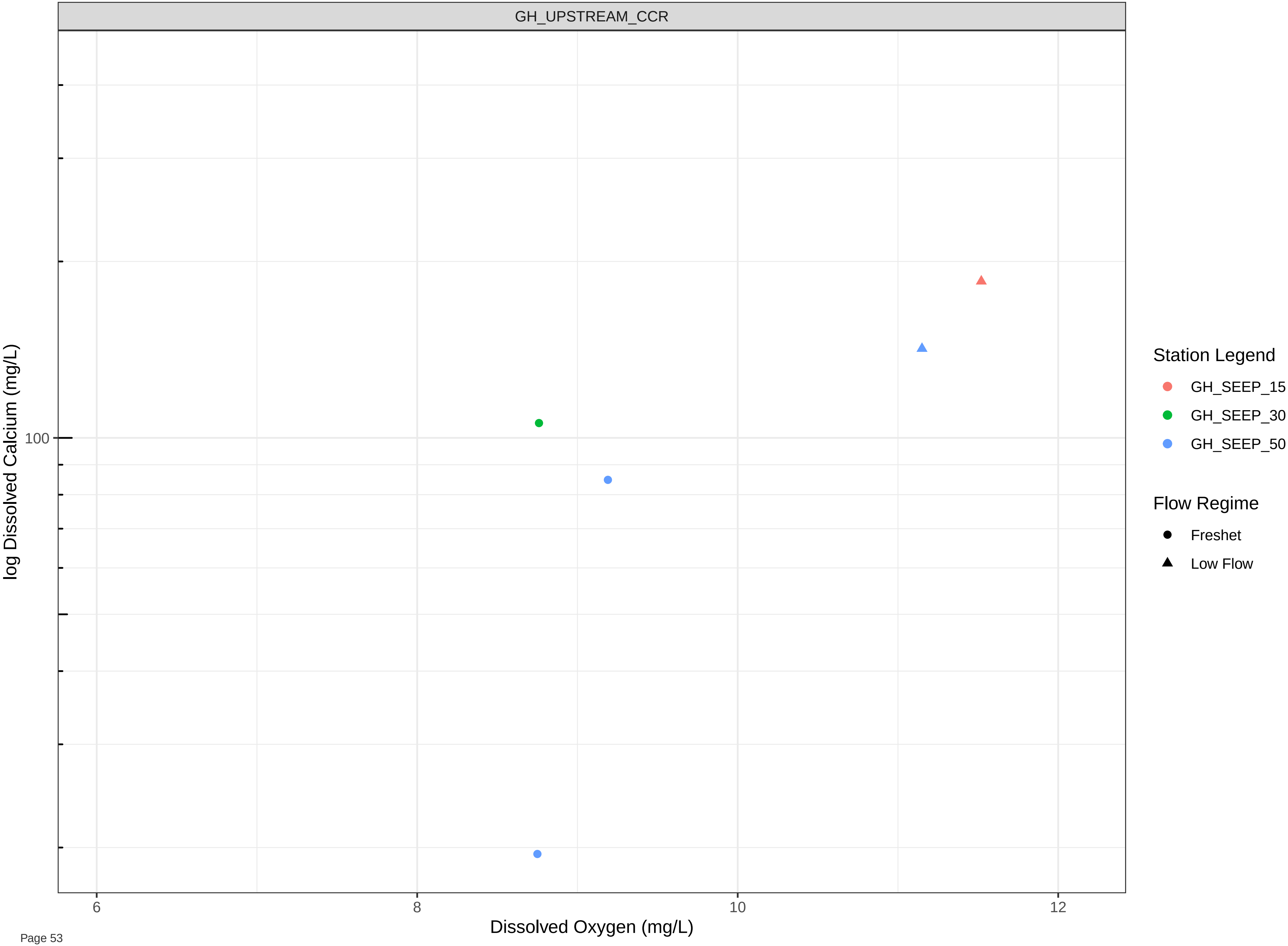
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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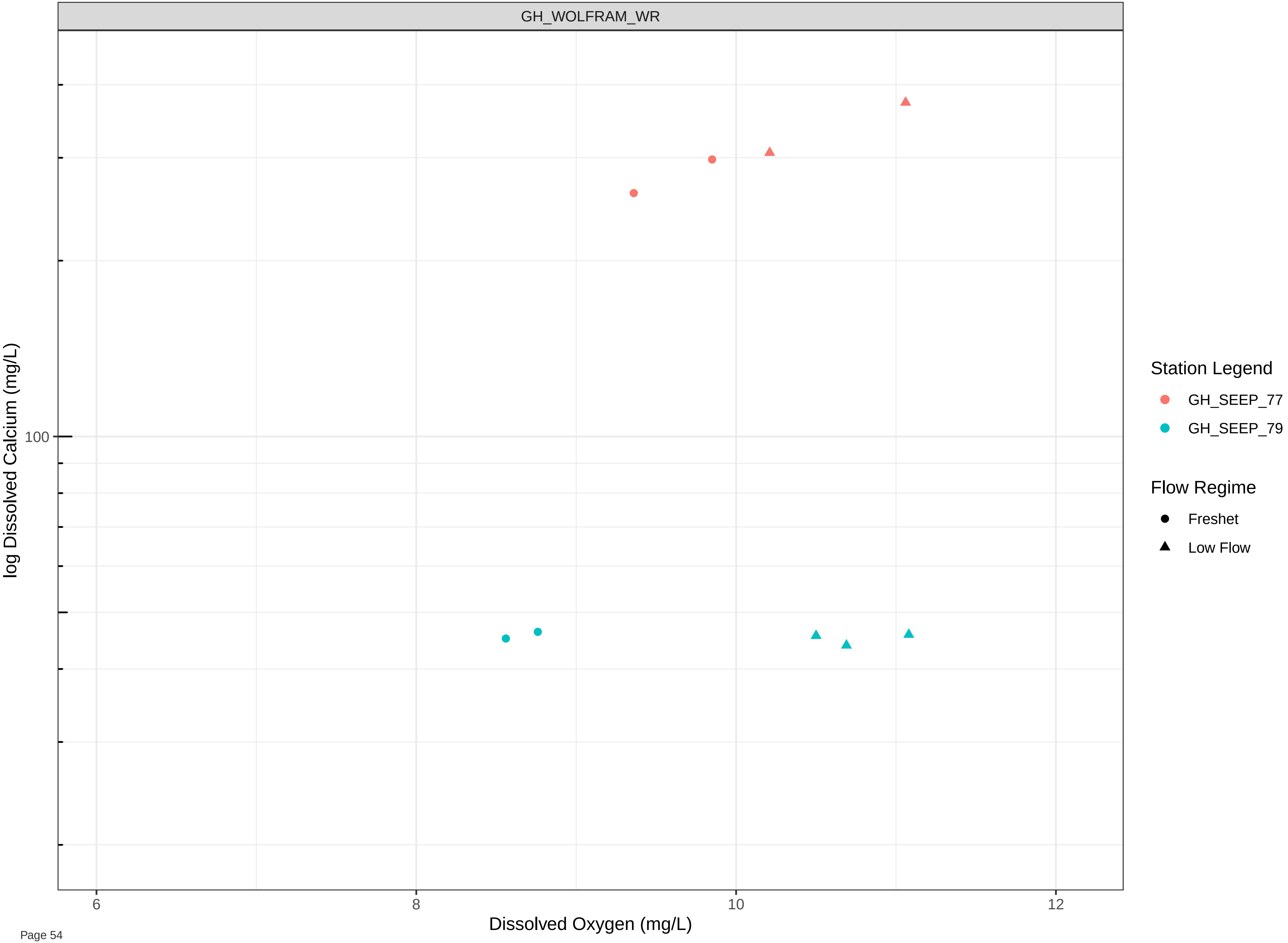
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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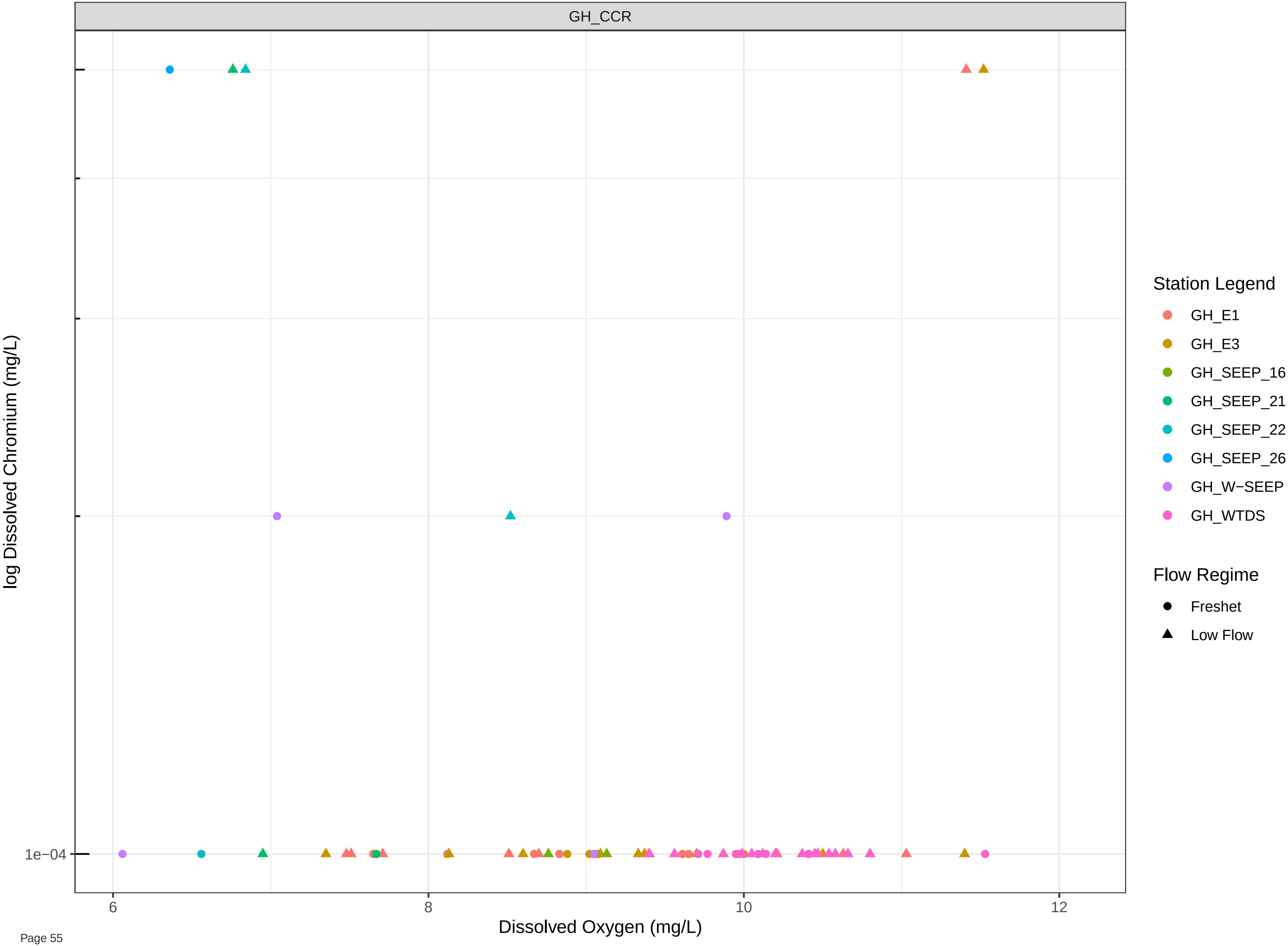
Station Legend
● GH_SEEP_77
● GH_SEEP_79
Flow Regime
● Freshet
▲ Low Flow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10
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Dissolved Oxygen (mg/L)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
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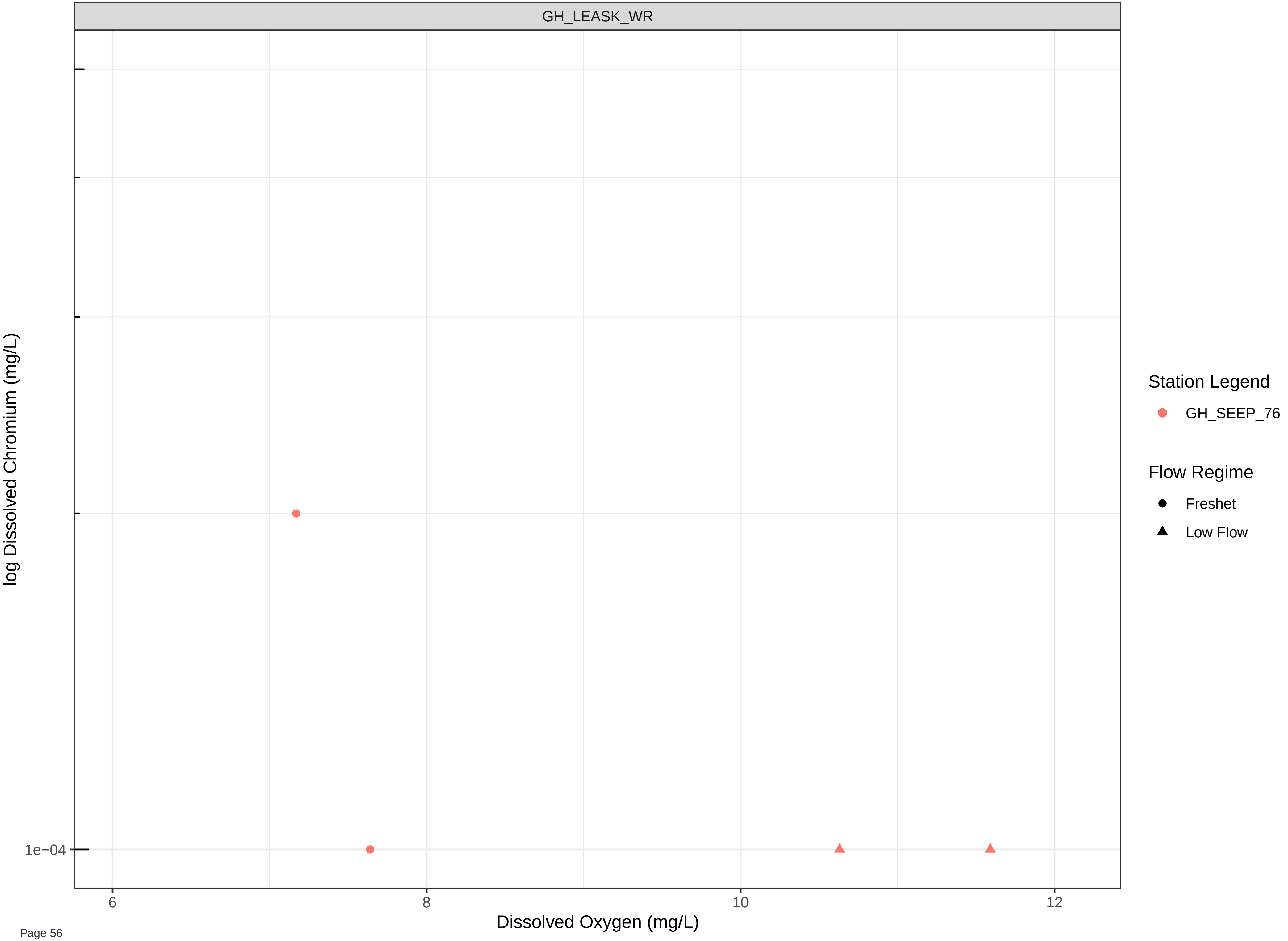
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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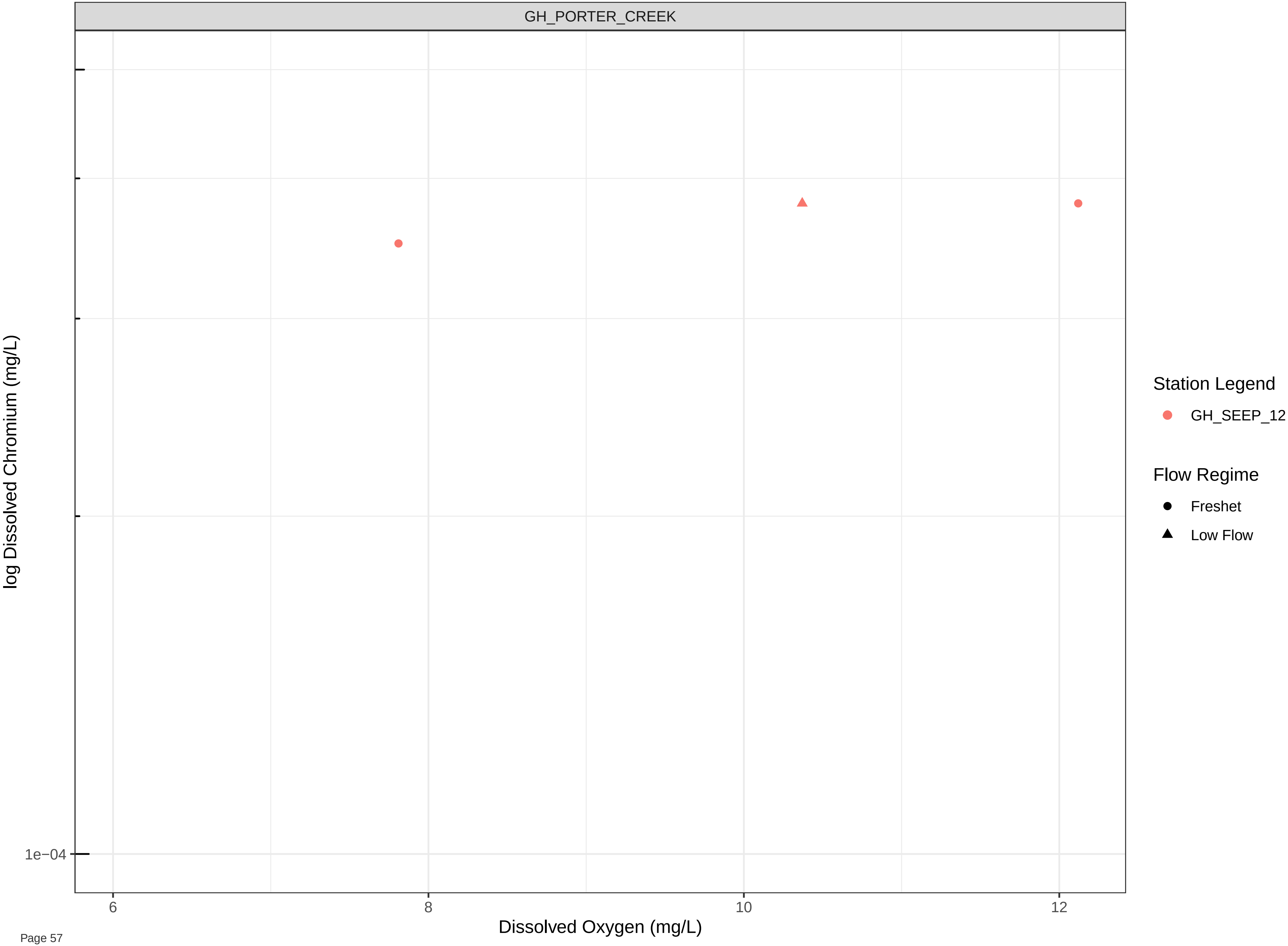
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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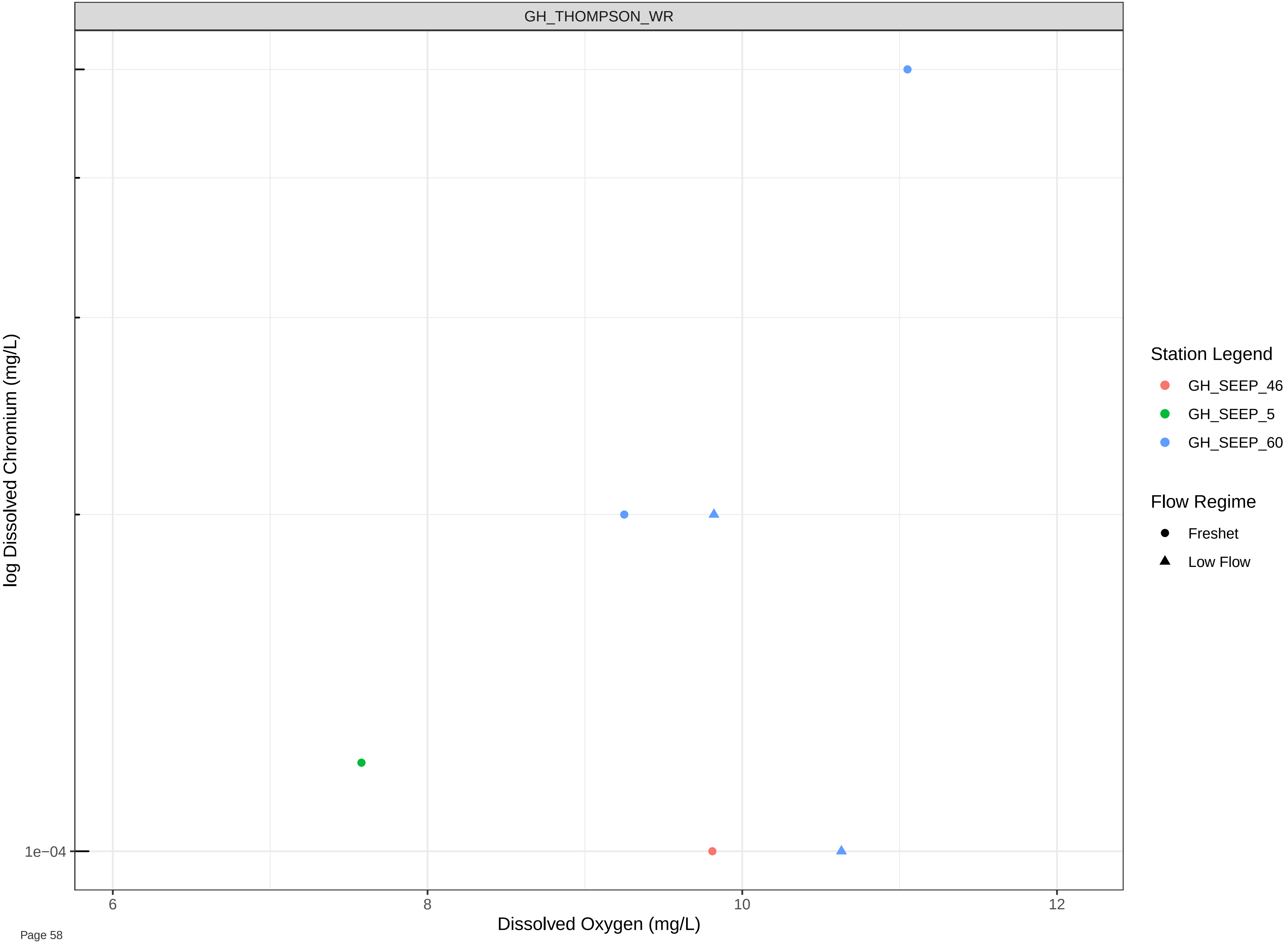
Flow Regime
● Freshet
▲ Low Flow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Dissolved Oxygen (mg/L)
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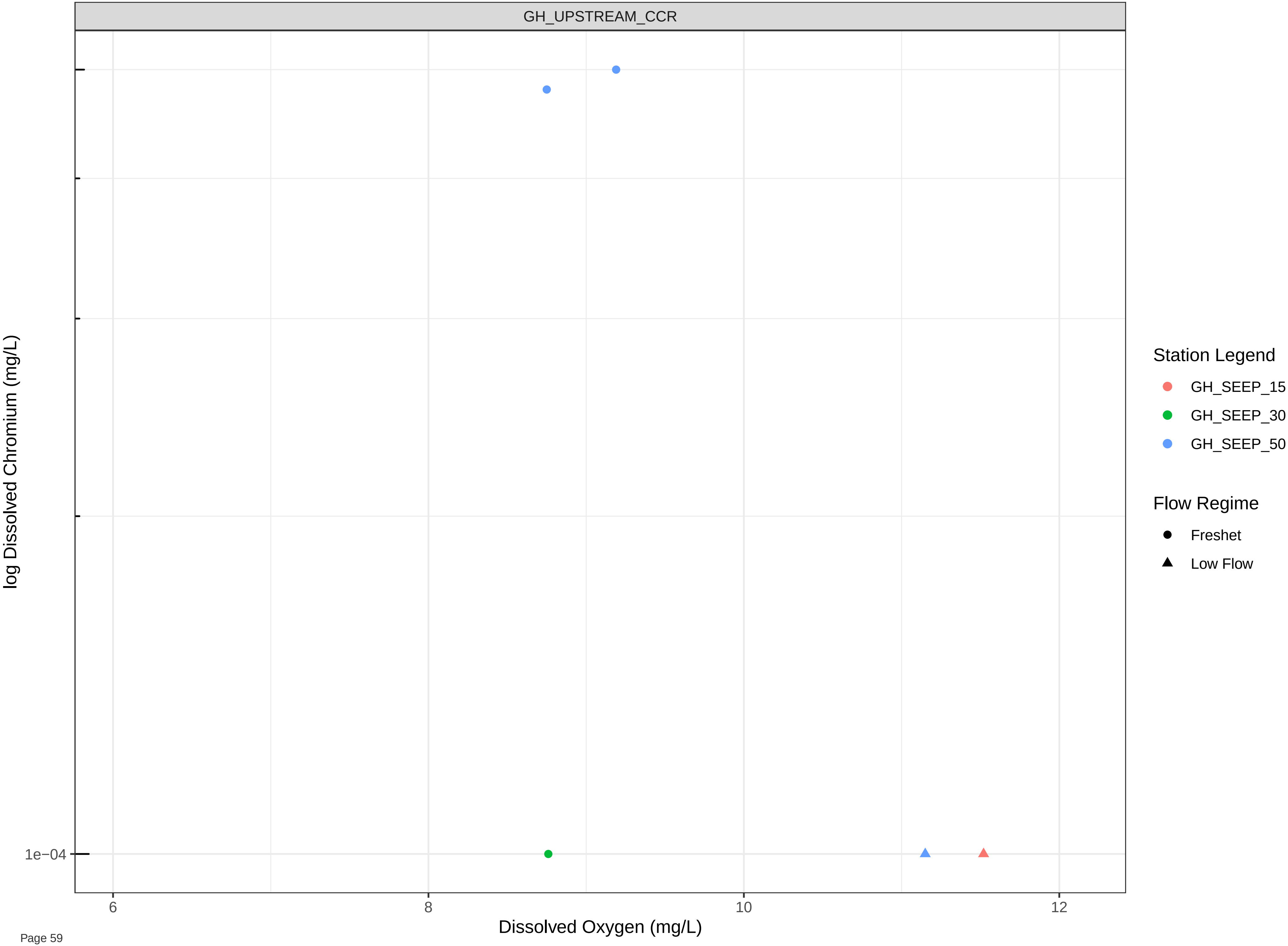
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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Flow Regime
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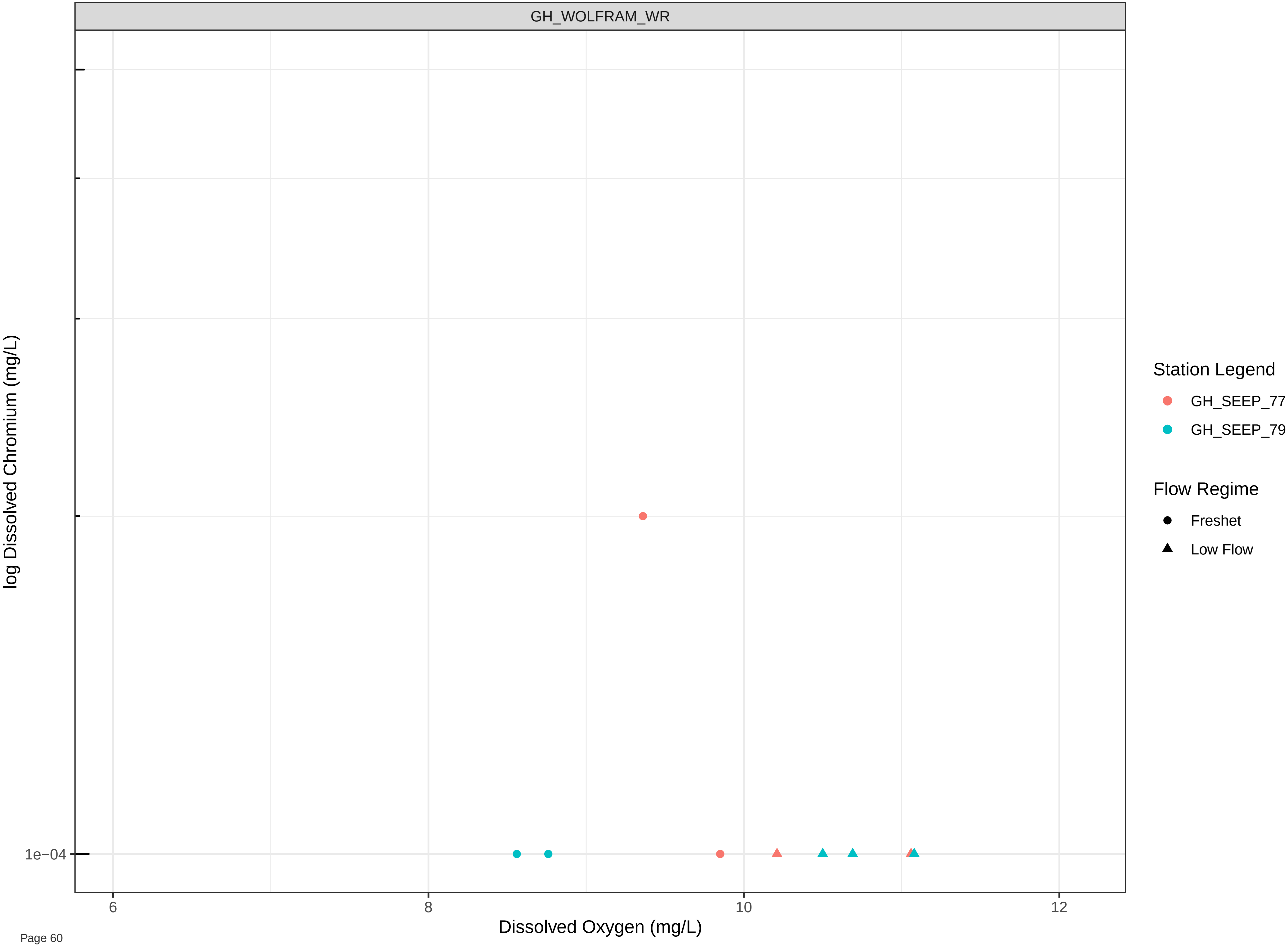
Low Flow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Dissolved Oxygen (mg/L)
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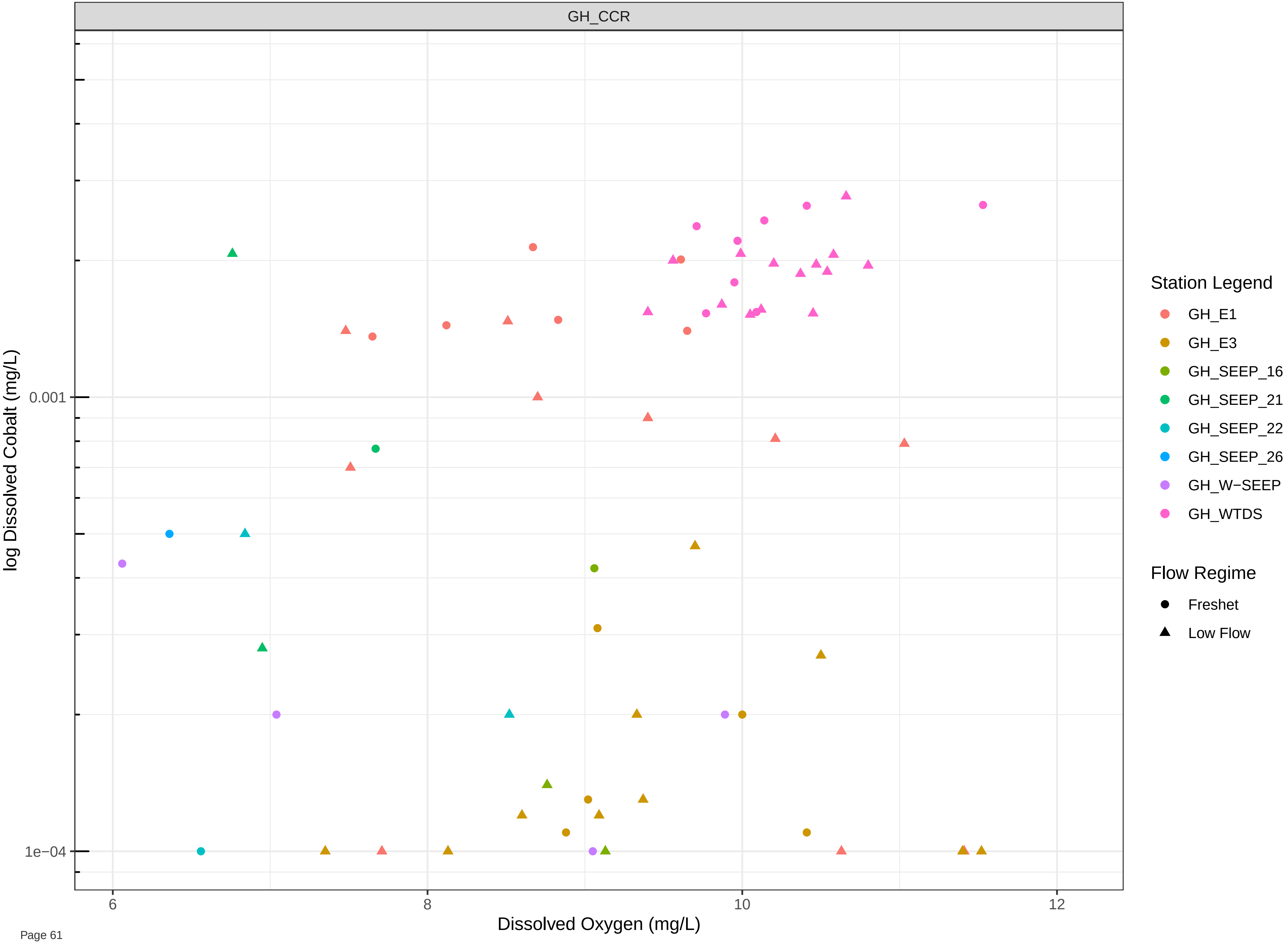
GH_SEEP_79
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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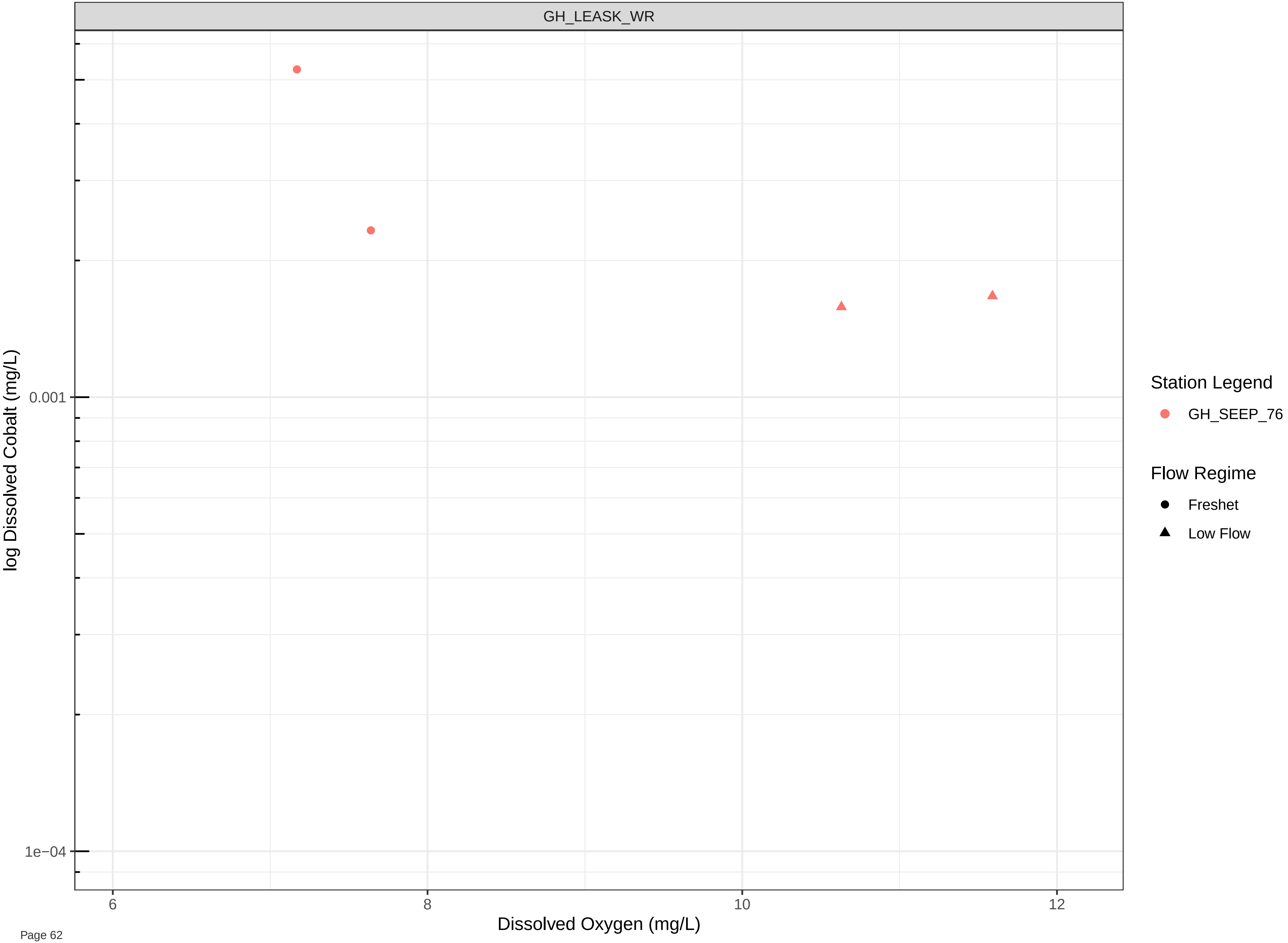
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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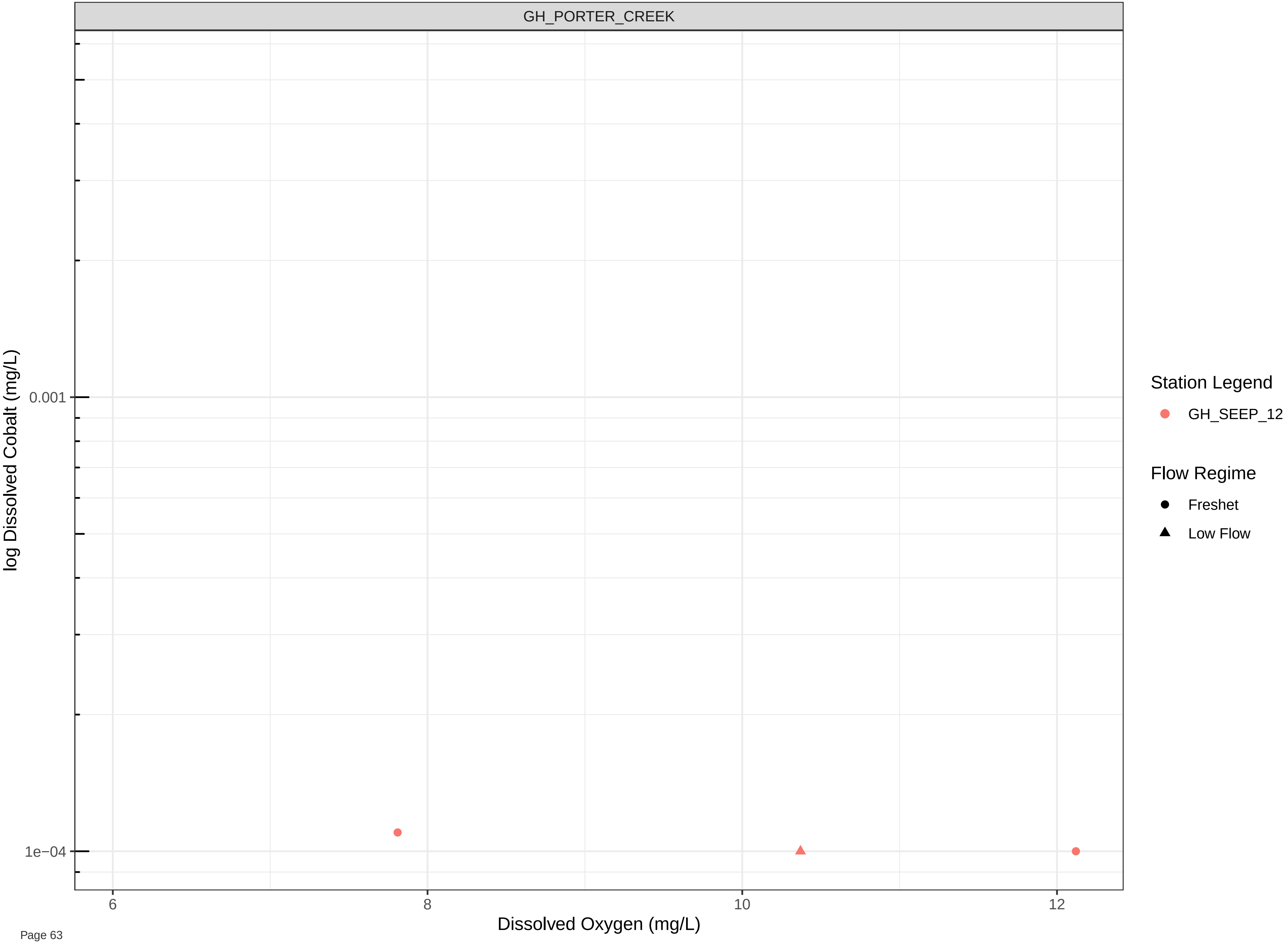
Flow Regime
● Freshet
▲ Low Flow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Flow Regime
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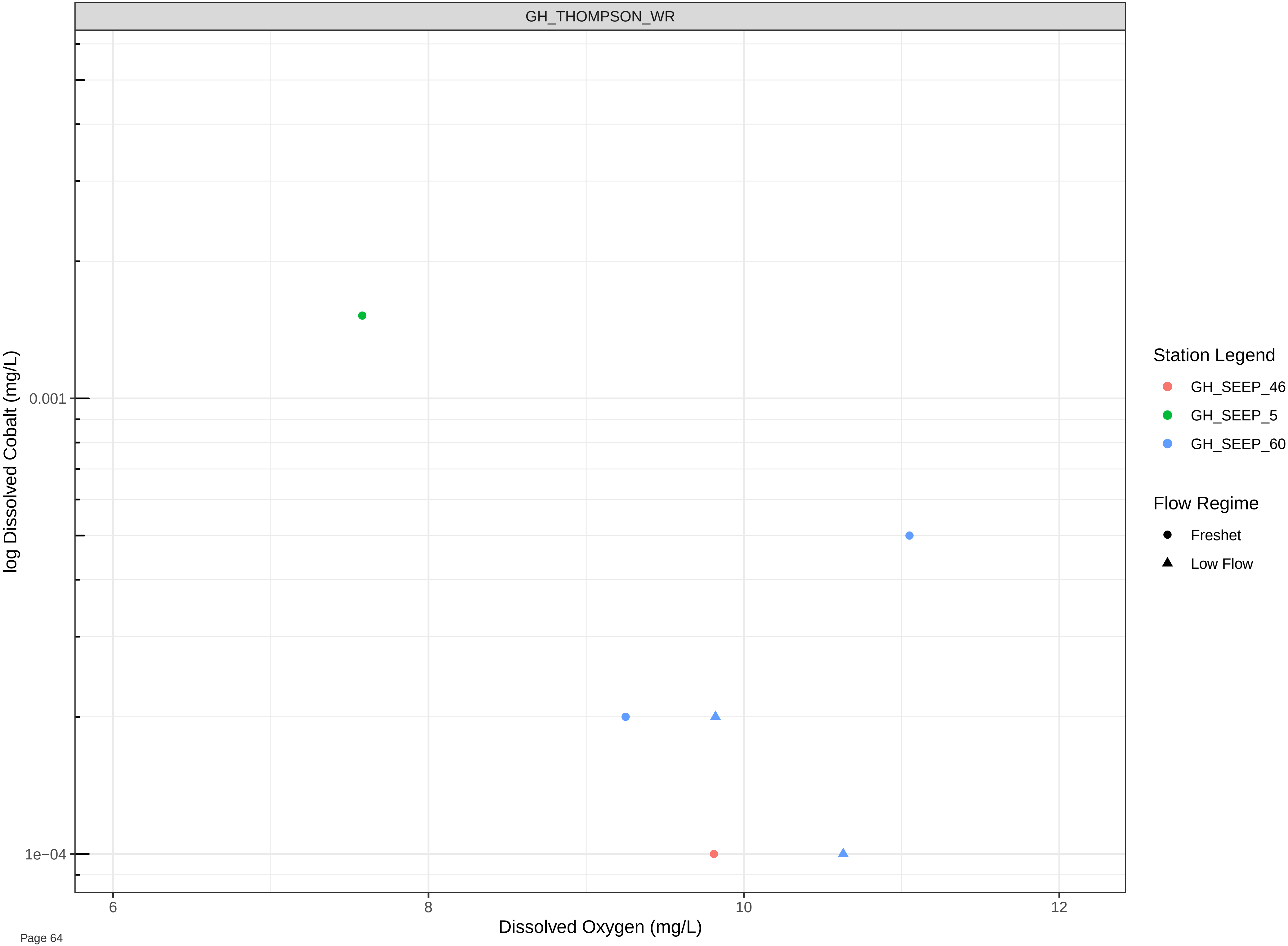
Low Flow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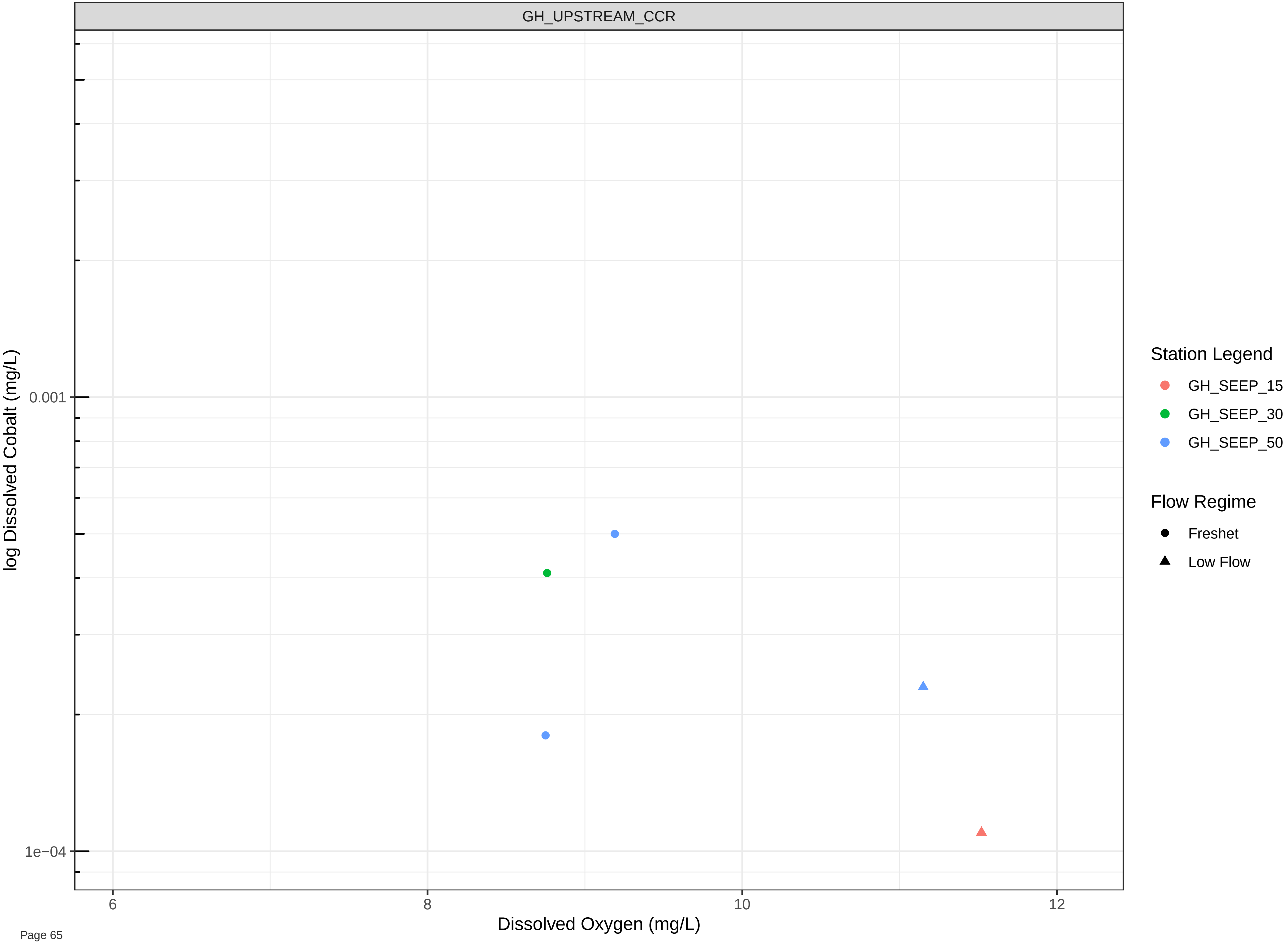
Low Flow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Dissolved Oxygen (mg/L)
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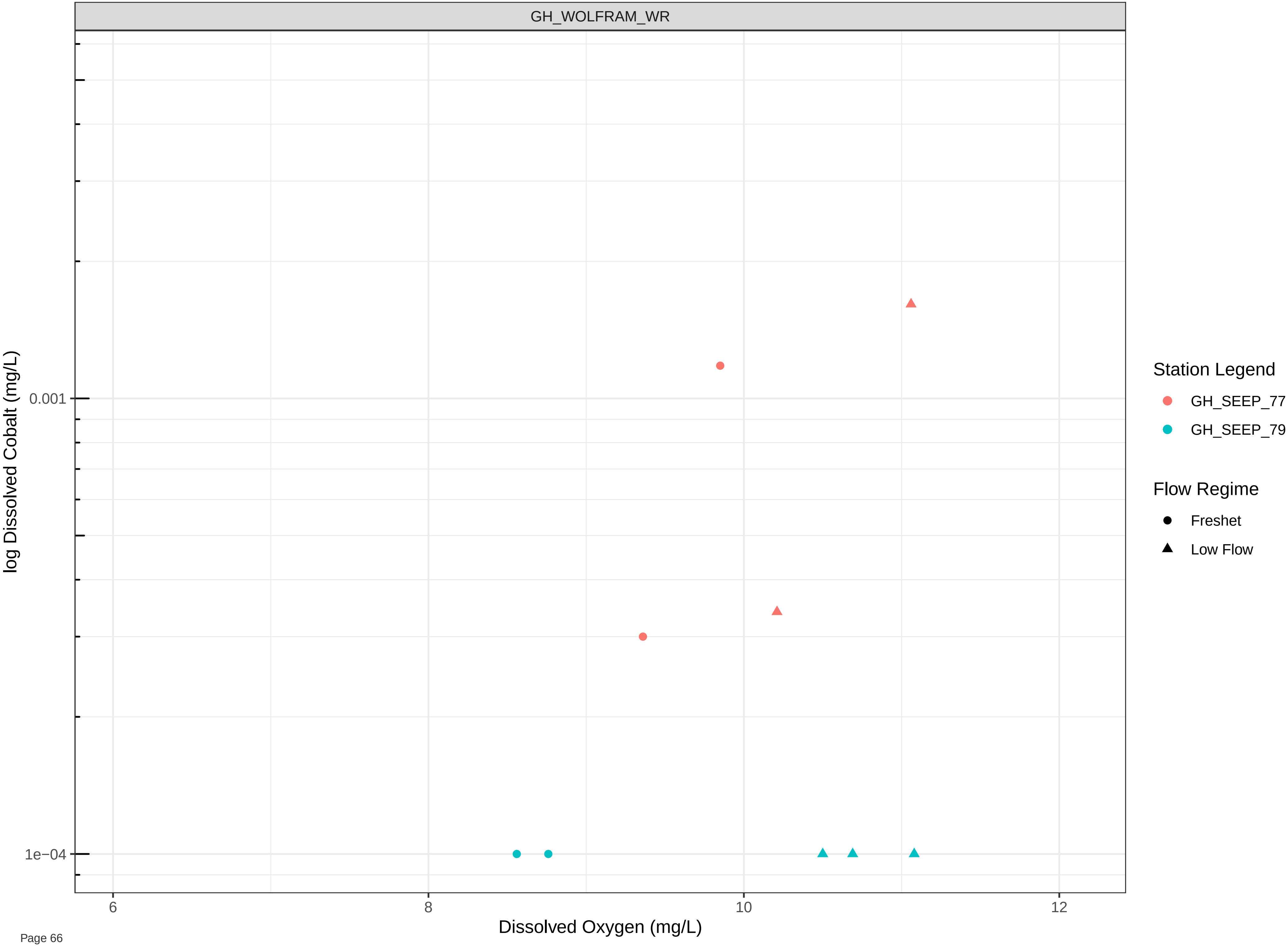
Flow Regime
Freshet
Low Flow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Flow Regime
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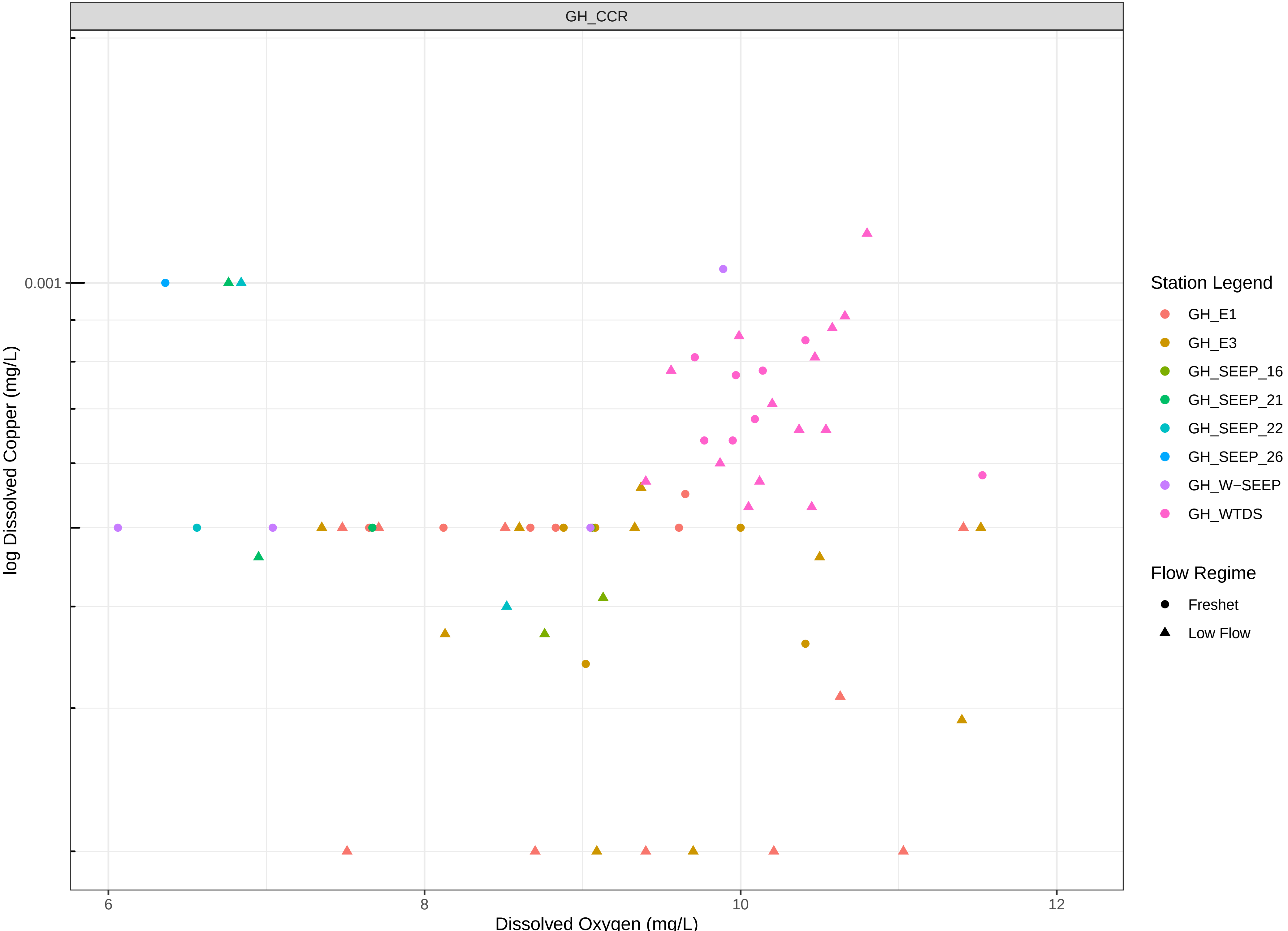
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Dissolved Oxygen (mg/L)
Station Legend
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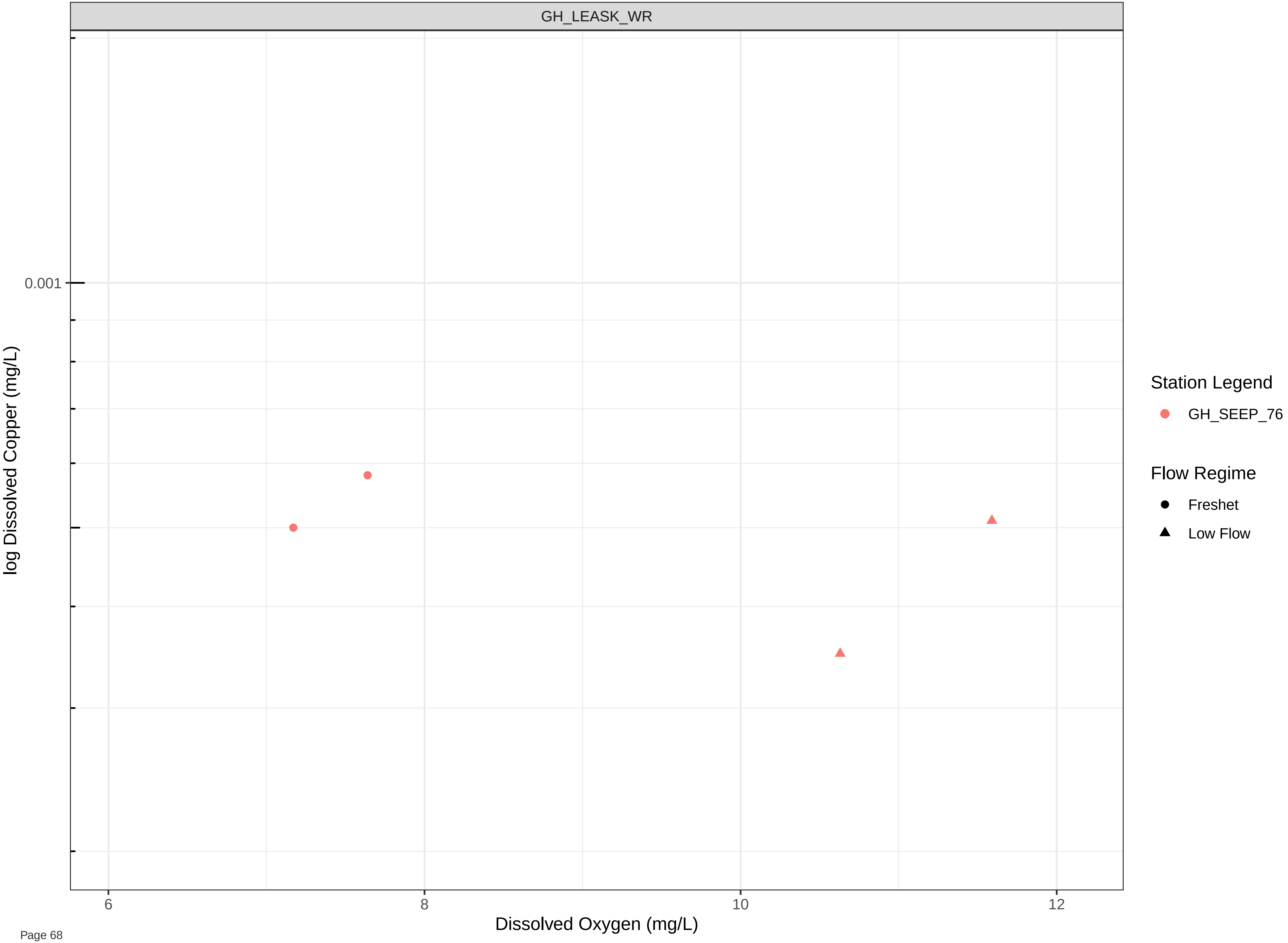
Low Flow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Dissolved Oxygen (mg/L)
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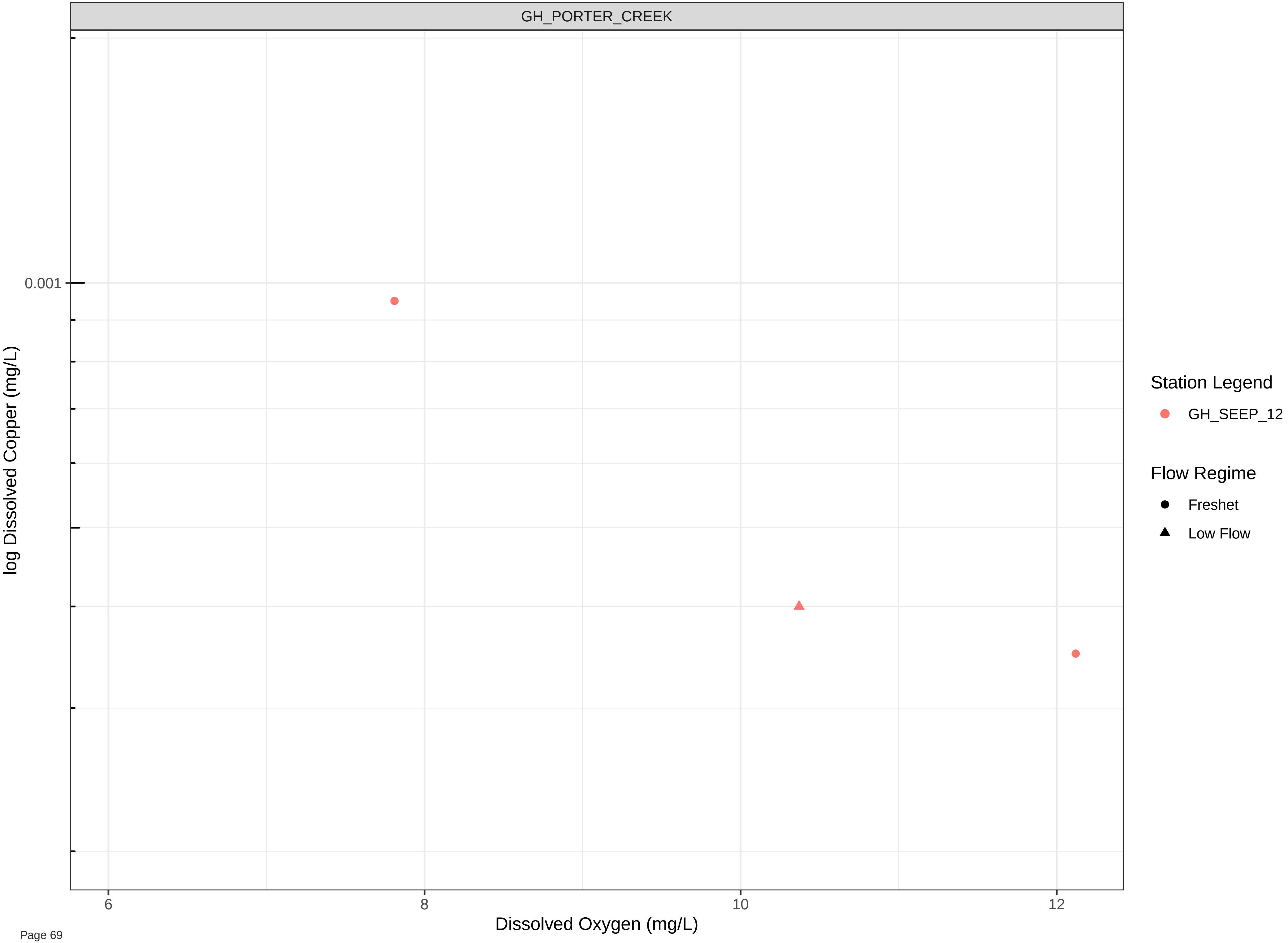
Flow Regime
● Freshet
▲ Low Flow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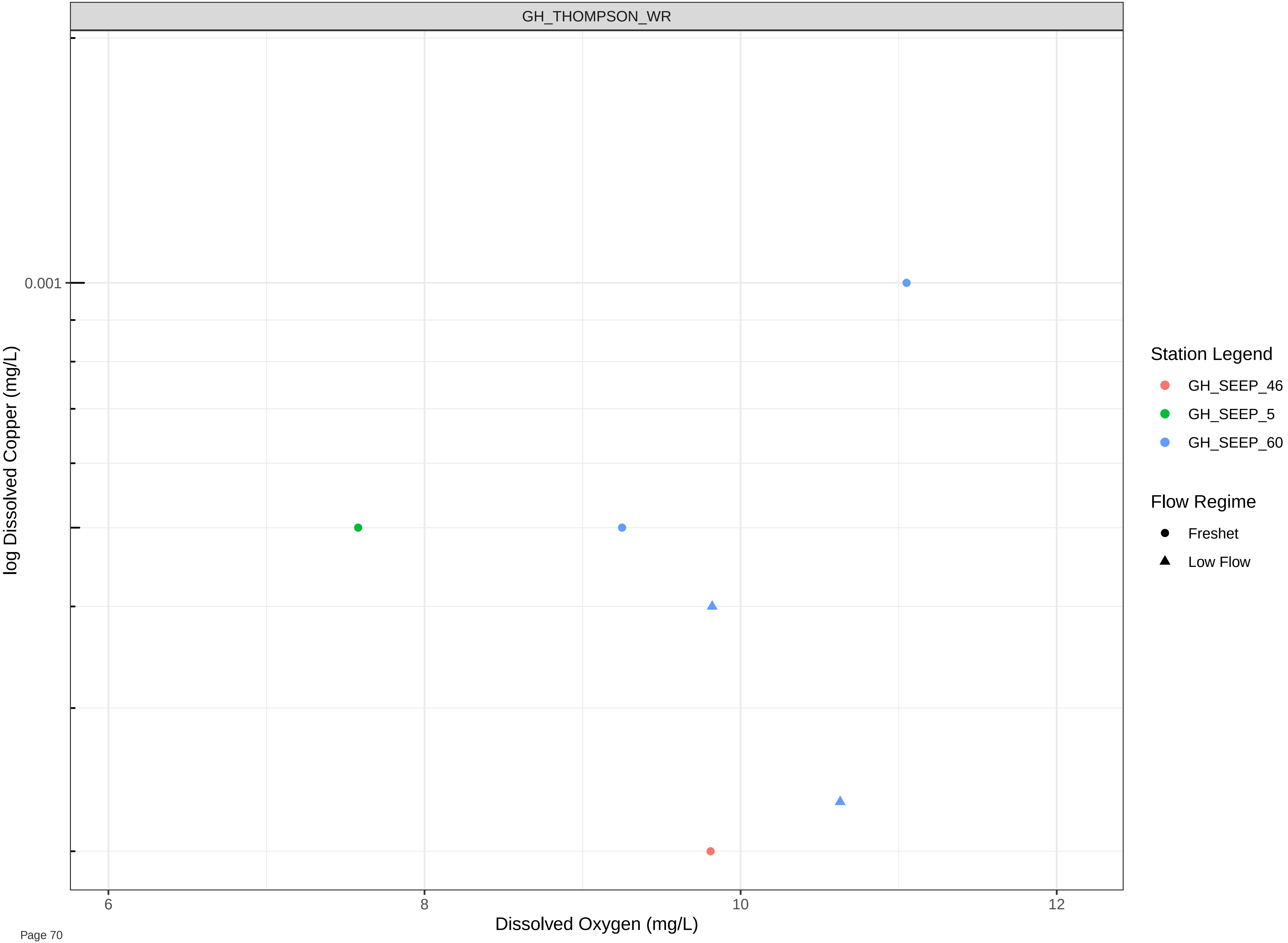
Low Flow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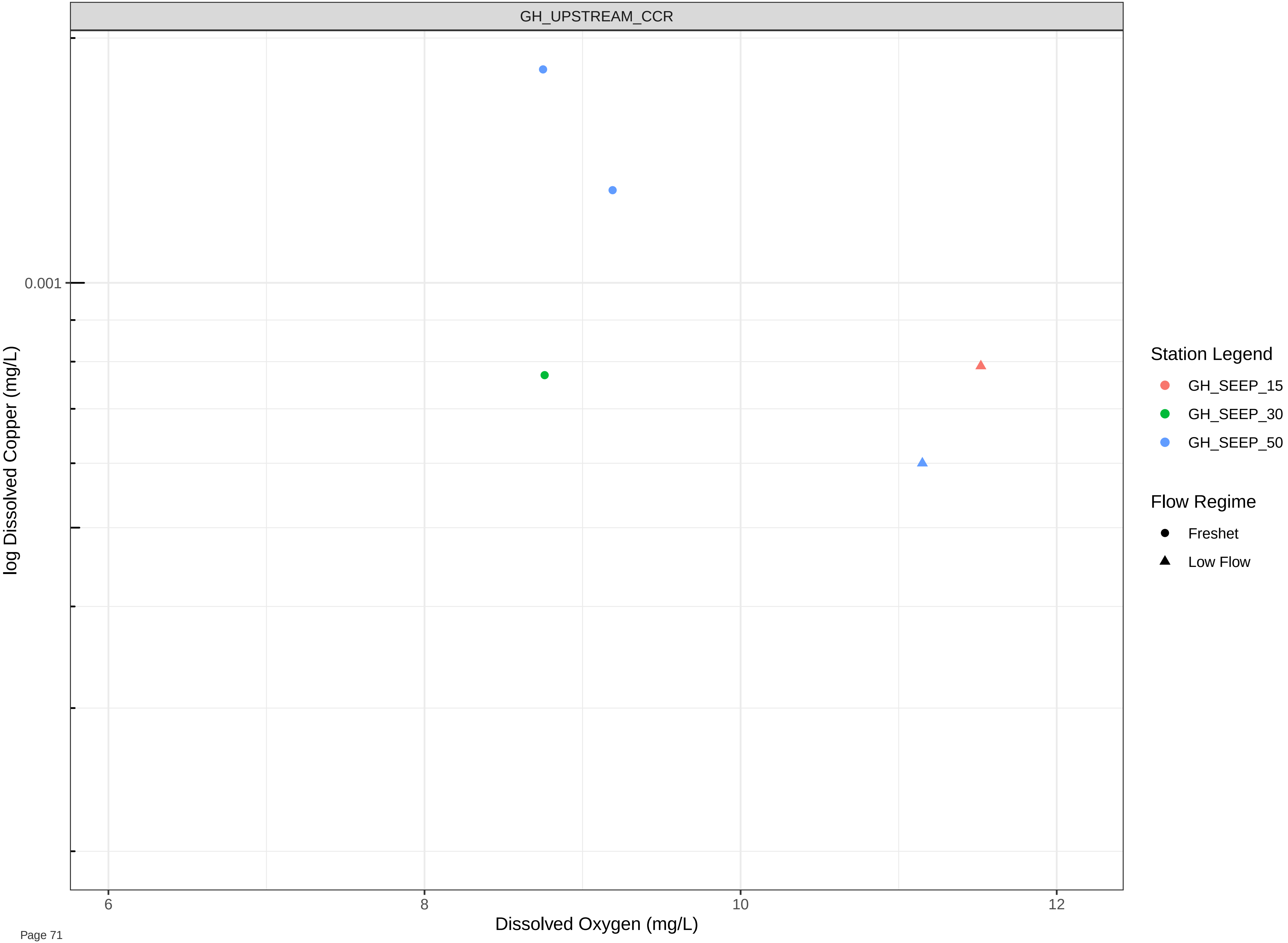
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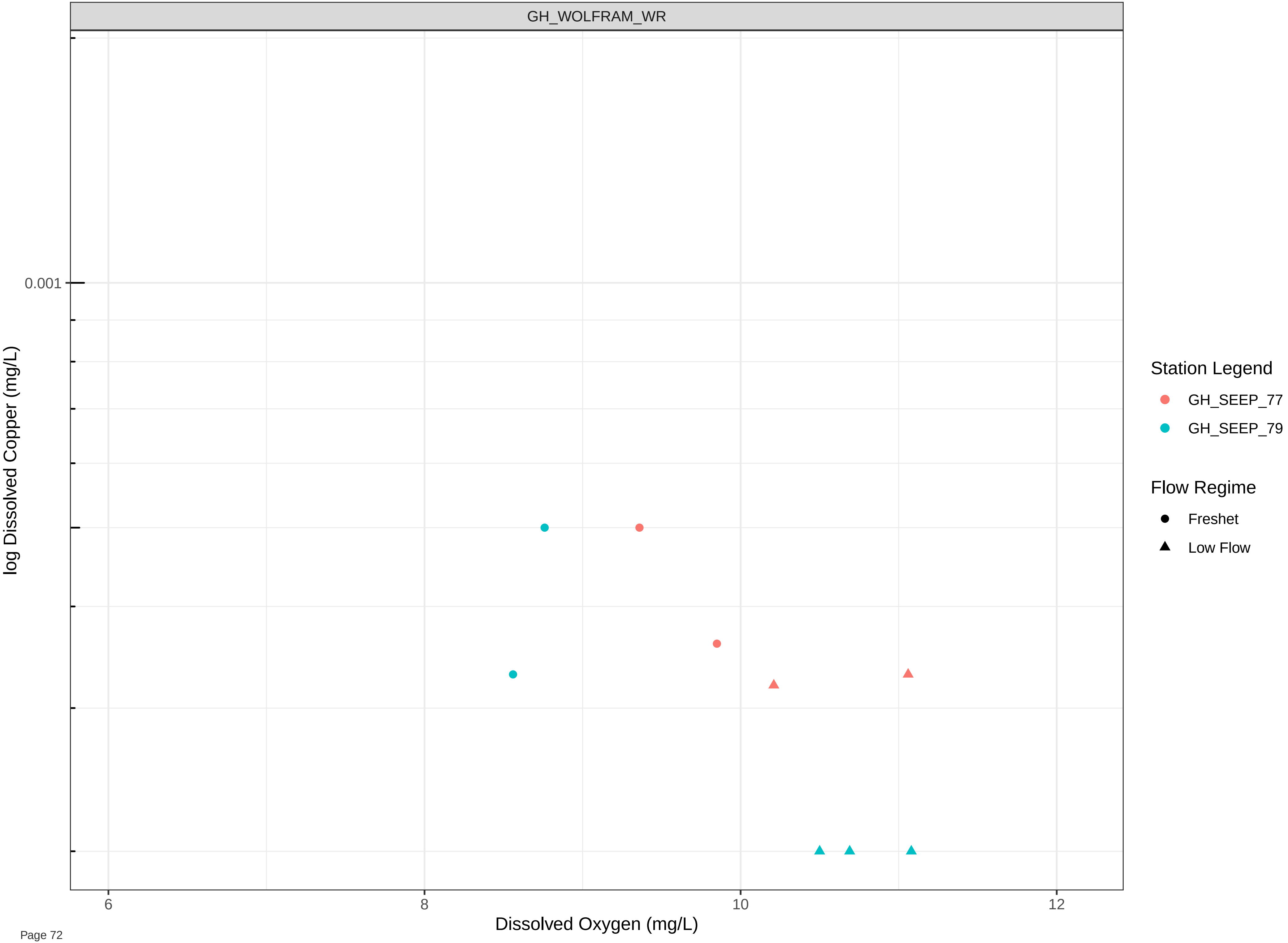
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Dissolved Oxygen (mg/L)
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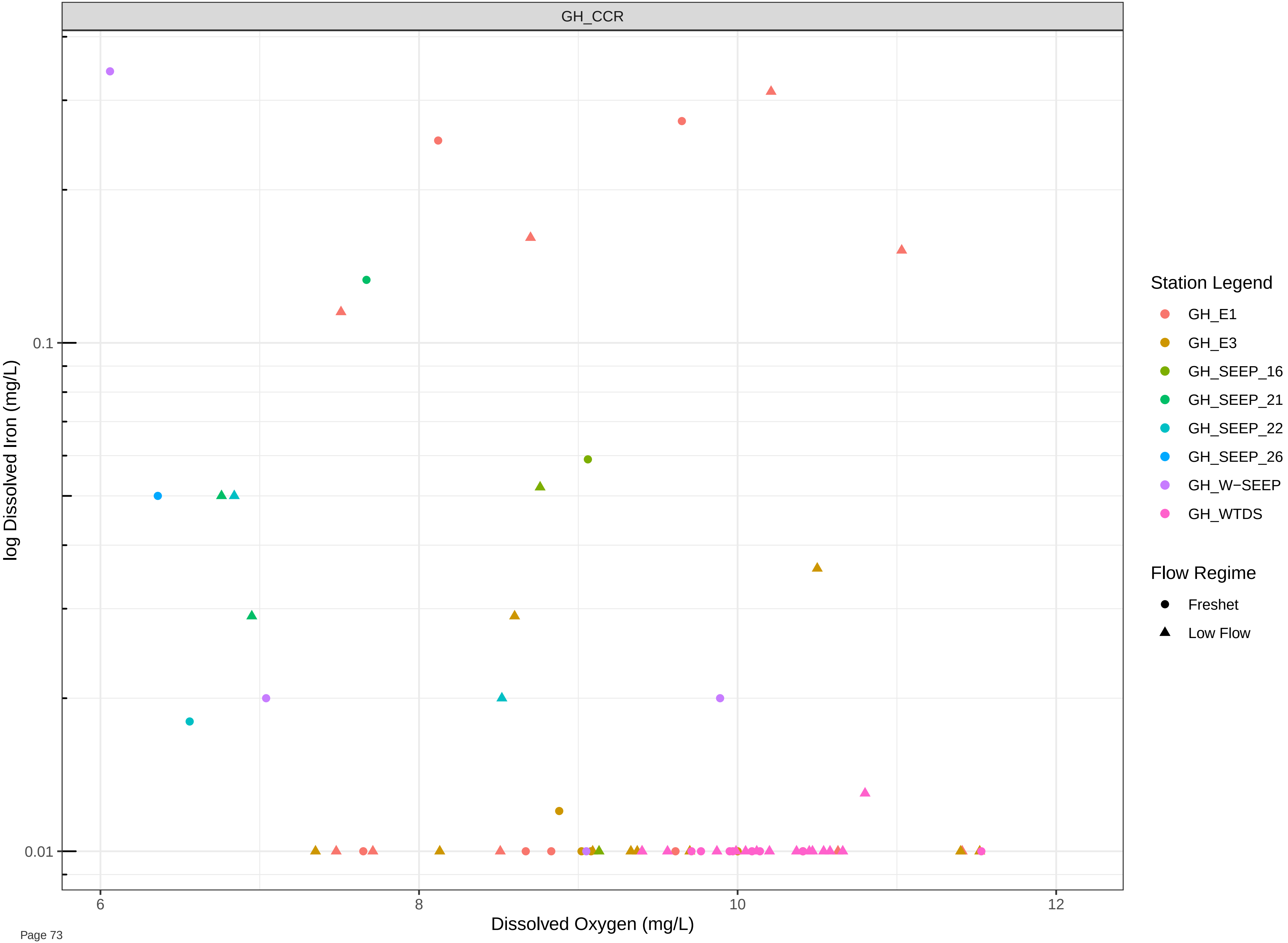
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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GH_E3
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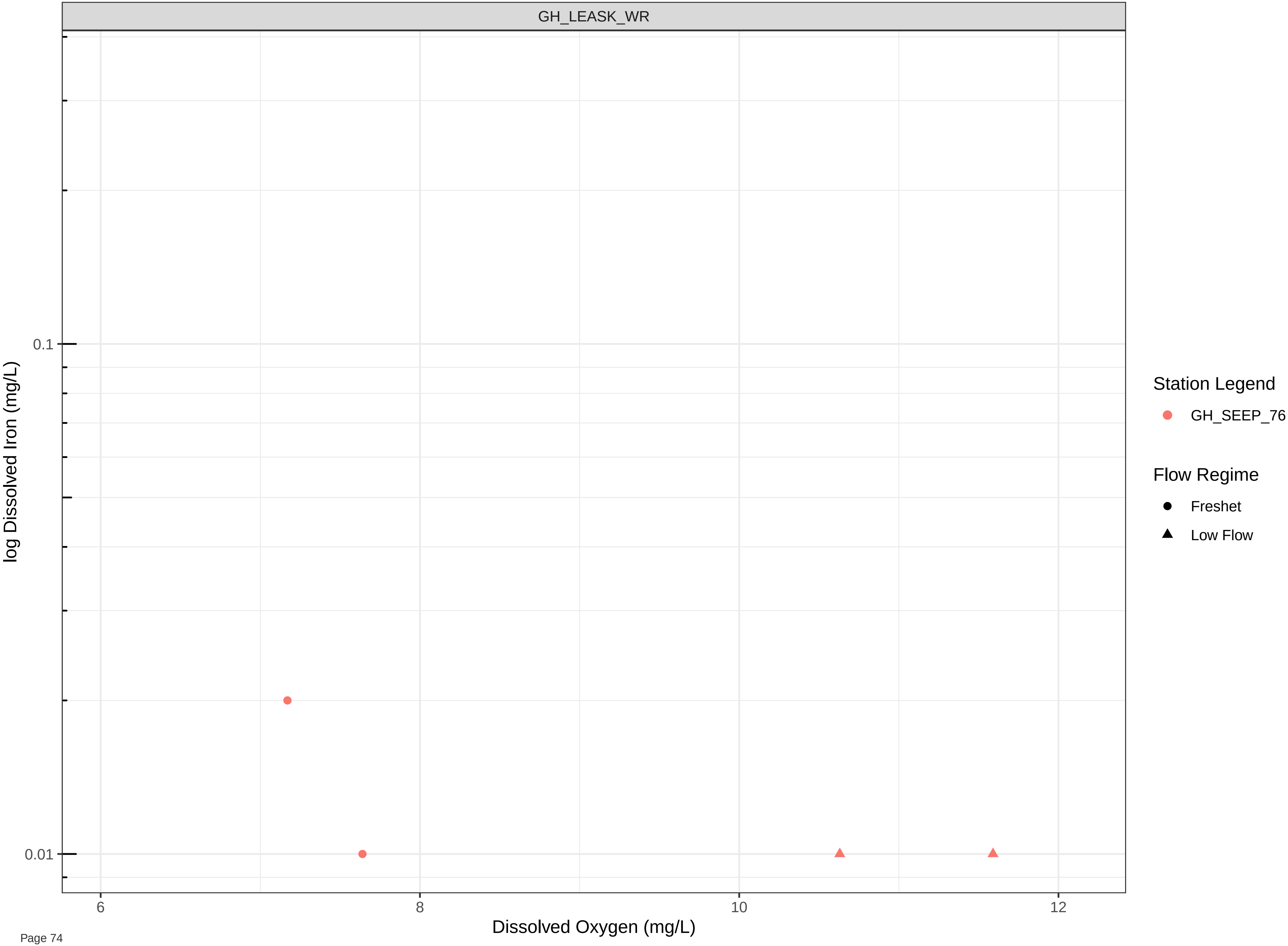
Low Flow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Freshet
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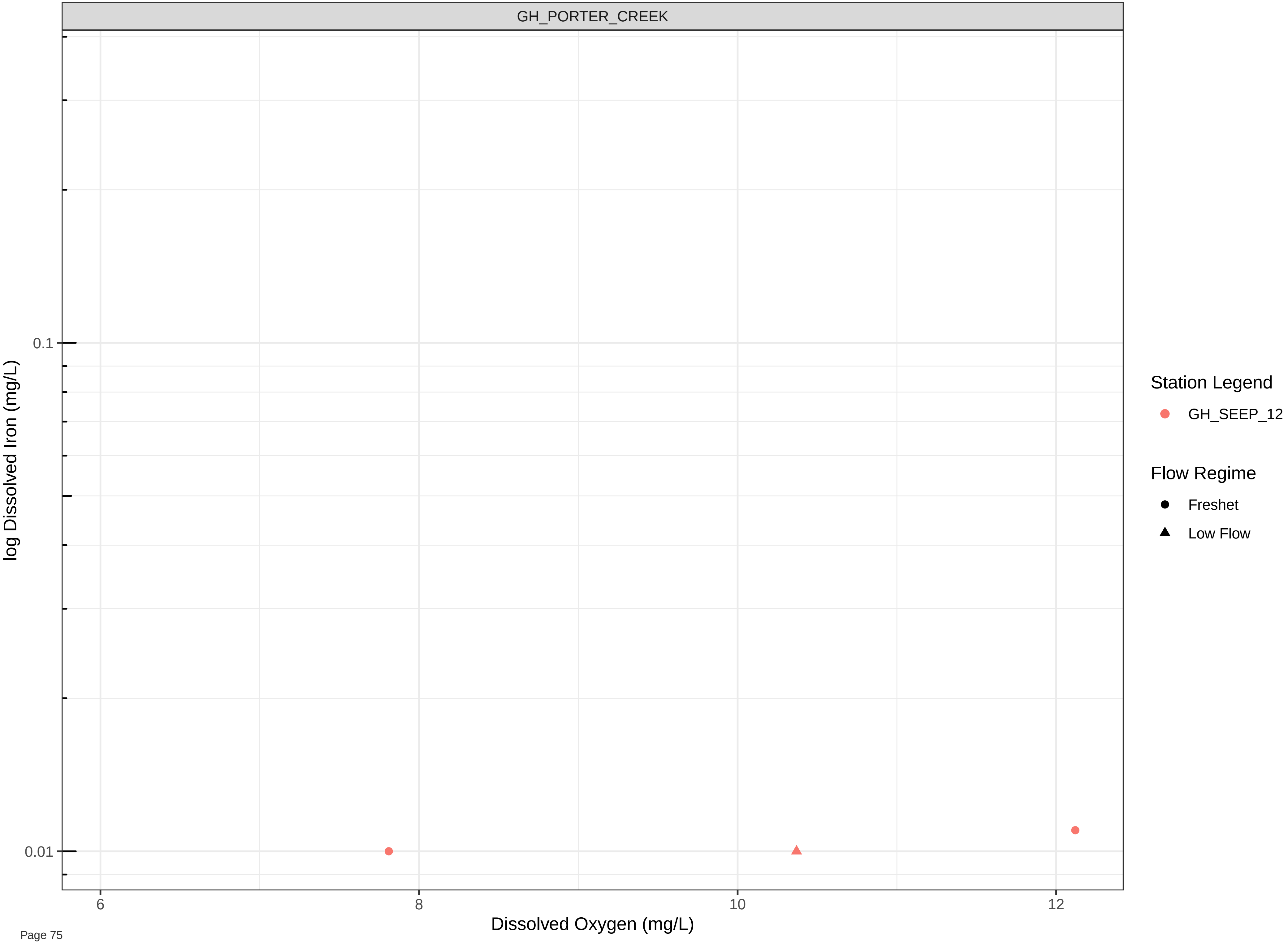
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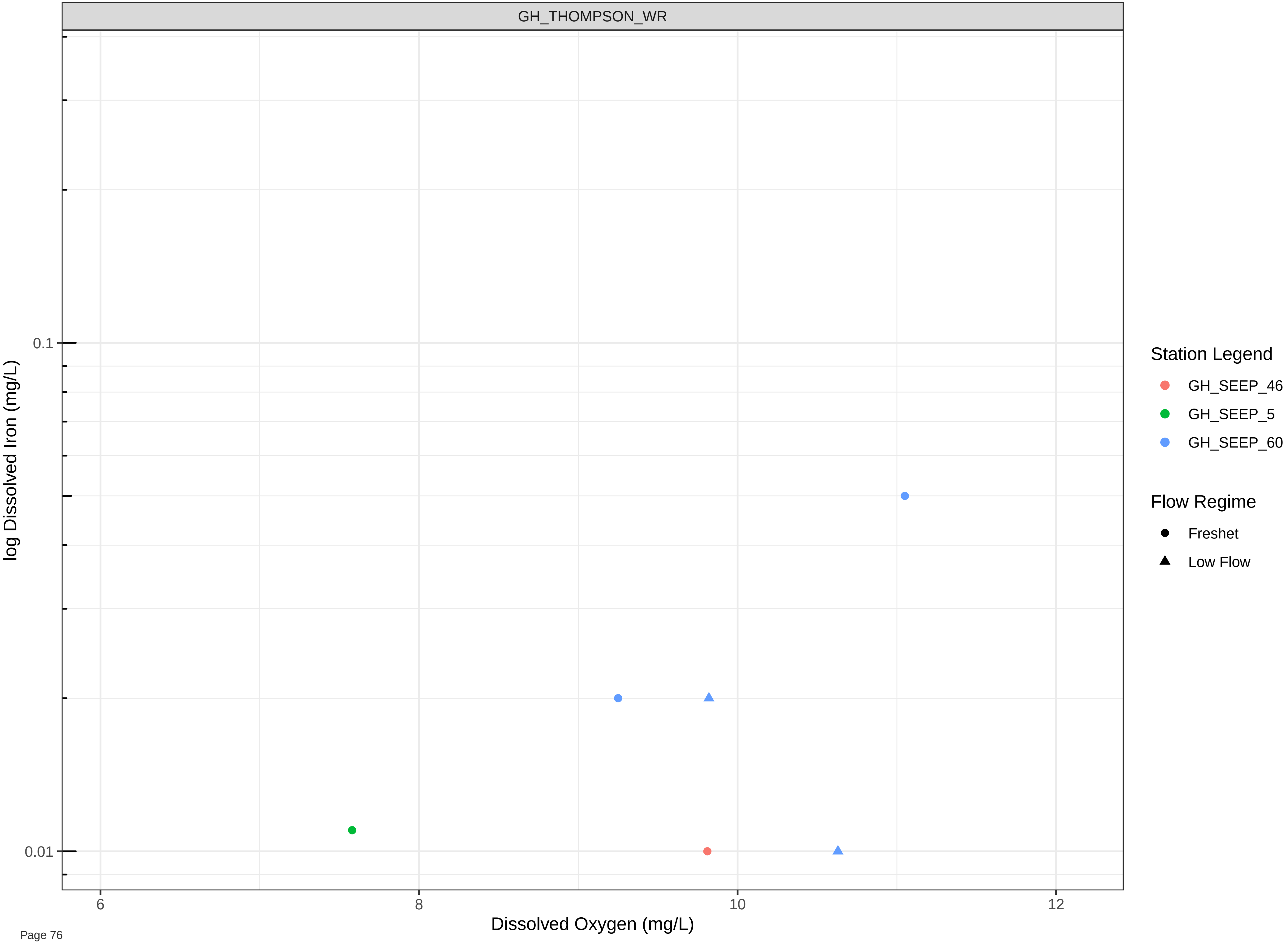
Low Flow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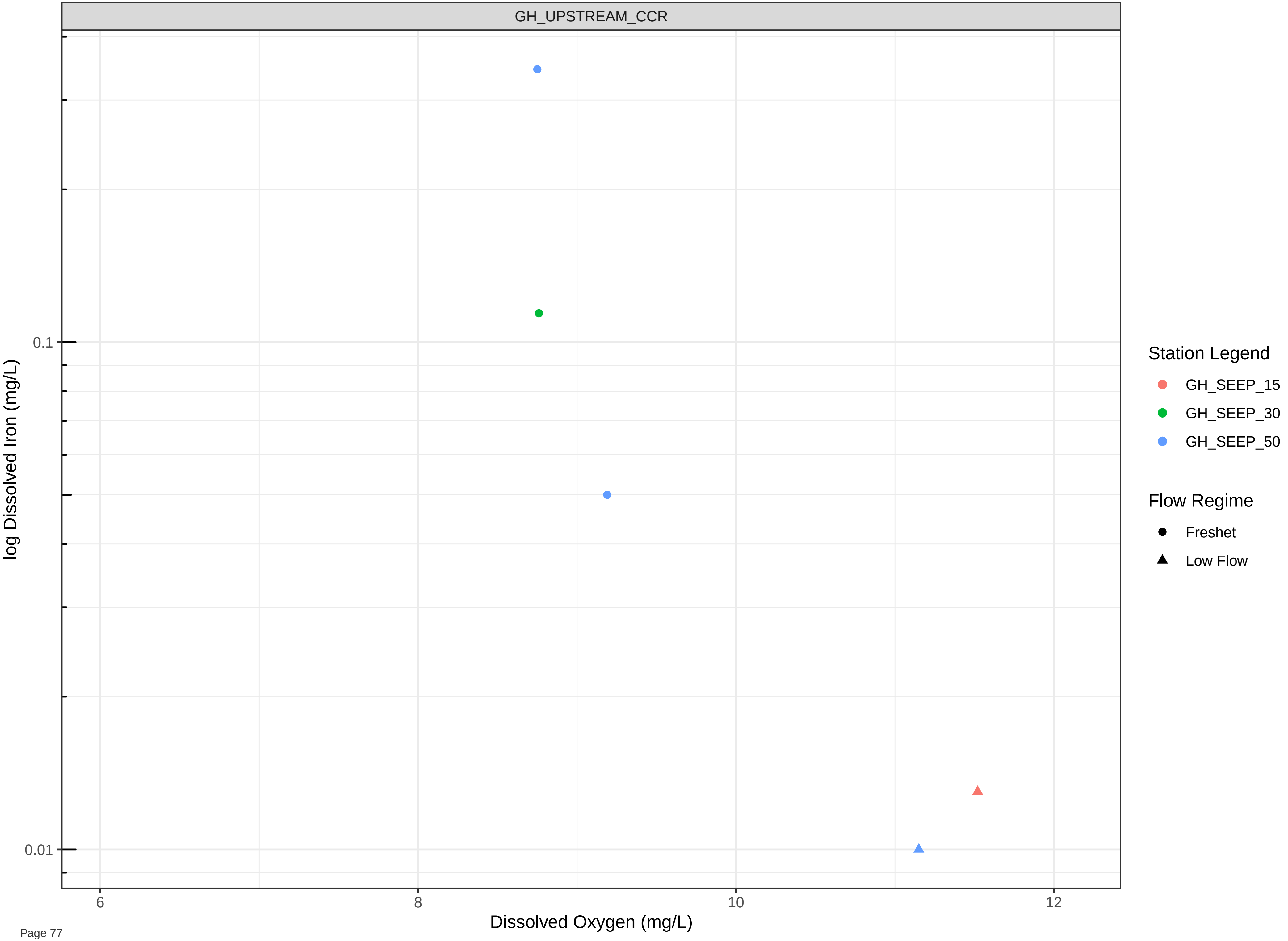
Low Flow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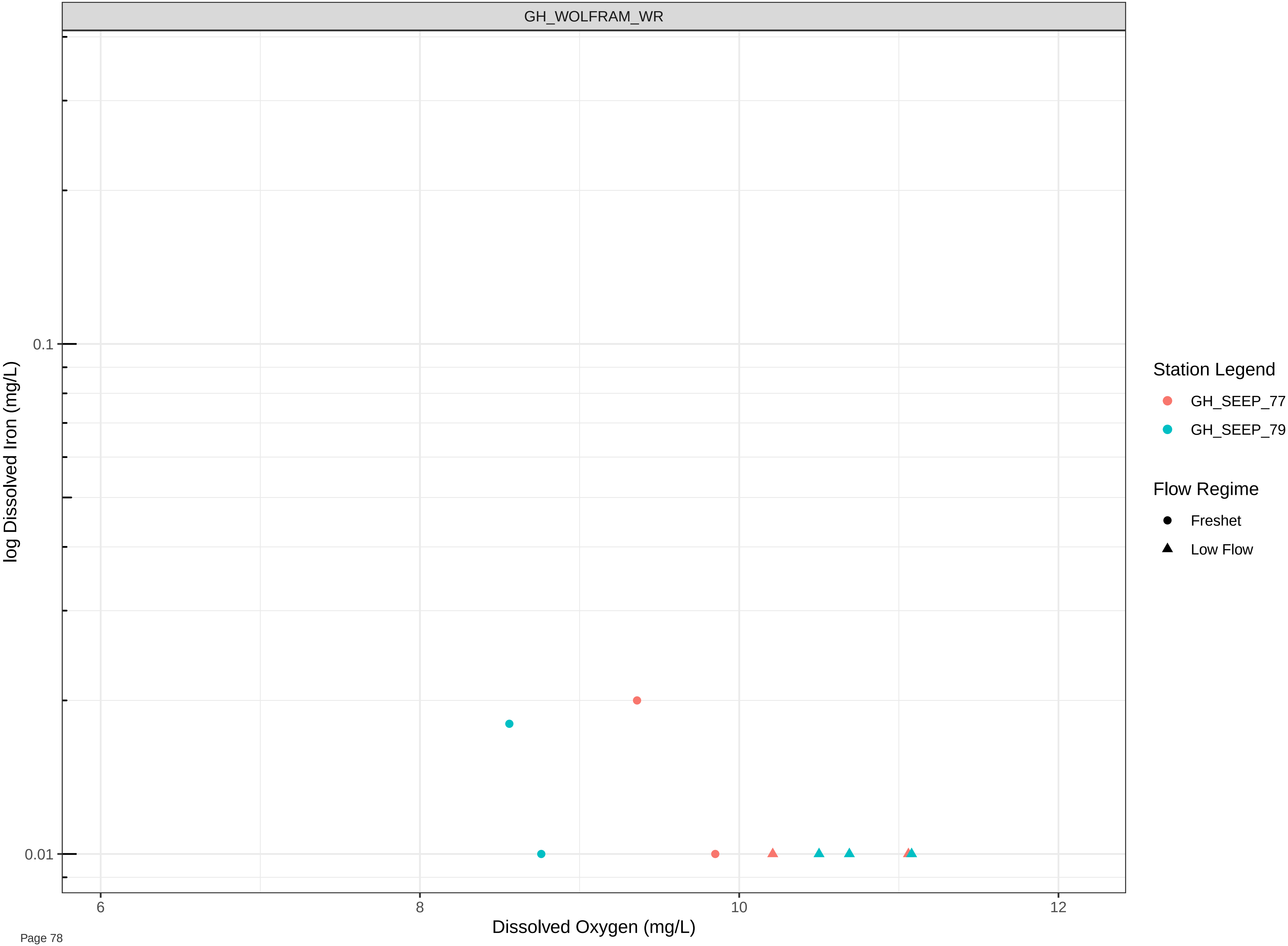
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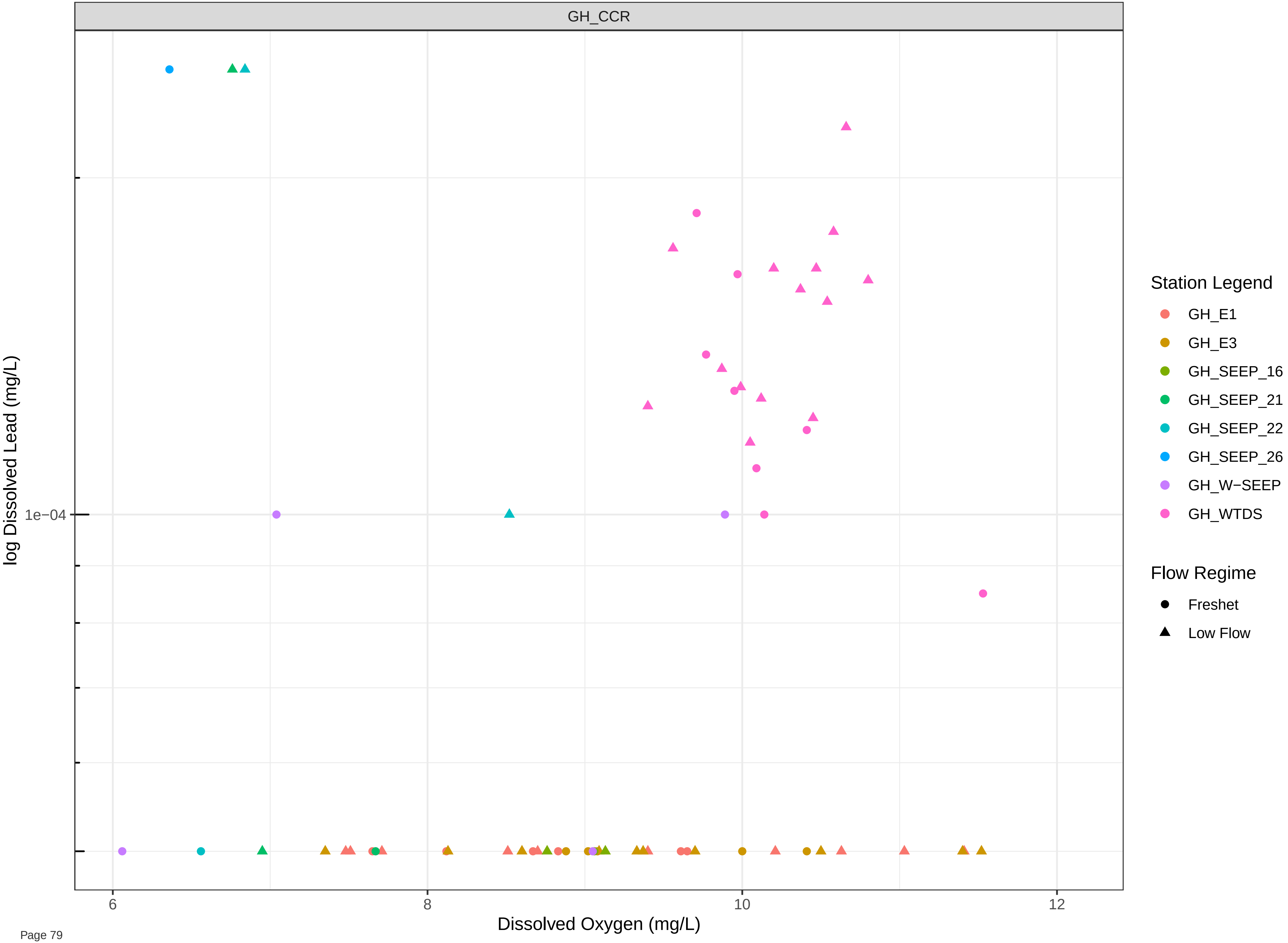
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Dissolved Oxygen (mg/L)
Station Legend
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Flow Regime
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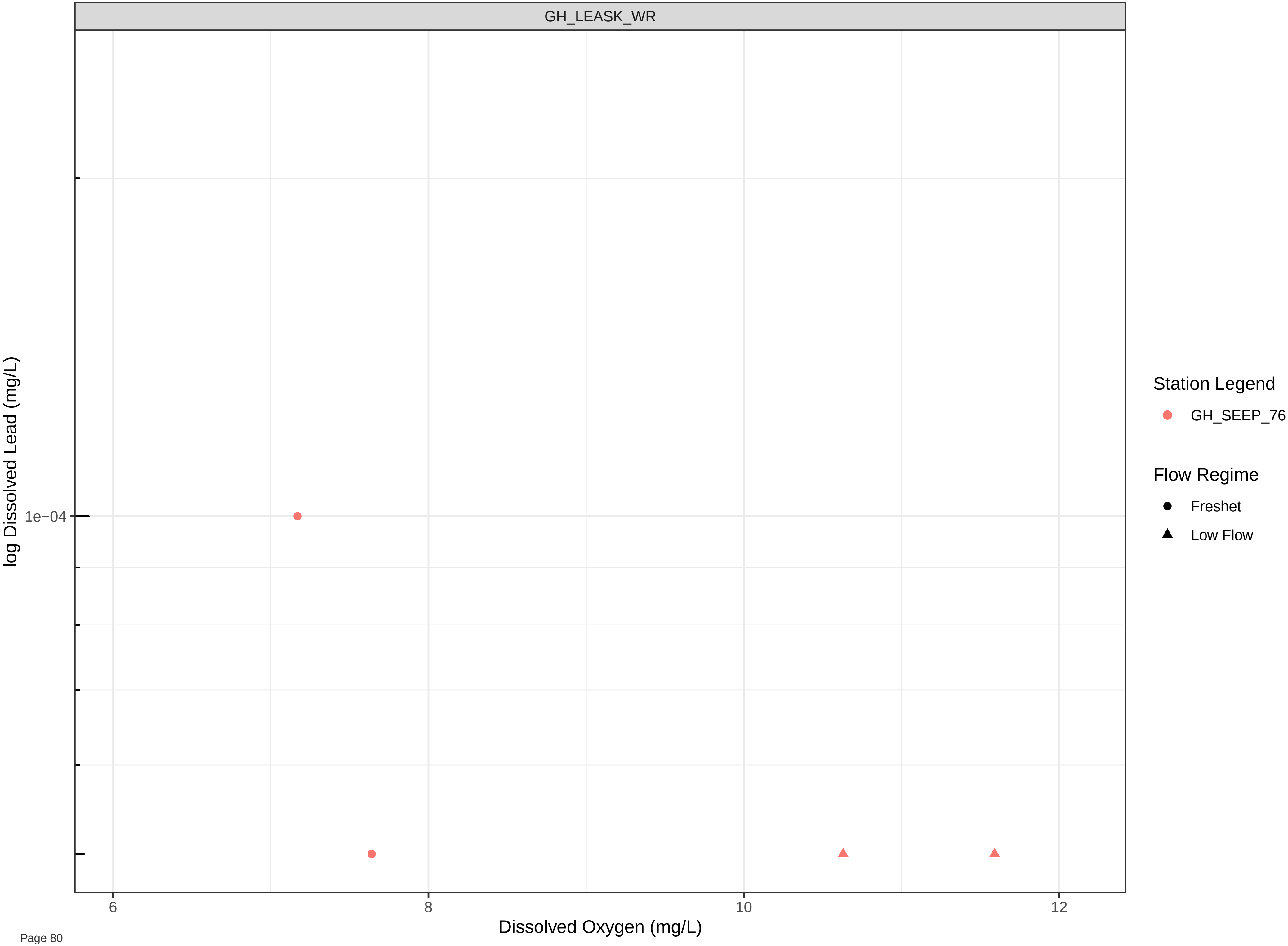
Low Flow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Flow Regime
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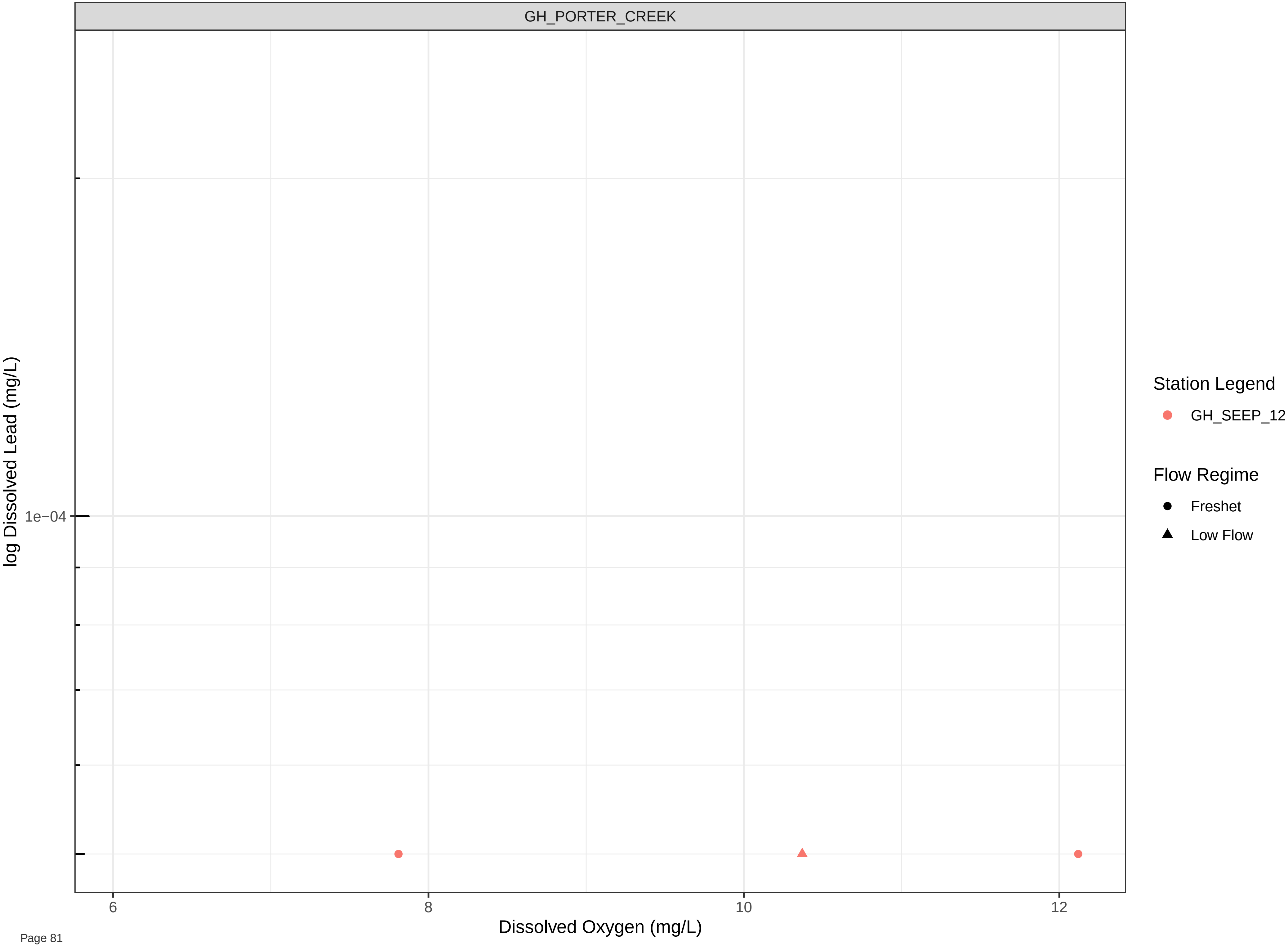
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Station Legend
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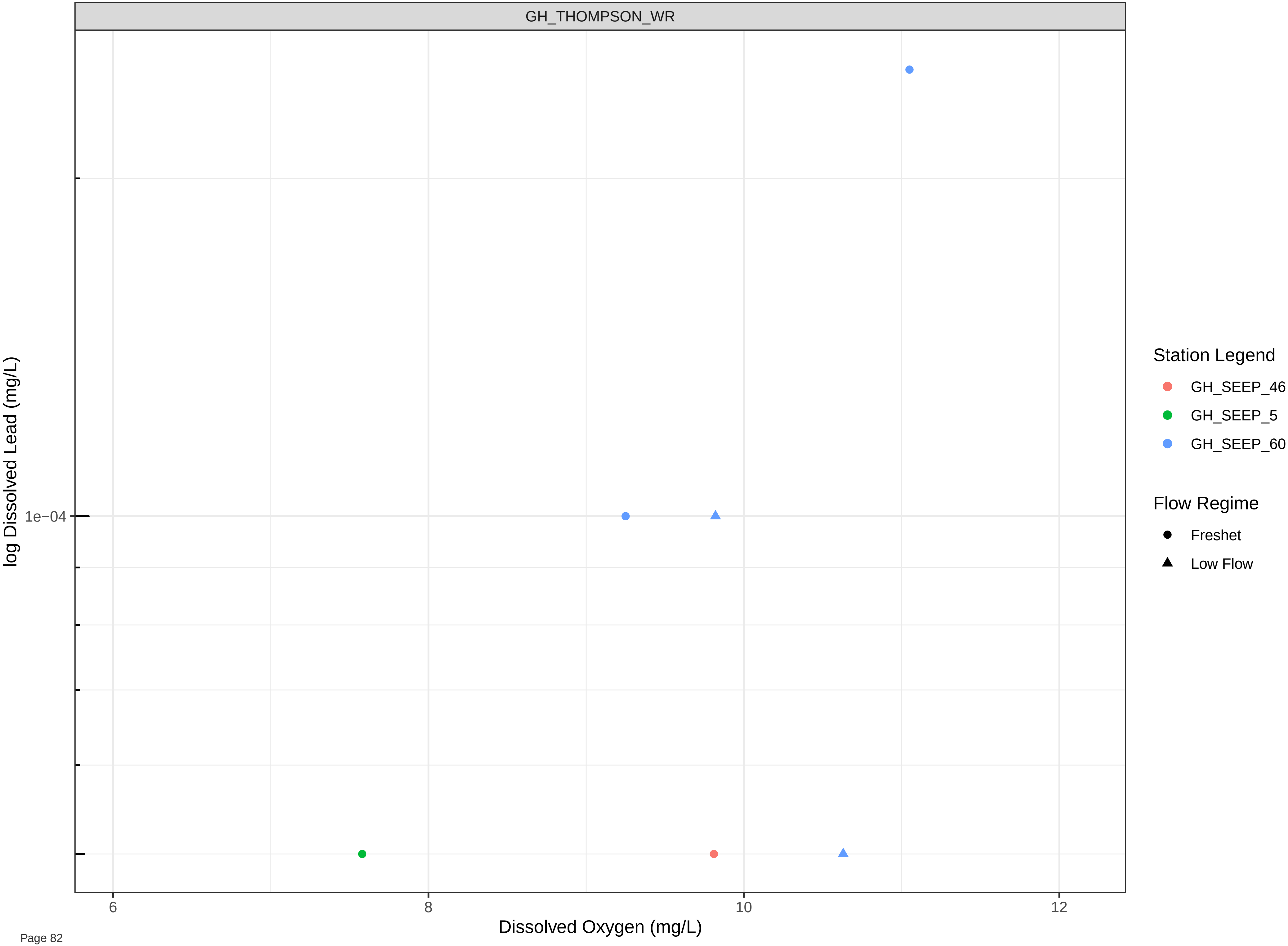
Flow Regime
● Freshet
▲ Low Flow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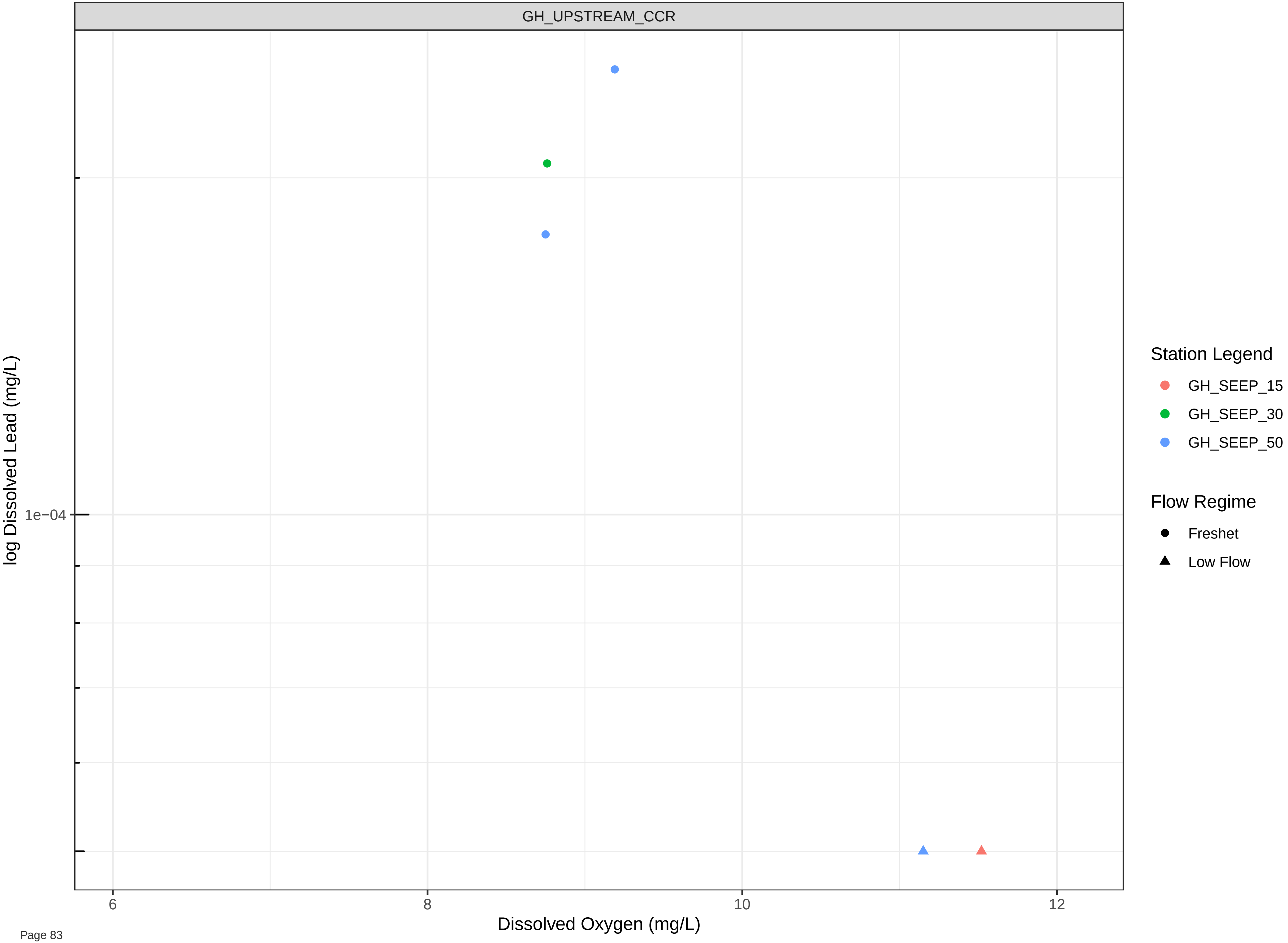
Low Flow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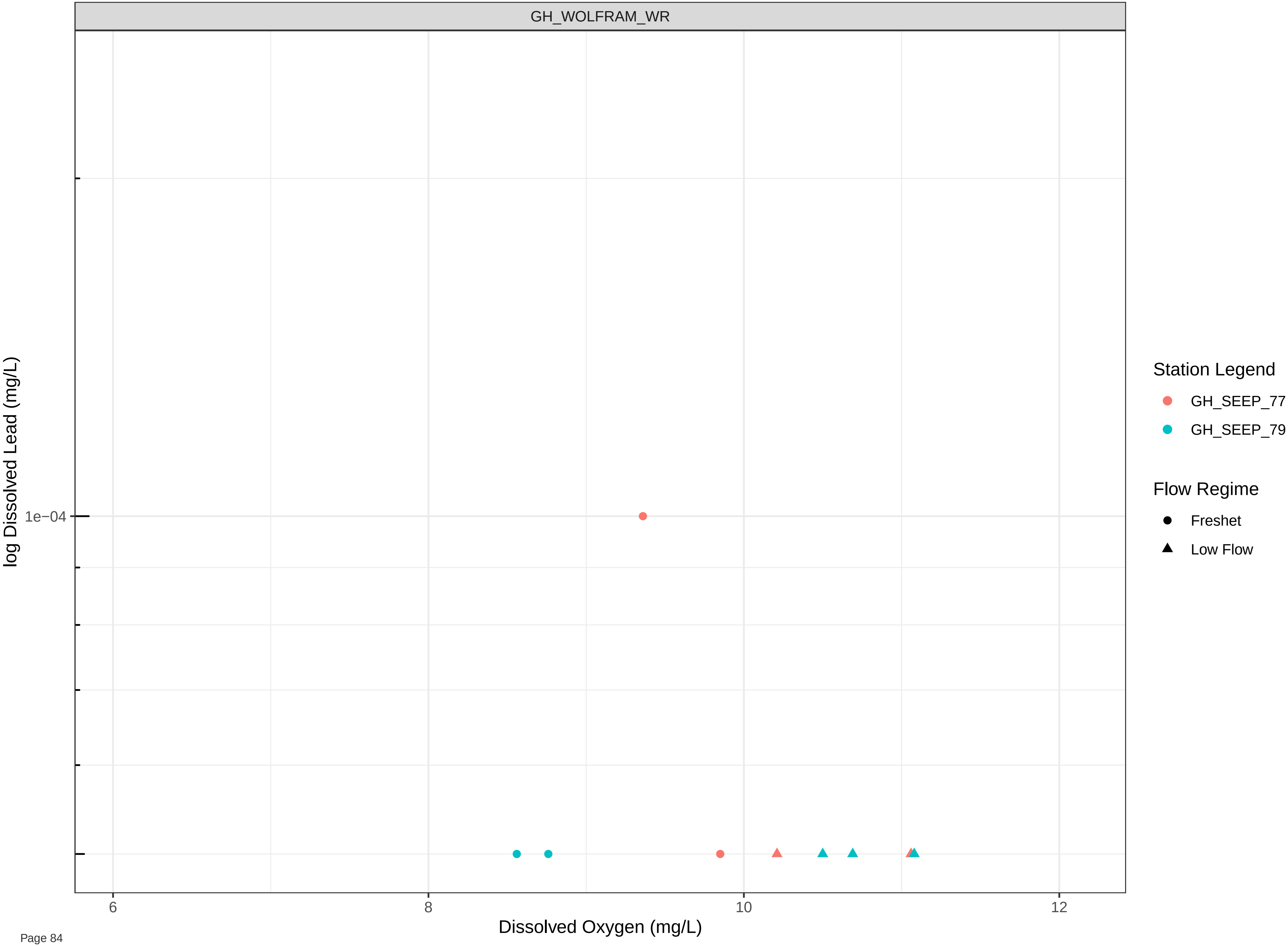
Low Flow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Dissolved Oxygen (mg/L)
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Flow Regime
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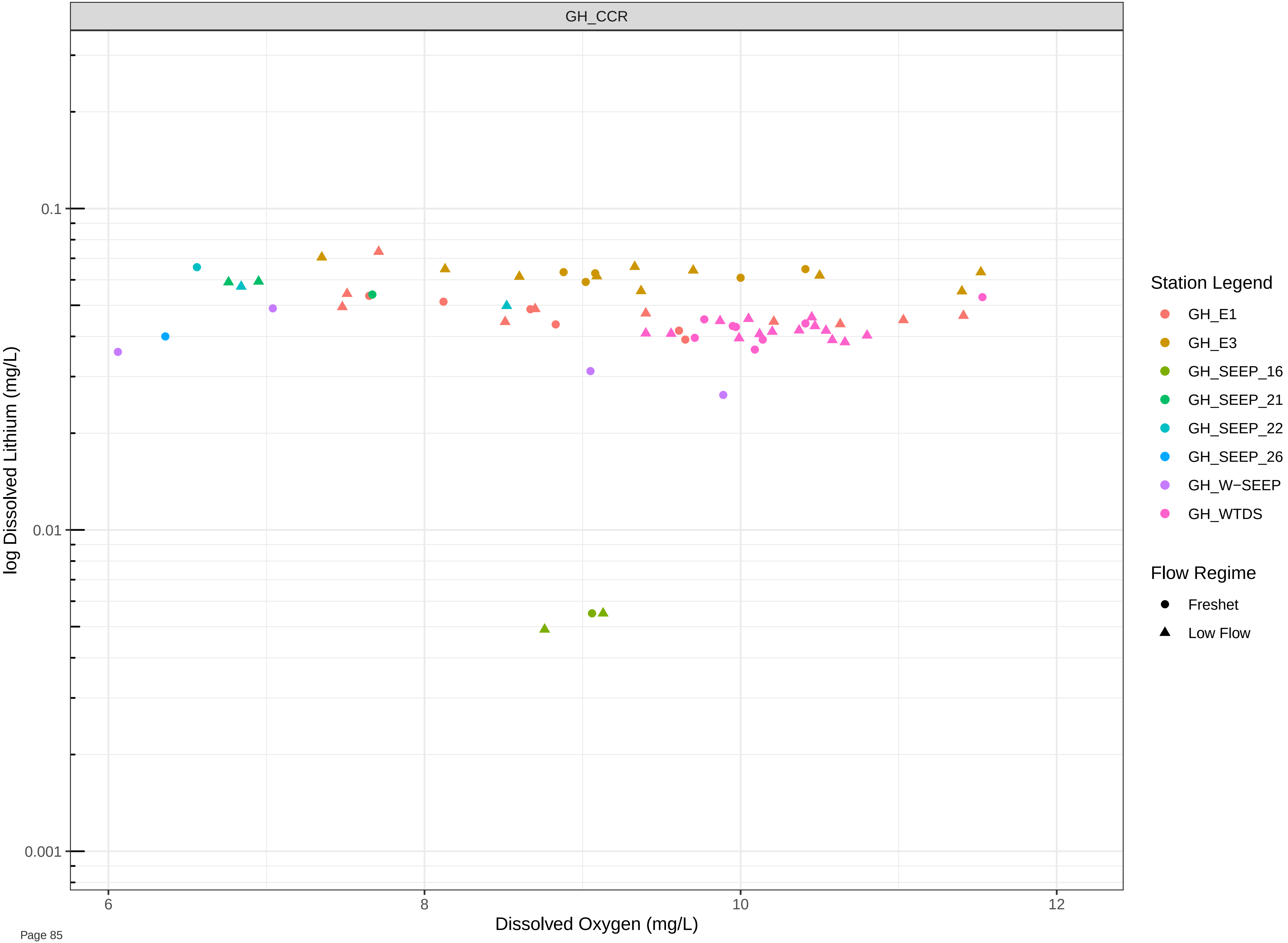
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Dissolved Oxygen (mg/L)
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Station Legend
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GH_E3
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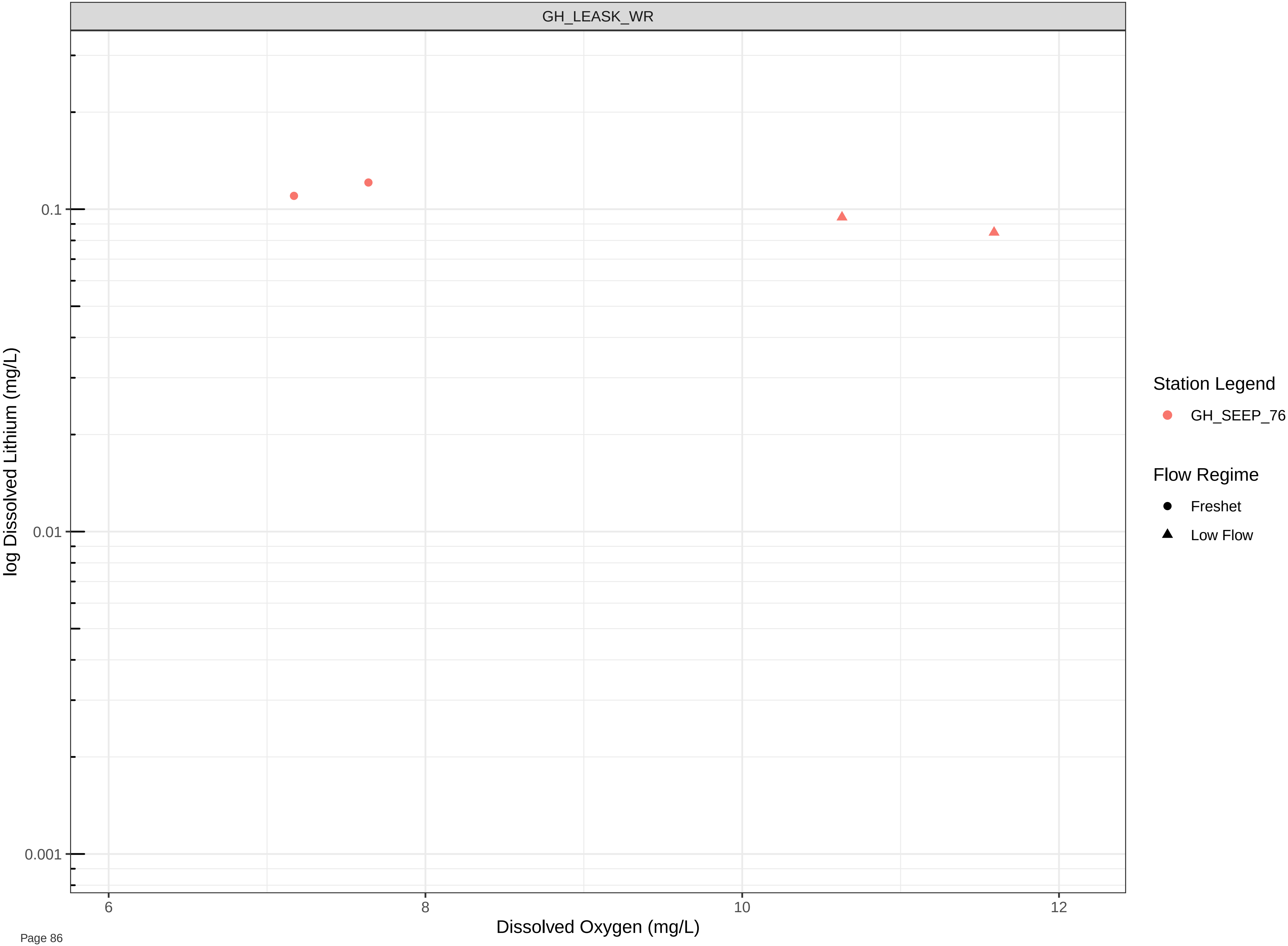
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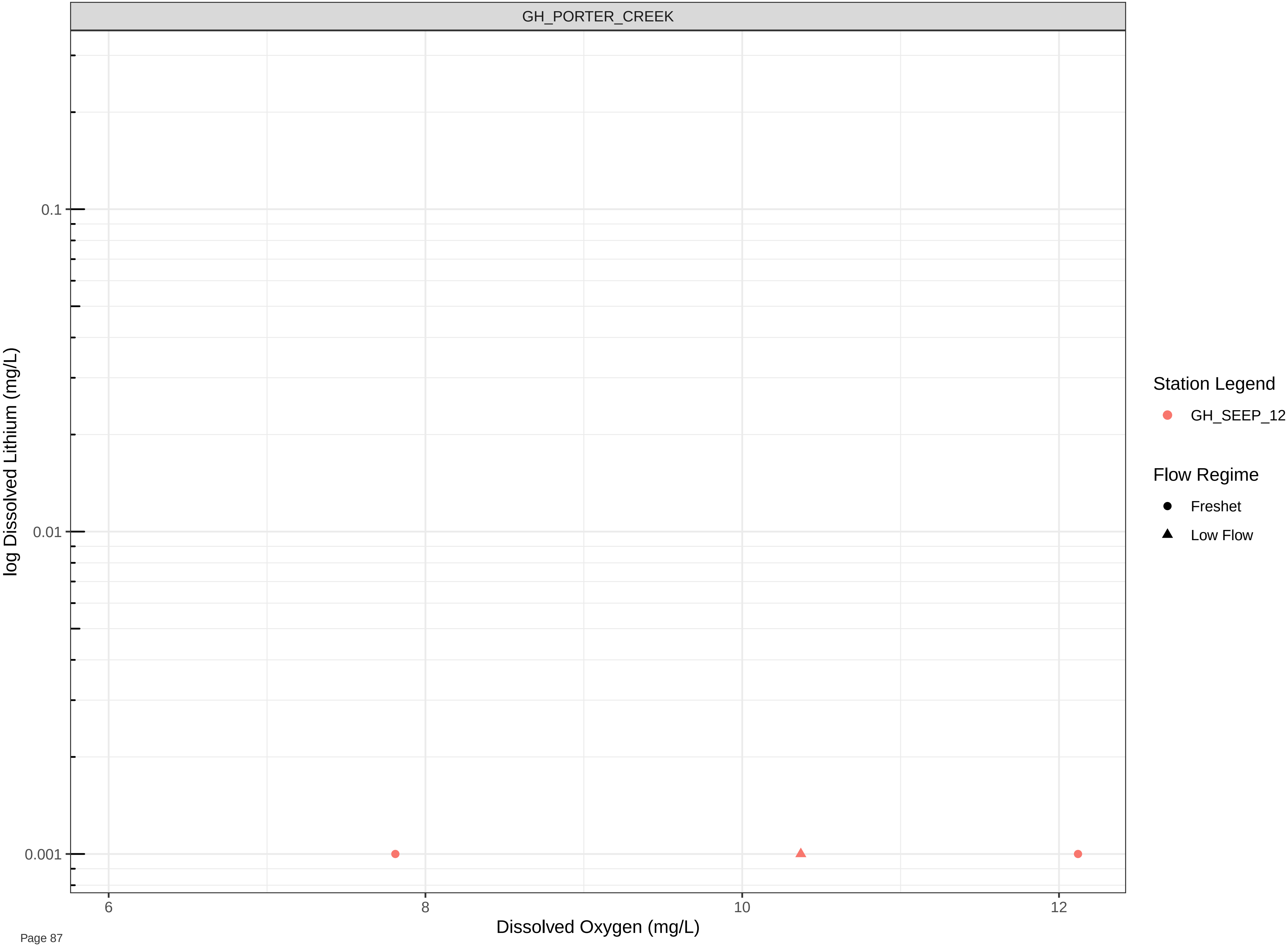
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Station Legend
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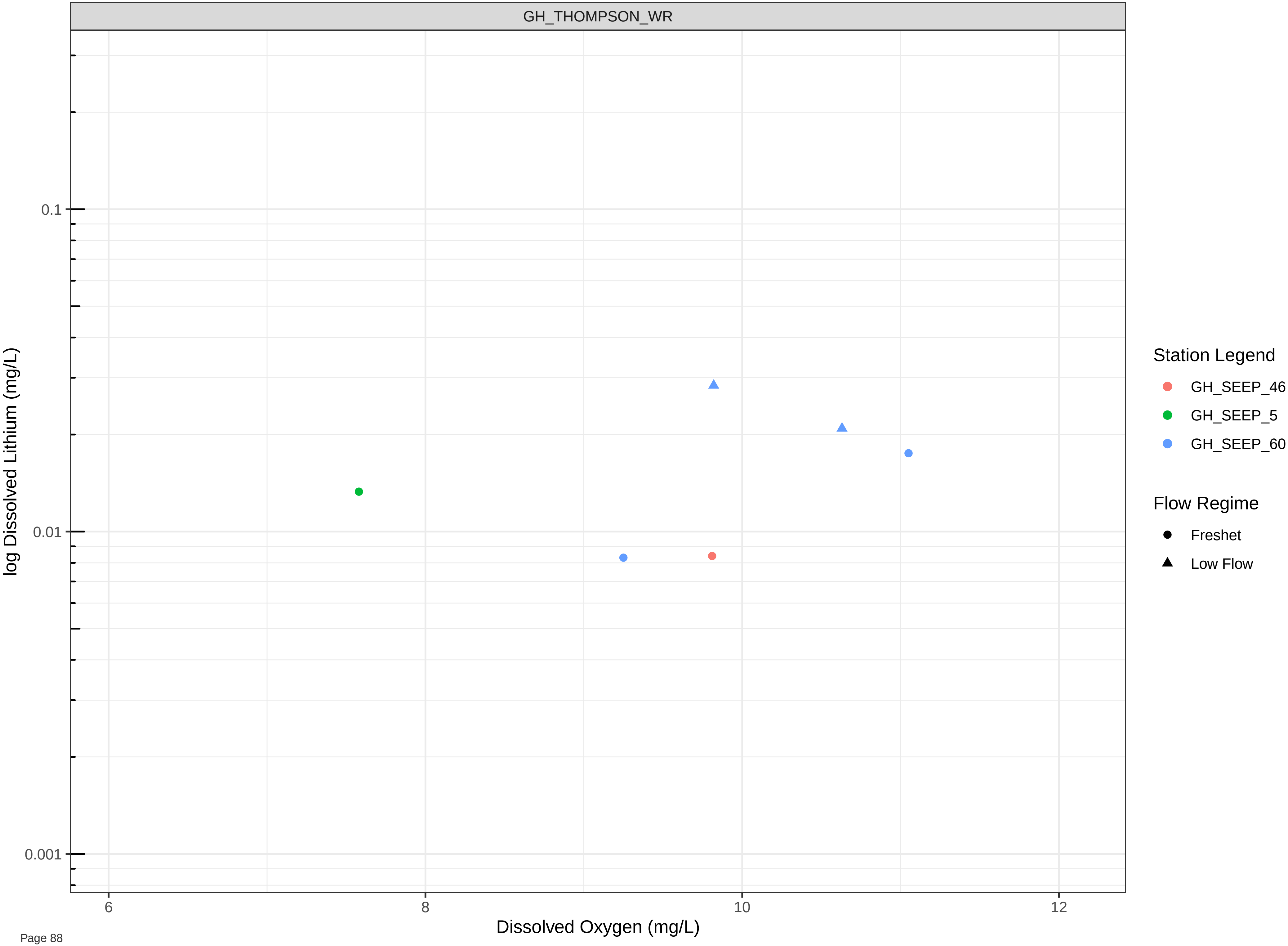
Flow Regime
● Freshet
▲ Low Flow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Dissolved Oxygen (mg/L)
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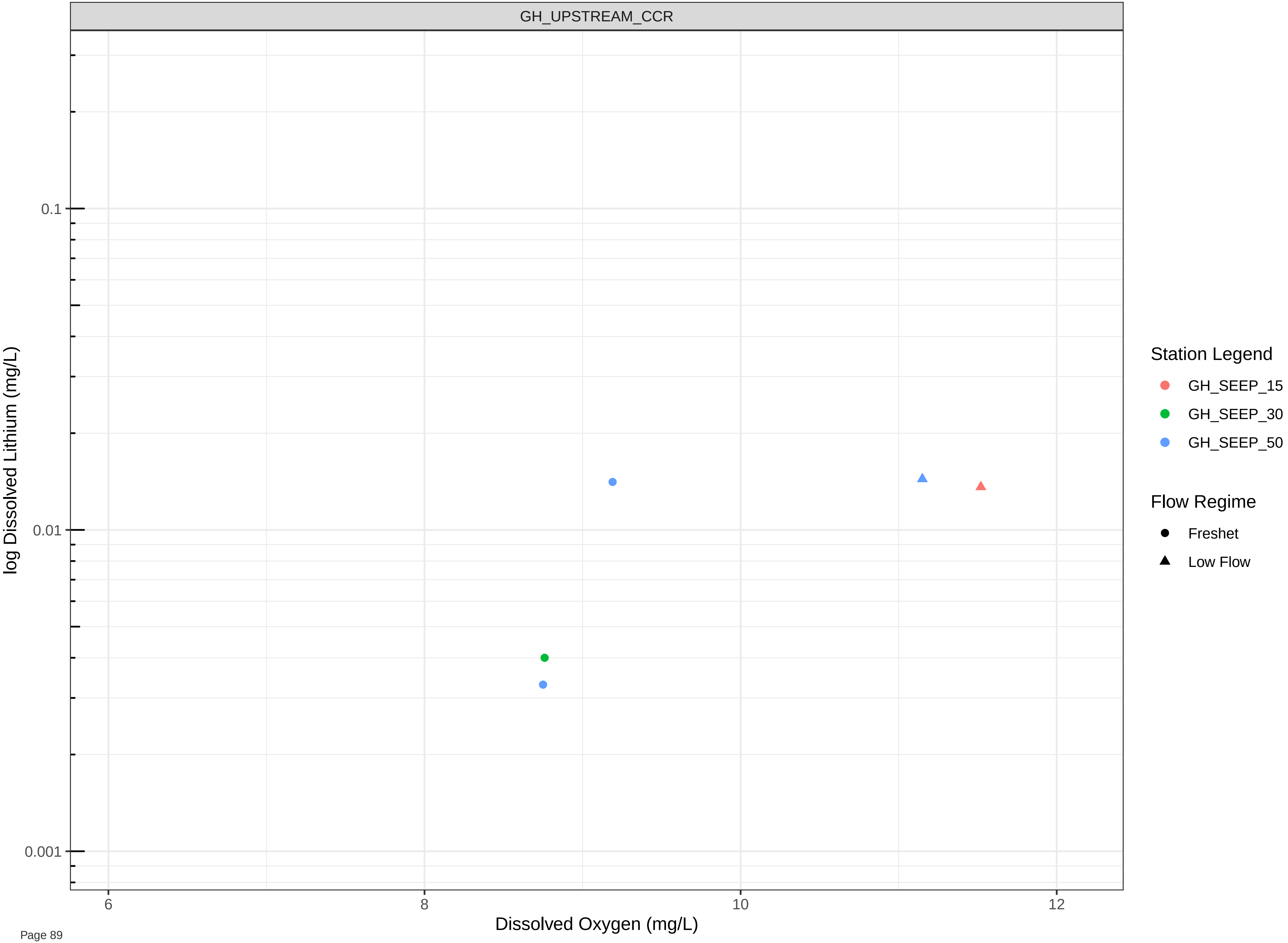
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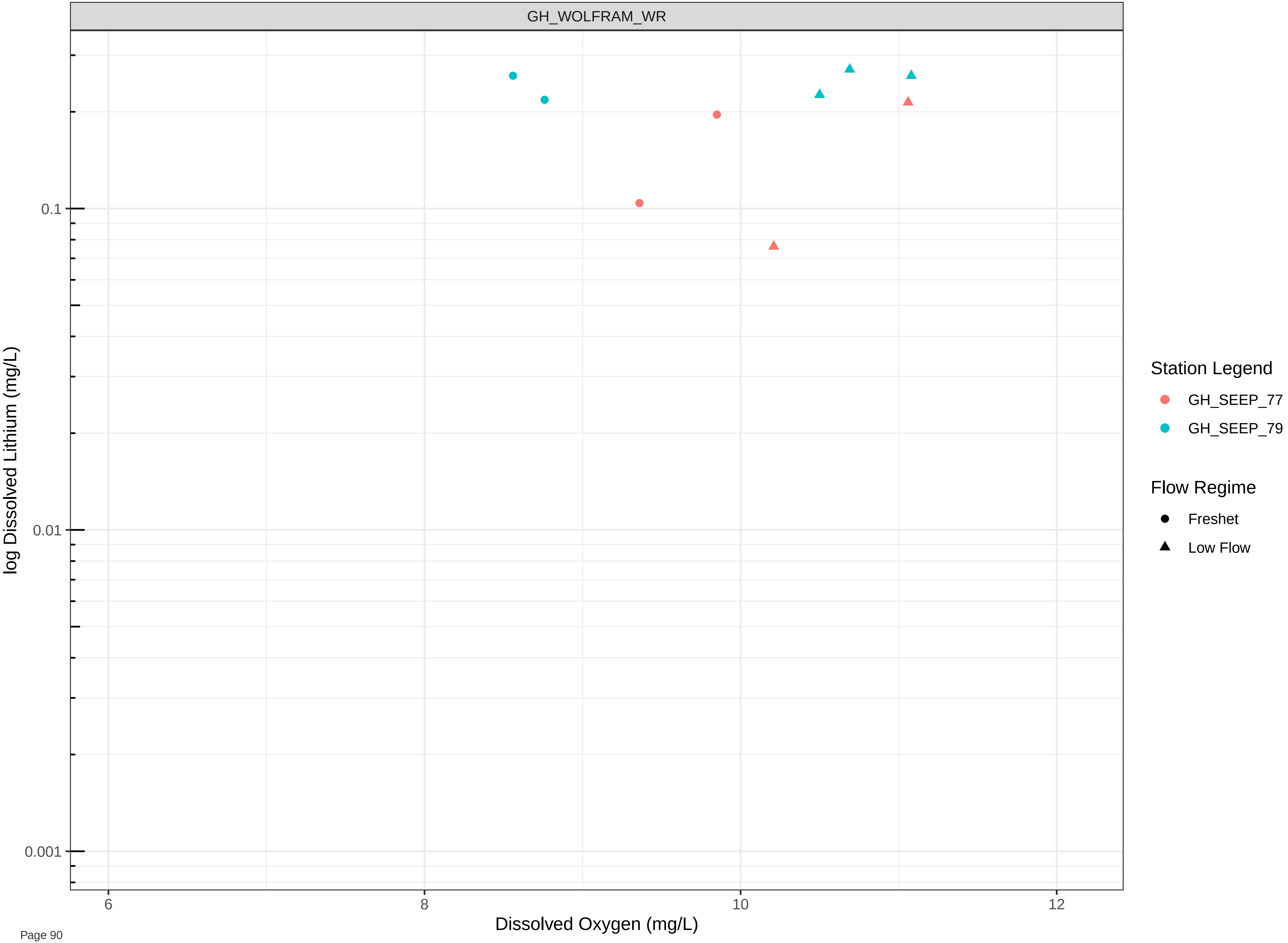
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Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_77
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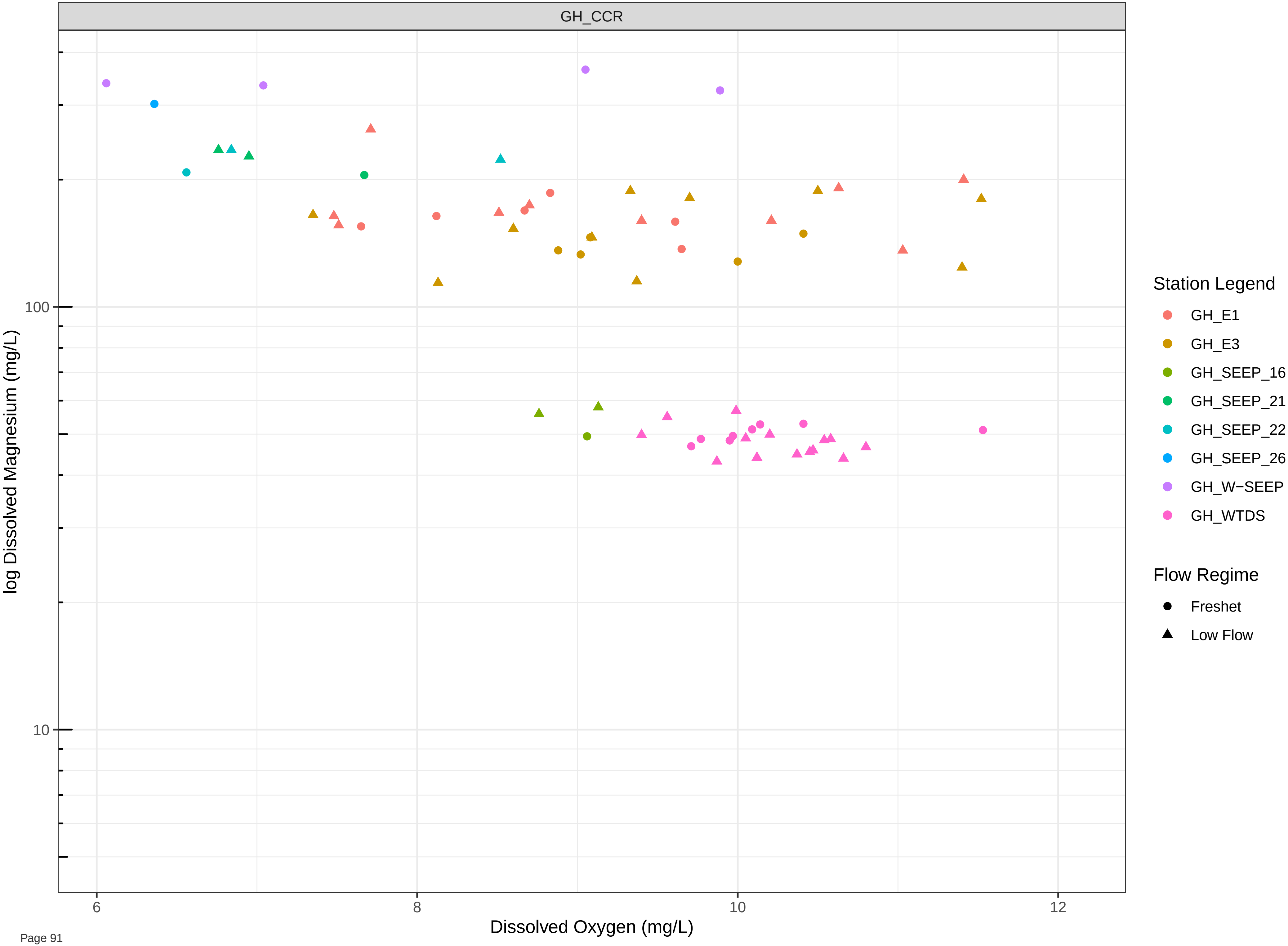
Flow Regime
● Freshet
▲ Low Flow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100
10
6
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10
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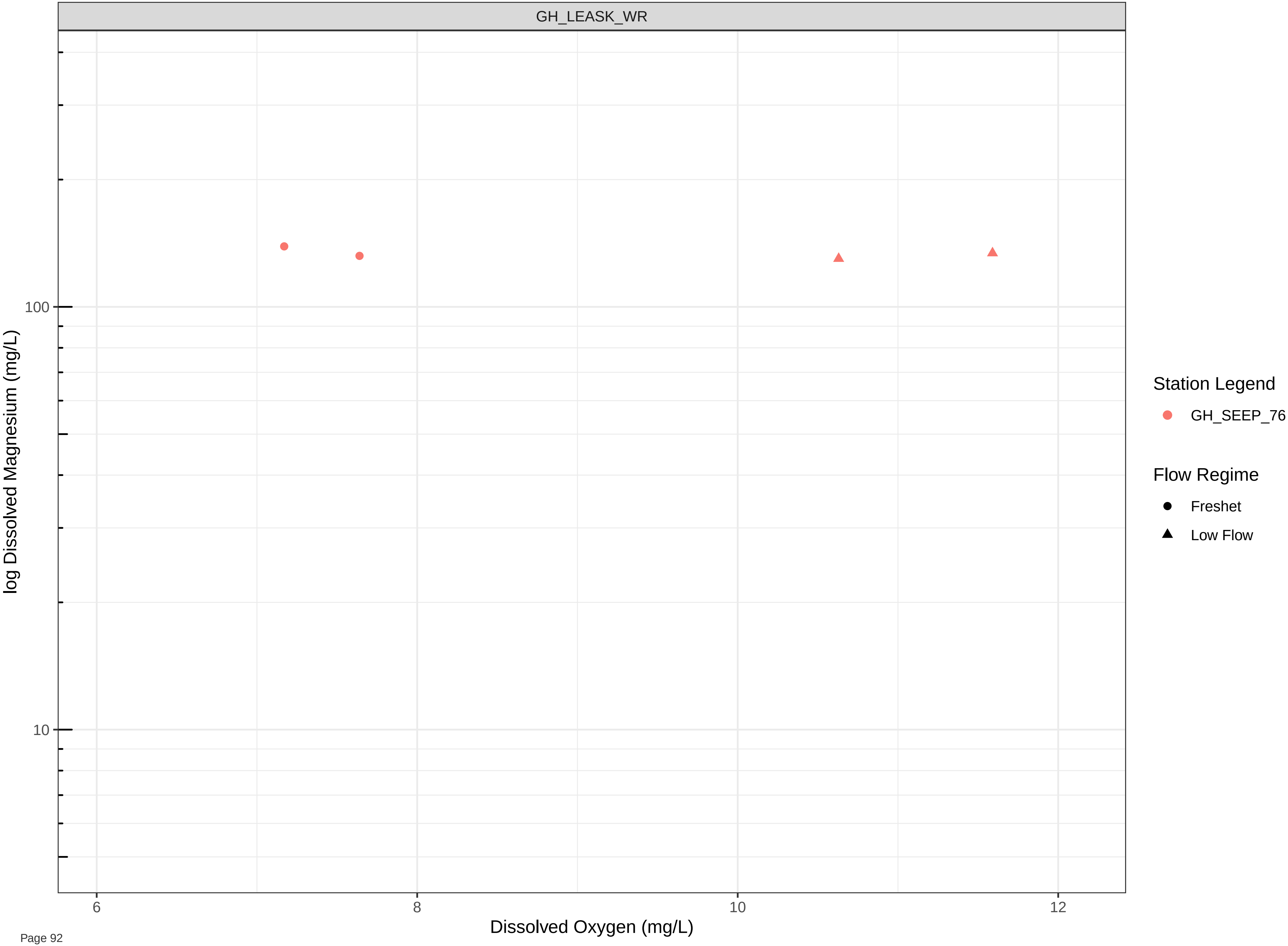
Dissolved Oxygen (mg/L)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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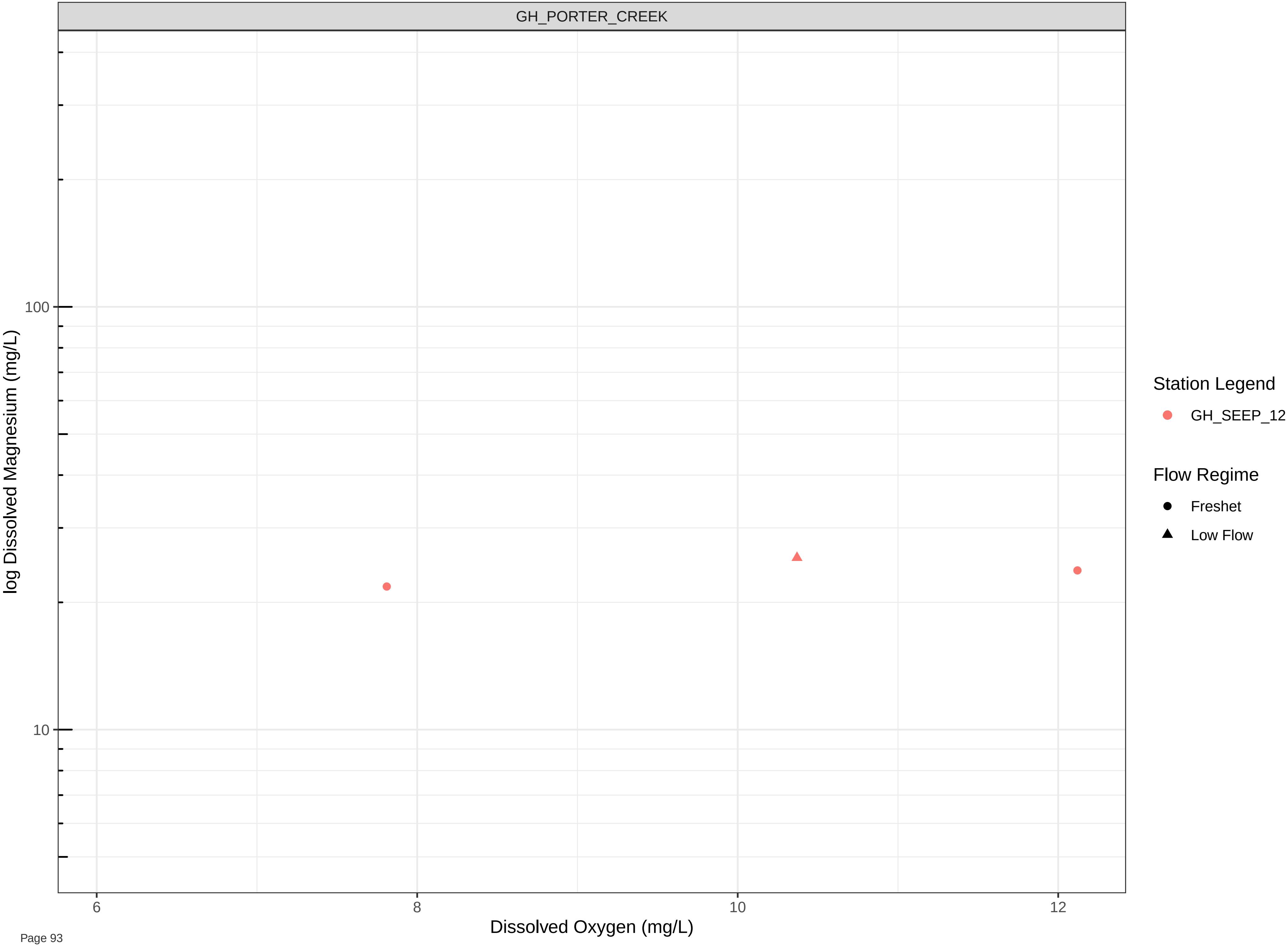
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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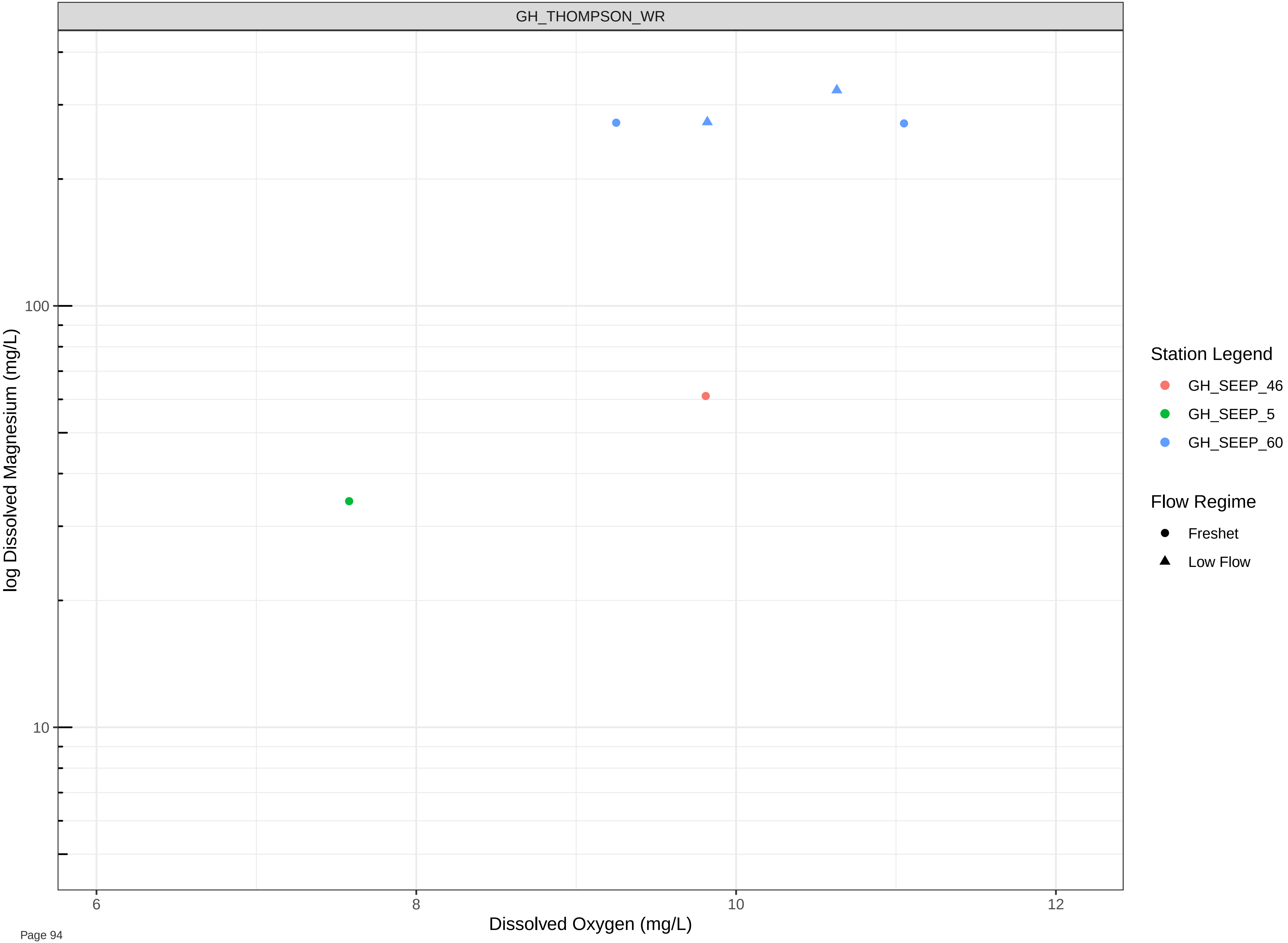
Flow Regime
● Freshet
▲ Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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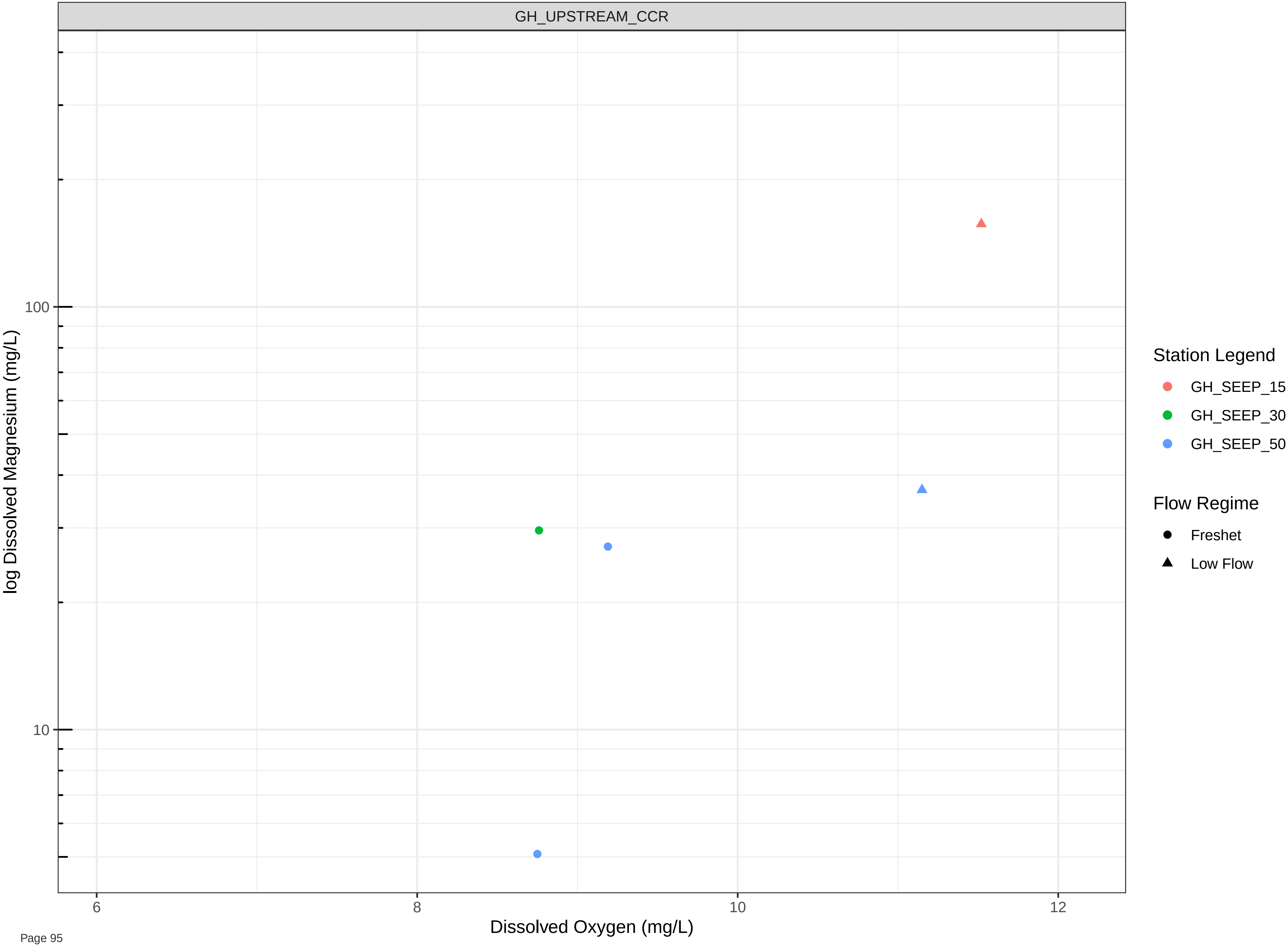
GH_SEEP_60
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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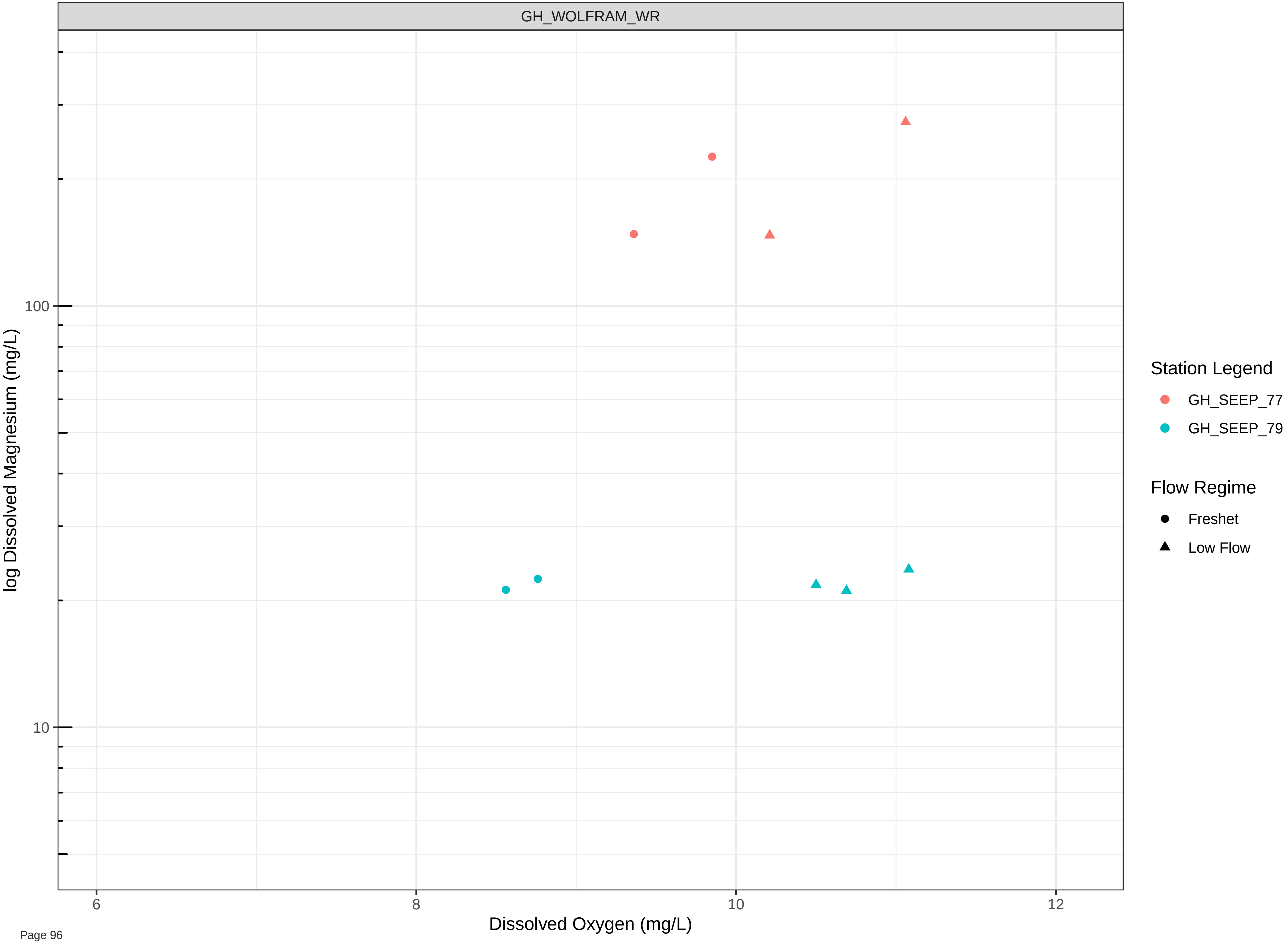
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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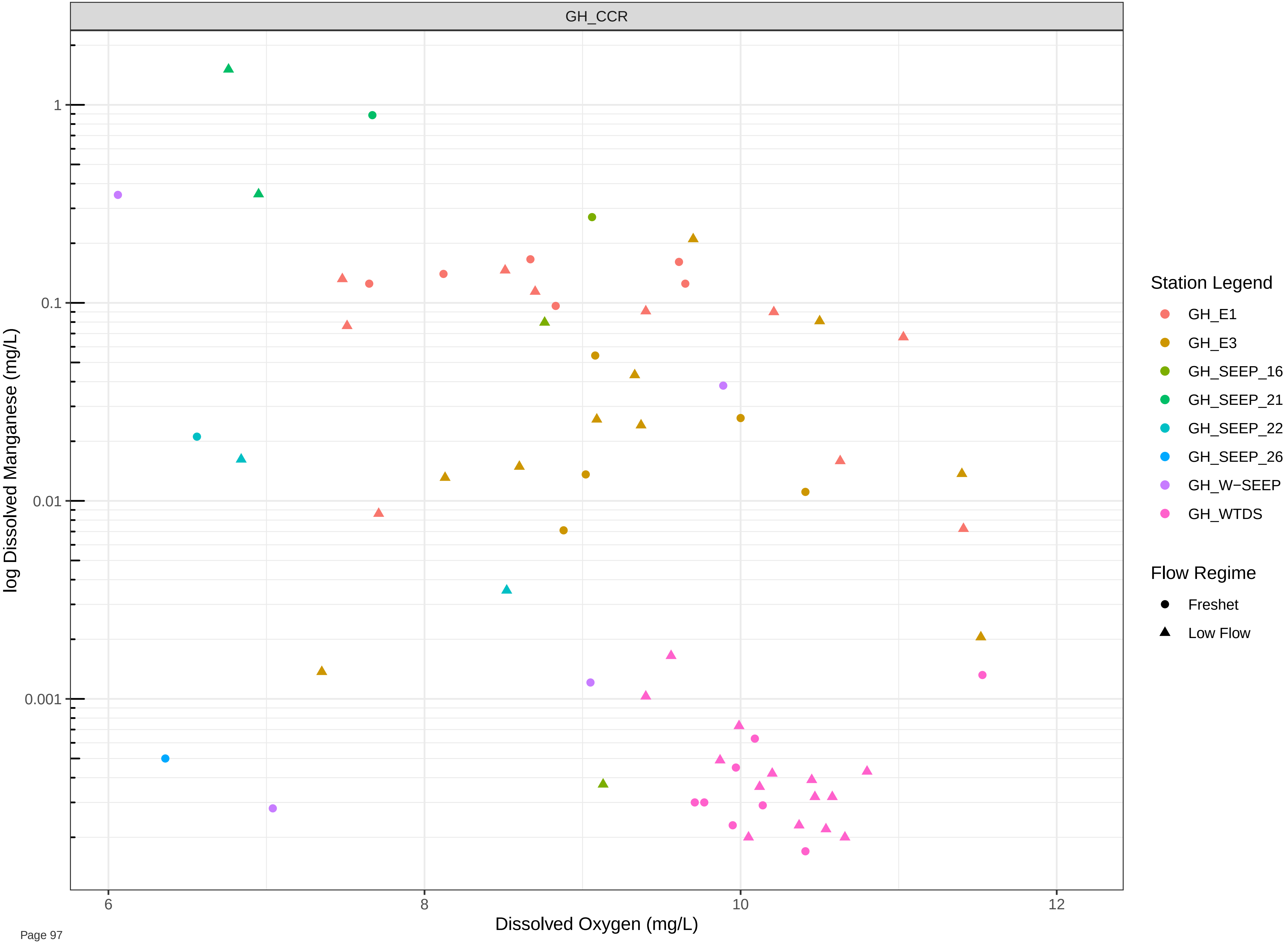
GH_SEEP_79
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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Station Legend
GH_E1
GH_E3
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GH_WTDS
Flow Regime
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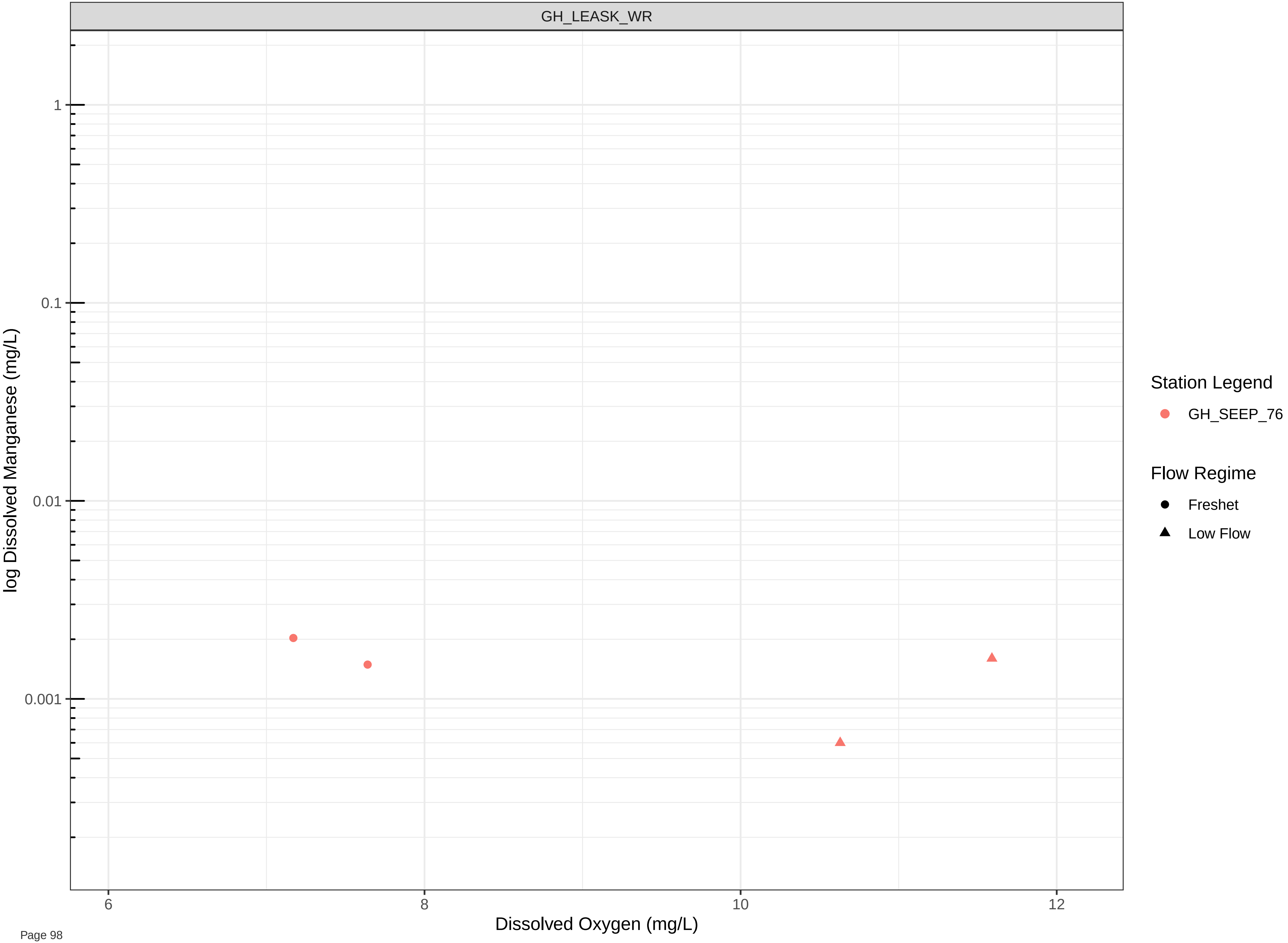
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Dissolved Oxygen (mg/L)
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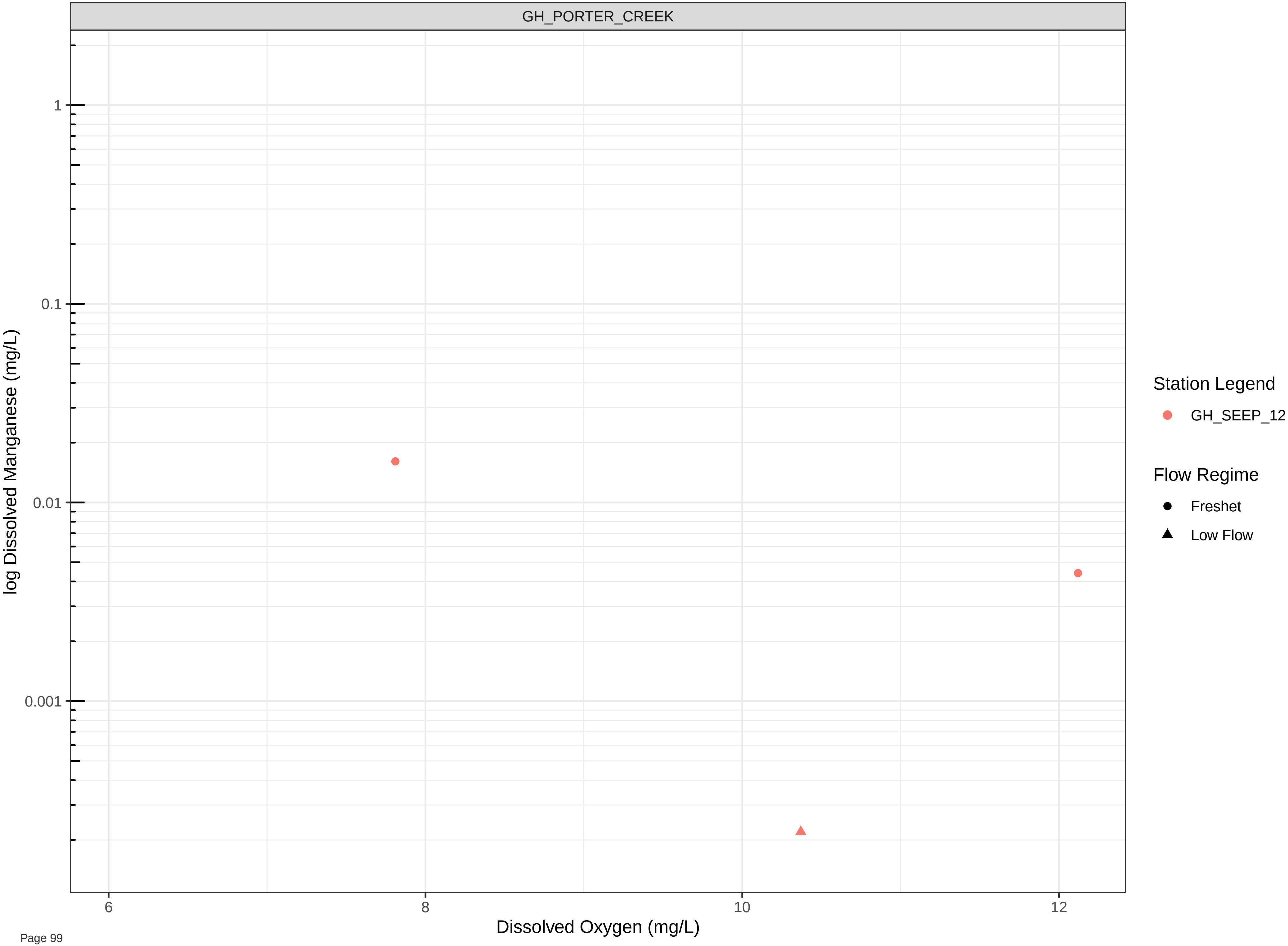
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow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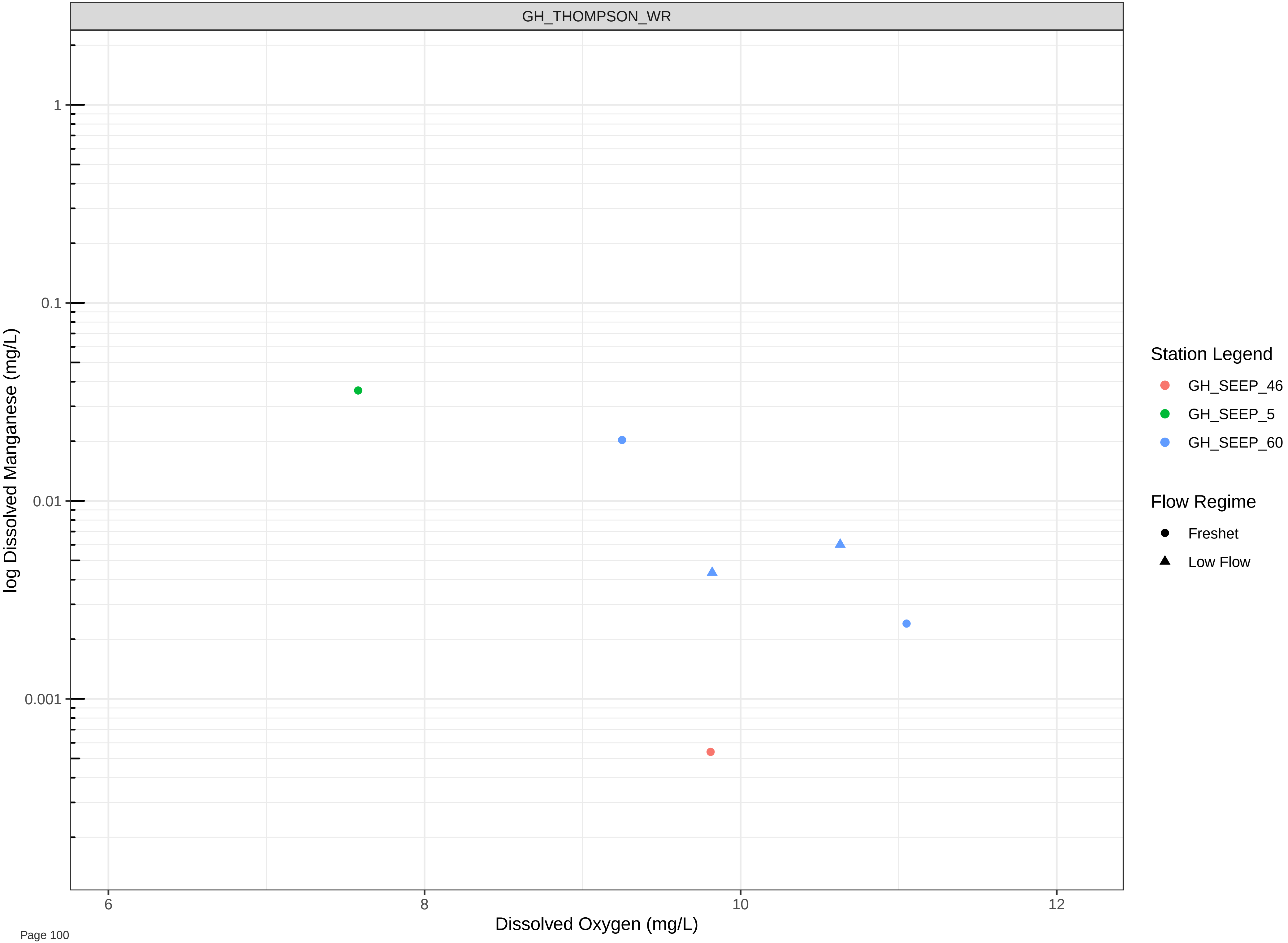
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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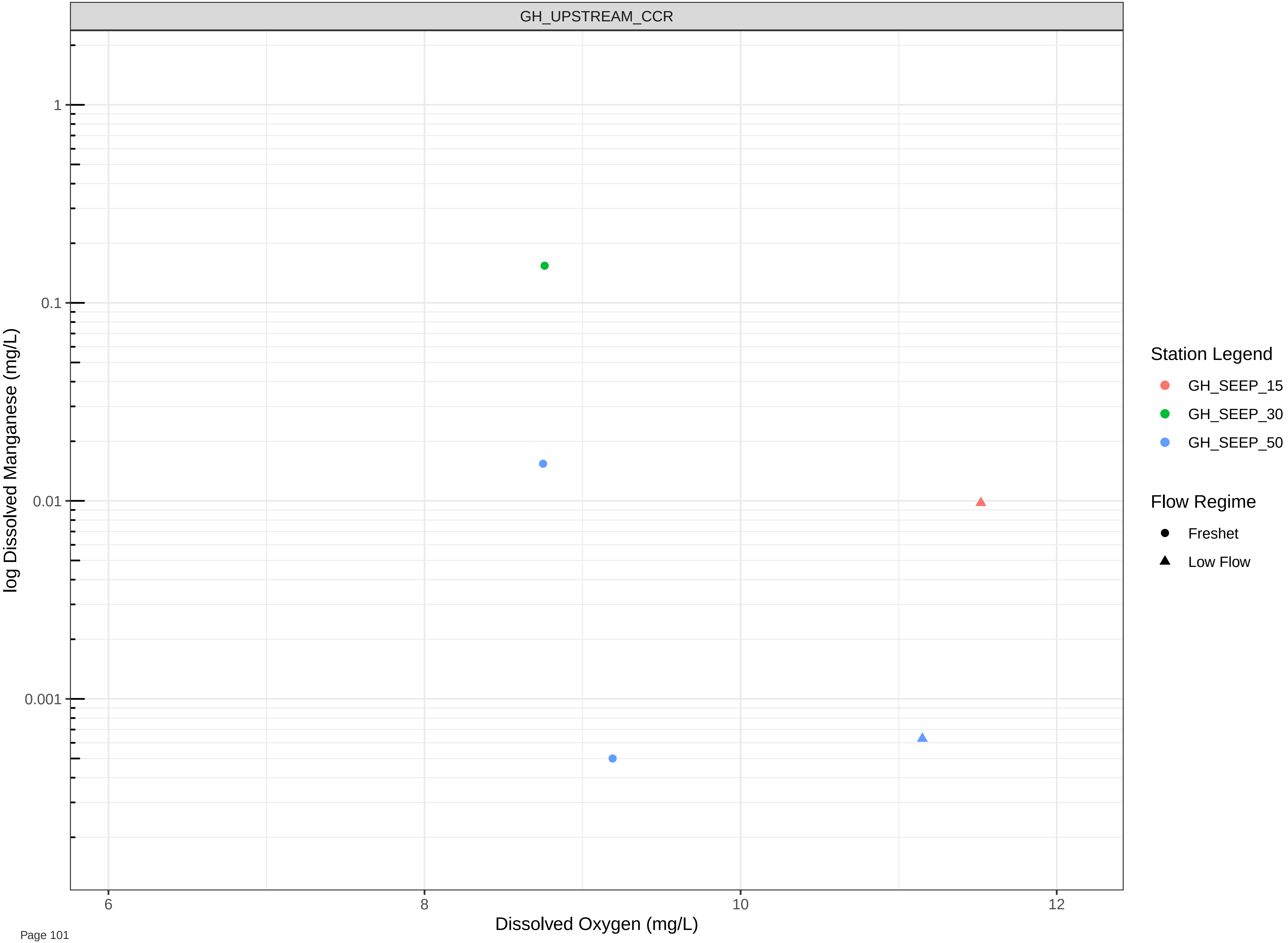
GH_SEEP_60
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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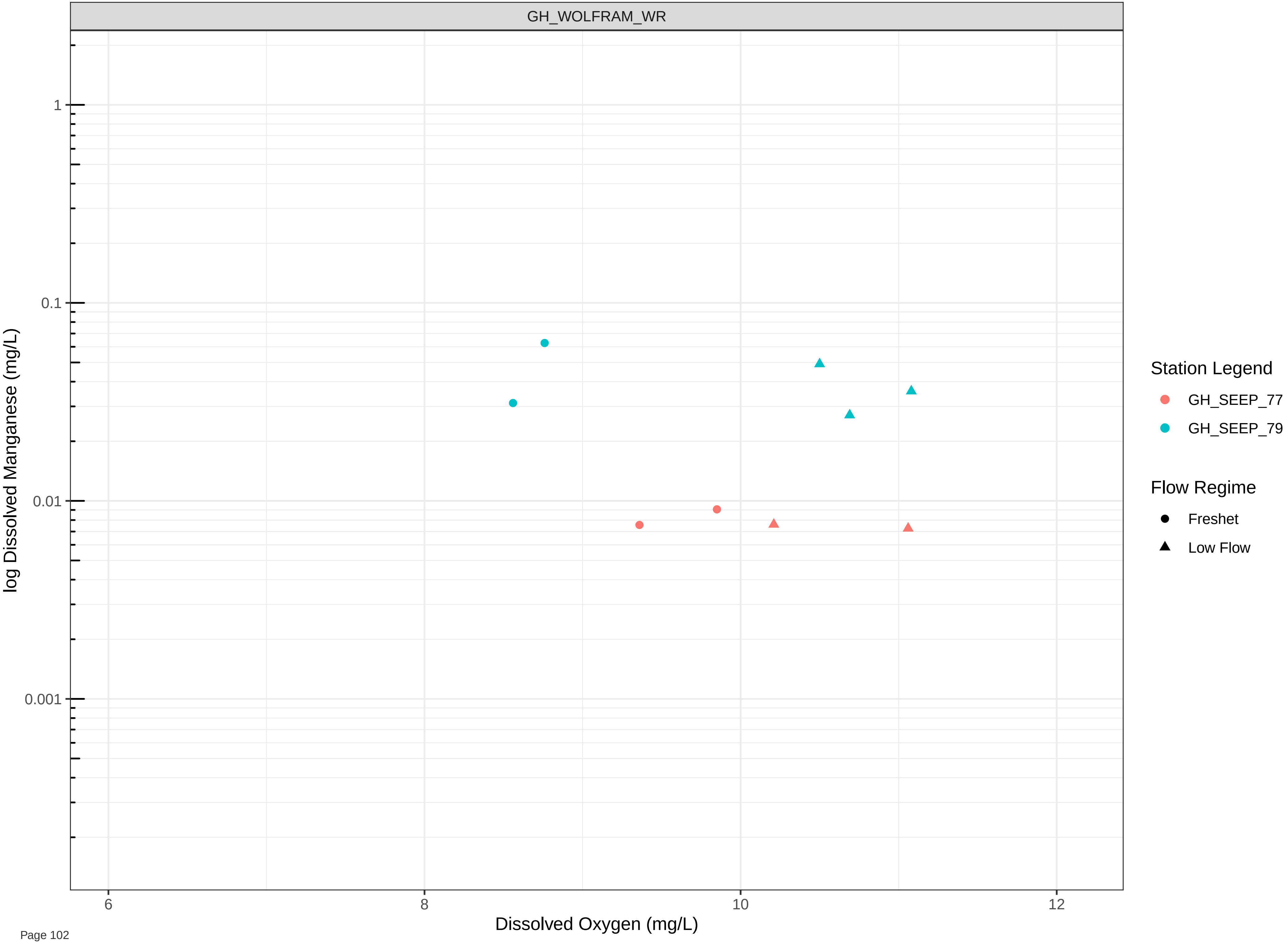
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow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0.001
Dissolved Oxygen (mg/L)
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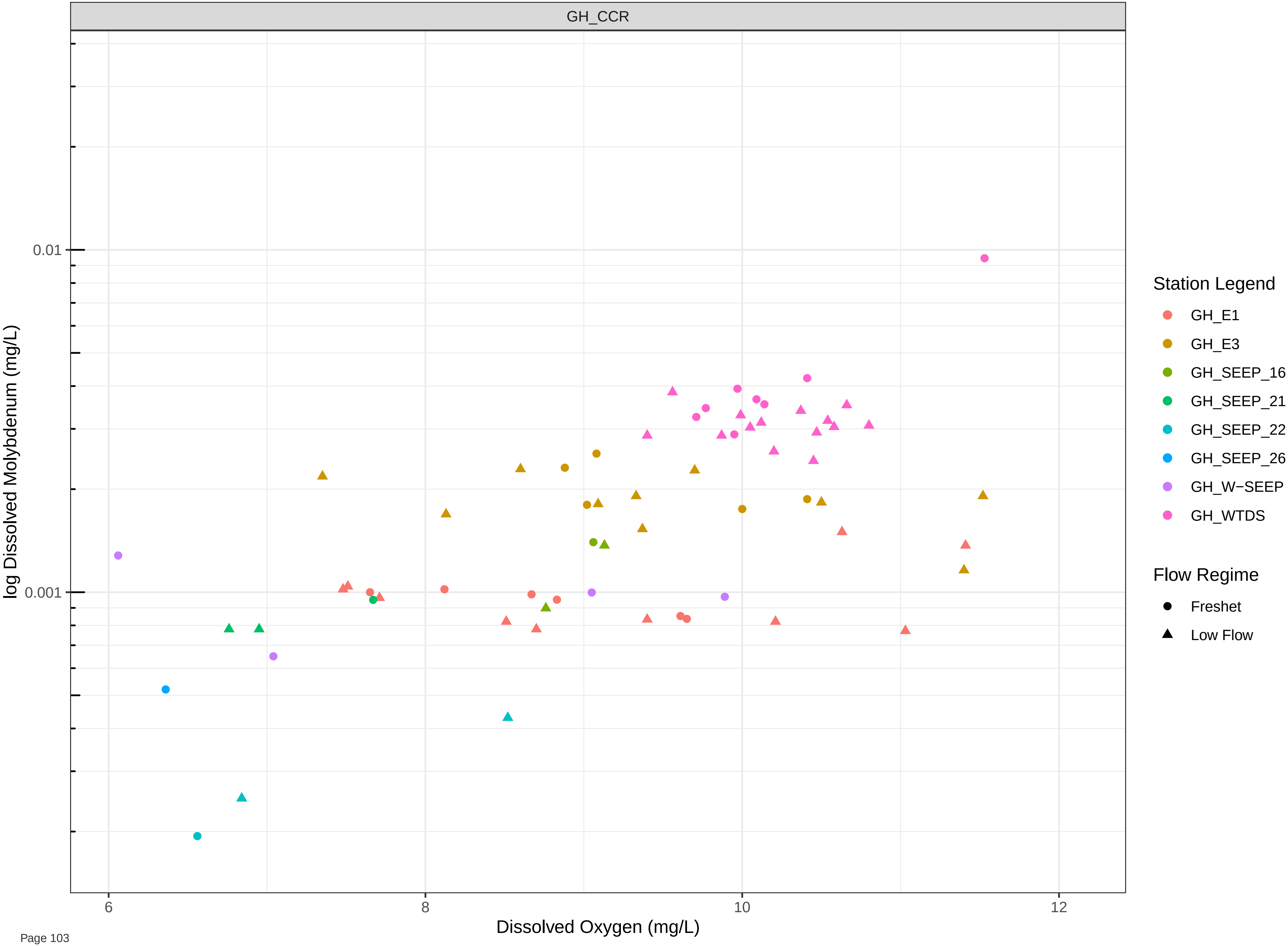
Station Legend
● GH_SEEP_77
● GH_SEEP_79
Flow Regime
● Freshet
▲ Low Flow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Dissolved Oxygen (mg/L)
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8
10
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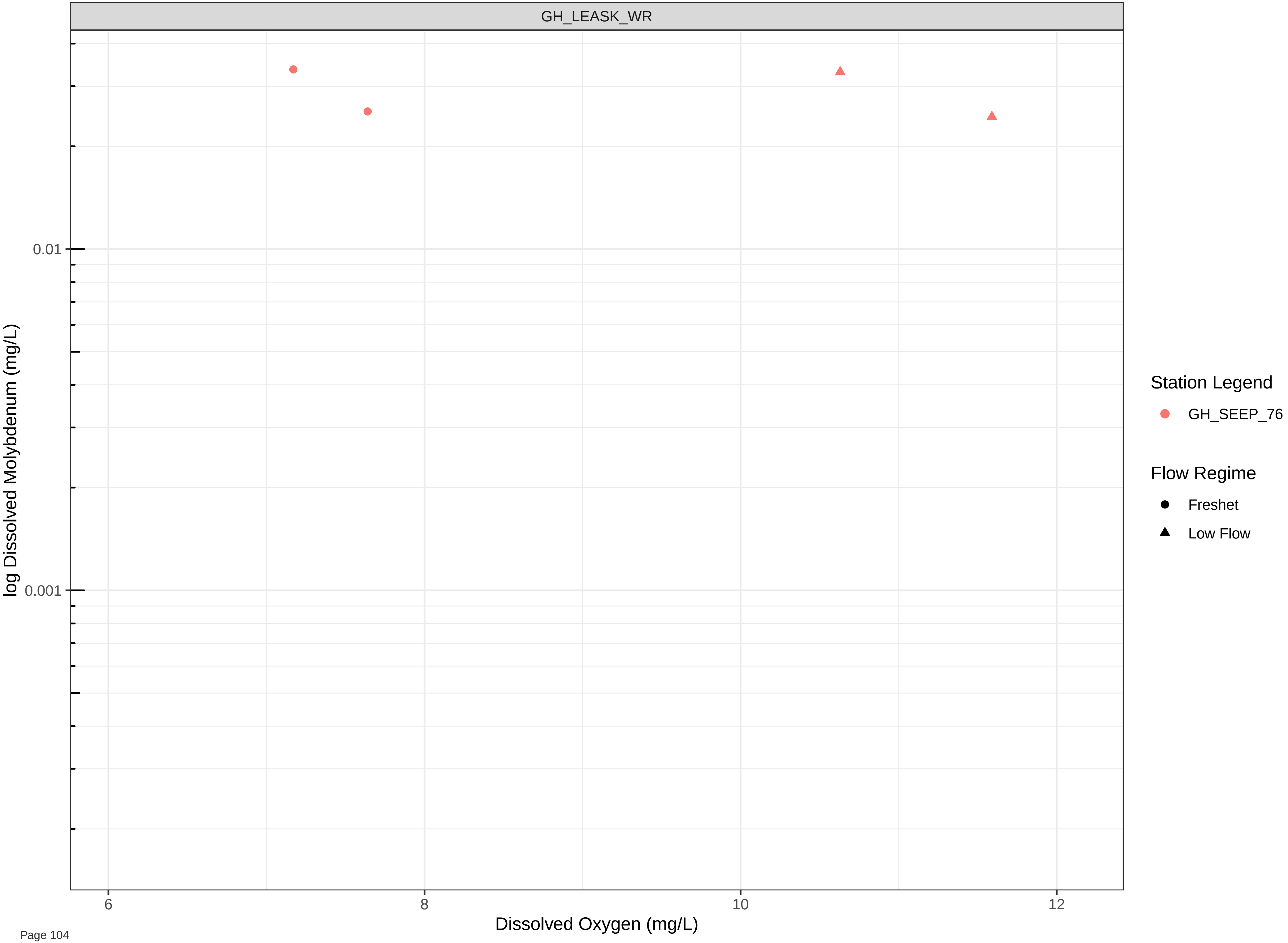
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow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Station Legend
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Flow Regime
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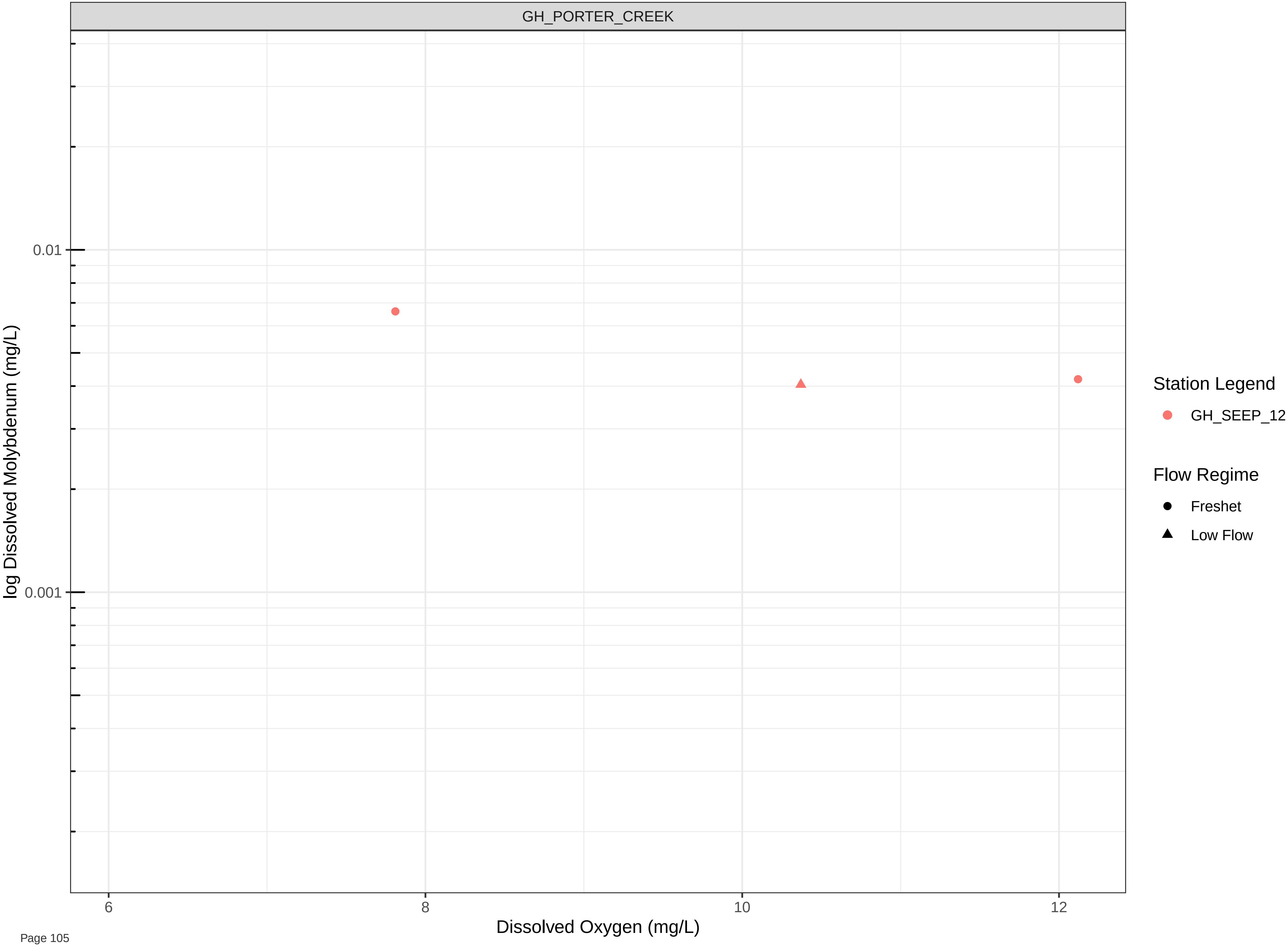
▲ Low Flow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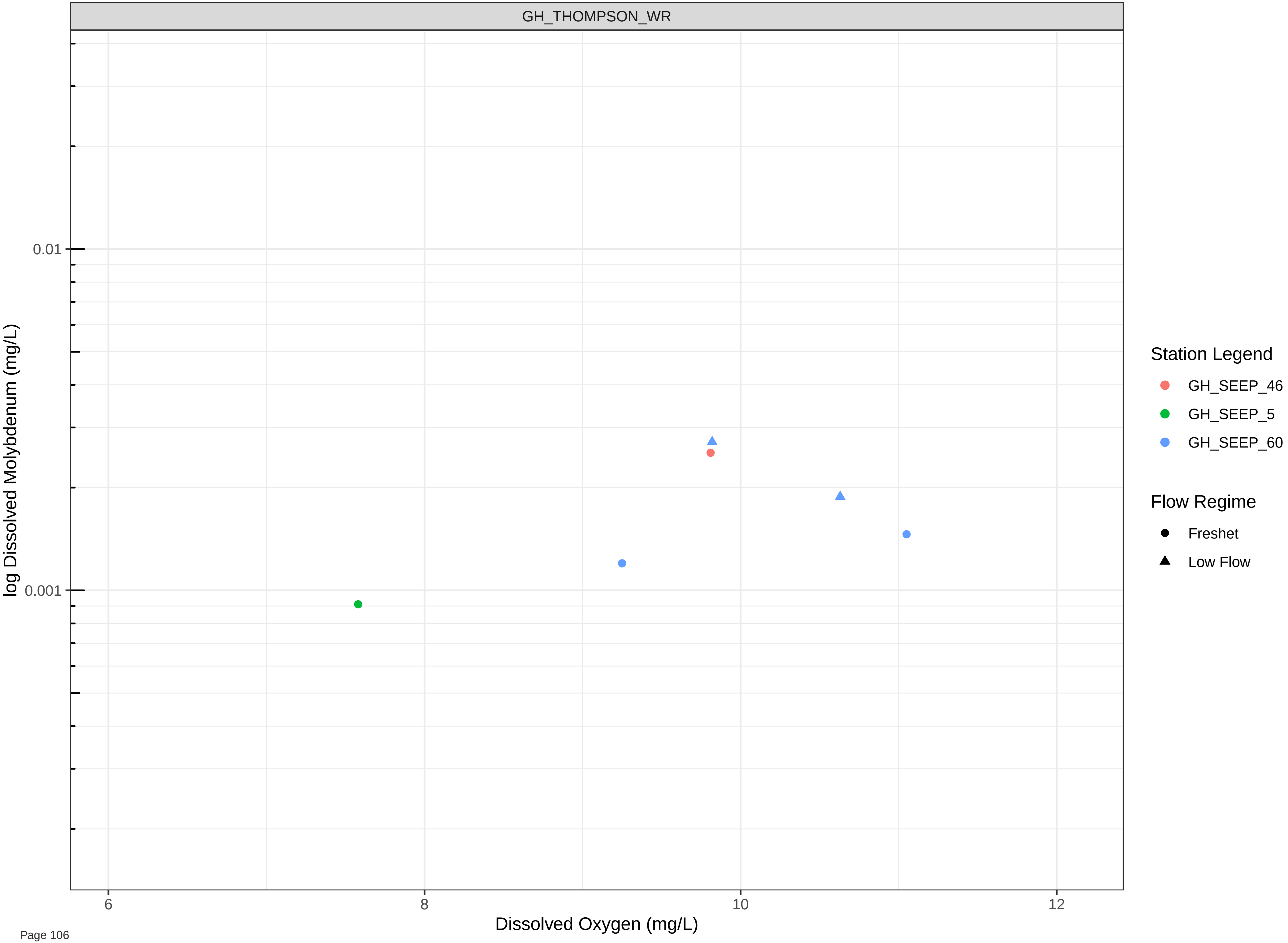
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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Station Legend
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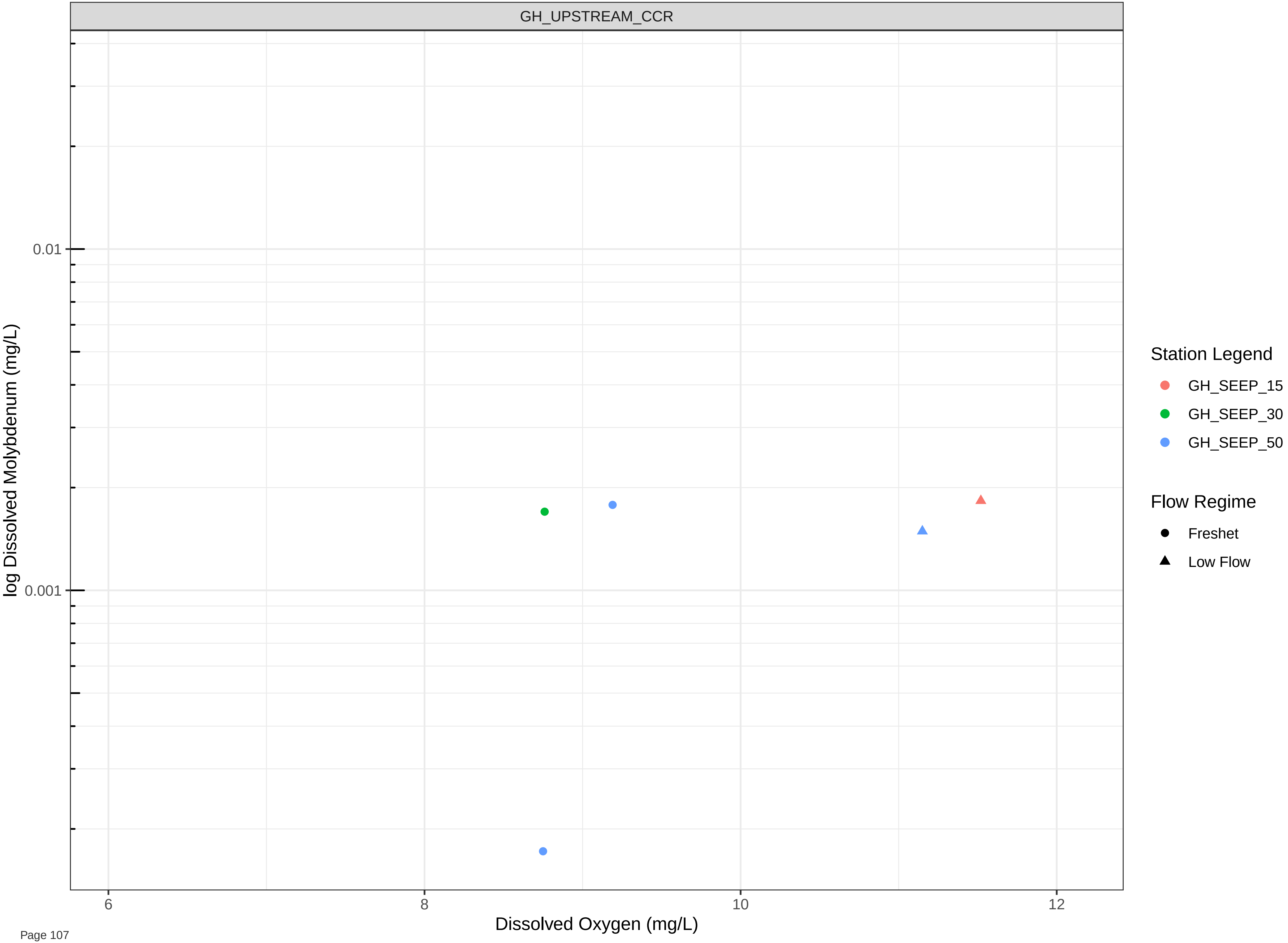
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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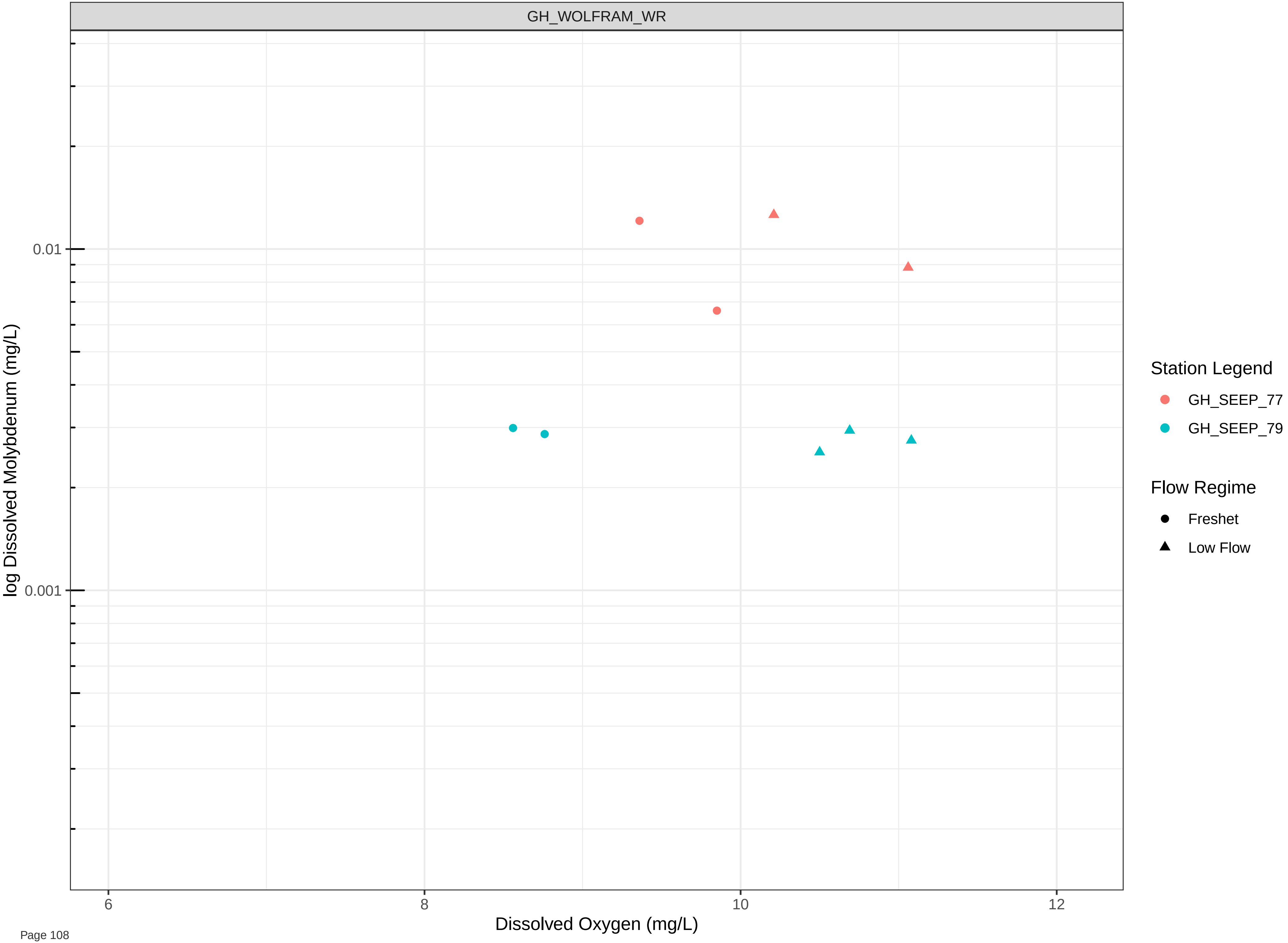
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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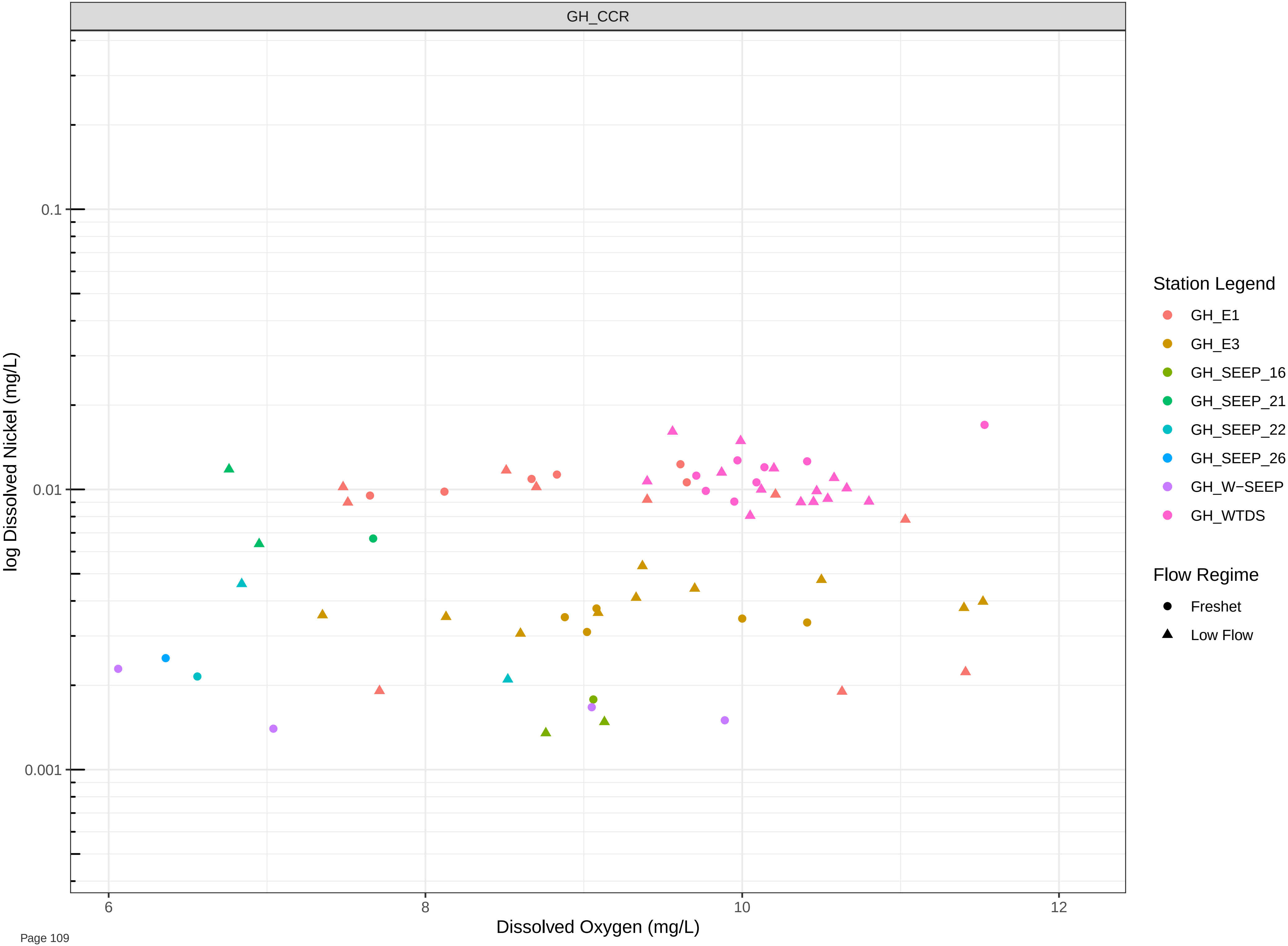
GH_SEEP_79
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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Station Legend
GH_E1
GH_E3
GH_SEEP_16
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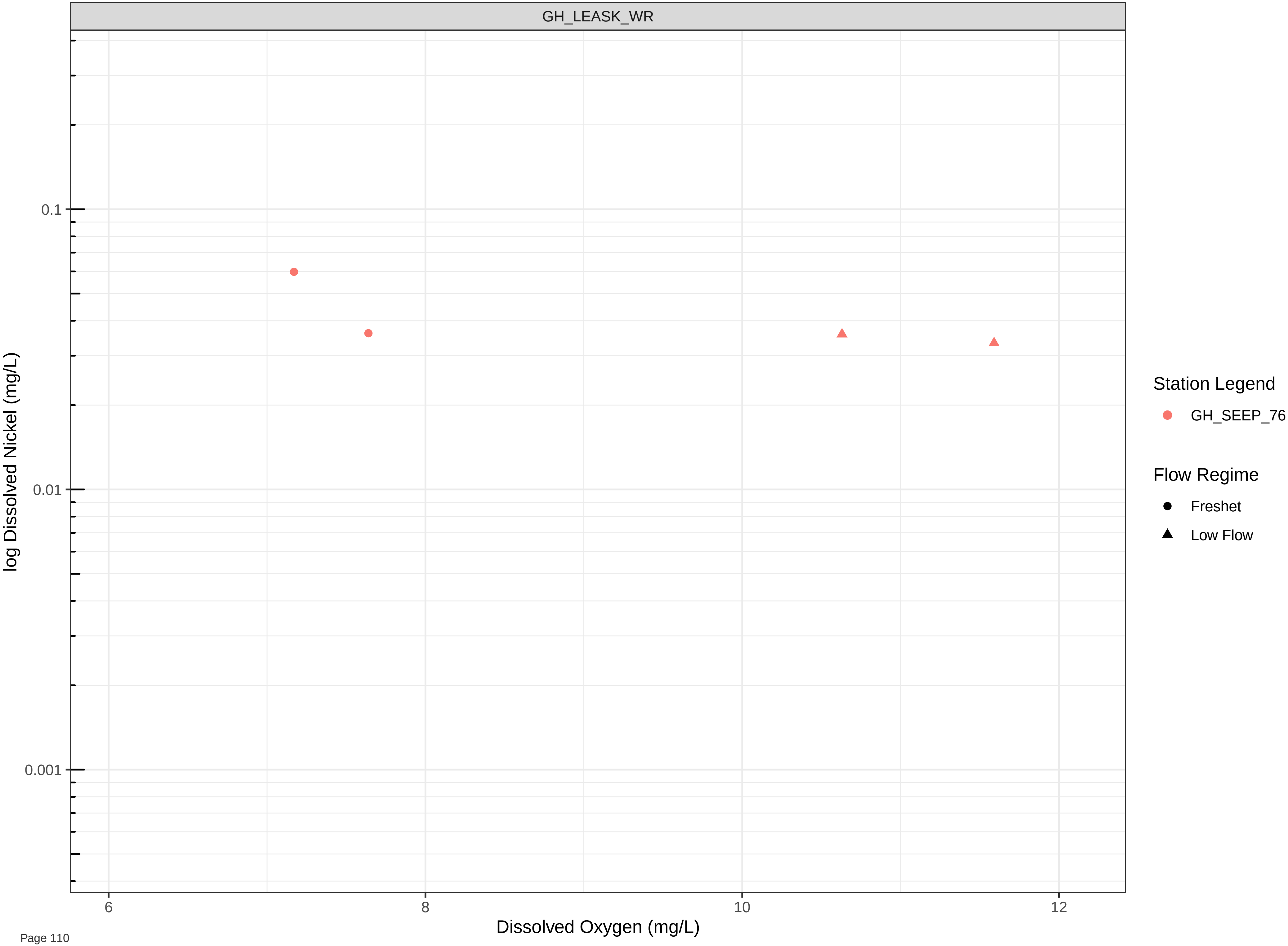
GH_WTDS
Flow Regime
Freshet
Low Flow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Station Legend
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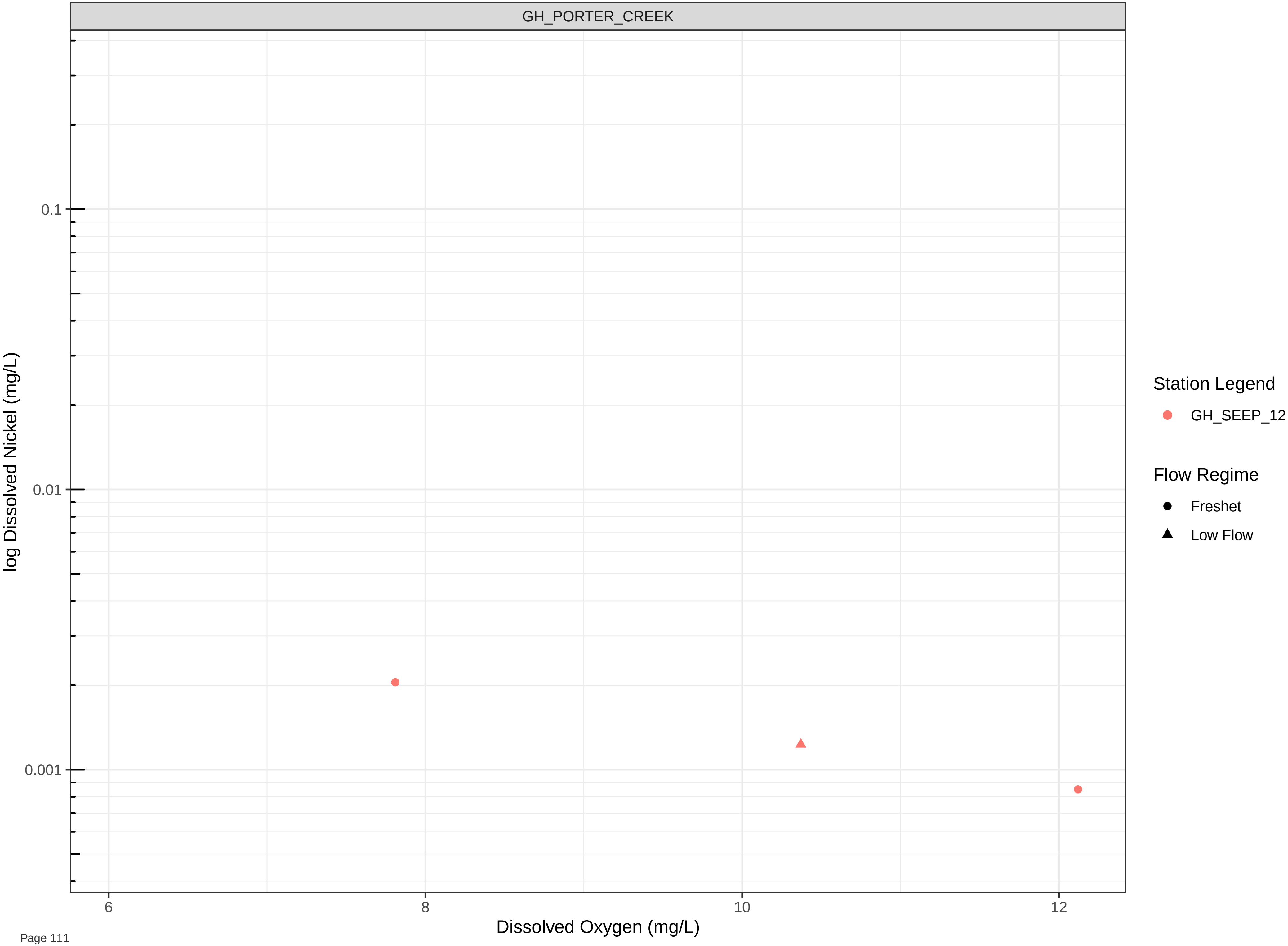
Flow Regime
Freshet
Low Flow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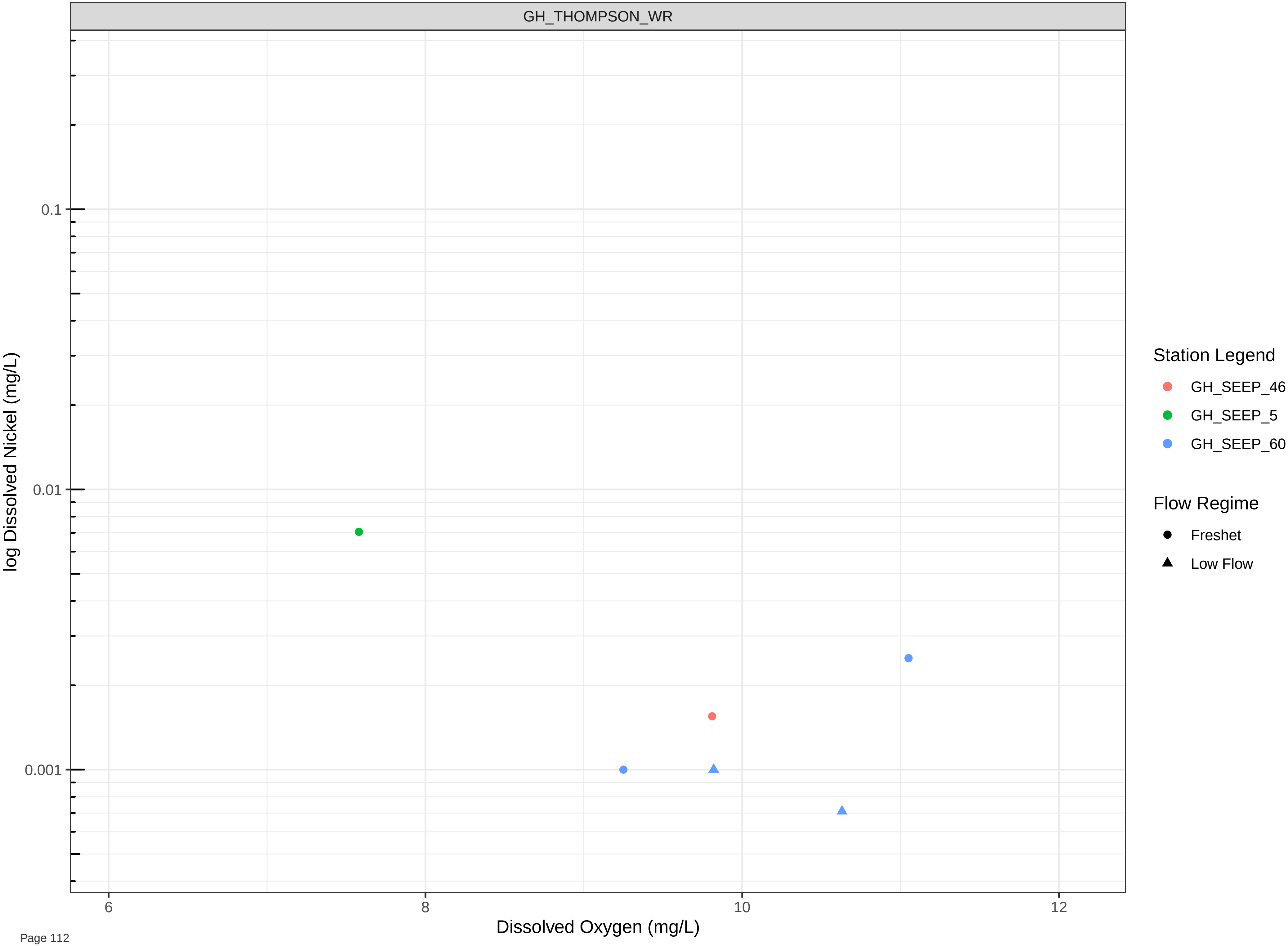
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow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Dissolved Oxygen (mg/L)
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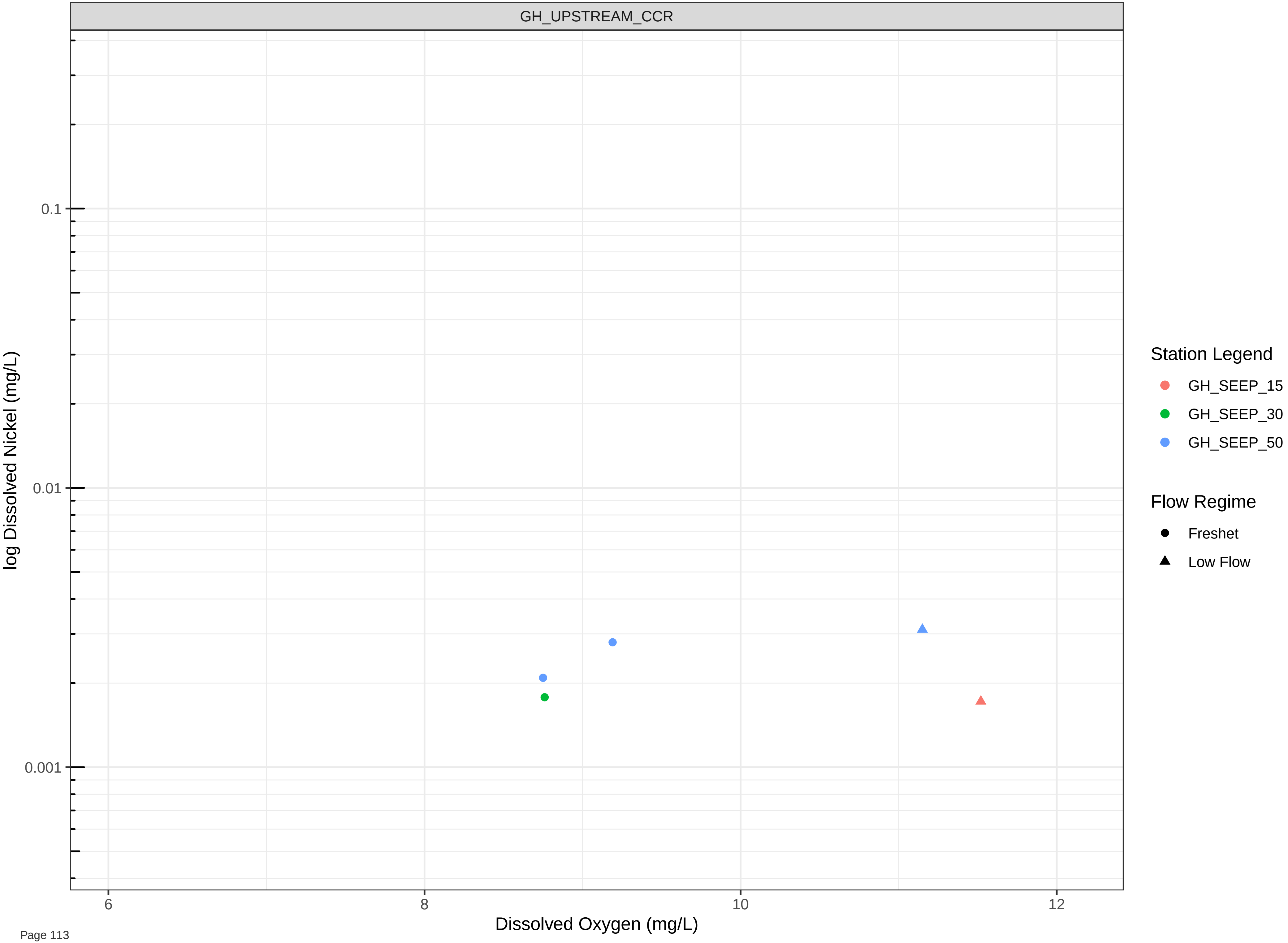
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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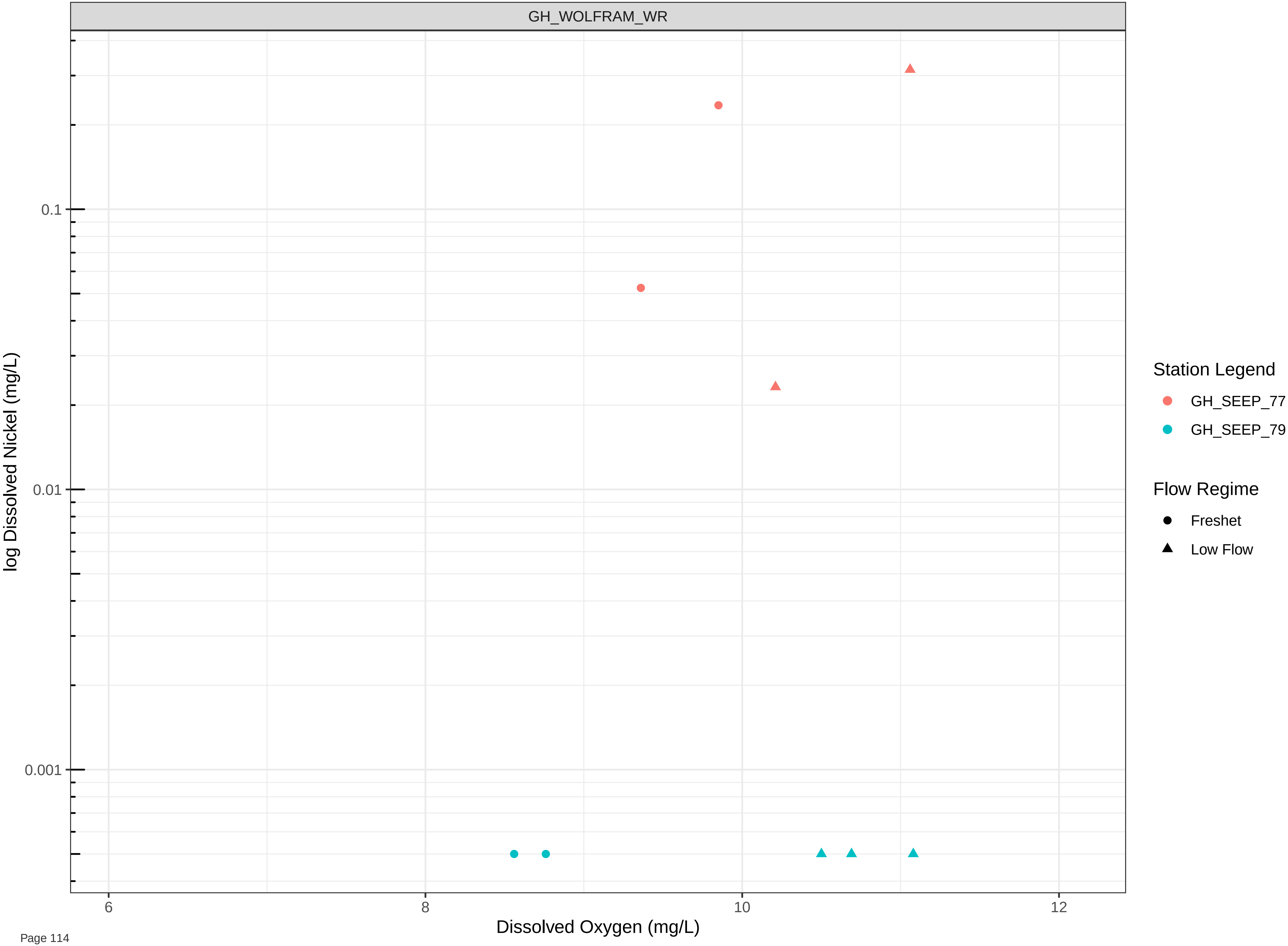
Flow Regime
Freshet
Low Flow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Station Legend
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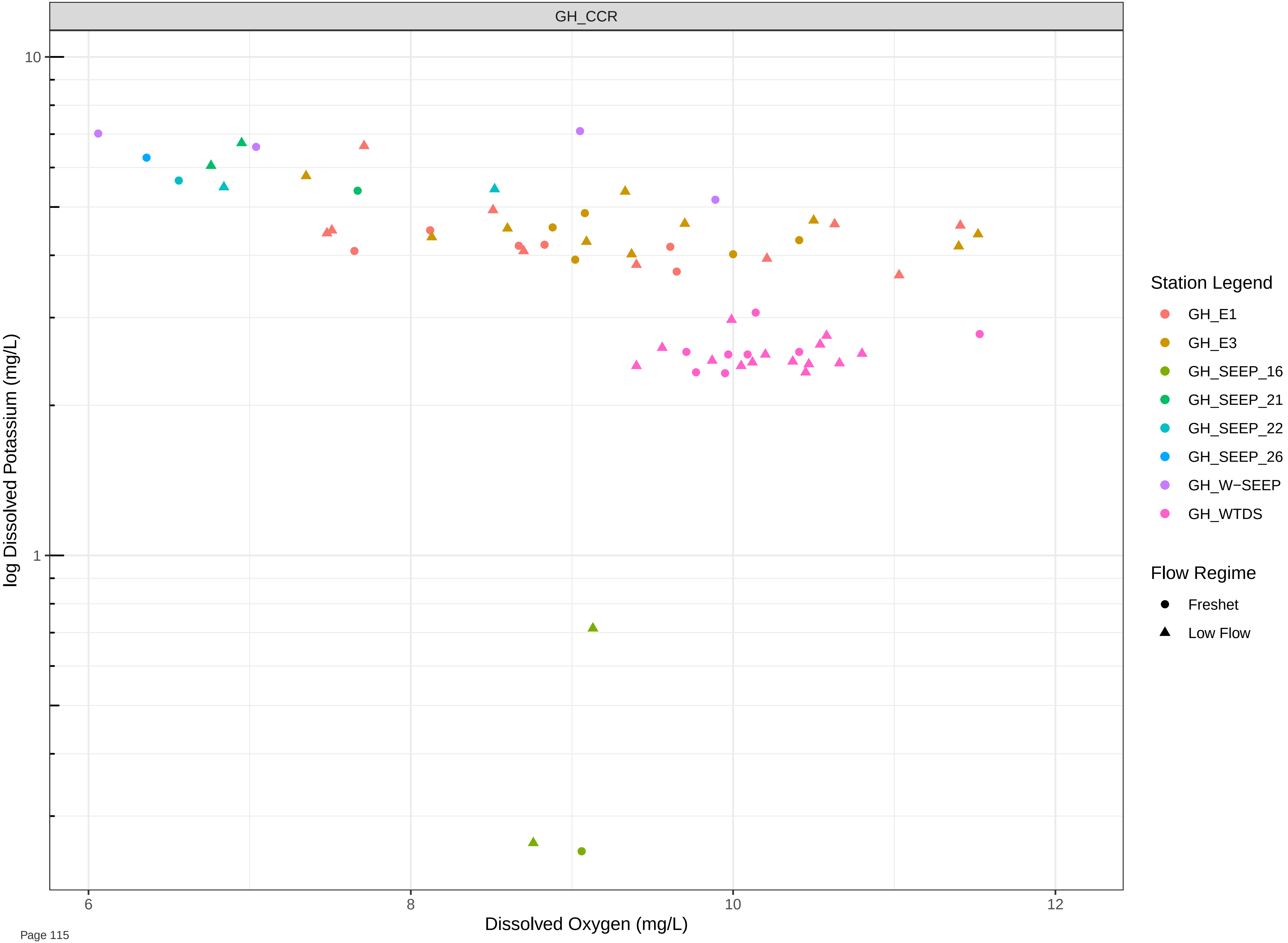
GH_SEEP_79
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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Station Legend
GH_E1
GH_E3
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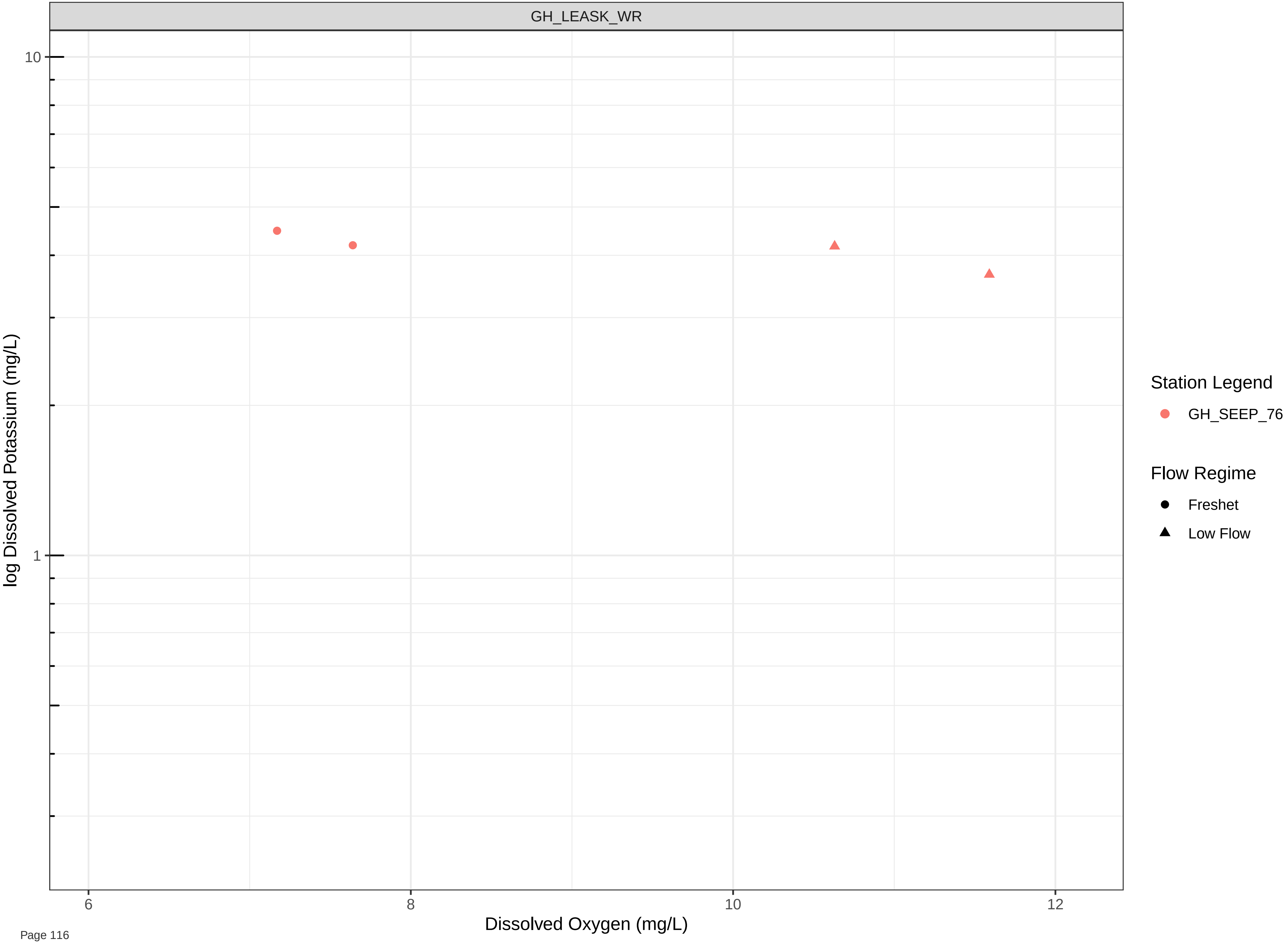
Flow Regime
Freshet
Low Flow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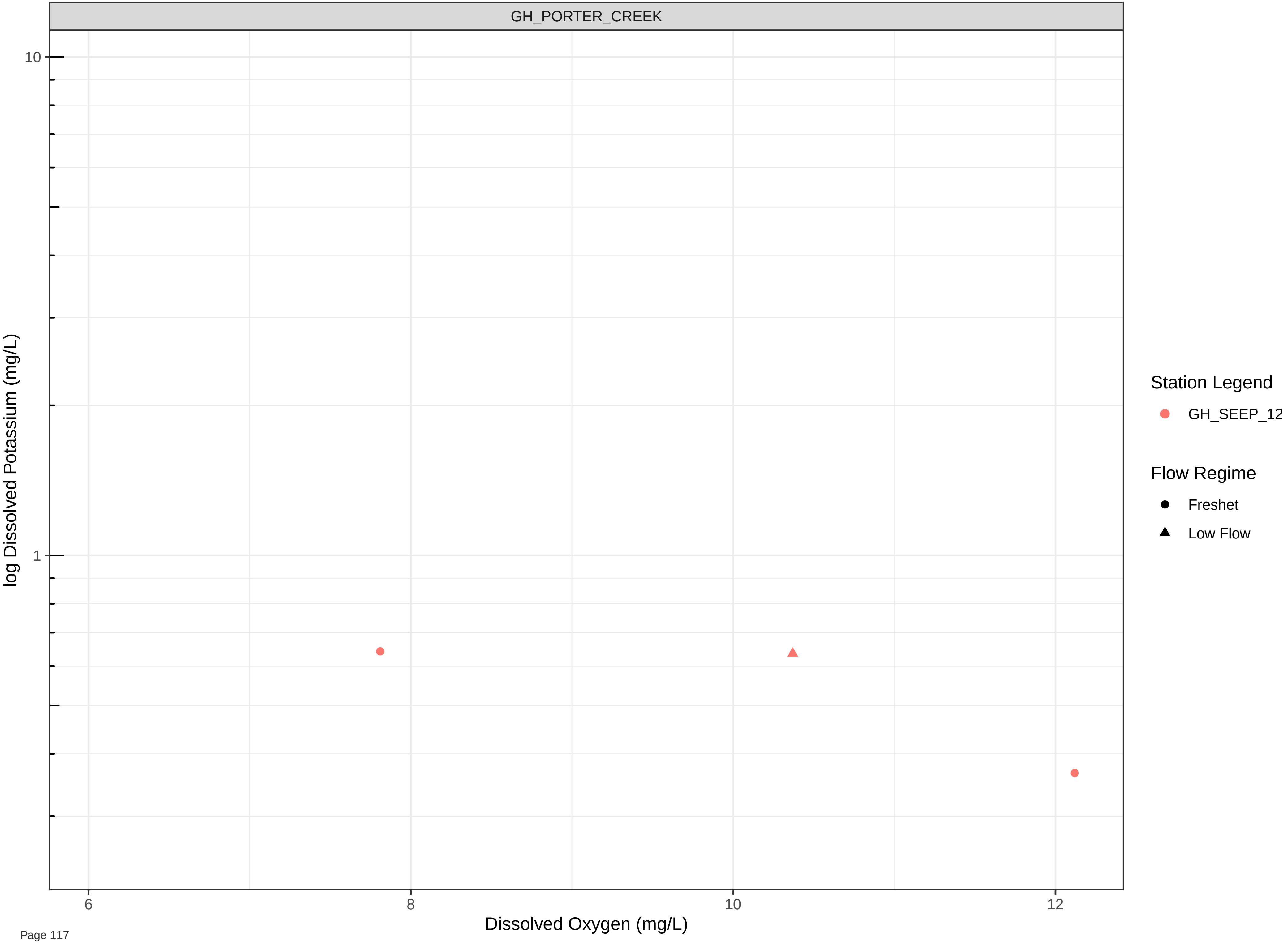
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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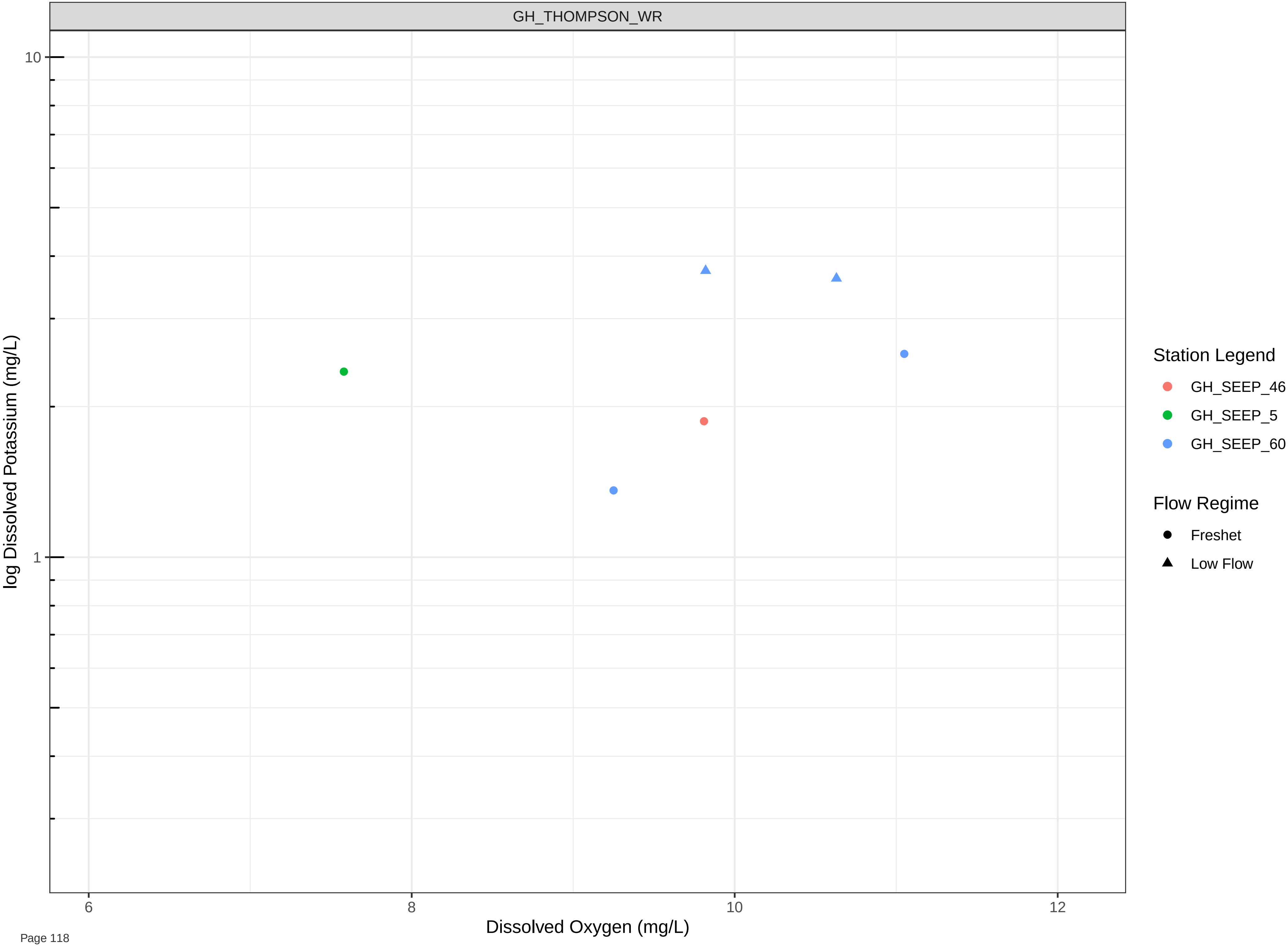
Flow Regime
● Freshet
▲ Low Flow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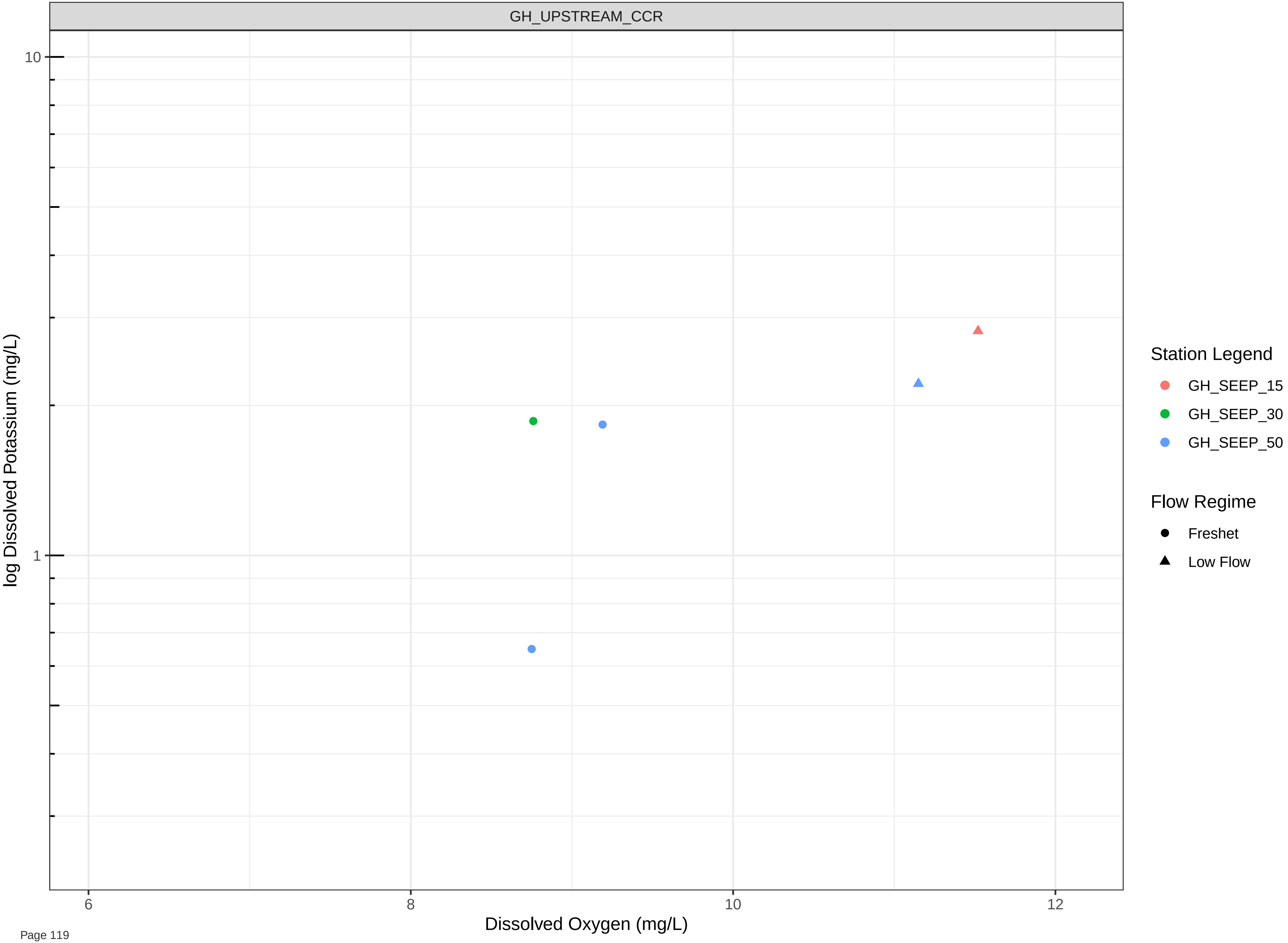
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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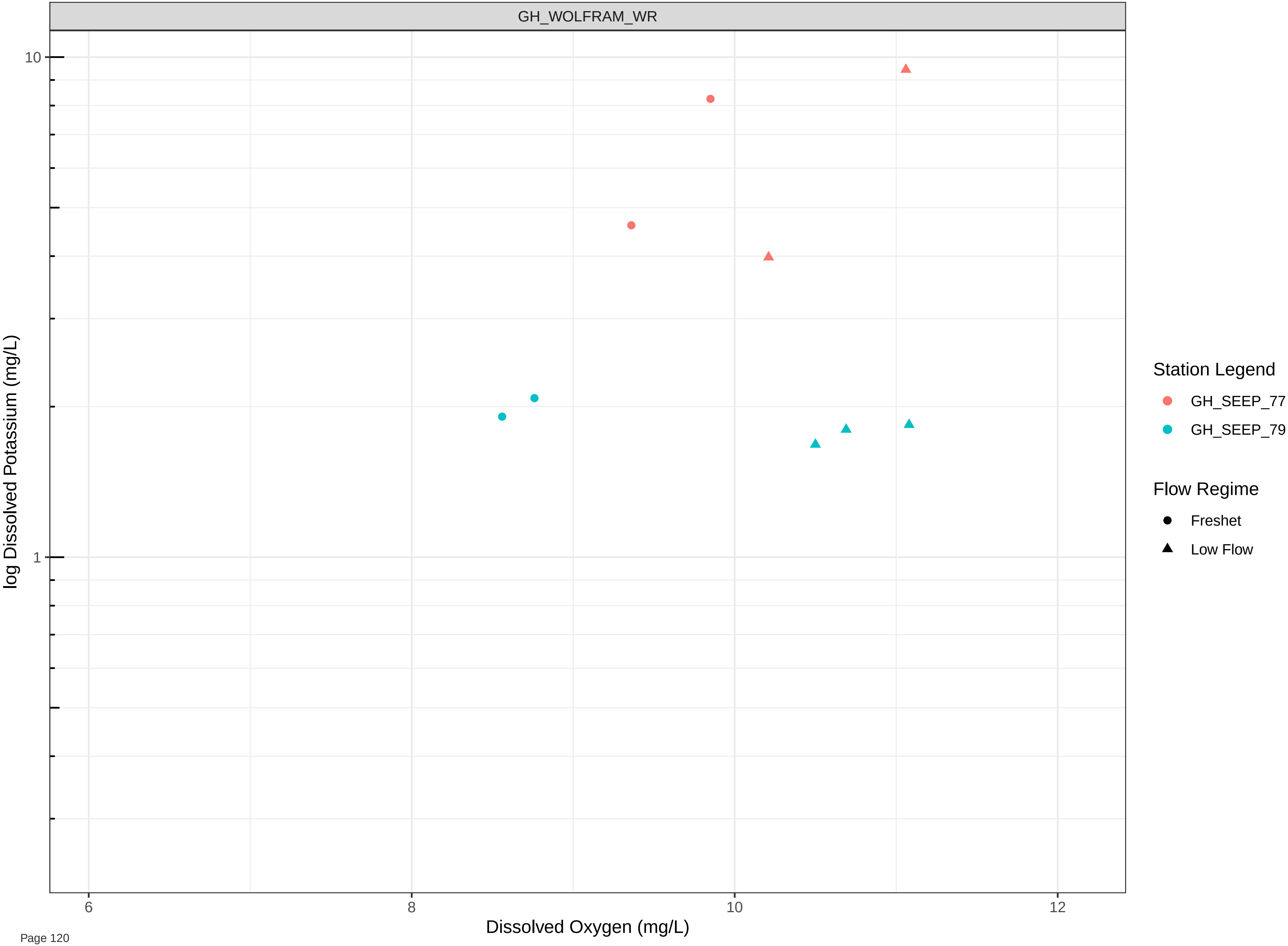
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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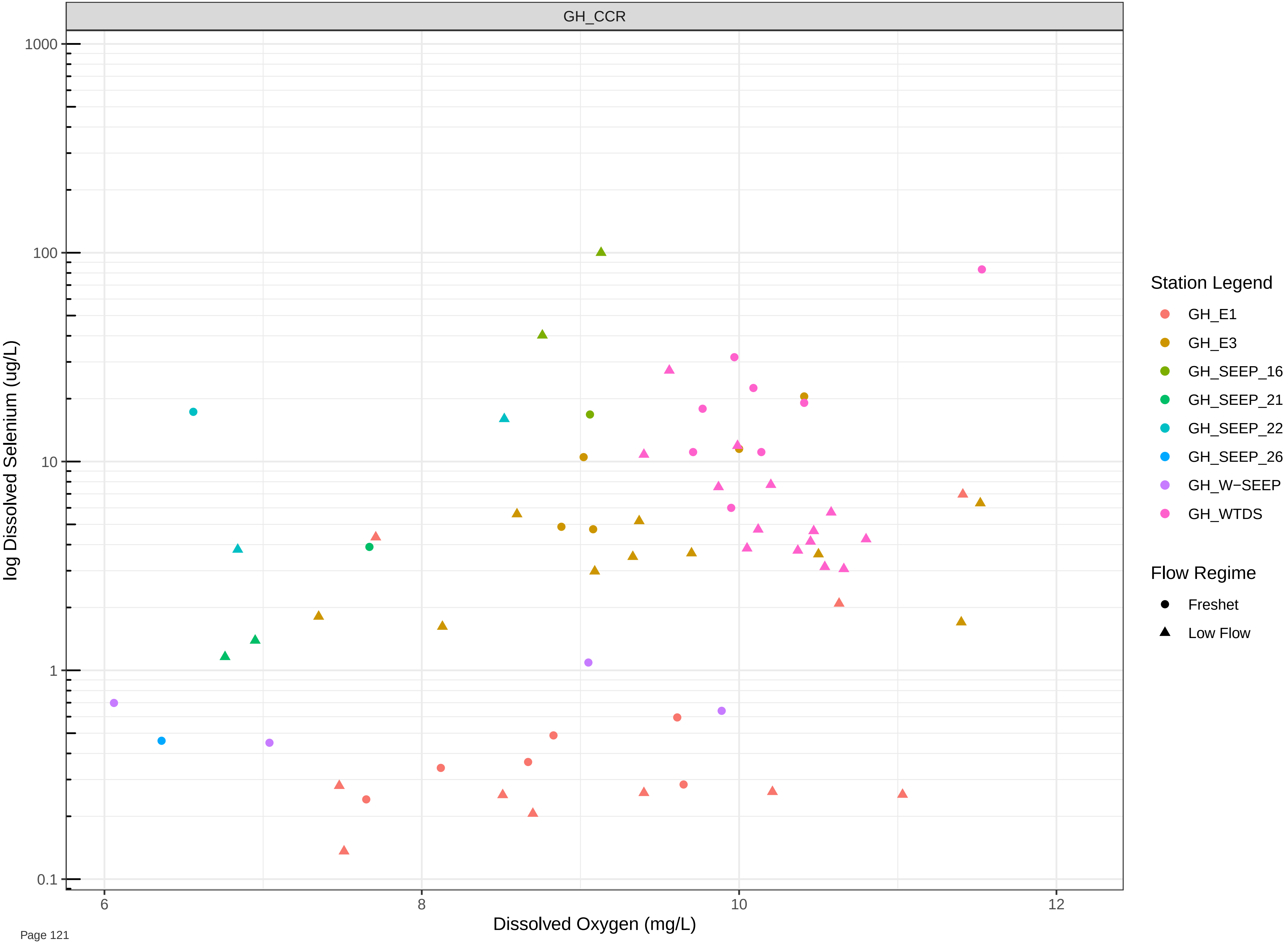
GH_SEEP_79
Flow Regime
Freshet
Low Flow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12
Dissolved Oxygen (mg/L)
Station Legend
● GH_E1
● GH_E3
● GH_SEEP_16
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● GH_W−SEEP
● GH_WTDS
Flow Regime
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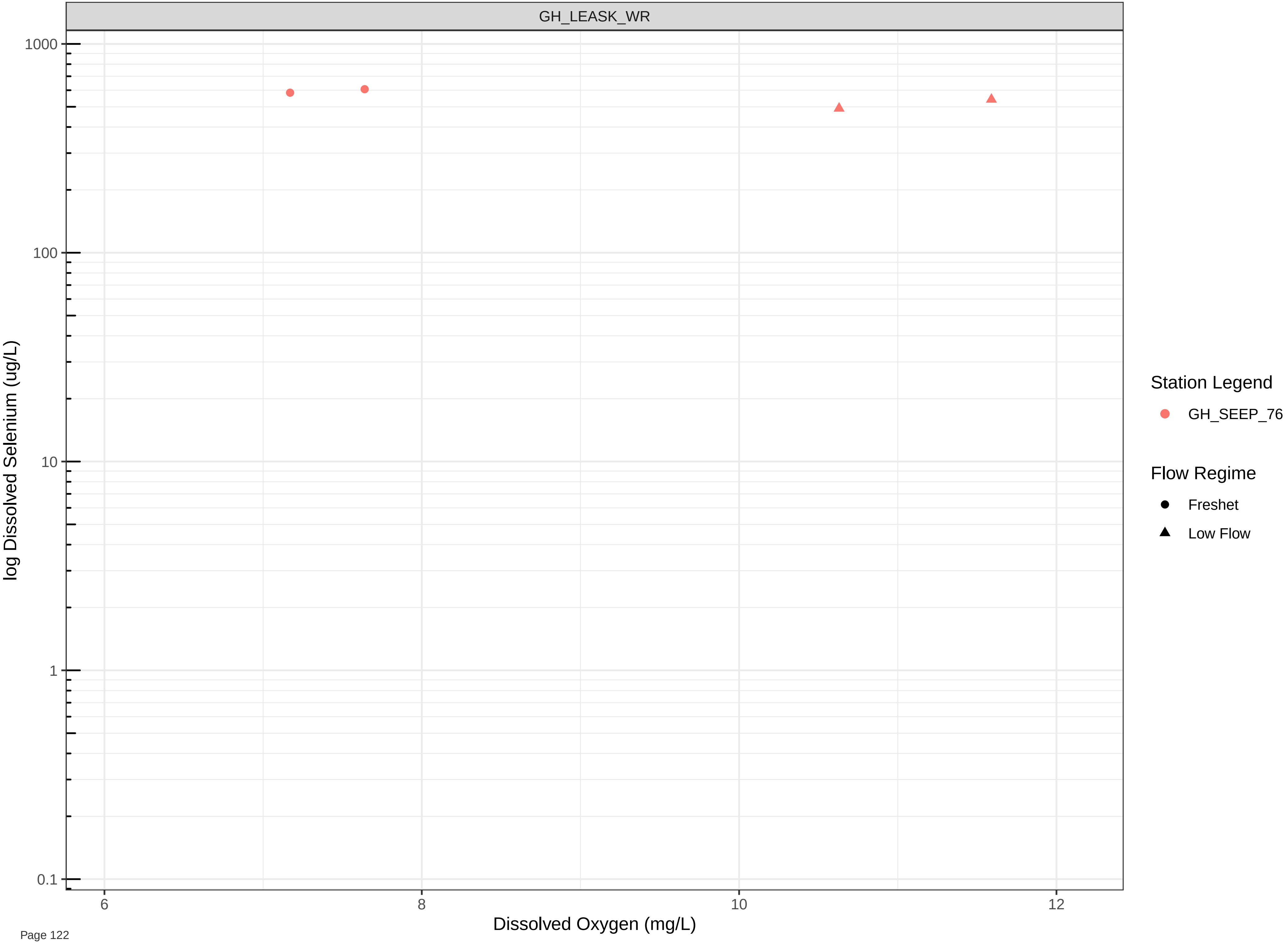
▲ Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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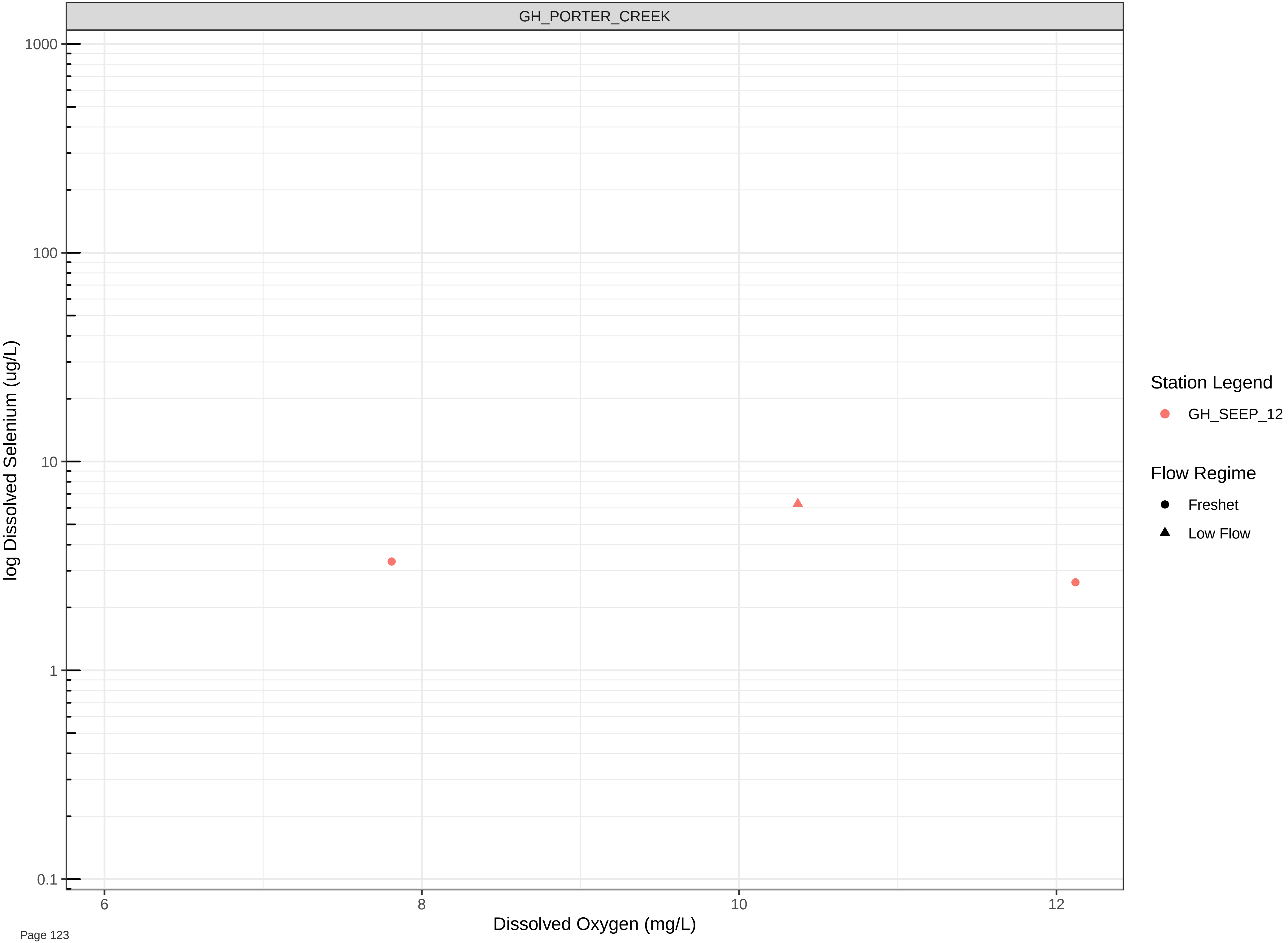
Flow Regime
● Freshet
▲ Low Flow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Dissolved Oxygen (mg/L)
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Freshet
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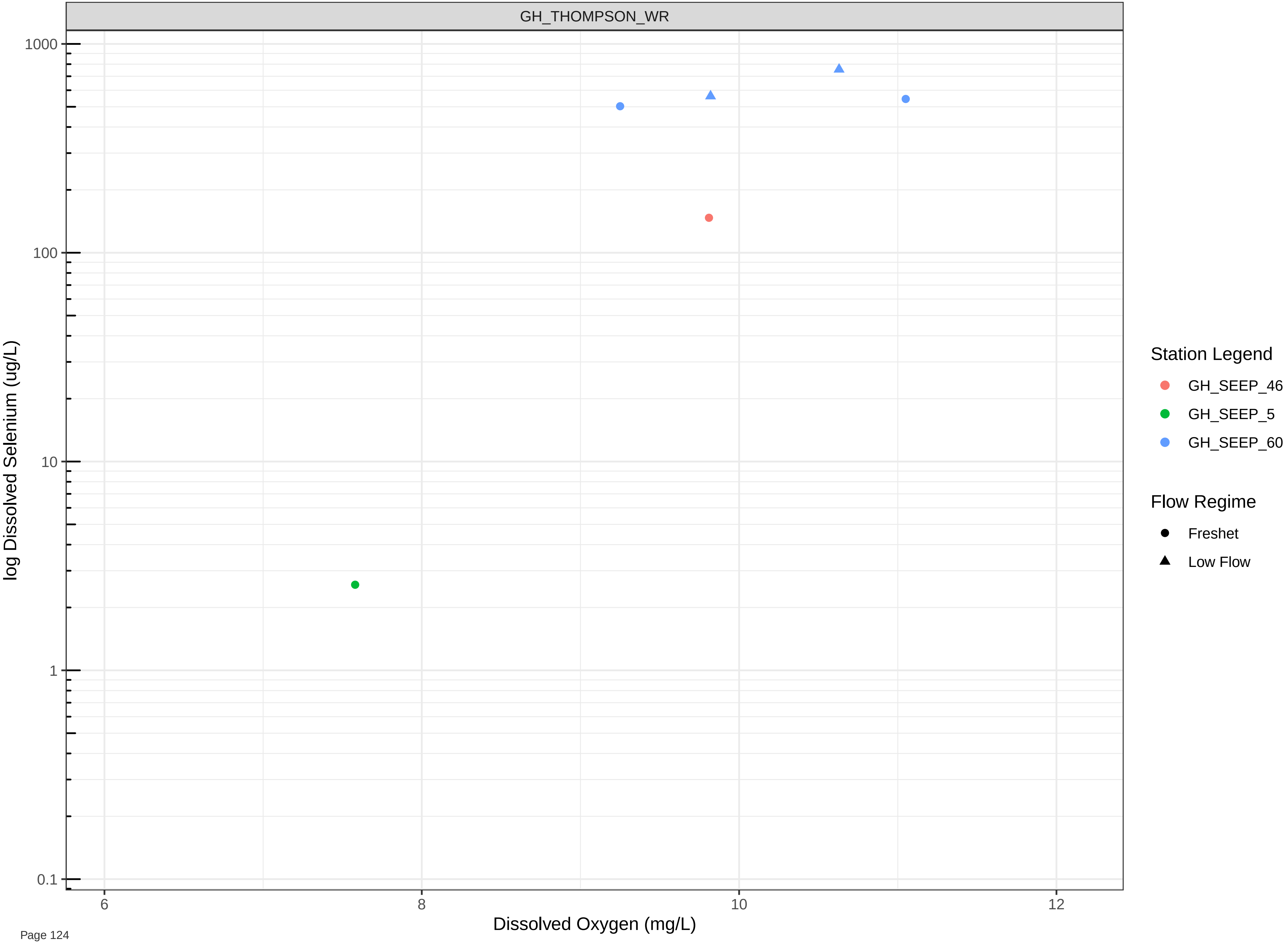
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Dissolved Oxygen (mg/L)
Station Legend
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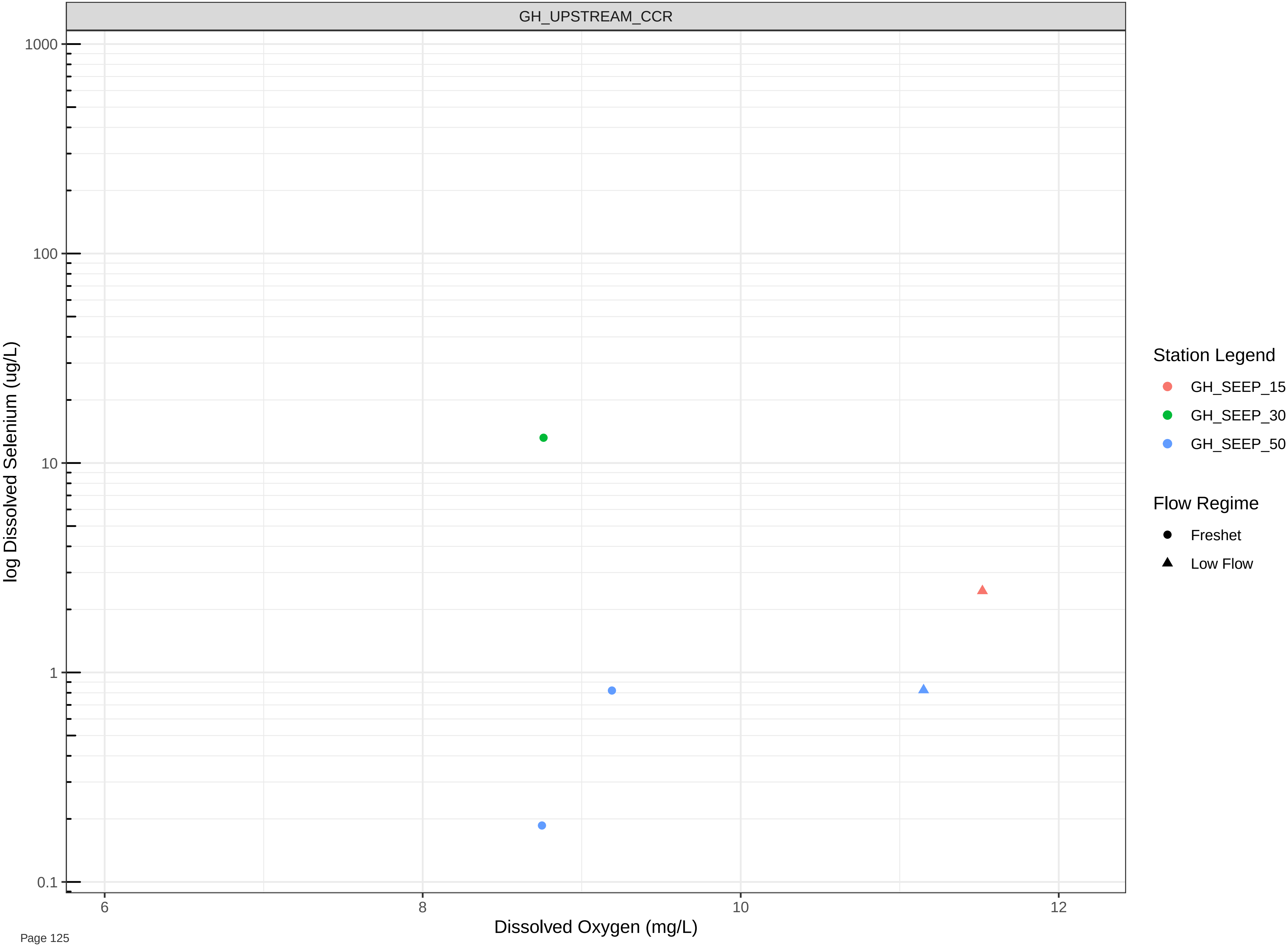
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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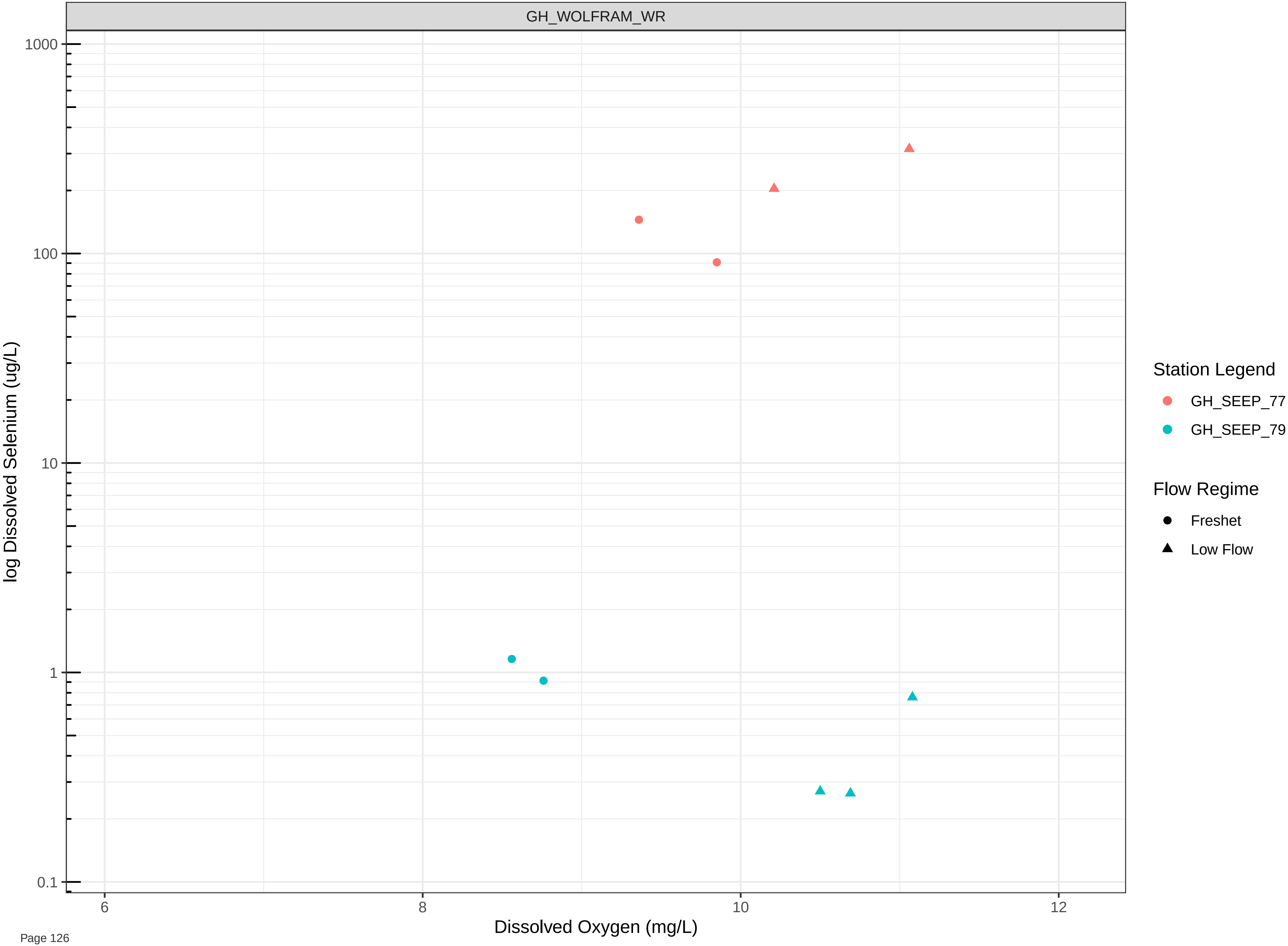
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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Station Legend
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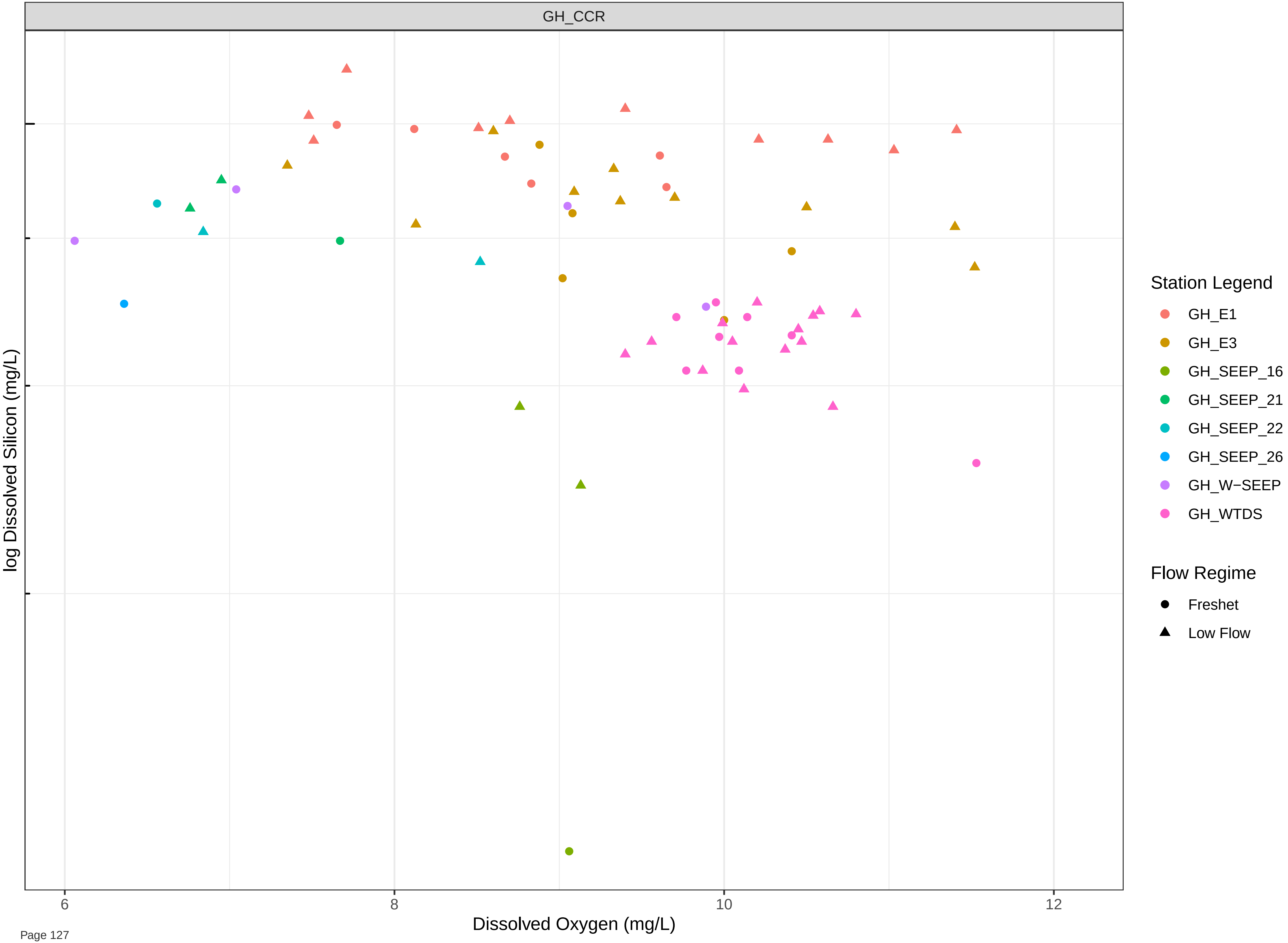
GH_SEEP_79
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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GH_E3
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GH_SEEP_21
GH_SEEP_22
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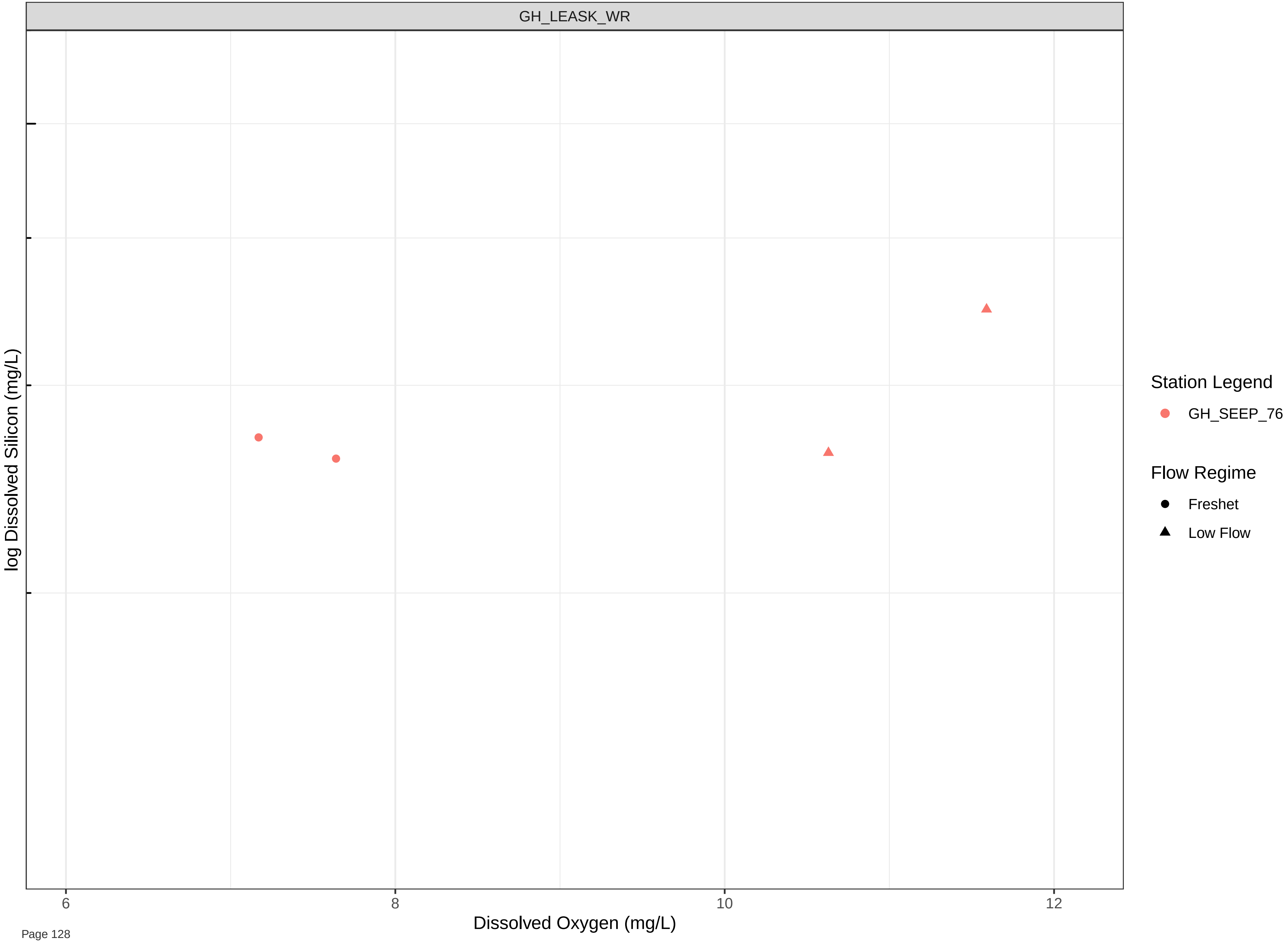
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow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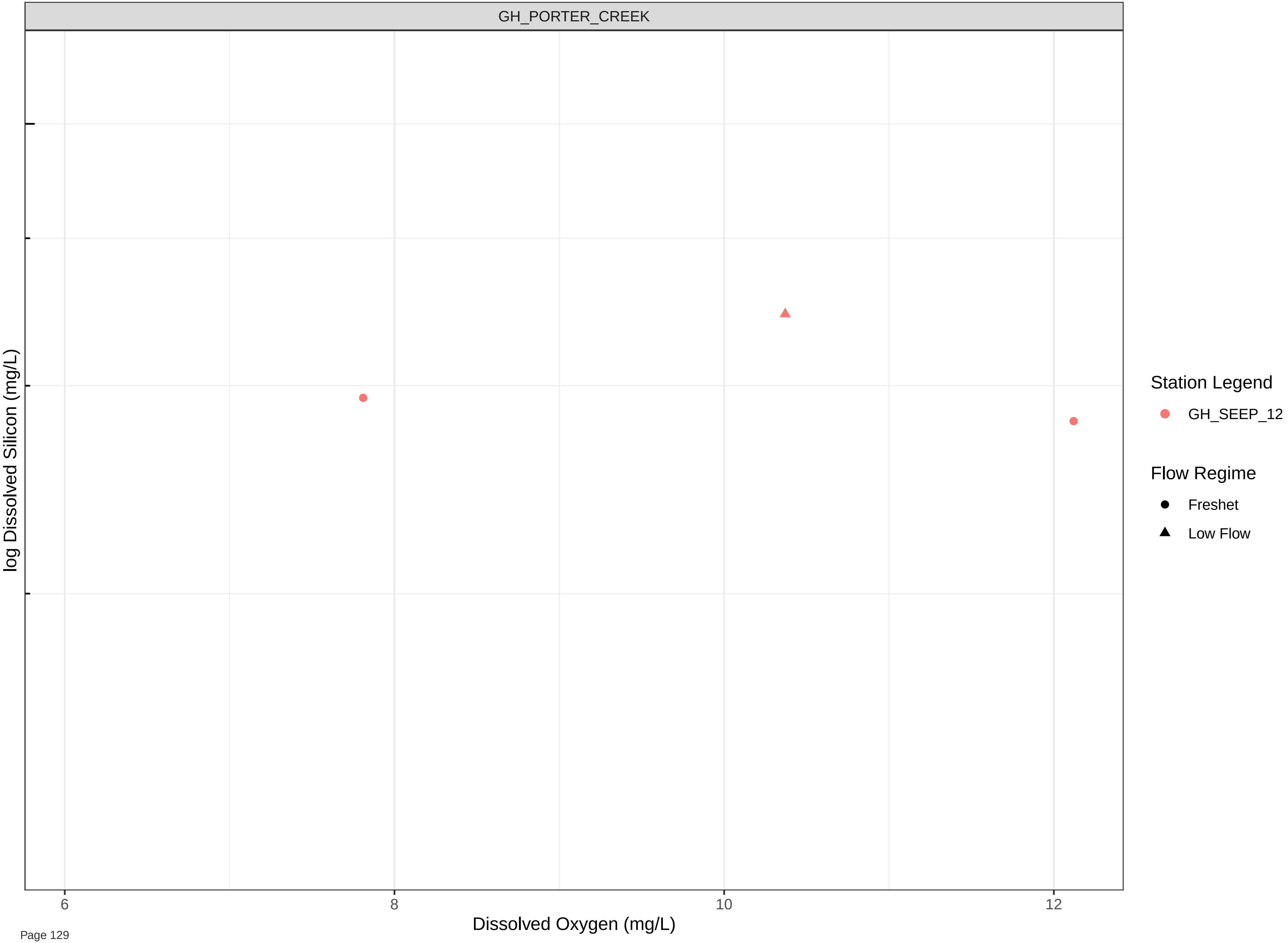
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow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Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_12
Flow Regime
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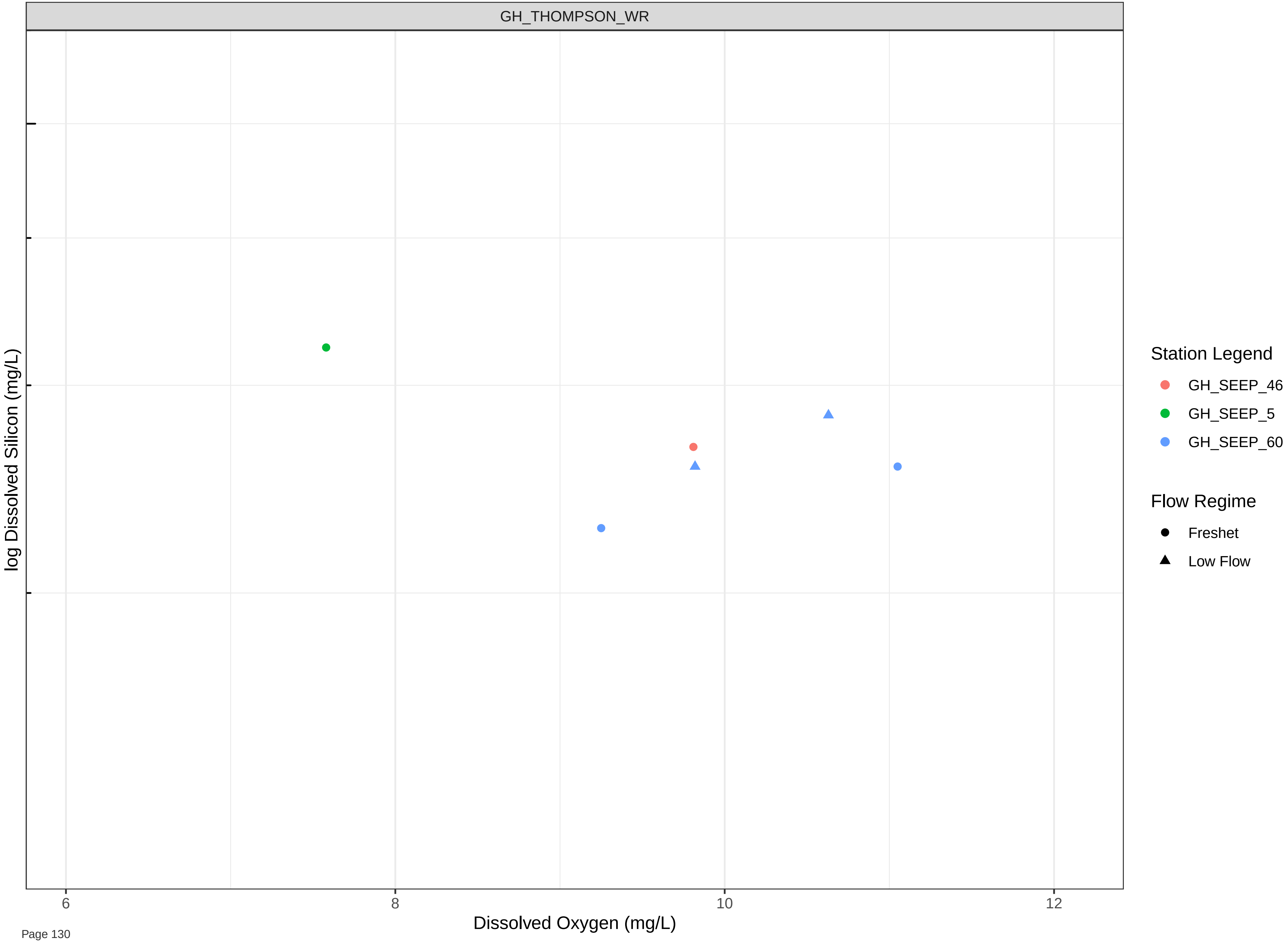
▲ Low Flow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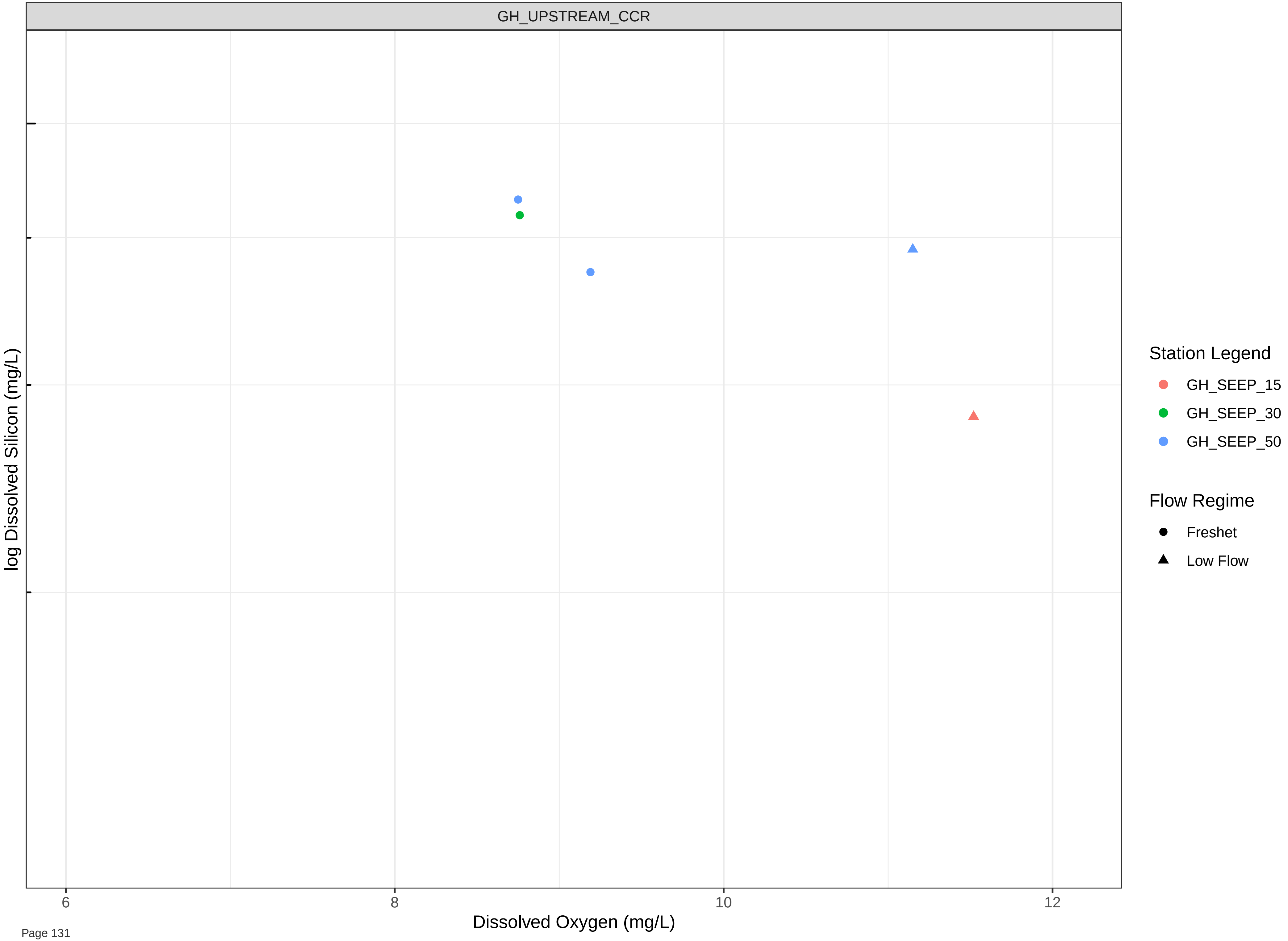
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow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6
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Dissolved Oxygen (mg/L)
Station Legend
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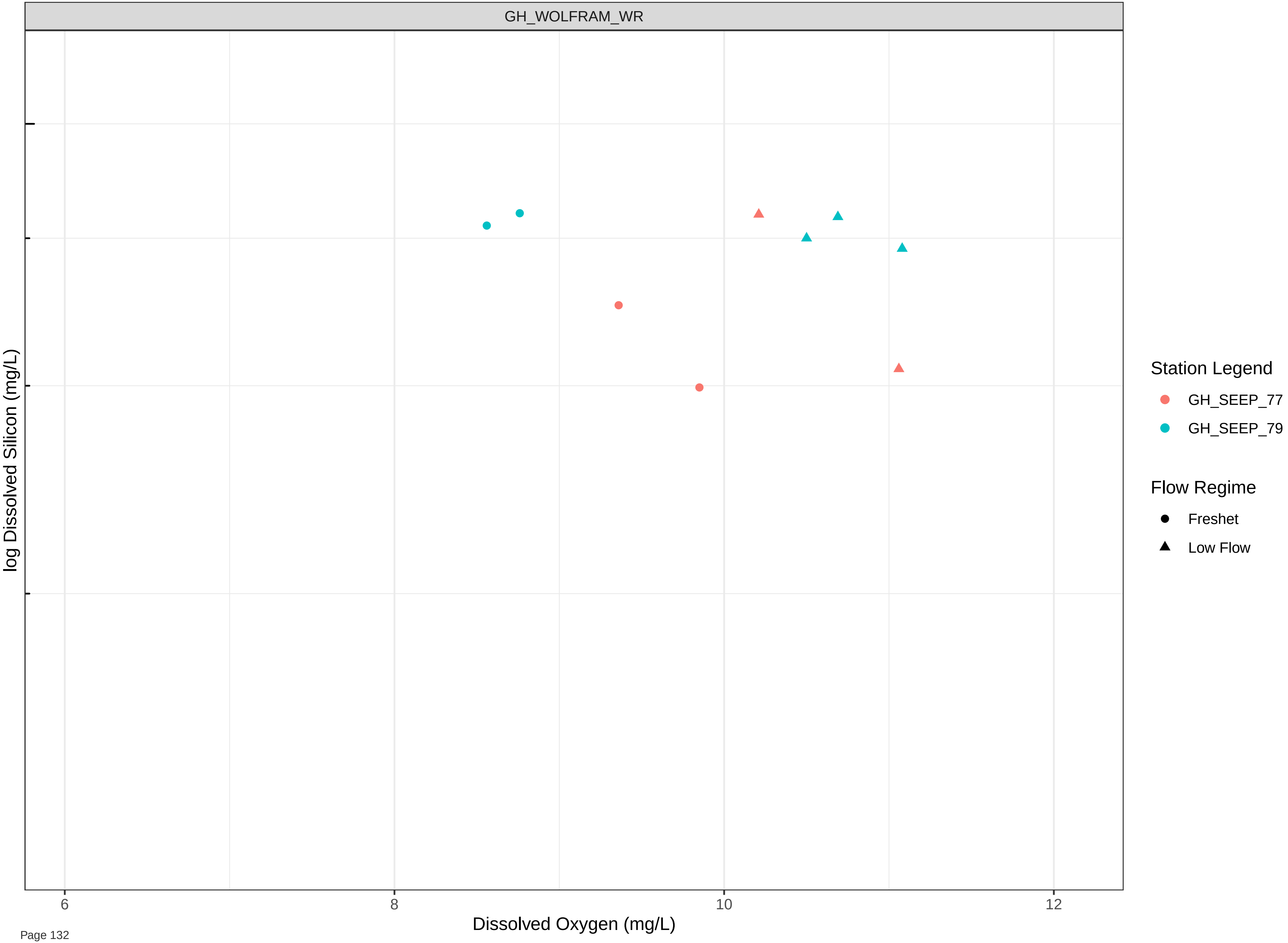
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow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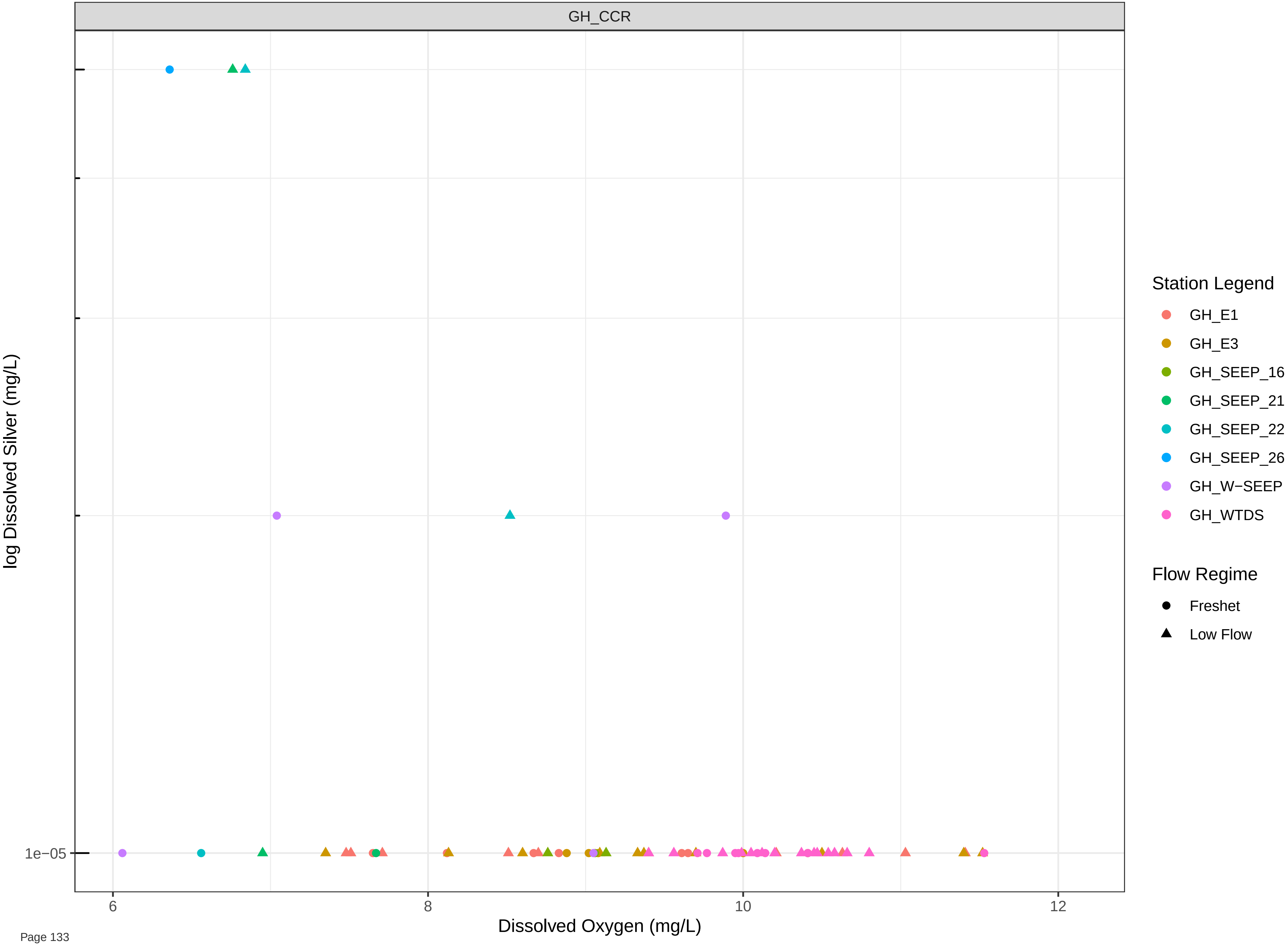
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow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1e−05
6
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10
12
Dissolved Oxygen (mg/L)
Station Legend
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GH_E3
GH_SEEP_16
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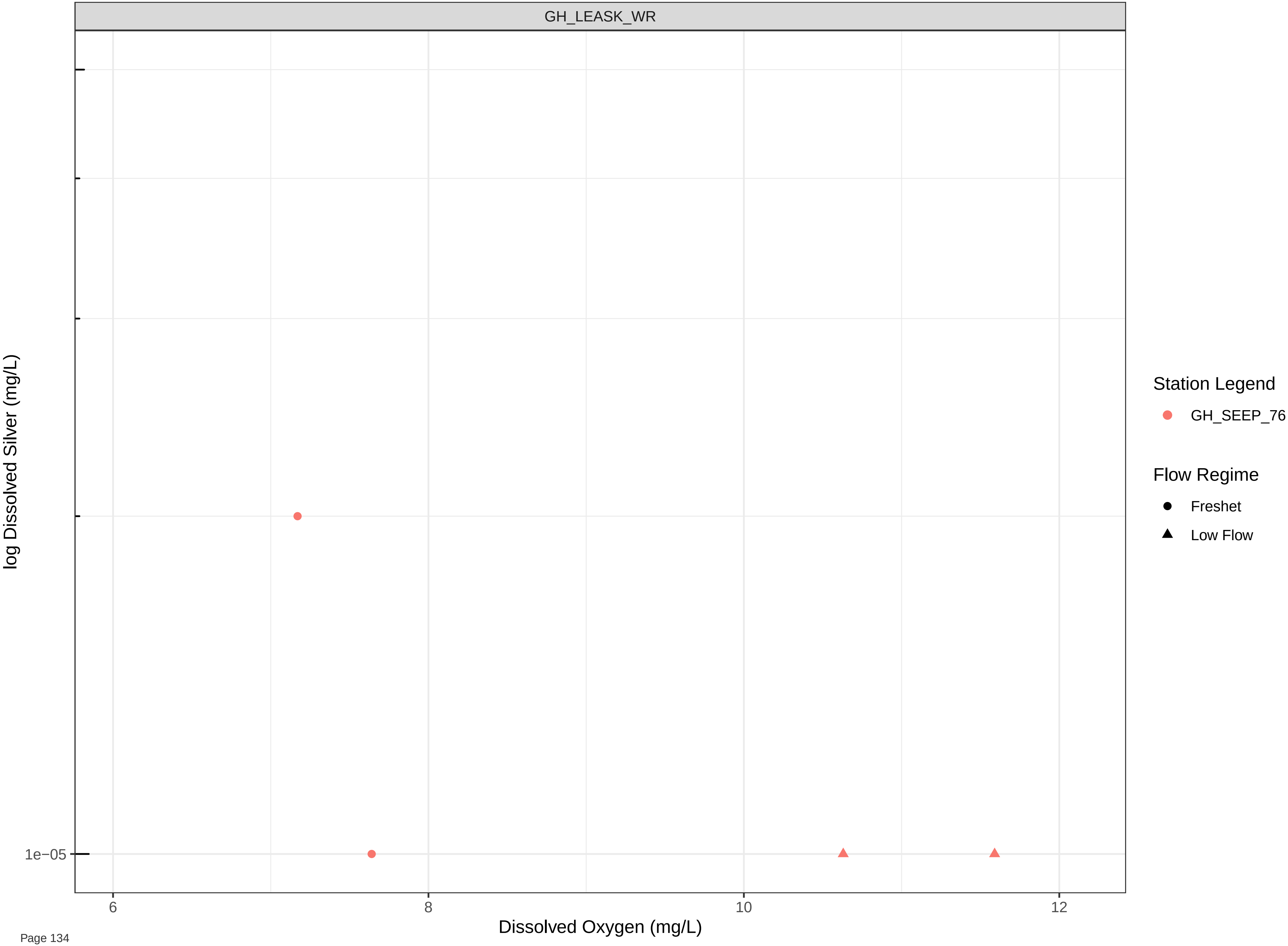
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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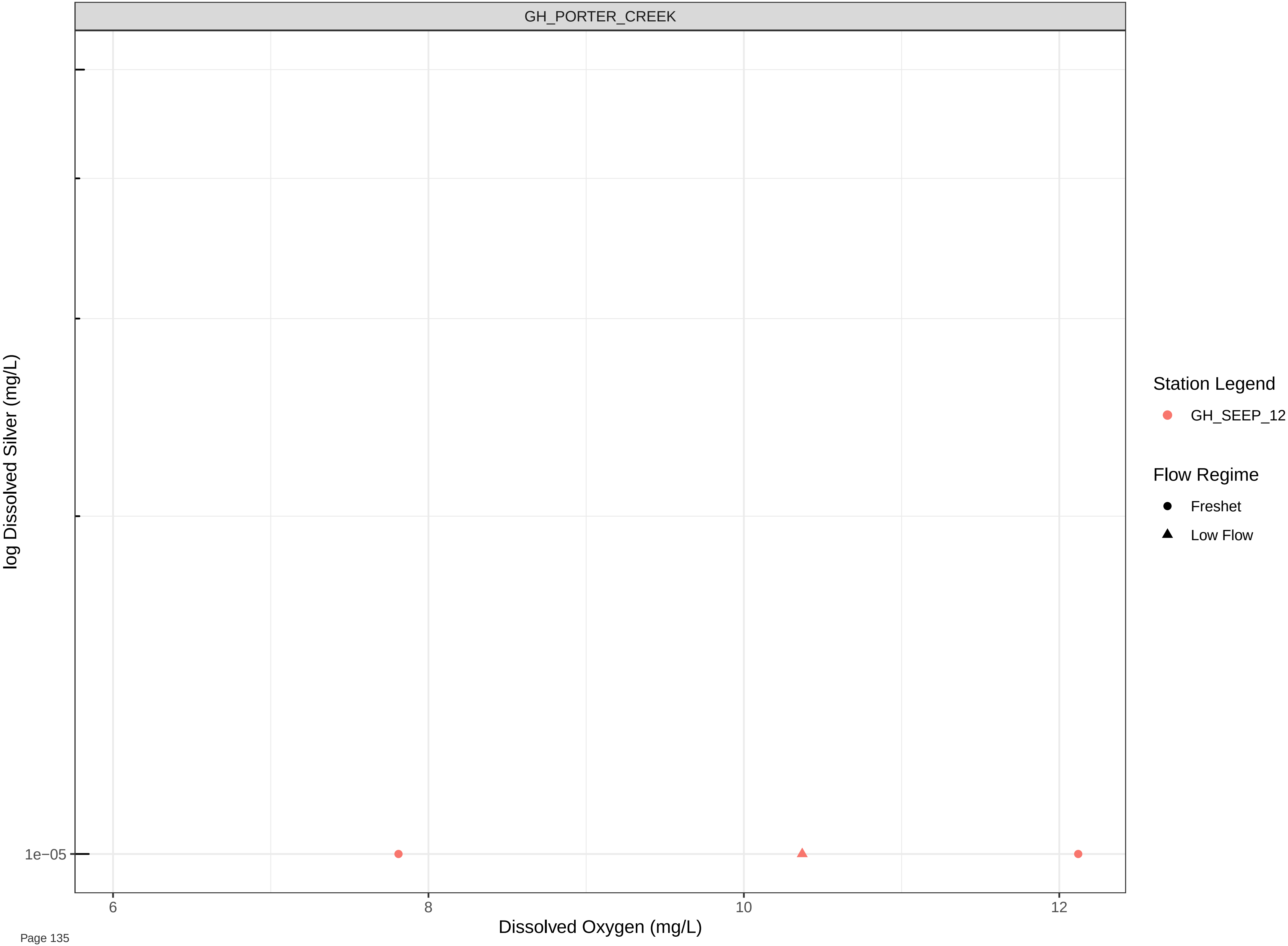
Flow Regime
Freshet
Low Flow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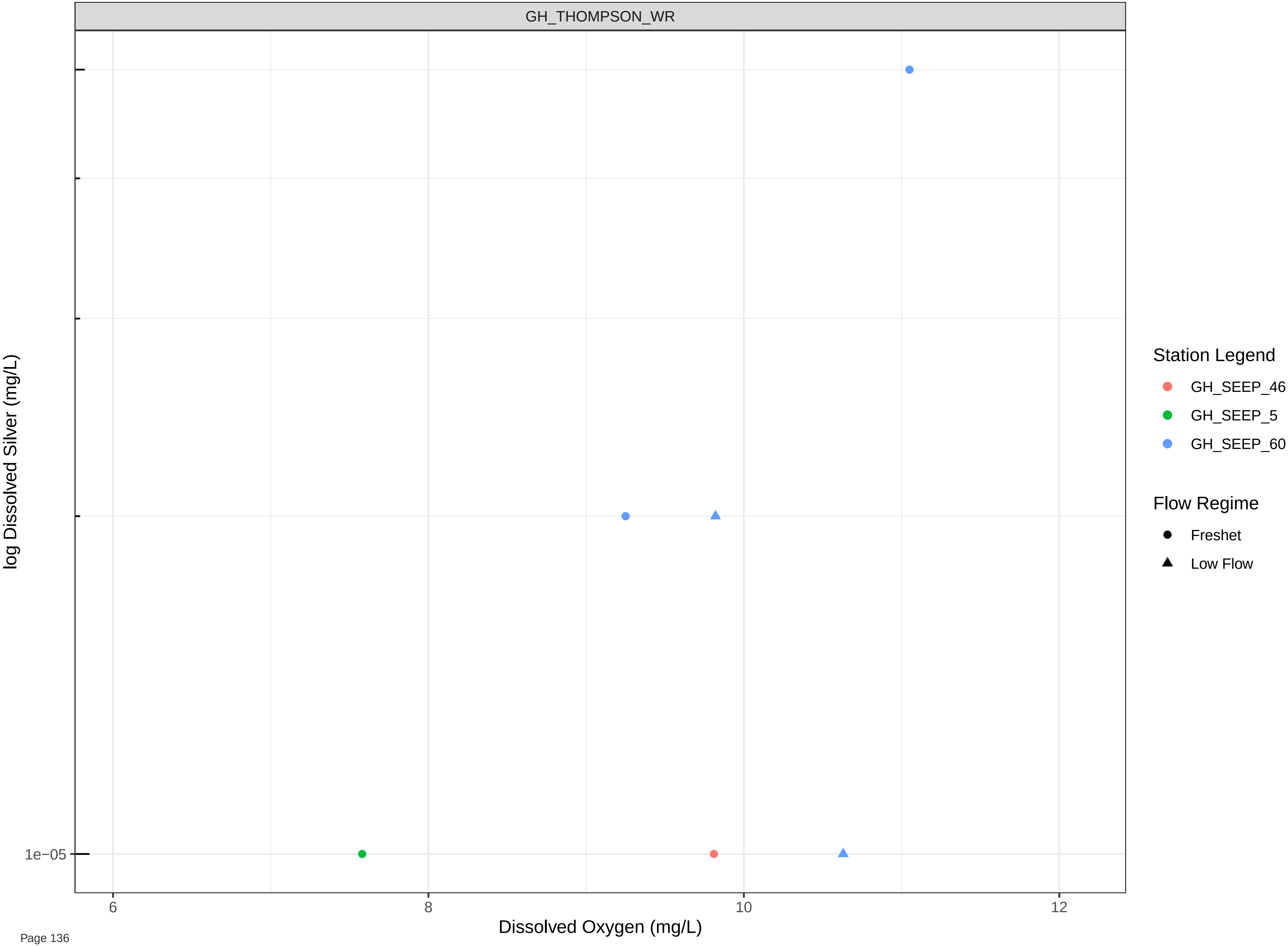
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow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Dissolved Oxygen (mg/L)
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Station Legend
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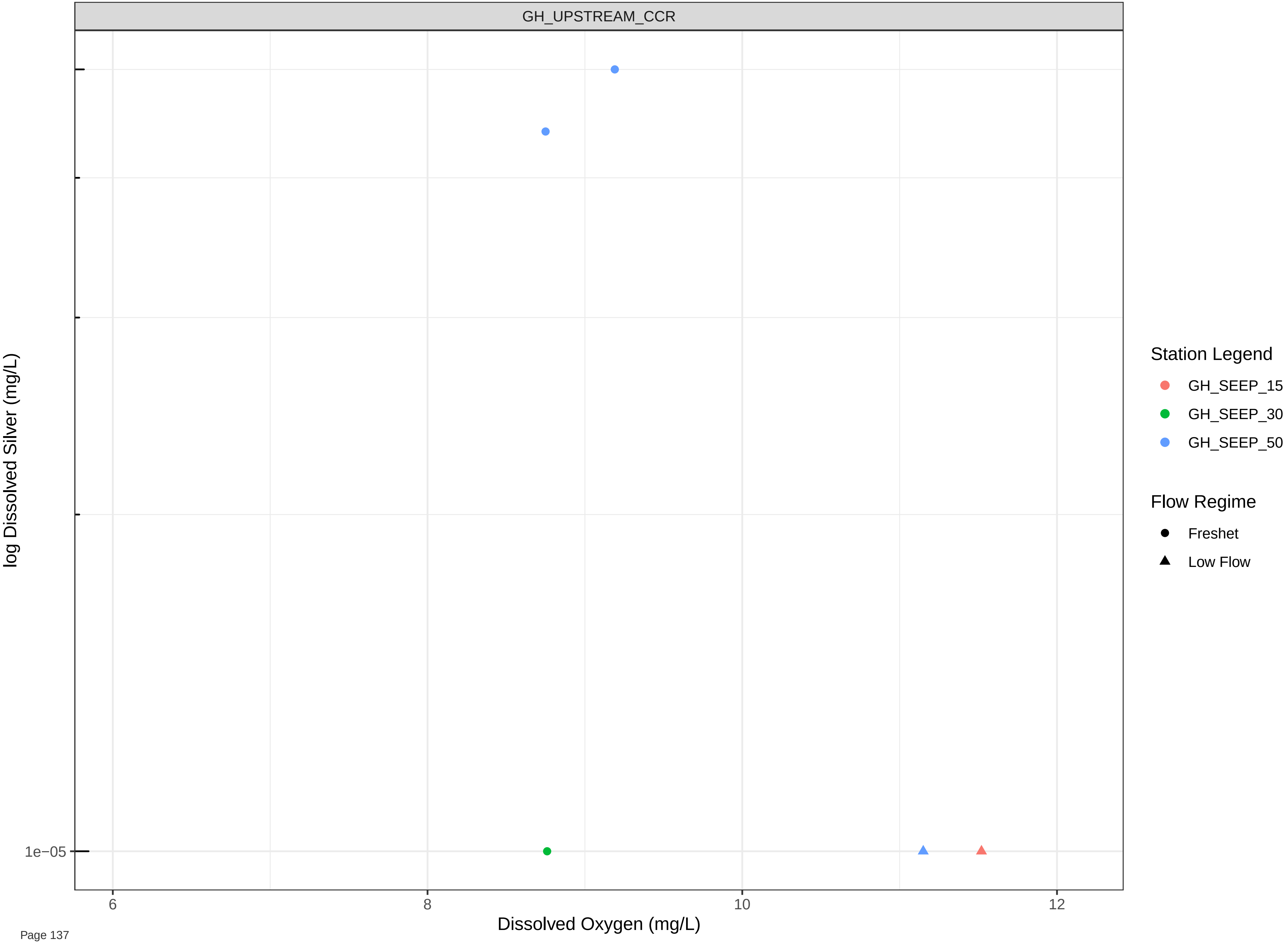
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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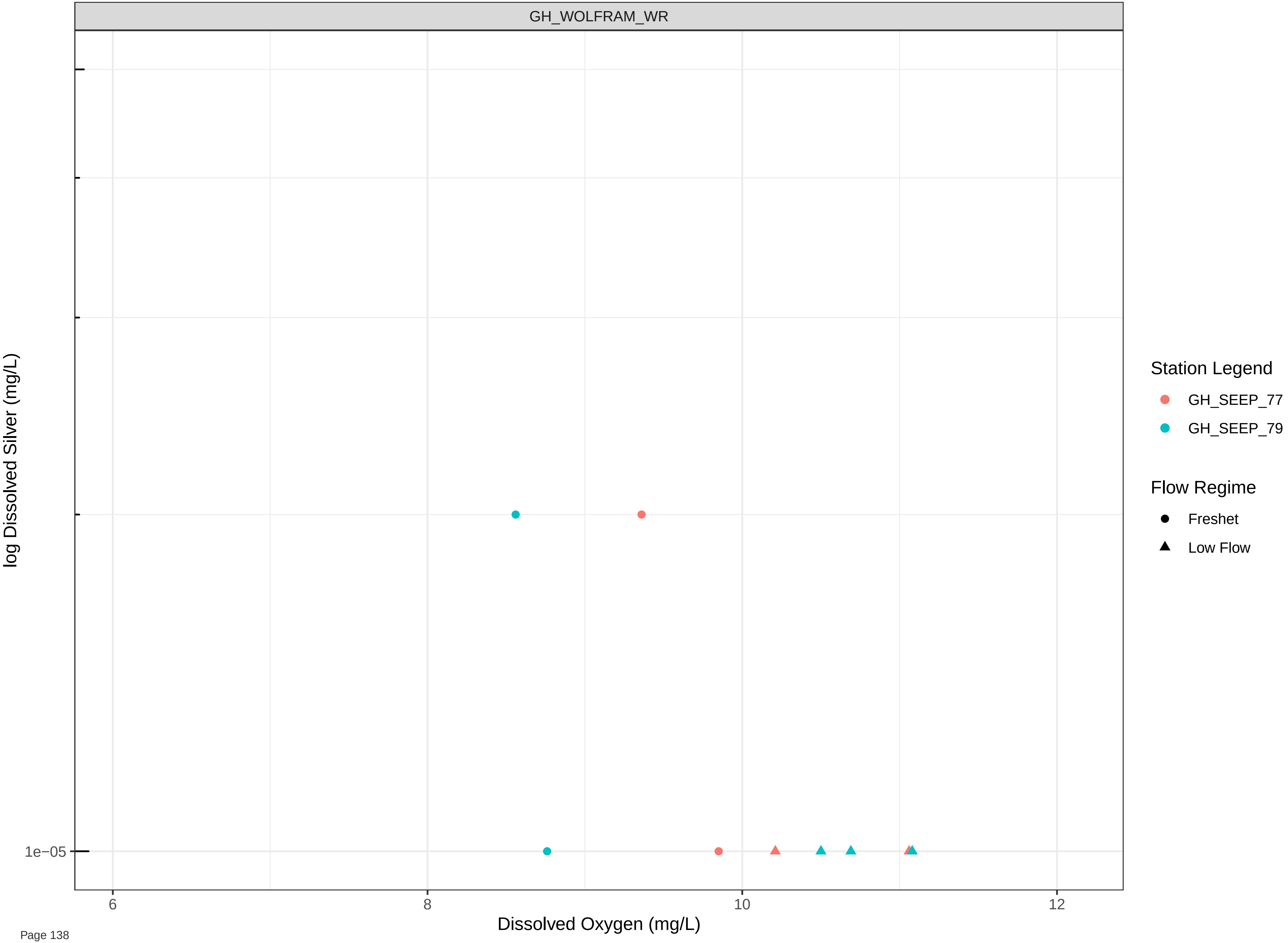
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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Flow Regime
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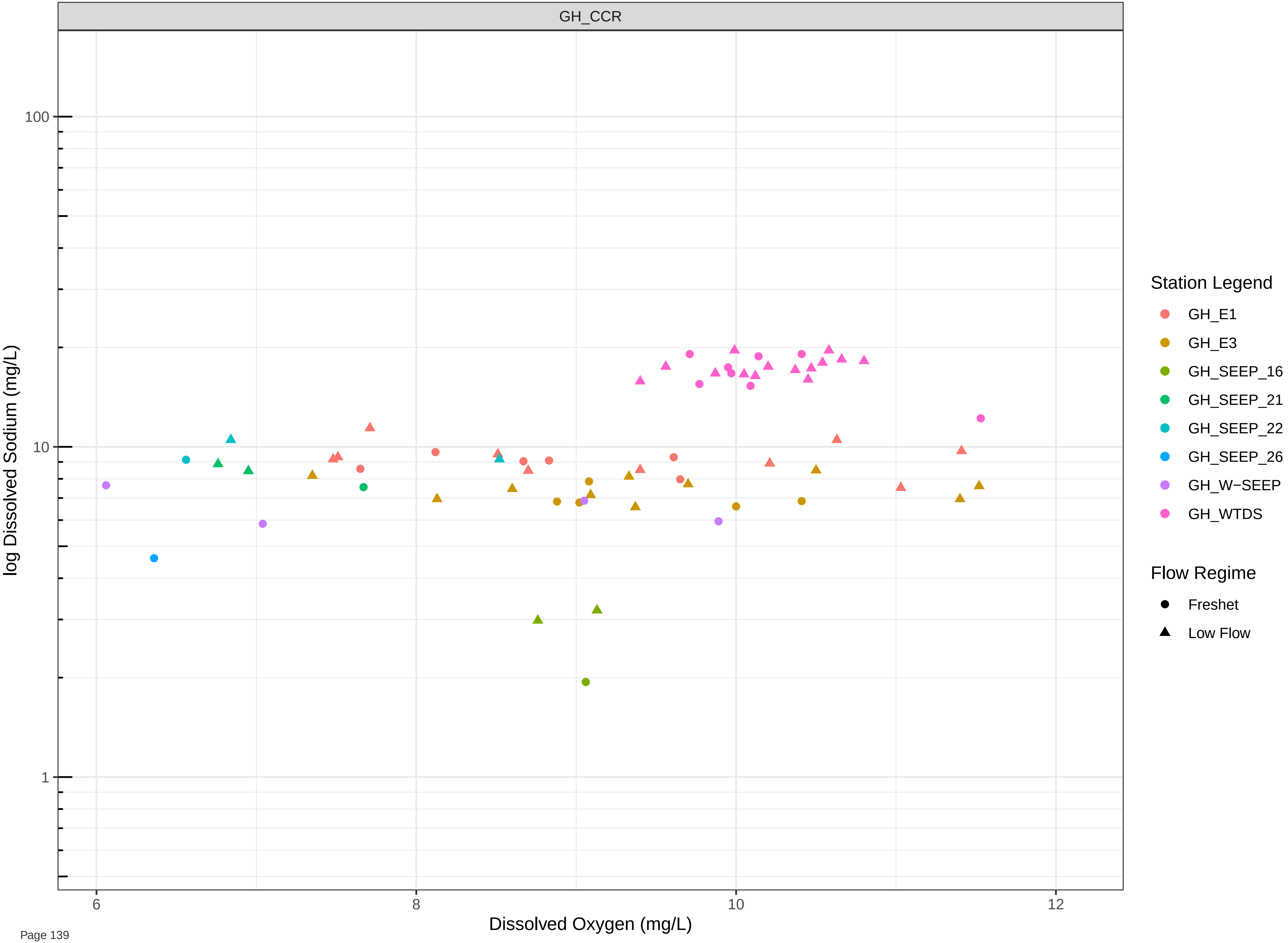
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Dissolved Oxygen (mg/L)
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Station Legend
GH_E1
GH_E3
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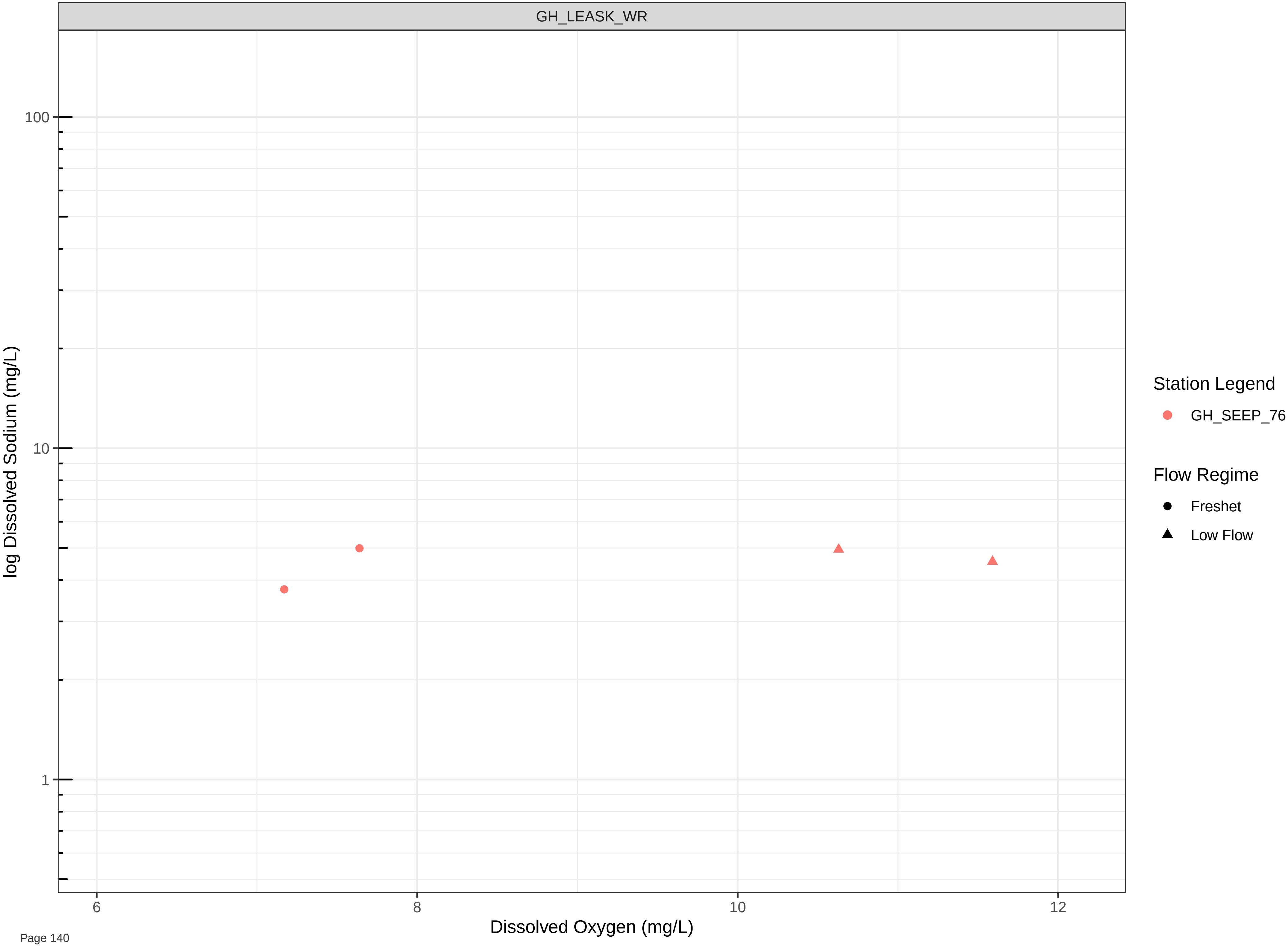
GH_WTDS
Flow Regime
Freshet
Low Flow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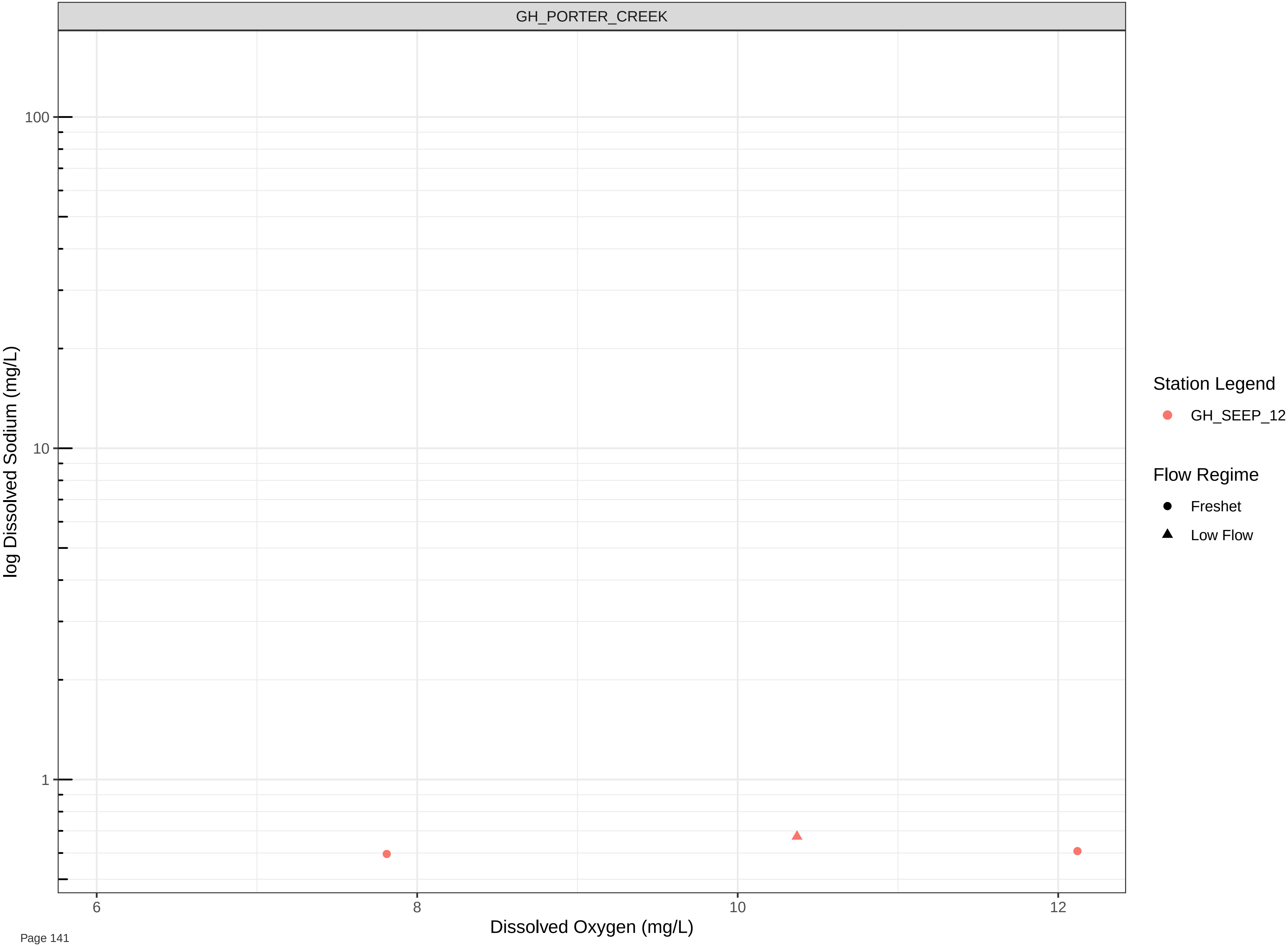
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow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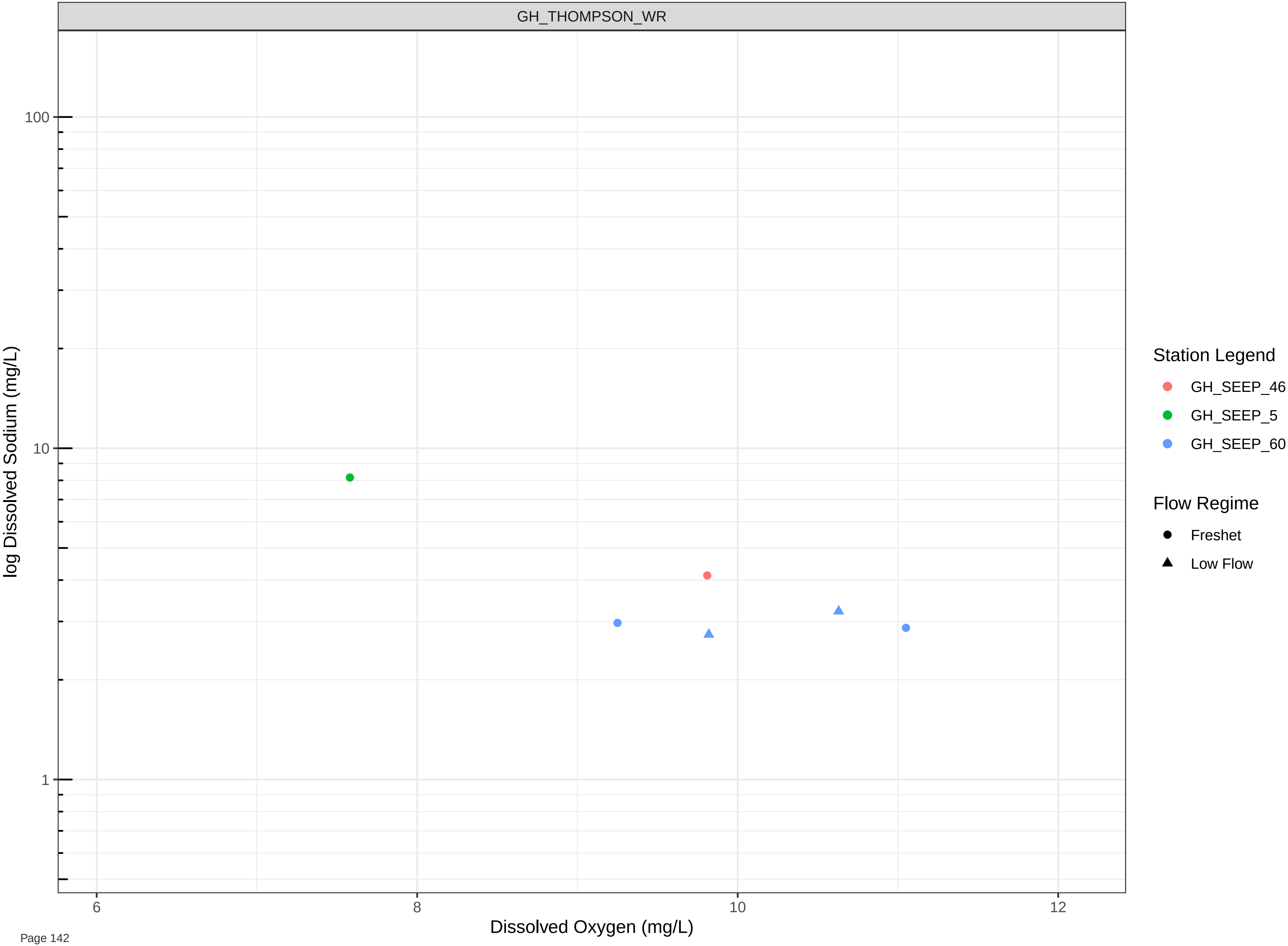
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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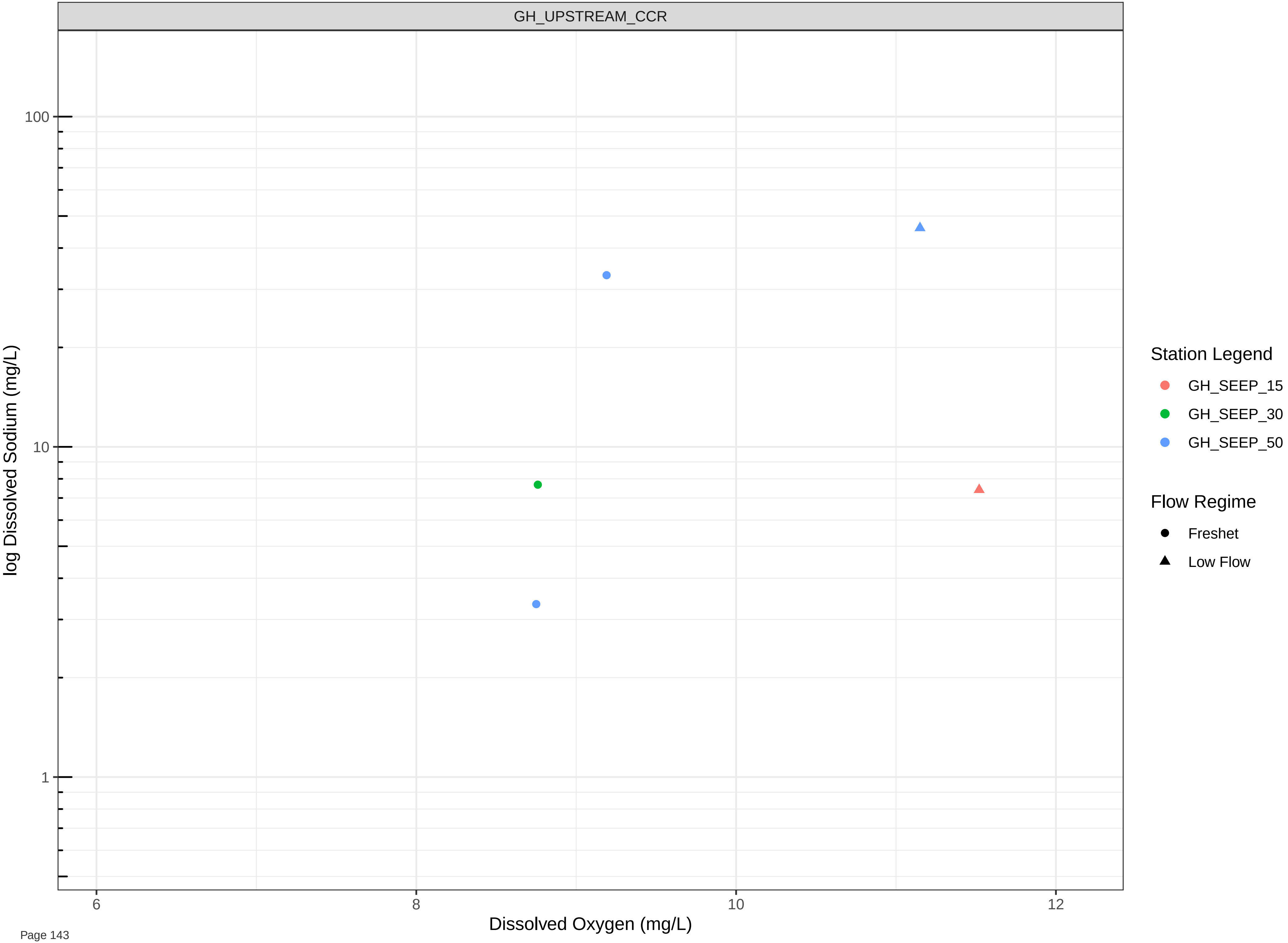
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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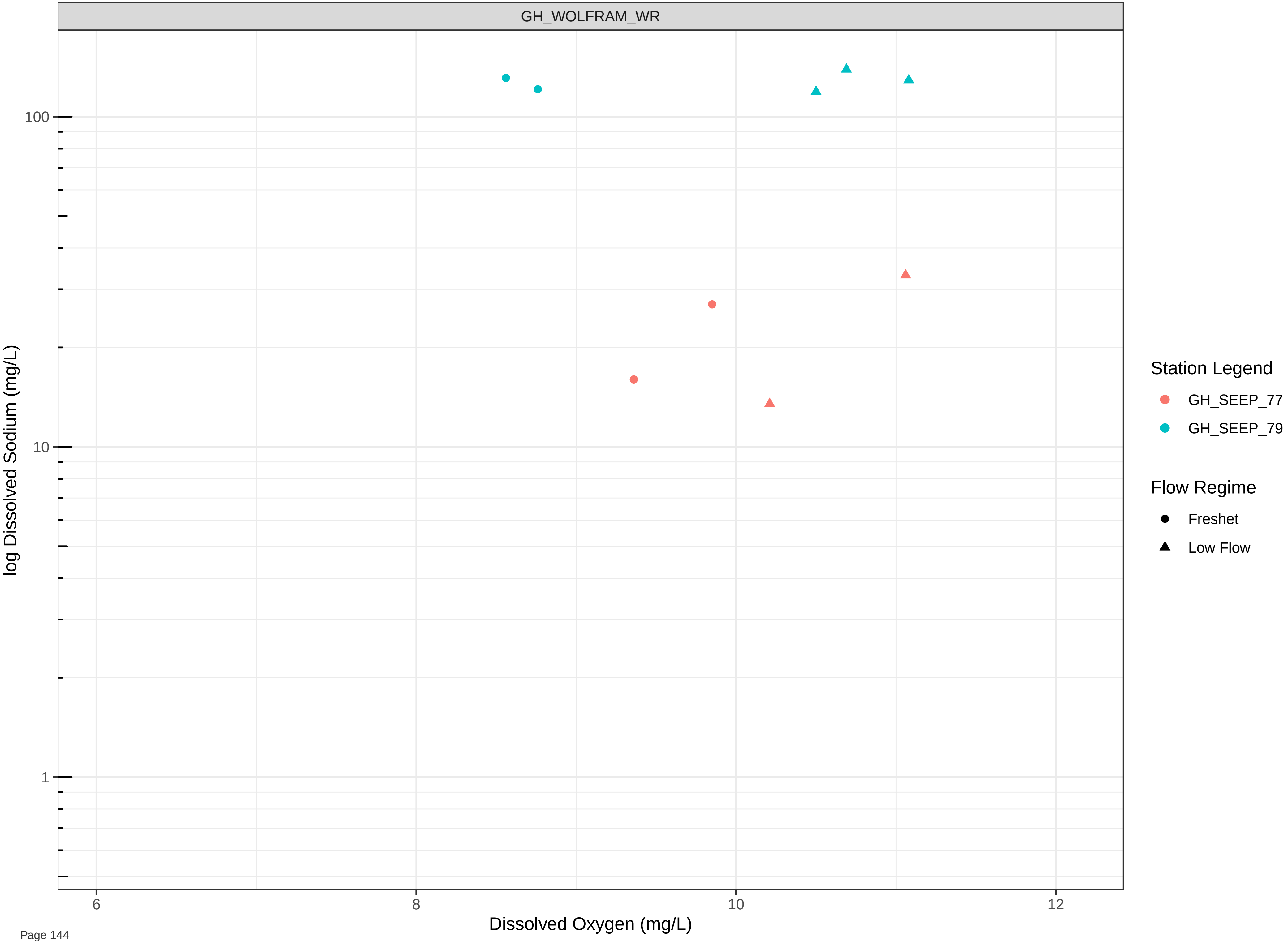
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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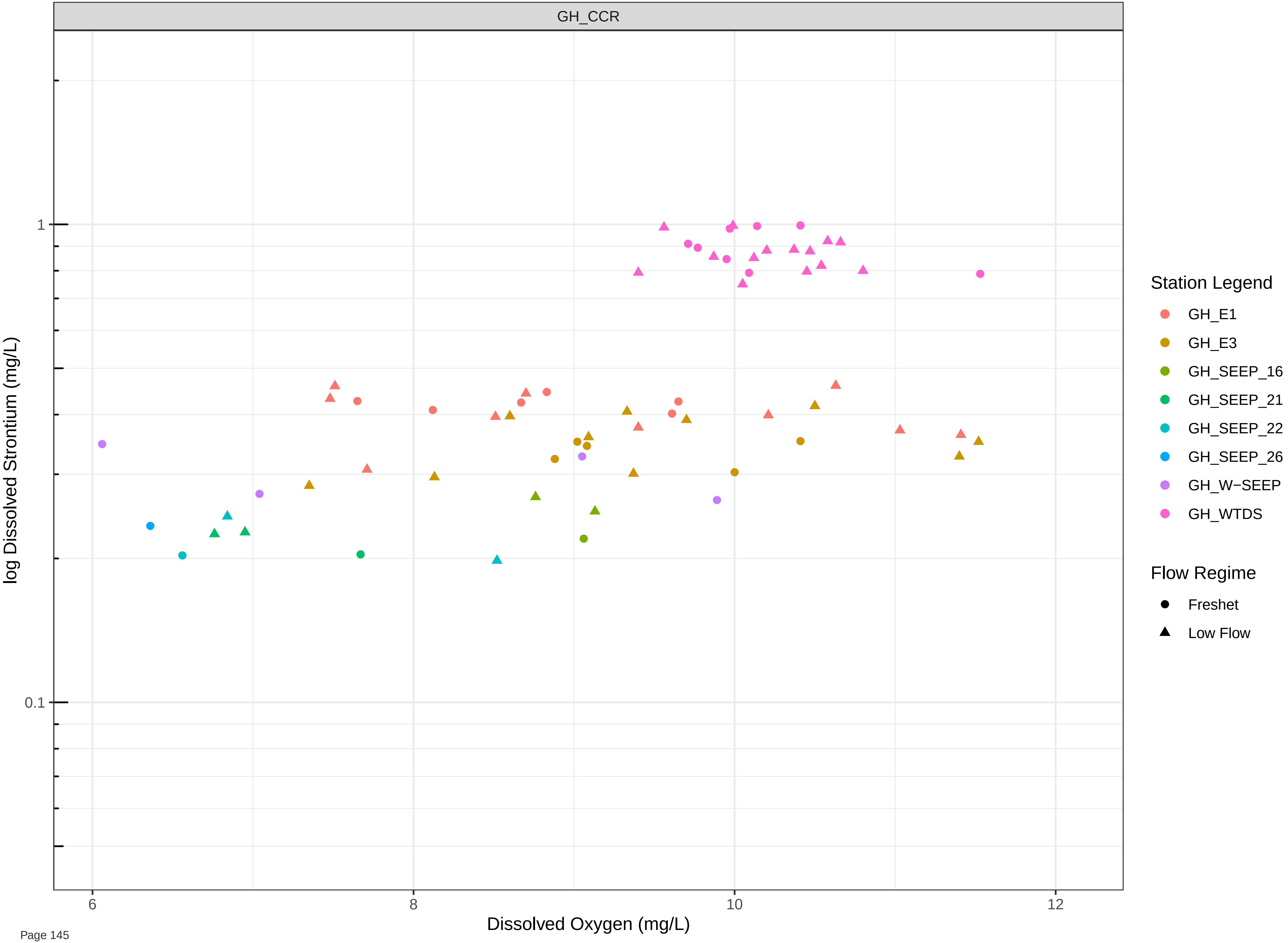
GH_SEEP_79
Flow Regime
Freshet
Low Flow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6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
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GH_E3
GH_SEEP_16
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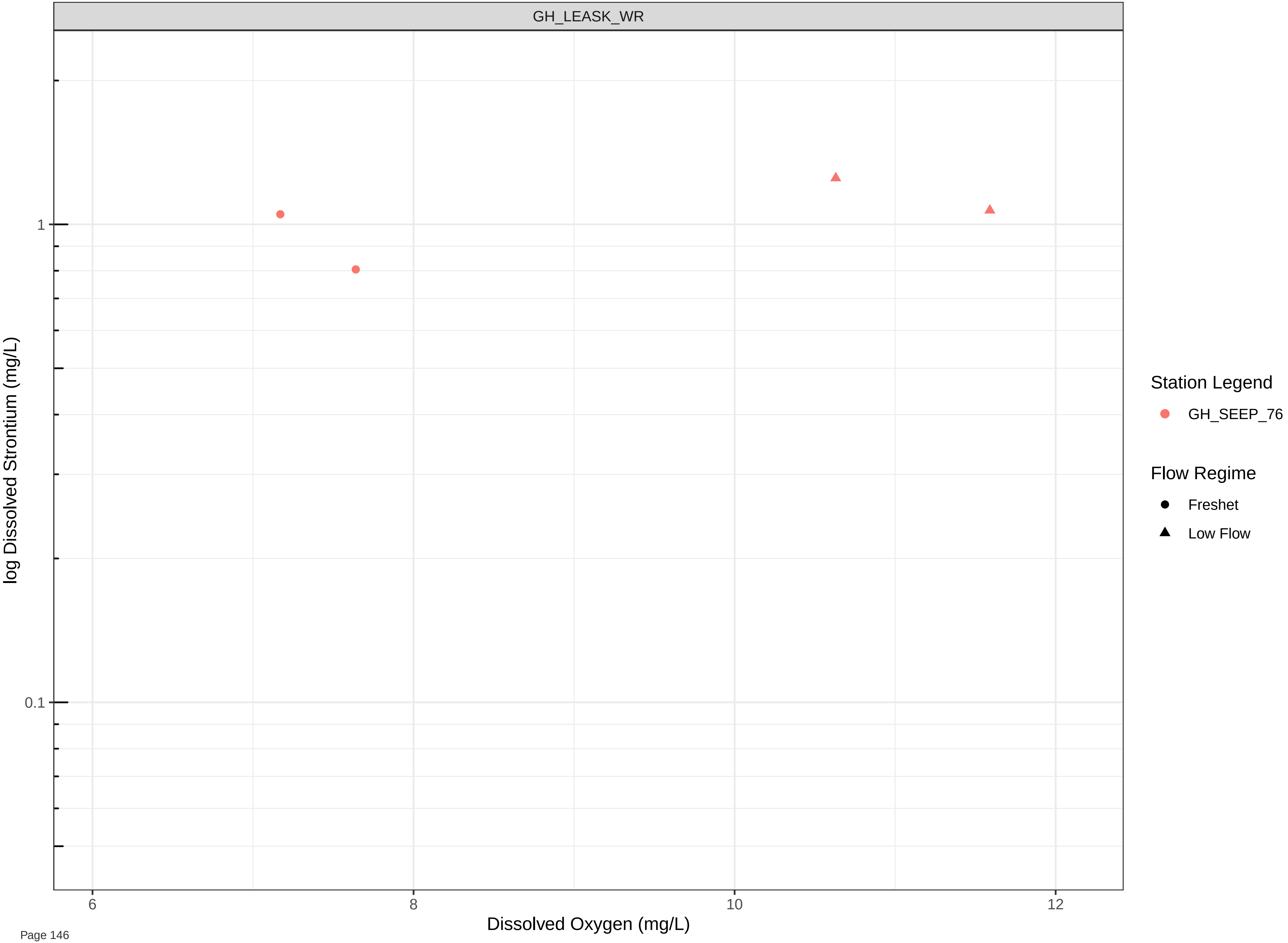
GH_WTDS
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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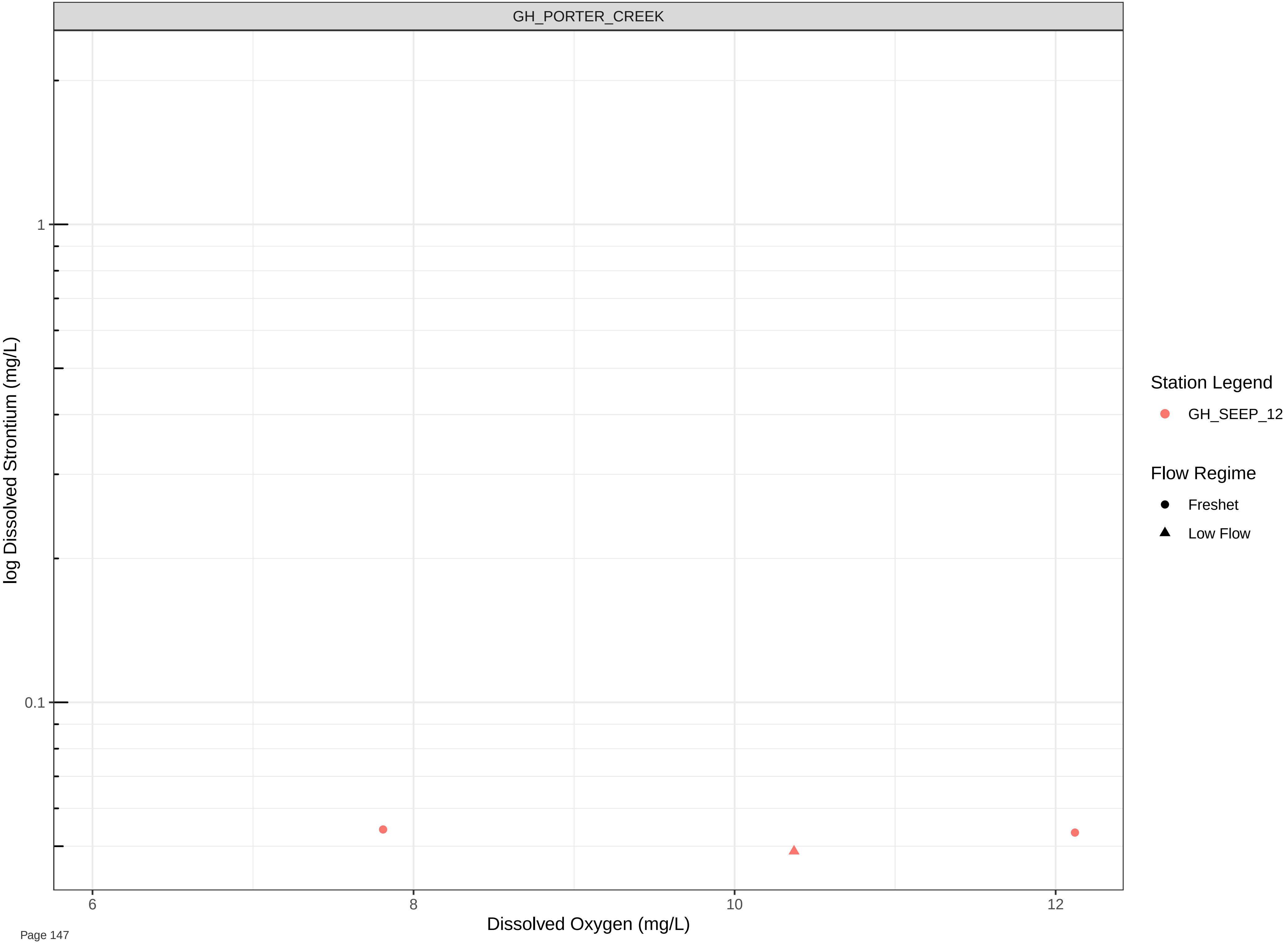
Flow Regime
● Freshet
▲ Low Flow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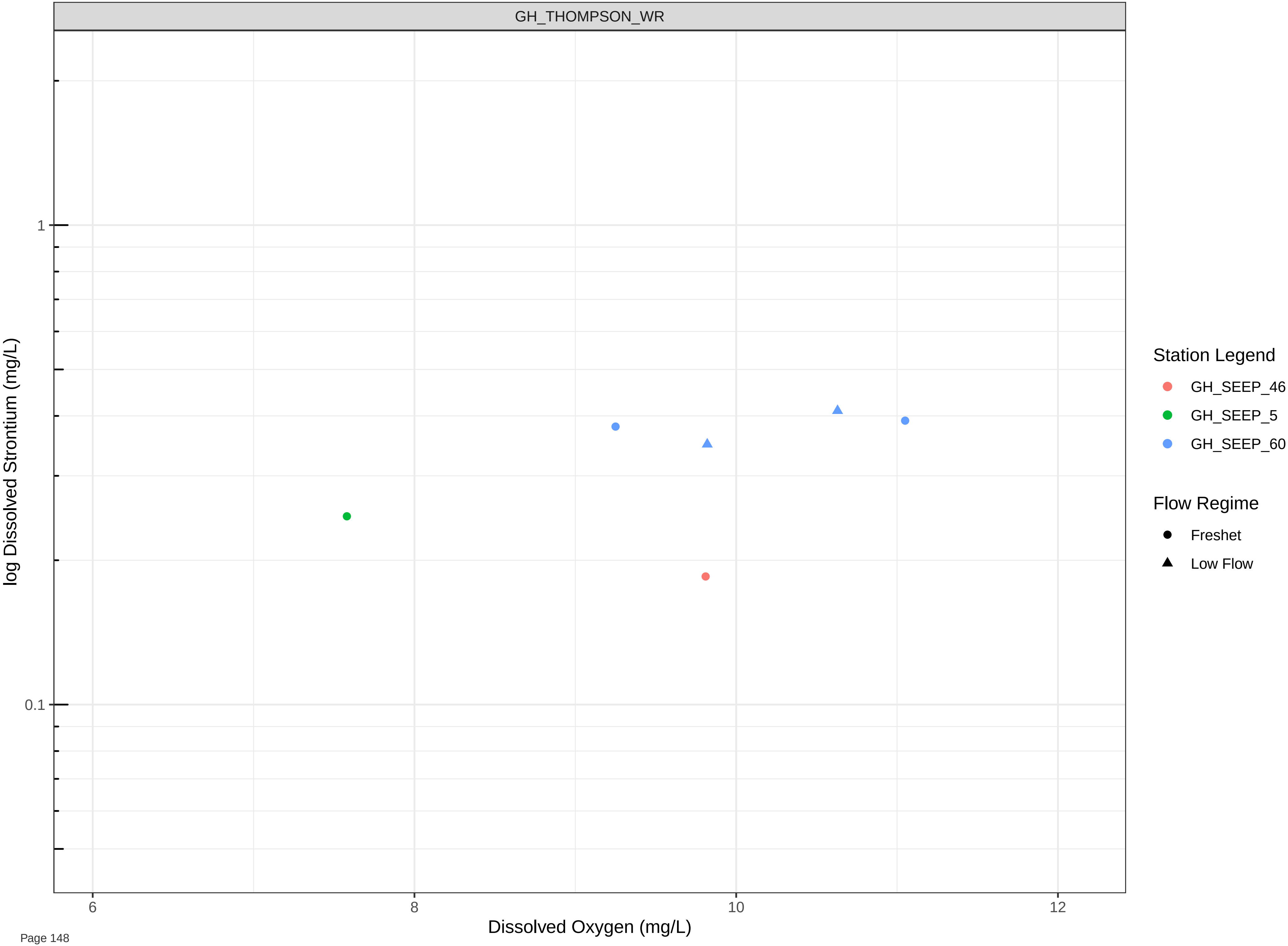
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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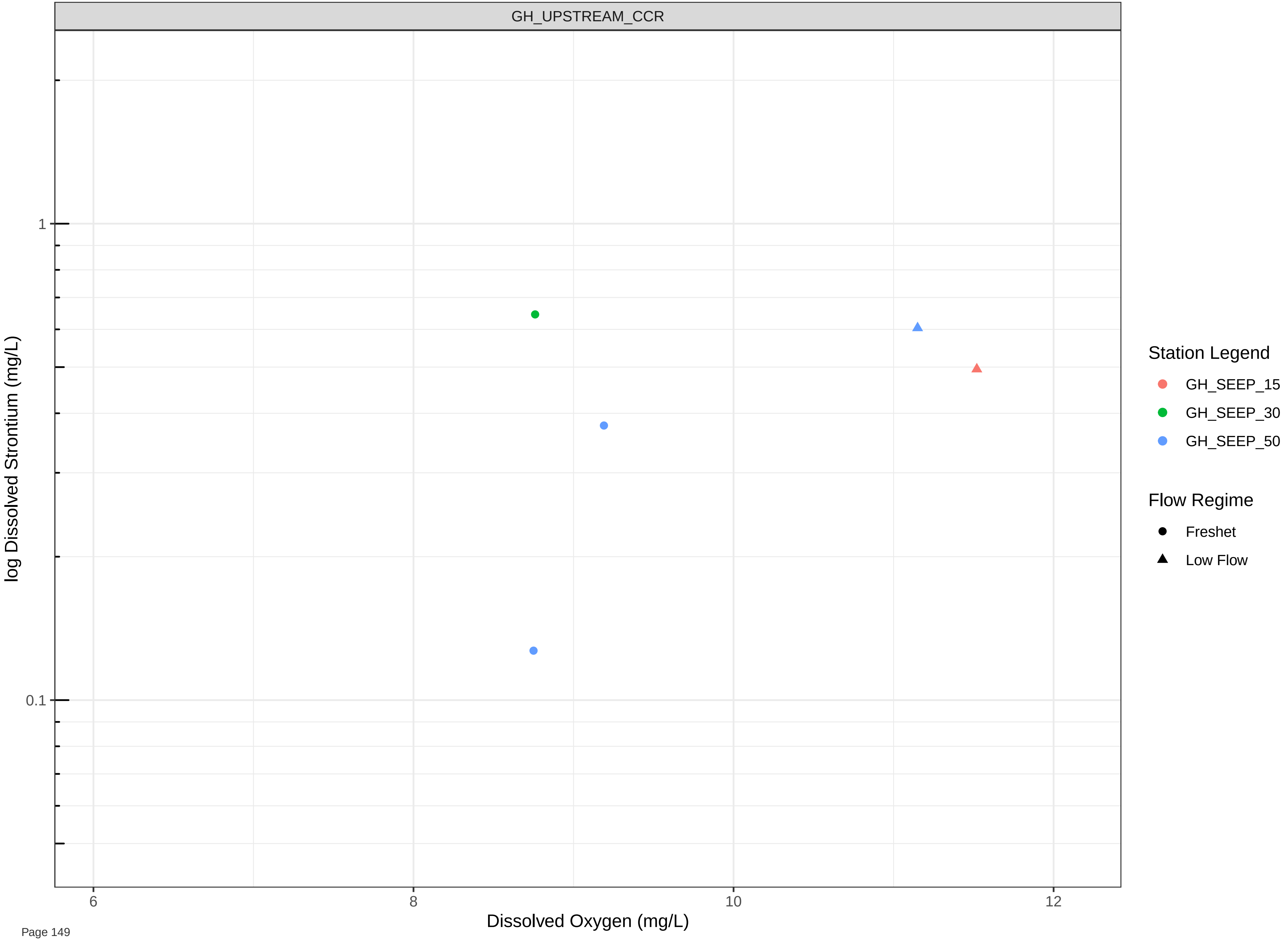
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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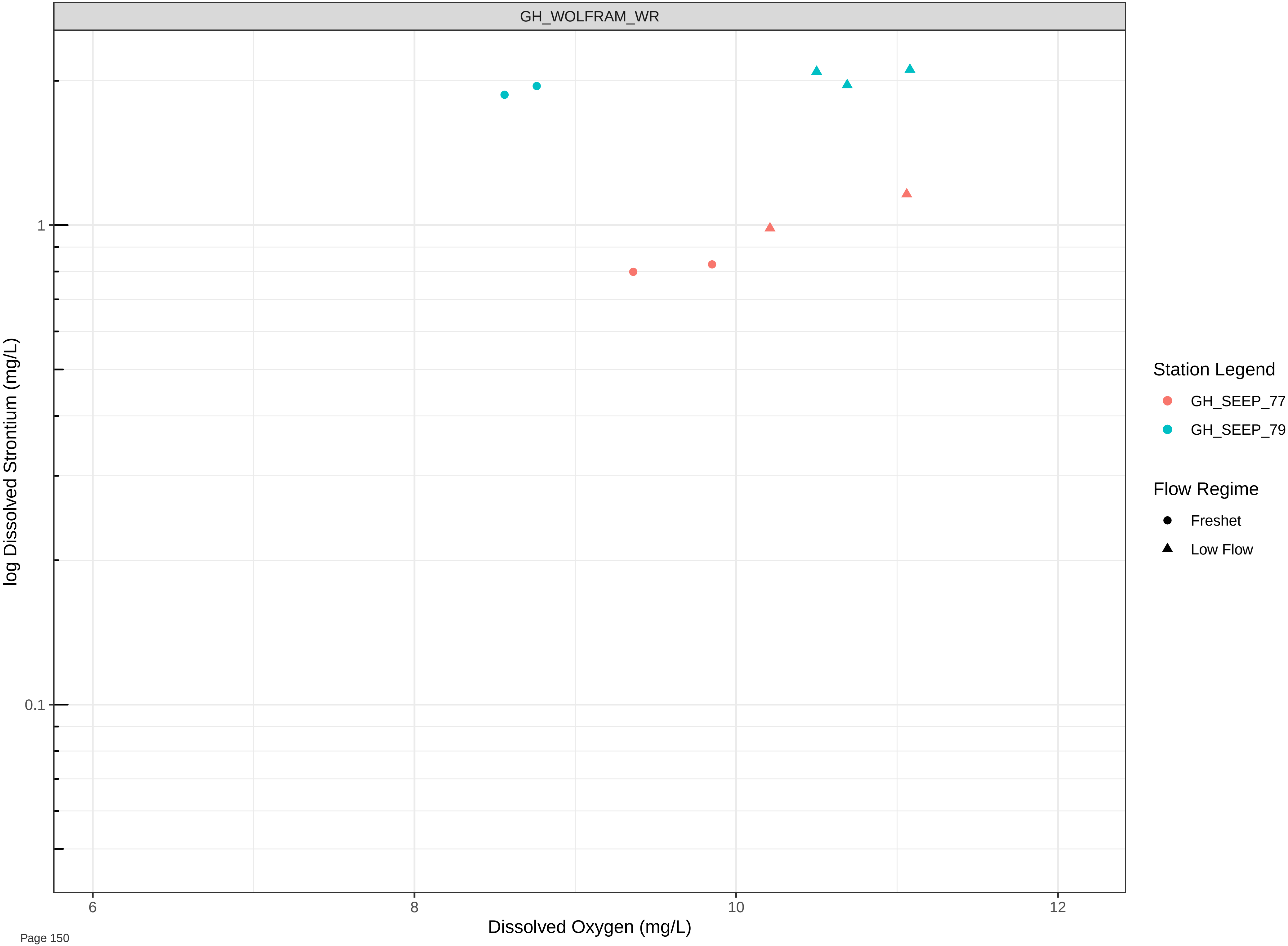
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Dissolved Oxygen (mg/L)
Station Legend
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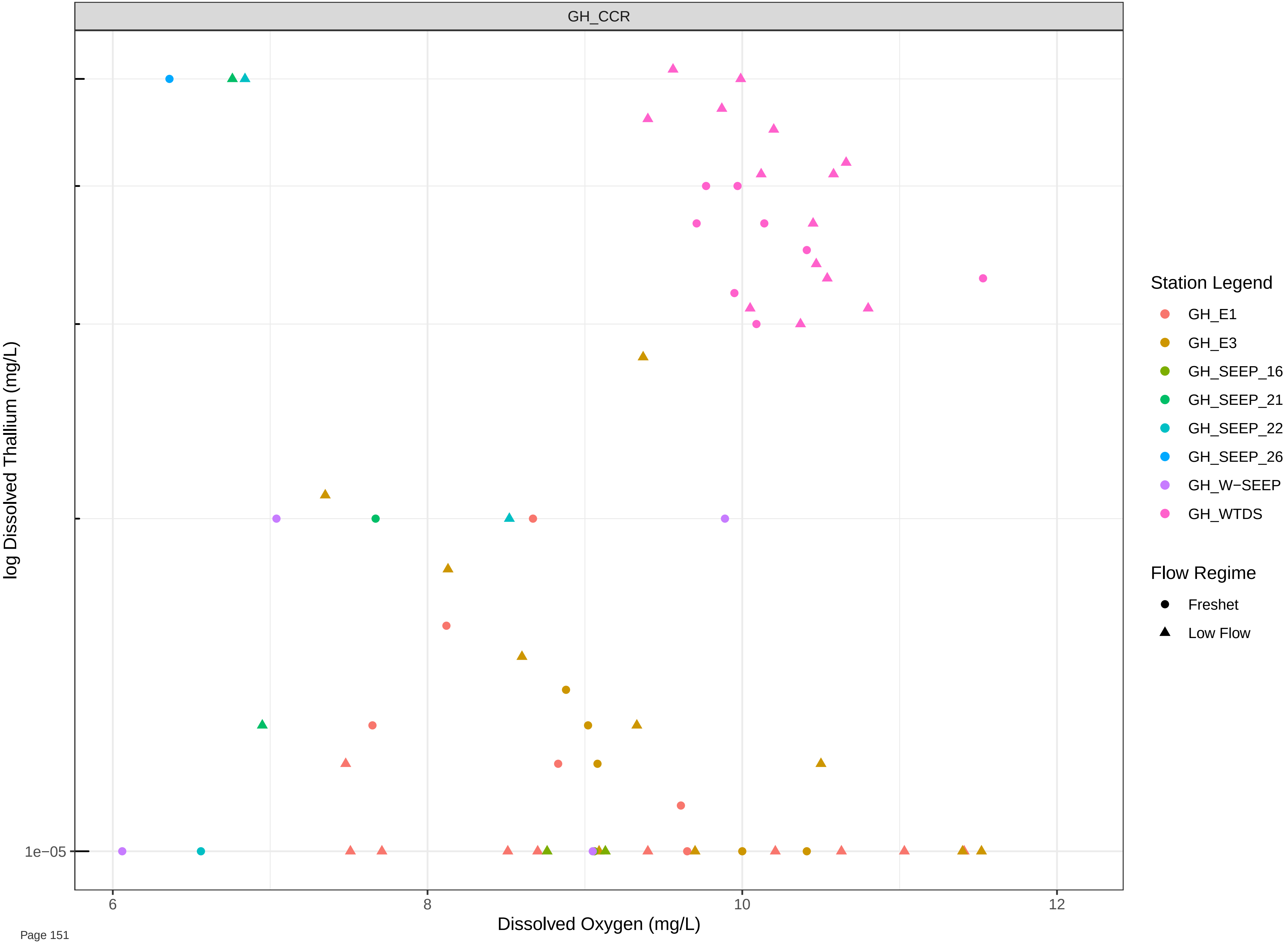
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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Flow Regime
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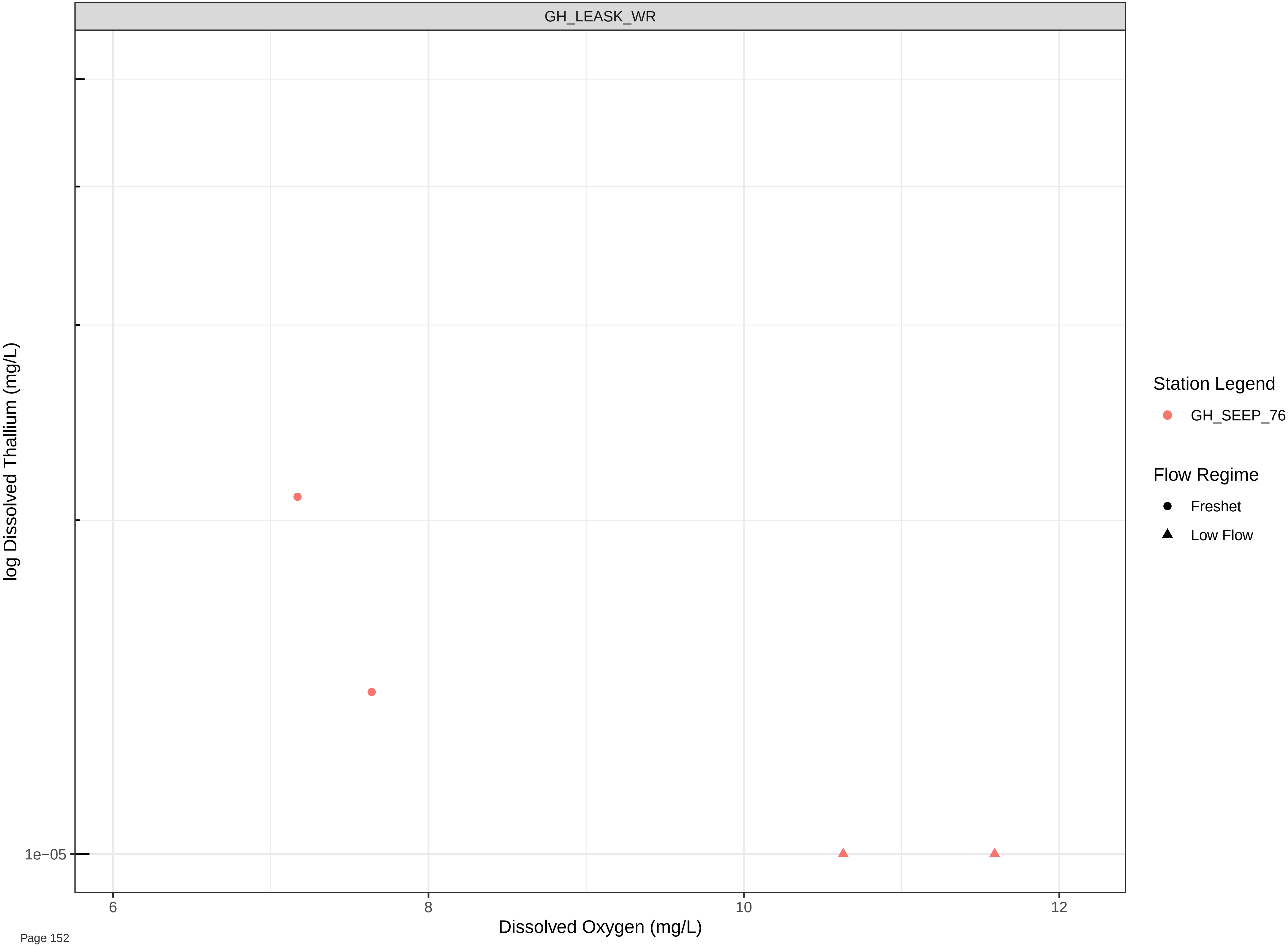
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Dissolved Oxygen (mg/L)
Station Legend
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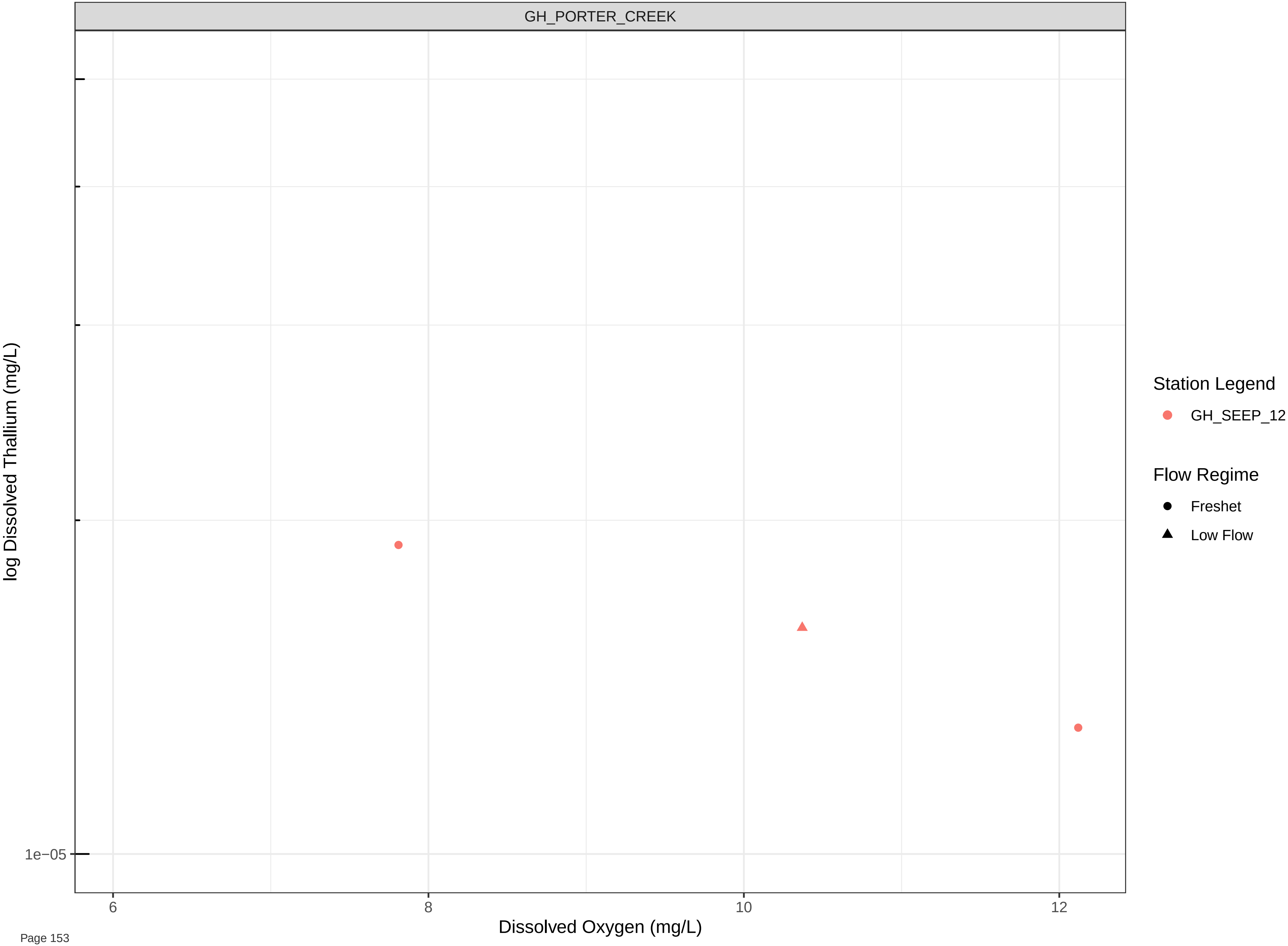
Flow Regime
● Freshet
▲ Low Flow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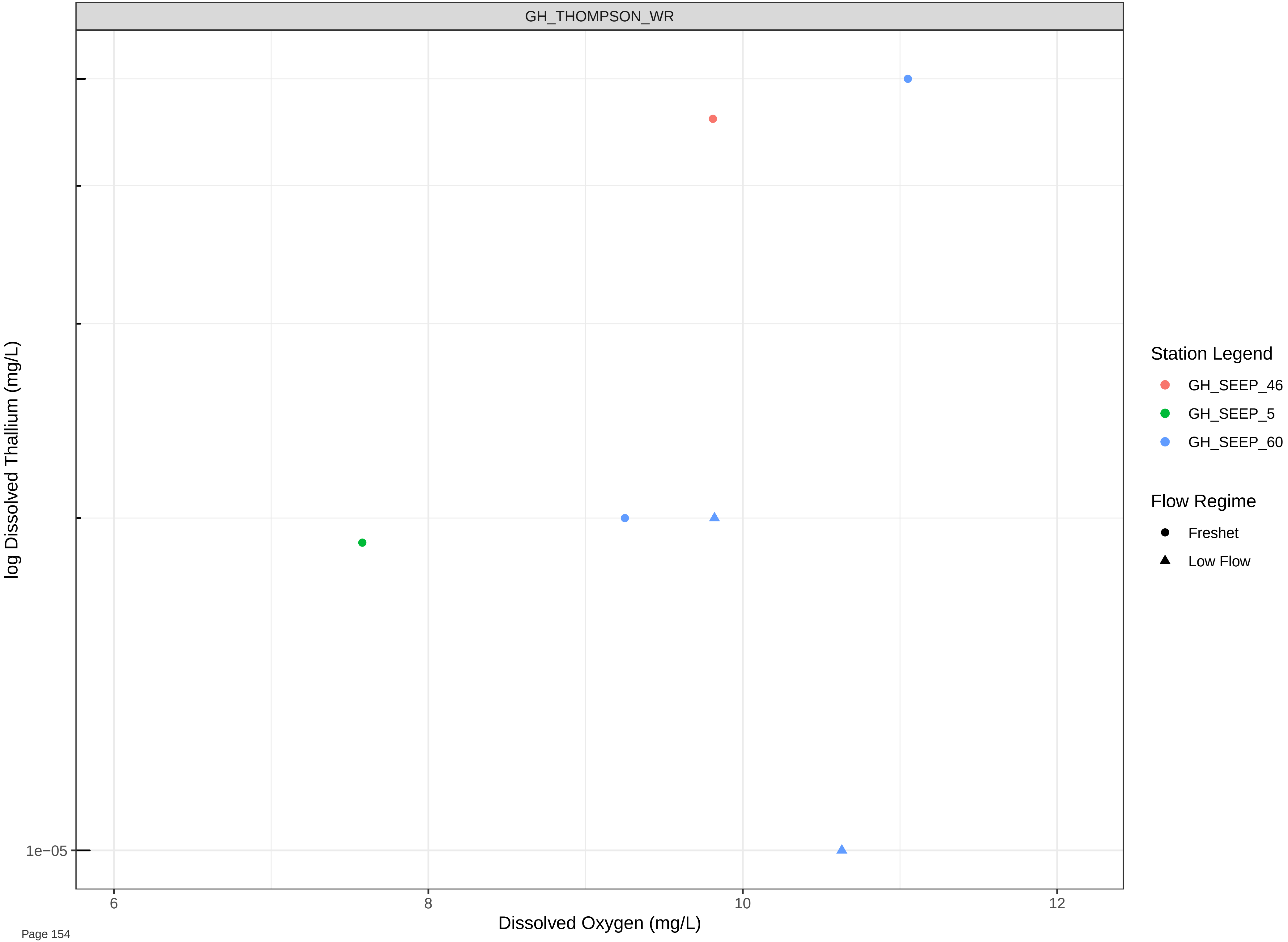
Flow Regime
Freshet
Low Flow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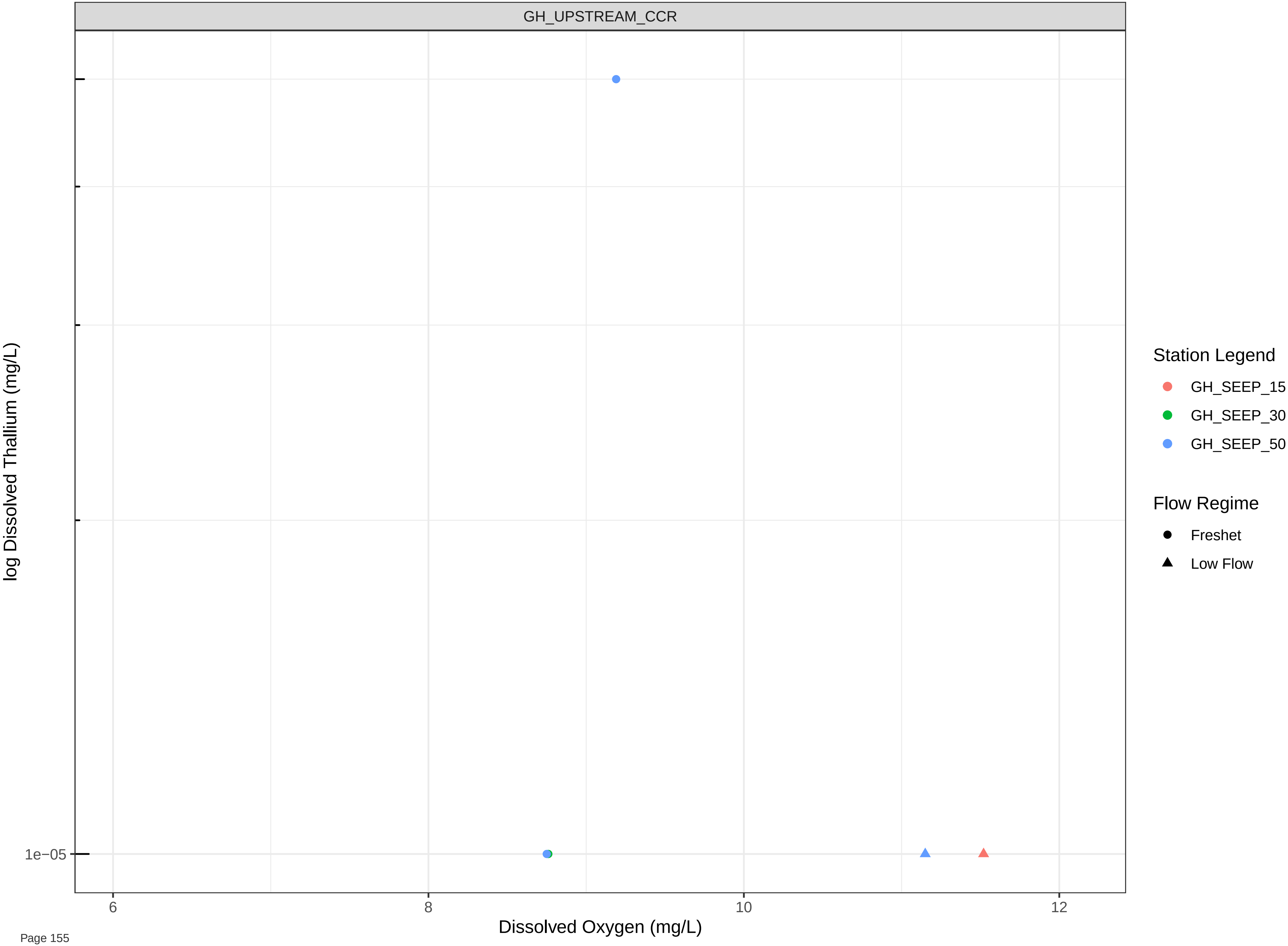
Low Flow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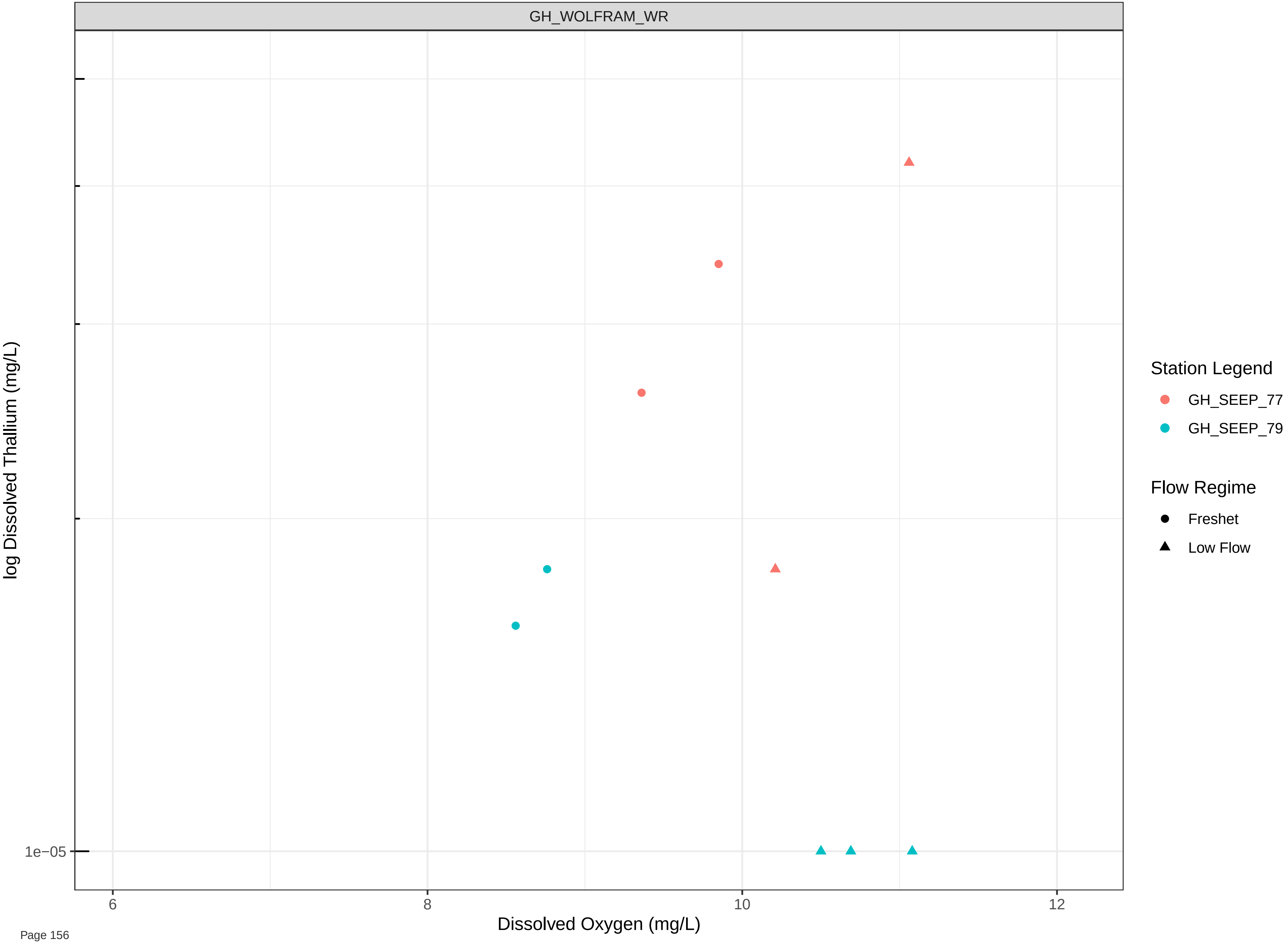

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Dissolved Oxygen (mg/L)
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Flow Regime
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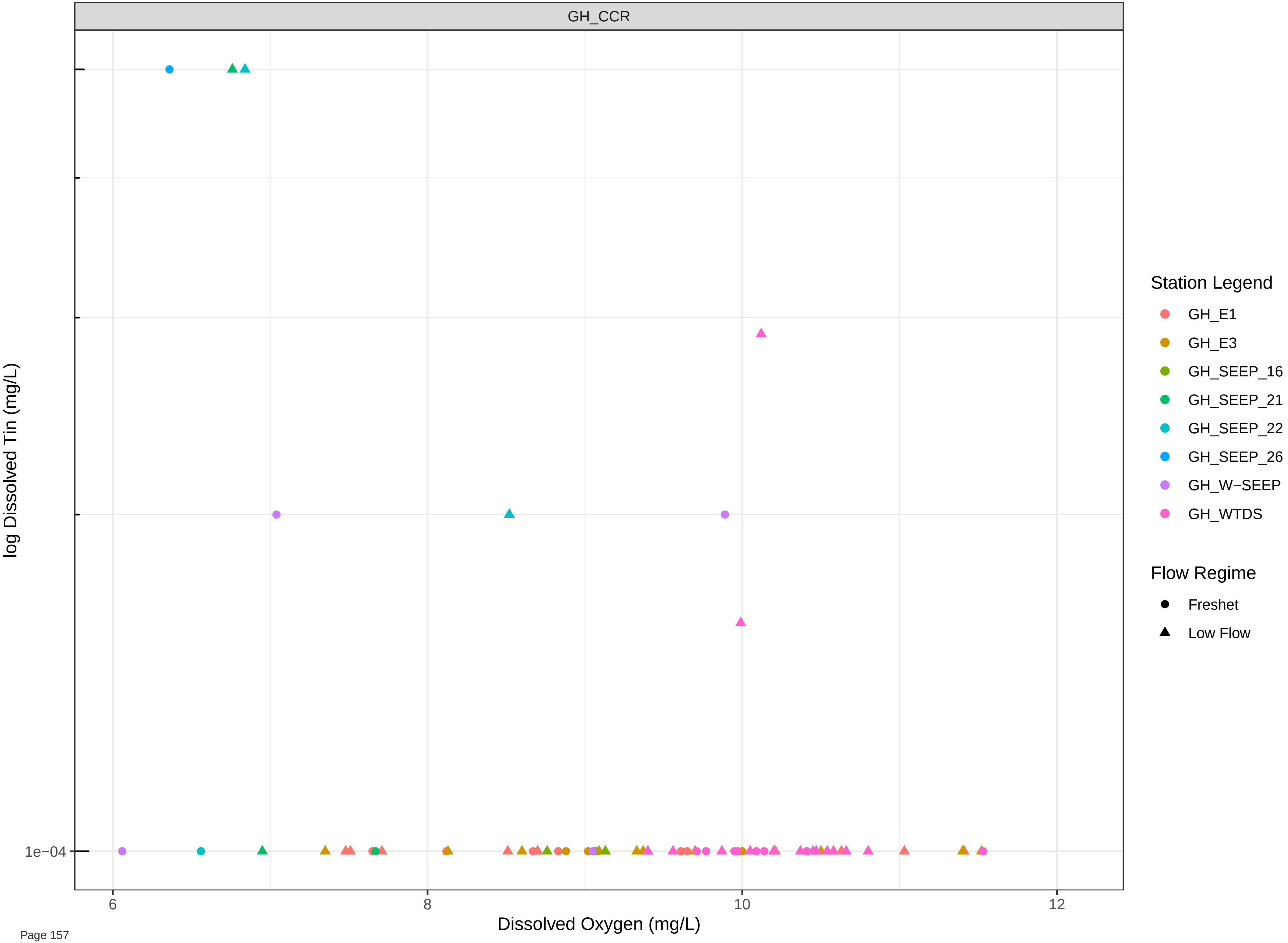
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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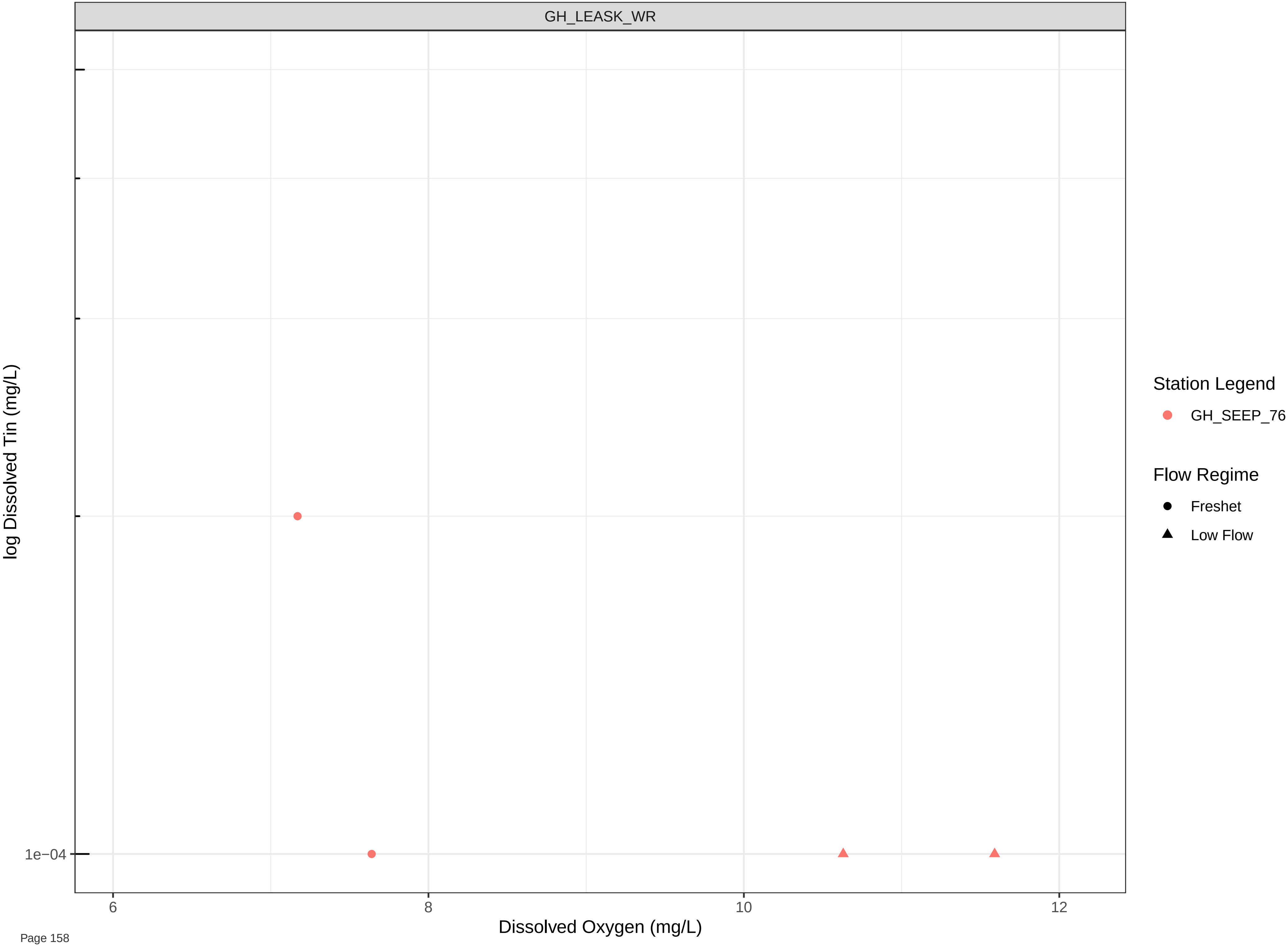
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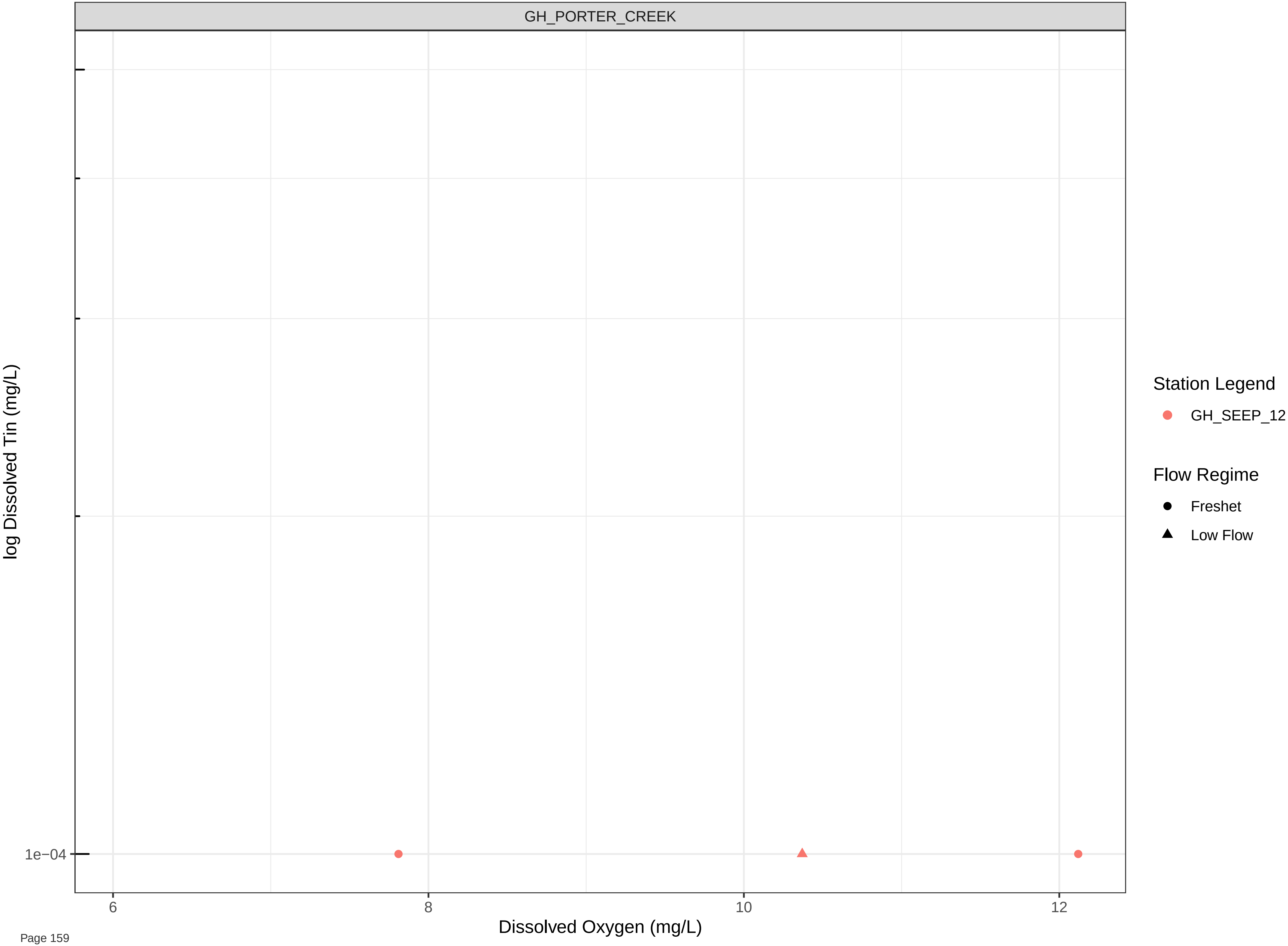
Freshet
Low Flow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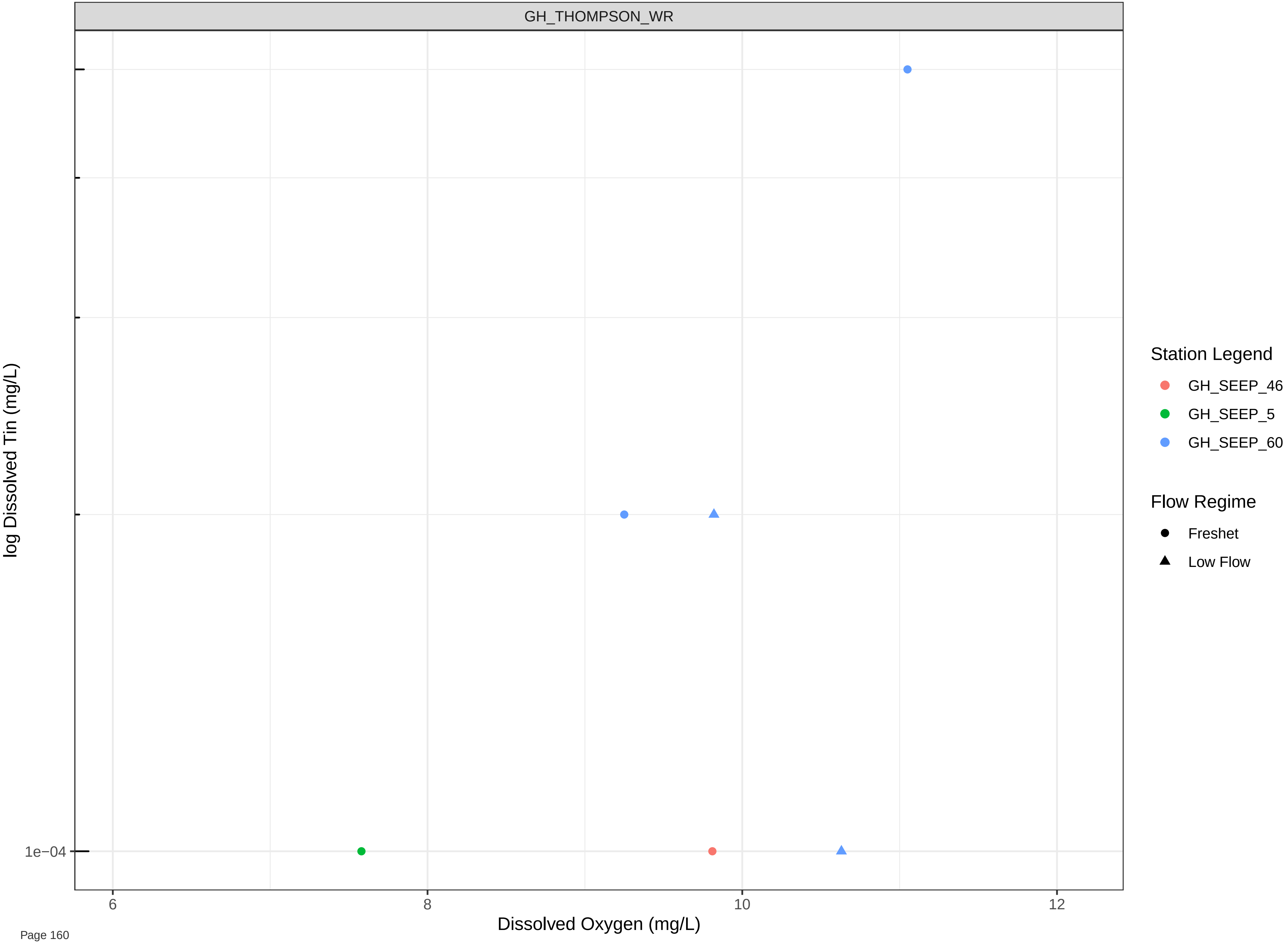
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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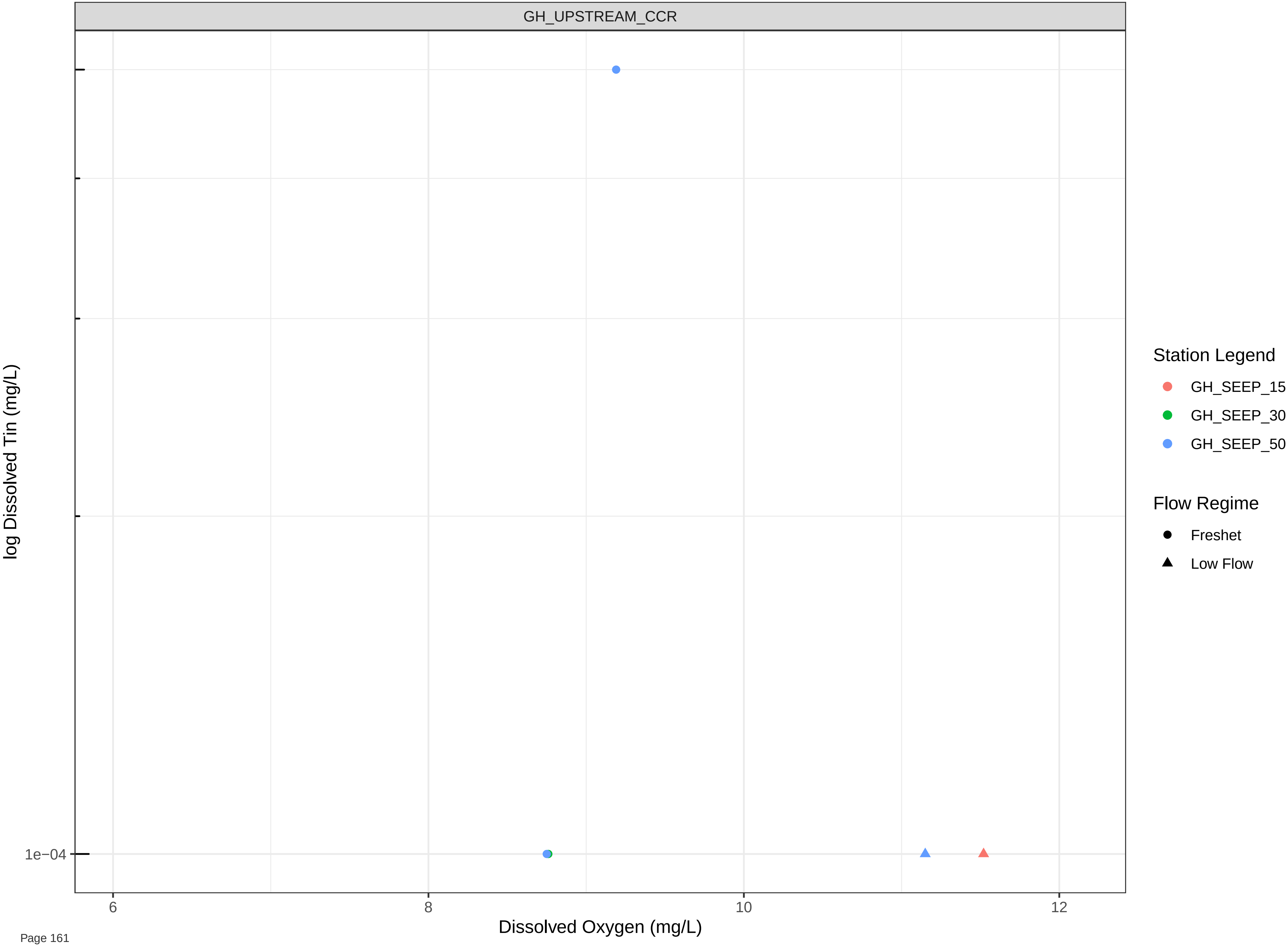
GH_SEEP_60
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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Flow Regime
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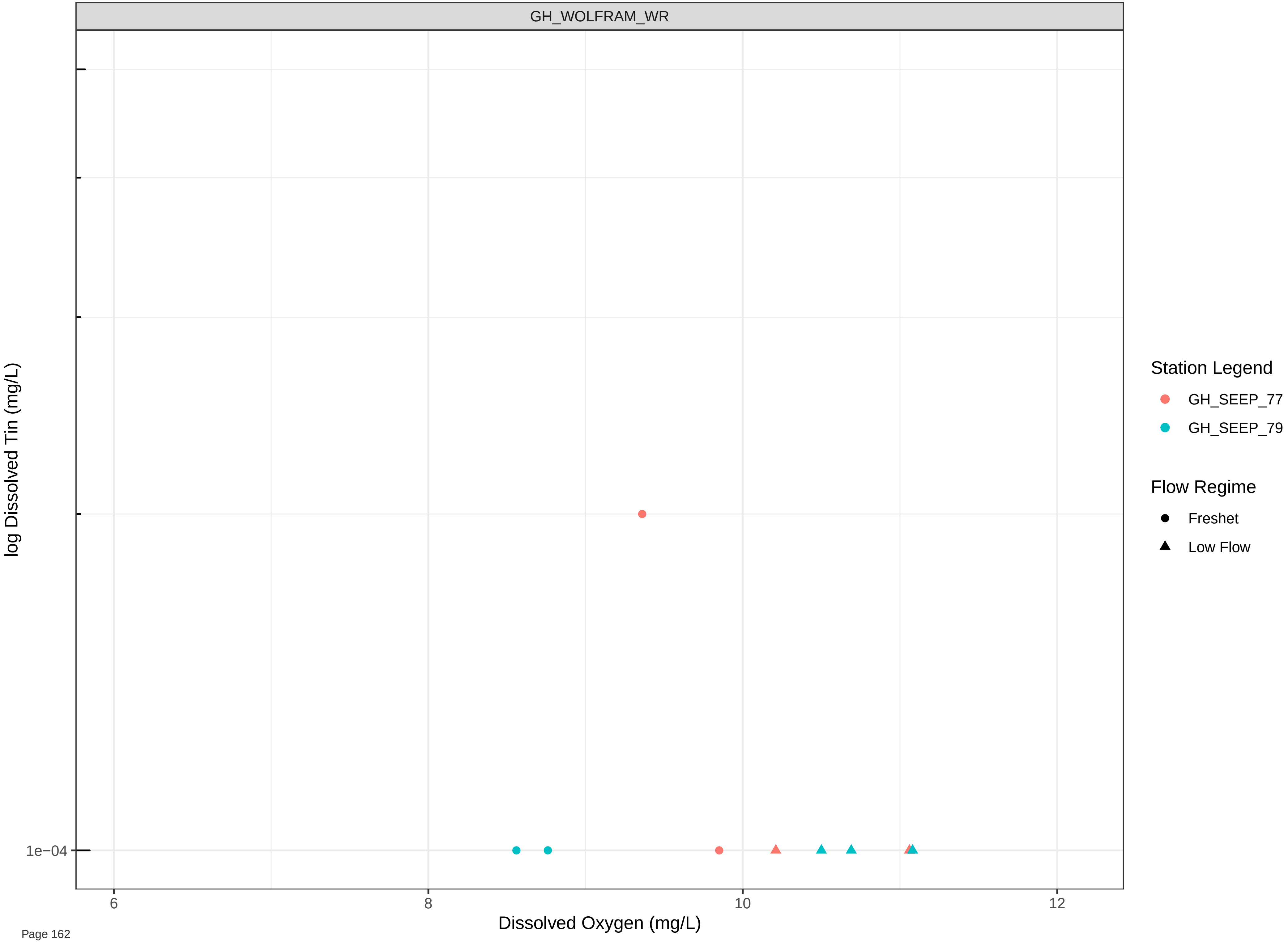
Low Flow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Dissolved Oxygen (mg/L)
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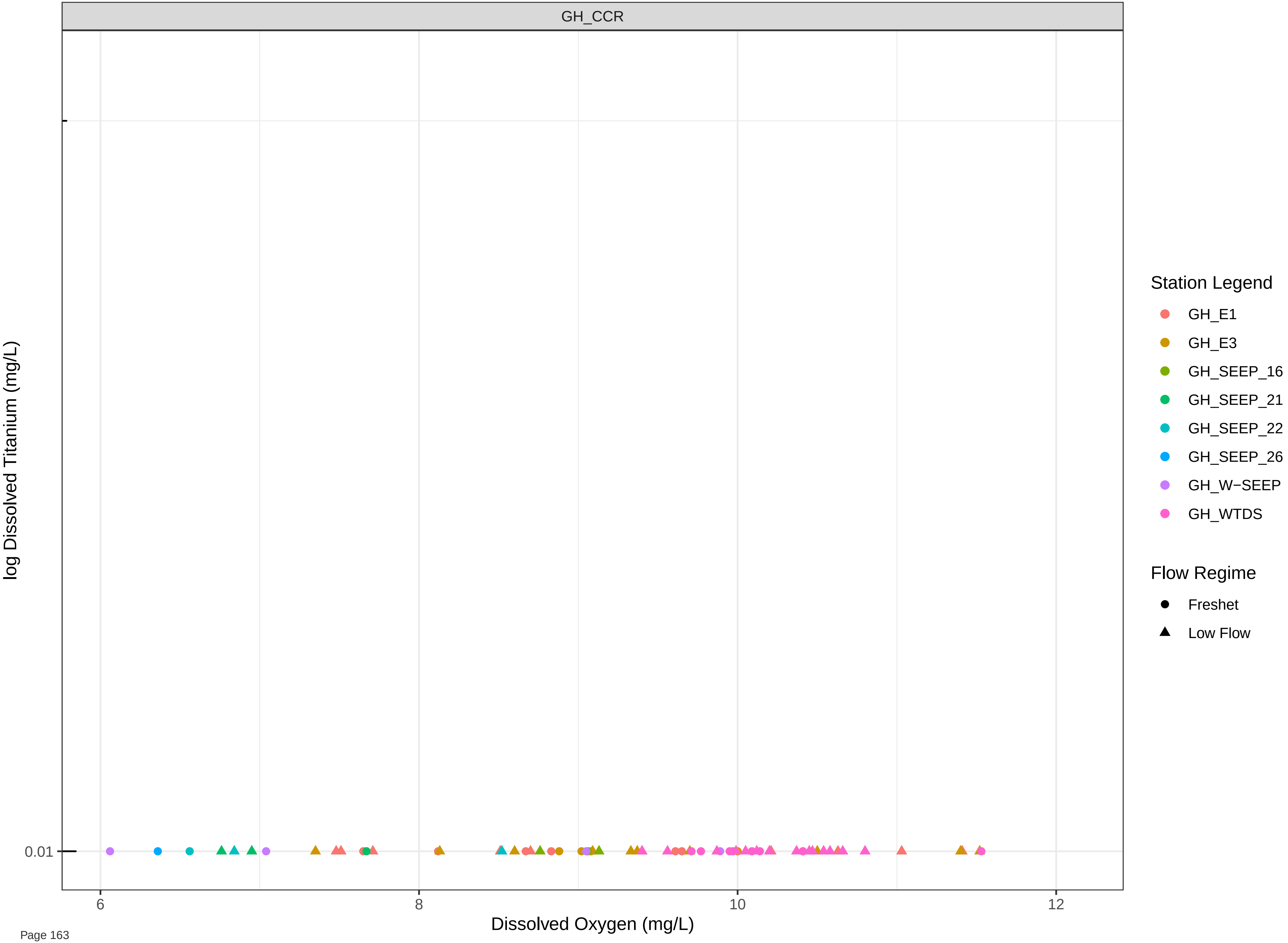
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Dissolved Oxygen (mg/L)
Station Legend
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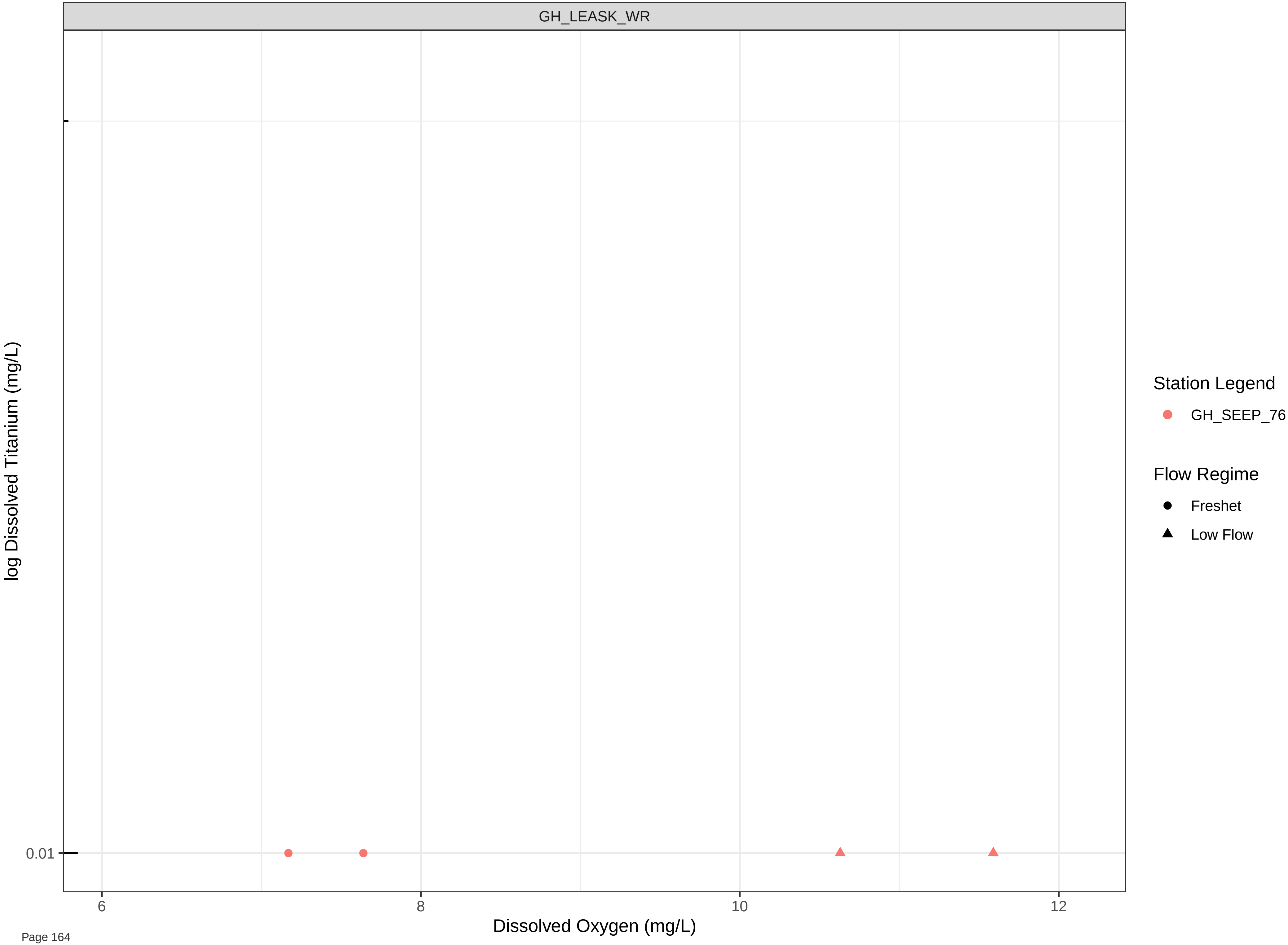
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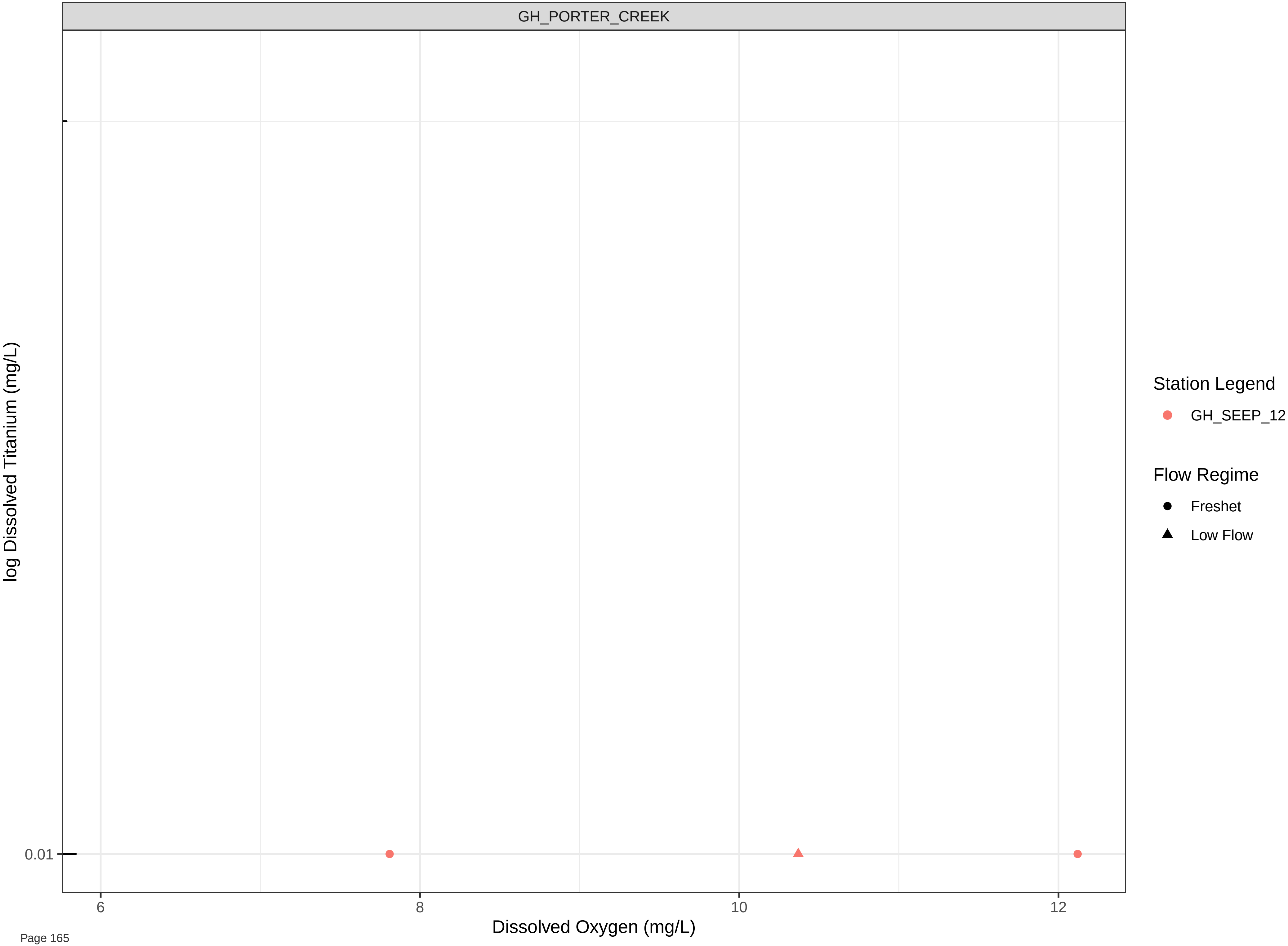
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Flow Regime
Freshet
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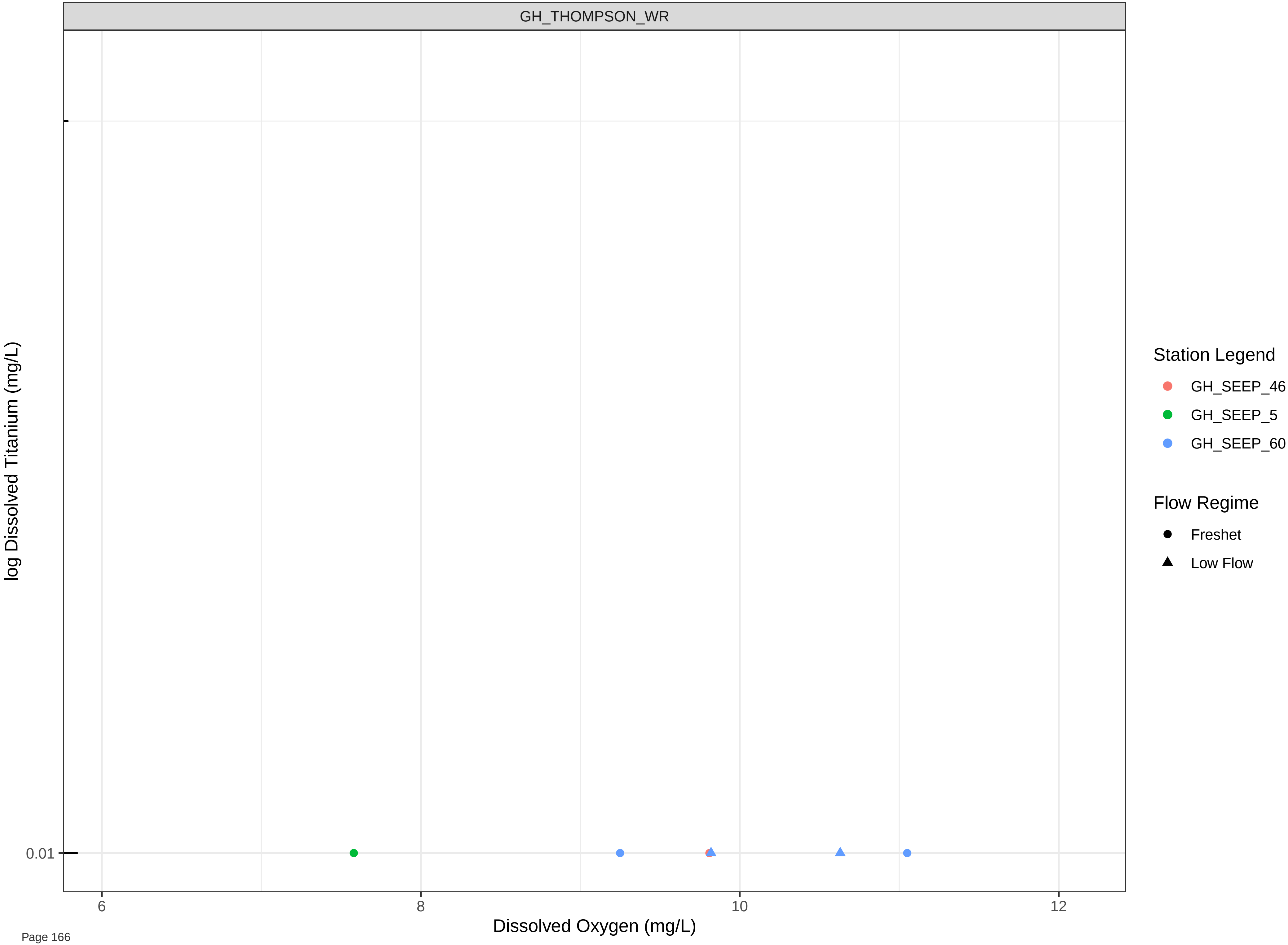
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Dissolved Oxygen (mg/L)
Station Legend
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Flow Regime
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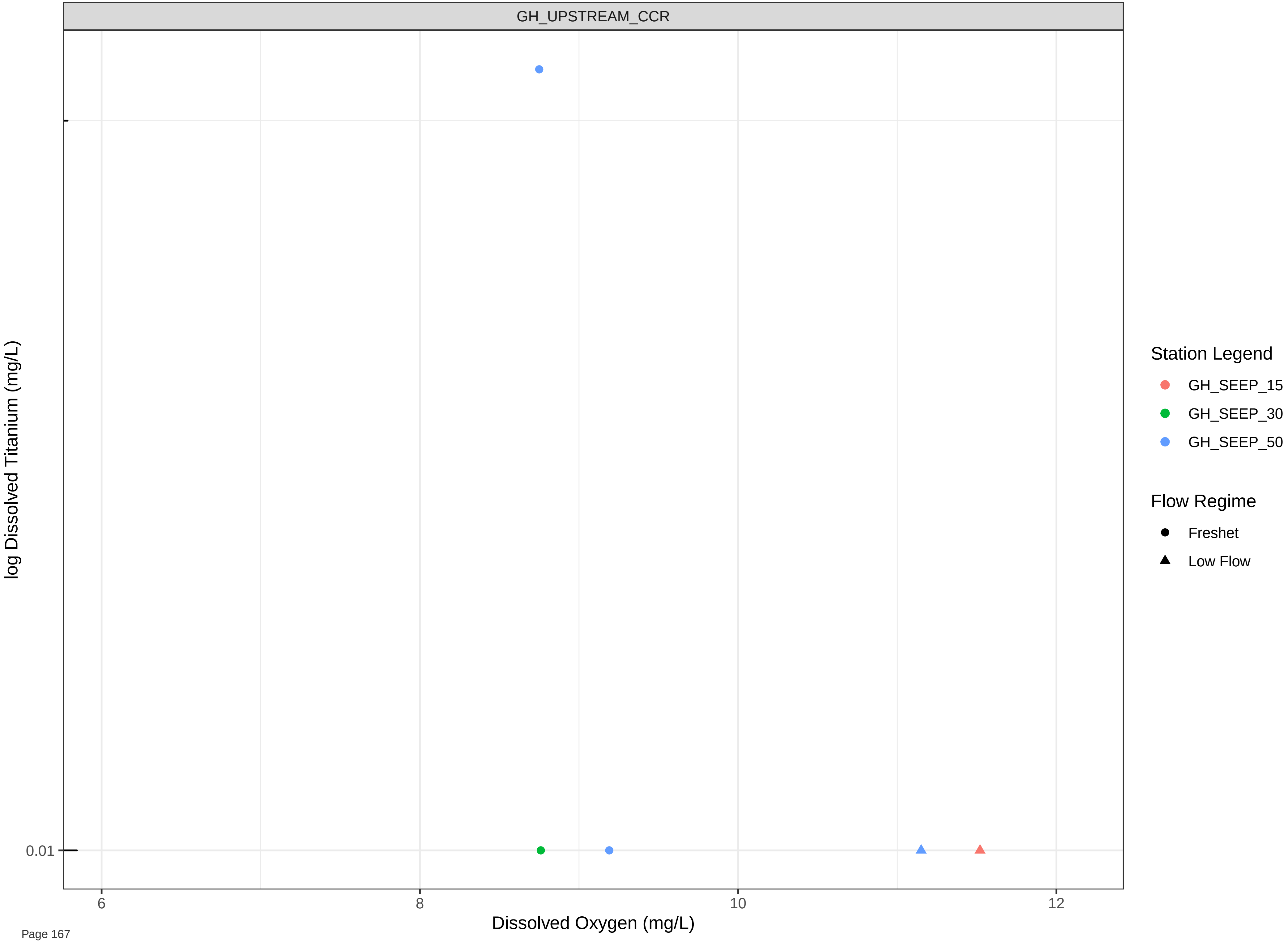
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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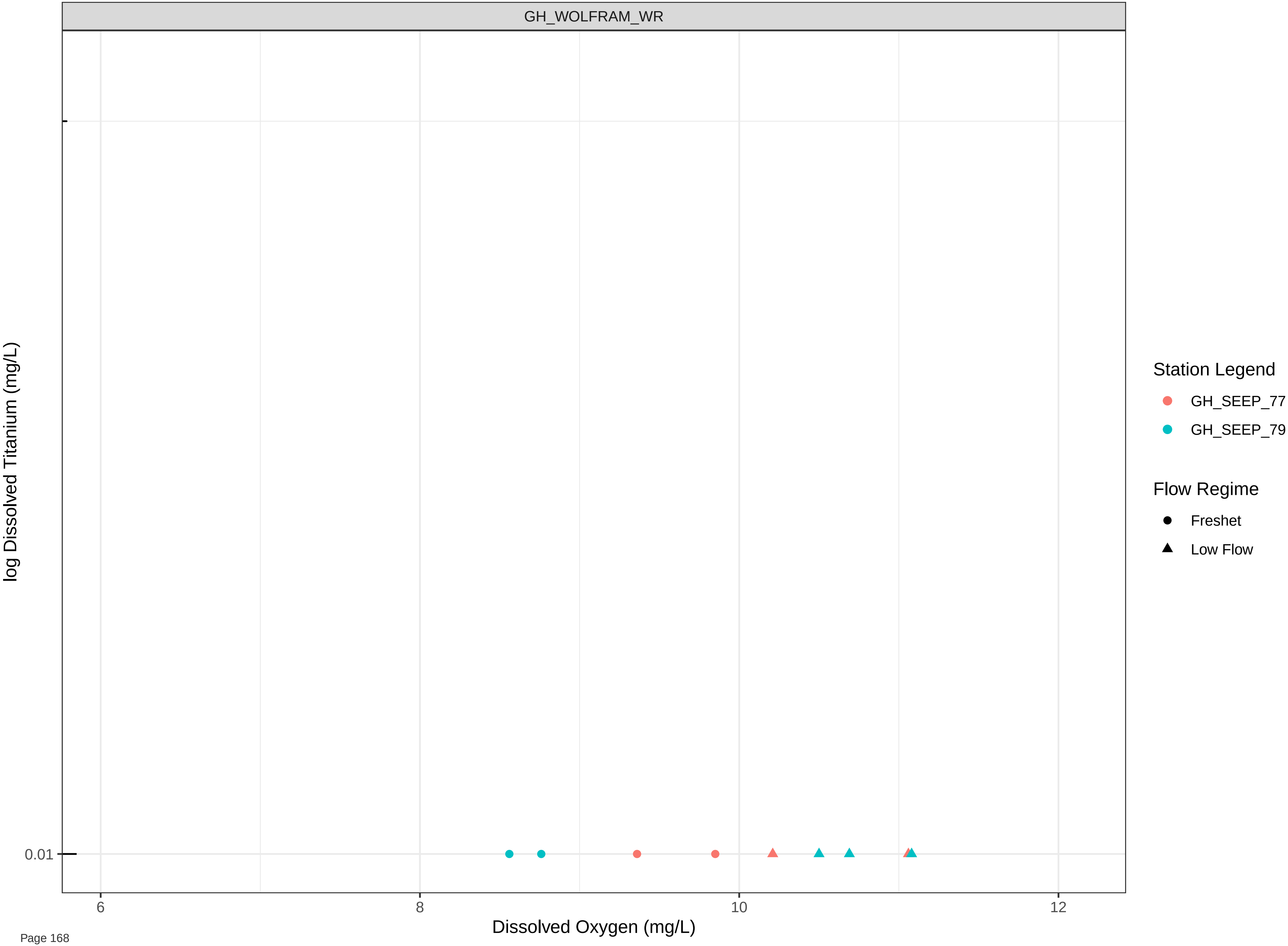
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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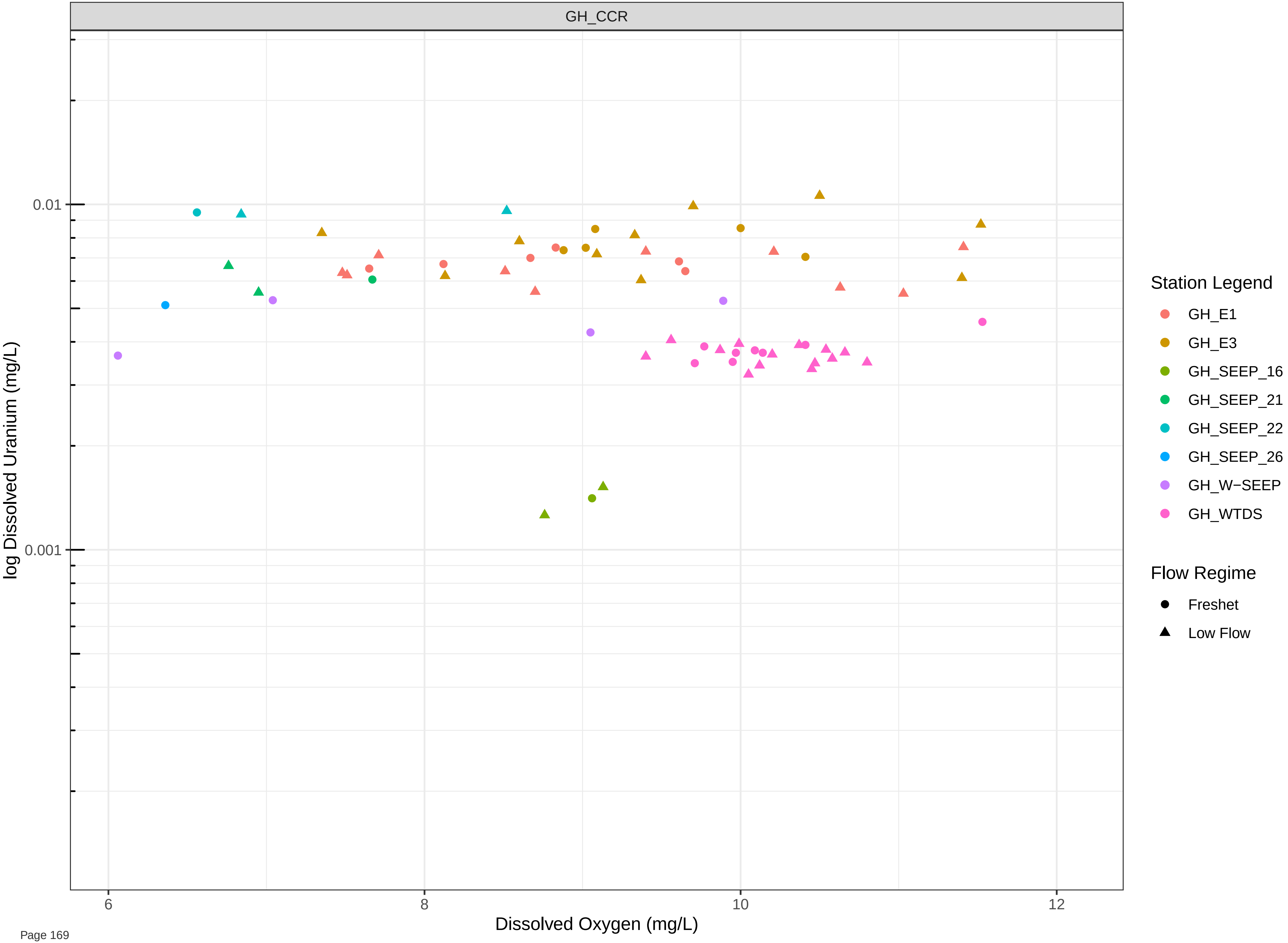
Low Flow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10
12
Dissolved Oxygen (mg/L)
Station Legend
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GH_E3
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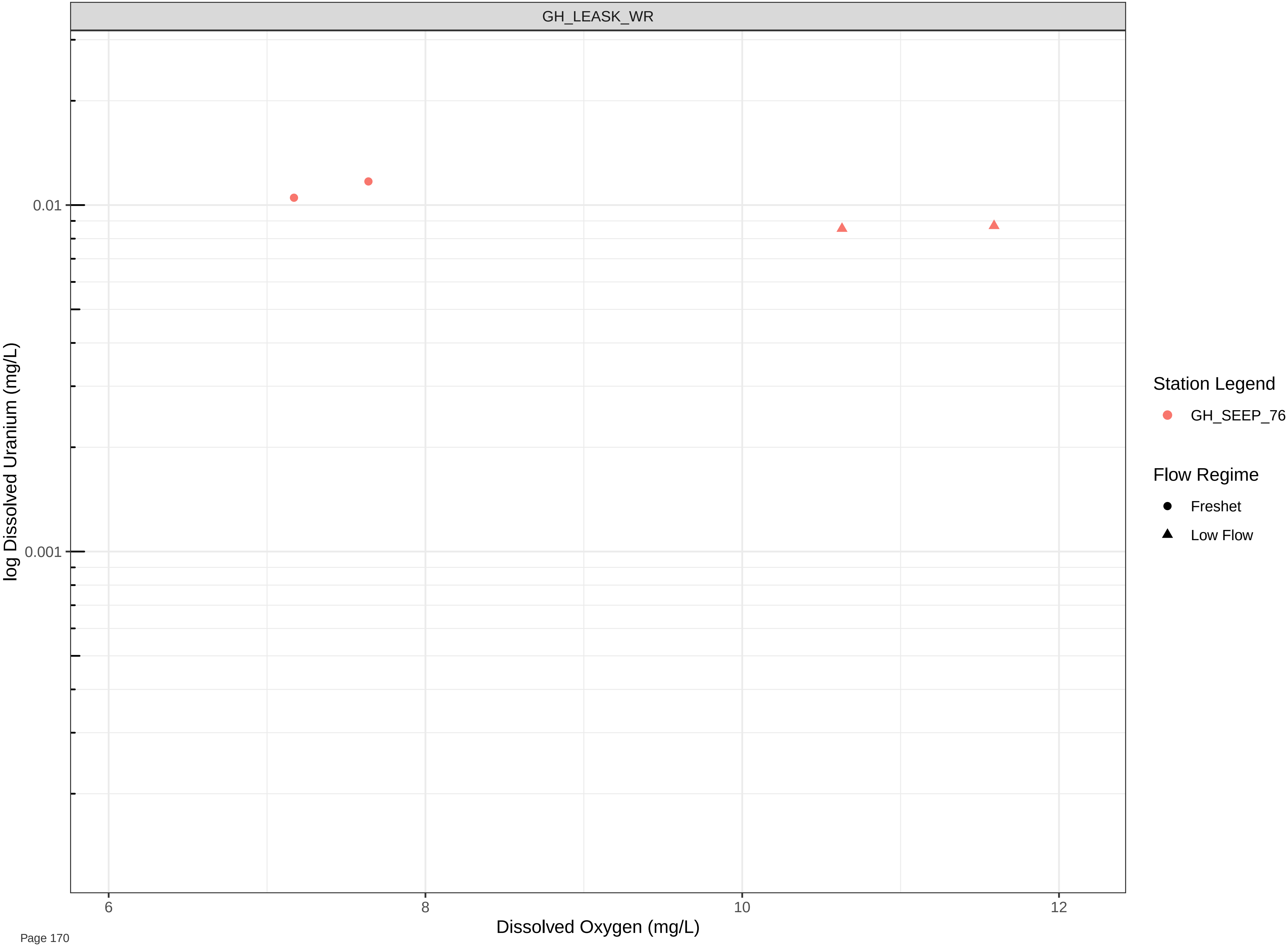
Flow Regime
Freshet
Low Flow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Flow Regime
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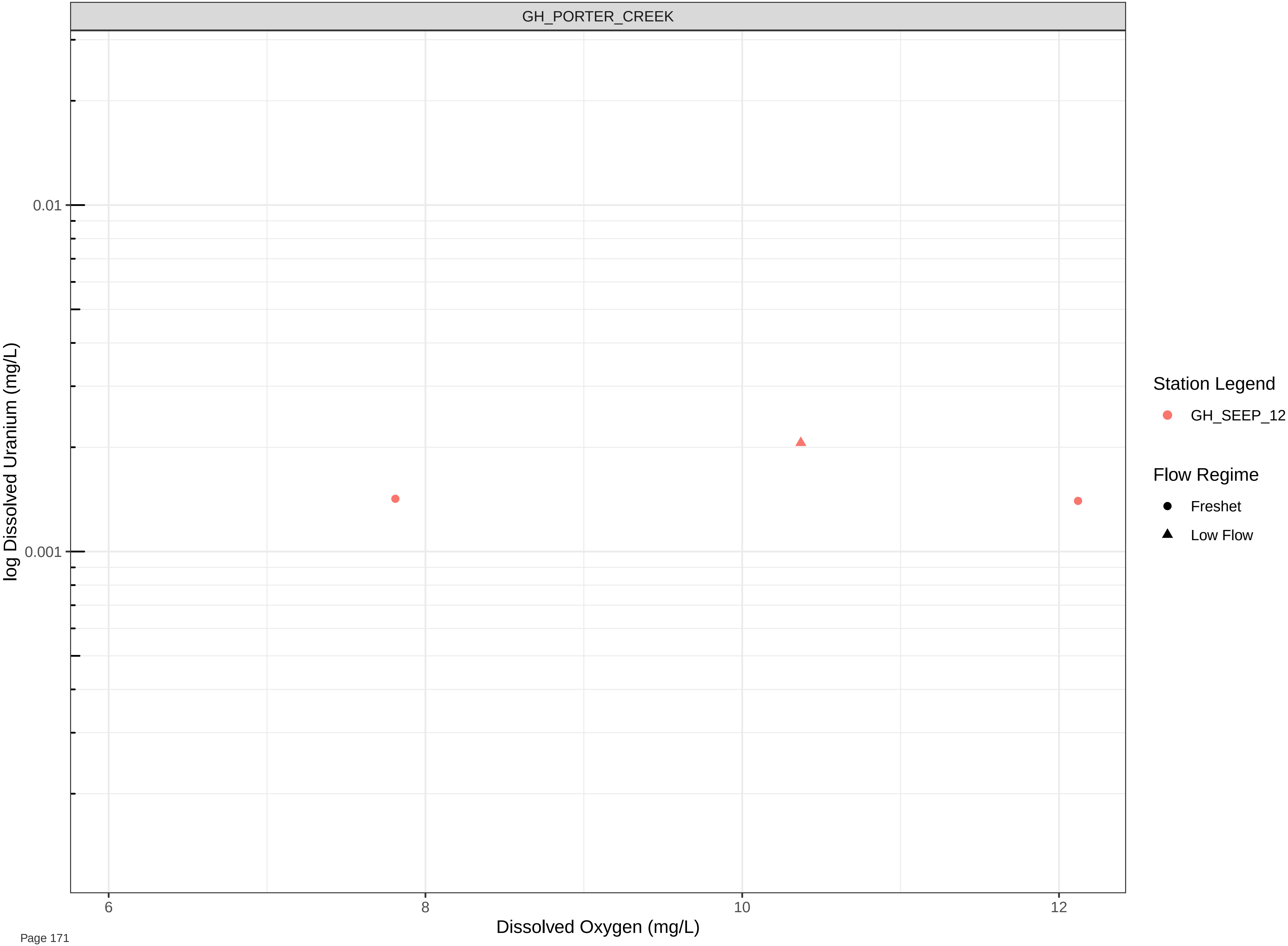
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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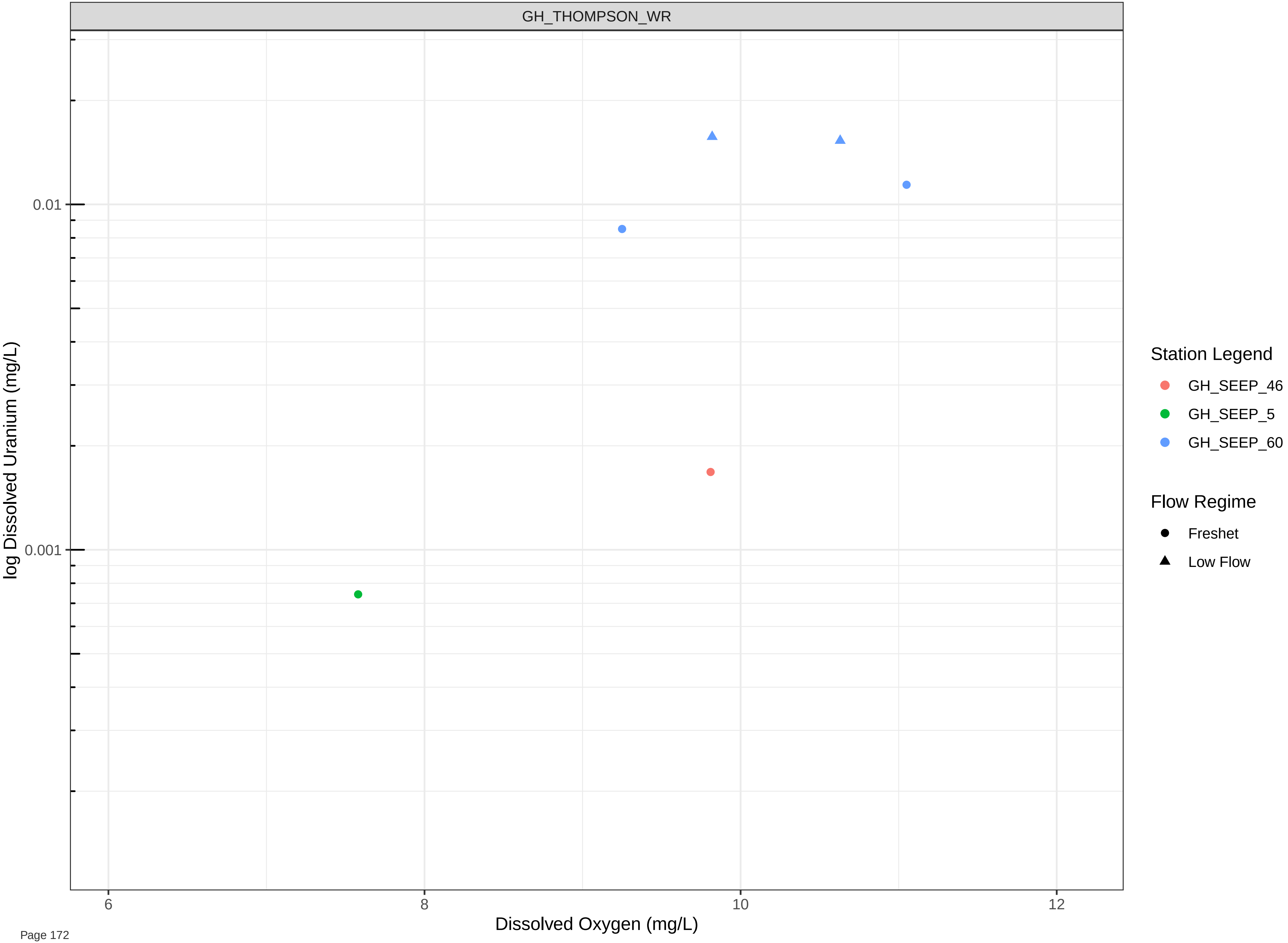
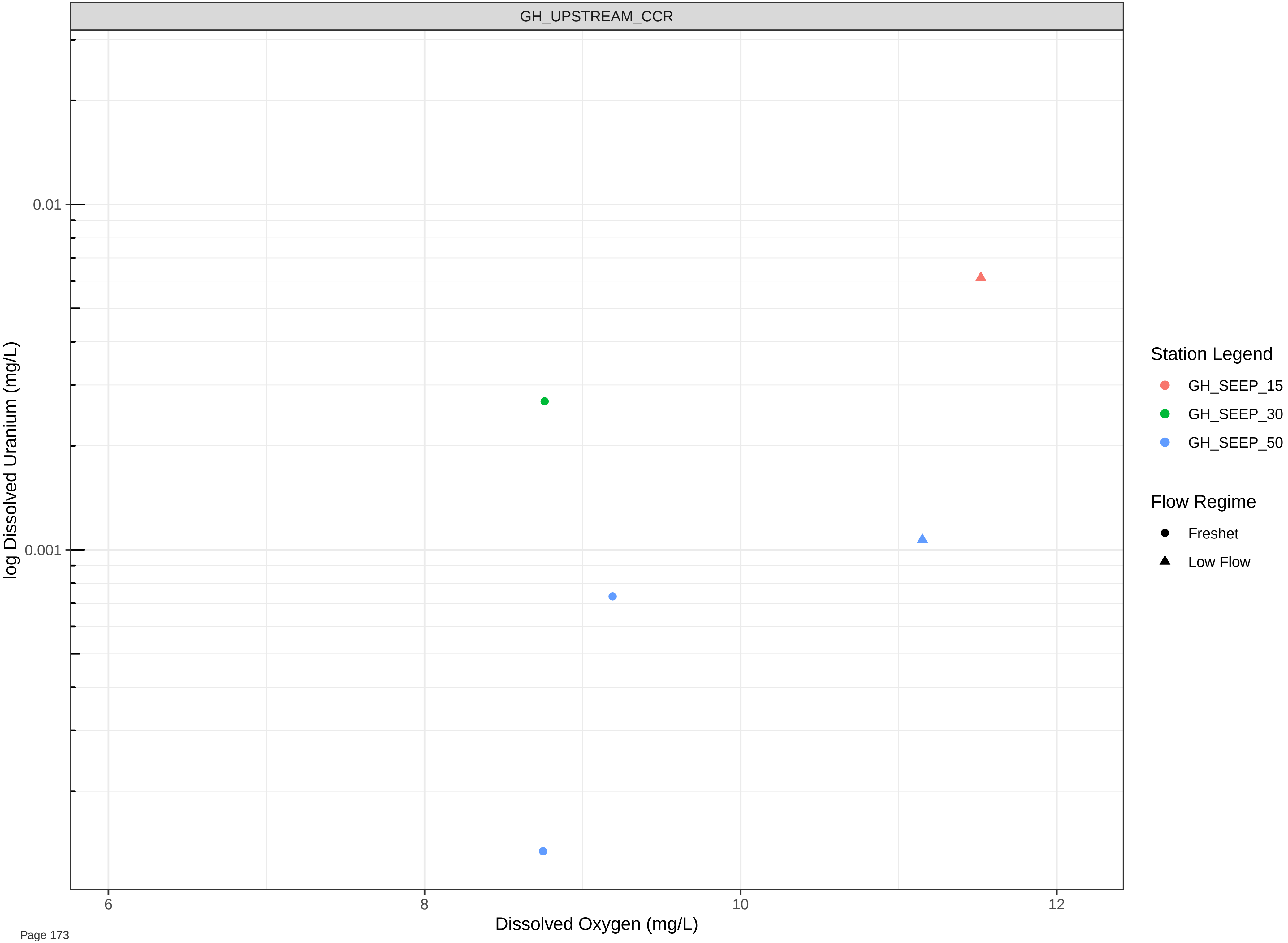
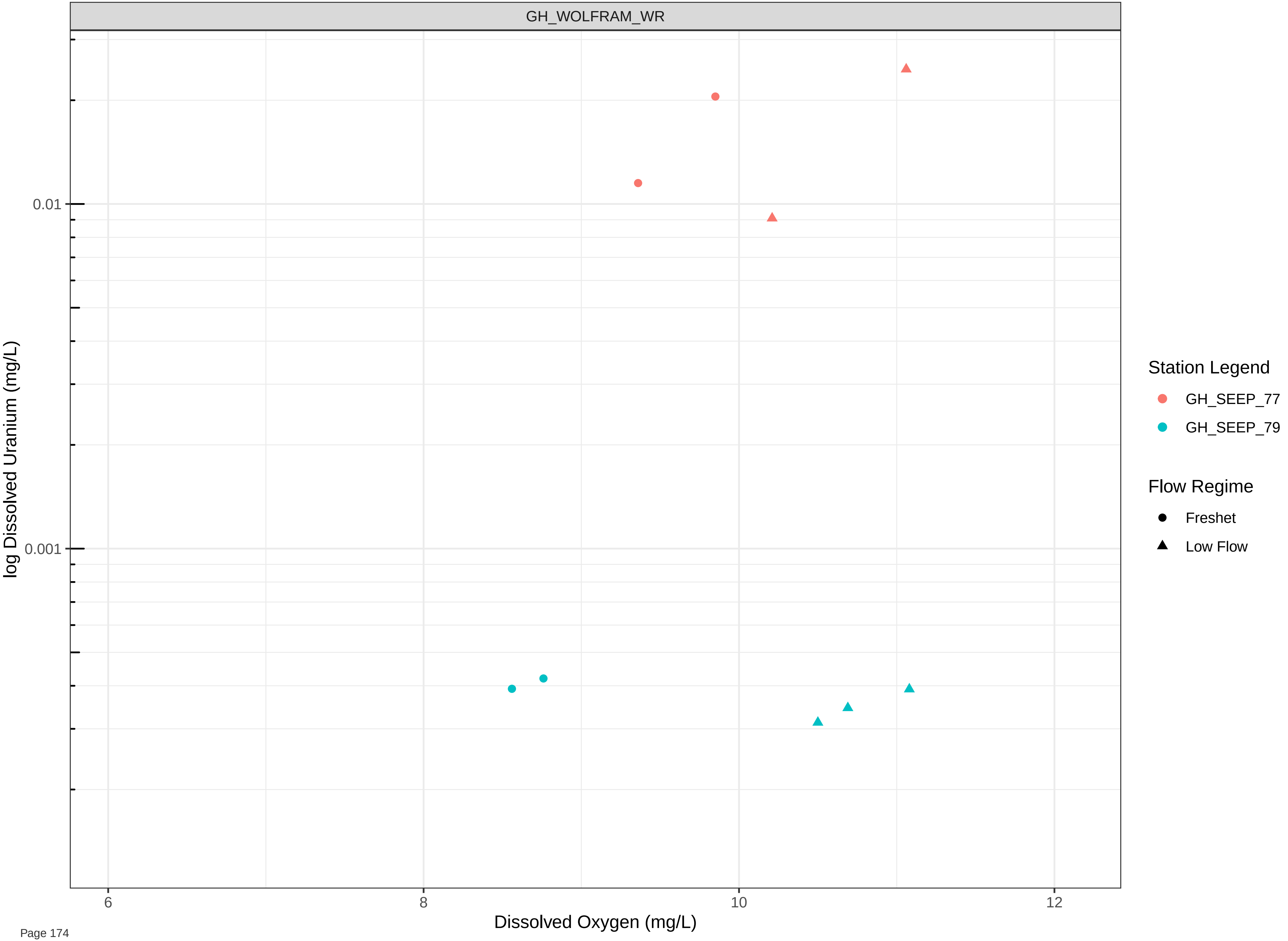
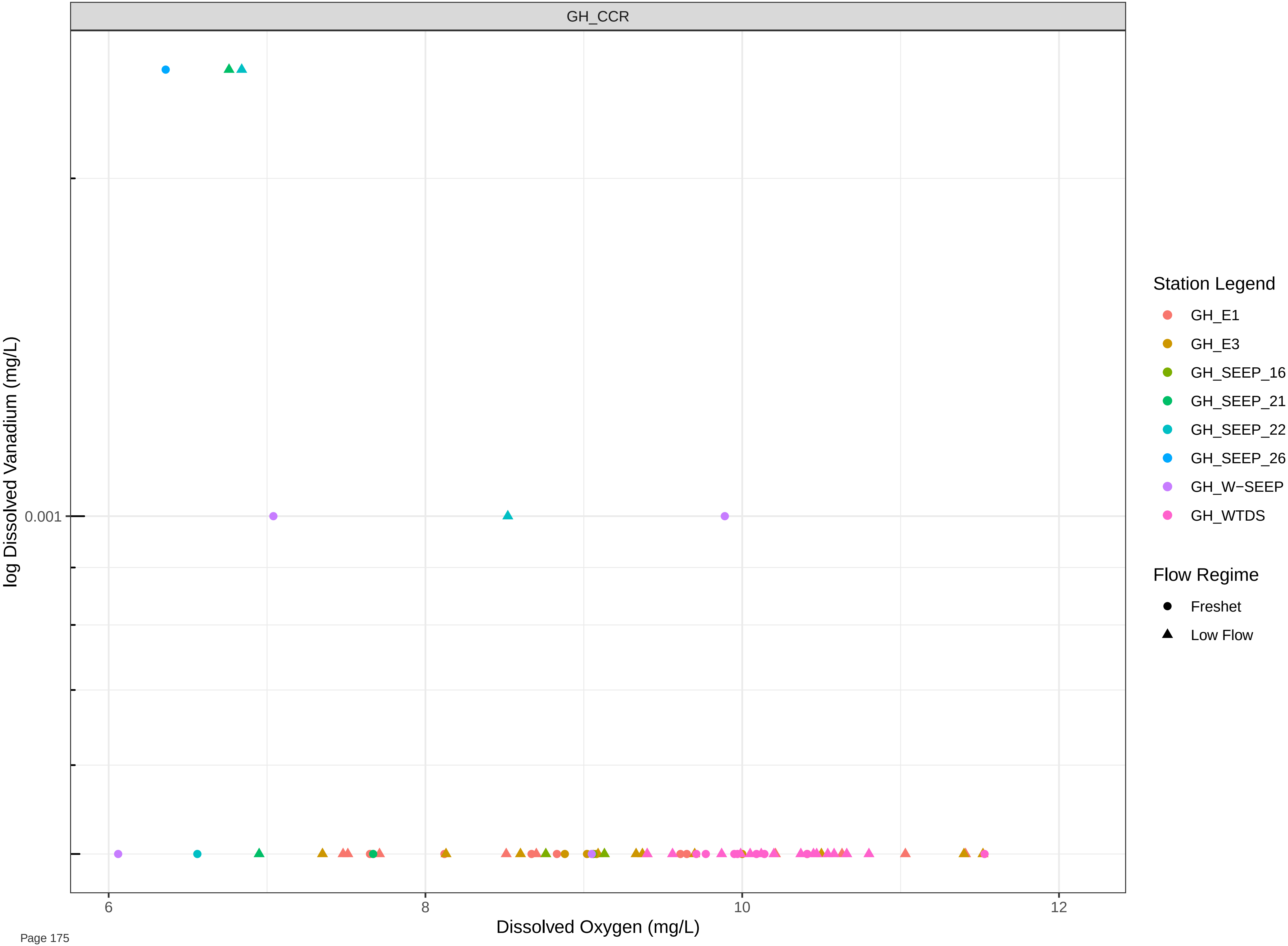
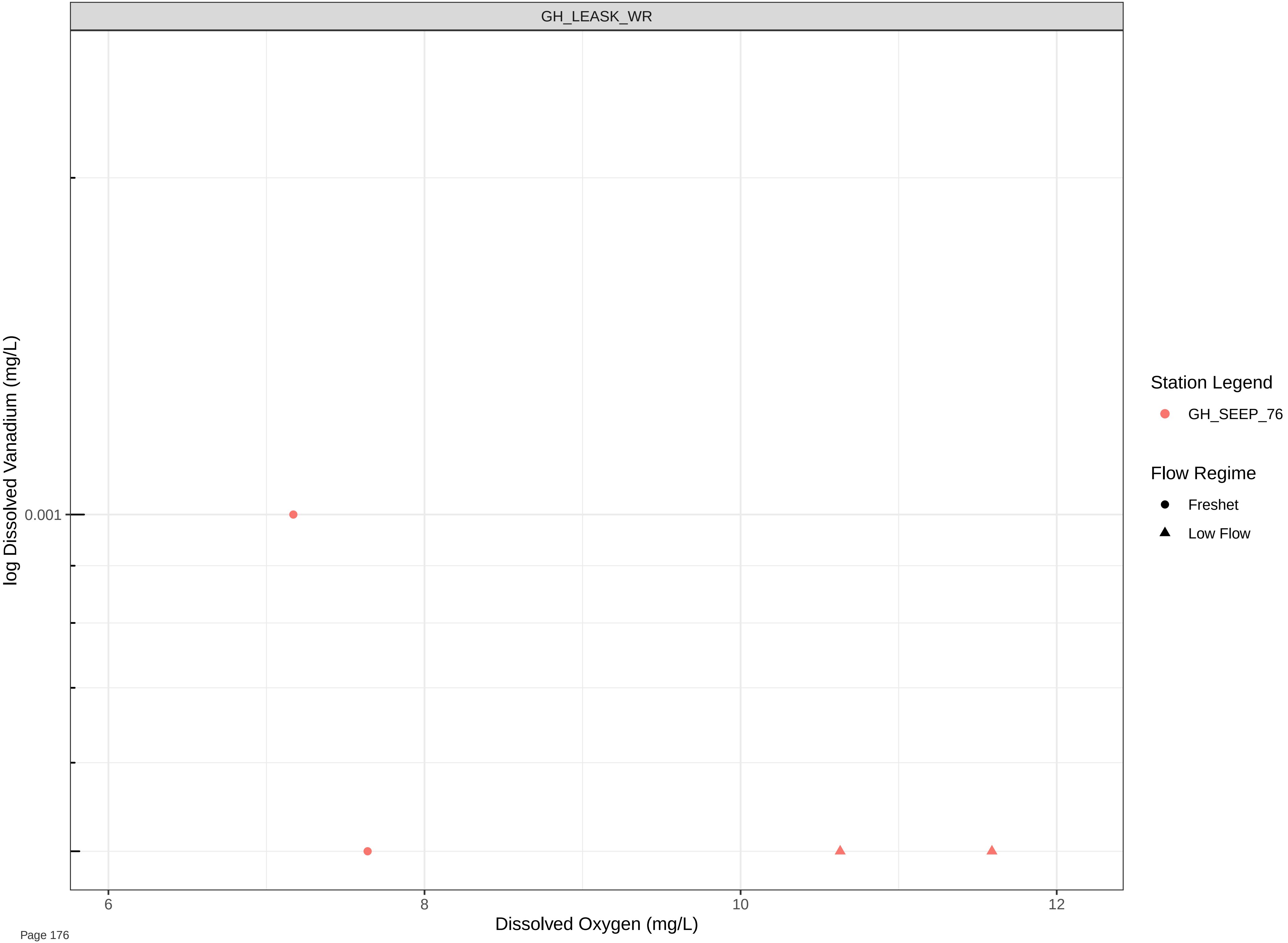
Freshet
Low Flow


GH_THOMPSON_WR
log Dissolved Uranium (mg/L)
0.01
0.001
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow


GH_UPSTREAM_CCR
log Dissolved Uranium (mg/L)
0.01
0.001
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow


GH_WOLFRAM_WR
log Dissolved Uranium (mg/L)
0.01
0.001
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow


GH_CCR
log Dissolved Vanadium (mg/L)
0.001
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow


GH_LEASK_WR
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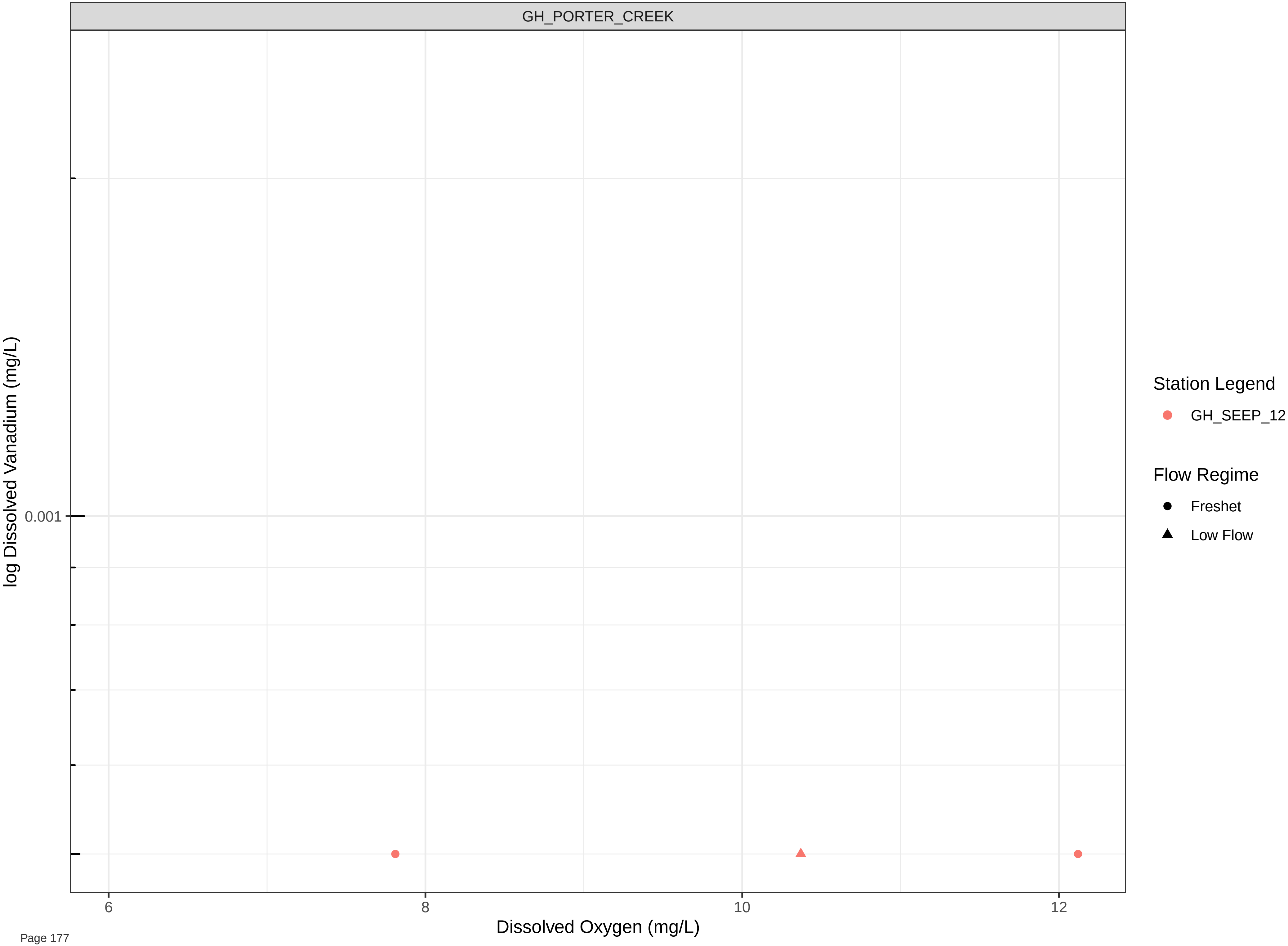
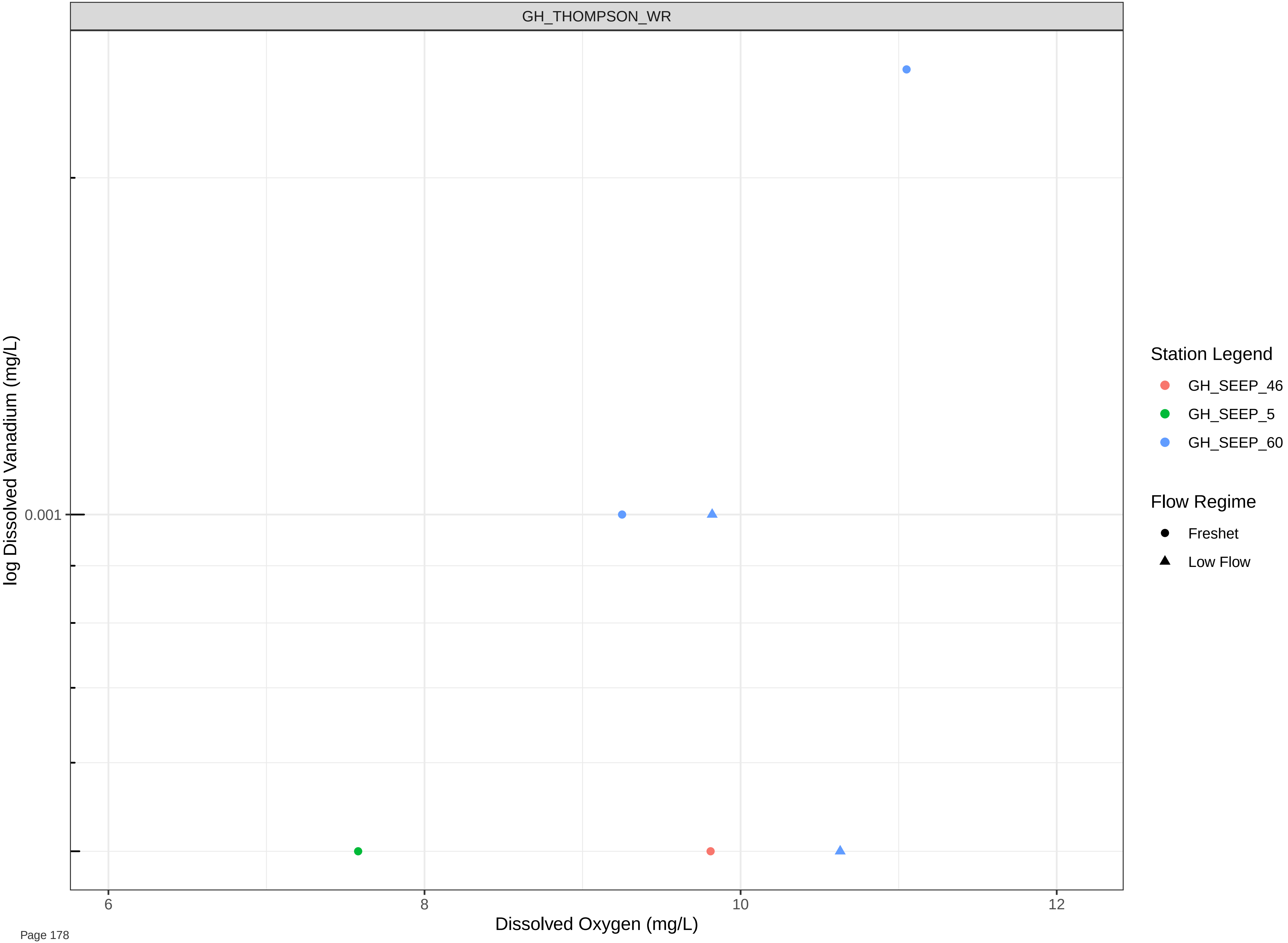
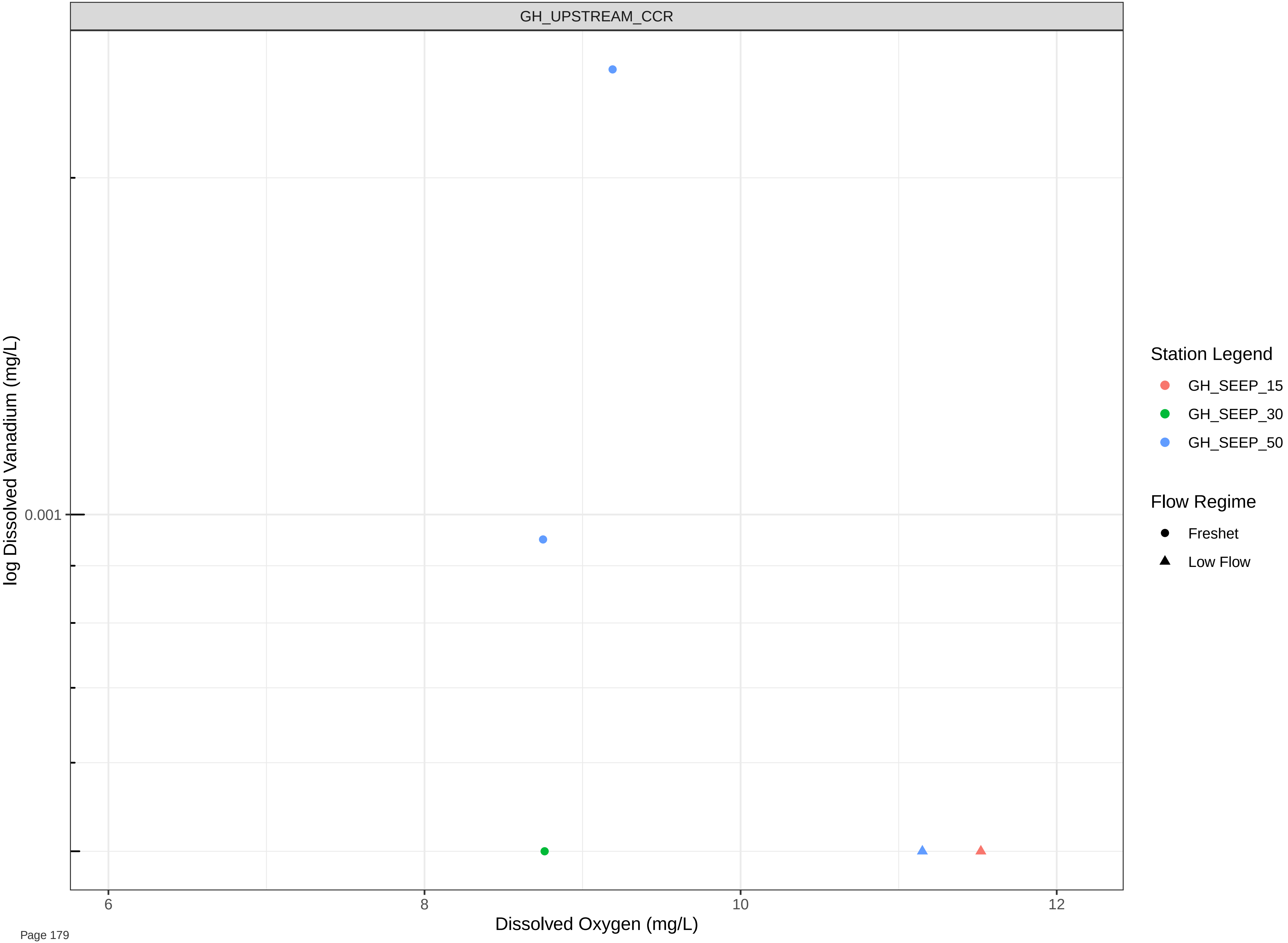
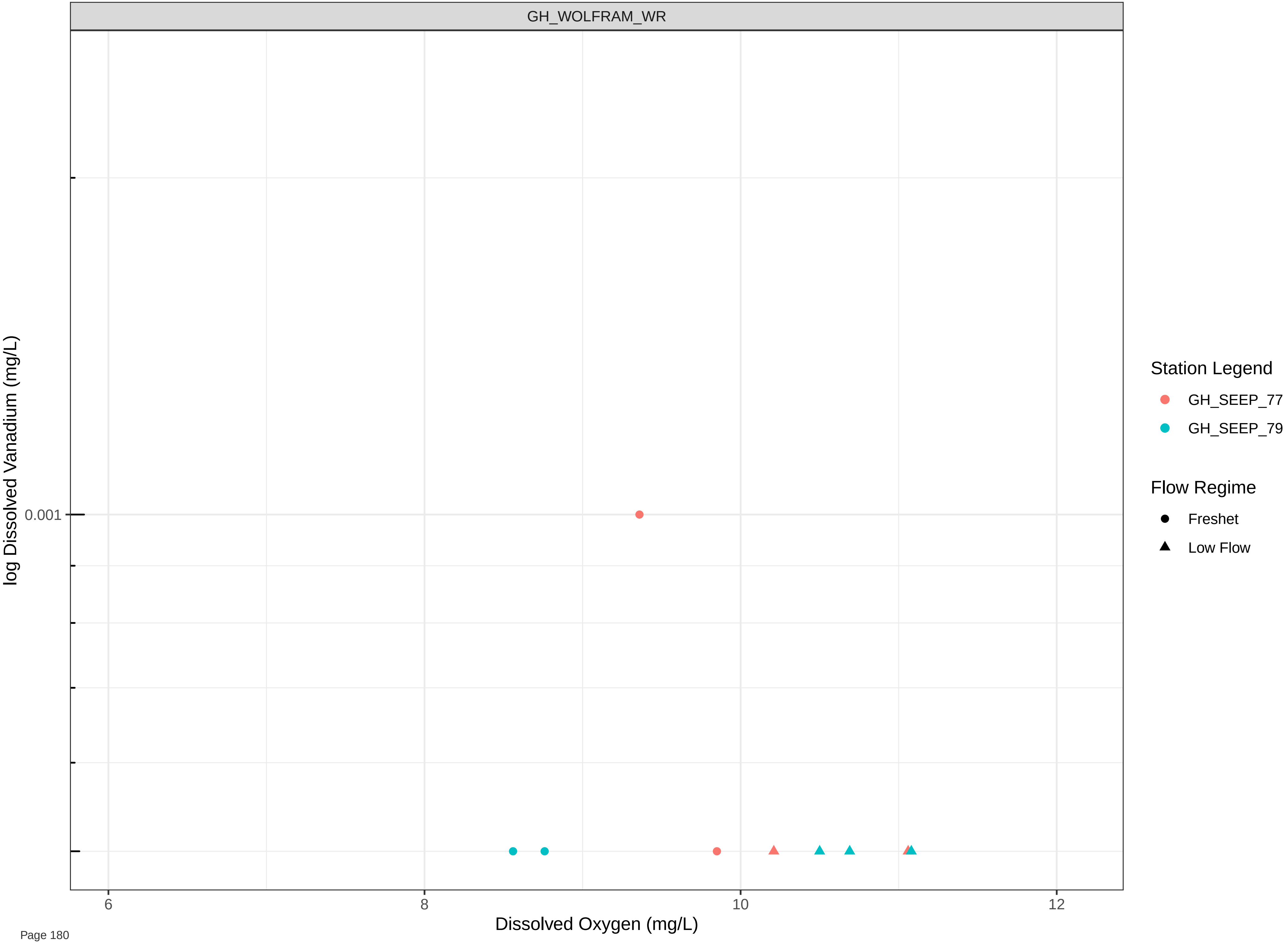
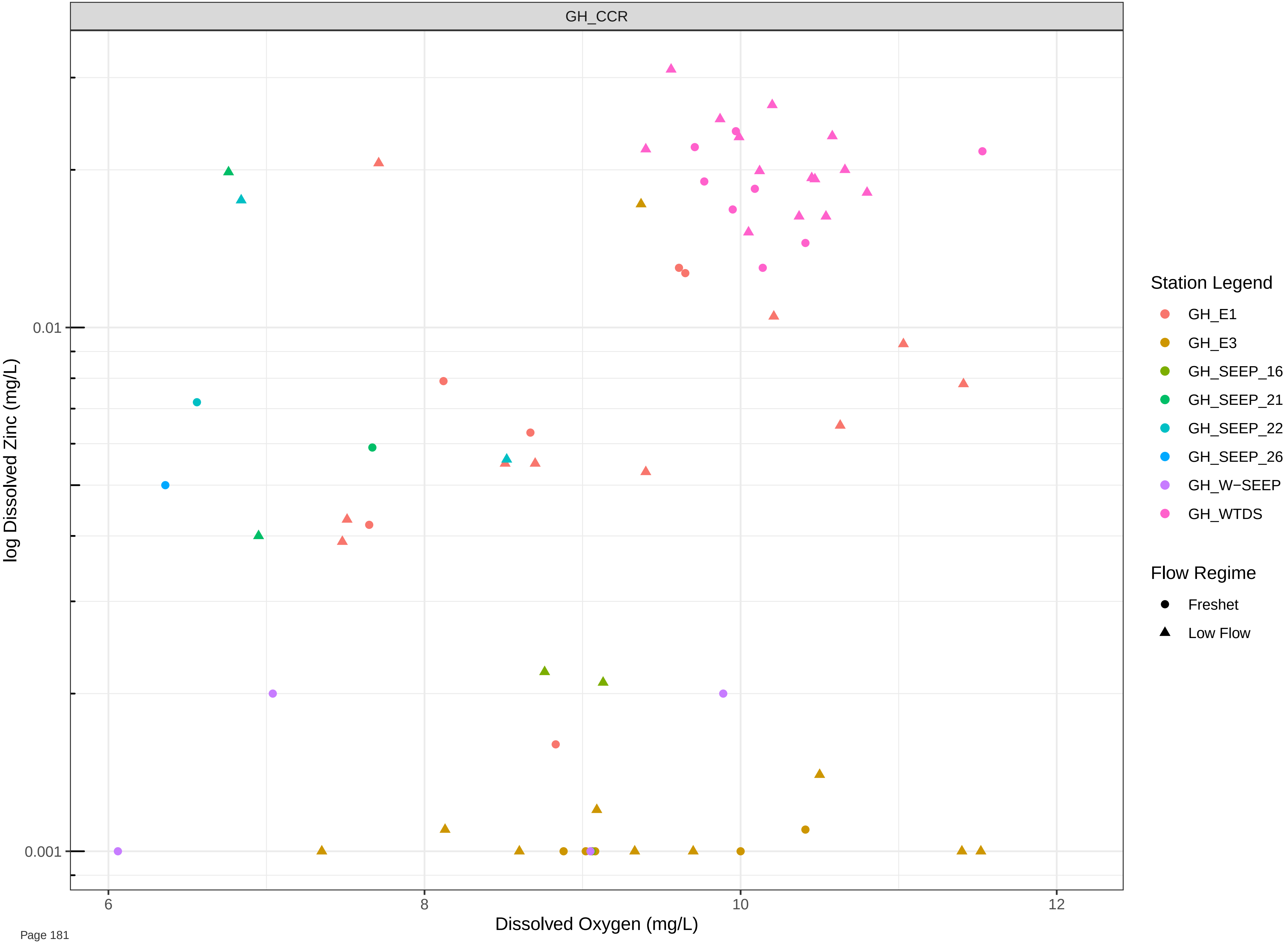
0.001
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

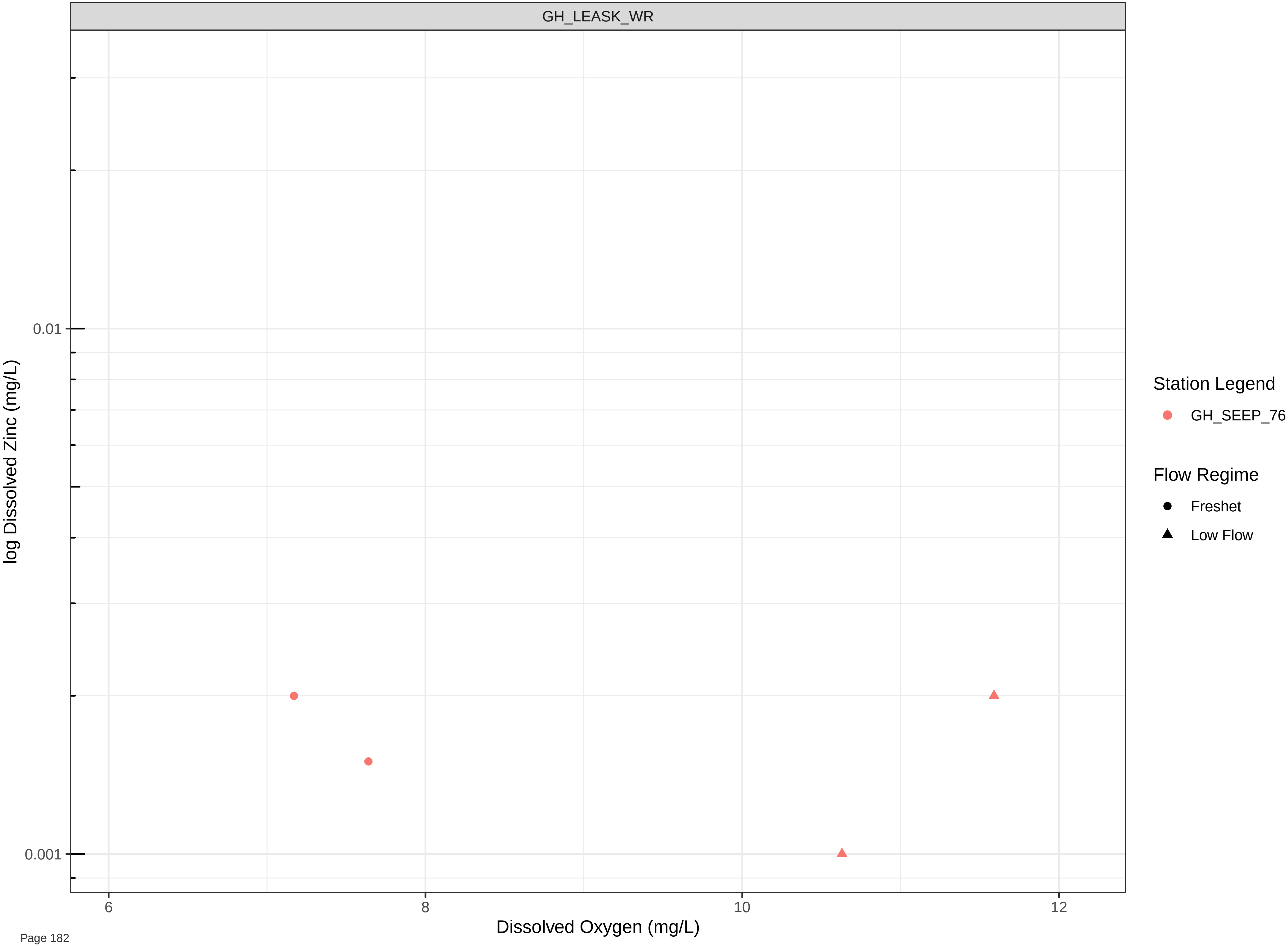

GH_PORTER_CREEK
log Dissolved Vanadium (mg/L)
0.001
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

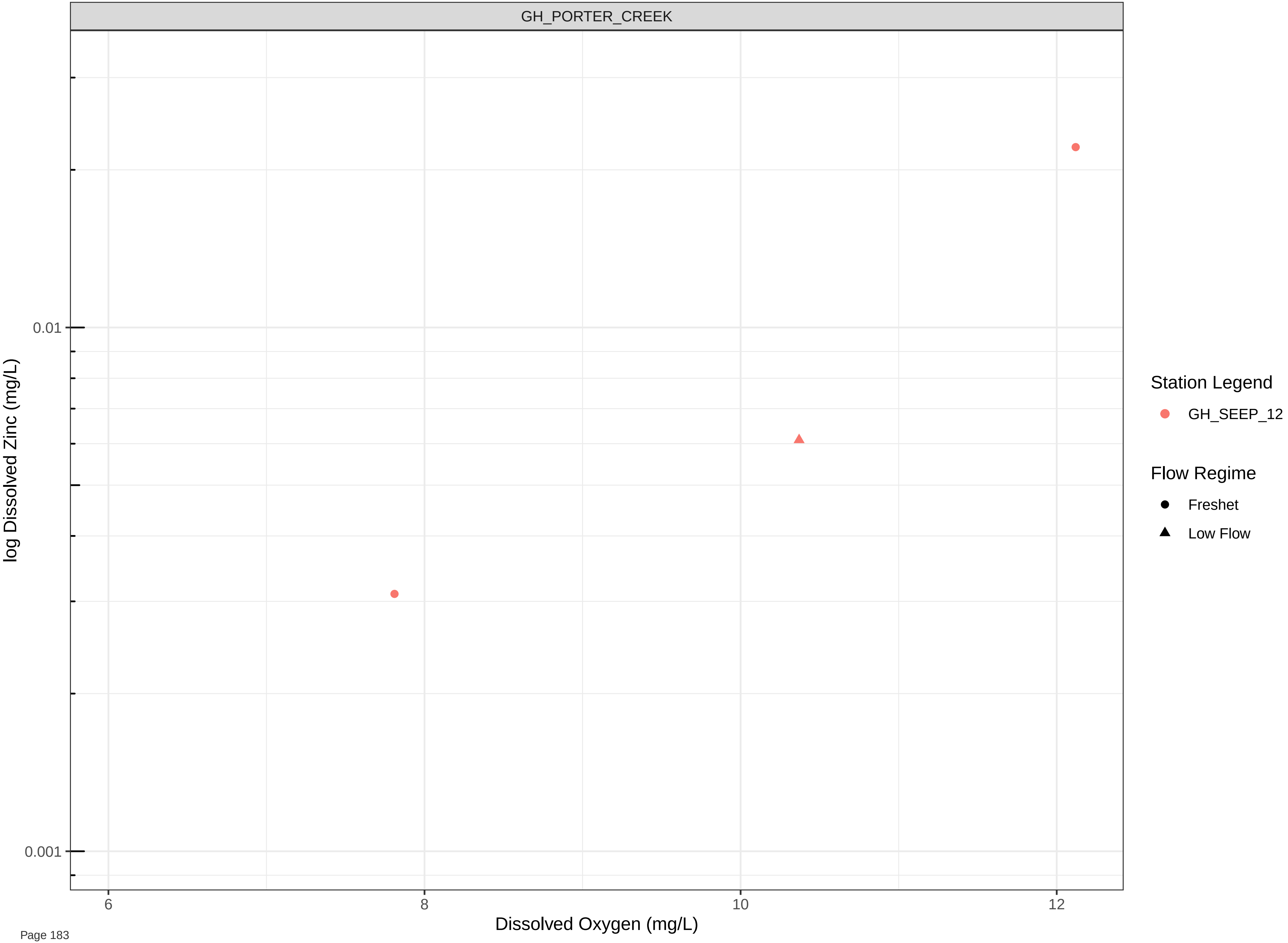

GH_THOMPSON_WR
log Dissolved Vanadium (mg/L)
0.001
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

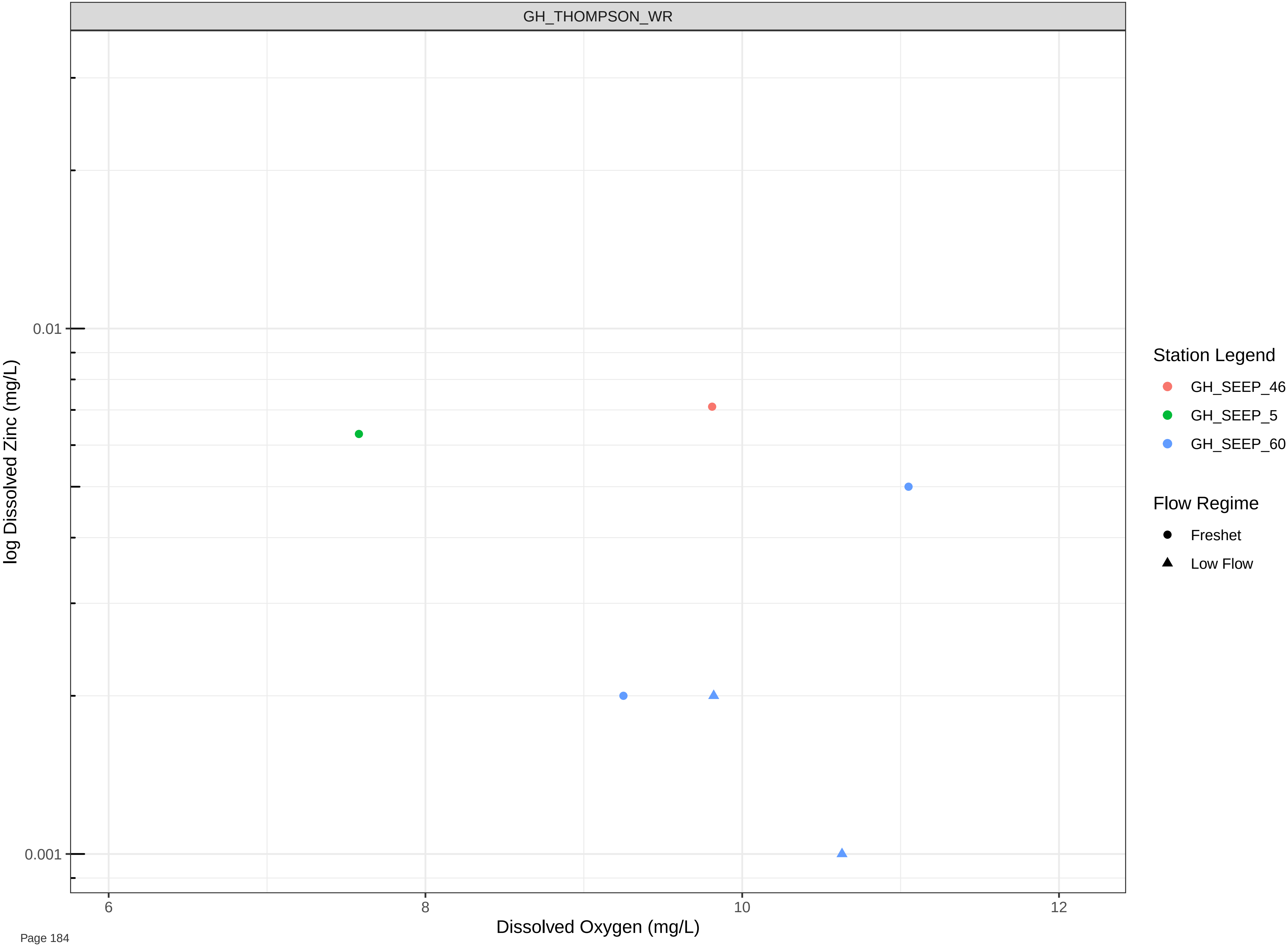

GH_UPSTREAM_CCR
log Dissolved Vanadium (mg/L)
0.001
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

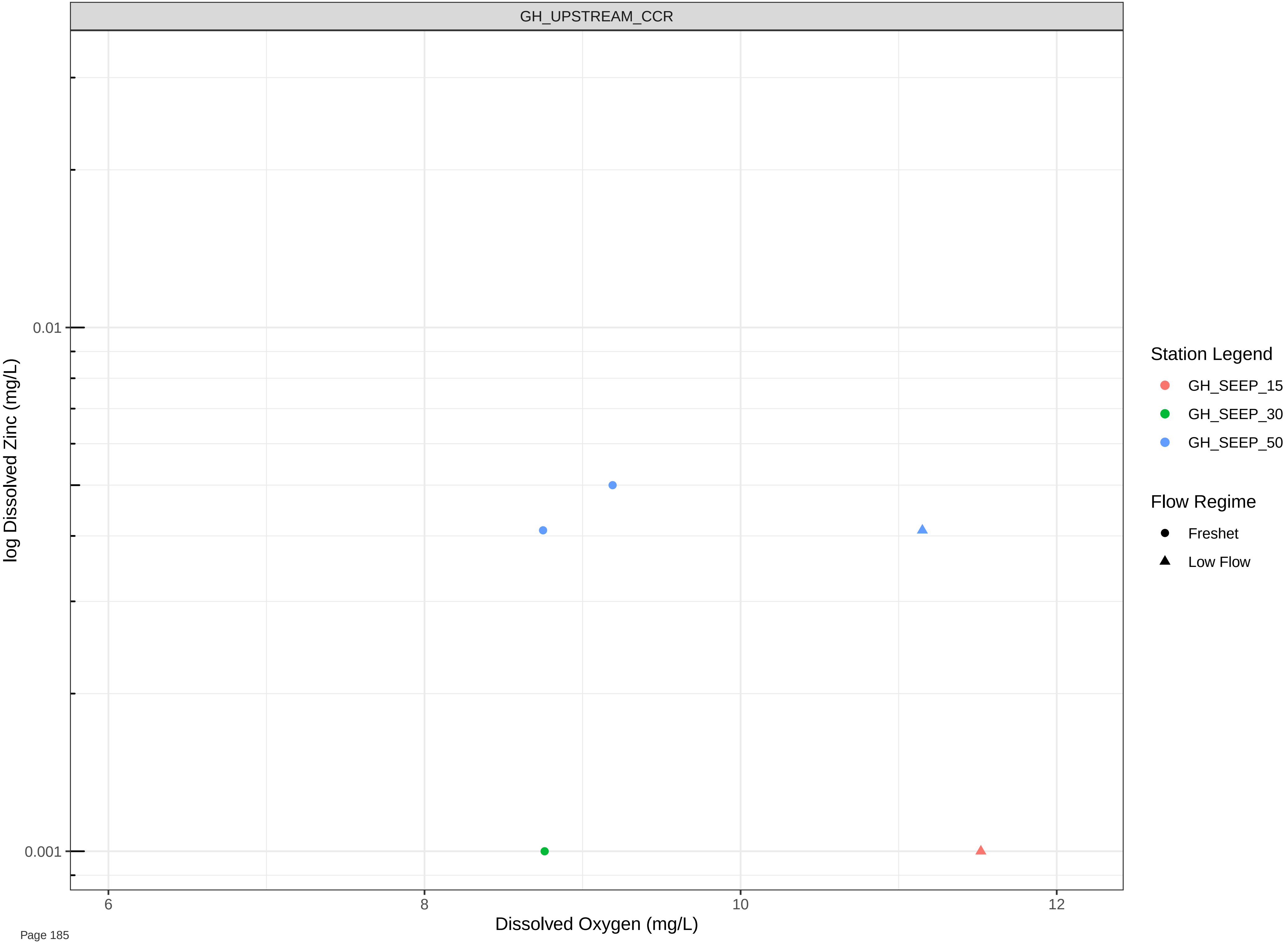

GH_WOLFRAM_WR
log Dissolved Vanadium (mg/L)
0.001
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

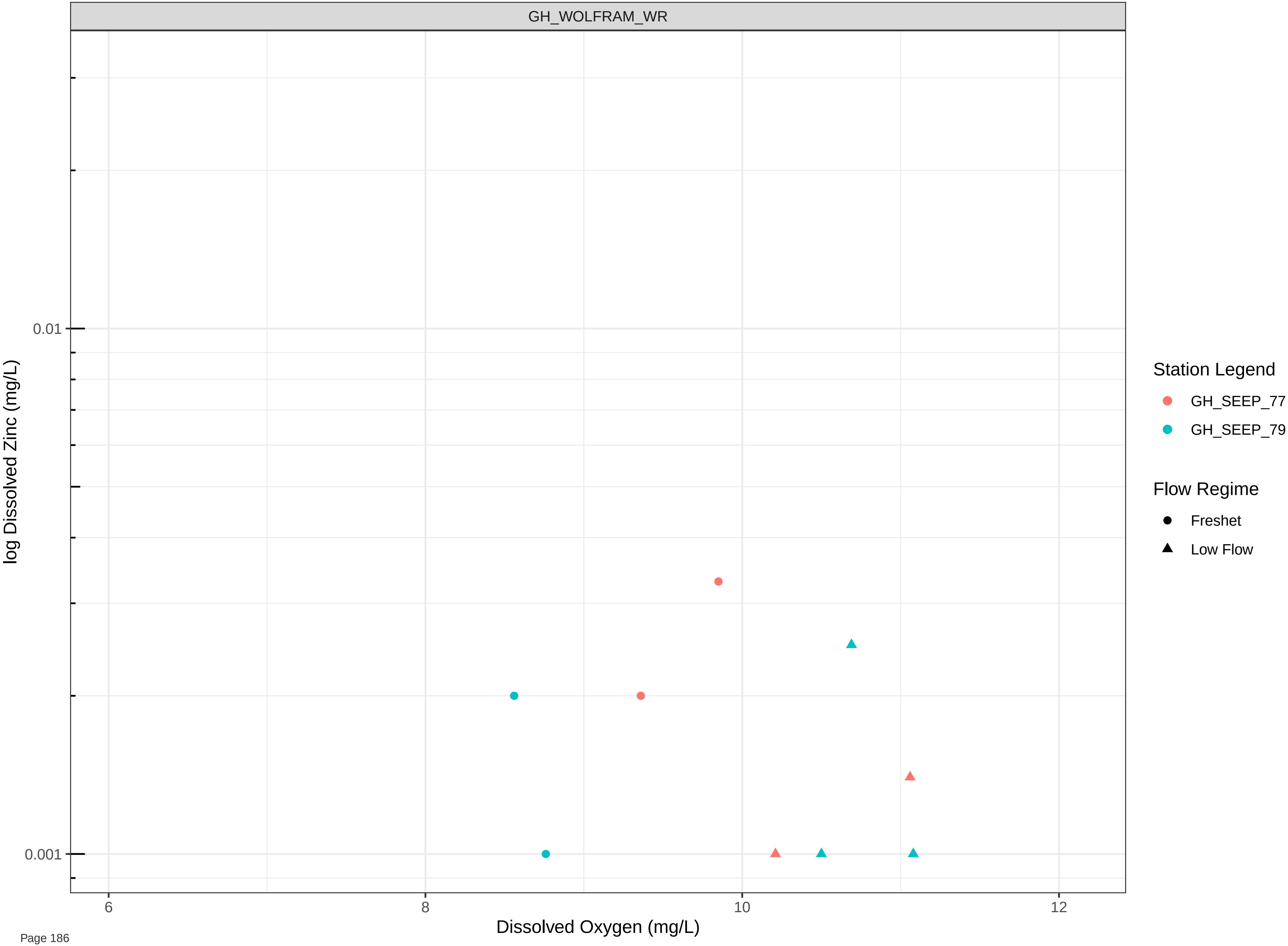

GH_CCR
log Dissolved Zinc (mg/L)
0.01
0.001
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

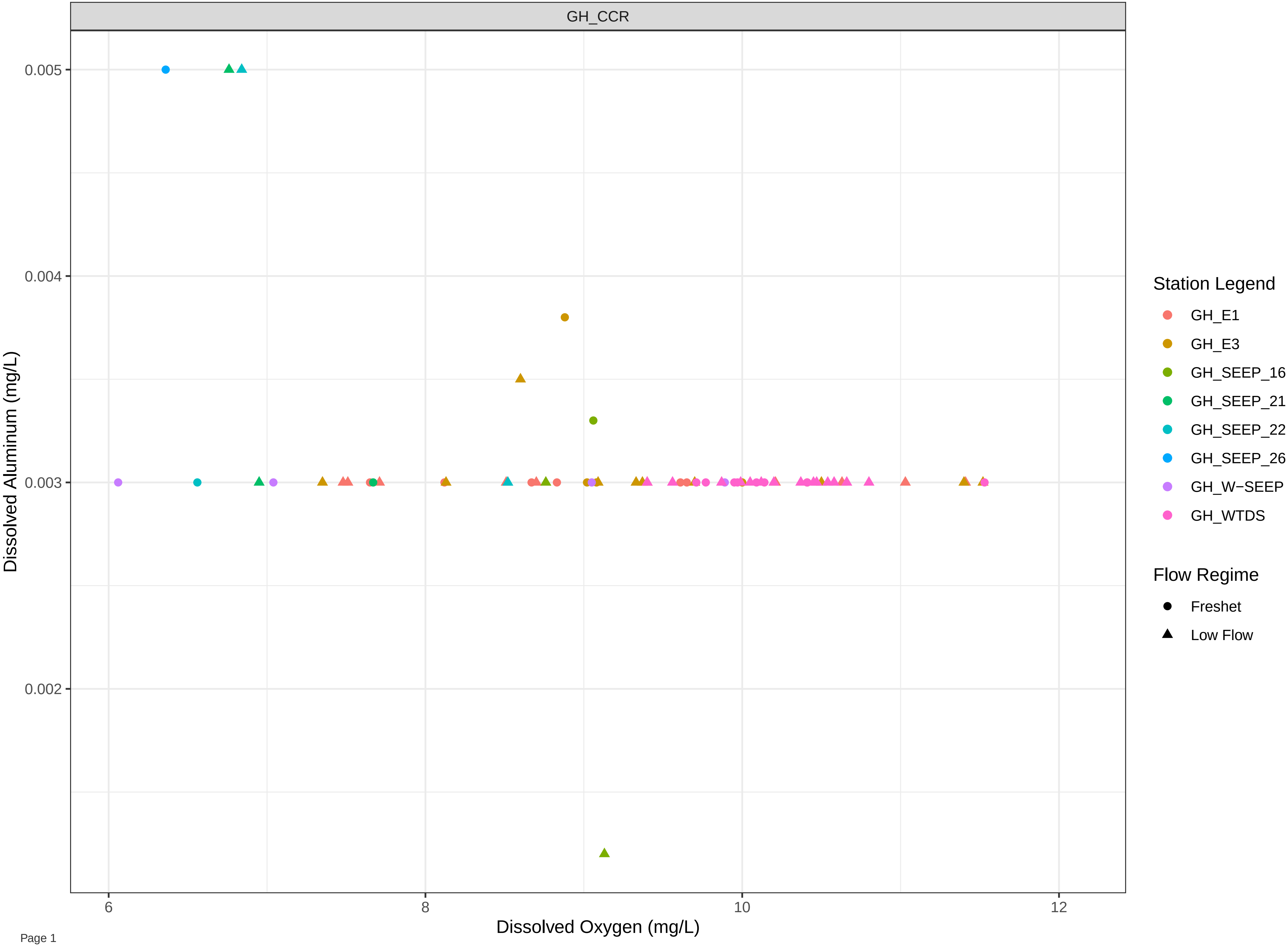

GH_LEASK_WR
log Dissolved Zinc (mg/L)
0.01
0.001
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow

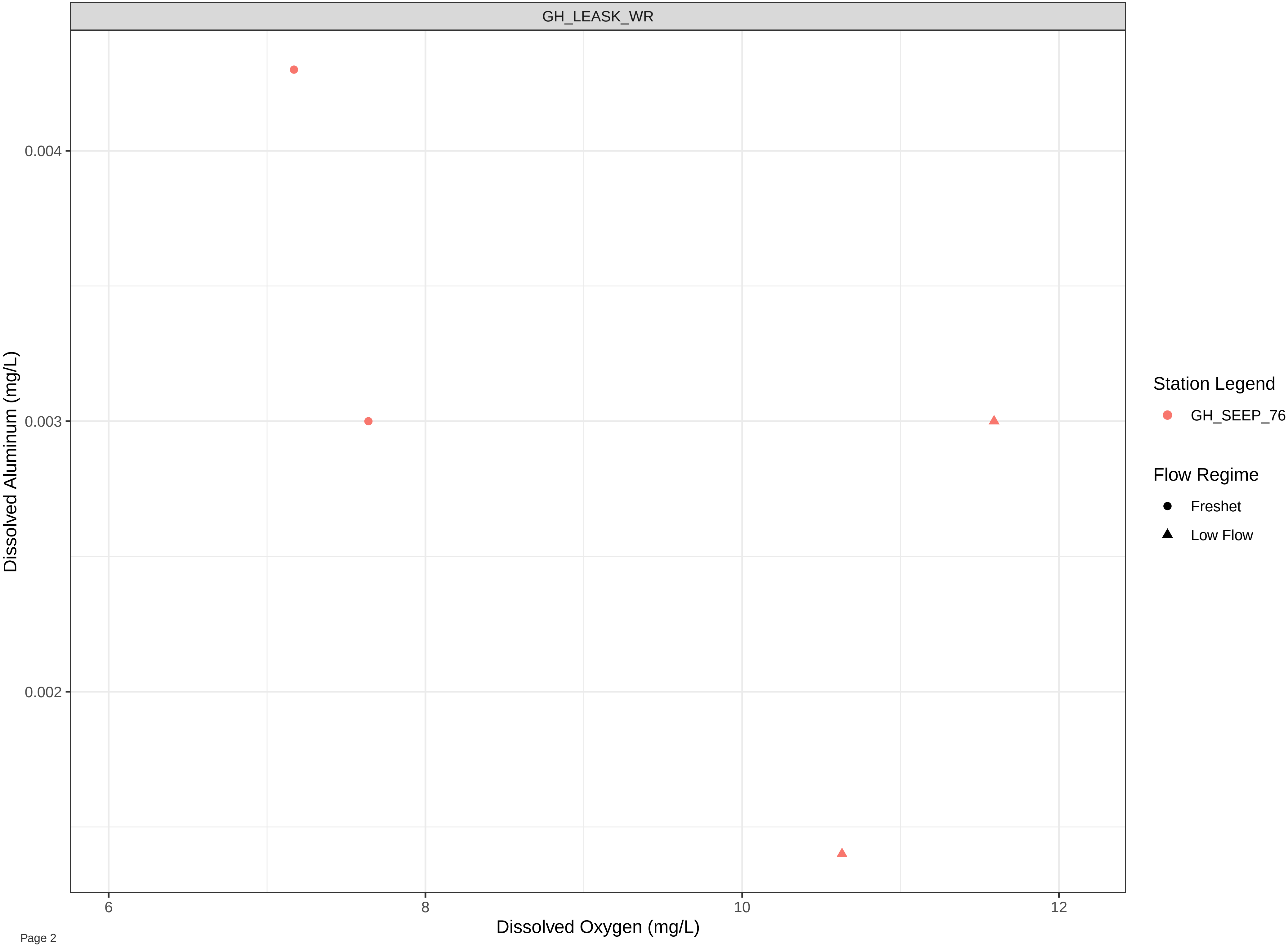

GH_PORTER_CREEK
0.01
0.001
log Dissolved Zinc (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

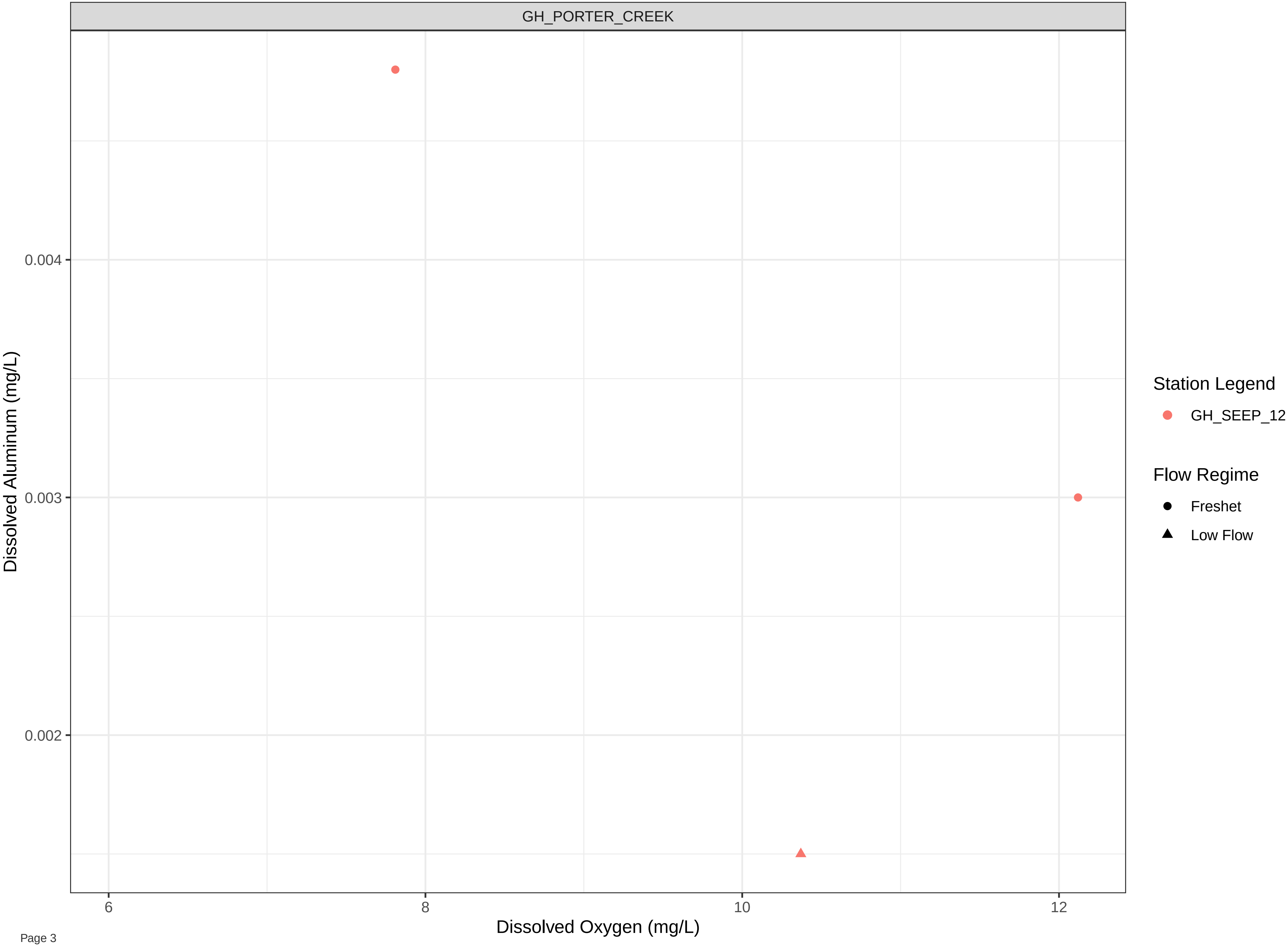

GH_THOMPSON_WR
log Dissolved Zinc (mg/L)
0.01
0.001
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

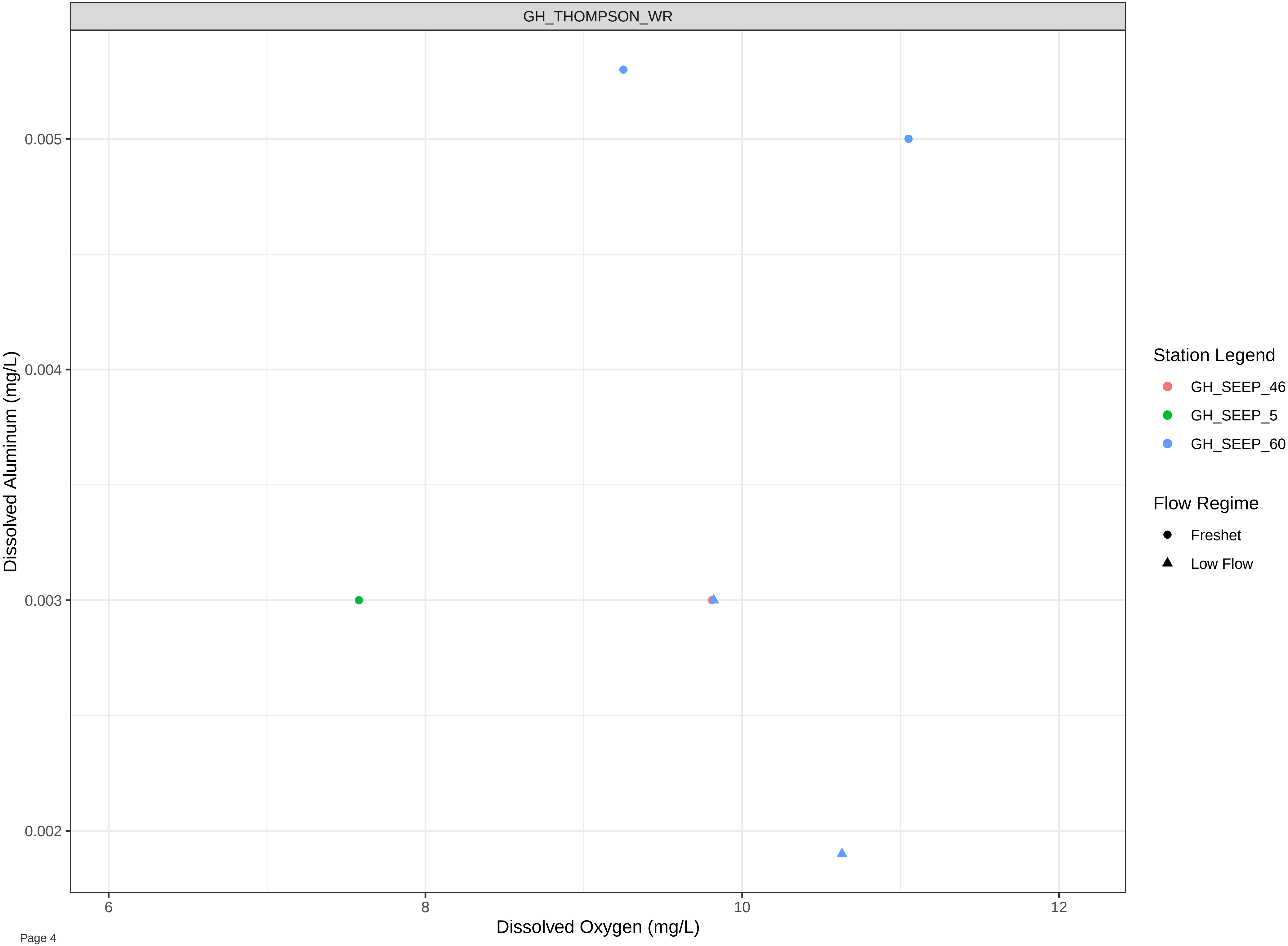

GH_UPSTREAM_CCR
log Dissolved Zinc (mg/L)
0.01
0.001
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

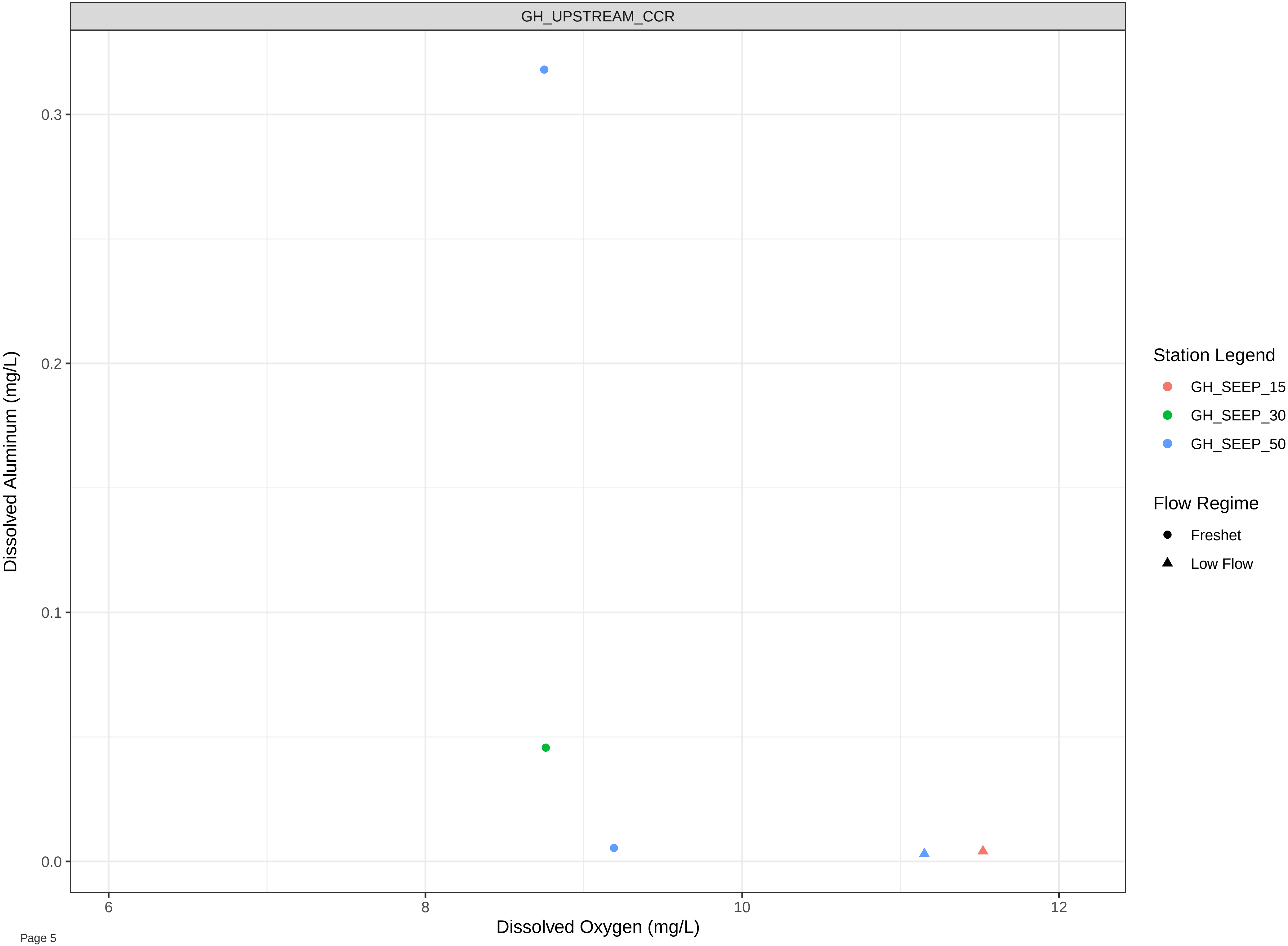

GH_WOLFRAM_WR
log Dissolved Zinc (mg/L)
0.01
0.001
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

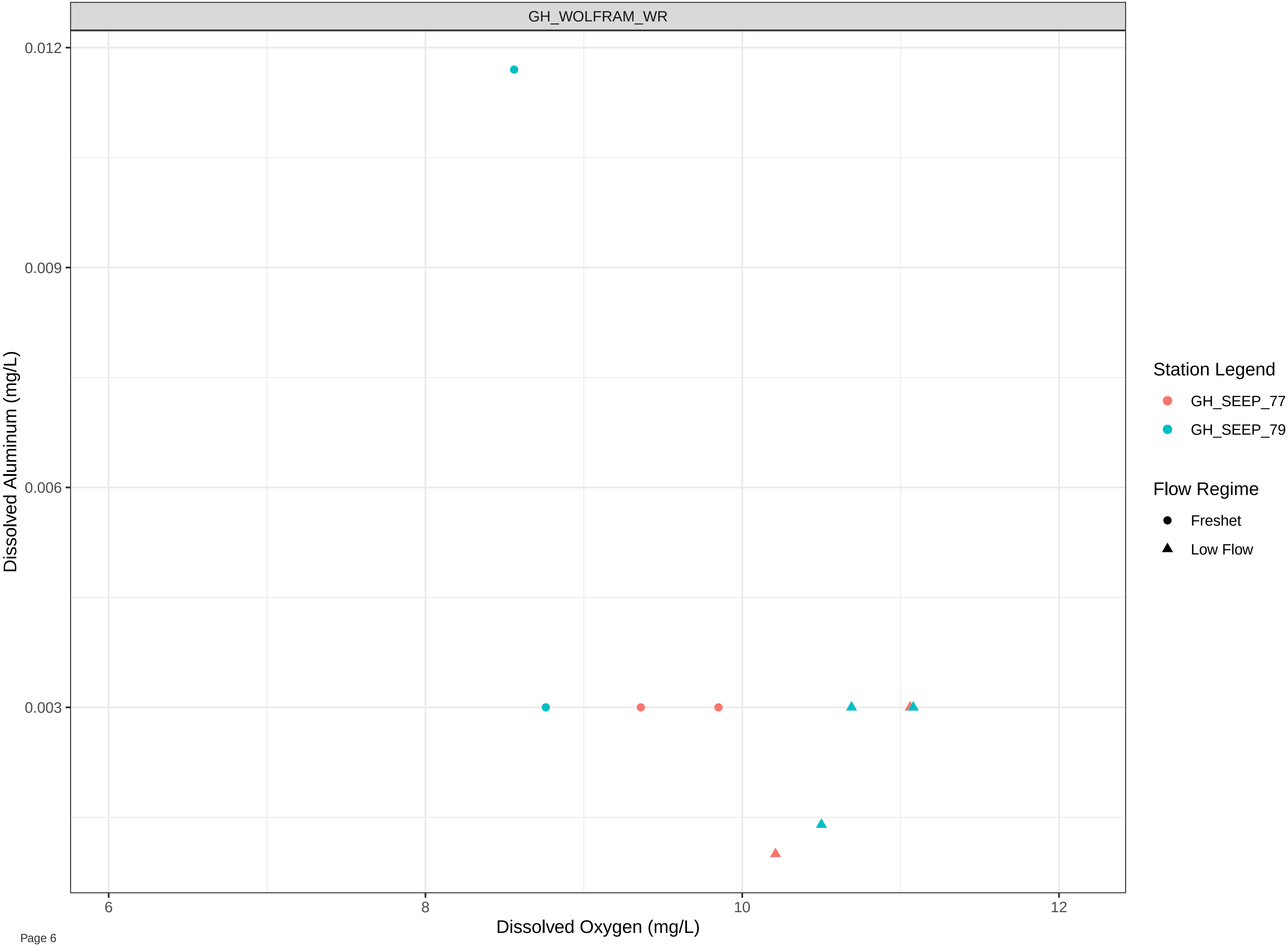

GH_CCR
Dissolved Aluminum (mg/L)
0.005
0.004
0.003
0.002
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

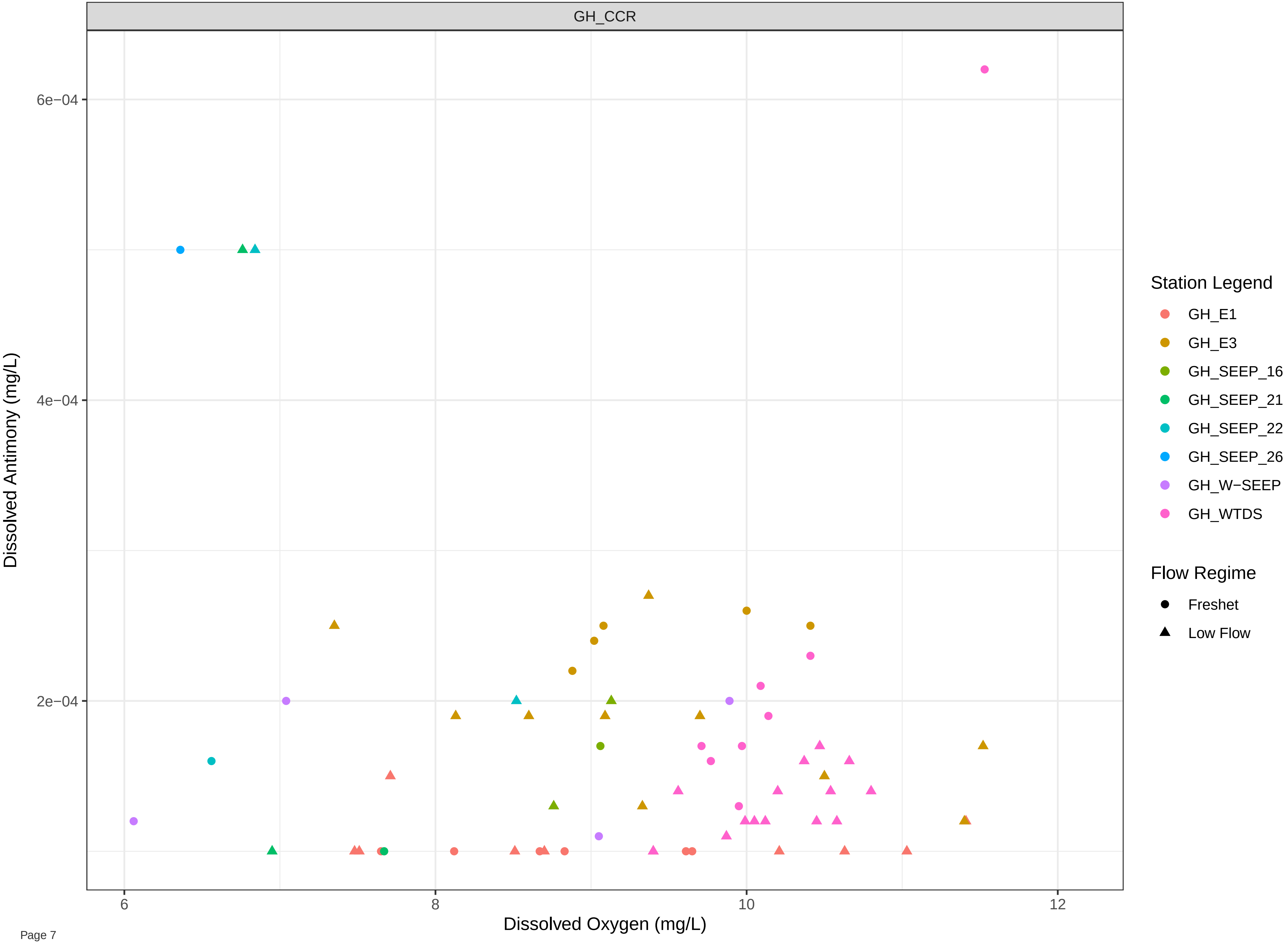

GH_LEASK_WR
Dissolved Aluminum (mg/L)
0.004
0.003
0.002
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

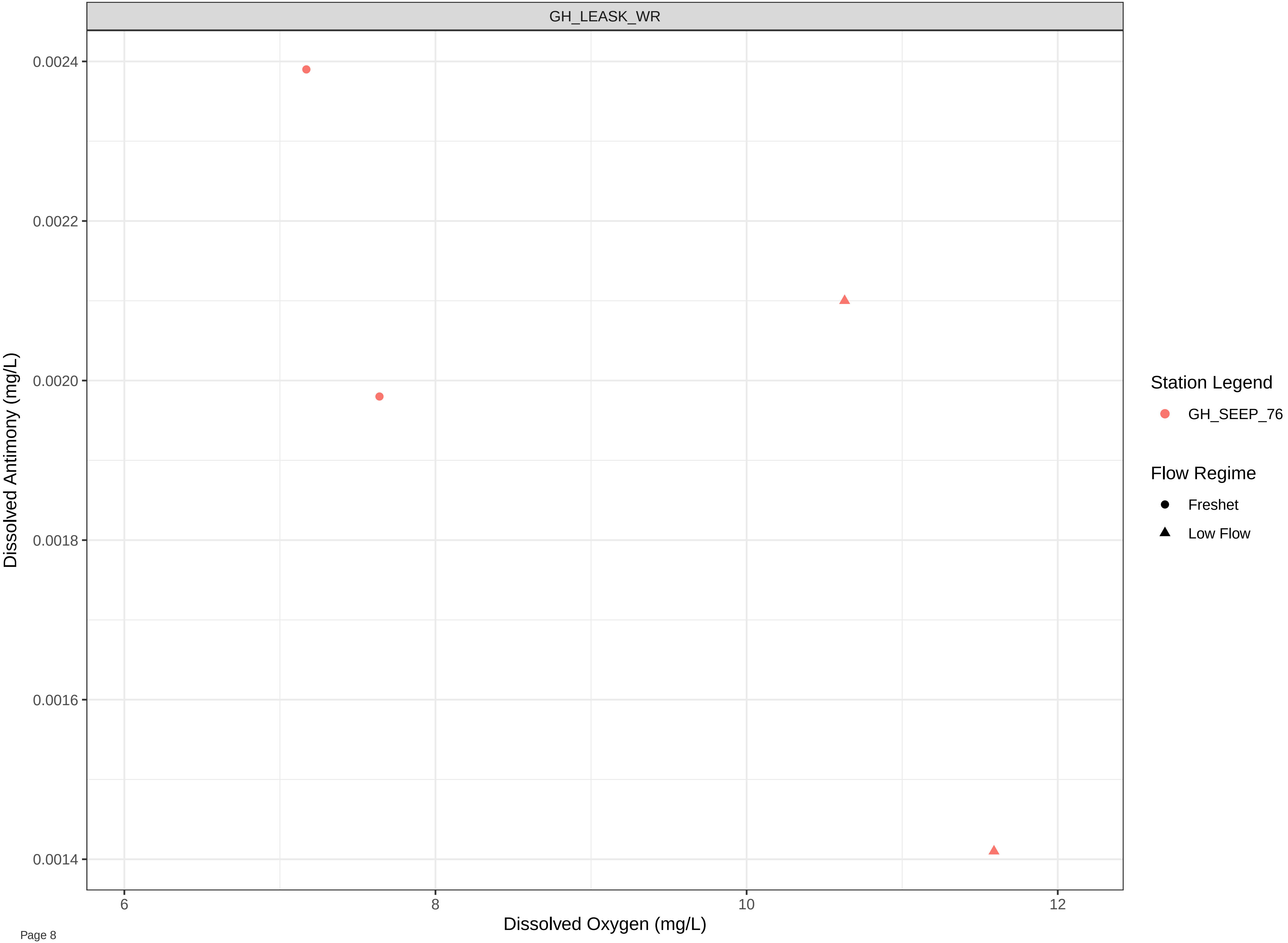

GH_PORTER_CREEK
Dissolved Aluminum (mg/L)
0.004
0.003
0.002
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

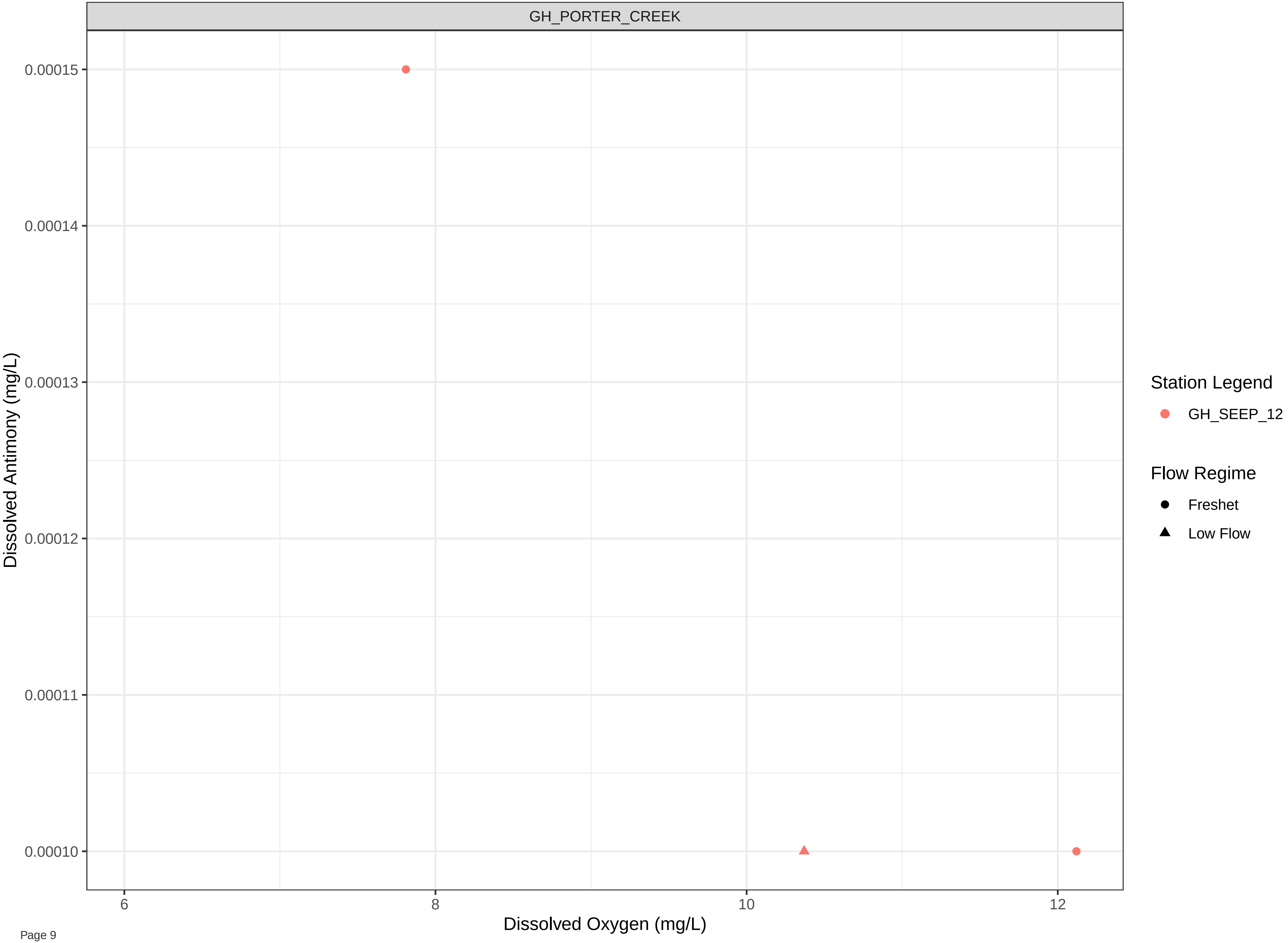

GH_THOMPSON_WR
Dissolved Aluminum (mg/L)
0.005
0.004
0.003
0.002
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

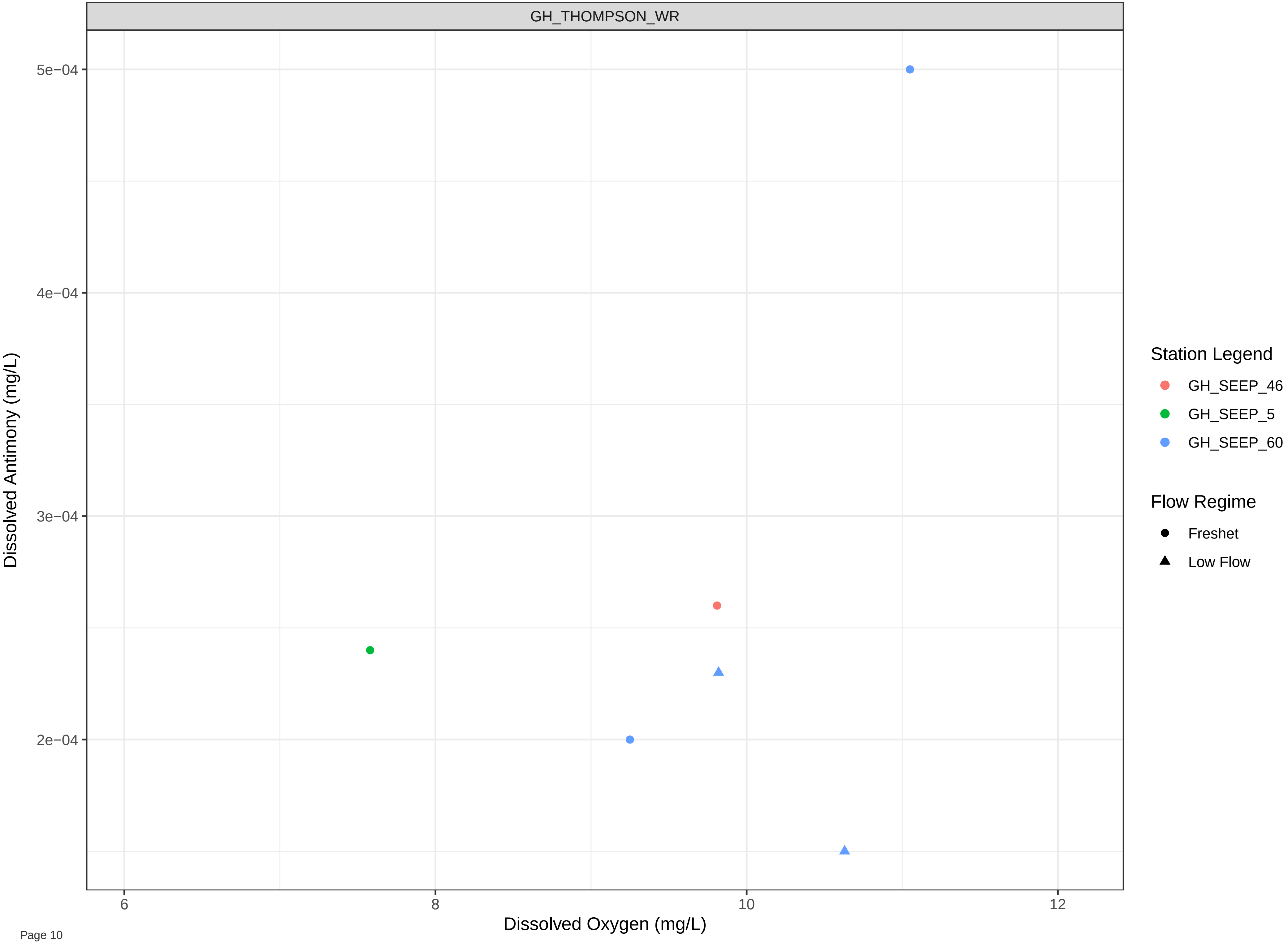

GH_UPSTREAM_CCR
Dissolved Aluminum (mg/L)
0.3
0.2
0.1
0.0
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

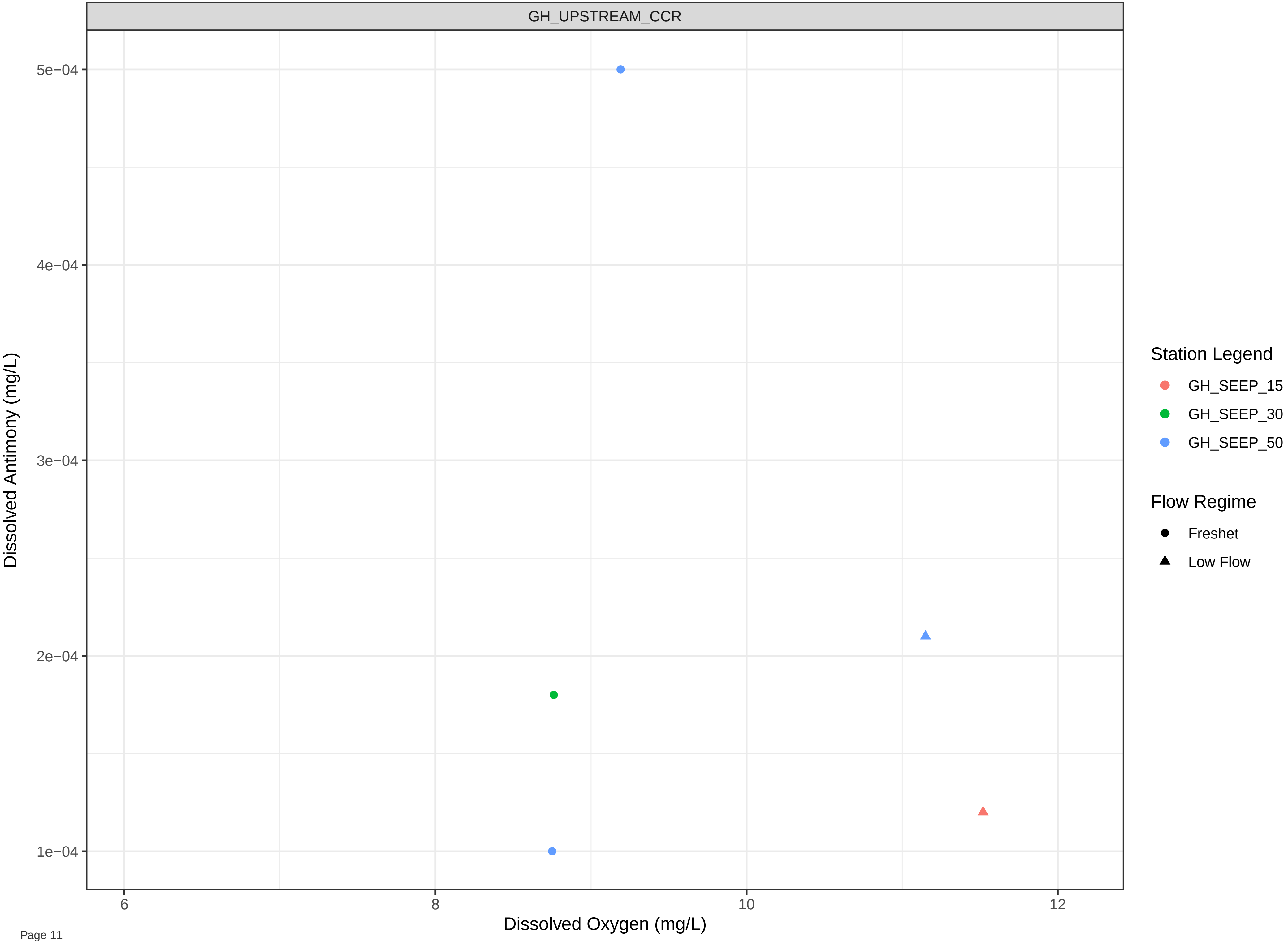

GH_WOLFRAM_WR
0.012
0.009
0.006
0.003
Dissolved Aluminum (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

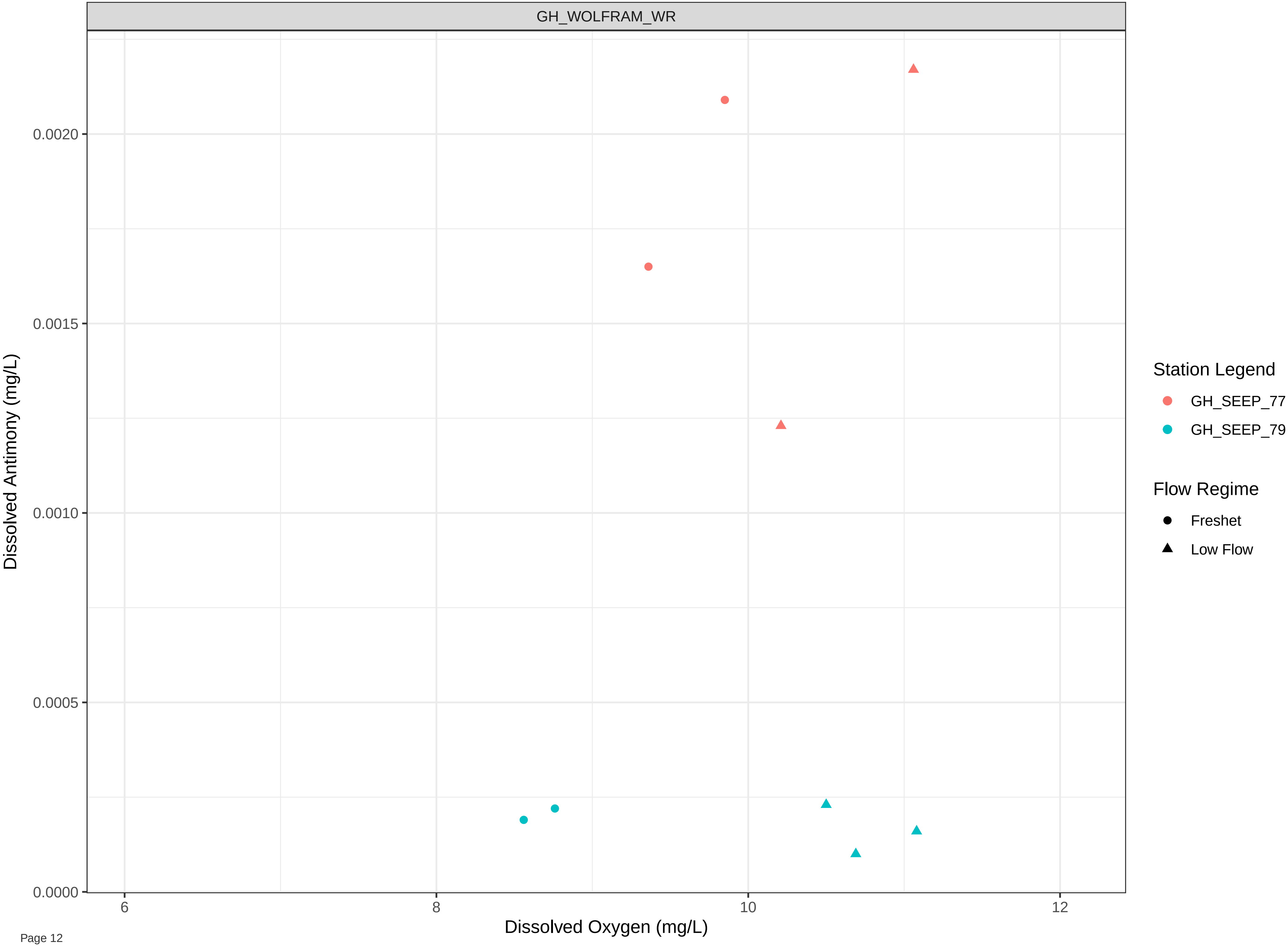

GH_CCR
Dissolved Antimony (mg/L)
6e−04
4e−04
2e−04
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

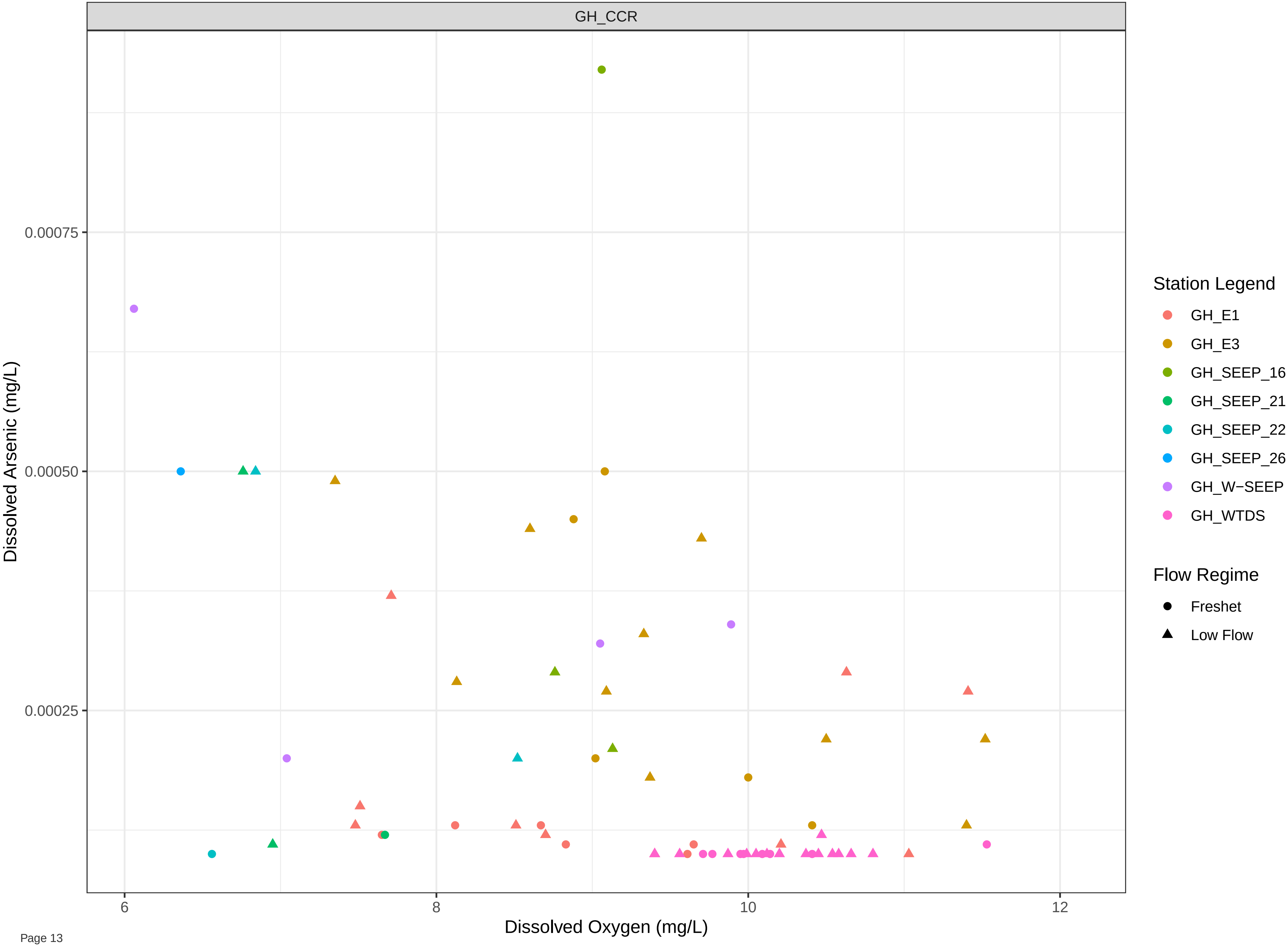

GH_LEASK_WR
Dissolved Antimony (mg/L)
0.0024
0.0022
0.0020
0.0018
0.0016
0.0014
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

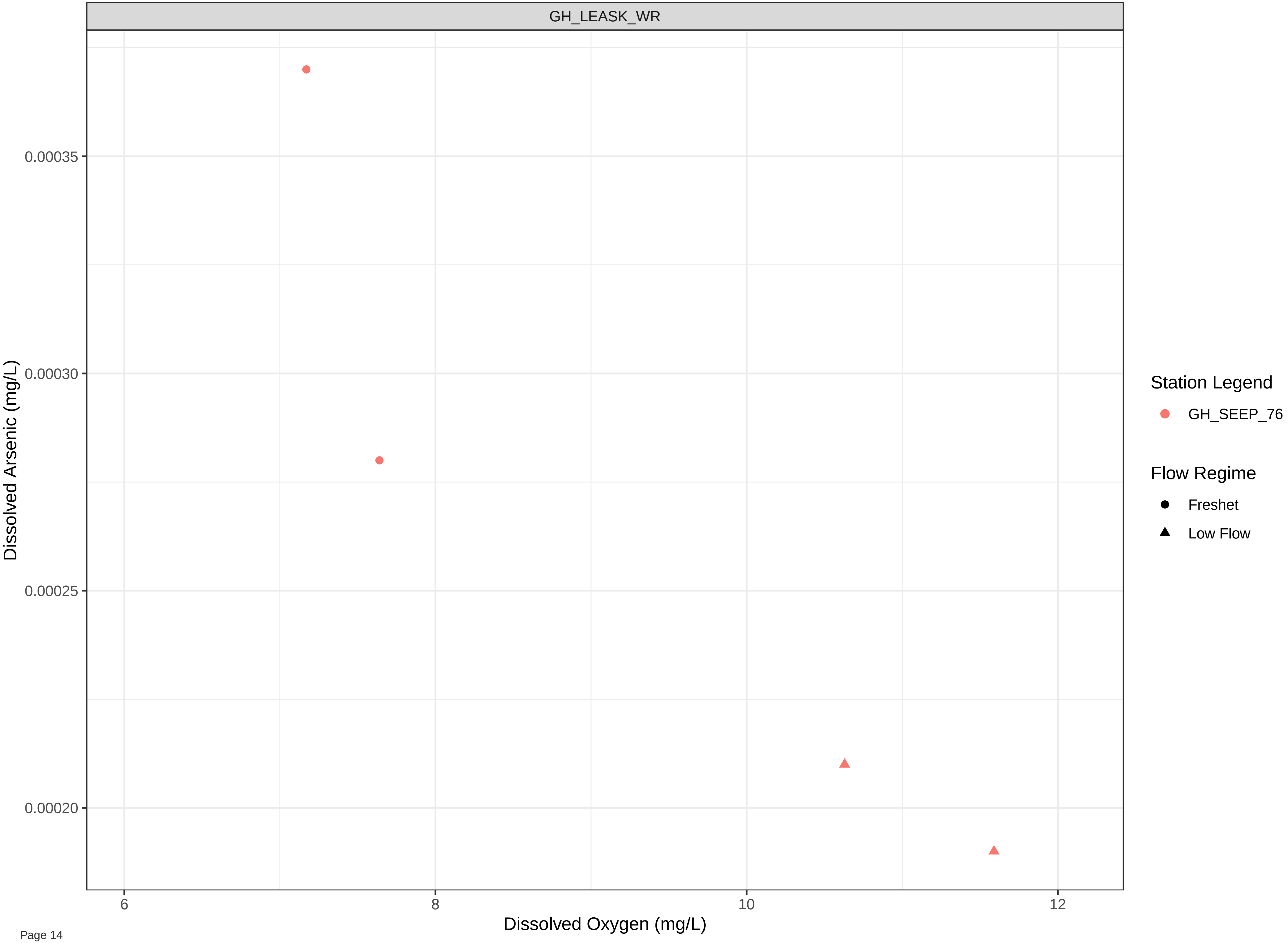

GH_PORTER_CREEK
Dissolved Antimony (mg/L)
0.00015
0.00014
0.00013
0.00012
0.00011
0.00010
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

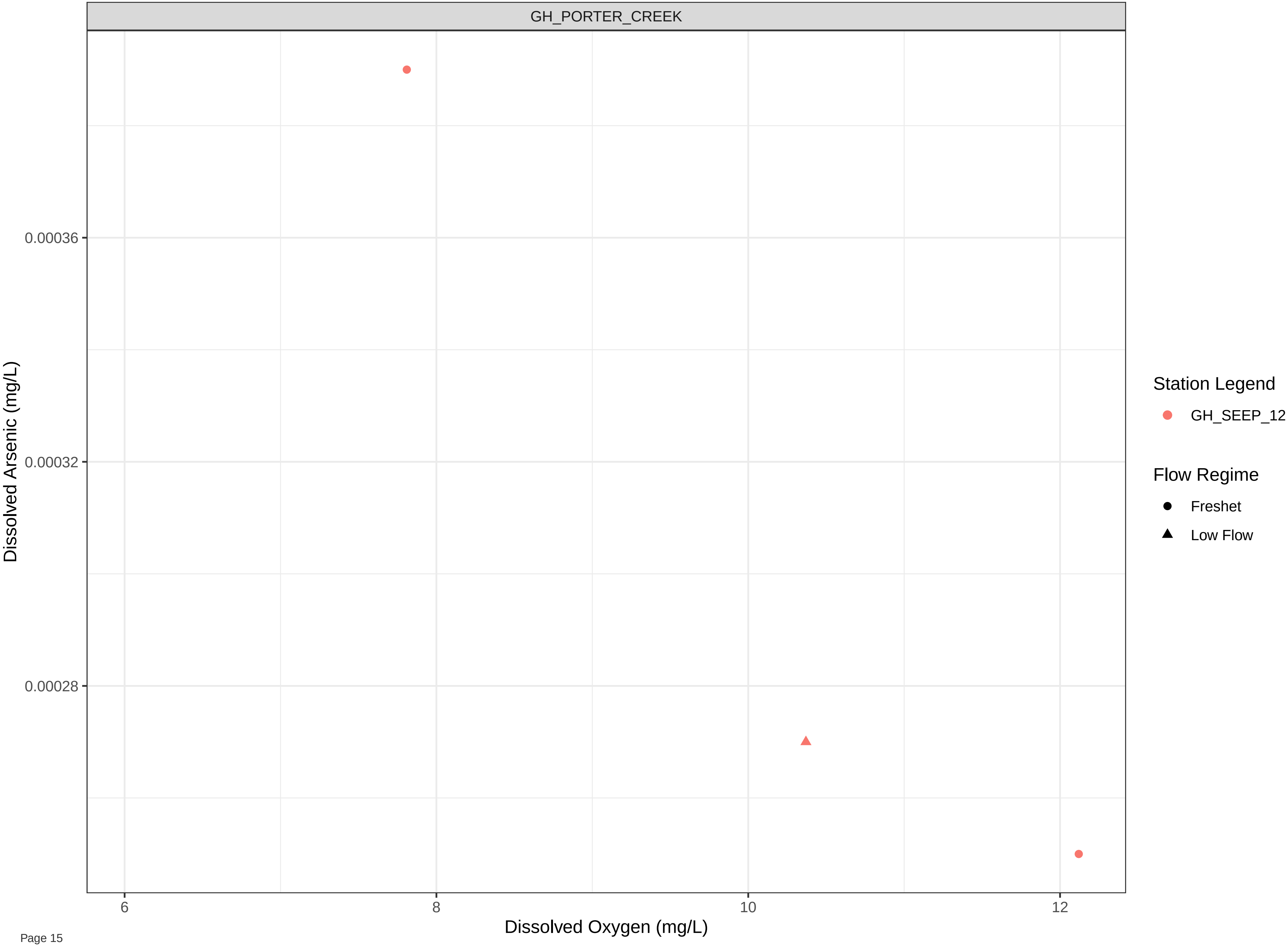

GH_THOMPSON_WR
Dissolved Antimony (mg/L)
5e−04
4e−04
3e−04
2e−04
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

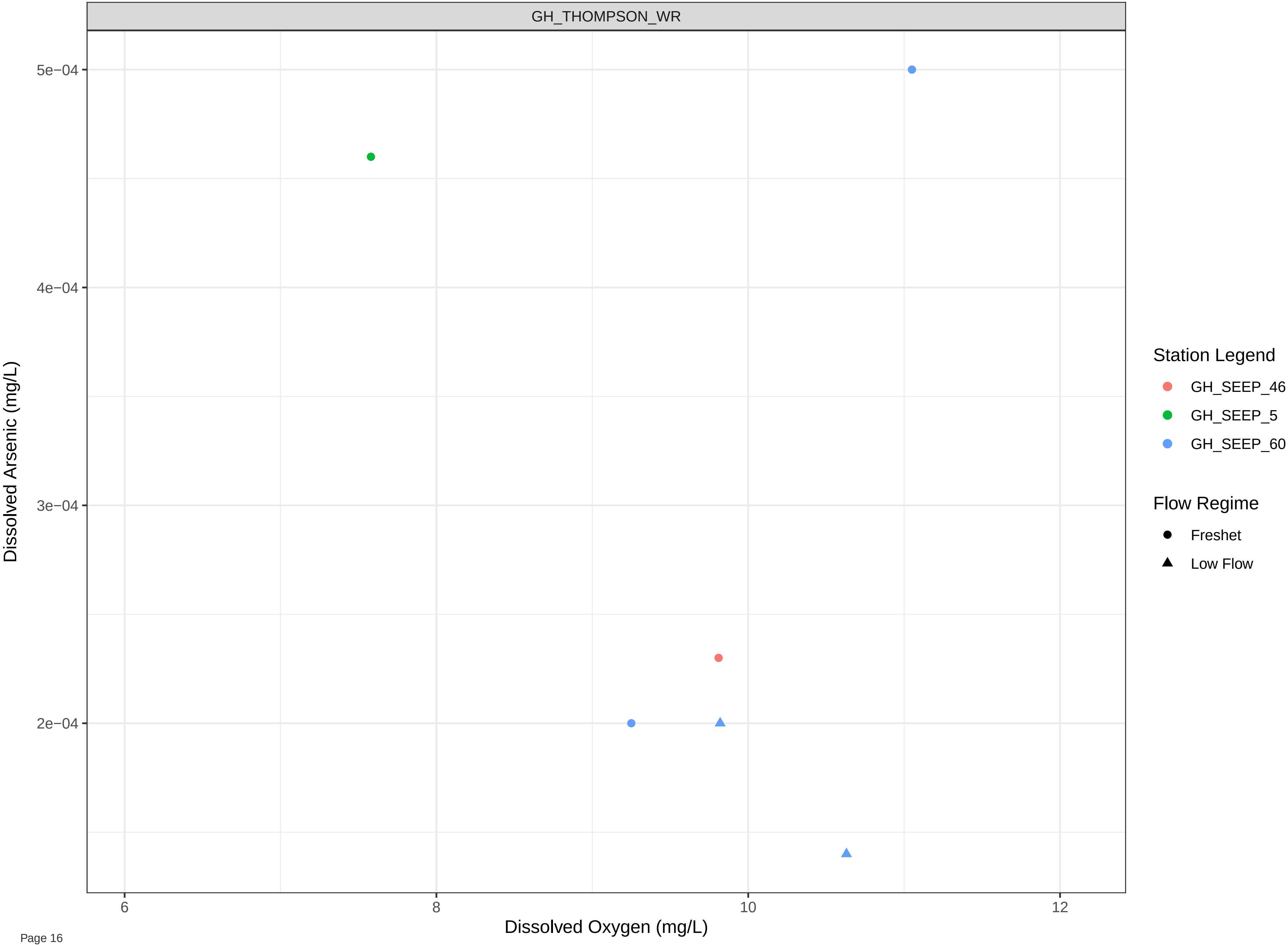

GH_UPSTREAM_CCR
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Antimony (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

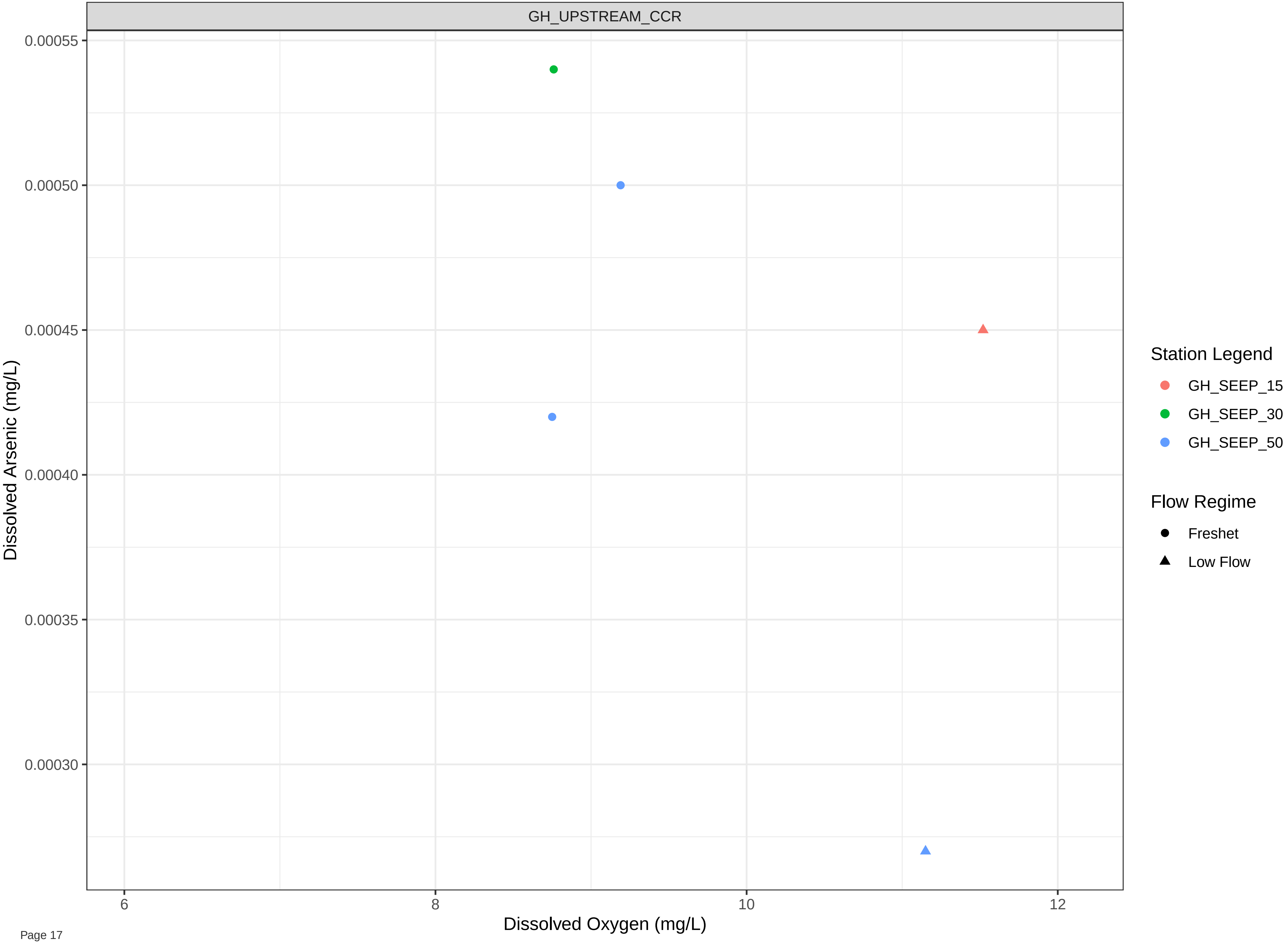

GH_WOLFRAM_WR
Dissolved Antimony (mg/L)
0.0020
0.0015
0.0010
0.0005
0.0000
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

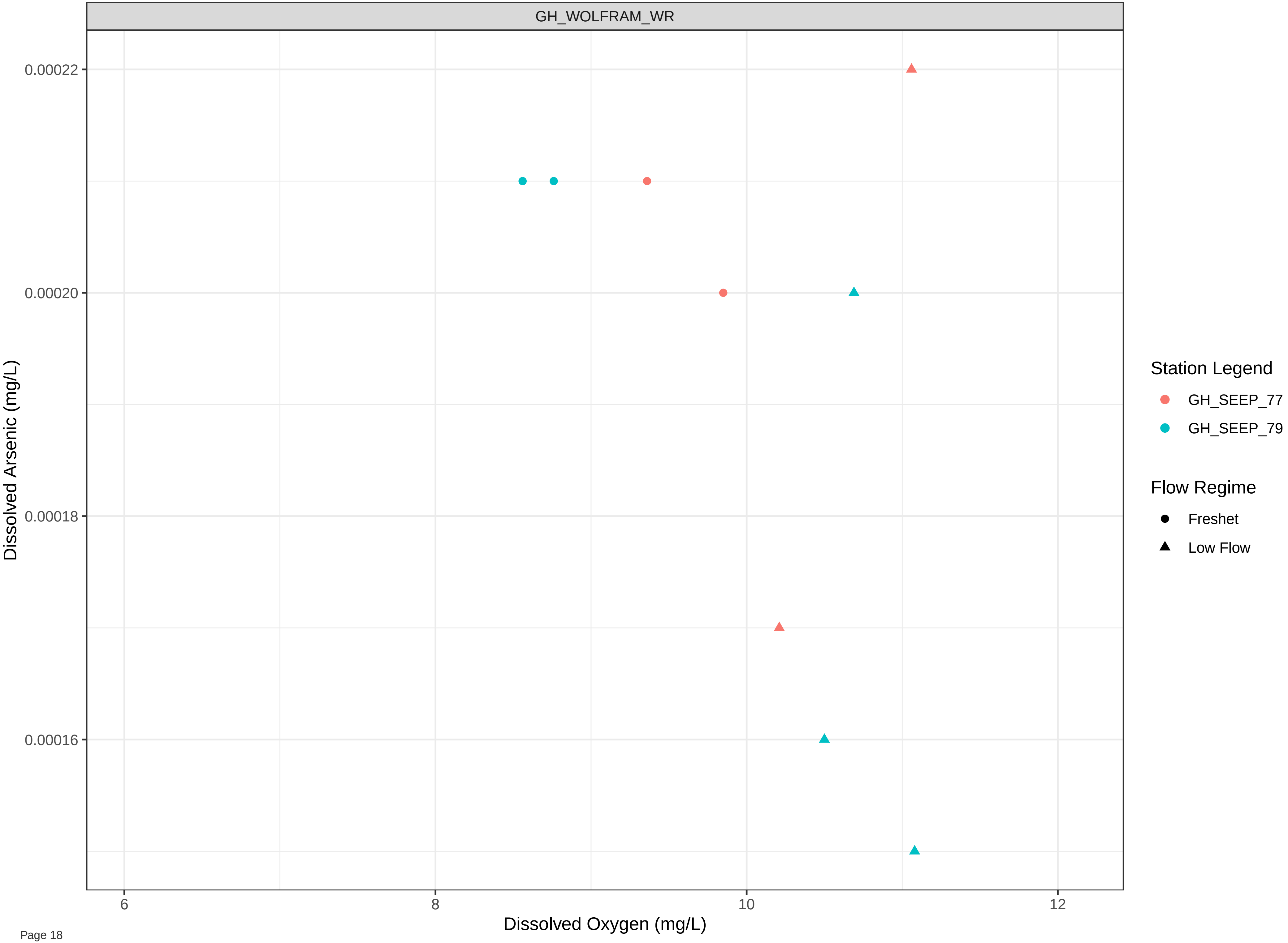

GH_CCR
Dissolved Arsenic (mg/L)
0.00075
0.00050
0.00025
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

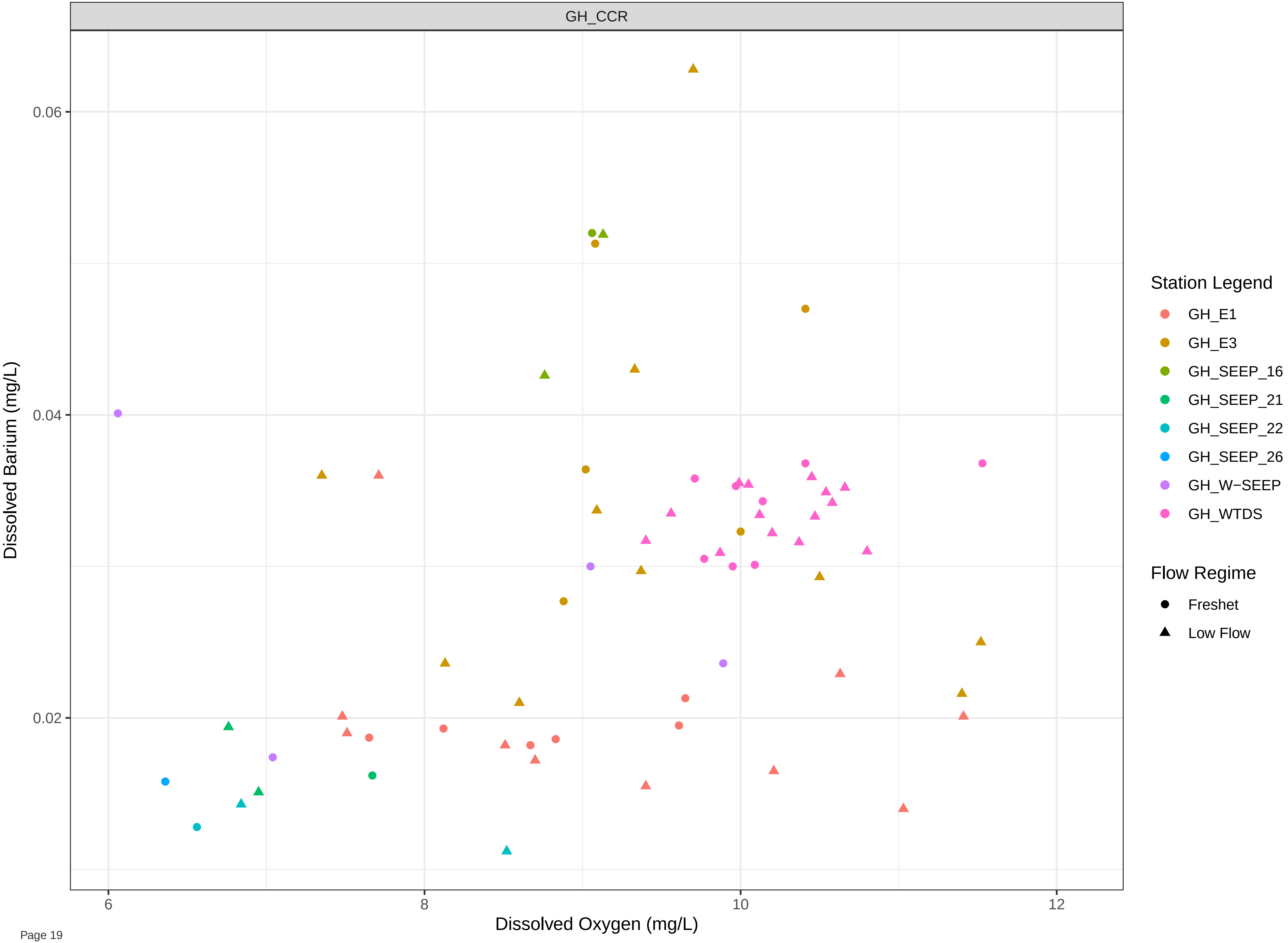

GH_LEASK_WR
Dissolved Arsenic (mg/L)
0.00035
0.00030
0.00025
0.00020
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow

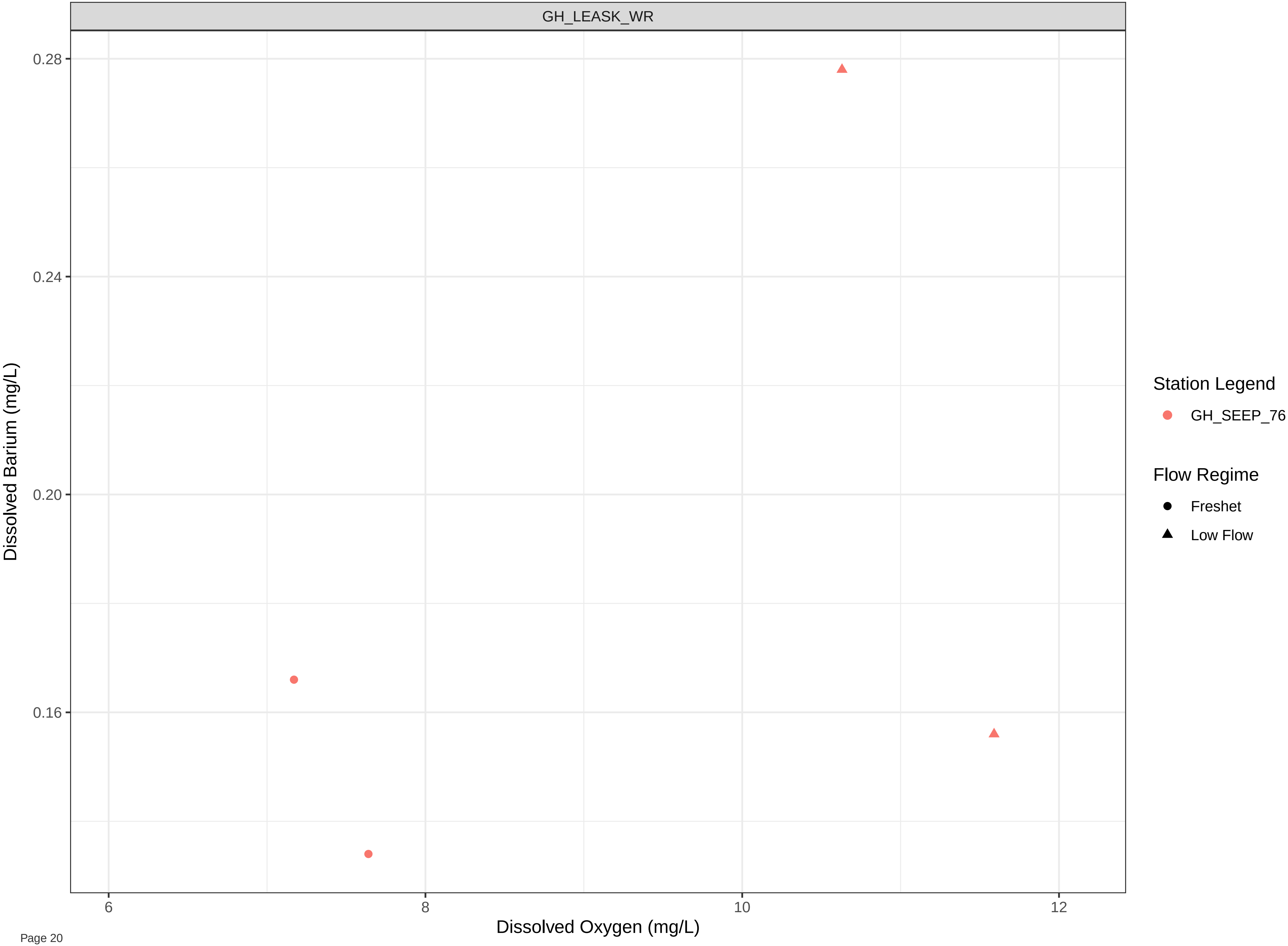

GH_PORTER_CREEK
Dissolved Arsenic (mg/L)
0.00036
0.00032
0.00028
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

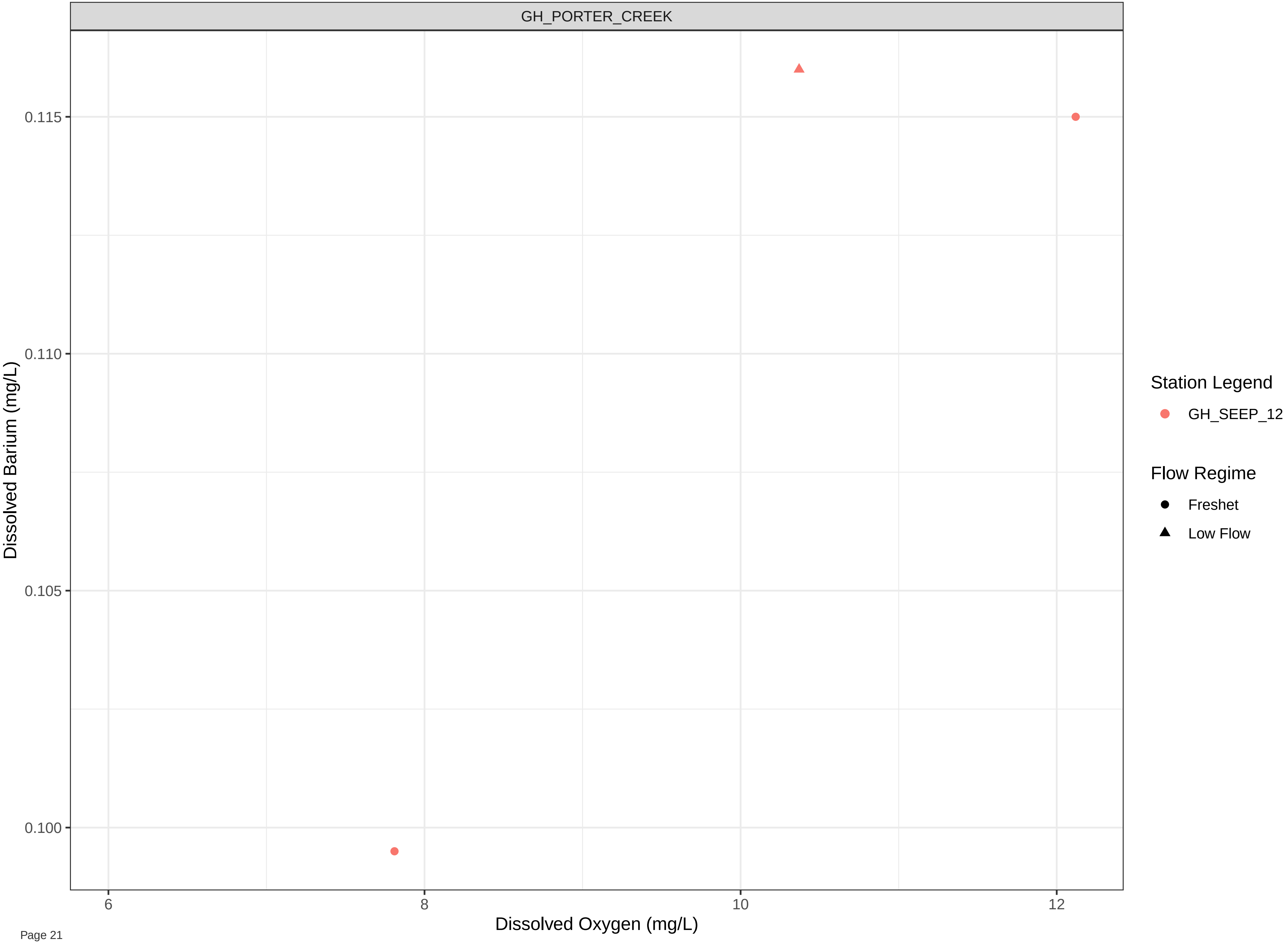

GH_THOMPSON_WR
5e−04
4e−04
3e−04
2e−04
Dissolved Arsenic (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

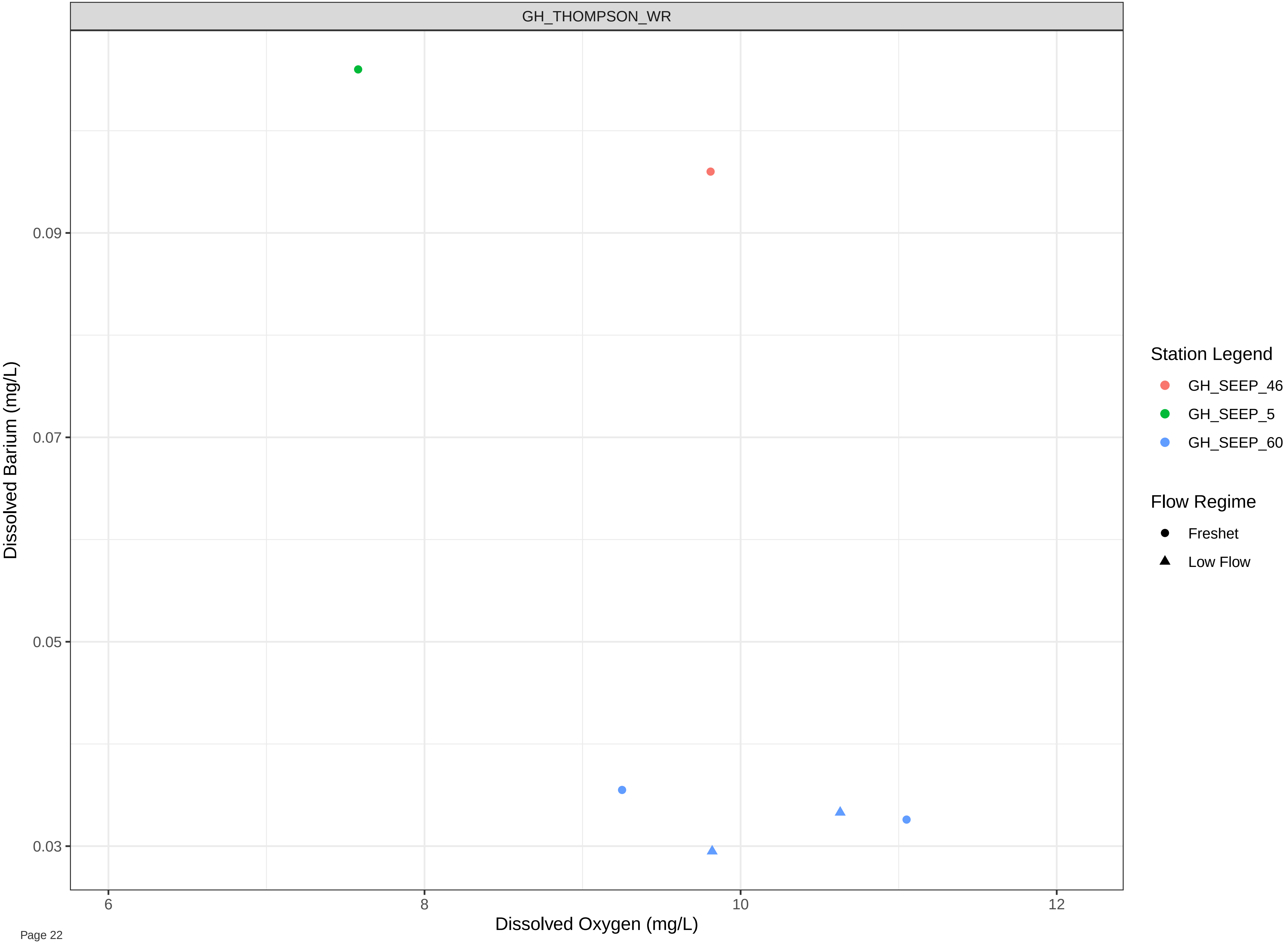

GH_UPSTREAM_CCR
0.00055
0.00050
0.00045
0.00040
0.00035
0.00030
Dissolved Arsenic (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

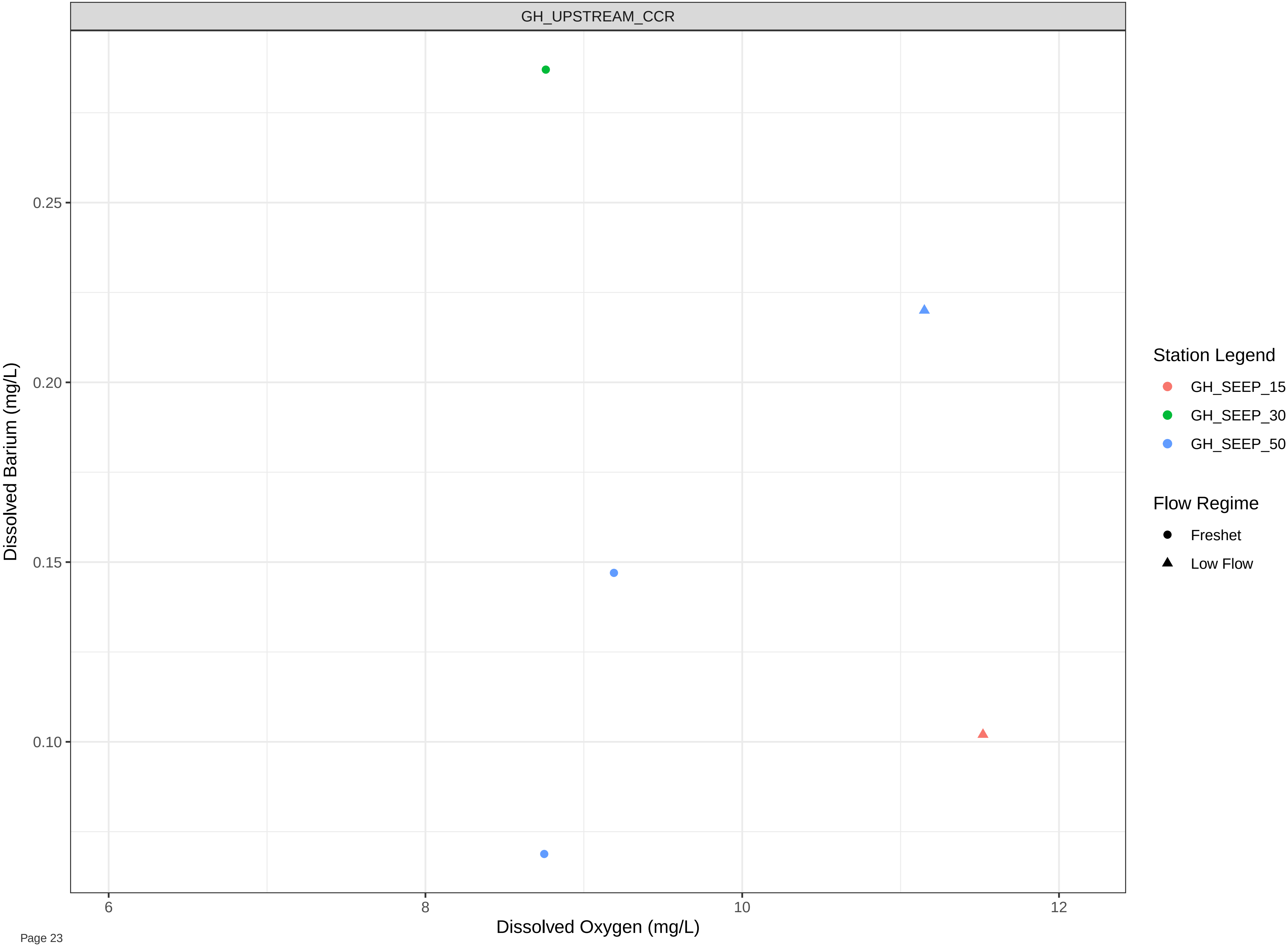

GH_WOLFRAM_WR
0.00022
0.00020
0.00018
0.00016
Dissolved Arsenic (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

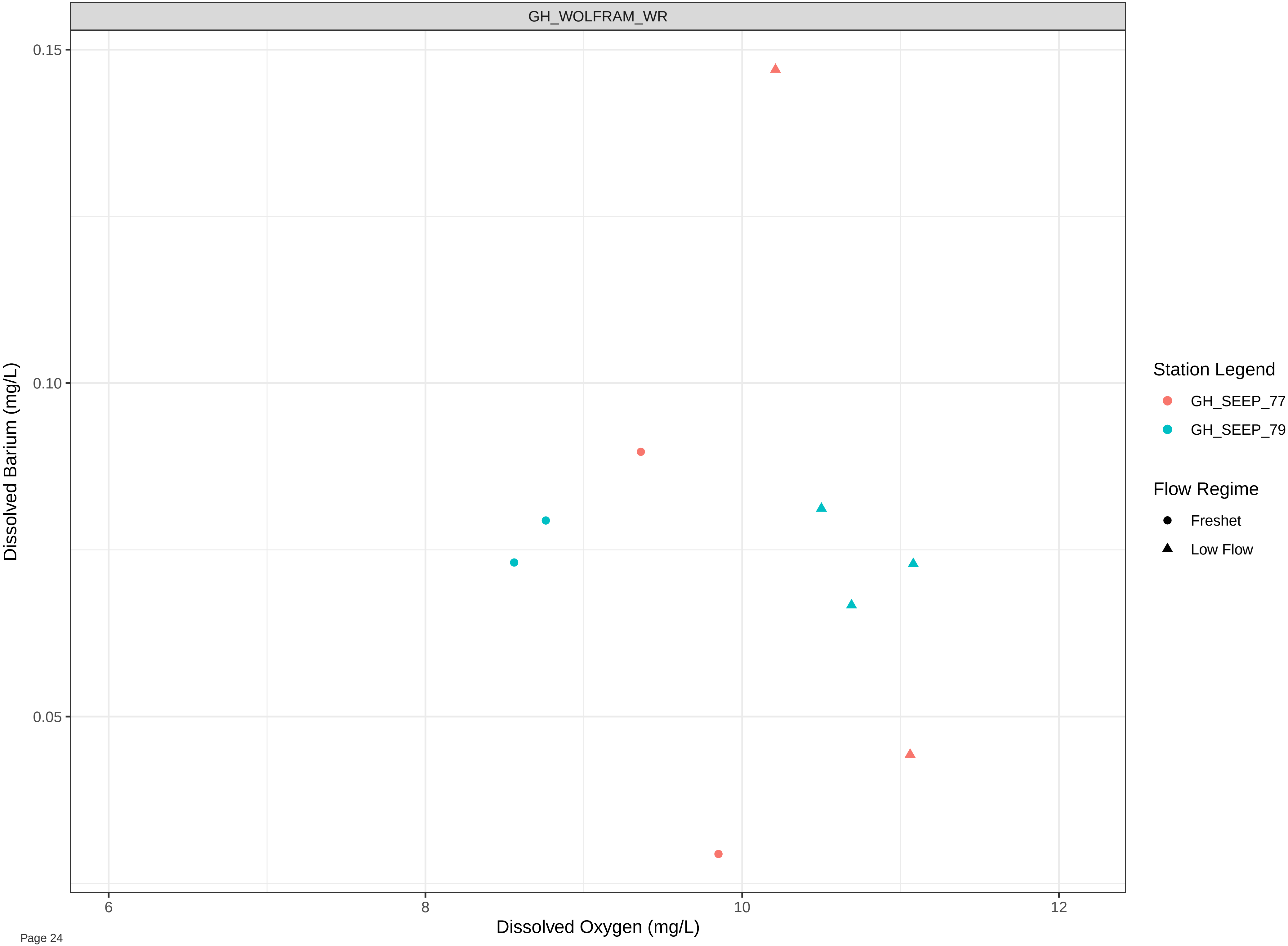

GH_CCR
Dissolved Barium (mg/L)
0.06
0.04
0.02
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

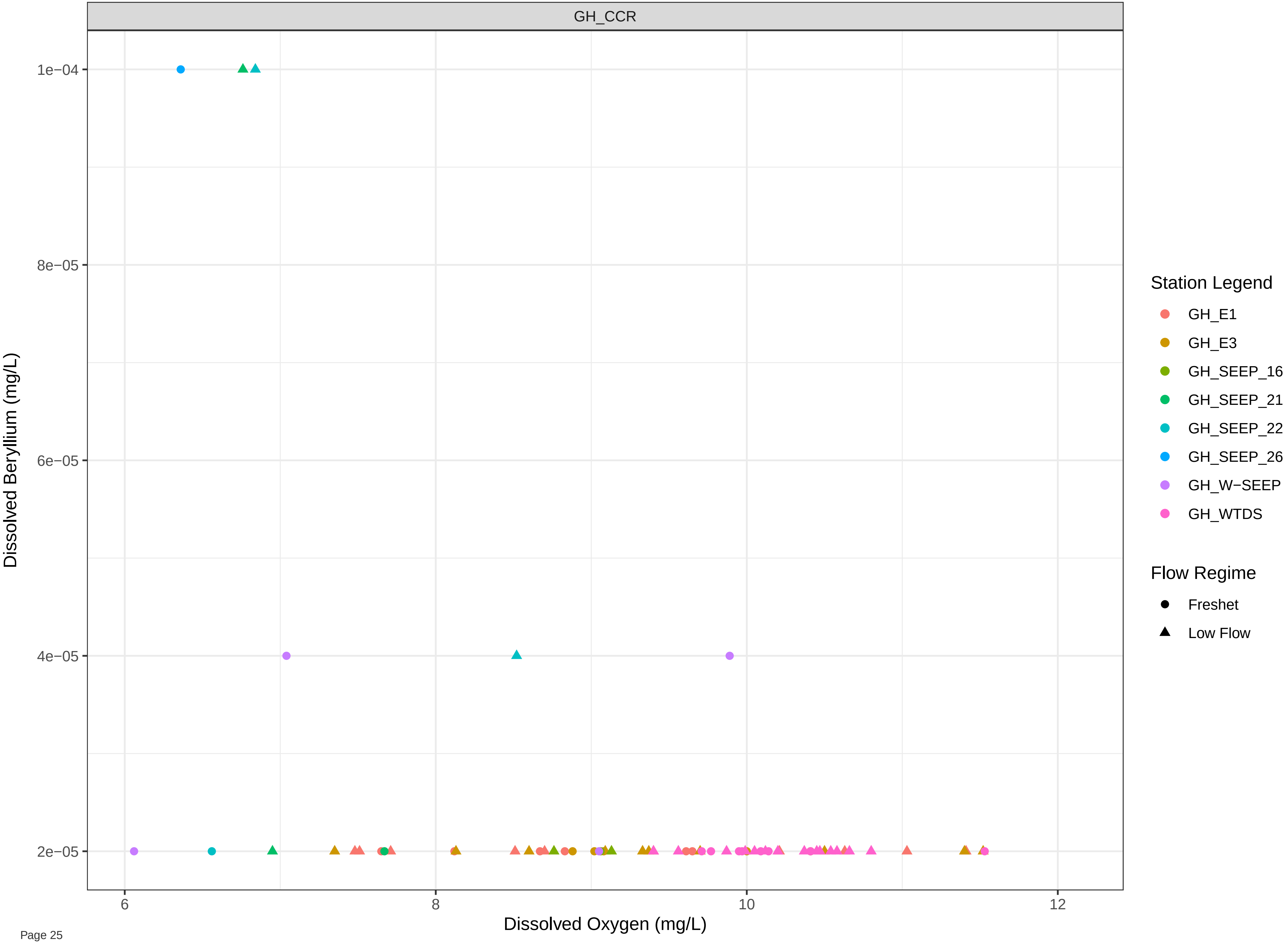

GH_LEASK_WR
Dissolved Barium (mg/L)
0.28
0.24
0.20
0.16
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

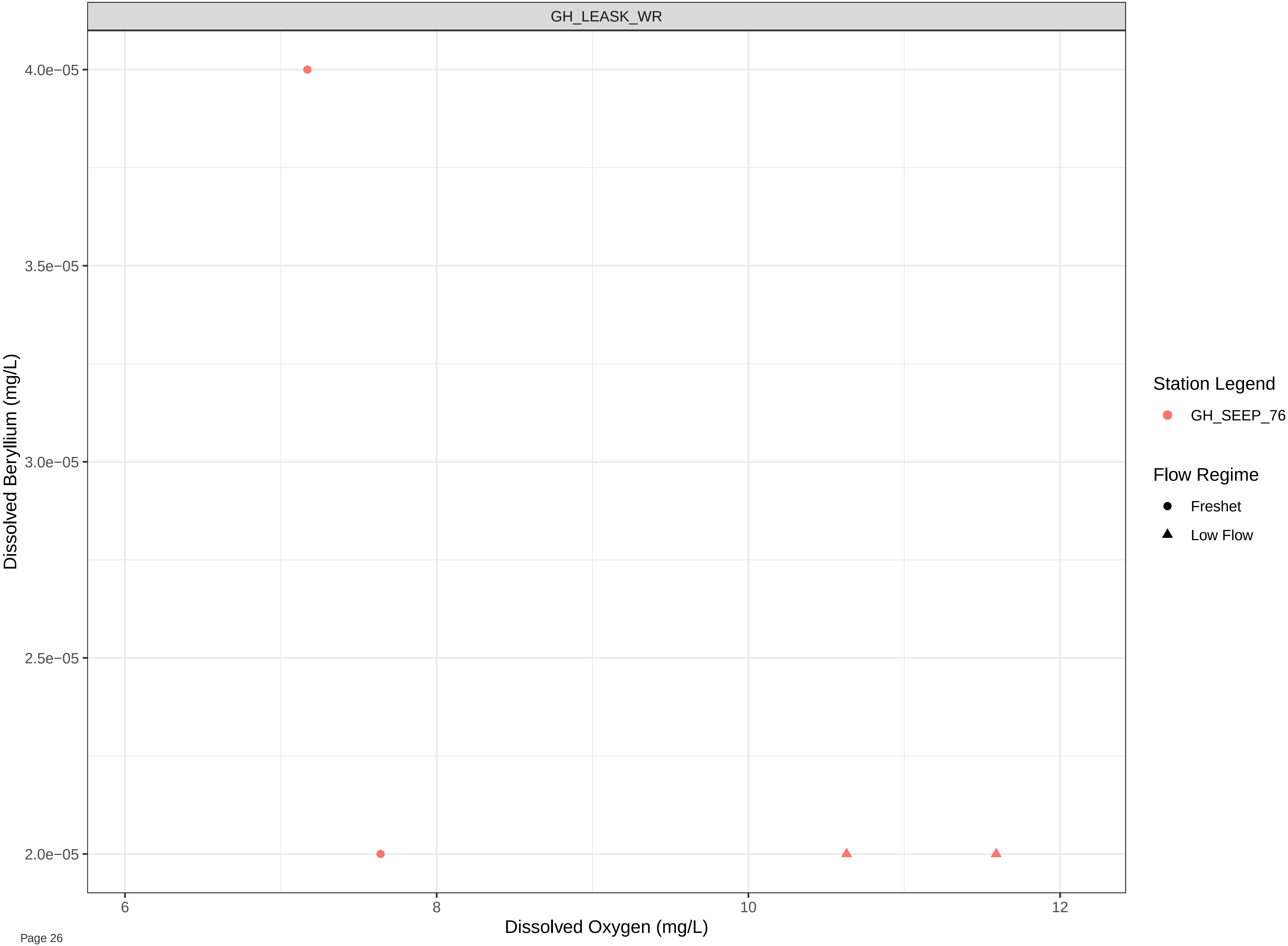

GH_PORTER_CREEK
Dissolved Barium (mg/L)
0.115
0.110
0.105
0.100
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

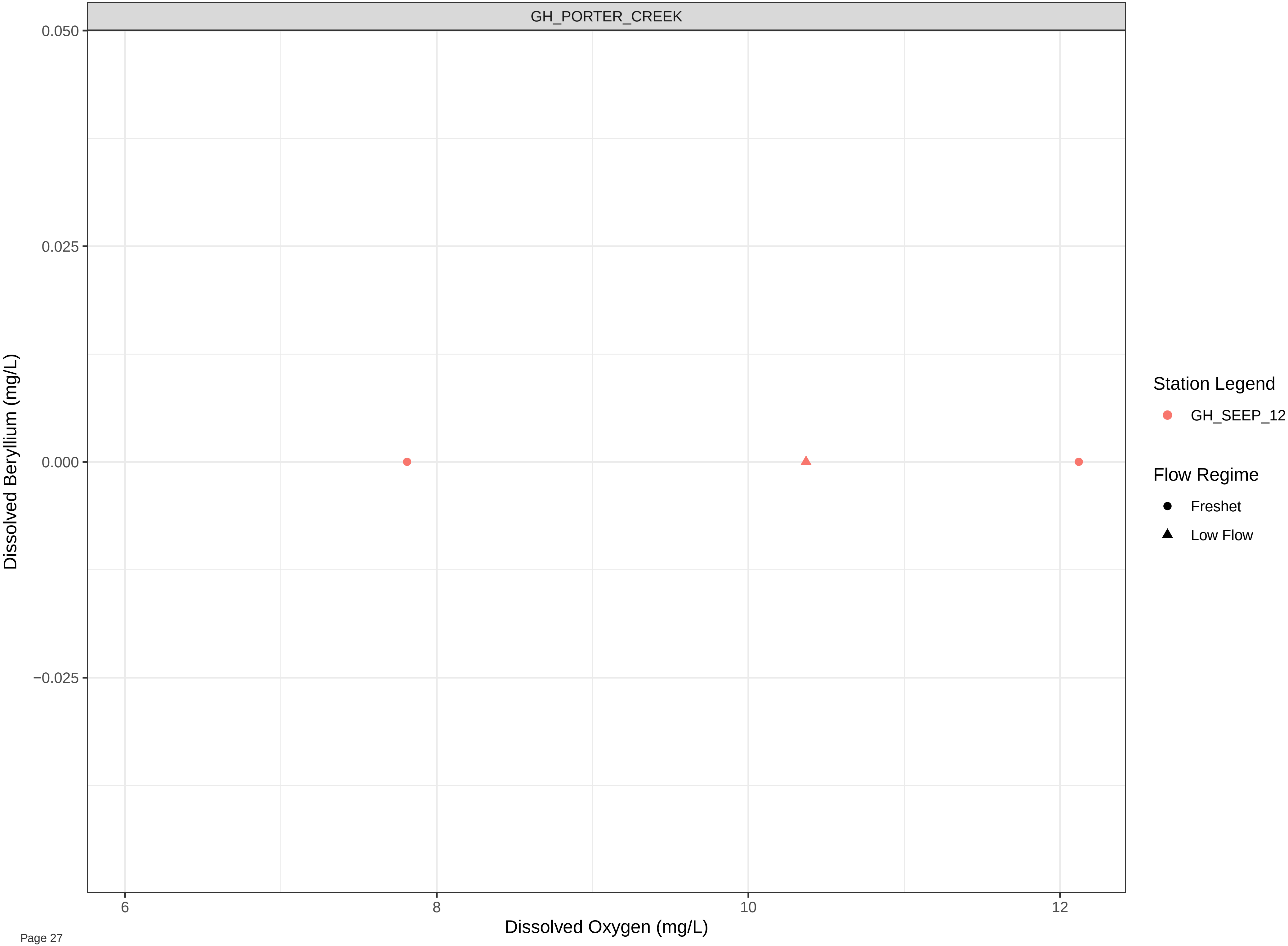

GH_THOMPSON_WR
Dissolved Barium (mg/L)
0.09
0.07
0.05
0.03
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

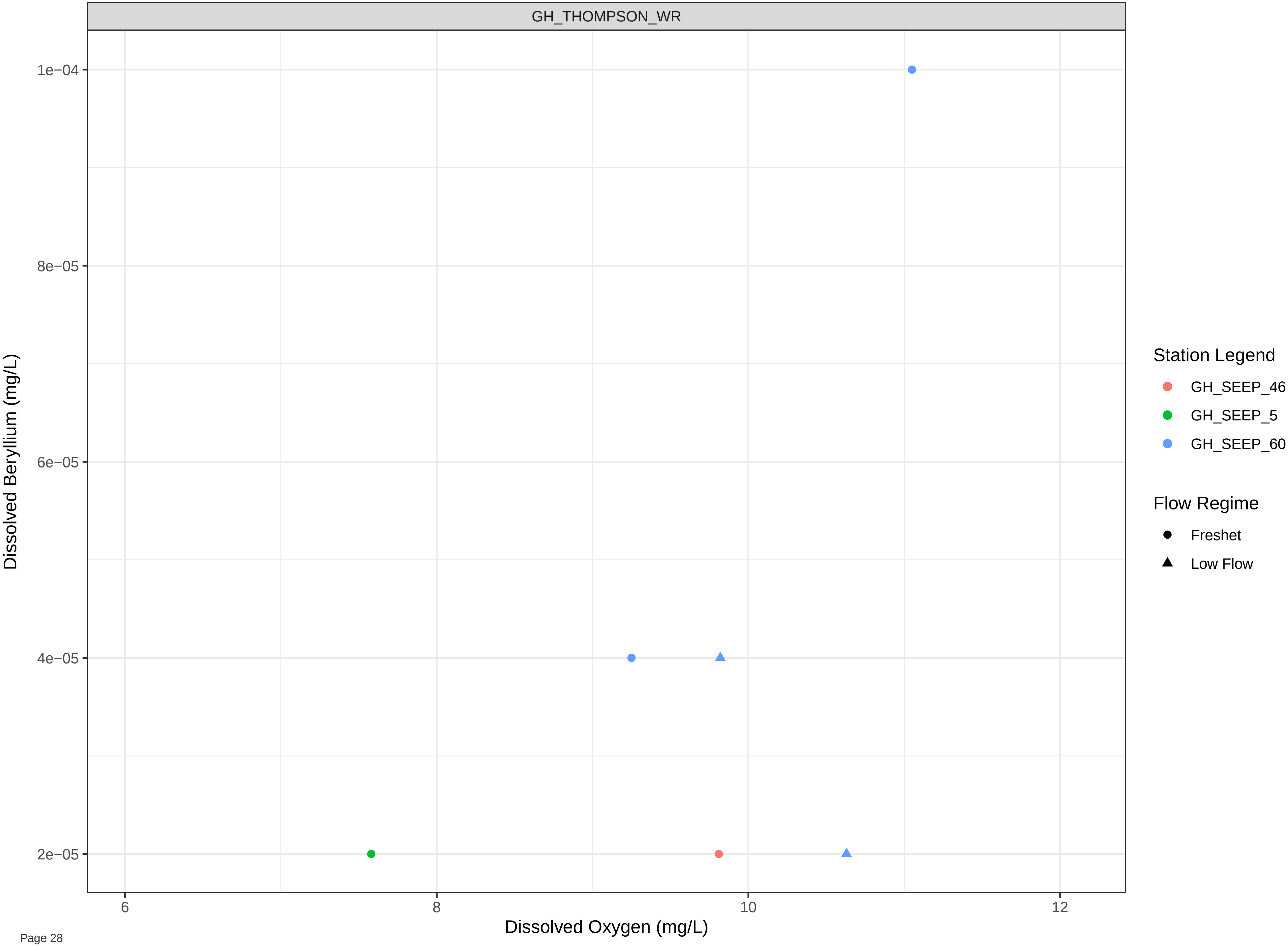

GH_UPSTREAM_CCR
Dissolved Barium (mg/L)
0.25
0.20
0.15
0.10
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

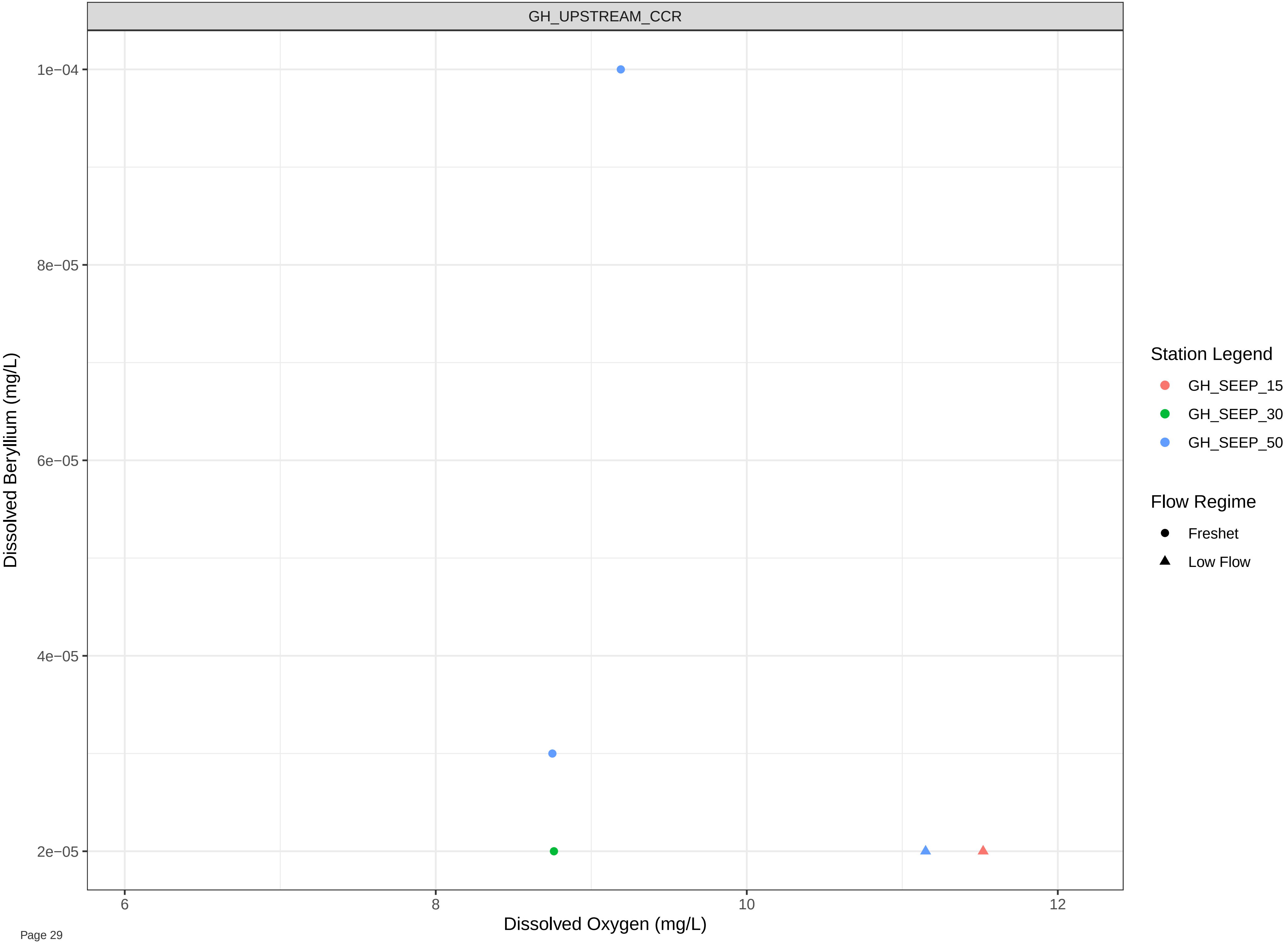

GH_WOLFRAM_WR
0.15
0.10
0.05
Dissolved Barium (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

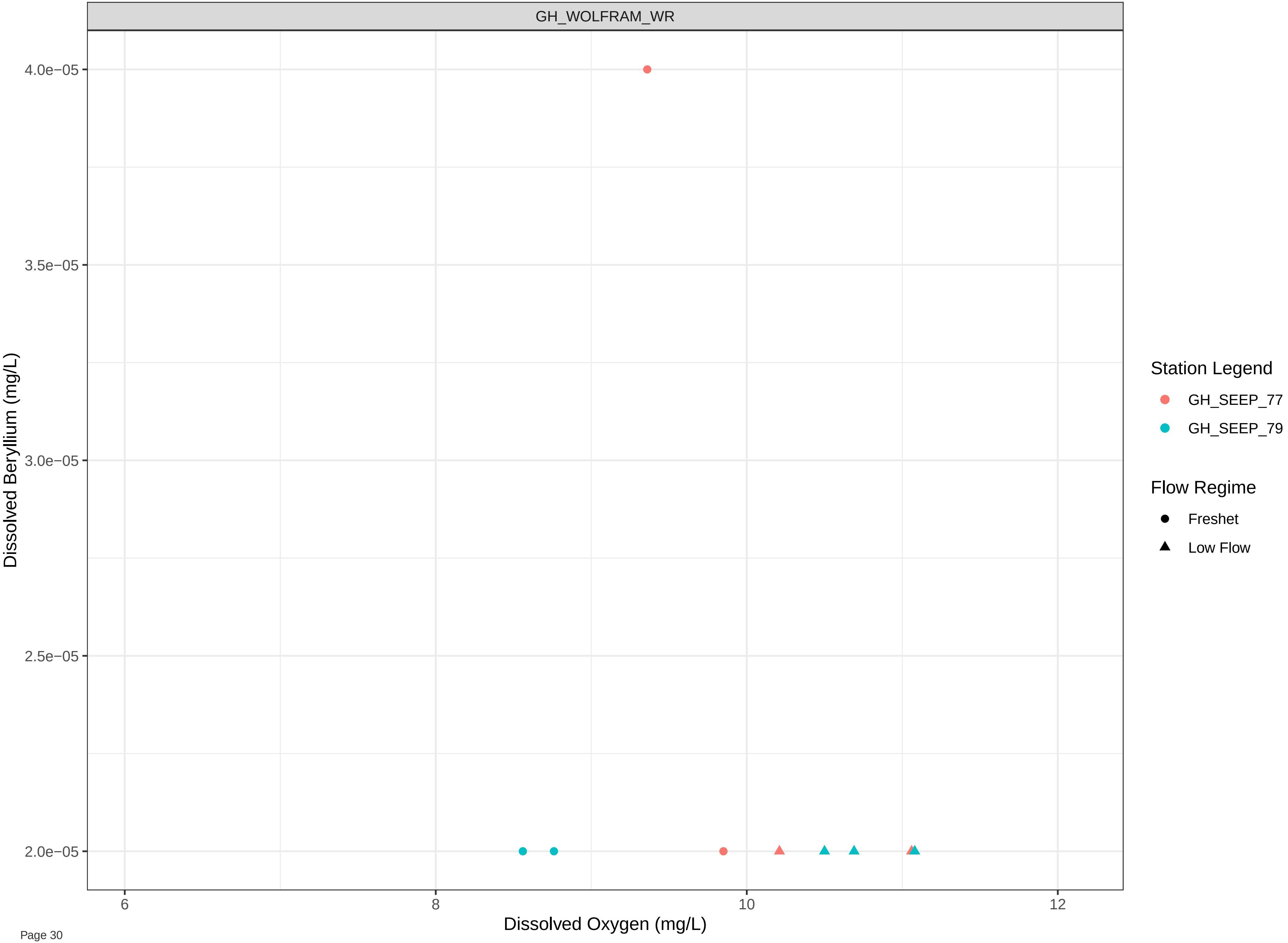

GH_CCR
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

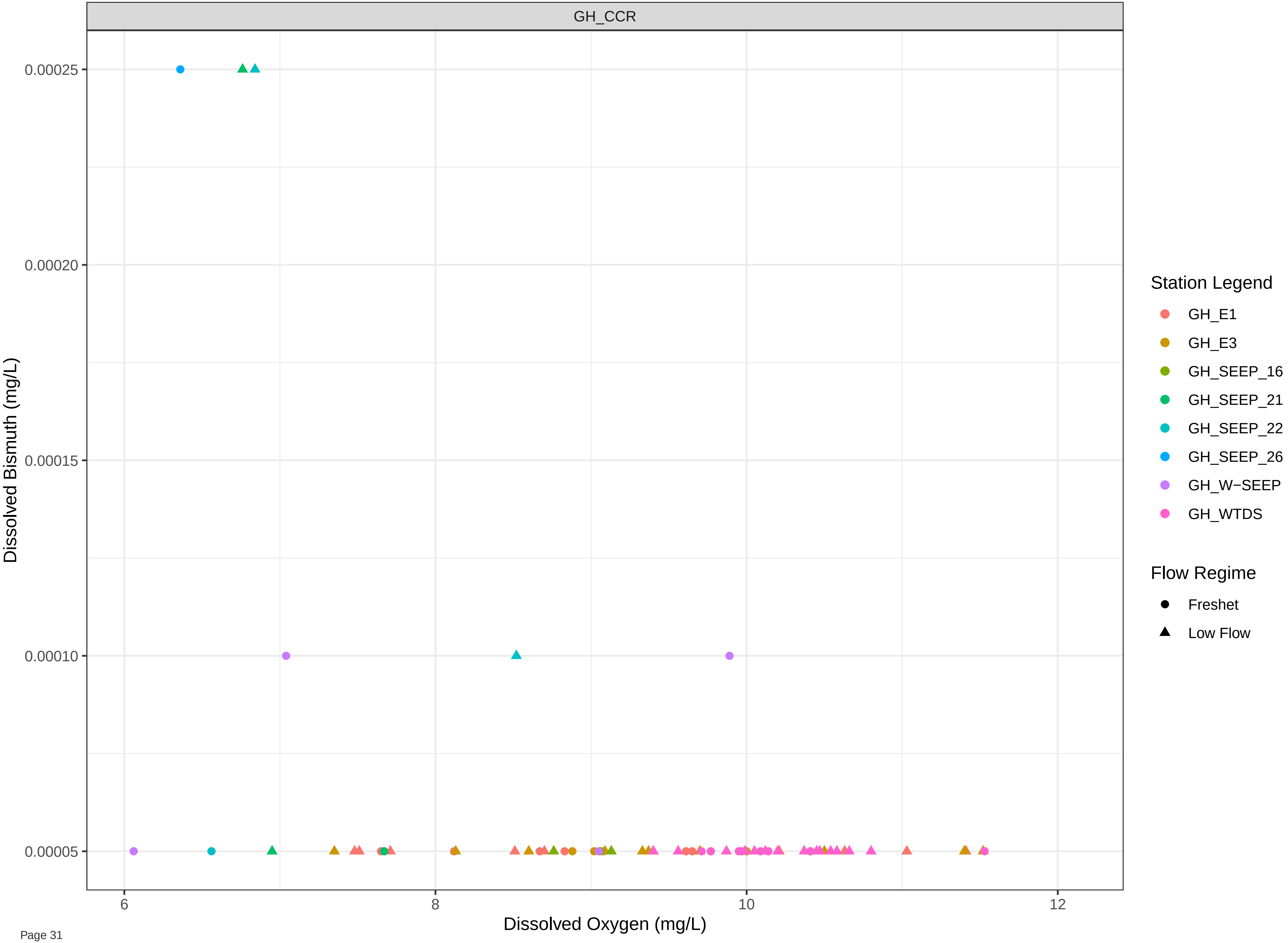

GH_LEASK_WR
4.0e−05
3.5e−05
3.0e−05
2.5e−05
2.0e−05
Dissolved Beryllium (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

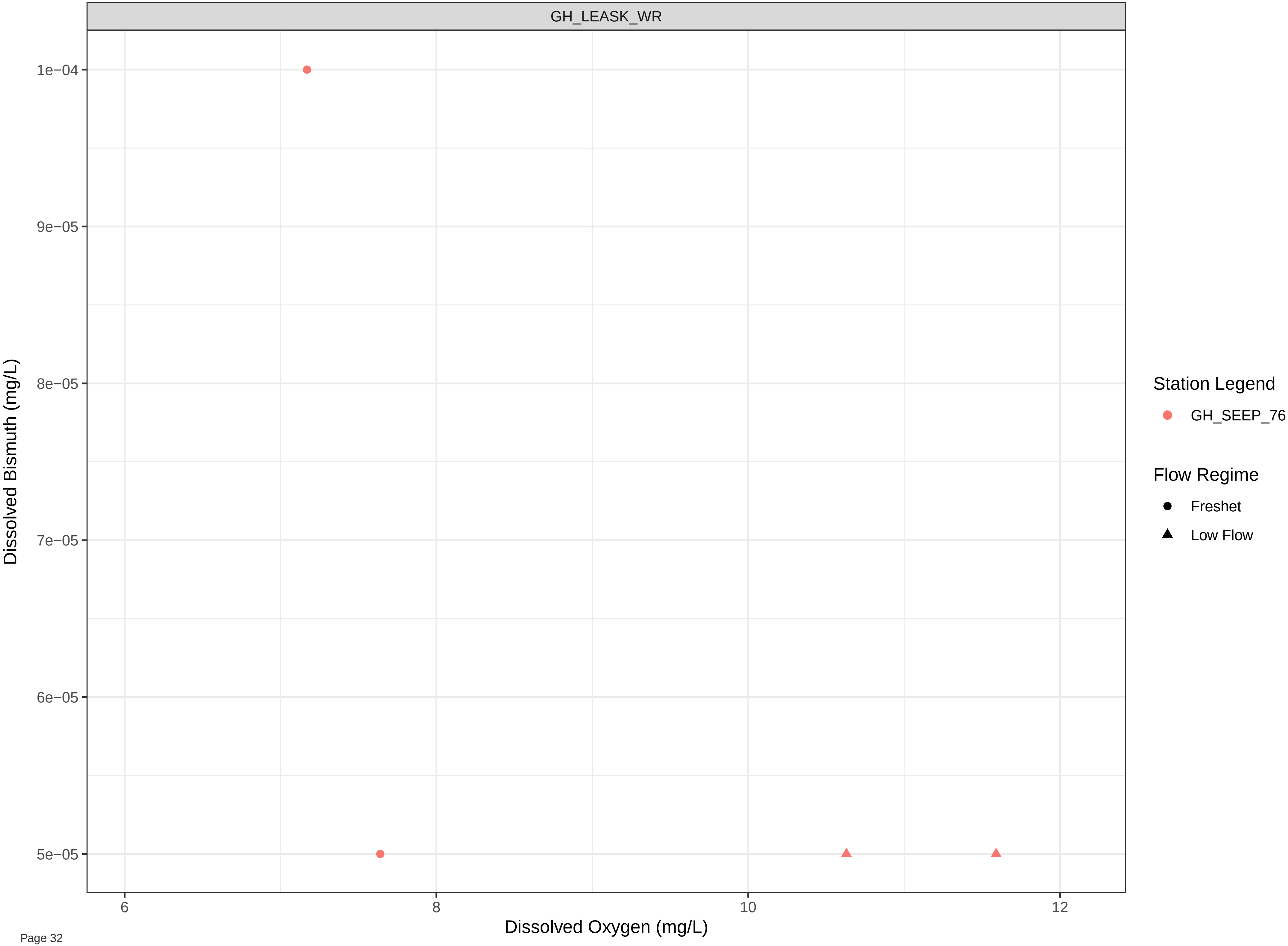

GH_PORTER_CREEK
0.050
0.025
0.000
−0.025
Dissolved Beryllium (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

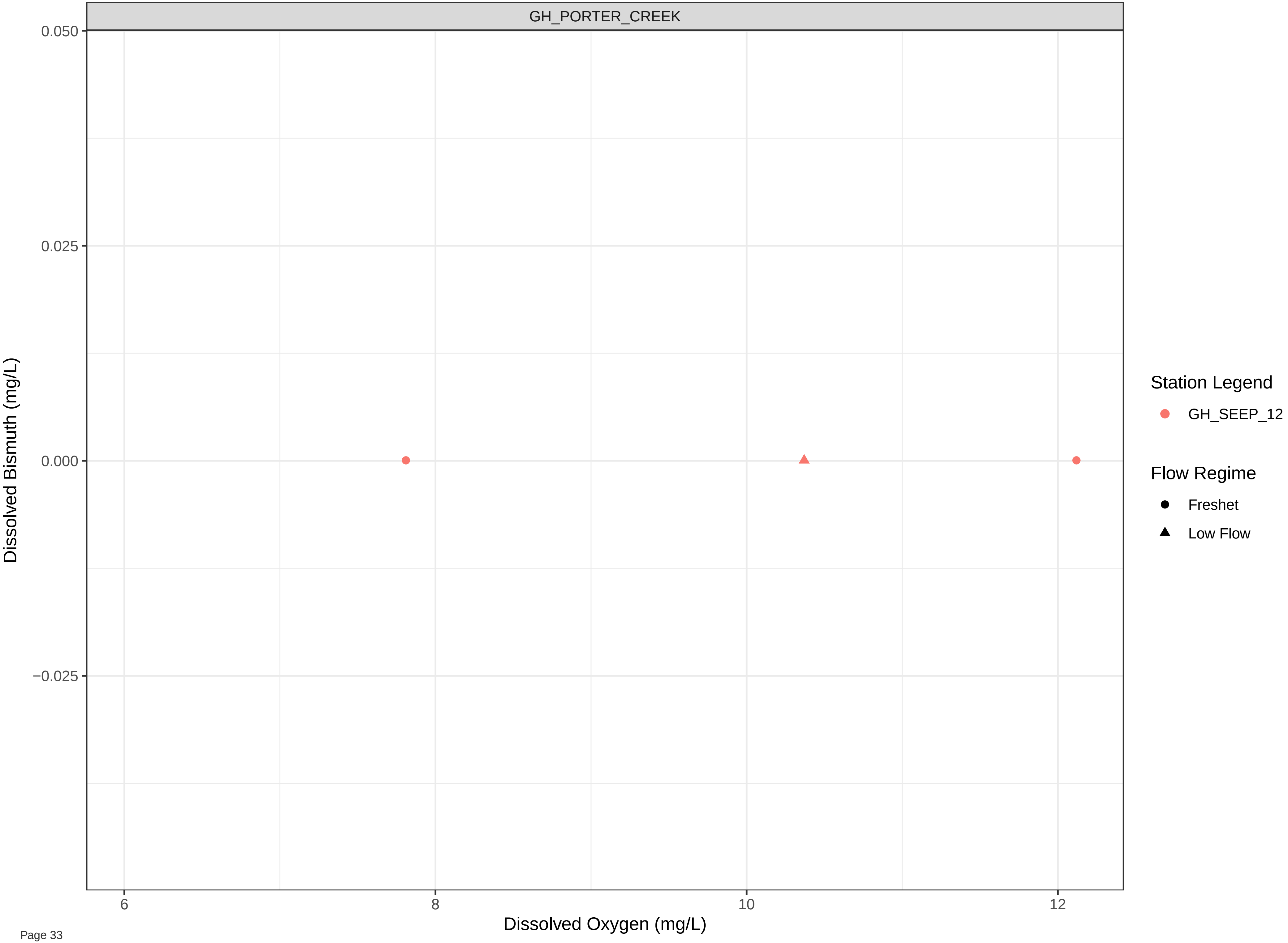

GH_THOMPSON_WR
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

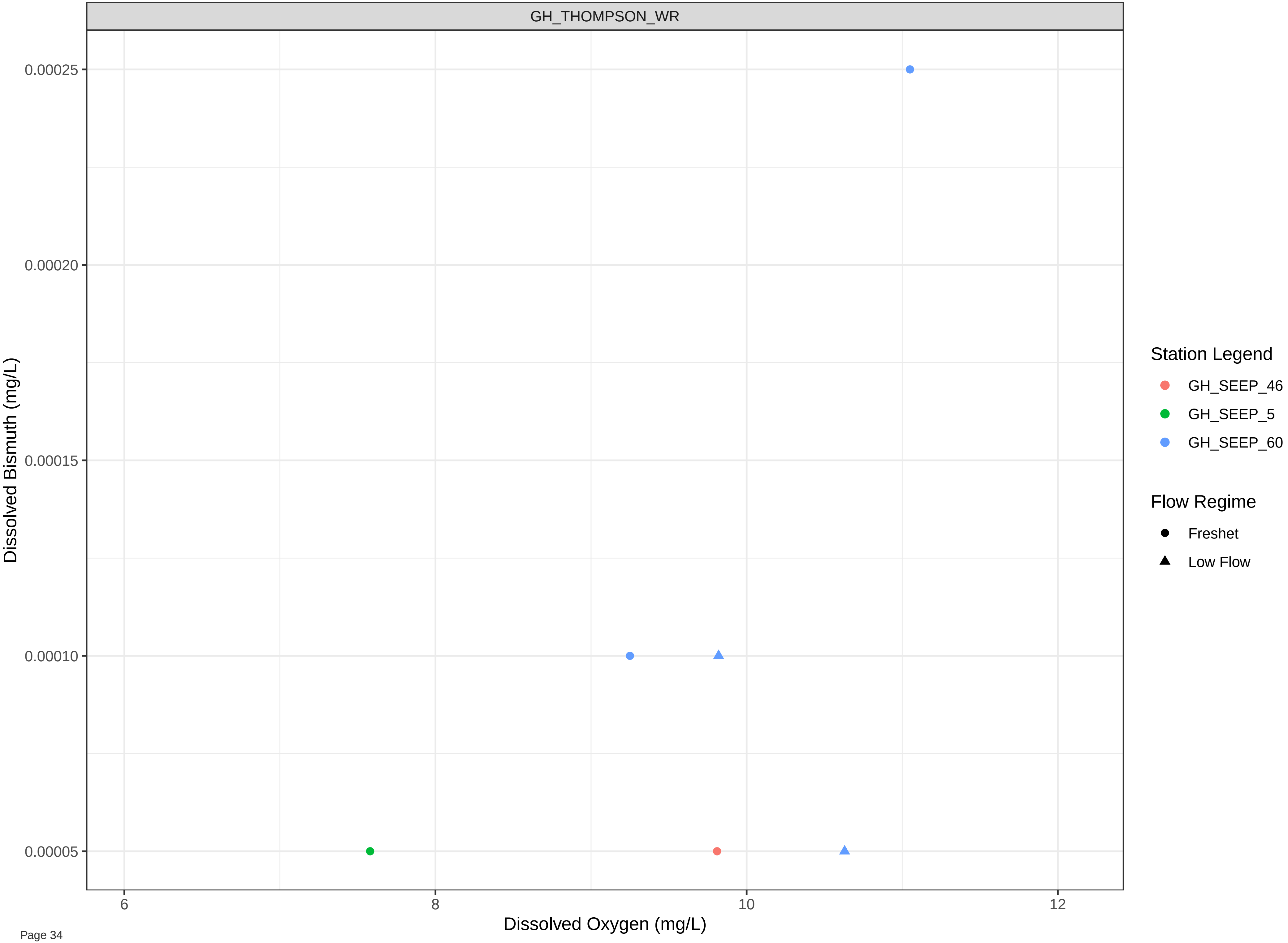

GH_UPSTREAM_CCR
1e−04
8e−05
6e−05
4e−05
2e−05
Dissolved Beryllium (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

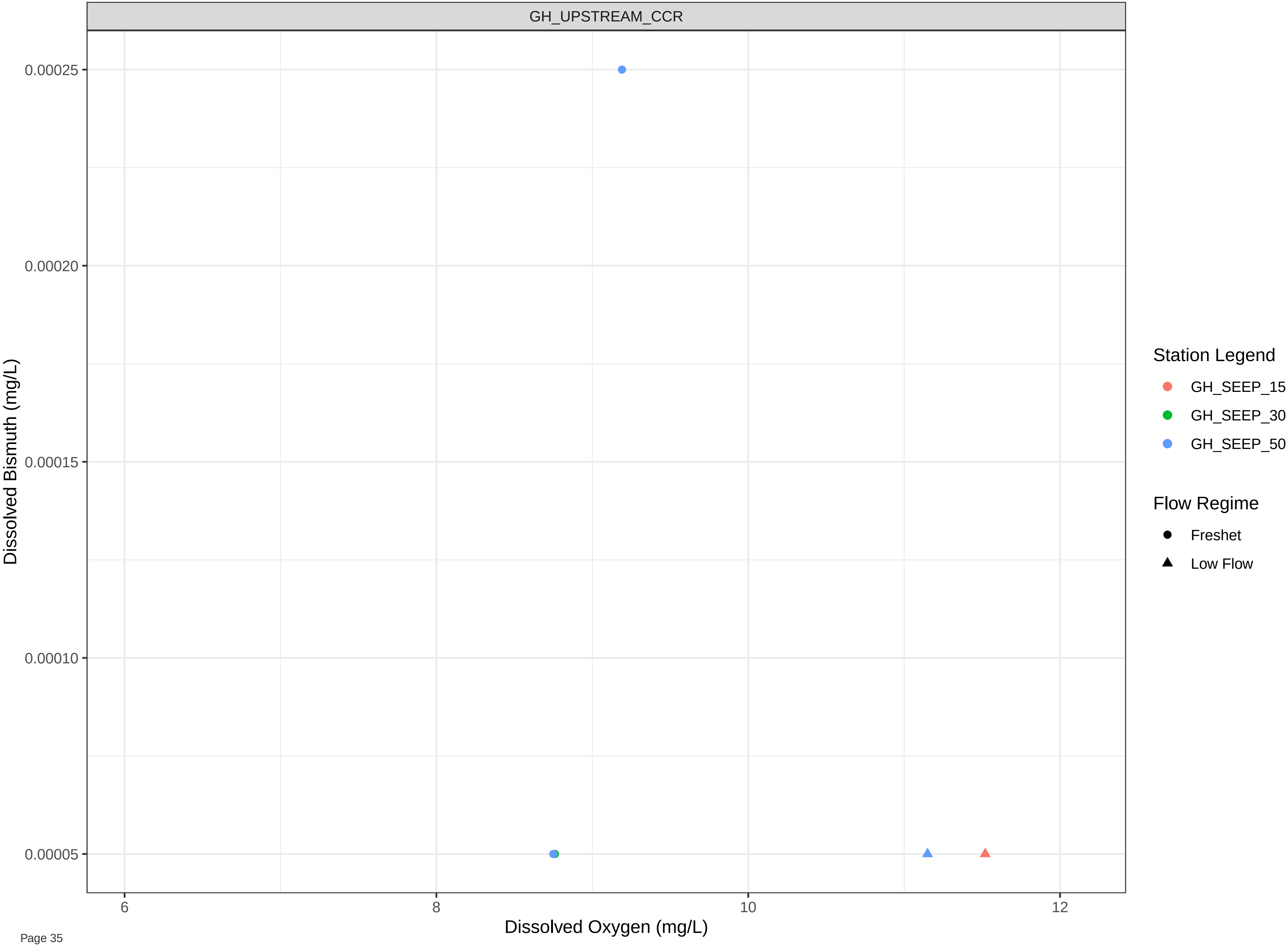

GH_WOLFRAM_WR
Dissolved Beryllium (mg/L)
4.0e−05
3.5e−05
3.0e−05
2.5e−05
2.0e−05
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

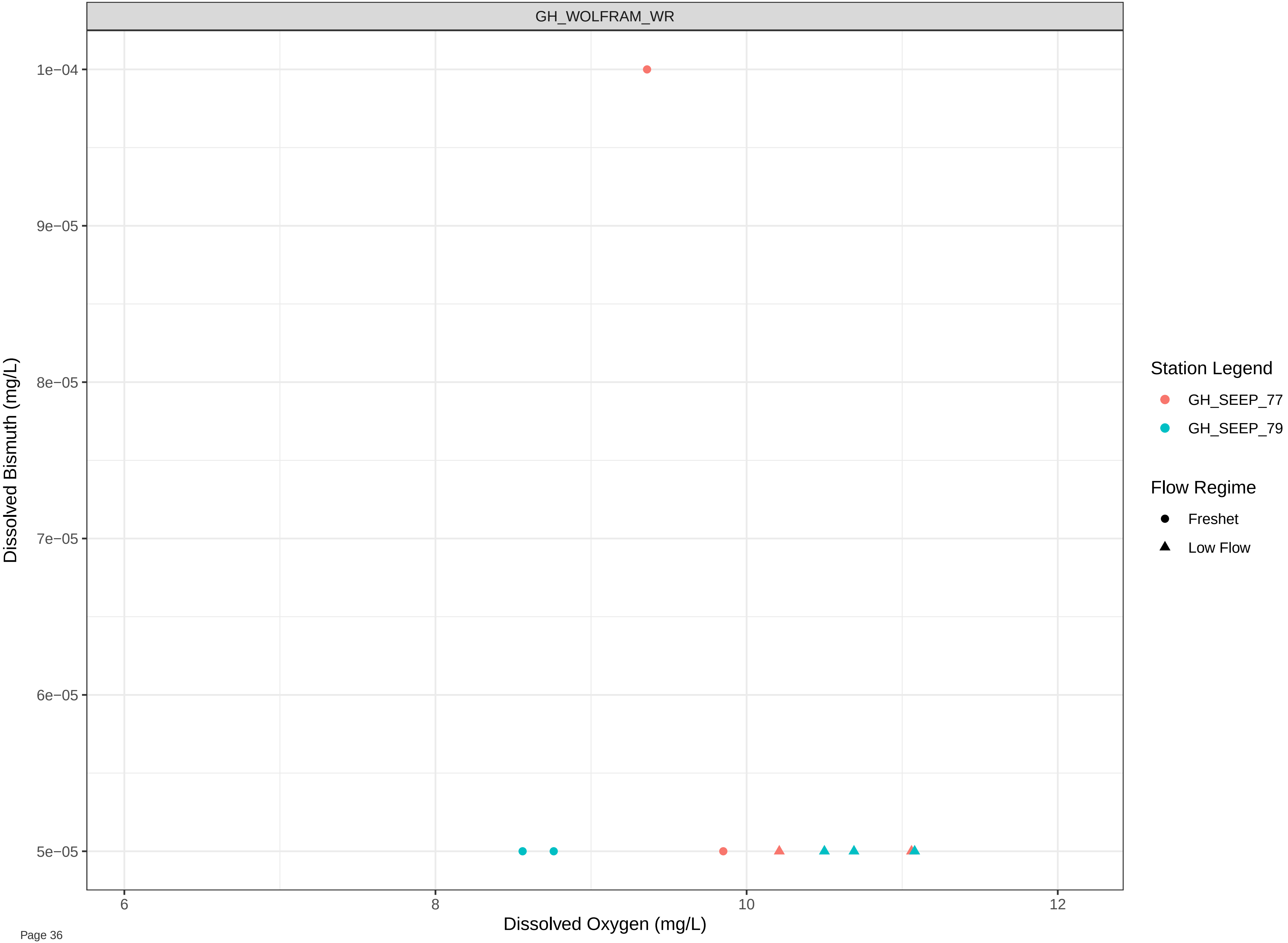

GH_CCR
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

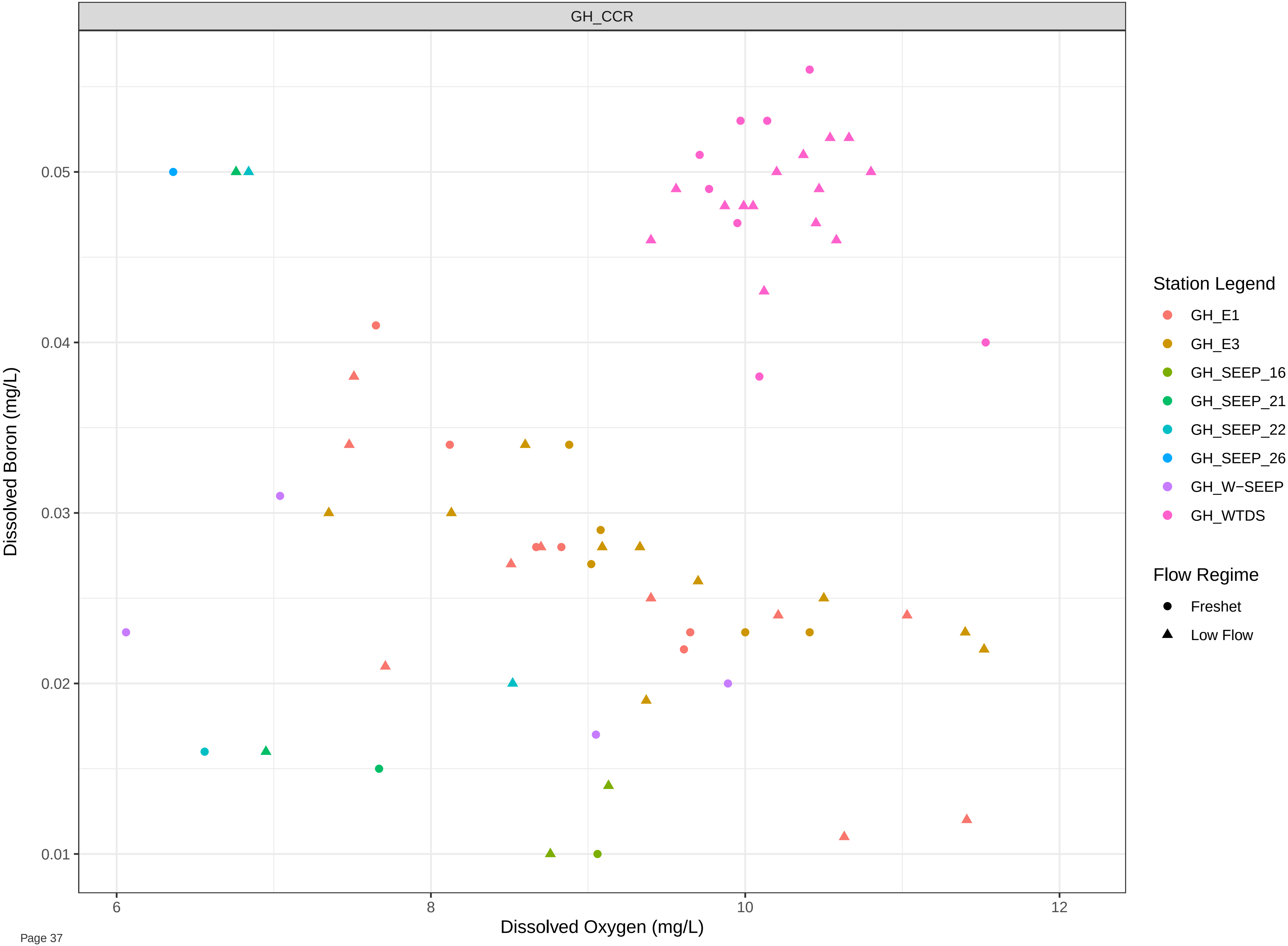

GH_LEASK_WR
Dissolved Bismuth (mg/L)
1e−04
9e−05
8e−05
7e−05
6e−05
5e−05
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

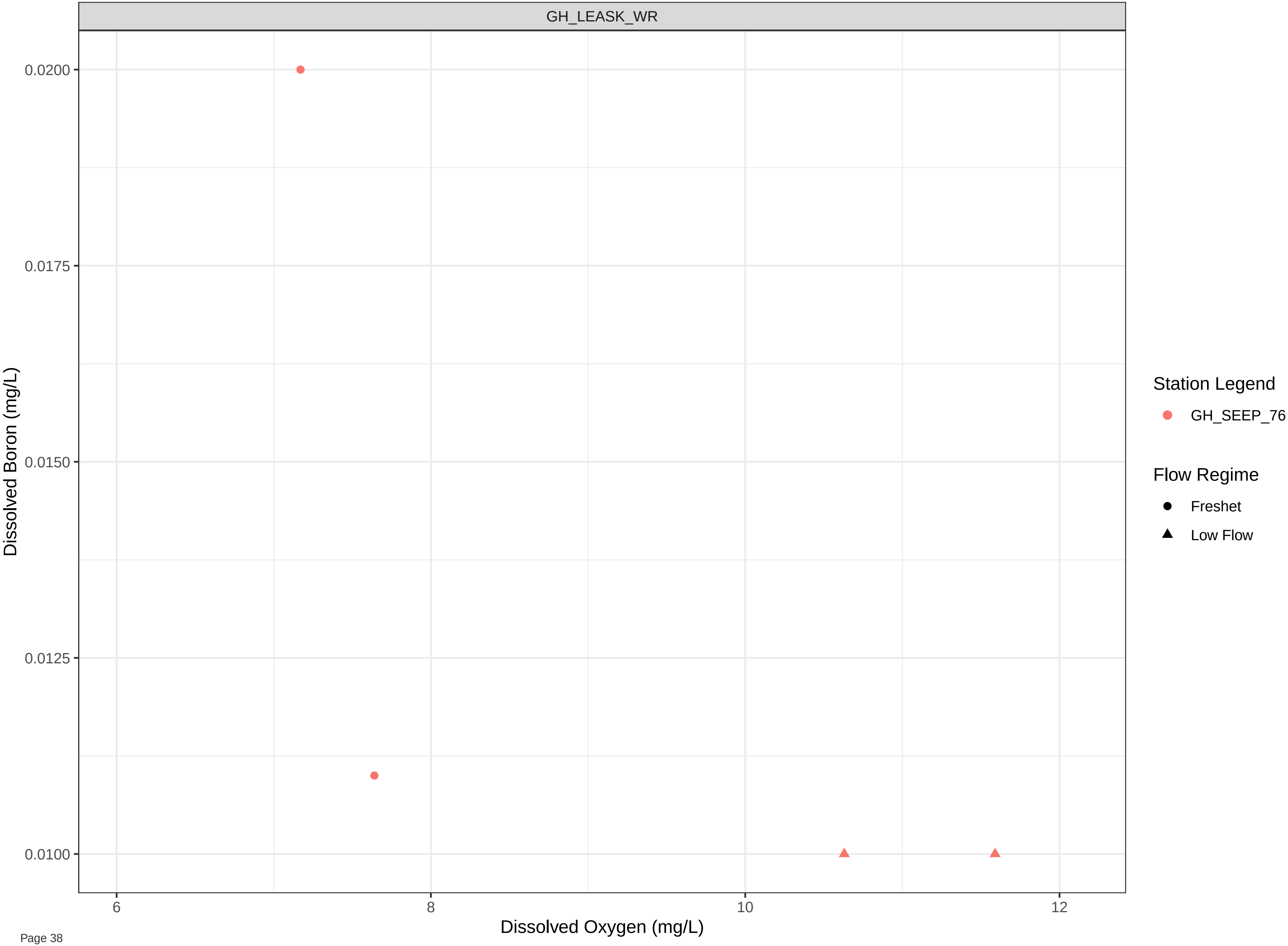

GH_PORTER_CREEK
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

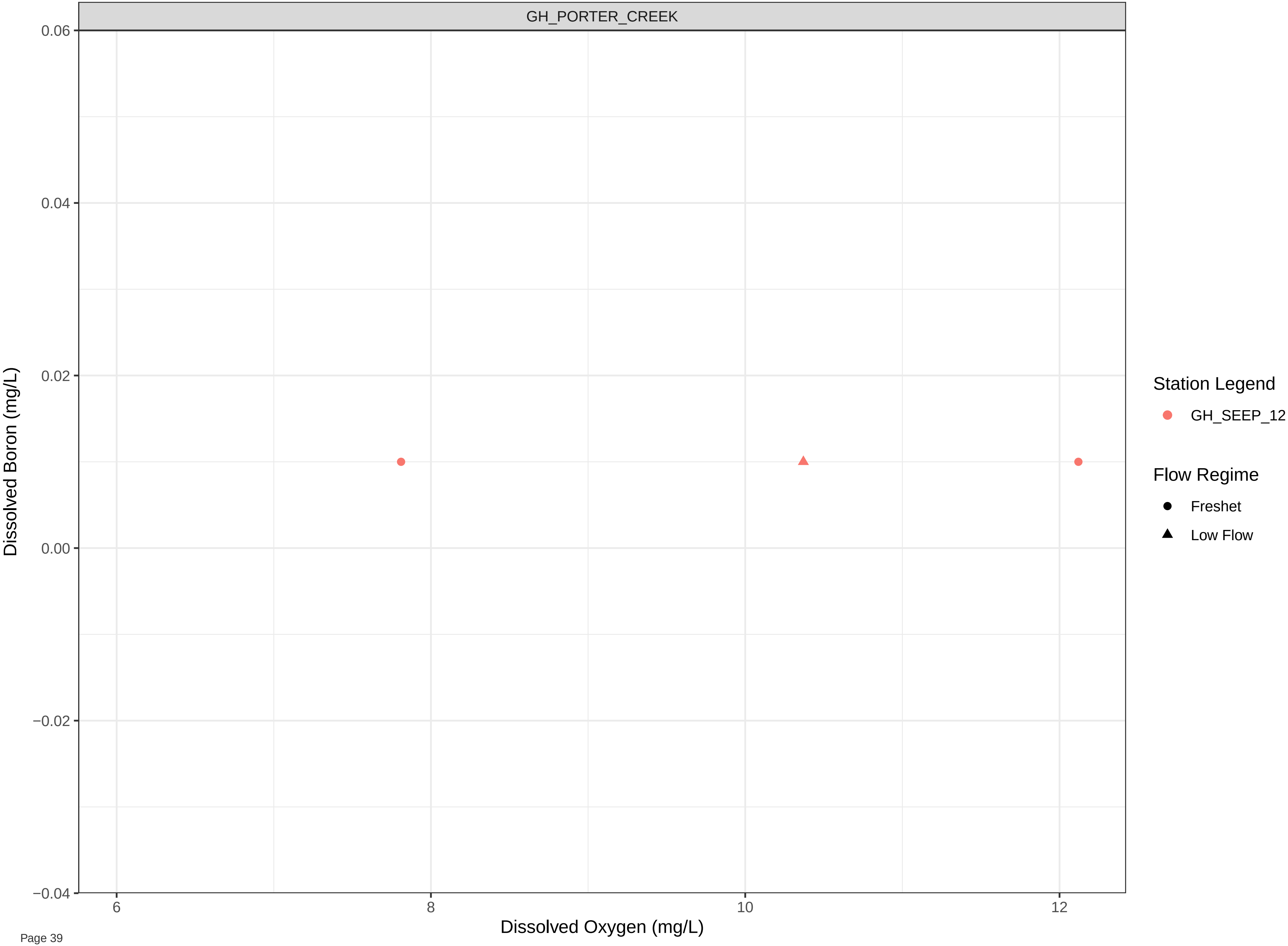

GH_THOMPSON_WR
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

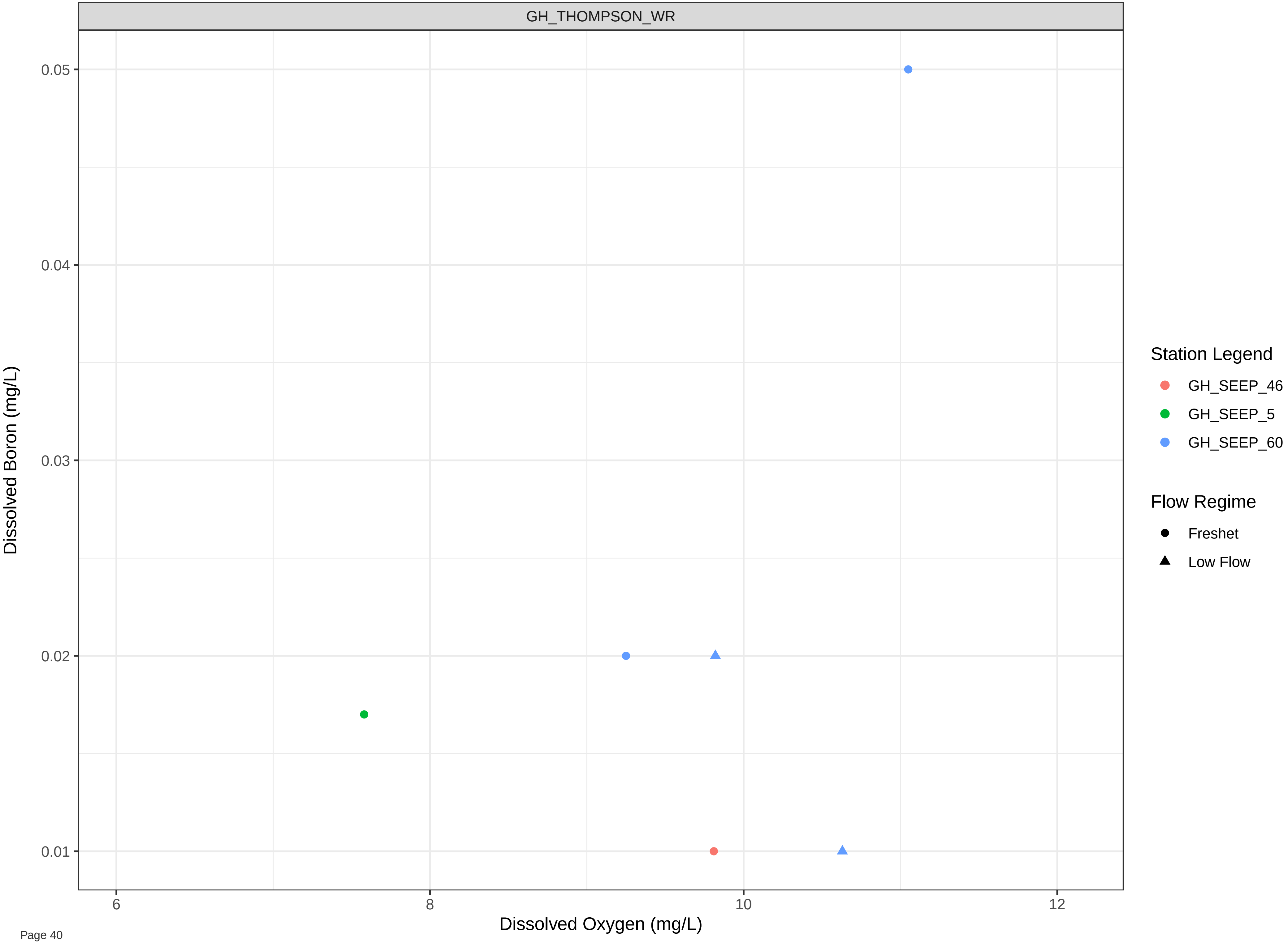

GH_UPSTREAM_CCR
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Bismuth (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

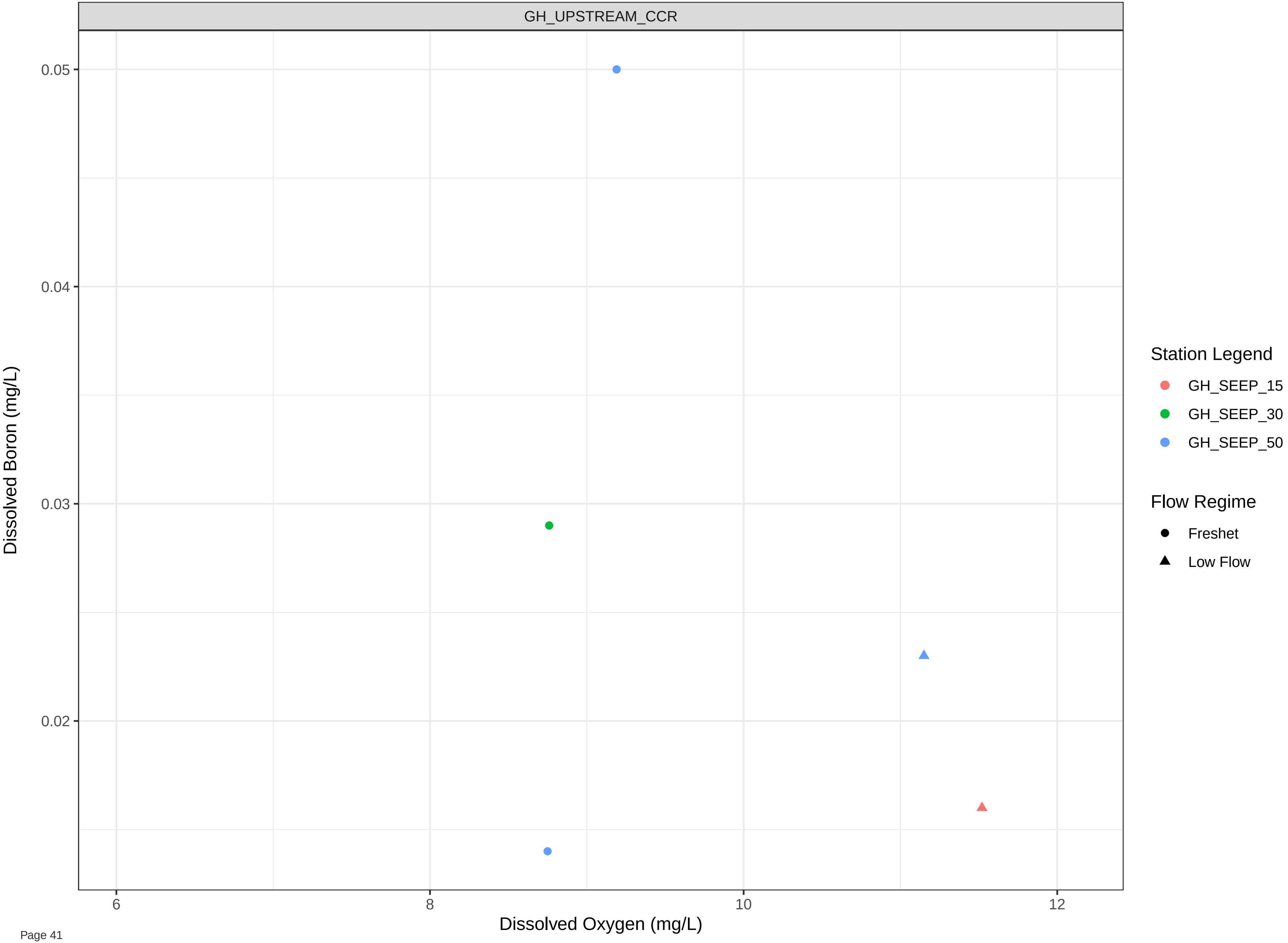

GH_WOLFRAM_WR
Dissolved Bismuth (mg/L)
1e−04
9e−05
8e−05
7e−05
6e−05
5e−05
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

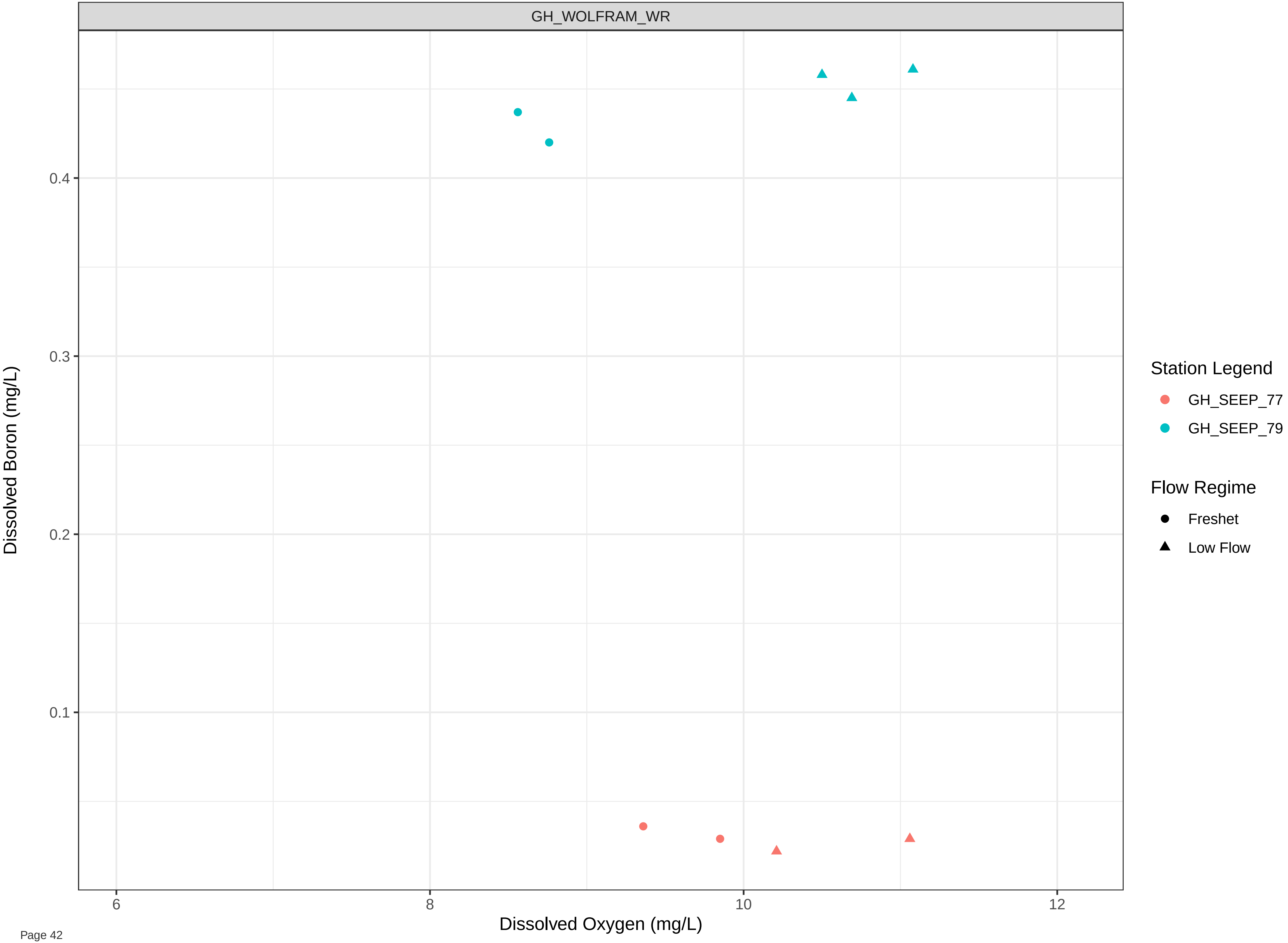

GH_CCR
Dissolved Boron (mg/L)
0.05
0.04
0.03
0.02
0.01
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

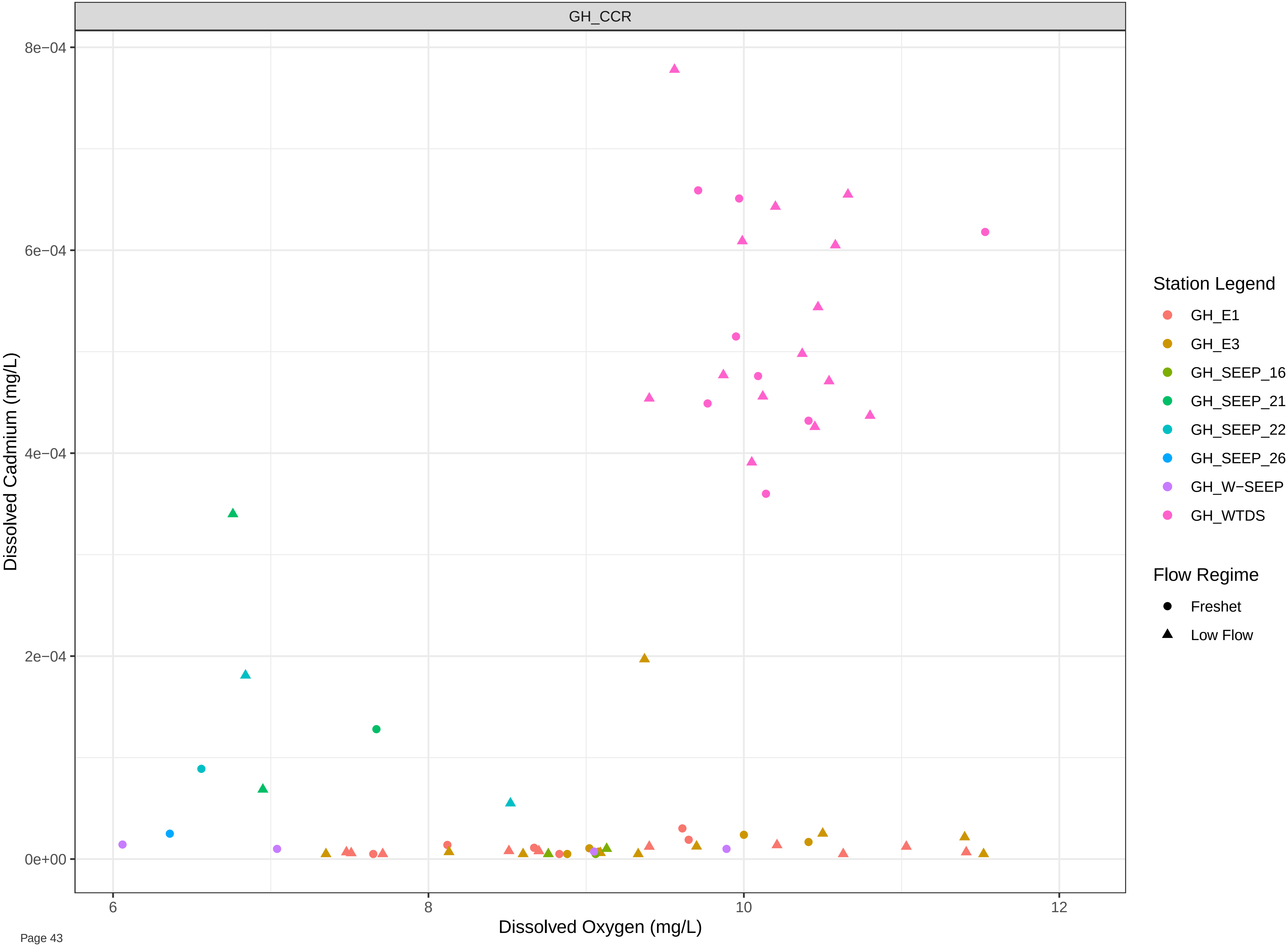

GH_LEASK_WR
Dissolved Boron (mg/L)
0.0200
0.0175
0.0150
0.0125
0.0100
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow

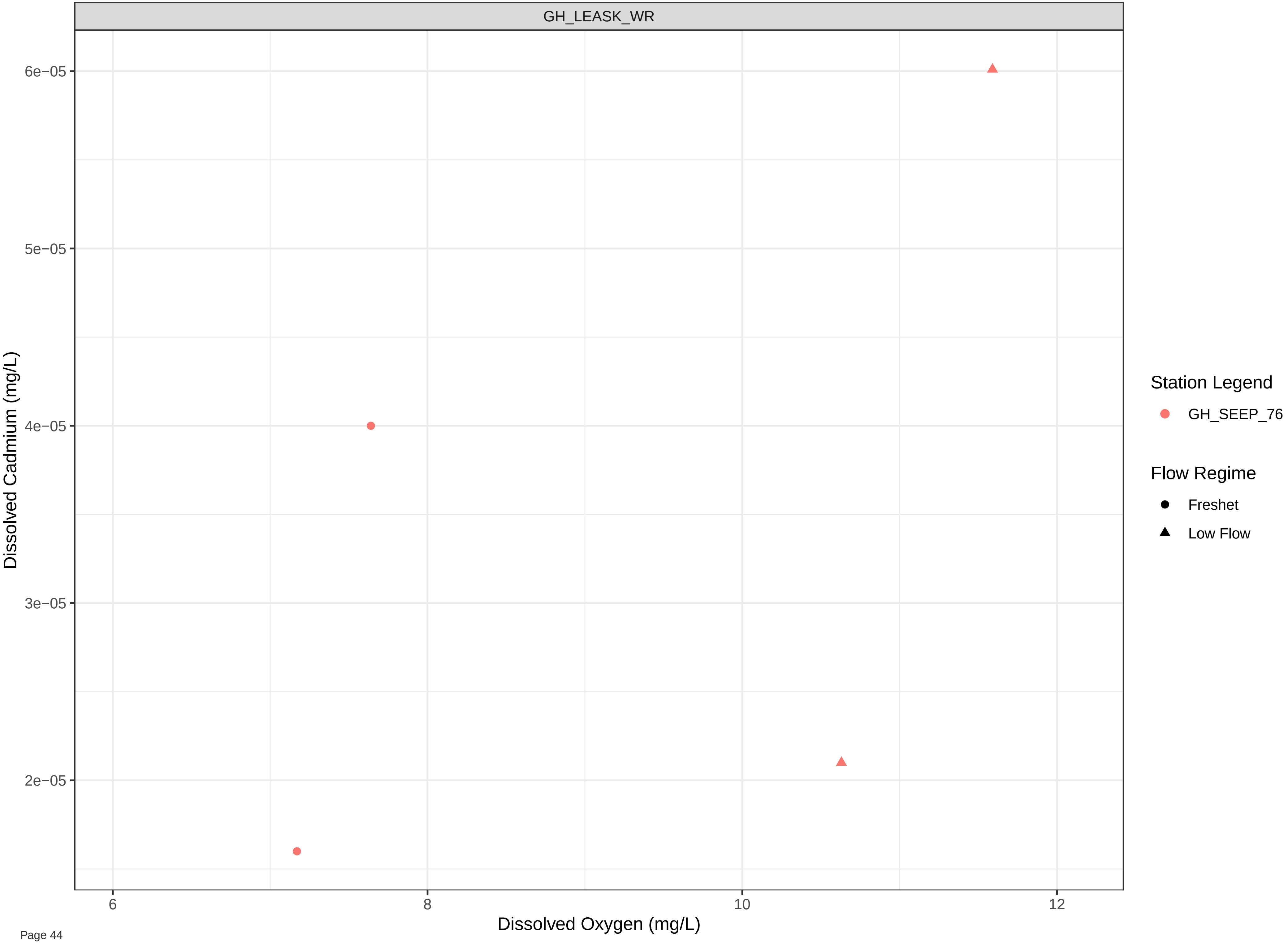

GH_PORTER_CREEK
Dissolved Boron (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow


GH_THOMPSON_WR
Dissolved Boron (mg/L)
0.05
0.04
0.03
0.02
0.01
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

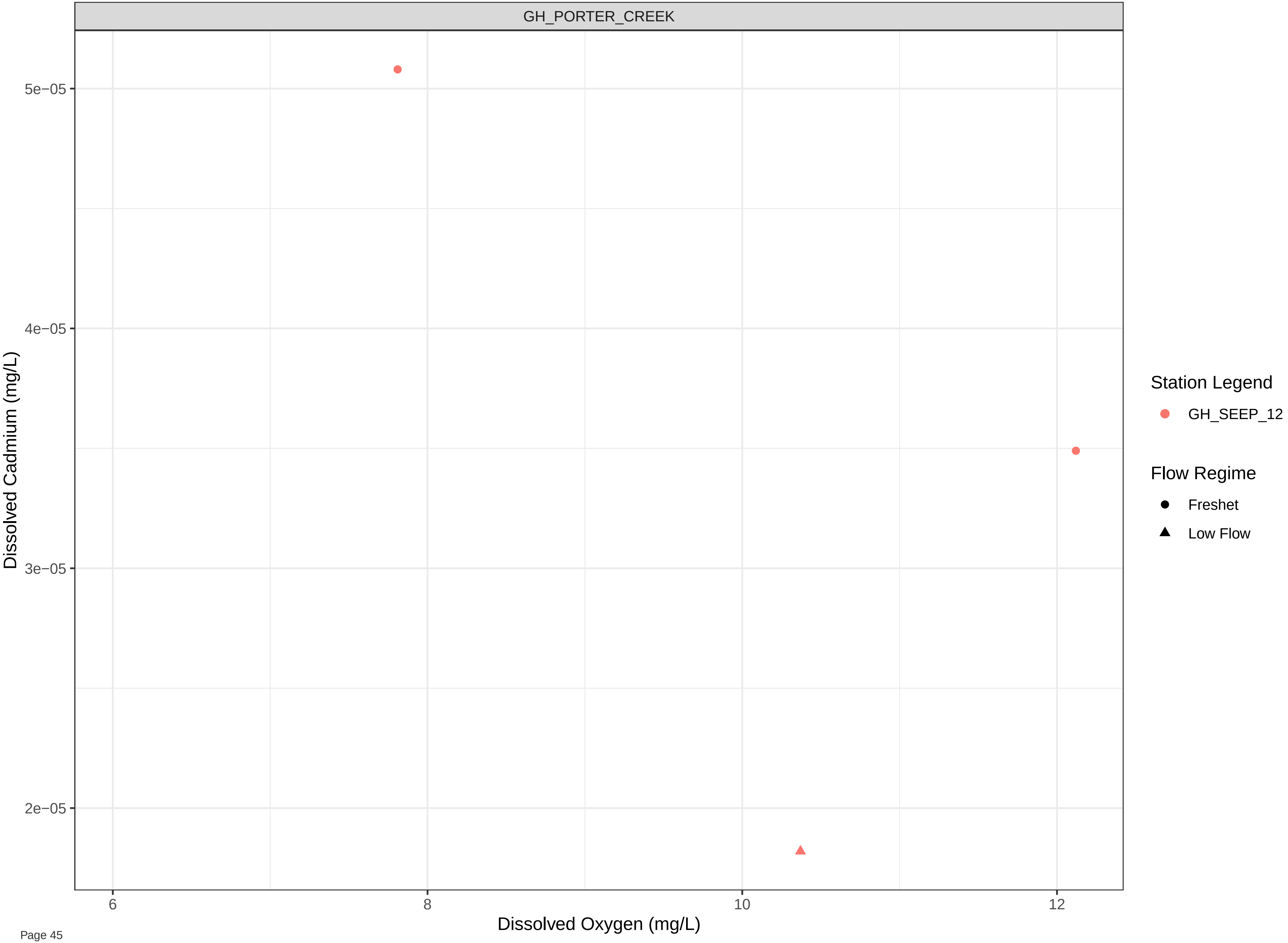

GH_UPSTREAM_CCR
0.05
0.04
0.03
0.02
Dissolved Boron (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

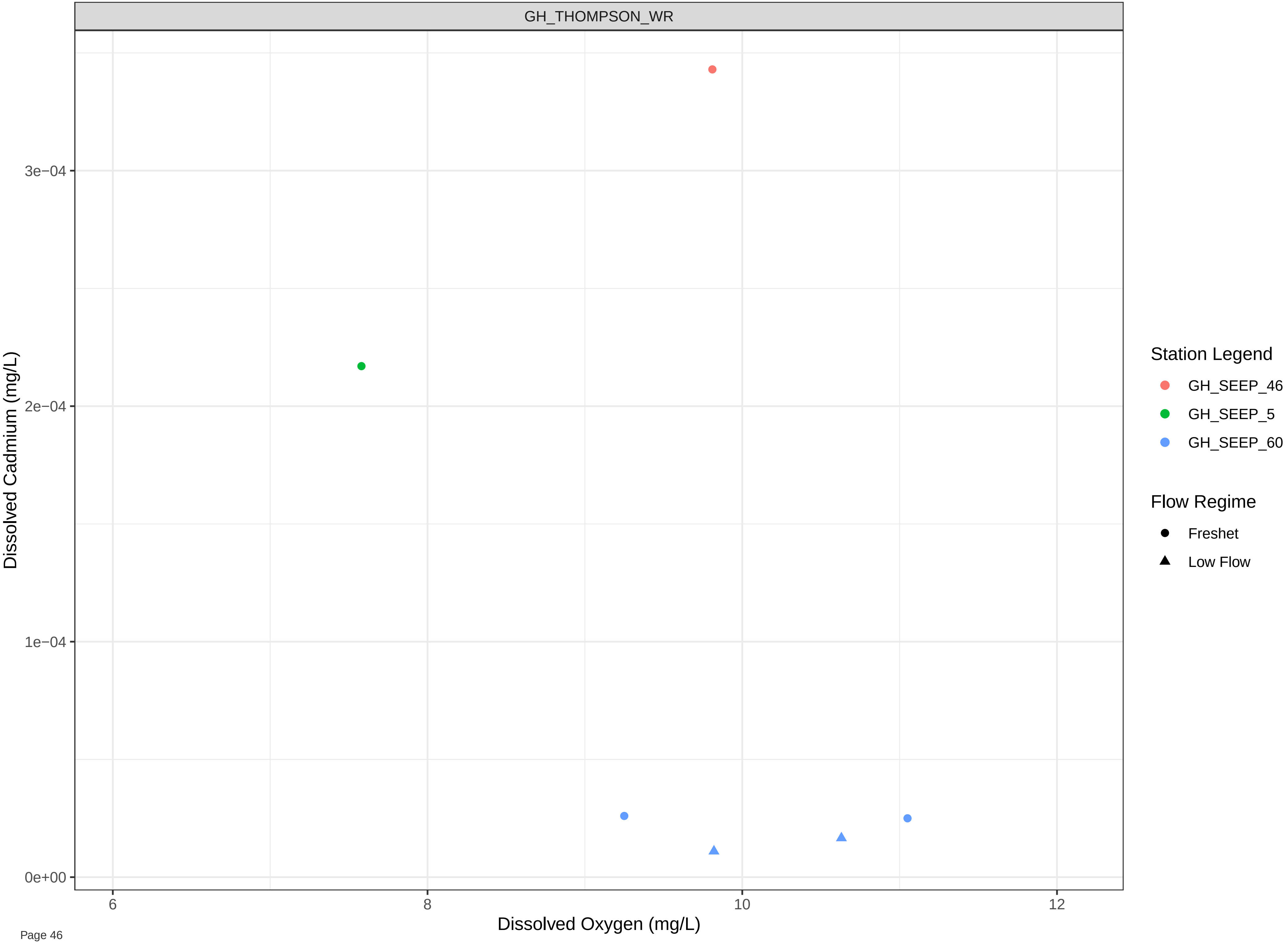

GH_WOLFRAM_WR
Dissolved Boron (mg/L)
0.4
0.3
0.2
0.1
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

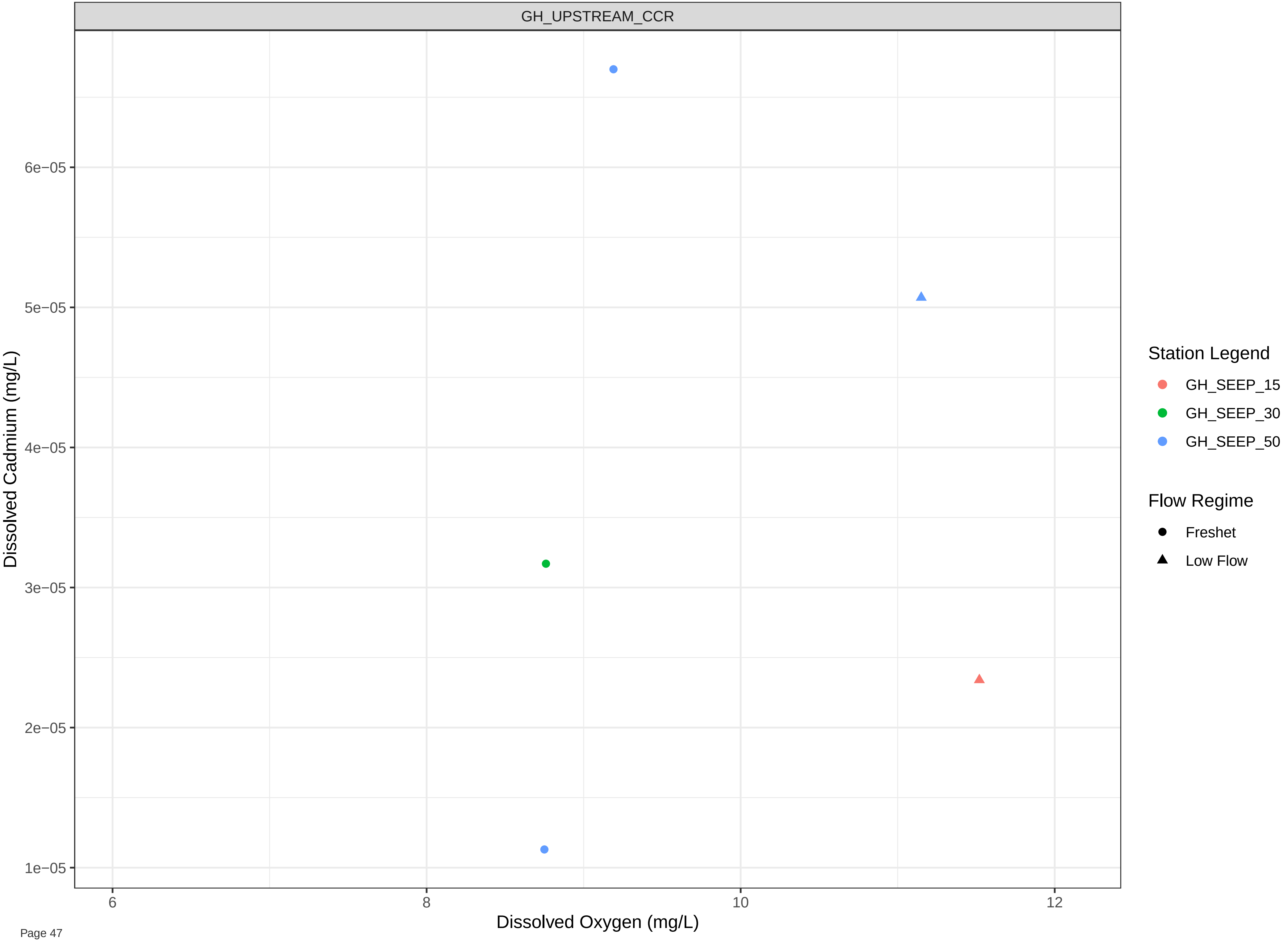

GH_CCR
Dissolved Cadmium (mg/L)
8e−04
6e−04
4e−04
2e−04
0e+00
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

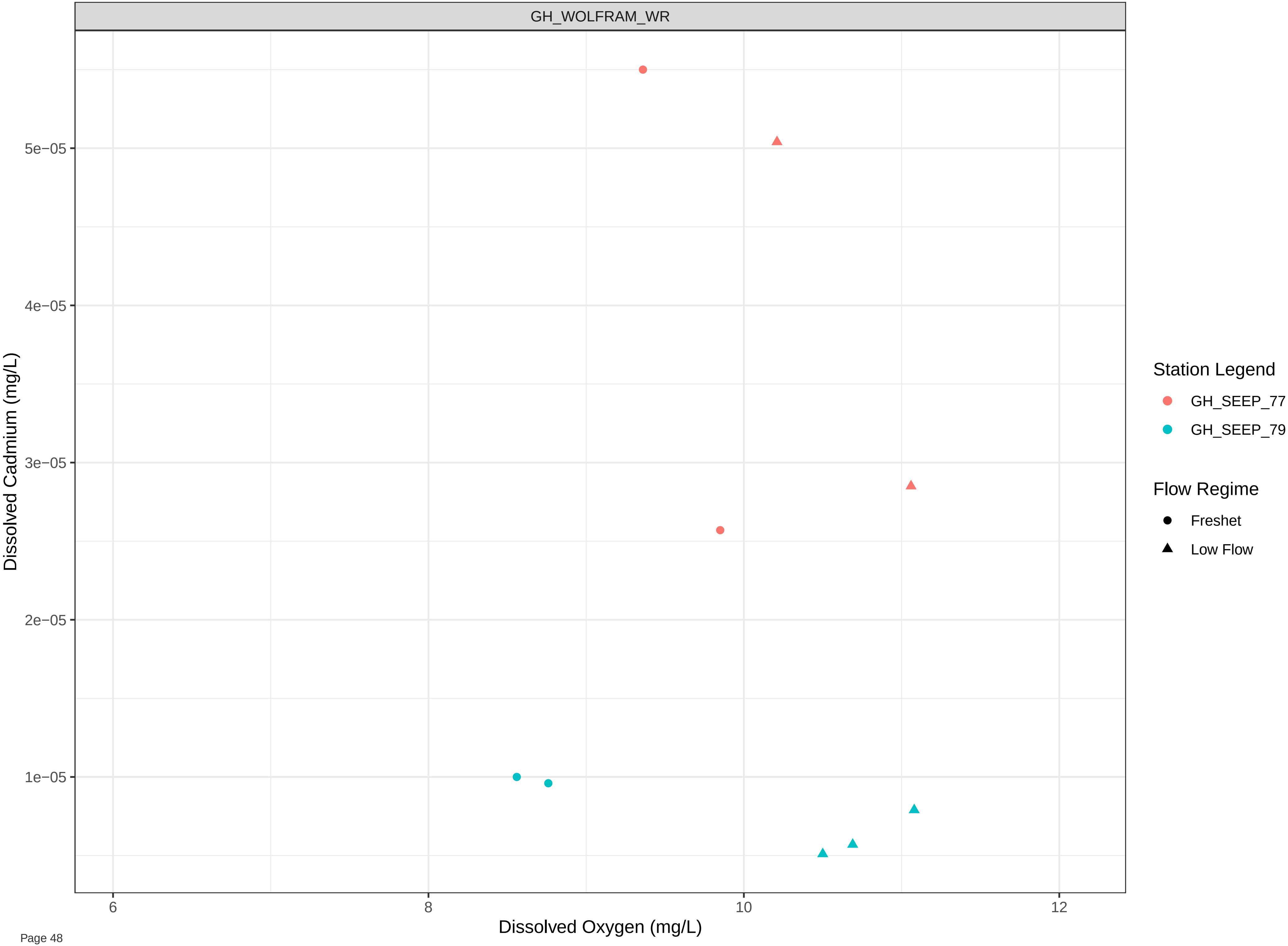


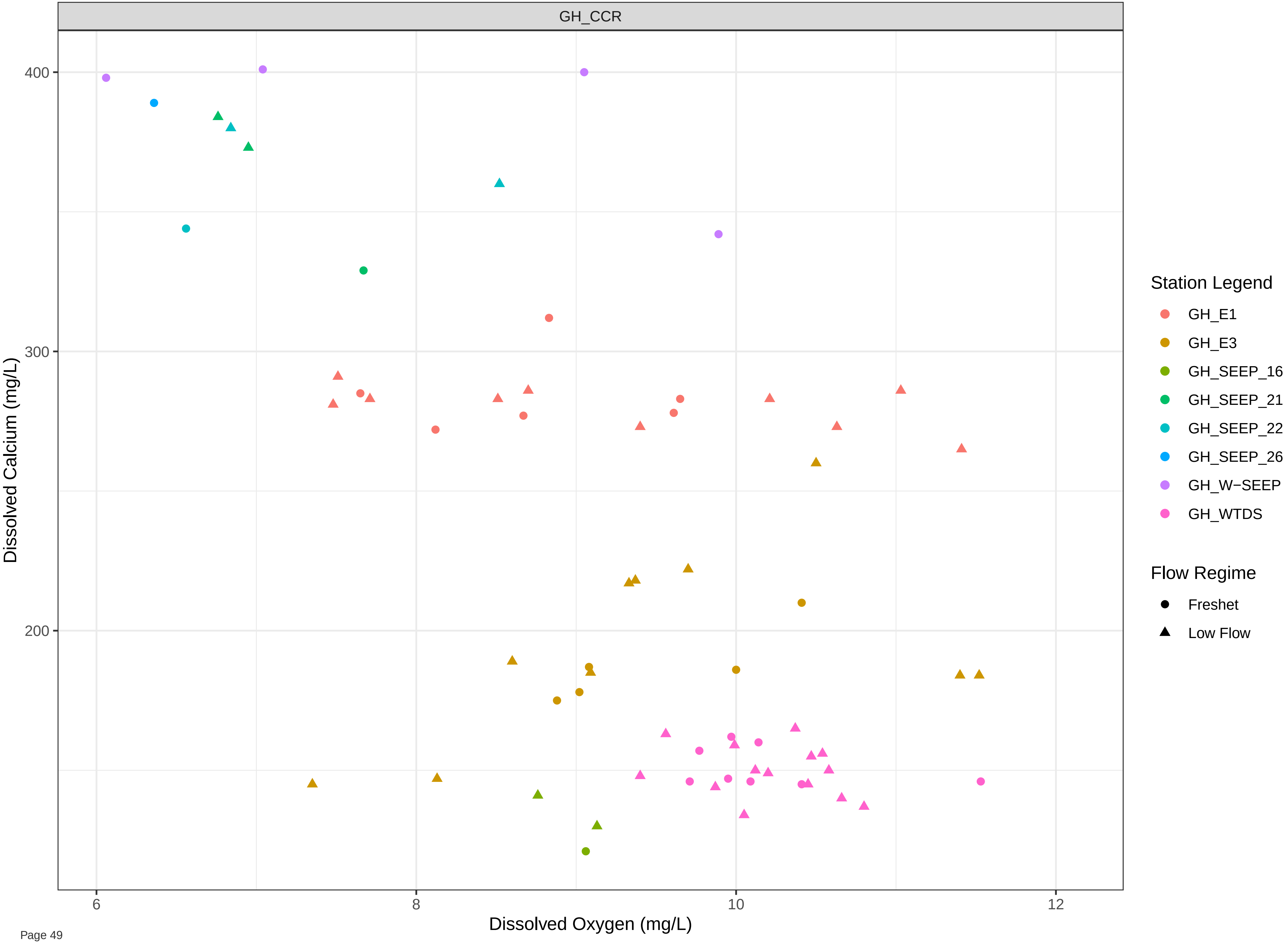
GH_LEASK_WR
6e−05
5e−05
4e−05
3e−05
2e−05
Dissolved Cadmium (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow

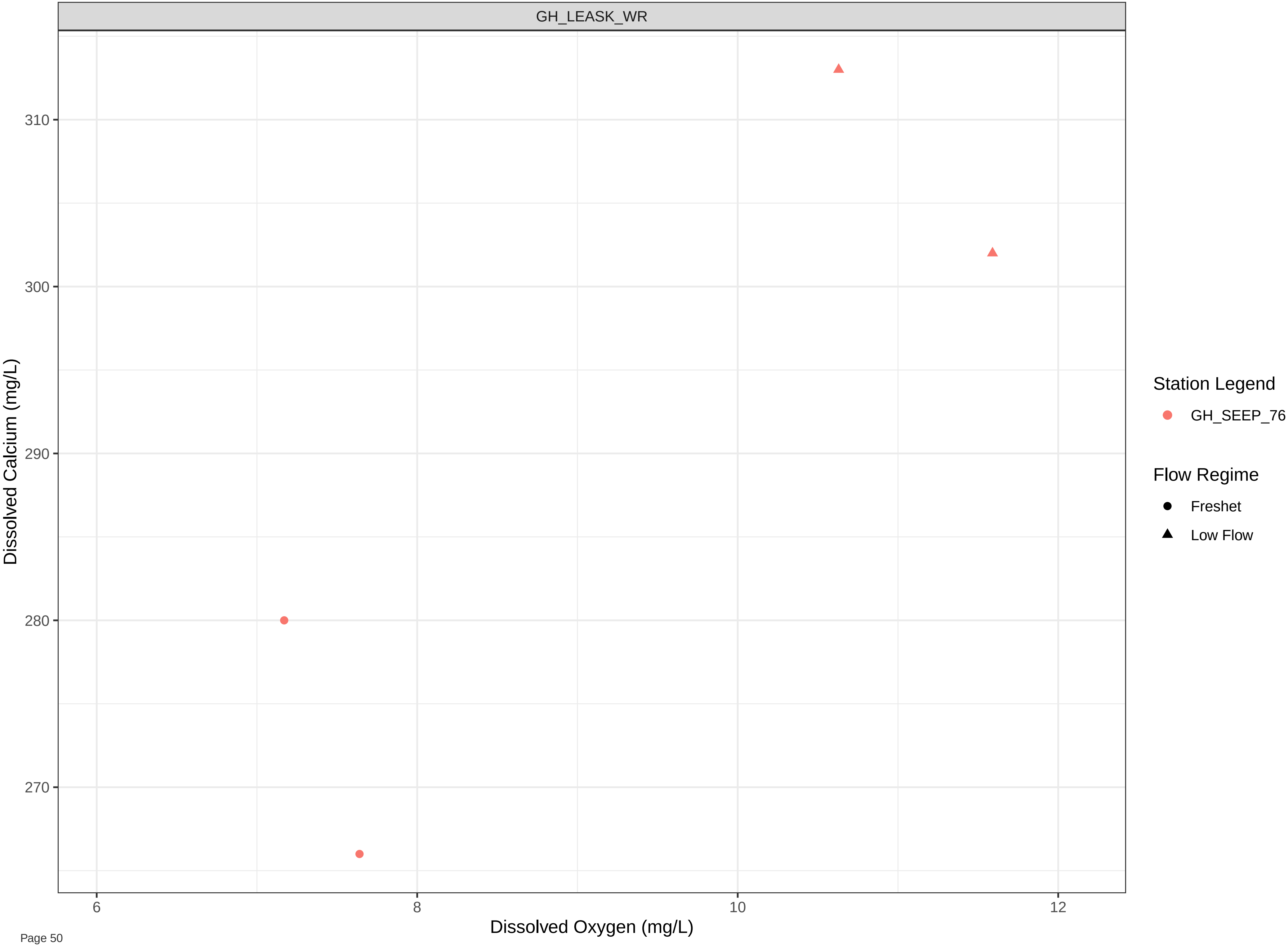

GH_PORTER_CREEK
Dissolved Cadmium (mg/L)
5e−05
4e−05
3e−05
2e−05
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

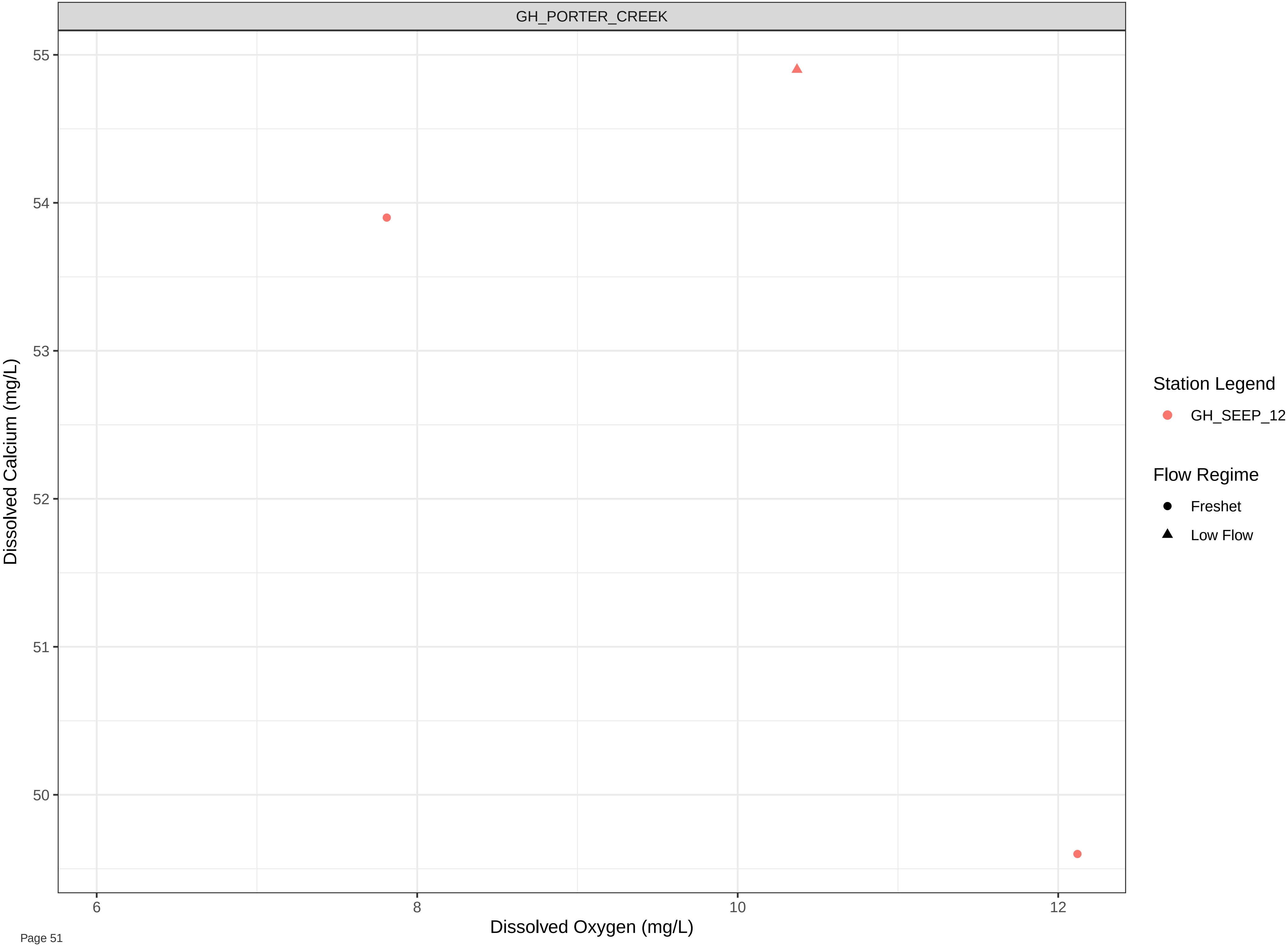

GH_THOMPSON_WR
3e−04
2e−04
1e−04
0e+00
6
8
10
12
Dissolved Cadmium (mg/L)
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

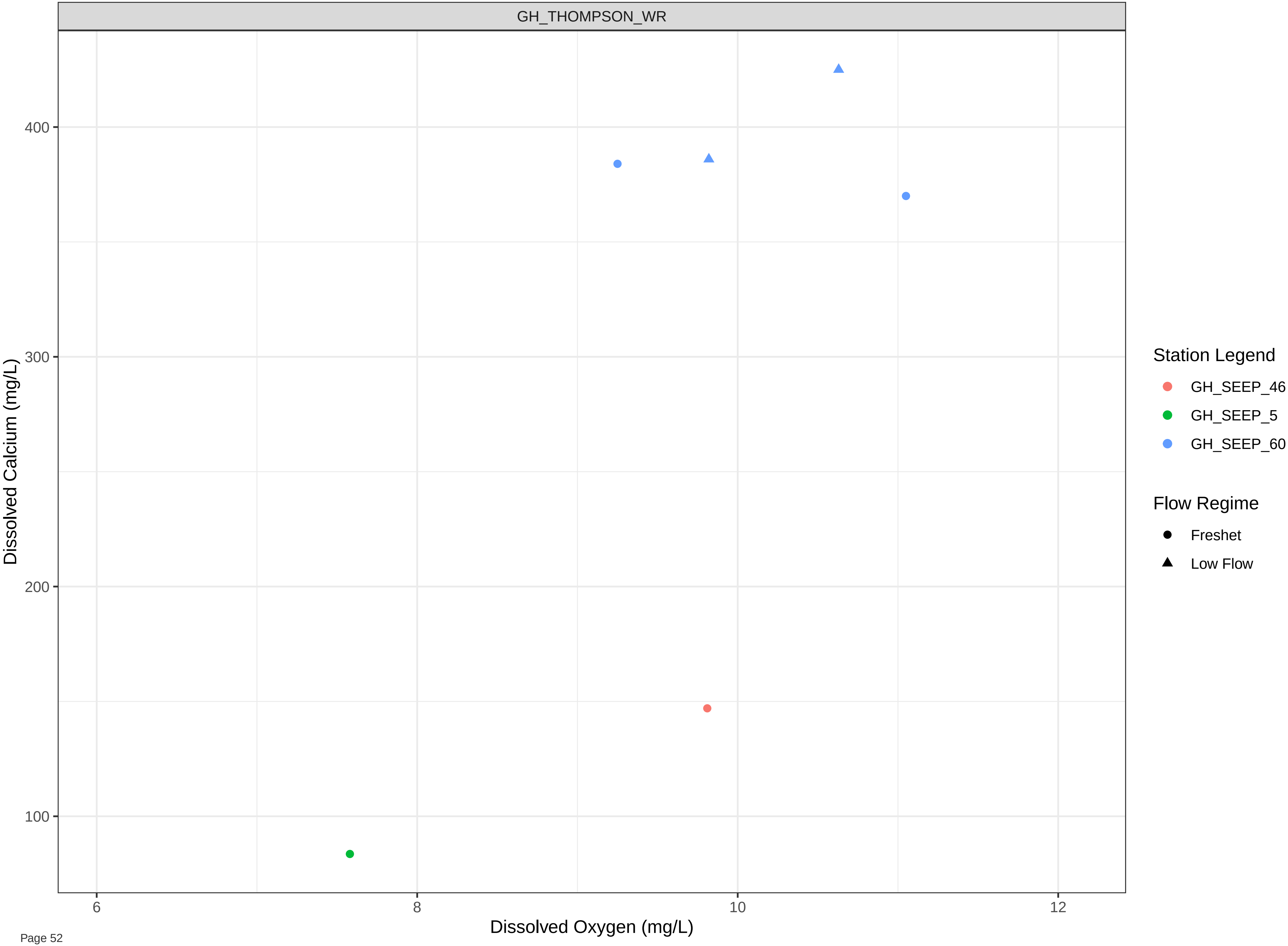

GH_UPSTREAM_CCR
6e−05
5e−05
4e−05
3e−05
2e−05
1e−05
Dissolved Cadmium (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

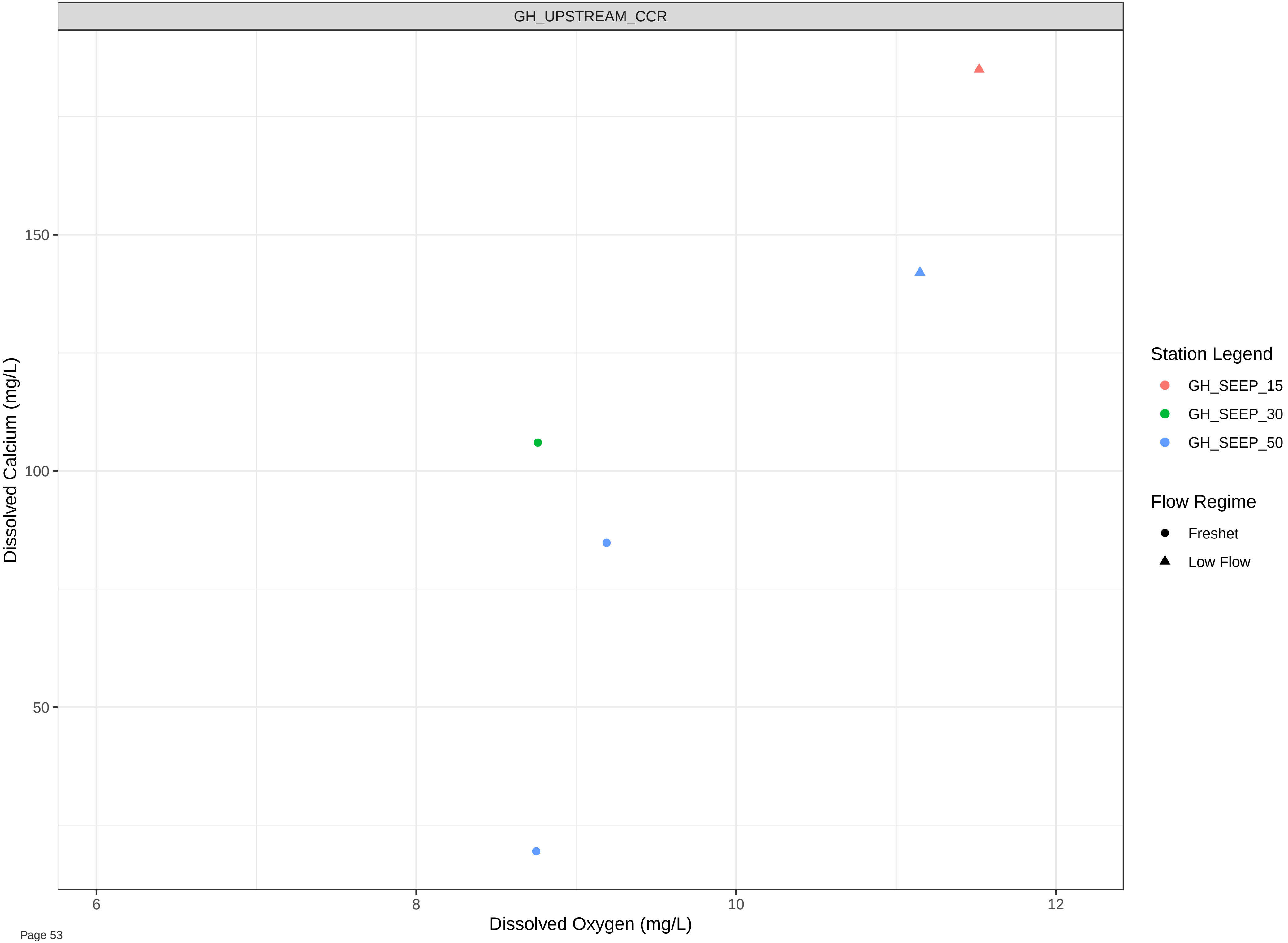

GH_WOLFRAM_WR
Dissolved Cadmium (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

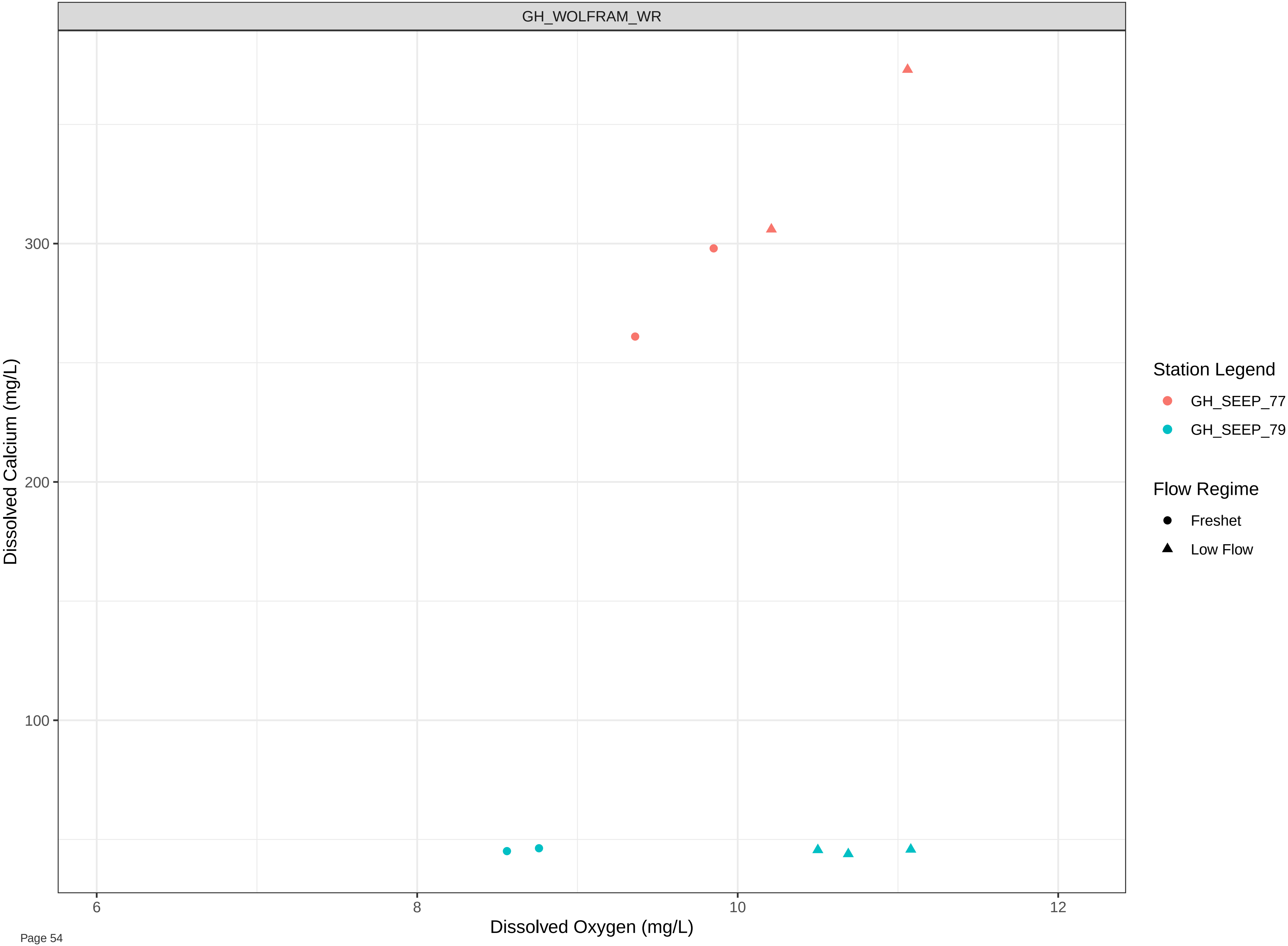

GH_CCR
Dissolved Calcium (mg/L)
400
300
200
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

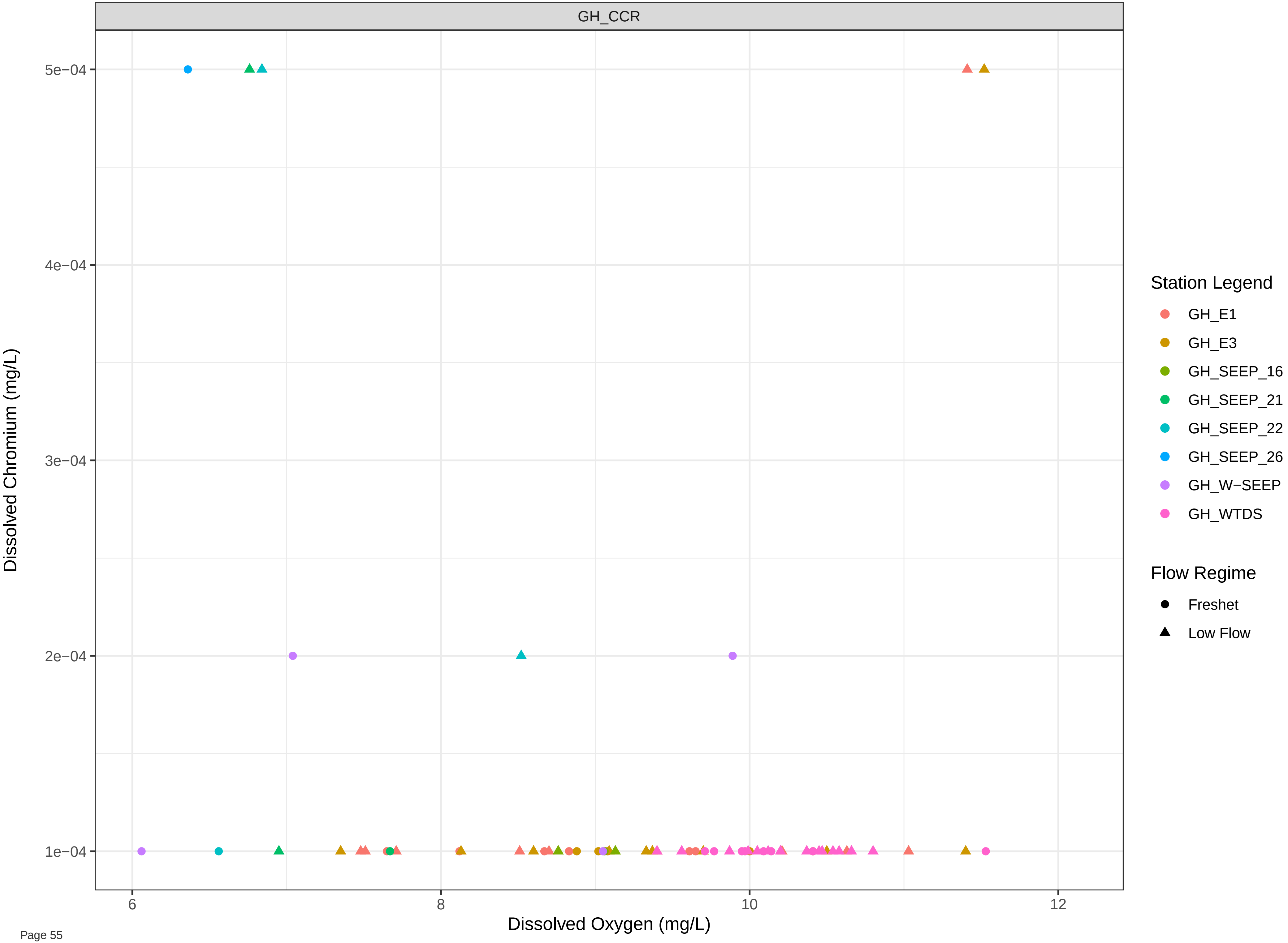

GH_LEASK_WR
Dissolved Calcium (mg/L)
310
300
290
280
270
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

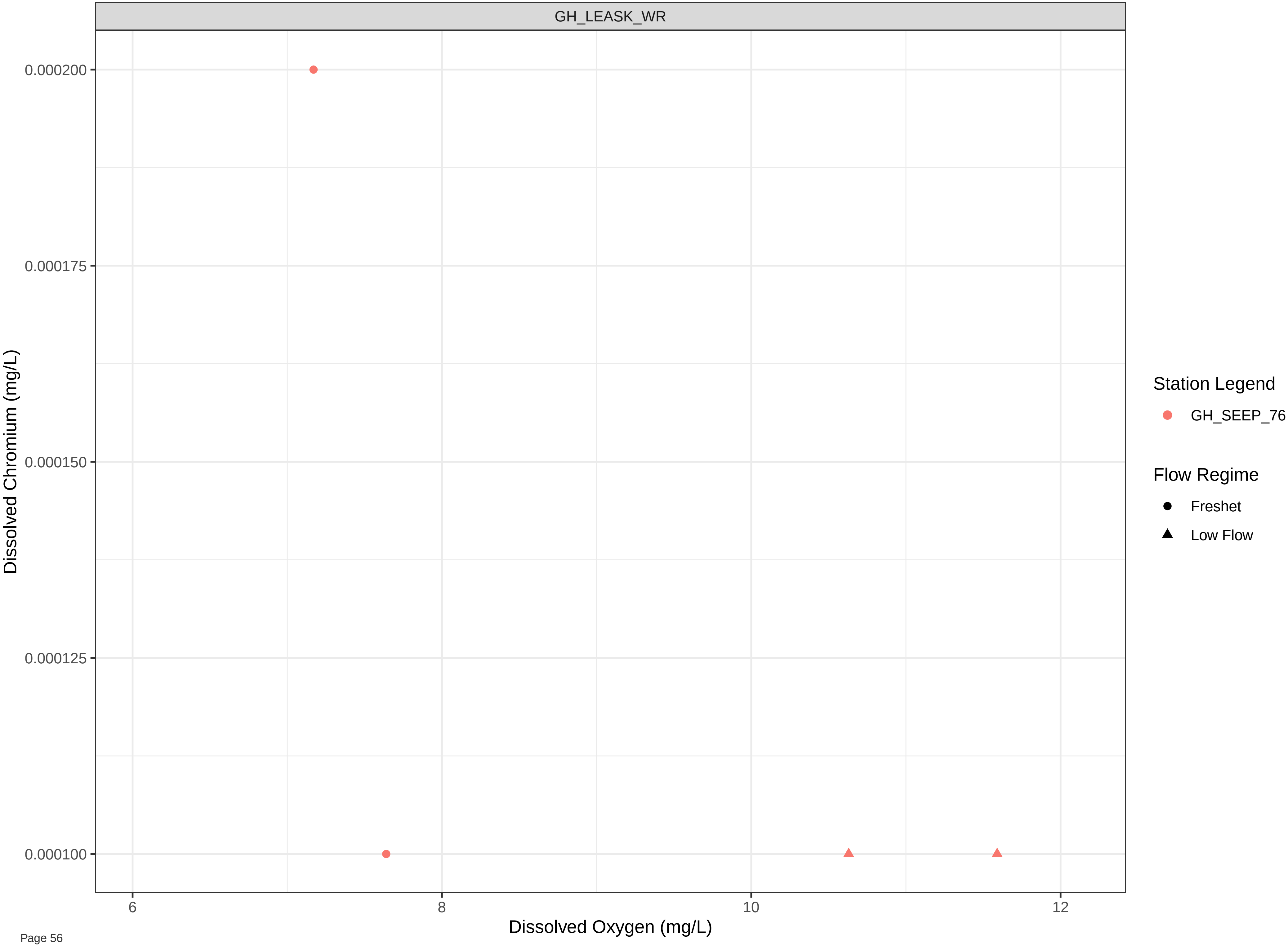

GH_PORTER_CREEK
55
54
53
52
51
50
Dissolved Calcium (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

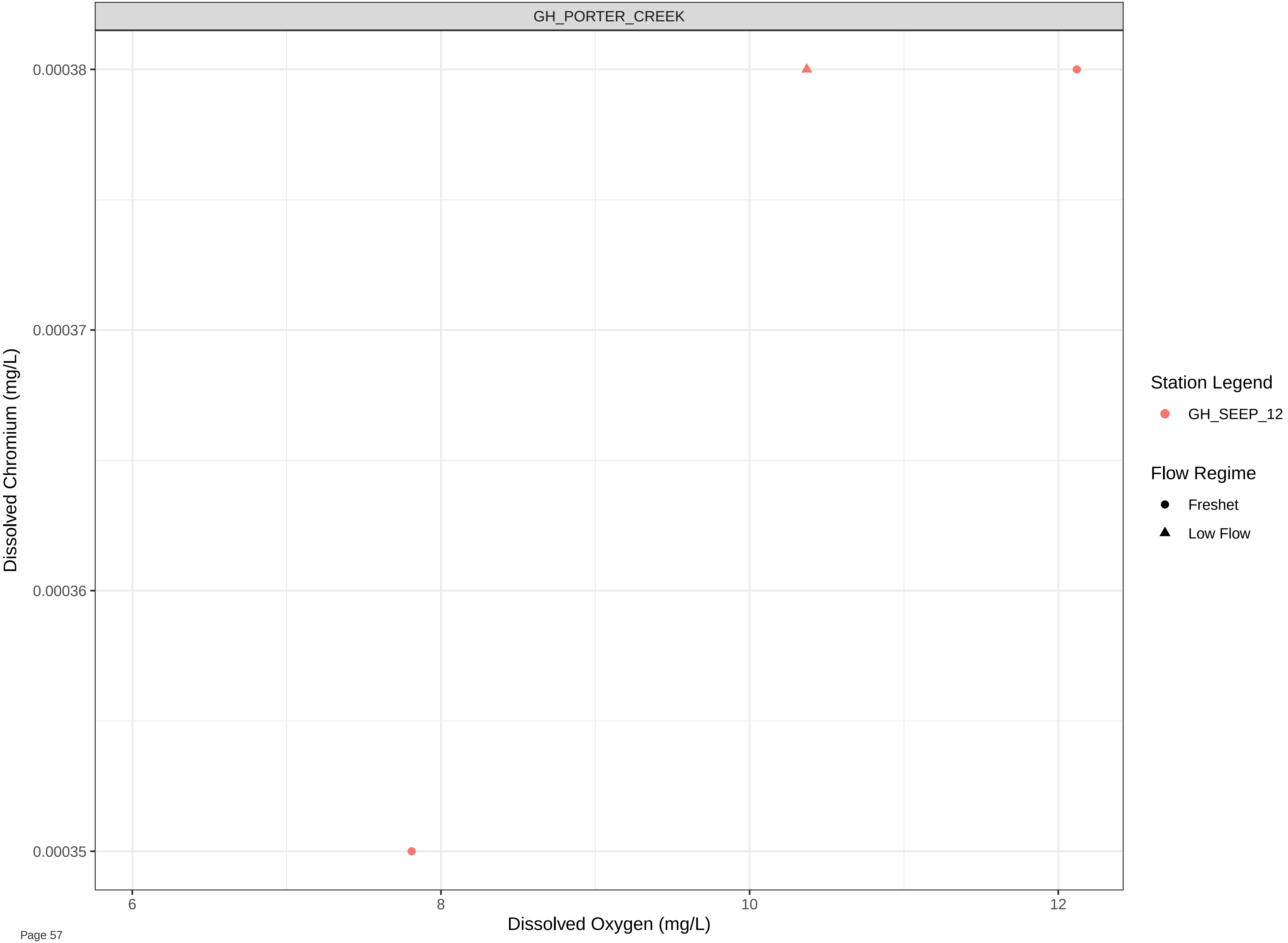

GH_THOMPSON_WR
Dissolved Calcium (mg/L)
400
300
200
100
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

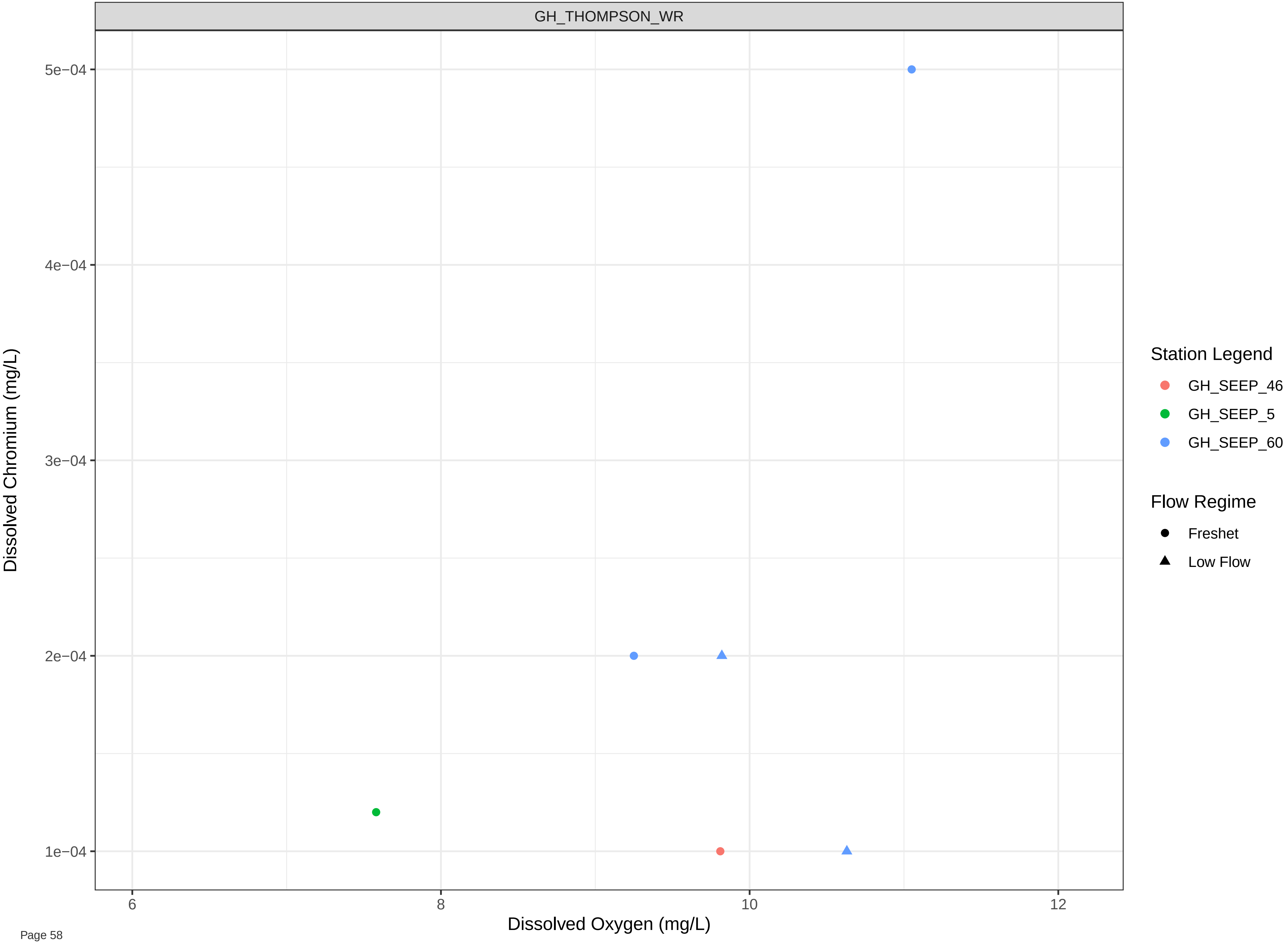

GH_UPSTREAM_CCR
Dissolved Calcium (mg/L)
150
100
50
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

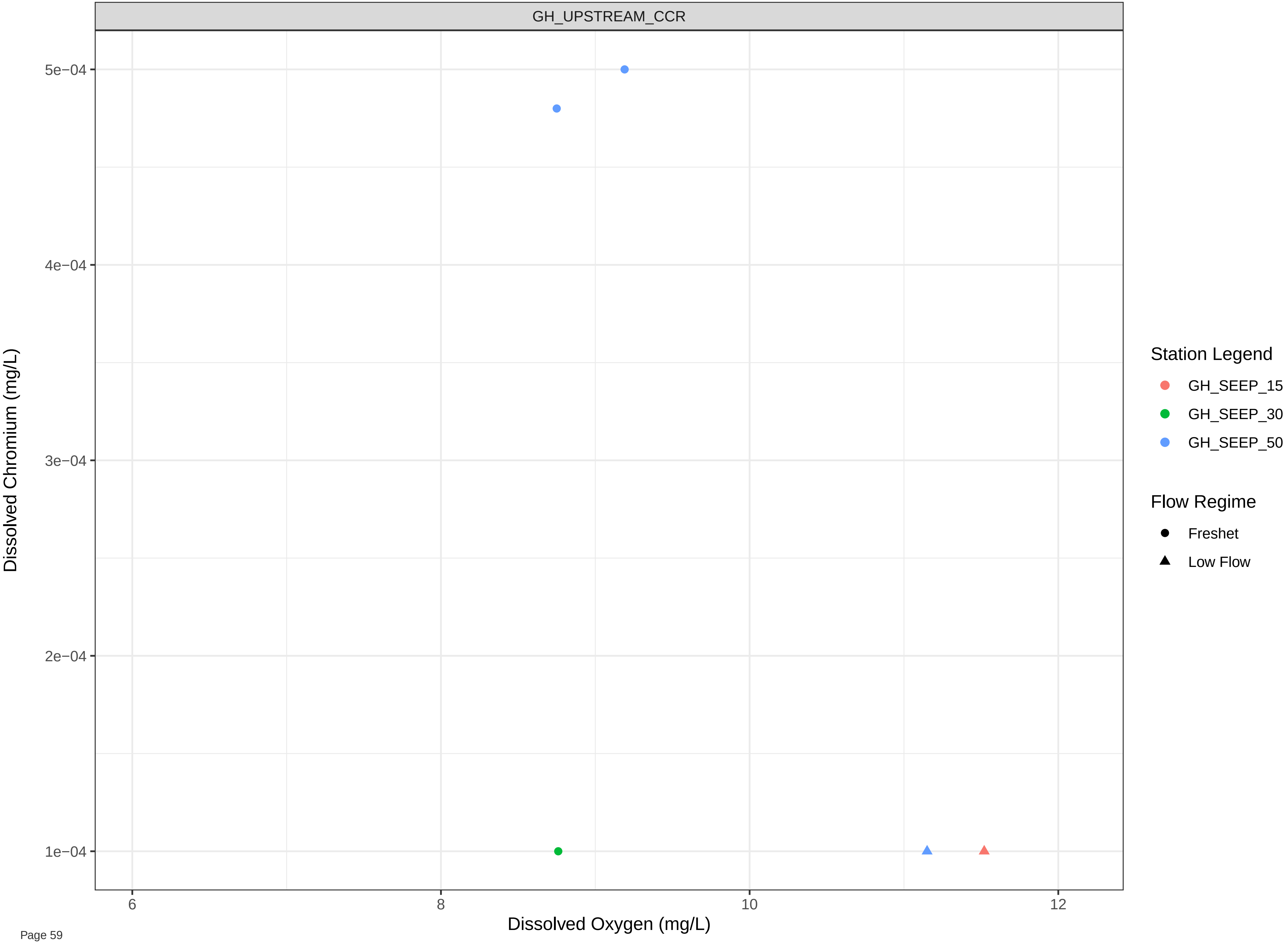

GH_WOLFRAM_WR
Dissolved Calcium (mg/L)
300
200
100
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

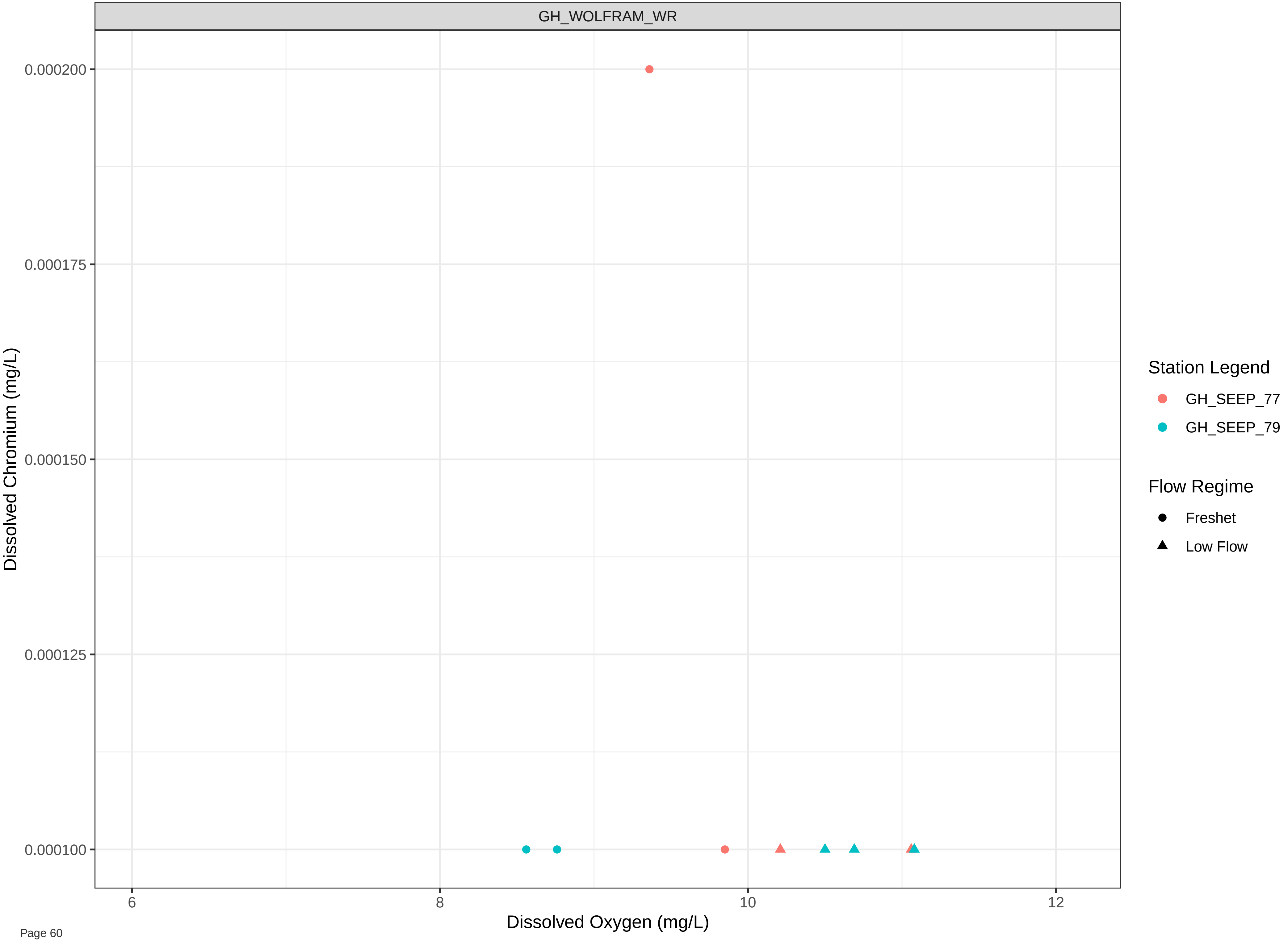

GH_CCR
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

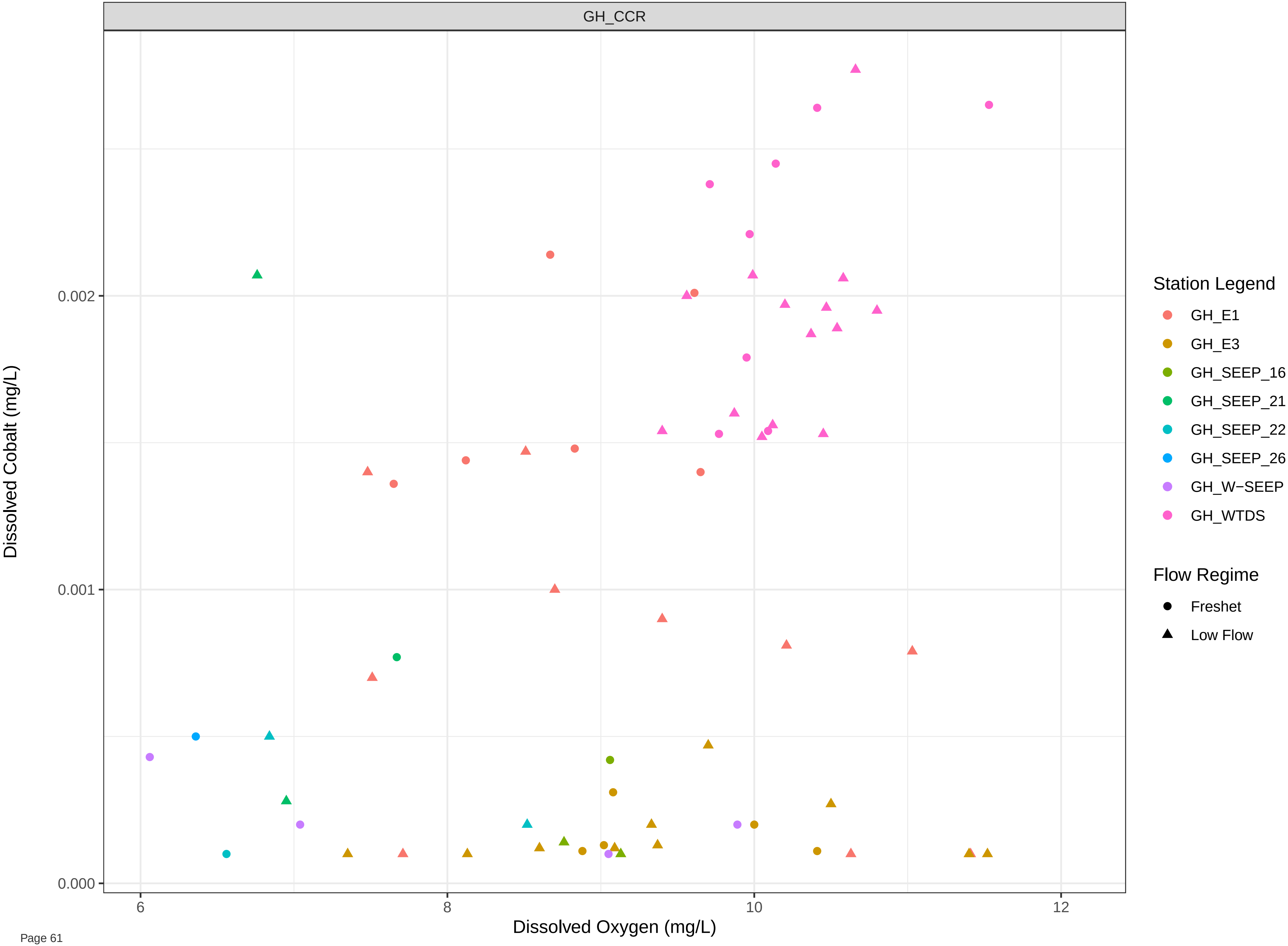

GH_LEASK_WR
0.000200
0.000175
0.000150
0.000125
0.000100
Dissolved Chromium (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow

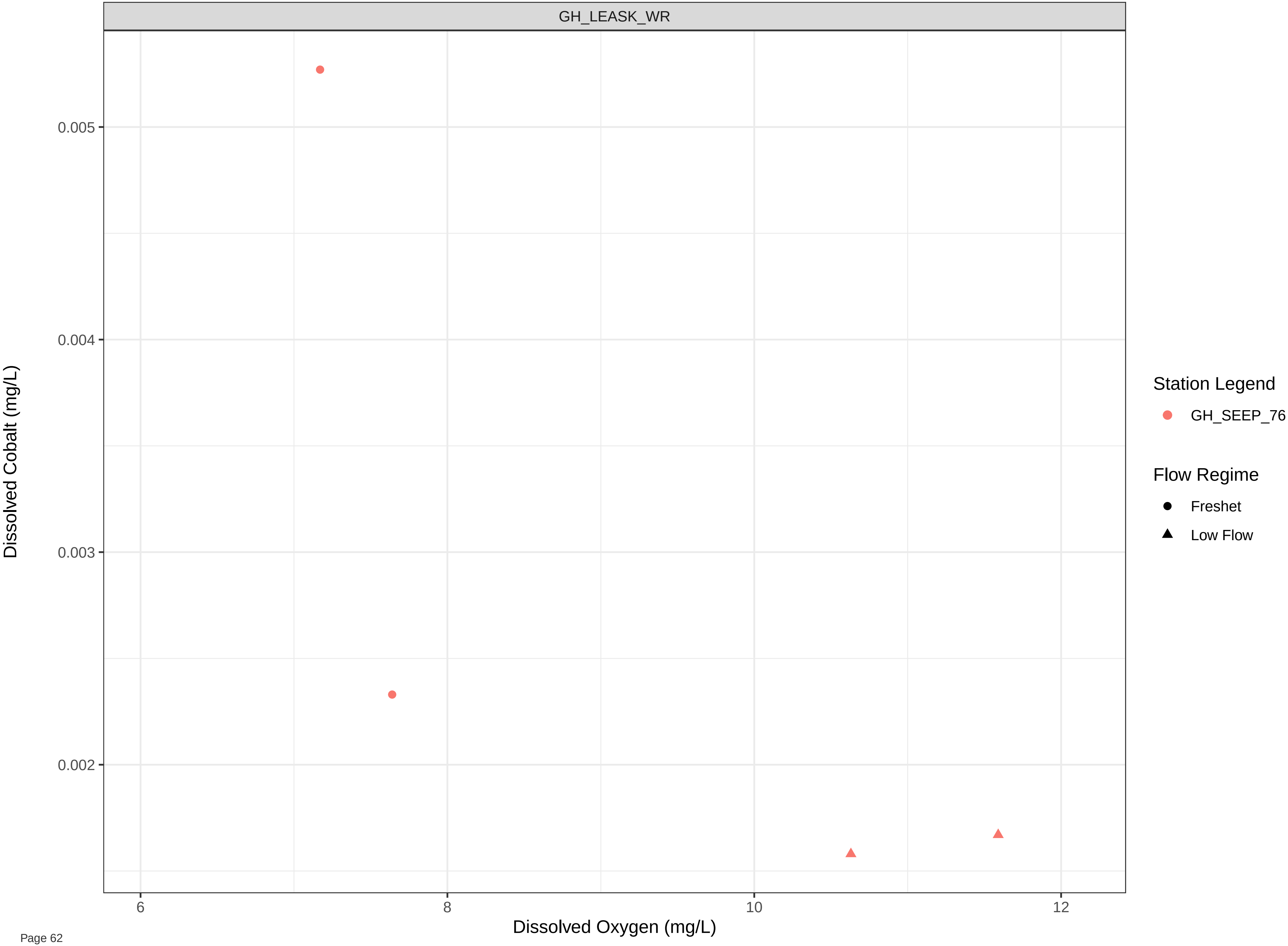

GH_PORTER_CREEK
0.00038
0.00037
0.00036
0.00035
Dissolved Chromium (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

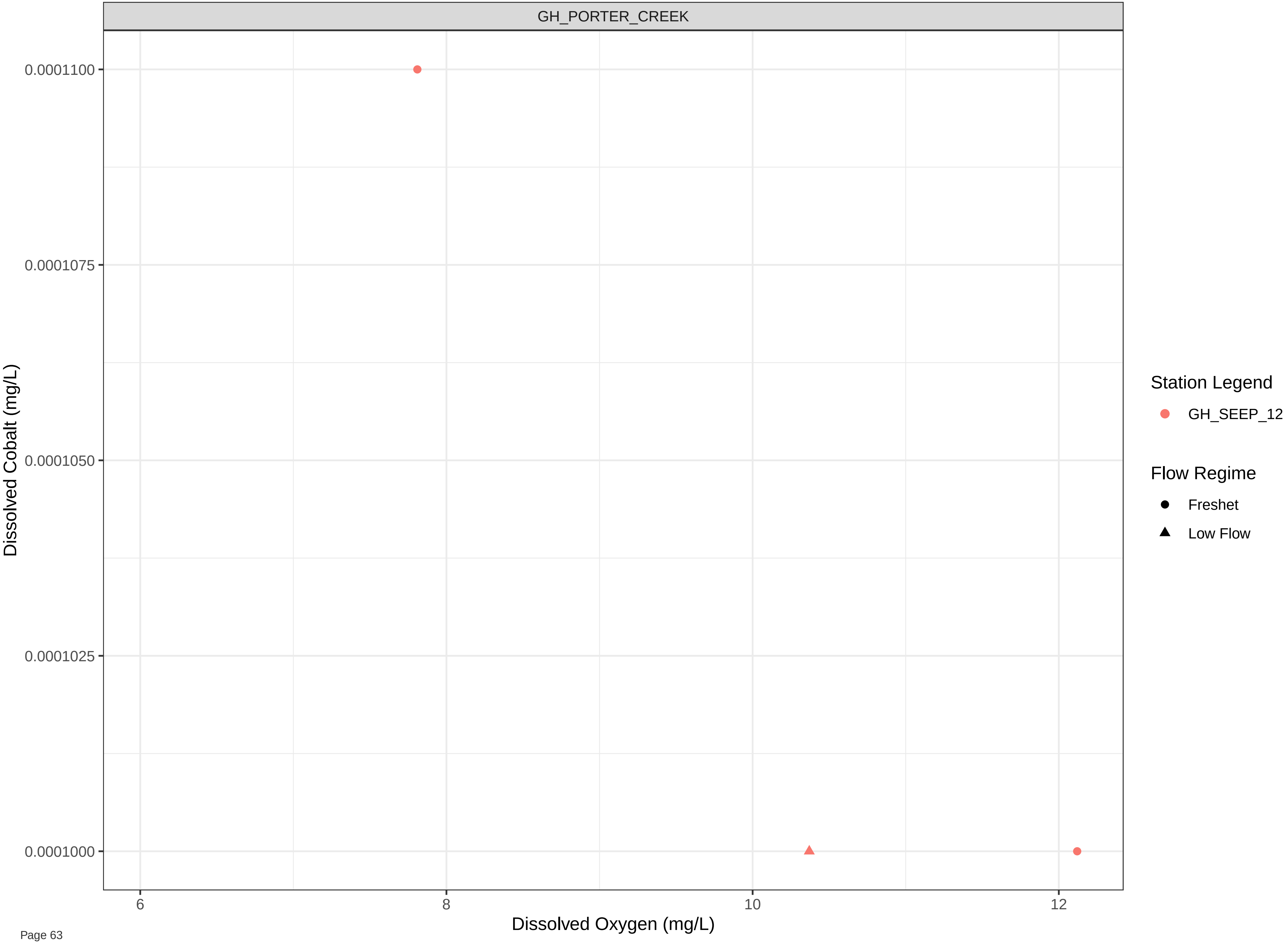

GH_THOMPSON_WR
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

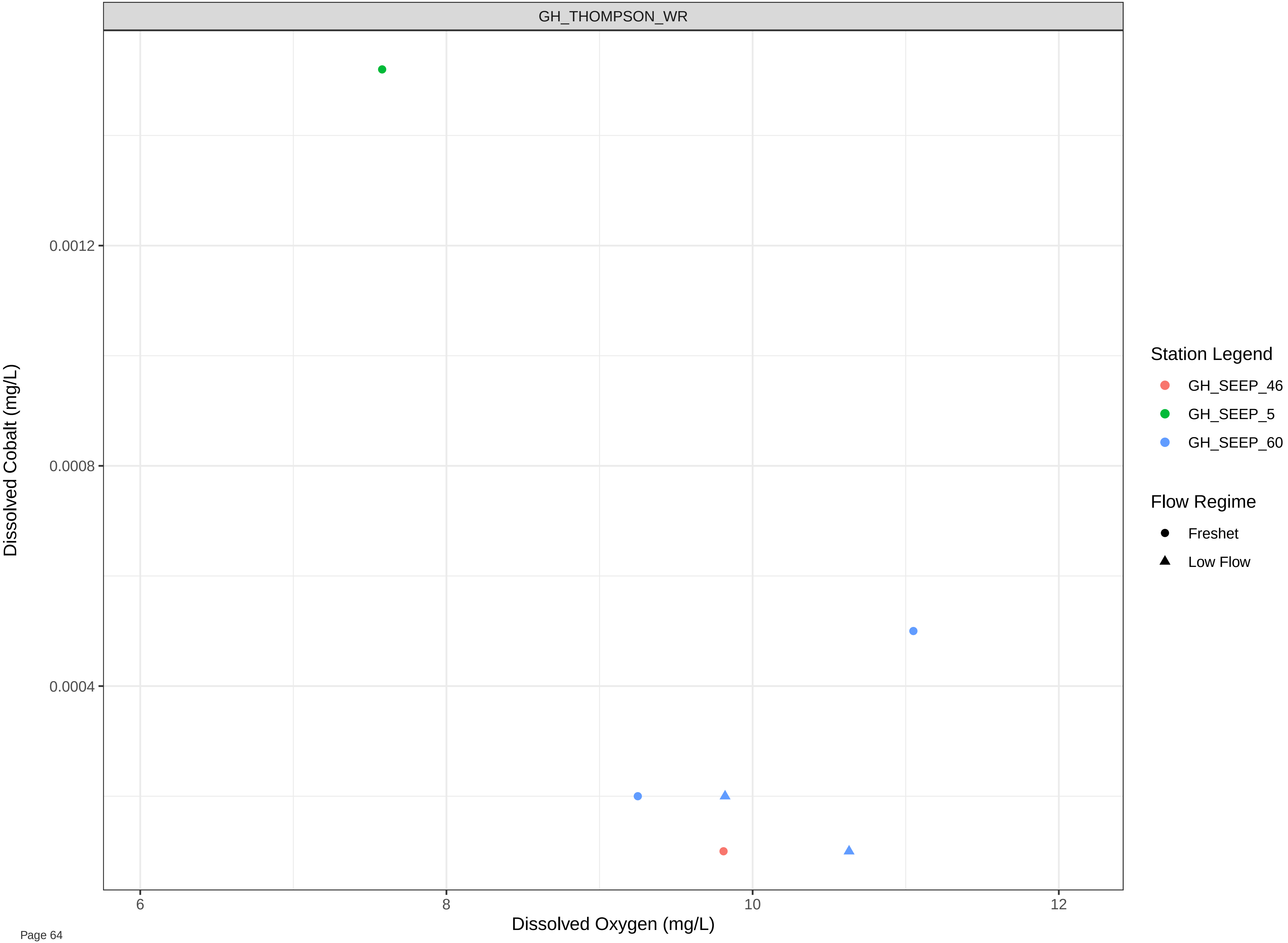

GH_UPSTREAM_CCR
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

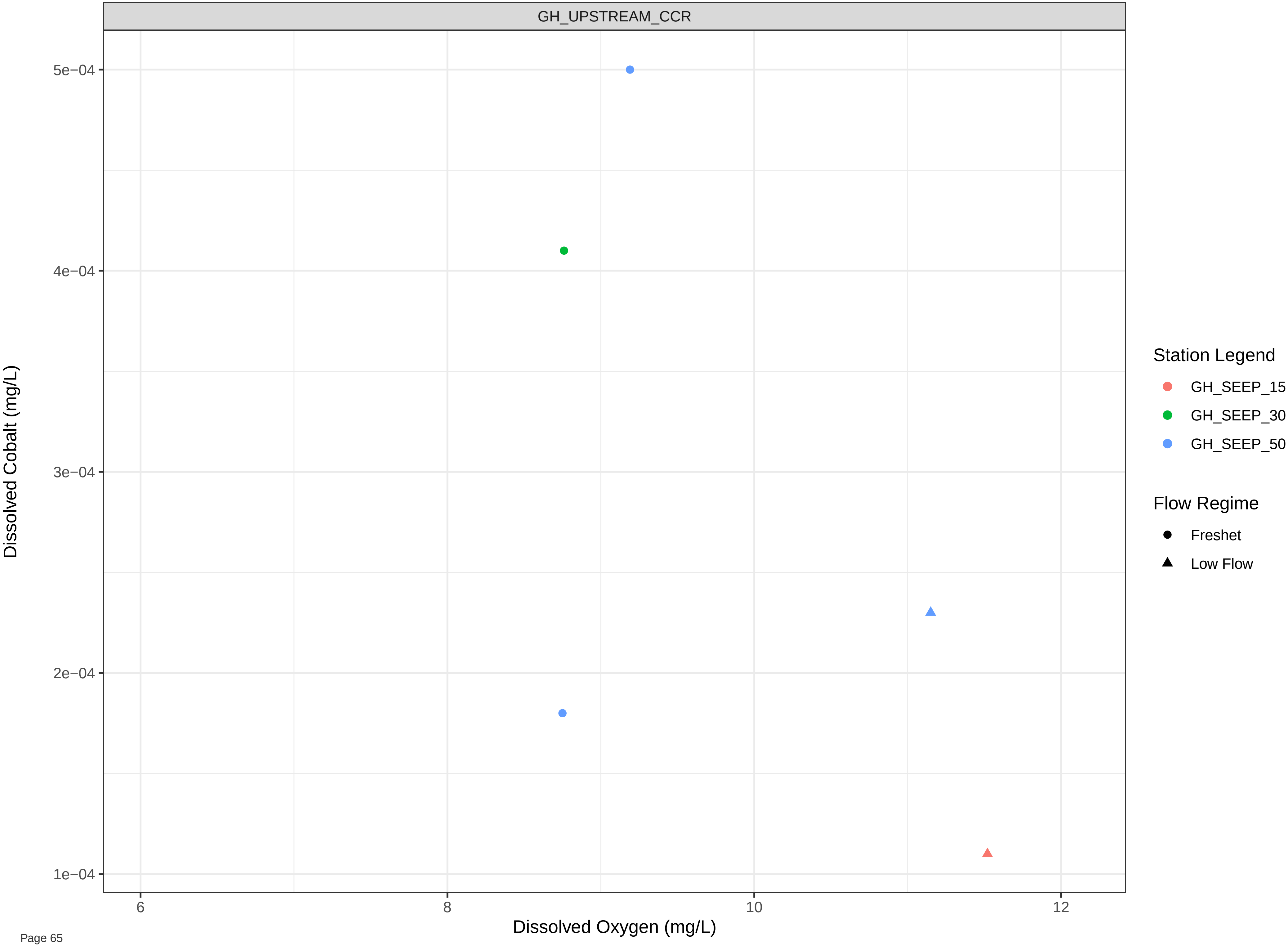

GH_WOLFRAM_WR
Dissolved Chromium (mg/L)
0.000200
0.000175
0.000150
0.000125
0.000100
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

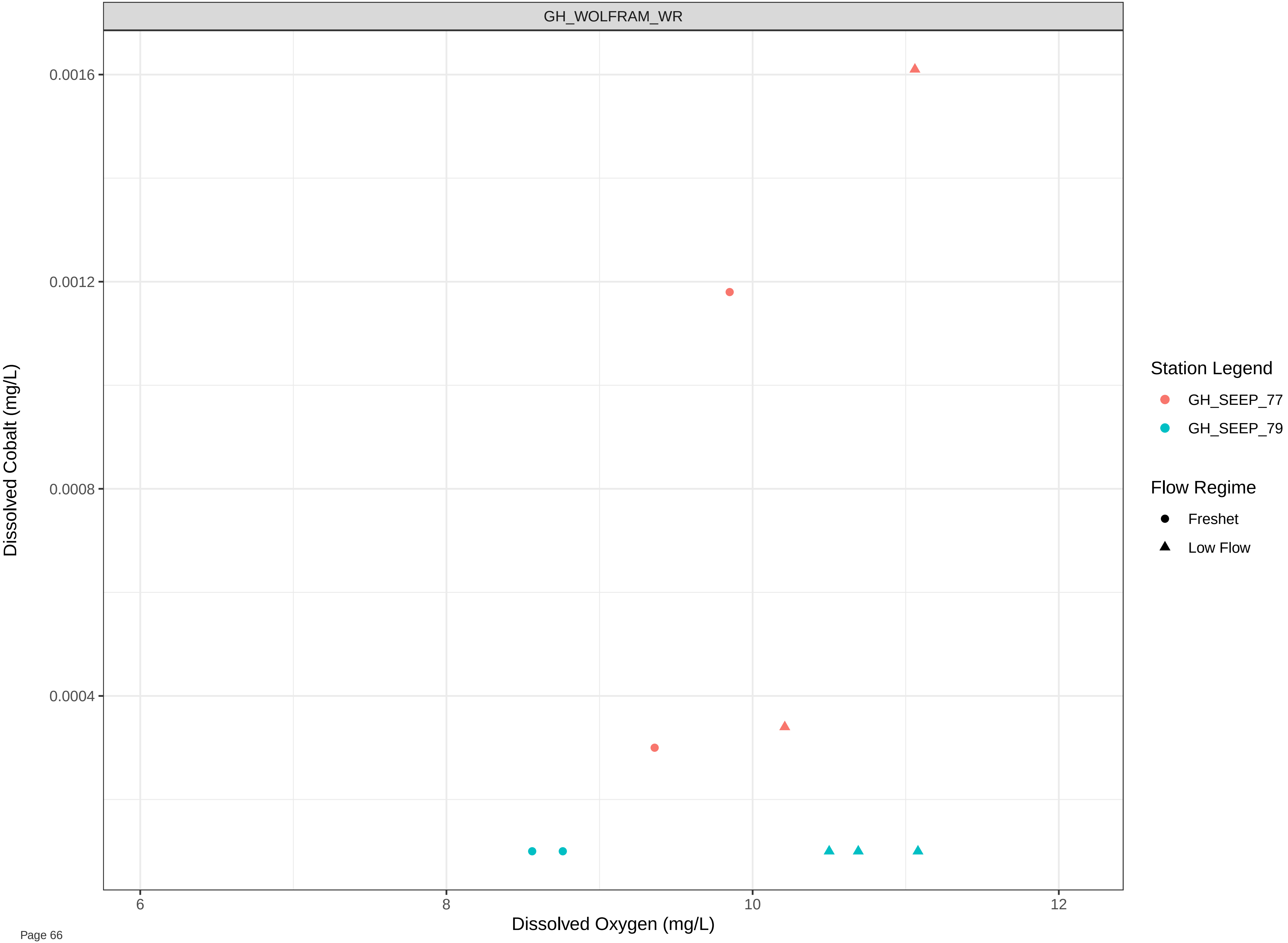

GH_CCR
Dissolved Cobalt (mg/L)
0.000
0.001
0.002
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

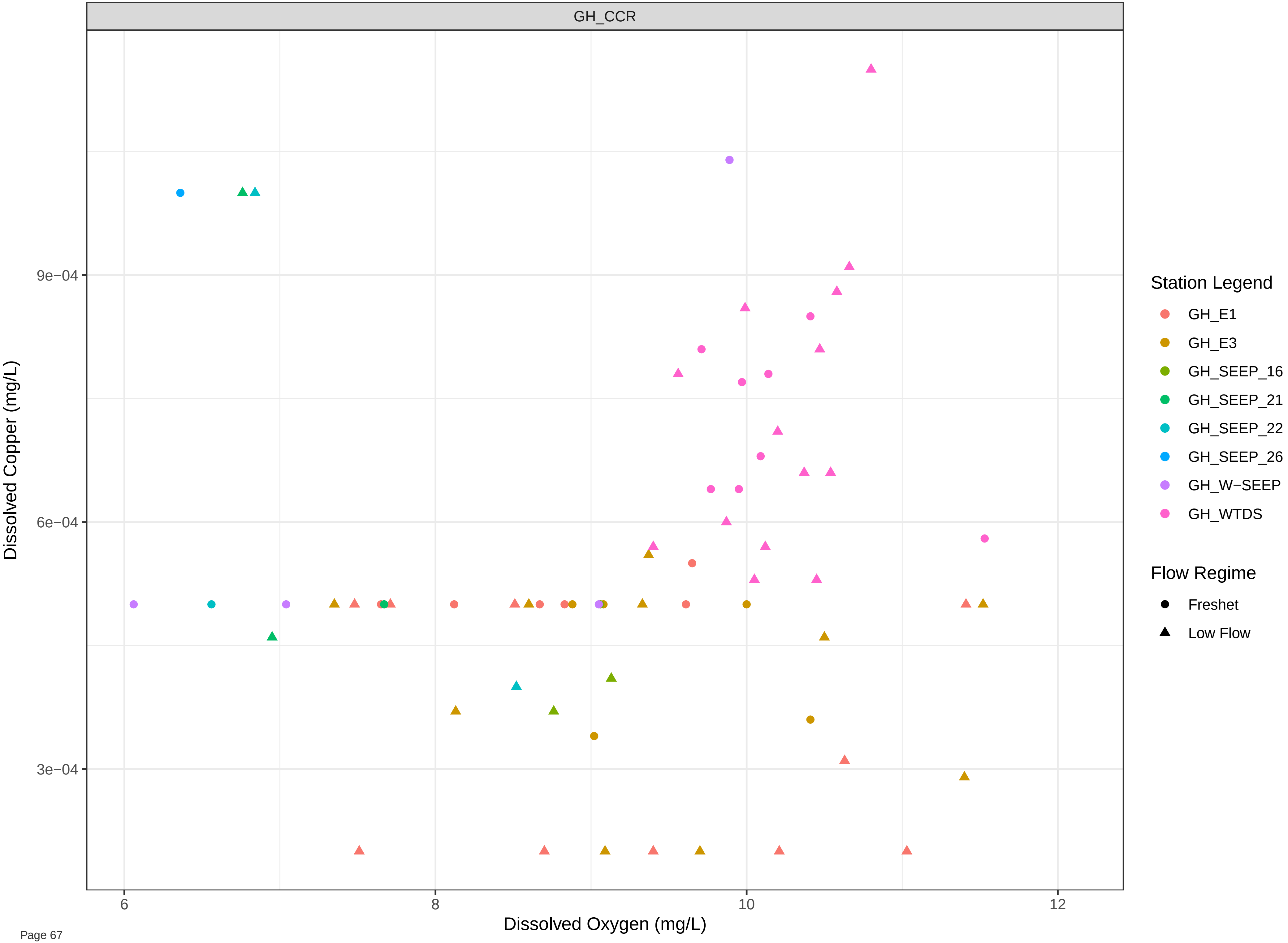

GH_LEASK_WR
Dissolved Cobalt (mg/L)
0.005
0.004
0.003
0.002
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

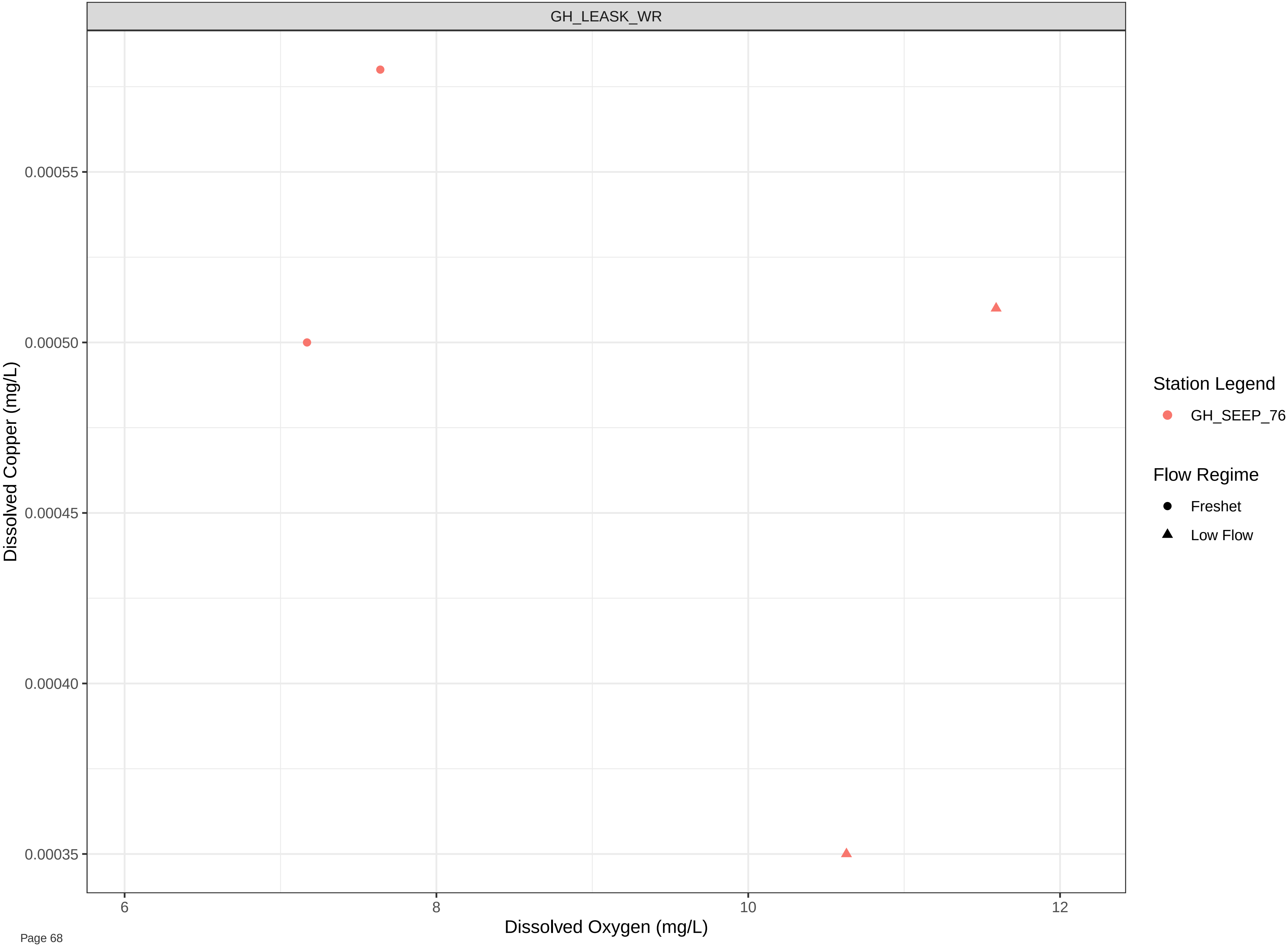

GH_PORTER_CREEK
Dissolved Cobalt (mg/L)
0.0001100
0.0001075
0.0001050
0.0001025
0.0001000
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

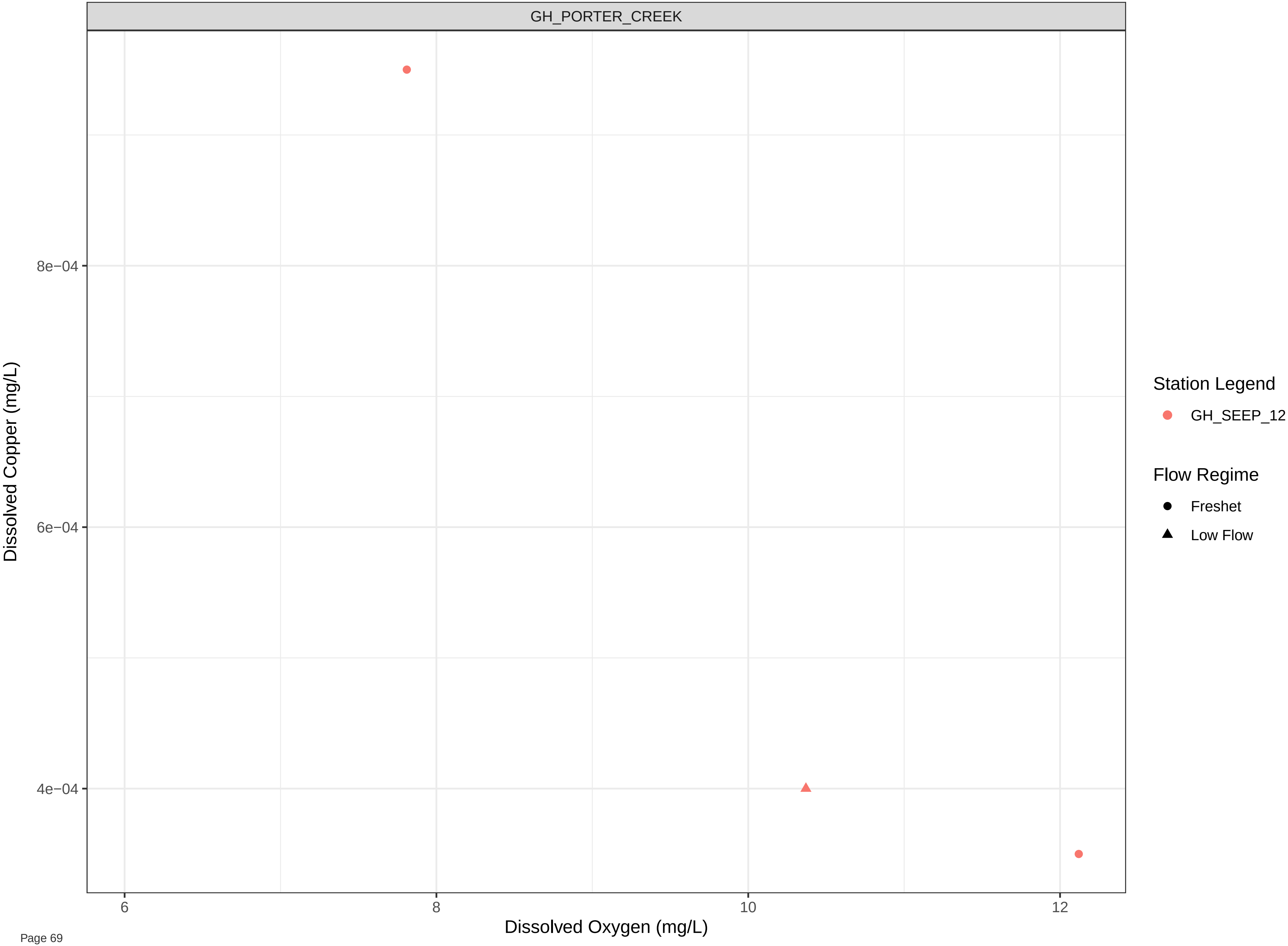

GH_THOMPSON_WR
Dissolved Cobalt (mg/L)
0.0012
0.0008
0.0004
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

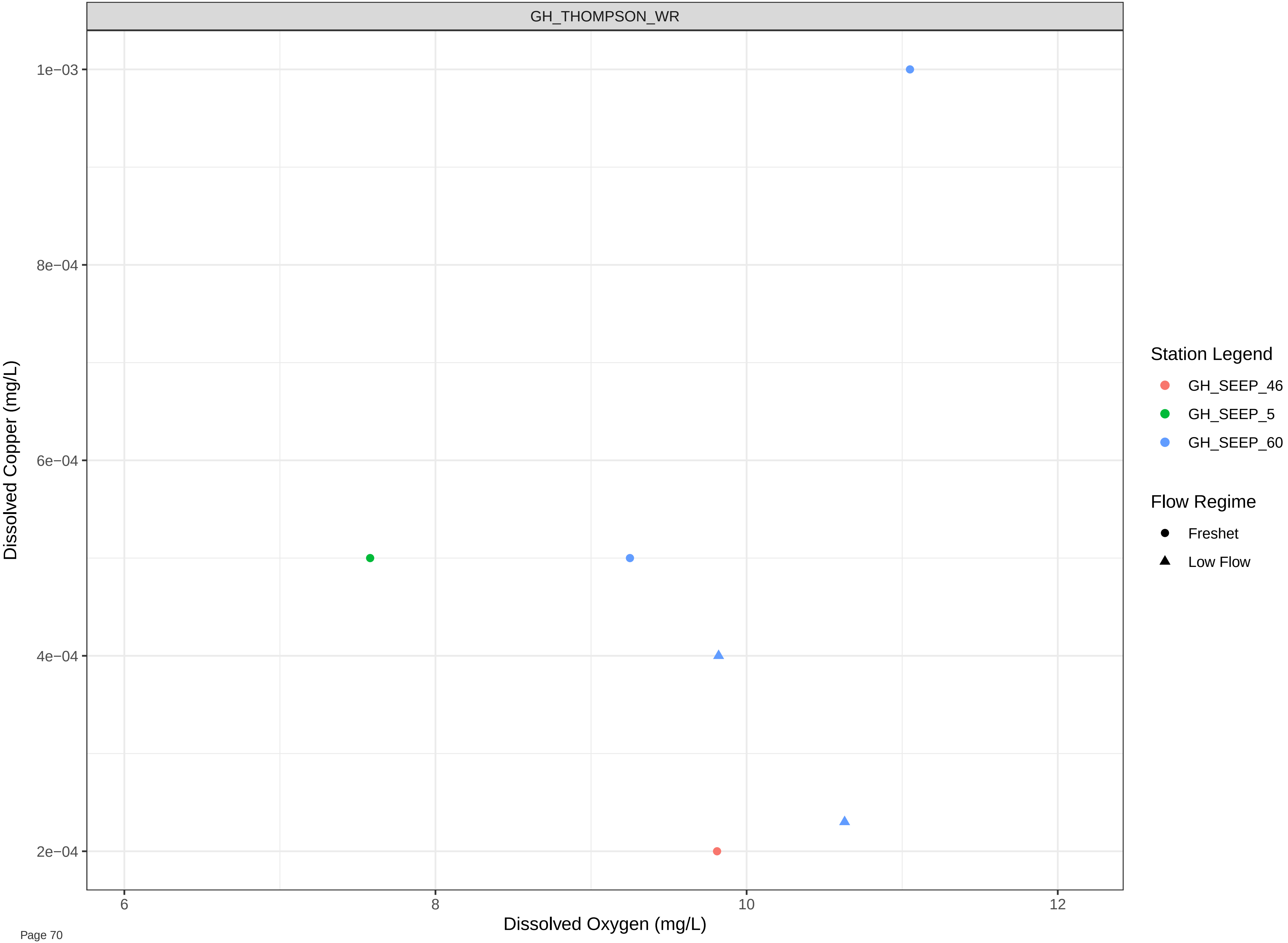

GH_UPSTREAM_CCR
Dissolved Cobalt (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

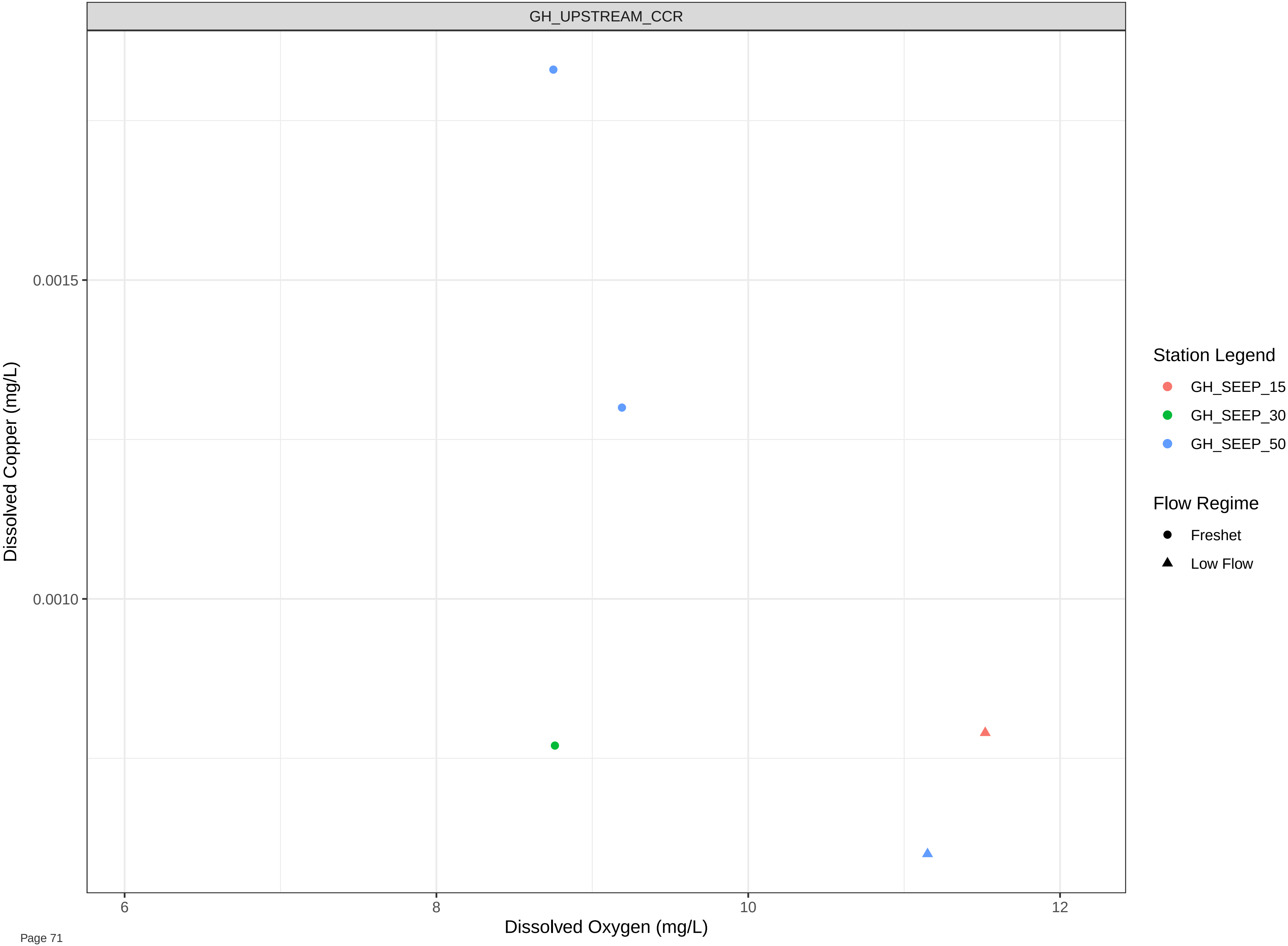

GH_WOLFRAM_WR
Dissolved Cobalt (mg/L)
0.0016
0.0012
0.0008
0.0004
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

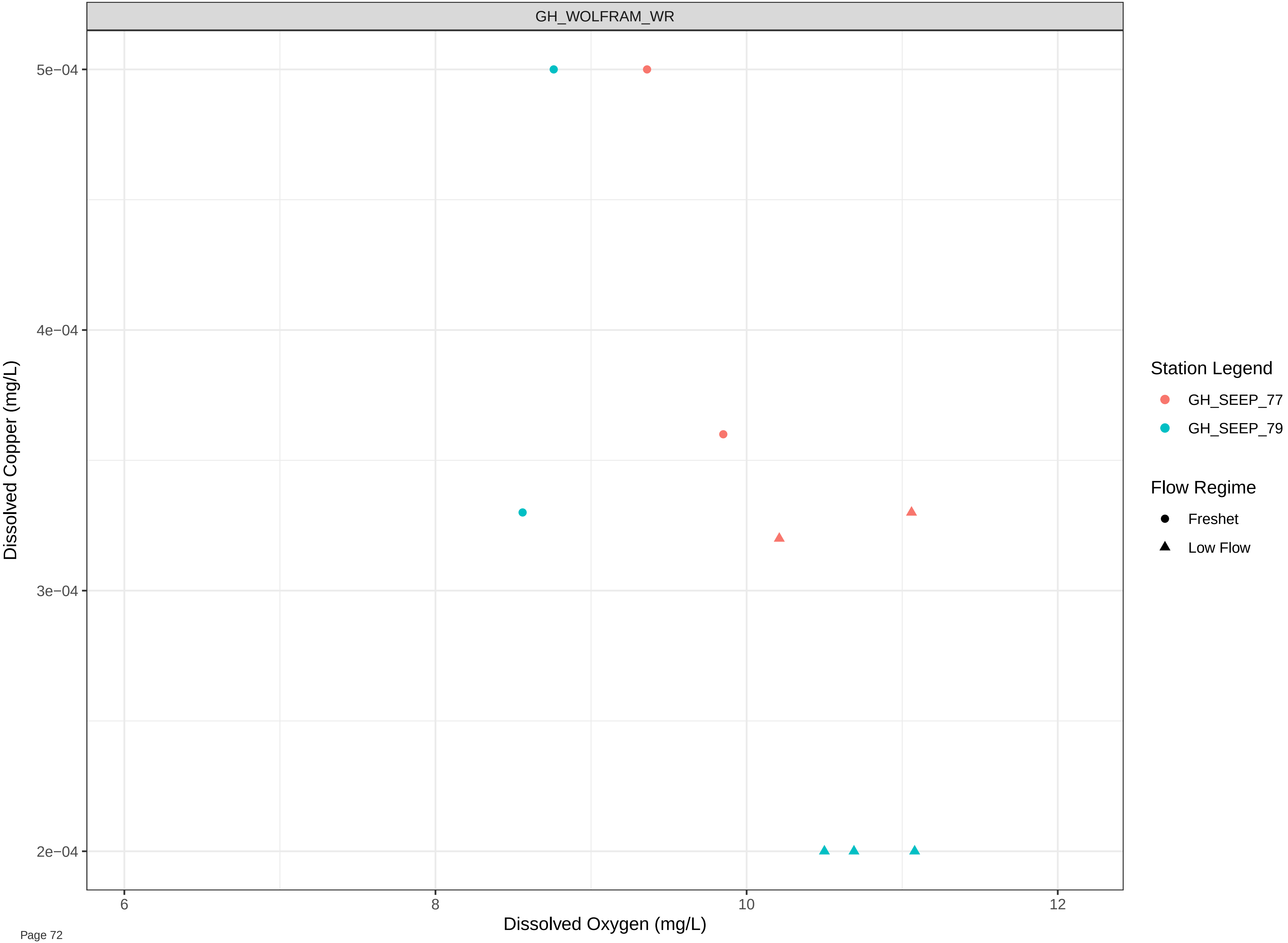

GH_CCR
Dissolved Copper (mg/L)
9e−04
6e−04
3e−04
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

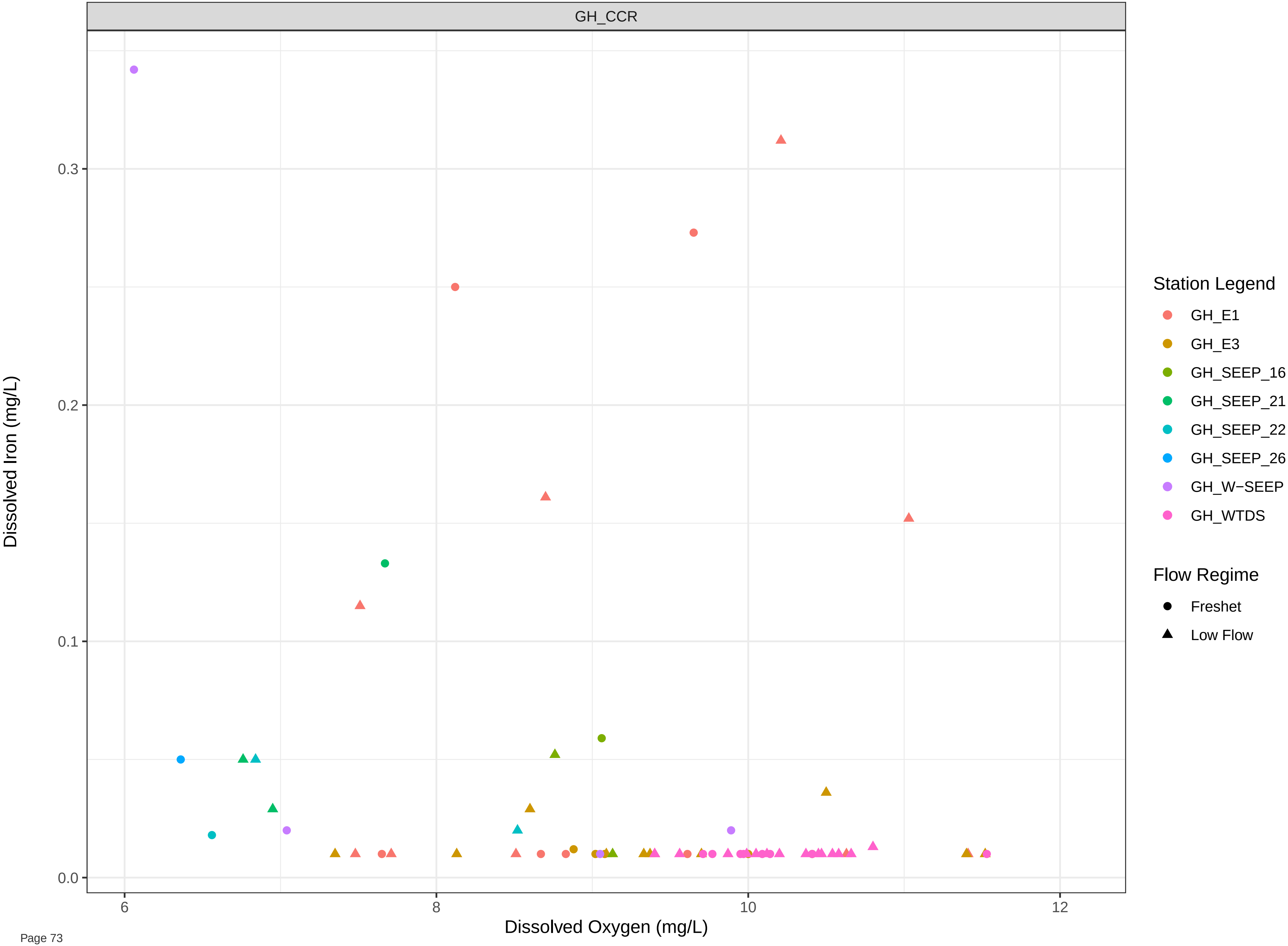

GH_LEASK_WR
Dissolved Copper (mg/L)
0.00055
0.00050
0.00045
0.00040
0.00035
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

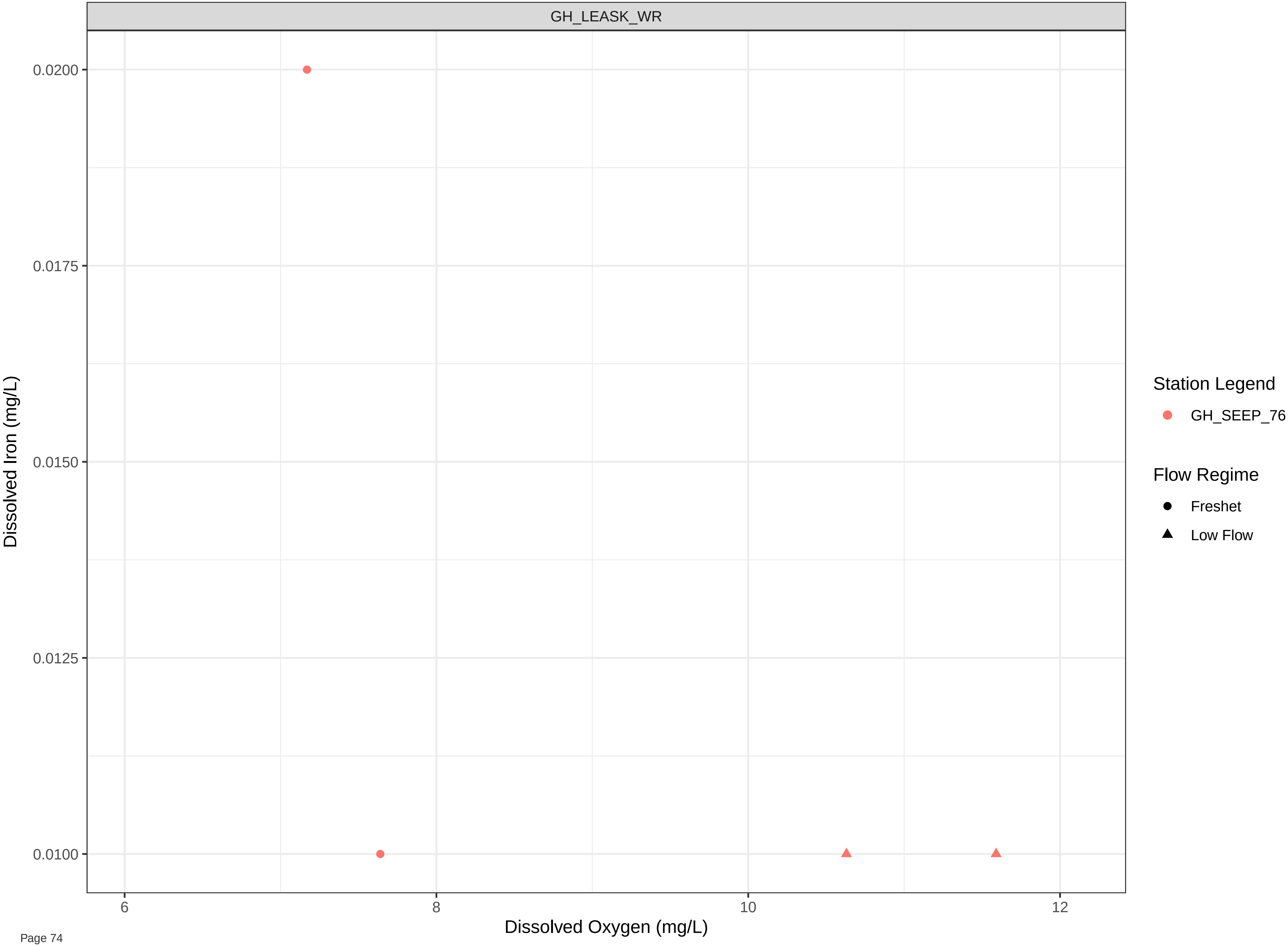

GH_PORTER_CREEK
Dissolved Copper (mg/L)
8e−04
6e−04
4e−04
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

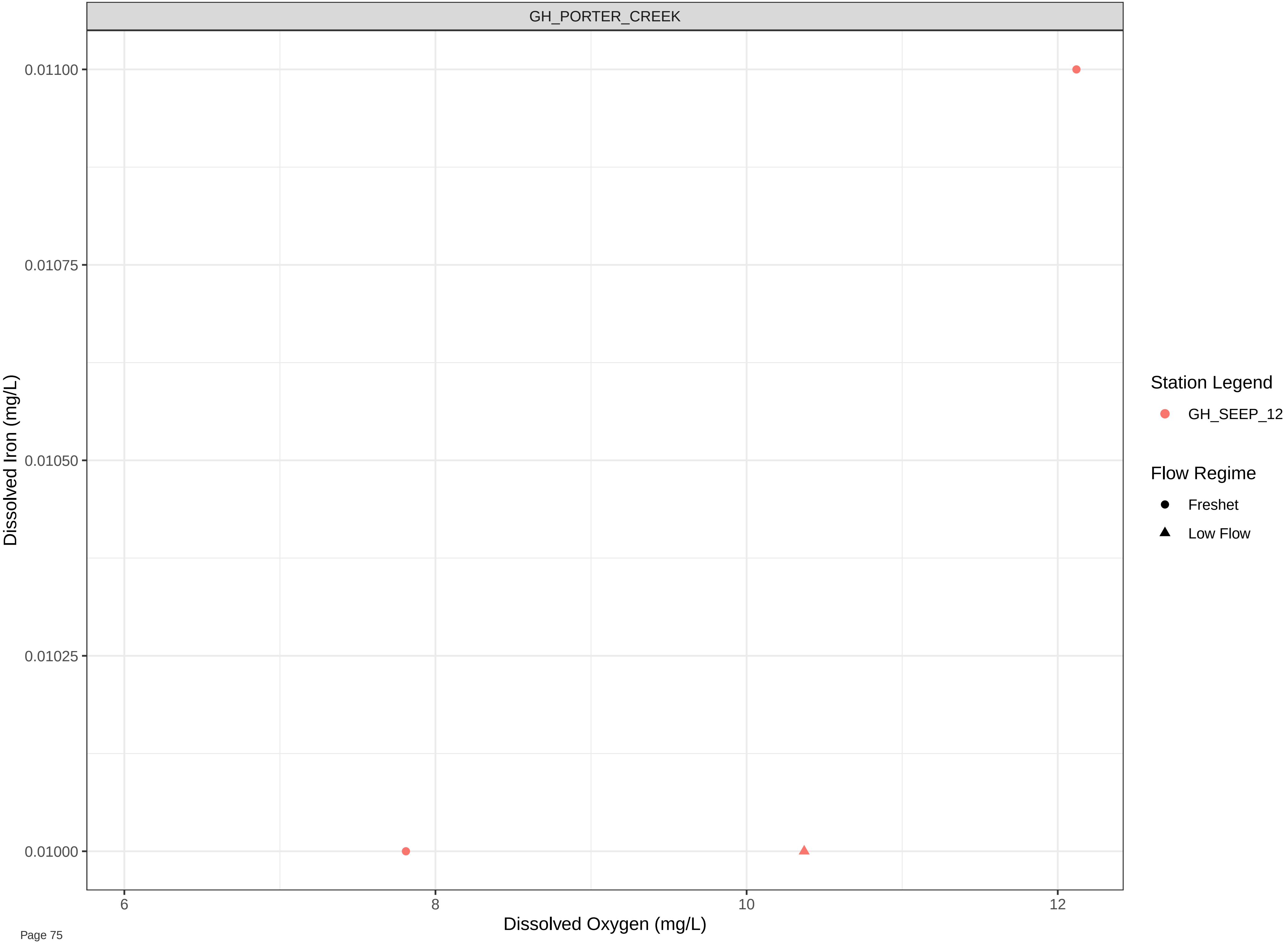

GH_THOMPSON_WR
1e−03
8e−04
6e−04
4e−04
2e−04
Dissolved Copper (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

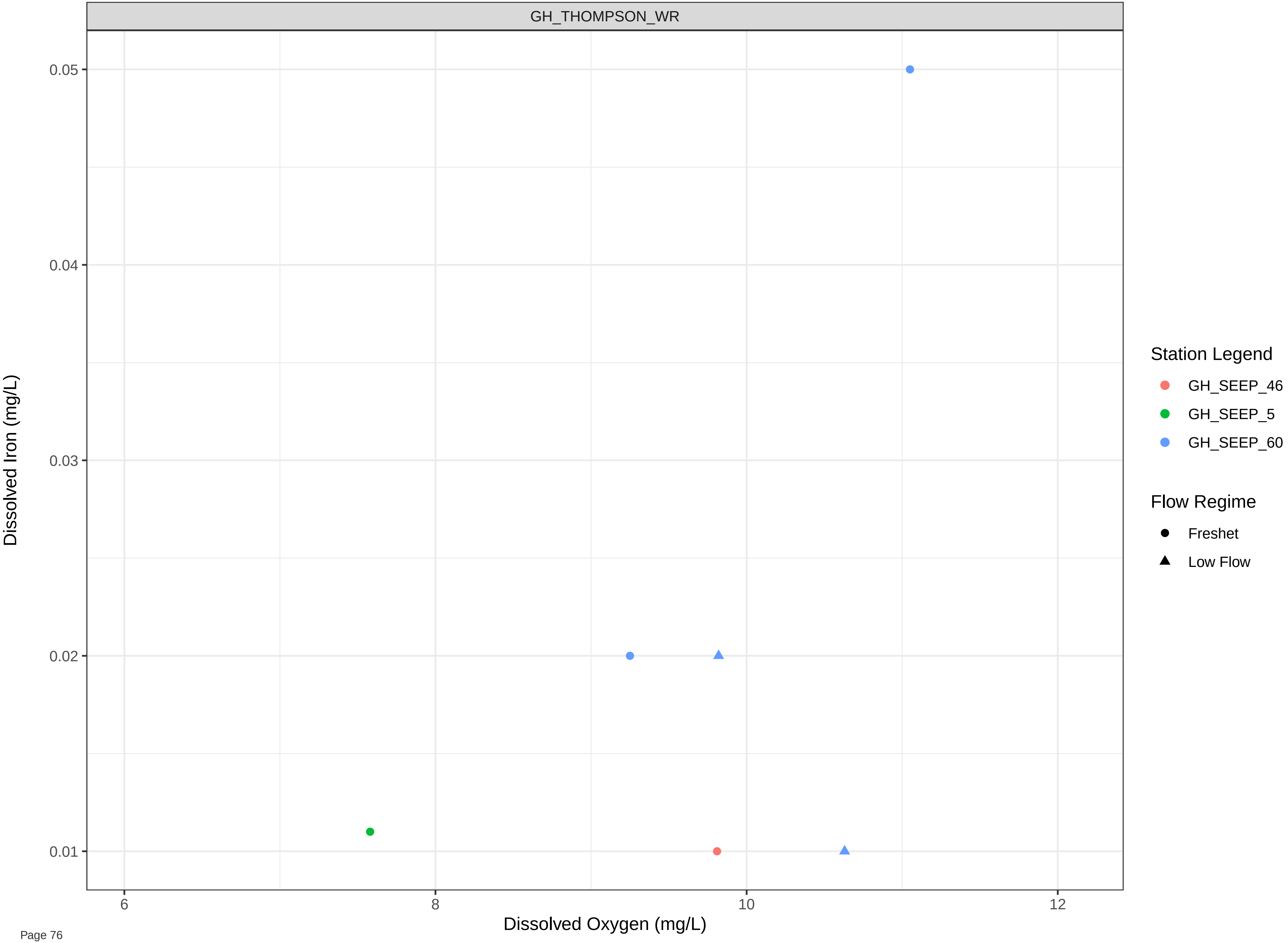

GH_UPSTREAM_CCR
Dissolved Copper (mg/L)
0.0015
0.0010
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_15
● GH_SEEP_30
● GH_SEEP_50
Flow Regime
● Freshet
▲ Low Flow

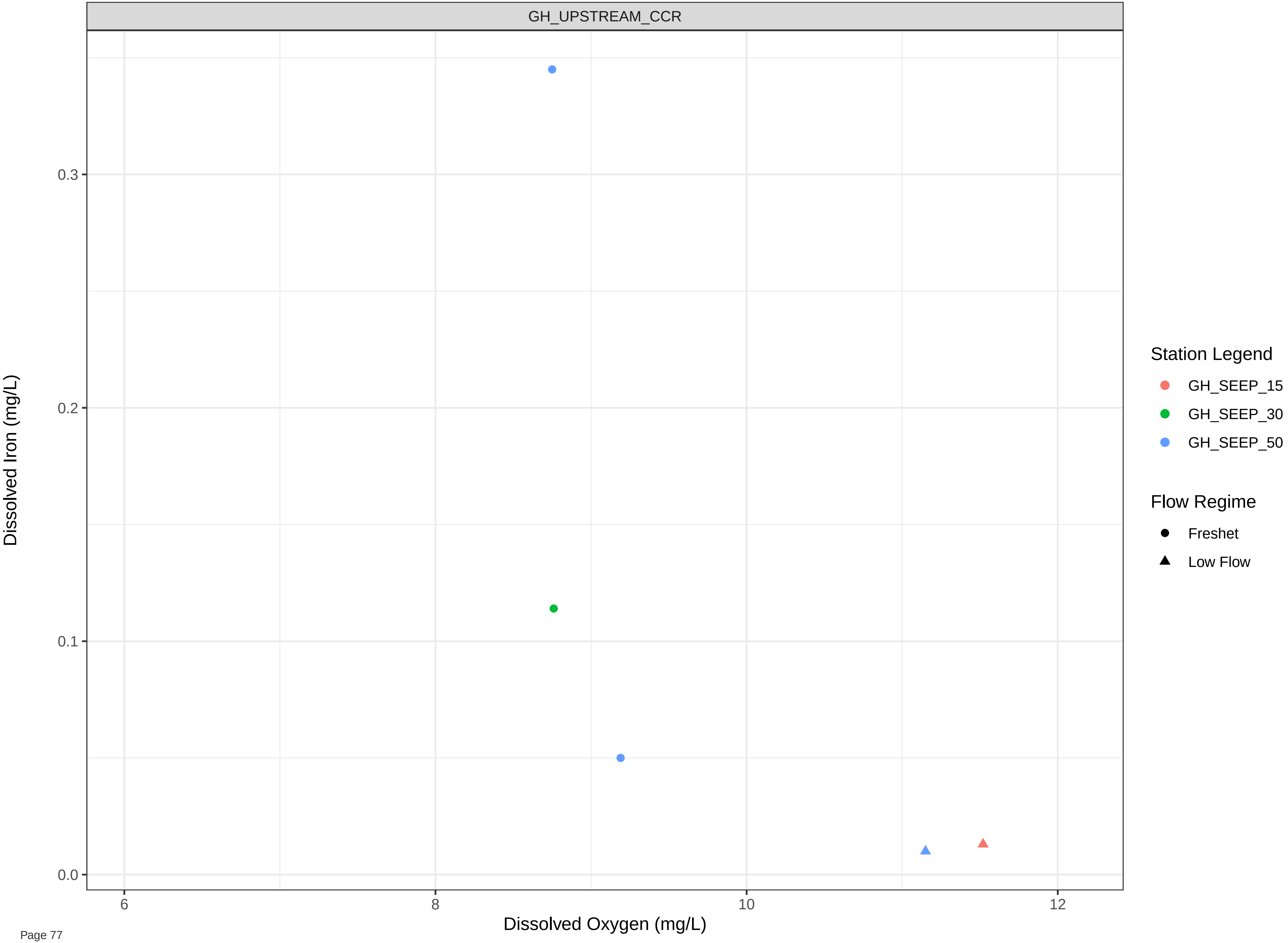

GH_WOLFRAM_WR
5e−04
4e−04
3e−04
2e−04
Dissolved Copper (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

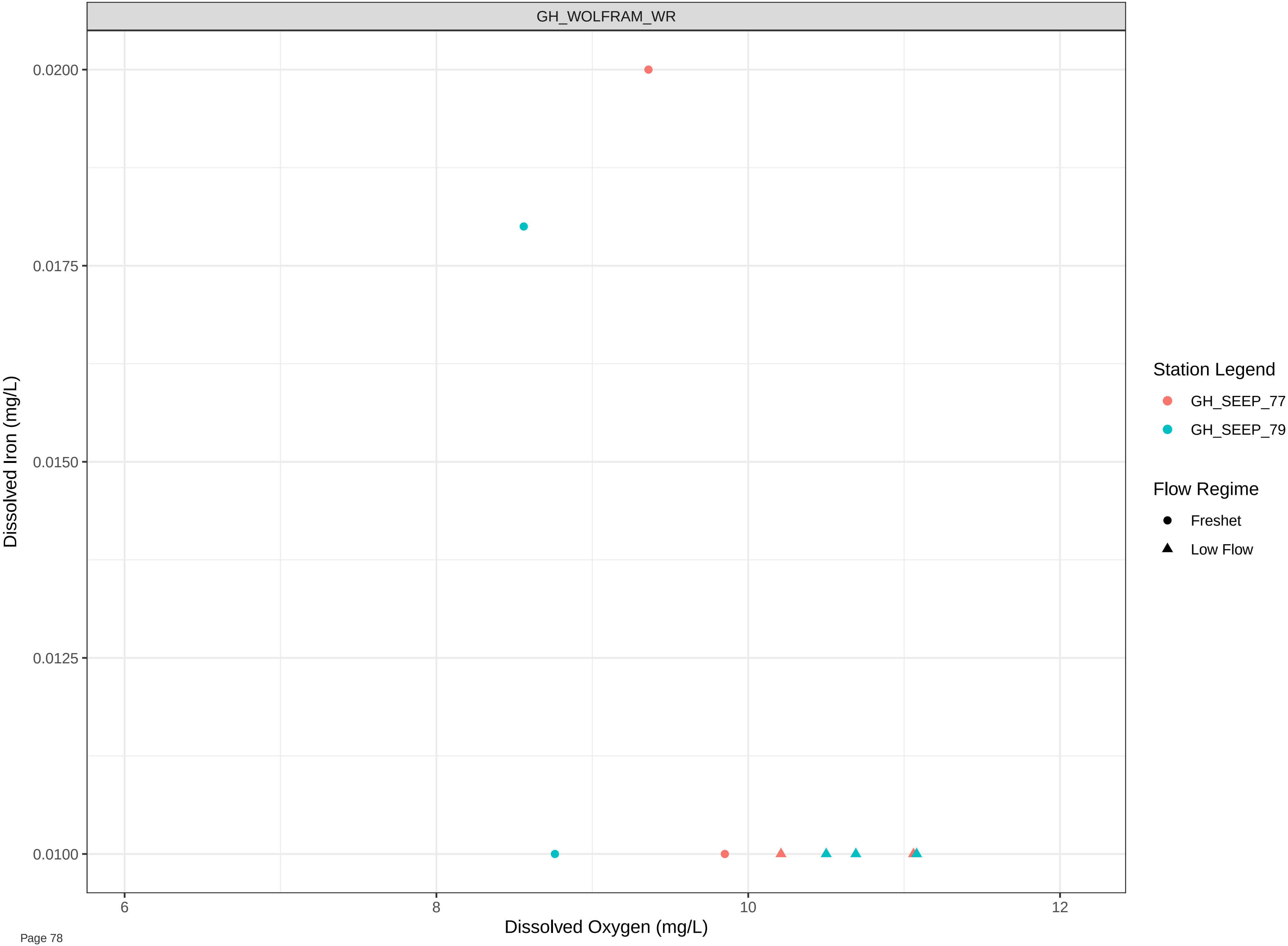

GH_CCR
Dissolved Iron (mg/L)
0.0
0.1
0.2
0.3
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

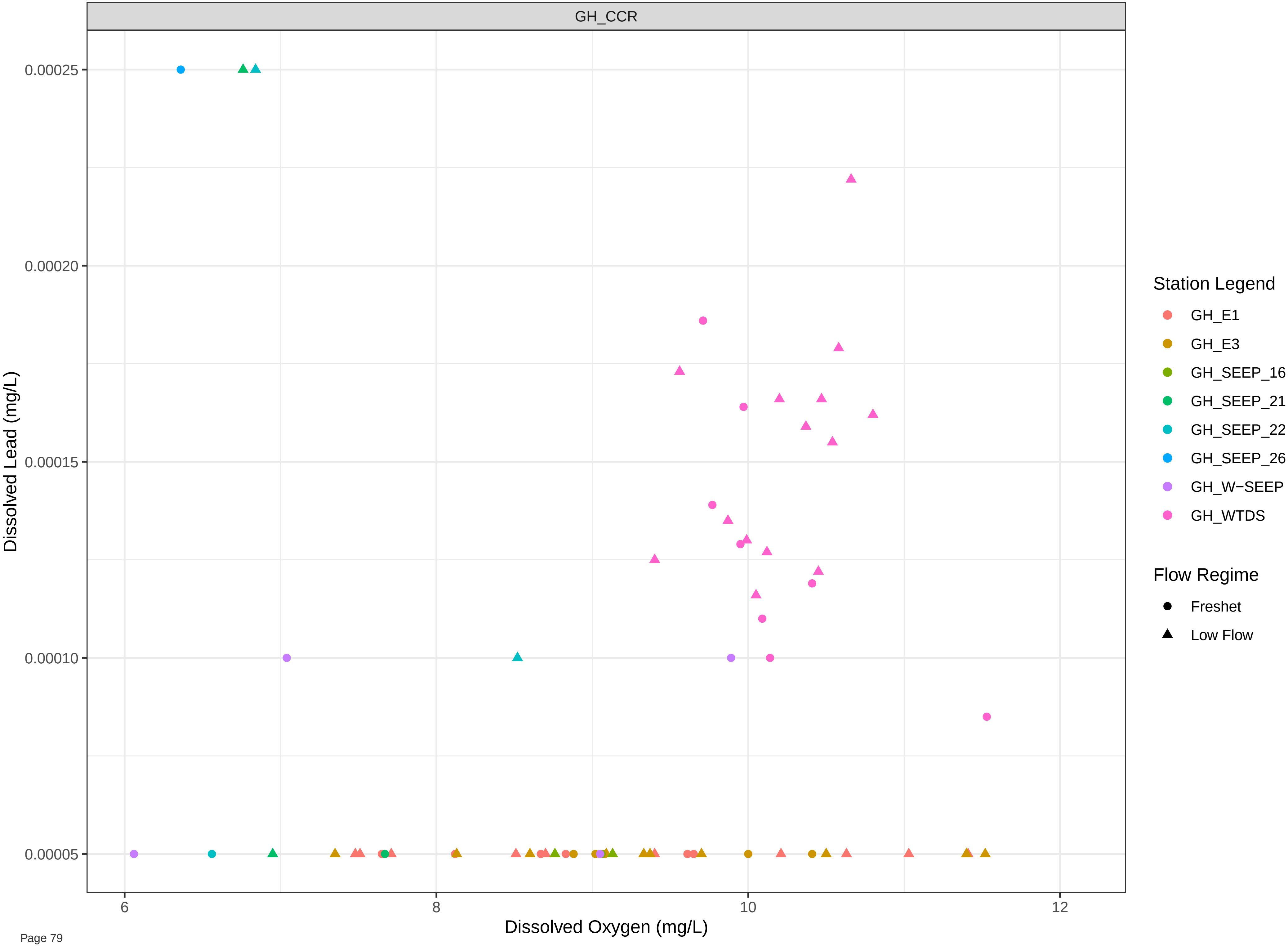

GH_LEASK_WR
Dissolved Iron (mg/L)
0.0200
0.0175
0.0150
0.0125
0.0100
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow

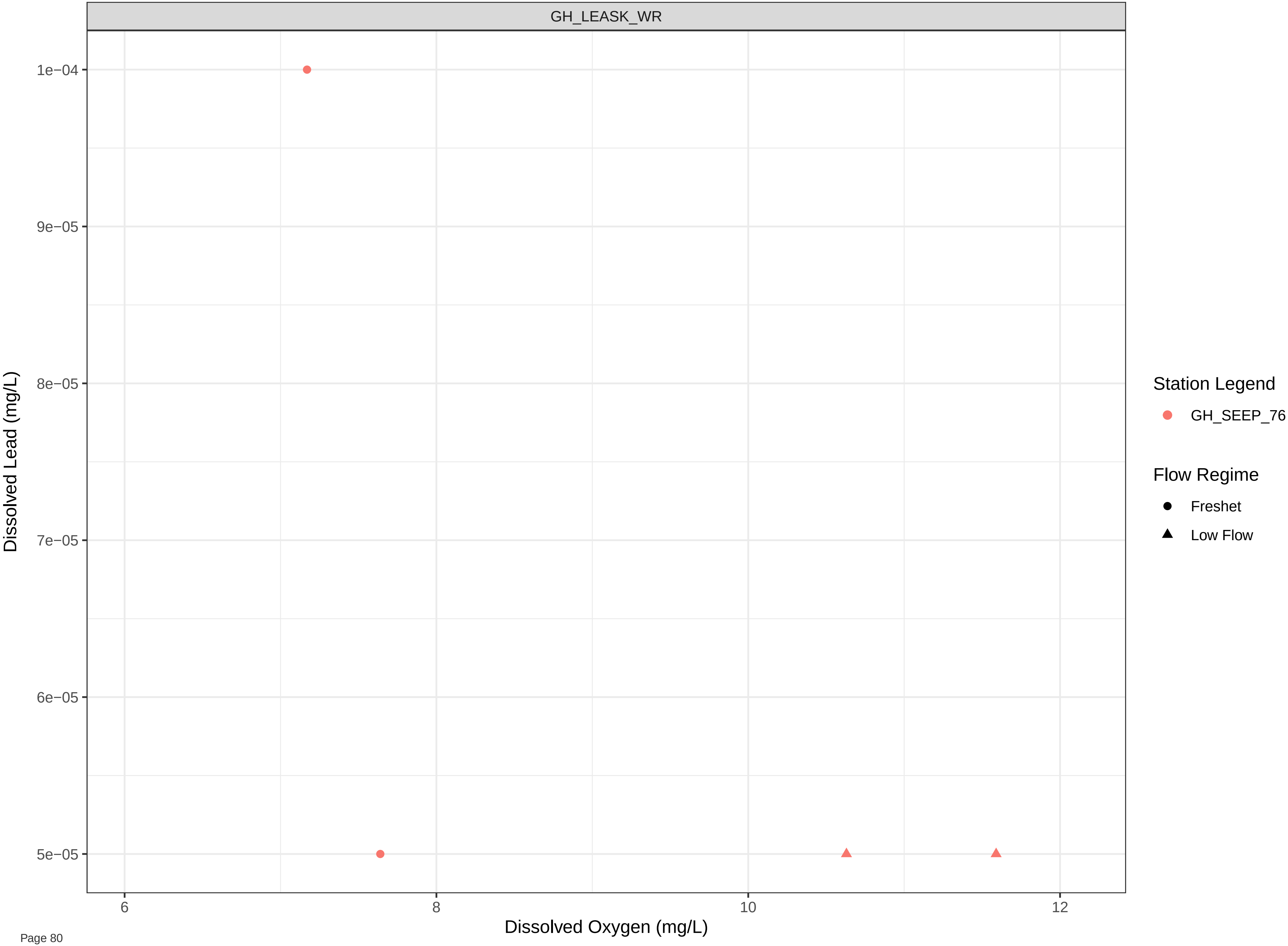

GH_PORTER_CREEK
0.01100
0.01075
0.01050
0.01025
0.01000
Dissolved Iron (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

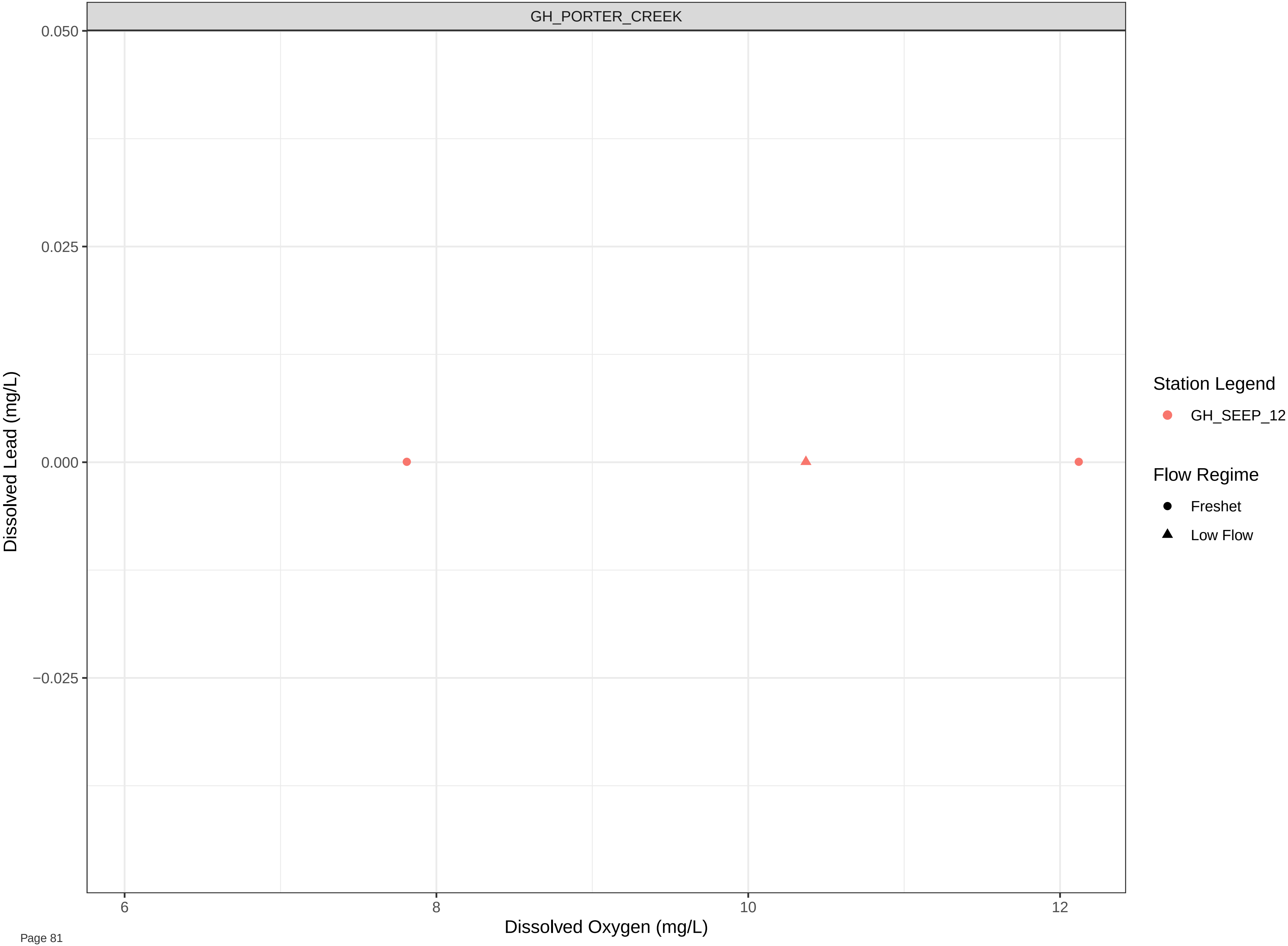

GH_THOMPSON_WR
Dissolved Iron (mg/L)
0.05
0.04
0.03
0.02
0.01
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

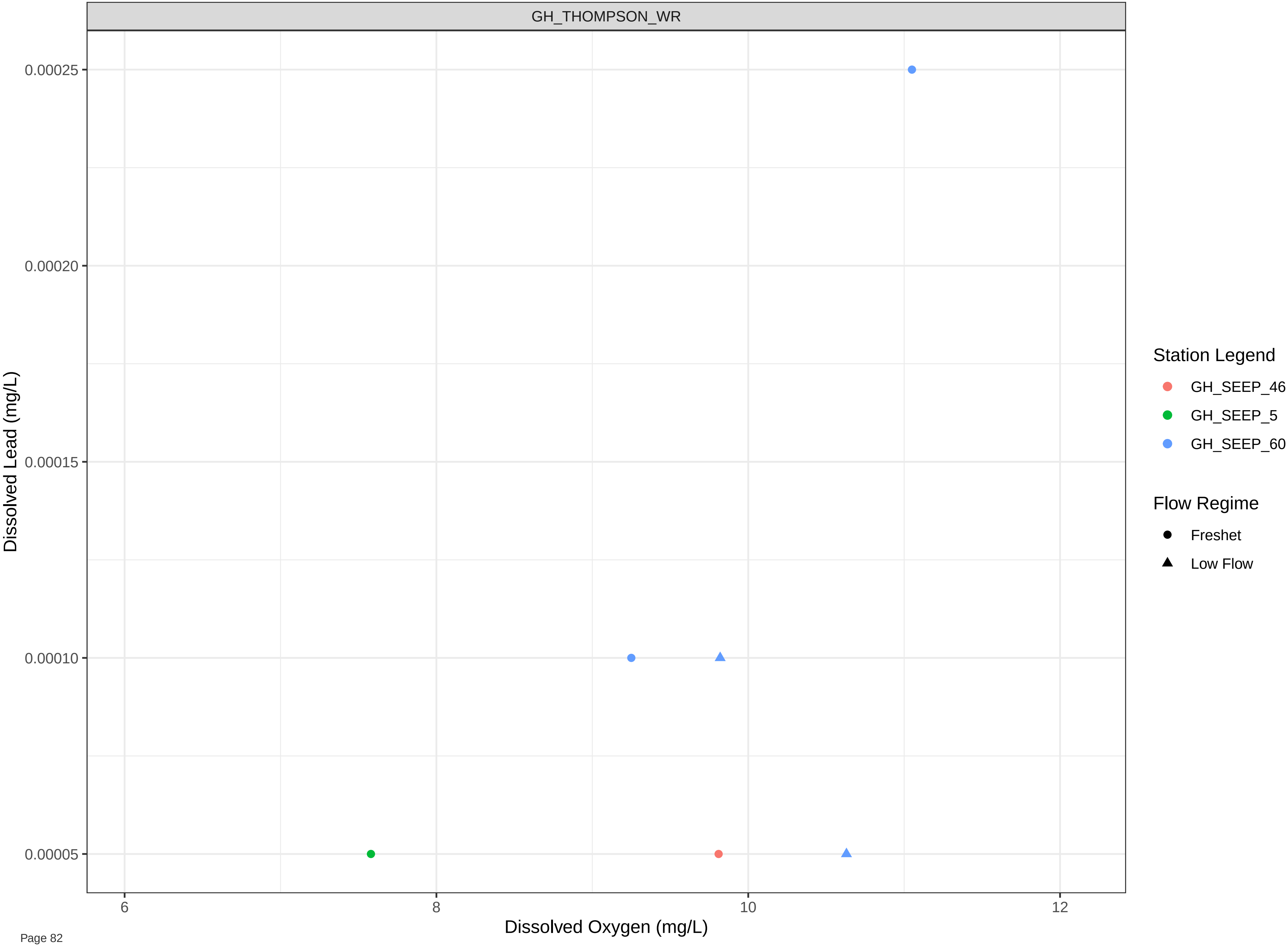

GH_UPSTREAM_CCR
Dissolved Iron (mg/L)
0.3
0.2
0.1
0.0
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

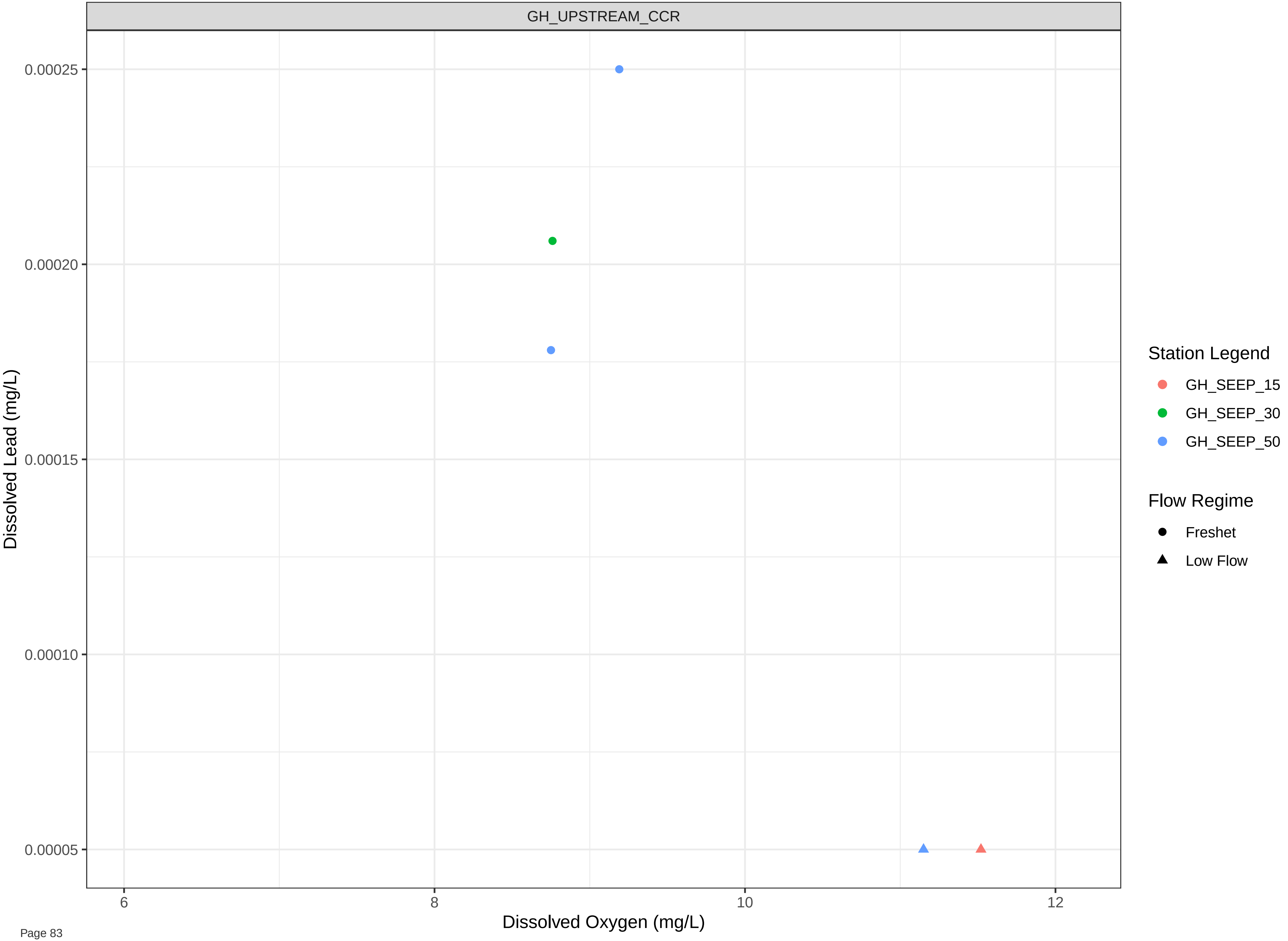

GH_WOLFRAM_WR
Dissolved Iron (mg/L)
0.0200
0.0175
0.0150
0.0125
0.0100
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

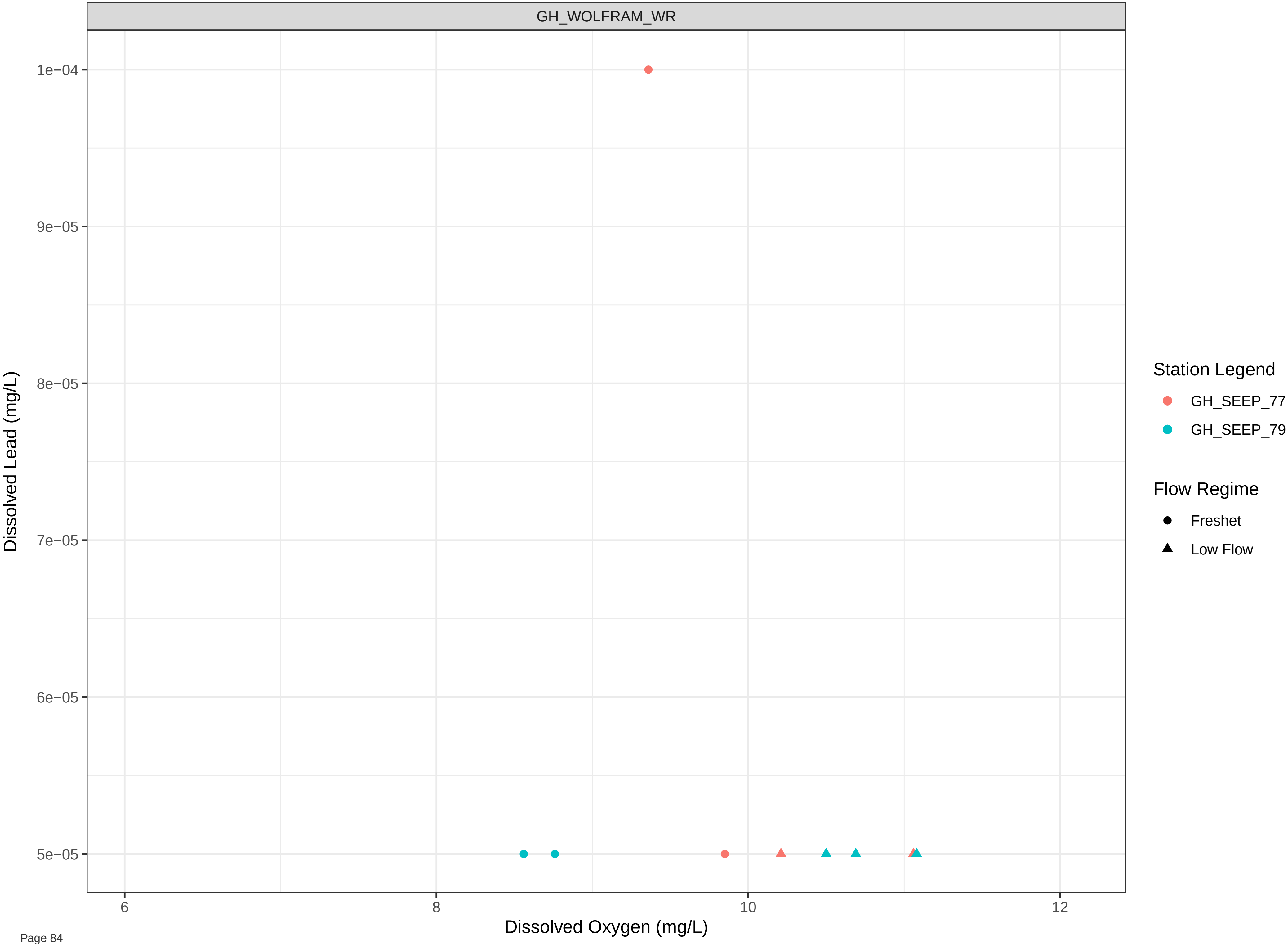

GH_CCR
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

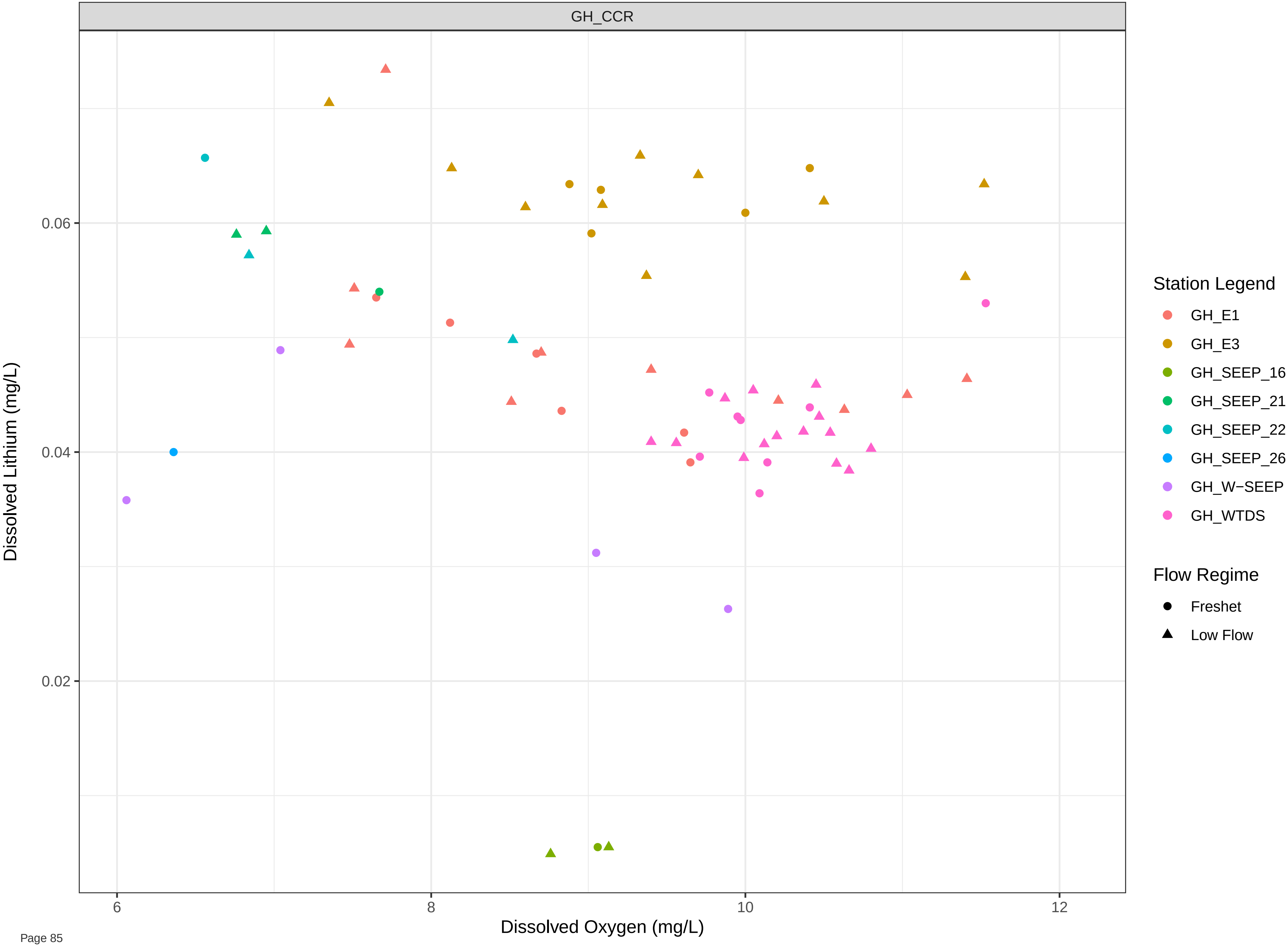

GH_LEASK_WR
Dissolved Lead (mg/L)
1e−04
9e−05
8e−05
7e−05
6e−05
5e−05
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

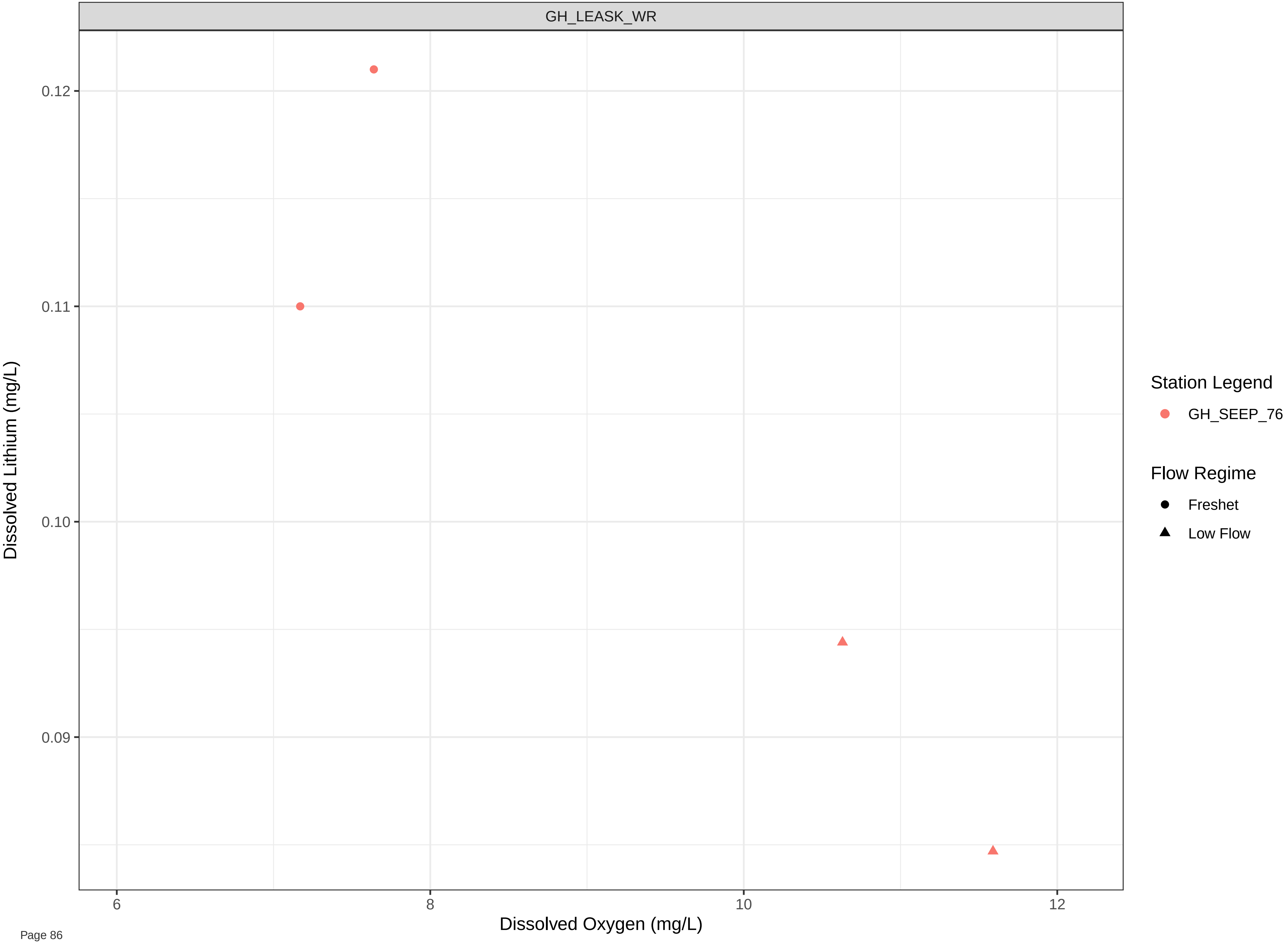

GH_PORTER_CREEK
0.050
0.025
0.000
−0.025
Dissolved Lead (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

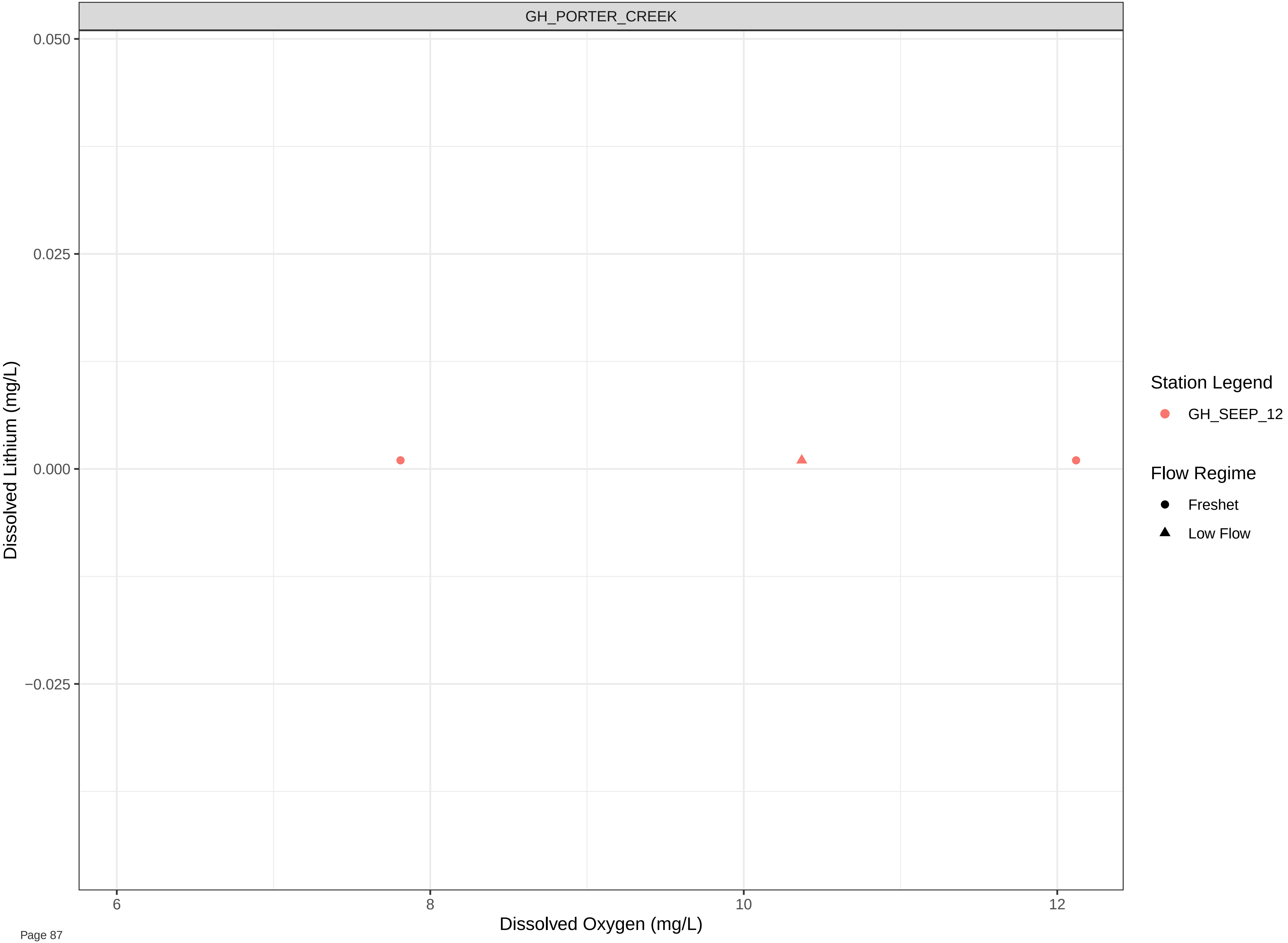

GH_THOMPSON_WR
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

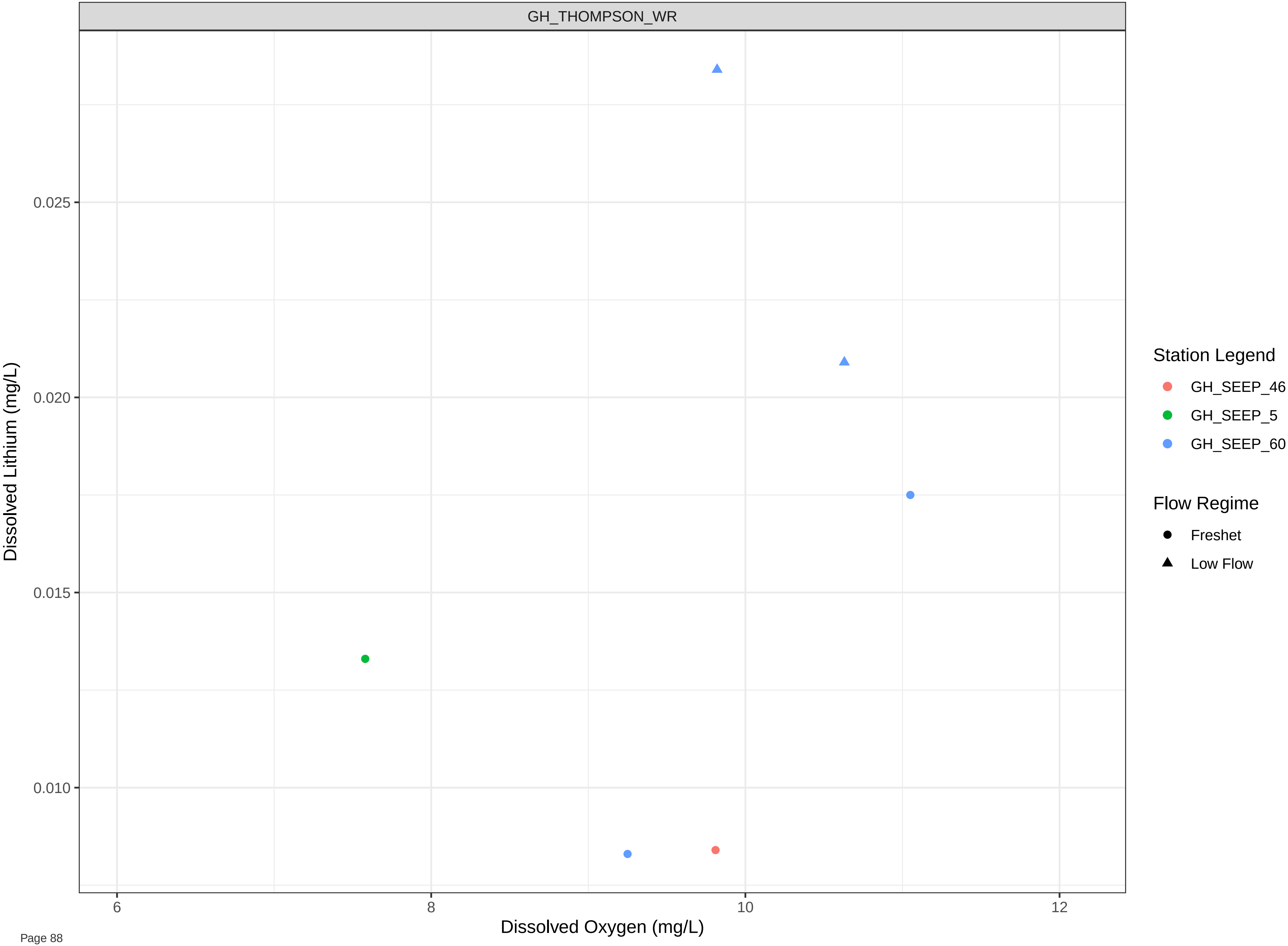

GH_UPSTREAM_CCR
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

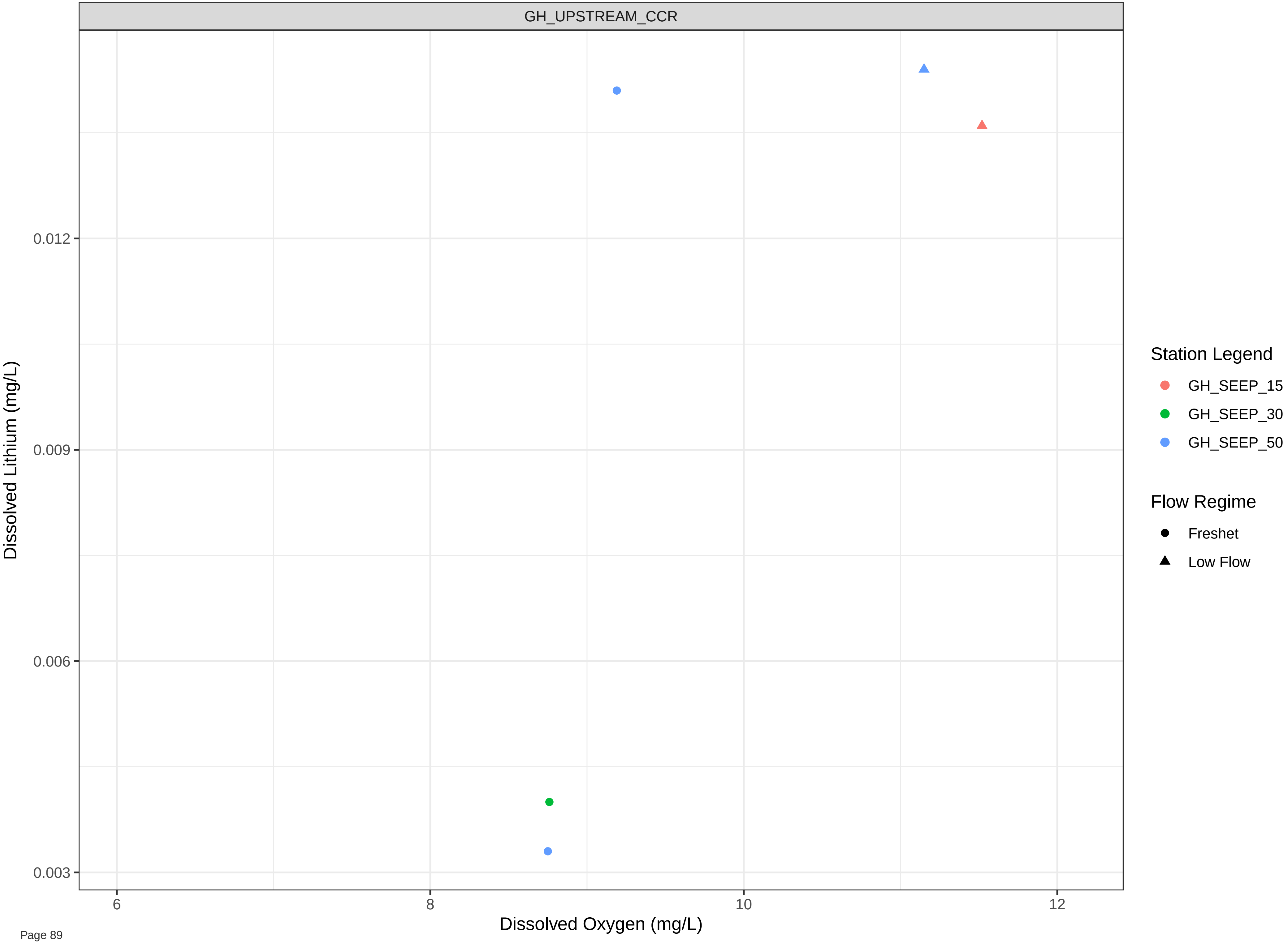

GH_WOLFRAM_WR
Dissolved Lead (mg/L)
1e−04
9e−05
8e−05
7e−05
6e−05
5e−05
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

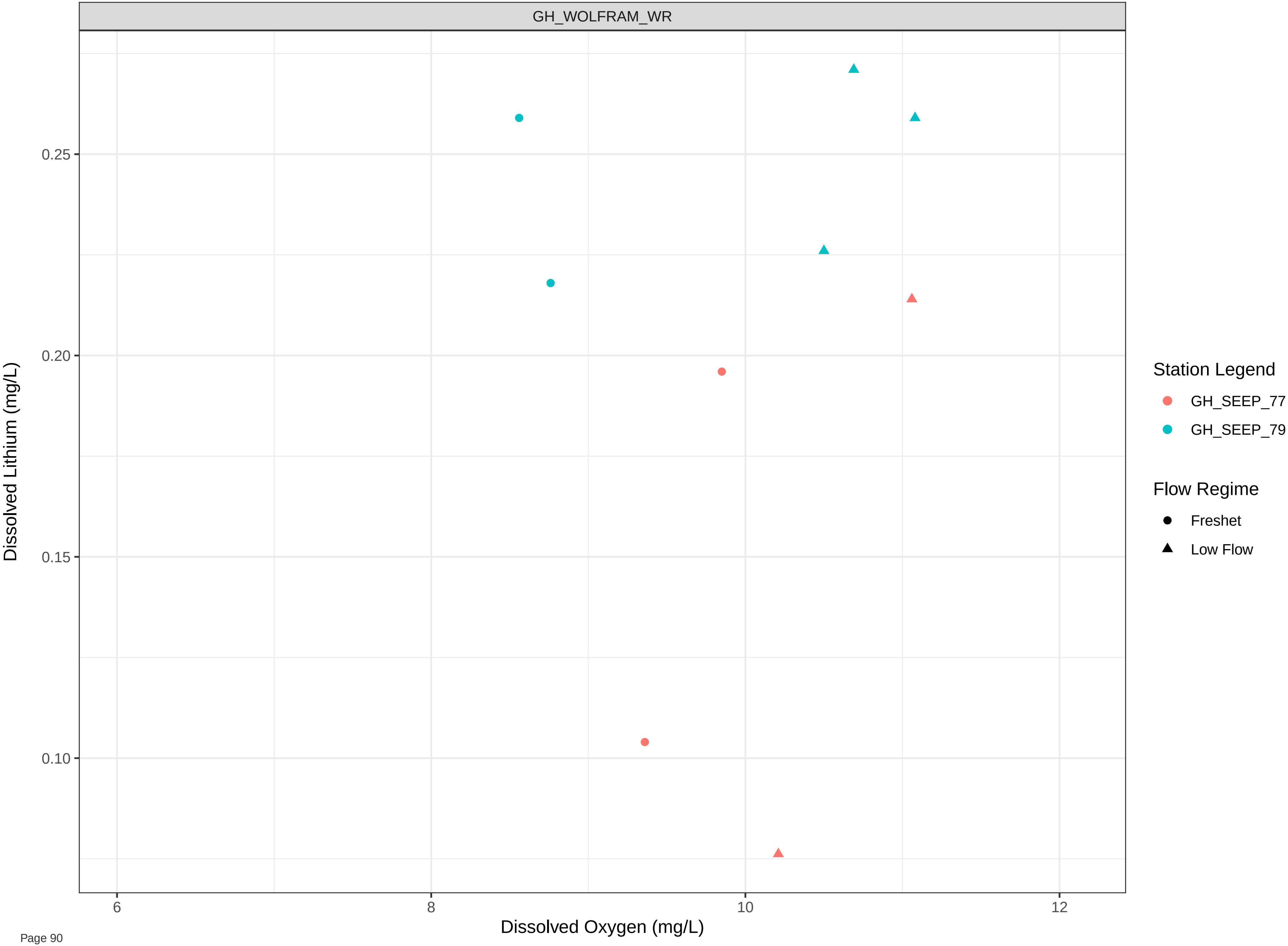

GH_CCR
Dissolved Lithium (mg/L)
0.06
0.04
0.02
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

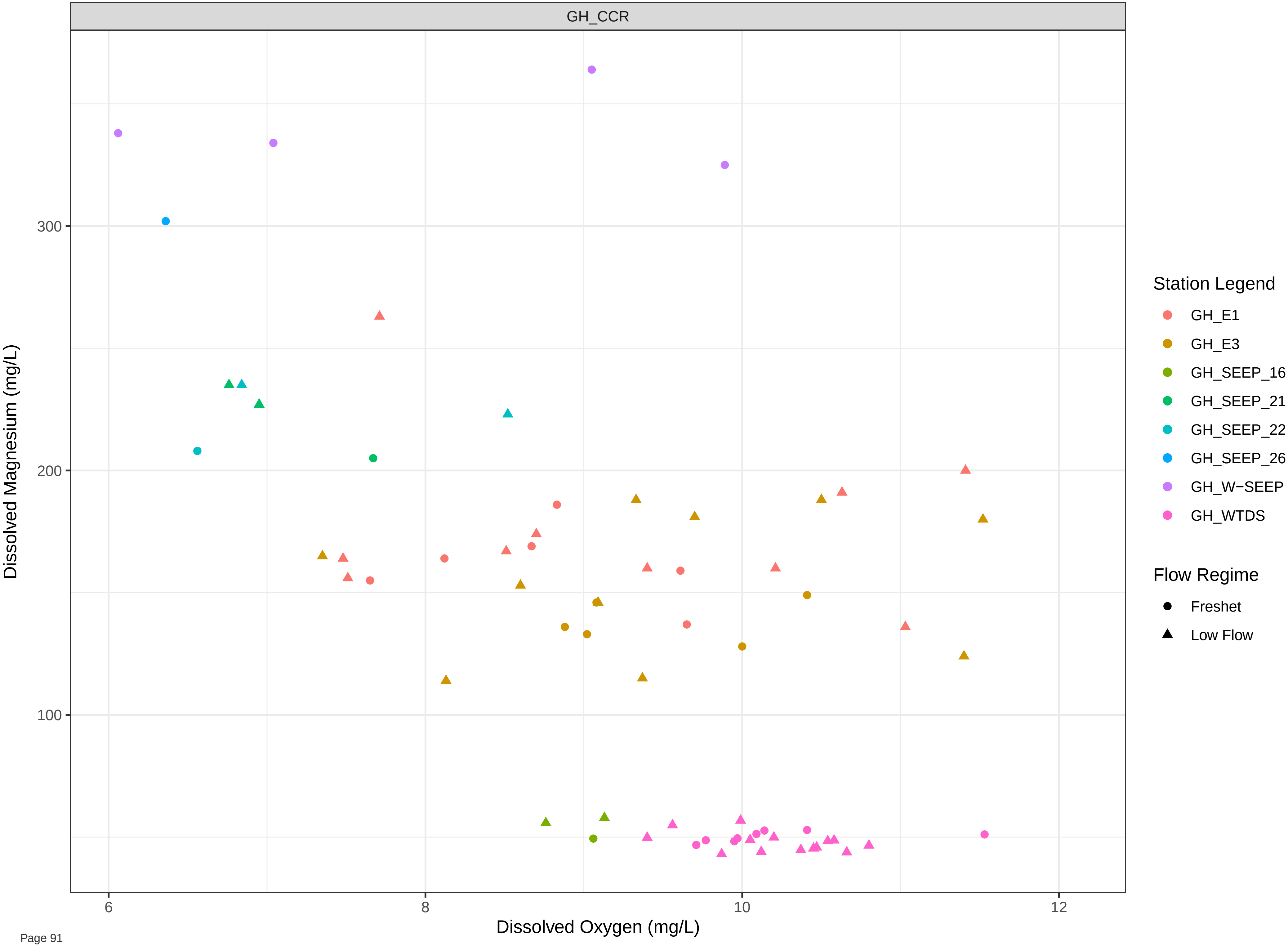

GH_LEASK_WR
Dissolved Lithium (mg/L)
0.12
0.11
0.10
0.09
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

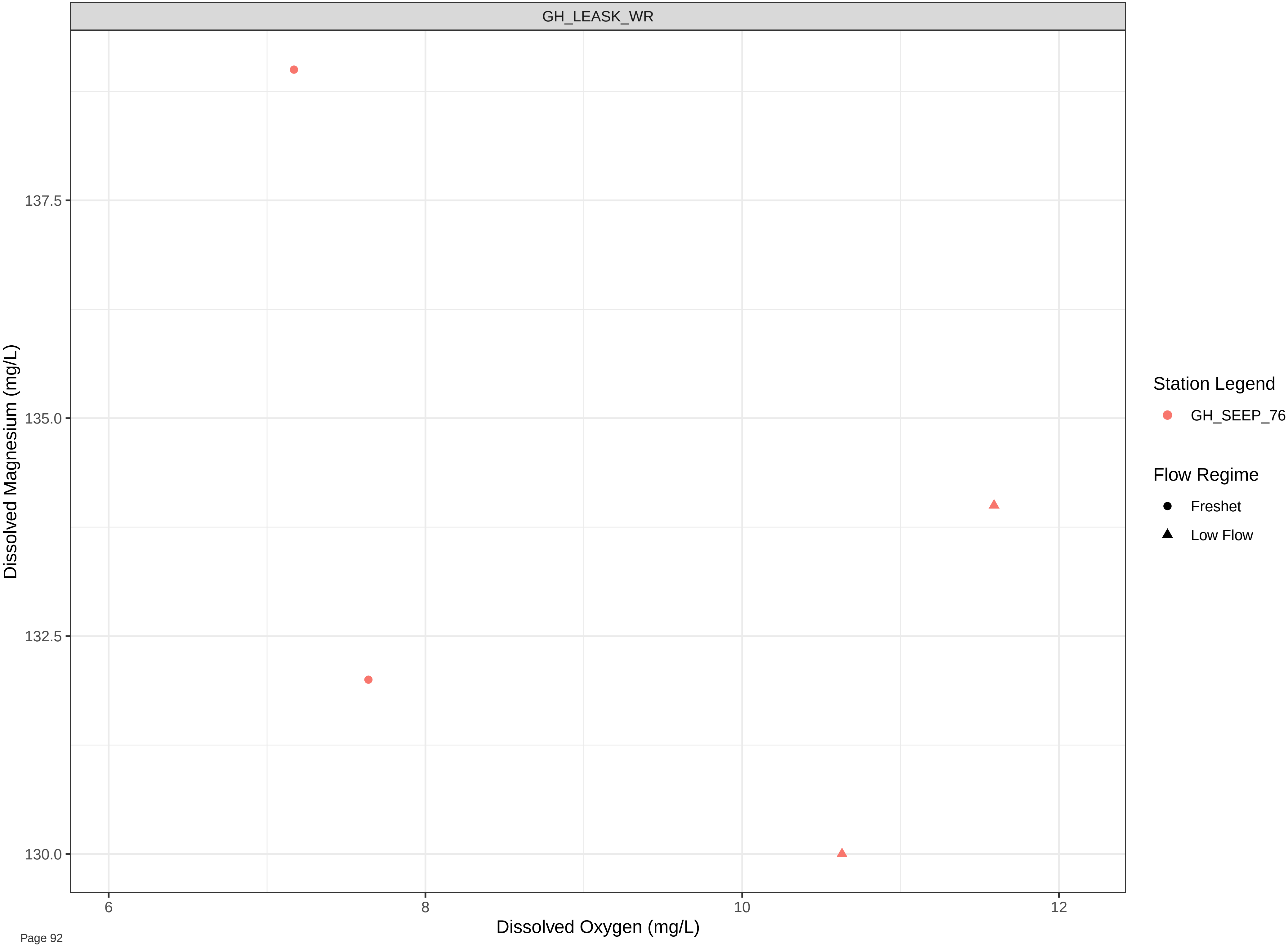

GH_PORTER_CREEK
0.050
0.025
0.000
−0.025
Dissolved Lithium (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

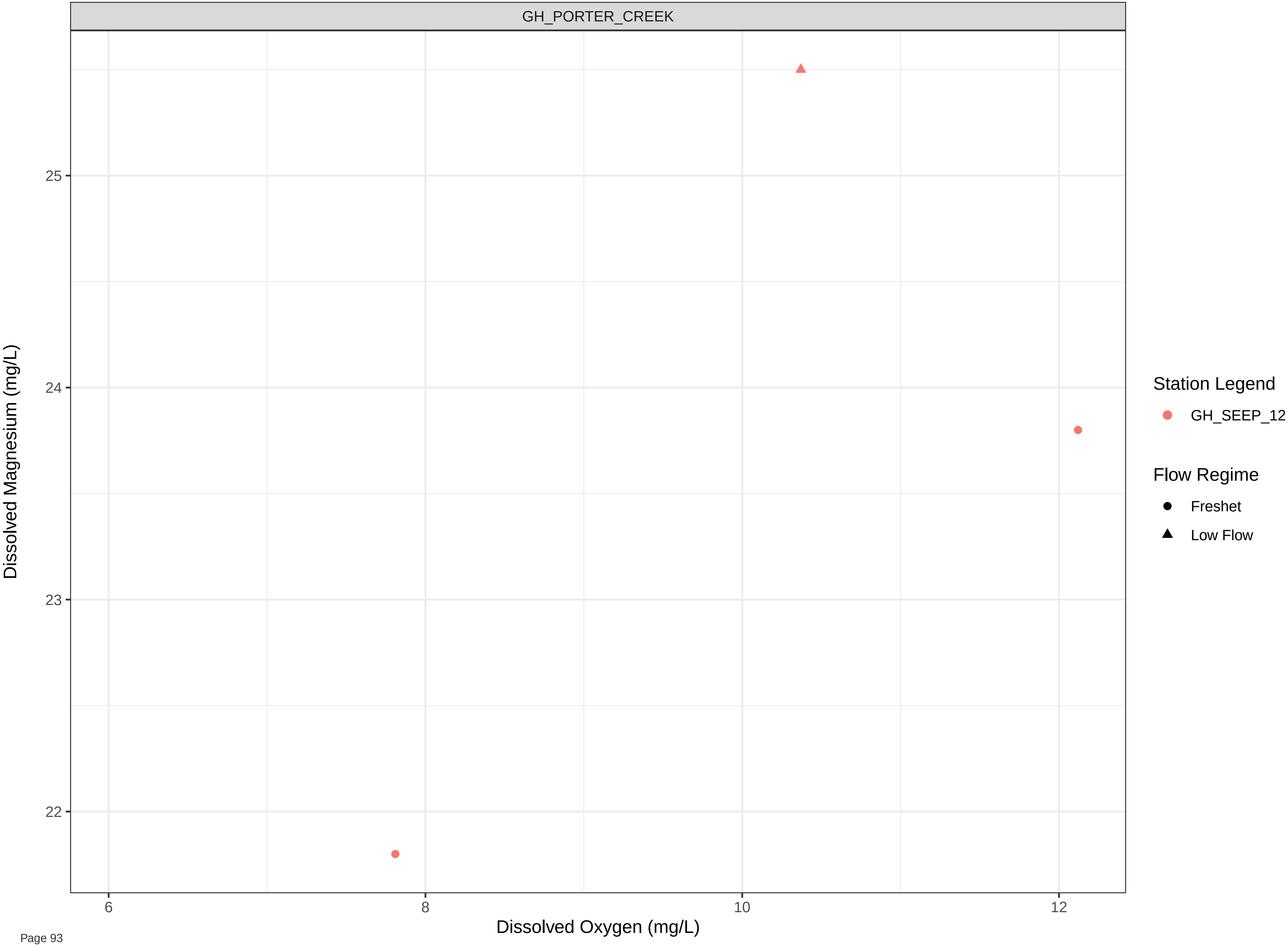

GH_THOMPSON_WR
Dissolved Lithium (mg/L)
0.025
0.020
0.015
0.010
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

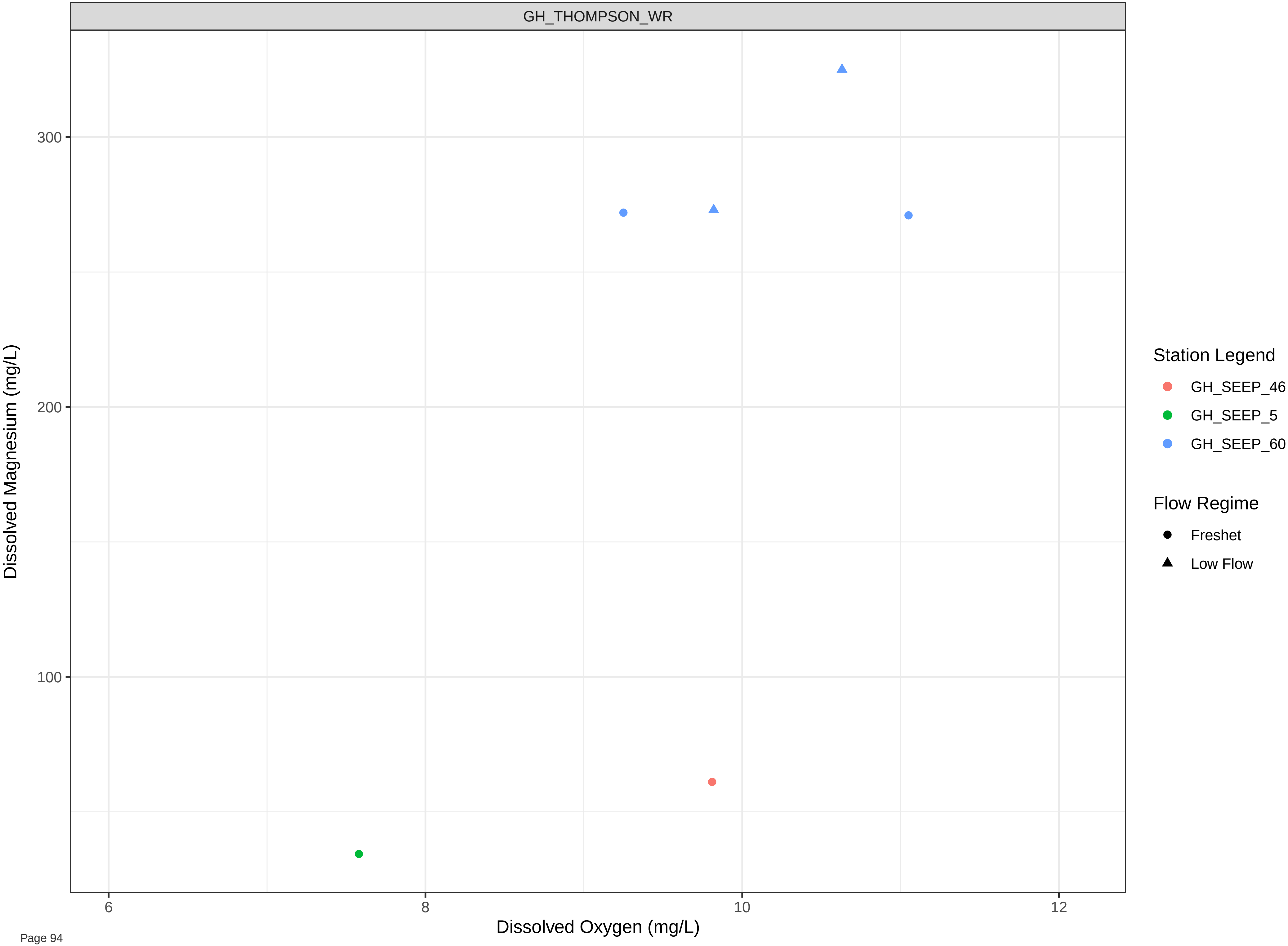

GH_UPSTREAM_CCR
Dissolved Lithium (mg/L)
0.012
0.009
0.006
0.003
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

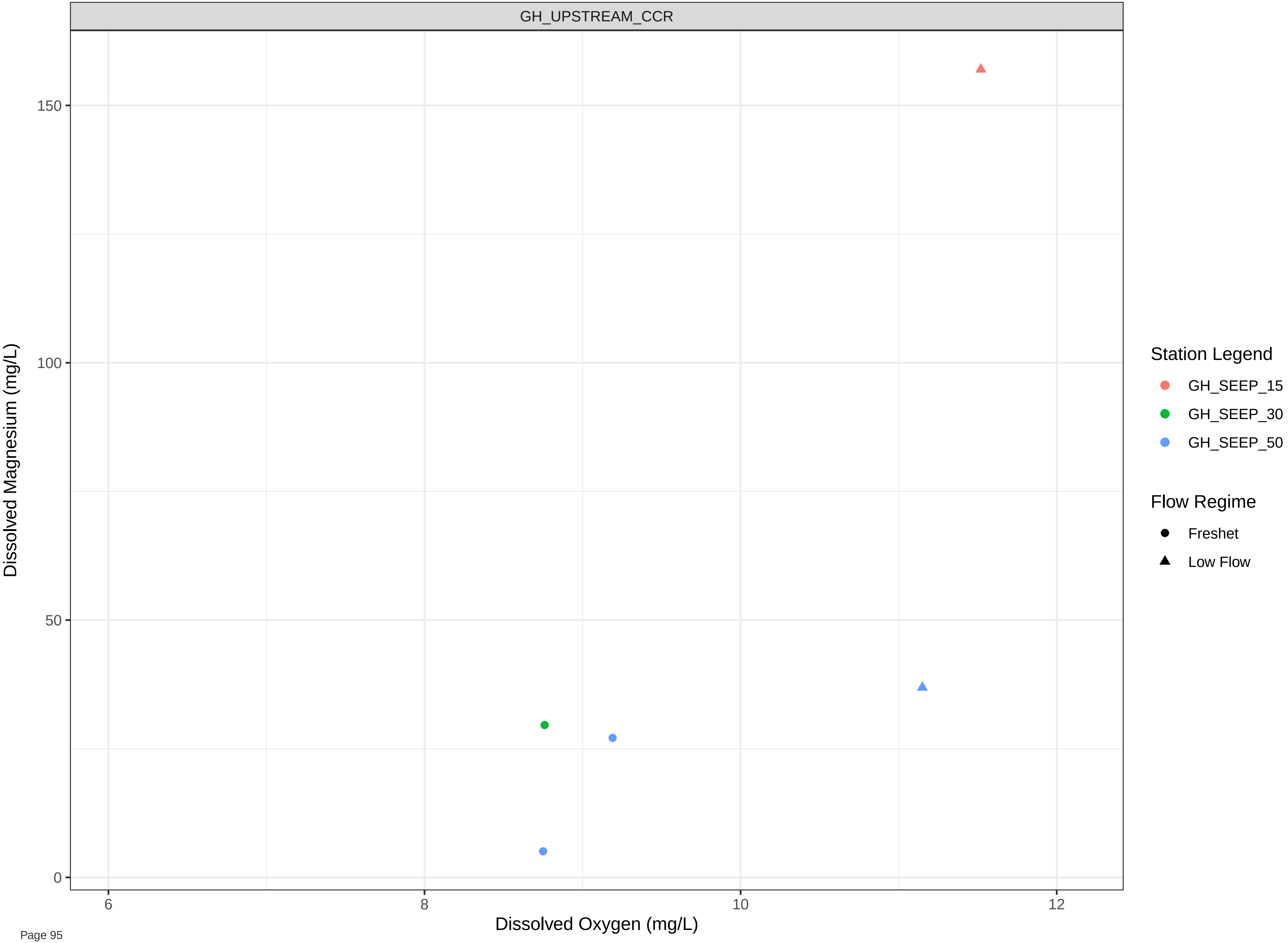

GH_WOLFRAM_WR
Dissolved Lithium (mg/L)
0.25
0.20
0.15
0.10
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

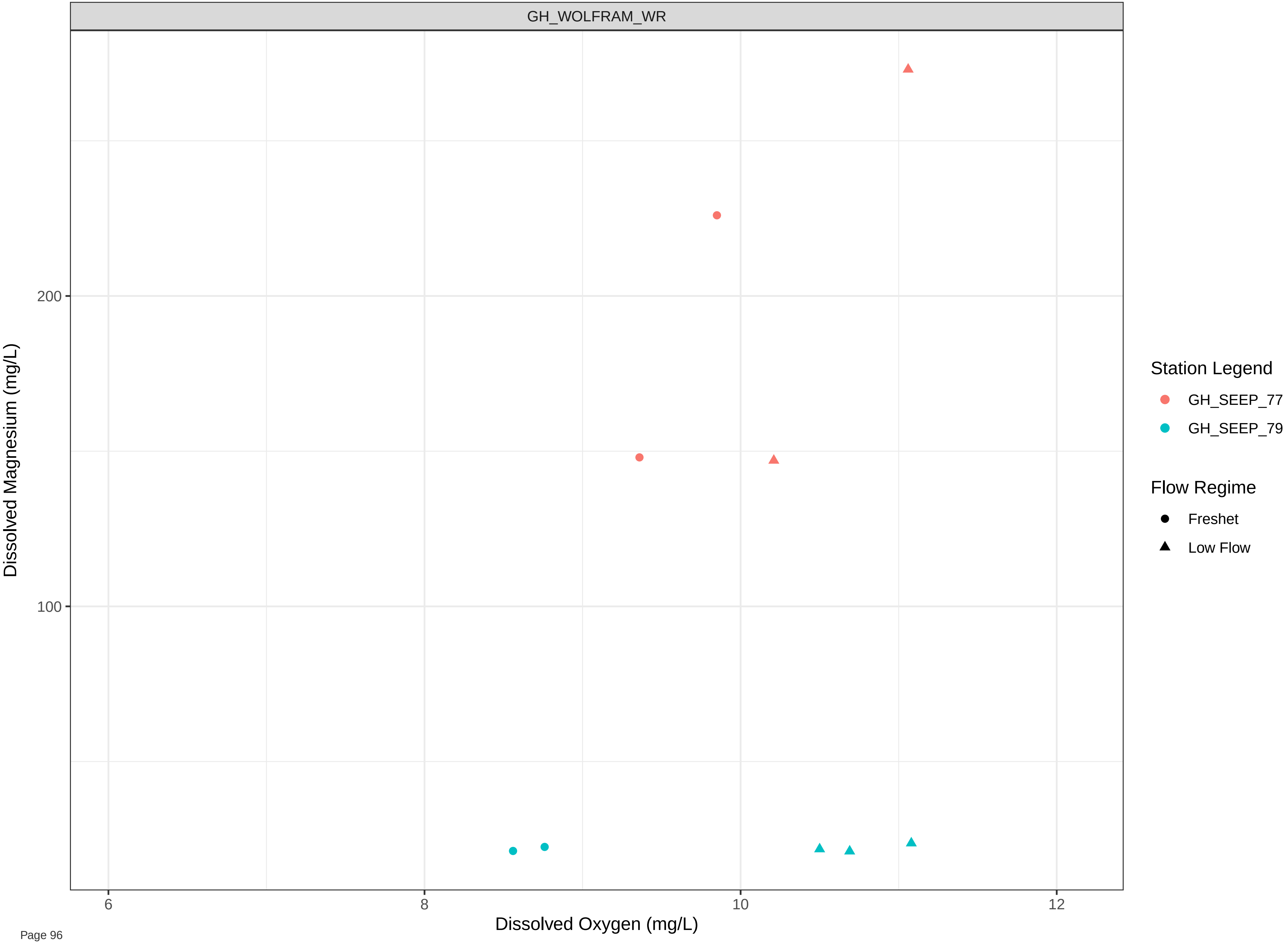

GH_CCR
Dissolved Magnesium (mg/L)
300
200
100
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

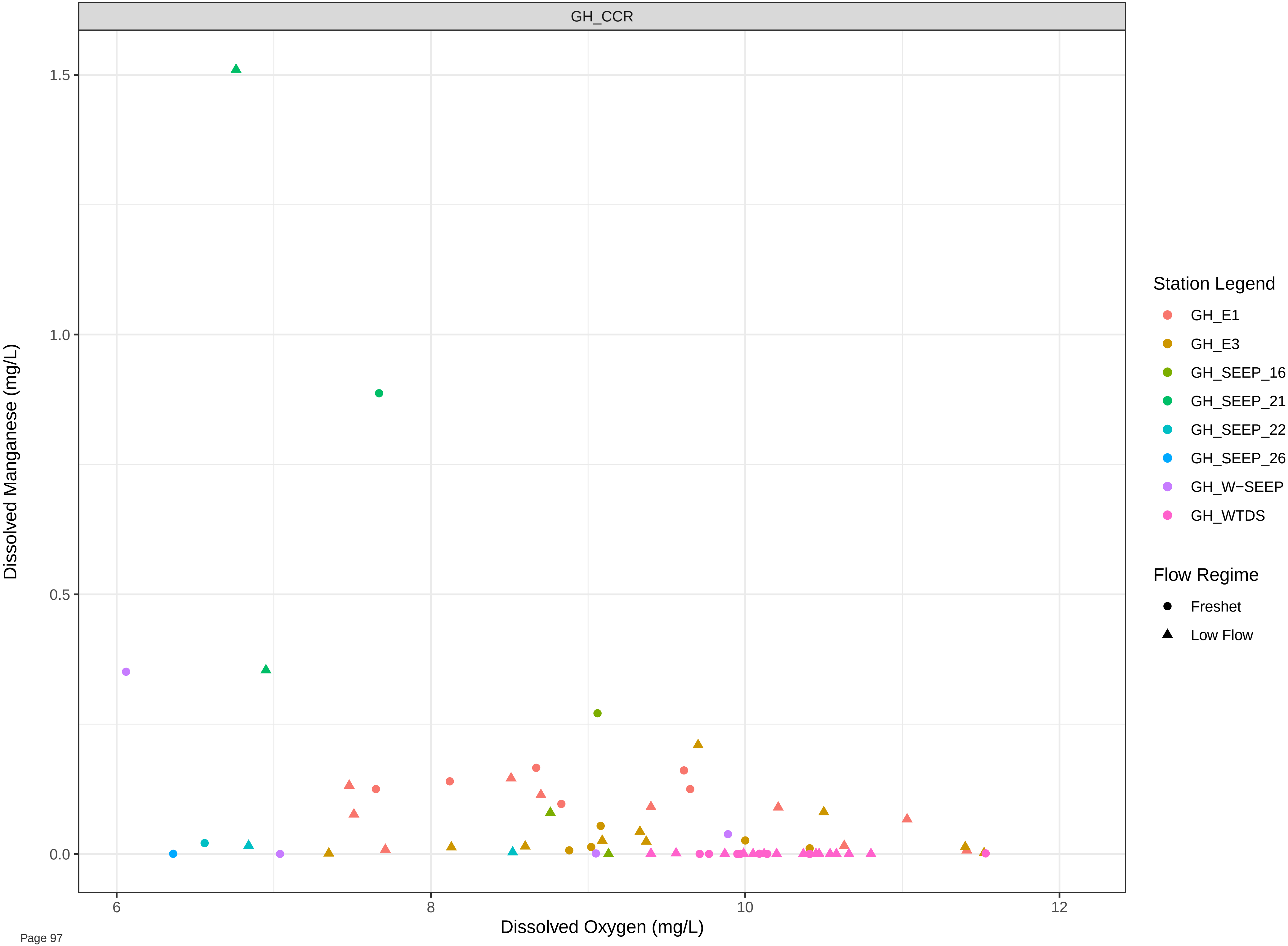

GH_LEASK_WR
Dissolved Magnesium (mg/L)
137.5
135.0
132.5
130.0
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

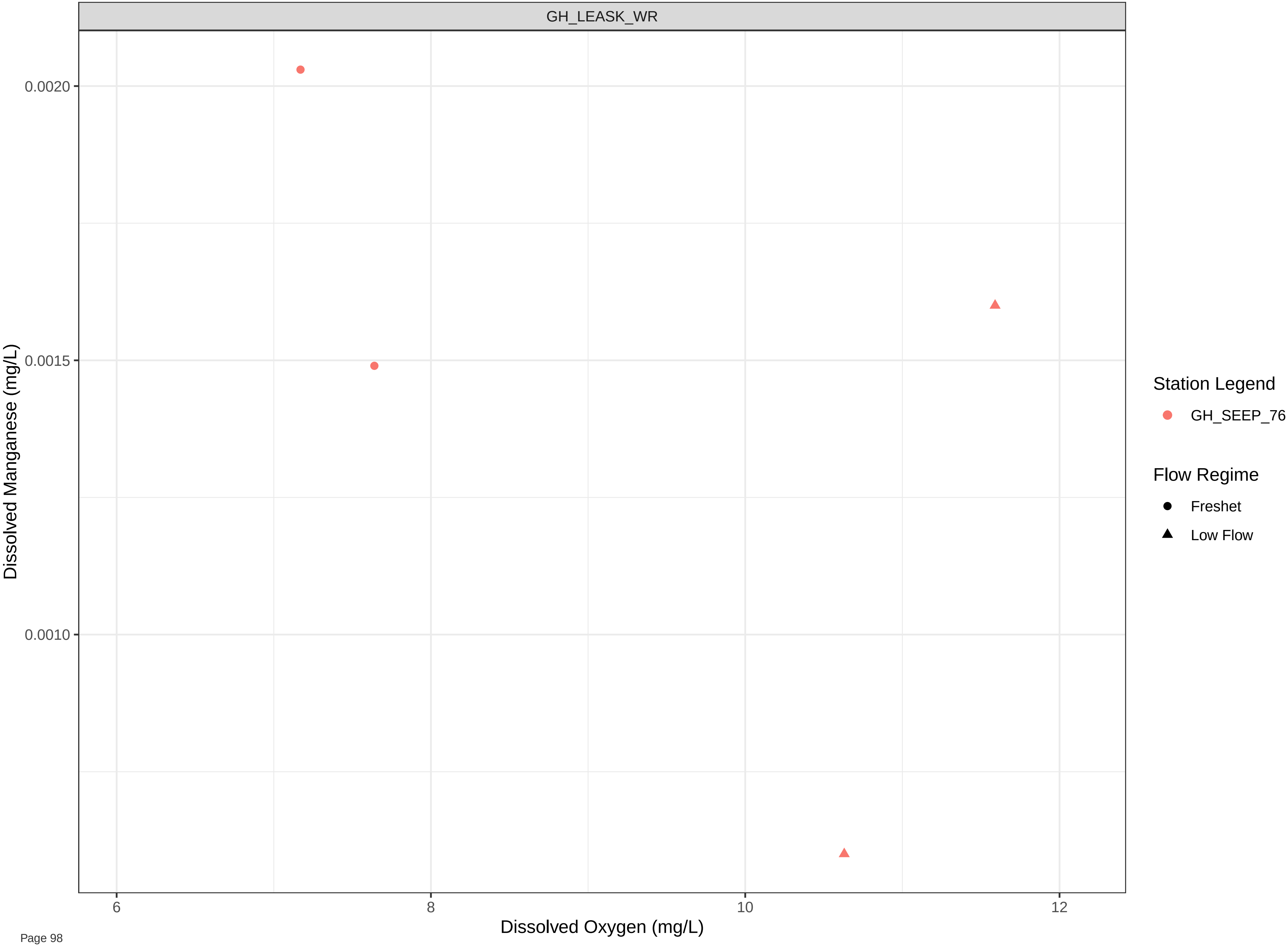

GH_PORTER_CREEK
Dissolved Magnesium (mg/L)
25
24
23
22
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

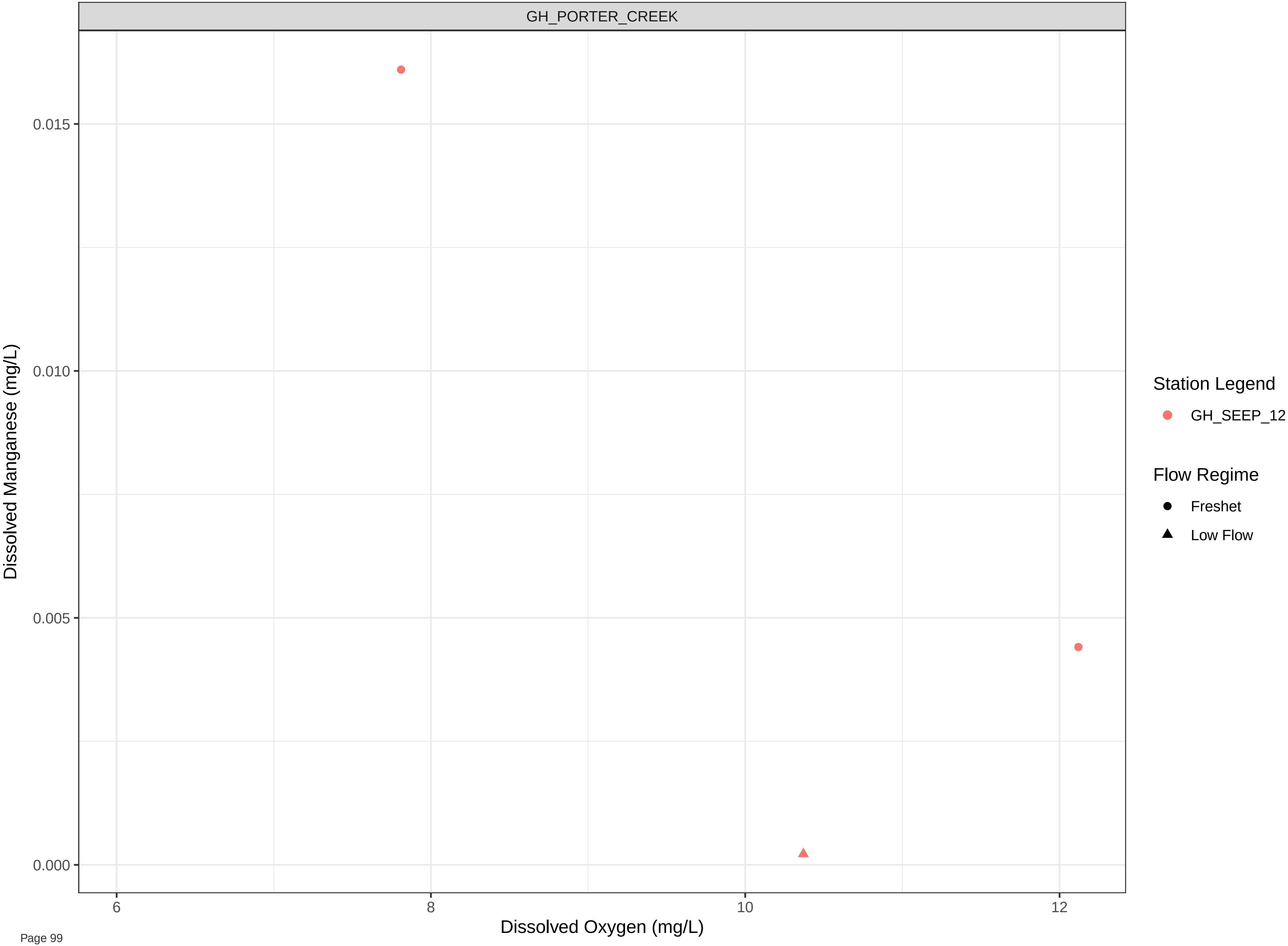

GH_THOMPSON_WR
Dissolved Magnesium (mg/L)
300
200
100
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

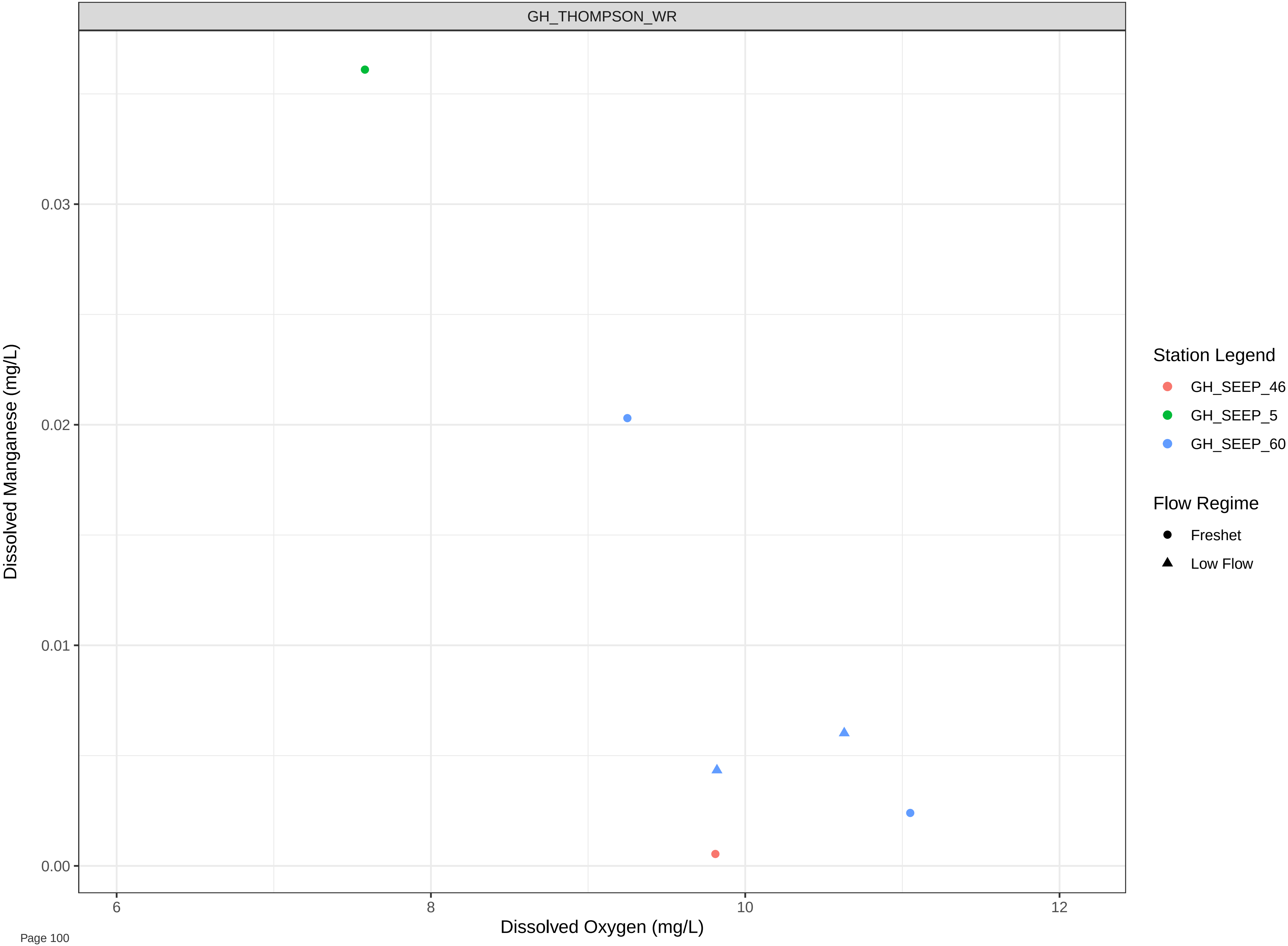

GH_UPSTREAM_CCR
Dissolved Magnesium (mg/L)
150
100
50
0
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

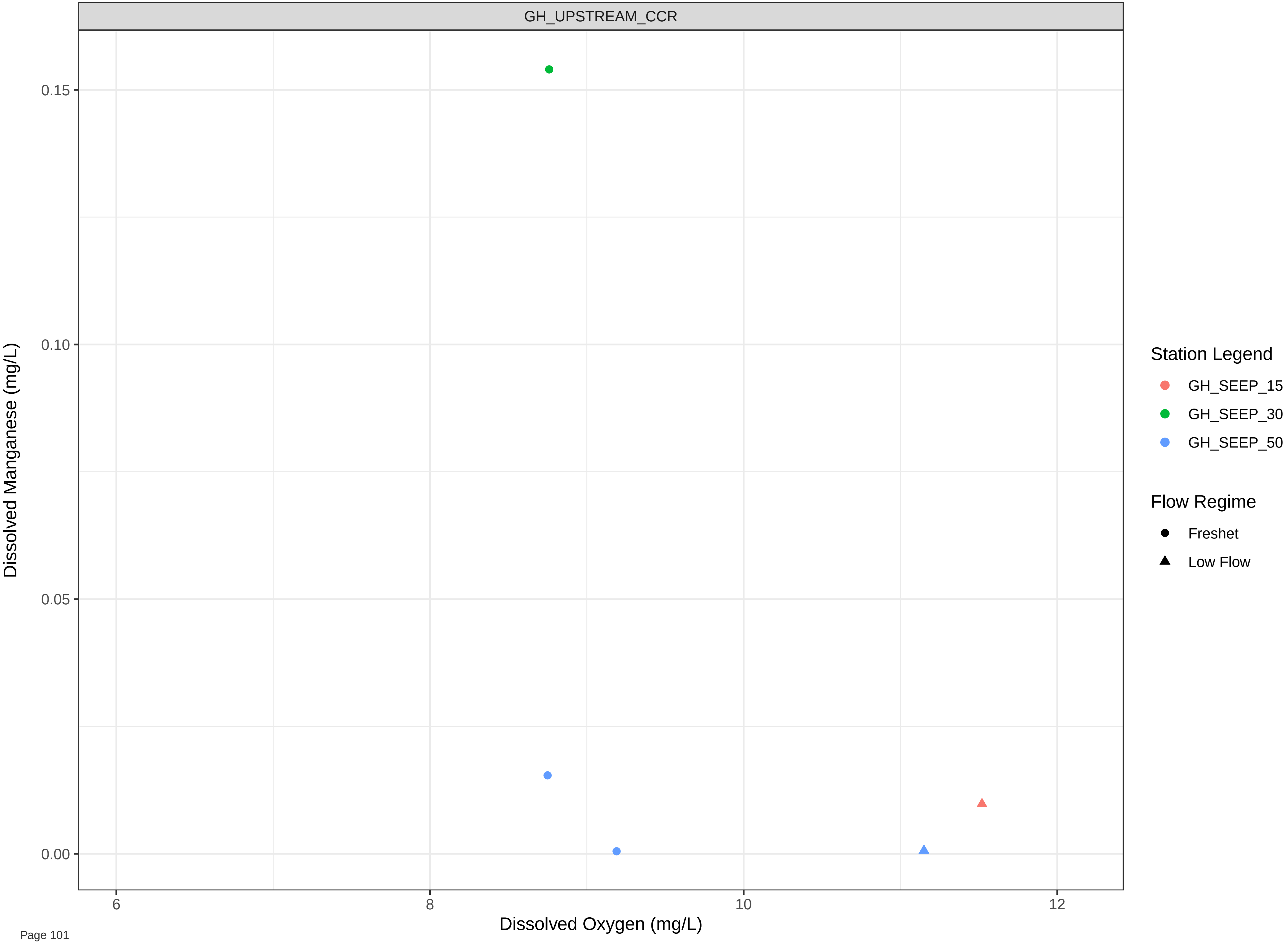

GH_WOLFRAM_WR
Dissolved Magnesium (mg/L)
200
100
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

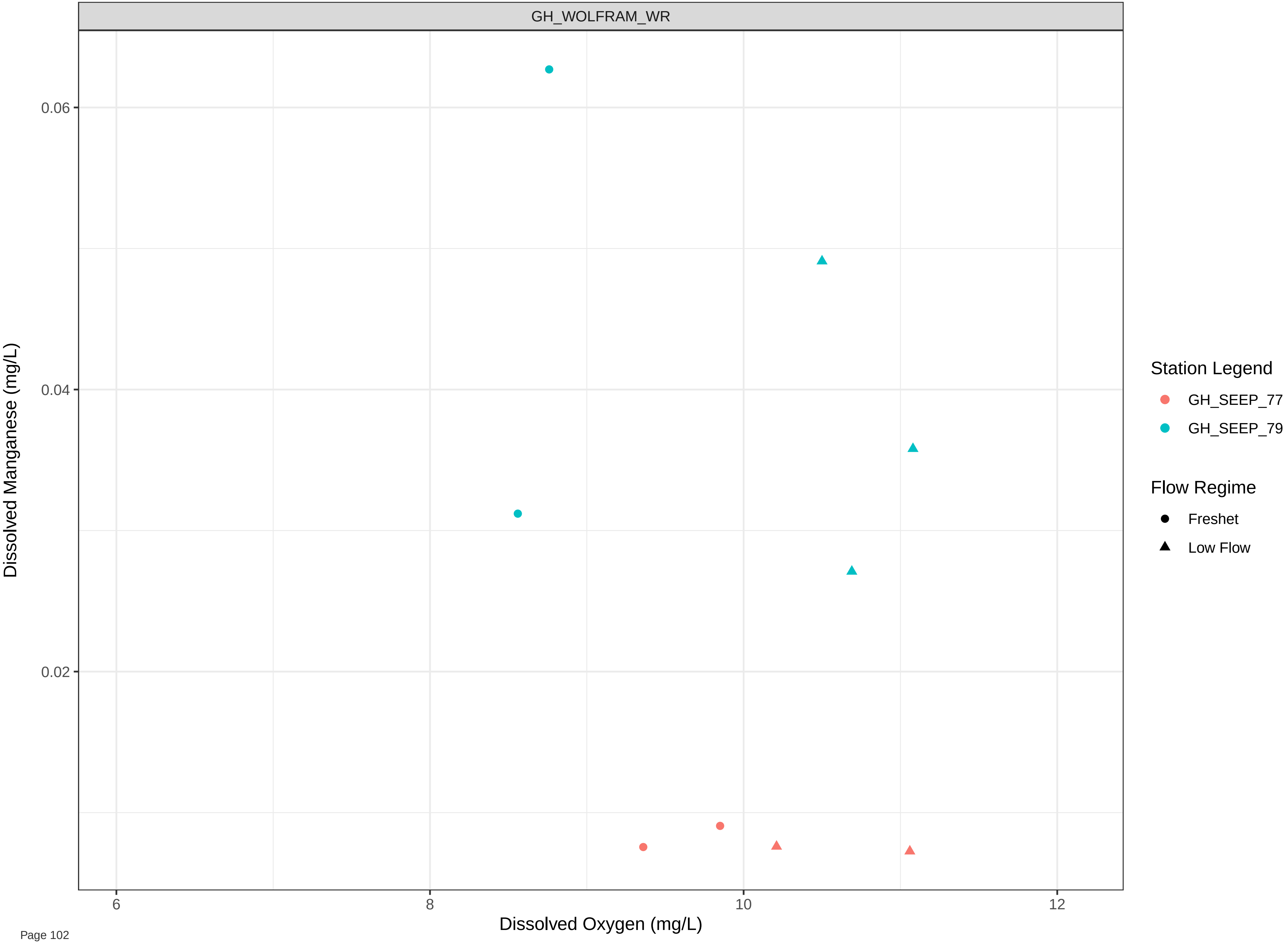

GH_CCR
Dissolved Manganese (mg/L)
1.5
1.0
0.5
0.0
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

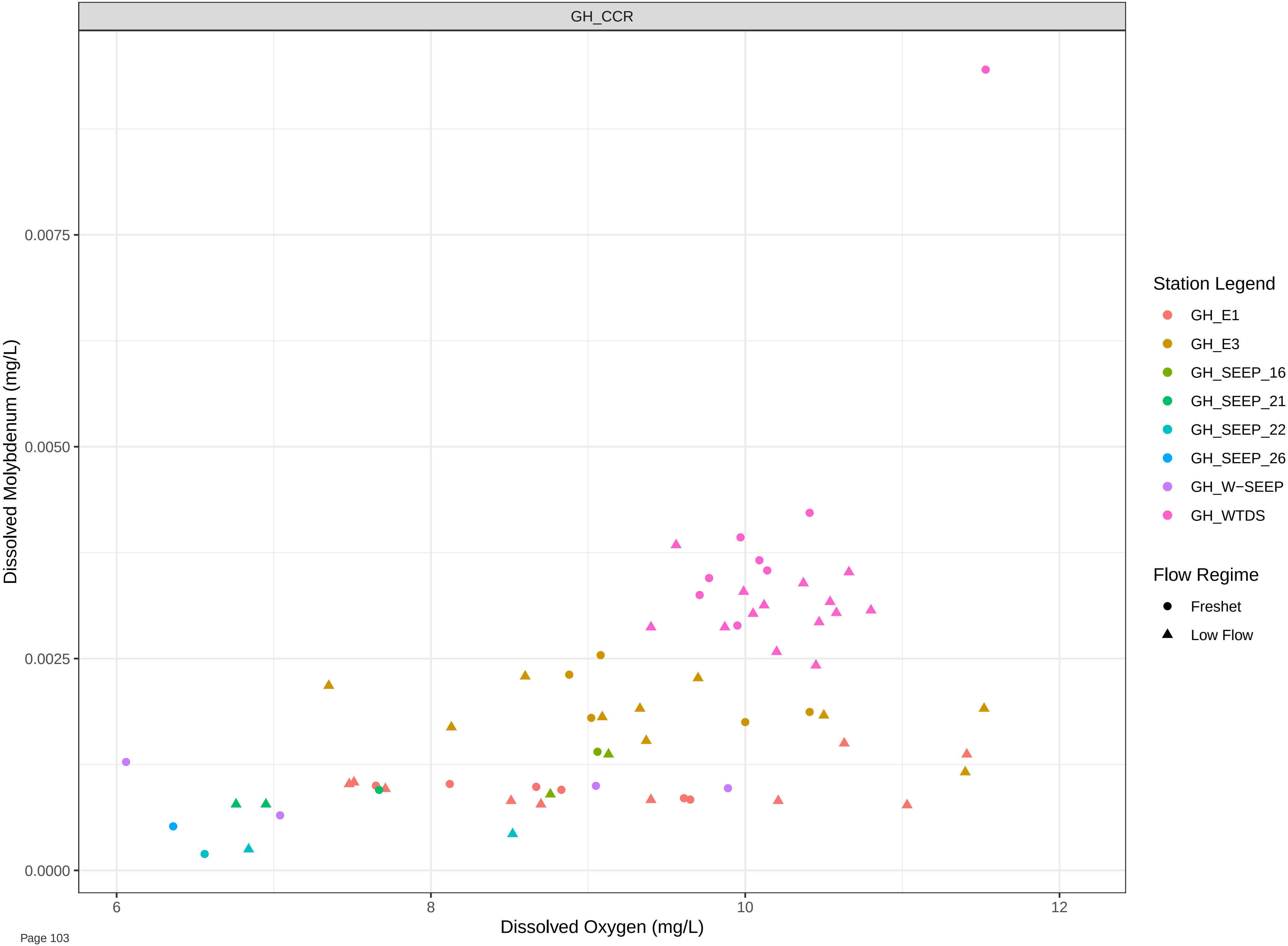

GH_LEASK_WR
0.0020
0.0015
0.0010
Dissolved Manganese (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

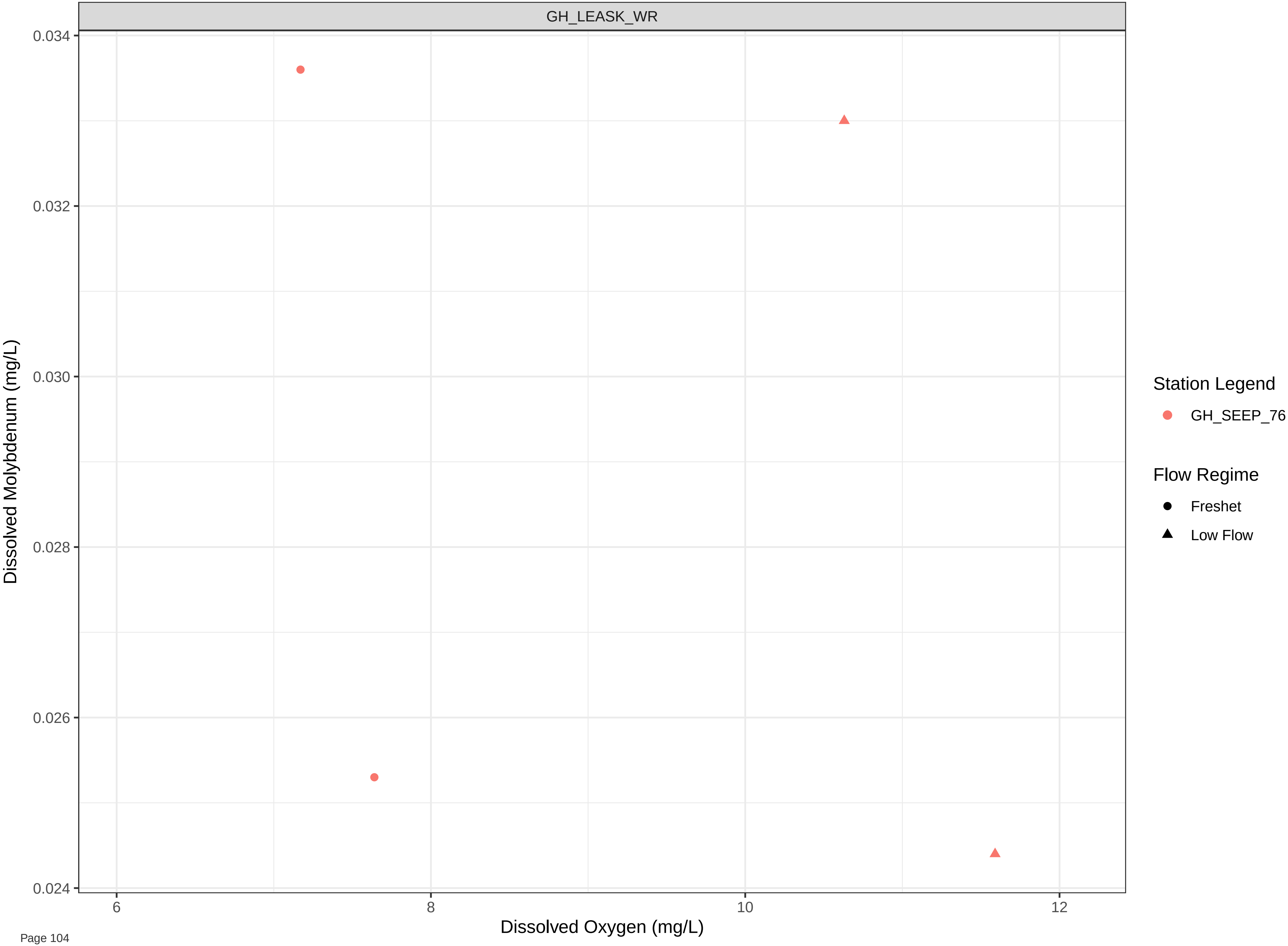

GH_PORTER_CREEK
Dissolved Manganese (mg/L)
0.015
0.010
0.005
0.000
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

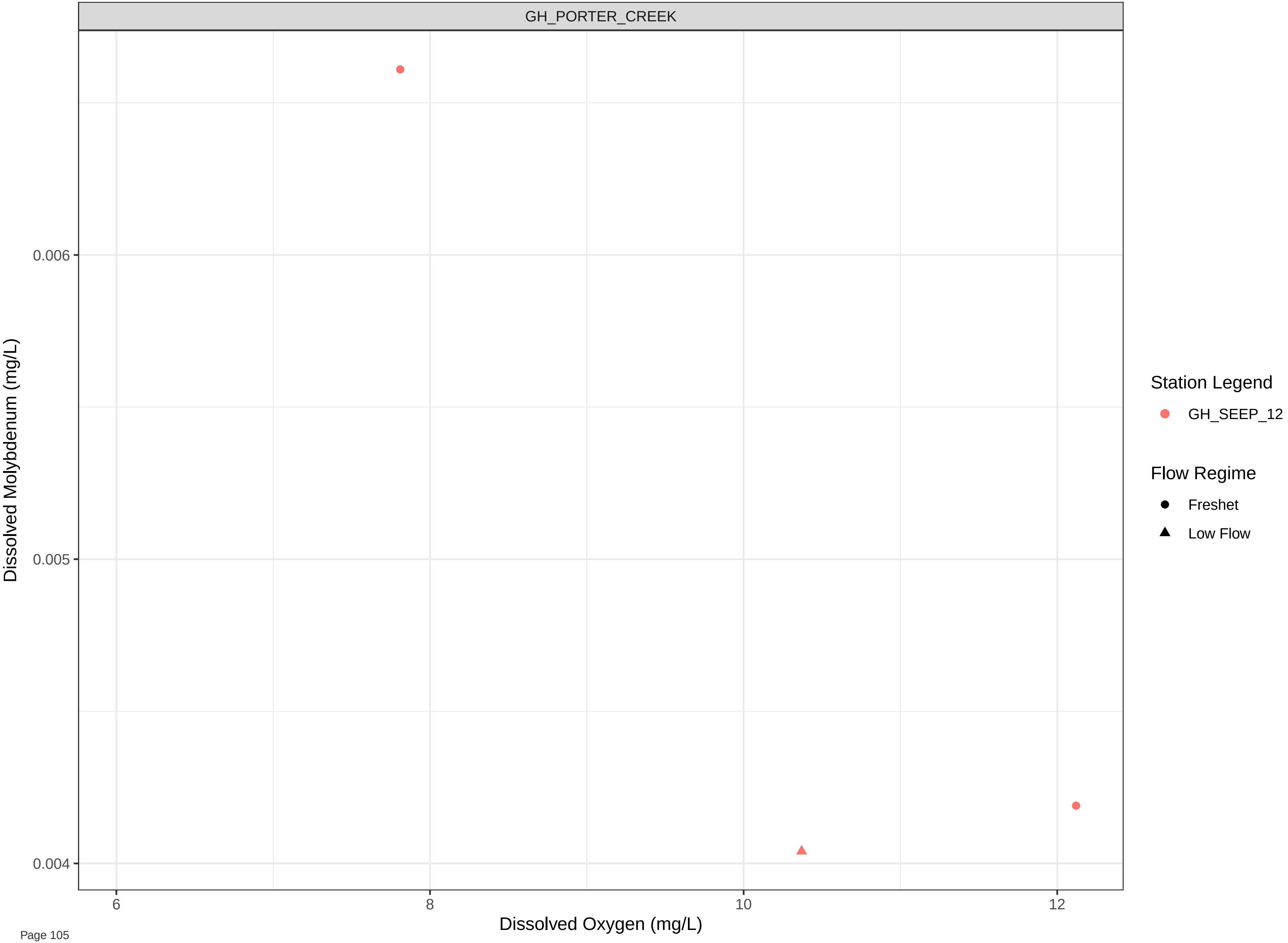

GH_THOMPSON_WR
Dissolved Manganese (mg/L)
0.03
0.02
0.01
0.00
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

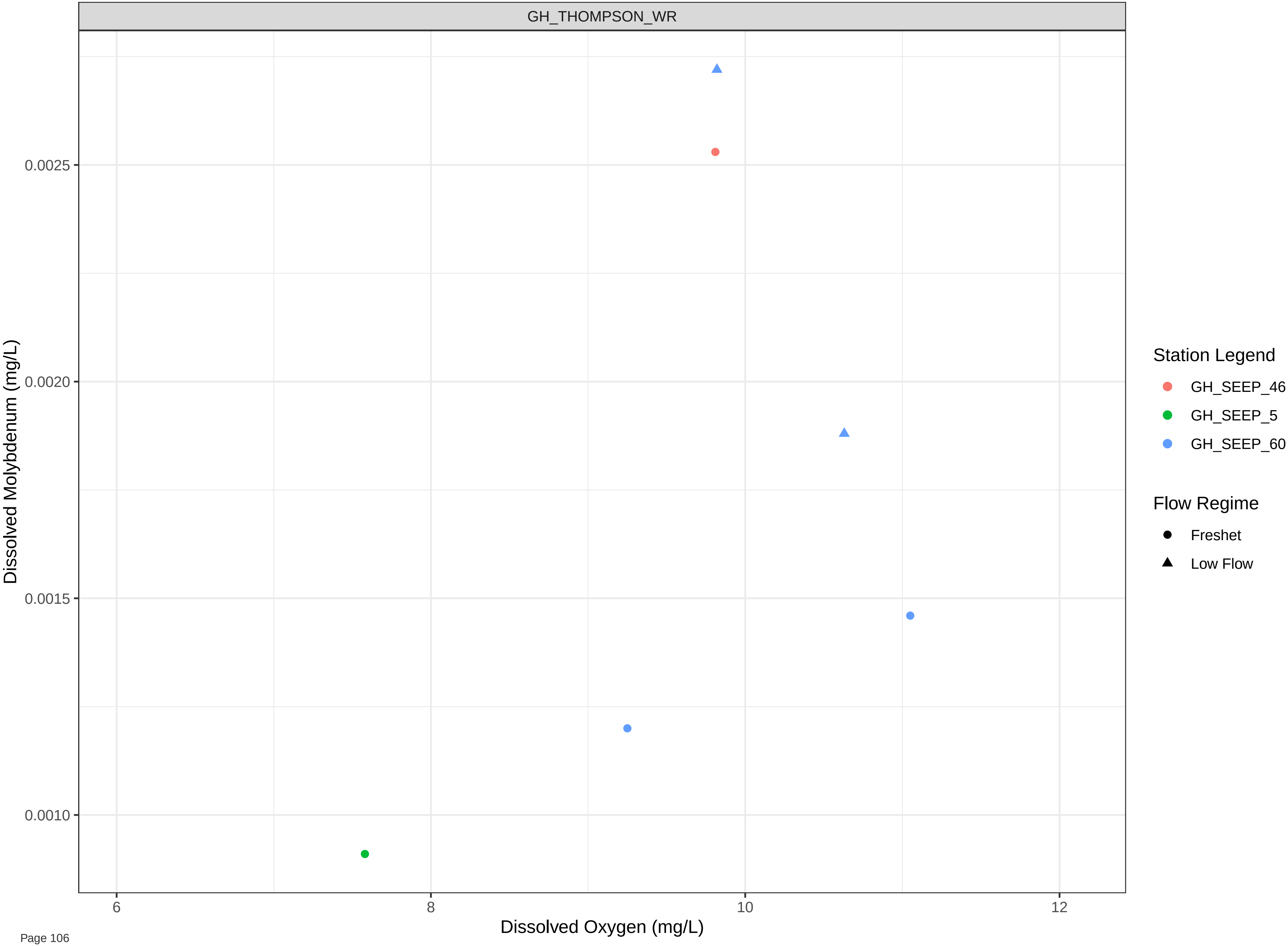

GH_UPSTREAM_CCR
Dissolved Manganese (mg/L)
0.15
0.10
0.05
0.00
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

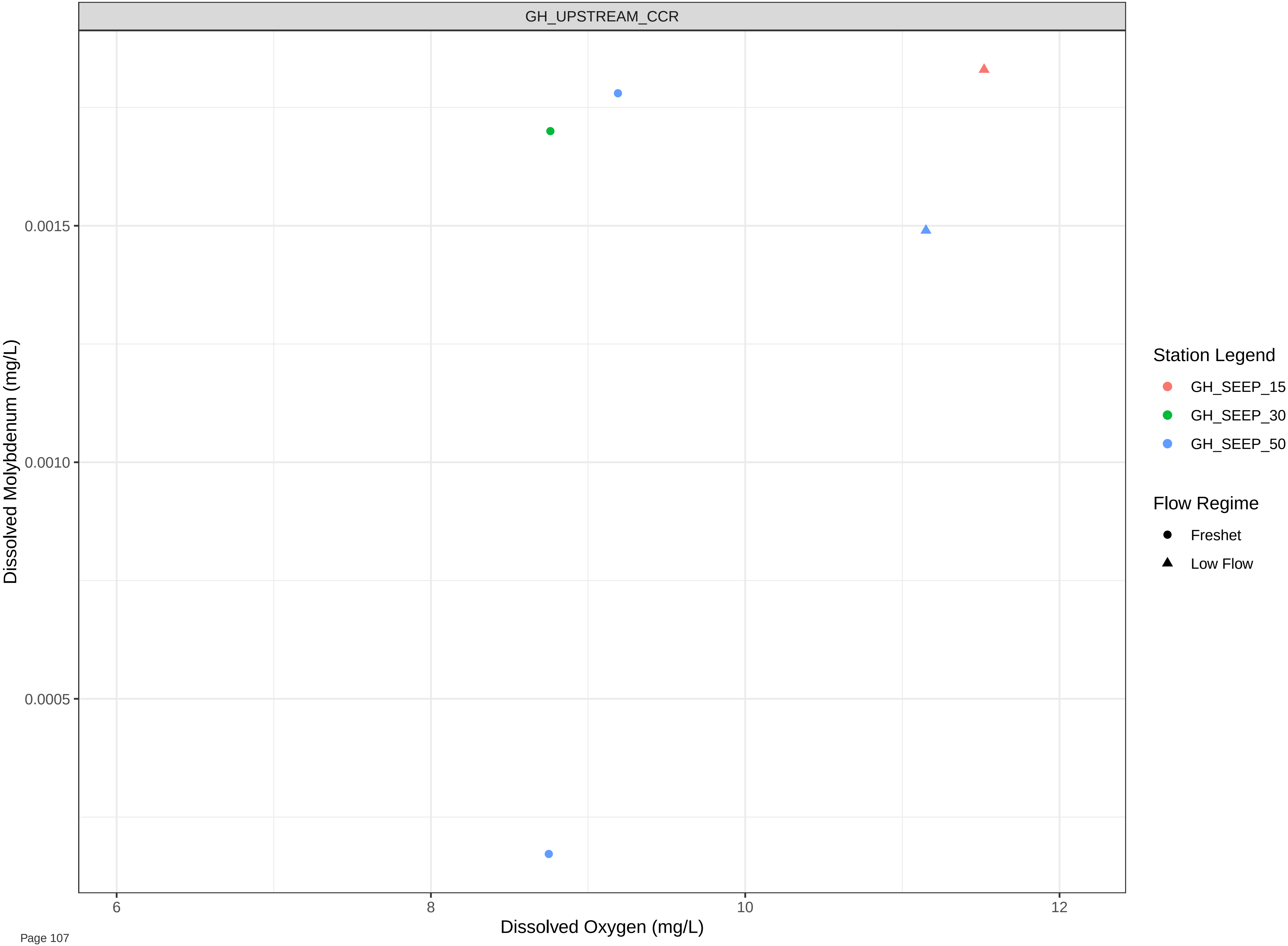

GH_WOLFRAM_WR
Dissolved Manganese (mg/L)
0.06
0.04
0.02
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

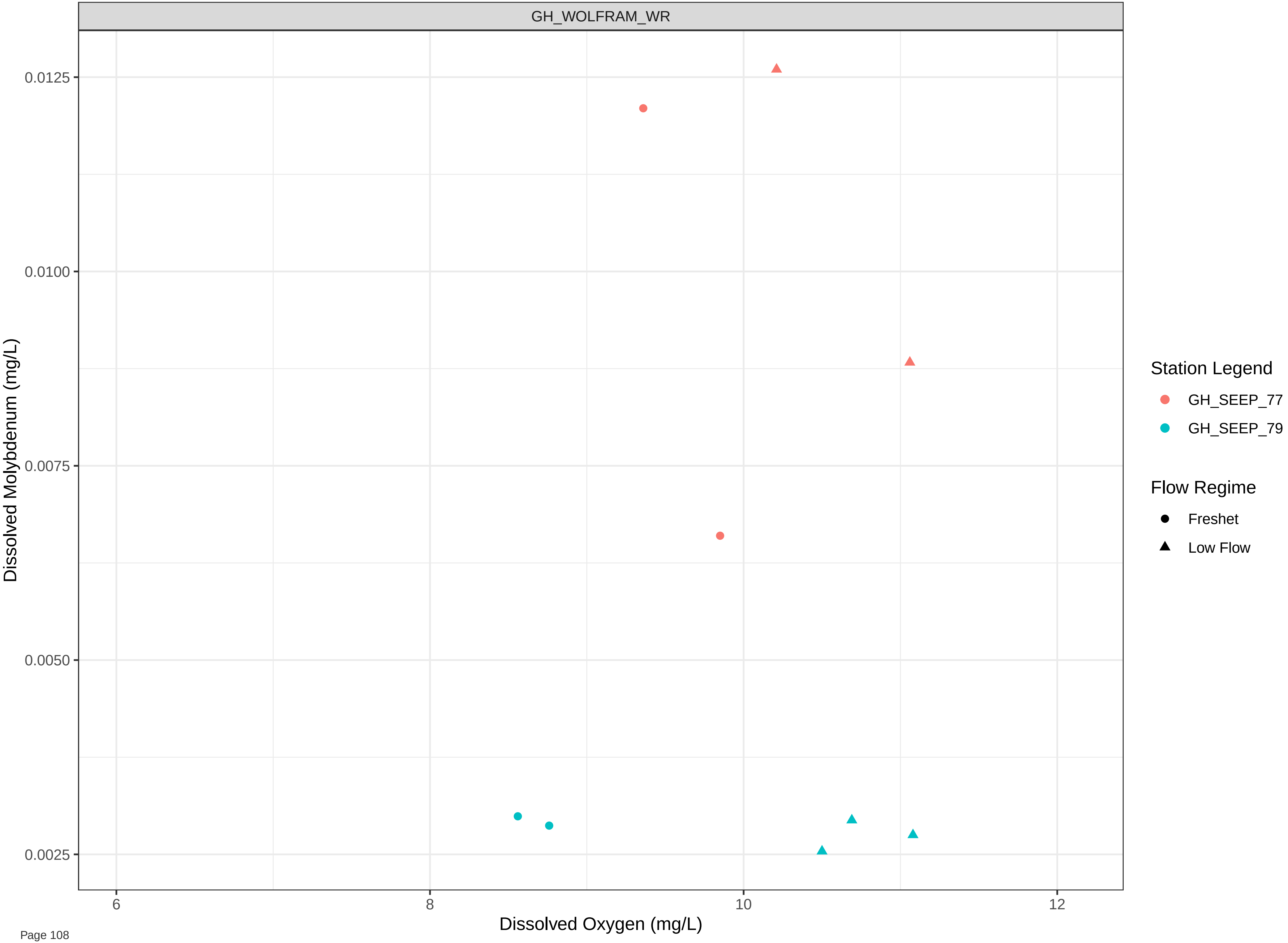

GH_CCR
Dissolved Molybdenum (mg/L)
0.0075
0.0050
0.0025
0.0000
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

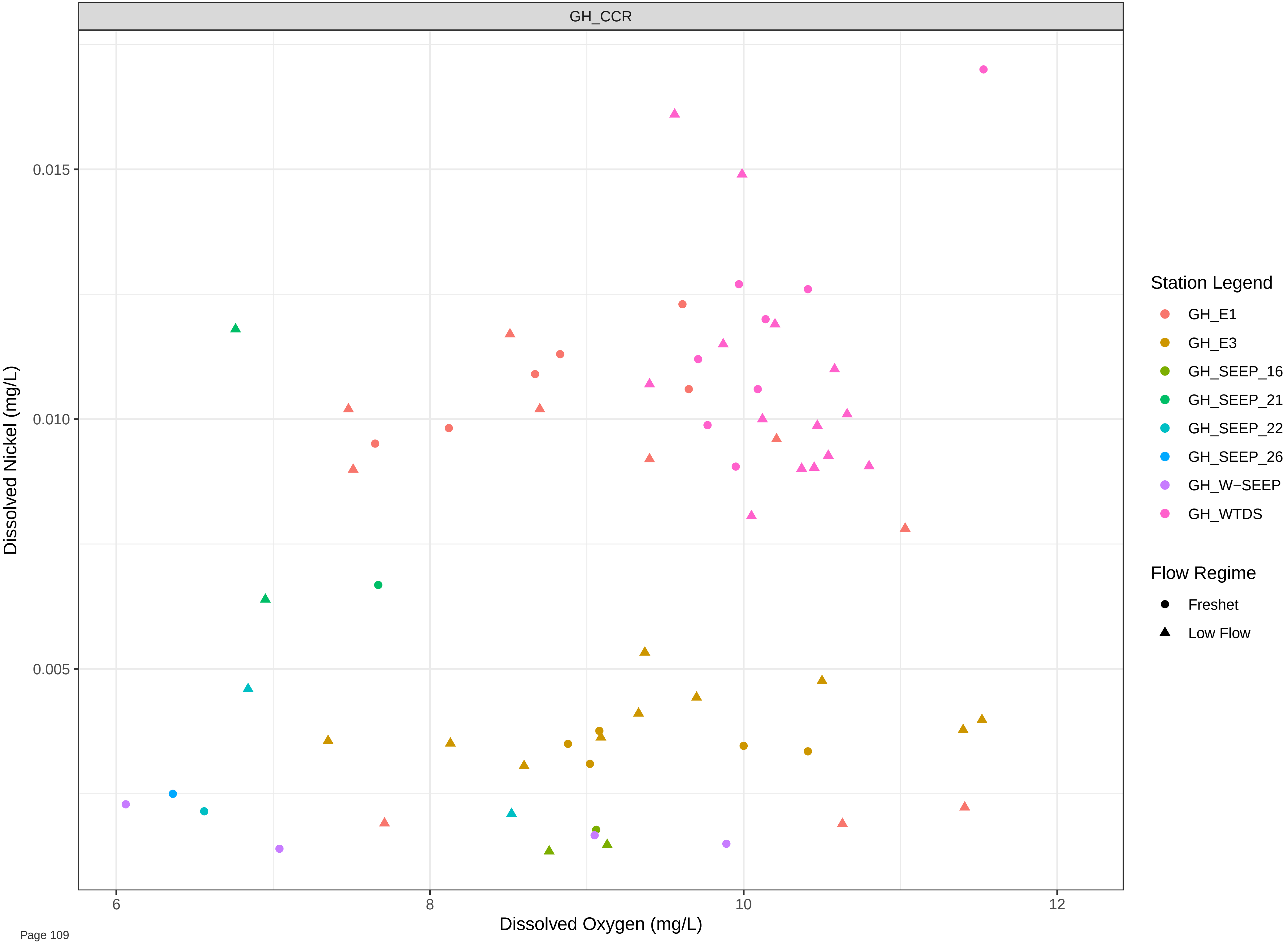

GH_LEASK_WR
0.034
0.032
0.030
0.028
0.026
0.024
Dissolved Molybdenum (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow

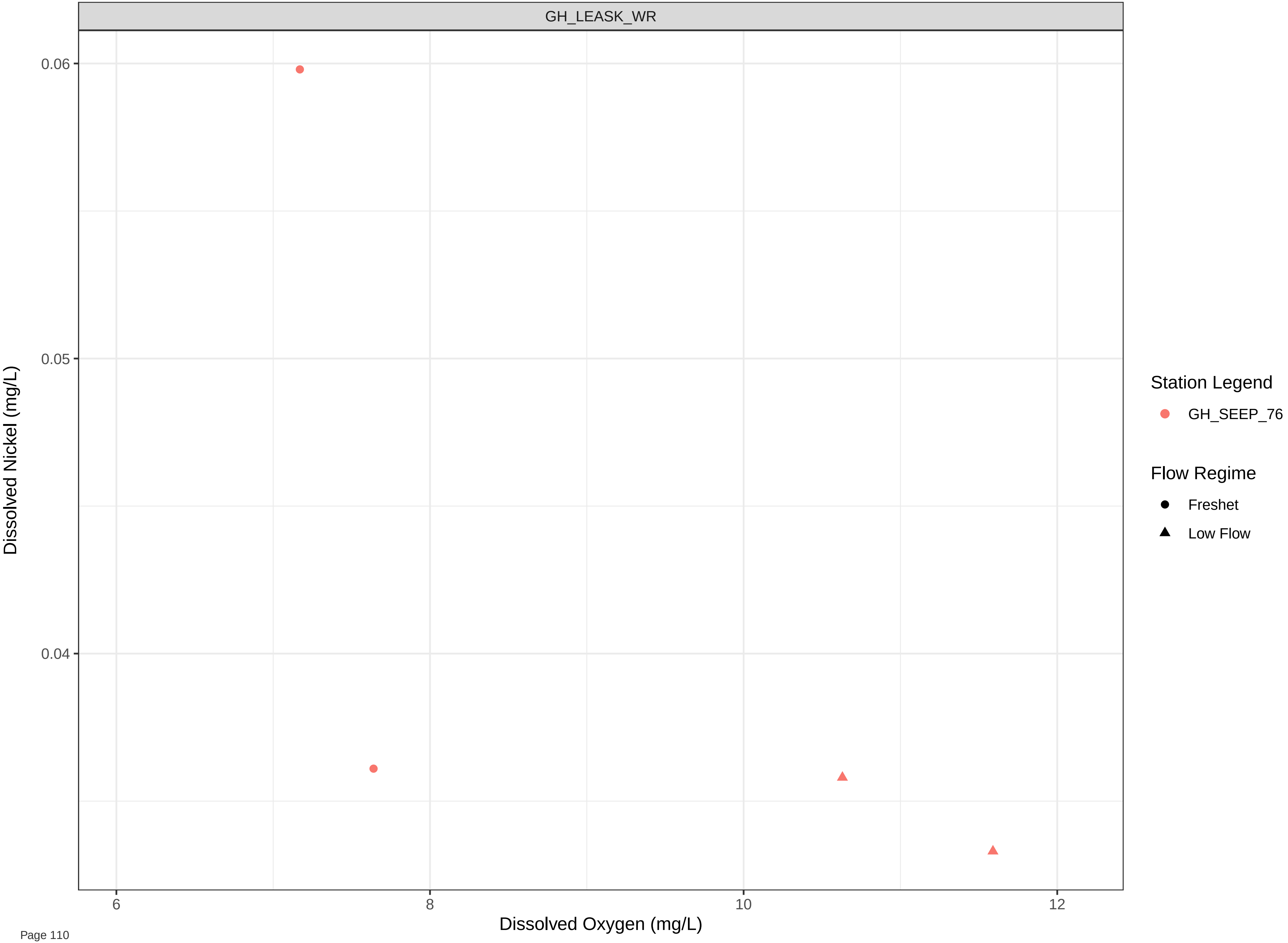

GH_PORTER_CREEK
Dissolved Molybdenum (mg/L)
0.006
0.005
0.004
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

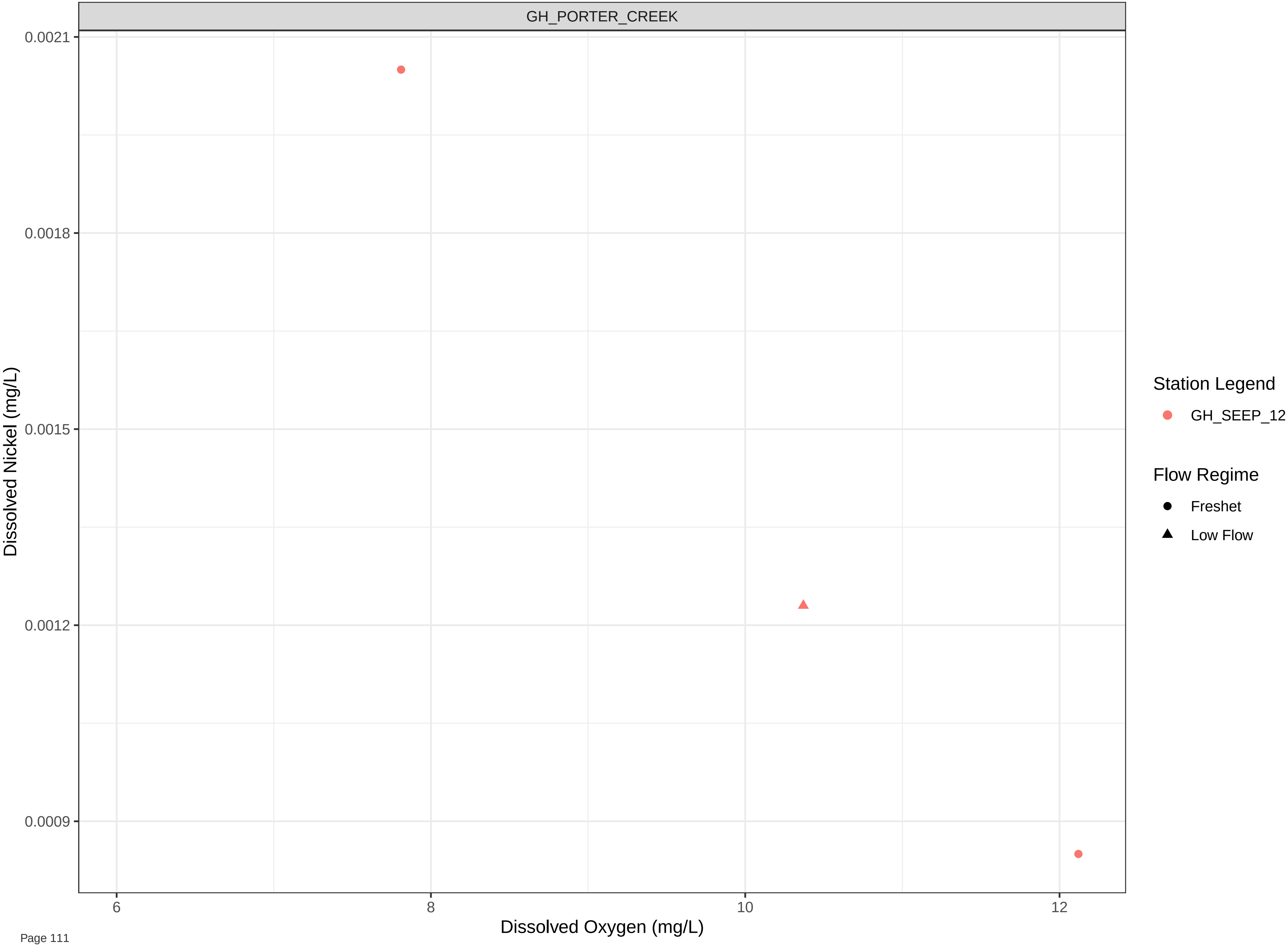

GH_THOMPSON_WR
Dissolved Molybdenum (mg/L)
0.0025
0.0020
0.0015
0.0010
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

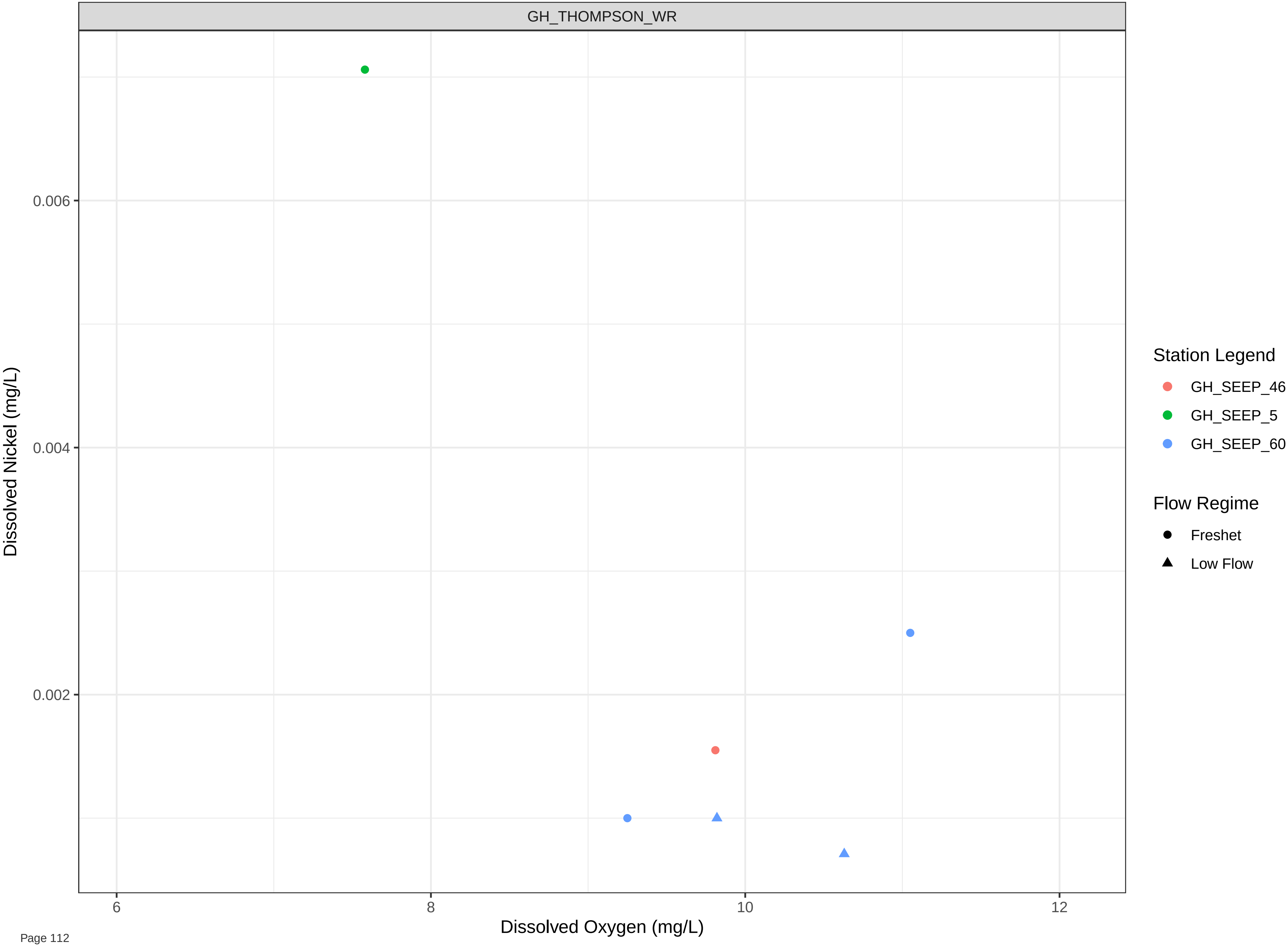

GH_UPSTREAM_CCR
Dissolved Molybdenum (mg/L)
0.0015
0.0010
0.0005
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

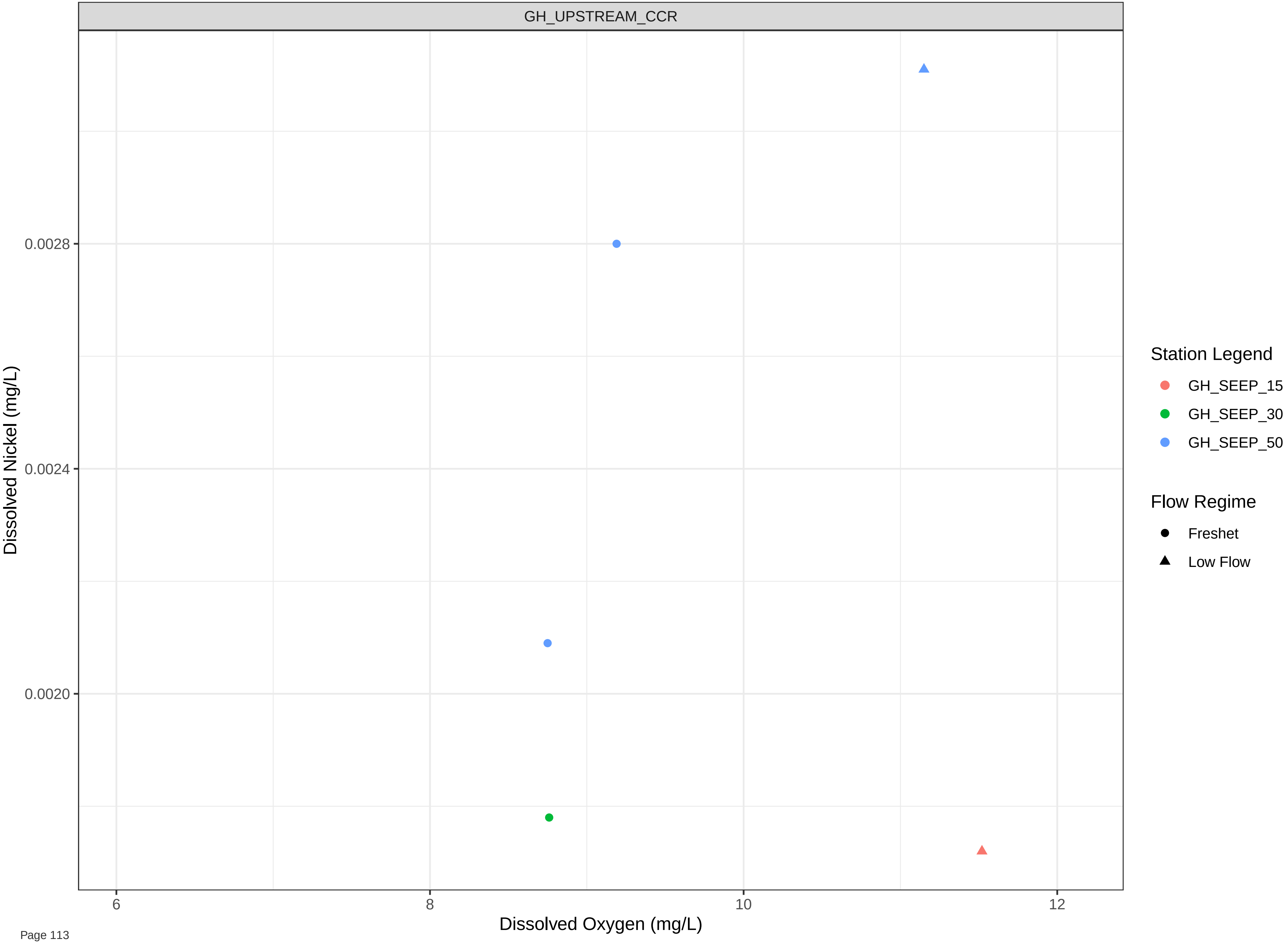

GH_WOLFRAM_WR
0.0125
0.0100
0.0075
0.0050
0.0025
Dissolved Molybdenum (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

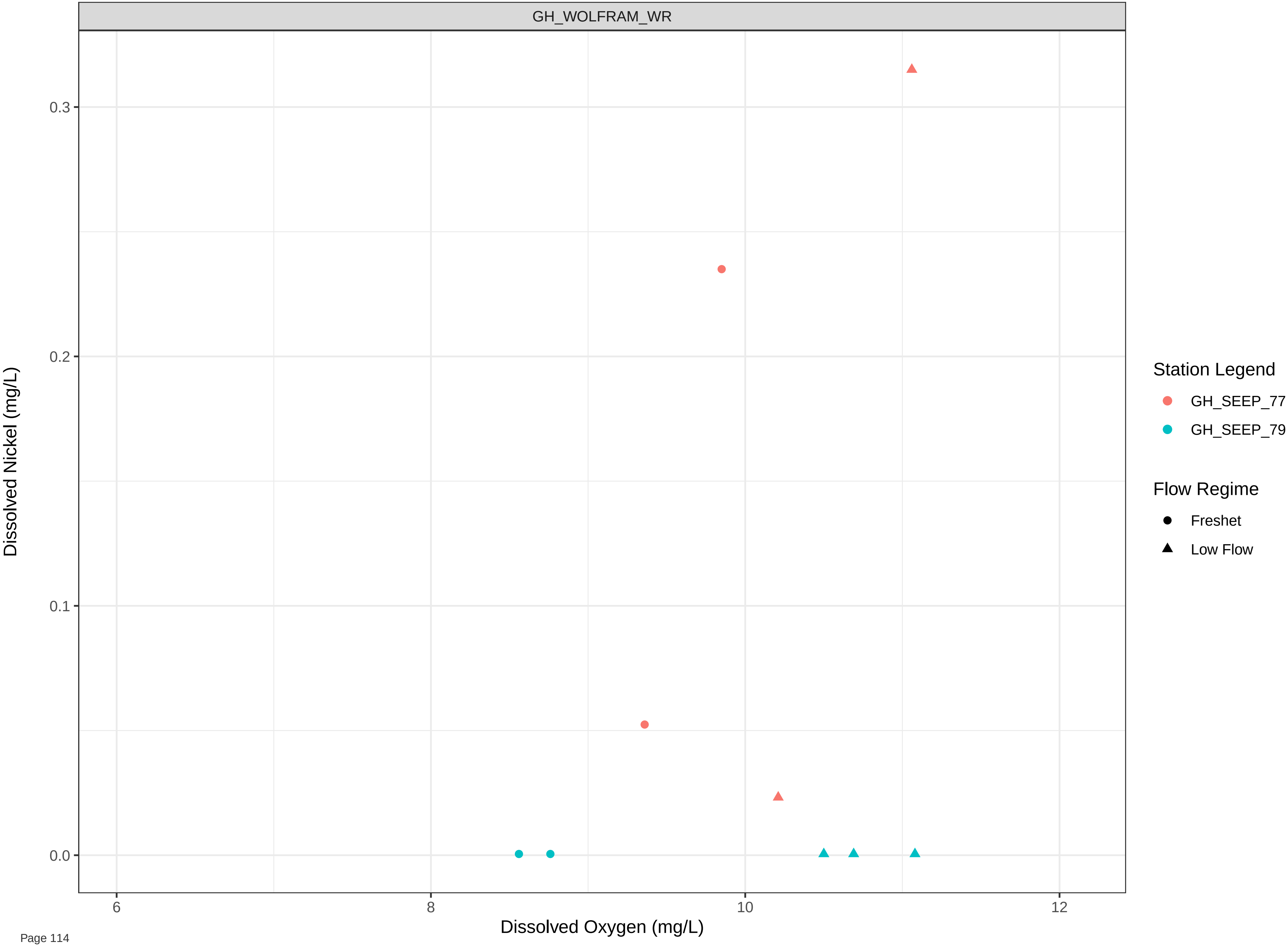

GH_CCR
Dissolved Nickel (mg/L)
0.015
0.010
0.005
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
● GH_E1
● GH_E3
● GH_SEEP_16
● GH_SEEP_21
● GH_SEEP_22
● GH_SEEP_26
● GH_W−SEEP
● GH_WTDS
Flow Regime
● Freshet
▲ Low Flow

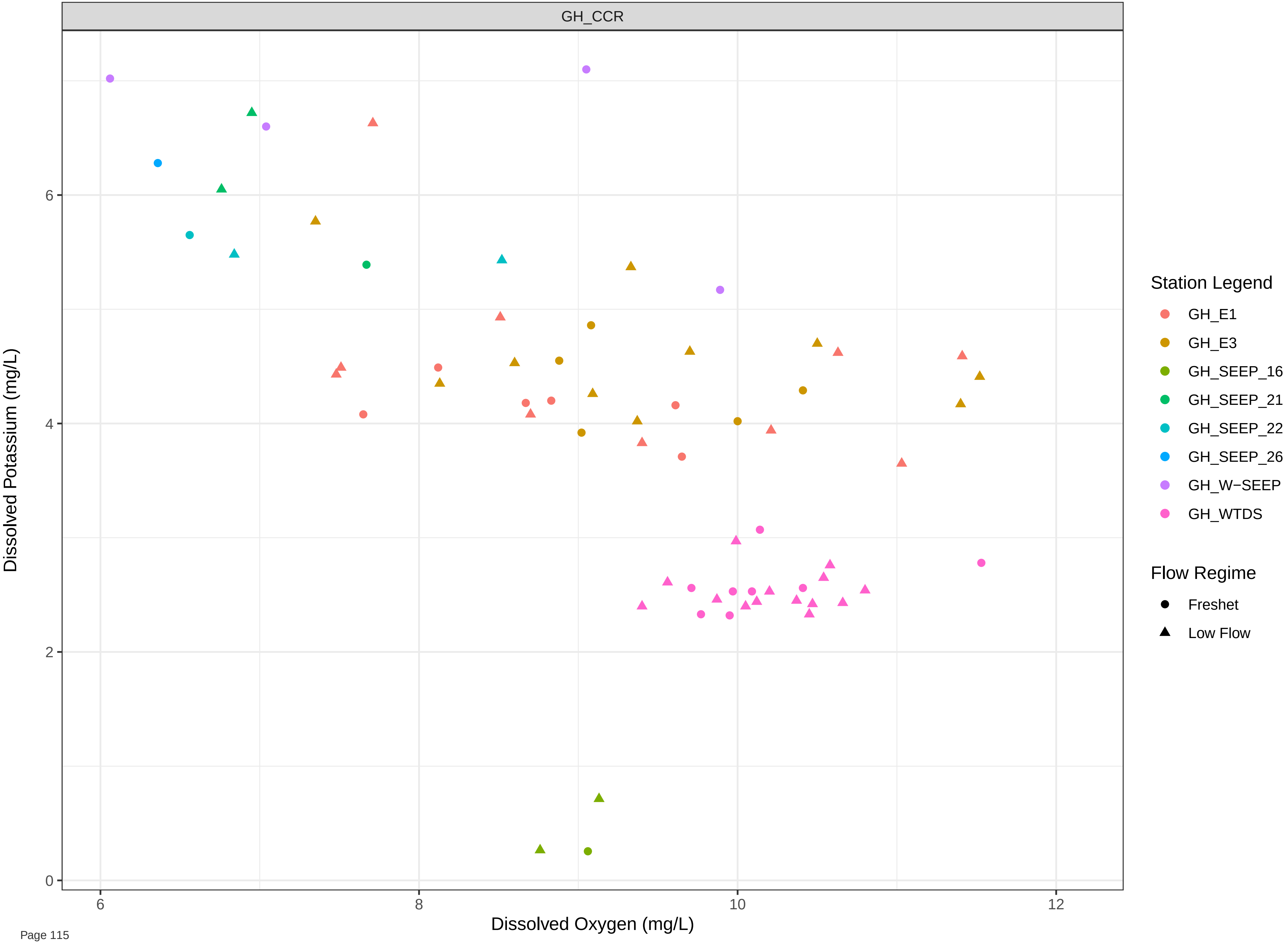

GH_LEASK_WR
0.06
0.05
0.04
Dissolved Nickel (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

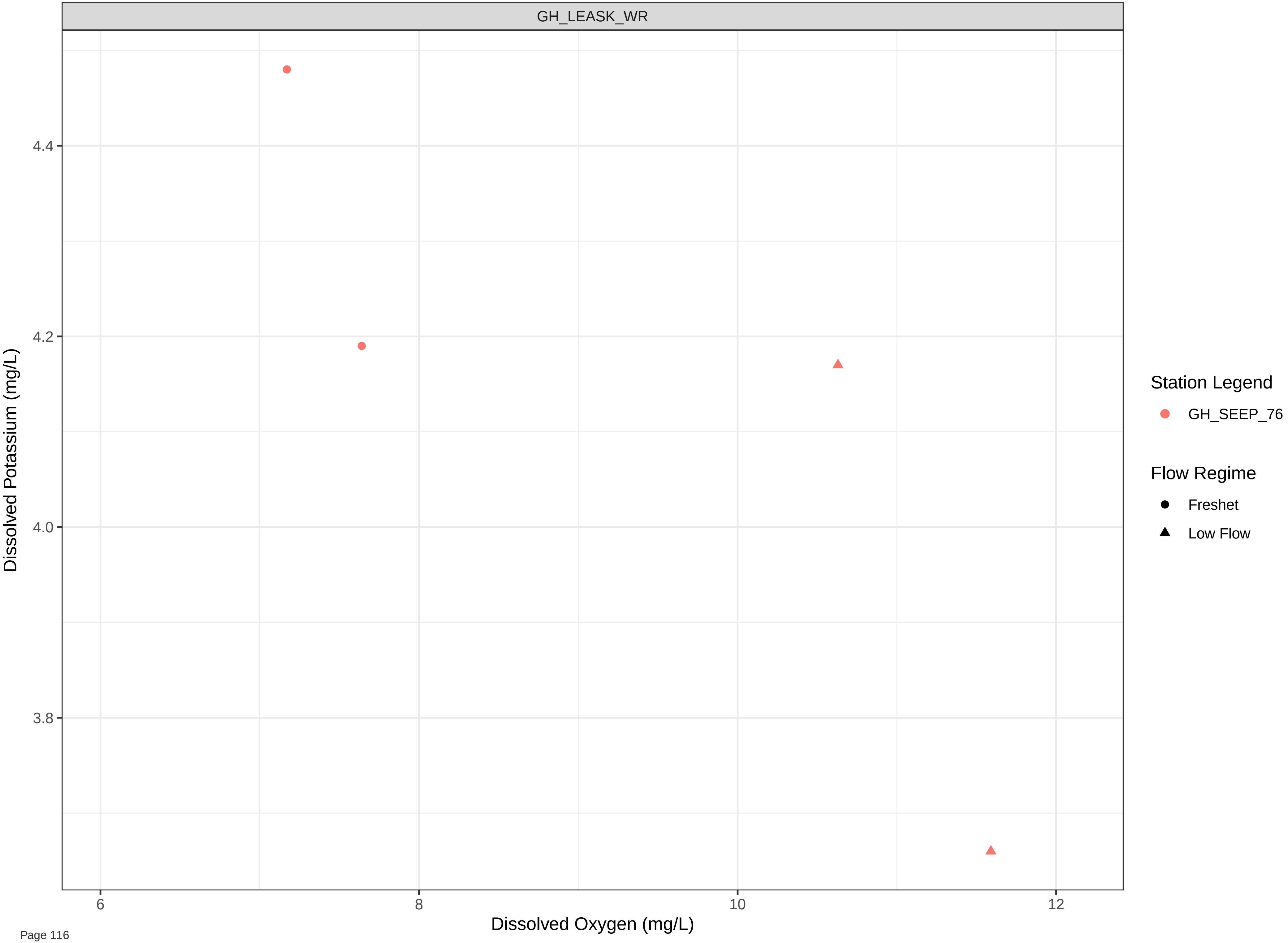

GH_PORTER_CREEK
0.0021
0.0018
0.0015
0.0012
0.0009
Dissolved Nickel (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

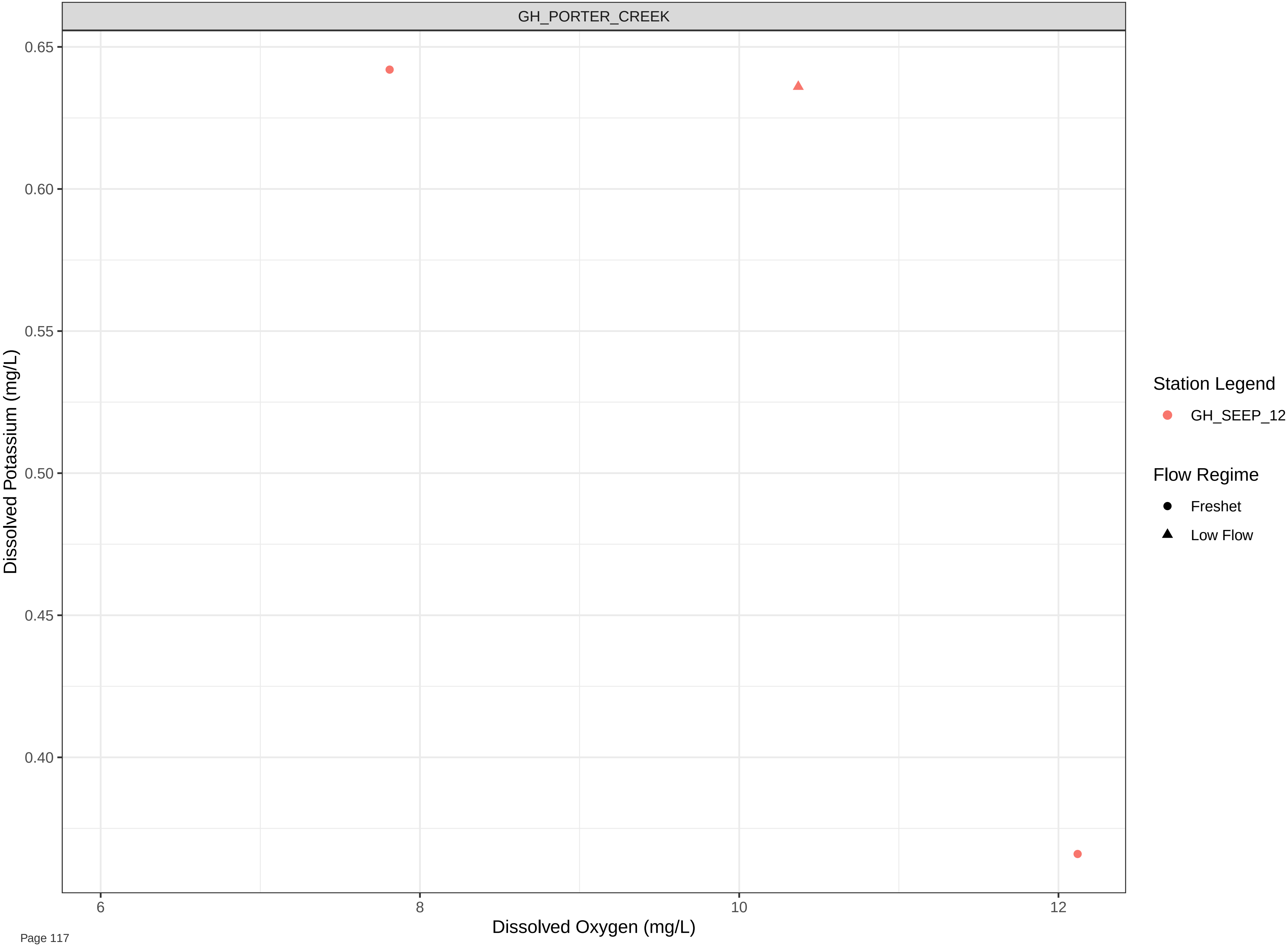

GH_THOMPSON_WR
Dissolved Nickel (mg/L)
0.006
0.004
0.002
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

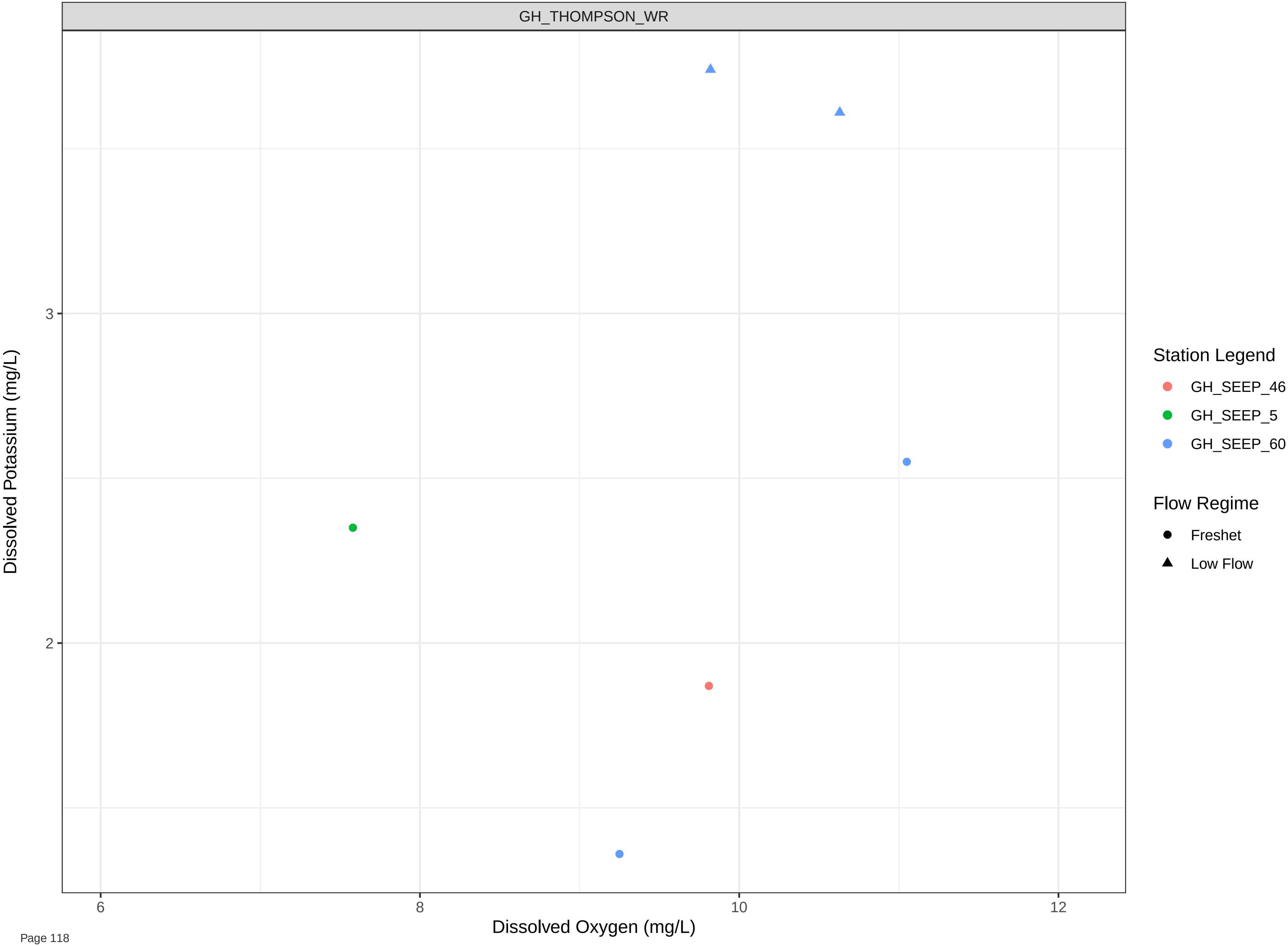

GH_UPSTREAM_CCR
Dissolved Nickel (mg/L)
0.0028
0.0024
0.0020
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

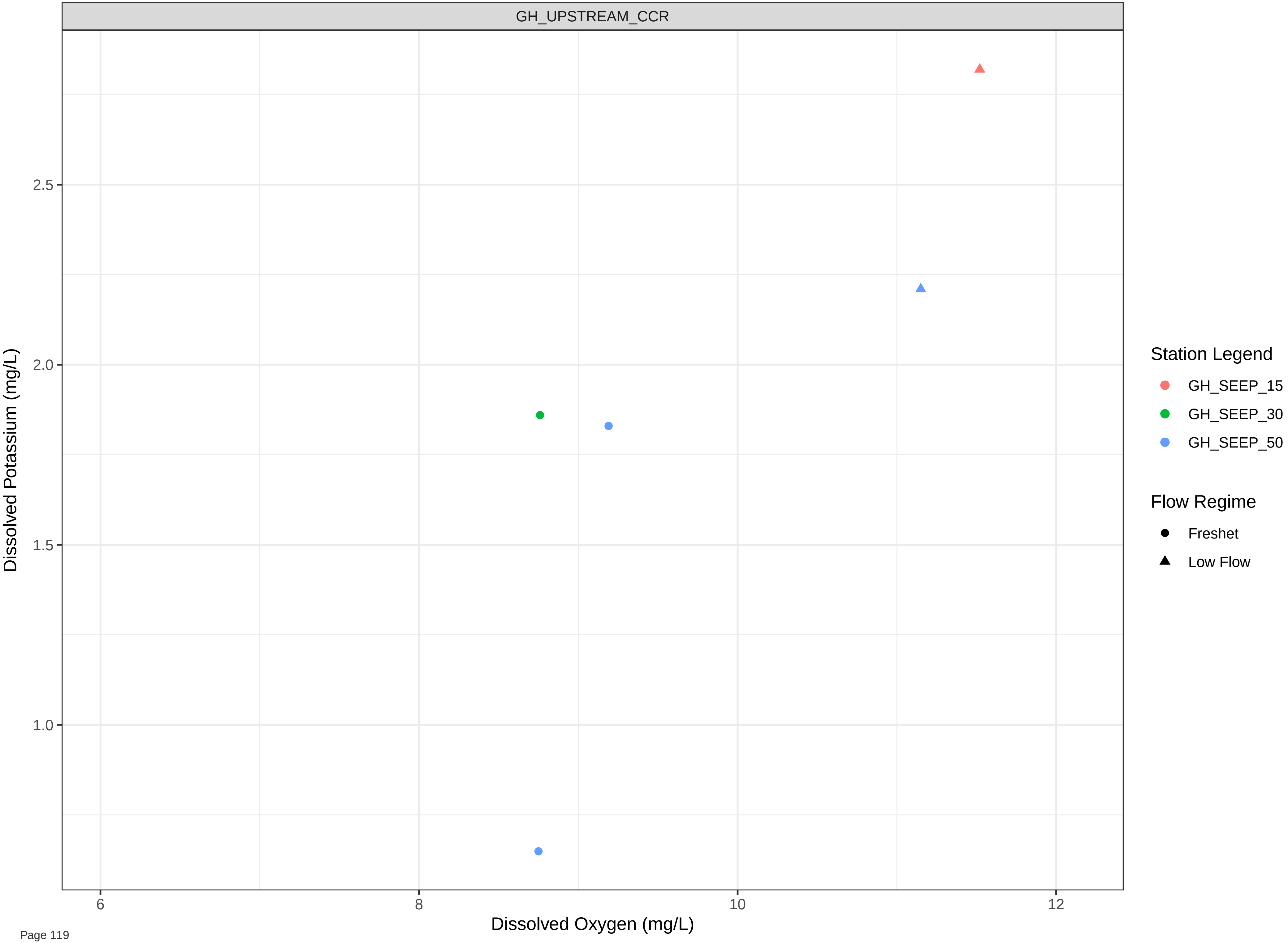

GH_WOLFRAM_WR
Dissolved Nickel (mg/L)
0.3
0.2
0.1
0.0
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

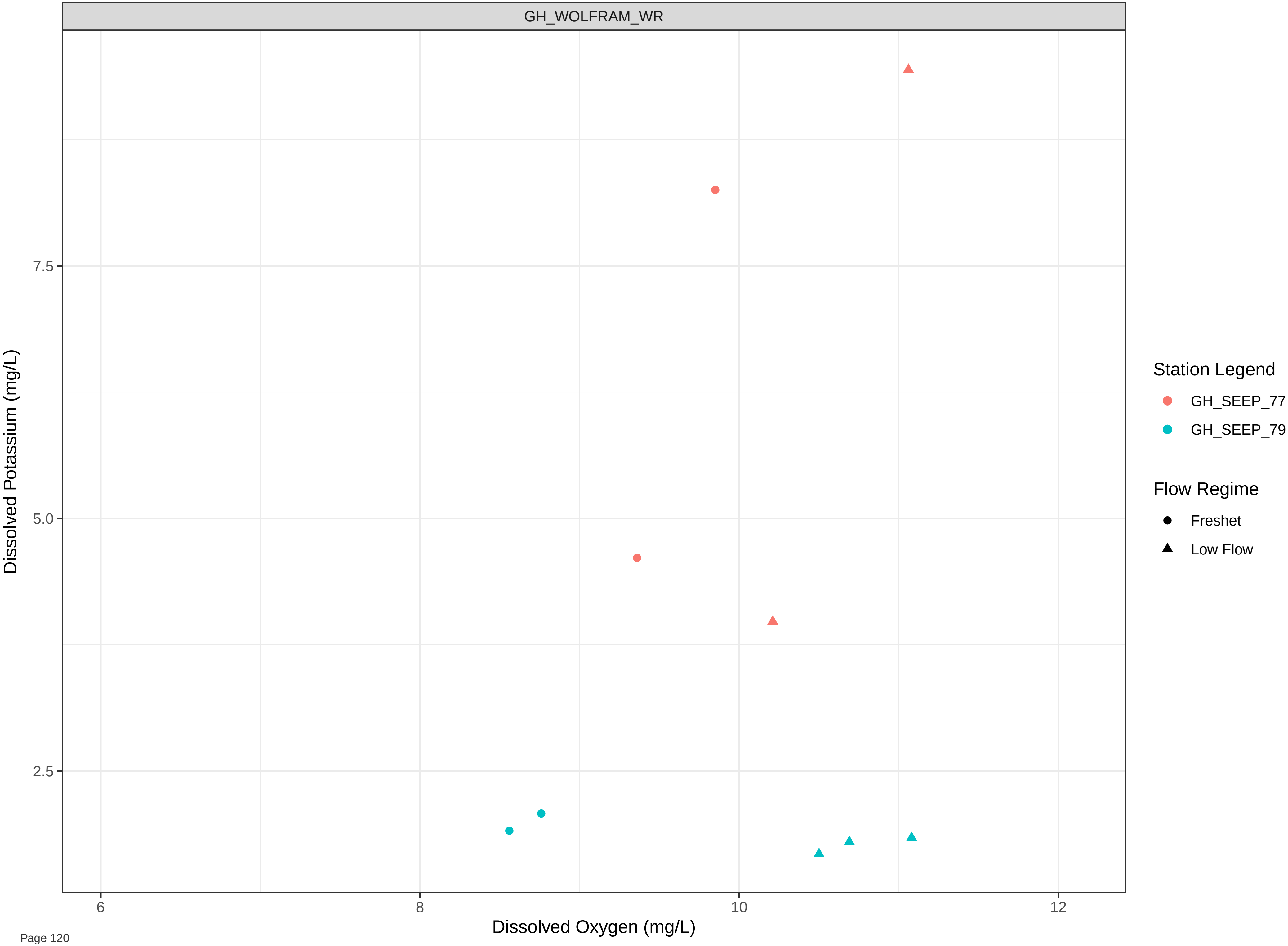

GH_CCR
Dissolved Potassium (mg/L)
0
2
4
6
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

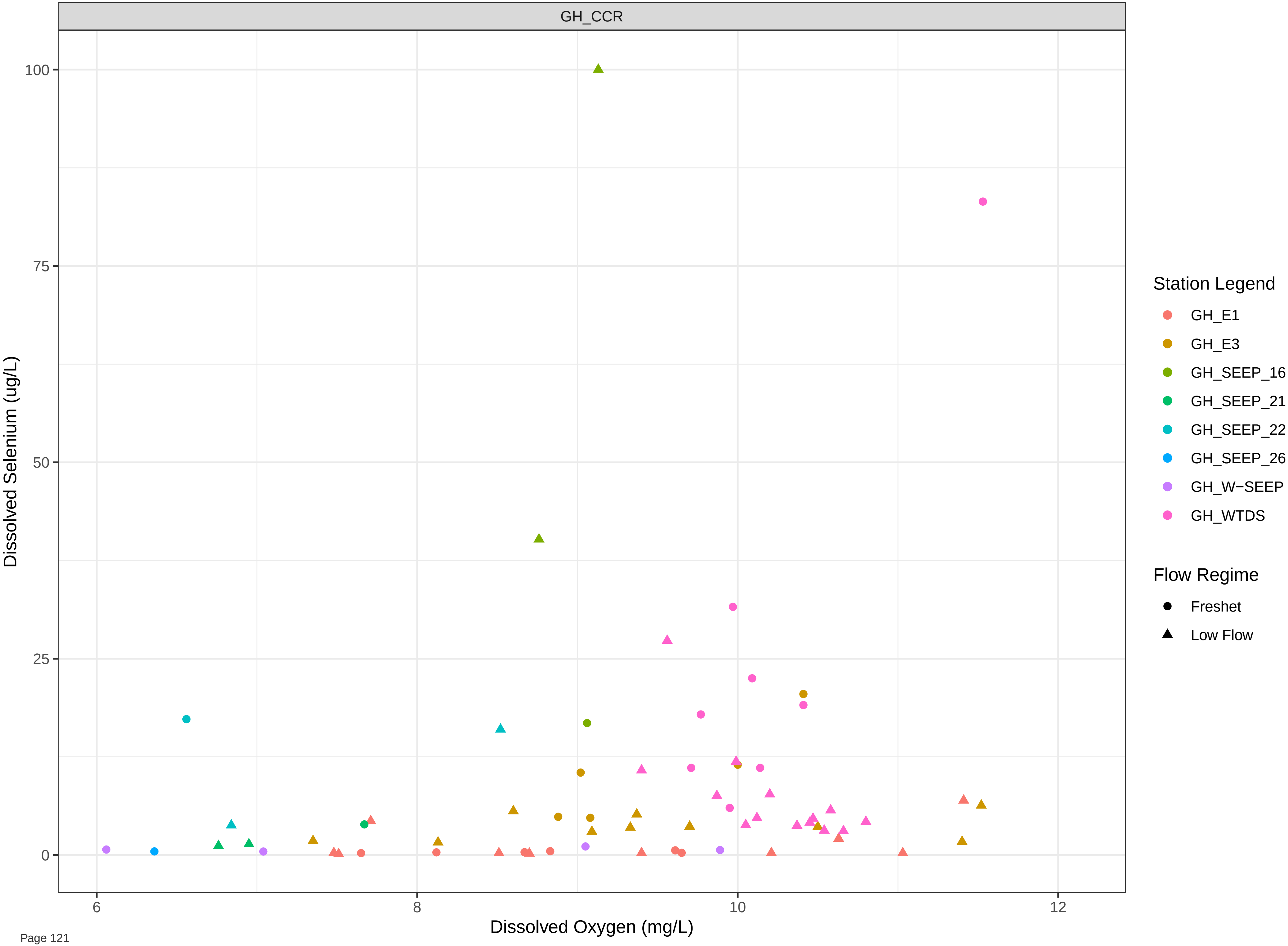

GH_LEASK_WR
Dissolved Potassium (mg/L)
4.4
4.2
4.0
3.8
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow

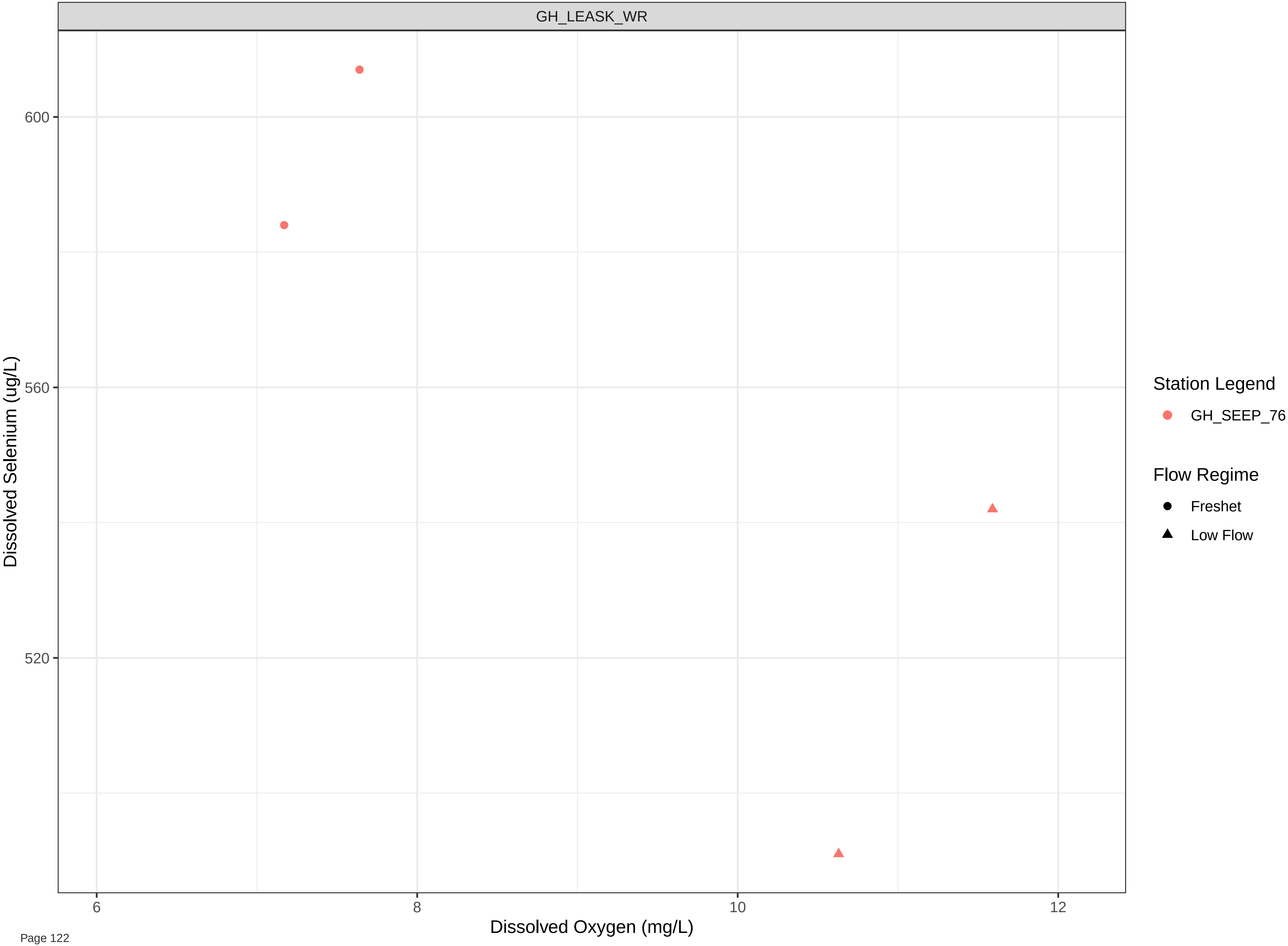

GH_PORTER_CREEK
0.65
0.60
0.55
0.50
0.45
0.40
Dissolved Potassium (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

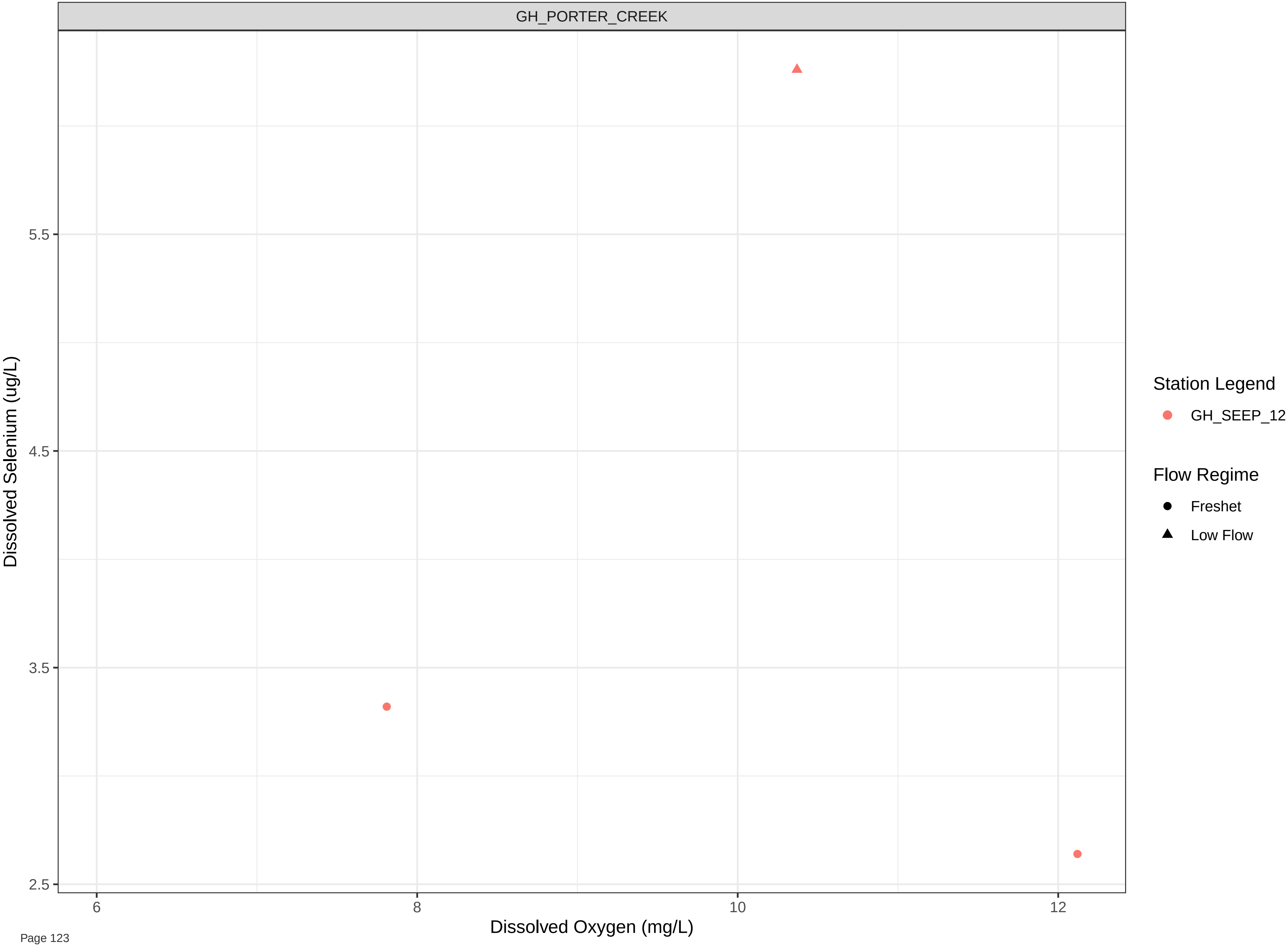

GH_THOMPSON_WR
Dissolved Potassium (mg/L)
3
2
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

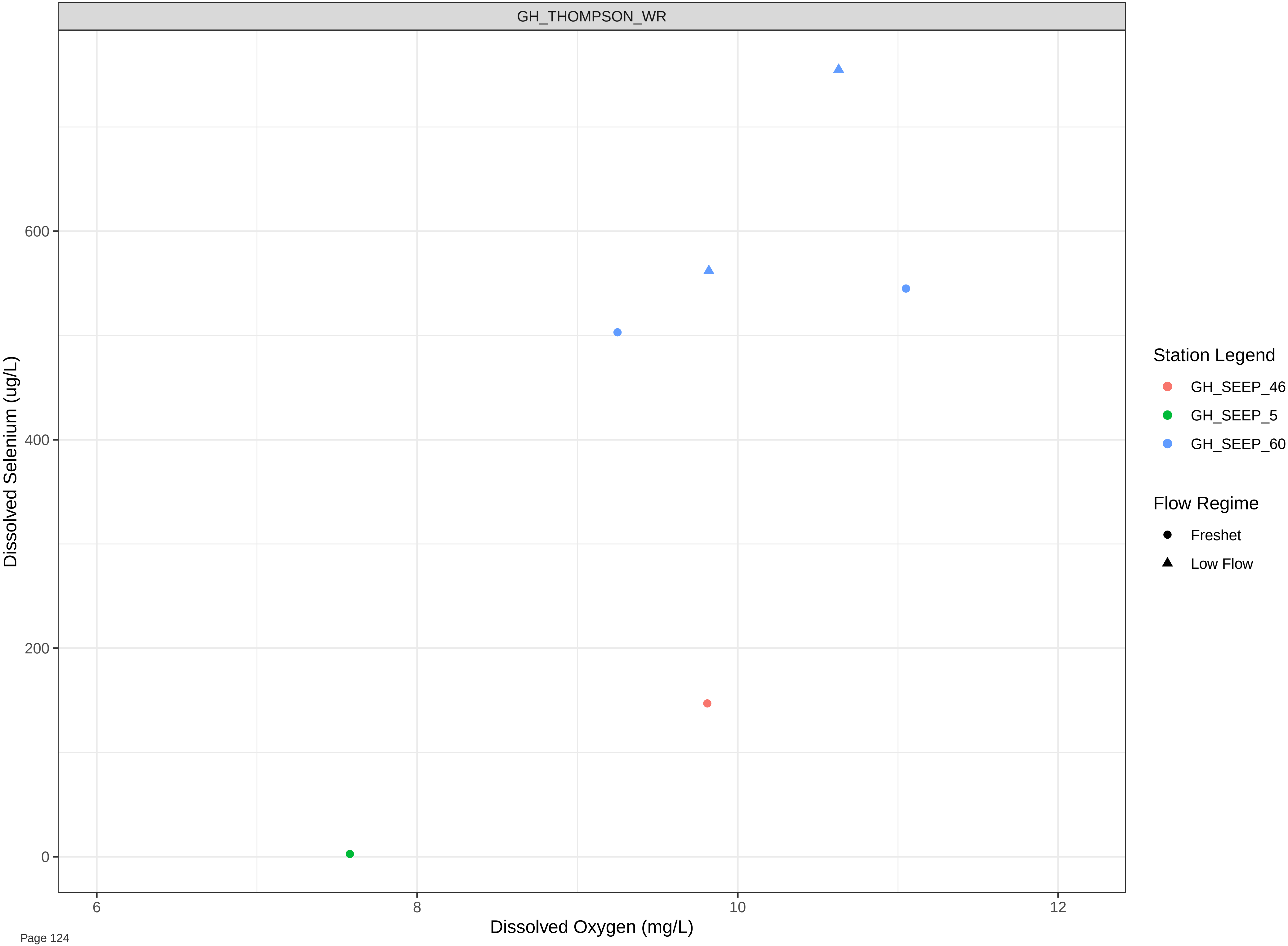

GH_UPSTREAM_CCR
Dissolved Potassium (mg/L)
2.5
2.0
1.5
1.0
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

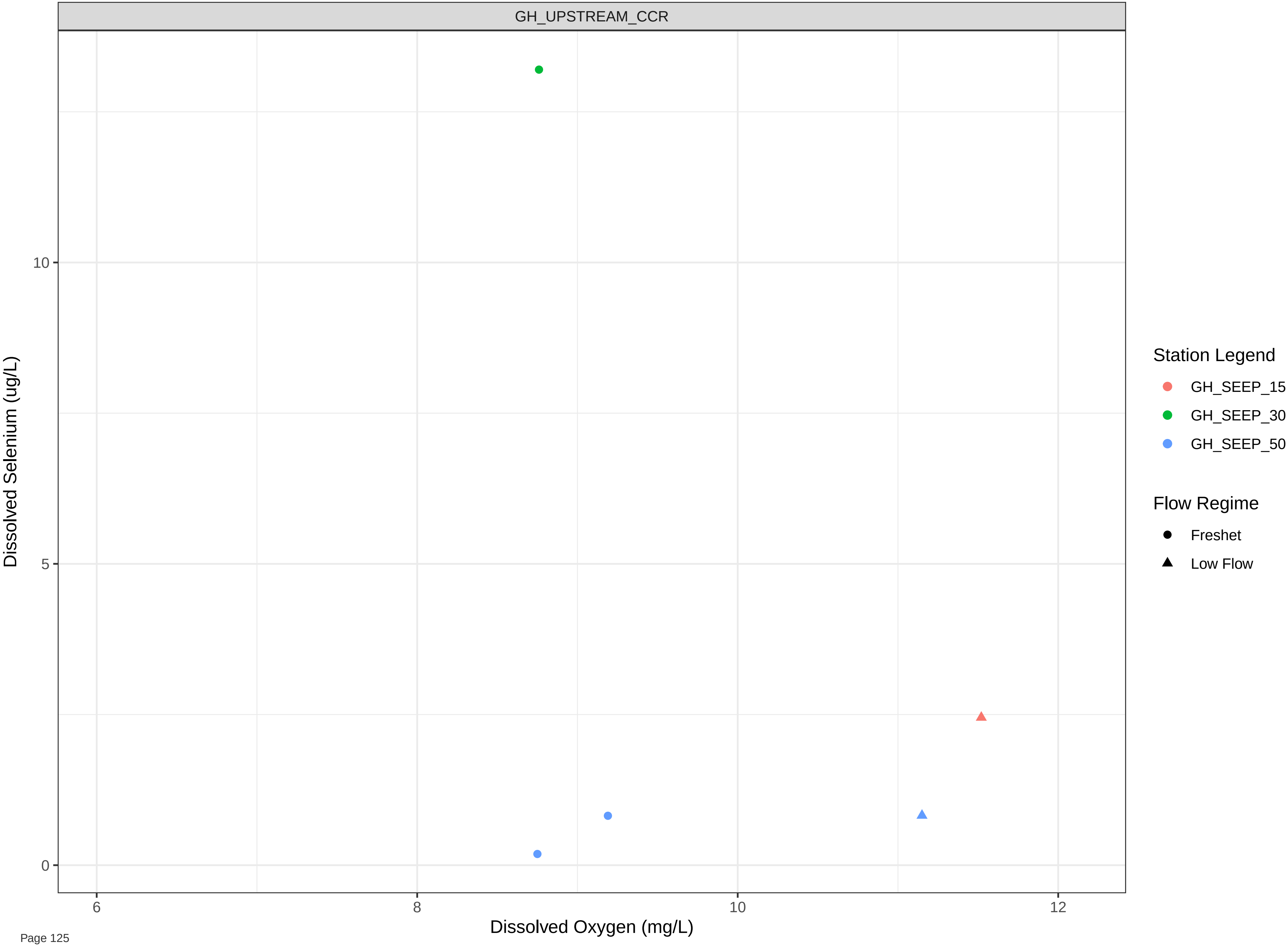

GH_WOLFRAM_WR
Dissolved Potassium (mg/L)
7.5
5.0
2.5
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

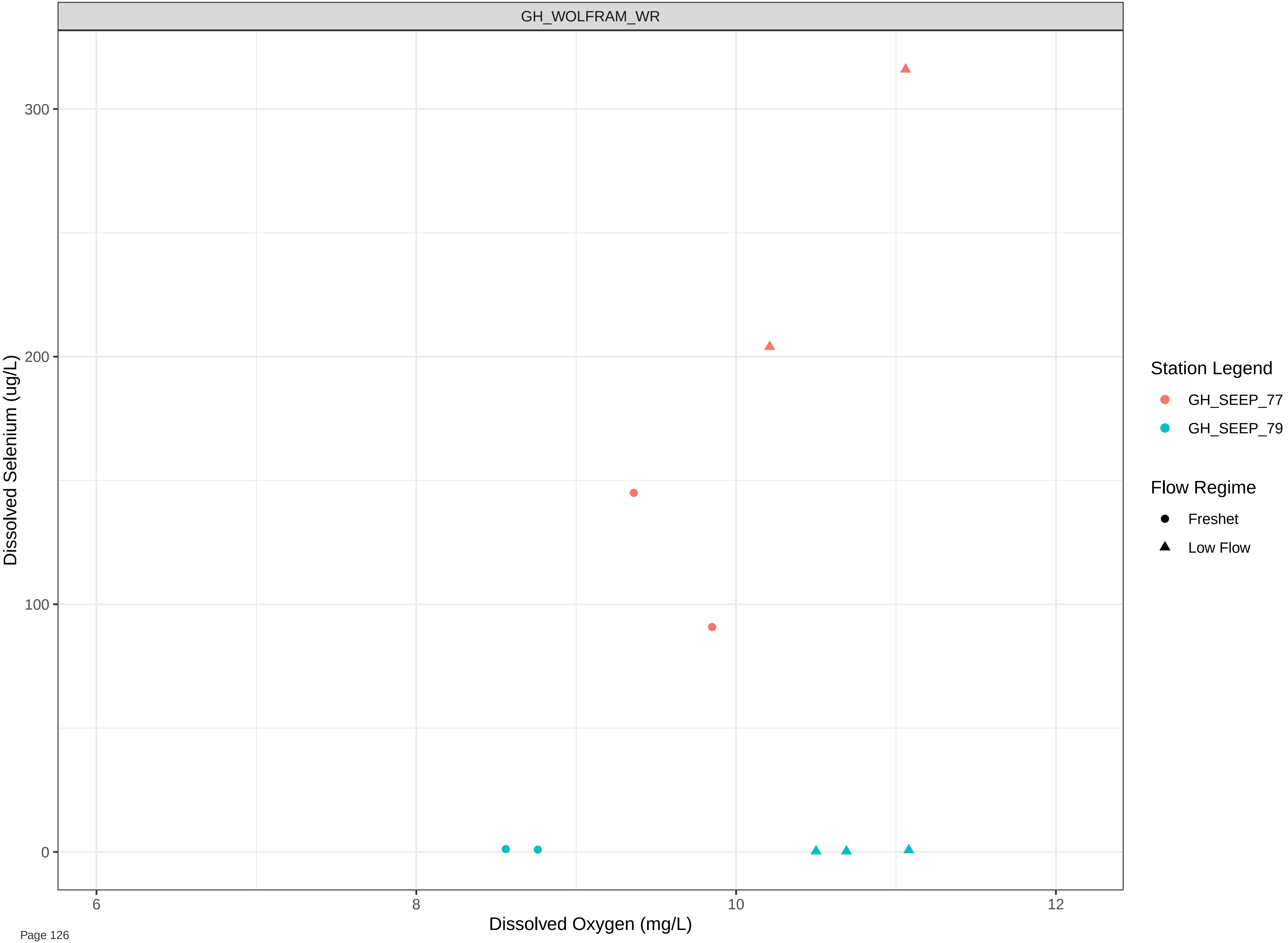

GH_CCR
Dissolved Selenium (ug/L)
100
75
50
25
0
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

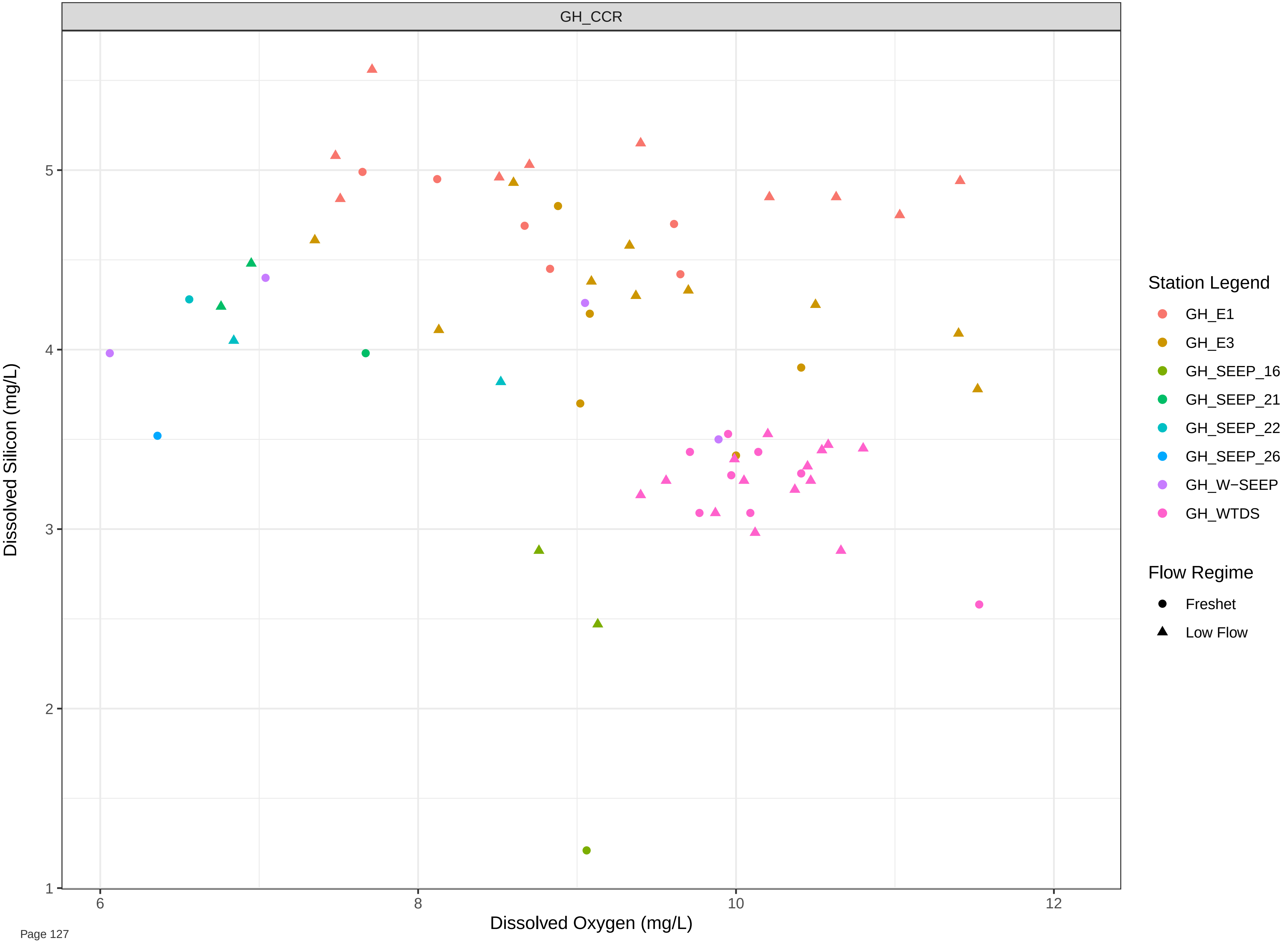

GH_LEASK_WR
Dissolved Selenium (ug/L)
600
560
520
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

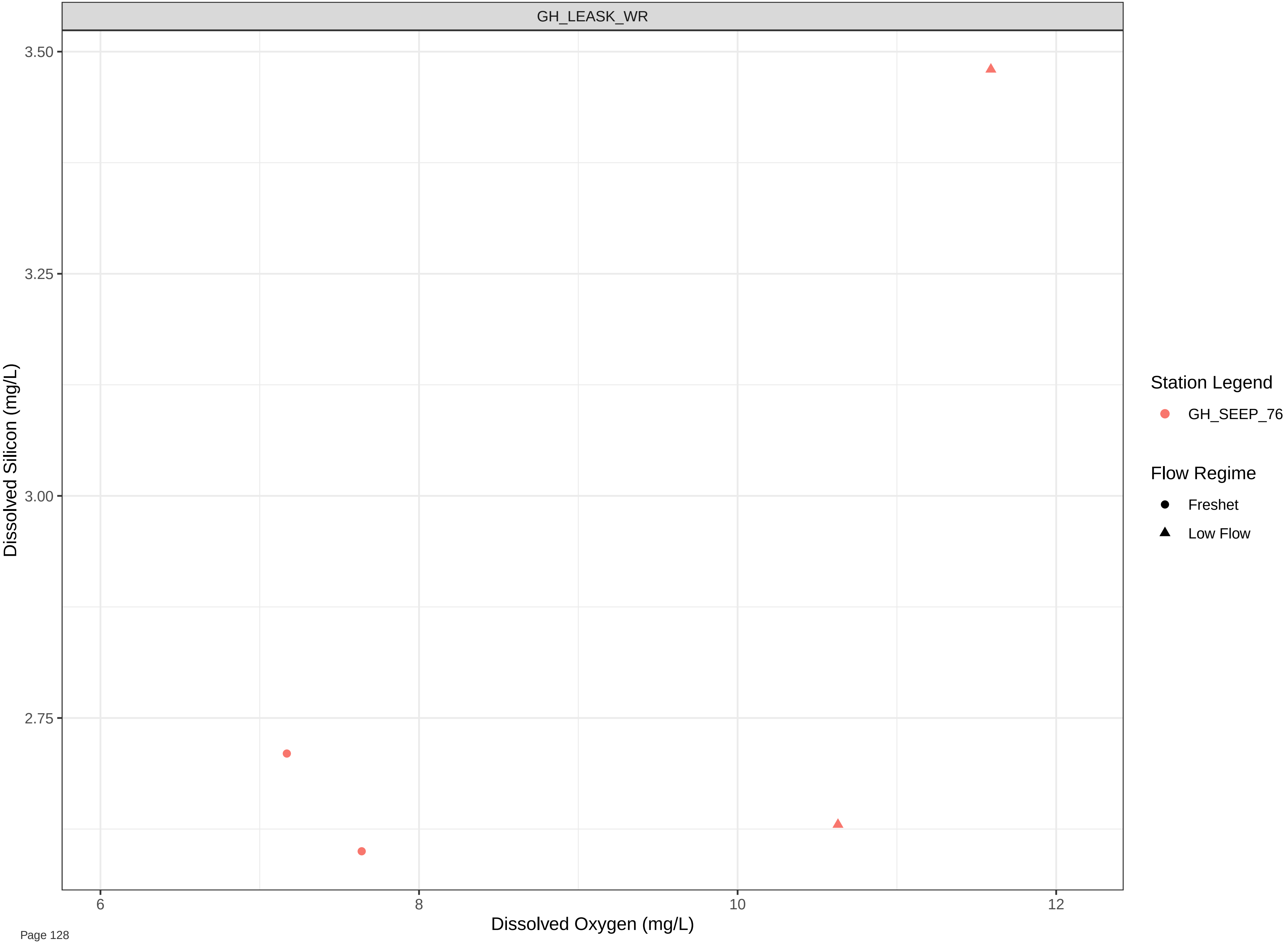

GH_PORTER_CREEK
Dissolved Selenium (ug/L)
5.5
4.5
3.5
2.5
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

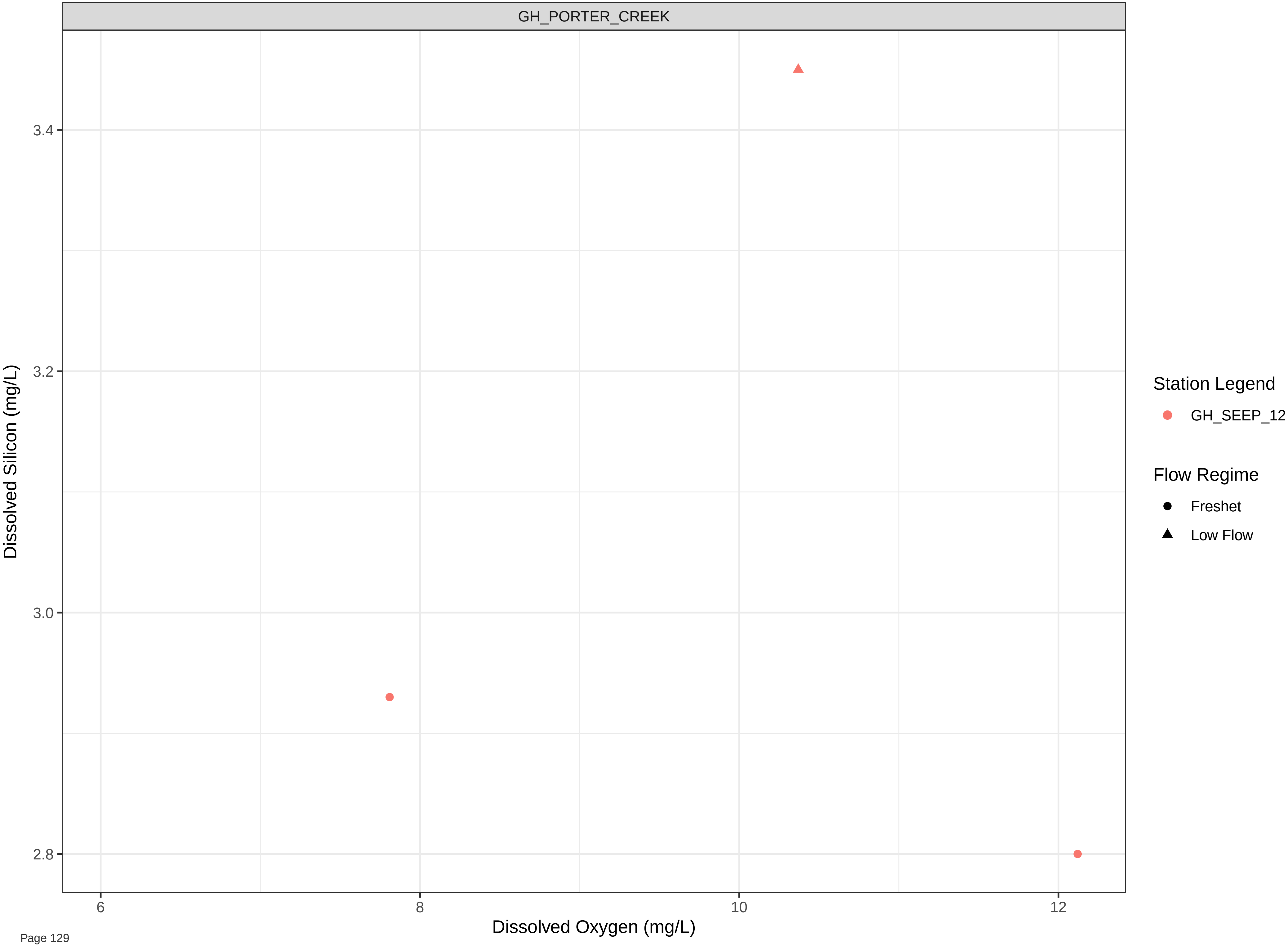

GH_THOMPSON_WR
Dissolved Selenium (ug/L)
600
400
200
0
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

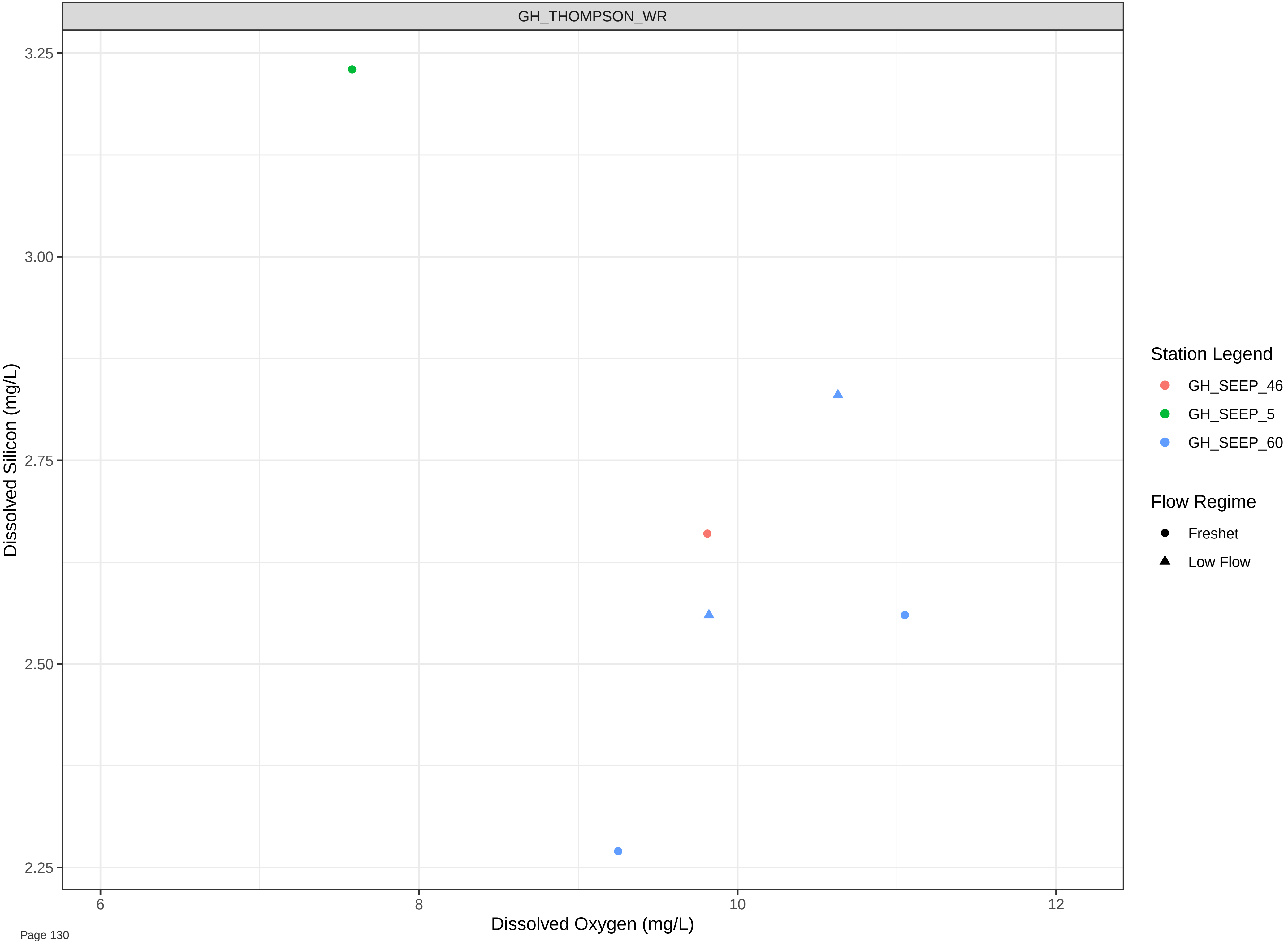

GH_UPSTREAM_CCR
Dissolved Selenium (ug/L)
10
5
0
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

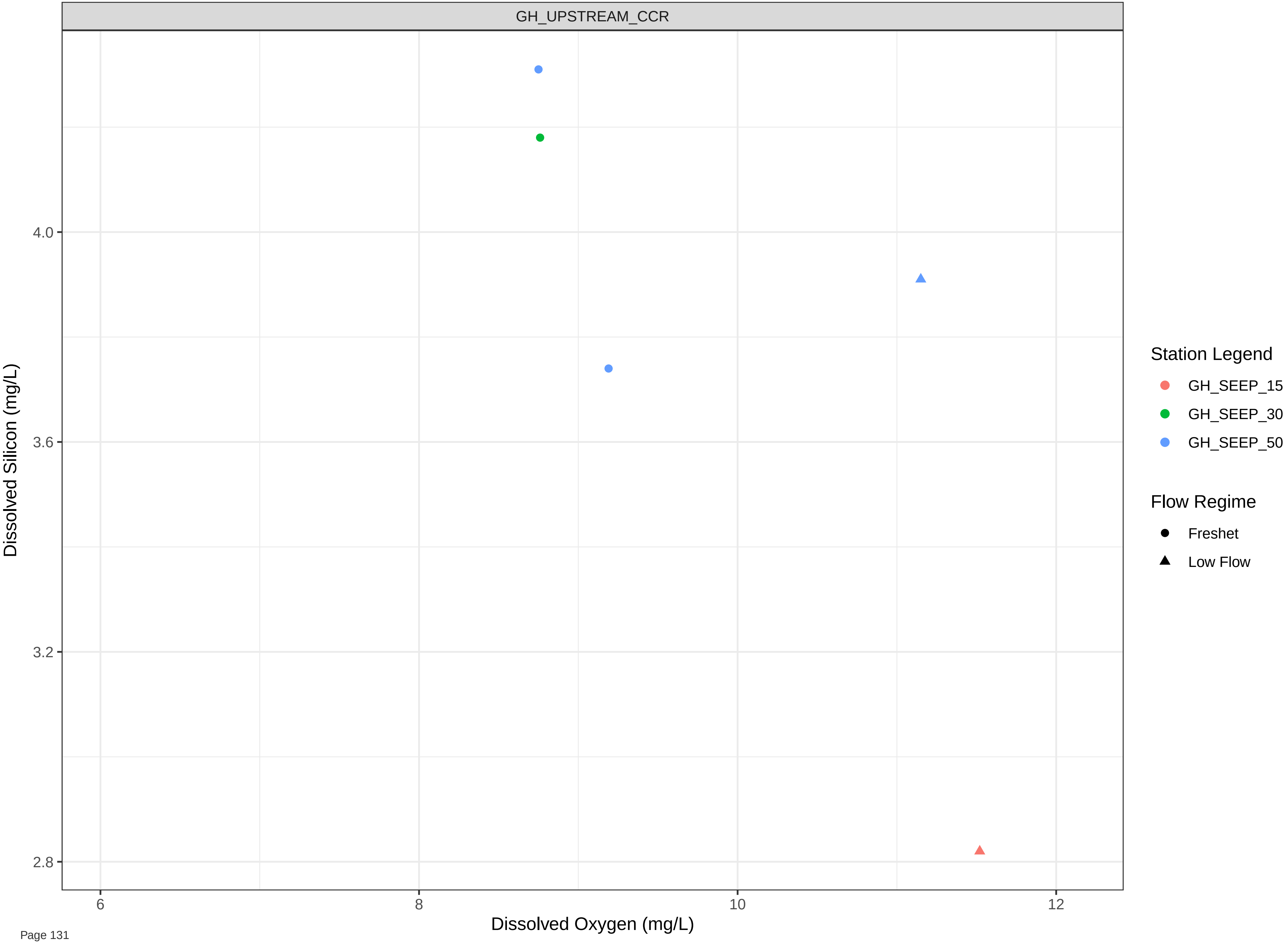

GH_WOLFRAM_WR
Dissolved Selenium (ug/L)
300
200
100
0
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

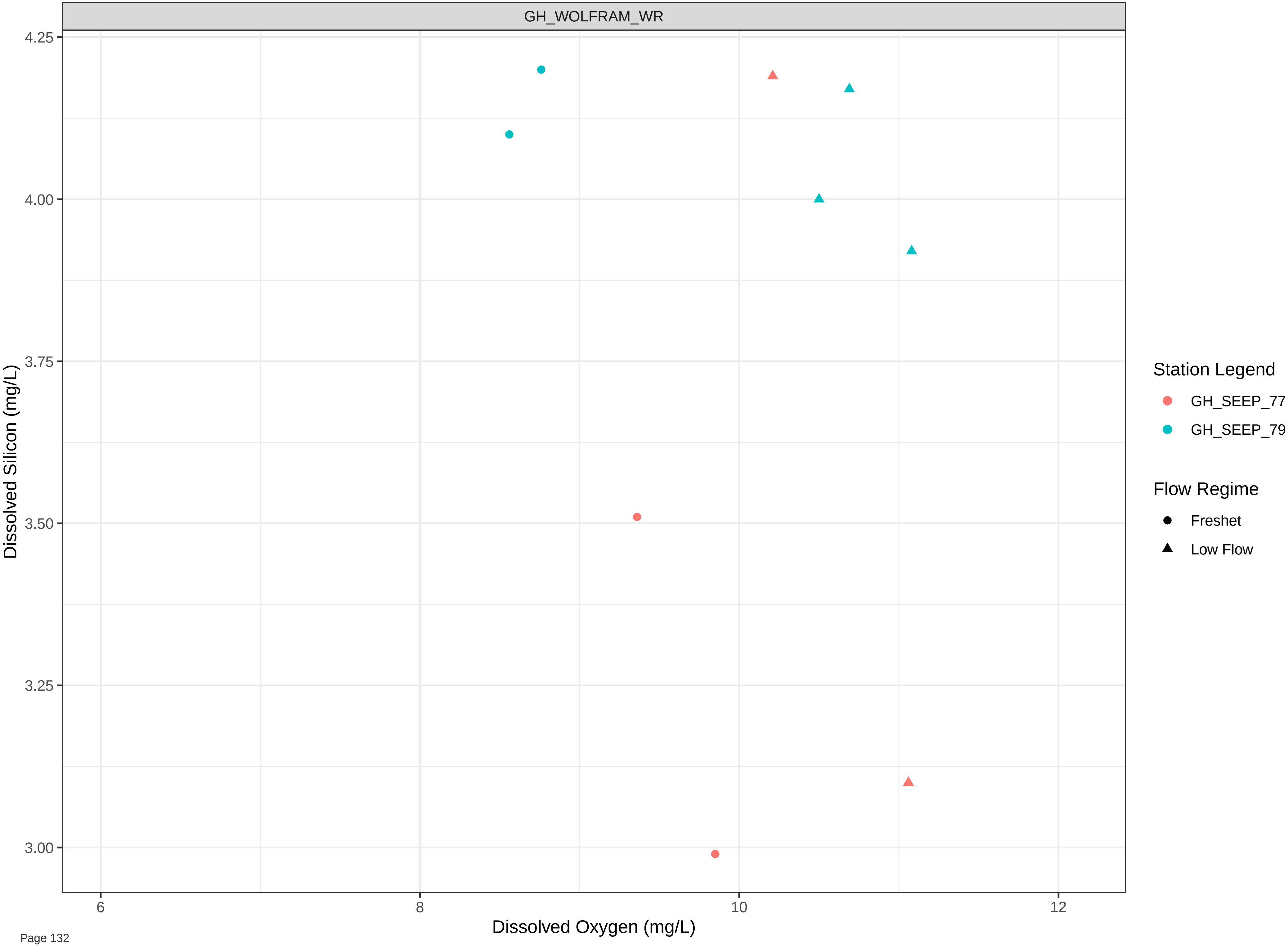

GH_CCR
Dissolved Silicon (mg/L)
5
4
3
2
1
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

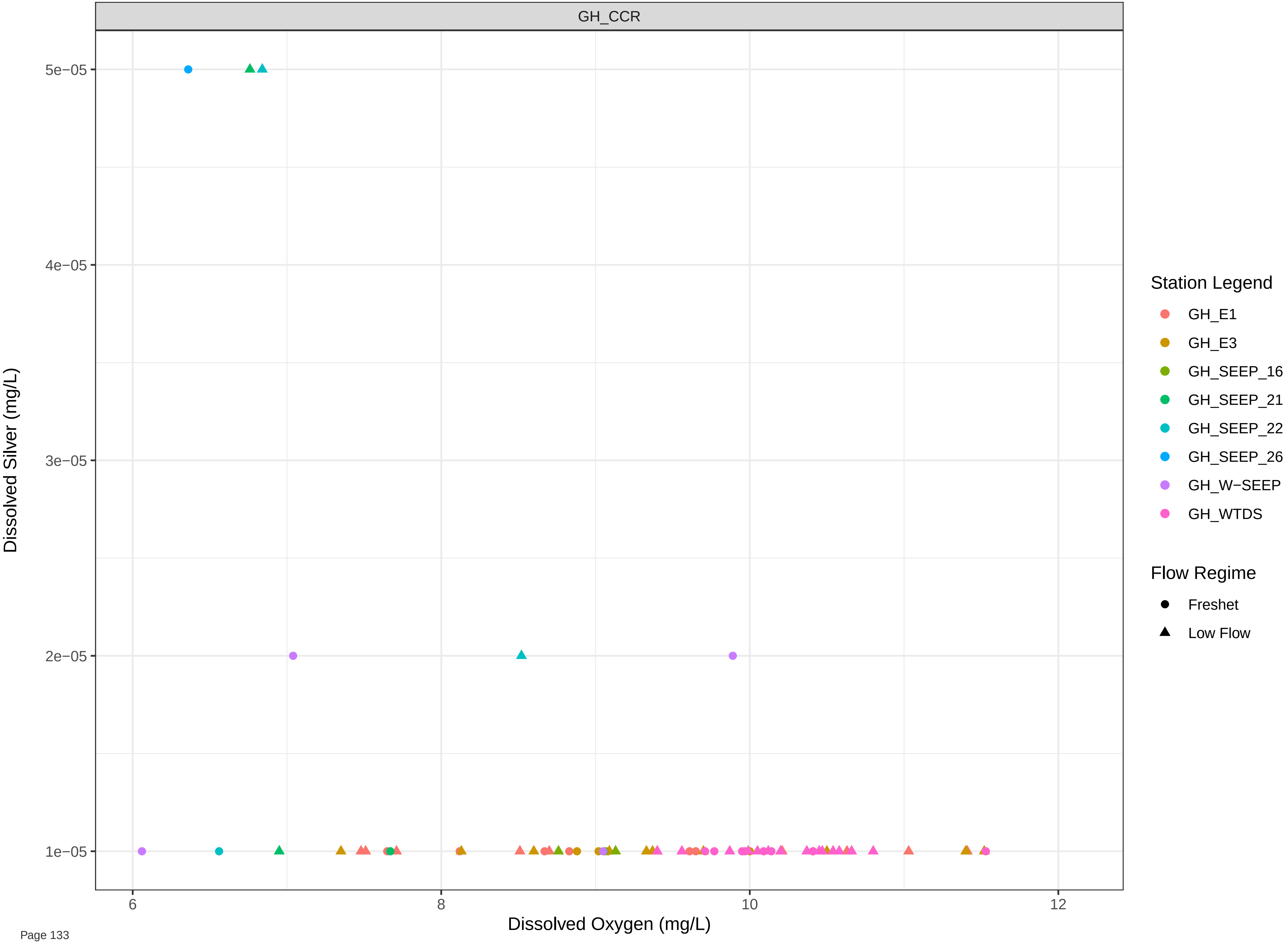

GH_LEASK_WR
3.50
3.25
3.00
2.75
Dissolved Silicon (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

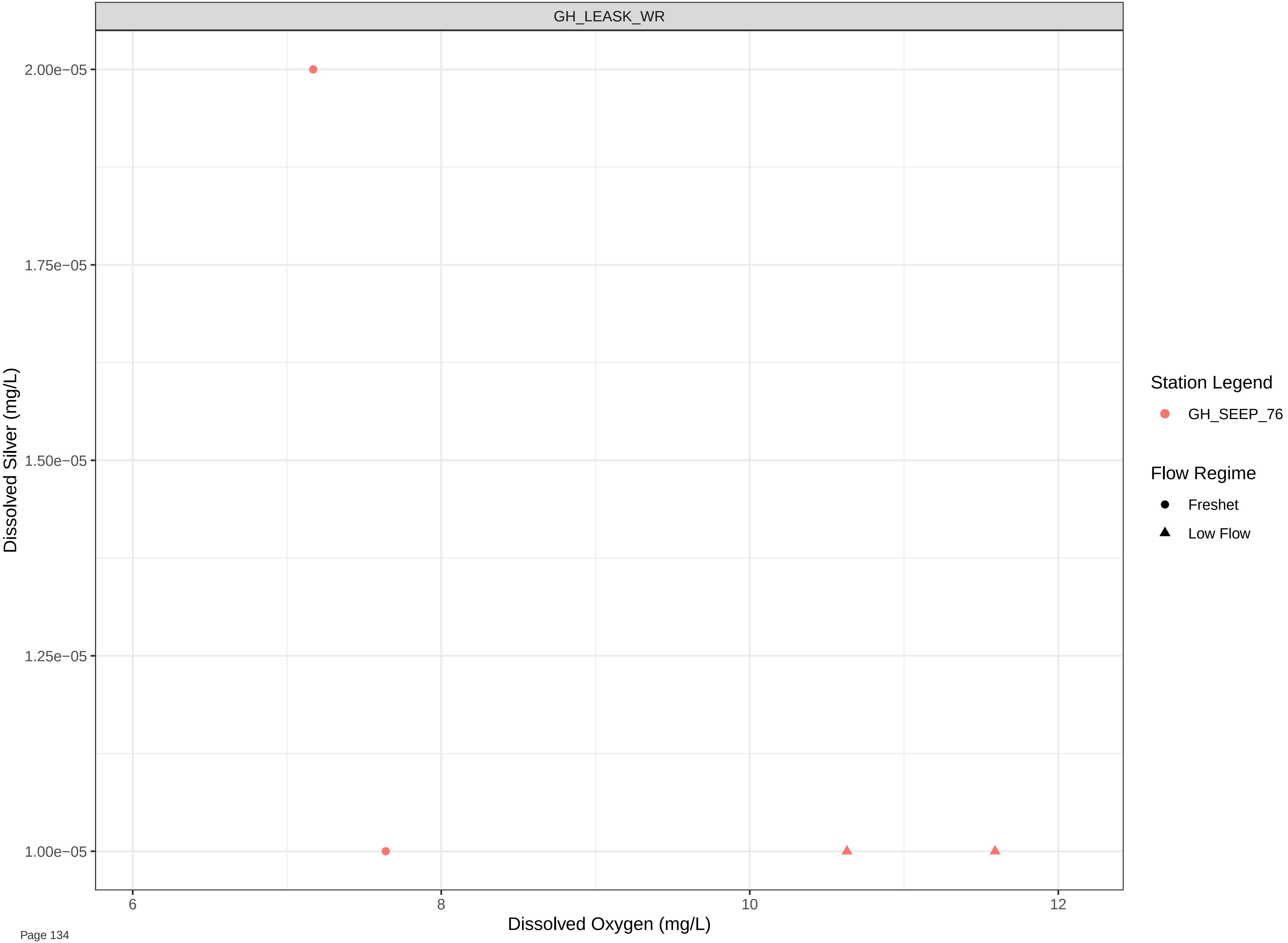

GH_PORTER_CREEK
Dissolved Silicon (mg/L)
3.4
3.2
3.0
2.8
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

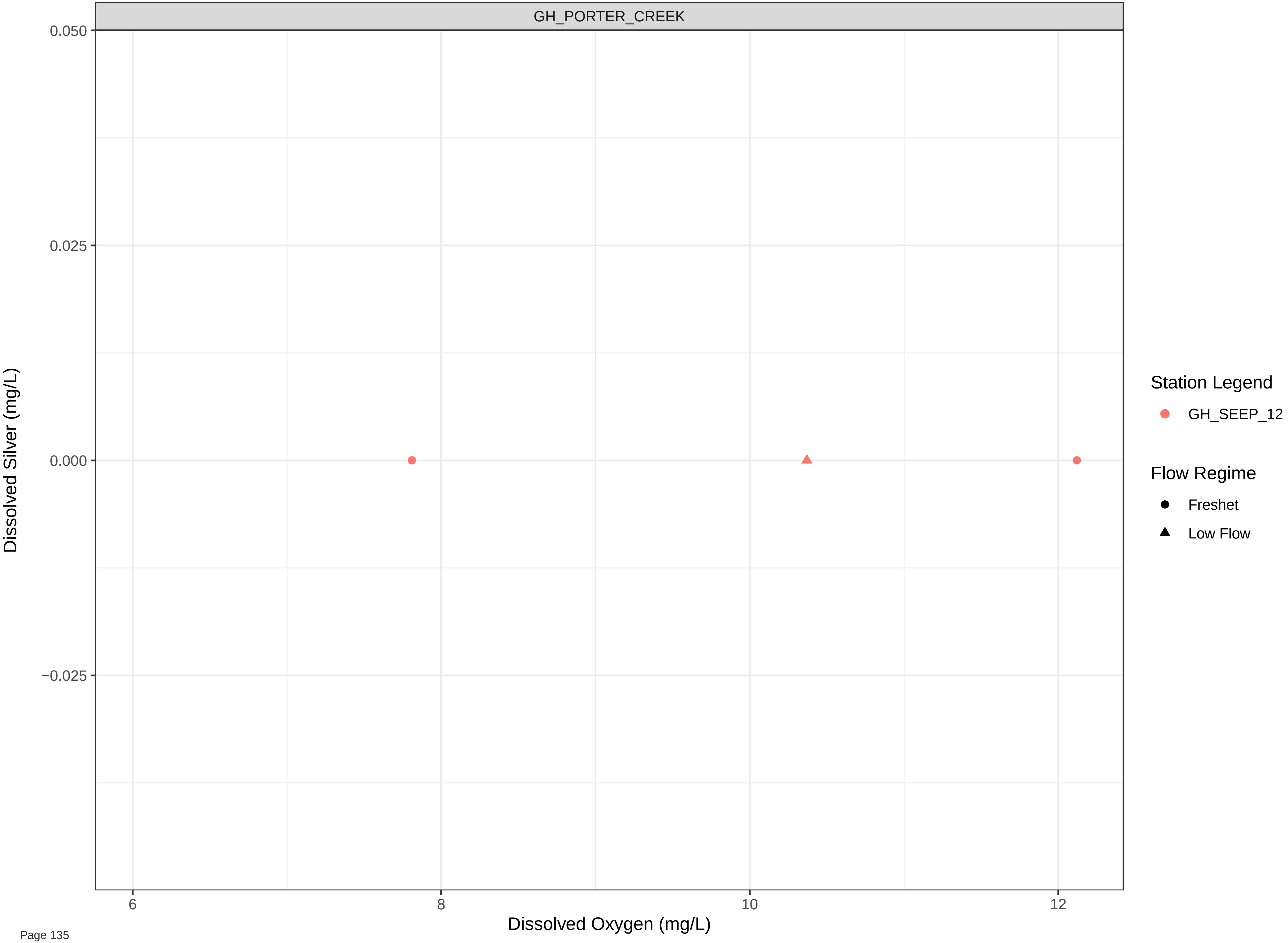

GH_THOMPSON_WR
Dissolved Silicon (mg/L)
3.25
3.00
2.75
2.50
2.25
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

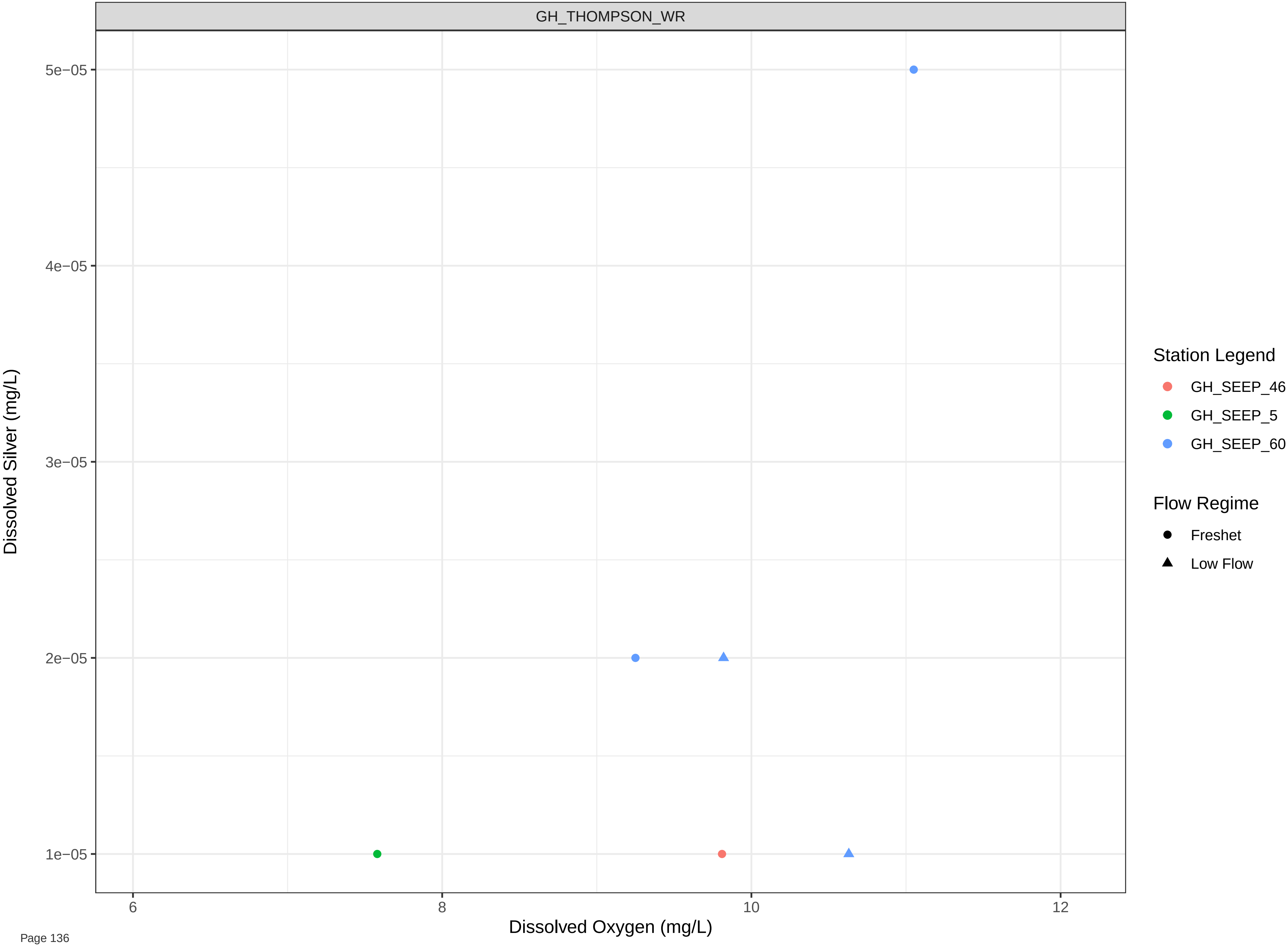

GH_UPSTREAM_CCR
Dissolved Silicon (mg/L)
4.0
3.6
3.2
2.8
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

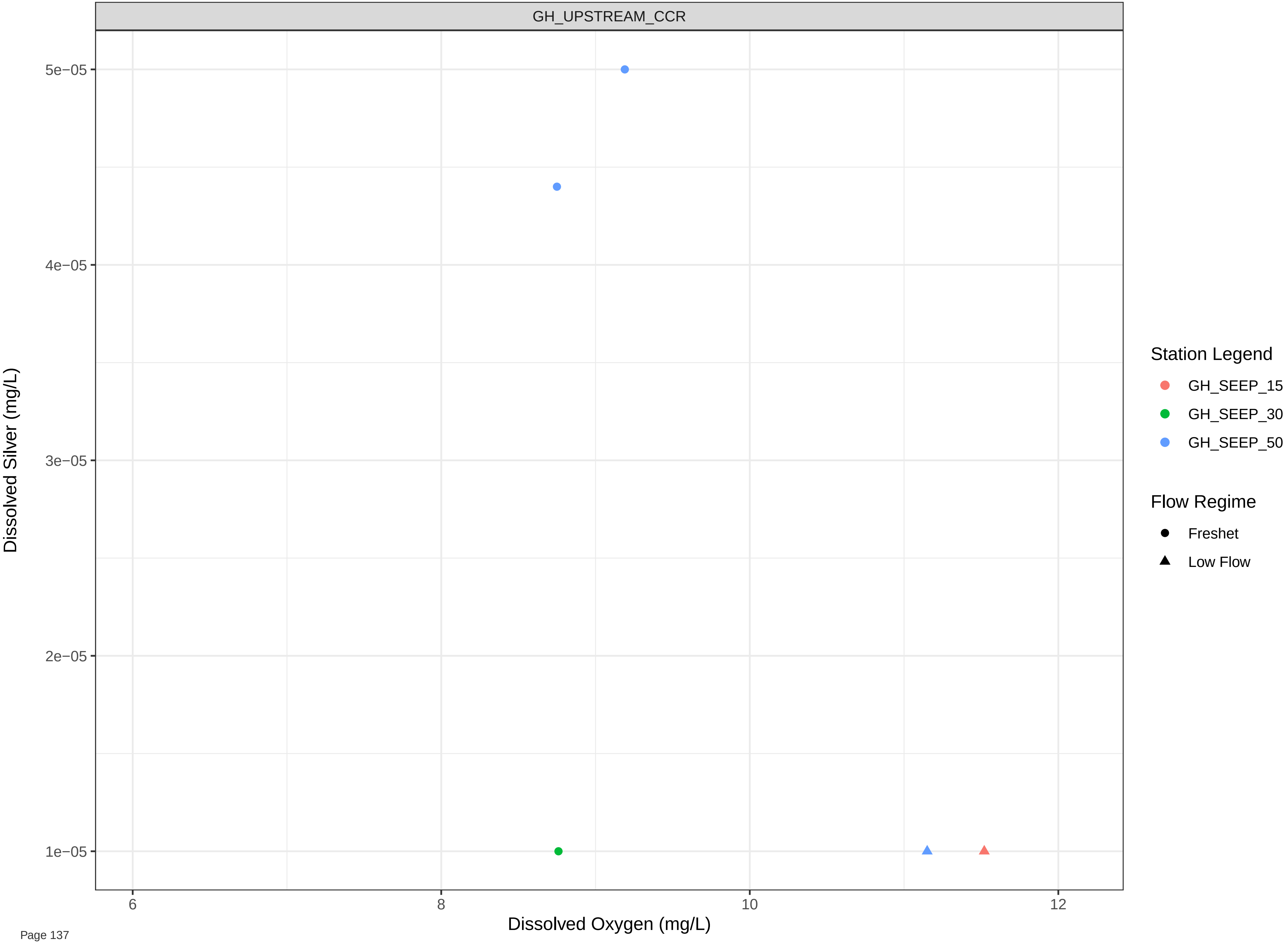

GH_WOLFRAM_WR
Dissolved Silicon (mg/L)
4.25
4.00
3.75
3.50
3.25
3.00
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

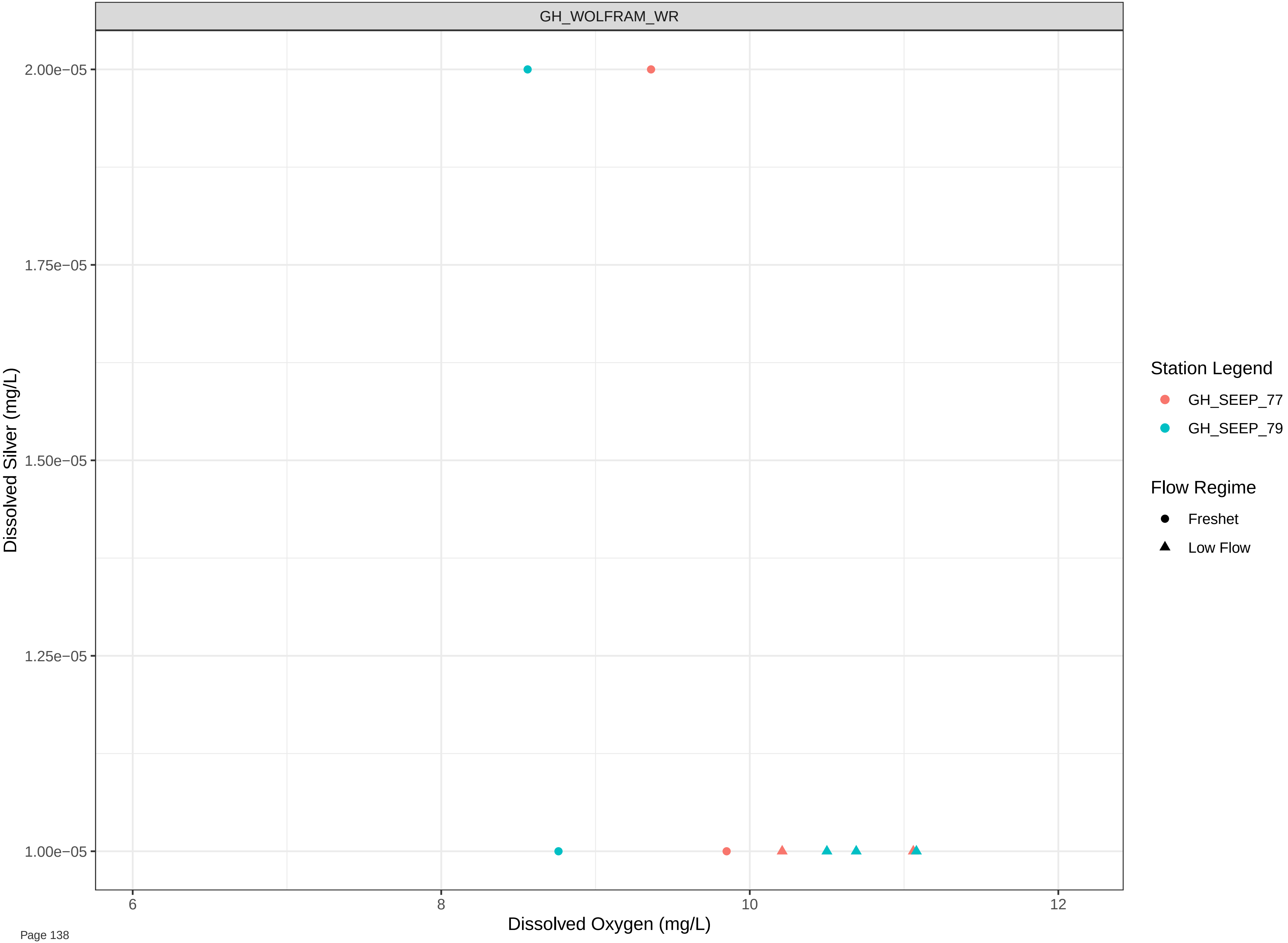

GH_CCR
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

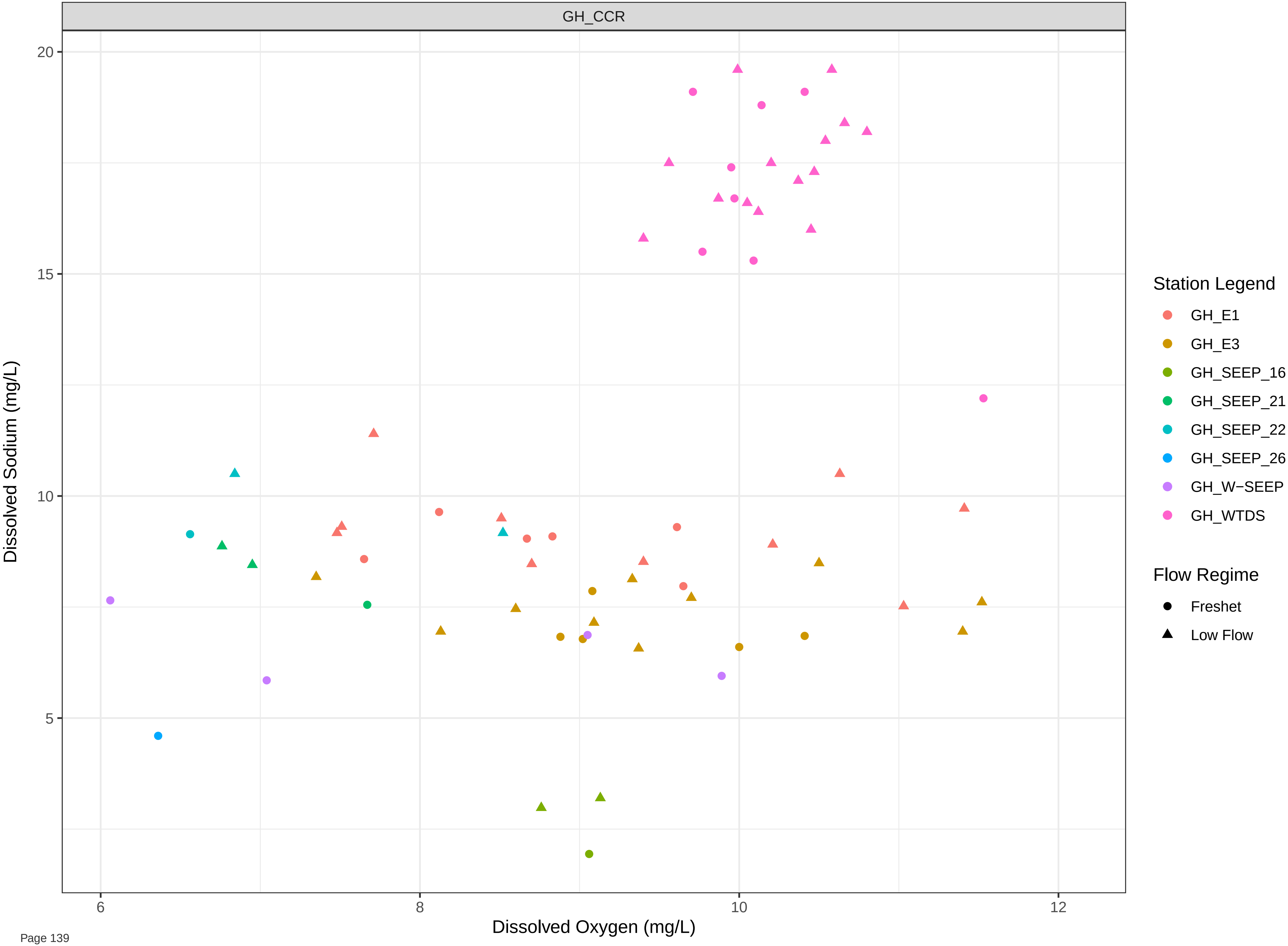

GH_LEASK_WR
Dissolved Silver (mg/L)
2.00e−05
1.75e−05
1.50e−05
1.25e−05
1.00e−05
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

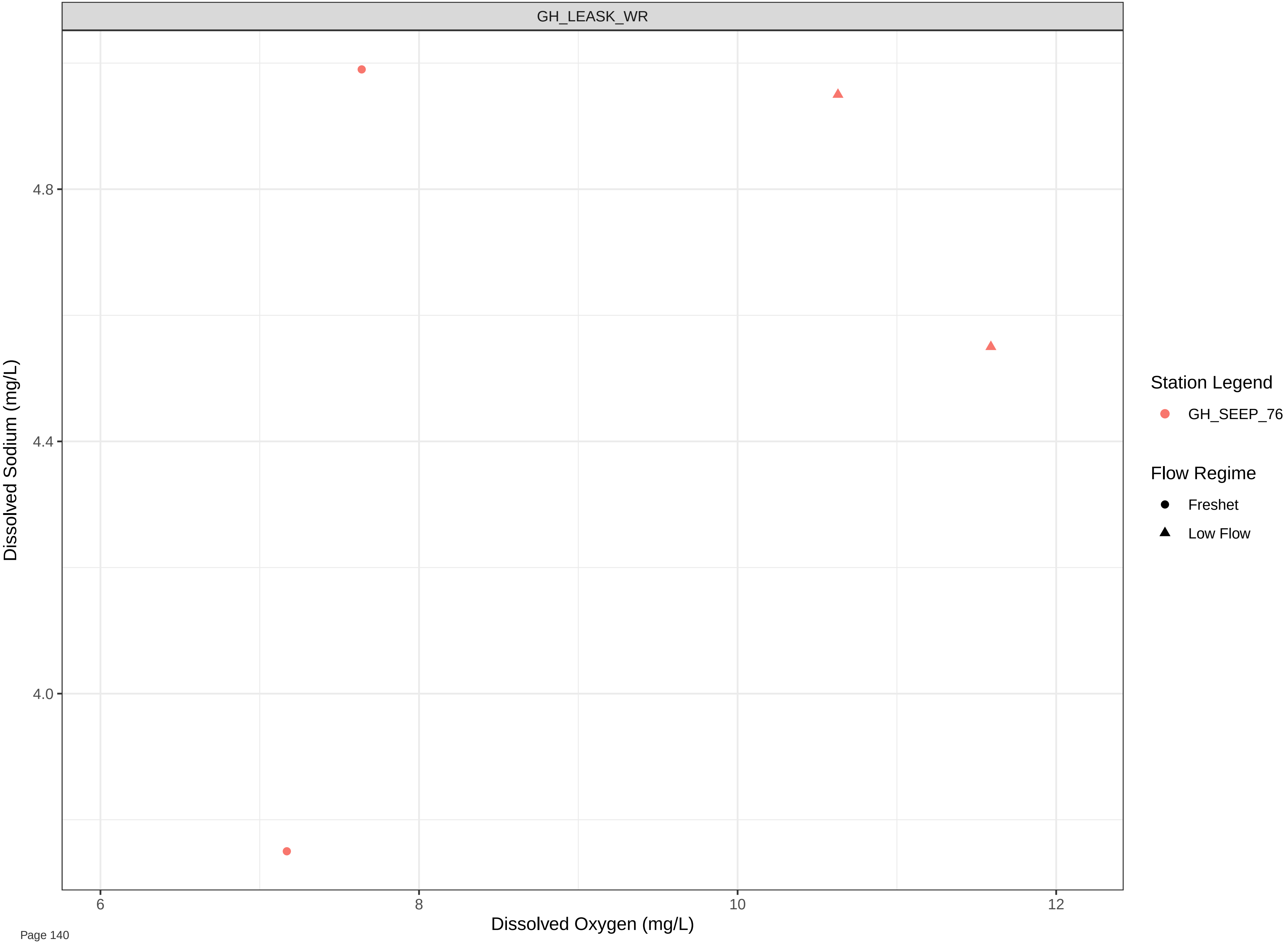

GH_PORTER_CREEK
0.050
0.025
0.000
−0.025
Dissolved Silver (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

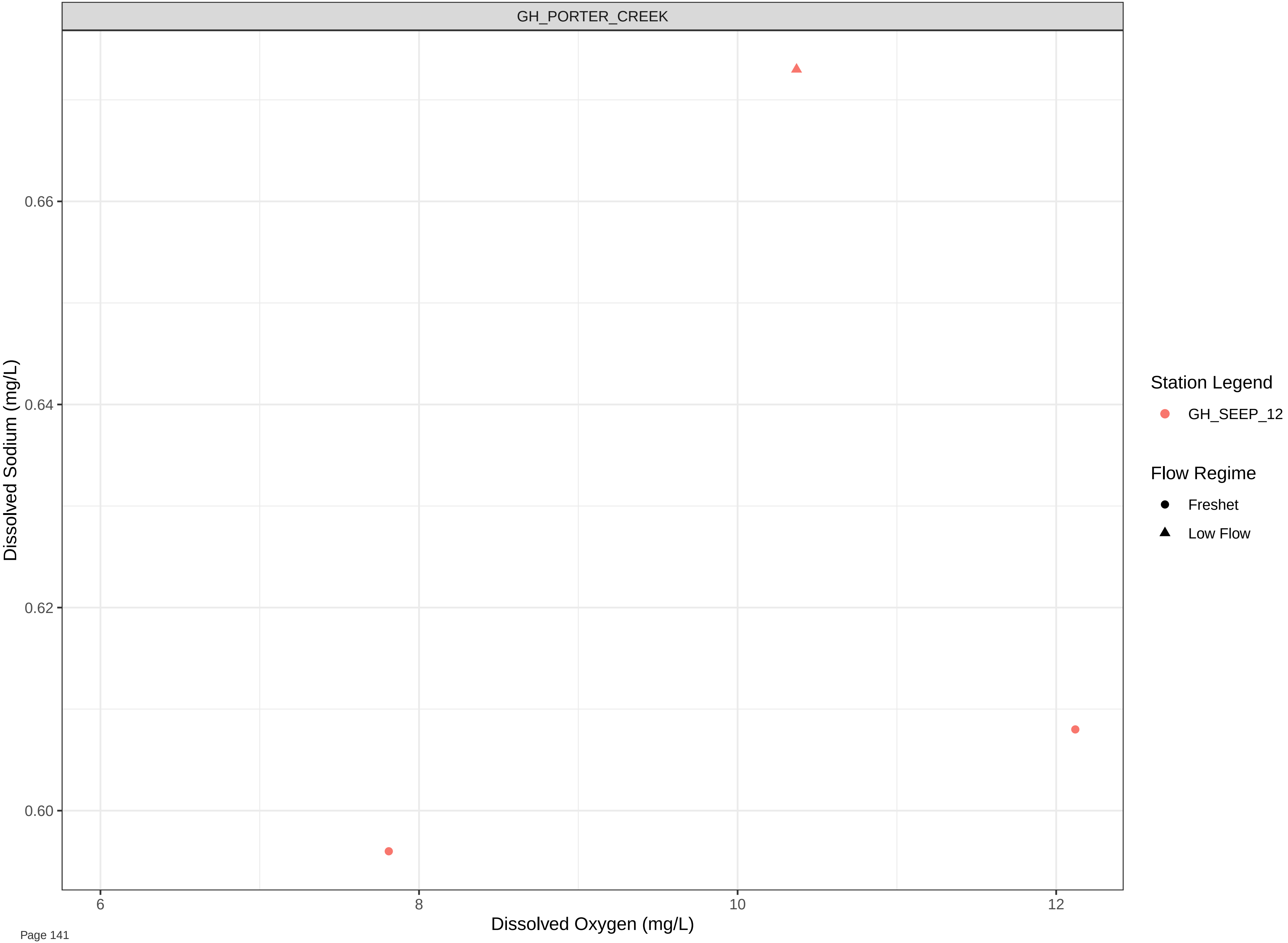

GH_THOMPSON_WR
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

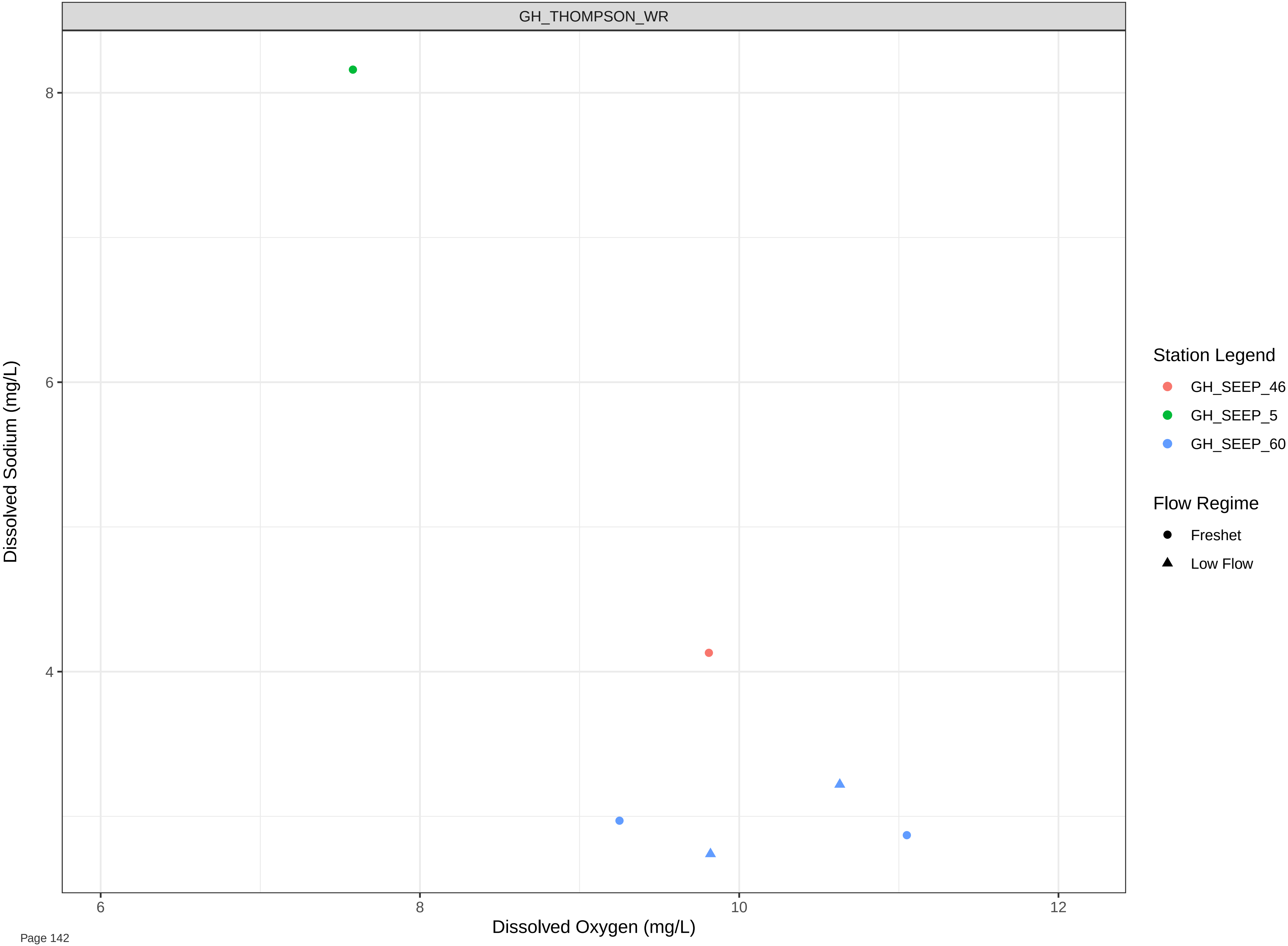

GH_UPSTREAM_CCR
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

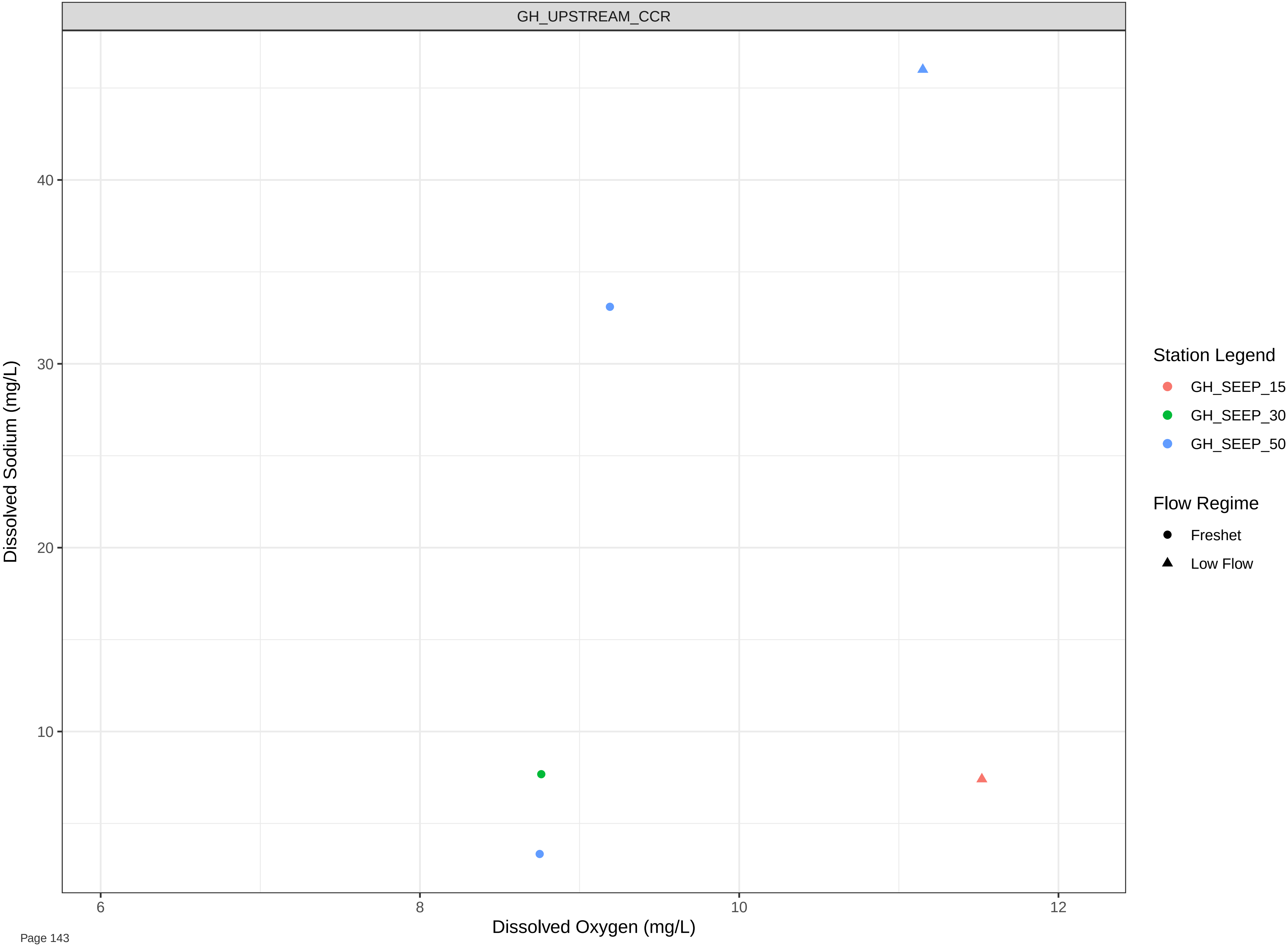

GH_WOLFRAM_WR
Dissolved Silver (mg/L)
2.00e−05
1.75e−05
1.50e−05
1.25e−05
1.00e−05
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

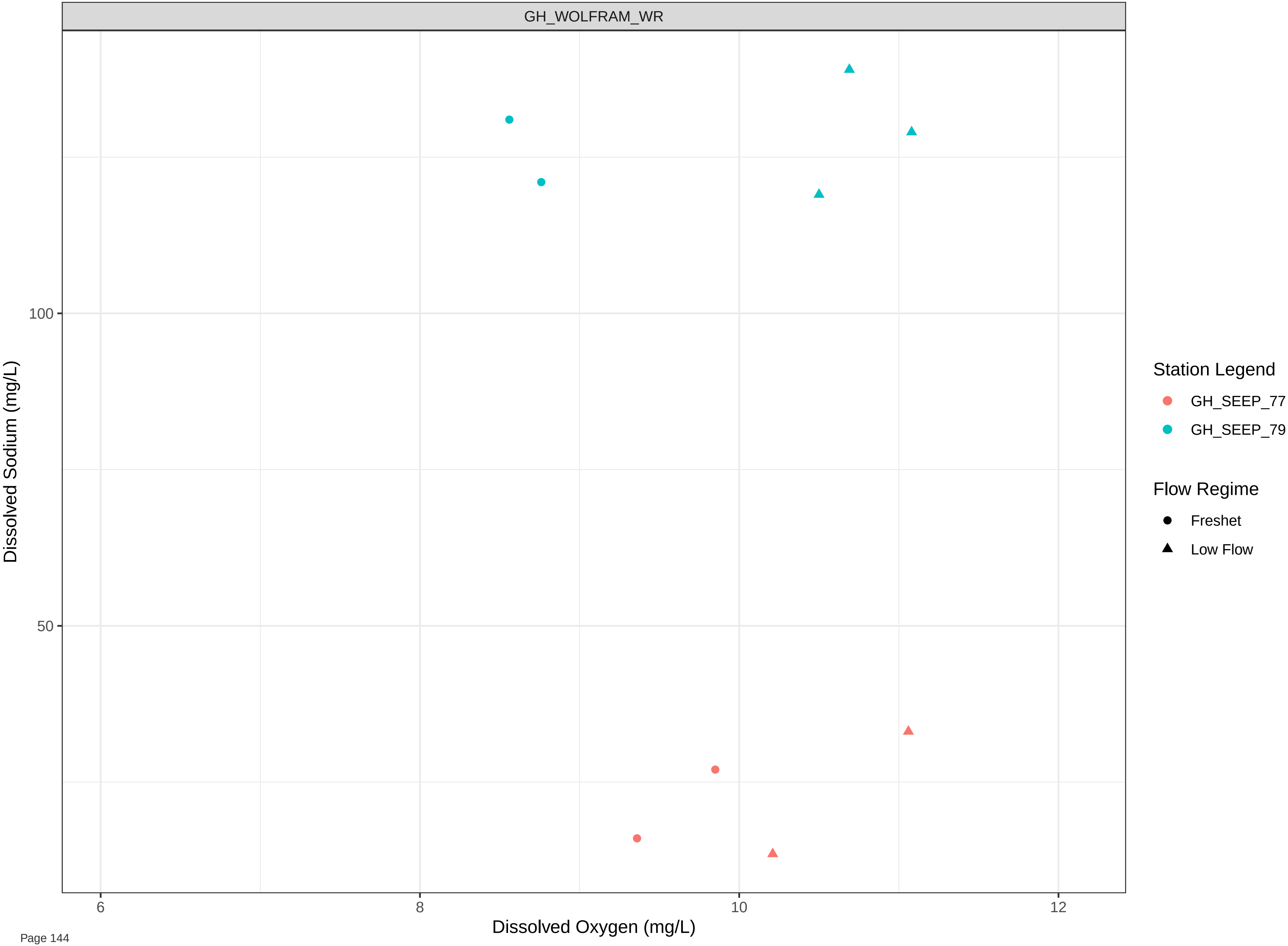

GH_CCR
20
15
10
5
6
8
10
12
Dissolved Sodium (mg/L)
Dissolved Oxygen (mg/L)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

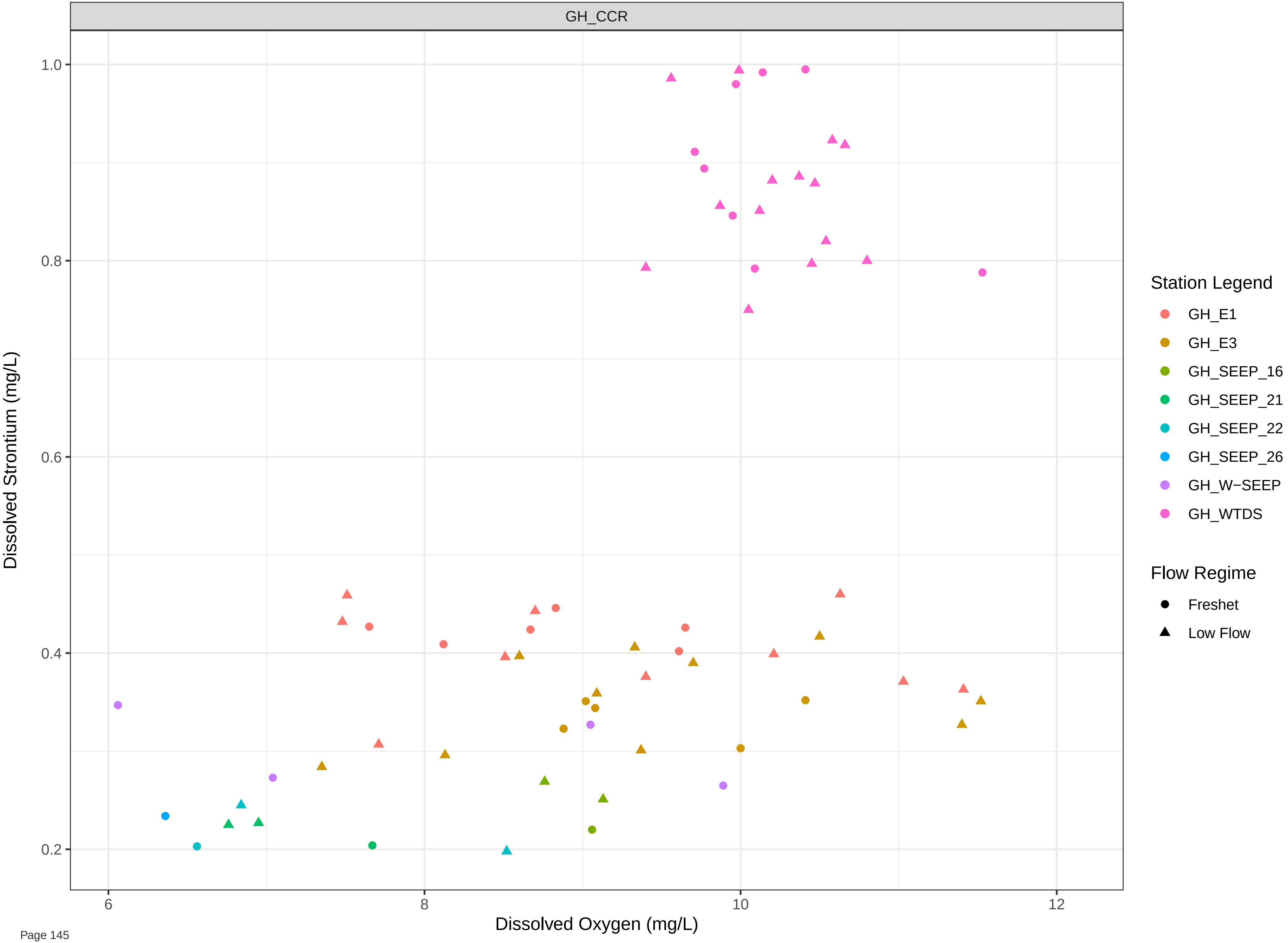

GH_LEASK_WR
4.8
4.4
4.0
6
8
10
12
Dissolved Sodium (mg/L)
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow

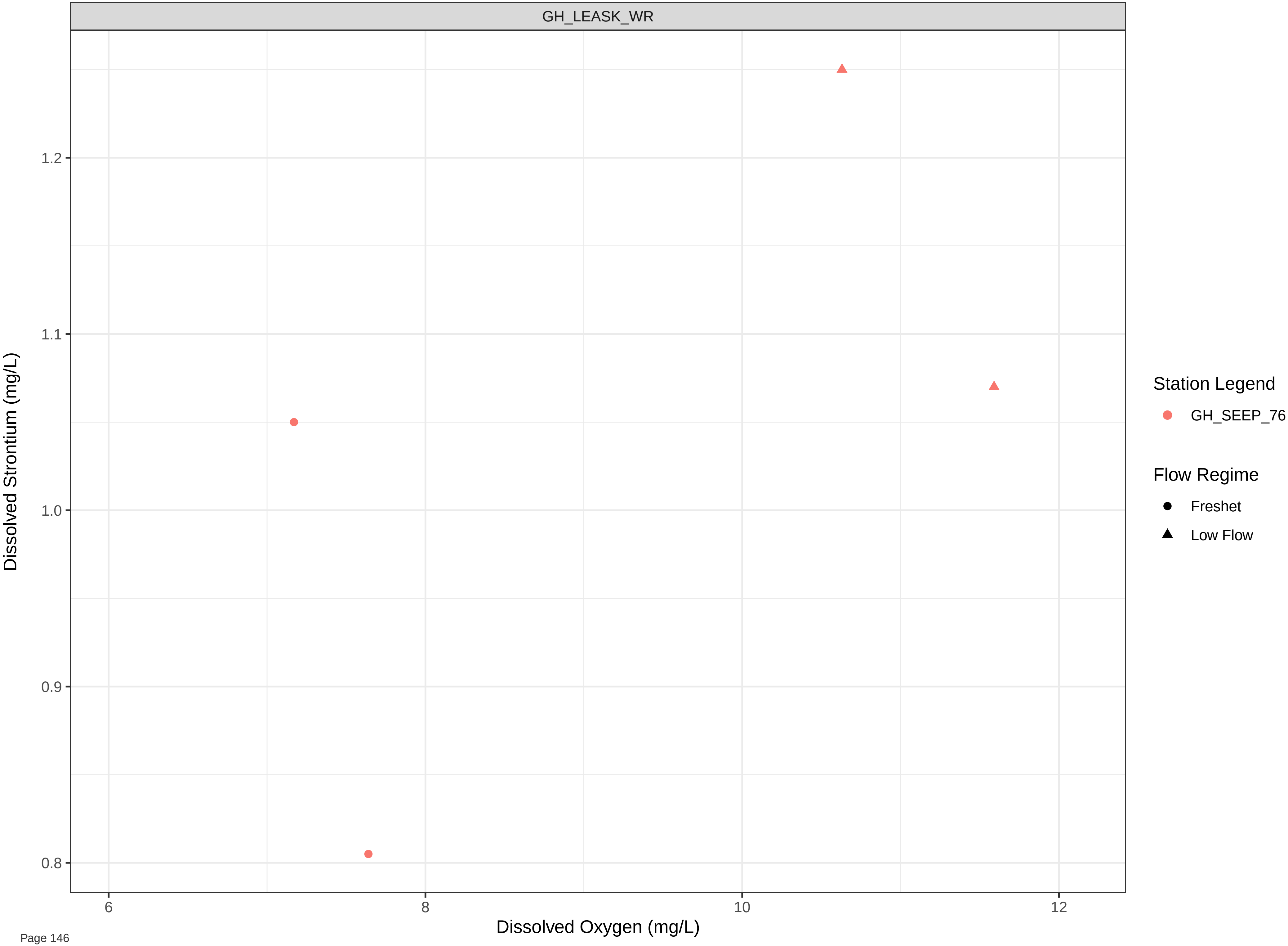

GH_PORTER_CREEK
Dissolved Sodium (mg/L)
0.66
0.64
0.62
0.60
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

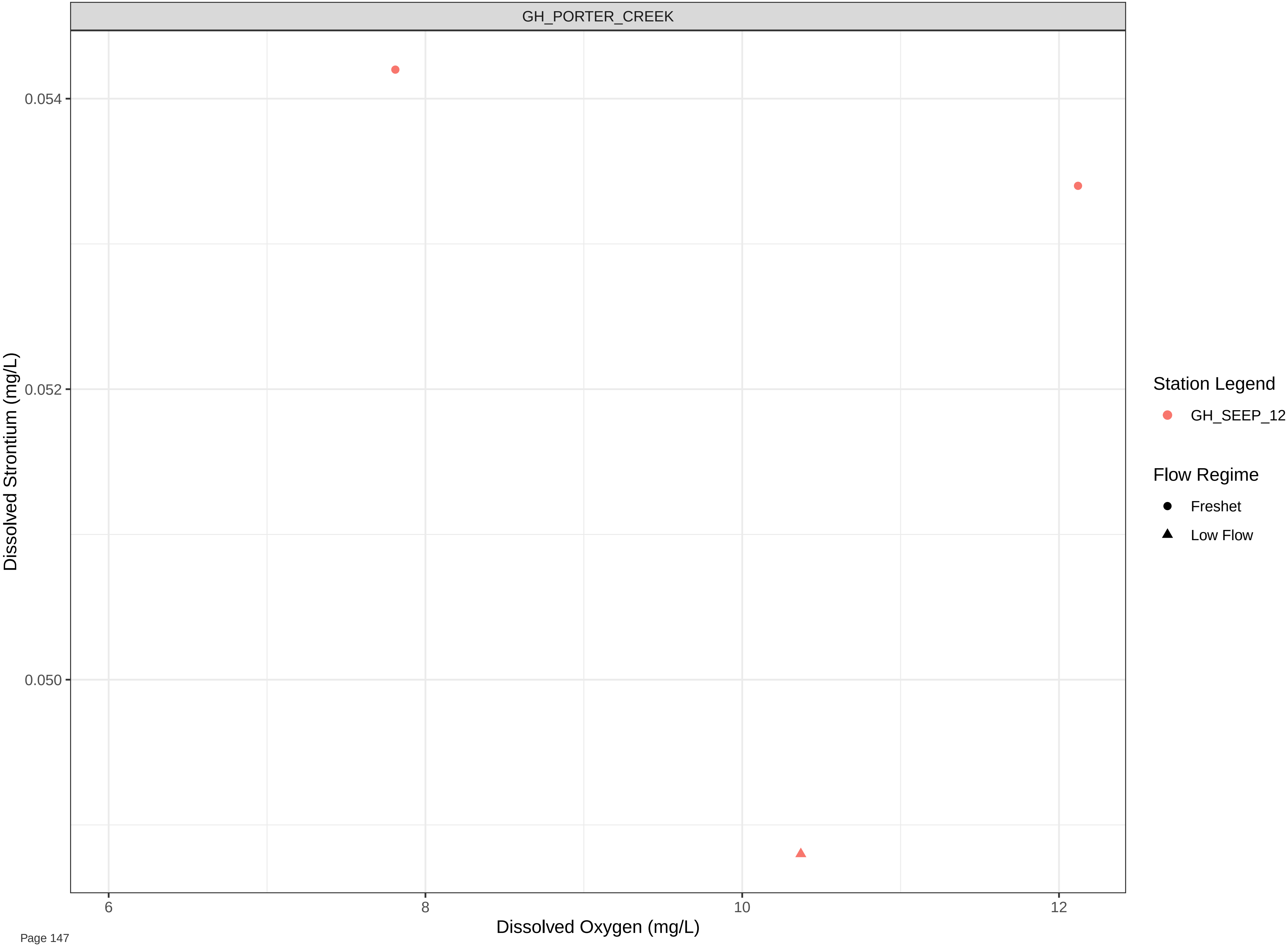

GH_THOMPSON_WR
Dissolved Sodium (mg/L)
8
6
4
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

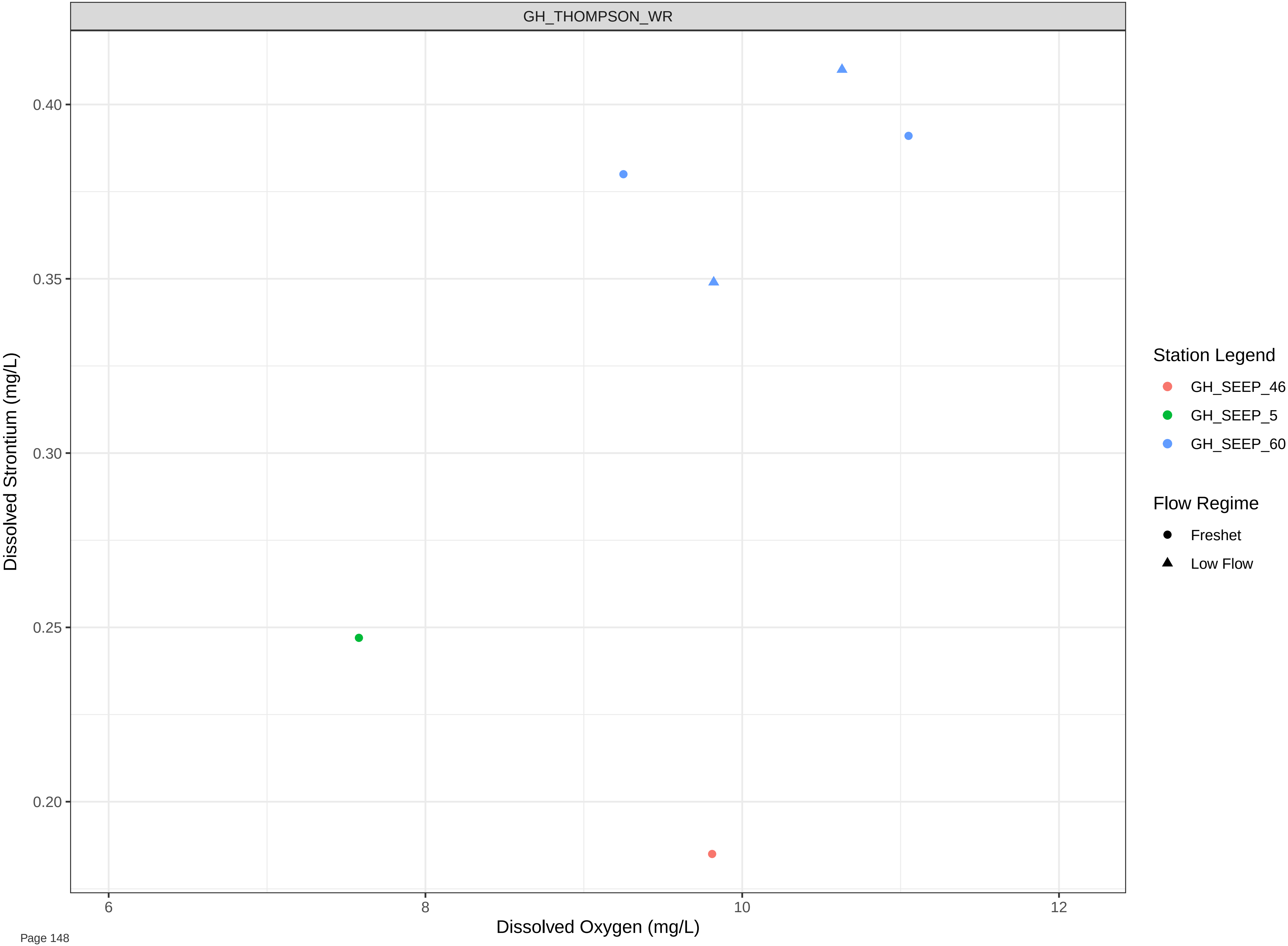

GH_UPSTREAM_CCR
Dissolved Sodium (mg/L)
40
30
20
10
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_15
● GH_SEEP_30
● GH_SEEP_50
Flow Regime
● Freshet
▲ Low Flow

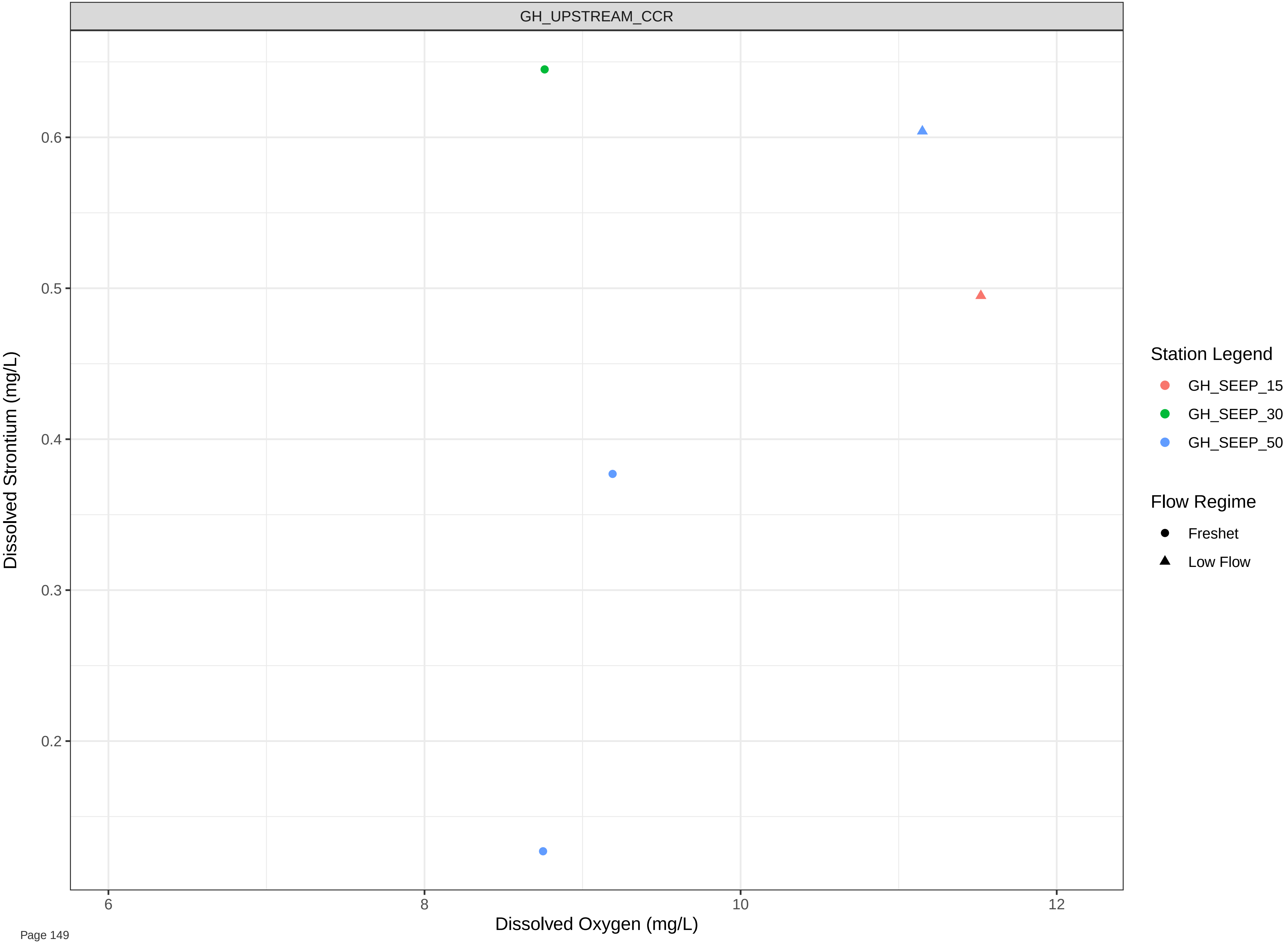

GH_WOLFRAM_WR
Dissolved Sodium (mg/L)
100
50
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

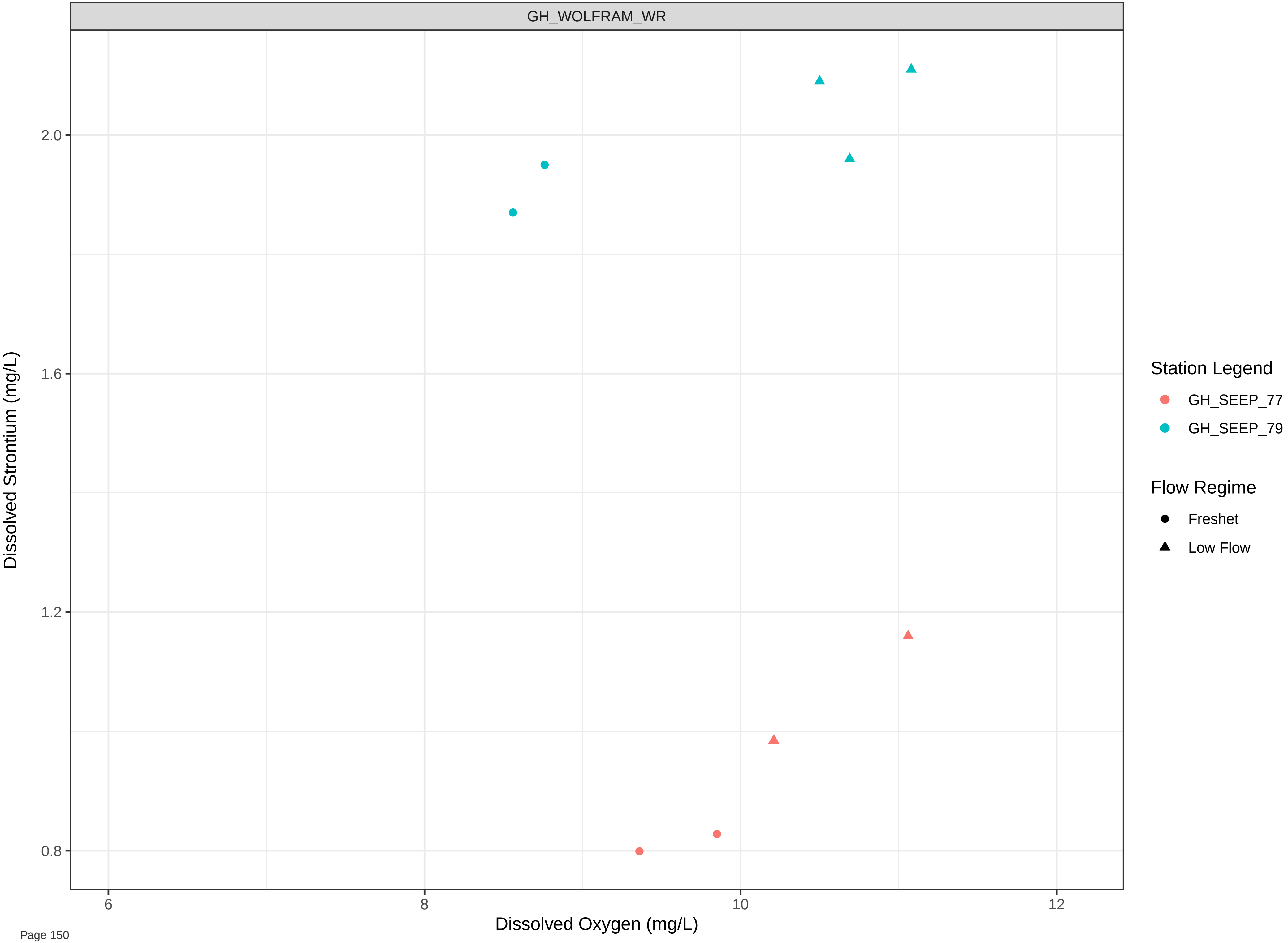

GH_CCR
1.0
0.8
0.6
0.4
0.2
Dissolved Strontium (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

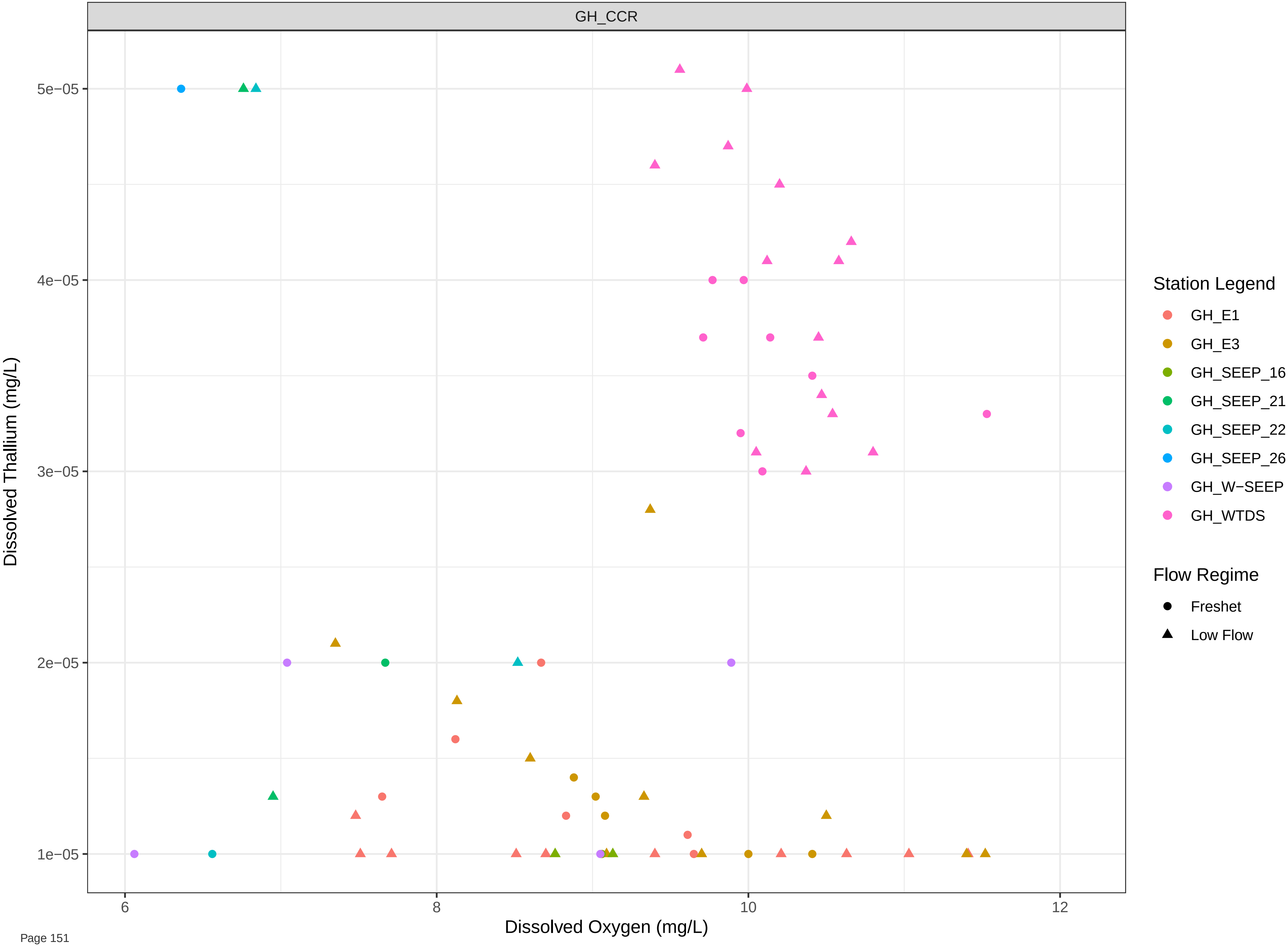

GH_LEASK_WR
Dissolved Strontium (mg/L)
1.2
1.1
1.0
0.9
0.8
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

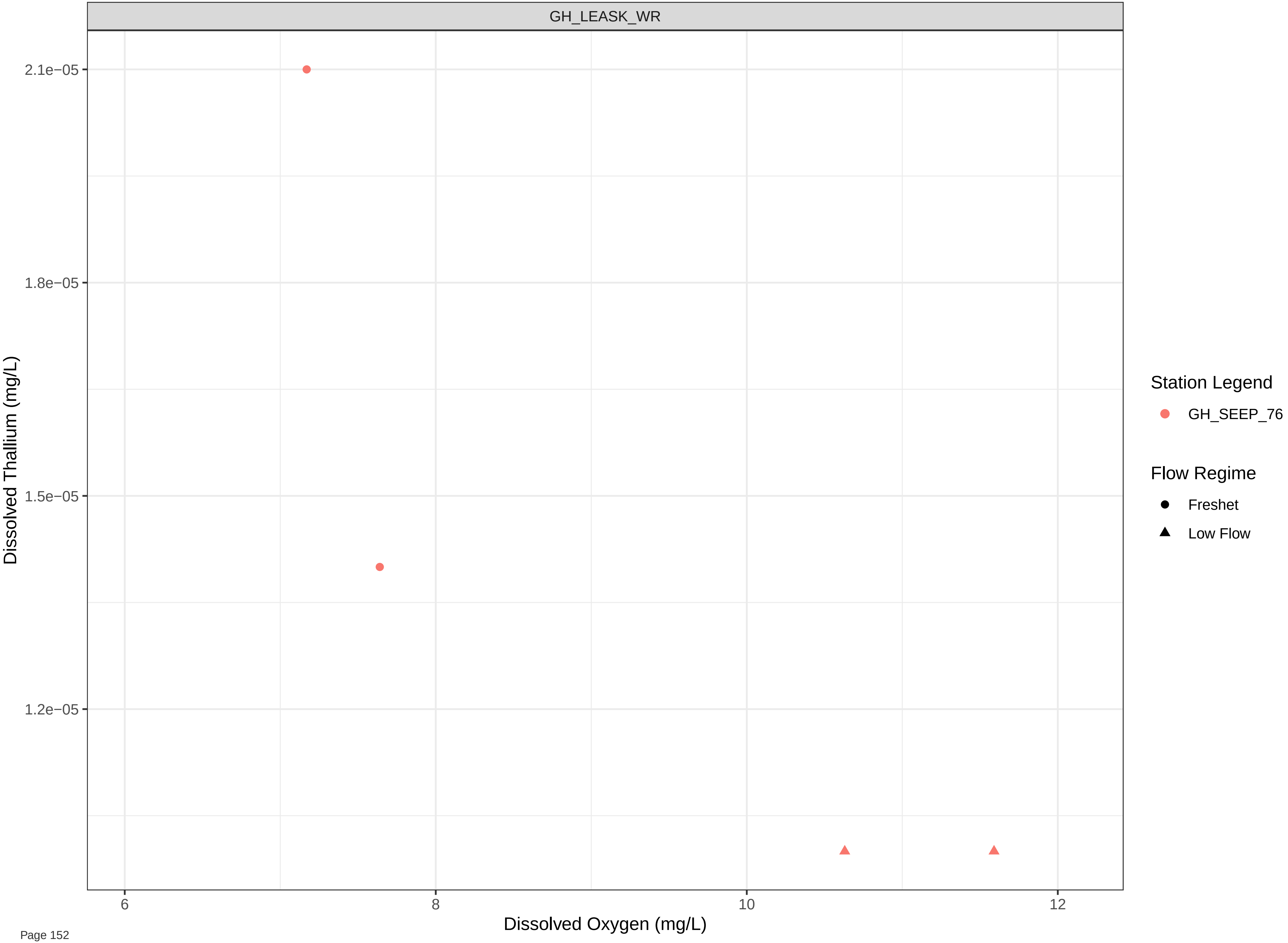

GH_PORTER_CREEK
Dissolved Strontium (mg/L)
0.054
0.052
0.050
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

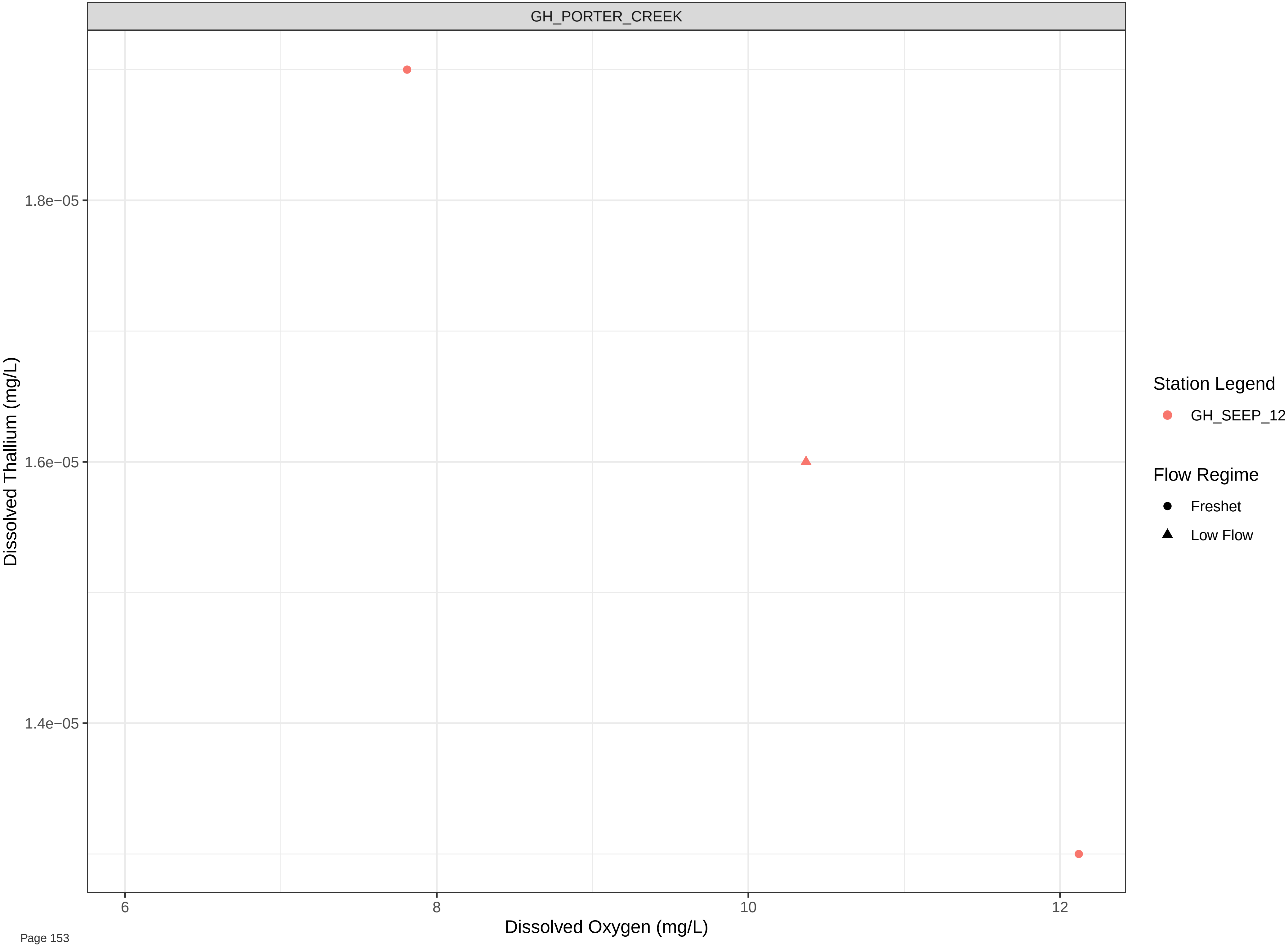

GH_THOMPSON_WR
Dissolved Strontium (mg/L)
0.40
0.35
0.30
0.25
0.20
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

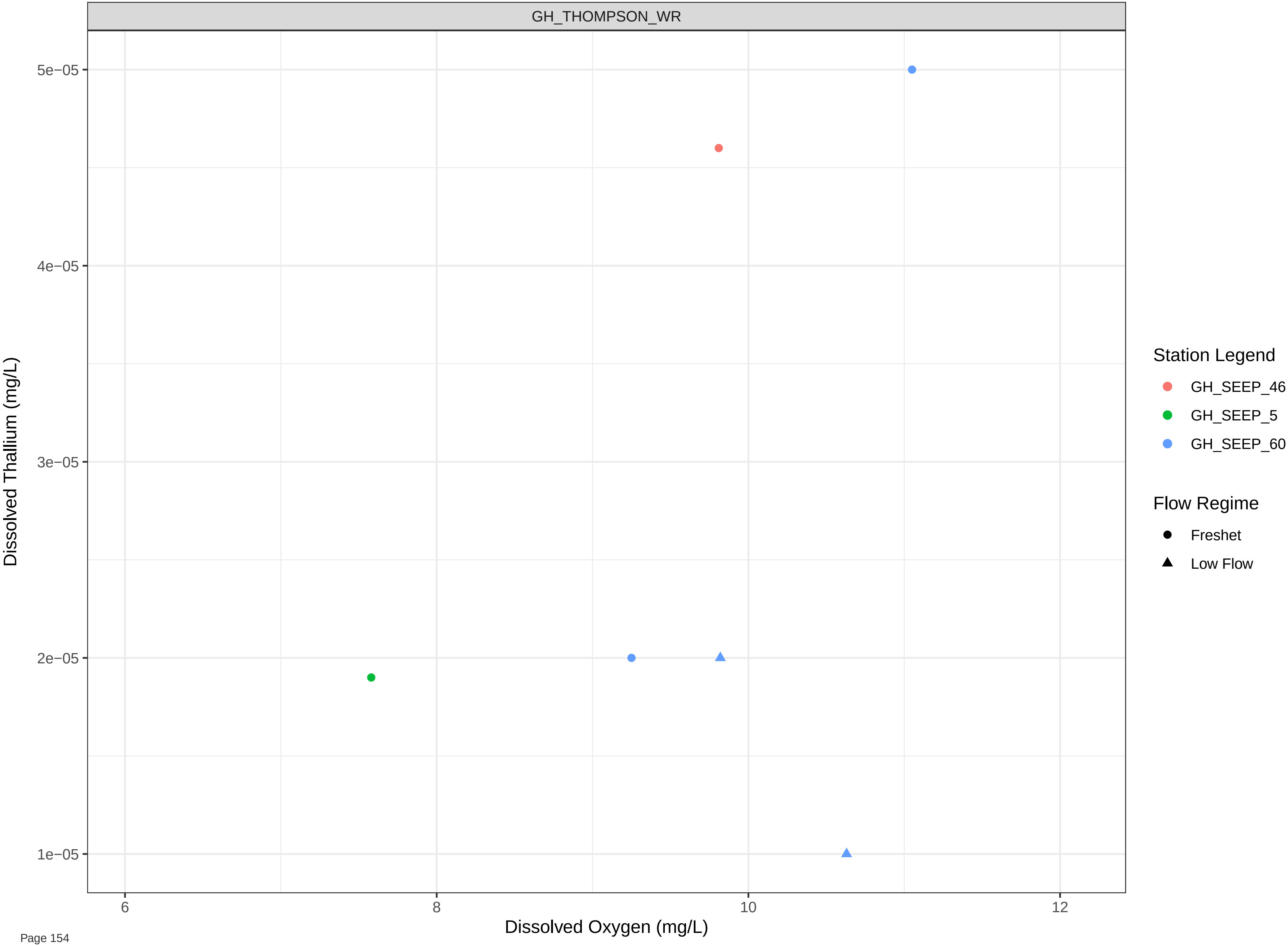

GH_UPSTREAM_CCR
Dissolved Strontium (mg/L)
0.6
0.5
0.4
0.3
0.2
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

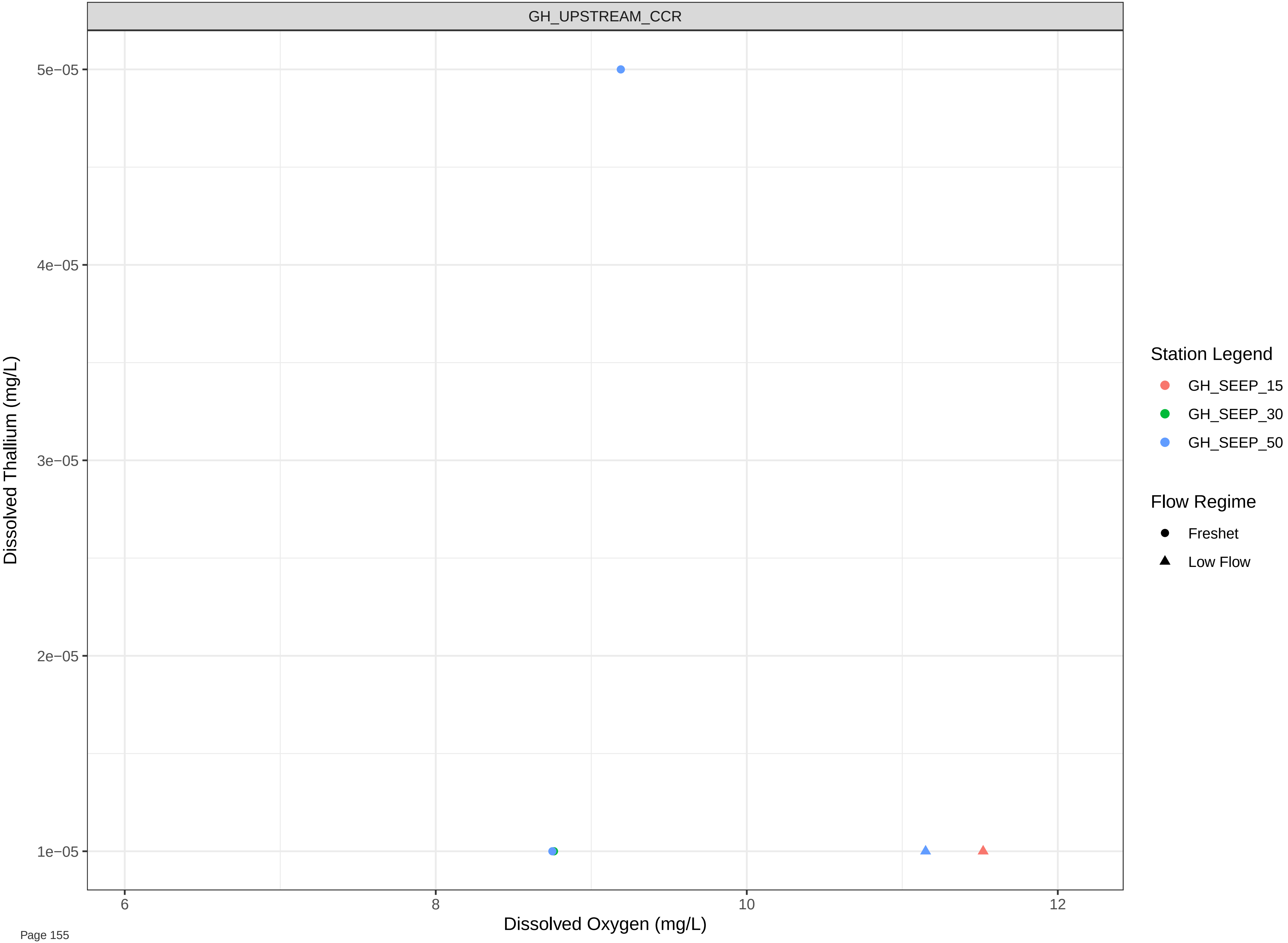

GH_WOLFRAM_WR
Dissolved Strontium (mg/L)
2.0
1.6
1.2
0.8
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

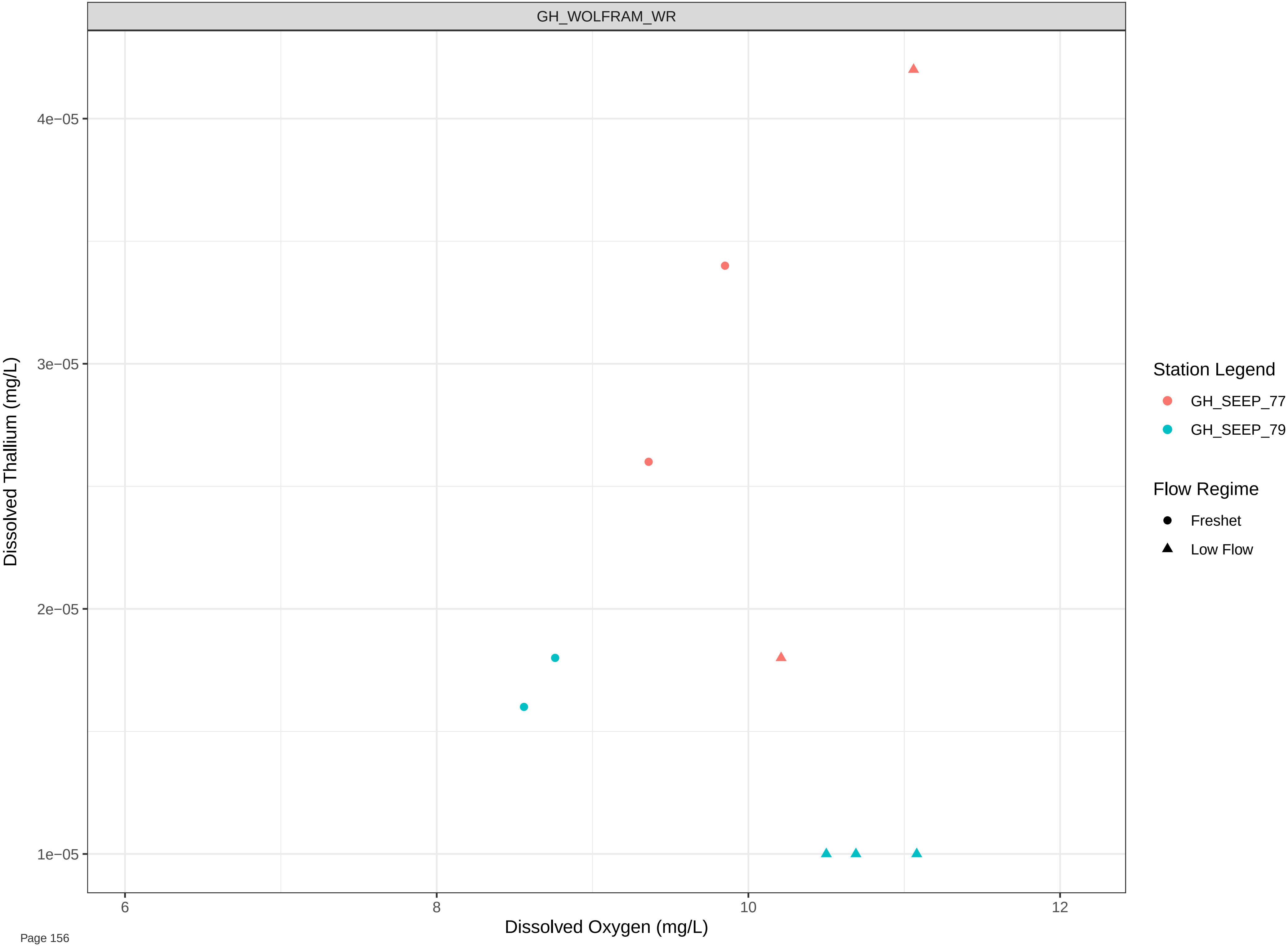

GH_CCR
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

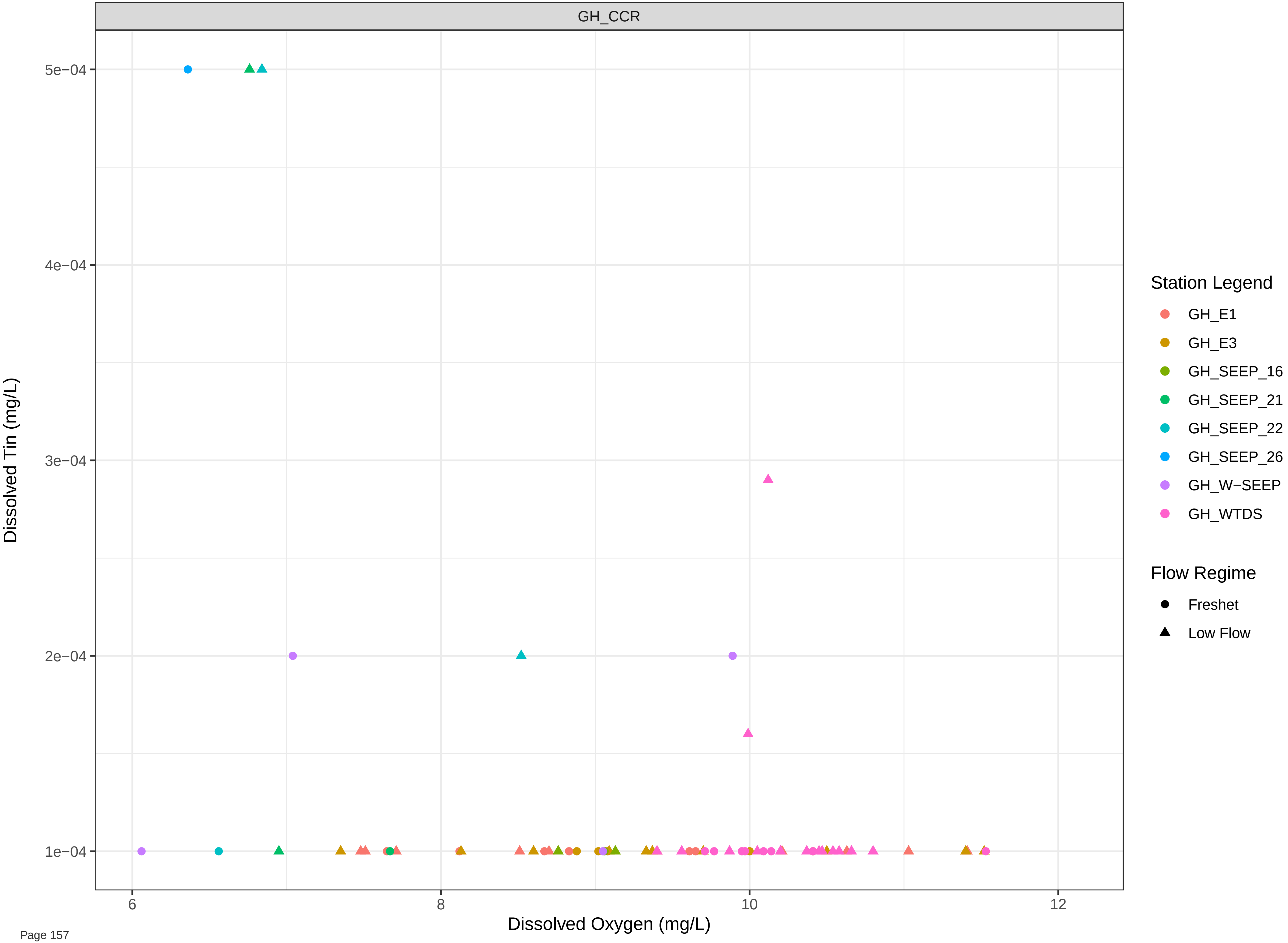

GH_LEASK_WR
Dissolved Thallium (mg/L)
2.1e−05
1.8e−05
1.5e−05
1.2e−05
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

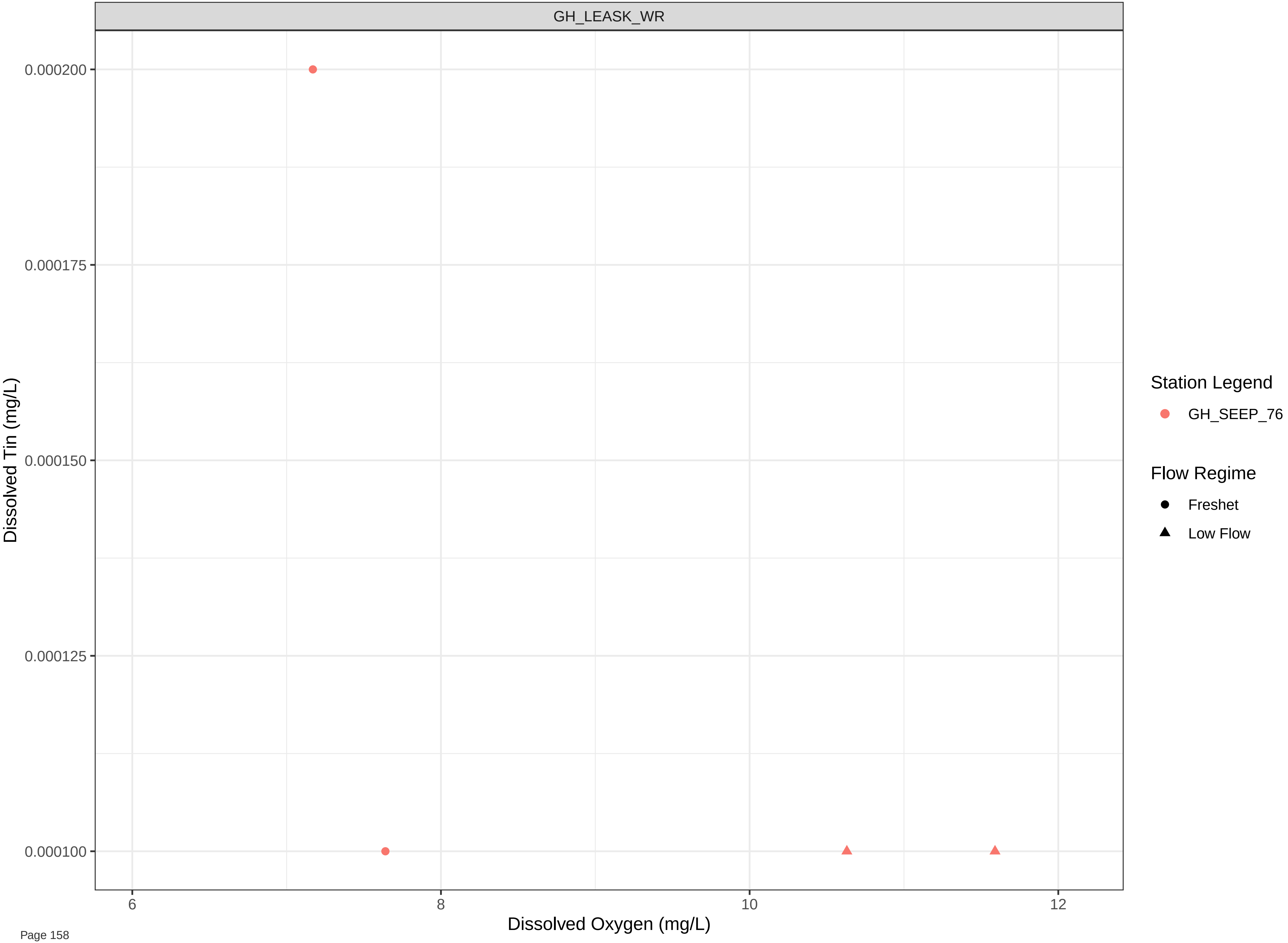

GH_PORTER_CREEK
Dissolved Thallium (mg/L)
1.8e−05
1.6e−05
1.4e−05
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

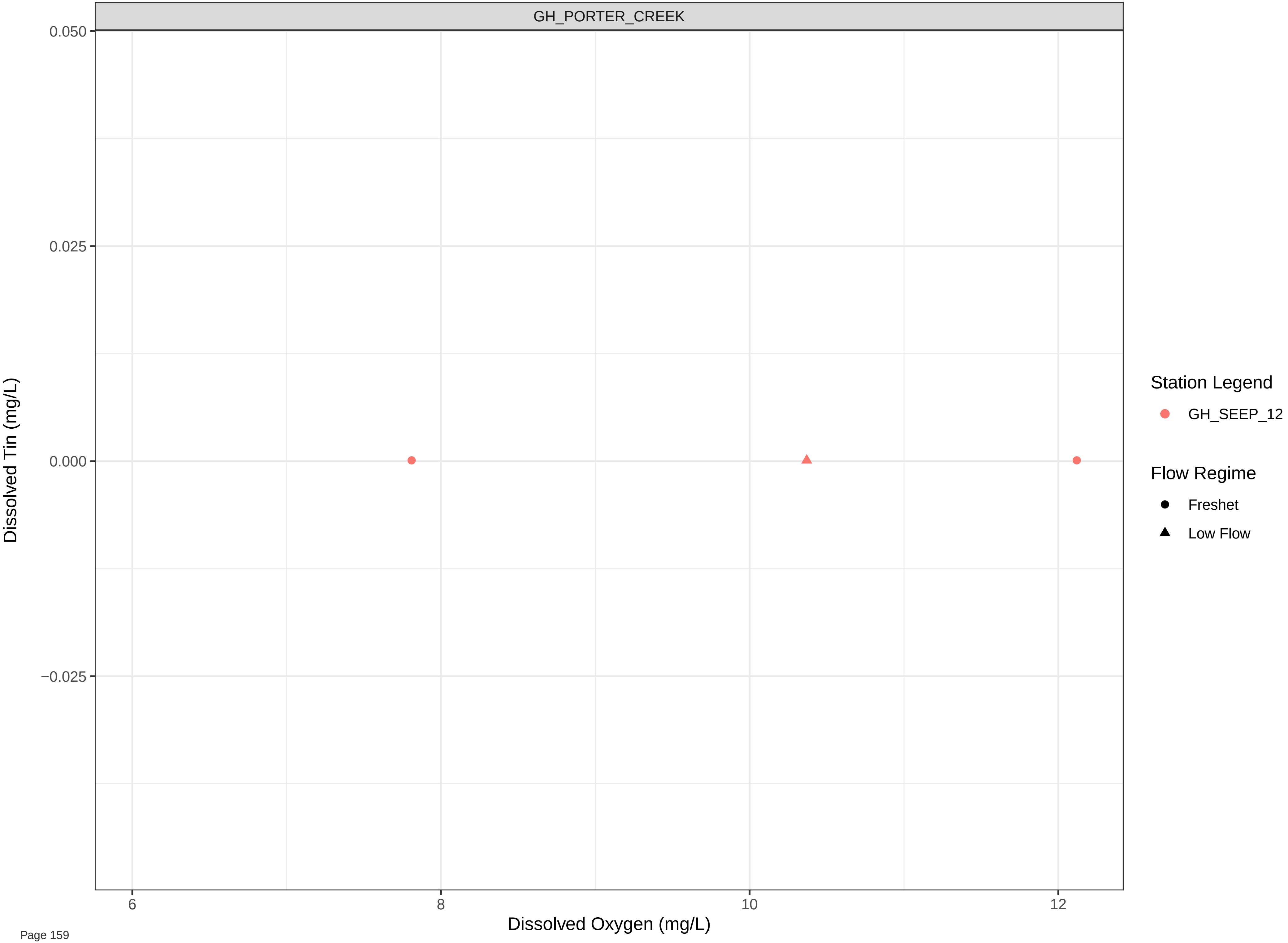

GH_THOMPSON_WR
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

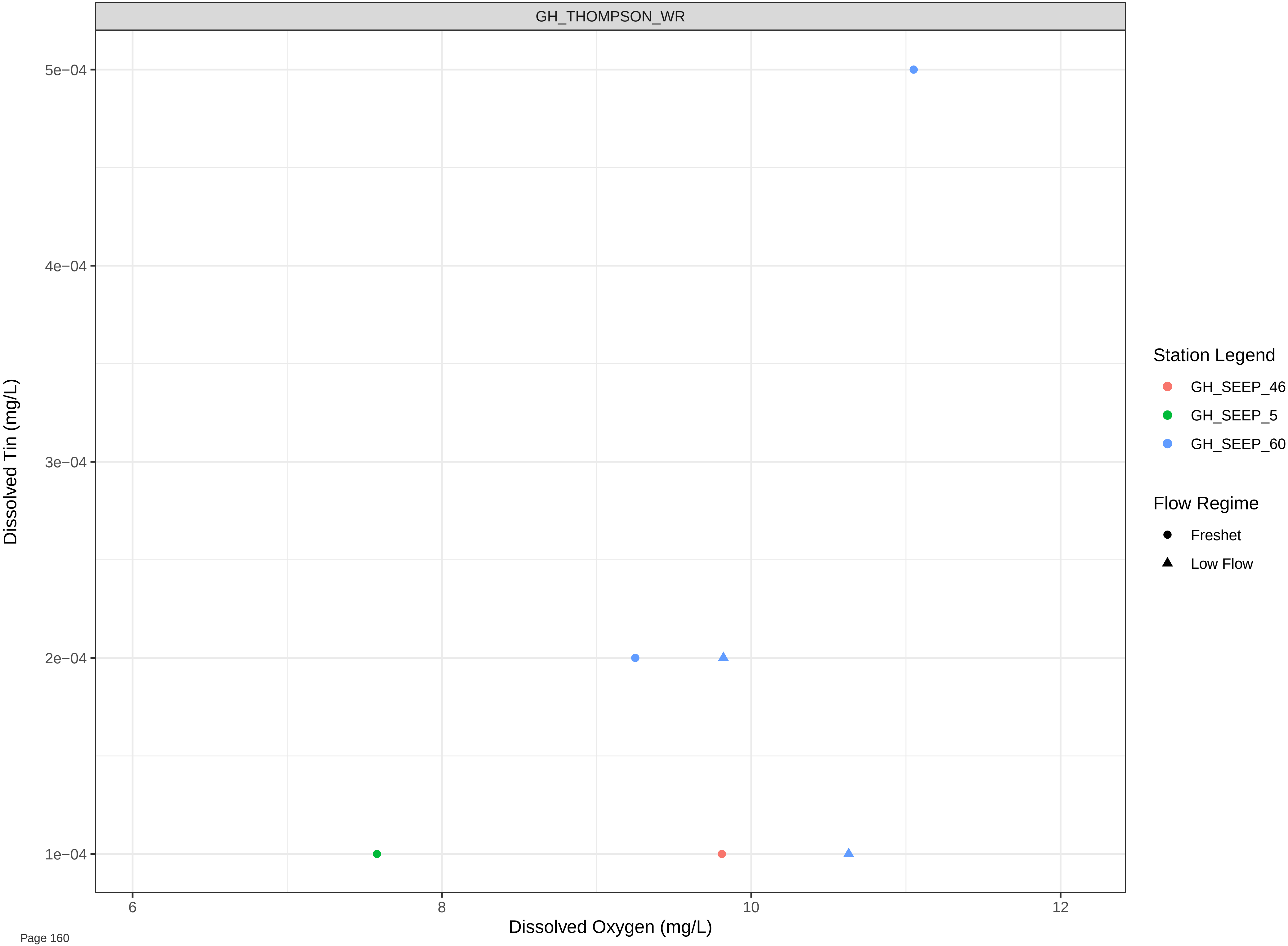

GH_UPSTREAM_CCR
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

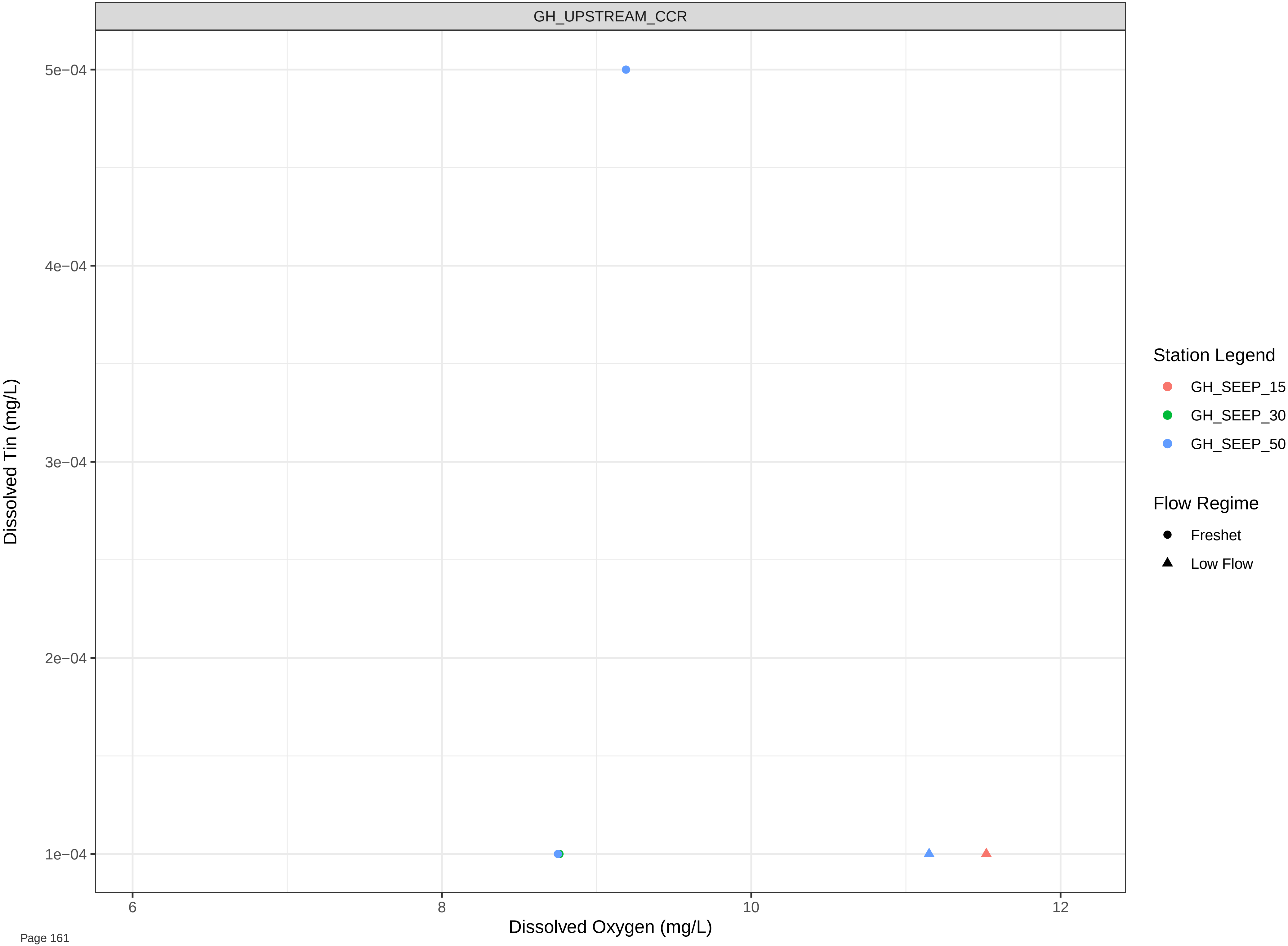

GH_WOLFRAM_WR
Dissolved Thallium (mg/L)
4e−05
3e−05
2e−05
1e−05
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

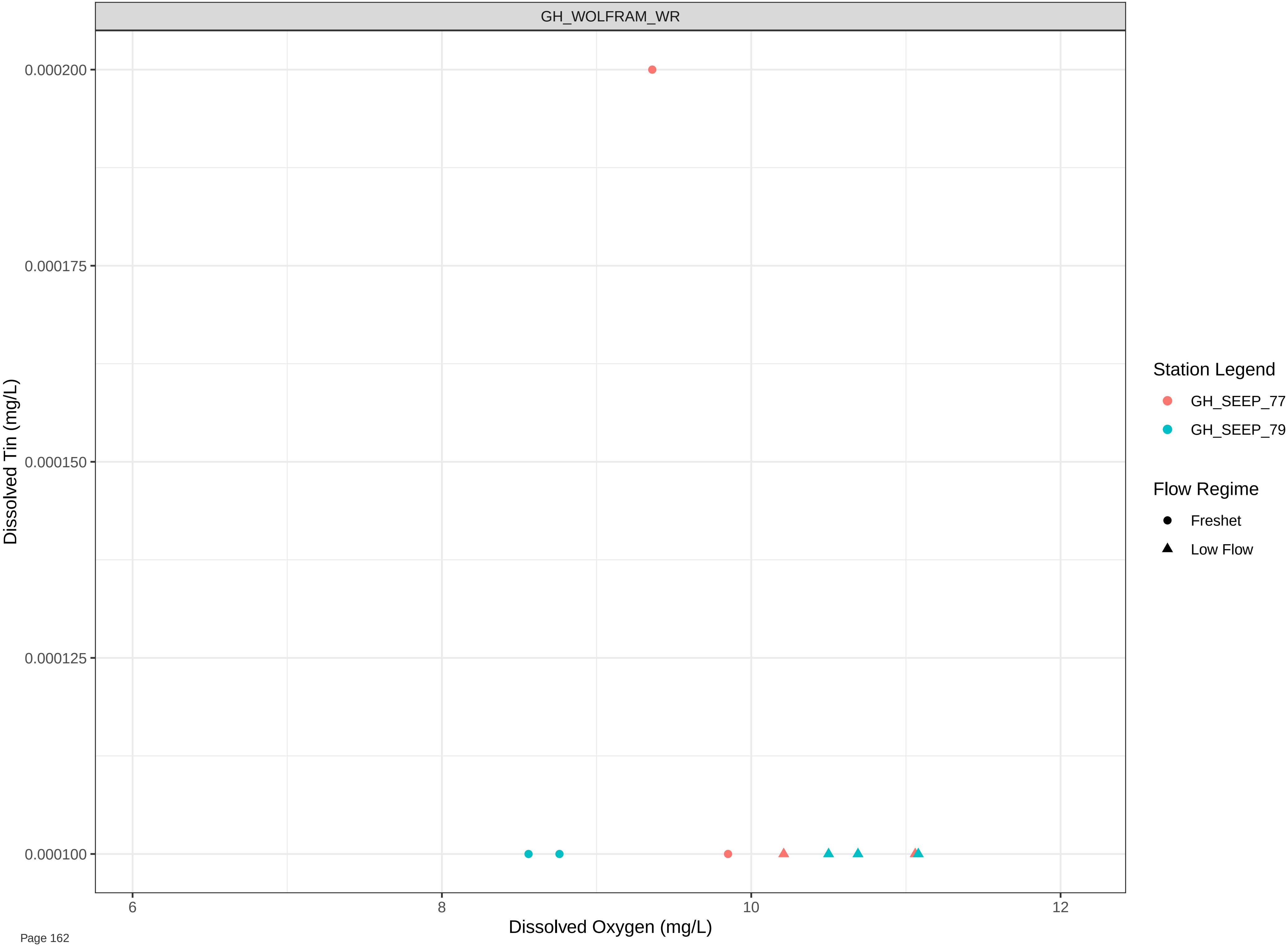

GH_CCR
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

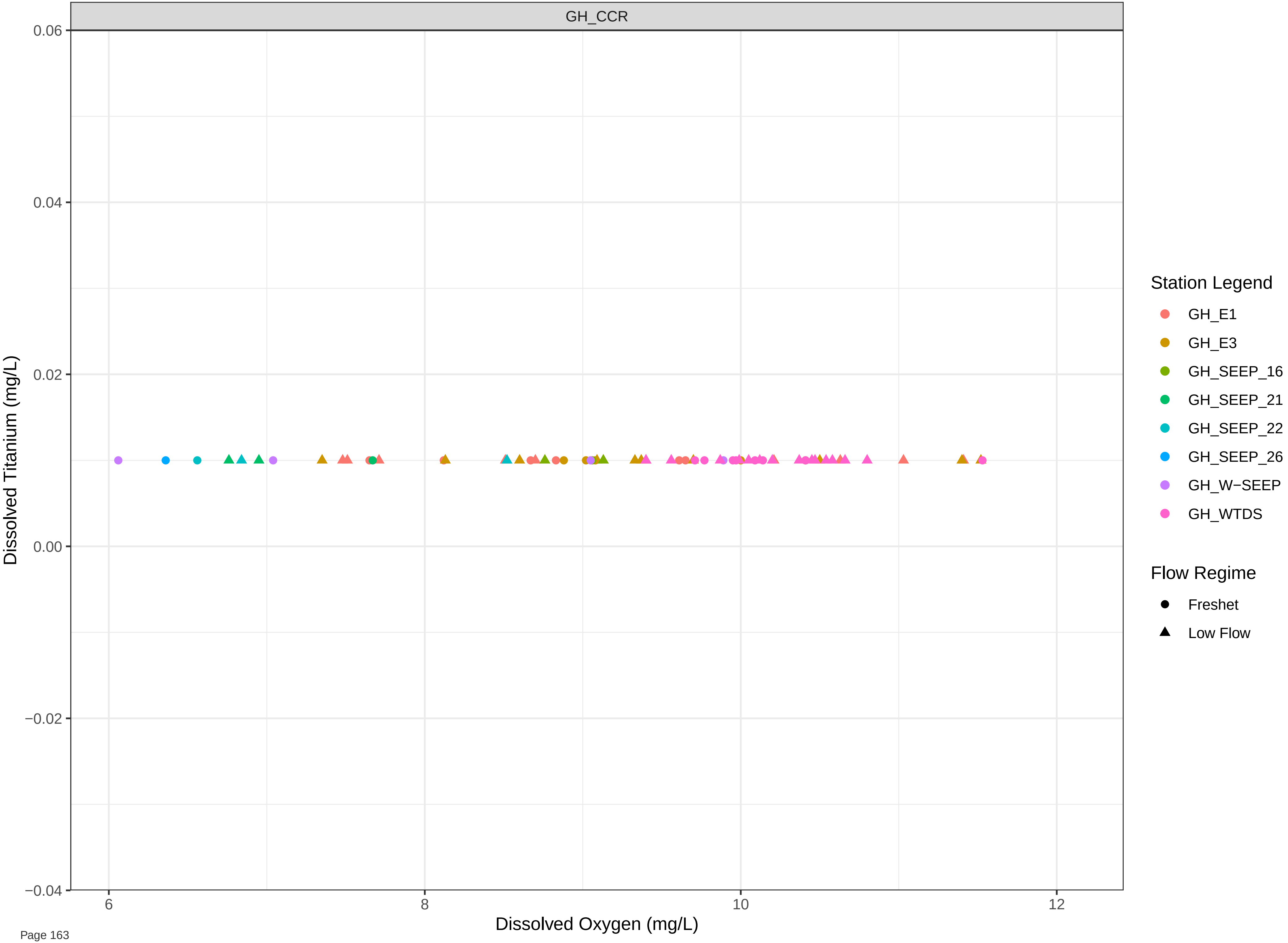

GH_LEASK_WR
Dissolved Tin (mg/L)
0.000200
0.000175
0.000150
0.000125
0.000100
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_76
Flow Regime
Freshet
Low Flow

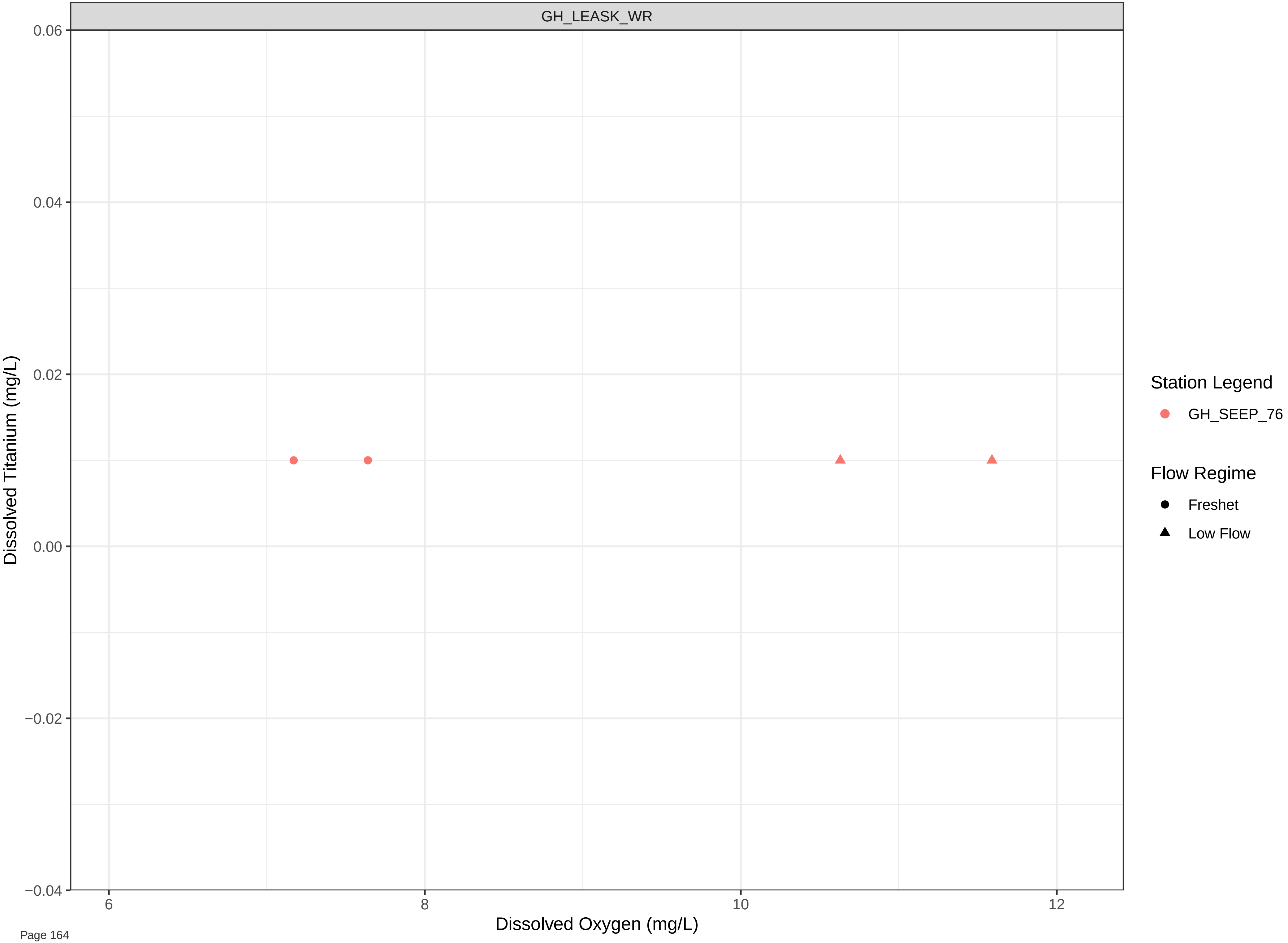

GH_PORTER_CREEK
0.050
0.025
0.000
−0.025
Dissolved Tin (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

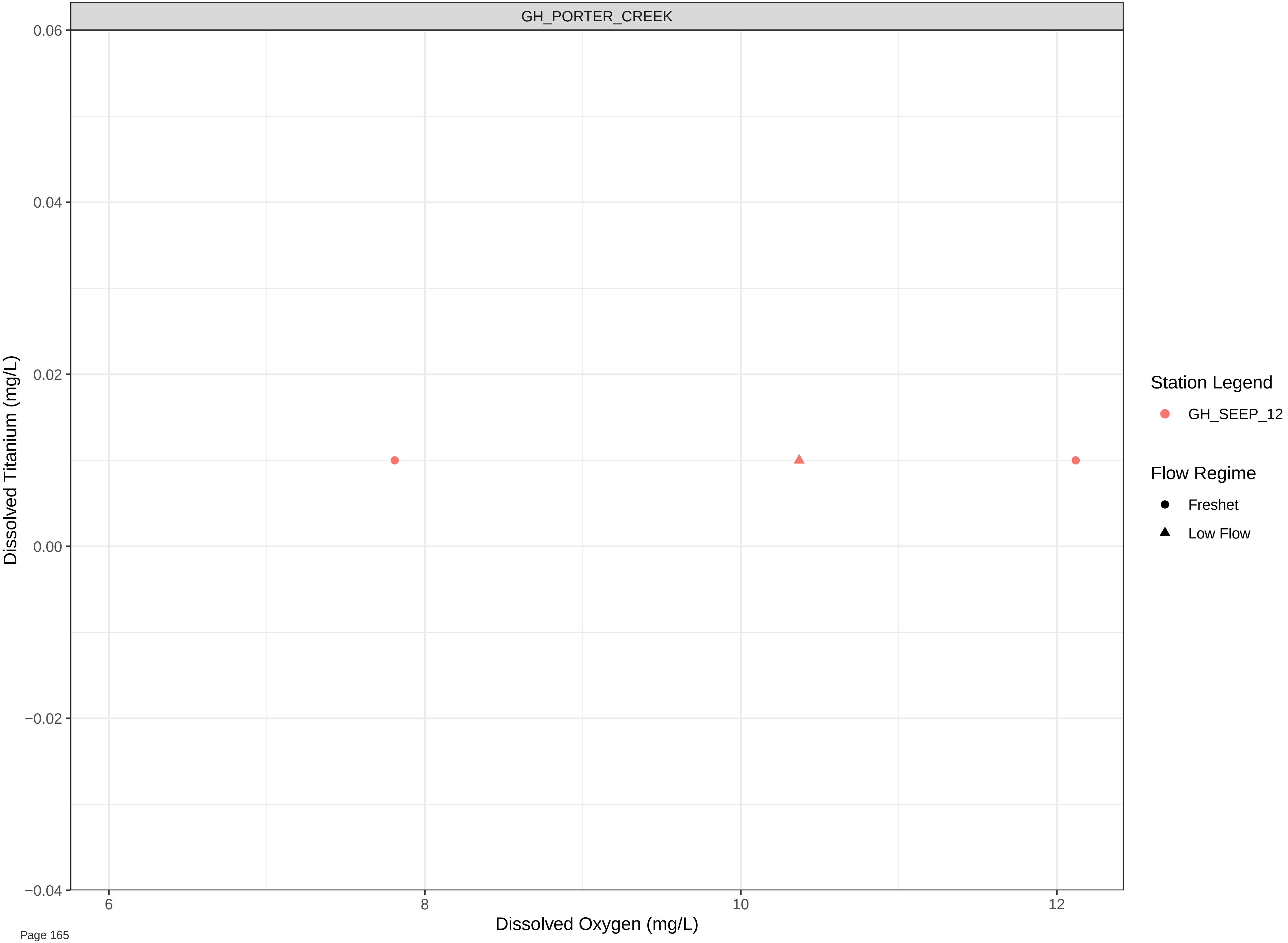

GH_THOMPSON_WR
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

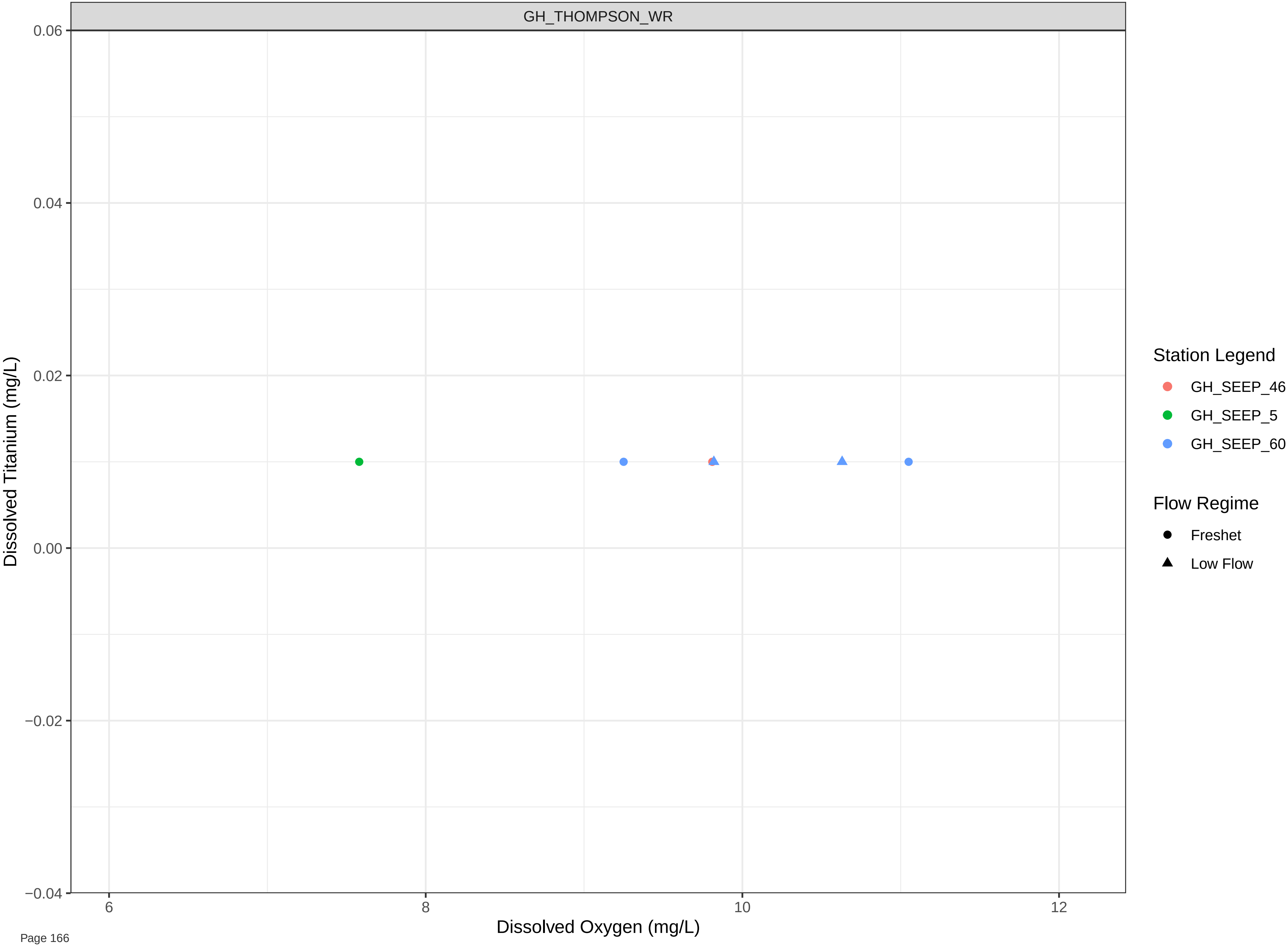

GH_UPSTREAM_CCR
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

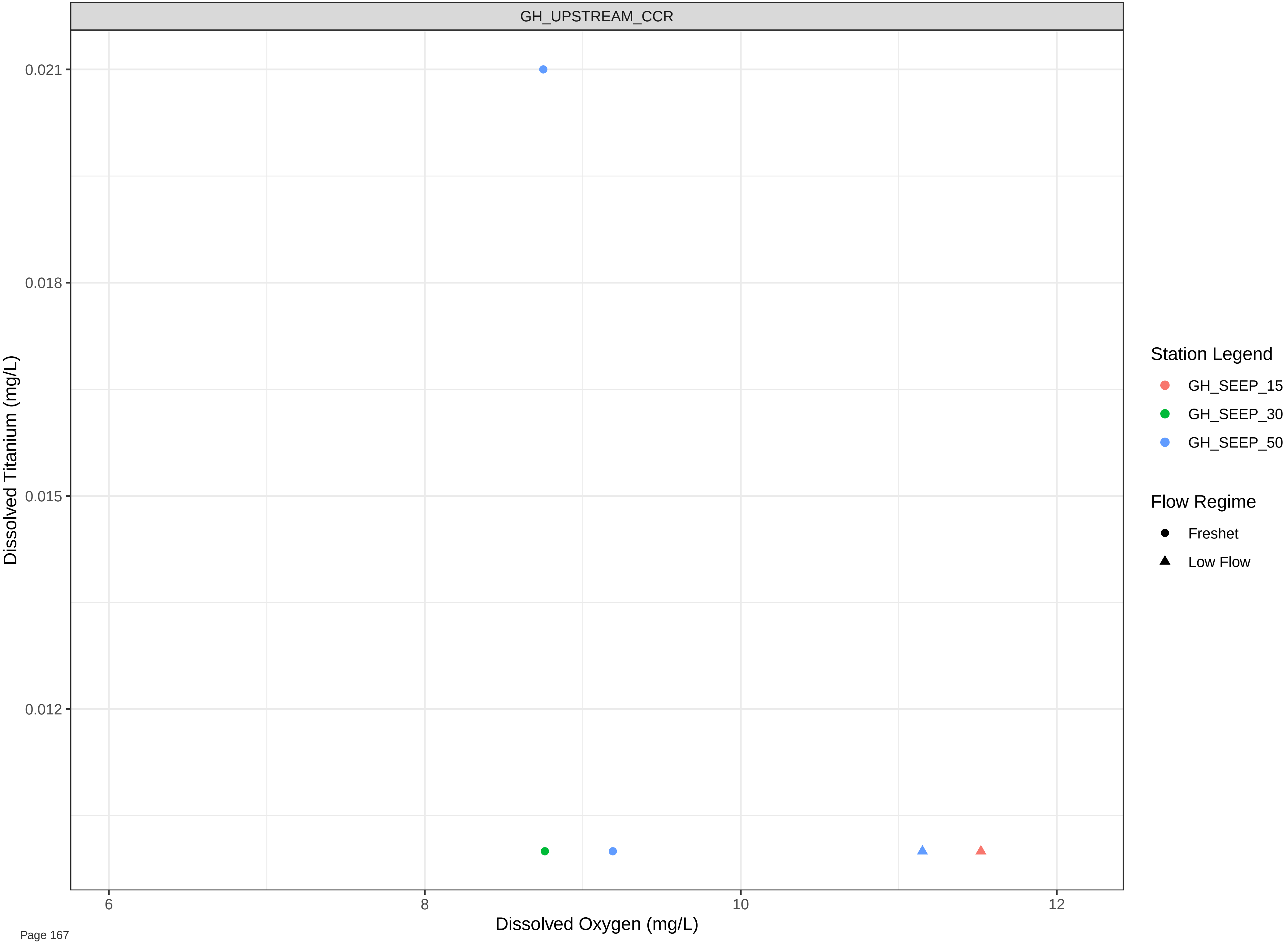

GH_WOLFRAM_WR
Dissolved Tin (mg/L)
0.000200
0.000175
0.000150
0.000125
0.000100
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

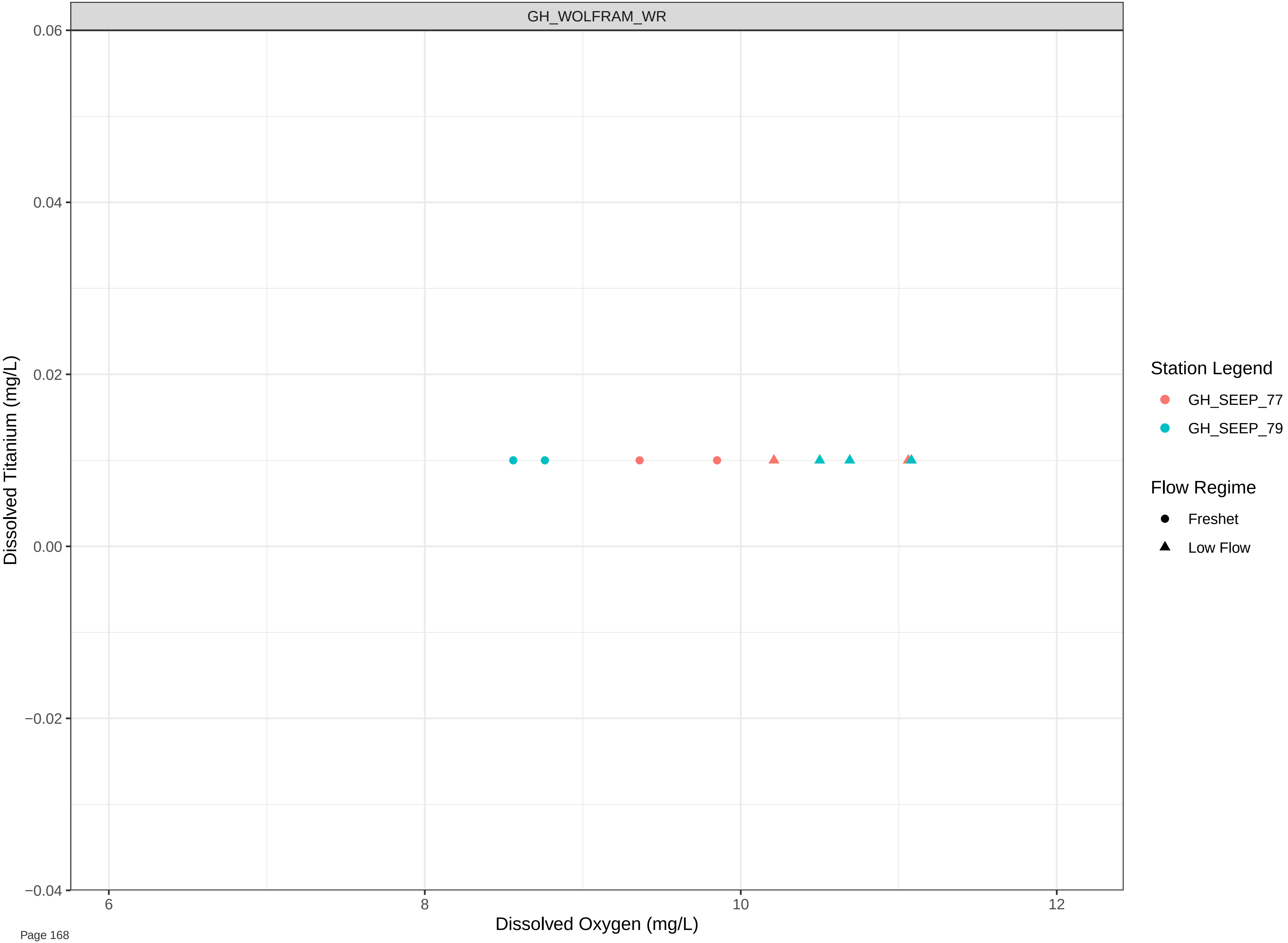

GH_CCR
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

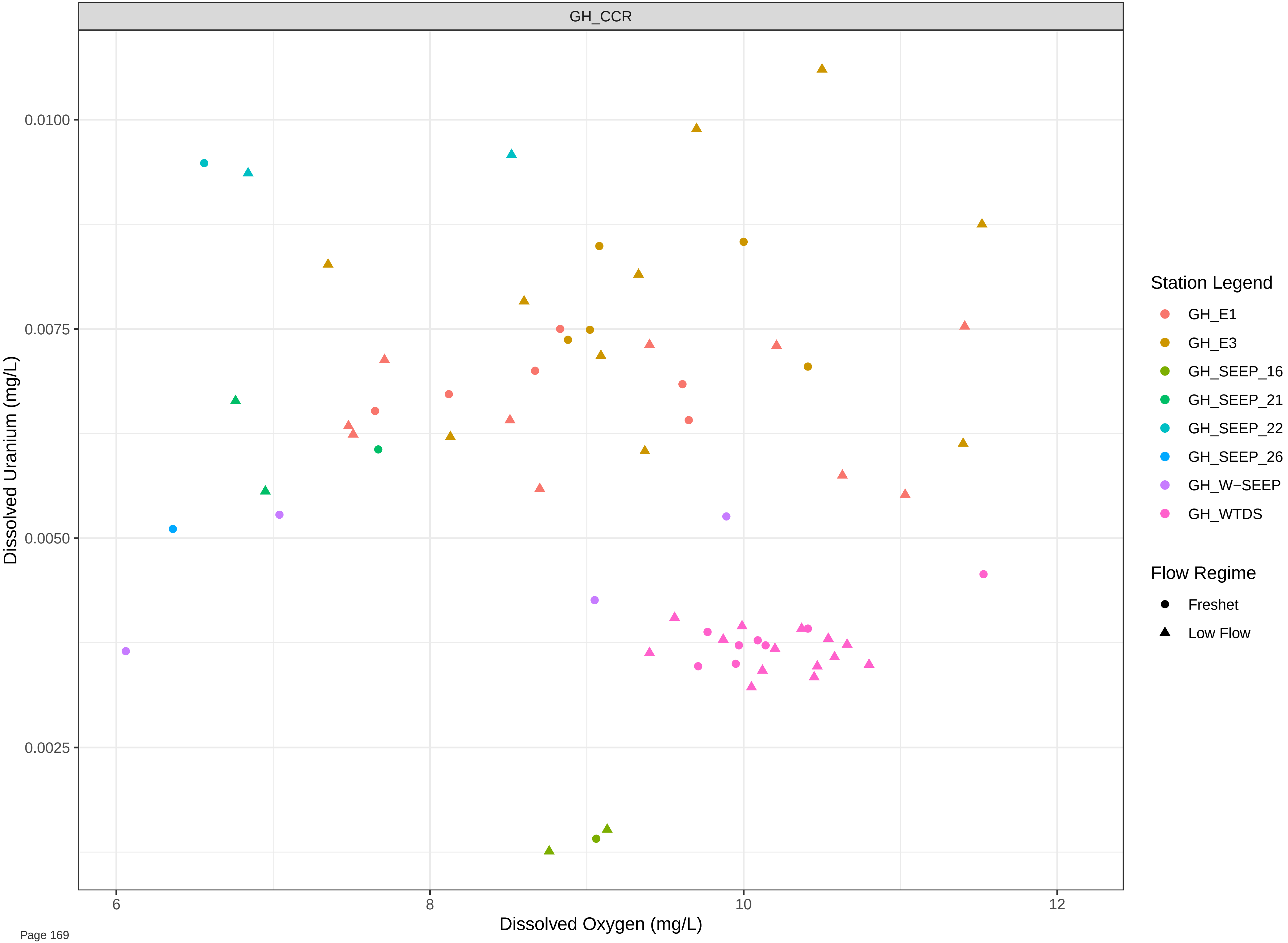

GH_LEASK_WR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow

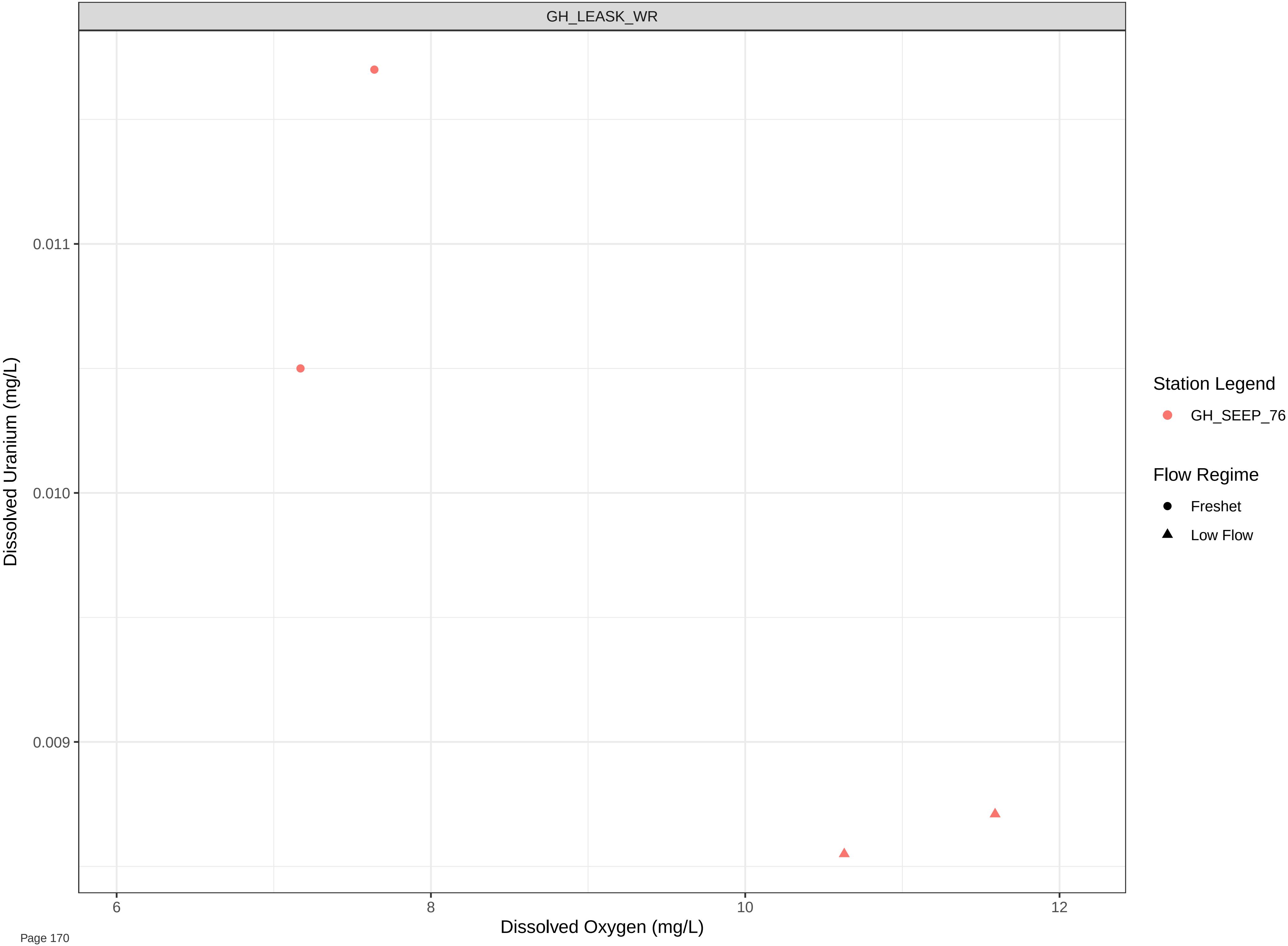

GH_PORTER_CREEK
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

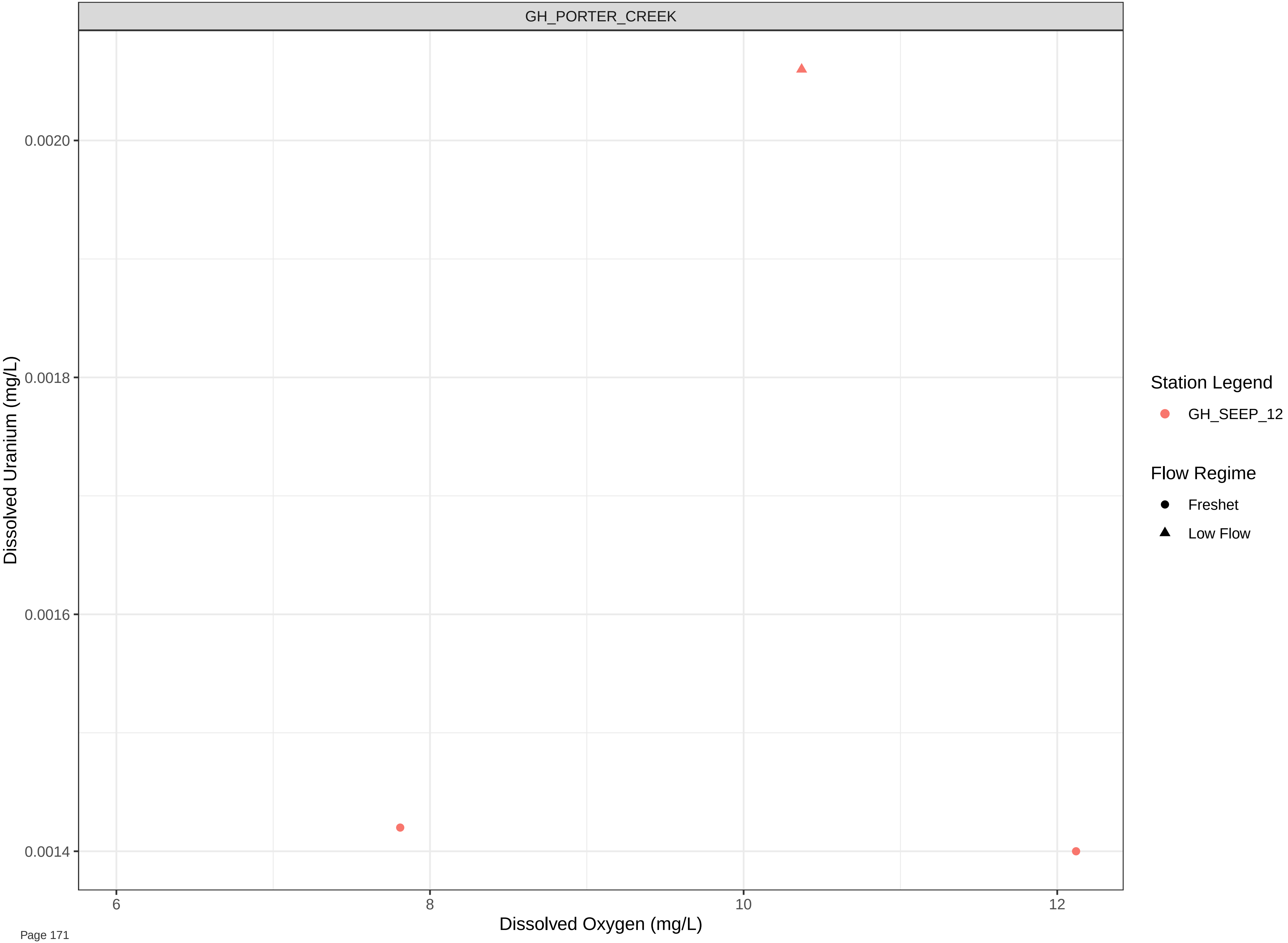

GH_THOMPSON_WR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

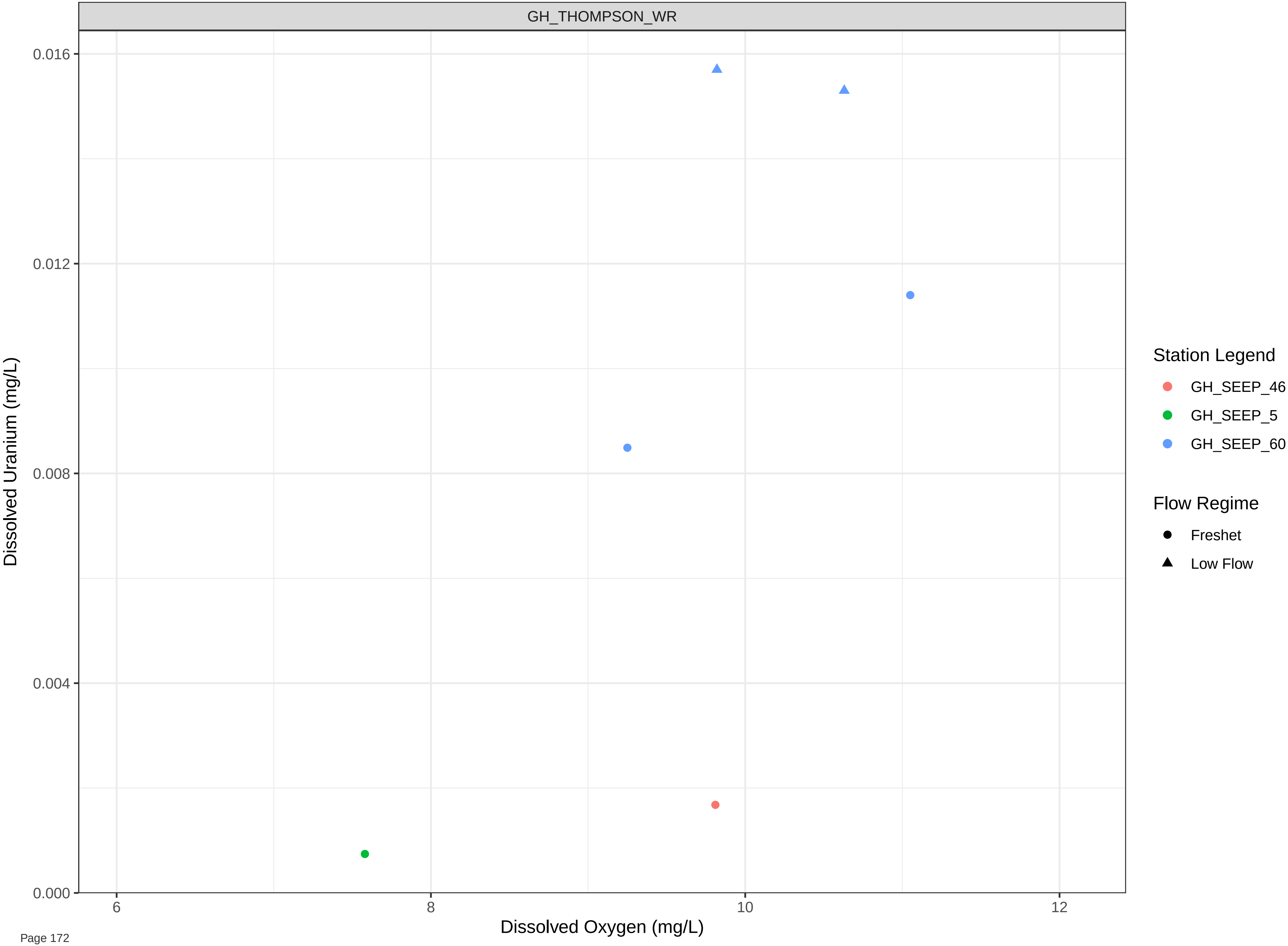

GH_UPSTREAM_CCR
0.021
0.018
0.015
0.012
Dissolved Titanium (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

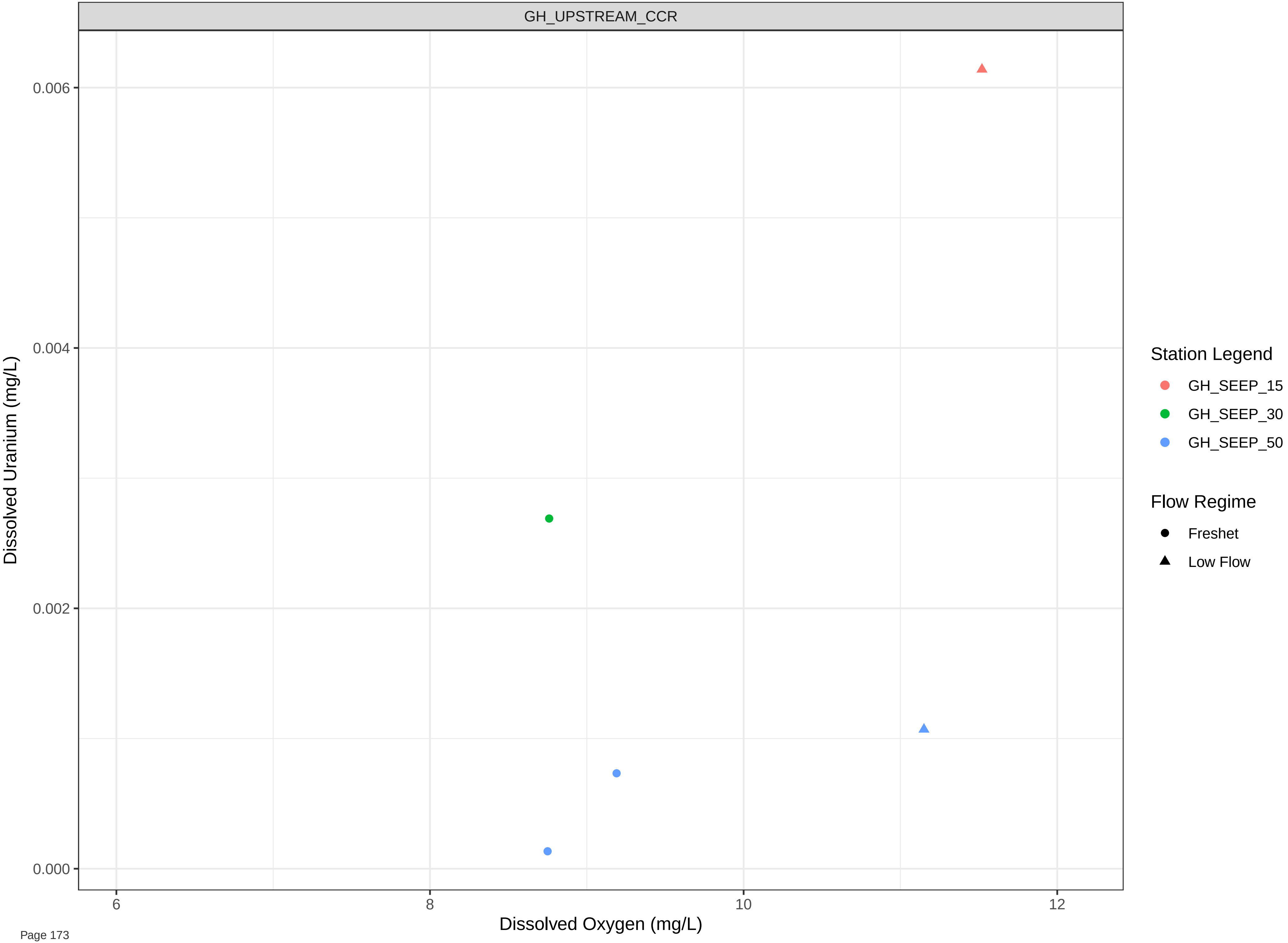

GH_WOLFRAM_WR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

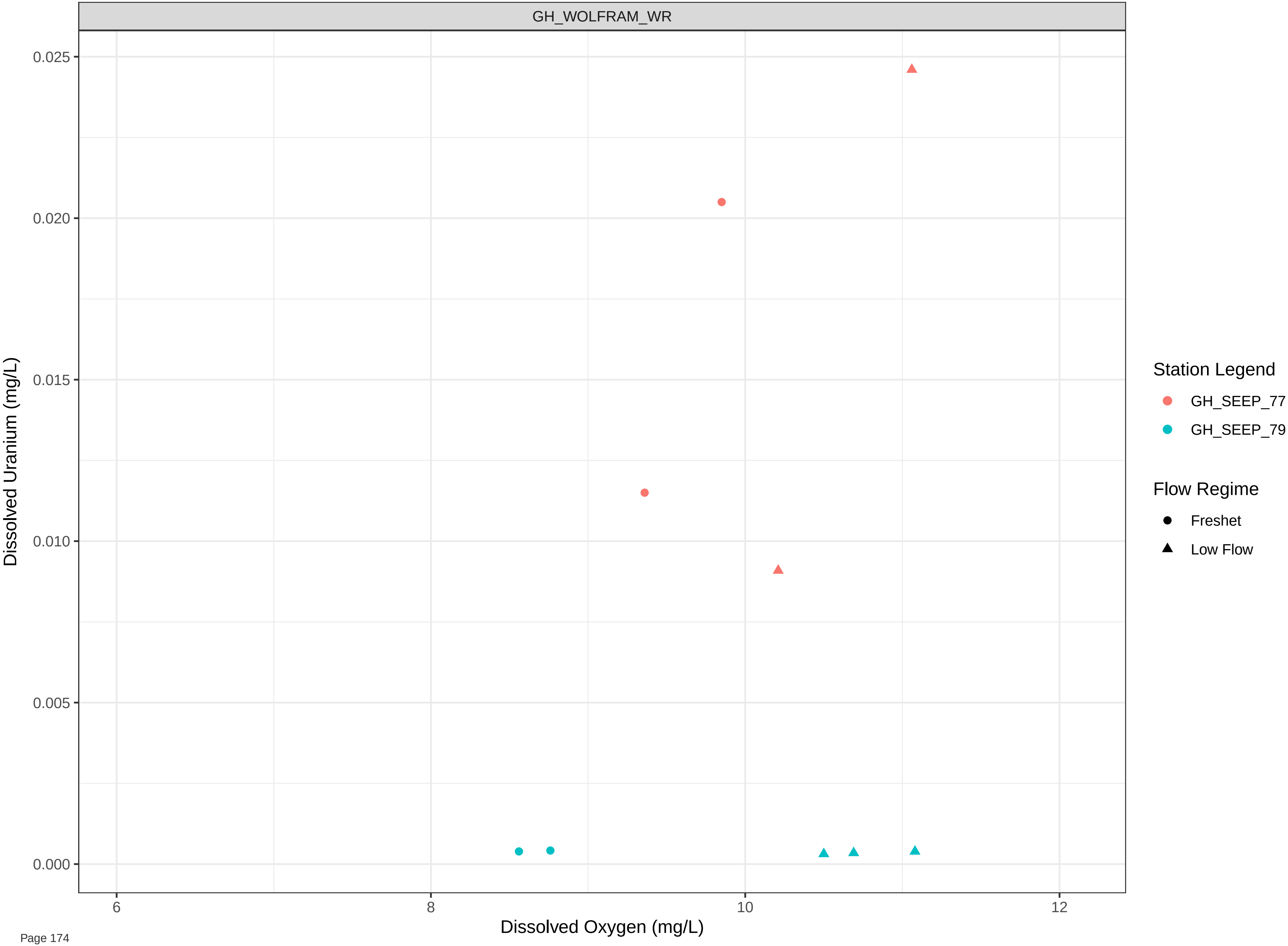

GH_CCR
Dissolved Uranium (mg/L)
0.0100
0.0075
0.0050
0.0025
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
● GH_E1
● GH_E3
● GH_SEEP_16
● GH_SEEP_21
● GH_SEEP_22
● GH_SEEP_26
● GH_W−SEEP
● GH_WTDS
Flow Regime
● Freshet
▲ Low Flow

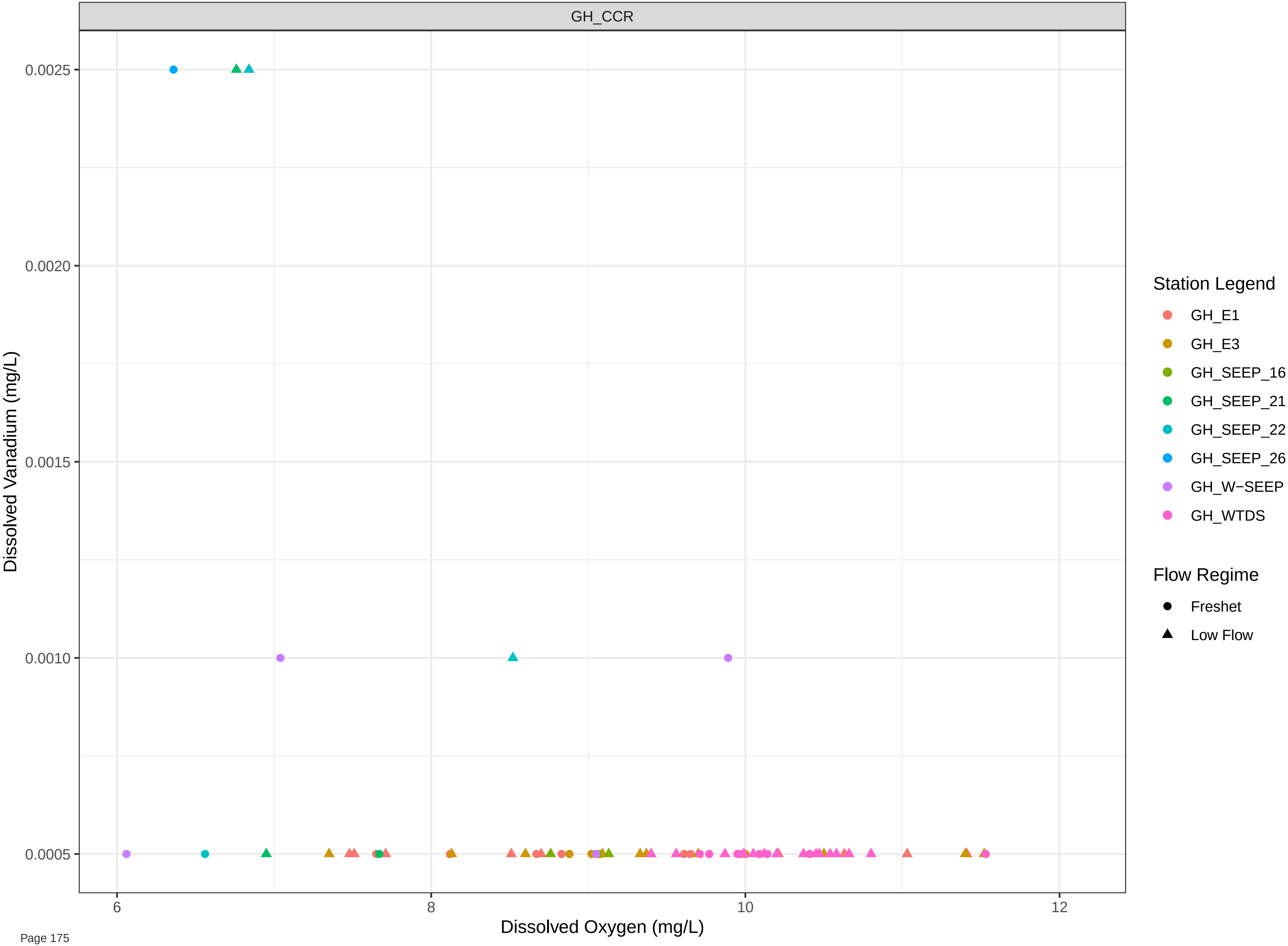

GH_LEASK_WR
Dissolved Uranium (mg/L)
0.011
0.010
0.009
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow

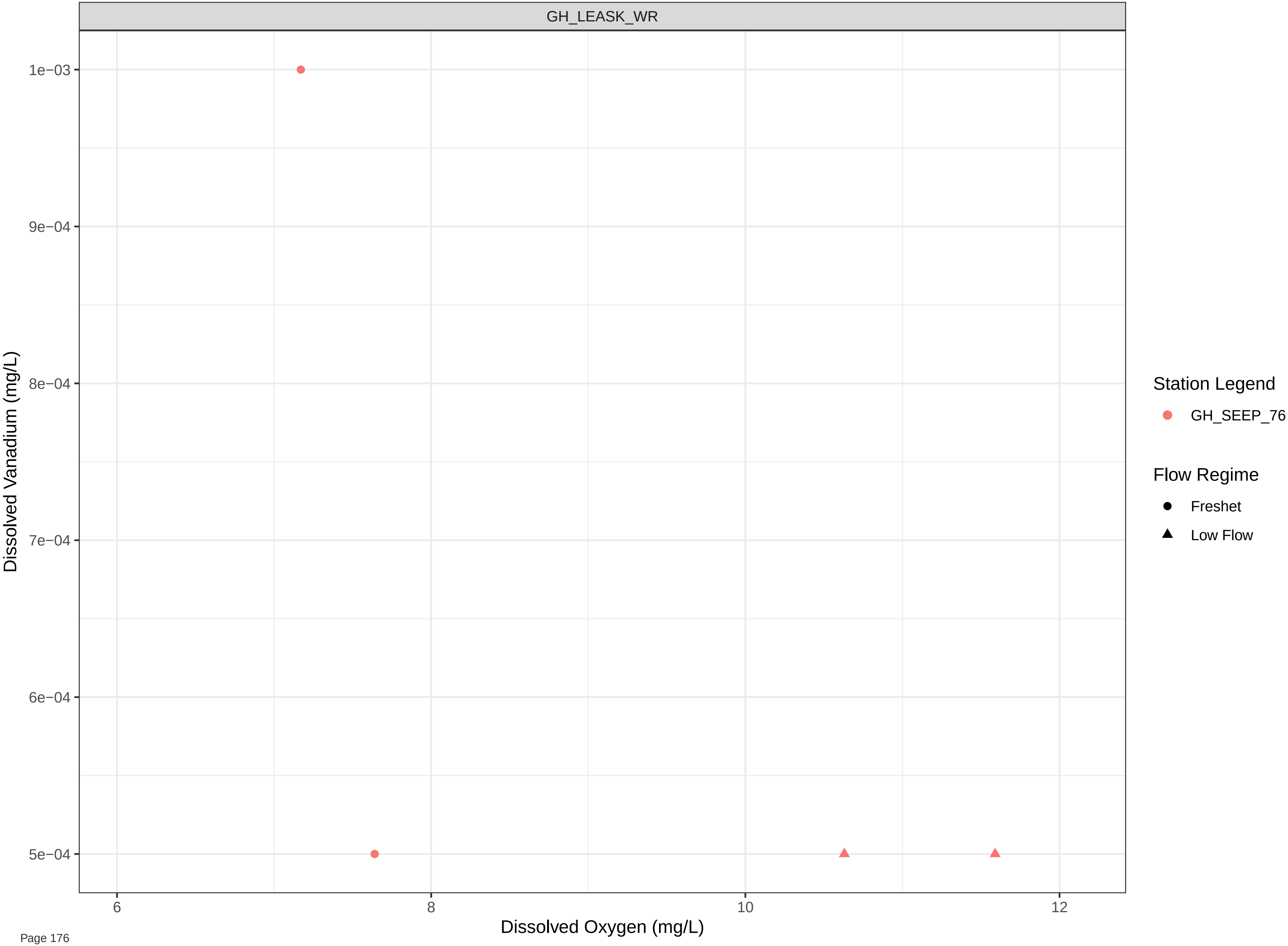

GH_PORTER_CREEK
Dissolved Uranium (mg/L)
0.0020
0.0018
0.0016
0.0014
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

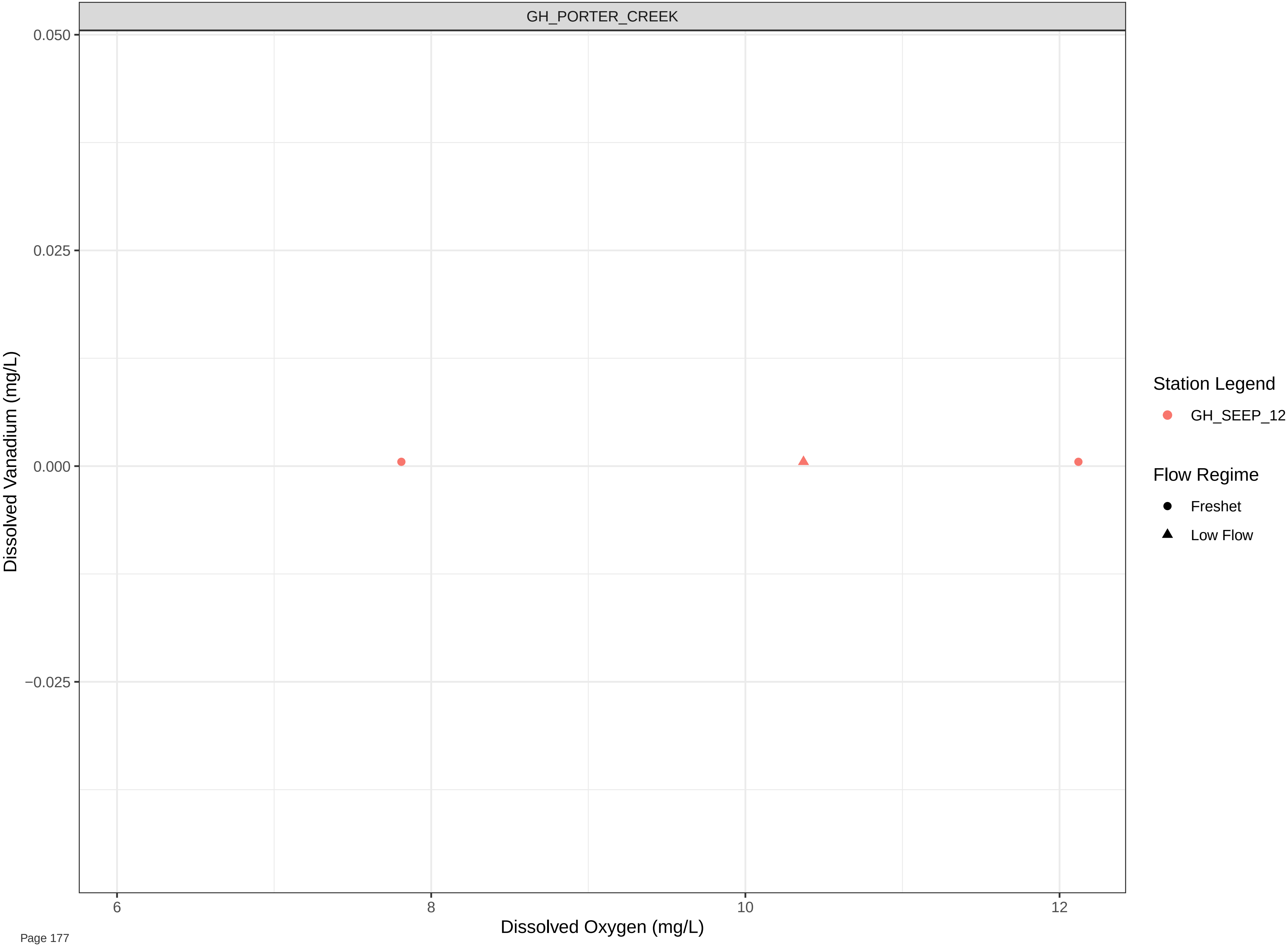

GH_THOMPSON_WR
Dissolved Uranium (mg/L)
0.016
0.012
0.008
0.004
0.000
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

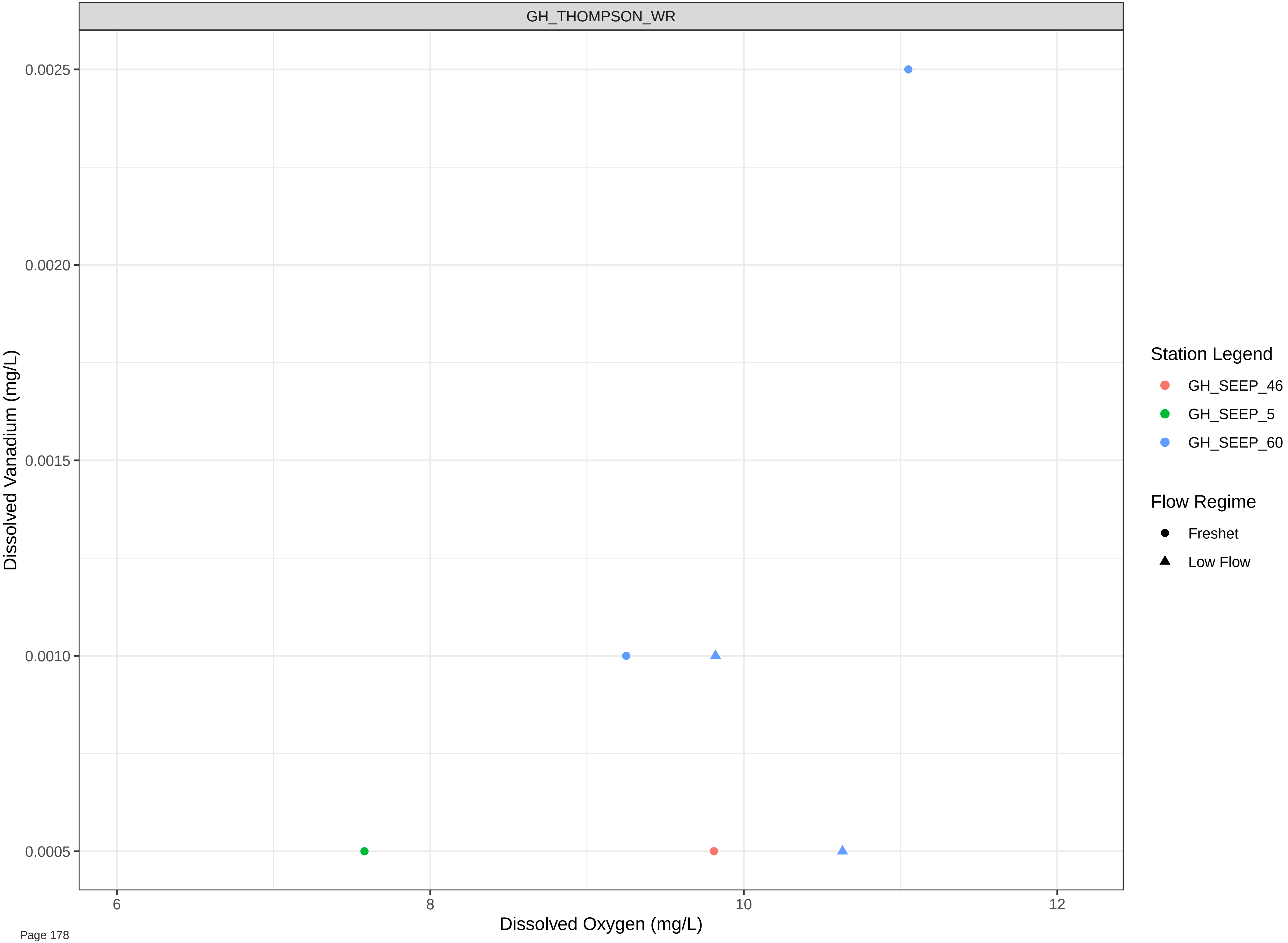

GH_UPSTREAM_CCR
Dissolved Uranium (mg/L)
0.006
0.004
0.002
0.000
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

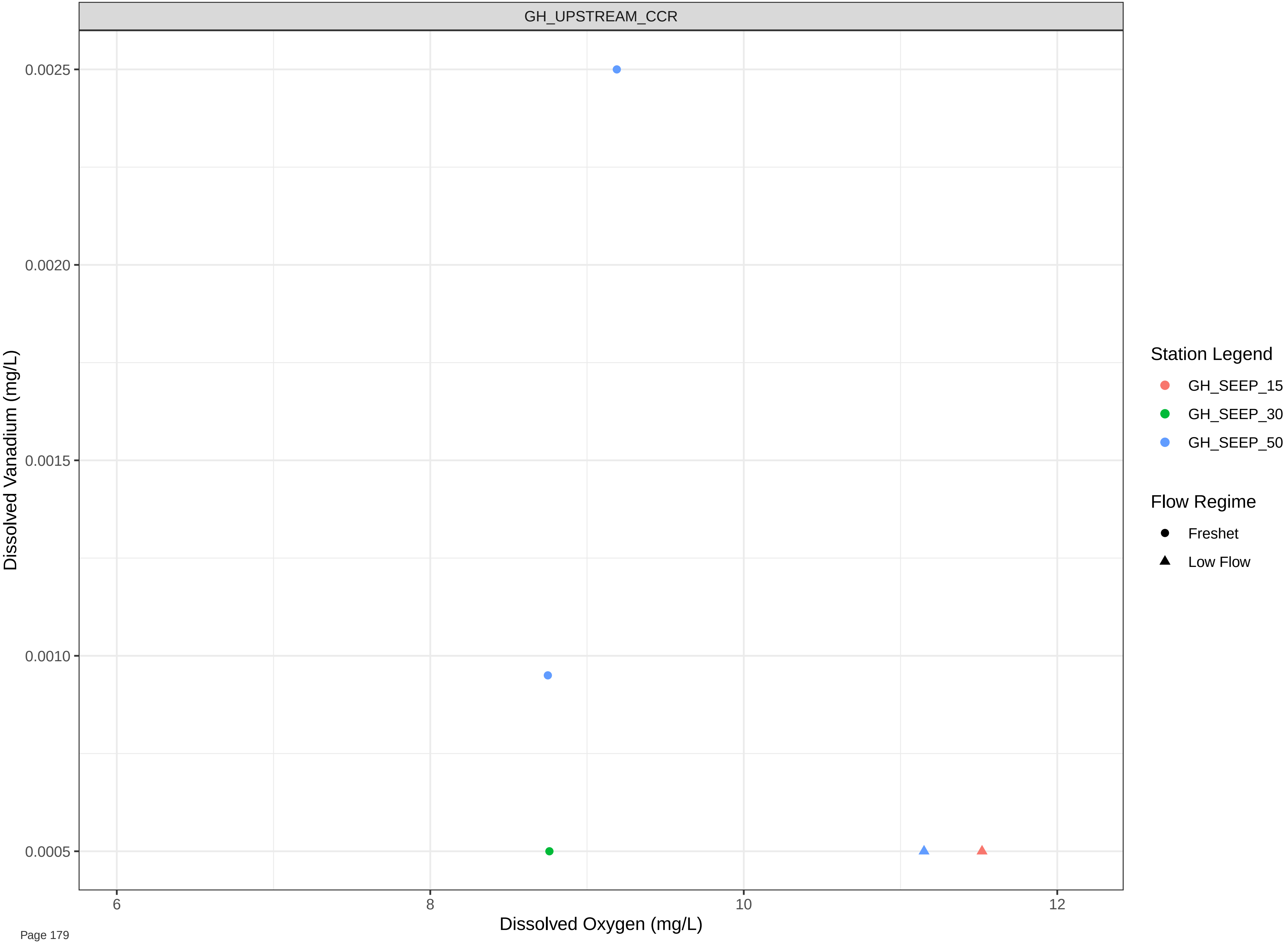

GH_WOLFRAM_WR
Dissolved Uranium (mg/L)
0.025
0.020
0.015
0.010
0.005
0.000
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

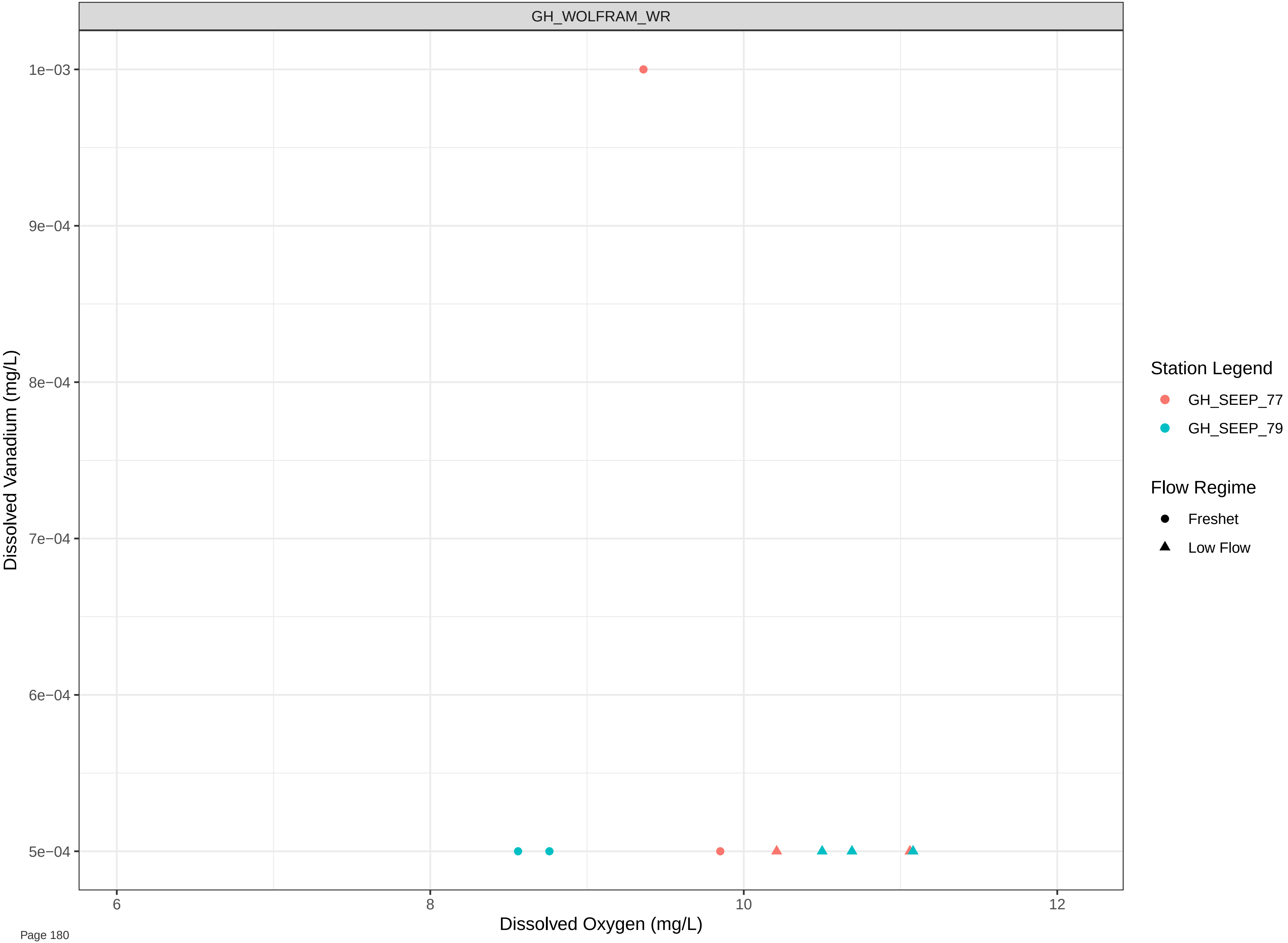

GH_CCR
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

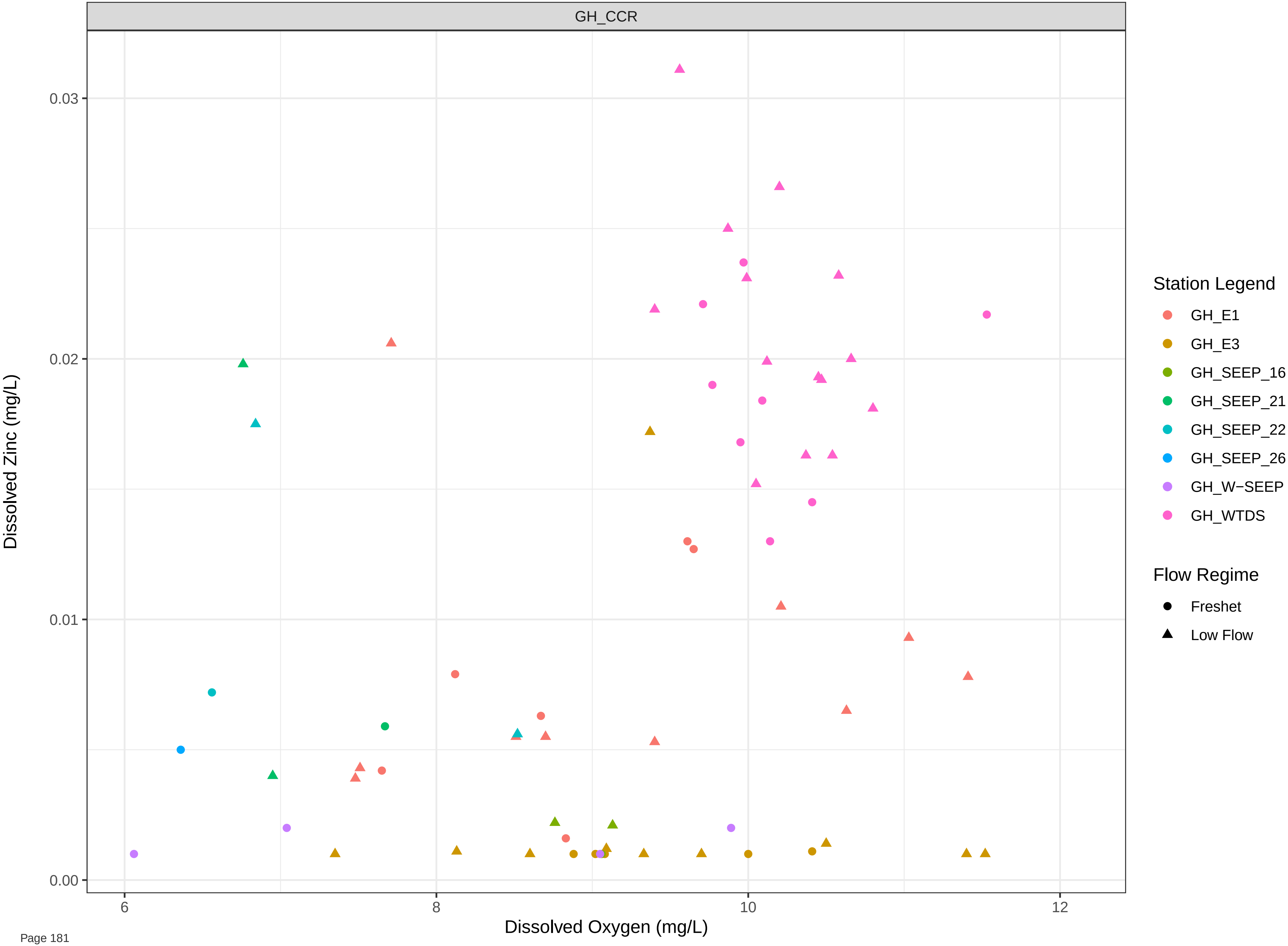

GH_LEASK_WR
Dissolved Vanadium (mg/L)
1e−03
9e−04
8e−04
7e−04
6e−04
5e−04
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow


GH_PORTER_CREEK
0.050
0.025
0.000
−0.025
Dissolved Vanadium (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

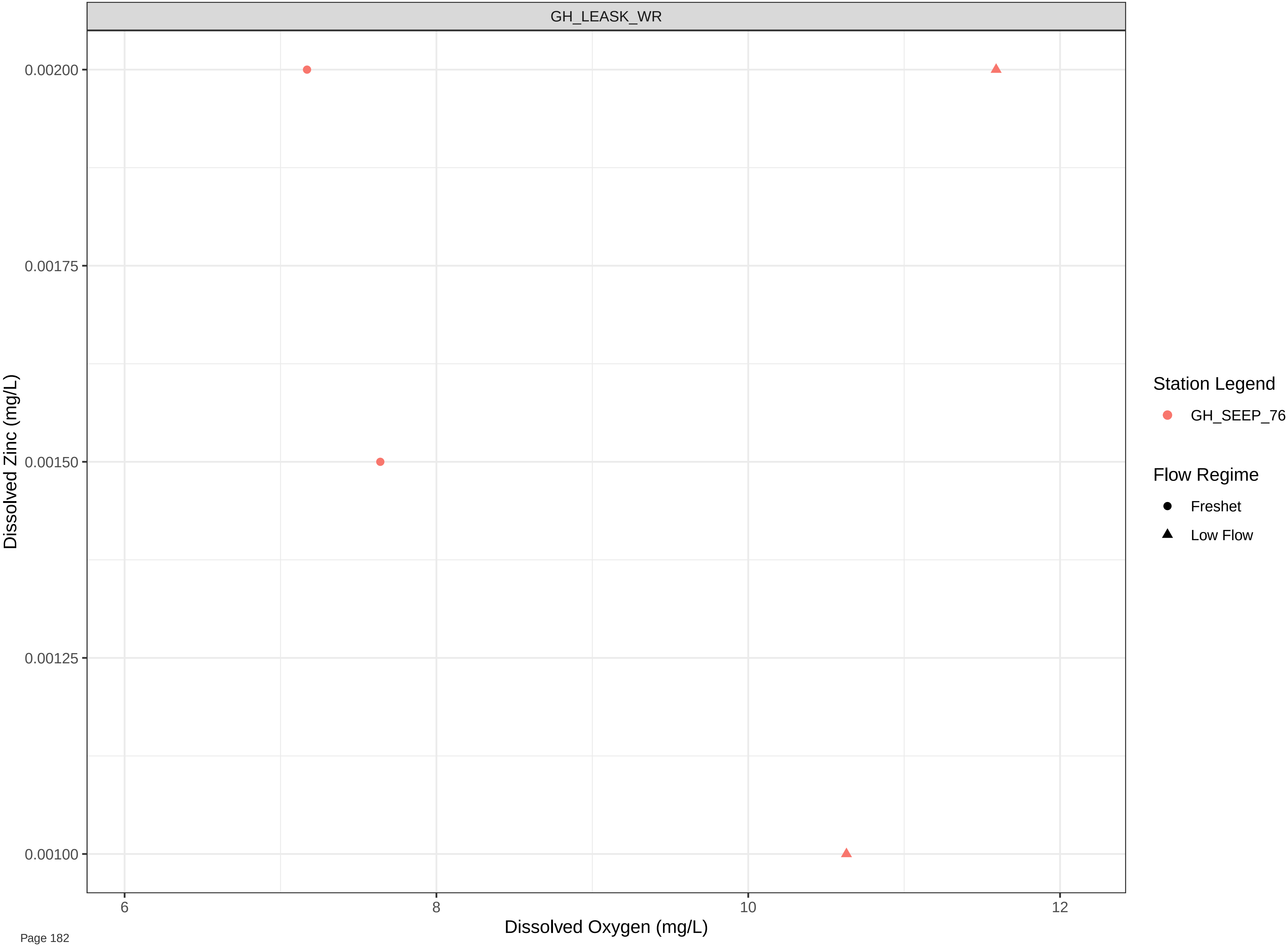

GH_THOMPSON_WR
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

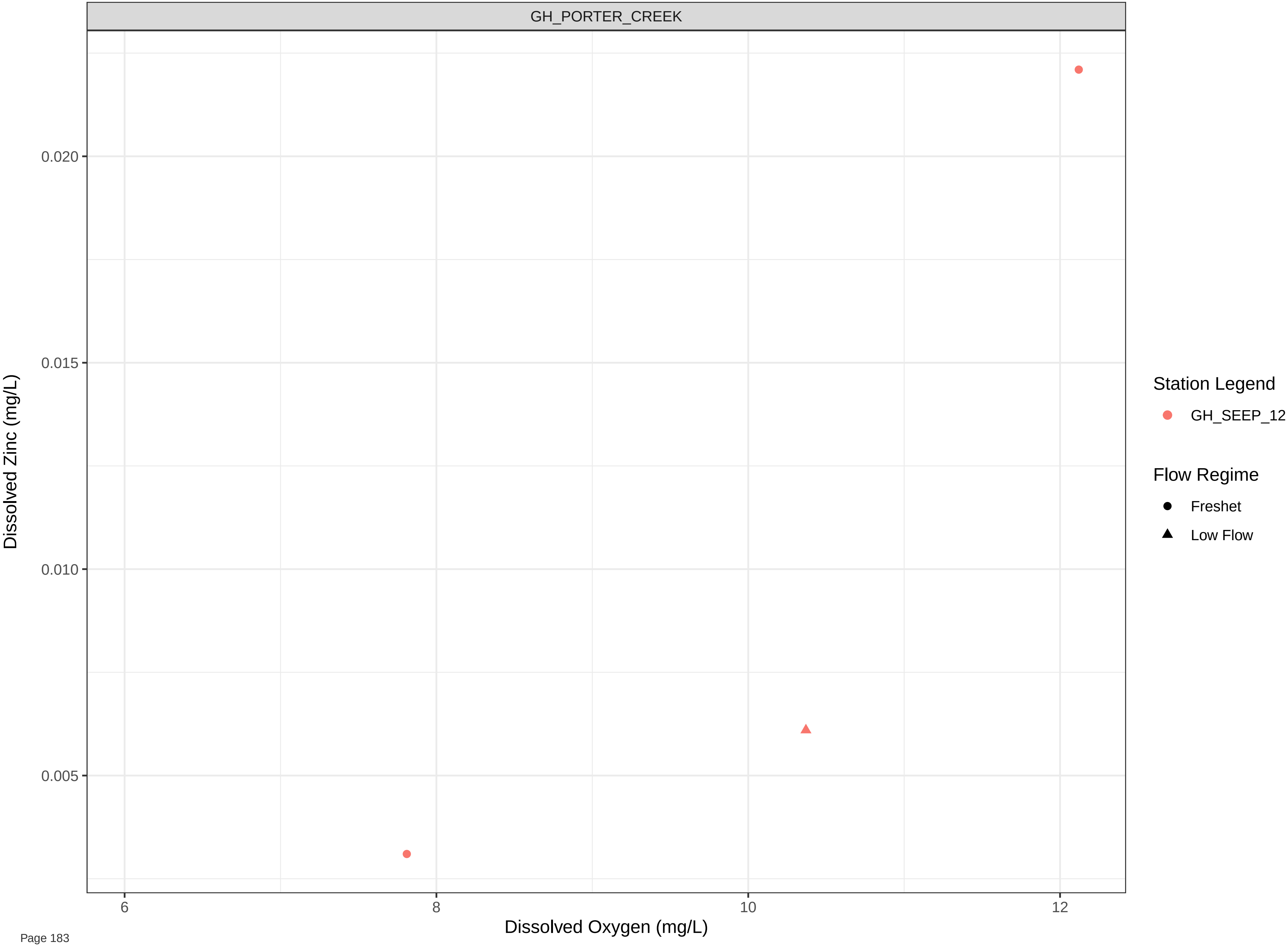

GH_UPSTREAM_CCR
0.0025
0.0020
0.0015
0.0010
0.0005
Dissolved Vanadium (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

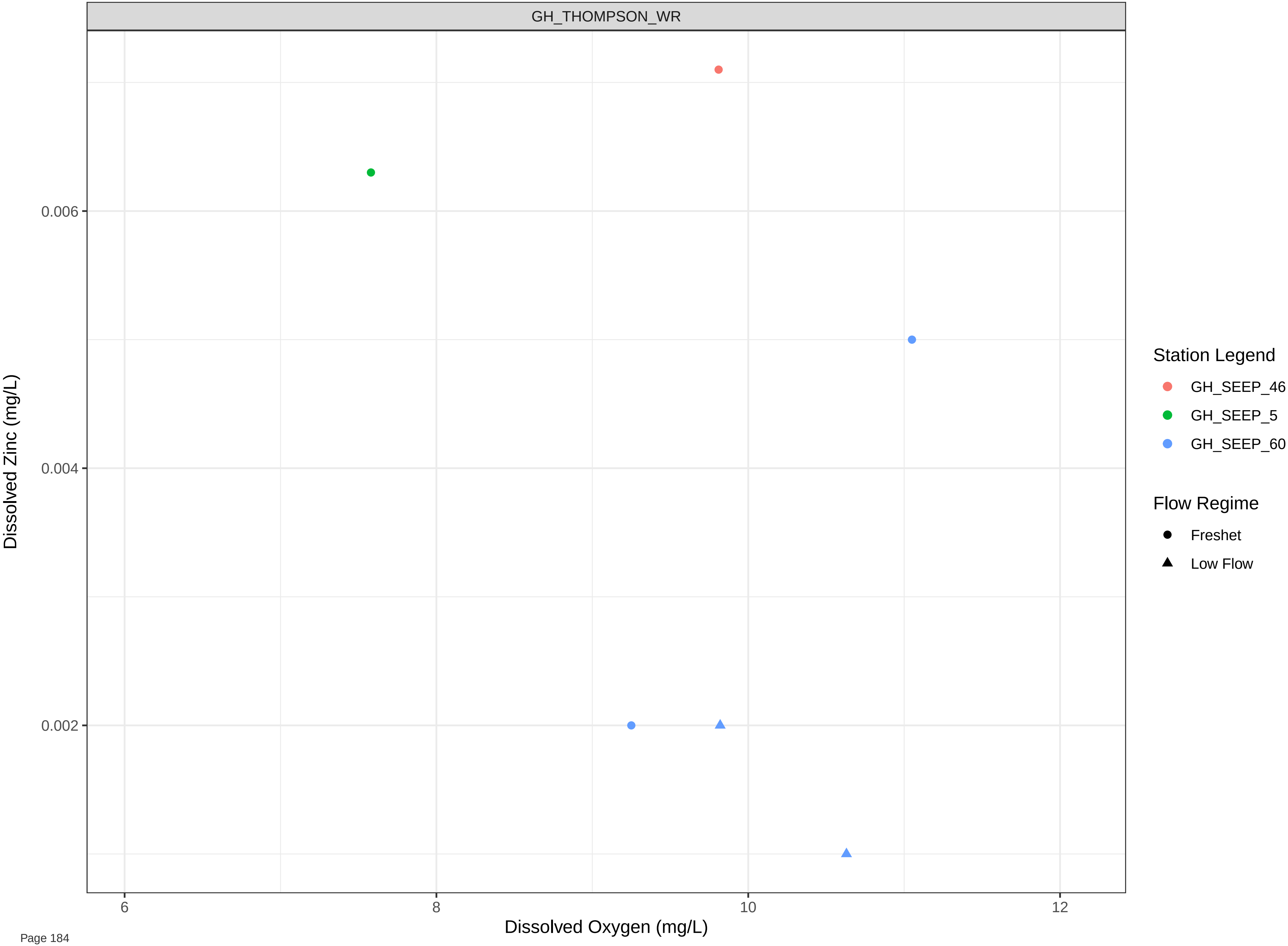

GH_WOLFRAM_WR
Dissolved Vanadium (mg/L)
1e−03
9e−04
8e−04
7e−04
6e−04
5e−04
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

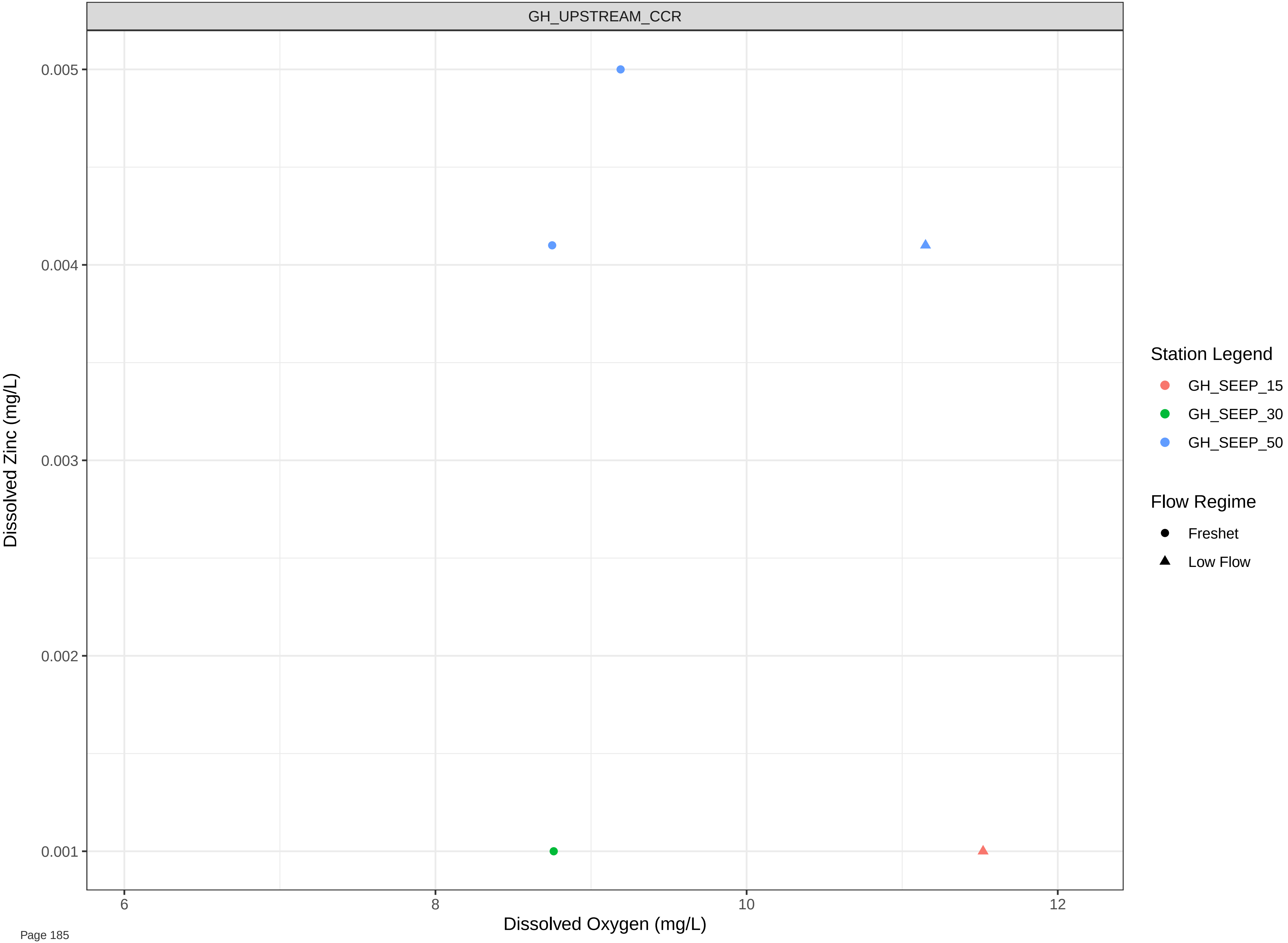


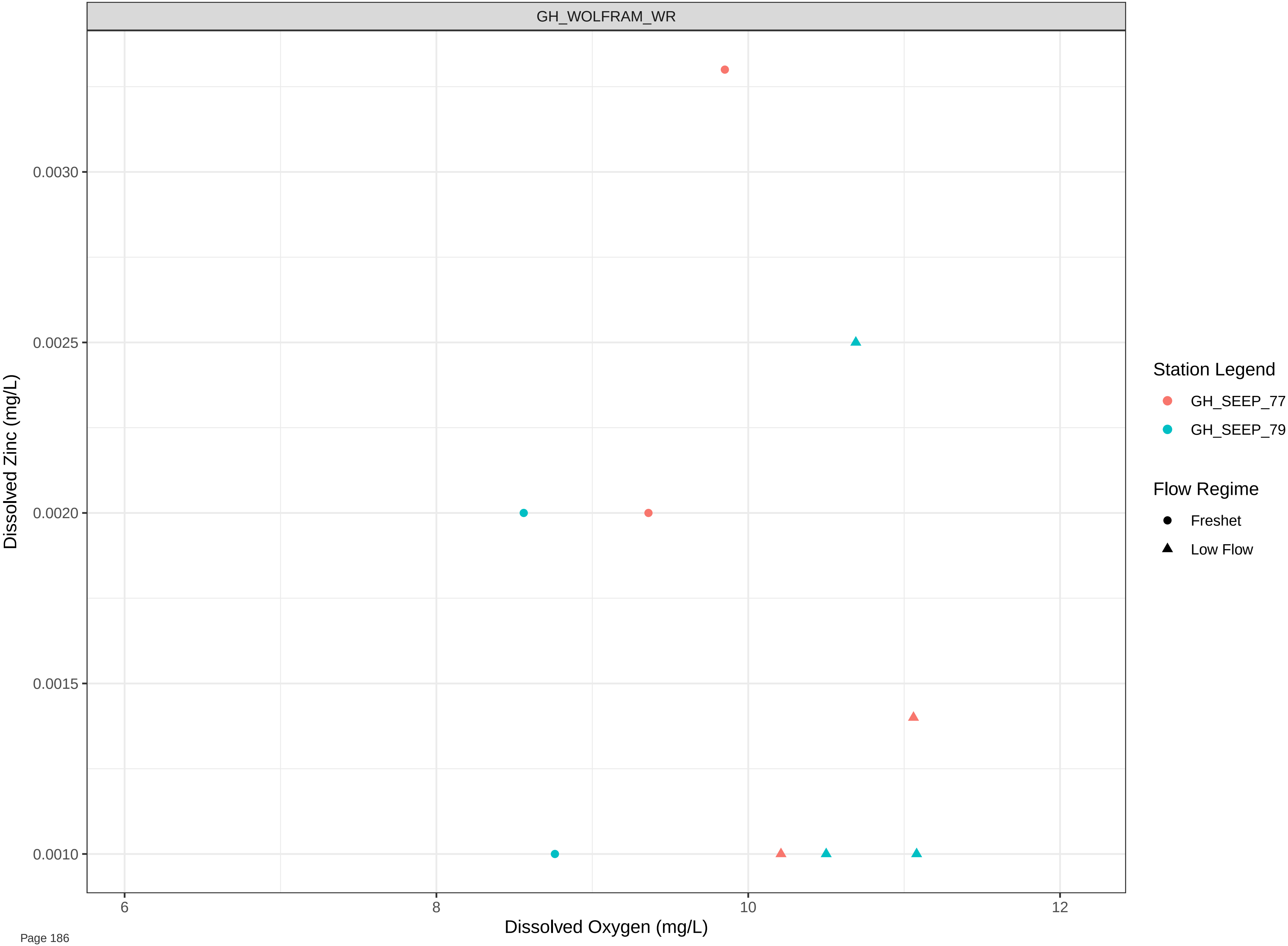
GH_CCR
Dissolved Zinc (mg/L)
0.03
0.02
0.01
0.00
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_E1
GH_E3
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
GH_WTDS
Flow Regime
Freshet
Low Flow

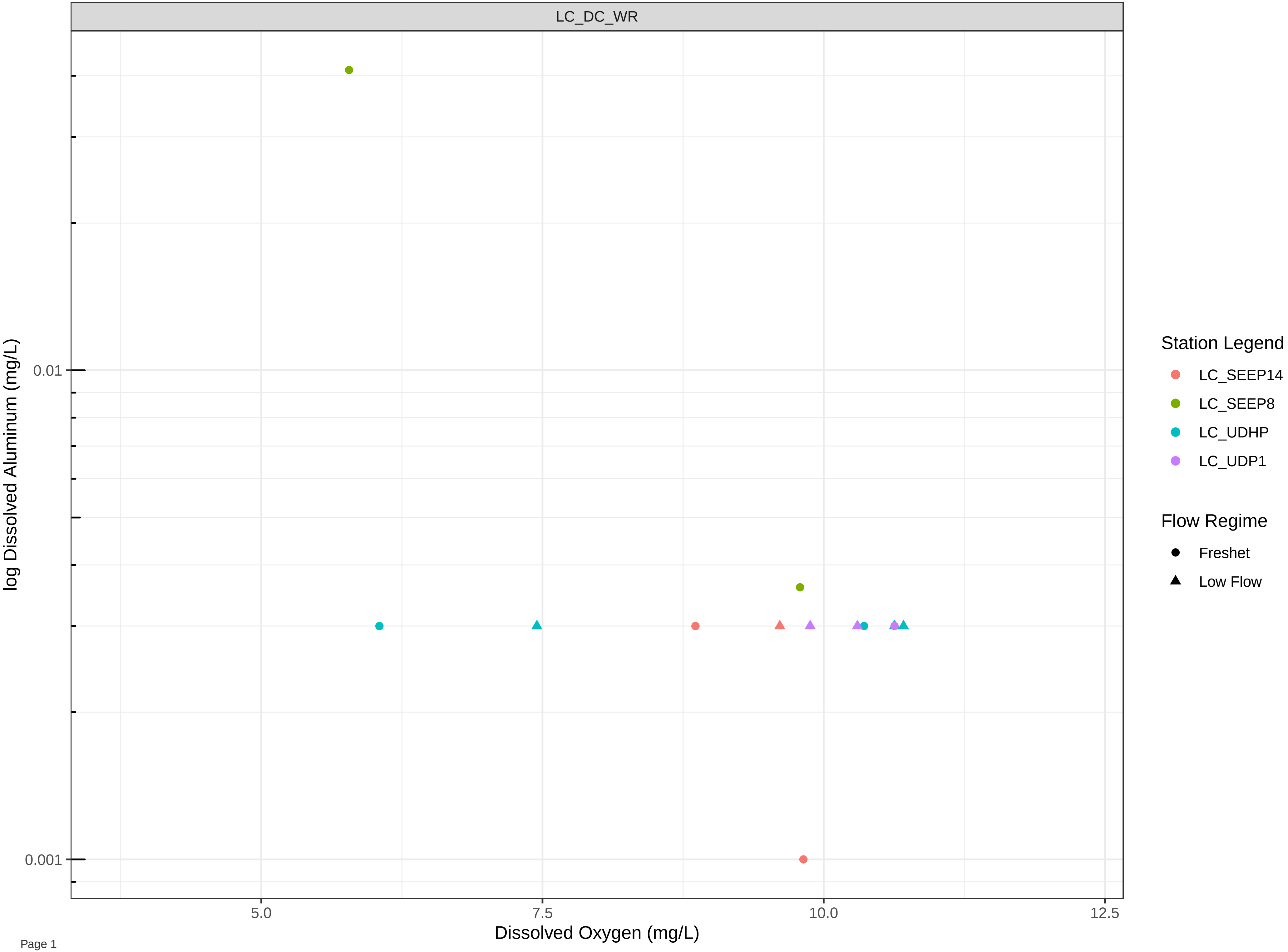

GH_LEASK_WR
0.00200
0.00175
0.00150
0.00125
0.00100
Dissolved Zinc (mg/L)
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow


GH_PORTER_CREEK
Dissolved Zinc (mg/L)
0.020
0.015
0.010
0.005
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

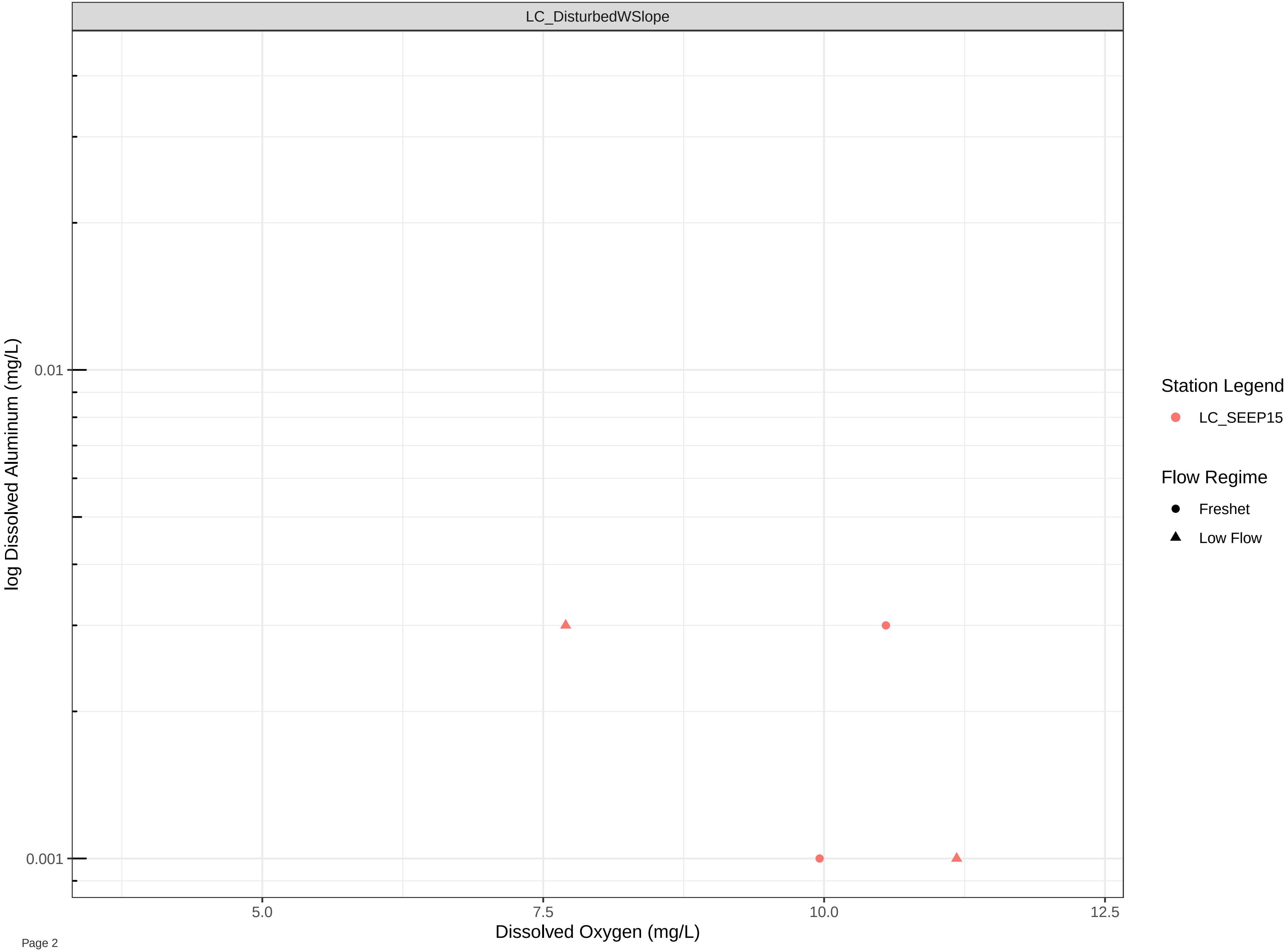

GH_THOMPSON_WR
Dissolved Zinc (mg/L)
0.006
0.004
0.002
6
8
10
12
Dissolved Oxygen (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_60
Flow Regime
Freshet
Low Flow

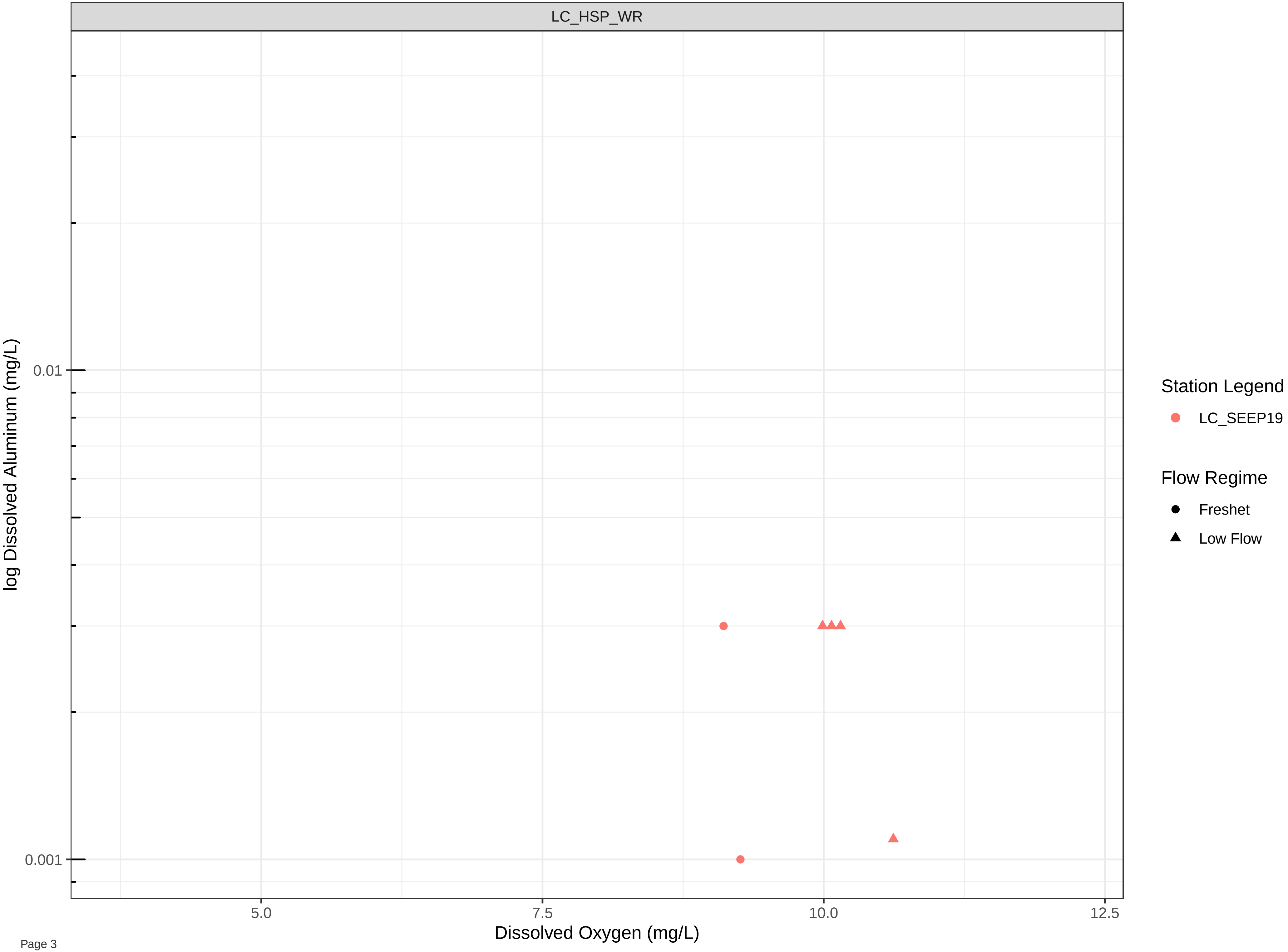

GH_UPSTREAM_CCR
Dissolved Zinc (mg/L)
0.005
0.004
0.003
0.002
0.001
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_15
GH_SEEP_30
GH_SEEP_50
Flow Regime
Freshet
Low Flow

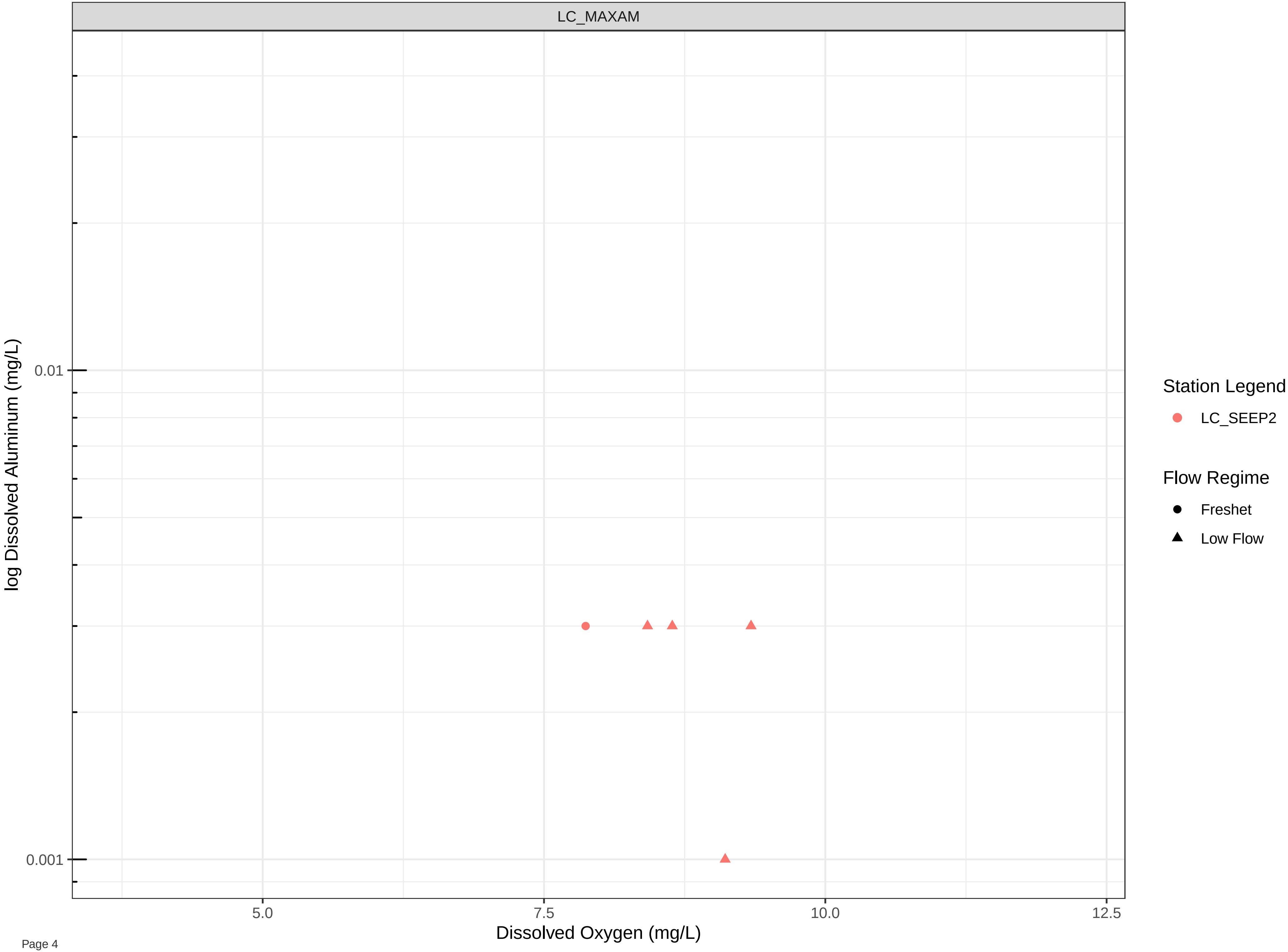

GH_WOLFRAM_WR
Dissolved Zinc (mg/L)
0.0030
0.0025
0.0020
0.0015
0.0010
Dissolved Oxygen (mg/L)
6
8
10
12
Station Legend
GH_SEEP_77
GH_SEEP_79
Flow Regime
Freshet
Low Flow

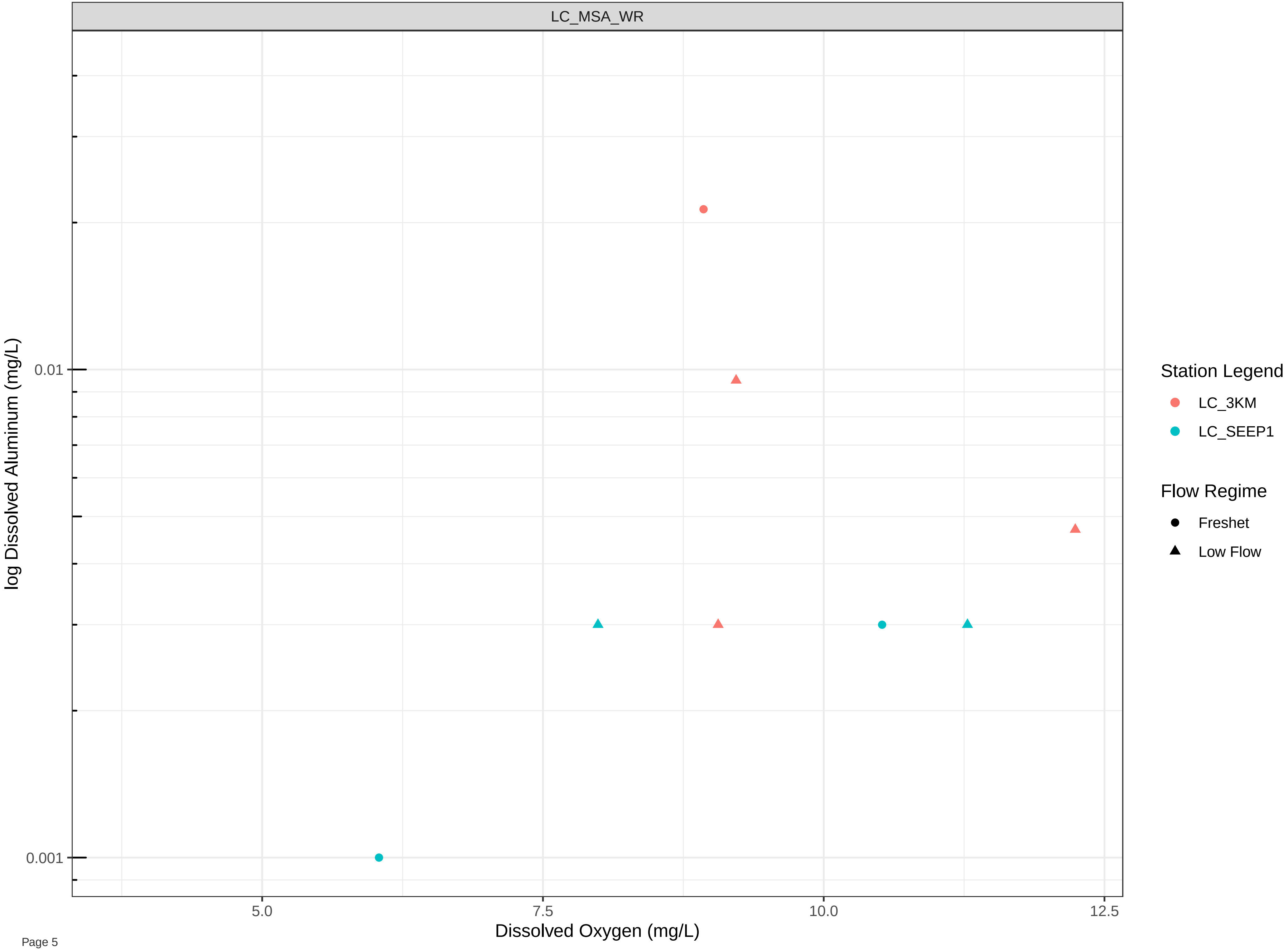


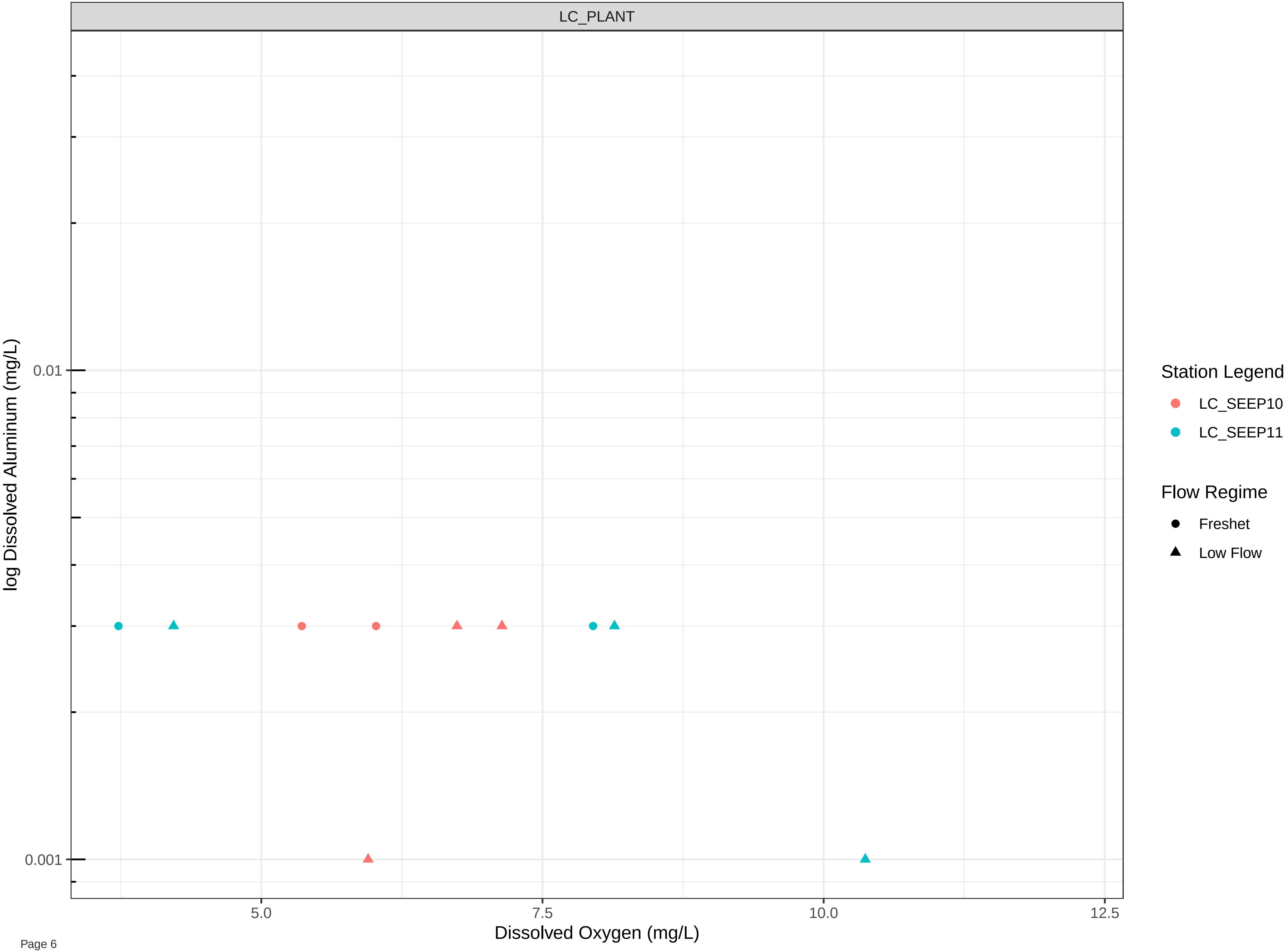
LC_DC_WR
log Dissolved Aluminum (mg/L)
0.01
0.001
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

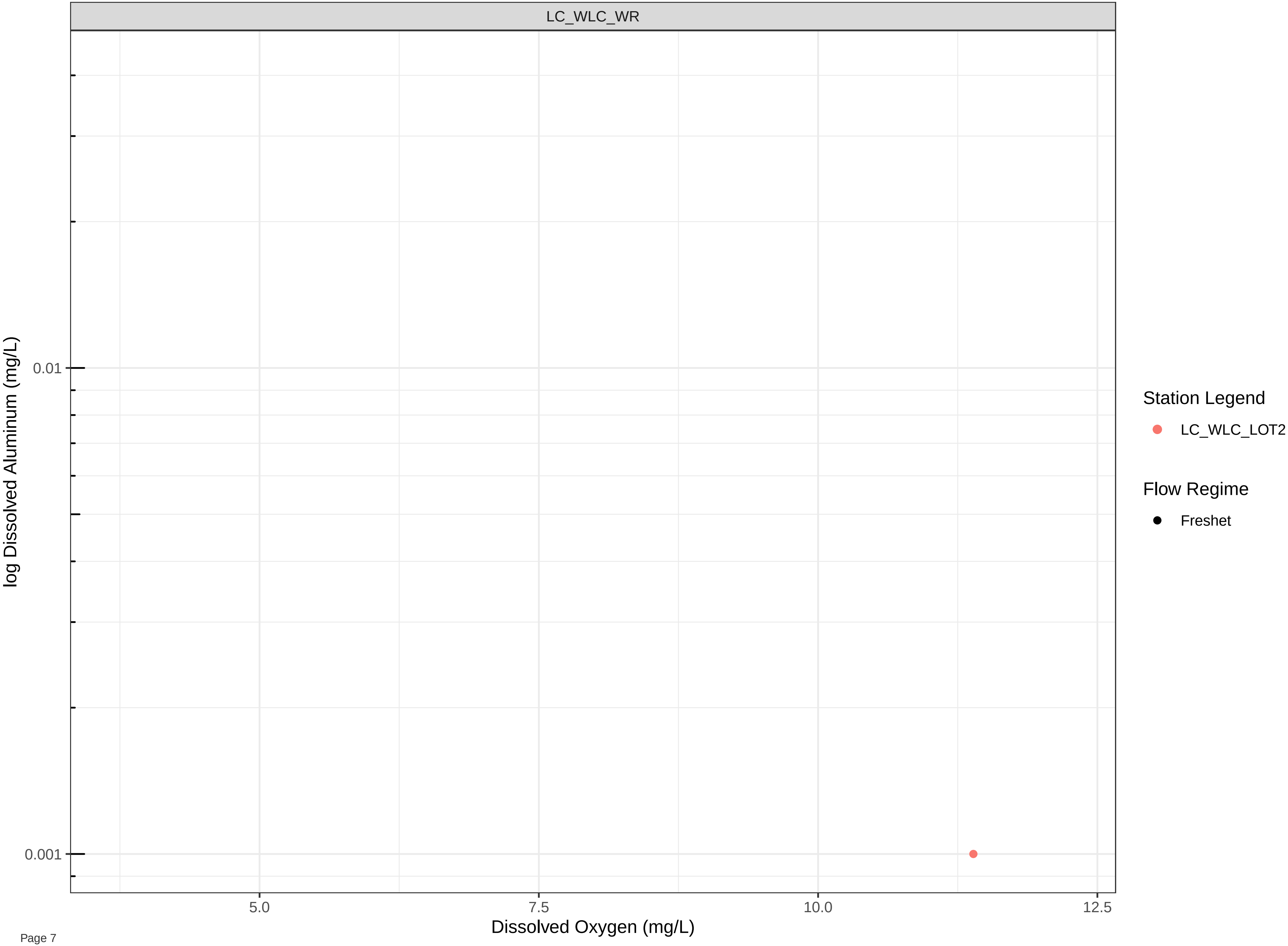

LC_DisturbedWSlope
log Dissolved Aluminum (mg/L)
0.01
0.001
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

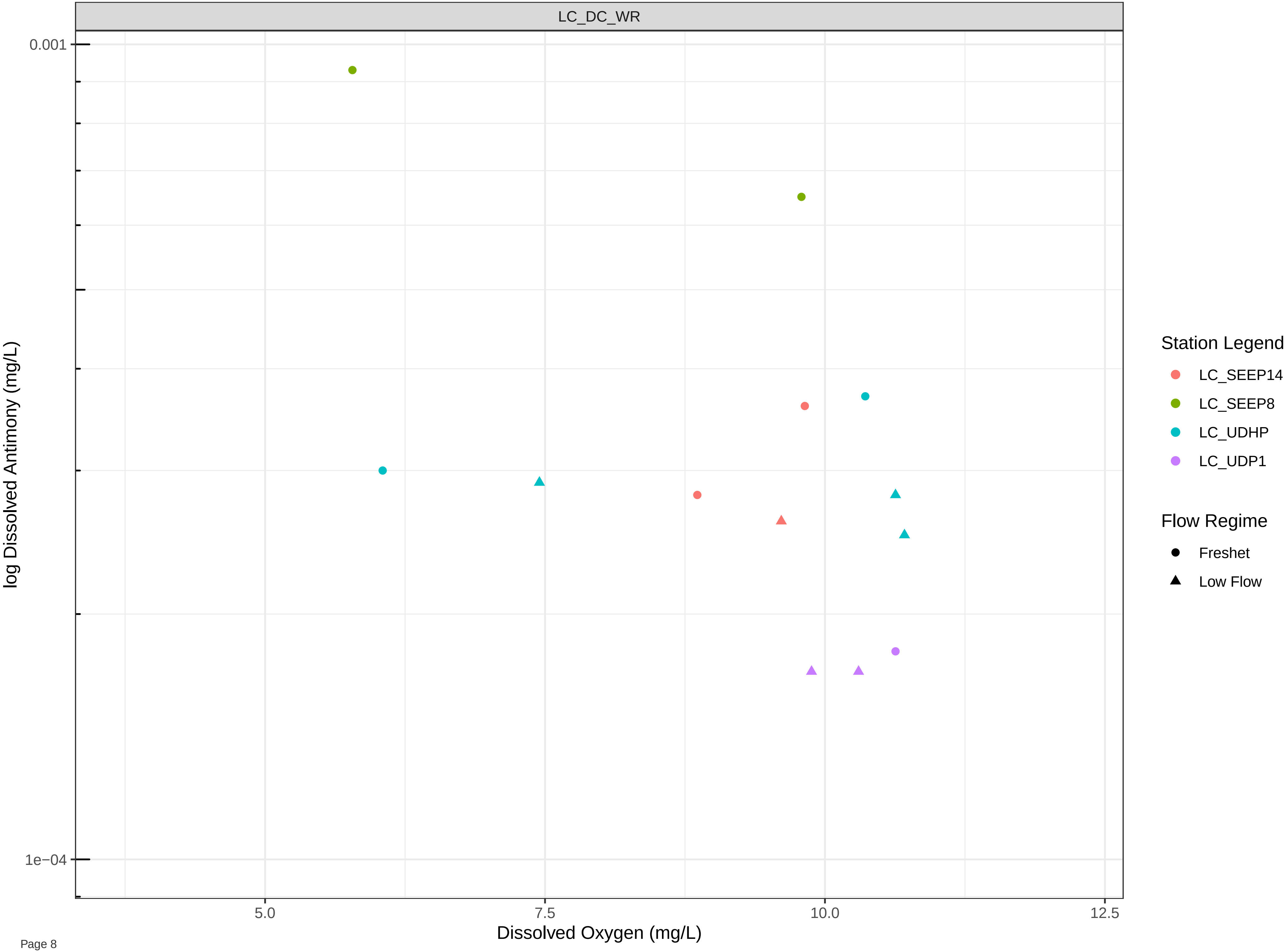

LC_HSP_WR
log Dissolved Aluminum (mg/L)
0.01
0.001
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

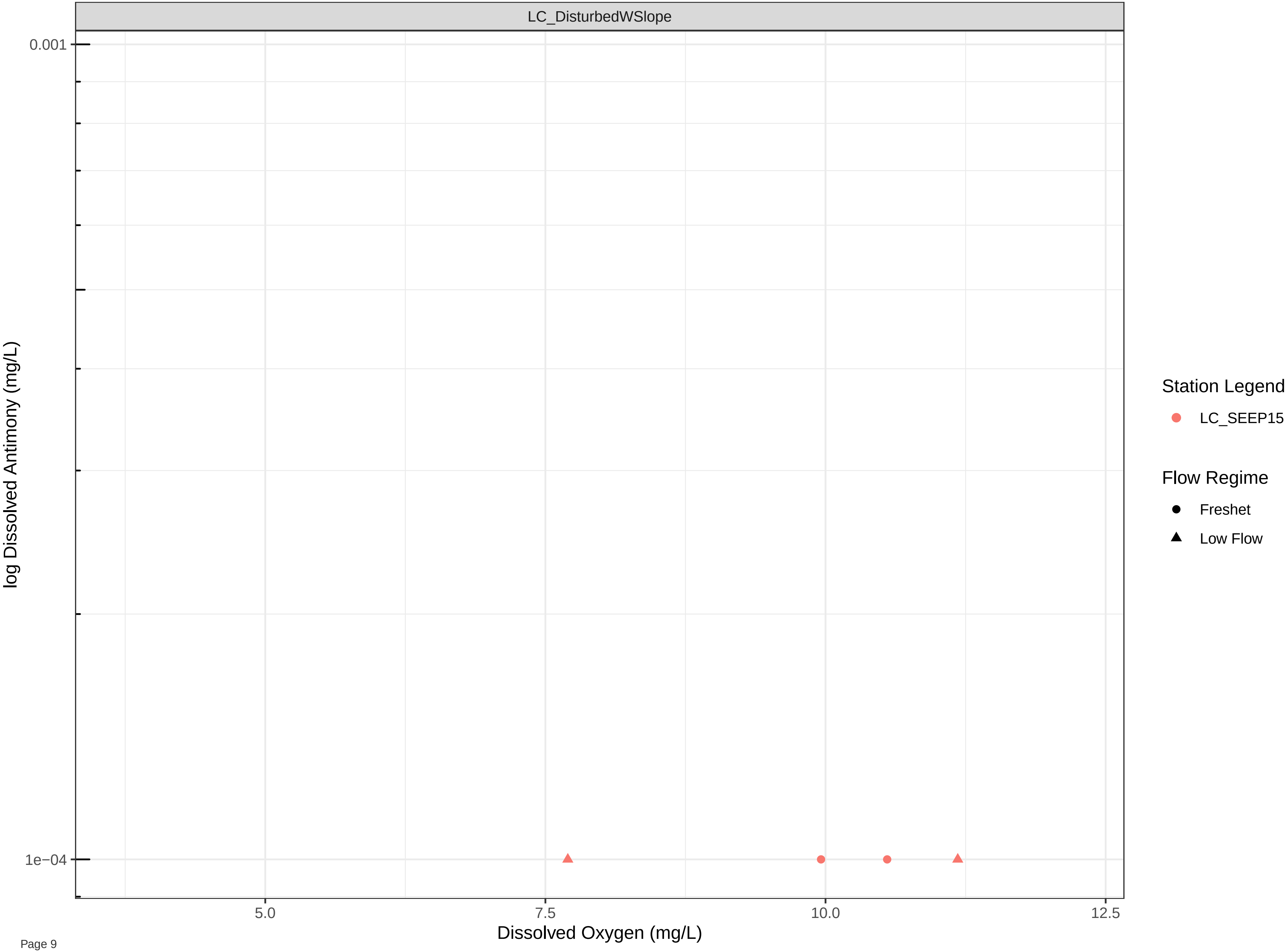

LC_MAXAM
log Dissolved Aluminum (mg/L)
0.01
0.001
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow

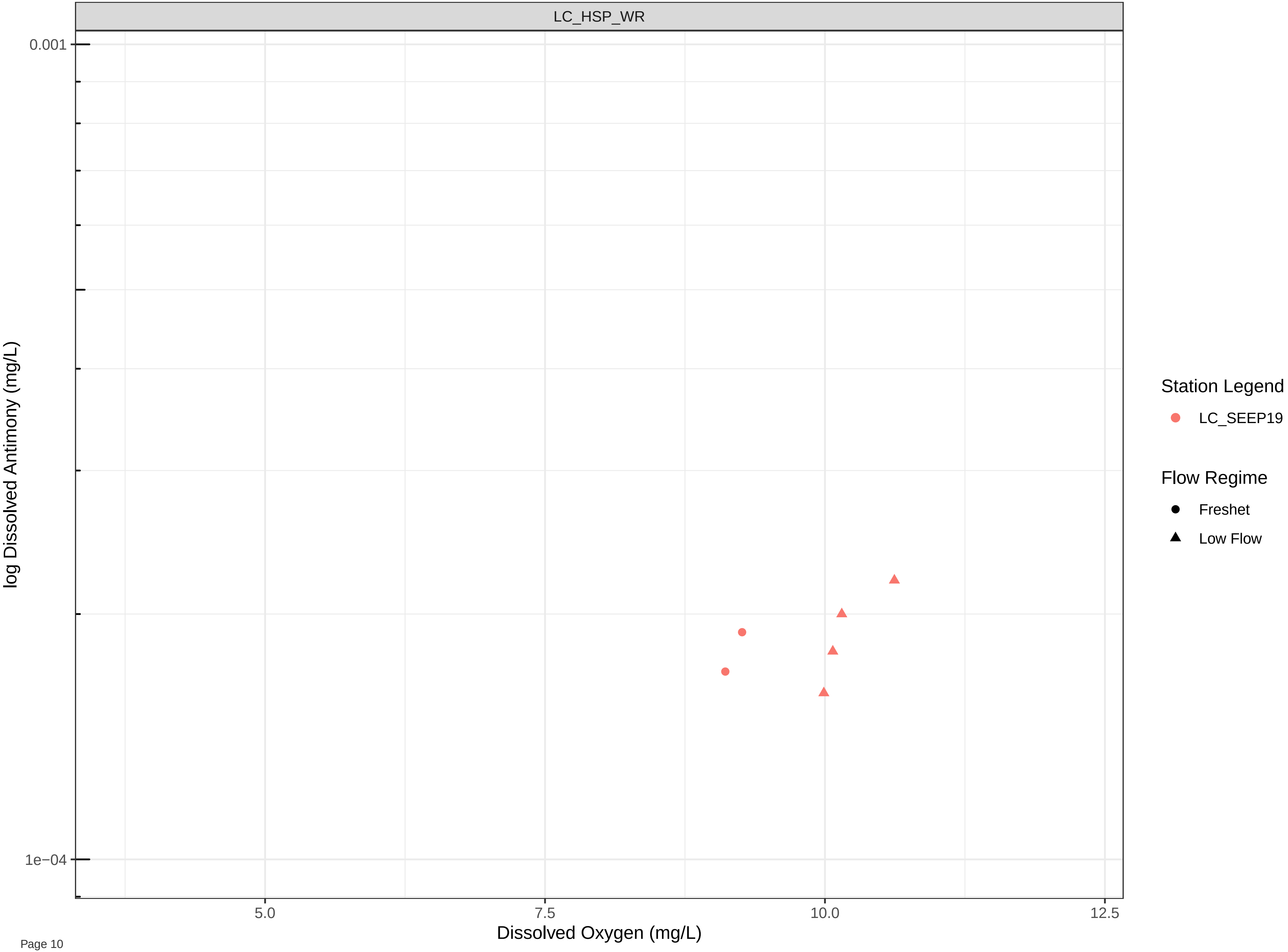

LC_MSA_WR
log Dissolved Aluminum (mg/L)
0.01
0.001
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

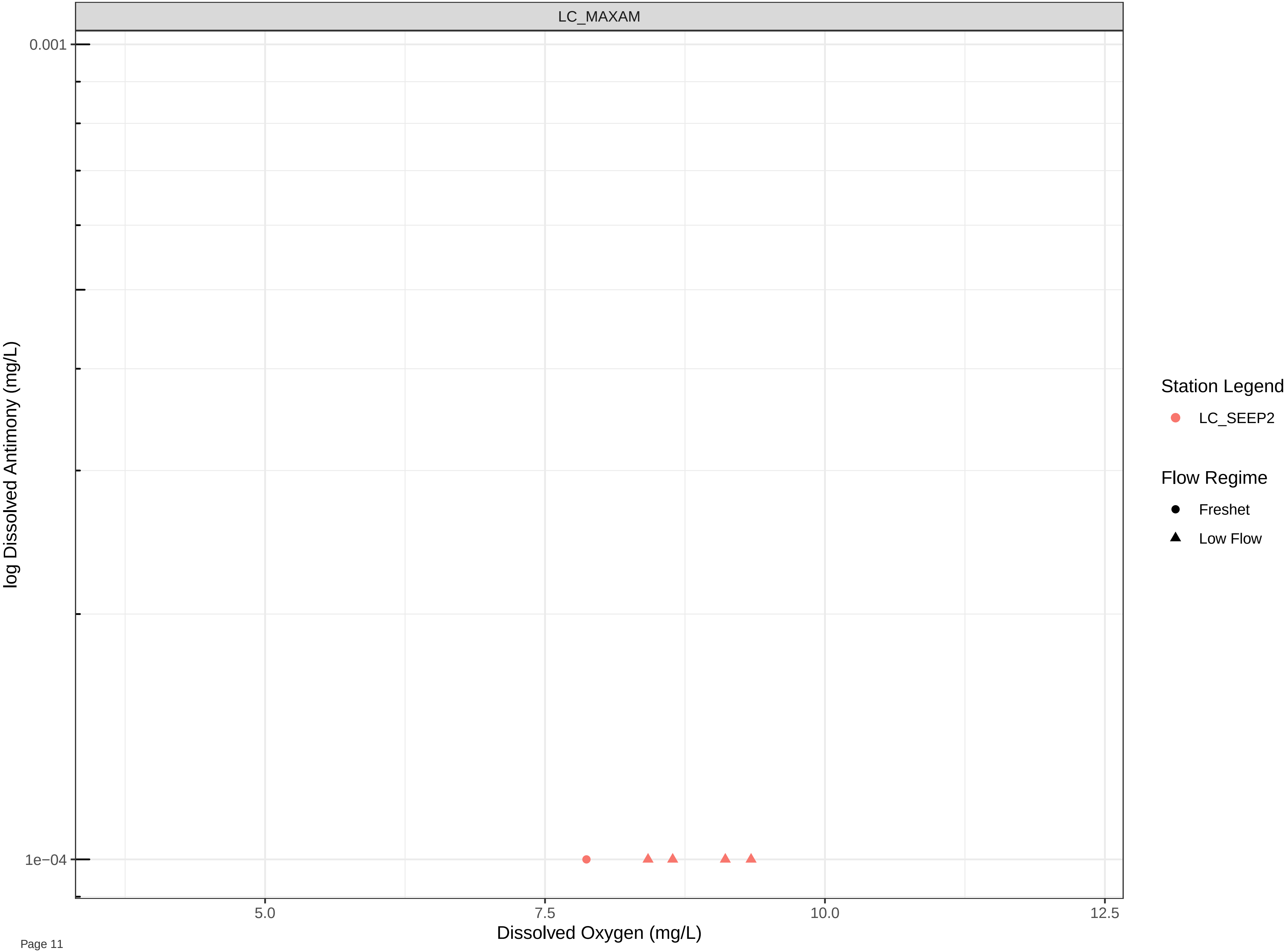

LC_PLANT
log Dissolved Aluminum (mg/L)
0.01
0.001
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

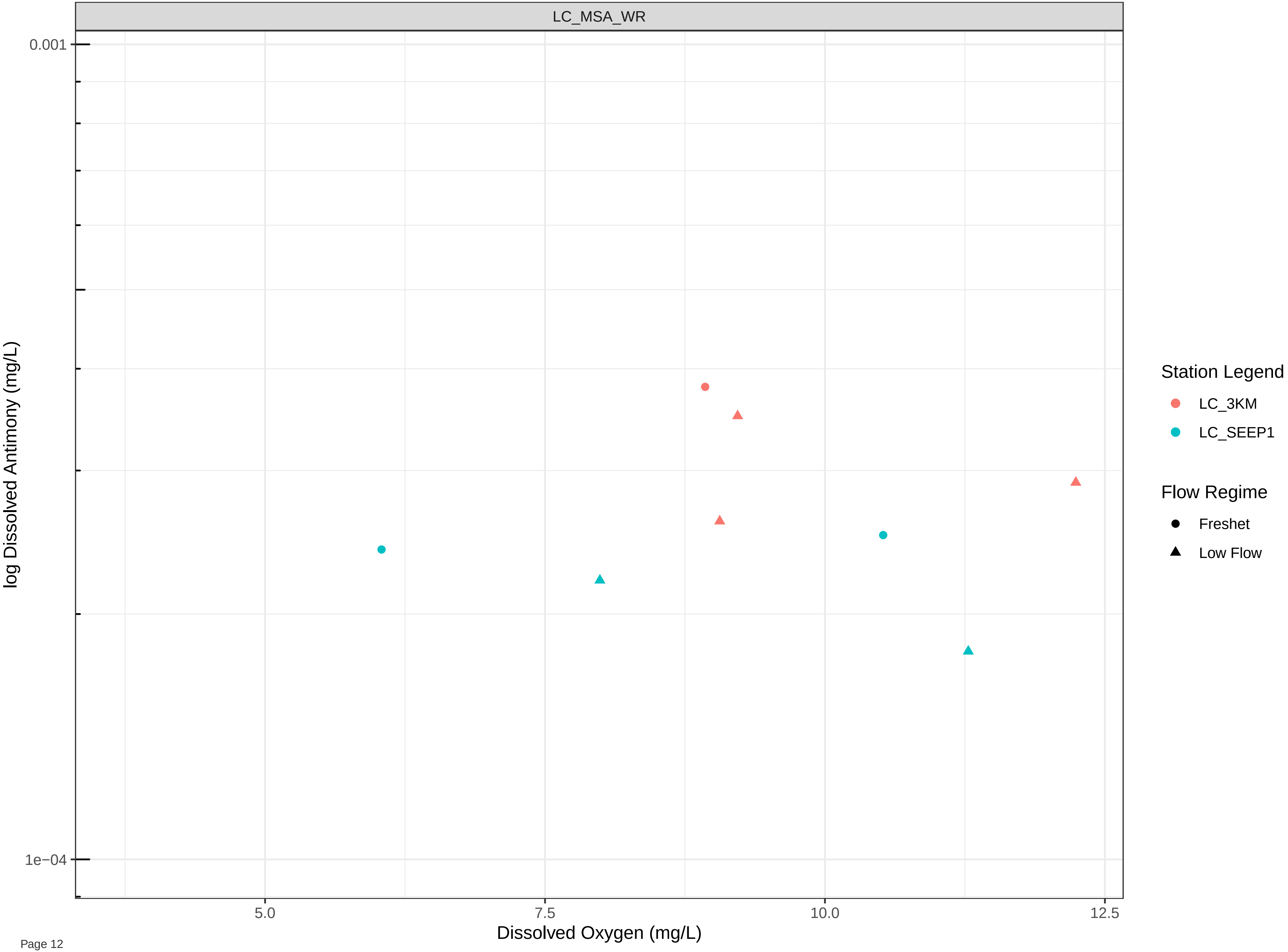

LC_WLC_WR
log Dissolved Aluminum (mg/L)
0.01
0.001
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

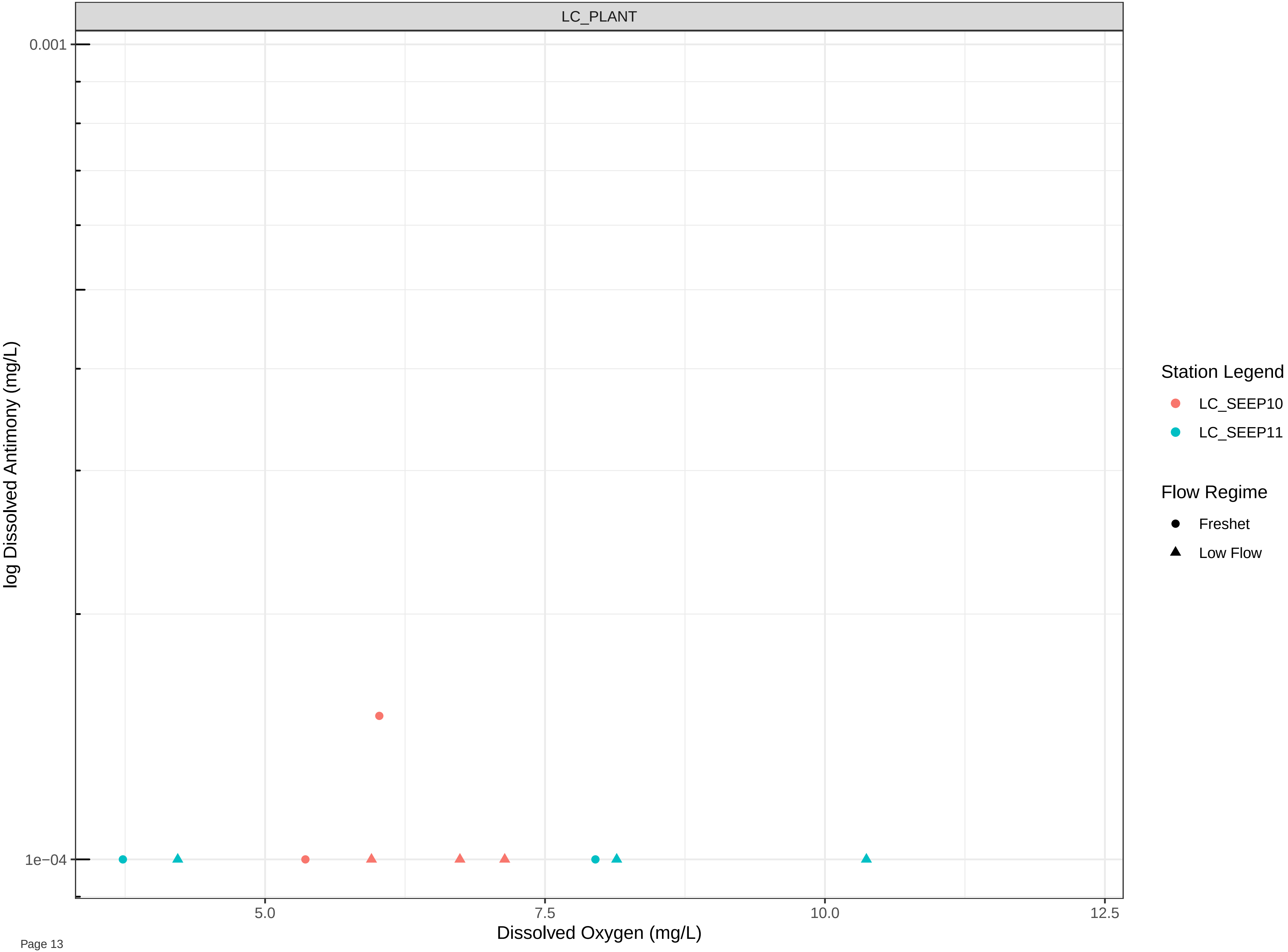

LC_DC_WR
0.001
1e−04
log Dissolved Antimony (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

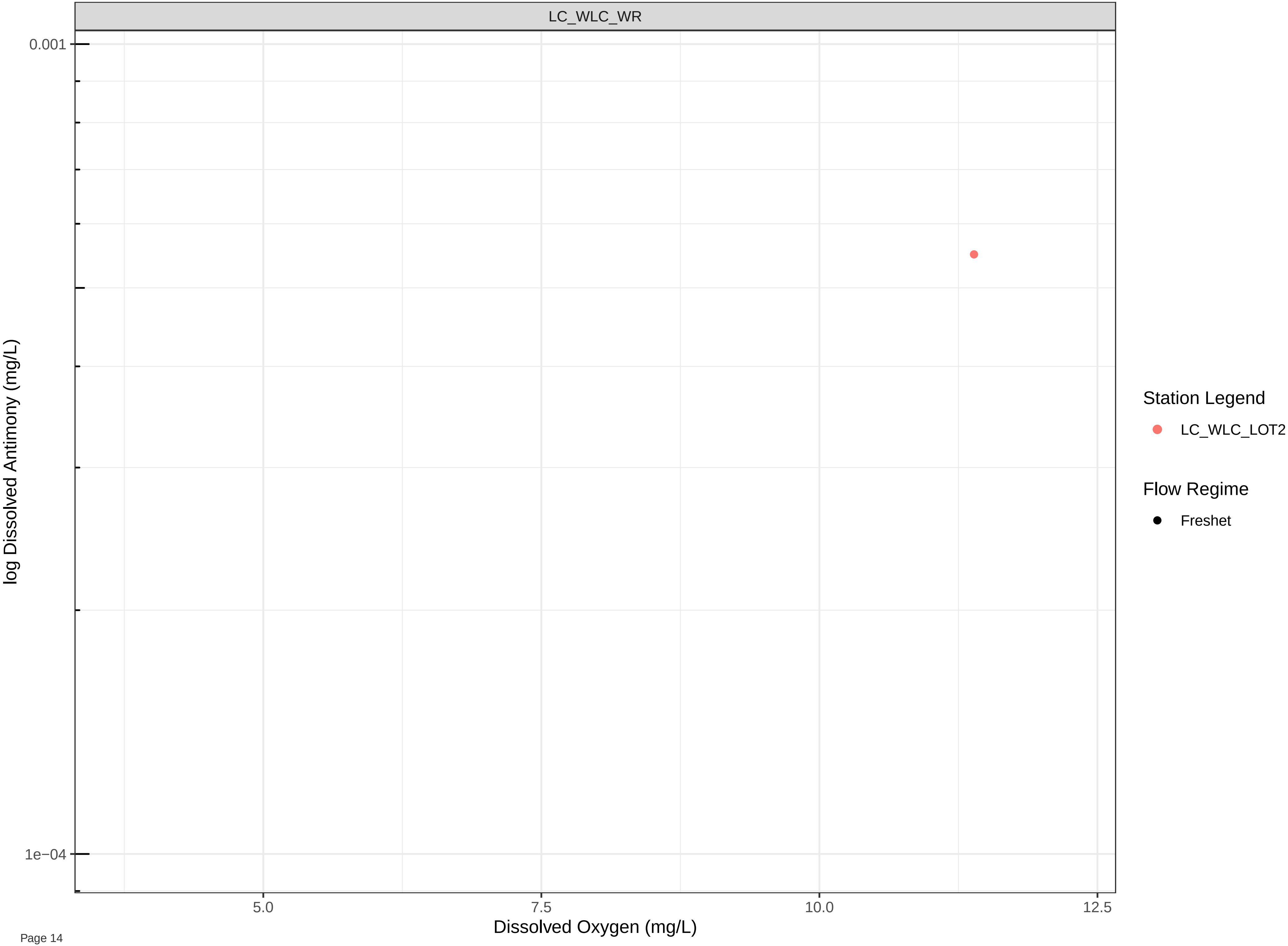

LC_DisturbedWSlope
0.001
1e−04
log Dissolved Antimony (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

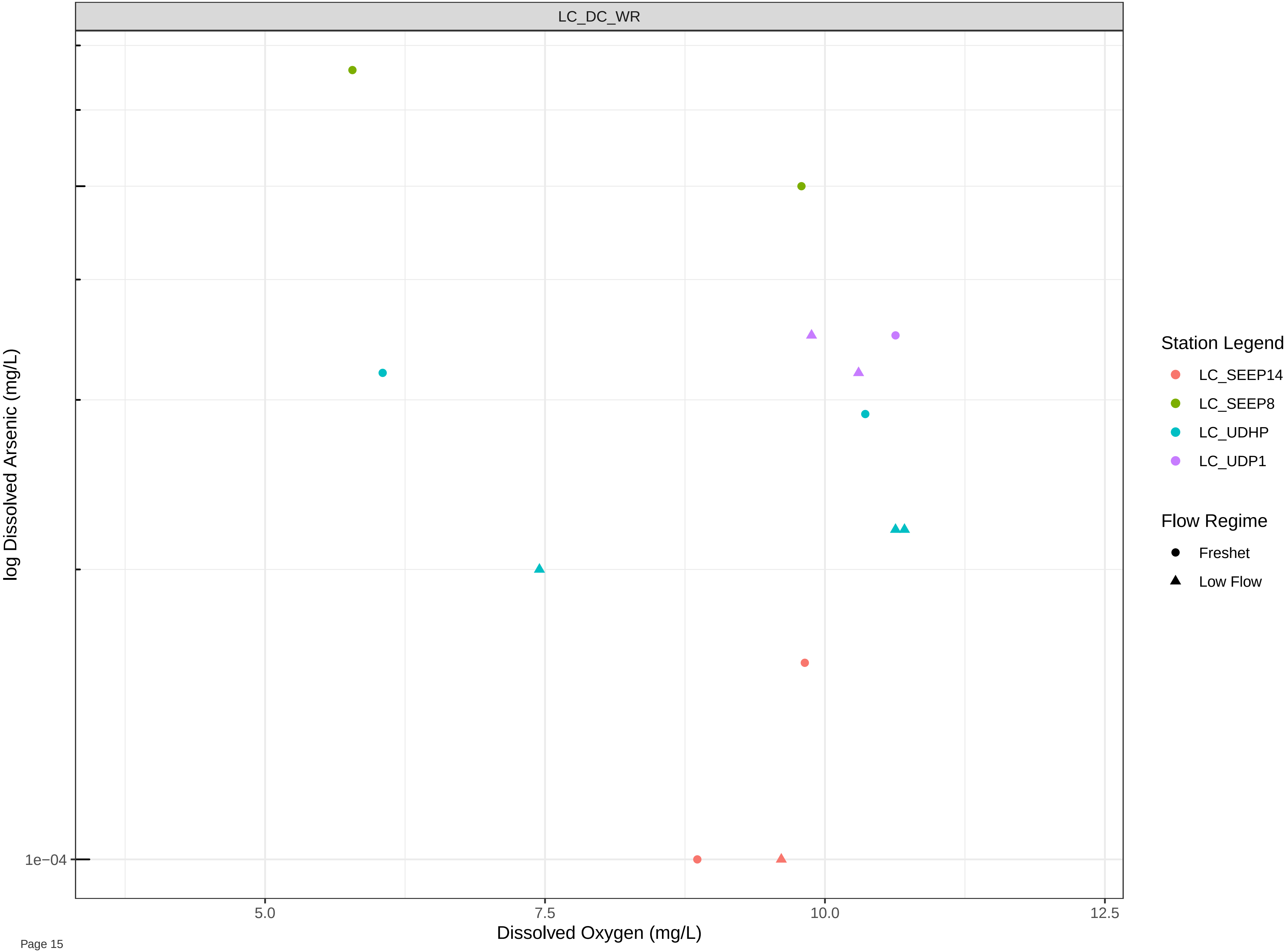

LC_HSP_WR
0.001
1e−04
log Dissolved Antimony (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

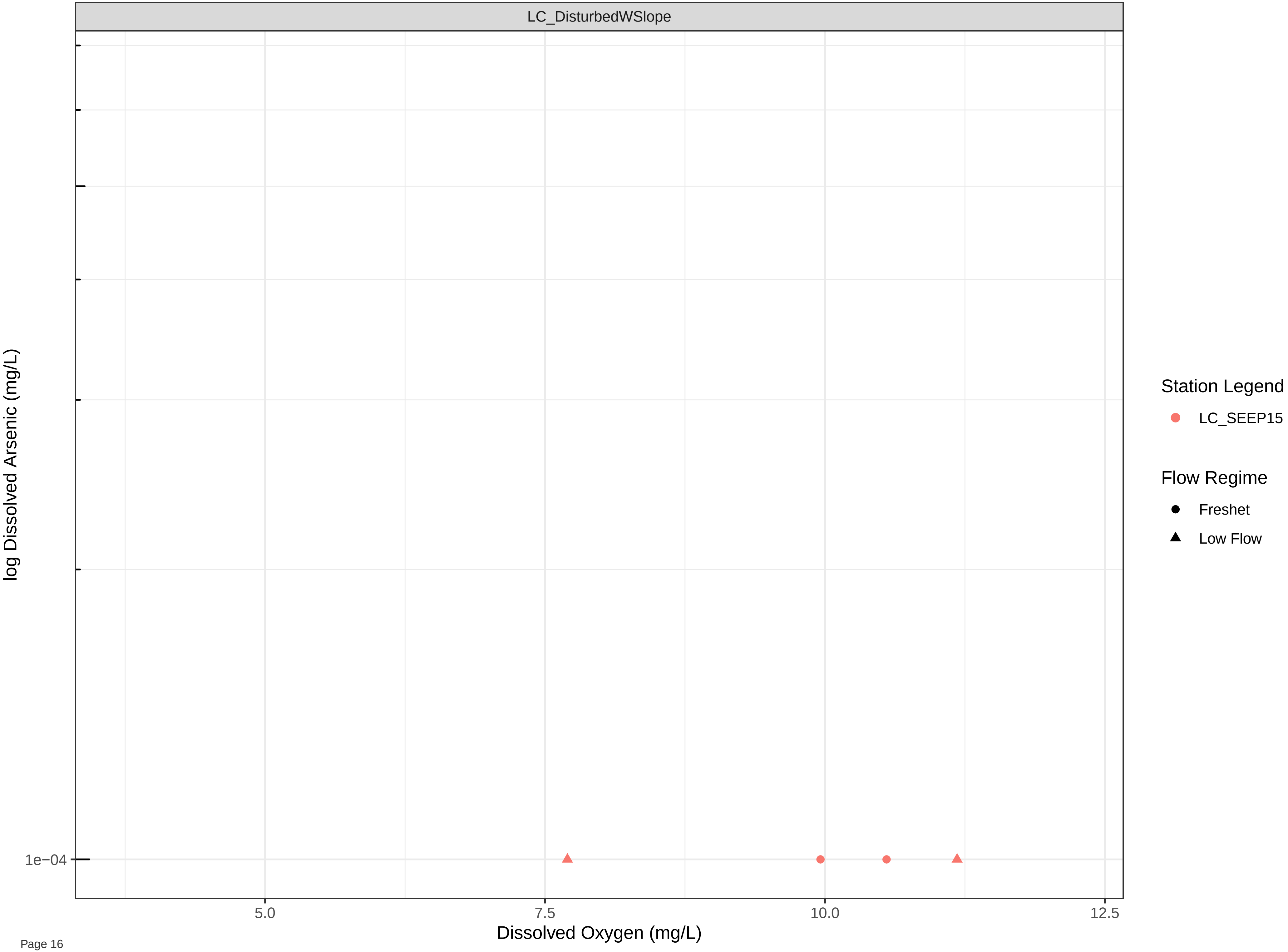

LC_MAXAM
0.001
1e−04
log Dissolved Antimony (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow

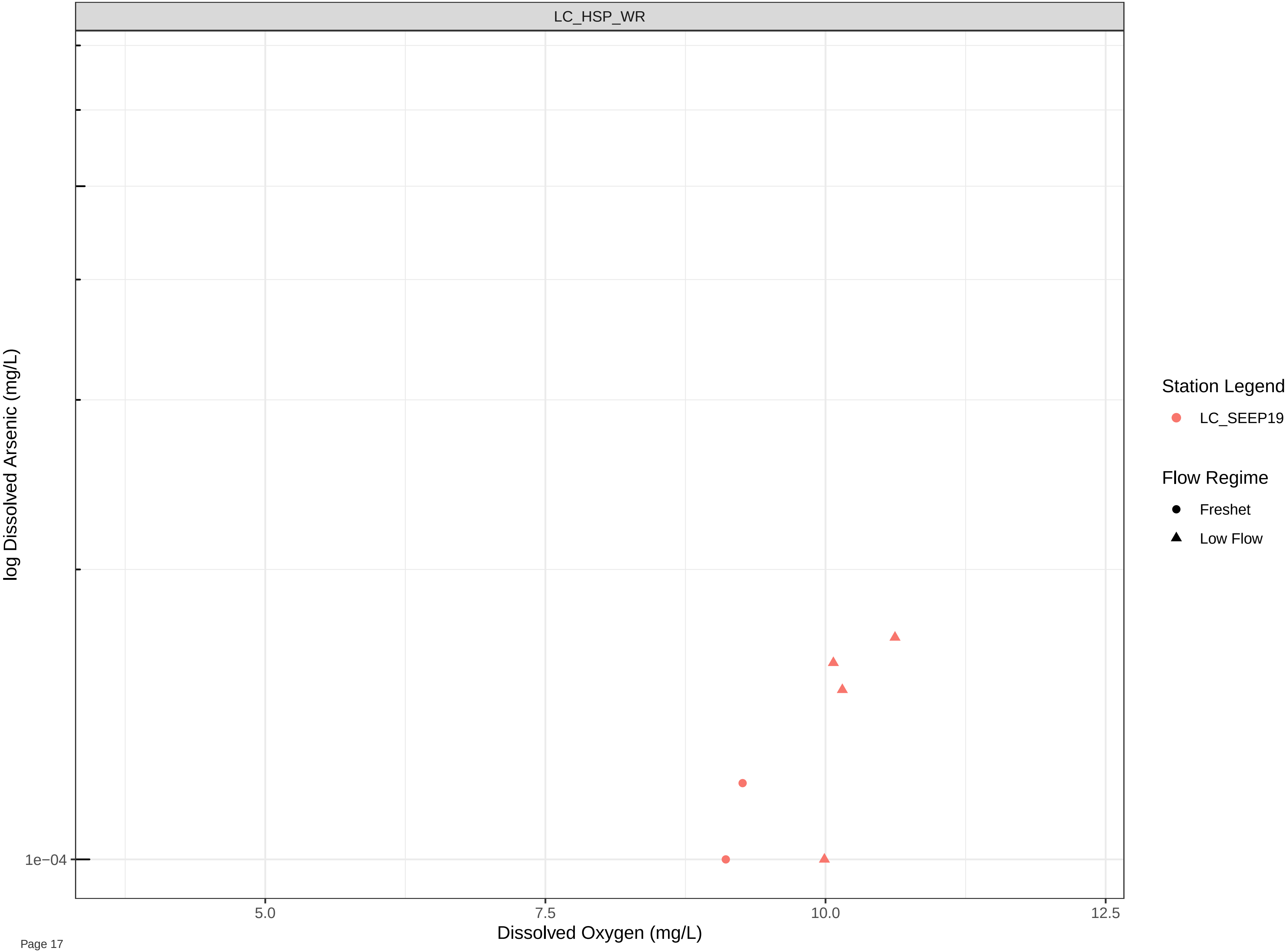

LC_MSA_WR
0.001
1e−04
log Dissolved Antimony (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

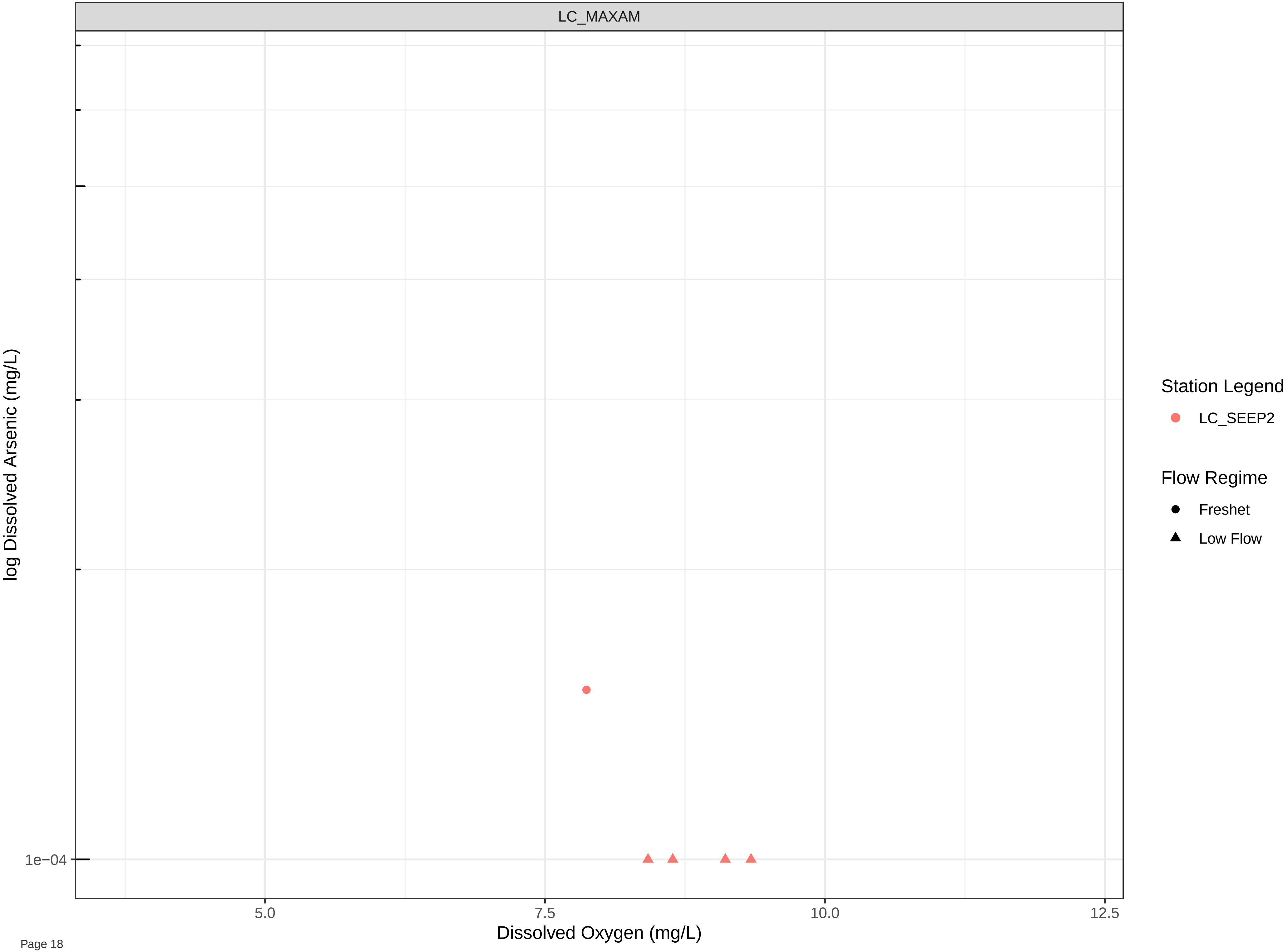

LC_PLANT
0.001
1e−04
log Dissolved Antimony (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

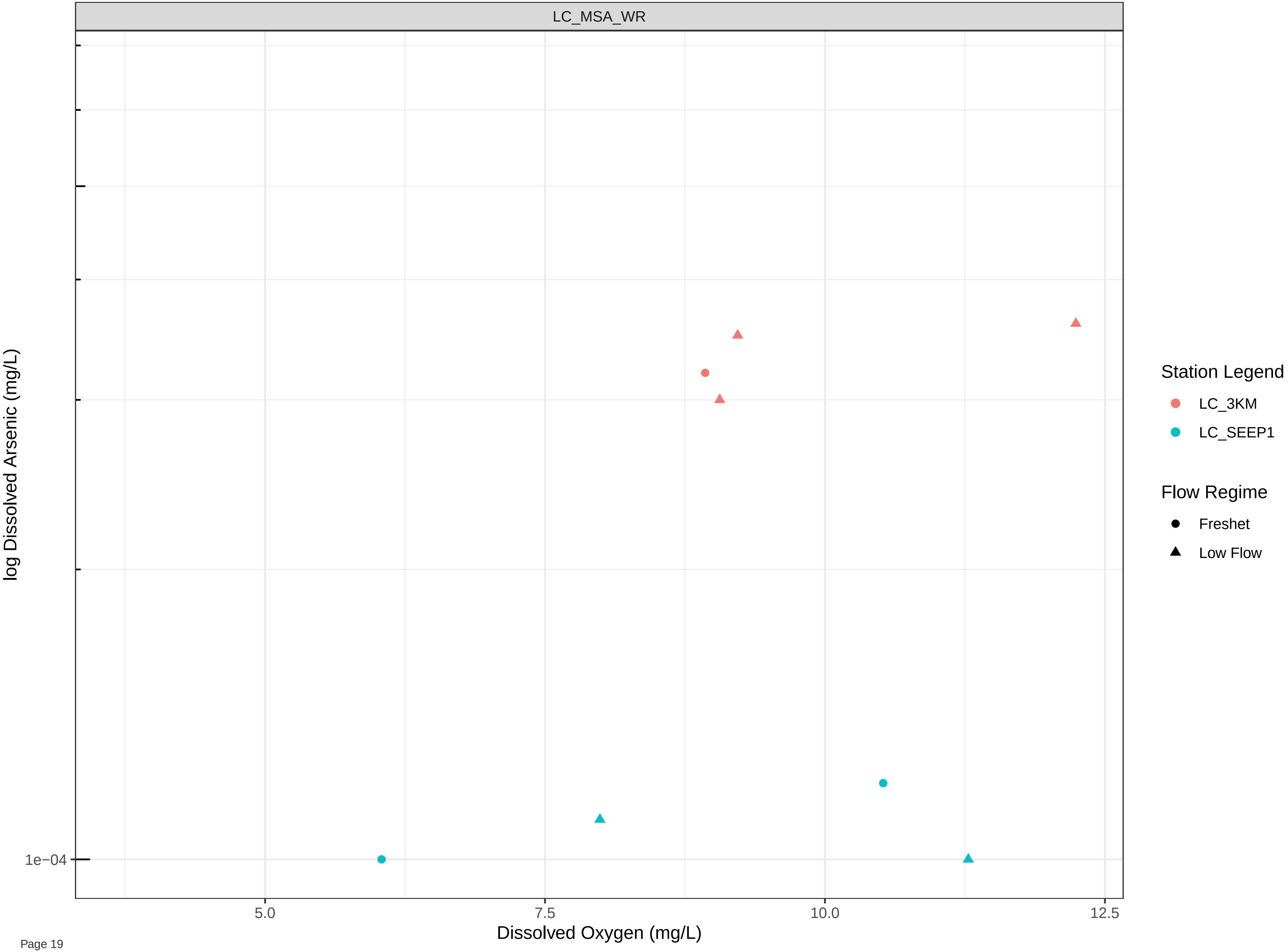

LC_WLC_WR
0.001
1e−04
log Dissolved Antimony (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

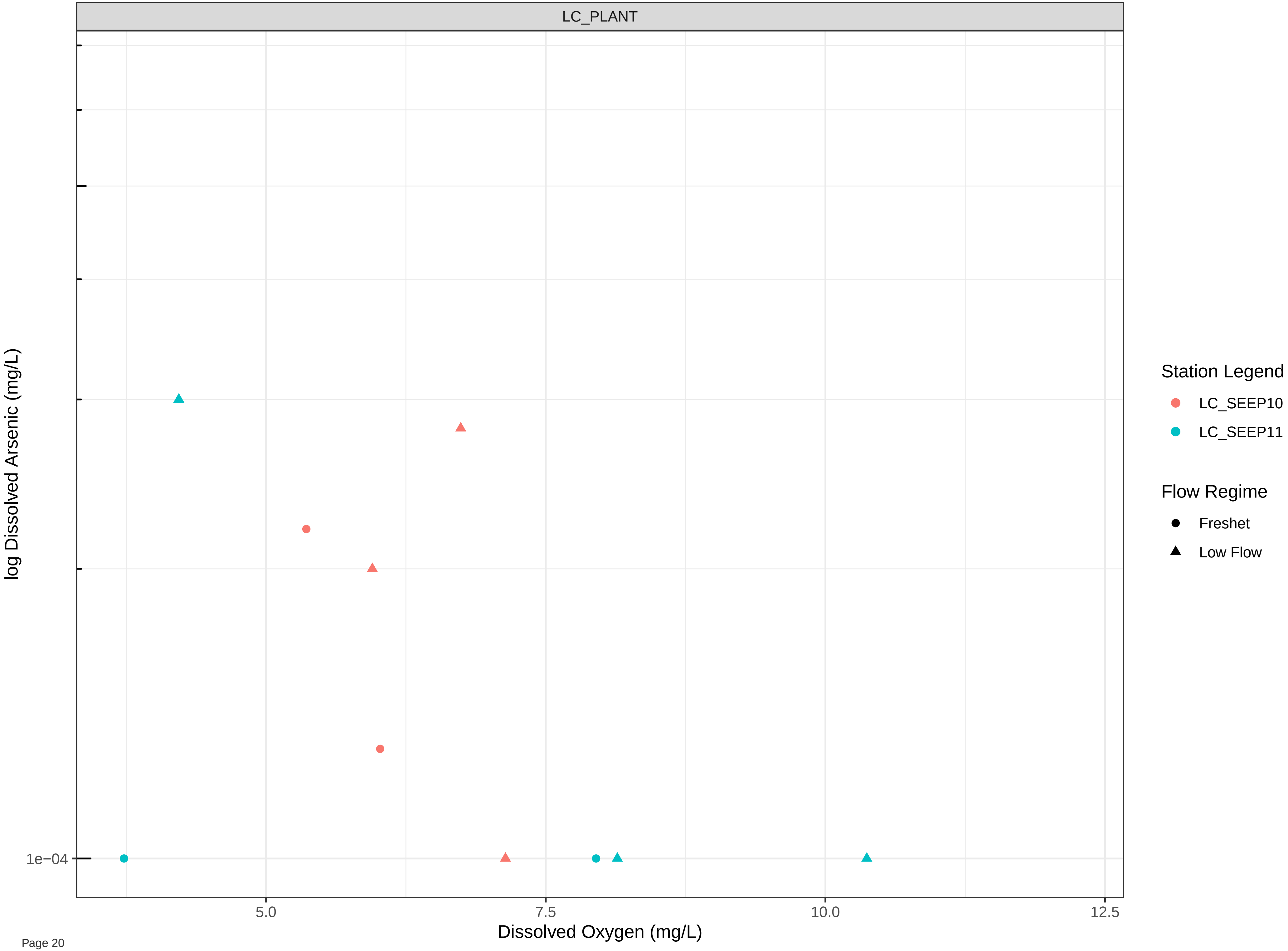

LC_DC_WR
log Dissolved Arsenic (mg/L)
1e−04
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP14
● LC_SEEP8
● LC_UDHP
● LC_UDP1
Flow Regime
● Freshet
▲ Low Flow

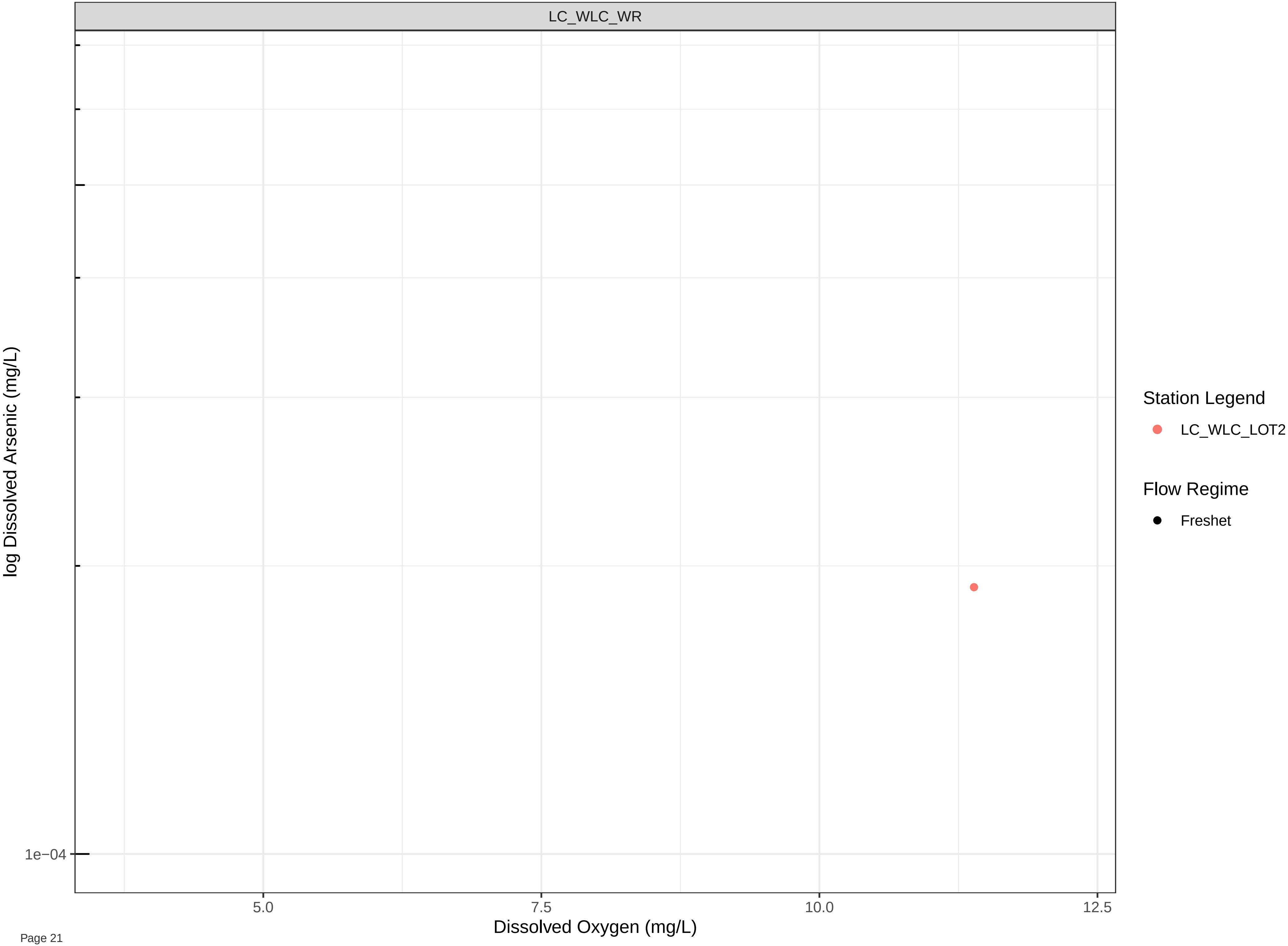

LC_DisturbedWSlope
log Dissolved Arsenic (mg/L)
1e−04
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

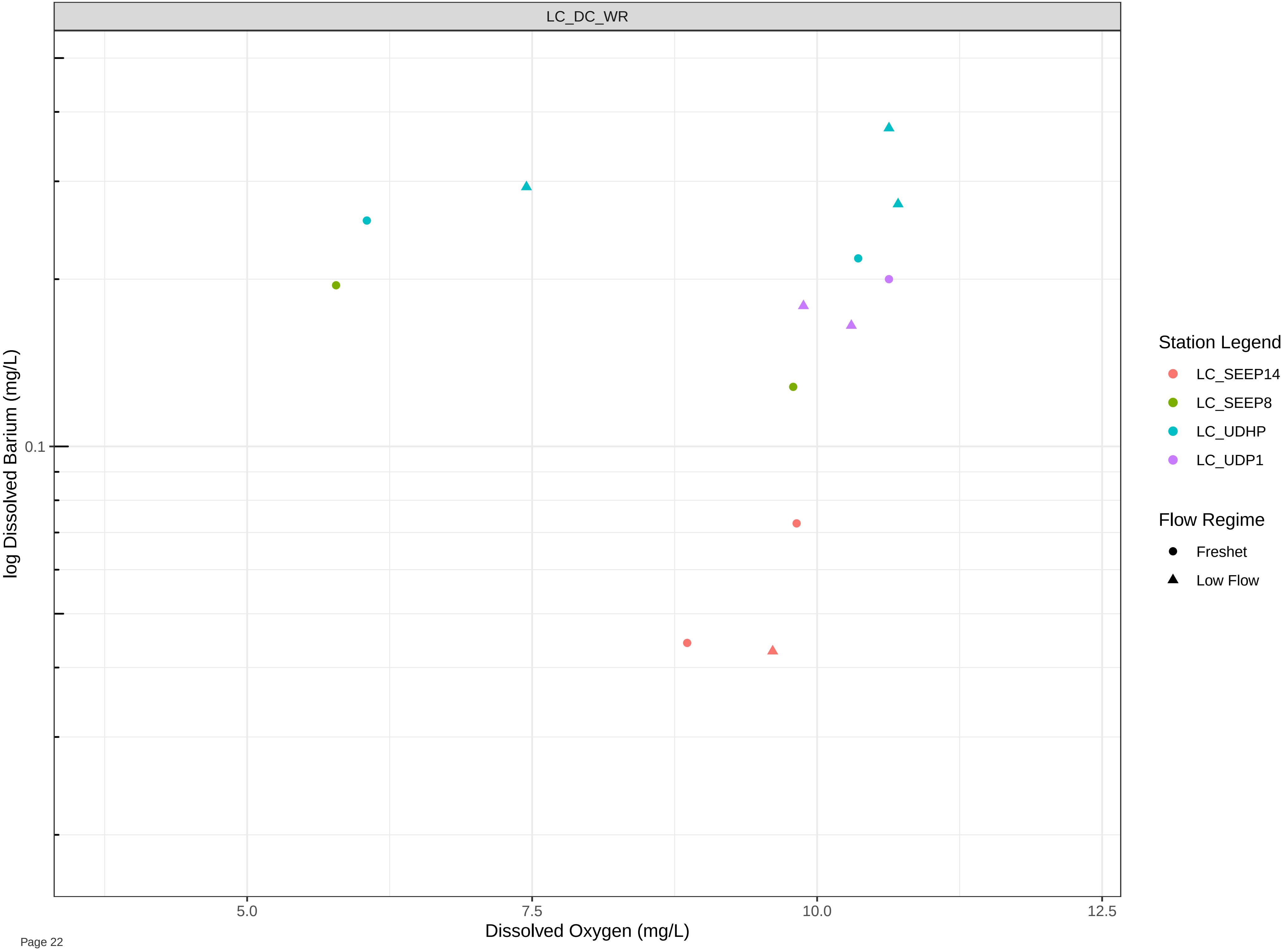

LC_HSP_WR
log Dissolved Arsenic (mg/L)
1e−04
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

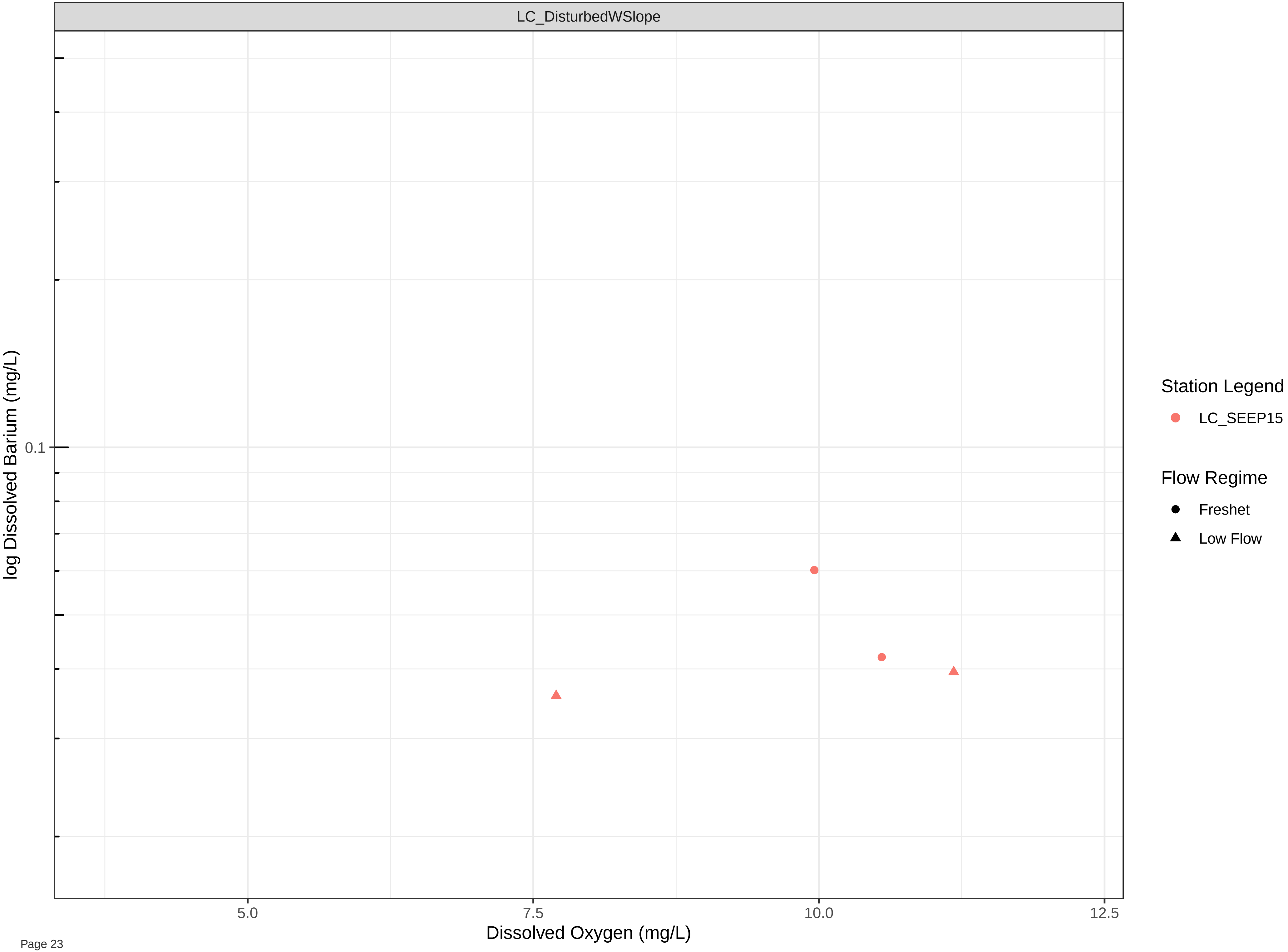

LC_MAXAM
log Dissolved Arsenic (mg/L)
1e−04
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

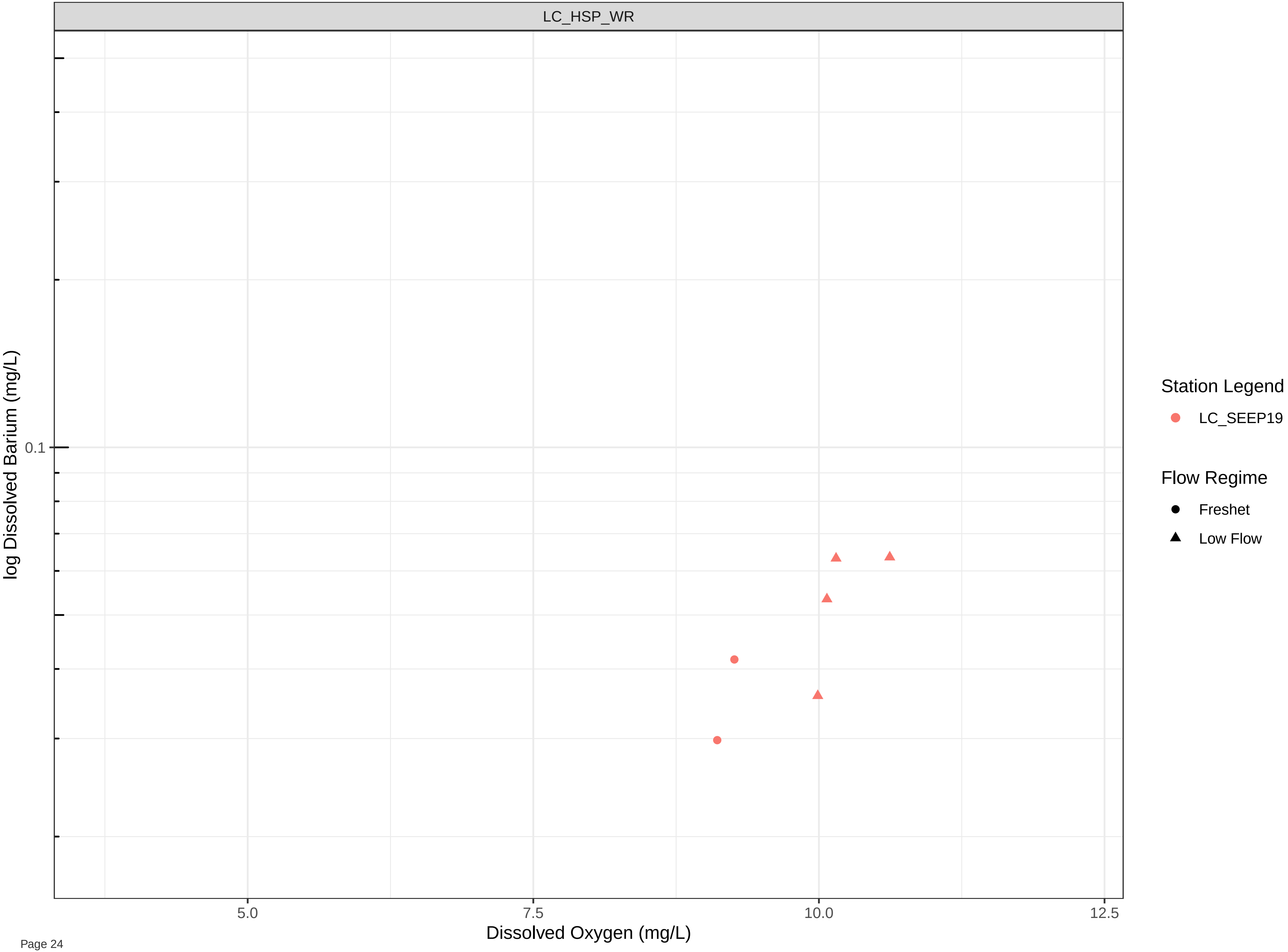

LC_MSA_WR
log Dissolved Arsenic (mg/L)
1e−04
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

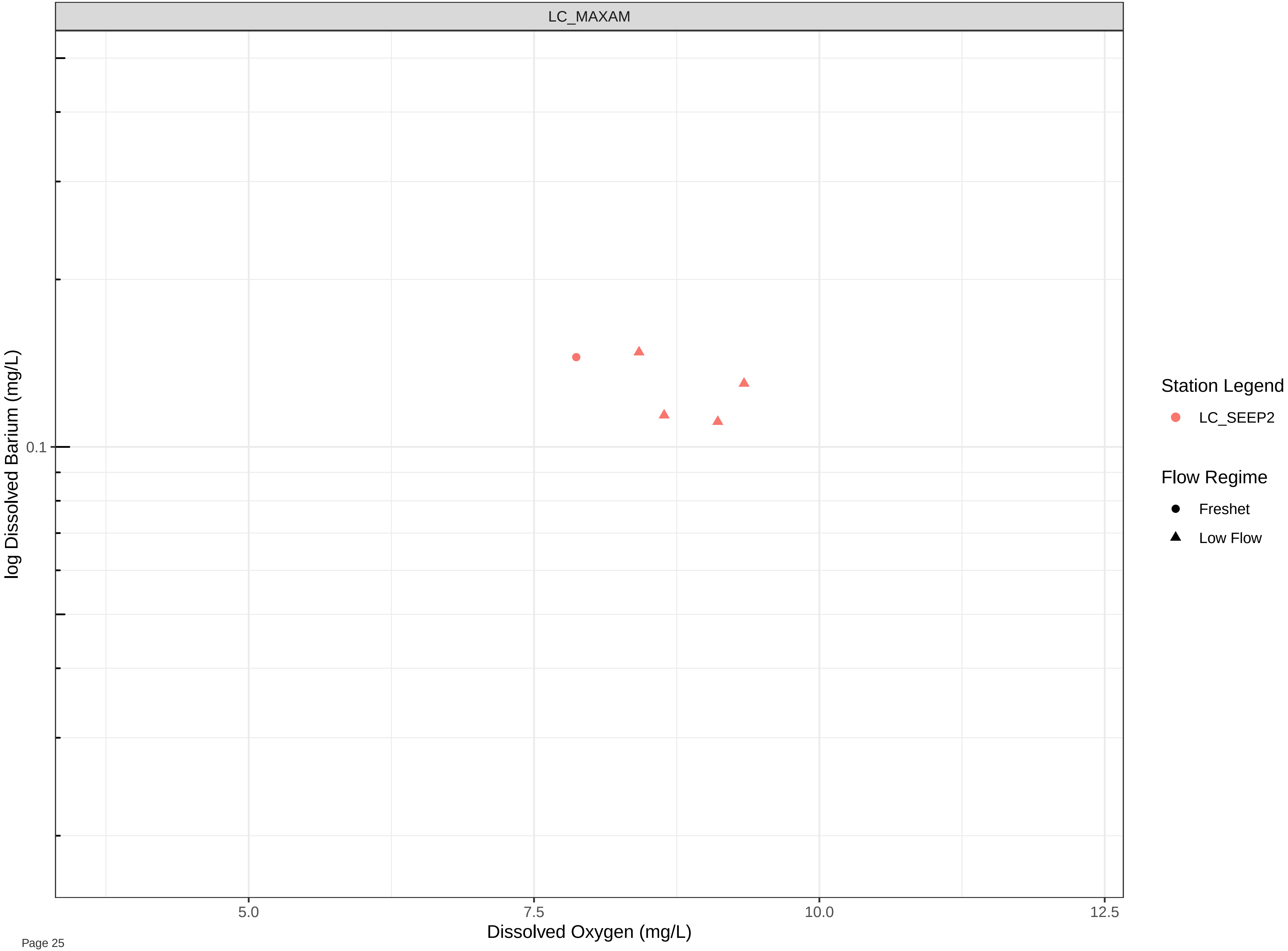

LC_PLANT
log Dissolved Arsenic (mg/L)
1e−04
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

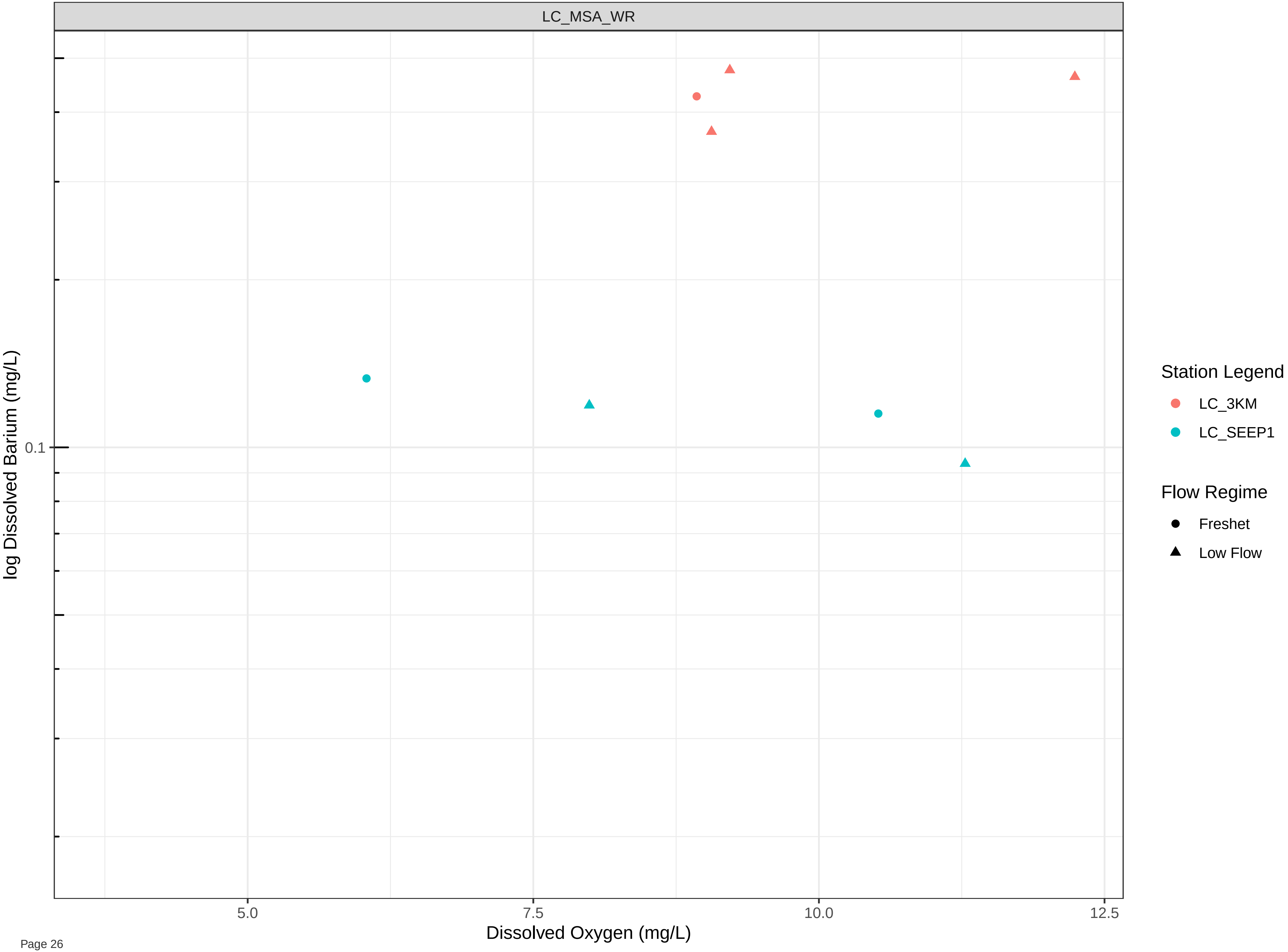

LC_WLC_WR
log Dissolved Arsenic (mg/L)
1e−04
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

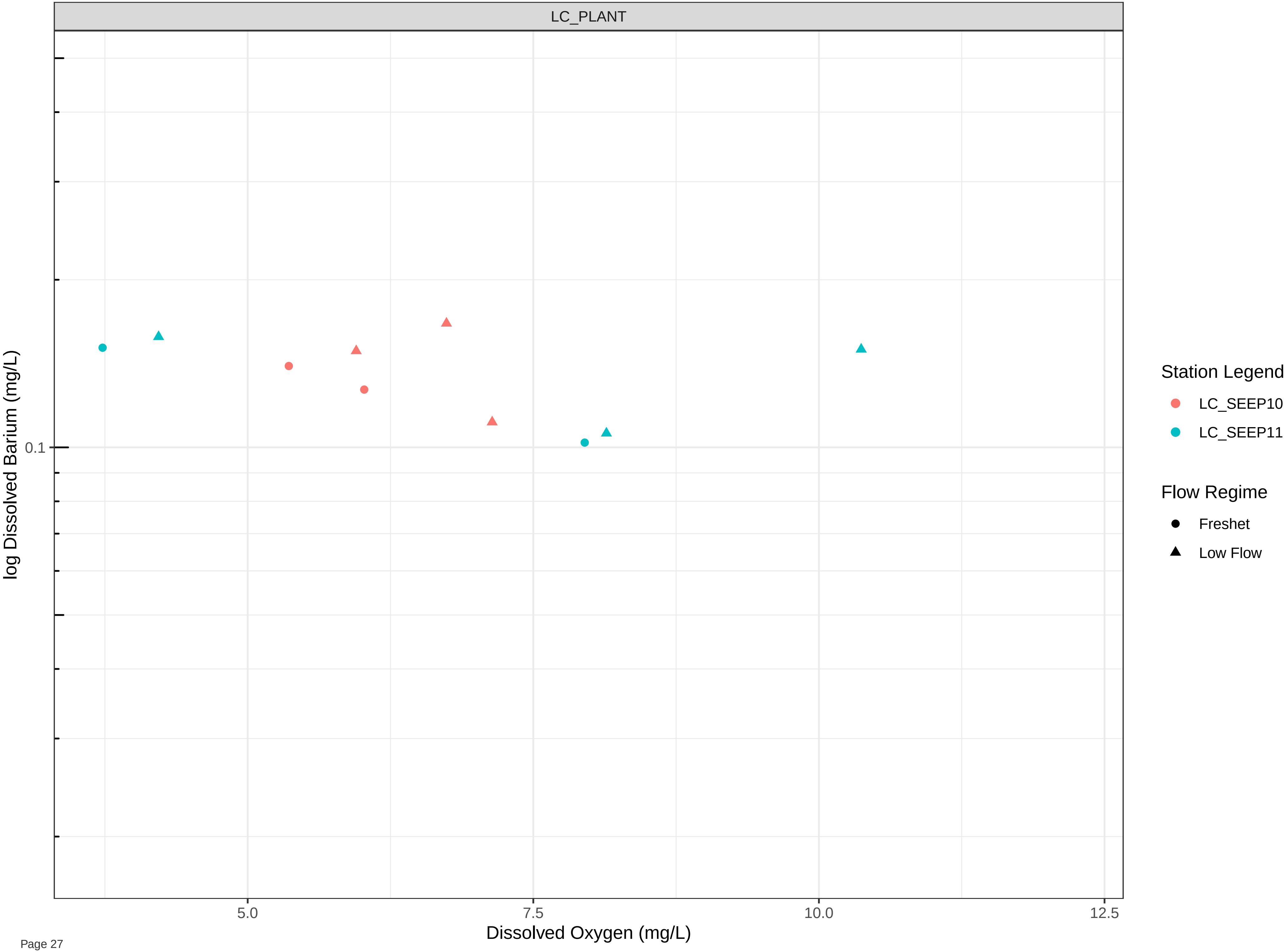

LC_DC_WR
log Dissolved Barium (mg/L)
0.1
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

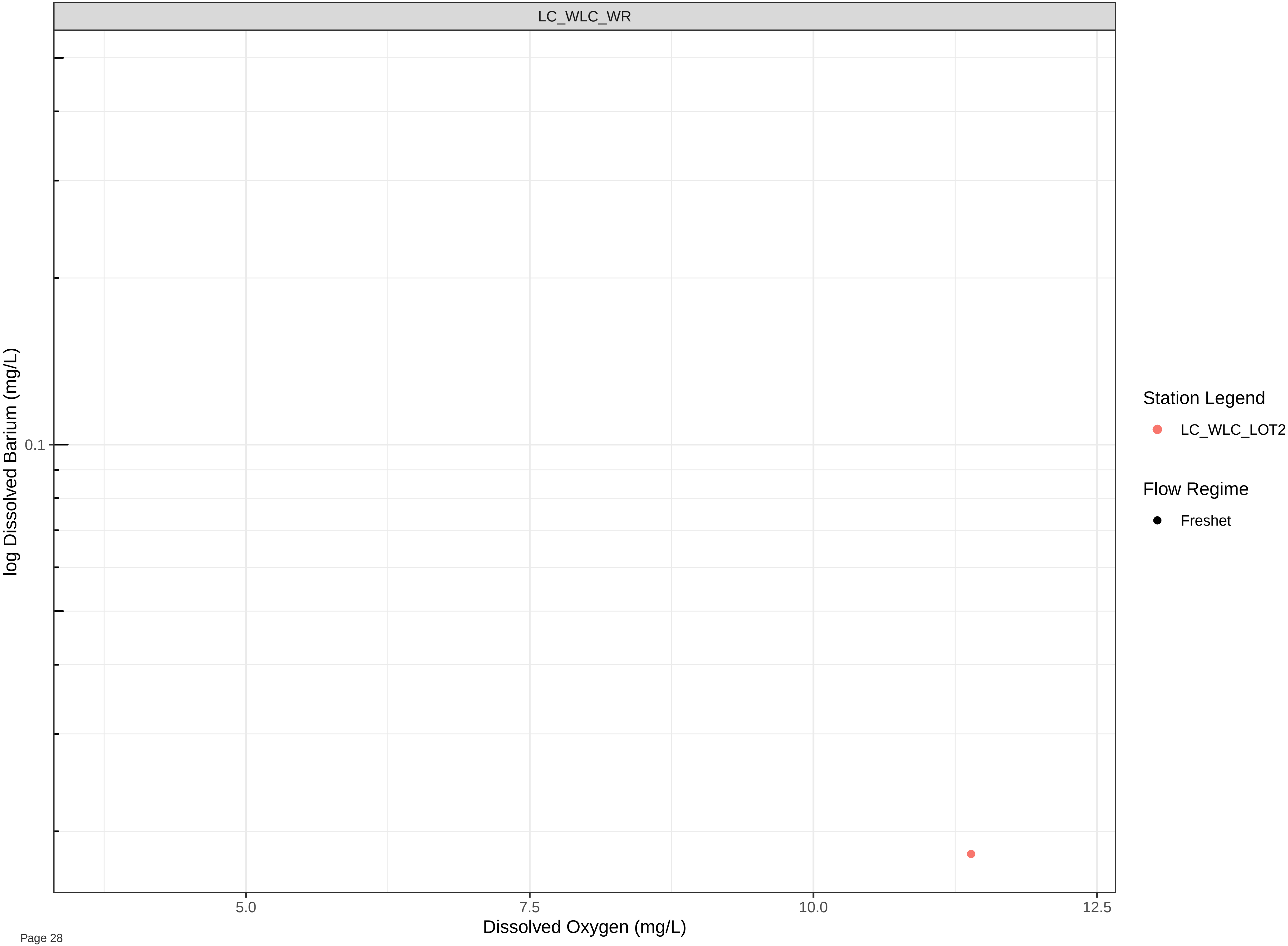

LC_DisturbedWSlope
log Dissolved Barium (mg/L)
0.1
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

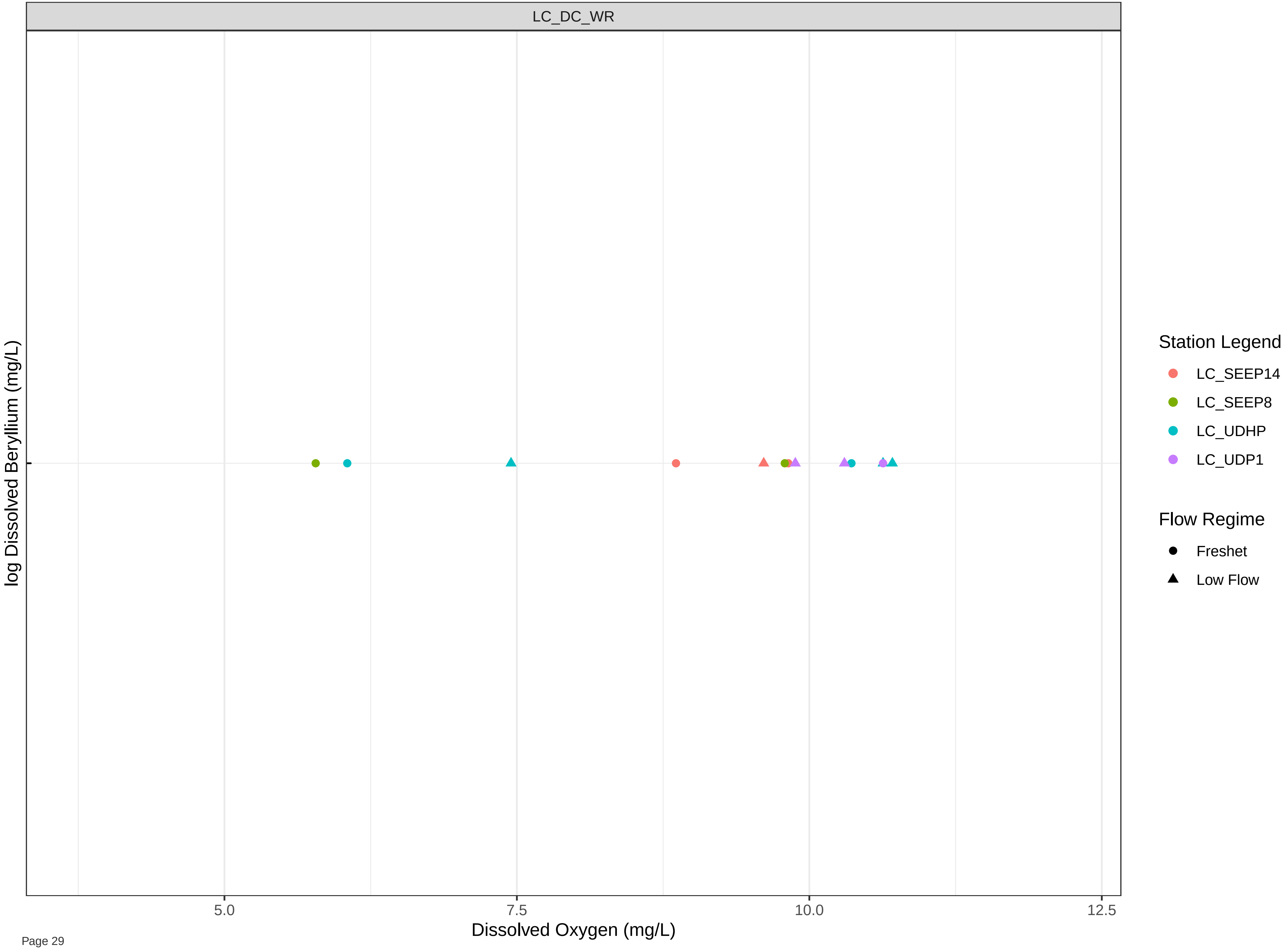

LC_HSP_WR
log Dissolved Barium (mg/L)
0.1
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

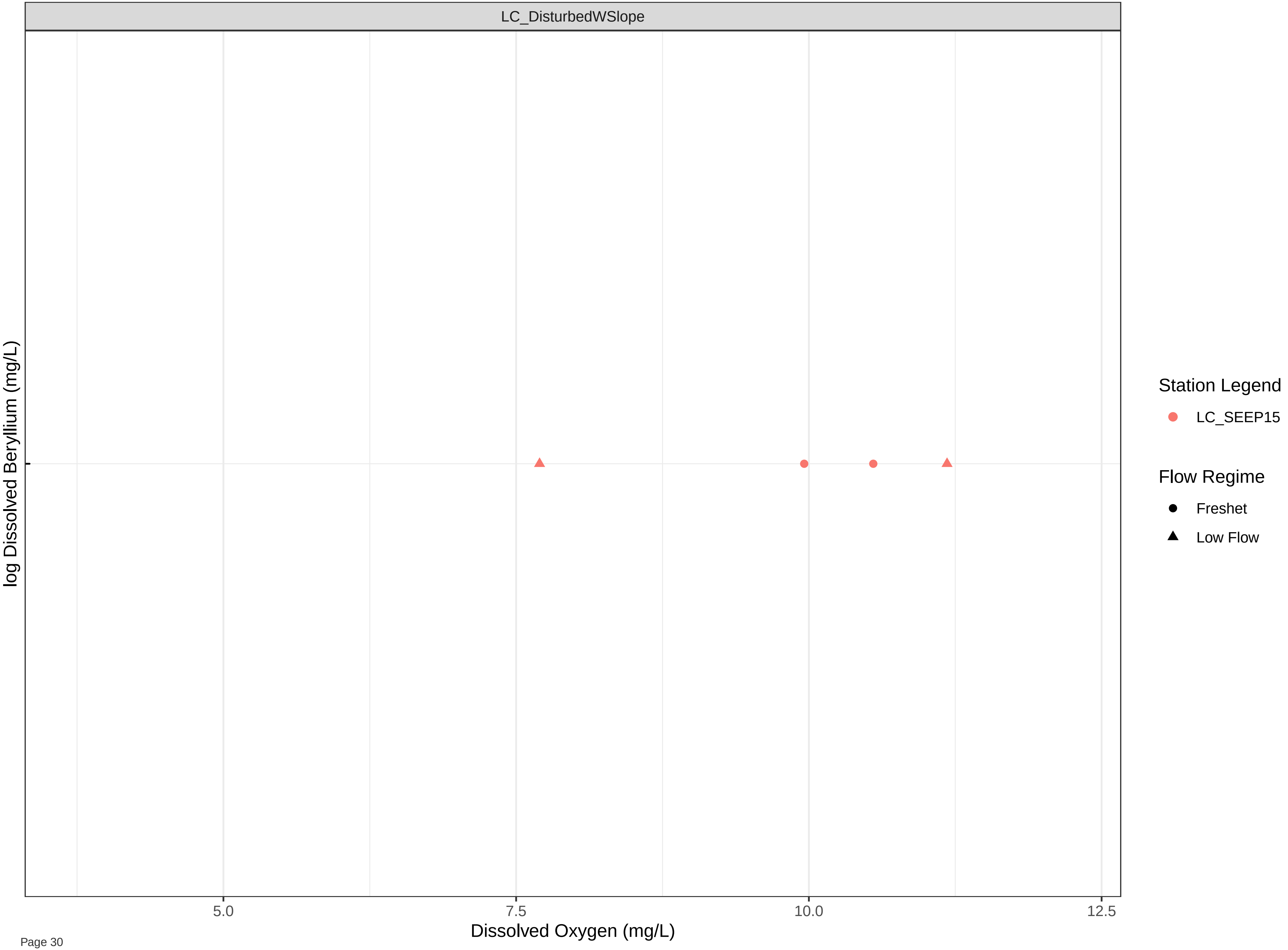

LC_MAXAM
log Dissolved Barium (mg/L)
0.1
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

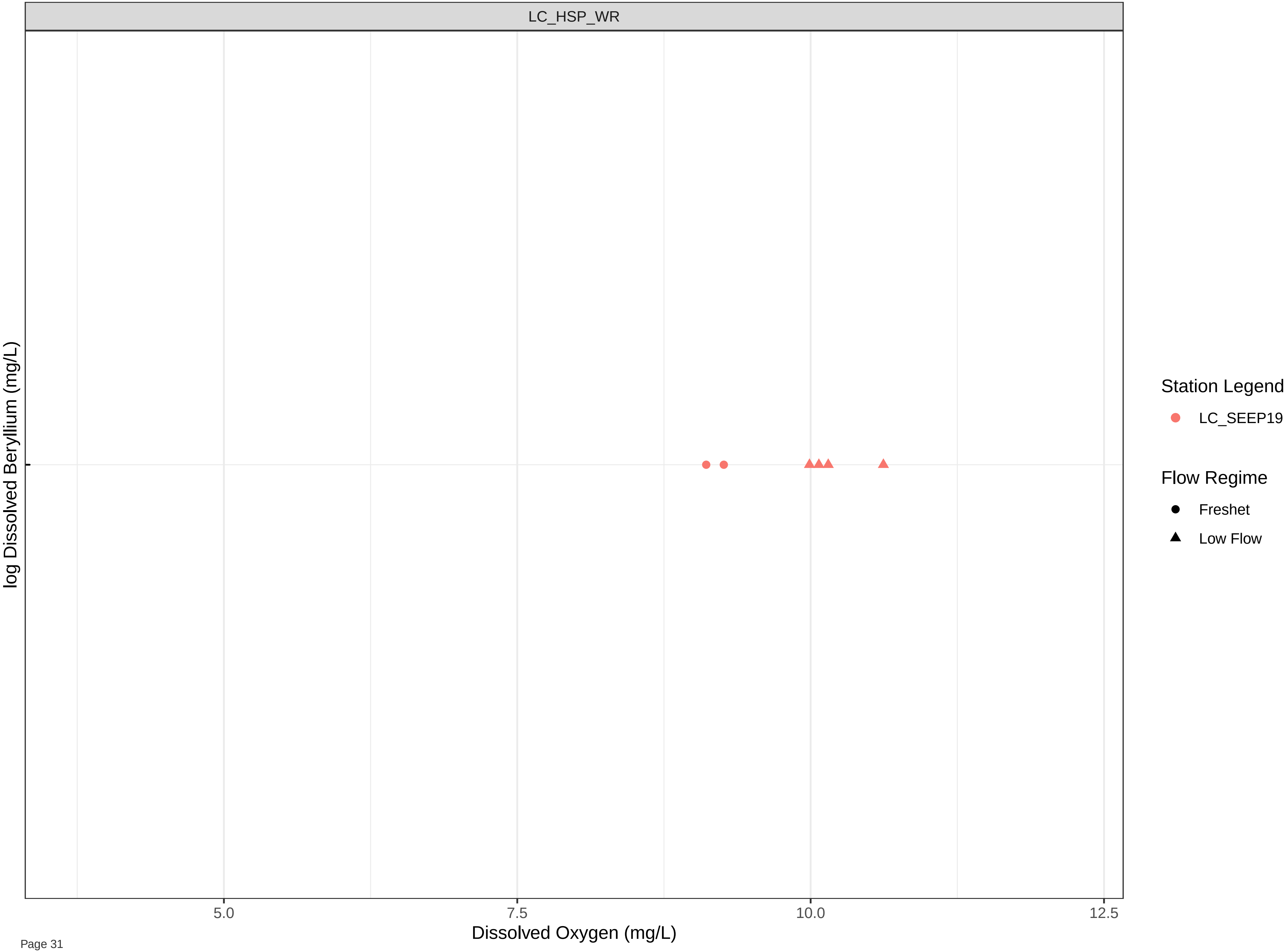

LC_MSA_WR
log Dissolved Barium (mg/L)
0.1
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow


LC_PLANT
log Dissolved Barium (mg/L)
0.1
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow


LC_WLC_WR
log Dissolved Barium (mg/L)
0.1
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet


LC_DC_WR
log Dissolved Beryllium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
log Dissolved Beryllium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow


LC_HSP_WR
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Dissolved Oxygen (mg/L)
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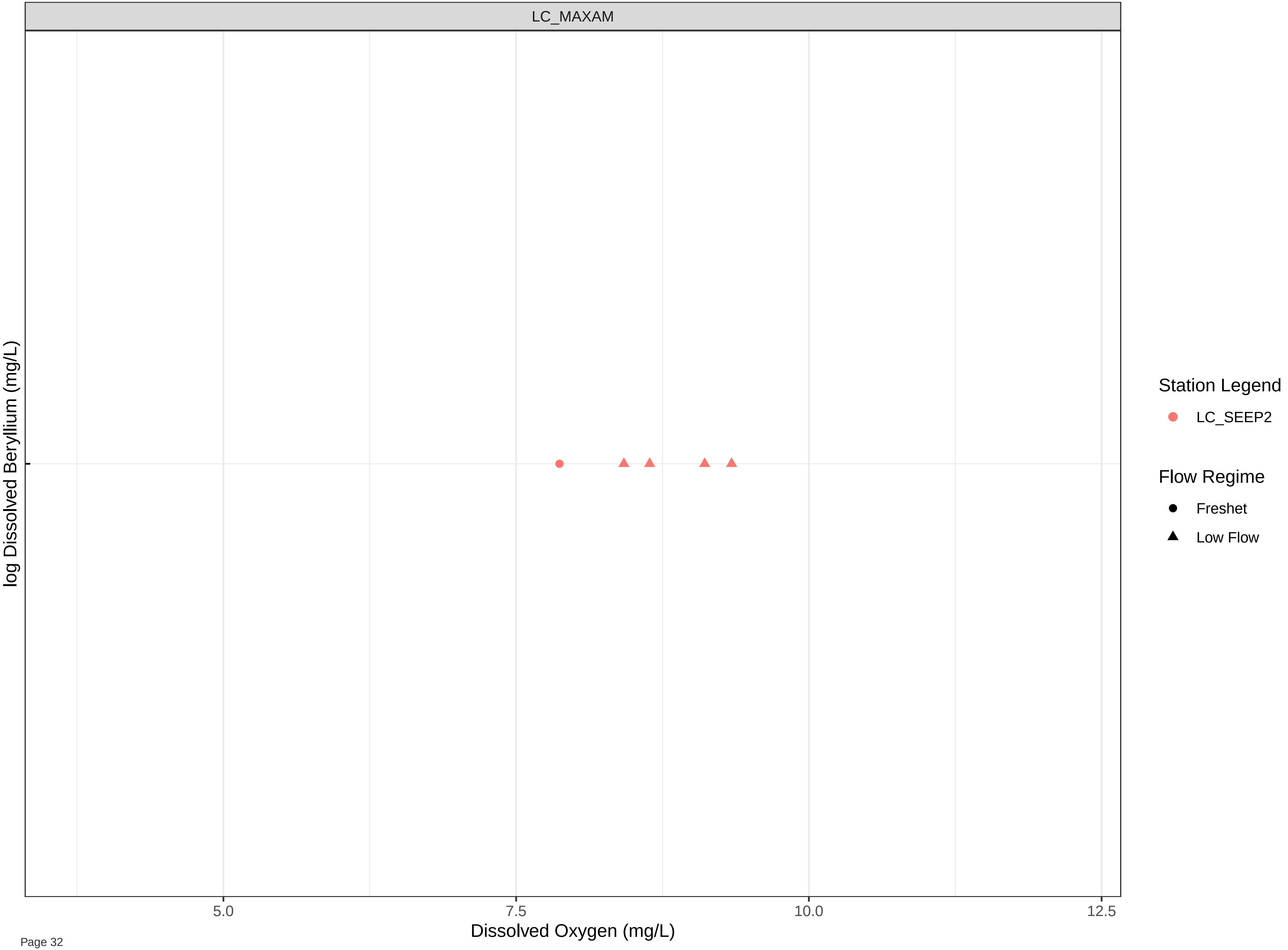
10.0
12.5
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow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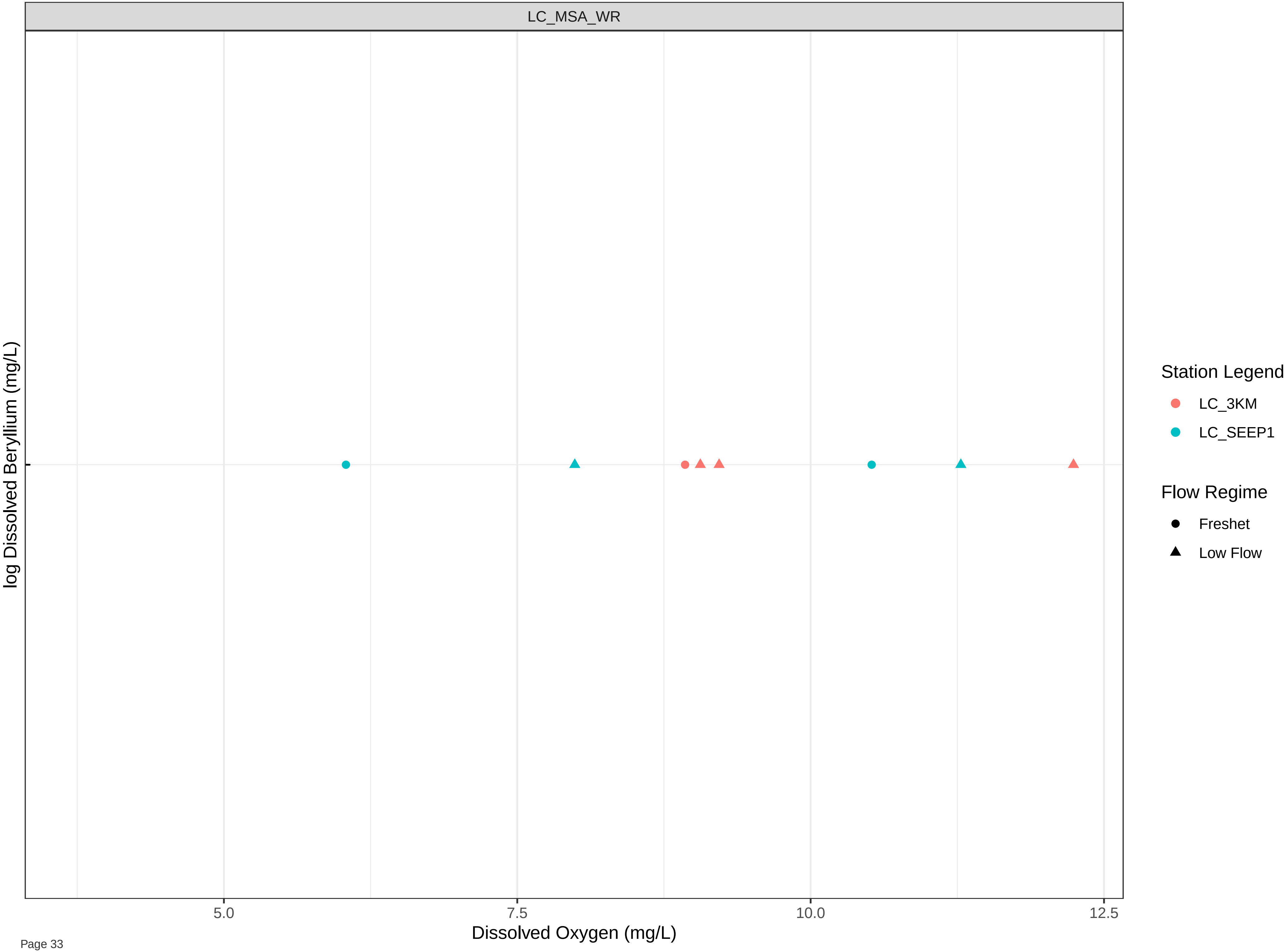
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow


LC_MSA_WR
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Dissolved Oxygen (mg/L)
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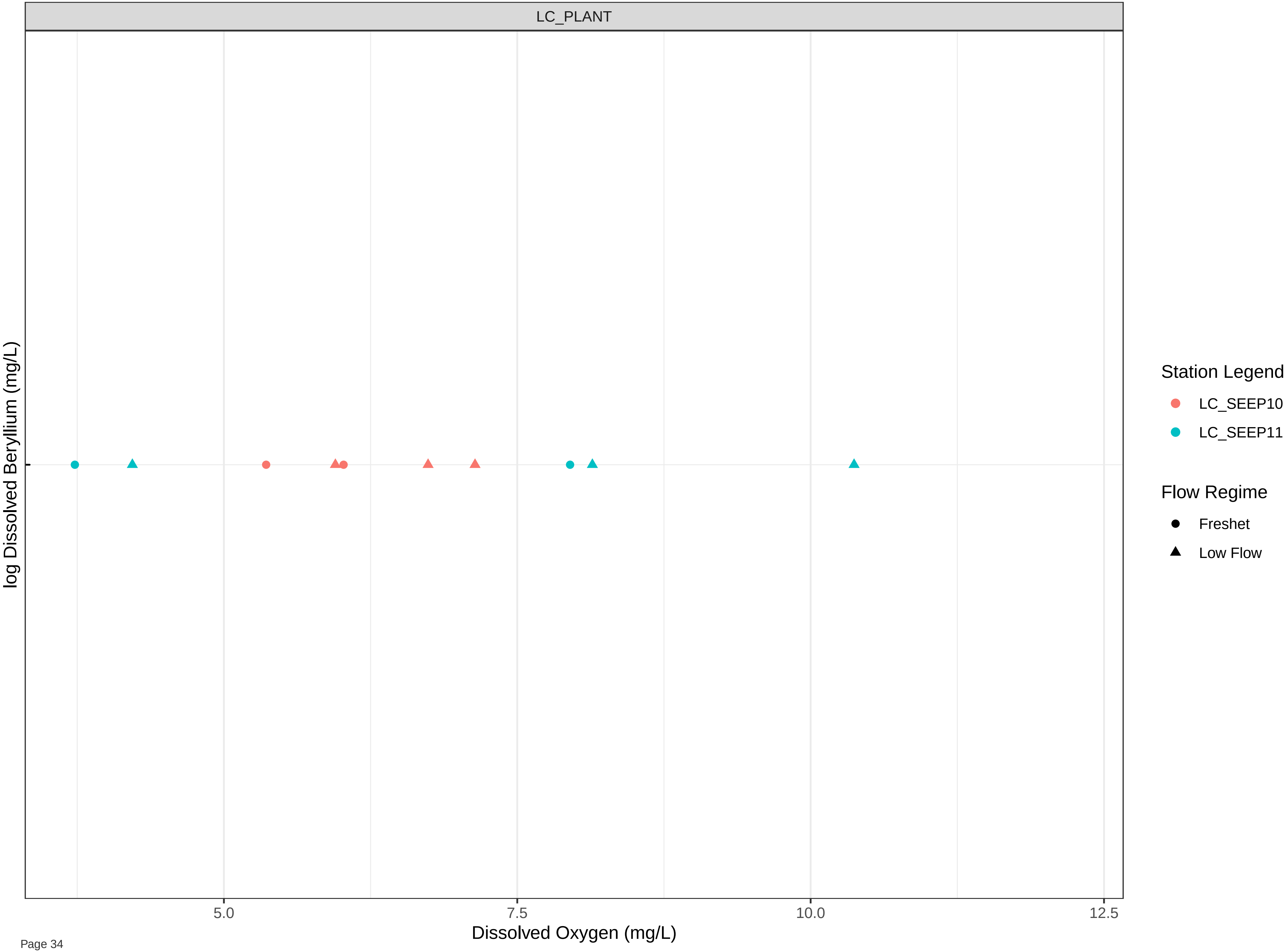
10.0
12.5
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow


LC_PLANT
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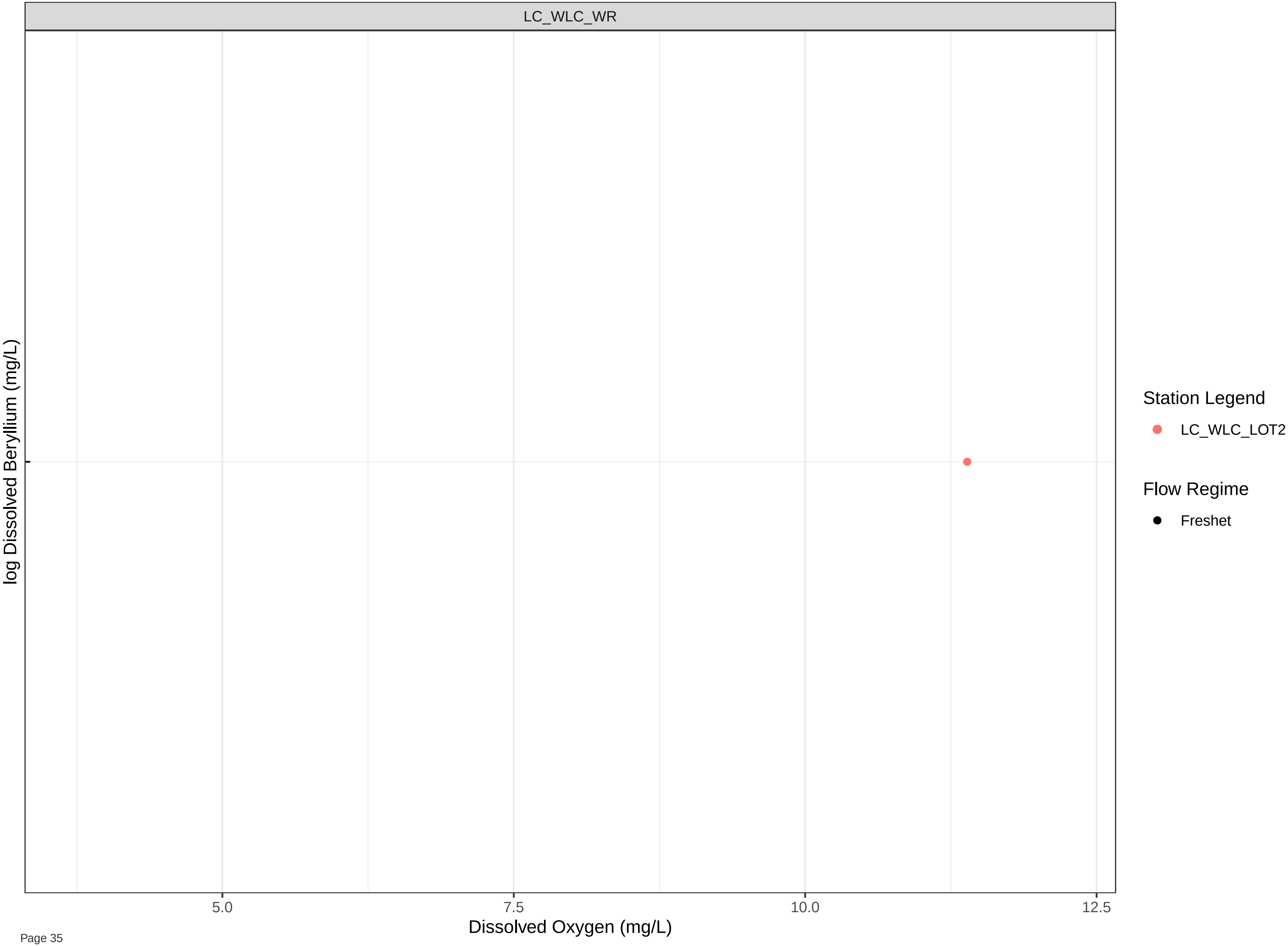
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow


LC_WLC_WR
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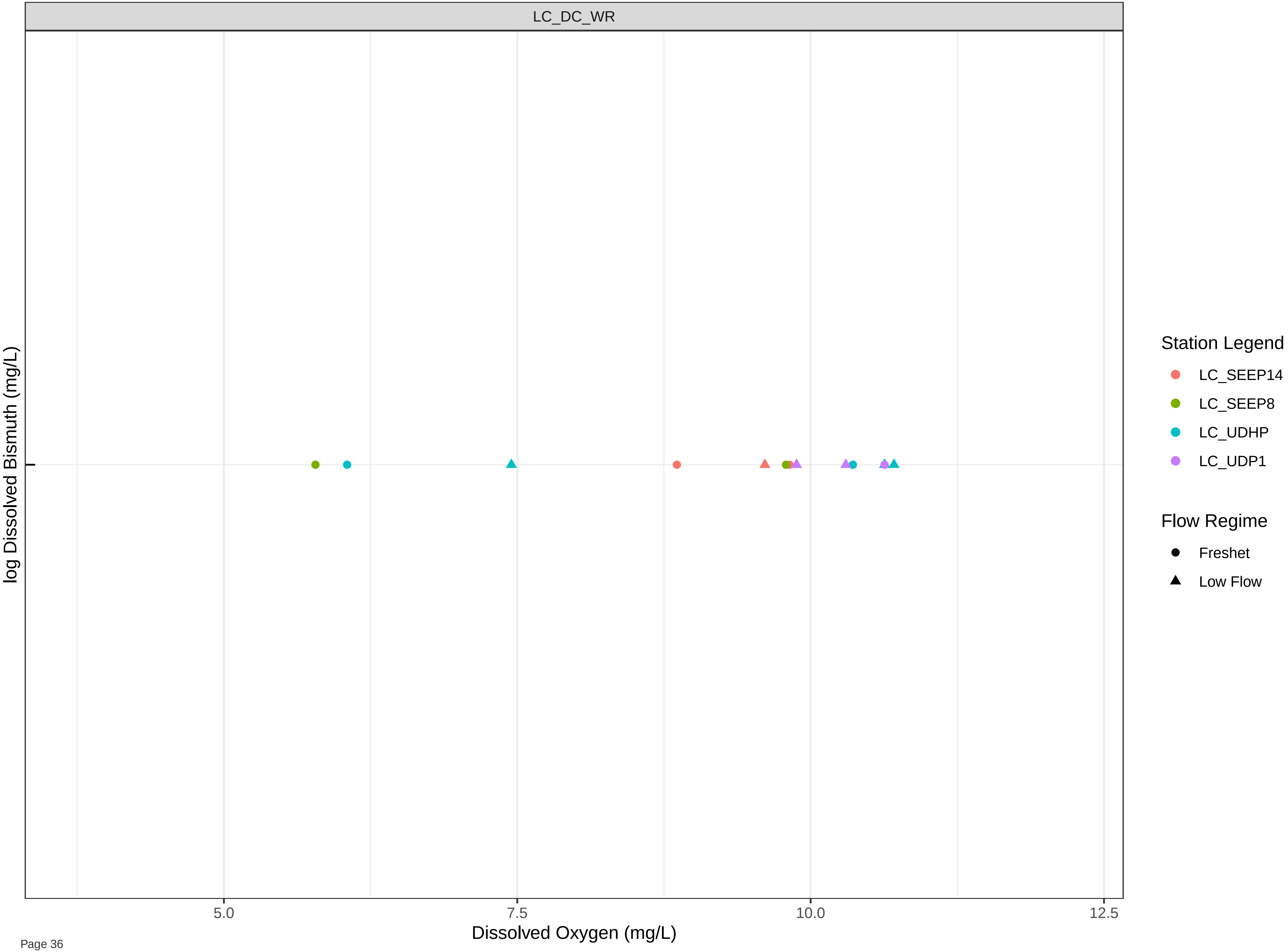
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet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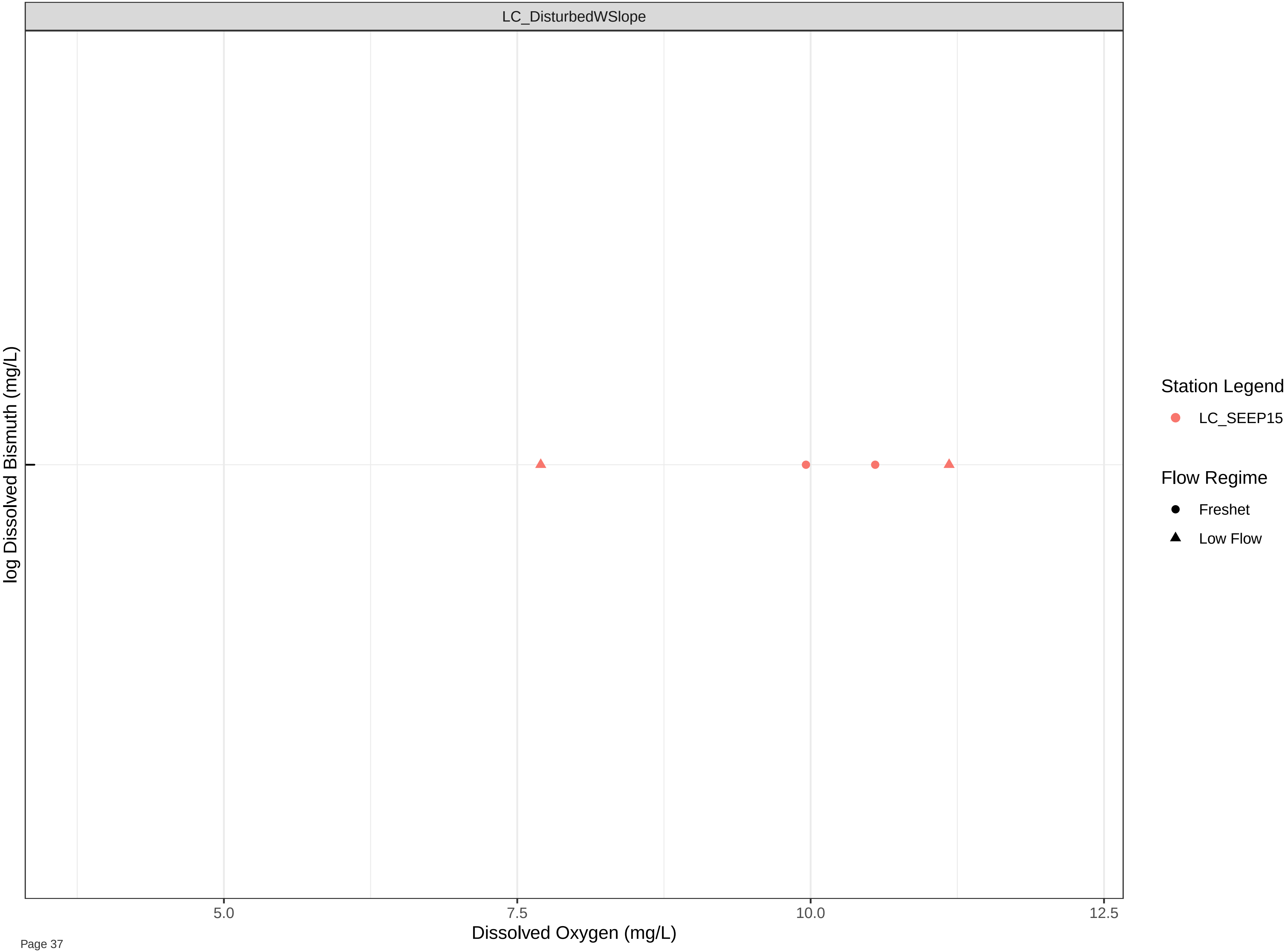
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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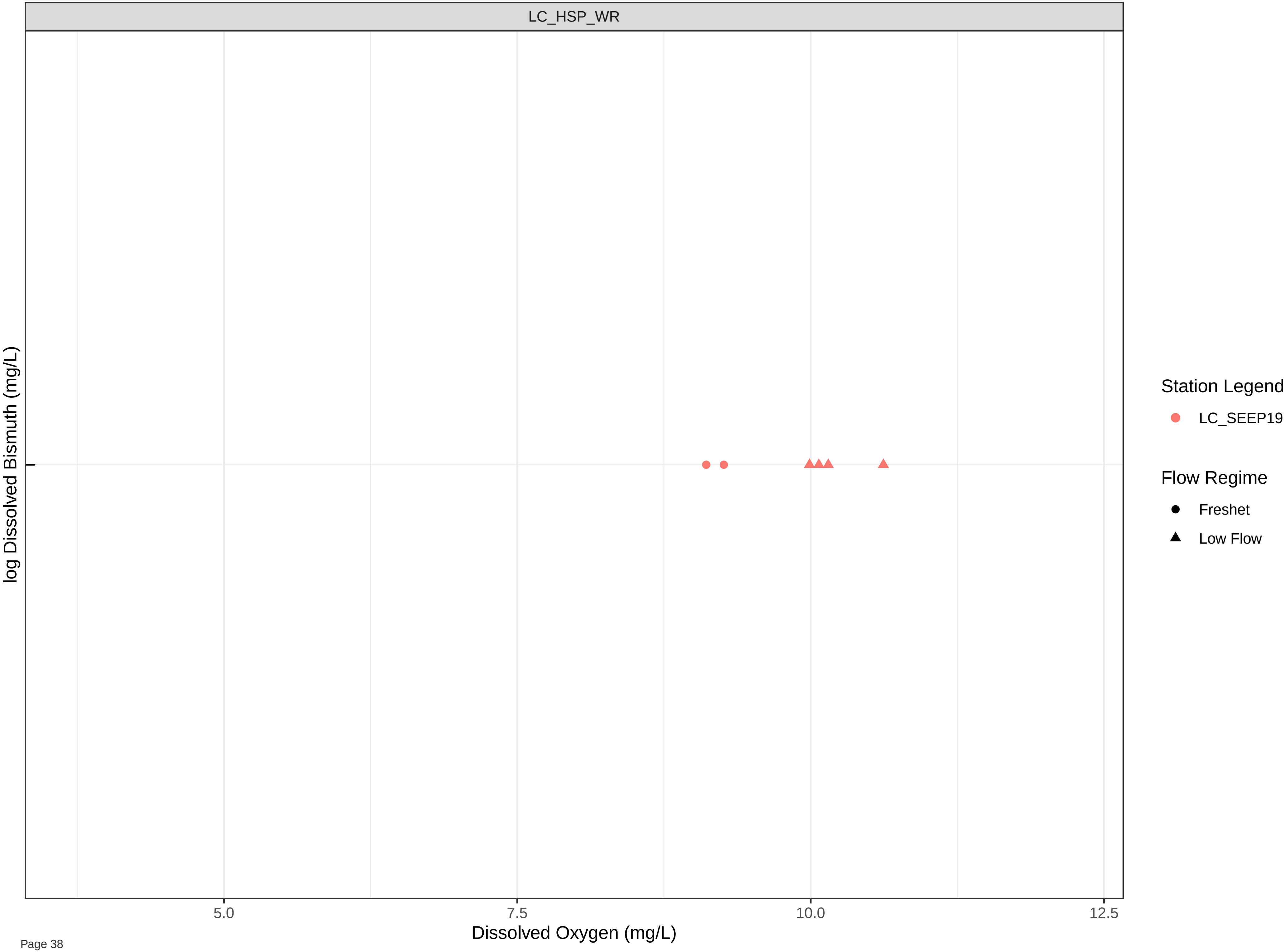
10.0
12.5
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow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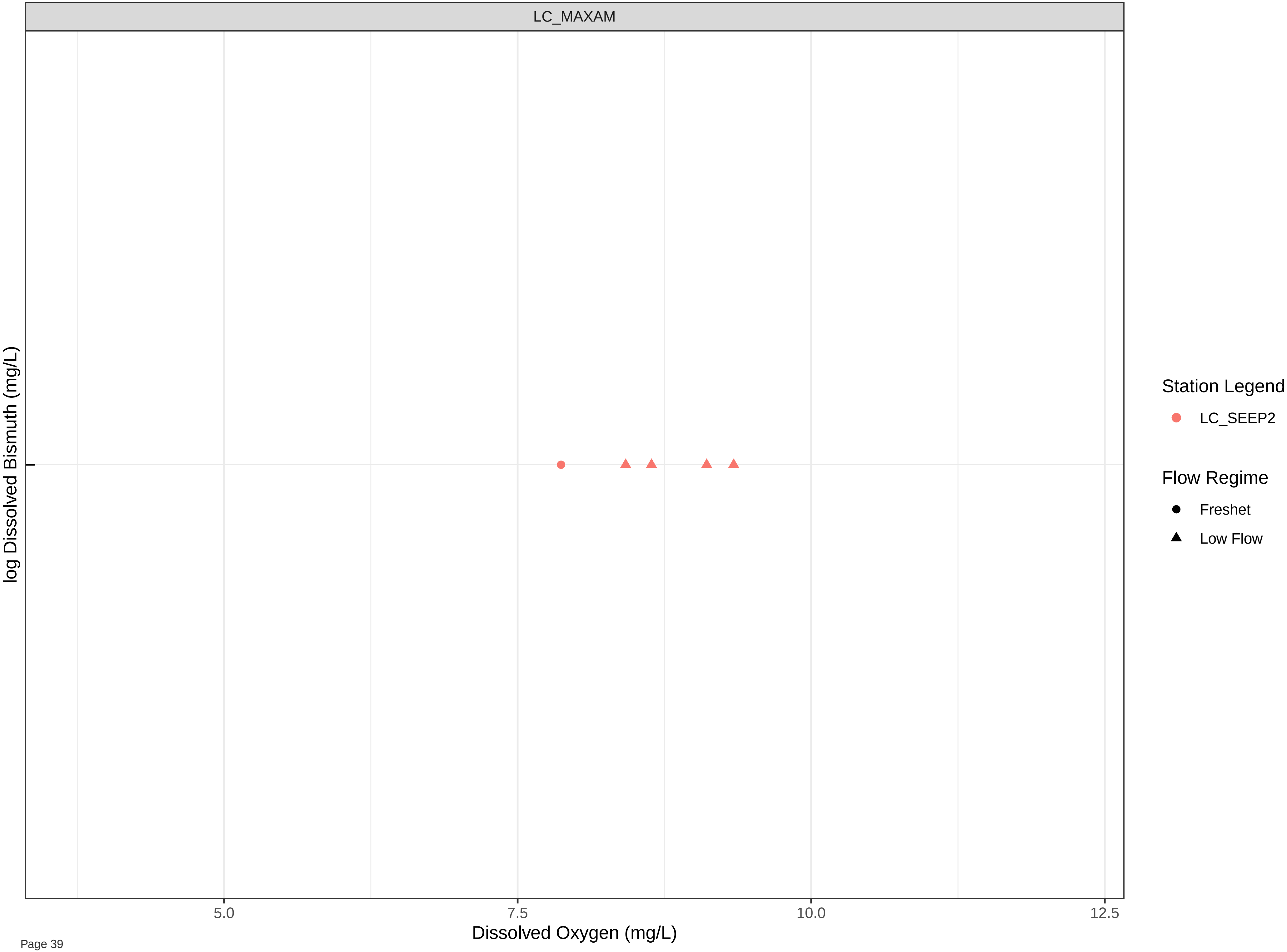
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow


LC_MAXAM
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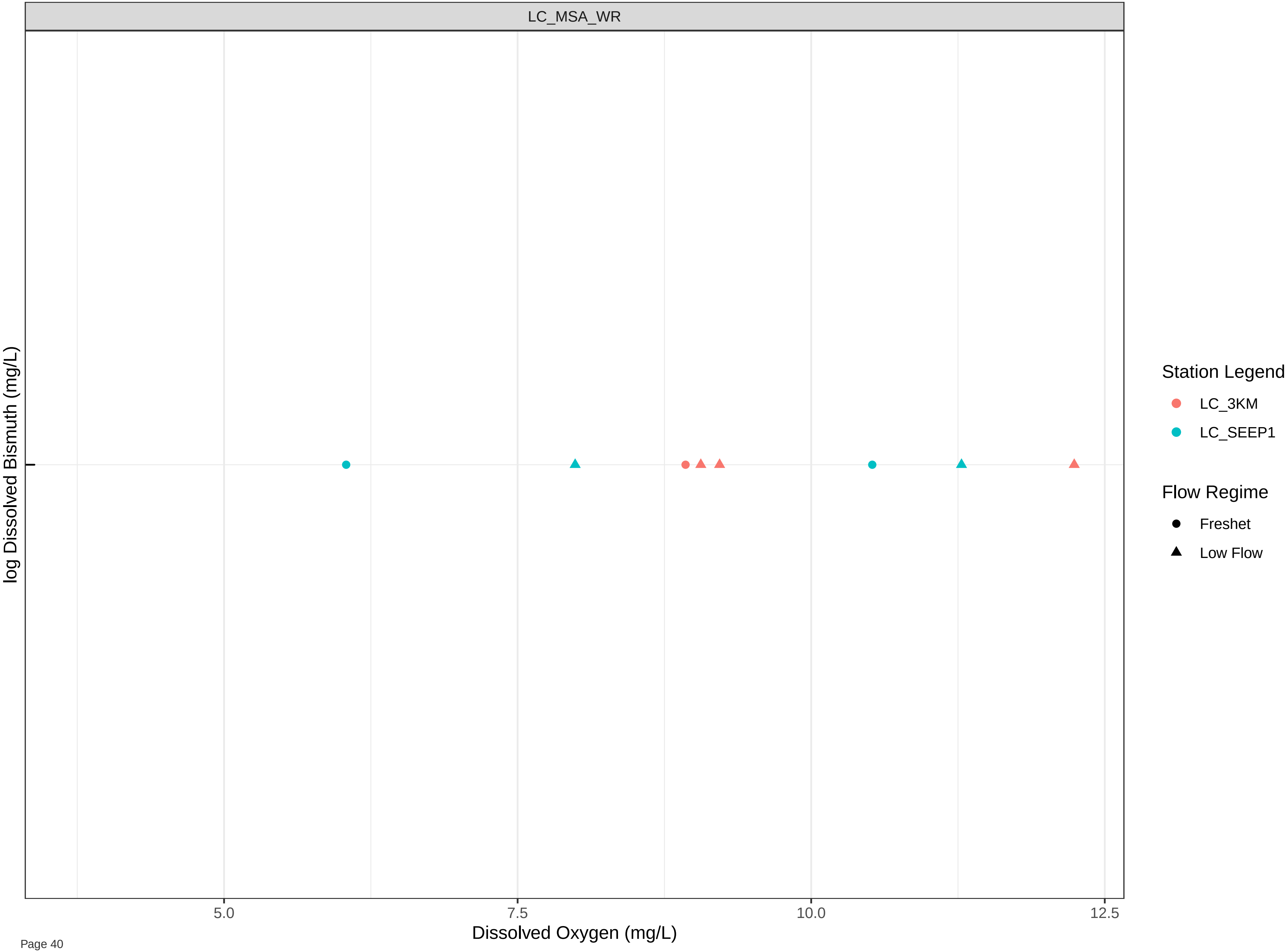
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow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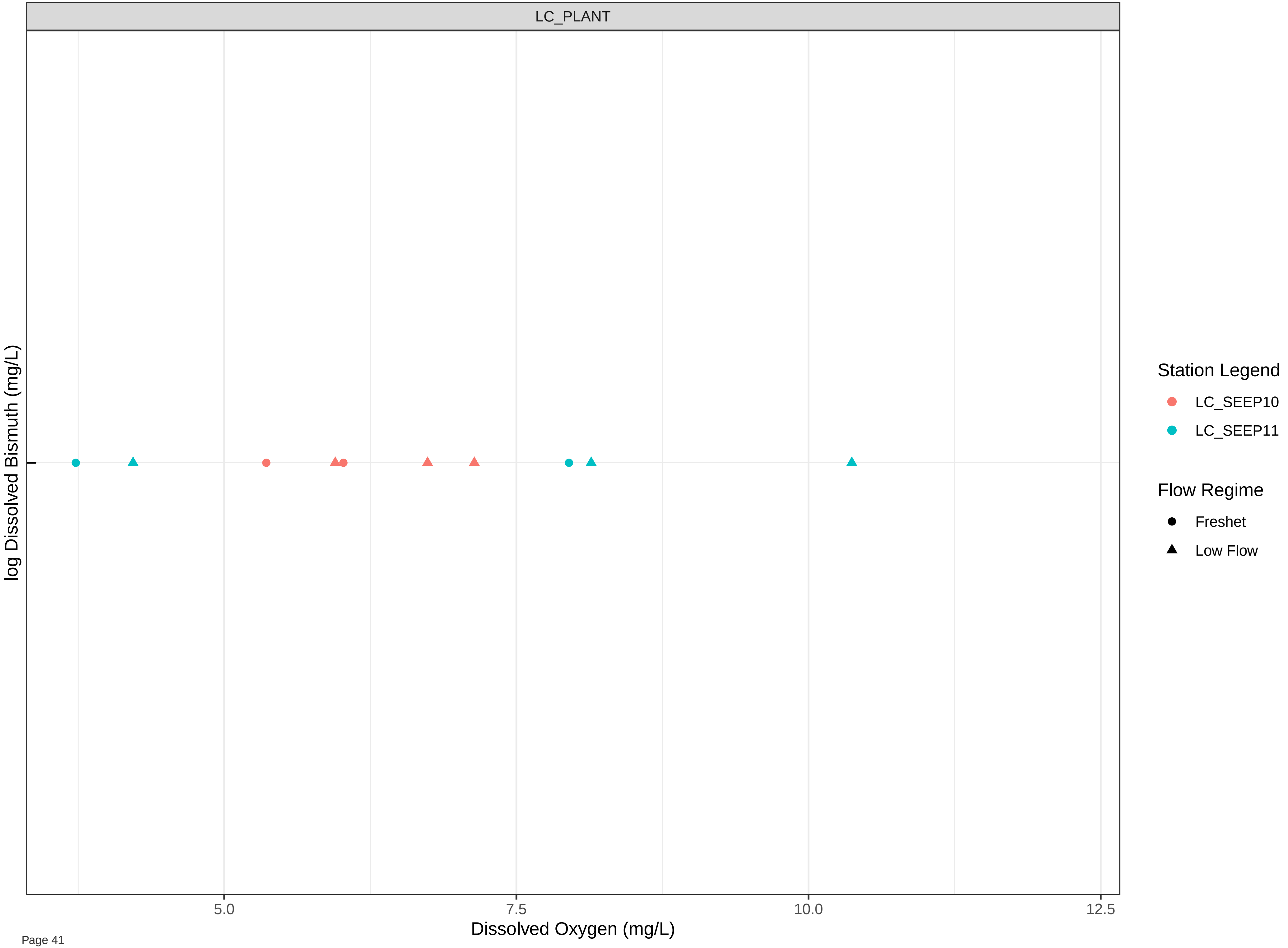
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow


LC_PLANT
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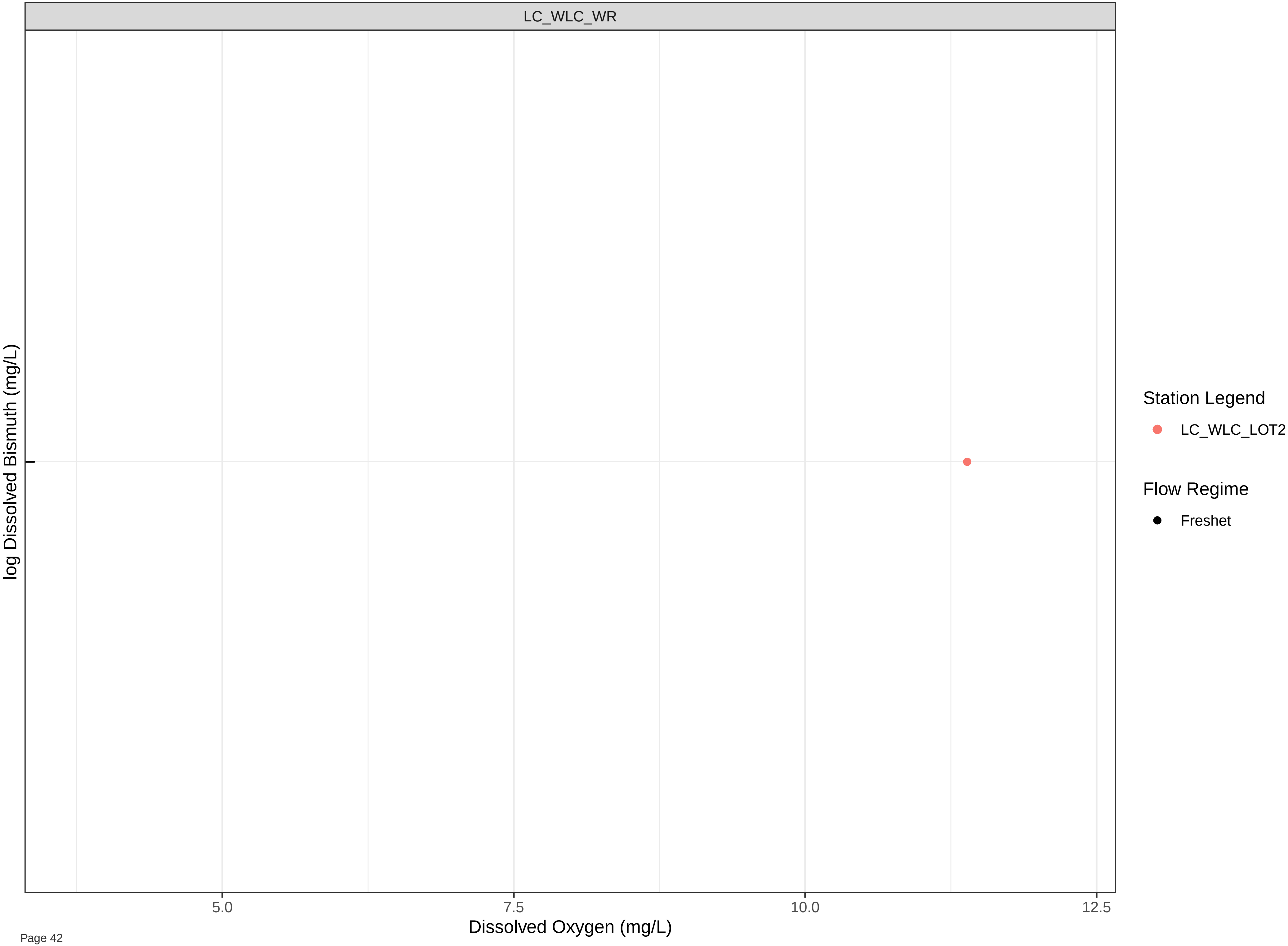
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow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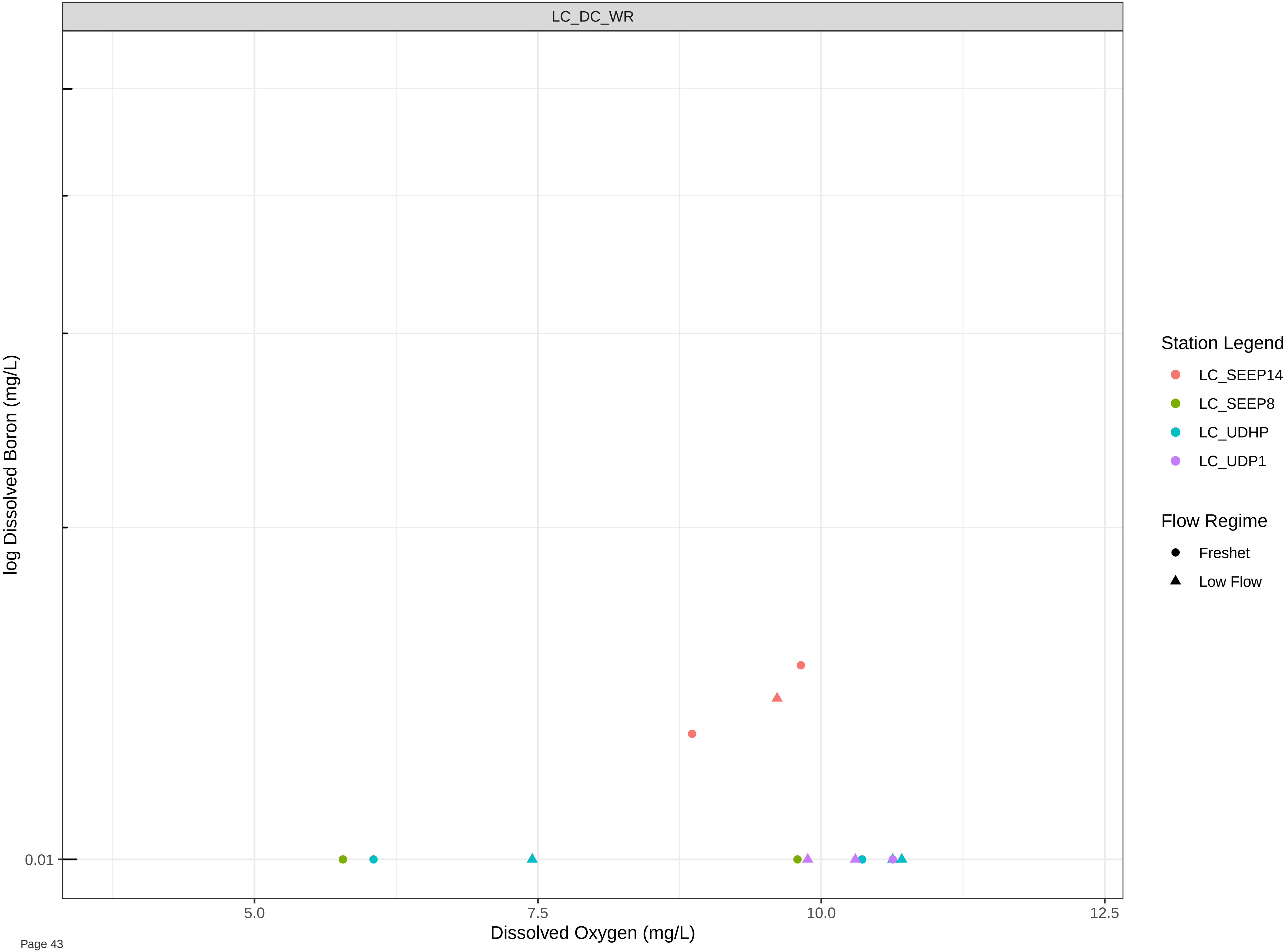
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet


LC_DC_WR
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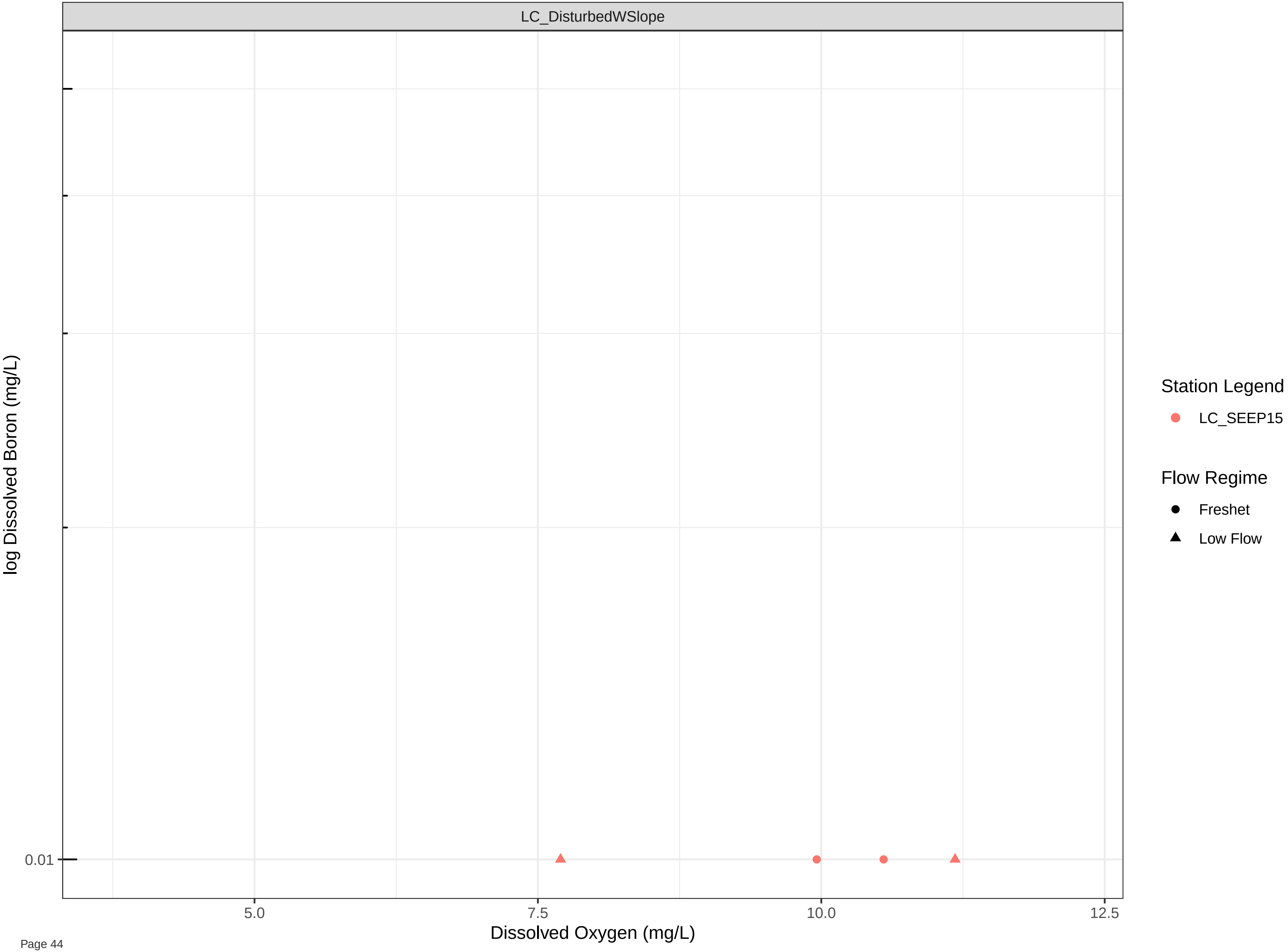
0.01
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
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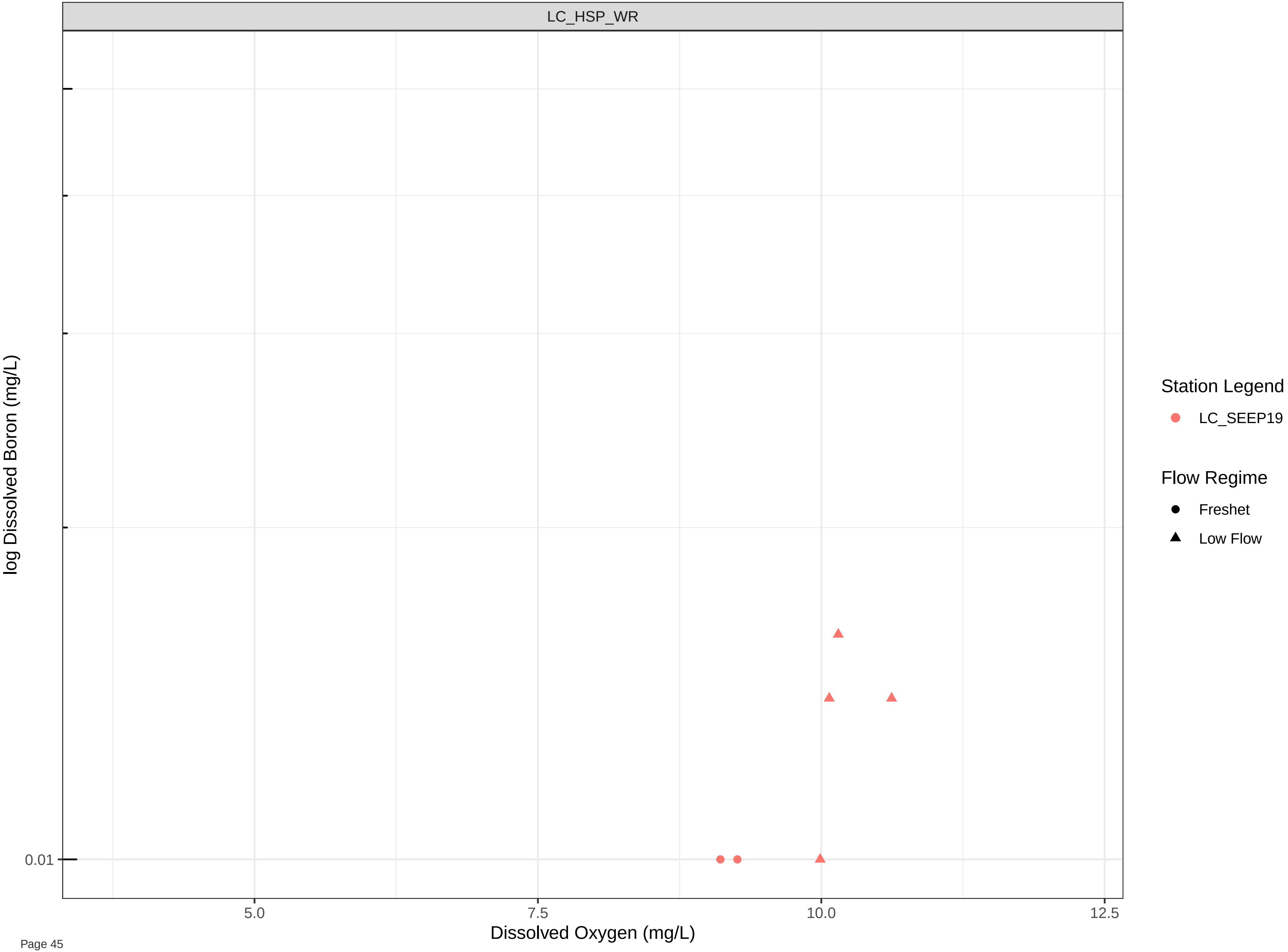
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow


LC_HSP_WR
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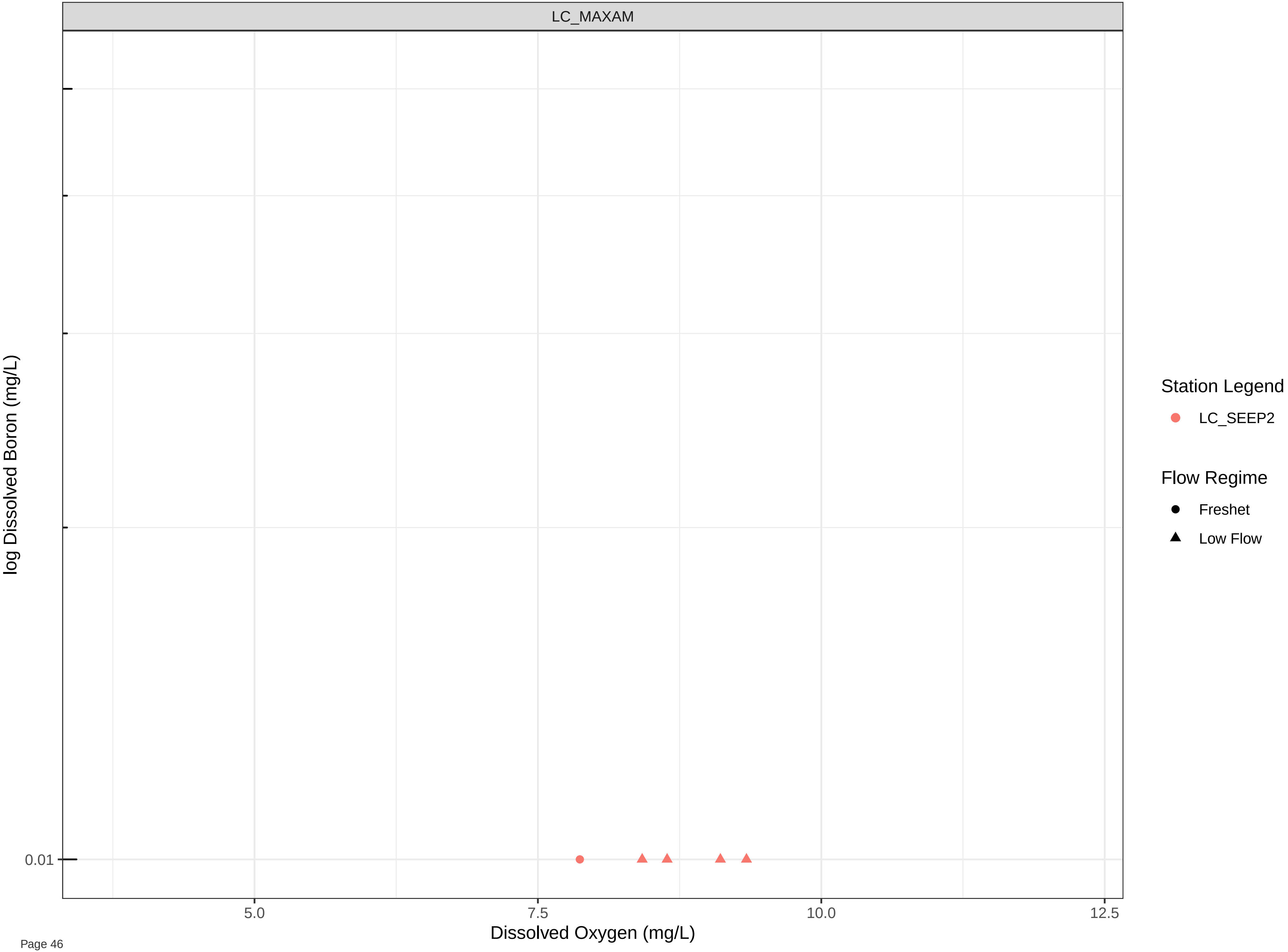
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow


LC_MAXAM
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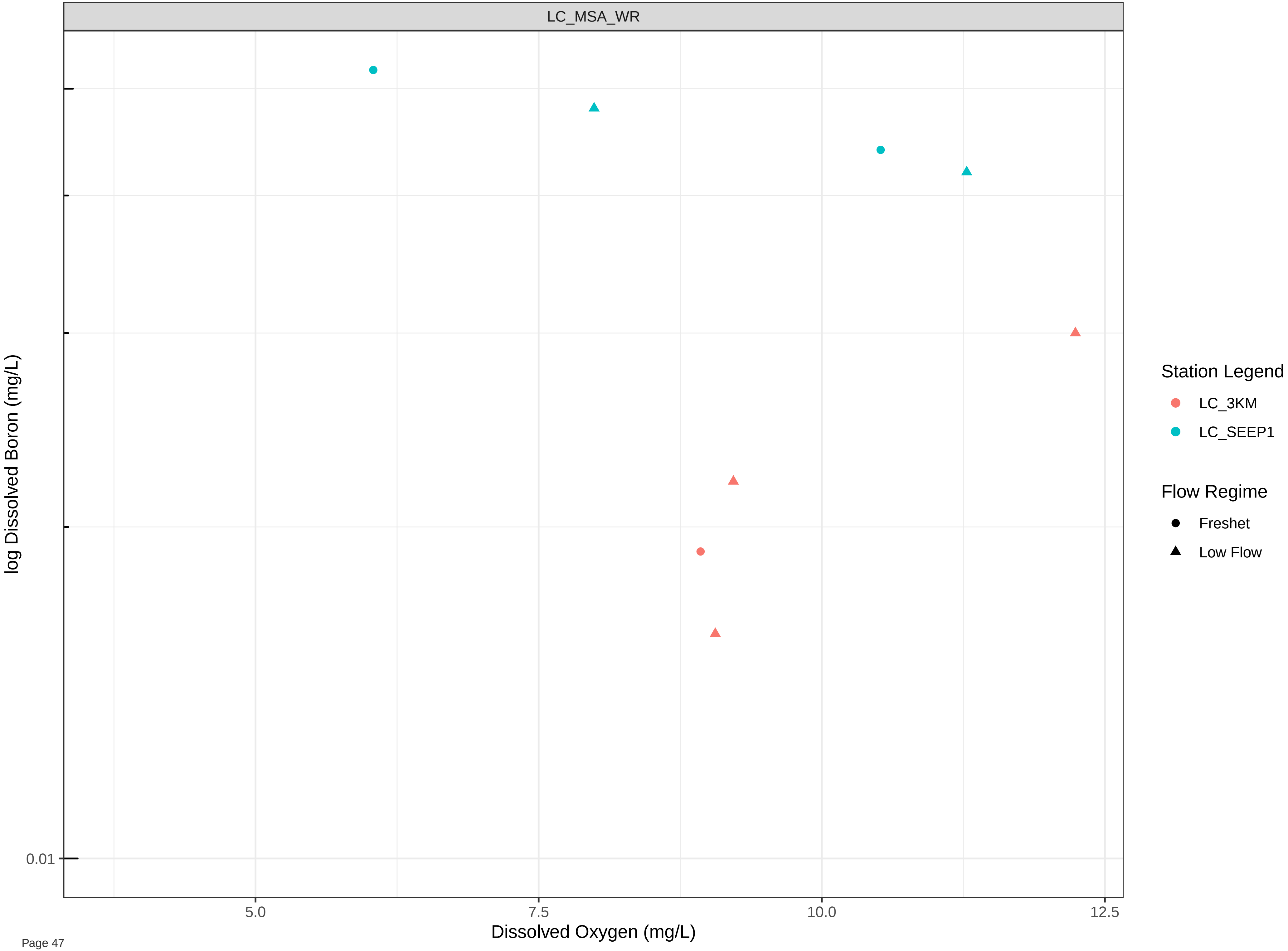
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow


LC_MSA_WR
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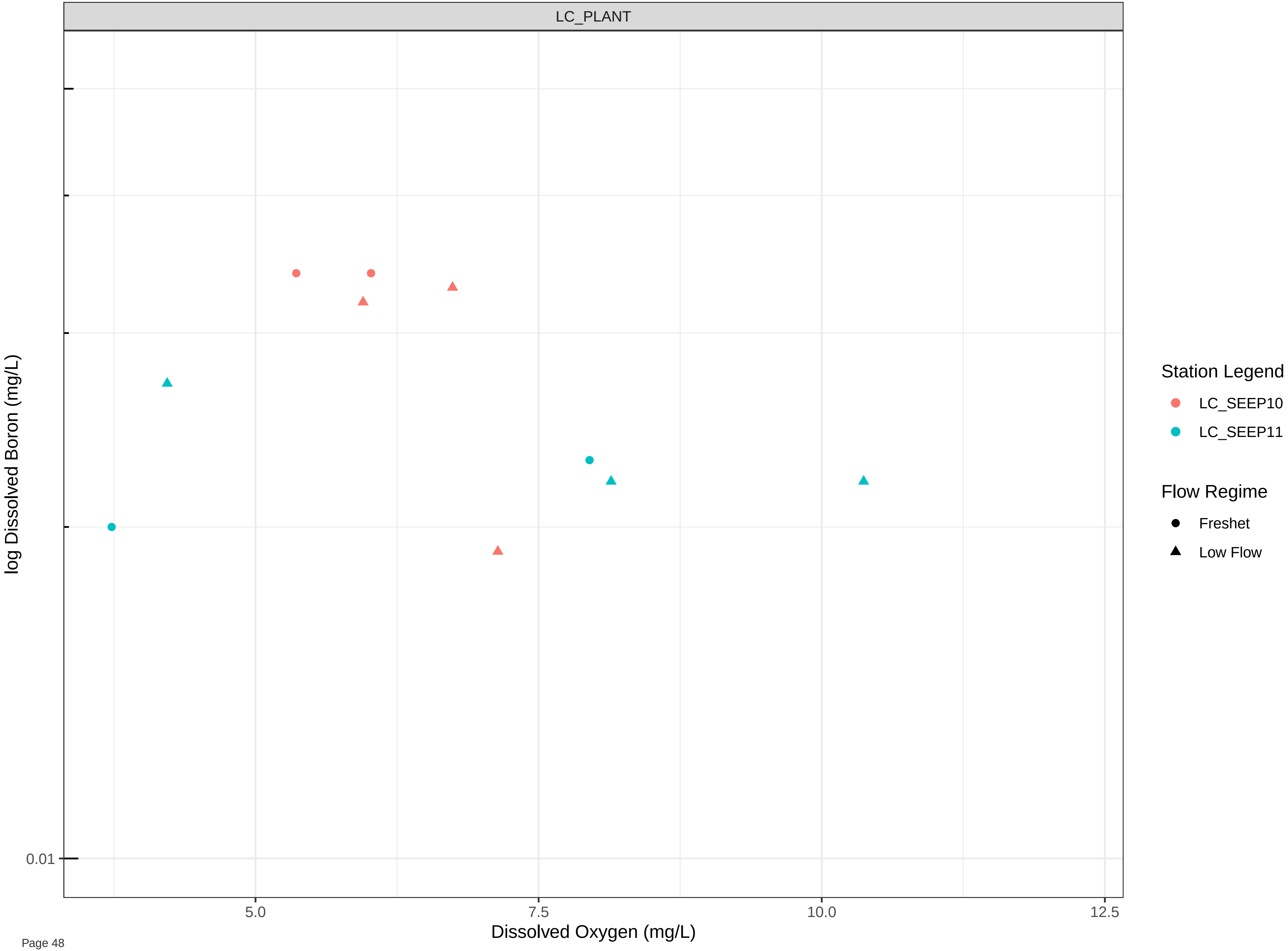
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow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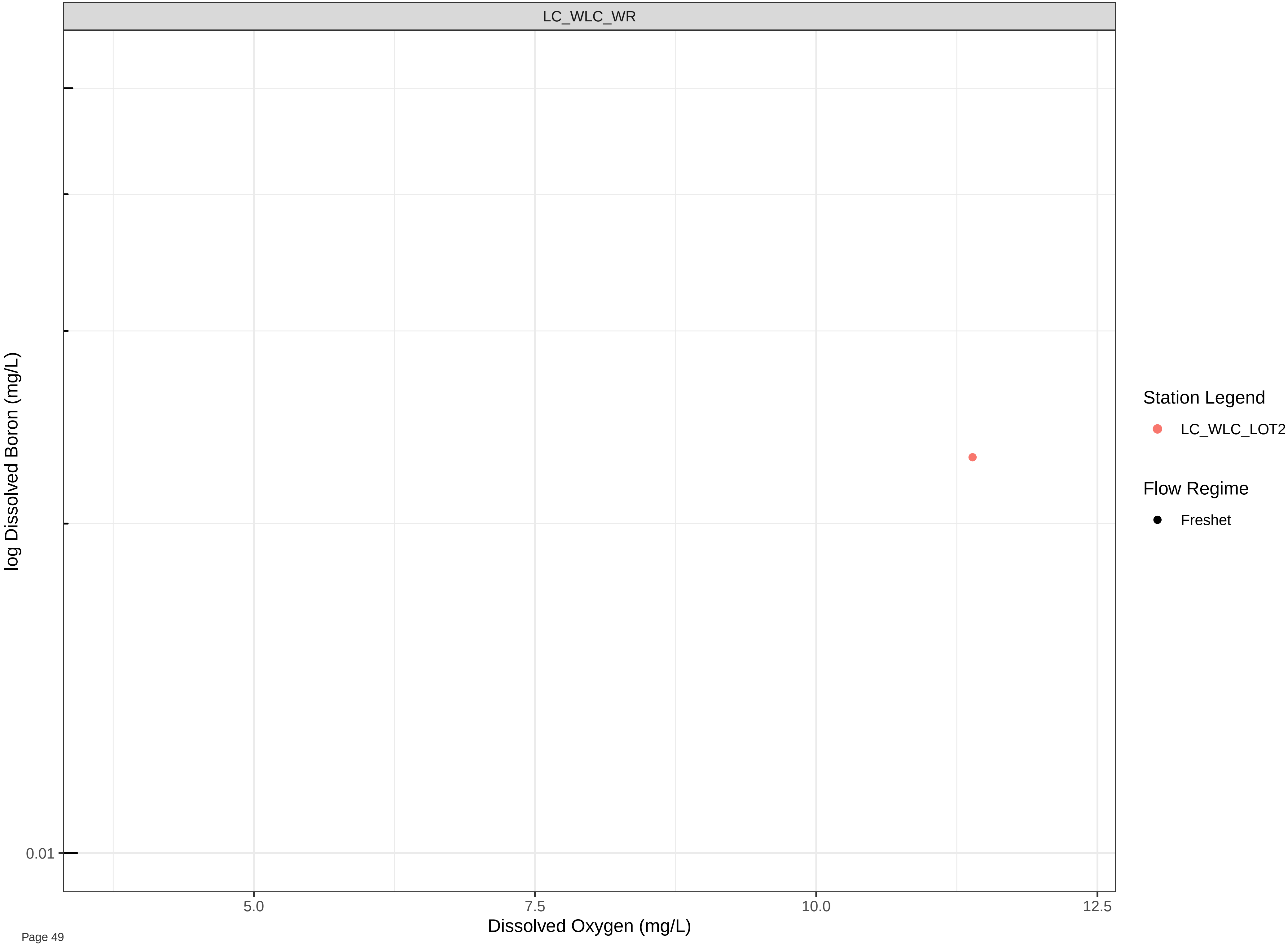
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow


LC_WLC_WR
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10.0
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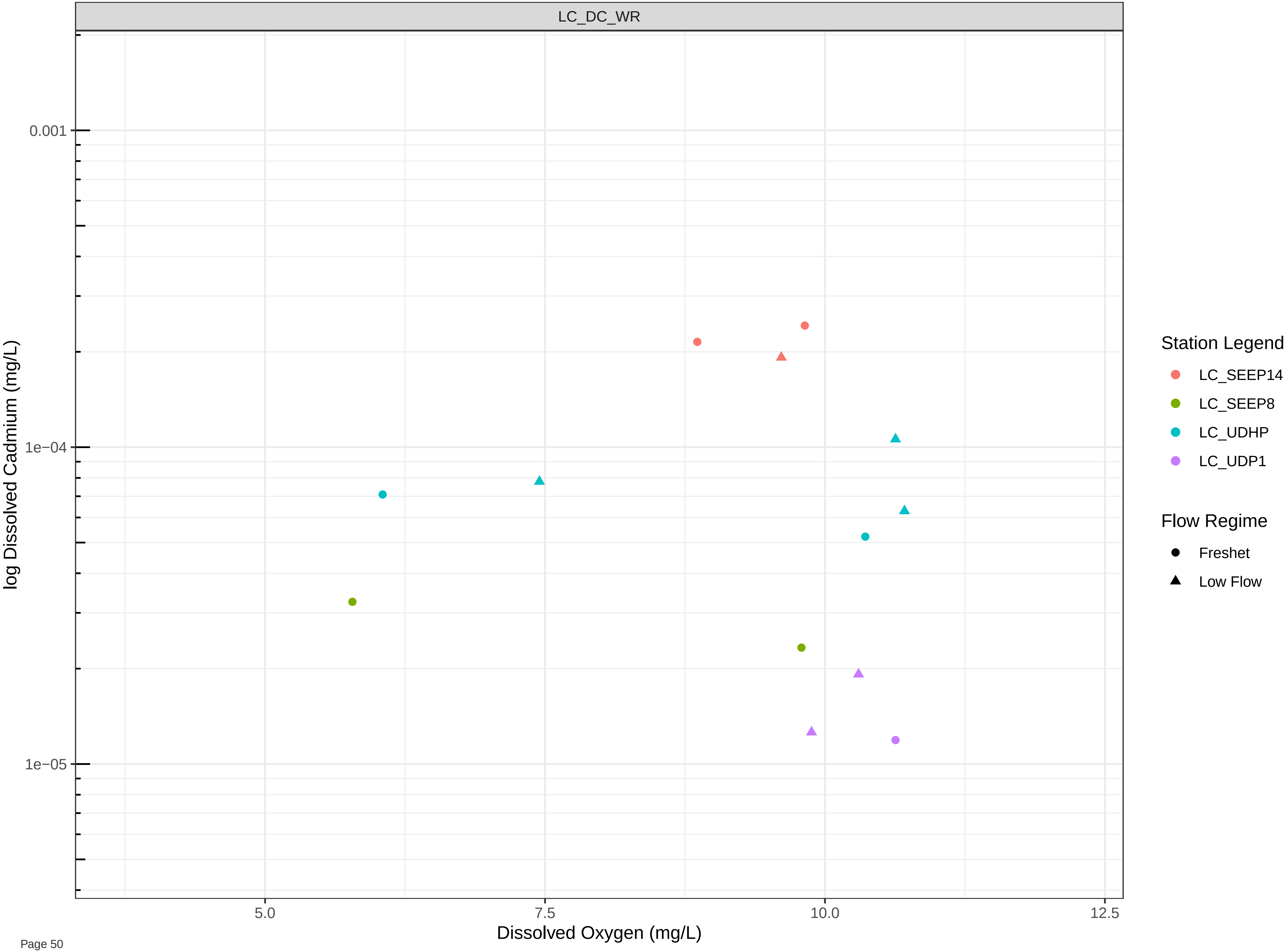
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet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1e−04
1e−05
5.0
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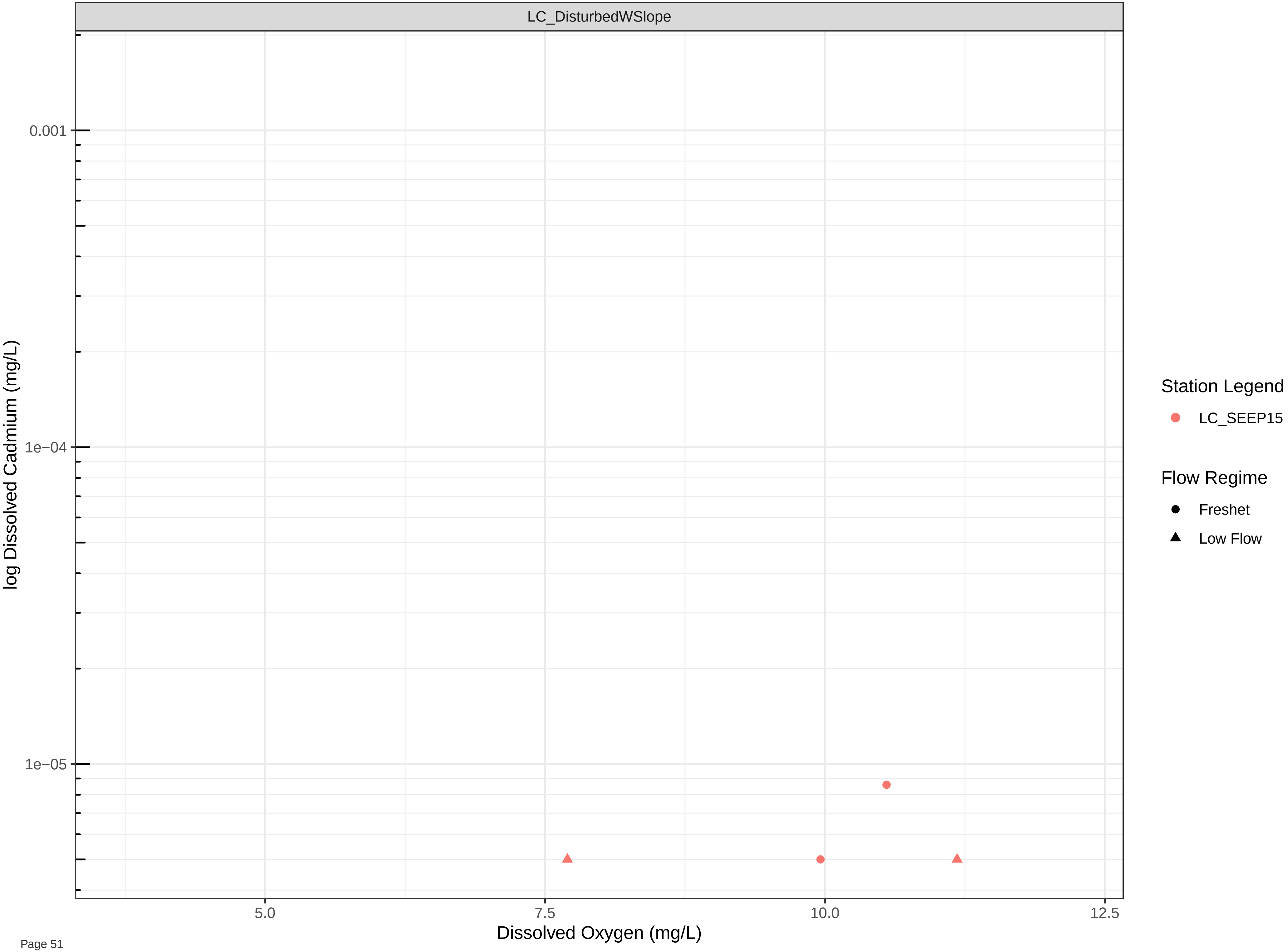
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow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1e−05
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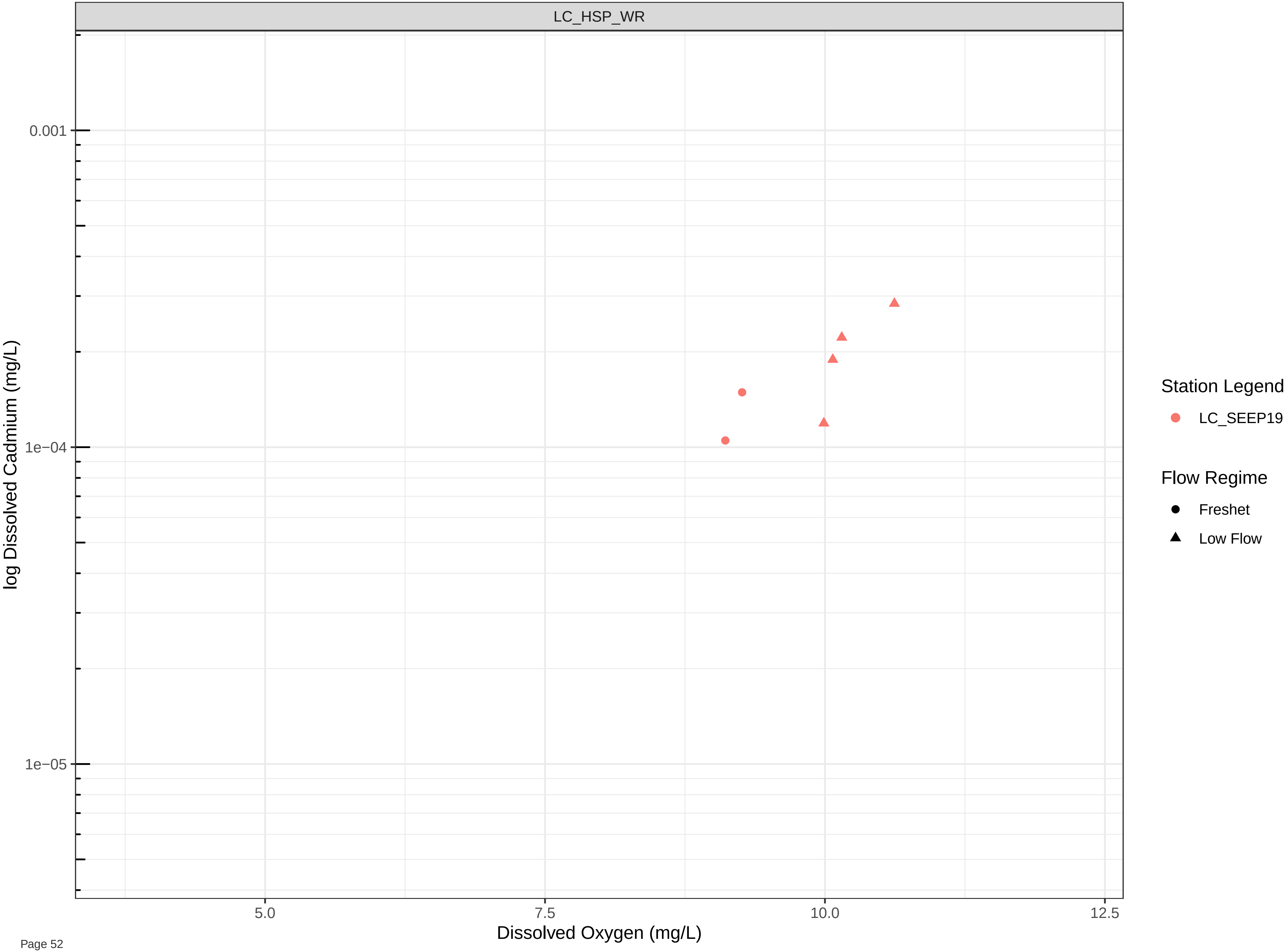
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow


LC_HSP_WR
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Dissolved Oxygen (mg/L)
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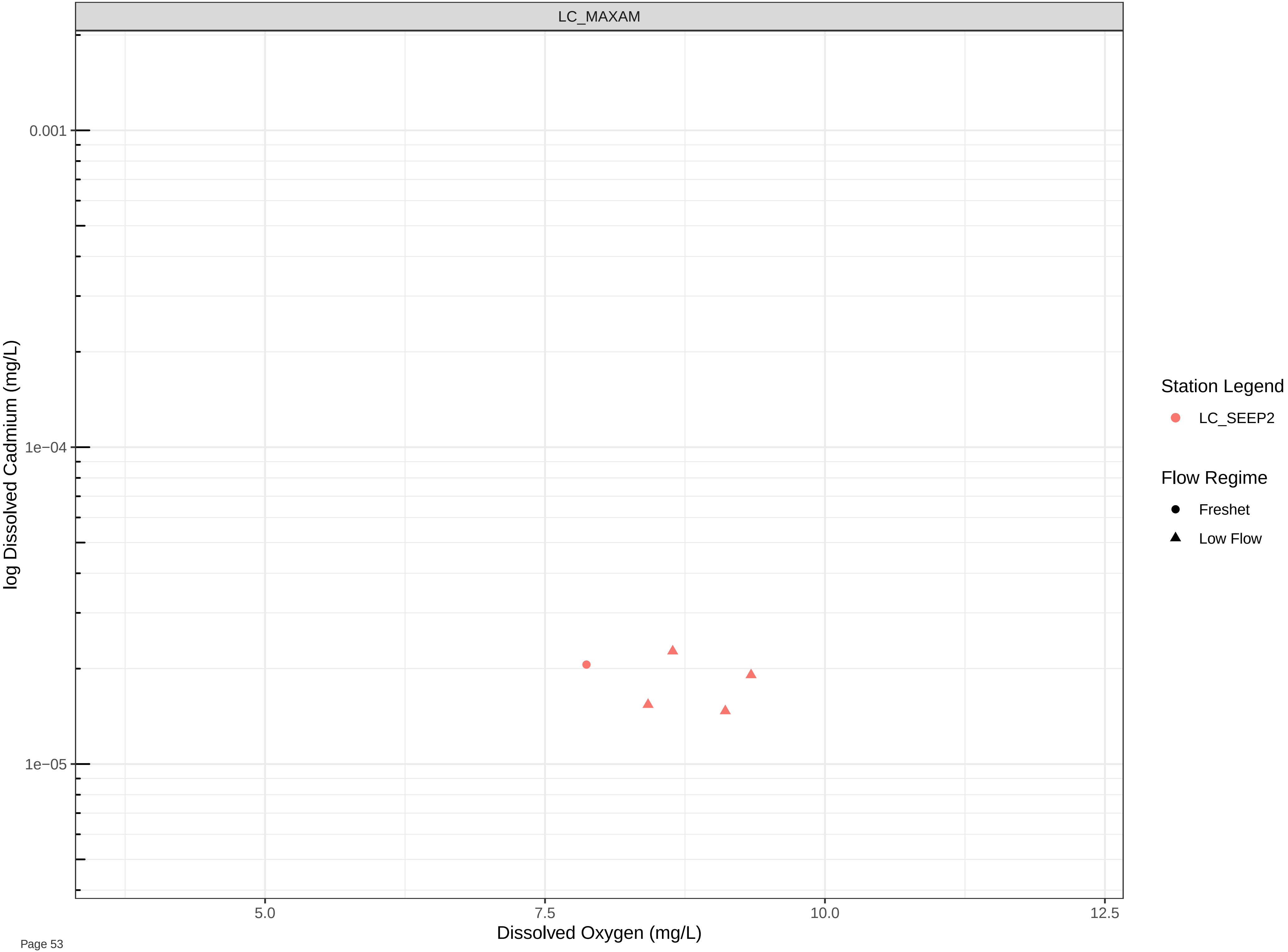
10.0
12.5
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow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1e−05
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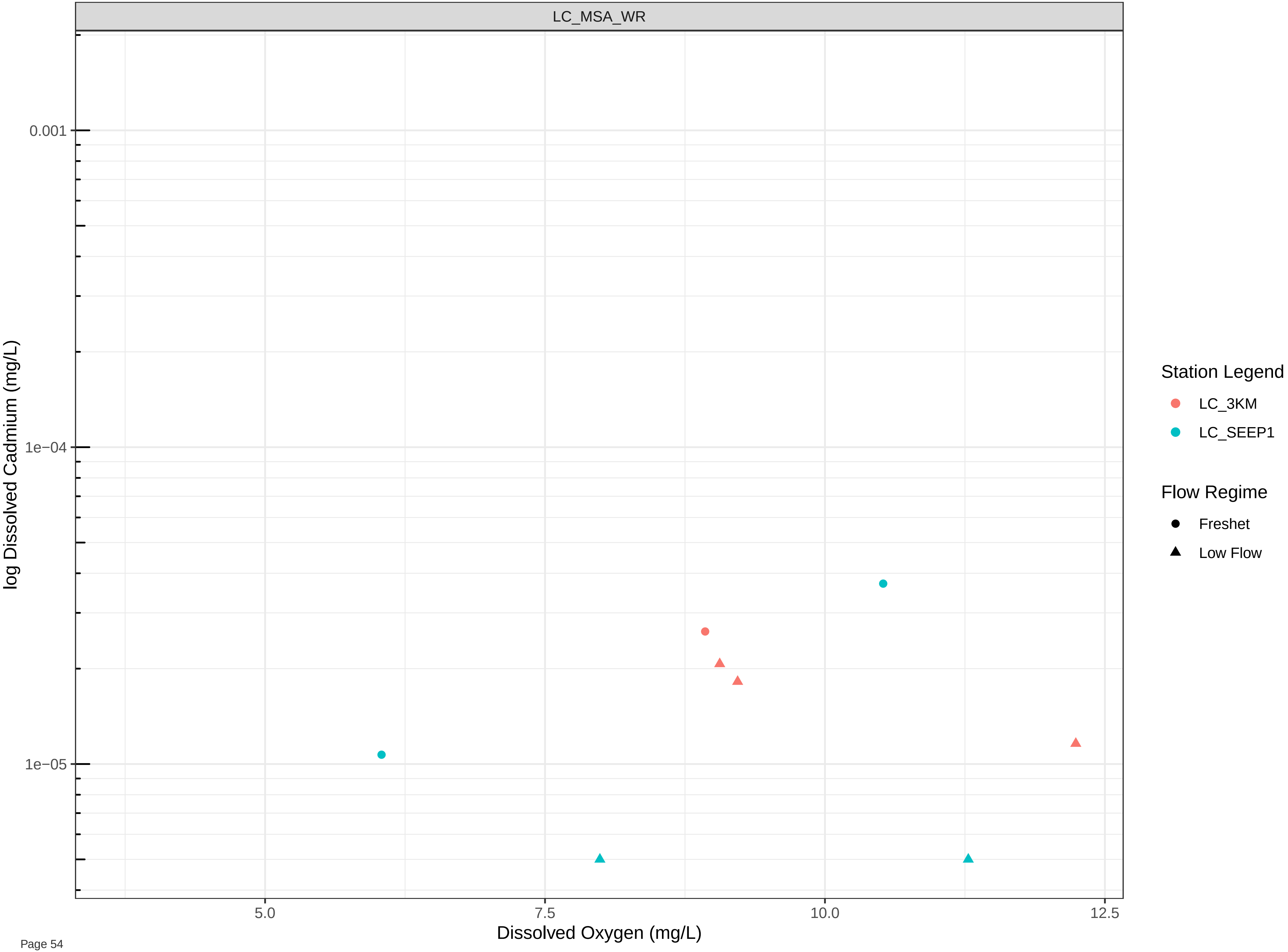
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow


LC_MSA_WR
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1e−04
1e−05
Dissolved Oxygen (mg/L)
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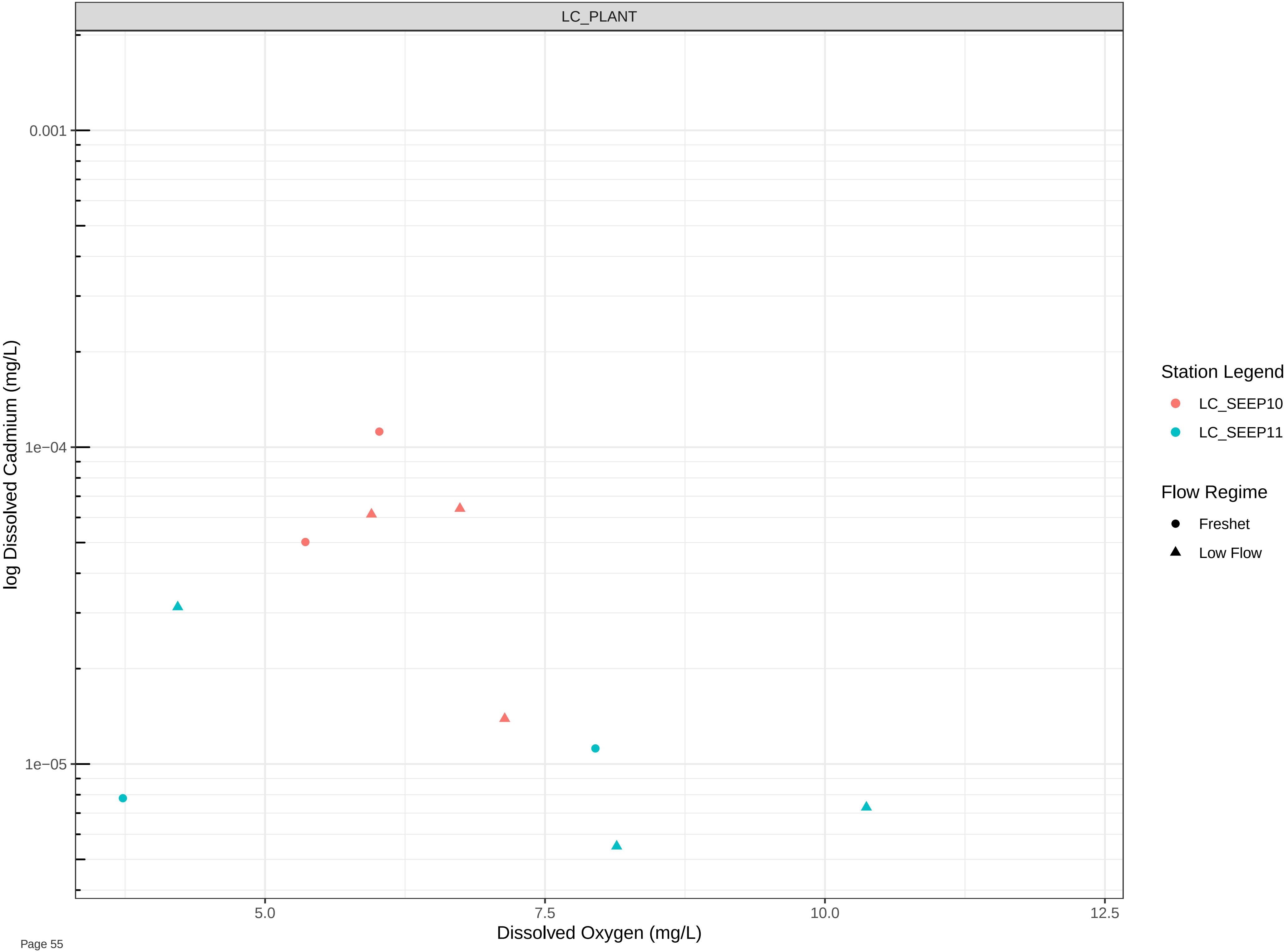
10.0
12.5
Station Legend
● LC_3KM
● LC_SEEP1
Flow Regime
● Freshet
▲ Low Flow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1e−05
Dissolved Oxygen (mg/L)
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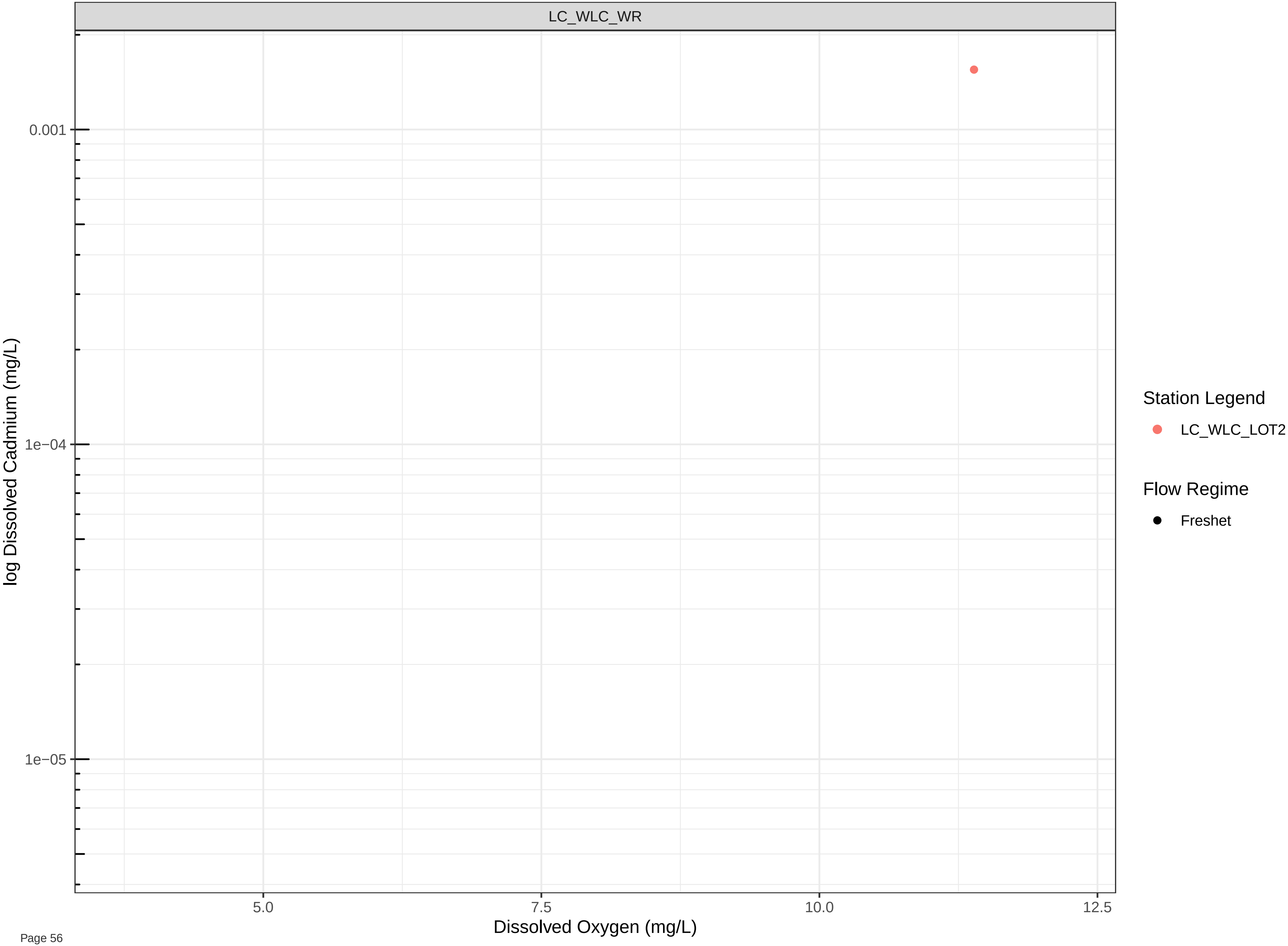
10.0
12.5
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow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1e−05
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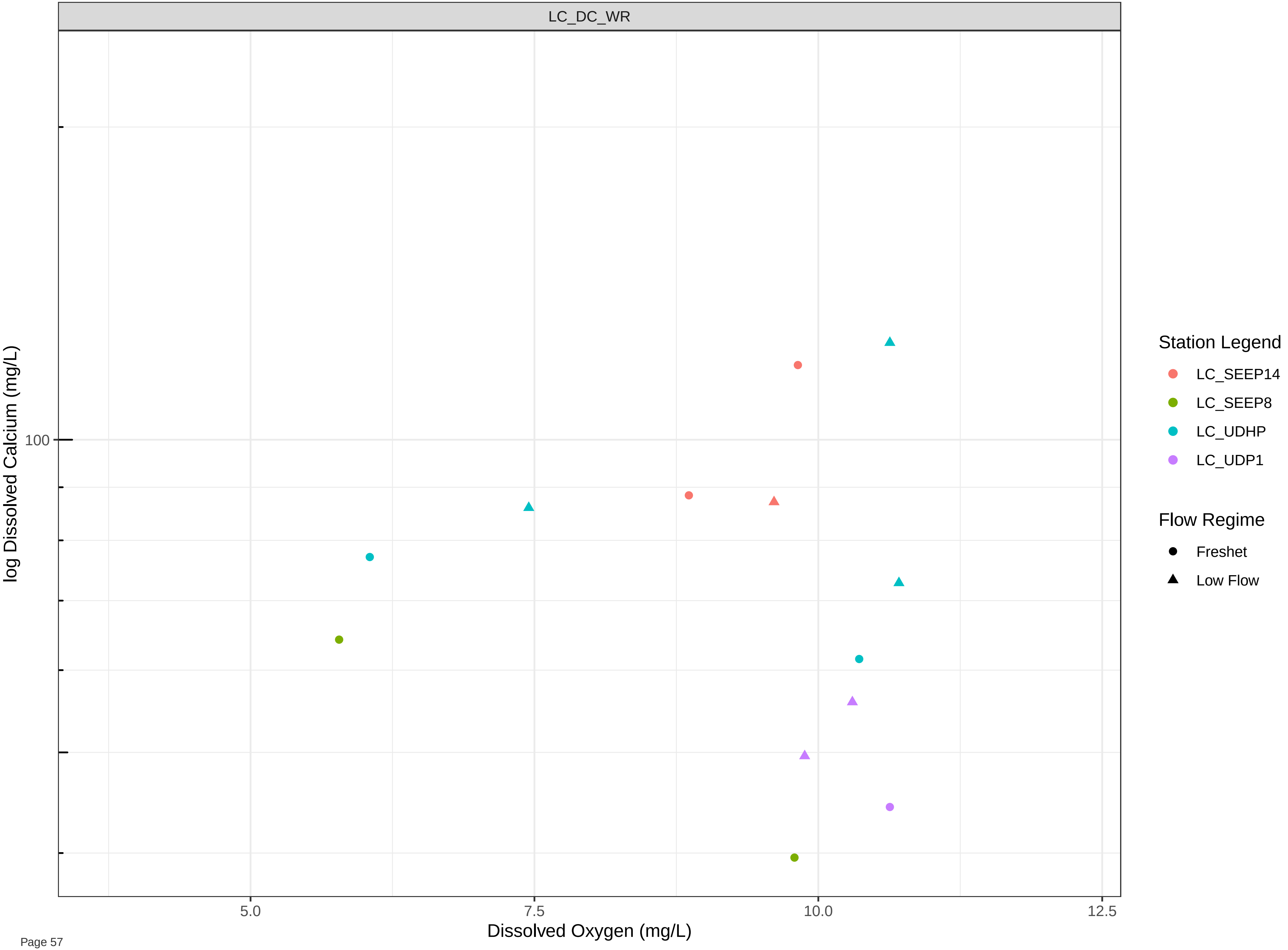
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet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Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
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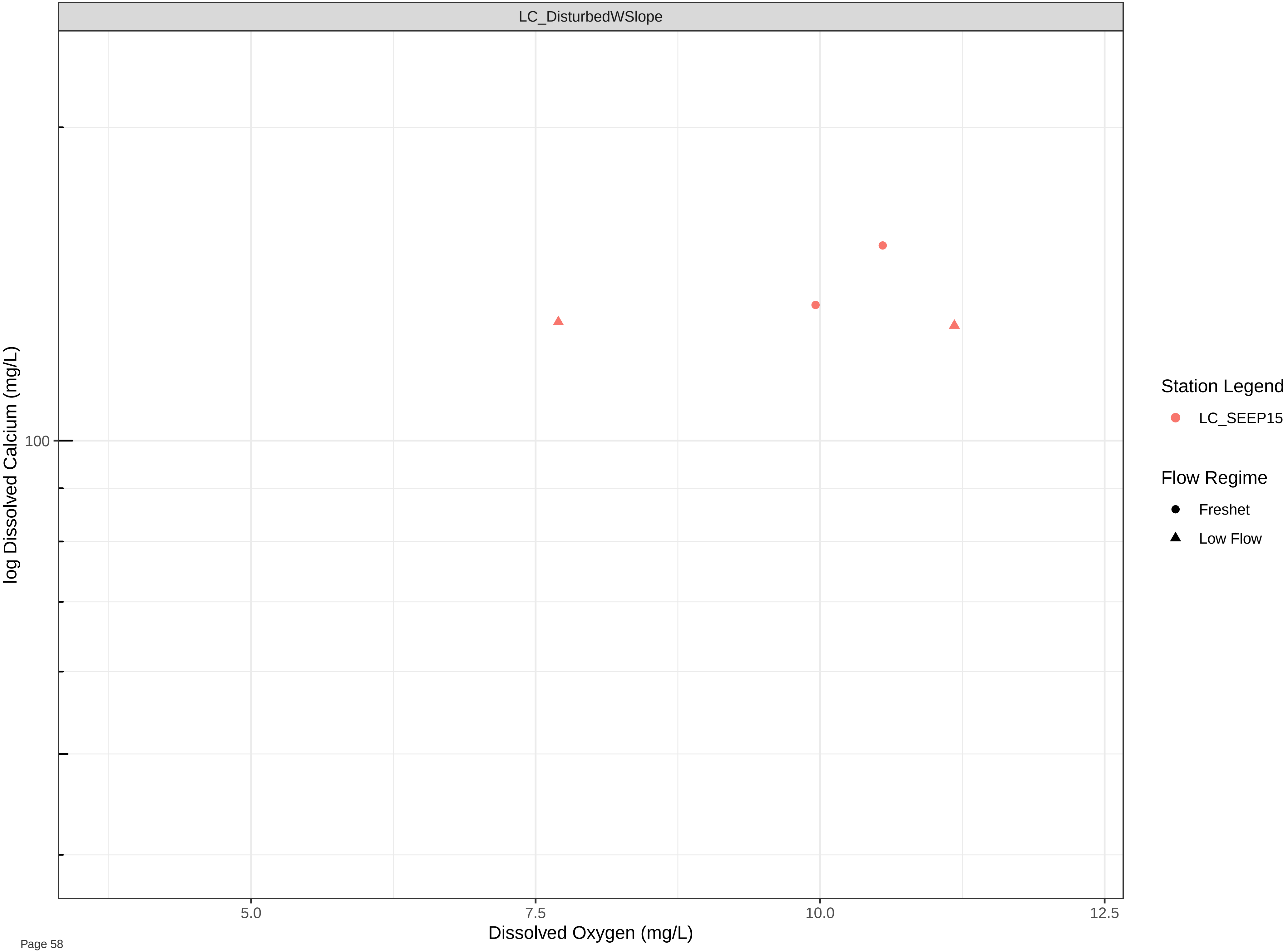
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow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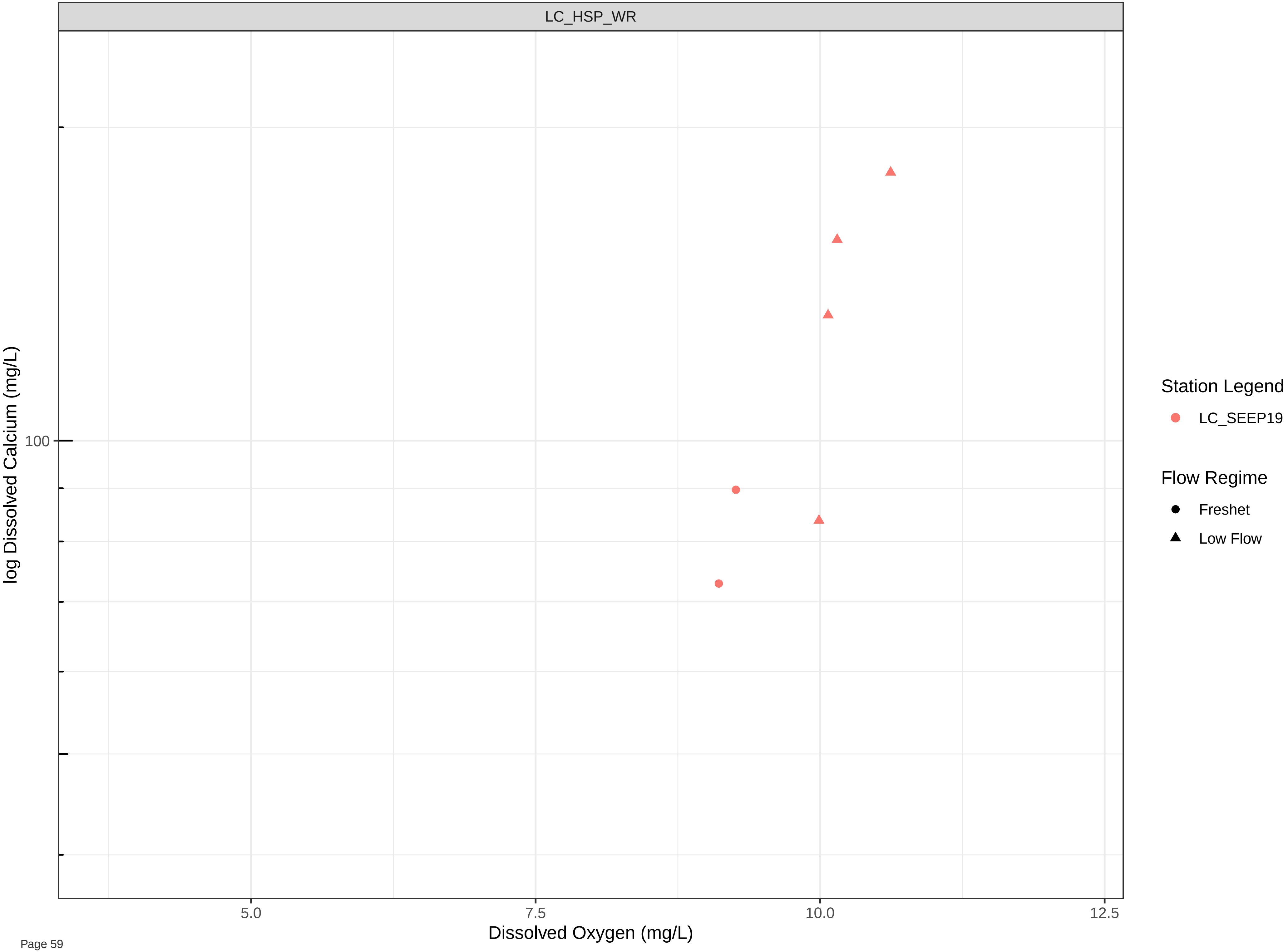
10.0
12.5
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow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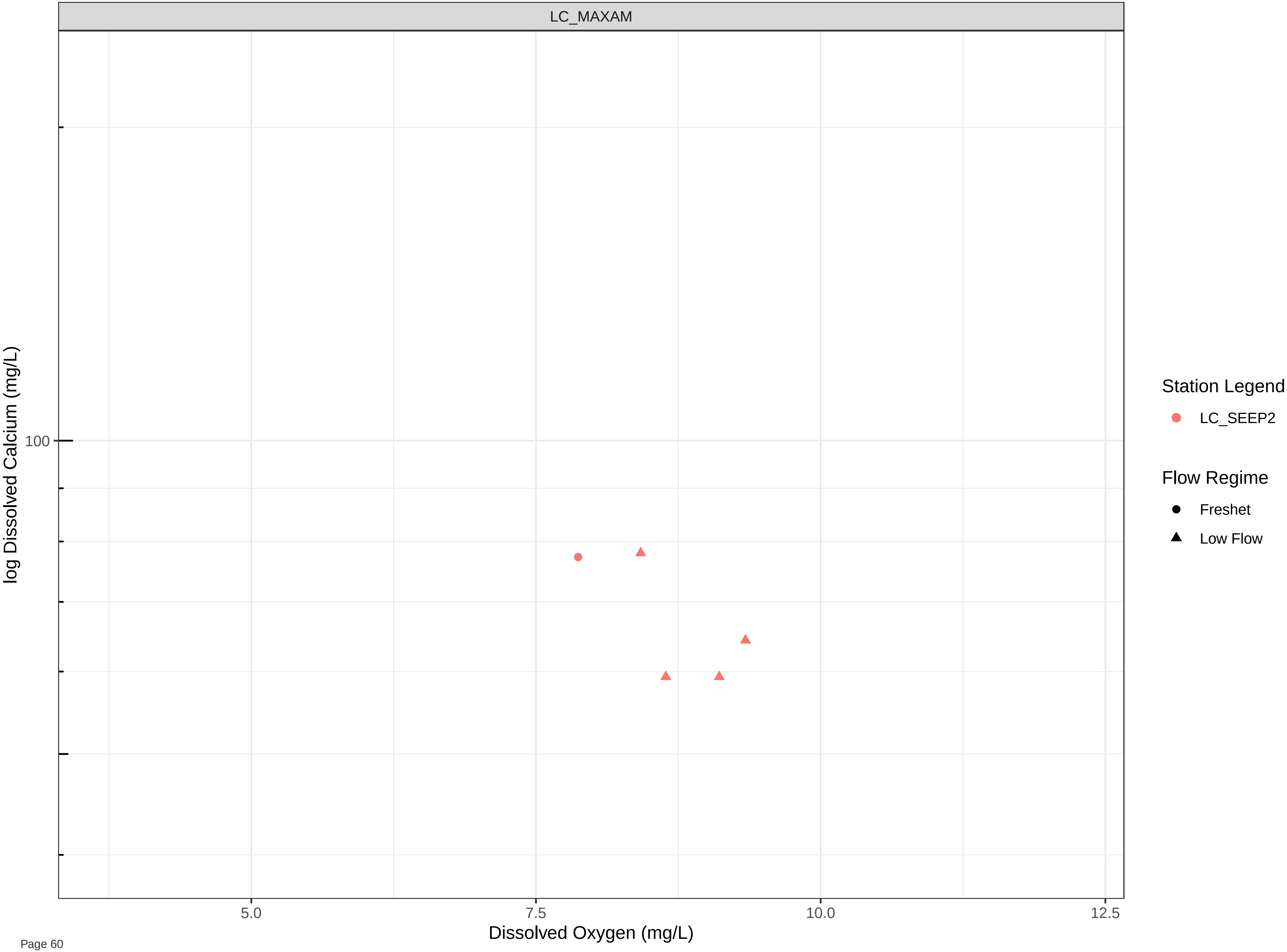
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow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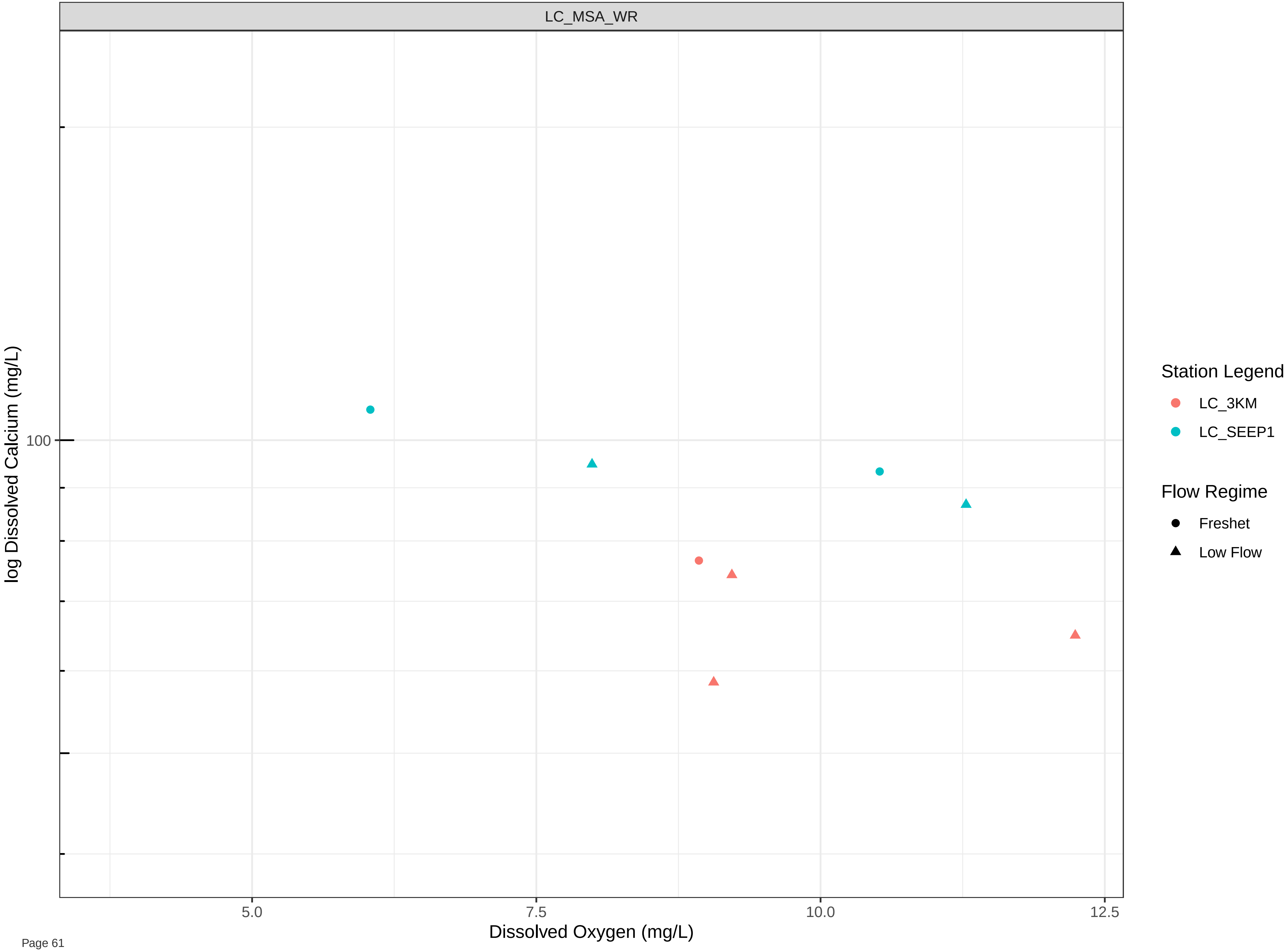
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow


LC_MSA_WR
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Dissolved Oxygen (mg/L)
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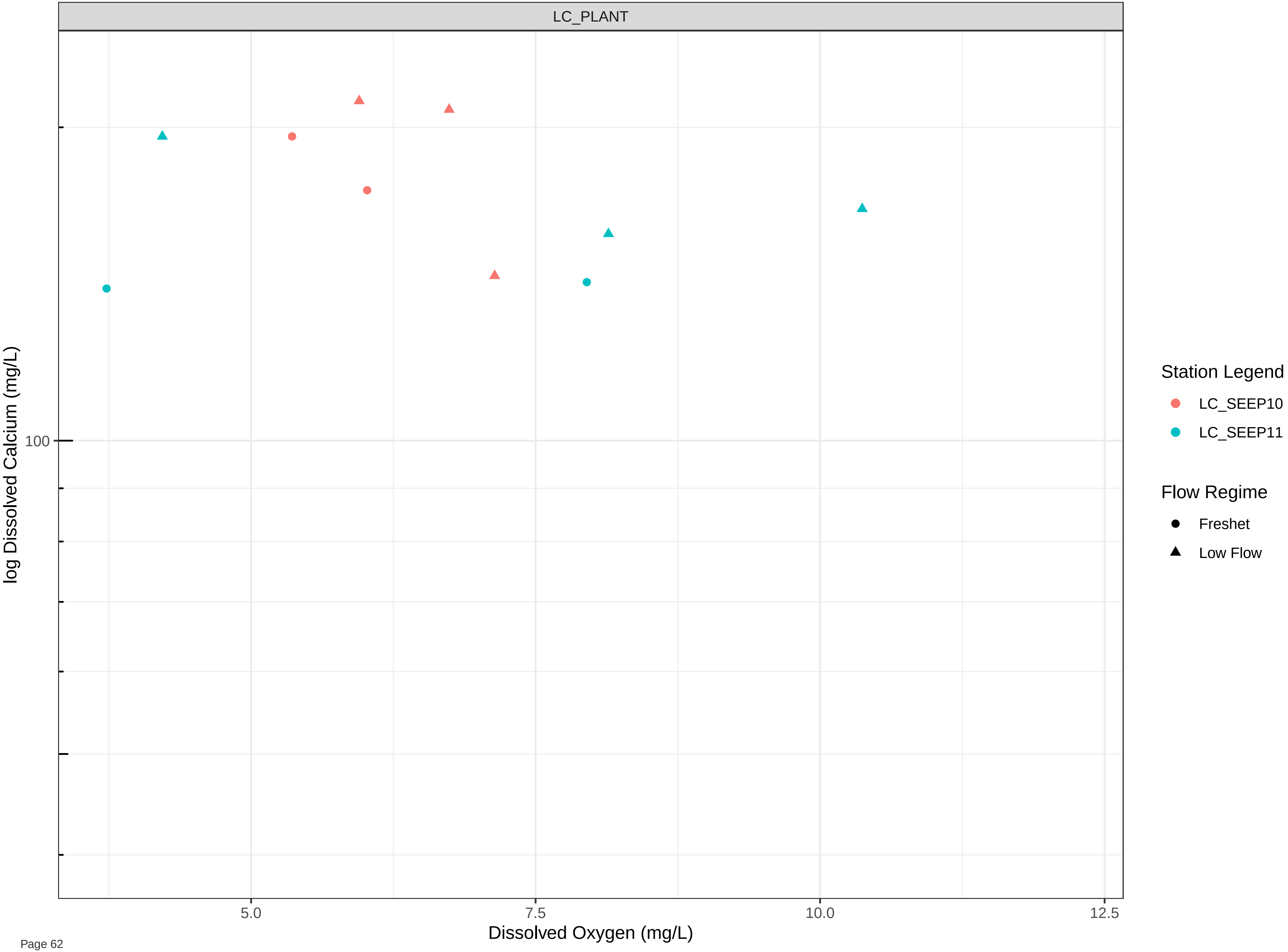
12.5
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow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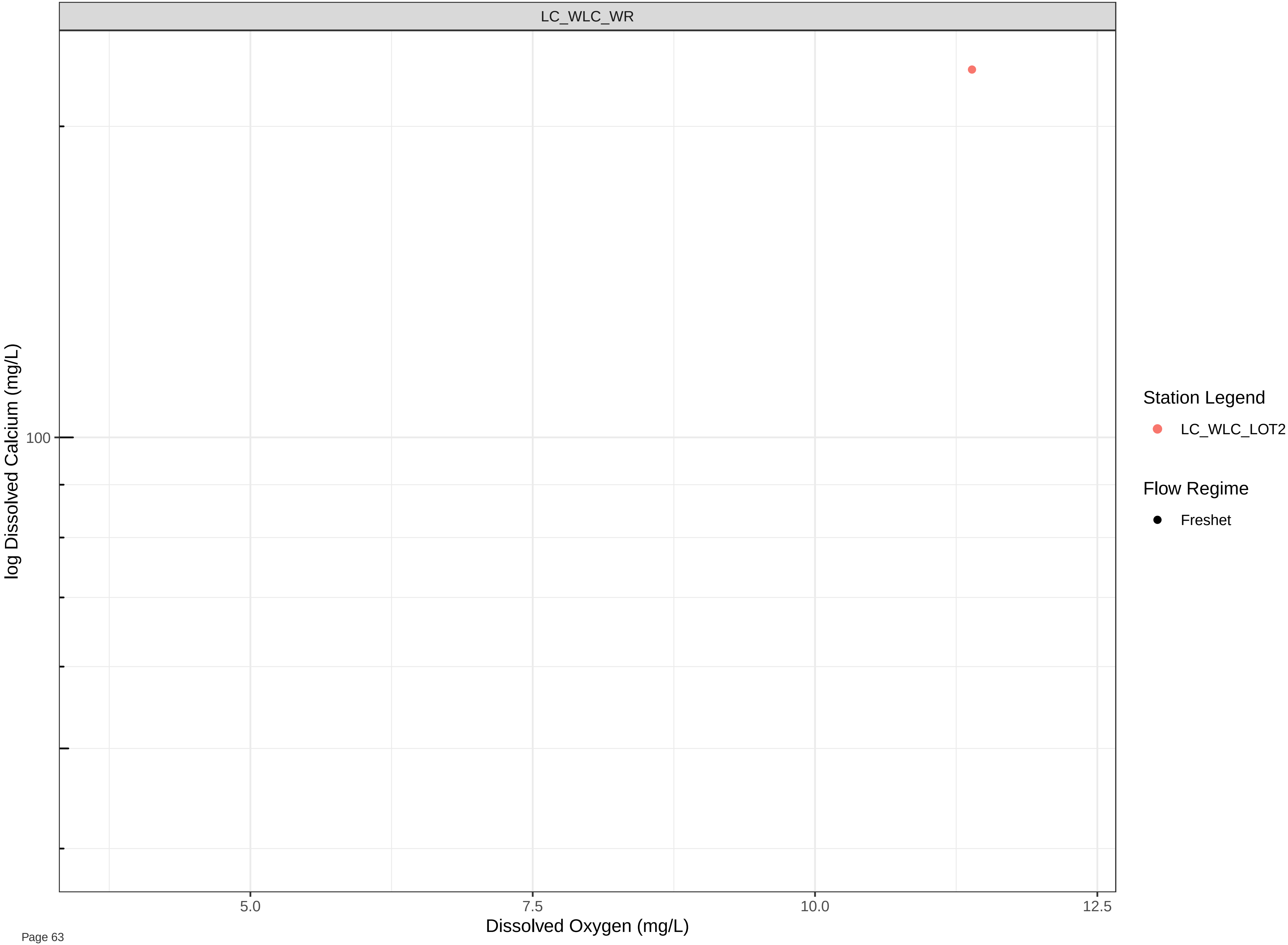
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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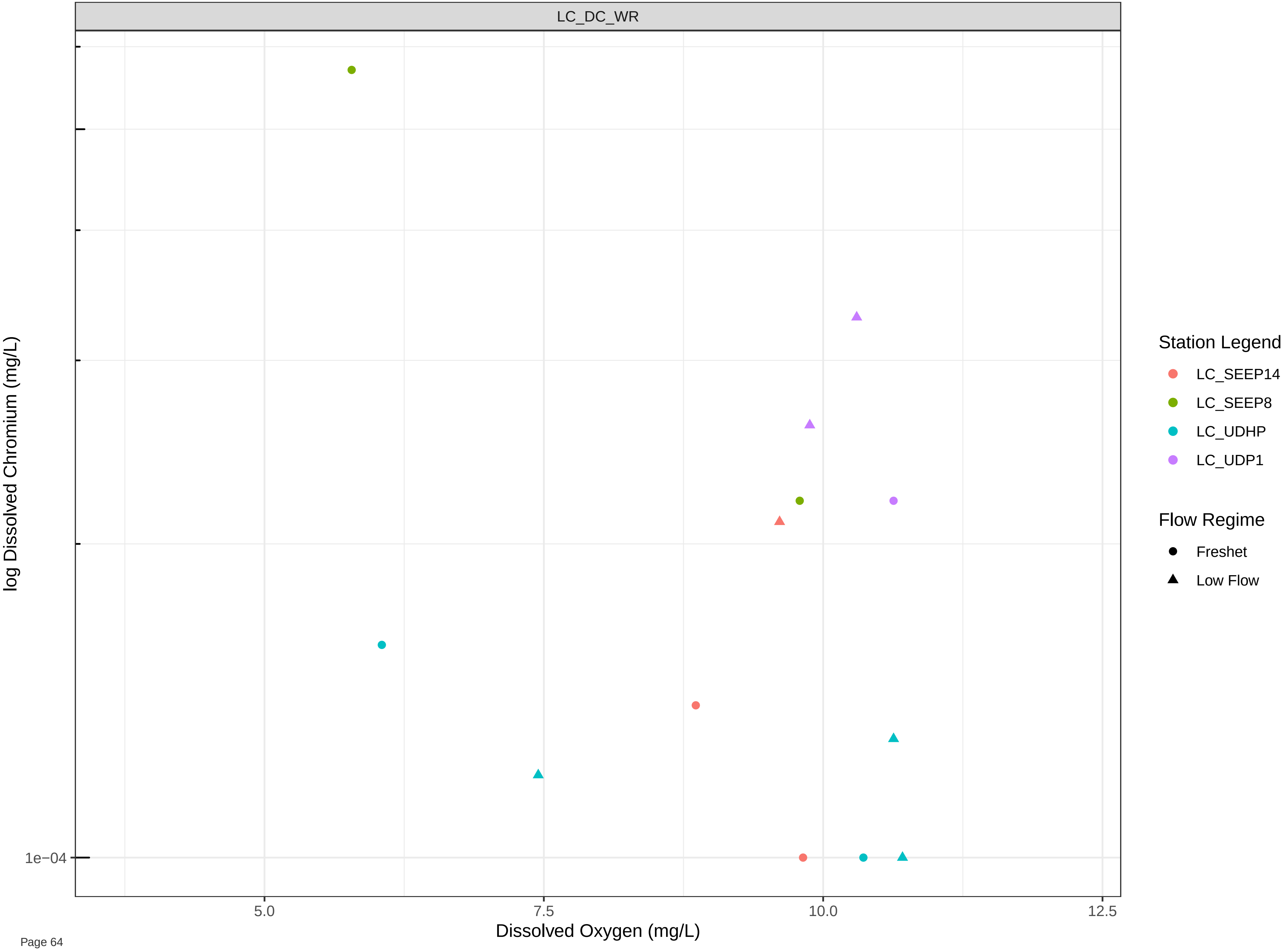
12.5
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet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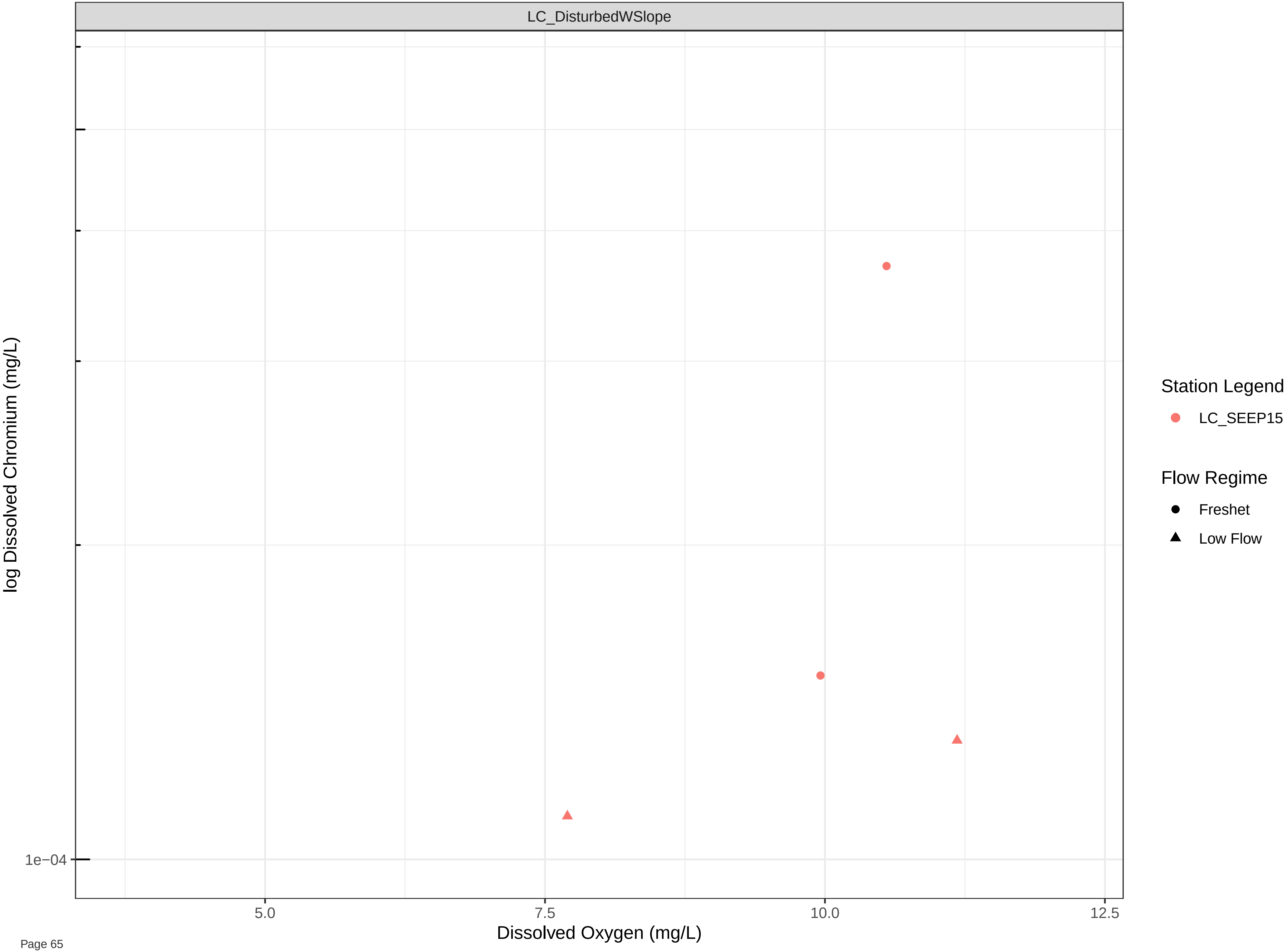
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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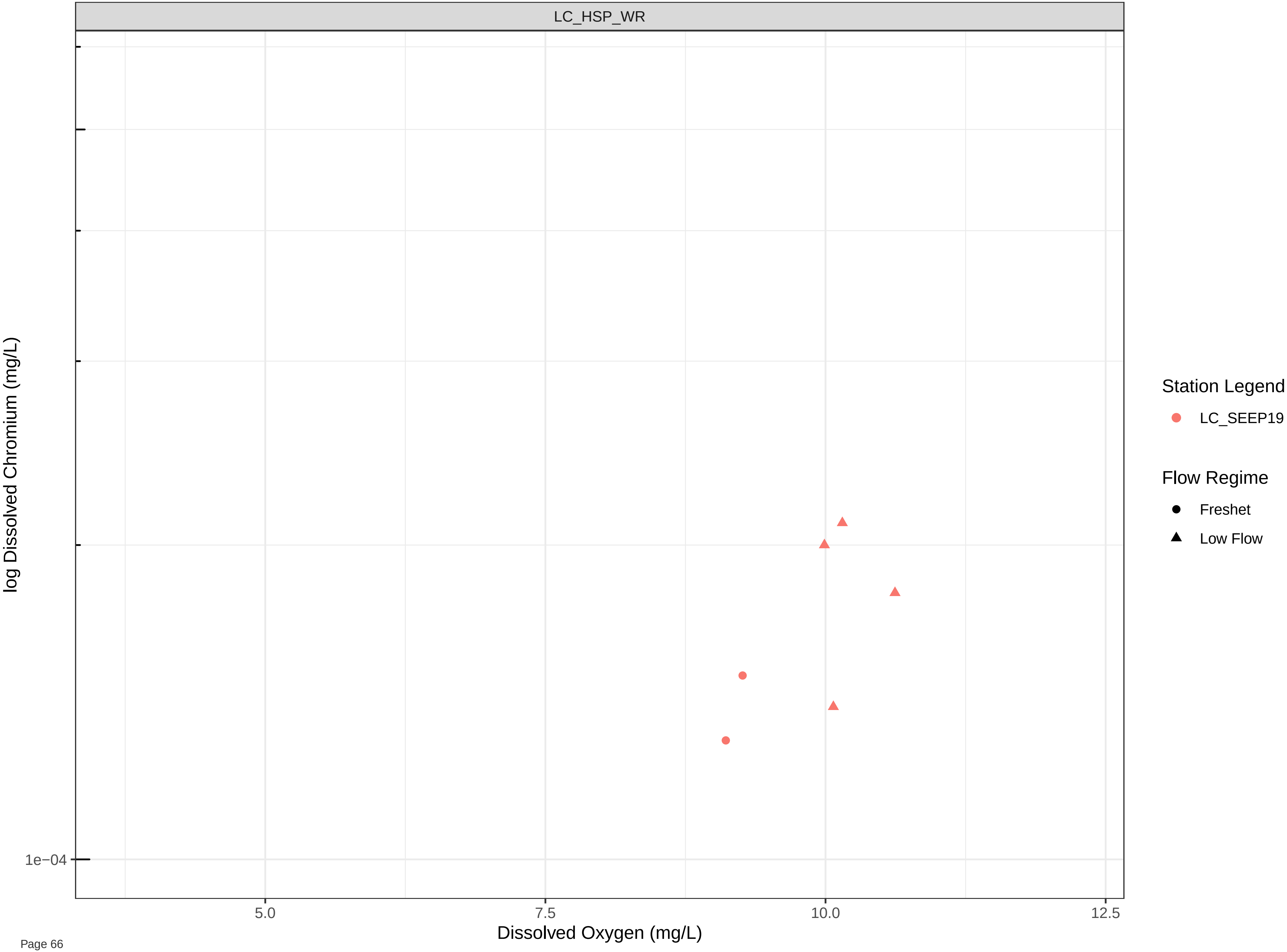
10.0
12.5
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow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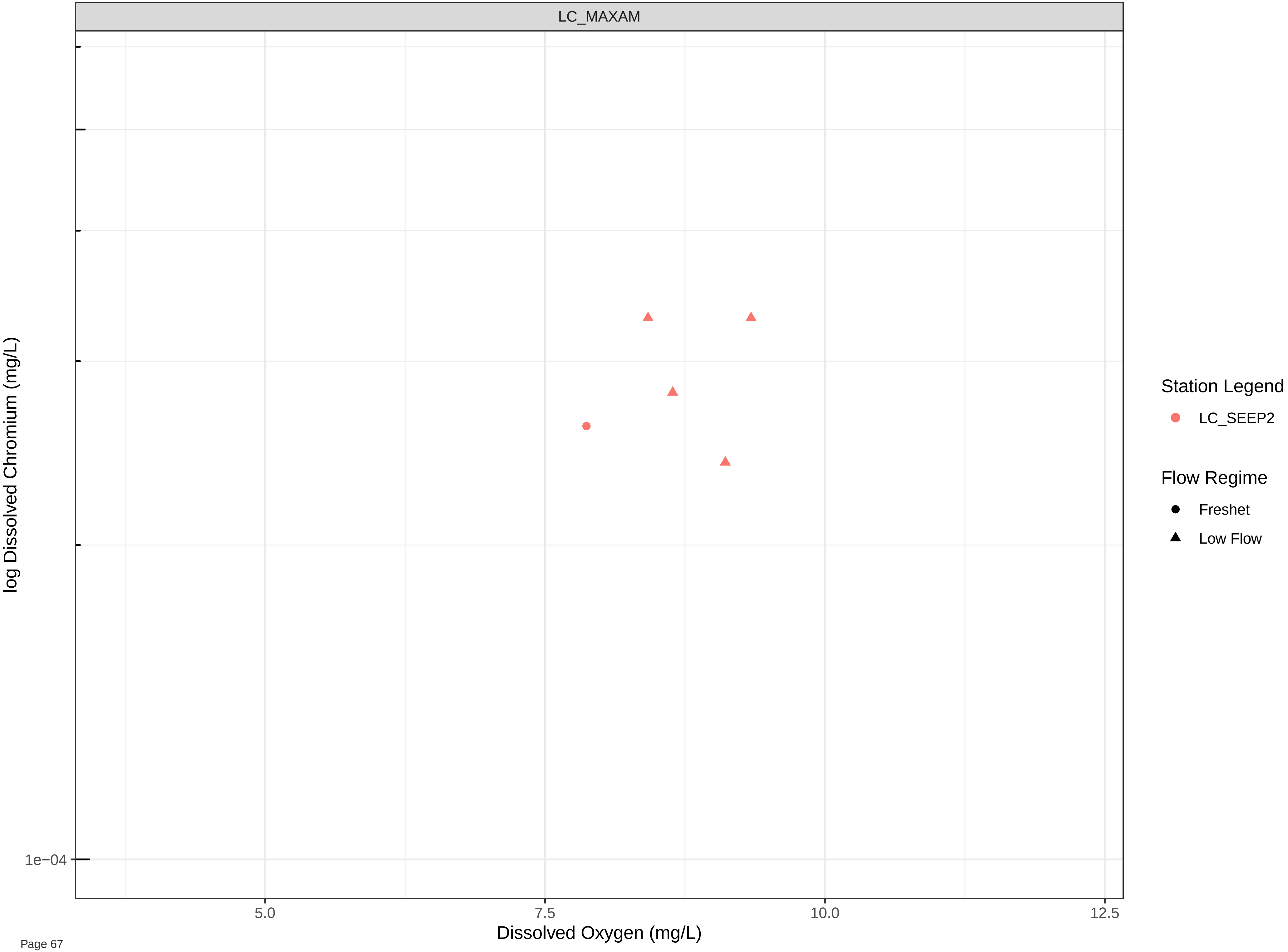
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow


LC_MAXAM
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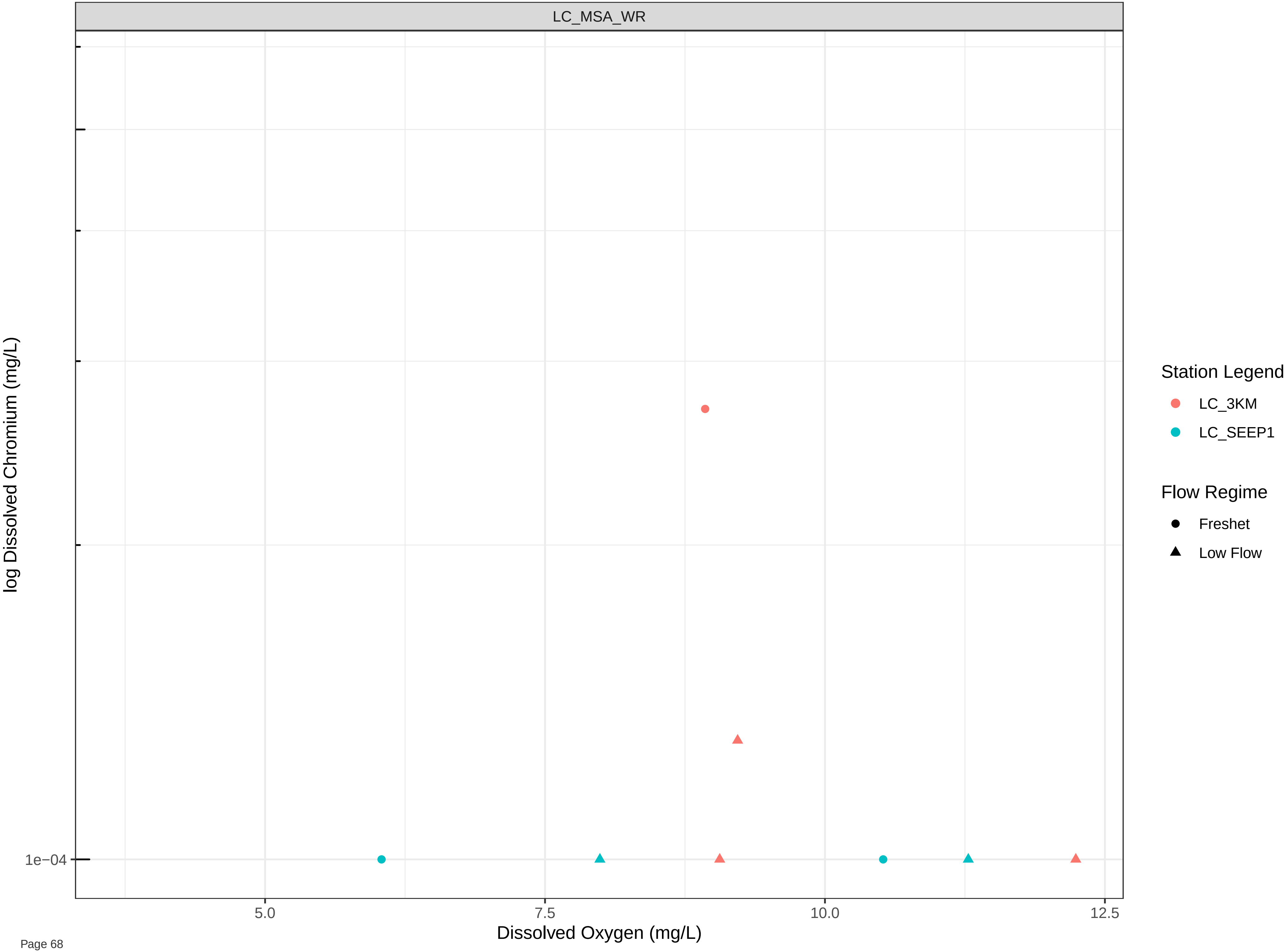
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow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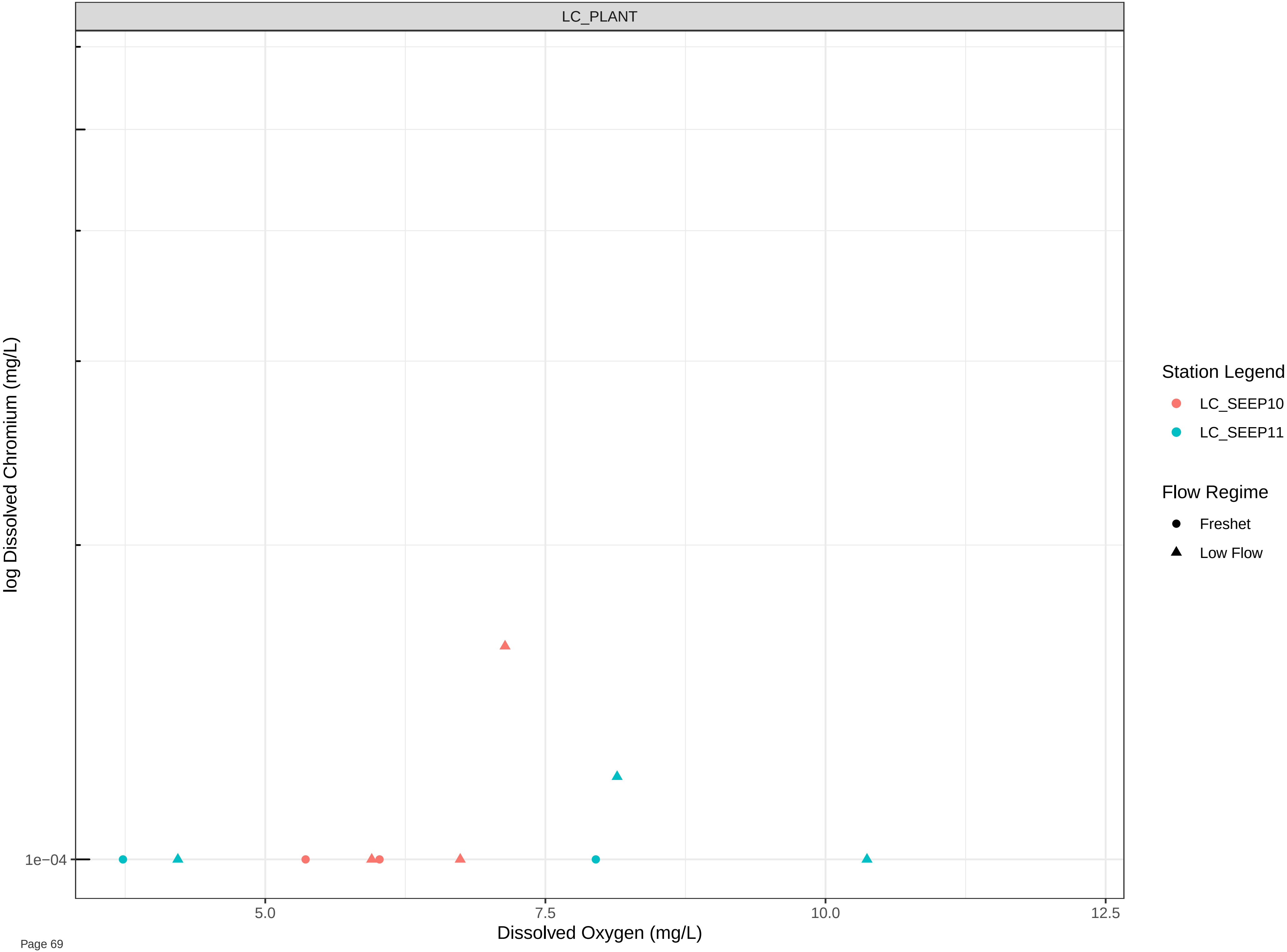
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow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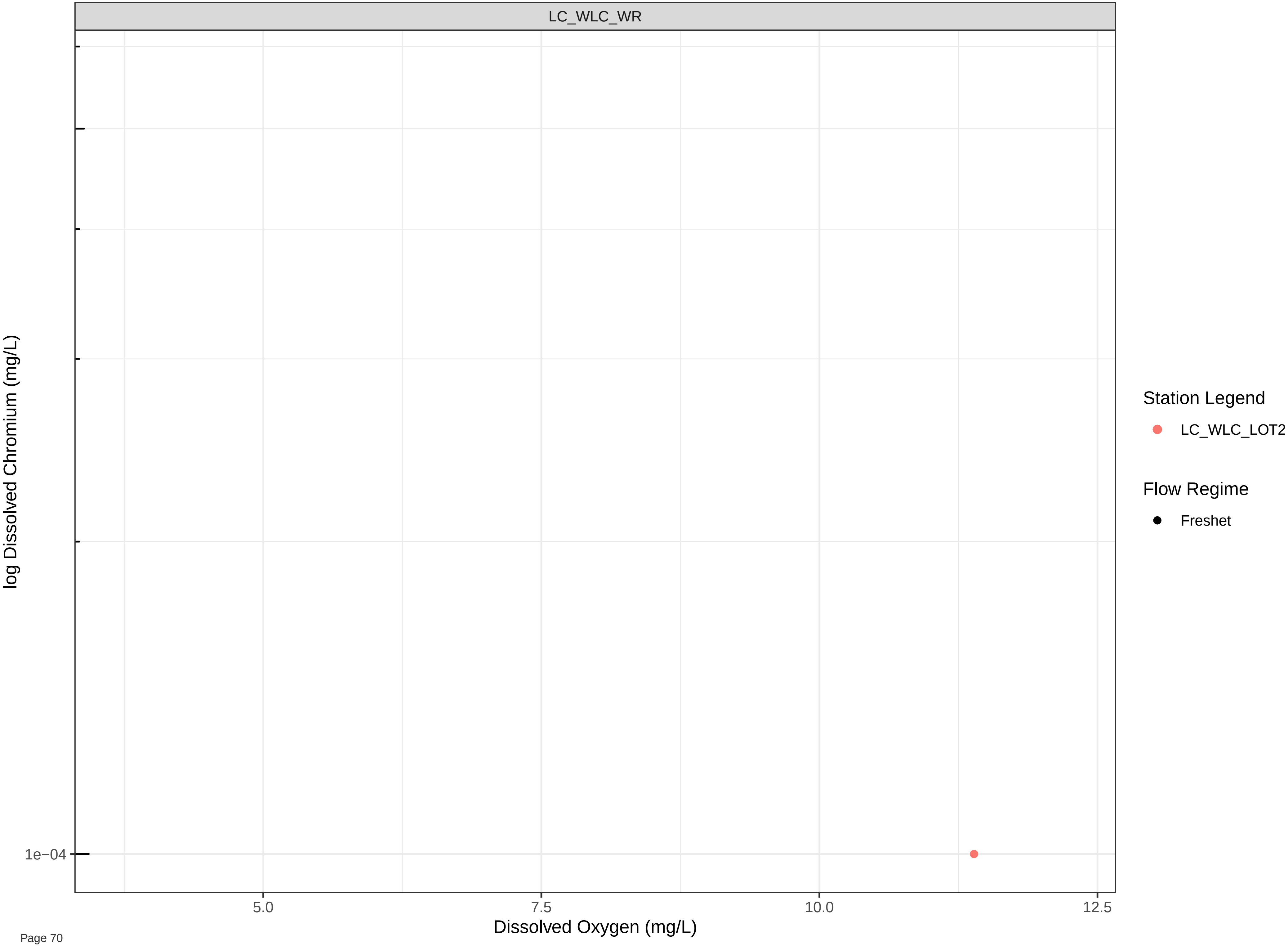
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow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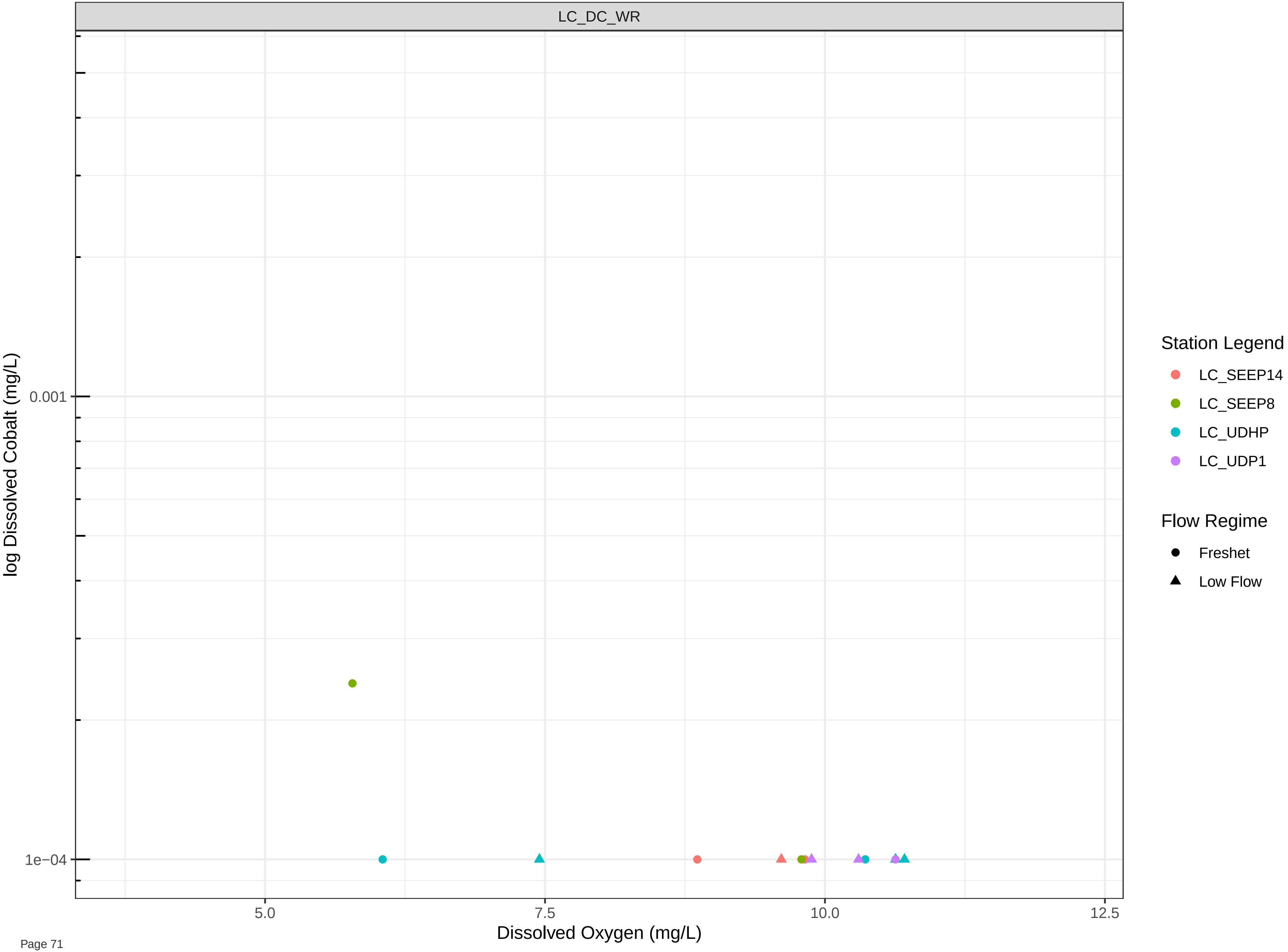
Dissolved Oxygen (mg/L)
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet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Dissolved Oxygen (mg/L)
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12.5
Station Legend
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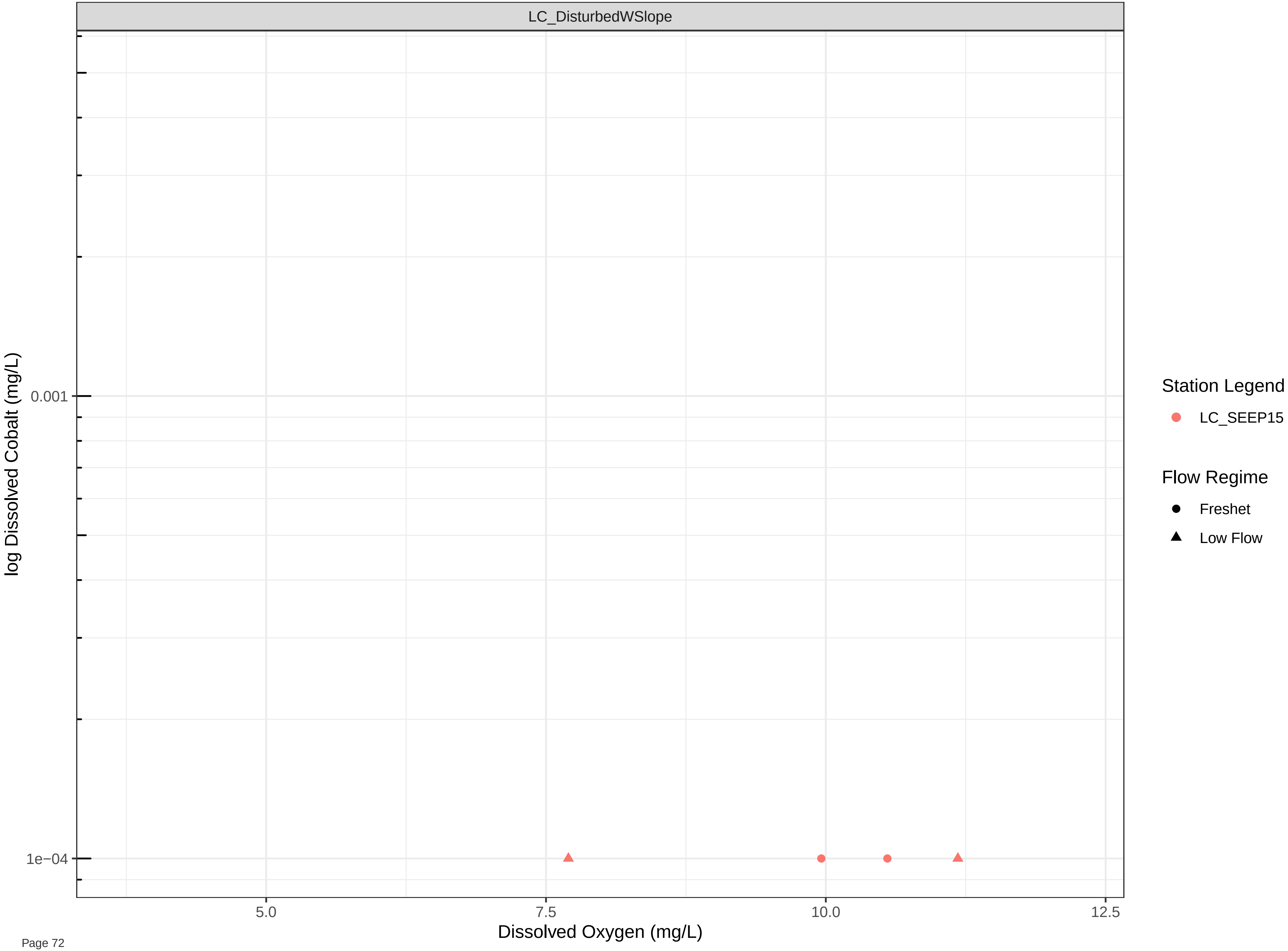
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
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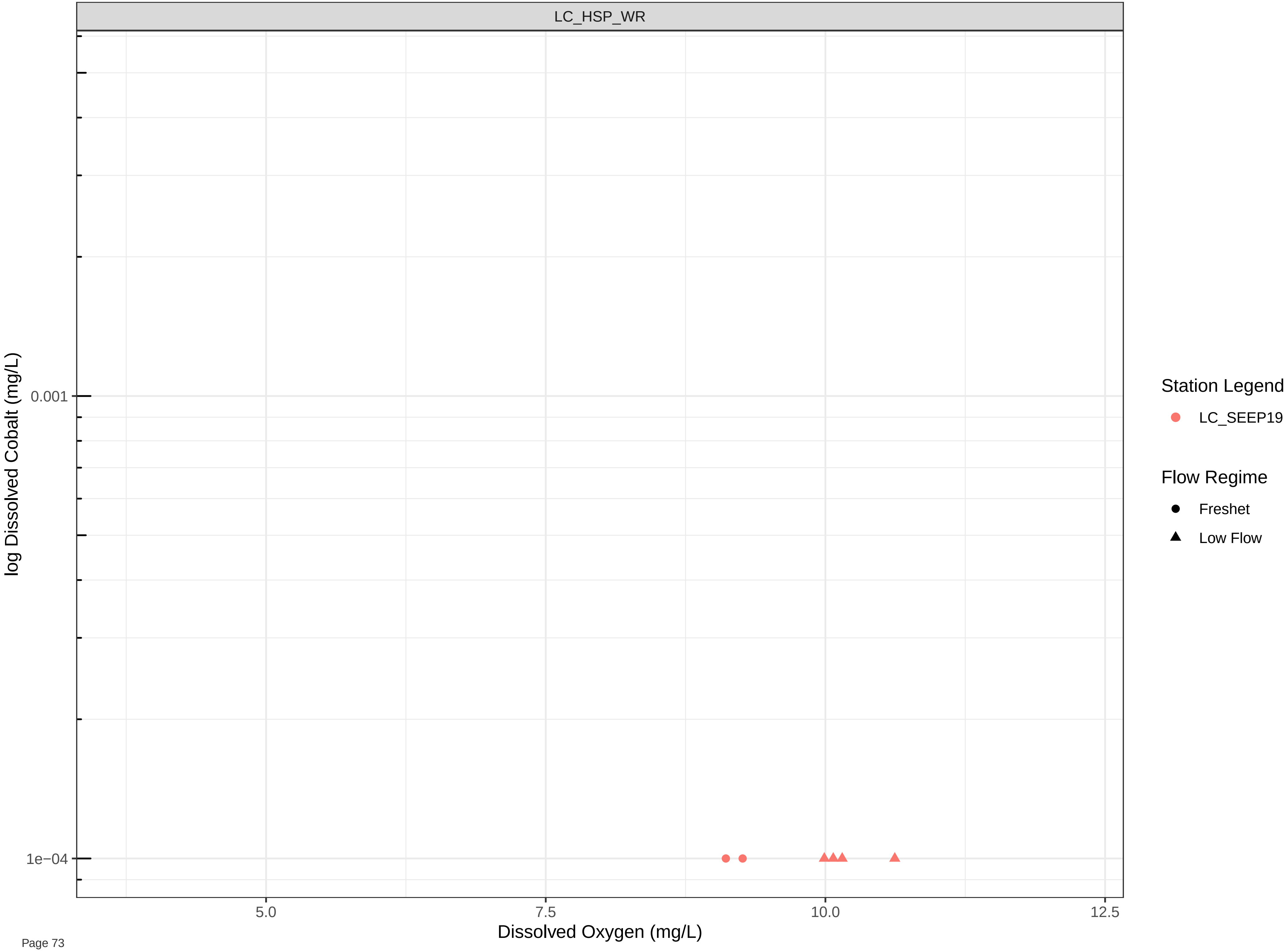
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow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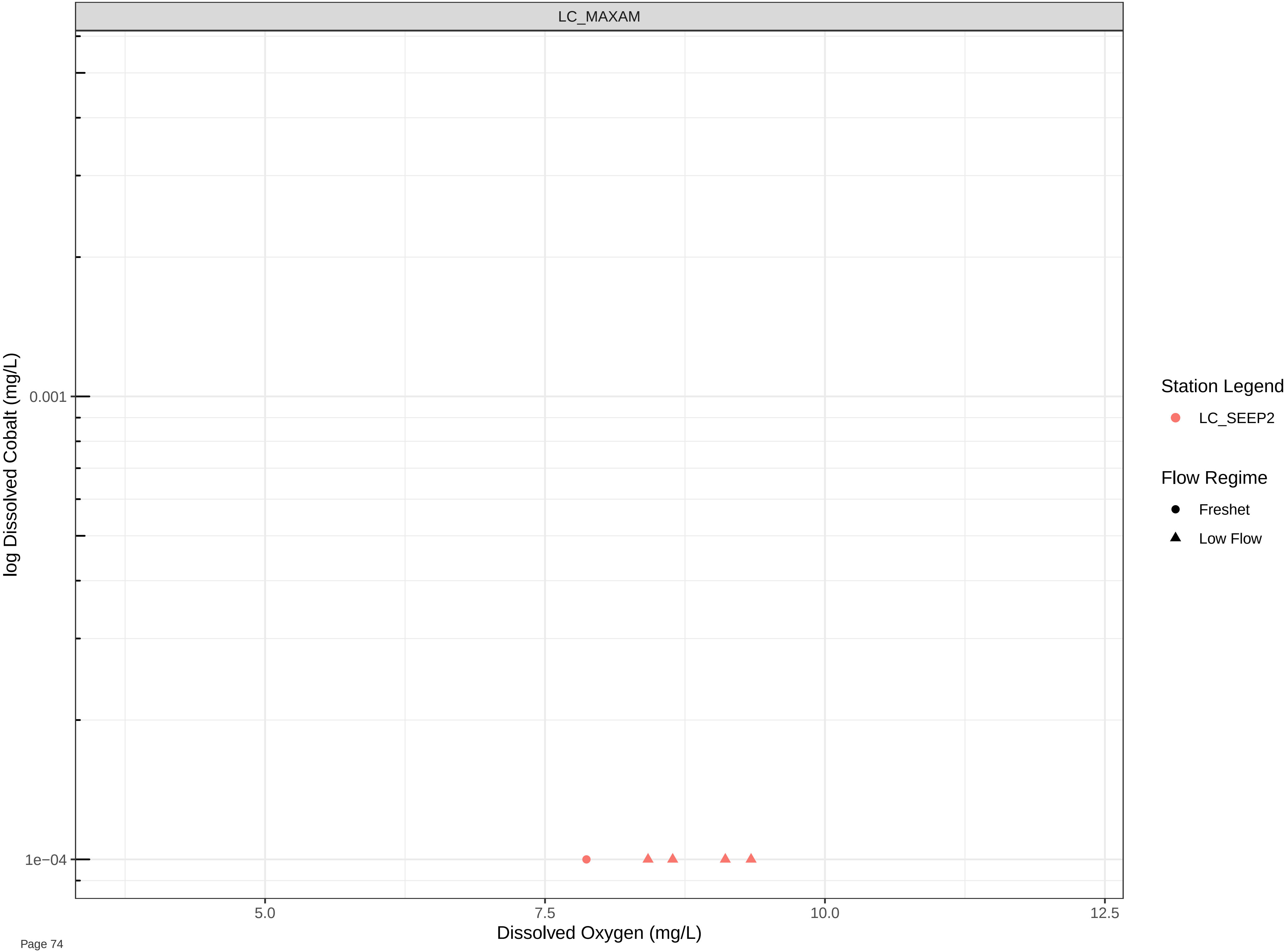
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow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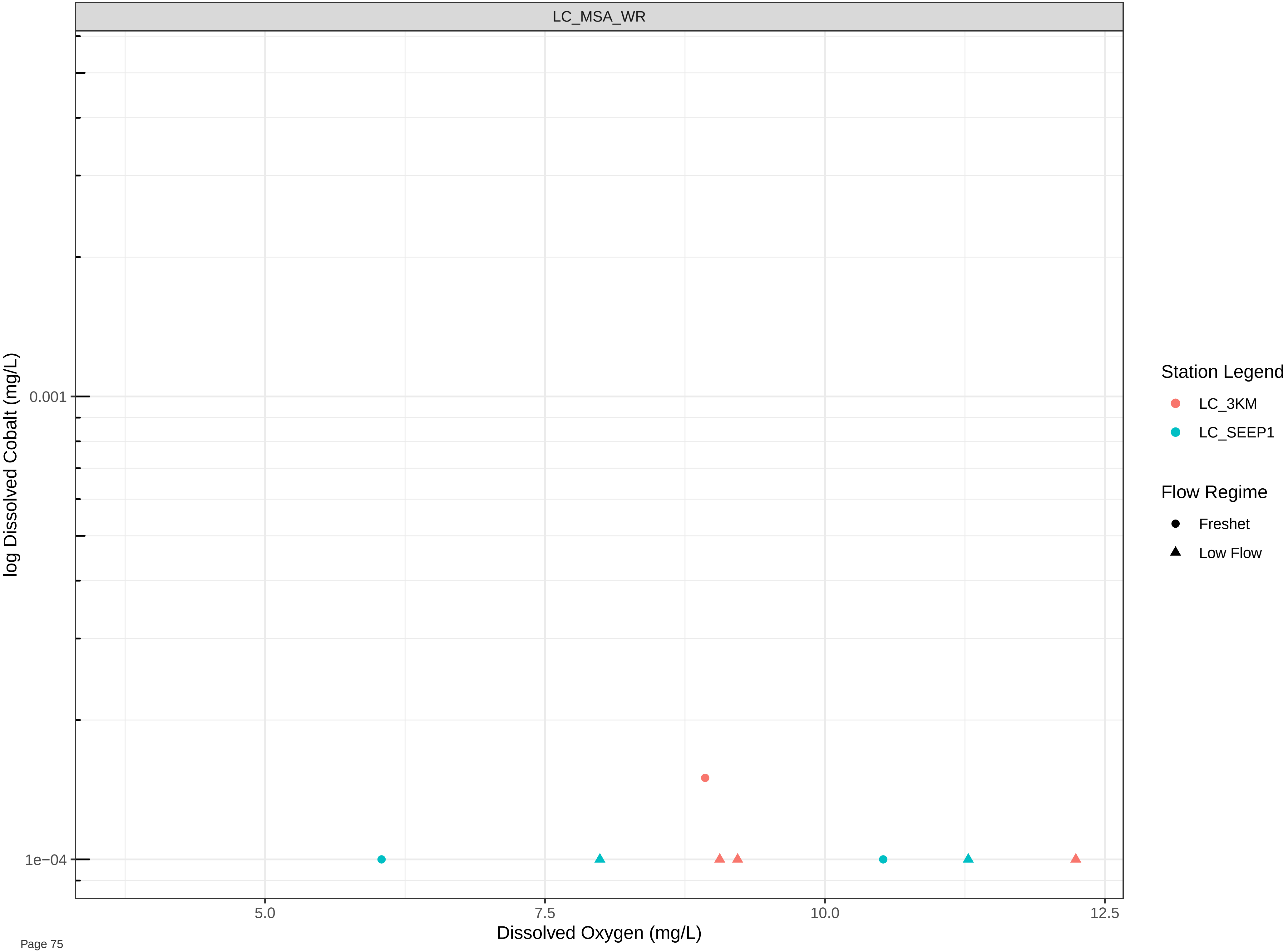
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow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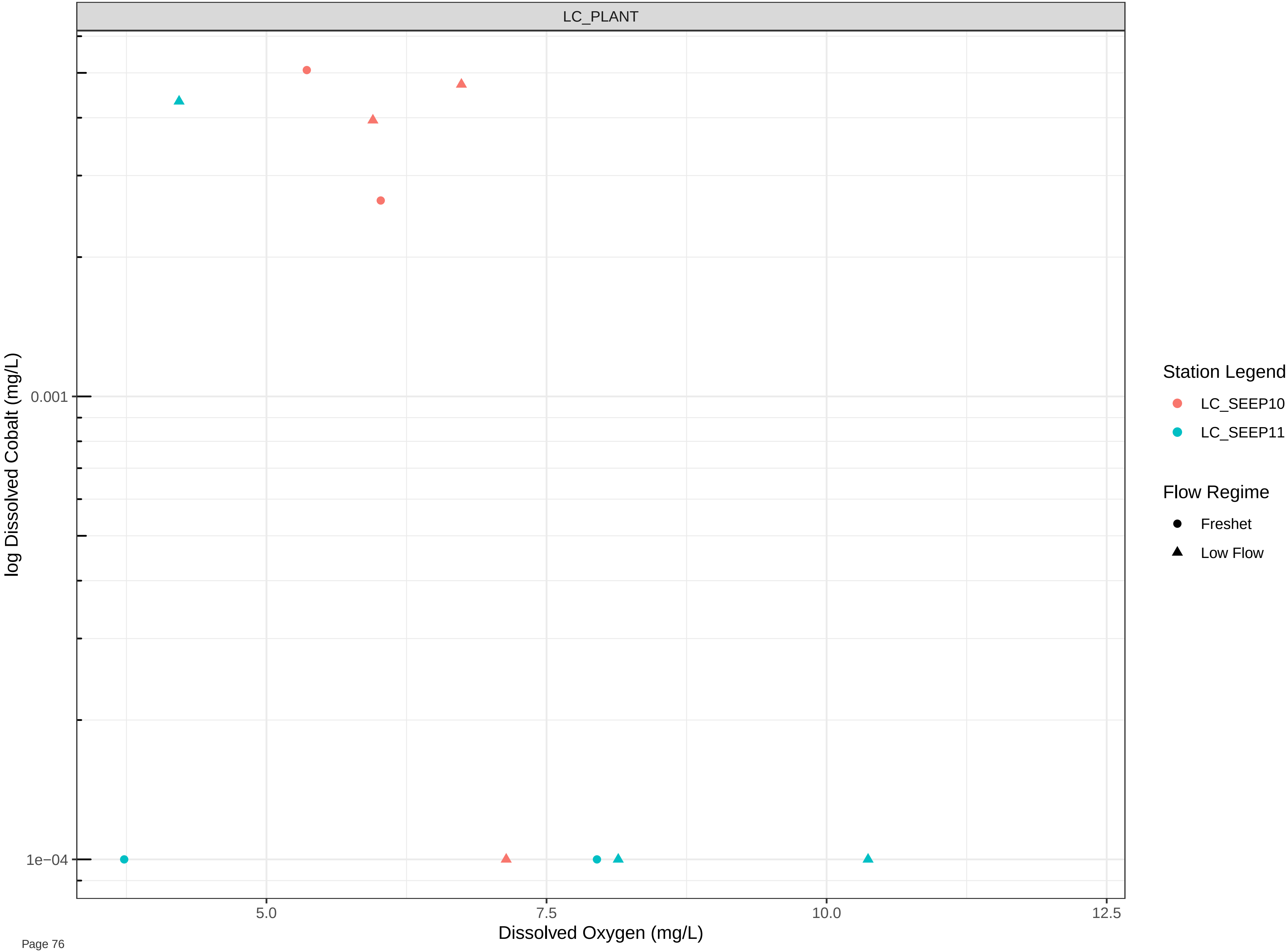
Dissolved Oxygen (mg/L)
Station Legend
● LC_3KM
● LC_SEEP1
Flow Regime
● Freshet
▲ Low Flow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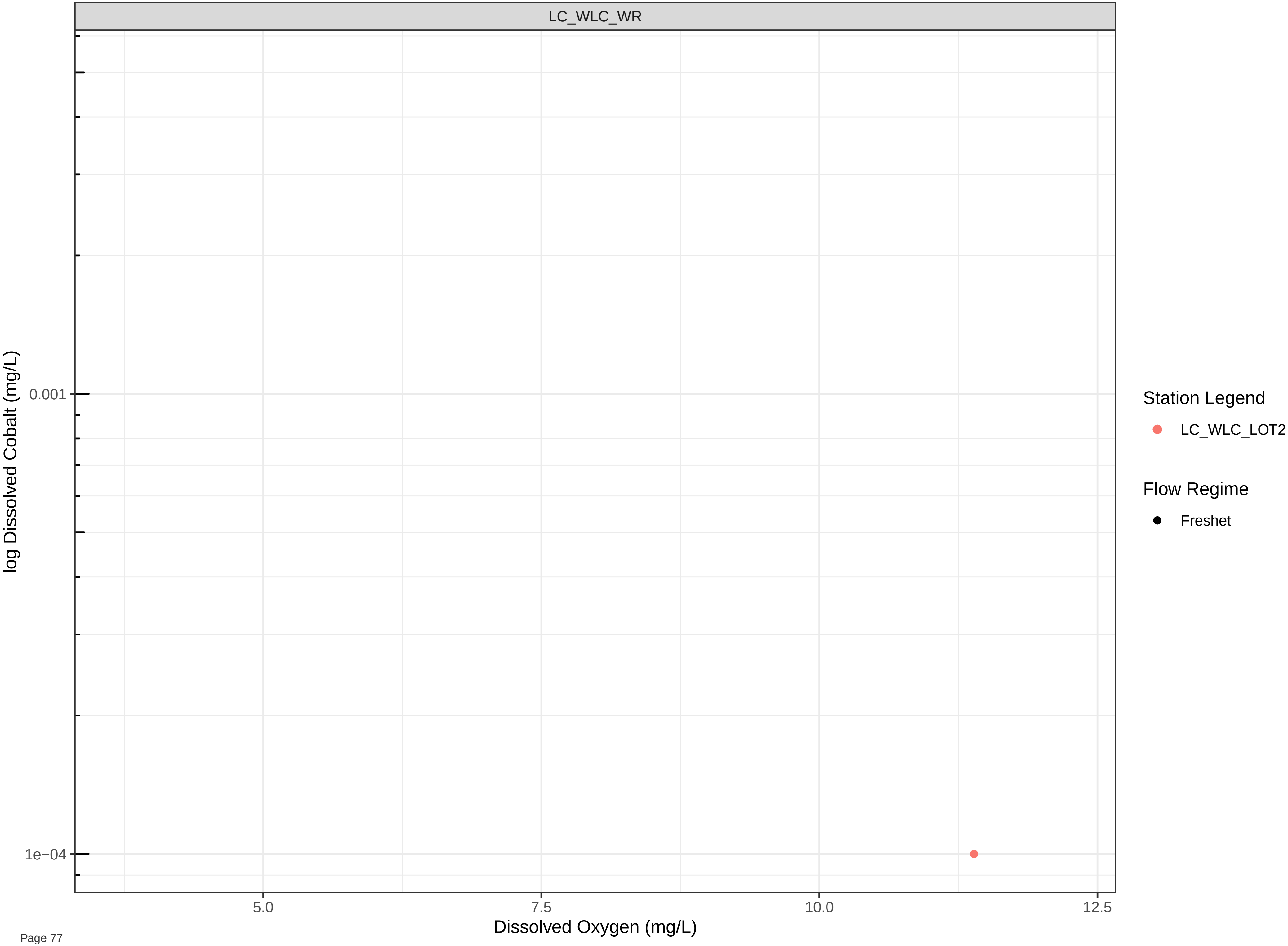
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow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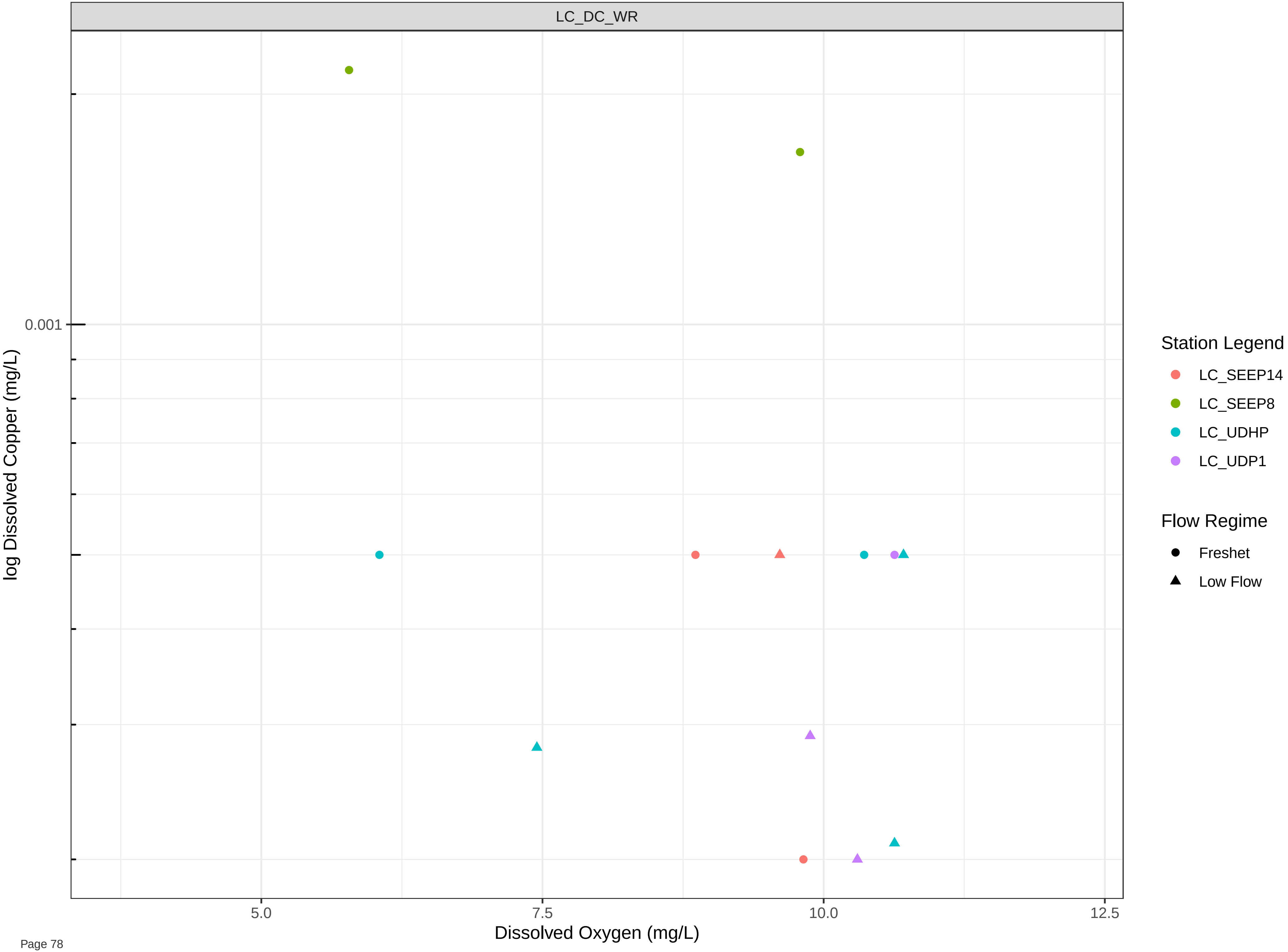
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet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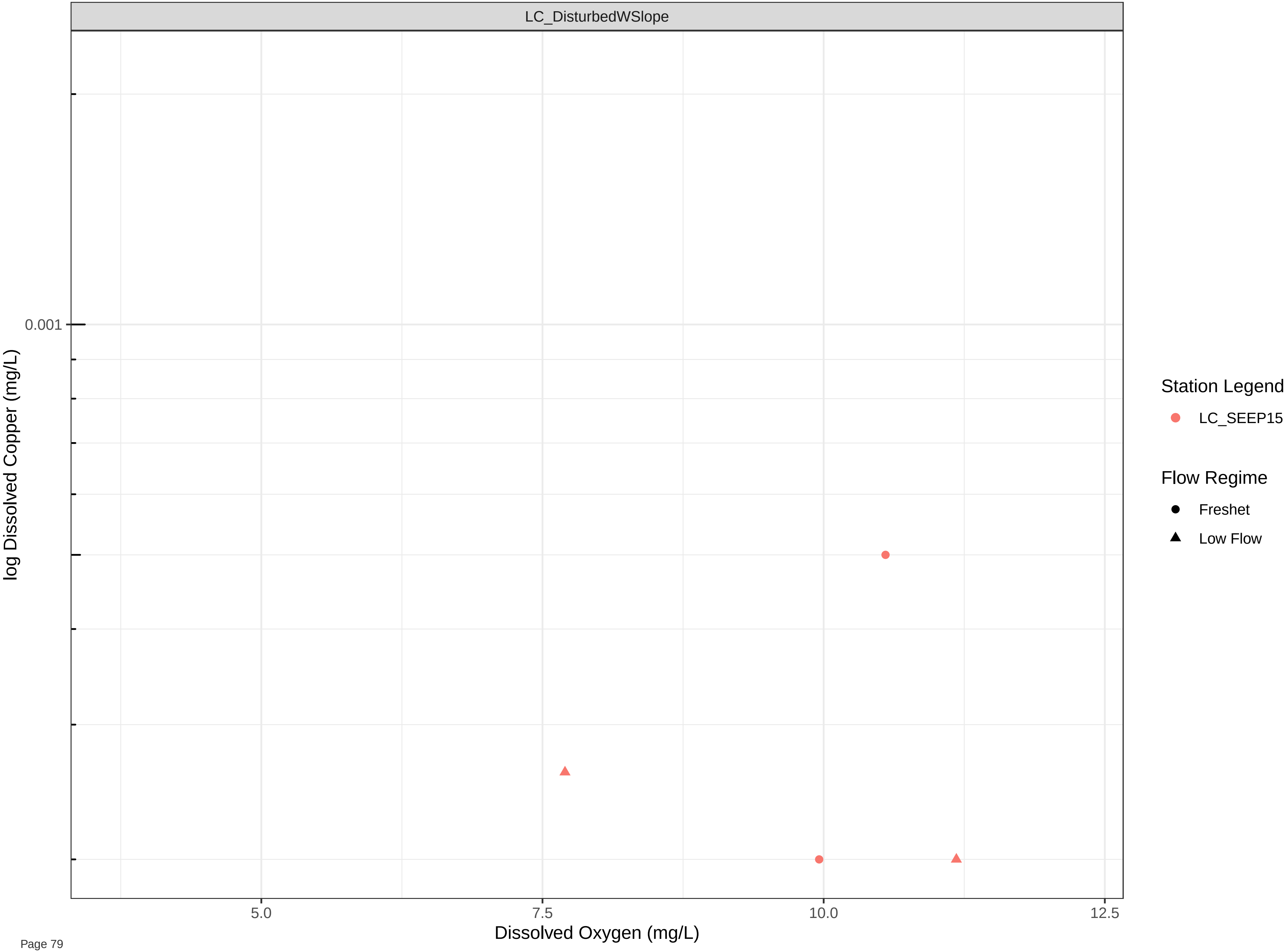
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow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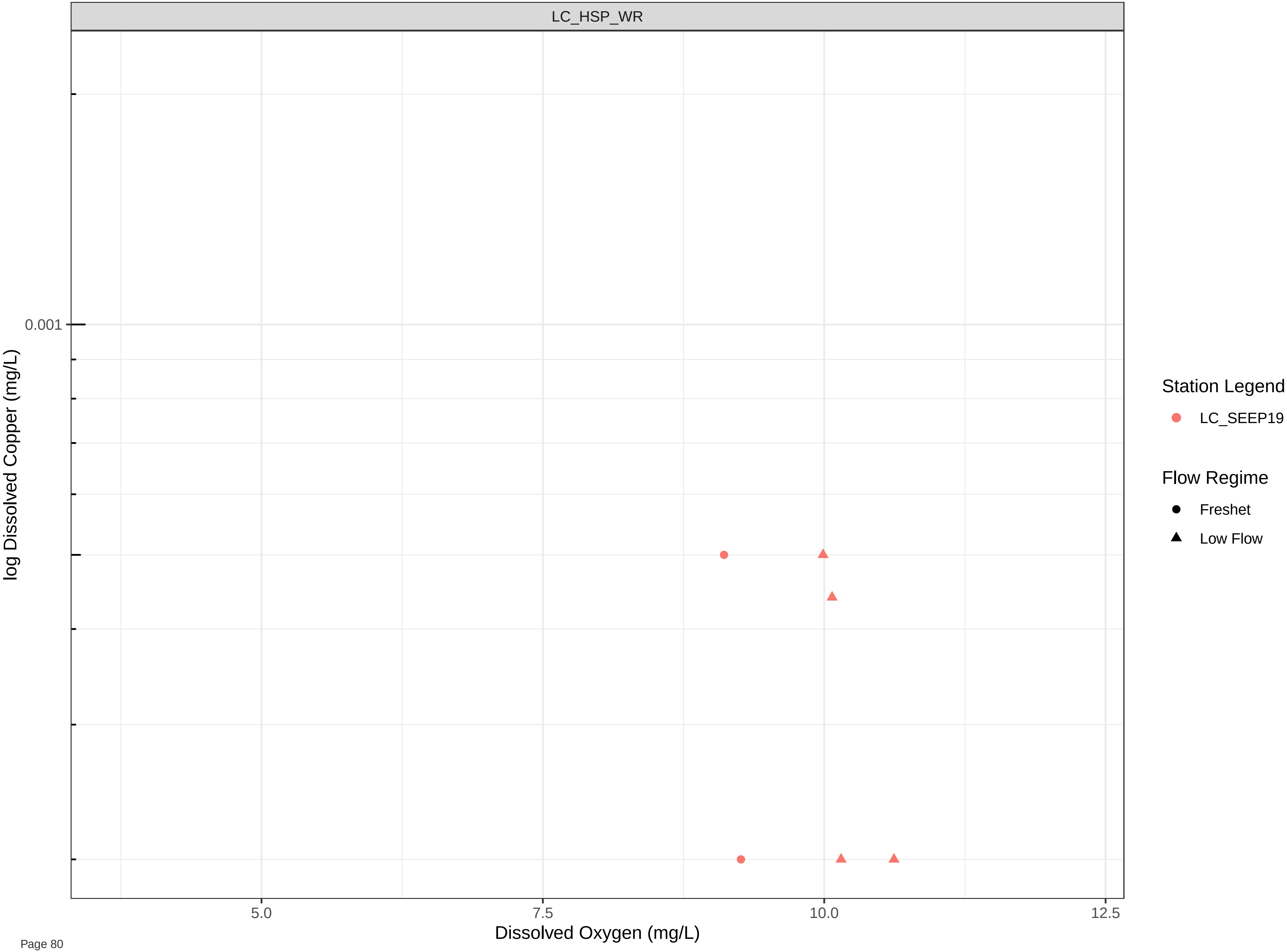
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow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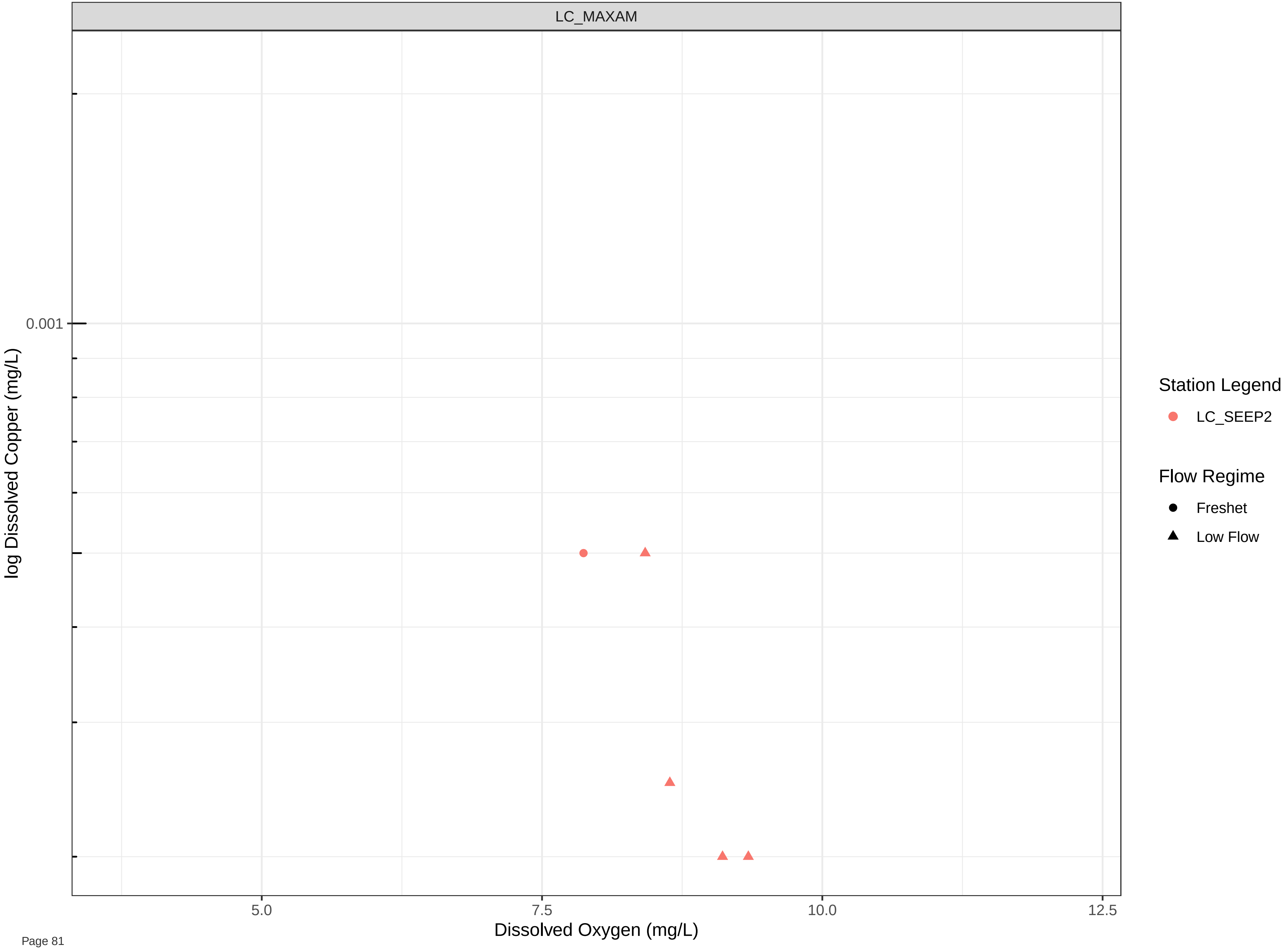
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow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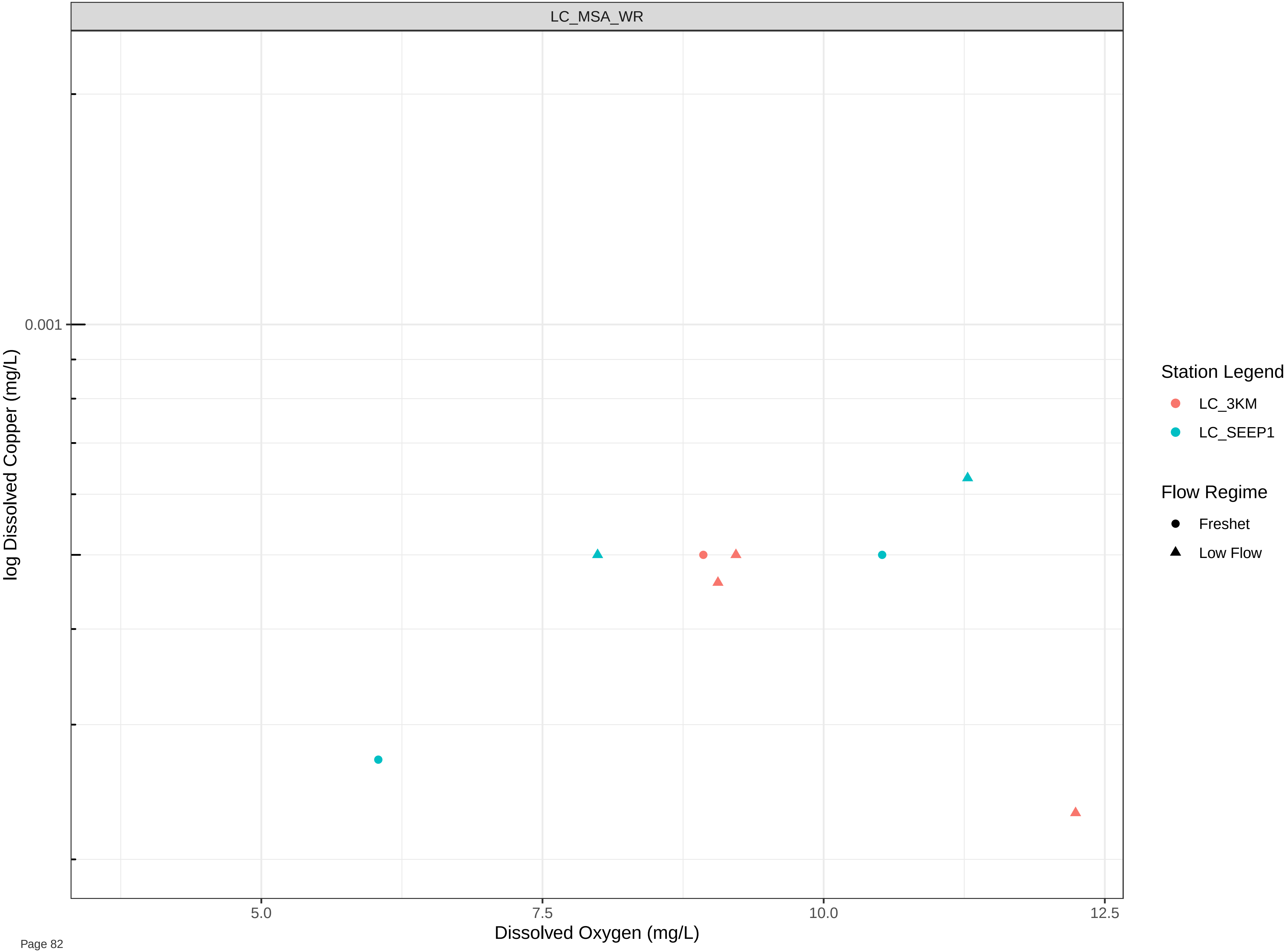
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow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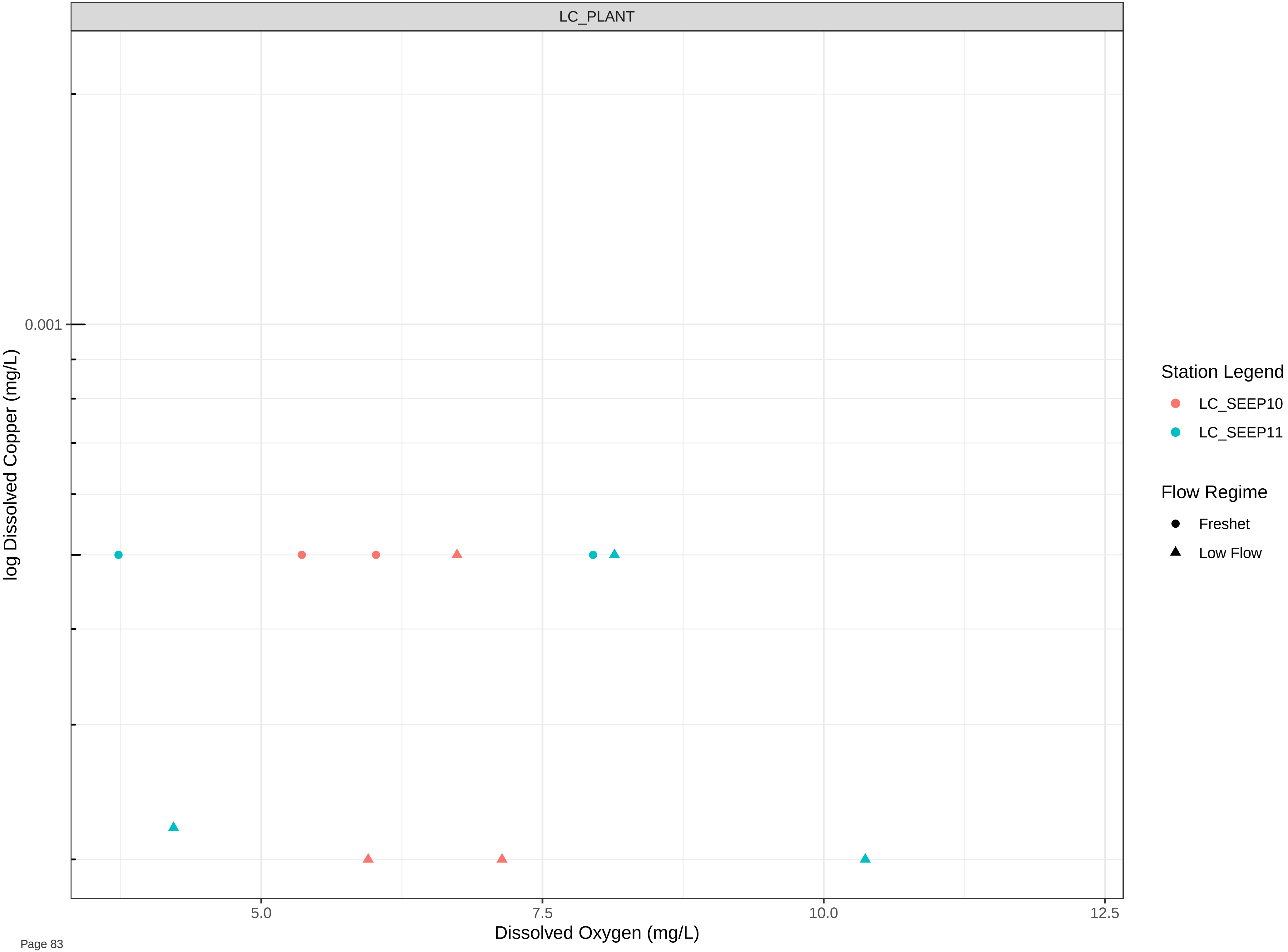
Dissolved Oxygen (mg/L)
Station Legend
● LC_3KM
● LC_SEEP1
Flow Regime
● Freshet
▲ Low Flow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Dissolved Oxygen (mg/L)
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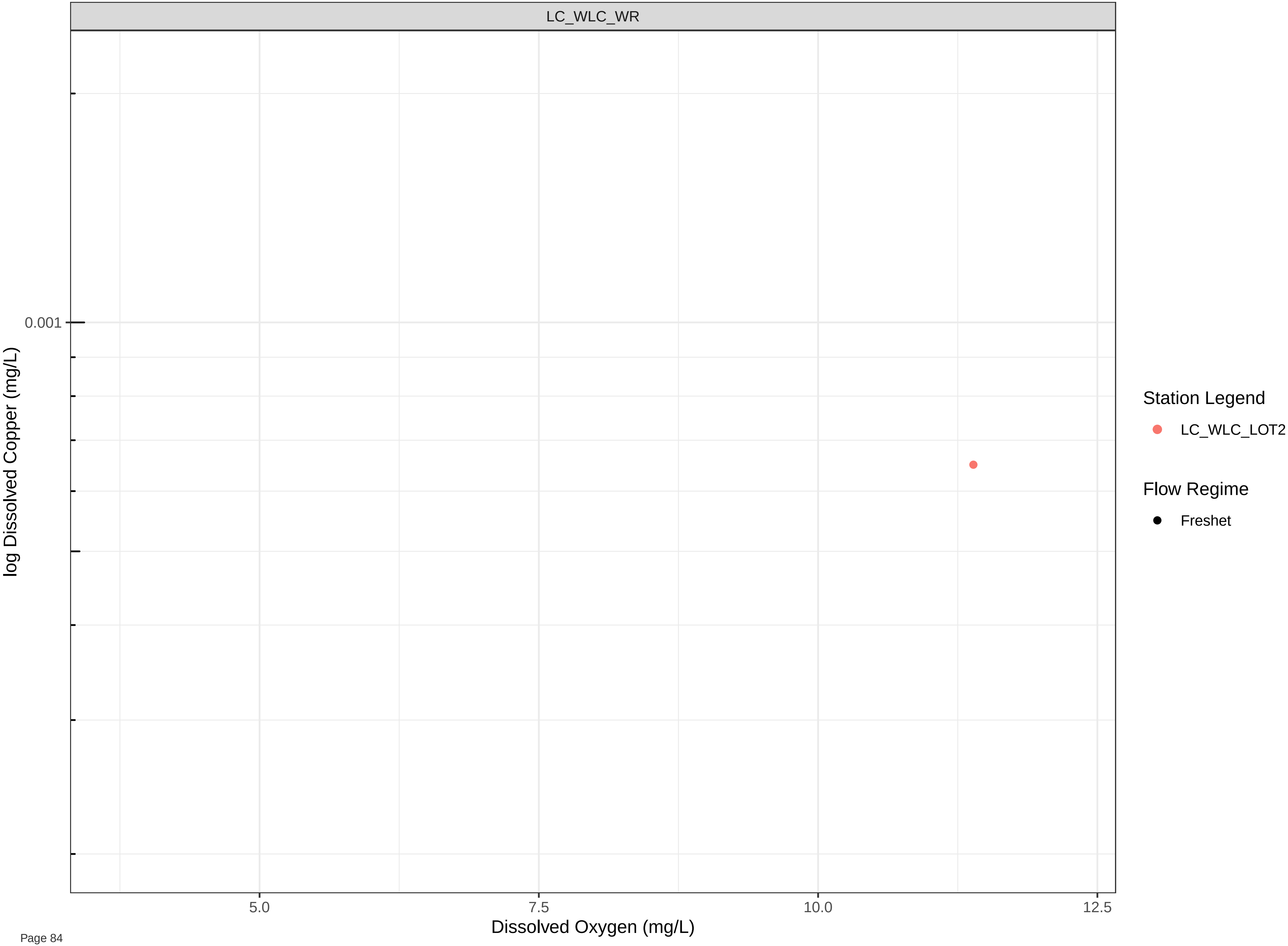
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow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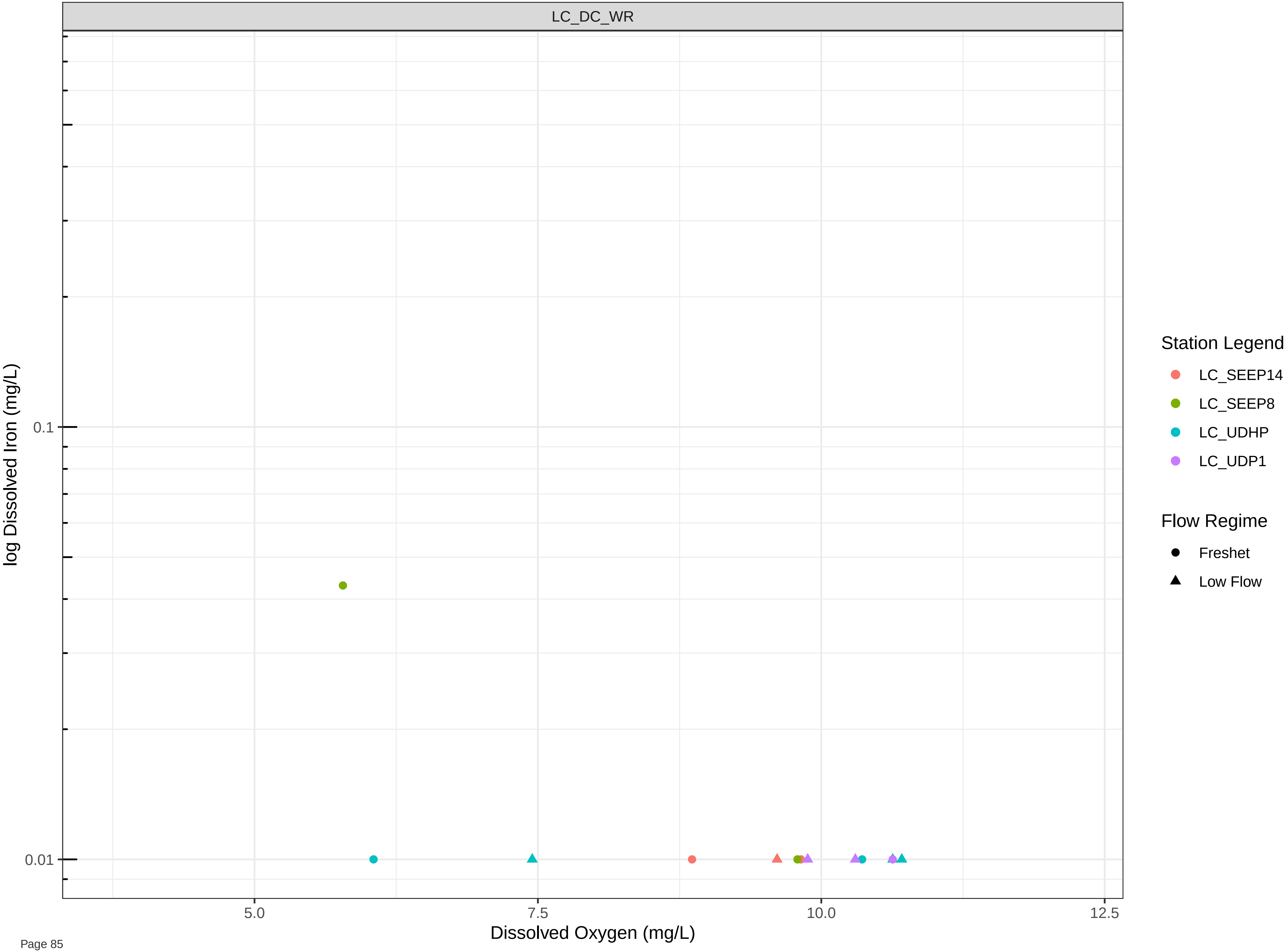
Dissolved Oxygen (mg/L)
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet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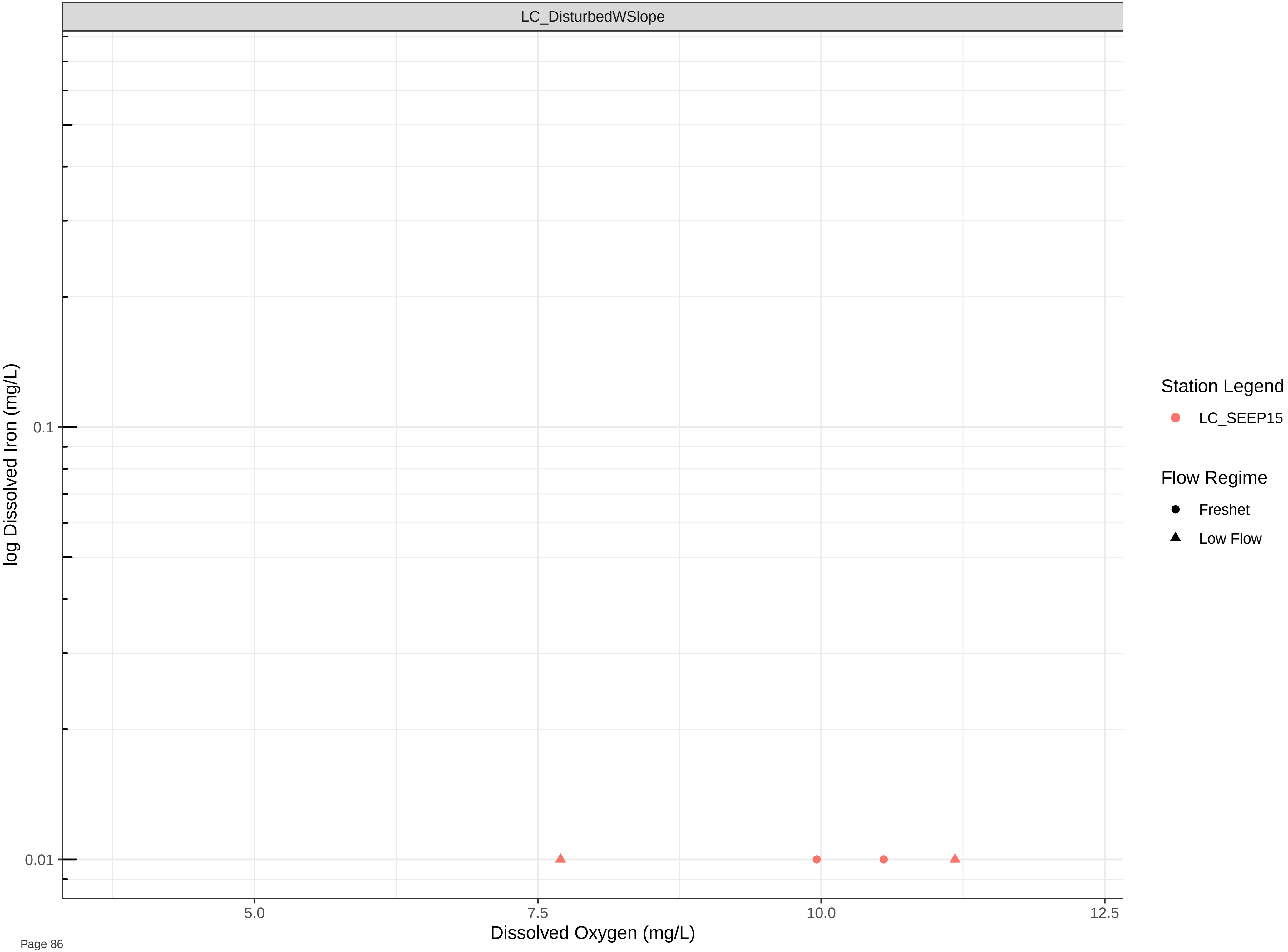
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow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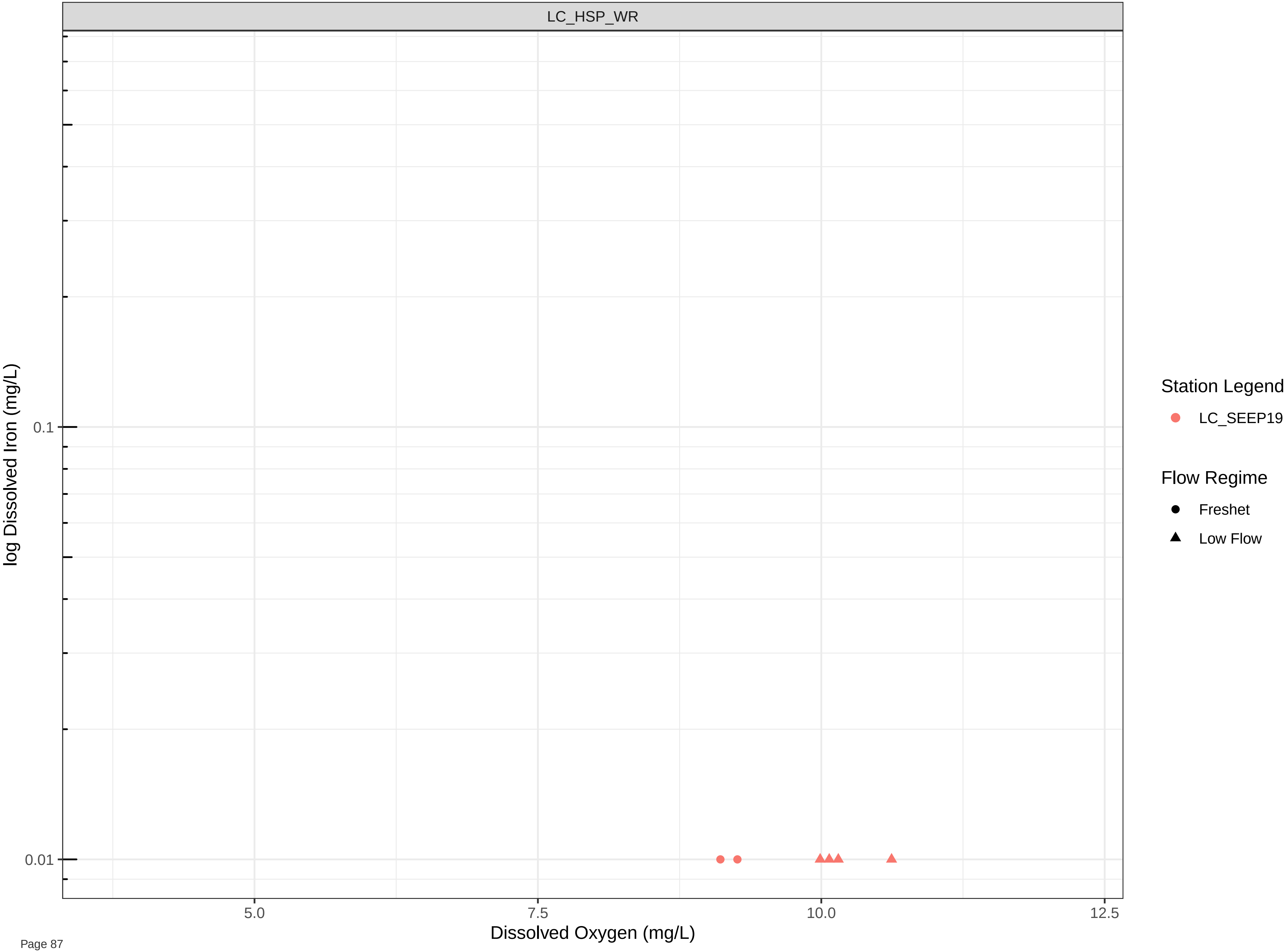
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow


LC_HSP_WR
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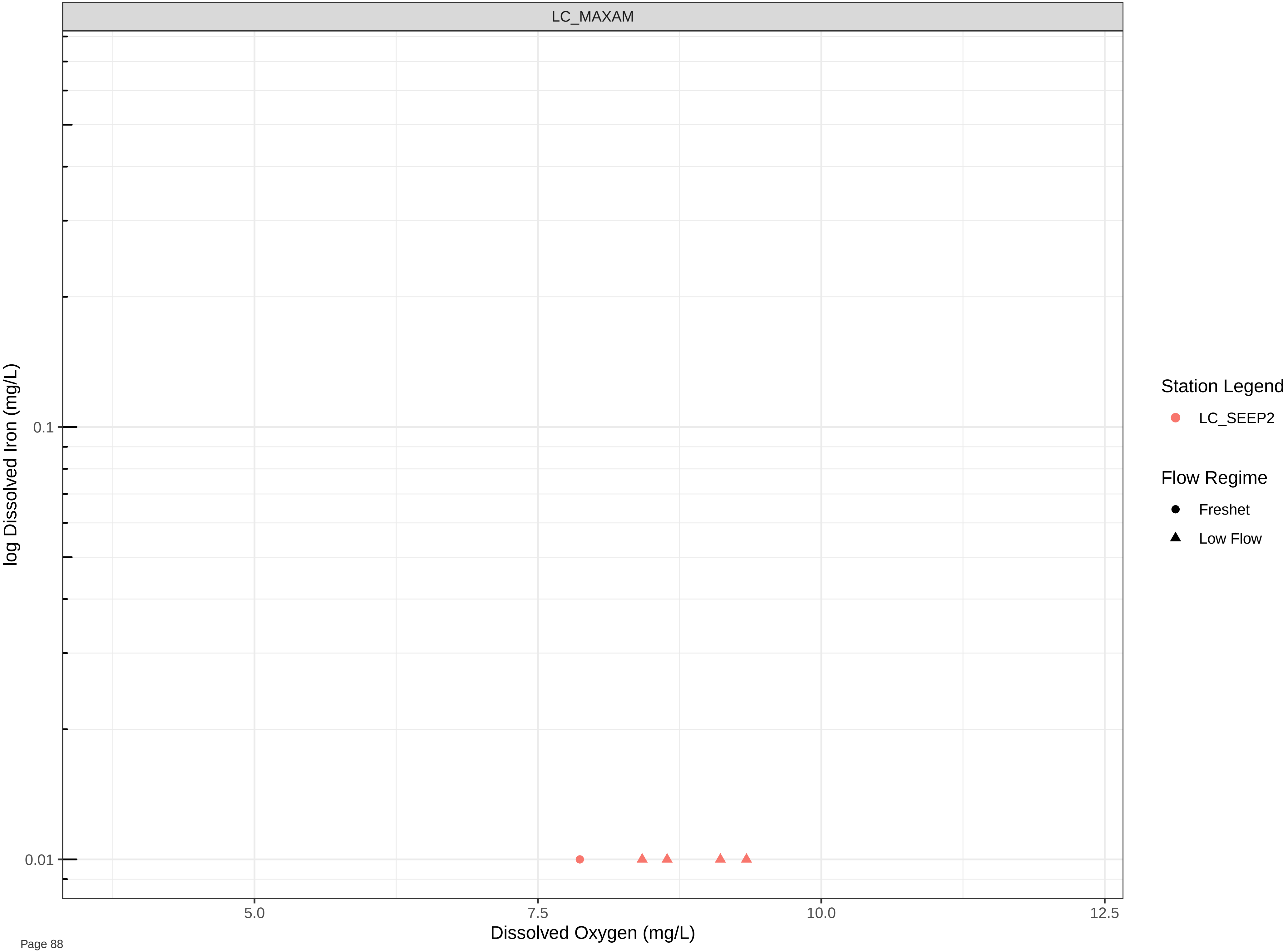
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow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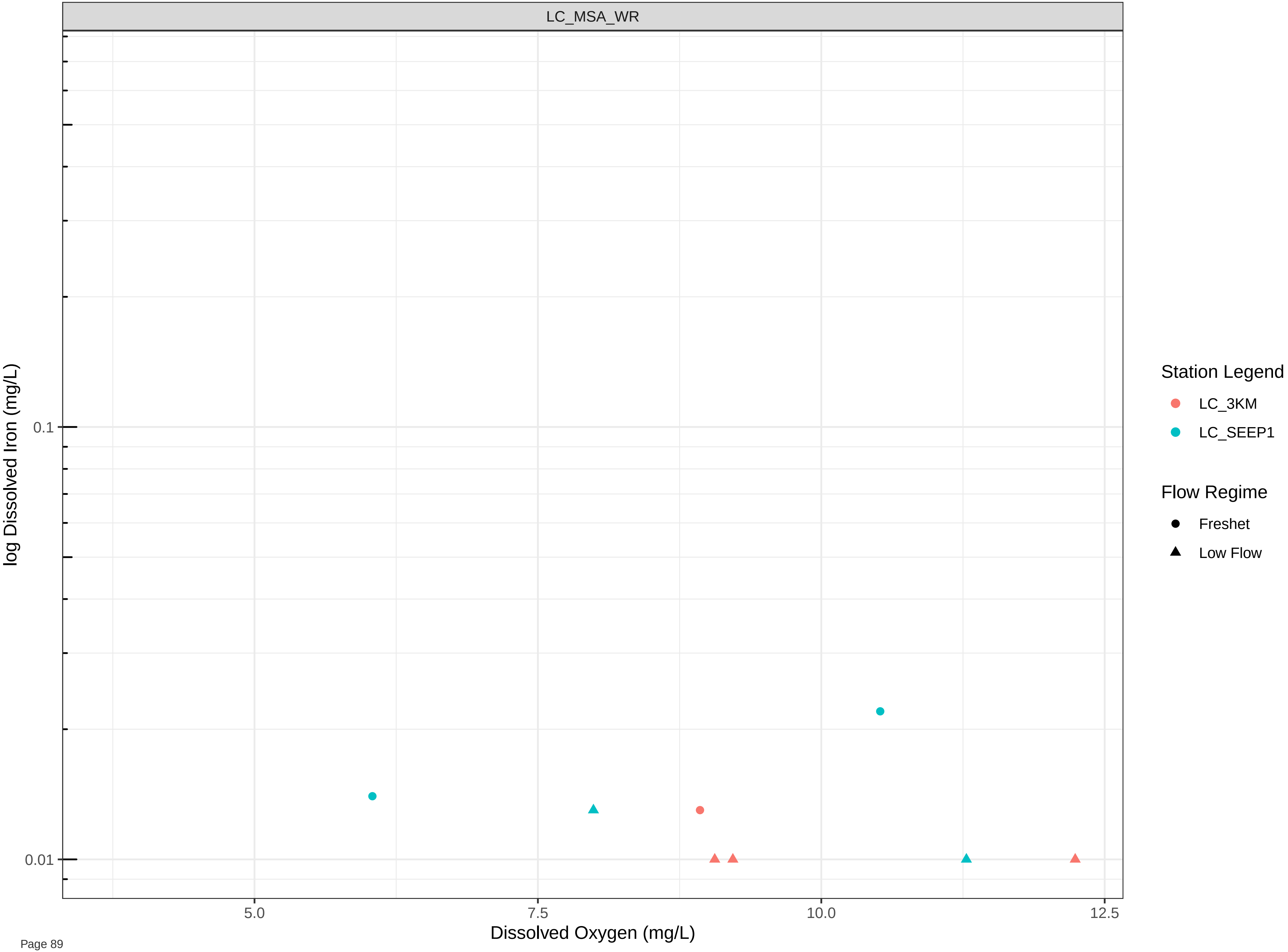
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow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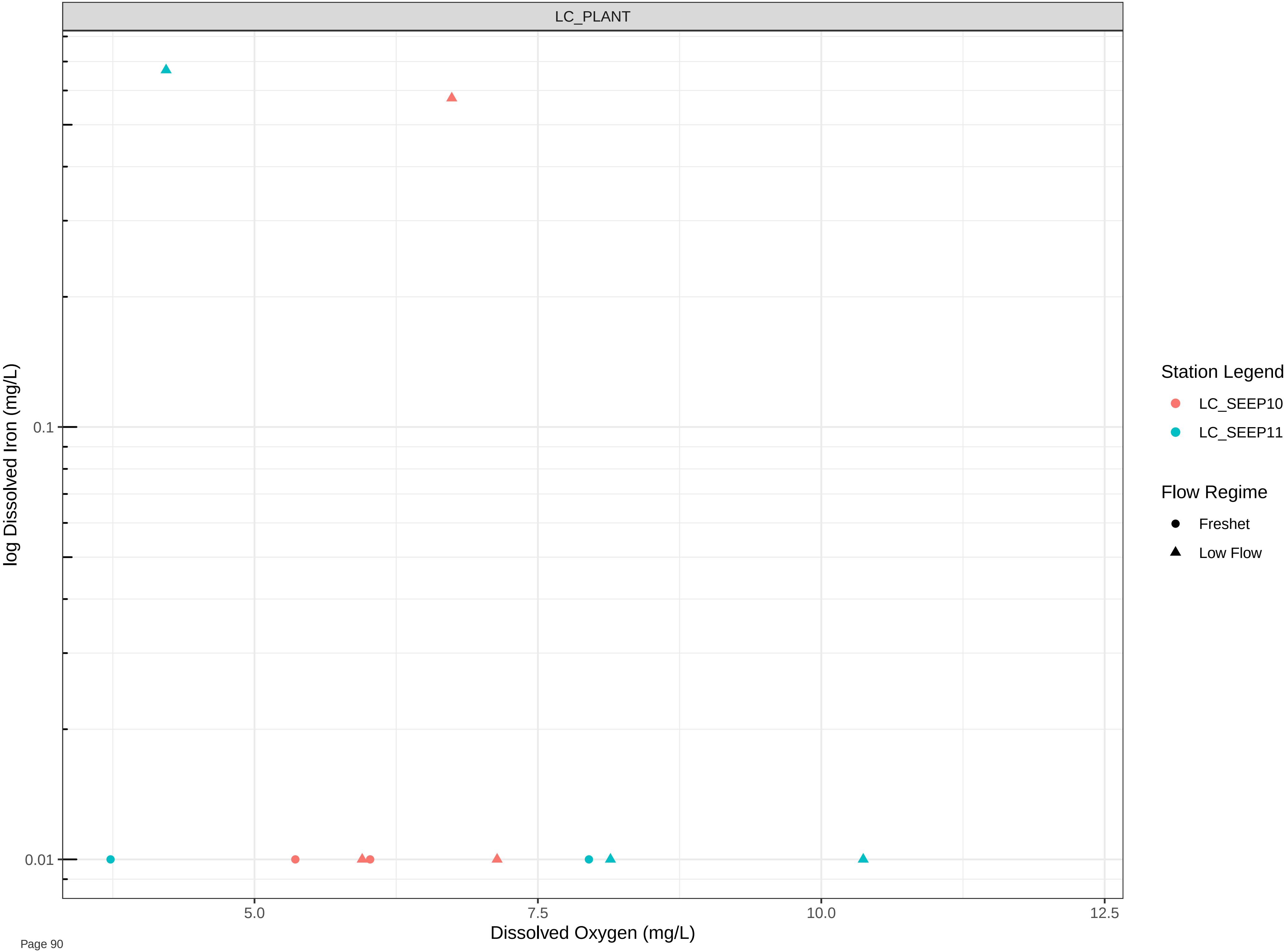
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow


LC_PLANT
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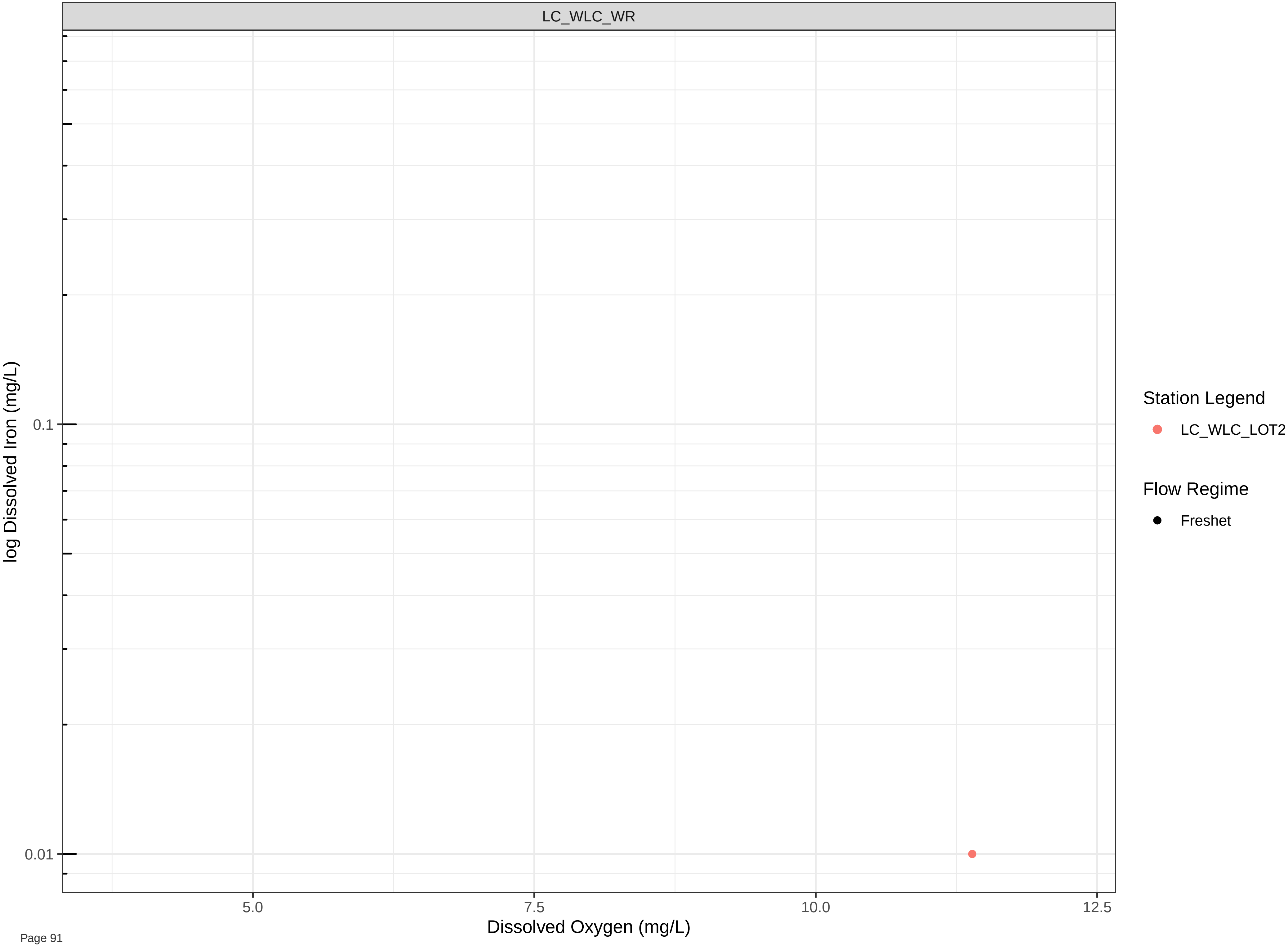
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow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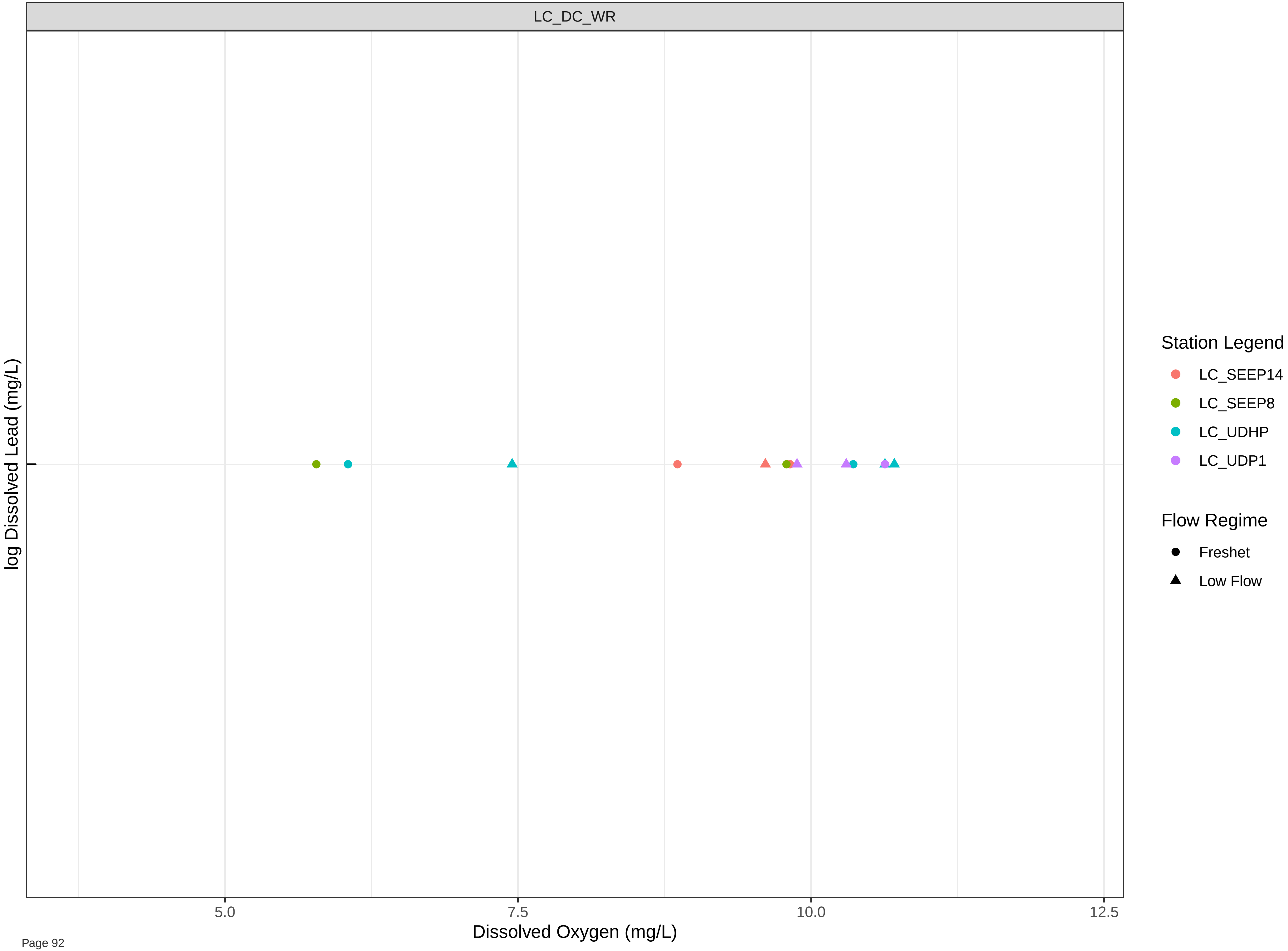
Dissolved Oxygen (mg/L)
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet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10.0
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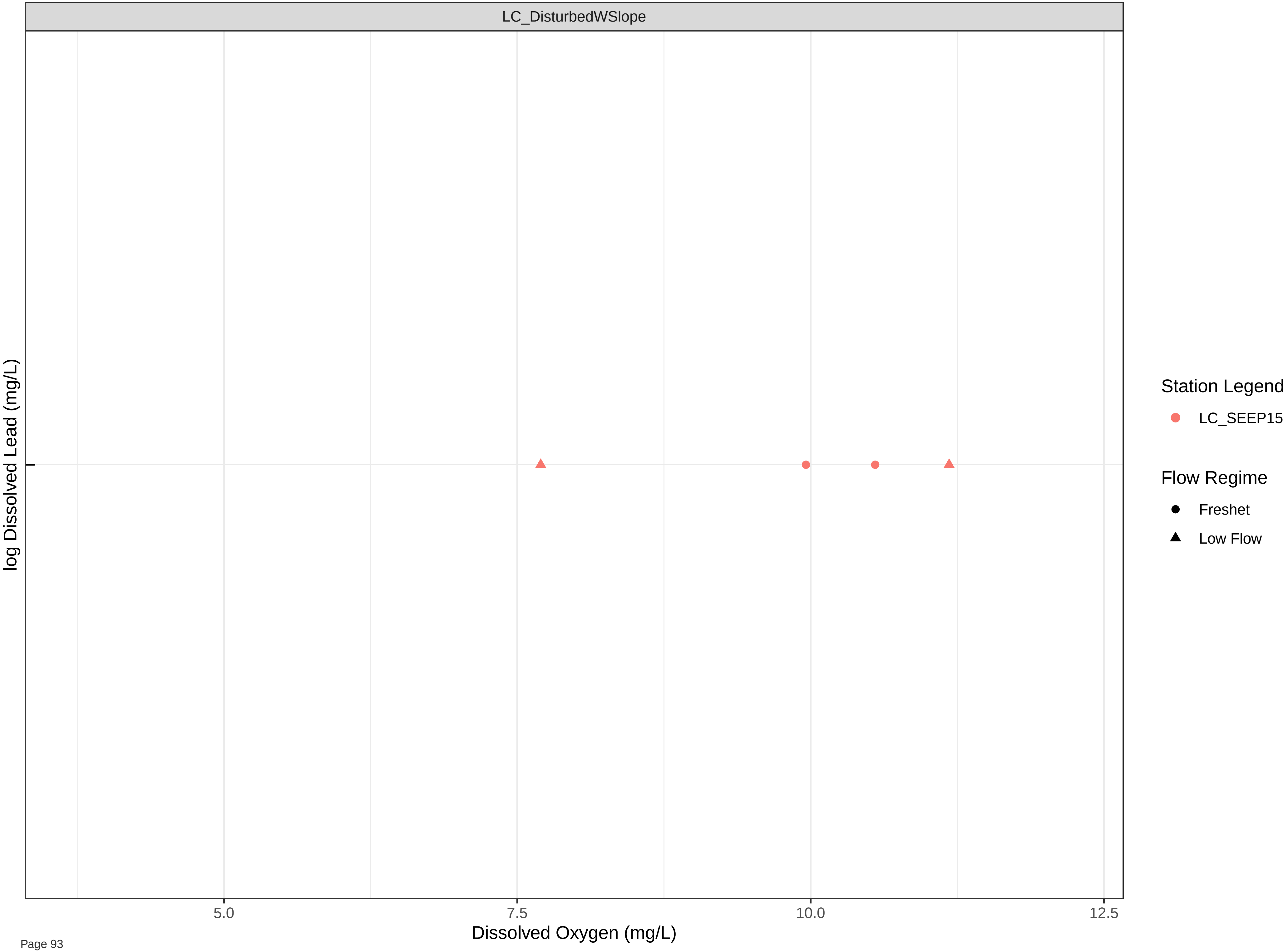
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow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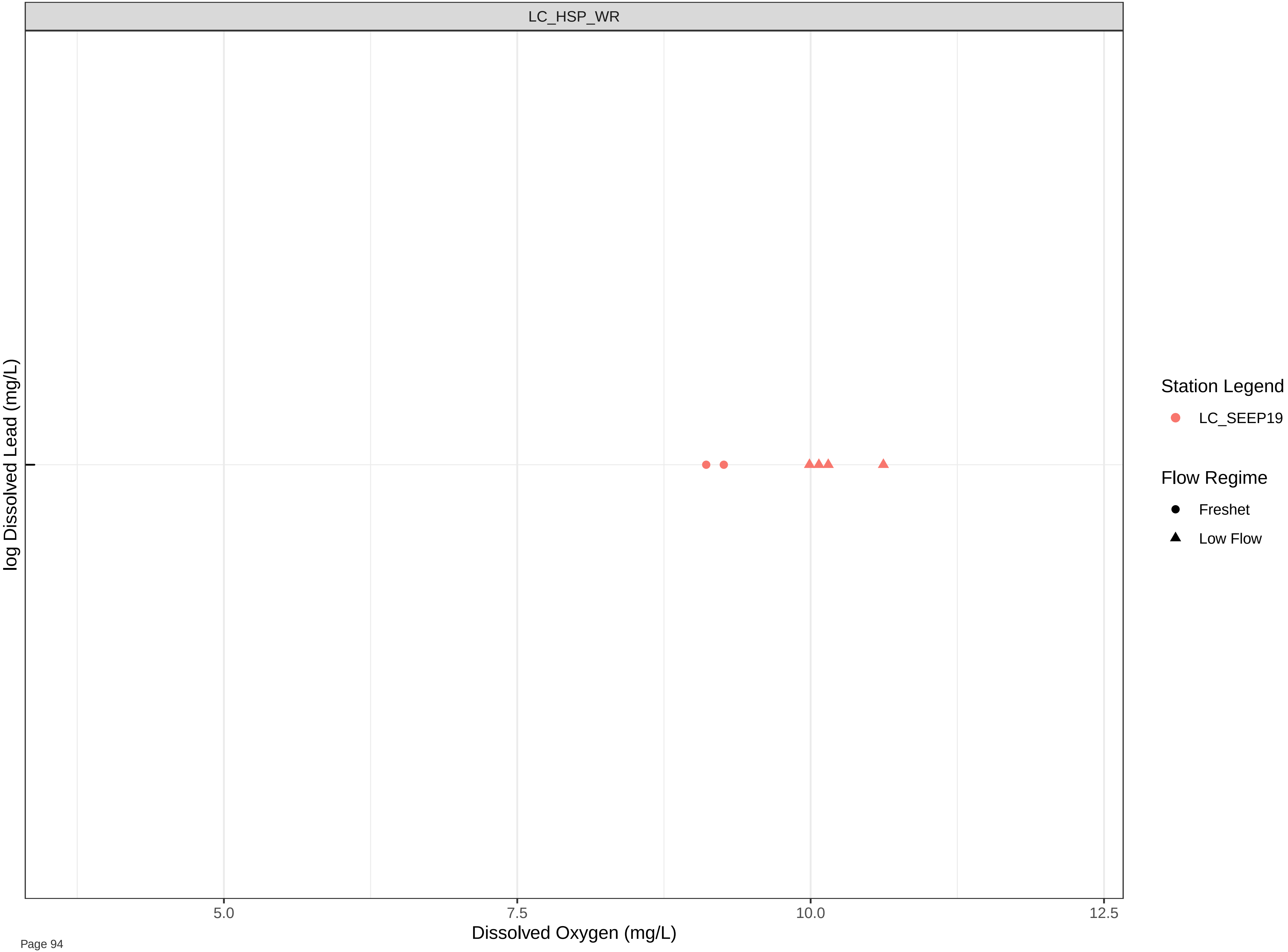
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow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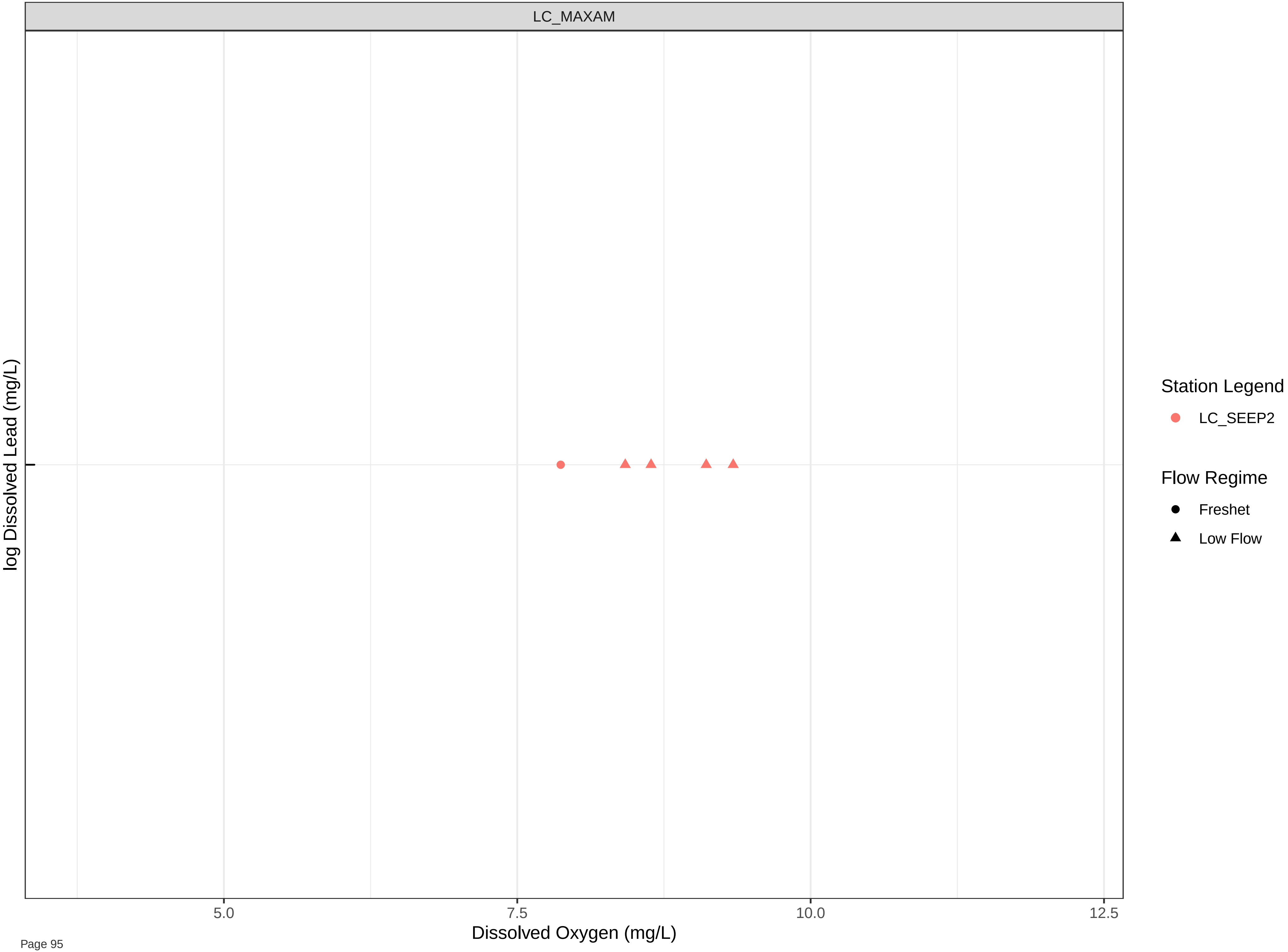
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow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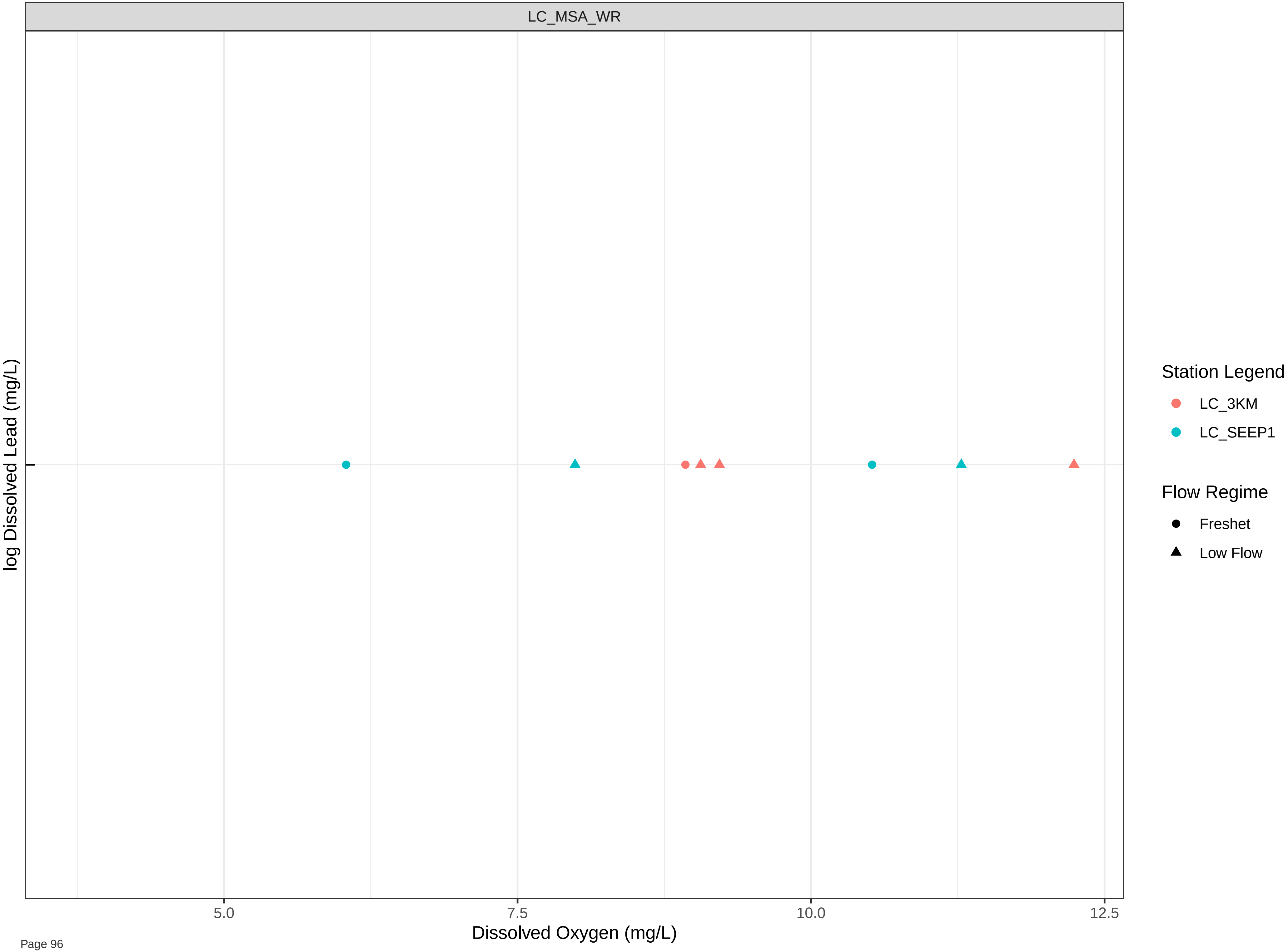
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow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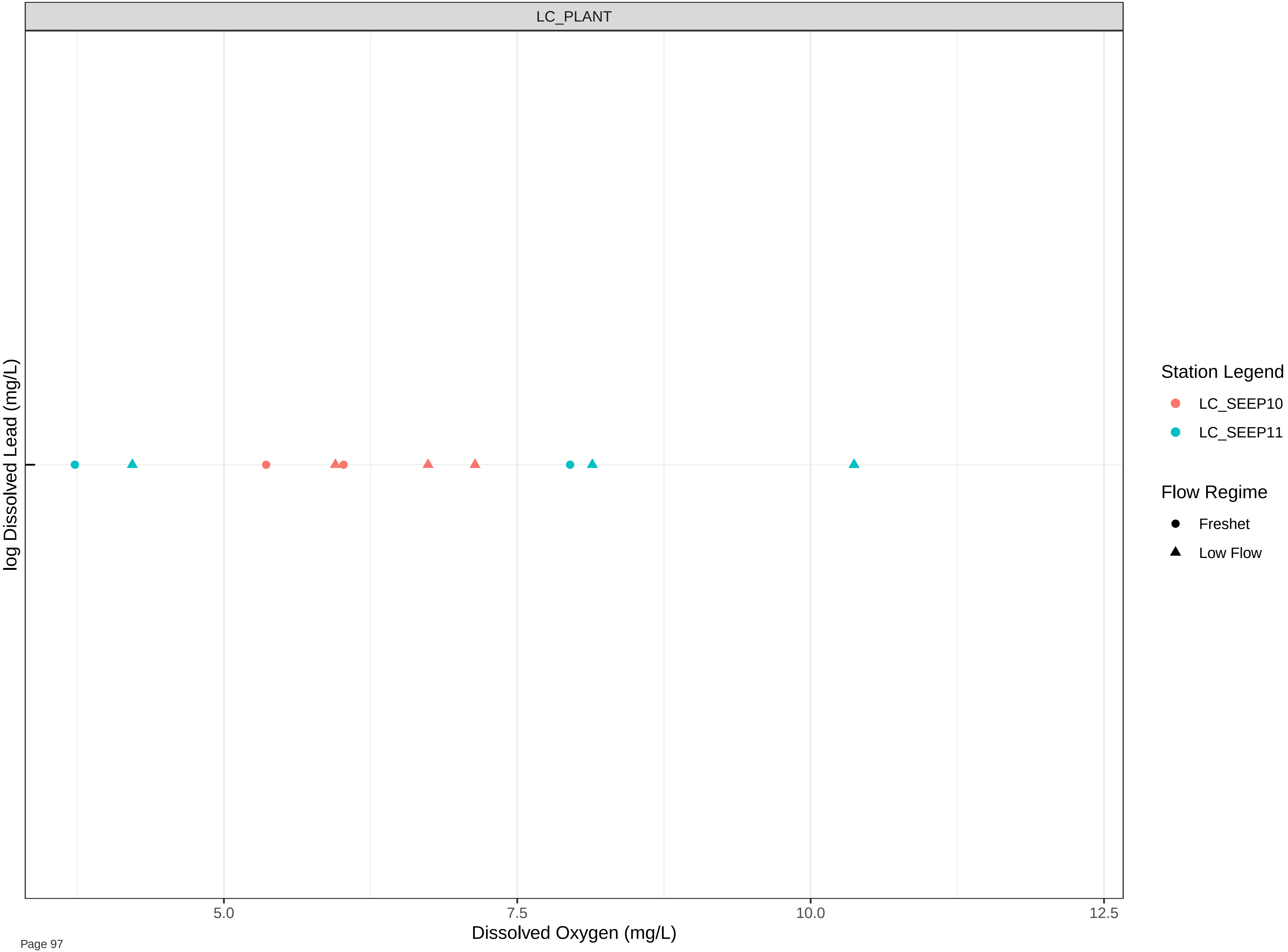
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow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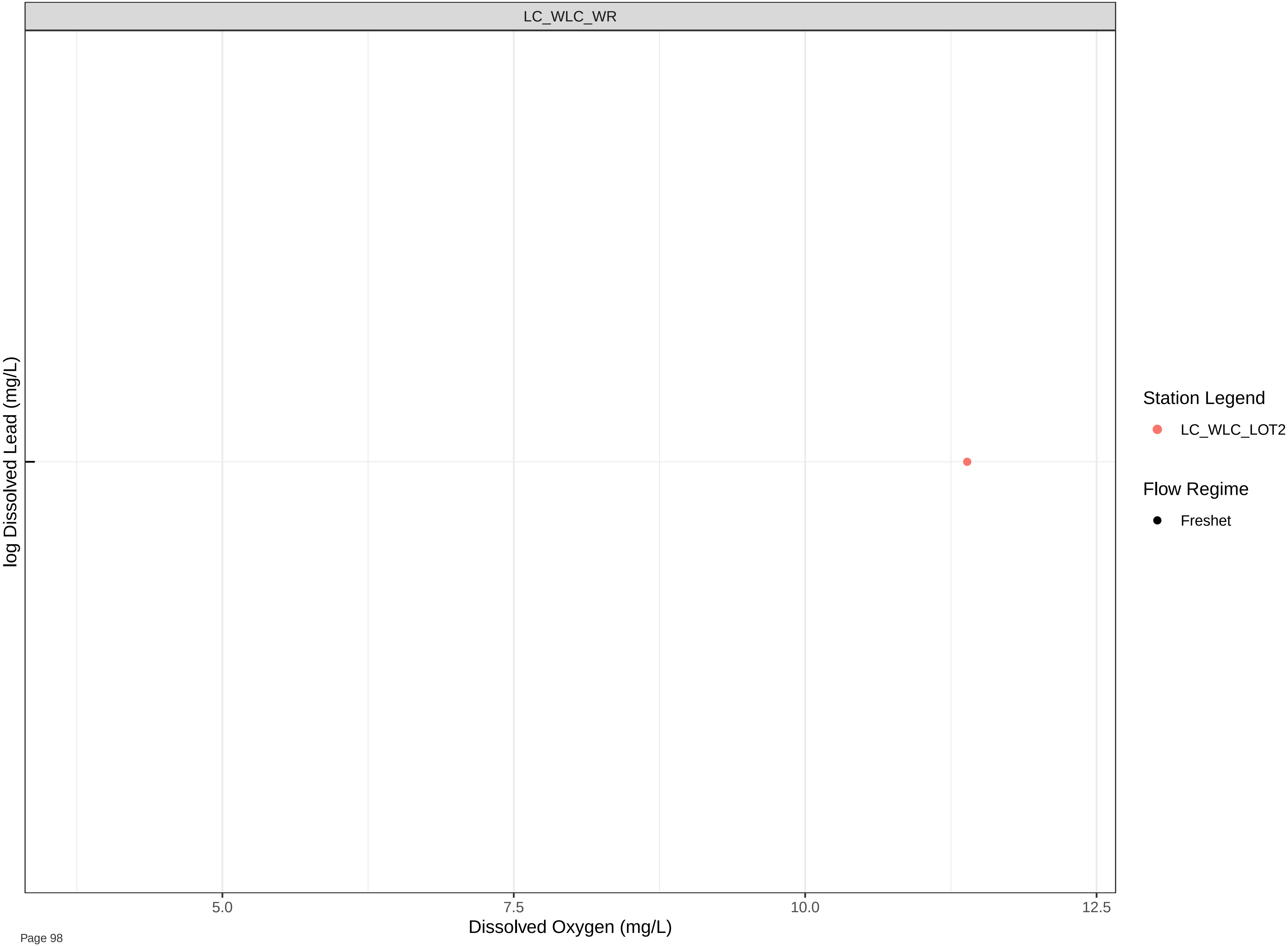
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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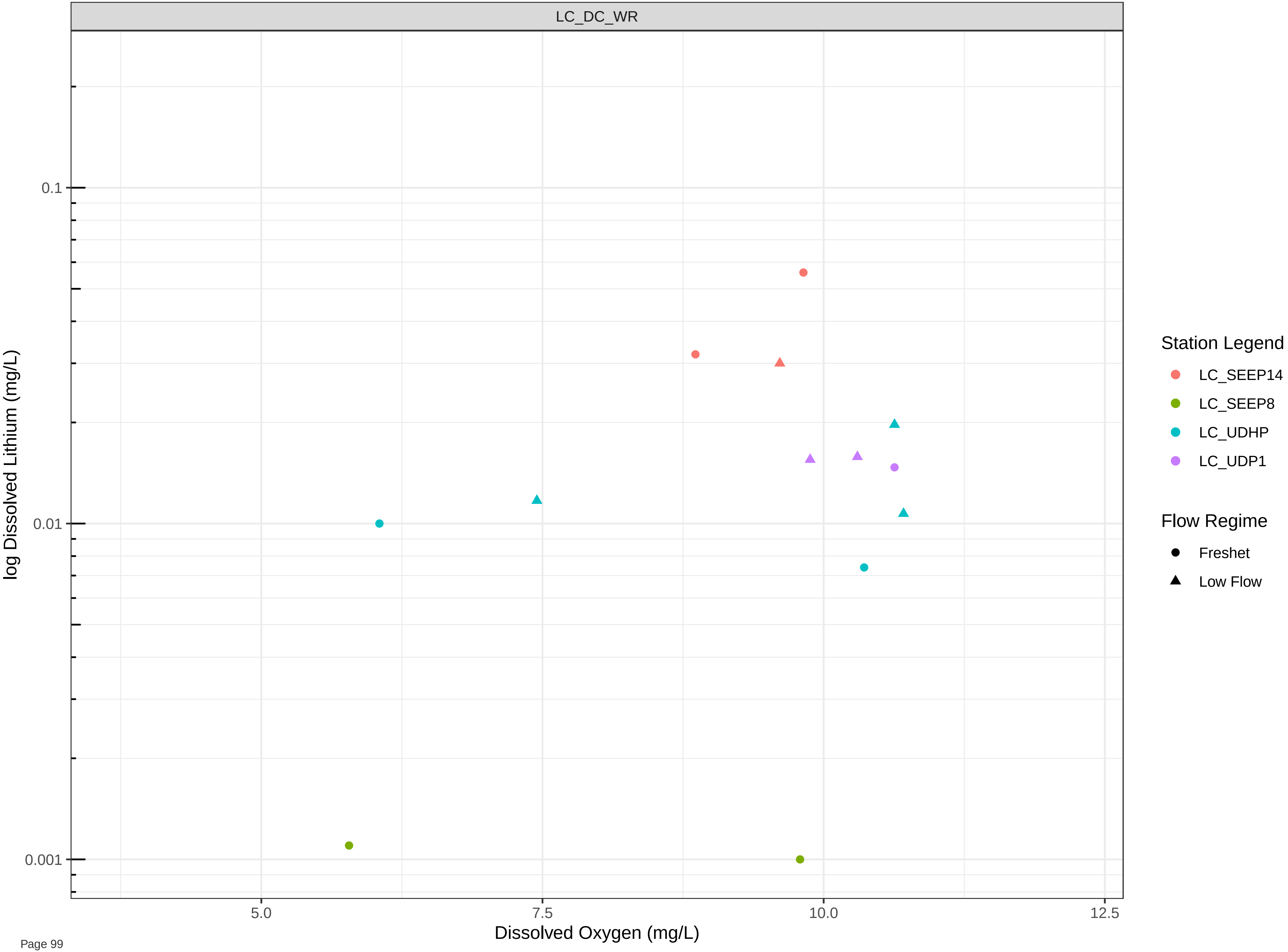
Flow Regime
● Freshet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Dissolved Oxygen (mg/L)
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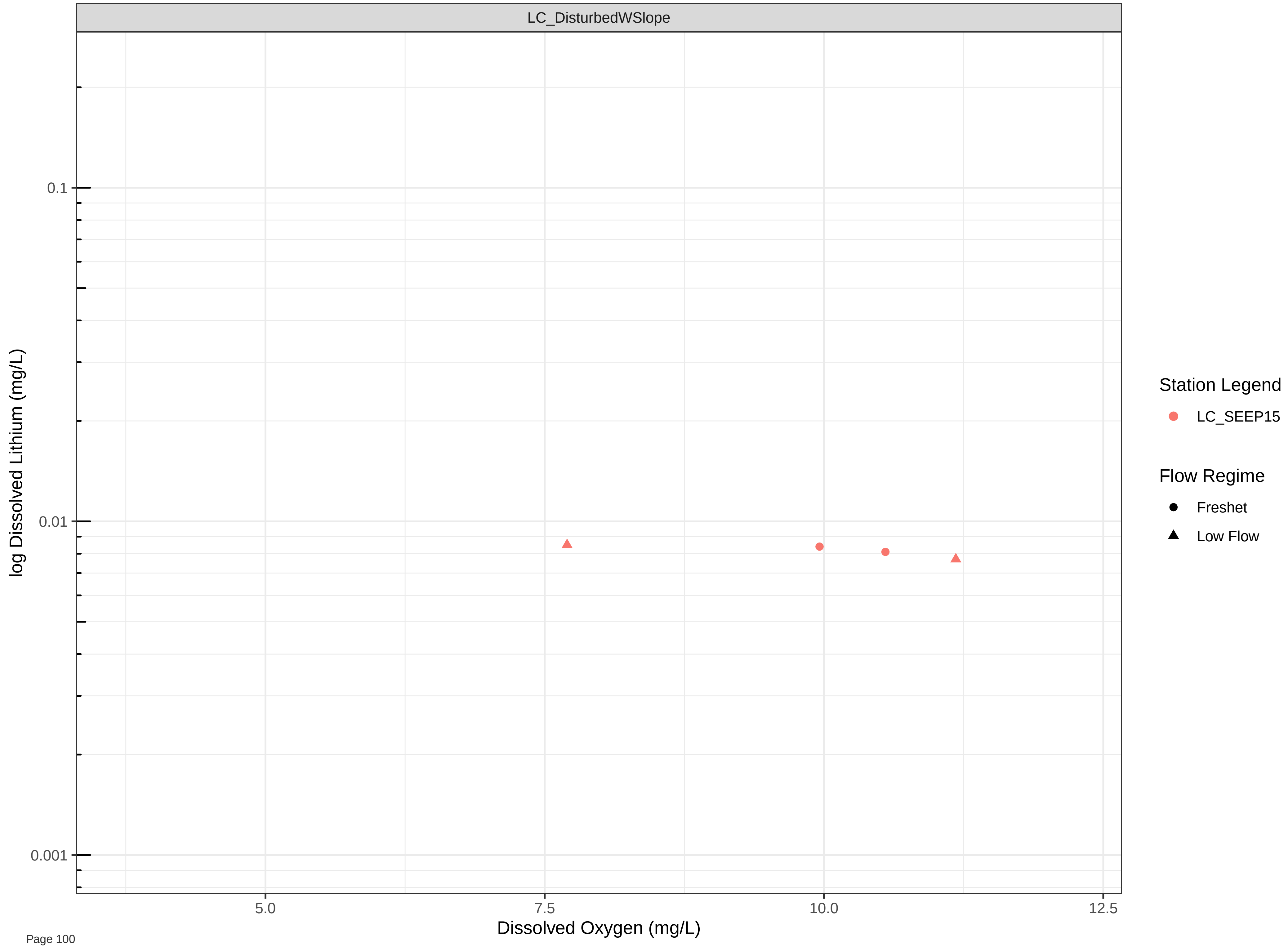
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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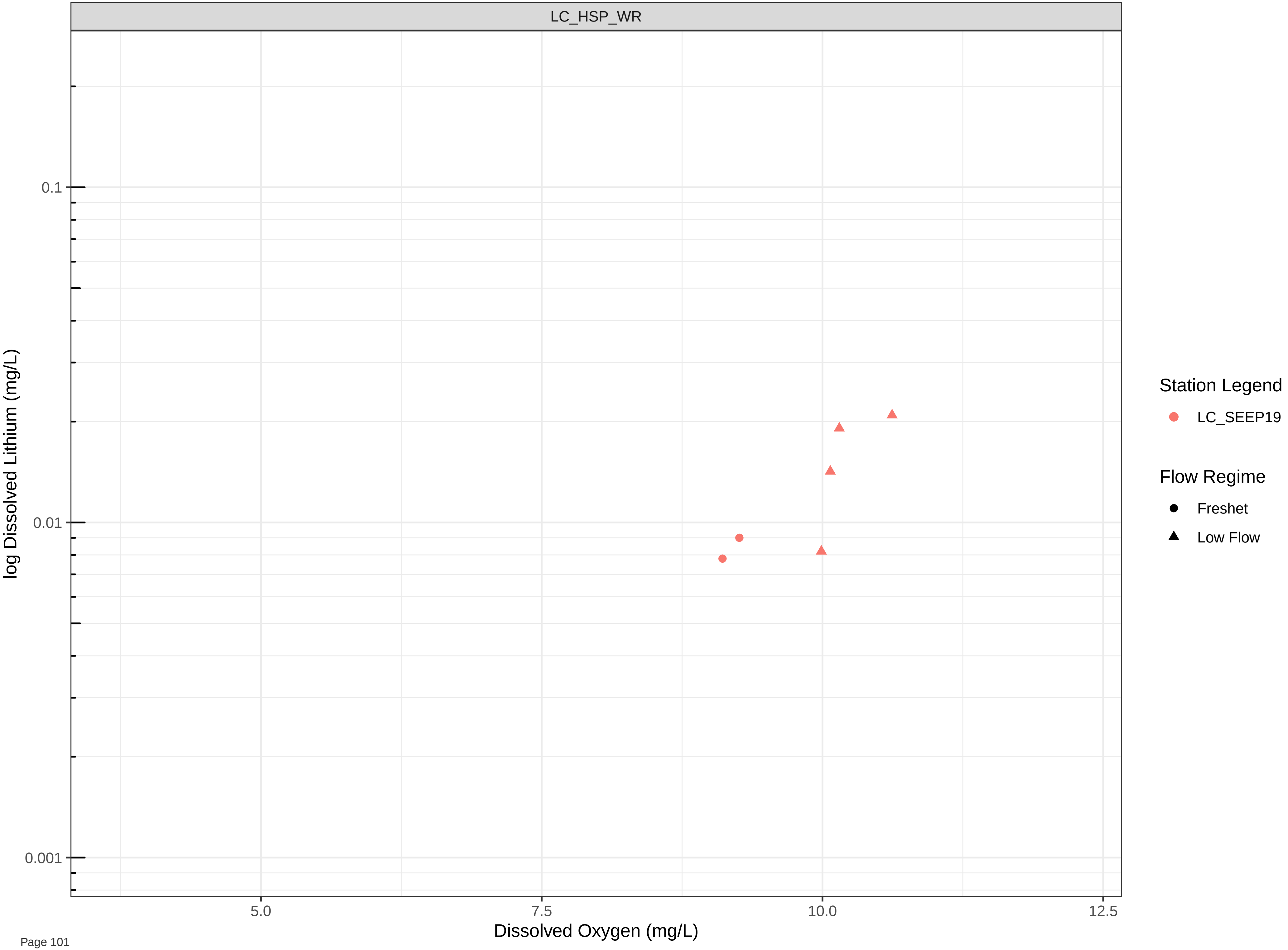
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow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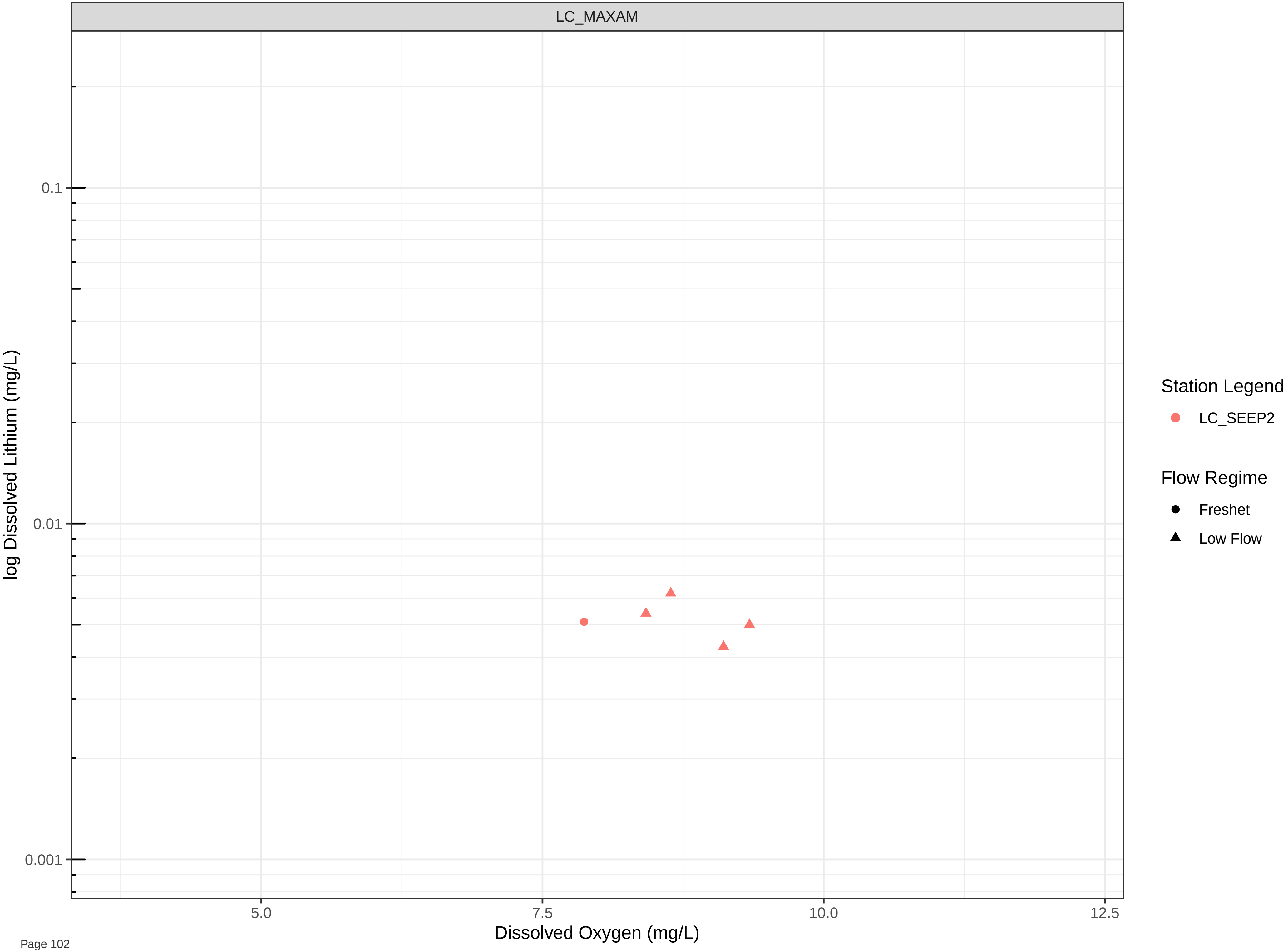
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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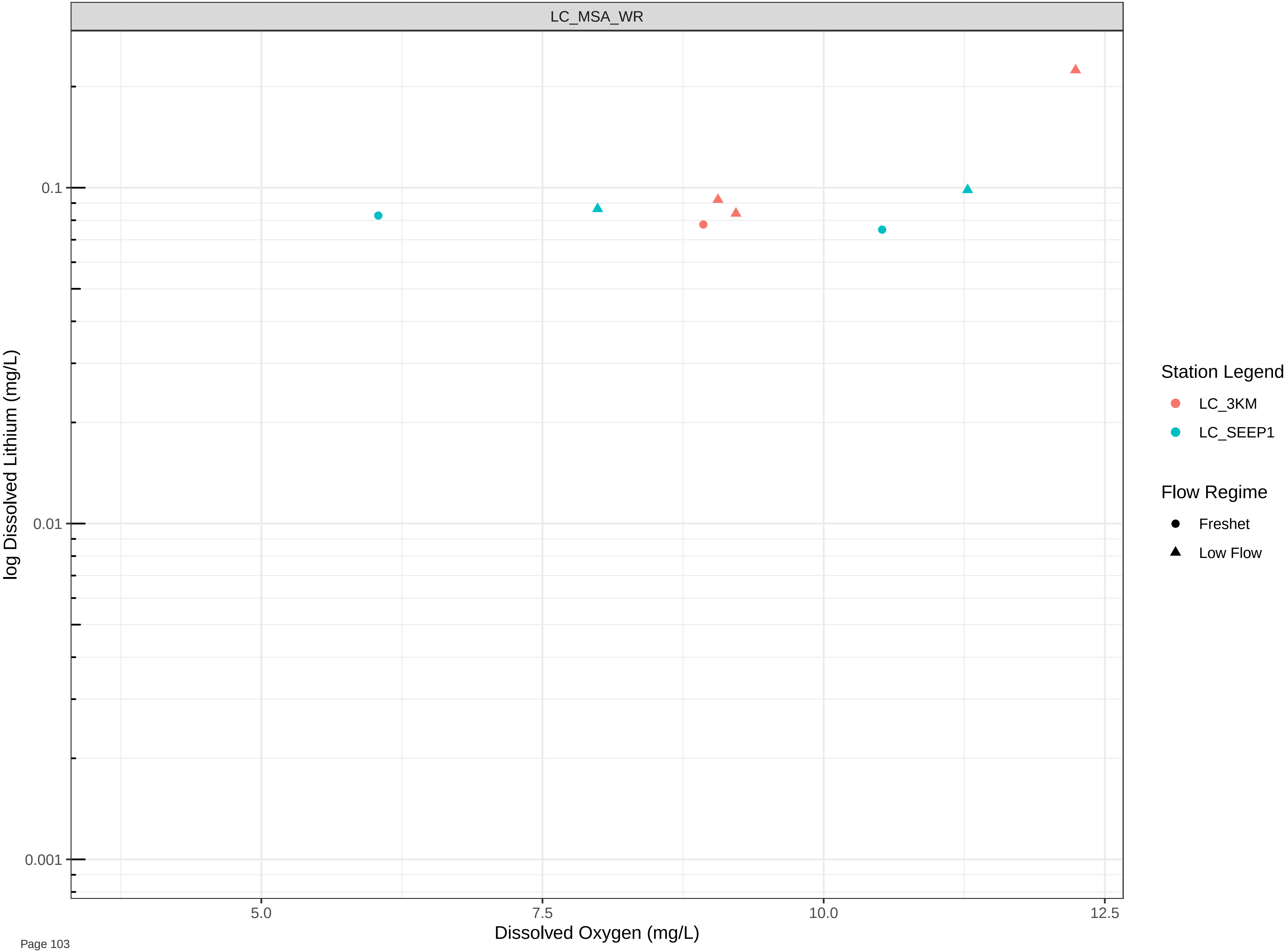
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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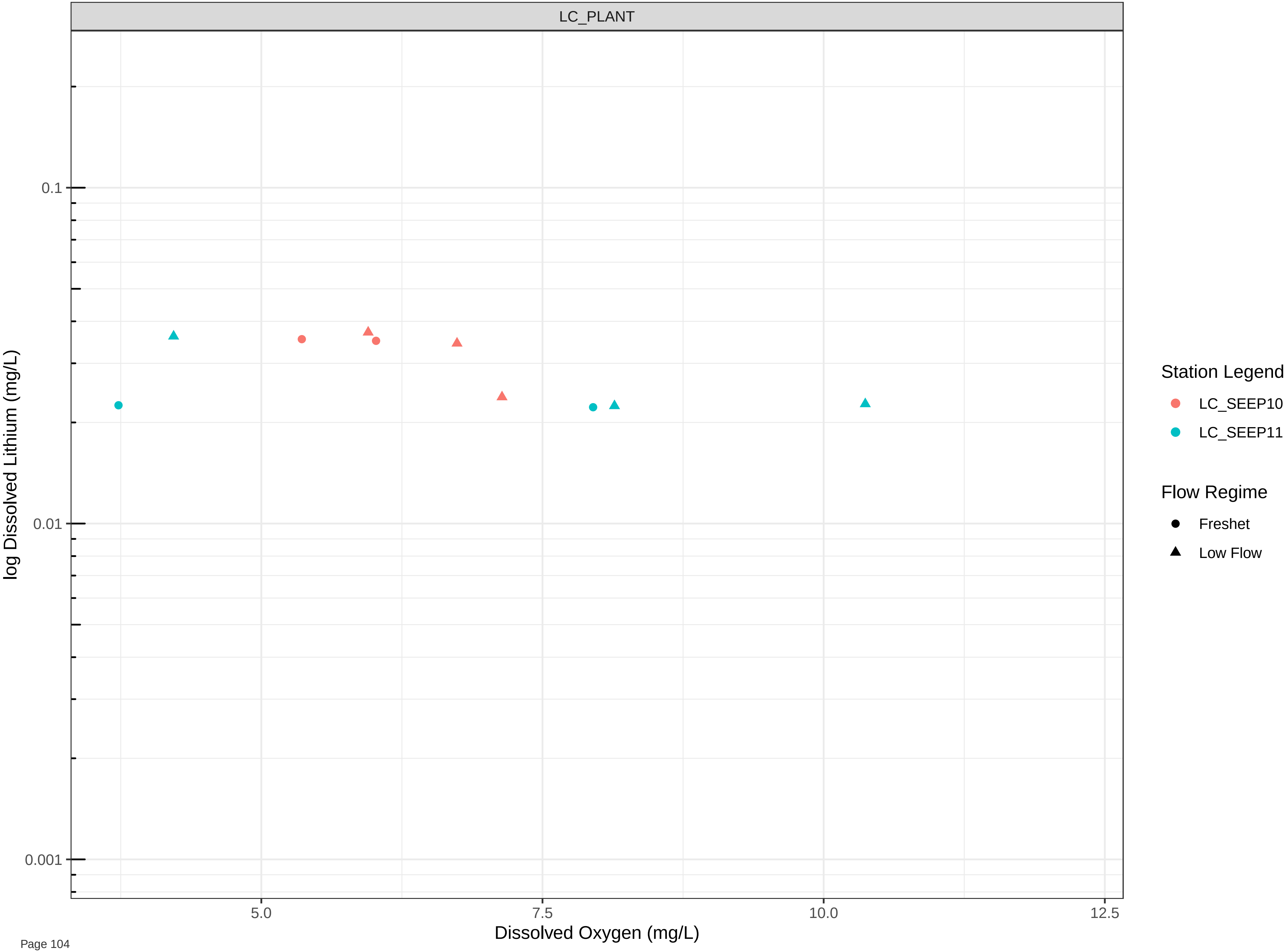
12.5
Station Legend
● LC_3KM
● LC_SEEP1
Flow Regime
● Freshet
▲ Low Flow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Dissolved Oxygen (mg/L)
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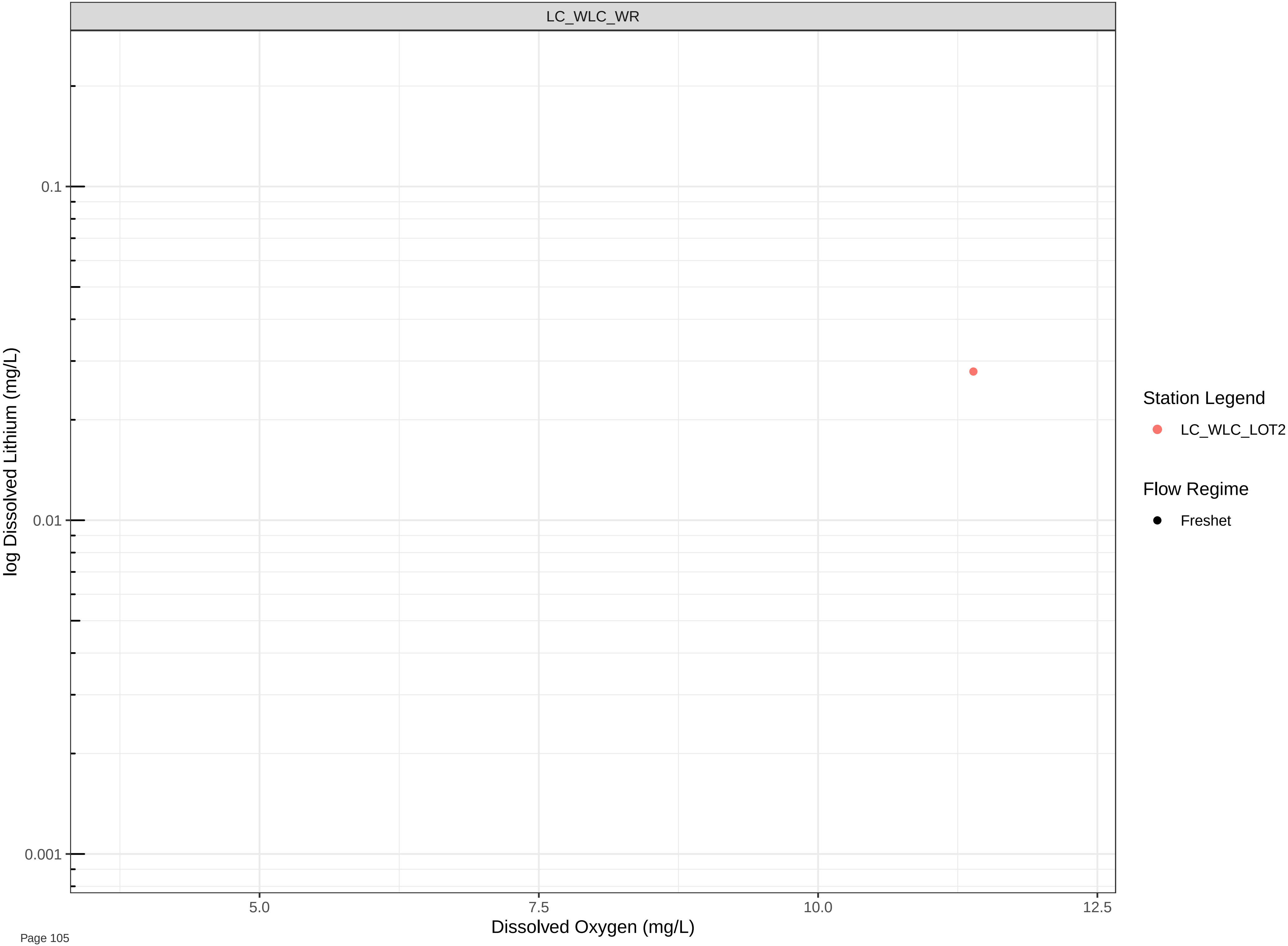
12.5
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow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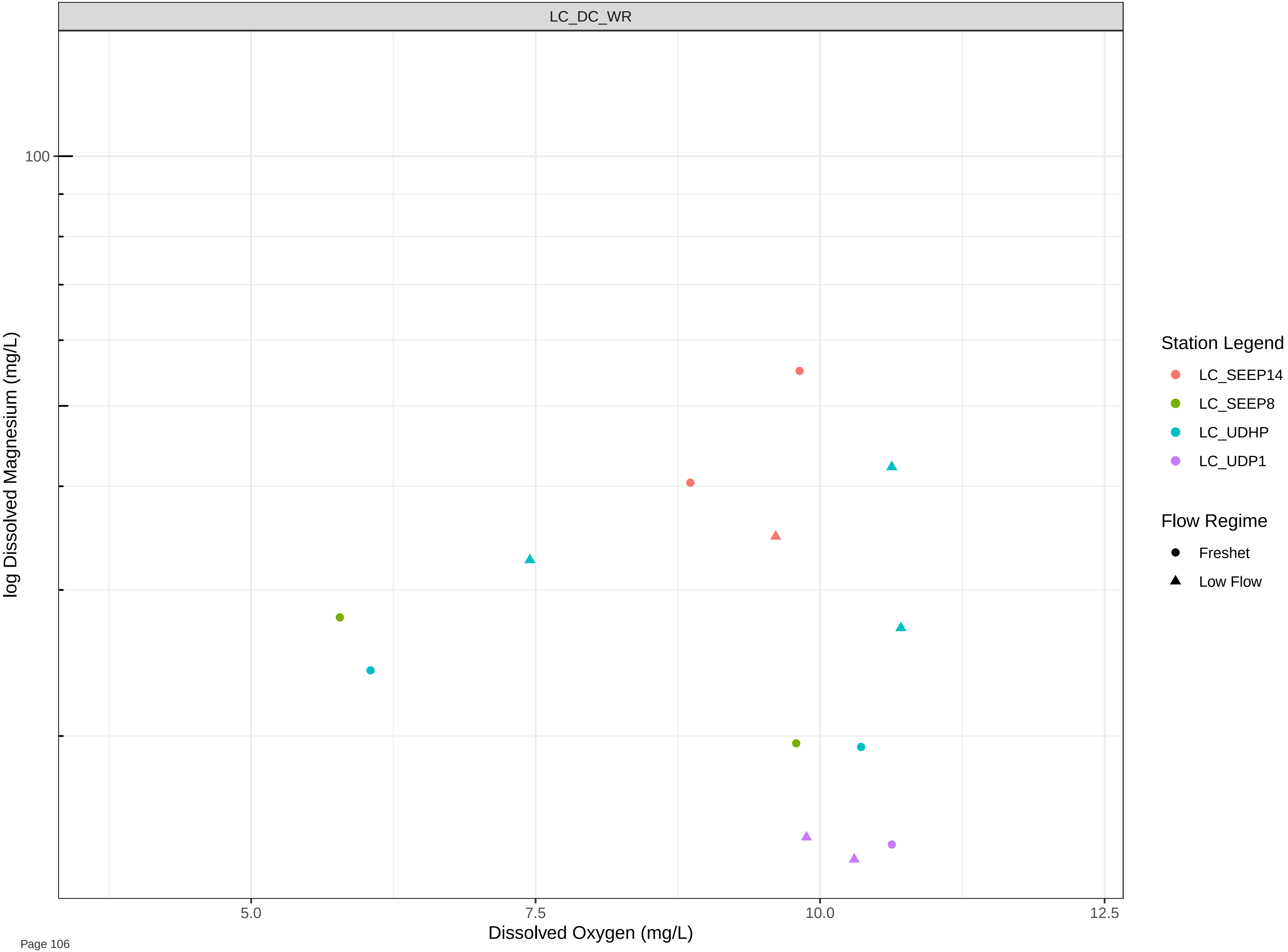
Dissolved Oxygen (mg/L)
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet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Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
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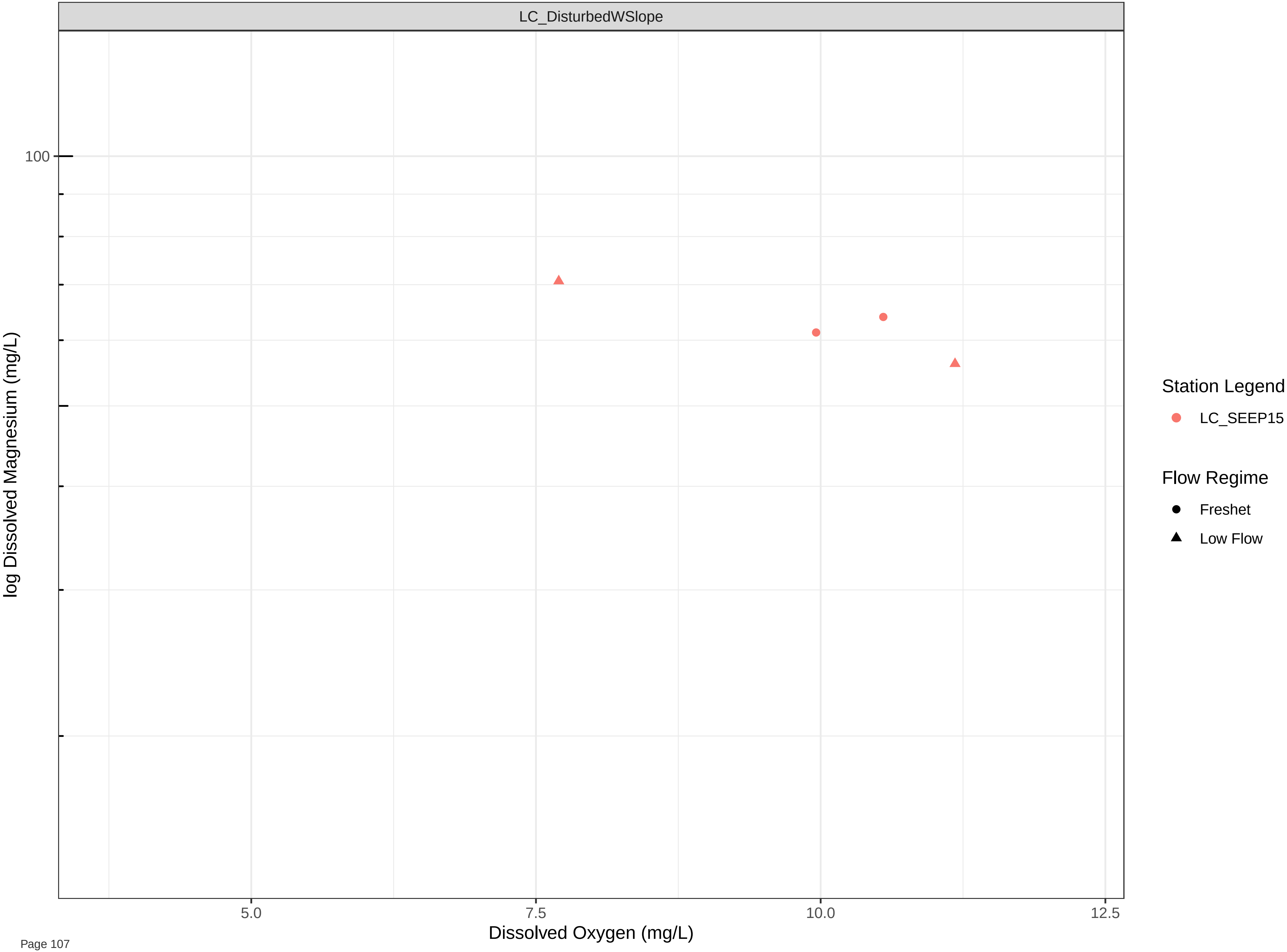
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow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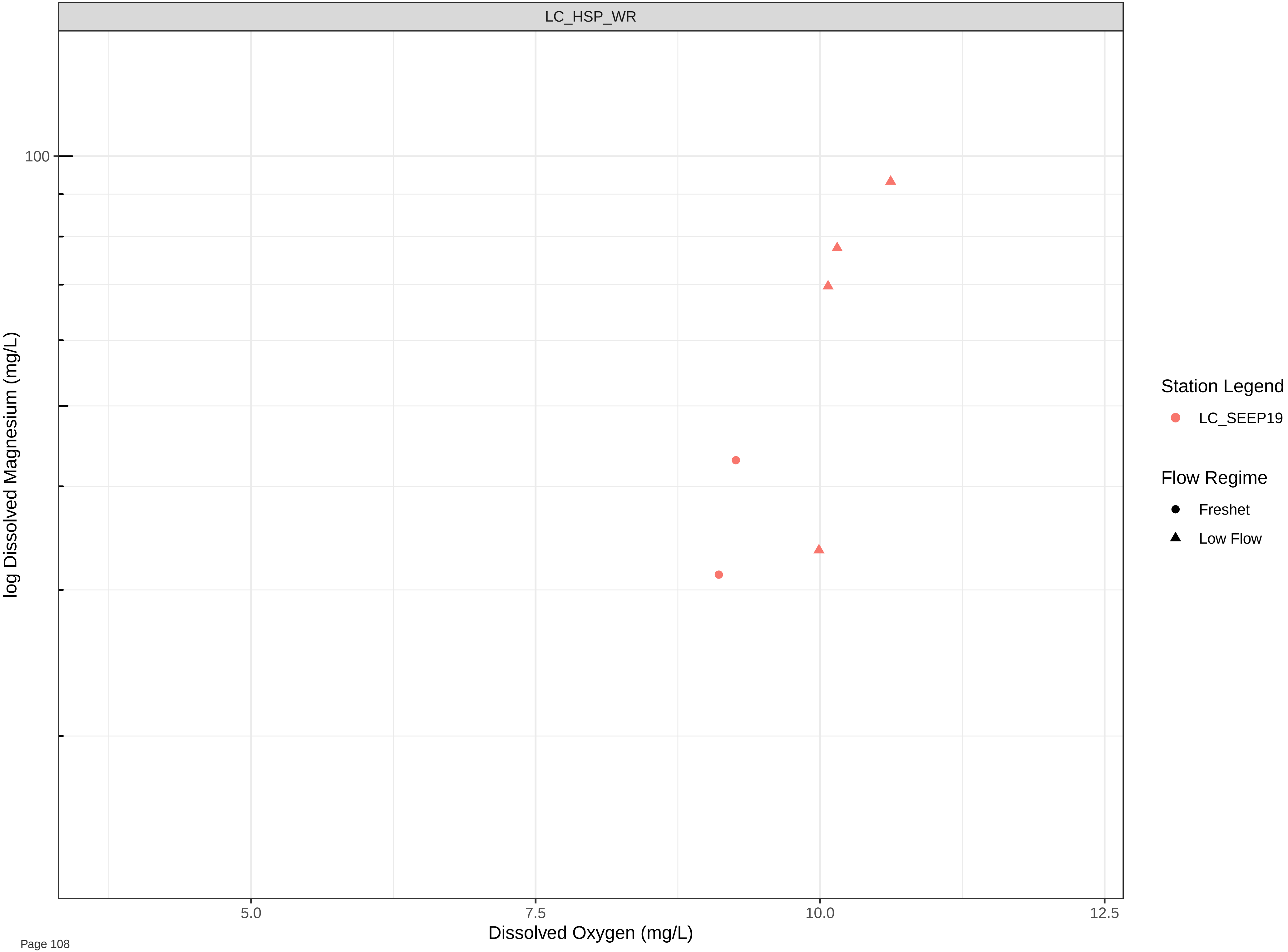
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow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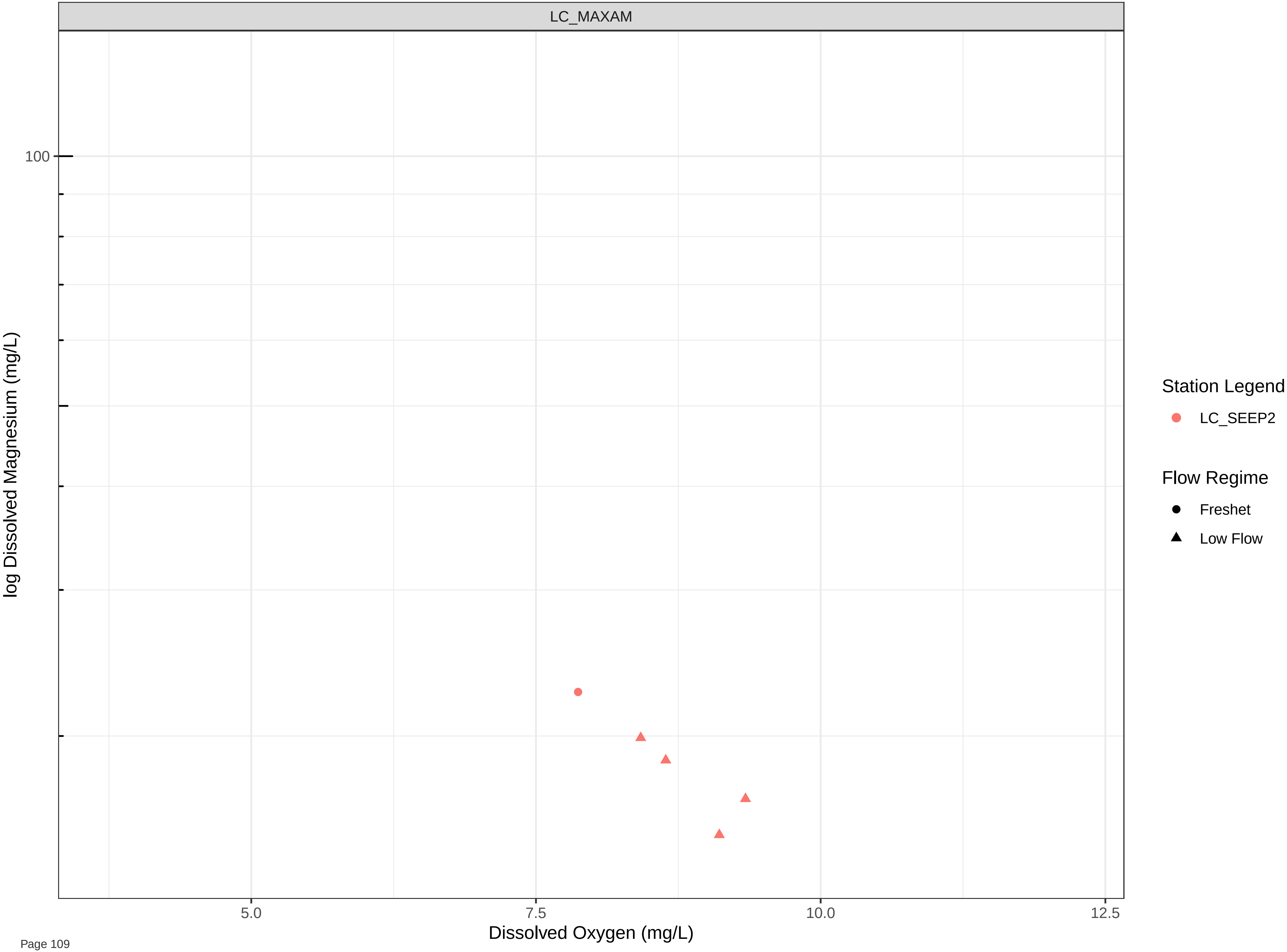
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow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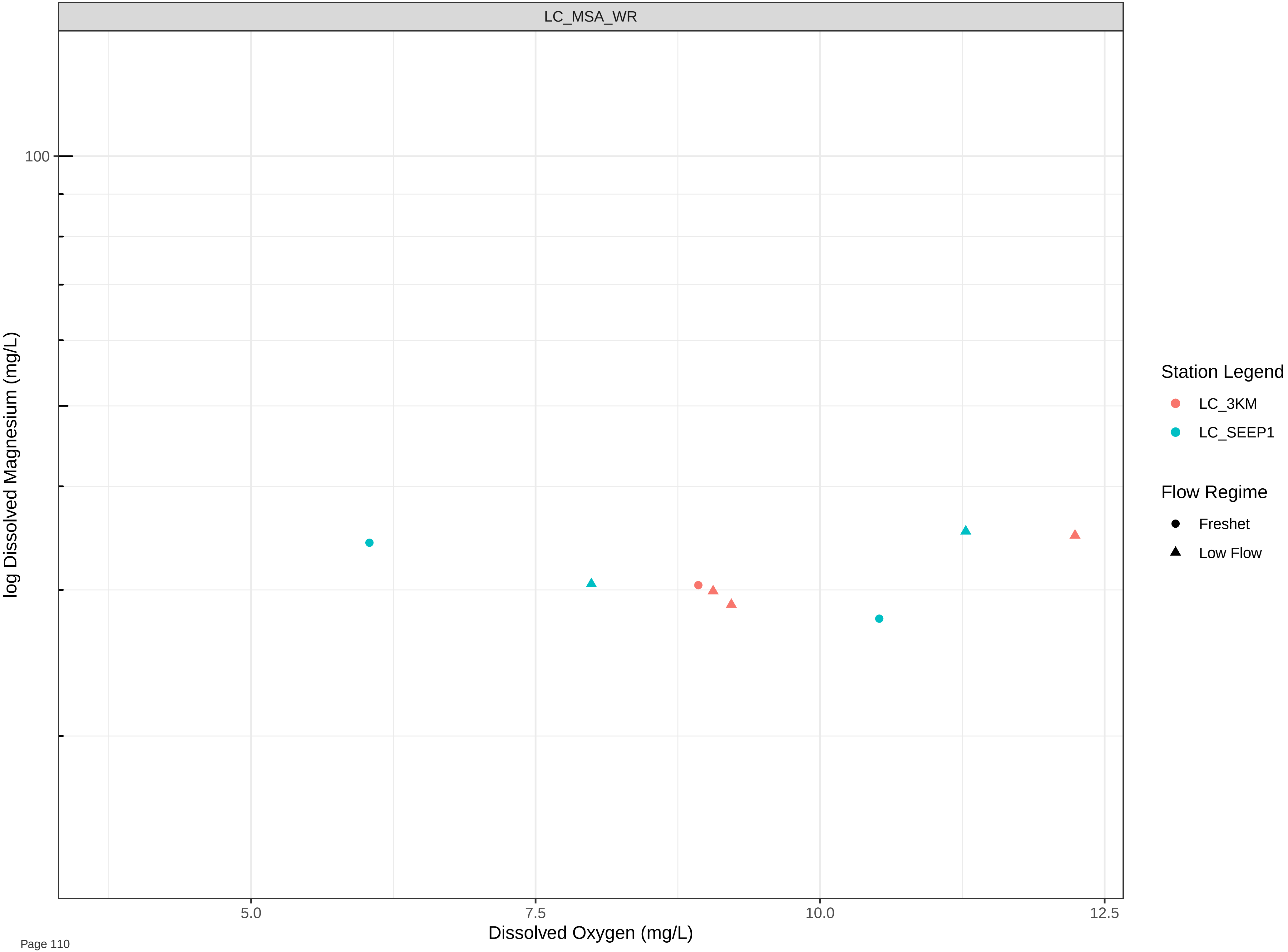
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow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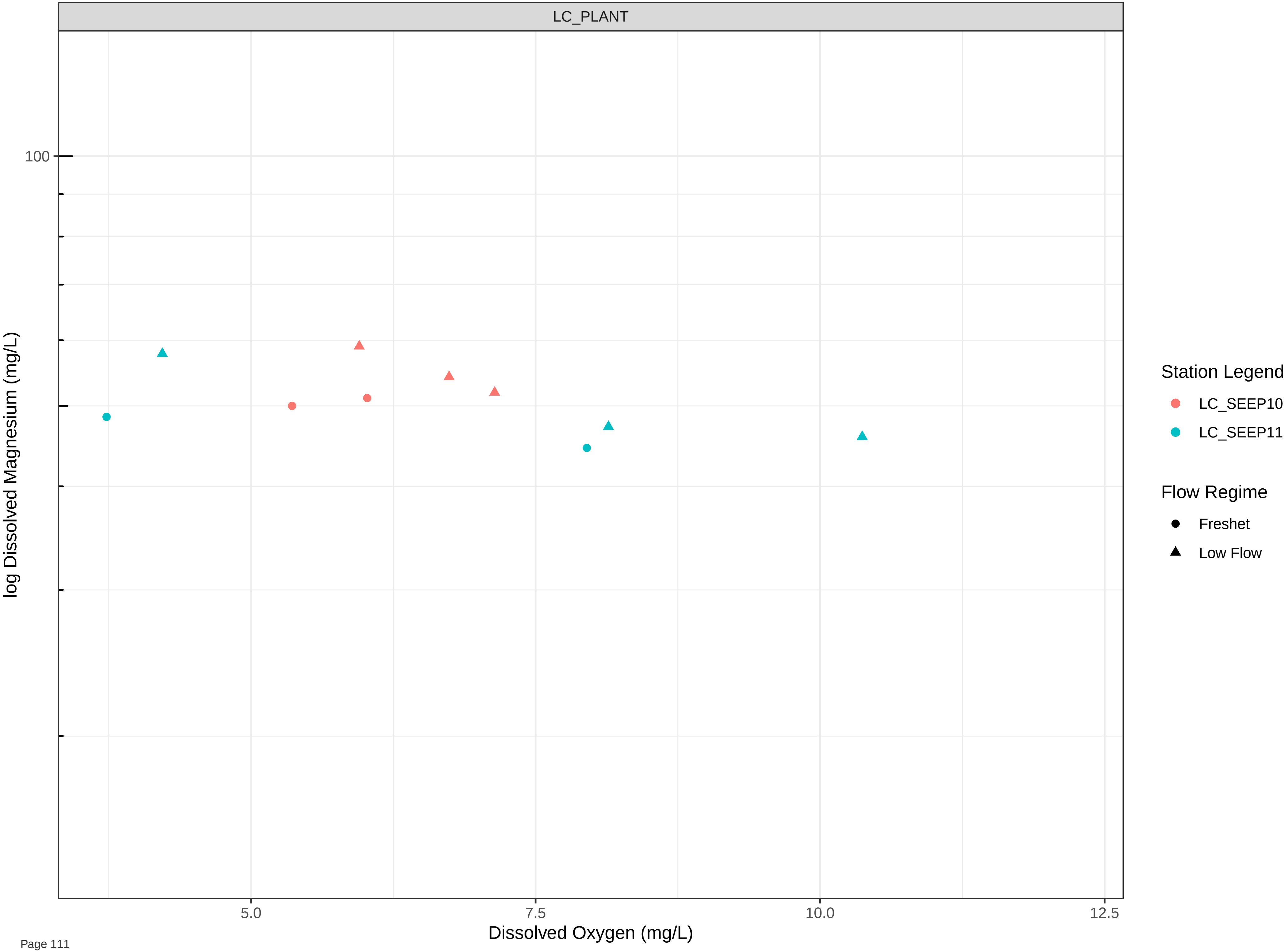
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_3KM
● LC_SEEP1
Flow Regime
● Freshet
▲ Low Flow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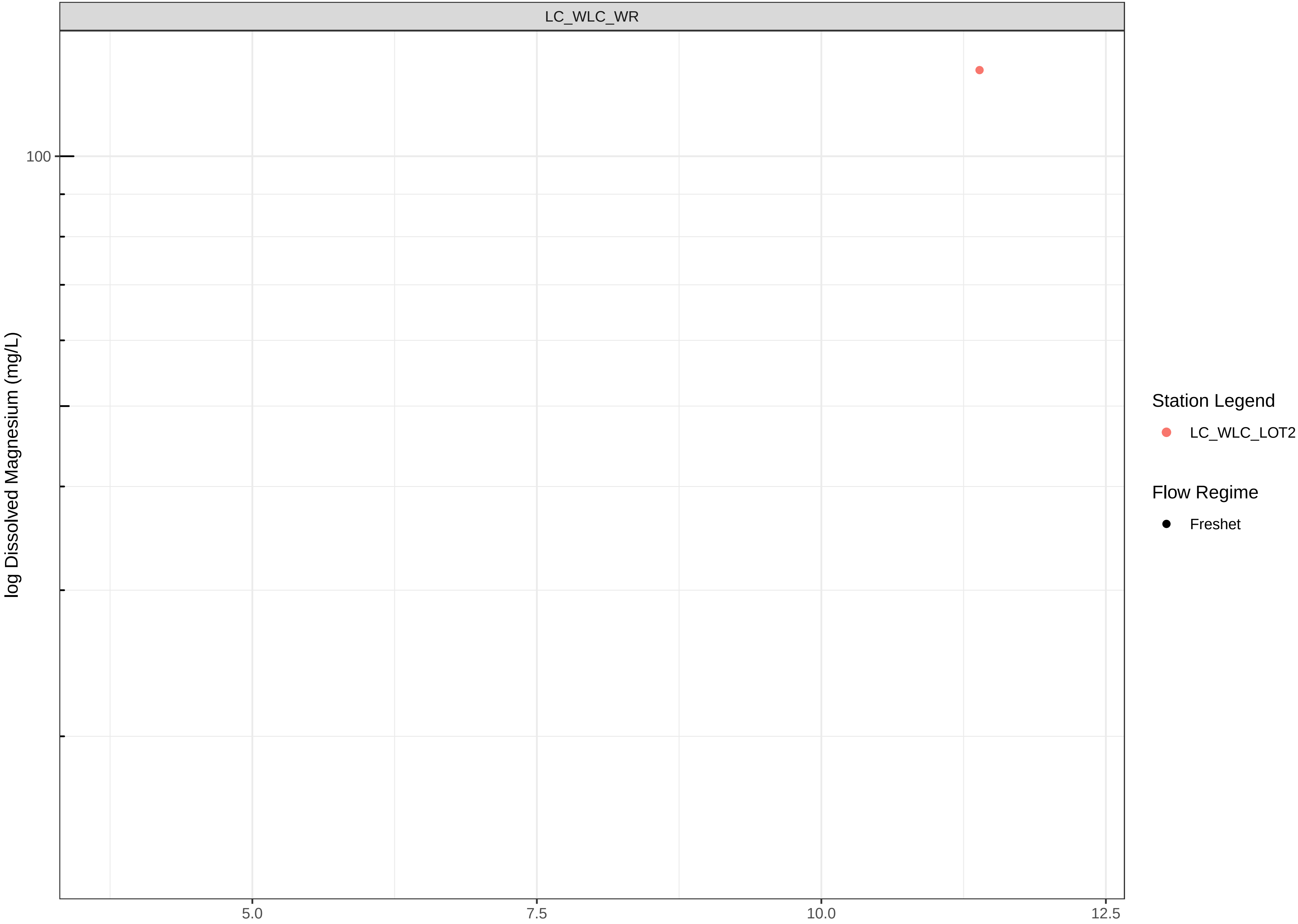
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow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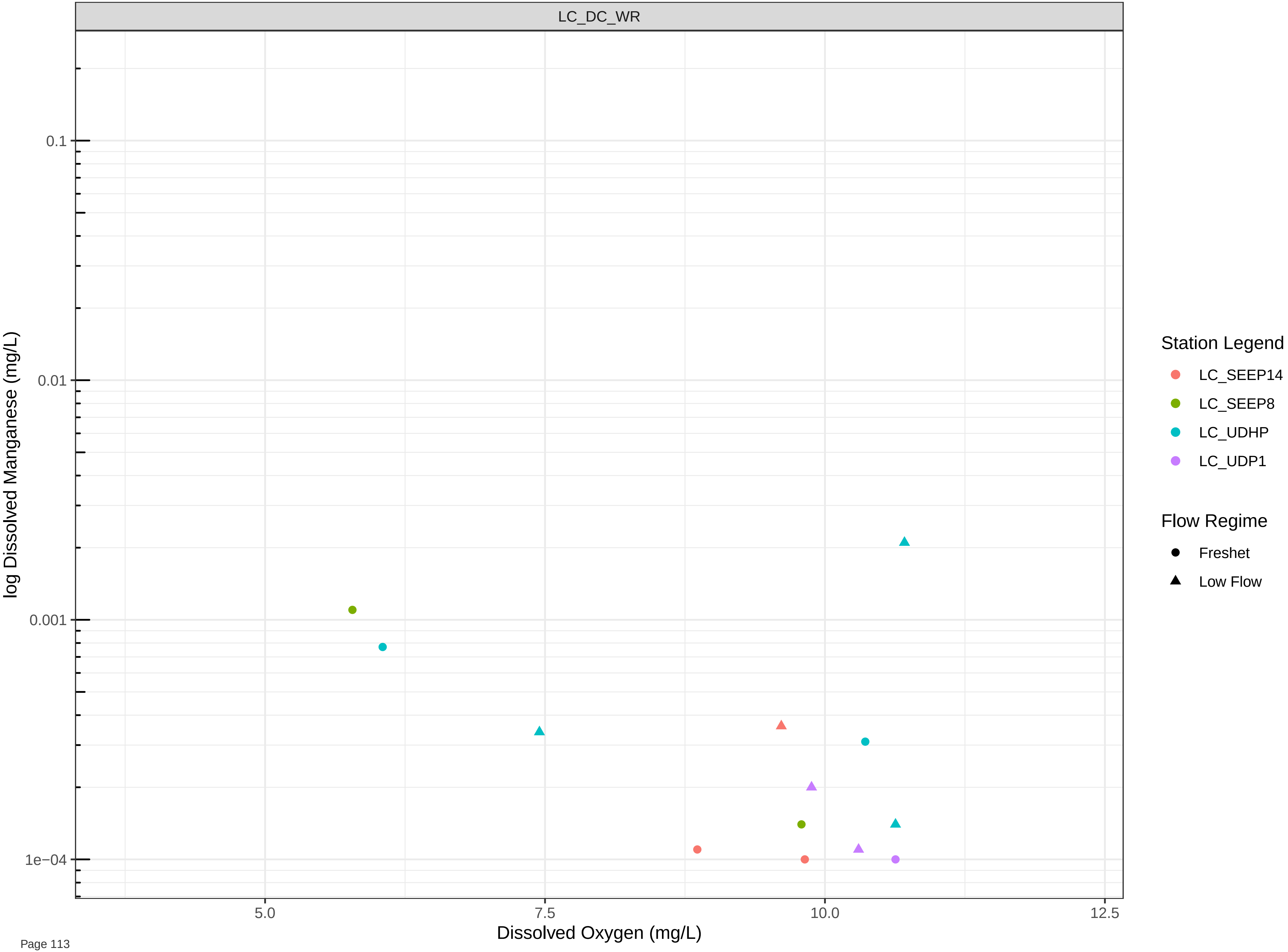
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet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0.01
0.001
1e−04
Dissolved Oxygen (mg/L)
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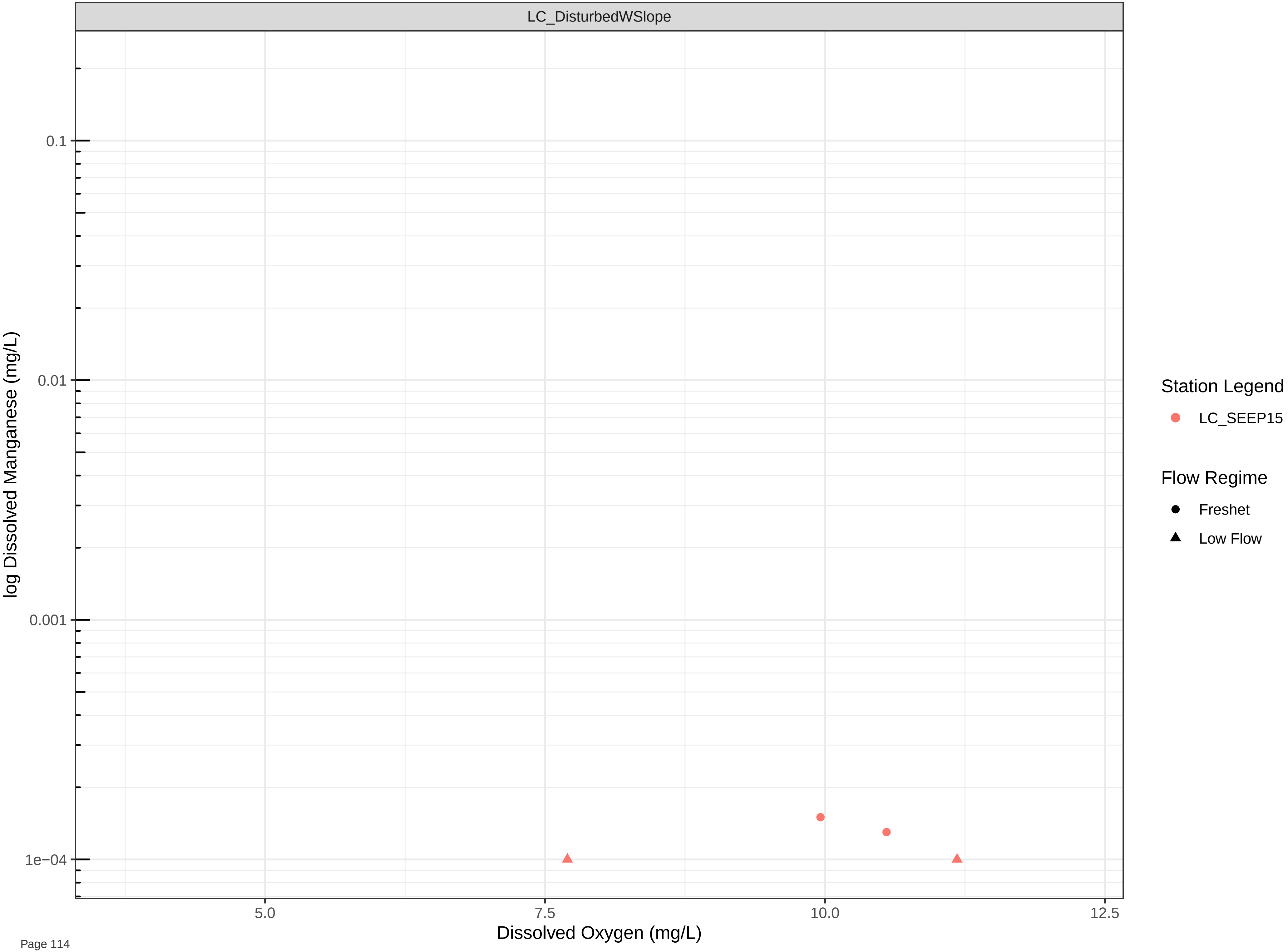
7.5
10.0
12.5
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow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0.001
1e−04
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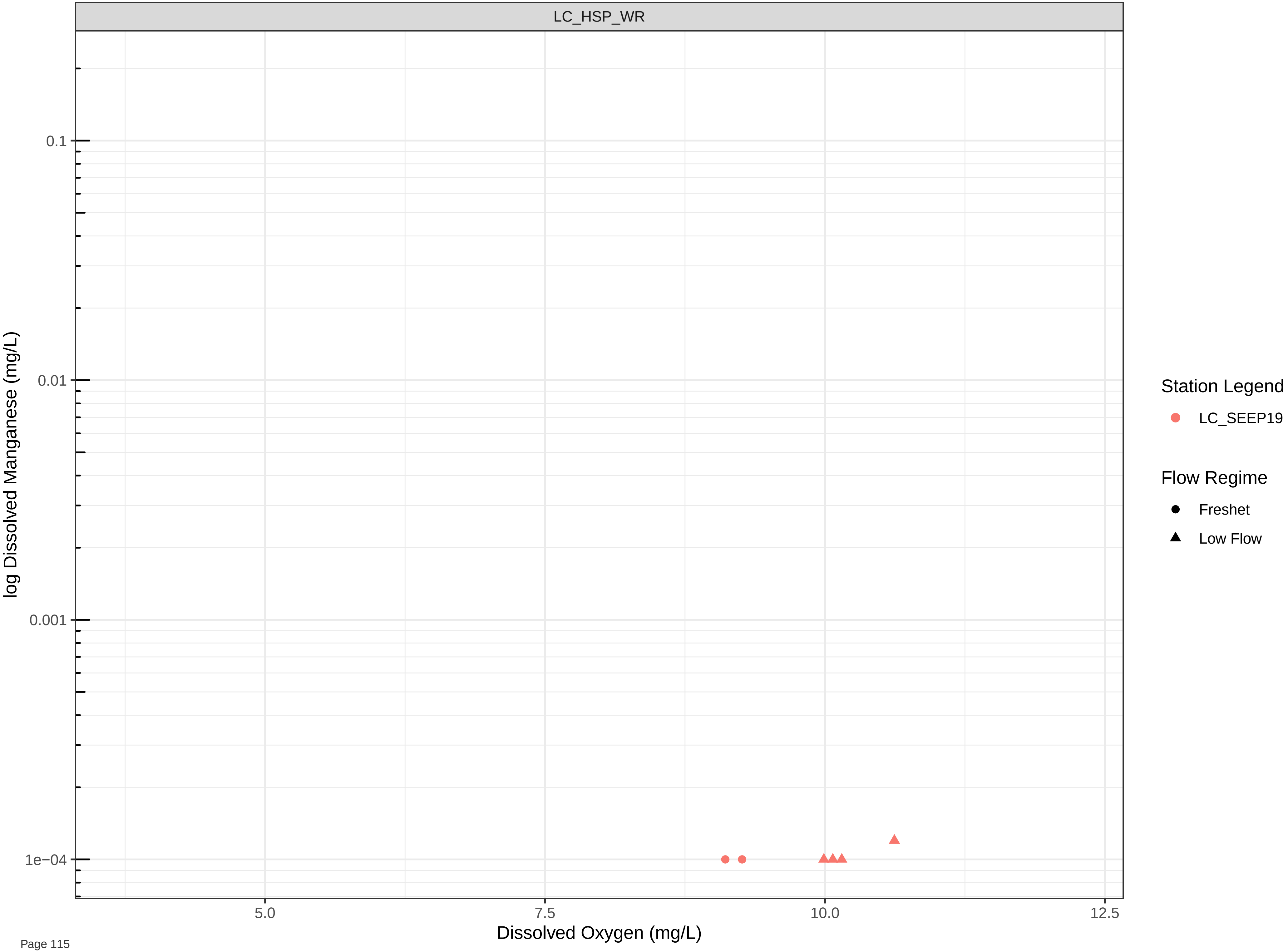
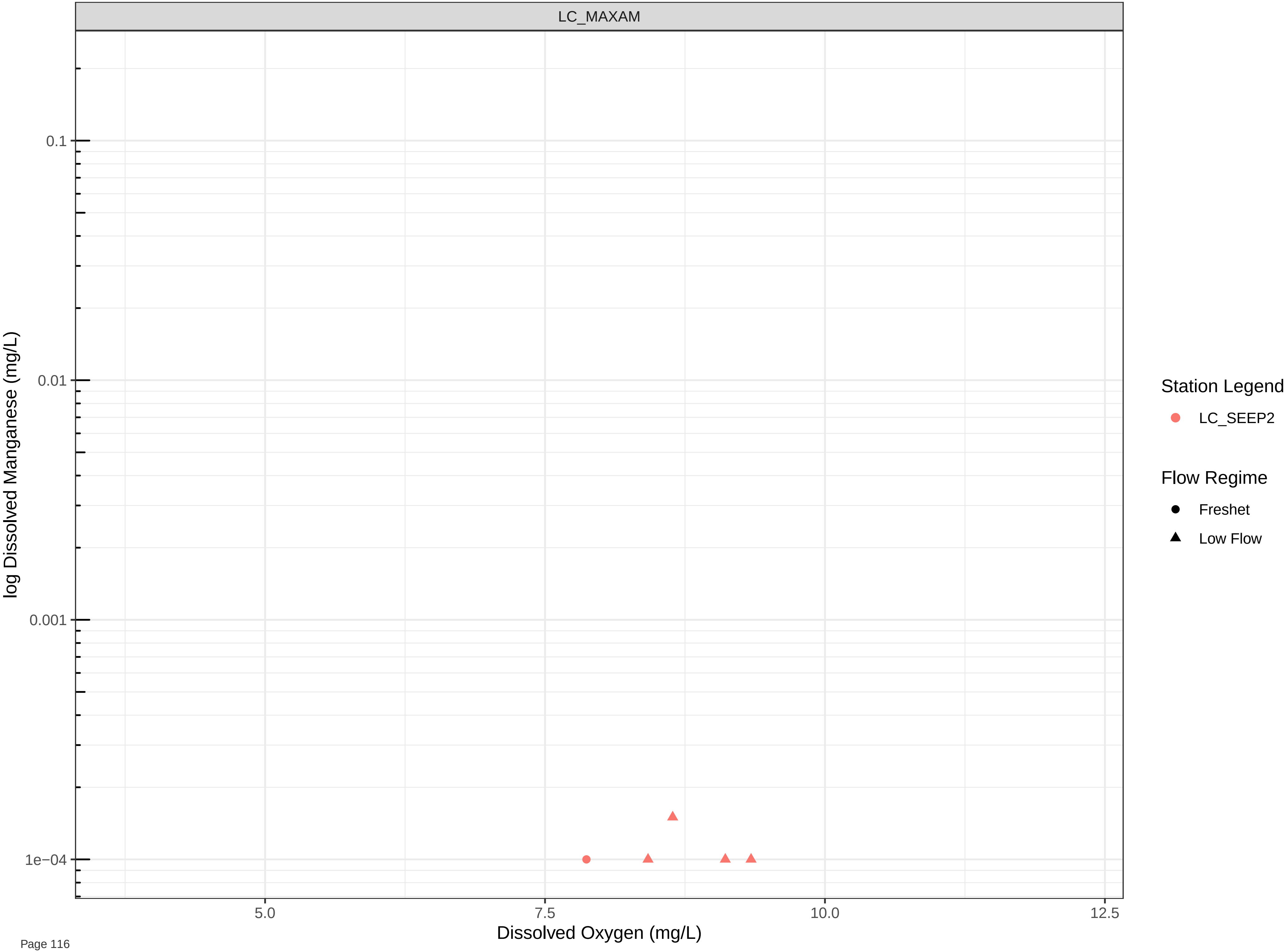
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow


LC_HSP_WR
log Dissolved Manganese (mg/L)
0.1
0.01
0.001
1e−04
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow


LC_MAXAM
0.1
0.01
0.001
1e−04
log Dissolved Manganese (mg/L)
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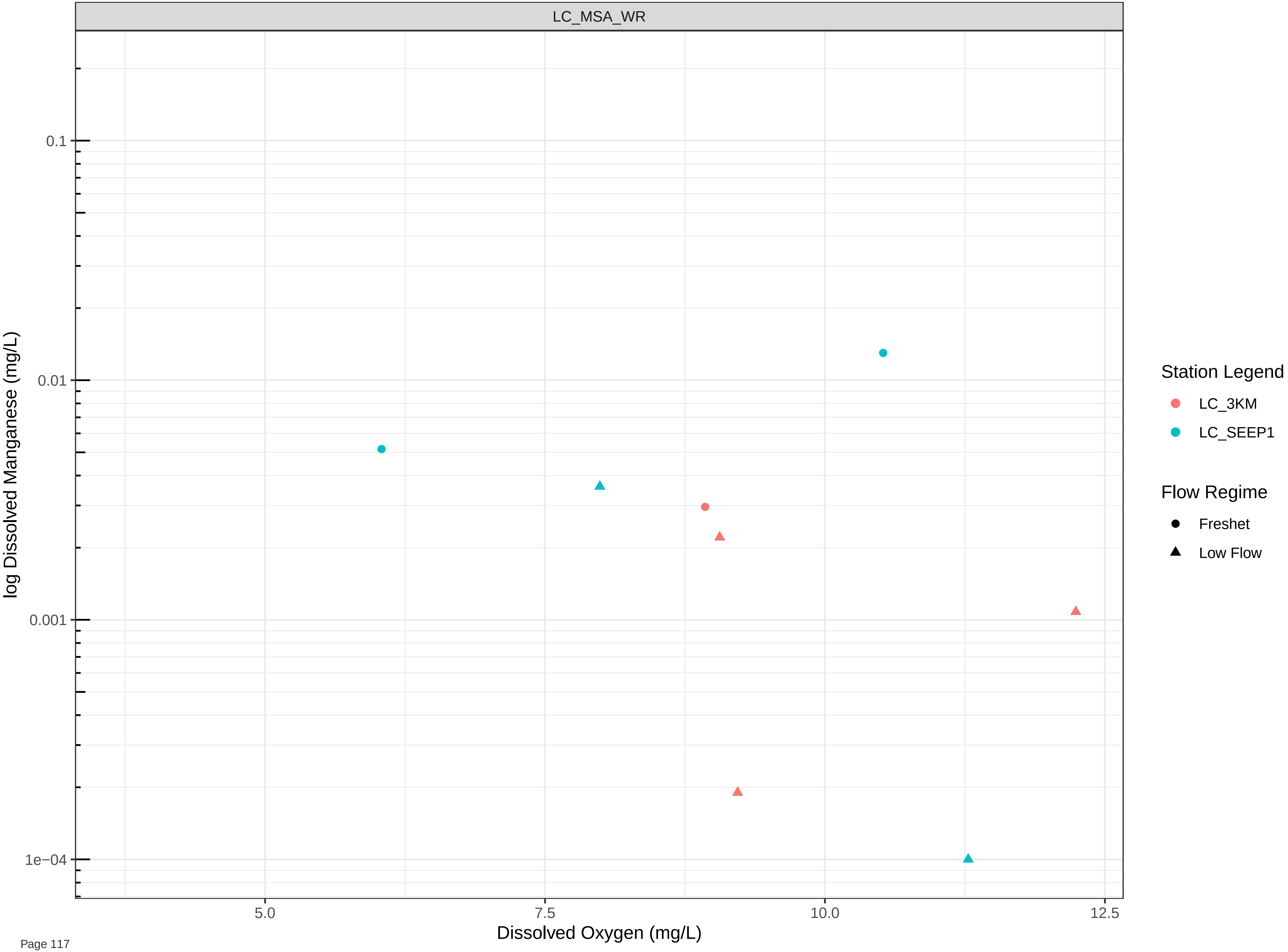
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow


LC_MSA_WR
log Dissolved Manganese (mg/L)
0.1
0.01
0.001
1e−04
Dissolved Oxygen (mg/L)
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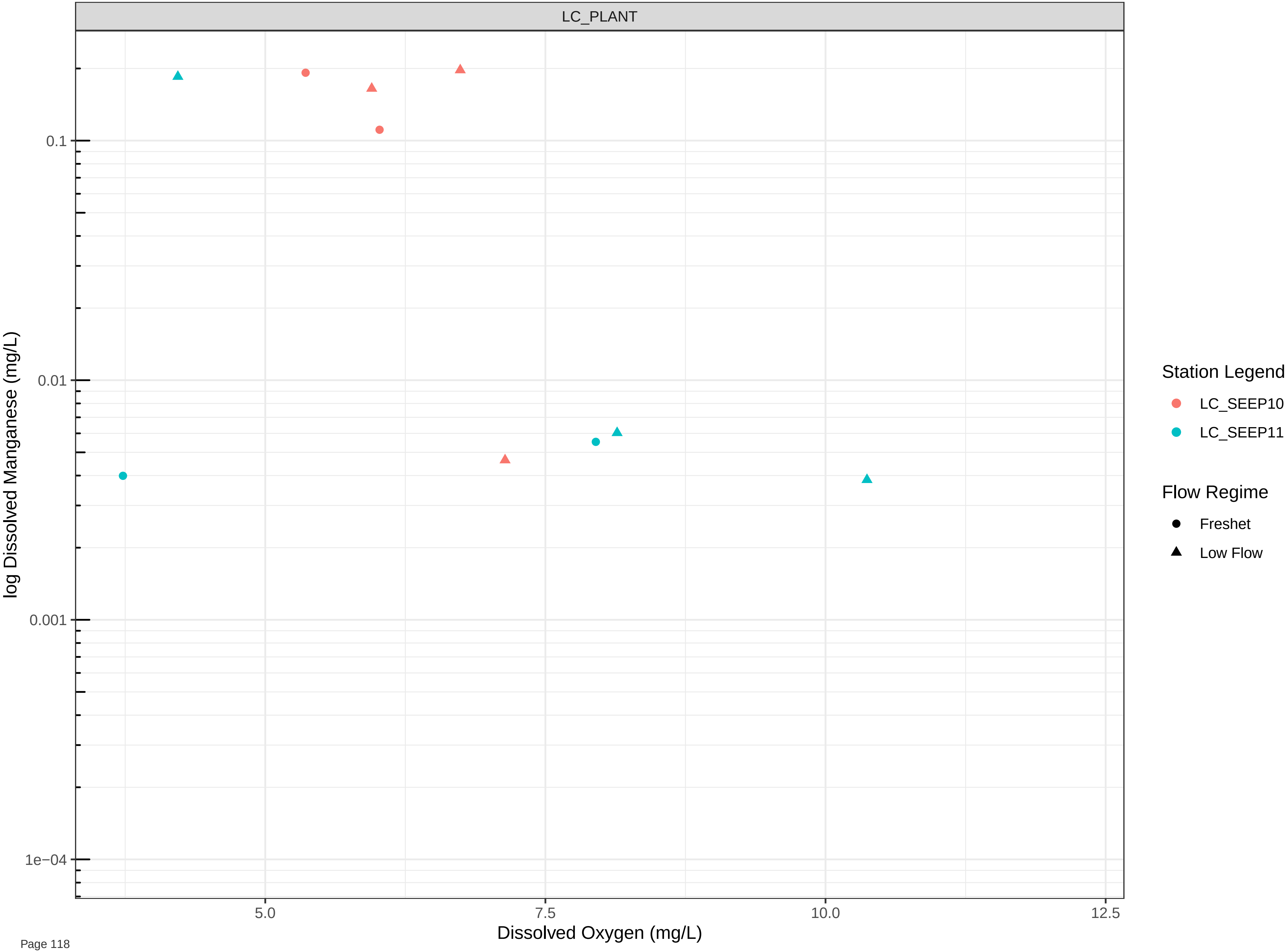
7.5
10.0
12.5
Station Legend
● LC_3KM
● LC_SEEP1
Flow Regime
● Freshet
▲ Low Flow


LC_PLANT
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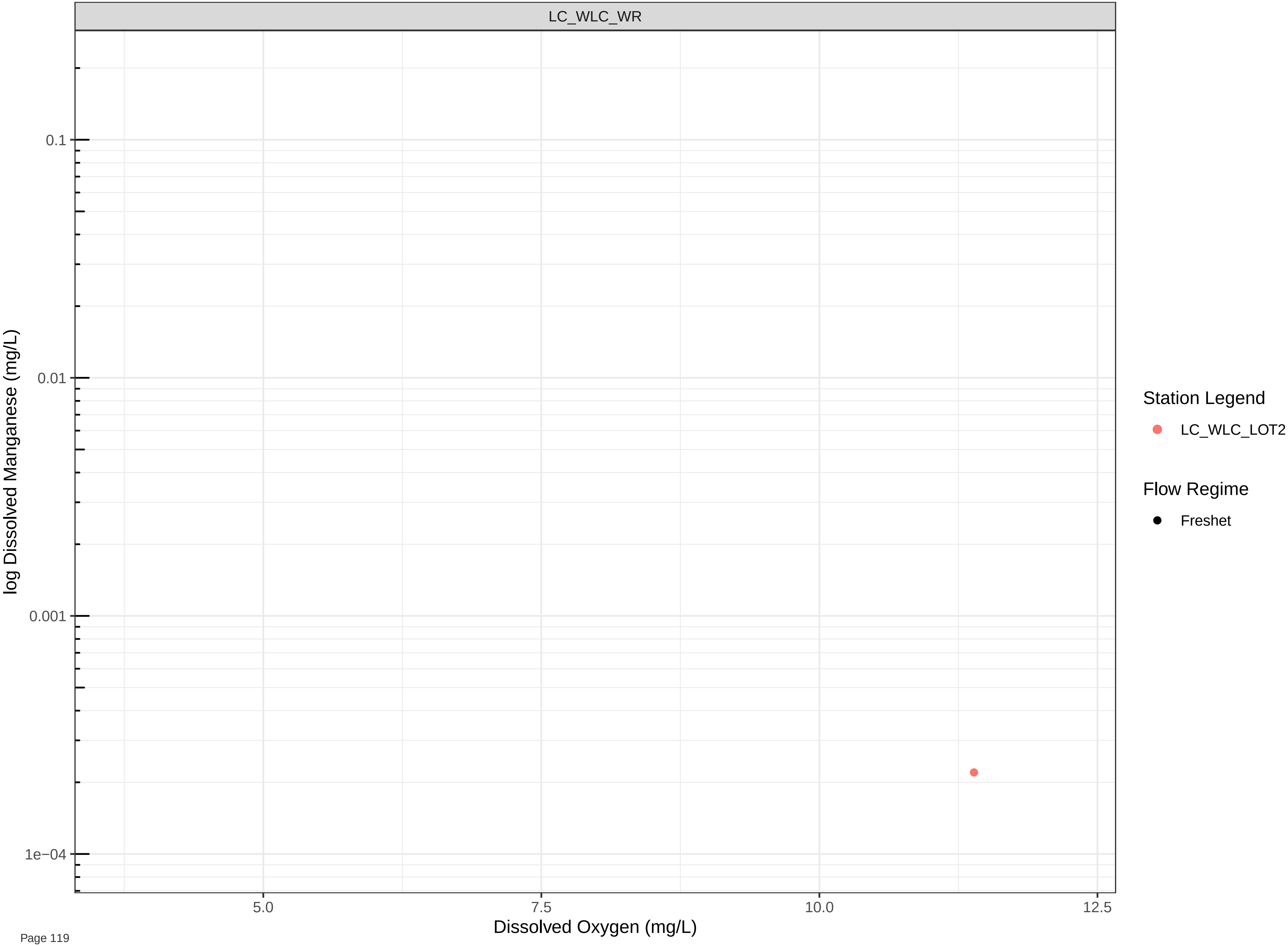
0.1
0.01
0.001
1e−04
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow


LC_WLC_WR
0.1
0.01
0.001
1e−04
log Dissolved Manganese (mg/L)
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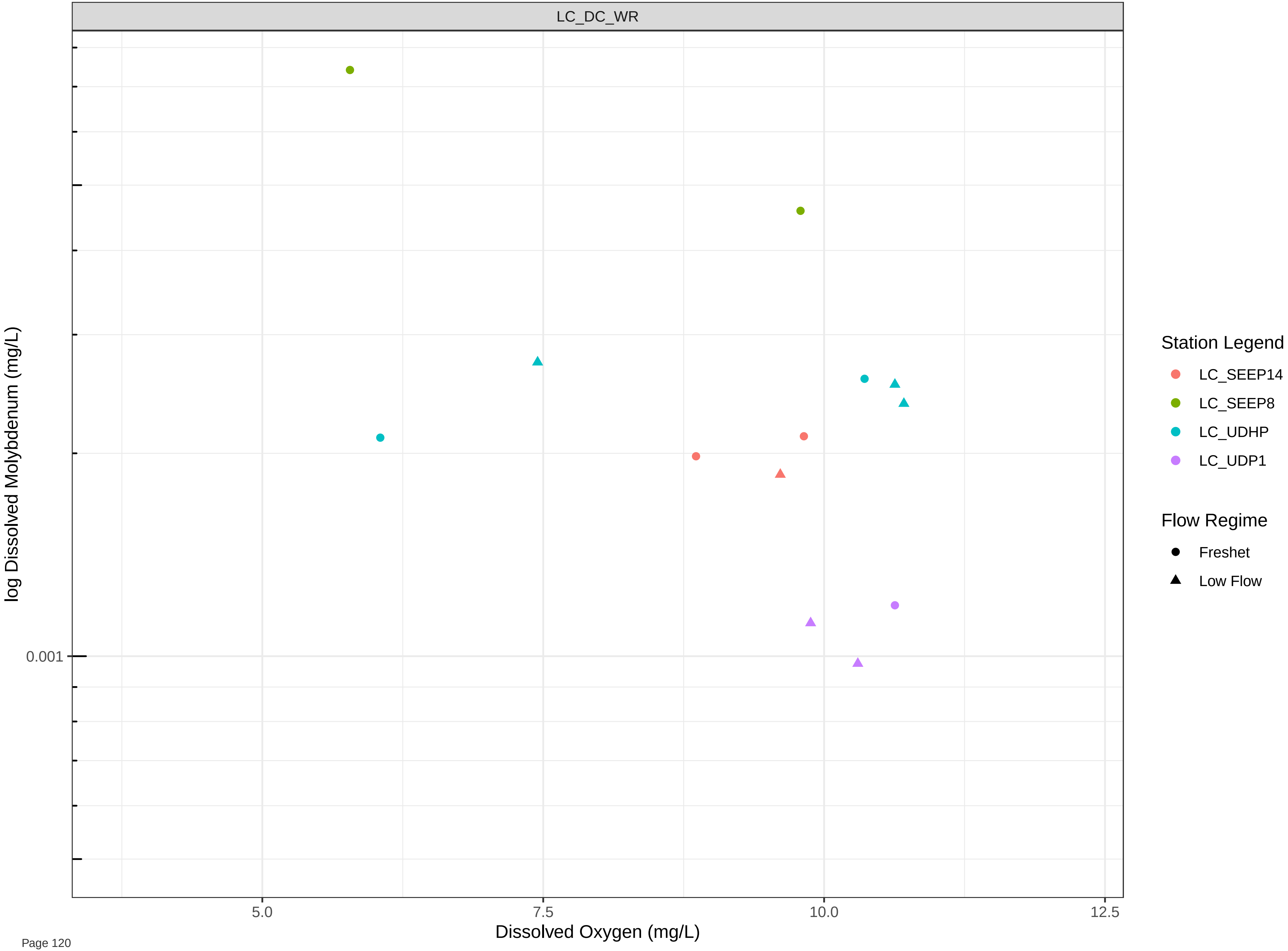
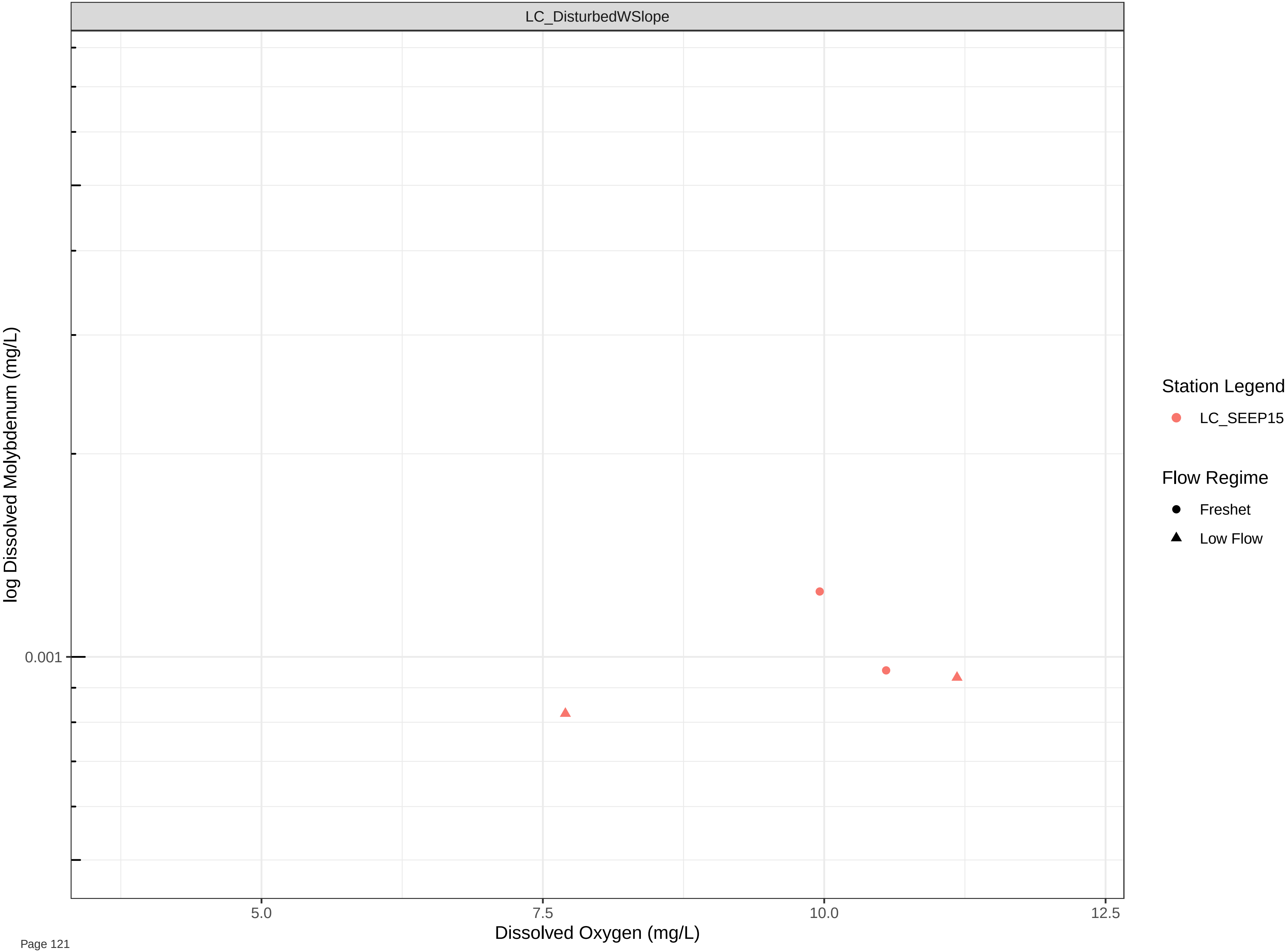
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet


LC_DC_WR
log Dissolved Molybdenum (mg/L)
0.001
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
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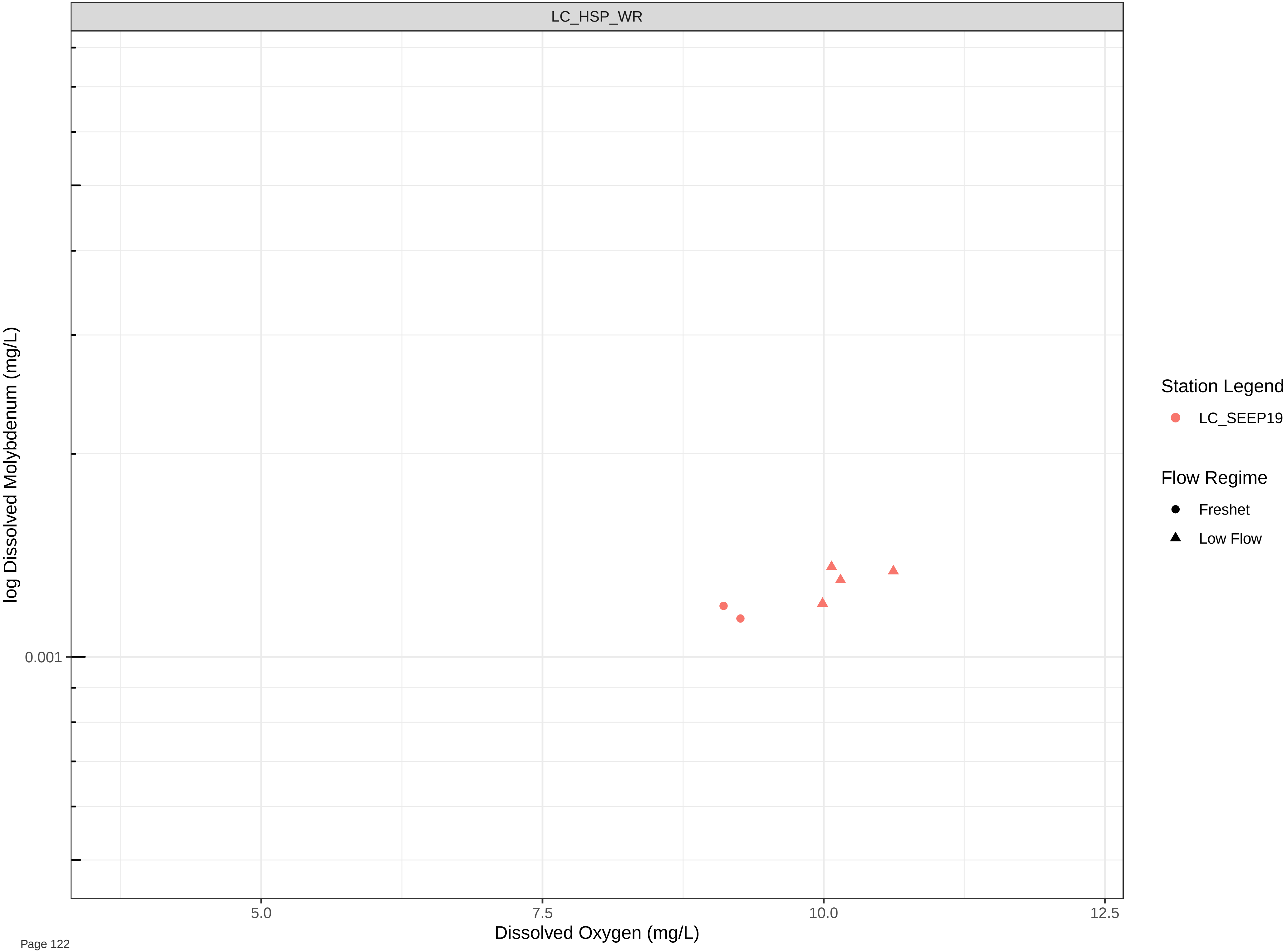
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow


LC_HSP_WR
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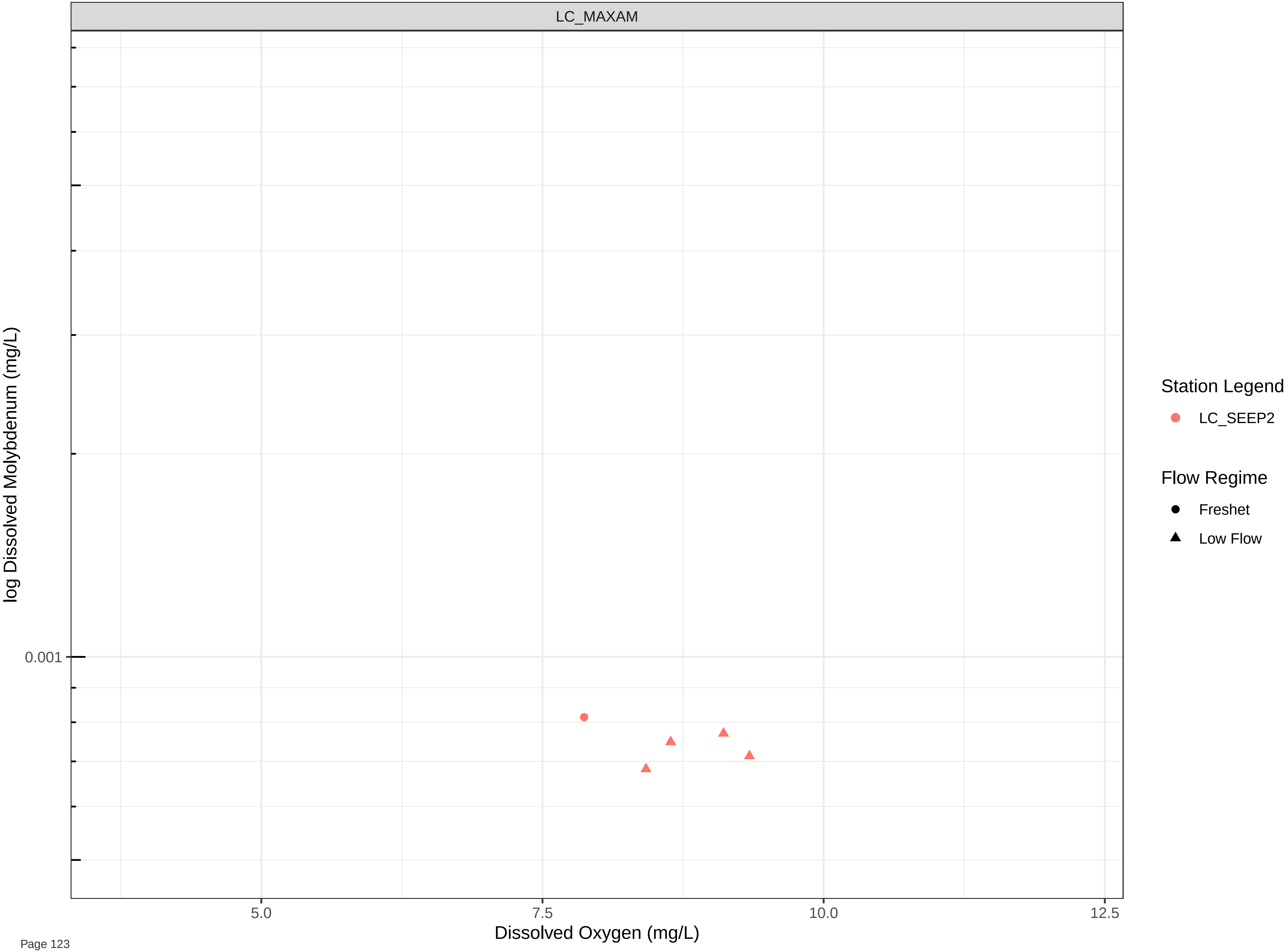
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow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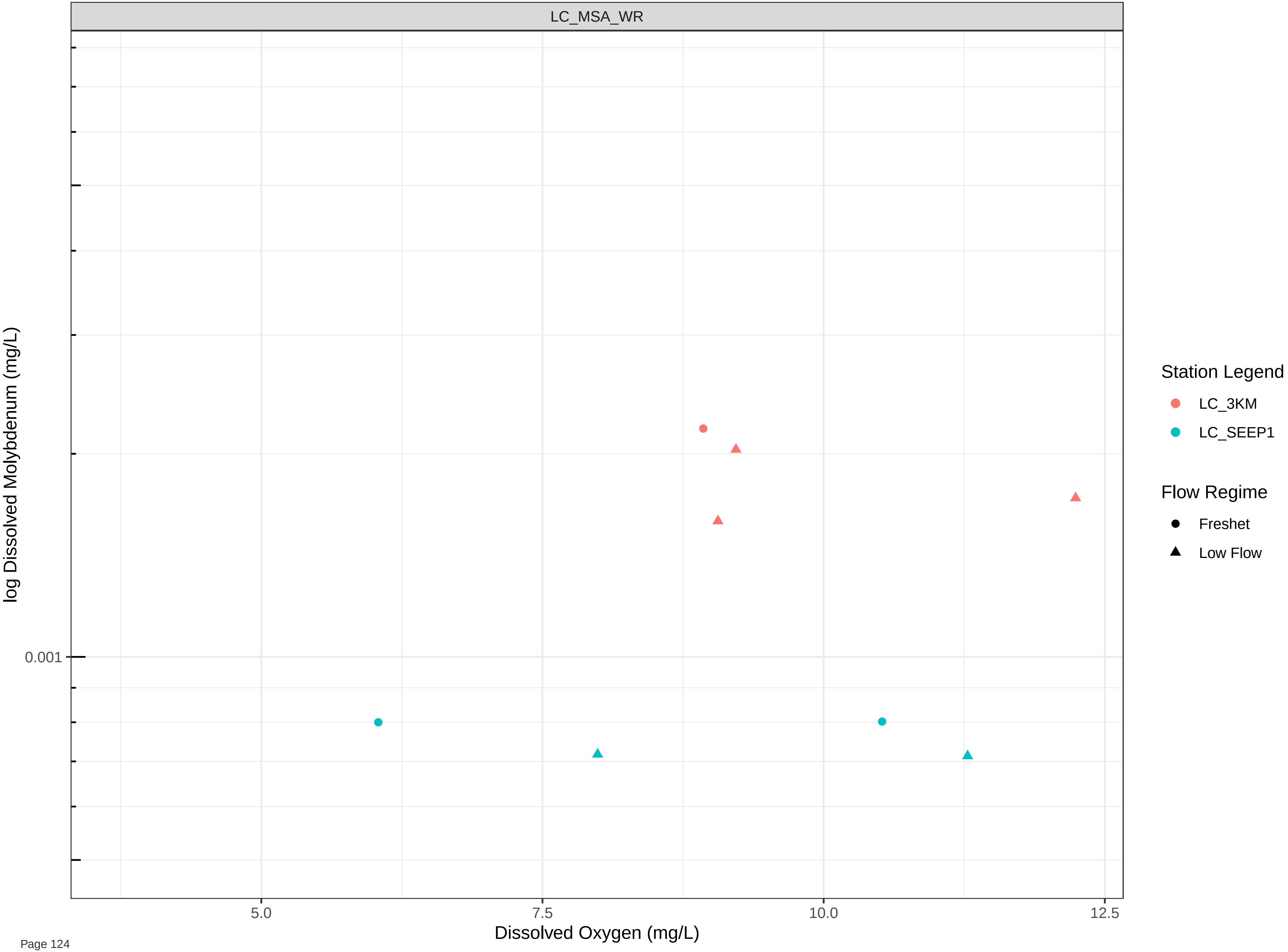
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow


LC_MSA_WR
log Dissolved Molybdenum (mg/L)
0.001
Dissolved Oxygen (mg/L)
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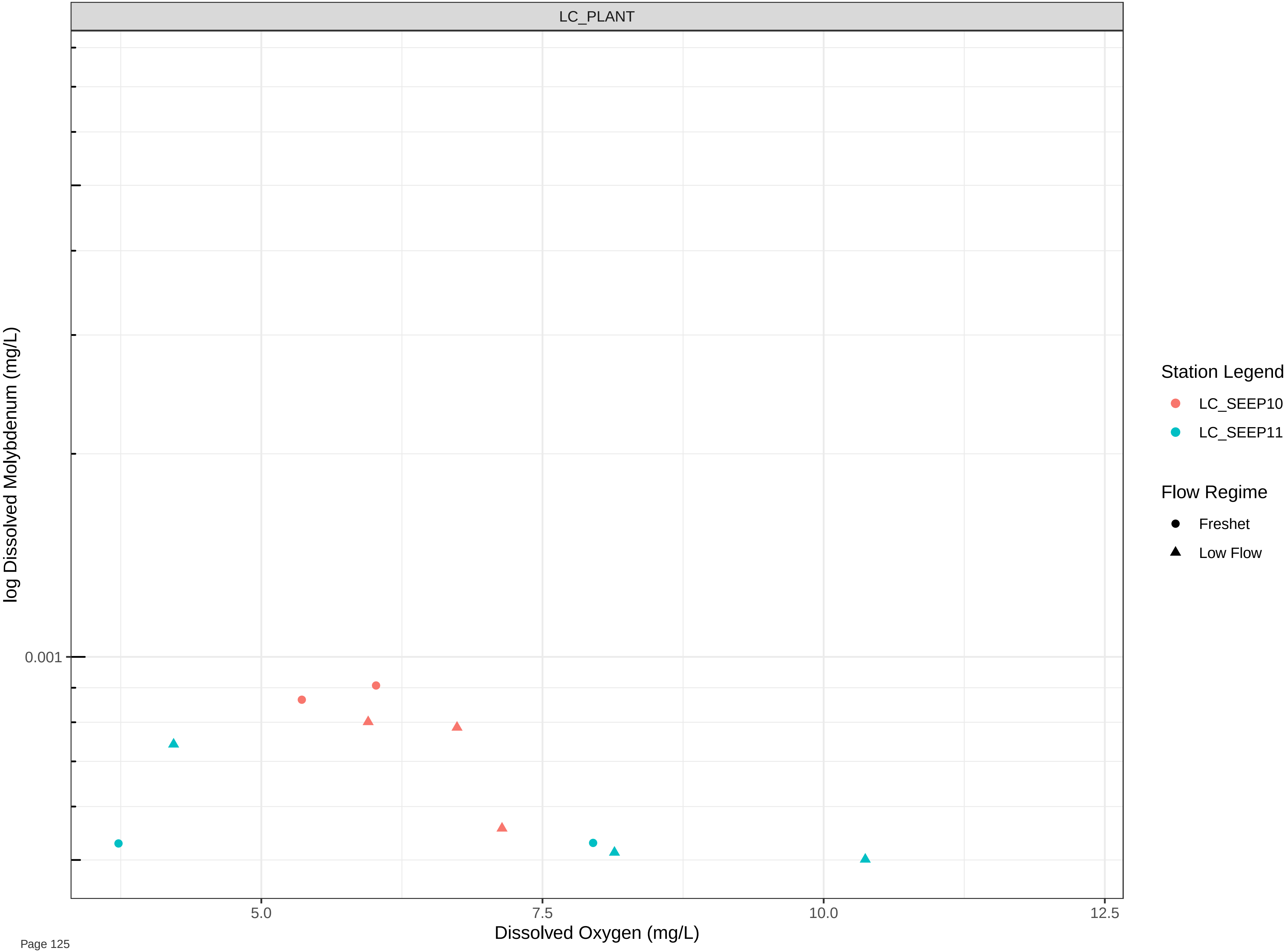
7.5
10.0
12.5
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow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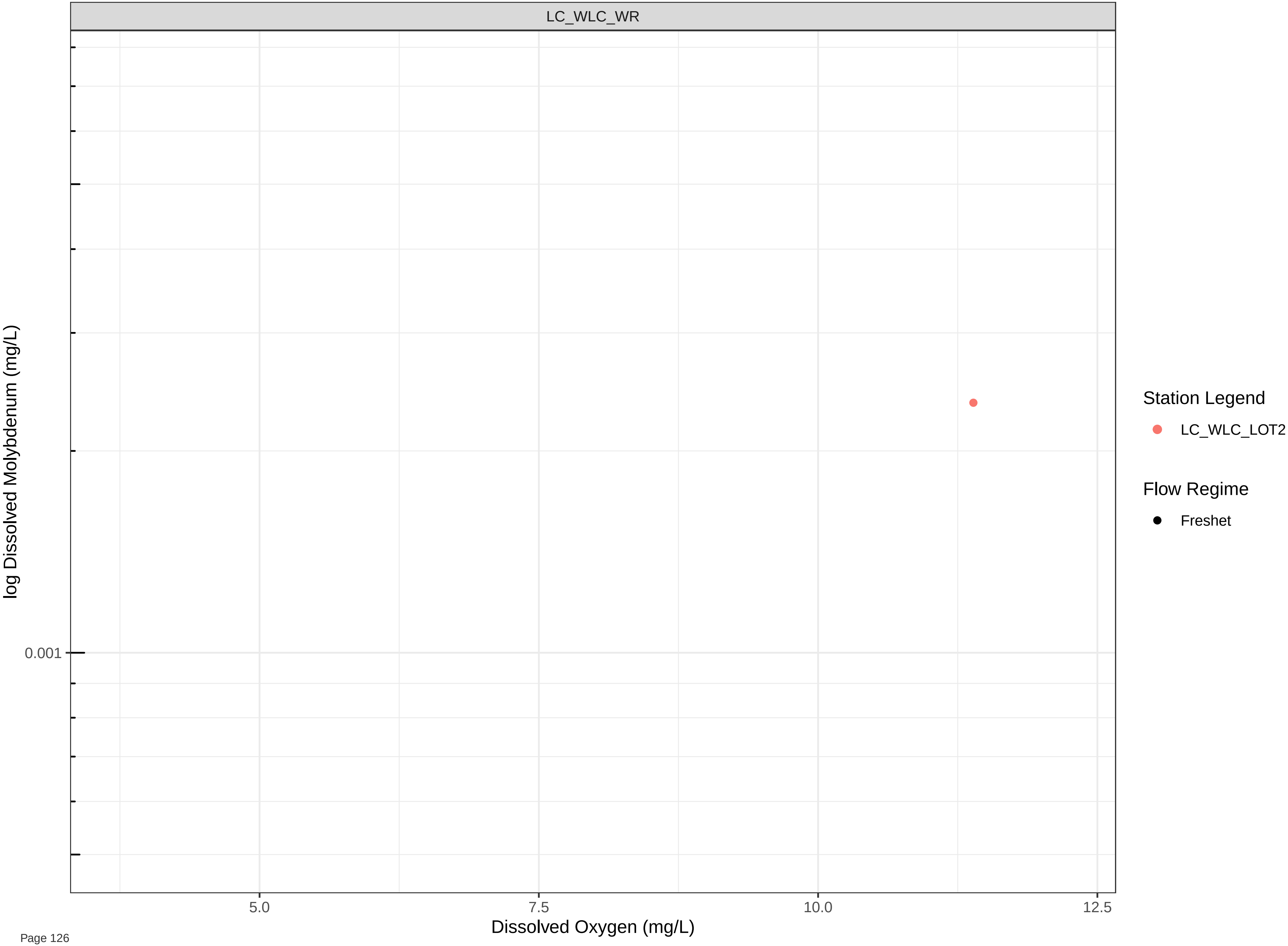
log Dissolved Molybdenum (mg/L)
0.001
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow


LC_WLC_WR
log Dissolved Molybdenum (mg/L)
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5.0
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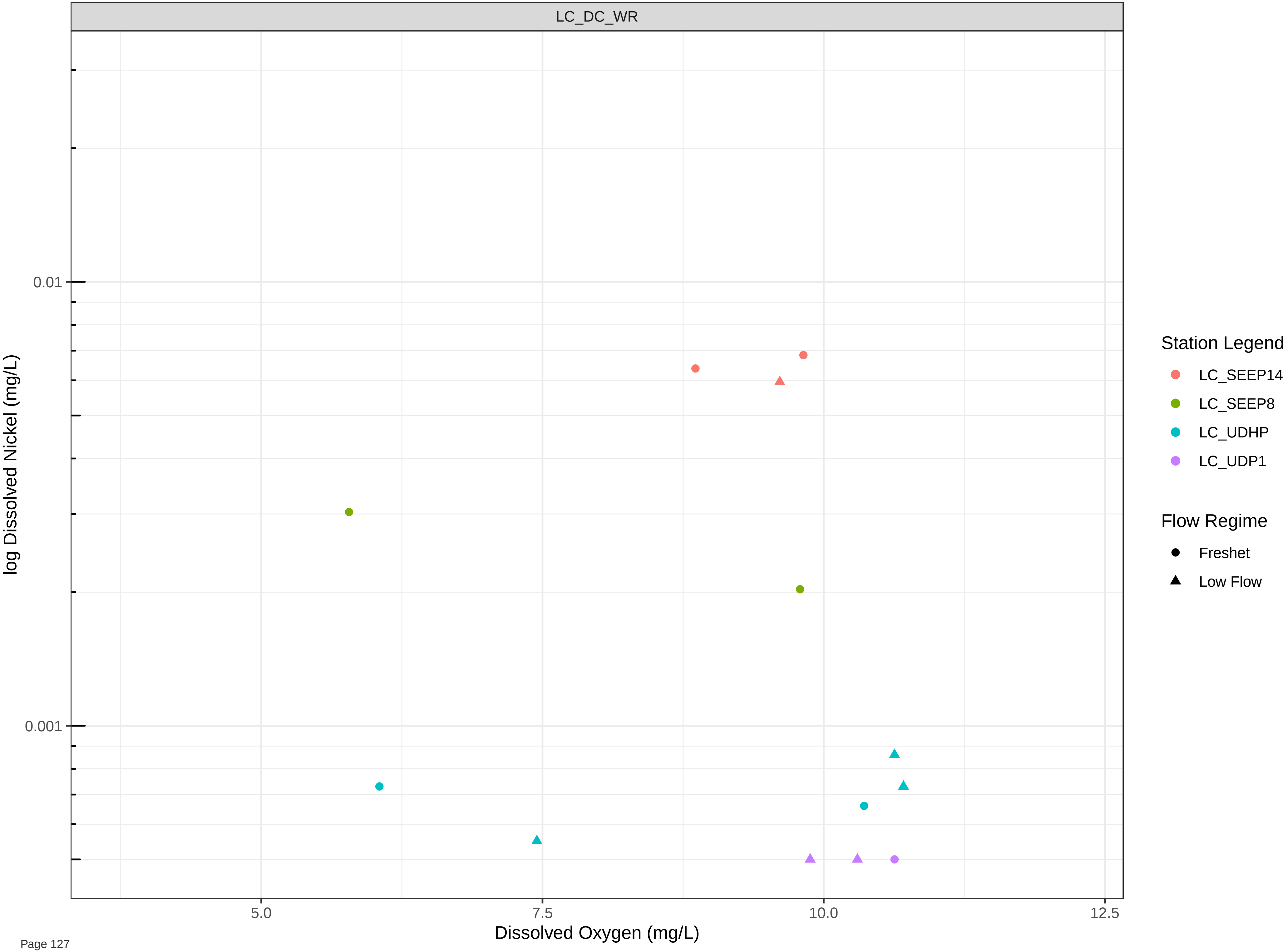
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet


LC_DC_WR
log Dissolved Nickel (mg/L)
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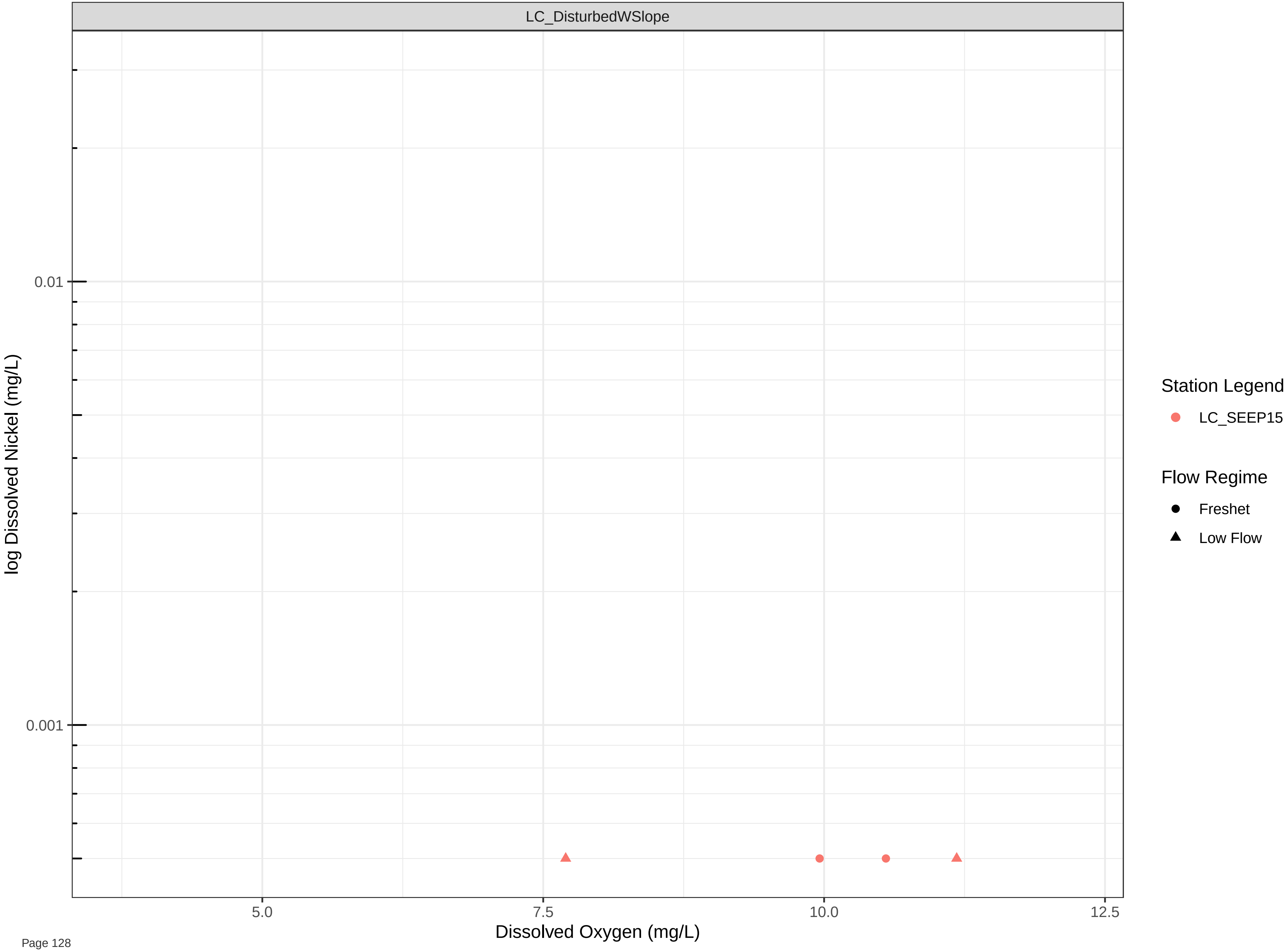
0.001
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP14
● LC_SEEP8
● LC_UDHP
● LC_UDP1
Flow Regime
● Freshet
▲ Low Flow


LC_DisturbedWSlope
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0.001
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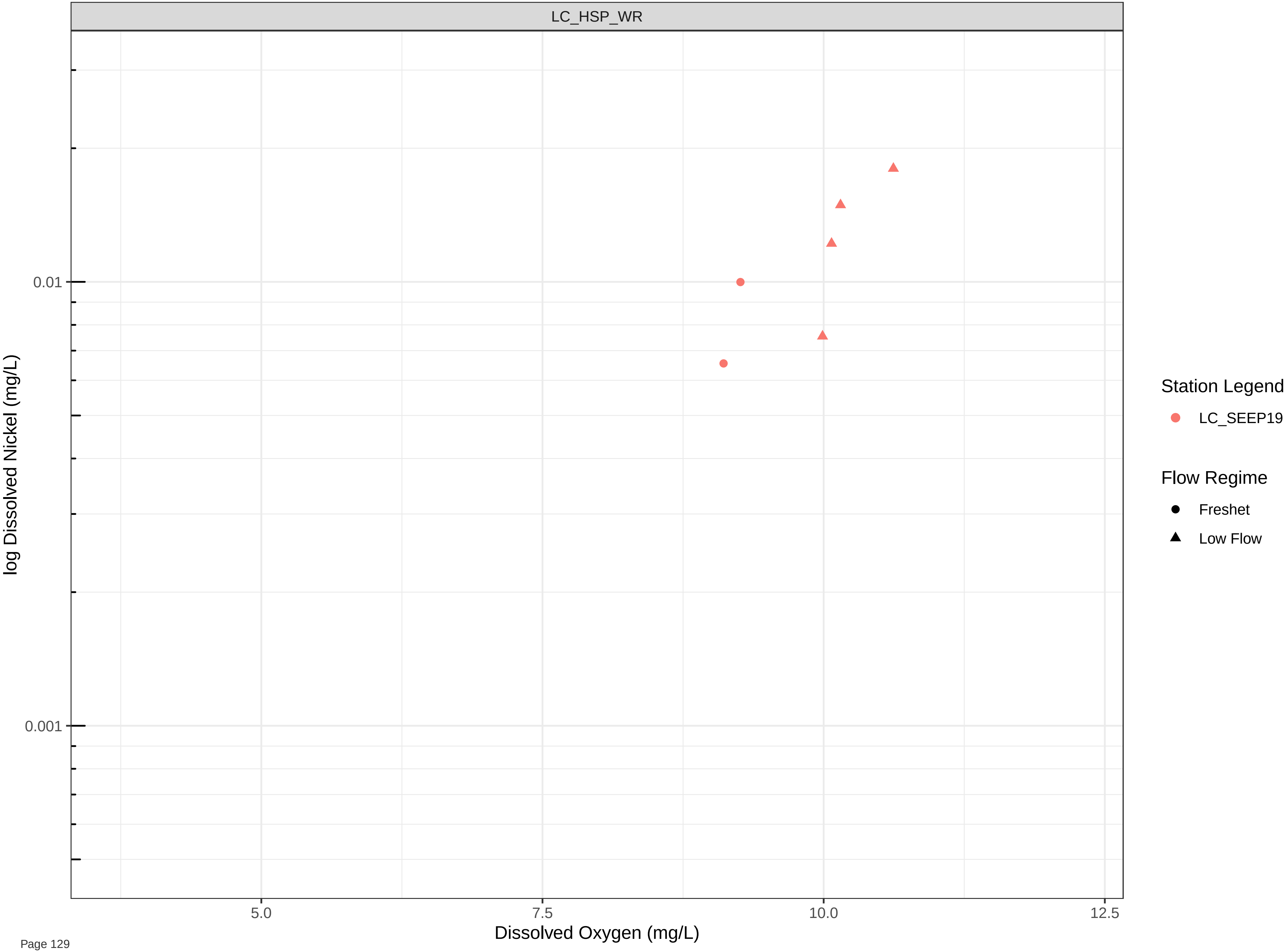
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow


LC_HSP_WR
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0.001
Dissolved Oxygen (mg/L)
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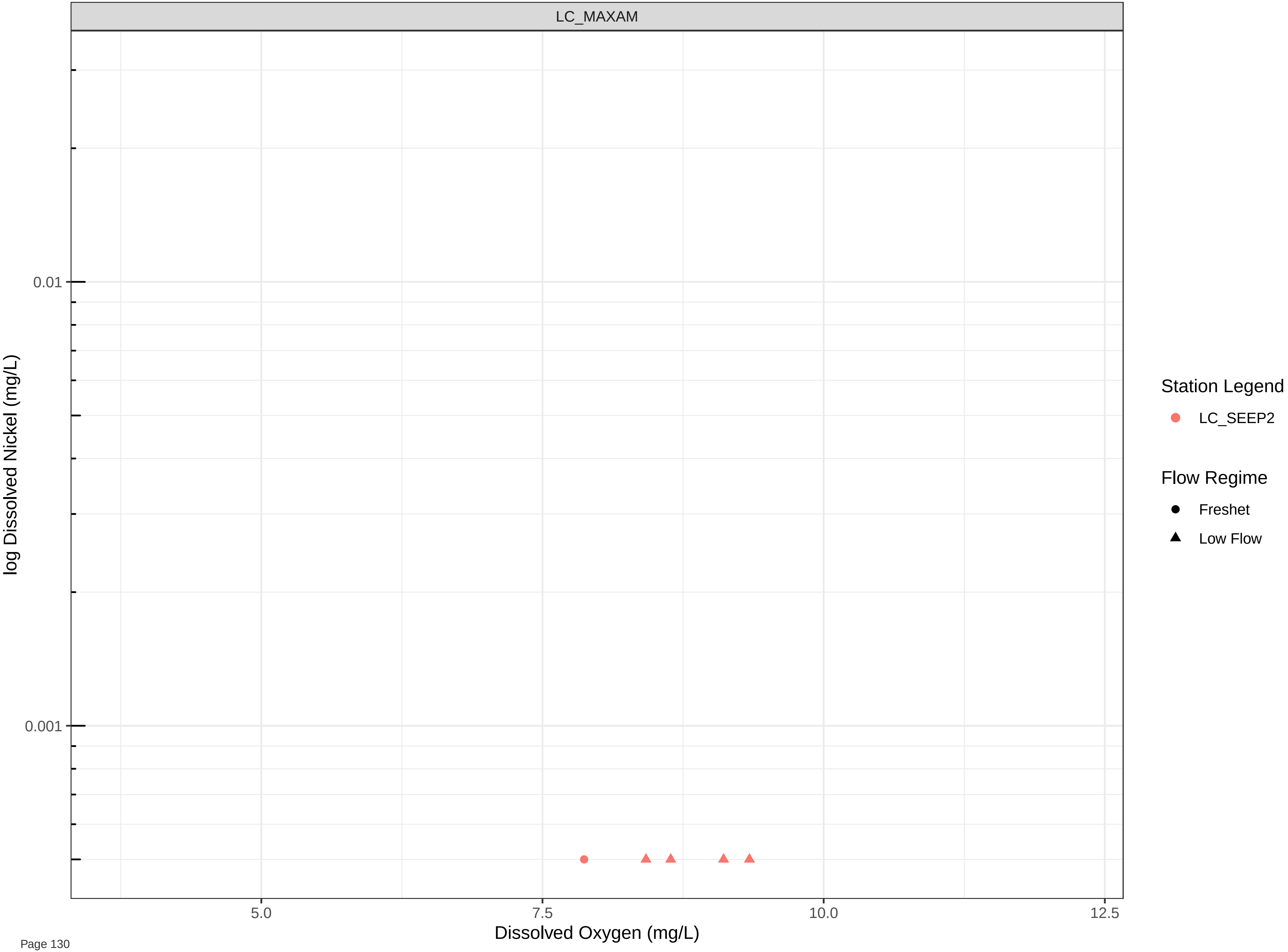
7.5
10.0
12.5
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow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0.001
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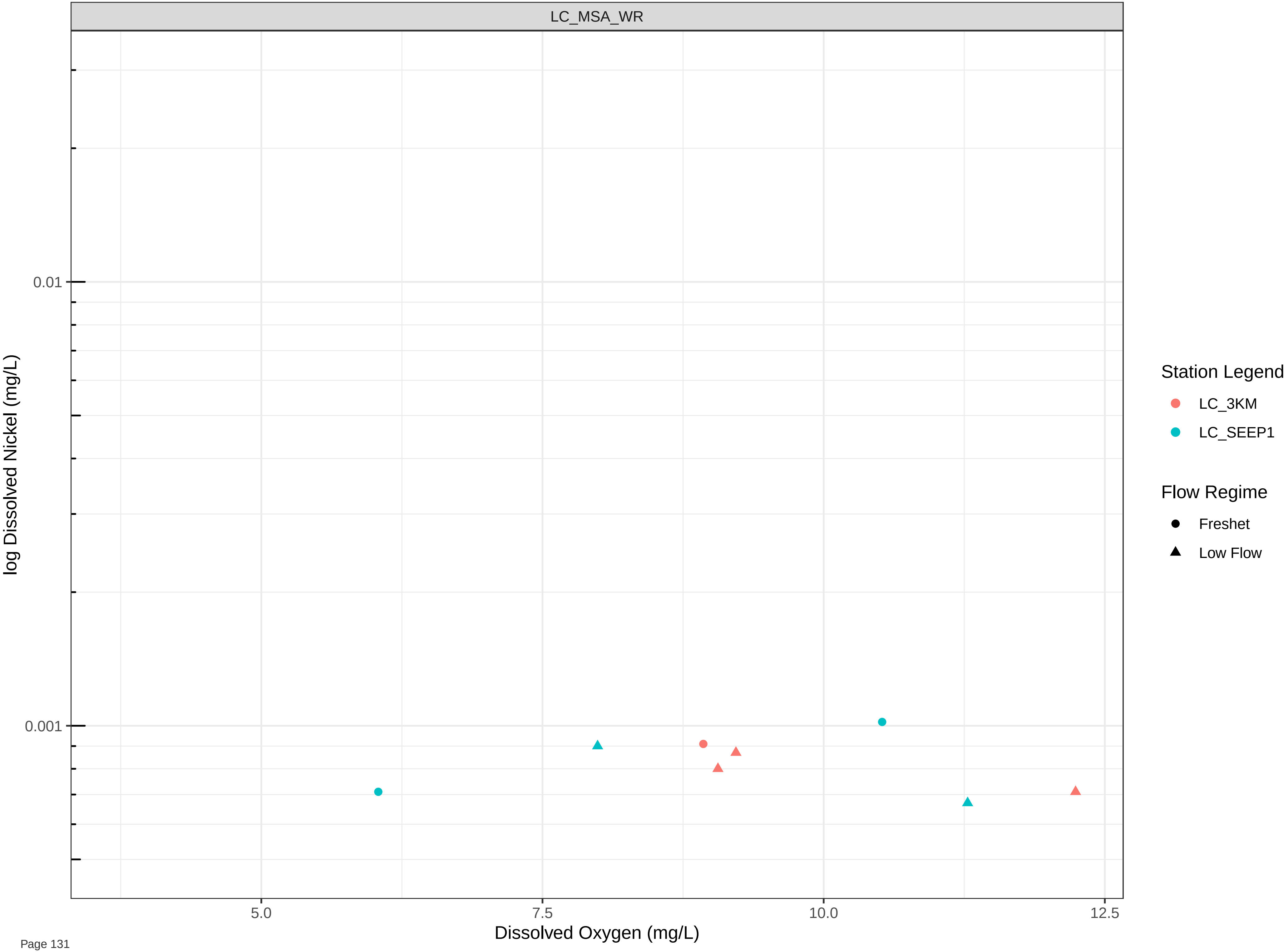
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow


LC_MSA_WR
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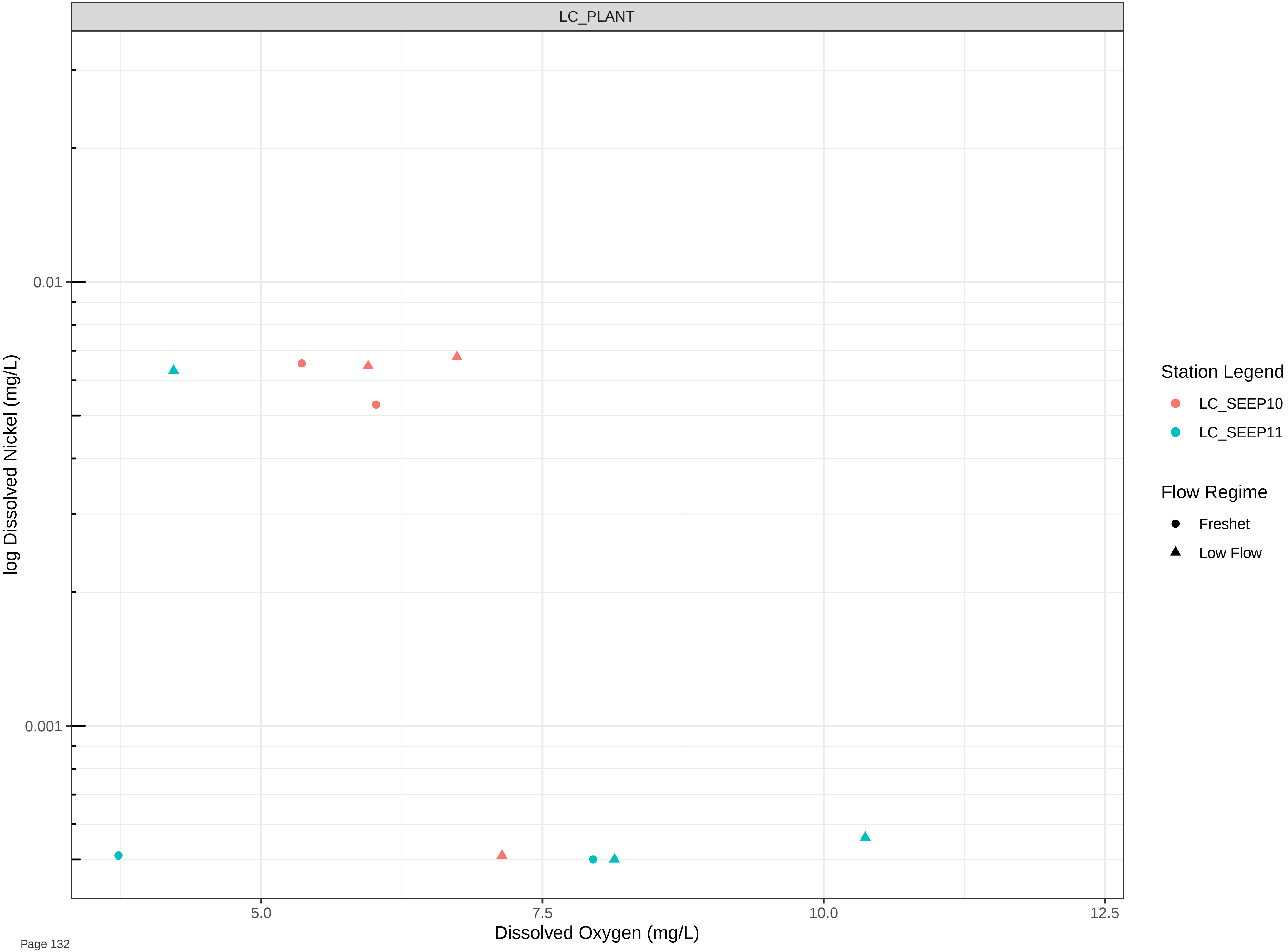
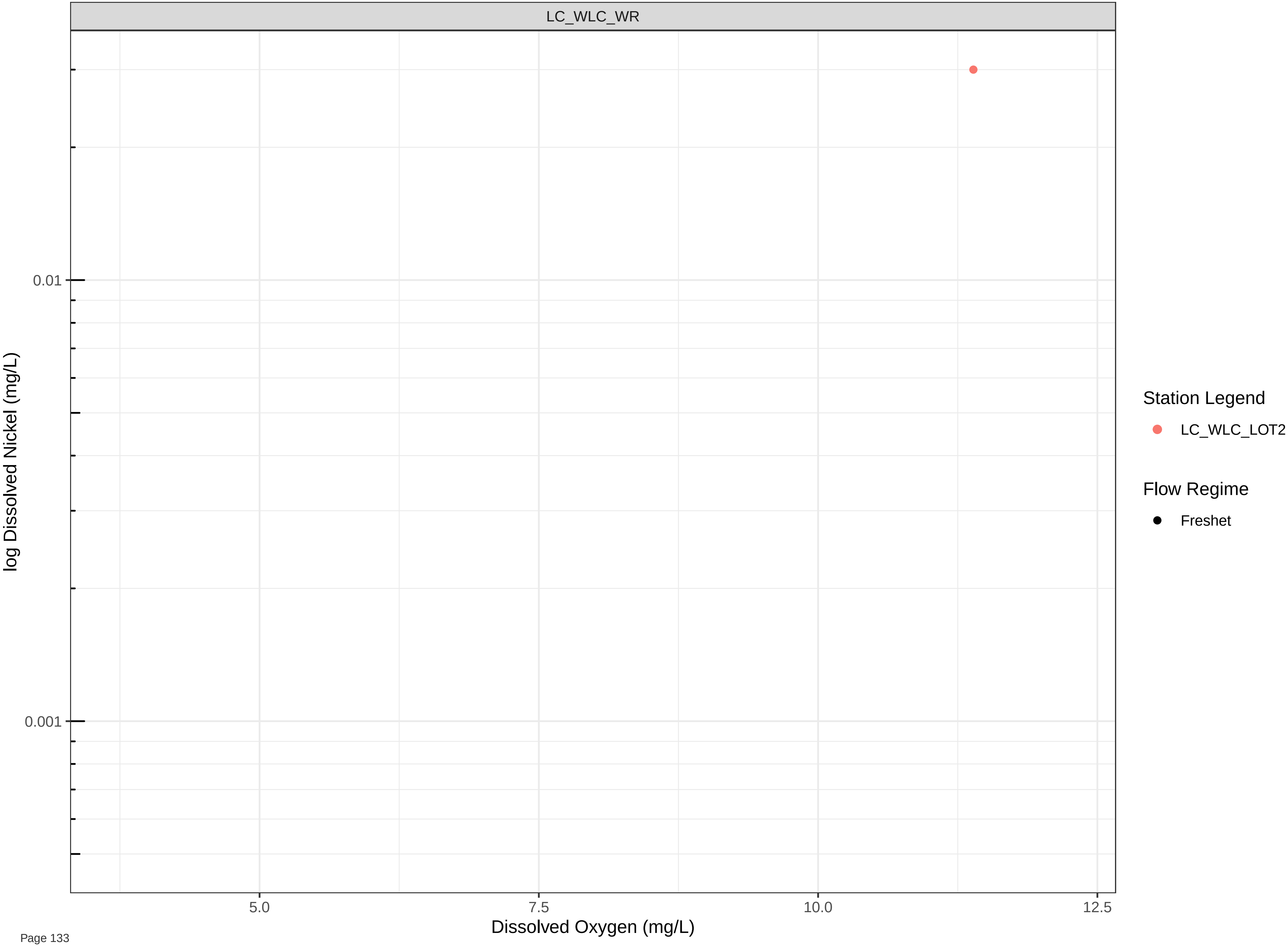
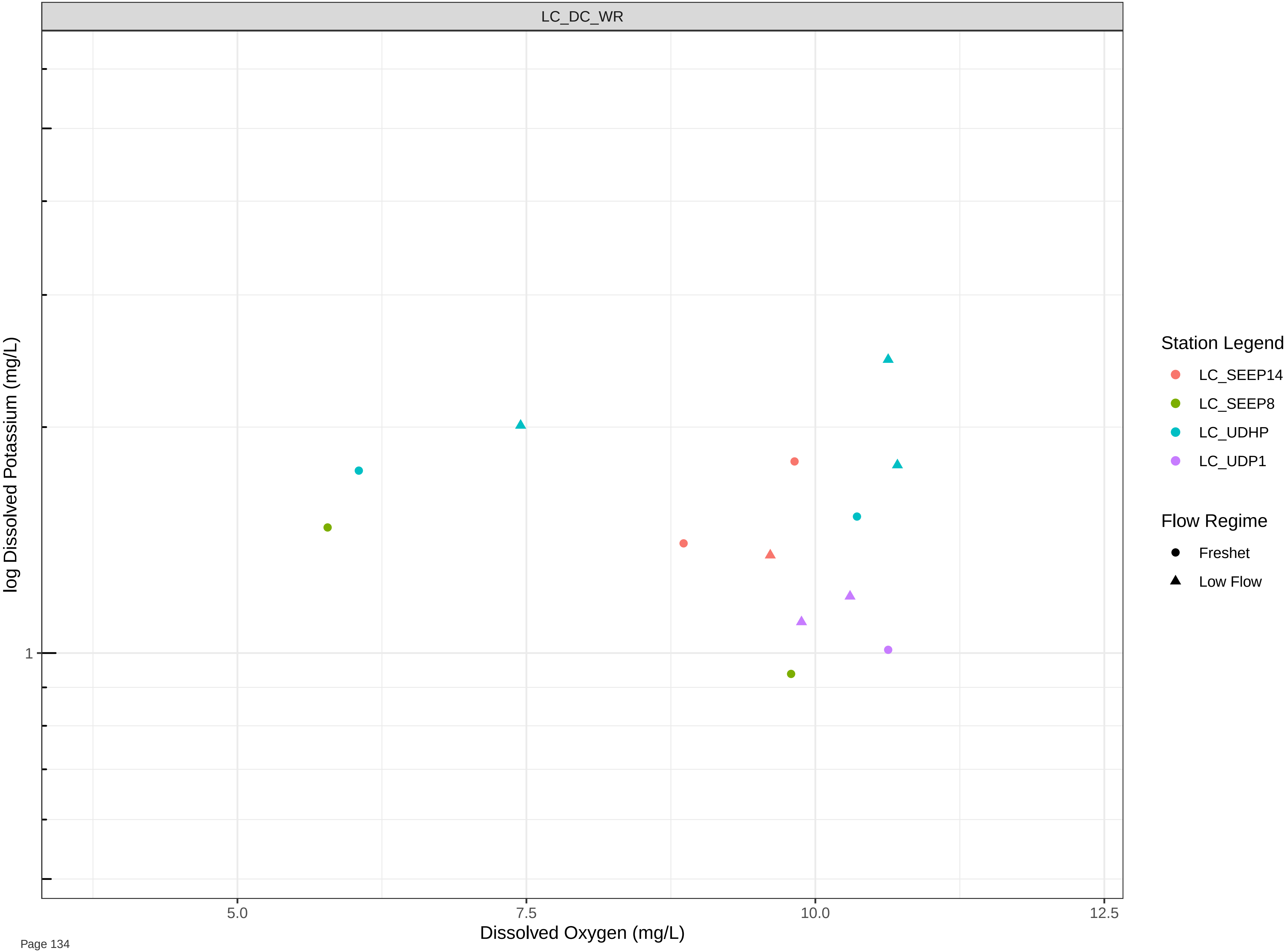
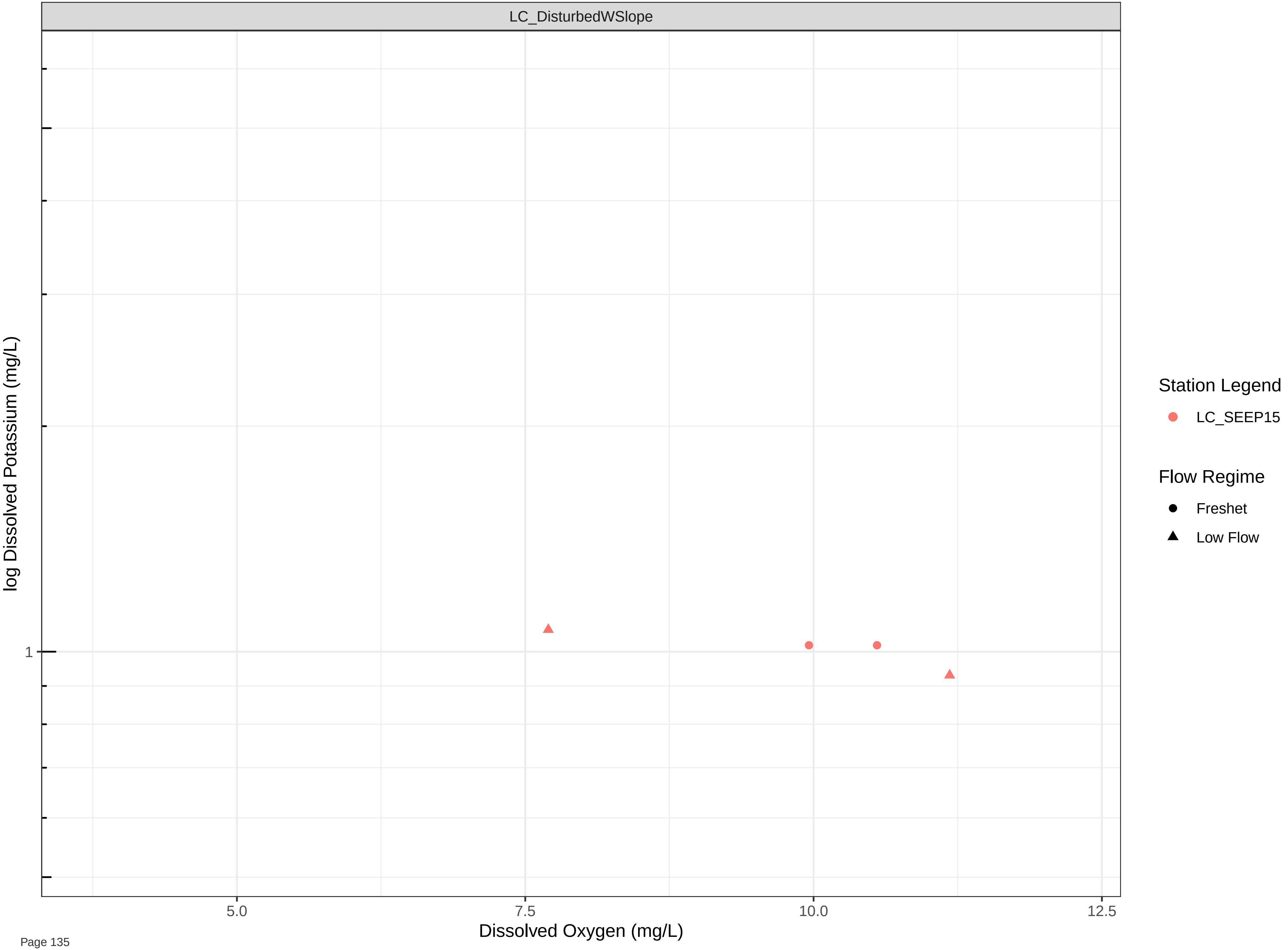
0.01
0.001
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow


LC_PLANT
0.01
0.001
log Dissolved Nickel (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow


LC_WLC_WR
log Dissolved Nickel (mg/L)
0.01
0.001
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet


LC_DC_WR
log Dissolved Potassium (mg/L)
1
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
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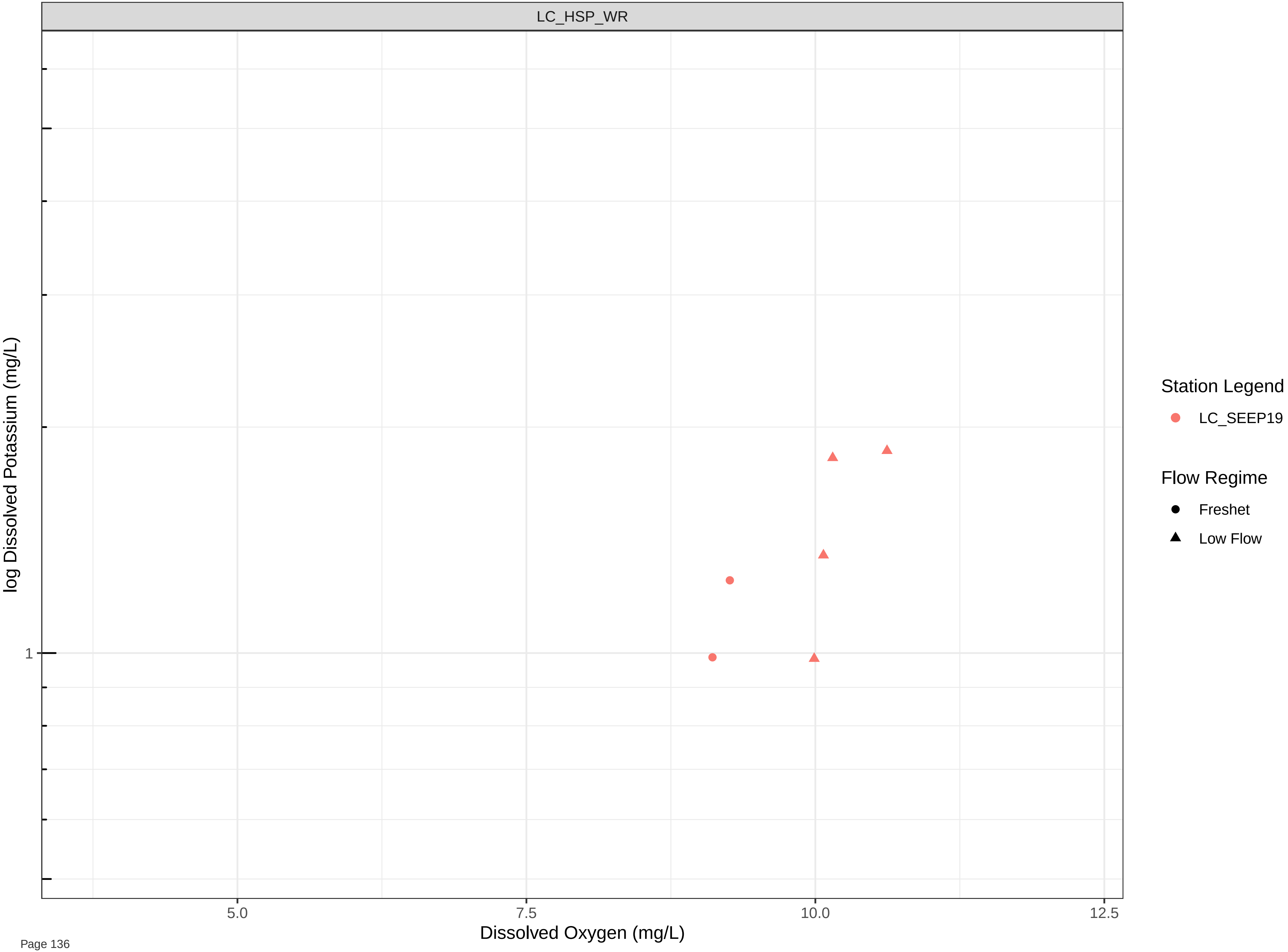
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow


LC_HSP_WR
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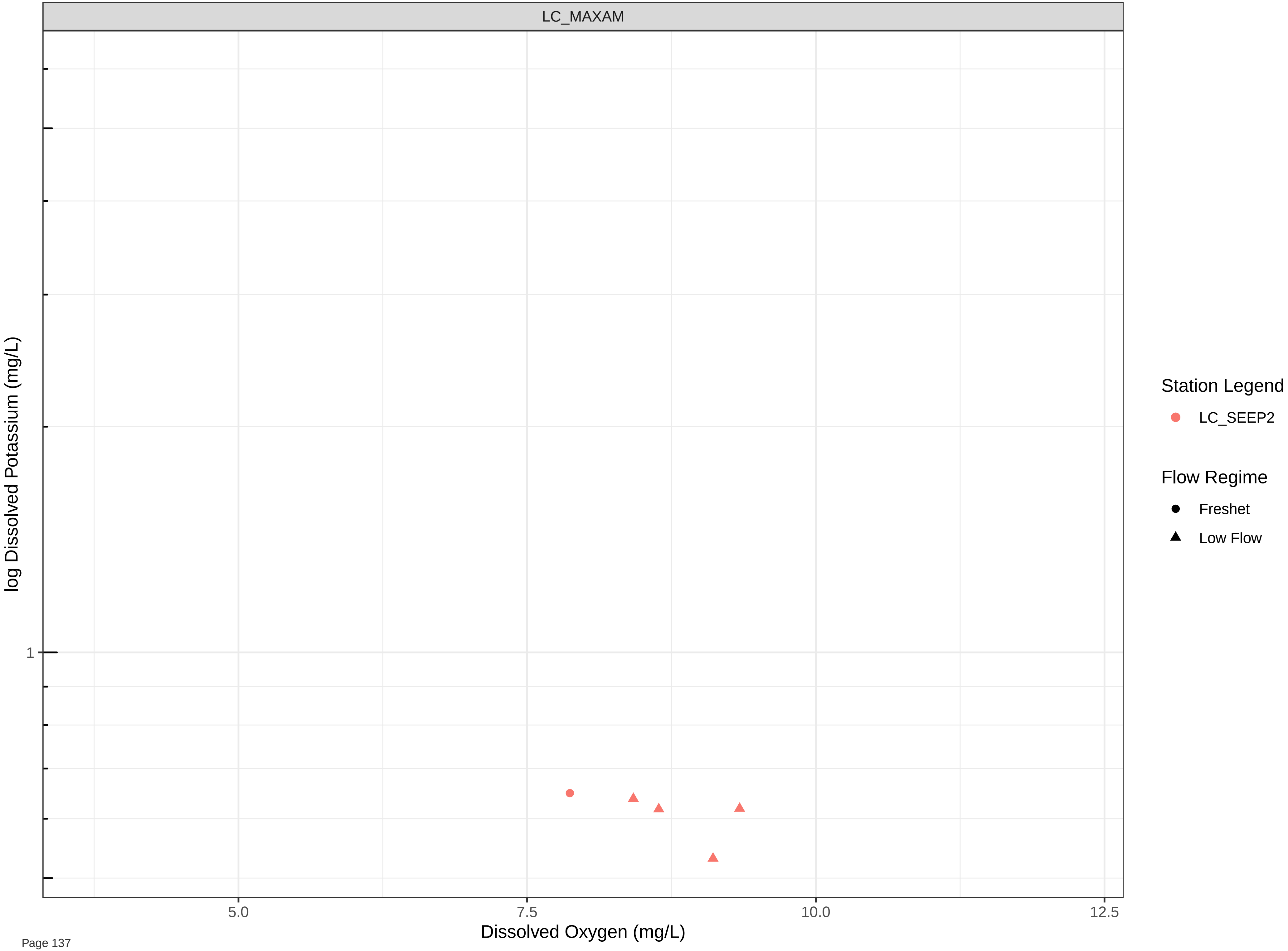
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow


LC_MAXAM
log Dissolved Potassium (mg/L)
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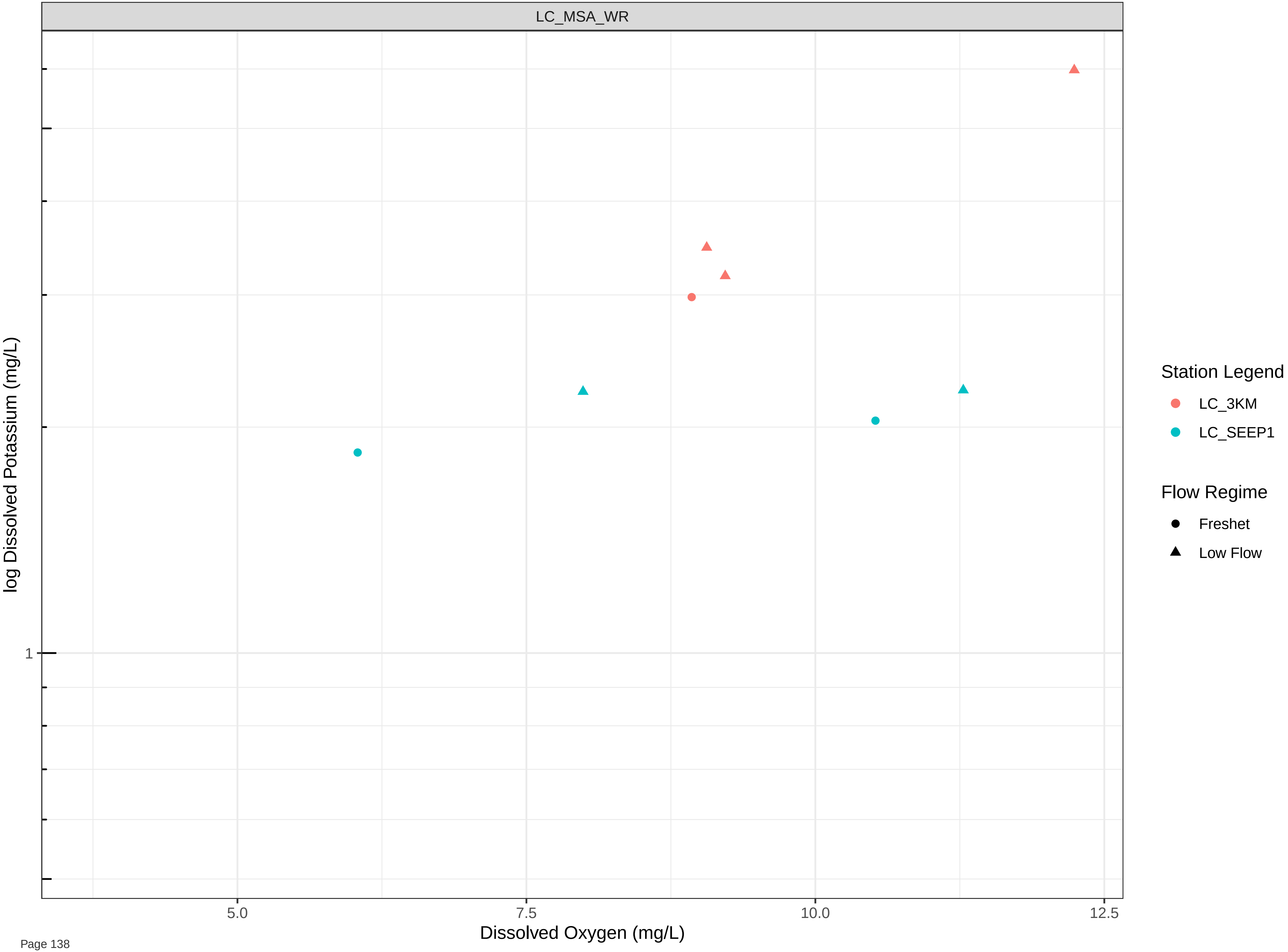
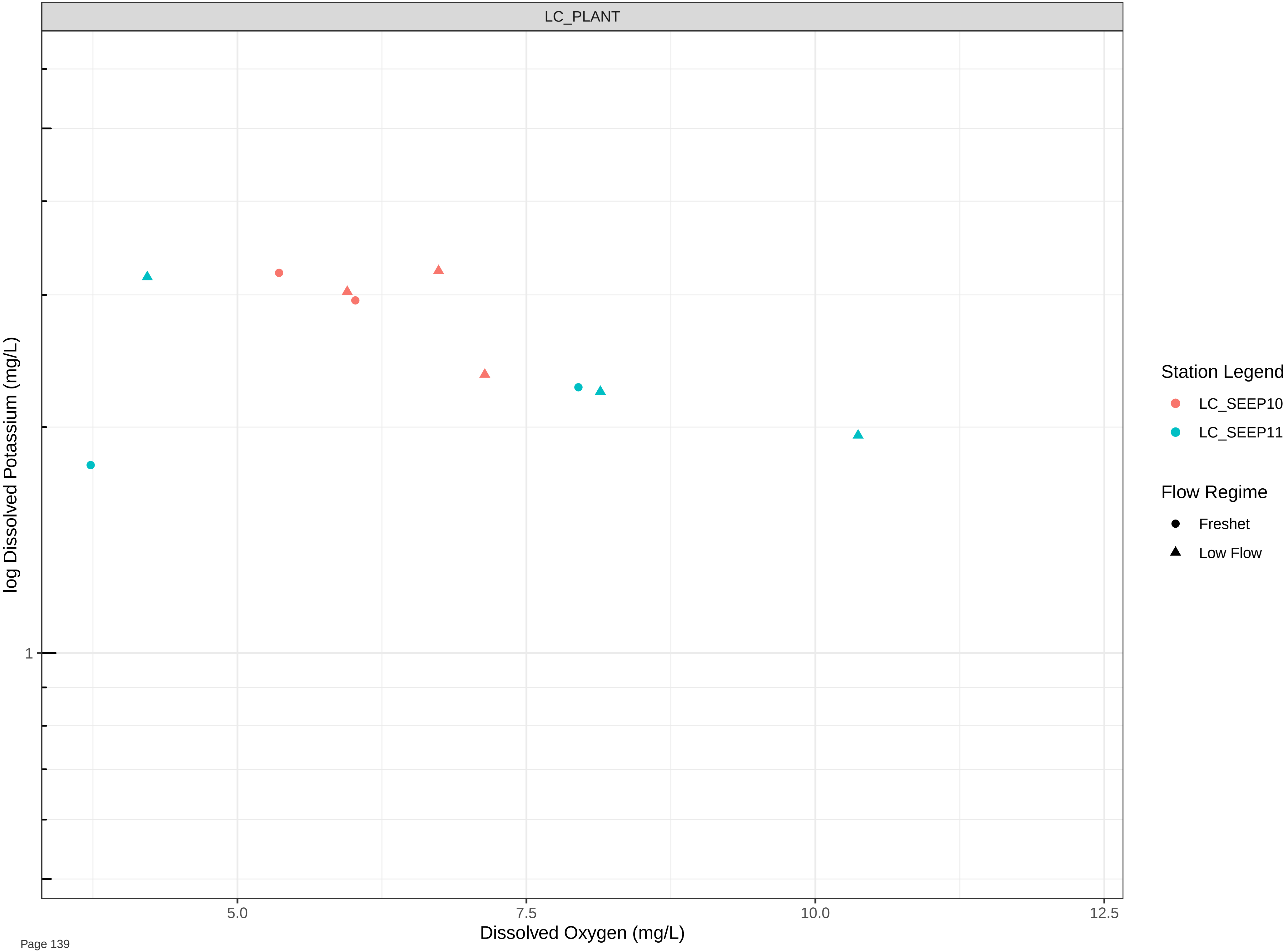
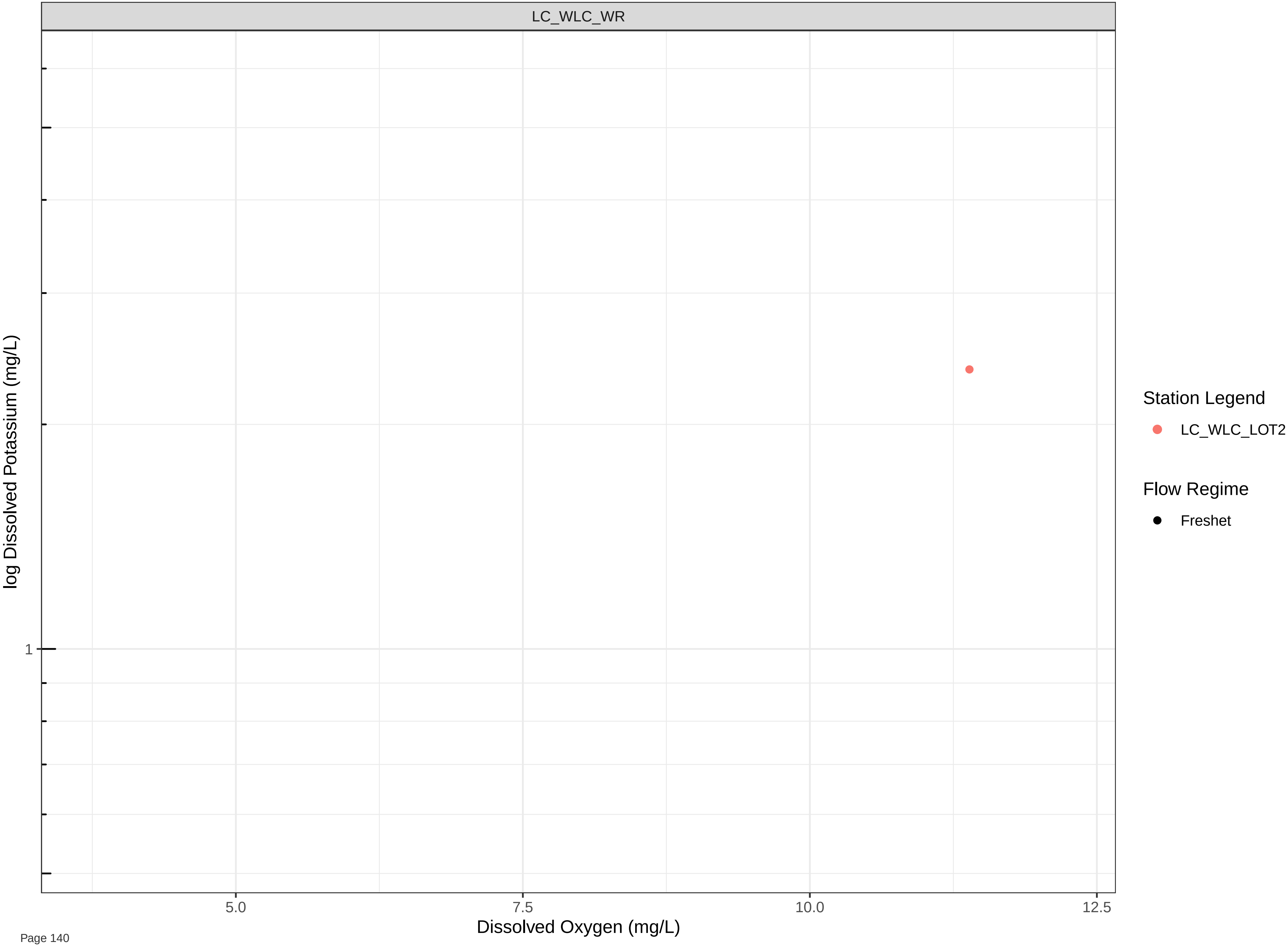
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow


LC_MSA_WR
log Dissolved Potassium (mg/L)
1
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow


LC_PLANT
log Dissolved Potassium (mg/L)
1
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow


LC_WLC_WR
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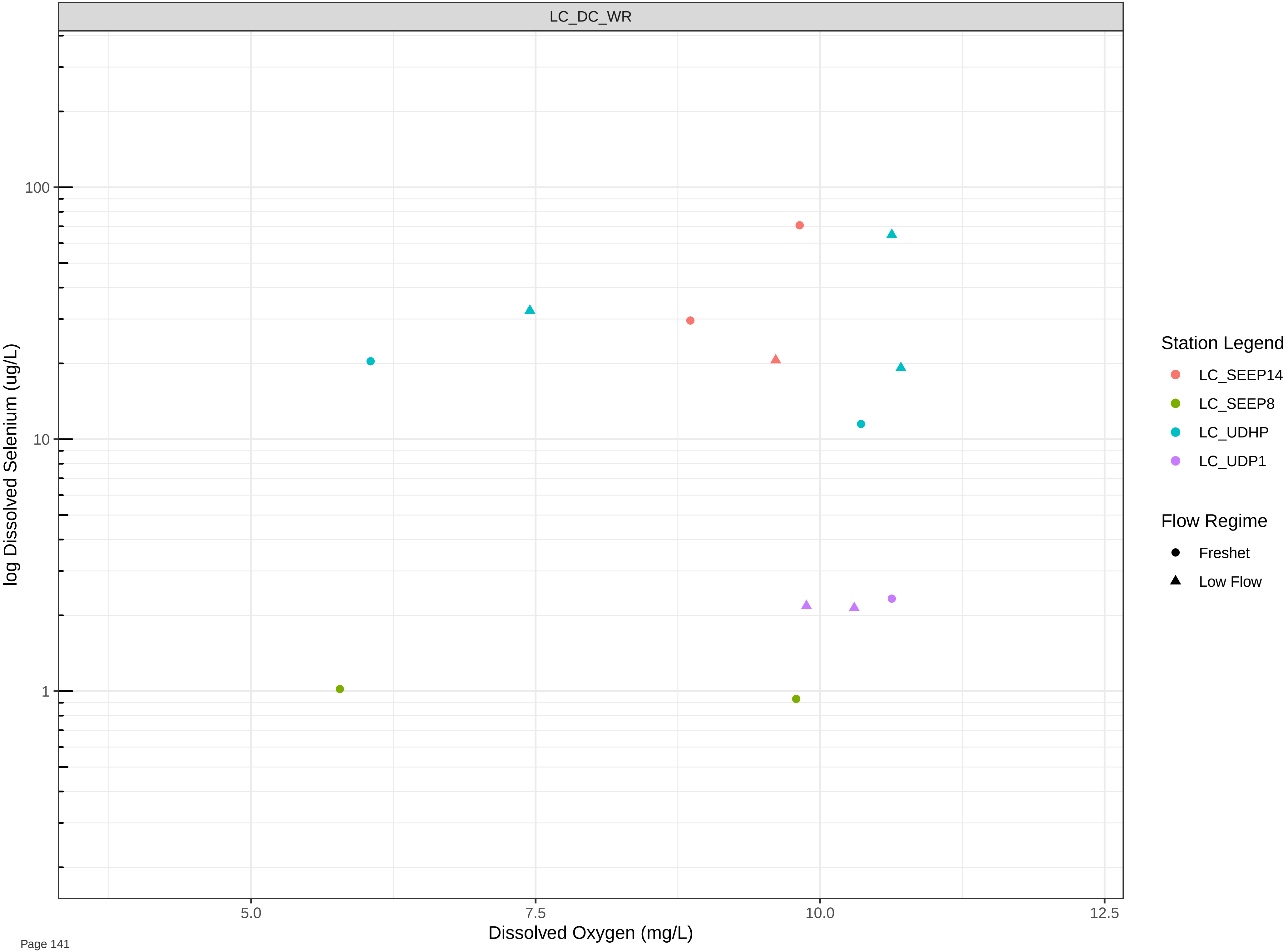
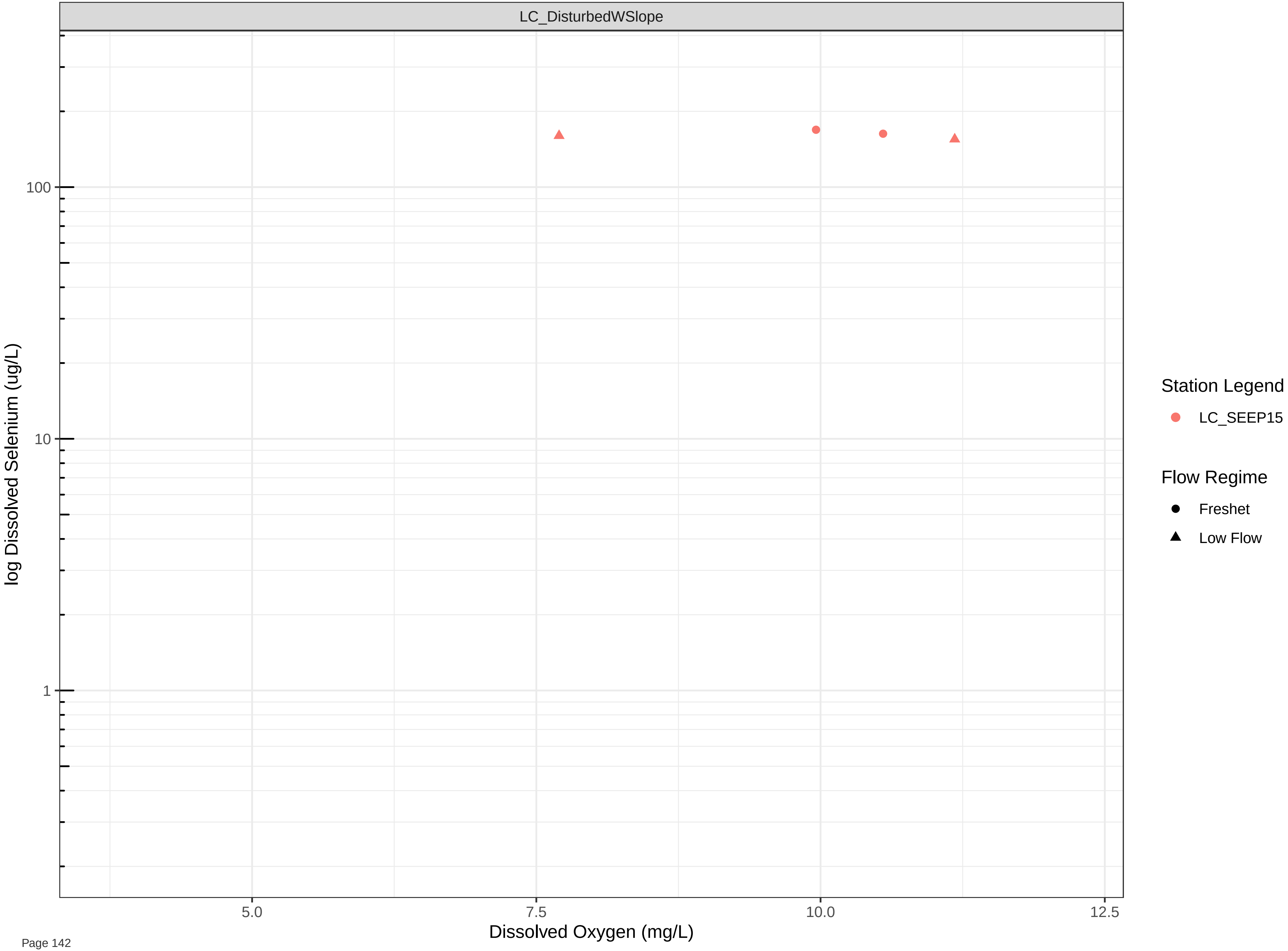
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet


LC_DC_WR
log Dissolved Selenium (ug/L)
100
10
1
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
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10
1
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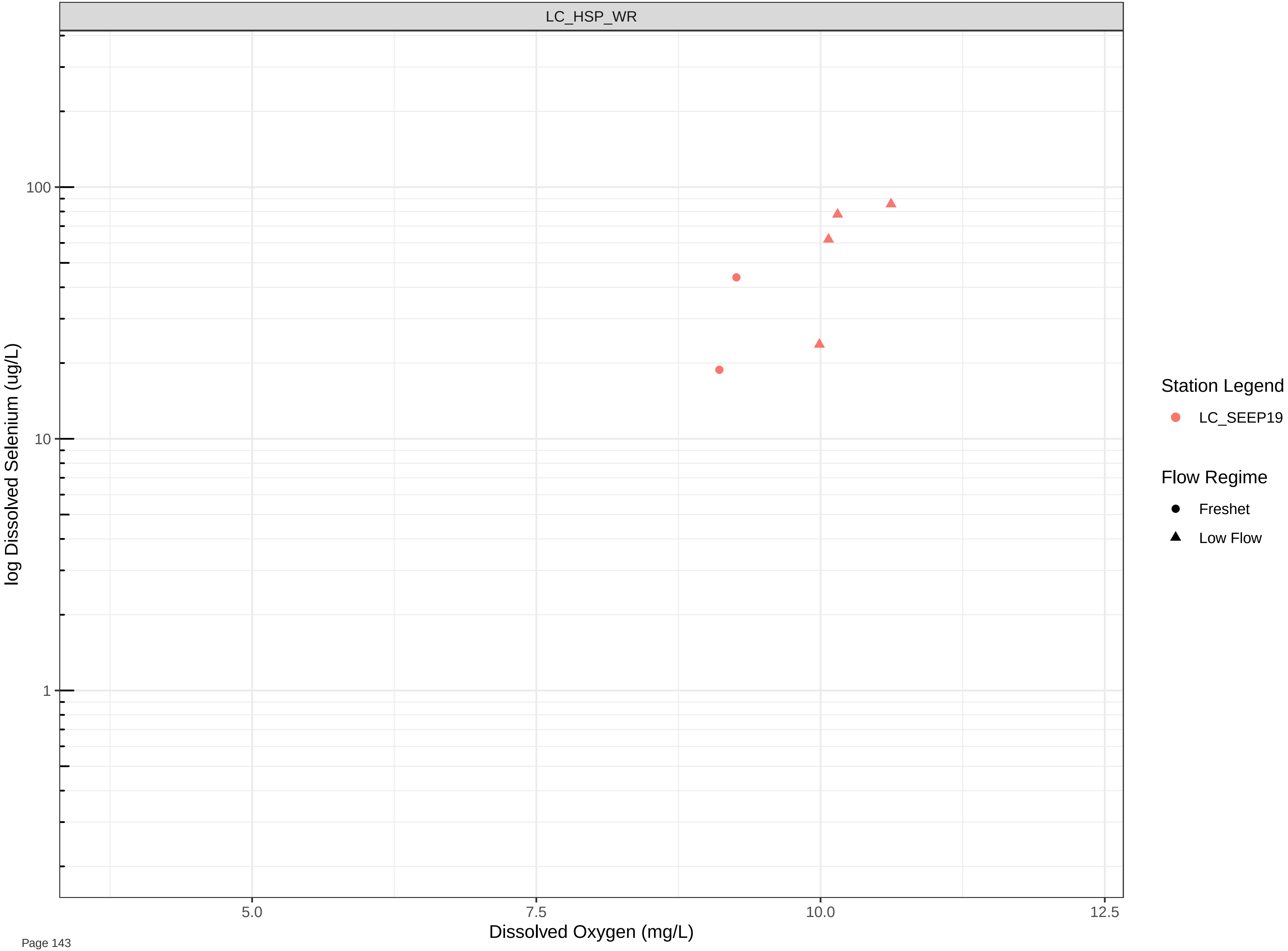
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow


LC_HSP_WR
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10
1
log Dissolved Selenium (ug/L)
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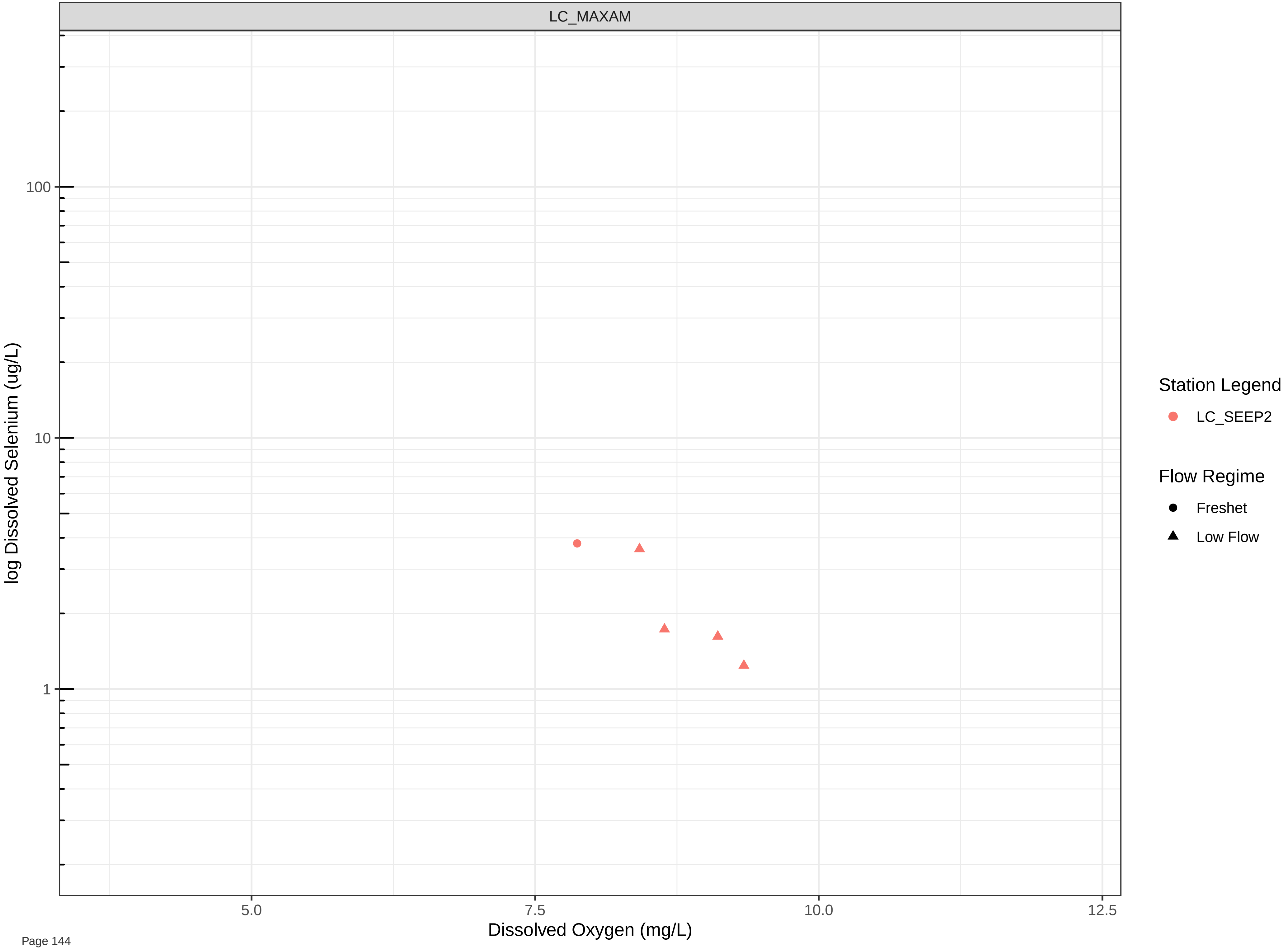
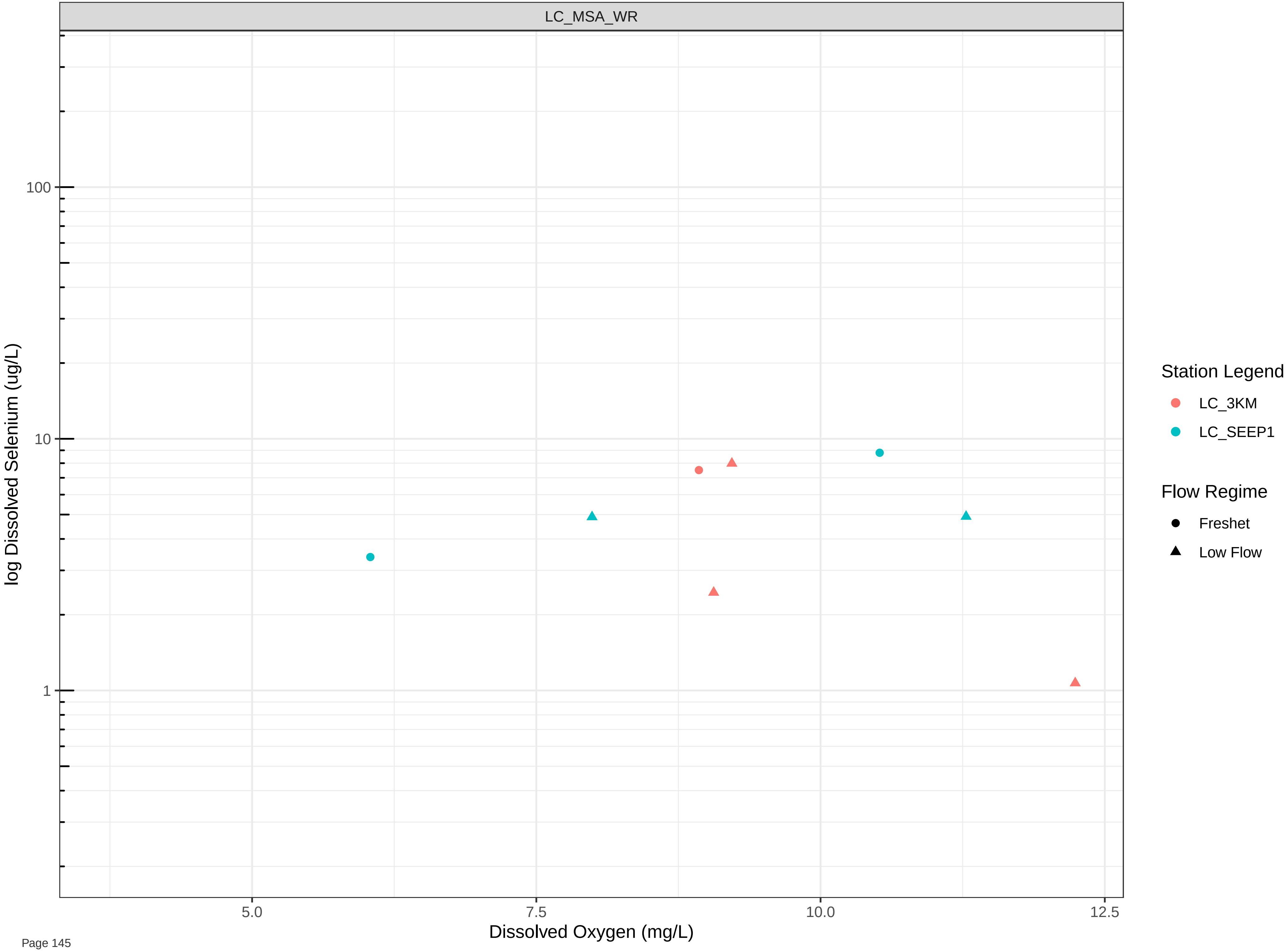
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow


LC_MAXAM
log Dissolved Selenium (ug/L)
100
10
1
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow


LC_MSA_WR
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10
1
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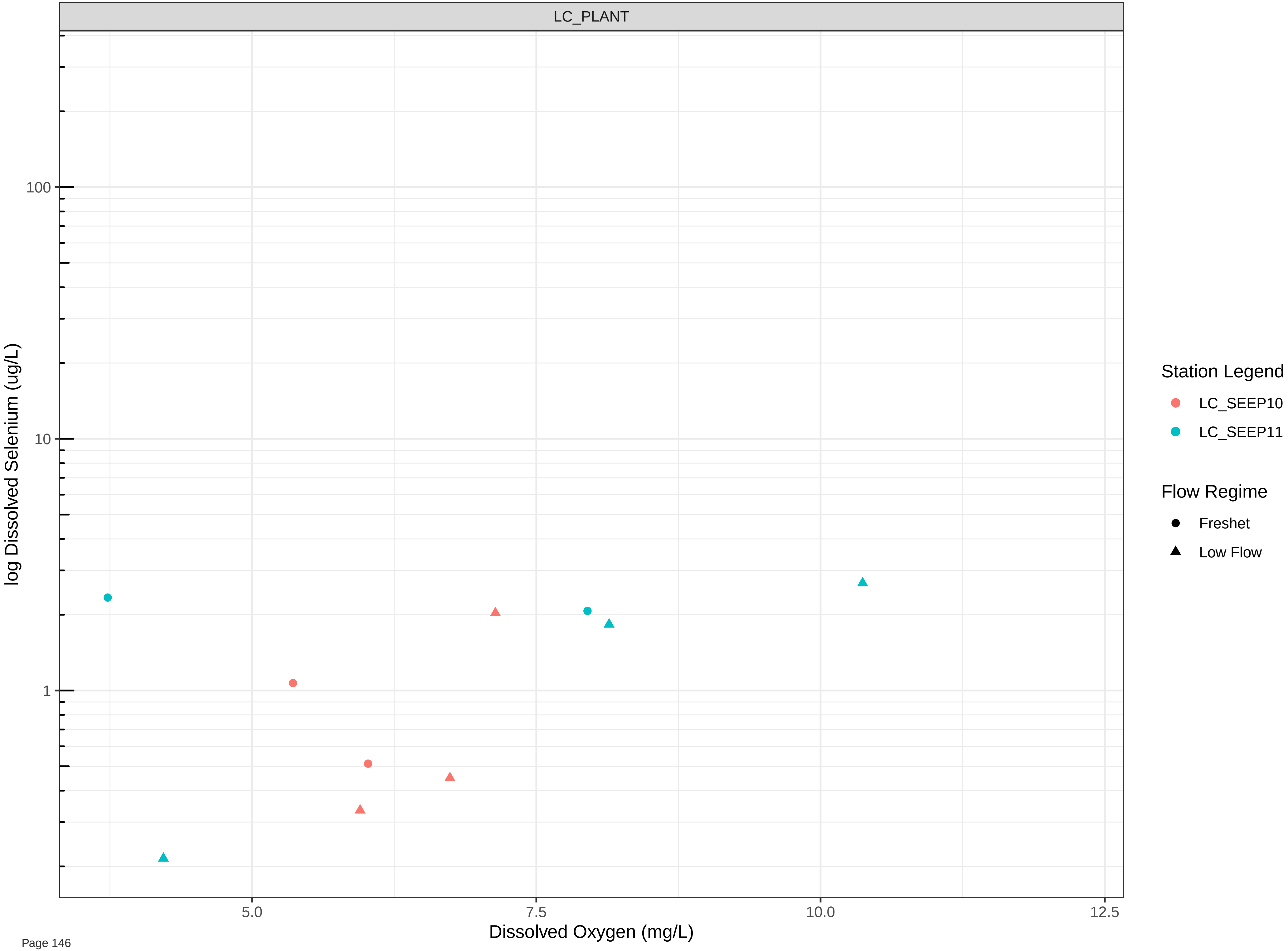
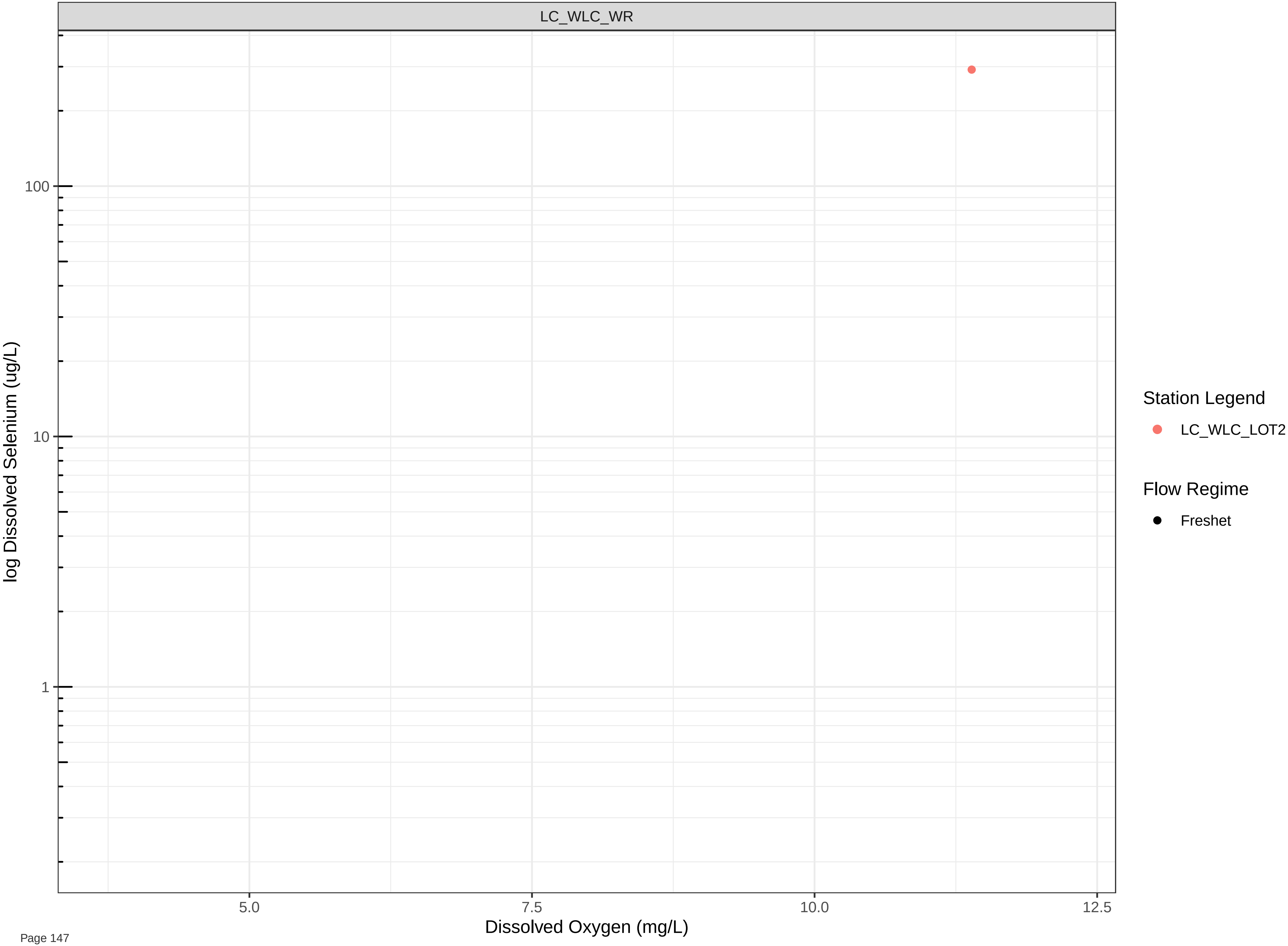
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow


LC_PLANT
log Dissolved Selenium (ug/L)
100
10
1
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow


LC_WLC_WR
log Dissolved Selenium (ug/L)
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10
1
Dissolved Oxygen (mg/L)
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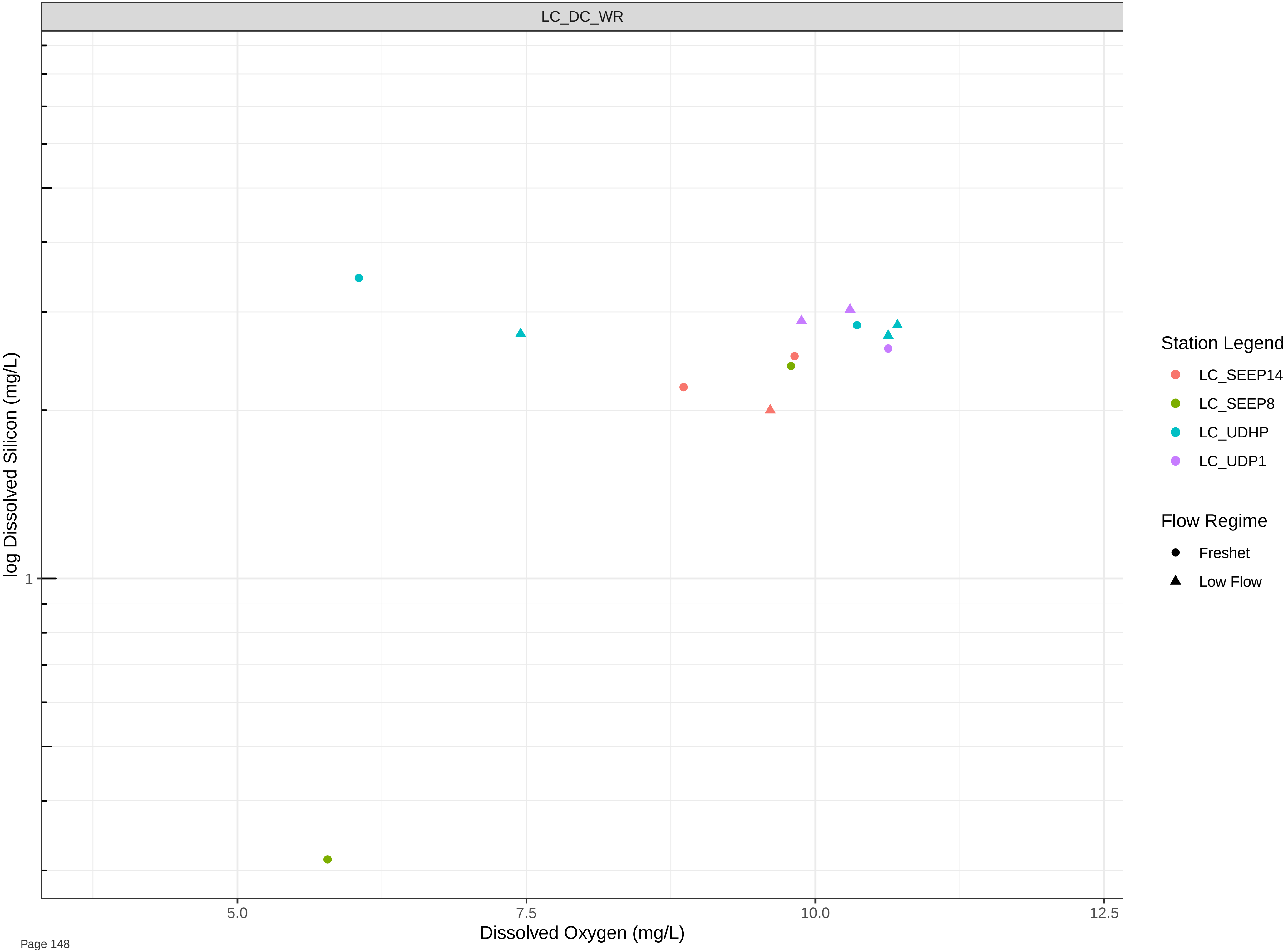
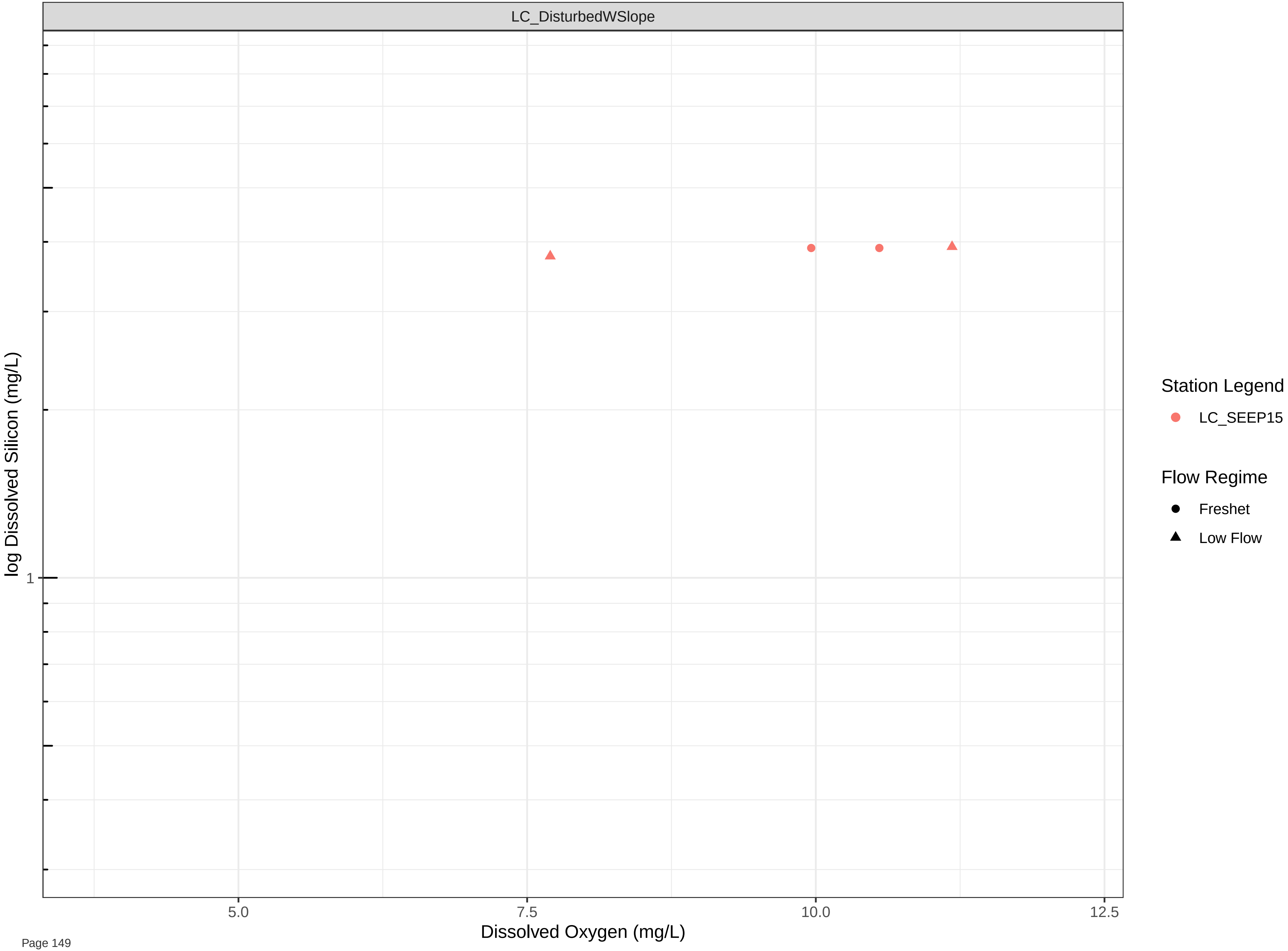
7.5
10.0
12.5
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet


LC_DC_WR
log Dissolved Silicon (mg/L)
1
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
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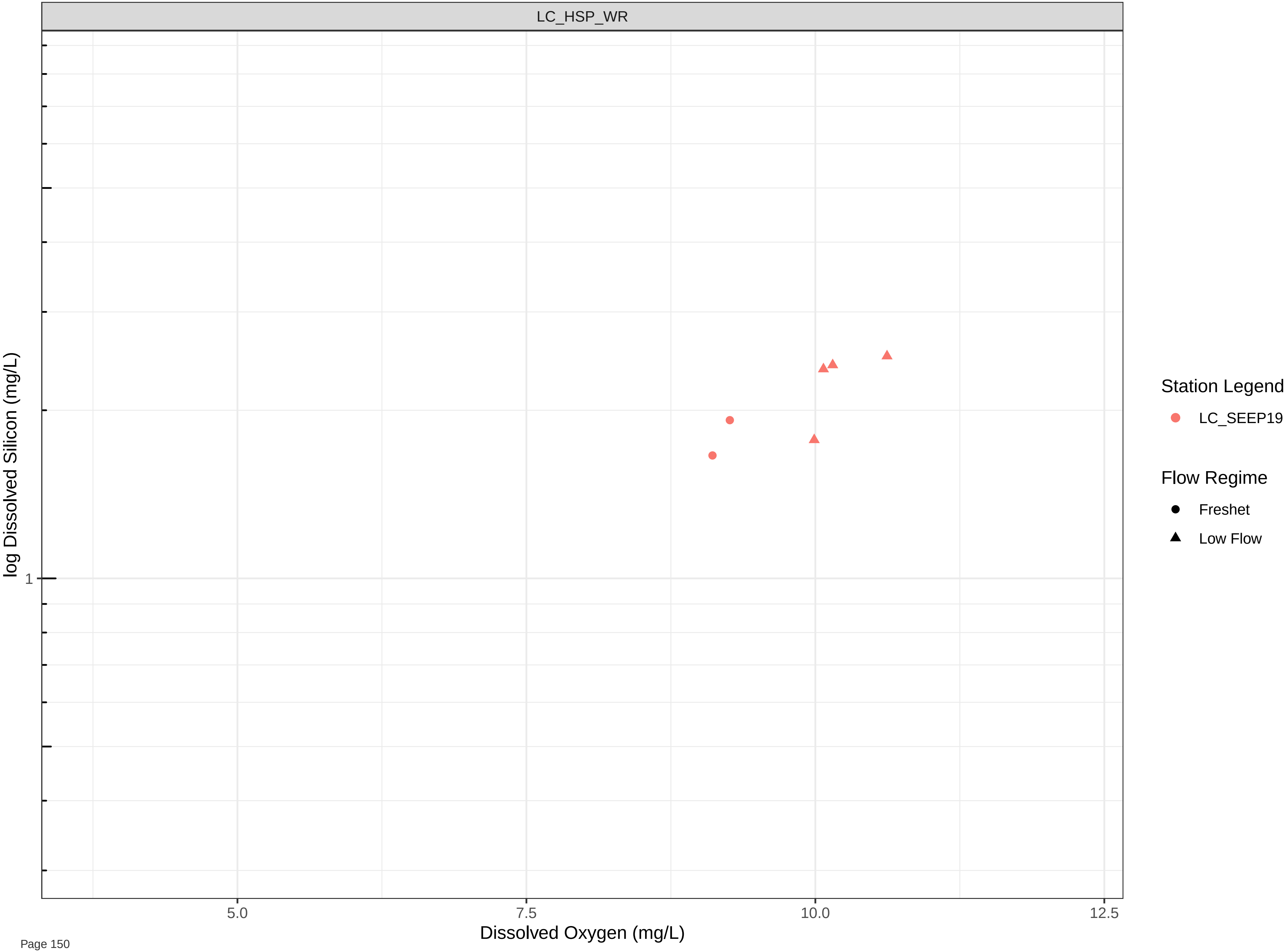
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow


LC_HSP_WR
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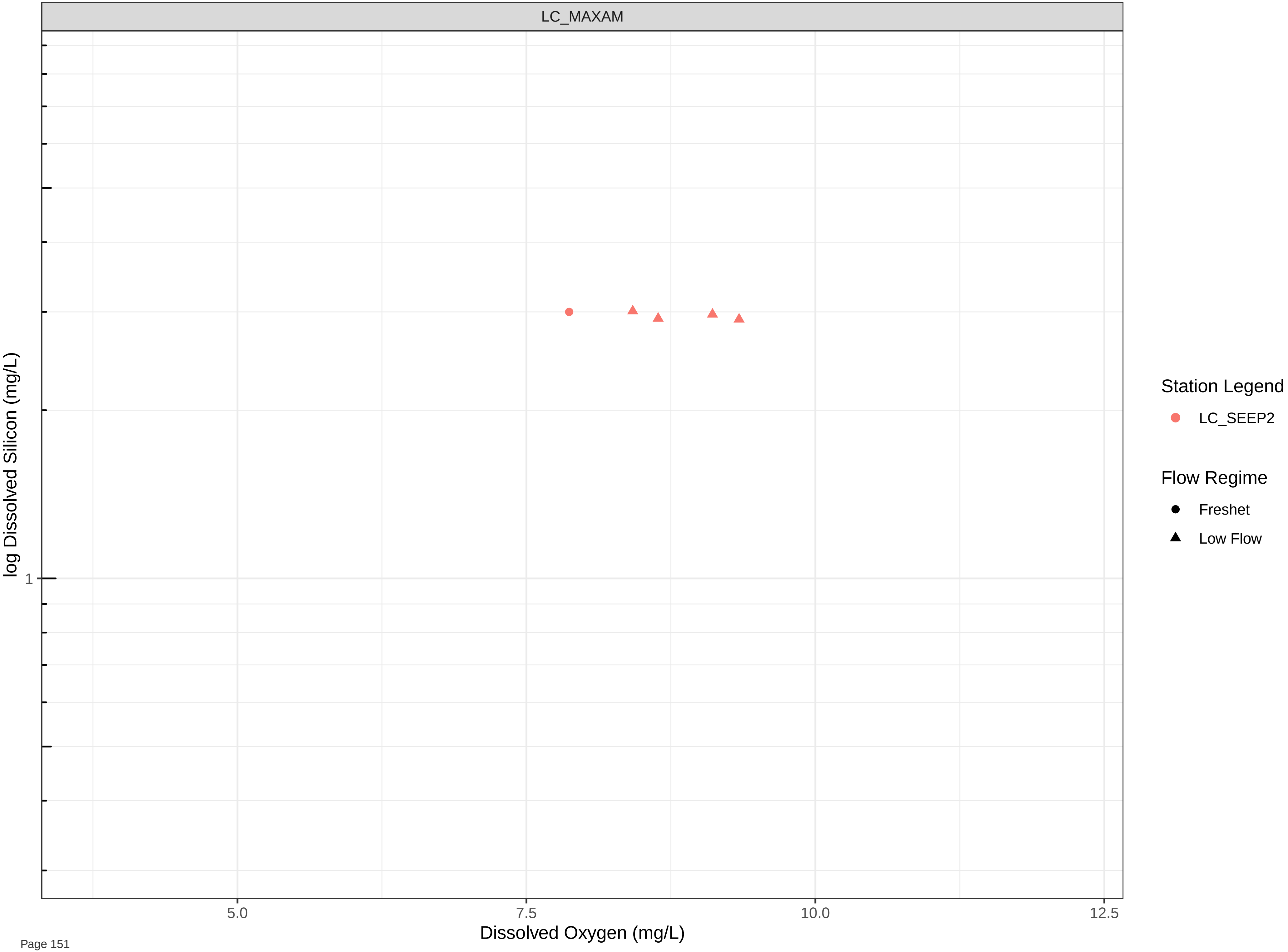
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow


LC_MAXAM
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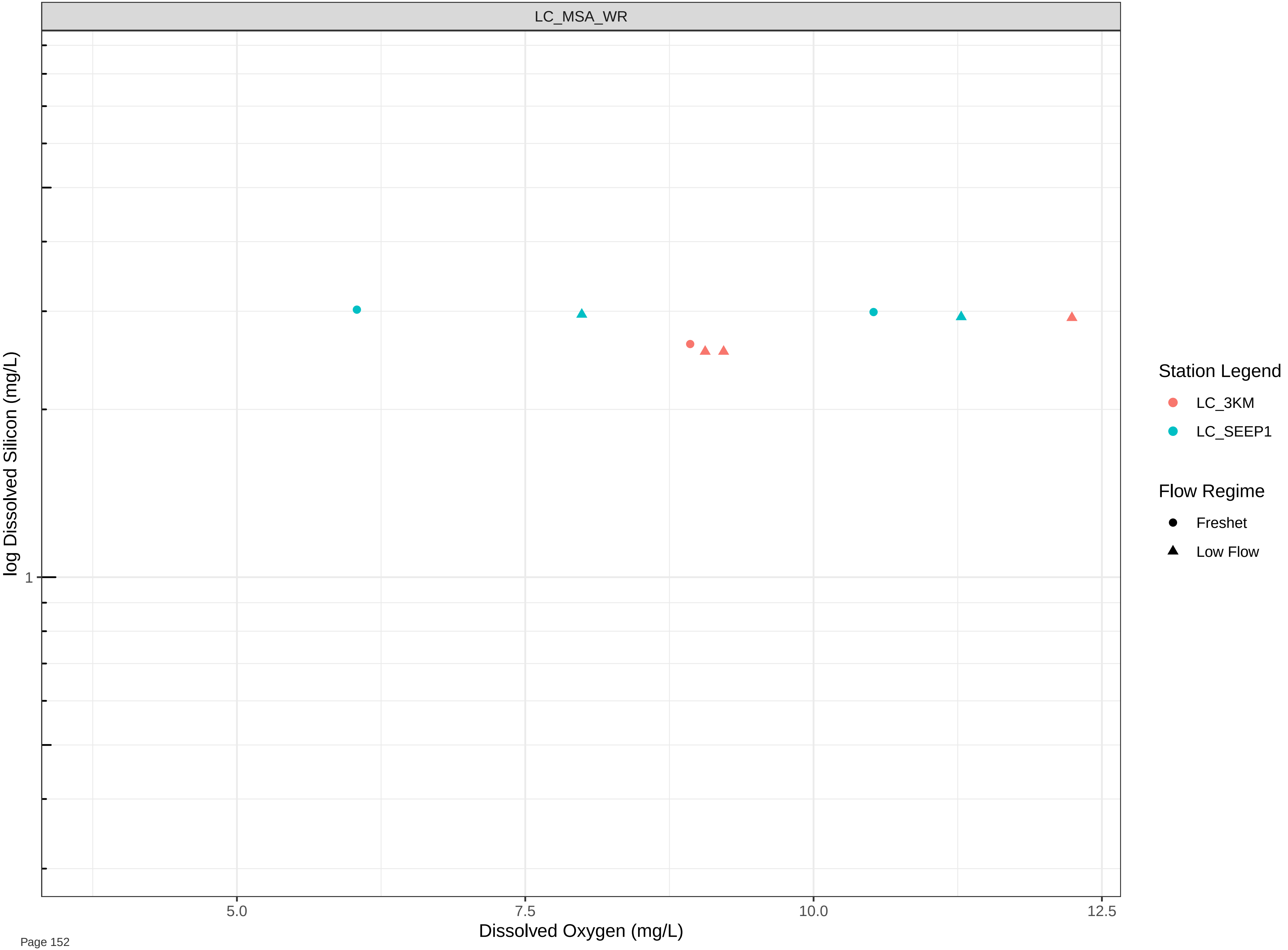
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow


LC_MSA_WR
log Dissolved Silicon (mg/L)
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Dissolved Oxygen (mg/L)
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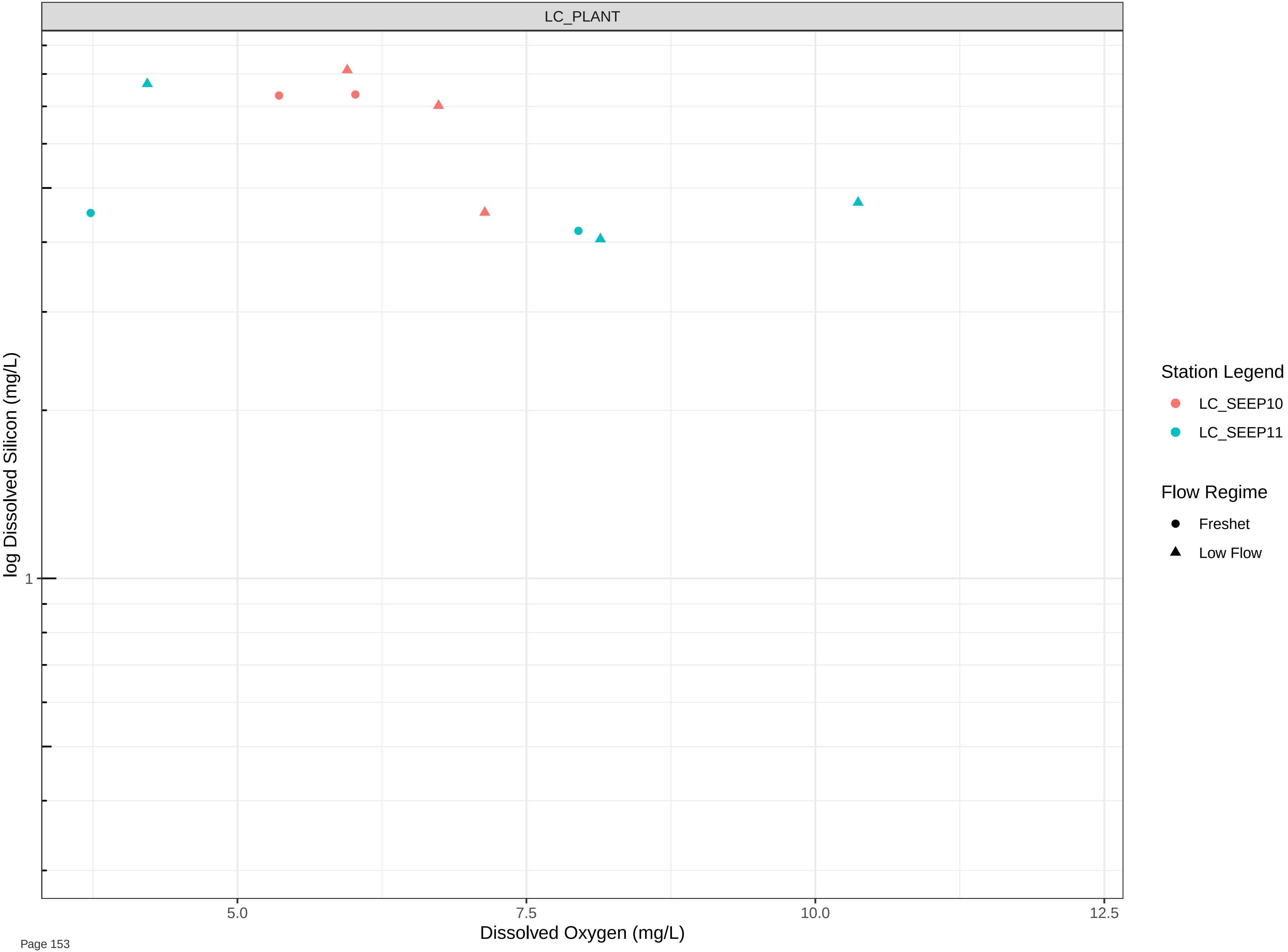
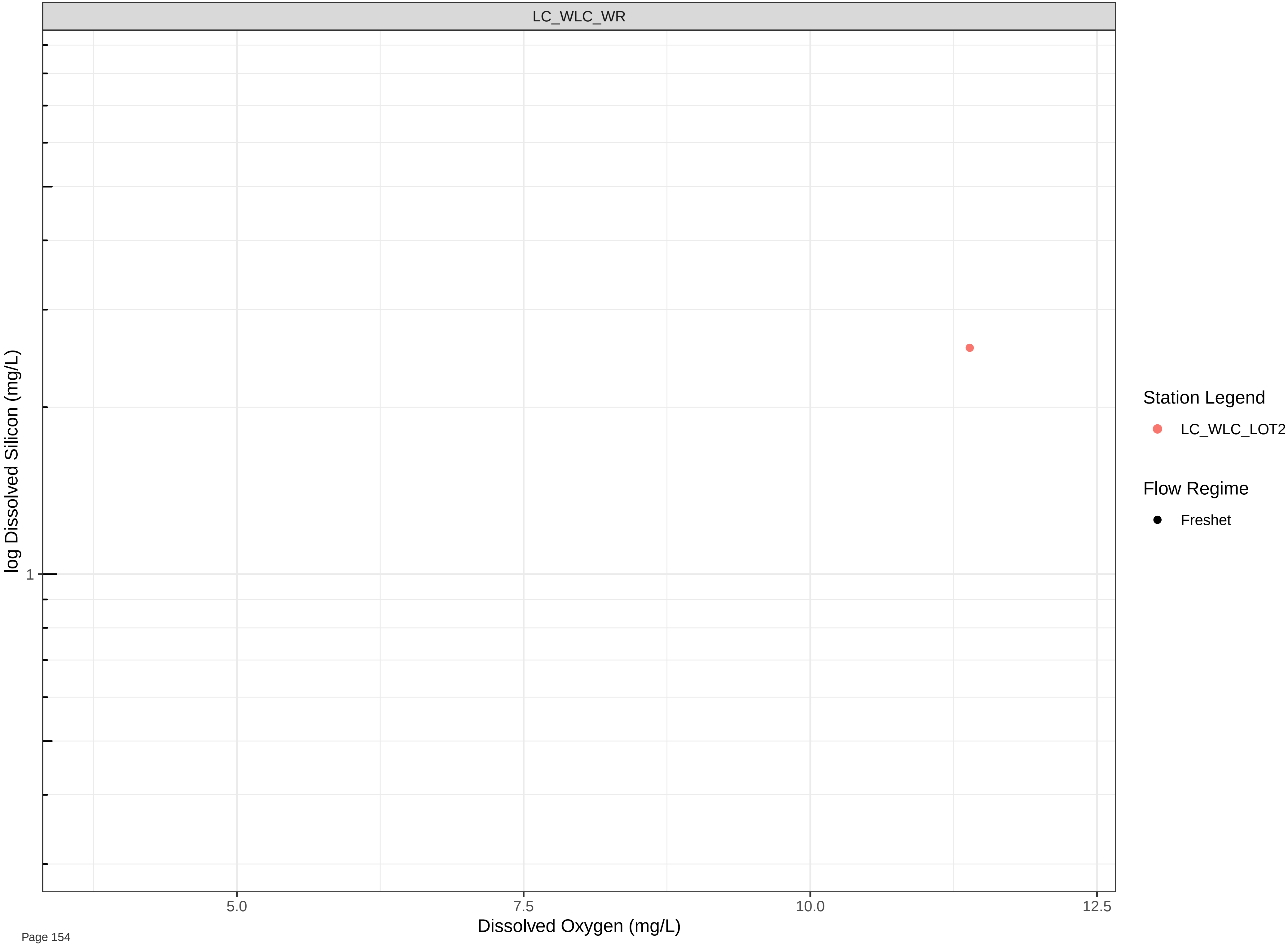
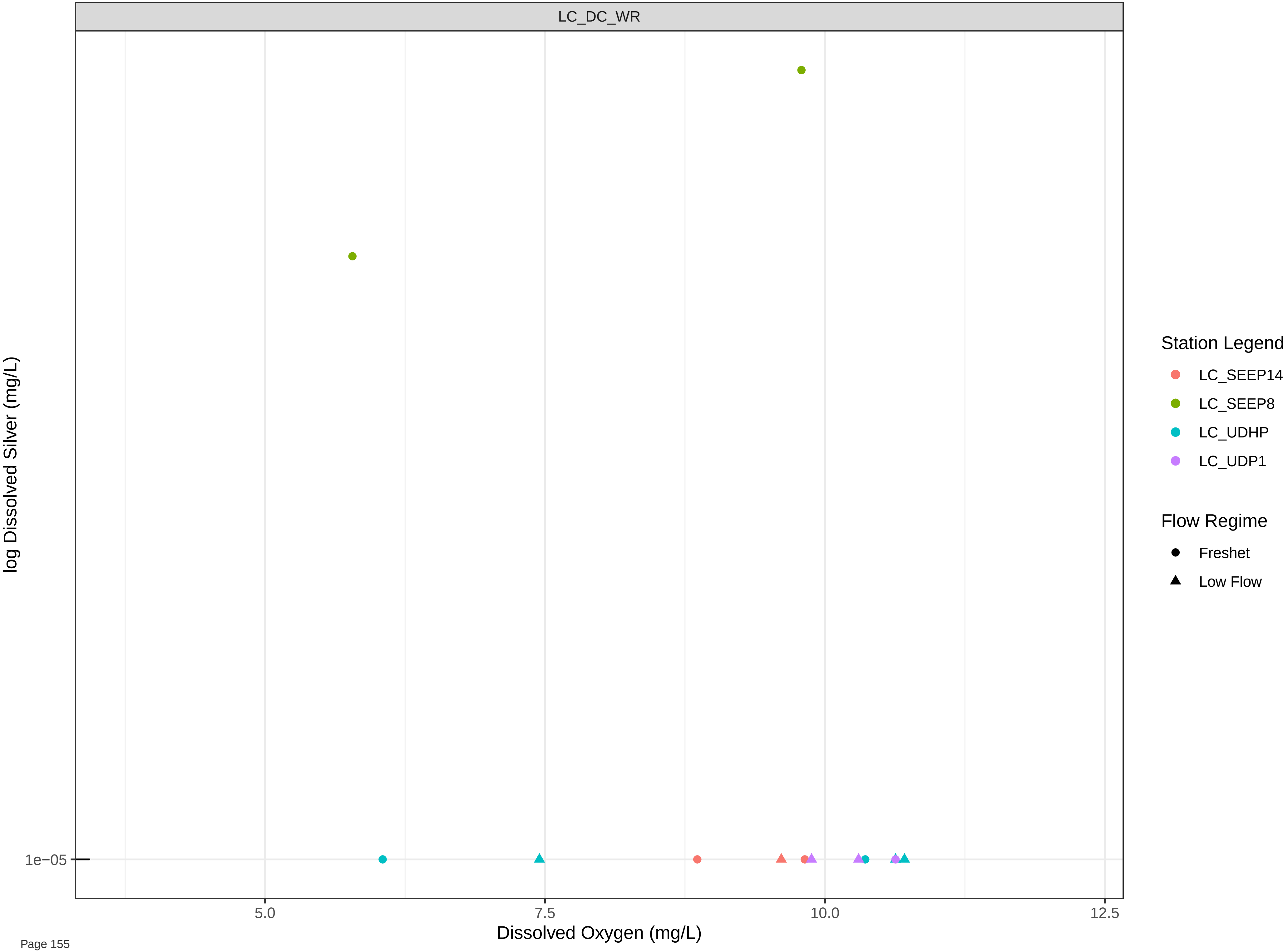
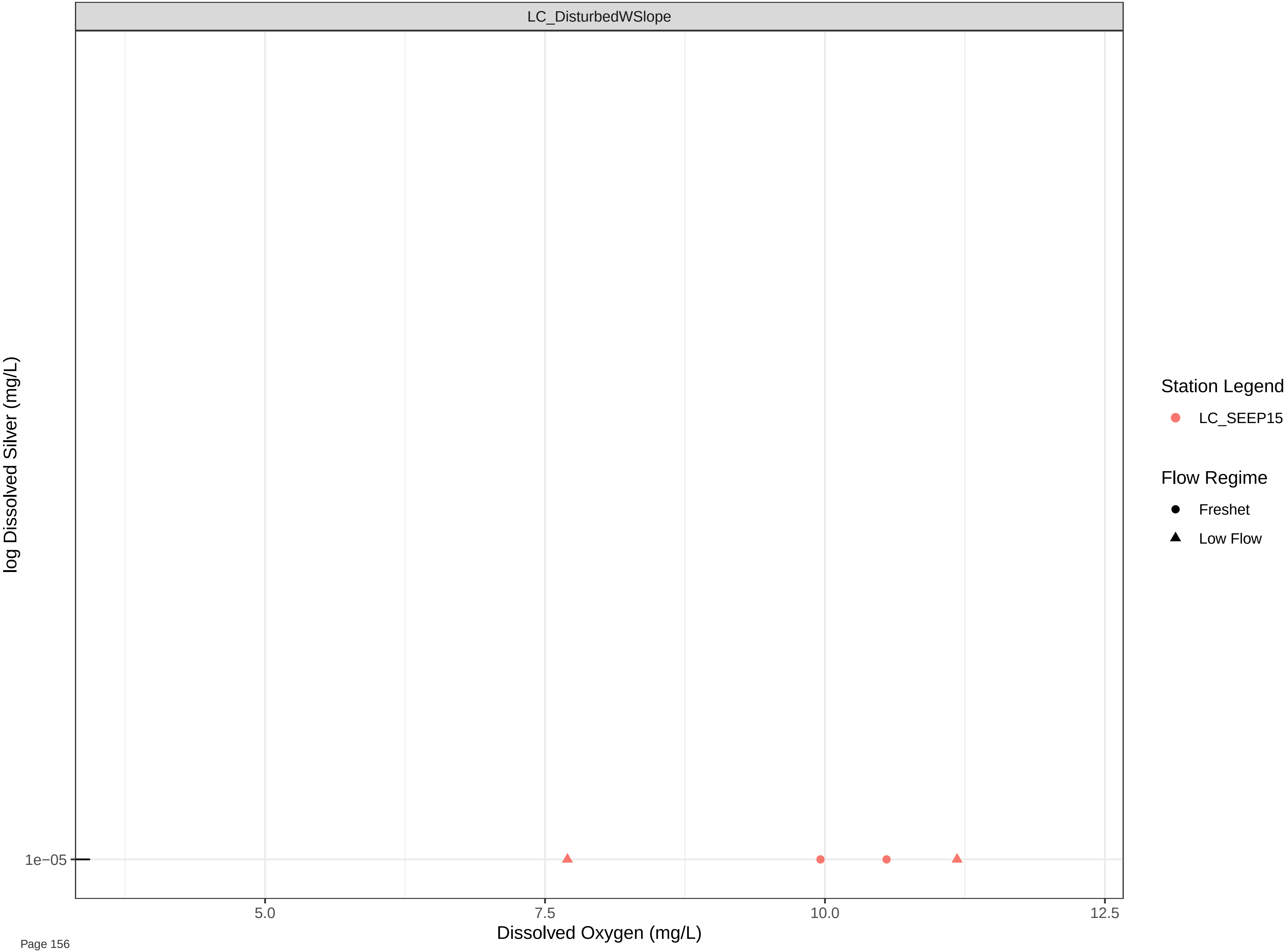
7.5
10.0
12.5
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow


LC_PLANT
log Dissolved Silicon (mg/L)
1
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow


LC_WLC_WR
log Dissolved Silicon (mg/L)
1
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet


LC_DC_WR
log Dissolved Silver (mg/L)
1e−05
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow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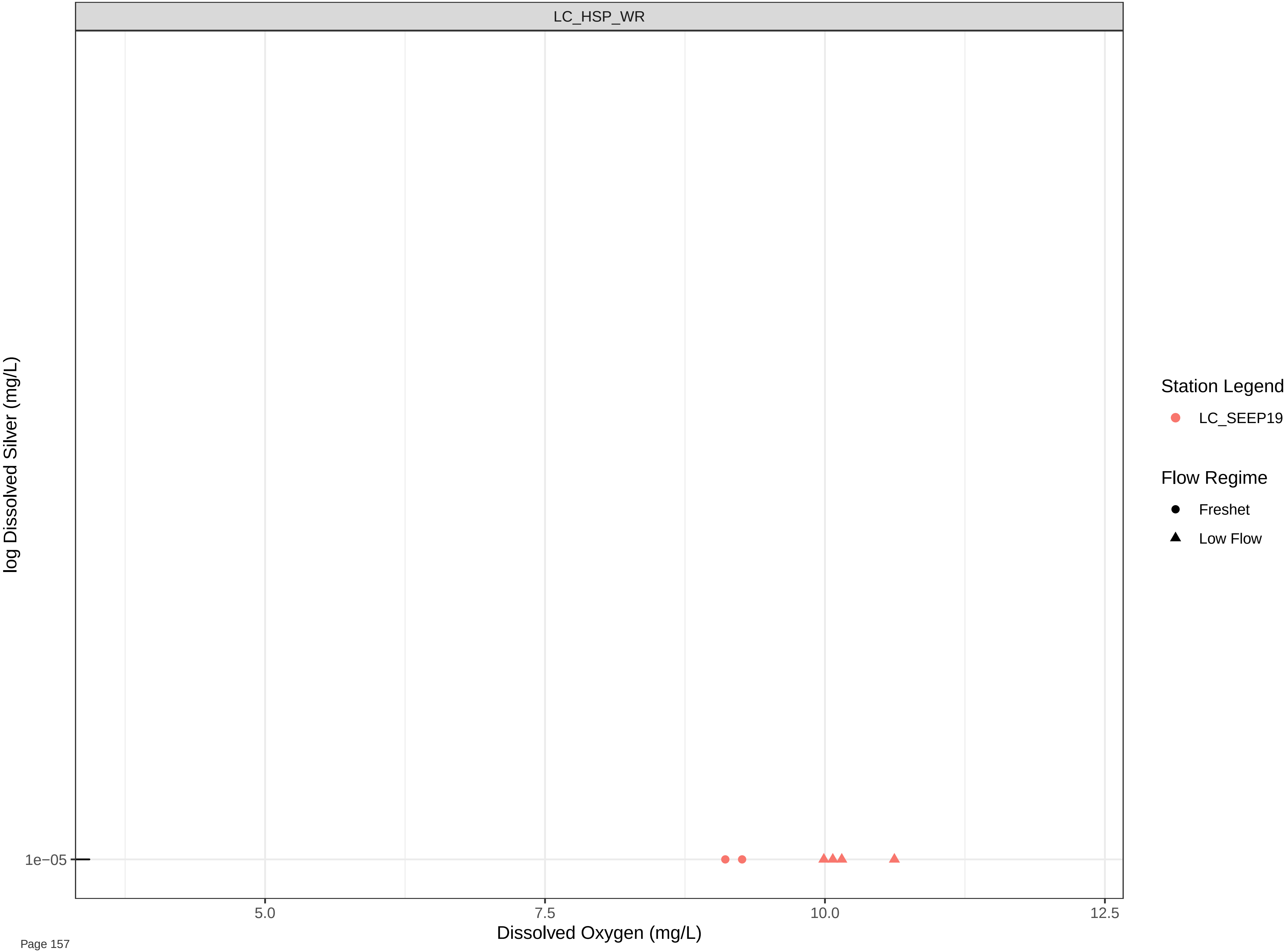
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow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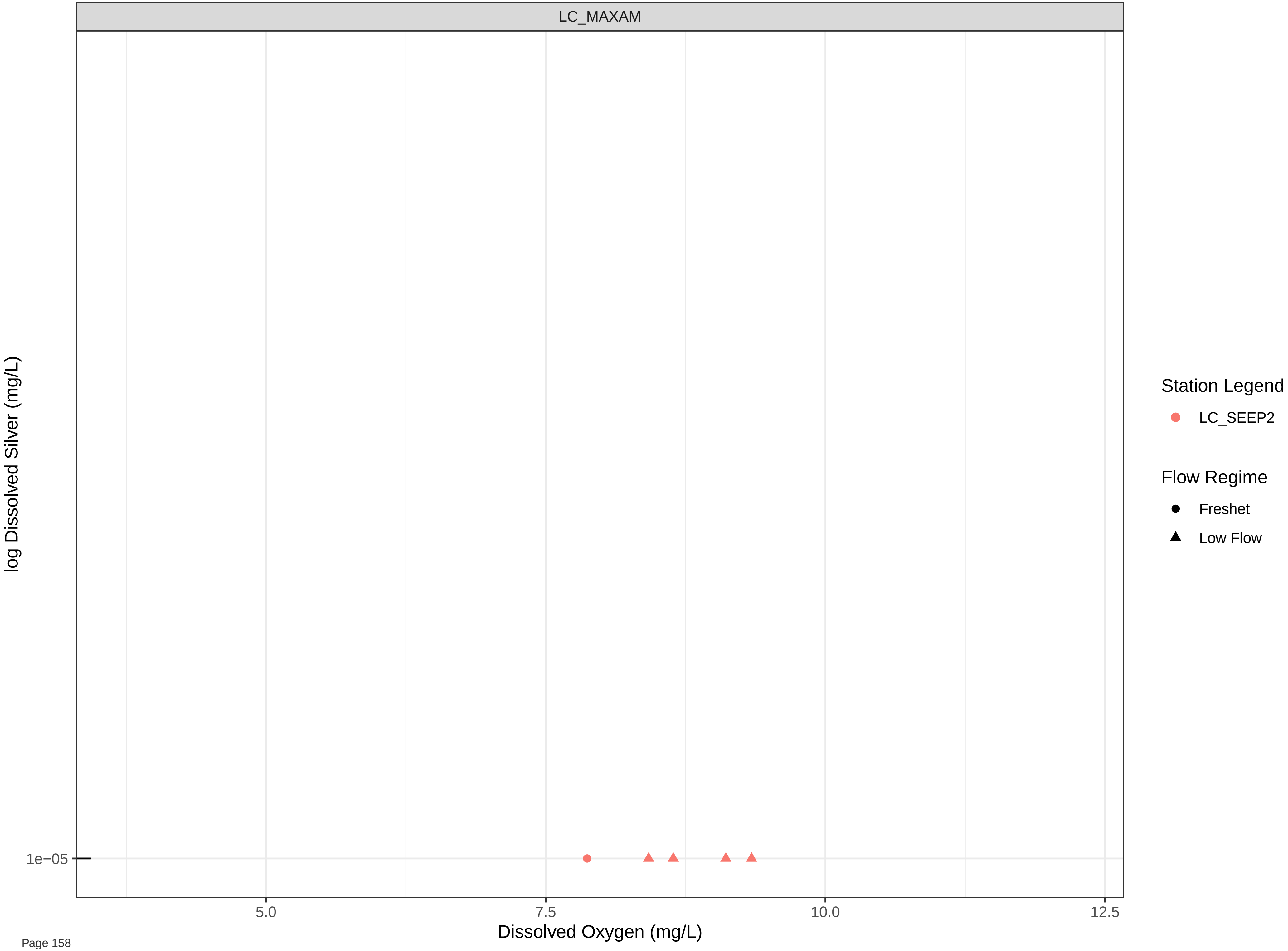
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow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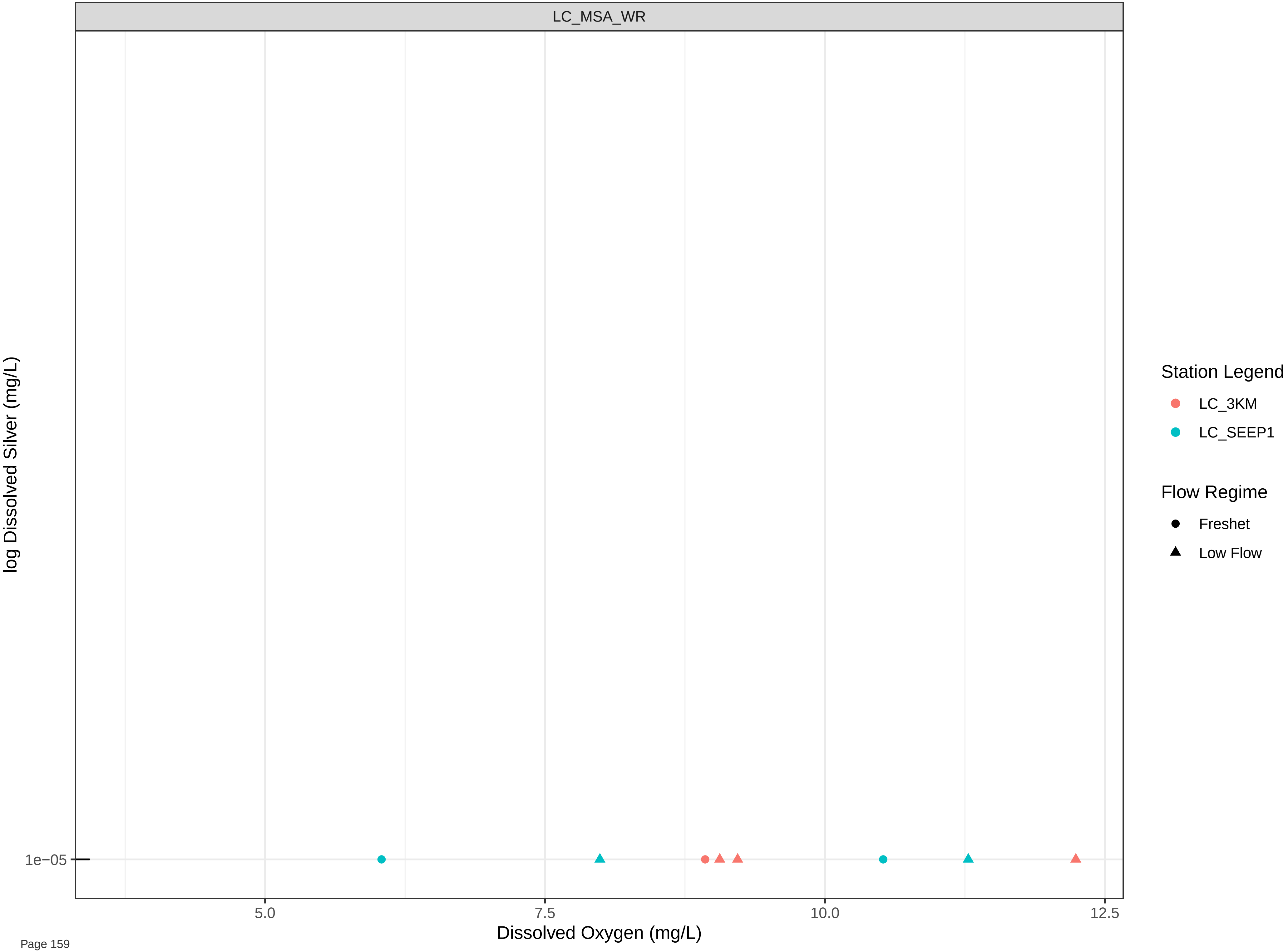
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow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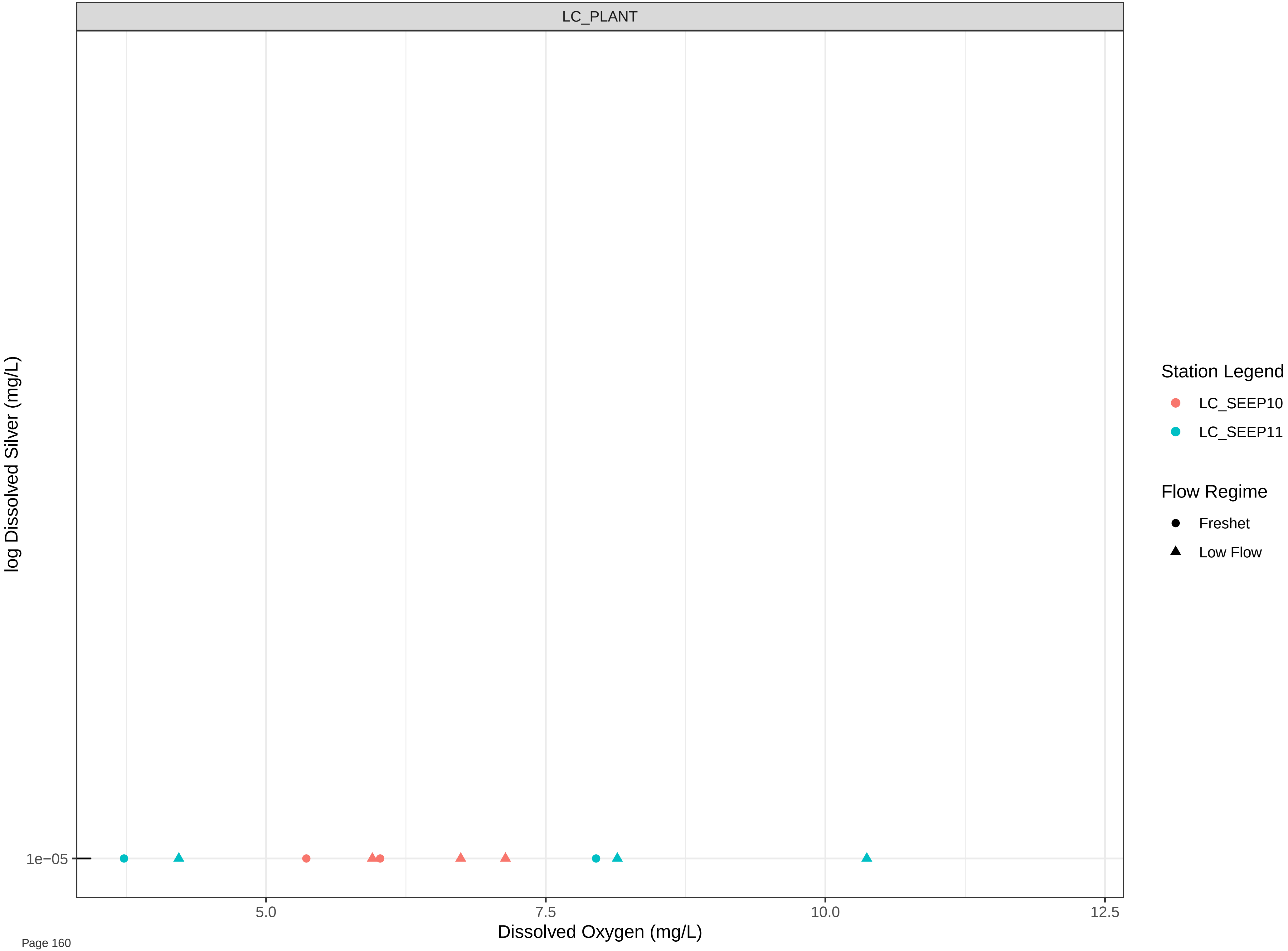
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow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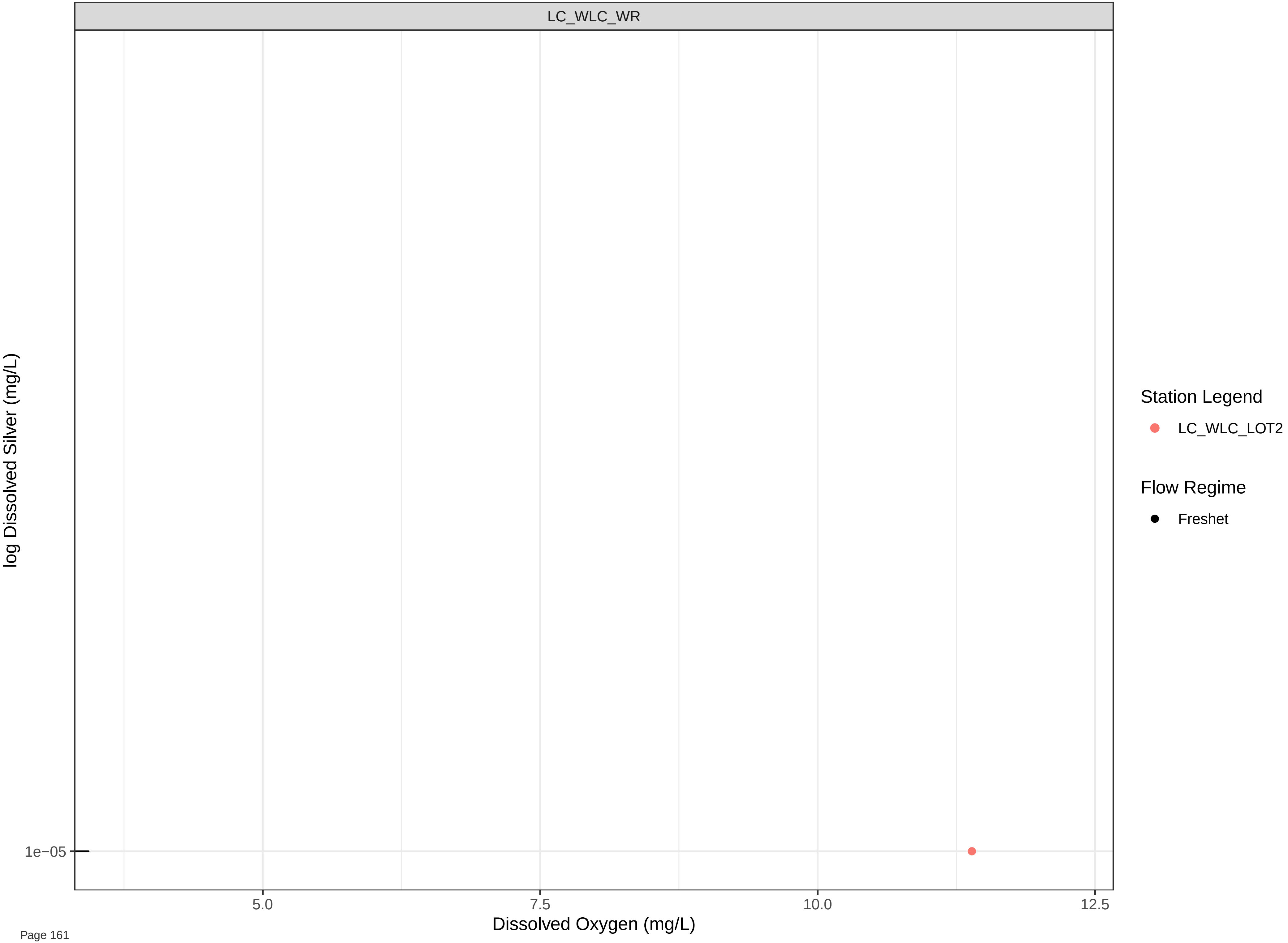
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow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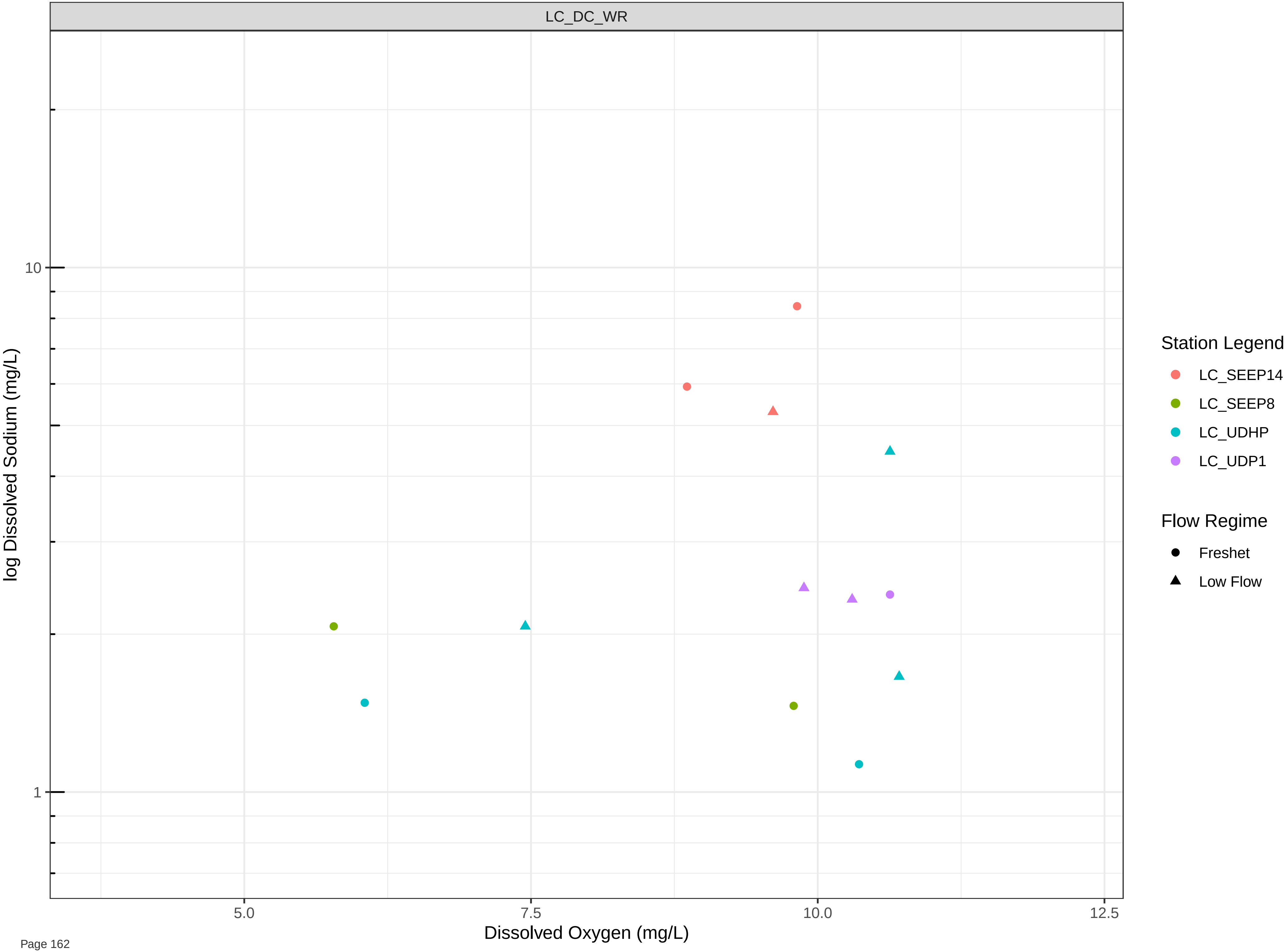
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet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10.0
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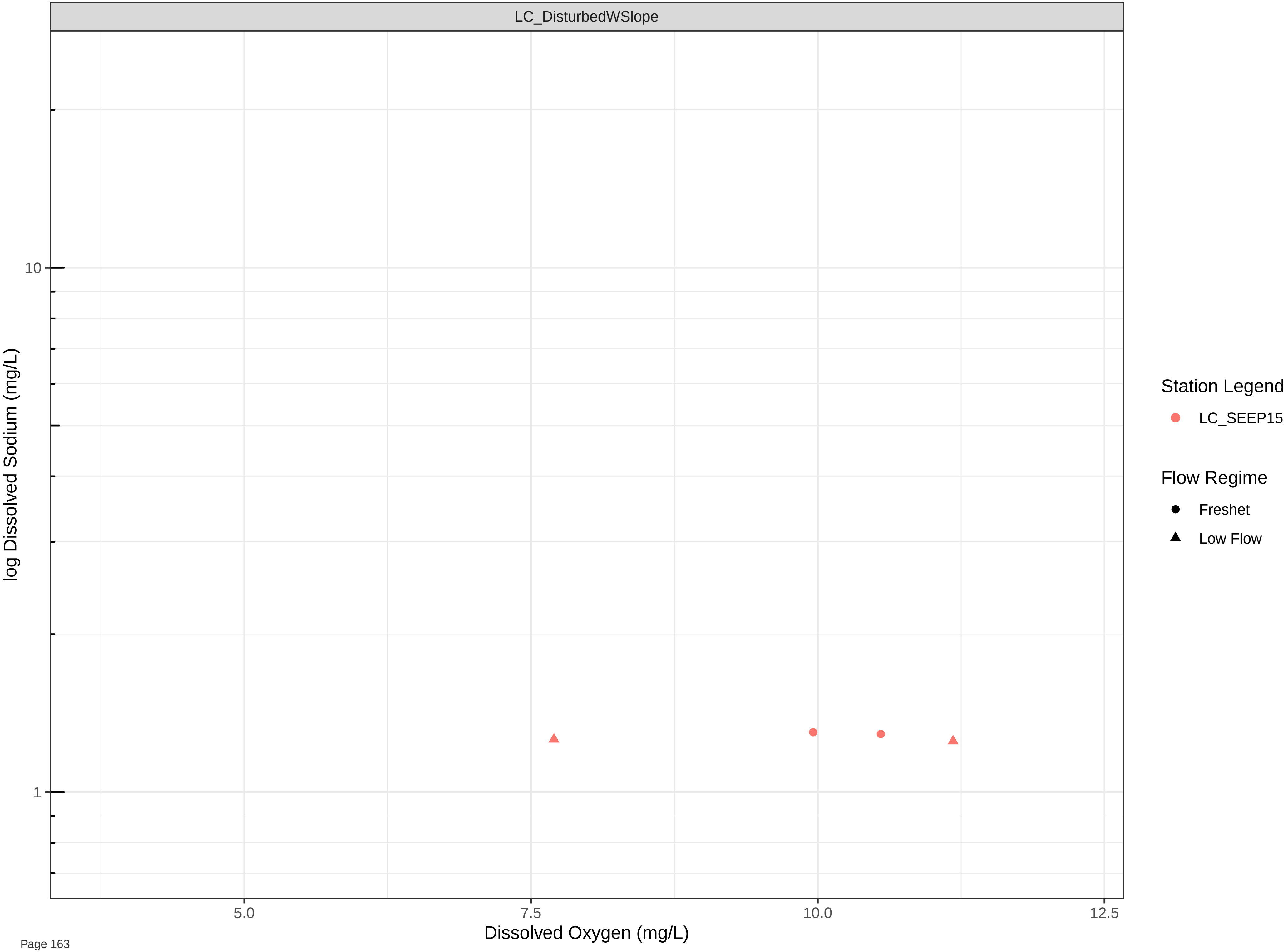
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow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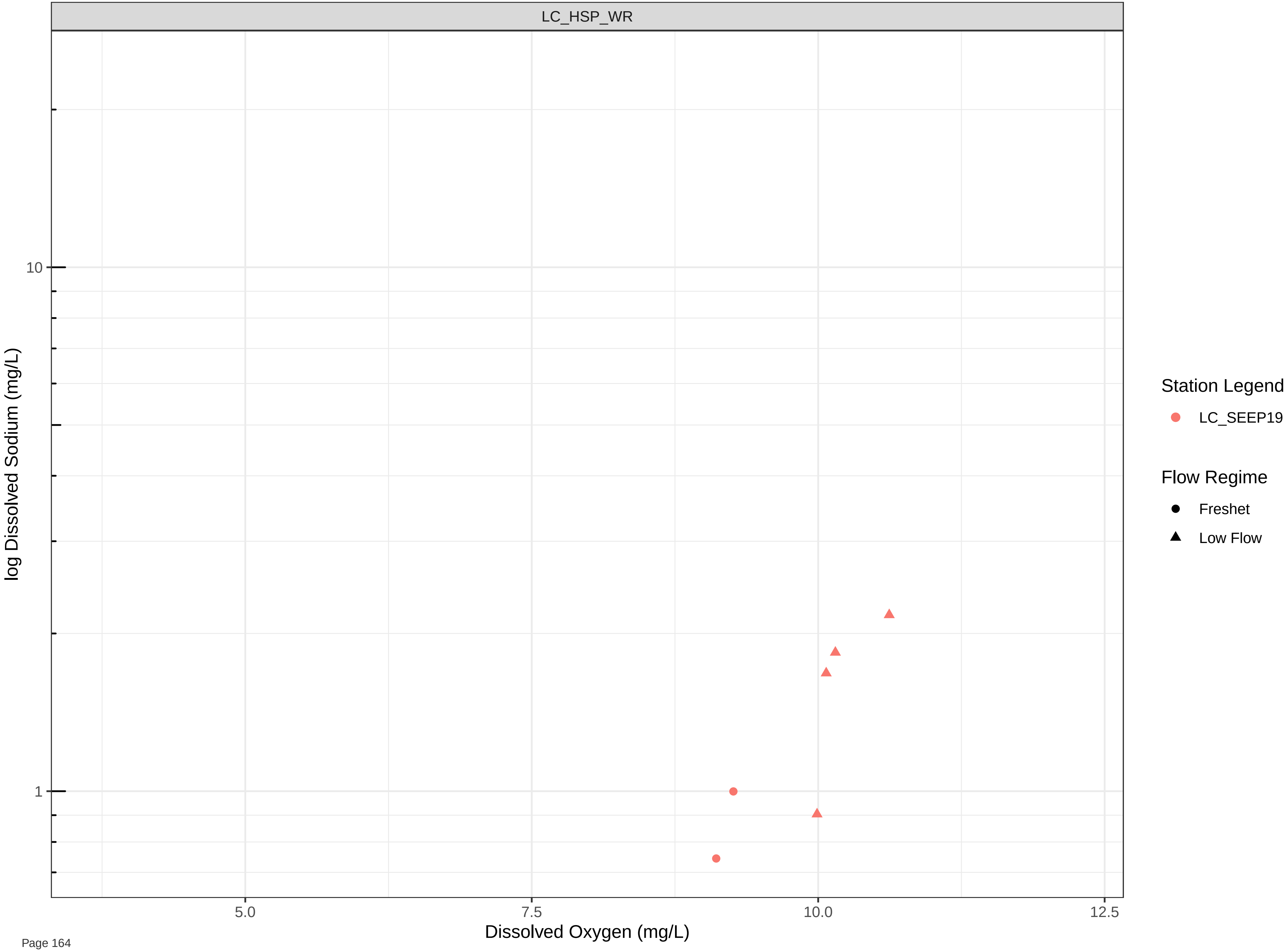
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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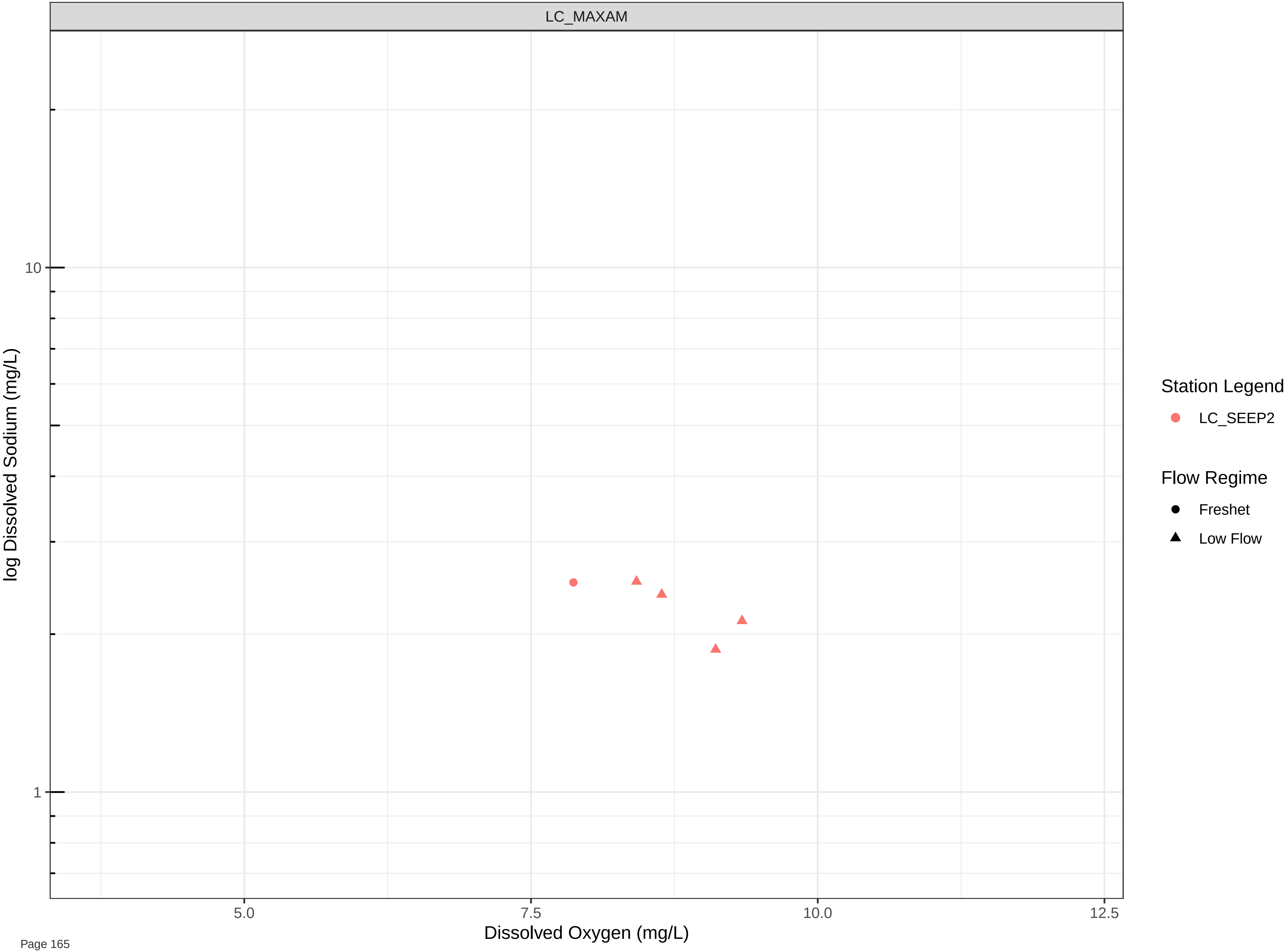
12.5
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow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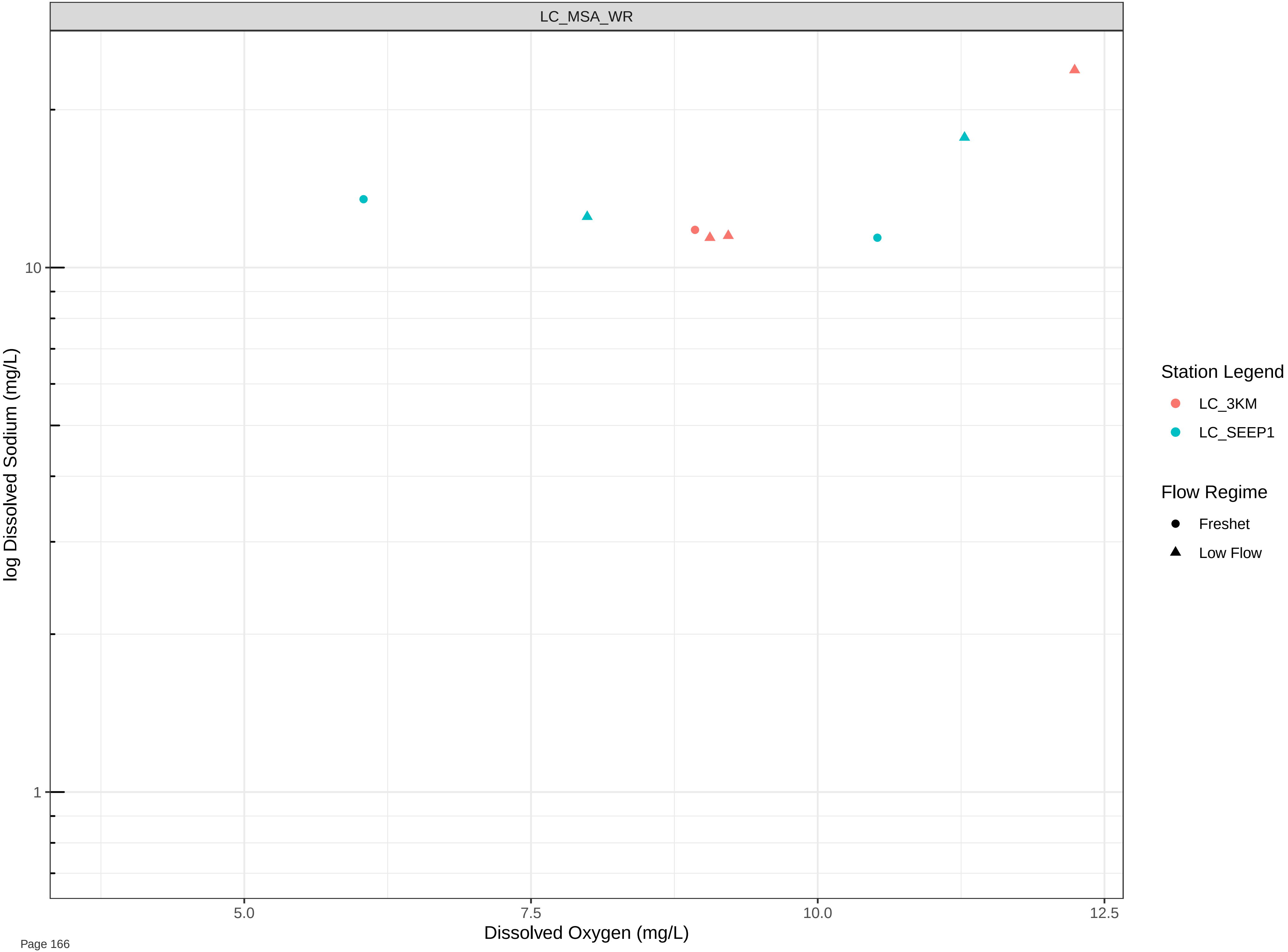
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow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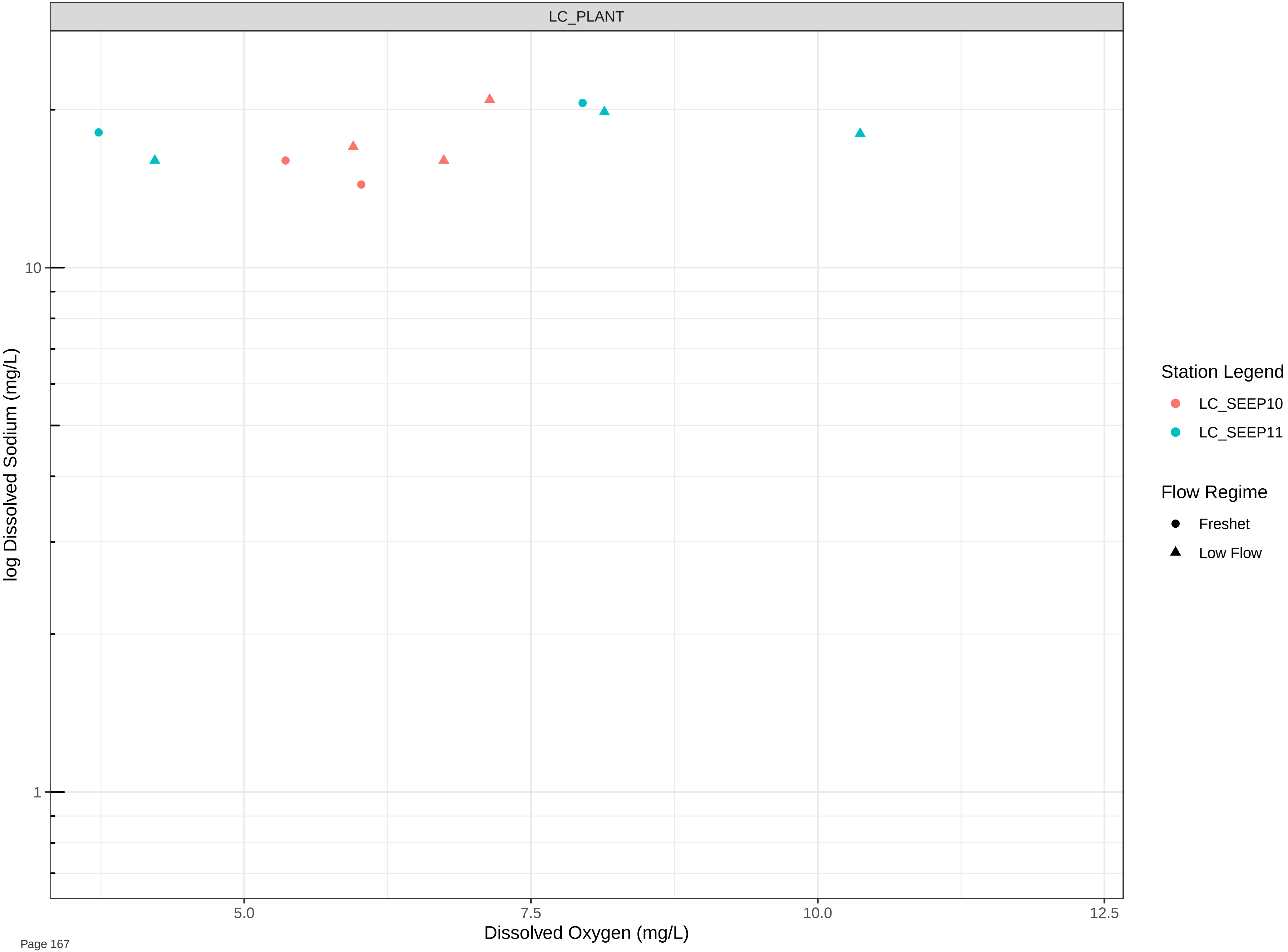
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow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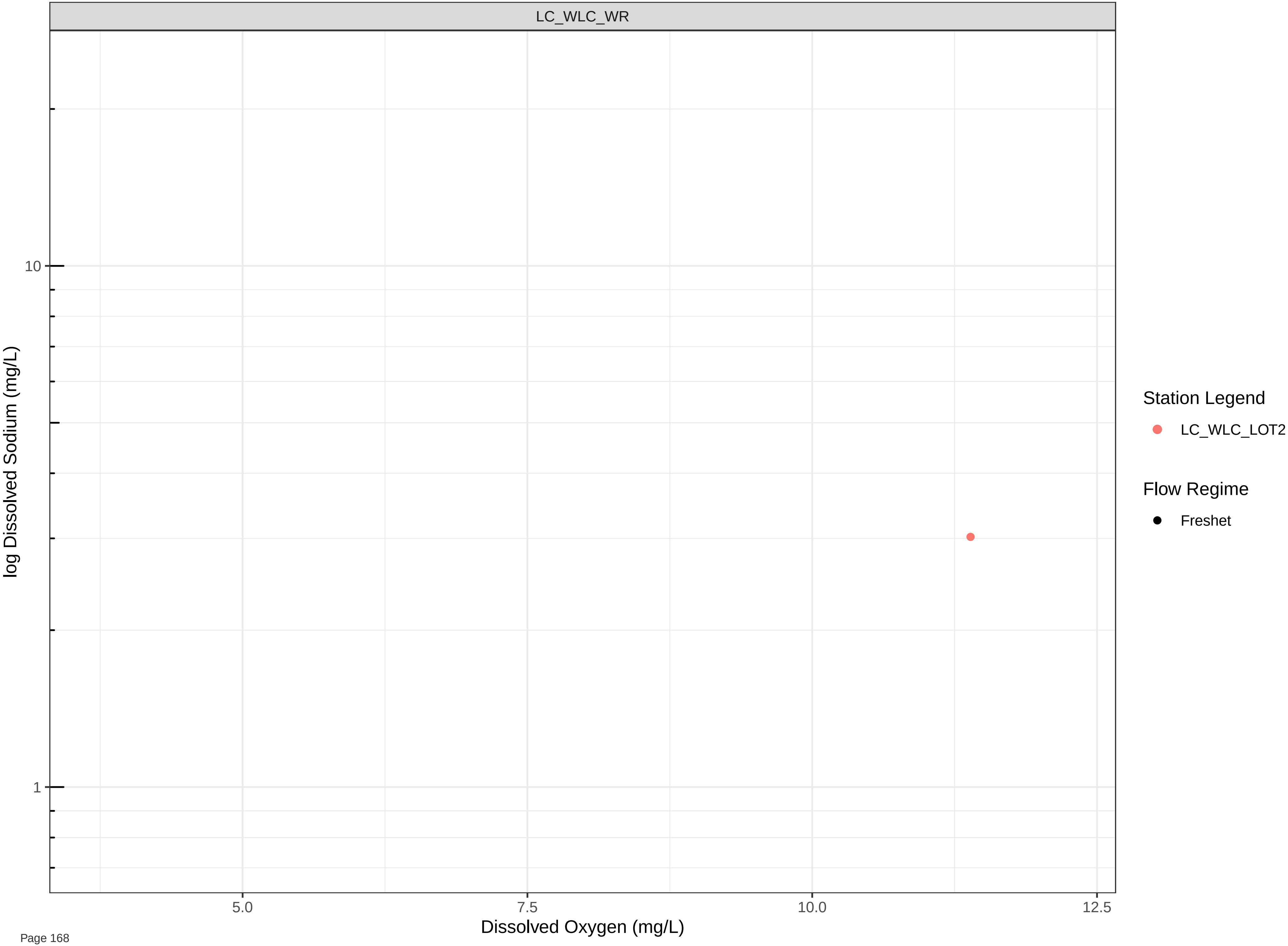
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow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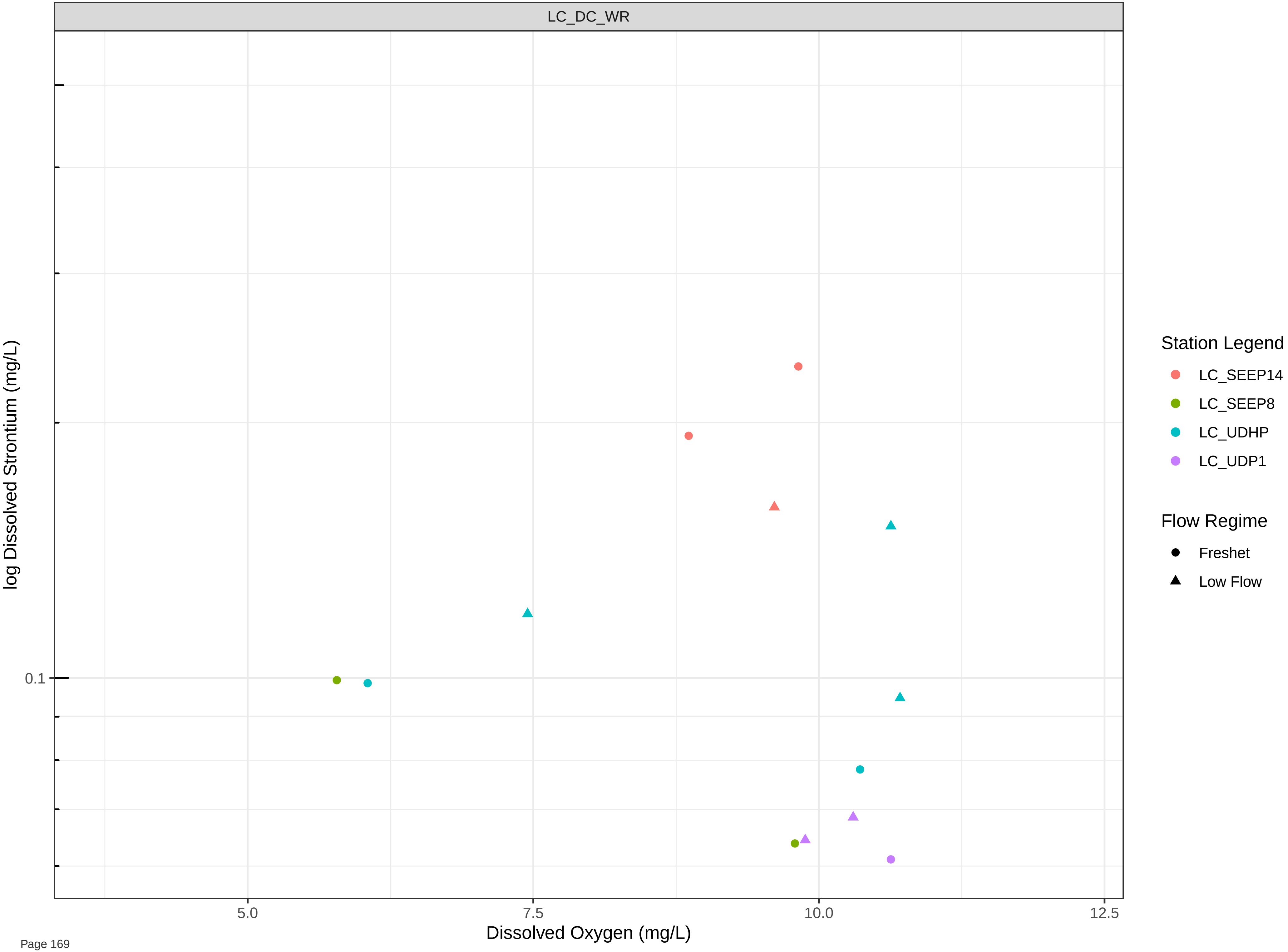
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet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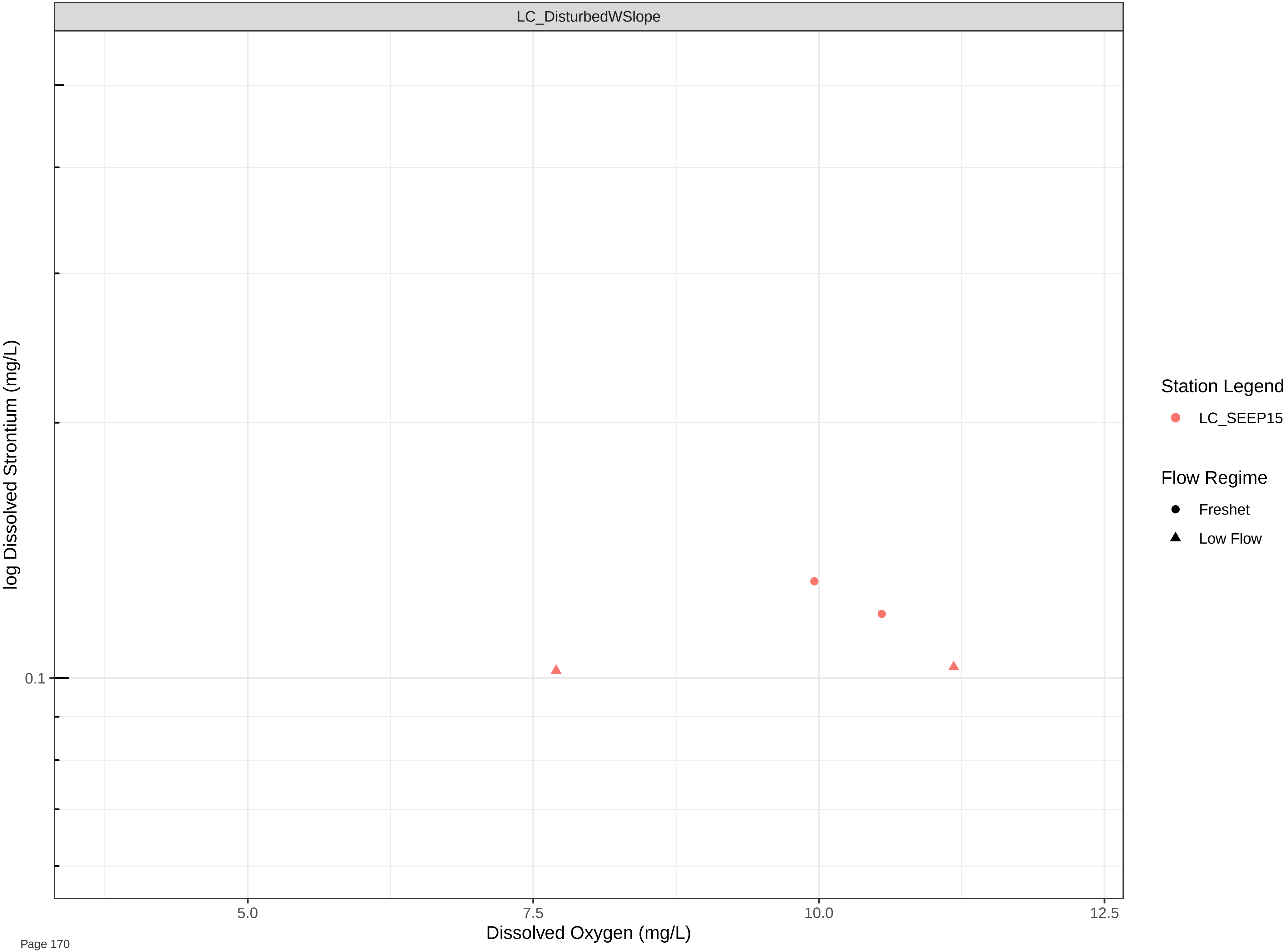
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow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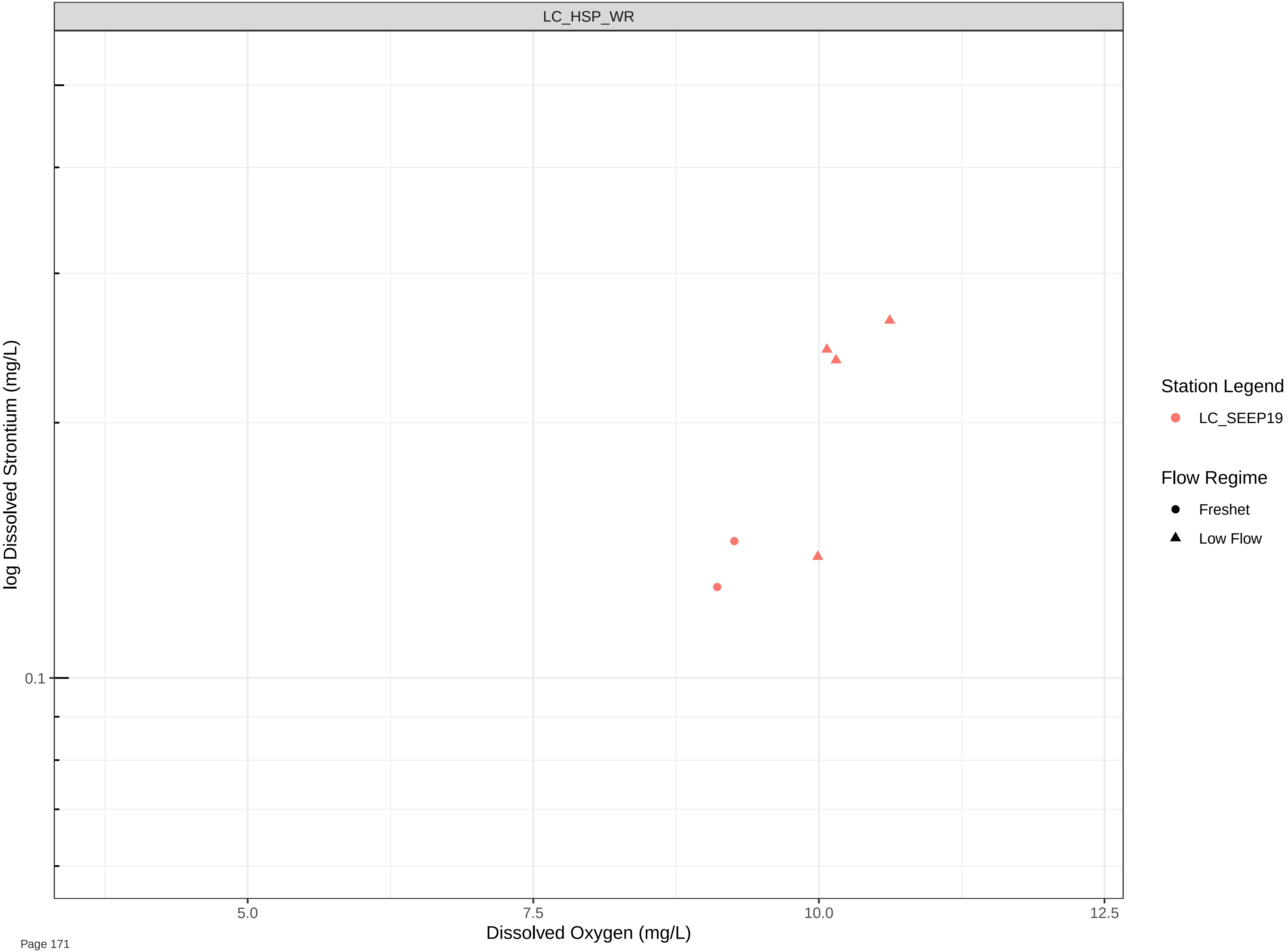
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow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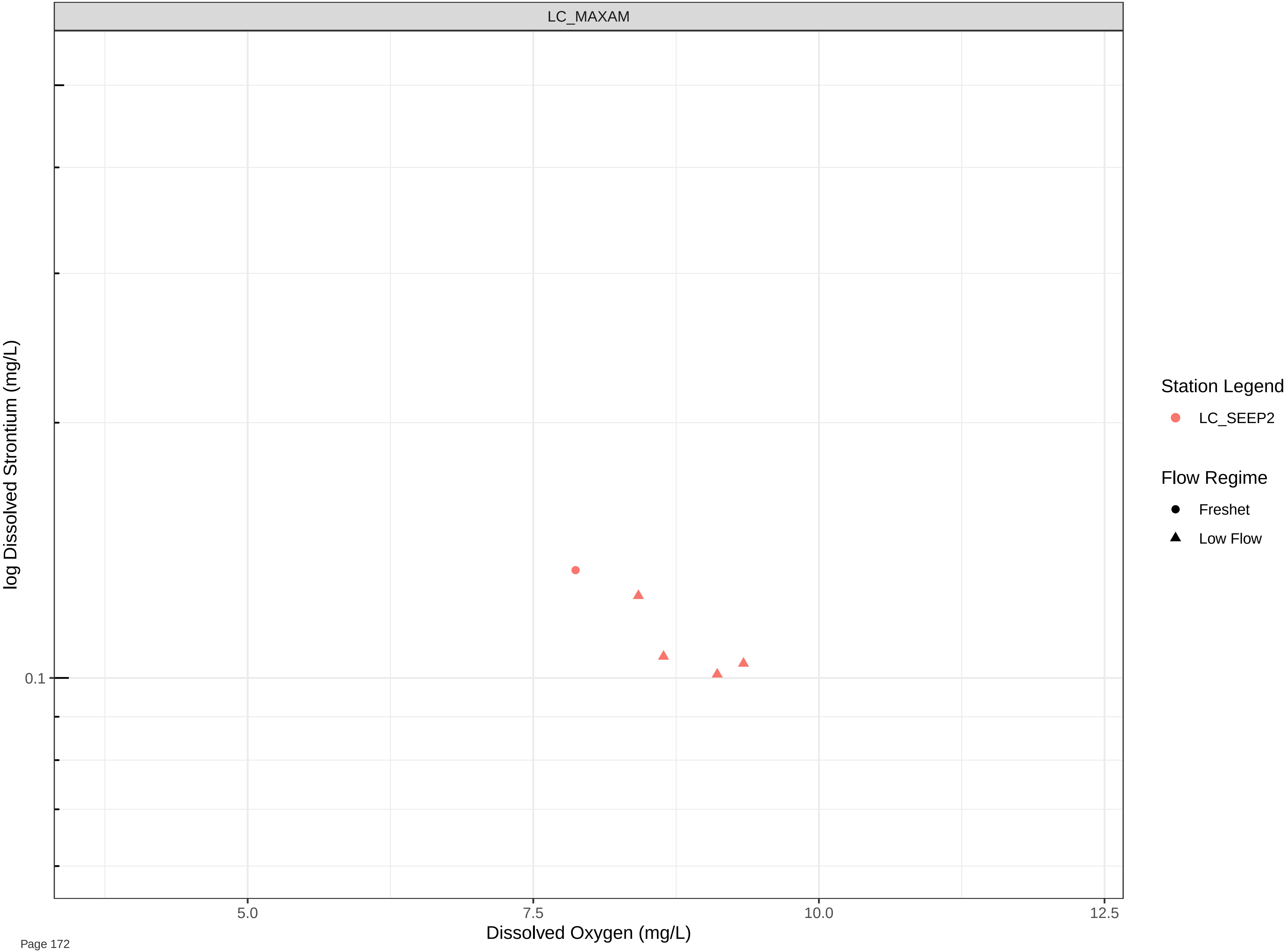
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow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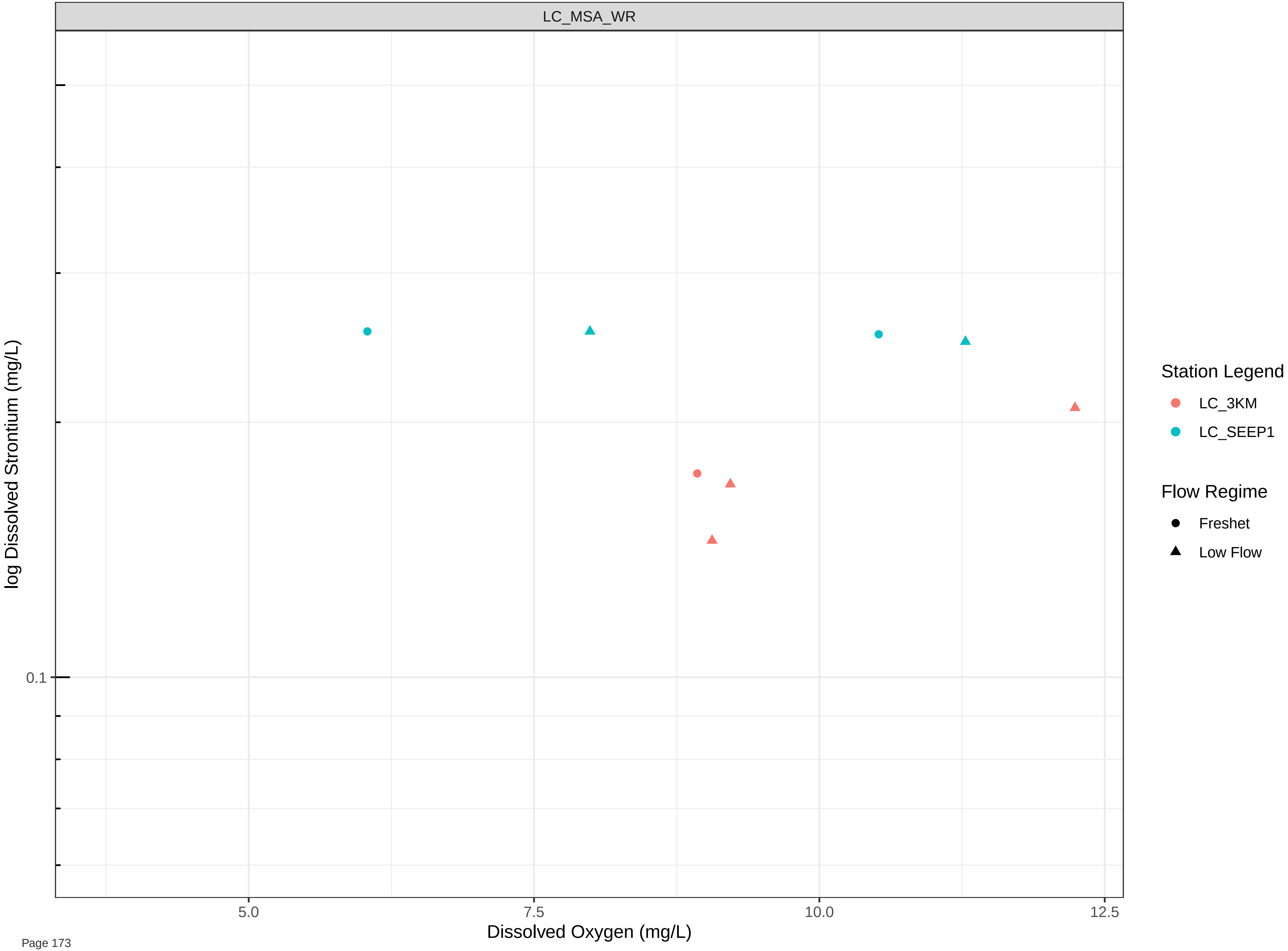
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow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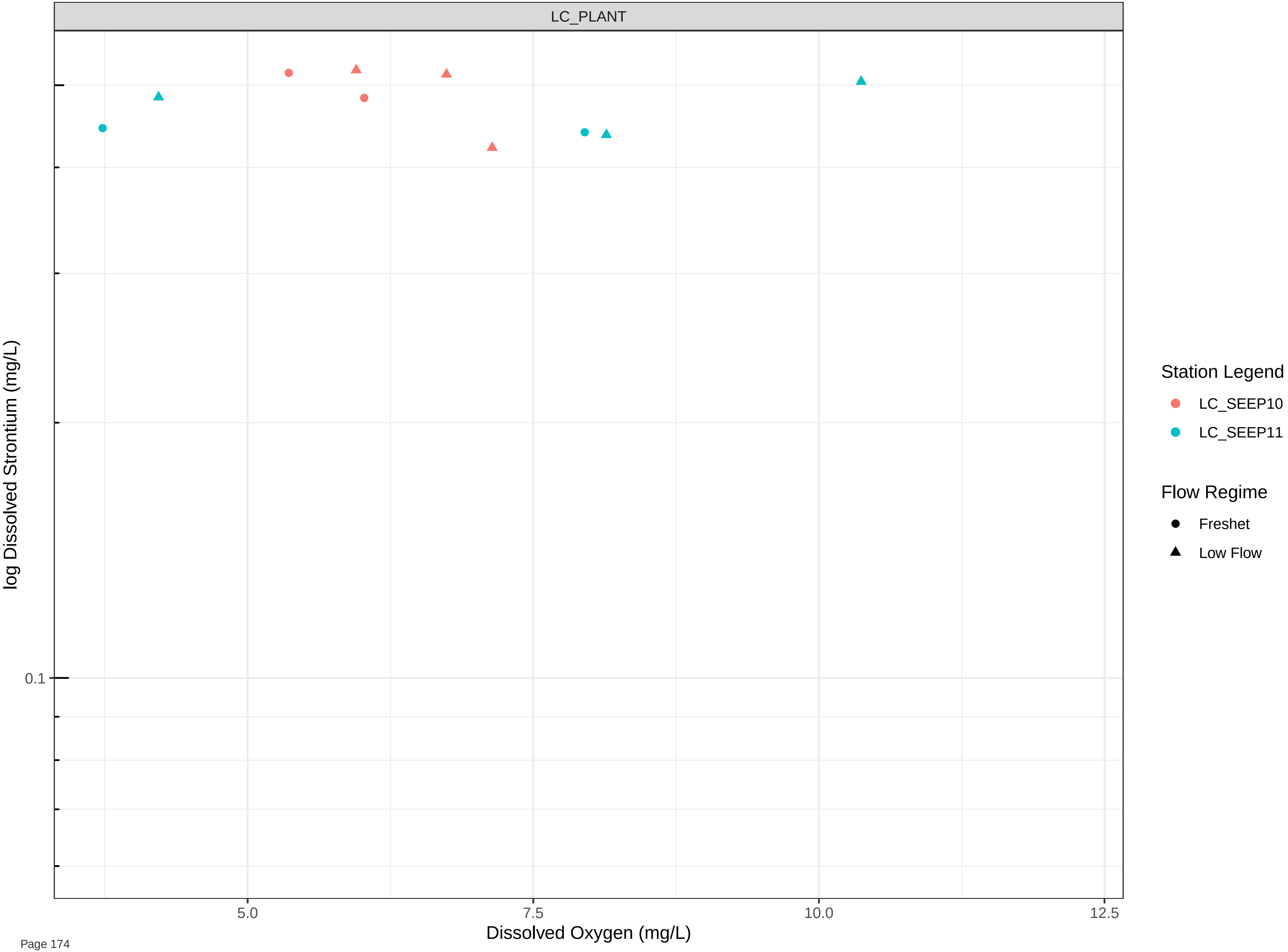
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow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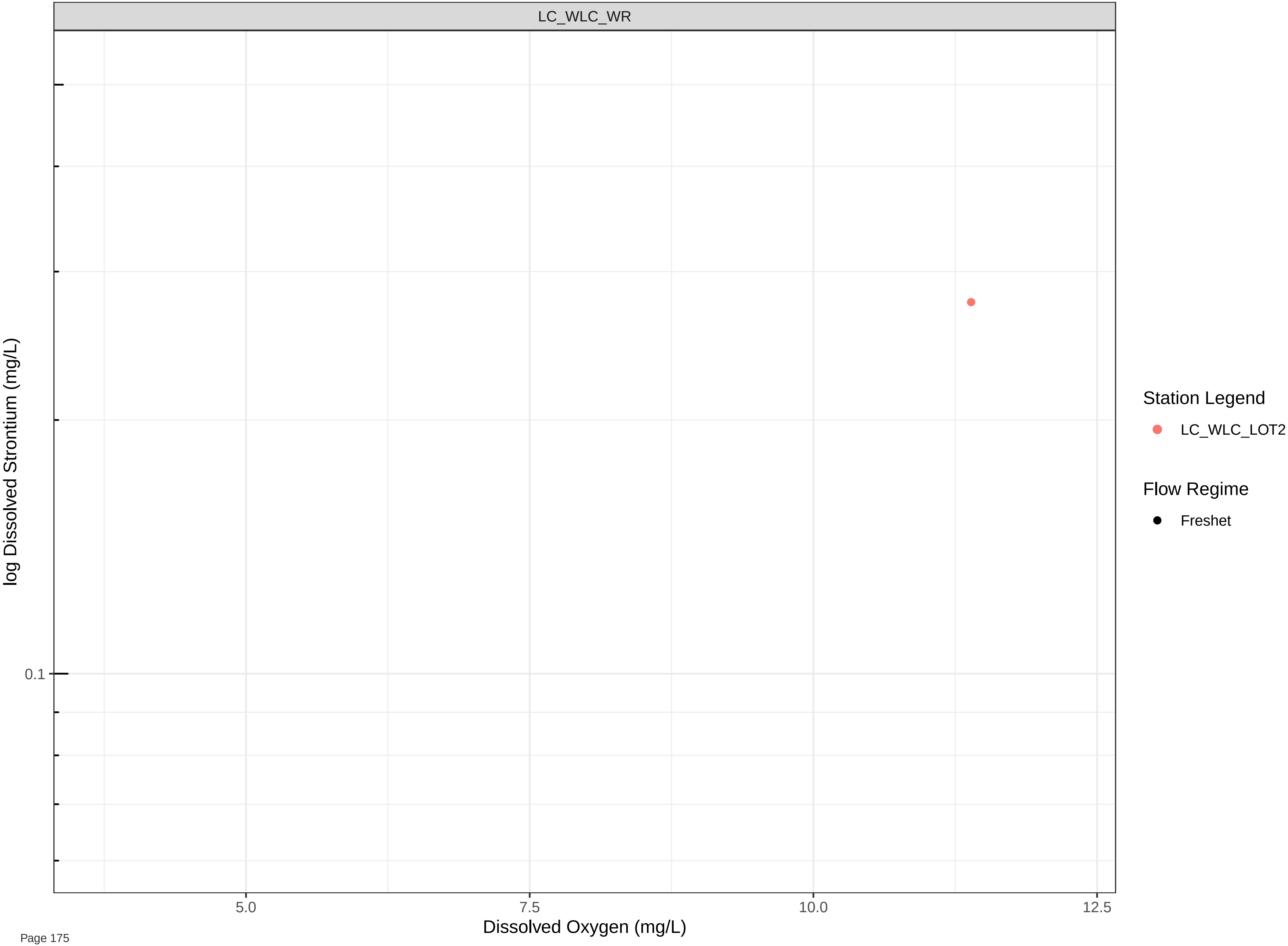
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow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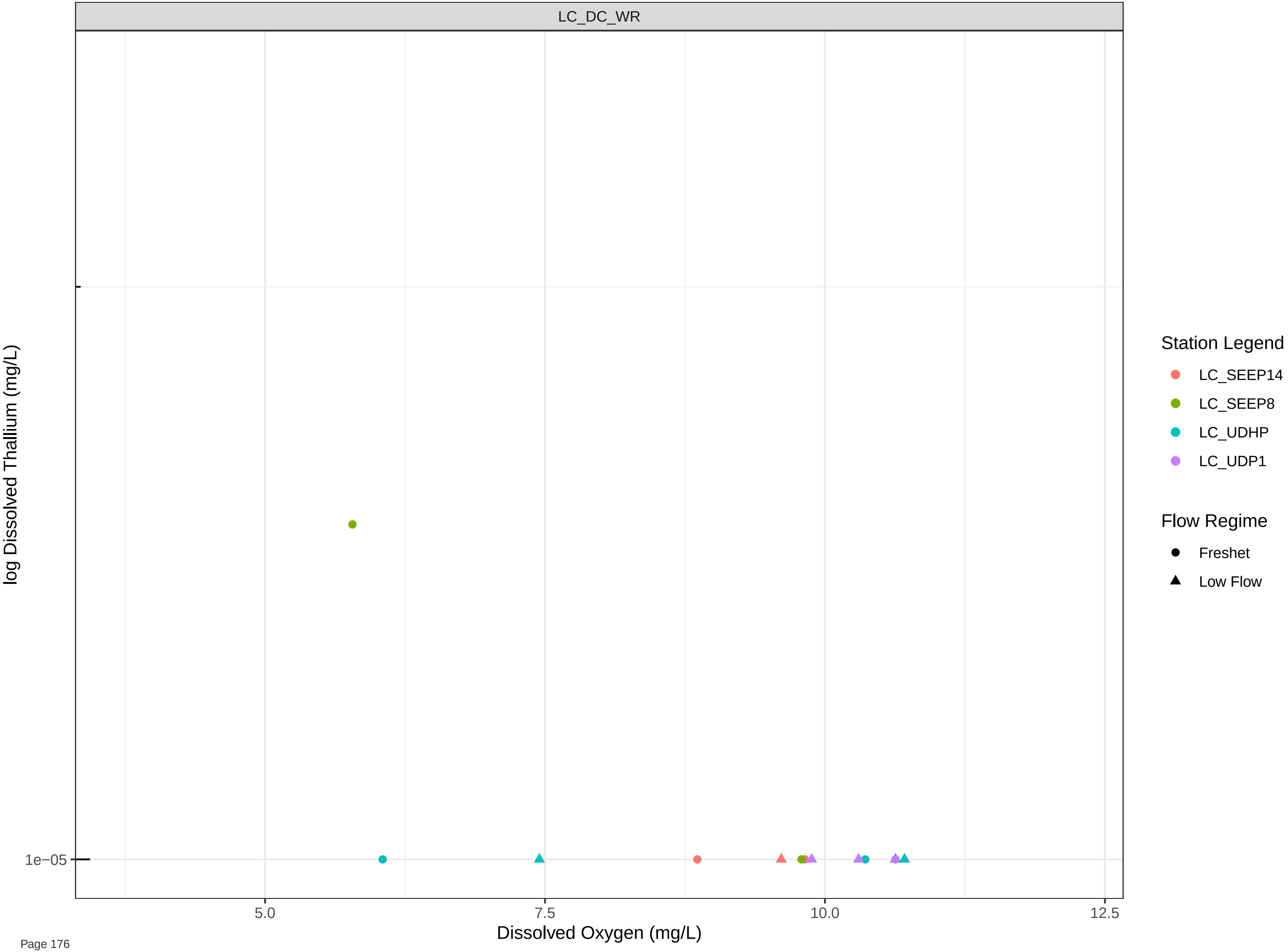
Dissolved Oxygen (mg/L)
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet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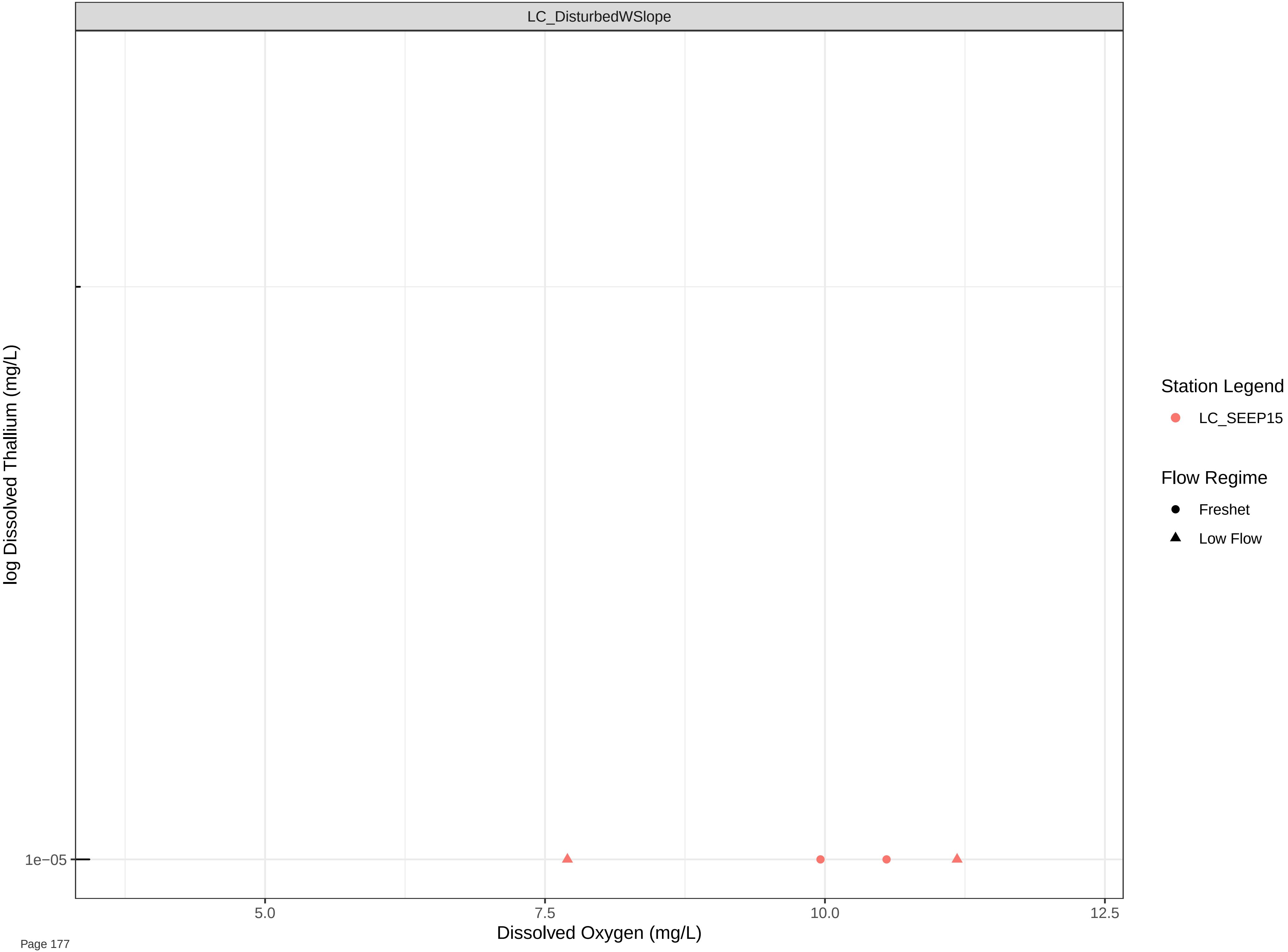
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow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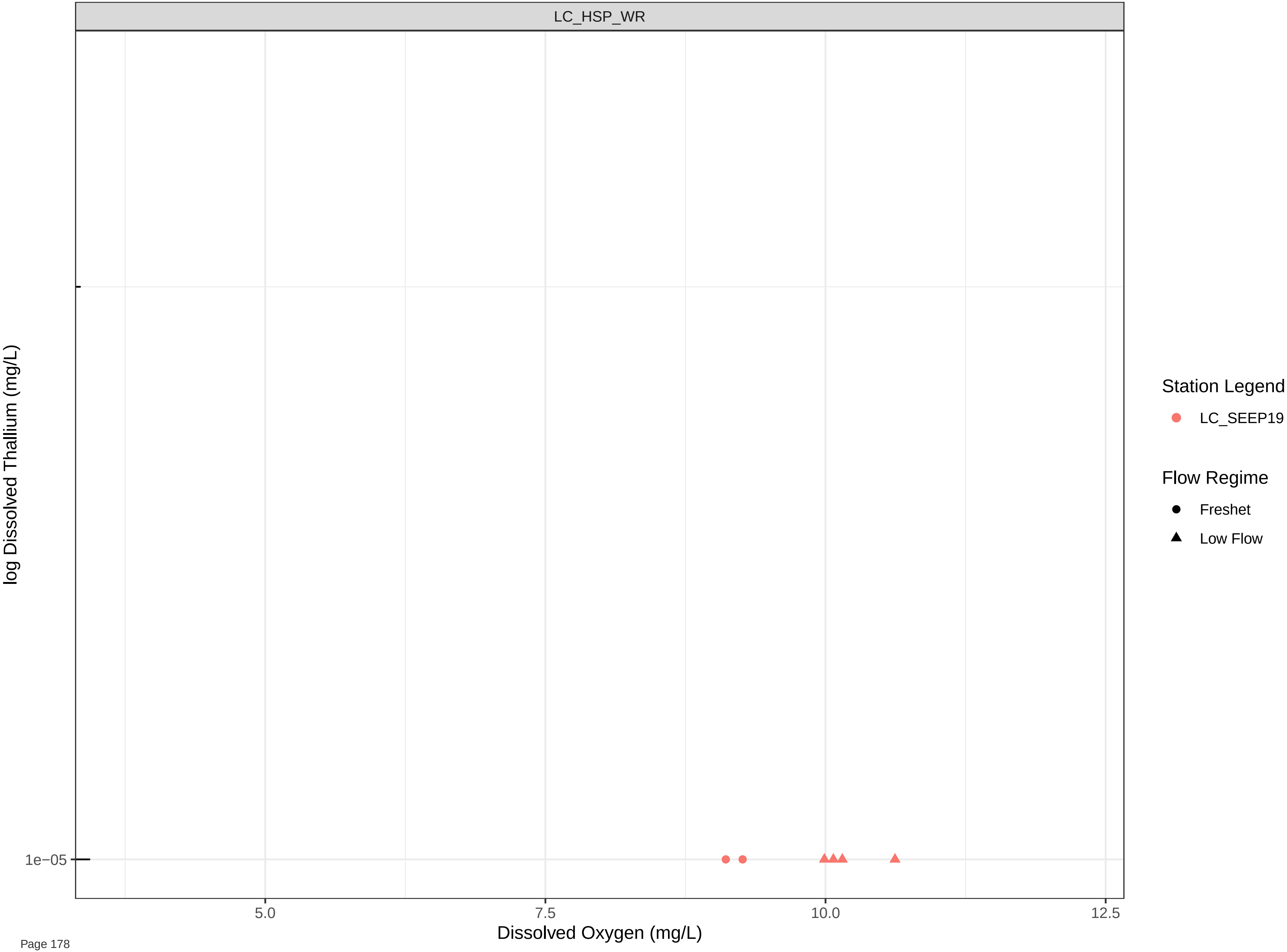
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow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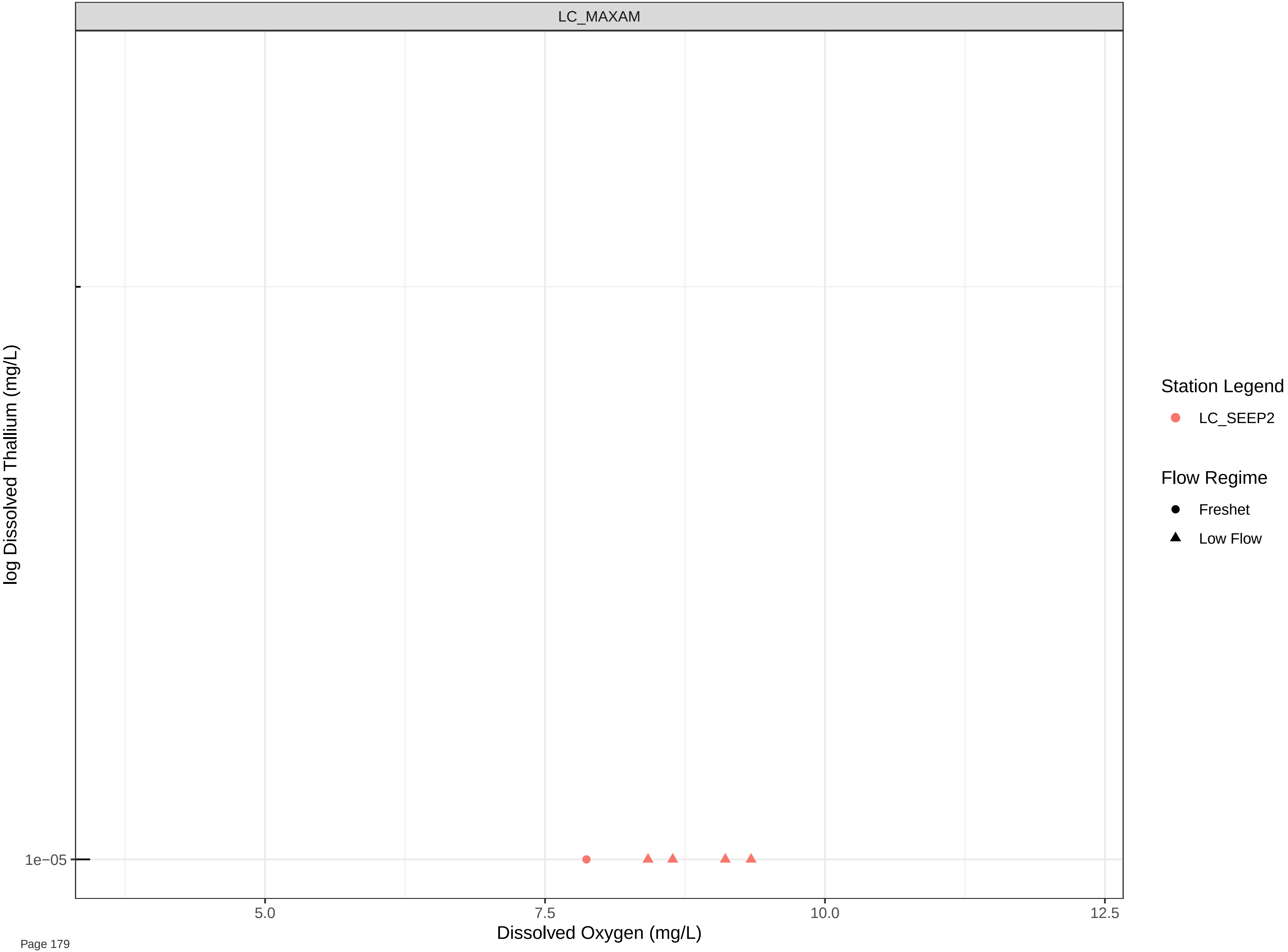
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow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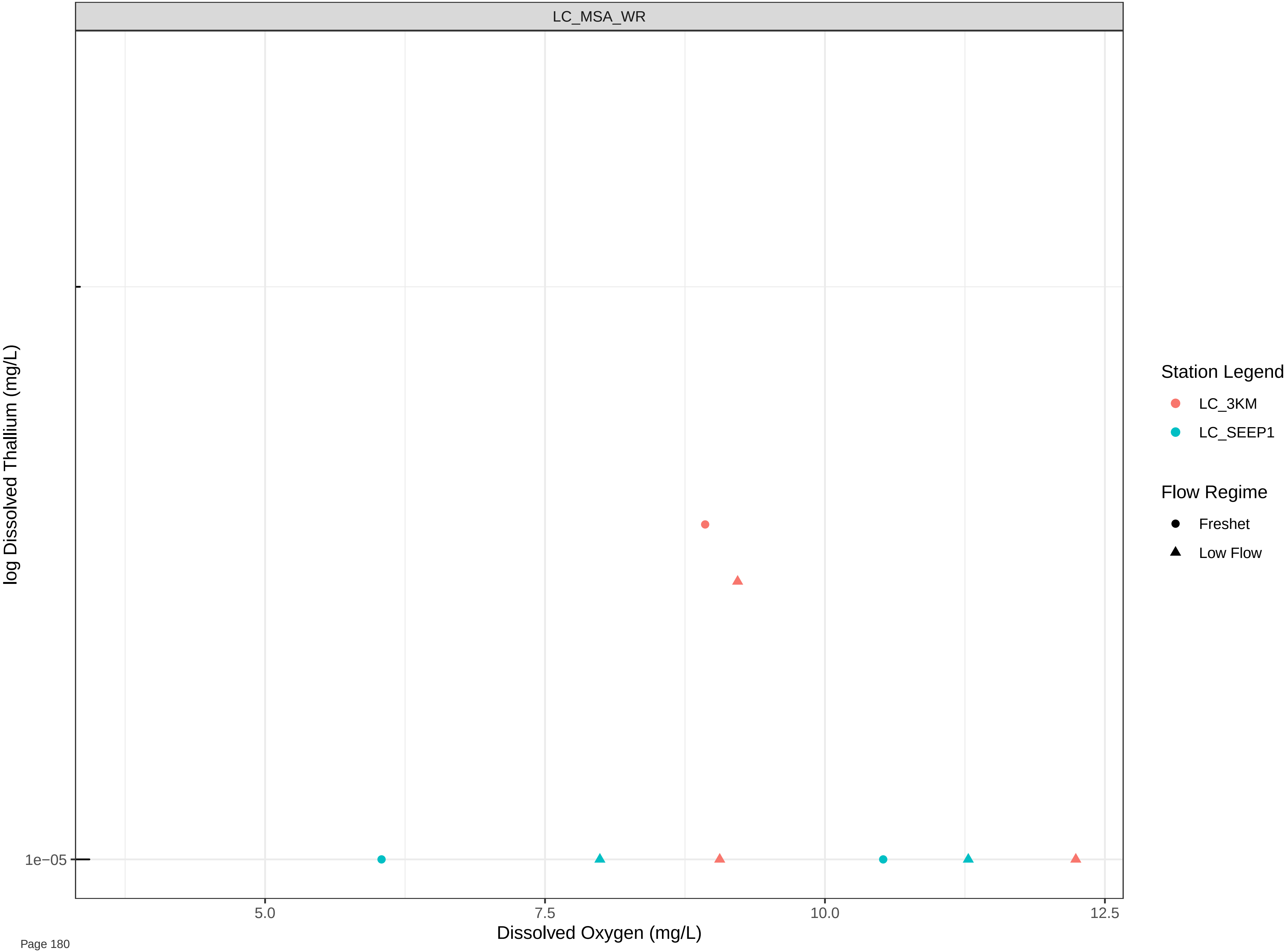
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow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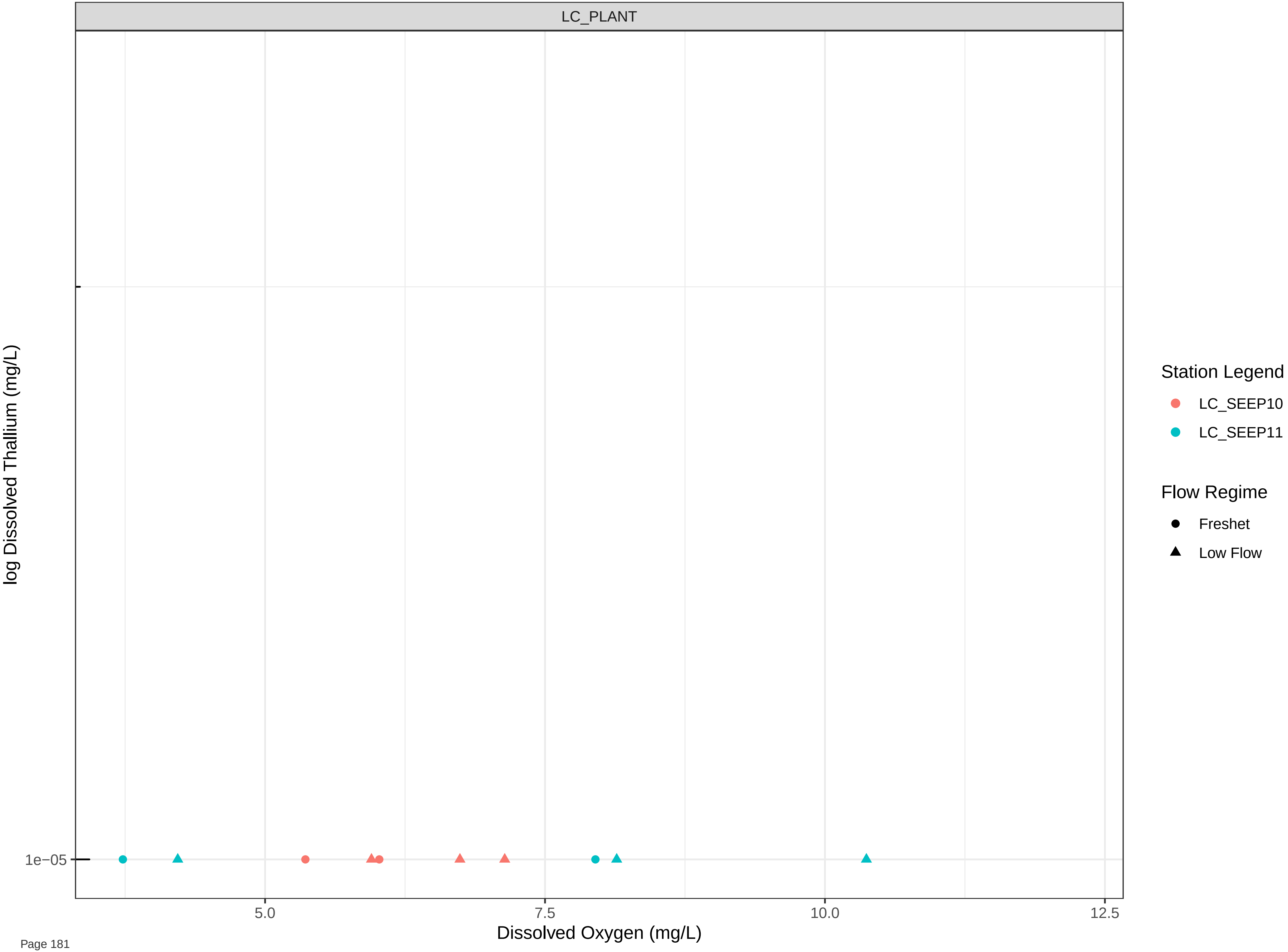
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow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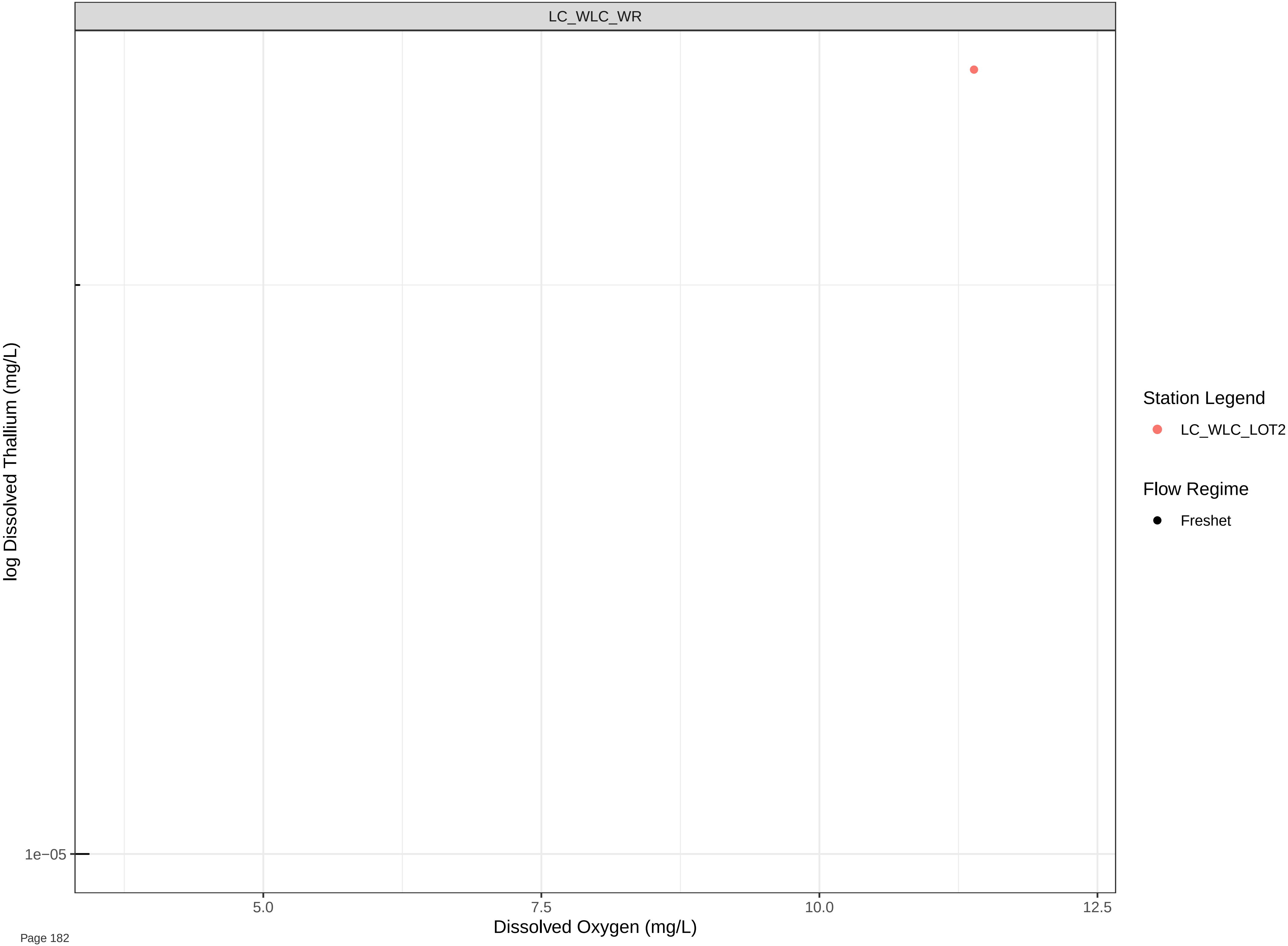
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow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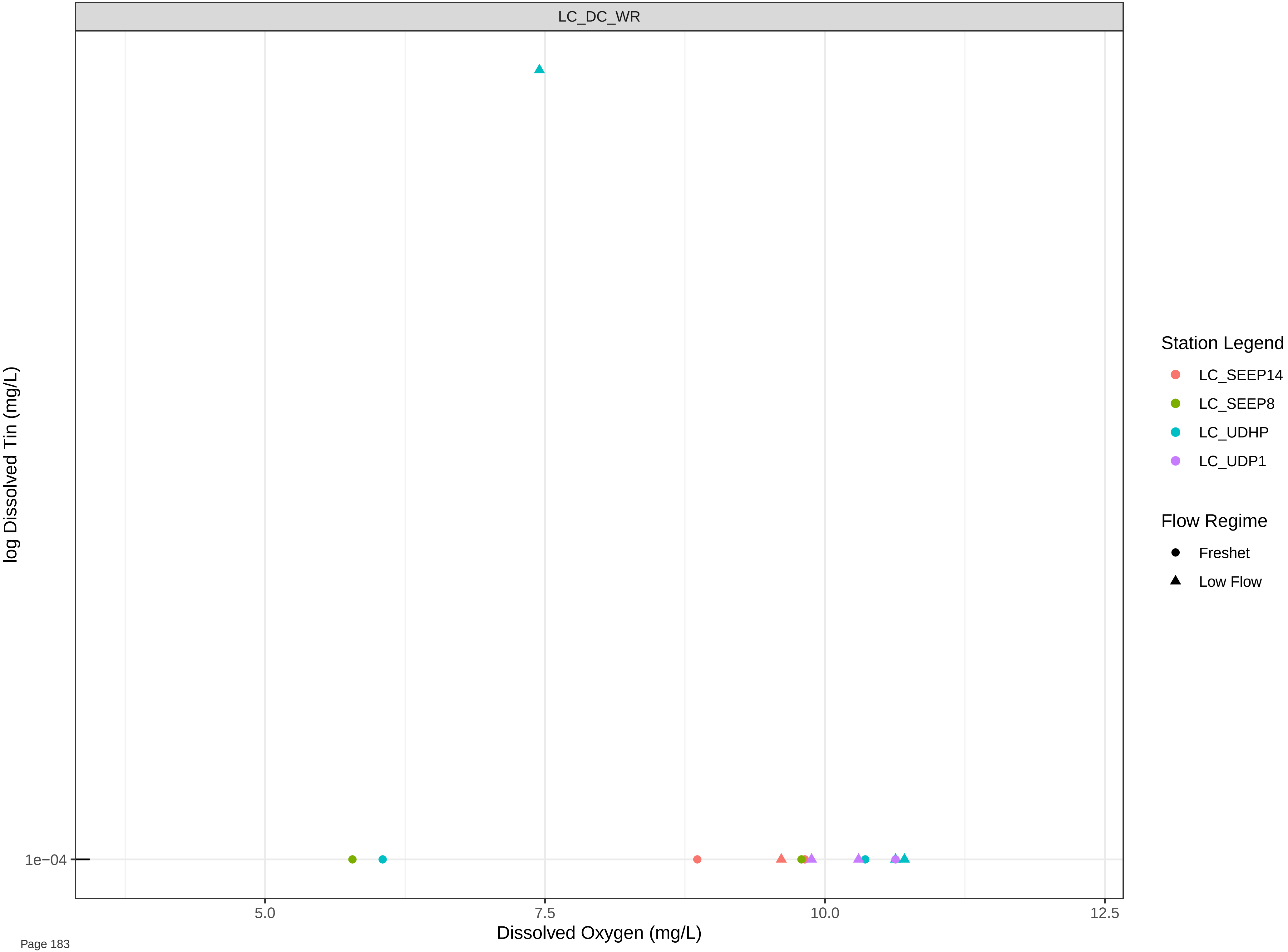
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet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Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
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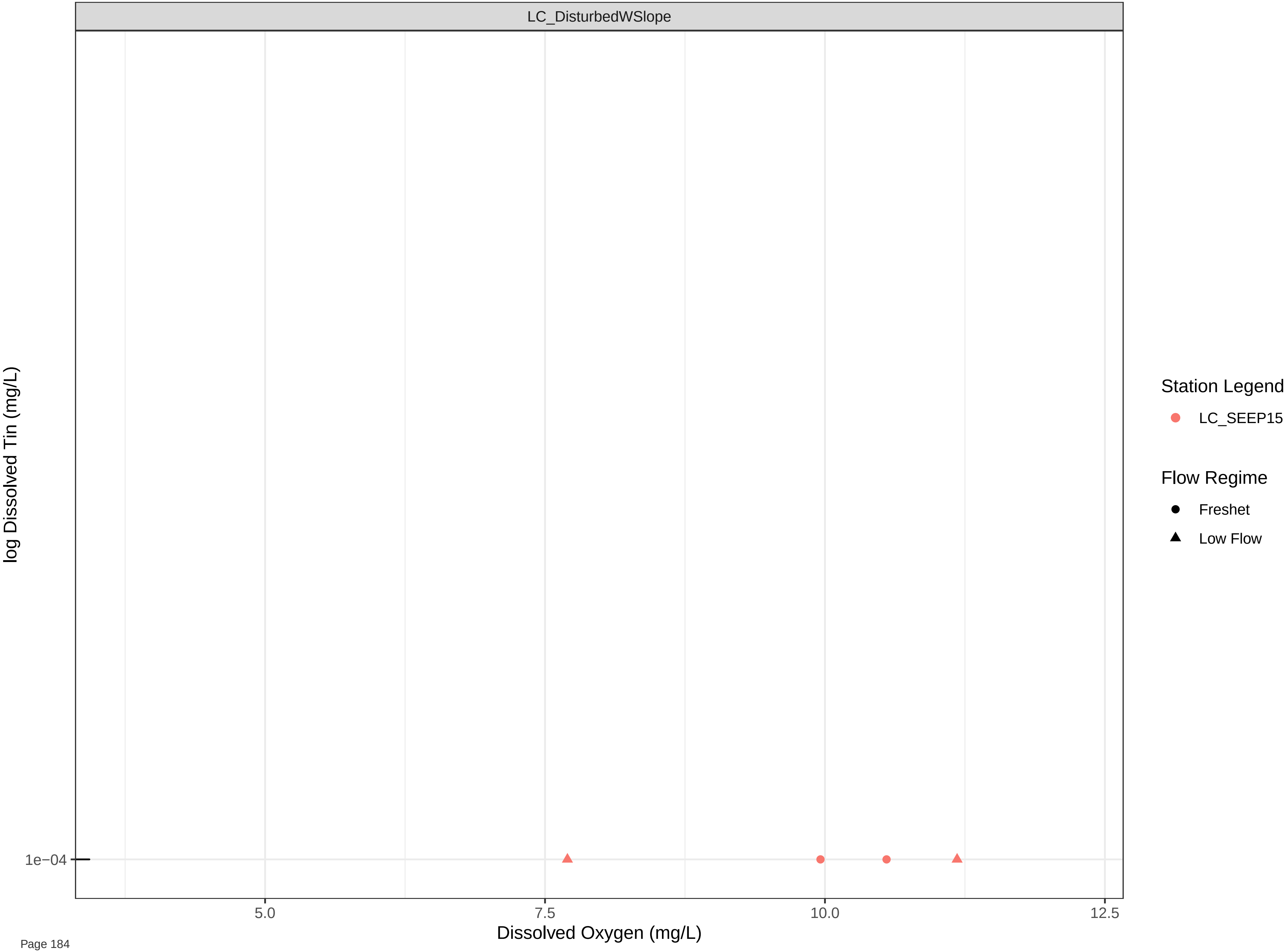
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow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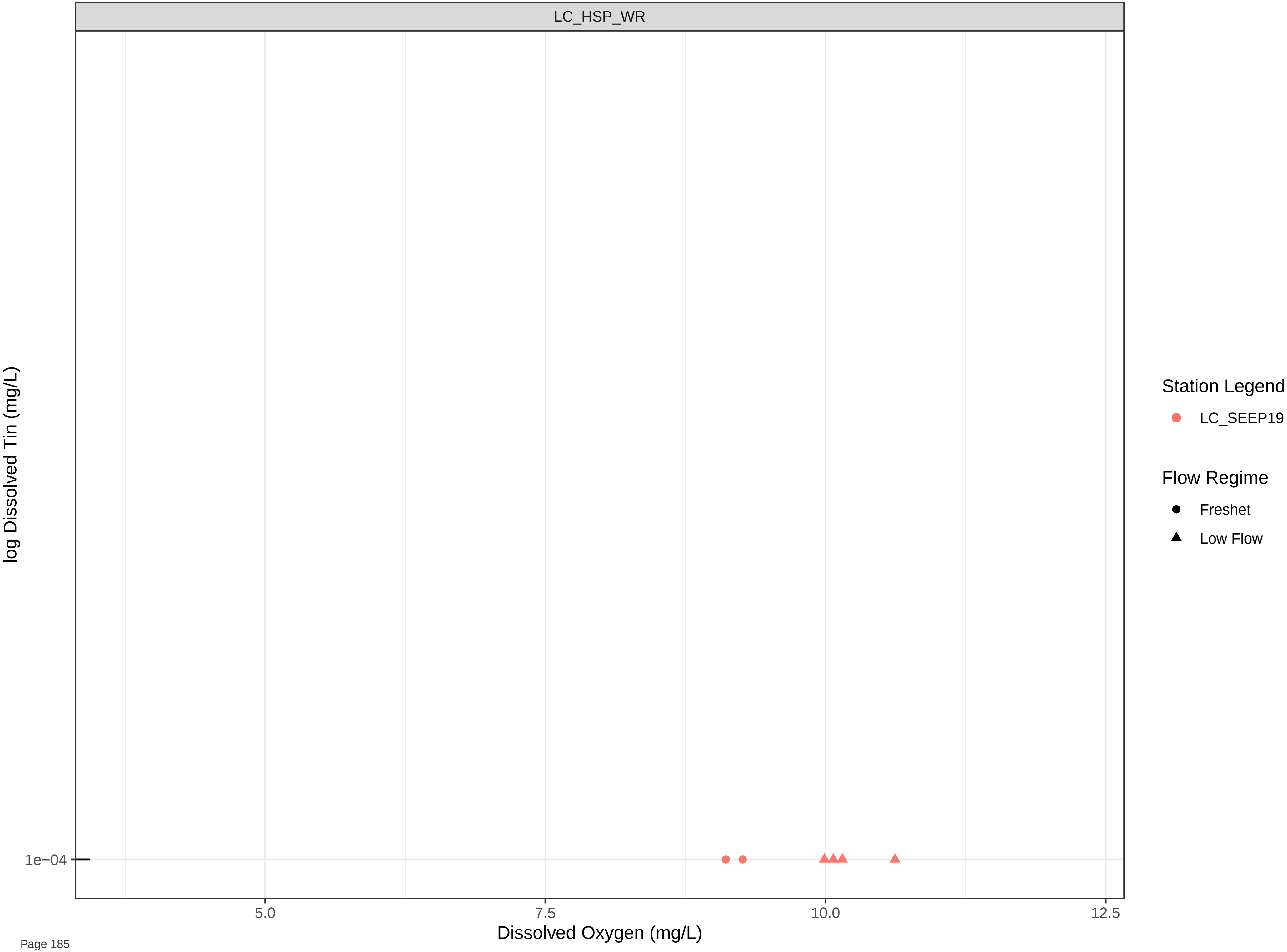
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow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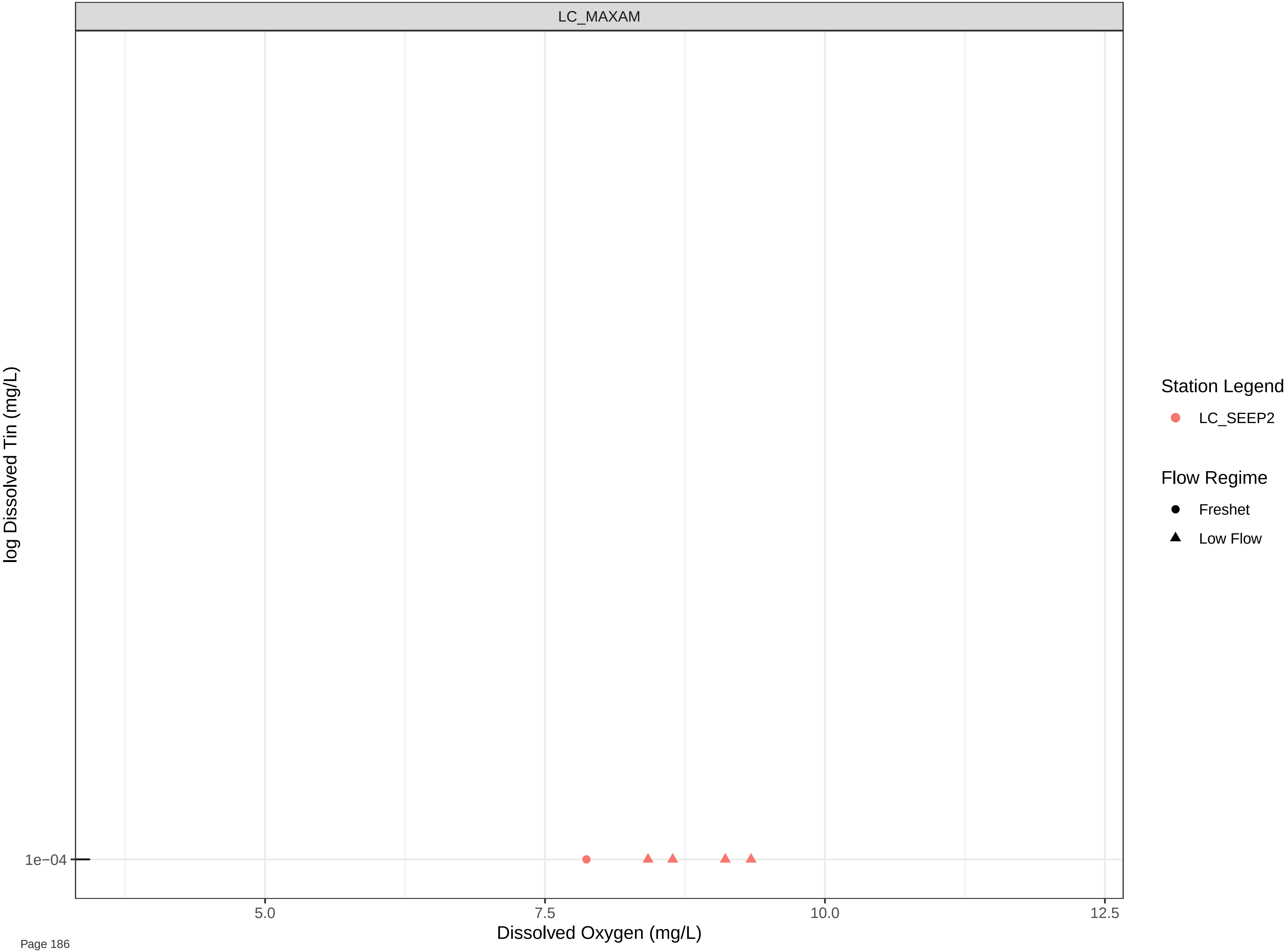
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow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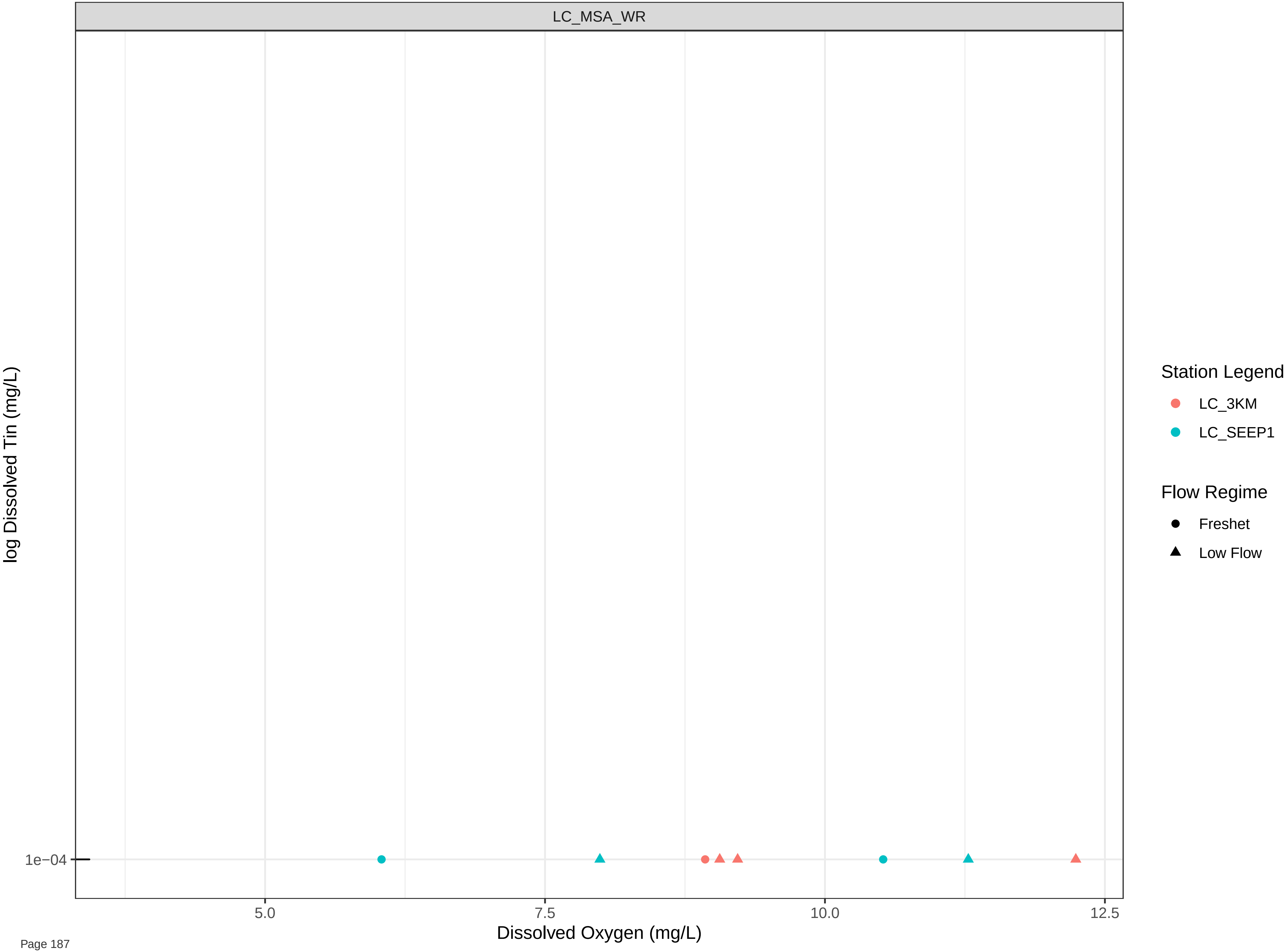
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow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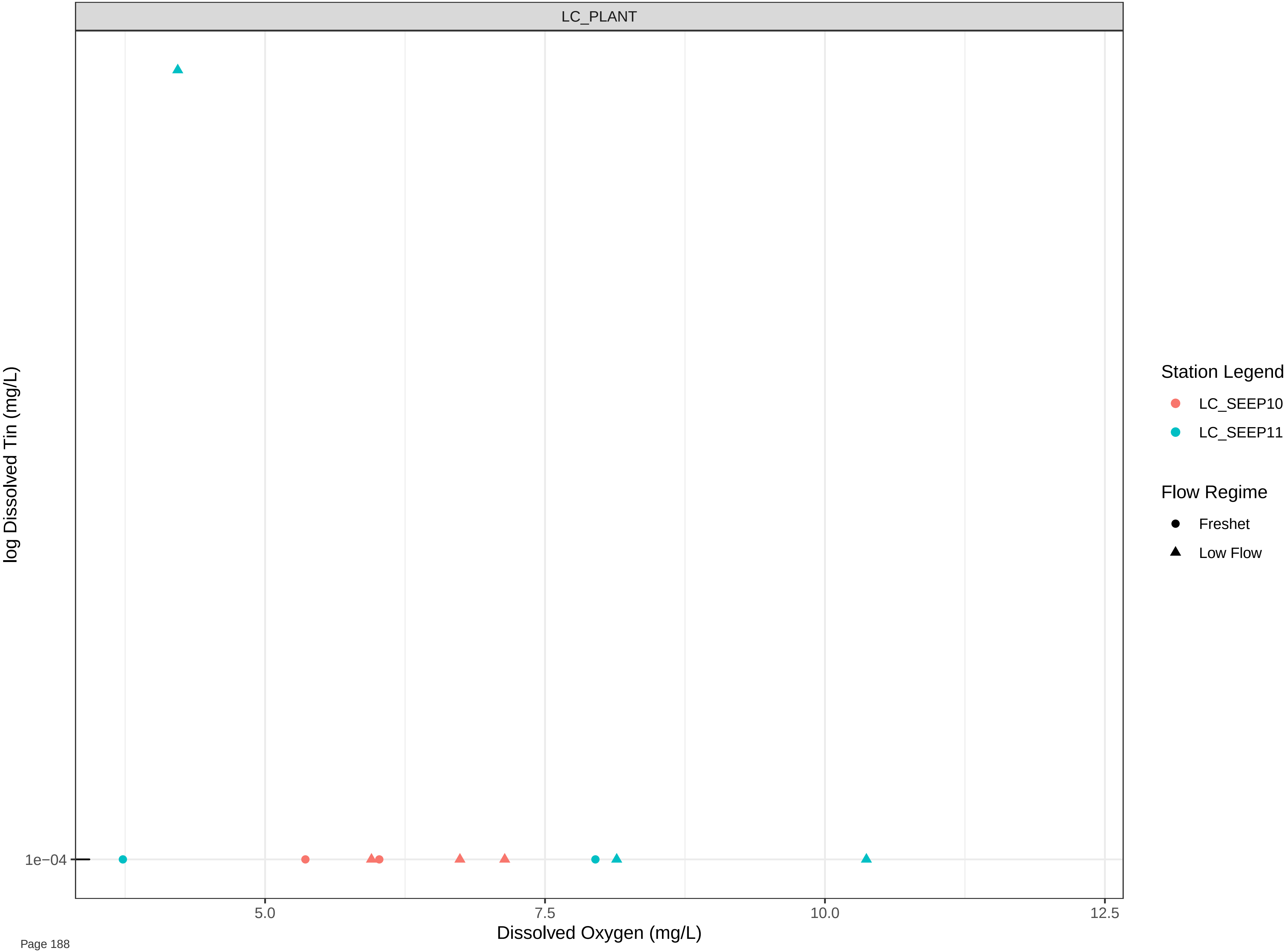
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow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12.5
Dissolved Oxygen (mg/L)
Station Legend
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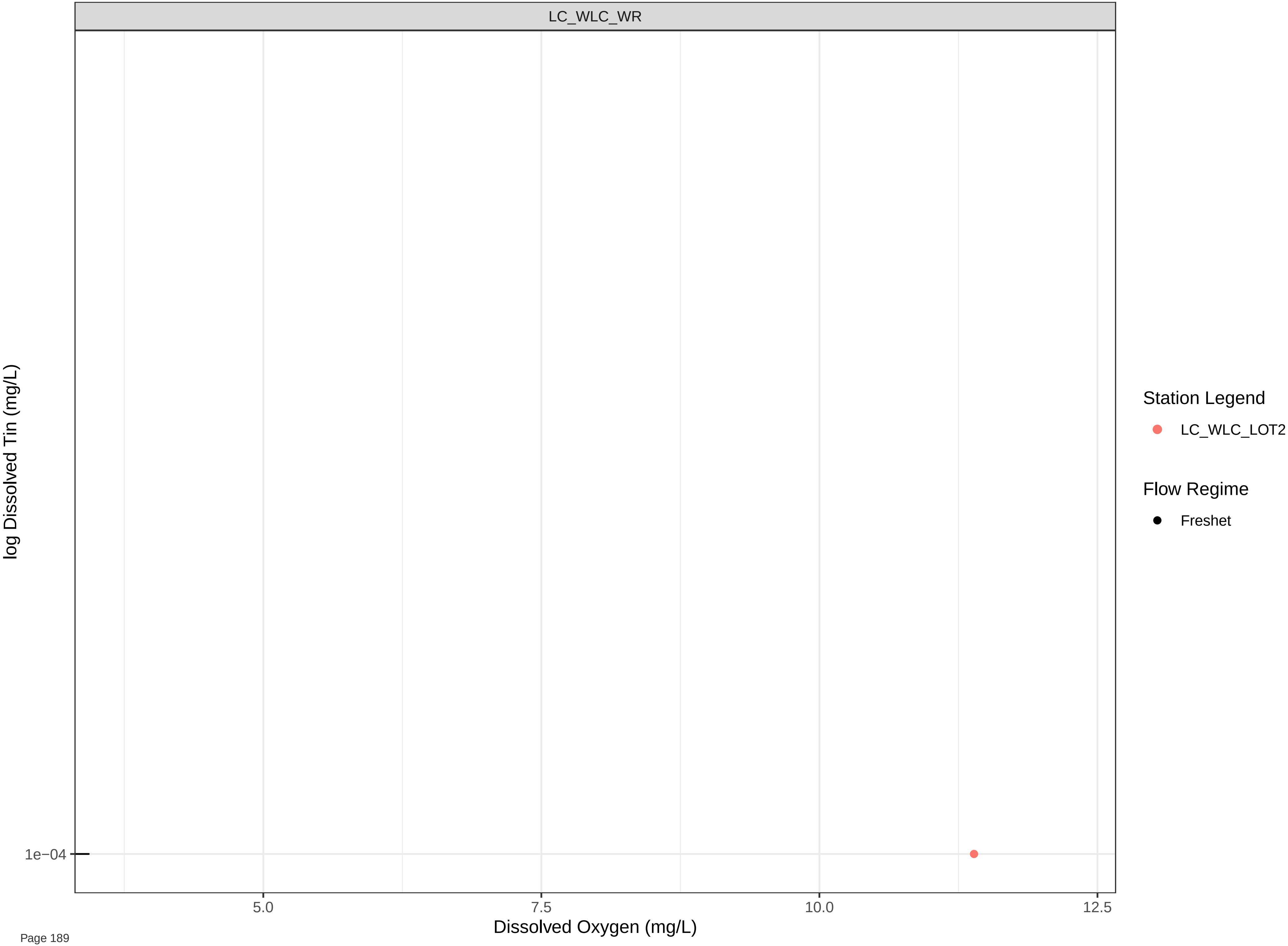
Flow Regime
Freshet
Low Flow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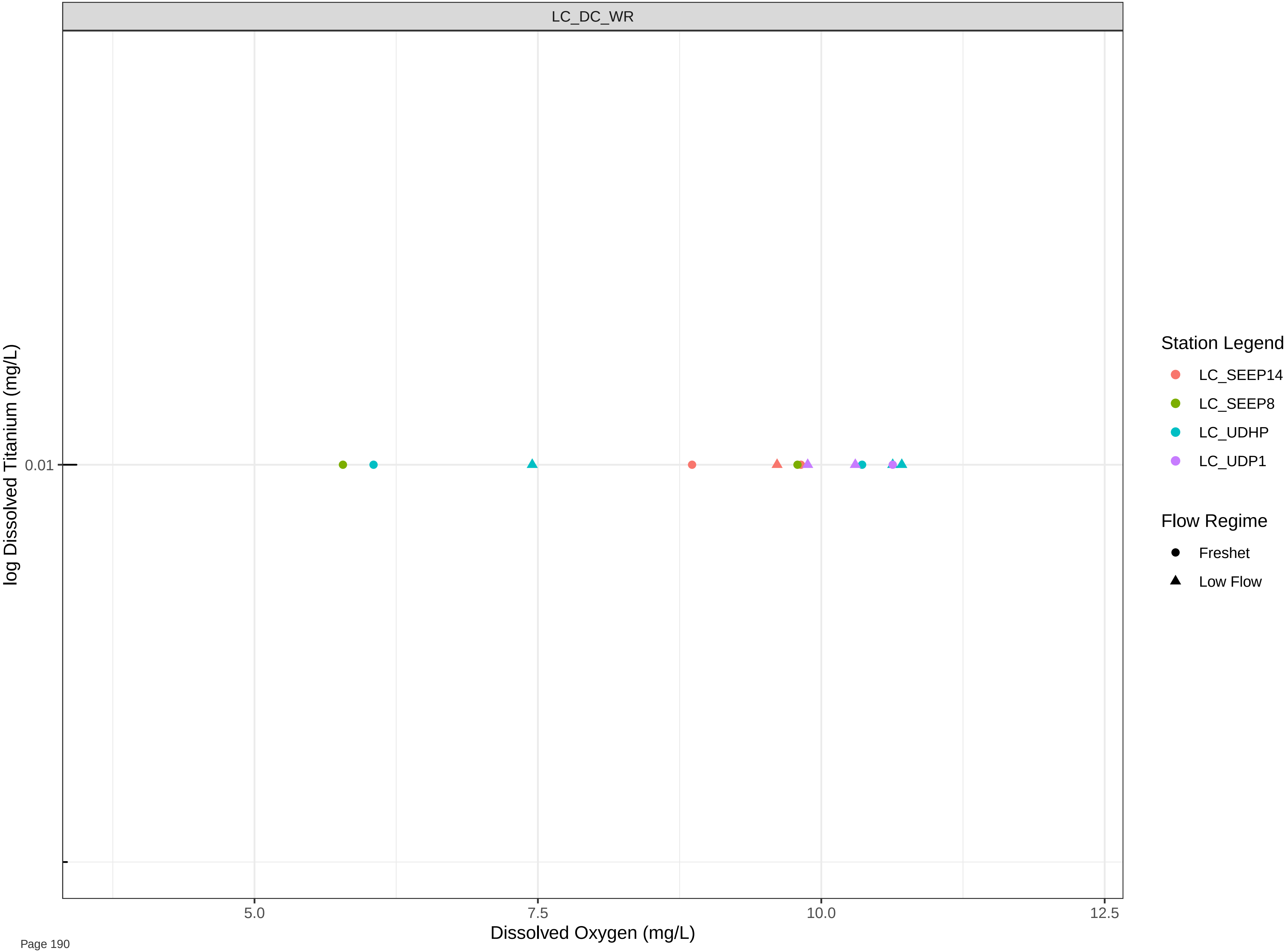
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet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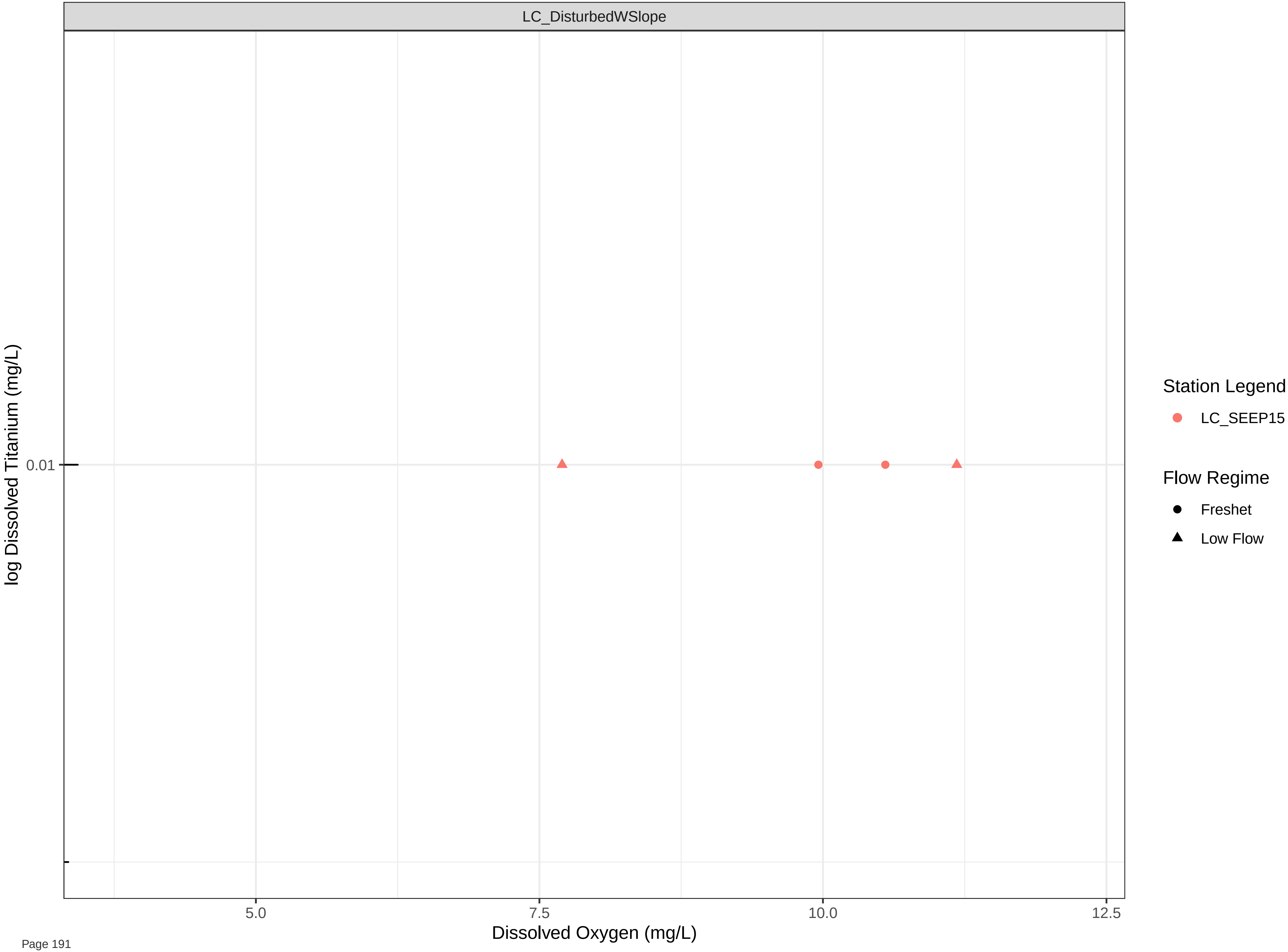
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
Station Legend
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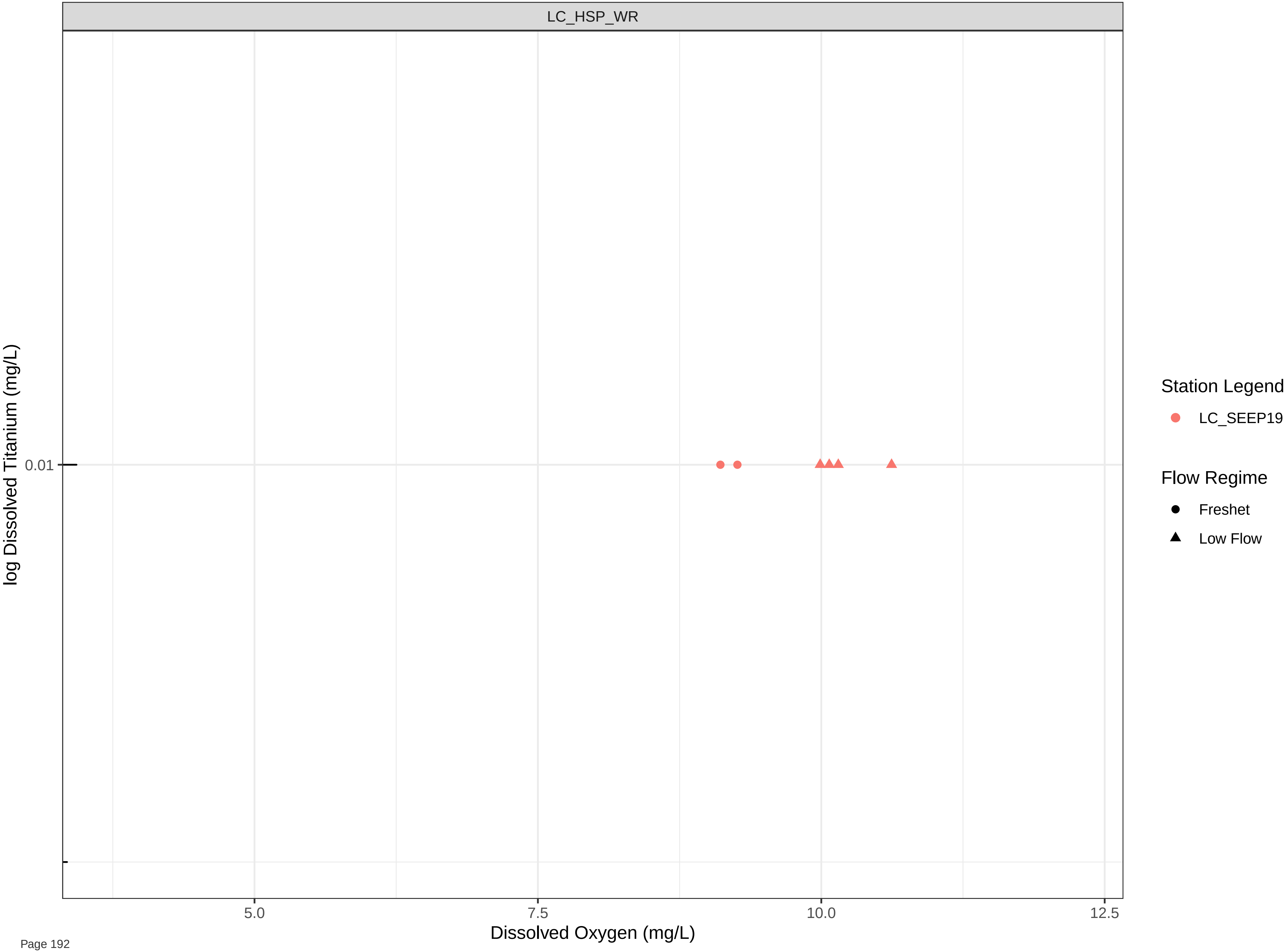
Flow Regime
Freshet
Low Flow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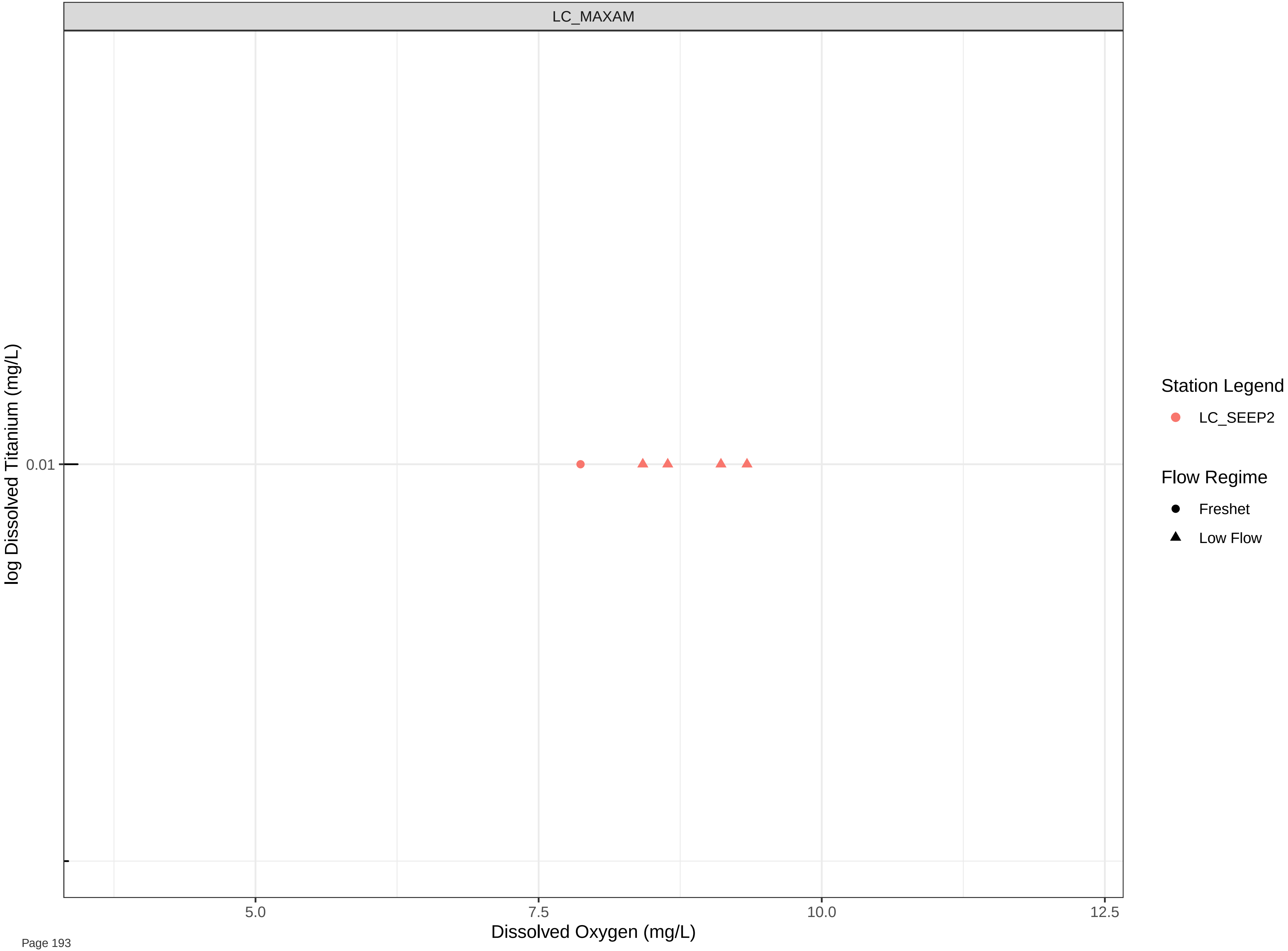
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow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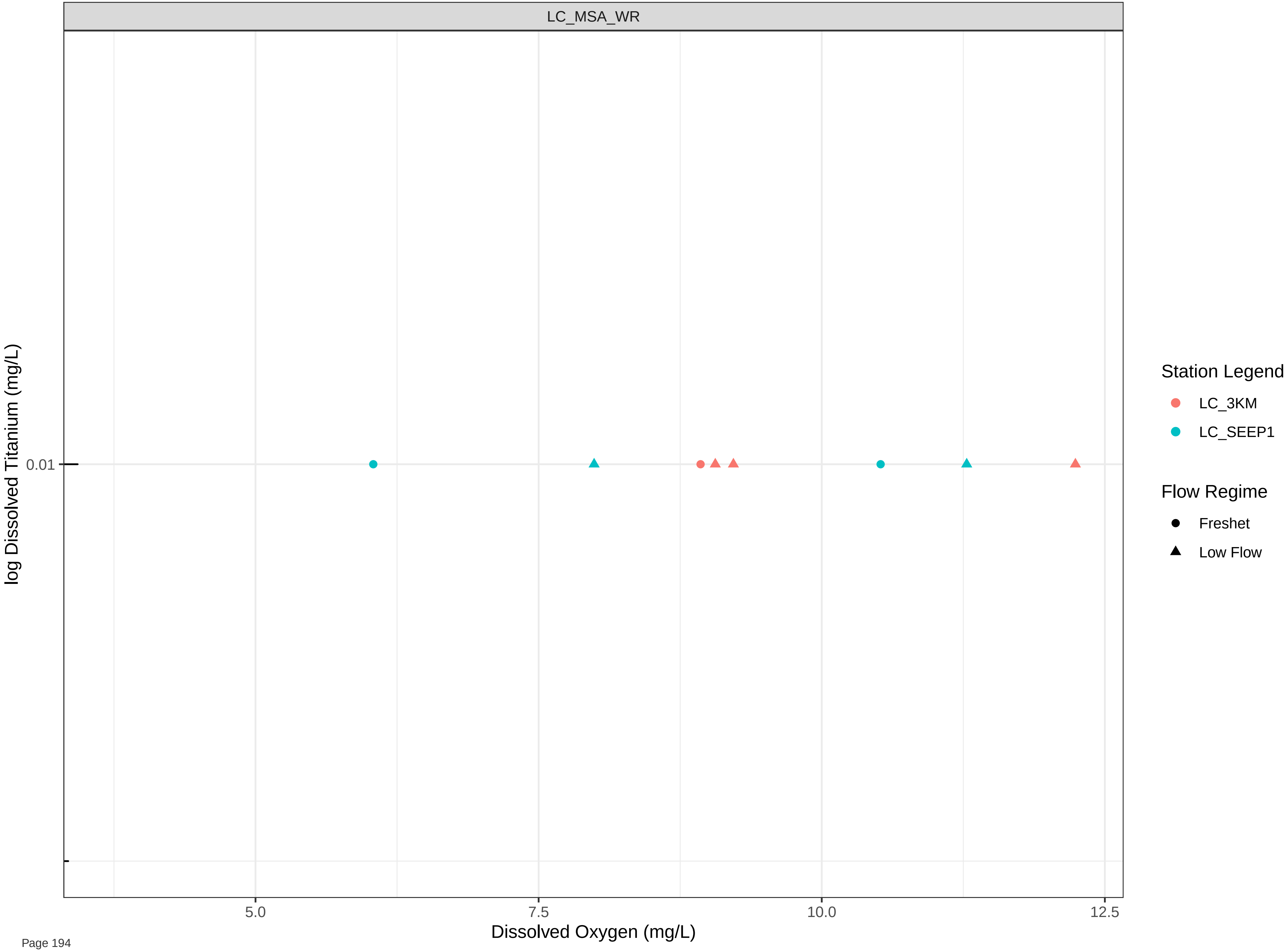
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow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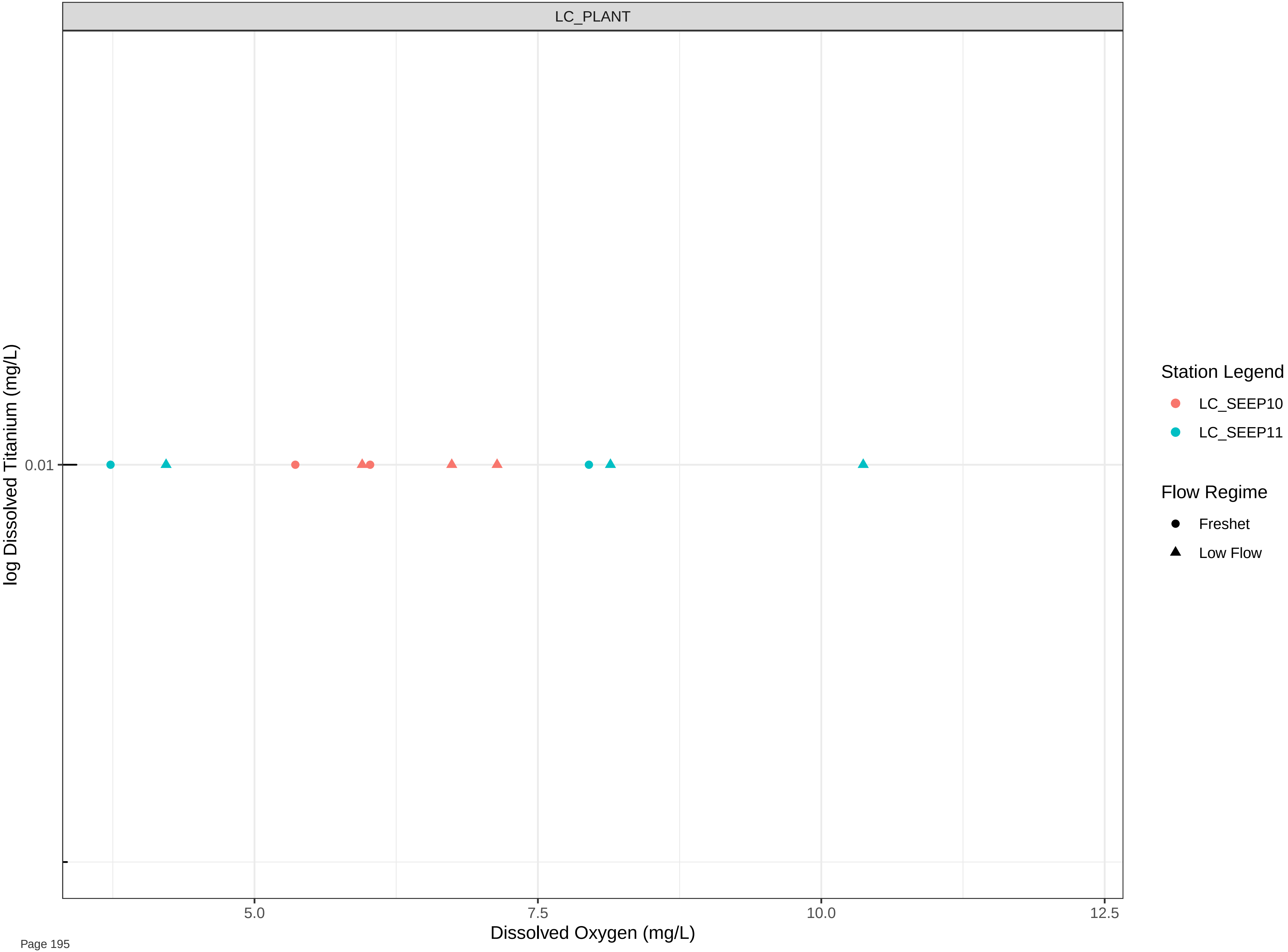
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow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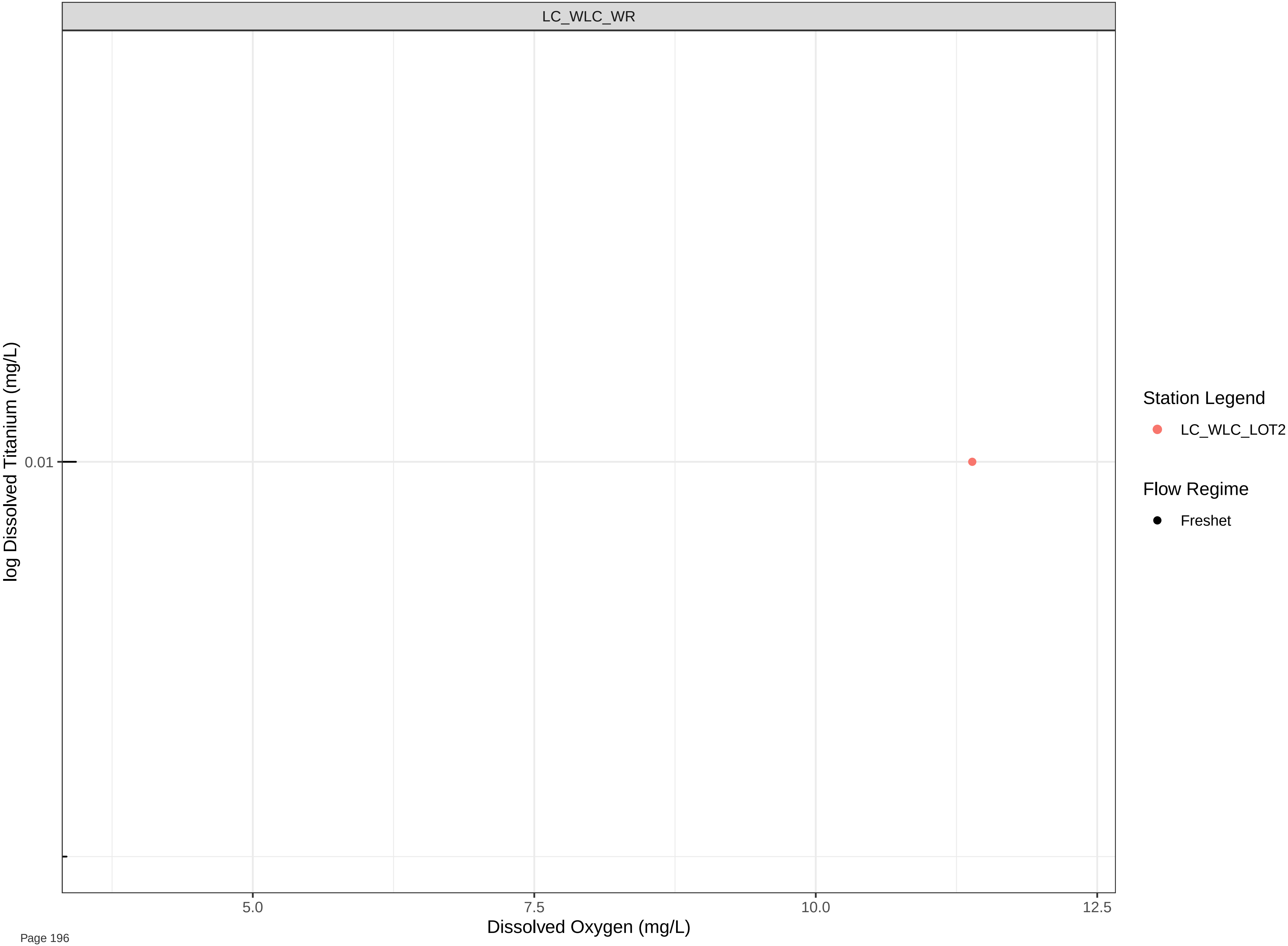
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow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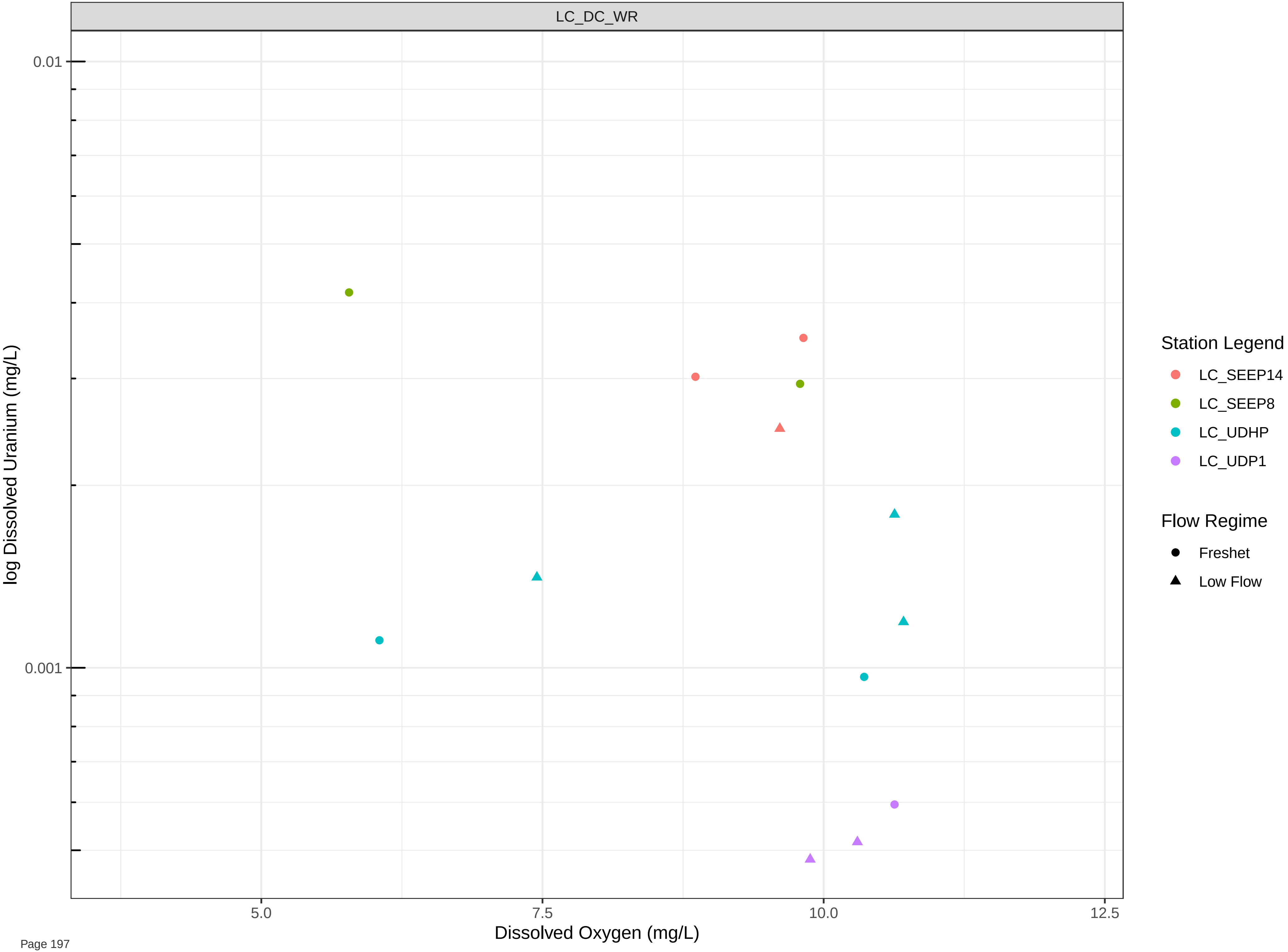
Dissolved Oxygen (mg/L)
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet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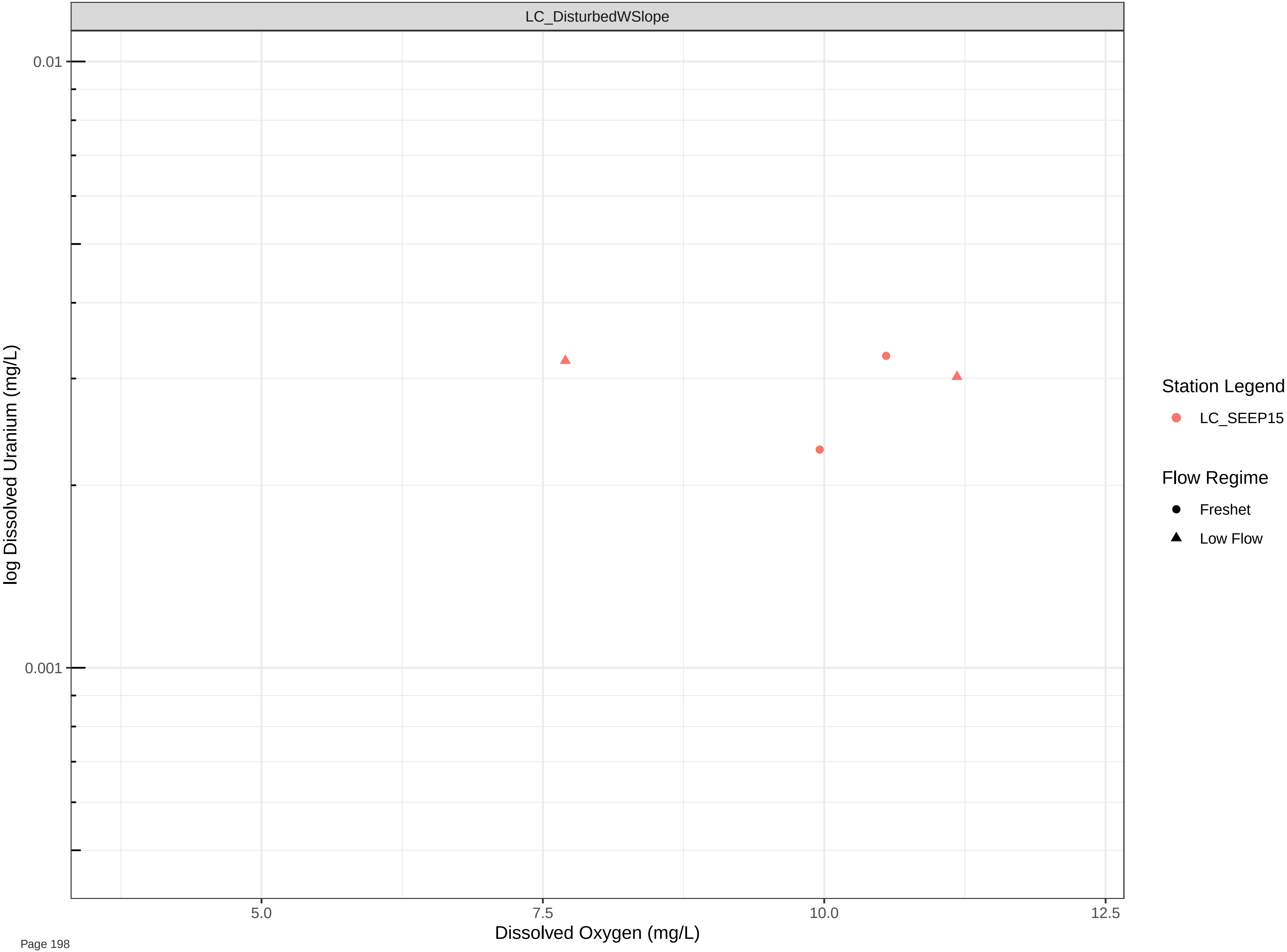
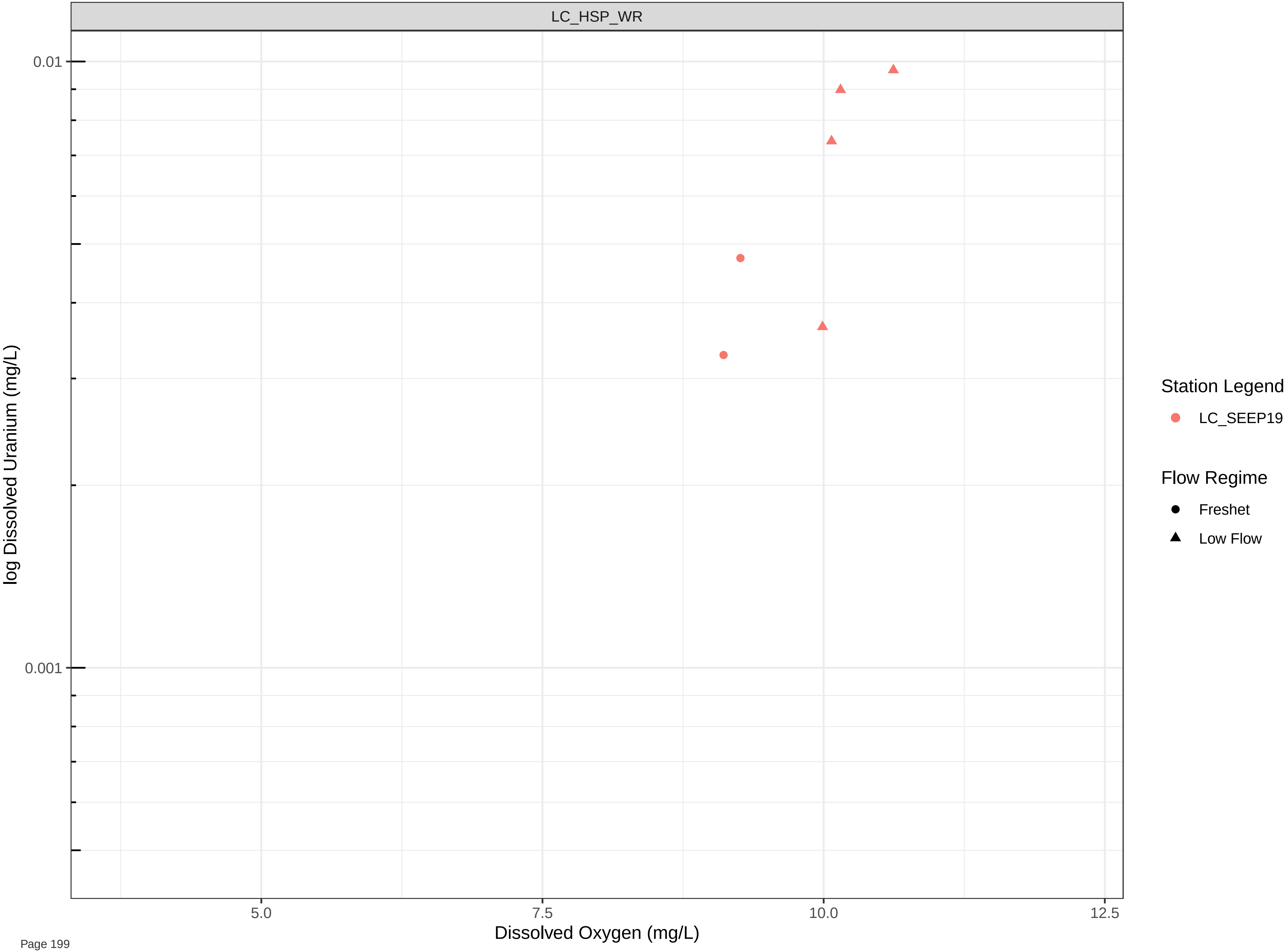
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
0.01
0.001
log Dissolved Uranium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow


LC_HSP_WR
0.01
0.001
log Dissolved Uranium (mg/L)
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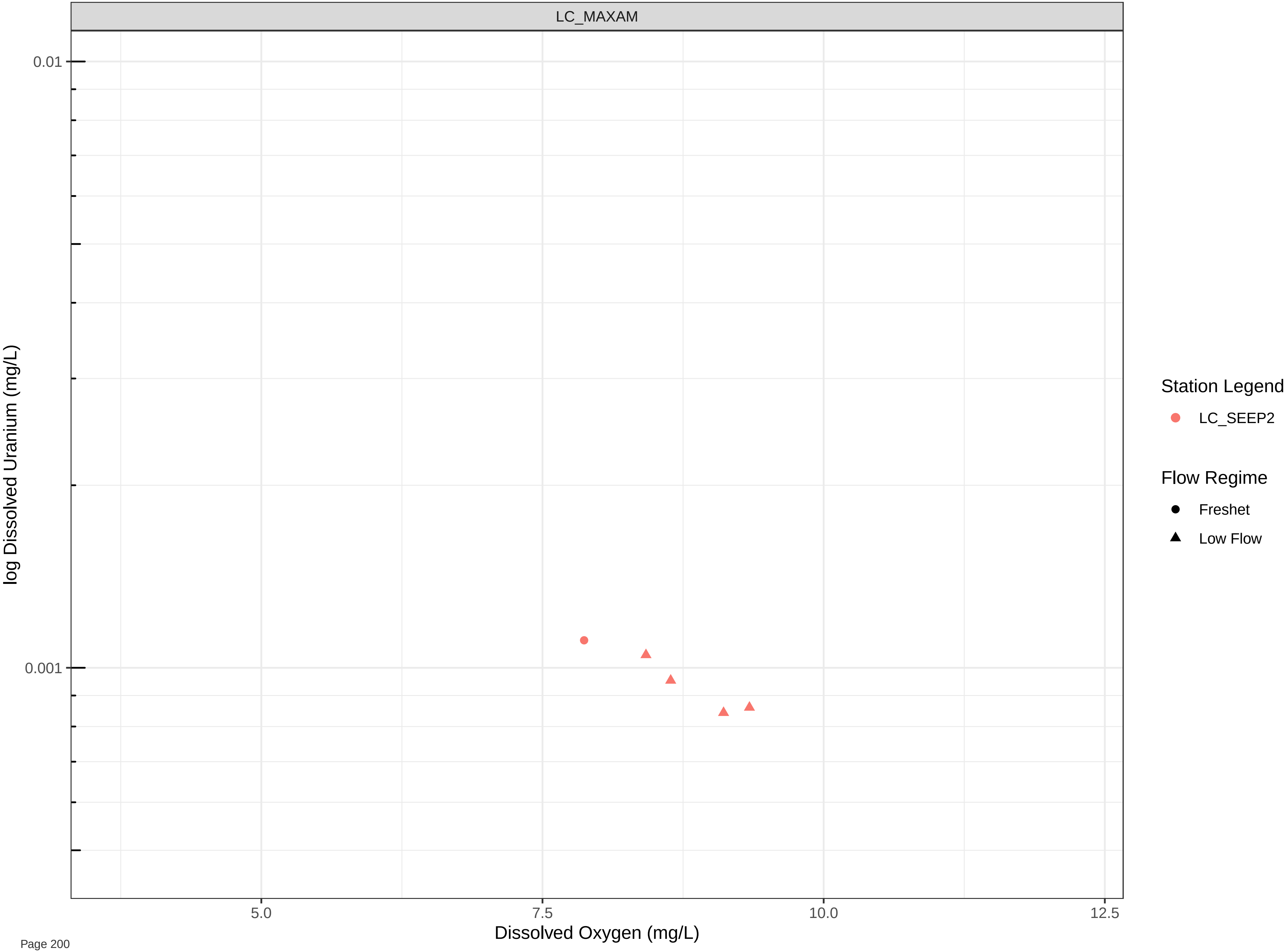
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow


LC_MAXAM
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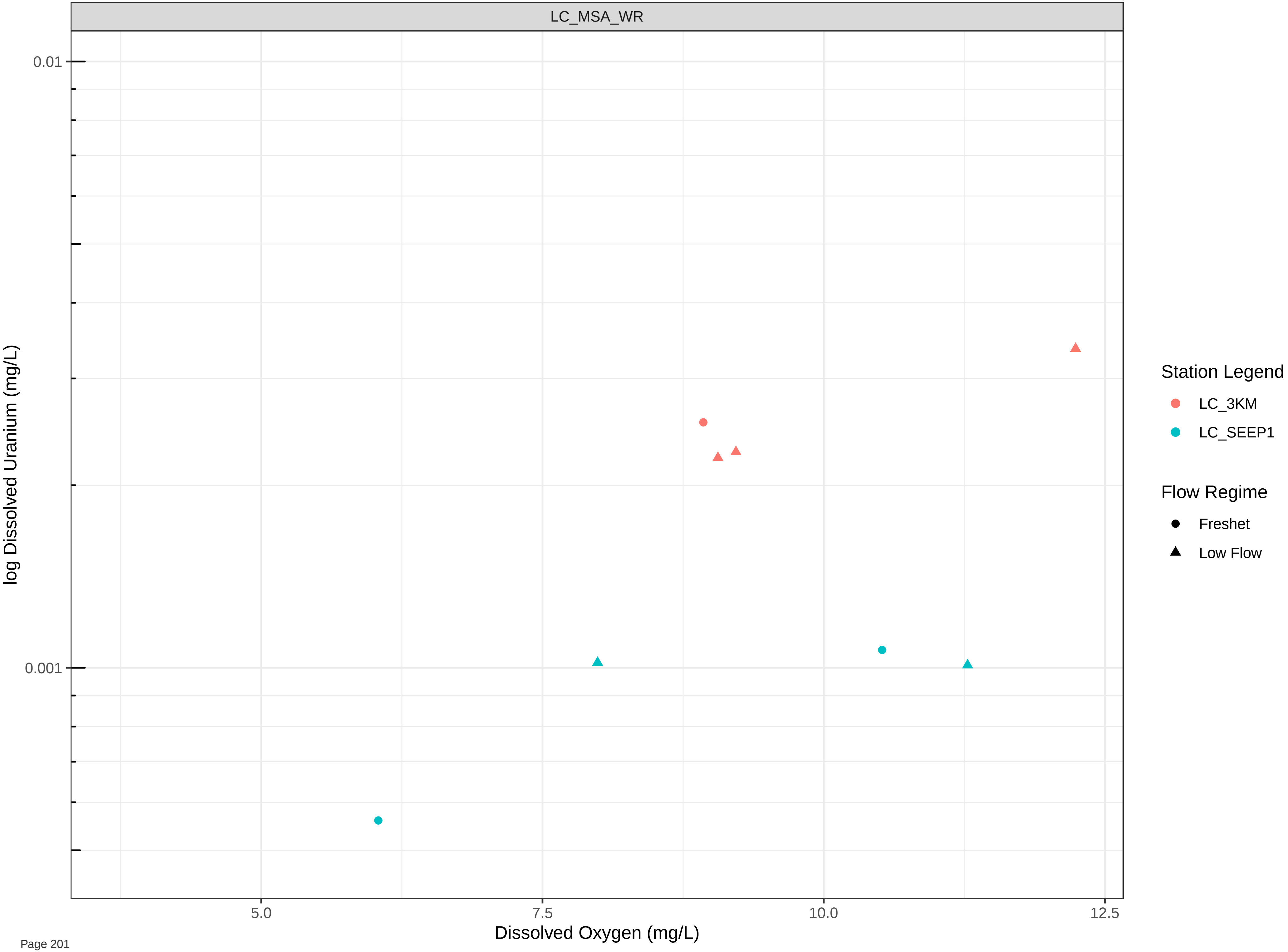
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow


LC_MSA_WR
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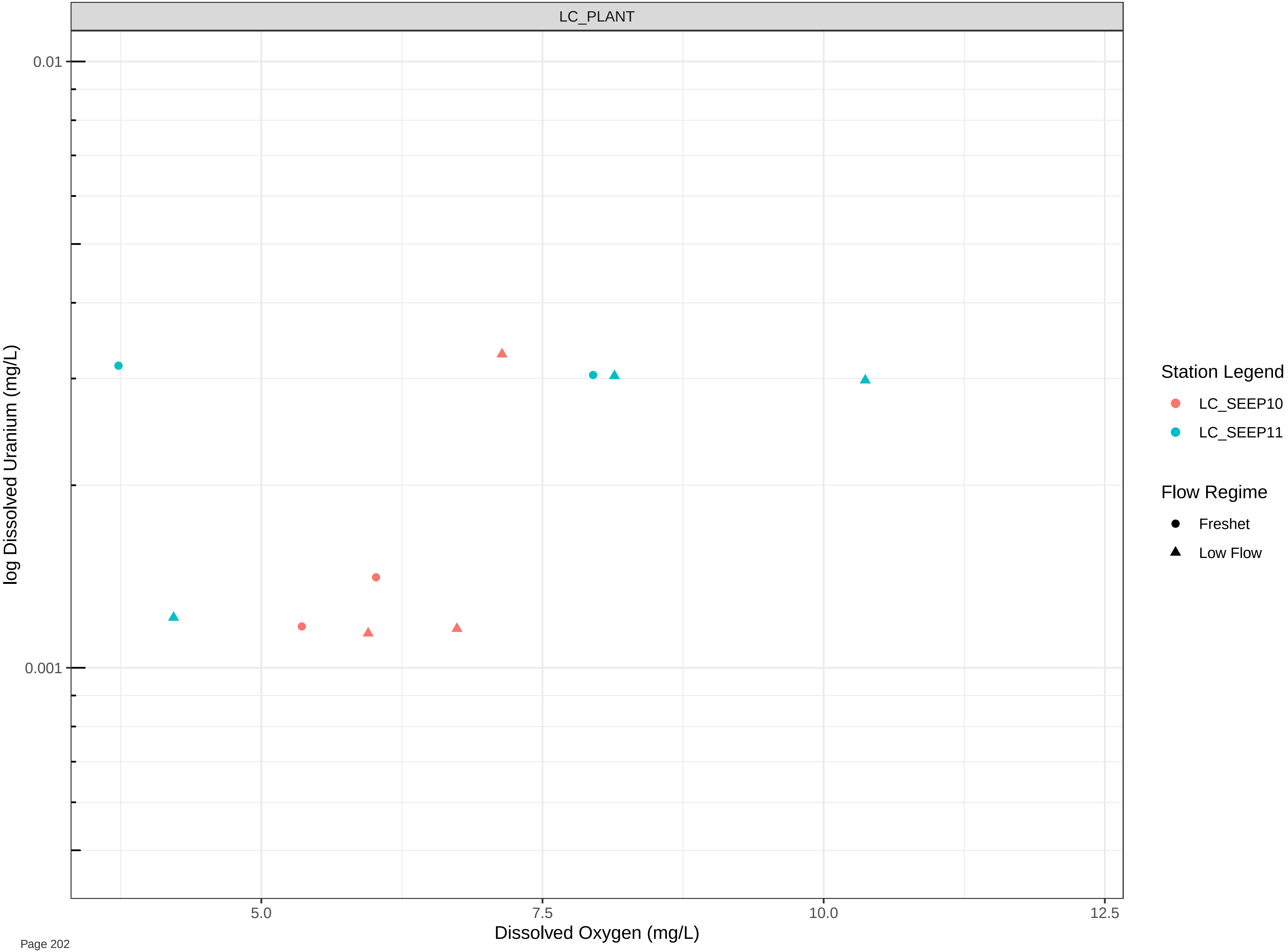
0.001
log Dissolved Uranium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_3KM
● LC_SEEP1
Flow Regime
● Freshet
▲ Low Flow


LC_PLANT
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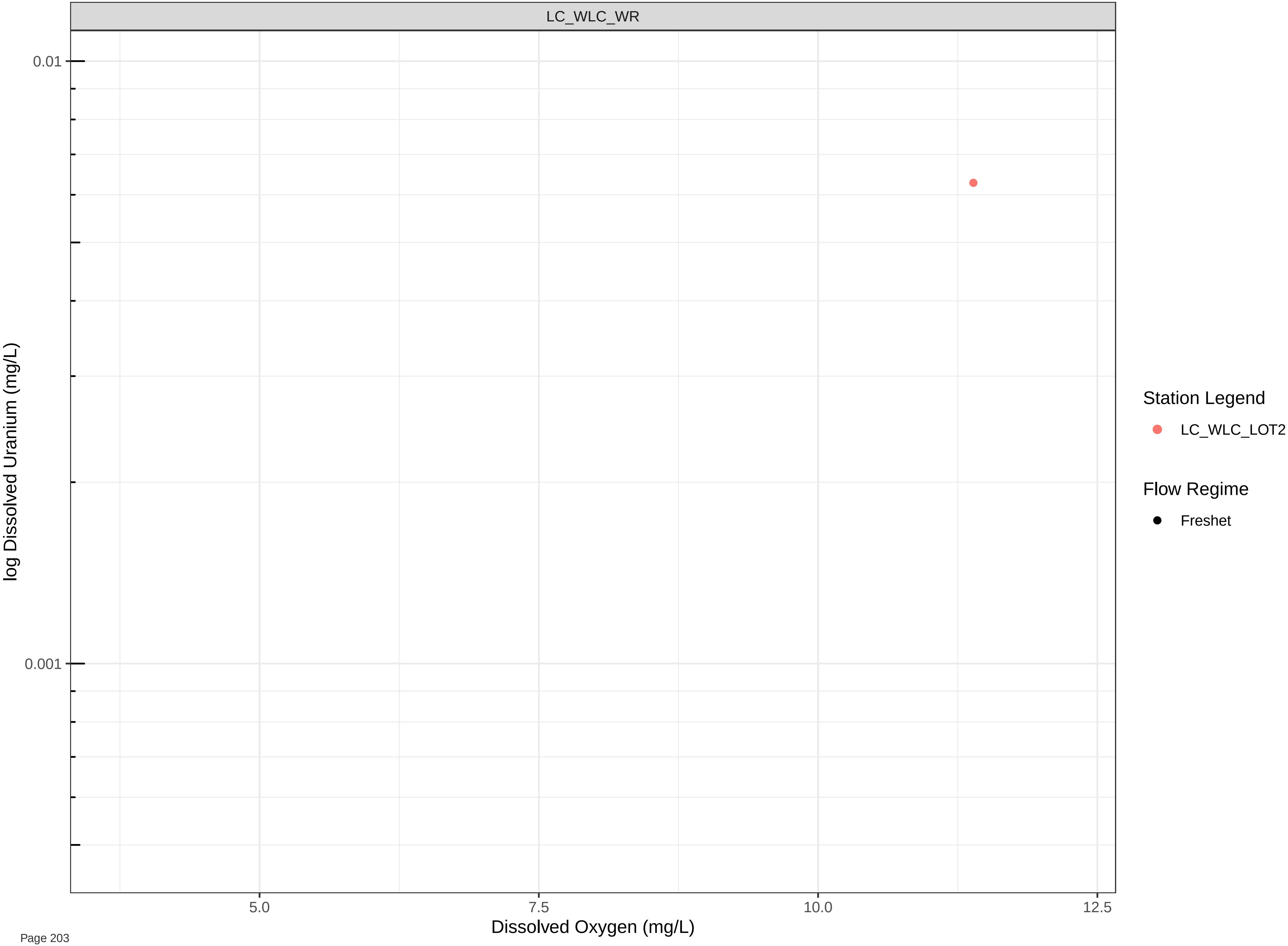
0.001
log Dissolved Uranium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow


LC_WLC_WR
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log Dissolved Uranium (mg/L)
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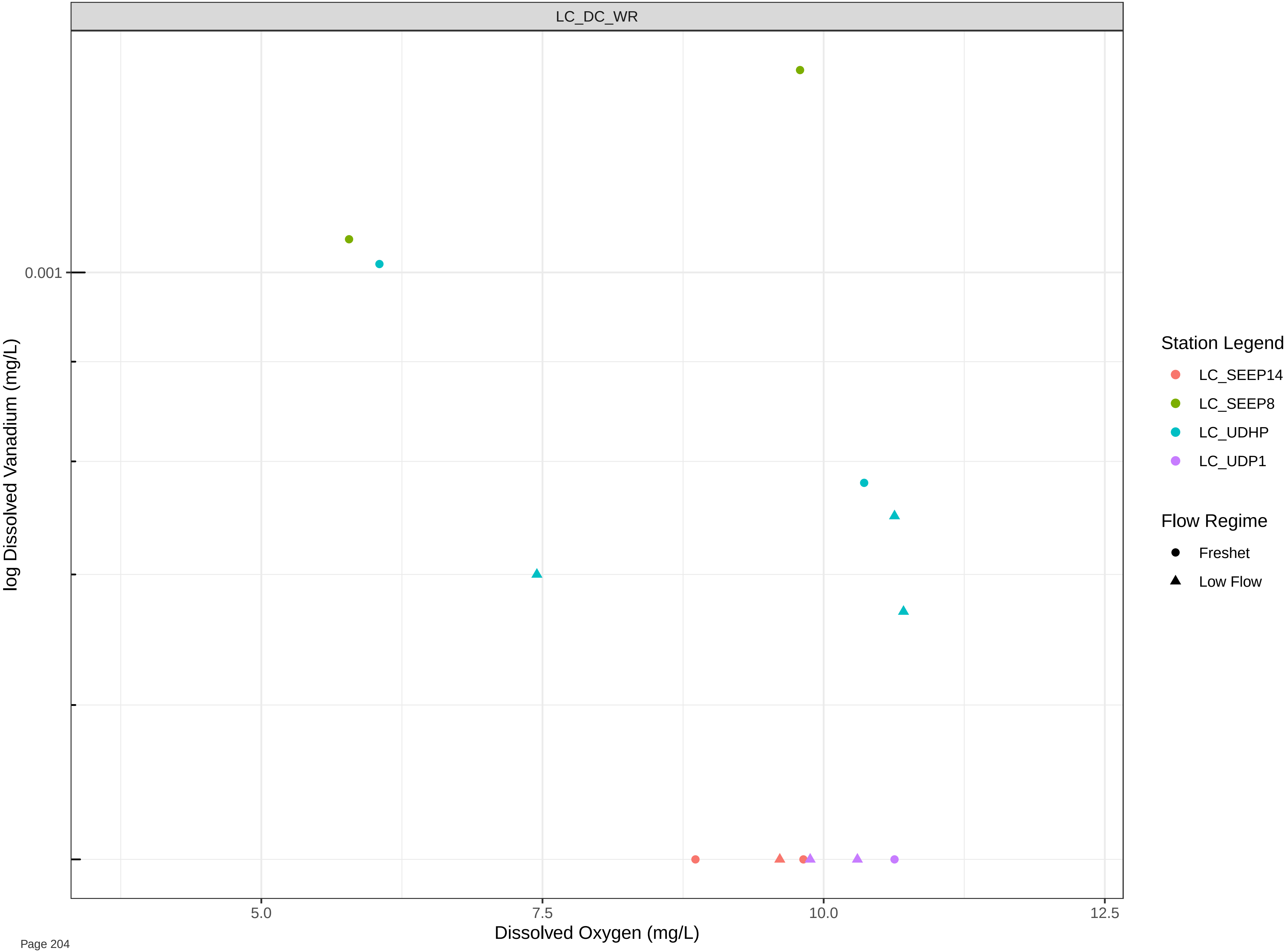
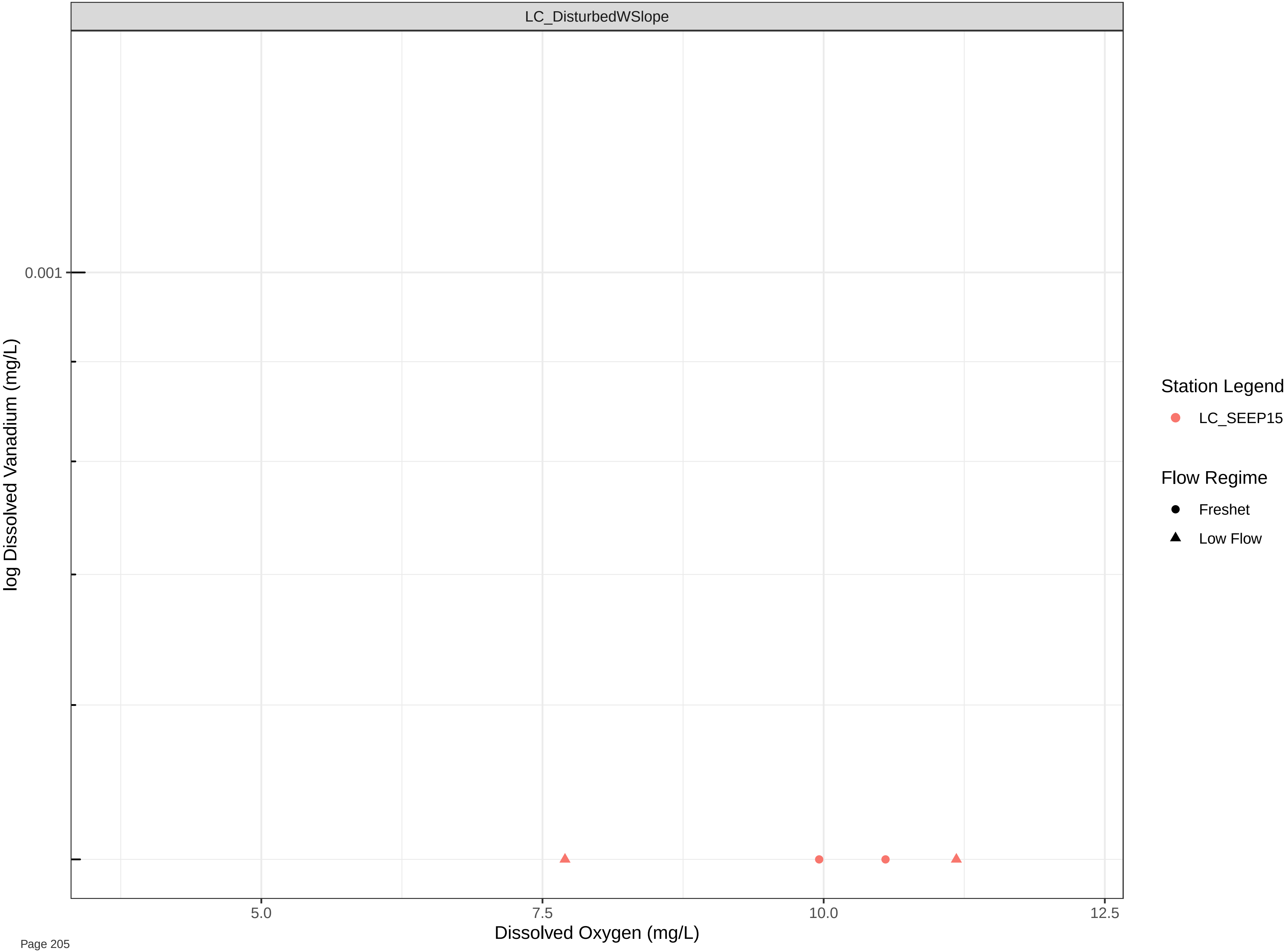
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet


LC_DC_WR
log Dissolved Vanadium (mg/L)
0.001
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
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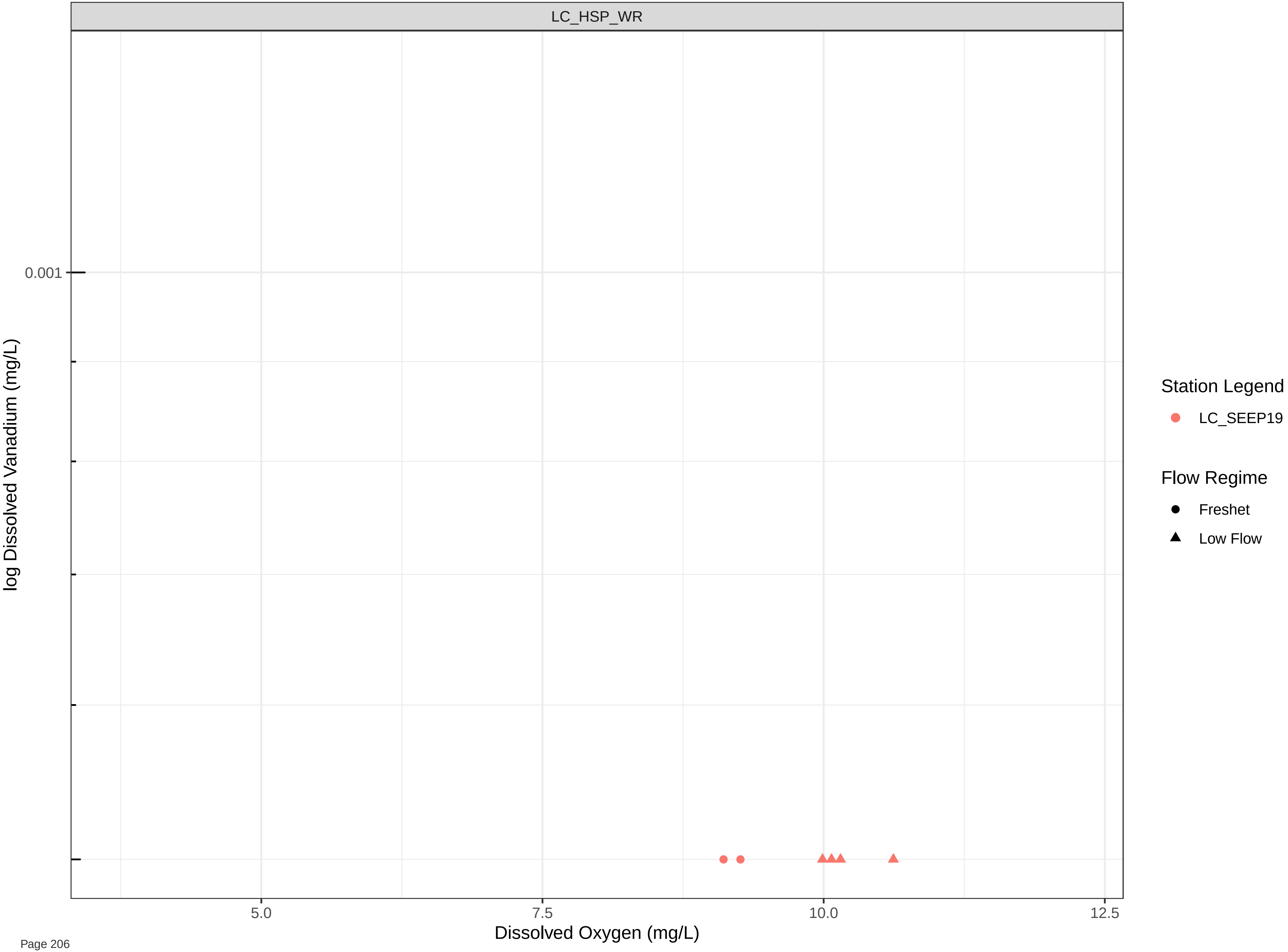
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow


LC_HSP_WR
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log Dissolved Vanadium (mg/L)
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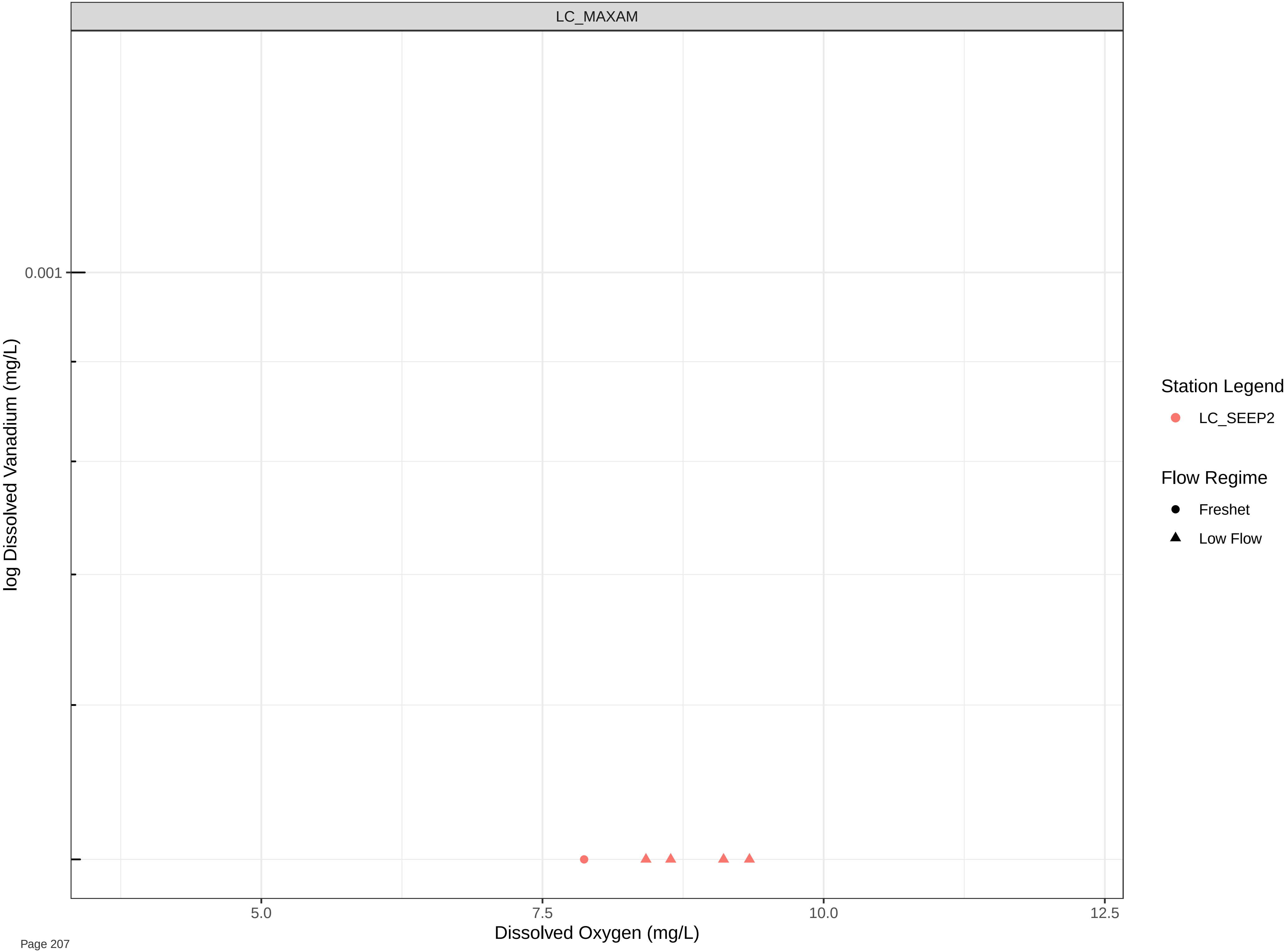
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow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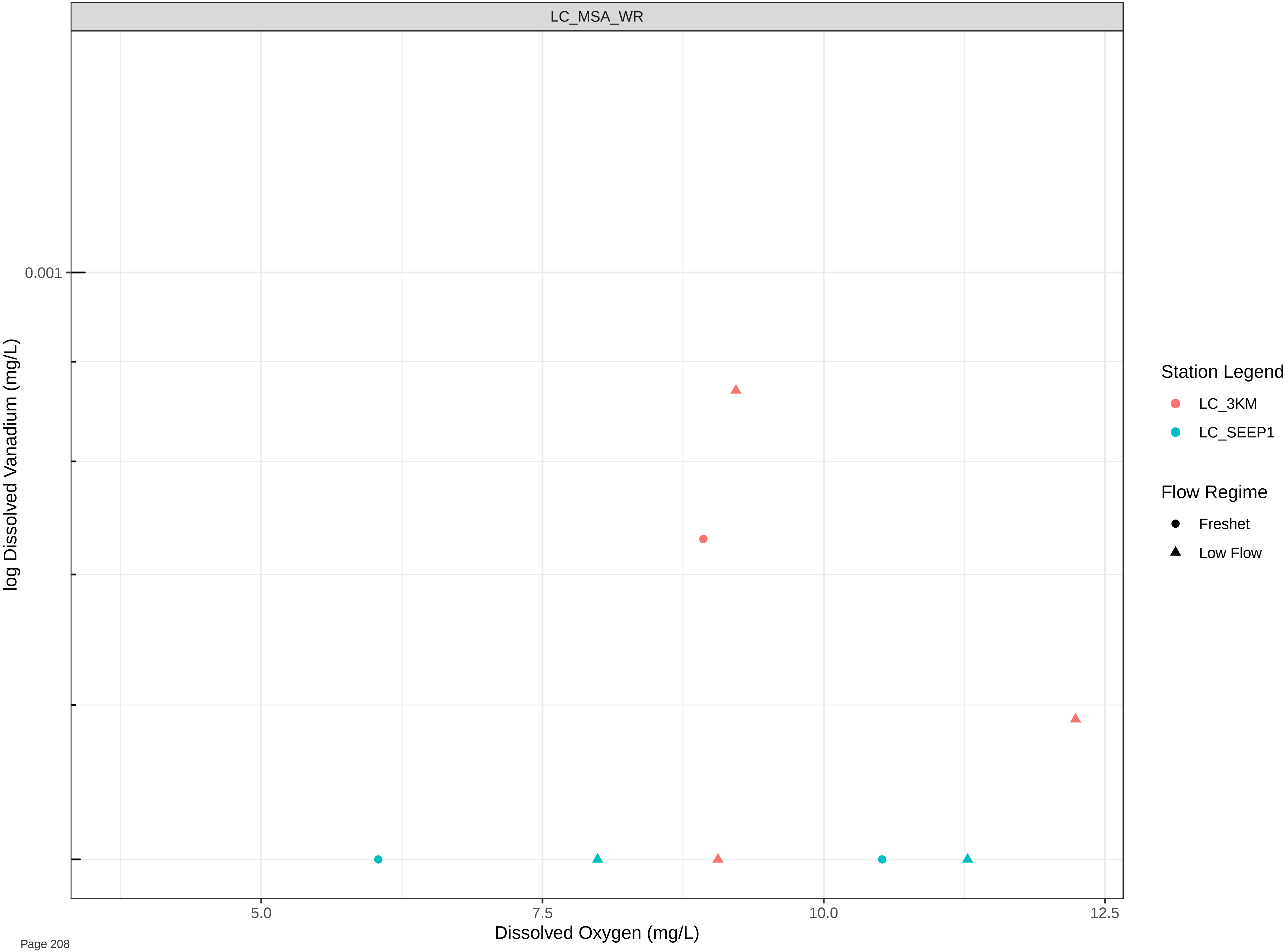
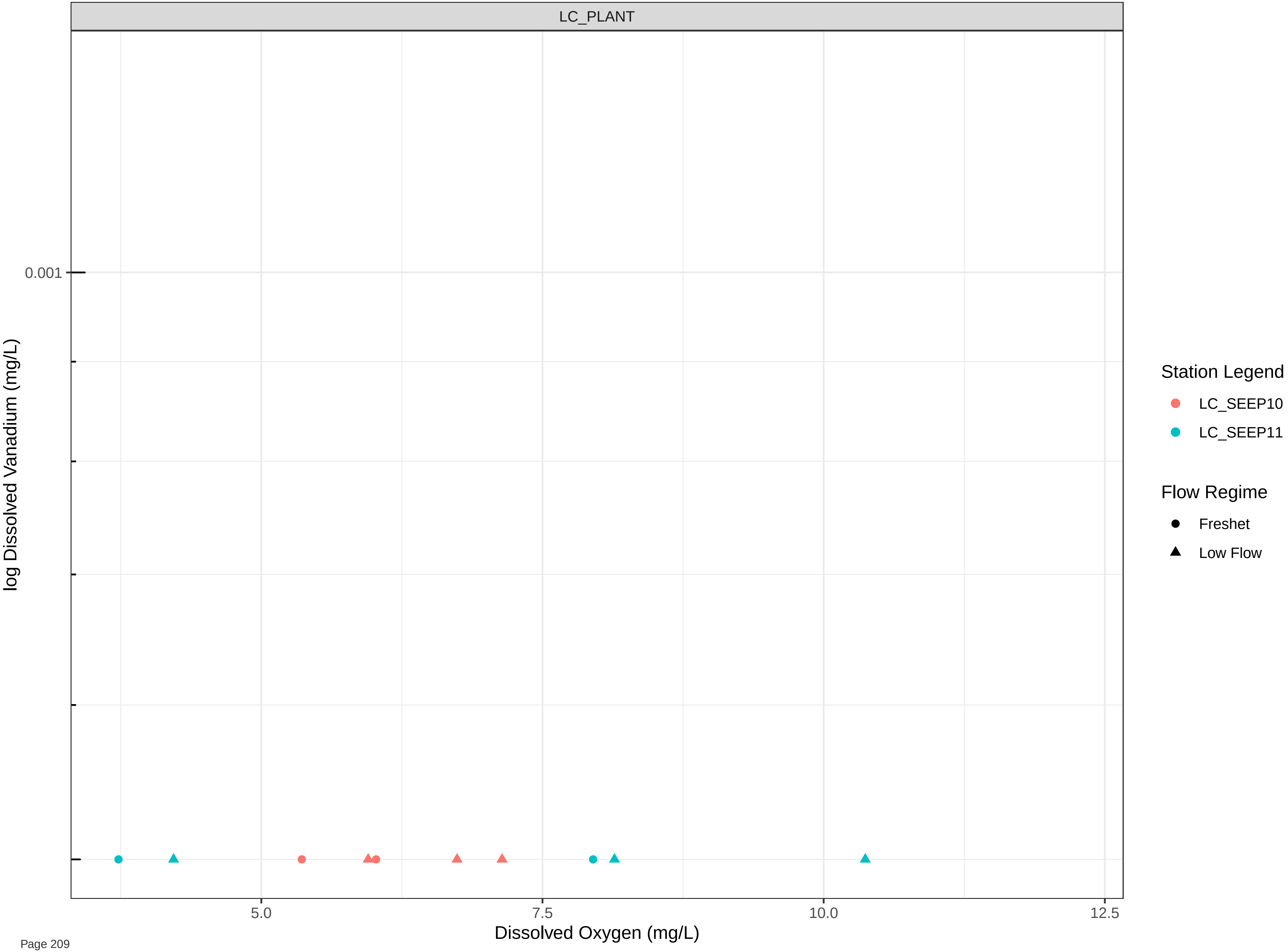
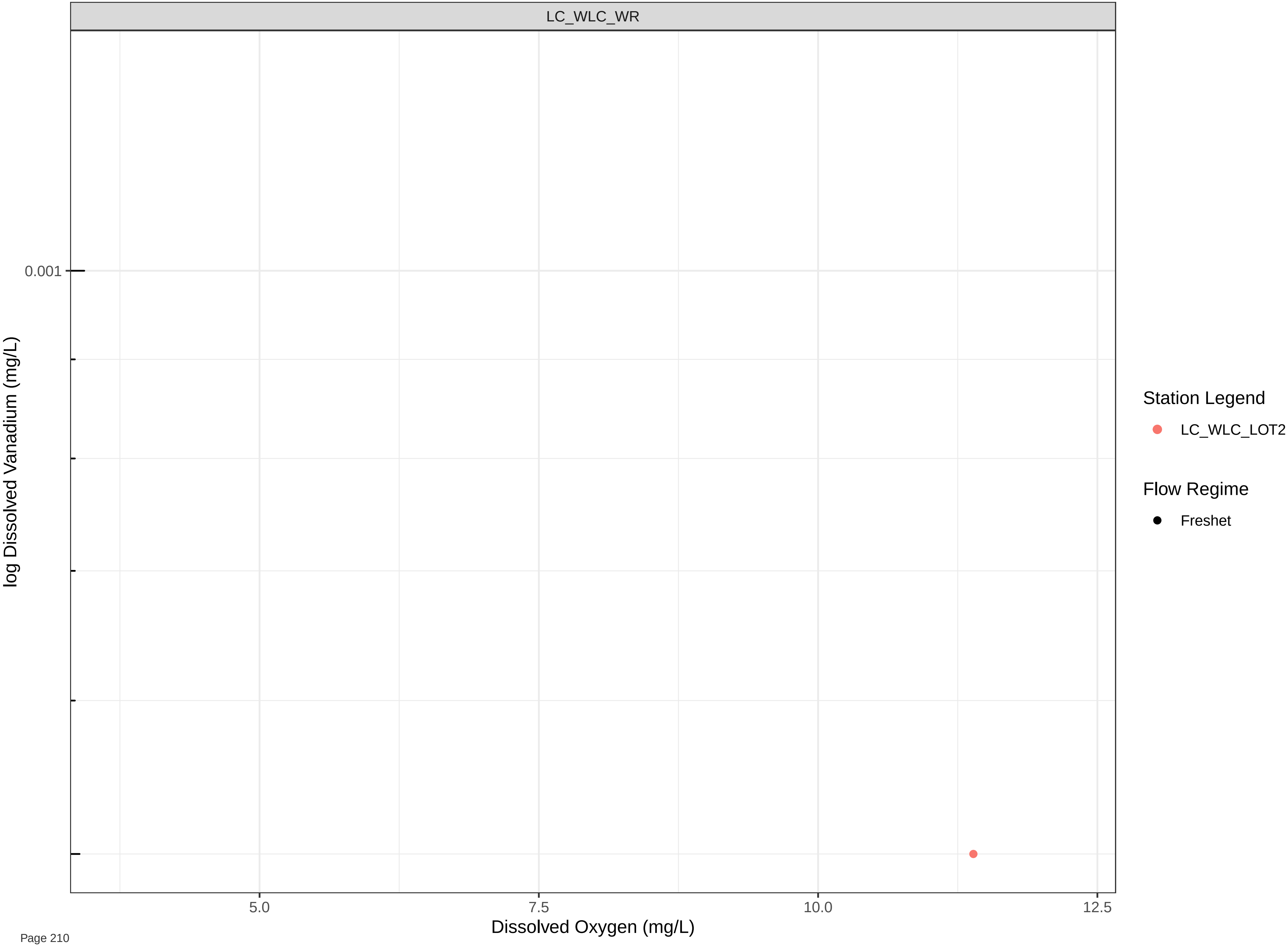
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow


LC_MSA_WR
0.001
log Dissolved Vanadium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_3KM
● LC_SEEP1
Flow Regime
● Freshet
▲ Low Flow


LC_PLANT
log Dissolved Vanadium (mg/L)
0.001
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow


LC_WLC_WR
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log Dissolved Vanadium (mg/L)
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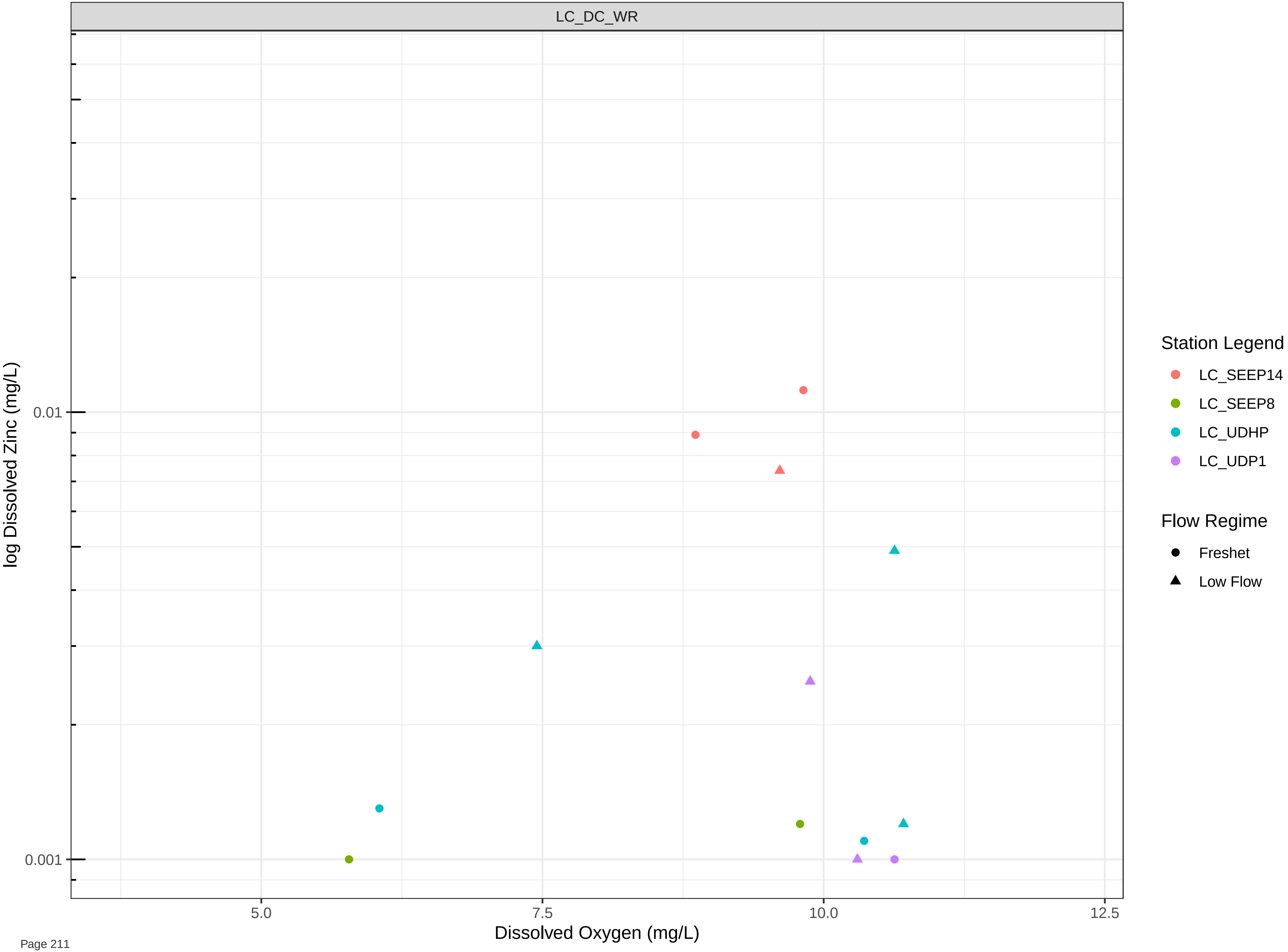
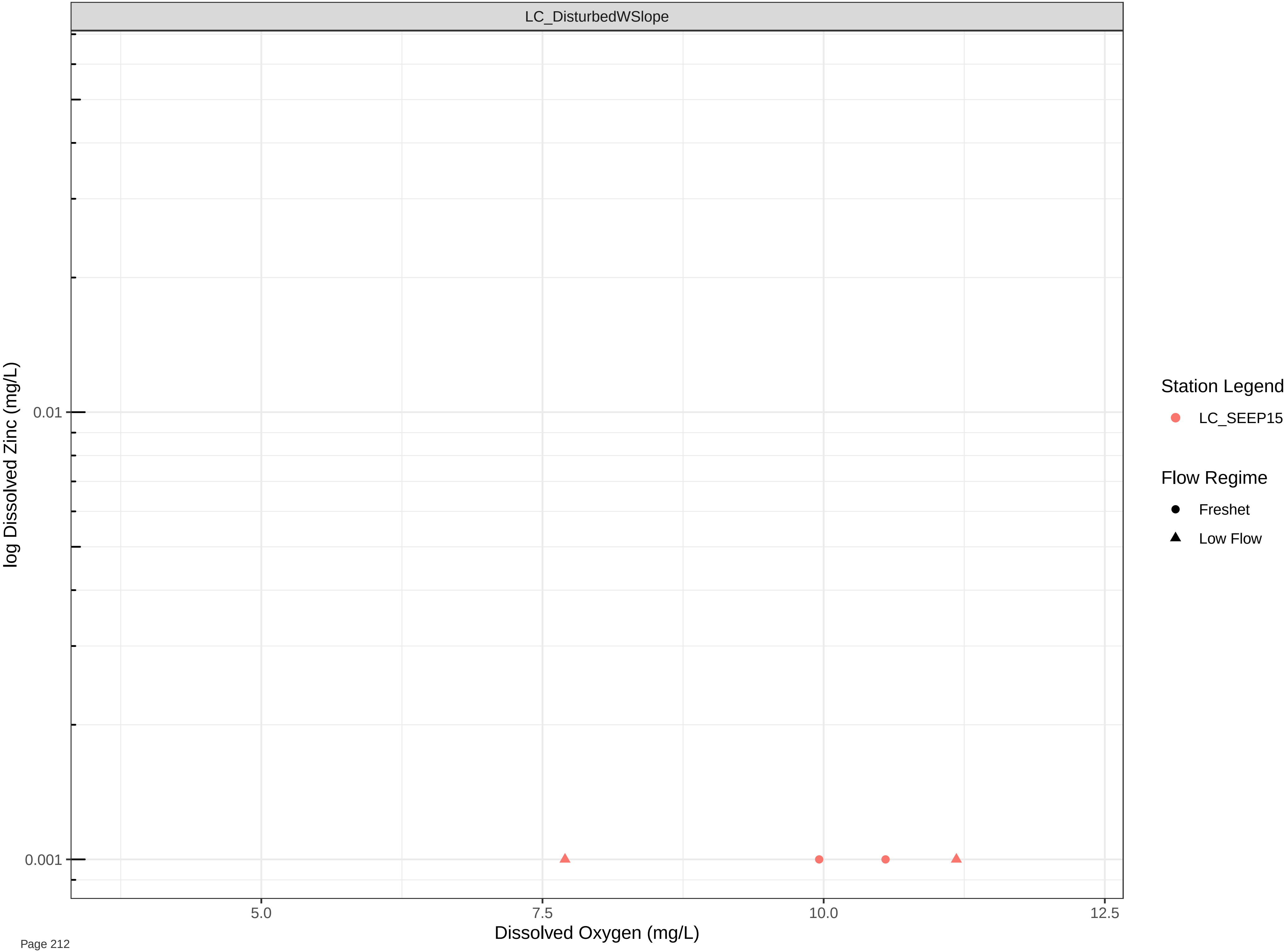
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet


LC_DC_WR
log Dissolved Zinc (mg/L)
0.01
0.001
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
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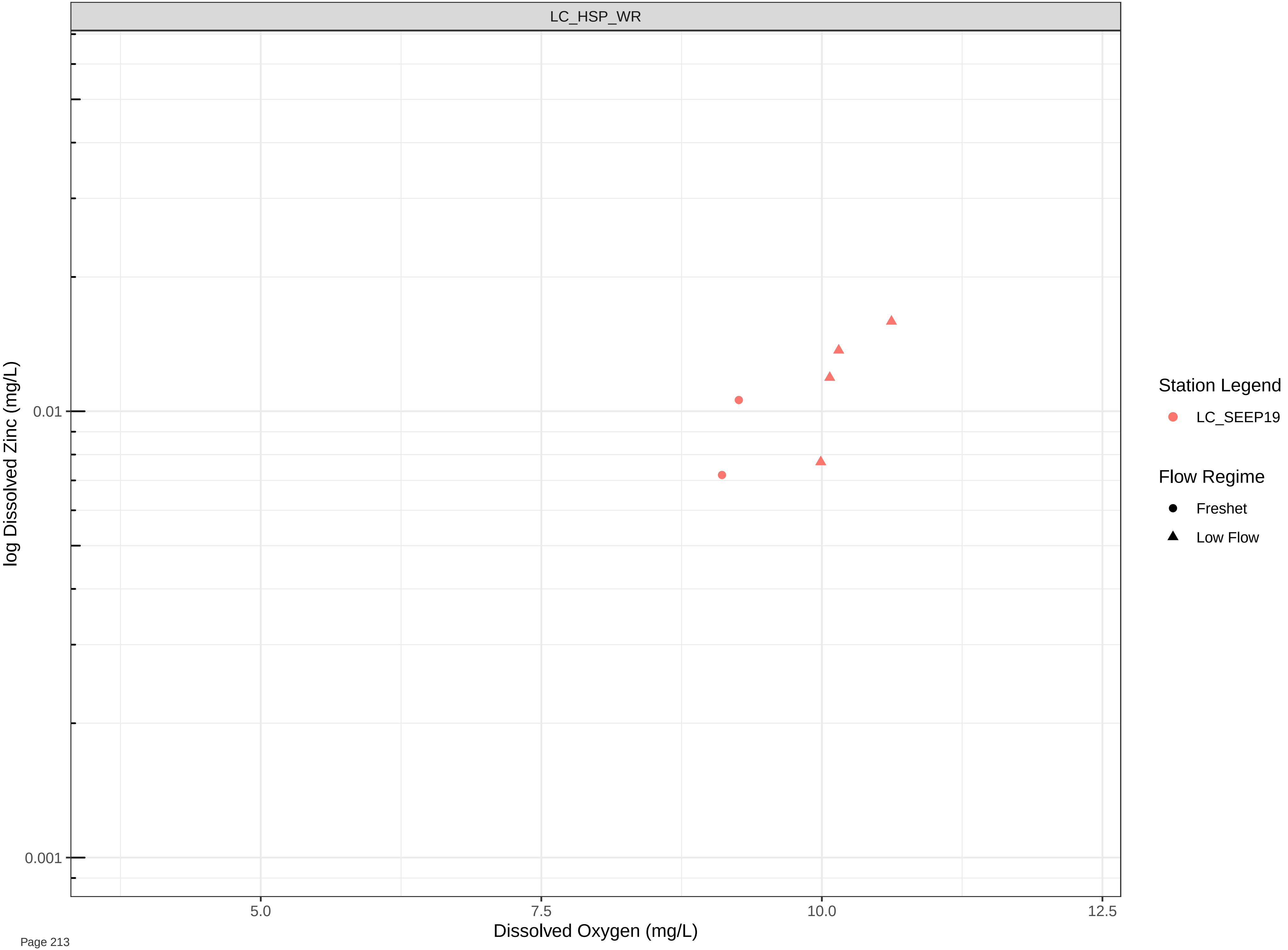
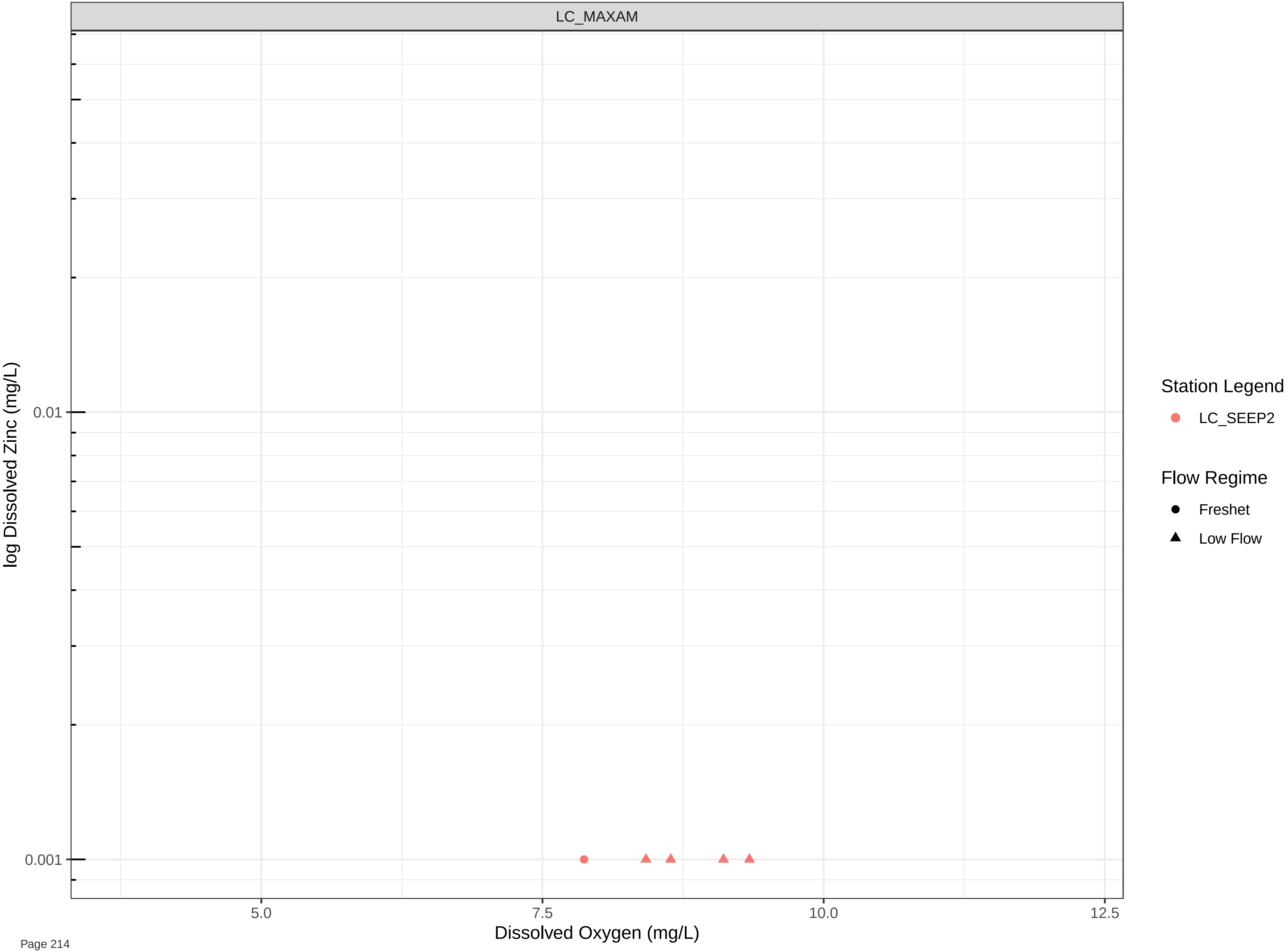
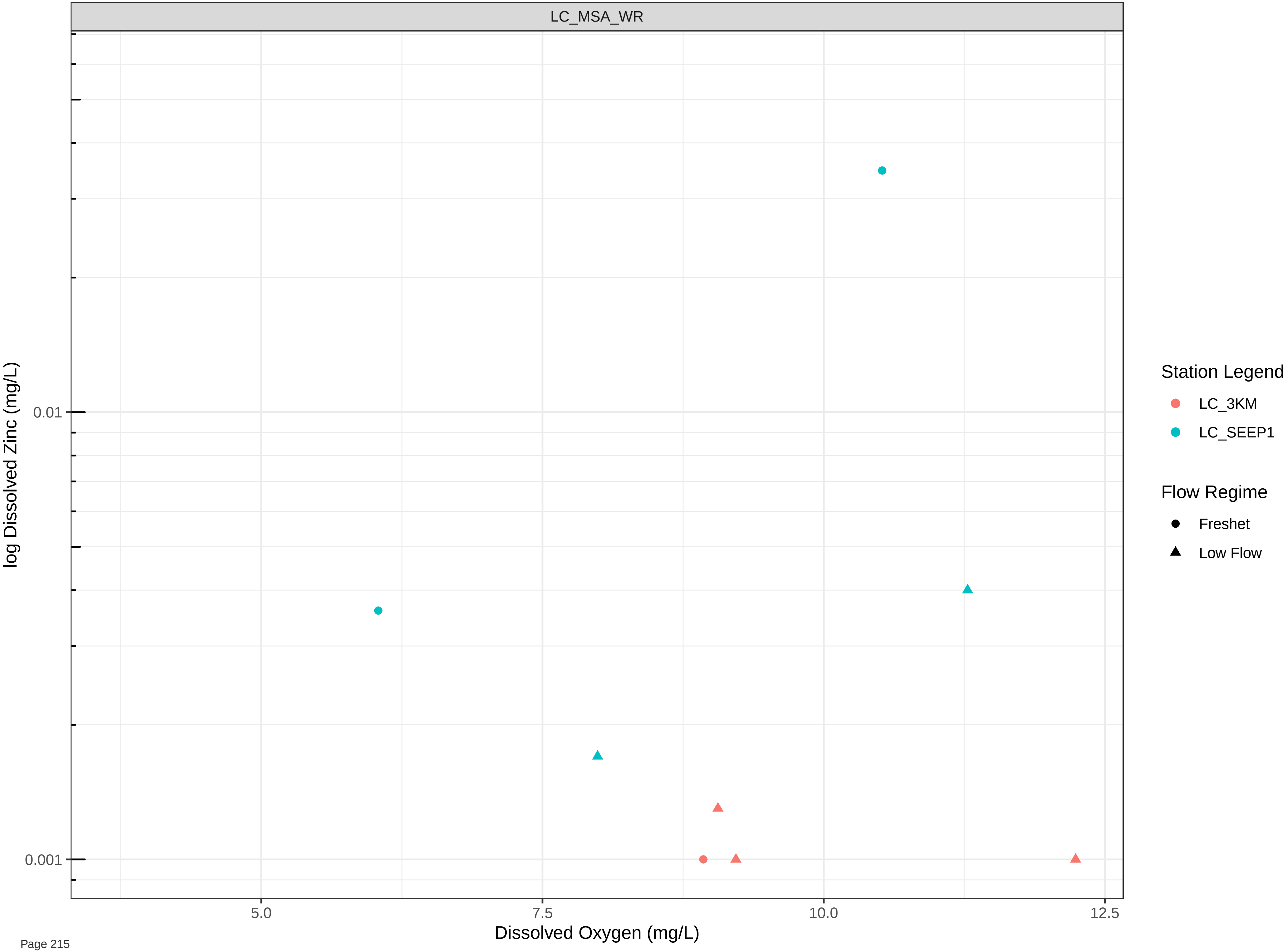
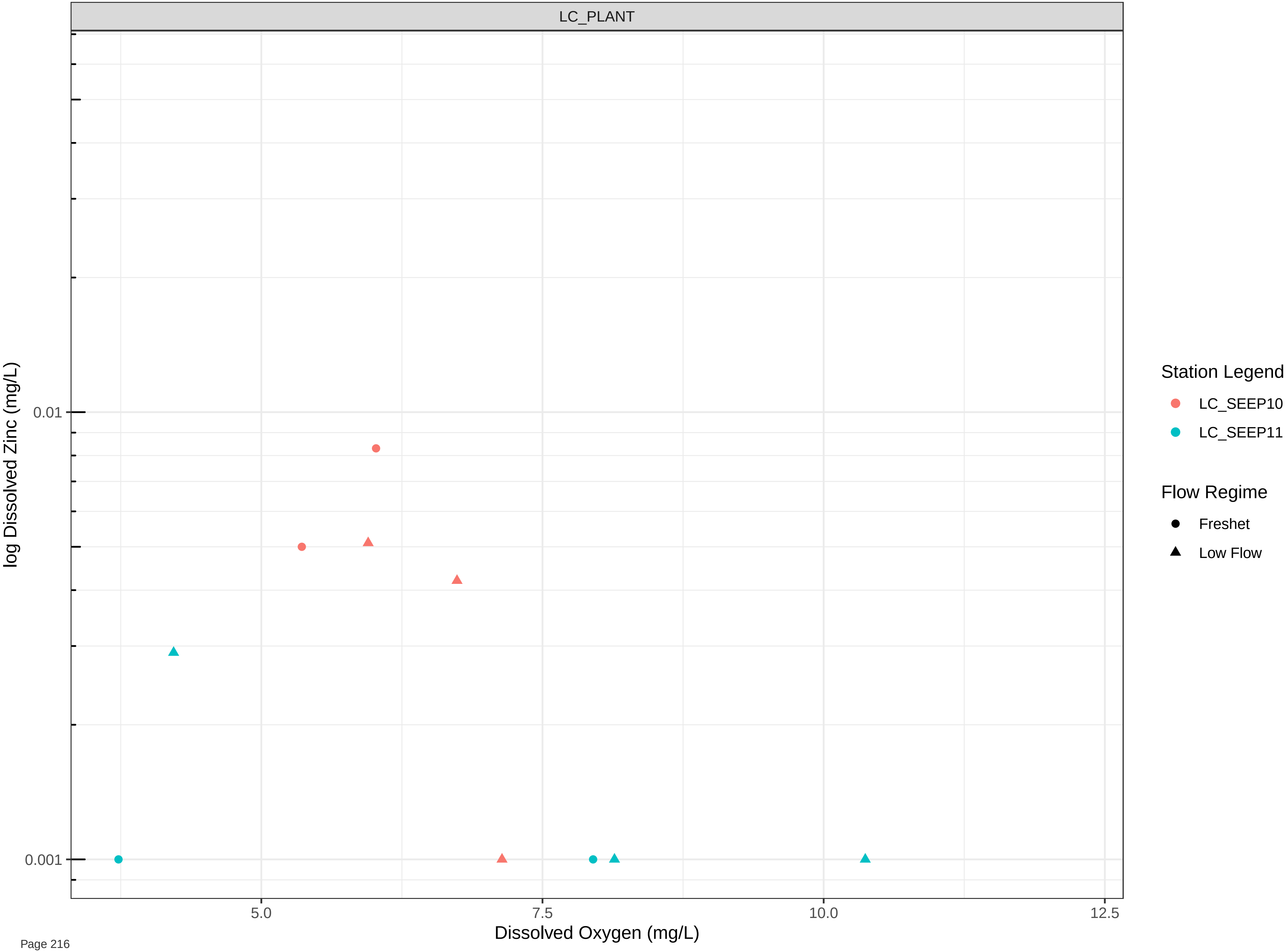
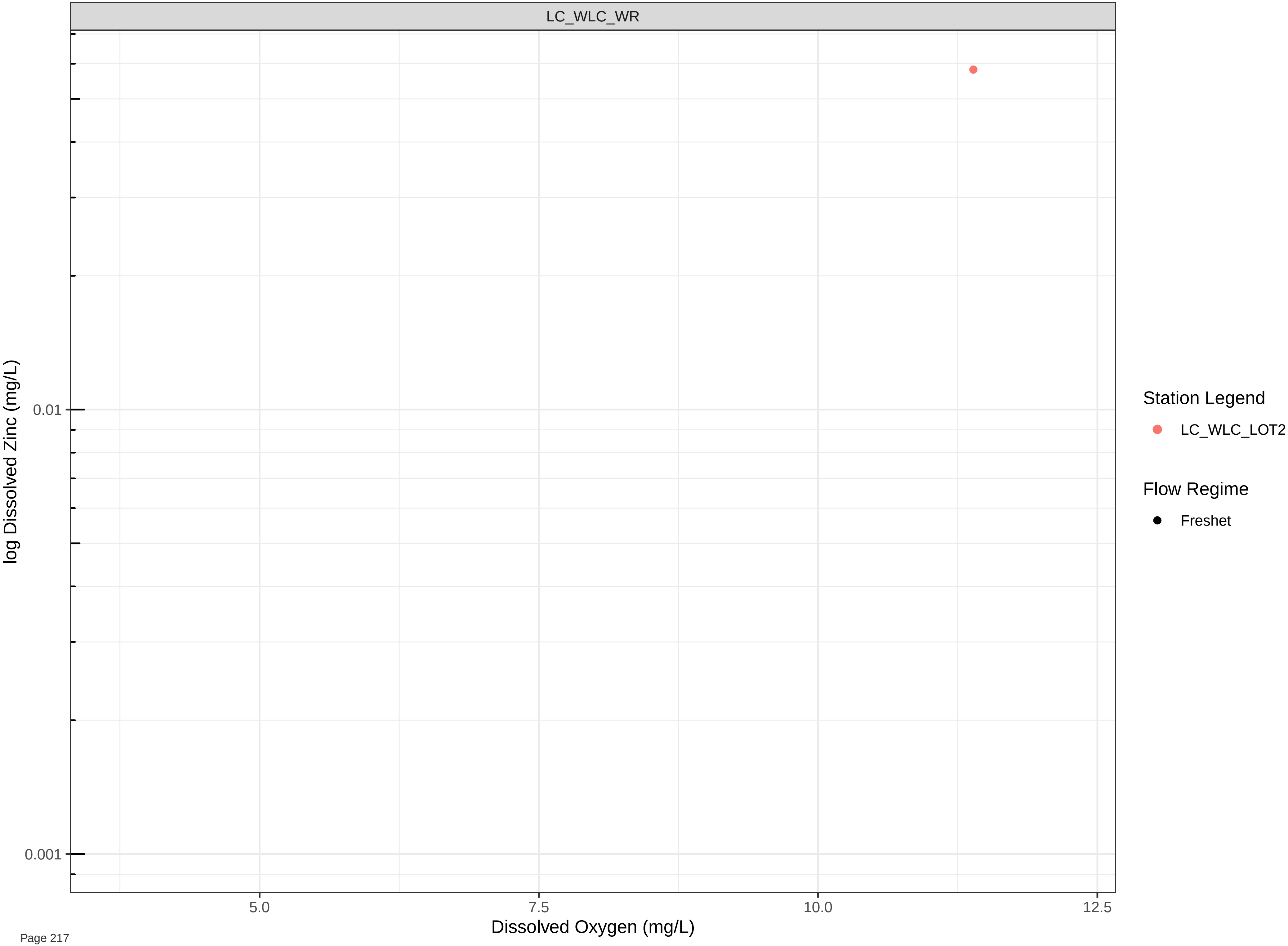
0.01
0.001
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

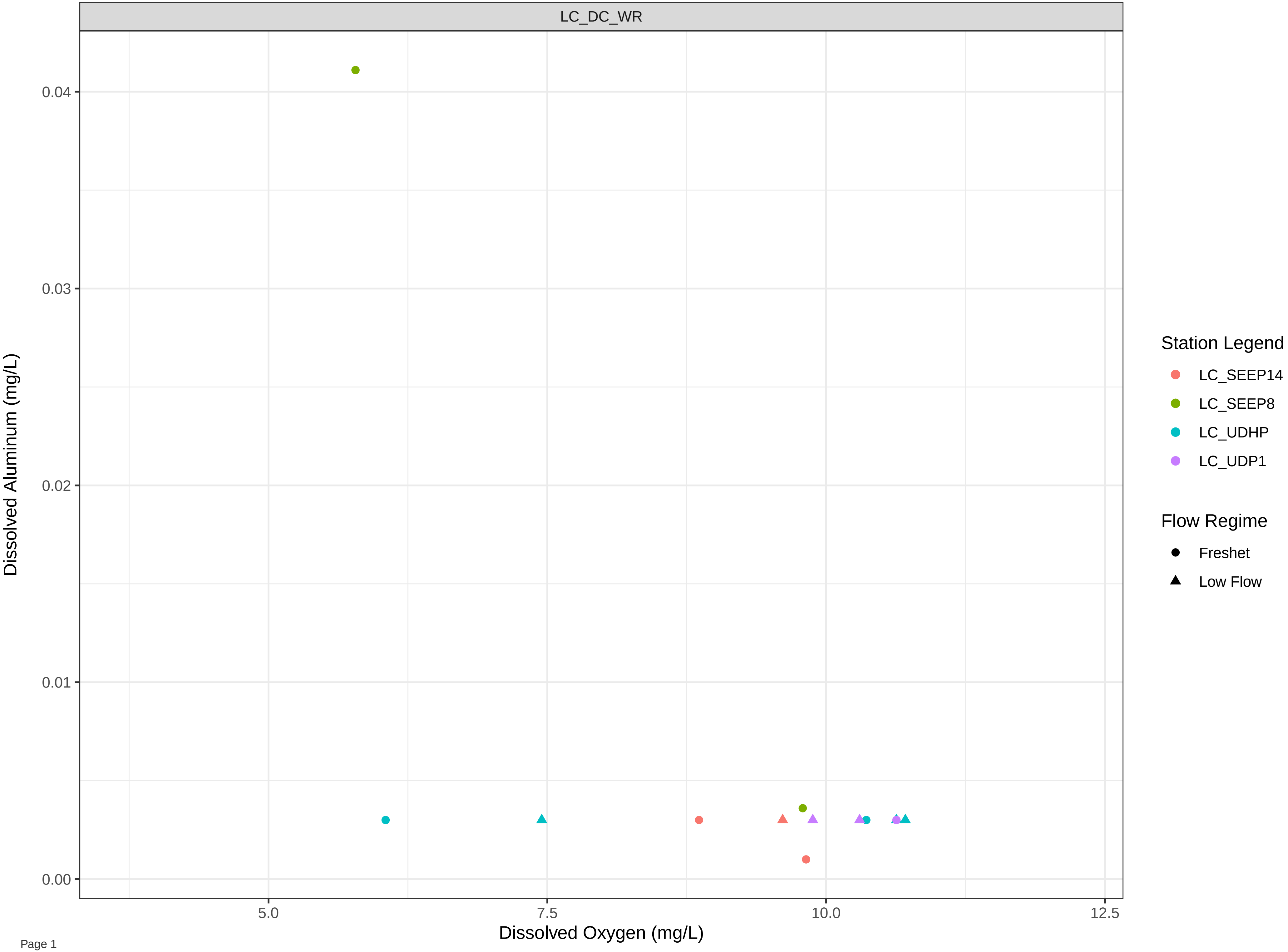

LC_HSP_WR
log Dissolved Zinc (mg/L)
0.01
0.001
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

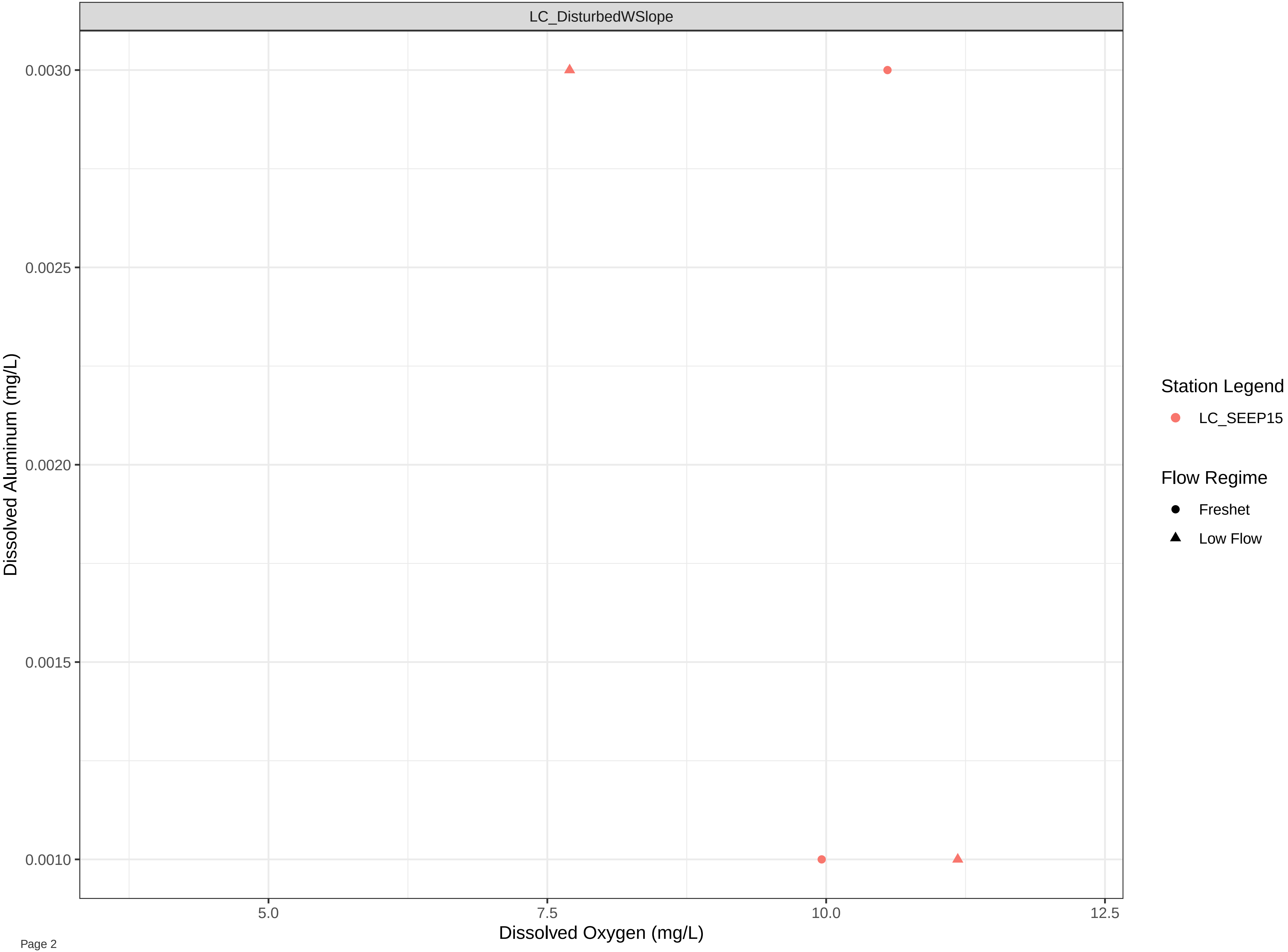

LC_MAXAM
log Dissolved Zinc (mg/L)
0.01
0.001
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow


LC_MSA_WR
log Dissolved Zinc (mg/L)
0.01
0.001
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow


LC_PLANT
log Dissolved Zinc (mg/L)
0.01
0.001
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow


LC_WLC_WR
log Dissolved Zinc (mg/L)
0.01
0.001
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet


LC_DC_WR
Dissolved Aluminum (mg/L)
0.04
0.03
0.02
0.01
0.00
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
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0.0025
0.0020
0.0015
0.0010
Dissolved Aluminum (mg/L)
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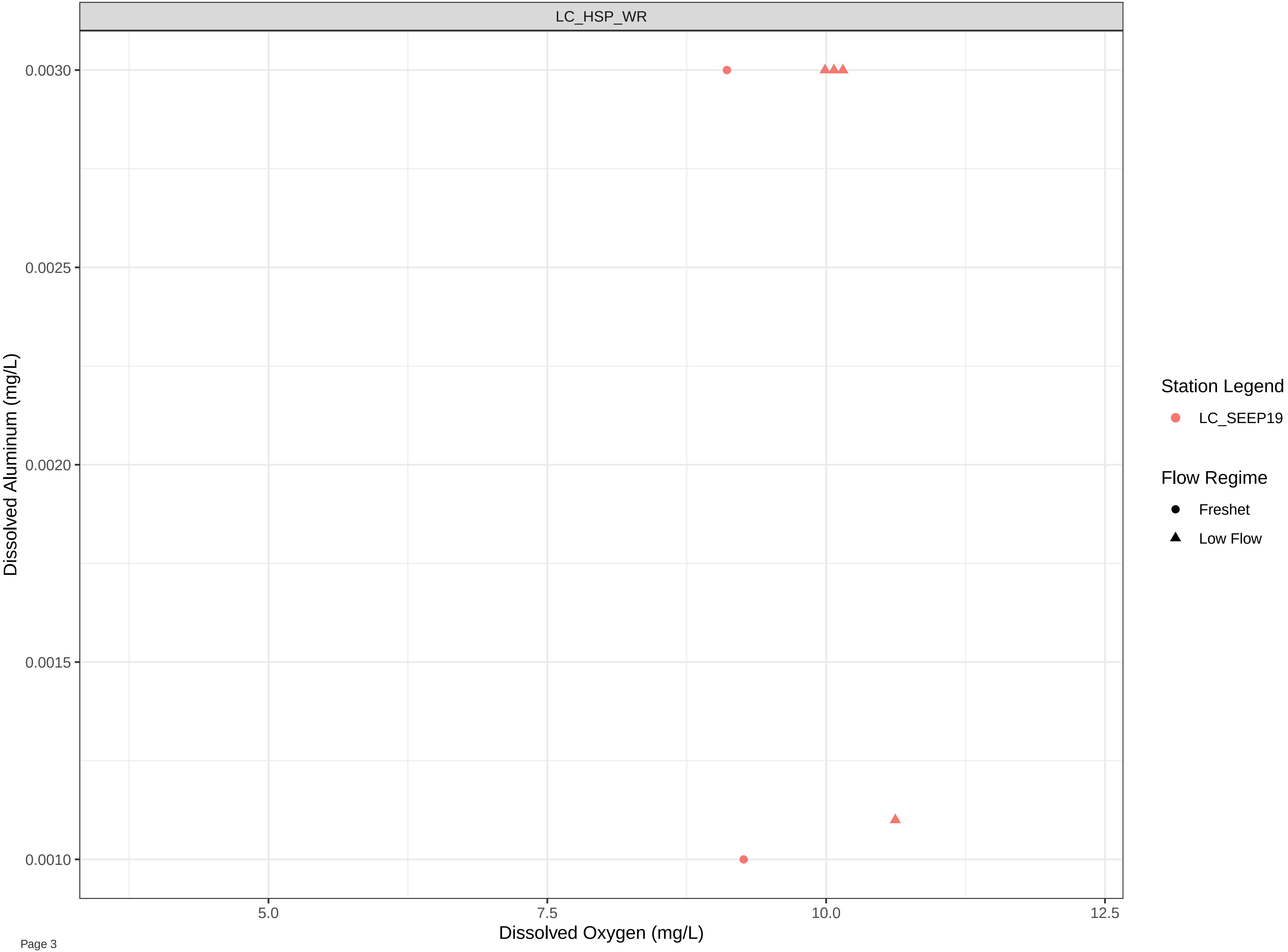
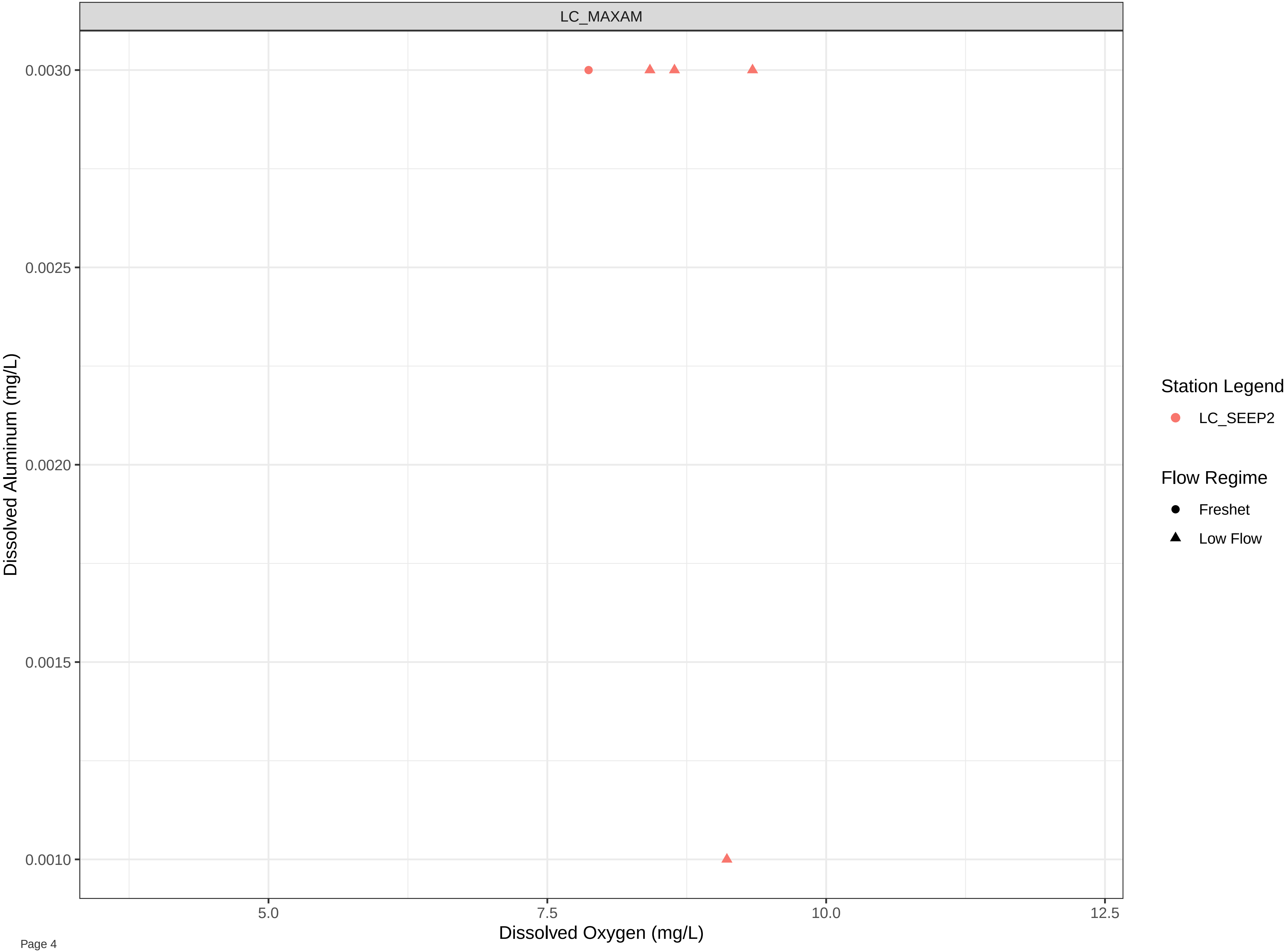
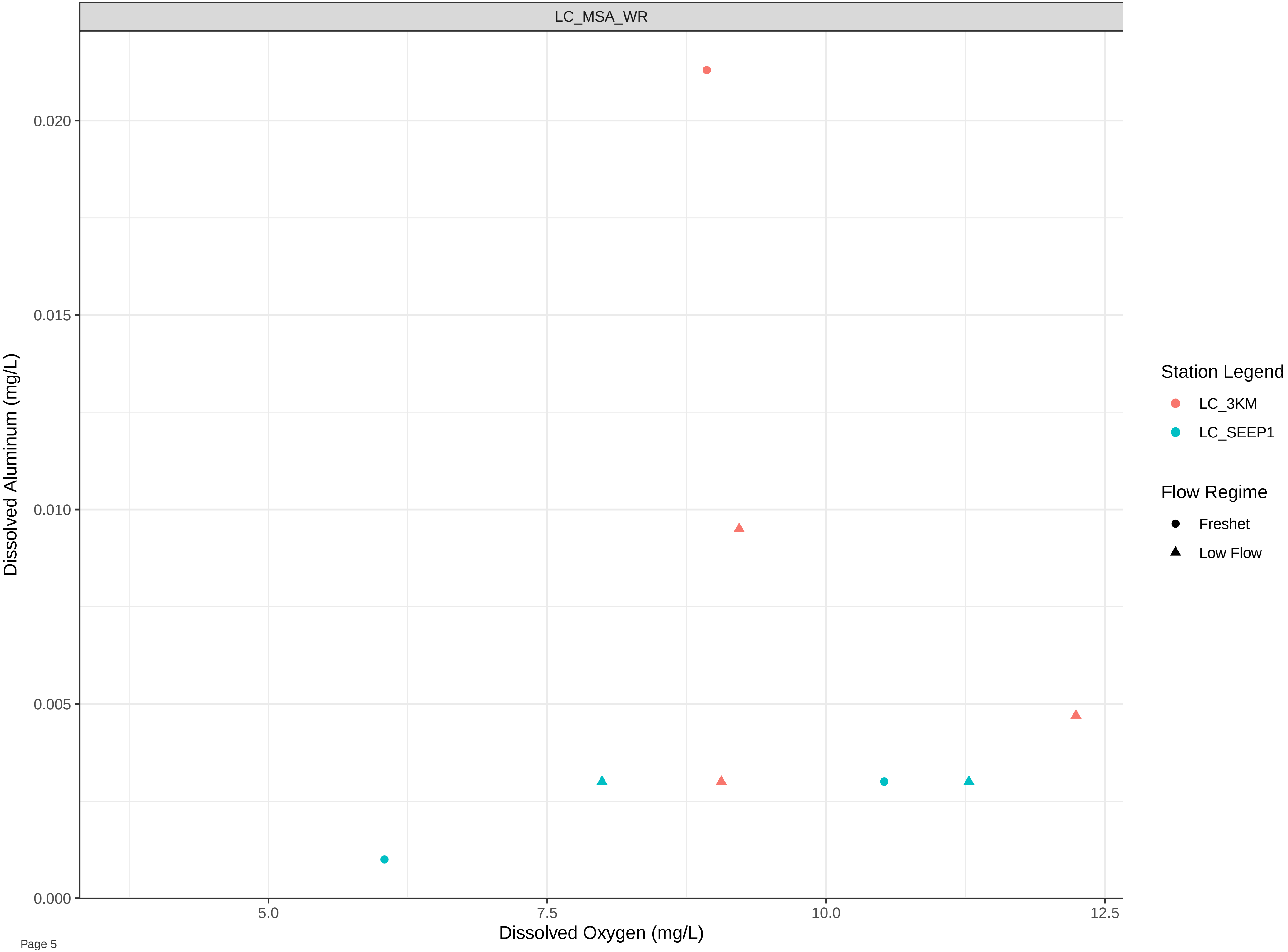
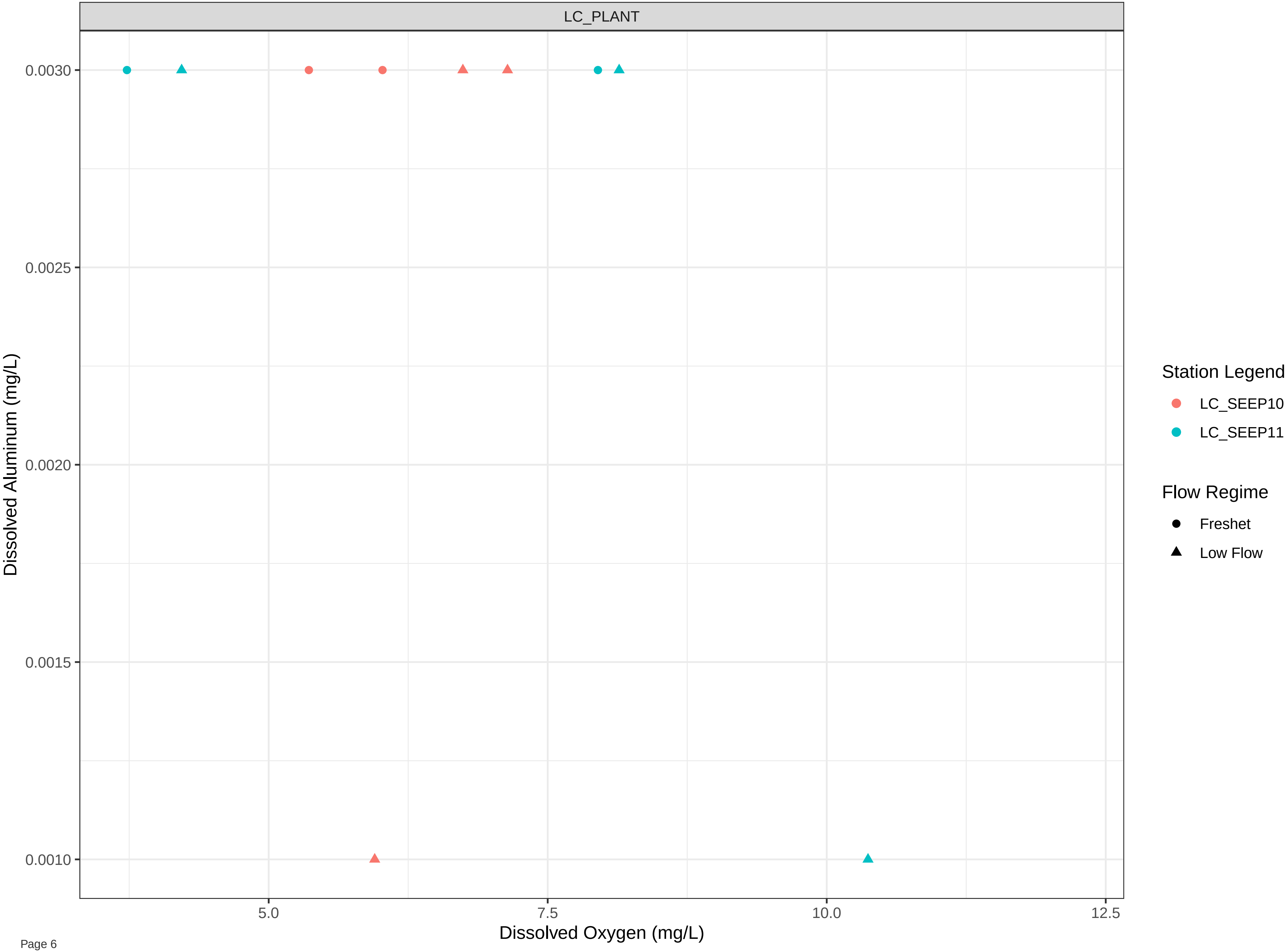
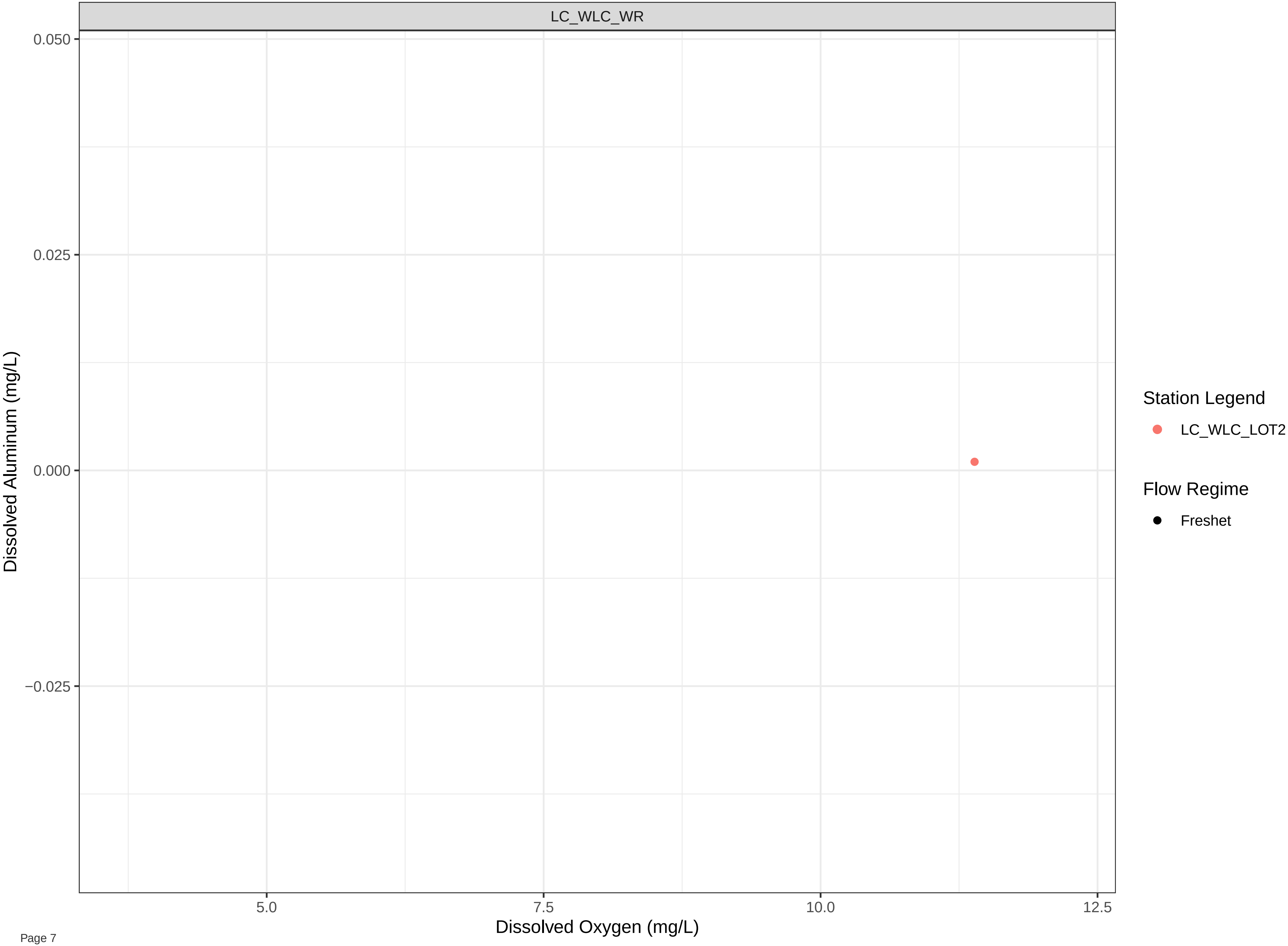
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow


LC_HSP_WR
0.0030
0.0025
0.0020
0.0015
0.0010
Dissolved Aluminum (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow


LC_MAXAM
0.0030
0.0025
0.0020
0.0015
0.0010
Dissolved Aluminum (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow


LC_MSA_WR
Dissolved Aluminum (mg/L)
0.020
0.015
0.010
0.005
0.000
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow


LC_PLANT
Dissolved Aluminum (mg/L)
0.0030
0.0025
0.0020
0.0015
0.0010
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow


LC_WLC_WR
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0.025
0.000
−0.025
Dissolved Aluminum (mg/L)
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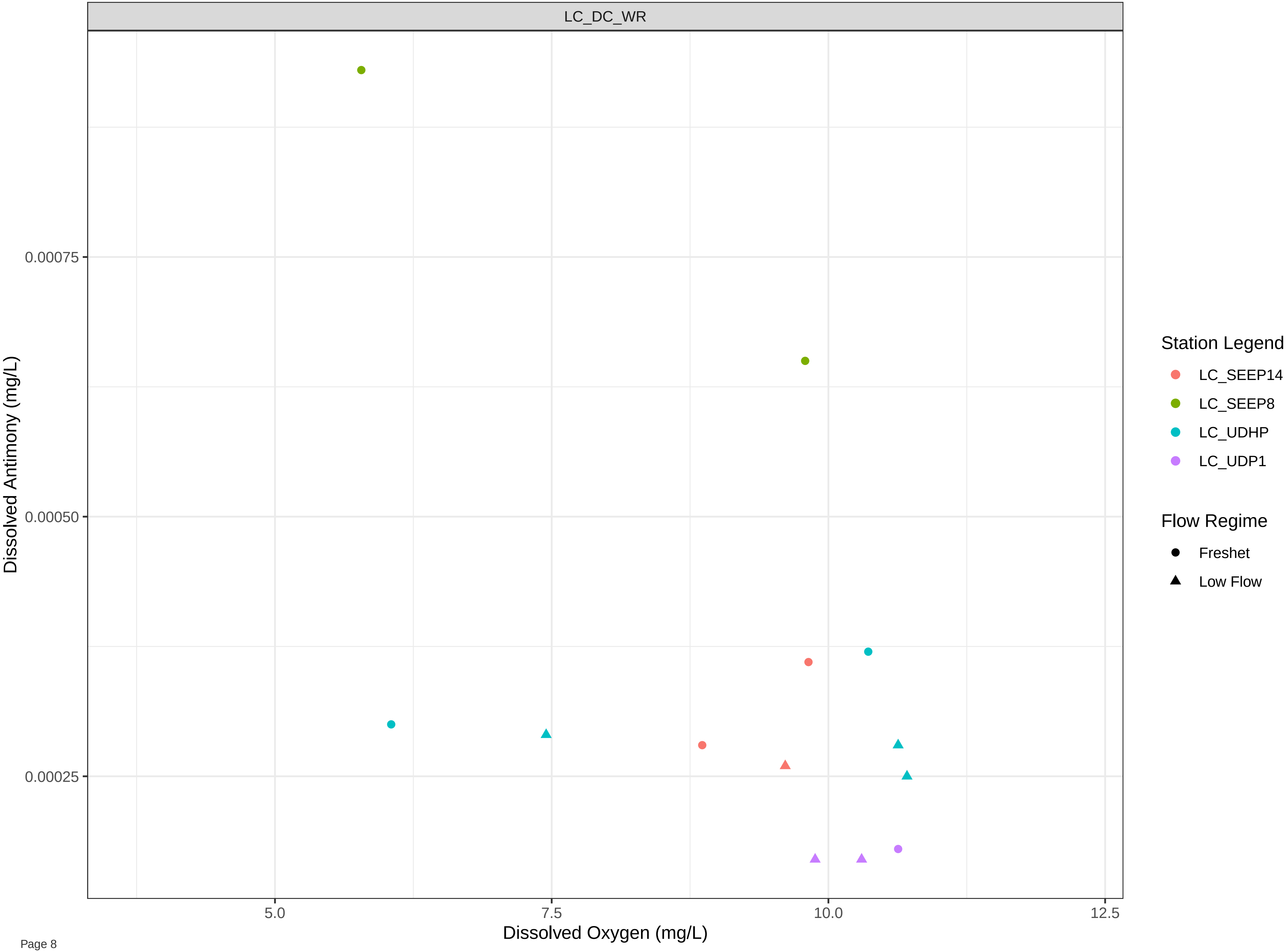
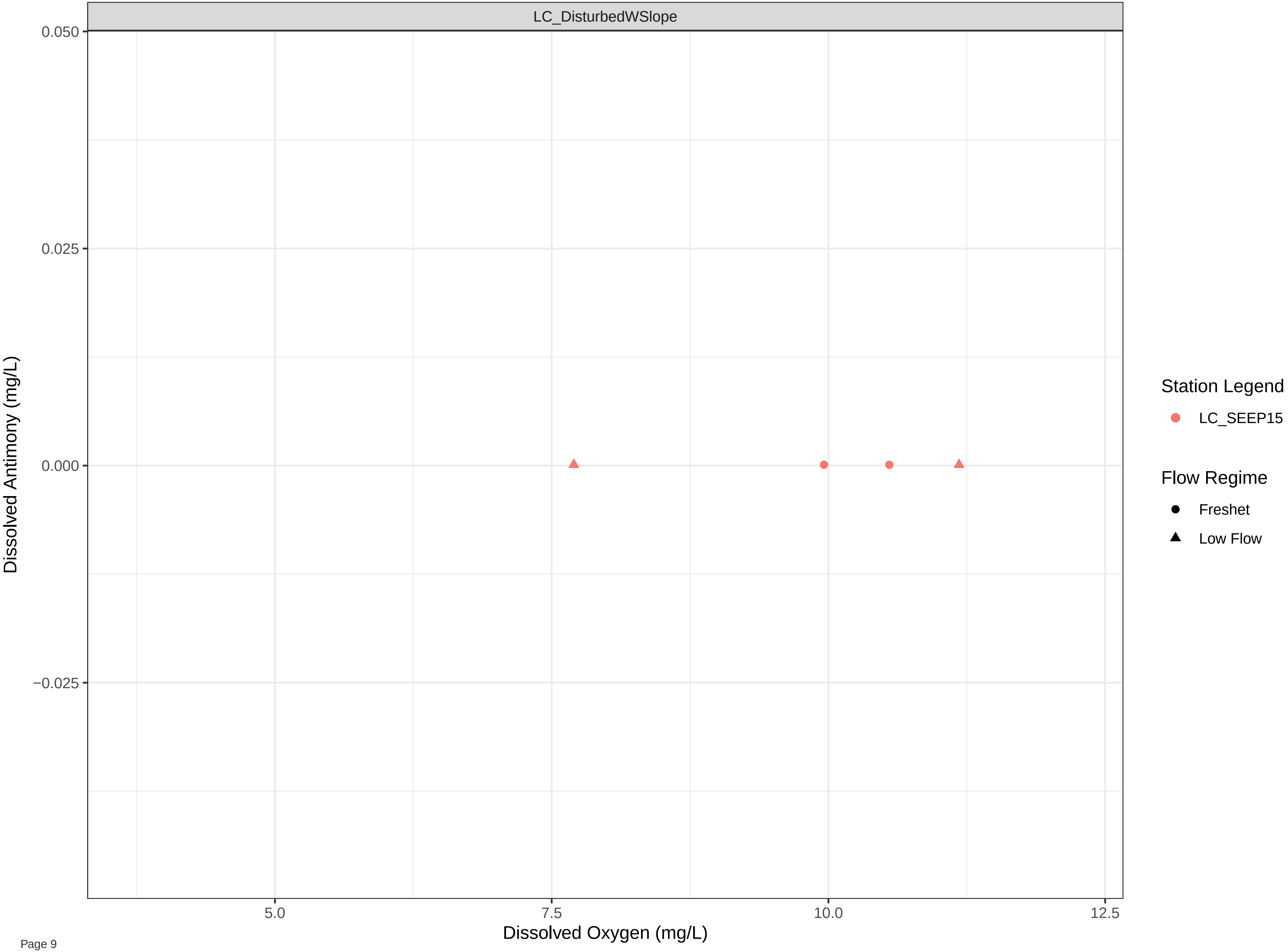
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet


LC_DC_WR
Dissolved Antimony (mg/L)
0.00075
0.00050
0.00025
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
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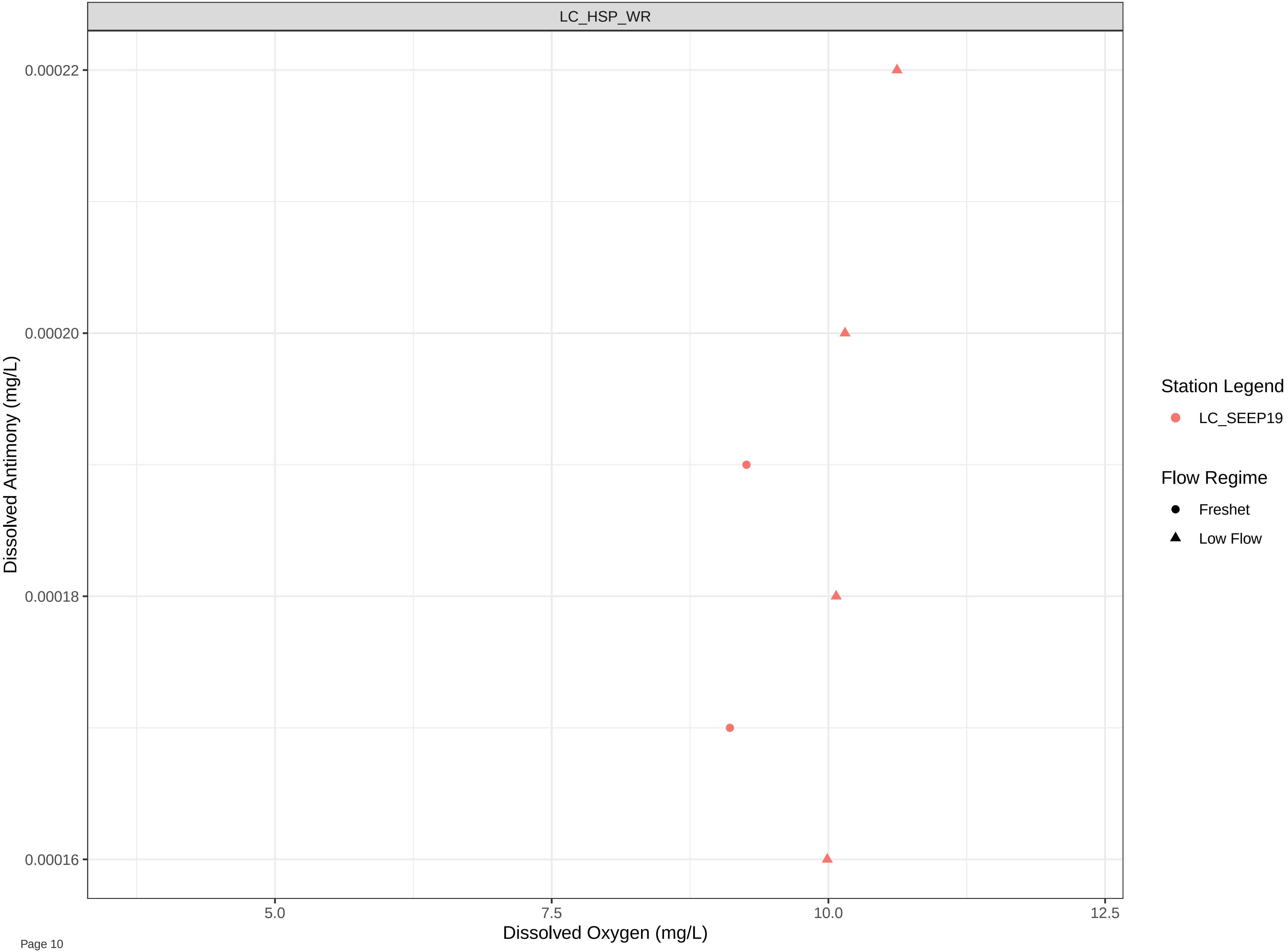
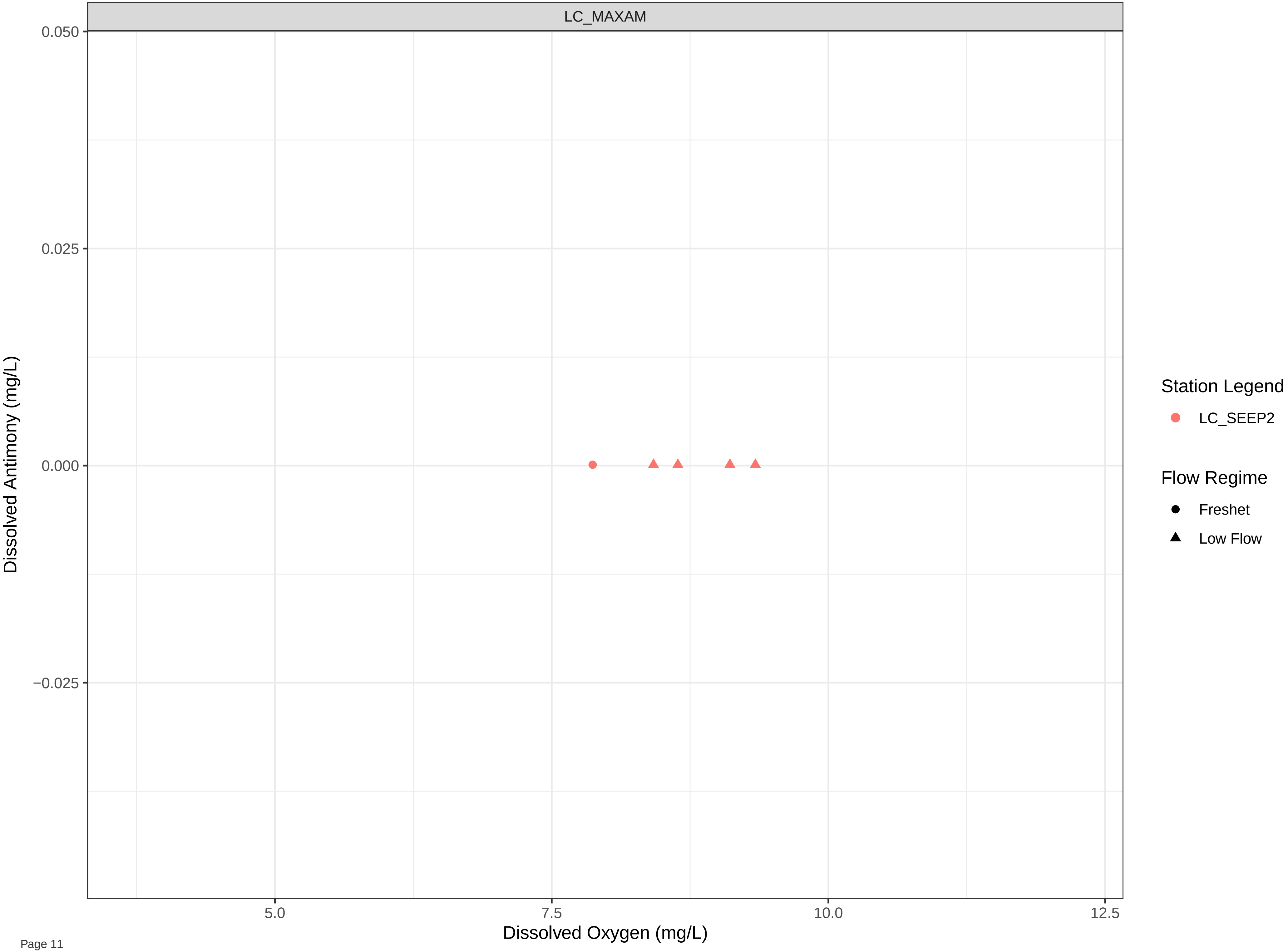
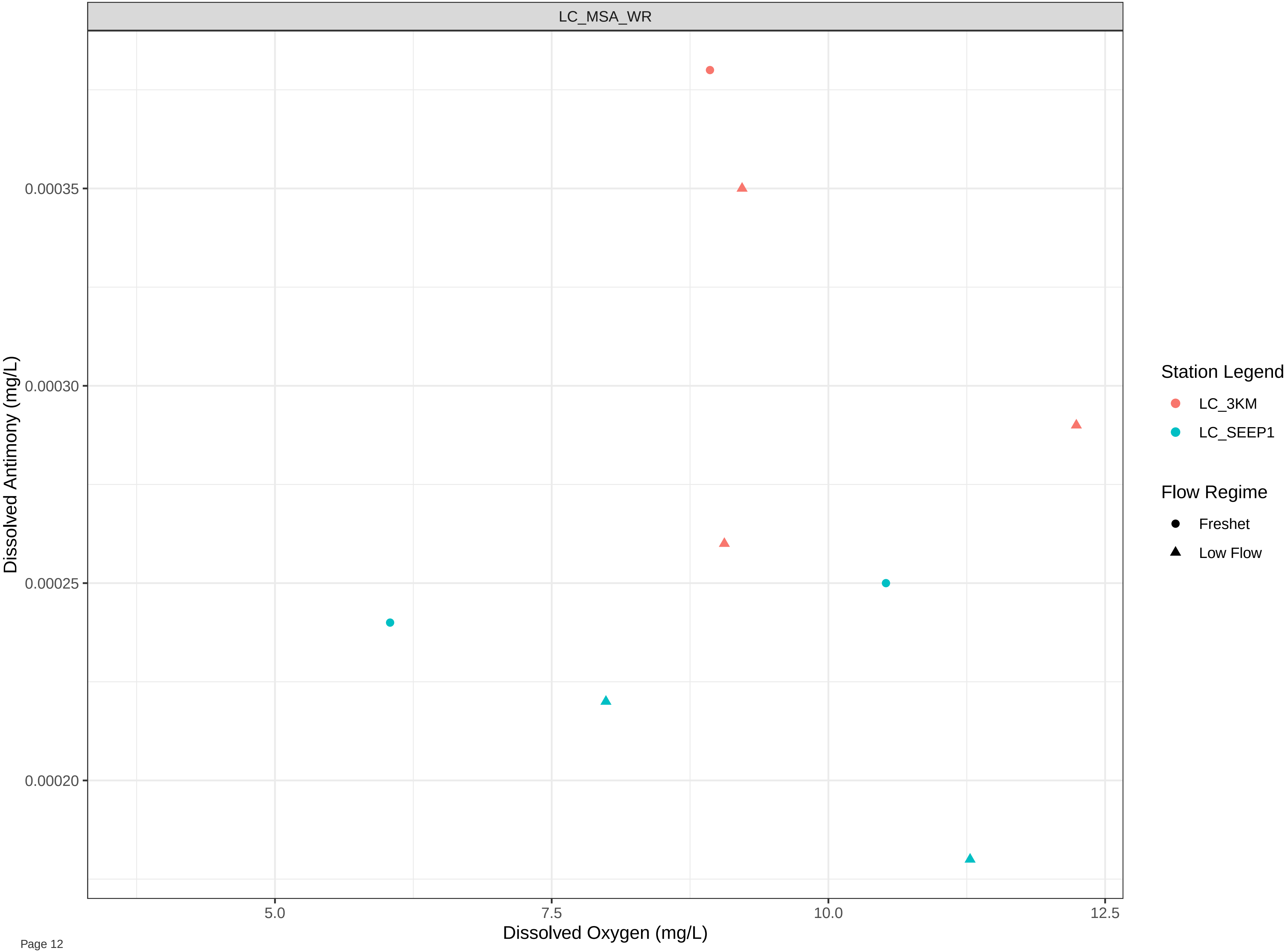
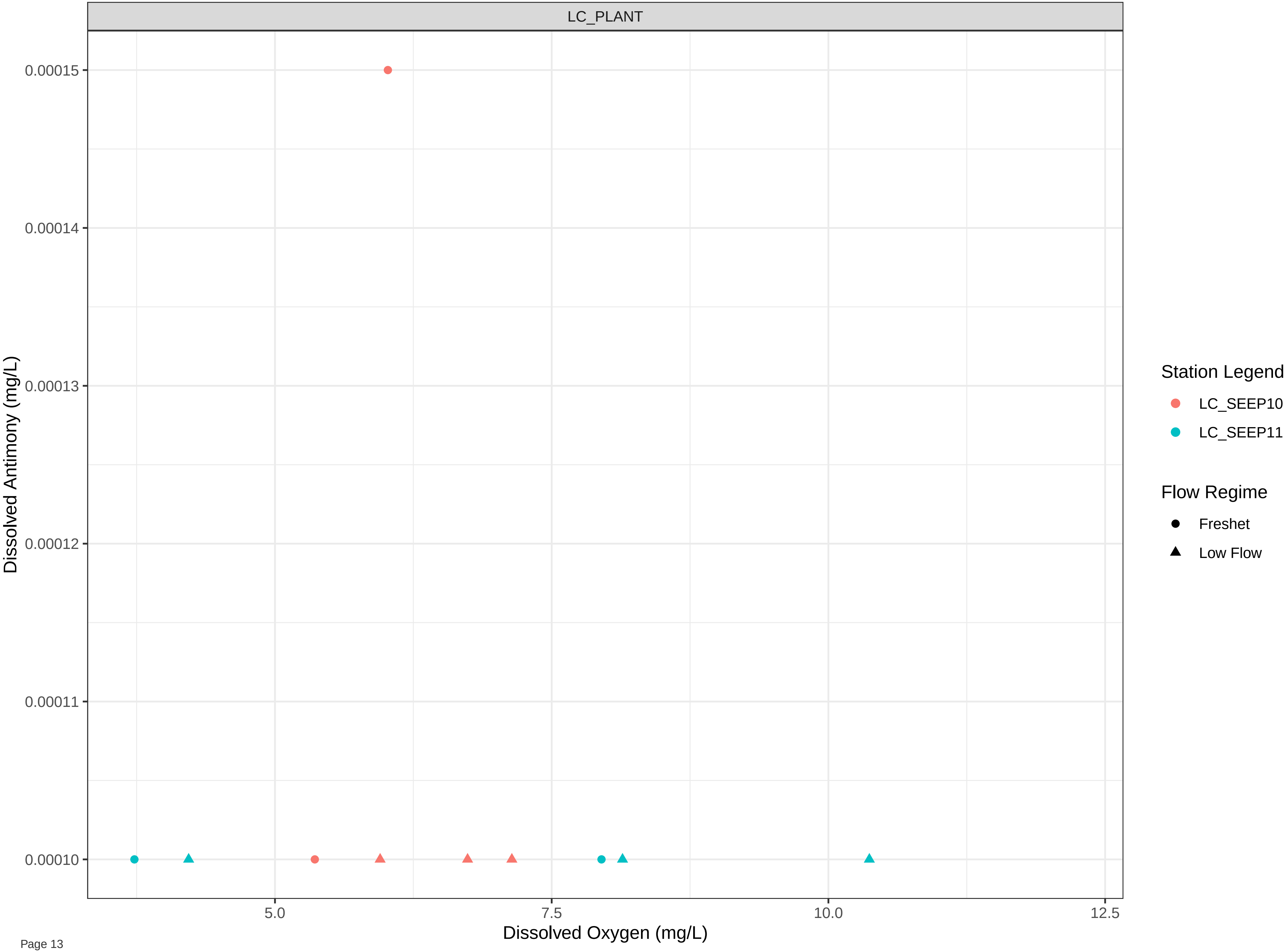
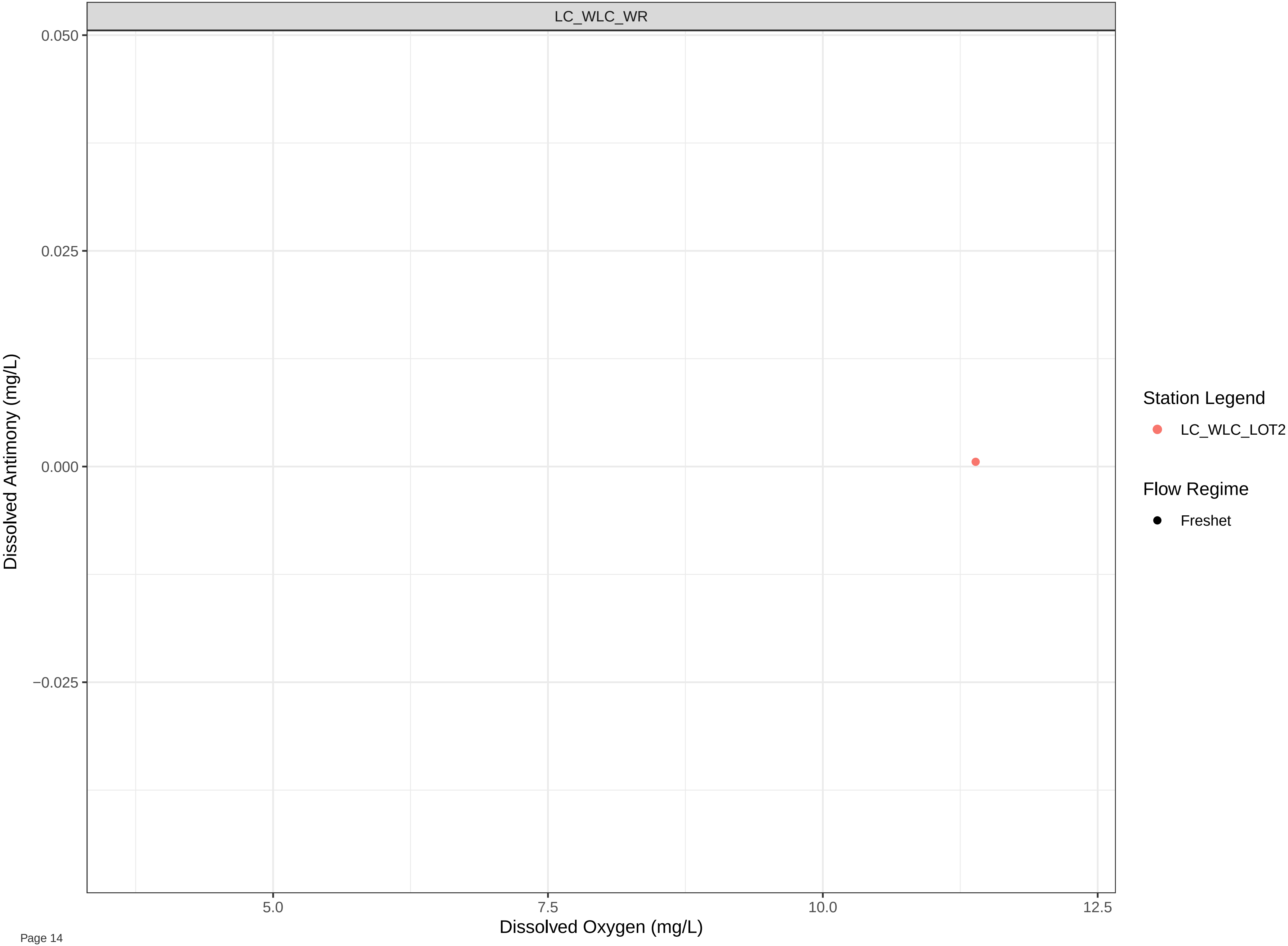
0.025
0.000
−0.025
Dissolved Antimony (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow

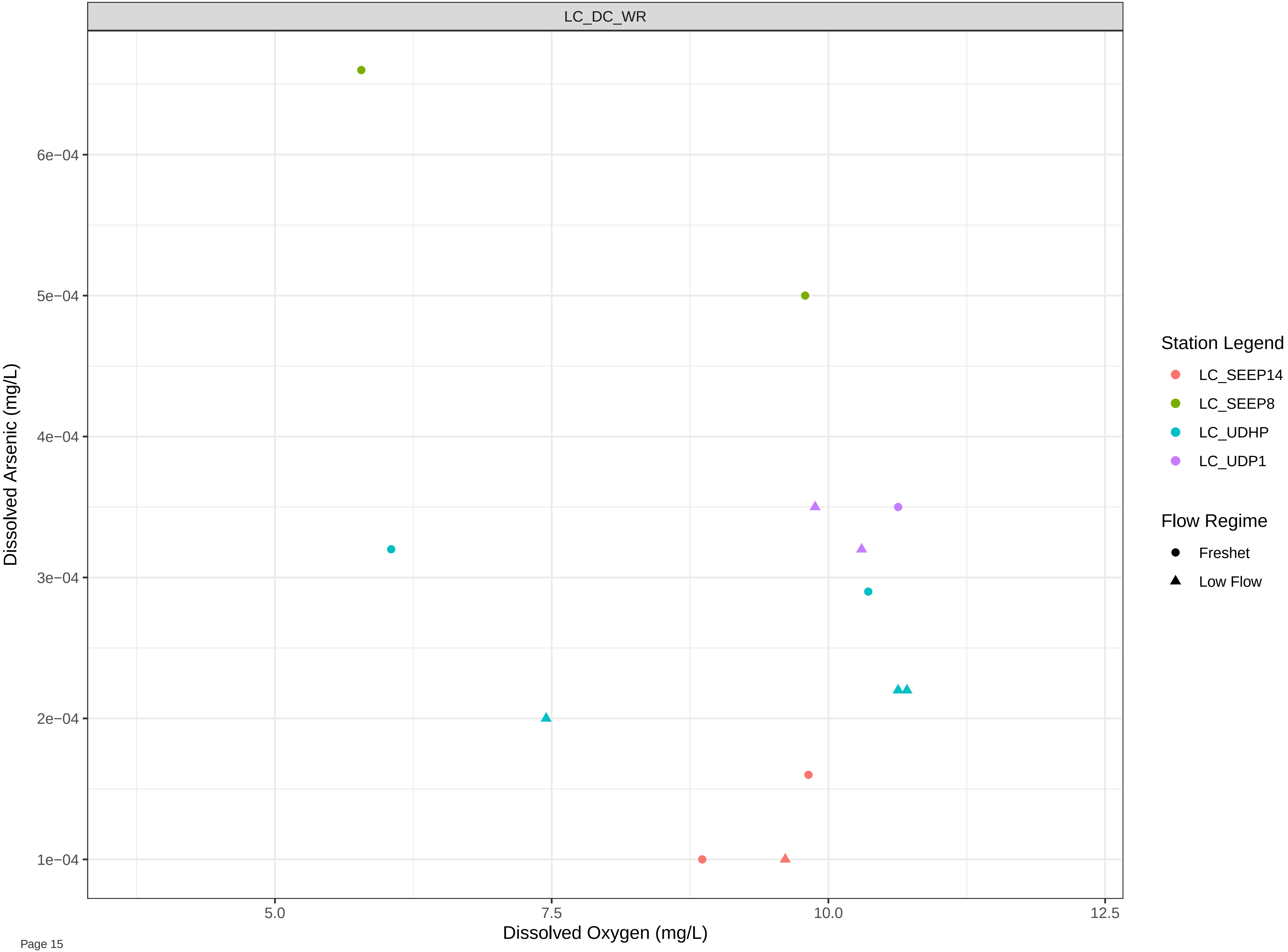

LC_HSP_WR
Dissolved Antimony (mg/L)
0.00022
0.00020
0.00018
0.00016
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

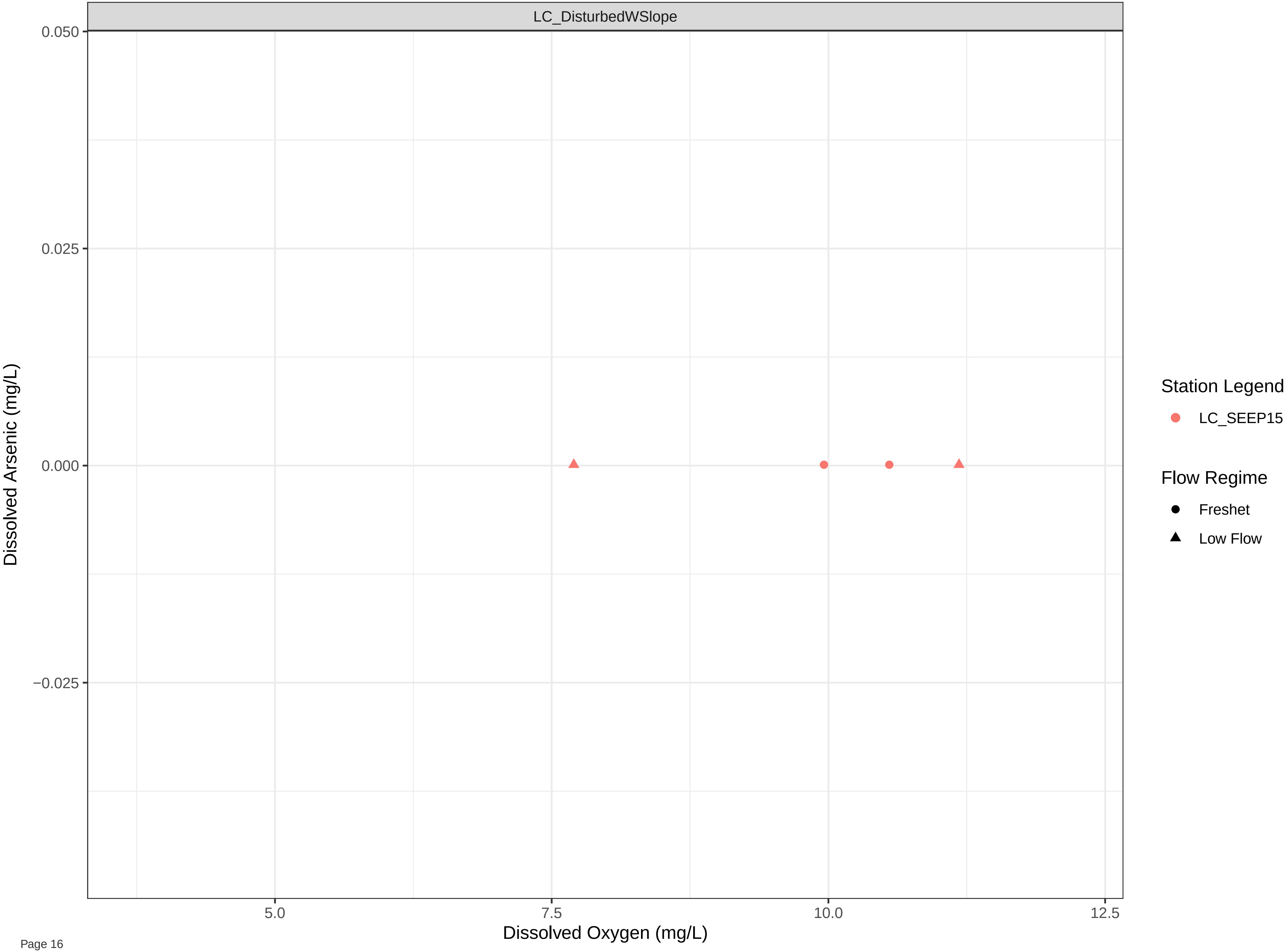

LC_MAXAM
0.050
0.025
0.000
−0.025
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Dissolved Antimony (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

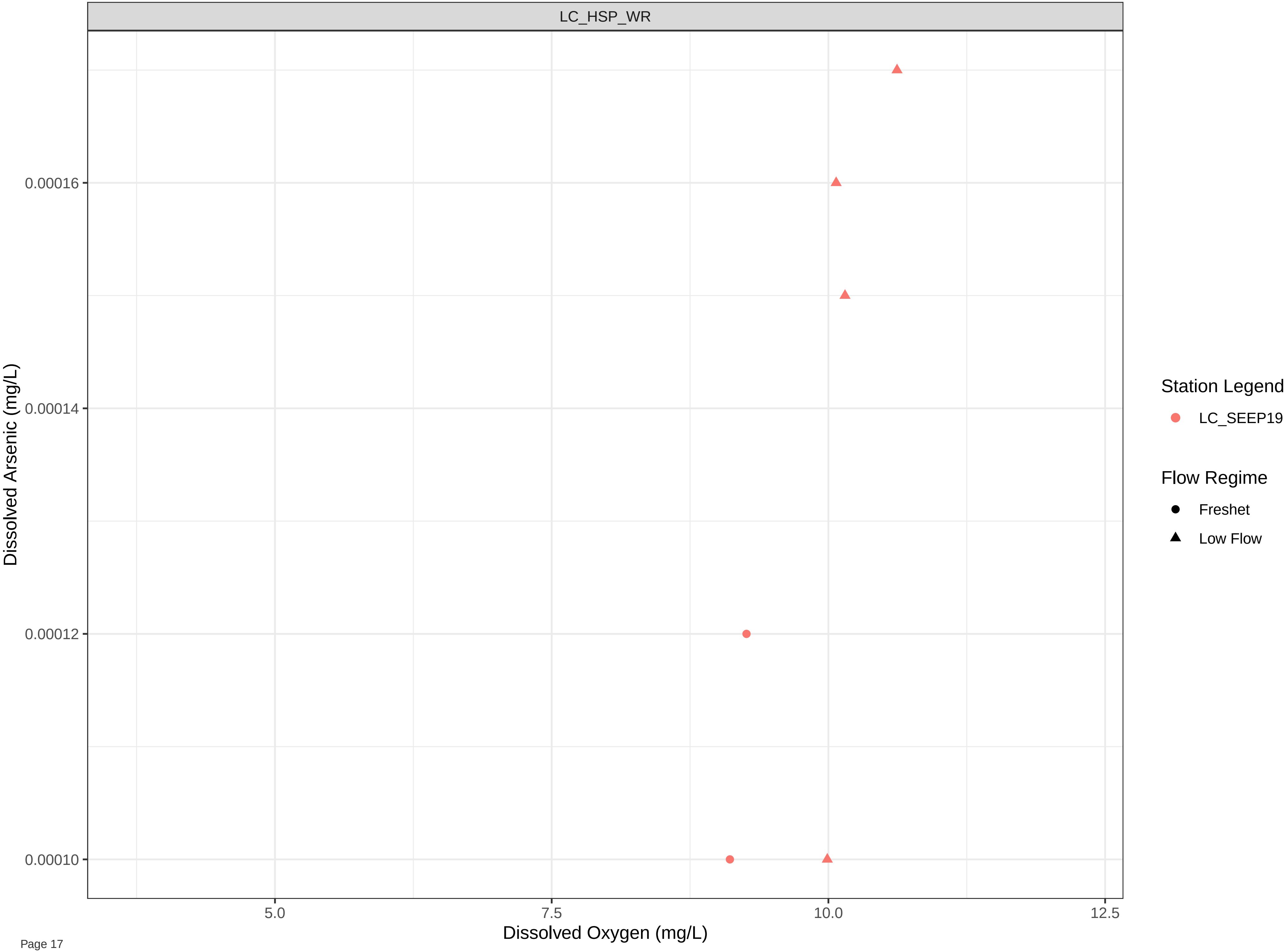

LC_MSA_WR
Dissolved Antimony (mg/L)
0.00035
0.00030
0.00025
0.00020
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

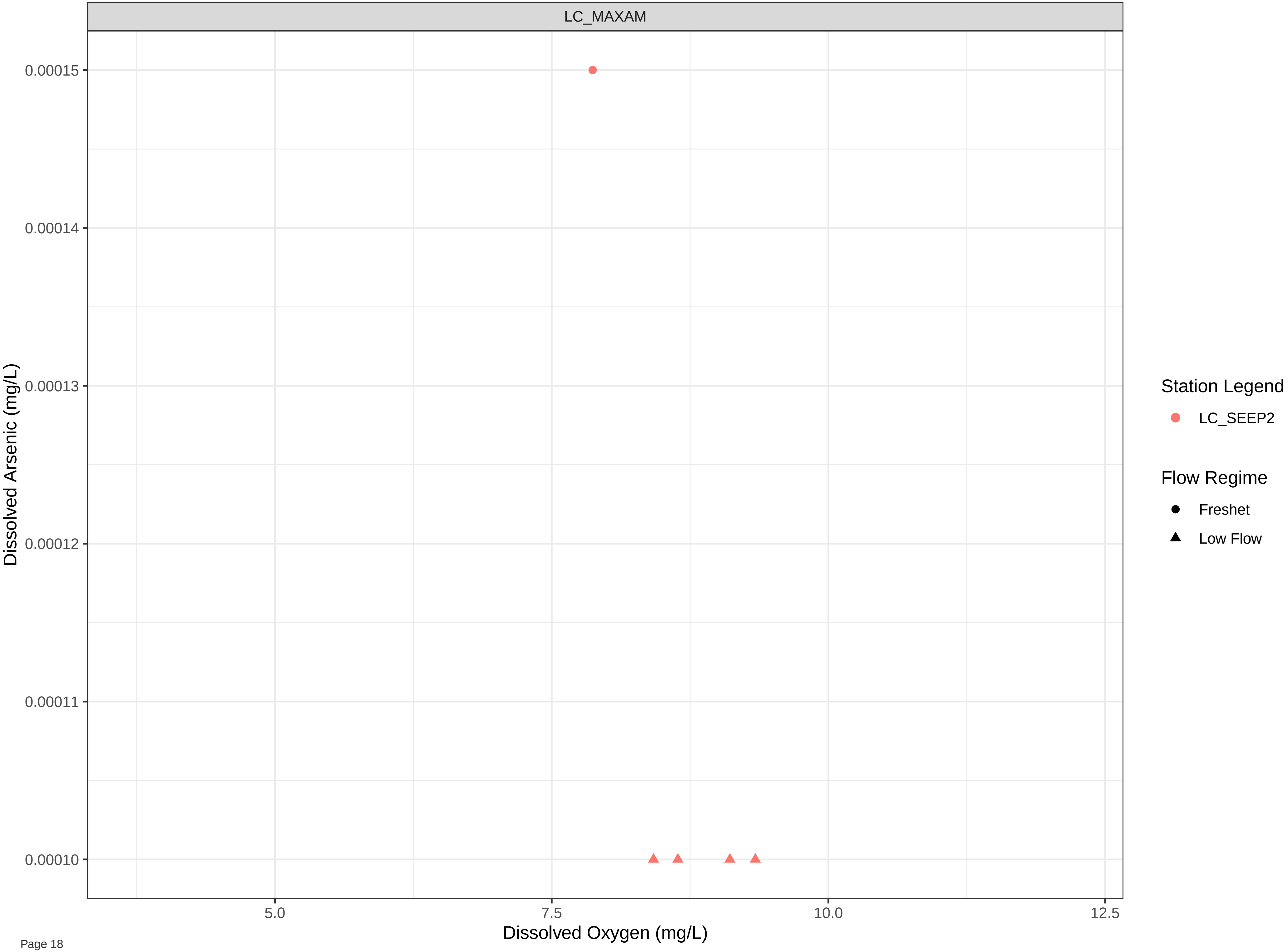

LC_PLANT
Dissolved Antimony (mg/L)
0.00015
0.00014
0.00013
0.00012
0.00011
0.00010
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

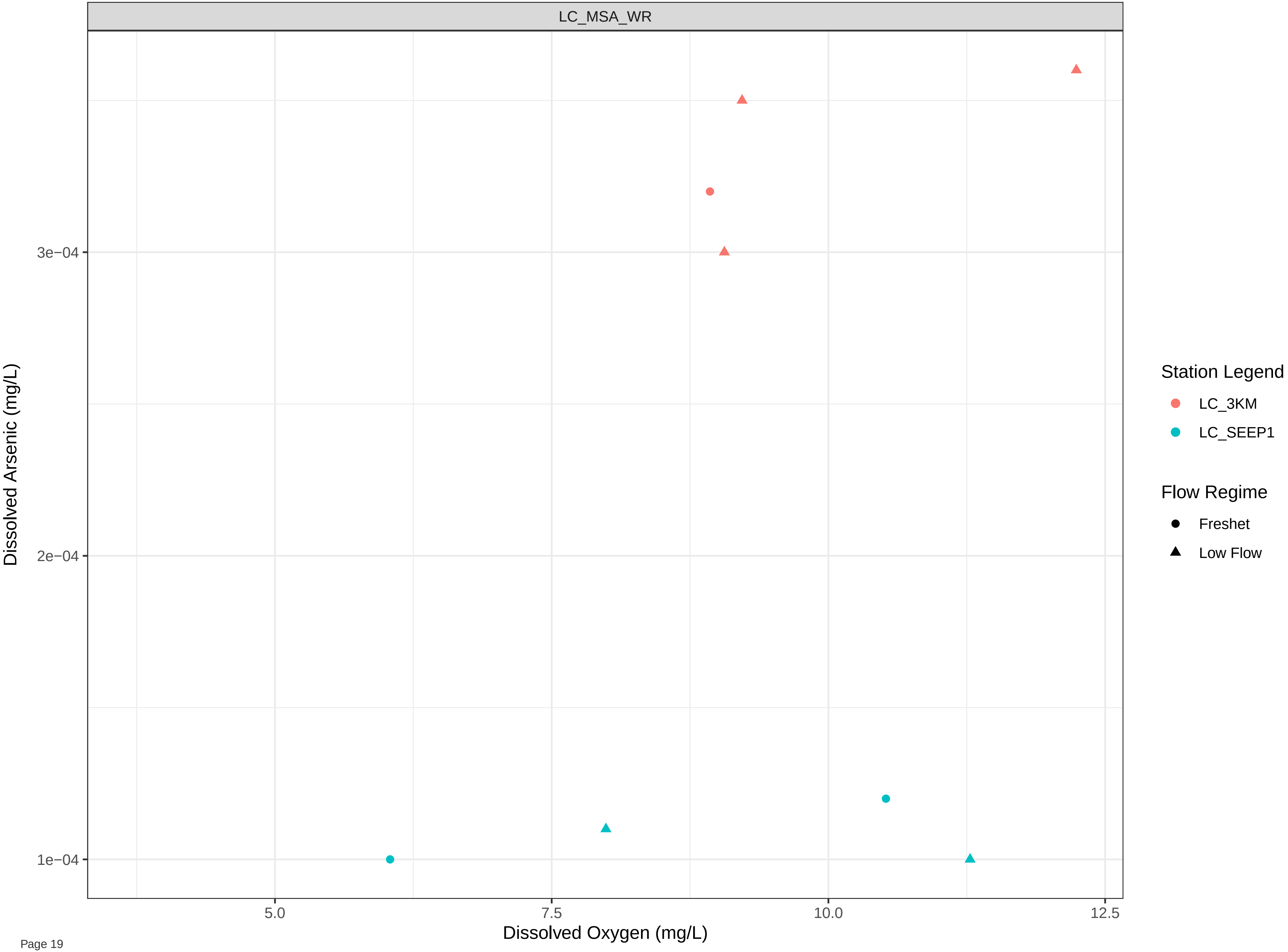

LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Antimony (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

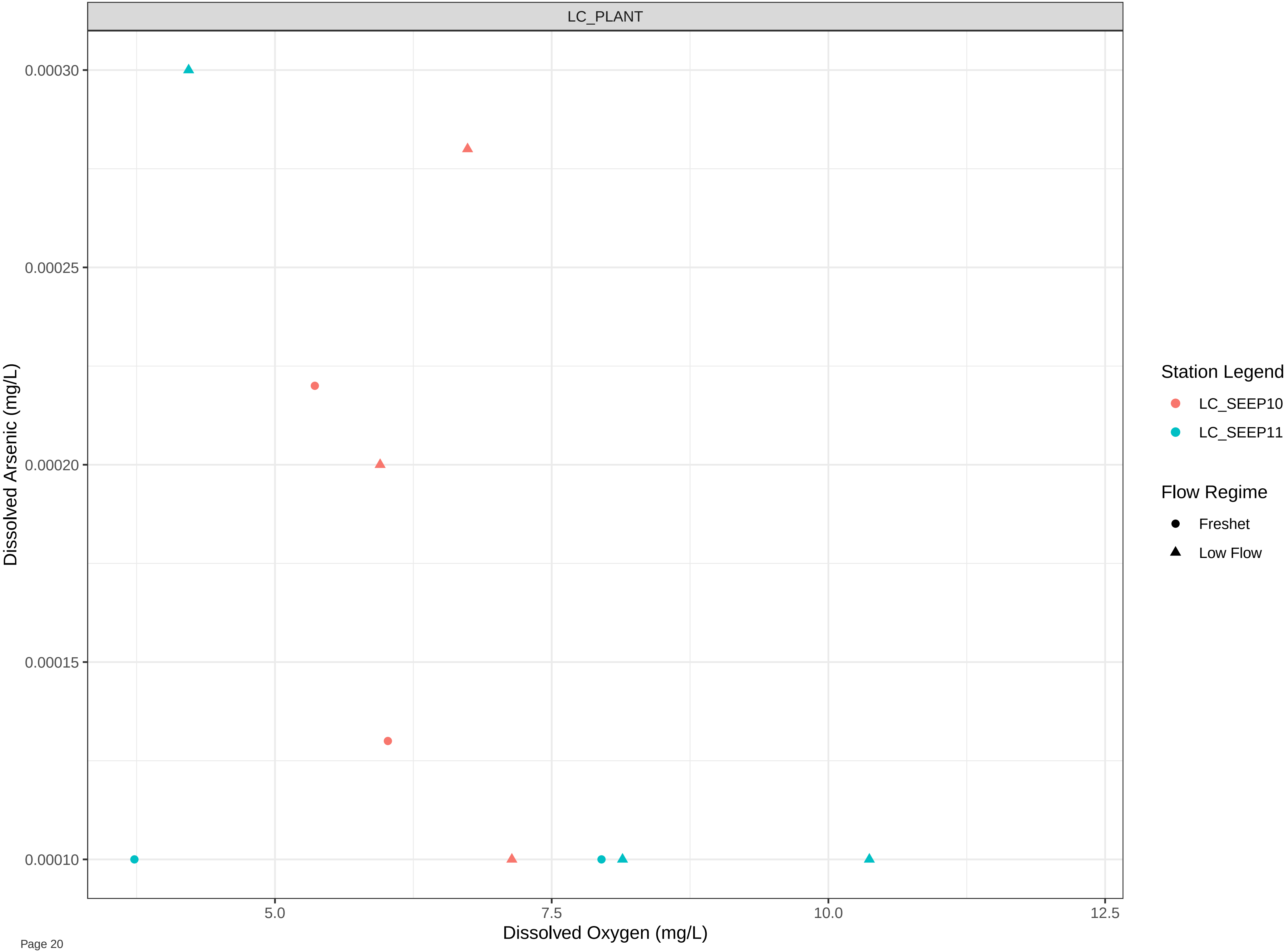

LC_DC_WR
Dissolved Arsenic (mg/L)
6e−04
5e−04
4e−04
3e−04
2e−04
1e−04
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

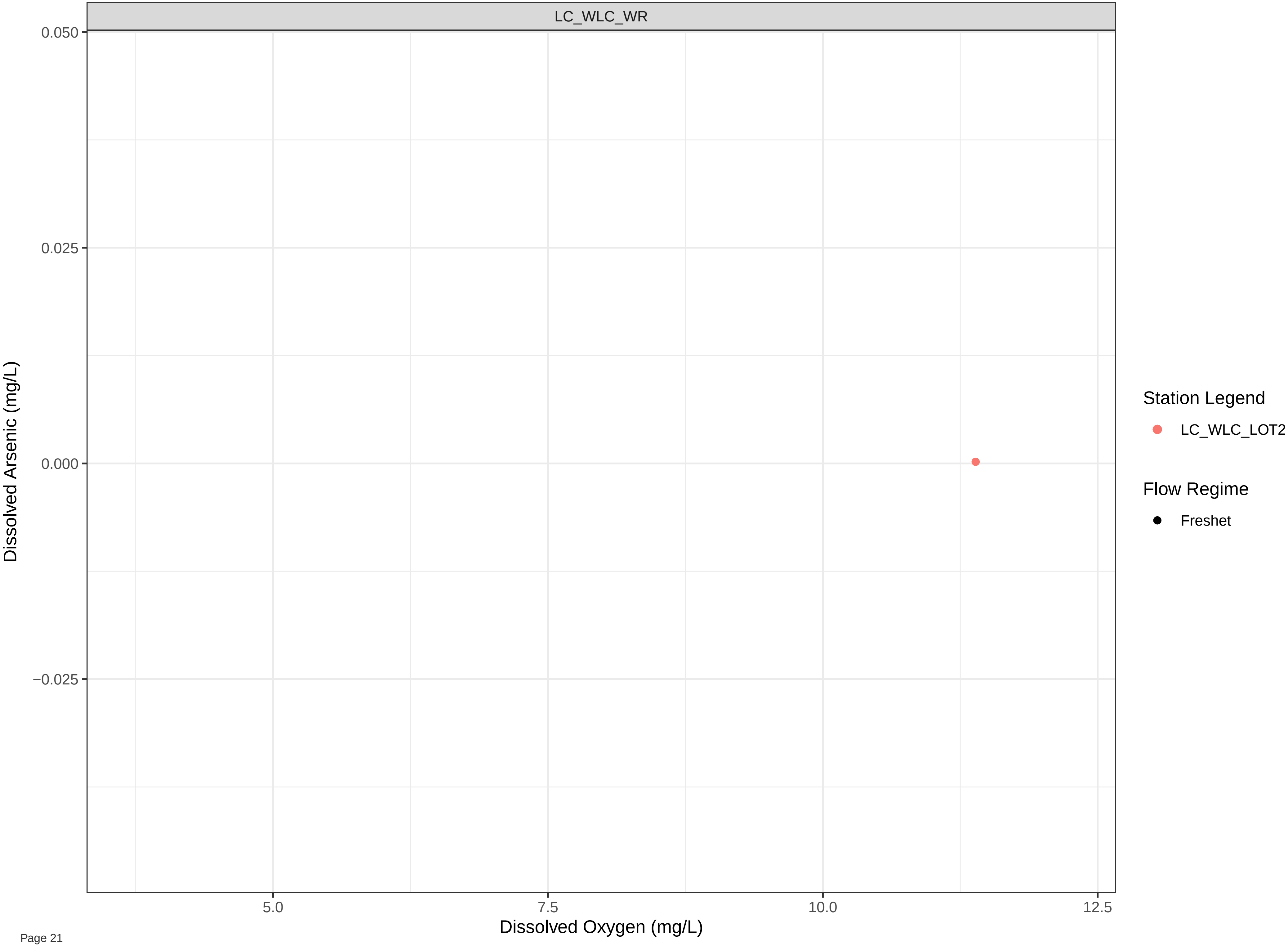

LC_DisturbedWSlope
0.050
0.025
0.000
−0.025
Dissolved Arsenic (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

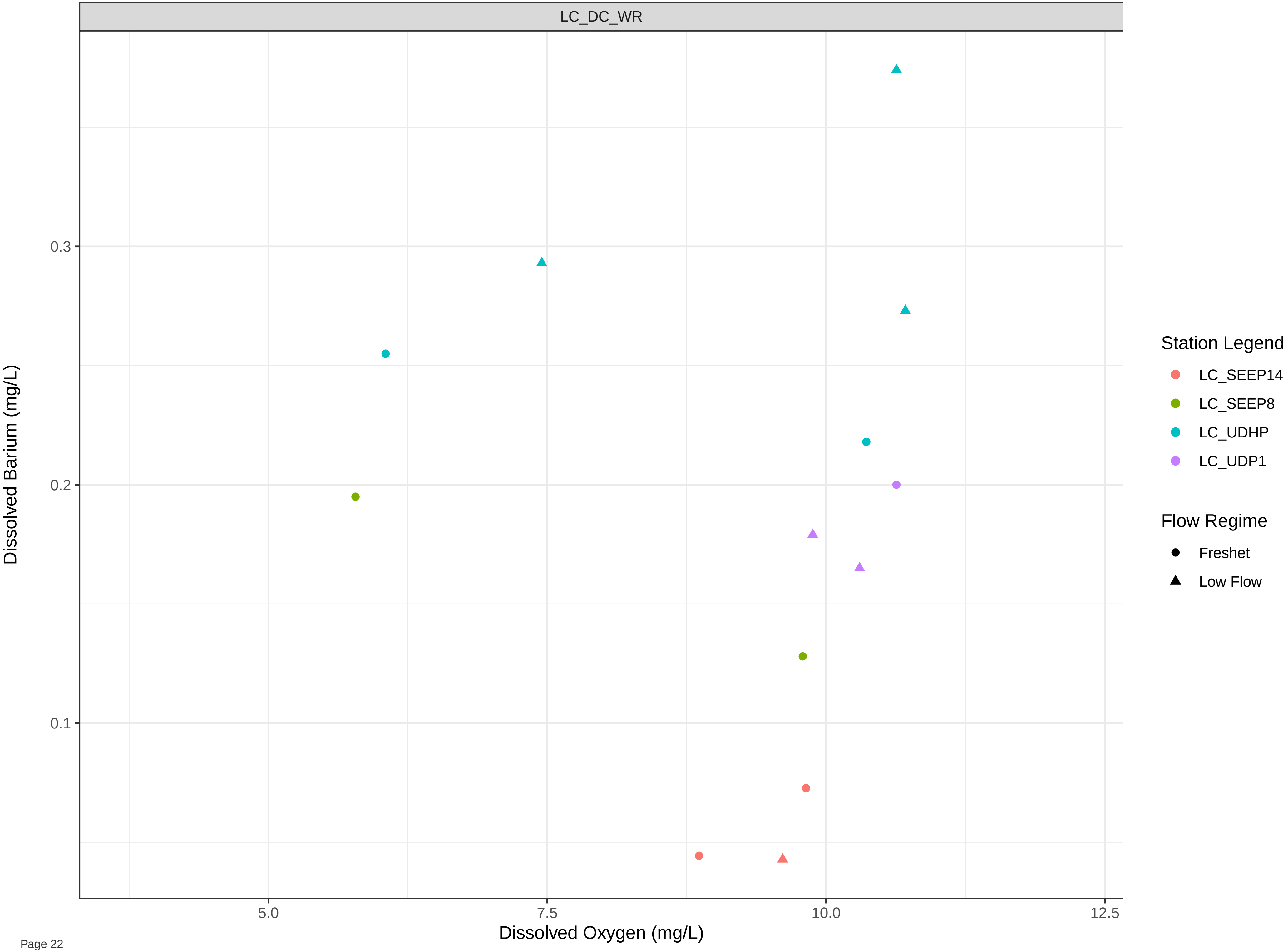

LC_HSP_WR
Dissolved Arsenic (mg/L)
0.00016
0.00014
0.00012
0.00010
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

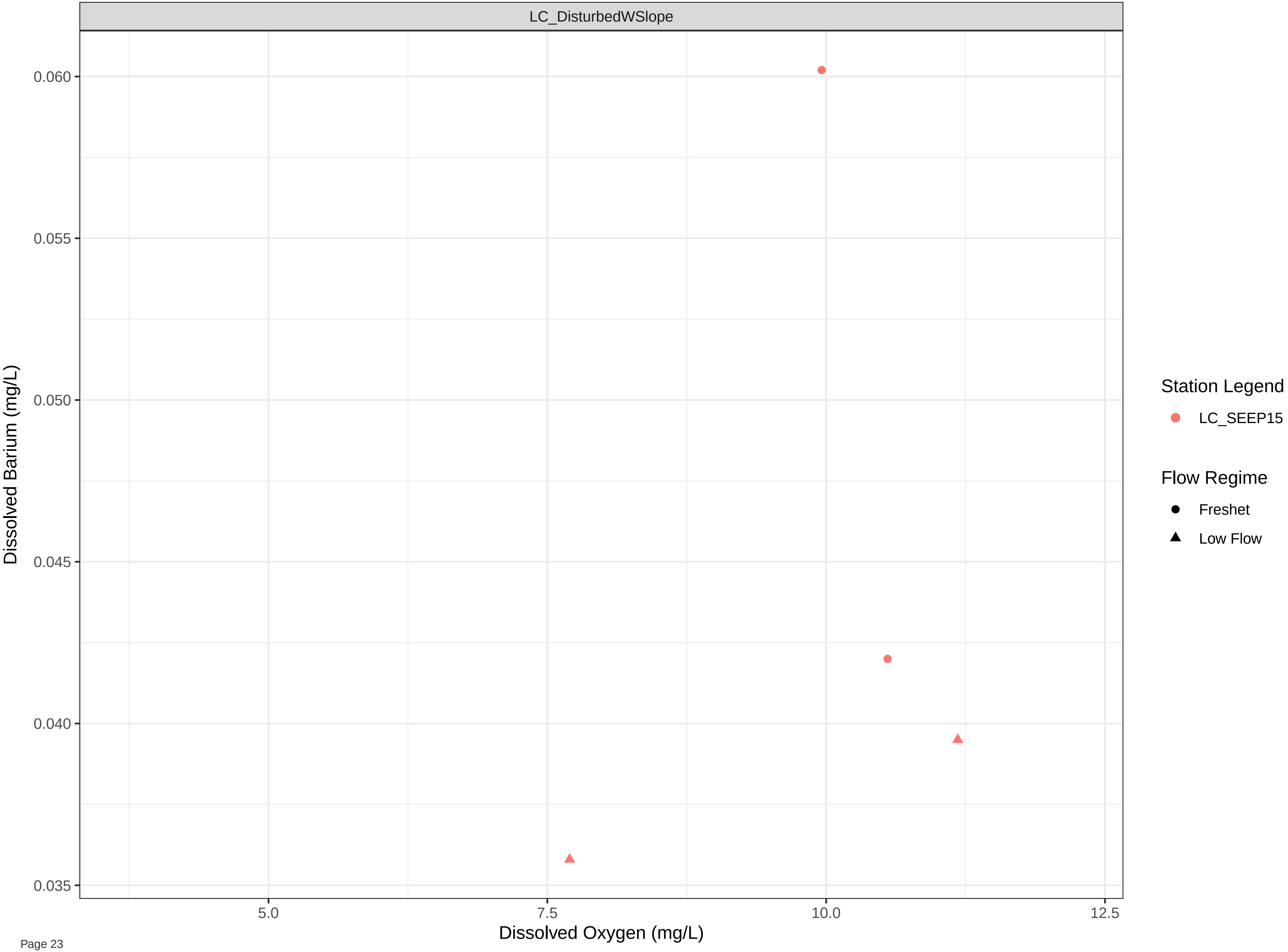

LC_MAXAM
Dissolved Arsenic (mg/L)
0.00015
0.00014
0.00013
0.00012
0.00011
0.00010
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

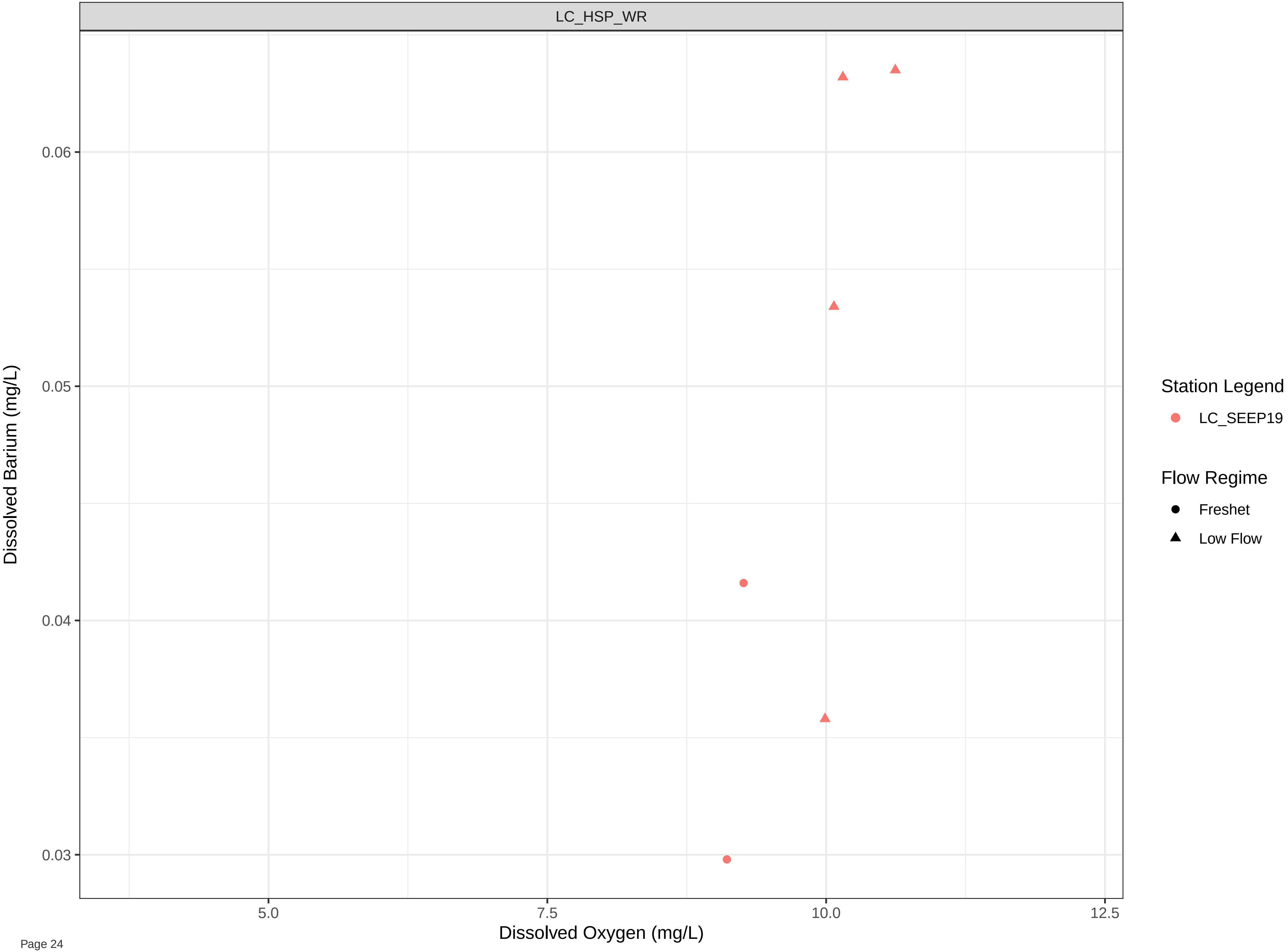

LC_MSA_WR
3e−04
2e−04
1e−04
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Dissolved Arsenic (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

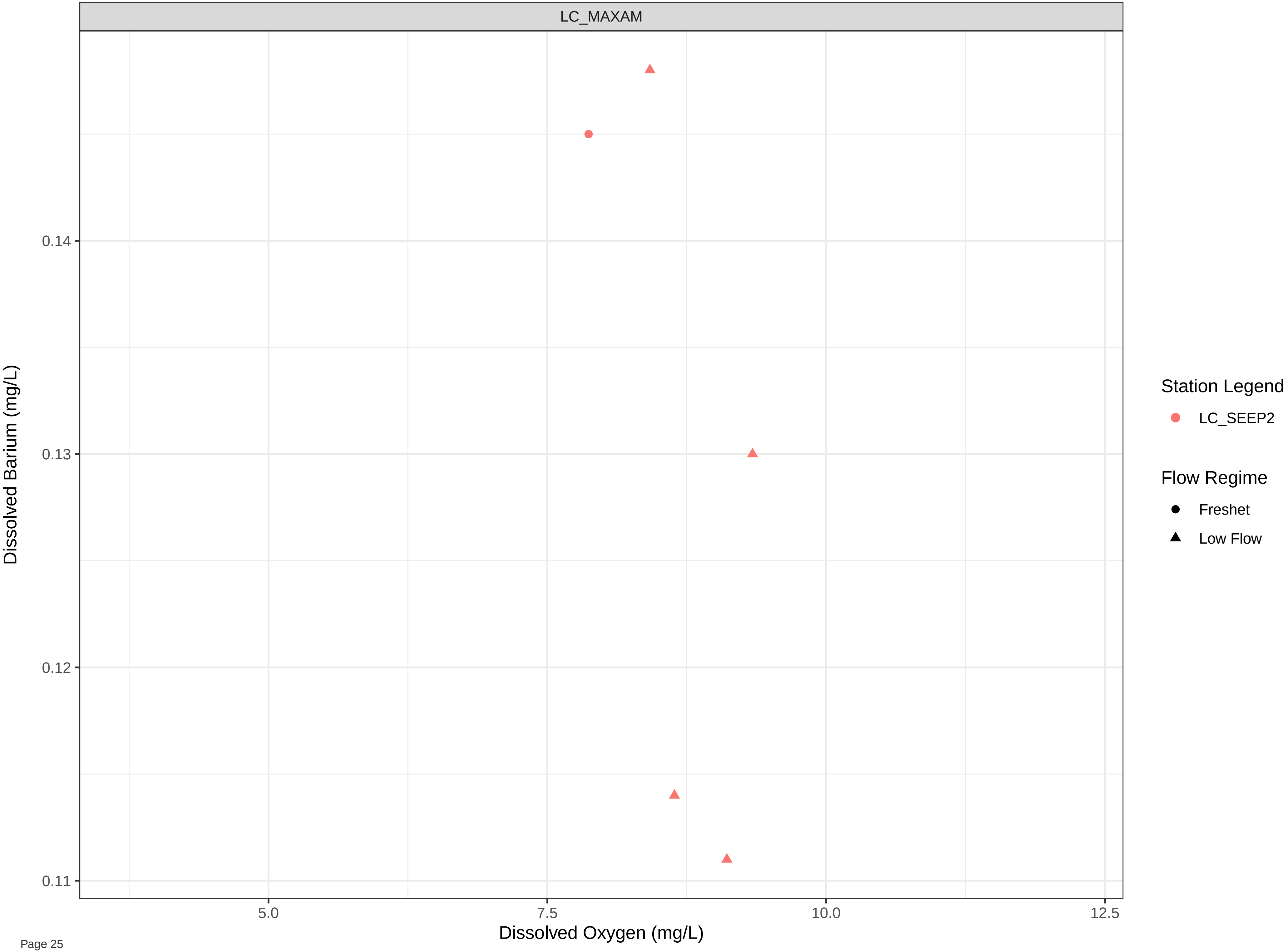

LC_PLANT
0.00030
0.00025
0.00020
0.00015
0.00010
Dissolved Arsenic (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

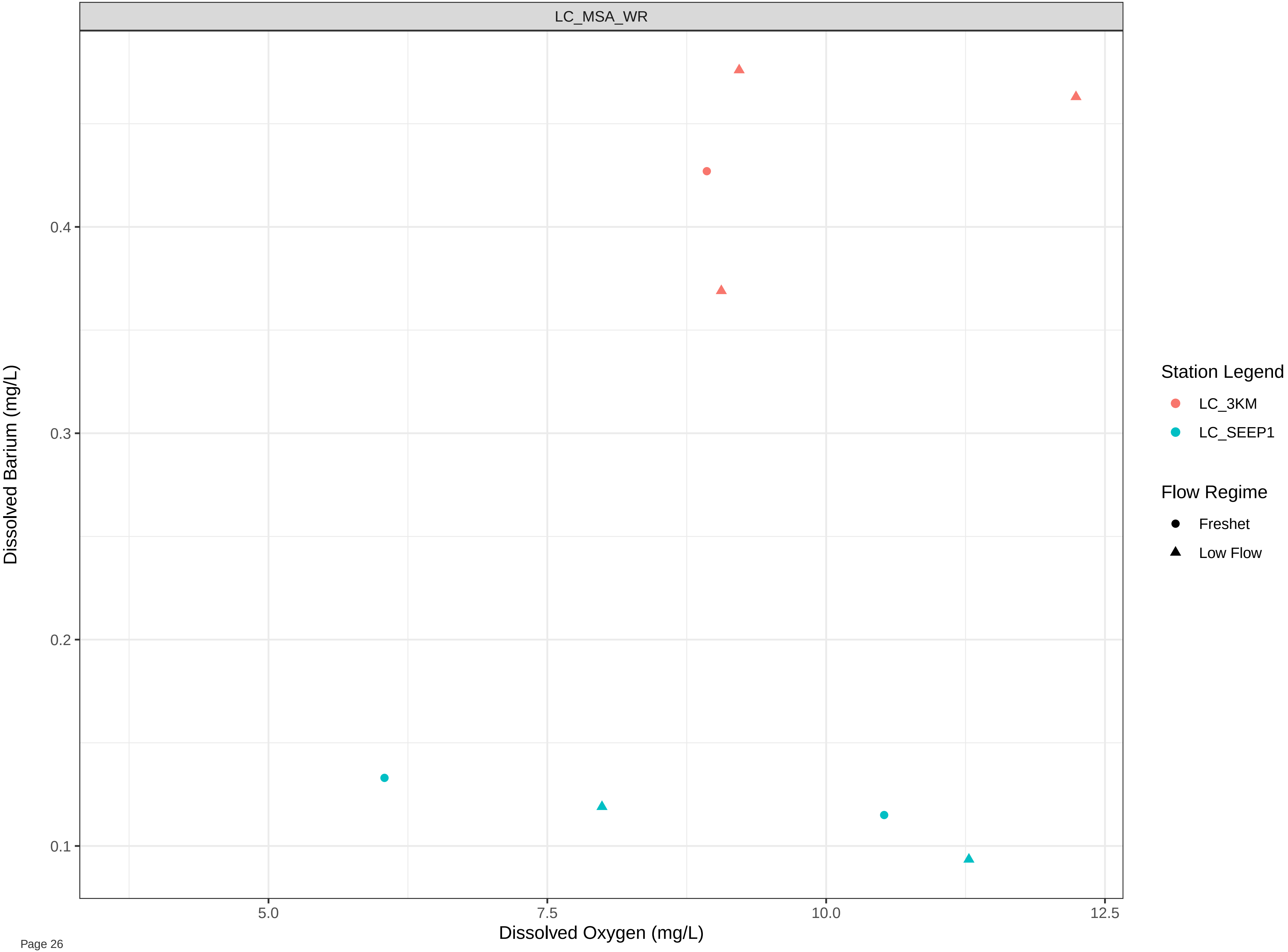

LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Arsenic (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

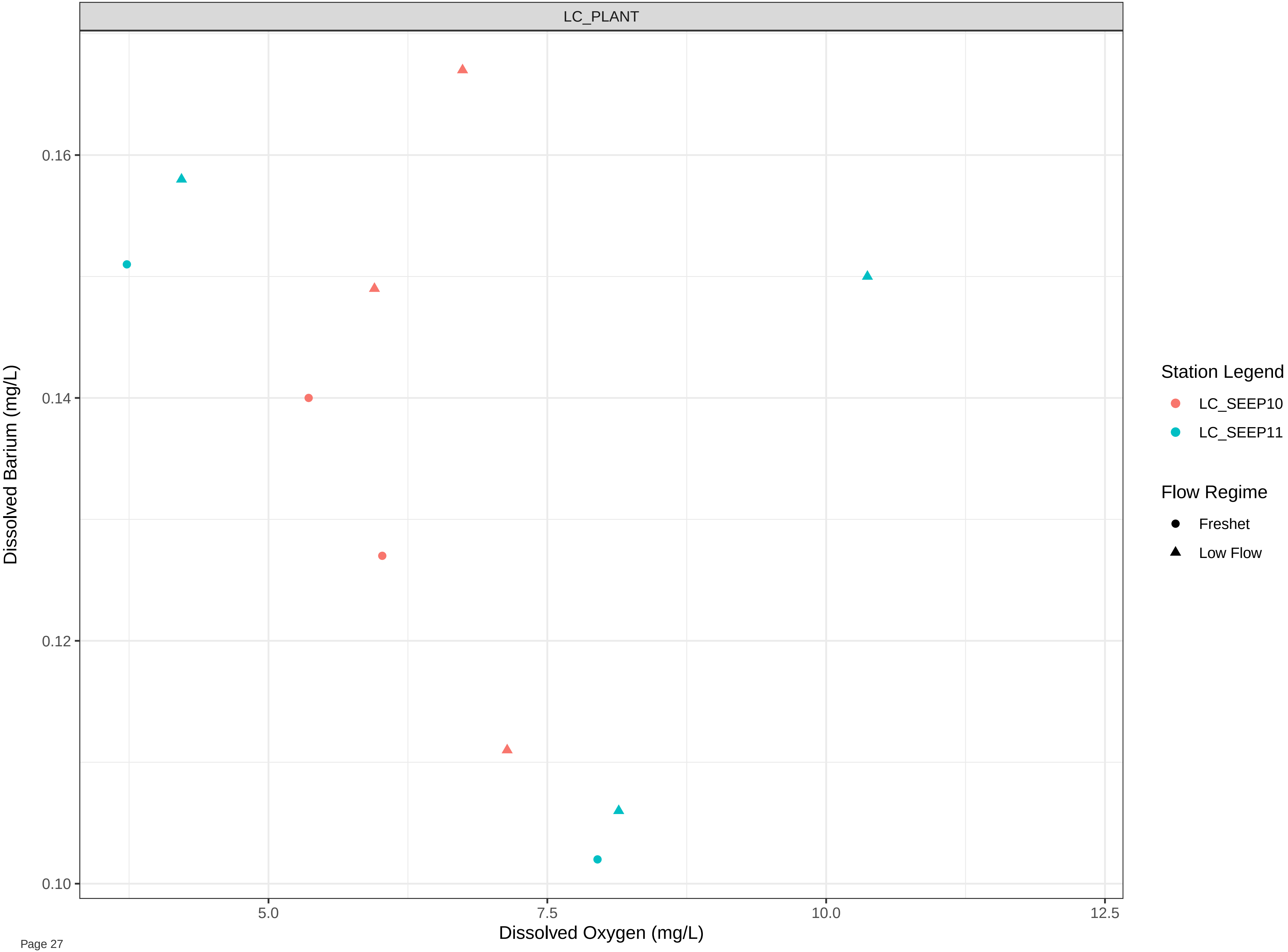

LC_DC_WR
Dissolved Barium (mg/L)
0.3
0.2
0.1
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

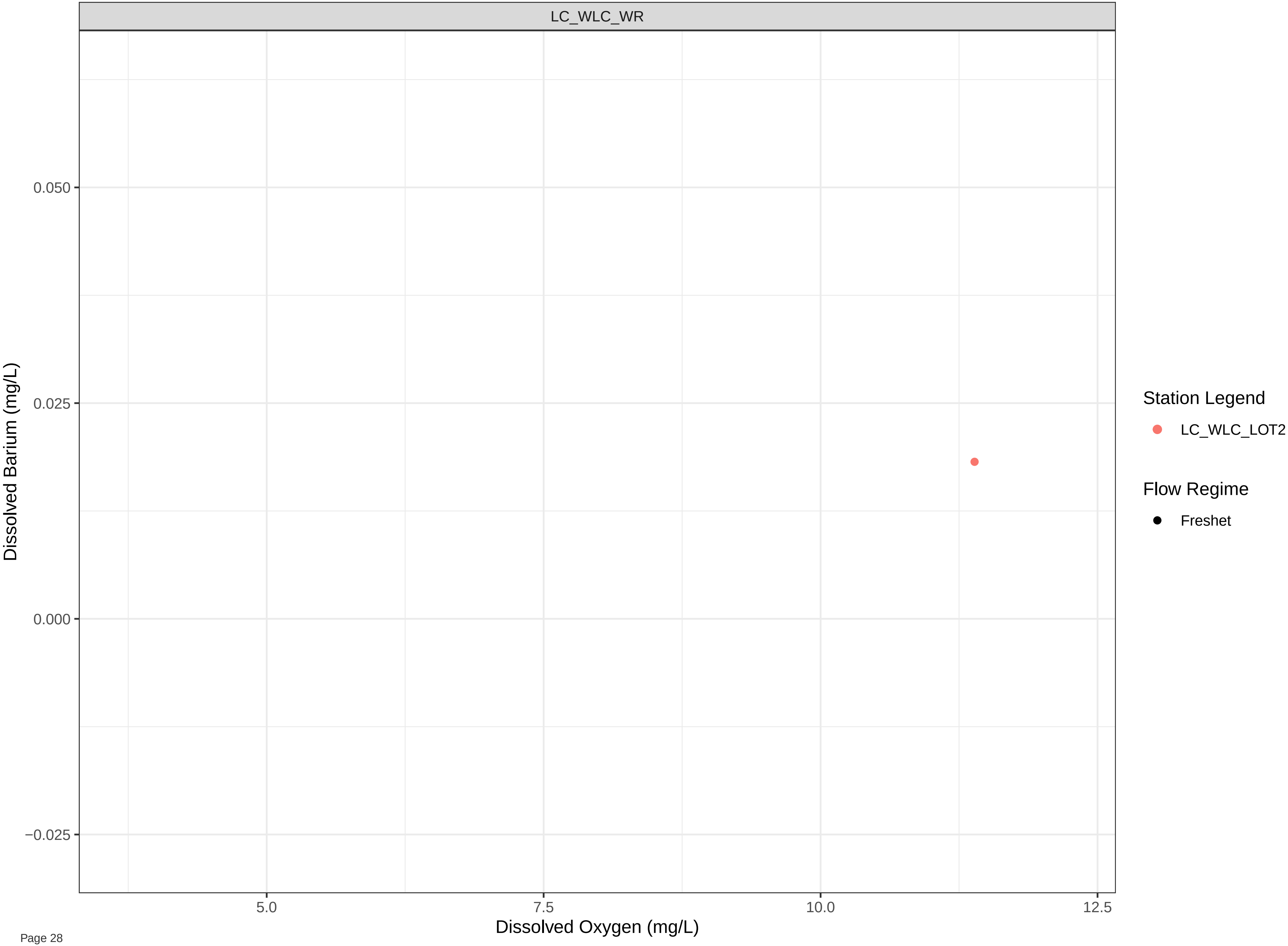

LC_DisturbedWSlope
0.060
0.055
0.050
0.045
0.040
0.035
Dissolved Barium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

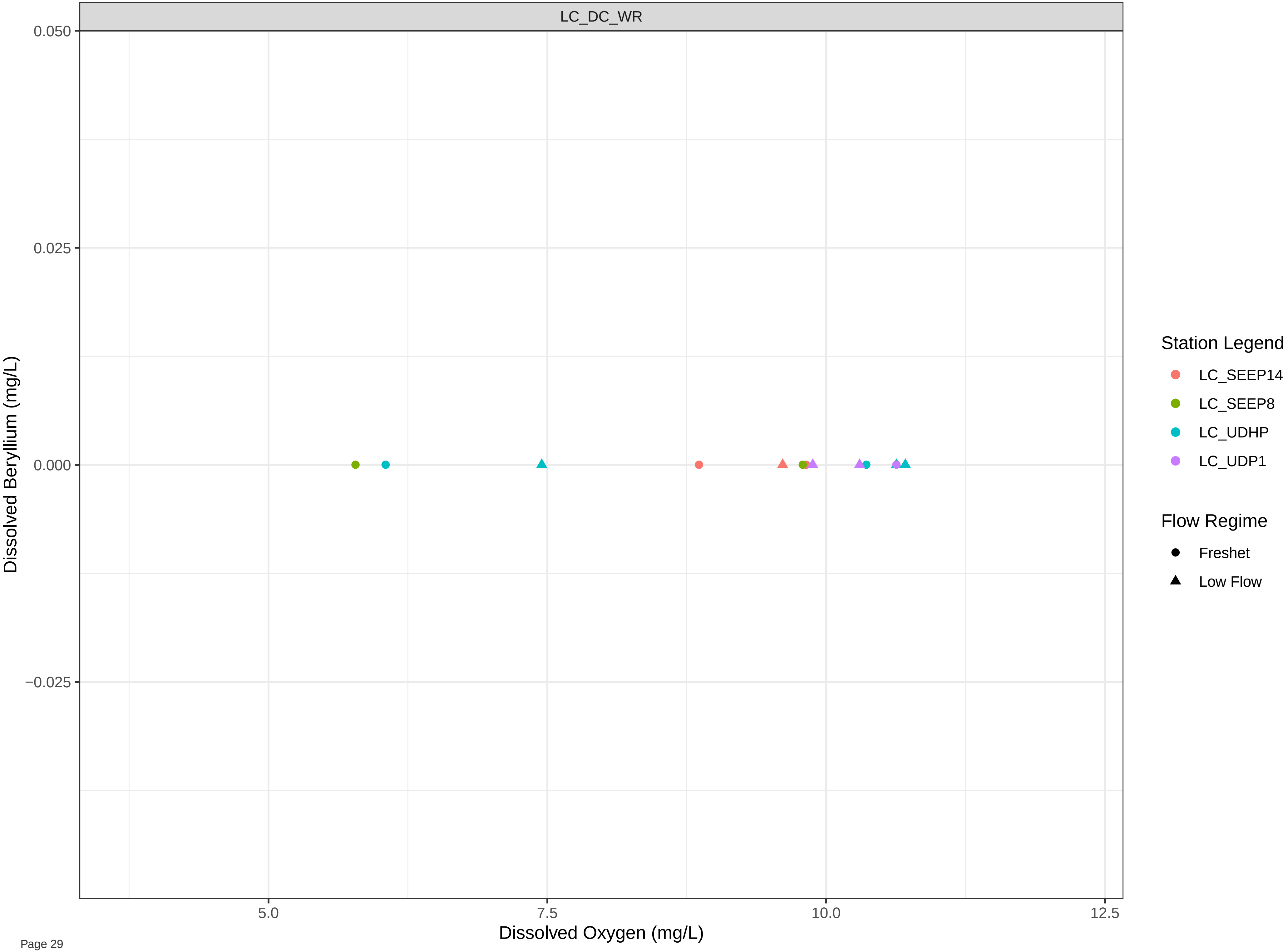

LC_HSP_WR
Dissolved Barium (mg/L)
0.06
0.05
0.04
0.03
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

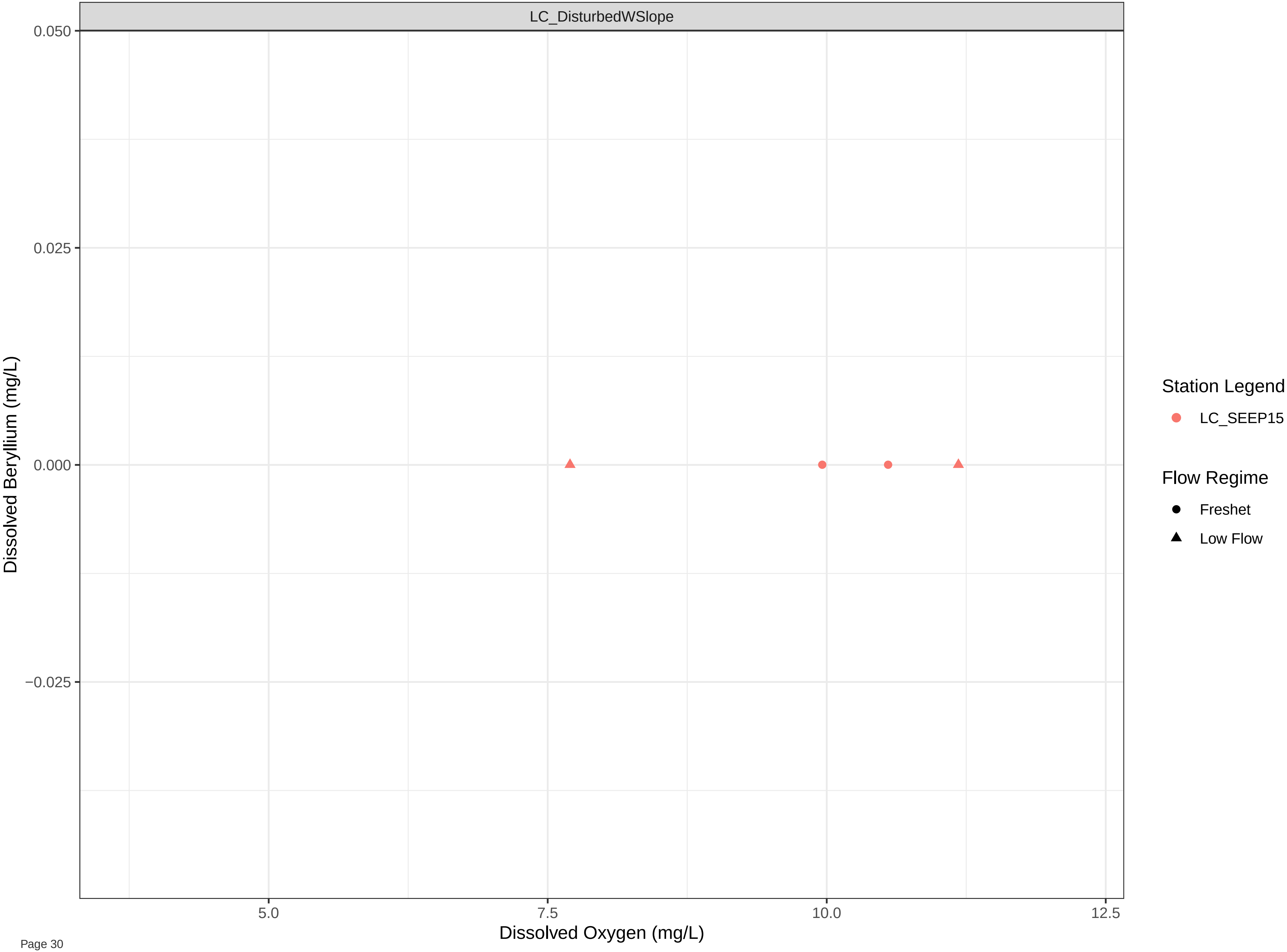

LC_MAXAM
0.14
0.13
0.12
0.11
Dissolved Barium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

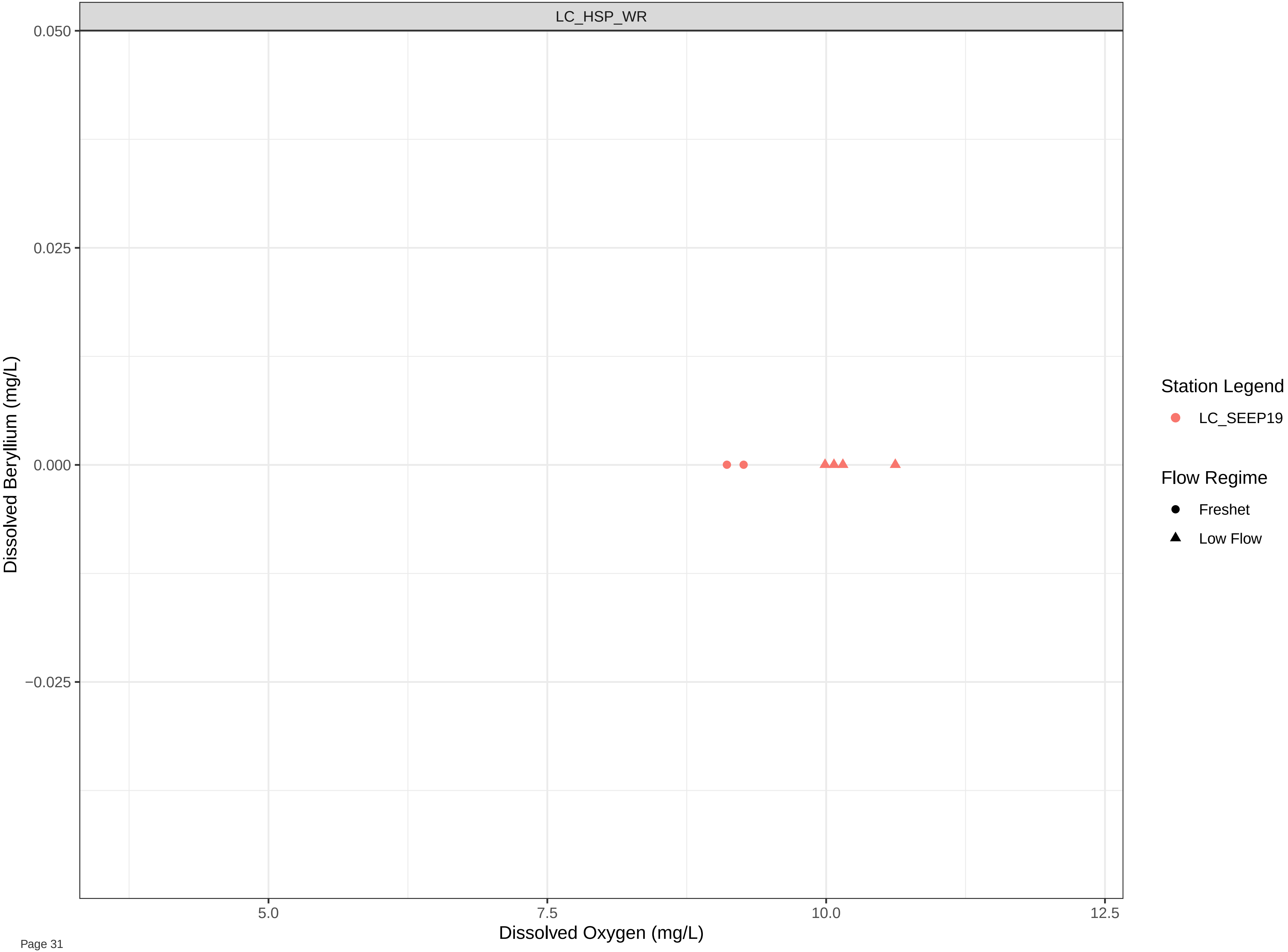

LC_MSA_WR
Dissolved Barium (mg/L)
0.4
0.3
0.2
0.1
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_3KM
● LC_SEEP1
Flow Regime
● Freshet
▲ Low Flow

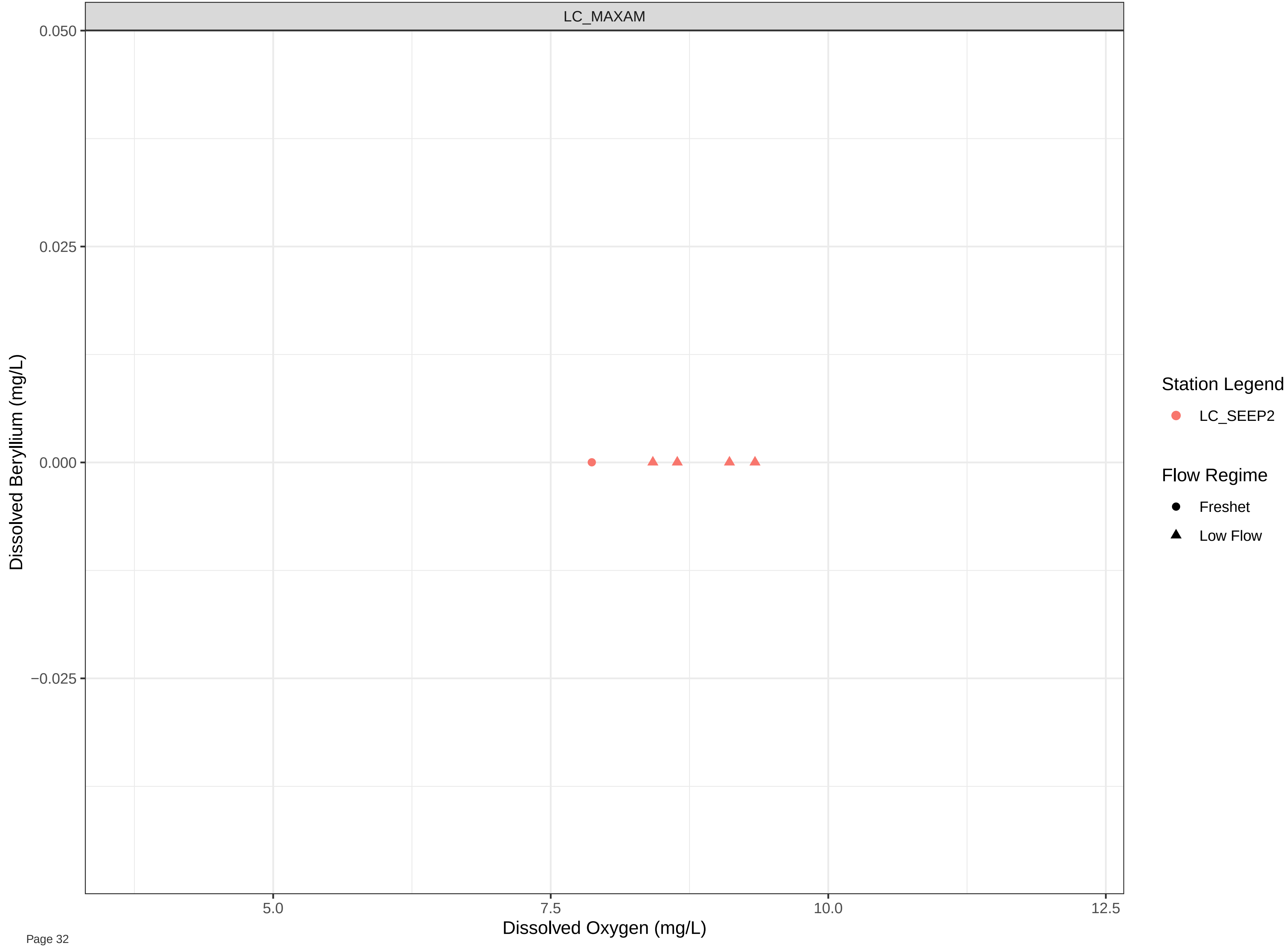

LC_PLANT
Dissolved Barium (mg/L)
0.16
0.14
0.12
0.10
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

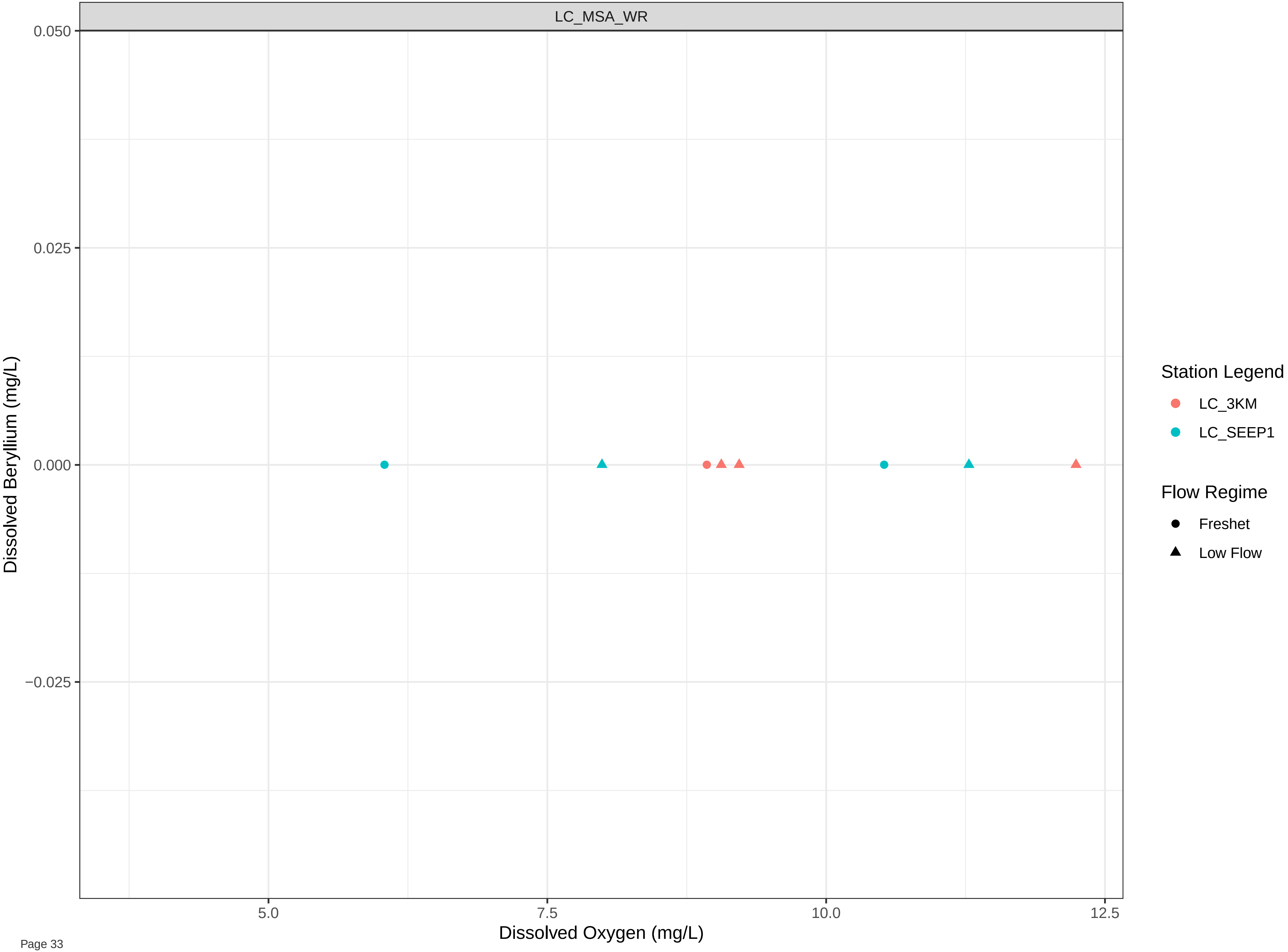

LC_WLC_WR
Dissolved Barium (mg/L)
0.050
0.025
0.000
−0.025
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

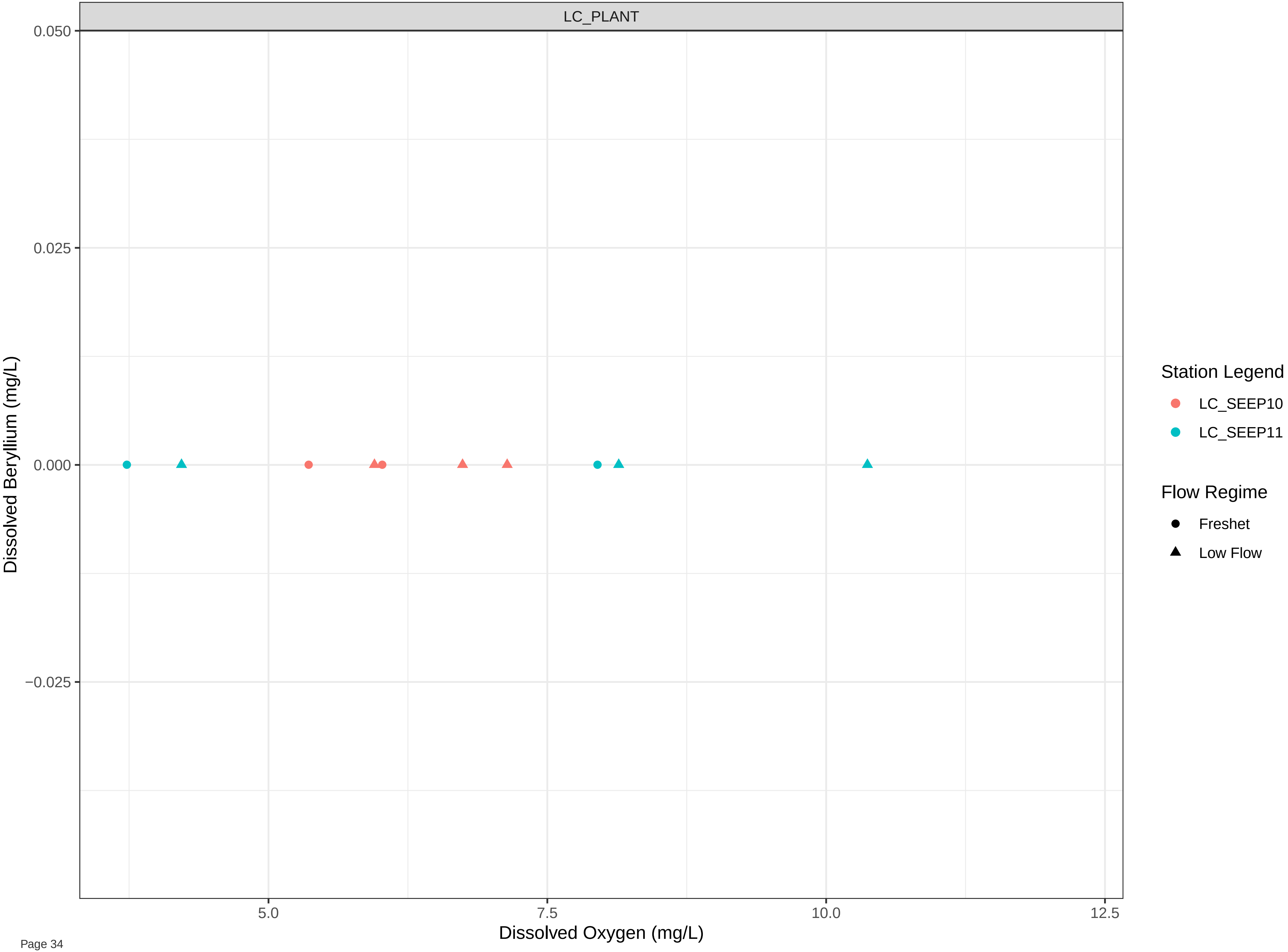

LC_DC_WR
Dissolved Beryllium (mg/L)
0.050
0.025
0.000
−0.025
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
● LC_SEEP14
● LC_SEEP8
● LC_UDHP
● LC_UDP1
Flow Regime
● Freshet
▲ Low Flow

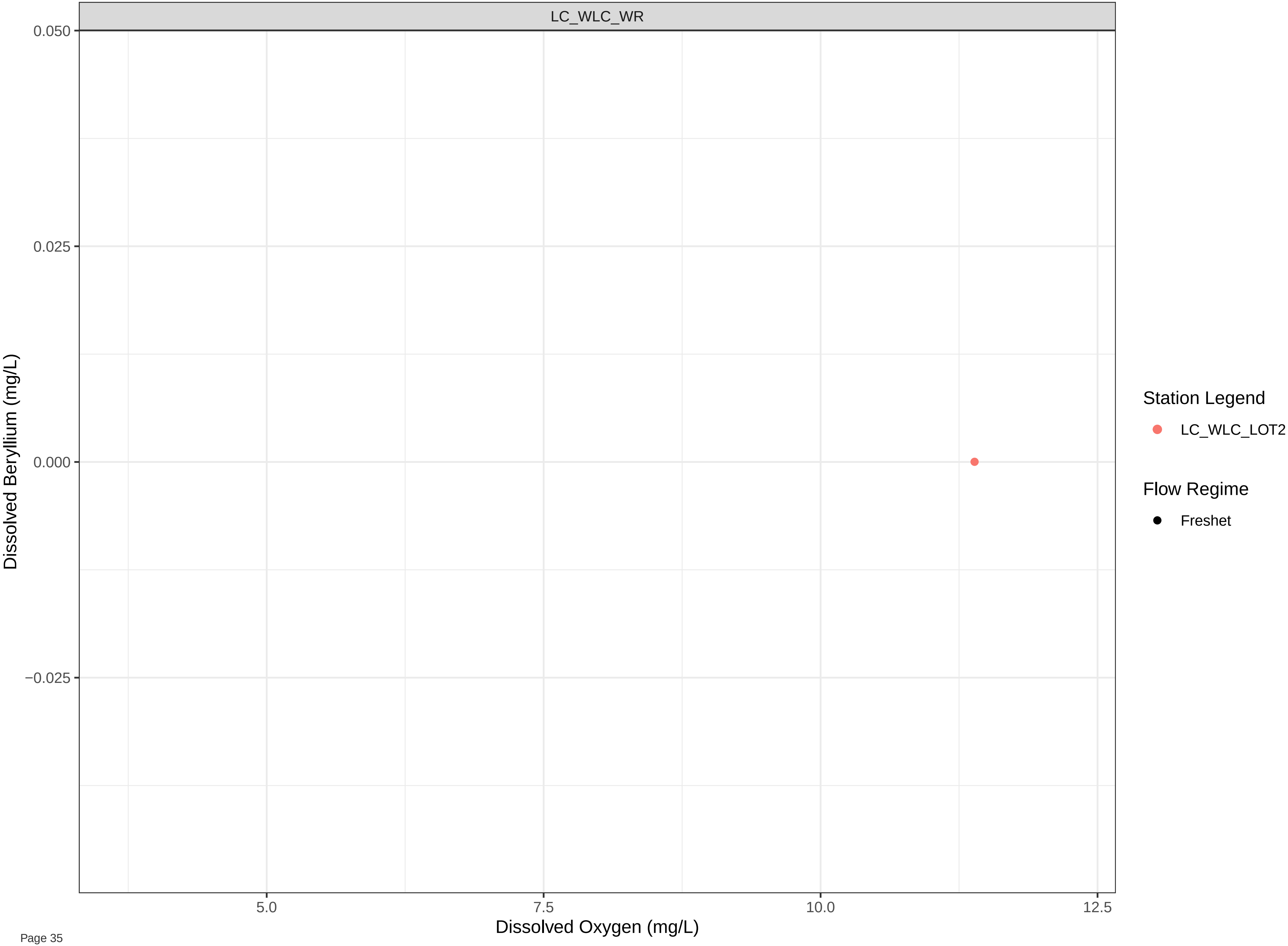

LC_DisturbedWSlope
0.050
0.025
0.000
−0.025
Dissolved Beryllium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

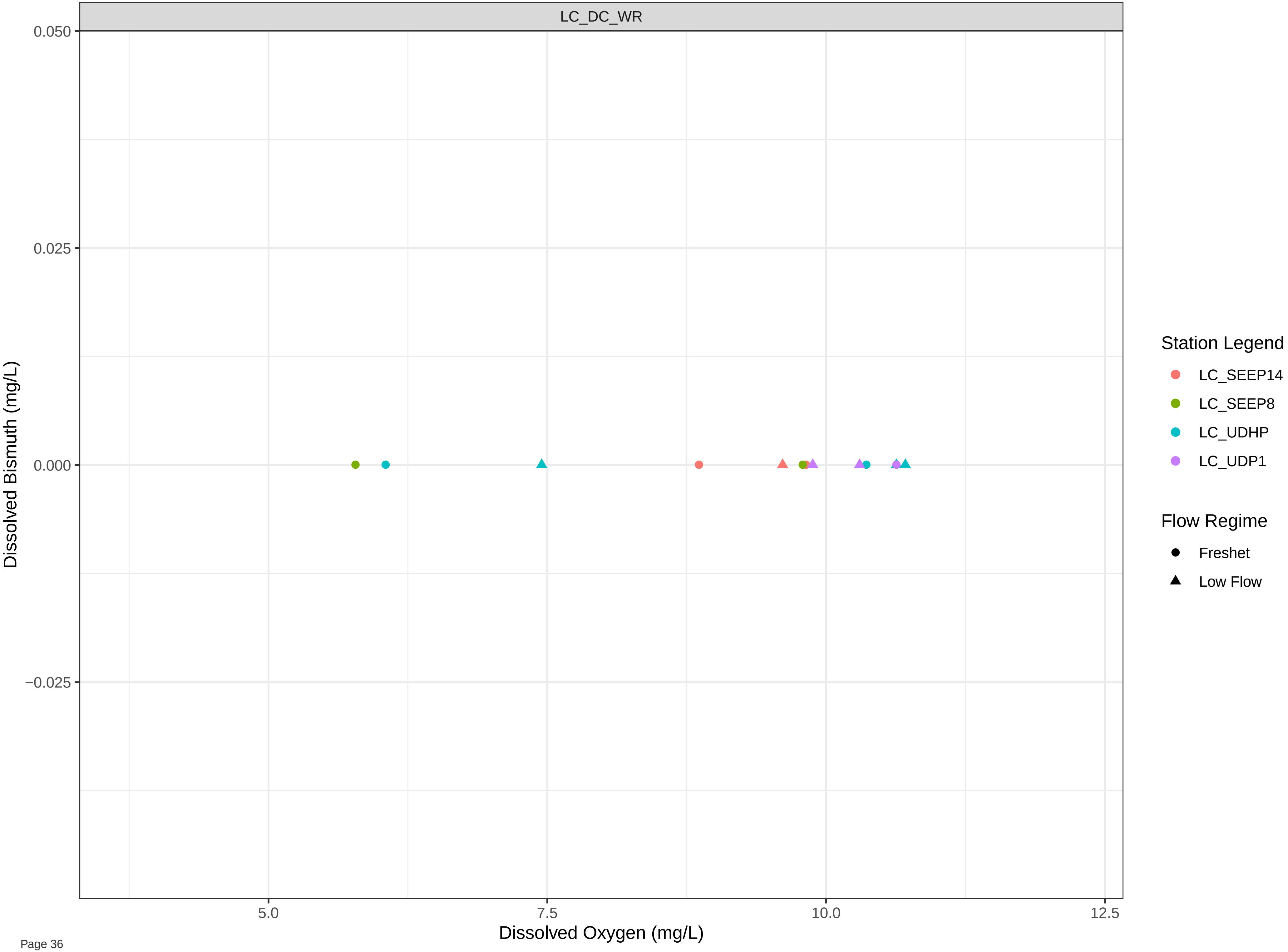

LC_HSP_WR
0.050
0.025
0.000
−0.025
Dissolved Beryllium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

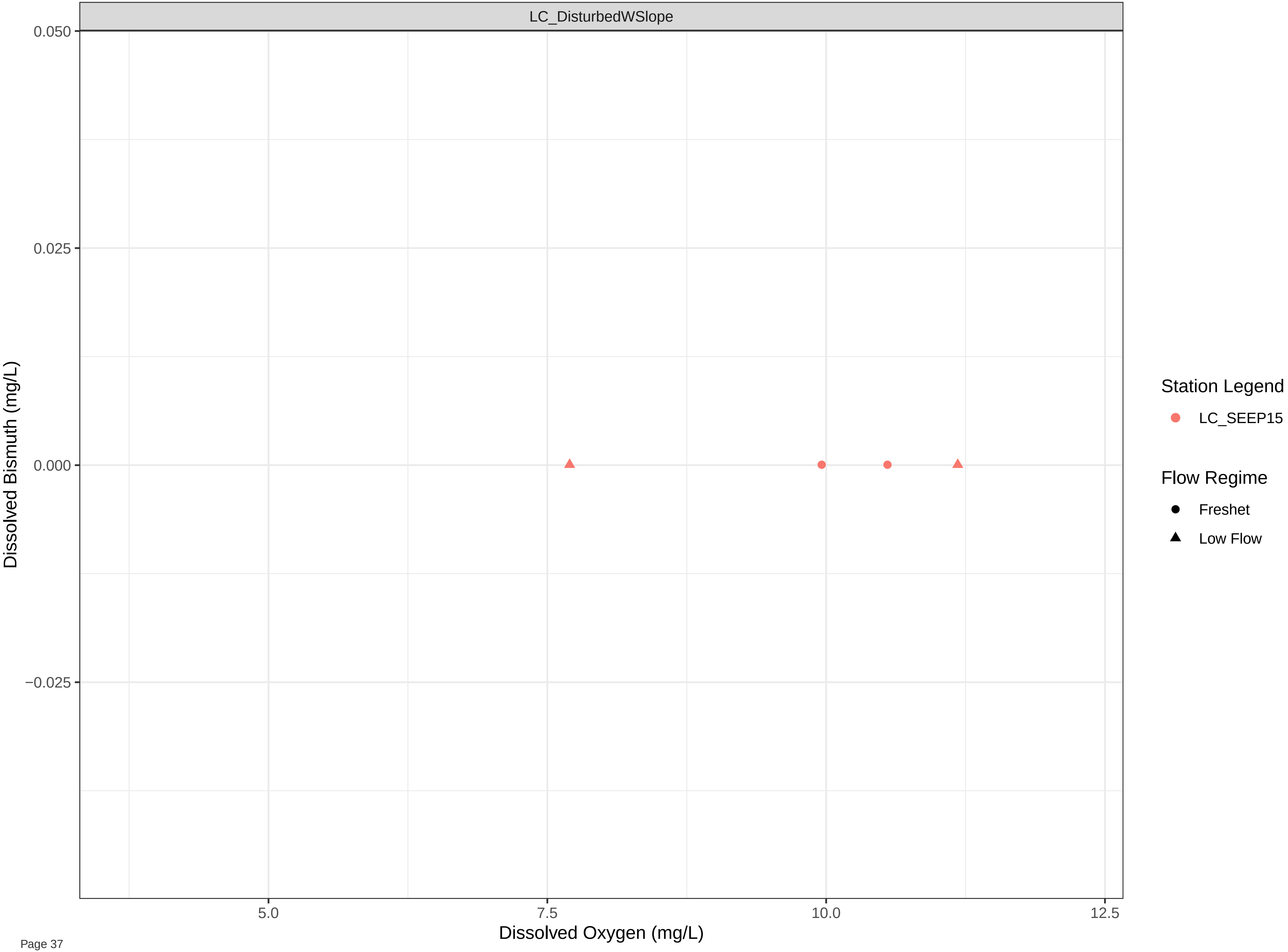

LC_MAXAM
0.050
0.025
0.000
−0.025
Dissolved Beryllium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

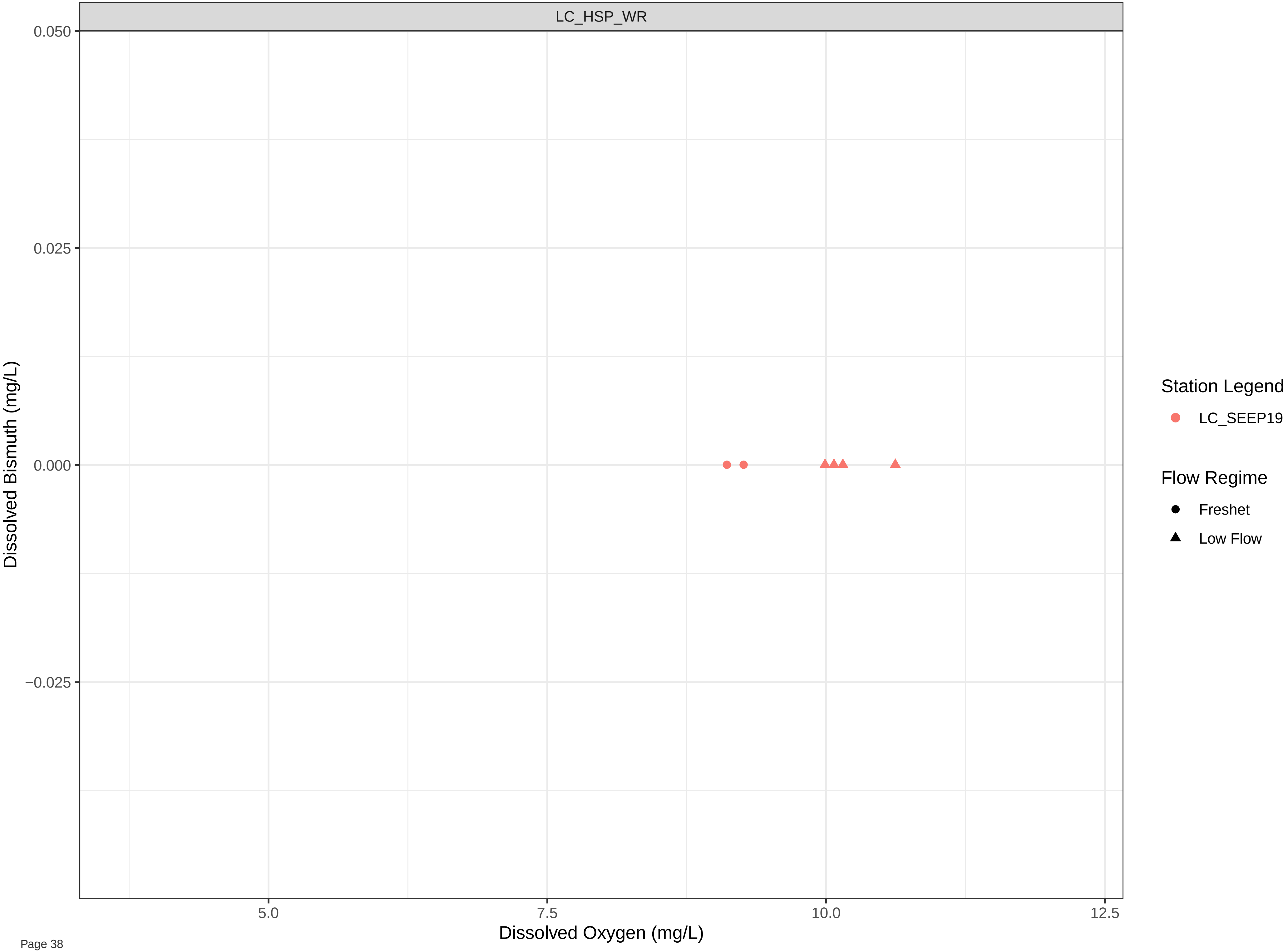

LC_MSA_WR
Dissolved Beryllium (mg/L)
0.050
0.025
0.000
−0.025
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

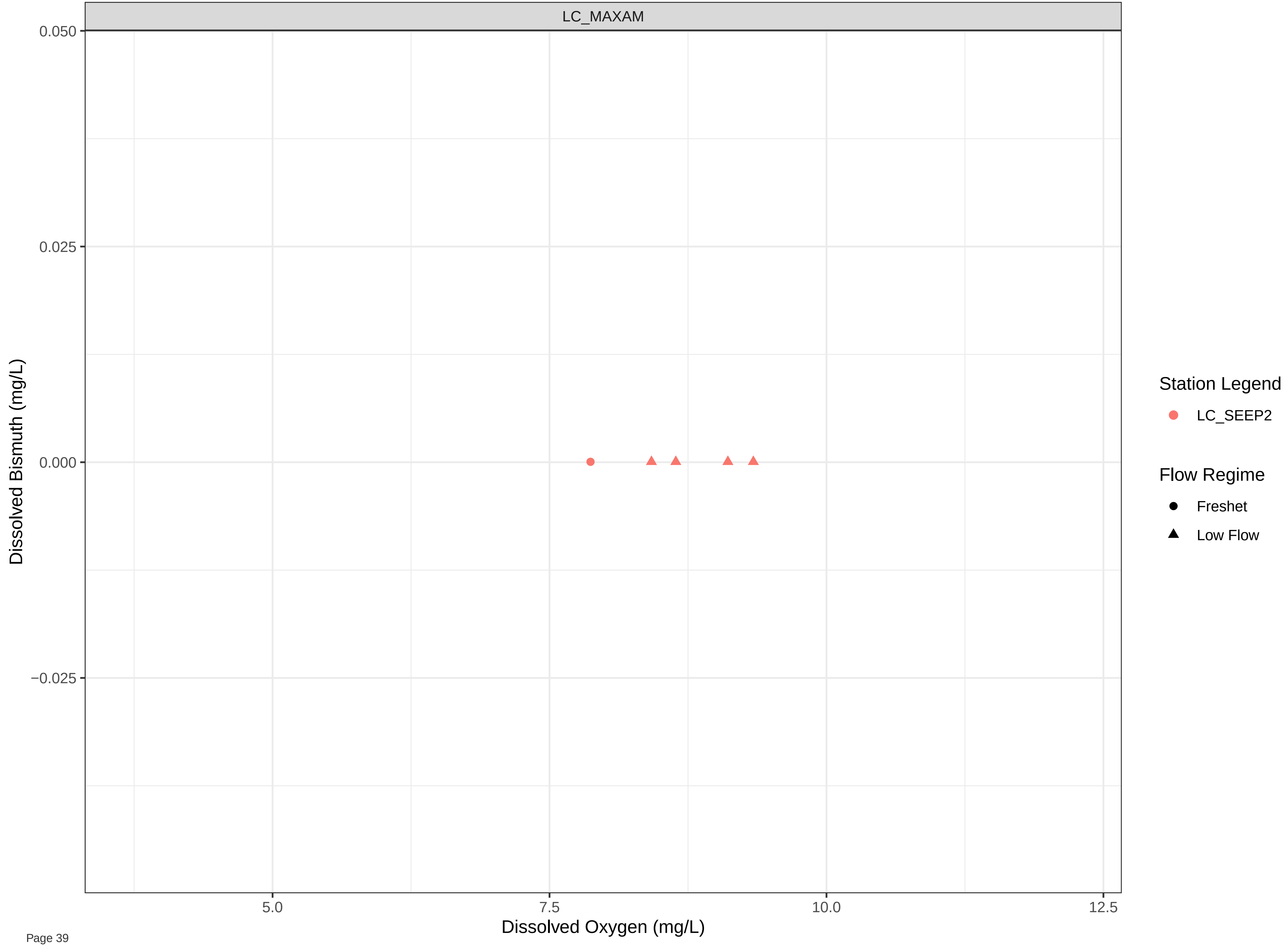

LC_PLANT
Dissolved Beryllium (mg/L)
0.050
0.025
0.000
−0.025
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

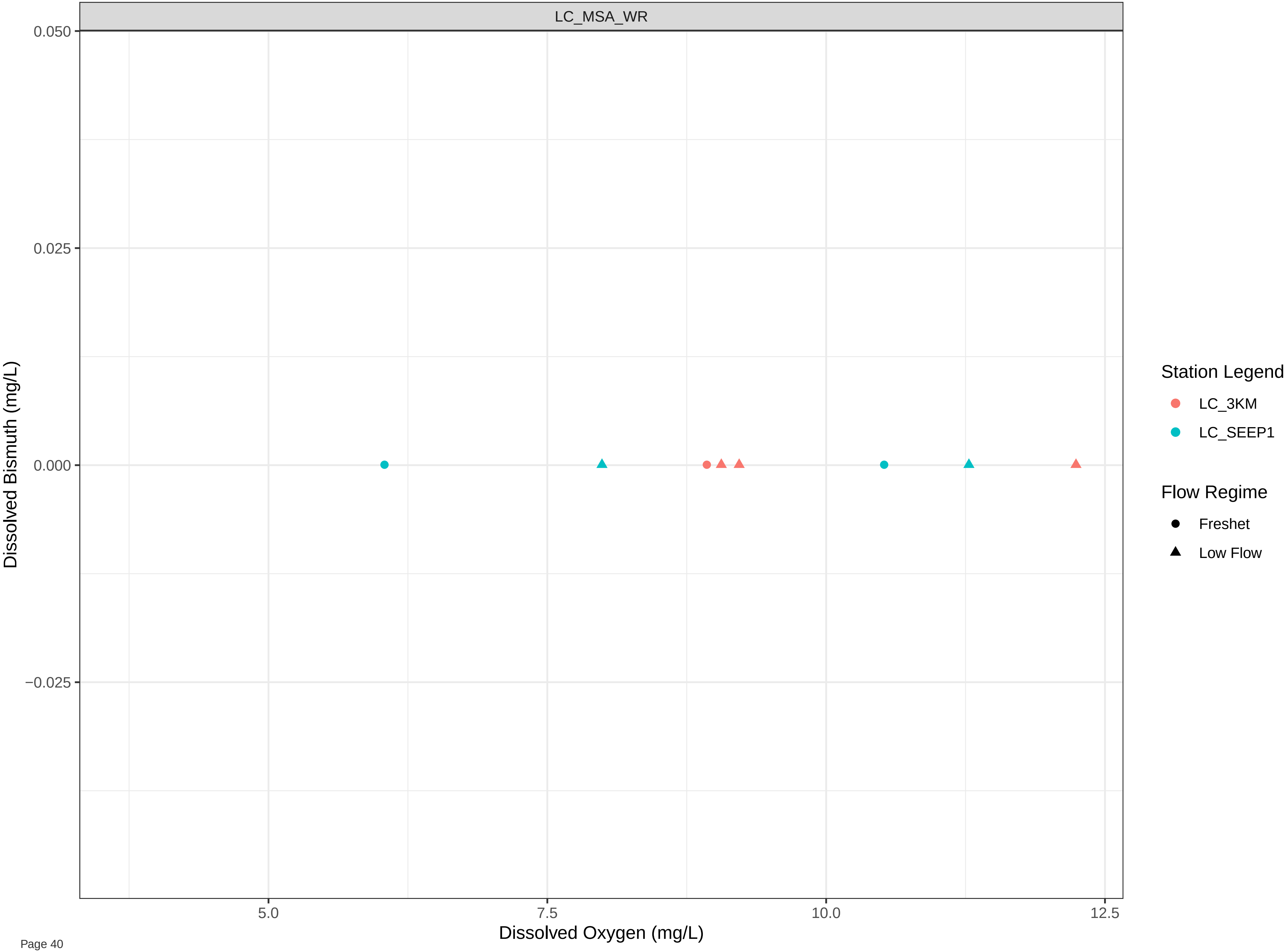

LC_WLC_WR
Dissolved Beryllium (mg/L)
0.050
0.025
0.000
−0.025
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

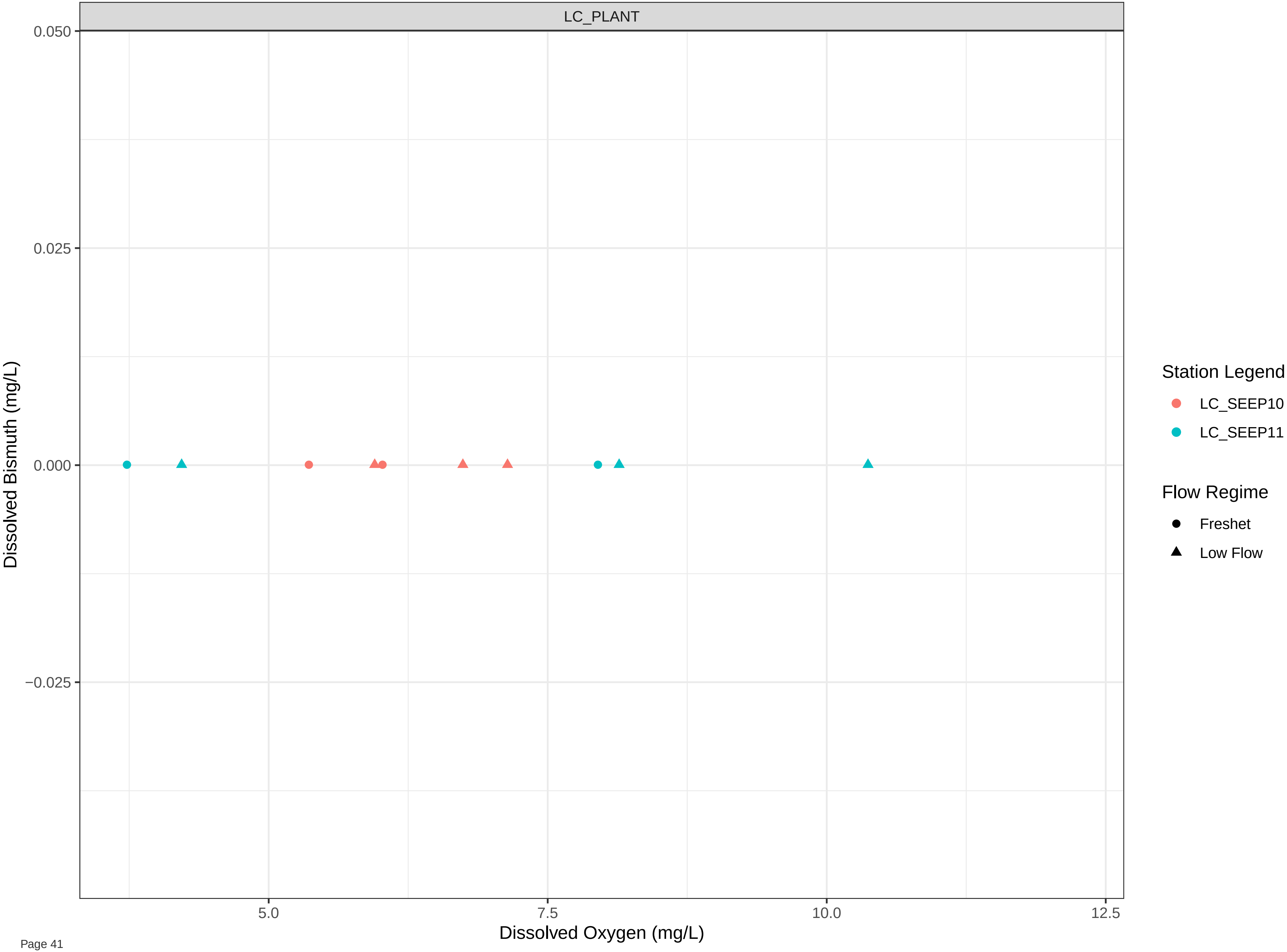

LC_DC_WR
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow


LC_DisturbedWSlope
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

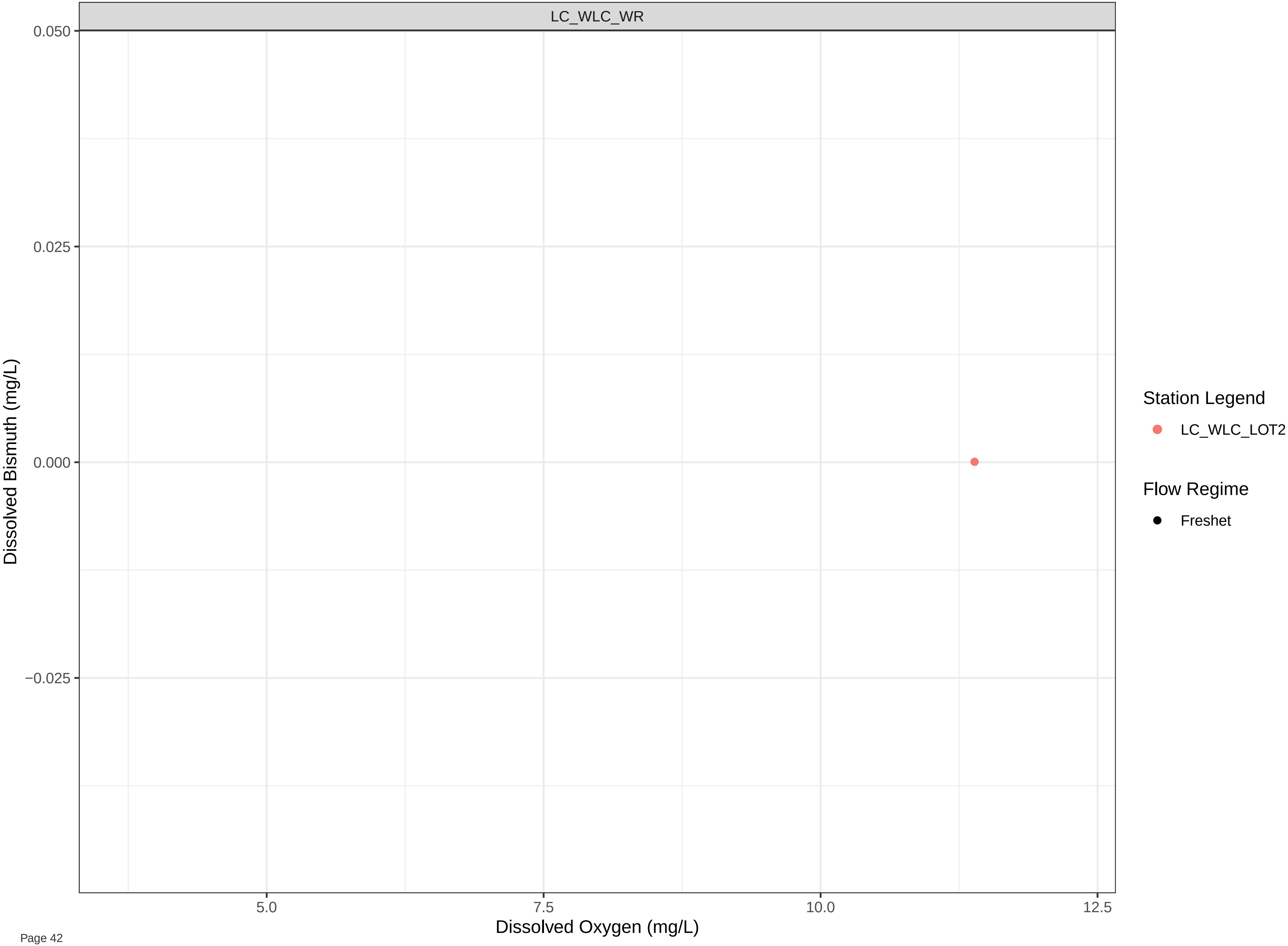

LC_HSP_WR
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

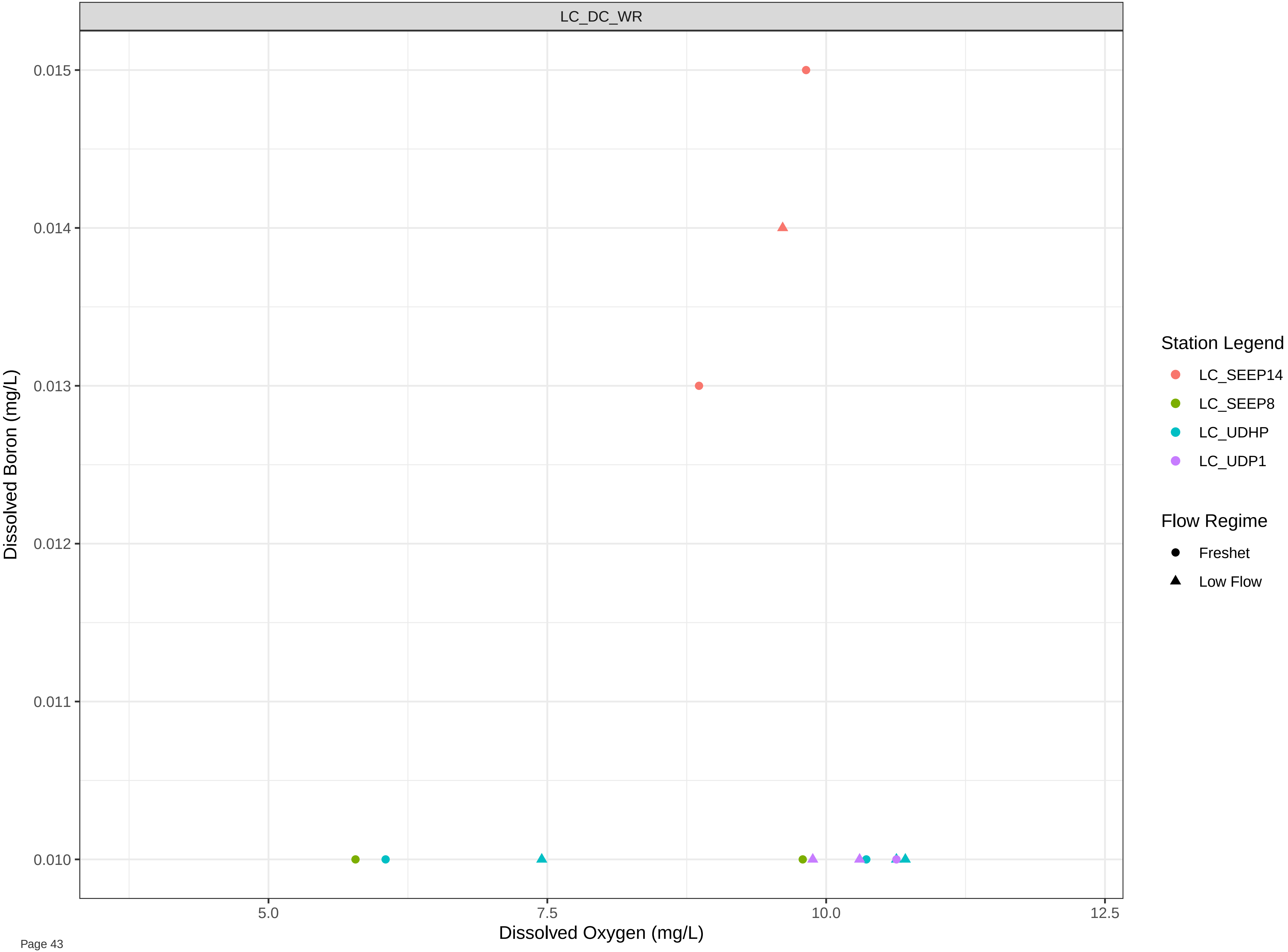

LC_MAXAM
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow

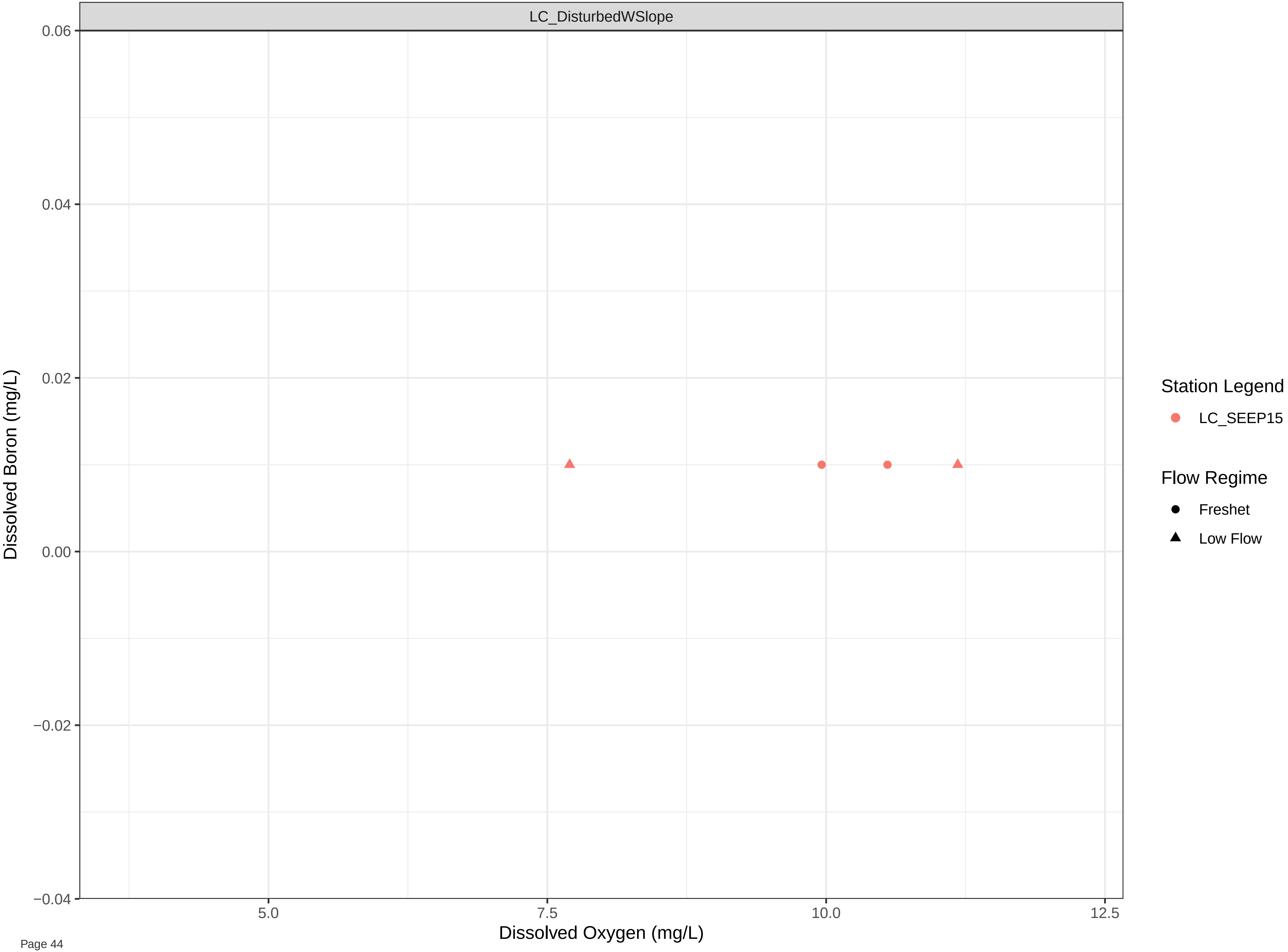

LC_MSA_WR
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

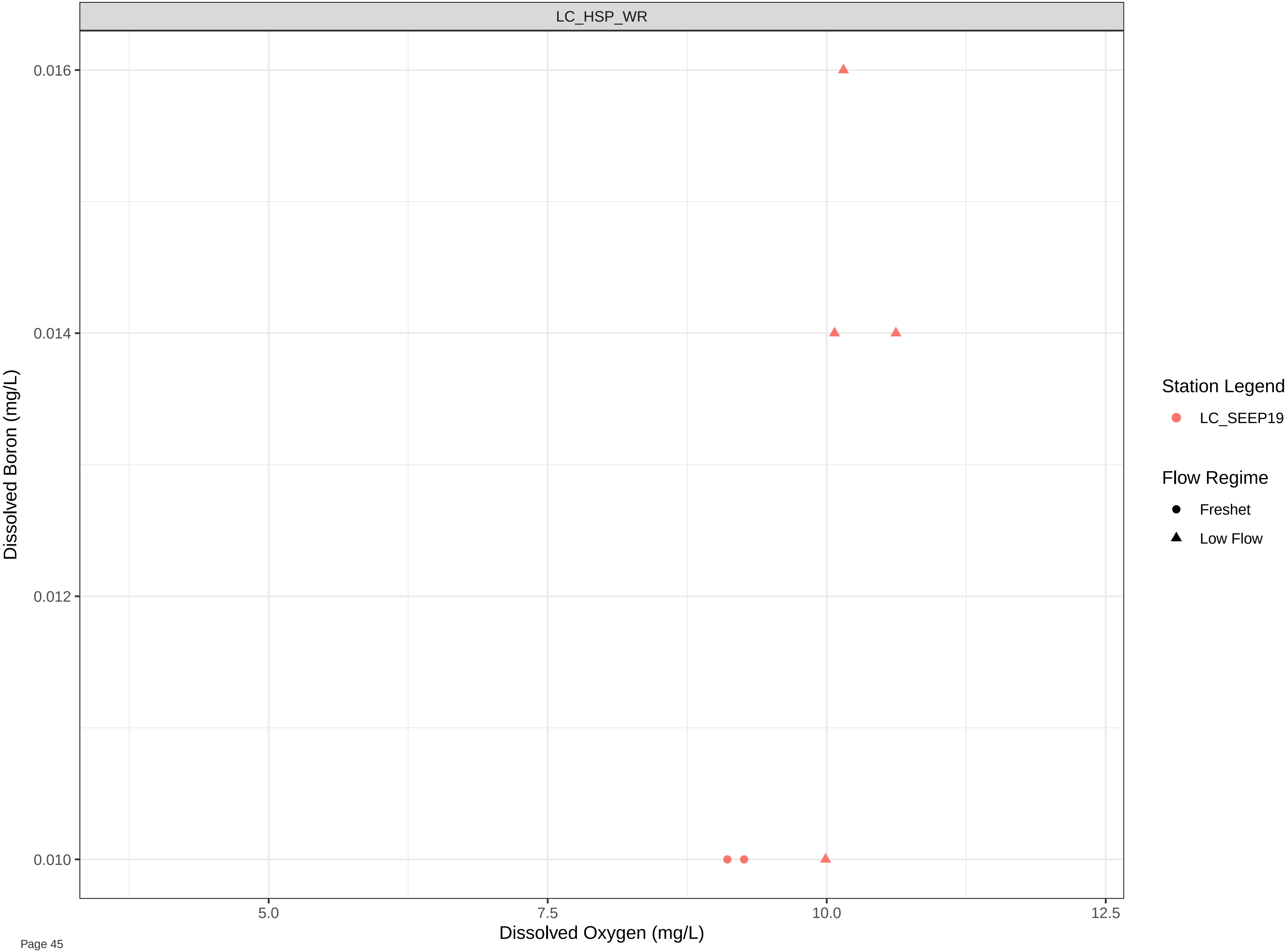


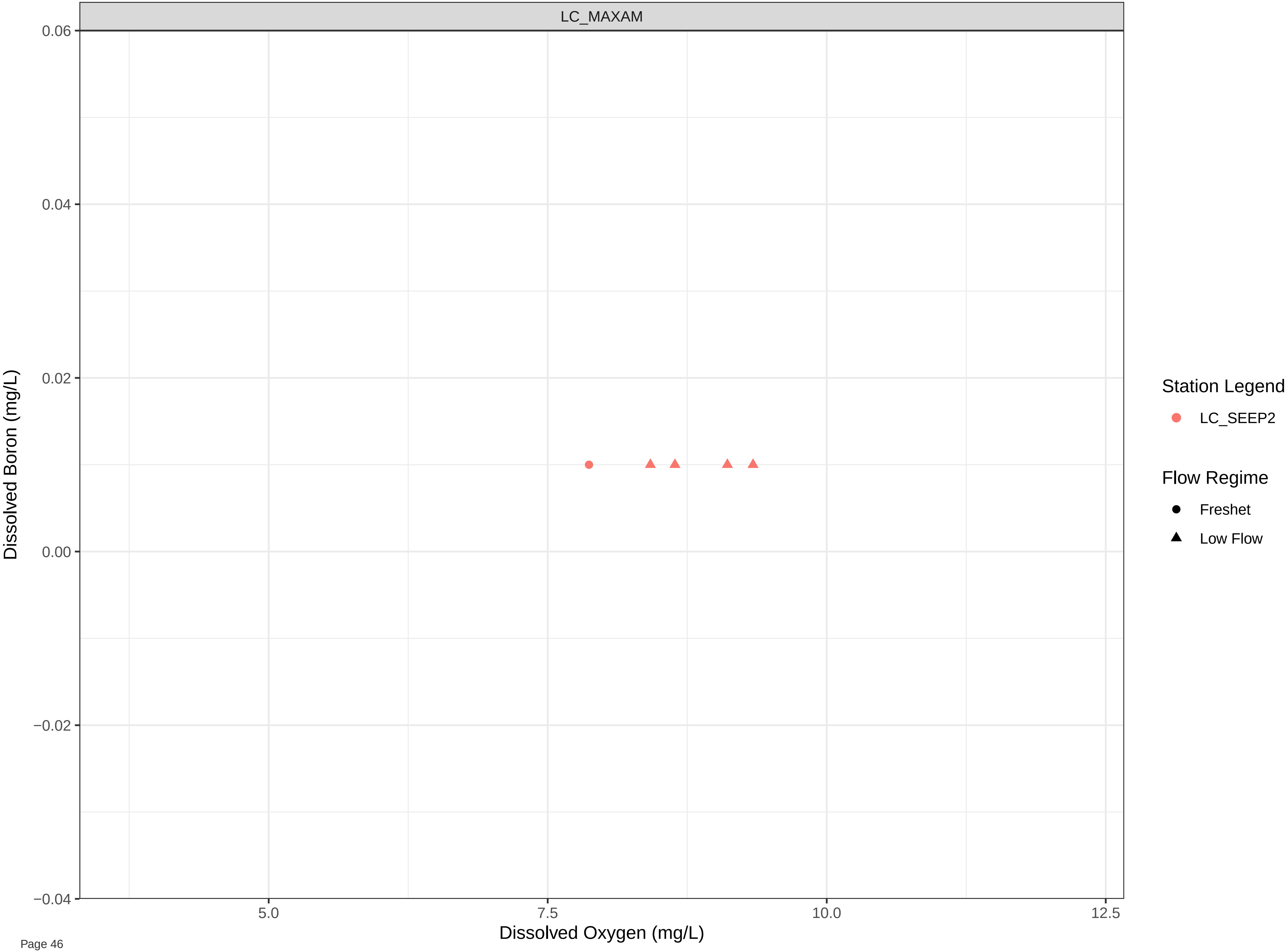
LC_PLANT
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

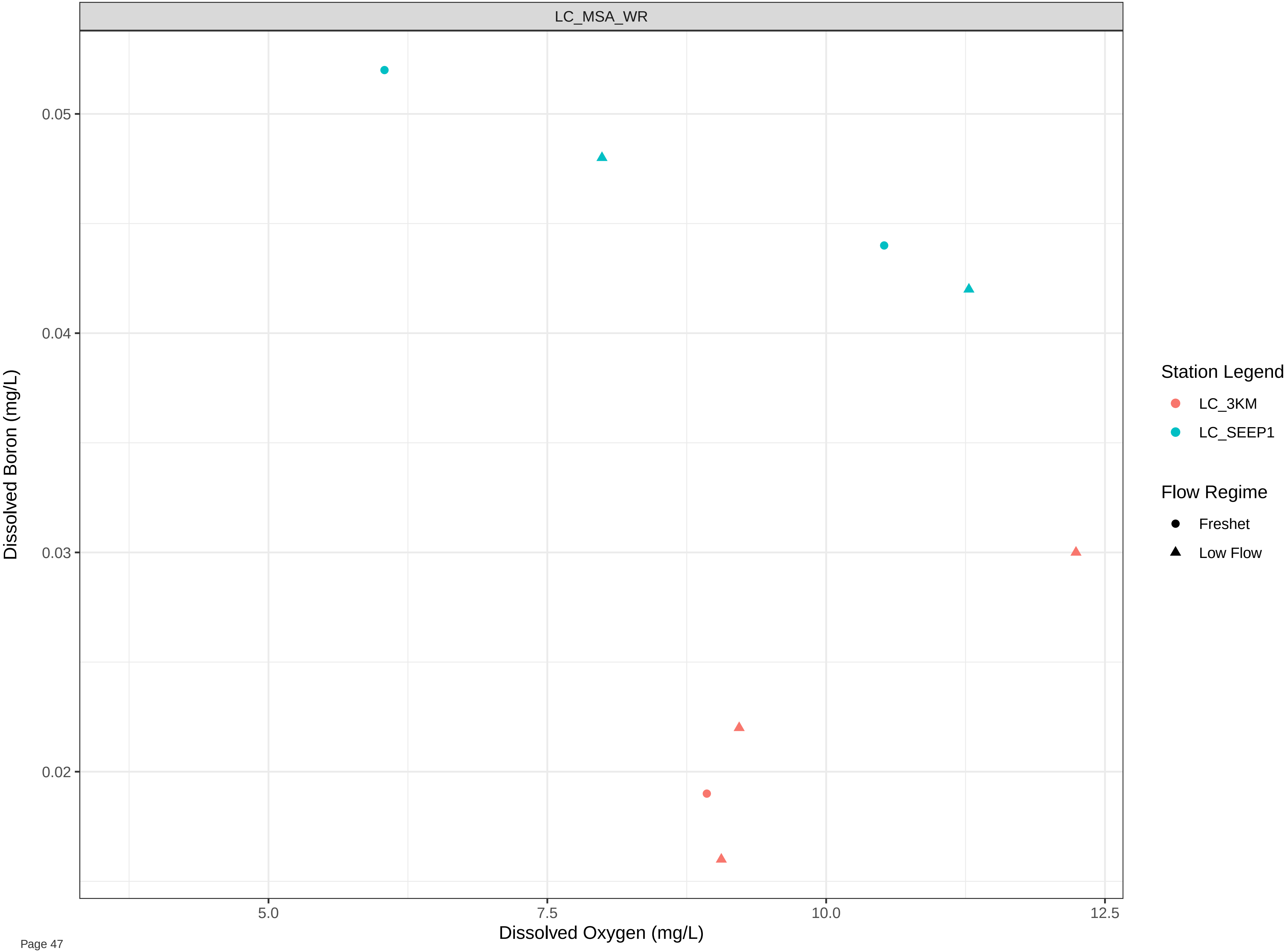

LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

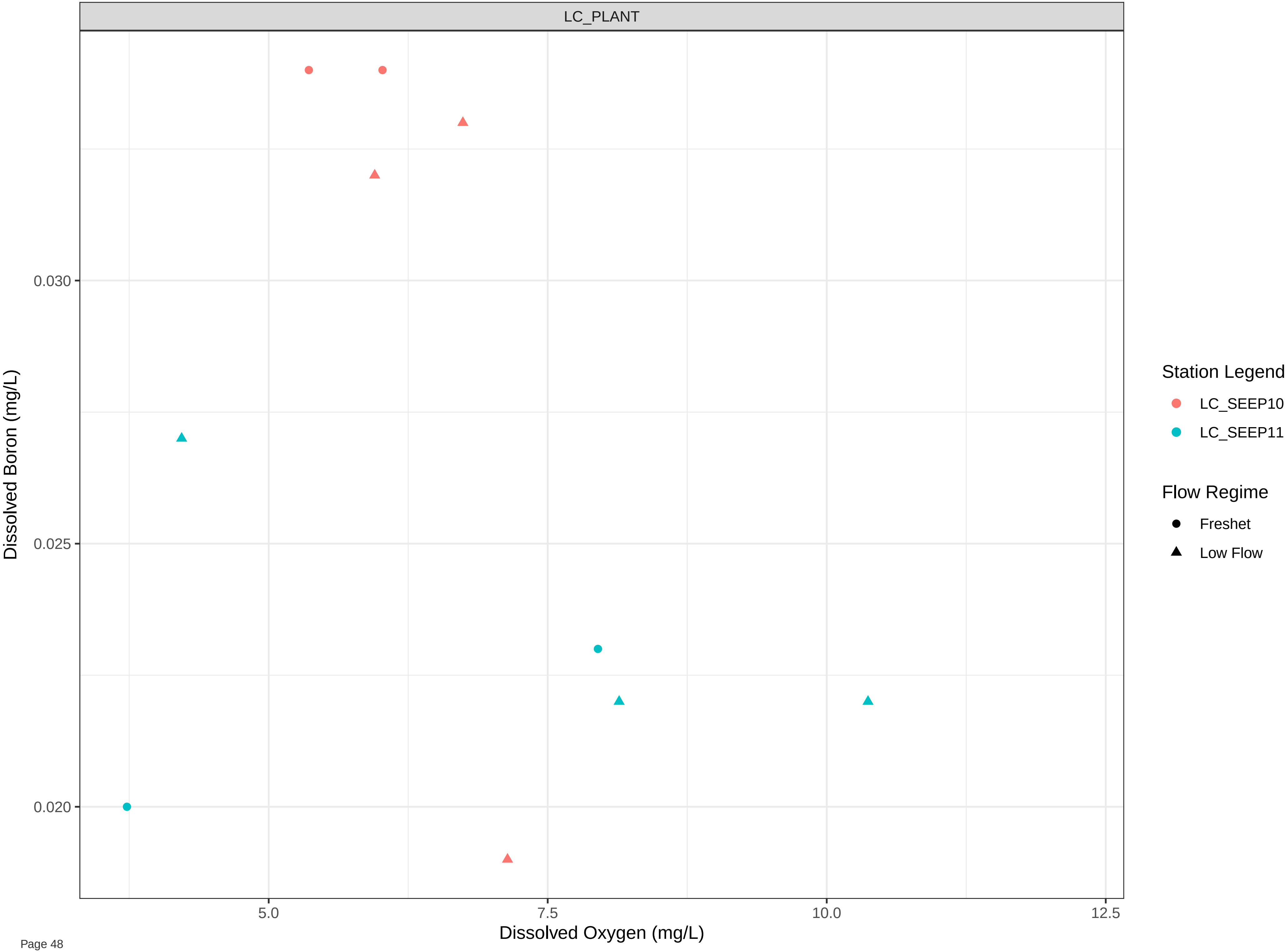

LC_DC_WR
Dissolved Boron (mg/L)
0.015
0.014
0.013
0.012
0.011
0.010
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

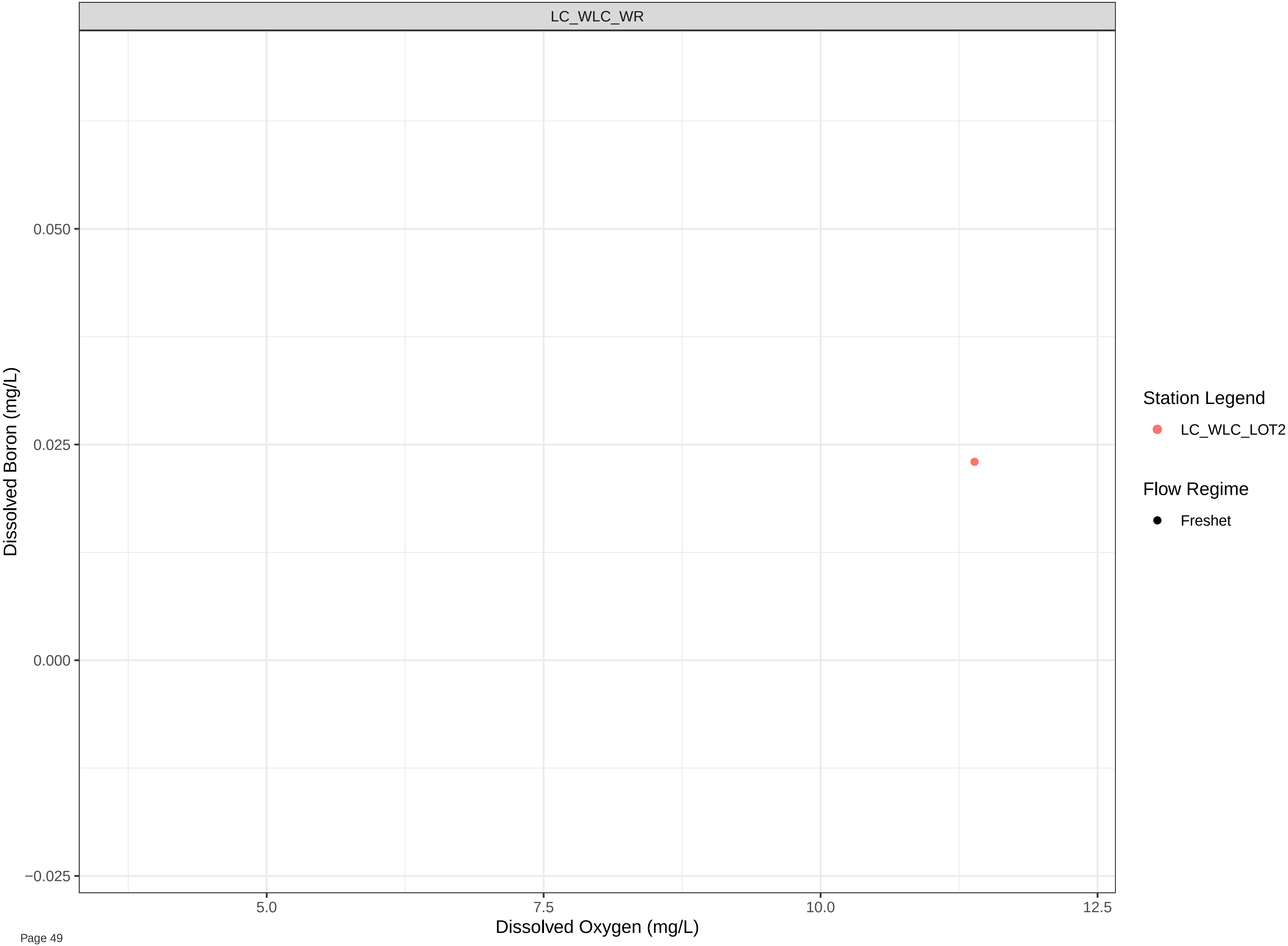

LC_DisturbedWSlope
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Boron (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

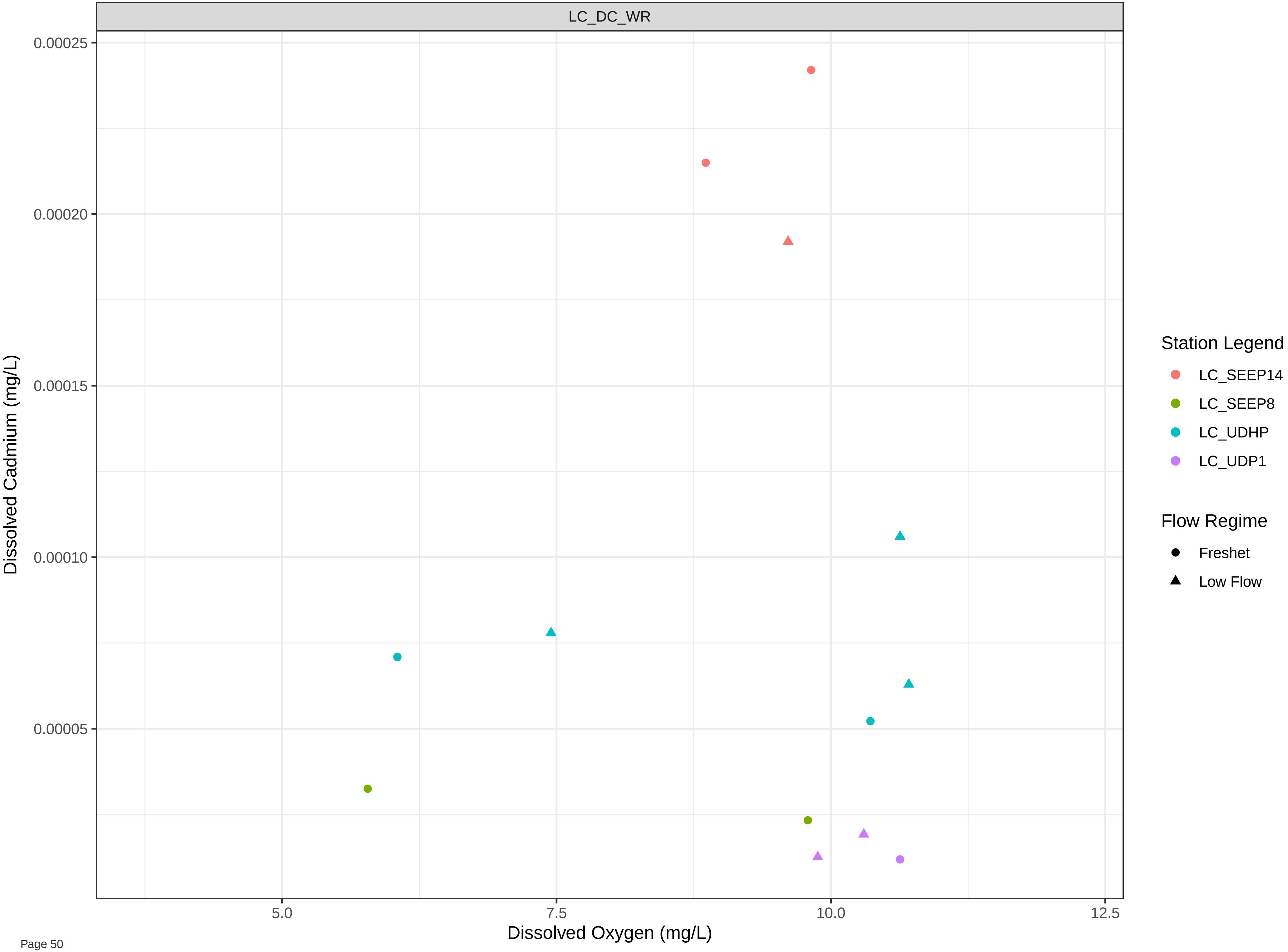

LC_HSP_WR
Dissolved Boron (mg/L)
0.016
0.014
0.012
0.010
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

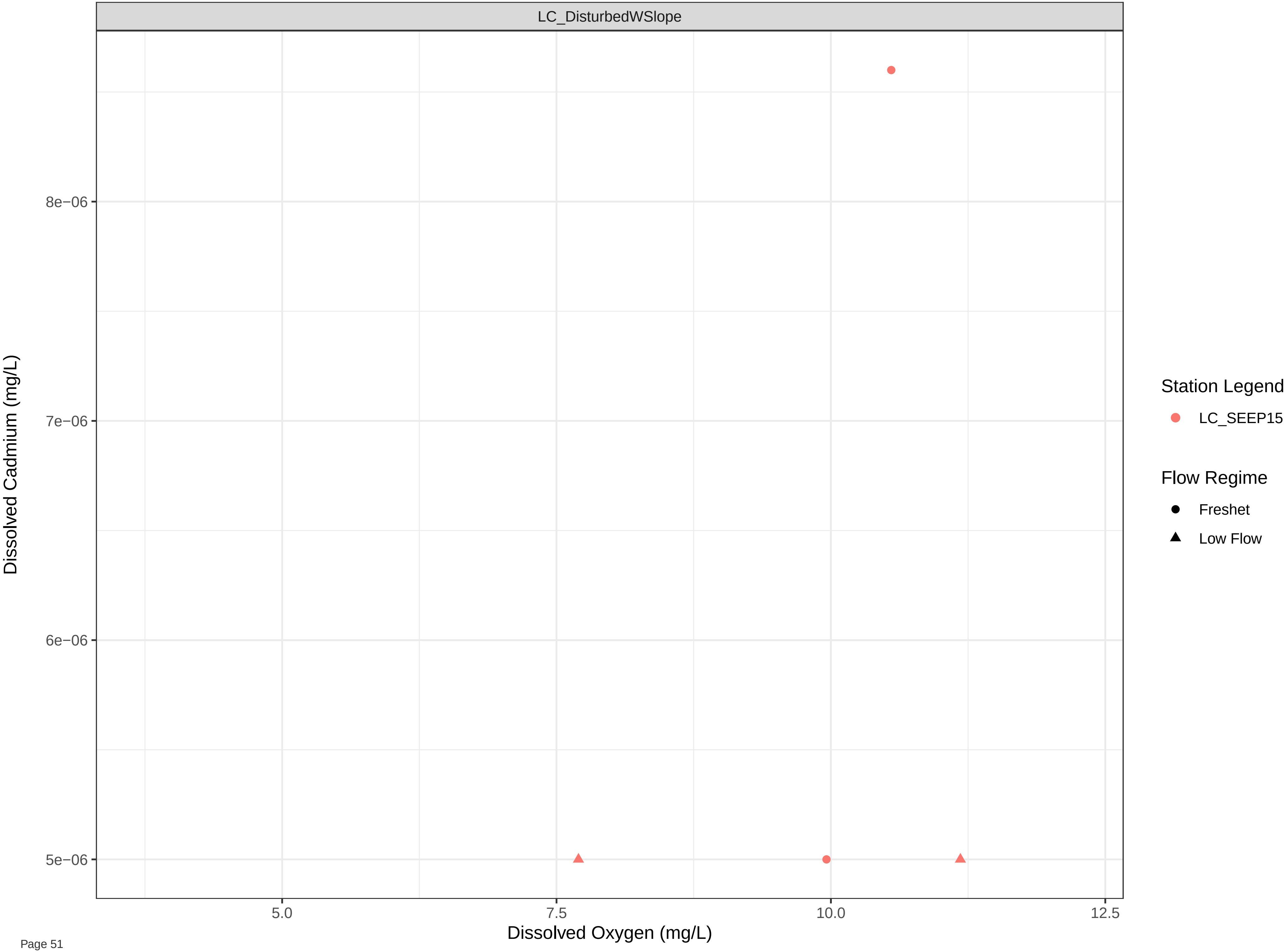

LC_MAXAM
Dissolved Boron (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

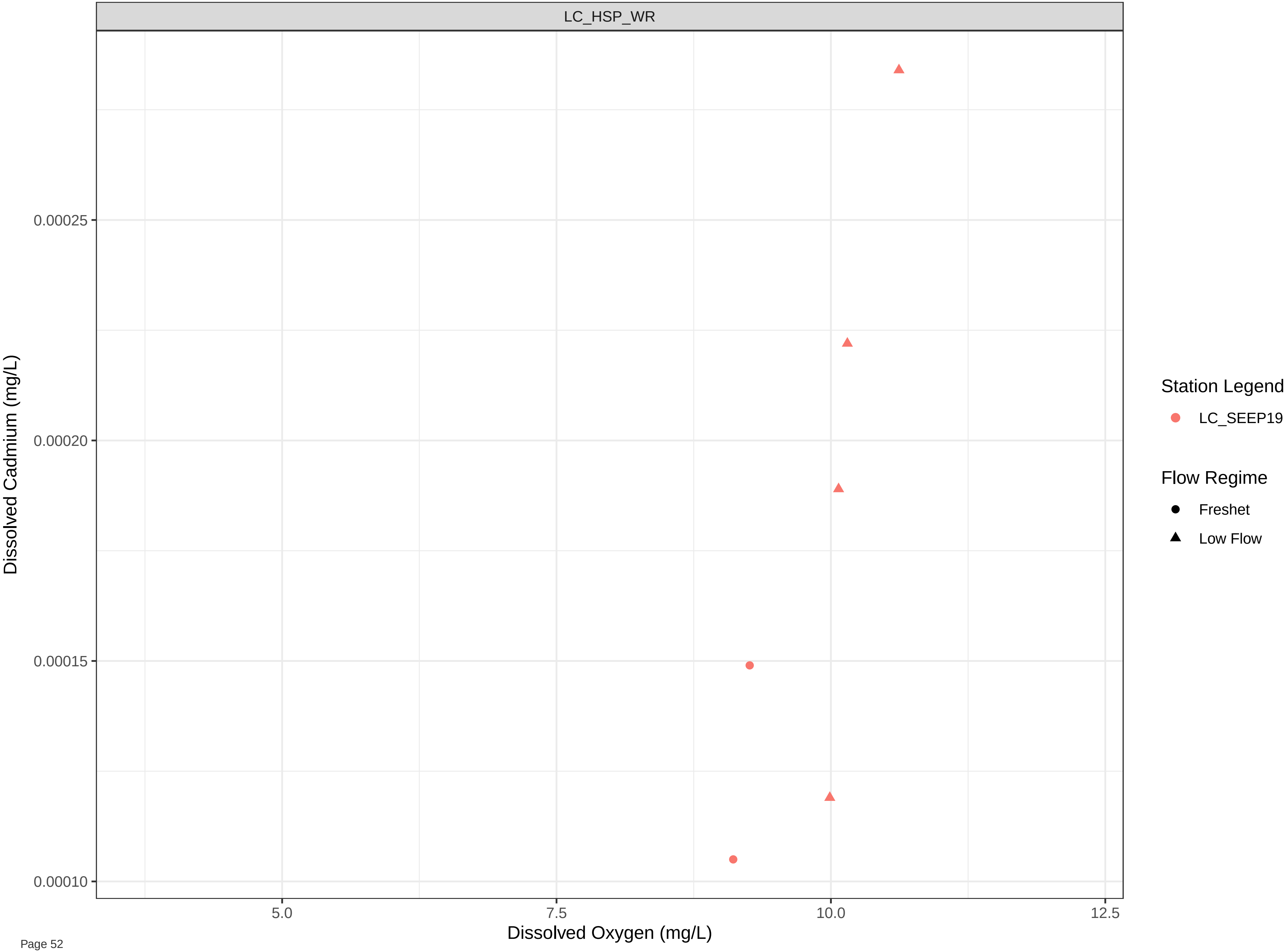

LC_MSA_WR
Dissolved Boron (mg/L)
0.05
0.04
0.03
0.02
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

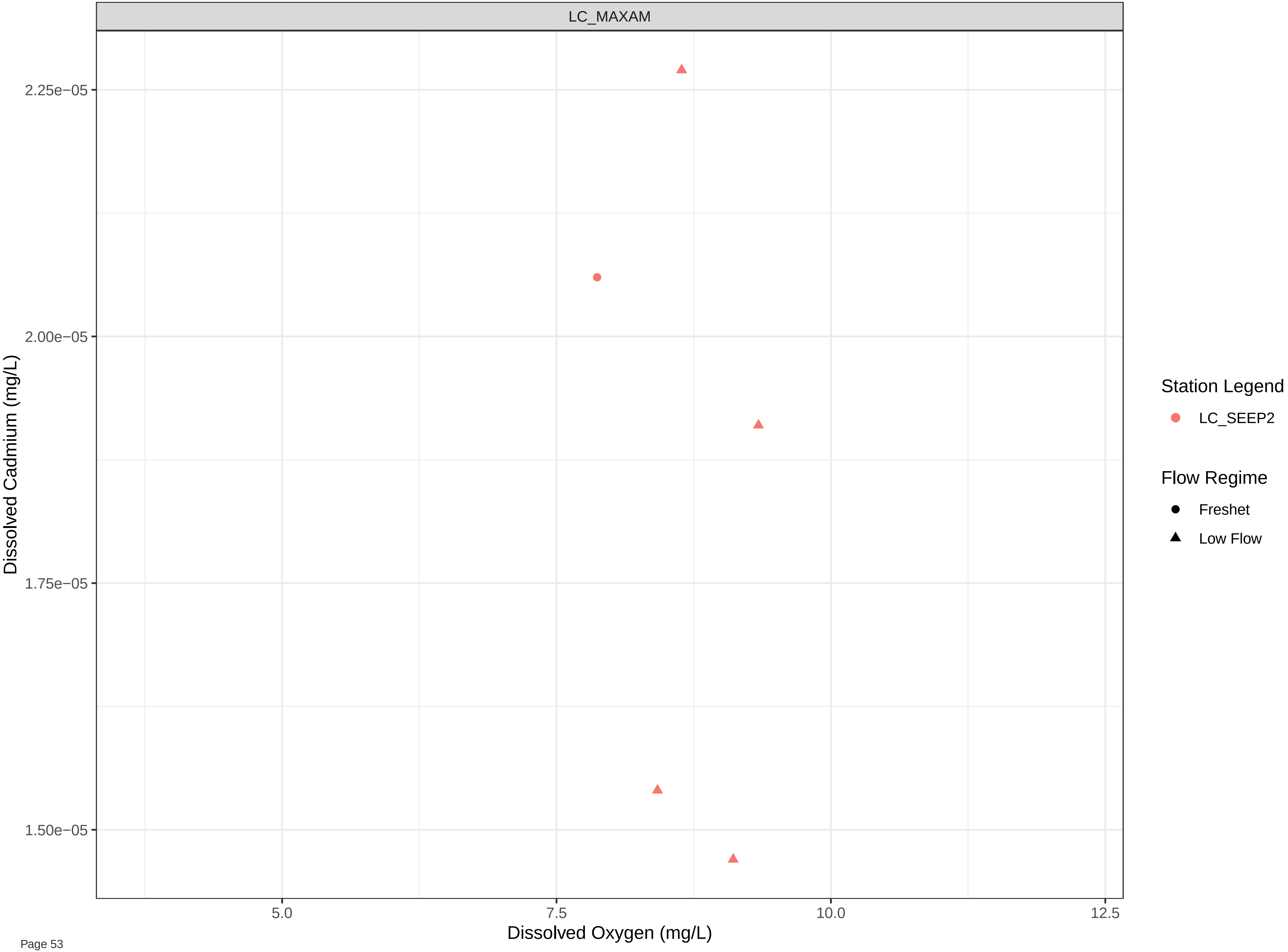

LC_PLANT
Dissolved Boron (mg/L)
0.030
0.025
0.020
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

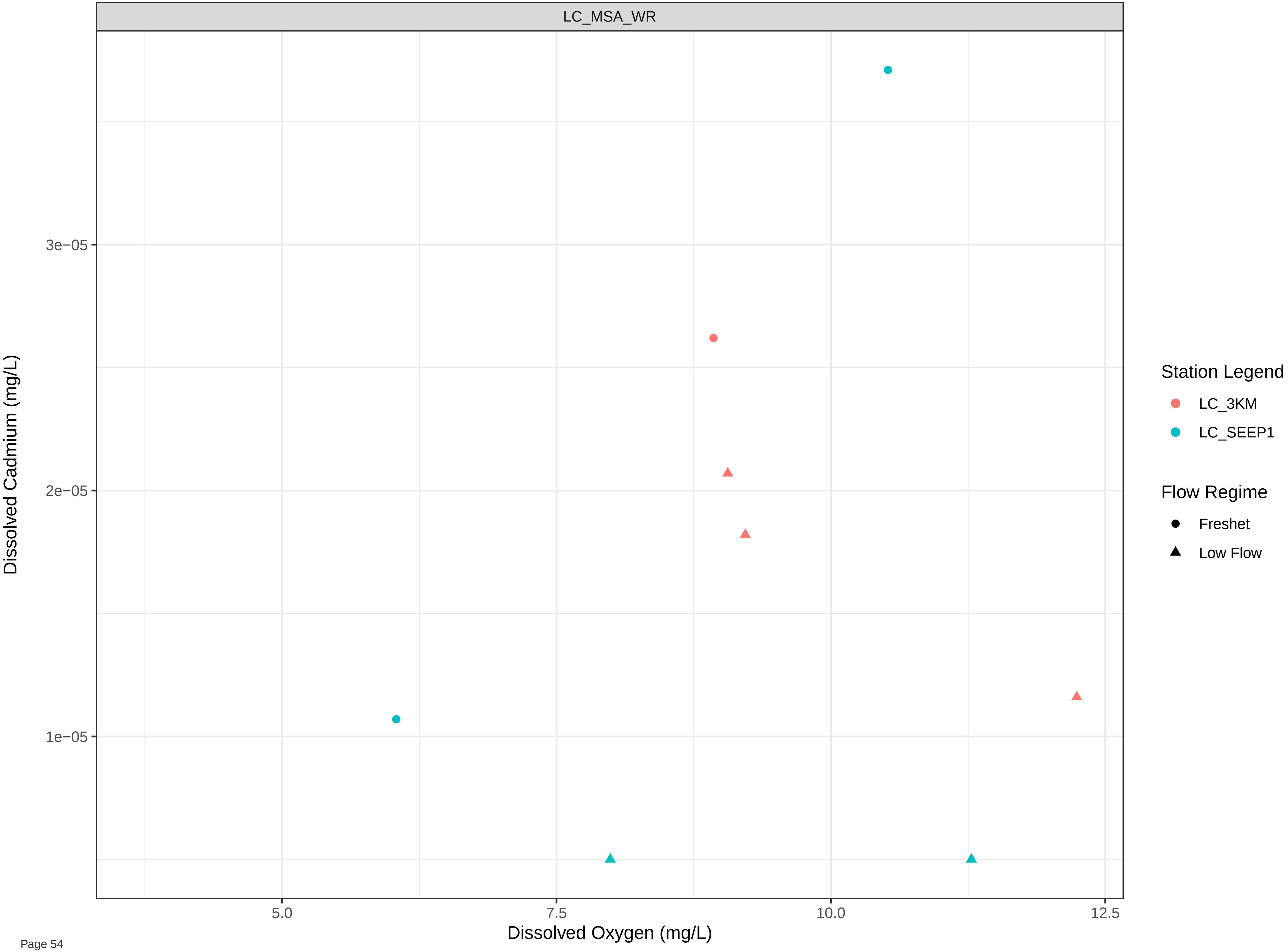

LC_WLC_WR
Dissolved Boron (mg/L)
0.050
0.025
0.000
−0.025
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

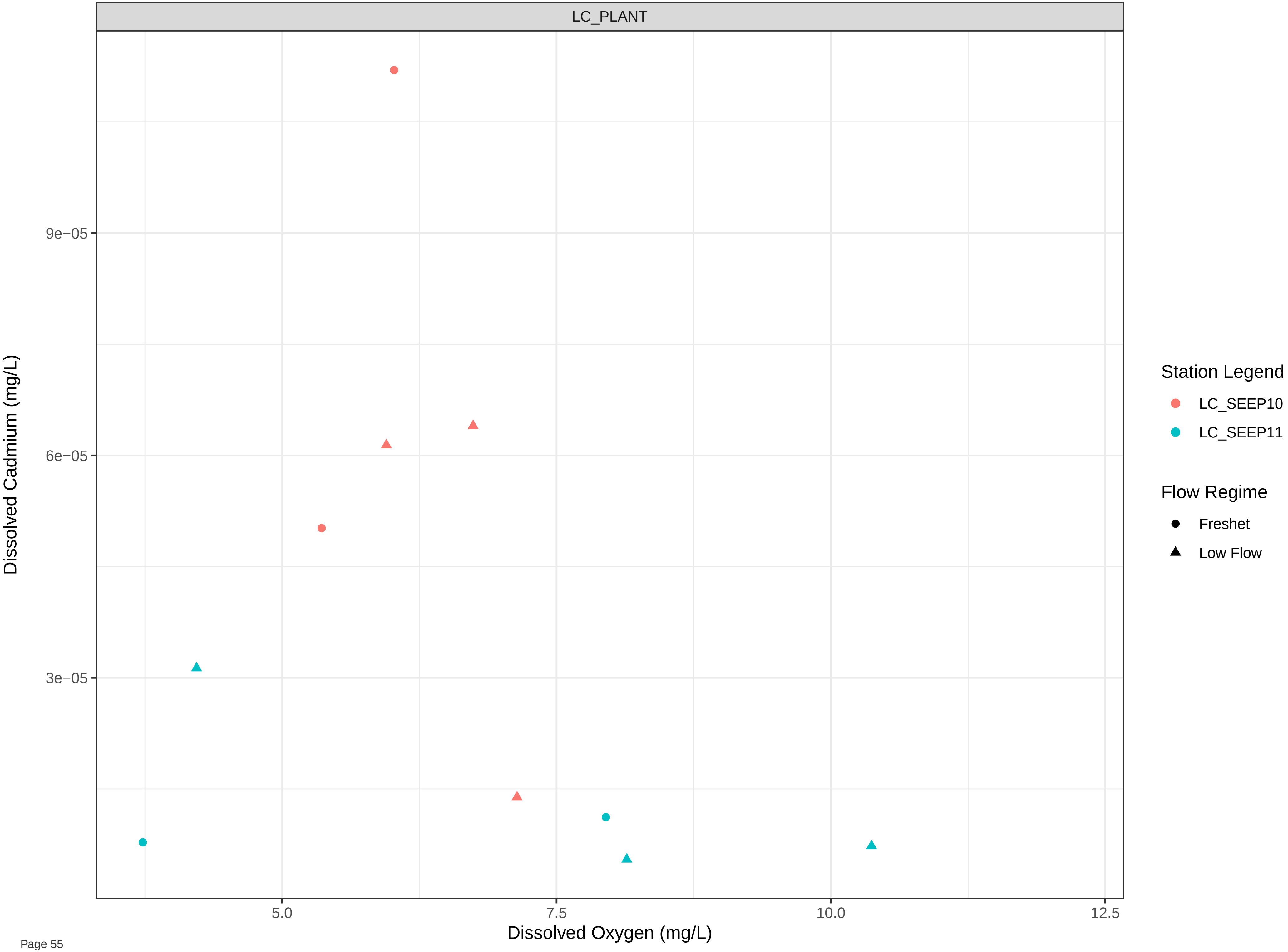

LC_DC_WR
Dissolved Cadmium (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

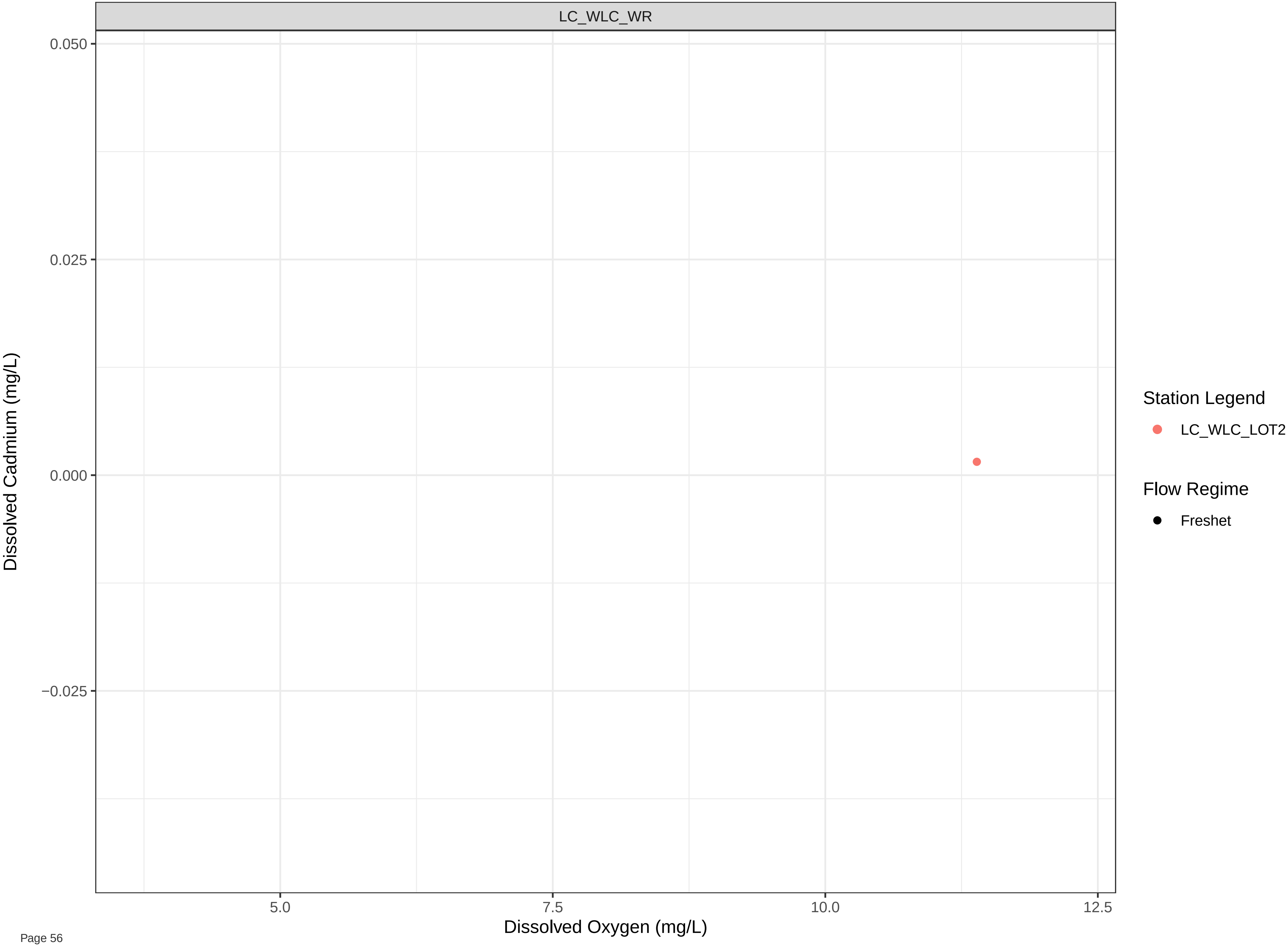

LC_DisturbedWSlope
Dissolved Cadmium (mg/L)
8e−06
7e−06
6e−06
5e−06
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow

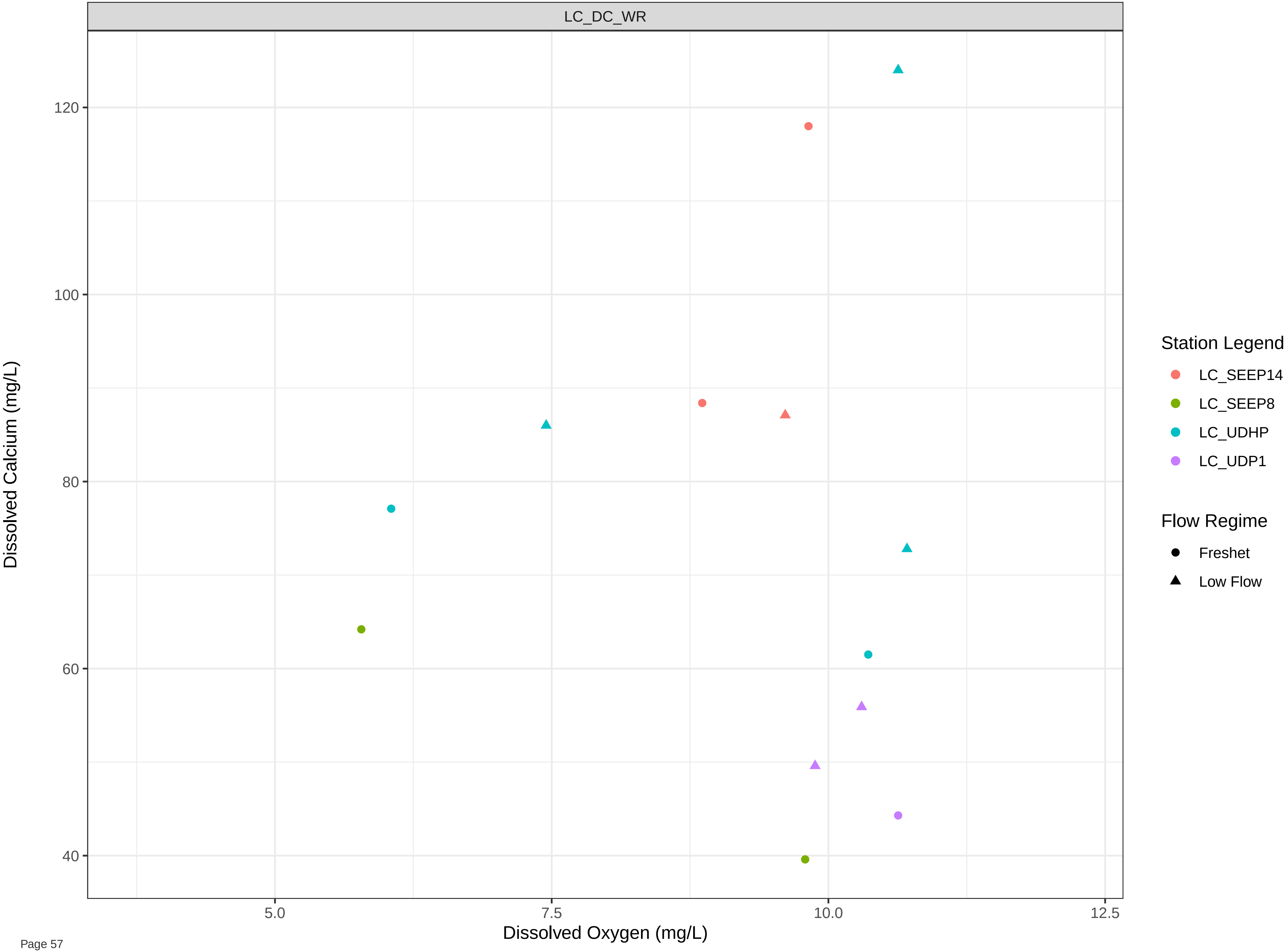

LC_HSP_WR
Dissolved Cadmium (mg/L)
0.00025
0.00020
0.00015
0.00010
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

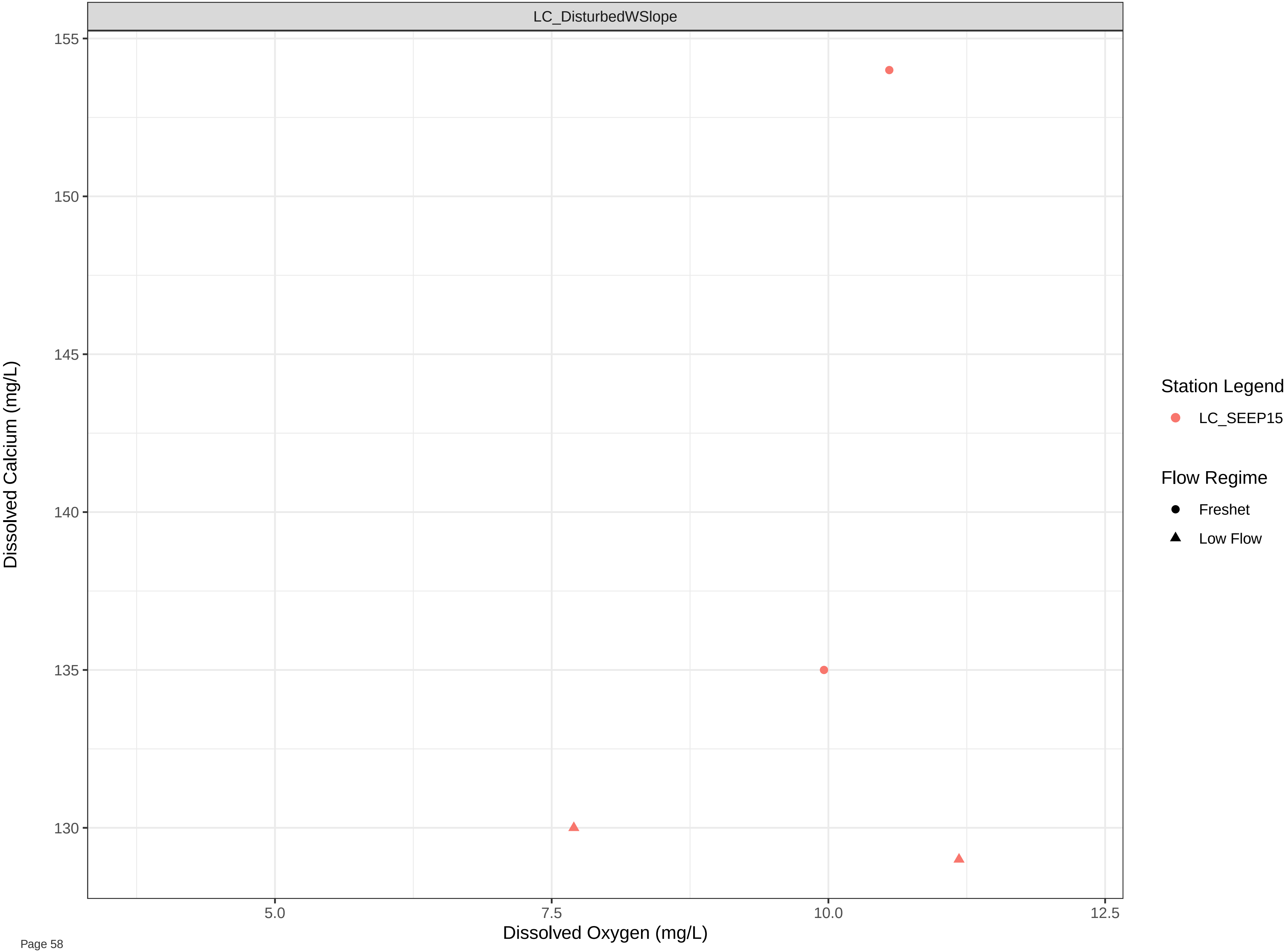

LC_MAXAM
Dissolved Cadmium (mg/L)
2.25e−05
2.00e−05
1.75e−05
1.50e−05
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

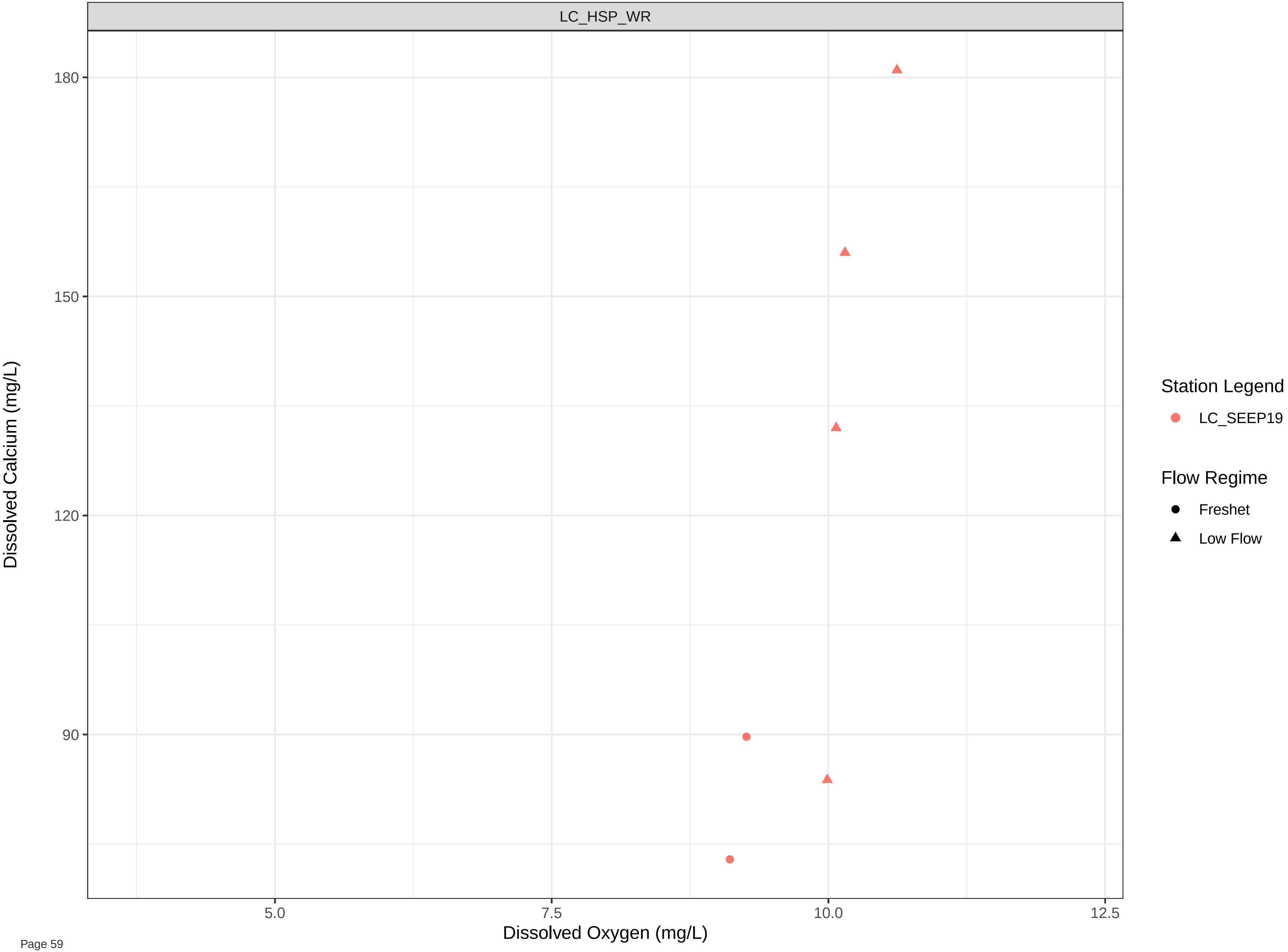

LC_MSA_WR
Dissolved Cadmium (mg/L)
3e−05
2e−05
1e−05
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

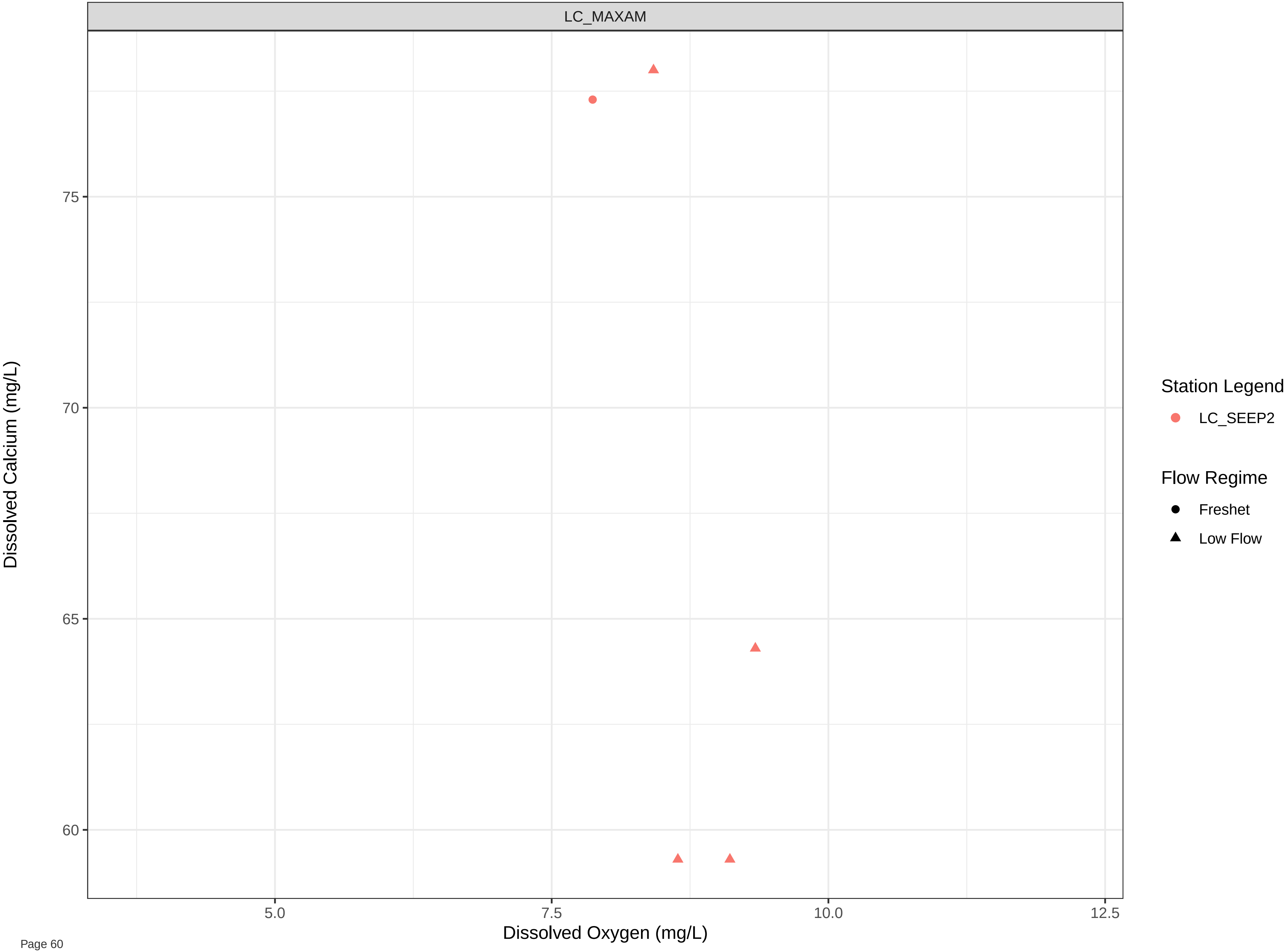

LC_PLANT
Dissolved Cadmium (mg/L)
9e−05
6e−05
3e−05
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

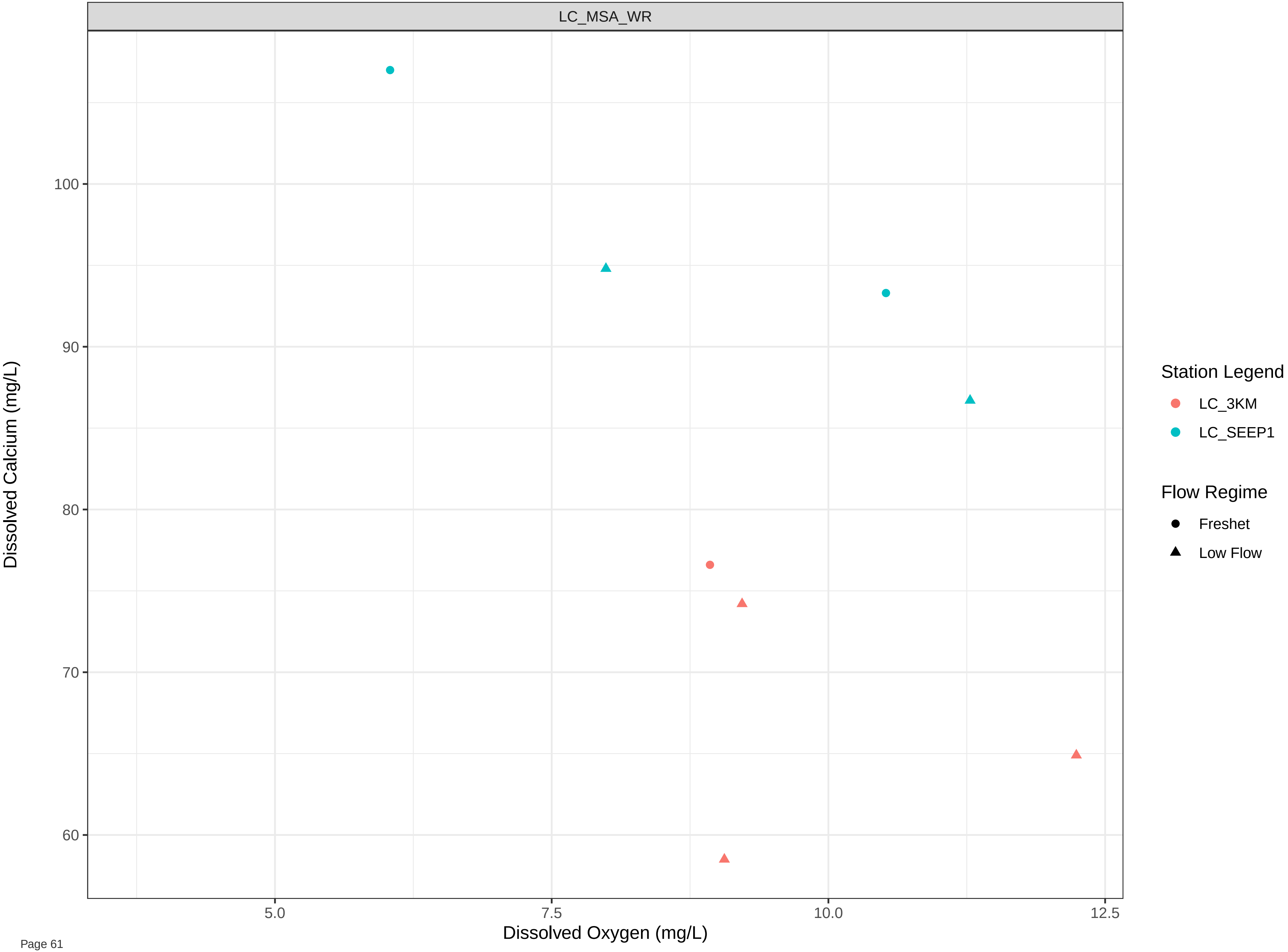

LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Cadmium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

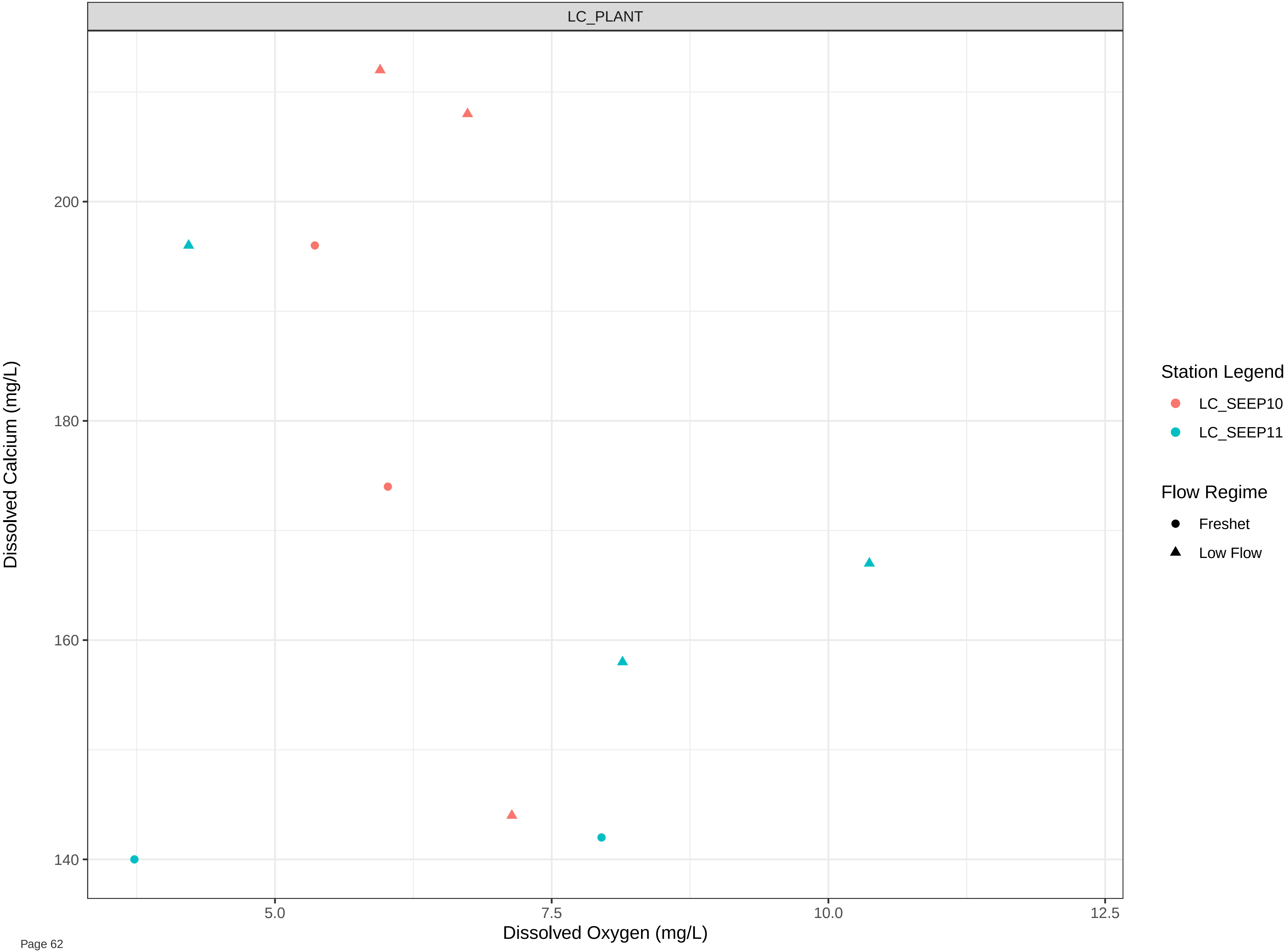

LC_DC_WR
Dissolved Calcium (mg/L)
120
100
80
60
40
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP14
● LC_SEEP8
● LC_UDHP
● LC_UDP1
Flow Regime
● Freshet
▲ Low Flow

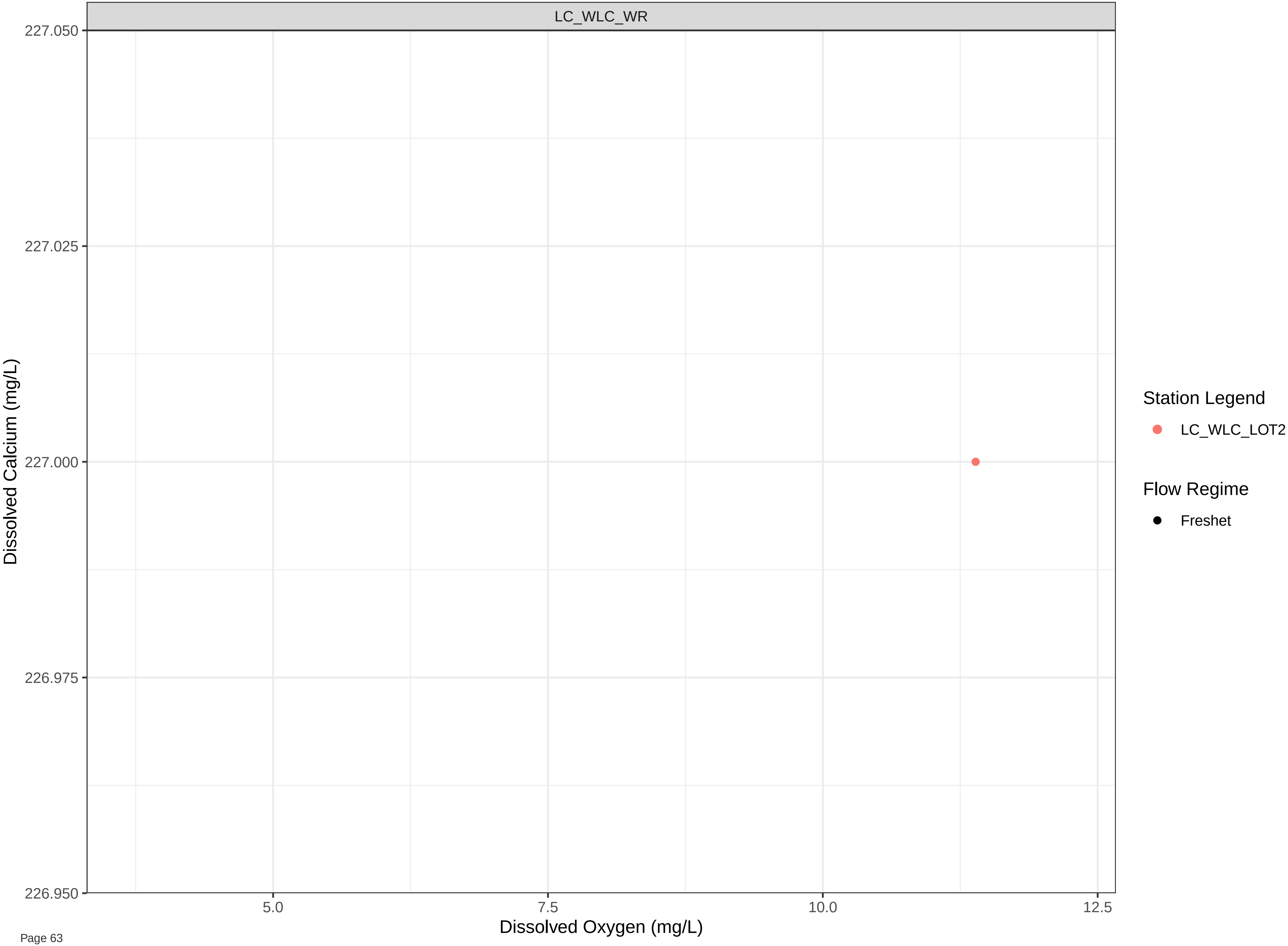

LC_DisturbedWSlope
155
150
145
140
135
130
Dissolved Calcium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

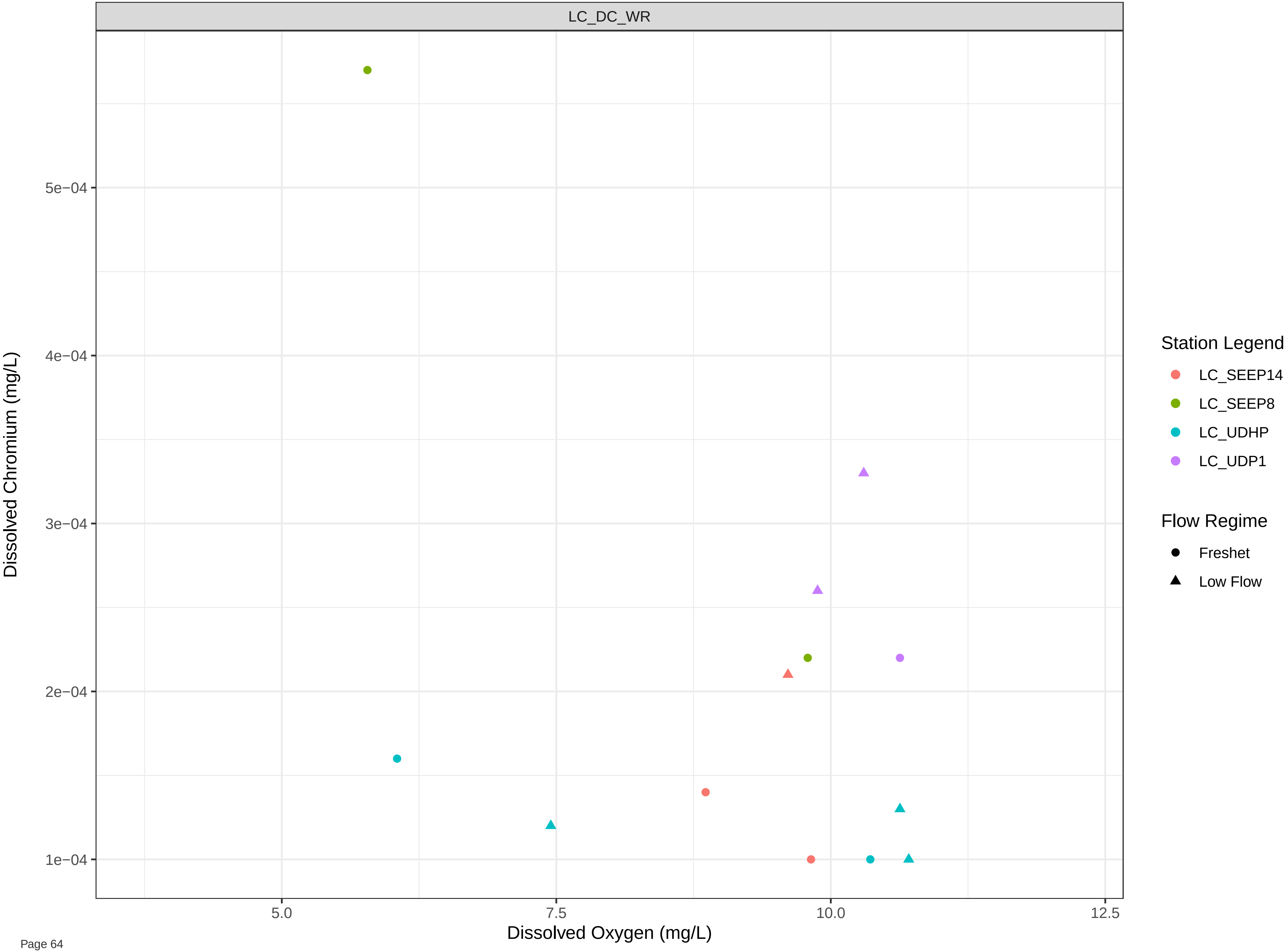

LC_HSP_WR
180
150
120
90
Dissolved Calcium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

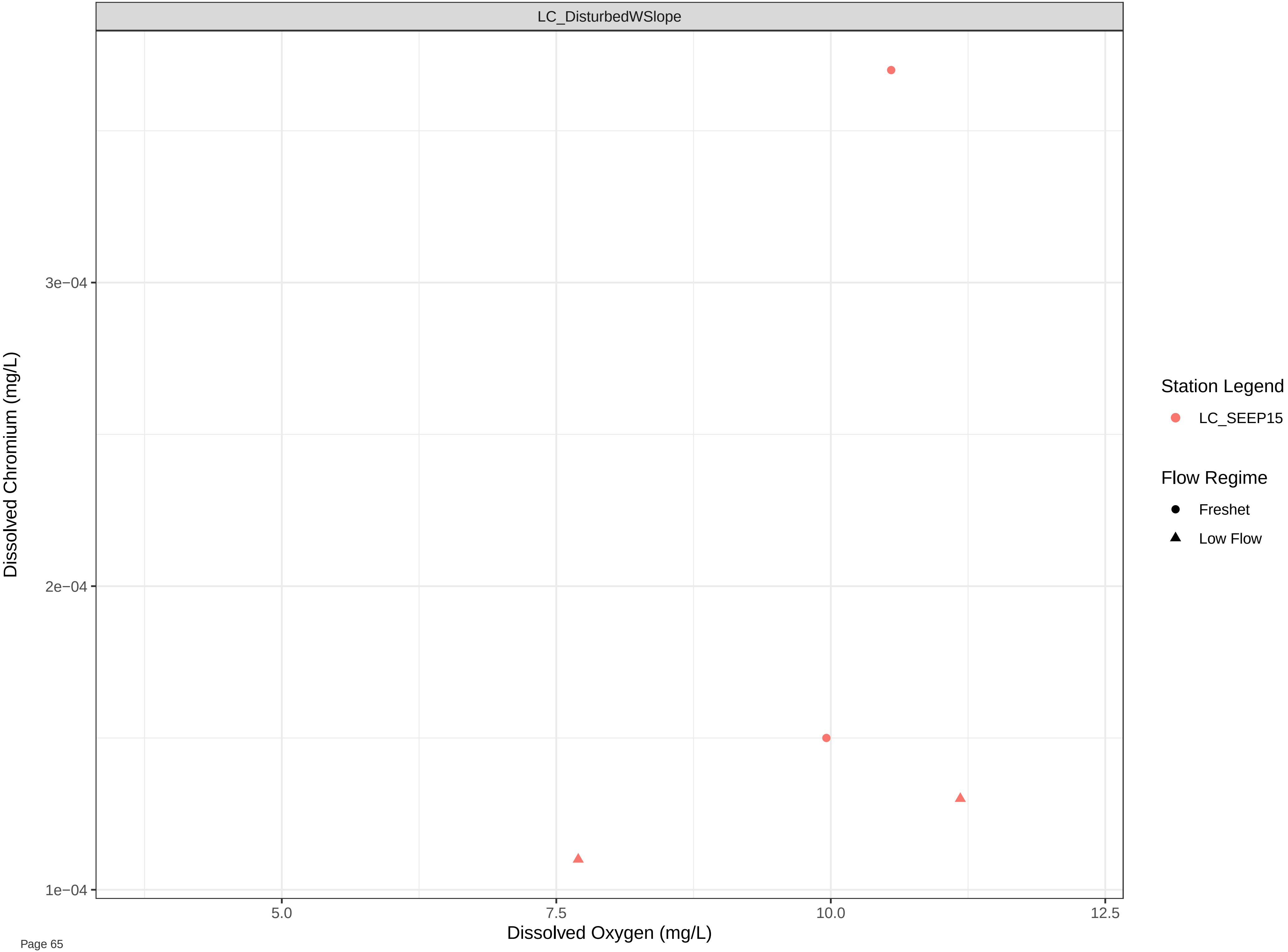

LC_MAXAM
Dissolved Calcium (mg/L)
75
70
65
60
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

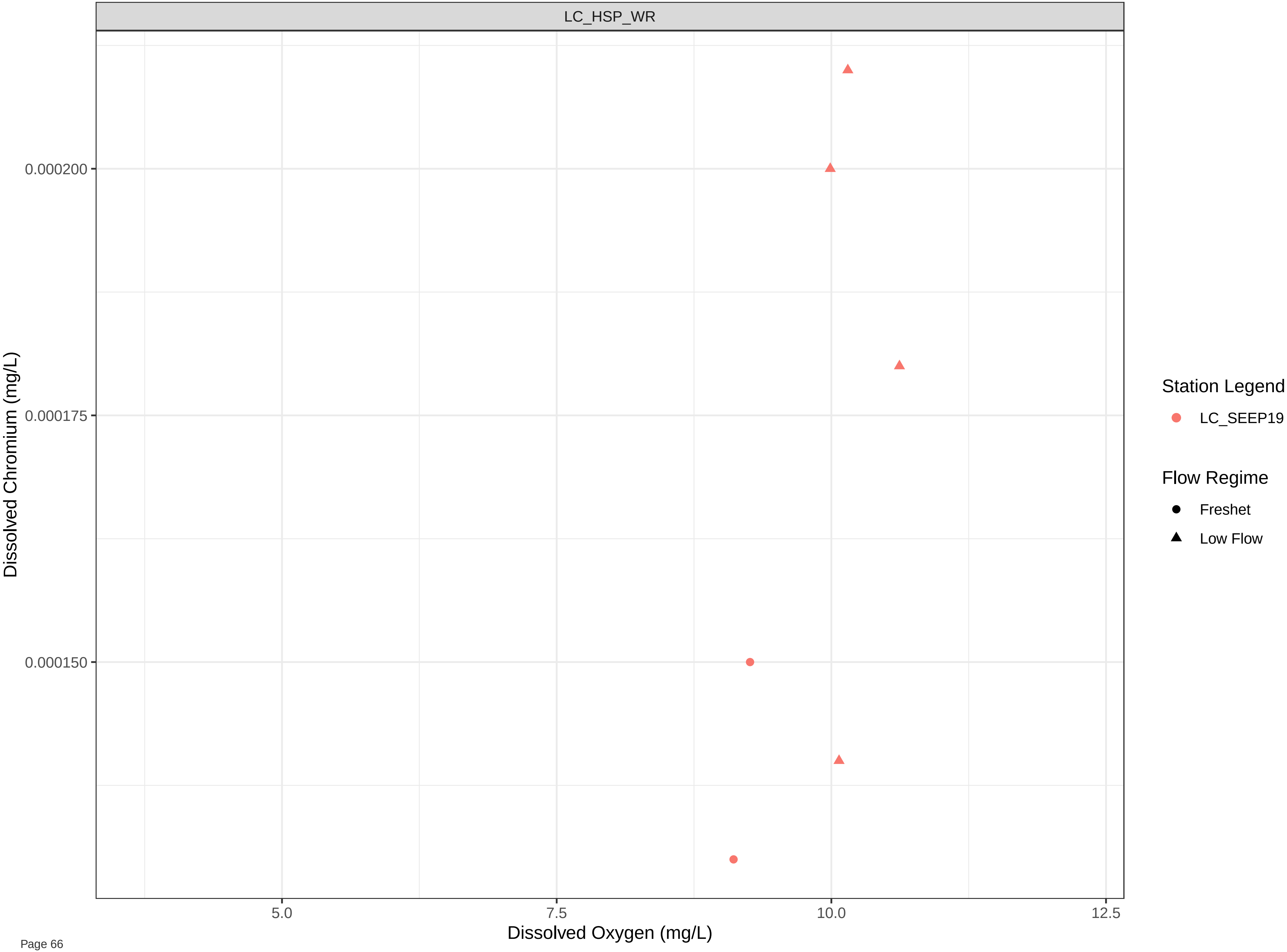

LC_MSA_WR
Dissolved Calcium (mg/L)
100
90
80
70
60
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

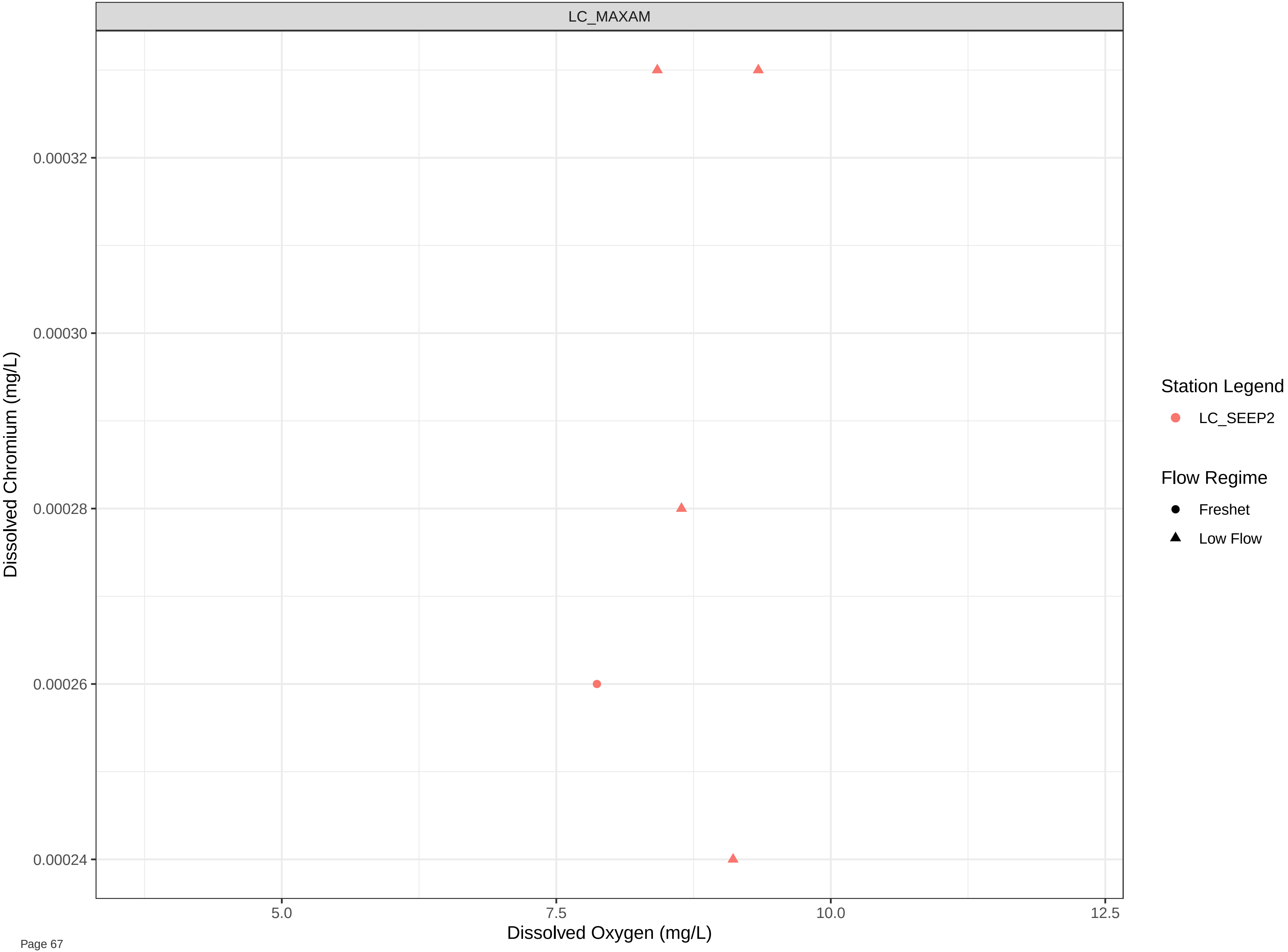

LC_PLANT
Dissolved Calcium (mg/L)
200
180
160
140
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

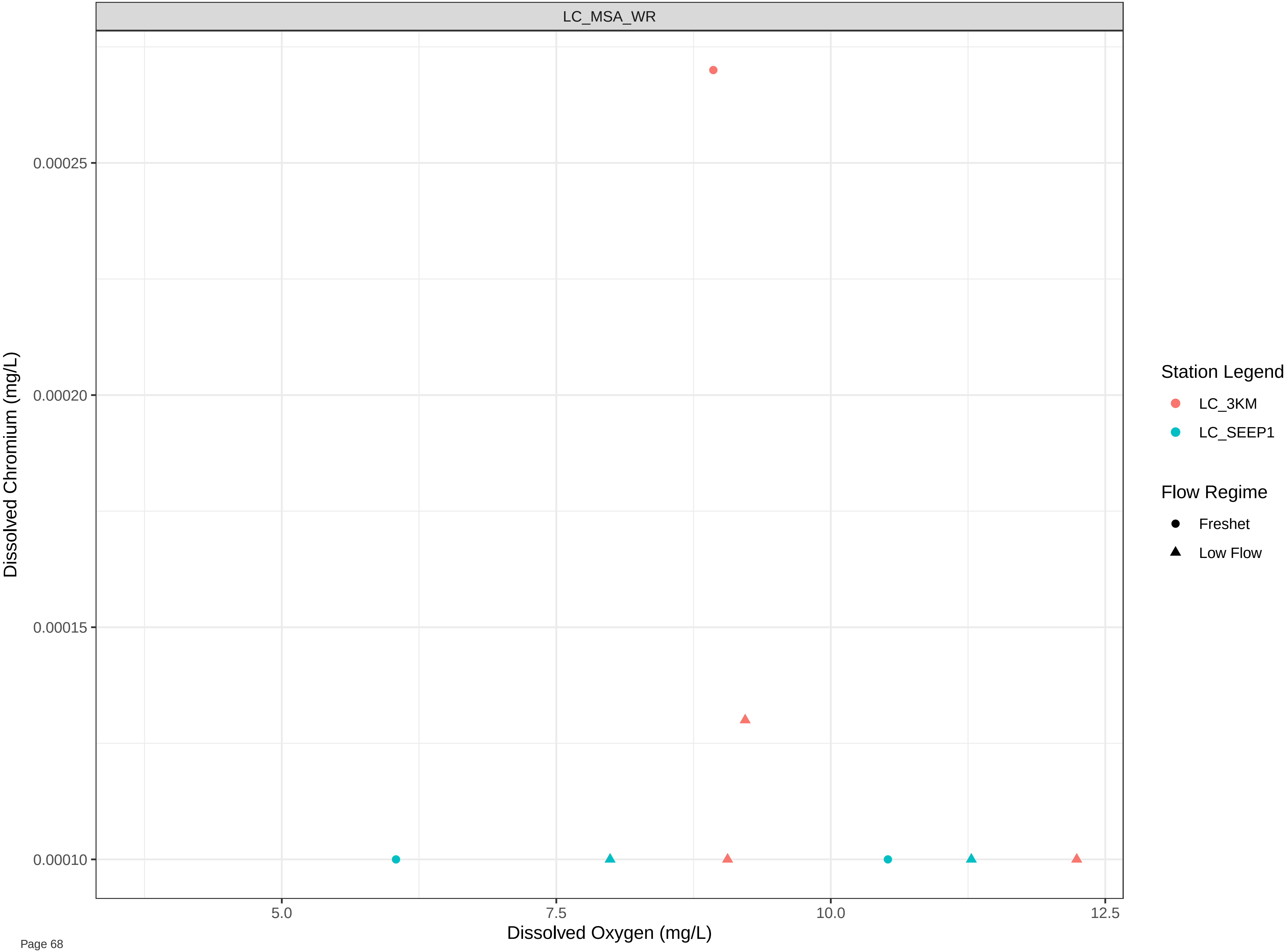

LC_WLC_WR
227.050
227.025
227.000
226.975
226.950
Dissolved Calcium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet

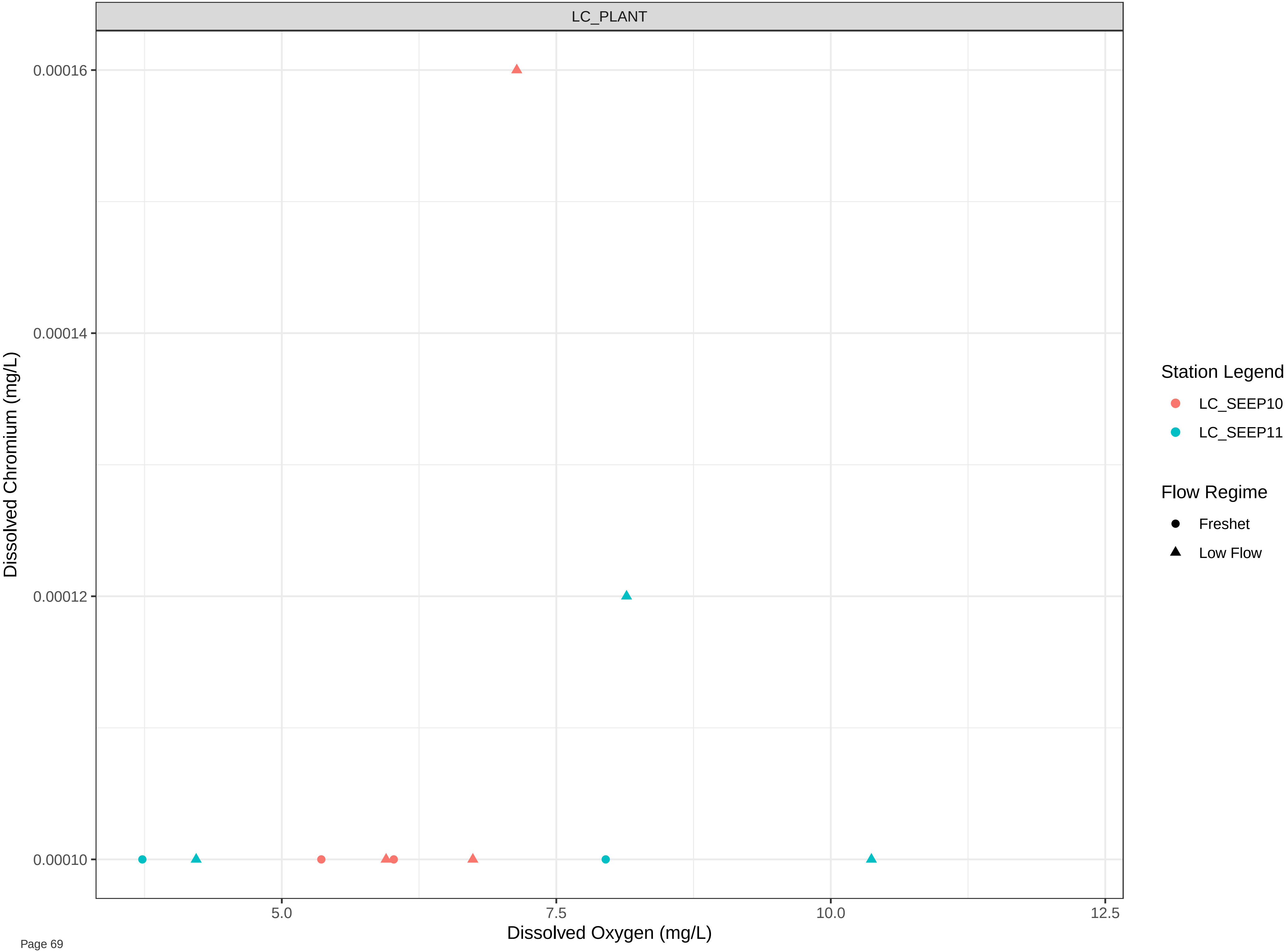

LC_DC_WR
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

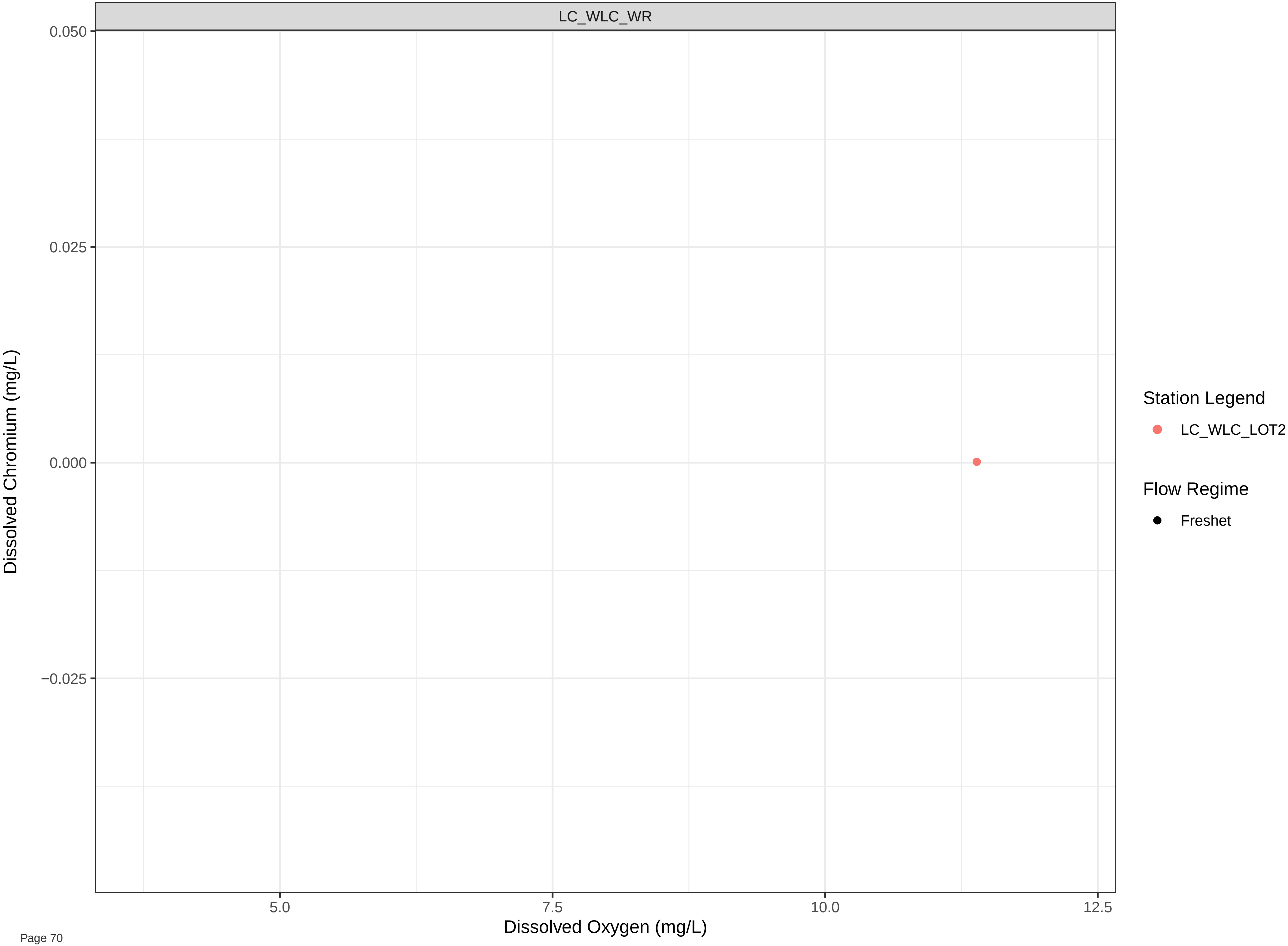

LC_DisturbedWSlope
Dissolved Chromium (mg/L)
3e−04
2e−04
1e−04
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

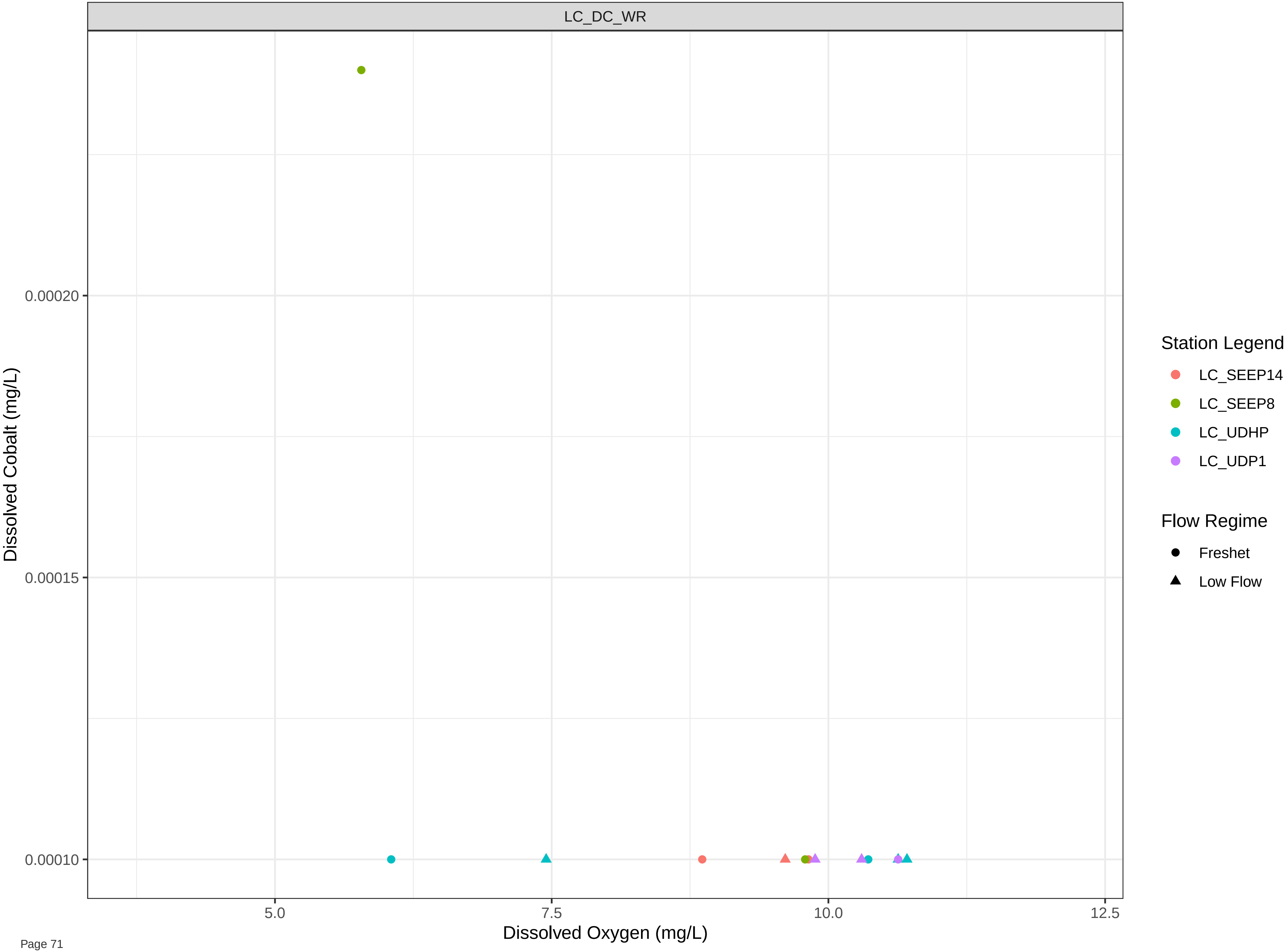

LC_HSP_WR
0.000200
0.000175
0.000150
Dissolved Chromium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

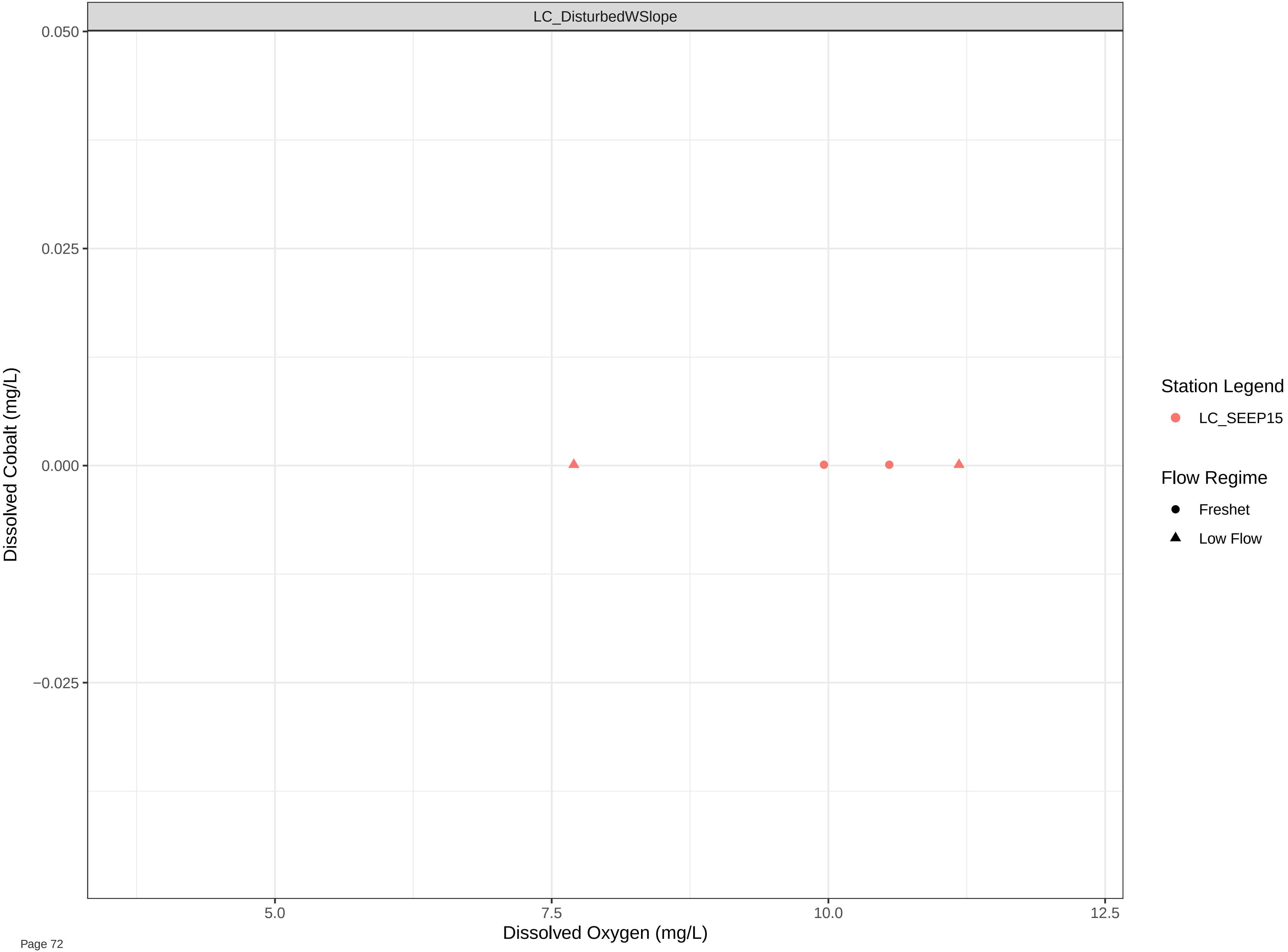

LC_MAXAM
Dissolved Chromium (mg/L)
0.00032
0.00030
0.00028
0.00026
0.00024
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow

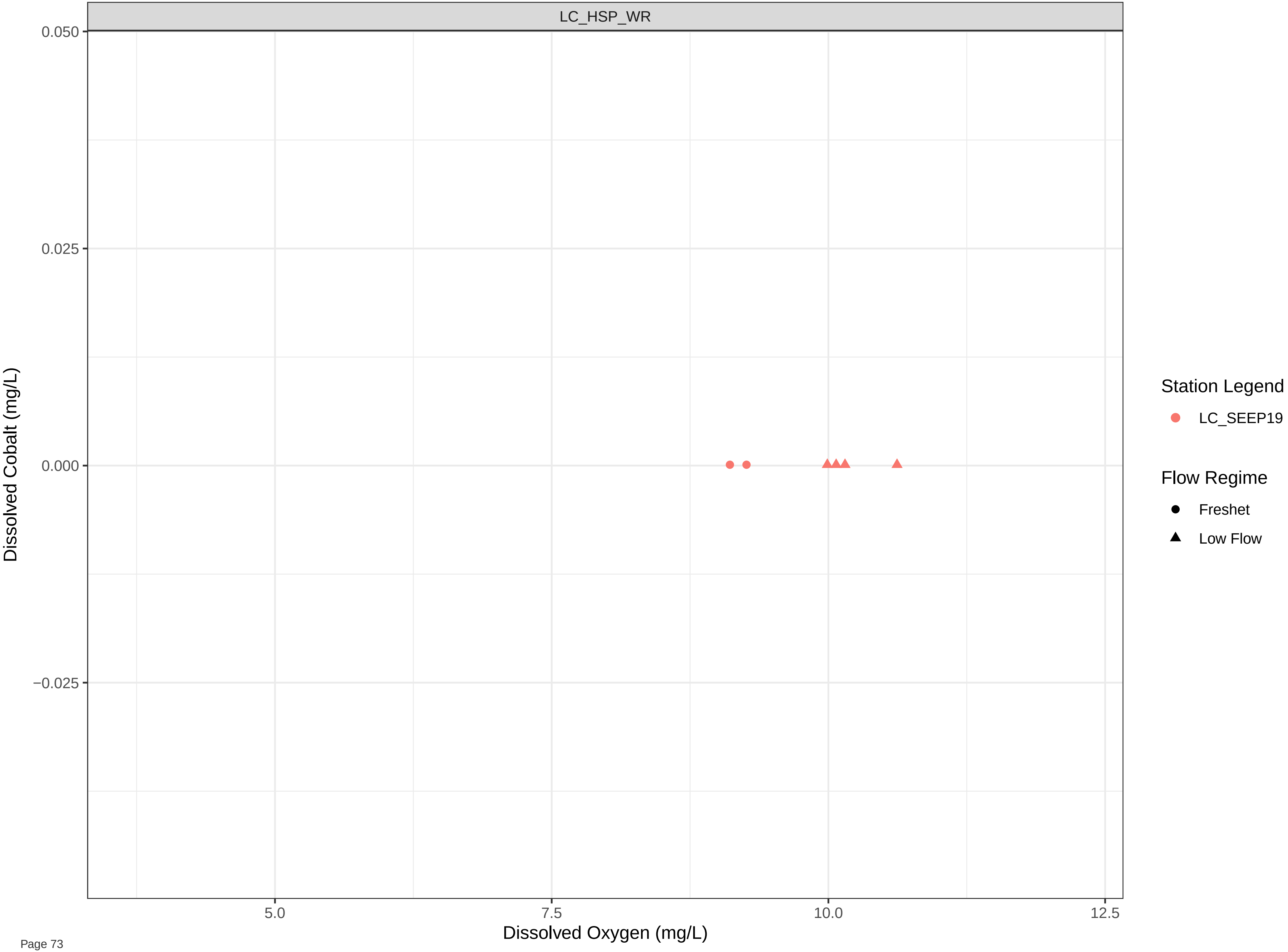

LC_MSA_WR
Dissolved Chromium (mg/L)
0.00025
0.00020
0.00015
0.00010
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

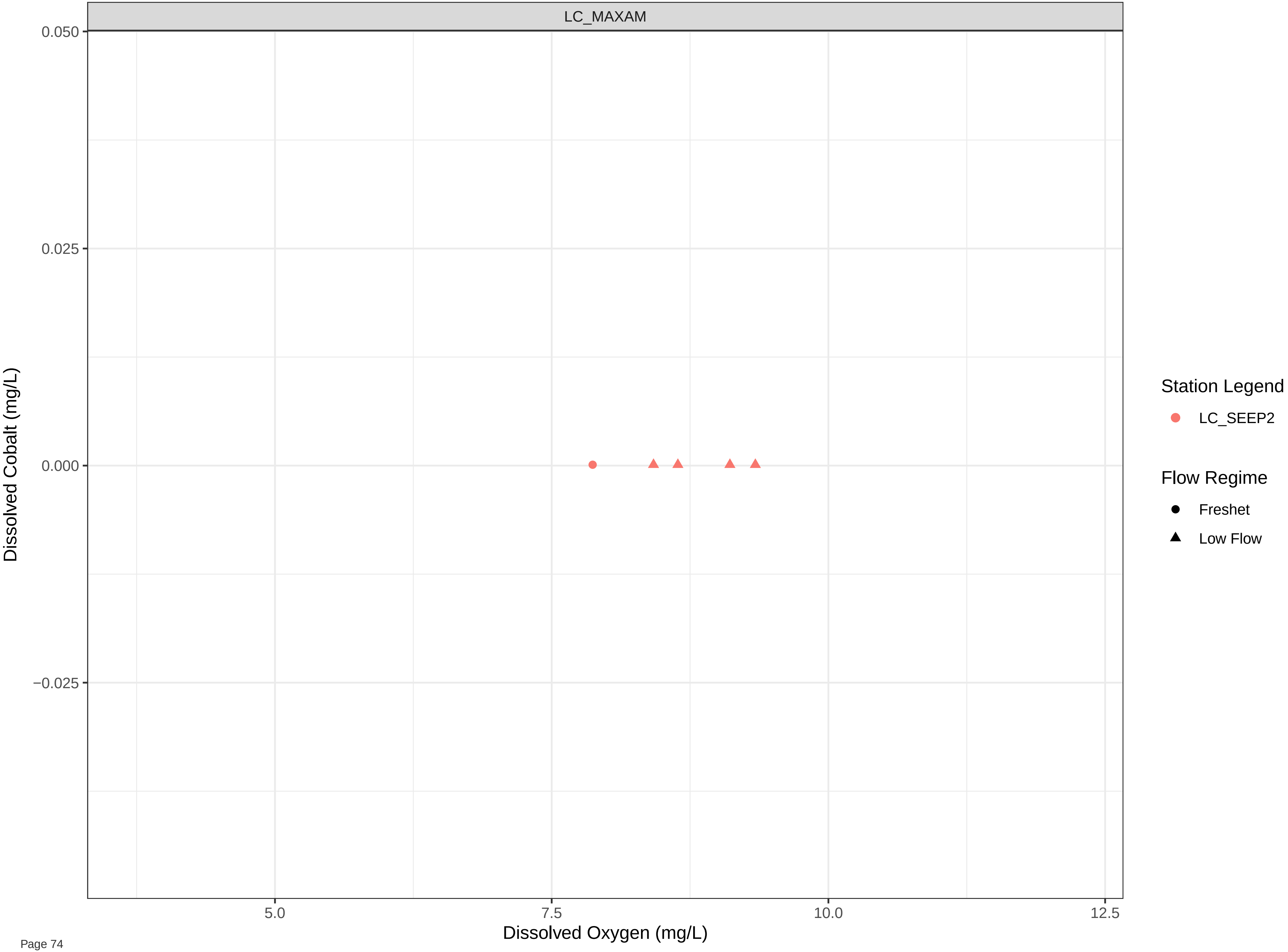

LC_PLANT
Dissolved Chromium (mg/L)
0.00016
0.00014
0.00012
0.00010
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

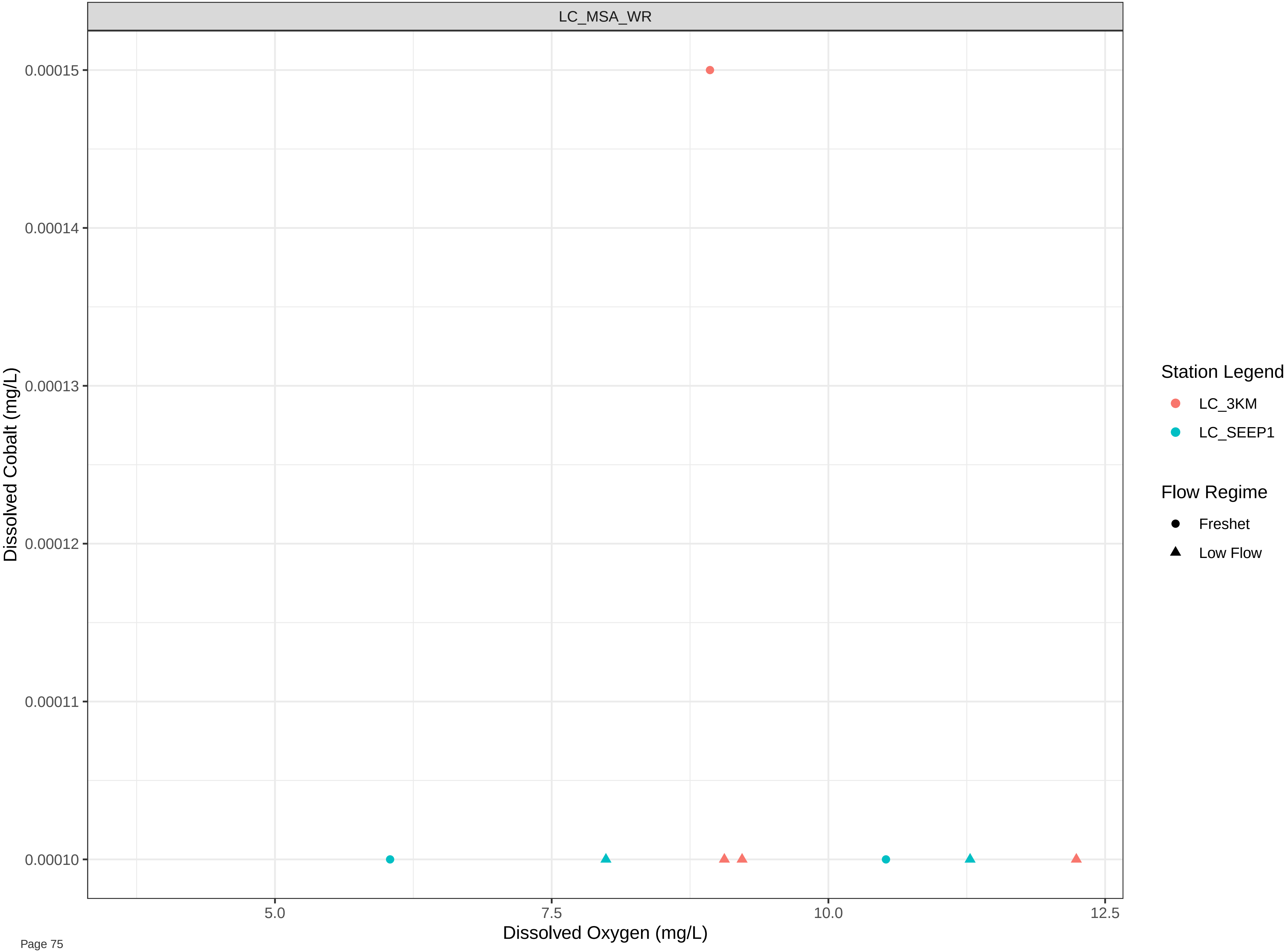

LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Chromium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

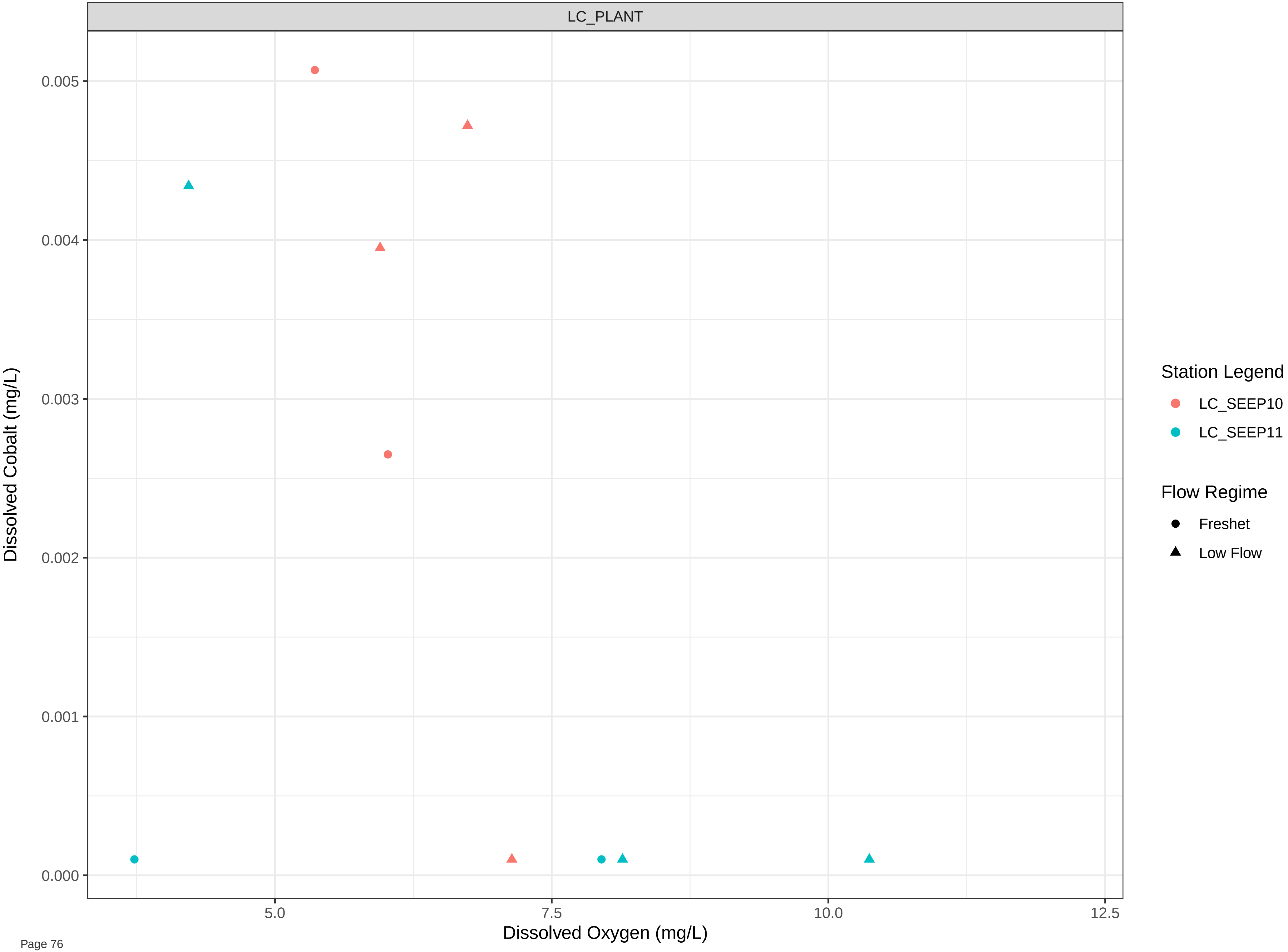

LC_DC_WR
Dissolved Cobalt (mg/L)
0.00020
0.00015
0.00010
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

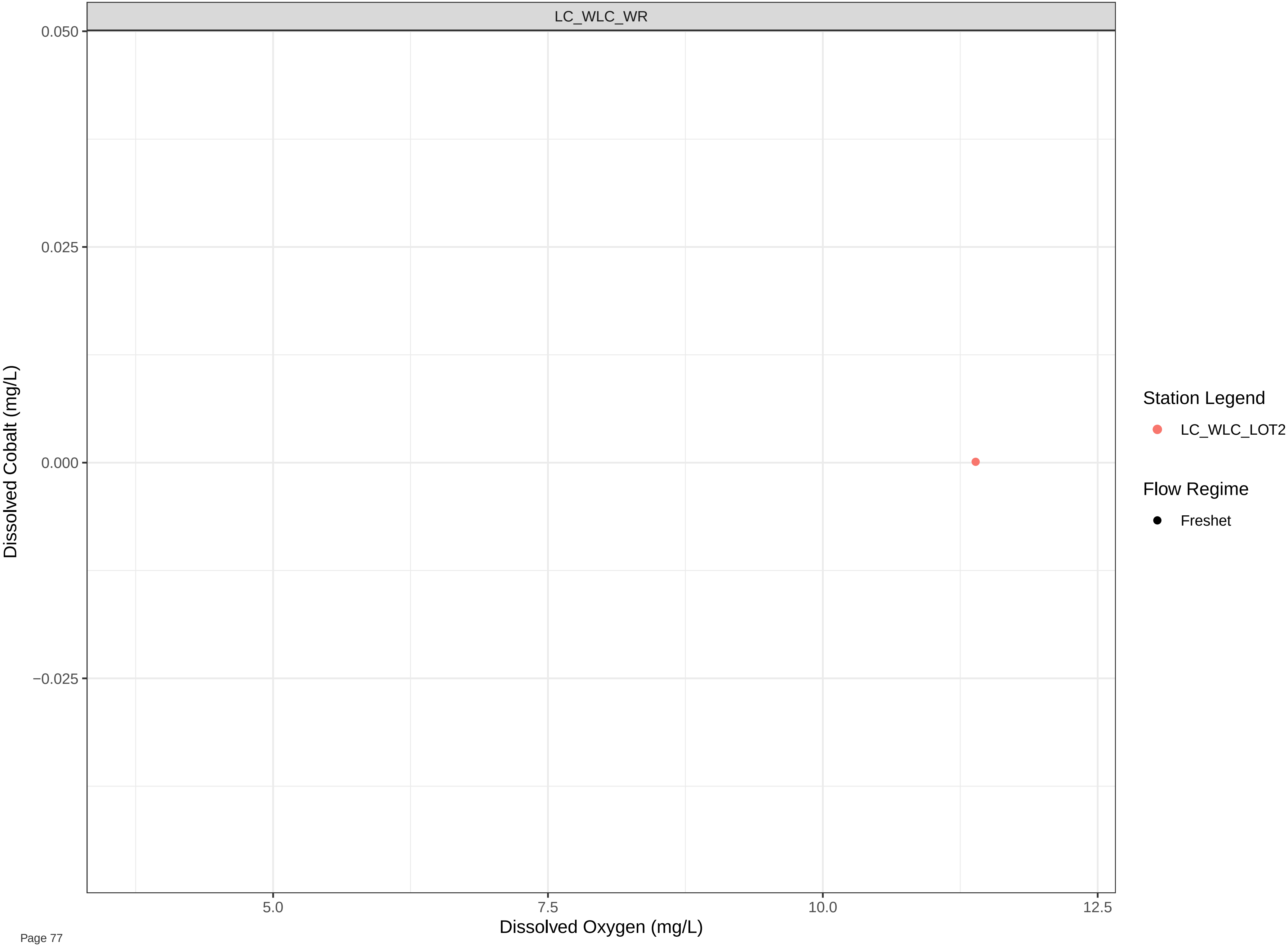

LC_DisturbedWSlope
0.050
0.025
0.000
−0.025
Dissolved Cobalt (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

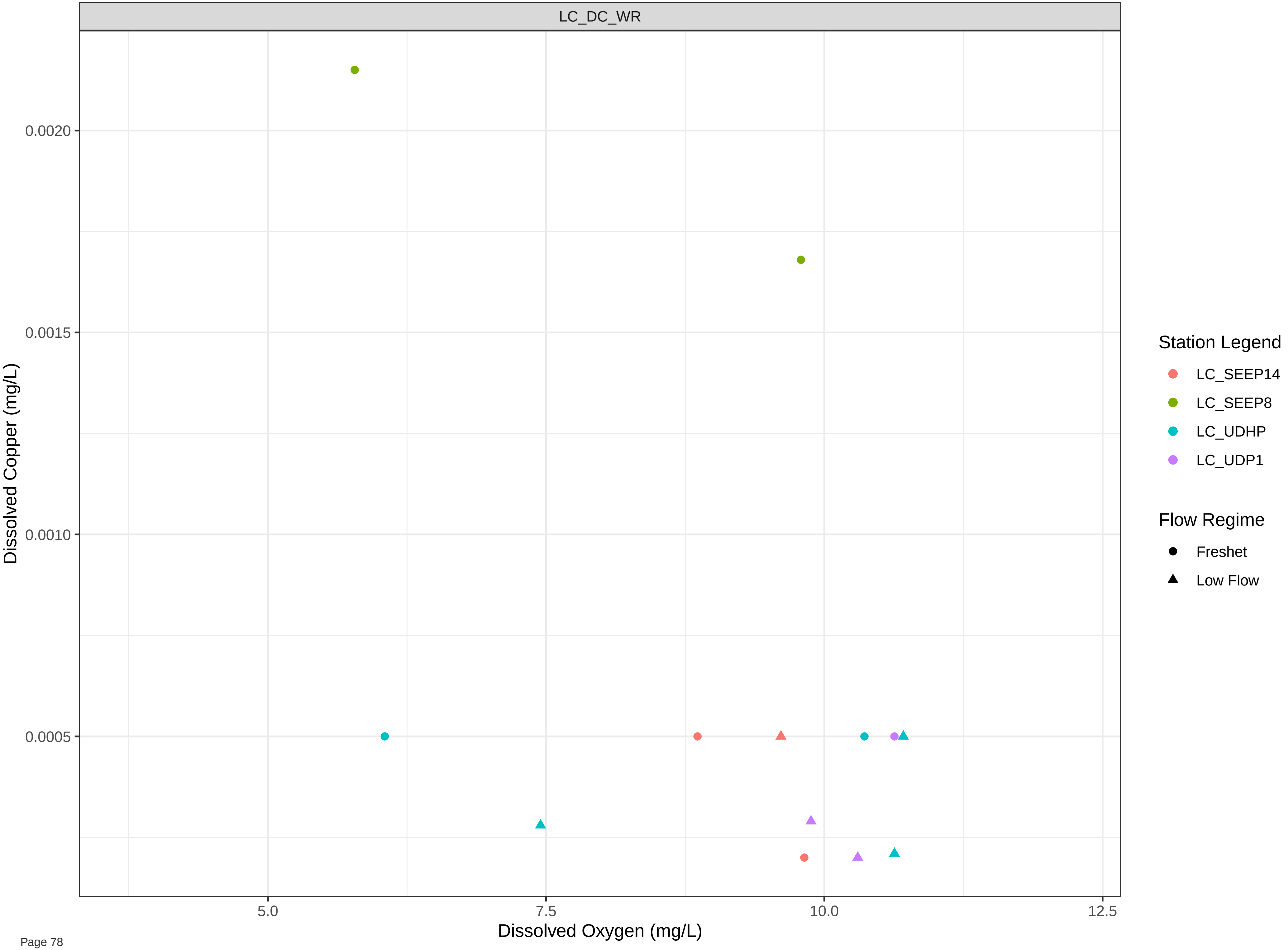

LC_HSP_WR
Dissolved Cobalt (mg/L)
0.050
0.025
0.000
−0.025
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

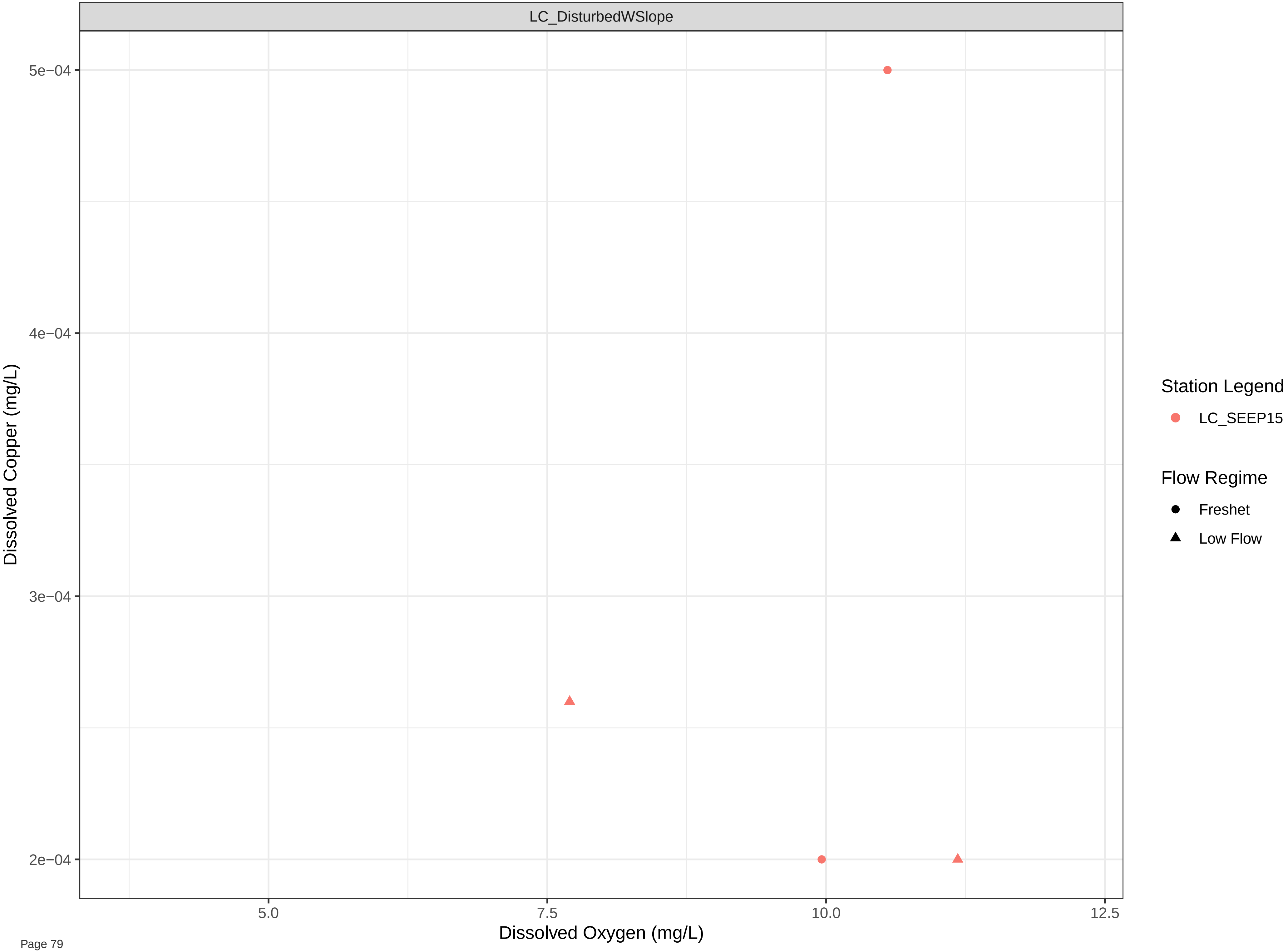

LC_MAXAM
0.050
0.025
0.000
−0.025
Dissolved Cobalt (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

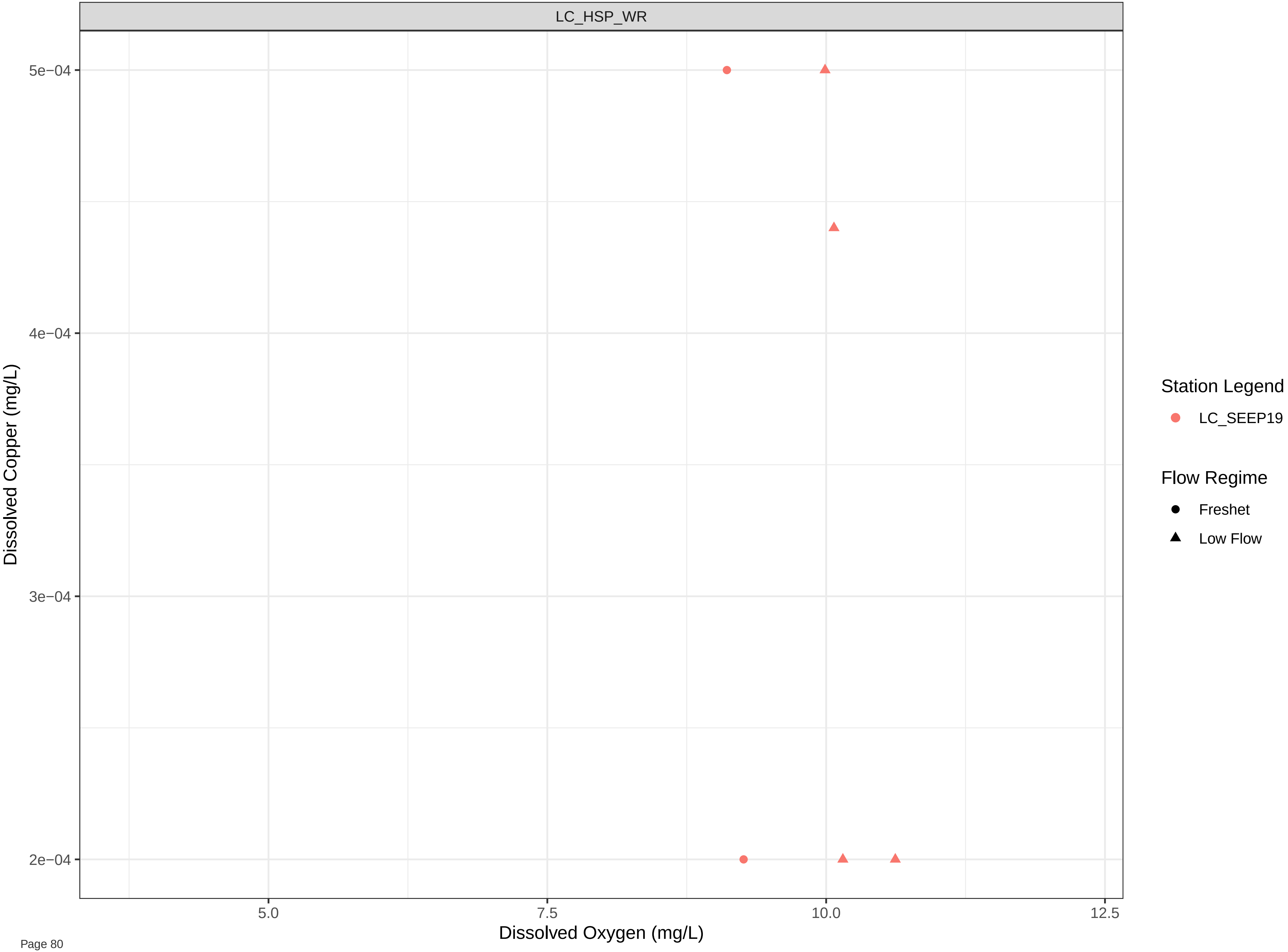

LC_MSA_WR
Dissolved Cobalt (mg/L)
0.00015
0.00014
0.00013
0.00012
0.00011
0.00010
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

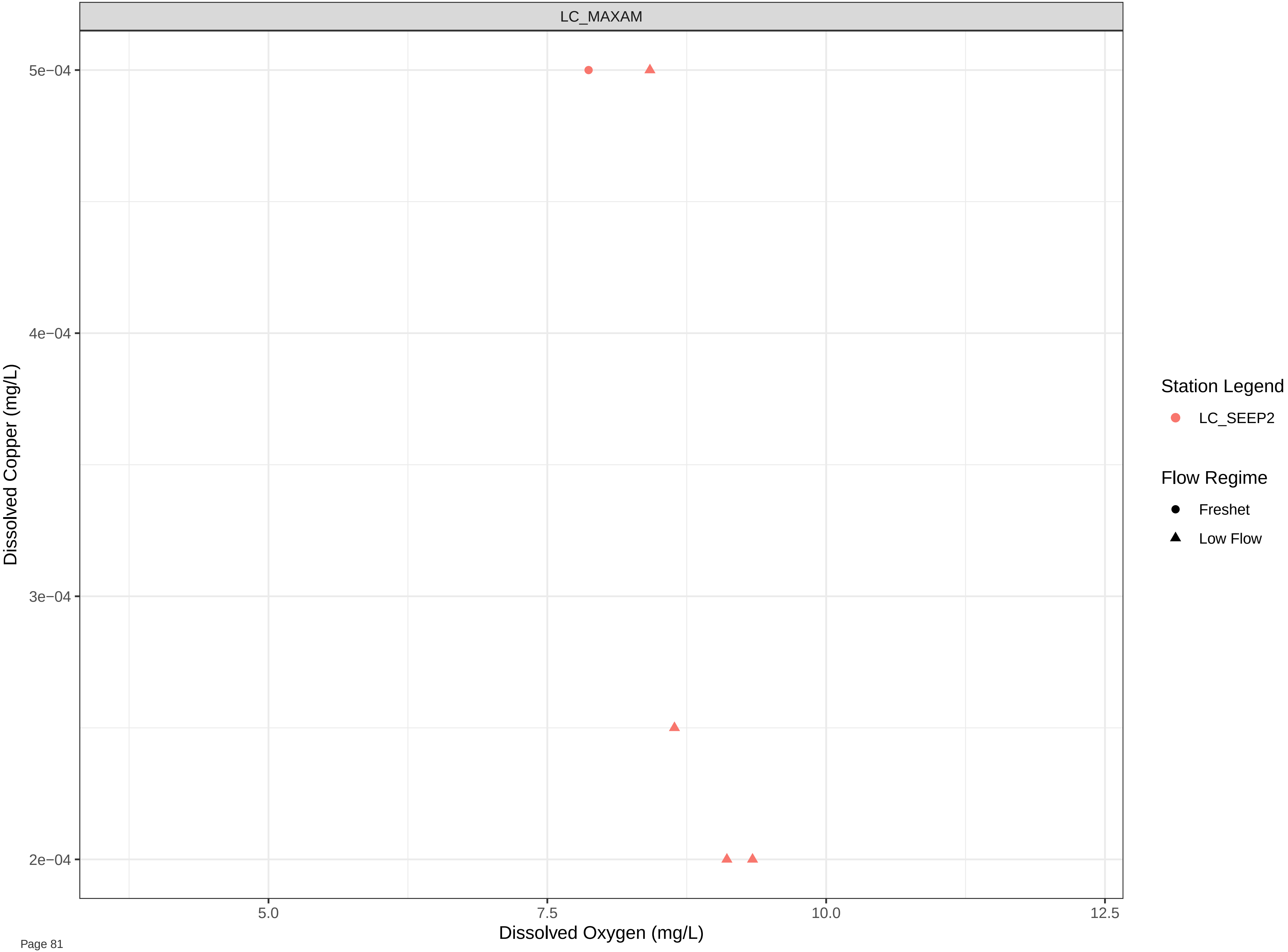

LC_PLANT
Dissolved Cobalt (mg/L)
0.000
0.001
0.002
0.003
0.004
0.005
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

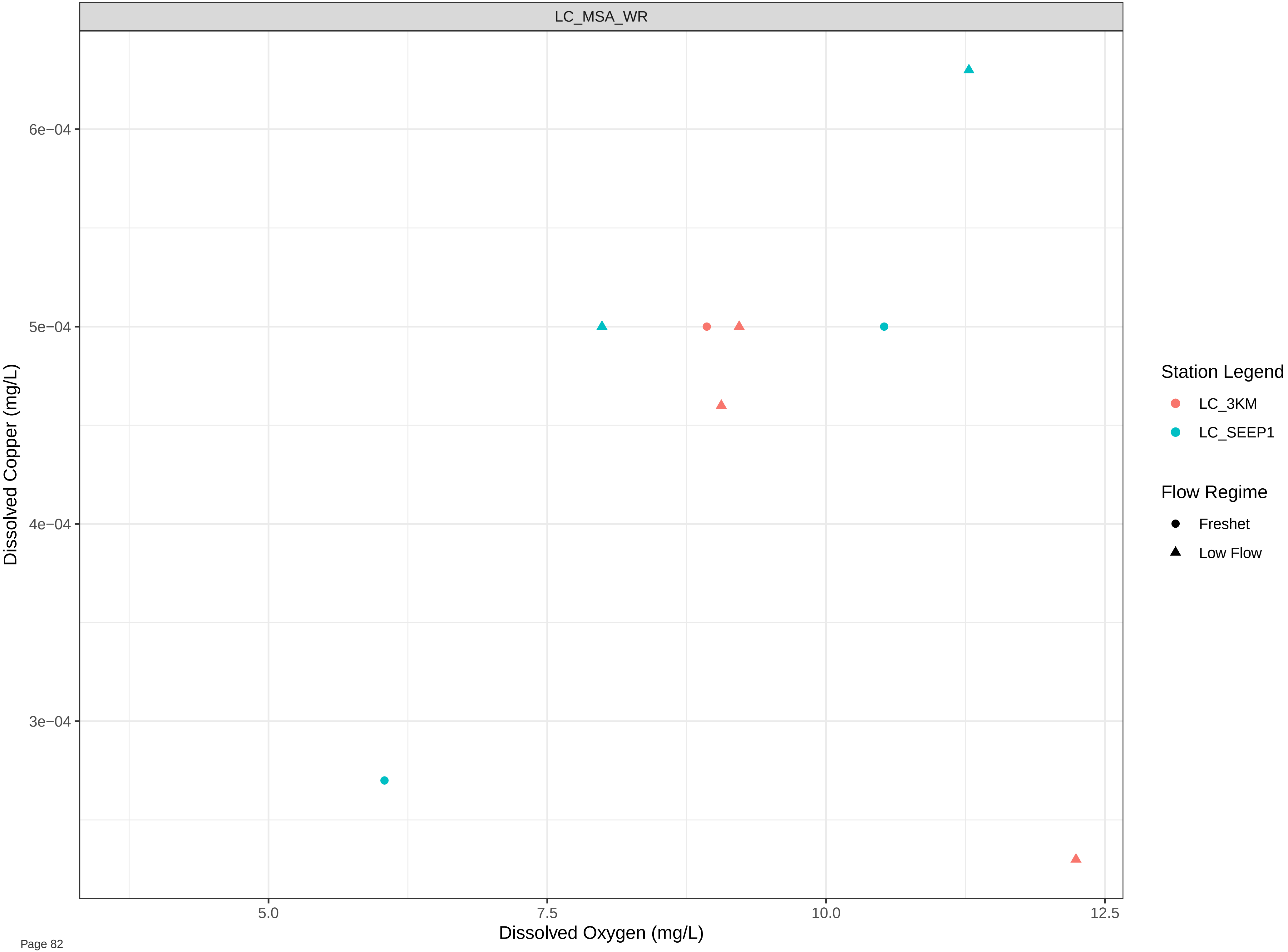

LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Cobalt (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet

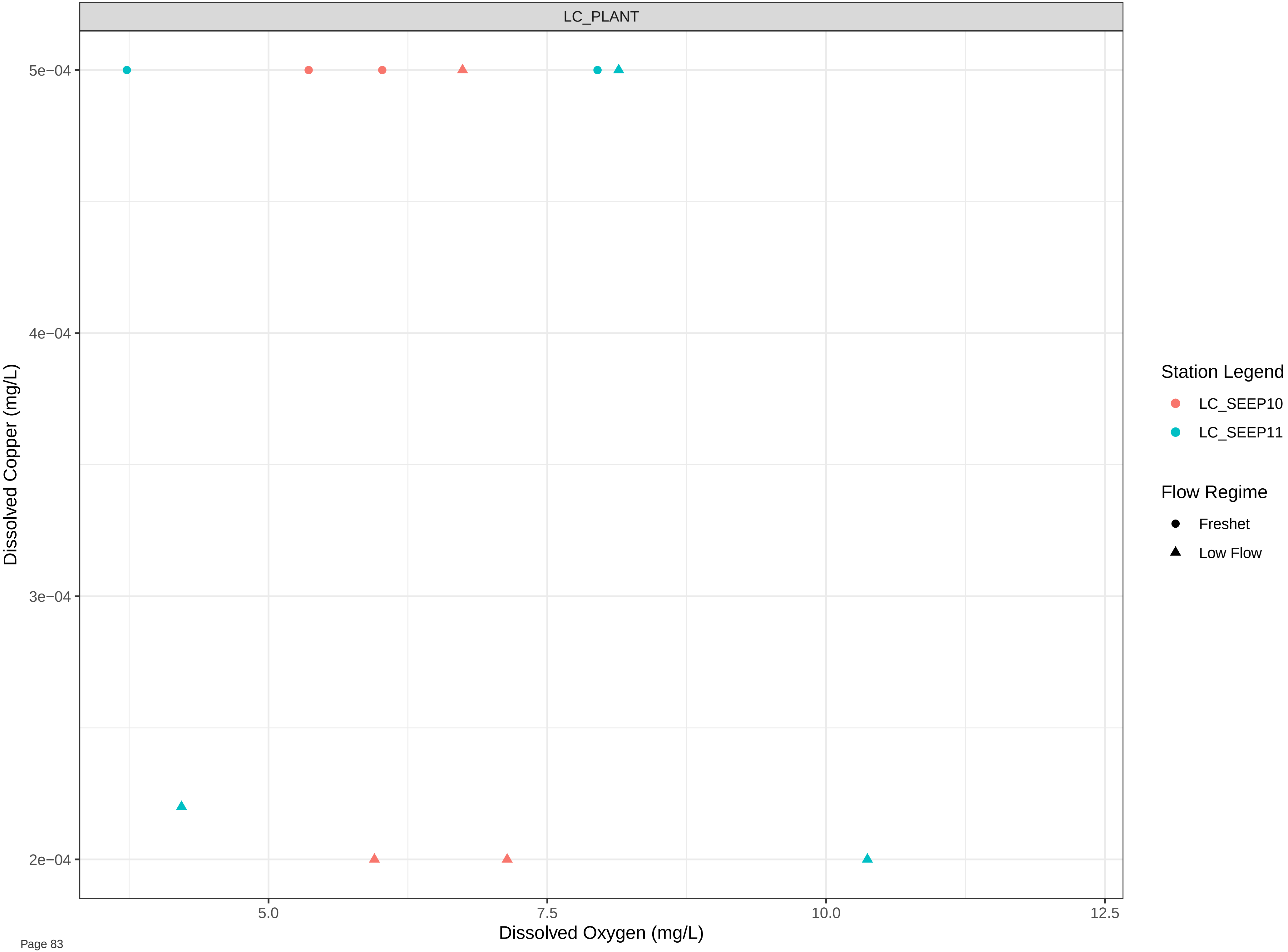

LC_DC_WR
Dissolved Copper (mg/L)
0.0020
0.0015
0.0010
0.0005
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

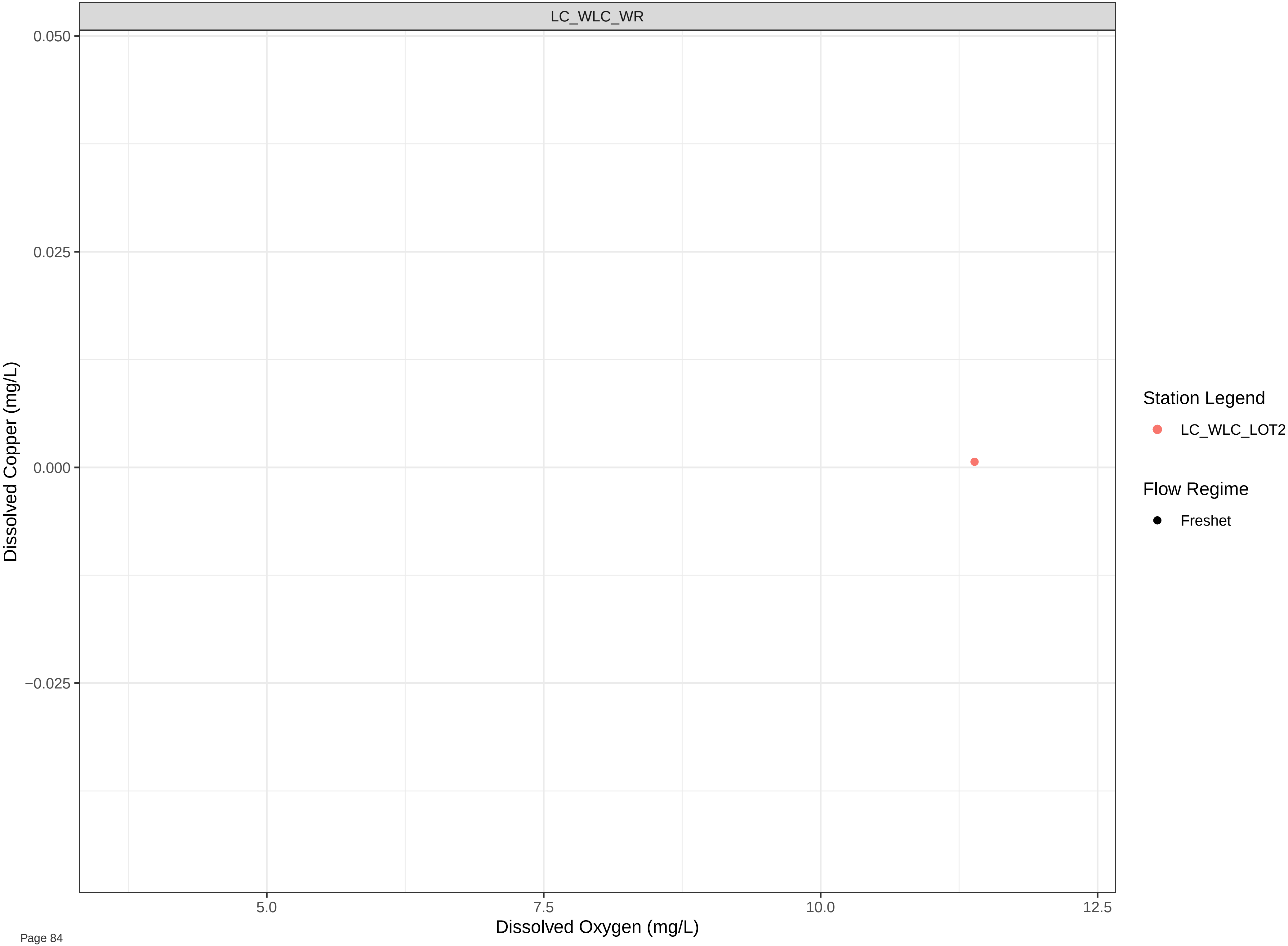

LC_DisturbedWSlope
5e−04
4e−04
3e−04
2e−04
Dissolved Copper (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

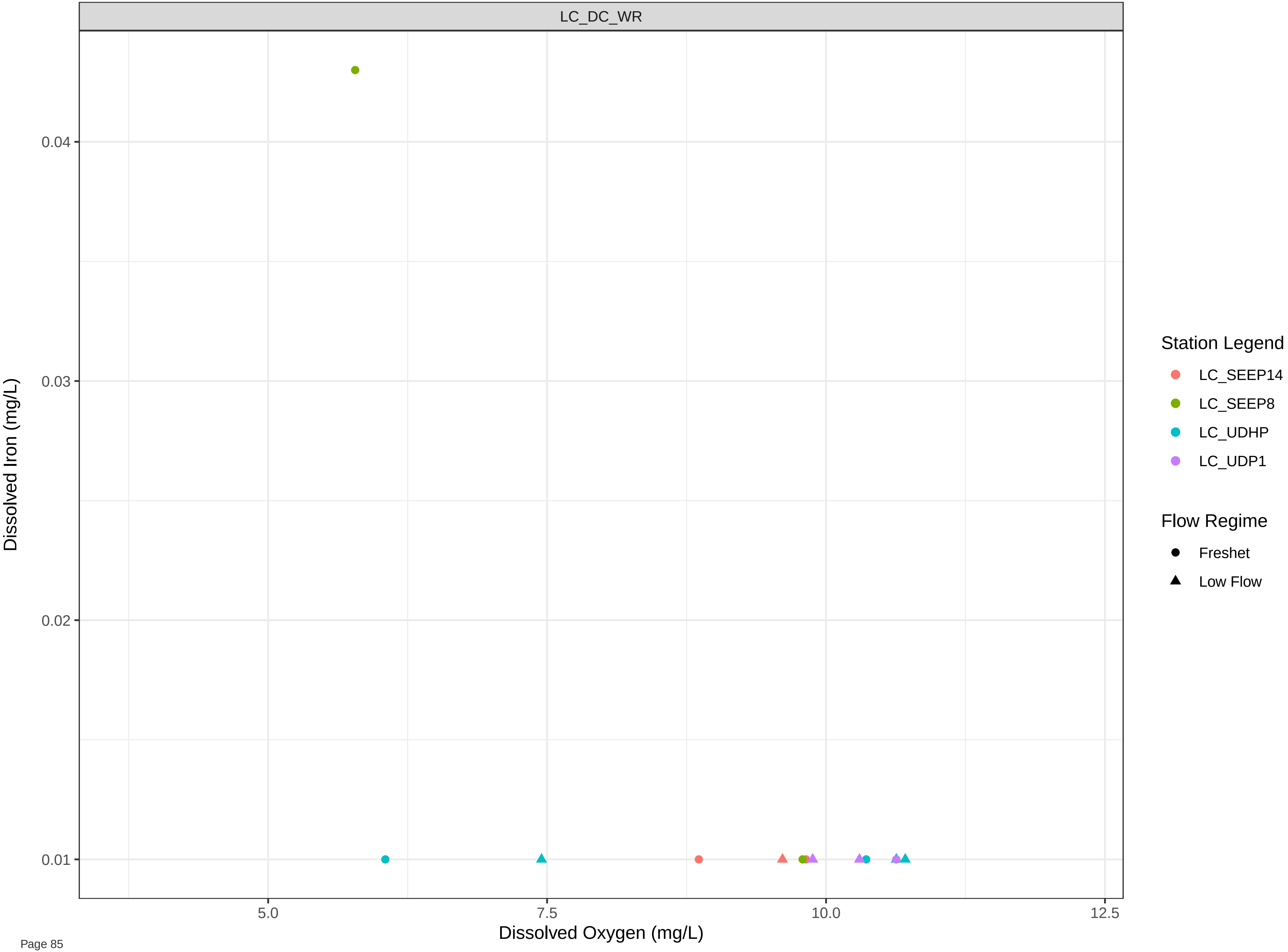

LC_HSP_WR
Dissolved Copper (mg/L)
5e−04
4e−04
3e−04
2e−04
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

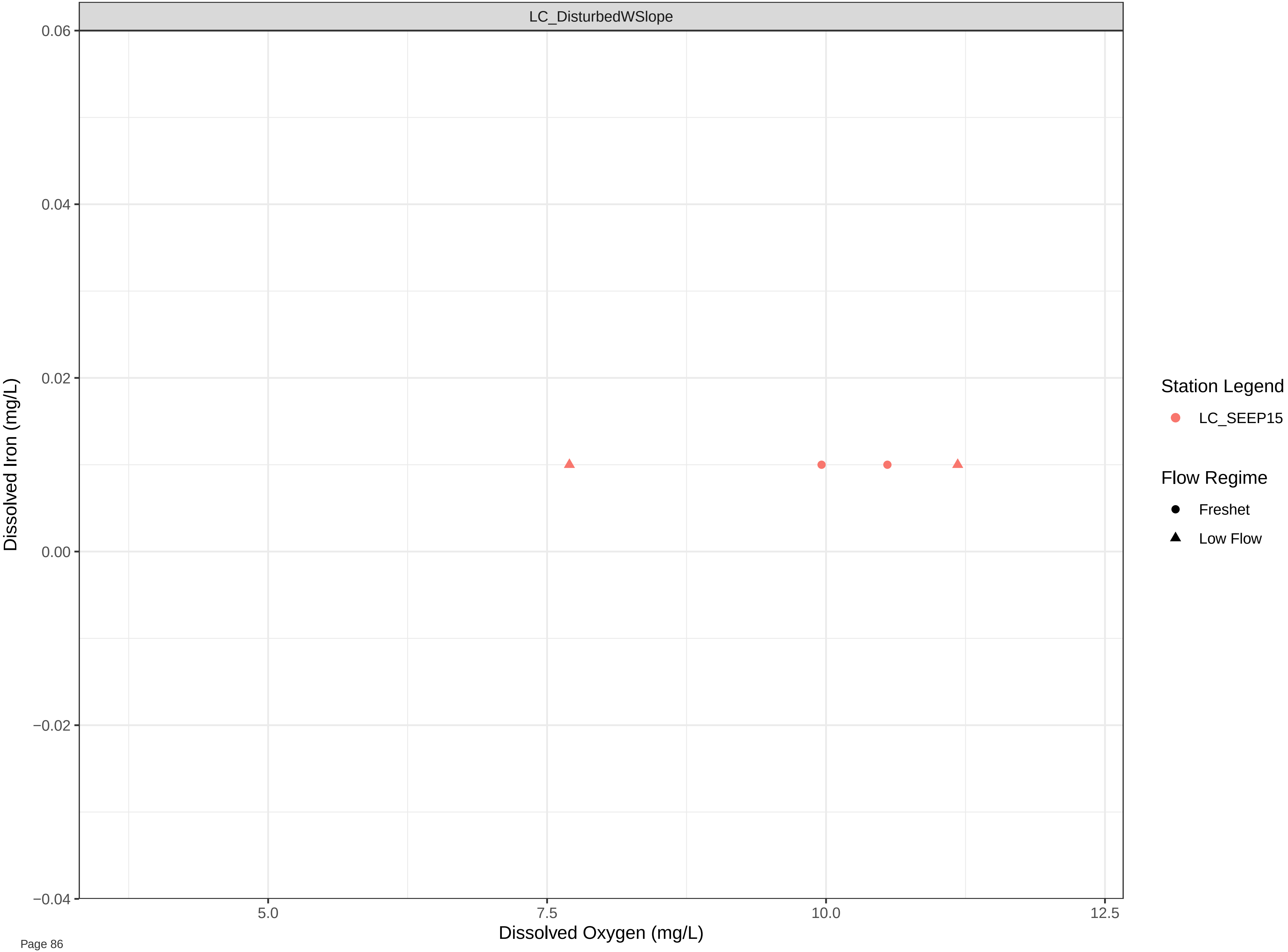

LC_MAXAM
5e−04
4e−04
3e−04
2e−04
Dissolved Copper (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

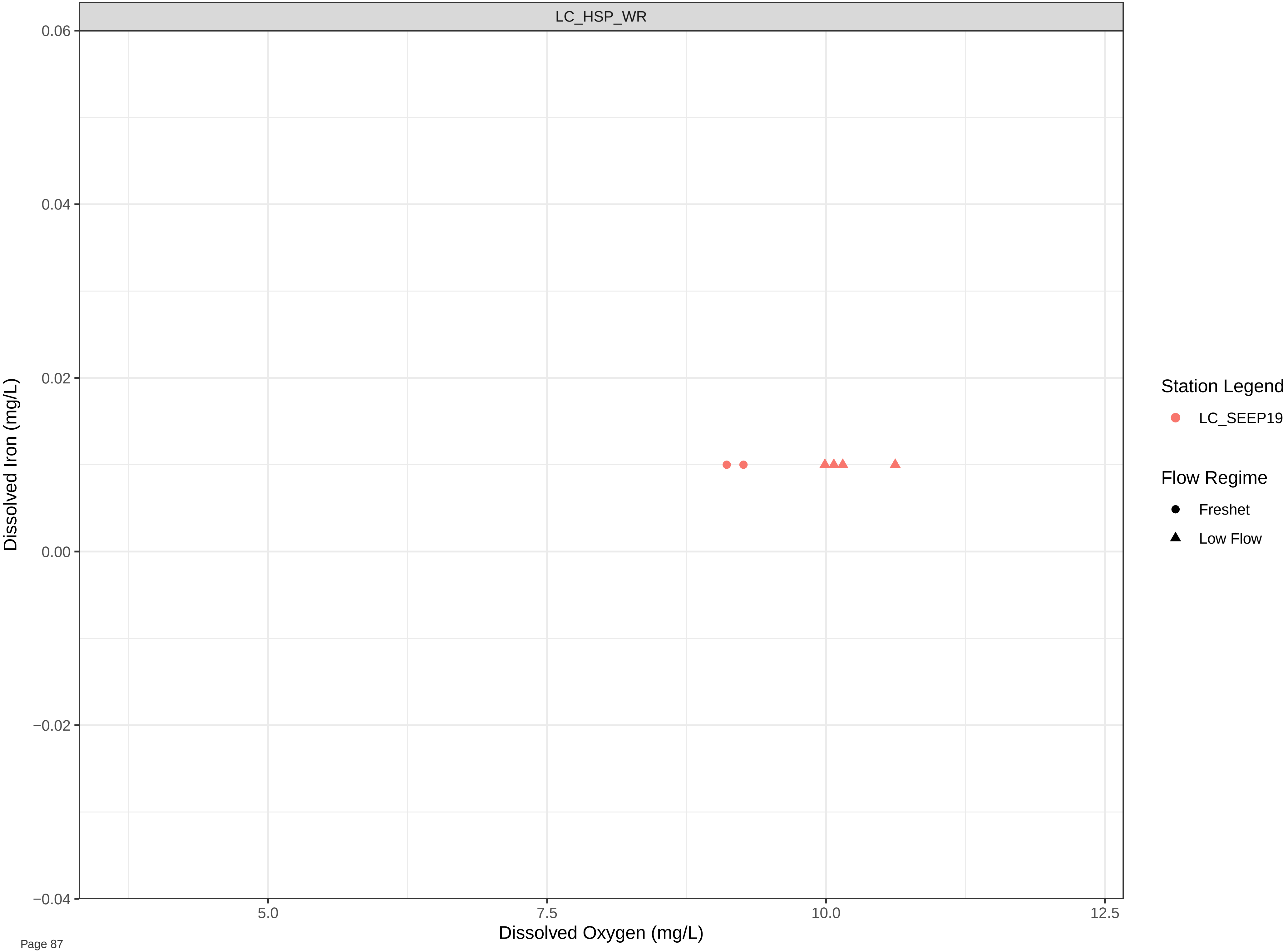

LC_MSA_WR
6e−04
5e−04
4e−04
3e−04
Dissolved Copper (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_3KM
● LC_SEEP1
Flow Regime
● Freshet
▲ Low Flow

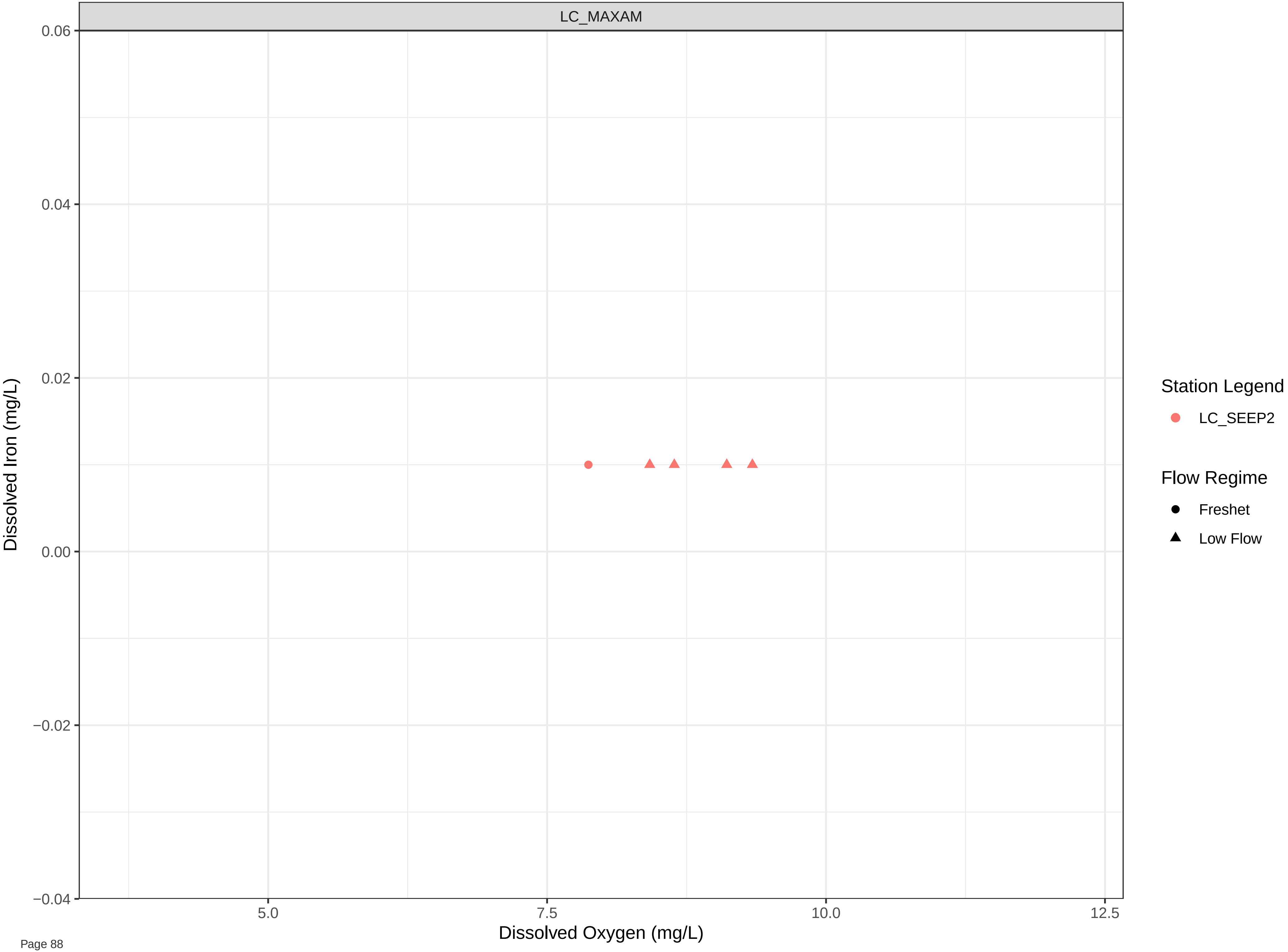

LC_PLANT
5e−04
4e−04
3e−04
2e−04
Dissolved Copper (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

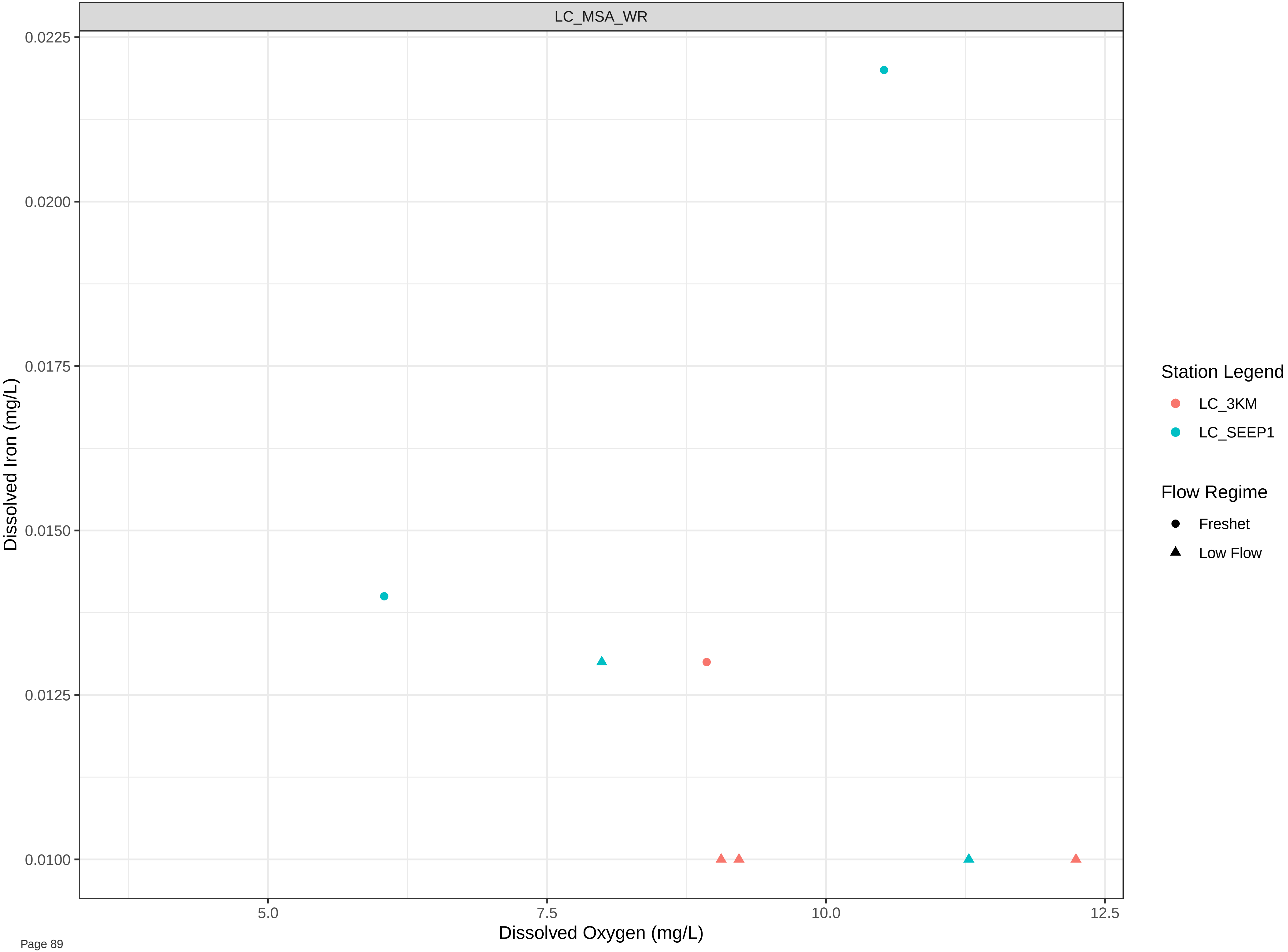

LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Copper (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

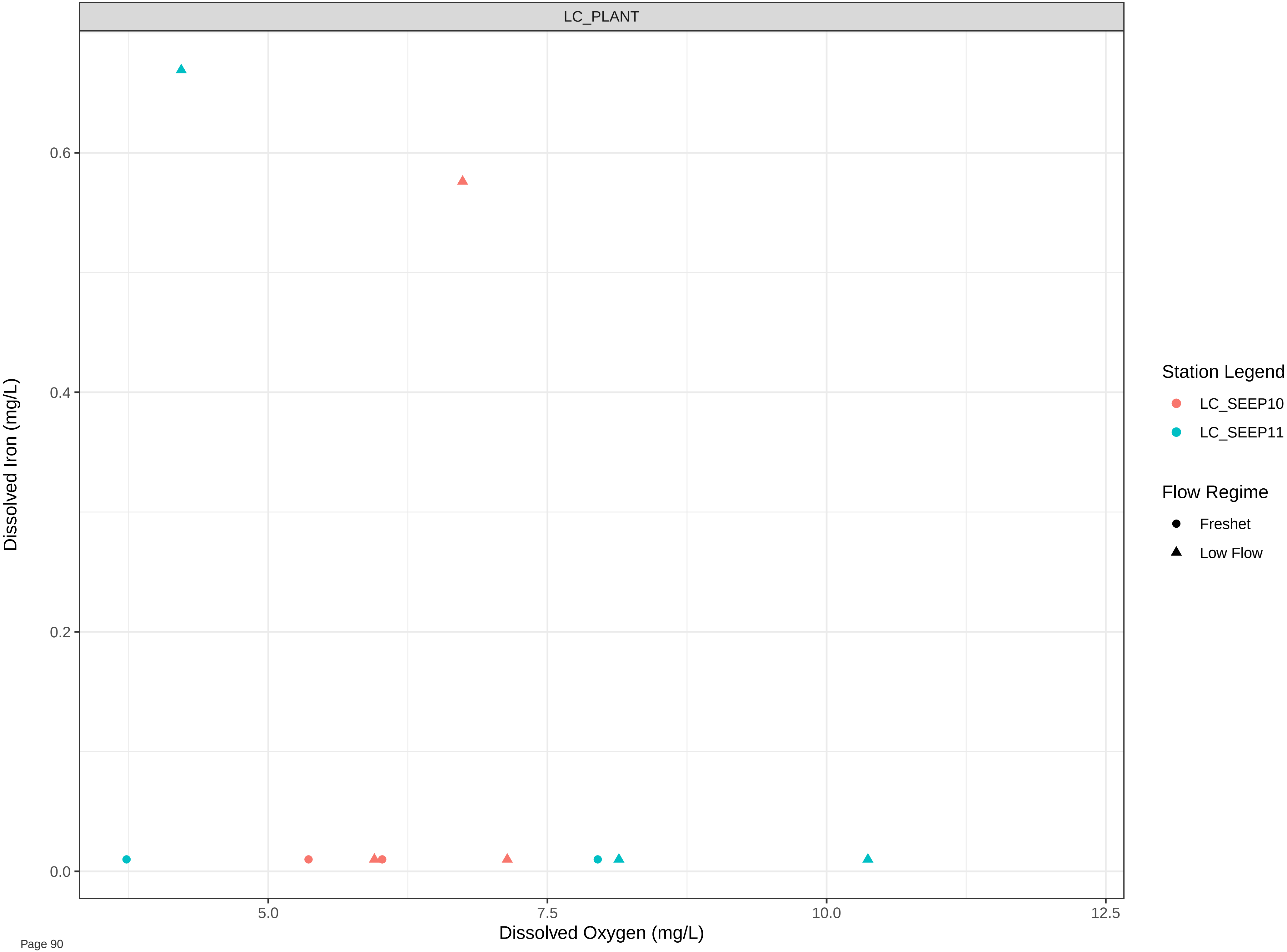

LC_DC_WR
Dissolved Iron (mg/L)
0.04
0.03
0.02
0.01
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

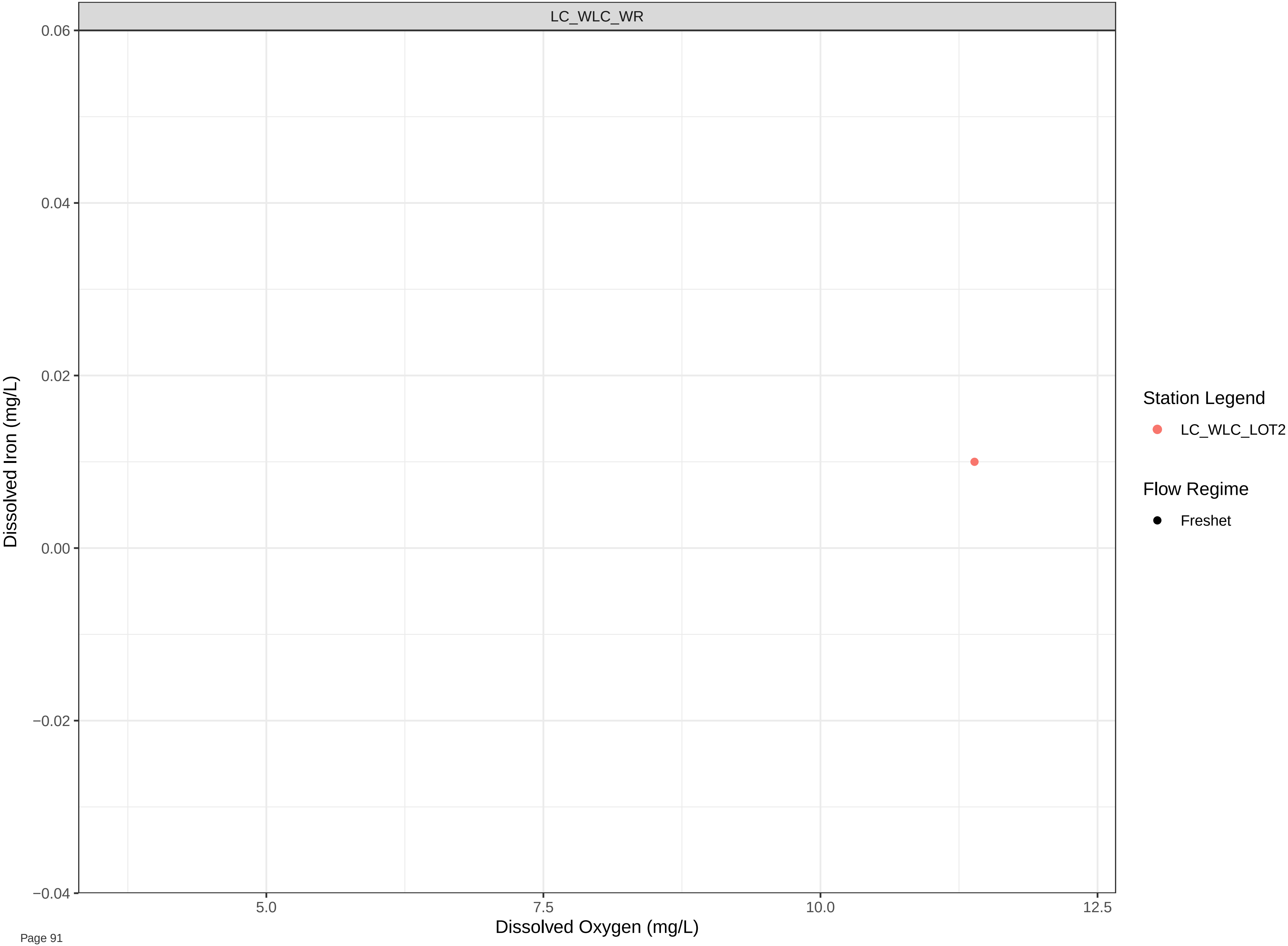

LC_DisturbedWSlope
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Iron (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

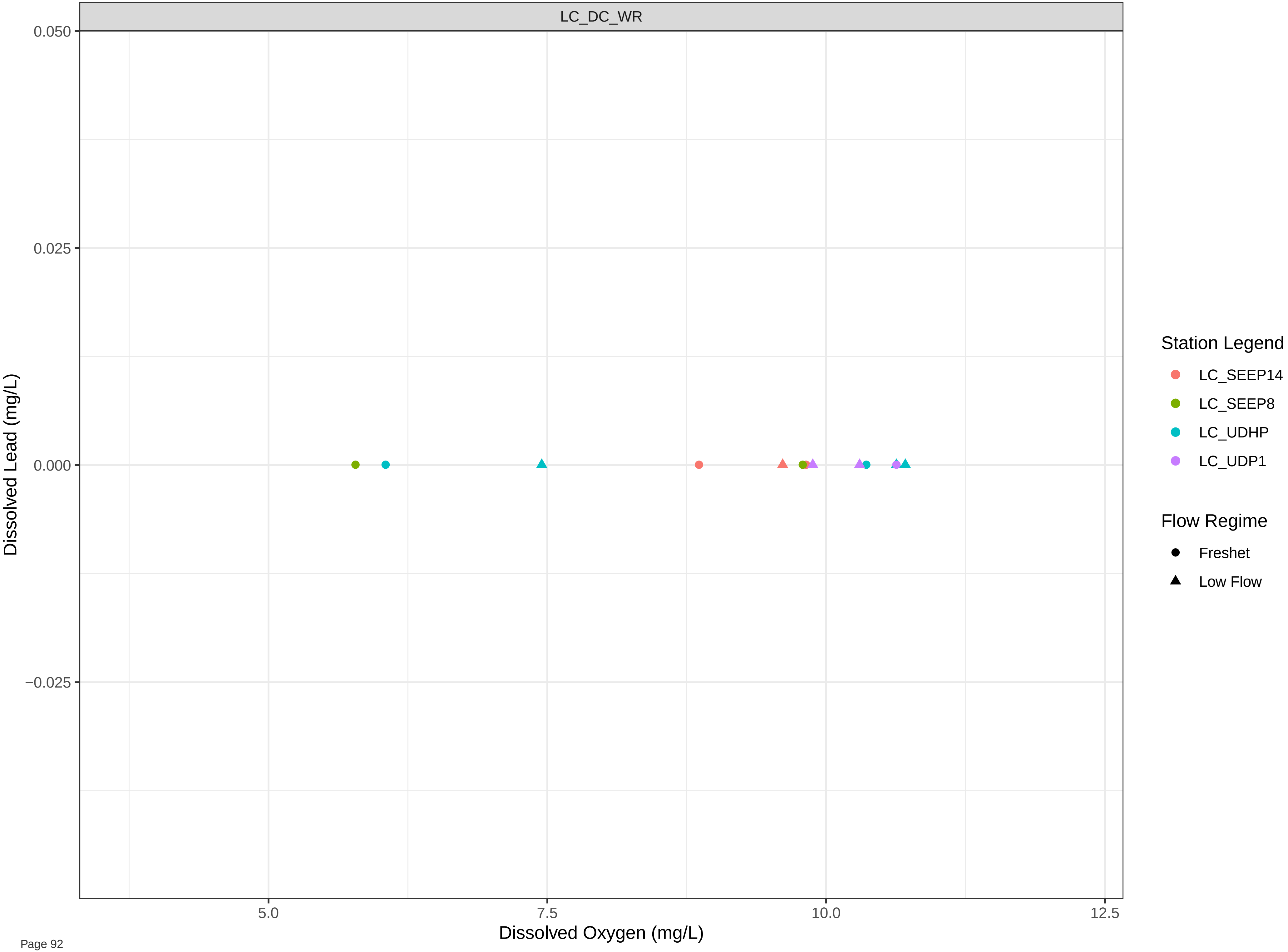

LC_HSP_WR
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Iron (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

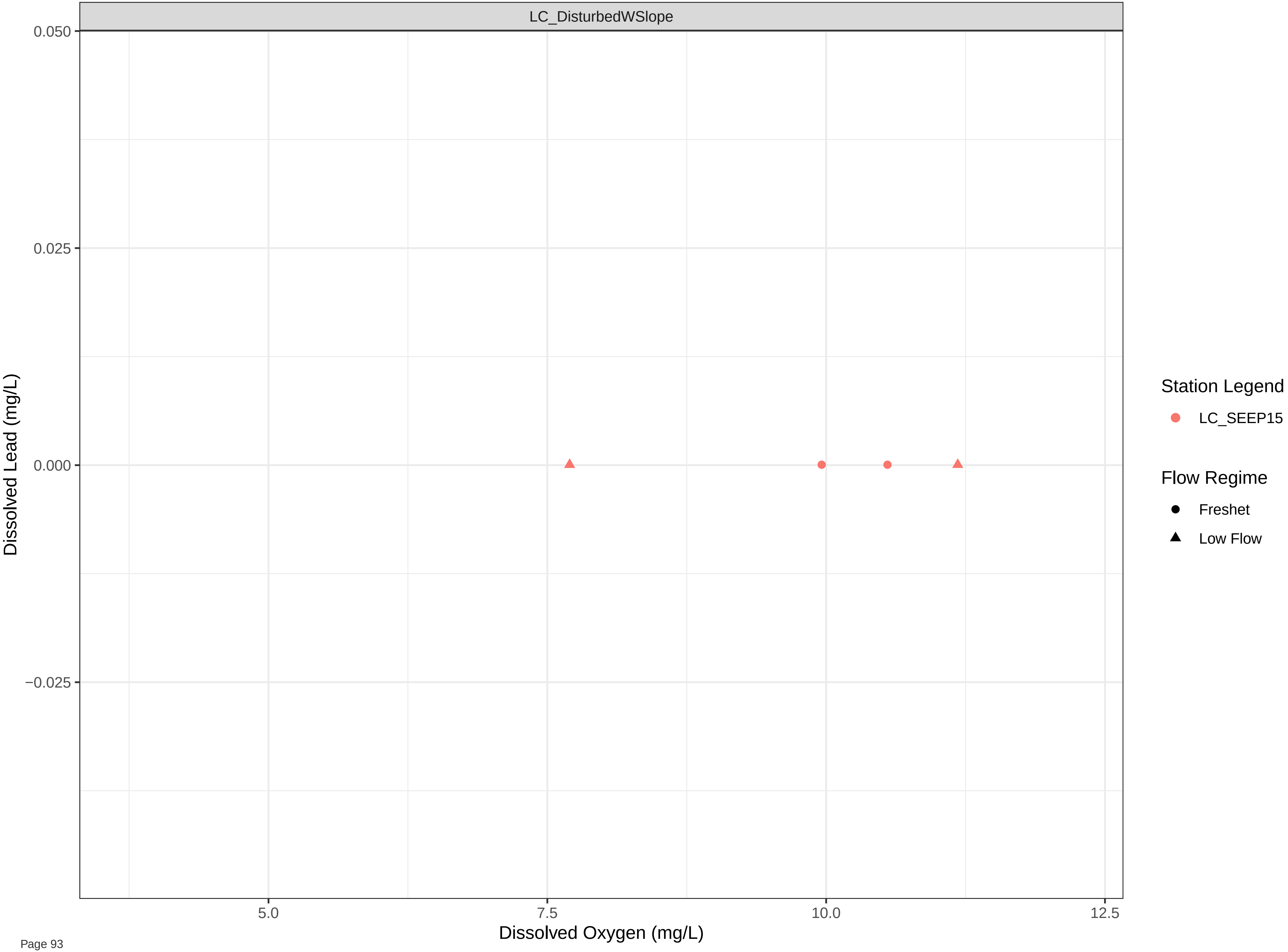

LC_MAXAM
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Iron (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

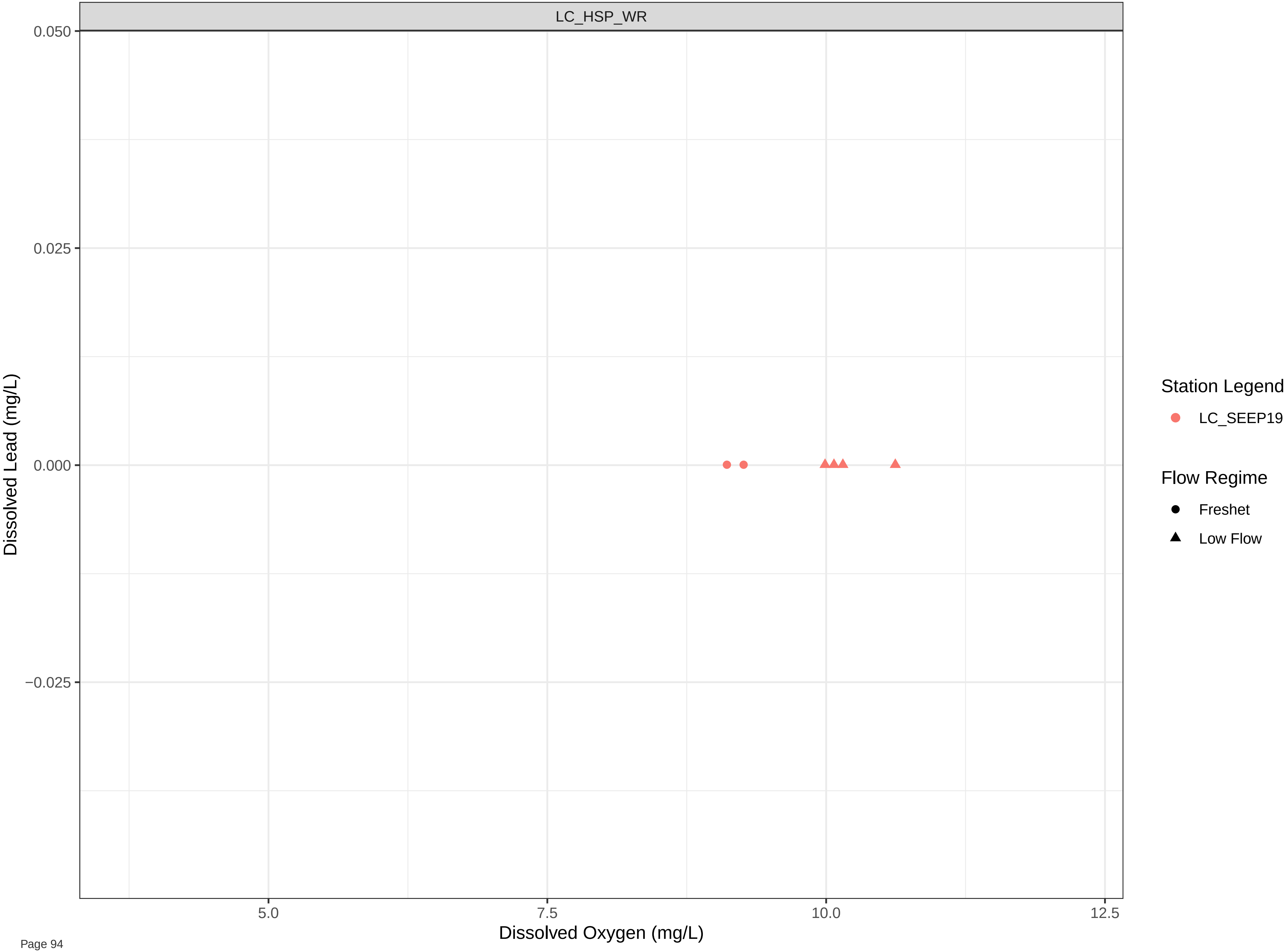

LC_MSA_WR
0.0225
0.0200
0.0175
0.0150
0.0125
0.0100
Dissolved Iron (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_3KM
● LC_SEEP1
Flow Regime
● Freshet
▲ Low Flow

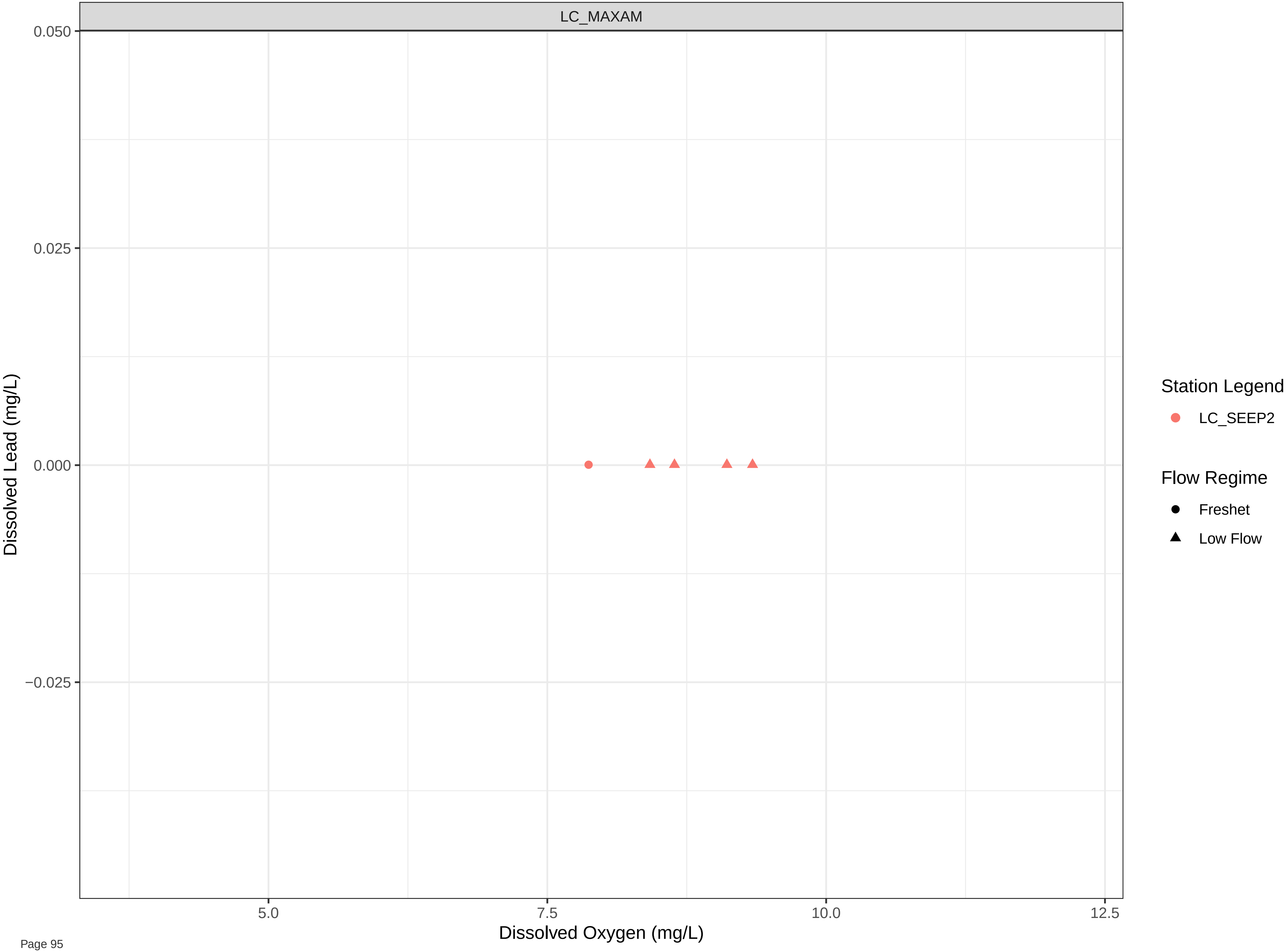

LC_PLANT
Dissolved Iron (mg/L)
0.6
0.4
0.2
0.0
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

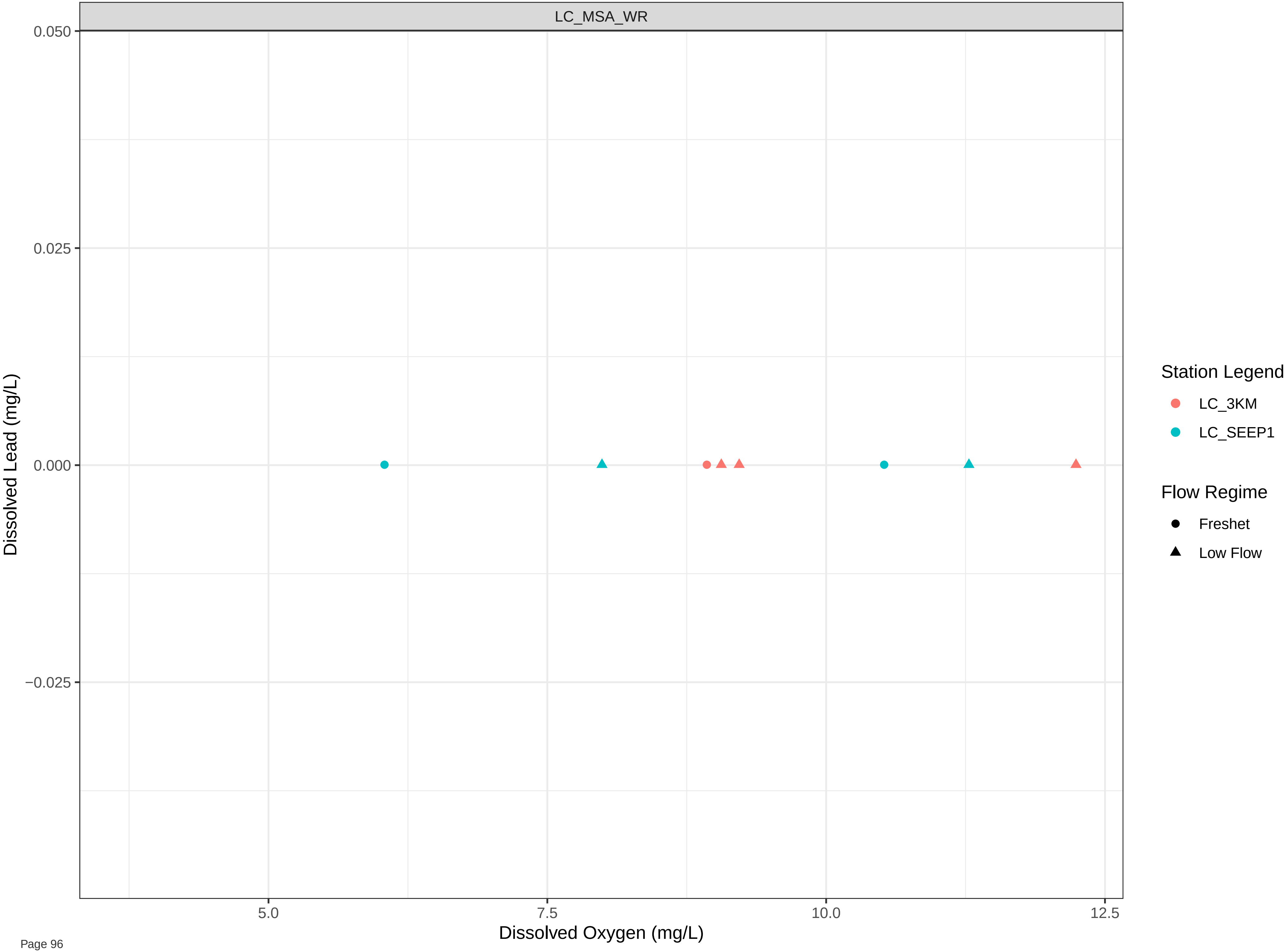

LC_WLC_WR
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Iron (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

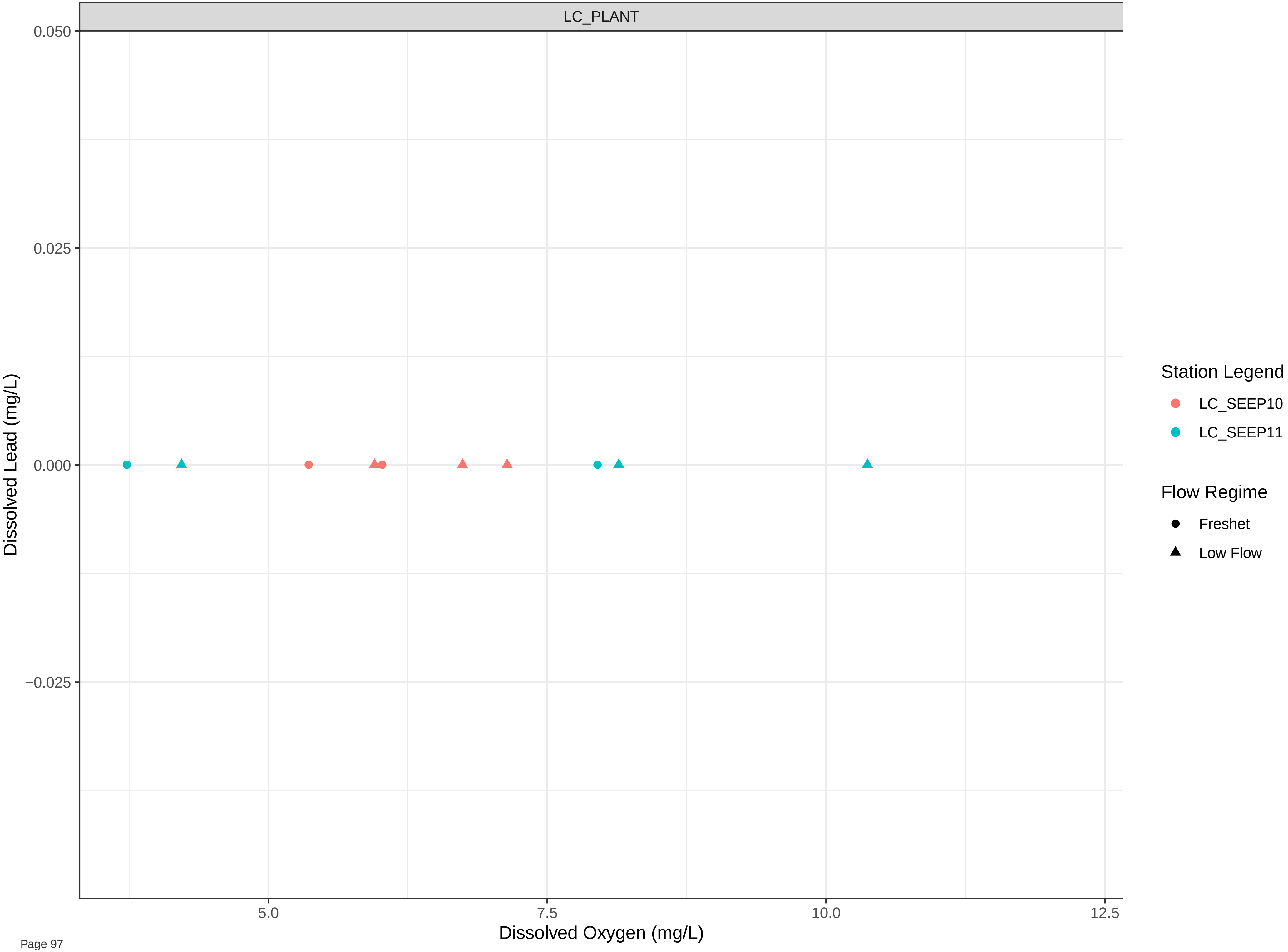

LC_DC_WR
Dissolved Lead (mg/L)
0.050
0.025
0.000
−0.025
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

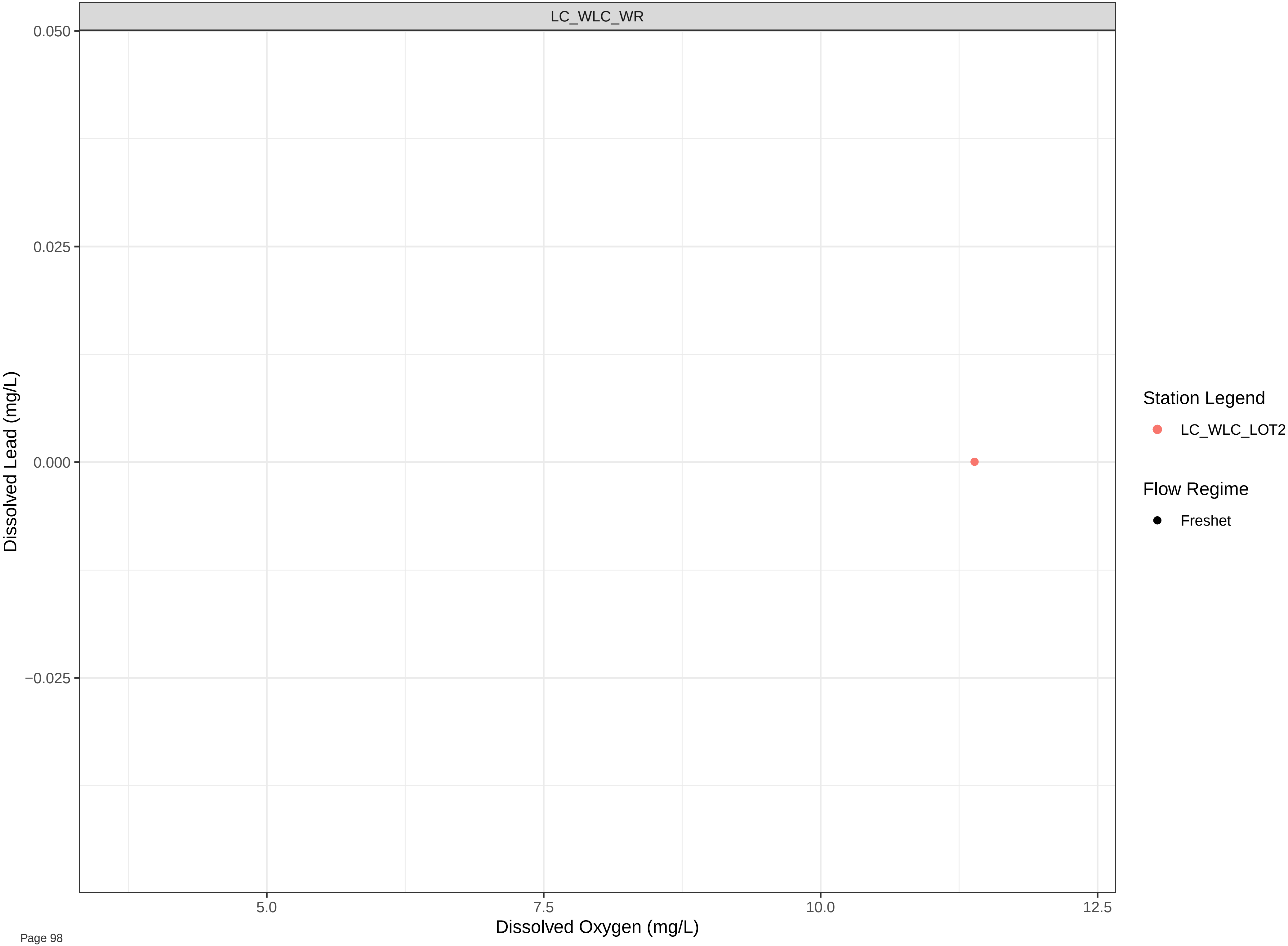

LC_DisturbedWSlope
0.050
0.025
0.000
−0.025
Dissolved Lead (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

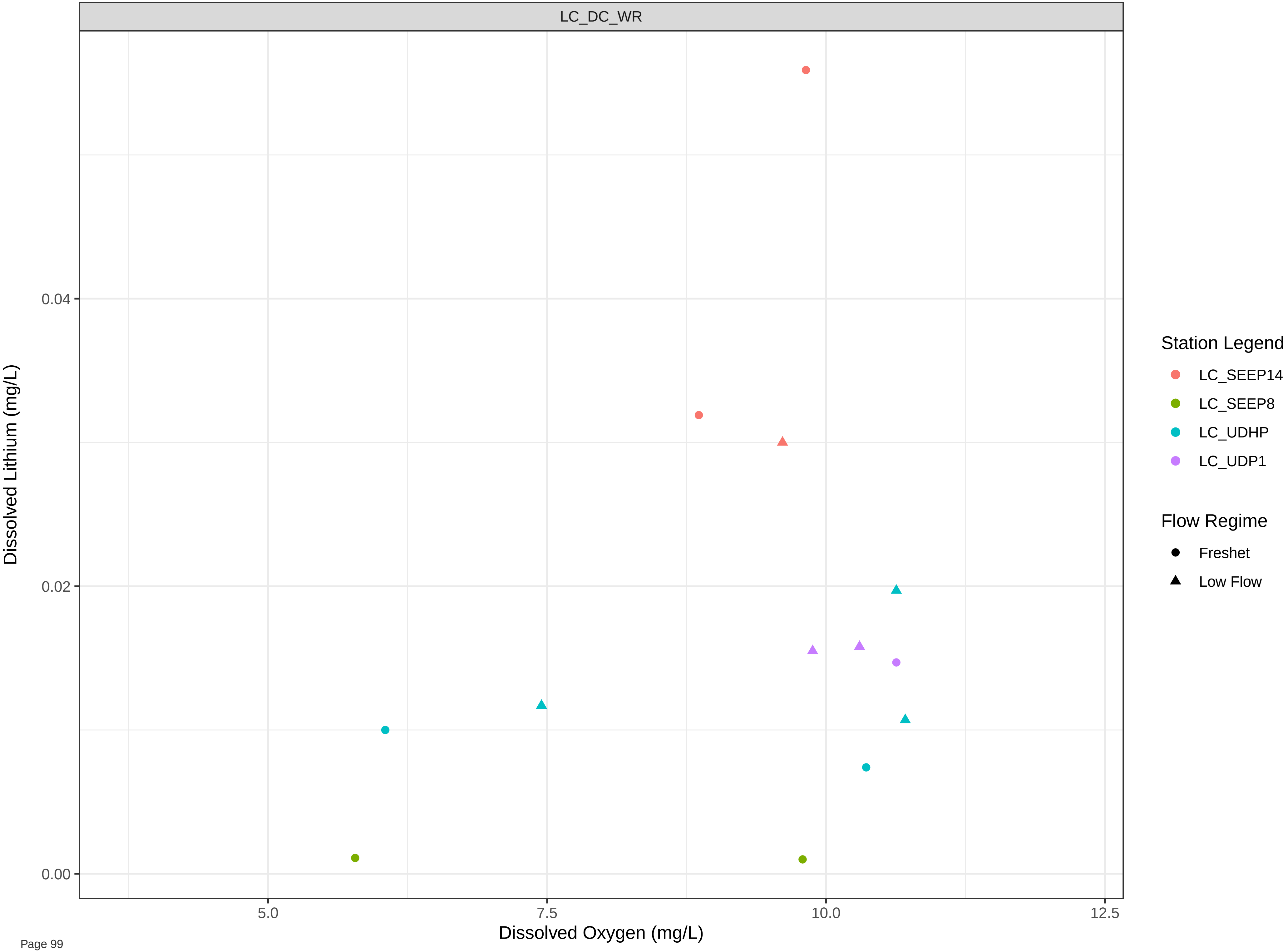

LC_HSP_WR
0.050
0.025
0.000
−0.025
Dissolved Lead (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

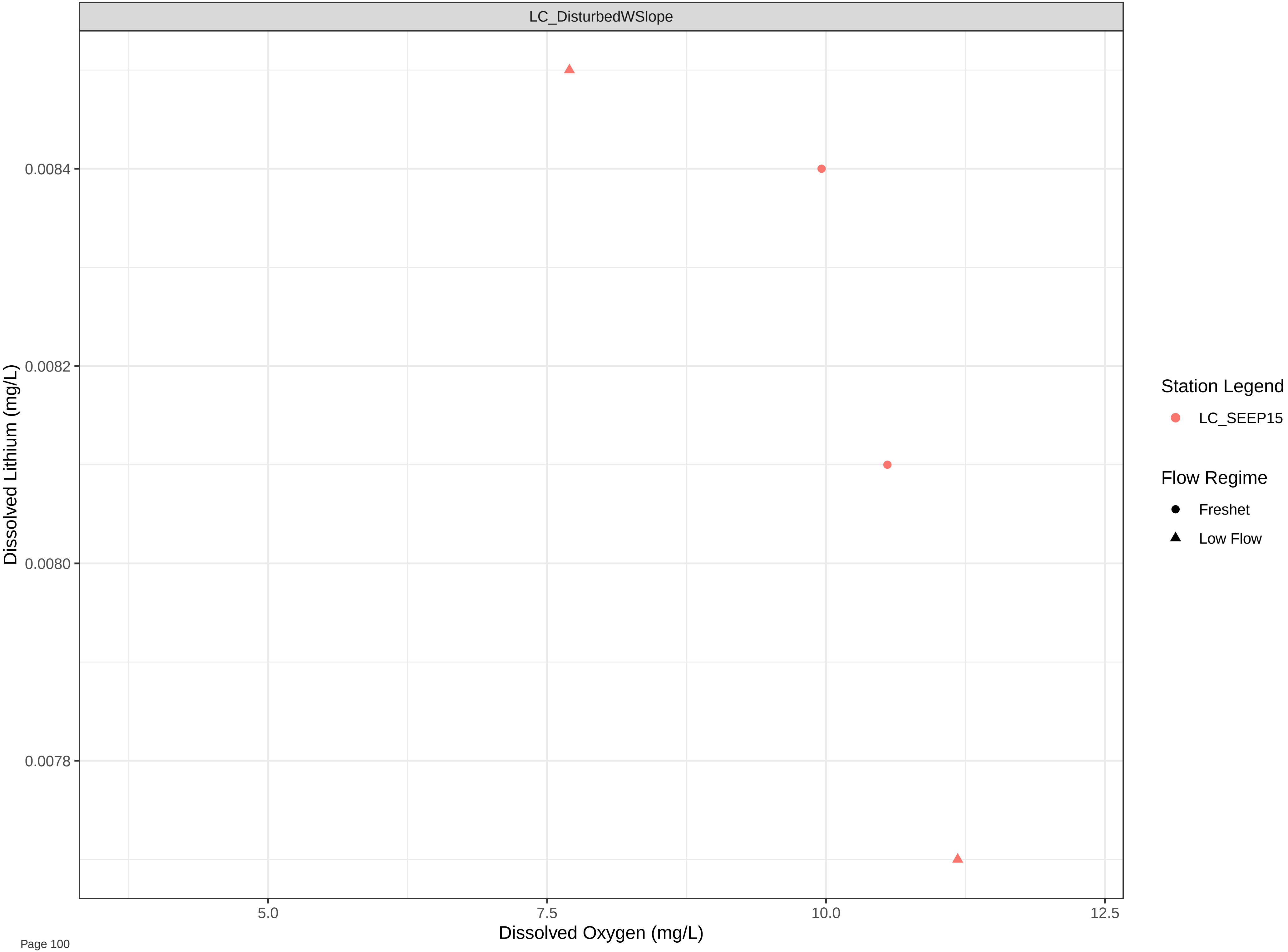

LC_MAXAM
0.050
0.025
0.000
−0.025
Dissolved Lead (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

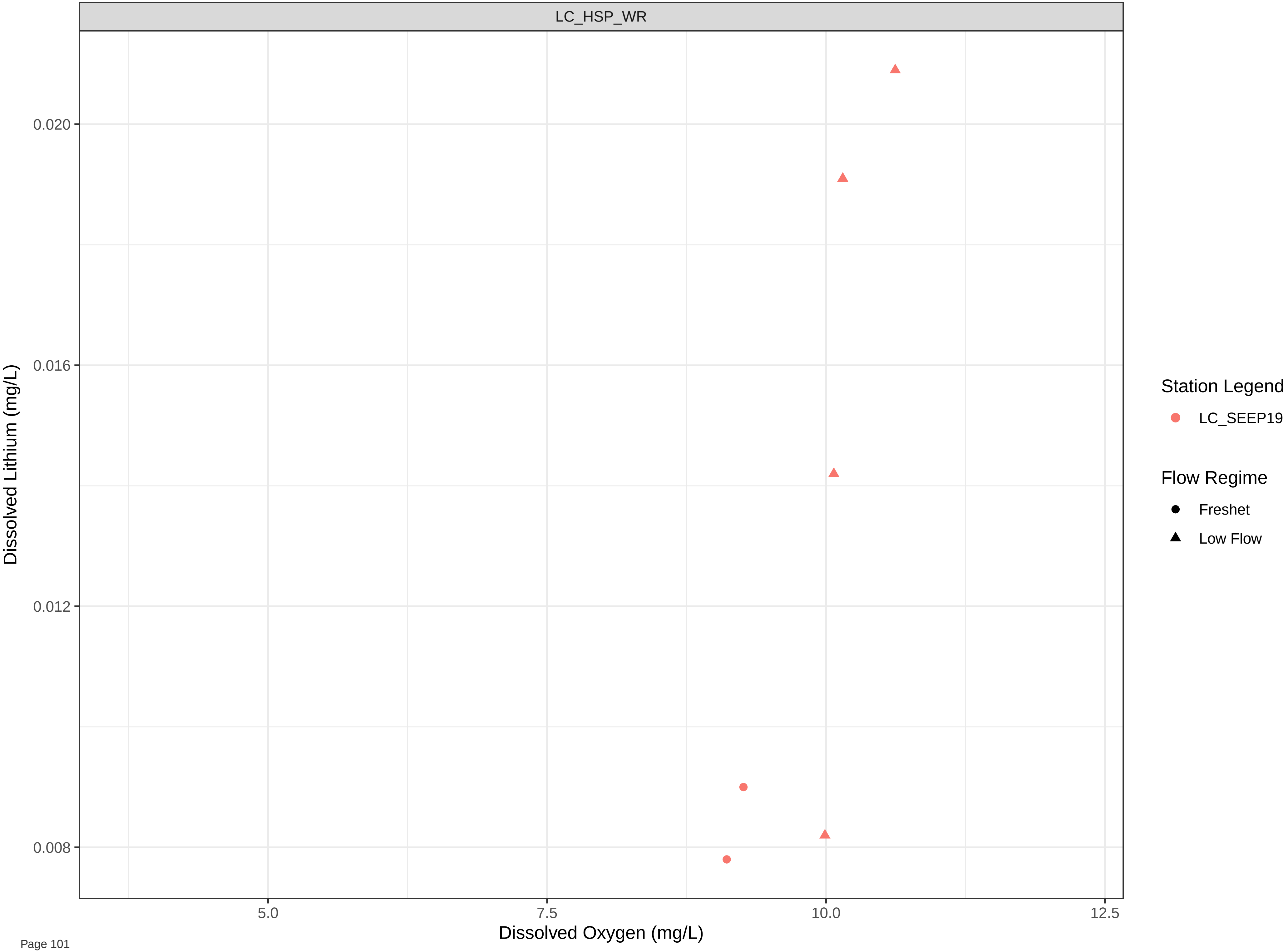

LC_MSA_WR
Dissolved Lead (mg/L)
0.050
0.025
0.000
−0.025
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

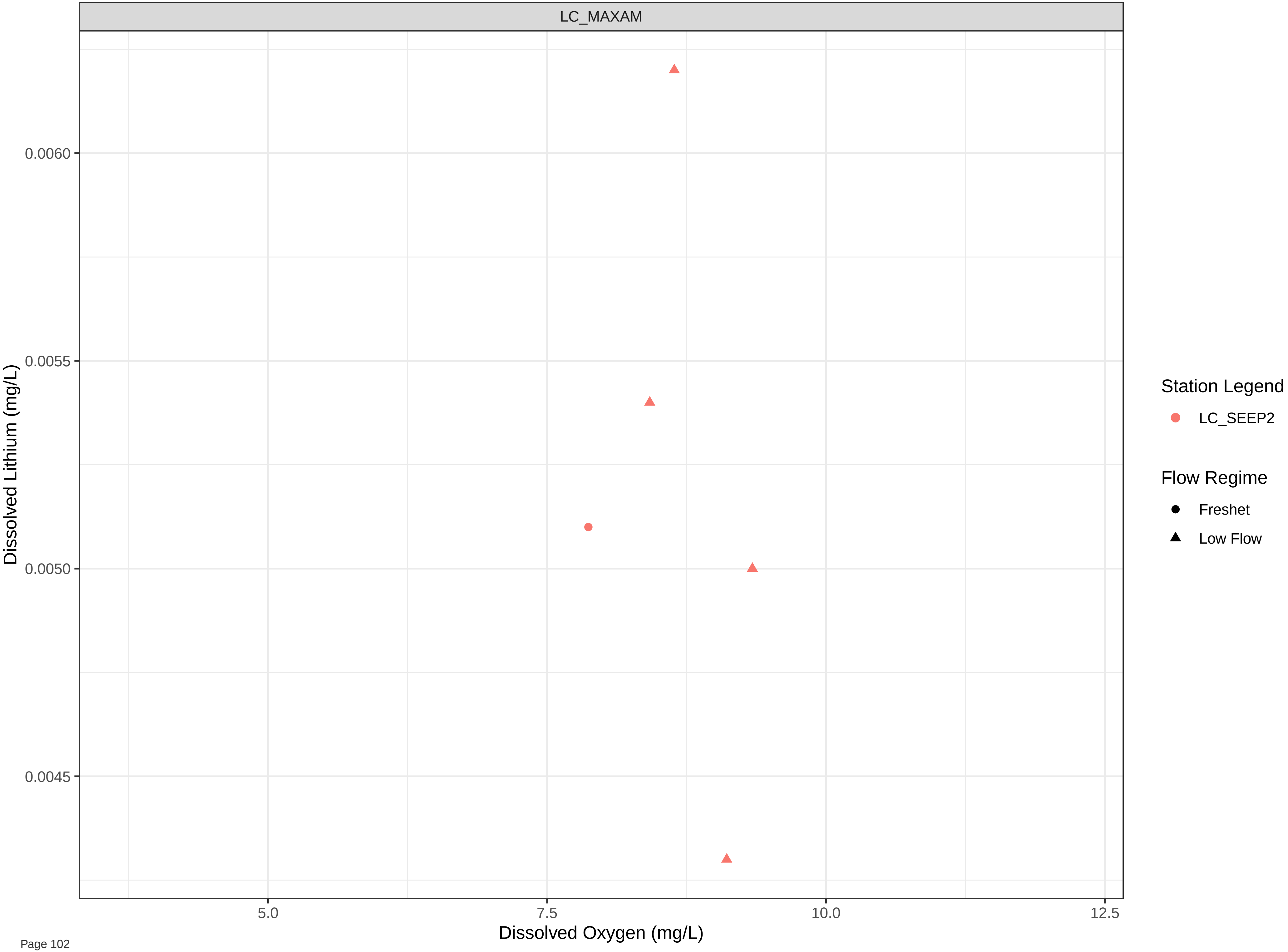

LC_PLANT
0.050
0.025
0.000
−0.025
Dissolved Lead (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

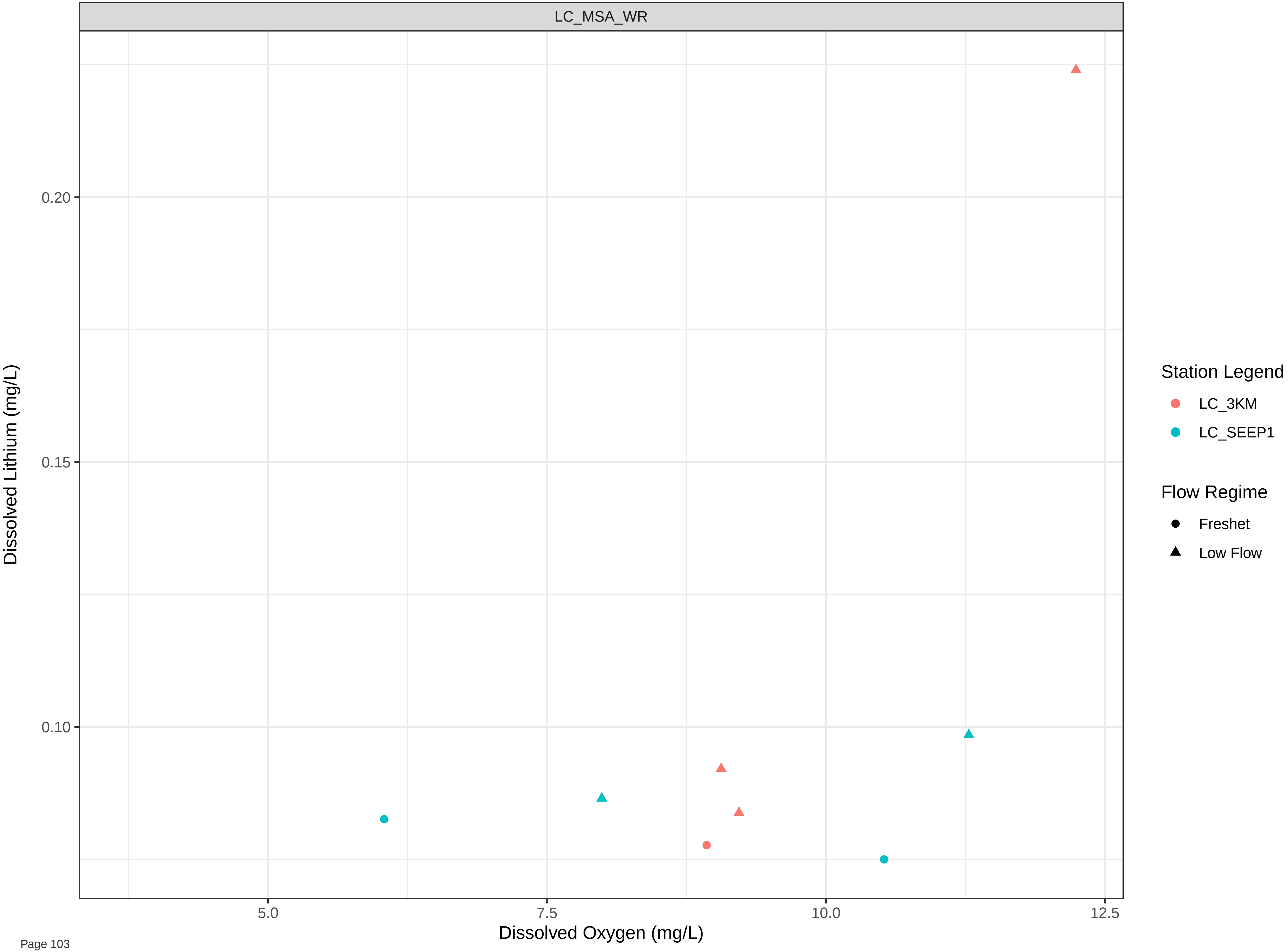

LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Lead (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

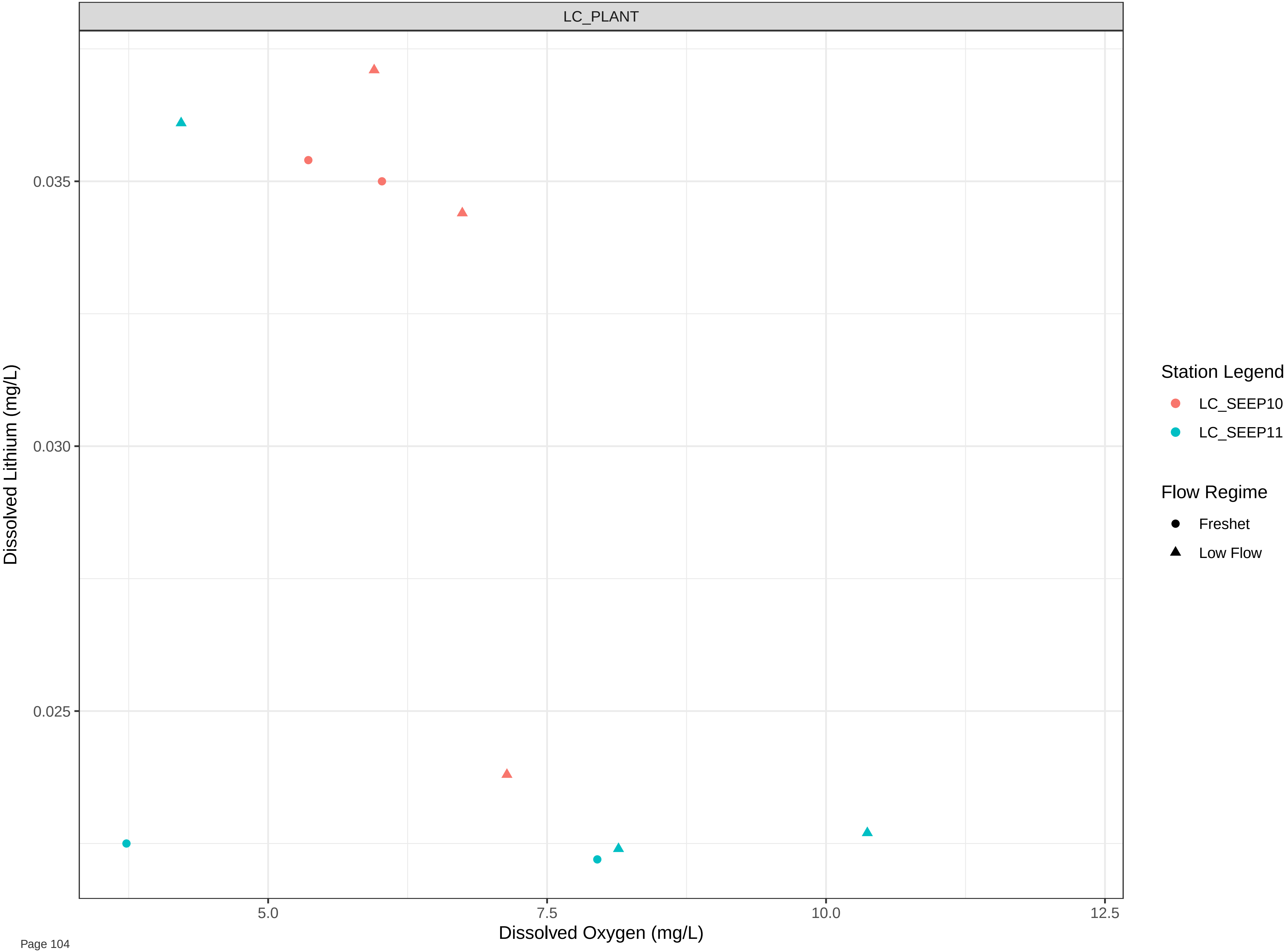

LC_DC_WR
Dissolved Lithium (mg/L)
0.04
0.02
0.00
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP14
● LC_SEEP8
● LC_UDHP
● LC_UDP1
Flow Regime
● Freshet
▲ Low Flow

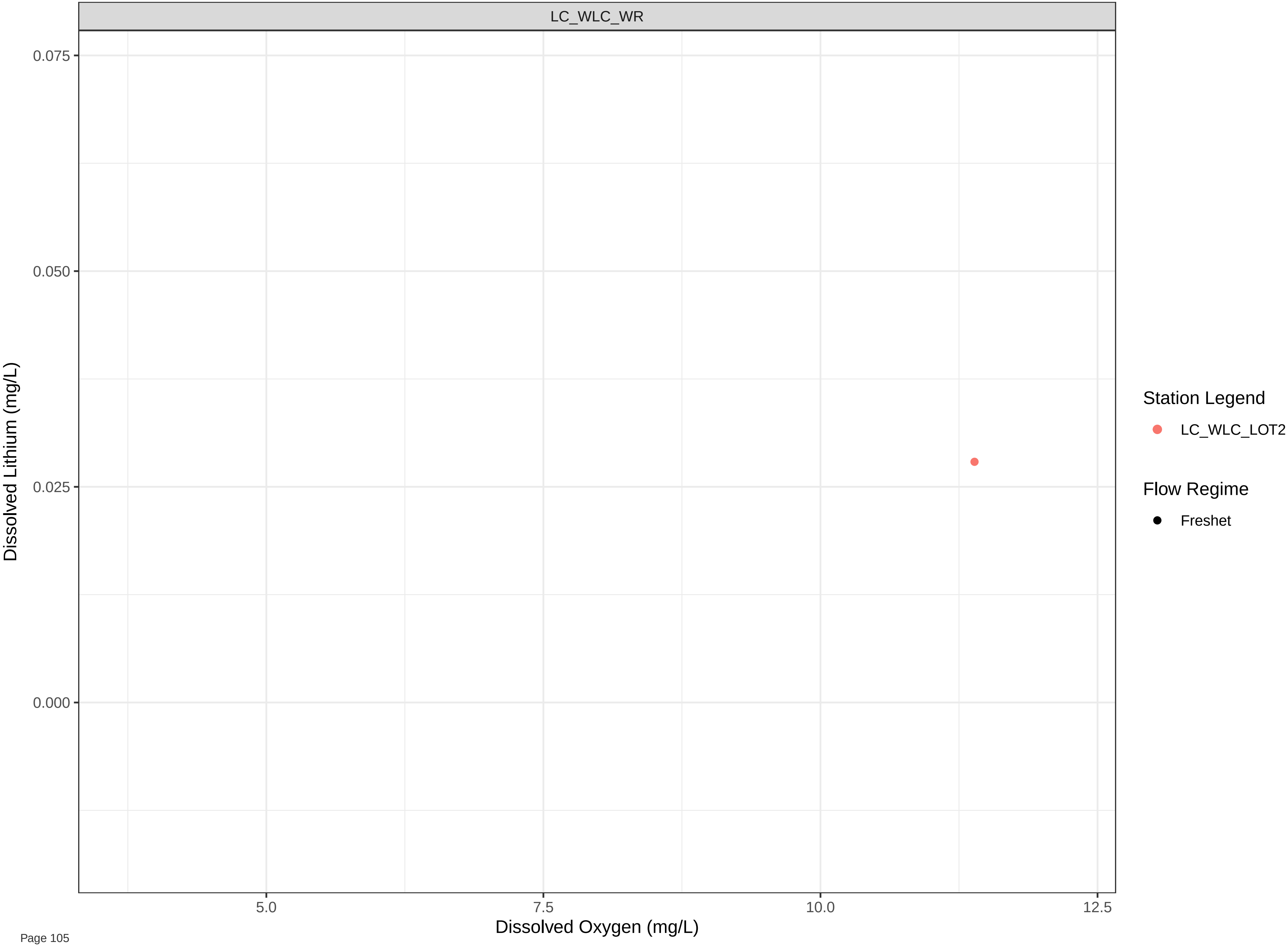

LC_DisturbedWSlope
Dissolved Lithium (mg/L)
0.0084
0.0082
0.0080
0.0078
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow


LC_HSP_WR
Dissolved Lithium (mg/L)
0.020
0.016
0.012
0.008
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

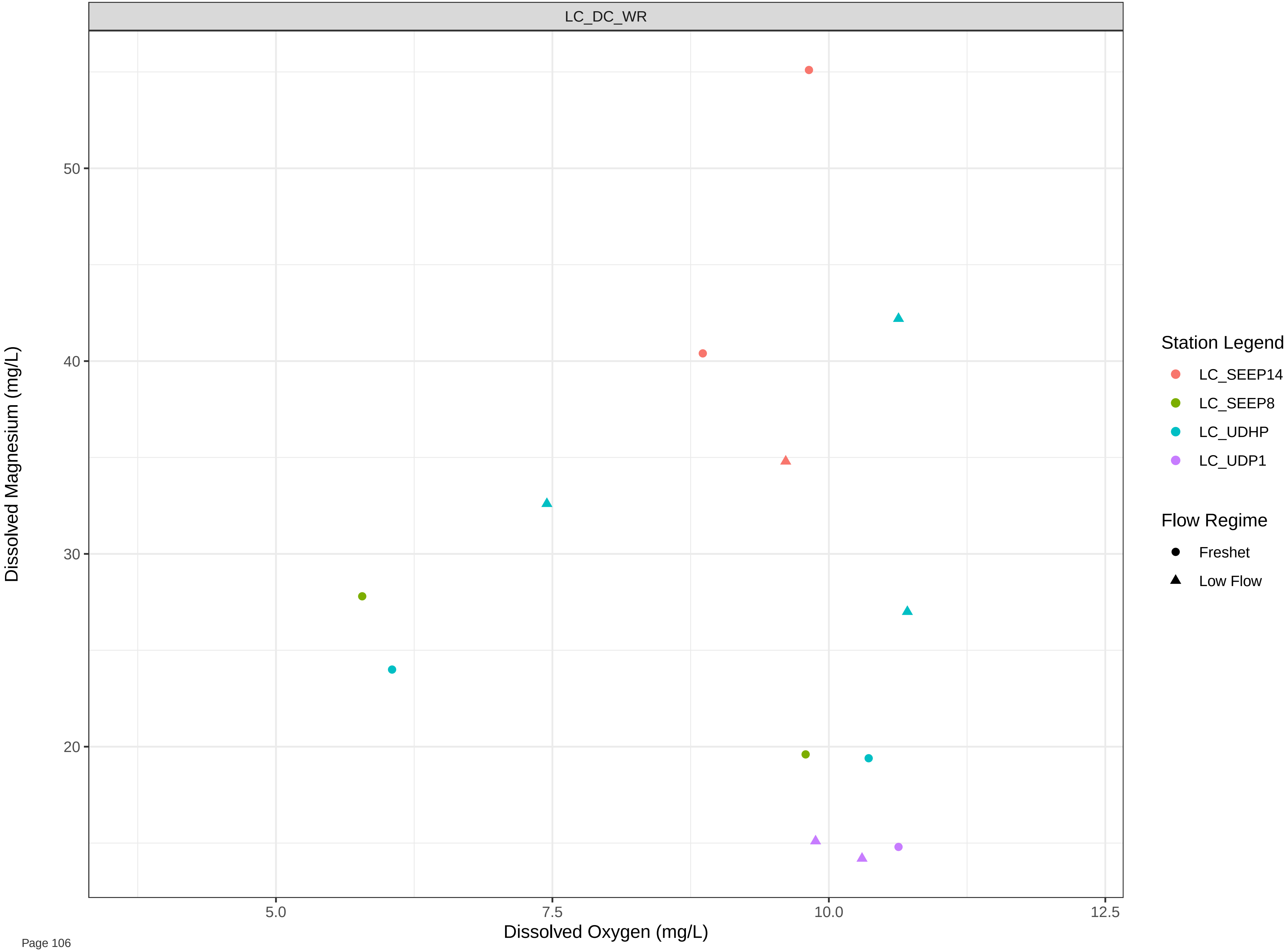

LC_MAXAM
Dissolved Lithium (mg/L)
0.0060
0.0055
0.0050
0.0045
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

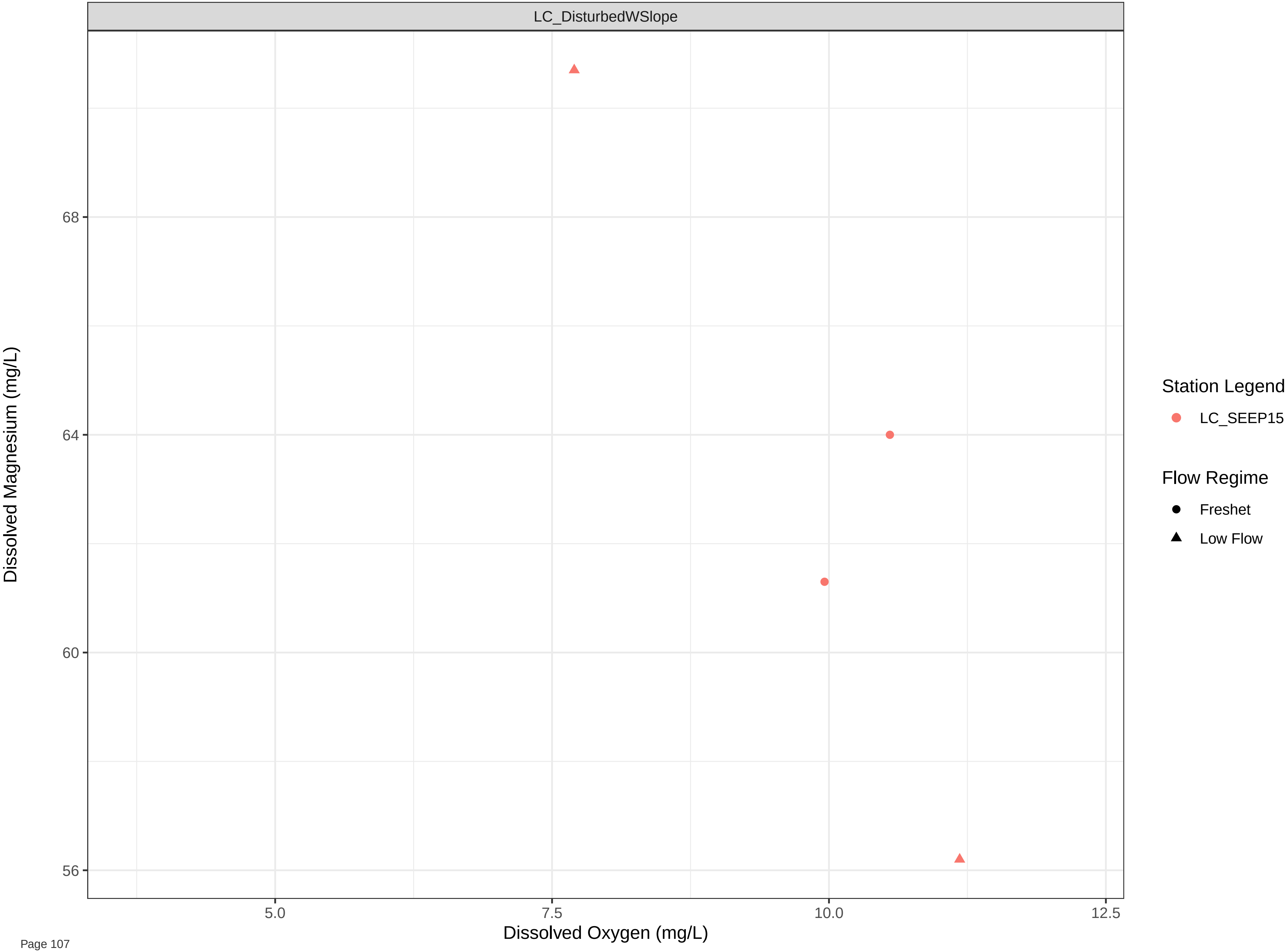

LC_MSA_WR
Dissolved Lithium (mg/L)
0.20
0.15
0.10
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

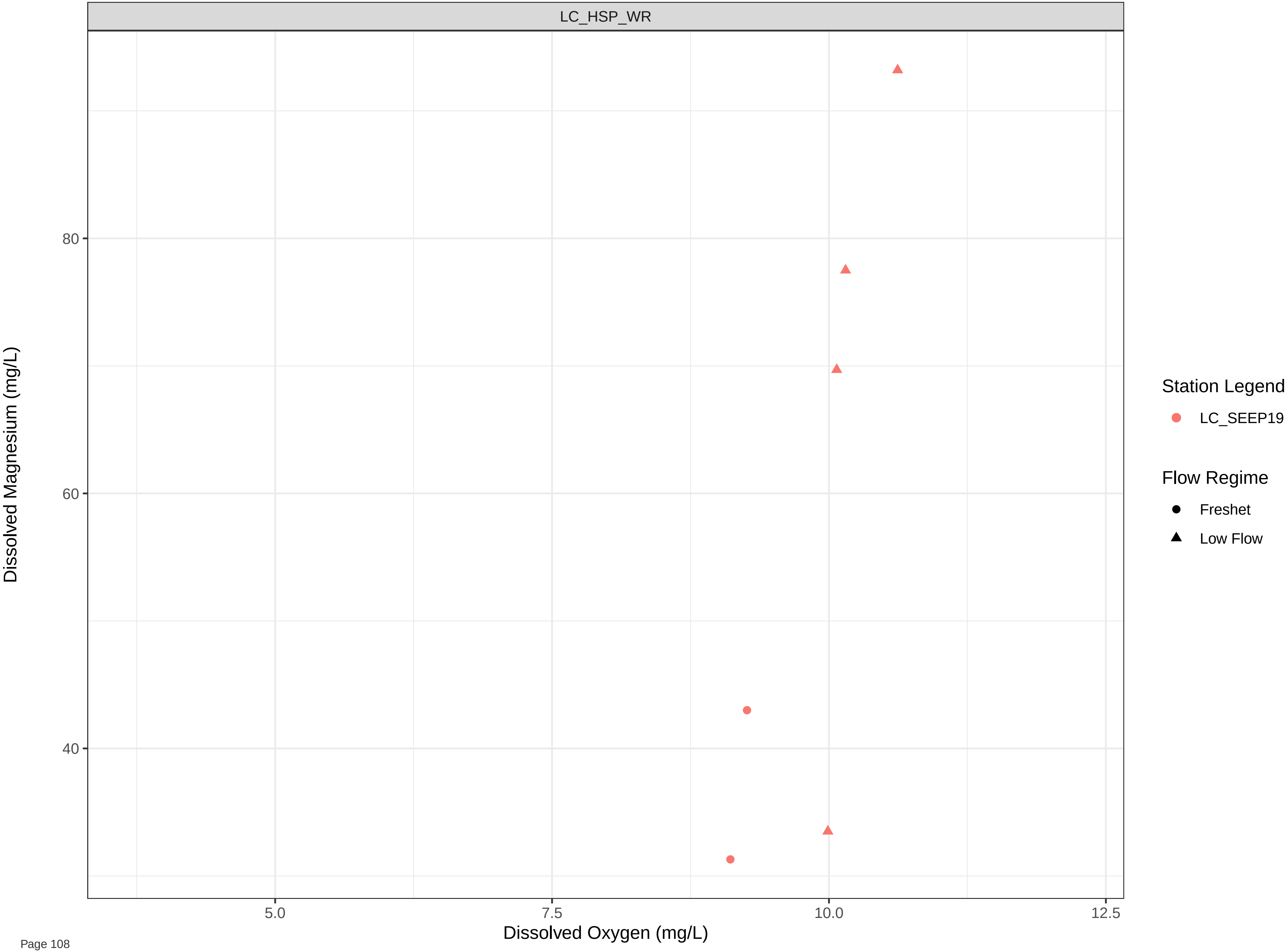

LC_PLANT
Dissolved Lithium (mg/L)
0.035
0.030
0.025
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

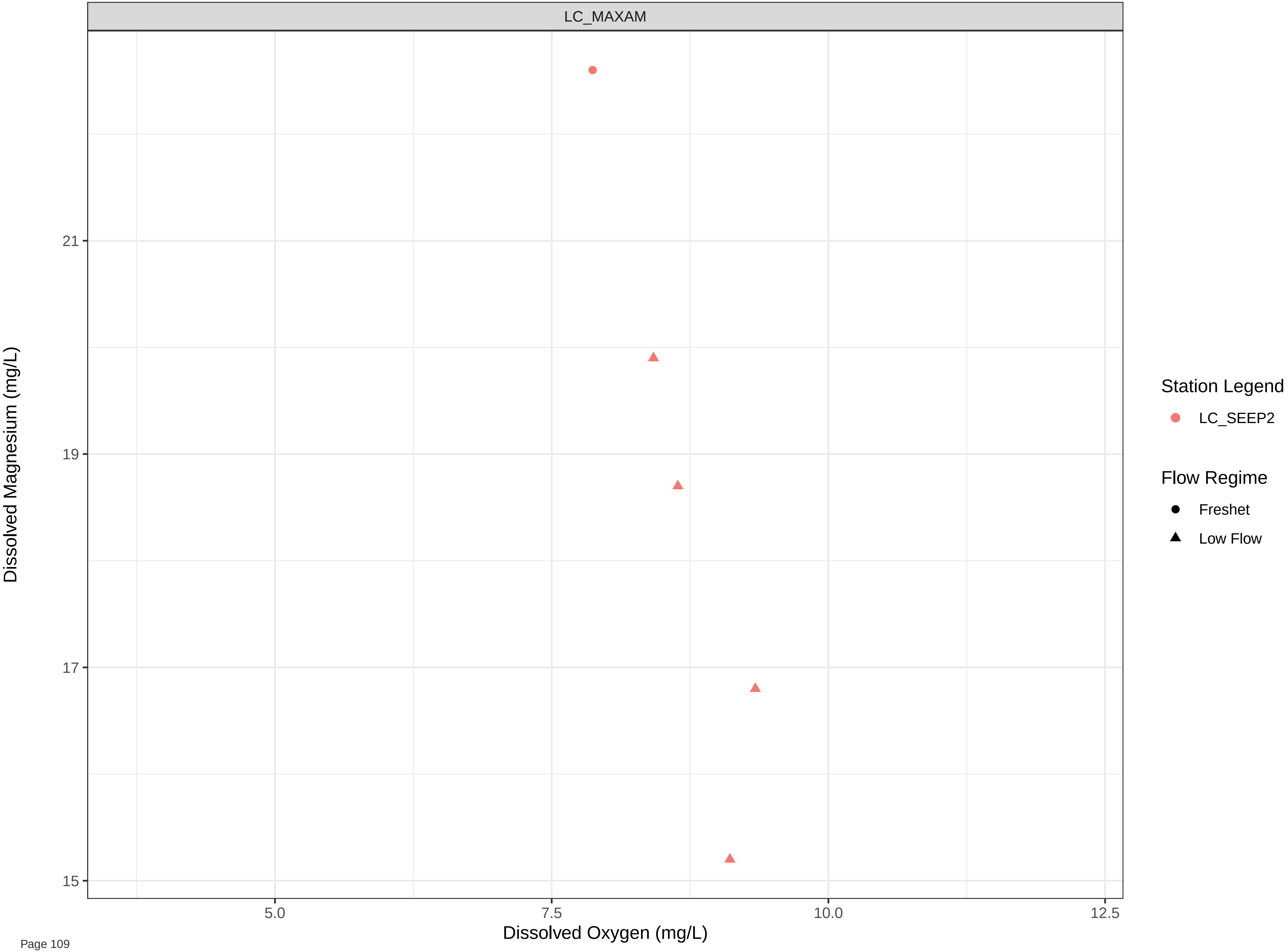


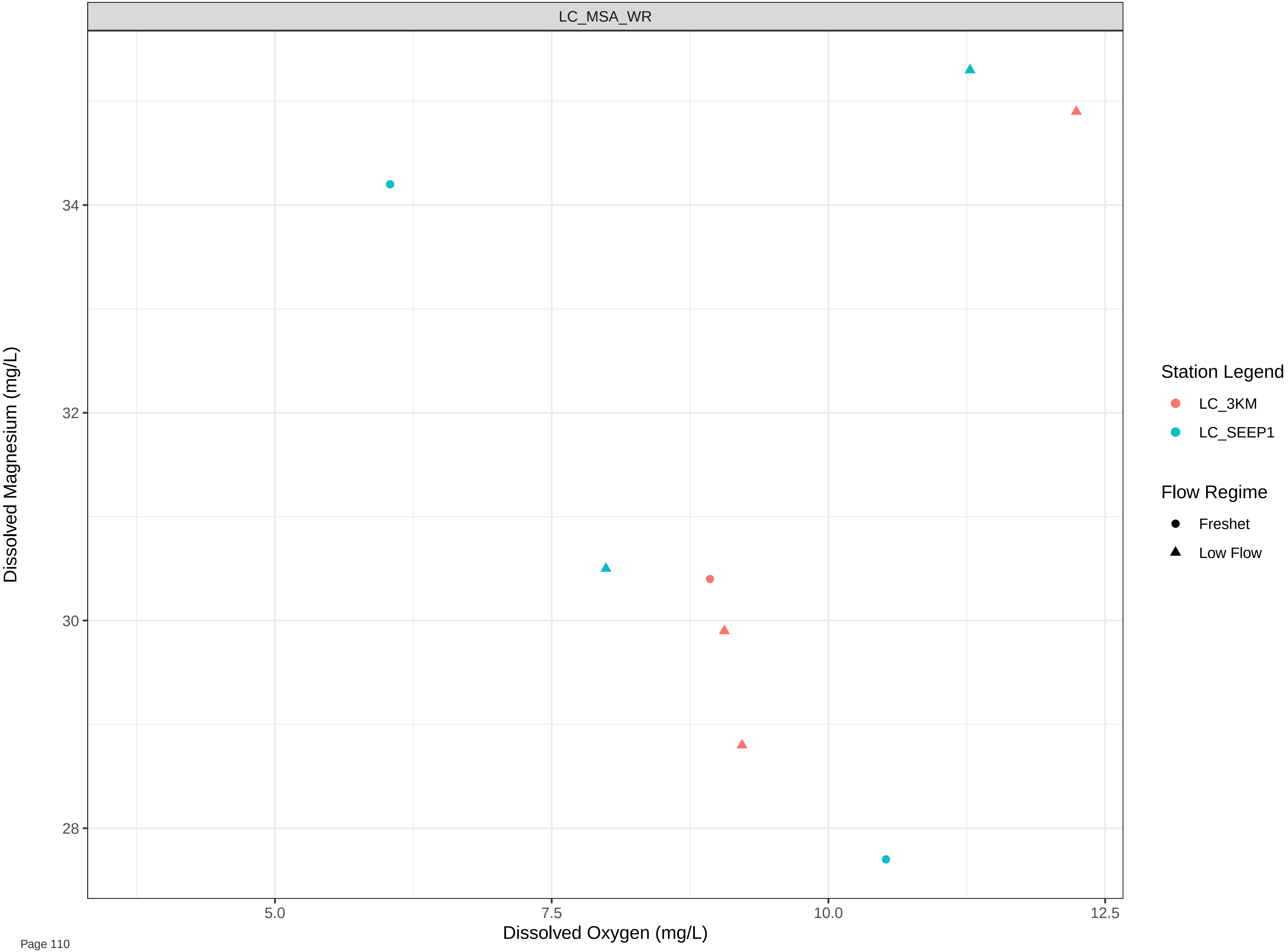
LC_WLC_WR
0.075
0.050
0.025
0.000
Dissolved Lithium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

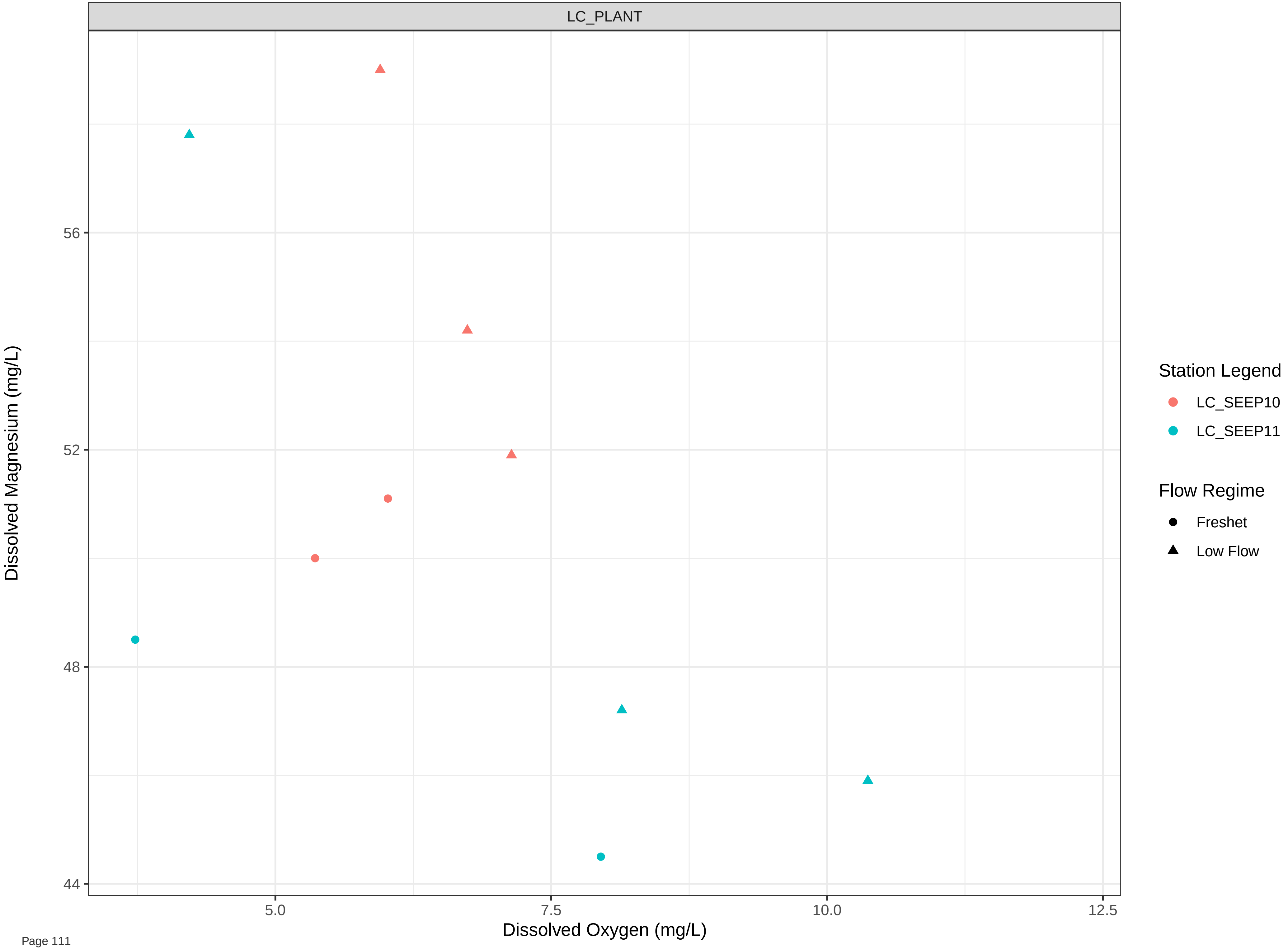

LC_DC_WR
Dissolved Magnesium (mg/L)
50
40
30
20
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

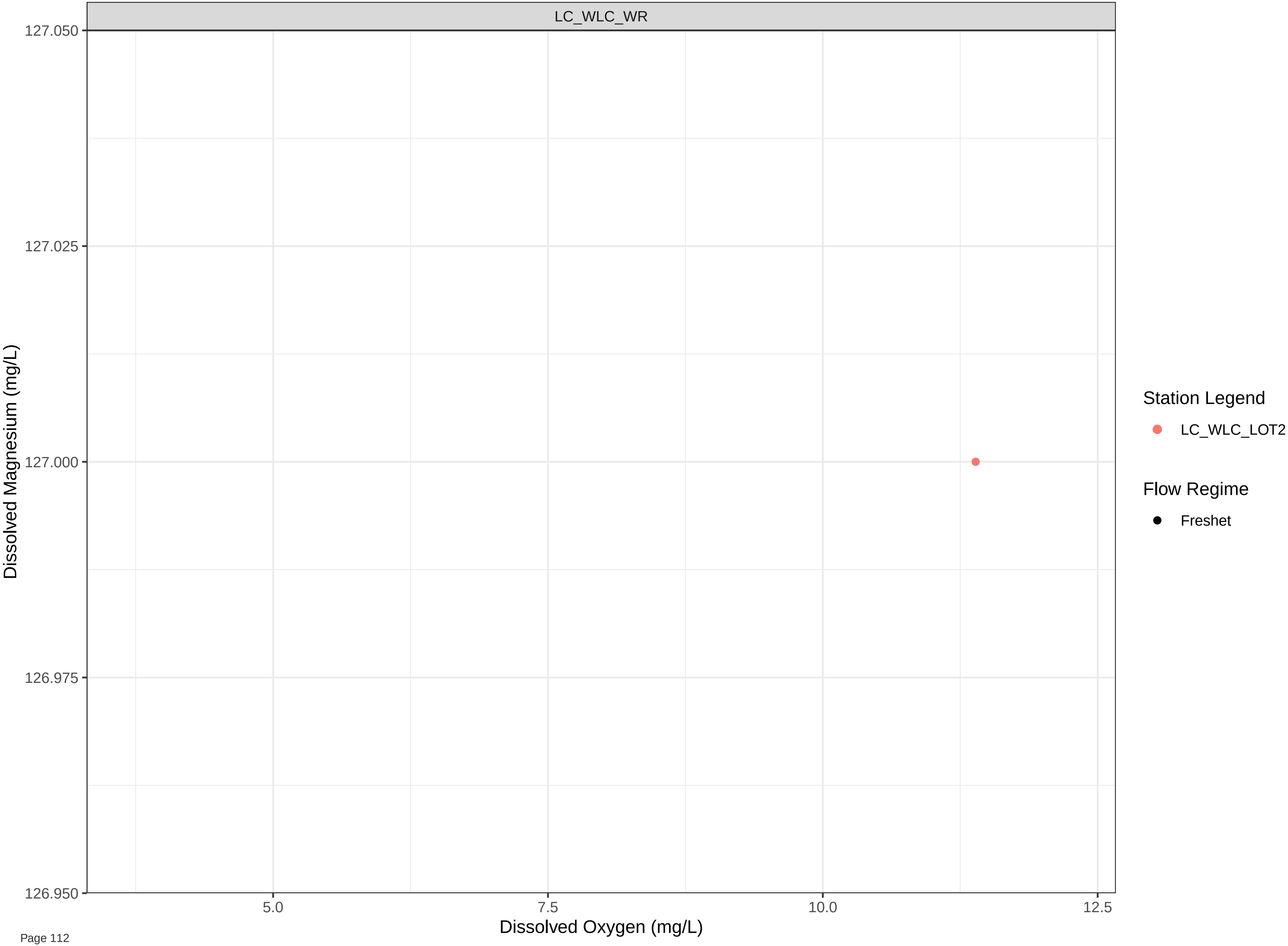

LC_DisturbedWSlope
Dissolved Magnesium (mg/L)
68
64
60
56
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

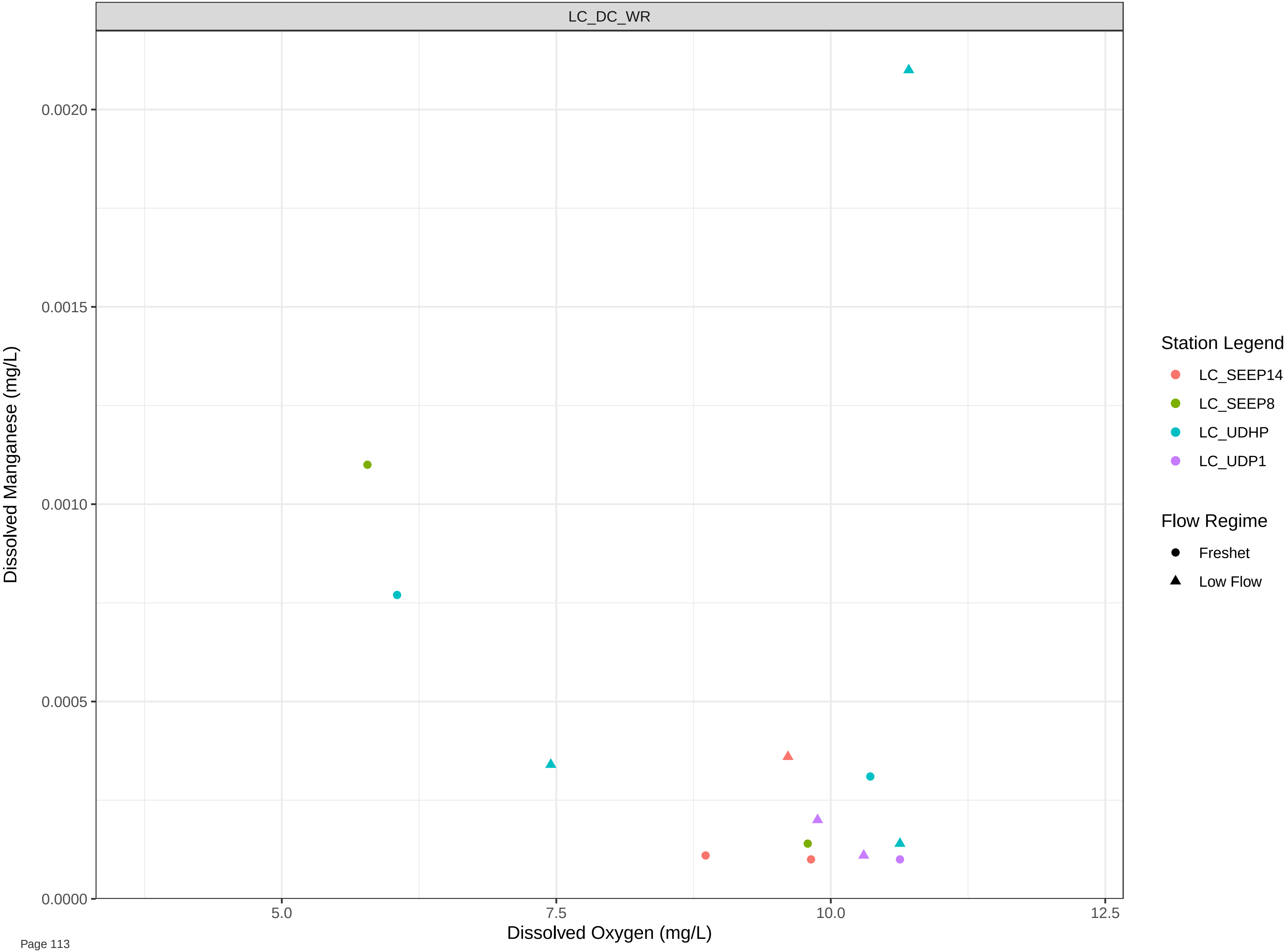

LC_HSP_WR
Dissolved Magnesium (mg/L)
80
60
40
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

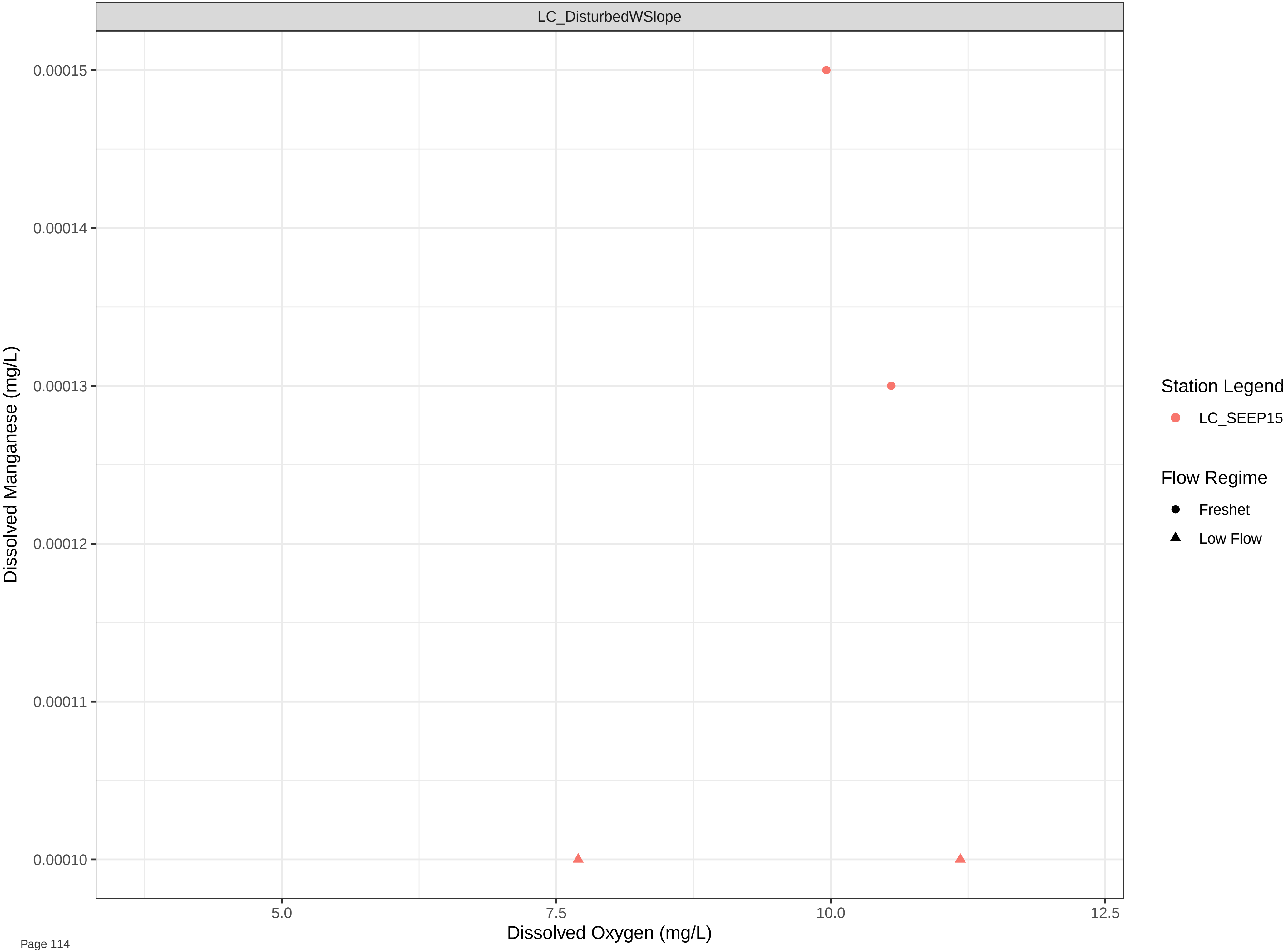

LC_MAXAM
Dissolved Magnesium (mg/L)
21
19
17
15
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

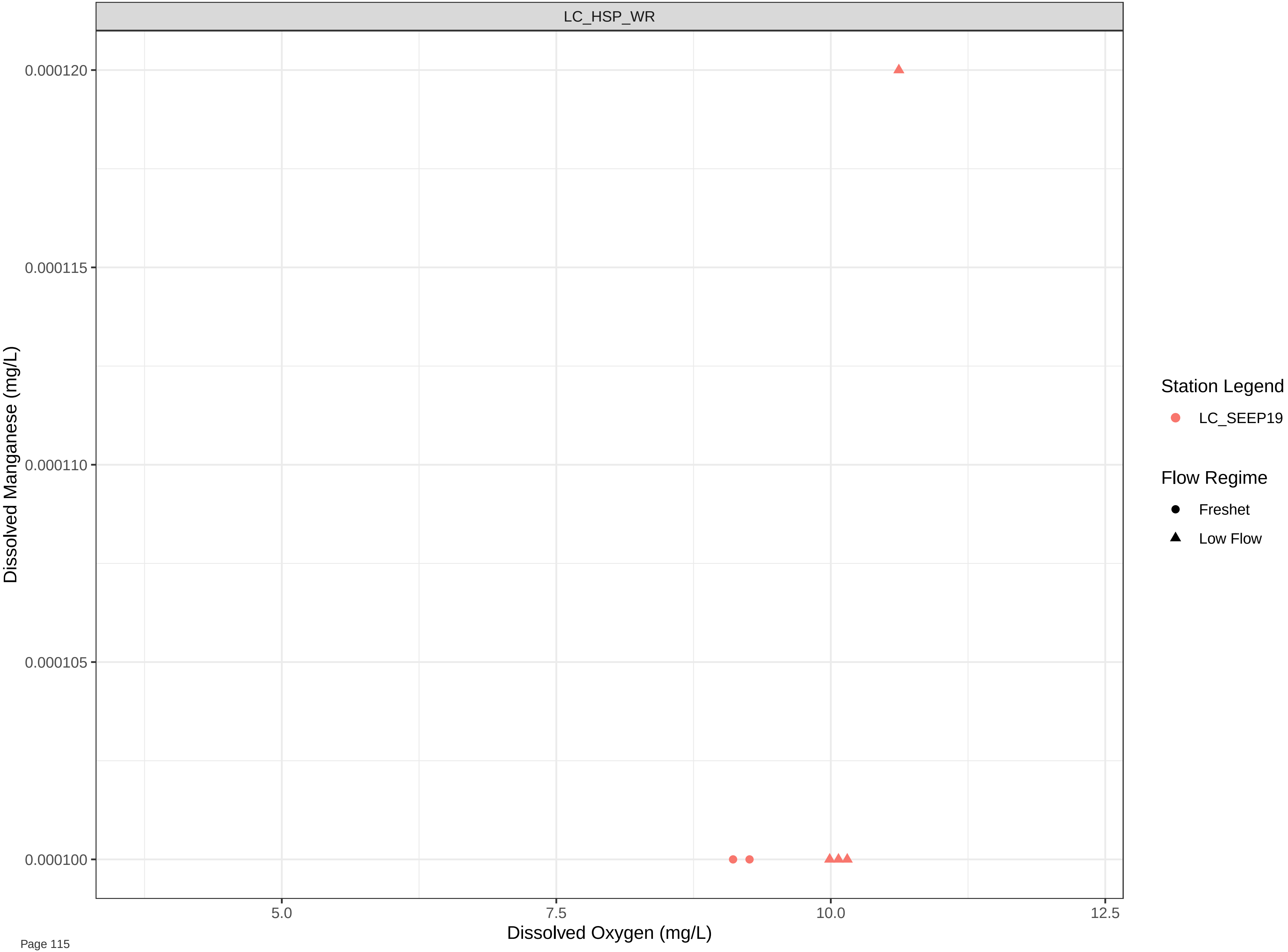

LC_MSA_WR
Dissolved Magnesium (mg/L)
34
32
30
28
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

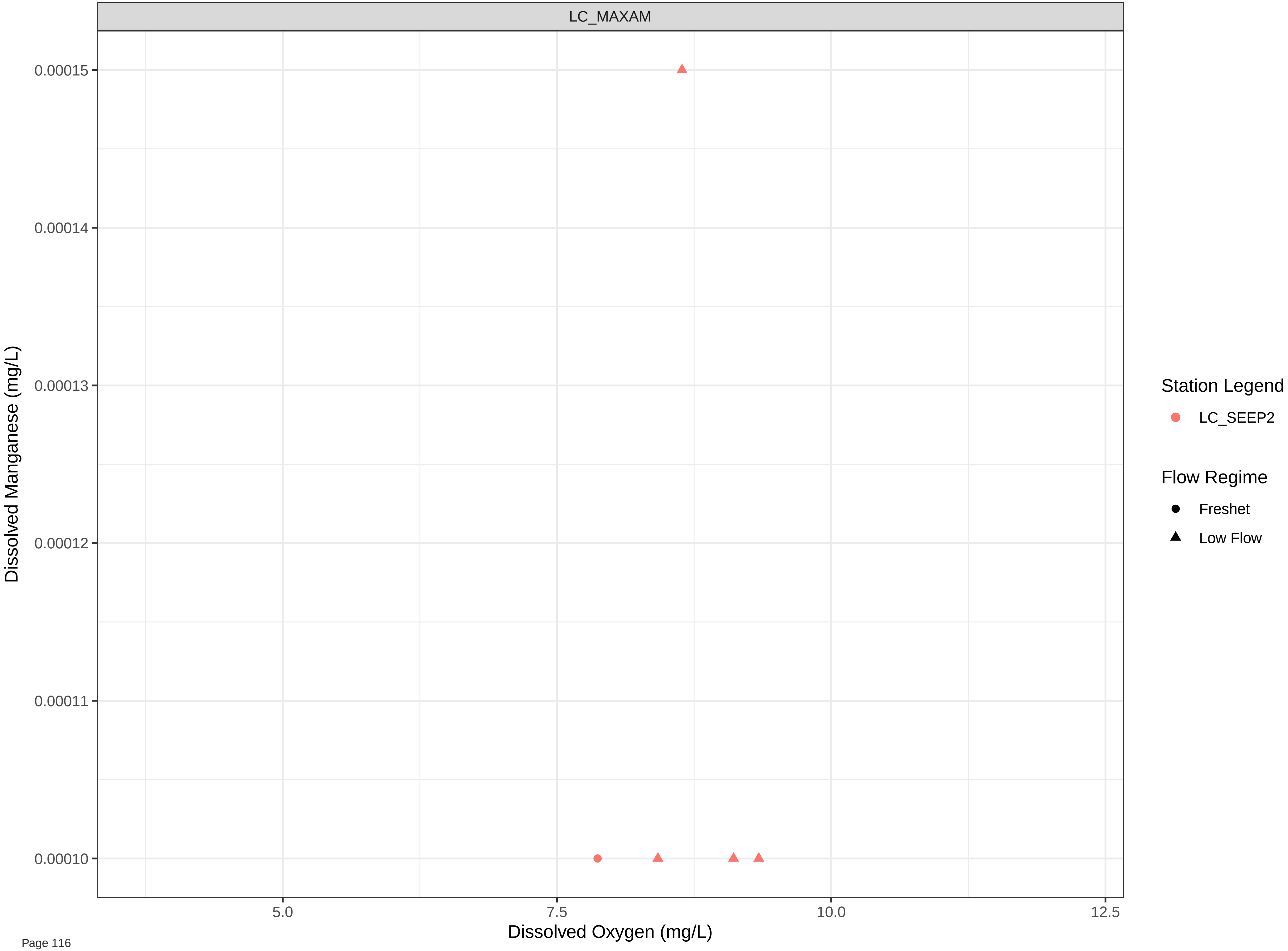

LC_PLANT
Dissolved Magnesium (mg/L)
56
52
48
44
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

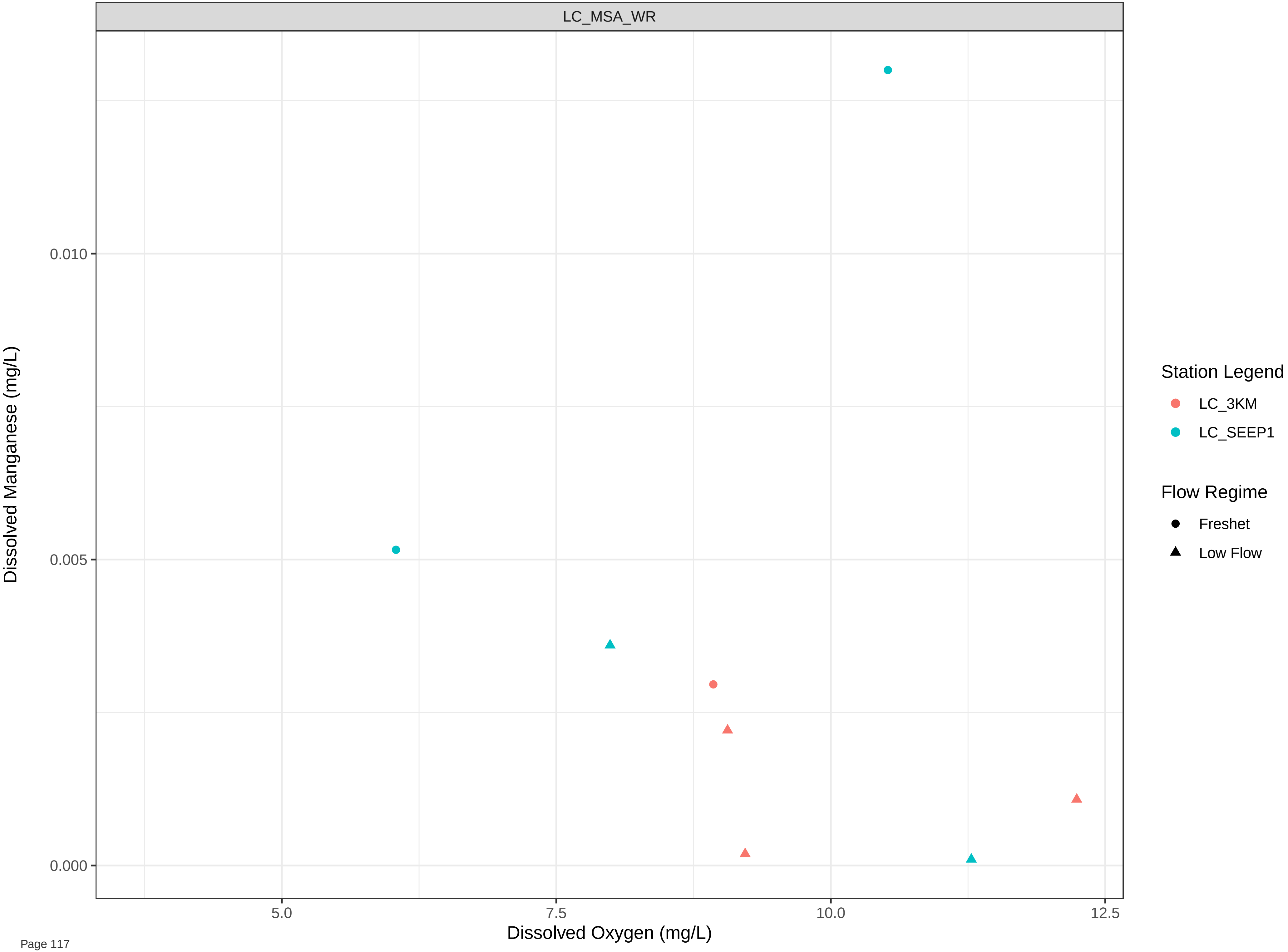

LC_WLC_WR
127.050
127.025
127.000
126.975
126.950
Dissolved Magnesium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

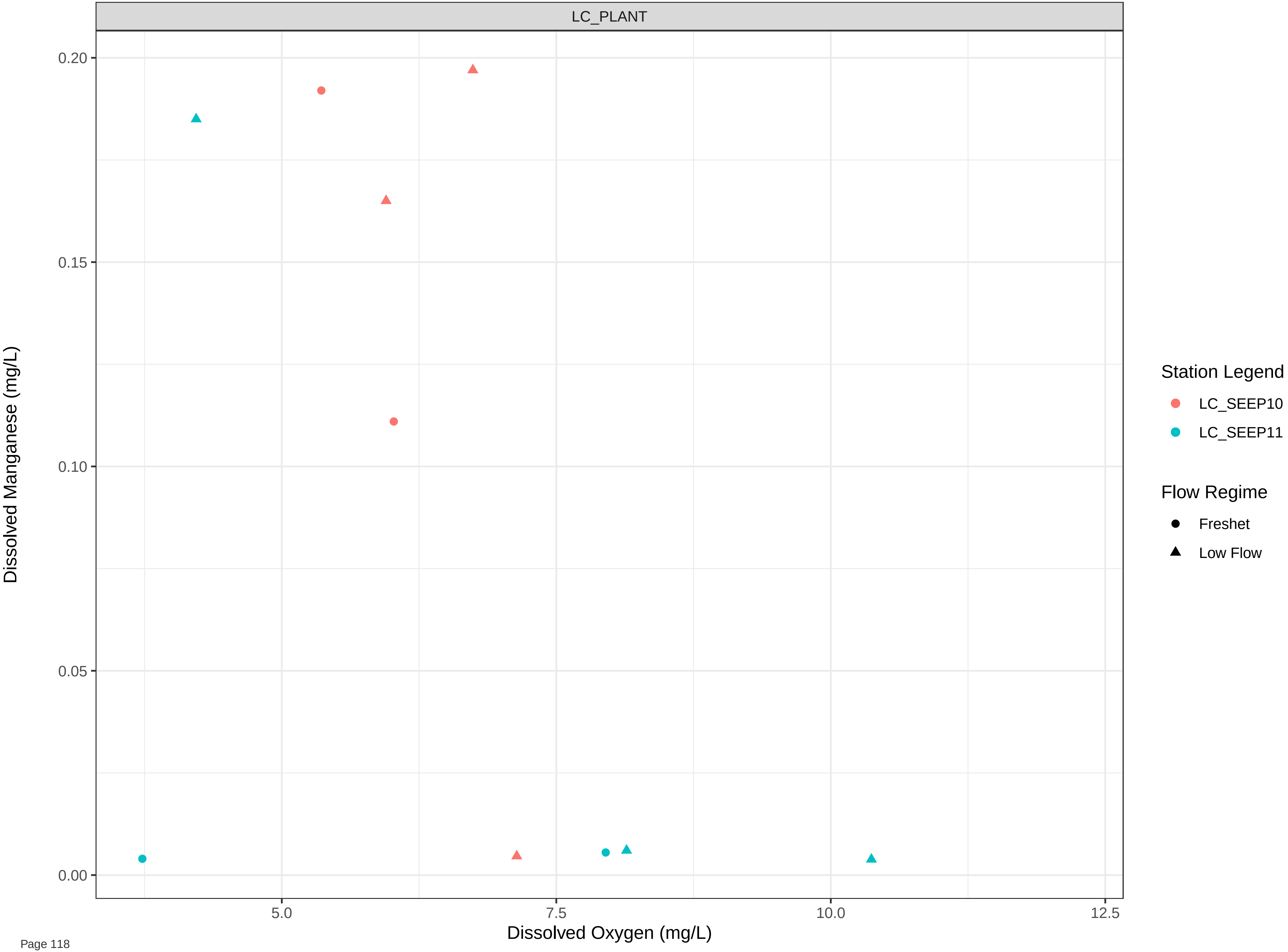

LC_DC_WR
Dissolved Manganese (mg/L)
0.0020
0.0015
0.0010
0.0005
0.0000
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

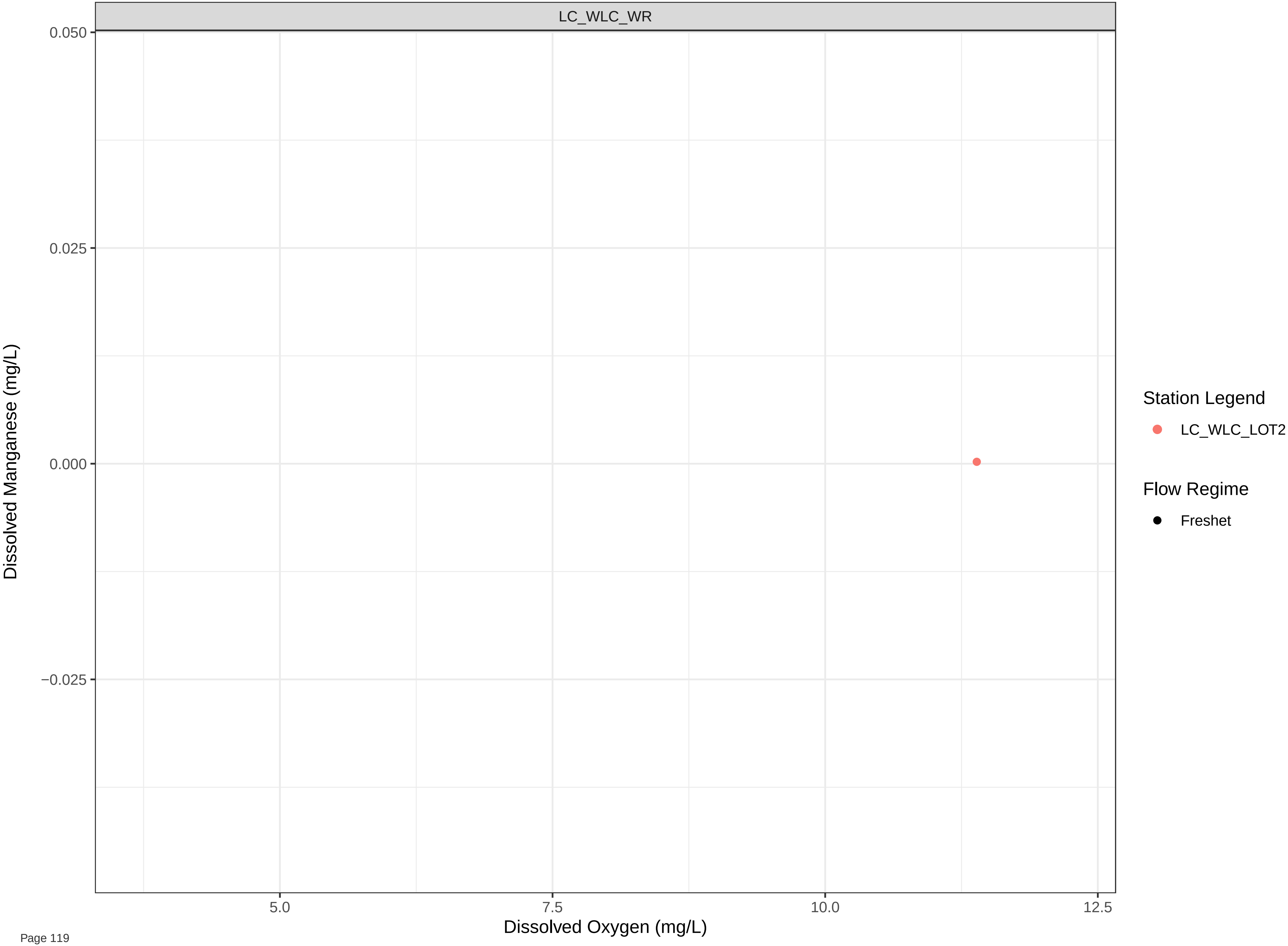

LC_DisturbedWSlope
Dissolved Manganese (mg/L)
0.00015
0.00014
0.00013
0.00012
0.00011
0.00010
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

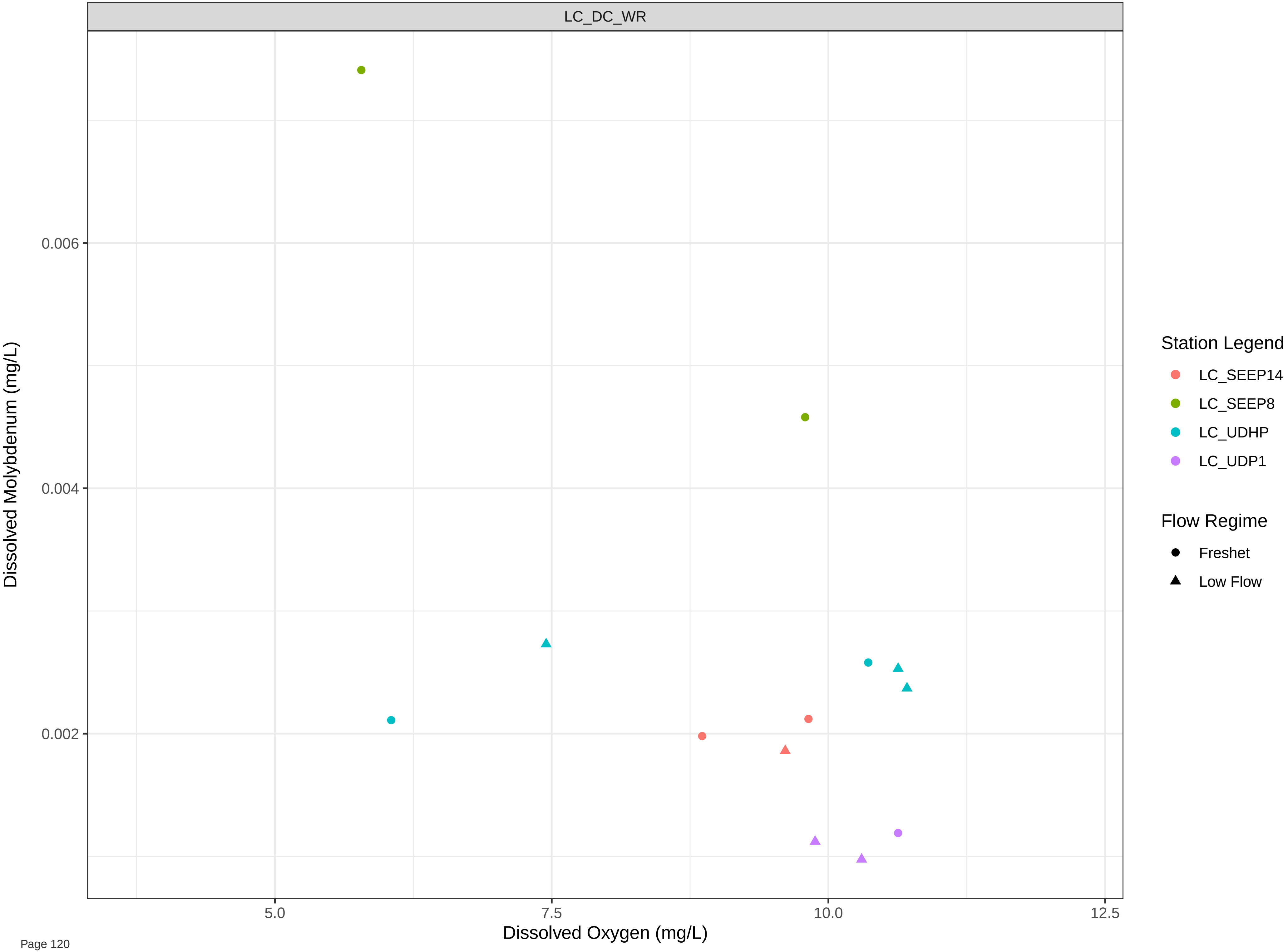

LC_HSP_WR
0.000120
0.000115
0.000110
0.000105
0.000100
Dissolved Manganese (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

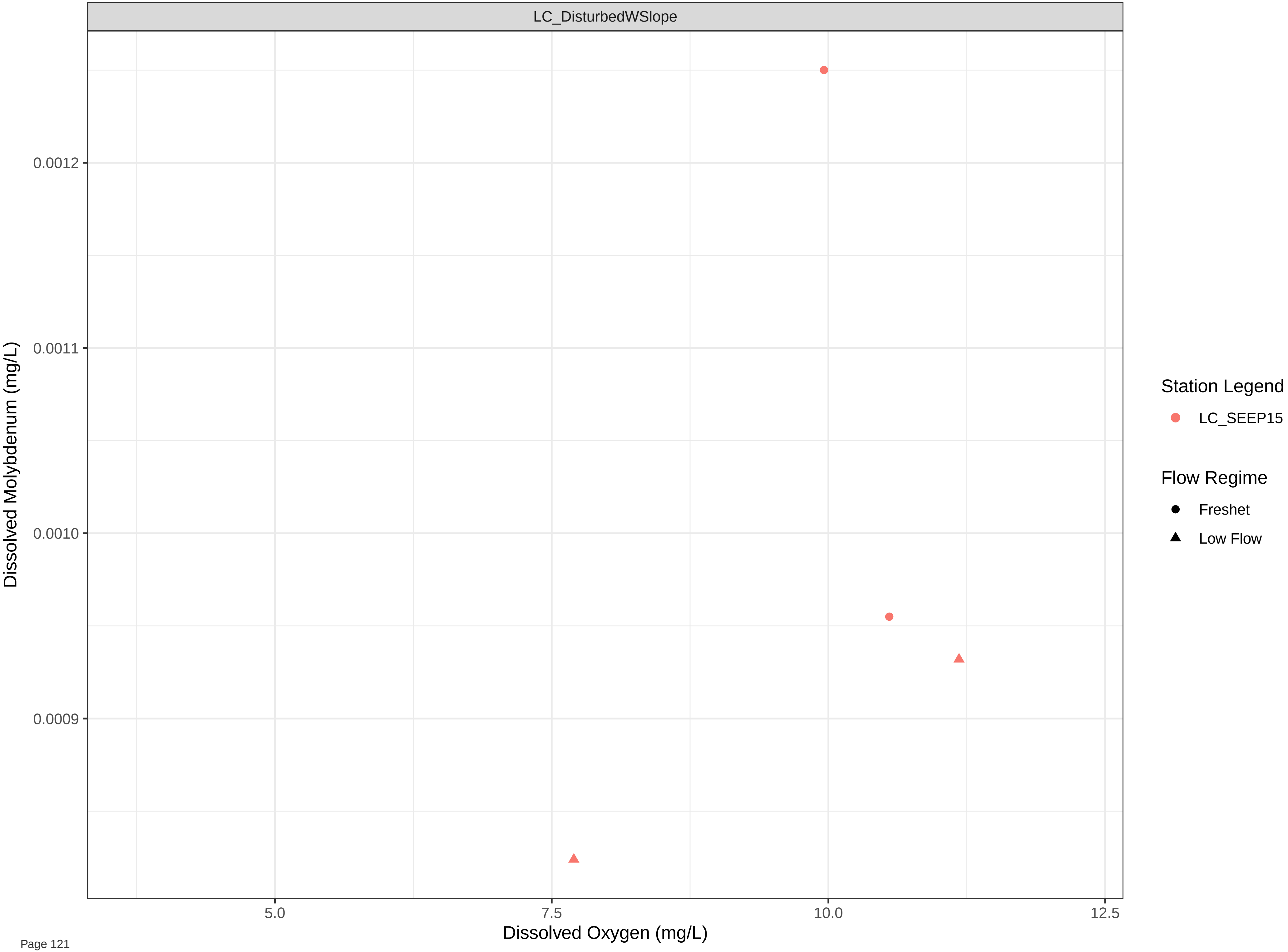

LC_MAXAM
Dissolved Manganese (mg/L)
0.00015
0.00014
0.00013
0.00012
0.00011
0.00010
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow

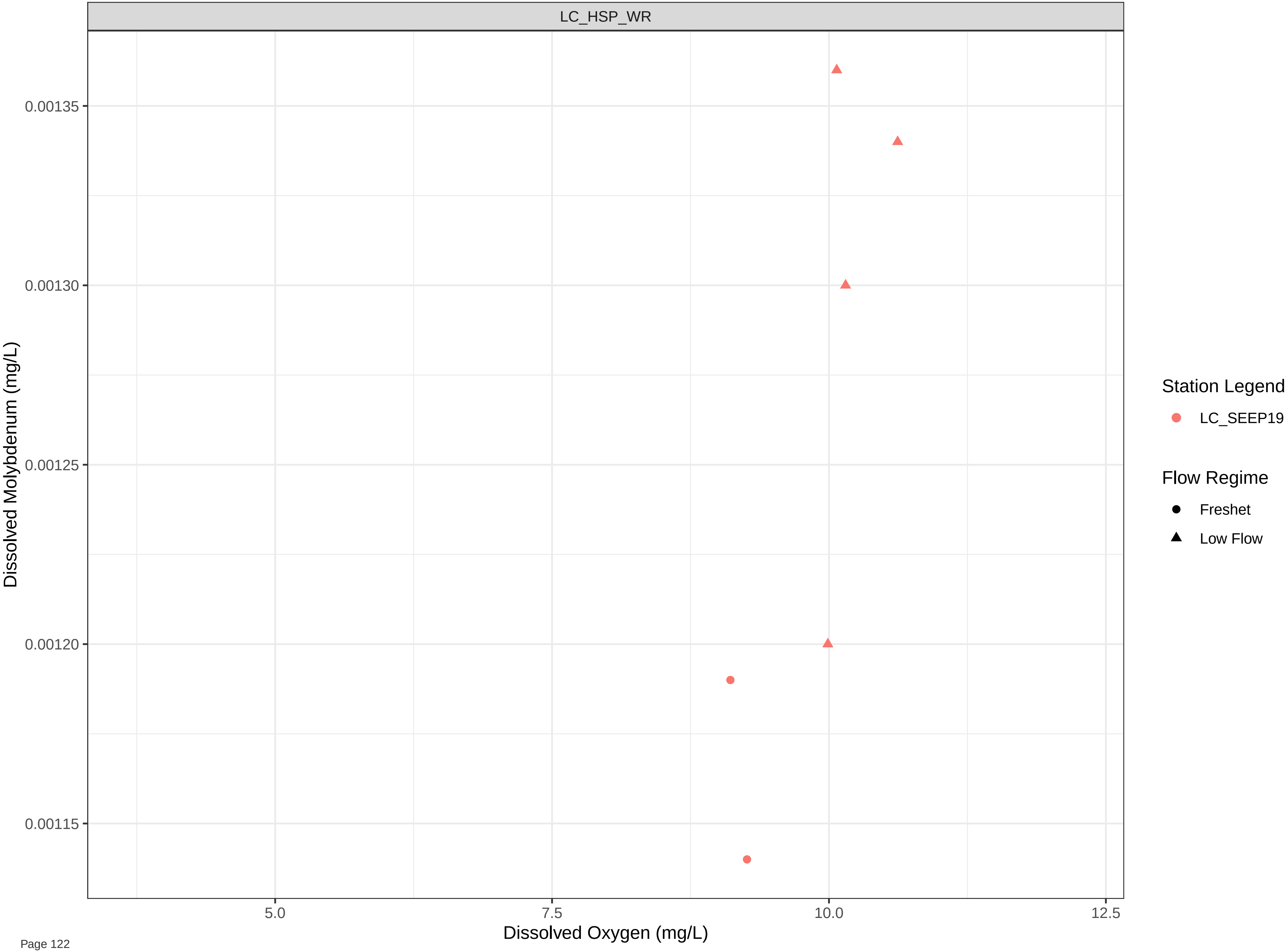

LC_MSA_WR
Dissolved Manganese (mg/L)
0.010
0.005
0.000
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

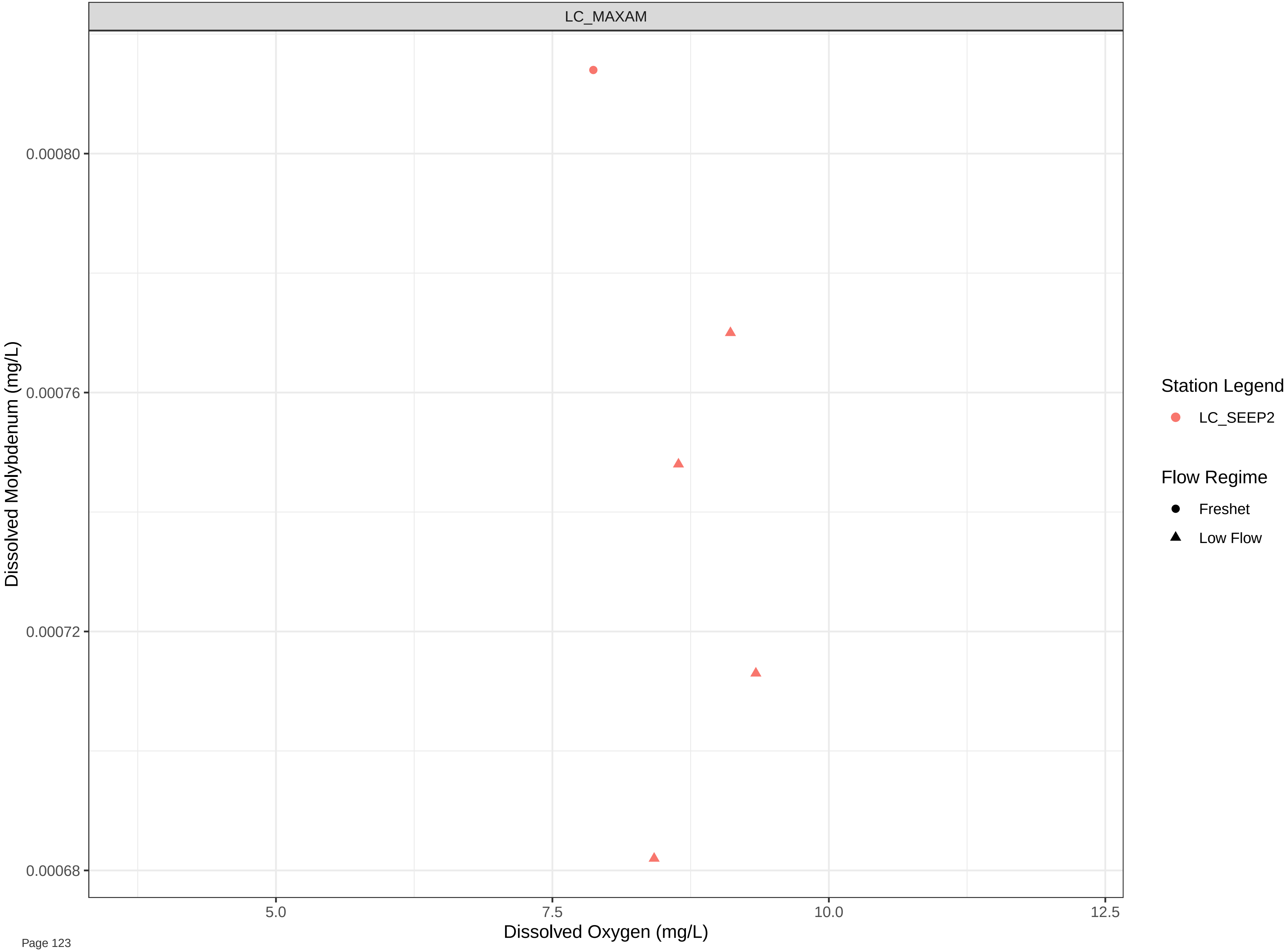

LC_PLANT
Dissolved Manganese (mg/L)
0.20
0.15
0.10
0.05
0.00
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

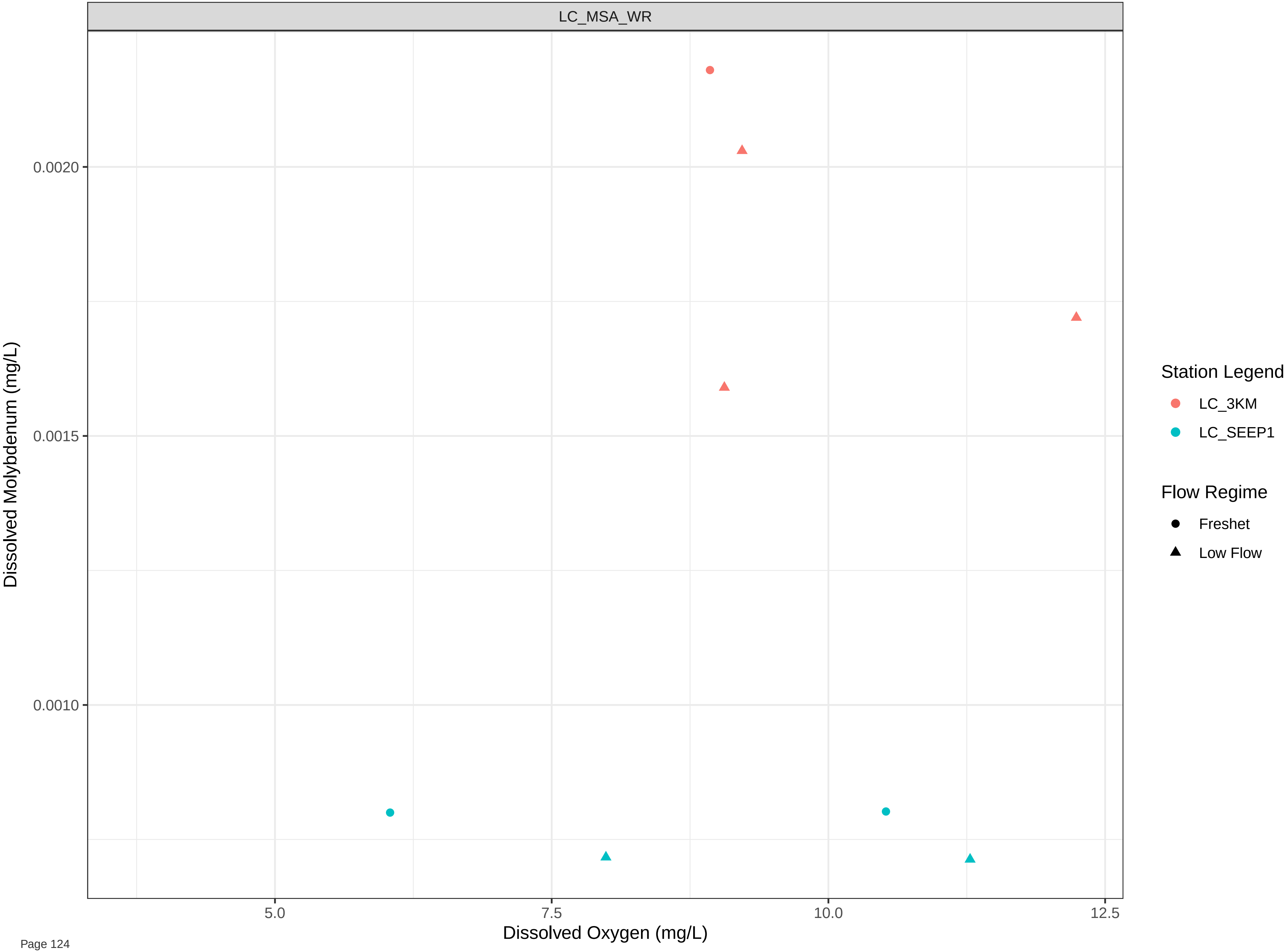

LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Manganese (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet

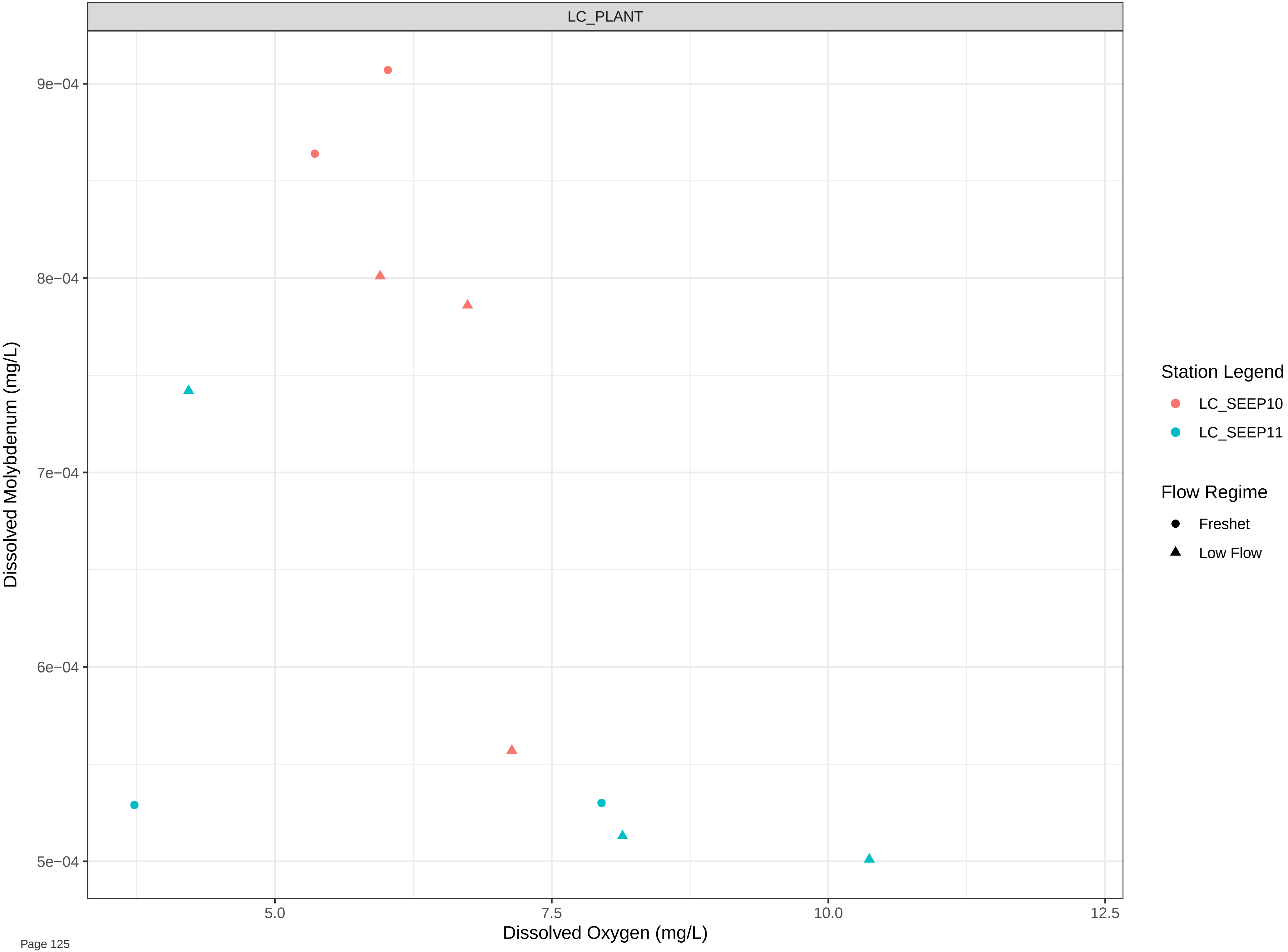

LC_DC_WR
Dissolved Molybdenum (mg/L)
0.006
0.004
0.002
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

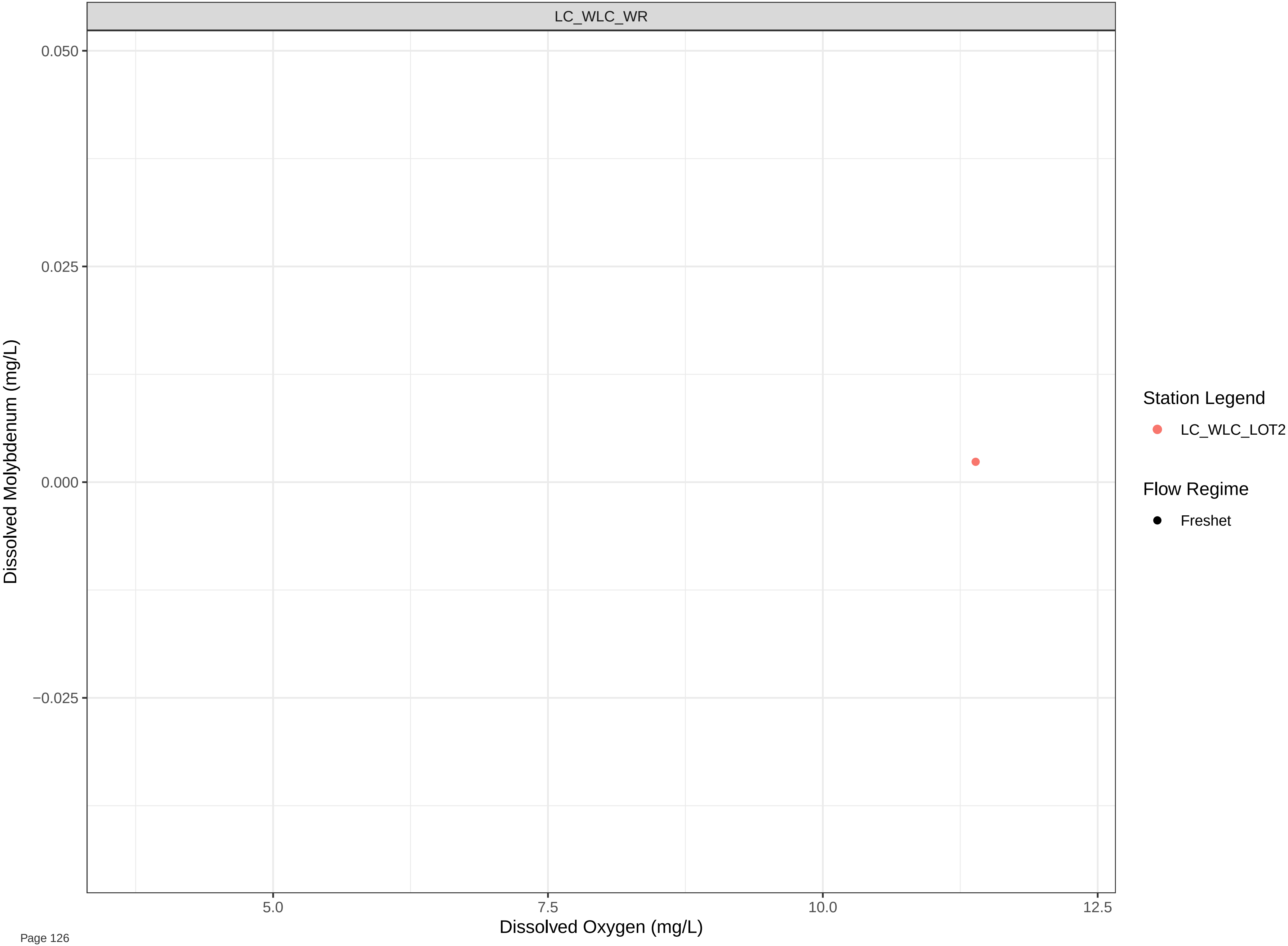

LC_DisturbedWSlope
Dissolved Molybdenum (mg/L)
0.0012
0.0011
0.0010
0.0009
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

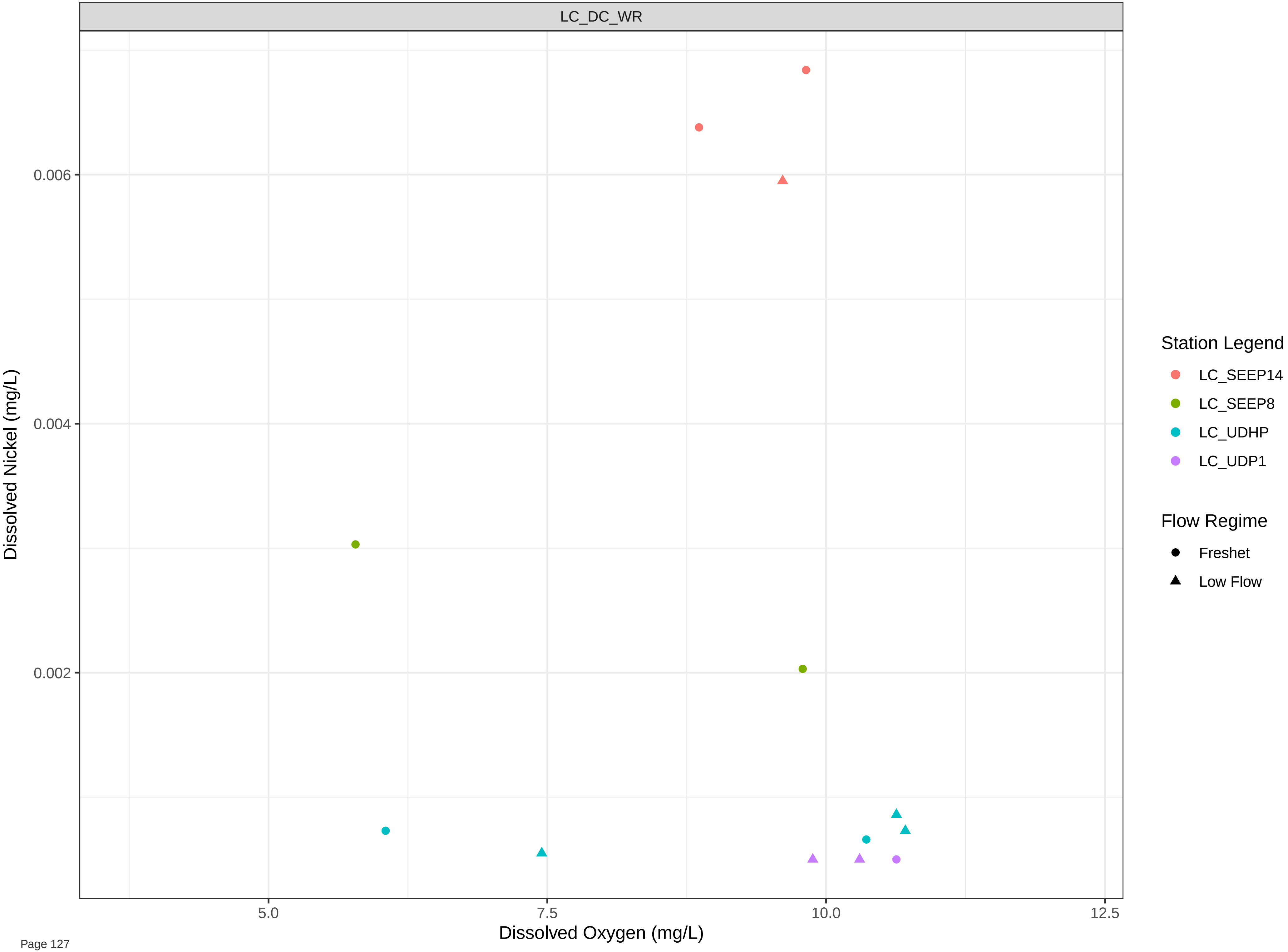

LC_HSP_WR
Dissolved Molybdenum (mg/L)
0.00135
0.00130
0.00125
0.00120
0.00115
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

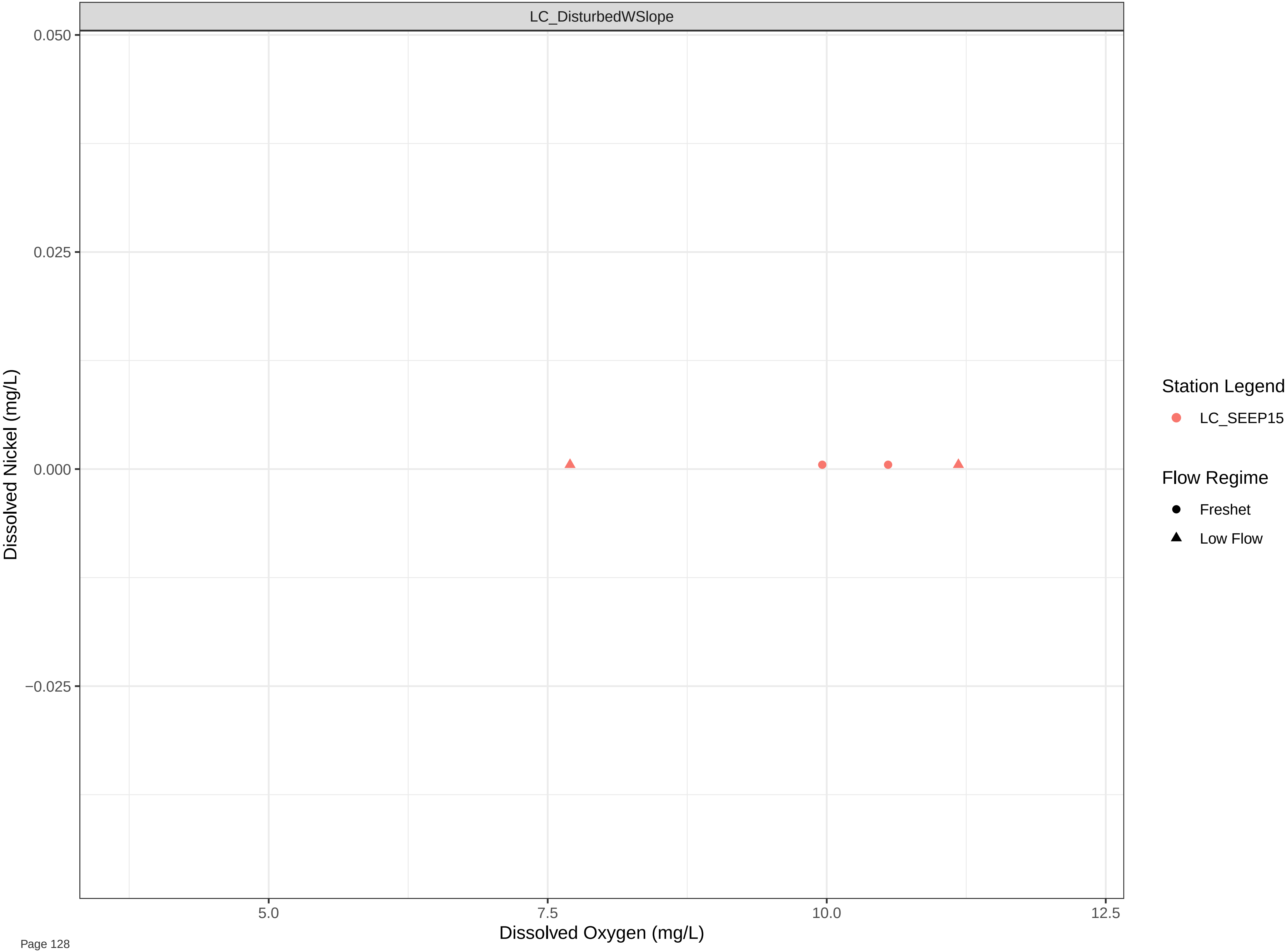

LC_MAXAM
Dissolved Molybdenum (mg/L)
0.00080
0.00076
0.00072
0.00068
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow


LC_MSA_WR
Dissolved Molybdenum (mg/L)
0.0020
0.0015
0.0010
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

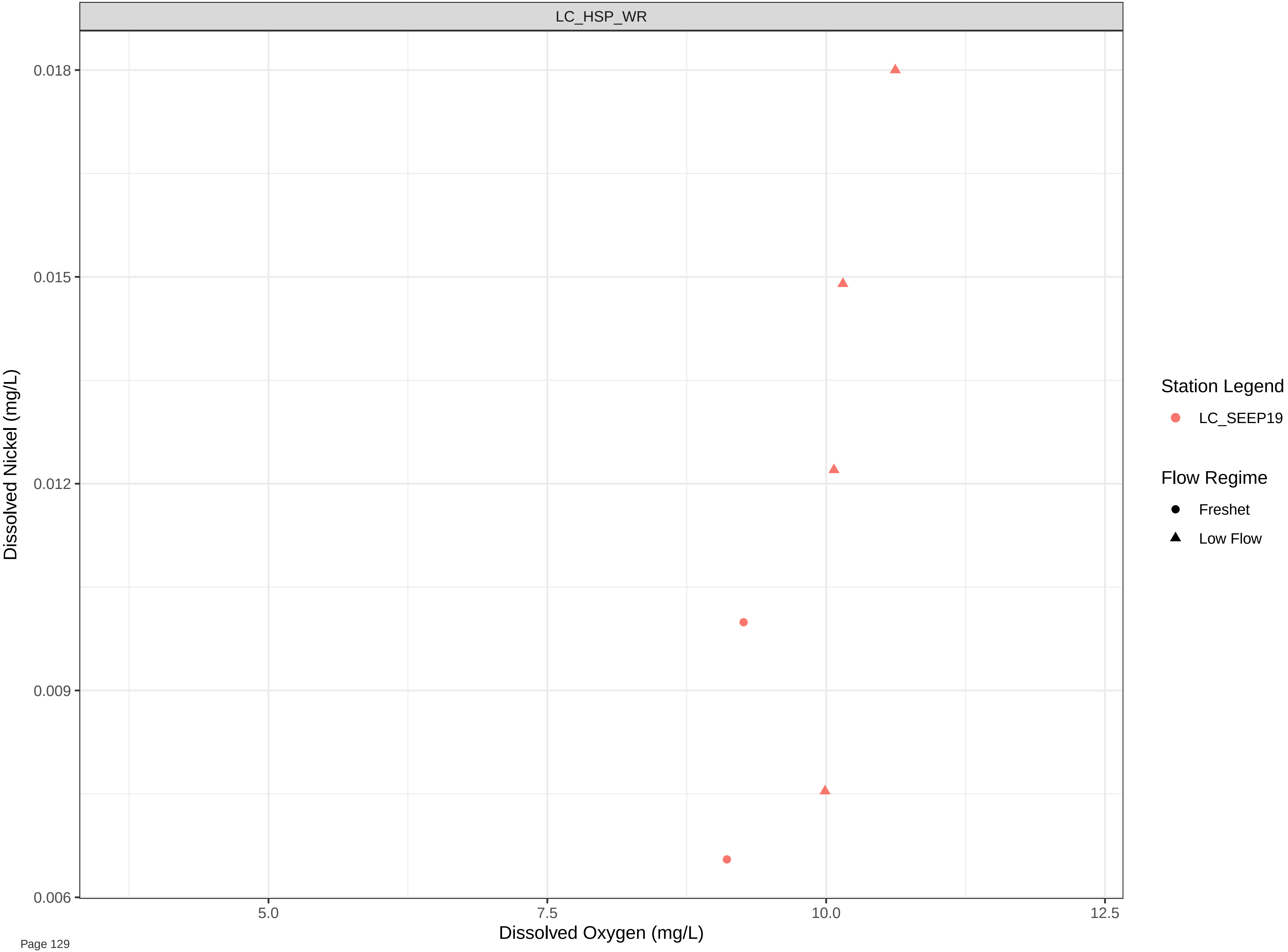

LC_PLANT
Dissolved Molybdenum (mg/L)
9e−04
8e−04
7e−04
6e−04
5e−04
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

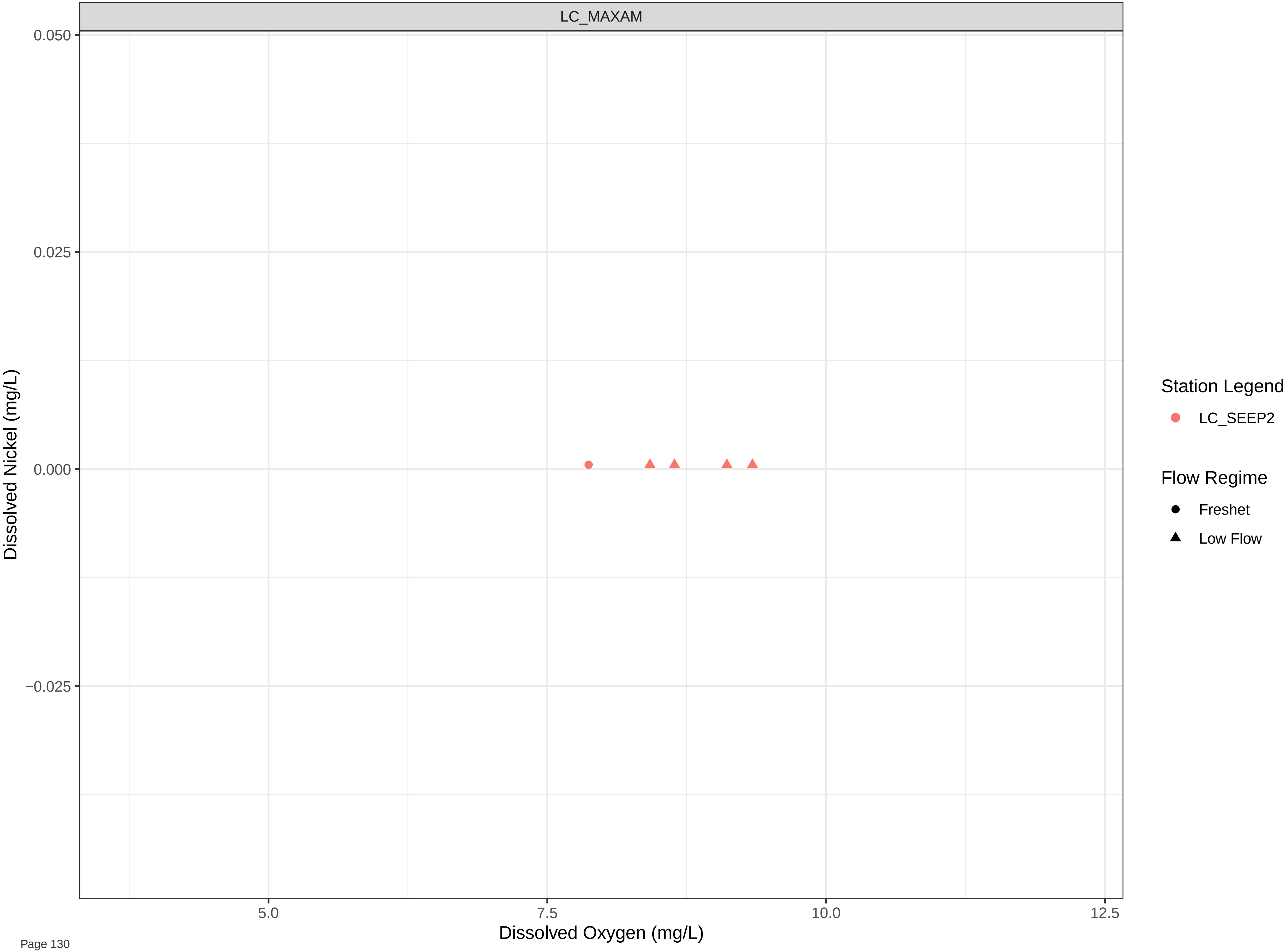

LC_WLC_WR
0.050
0.025
0.000
−0.025
5.0
7.5
10.0
12.5
Dissolved Molybdenum (mg/L)
Dissolved Oxygen (mg/L)
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet

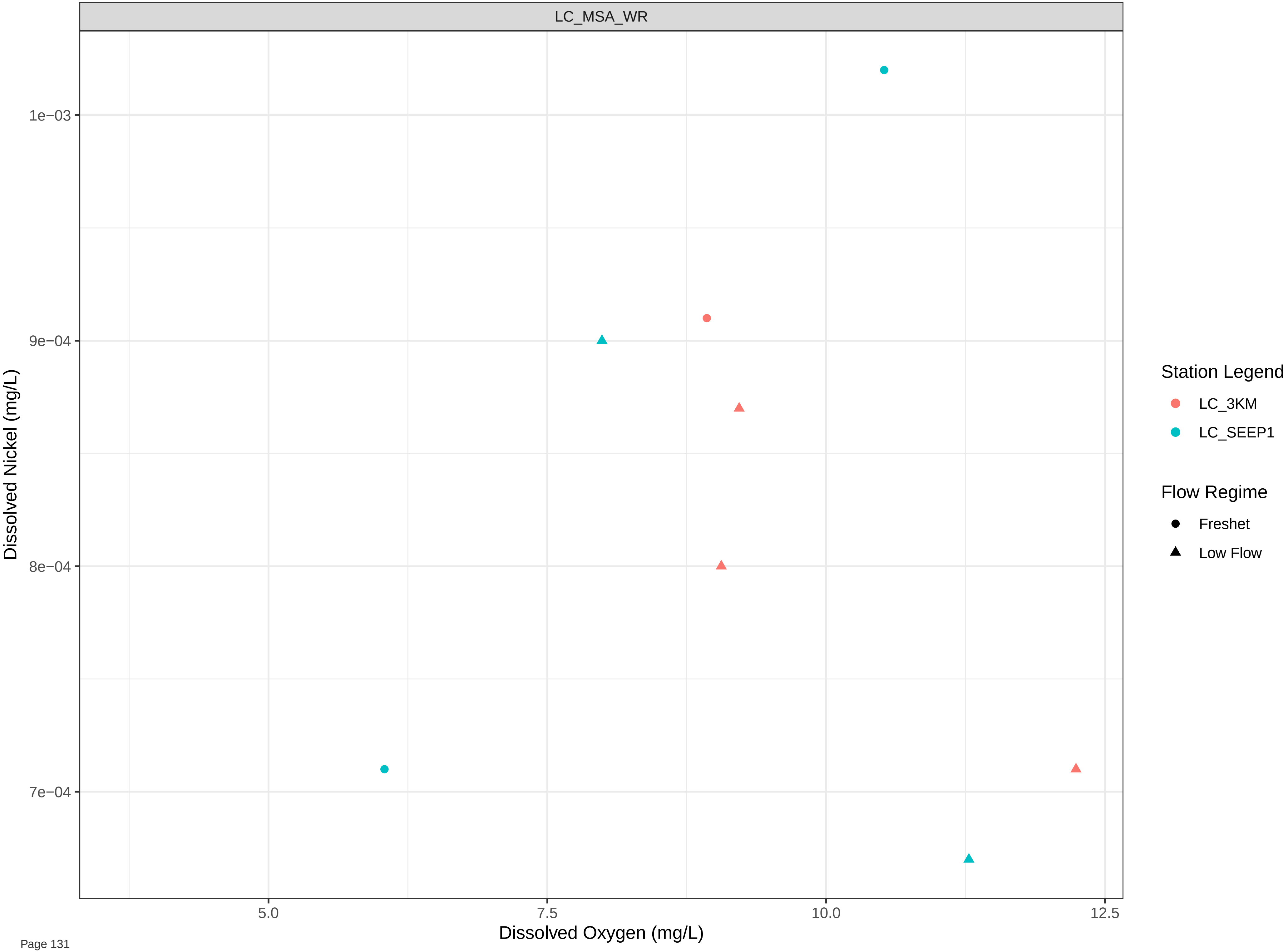

LC_DC_WR
Dissolved Nickel (mg/L)
0.006
0.004
0.002
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

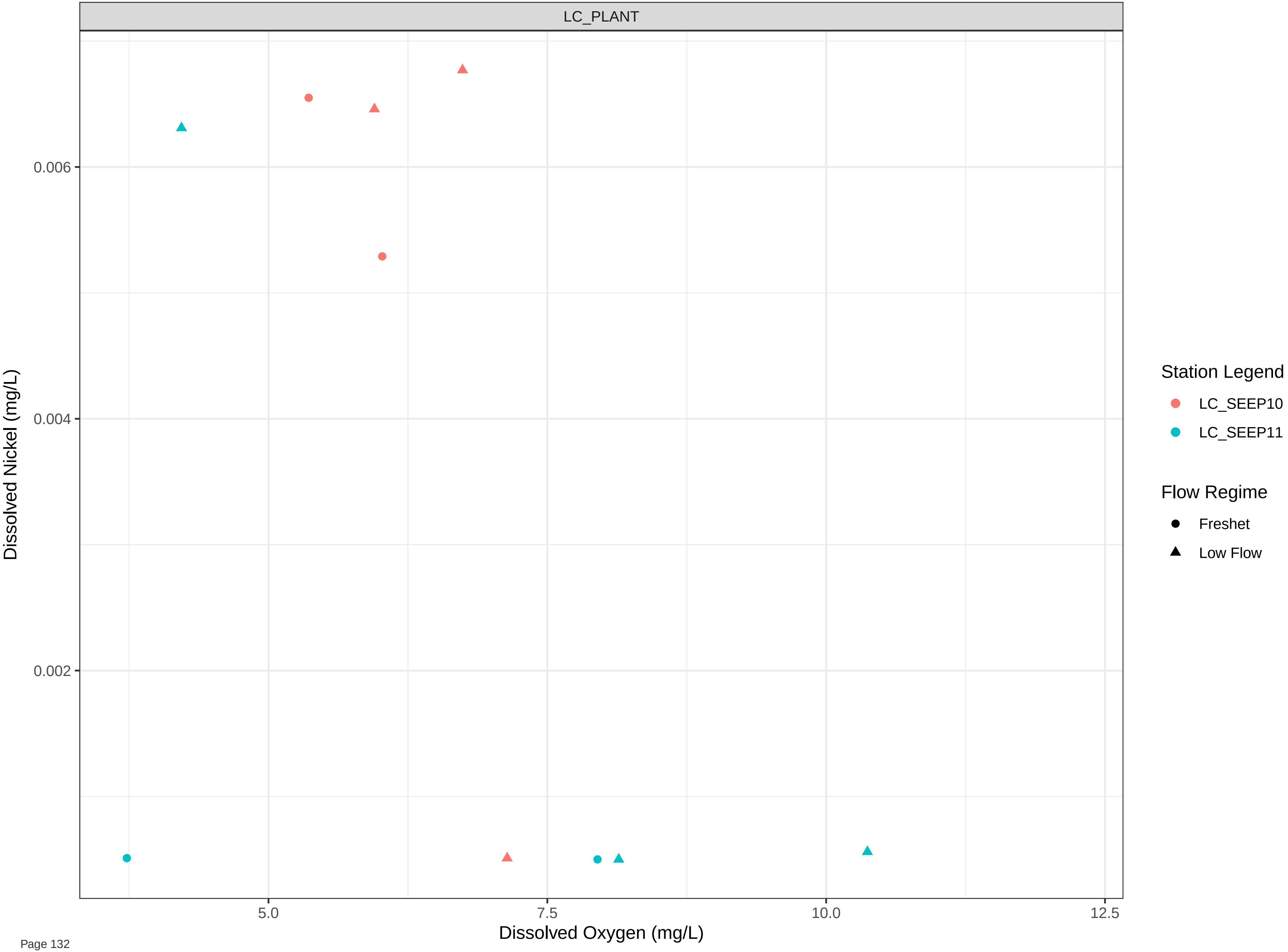


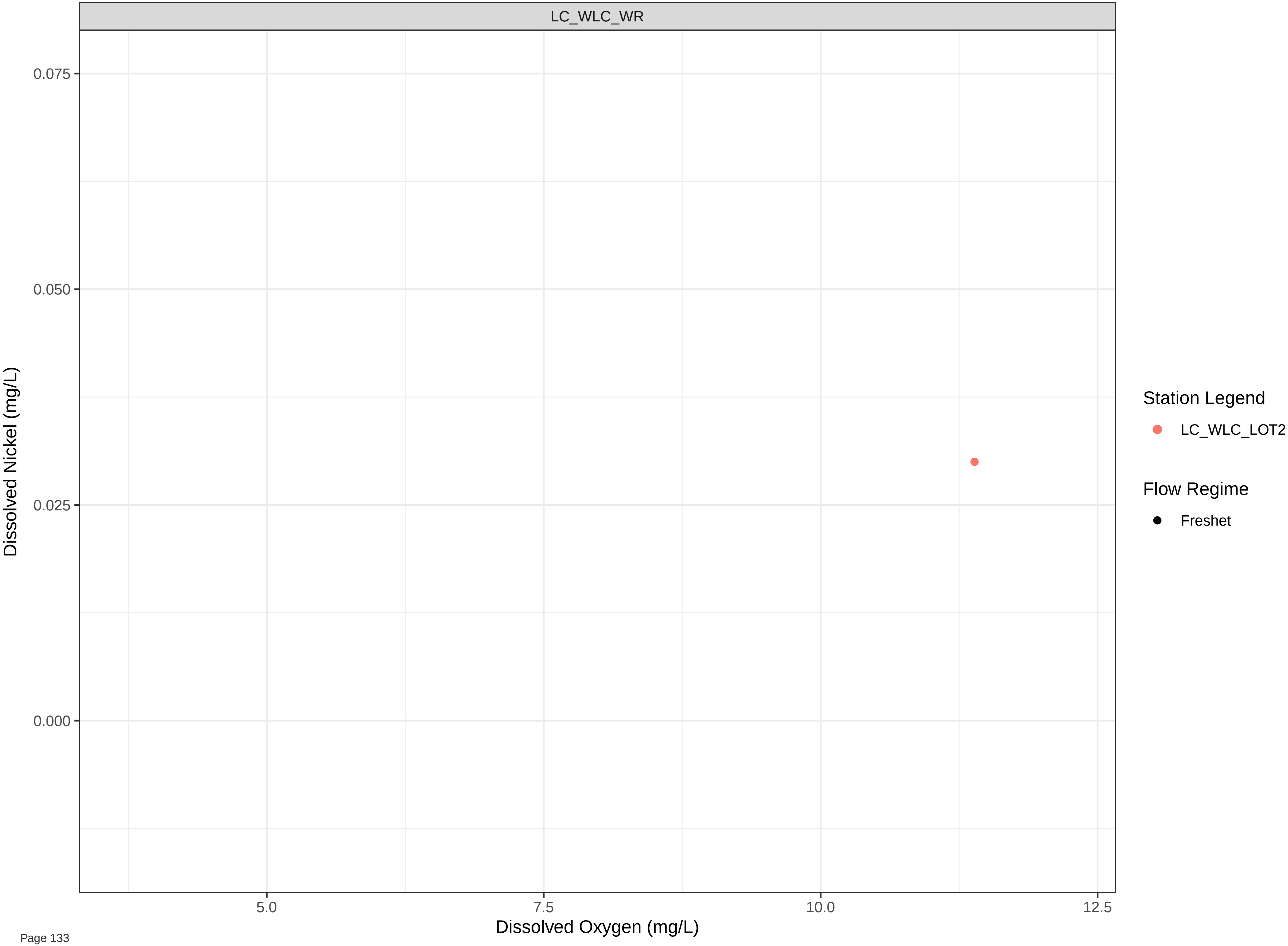
LC_DisturbedWSlope
0.050
0.025
0.000
−0.025
Dissolved Nickel (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

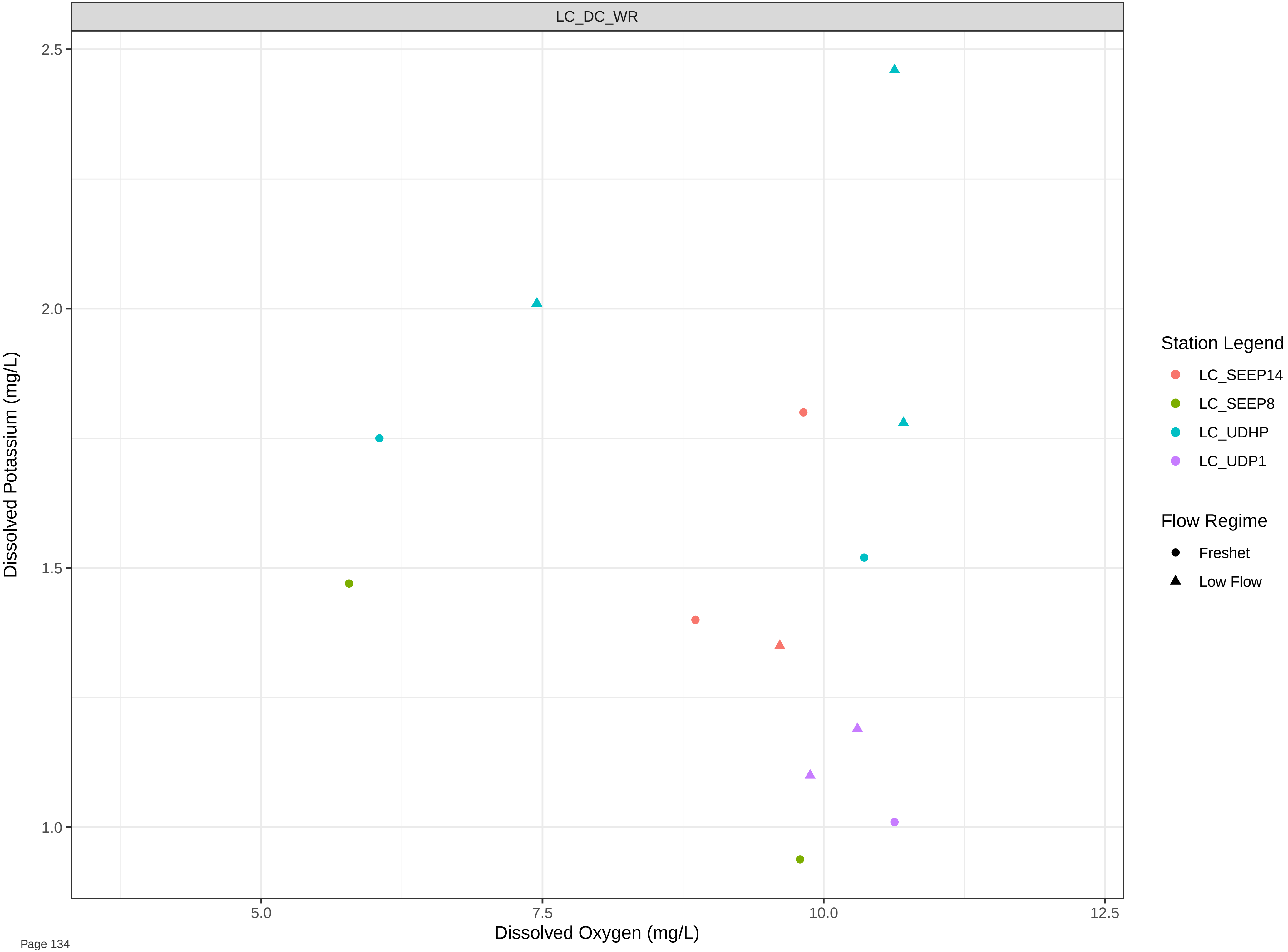

LC_HSP_WR
0.018
0.015
0.012
0.009
0.006
Dissolved Nickel (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

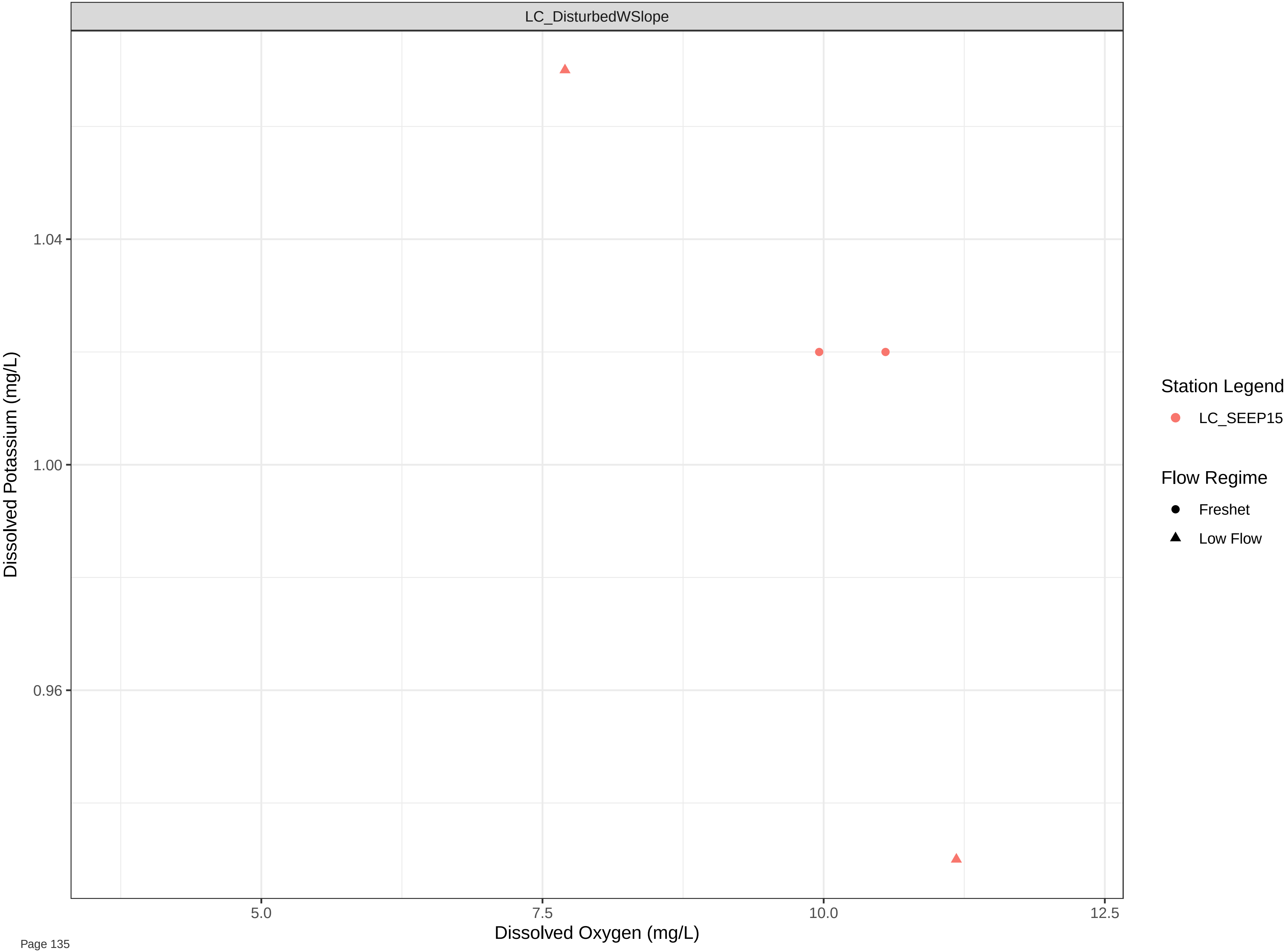

LC_MAXAM
0.050
0.025
0.000
−0.025
Dissolved Nickel (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow

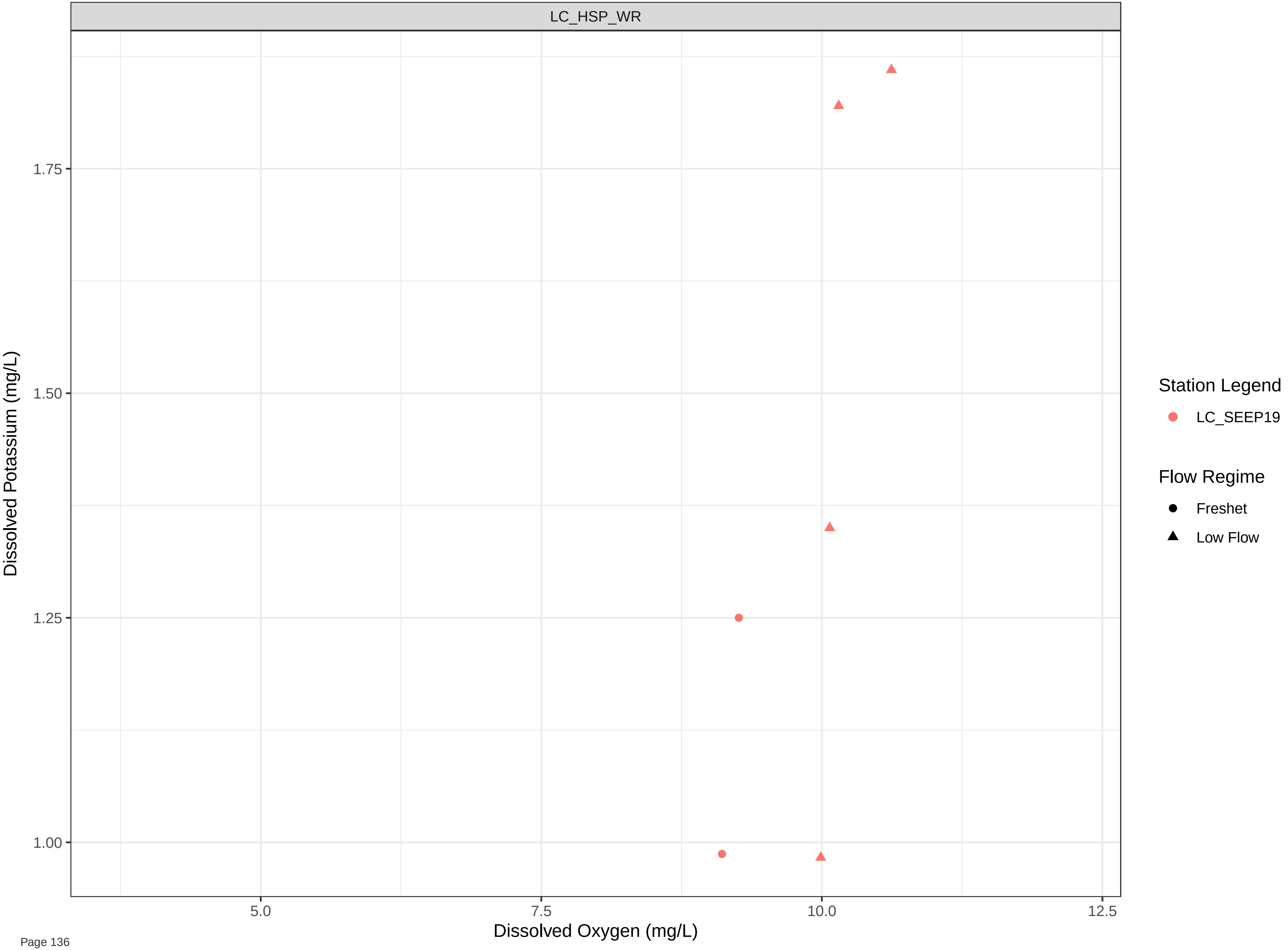

LC_MSA_WR
1e−03
9e−04
8e−04
7e−04
Dissolved Nickel (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

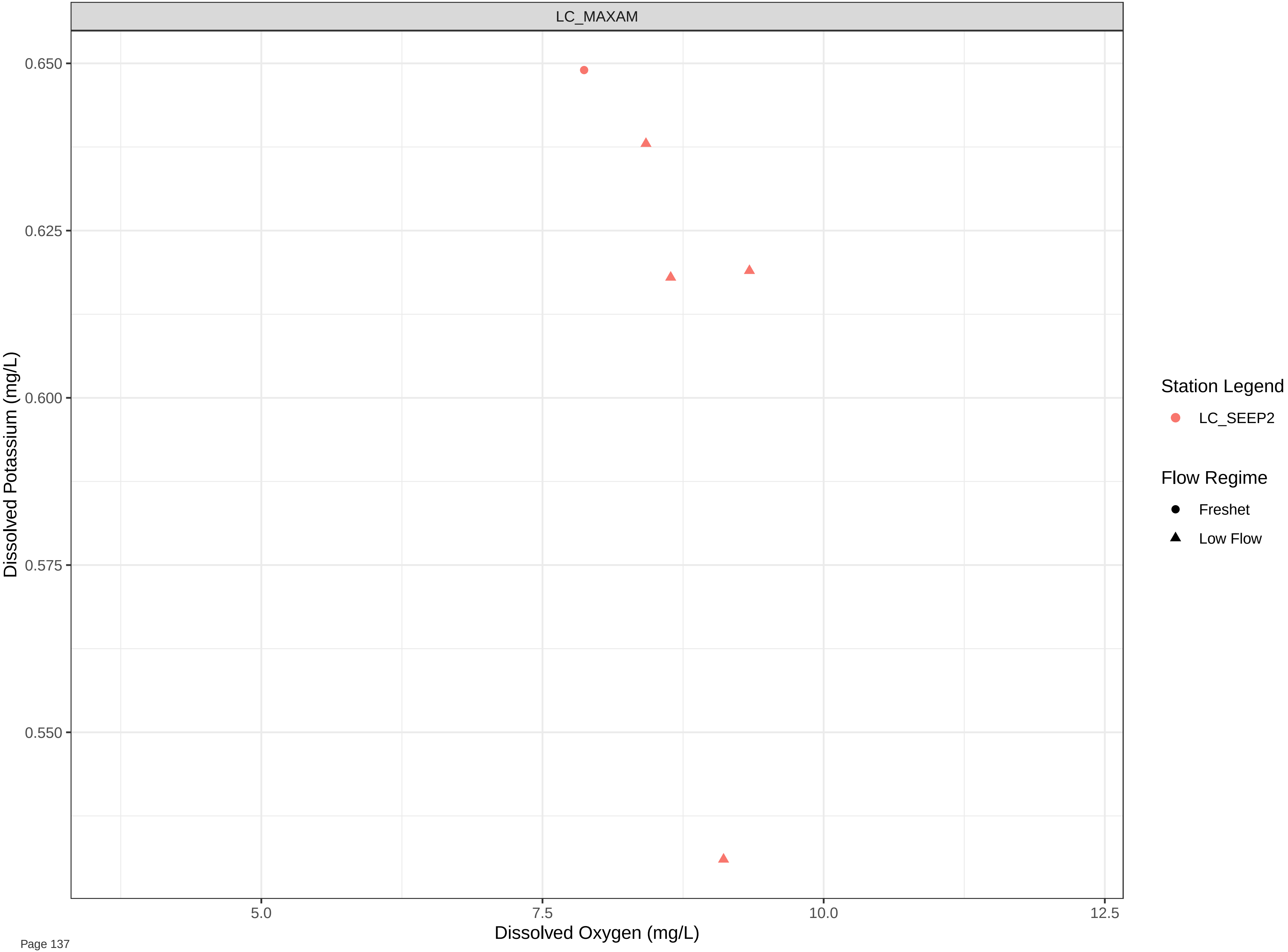

LC_PLANT
Dissolved Nickel (mg/L)
0.006
0.004
0.002
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

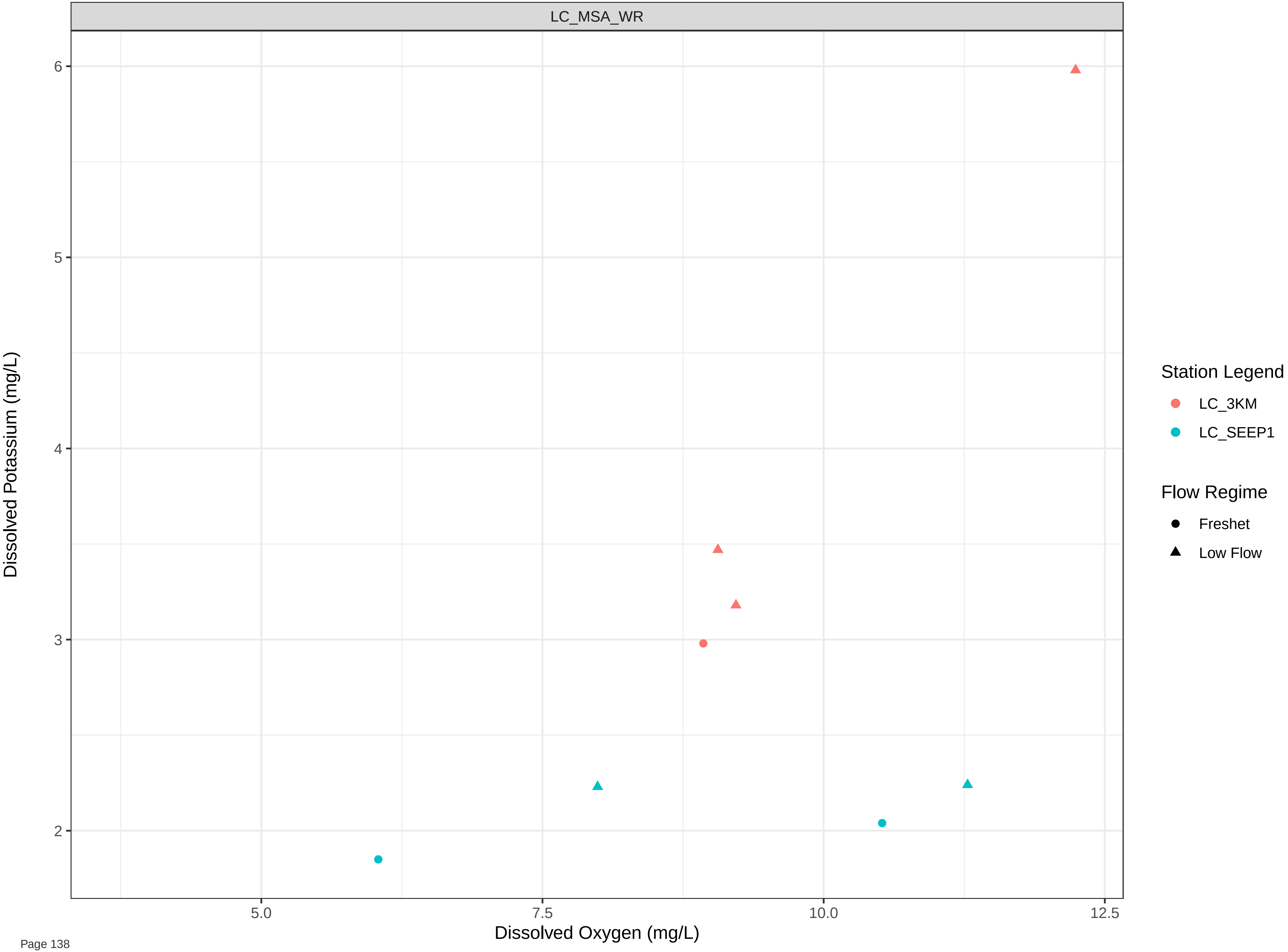

LC_WLC_WR
Dissolved Nickel (mg/L)
0.075
0.050
0.025
0.000
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

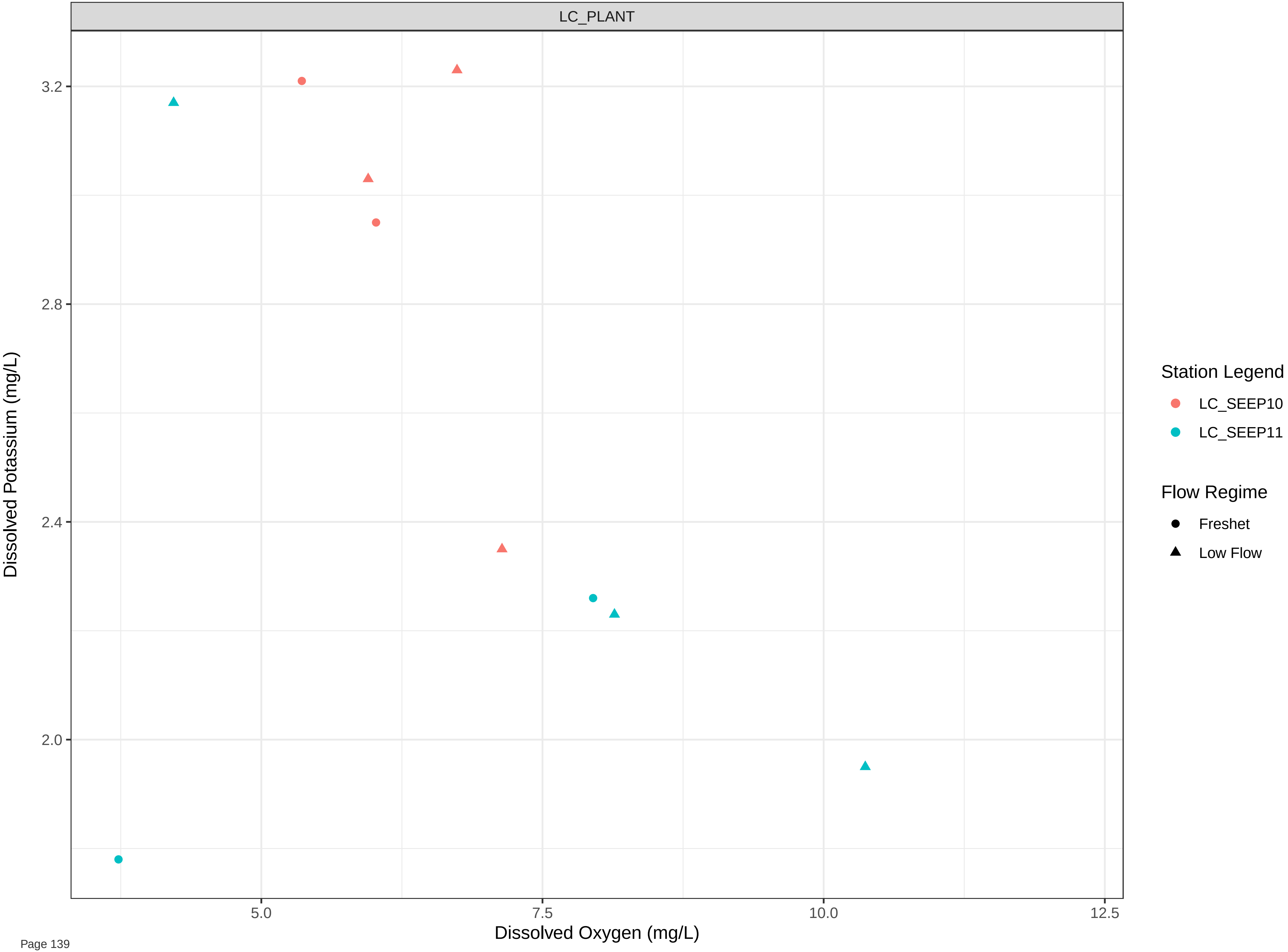

LC_DC_WR
Dissolved Potassium (mg/L)
2.5
2.0
1.5
1.0
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

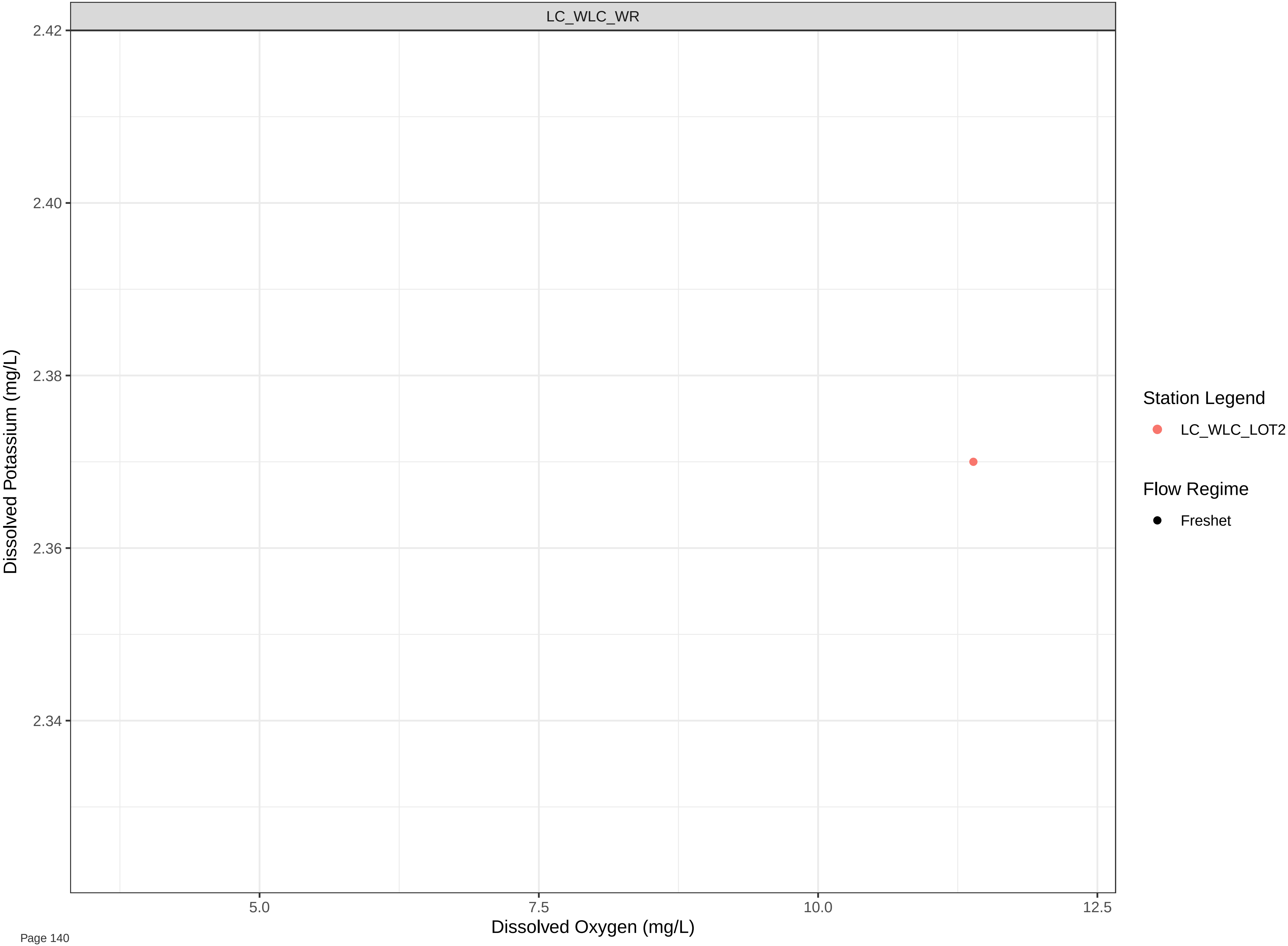

LC_DisturbedWSlope
Dissolved Potassium (mg/L)
1.04
1.00
0.96
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow

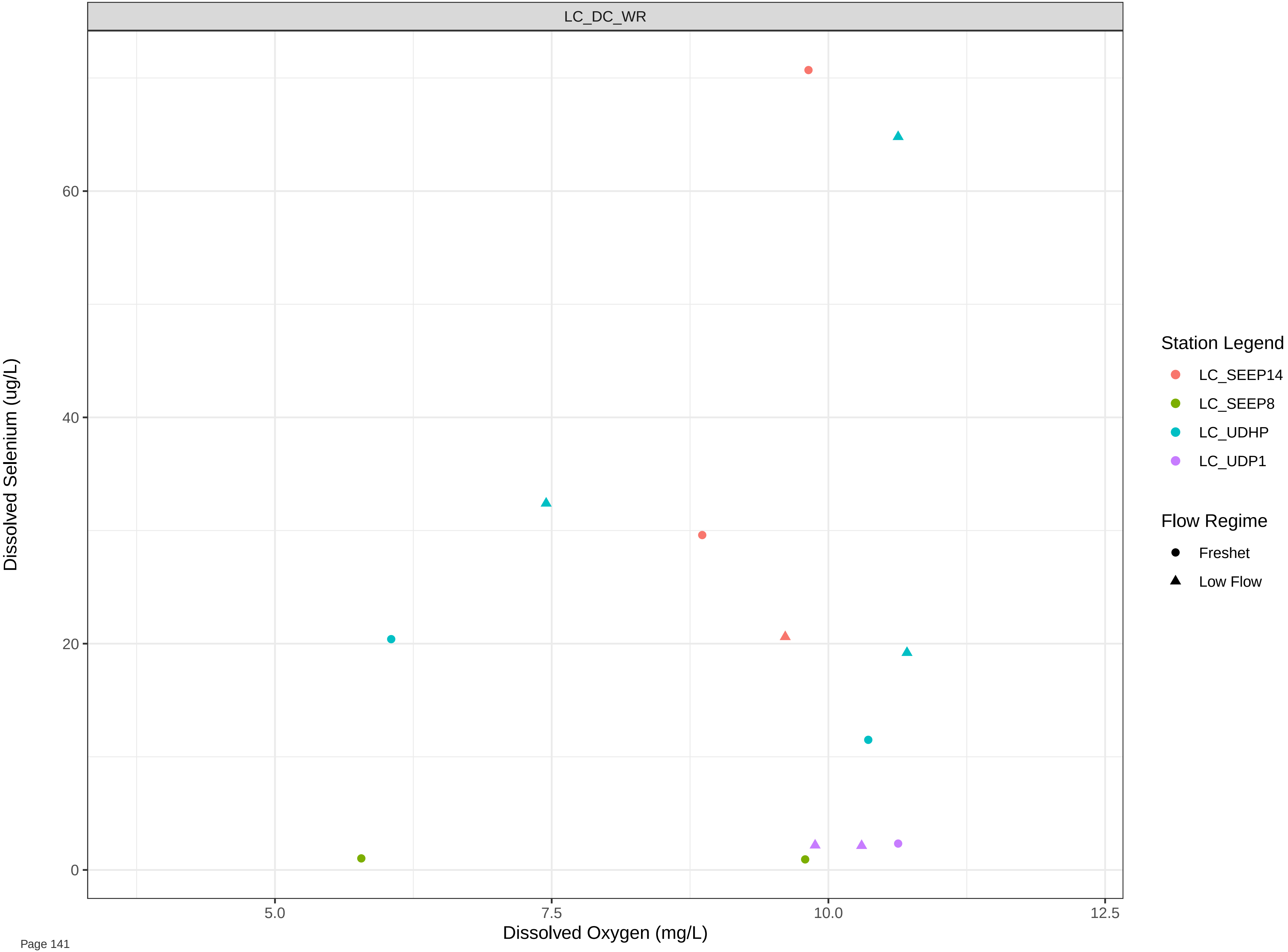

LC_HSP_WR
Dissolved Potassium (mg/L)
1.75
1.50
1.25
1.00
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

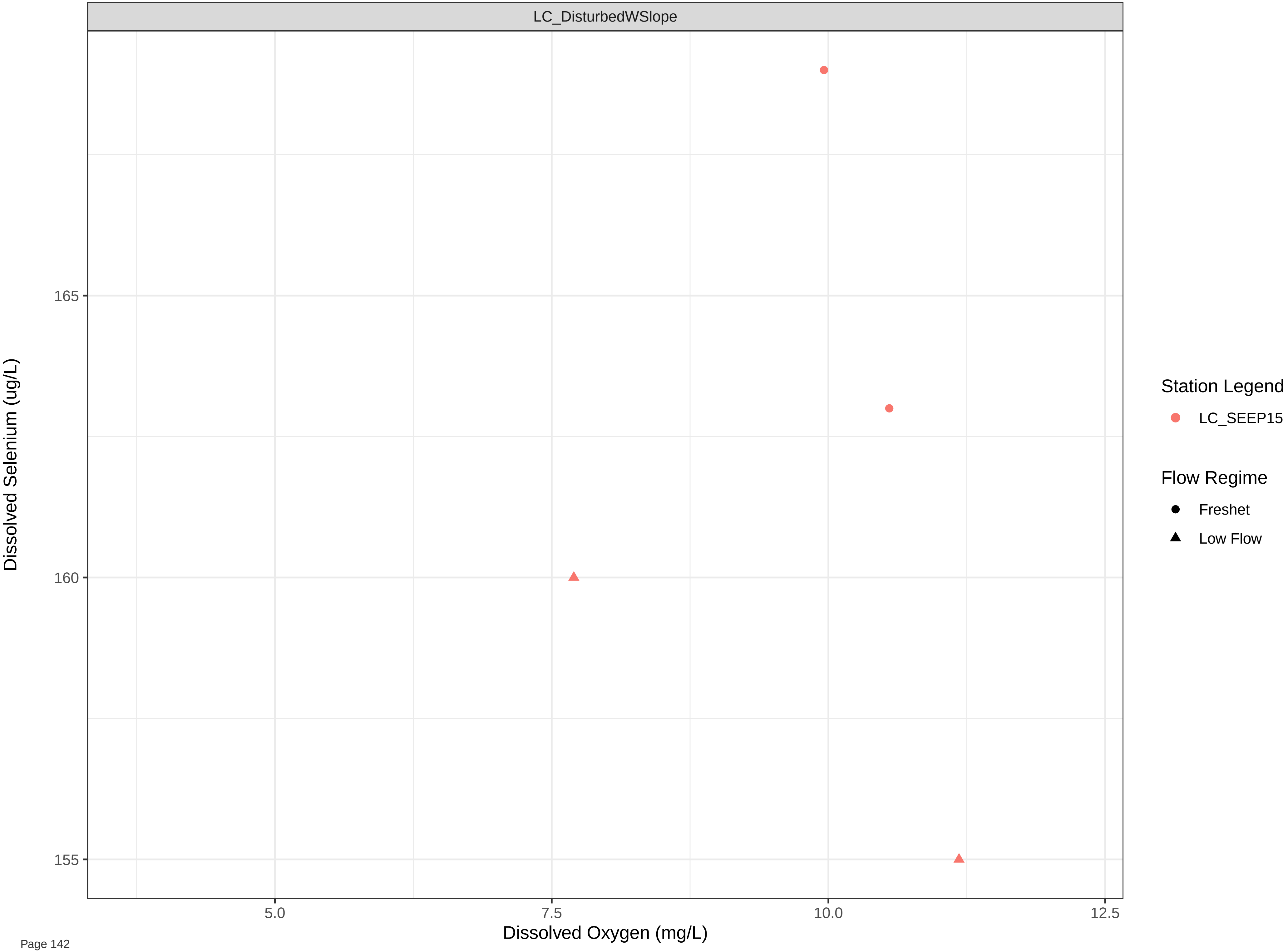

LC_MAXAM
Dissolved Potassium (mg/L)
0.650
0.625
0.600
0.575
0.550
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

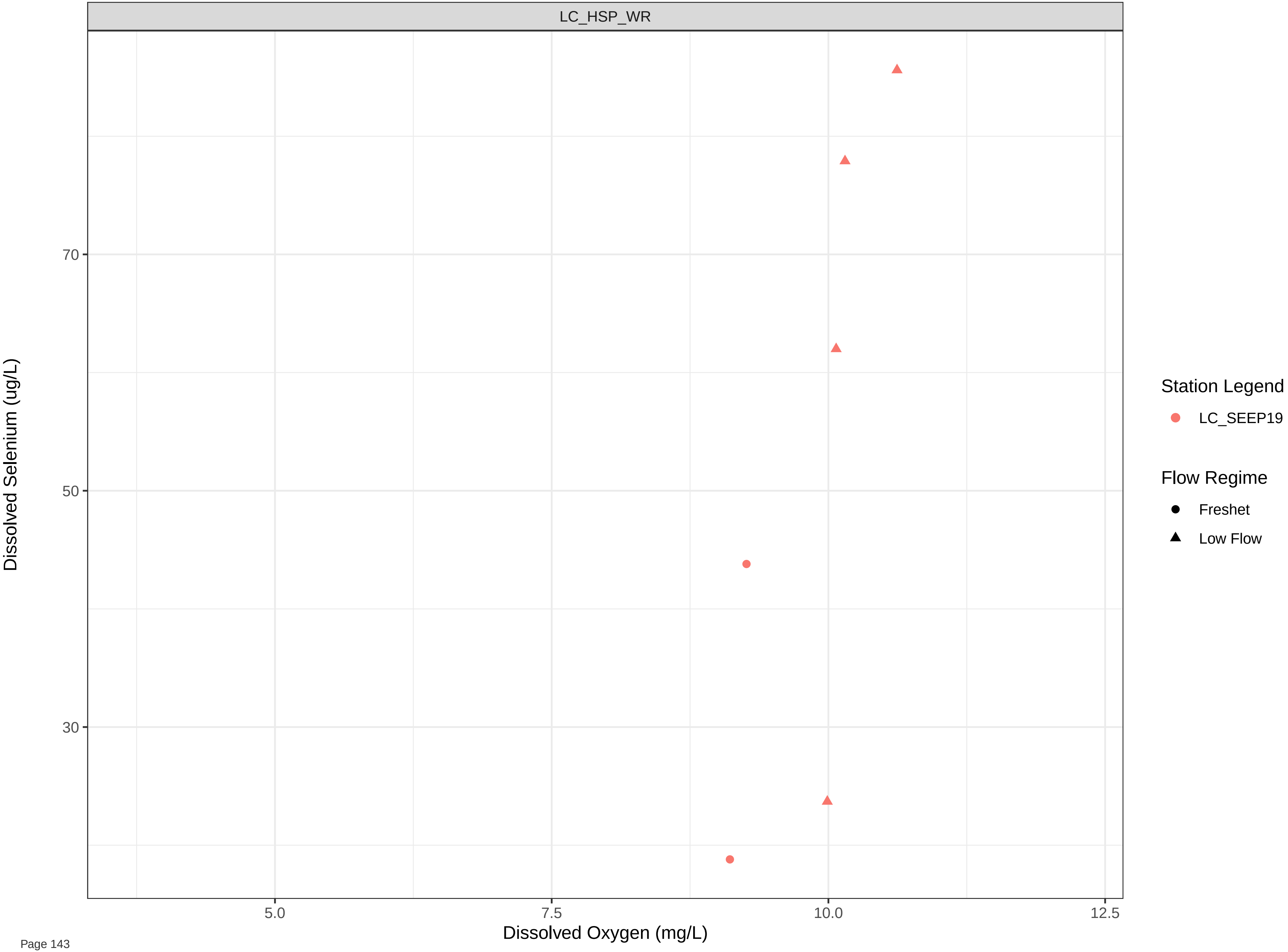

LC_MSA_WR
Dissolved Potassium (mg/L)
6
5
4
3
2
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

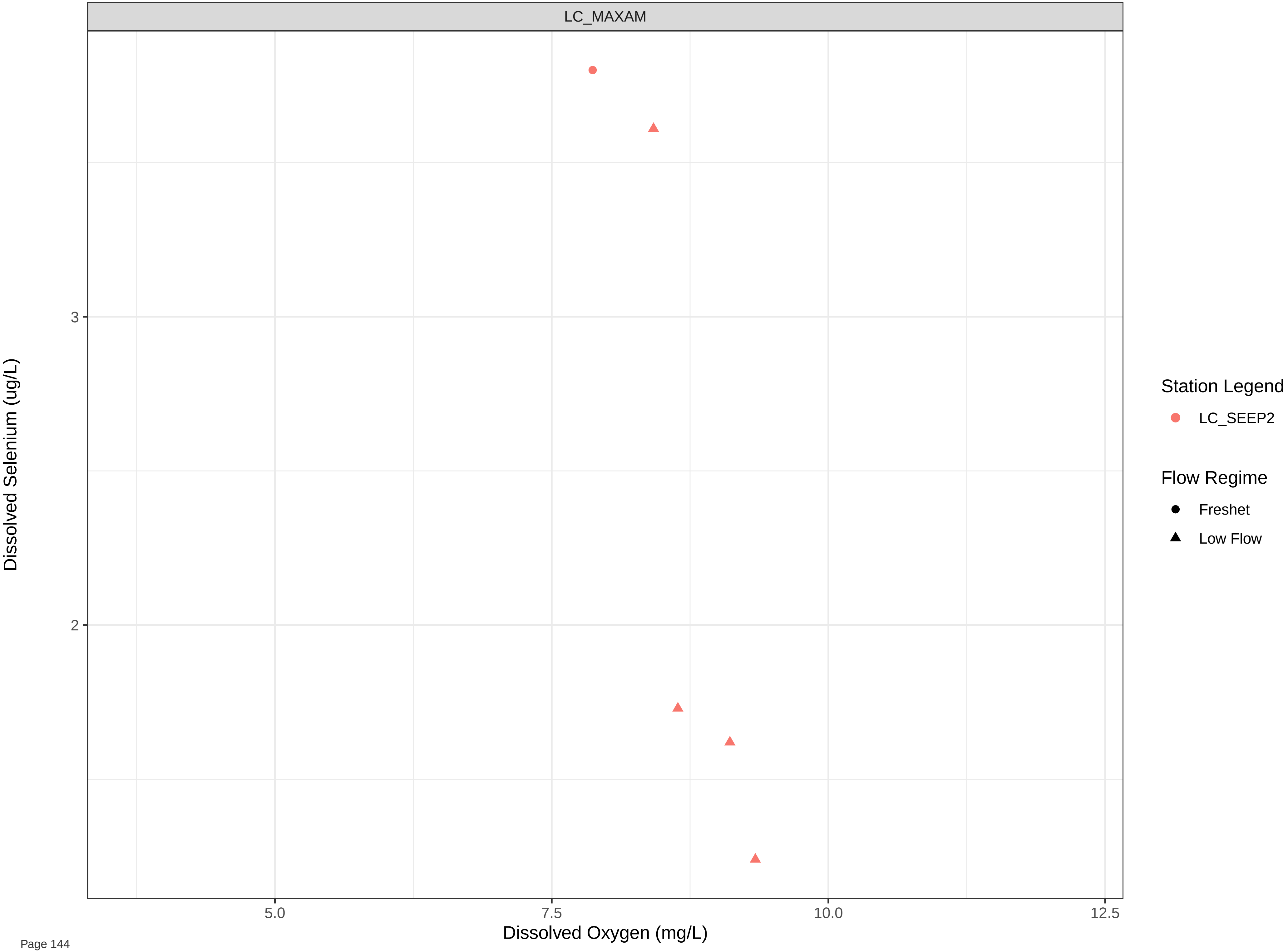

LC_PLANT
Dissolved Potassium (mg/L)
3.2
2.8
2.4
2.0
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

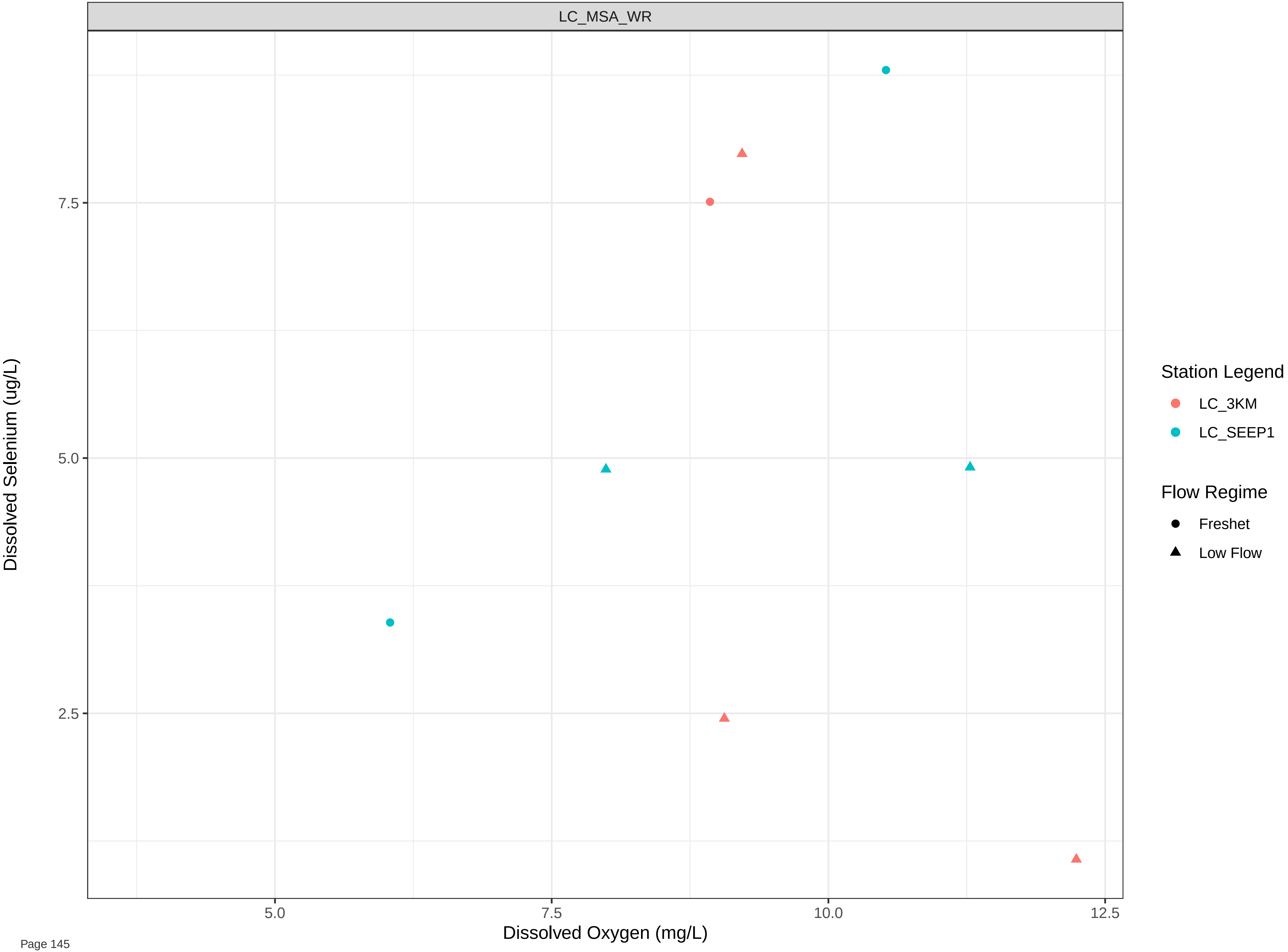

LC_WLC_WR
2.42
2.40
2.38
2.36
2.34
Dissolved Potassium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

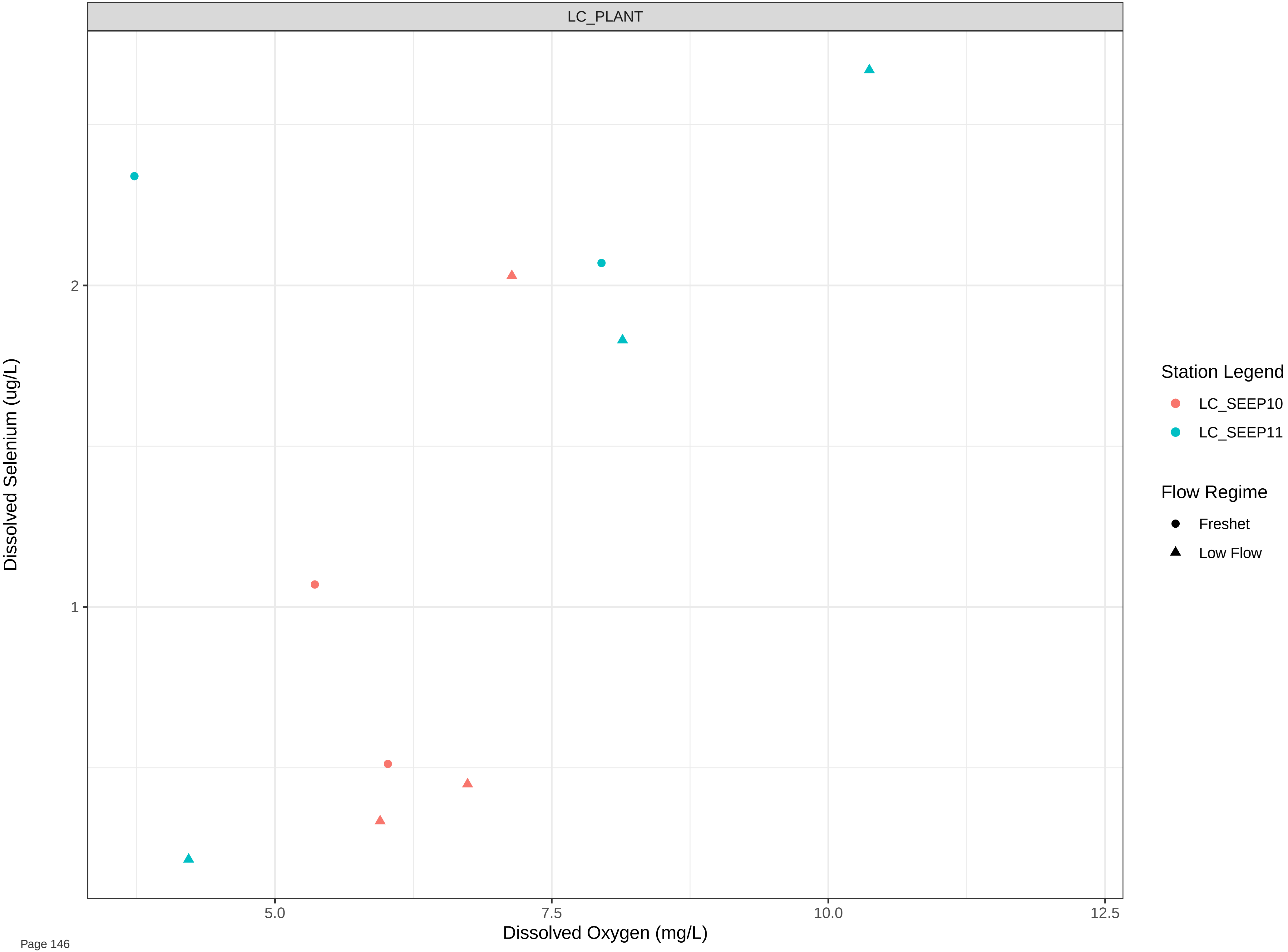

LC_DC_WR
Dissolved Selenium (ug/L)
0
20
40
60
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

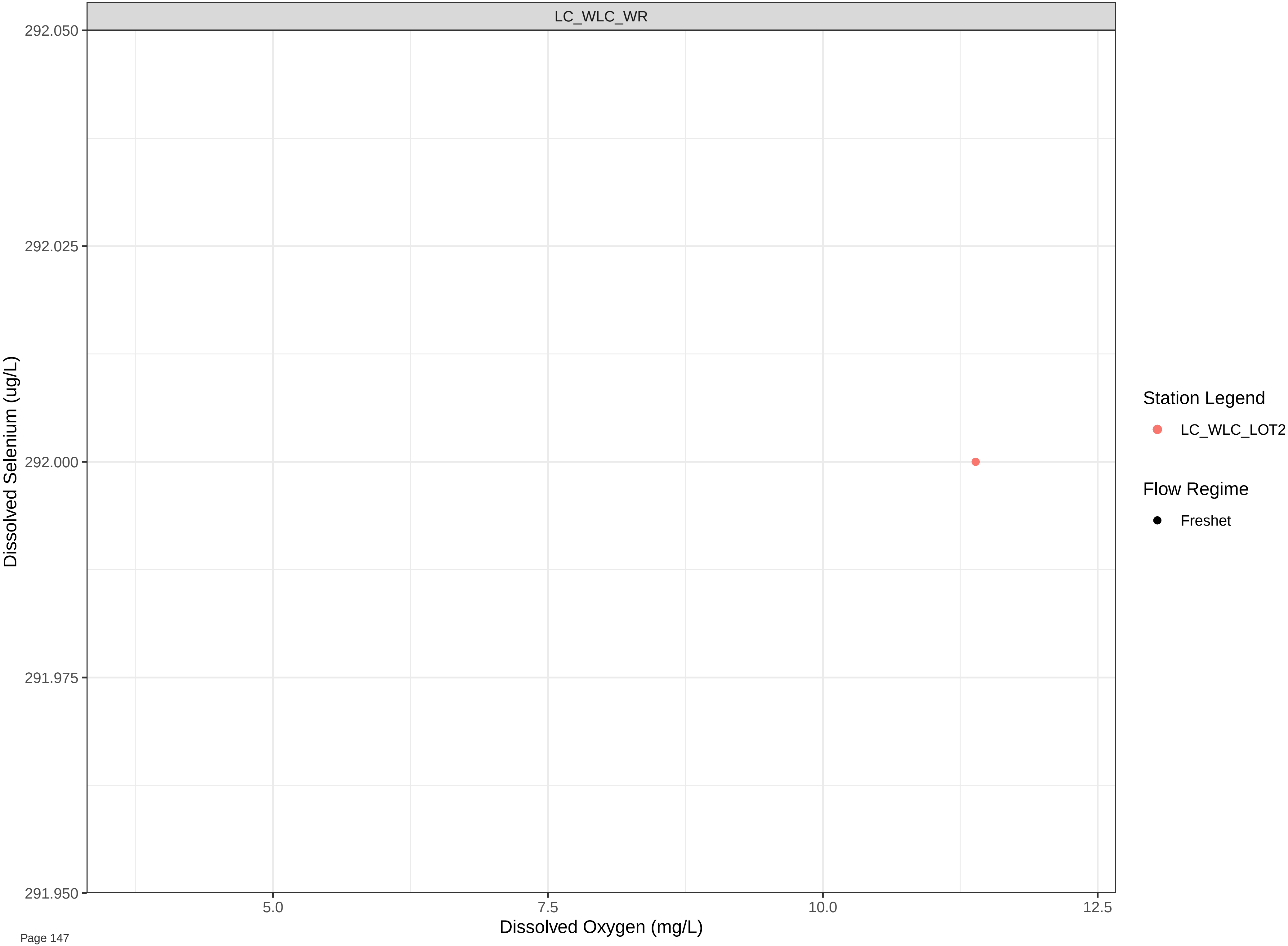

LC_DisturbedWSlope
Dissolved Selenium (ug/L)
165
160
155
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow

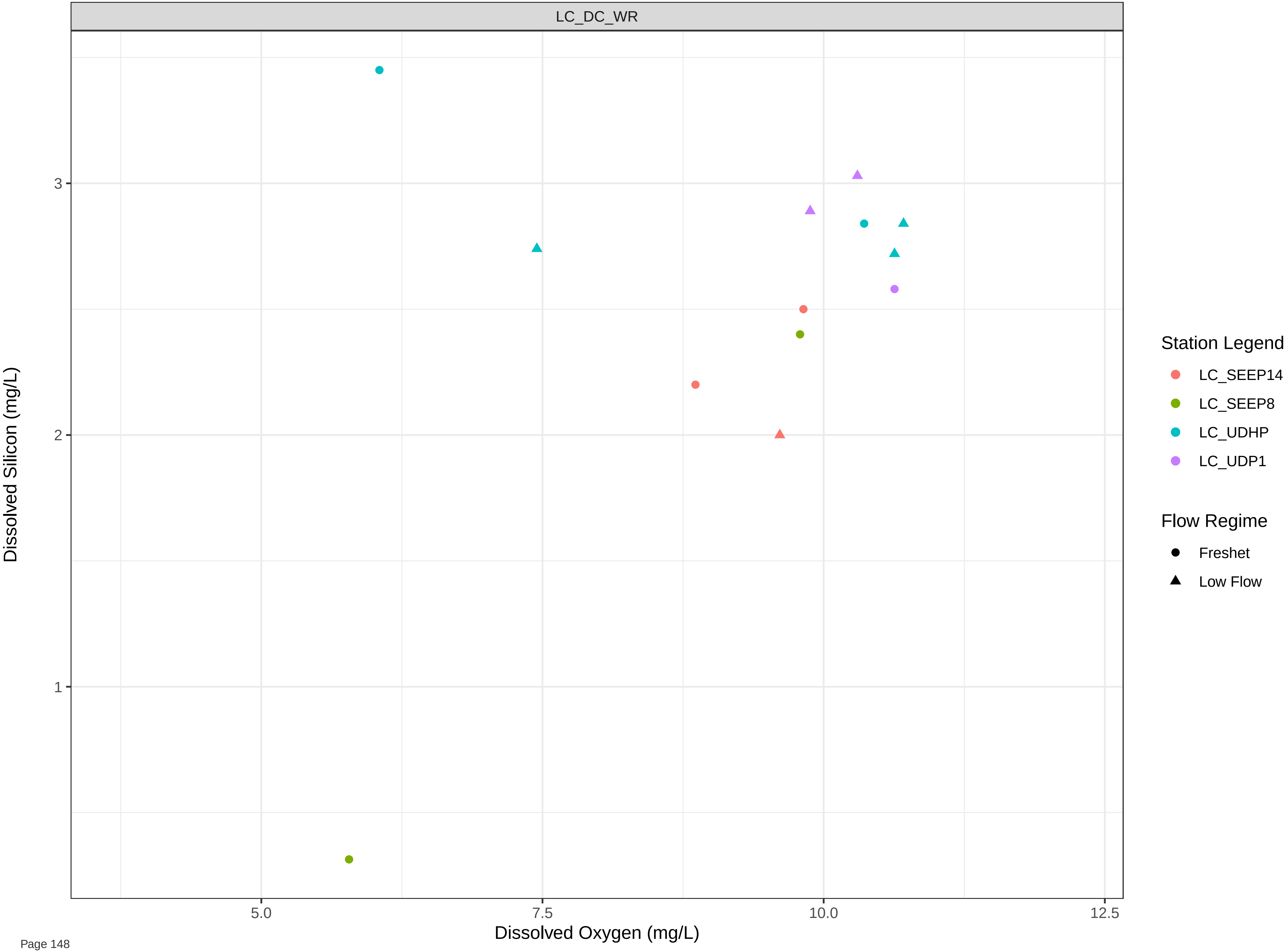

LC_HSP_WR
Dissolved Selenium (ug/L)
70
50
30
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

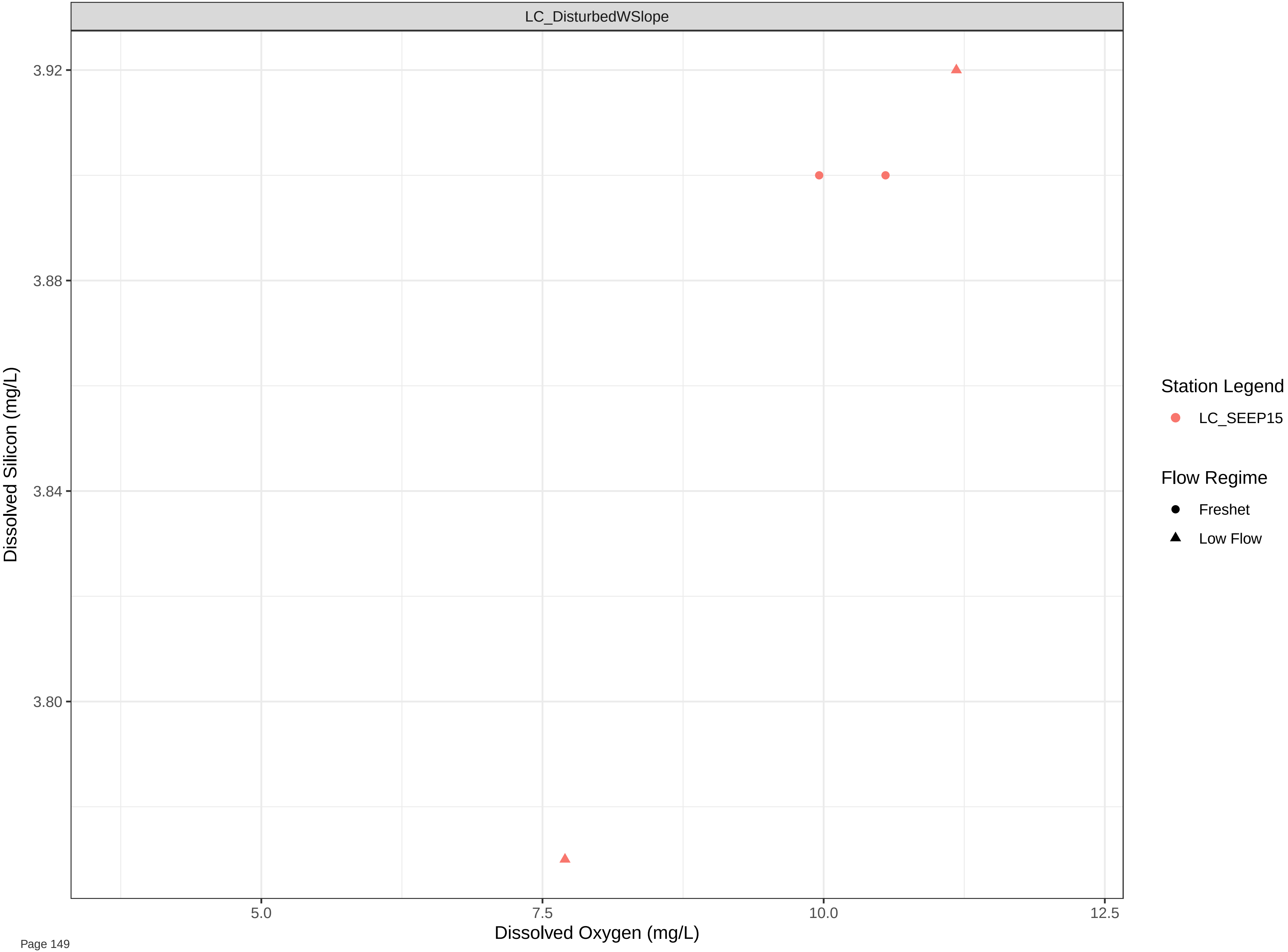

LC_MAXAM
Dissolved Selenium (ug/L)
3
2
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

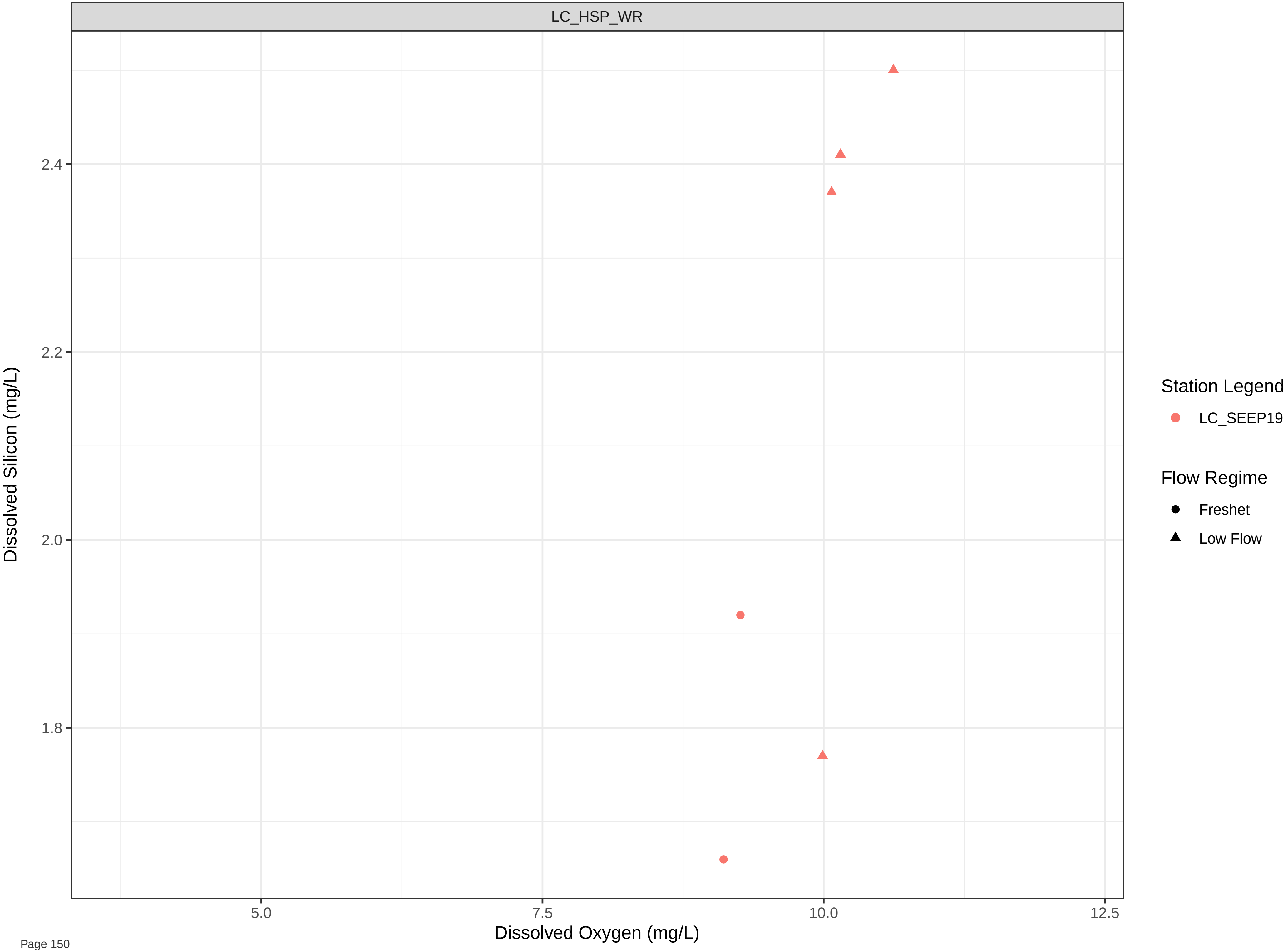

LC_MSA_WR
Dissolved Selenium (ug/L)
7.5
5.0
2.5
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

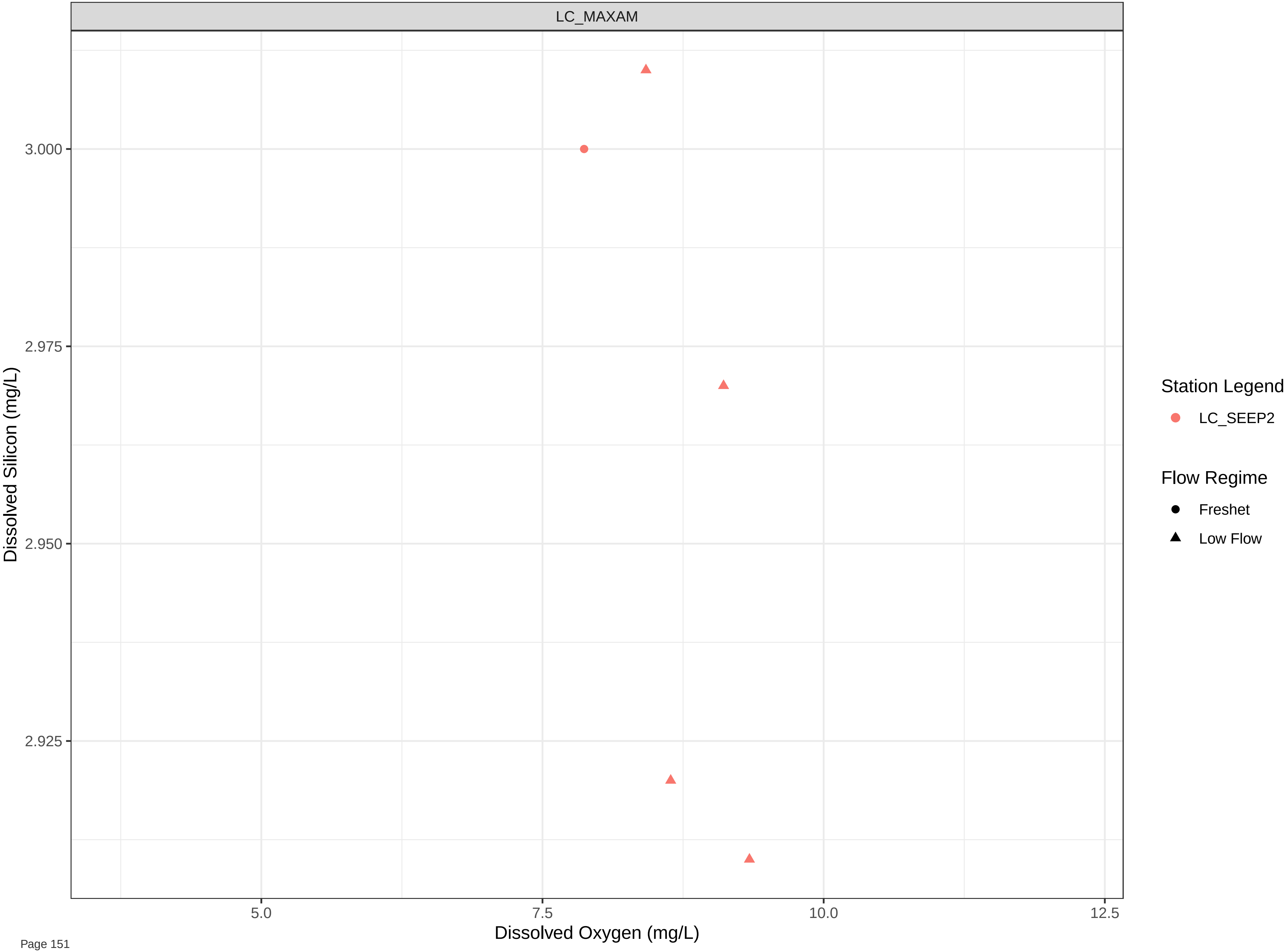

LC_PLANT
Dissolved Selenium (ug/L)
2
1
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

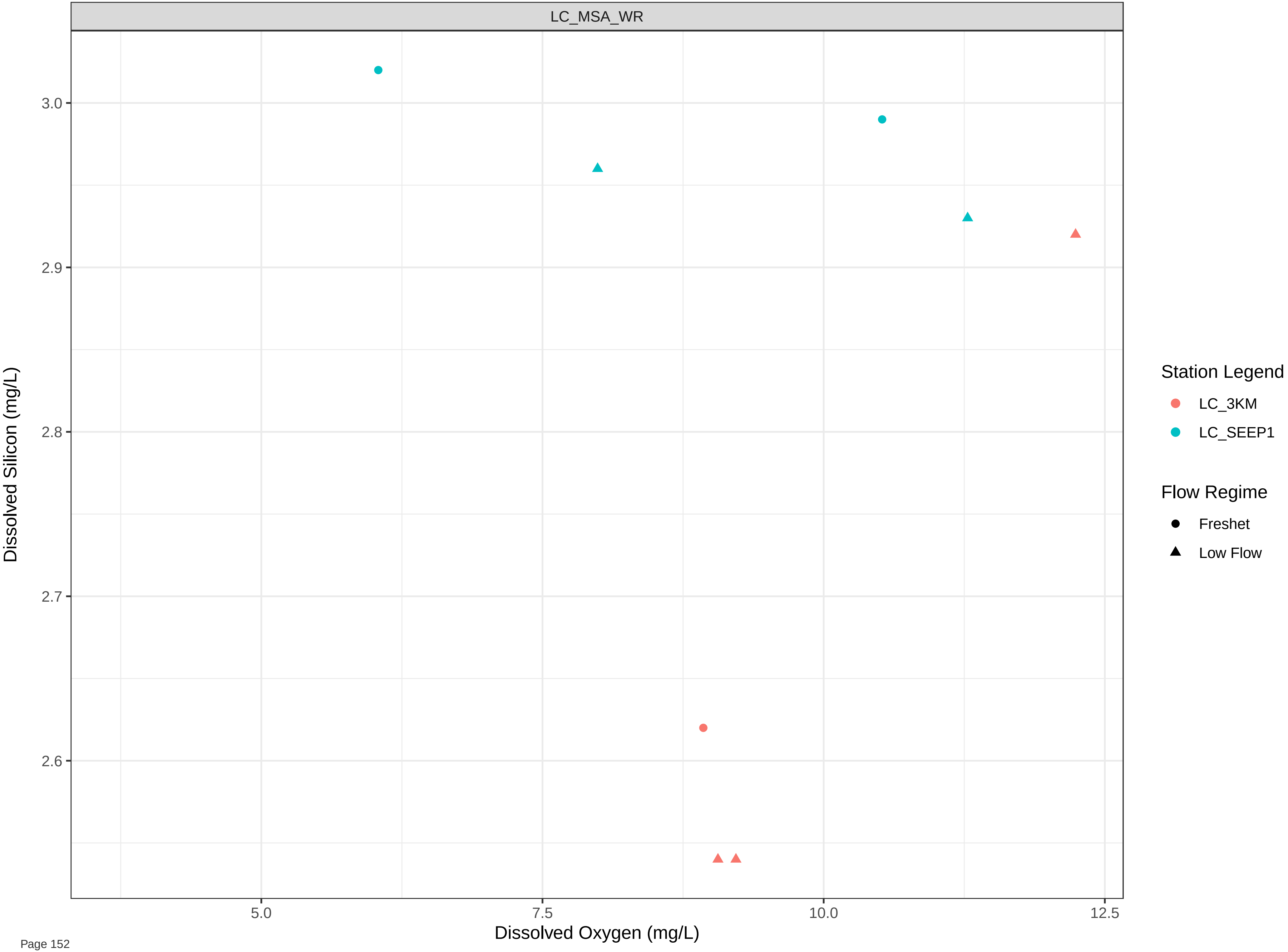

LC_WLC_WR
Dissolved Selenium (ug/L)
292.050
292.025
292.000
291.975
291.950
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet

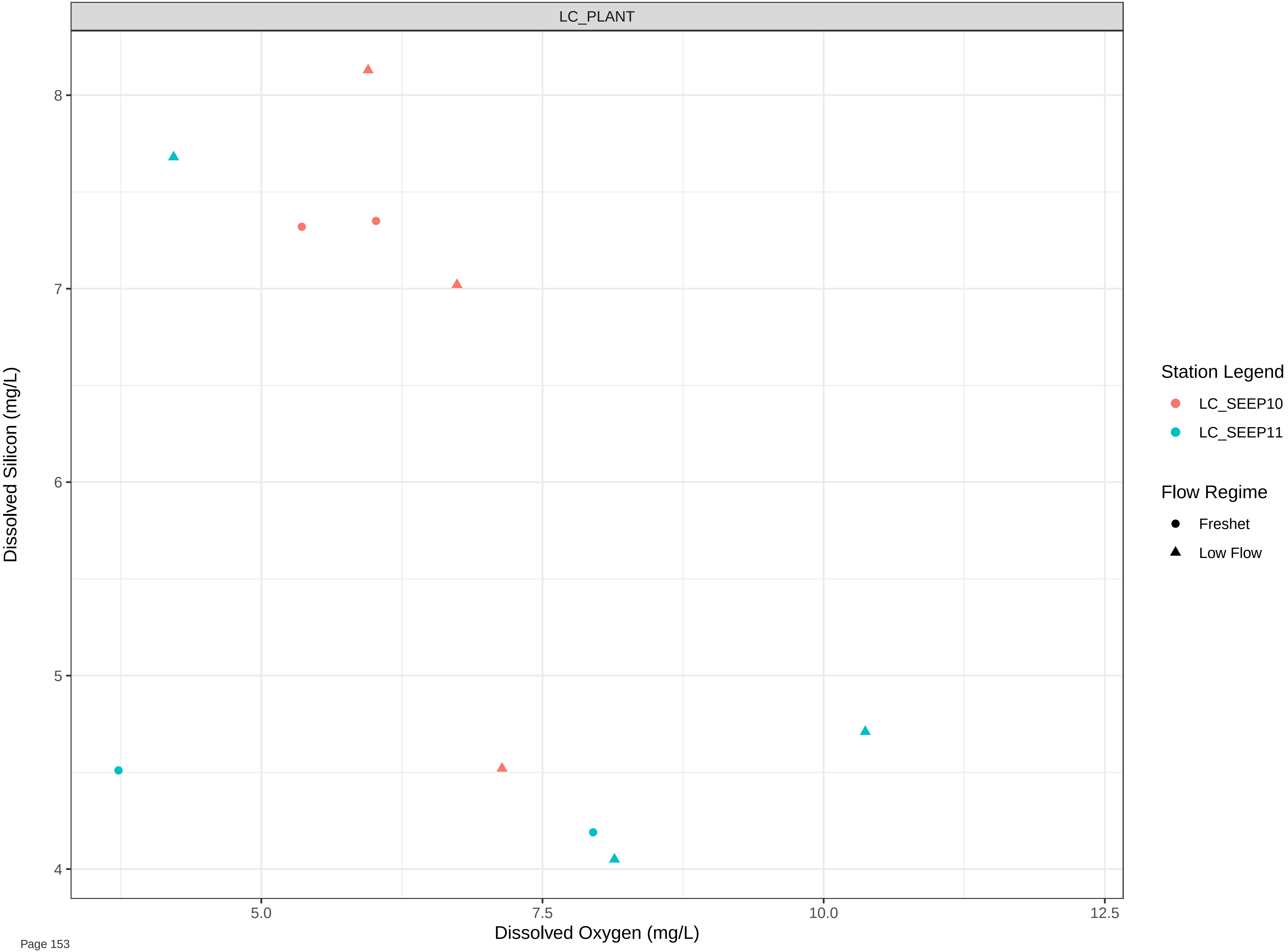

LC_DC_WR
Dissolved Silicon (mg/L)
3
2
1
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP14
● LC_SEEP8
● LC_UDHP
● LC_UDP1
Flow Regime
● Freshet
▲ Low Flow

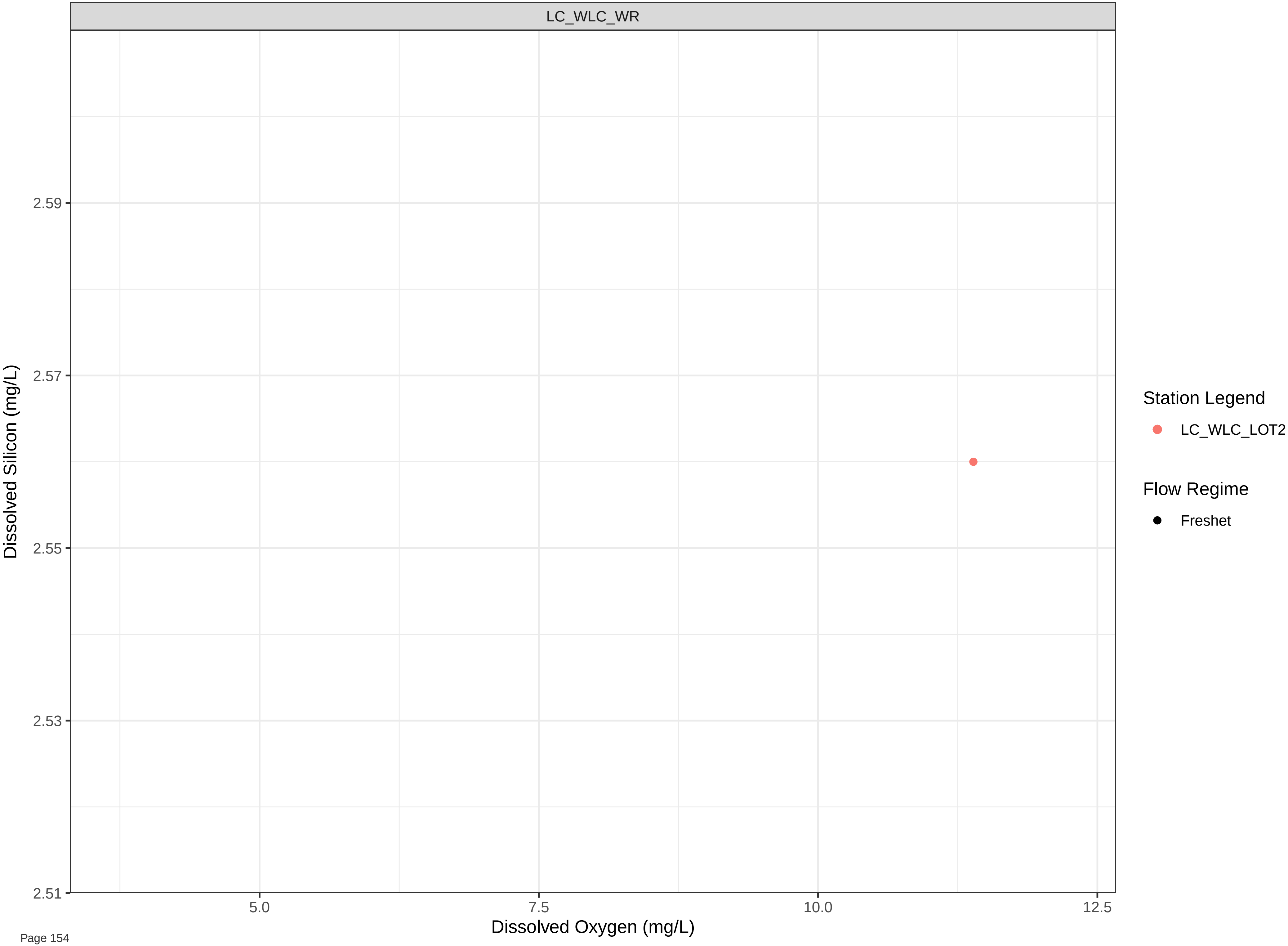

LC_DisturbedWSlope
Dissolved Silicon (mg/L)
3.92
3.88
3.84
3.80
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow

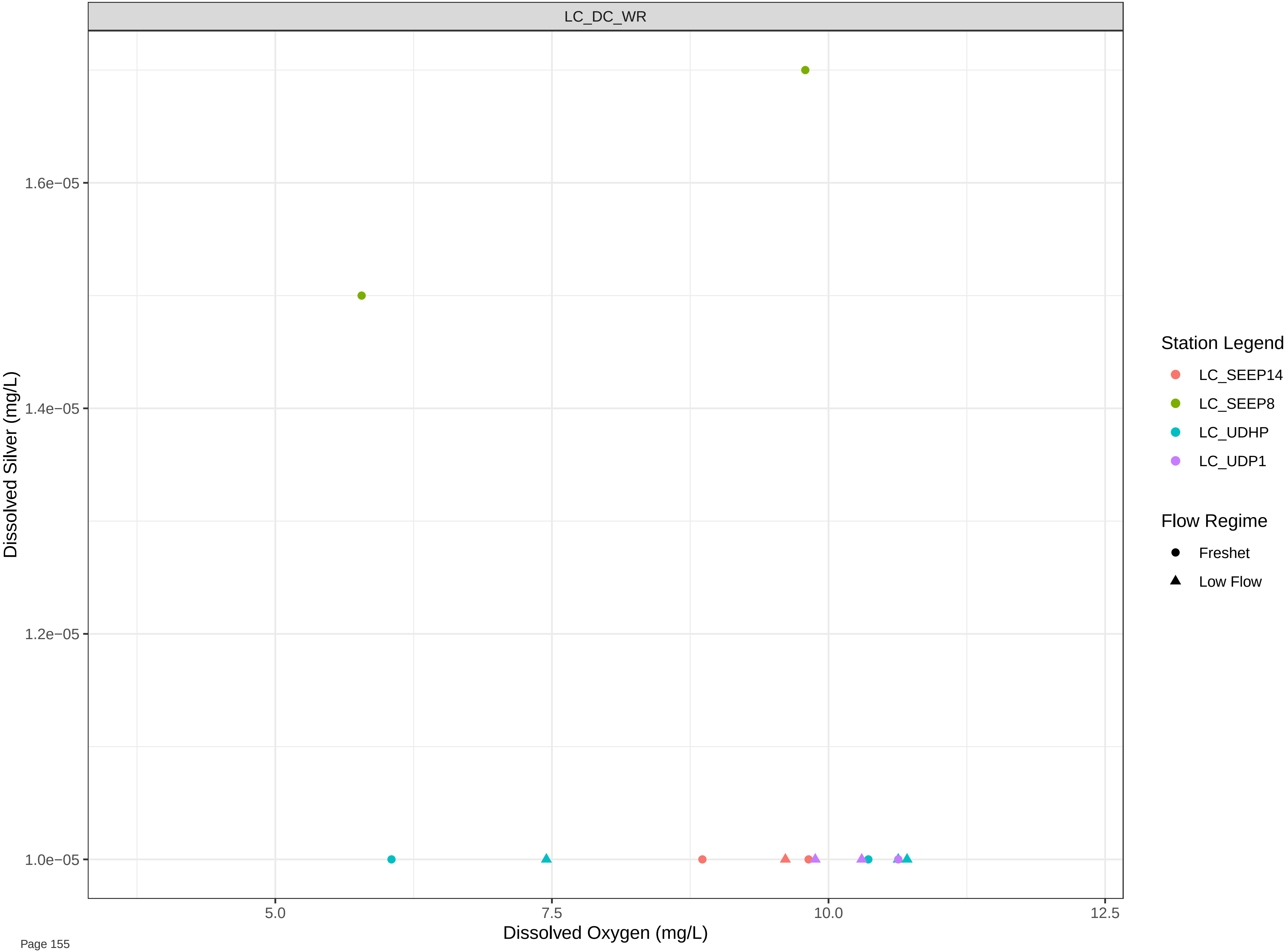

LC_HSP_WR
Dissolved Silicon (mg/L)
2.4
2.2
2.0
1.8
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

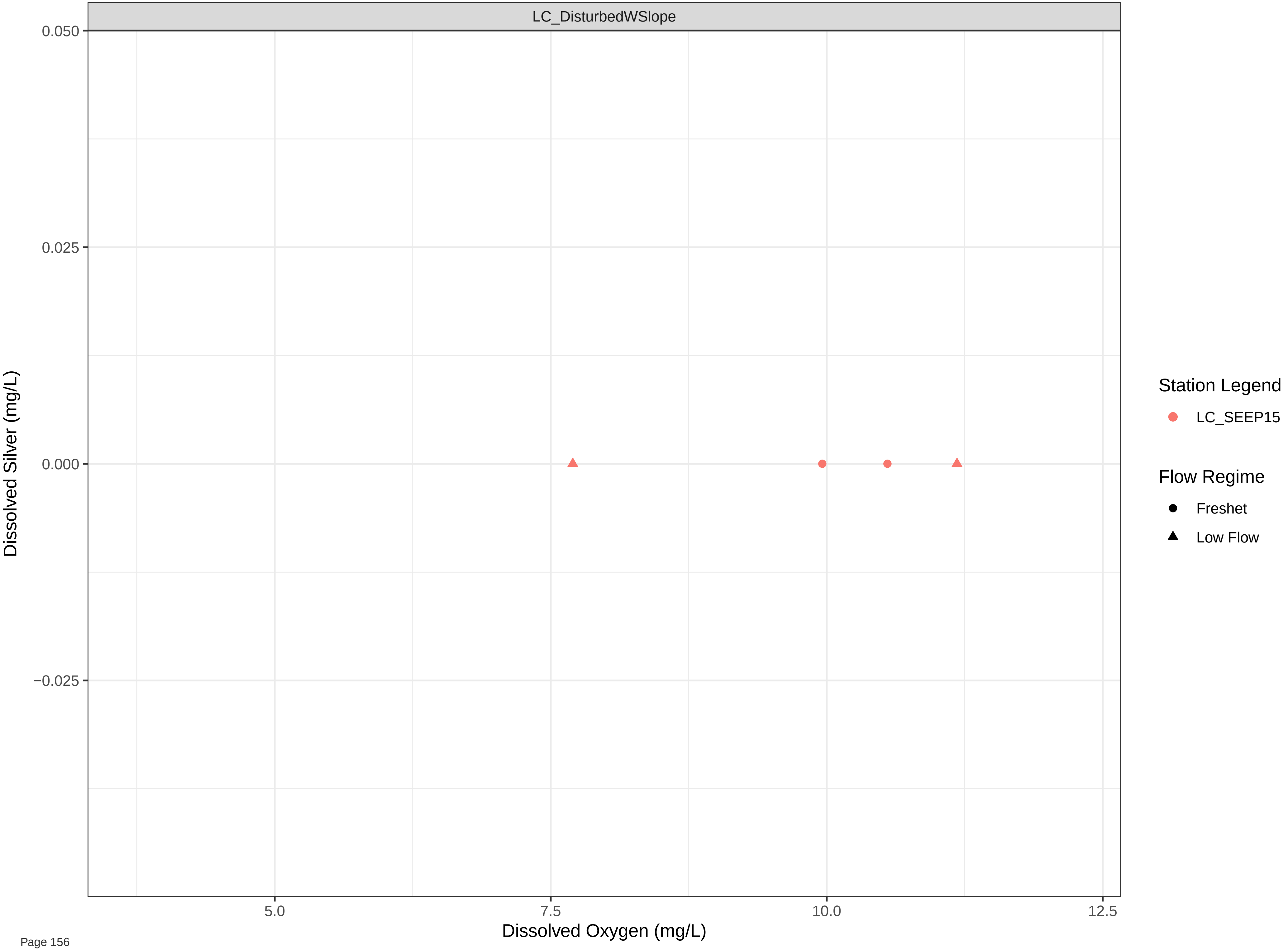

LC_MAXAM
Dissolved Silicon (mg/L)
3.000
2.975
2.950
2.925
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow

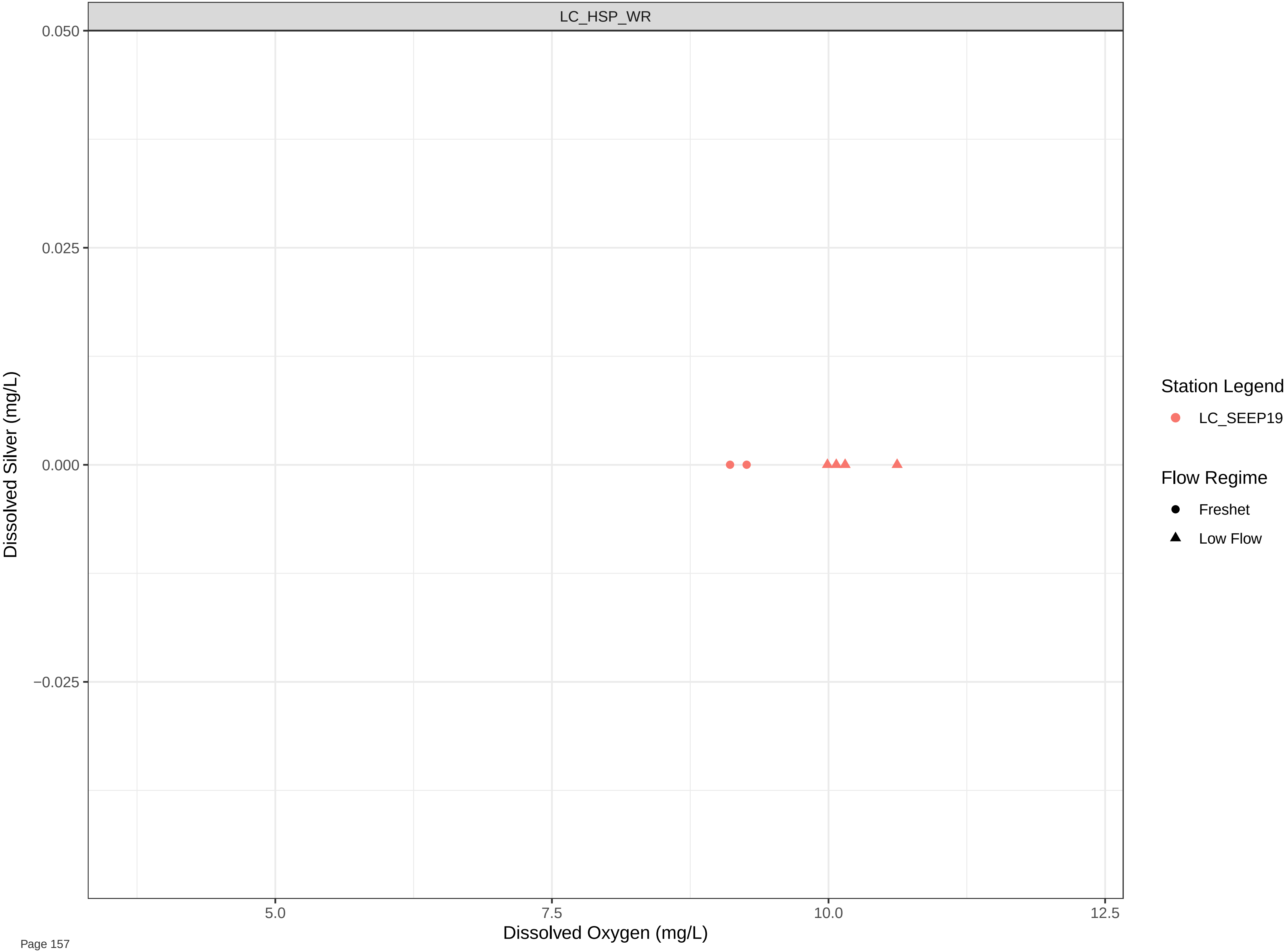

LC_MSA_WR
Dissolved Silicon (mg/L)
3.0
2.9
2.8
2.7
2.6
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow


LC_PLANT
Dissolved Silicon (mg/L)
8
7
6
5
4
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

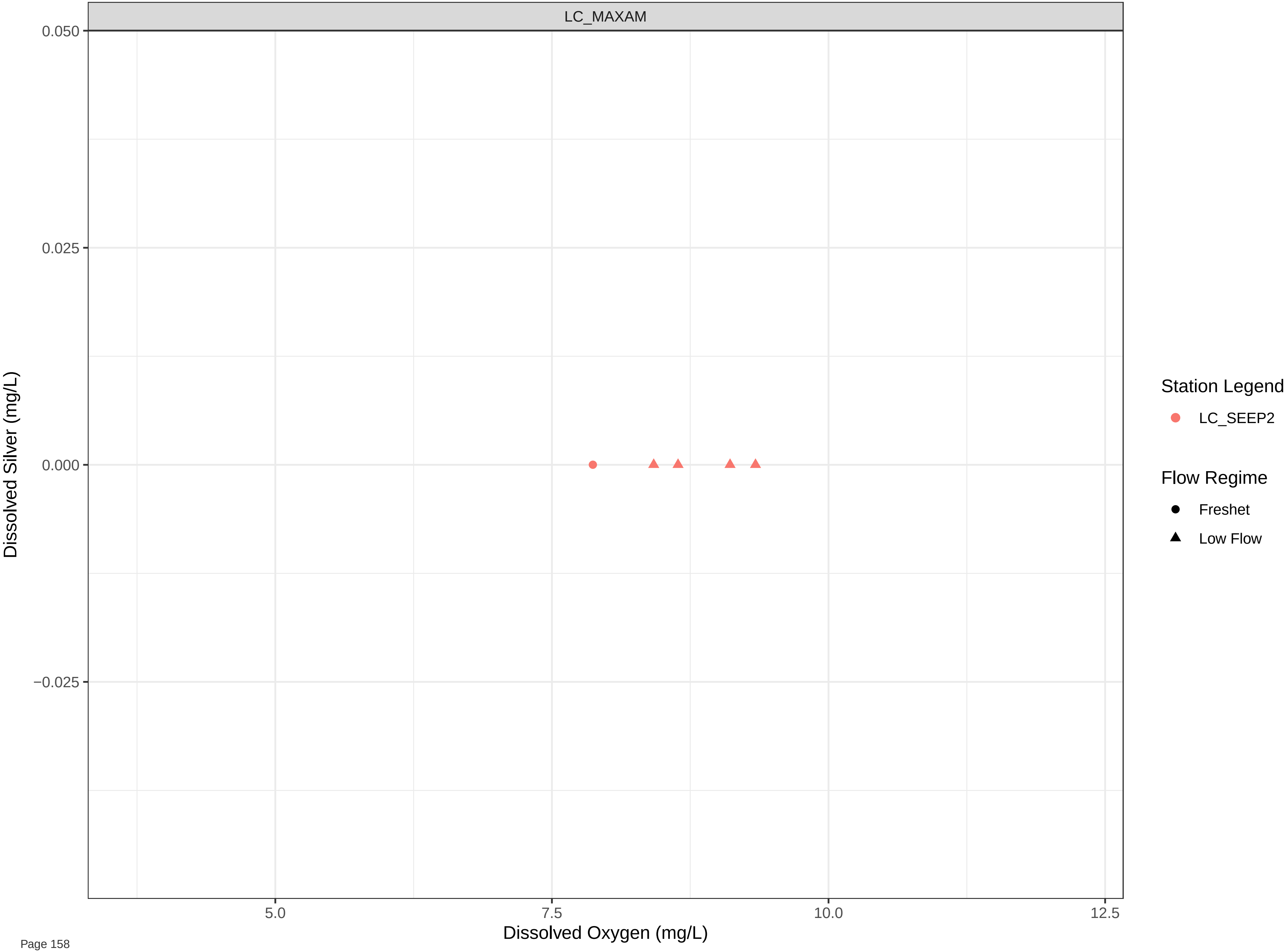

LC_WLC_WR
Dissolved Silicon (mg/L)
2.59
2.57
2.55
2.53
2.51
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

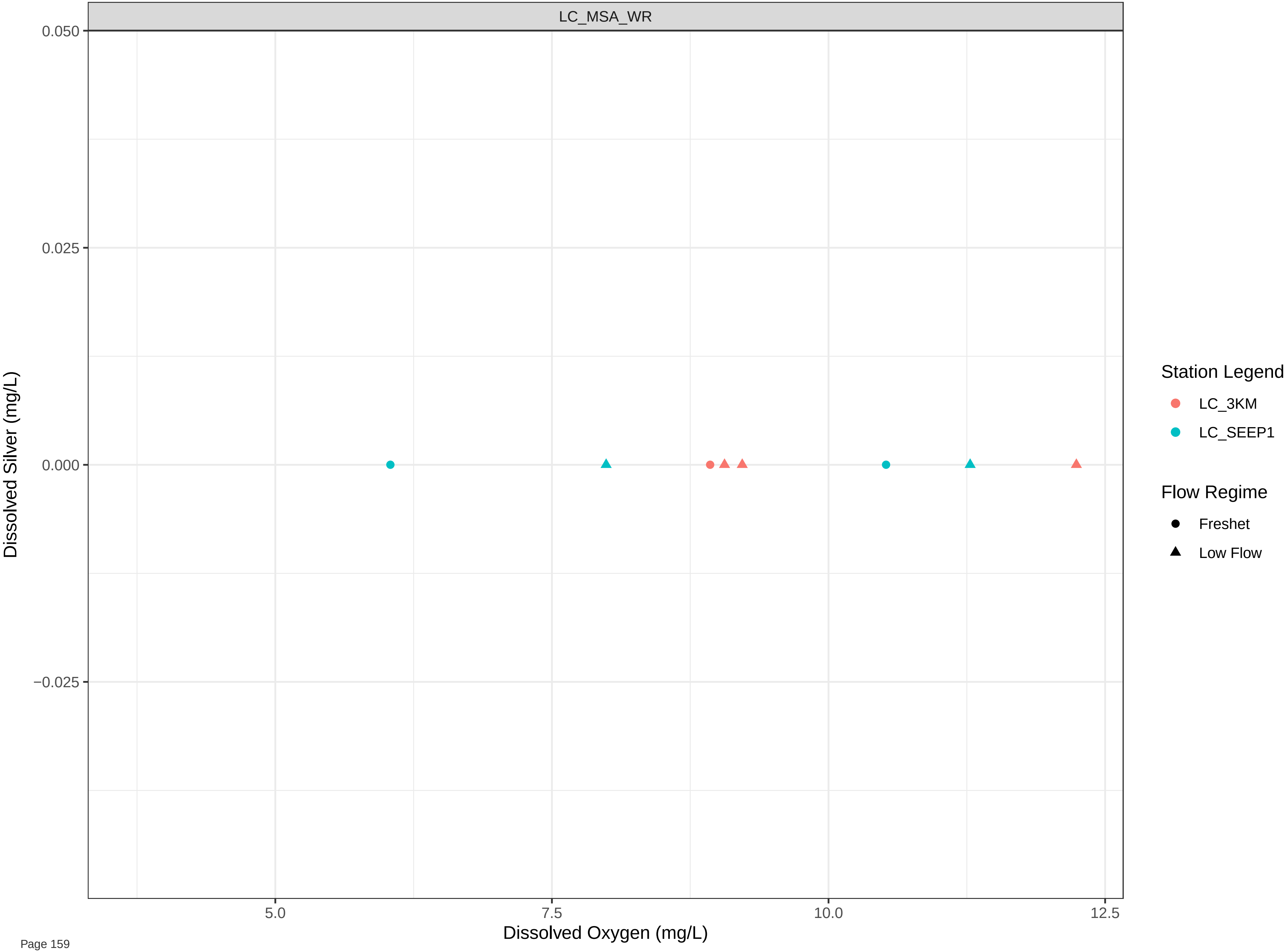

LC_DC_WR
Dissolved Silver (mg/L)
1.6e−05
1.4e−05
1.2e−05
1.0e−05
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

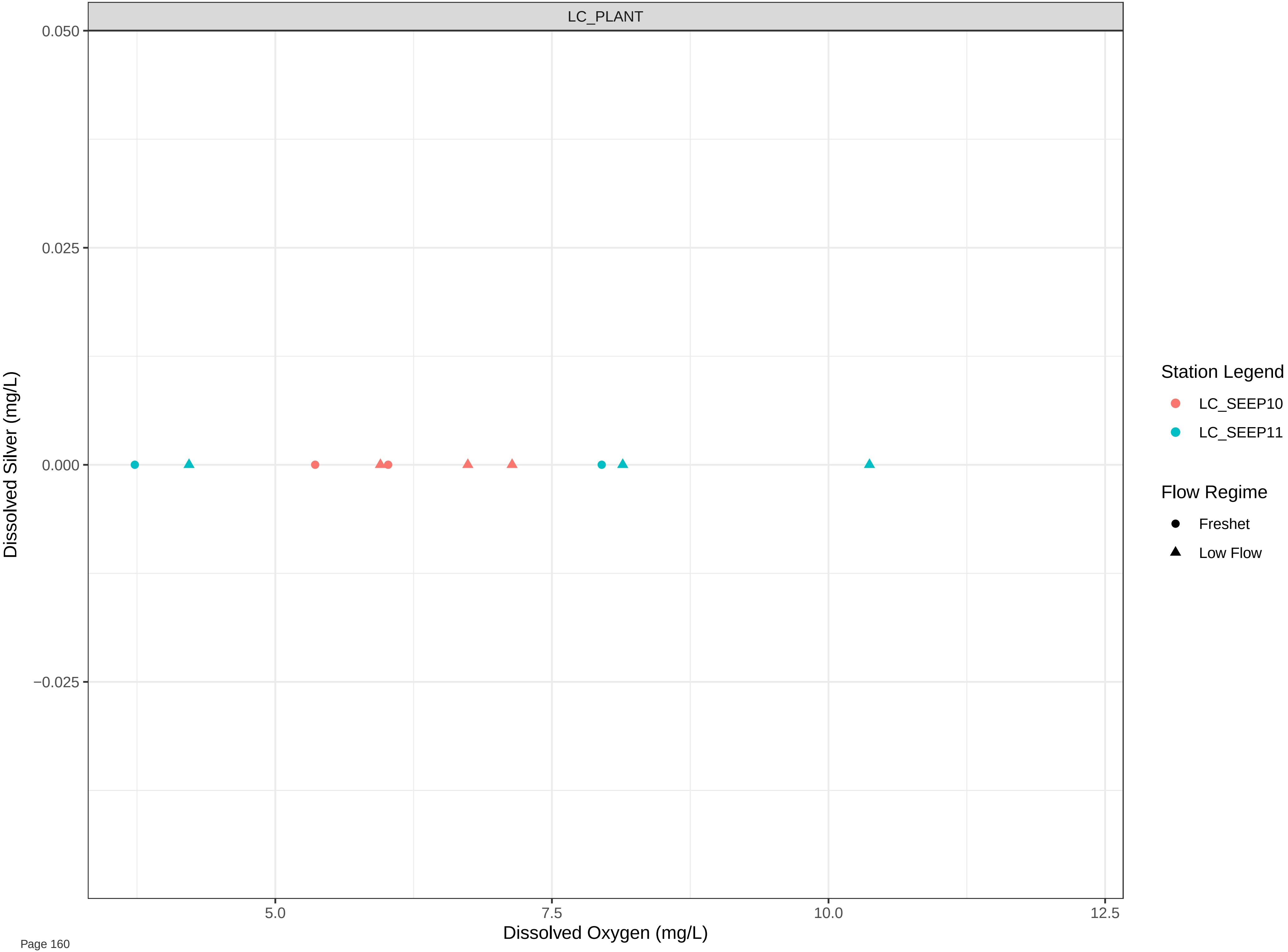

LC_DisturbedWSlope
0.050
0.025
0.000
−0.025
Dissolved Silver (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

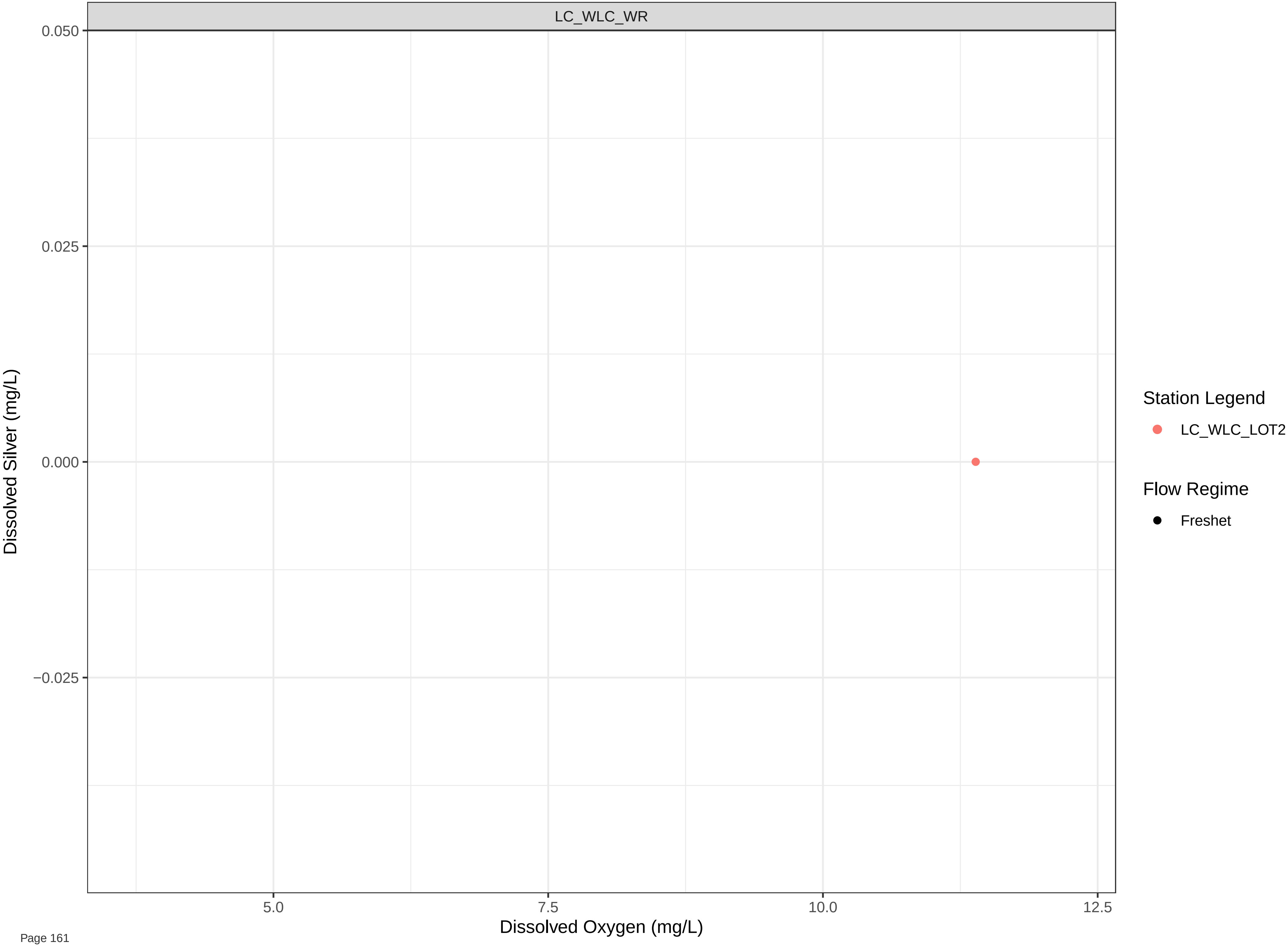


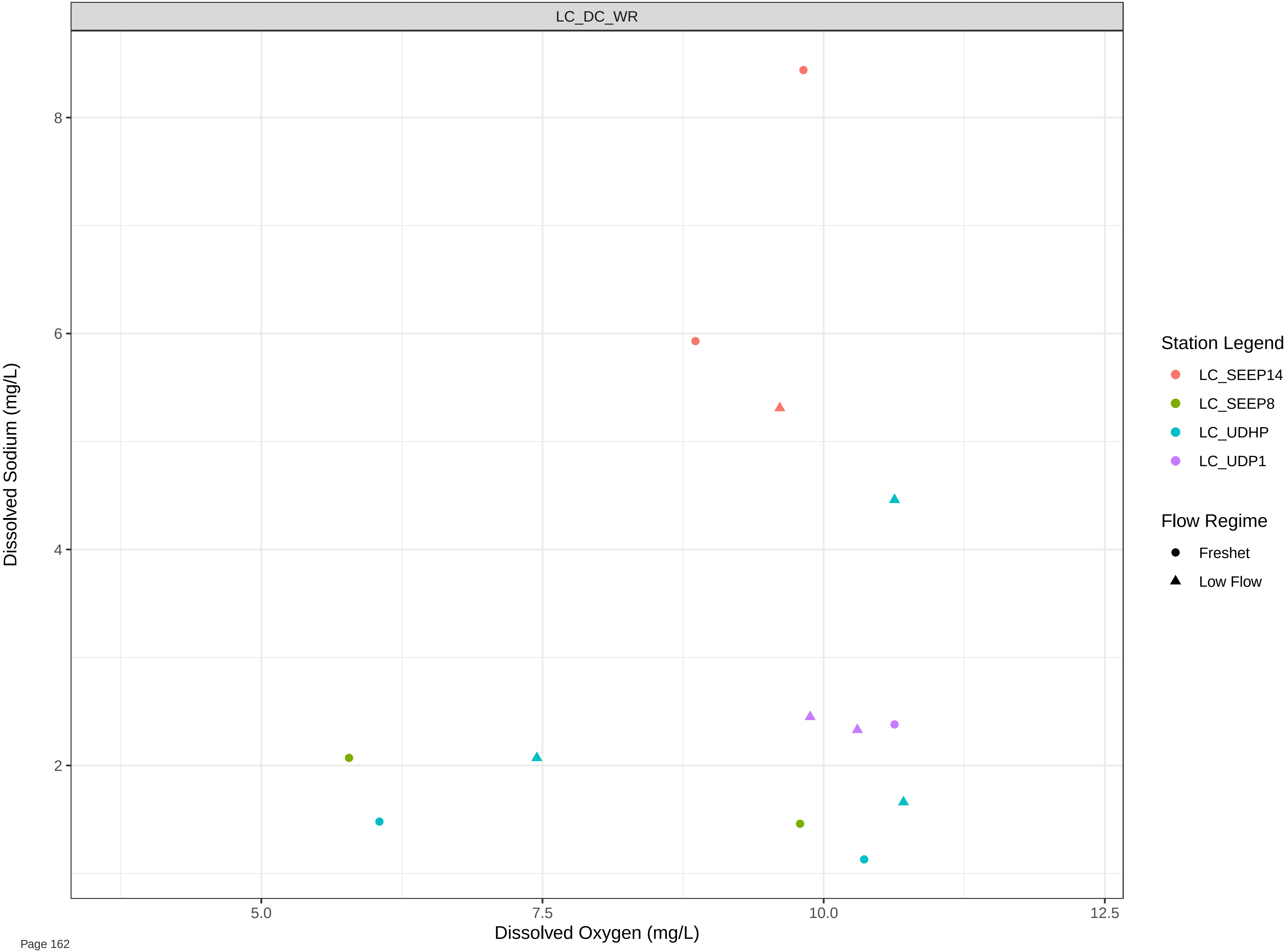
LC_HSP_WR
0.050
0.025
0.000
−0.025
Dissolved Silver (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

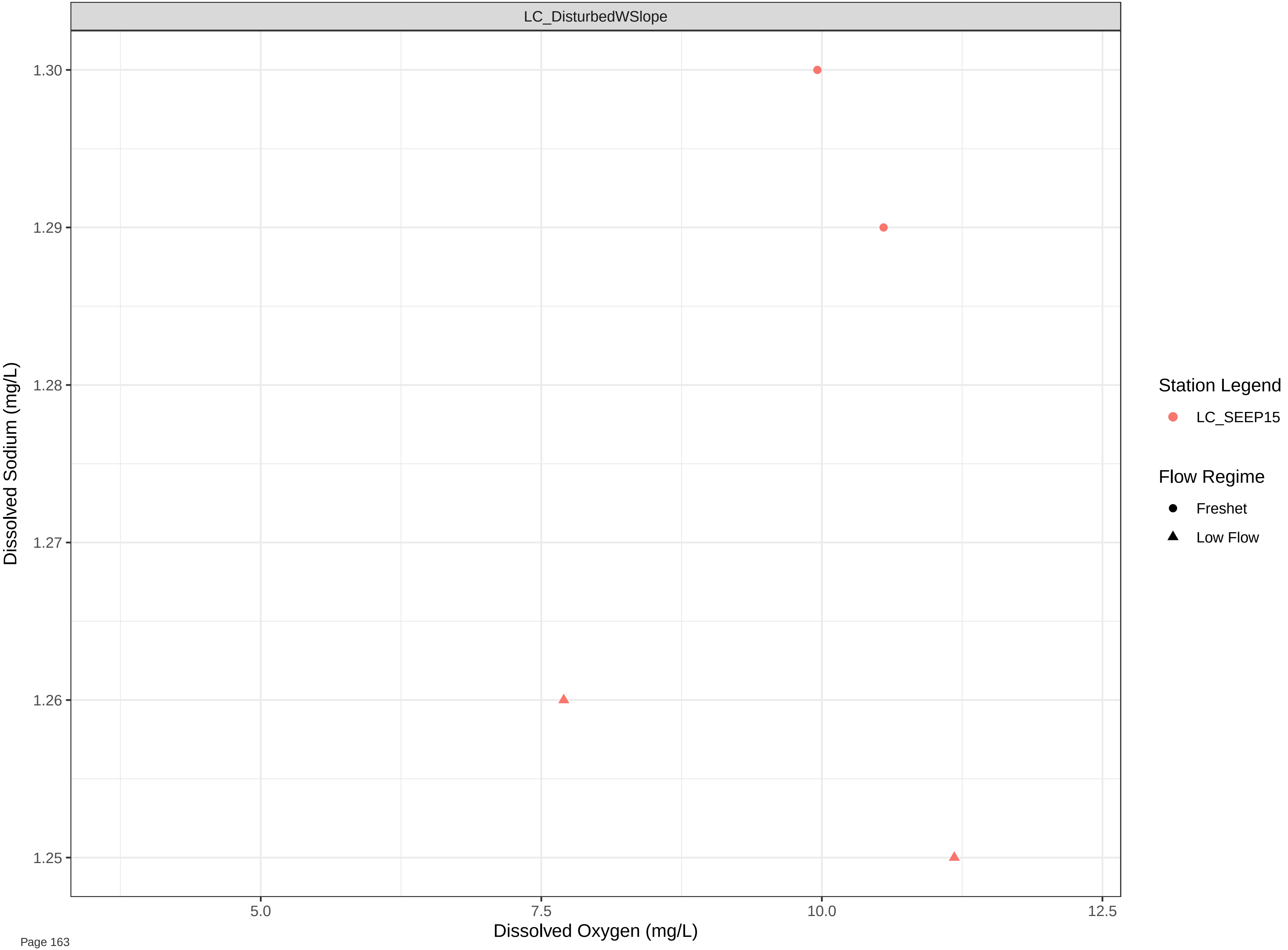

LC_MAXAM
Dissolved Silver (mg/L)
0.050
0.025
0.000
−0.025
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow

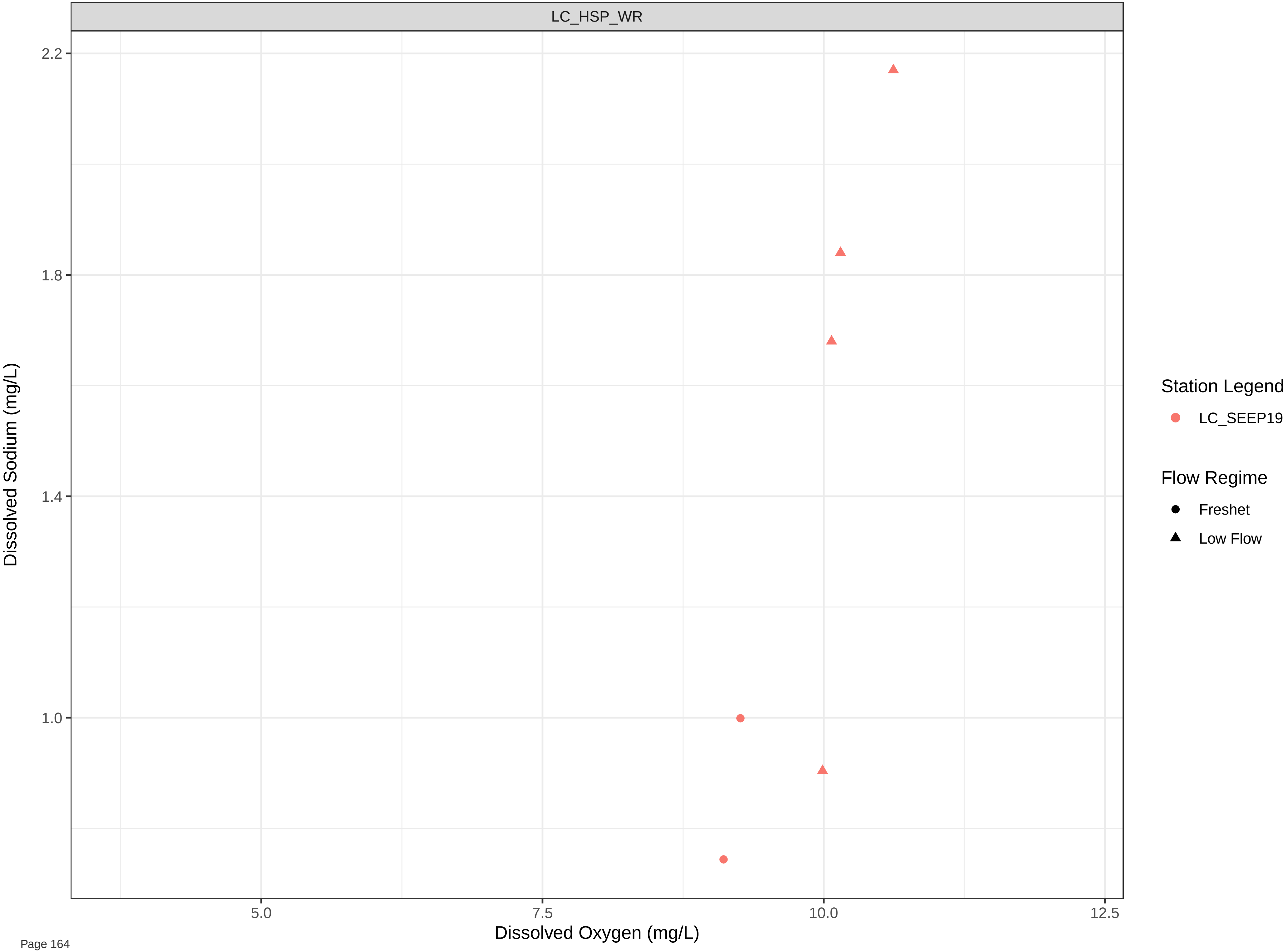

LC_MSA_WR
0.050
0.025
0.000
−0.025
Dissolved Silver (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

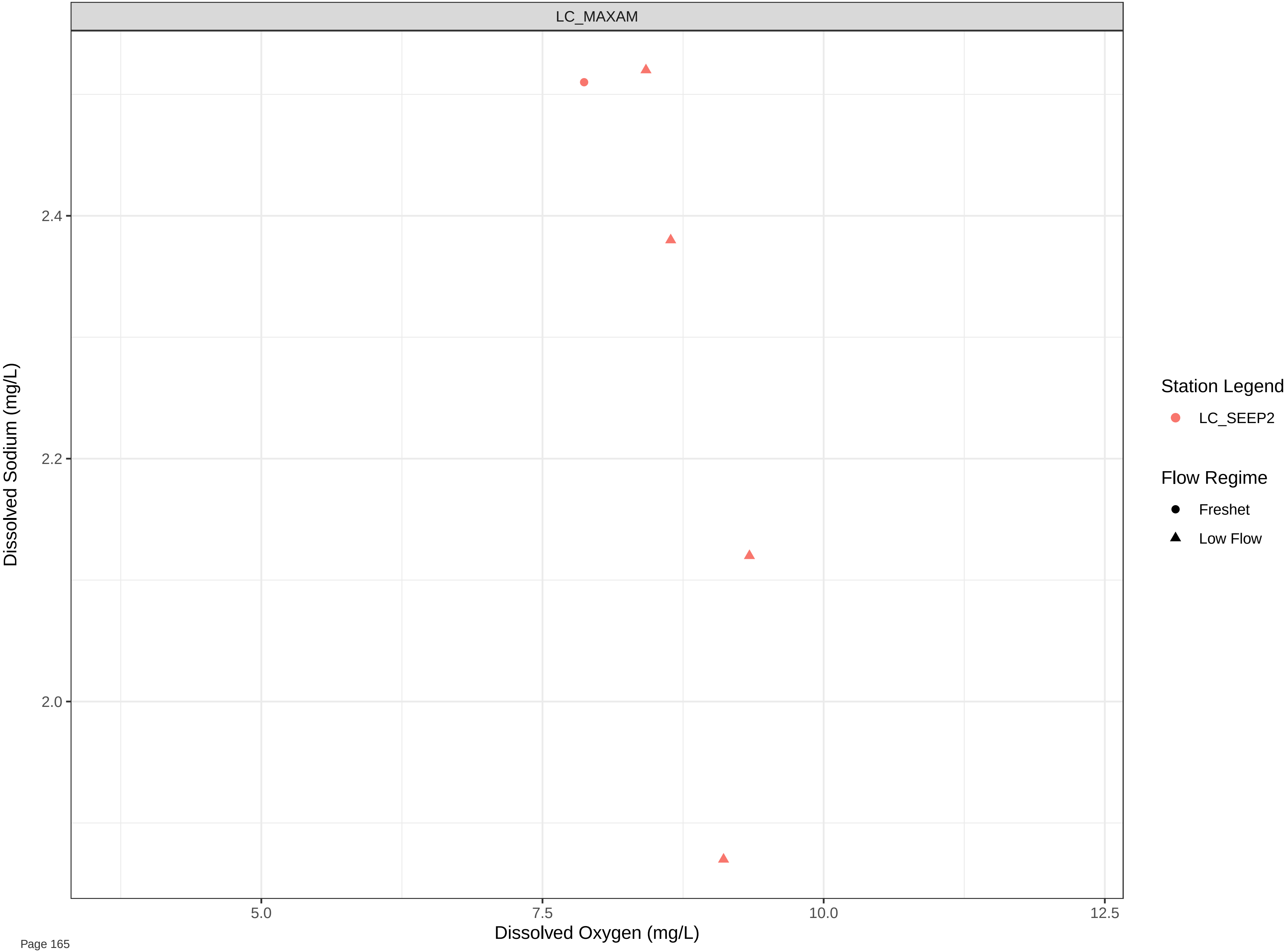

LC_PLANT
0.050
0.025
0.000
−0.025
Dissolved Silver (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

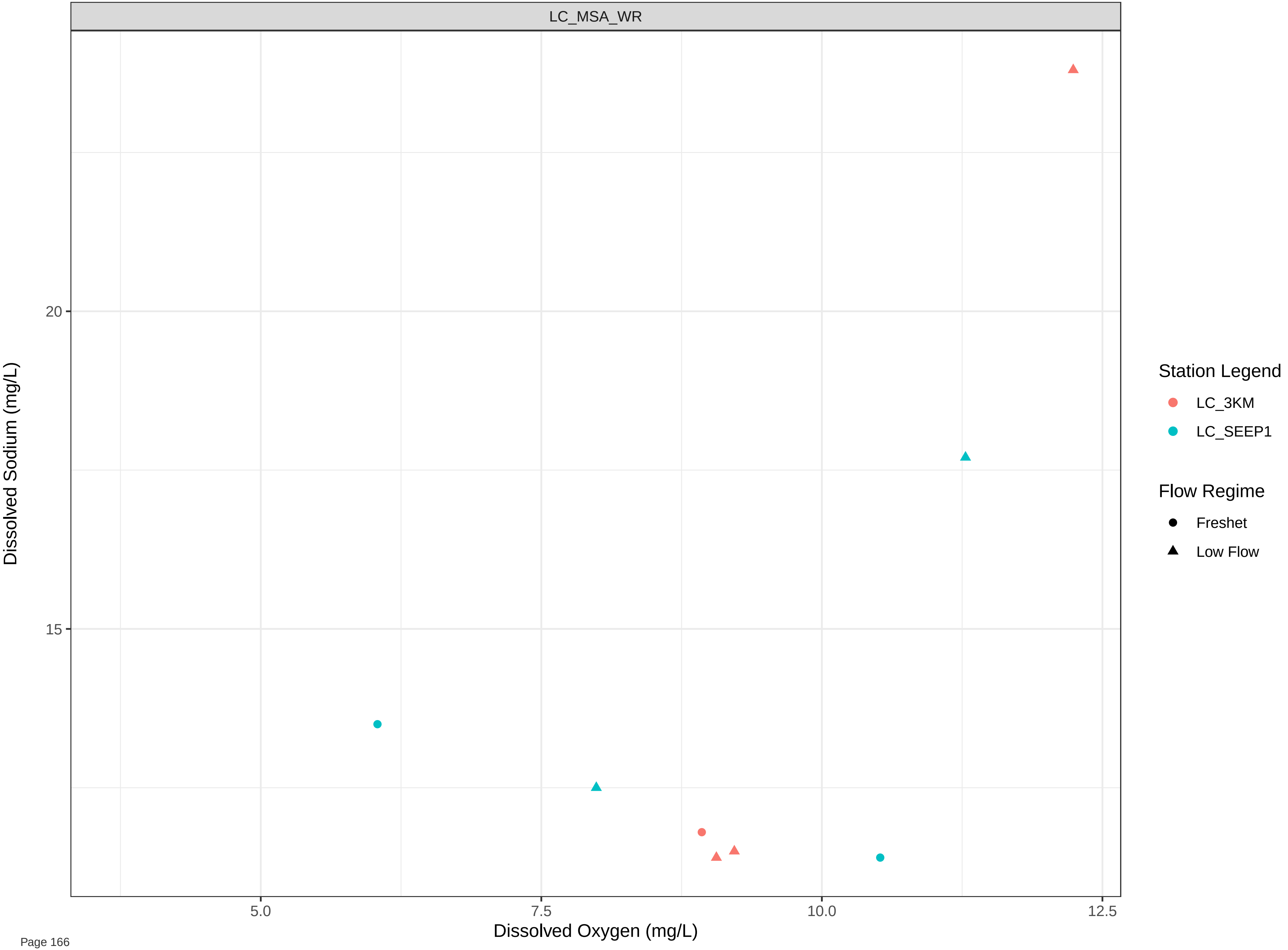

LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Silver (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

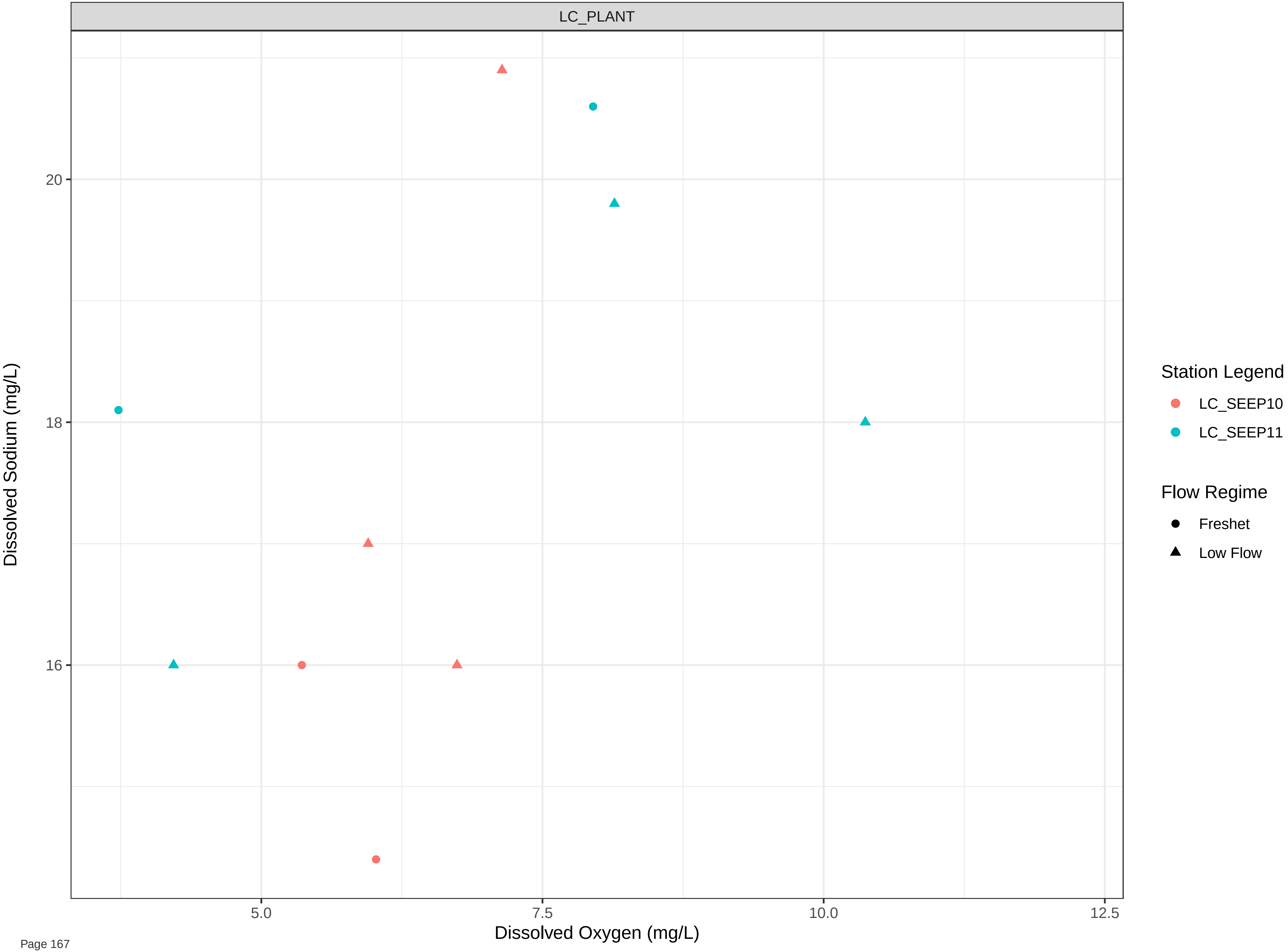

LC_DC_WR
Dissolved Sodium (mg/L)
8
6
4
2
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

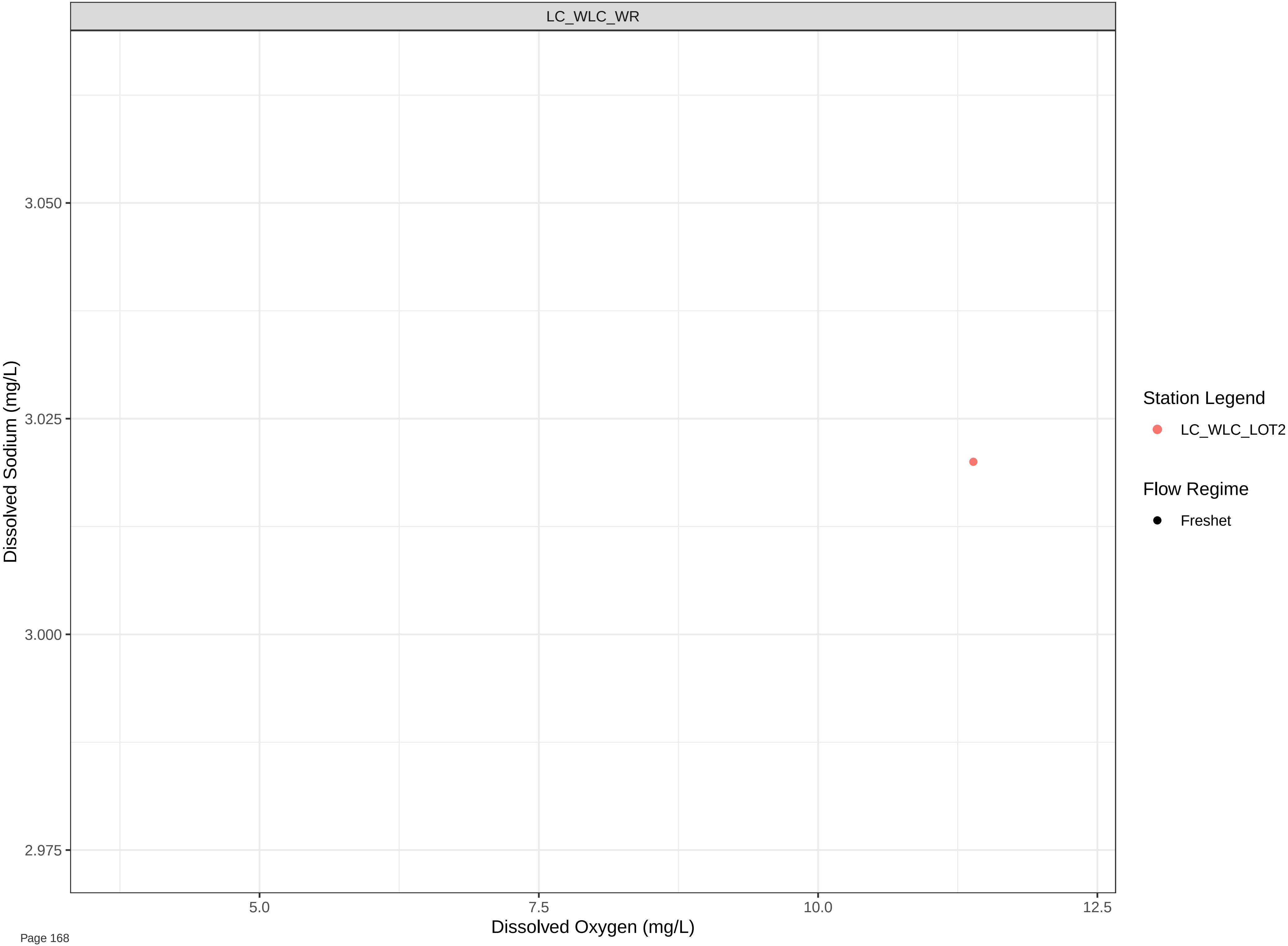

LC_DisturbedWSlope
1.30
1.29
1.28
1.27
1.26
1.25
Dissolved Sodium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow

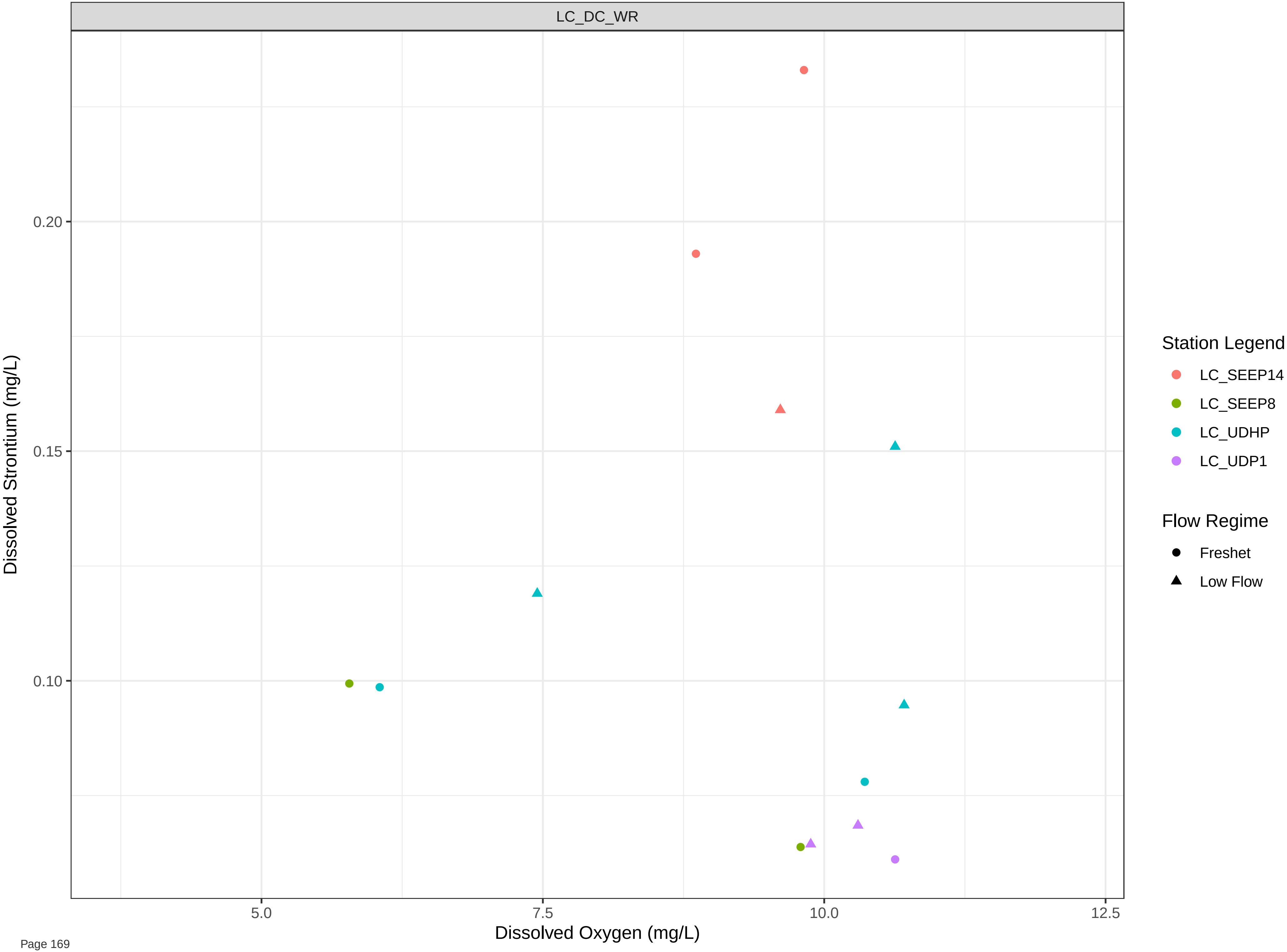

LC_HSP_WR
Dissolved Sodium (mg/L)
2.2
1.8
1.4
1.0
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

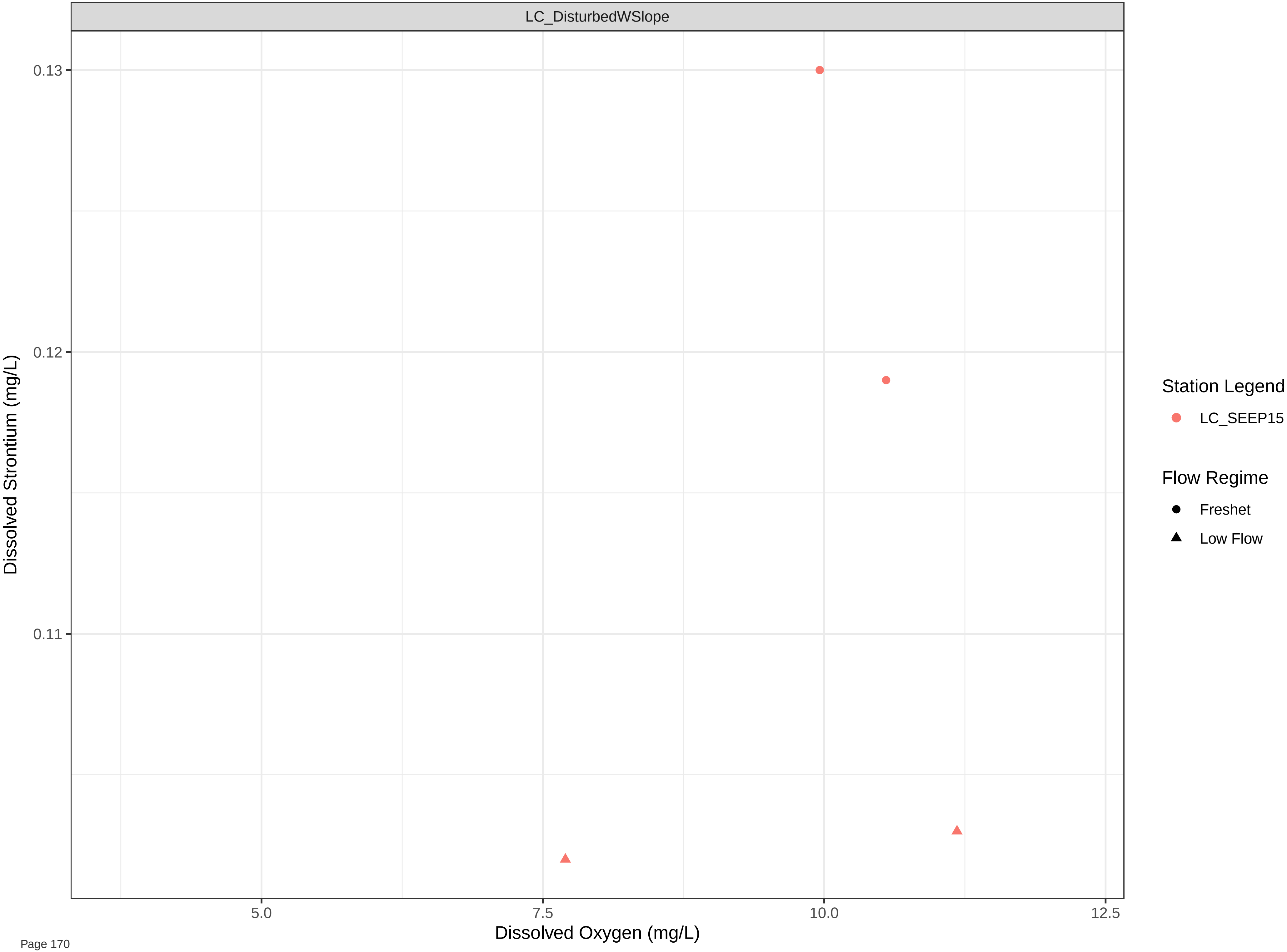

LC_MAXAM
Dissolved Sodium (mg/L)
2.4
2.2
2.0
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

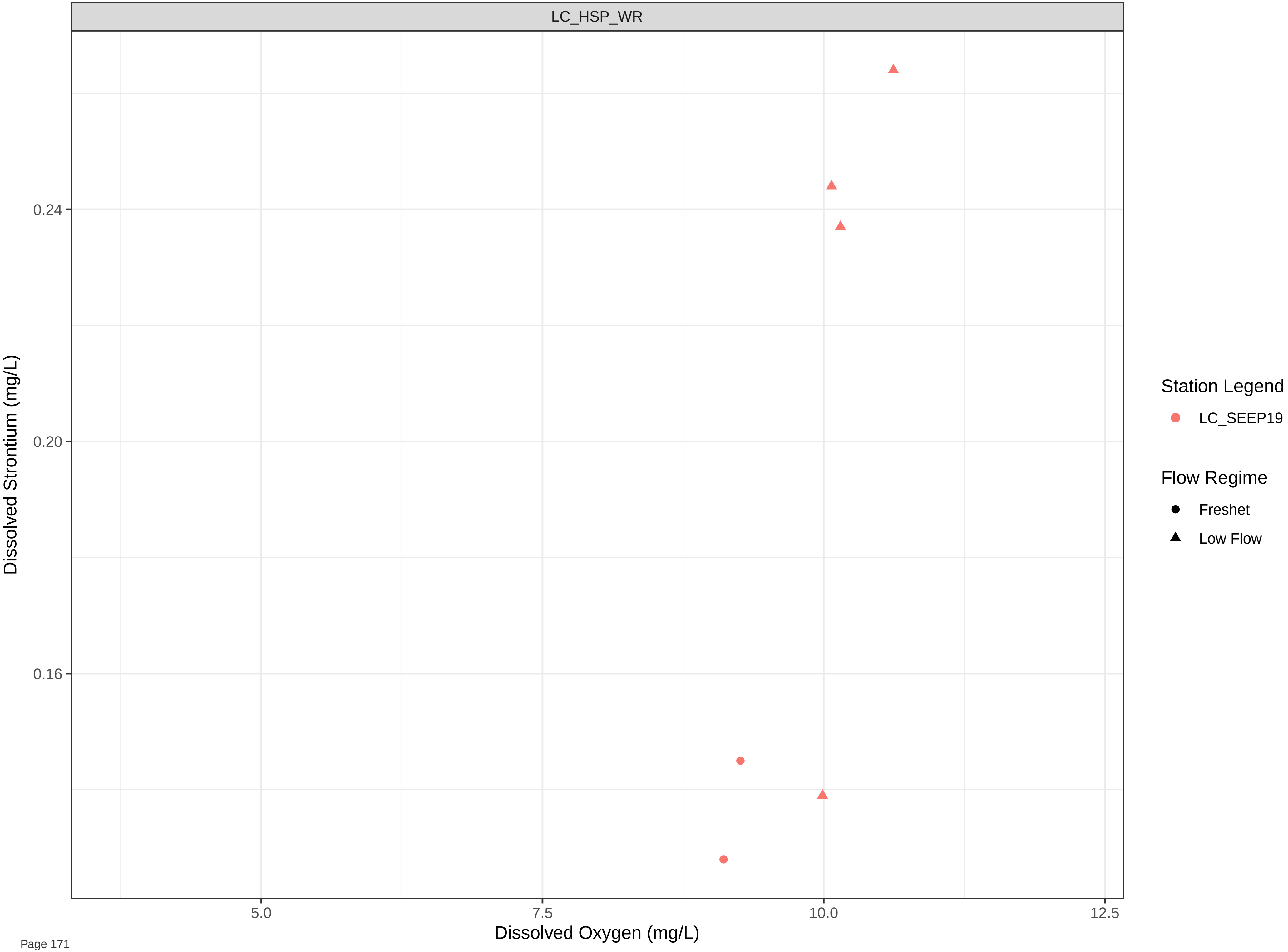

LC_MSA_WR
Dissolved Sodium (mg/L)
20
15
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

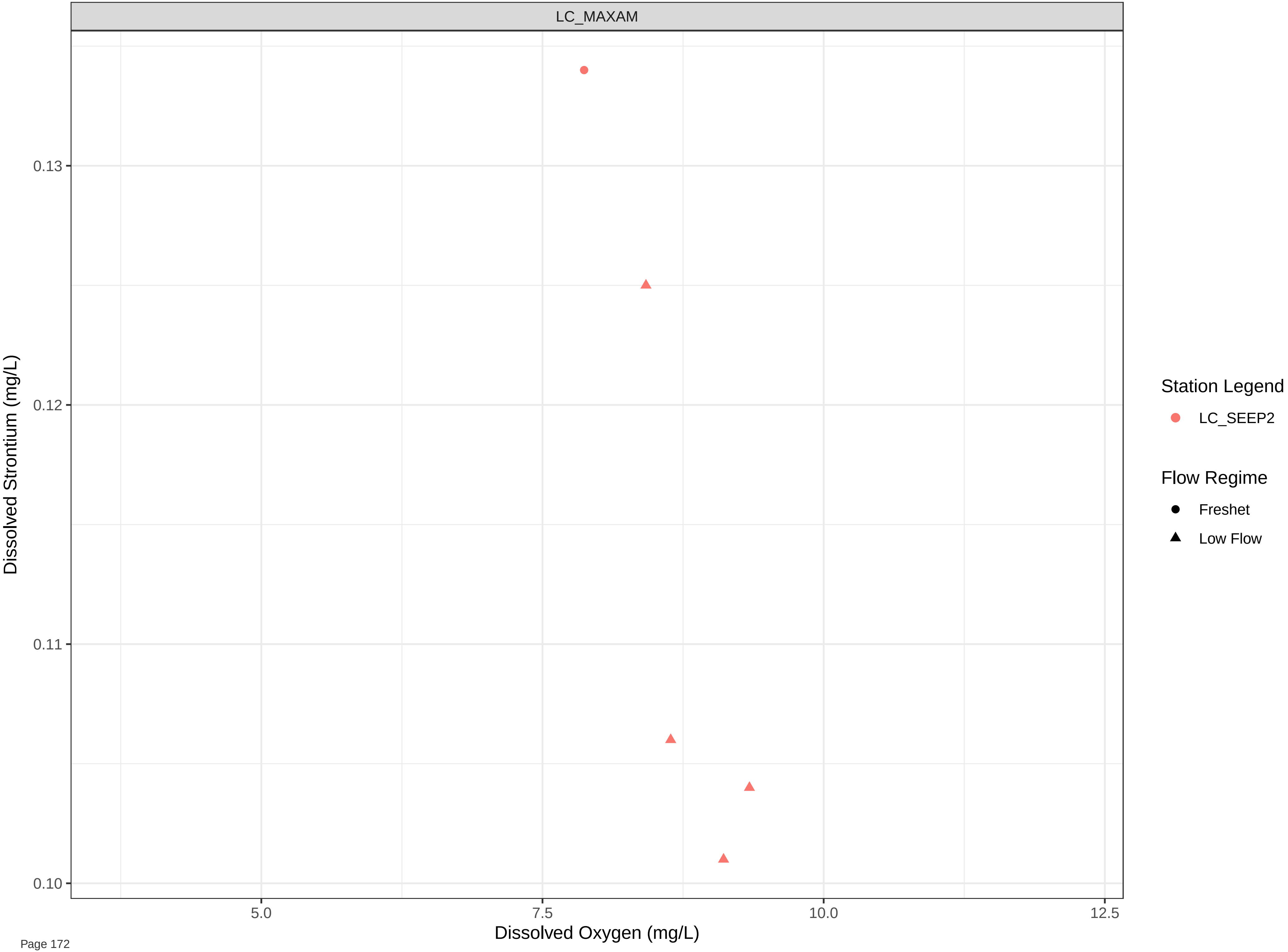

LC_PLANT
Dissolved Sodium (mg/L)
20
18
16
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

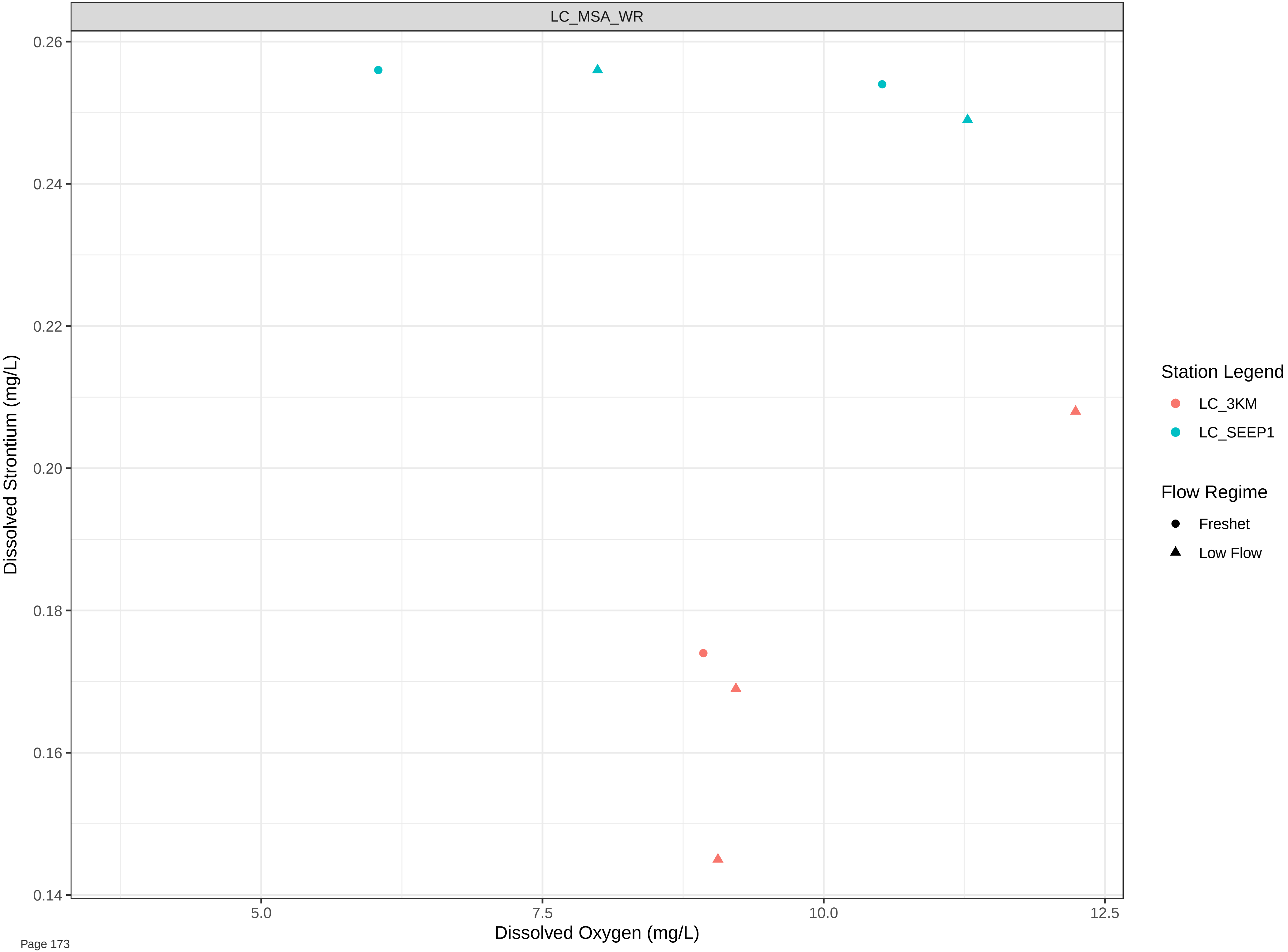

LC_WLC_WR
Dissolved Sodium (mg/L)
3.050
3.025
3.000
2.975
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

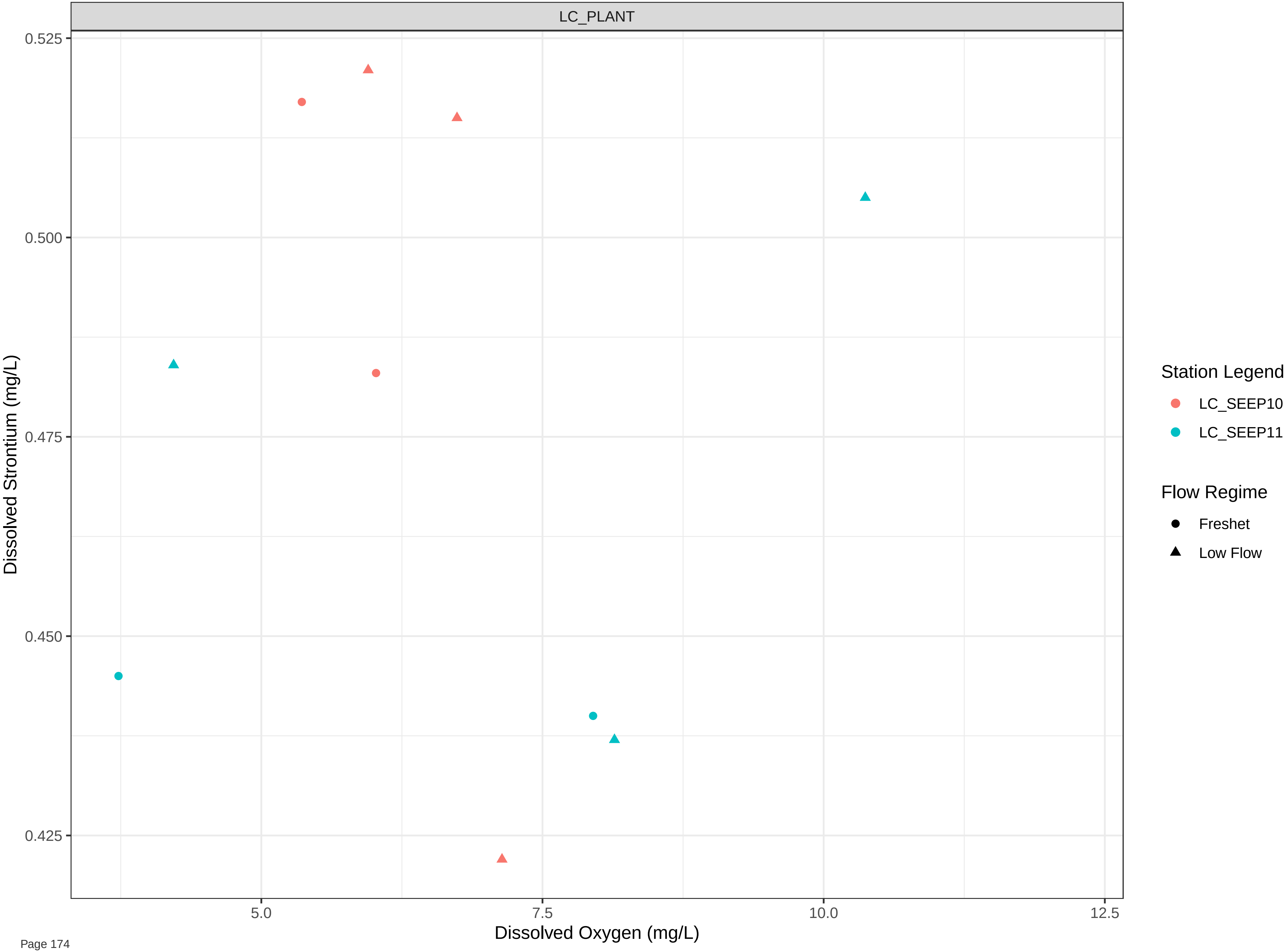

LC_DC_WR
Dissolved Strontium (mg/L)
0.20
0.15
0.10
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

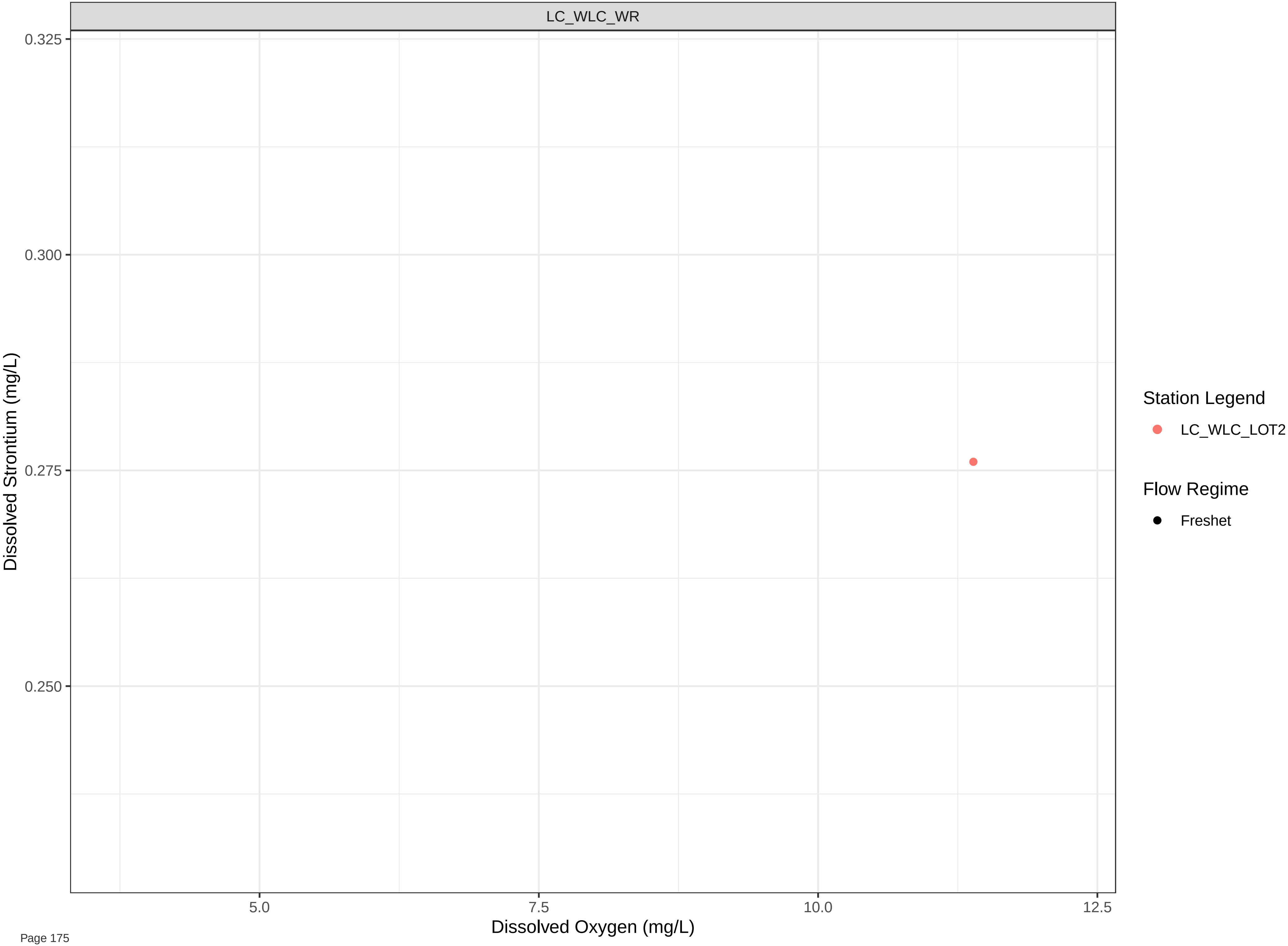

LC_DisturbedWSlope
0.13
0.12
0.11
Dissolved Strontium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow

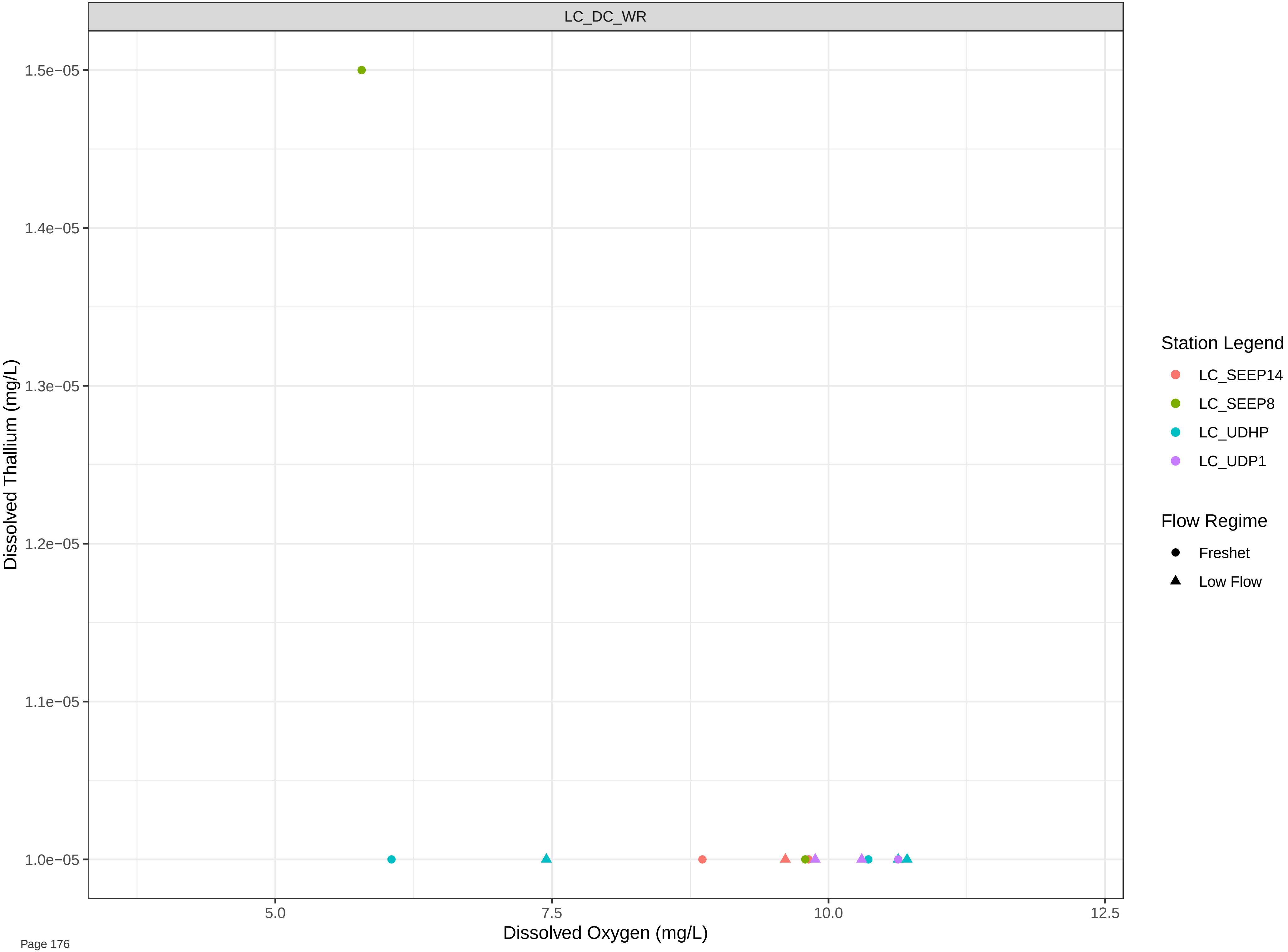

LC_HSP_WR
Dissolved Strontium (mg/L)
0.24
0.20
0.16
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

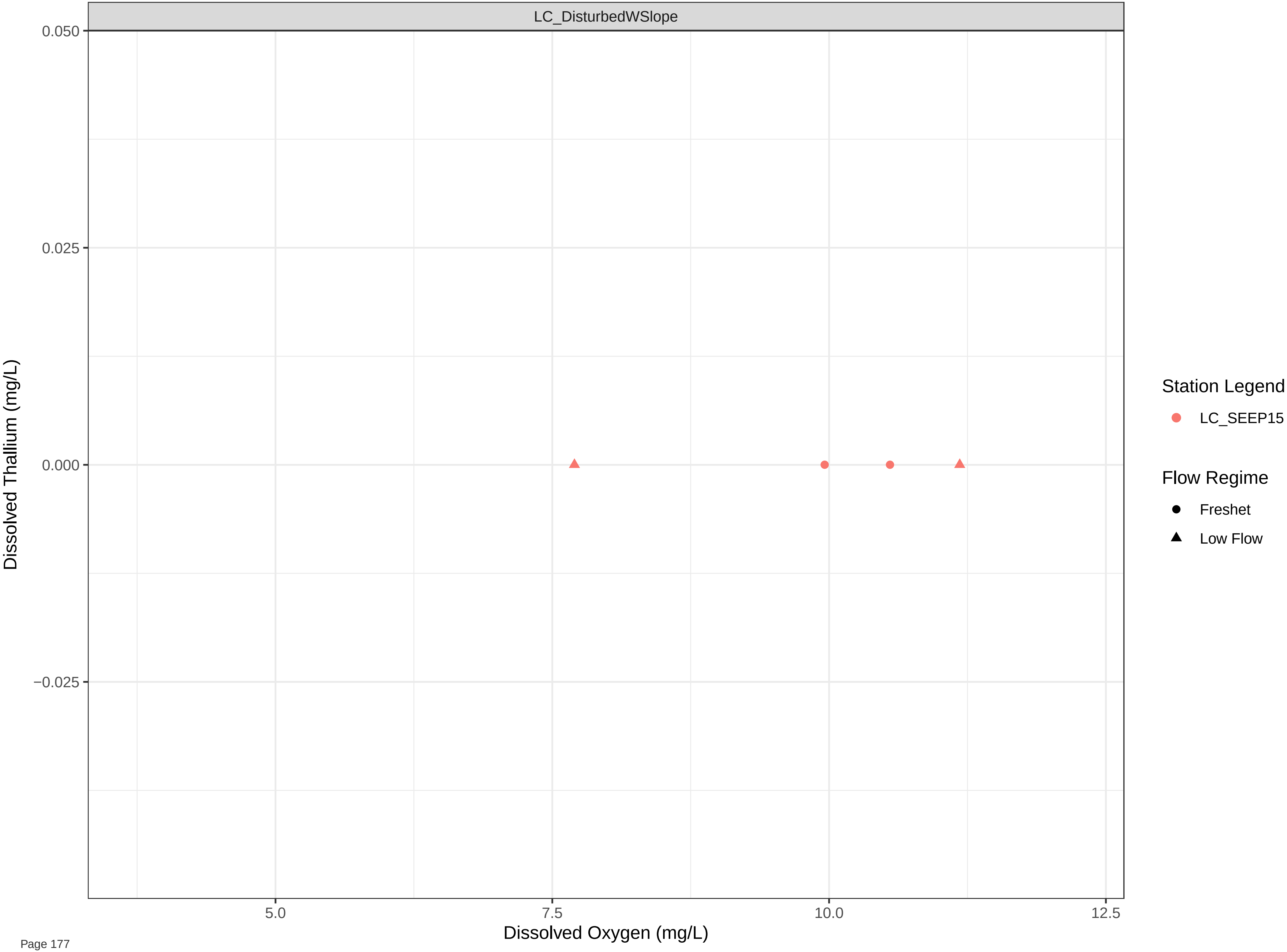

LC_MAXAM
Dissolved Strontium (mg/L)
0.13
0.12
0.11
0.10
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

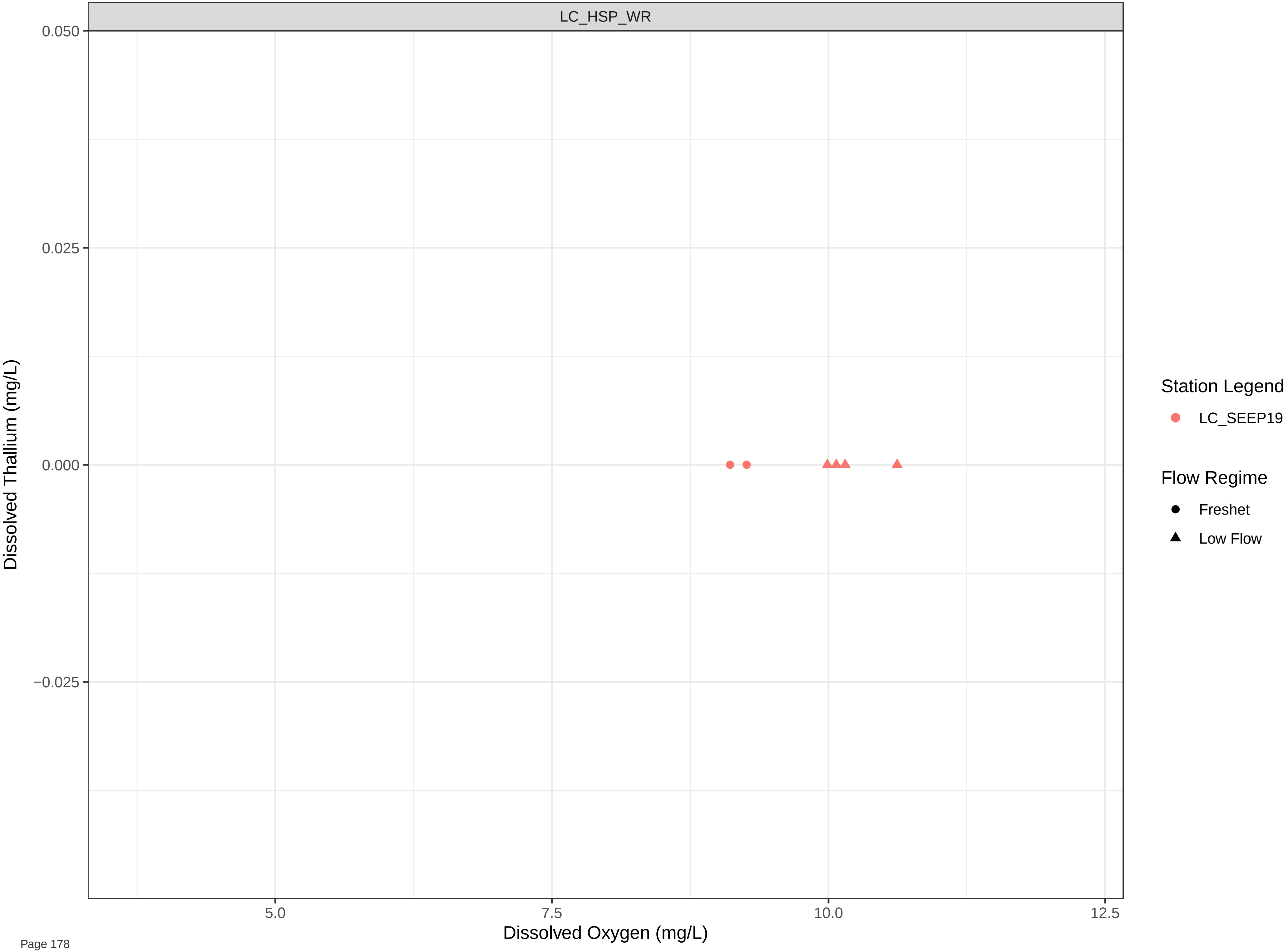

LC_MSA_WR
Dissolved Strontium (mg/L)
0.26
0.24
0.22
0.20
0.18
0.16
0.14
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow


LC_PLANT
Dissolved Strontium (mg/L)
0.525
0.500
0.475
0.450
0.425
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

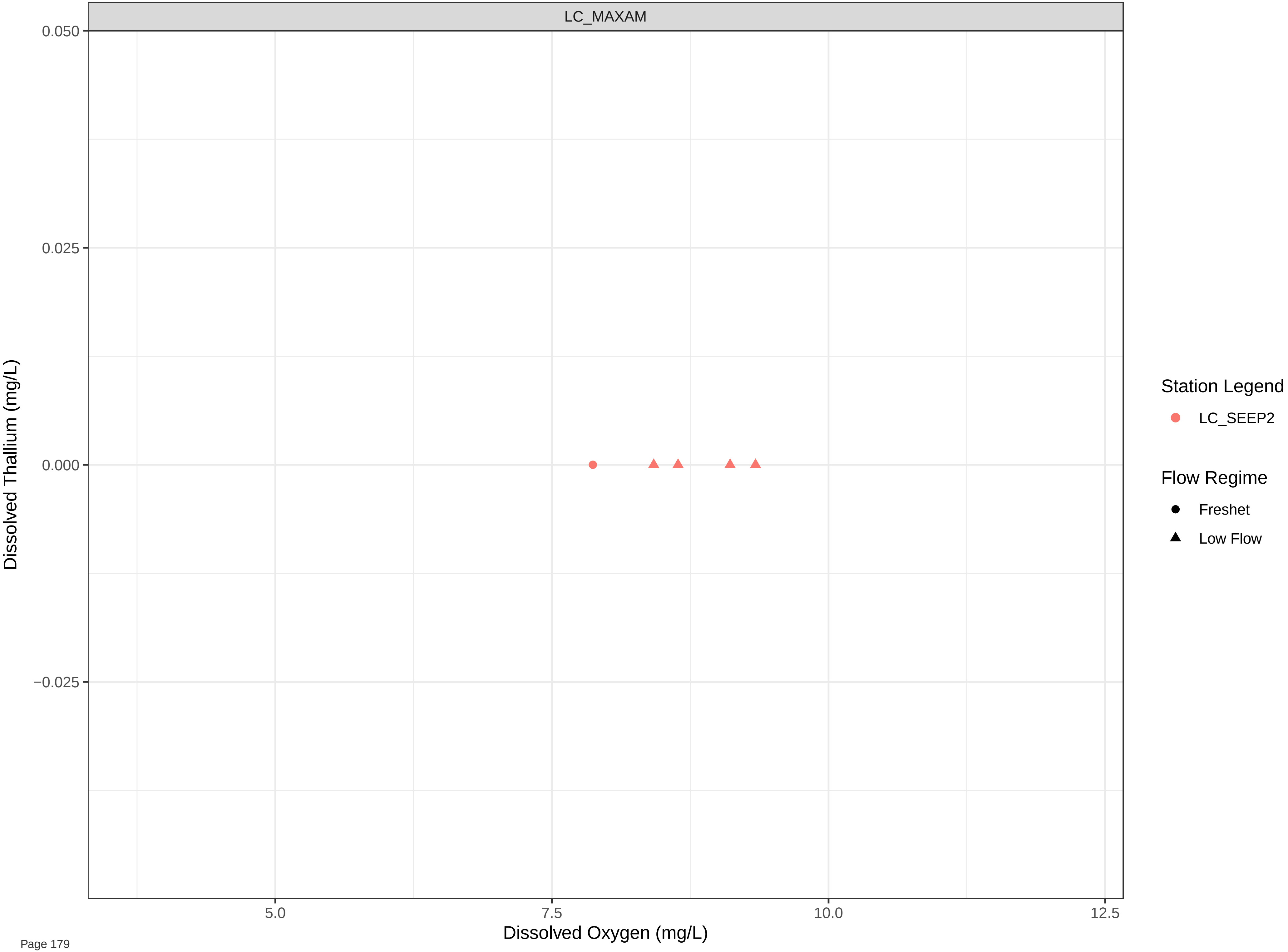

LC_WLC_WR
0.325
0.300
0.275
0.250
Dissolved Strontium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

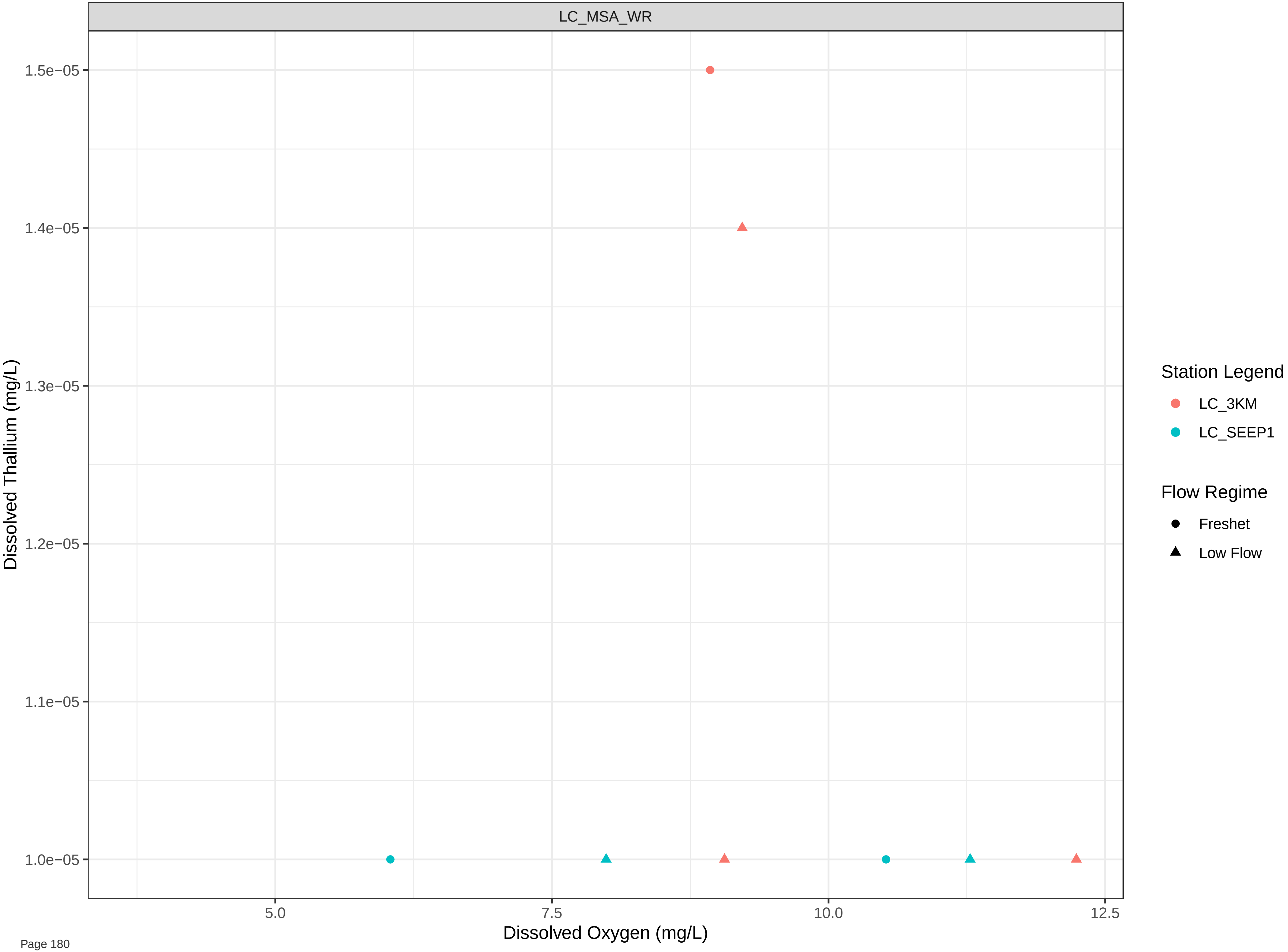

LC_DC_WR
Dissolved Thallium (mg/L)
1.5e−05
1.4e−05
1.3e−05
1.2e−05
1.1e−05
1.0e−05
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

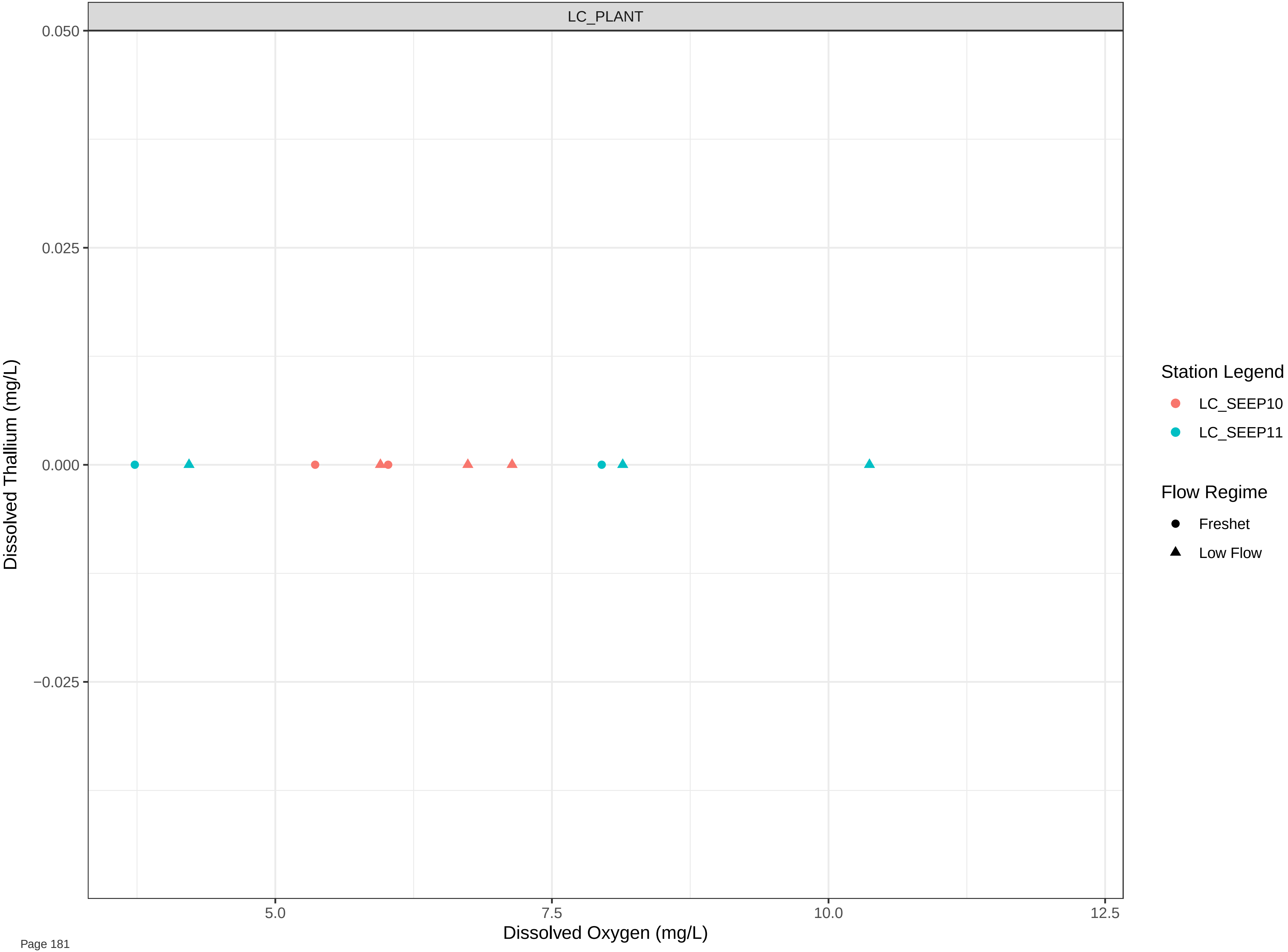

LC_DisturbedWSlope
0.050
0.025
0.000
−0.025
Dissolved Thallium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

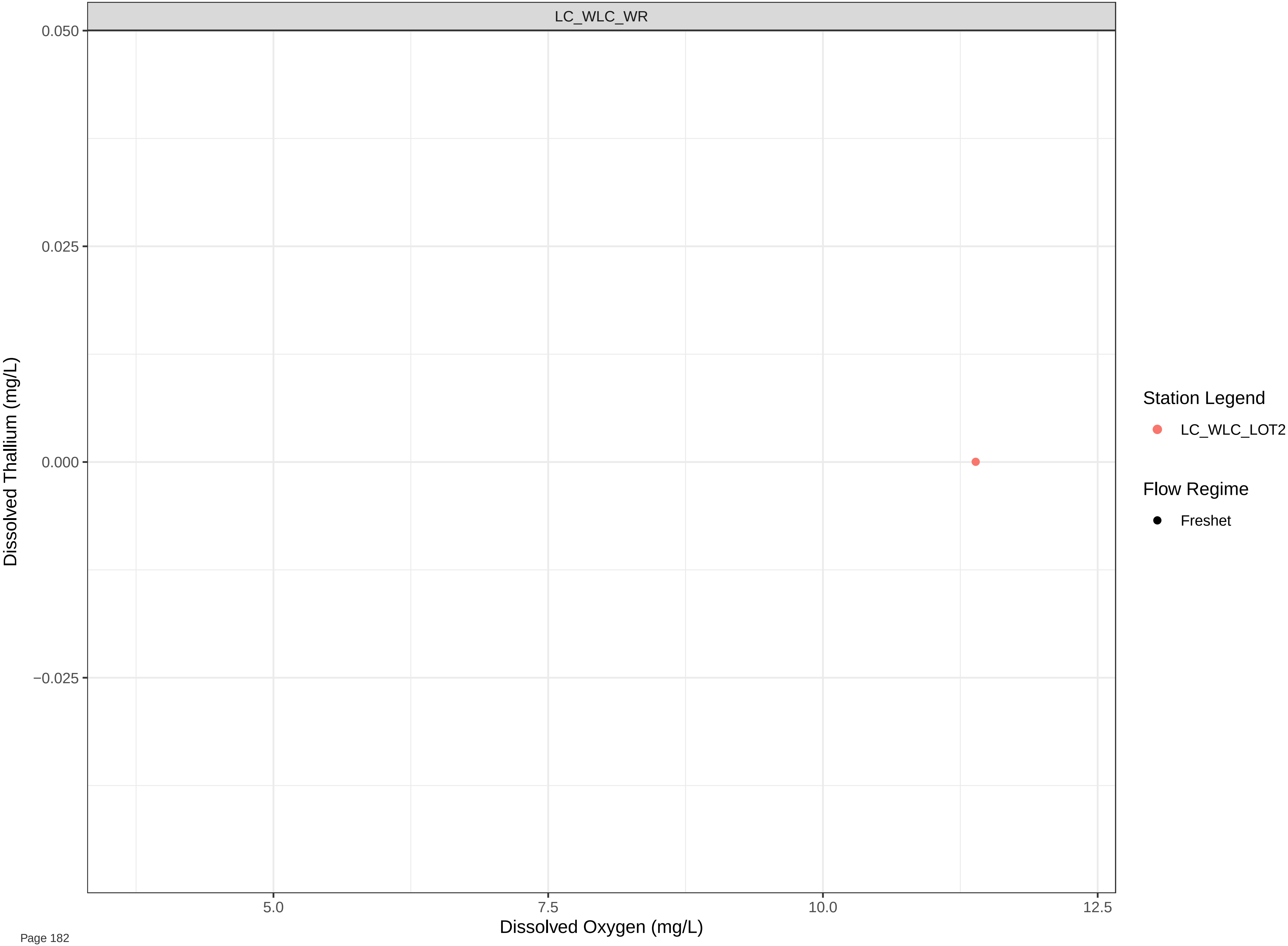


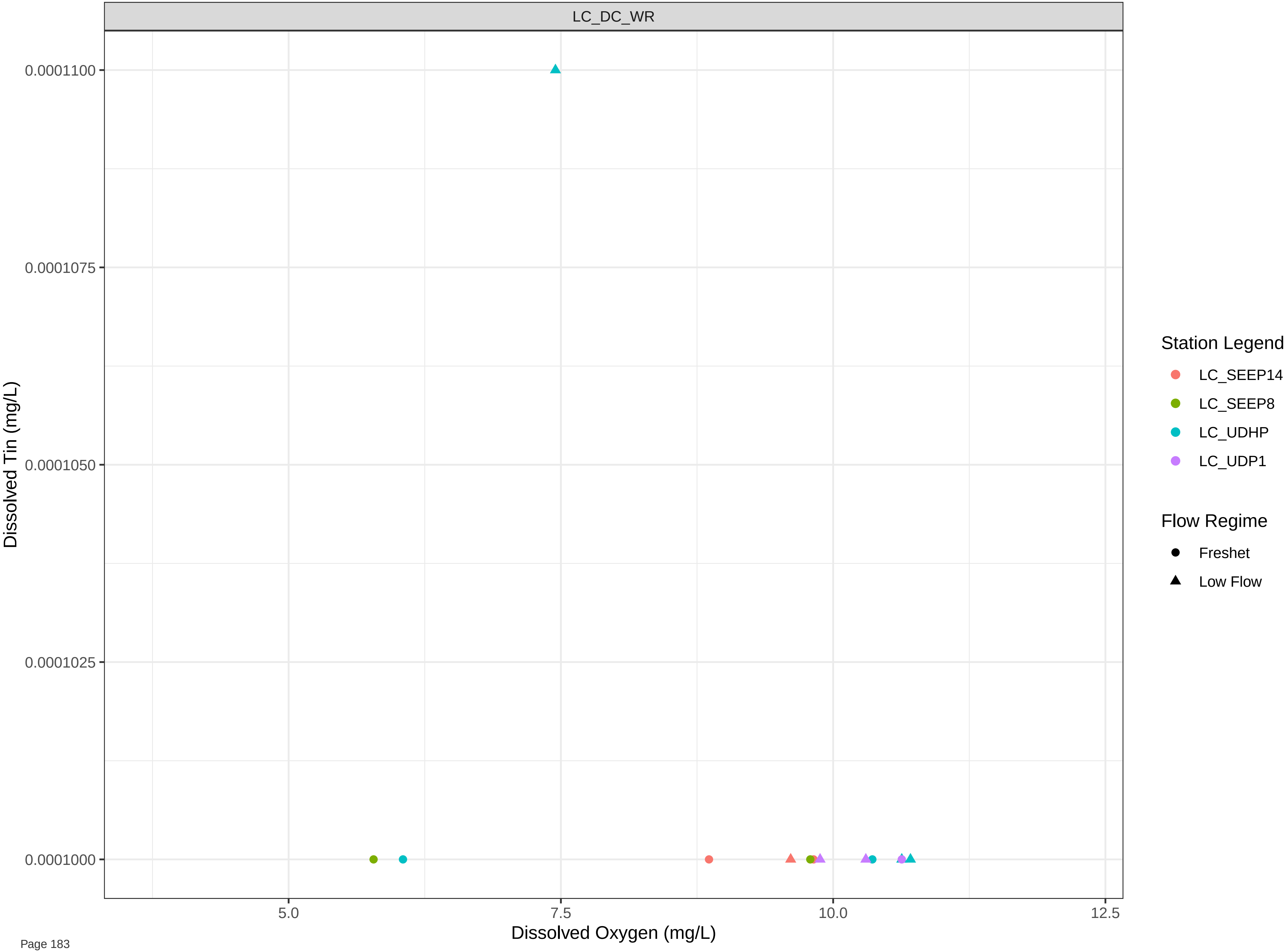
LC_HSP_WR
Dissolved Thallium (mg/L)
0.050
0.025
0.000
−0.025
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

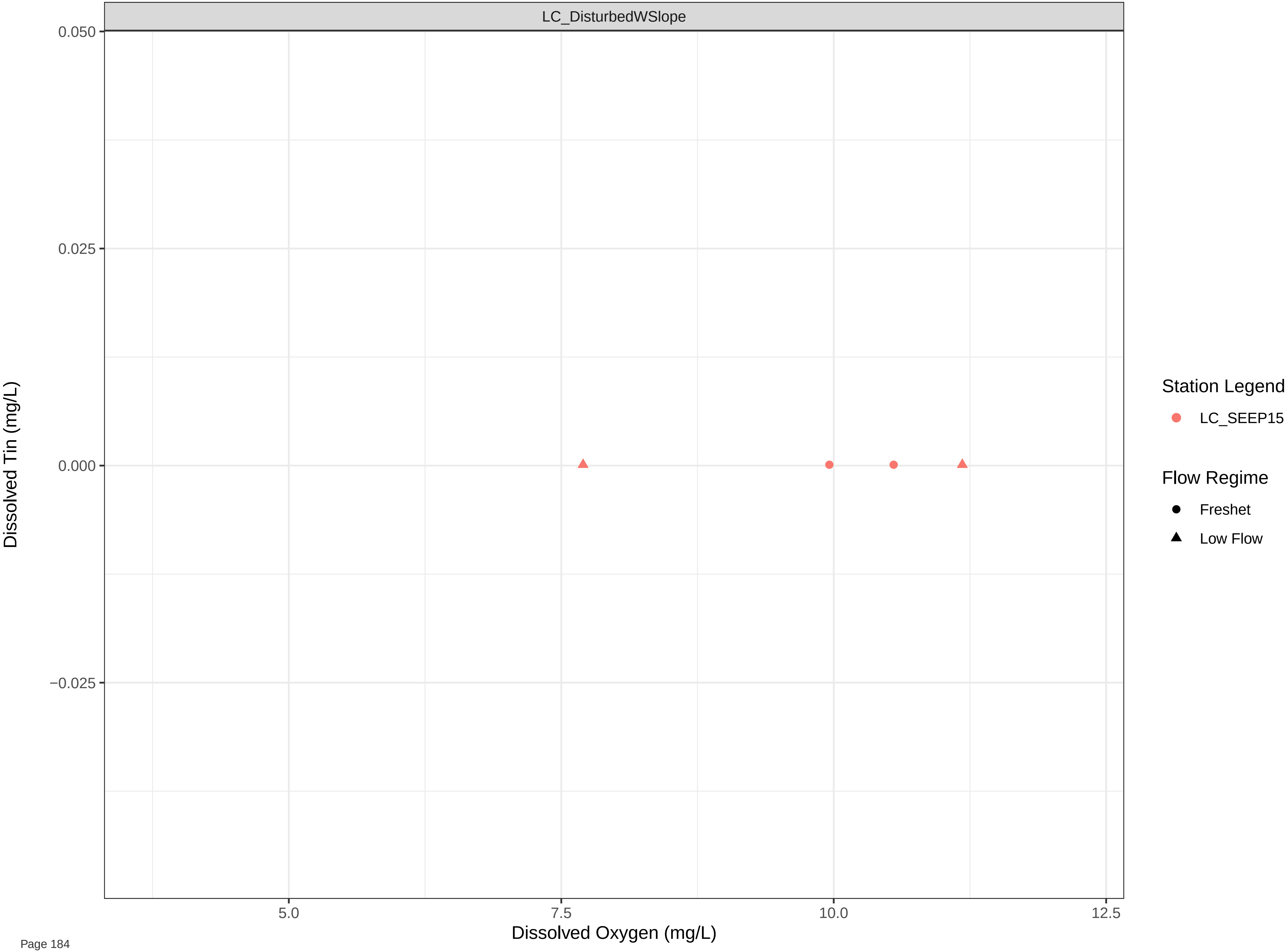

LC_MAXAM
0.050
0.025
0.000
−0.025
Dissolved Thallium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

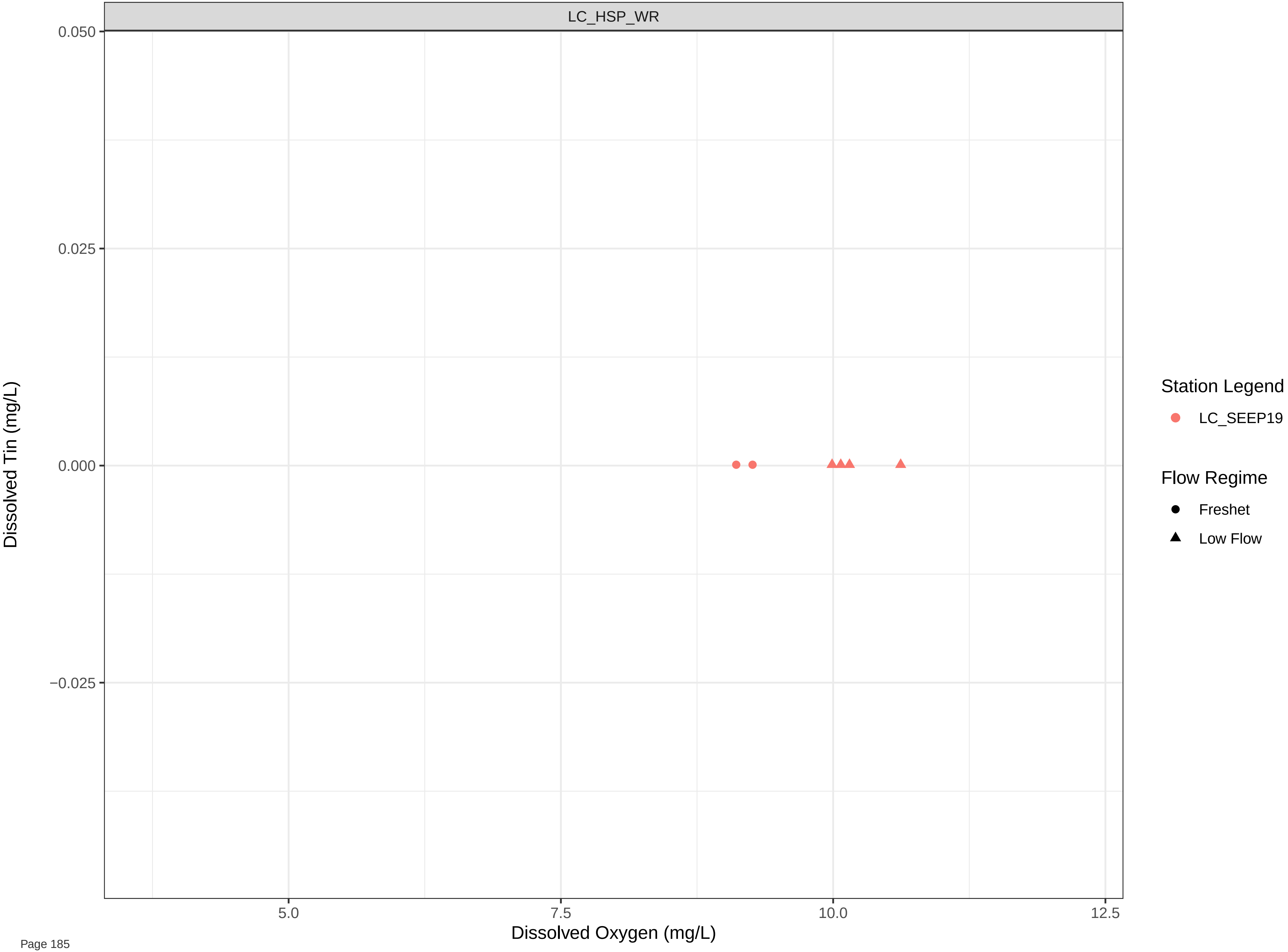

LC_MSA_WR
Dissolved Thallium (mg/L)
1.5e−05
1.4e−05
1.3e−05
1.2e−05
1.1e−05
1.0e−05
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

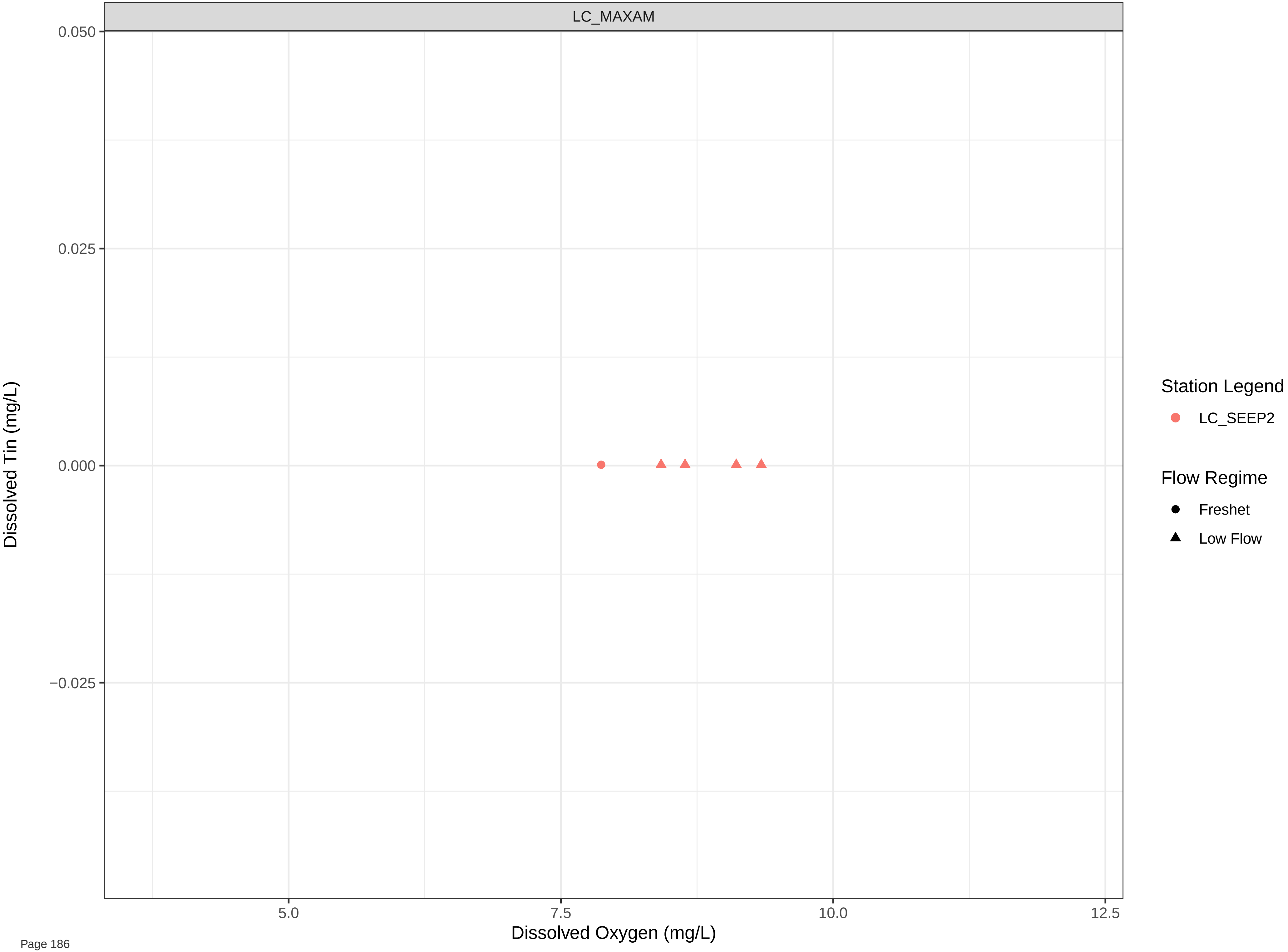

LC_PLANT
0.050
0.025
0.000
−0.025
Dissolved Thallium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

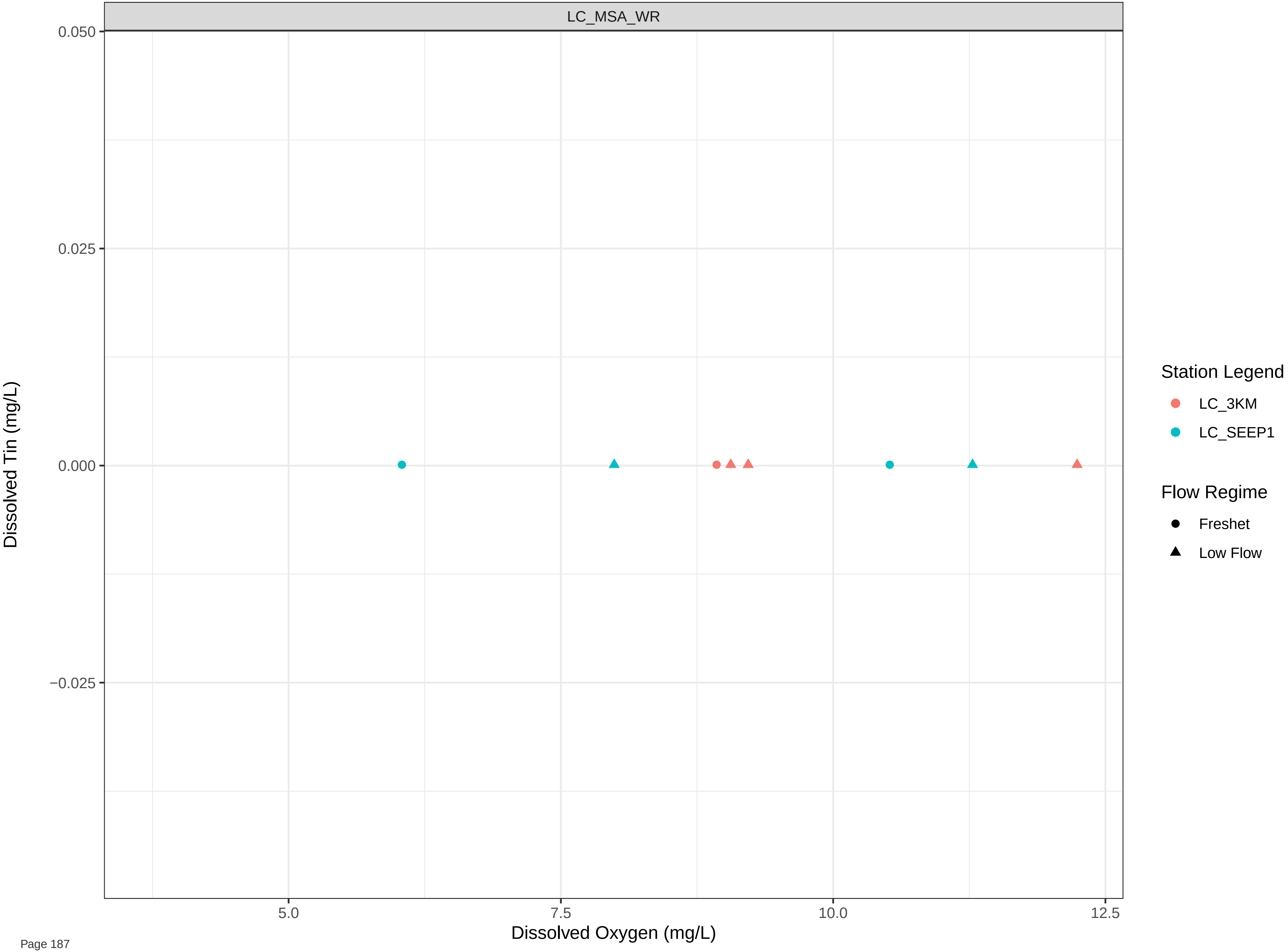

LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Thallium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet


LC_DC_WR
Dissolved Tin (mg/L)
0.0001100
0.0001075
0.0001050
0.0001025
0.0001000
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

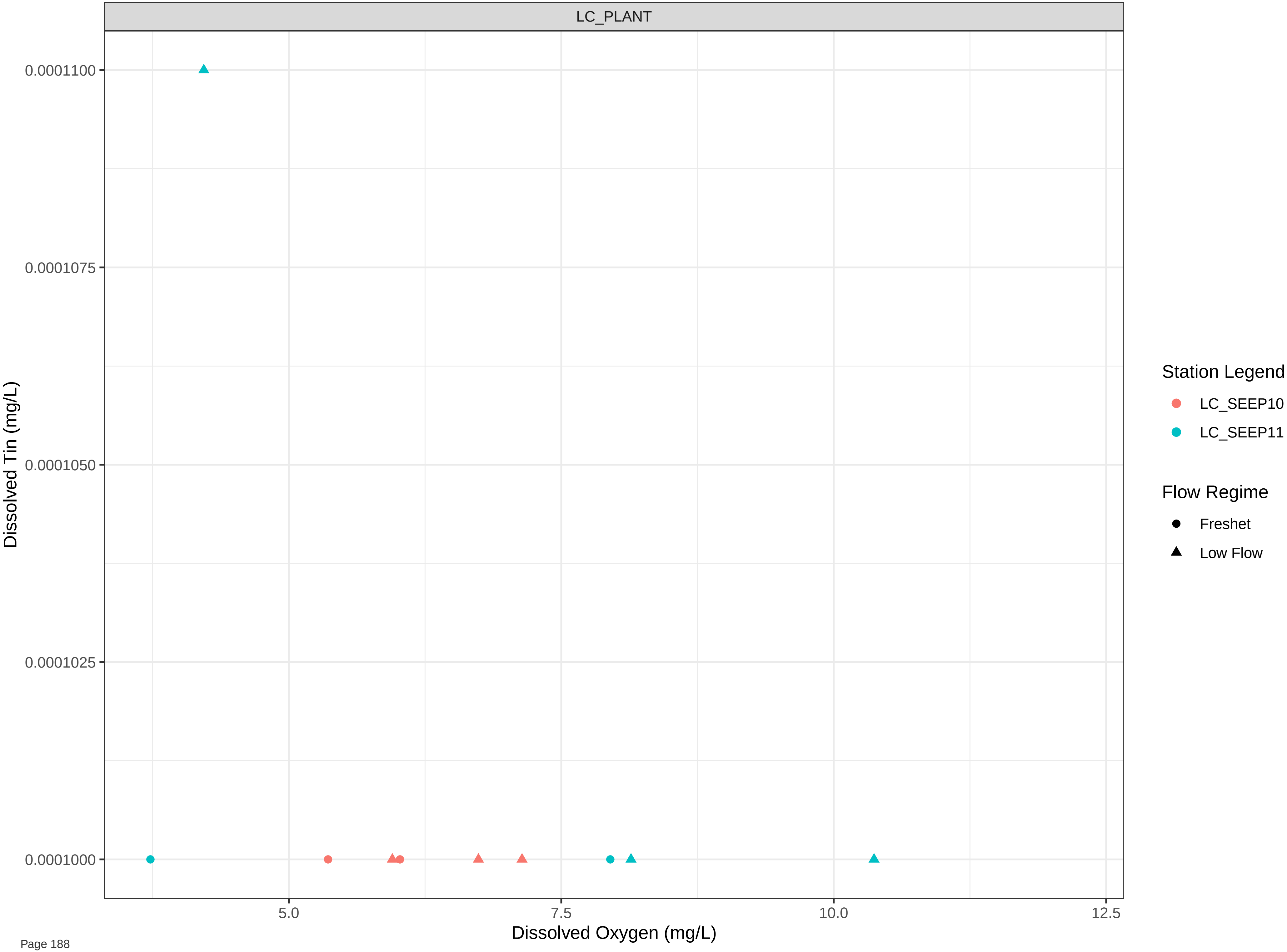

LC_DisturbedWSlope
0.050
0.025
0.000
−0.025
Dissolved Tin (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

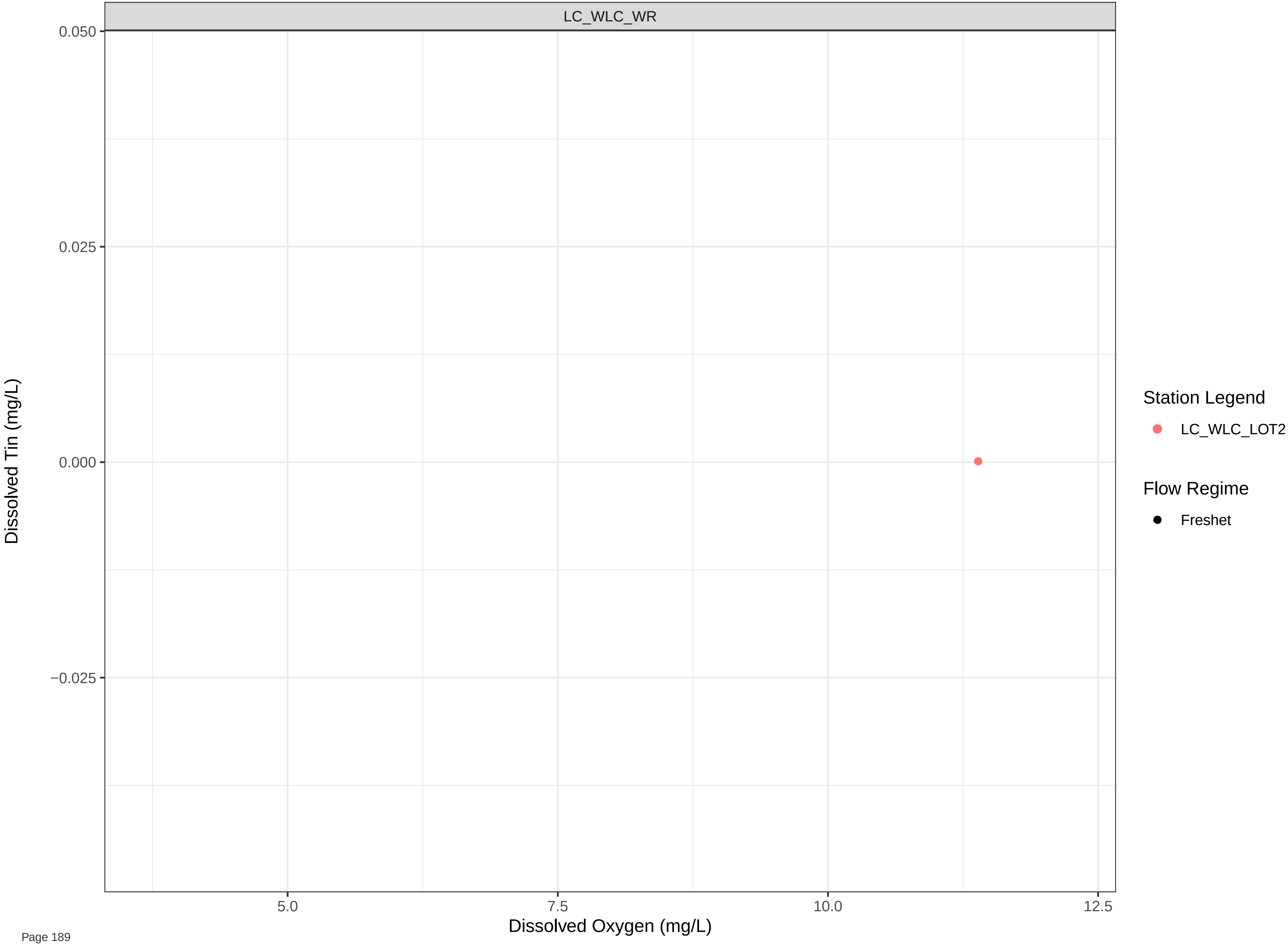

LC_HSP_WR
0.050
0.025
0.000
−0.025
Dissolved Tin (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

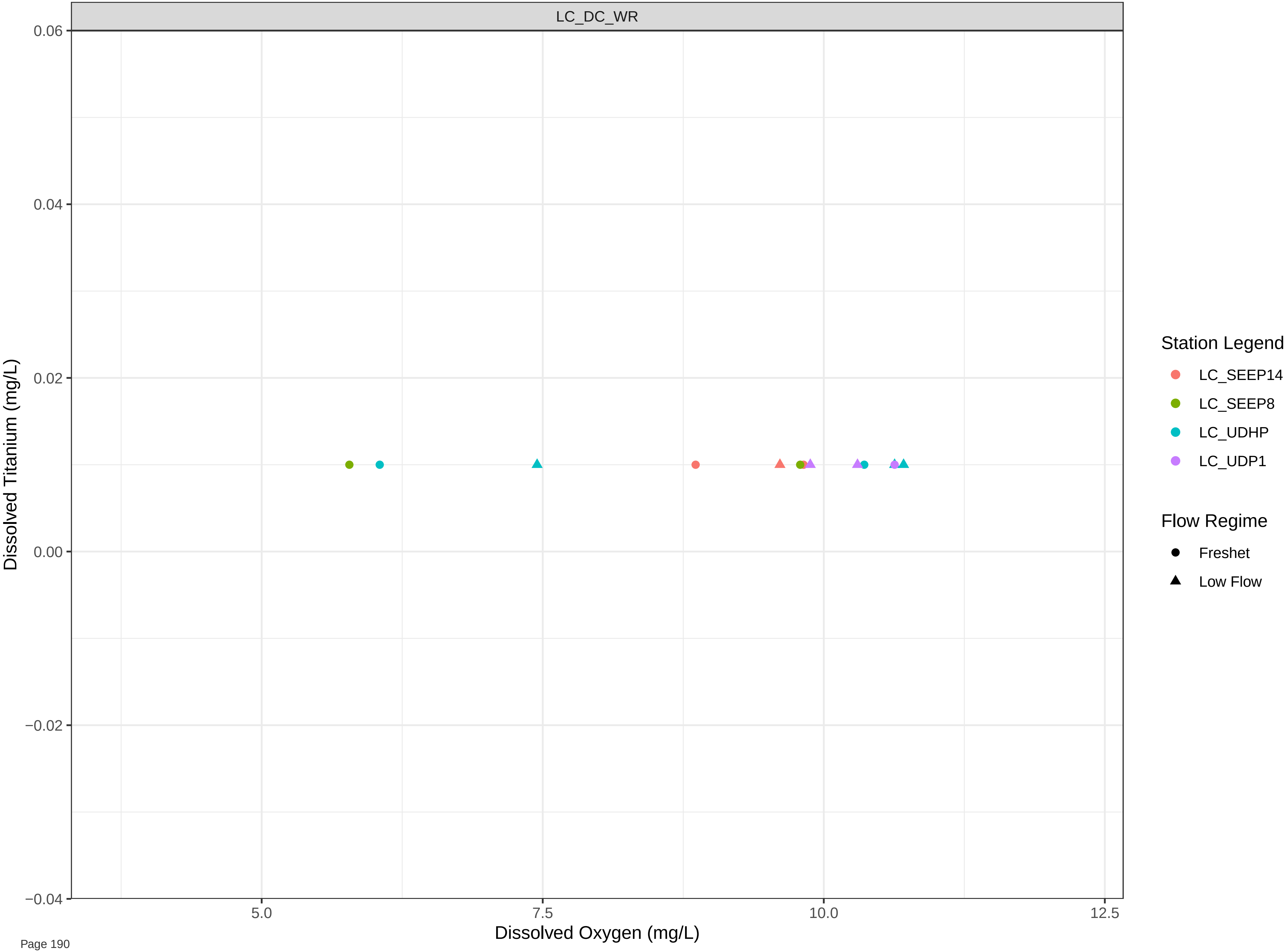

LC_MAXAM
0.050
0.025
0.000
−0.025
5.0
7.5
10.0
12.5
Dissolved Tin (mg/L)
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

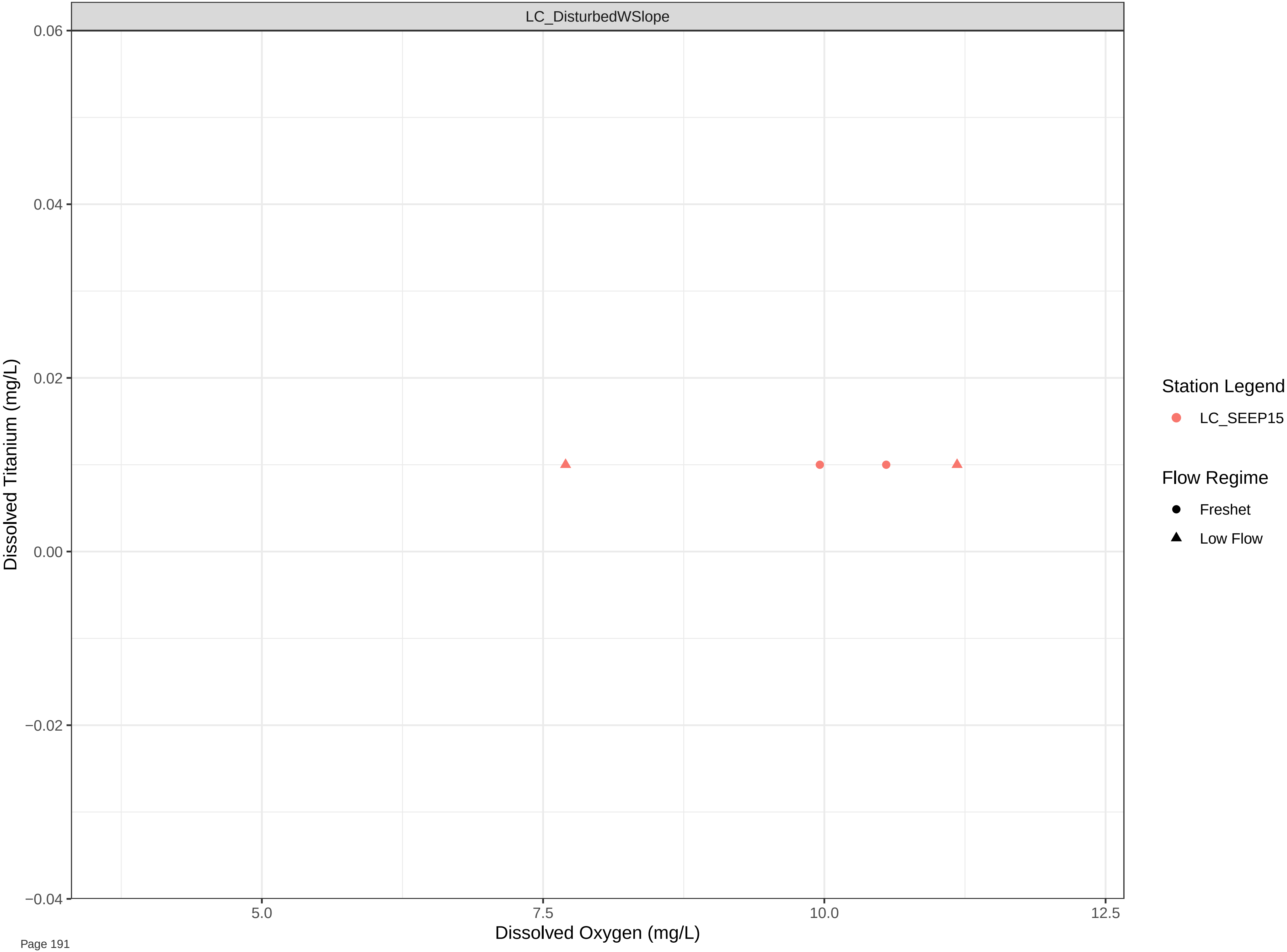


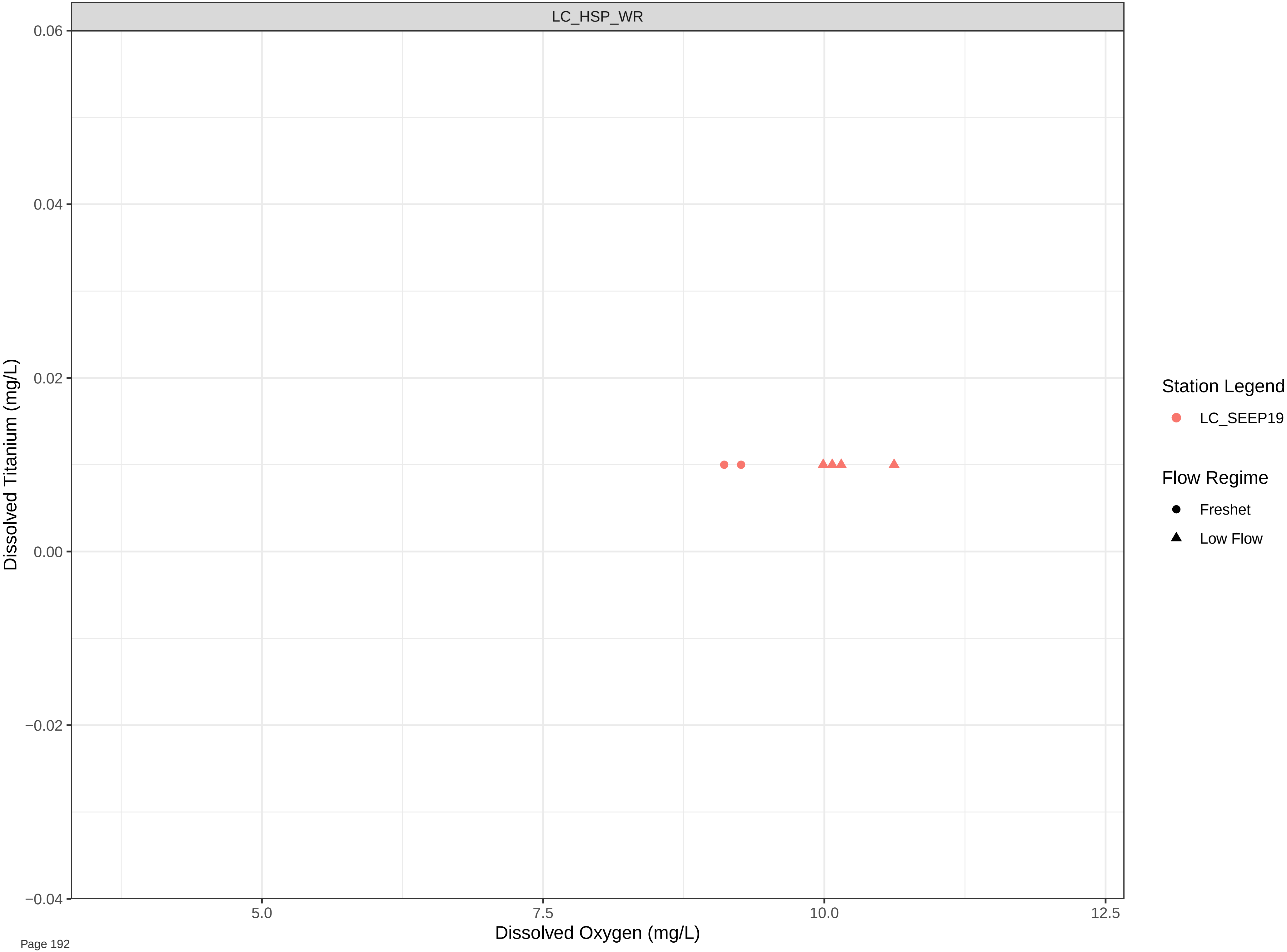
LC_MSA_WR
0.050
0.025
0.000
−0.025
Dissolved Tin (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

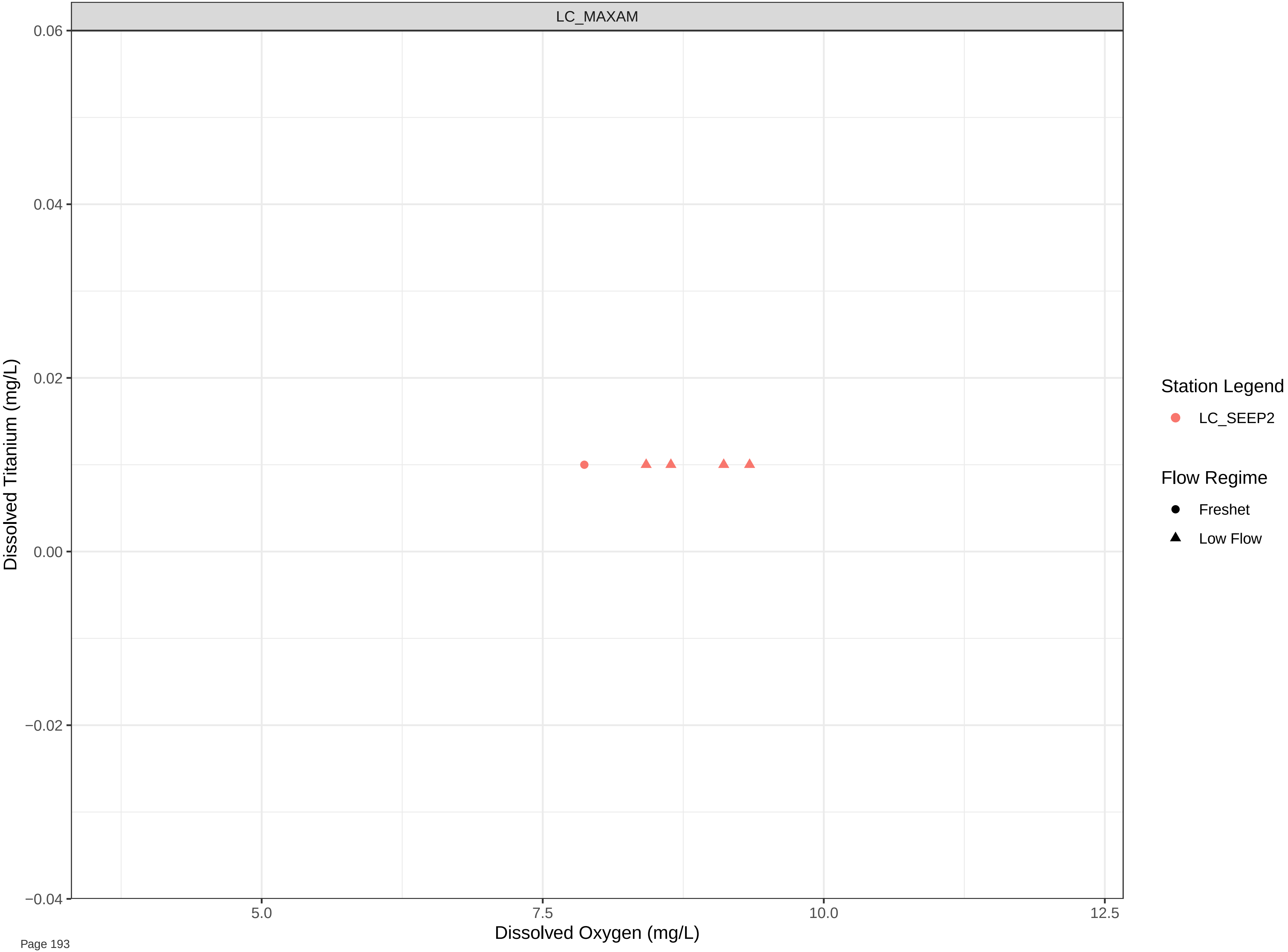

LC_PLANT
Dissolved Tin (mg/L)
0.0001100
0.0001075
0.0001050
0.0001025
0.0001000
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

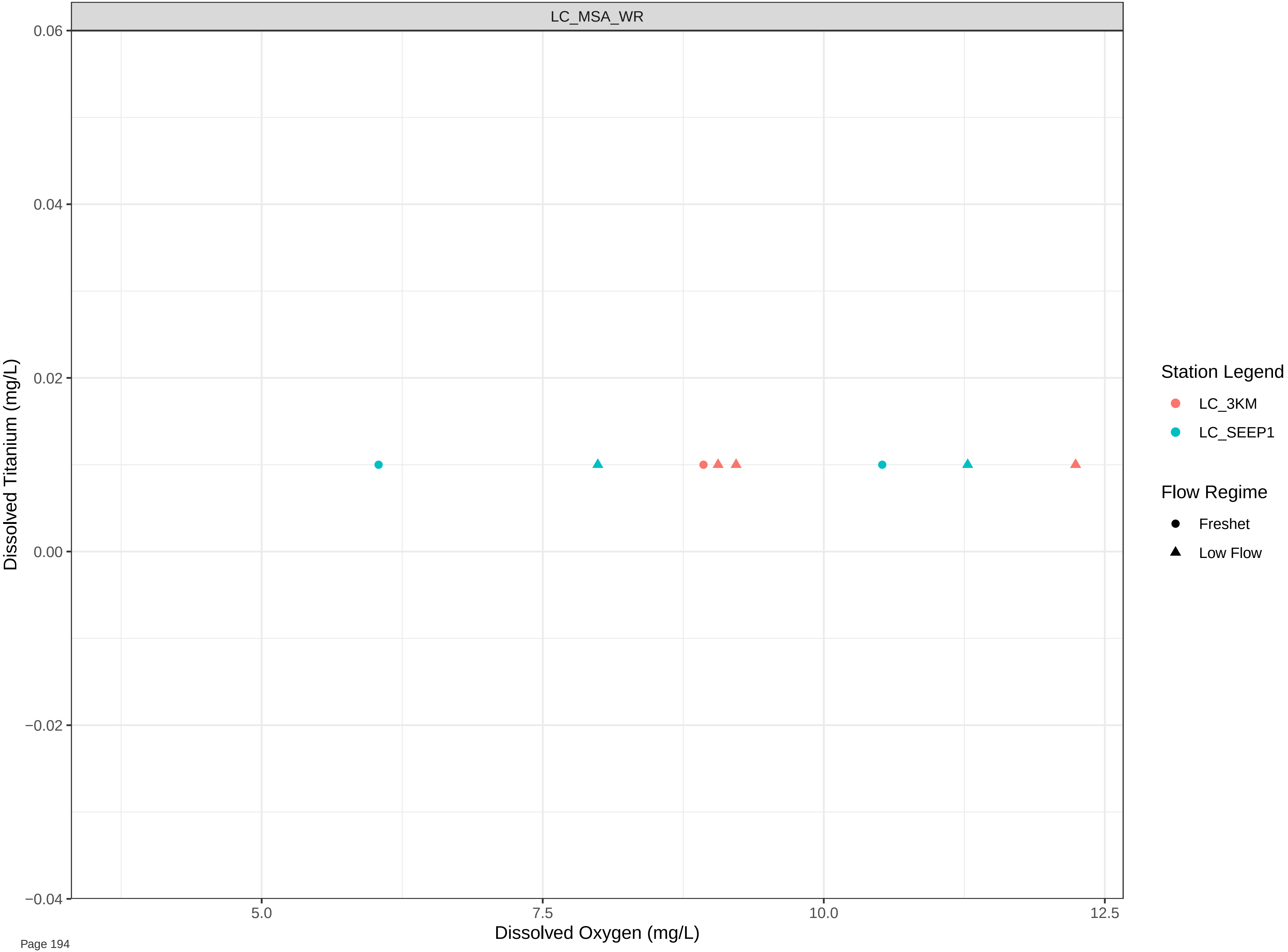

LC_WLC_WR
Dissolved Tin (mg/L)
0.050
0.025
0.000
−0.025
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet

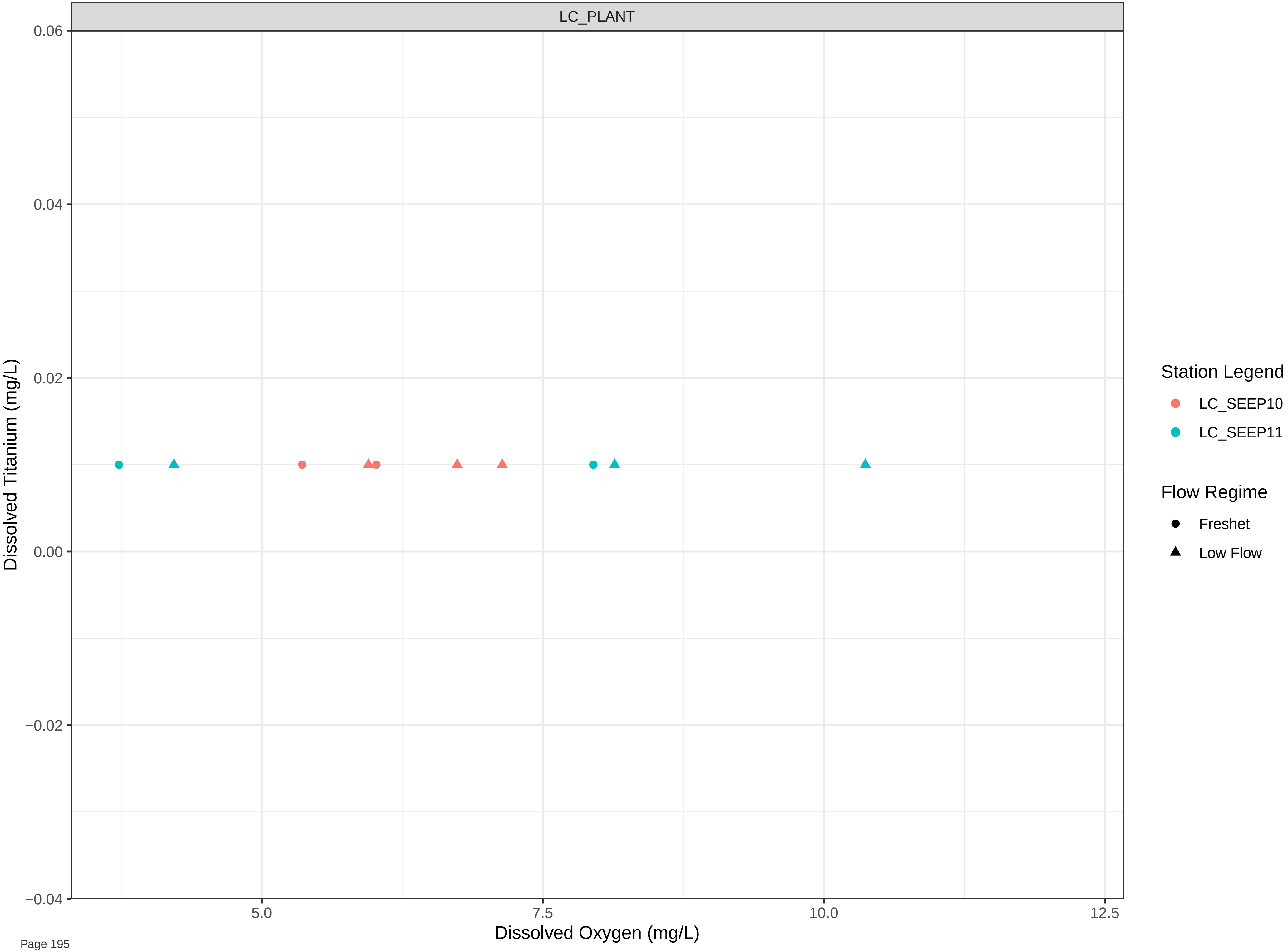

LC_DC_WR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

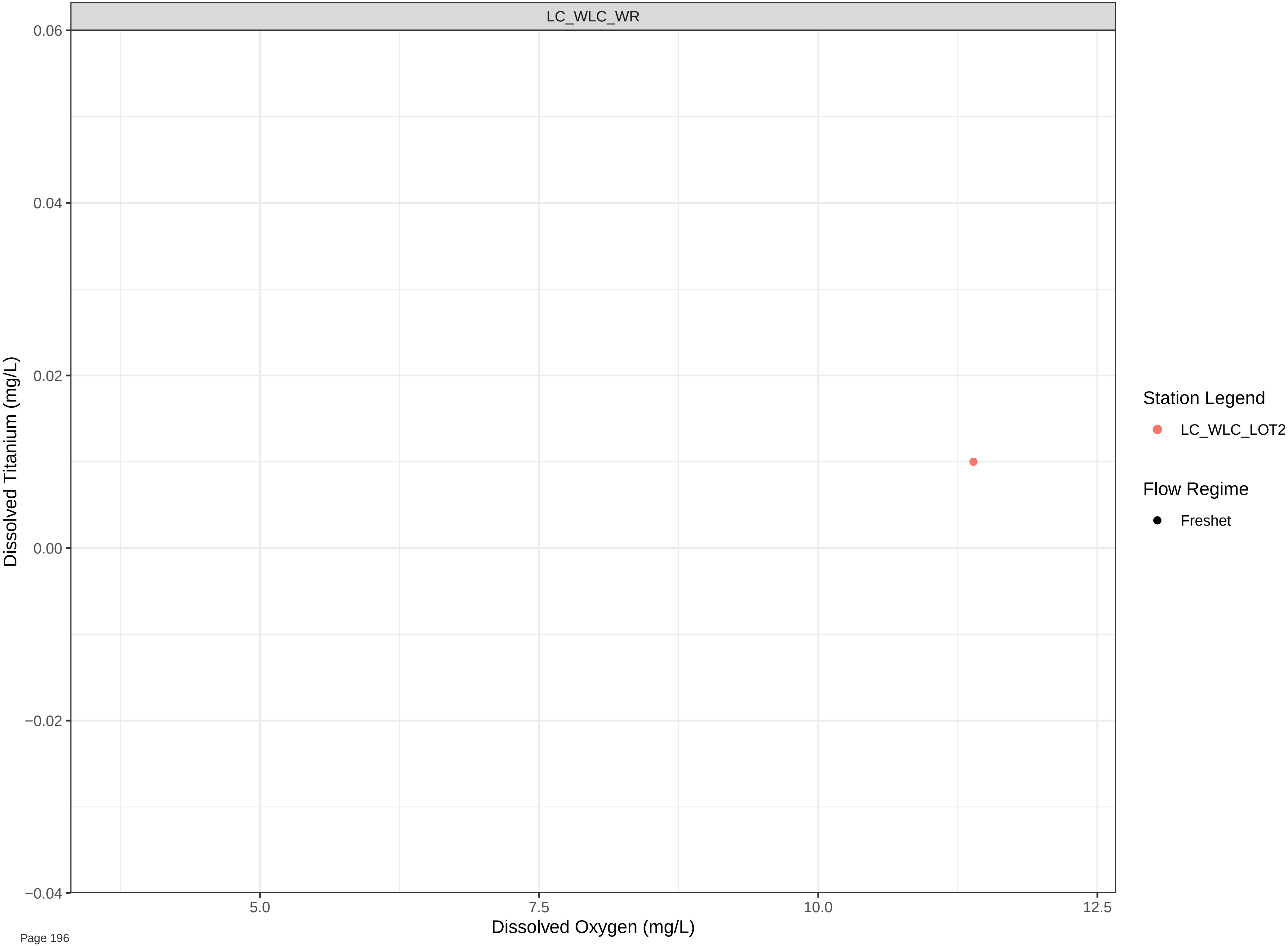

LC_DisturbedWSlope
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

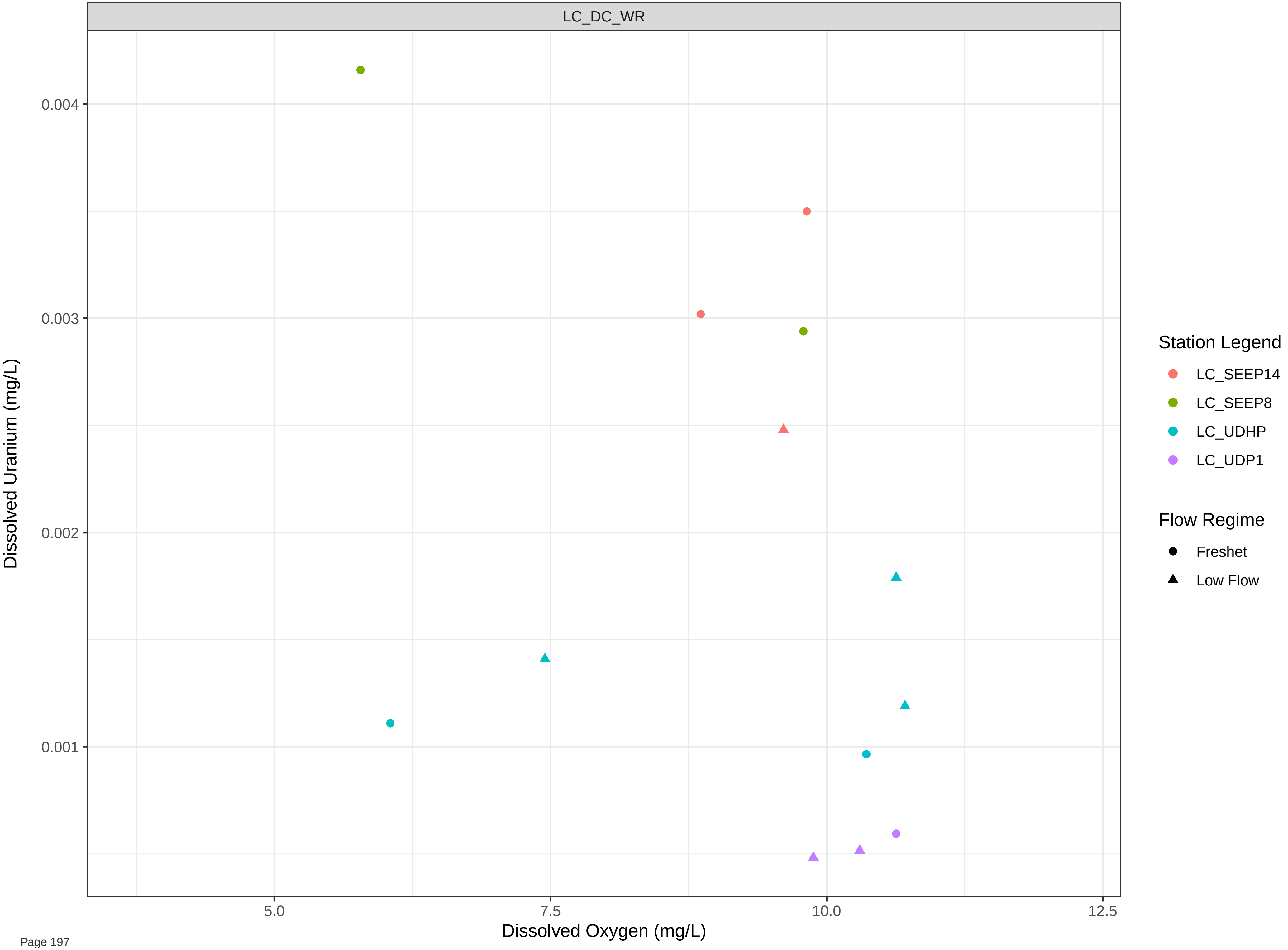

LC_HSP_WR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

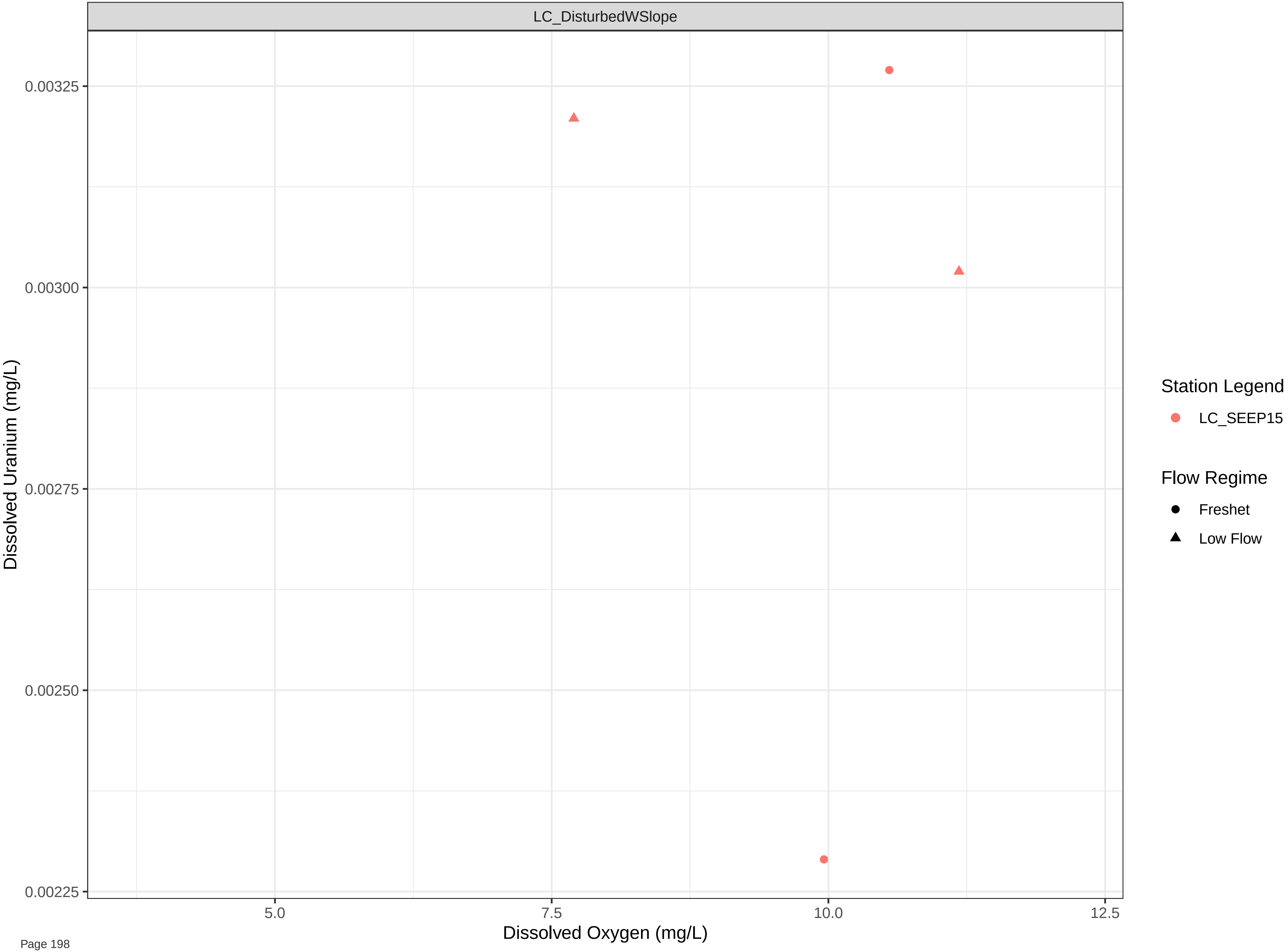

LC_MAXAM
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

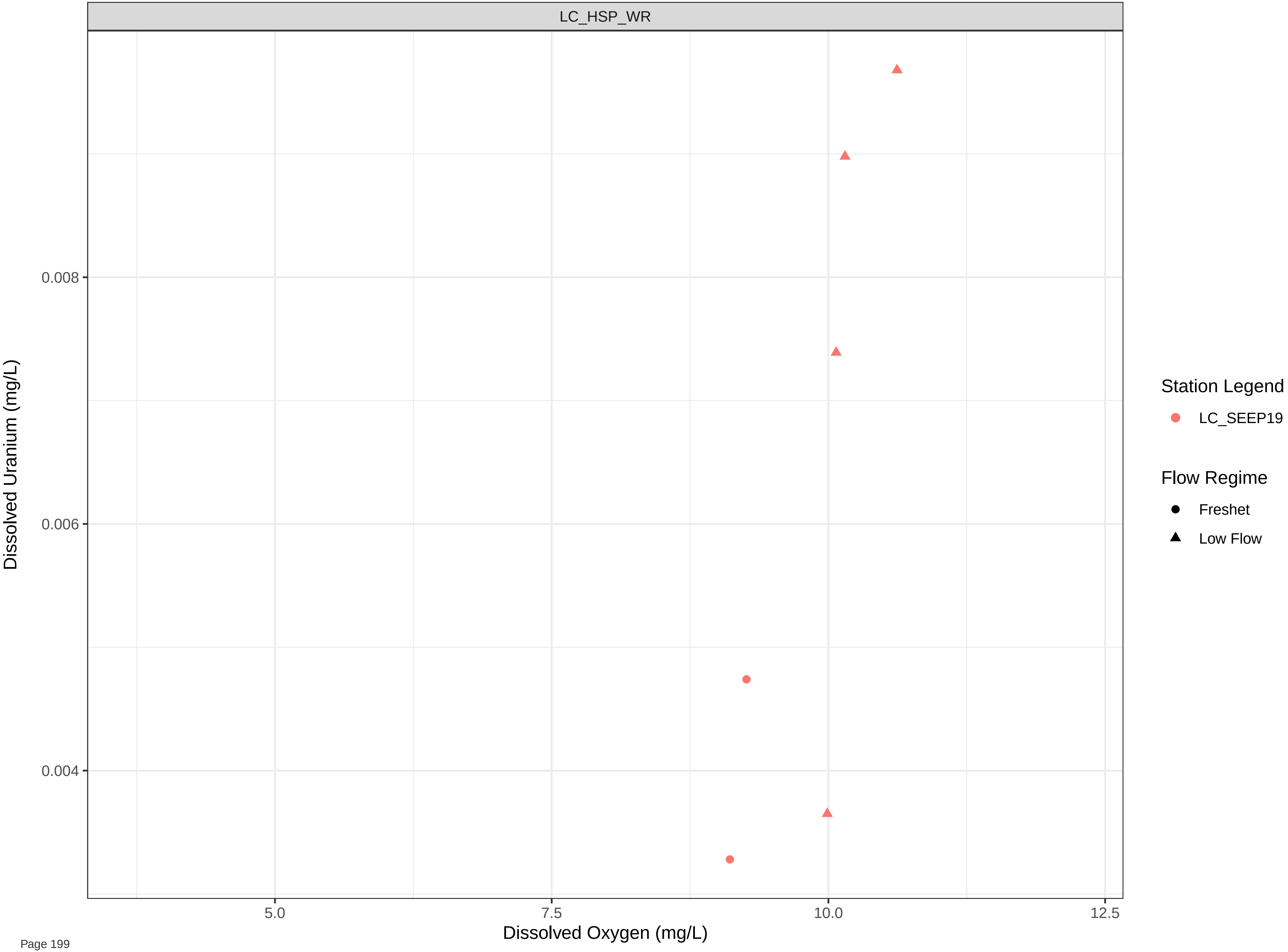

LC_MSA_WR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

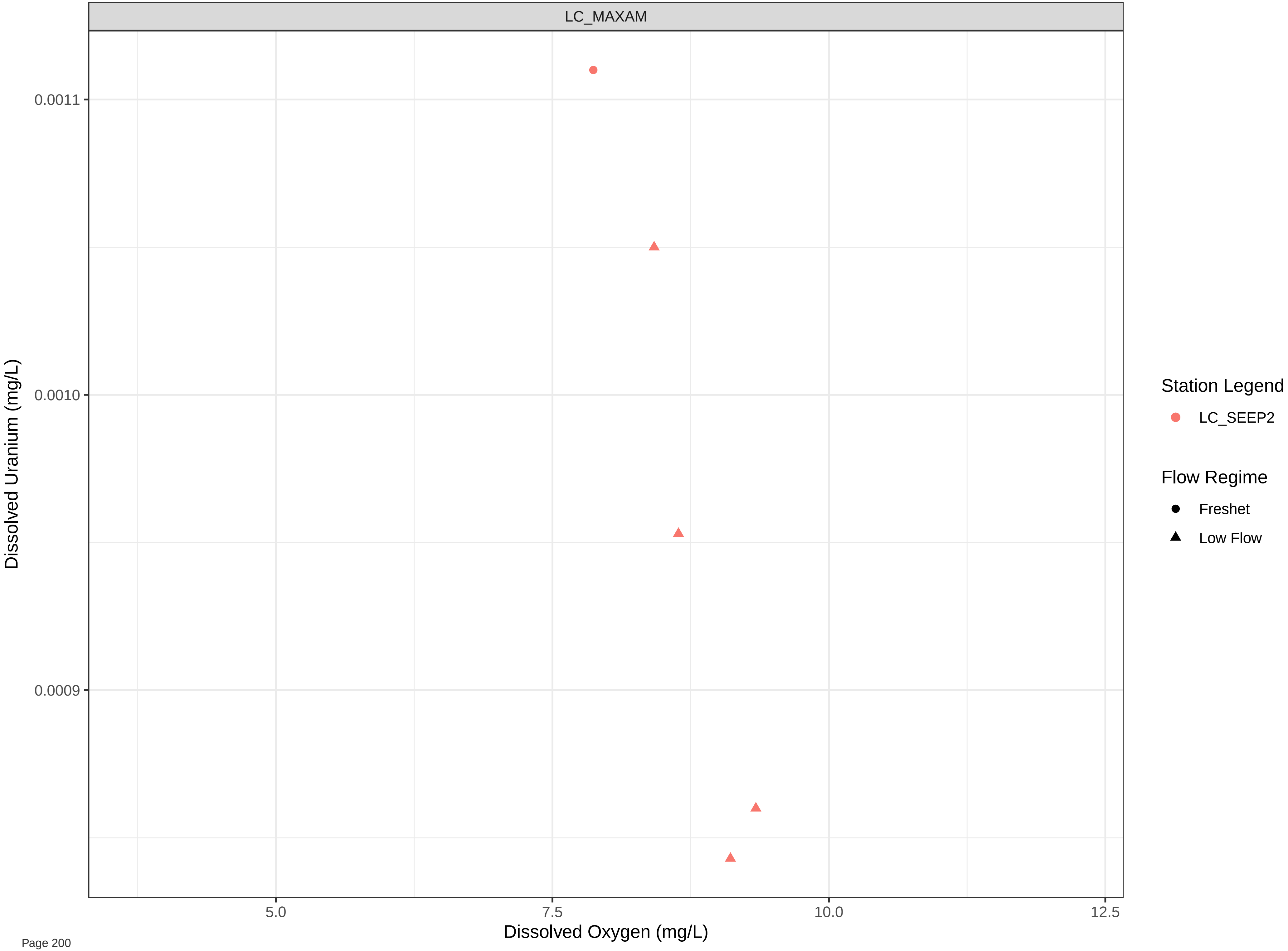

LC_PLANT
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

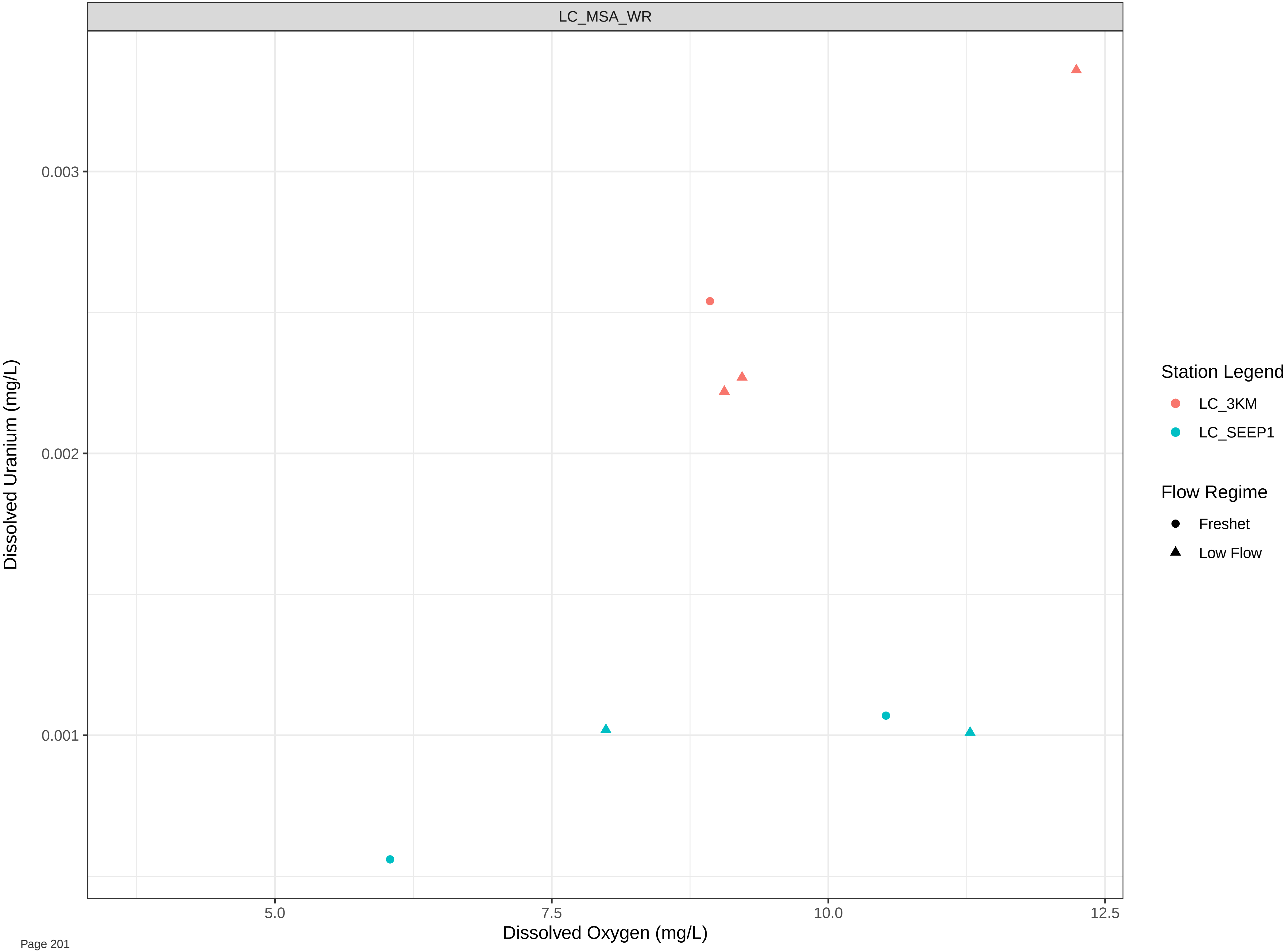

LC_WLC_WR
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

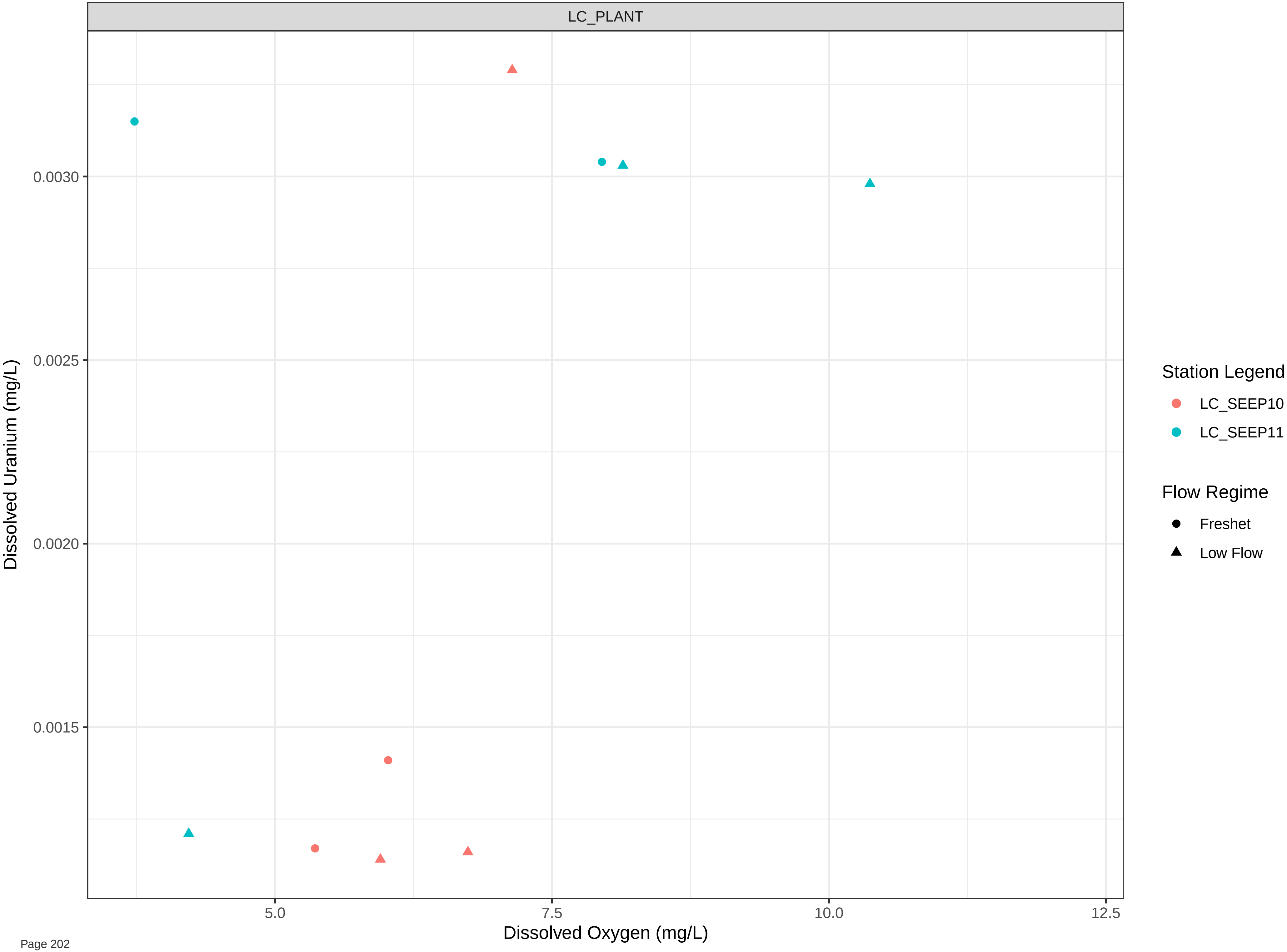

LC_DC_WR
Dissolved Uranium (mg/L)
0.004
0.003
0.002
0.001
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

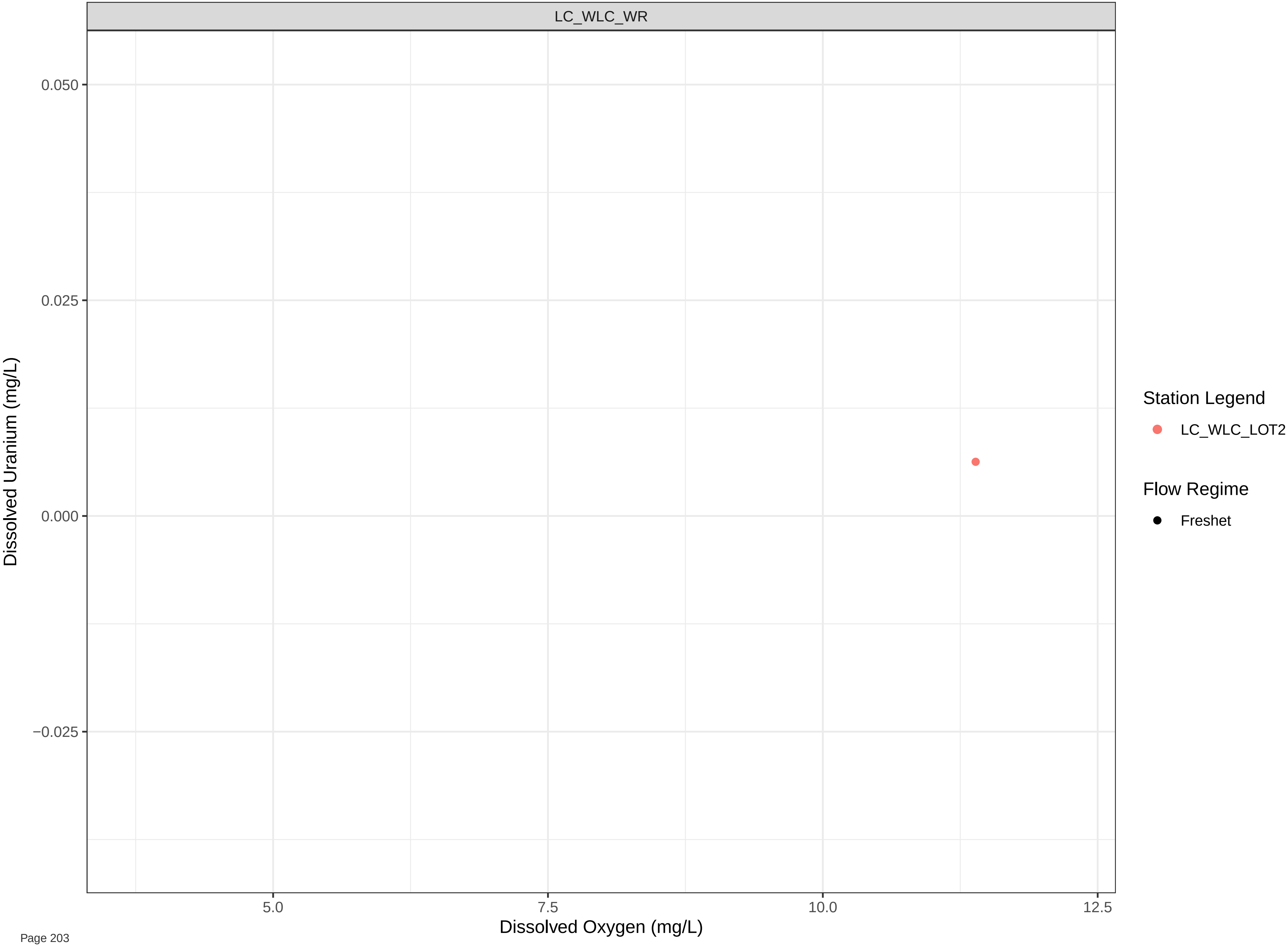

LC_DisturbedWSlope
0.00325
0.00300
0.00275
0.00250
0.00225
Dissolved Uranium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

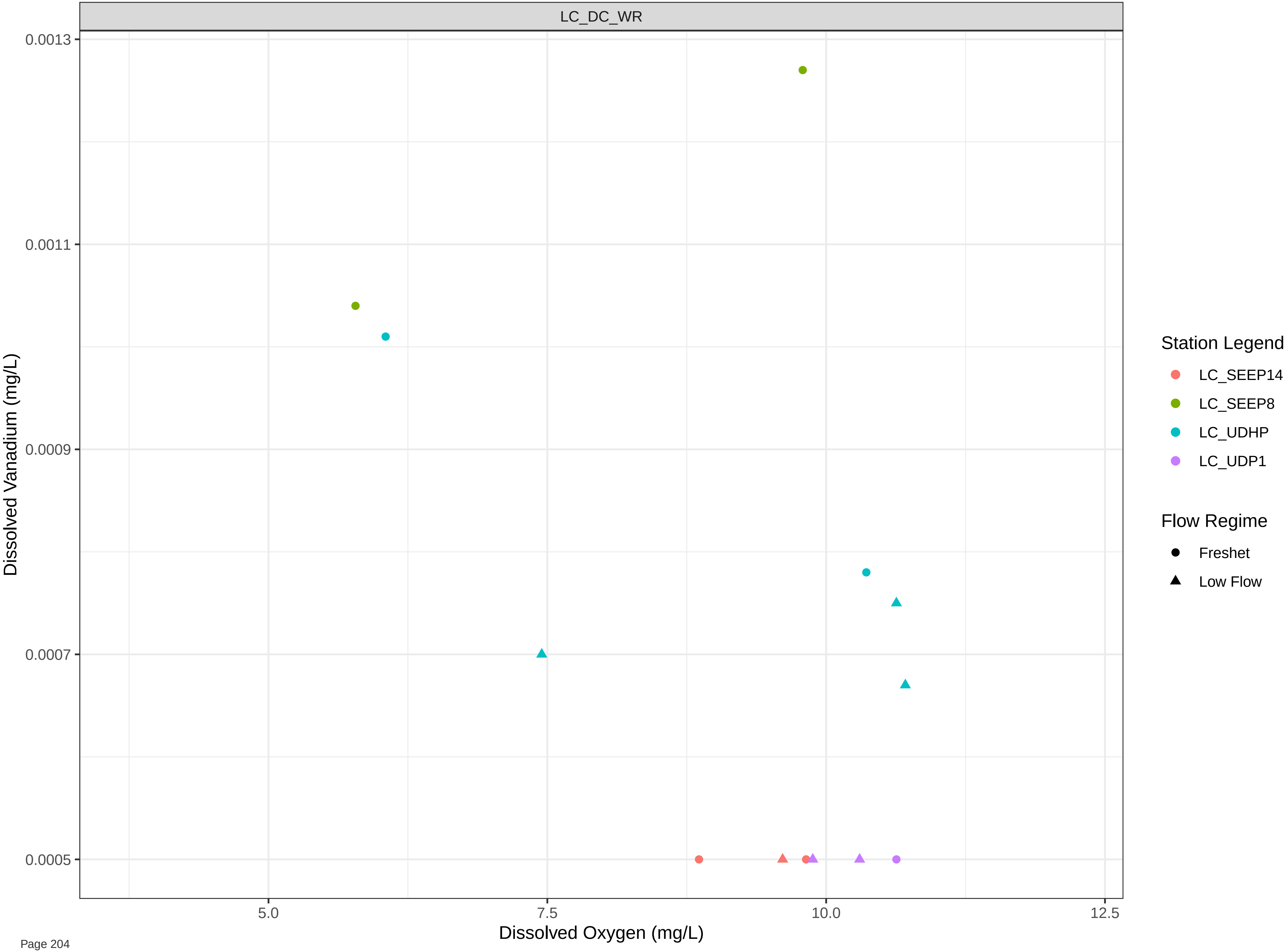

LC_HSP_WR
Dissolved Uranium (mg/L)
0.008
0.006
0.004
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

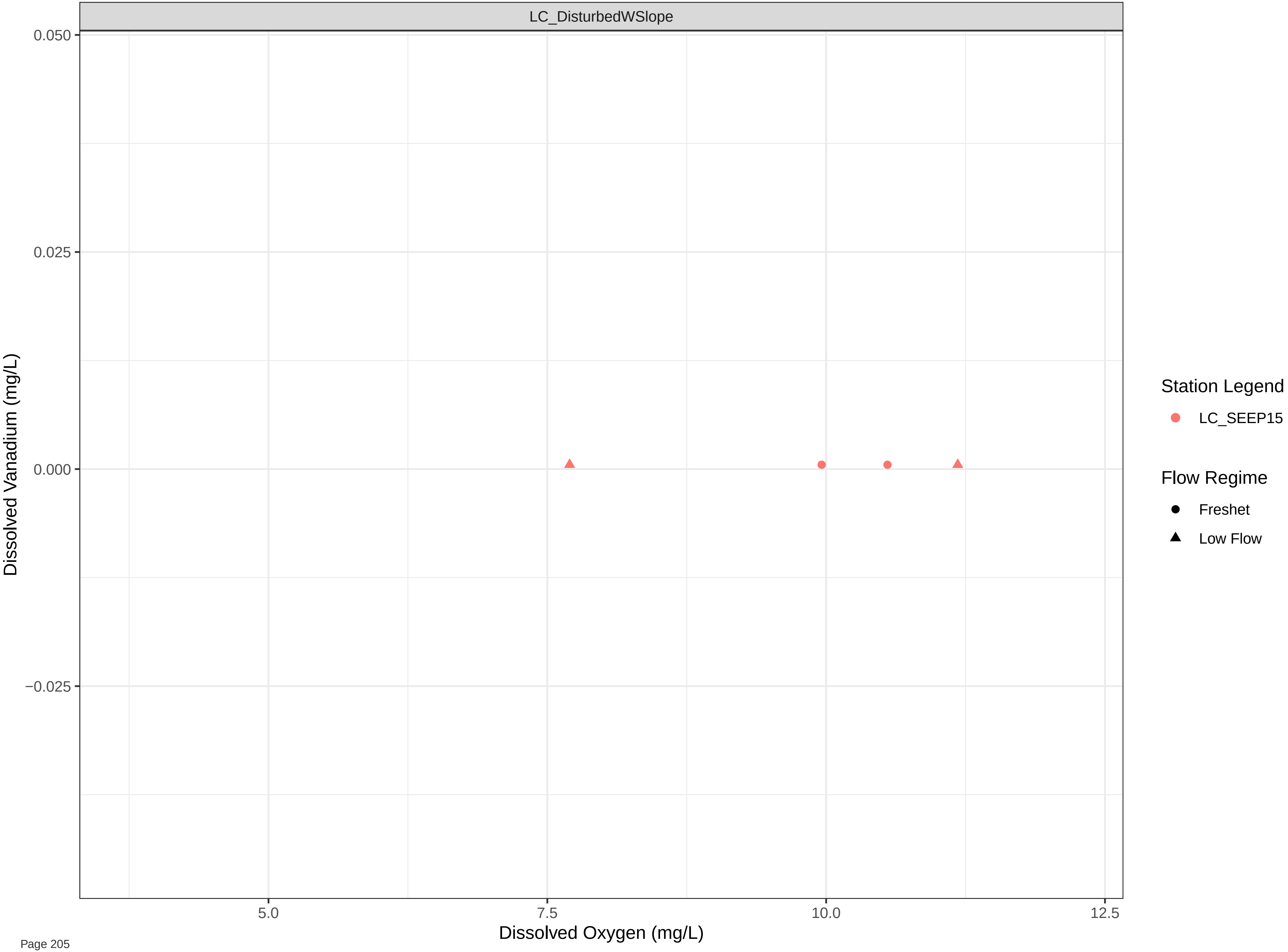

LC_MAXAM
0.0011
0.0010
0.0009
Dissolved Uranium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP2
Flow Regime
● Freshet
▲ Low Flow

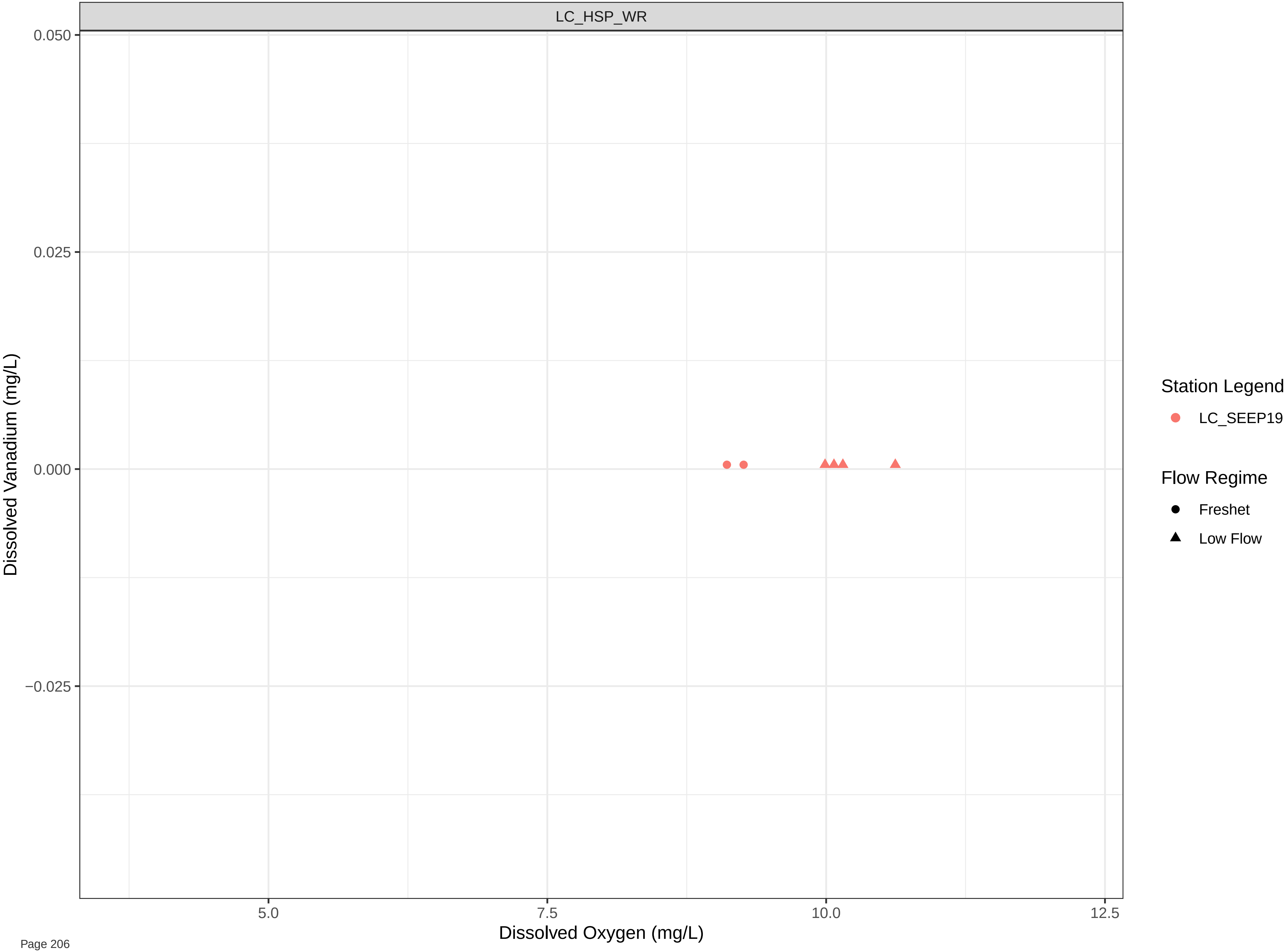

LC_MSA_WR
Dissolved Uranium (mg/L)
0.003
0.002
0.001
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

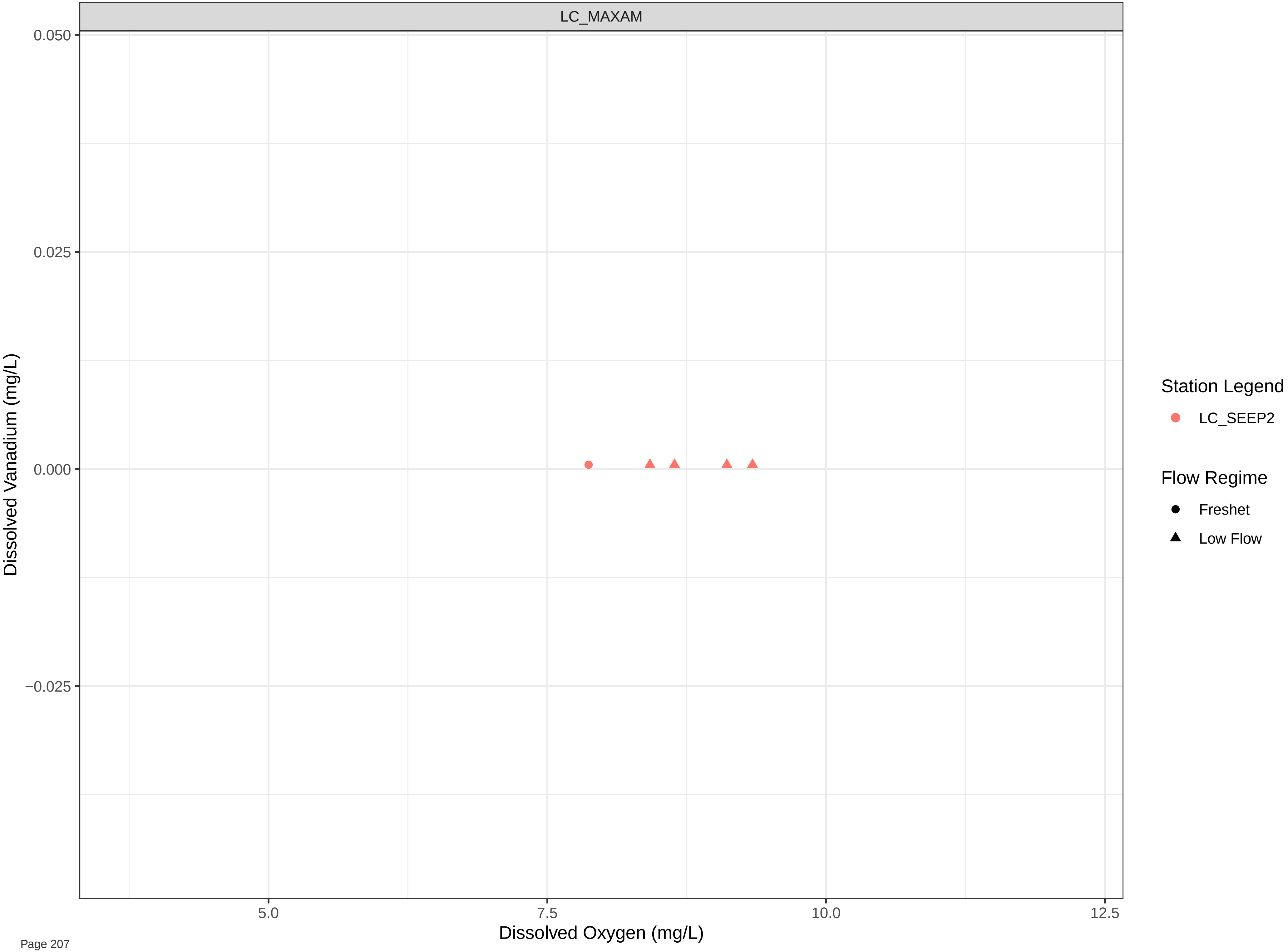

LC_PLANT
Dissolved Uranium (mg/L)
0.0030
0.0025
0.0020
0.0015
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

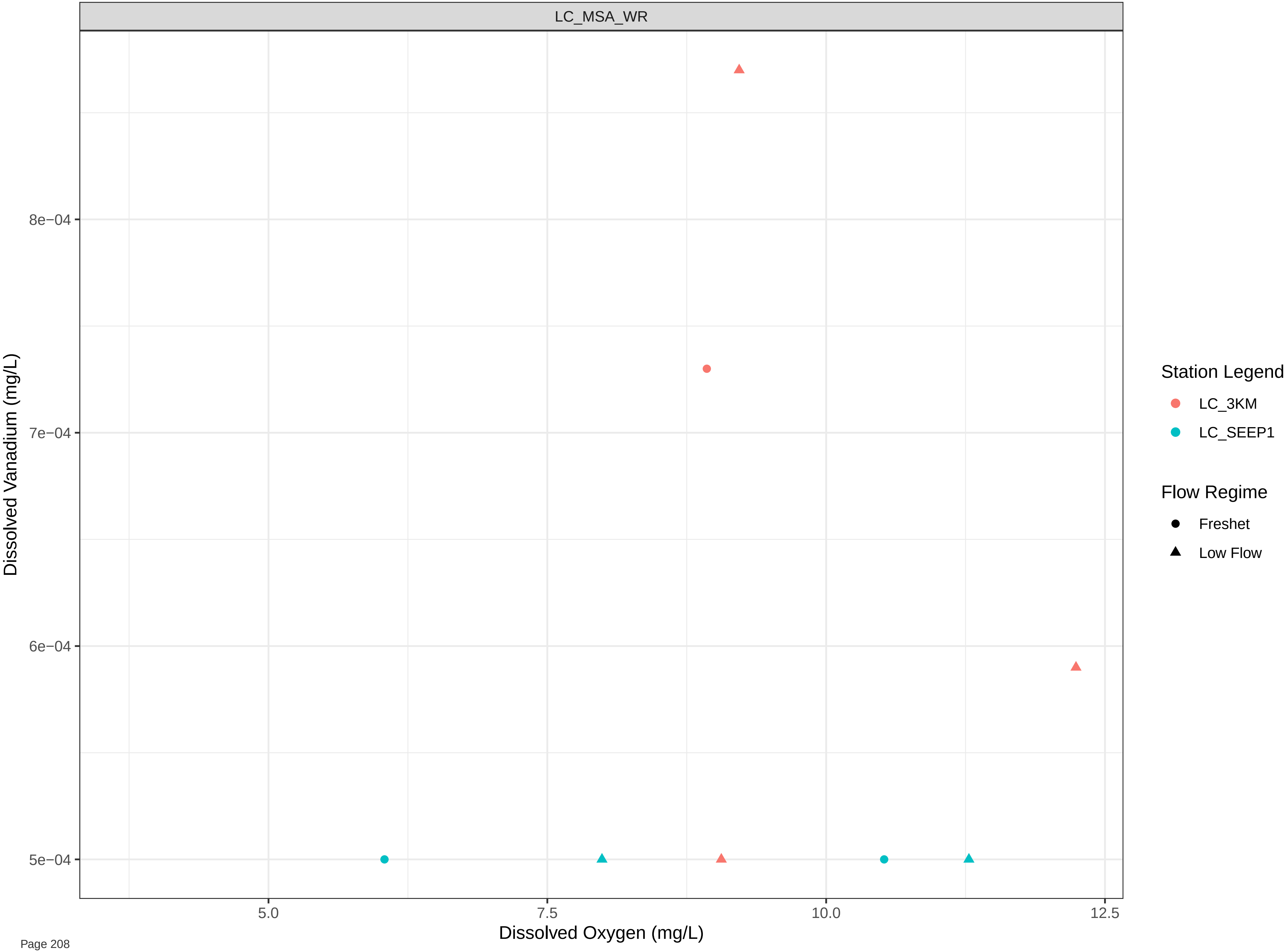

LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Uranium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_WLC_LOT2
Flow Regime
● Freshet

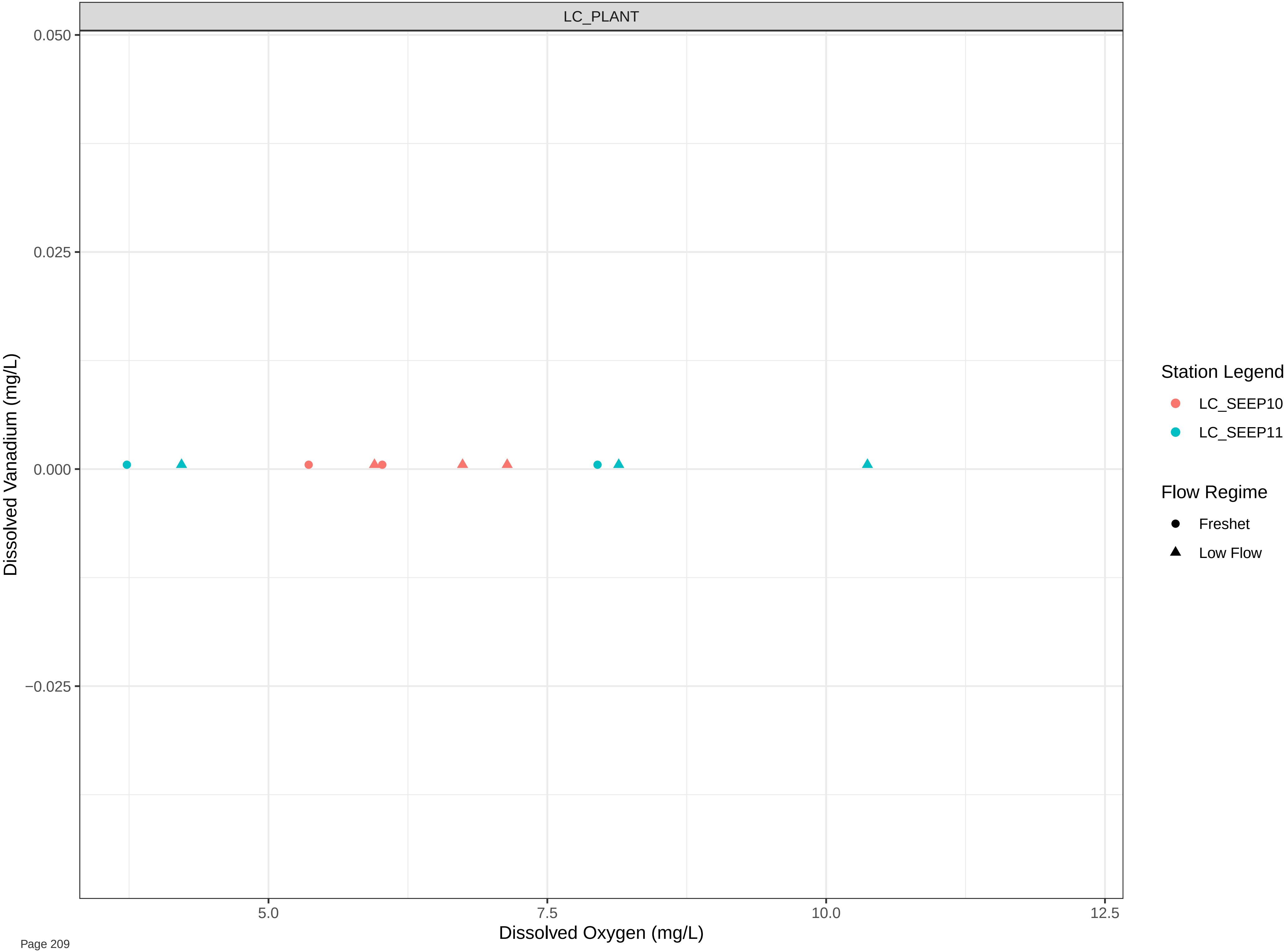

LC_DC_WR
0.0013
0.0011
0.0009
0.0007
0.0005
Dissolved Vanadium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

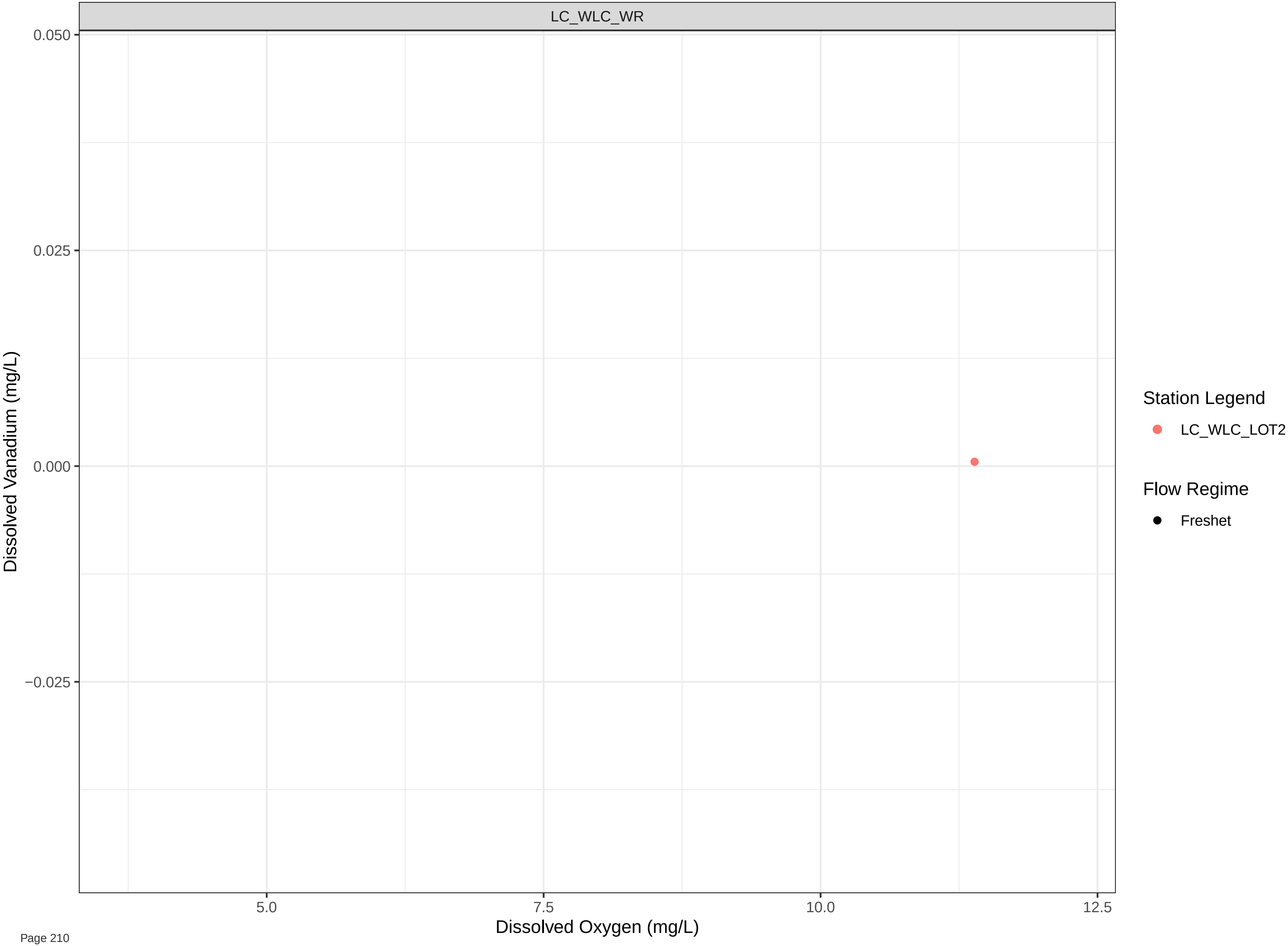

LC_DisturbedWSlope
0.050
0.025
0.000
−0.025
Dissolved Vanadium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

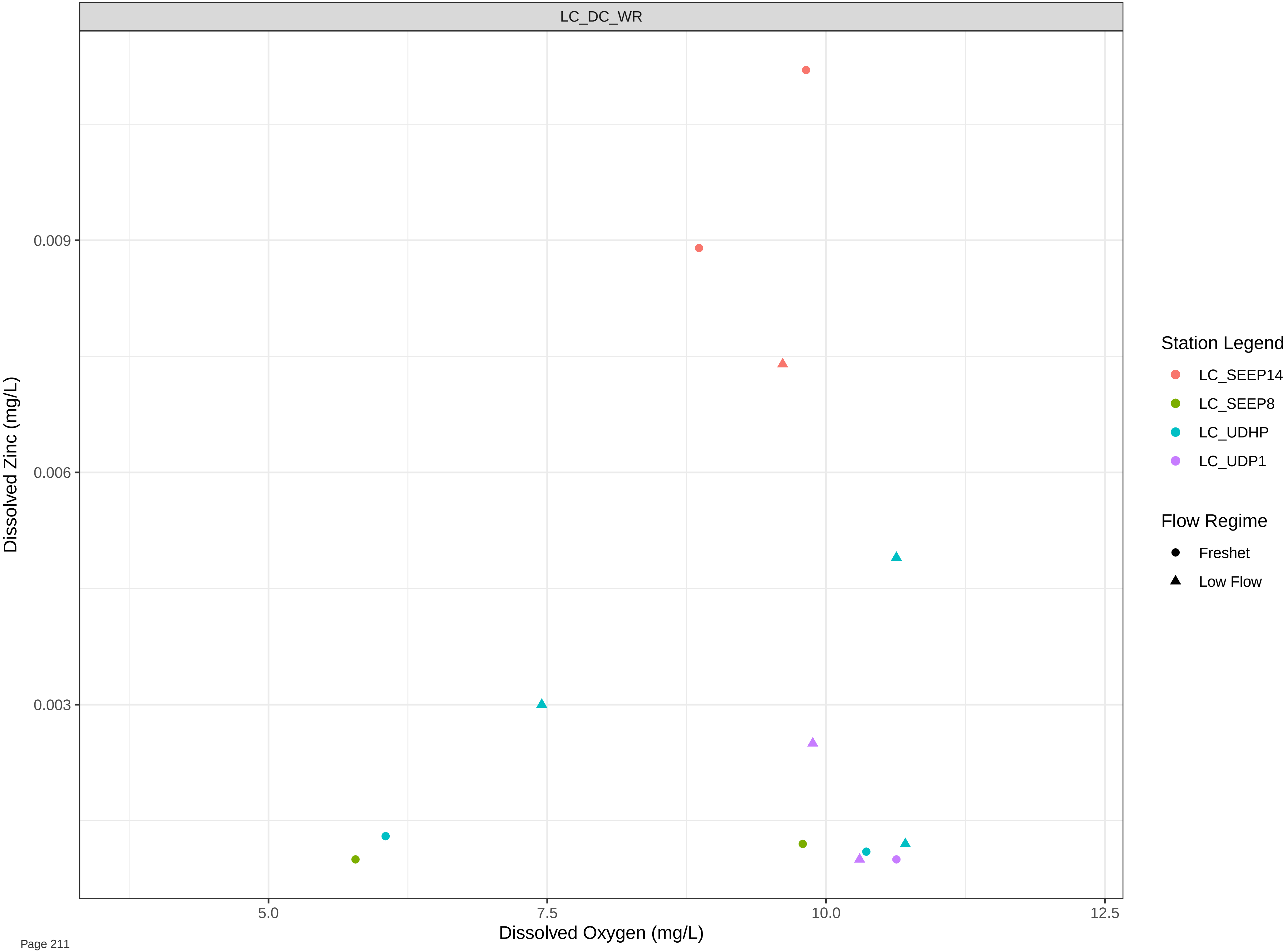

LC_HSP_WR
0.050
0.025
0.000
−0.025
Dissolved Vanadium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

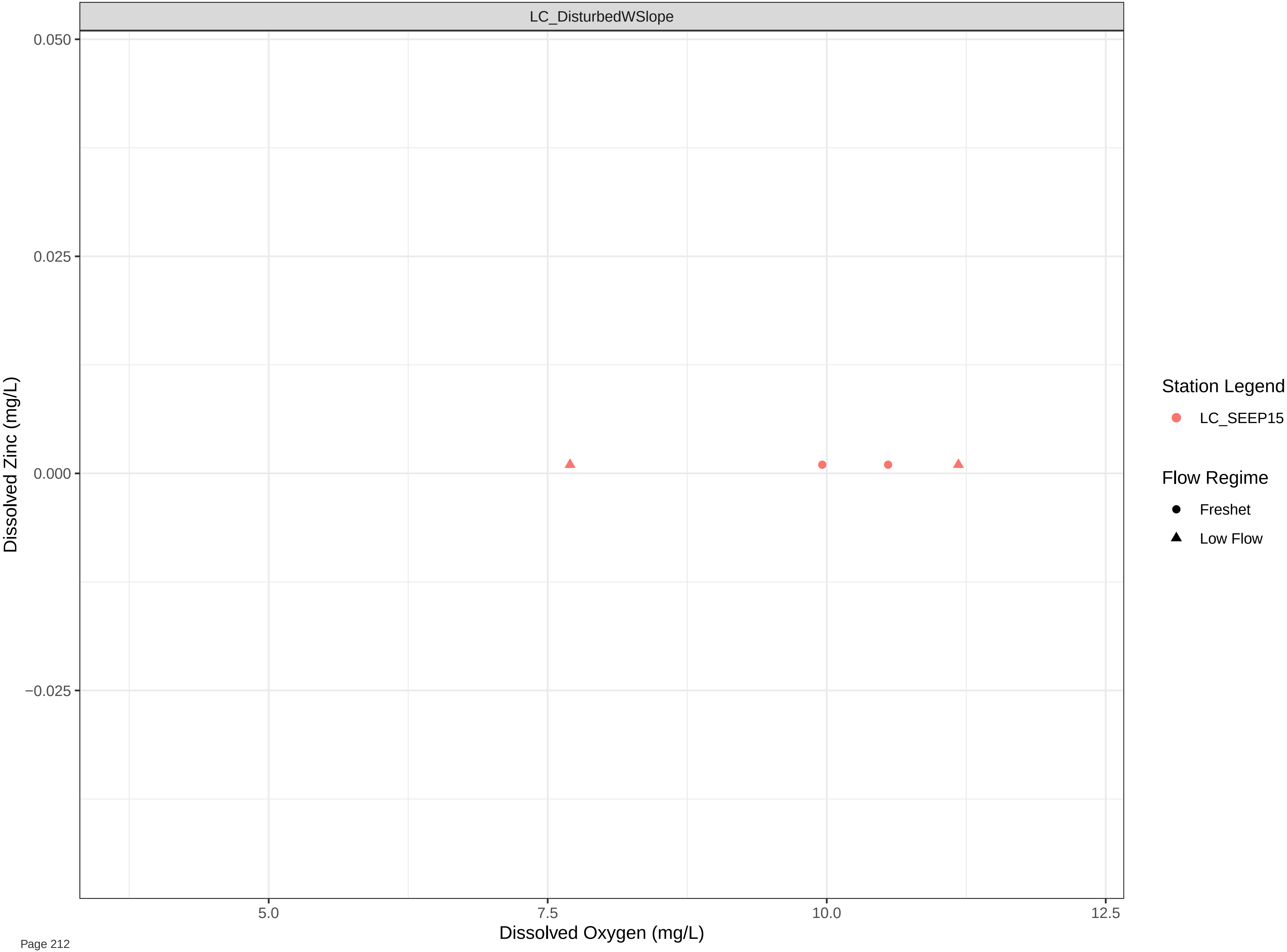

LC_MAXAM
0.050
0.025
0.000
−0.025
5.0
7.5
10.0
12.5
Dissolved Vanadium (mg/L)
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

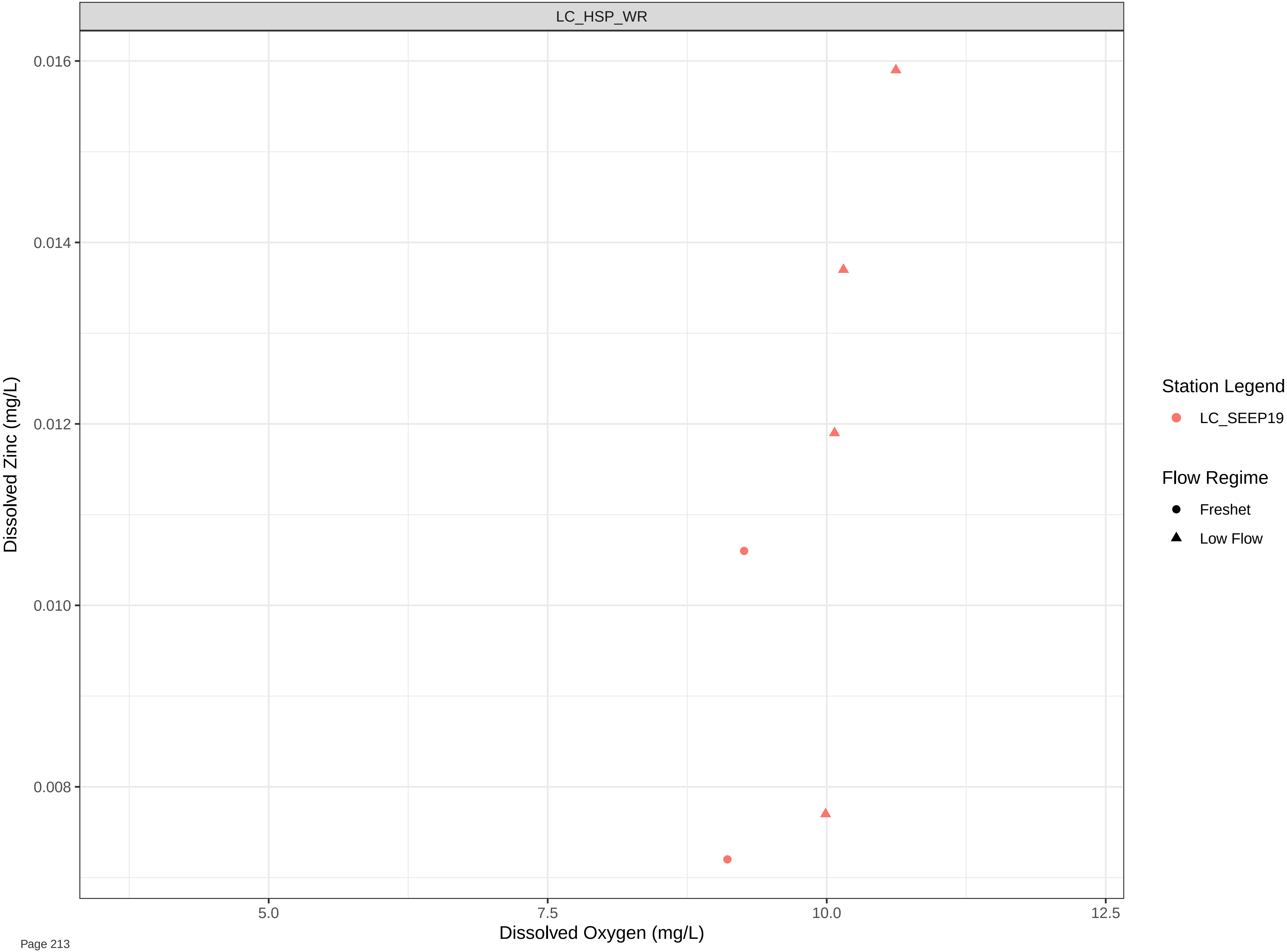

LC_MSA_WR
Dissolved Vanadium (mg/L)
8e−04
7e−04
6e−04
5e−04
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_3KM
LC_SEEP1
Flow Regime
Freshet
Low Flow

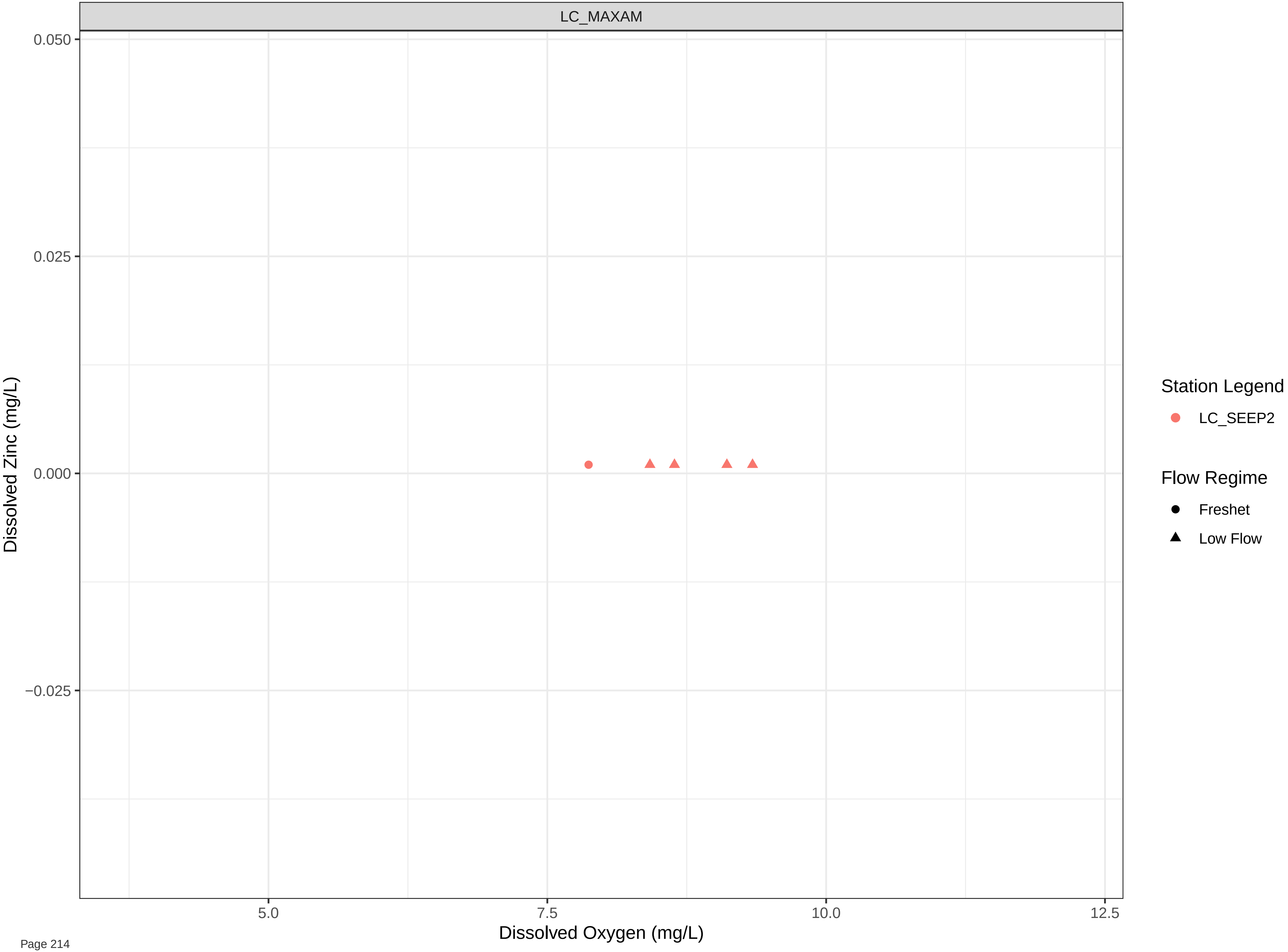

LC_PLANT
0.050
0.025
0.000
−0.025
Dissolved Vanadium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_SEEP10
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

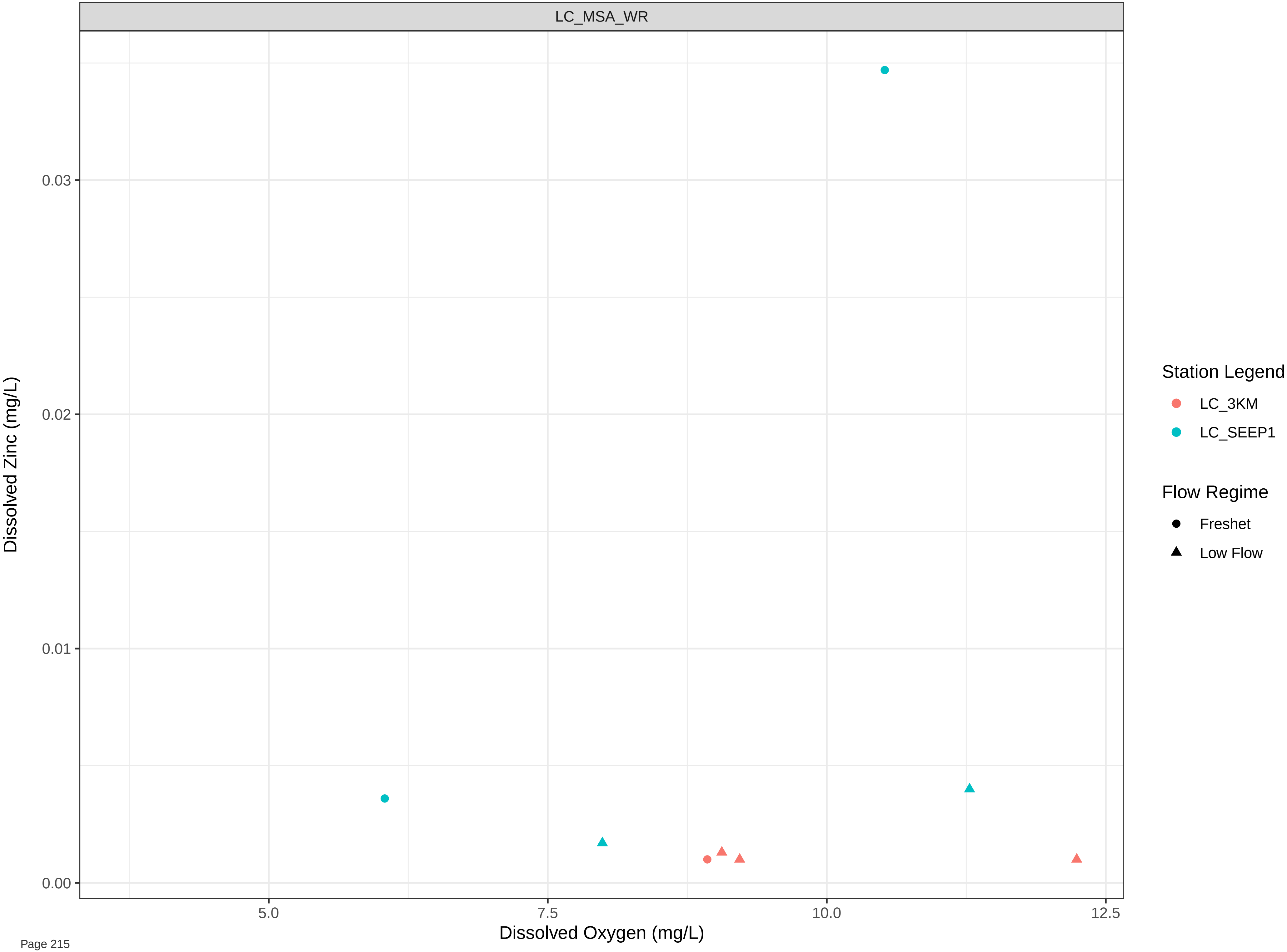

LC_WLC_WR
0.050
0.025
0.000
−0.025
Dissolved Vanadium (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet

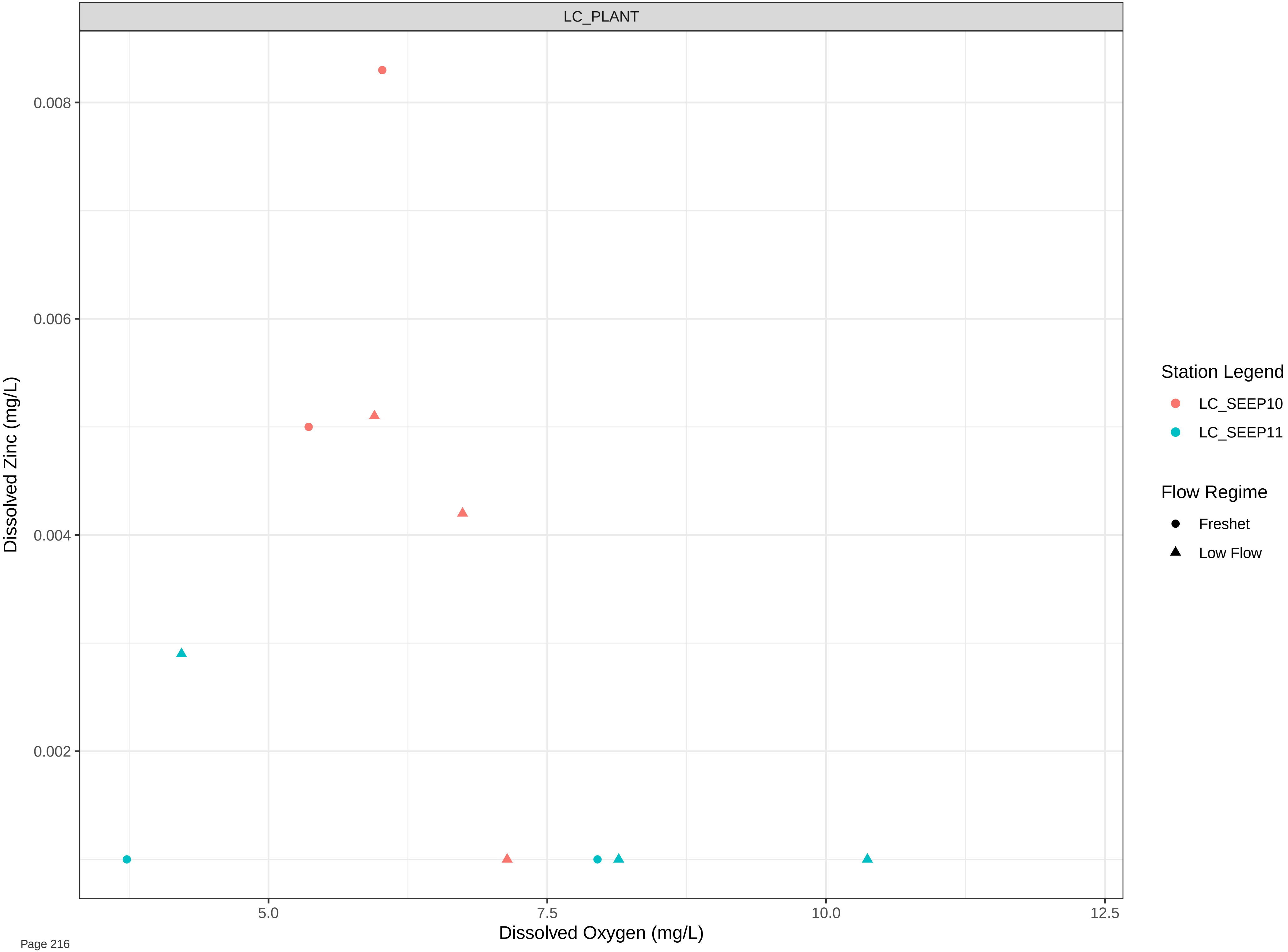

LC_DC_WR
0.009
0.006
0.003
5.0
7.5
10.0
12.5
Dissolved Zinc (mg/L)
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP14
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

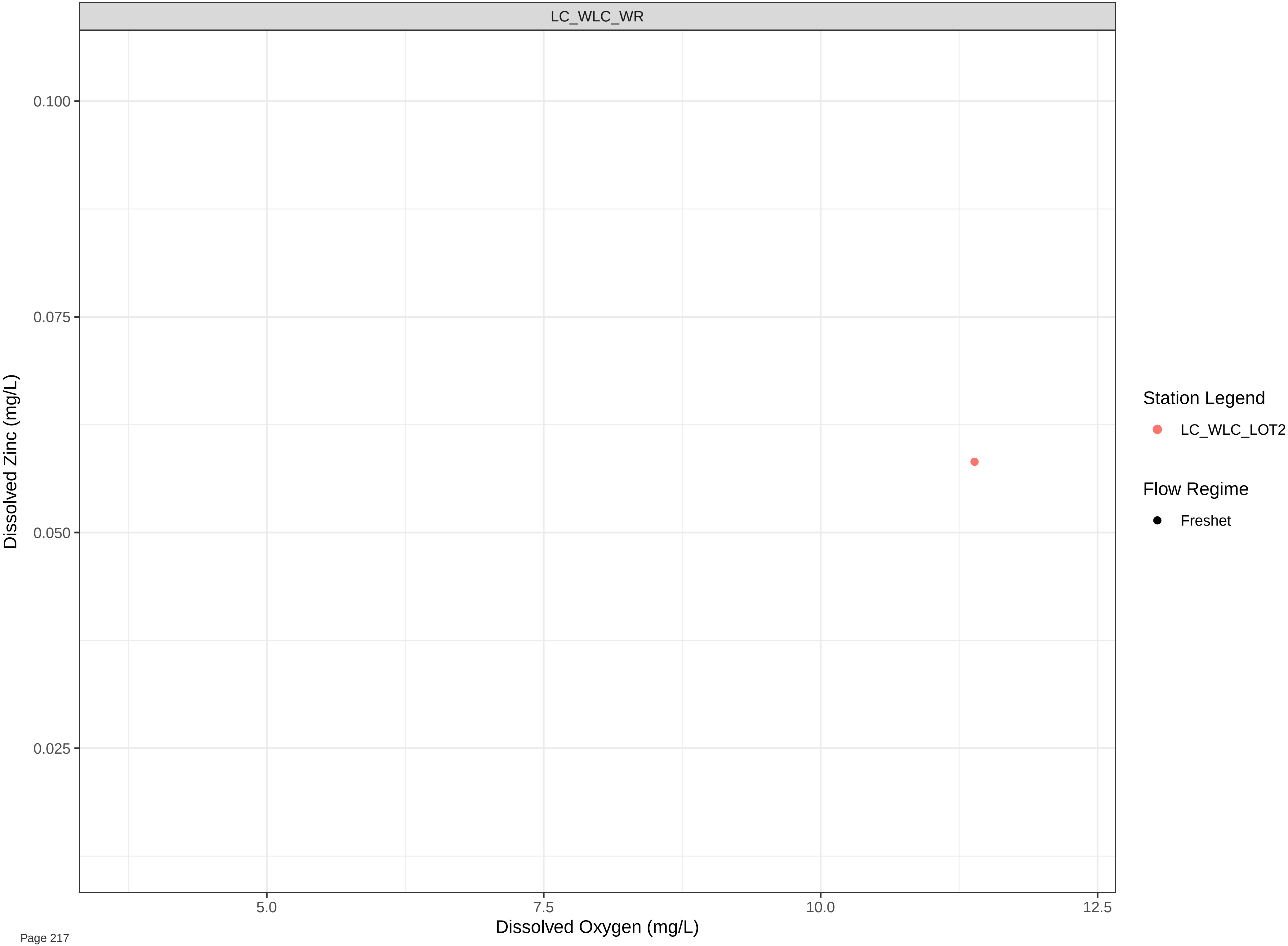

LC_DisturbedWSlope
0.050
0.025
0.000
−0.025
Dissolved Zinc (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP15
Flow Regime
Freshet
Low Flow

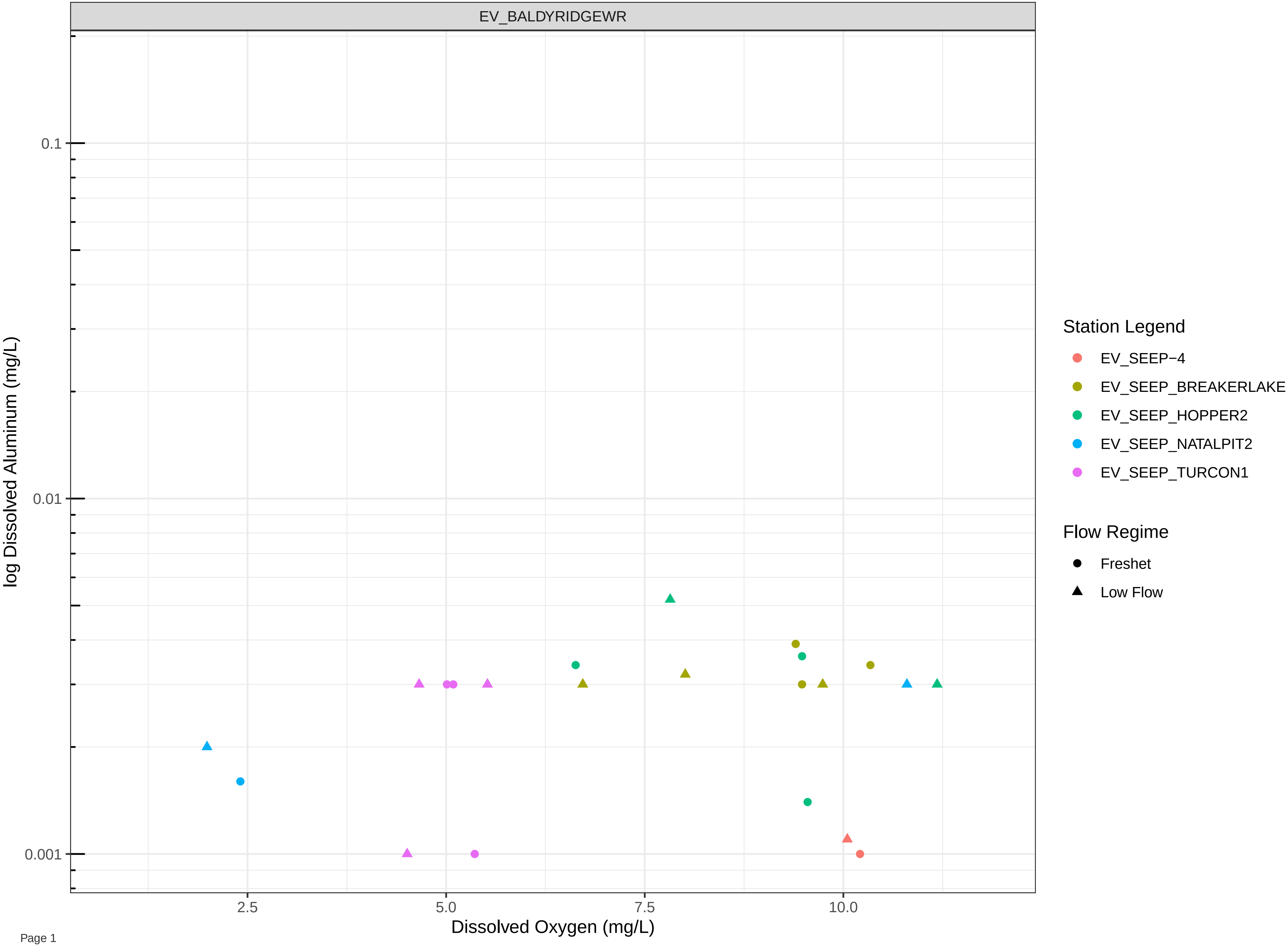

LC_HSP_WR
0.016
0.014
0.012
0.010
0.008
Dissolved Zinc (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP19
Flow Regime
Freshet
Low Flow

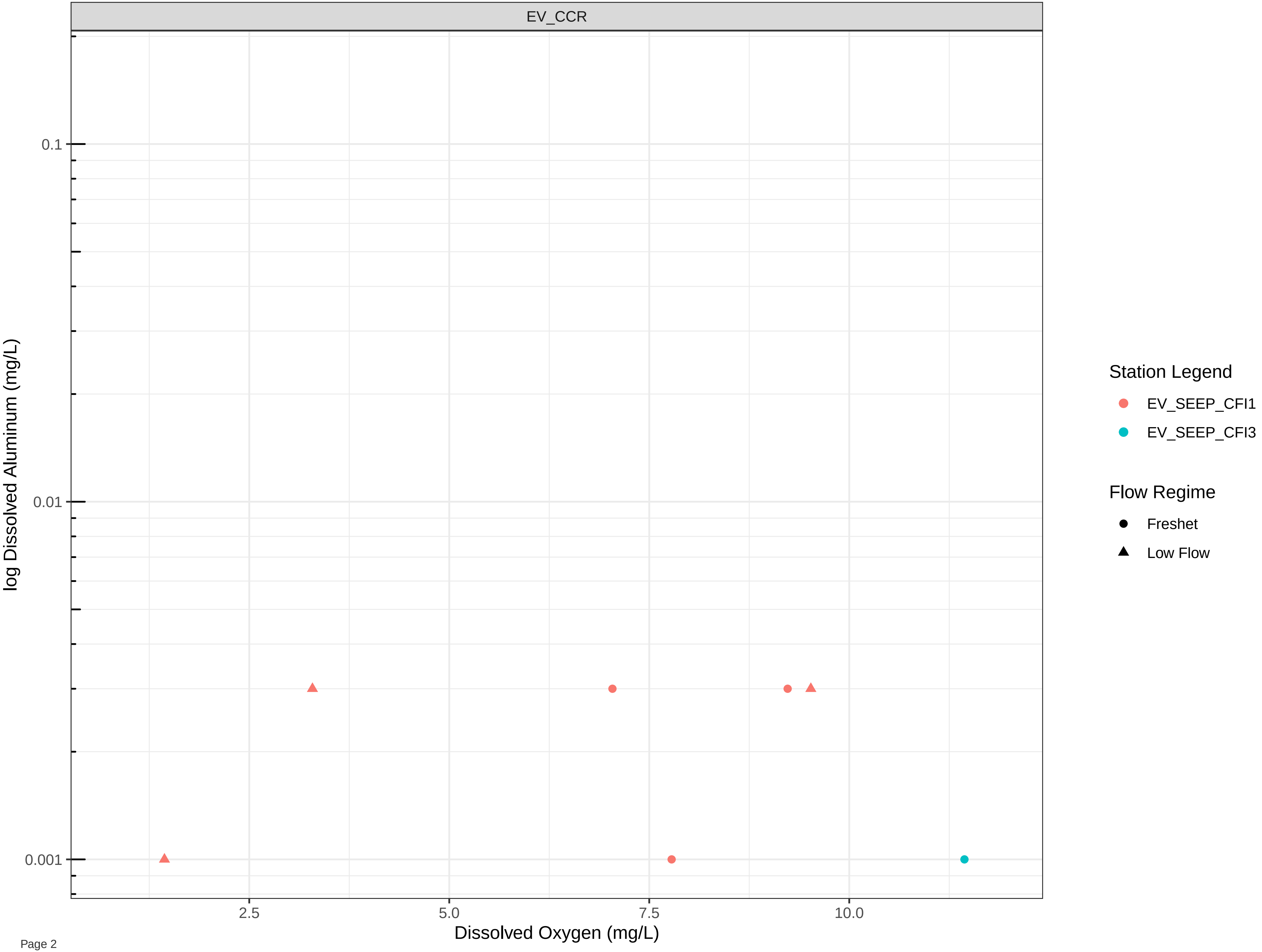

LC_MAXAM
0.050
0.025
0.000
−0.025
Dissolved Zinc (mg/L)
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
LC_SEEP2
Flow Regime
Freshet
Low Flow

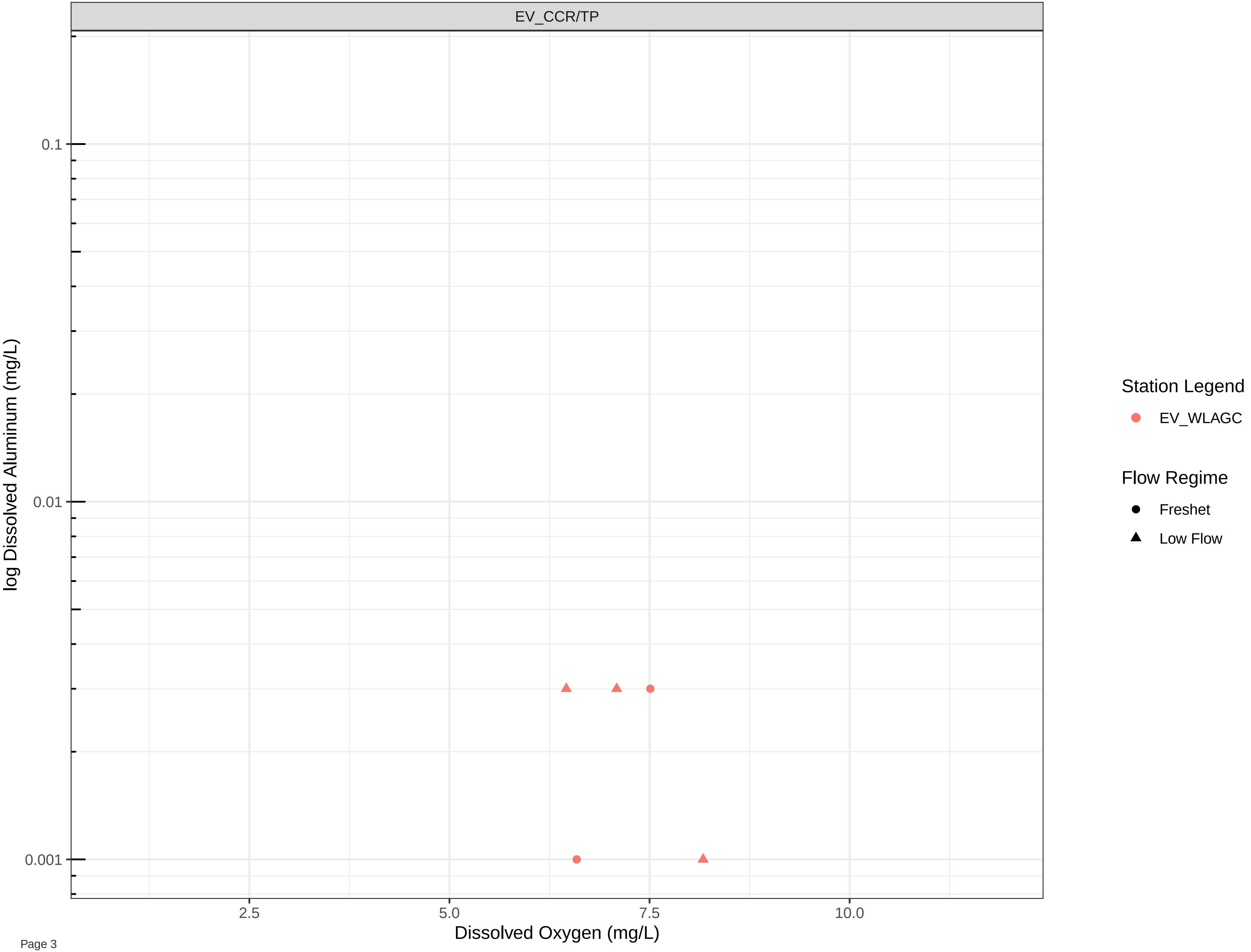

LC_MSA_WR
Dissolved Zinc (mg/L)
0.03
0.02
0.01
0.00
5.0
7.5
10.0
12.5
Dissolved Oxygen (mg/L)
Station Legend
● LC_3KM
● LC_SEEP1
Flow Regime
● Freshet
▲ Low Flow

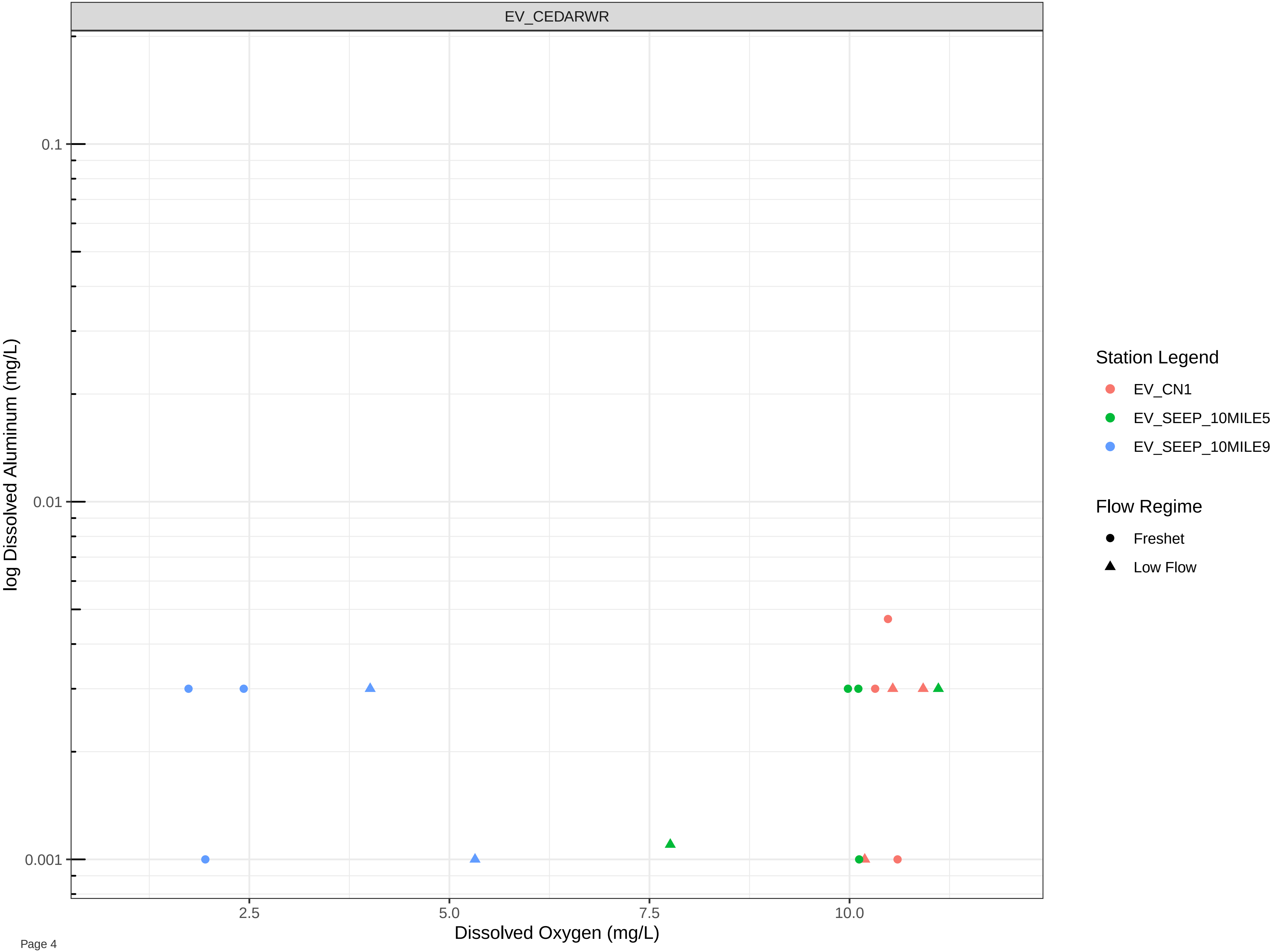

LC_PLANT
Dissolved Zinc (mg/L)
0.008
0.006
0.004
0.002
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_SEEP10
LC_SEEP11
Flow Regime
Freshet
Low Flow

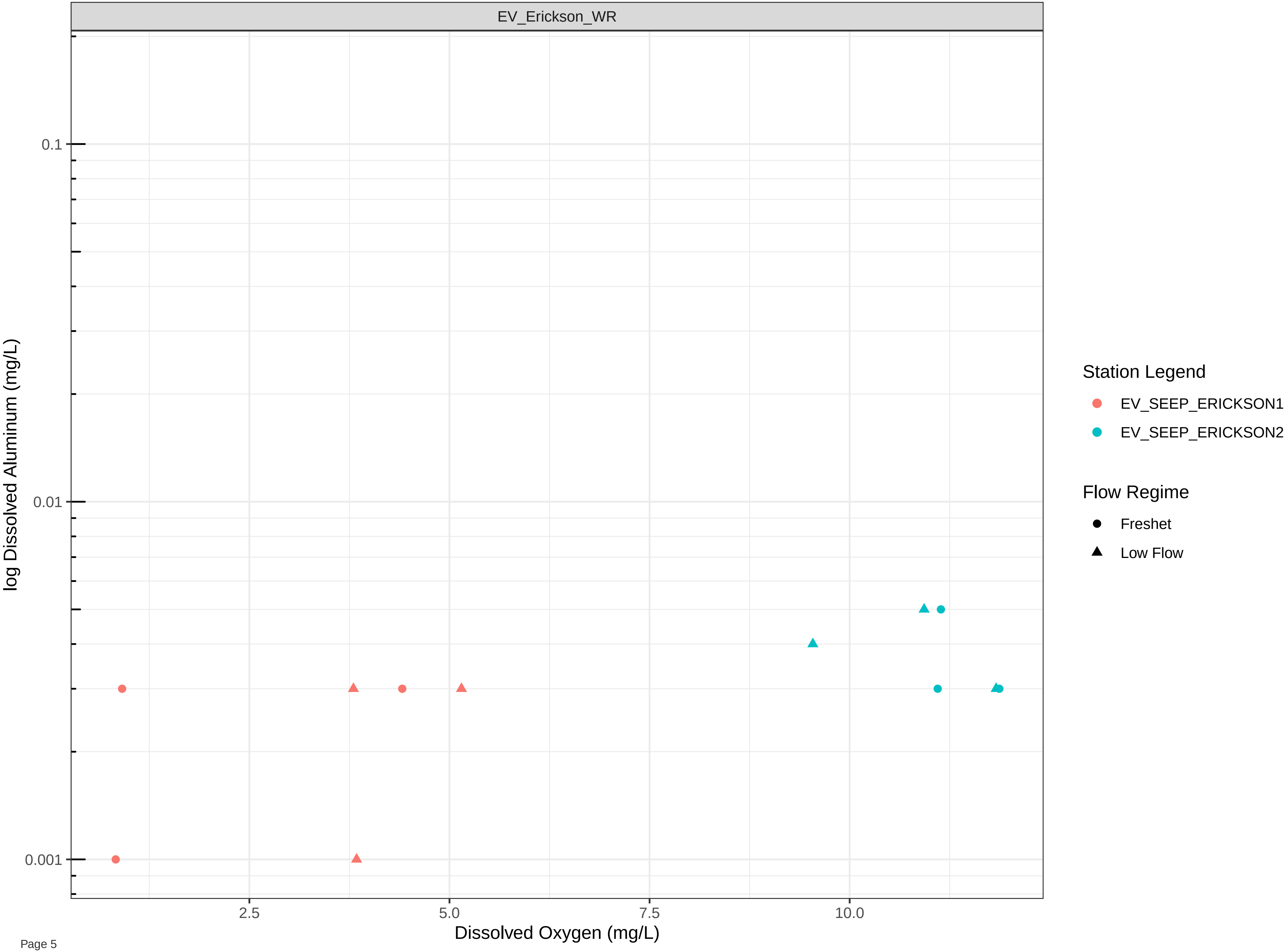

LC_WLC_WR
Dissolved Zinc (mg/L)
0.100
0.075
0.050
0.025
Dissolved Oxygen (mg/L)
5.0
7.5
10.0
12.5
Station Legend
LC_WLC_LOT2
Flow Regime
Freshet

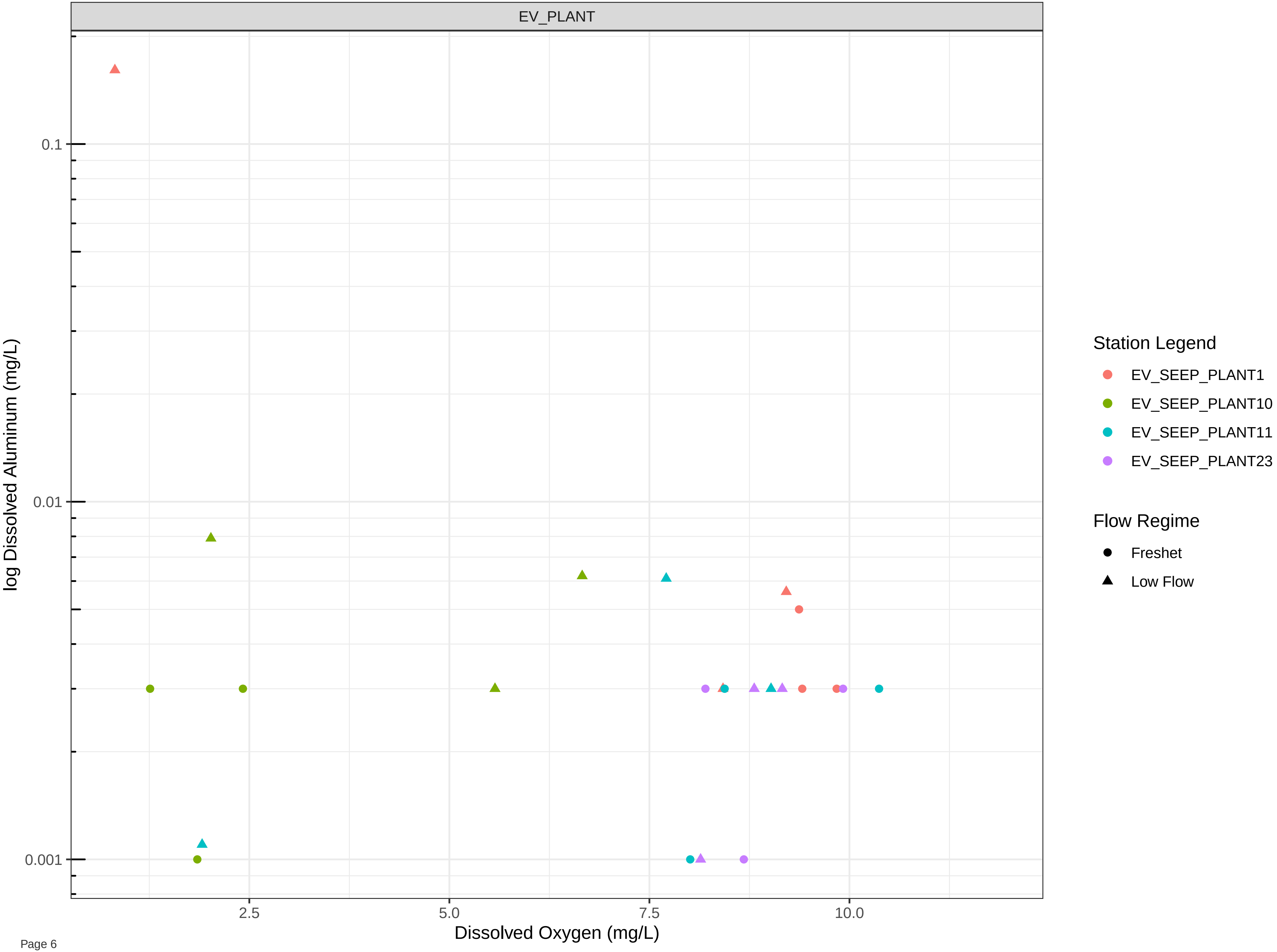

EV_BALDYRIDGEWR
log Dissolved Aluminum (mg/L)
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

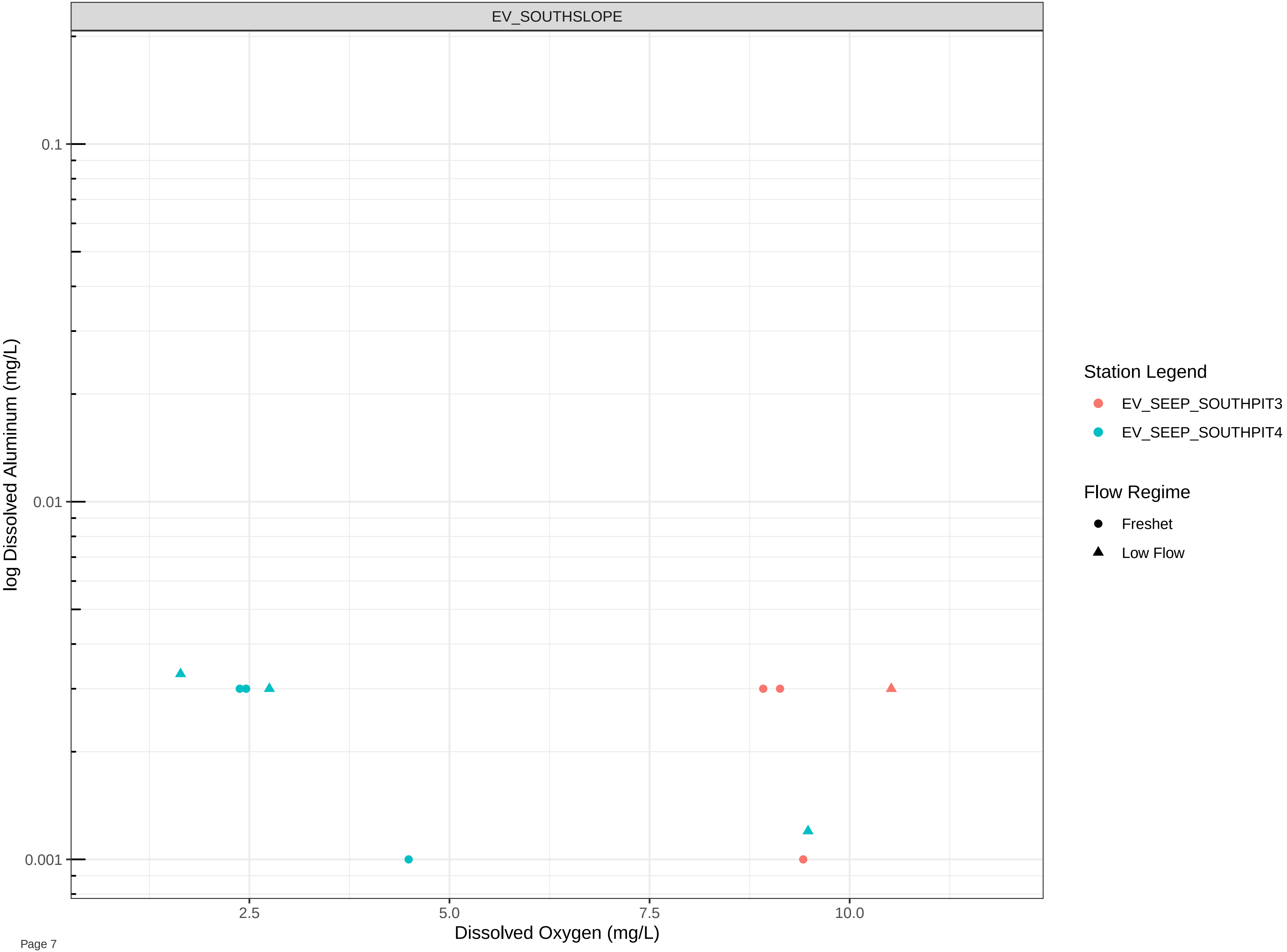

EV_CCR
log Dissolved Aluminum (mg/L)
0.1
0.01
0.001
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

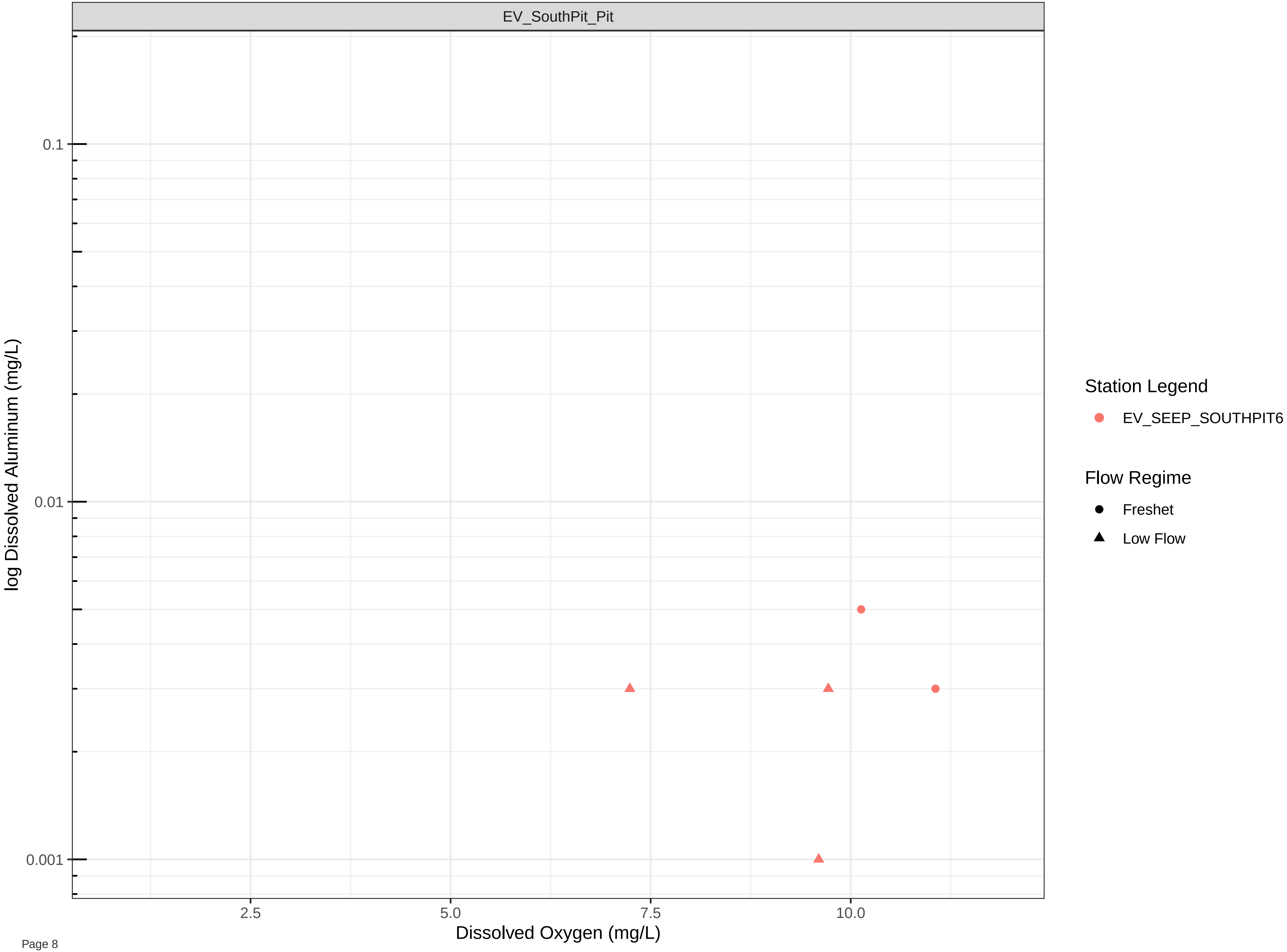

EV_CCR/TP
0.1
0.01
0.001
log Dissolved Aluminum (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

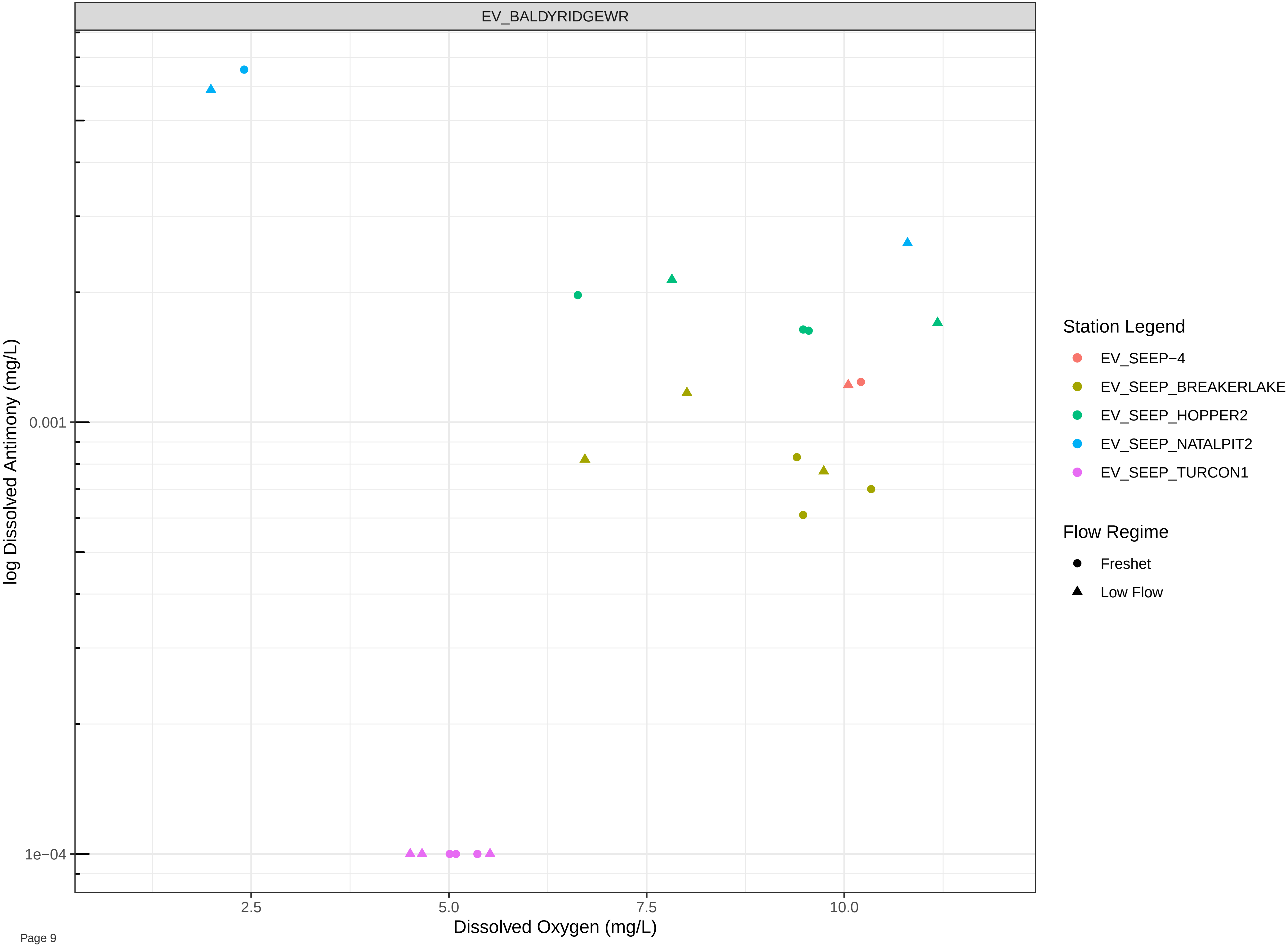

EV_CEDARWR
log Dissolved Aluminum (mg/L)
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

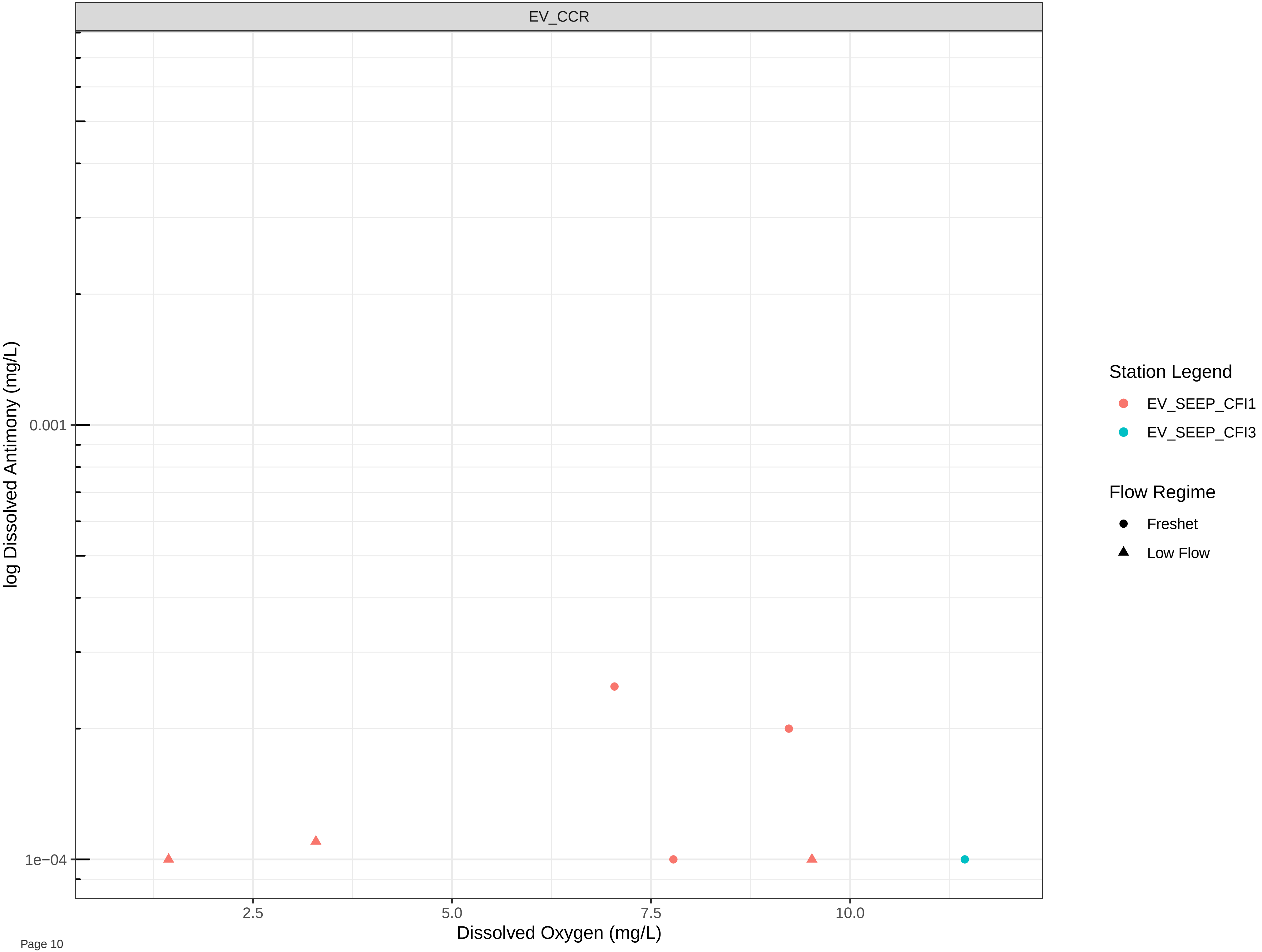

EV_Erickson_WR
log Dissolved Aluminum (mg/L)
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

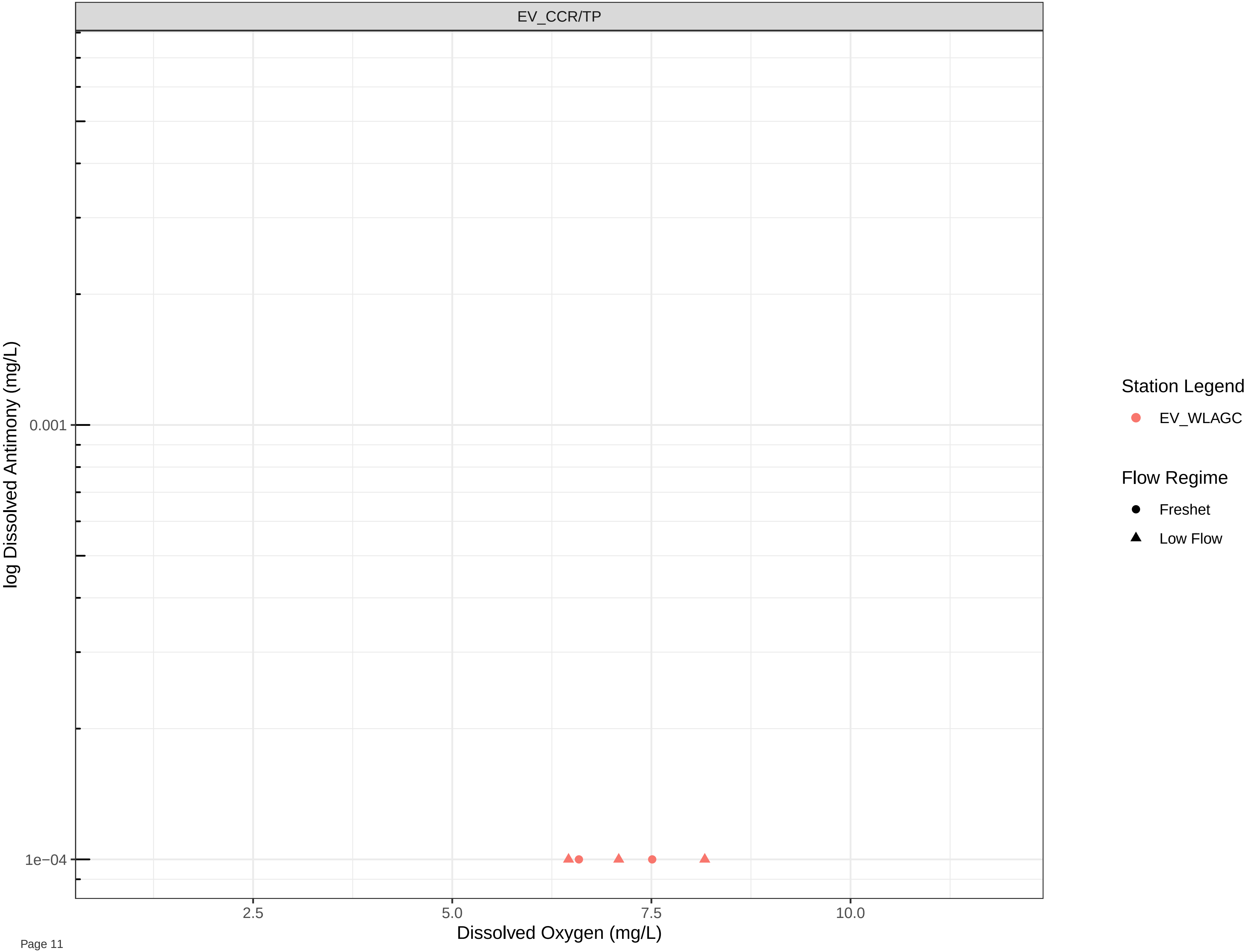

EV_PLANT
log Dissolved Aluminum (mg/L)
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

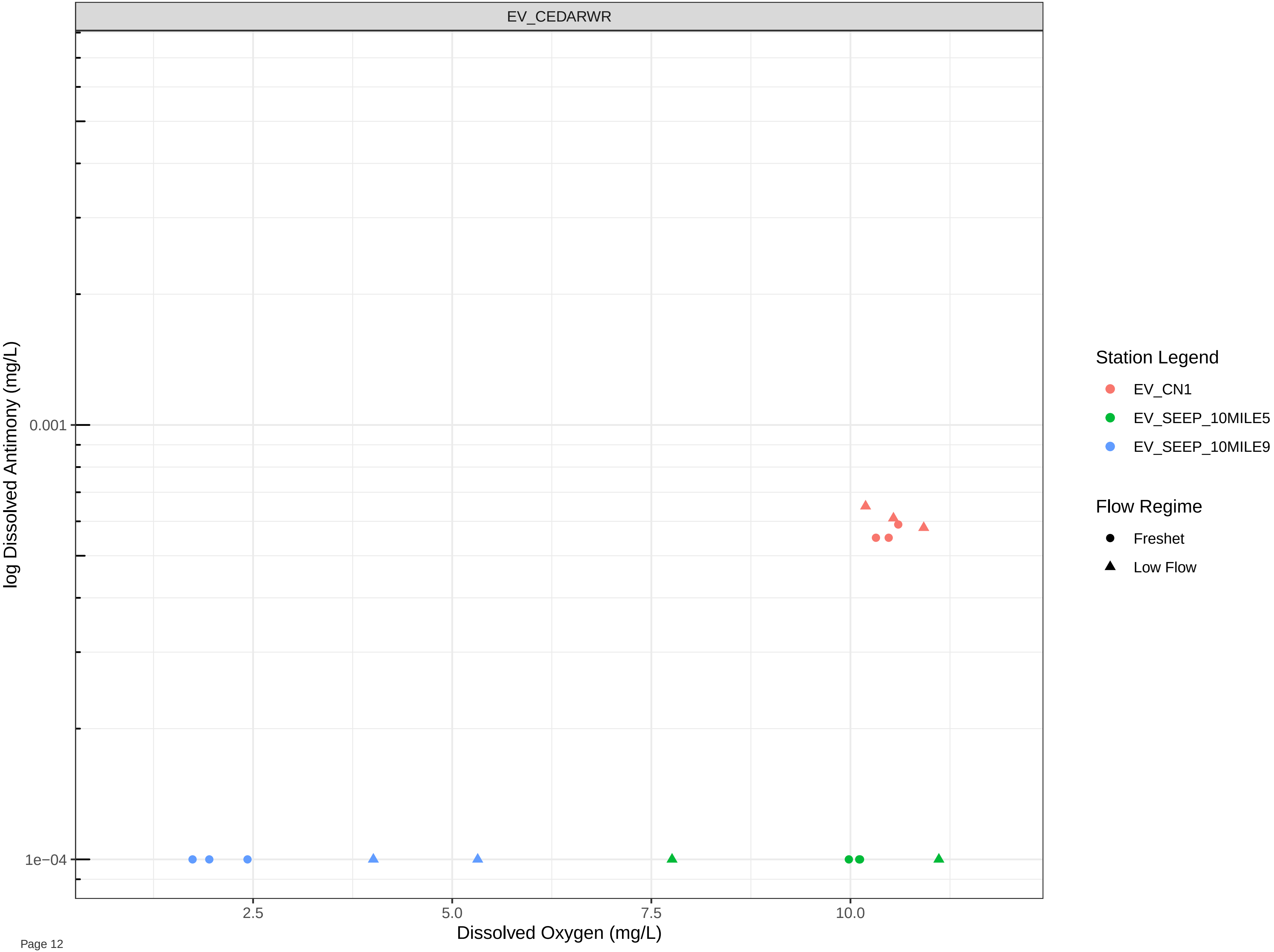

EV_SOUTHSLOPE
log Dissolved Aluminum (mg/L)
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

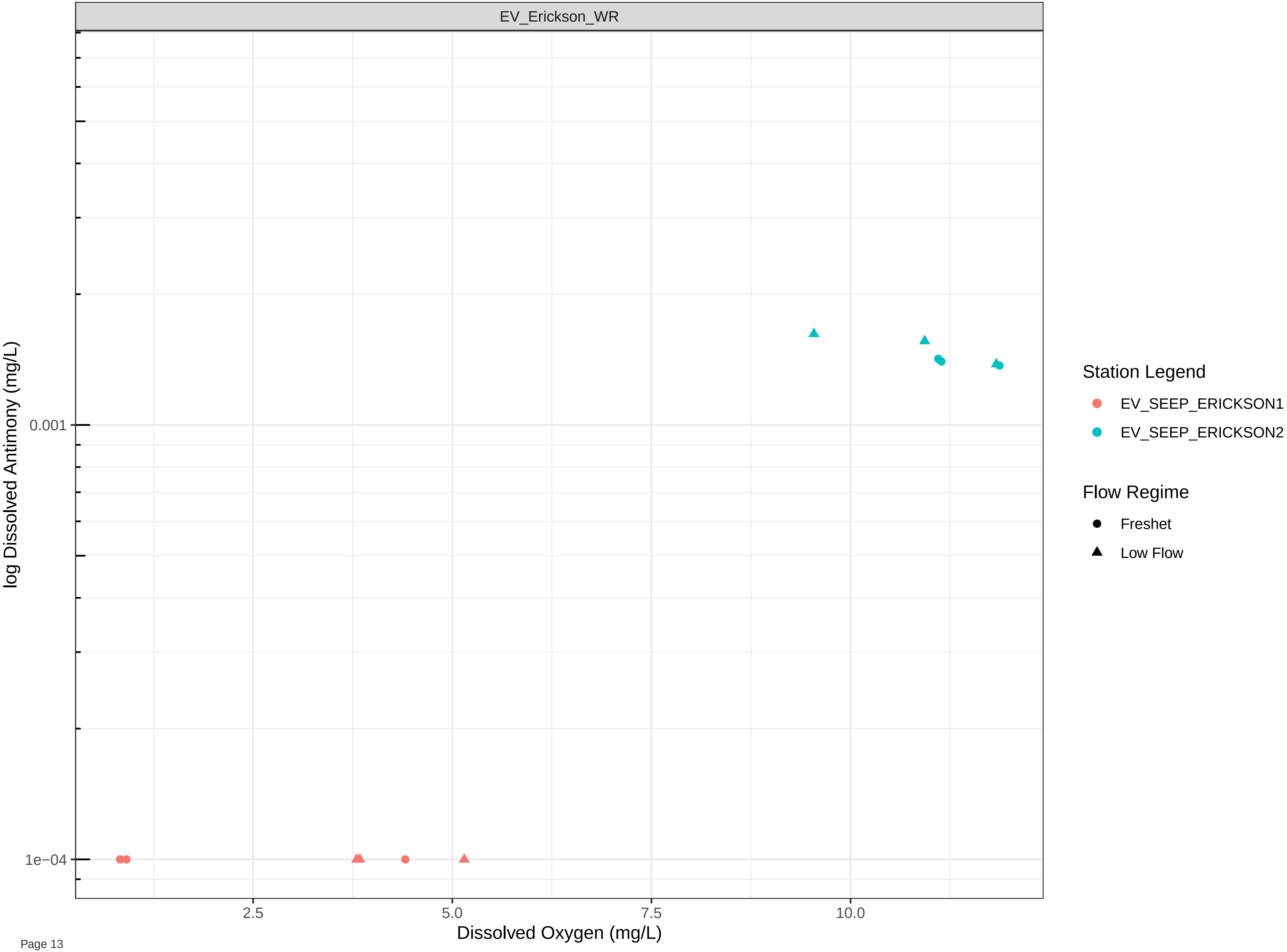

EV_SouthPit_Pit
0.1
0.01
0.001
log Dissolved Aluminum (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

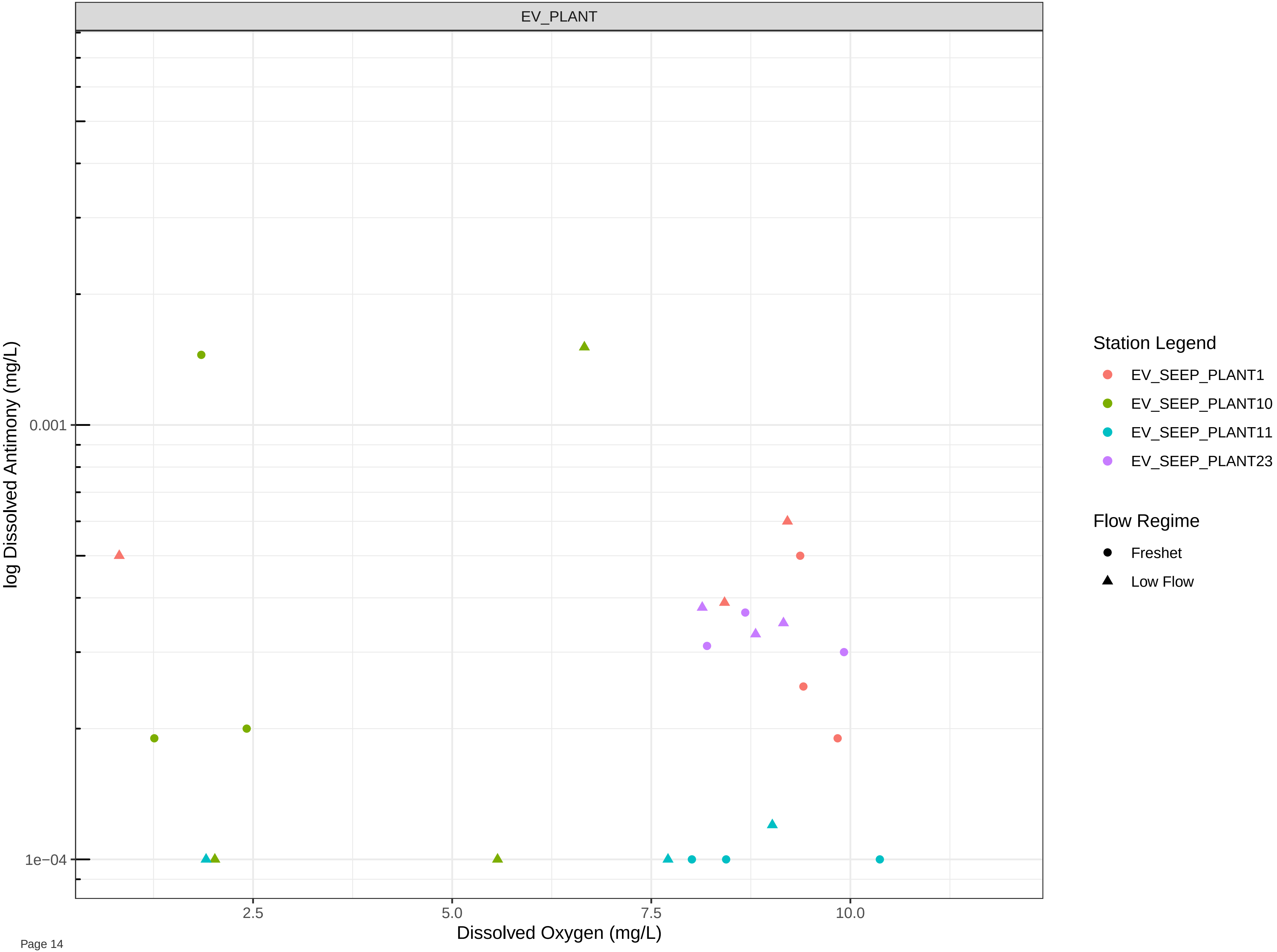

EV_BALDYRIDGEWR
log Dissolved Antimony (mg/L)
0.001
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

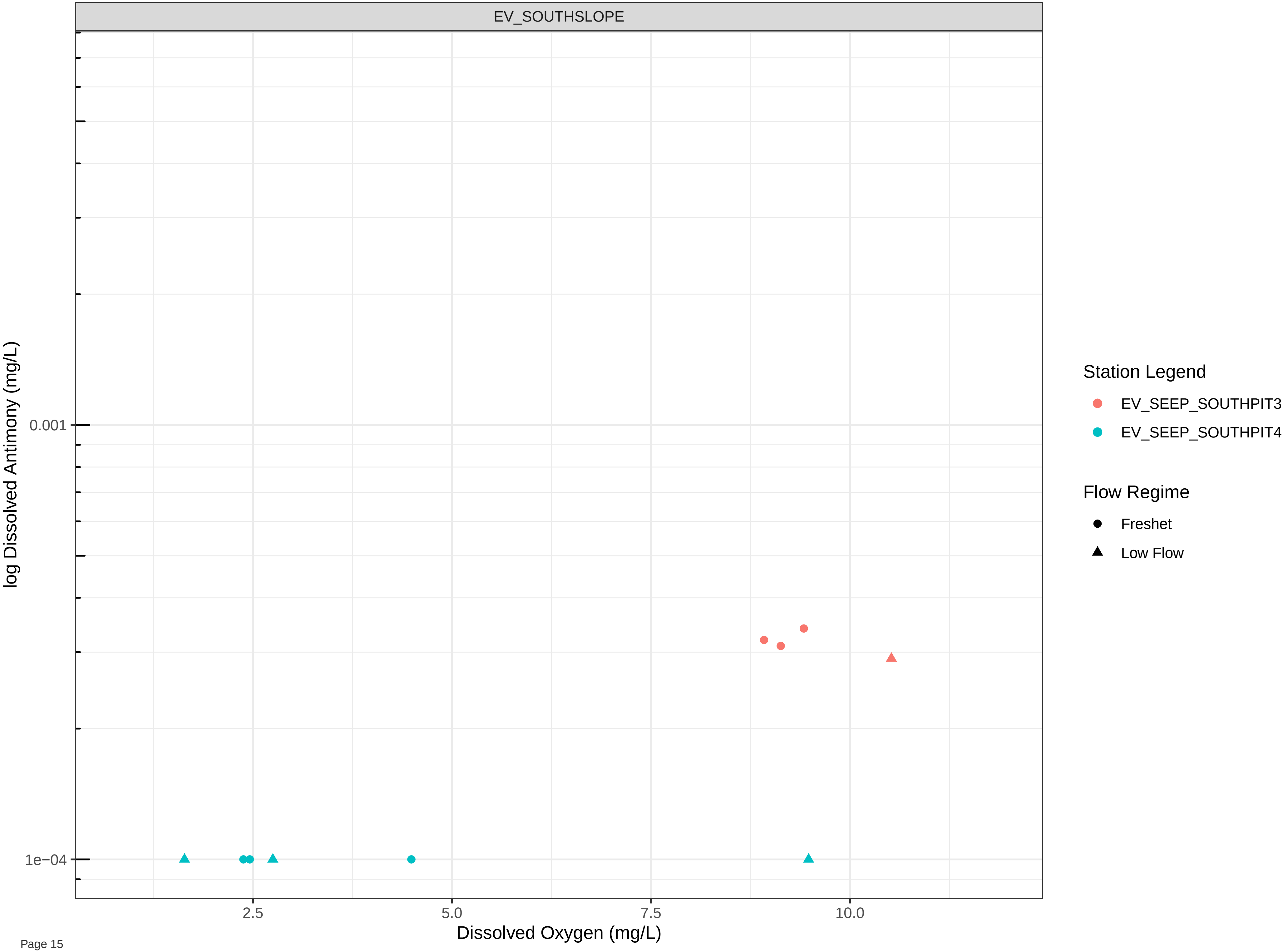

EV_CCR
log Dissolved Antimony (mg/L)
0.001
1e−04
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

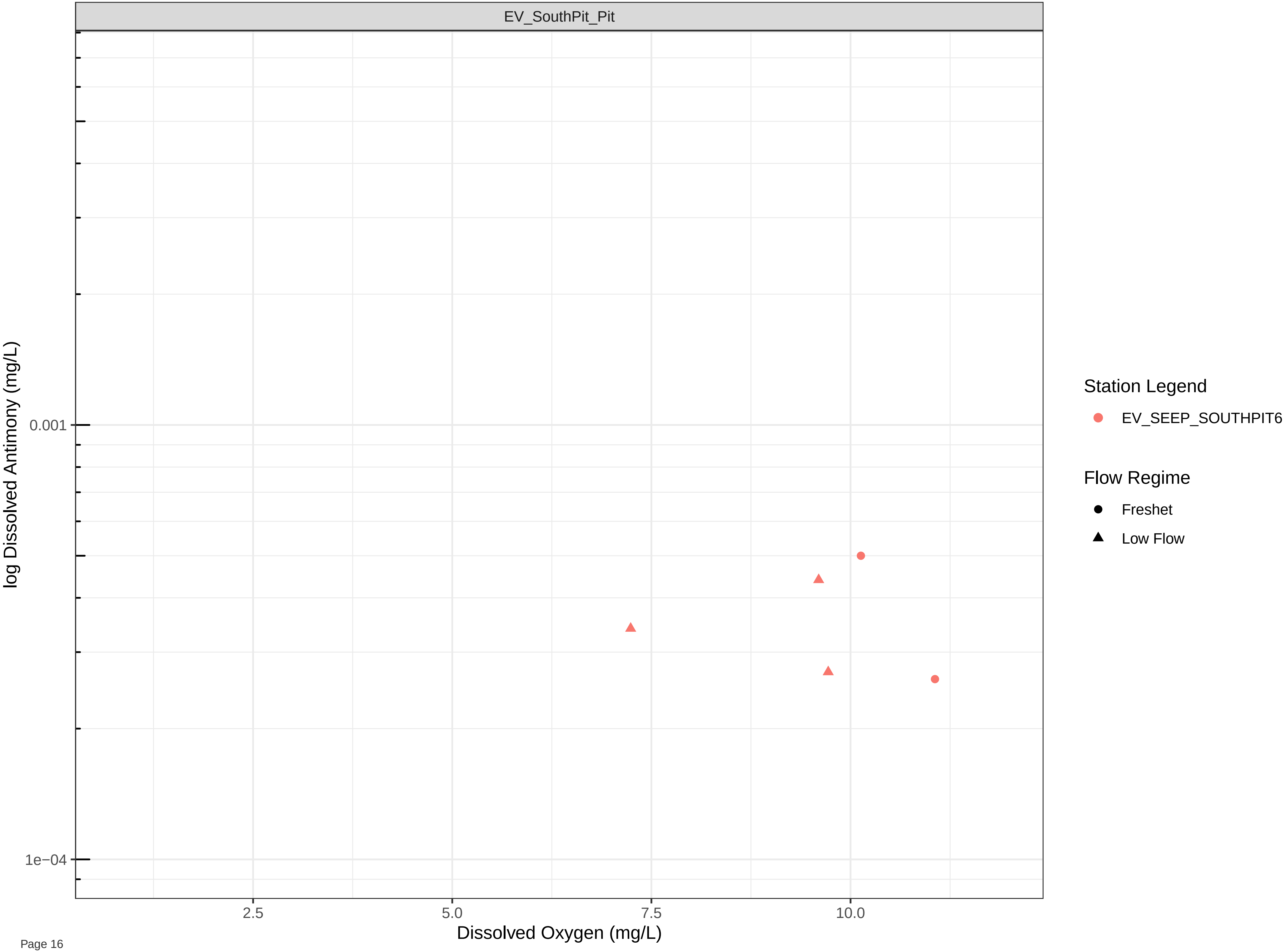

EV_CCR/TP
log Dissolved Antimony (mg/L)
0.001
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

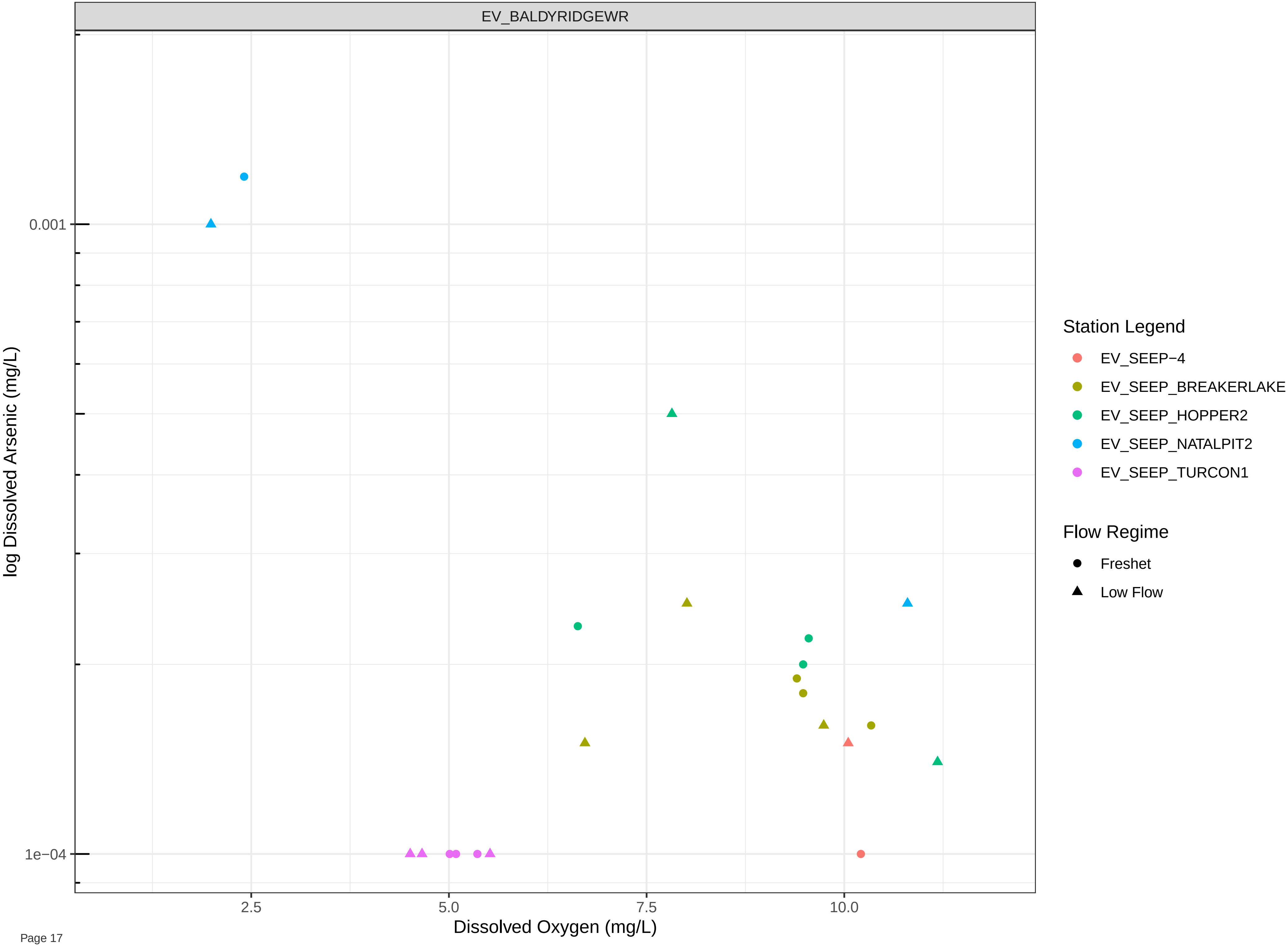

EV_CEDARWR
log Dissolved Antimony (mg/L)
0.001
1e−04
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_CN1
● EV_SEEP_10MILE5
● EV_SEEP_10MILE9
Flow Regime
● Freshet
▲ Low Flow

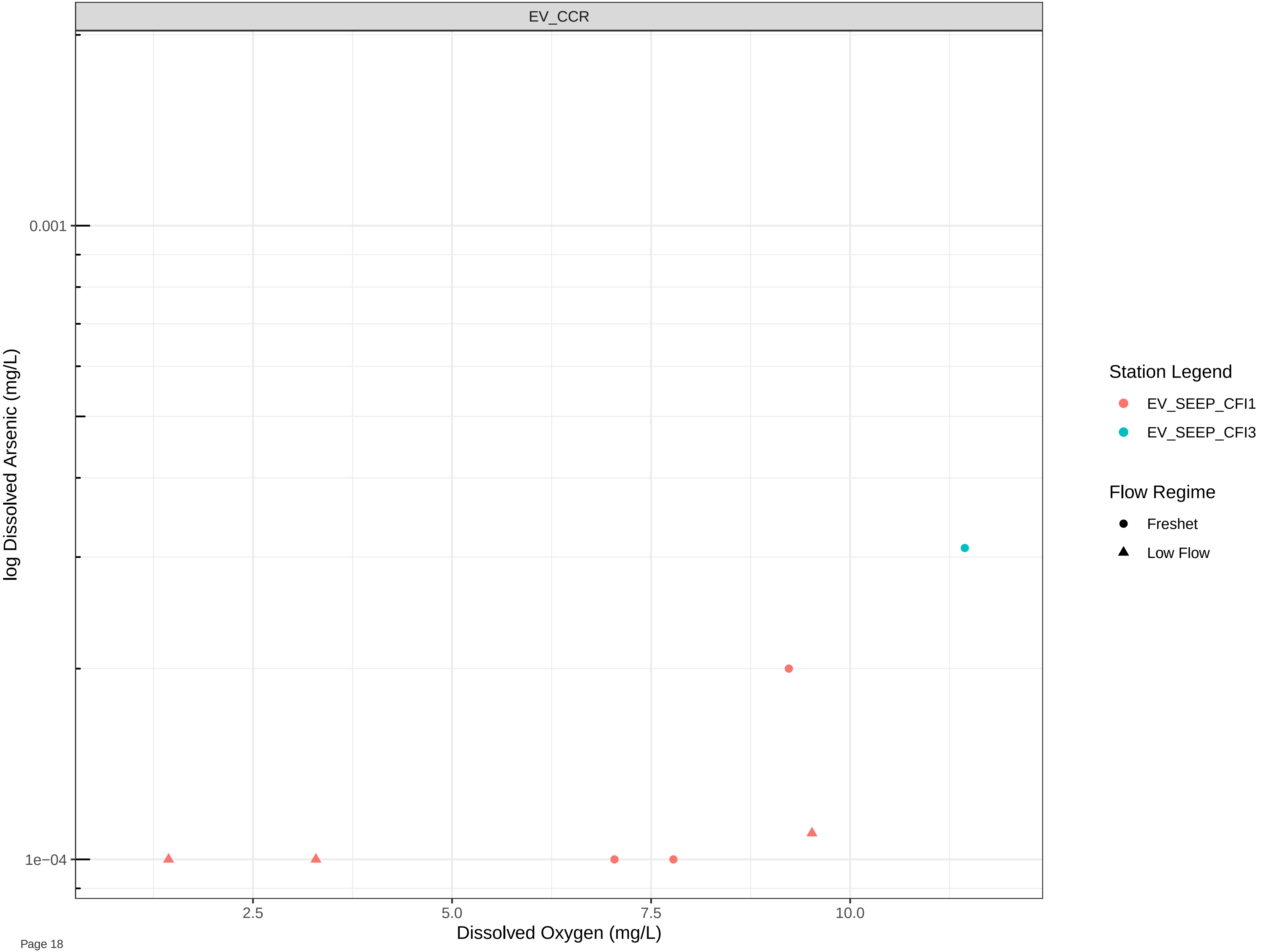

EV_Erickson_WR
log Dissolved Antimony (mg/L)
0.001
1e−04
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

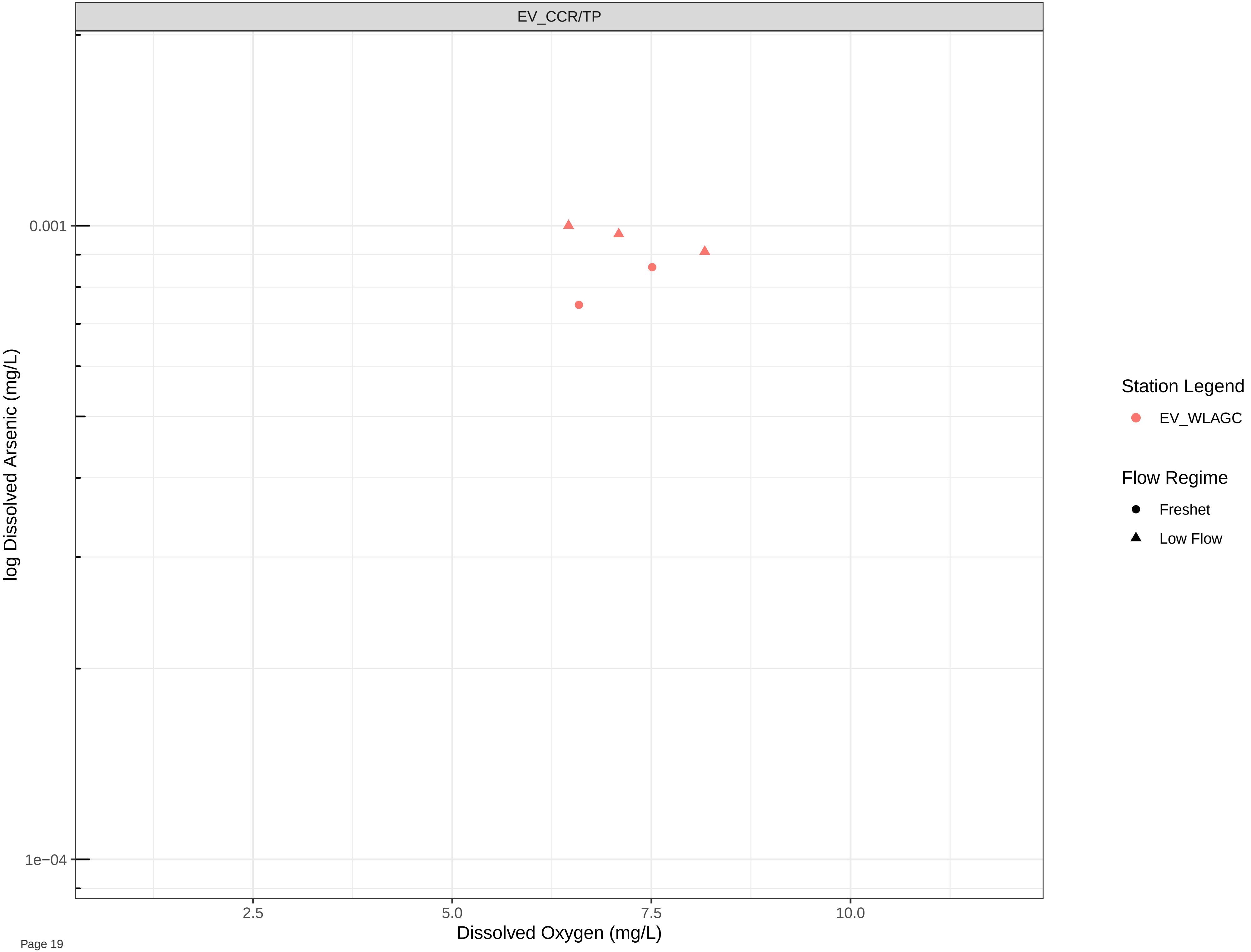

EV_PLANT
log Dissolved Antimony (mg/L)
0.001
1e−04
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_SEEP_PLANT1
● EV_SEEP_PLANT10
● EV_SEEP_PLANT11
● EV_SEEP_PLANT23
Flow Regime
● Freshet
▲ Low Flow

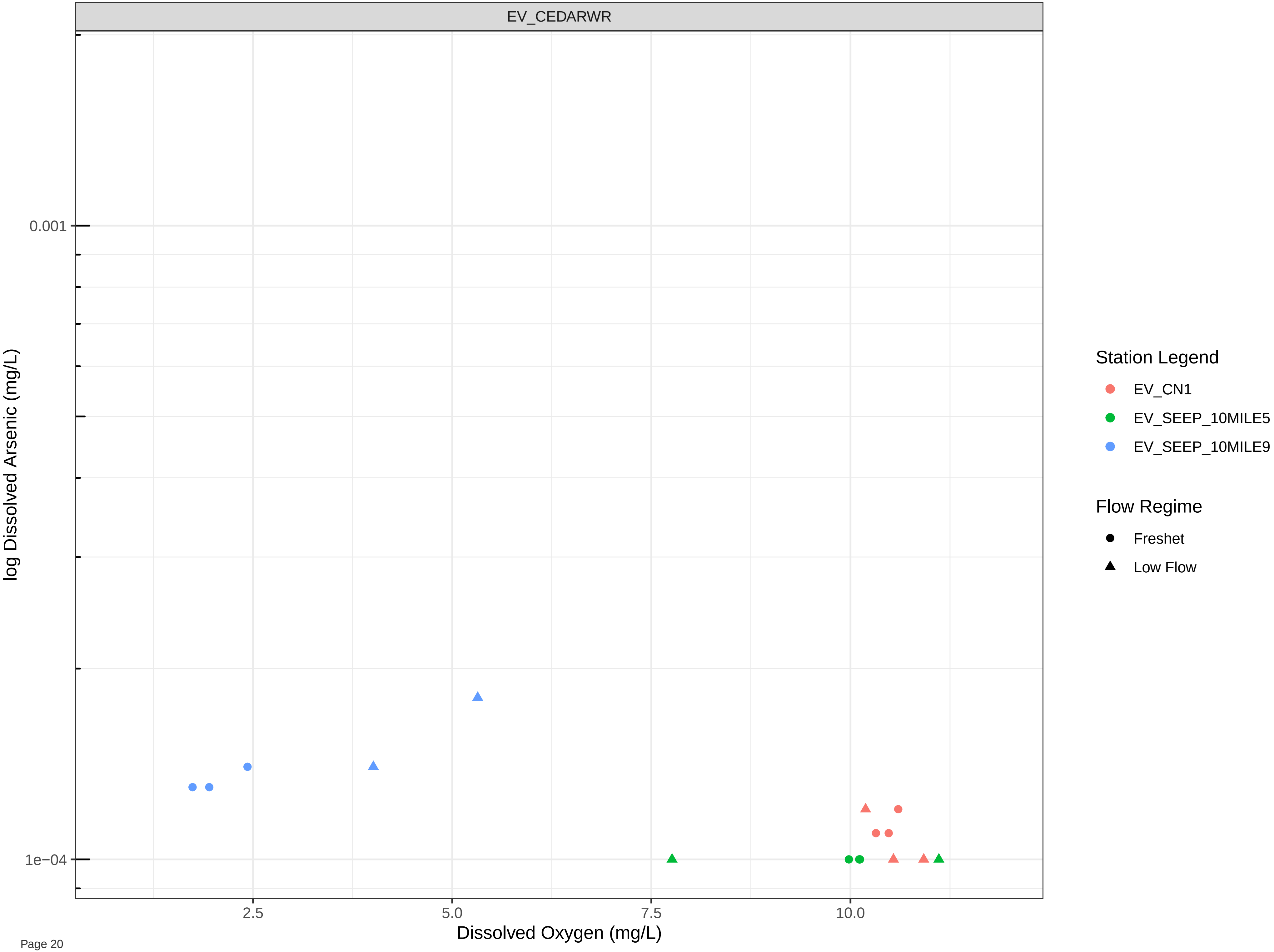

EV_SOUTHSLOPE
log Dissolved Antimony (mg/L)
0.001
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

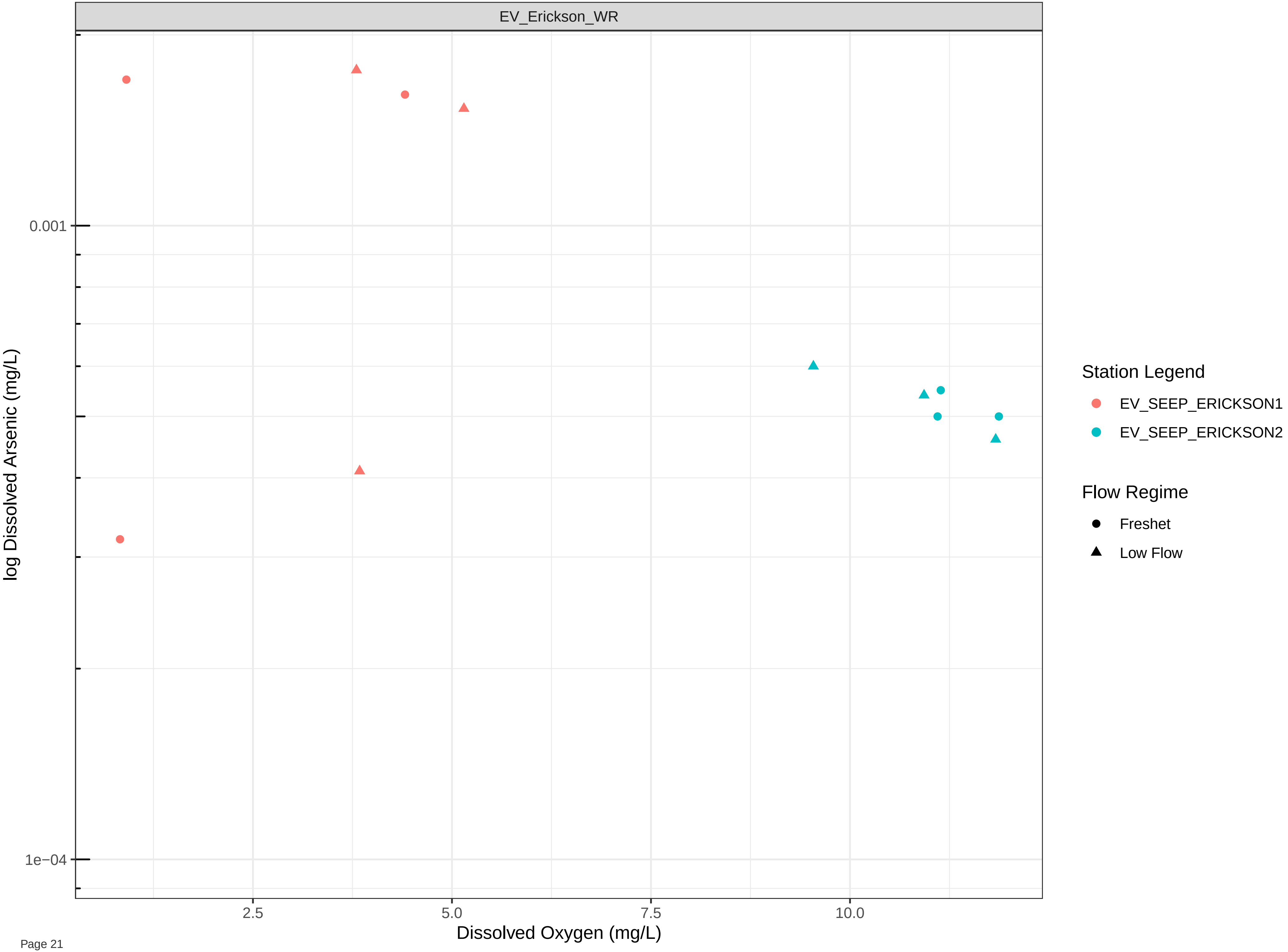

EV_SouthPit_Pit
log Dissolved Antimony (mg/L)
0.001
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

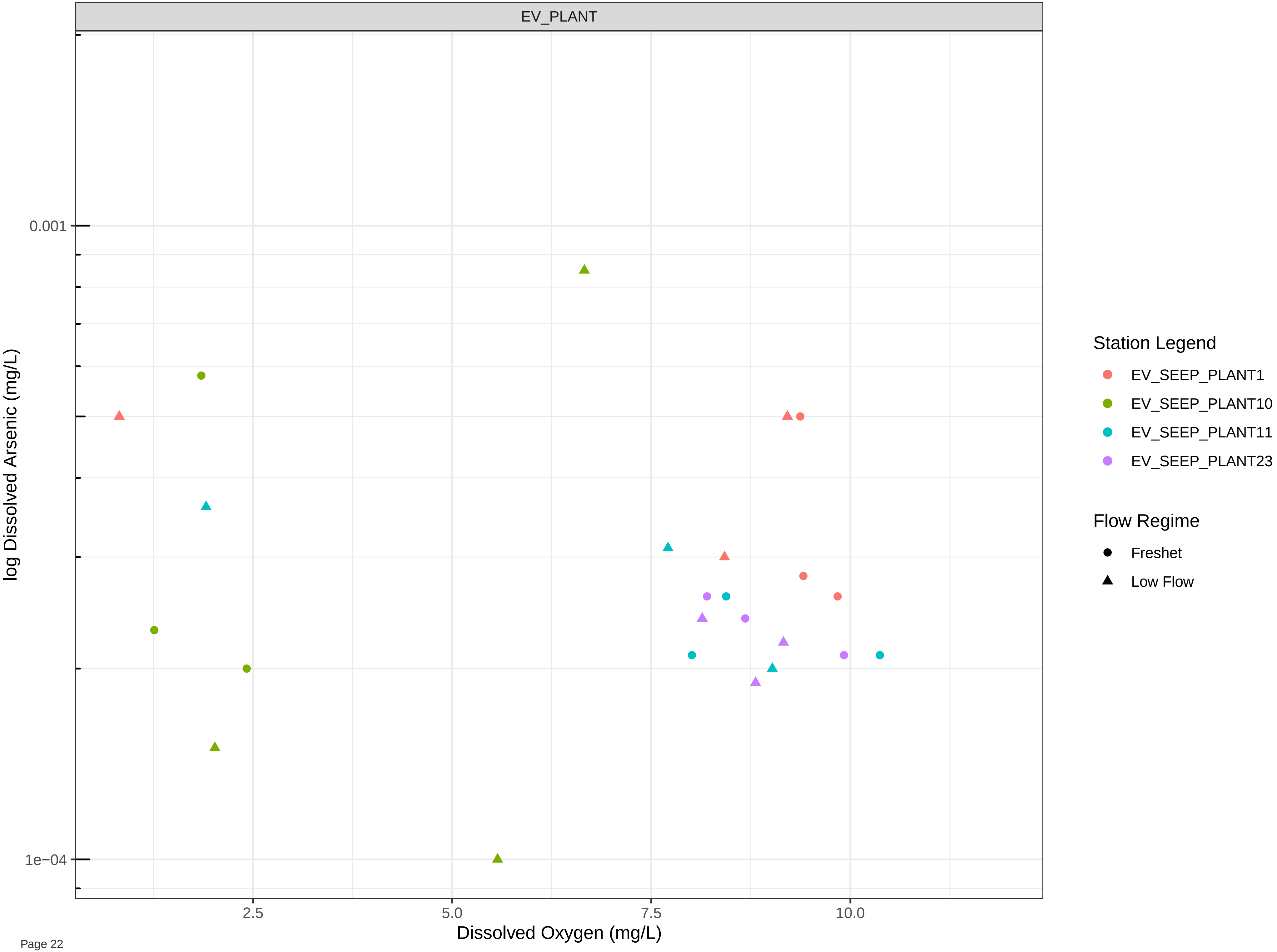

EV_BALDYRIDGEWR
log Dissolved Arsenic (mg/L)
0.001
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

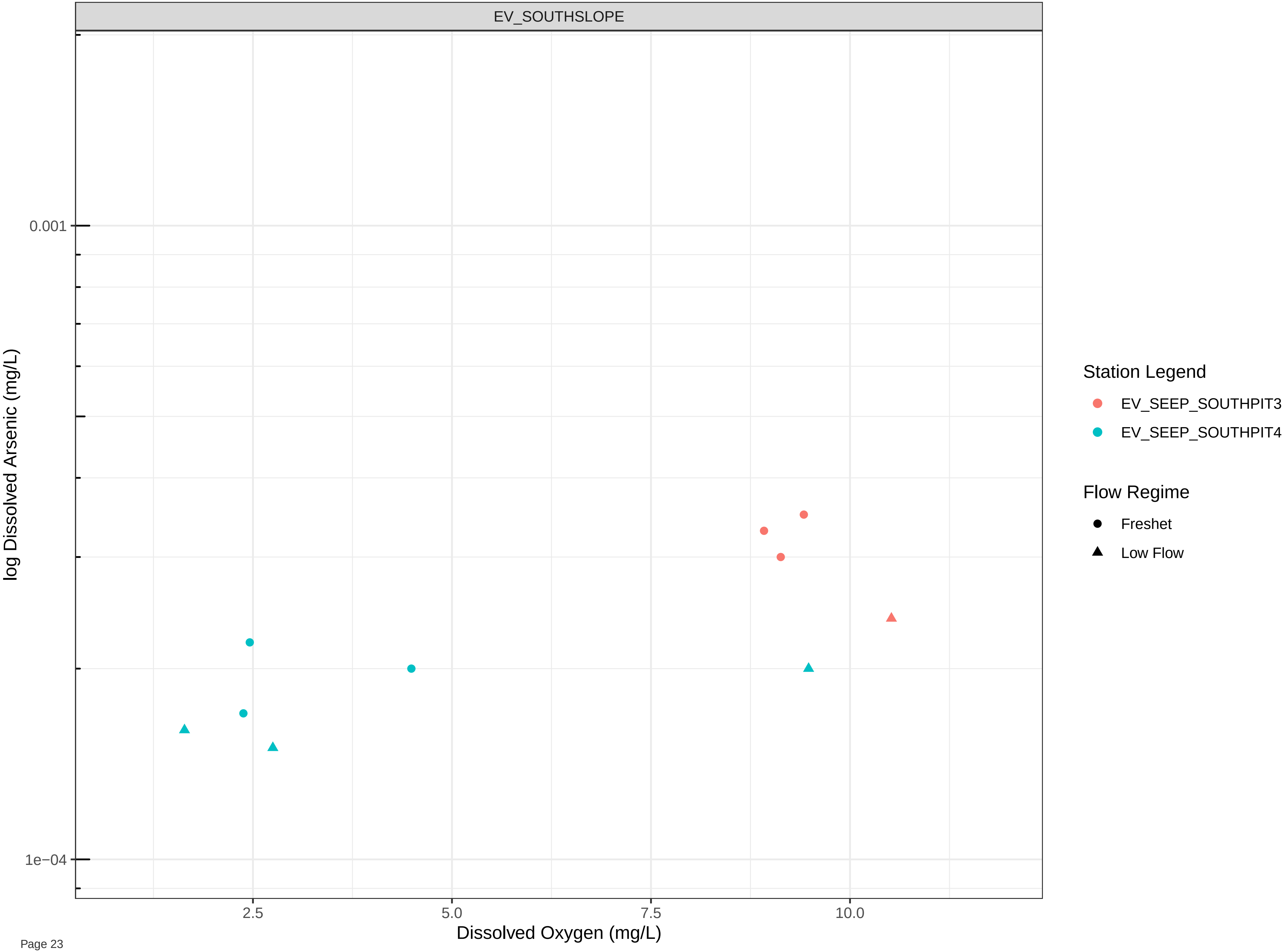

EV_CCR
0.001
1e−04
log Dissolved Arsenic (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

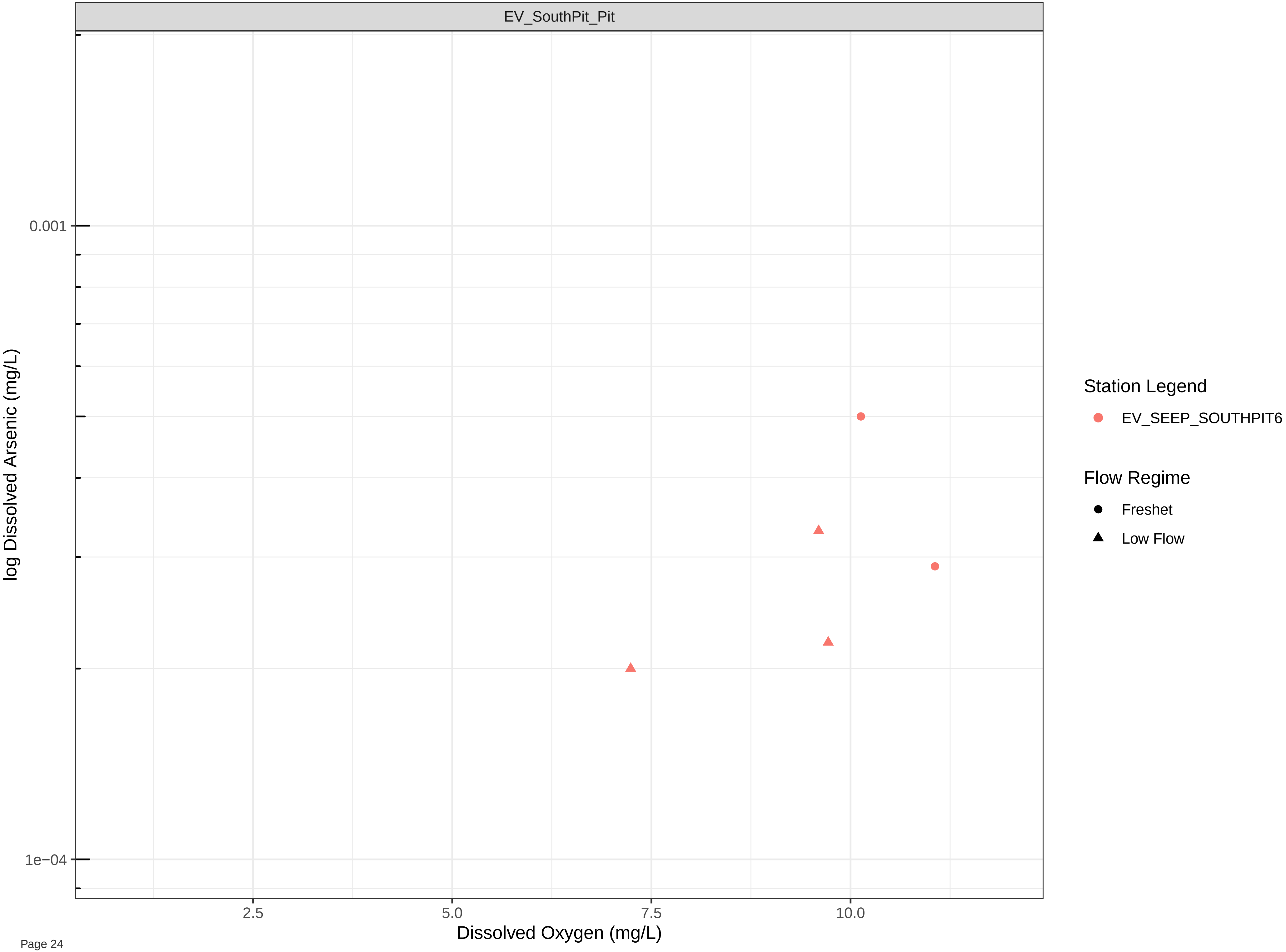

EV_CCR/TP
0.001
1e−04
log Dissolved Arsenic (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

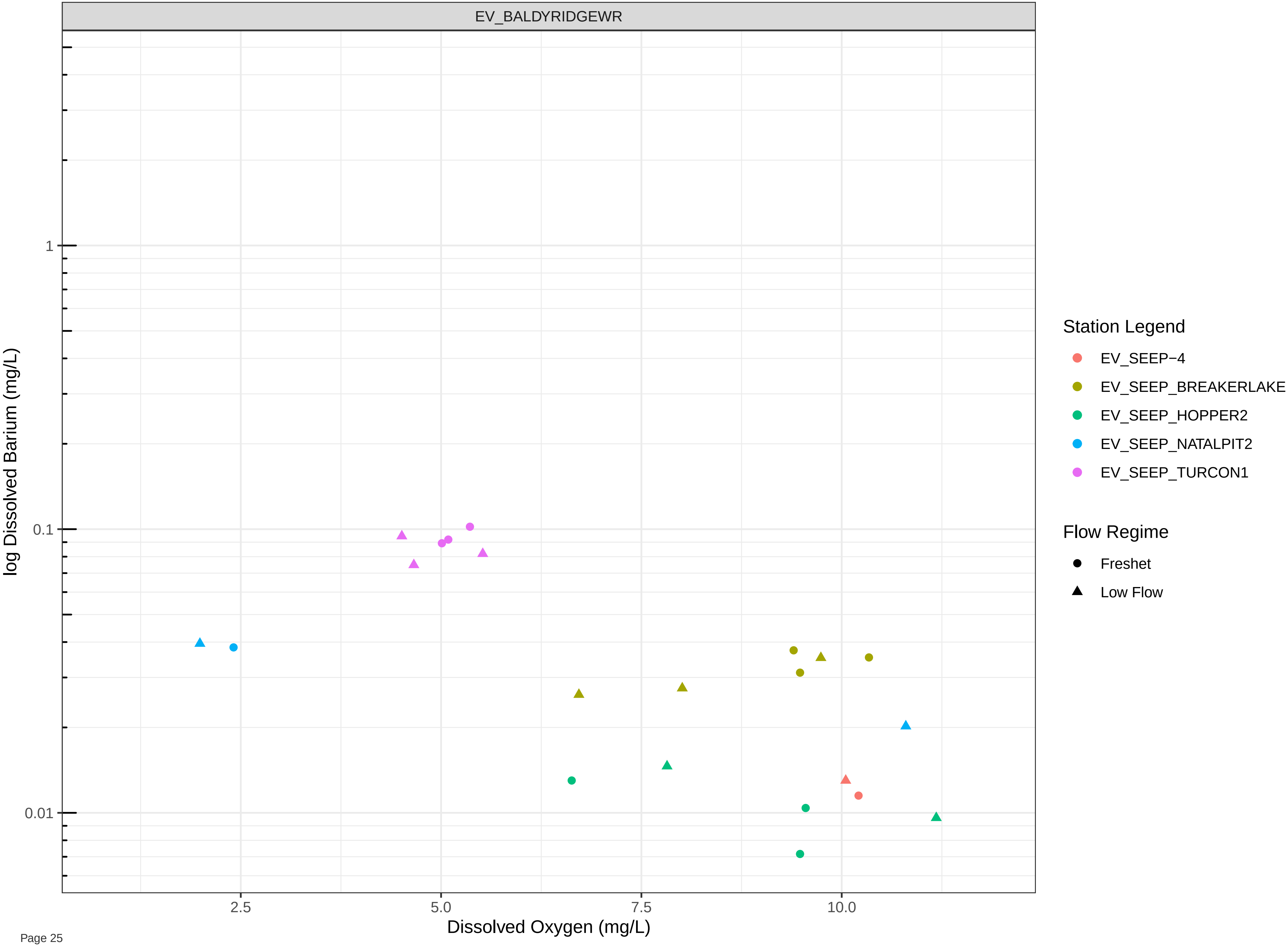

EV_CEDARWR
0.001
1e−04
log Dissolved Arsenic (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_CN1
● EV_SEEP_10MILE5
● EV_SEEP_10MILE9
Flow Regime
● Freshet
▲ Low Flow

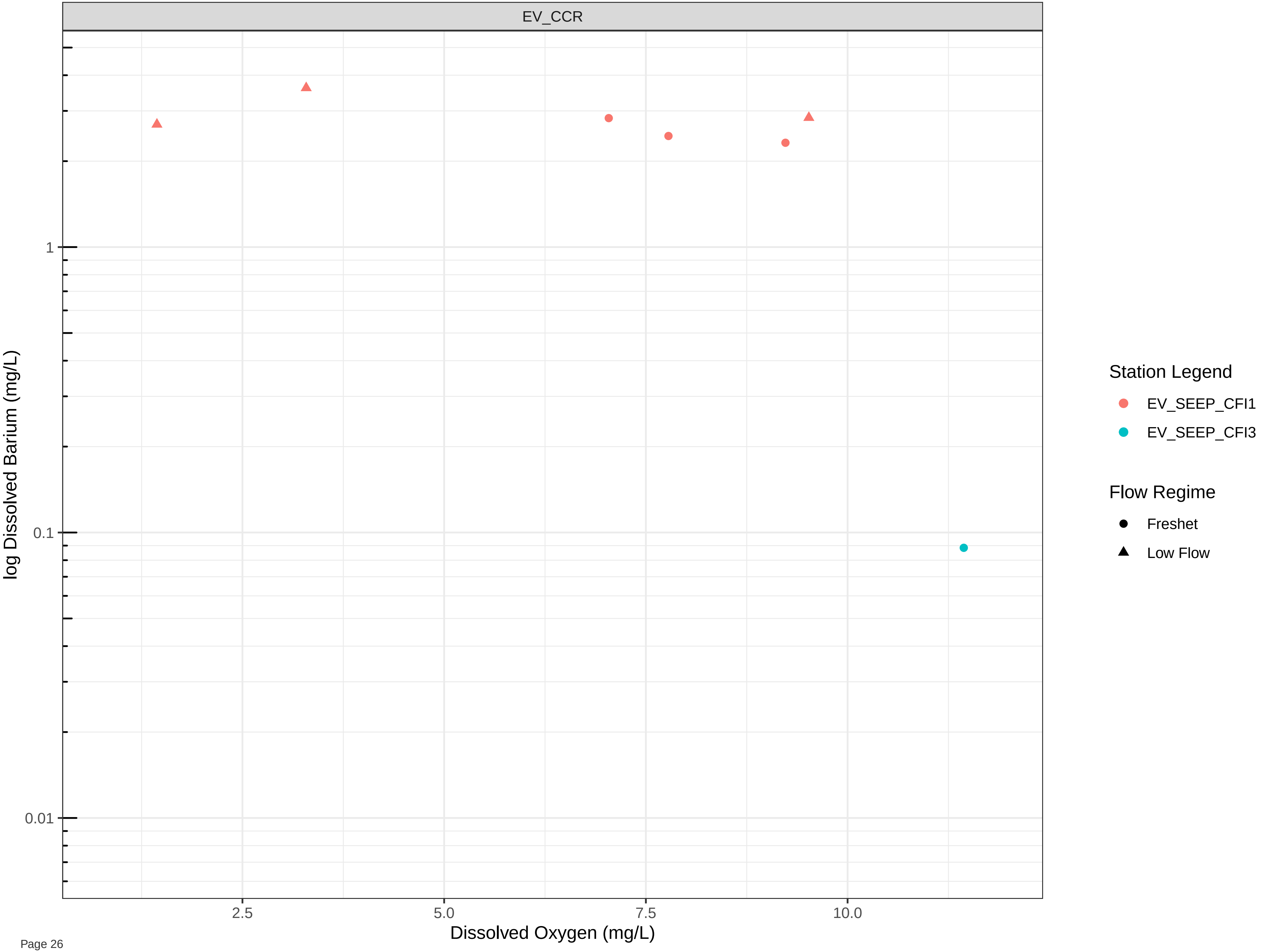

EV_Erickson_WR
0.001
1e−04
log Dissolved Arsenic (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

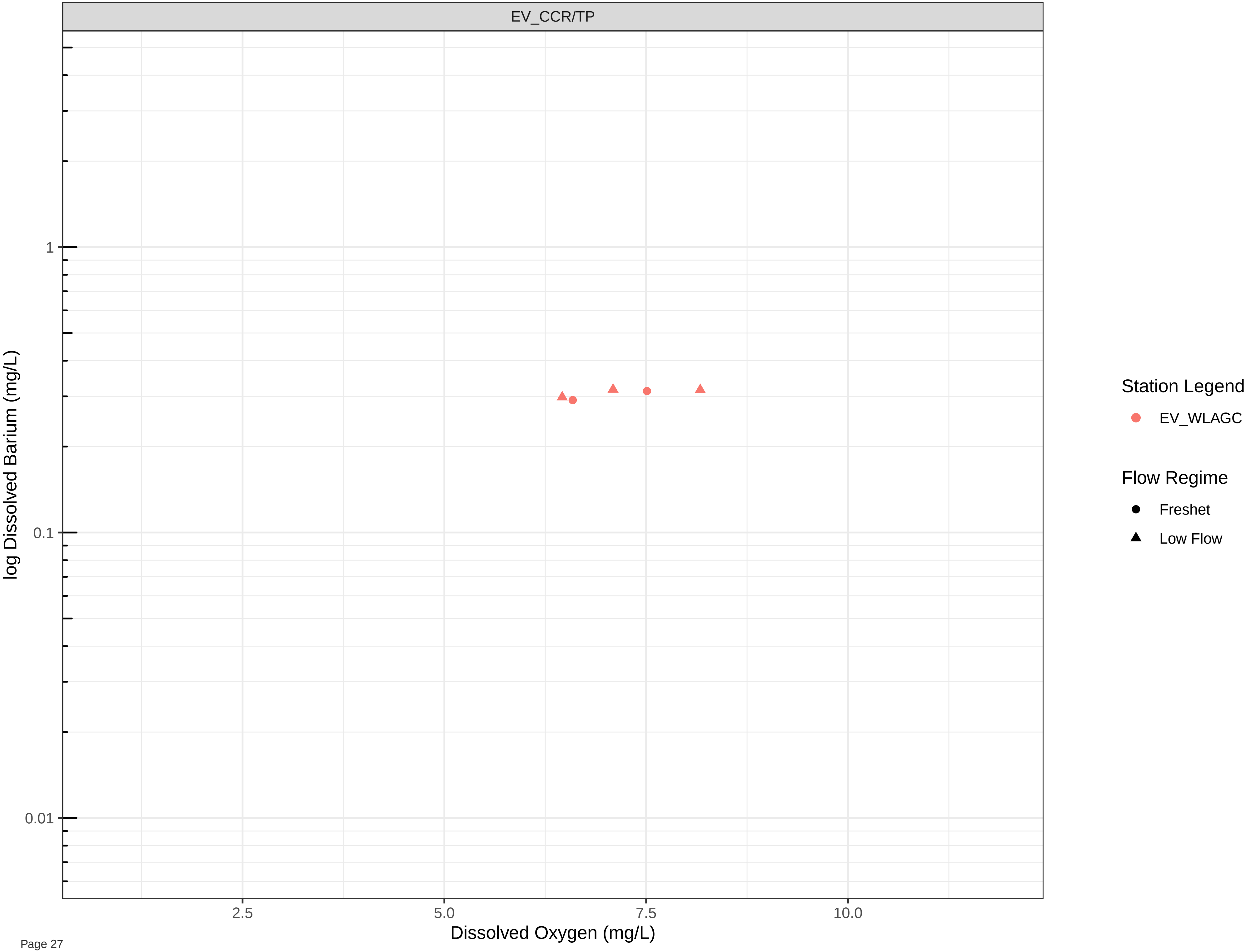

EV_PLANT
0.001
1e−04
log Dissolved Arsenic (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

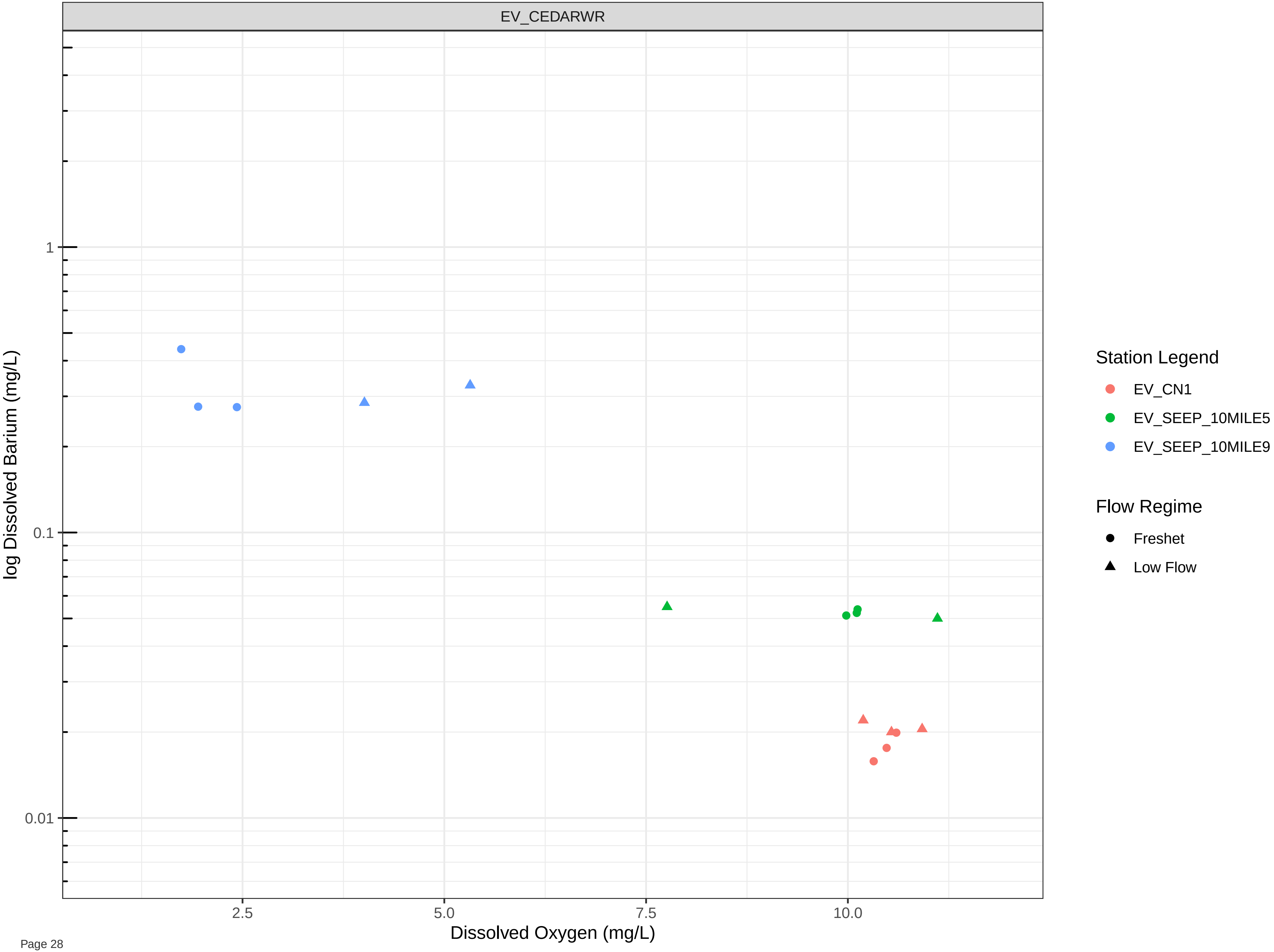

EV_SOUTHSLOPE
0.001
1e−04
log Dissolved Arsenic (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

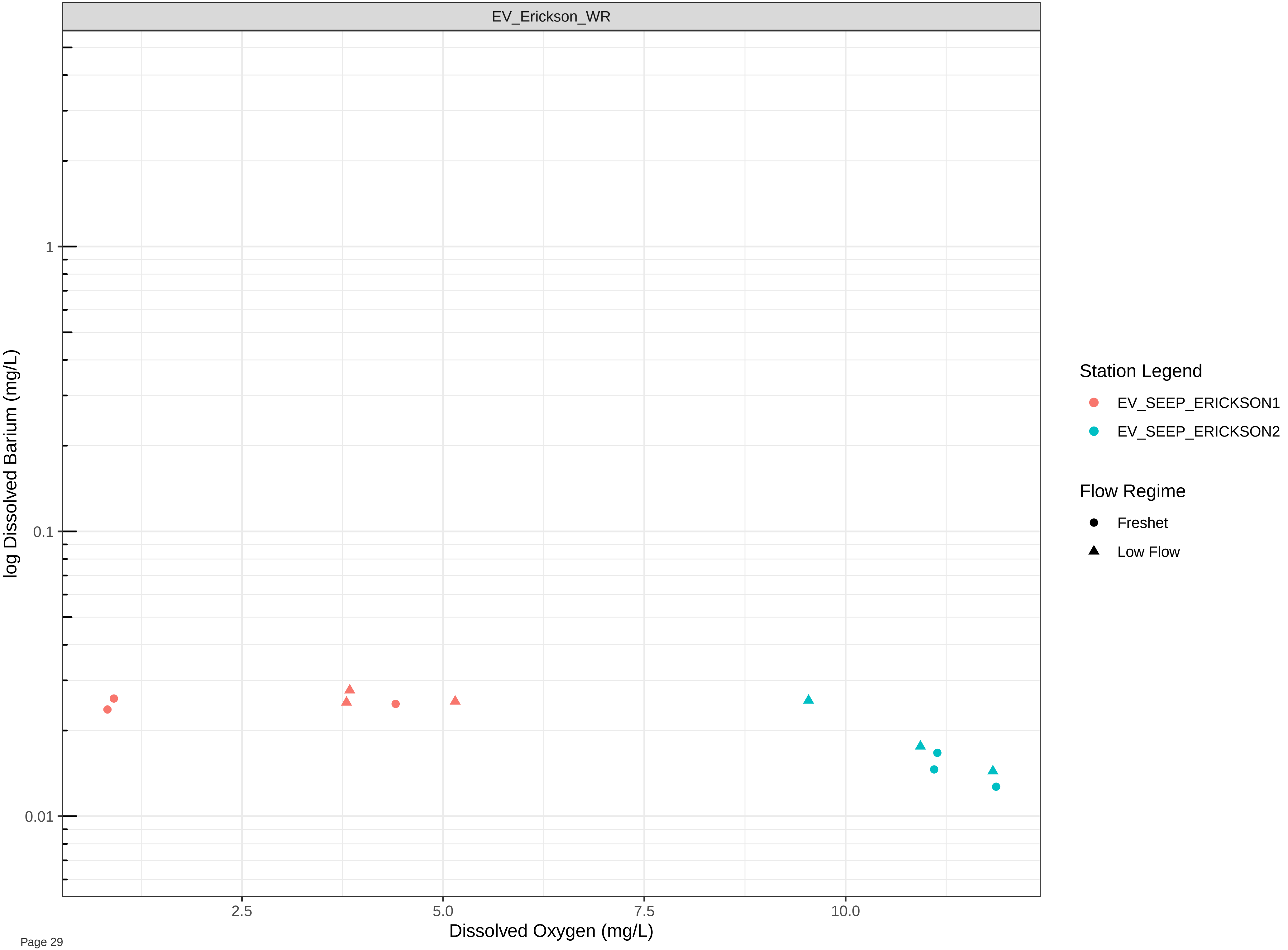

EV_SouthPit_Pit
0.001
1e−04
log Dissolved Arsenic (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

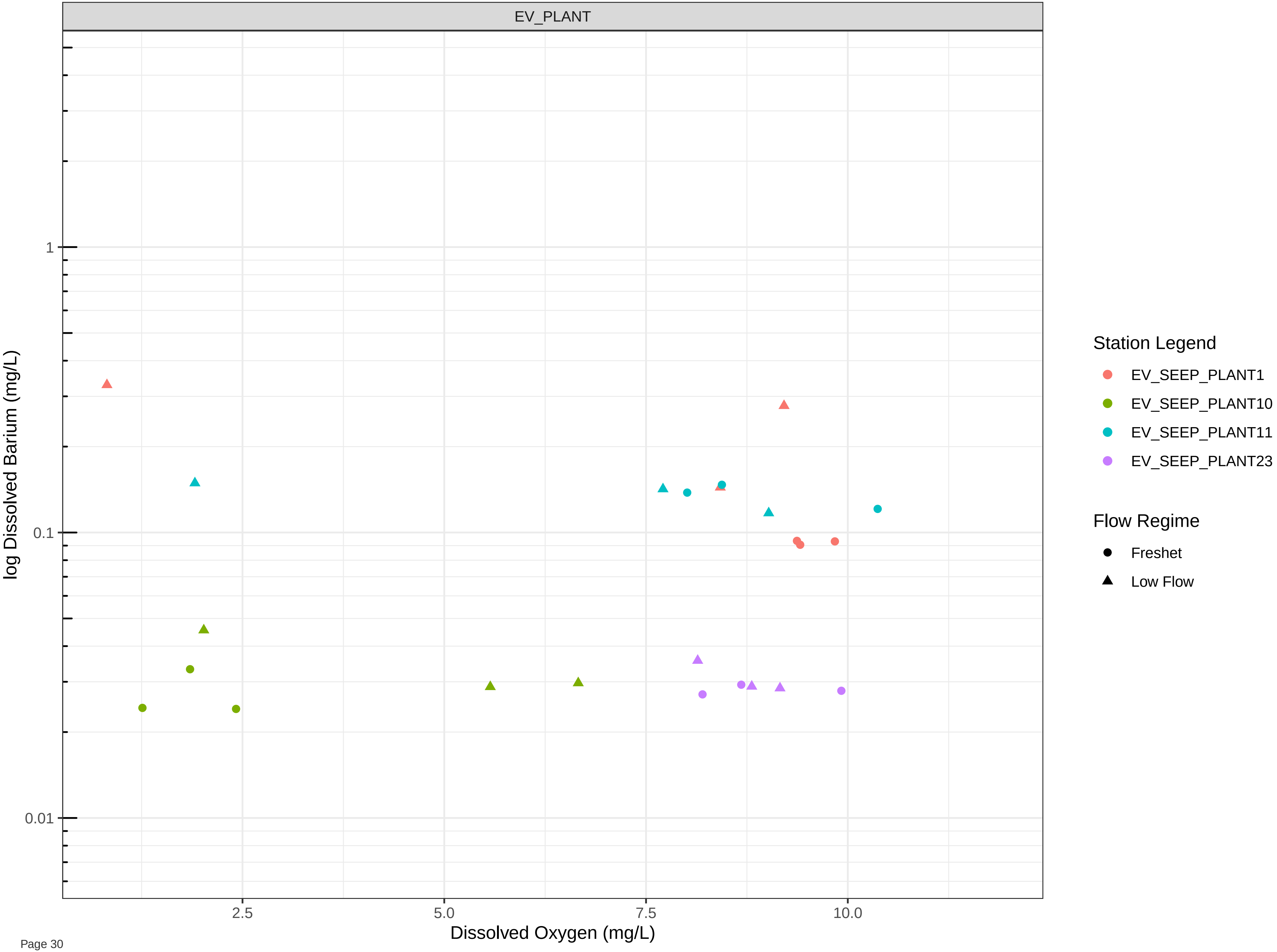

EV_BALDYRIDGEWR
log Dissolved Barium (mg/L)
1
0.1
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP−4
● EV_SEEP_BREAKERLAKE
● EV_SEEP_HOPPER2
● EV_SEEP_NATALPIT2
● EV_SEEP_TURCON1
Flow Regime
● Freshet
▲ Low Flow

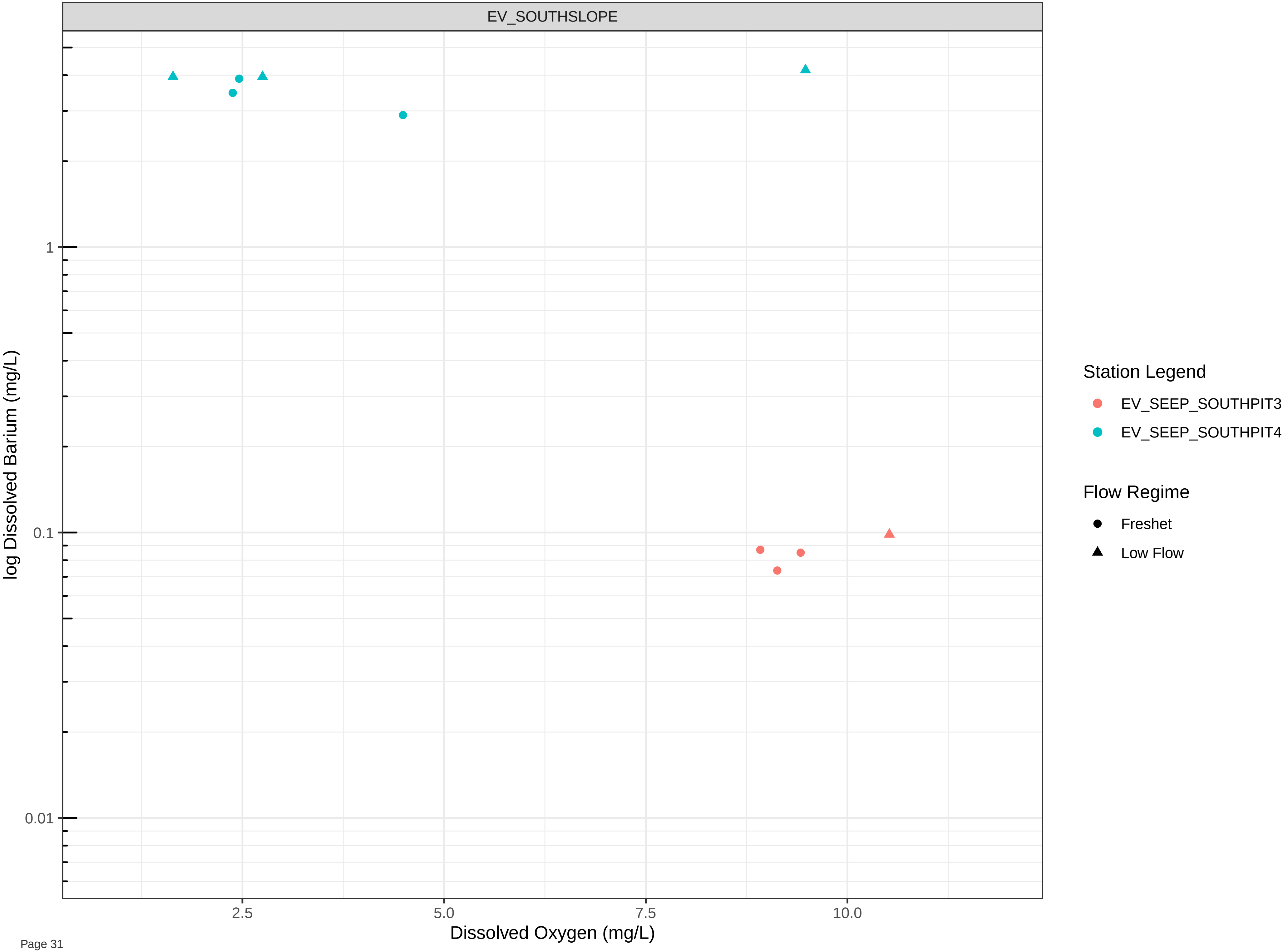

EV_CCR
log Dissolved Barium (mg/L)
1
0.1
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

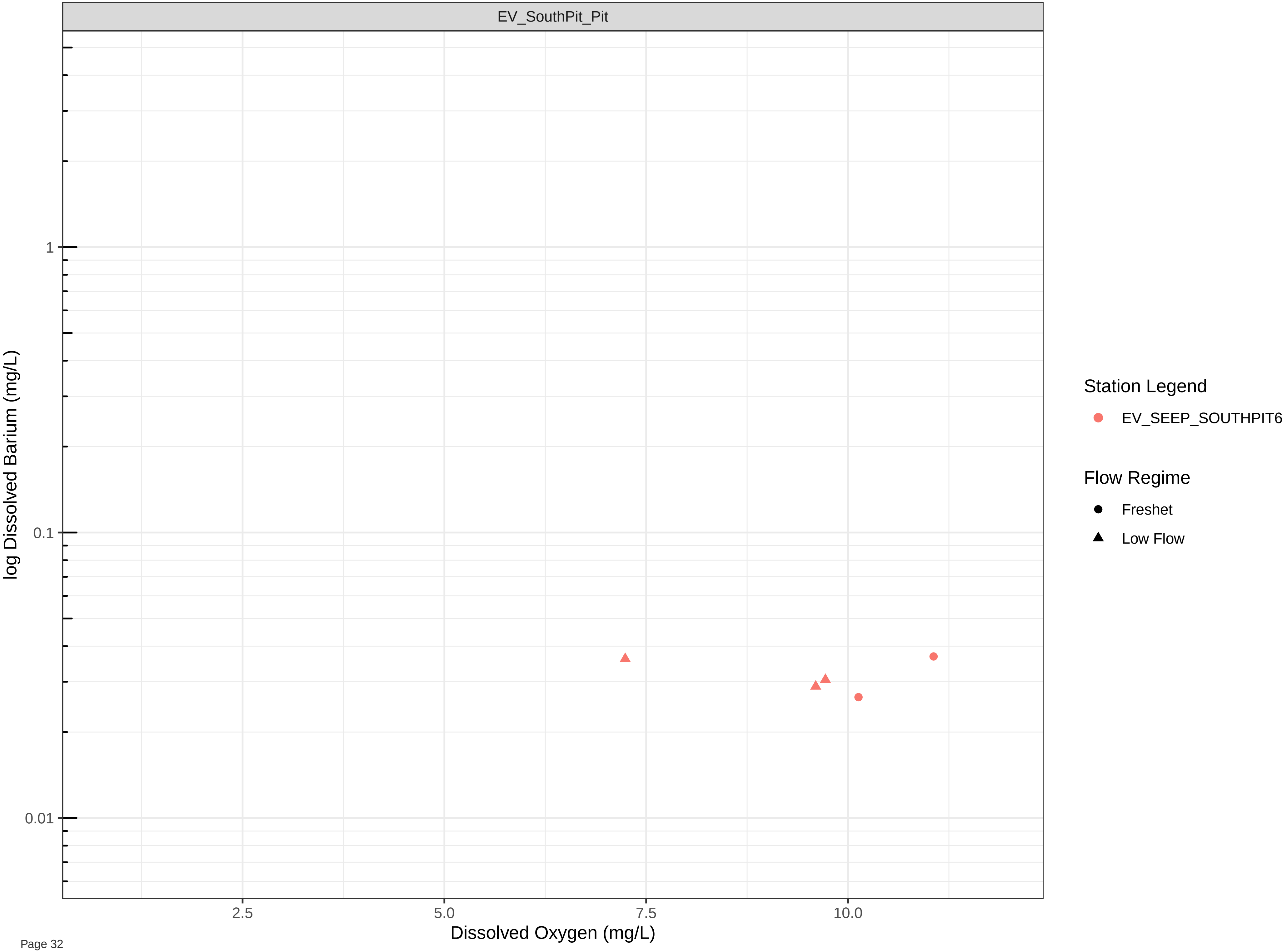

EV_CCR/TP
log Dissolved Barium (mg/L)
1
0.1
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

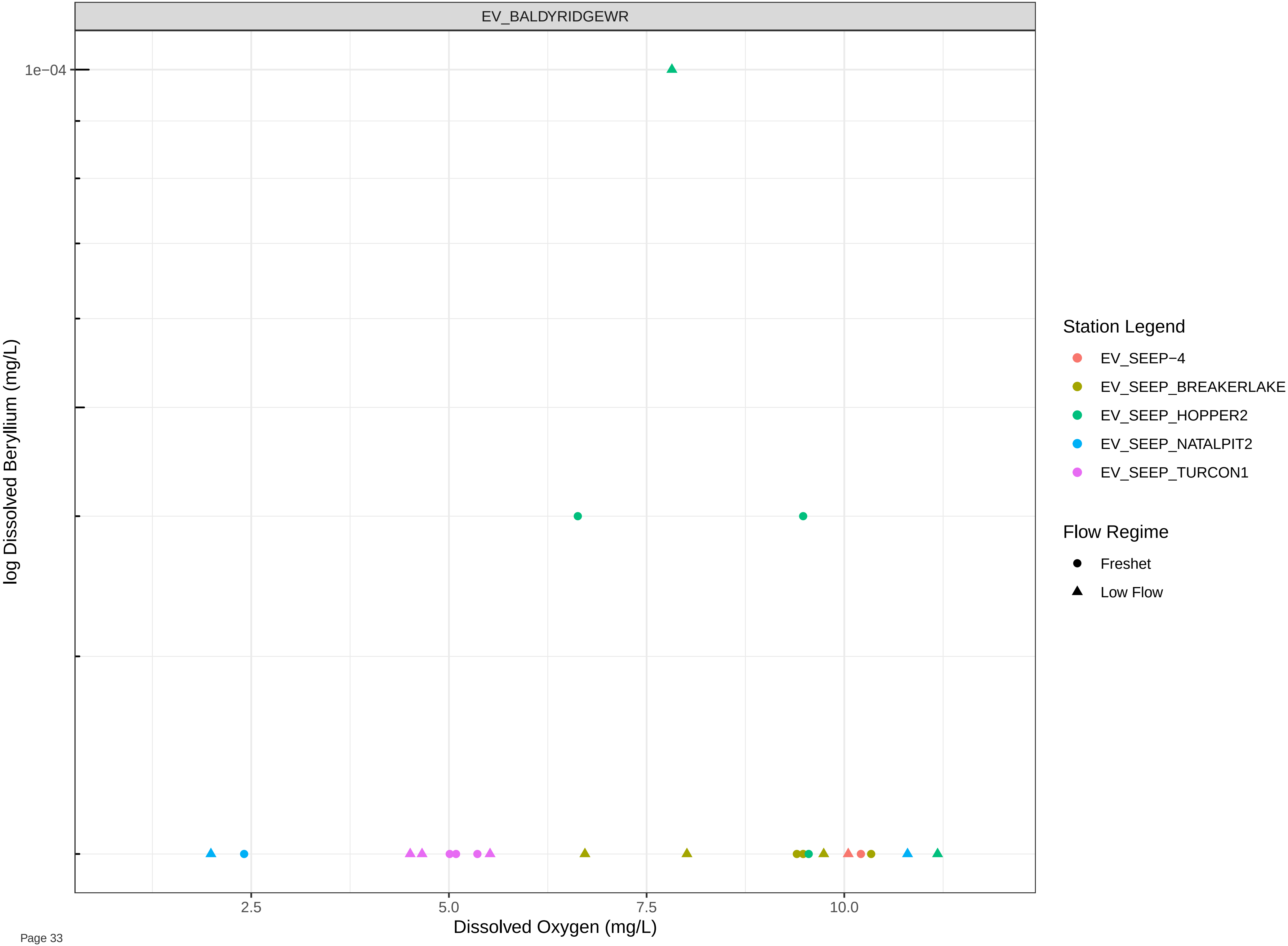

EV_CEDARWR
log Dissolved Barium (mg/L)
1
0.1
0.01
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

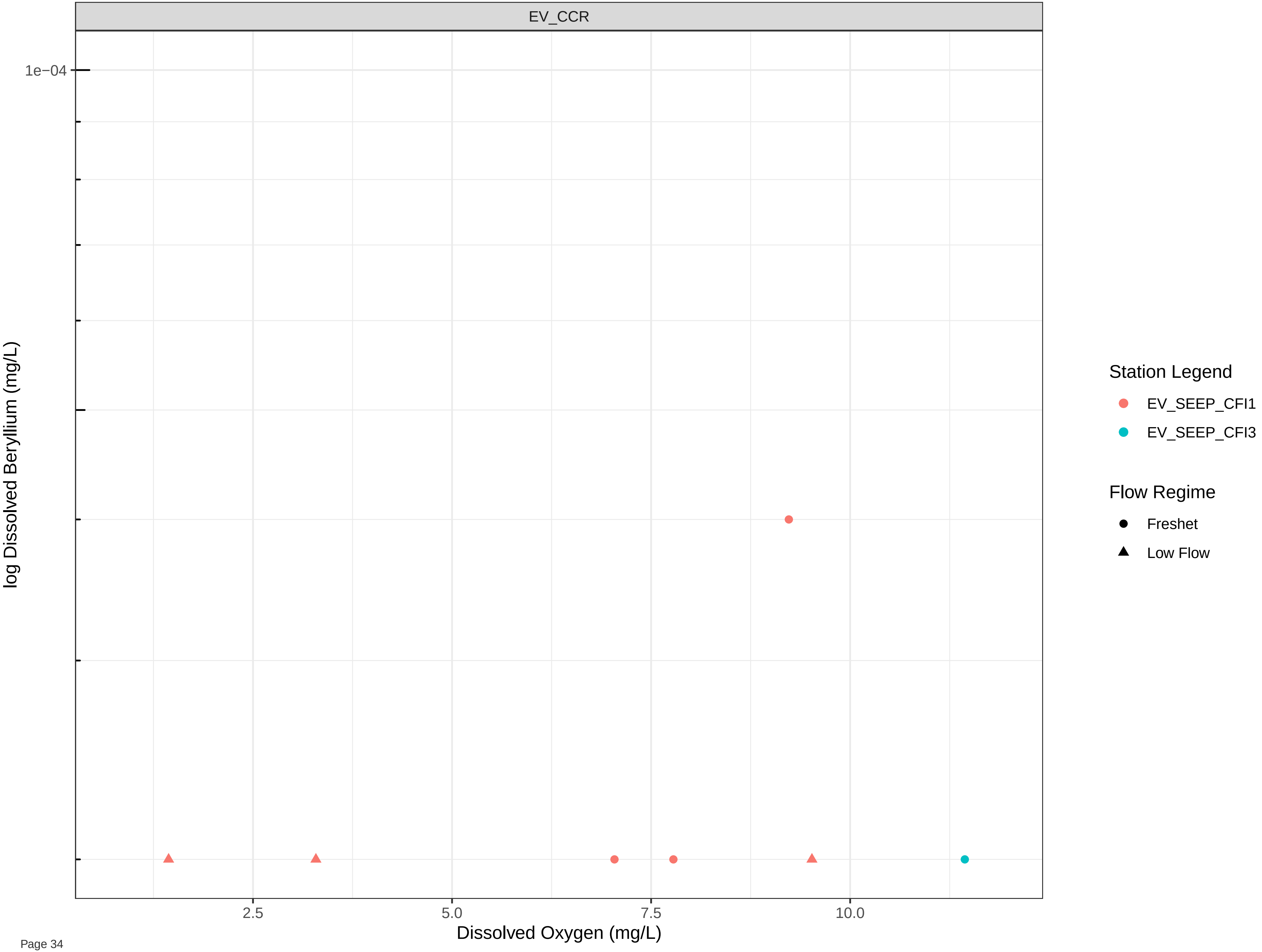

EV_Erickson_WR
log Dissolved Barium (mg/L)
1
0.1
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

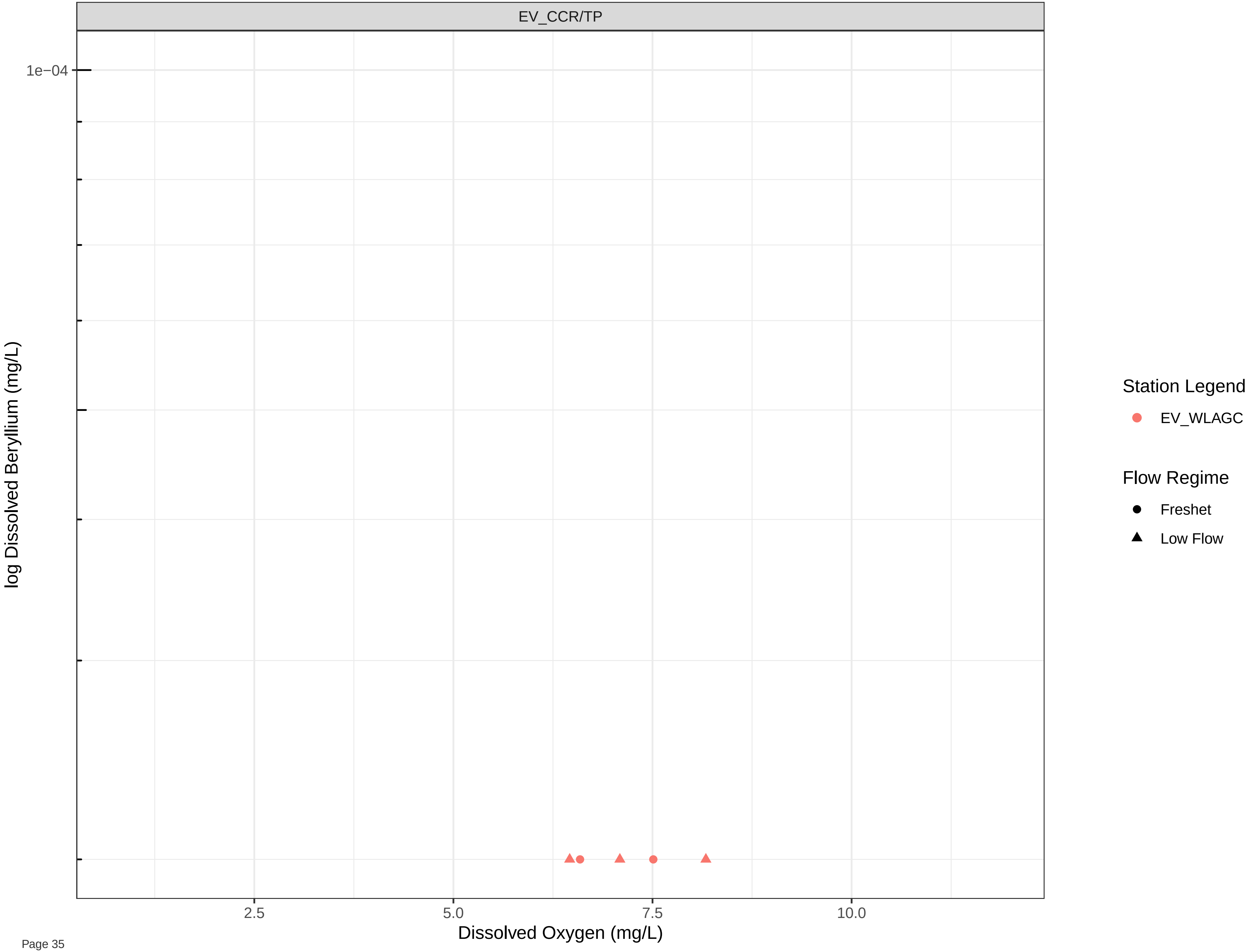

EV_PLANT
log Dissolved Barium (mg/L)
1
0.1
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

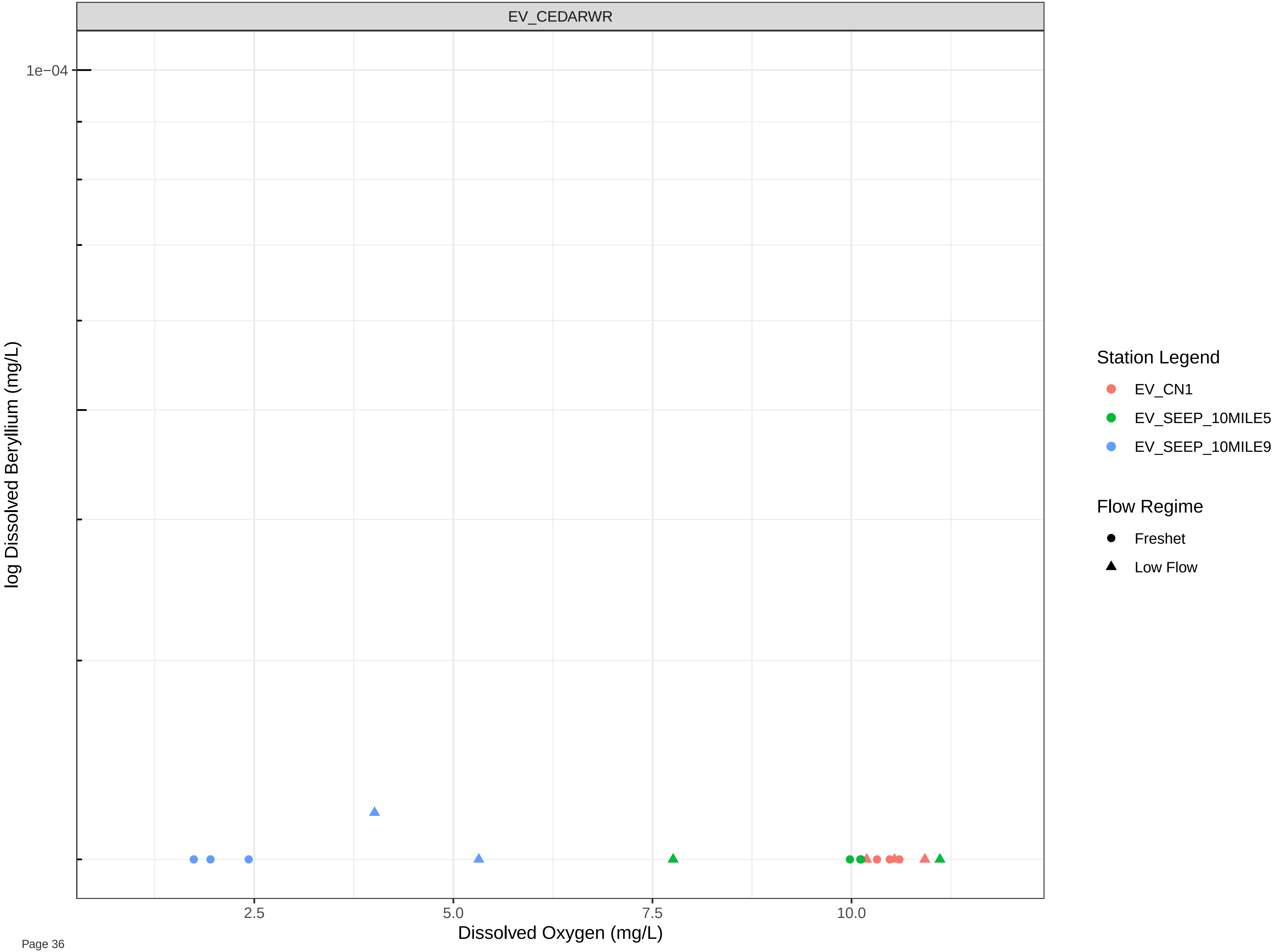

EV_SOUTHSLOPE
log Dissolved Barium (mg/L)
1
0.1
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

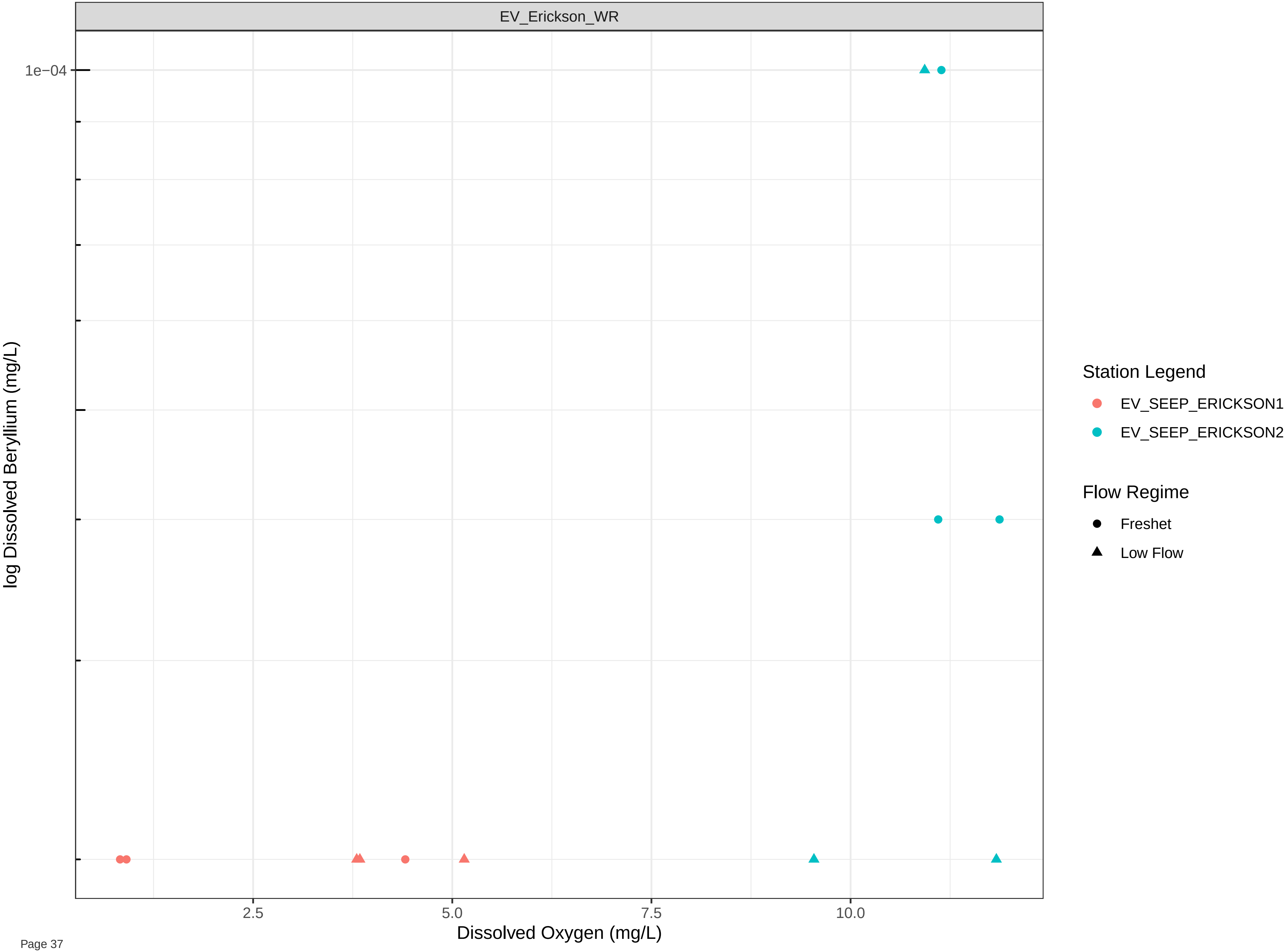

EV_SouthPit_Pit
log Dissolved Barium (mg/L)
1
0.1
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

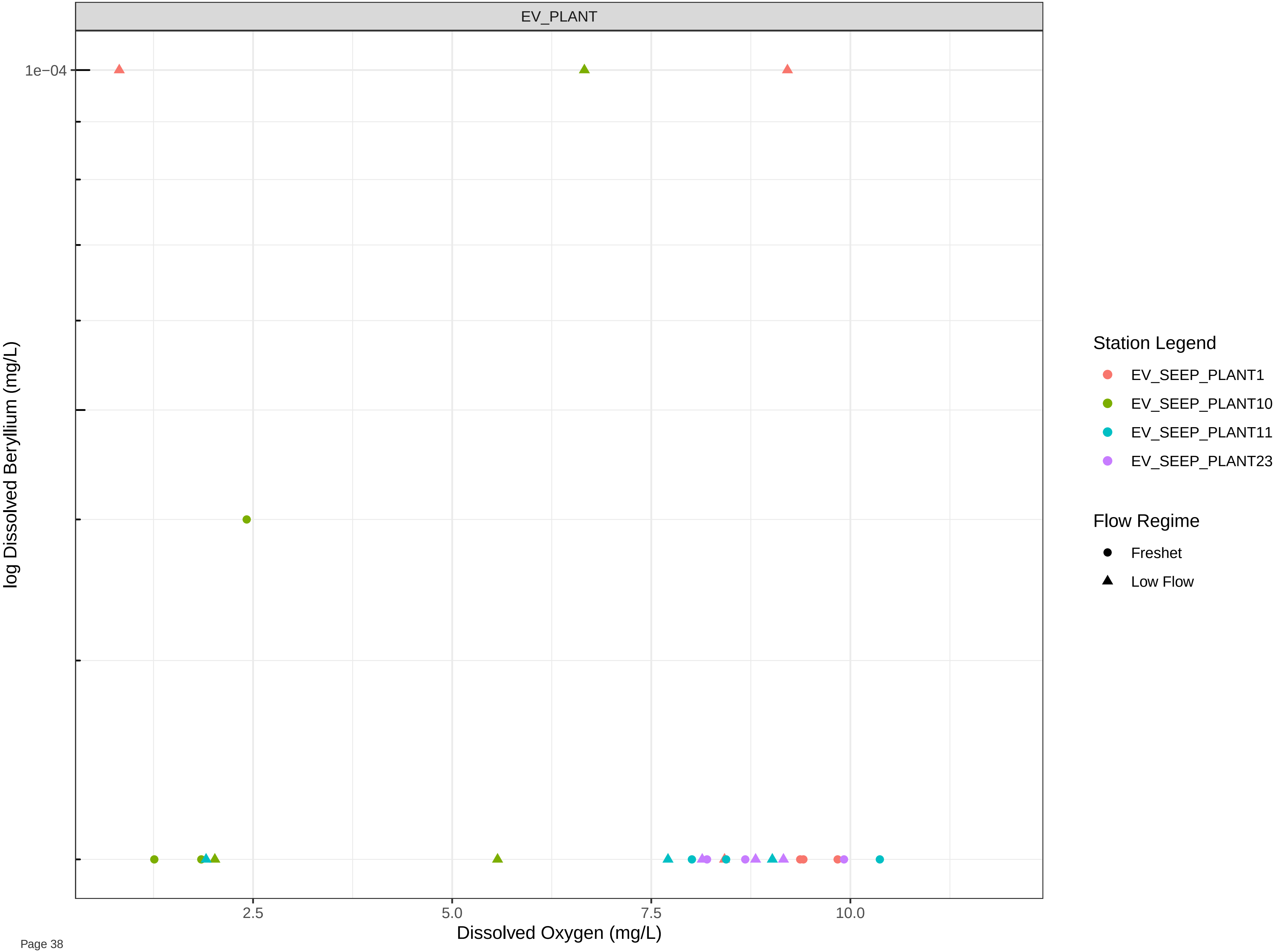

EV_BALDYRIDGEWR
1e−04
log Dissolved Beryllium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

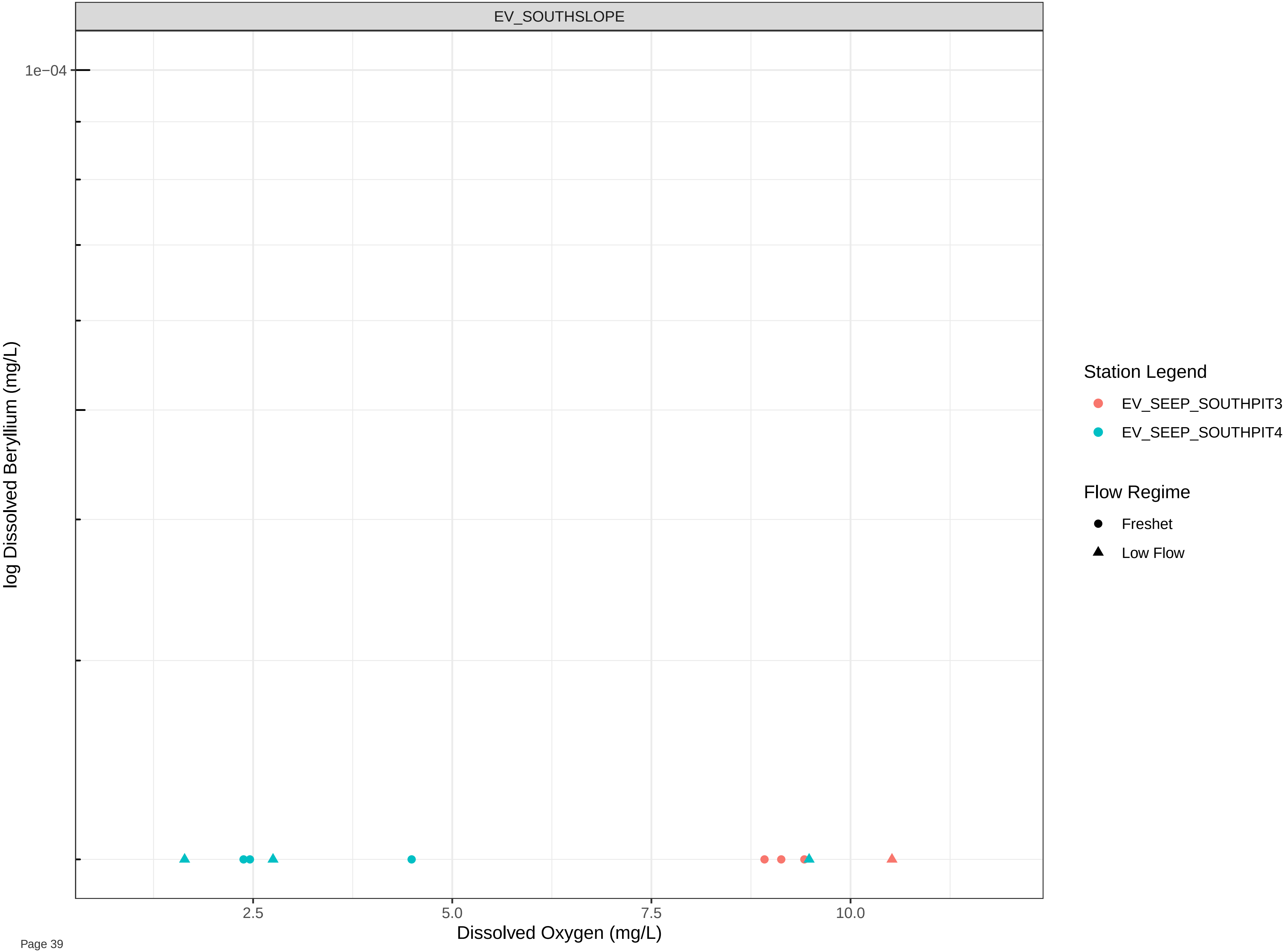

EV_CCR
1e−04
log Dissolved Beryllium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

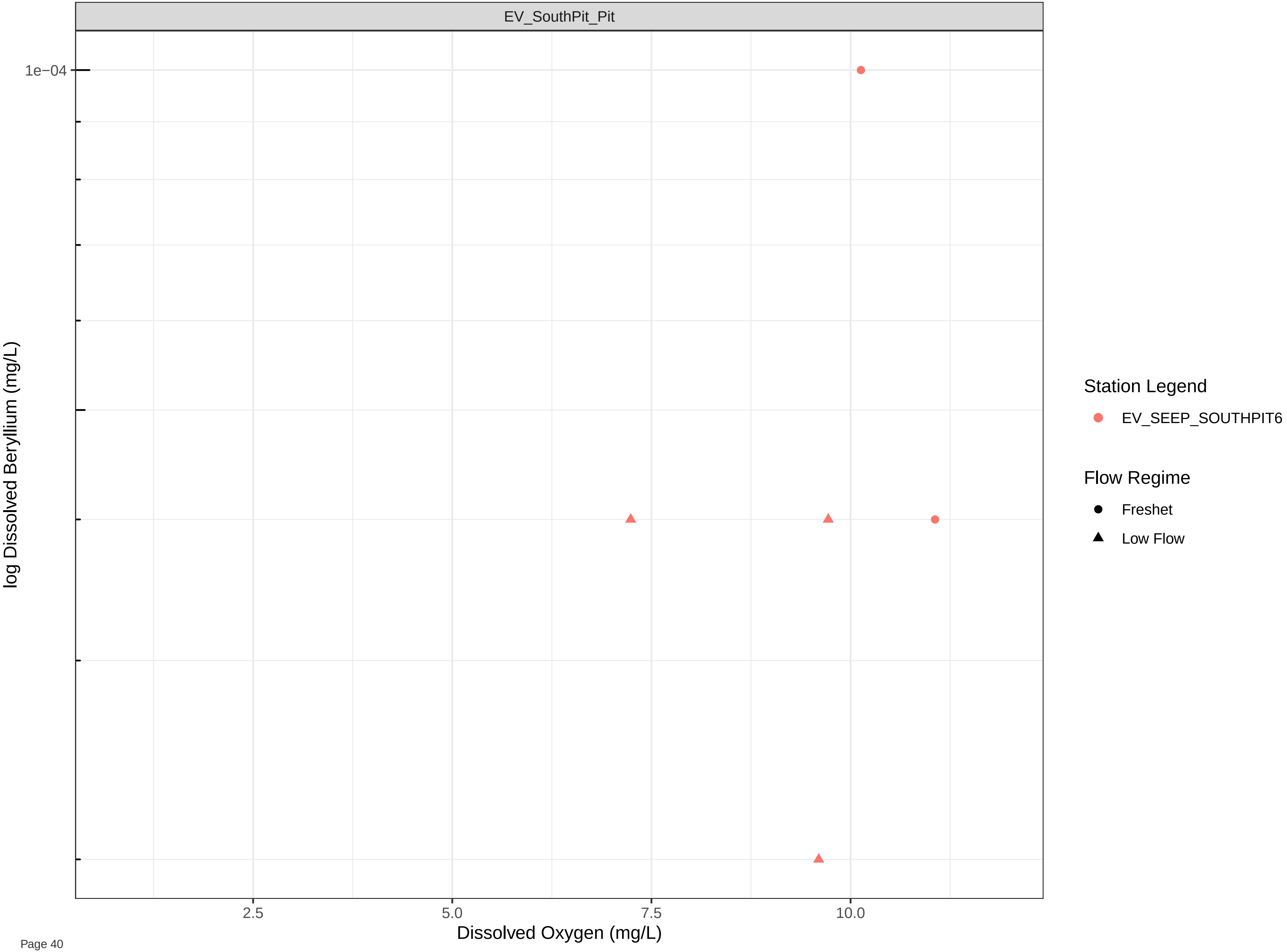

EV_CCR/TP
1e−04
log Dissolved Beryllium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

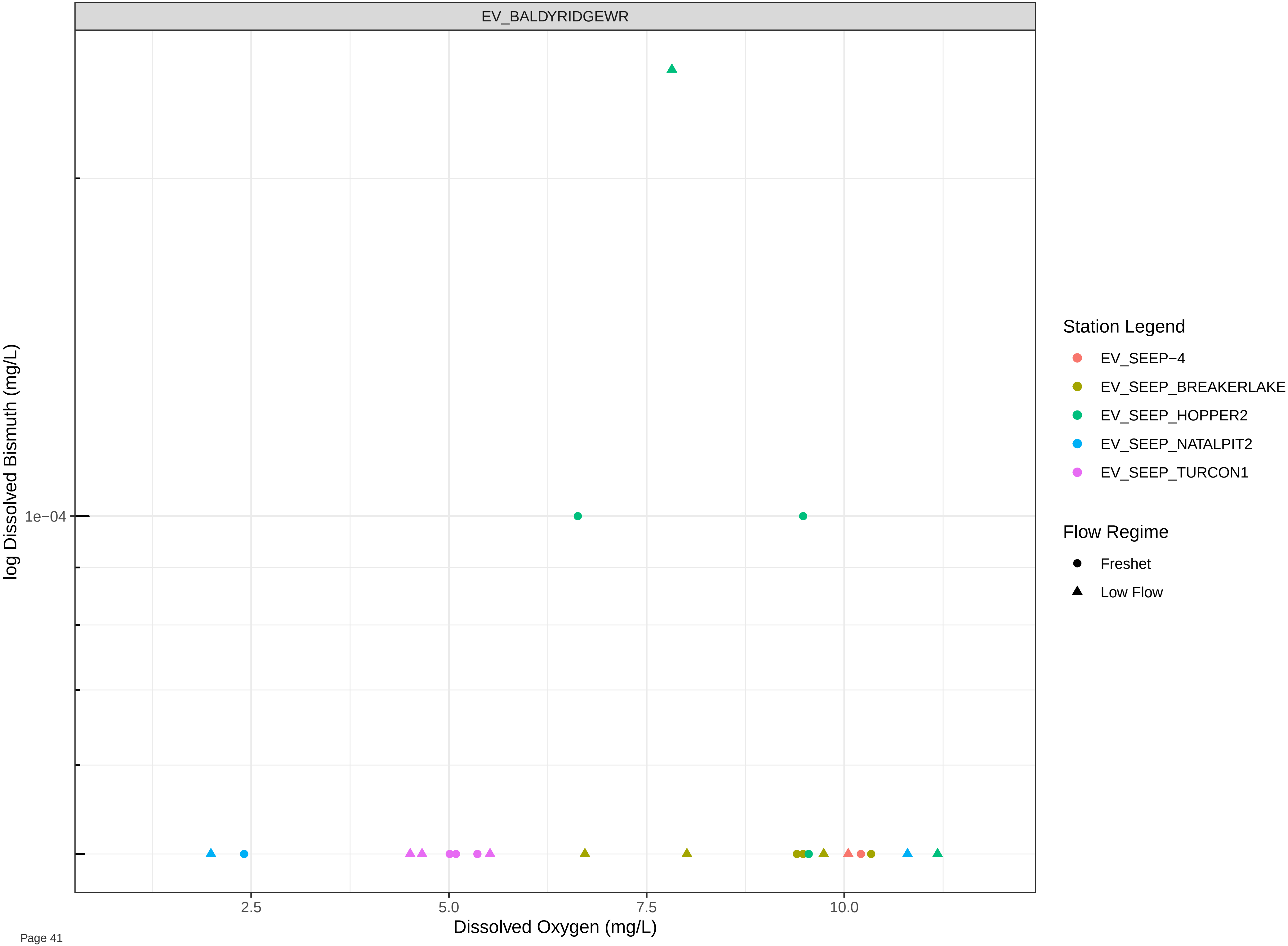

EV_CEDARWR
1e−04
log Dissolved Beryllium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

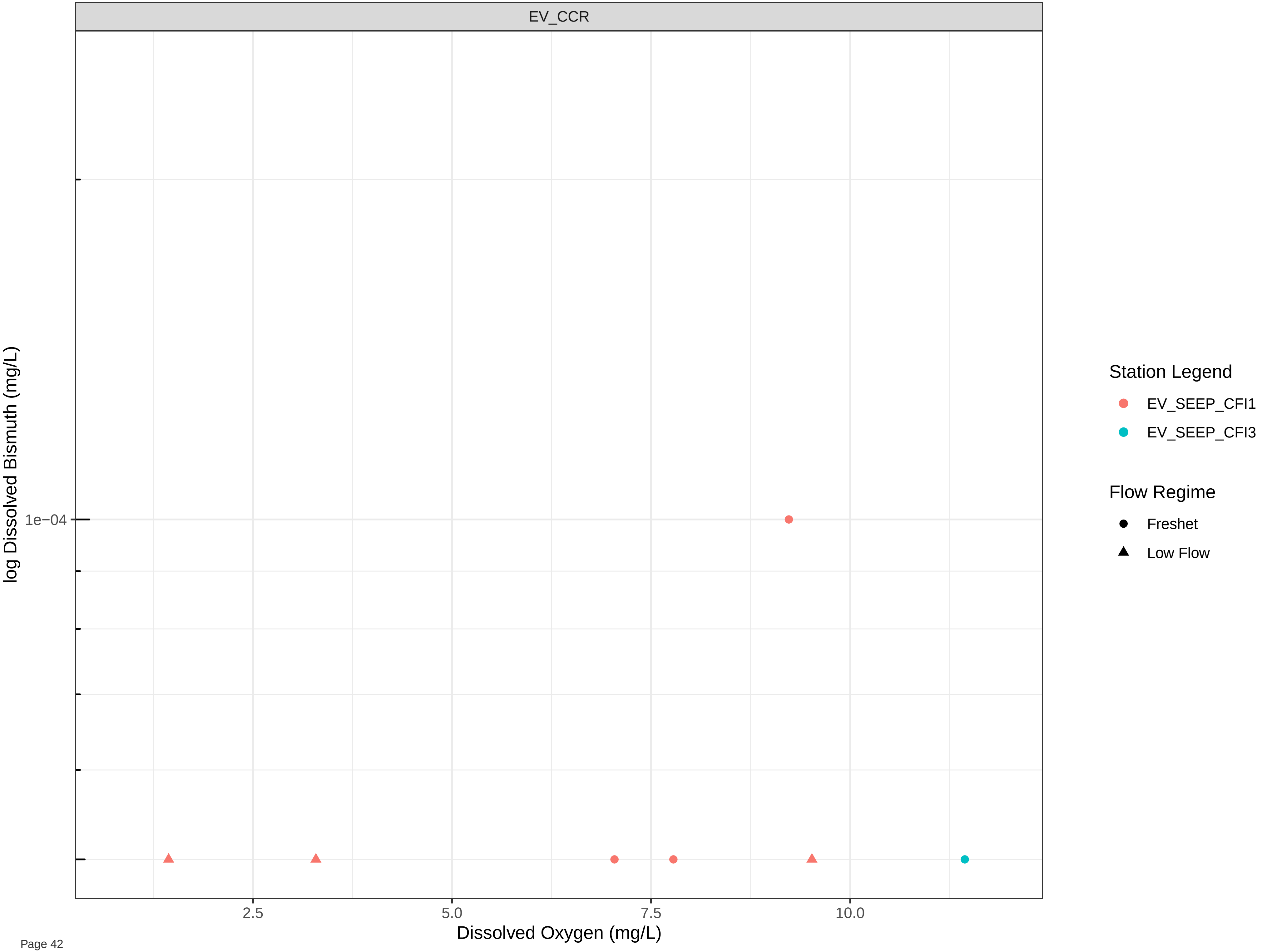

EV_Erickson_WR
1e−04
log Dissolved Beryllium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

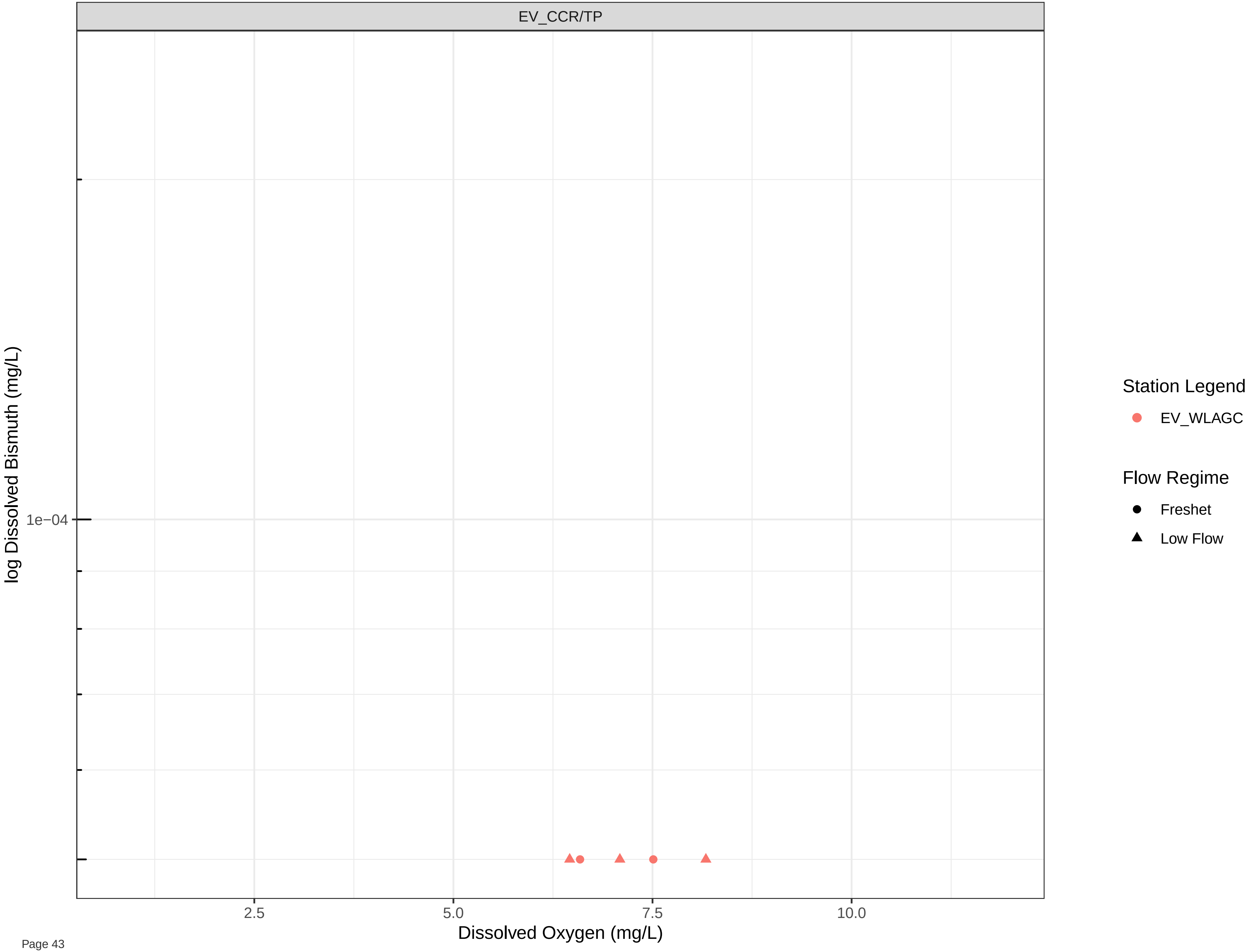

EV_PLANT
1e−04
log Dissolved Beryllium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

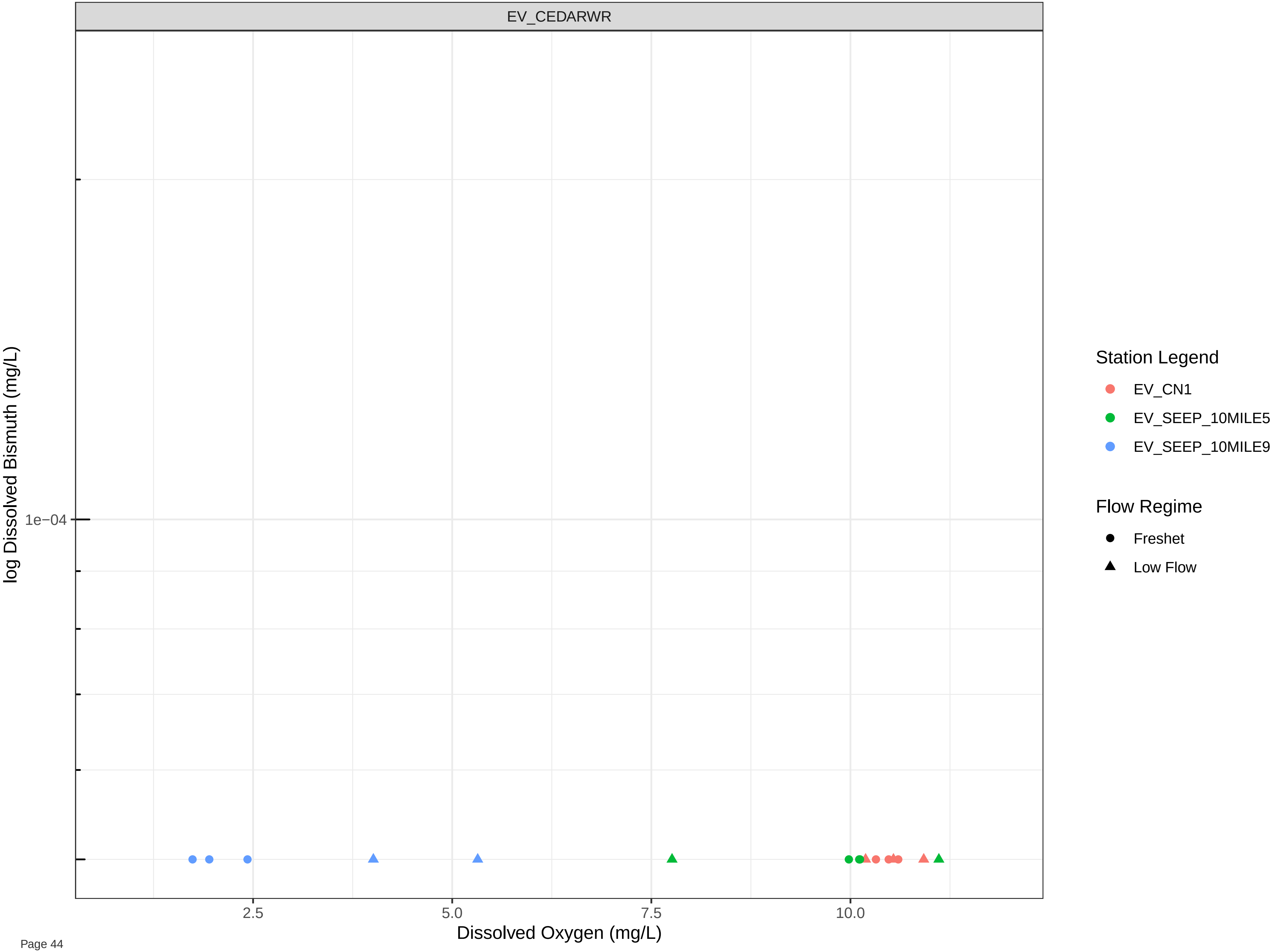

EV_SOUTHSLOPE
1e−04
log Dissolved Beryllium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

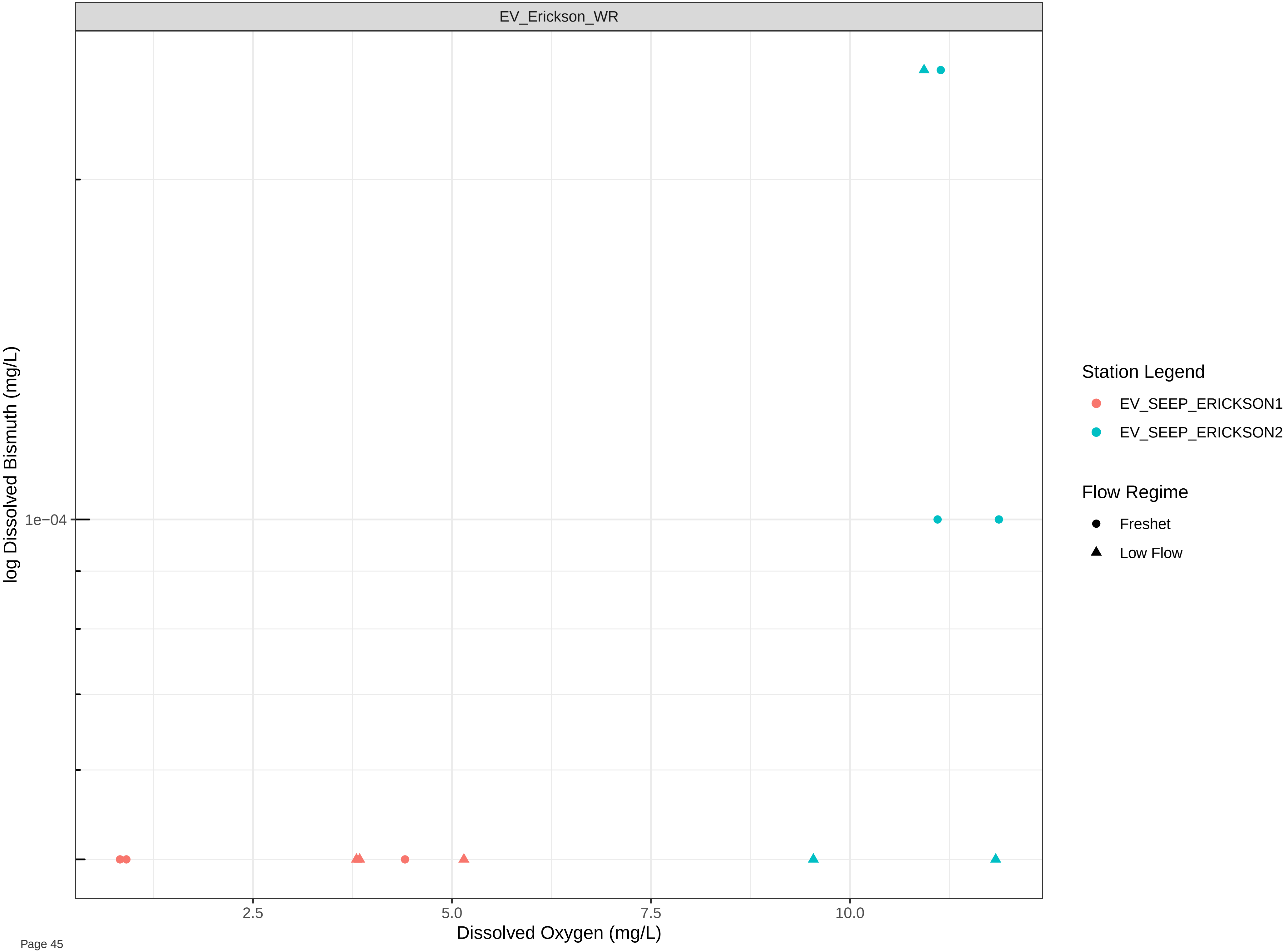

EV_SouthPit_Pit
1e−04
log Dissolved Beryllium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

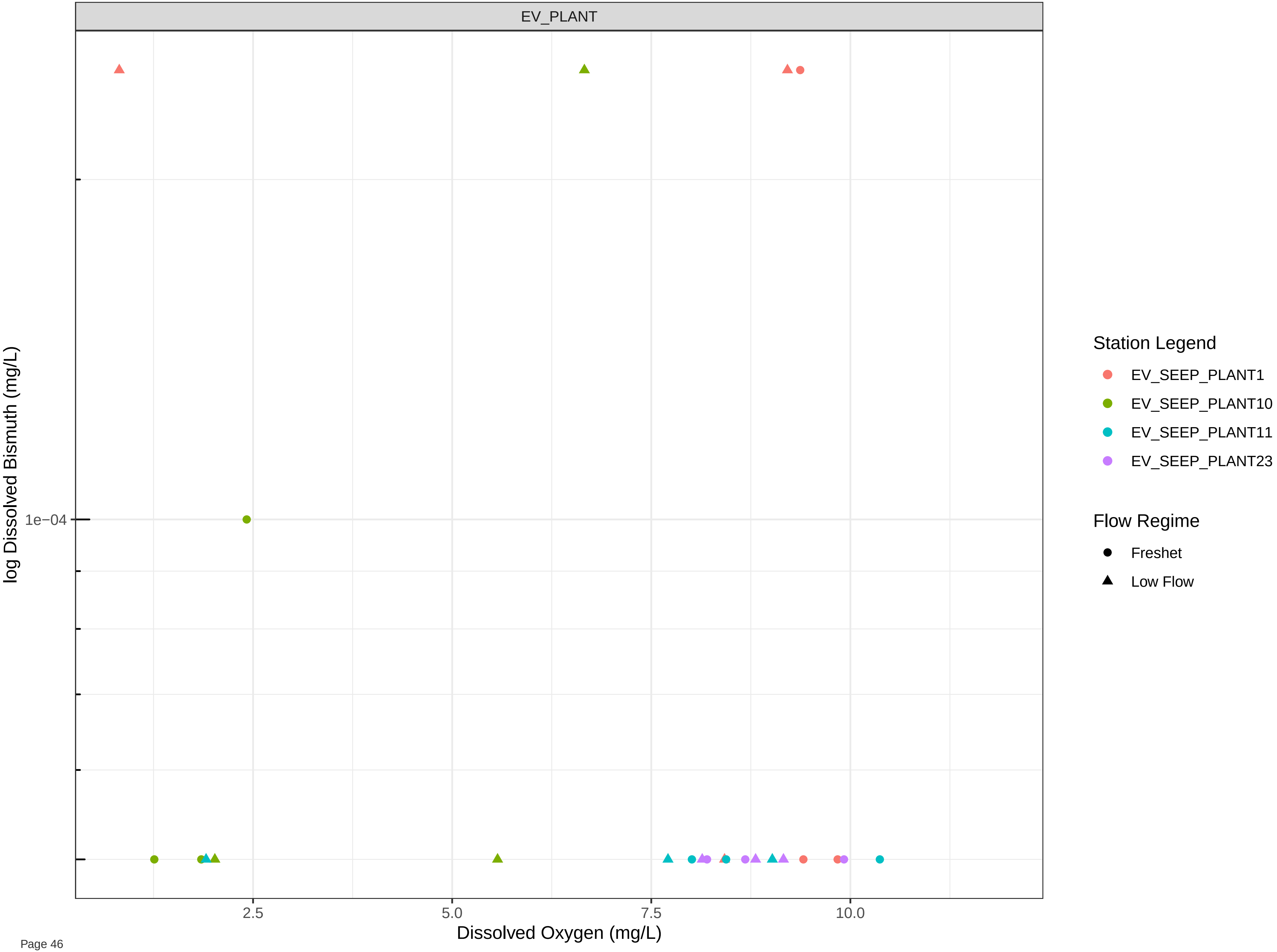

EV_BALDYRIDGEWR
log Dissolved Bismuth (mg/L)
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

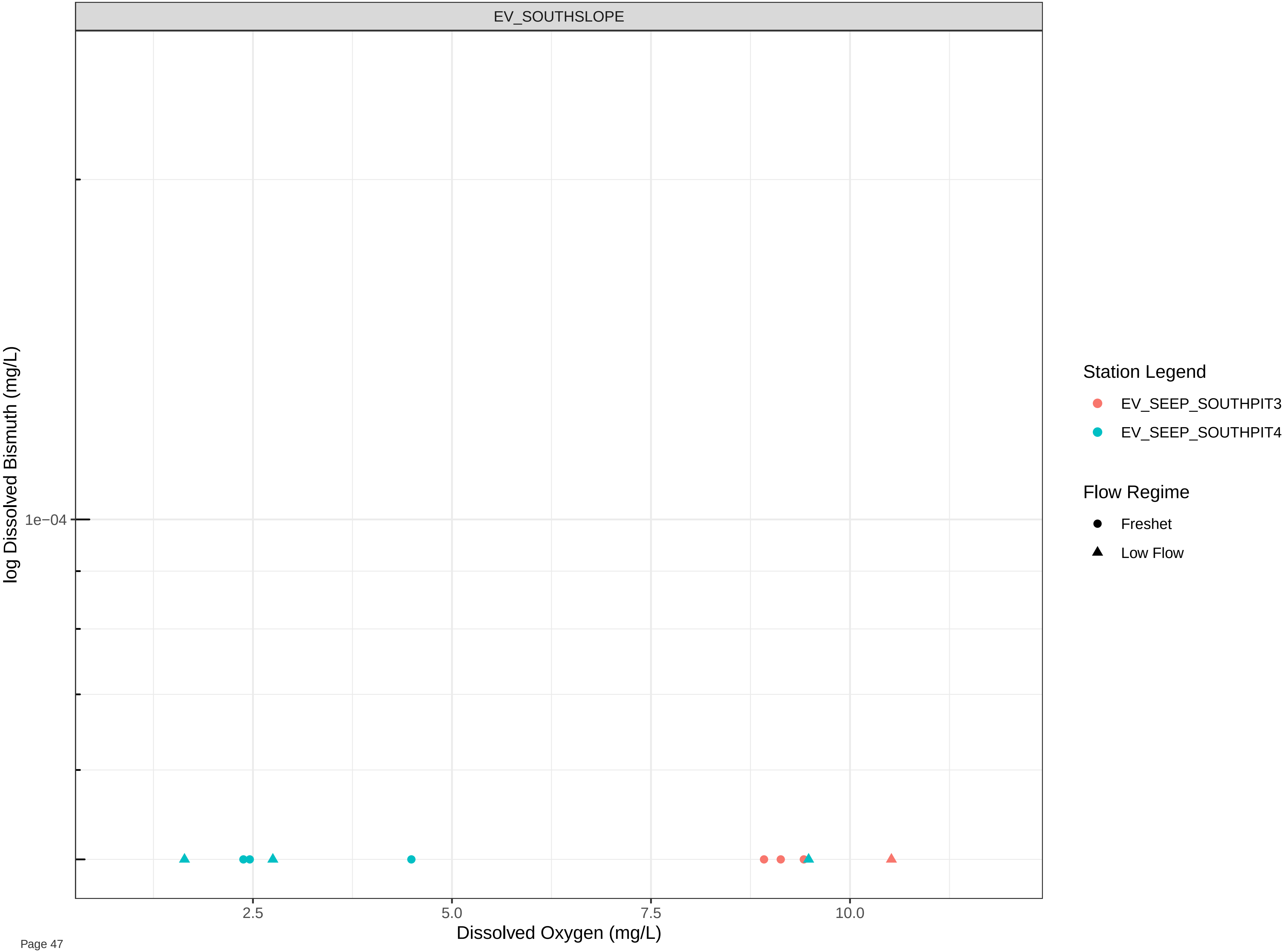

EV_CCR
log Dissolved Bismuth (mg/L)
1e−04
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

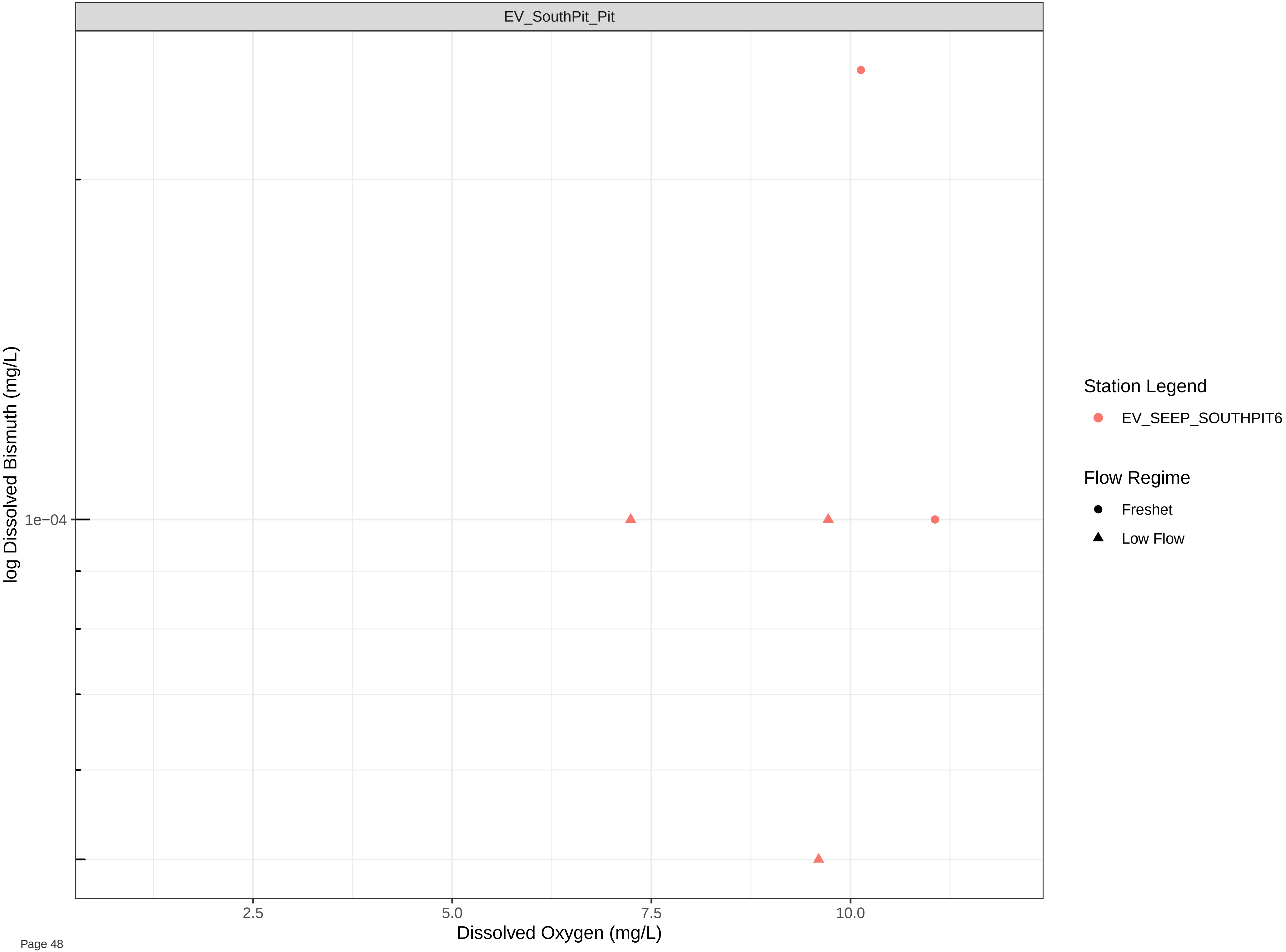

EV_CCR/TP
log Dissolved Bismuth (mg/L)
1e−04
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

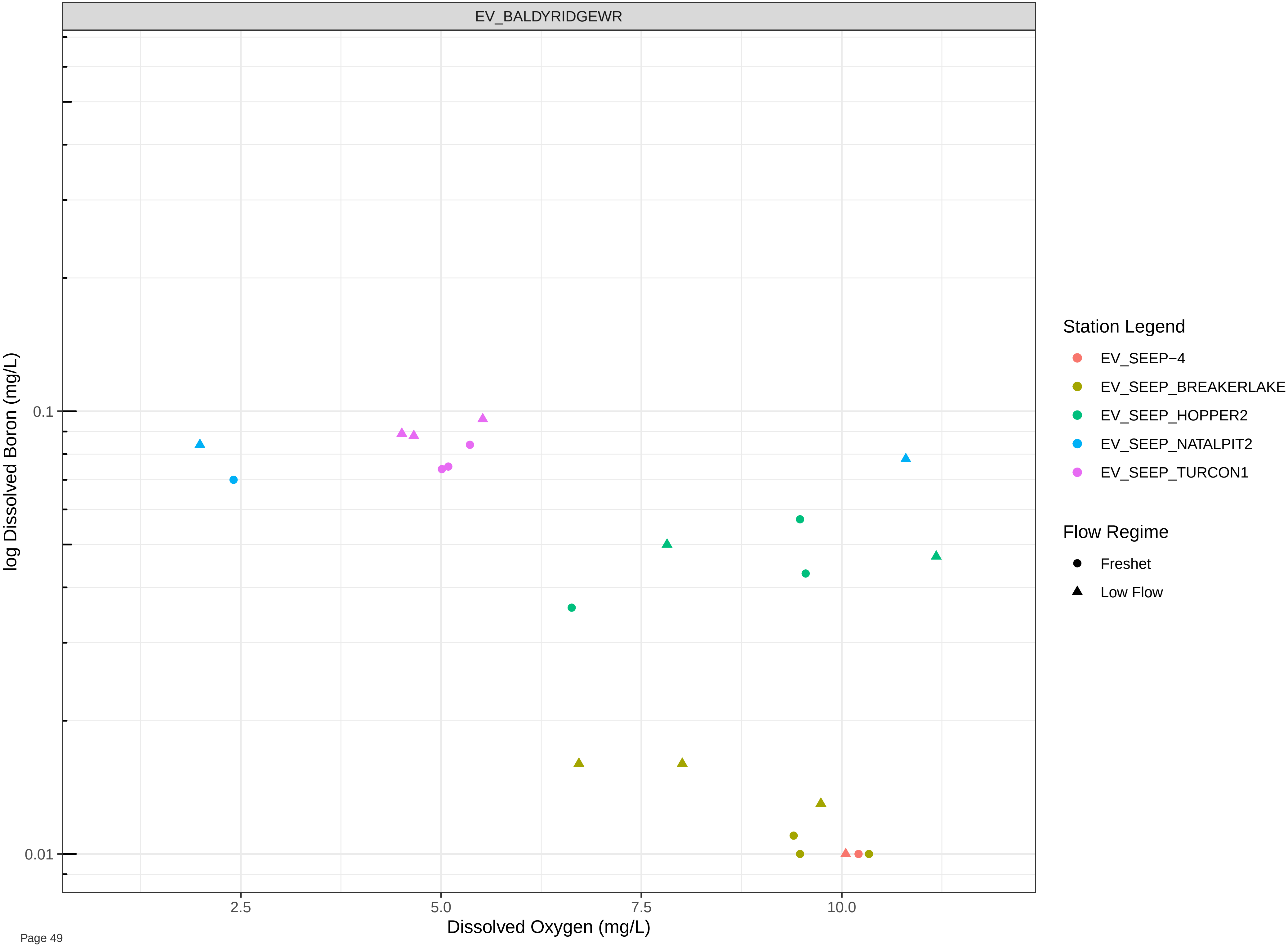

EV_CEDARWR
log Dissolved Bismuth (mg/L)
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

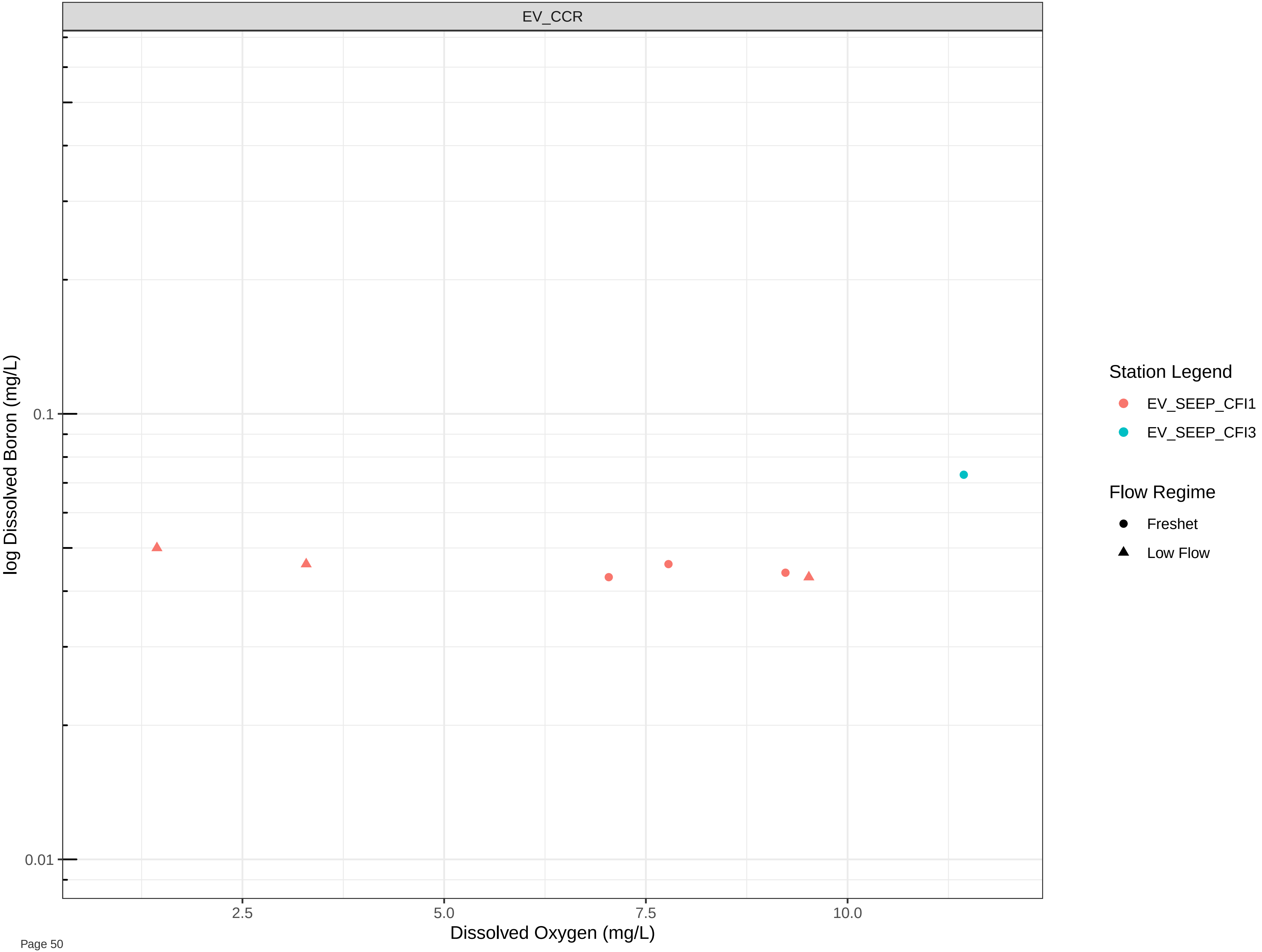

EV_Erickson_WR
log Dissolved Bismuth (mg/L)
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

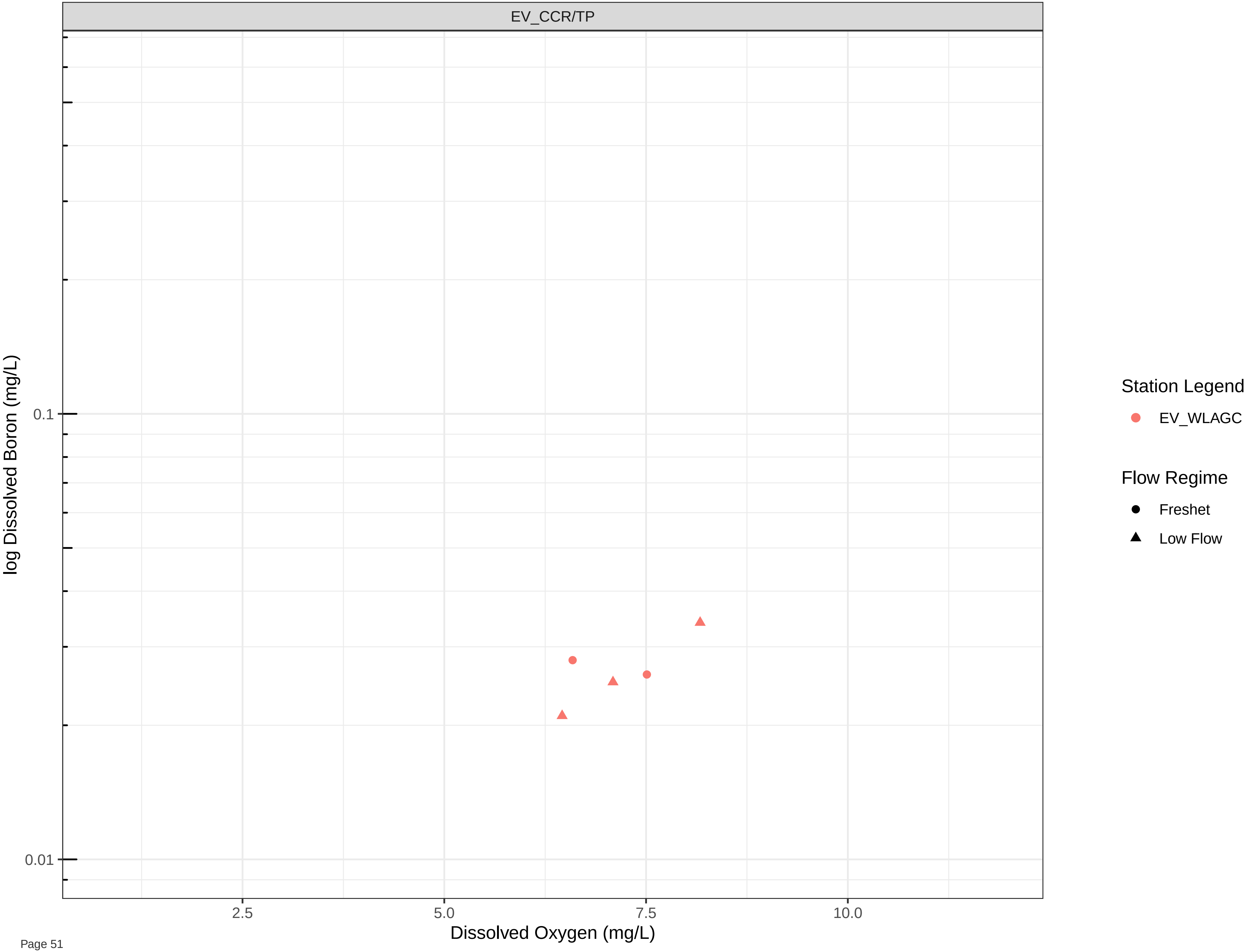

EV_PLANT
log Dissolved Bismuth (mg/L)
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

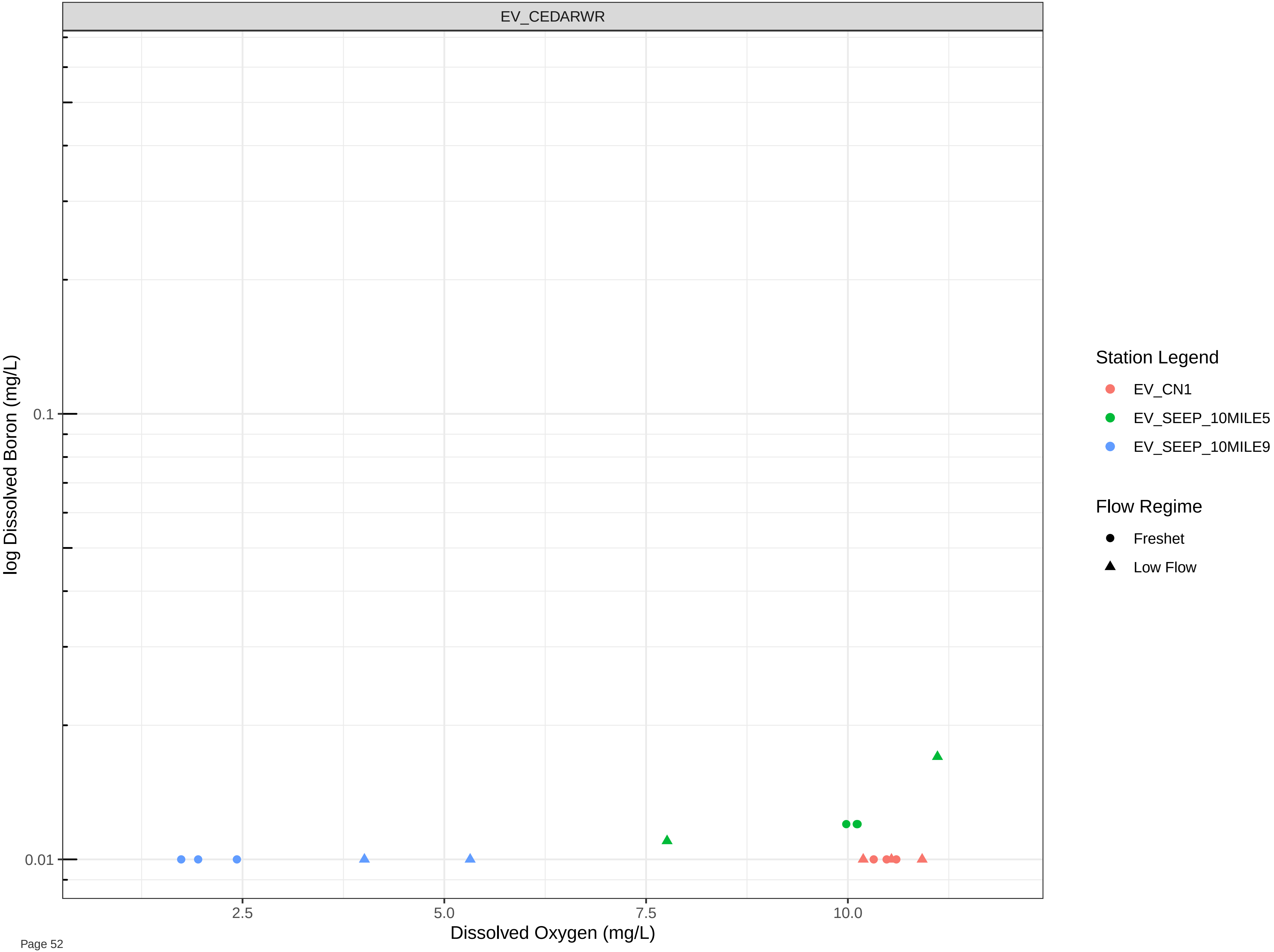

EV_SOUTHSLOPE
log Dissolved Bismuth (mg/L)
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

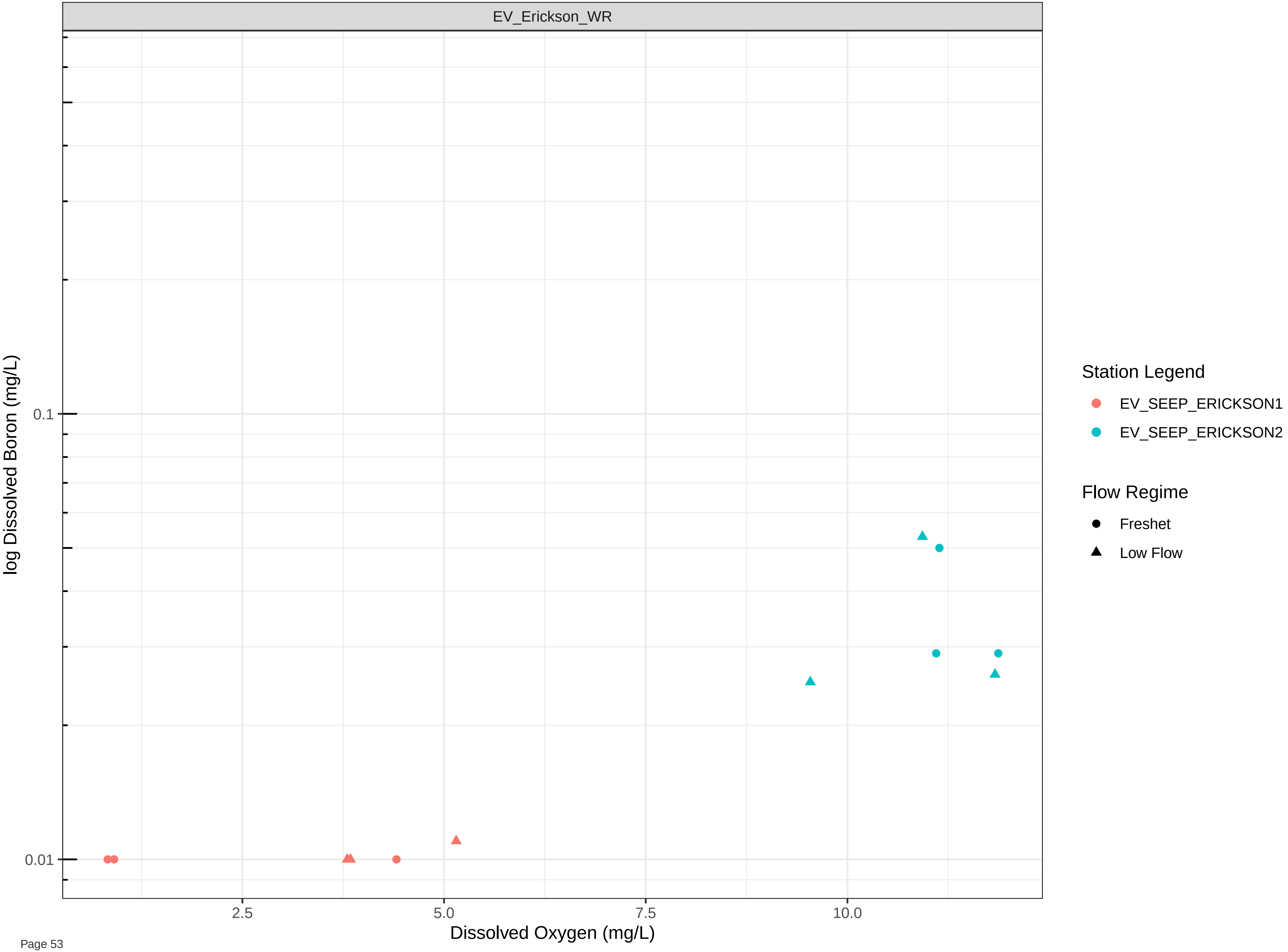

EV_SouthPit_Pit
log Dissolved Bismuth (mg/L)
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

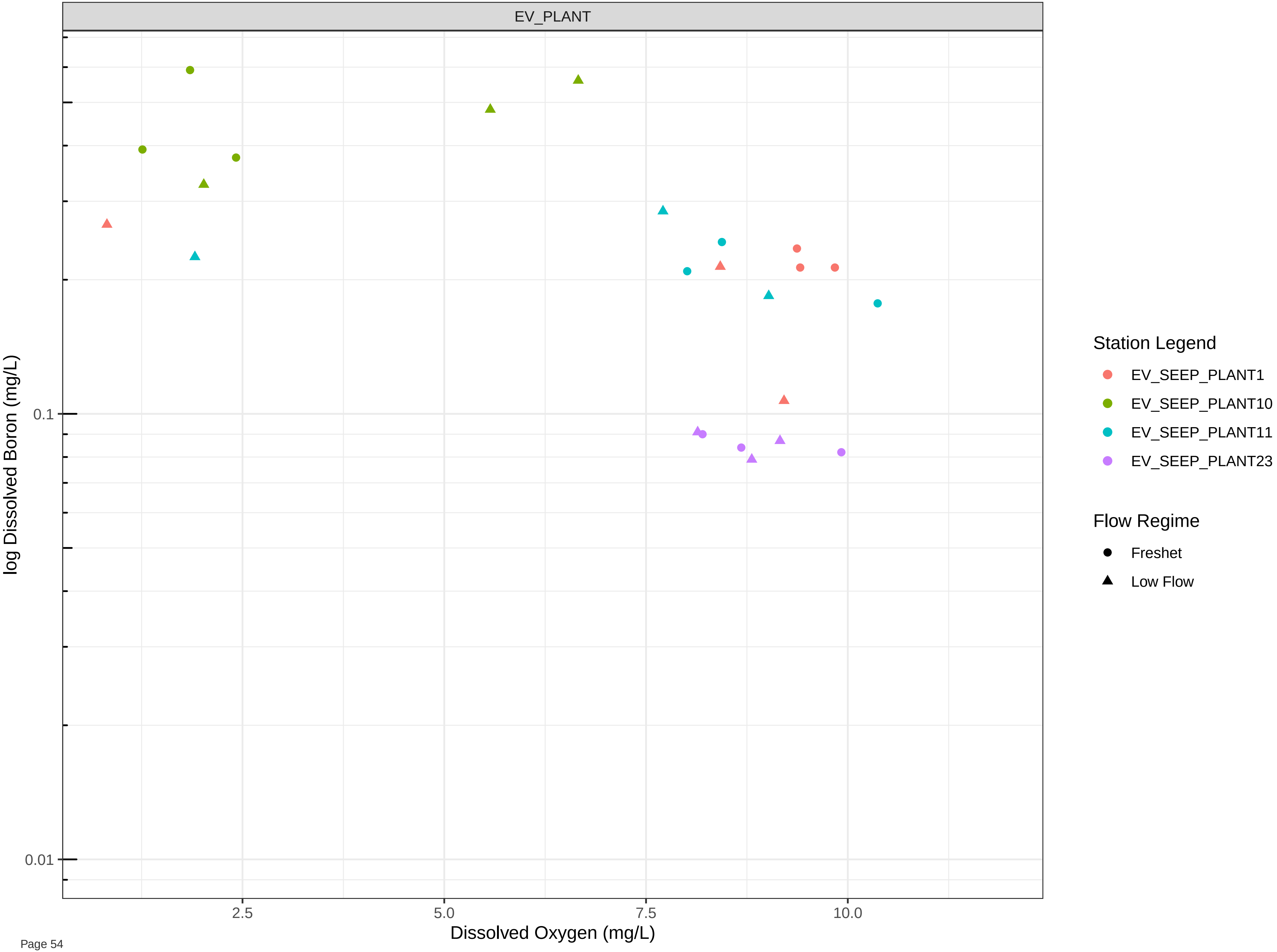

EV_BALDYRIDGEWR
log Dissolved Boron (mg/L)
0.1
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP−4
● EV_SEEP_BREAKERLAKE
● EV_SEEP_HOPPER2
● EV_SEEP_NATALPIT2
● EV_SEEP_TURCON1
Flow Regime
● Freshet
▲ Low Flow

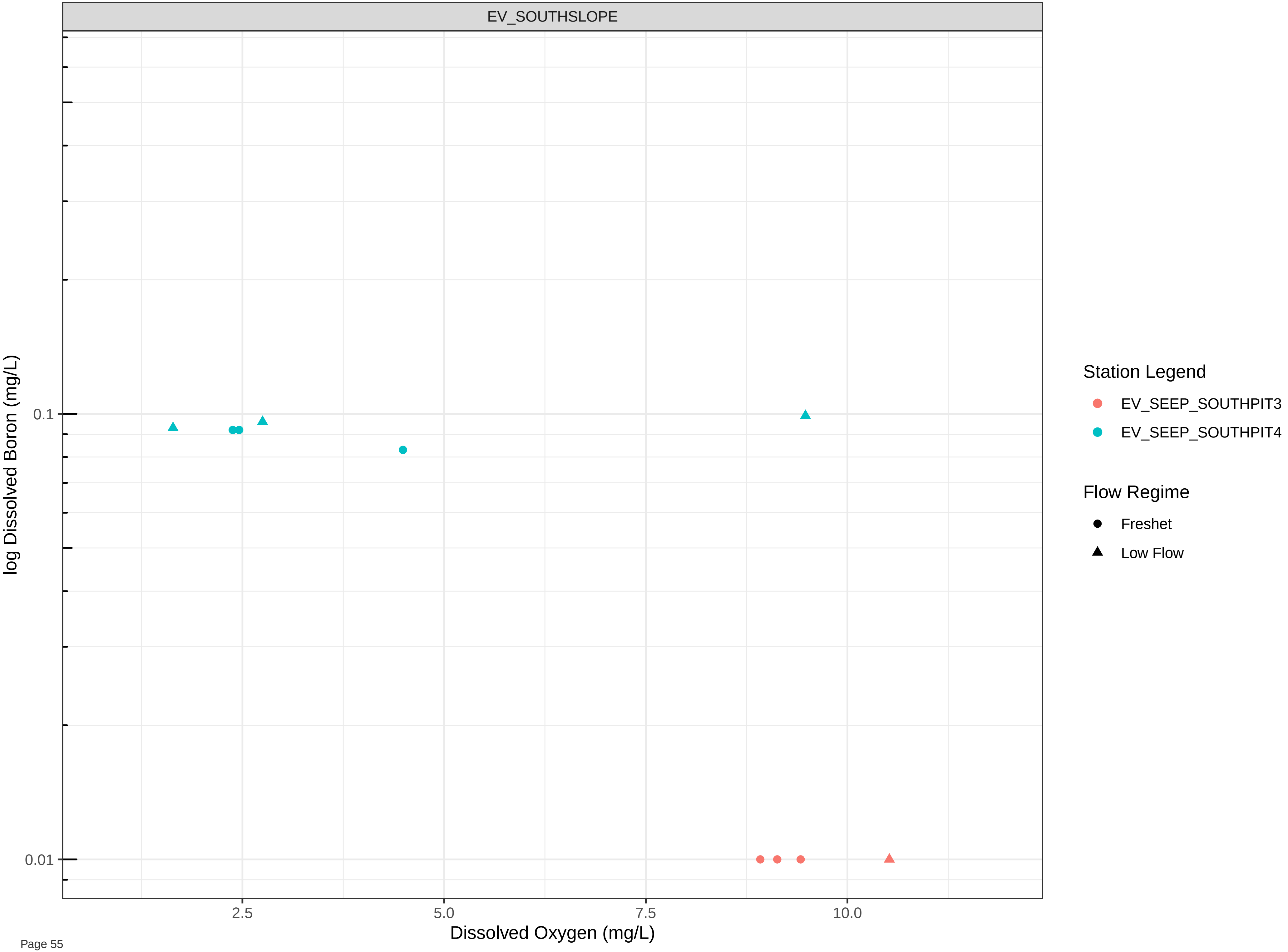

EV_CCR
log Dissolved Boron (mg/L)
0.1
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

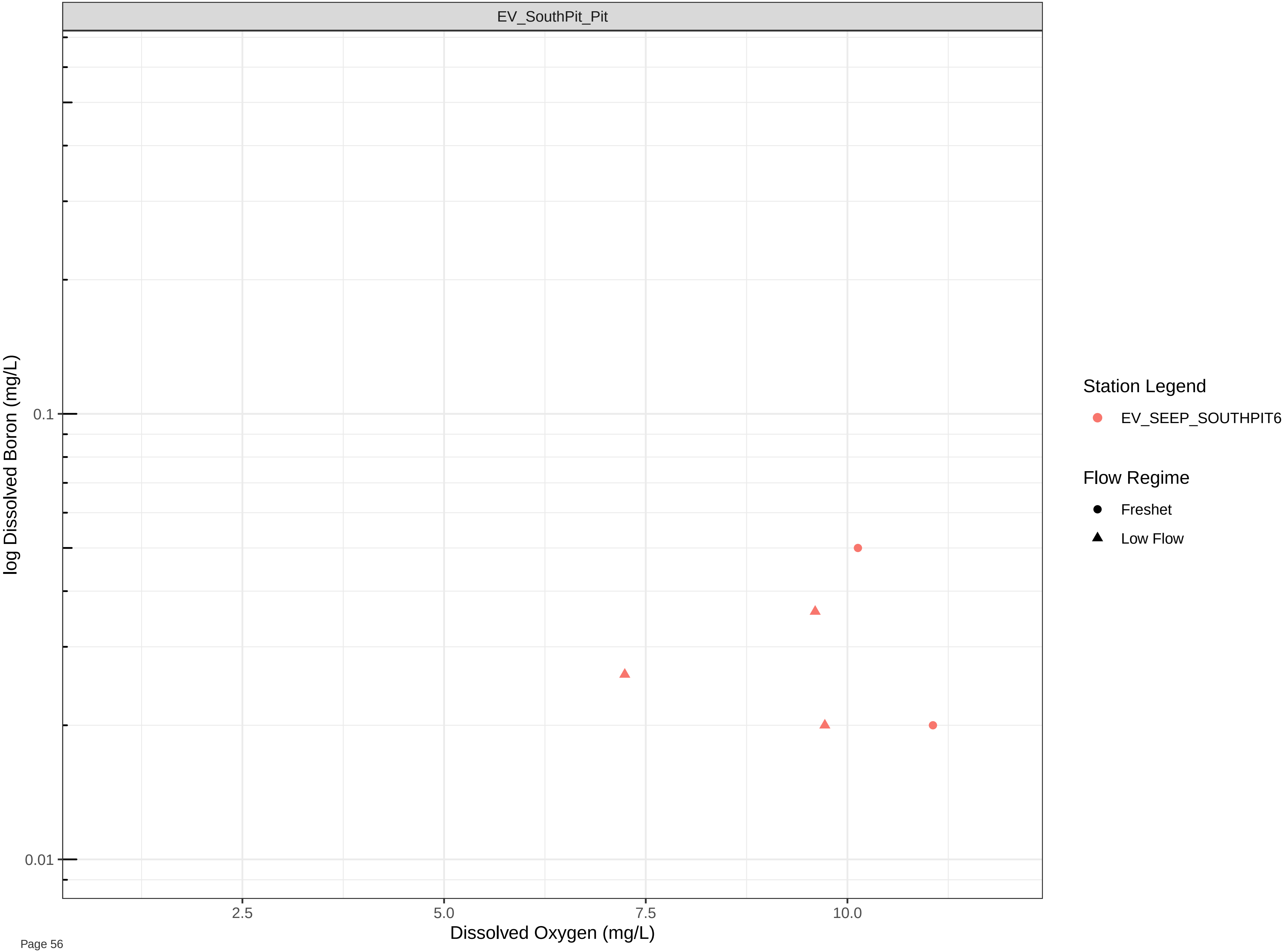

EV_CCR/TP
log Dissolved Boron (mg/L)
0.1
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

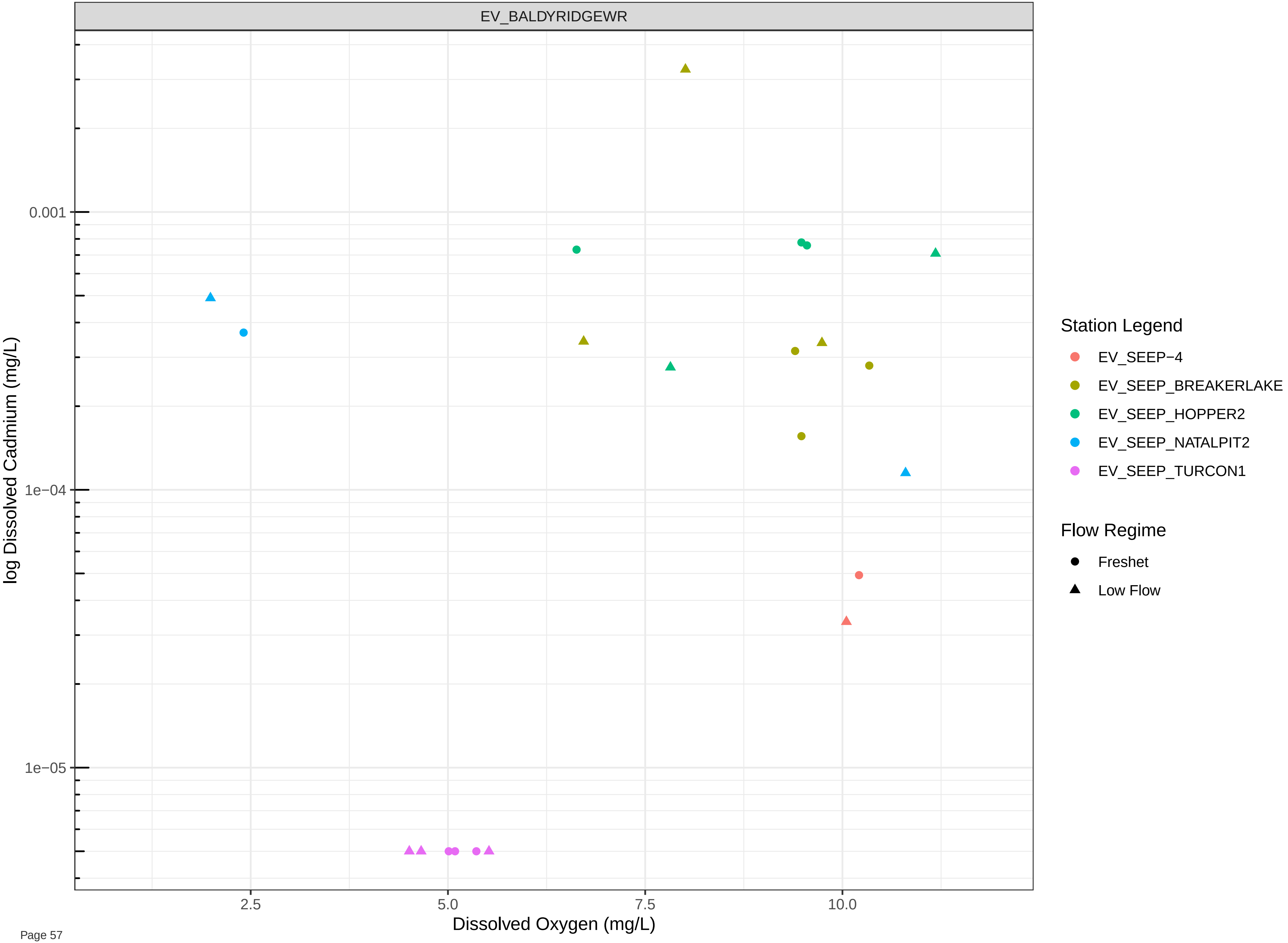

EV_CEDARWR
log Dissolved Boron (mg/L)
0.1
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

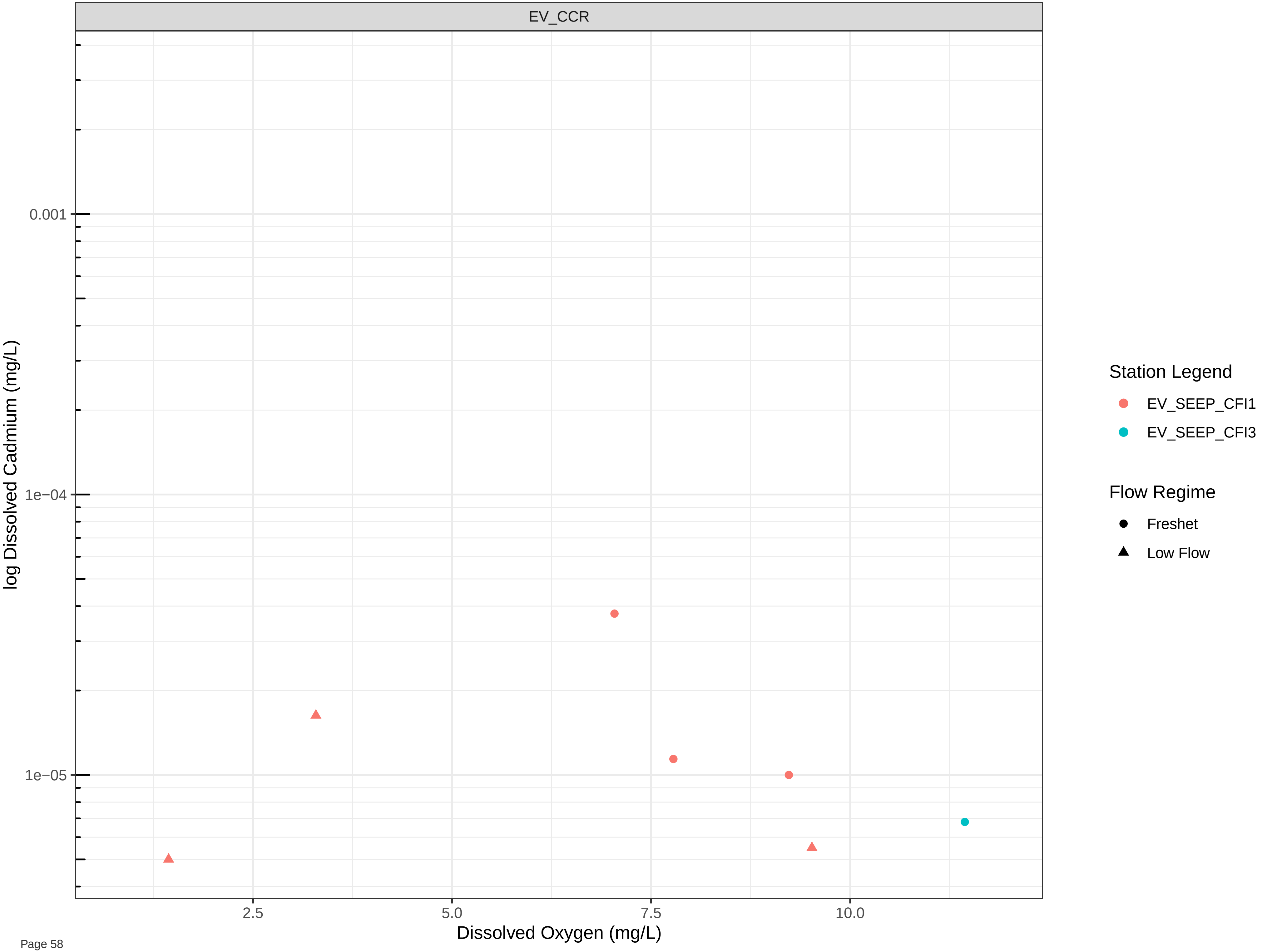

EV_Erickson_WR
log Dissolved Boron (mg/L)
0.1
0.01
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

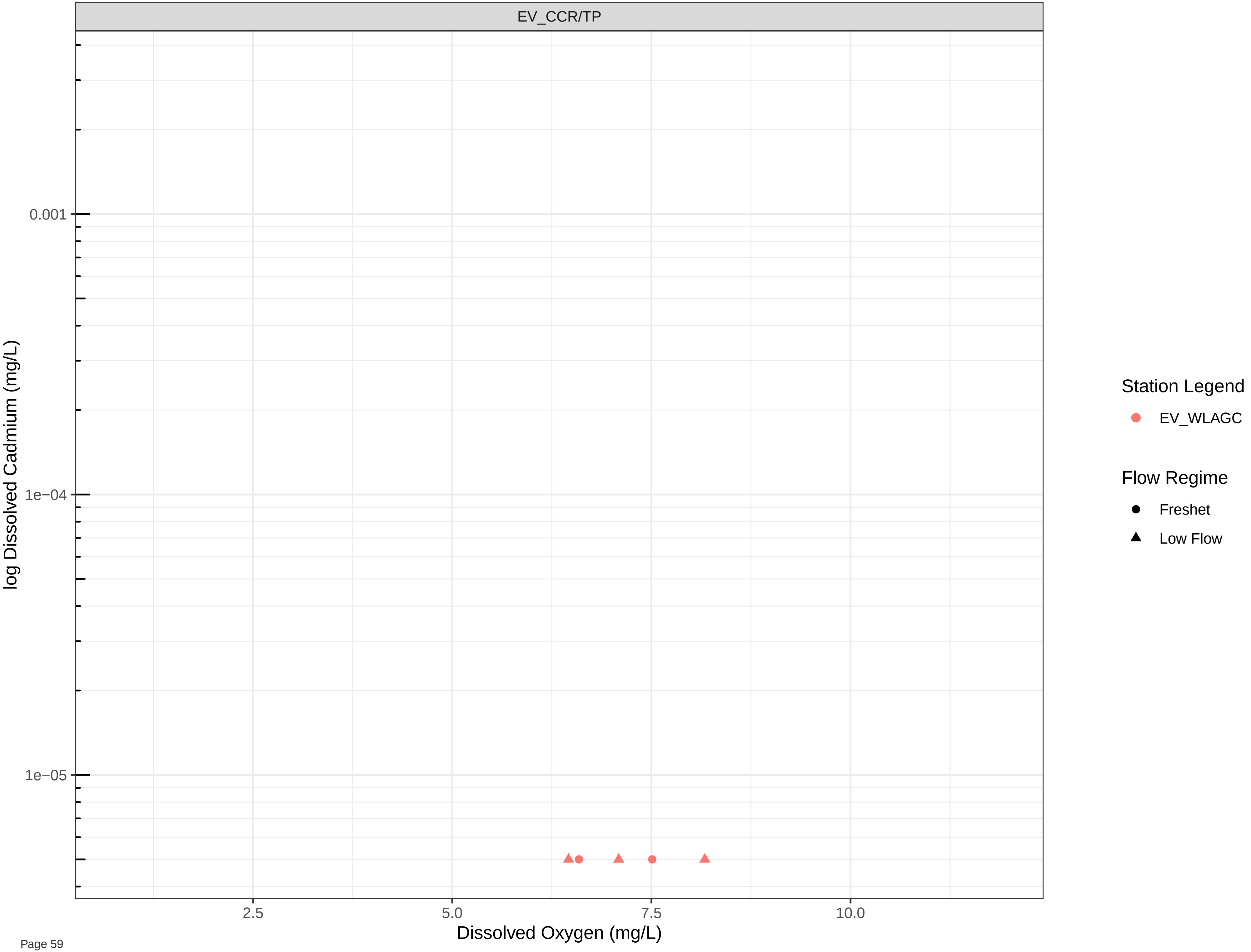

EV_PLANT
log Dissolved Boron (mg/L)
0.1
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

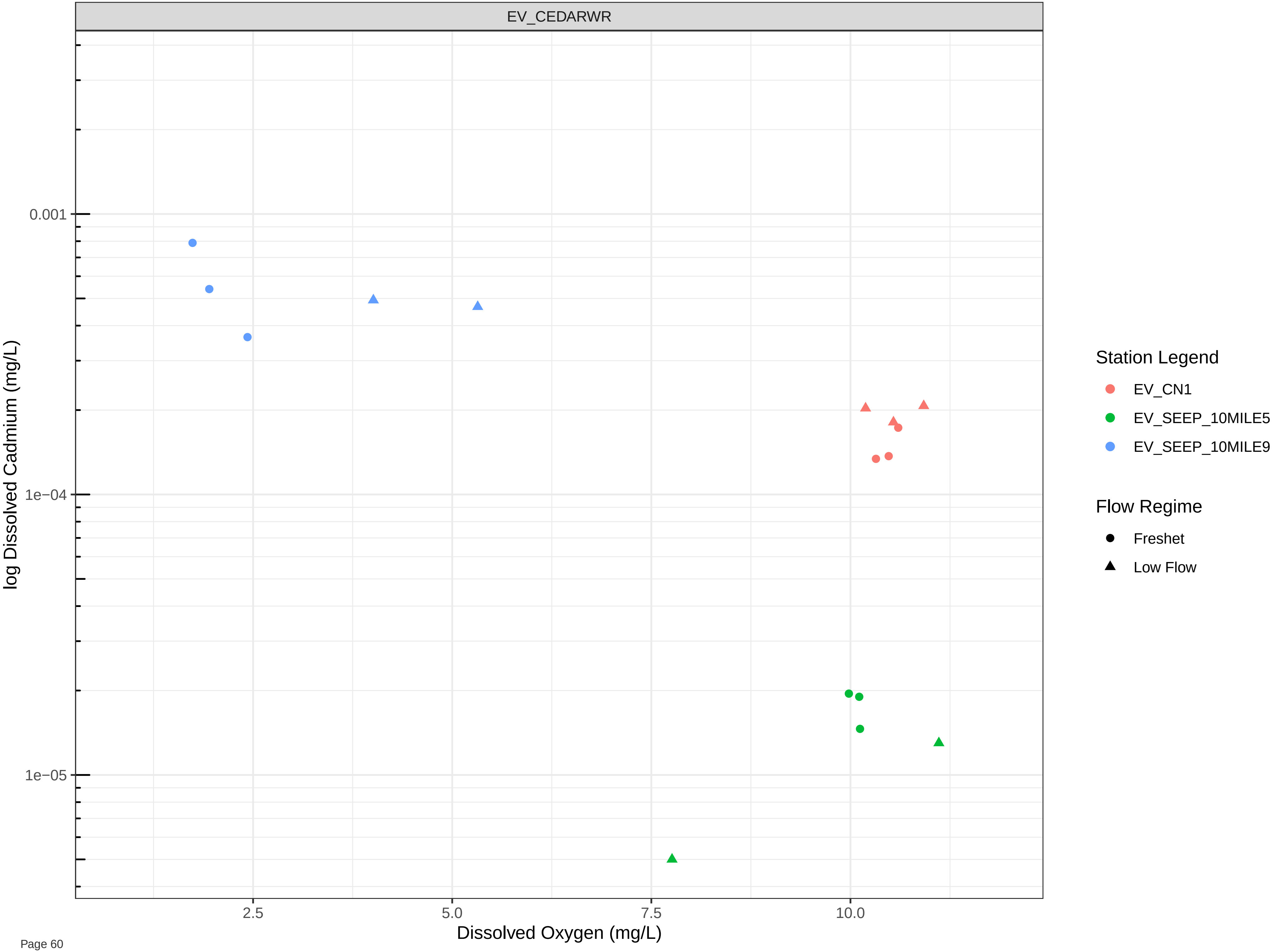

EV_SOUTHSLOPE
log Dissolved Boron (mg/L)
0.1
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

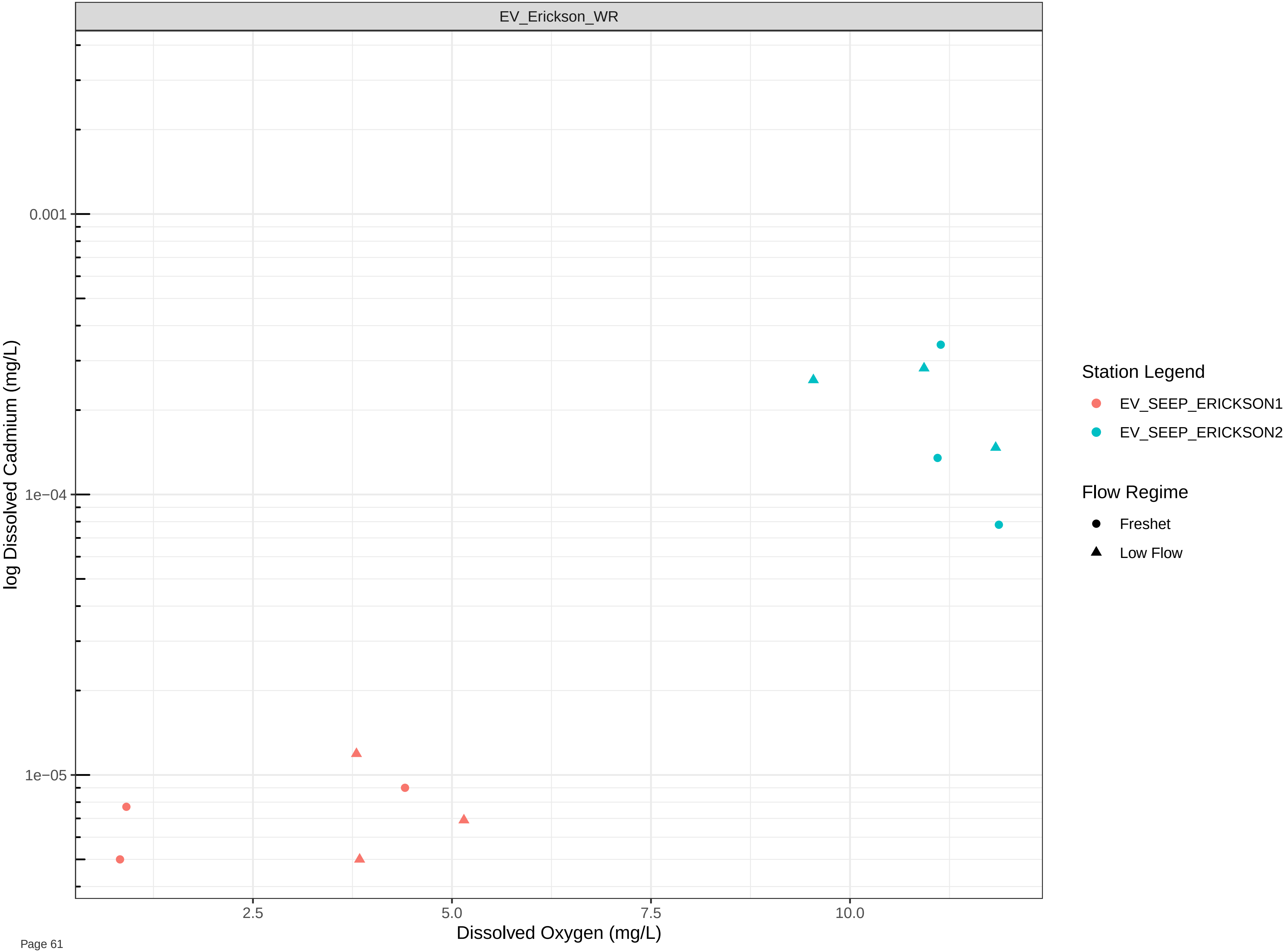

EV_SouthPit_Pit
log Dissolved Boron (mg/L)
0.1
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

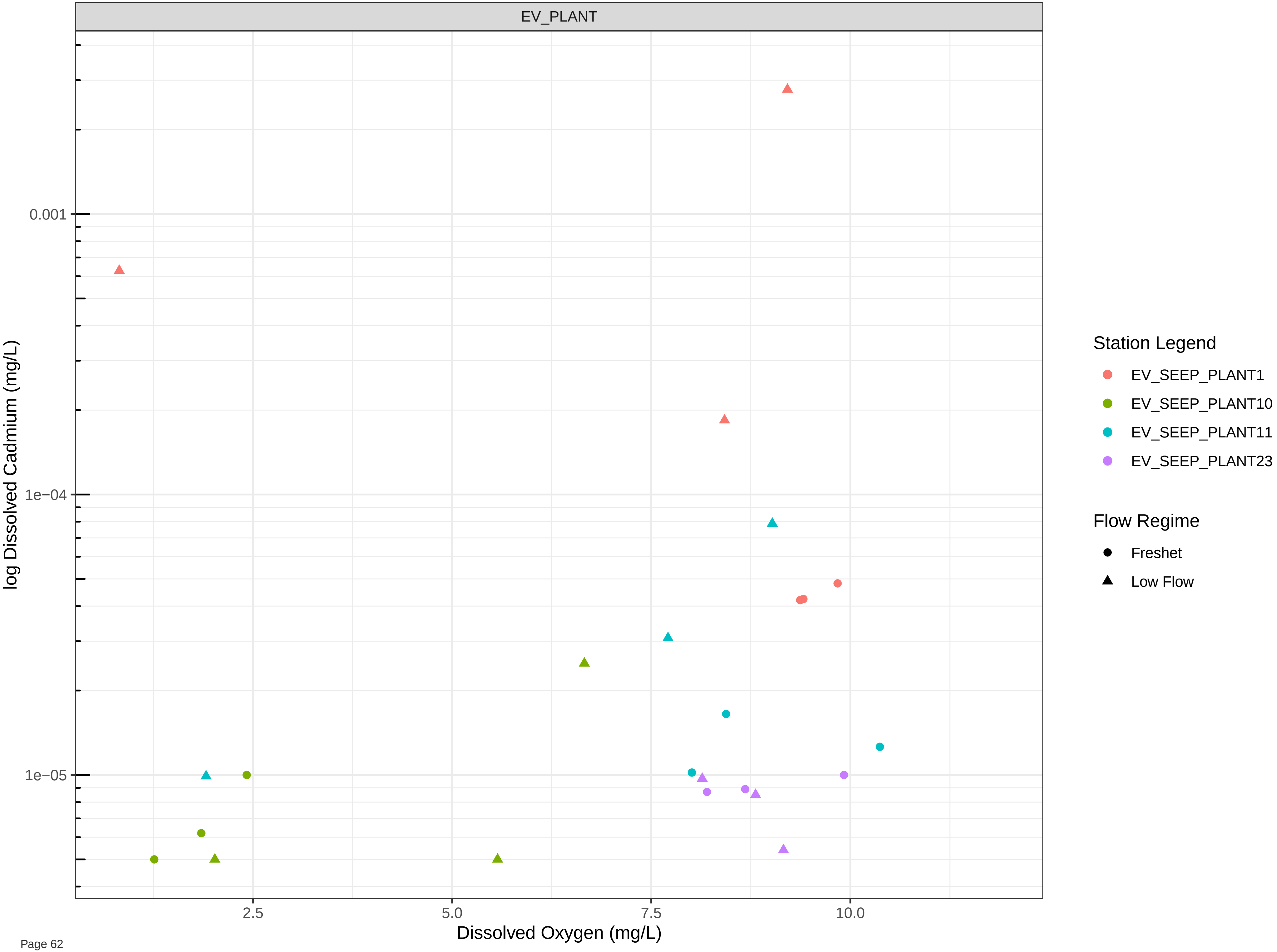

EV_BALDYRIDGEWR
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

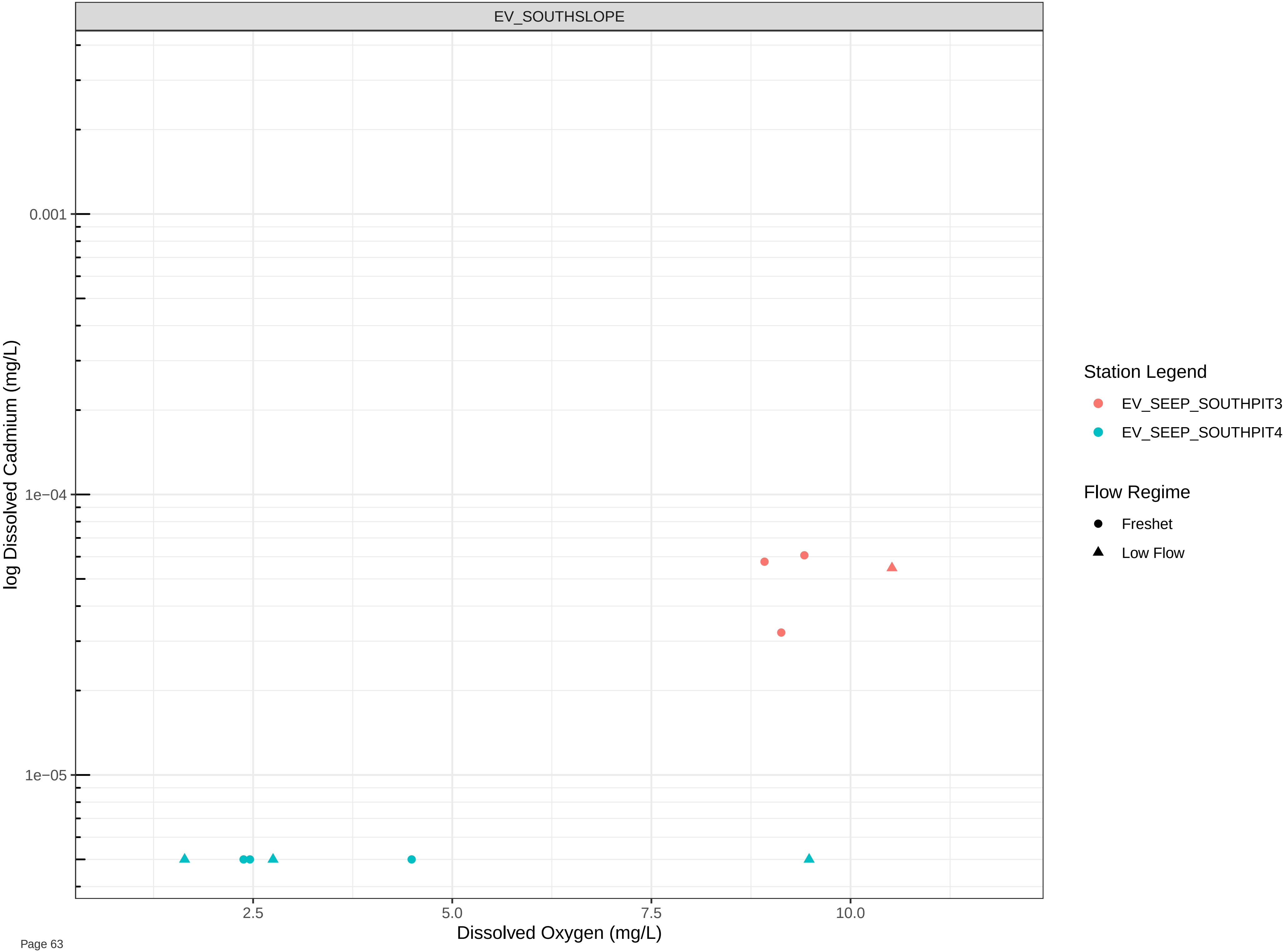

EV_CCR
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

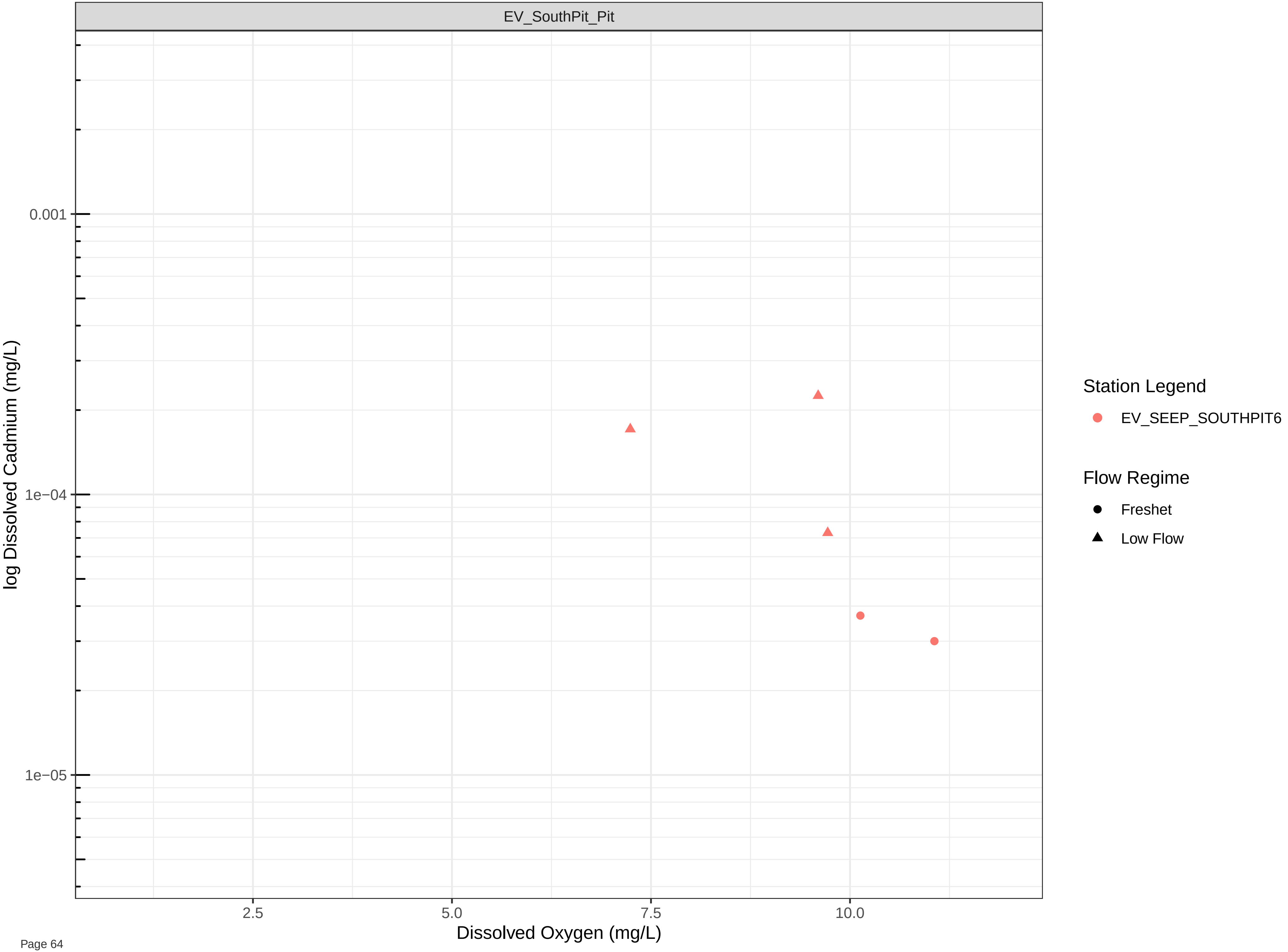

EV_CCR/TP
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

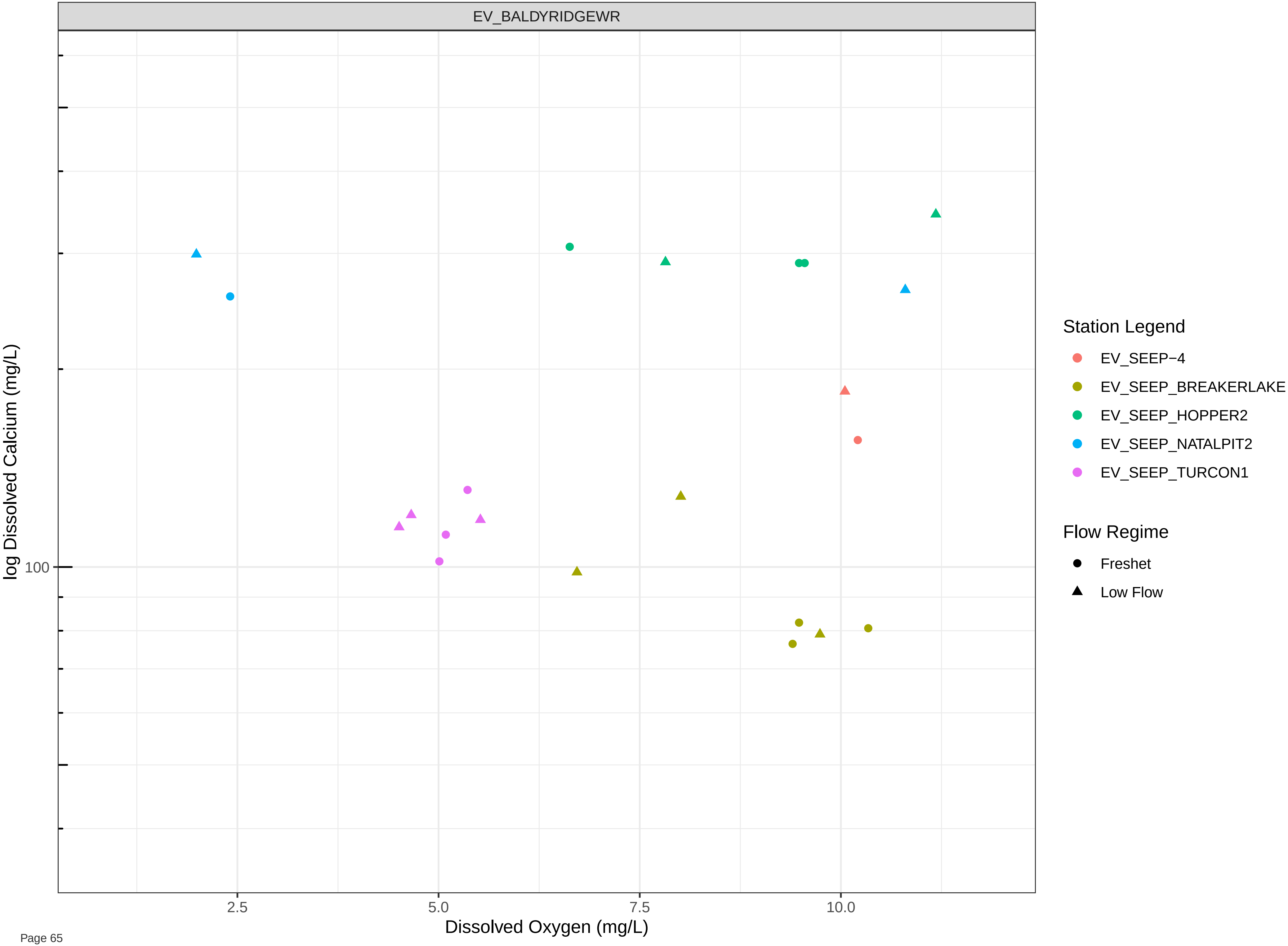

EV_CEDARWR
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

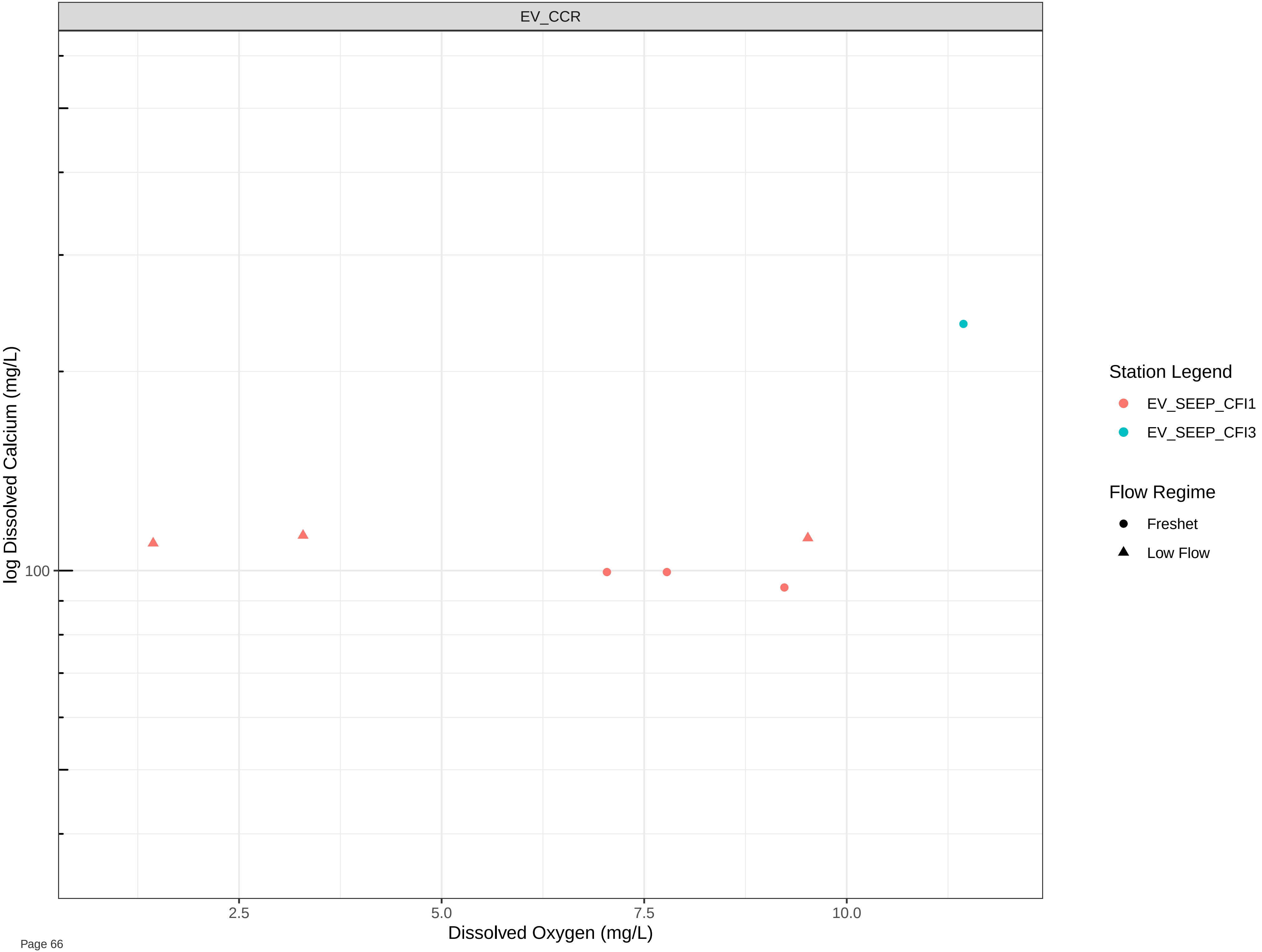

EV_Erickson_WR
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

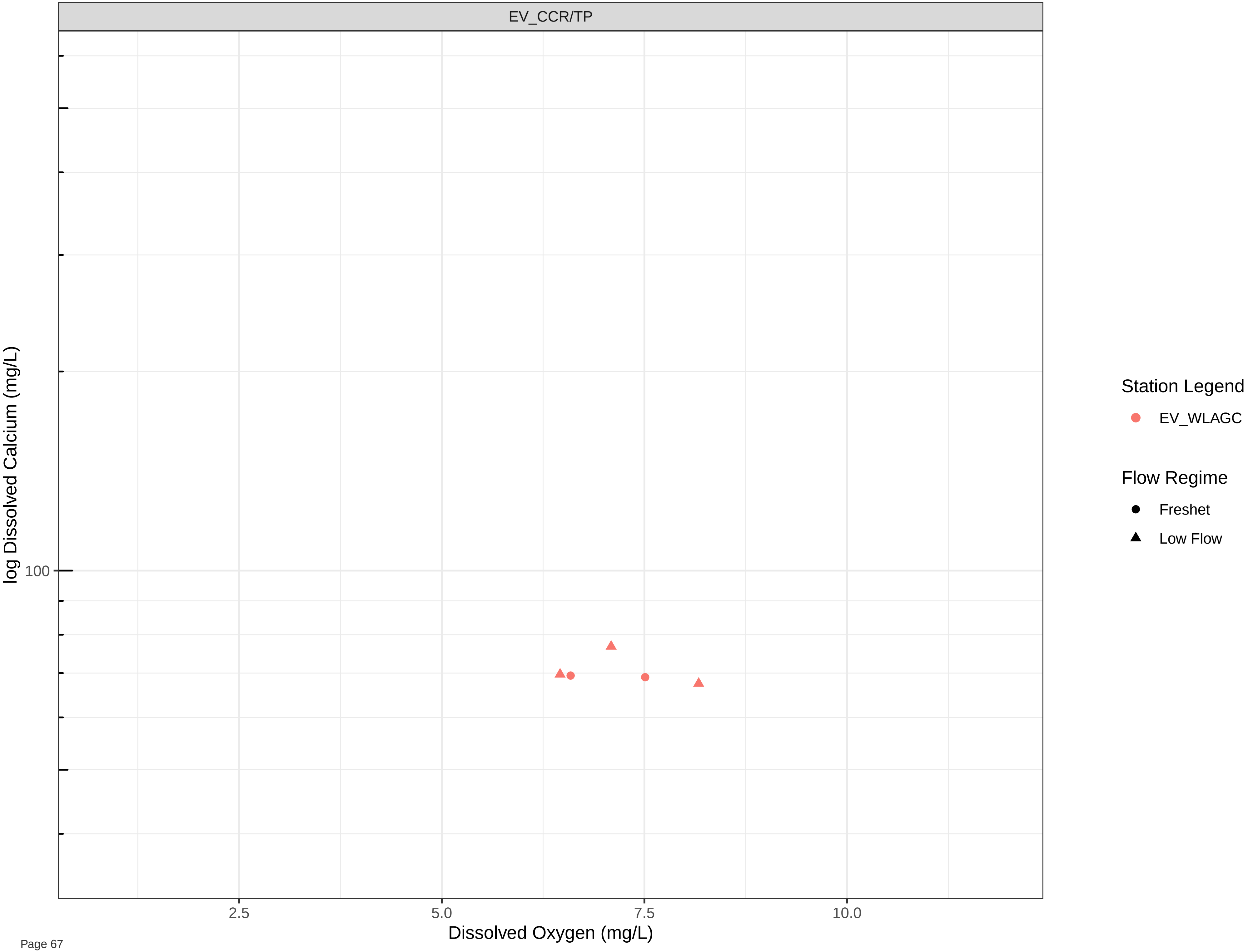

EV_PLANT
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

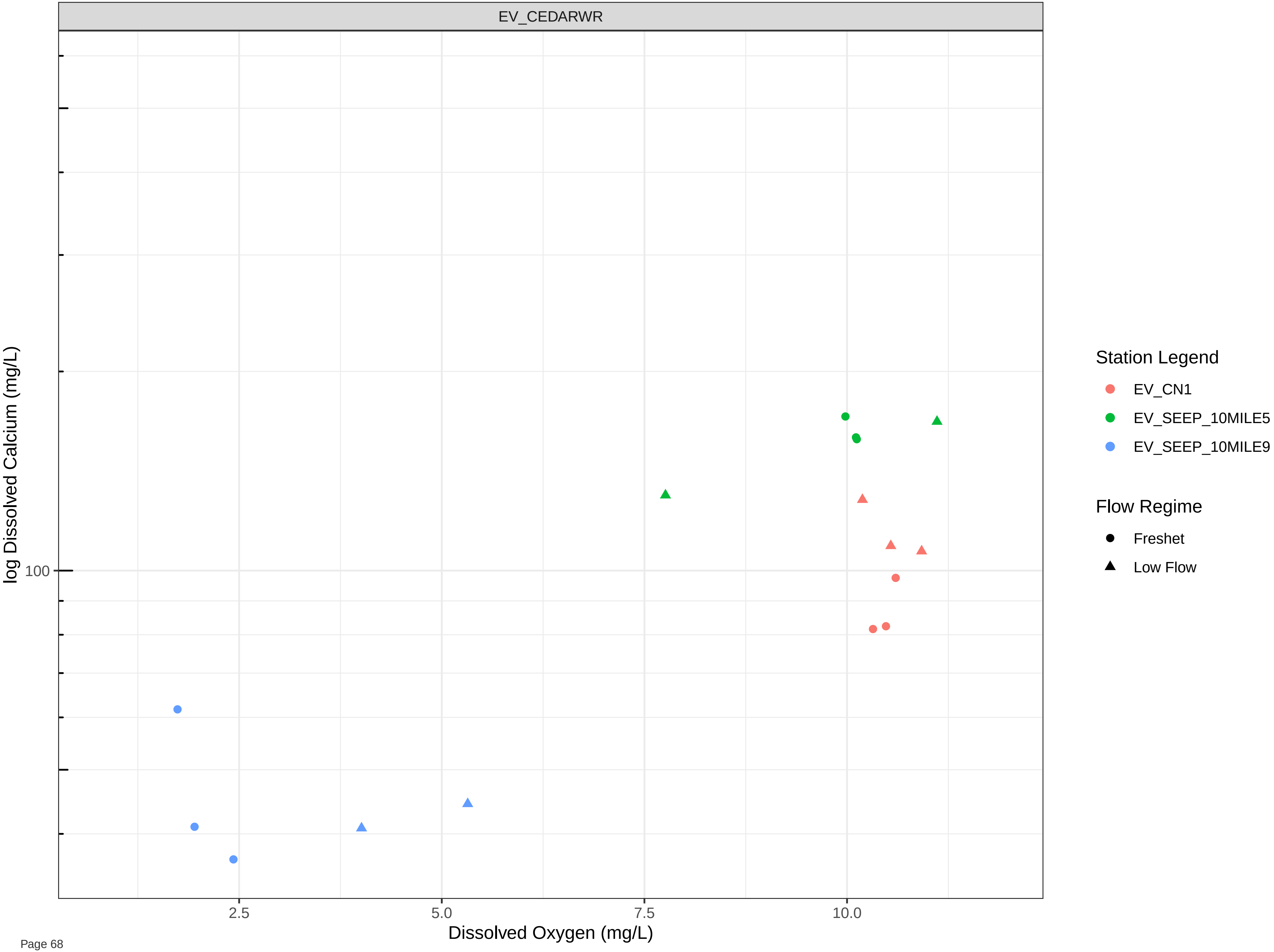

EV_SOUTHSLOPE
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

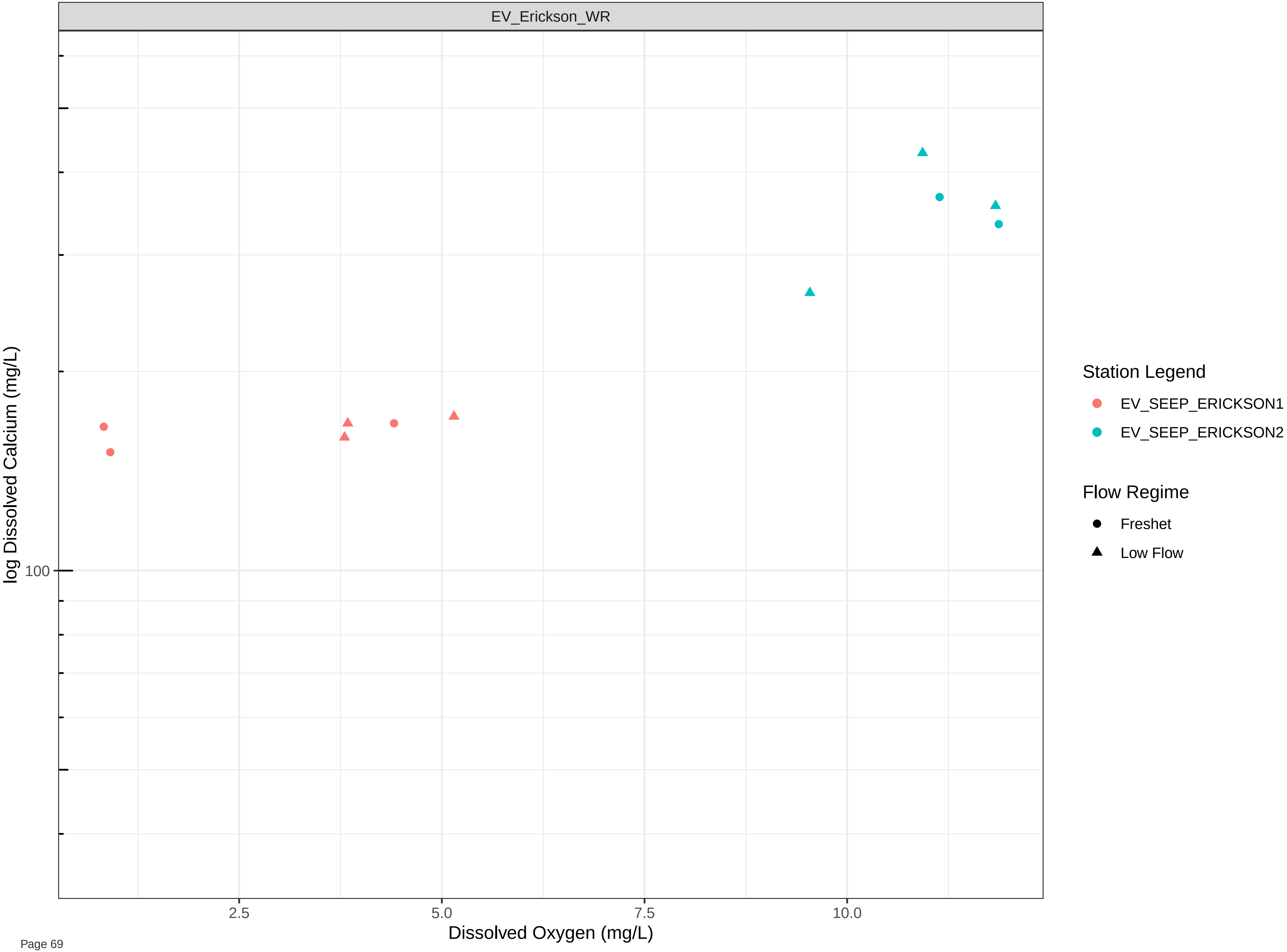

EV_SouthPit_Pit
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

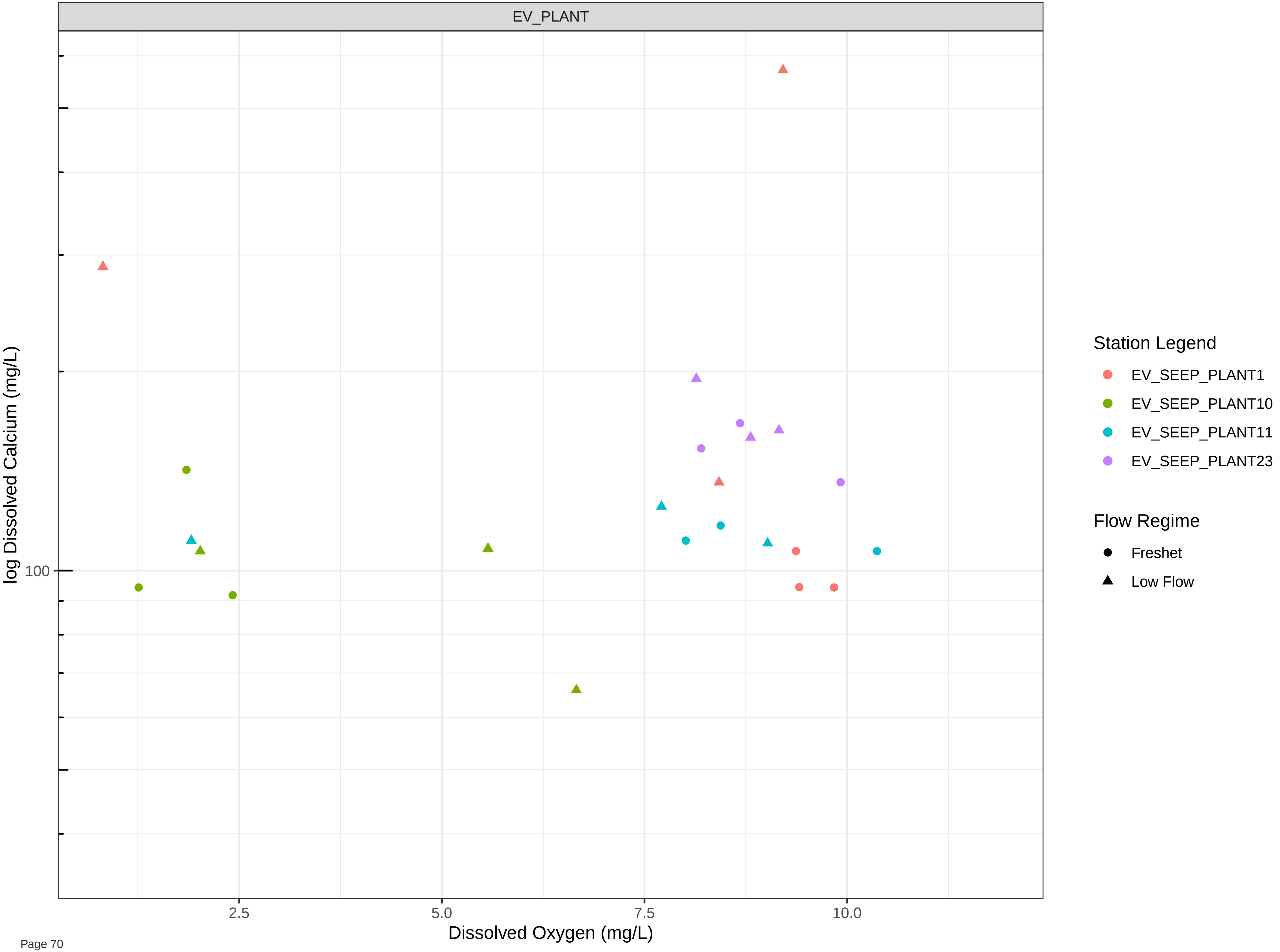

EV_BALDYRIDGEWR
log Dissolved Calcium (mg/L)
100
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

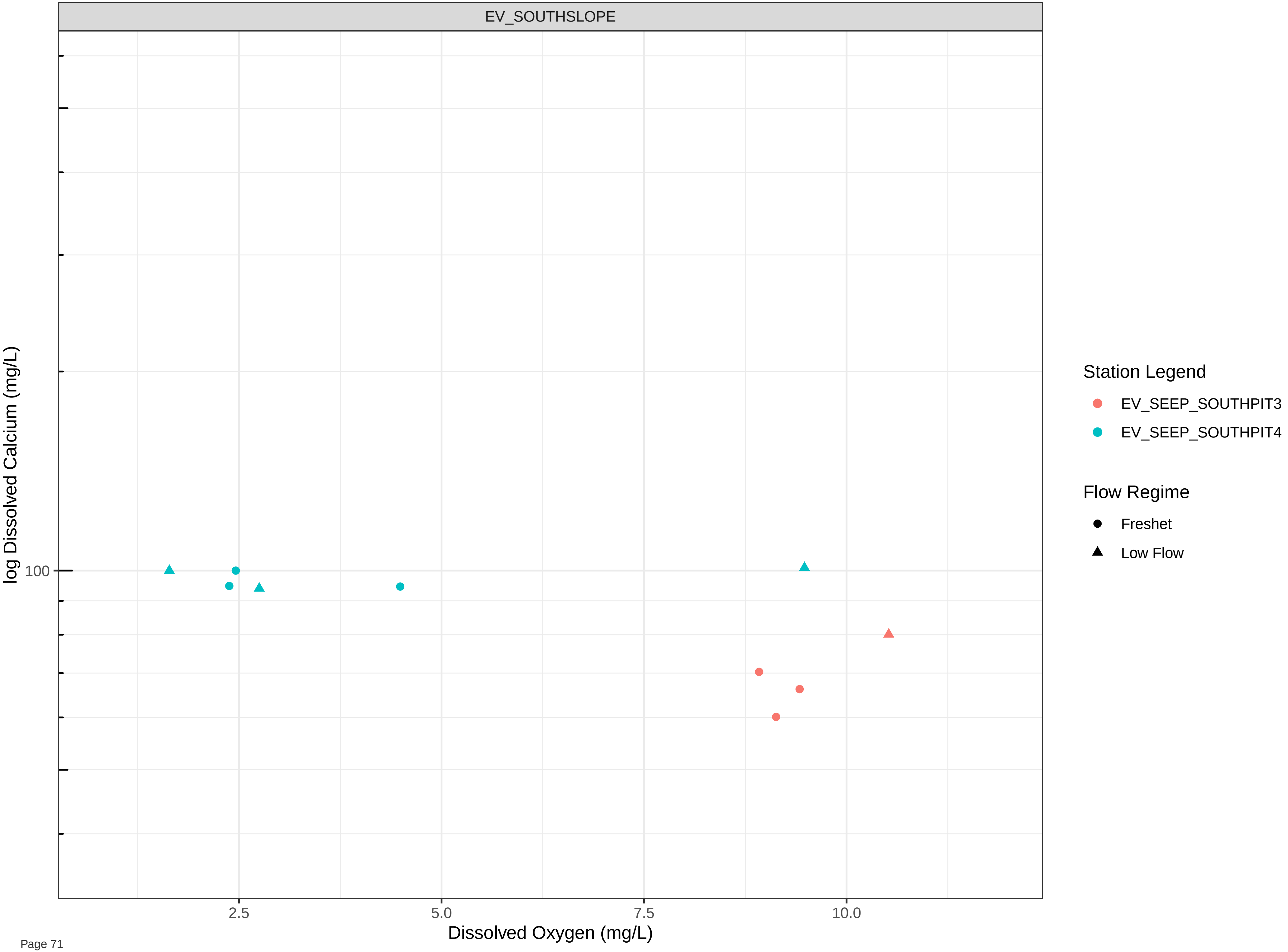

EV_CCR
log Dissolved Calcium (mg/L)
100
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

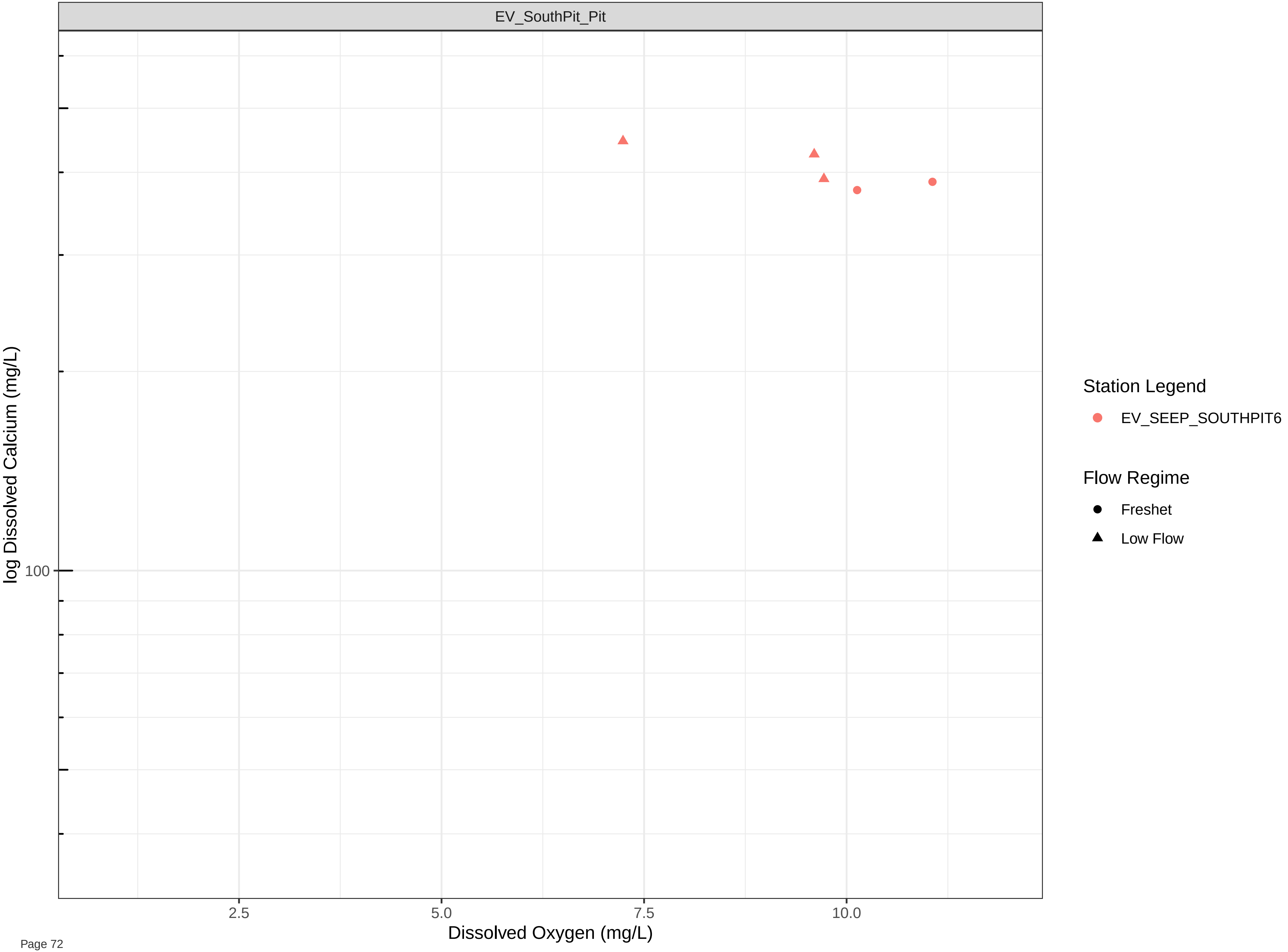

EV_CCR/TP
log Dissolved Calcium (mg/L)
100
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

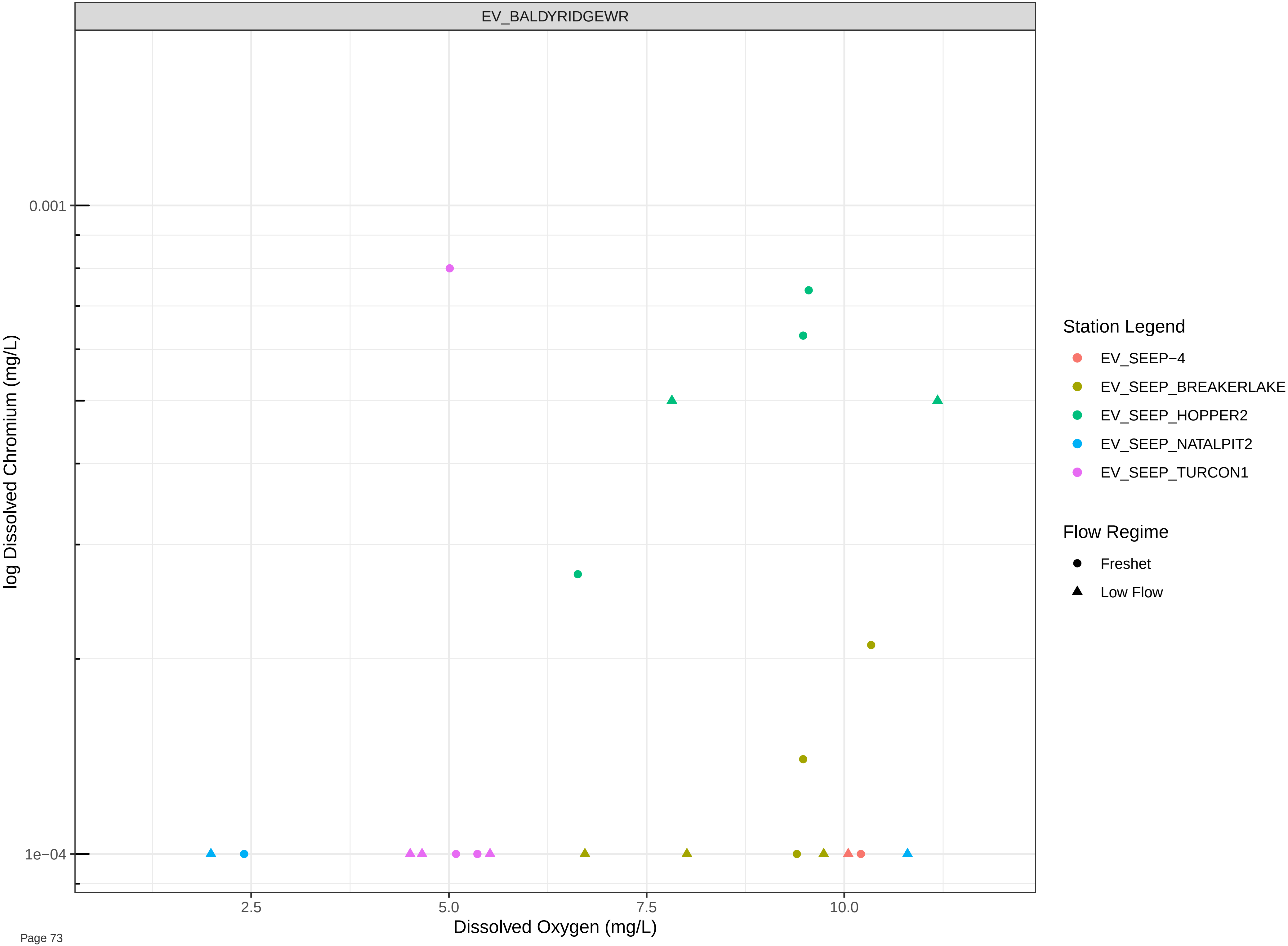

EV_CEDARWR
log Dissolved Calcium (mg/L)
100
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_CN1
● EV_SEEP_10MILE5
● EV_SEEP_10MILE9
Flow Regime
● Freshet
▲ Low Flow

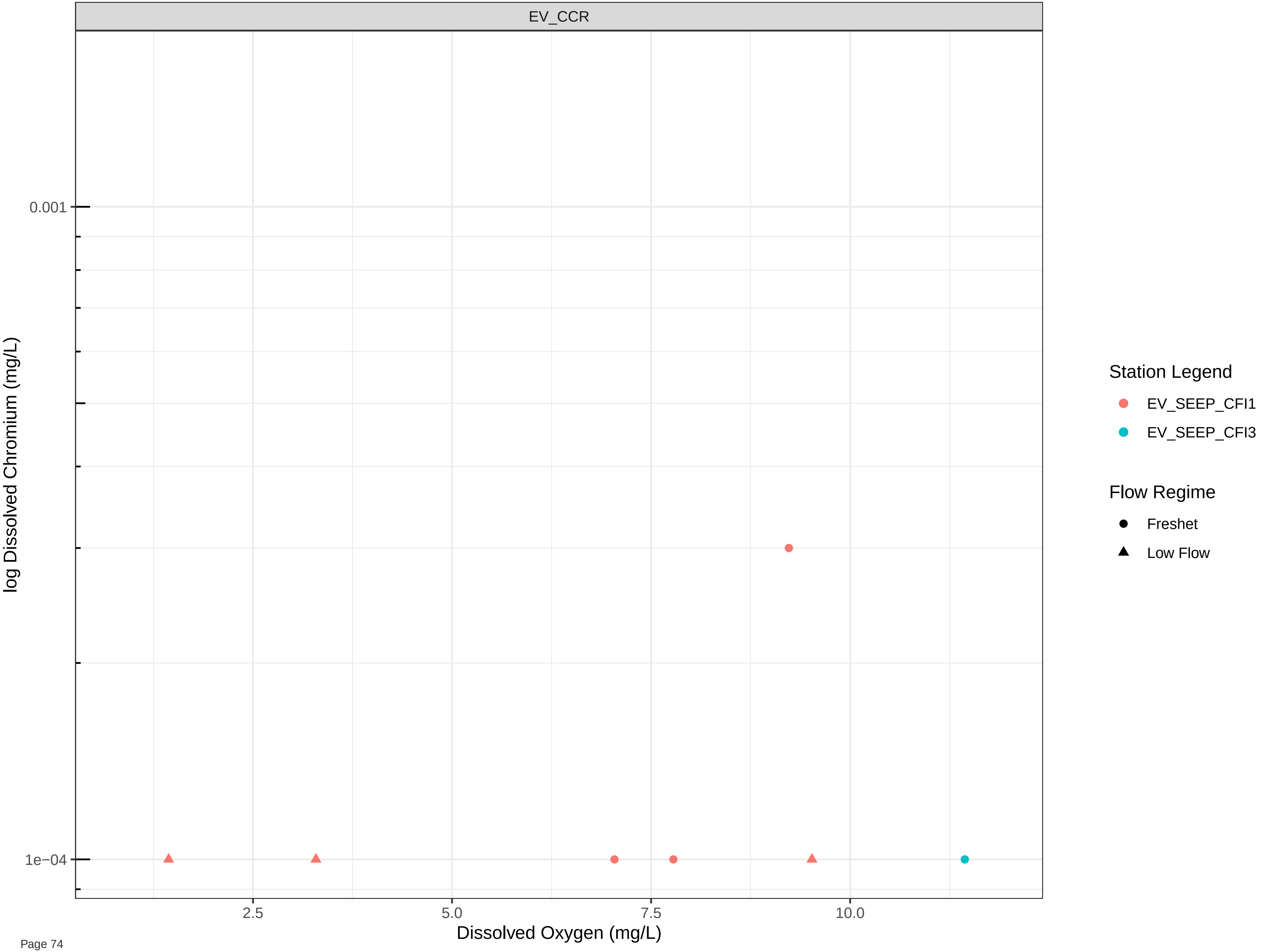

EV_Erickson_WR
log Dissolved Calcium (mg/L)
100
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

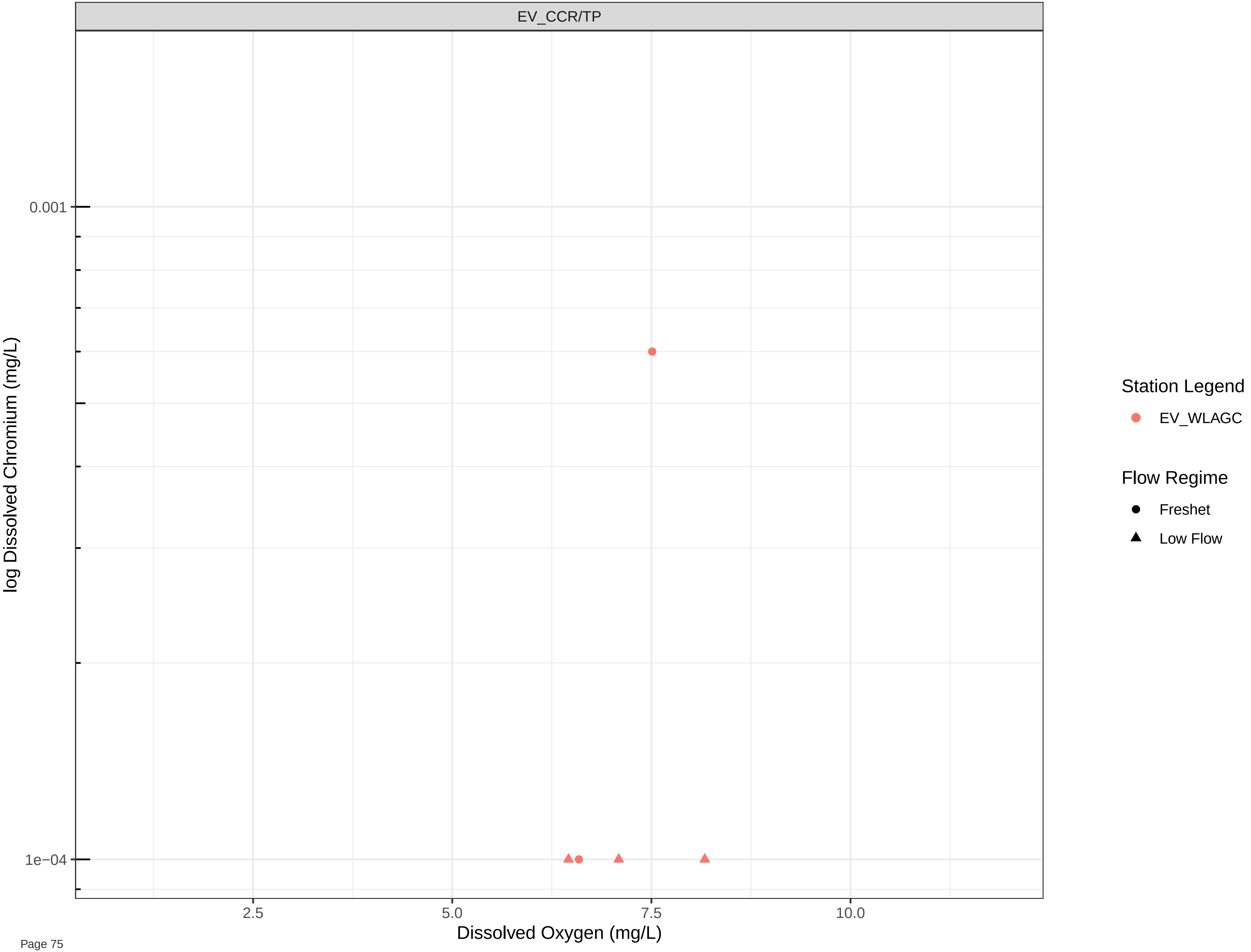

EV_PLANT
log Dissolved Calcium (mg/L)
100
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

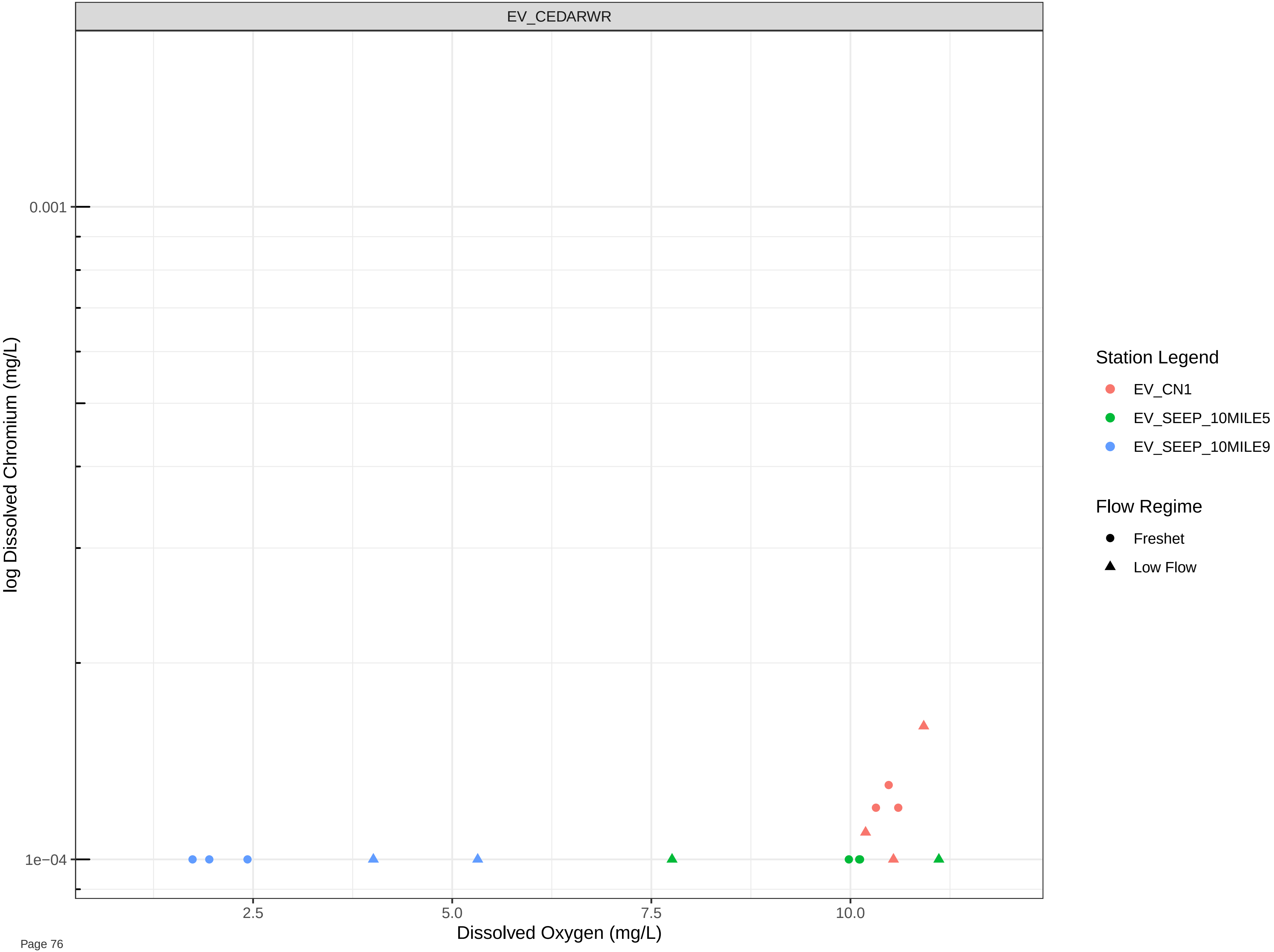

EV_SOUTHSLOPE
log Dissolved Calcium (mg/L)
100
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

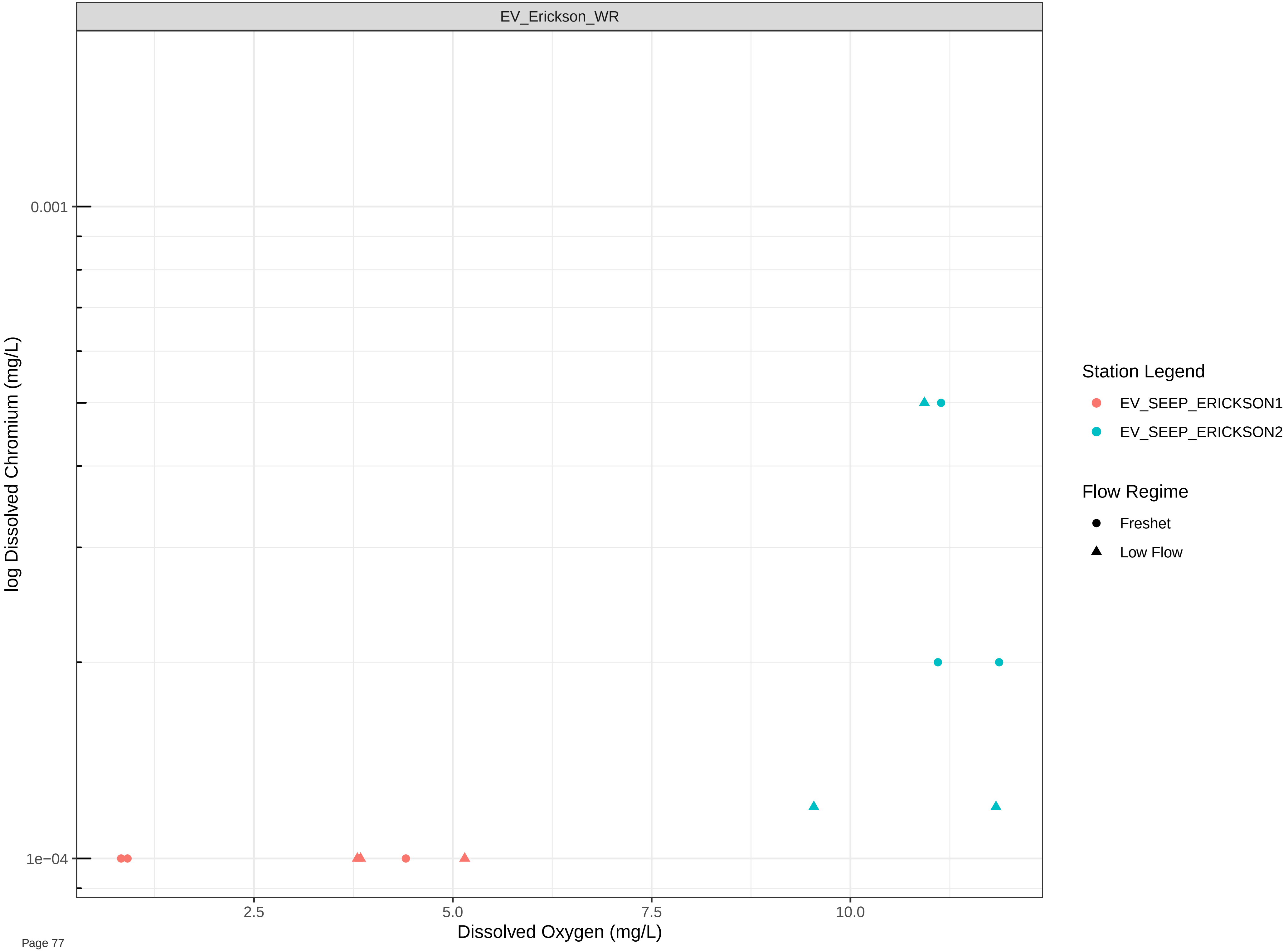

EV_SouthPit_Pit
log Dissolved Calcium (mg/L)
100
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow


EV_BALDYRIDGEWR
log Dissolved Chromium (mg/L)
0.001
1e−04
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow


EV_CCR
0.001
1e−04
log Dissolved Chromium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow


EV_CCR/TP
0.001
1e−04
log Dissolved Chromium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow


EV_CEDARWR
0.001
1e−04
log Dissolved Chromium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow


EV_Erickson_WR
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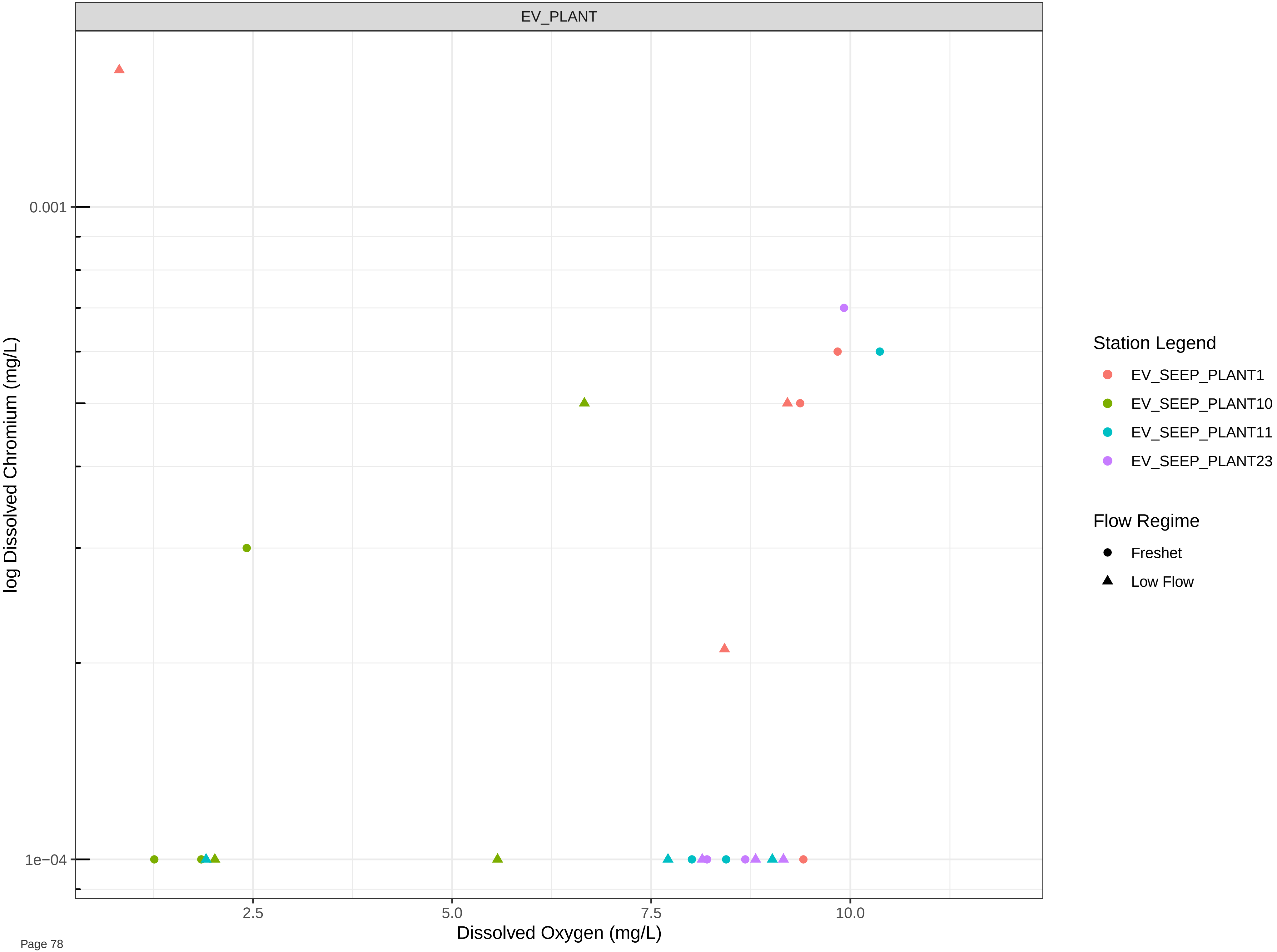
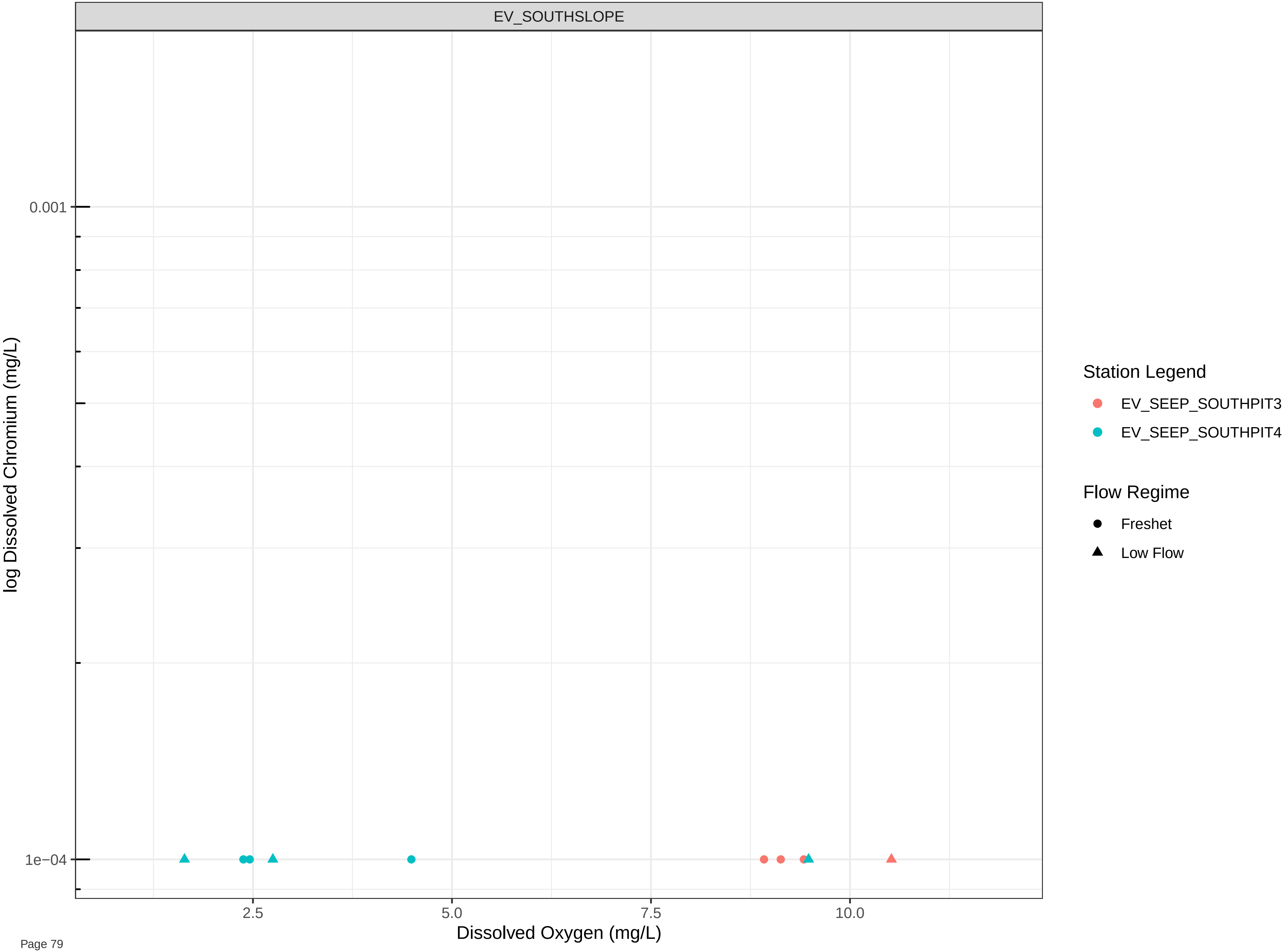
1e−04
log Dissolved Chromium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow


EV_PLANT
log Dissolved Chromium (mg/L)
0.001
1e−04
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow


EV_SOUTHSLOPE
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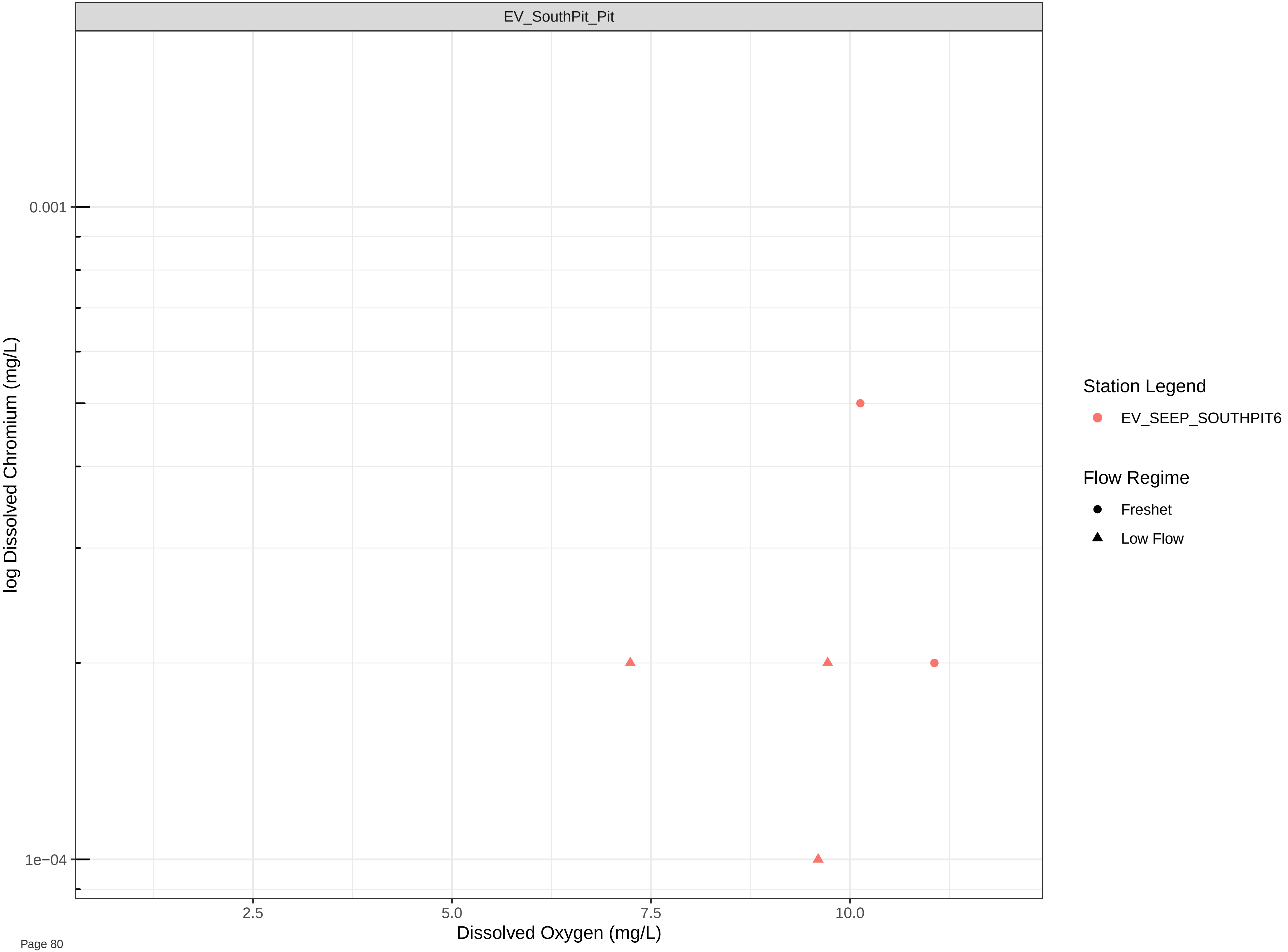
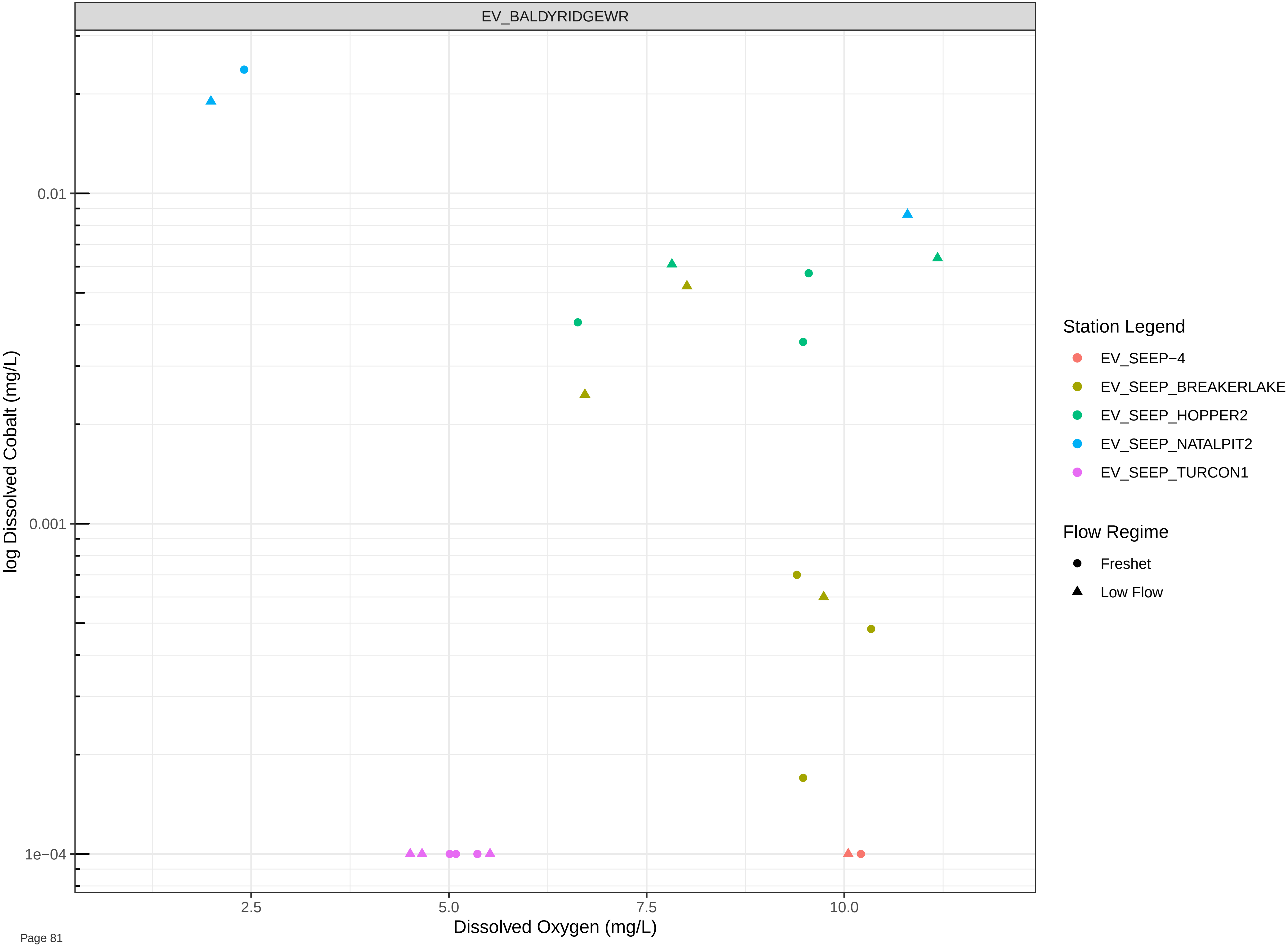
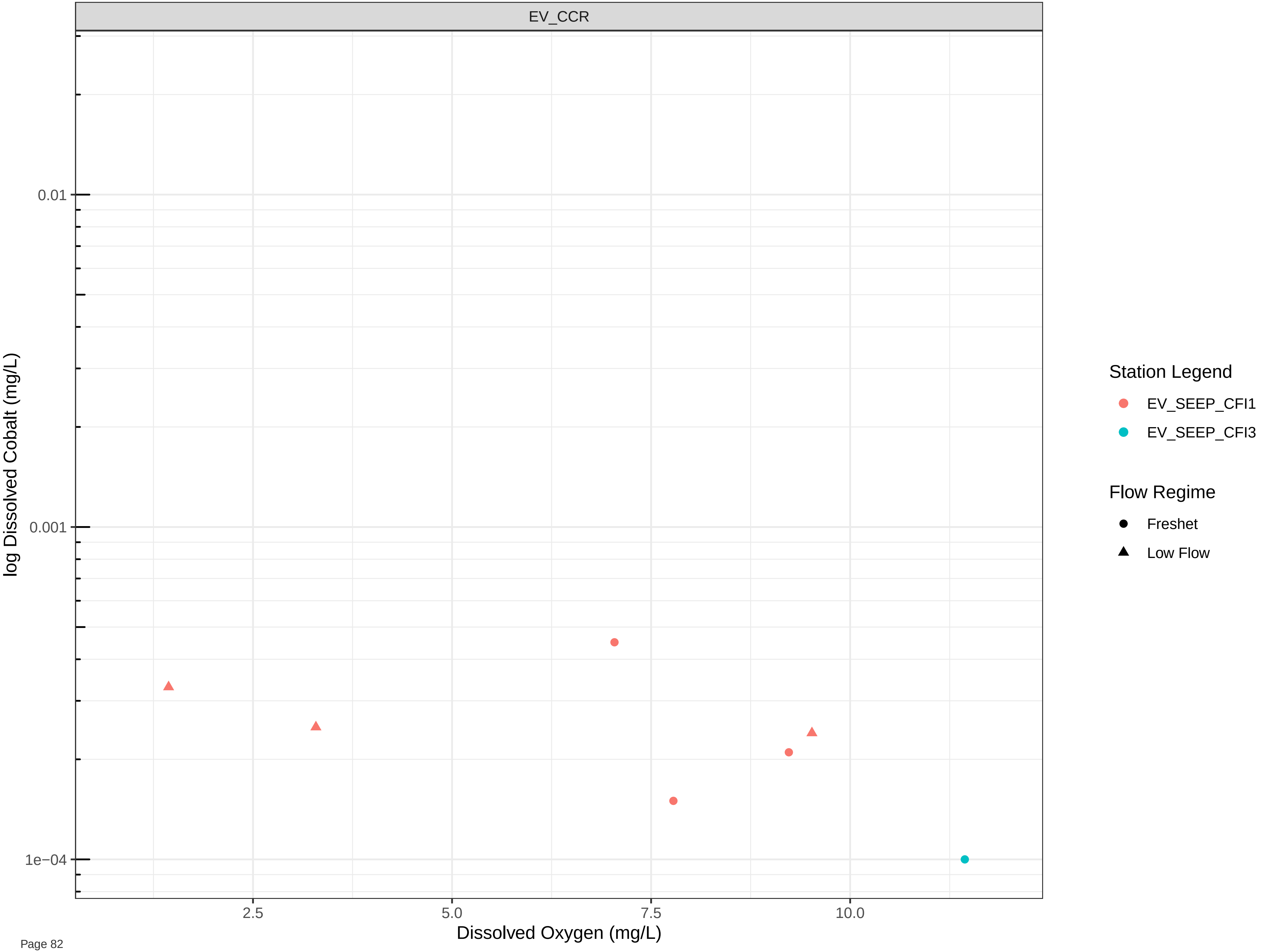
1e−04
log Dissolved Chromium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow


EV_SouthPit_Pit
0.001
1e−04
log Dissolved Chromium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow


EV_BALDYRIDGEWR
log Dissolved Cobalt (mg/L)
0.01
0.001
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow


EV_CCR
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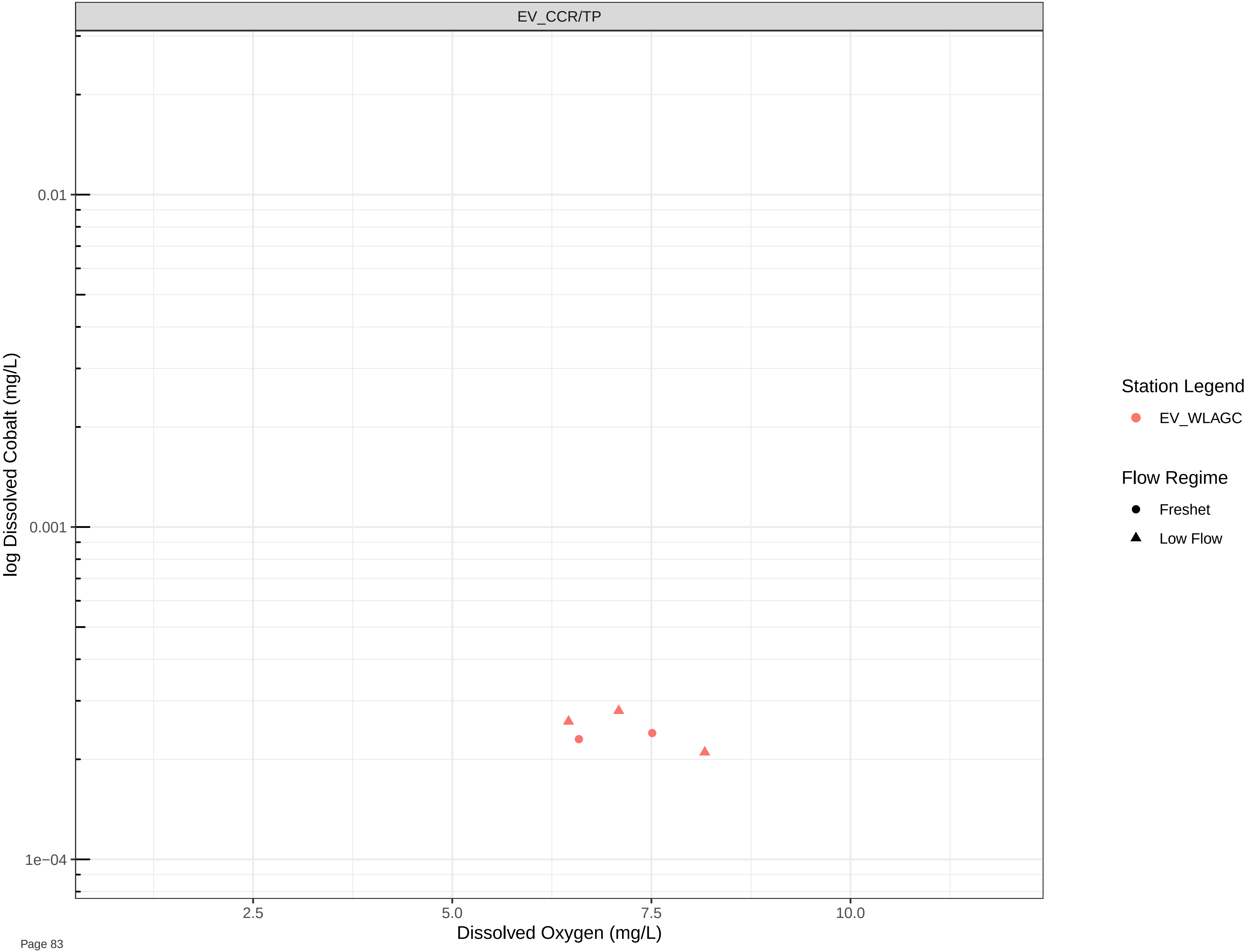
0.01
0.001
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow


EV_CCR/TP
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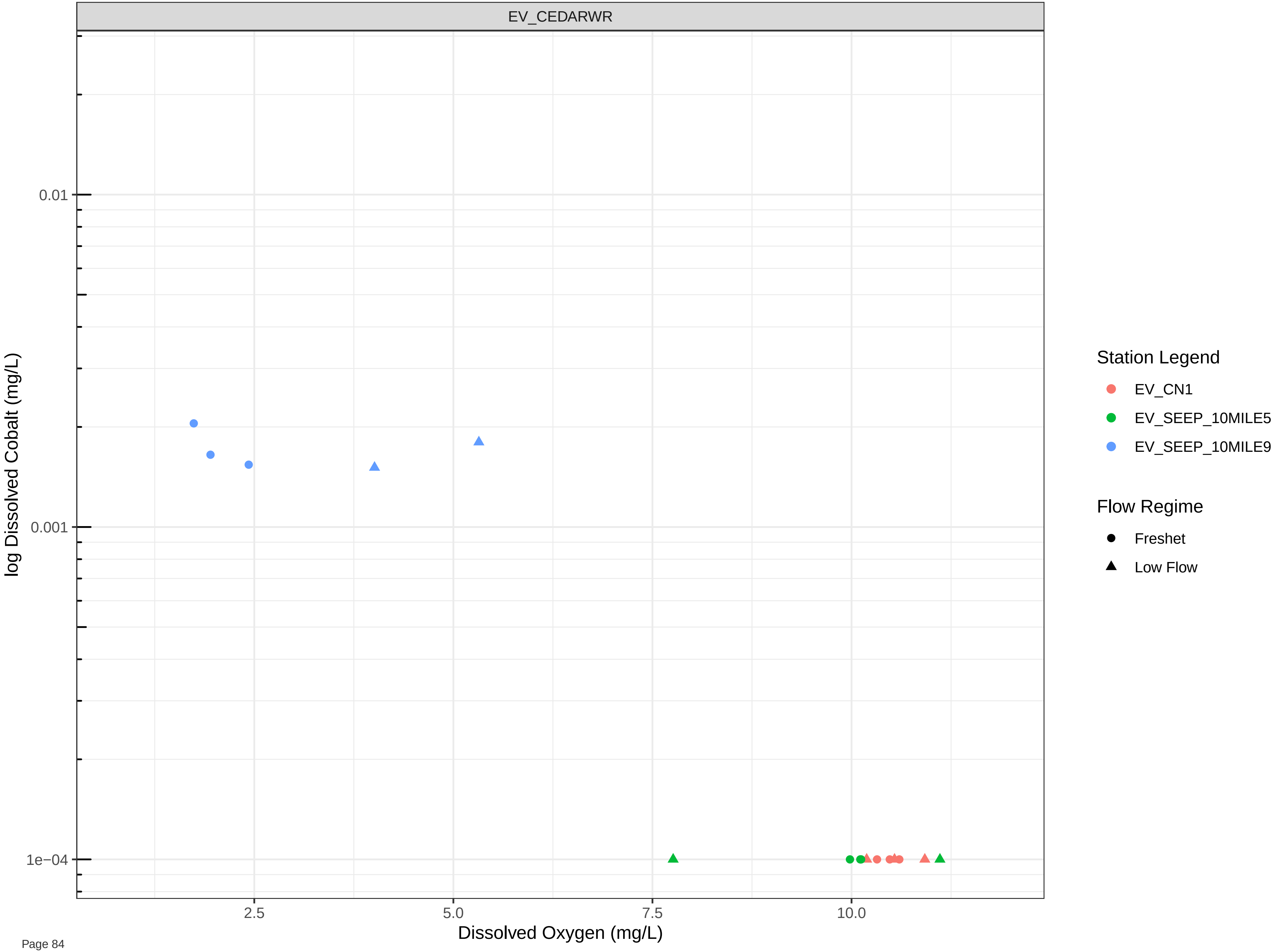
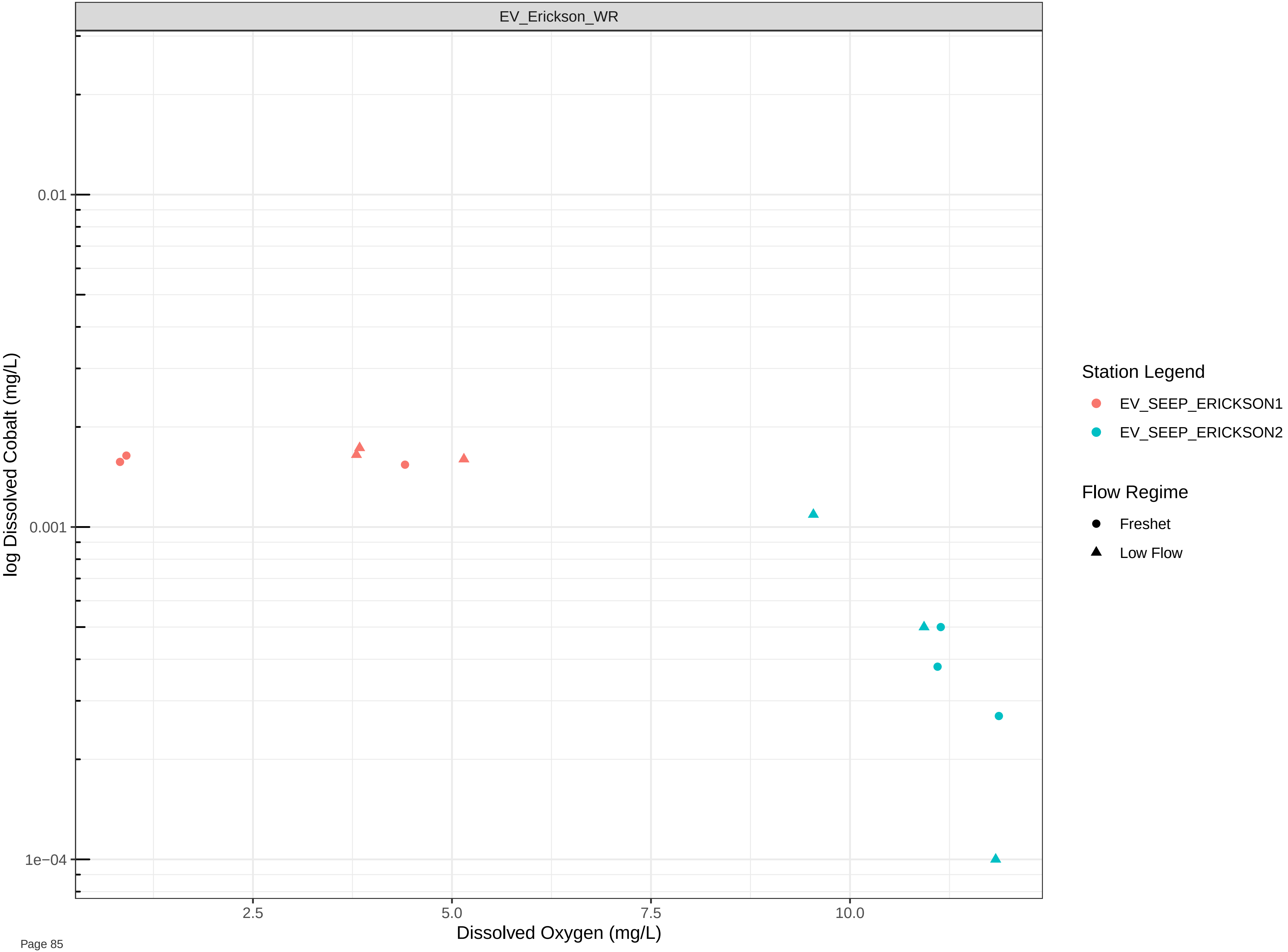
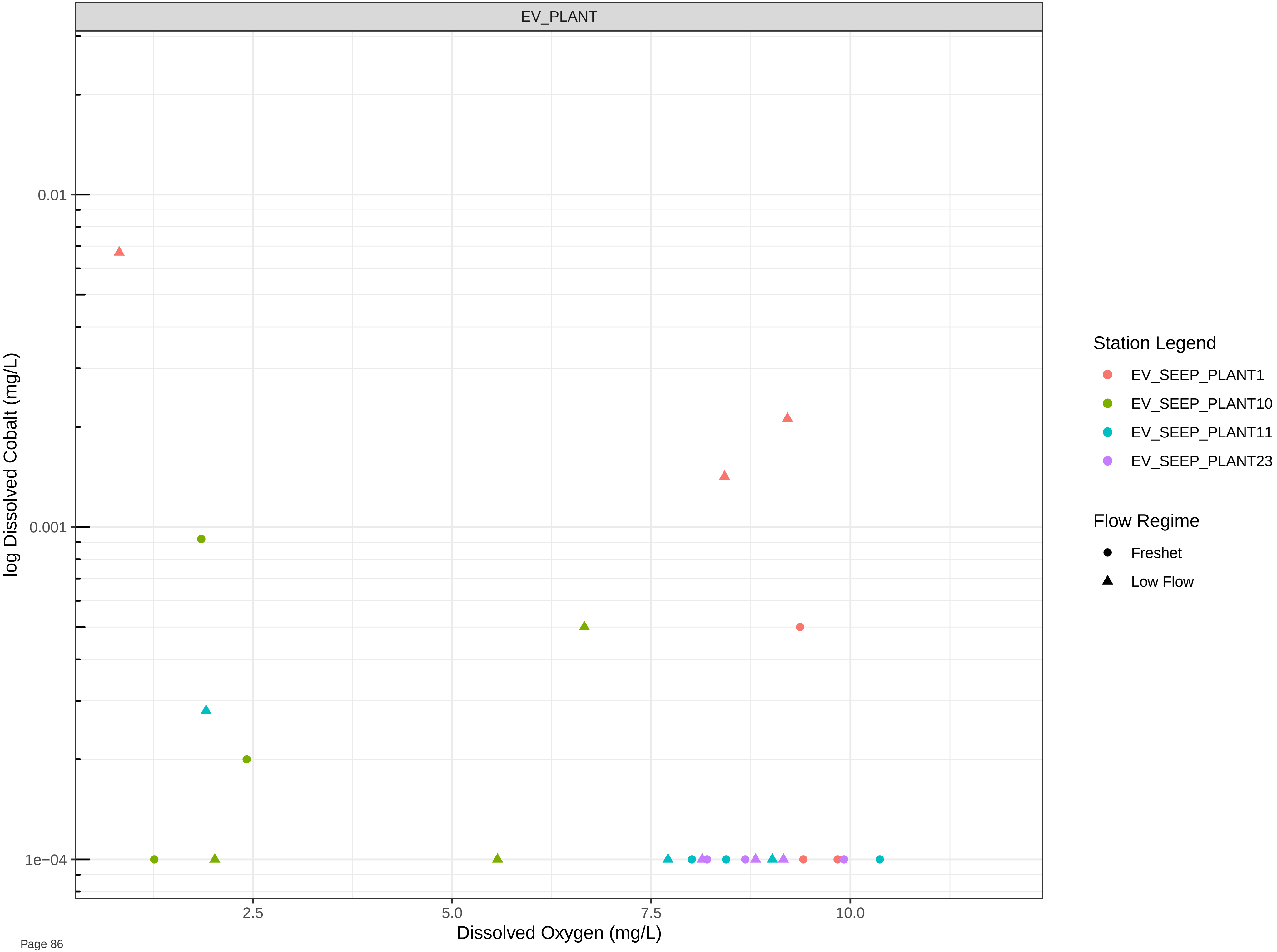
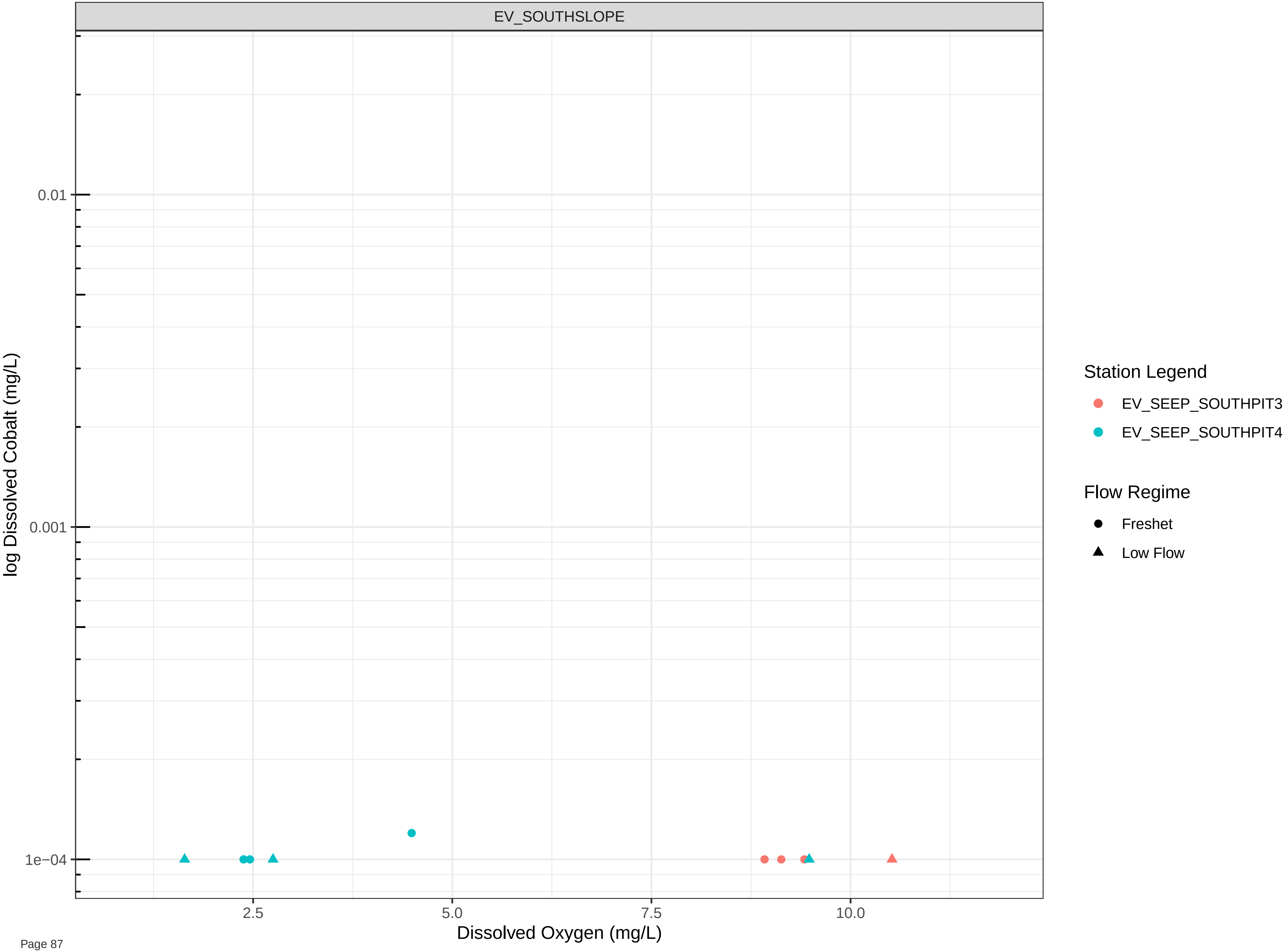
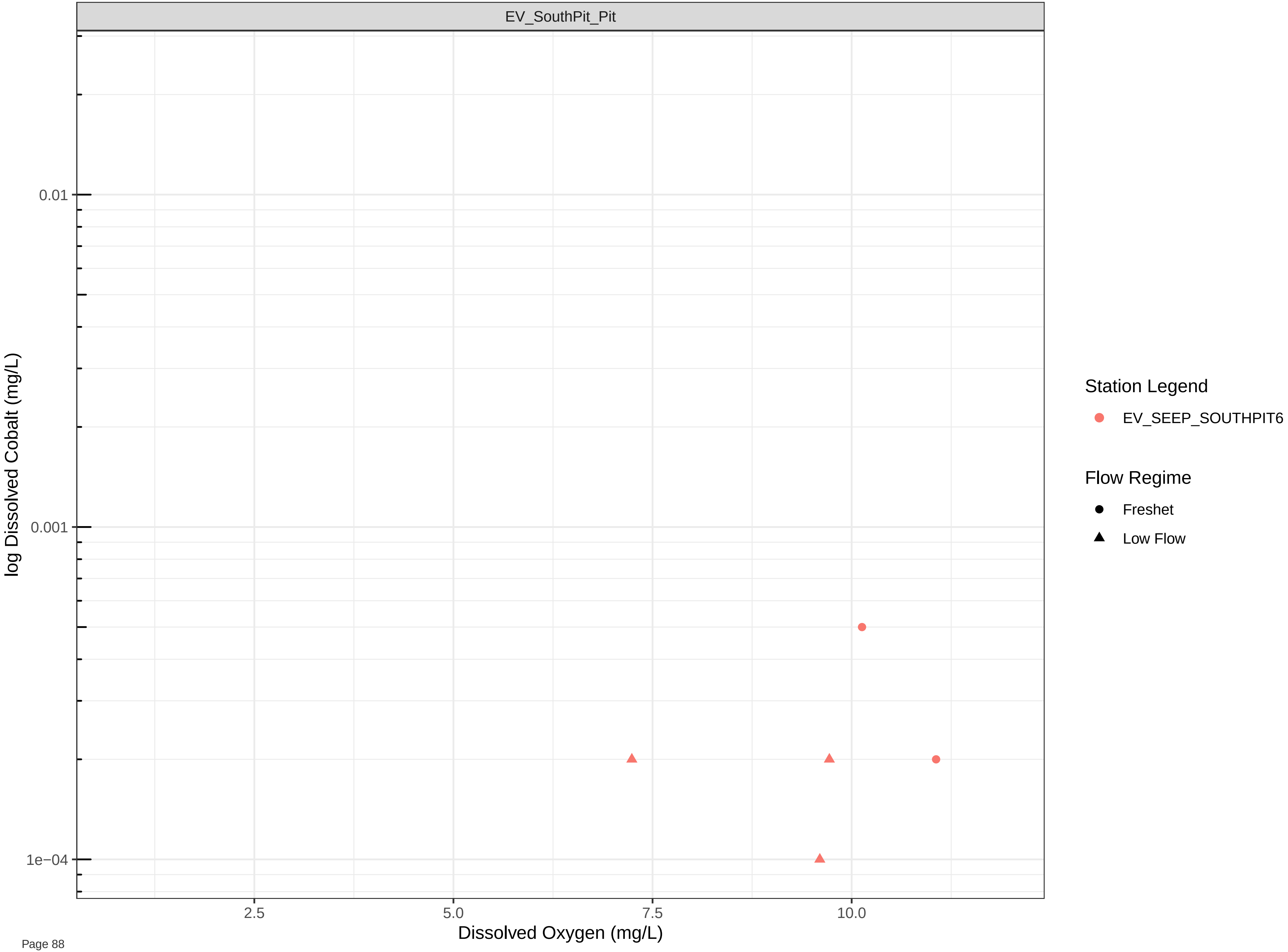
0.01
0.001
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

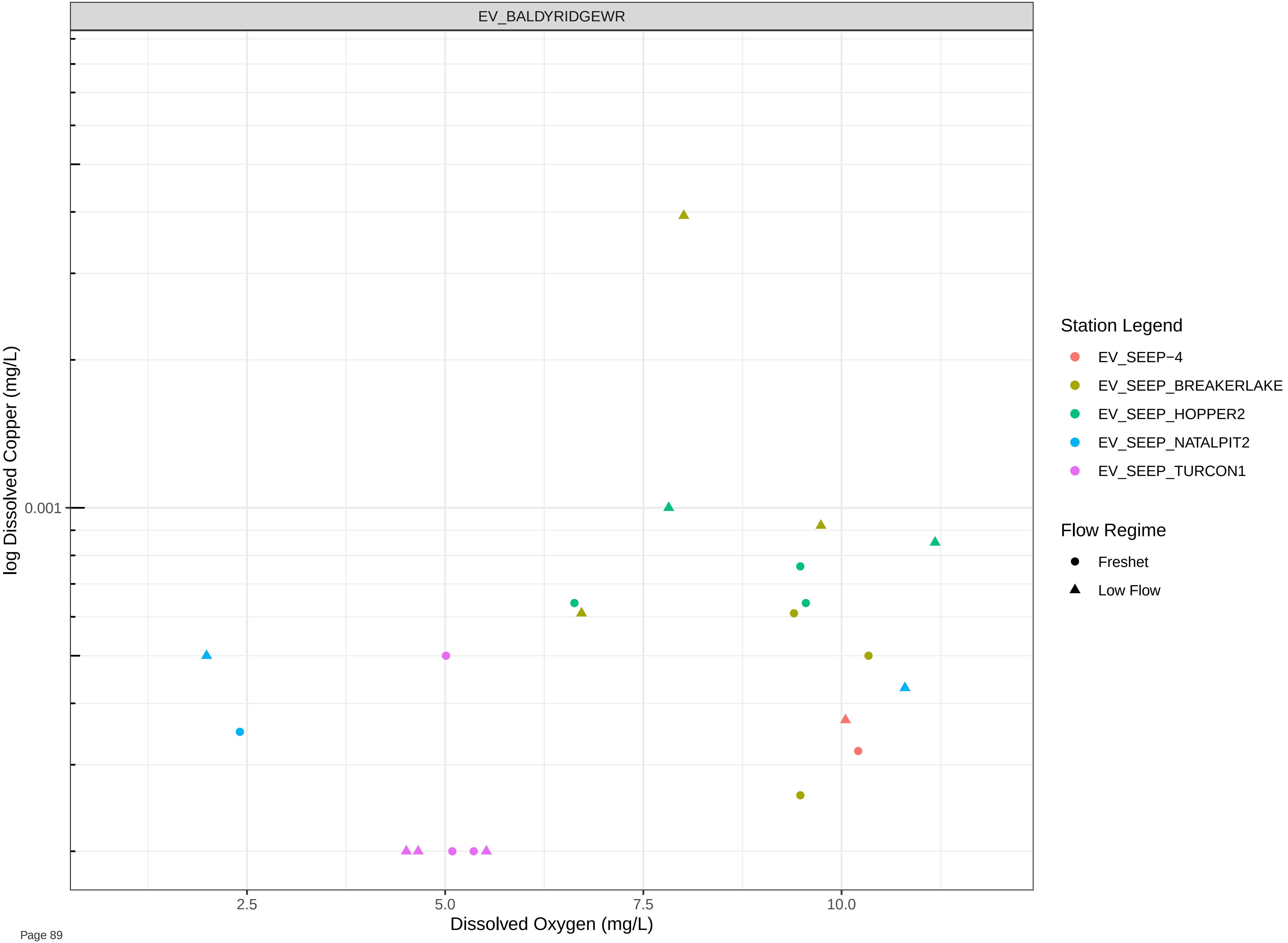

EV_CEDARWR
log Dissolved Cobalt (mg/L)
0.01
0.001
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

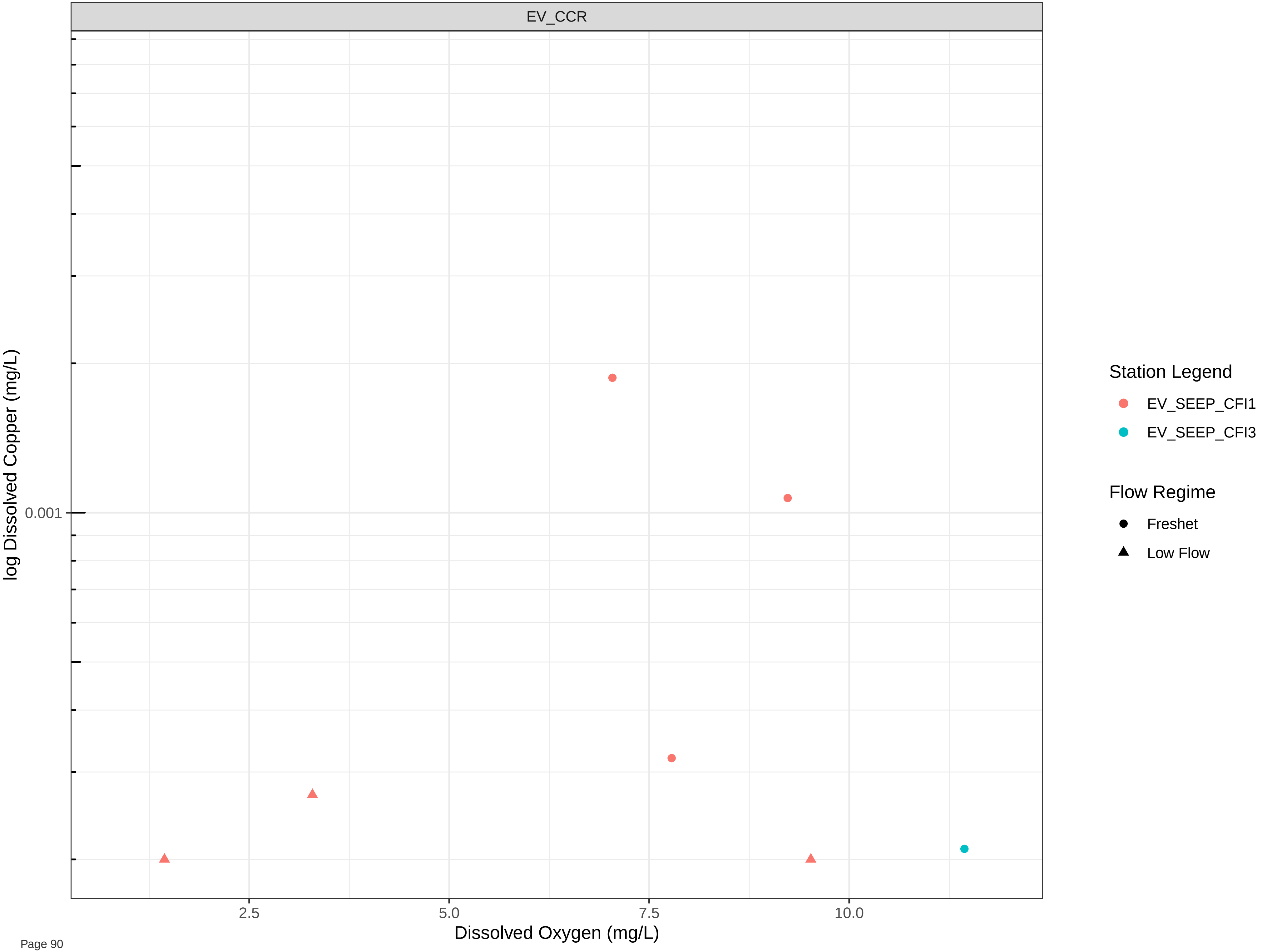

EV_Erickson_WR
log Dissolved Cobalt (mg/L)
0.01
0.001
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

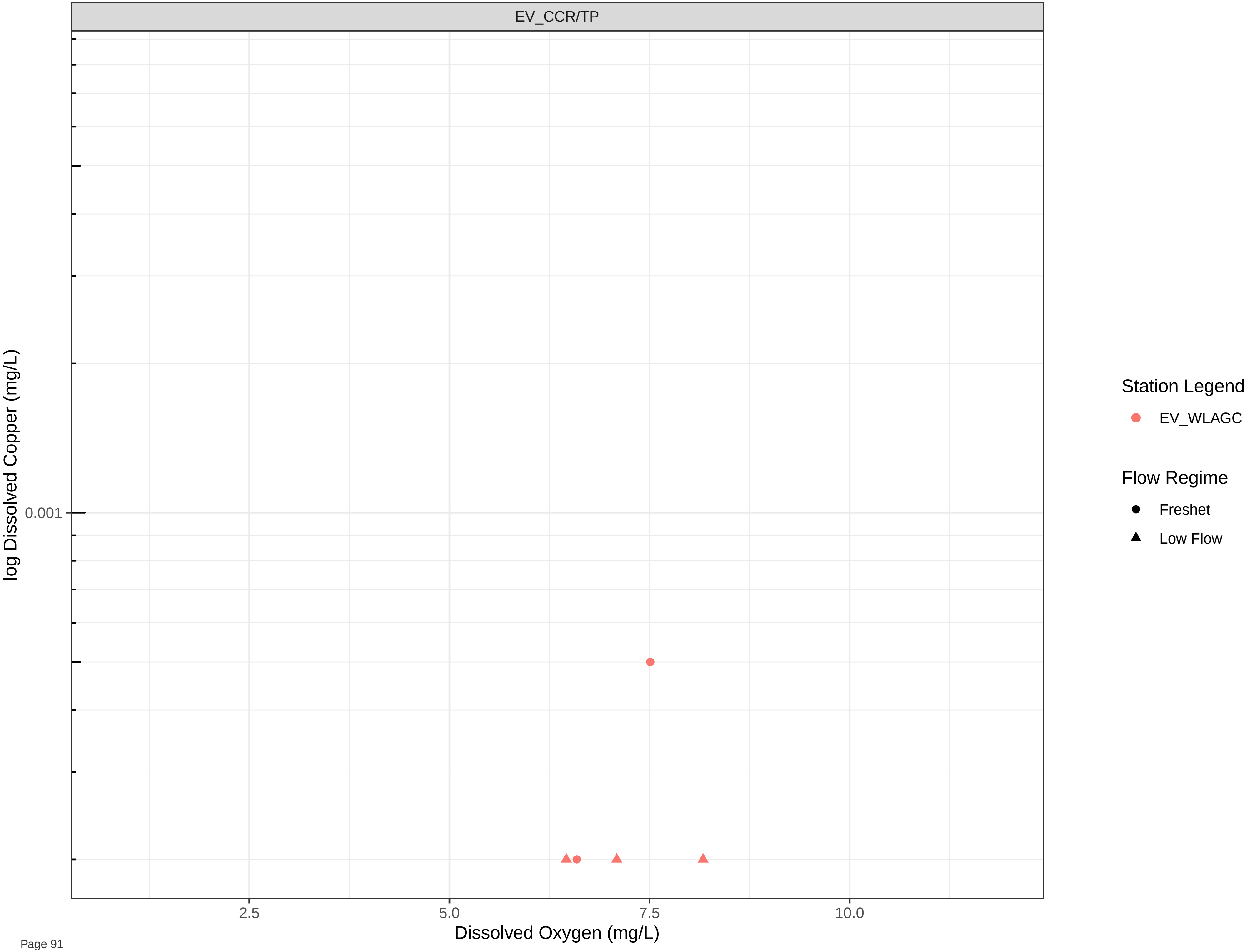

EV_PLANT
log Dissolved Cobalt (mg/L)
0.01
0.001
1e−04
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

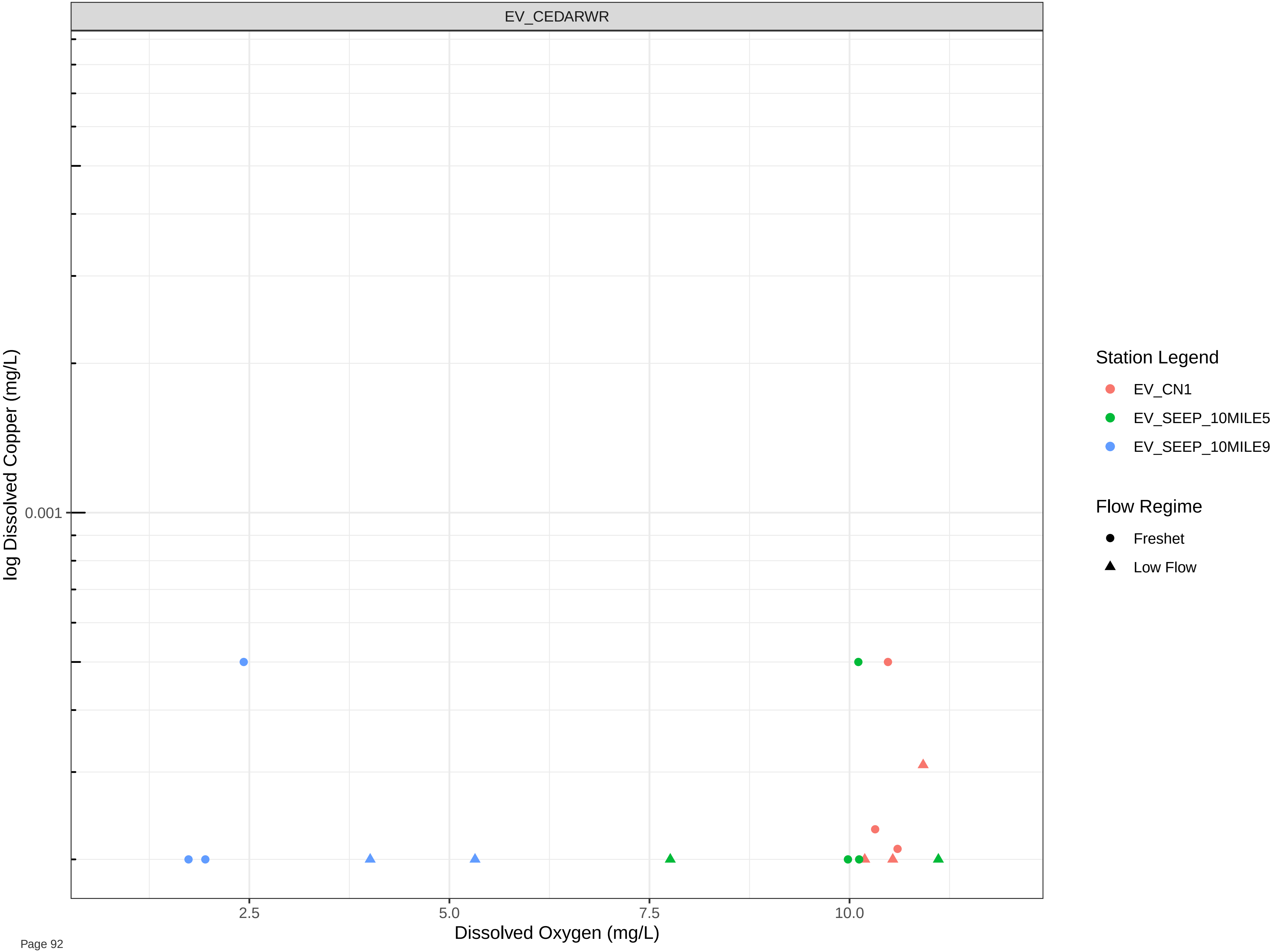

EV_SOUTHSLOPE
log Dissolved Cobalt (mg/L)
0.01
0.001
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

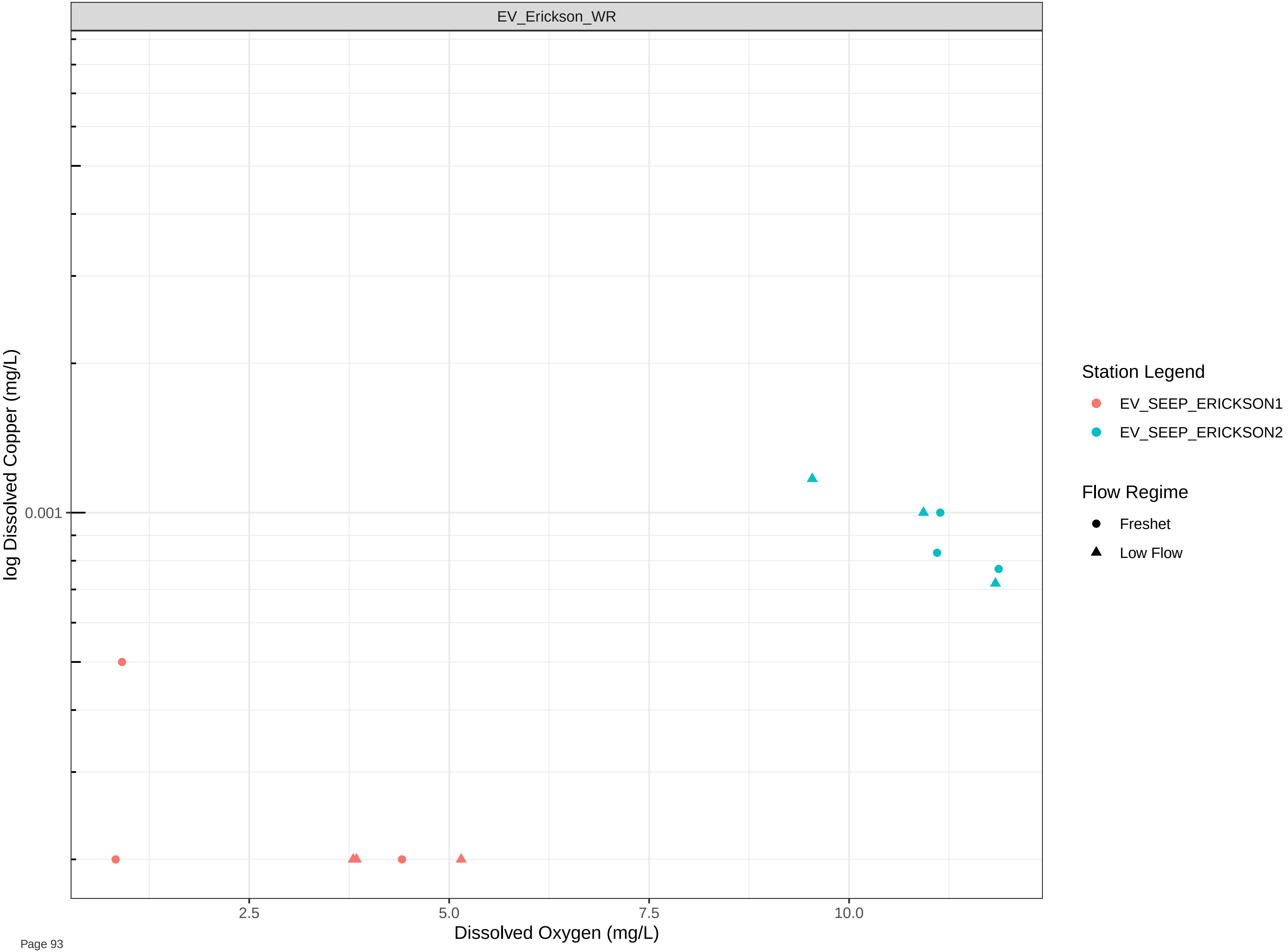

EV_SouthPit_Pit
log Dissolved Cobalt (mg/L)
0.01
0.001
1e−04
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

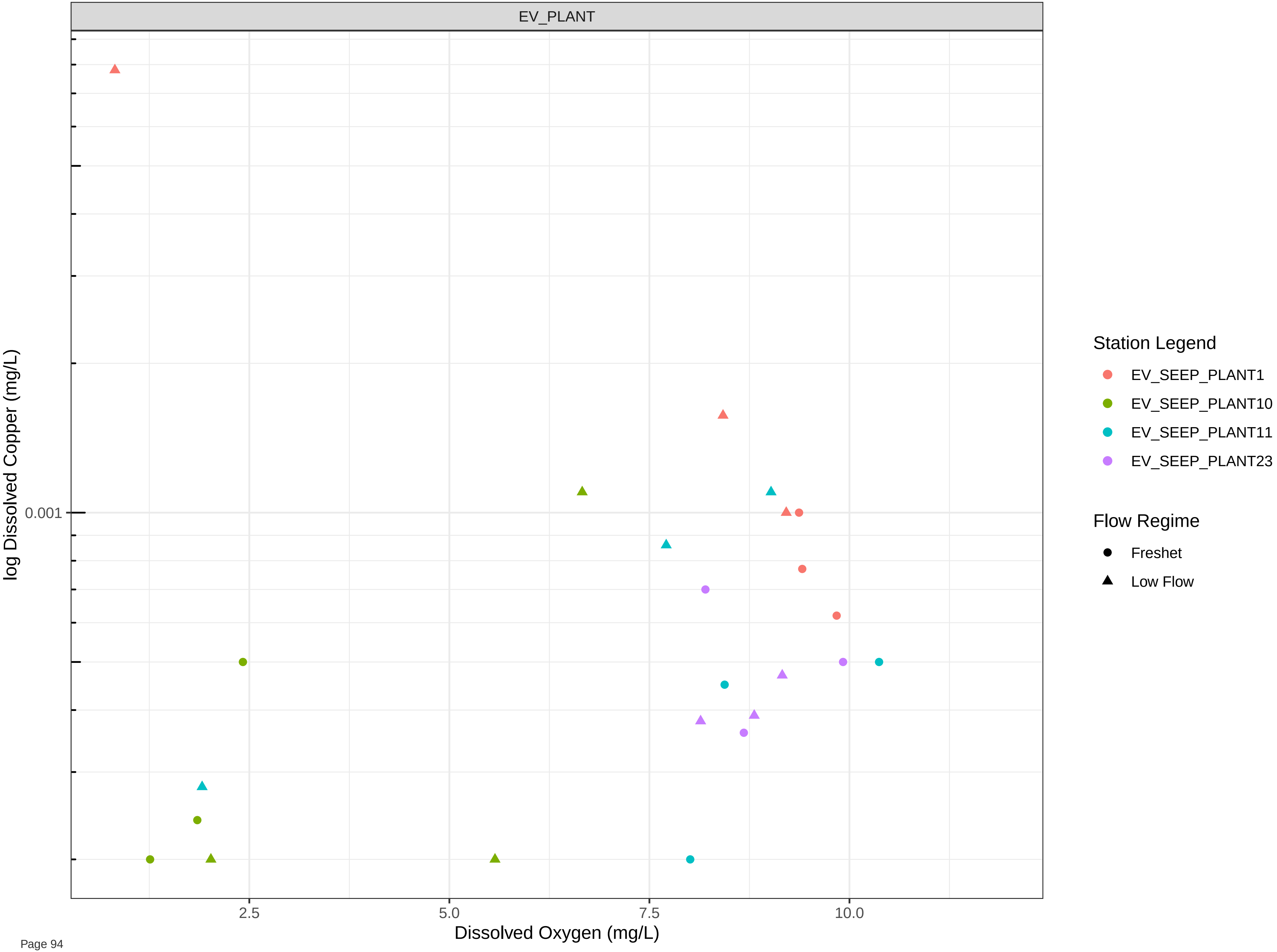

EV_BALDYRIDGEWR
log Dissolved Copper (mg/L)
0.001
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

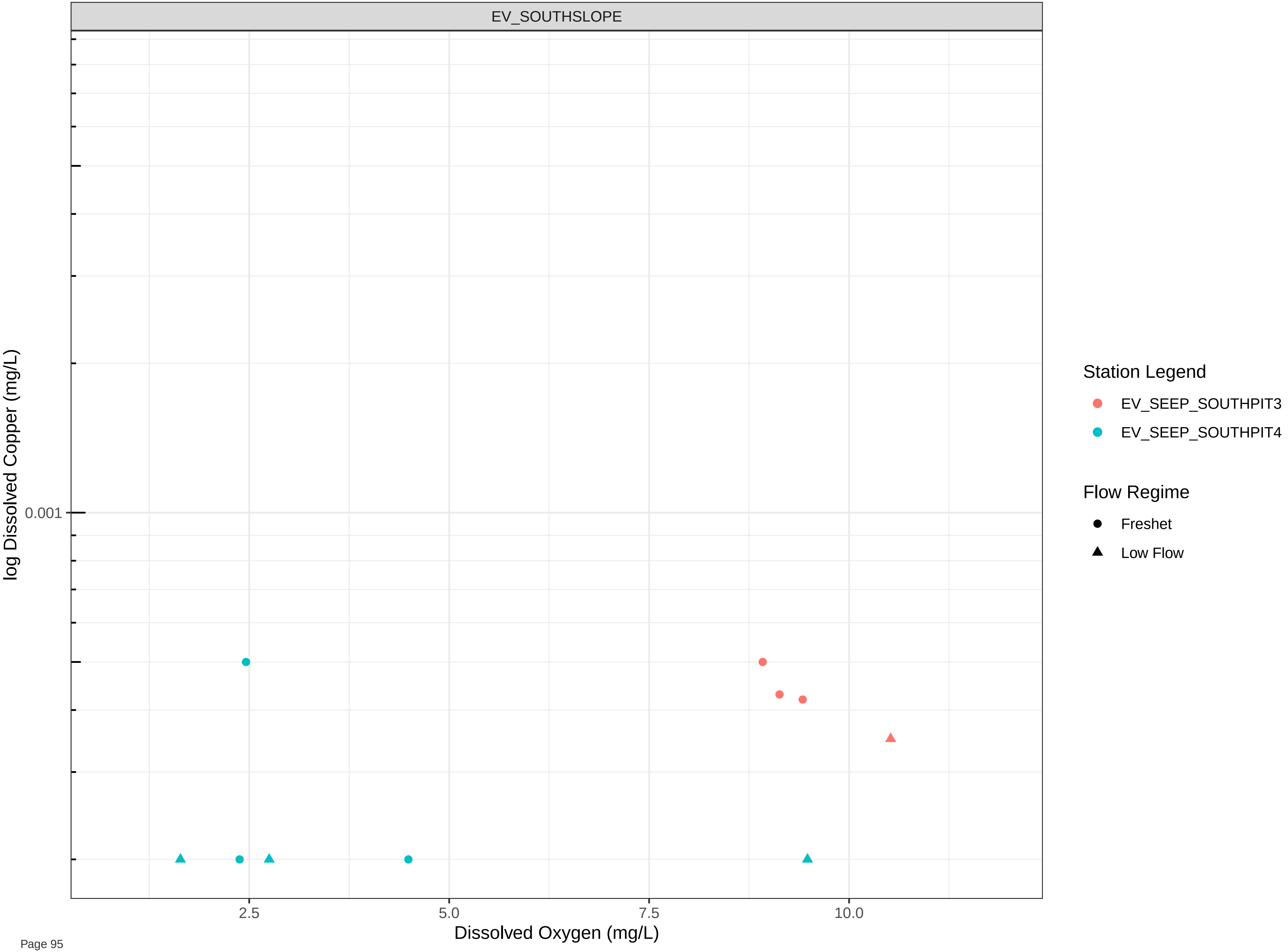

EV_CCR
log Dissolved Copper (mg/L)
0.001
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

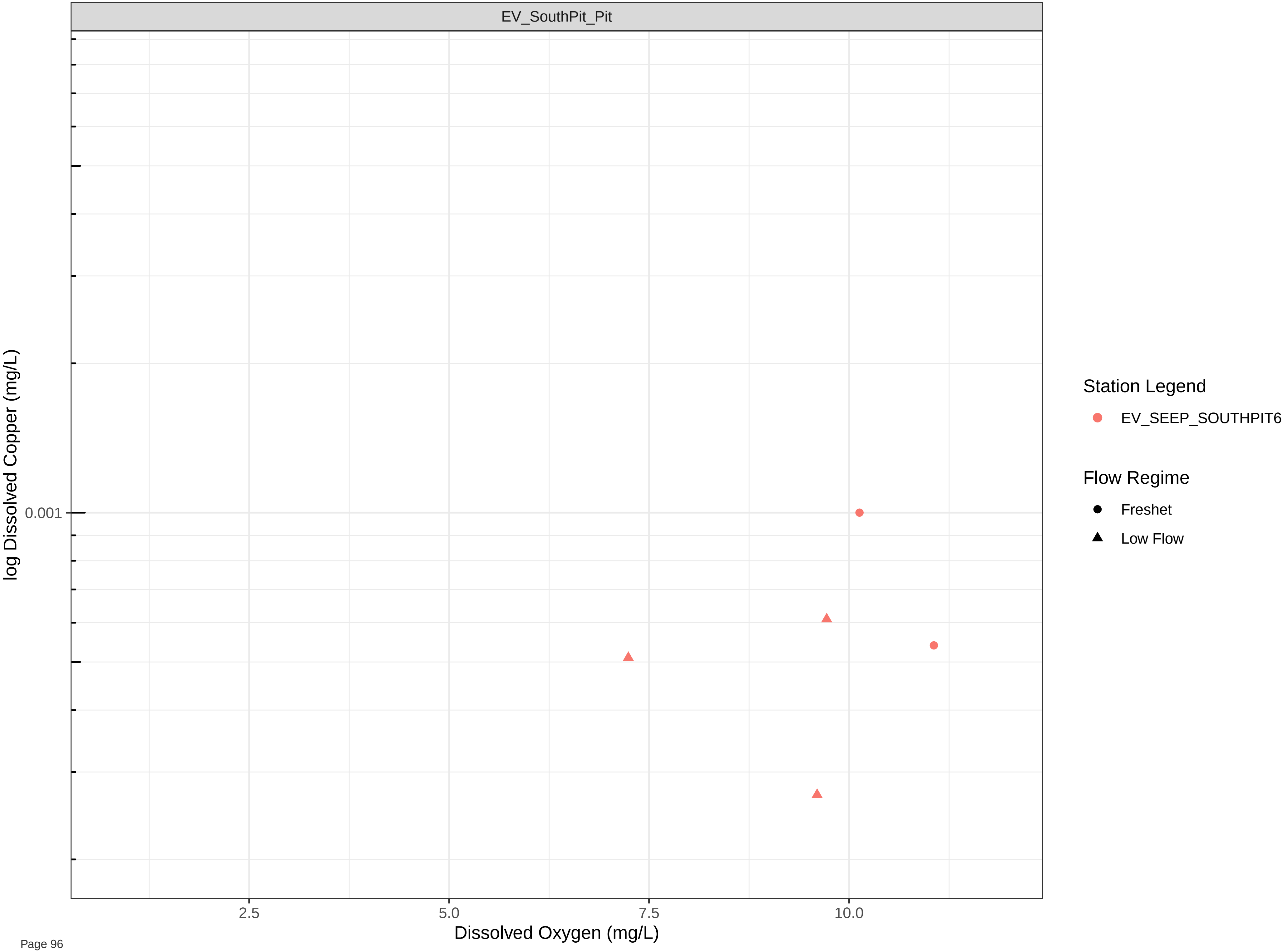

EV_CCR/TP
log Dissolved Copper (mg/L)
0.001
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

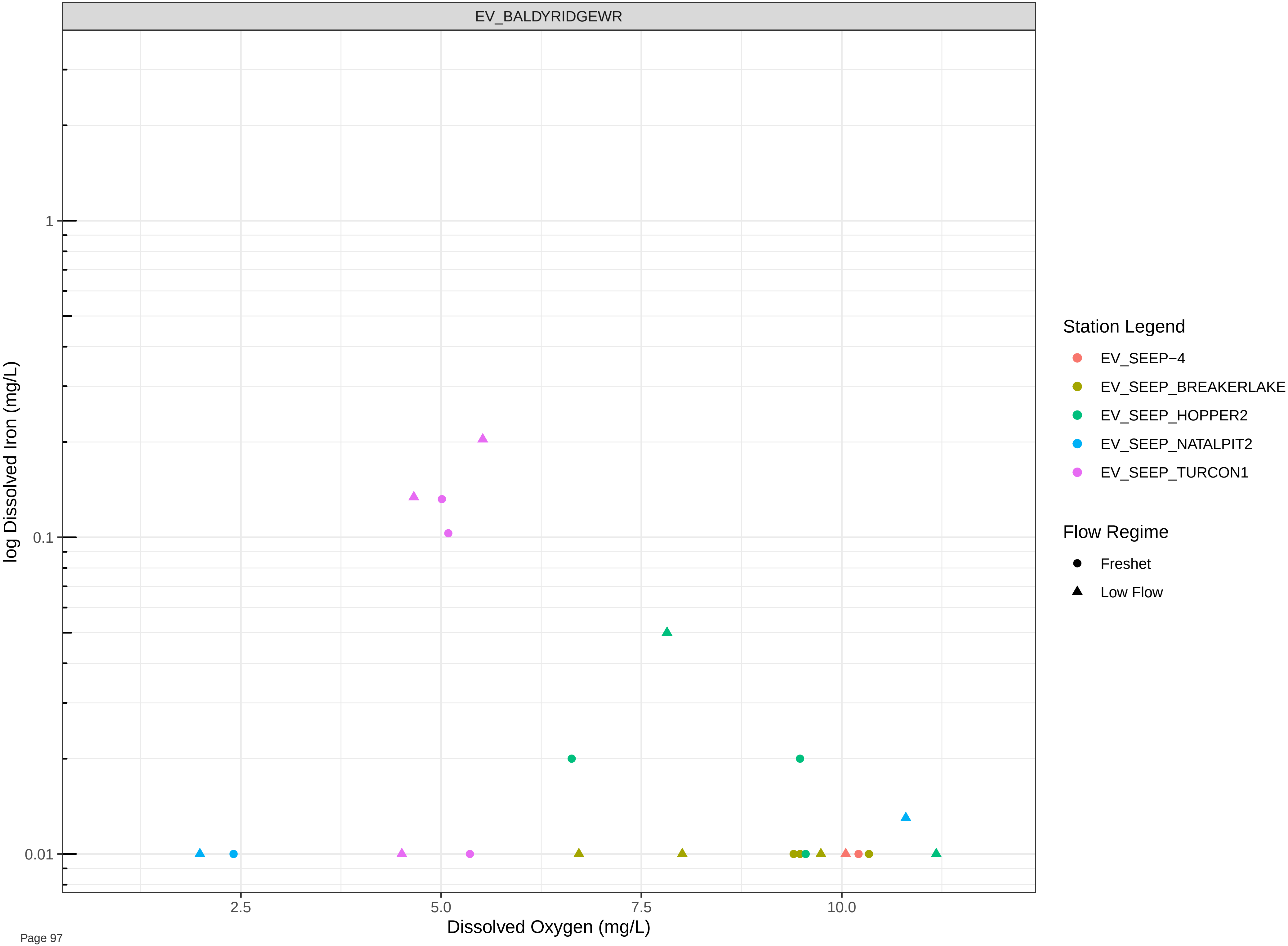

EV_CEDARWR
log Dissolved Copper (mg/L)
0.001
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

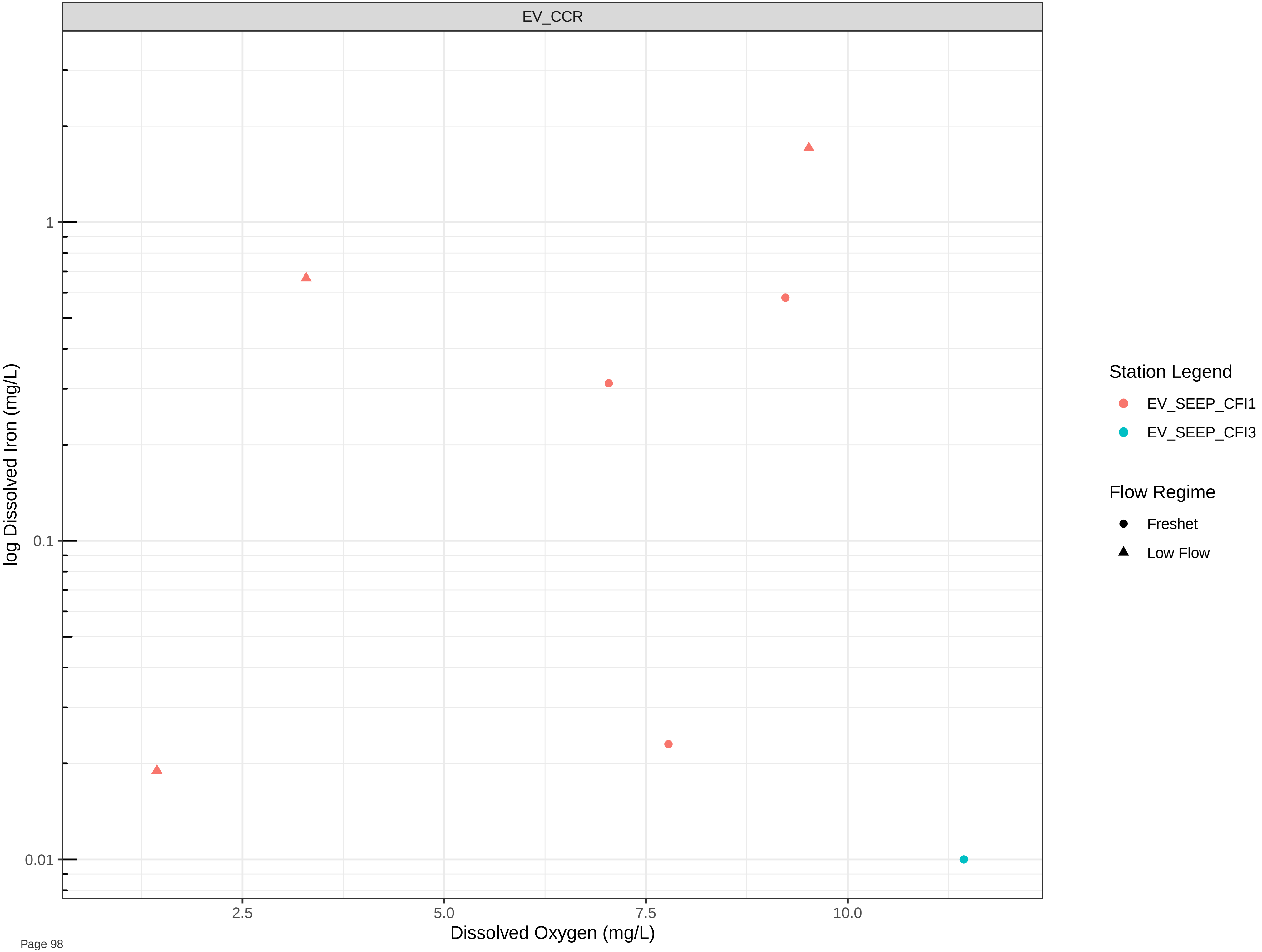

EV_Erickson_WR
log Dissolved Copper (mg/L)
0.001
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

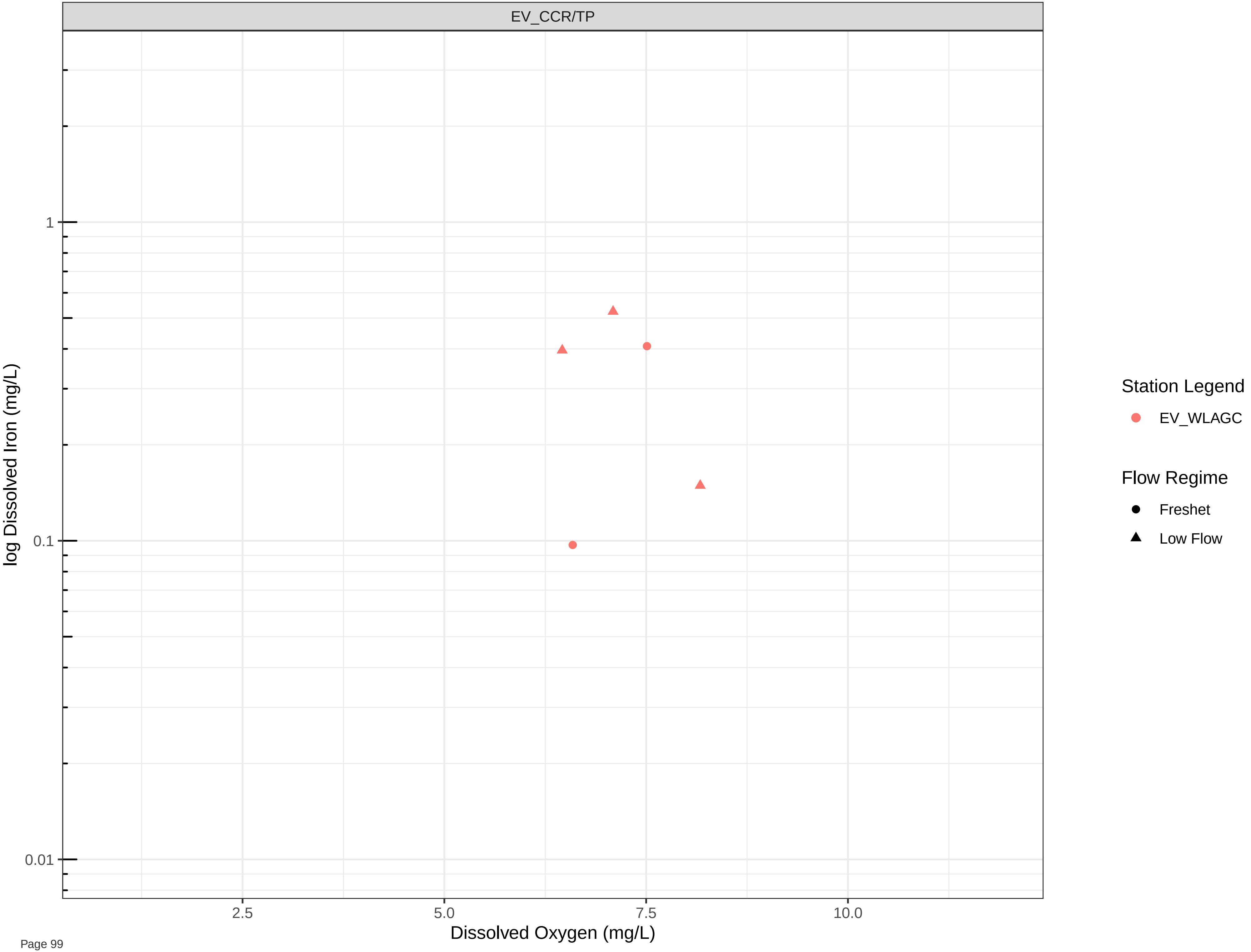

EV_PLANT
log Dissolved Copper (mg/L)
0.001
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_SEEP_PLANT1
● EV_SEEP_PLANT10
● EV_SEEP_PLANT11
● EV_SEEP_PLANT23
Flow Regime
● Freshet
▲ Low Flow

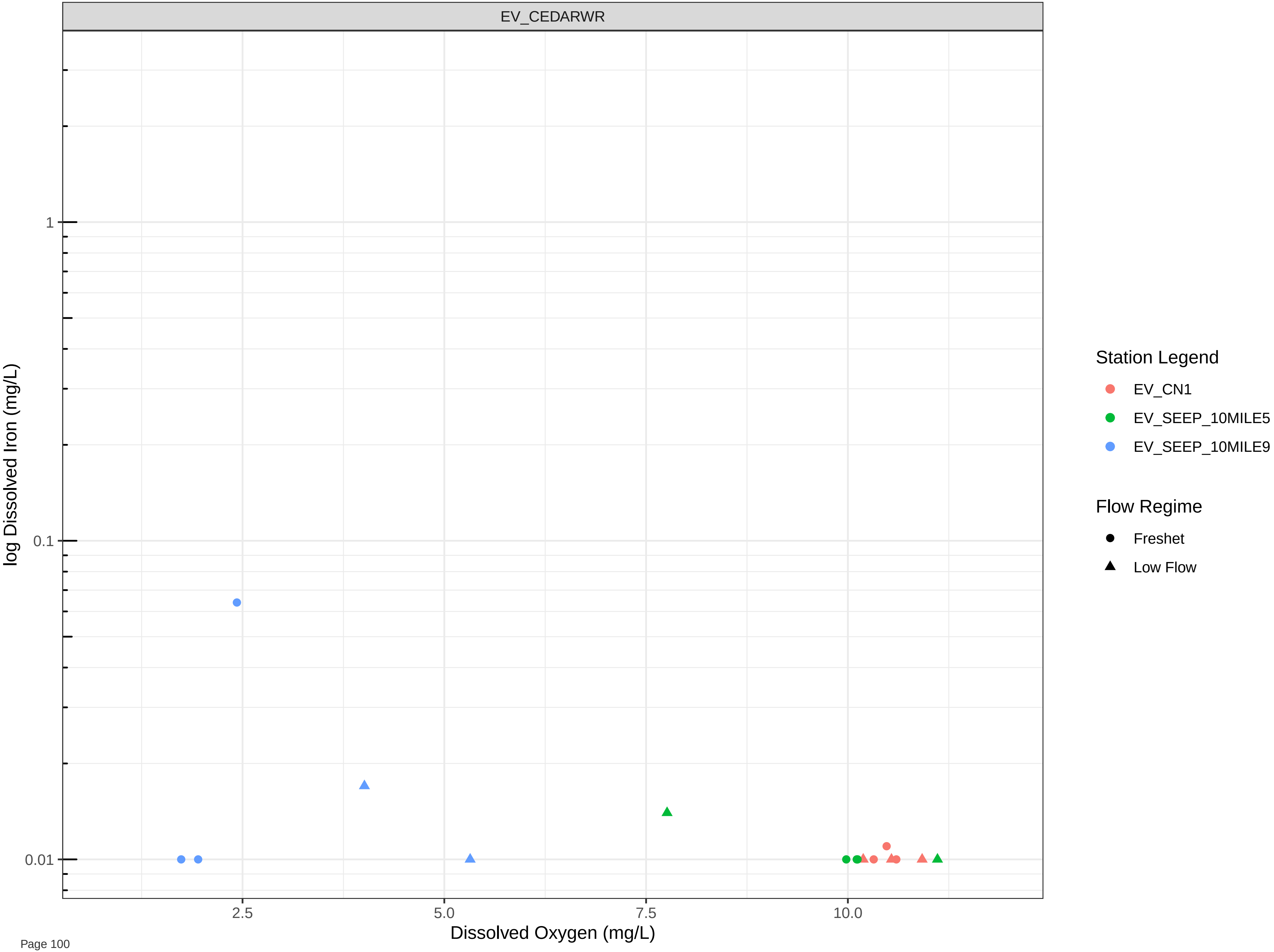

EV_SOUTHSLOPE
log Dissolved Copper (mg/L)
0.001
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

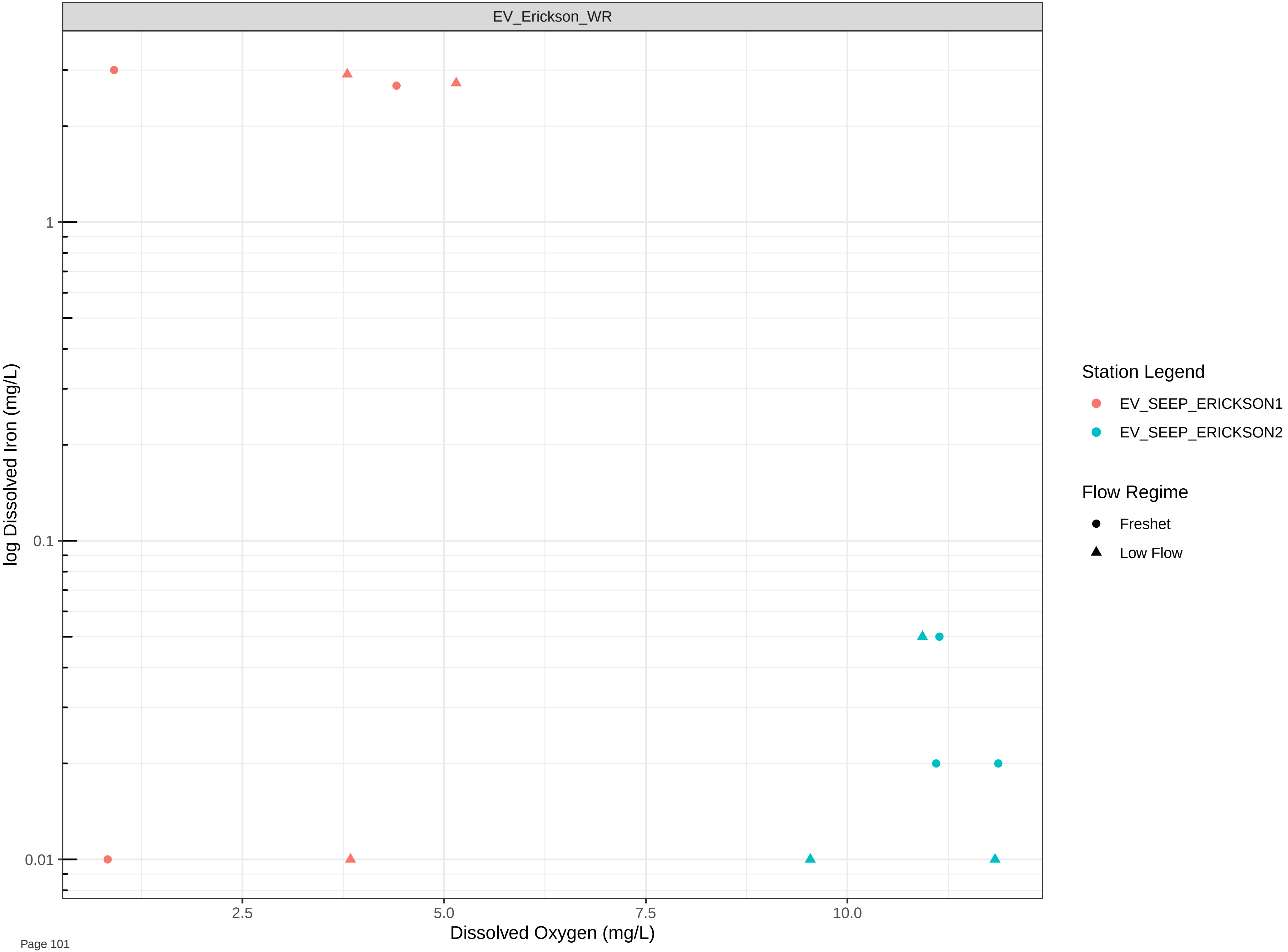

EV_SouthPit_Pit
log Dissolved Copper (mg/L)
0.001
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

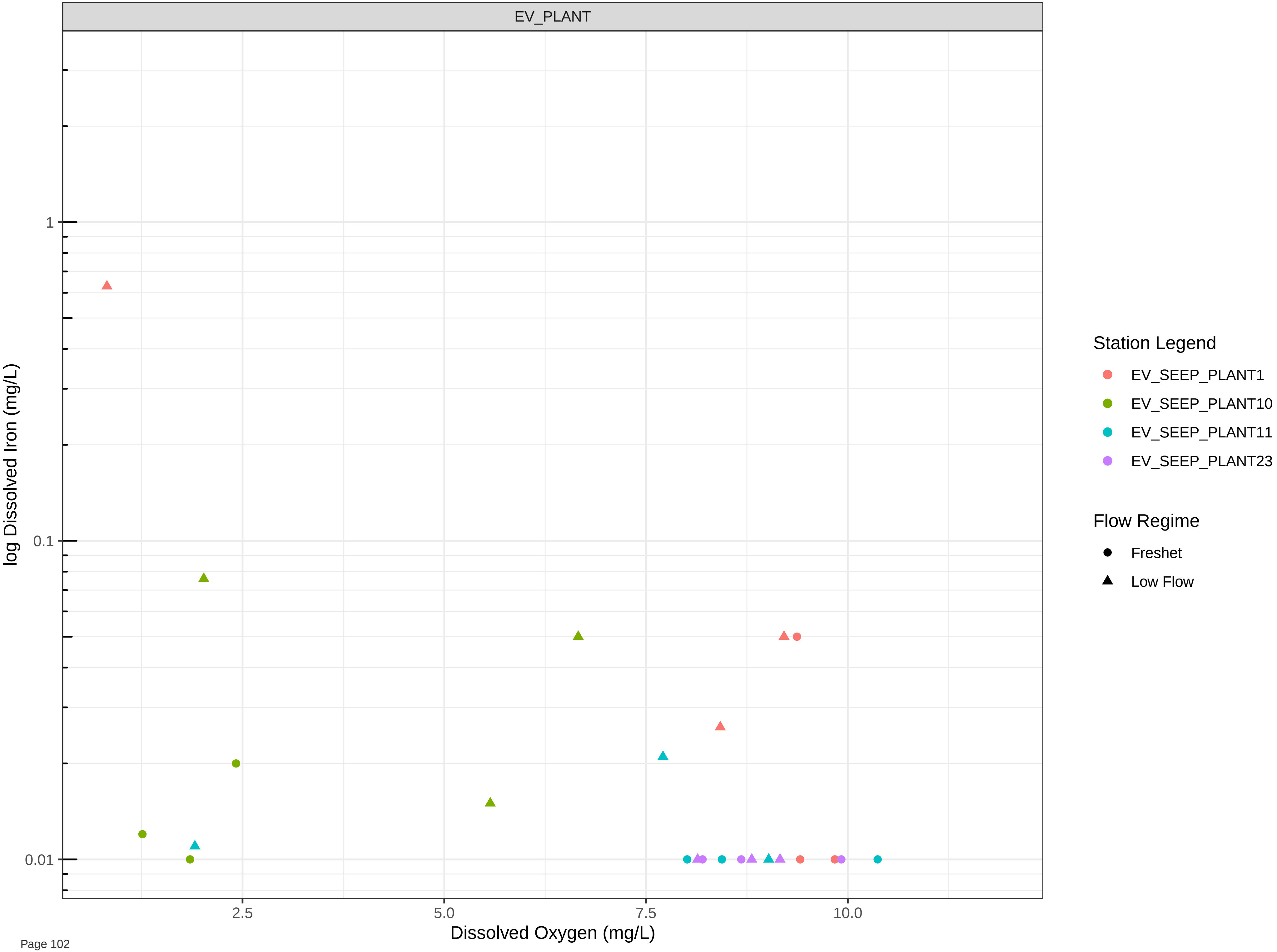

EV_BALDYRIDGEWR
log Dissolved Iron (mg/L)
1
0.1
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

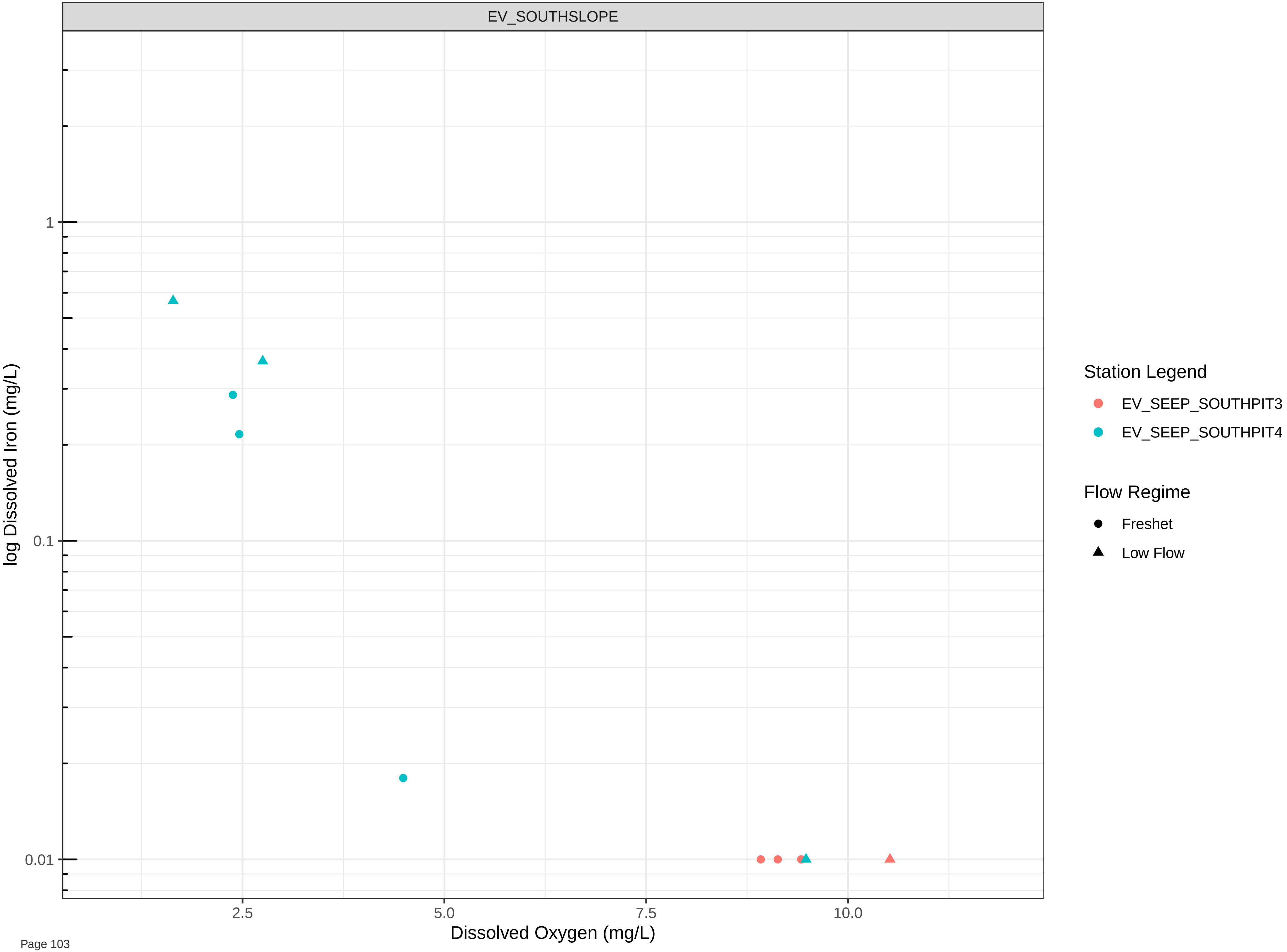

EV_CCR
log Dissolved Iron (mg/L)
1
0.1
0.01
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

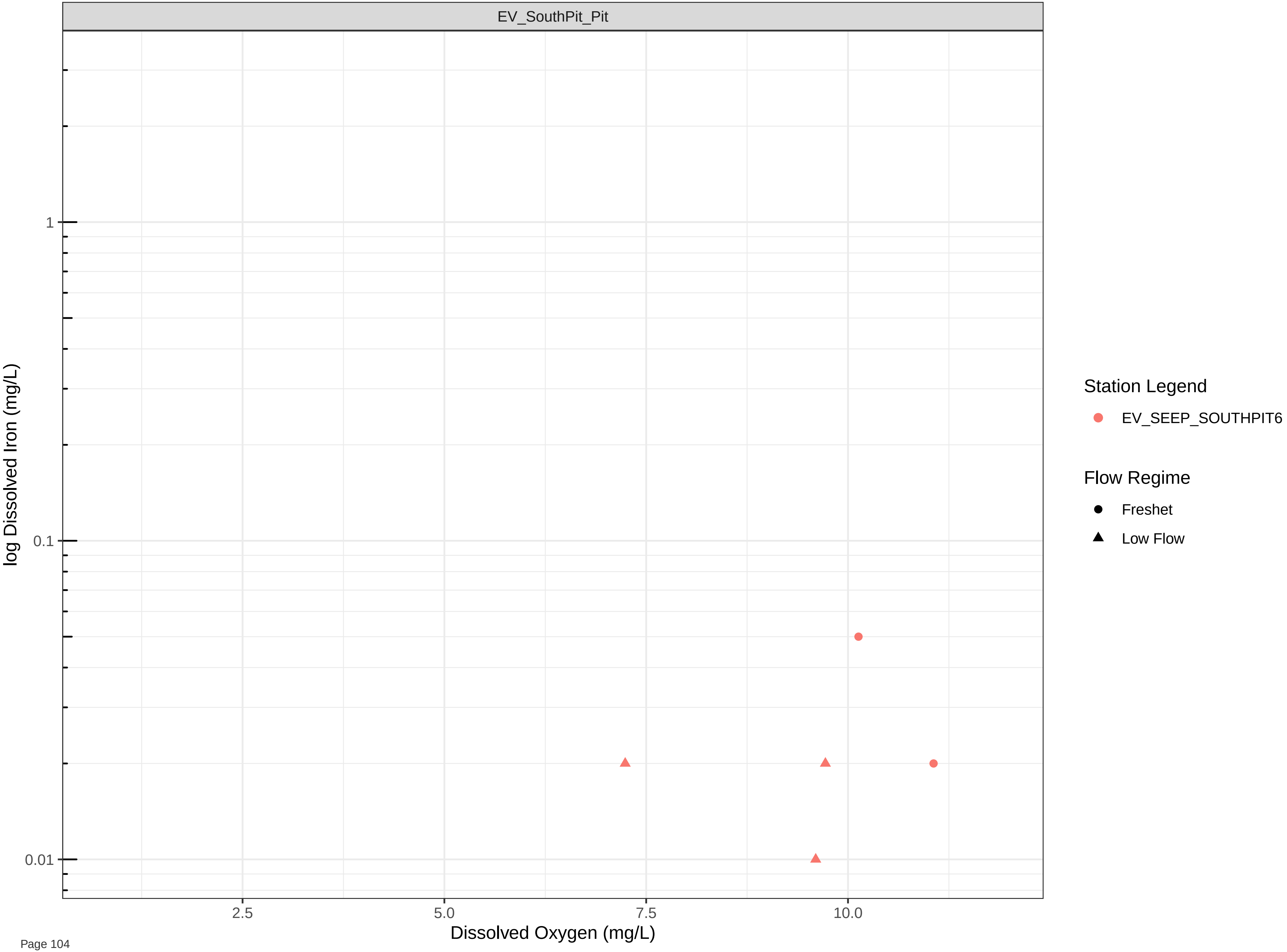

EV_CCR/TP
log Dissolved Iron (mg/L)
1
0.1
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

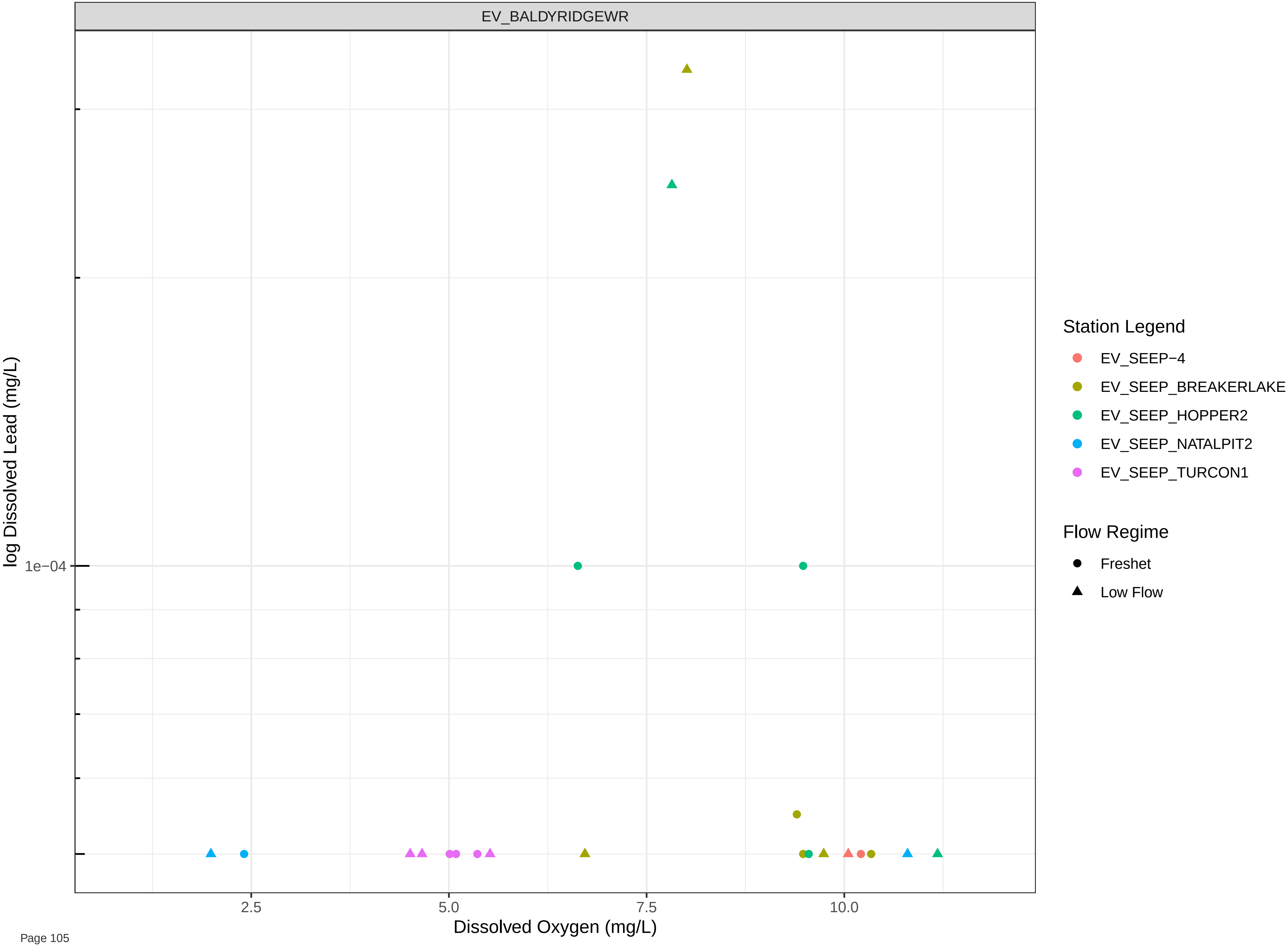

EV_CEDARWR
log Dissolved Iron (mg/L)
1
0.1
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

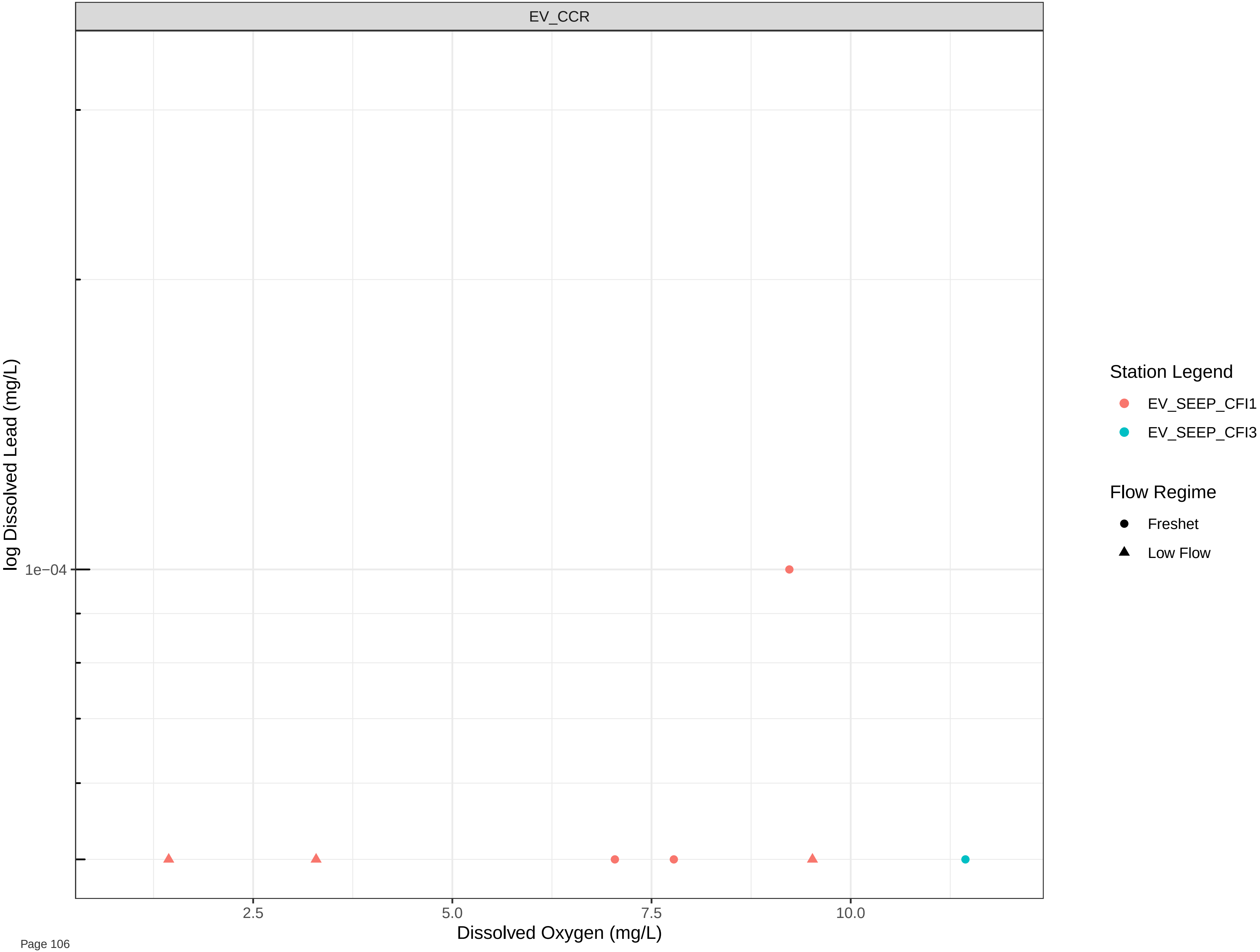

EV_Erickson_WR
log Dissolved Iron (mg/L)
1
0.1
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

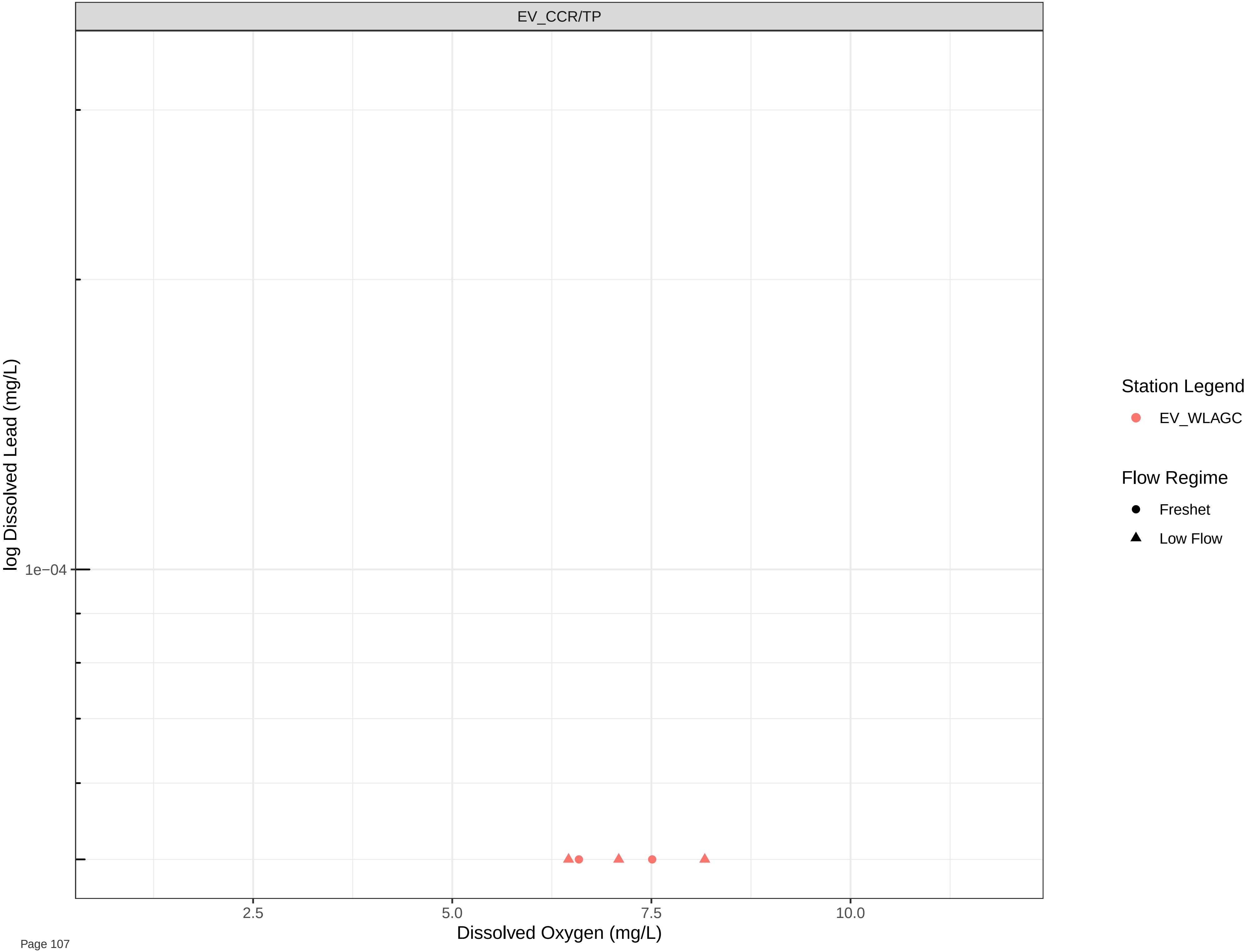

EV_PLANT
log Dissolved Iron (mg/L)
1
0.1
0.01
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_SEEP_PLANT1
● EV_SEEP_PLANT10
● EV_SEEP_PLANT11
● EV_SEEP_PLANT23
Flow Regime
● Freshet
▲ Low Flow

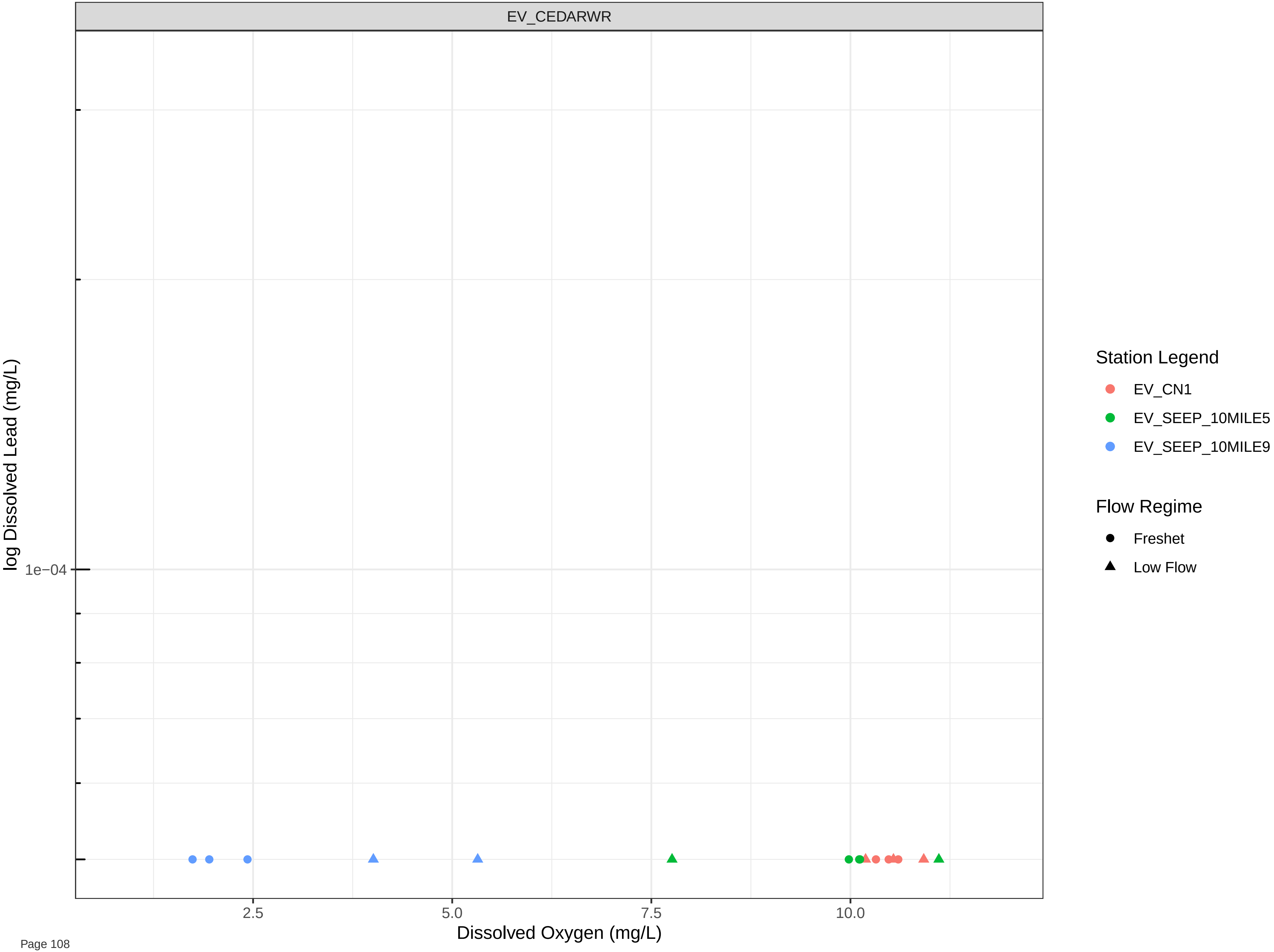

EV_SOUTHSLOPE
log Dissolved Iron (mg/L)
1
0.1
0.01
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

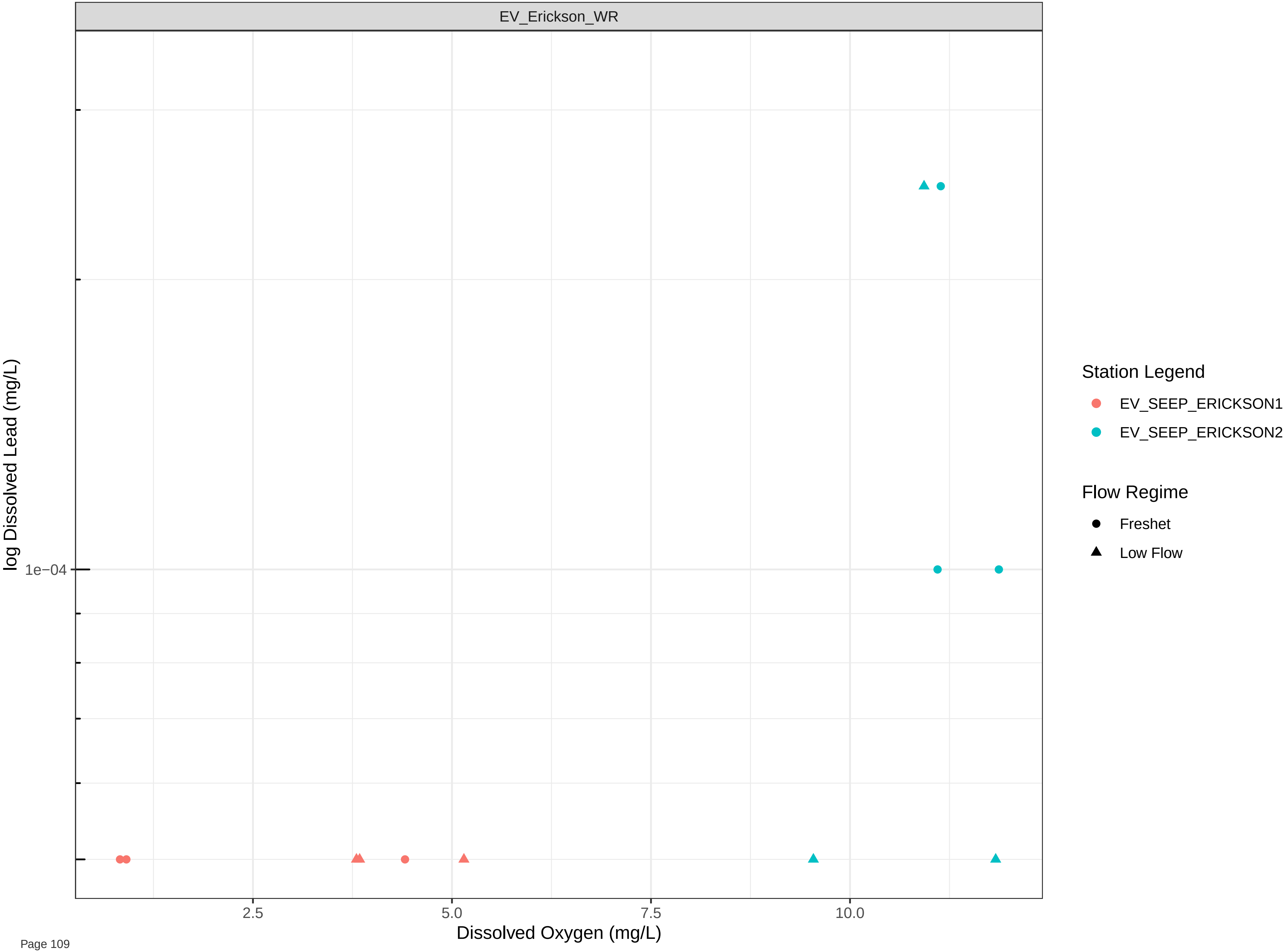

EV_SouthPit_Pit
log Dissolved Iron (mg/L)
1
0.1
0.01
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

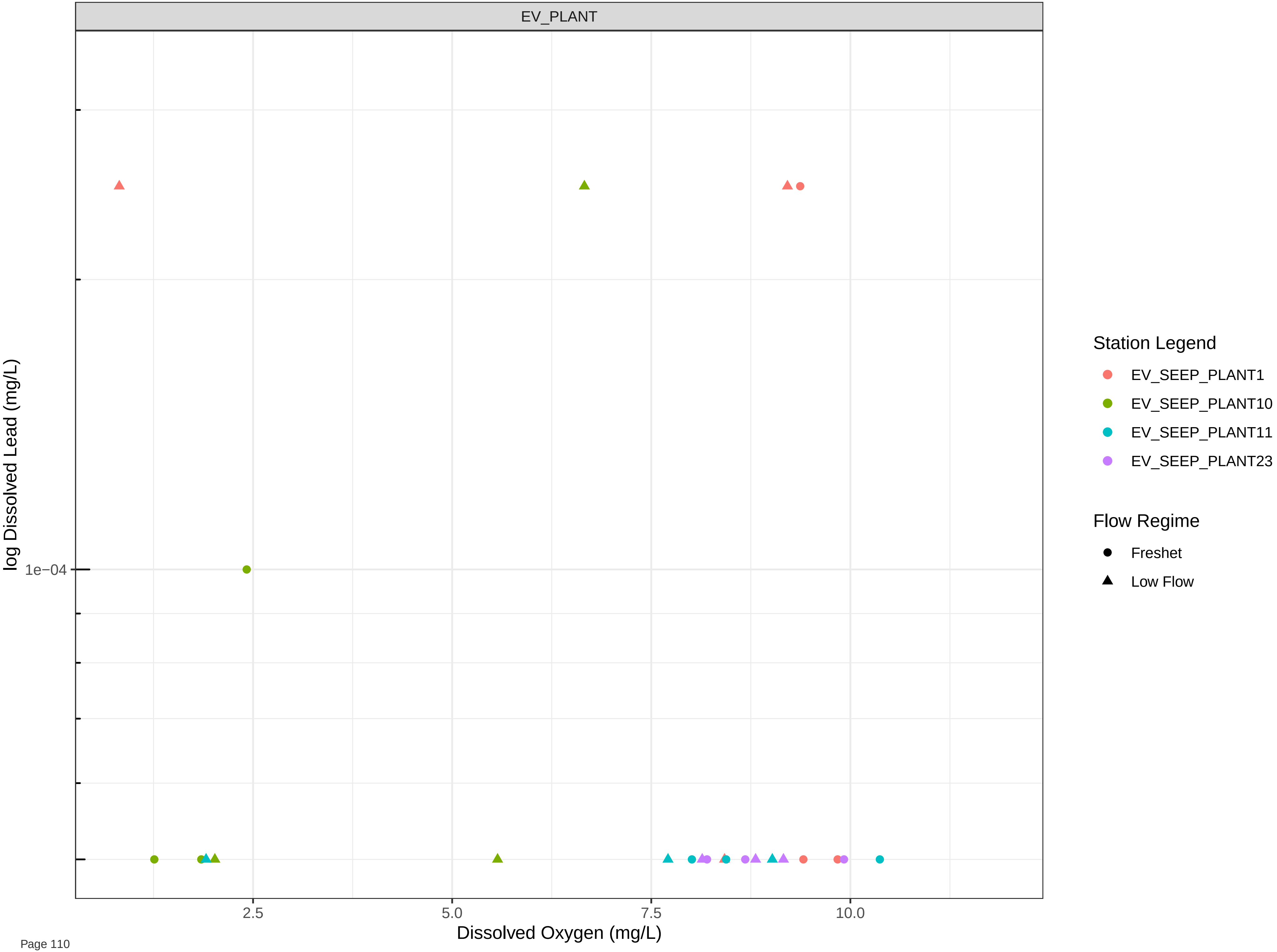

EV_BALDYRIDGEWR
log Dissolved Lead (mg/L)
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

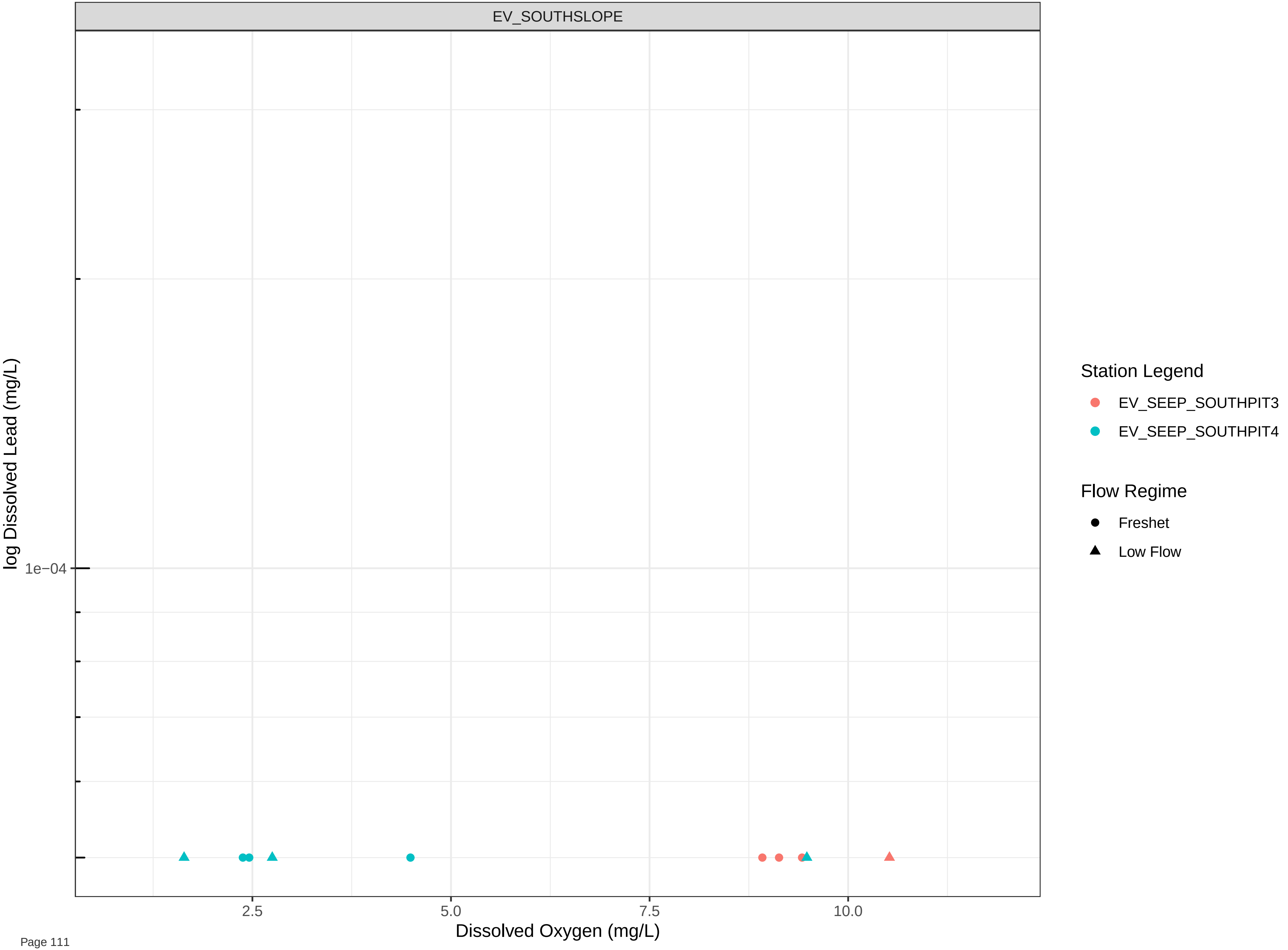

EV_CCR
log Dissolved Lead (mg/L)
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

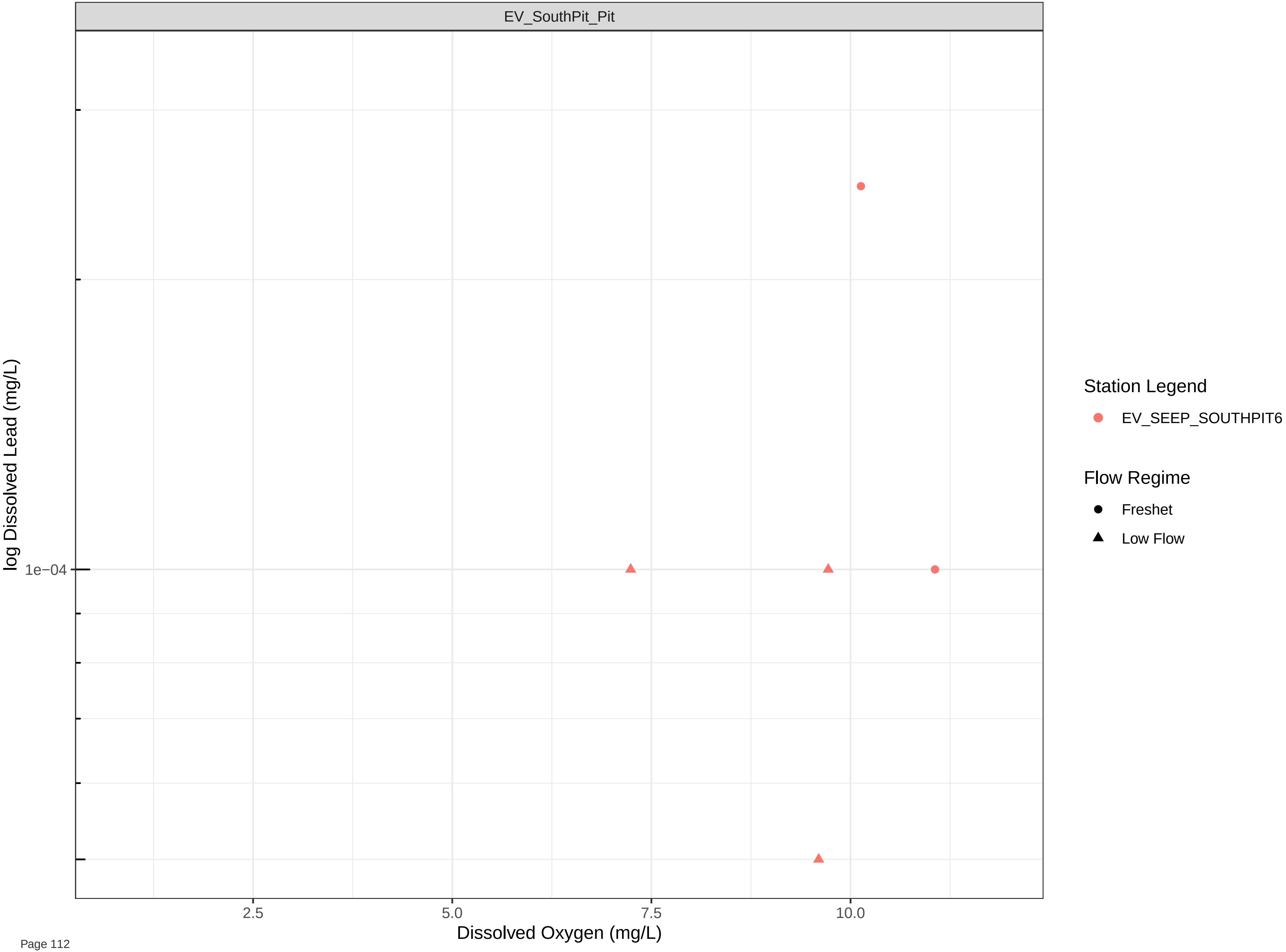

EV_CCR/TP
log Dissolved Lead (mg/L)
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

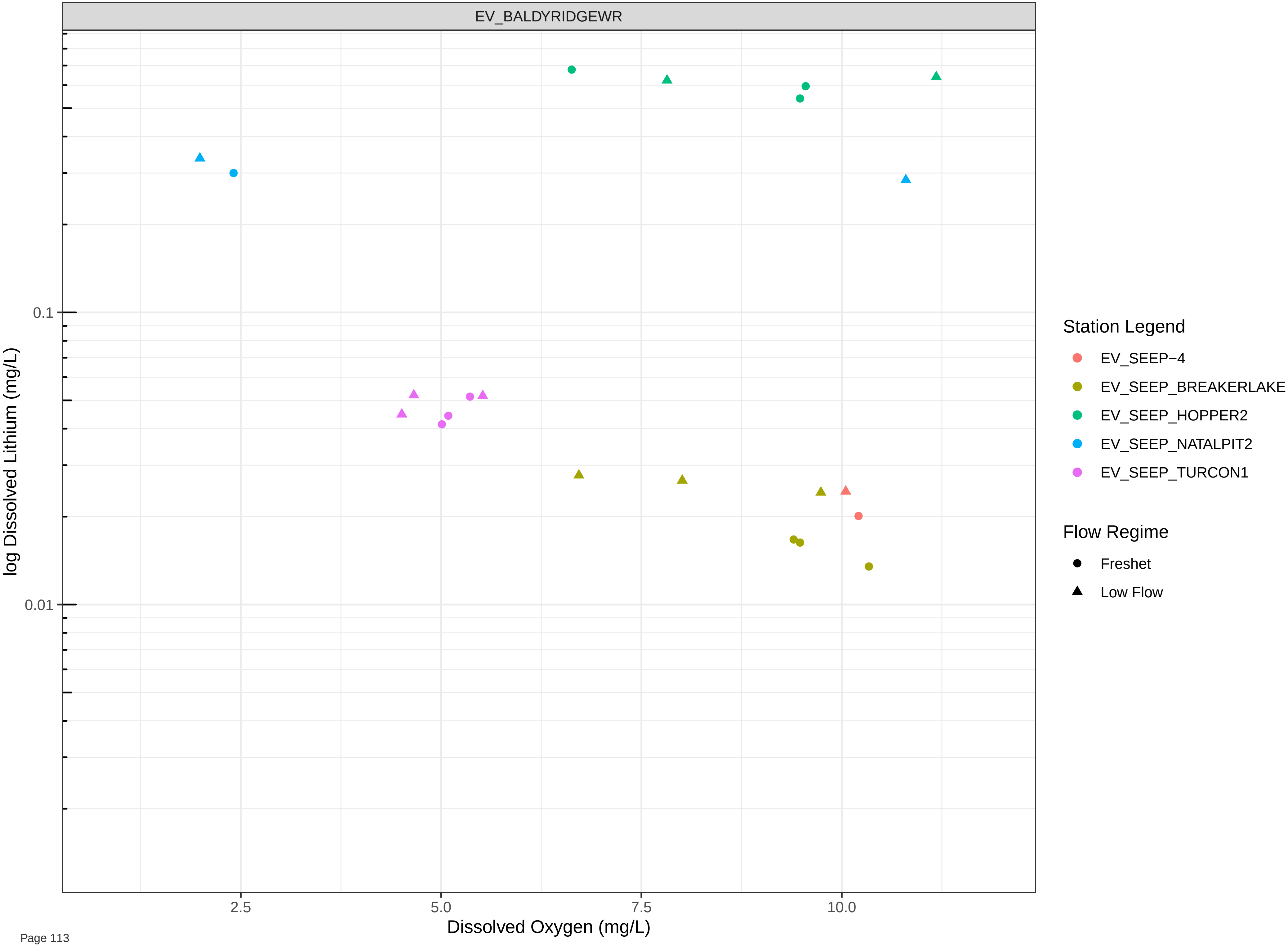

EV_CEDARWR
log Dissolved Lead (mg/L)
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_CN1
● EV_SEEP_10MILE5
● EV_SEEP_10MILE9
Flow Regime
● Freshet
▲ Low Flow

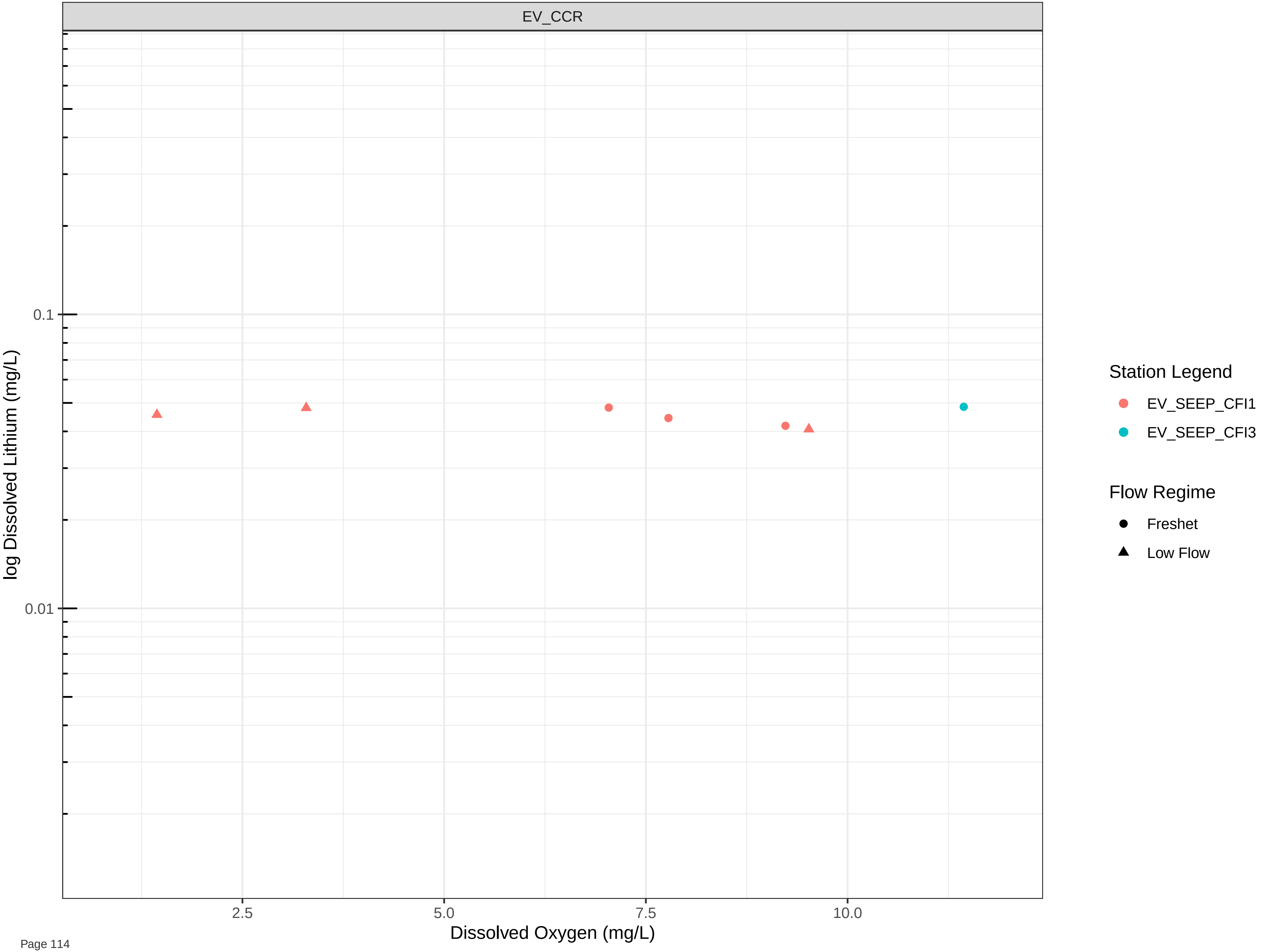

EV_Erickson_WR
log Dissolved Lead (mg/L)
1e−04
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

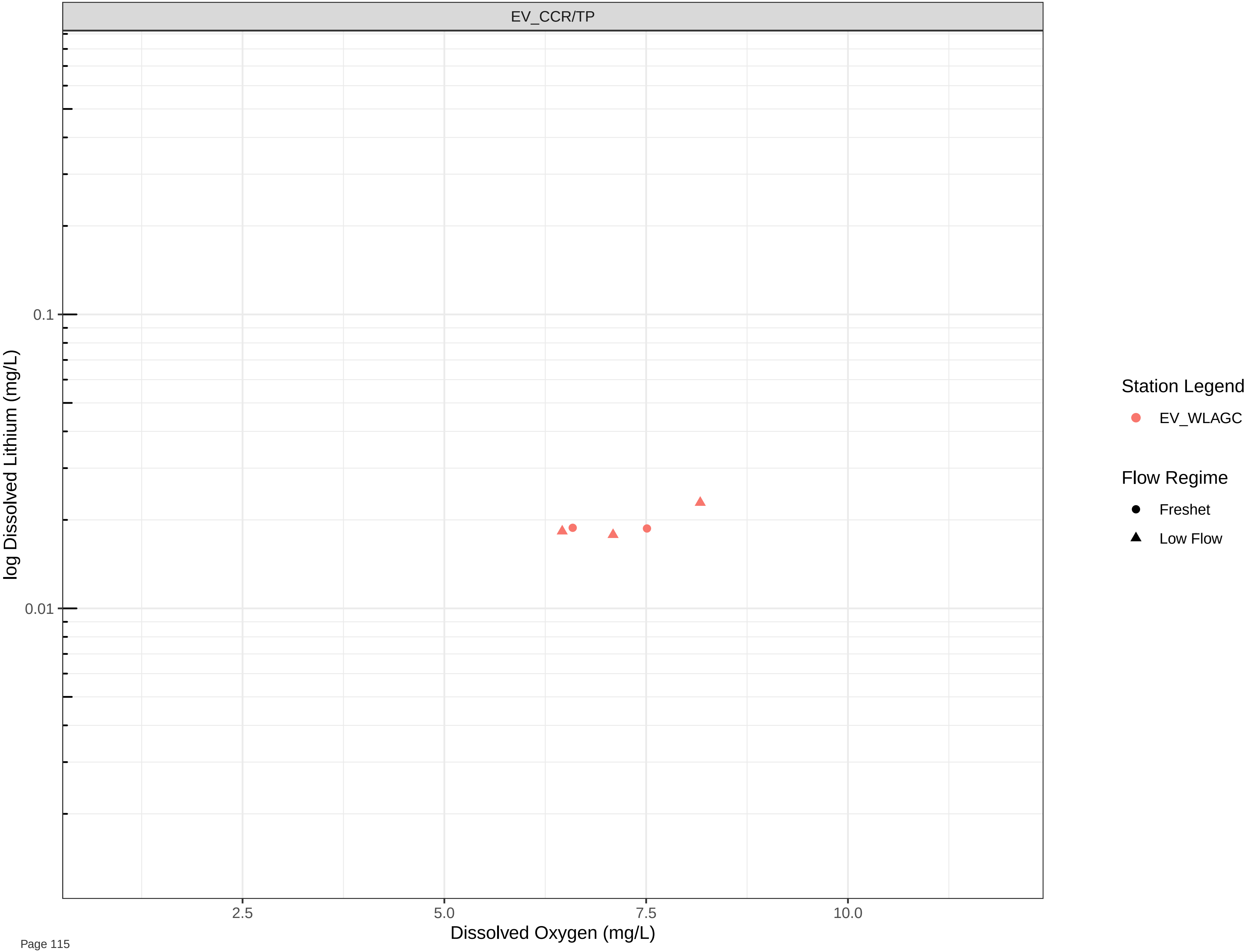

EV_PLANT
log Dissolved Lead (mg/L)
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

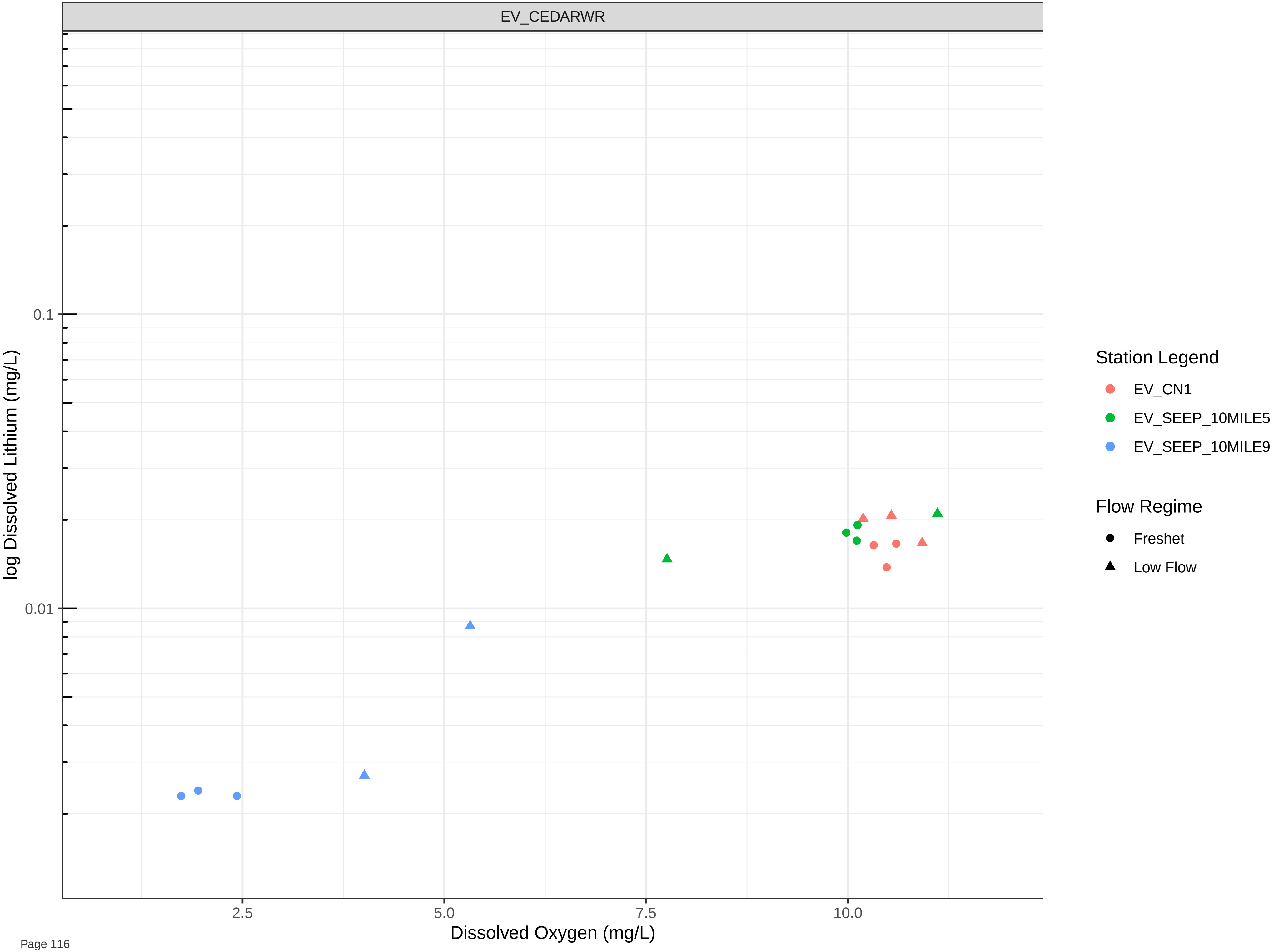

EV_SOUTHSLOPE
log Dissolved Lead (mg/L)
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

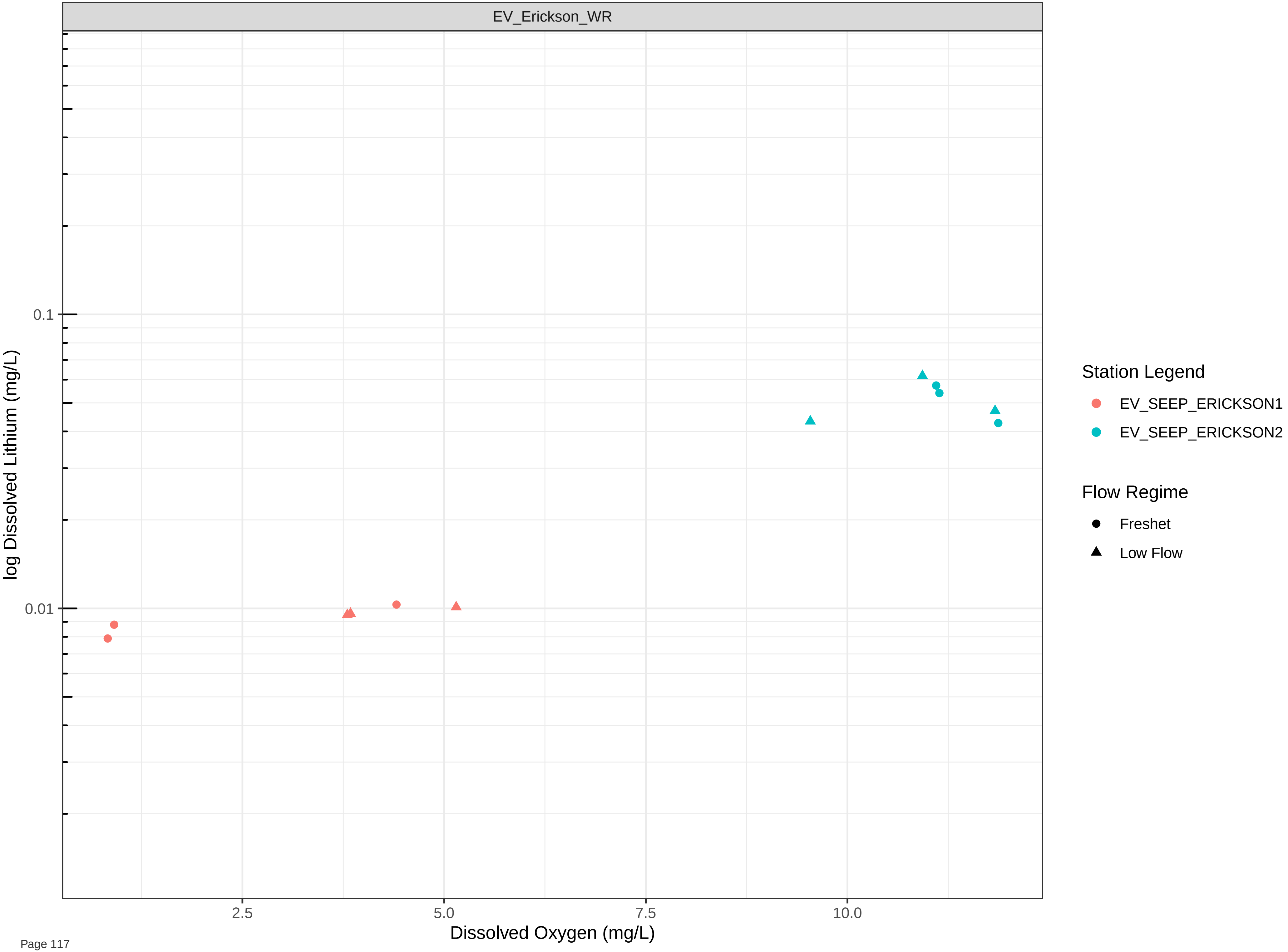

EV_SouthPit_Pit
log Dissolved Lead (mg/L)
1e−04
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

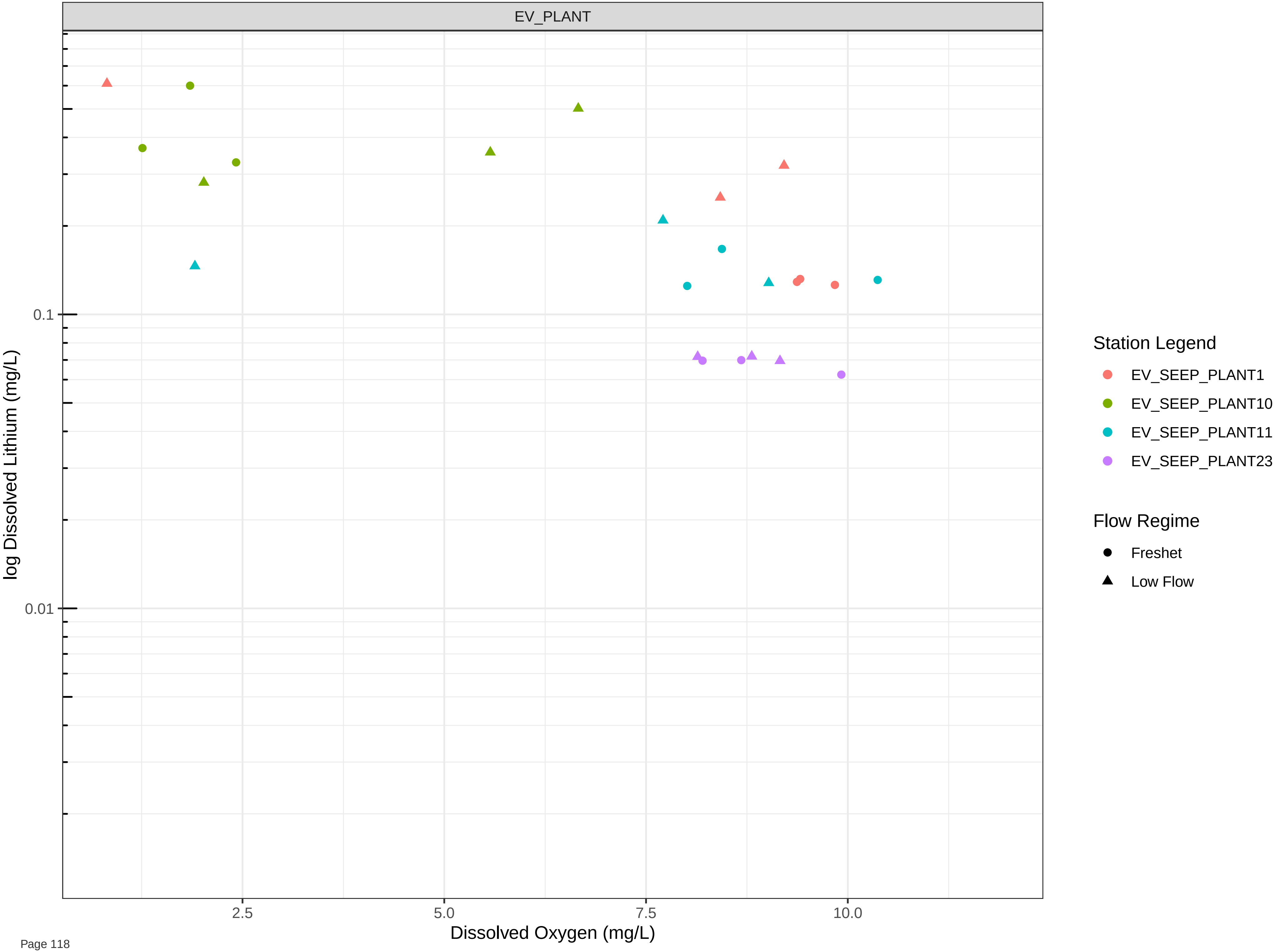

EV_BALDYRIDGEWR
log Dissolved Lithium (mg/L)
0.1
0.01
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

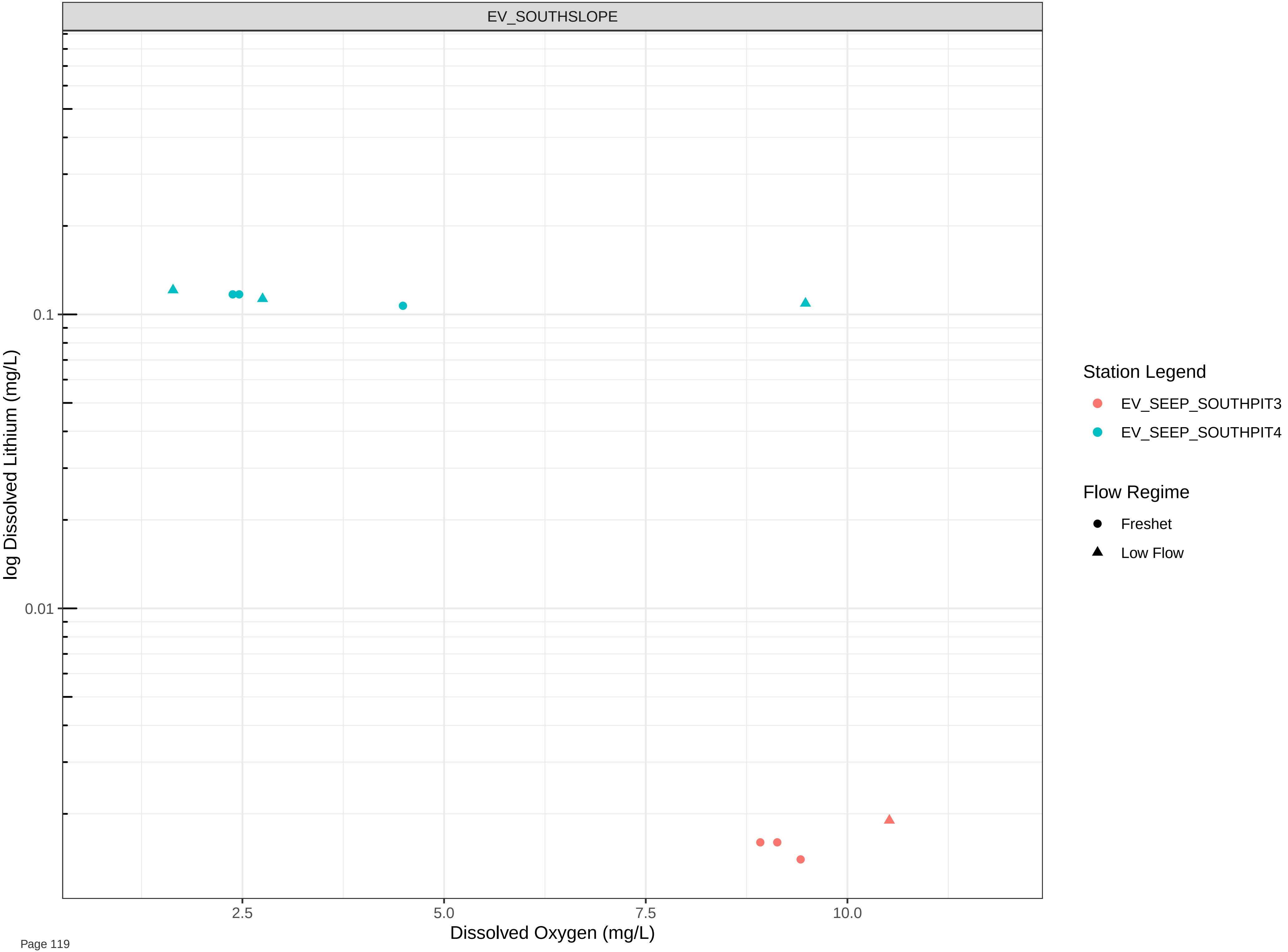

EV_CCR
0.1
0.01
log Dissolved Lithium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

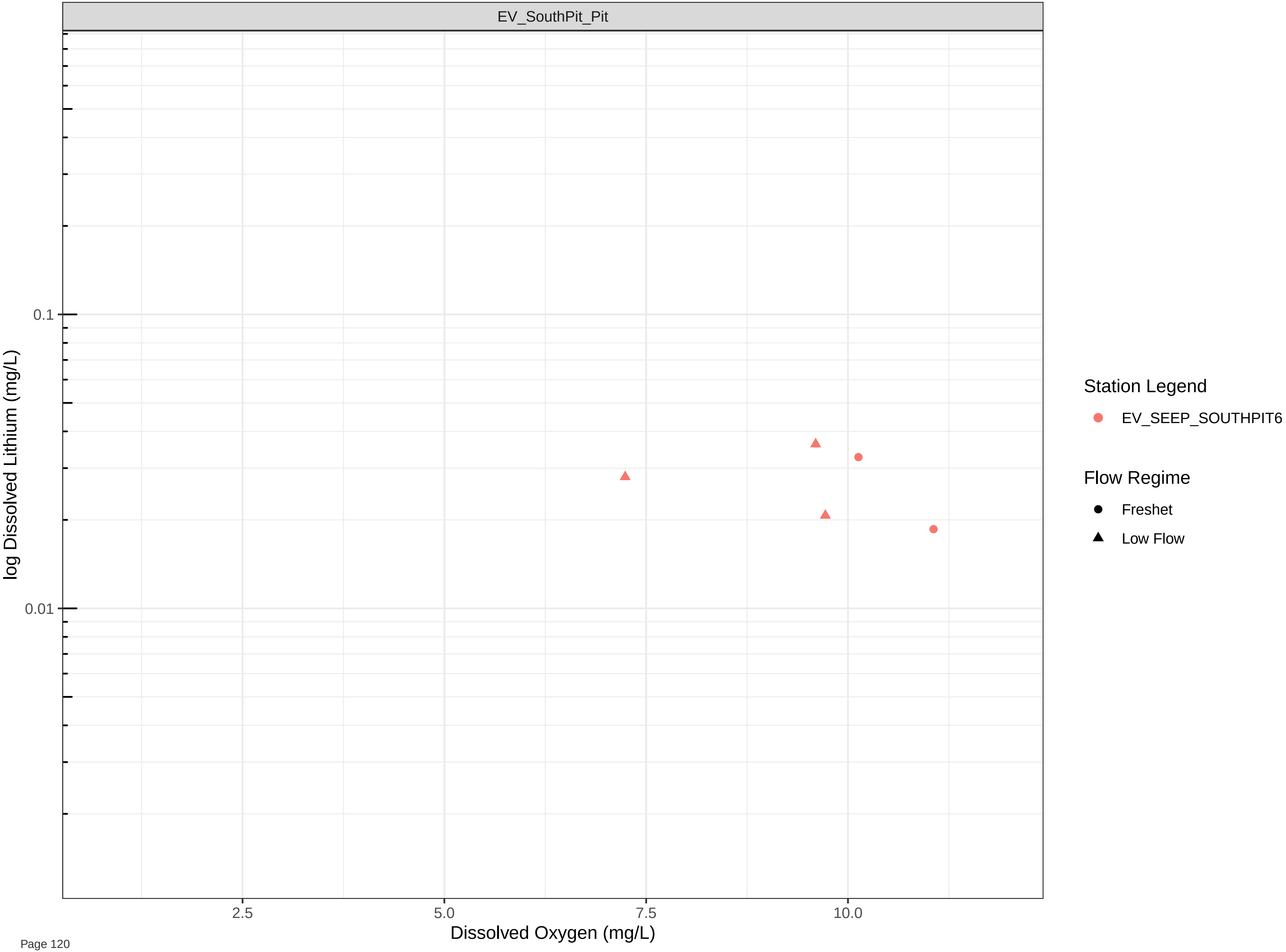

EV_CCR/TP
log Dissolved Lithium (mg/L)
0.1
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow


EV_CEDARWR
log Dissolved Lithium (mg/L)
0.1
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

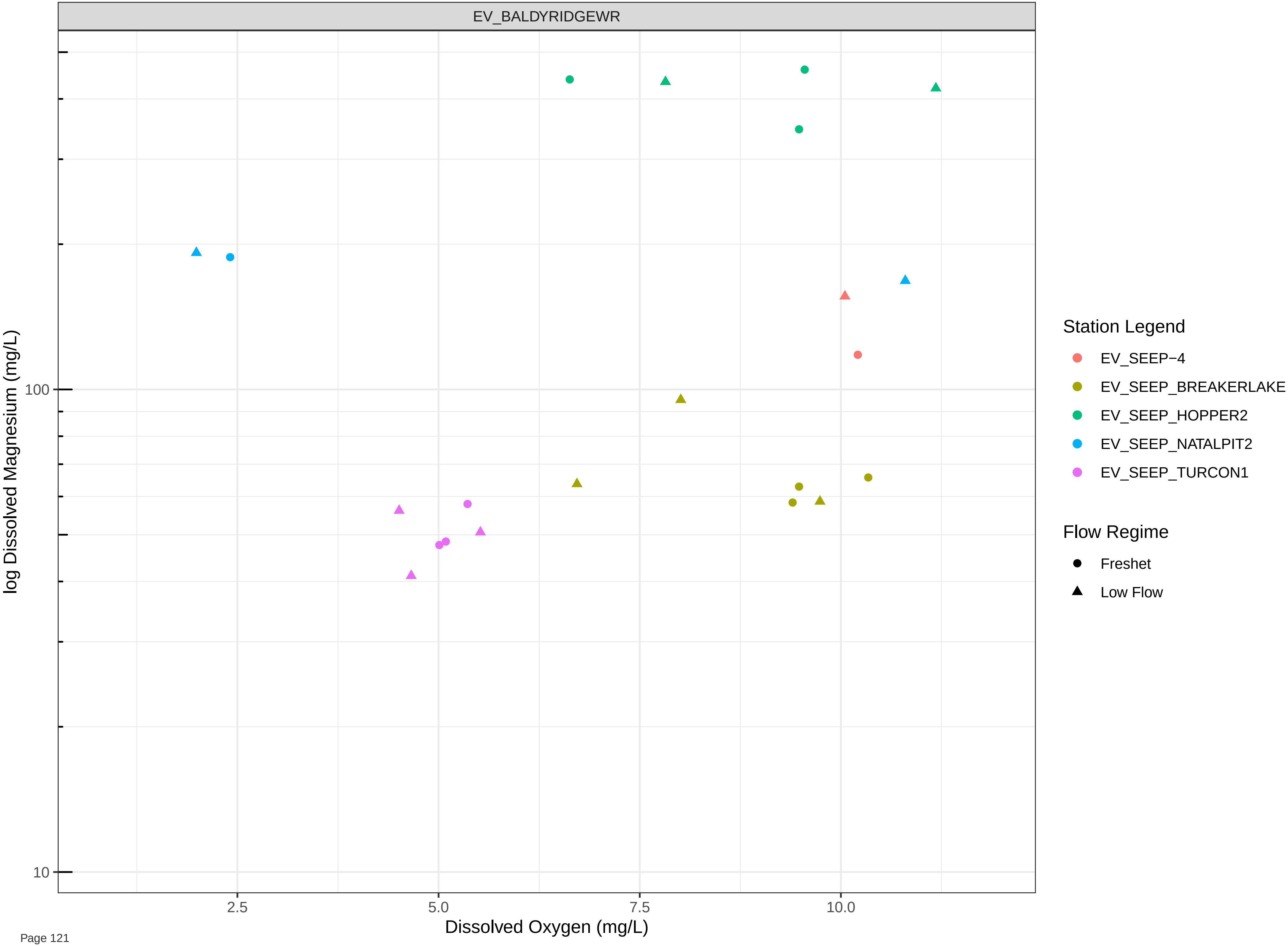

EV_Erickson_WR
log Dissolved Lithium (mg/L)
0.1
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

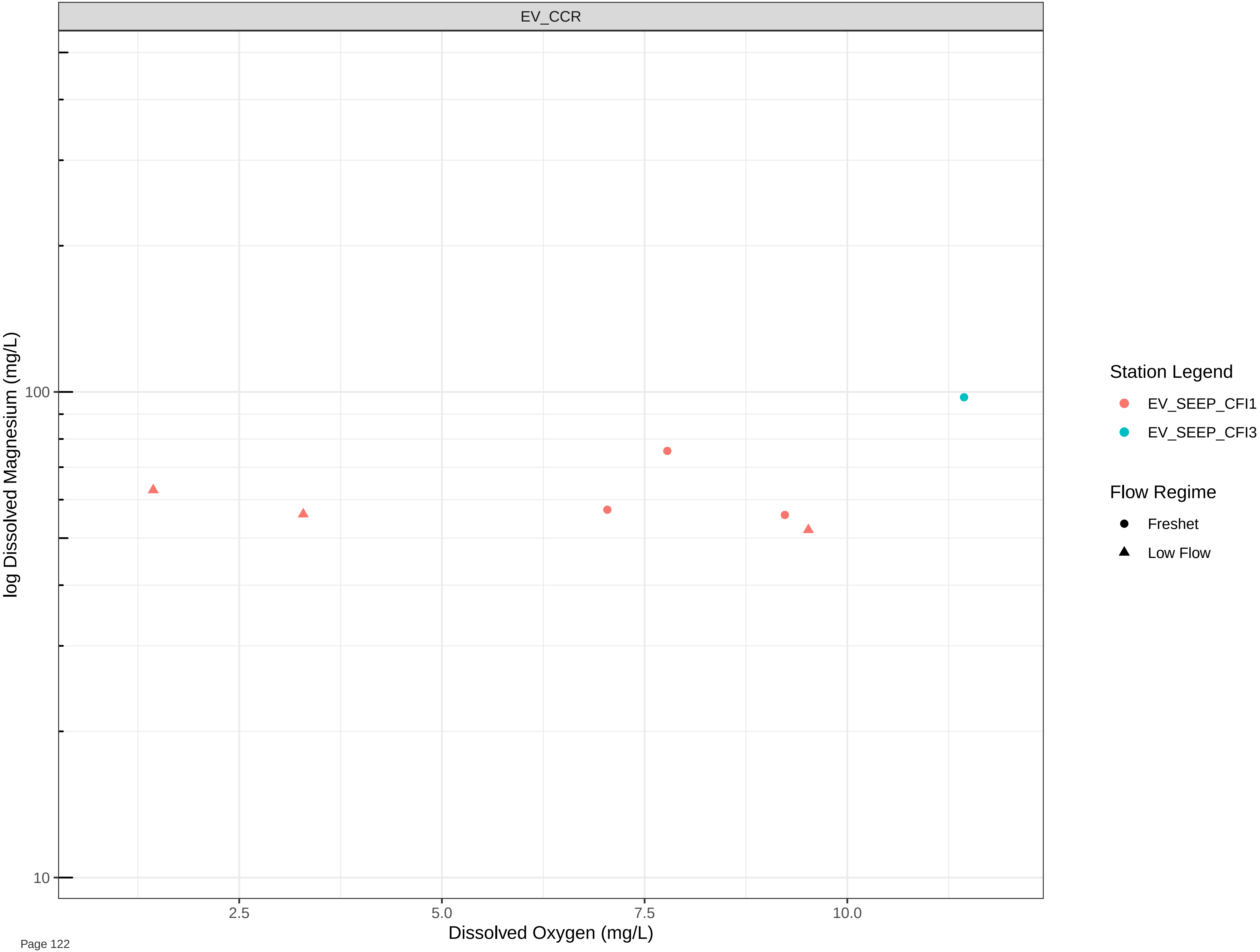

EV_PLANT
0.1
0.01
log Dissolved Lithium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

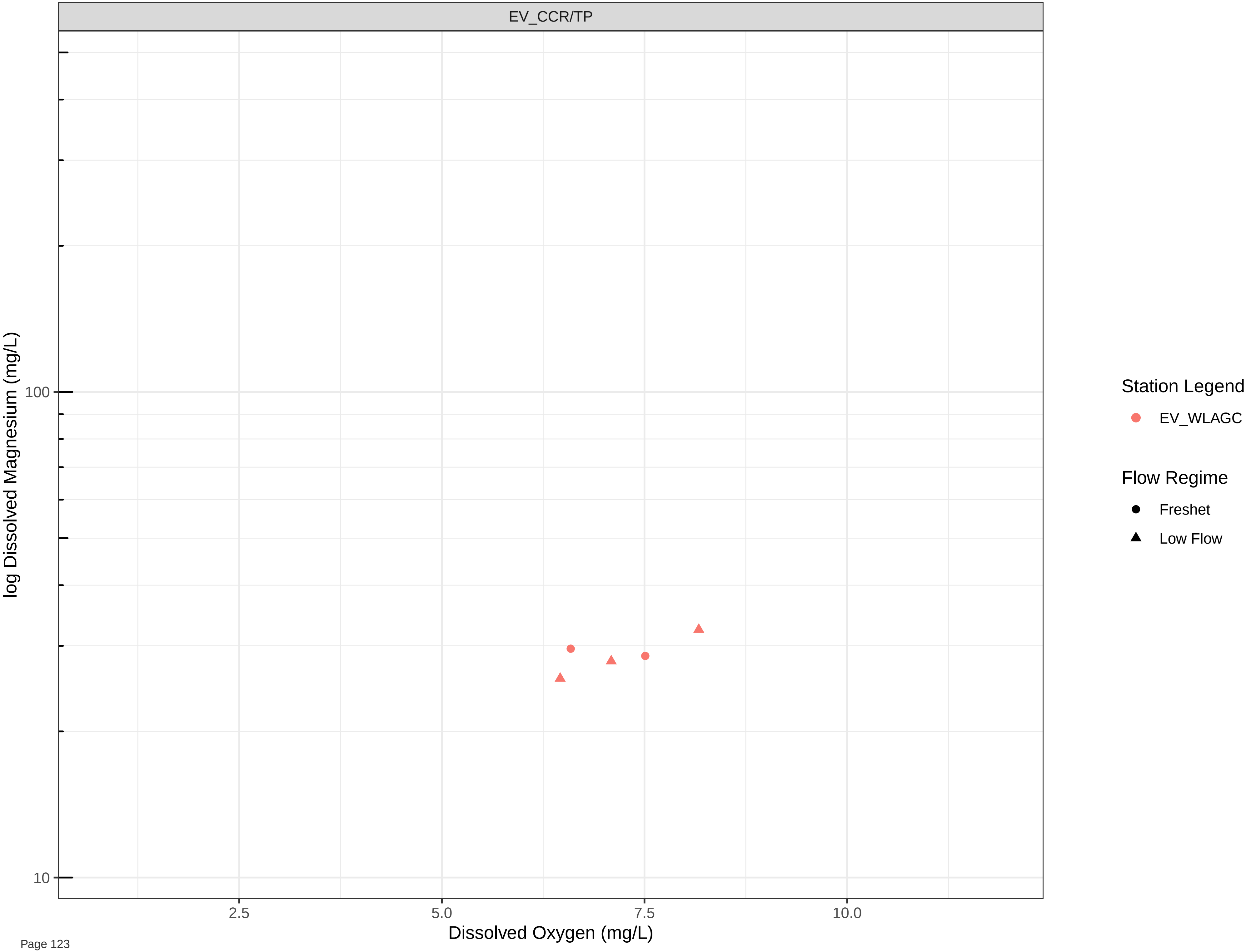

EV_SOUTHSLOPE
0.1
0.01
log Dissolved Lithium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

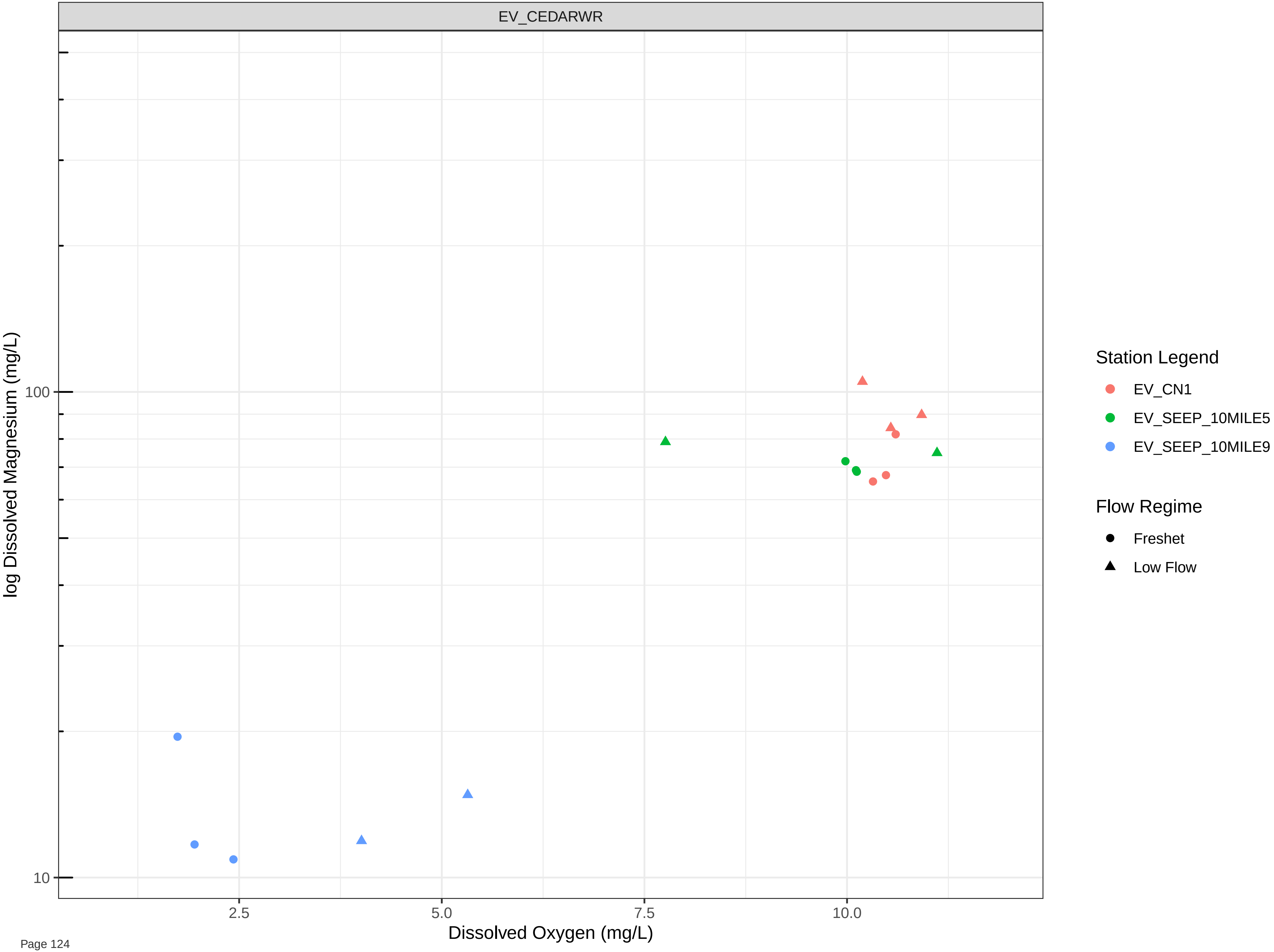


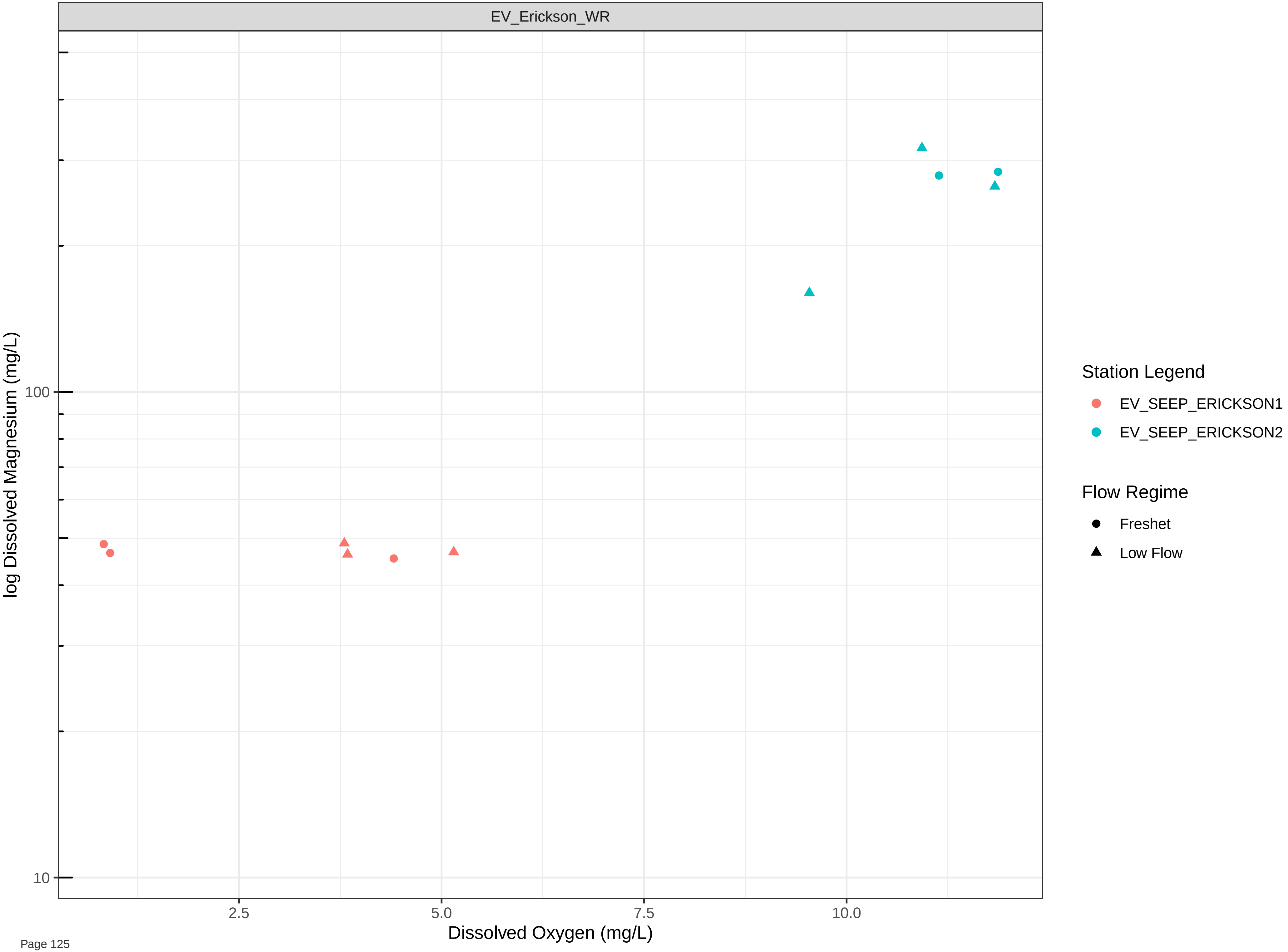
EV_SouthPit_Pit
log Dissolved Lithium (mg/L)
0.1
0.01
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

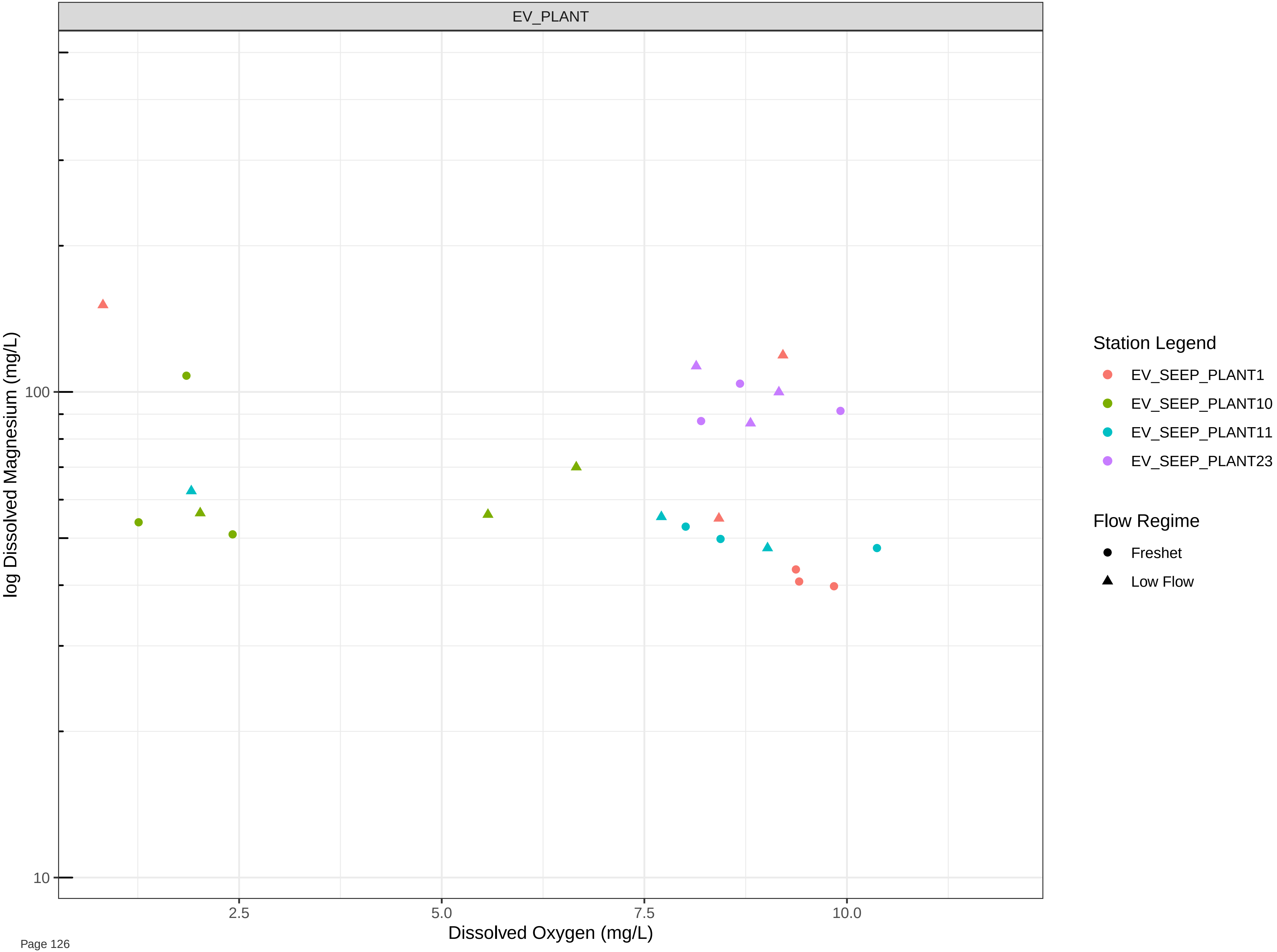

EV_BALDYRIDGEWR
log Dissolved Magnesium (mg/L)
100
10
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

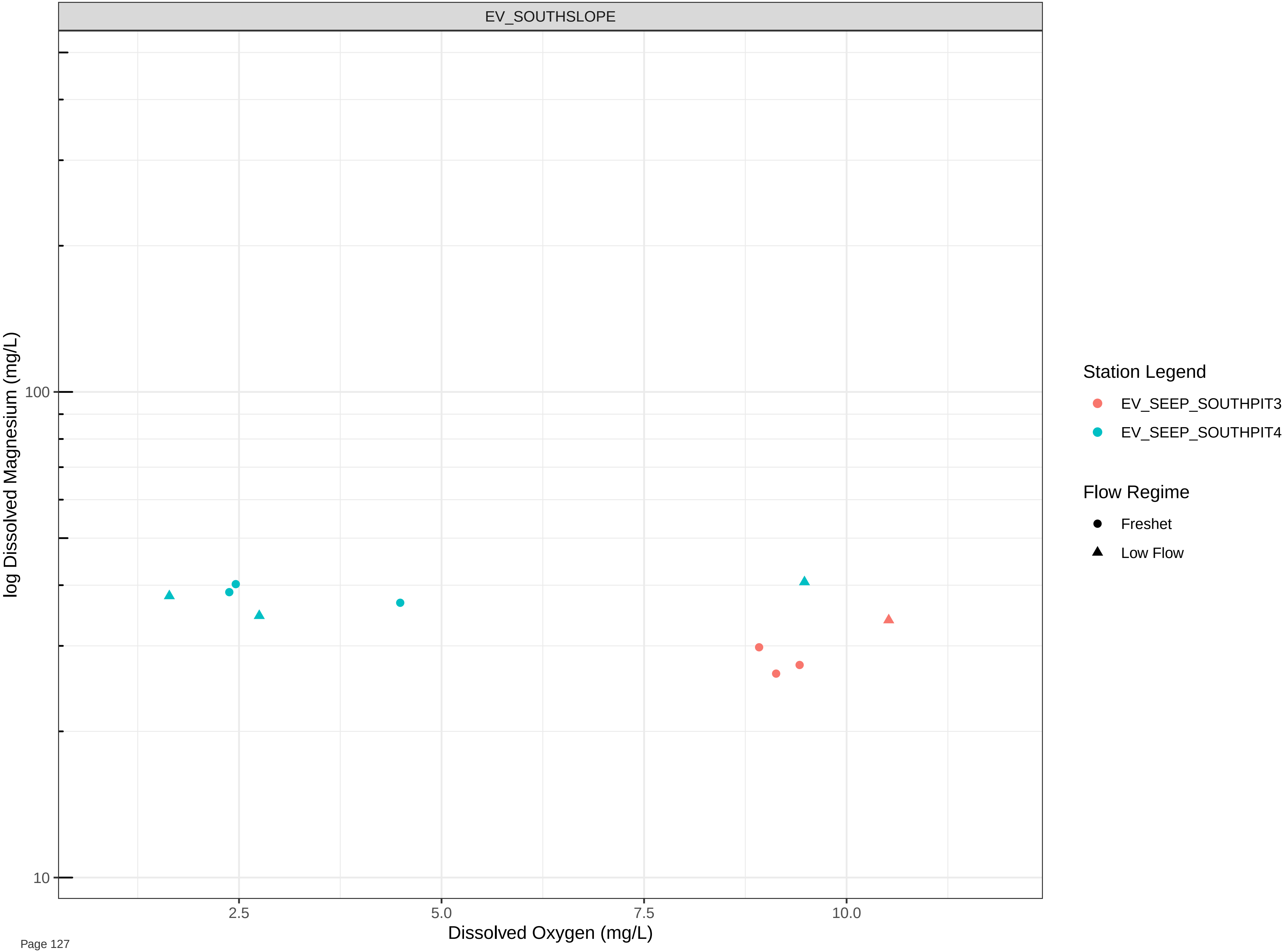

EV_CCR
log Dissolved Magnesium (mg/L)
100
10
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

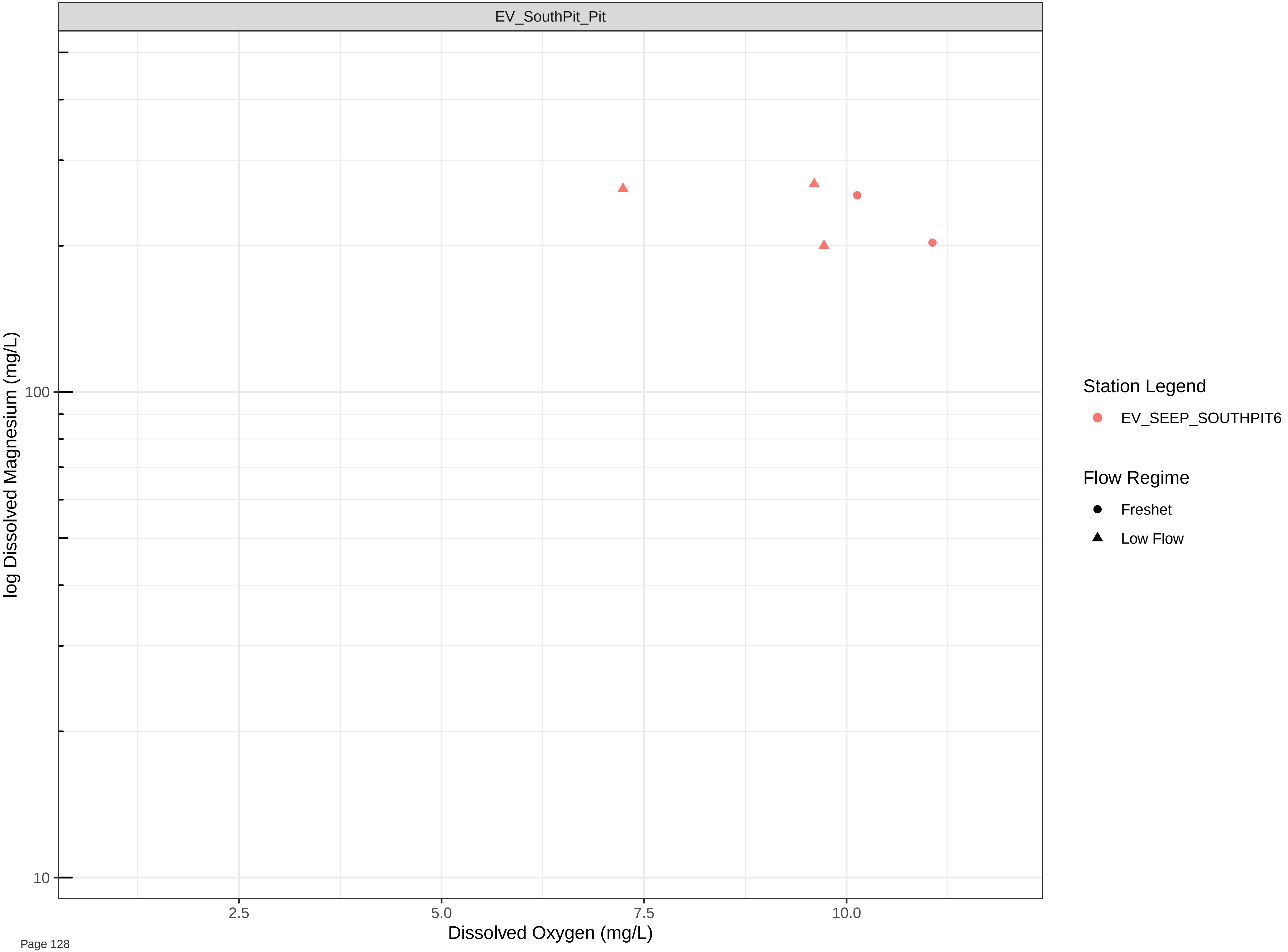

EV_CCR/TP
log Dissolved Magnesium (mg/L)
100
10
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

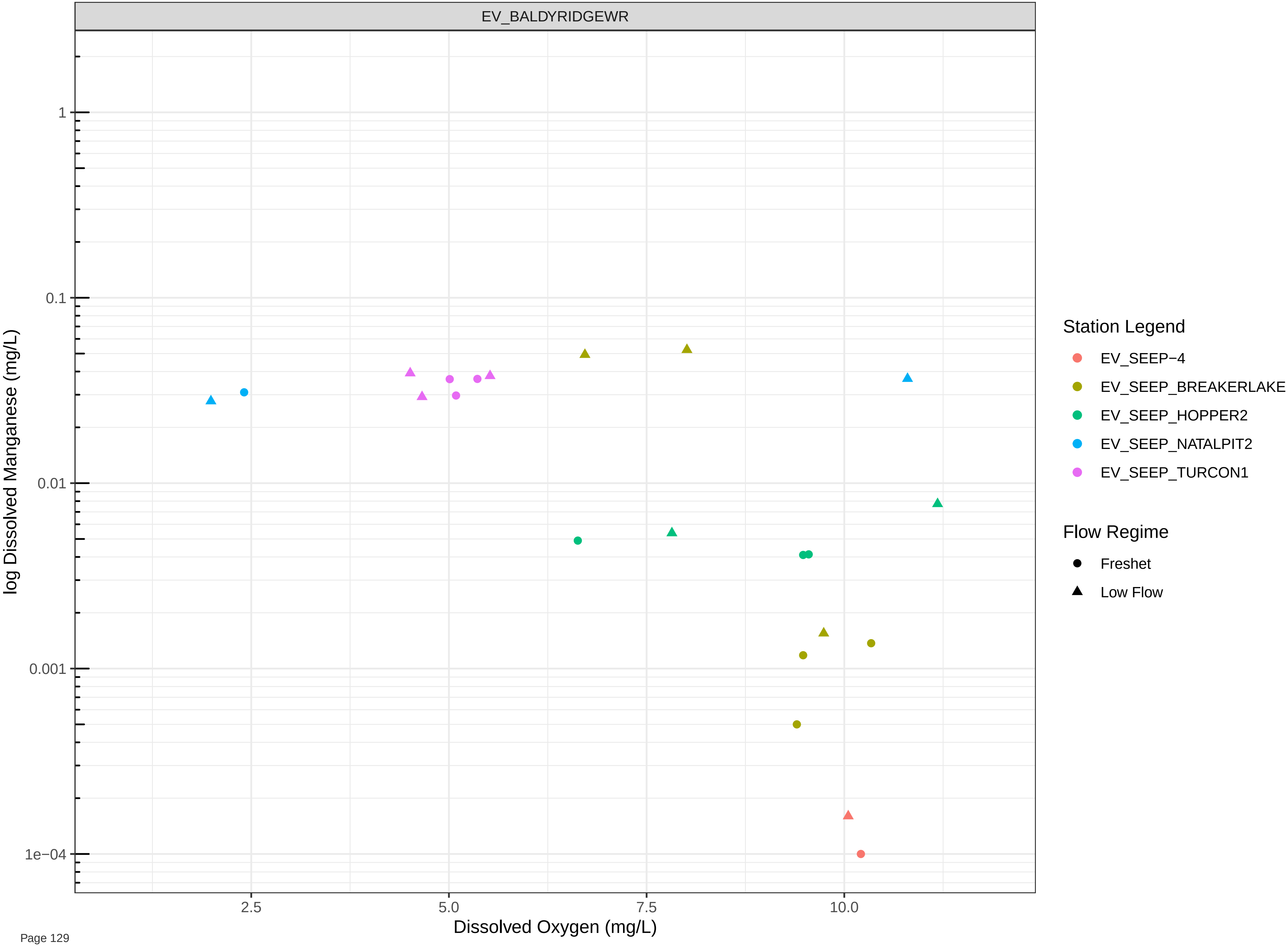

EV_CEDARWR
log Dissolved Magnesium (mg/L)
100
10
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

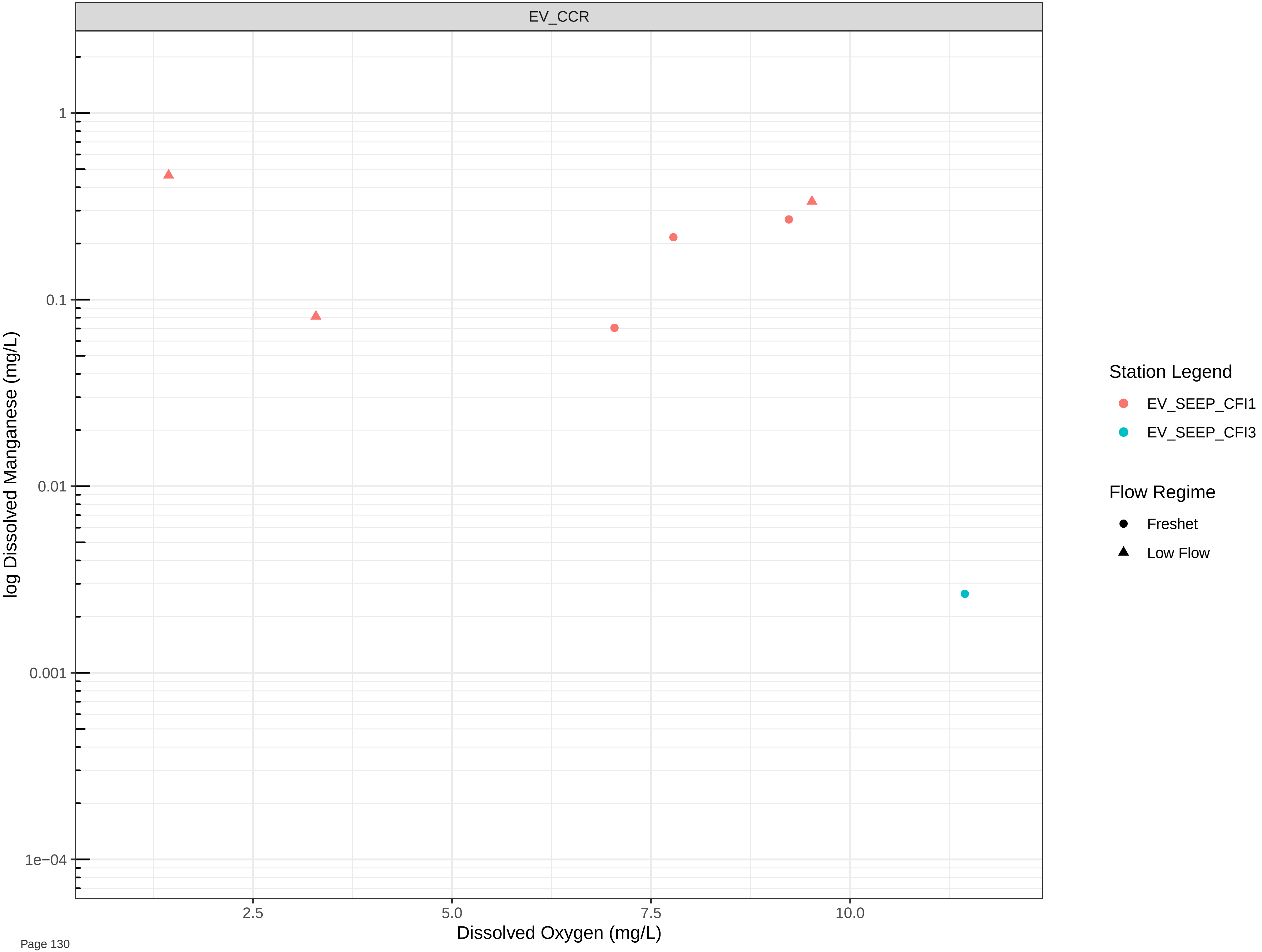

EV_Erickson_WR
log Dissolved Magnesium (mg/L)
100
10
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

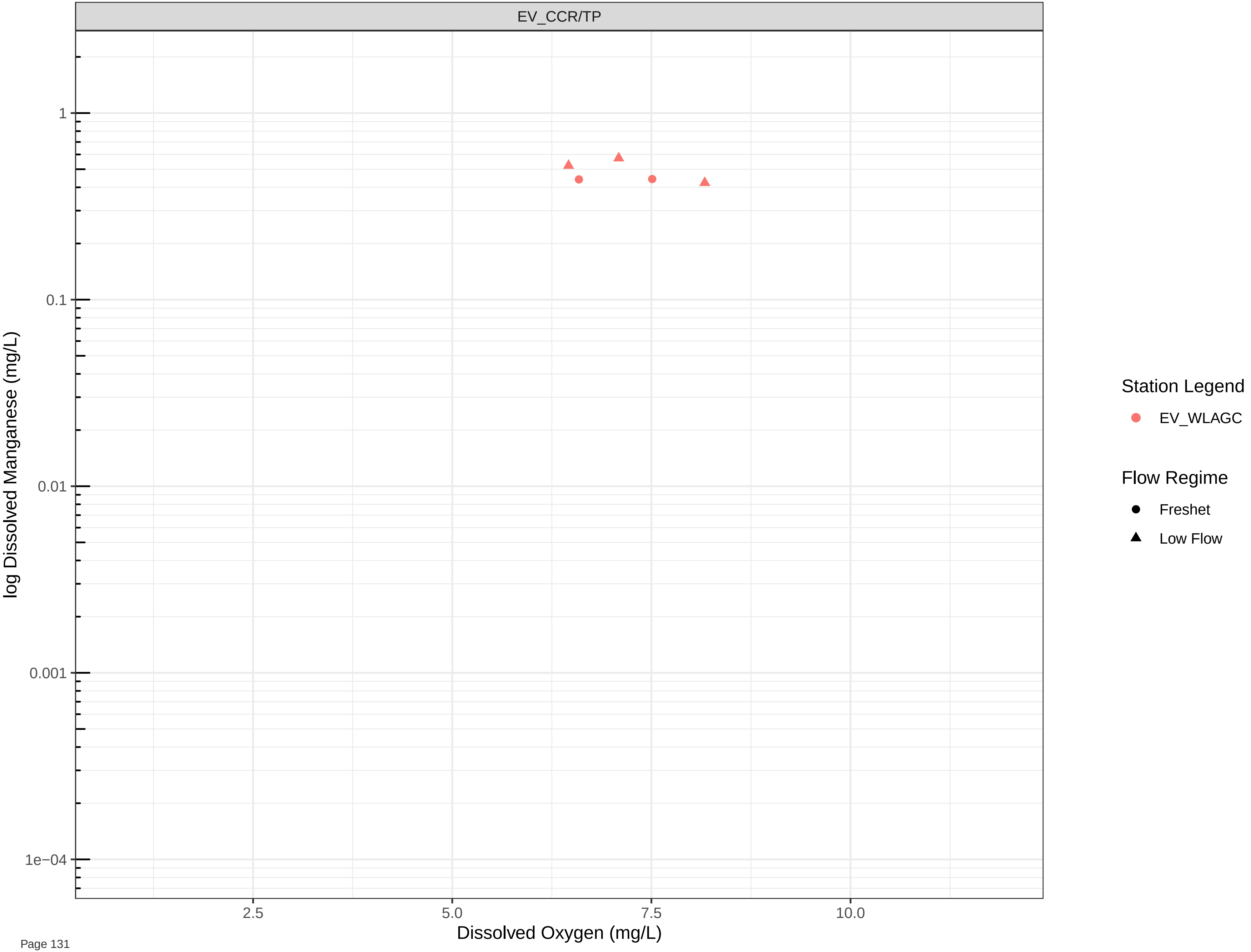

EV_PLANT
log Dissolved Magnesium (mg/L)
100
10
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

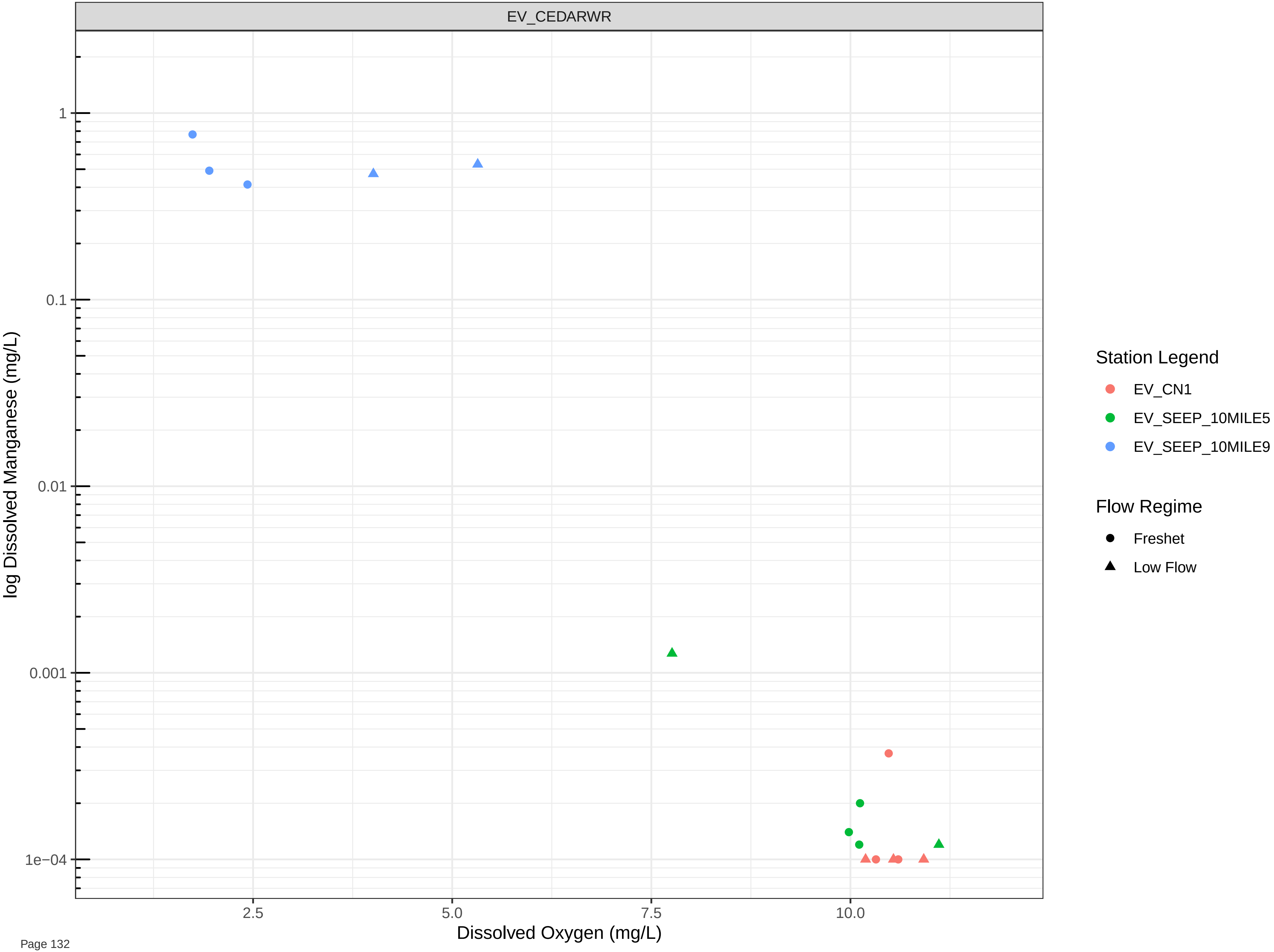

EV_SOUTHSLOPE
log Dissolved Magnesium (mg/L)
100
10
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

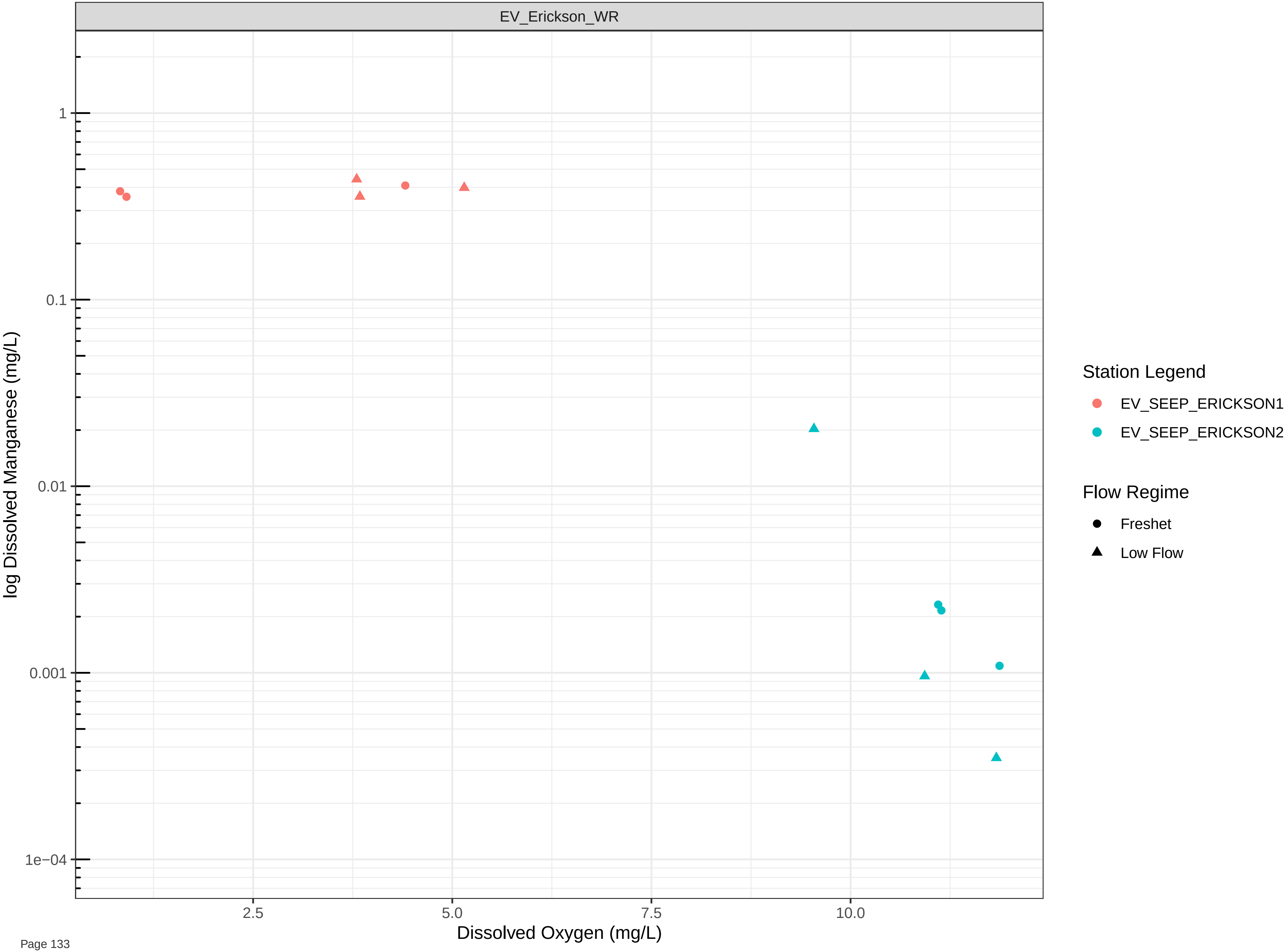

EV_SouthPit_Pit
log Dissolved Magnesium (mg/L)
100
10
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

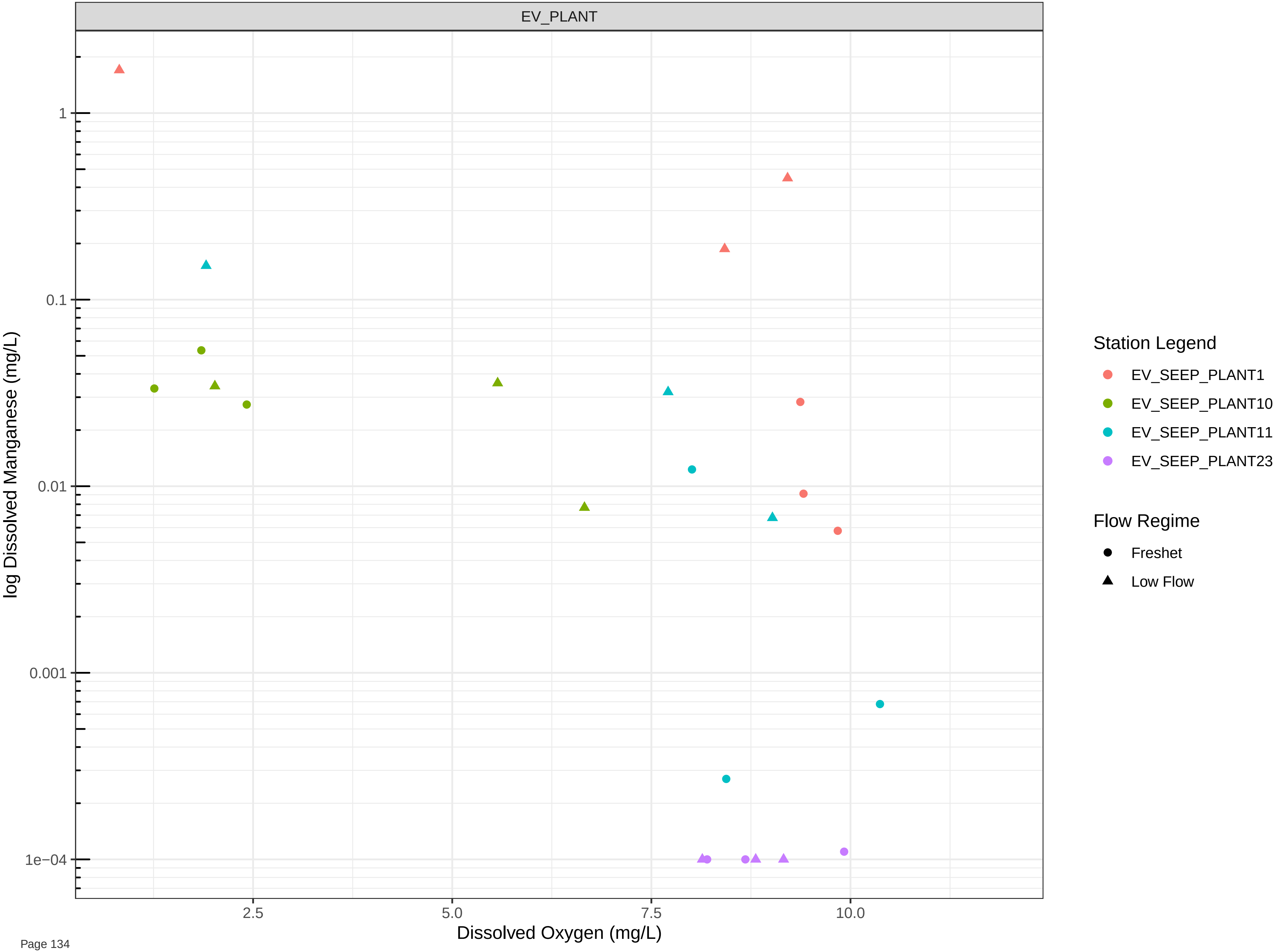

EV_BALDYRIDGEWR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

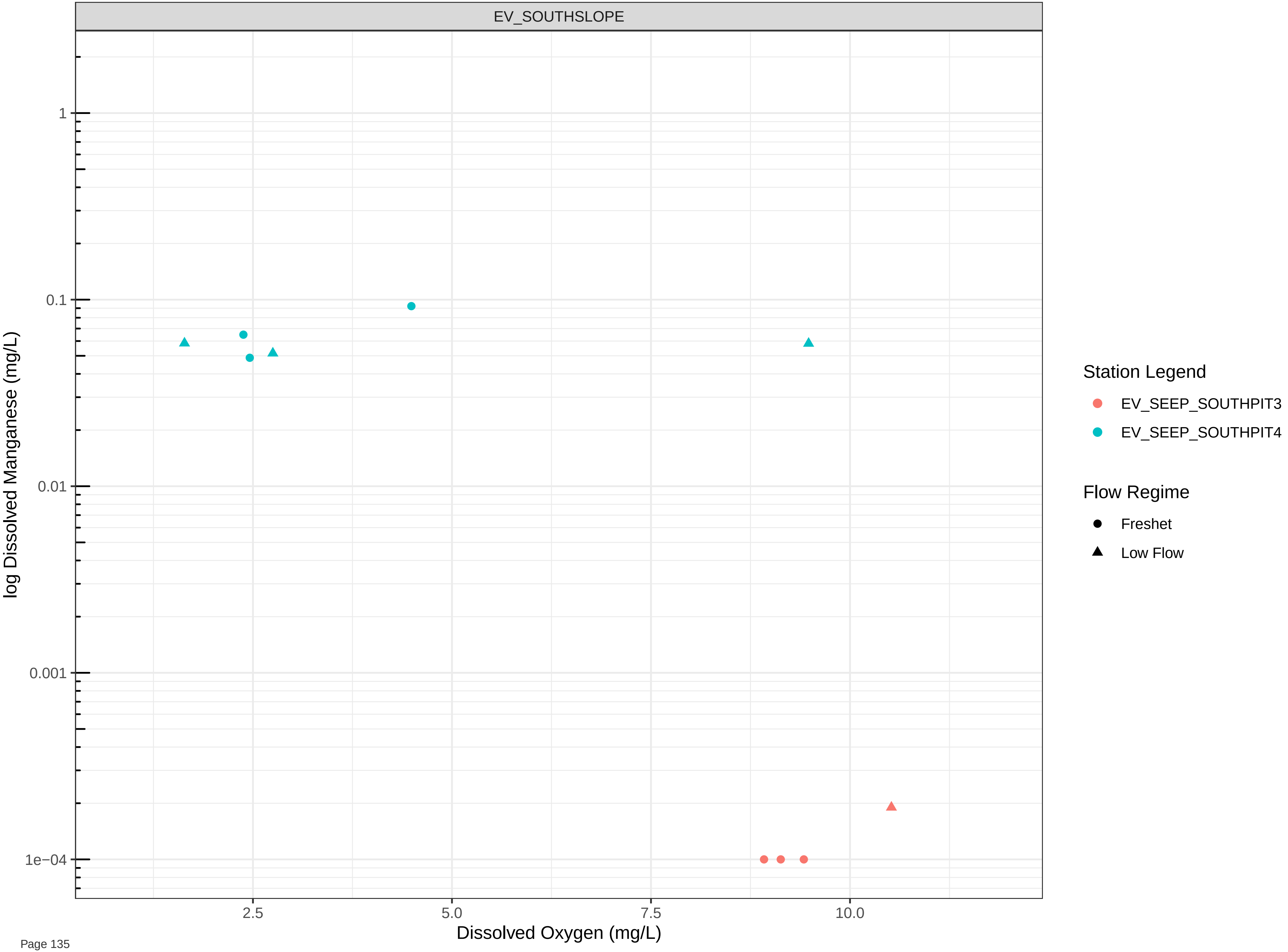

EV_CCR
1
0.1
0.01
0.001
1e−04
log Dissolved Manganese (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

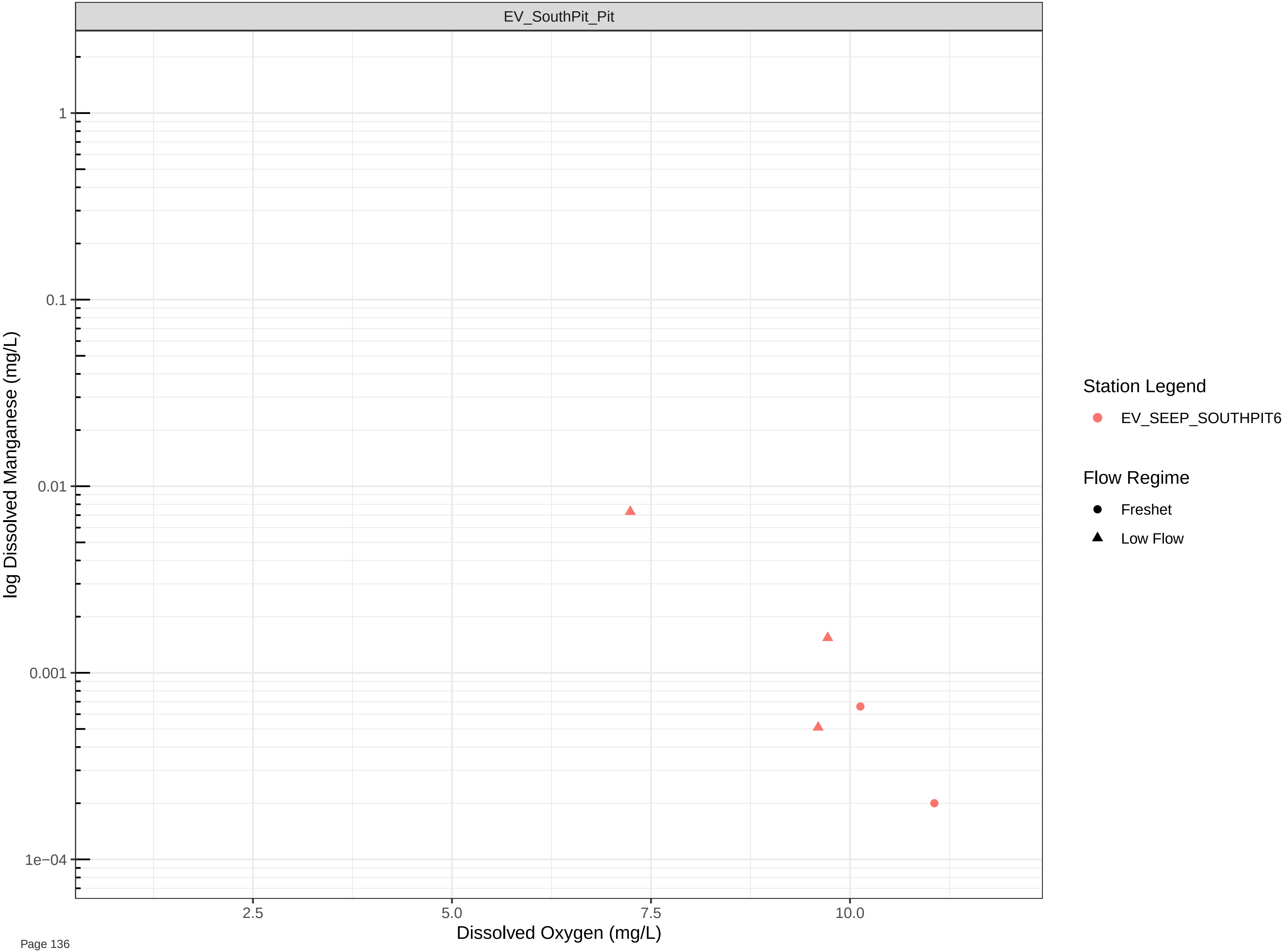

EV_CCR/TP
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

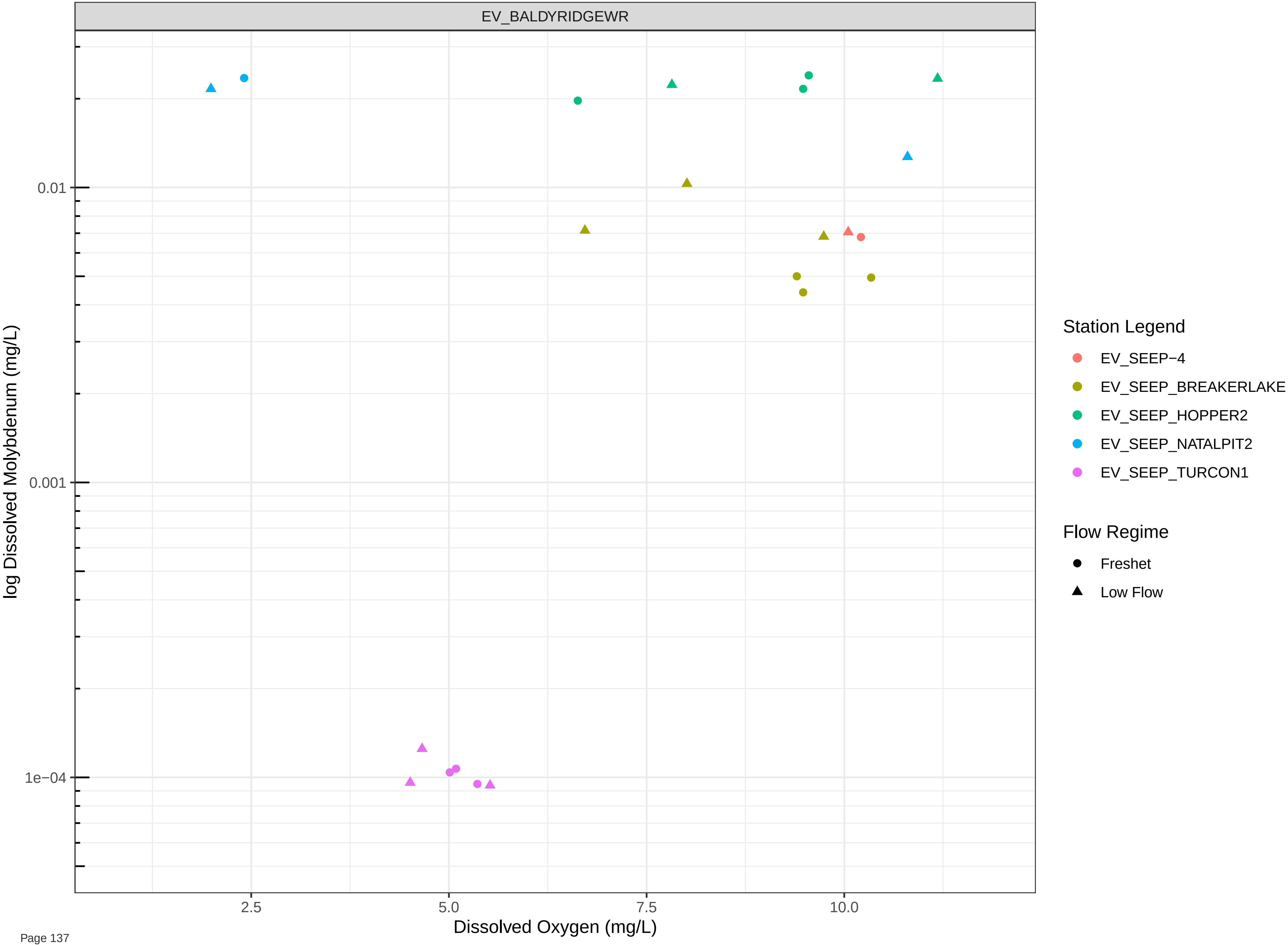

EV_CEDARWR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

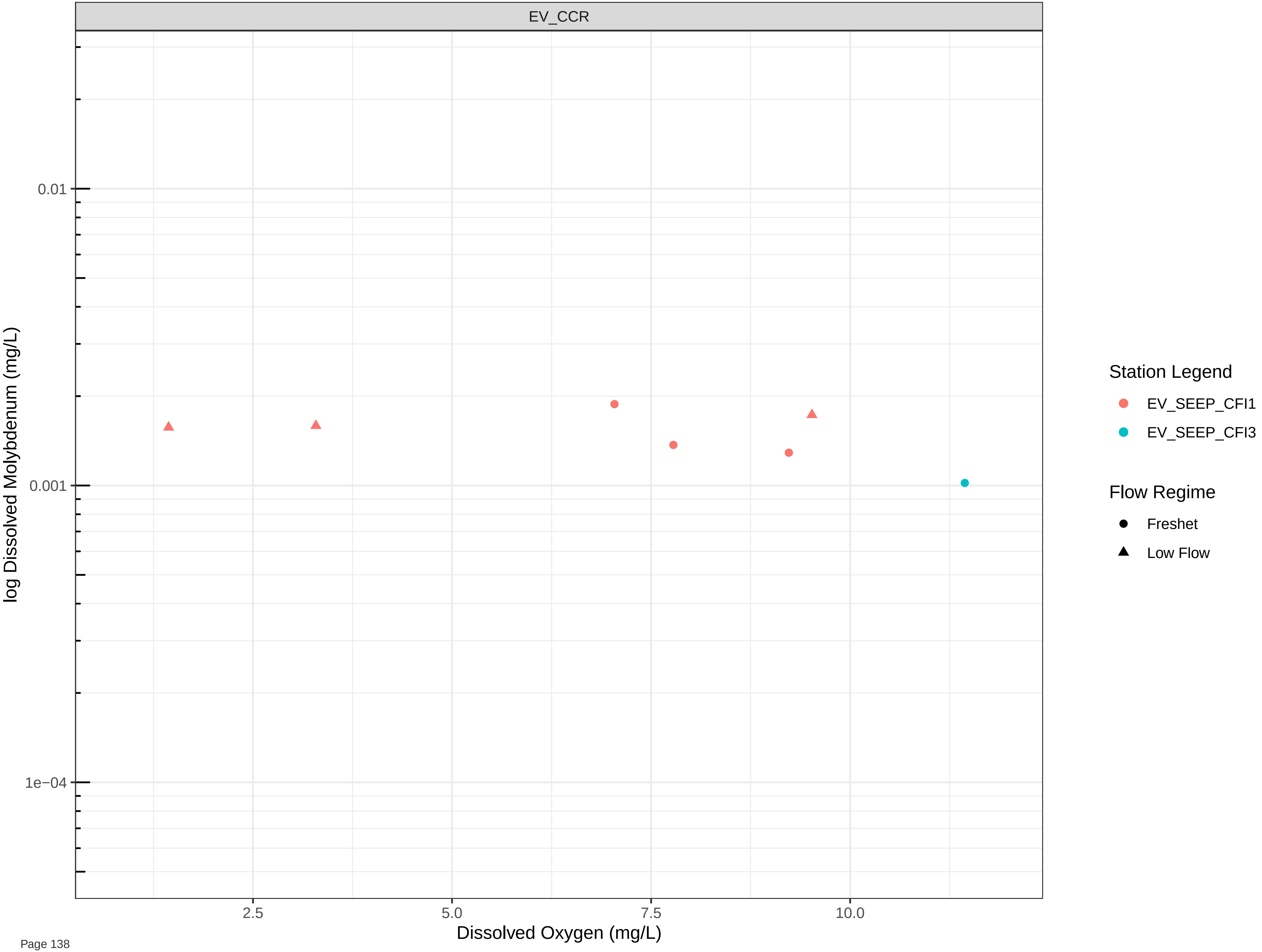

EV_Erickson_WR
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

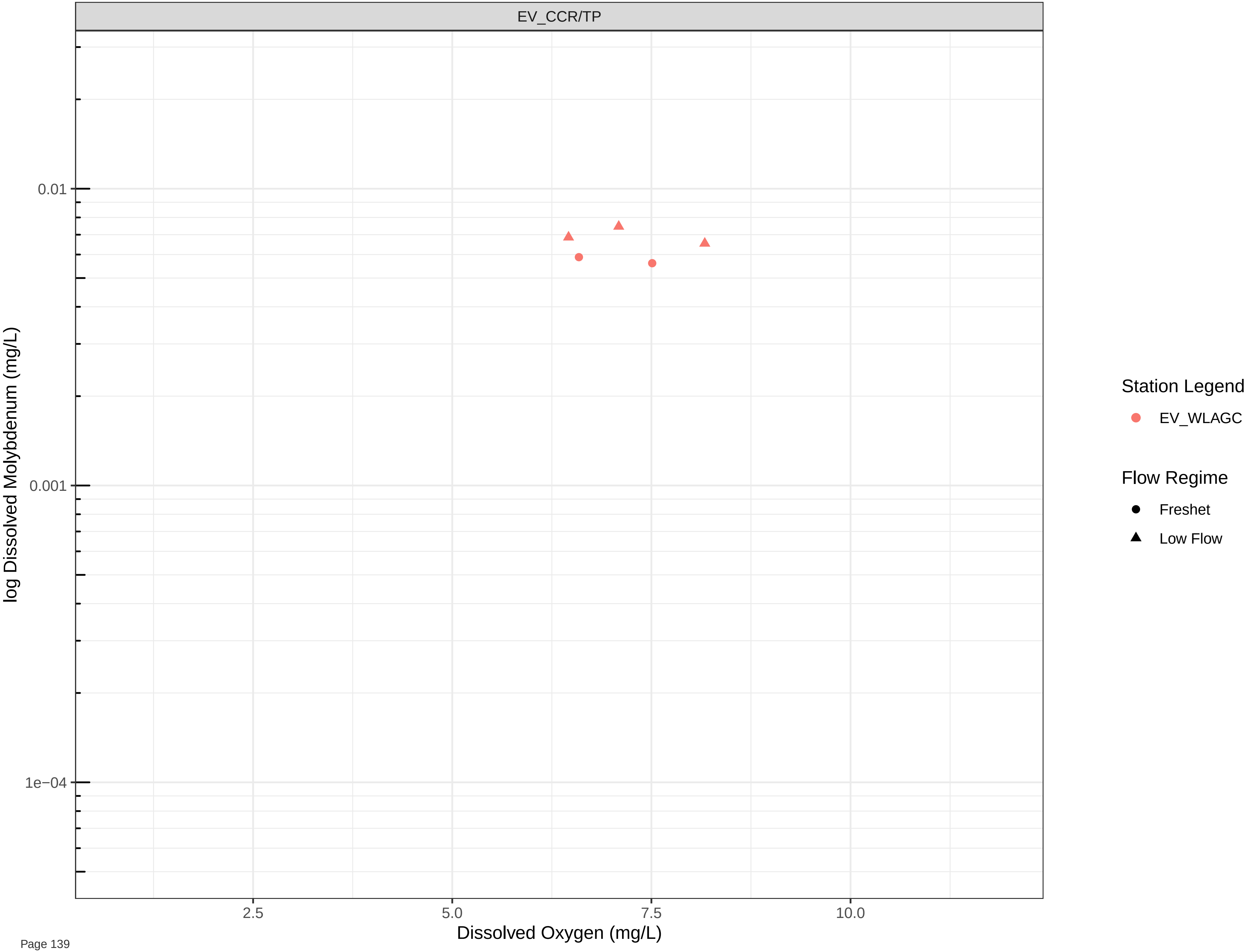

EV_PLANT
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

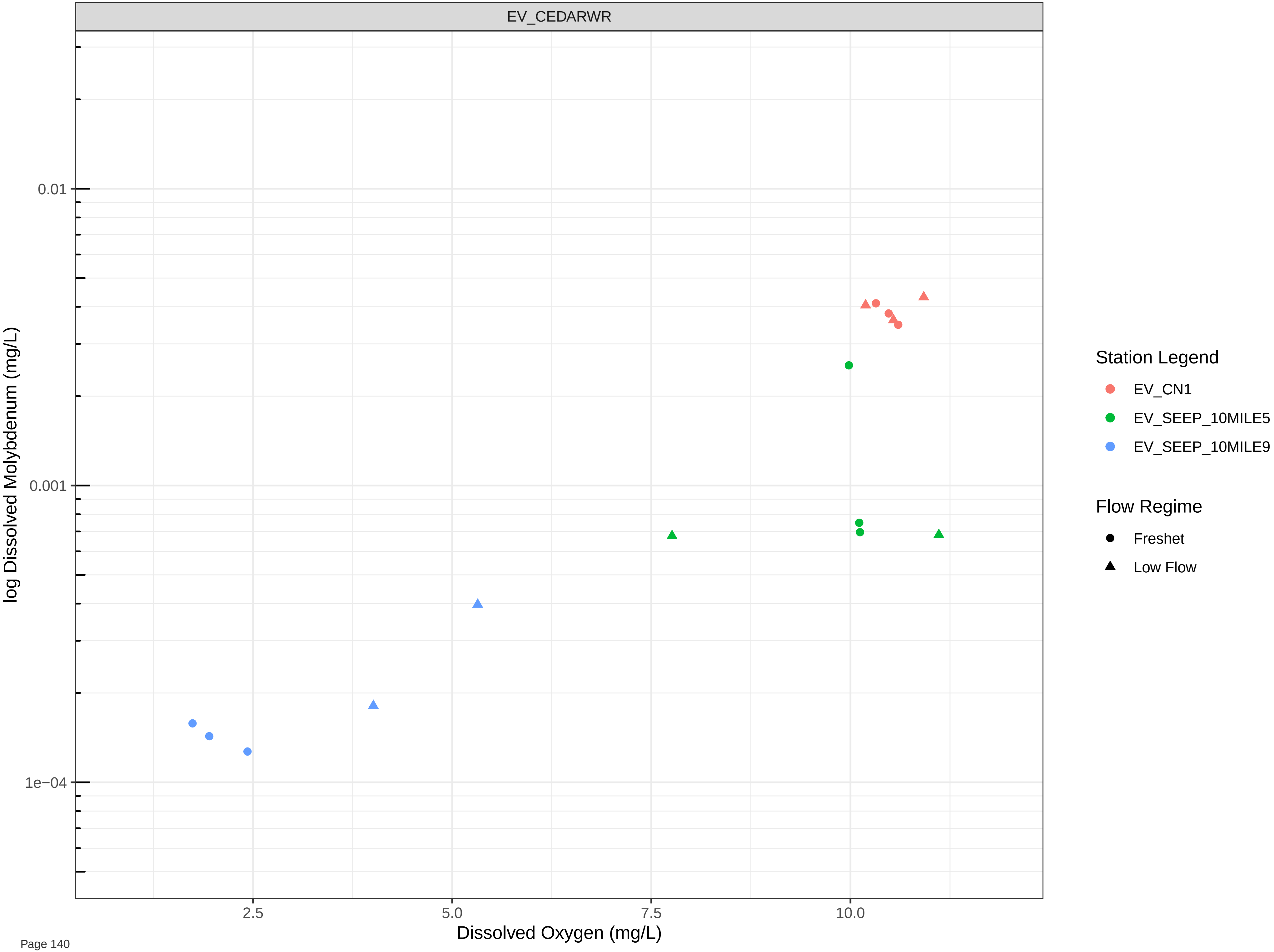

EV_SOUTHSLOPE
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

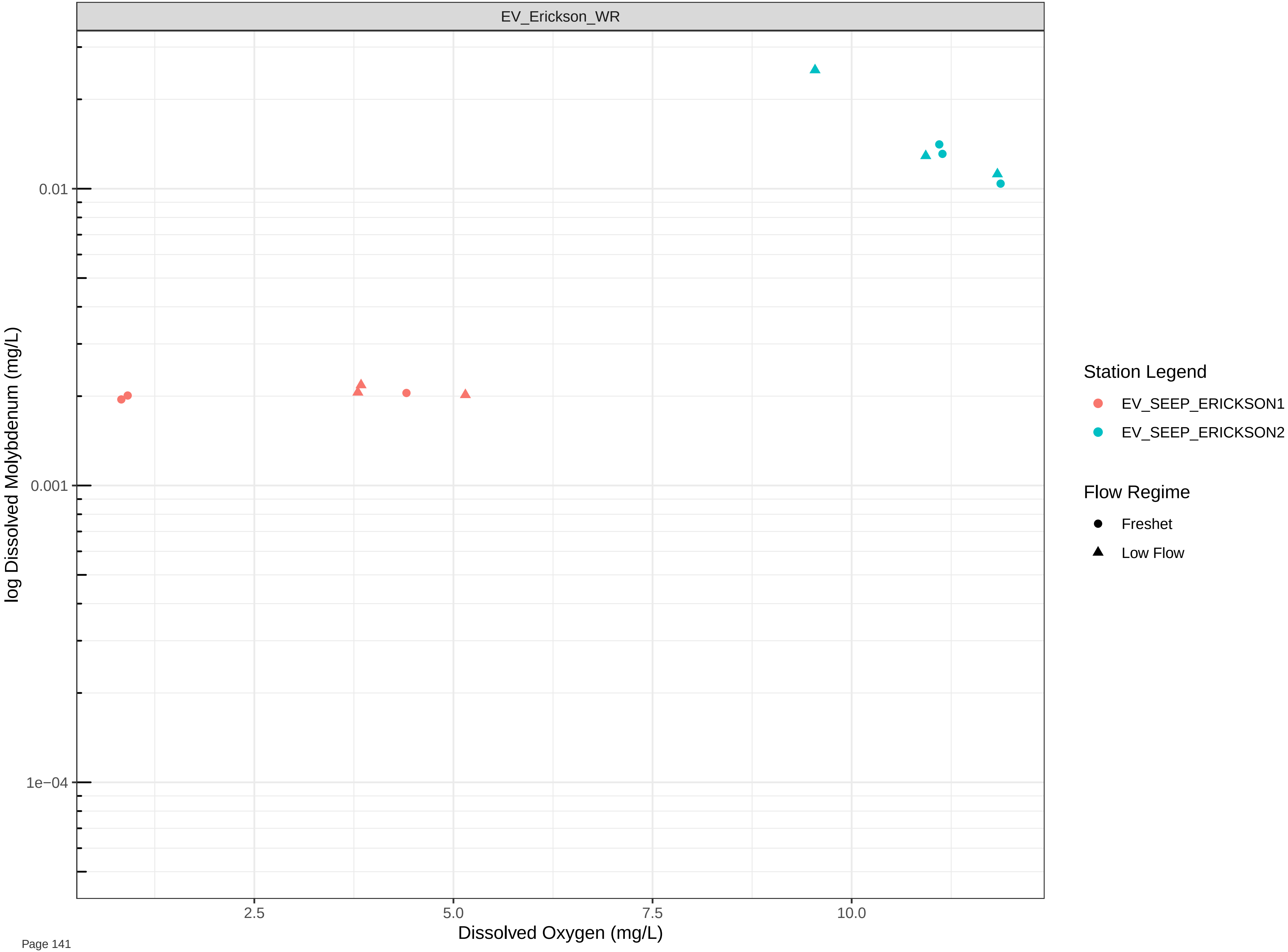

EV_SouthPit_Pit
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

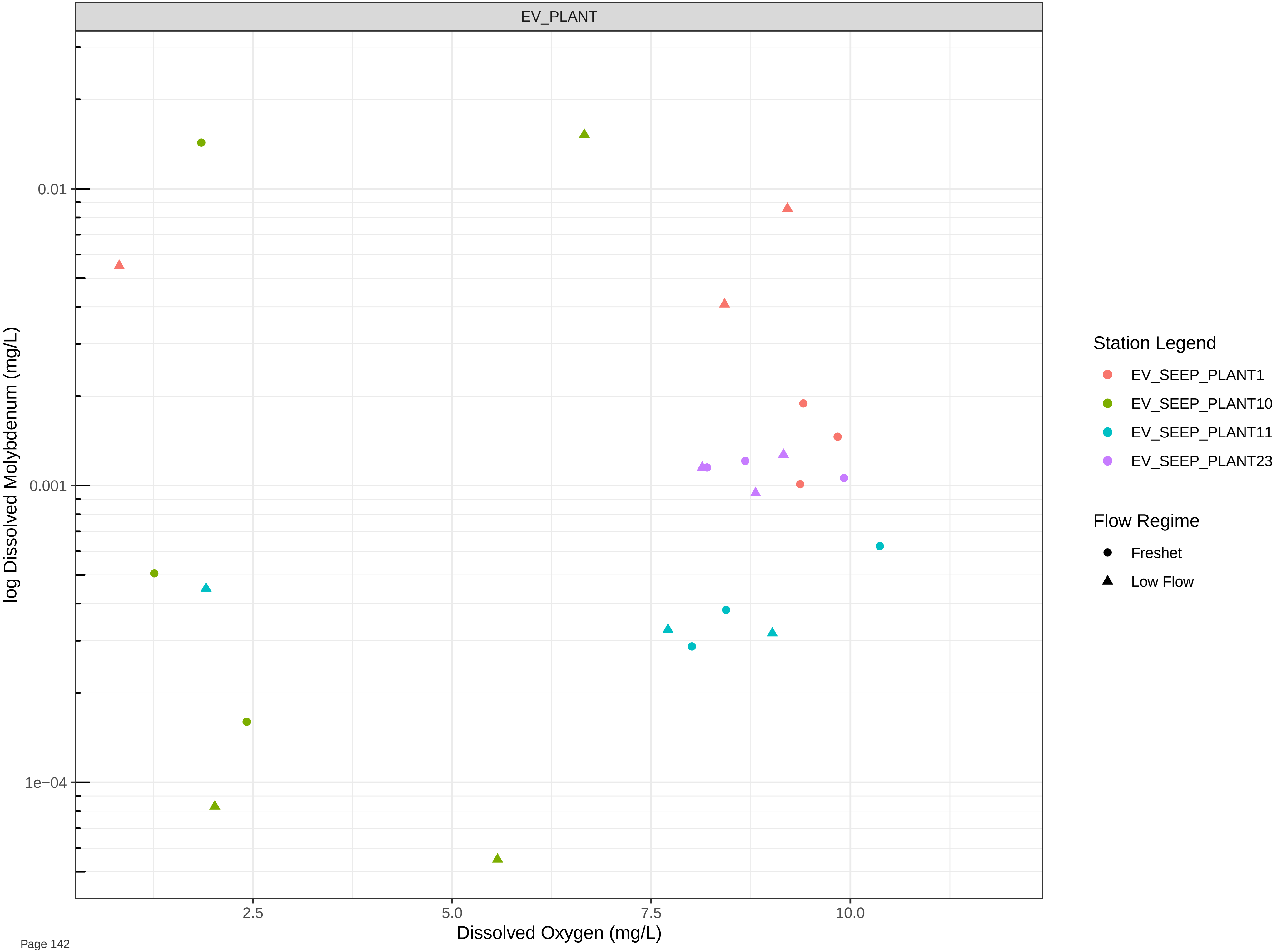

EV_BALDYRIDGEWR
log Dissolved Molybdenum (mg/L)
0.01
0.001
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

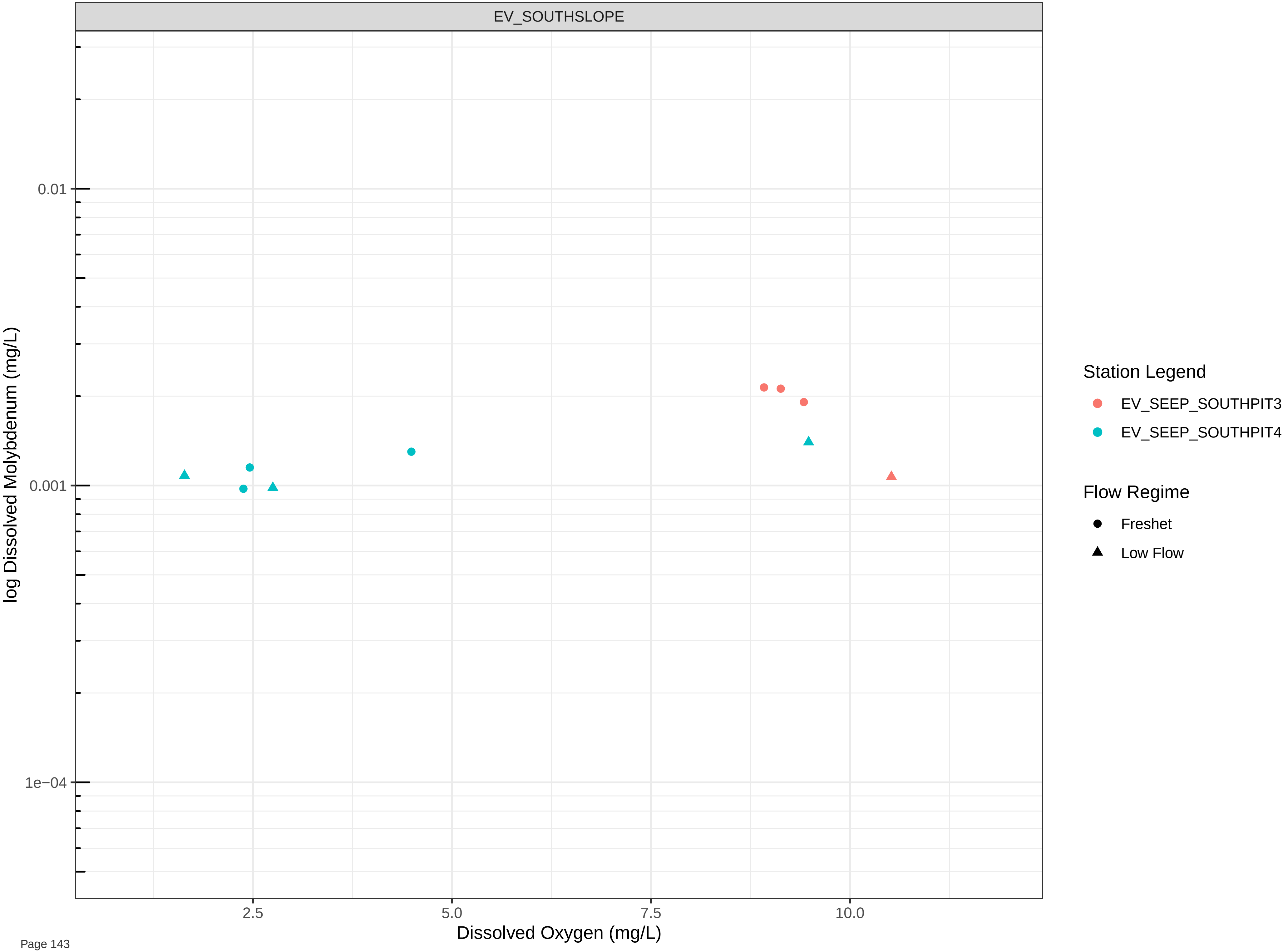

EV_CCR
0.01
0.001
1e−04
log Dissolved Molybdenum (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

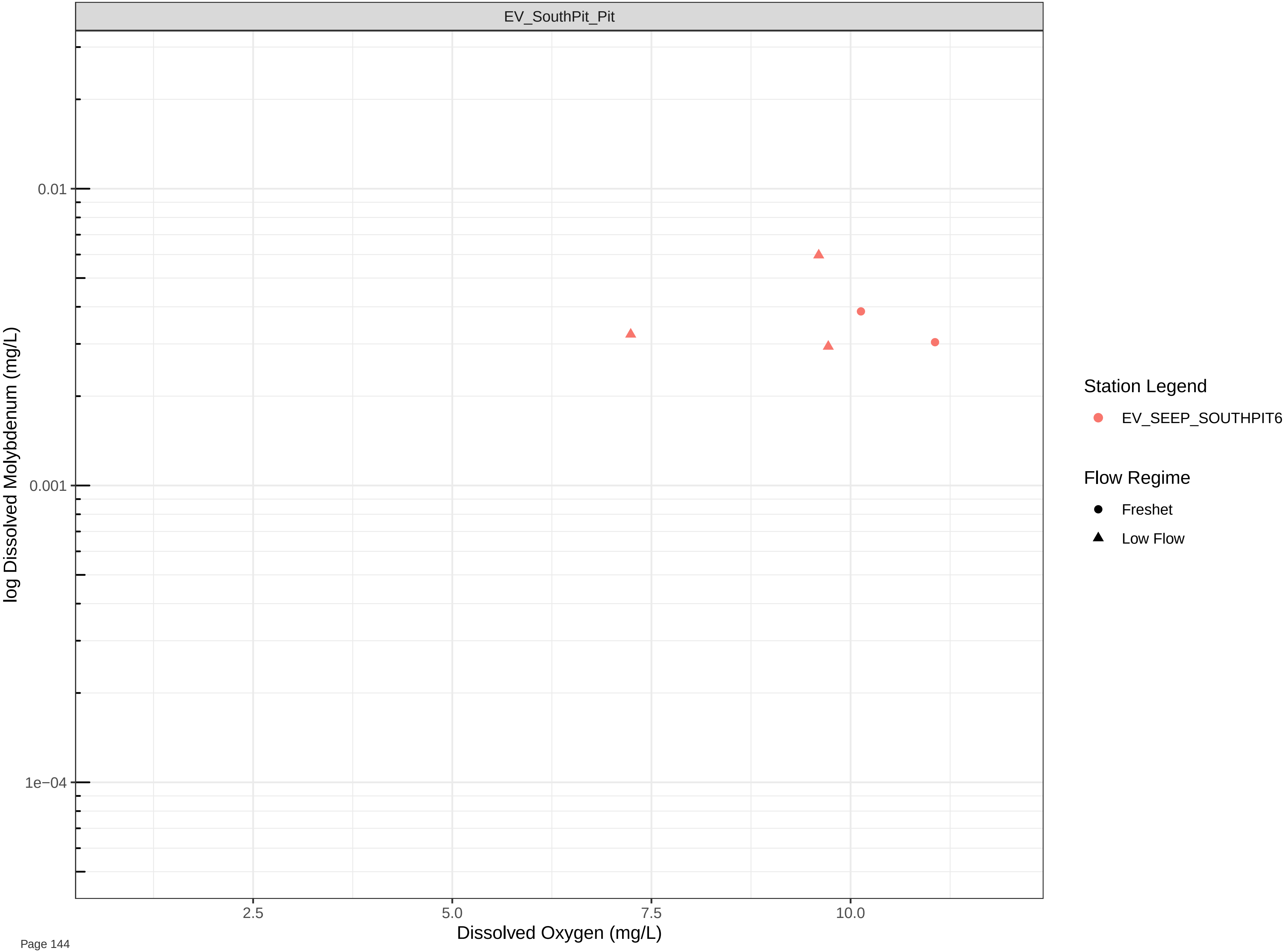

EV_CCR/TP
log Dissolved Molybdenum (mg/L)
0.01
0.001
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

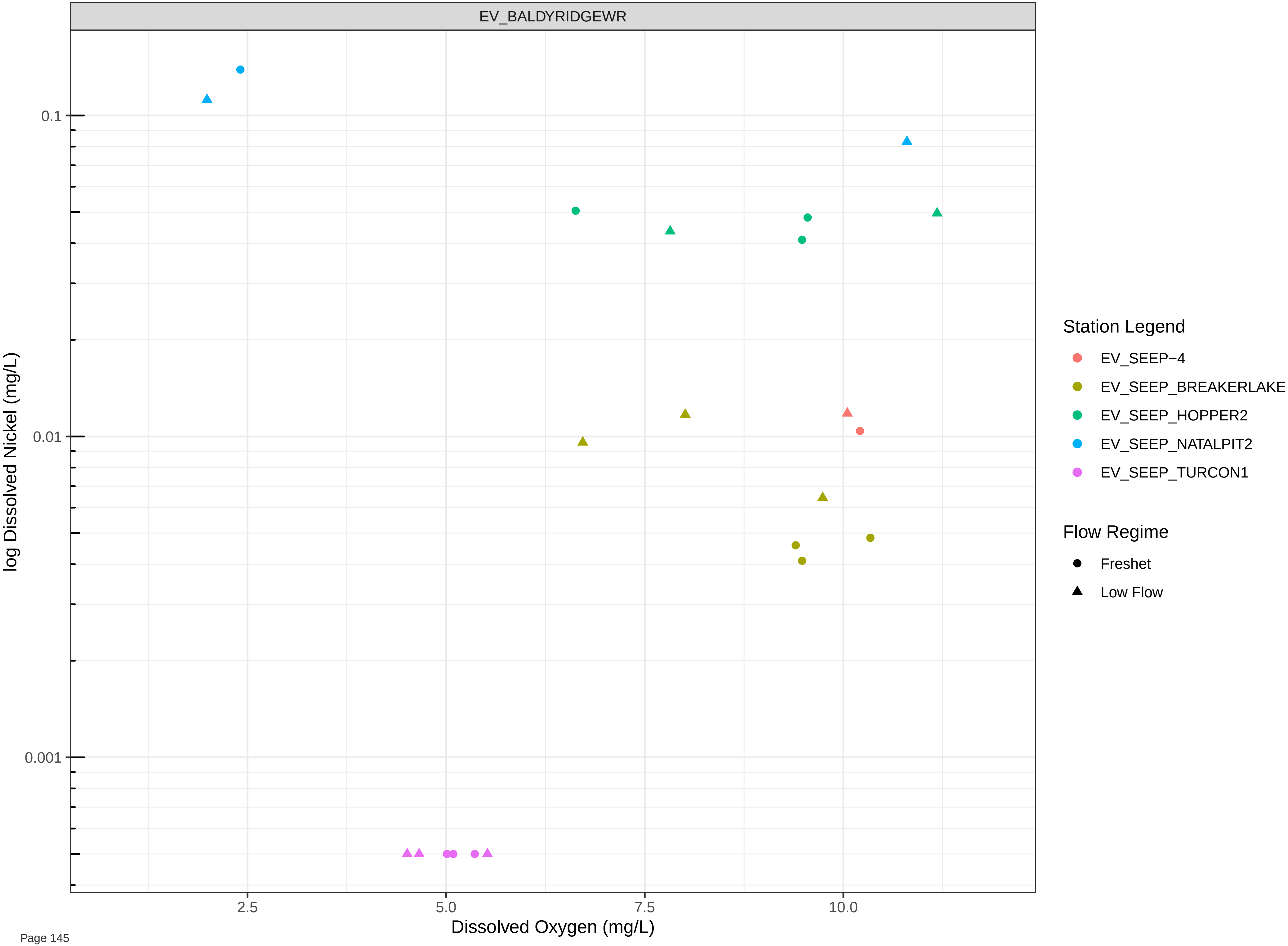

EV_CEDARWR
log Dissolved Molybdenum (mg/L)
0.01
0.001
1e−04
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_CN1
● EV_SEEP_10MILE5
● EV_SEEP_10MILE9
Flow Regime
● Freshet
▲ Low Flow

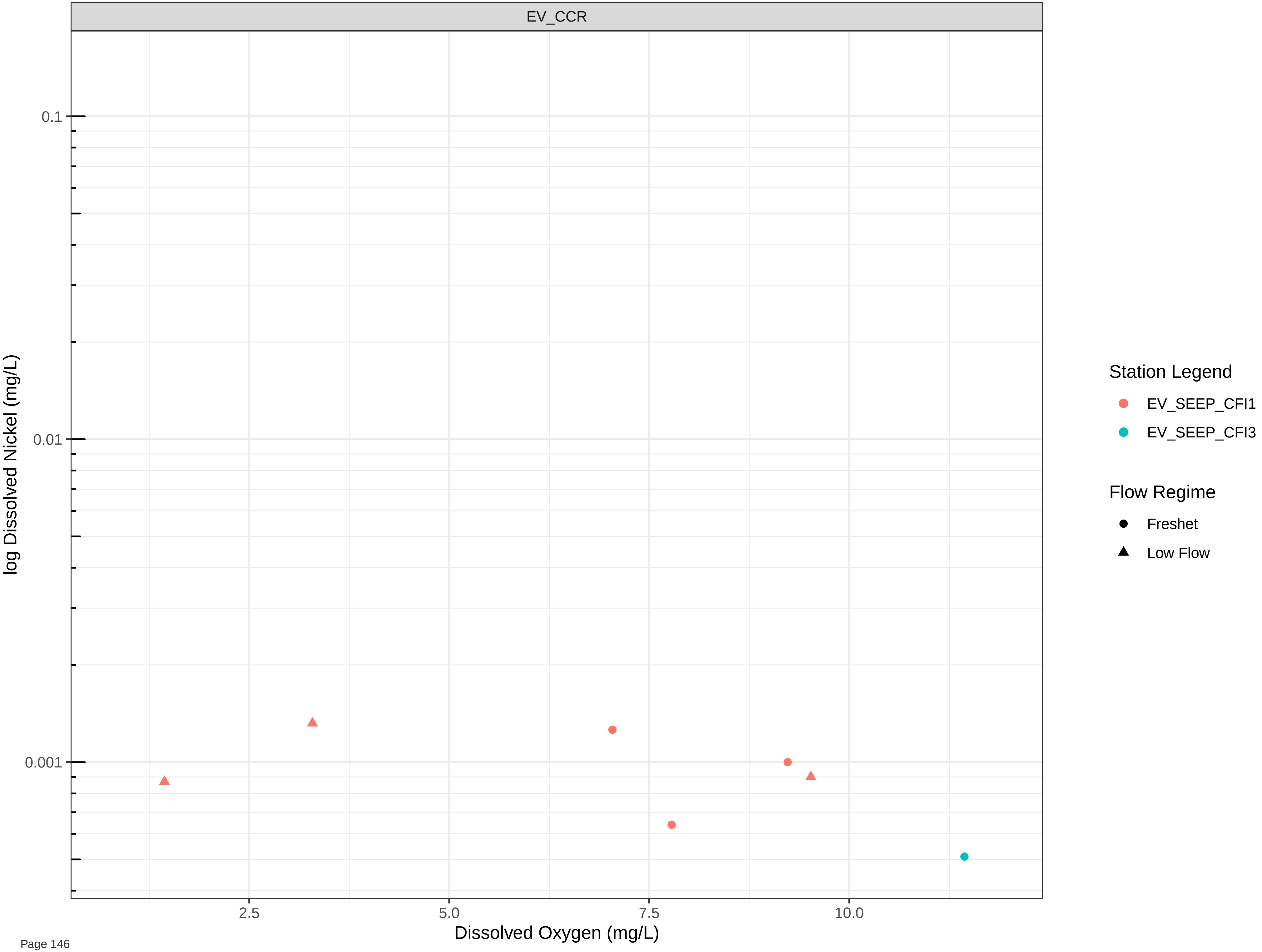

EV_Erickson_WR
log Dissolved Molybdenum (mg/L)
0.01
0.001
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

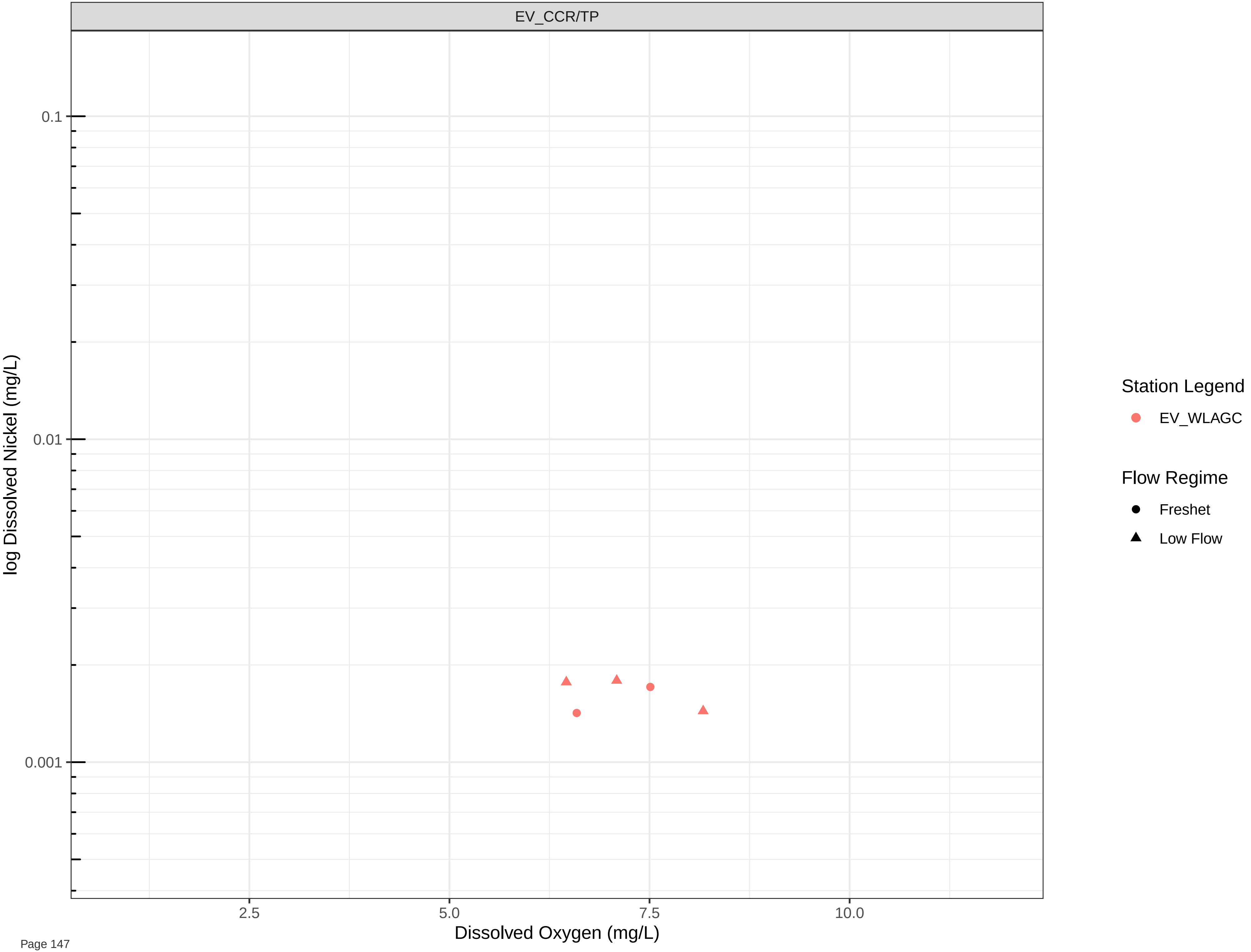

EV_PLANT
log Dissolved Molybdenum (mg/L)
0.01
0.001
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_PLANT1
● EV_SEEP_PLANT10
● EV_SEEP_PLANT11
● EV_SEEP_PLANT23
Flow Regime
● Freshet
▲ Low Flow

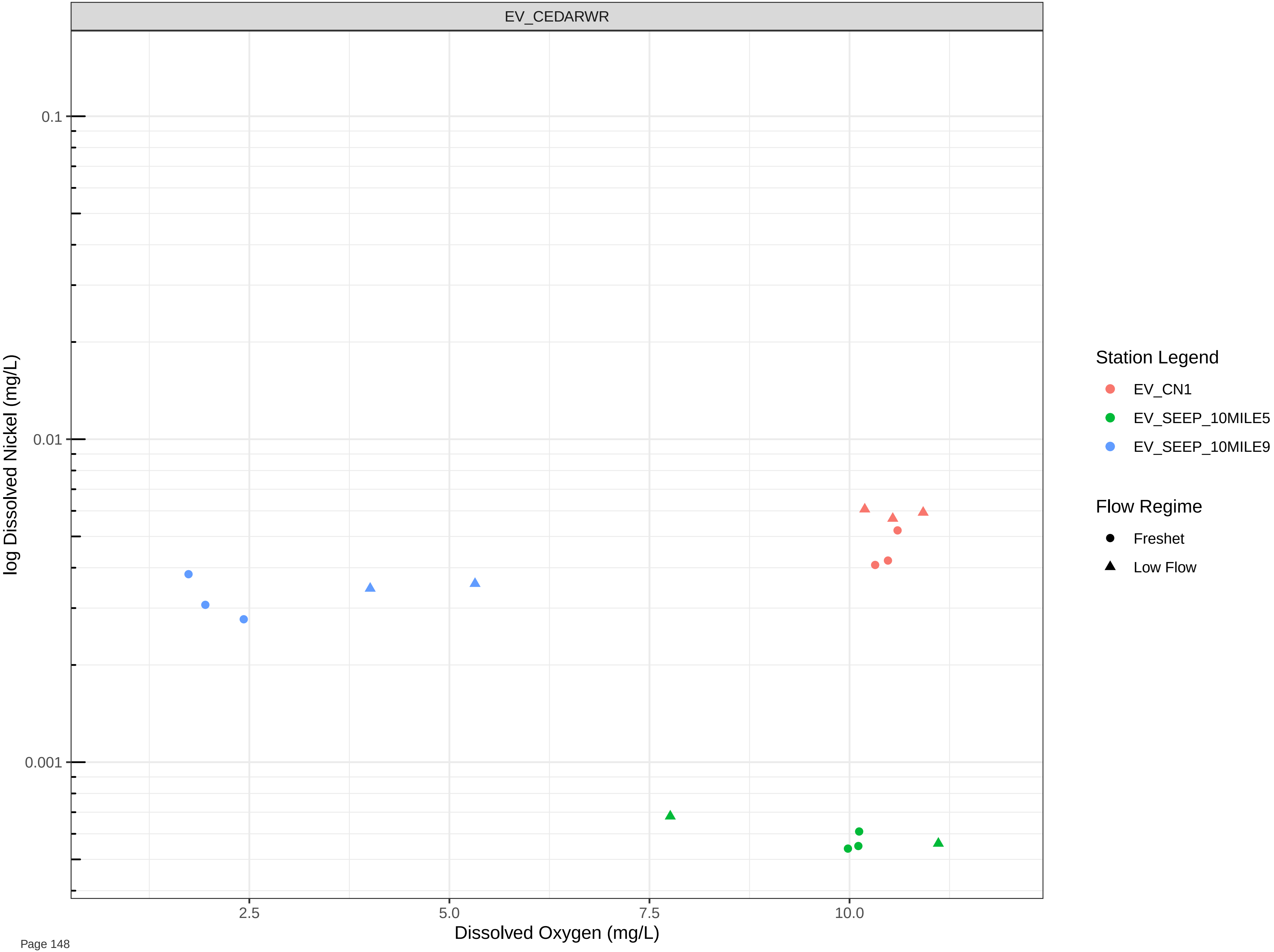

EV_SOUTHSLOPE
log Dissolved Molybdenum (mg/L)
0.01
0.001
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

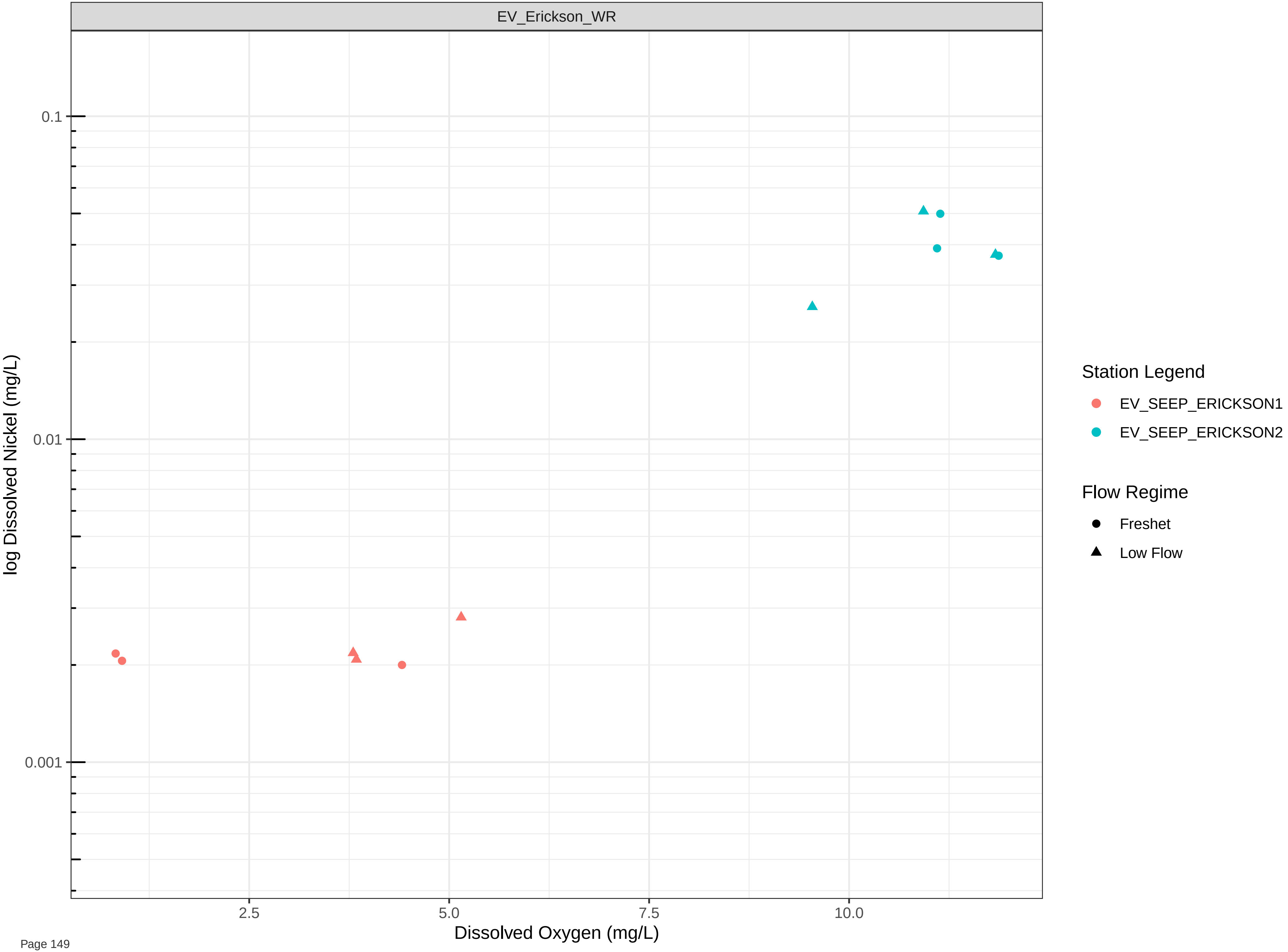

EV_SouthPit_Pit
log Dissolved Molybdenum (mg/L)
0.01
0.001
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

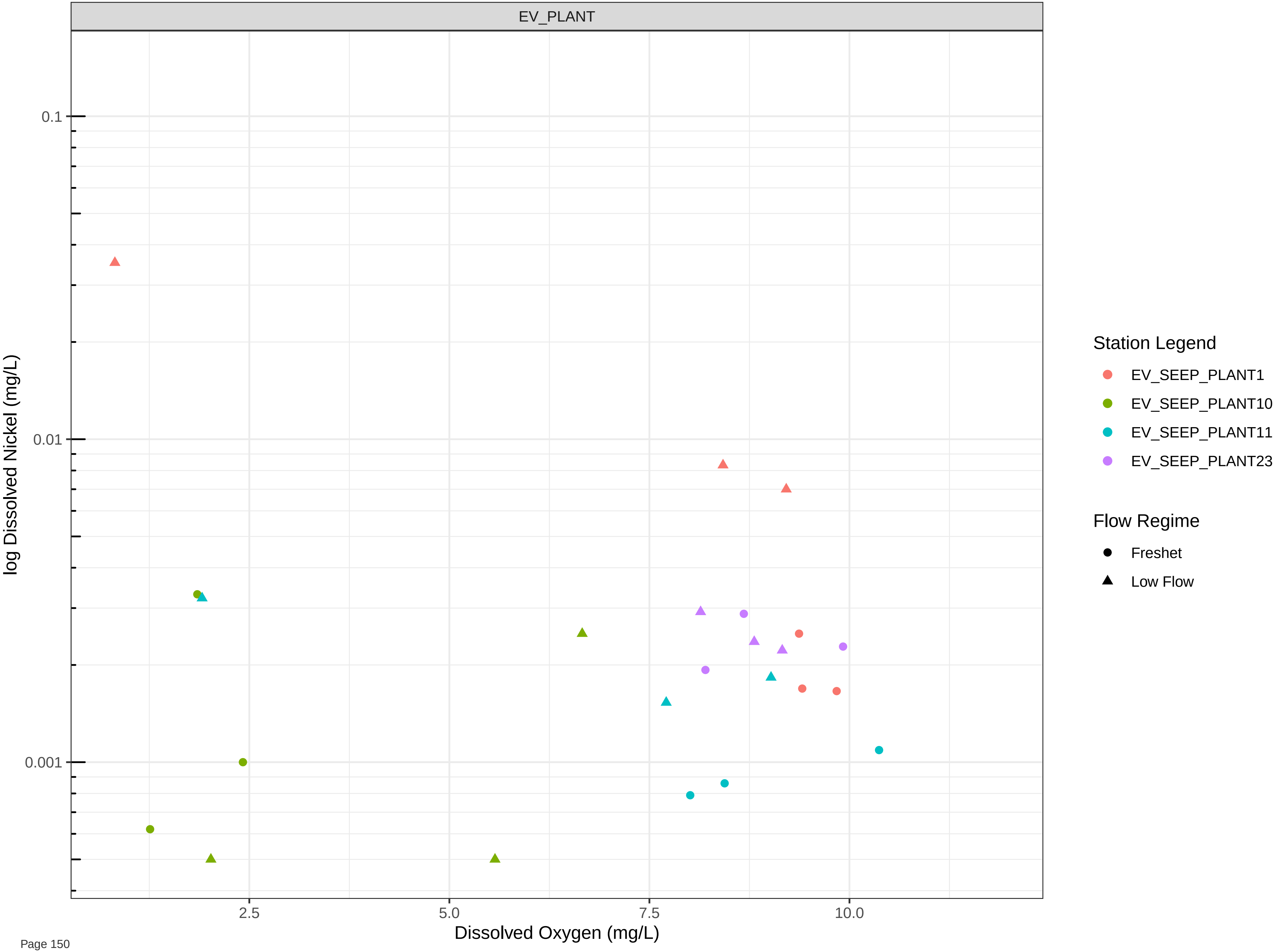

EV_BALDYRIDGEWR
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

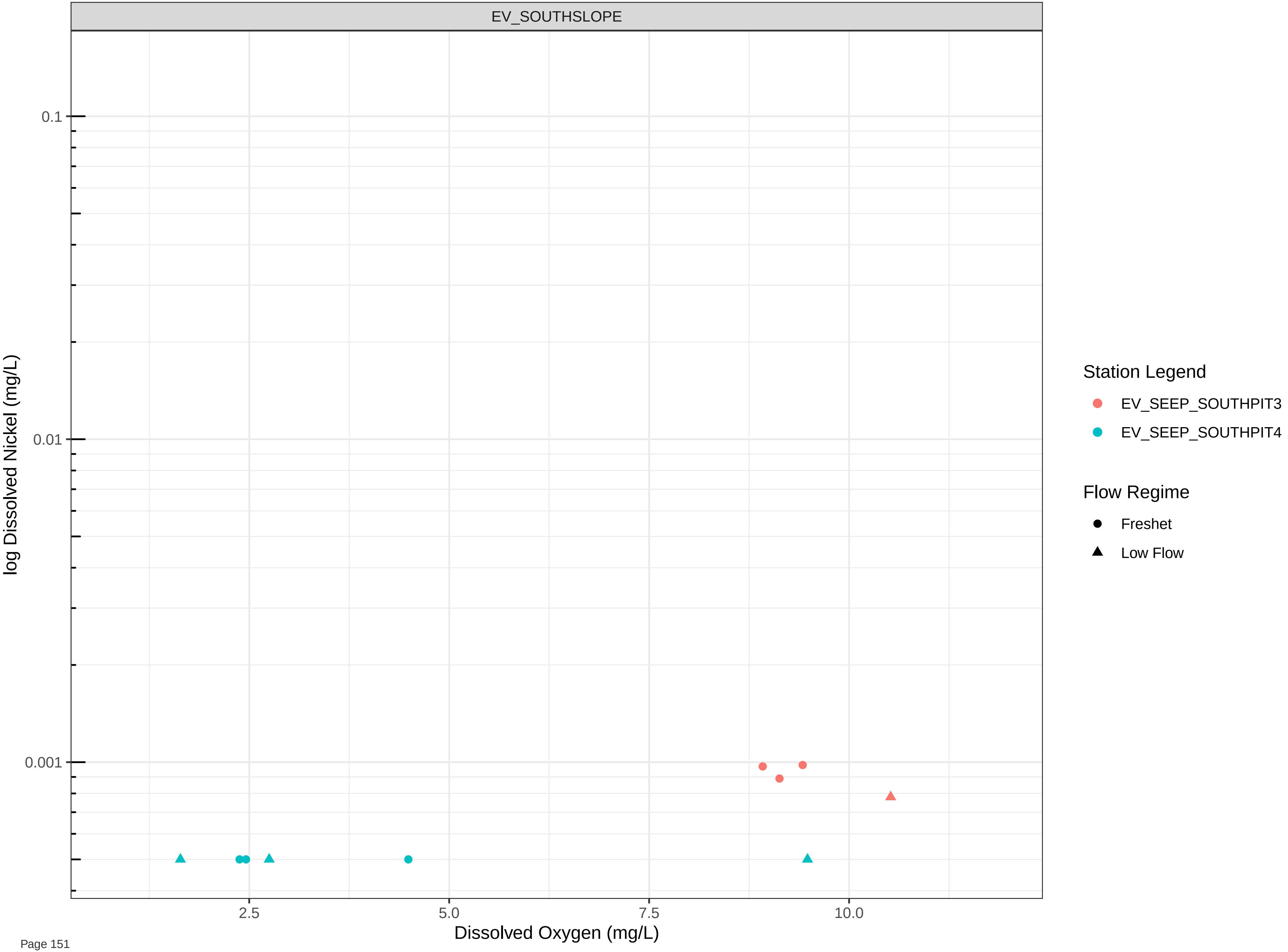

EV_CCR
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

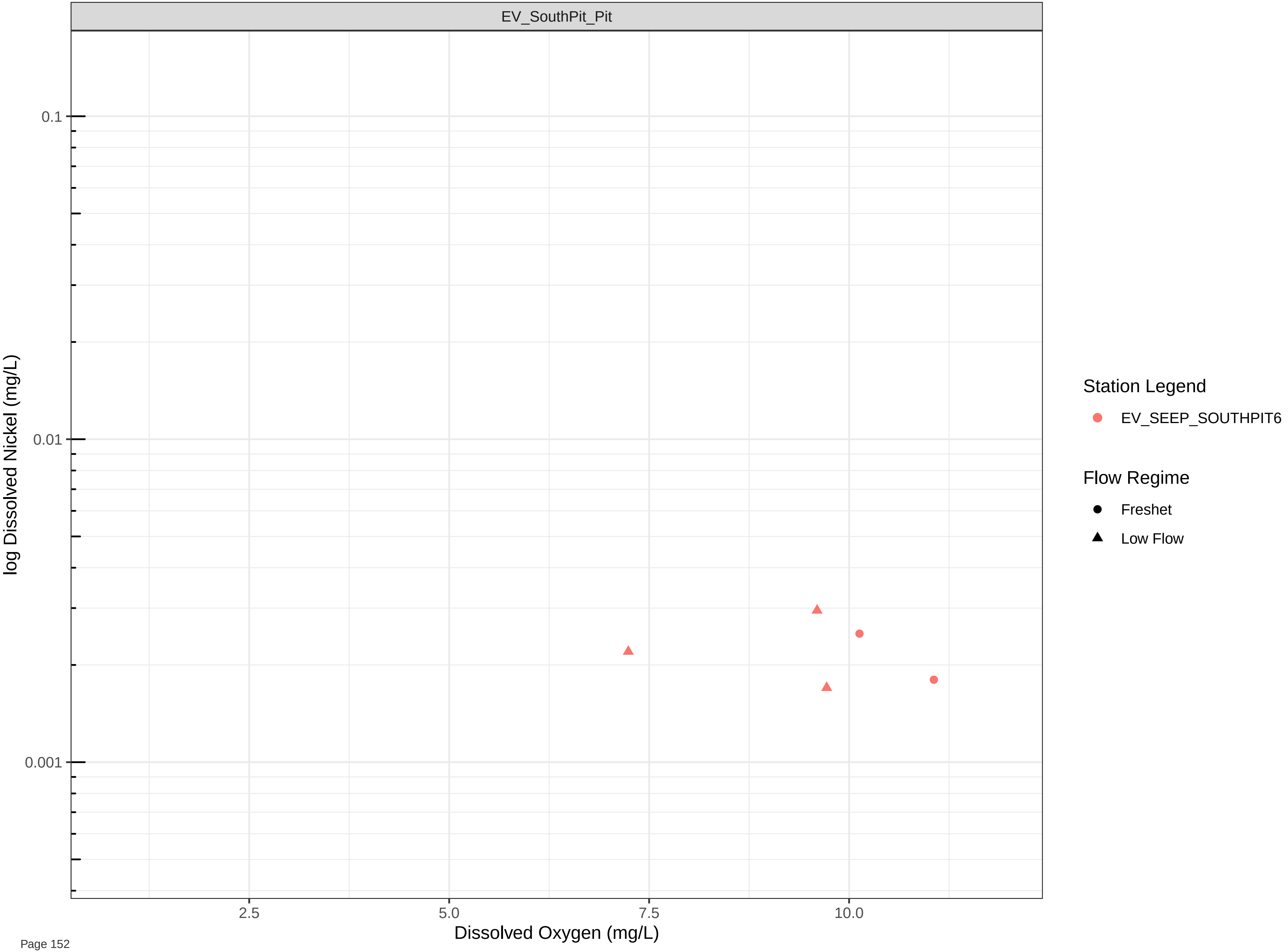

EV_CCR/TP
0.1
0.01
0.001
log Dissolved Nickel (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

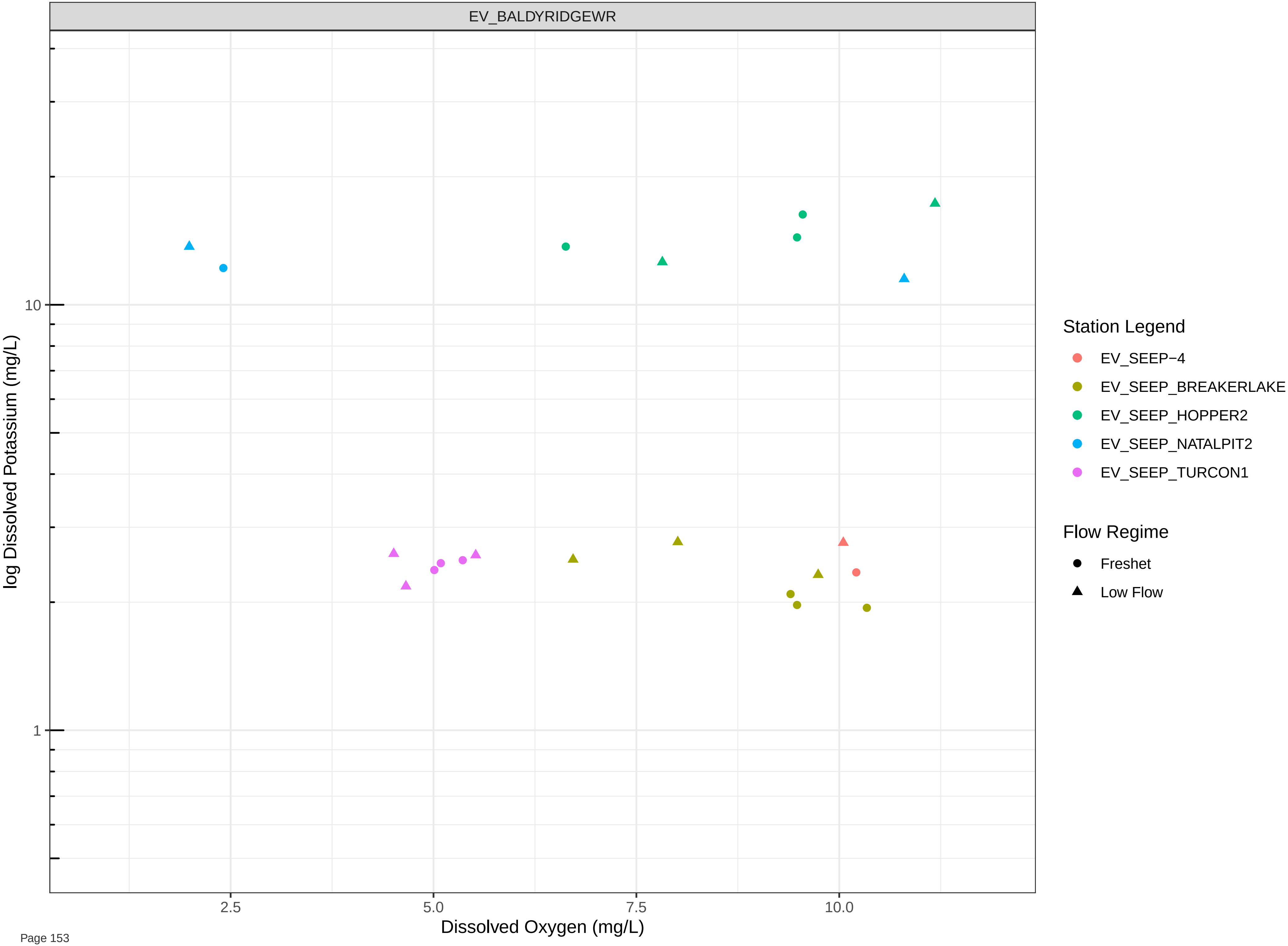

EV_CEDARWR
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

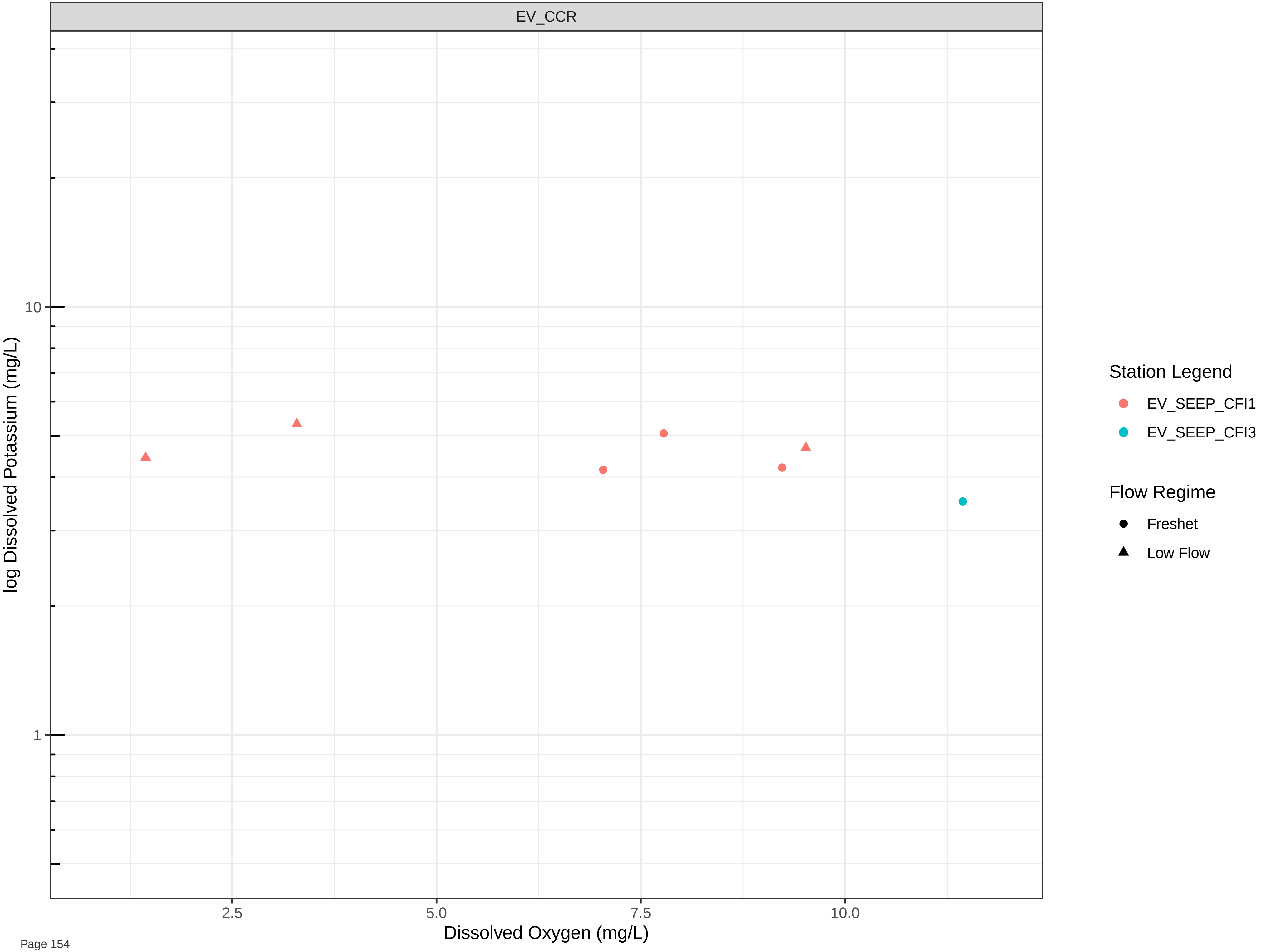

EV_Erickson_WR
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

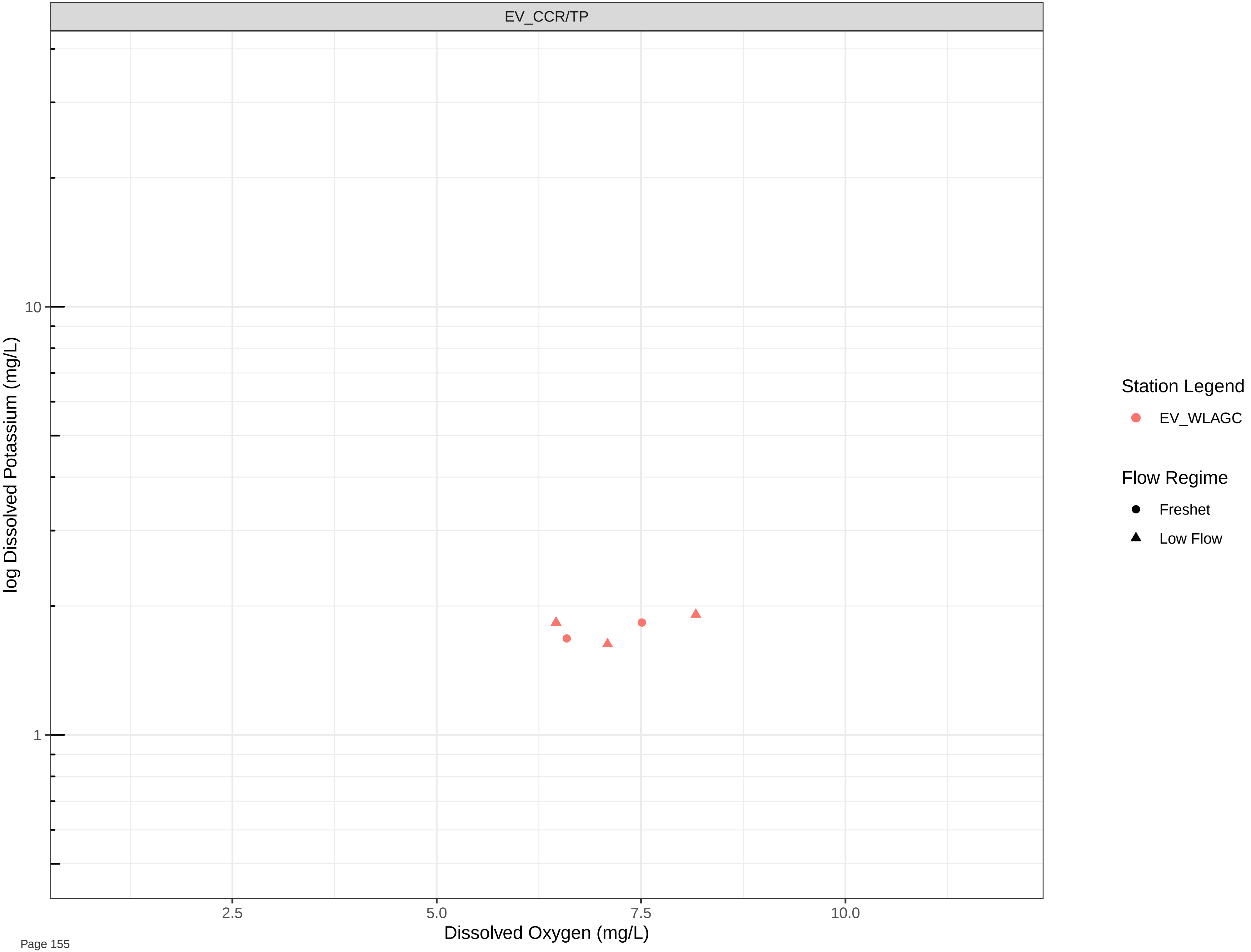

EV_PLANT
0.1
0.01
0.001
log Dissolved Nickel (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

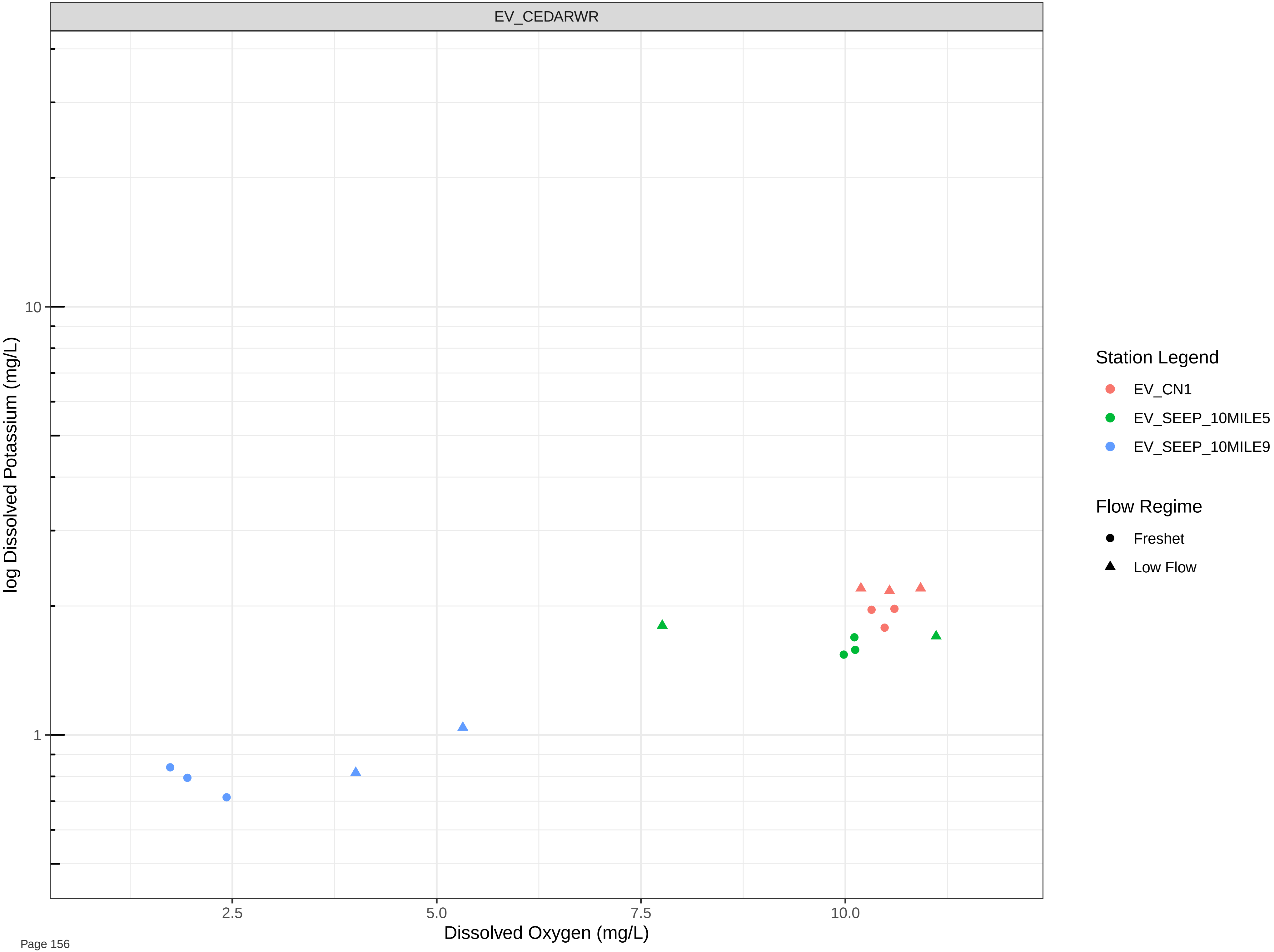

EV_SOUTHSLOPE
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

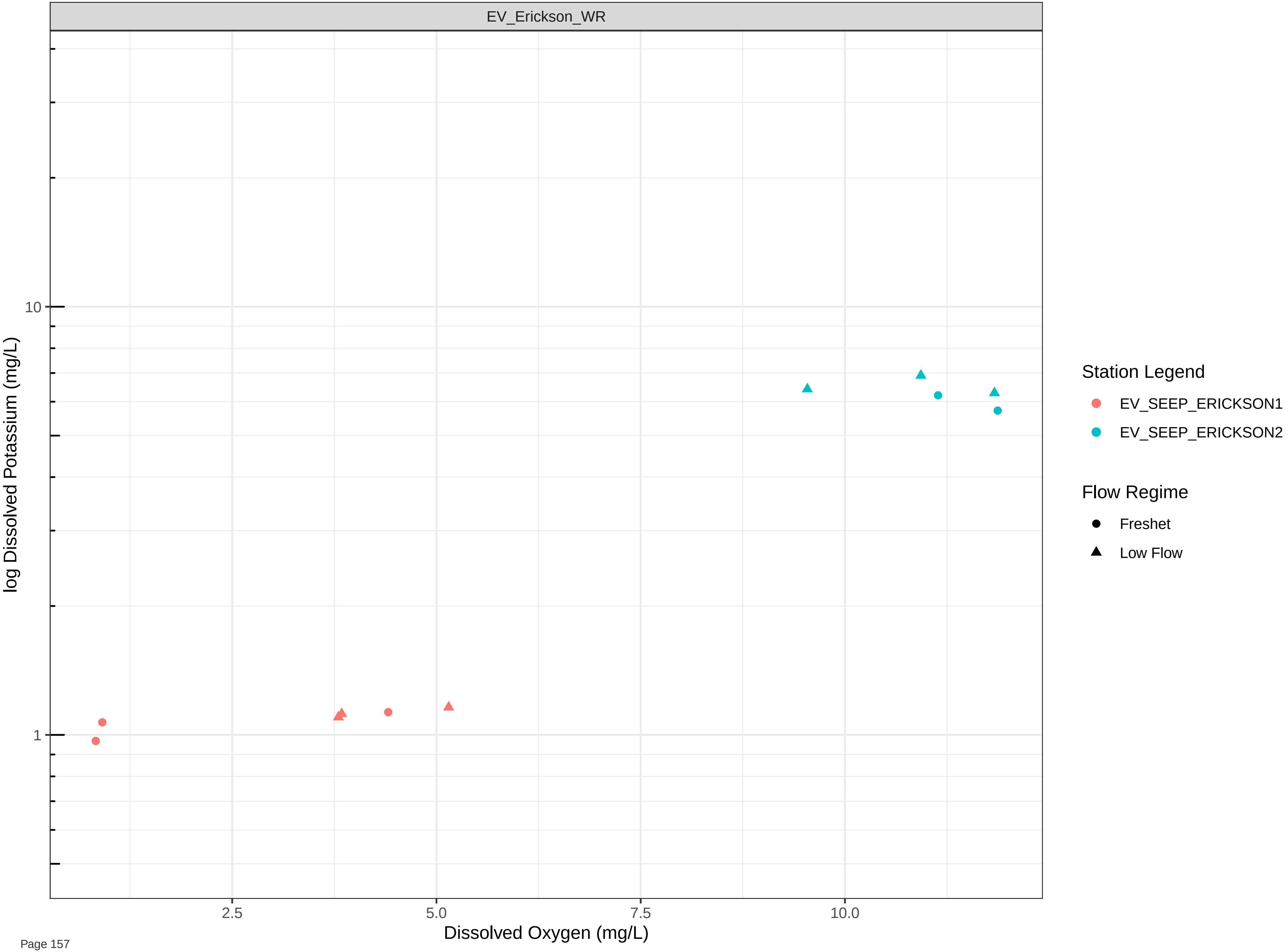

EV_SouthPit_Pit
0.1
0.01
0.001
log Dissolved Nickel (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

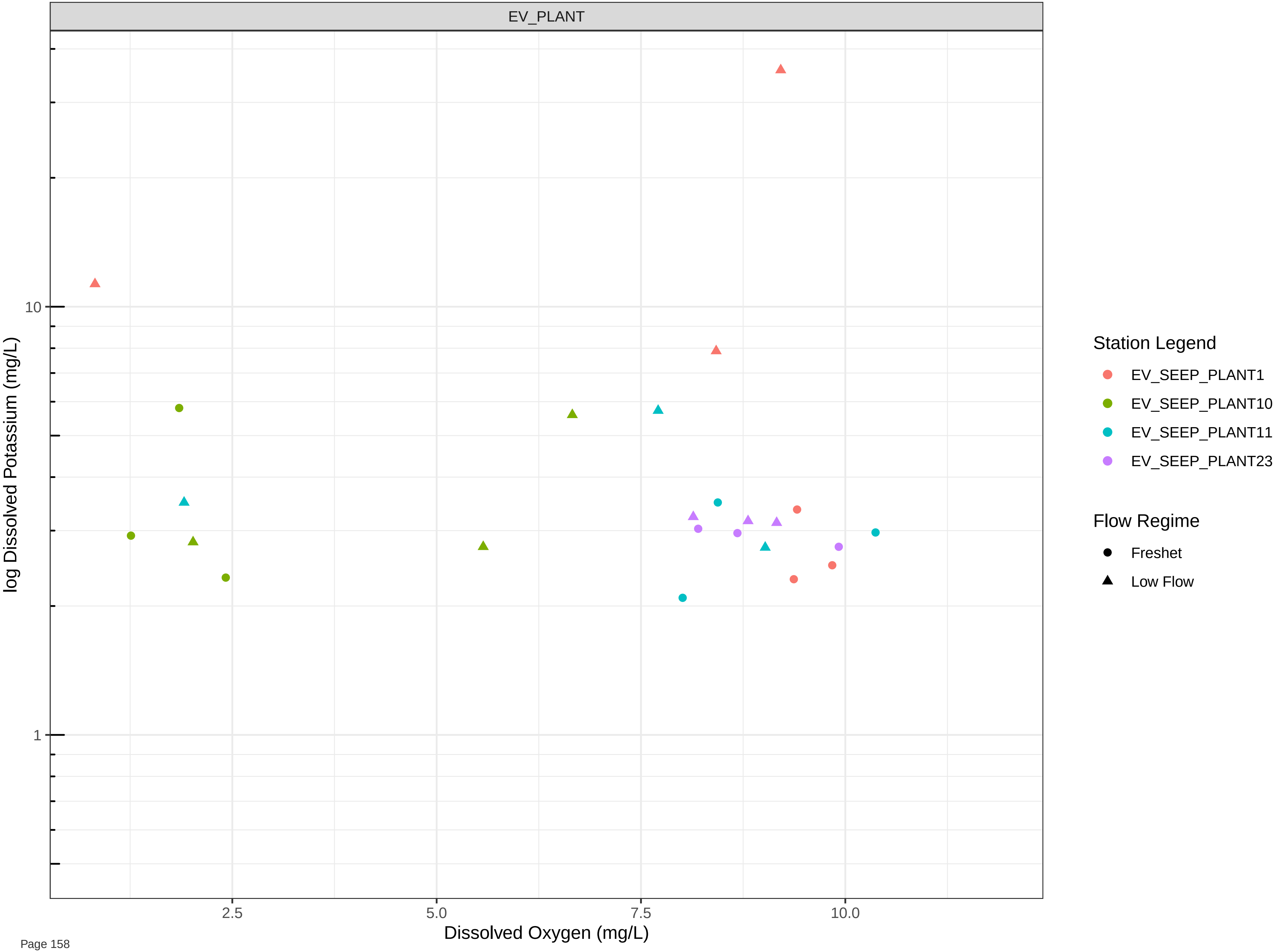

EV_BALDYRIDGEWR
log Dissolved Potassium (mg/L)
10
1
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

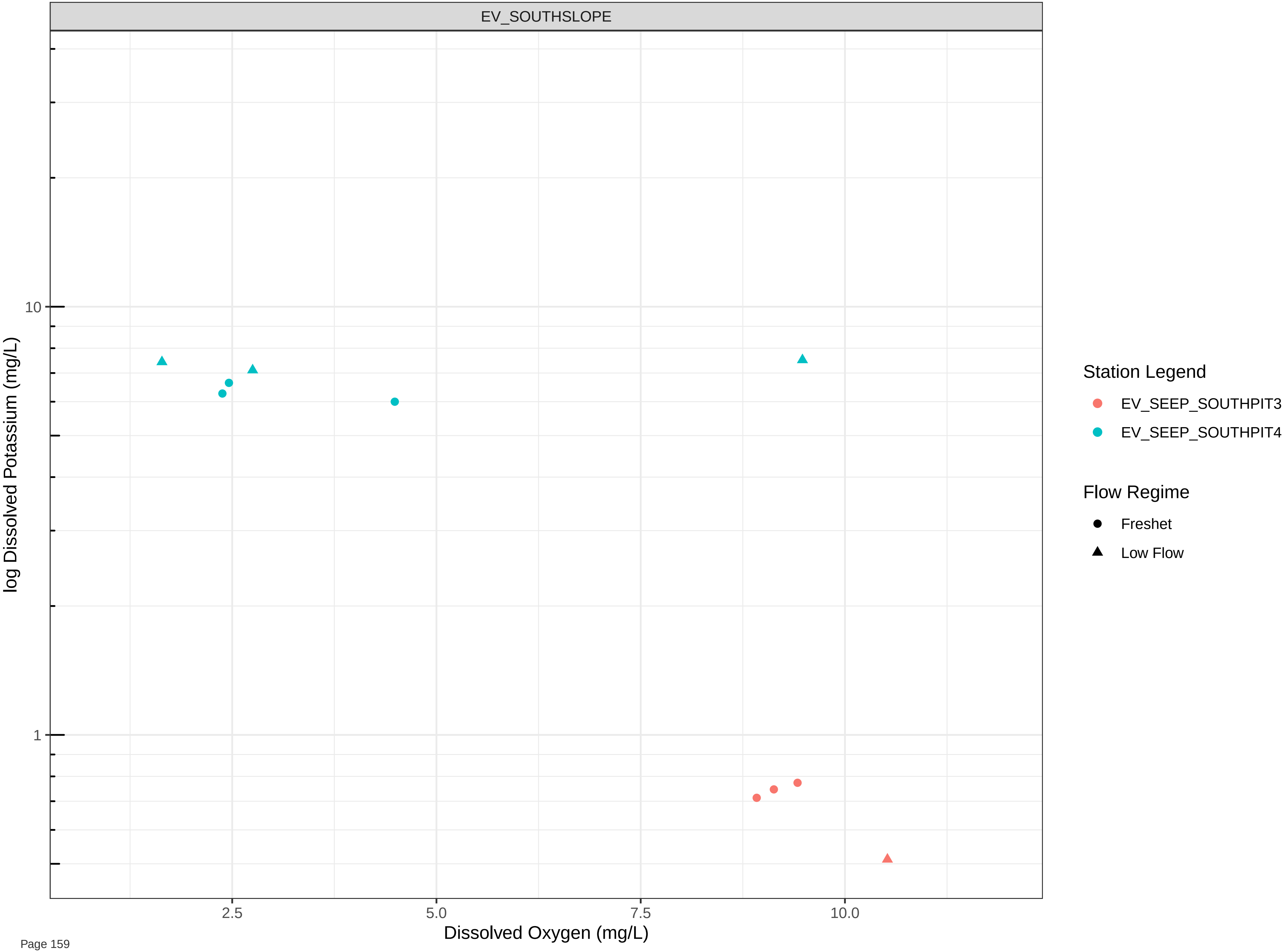

EV_CCR
log Dissolved Potassium (mg/L)
10
1
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

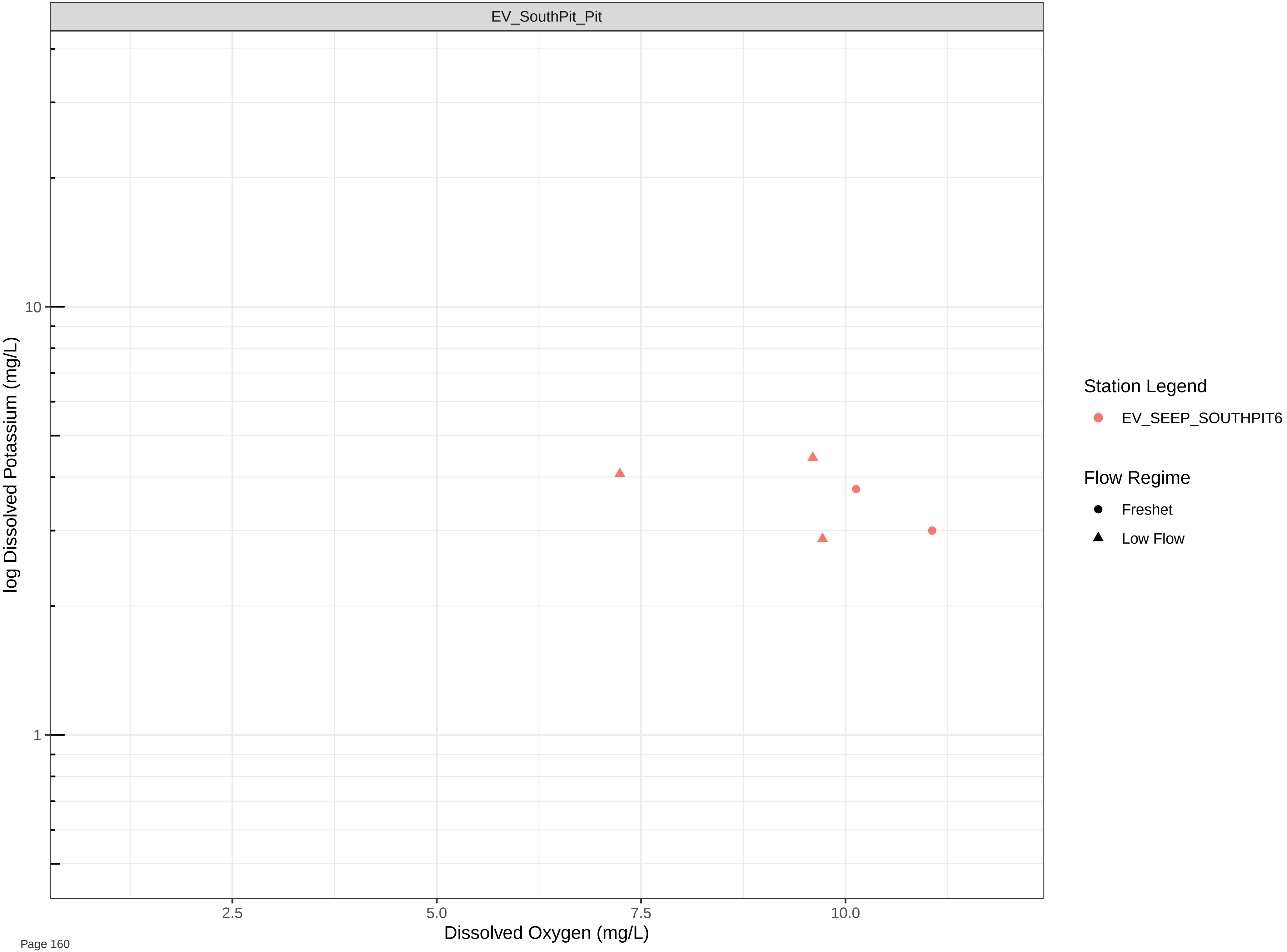

EV_CCR/TP
10
1
log Dissolved Potassium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow


EV_CEDARWR
log Dissolved Potassium (mg/L)
10
1
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

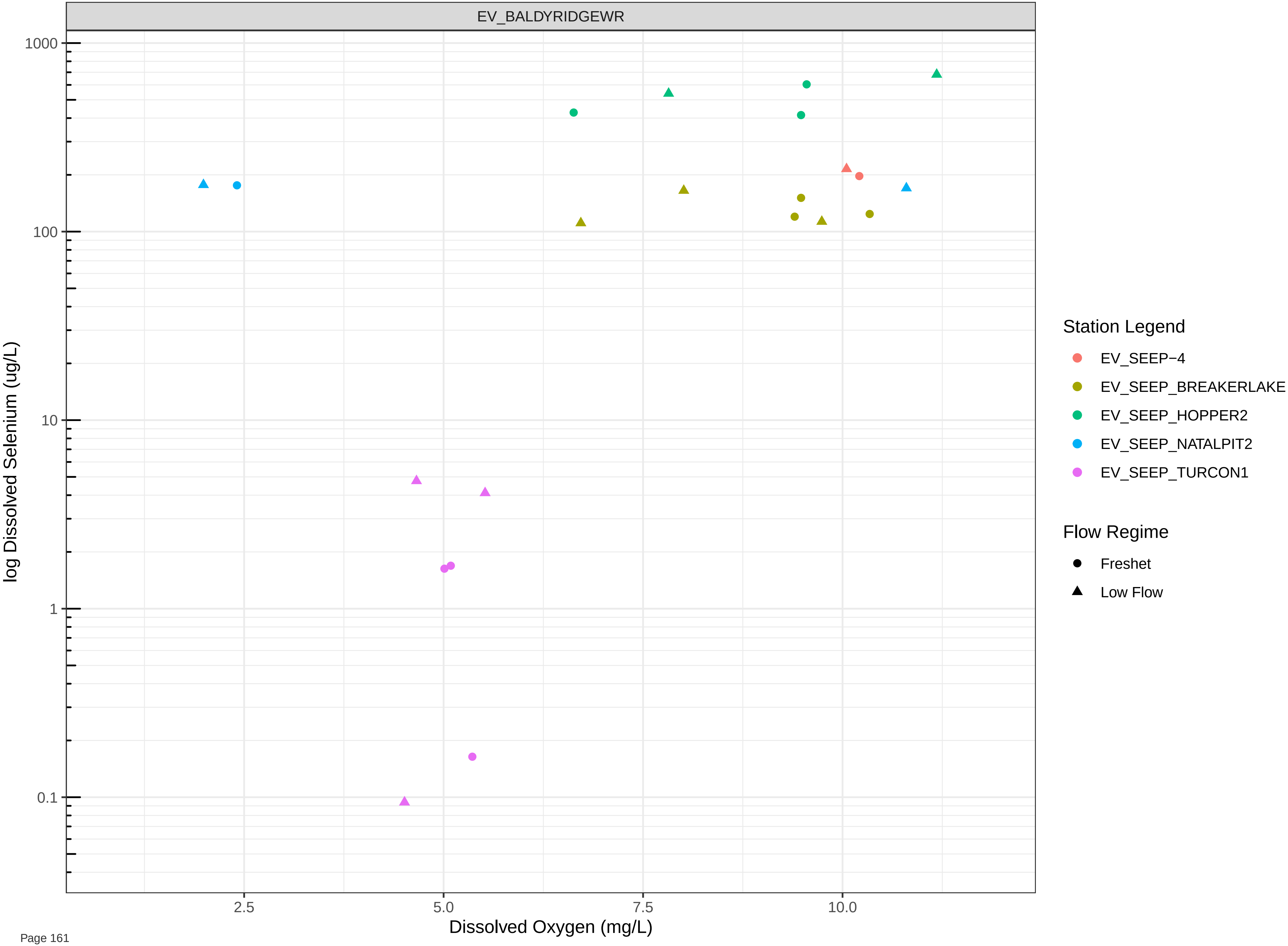

EV_Erickson_WR
log Dissolved Potassium (mg/L)
10
1
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

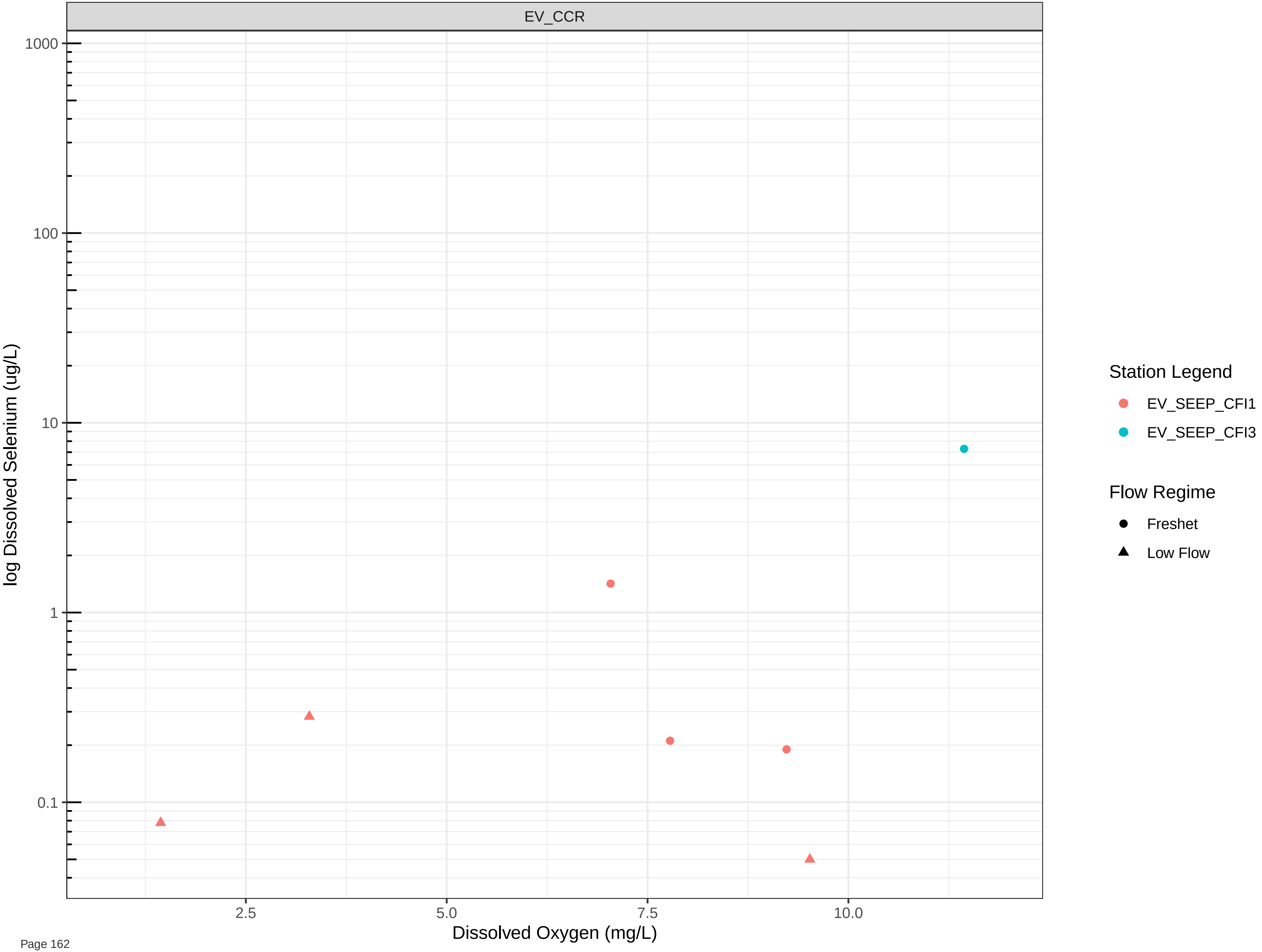

EV_PLANT
log Dissolved Potassium (mg/L)
10
1
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

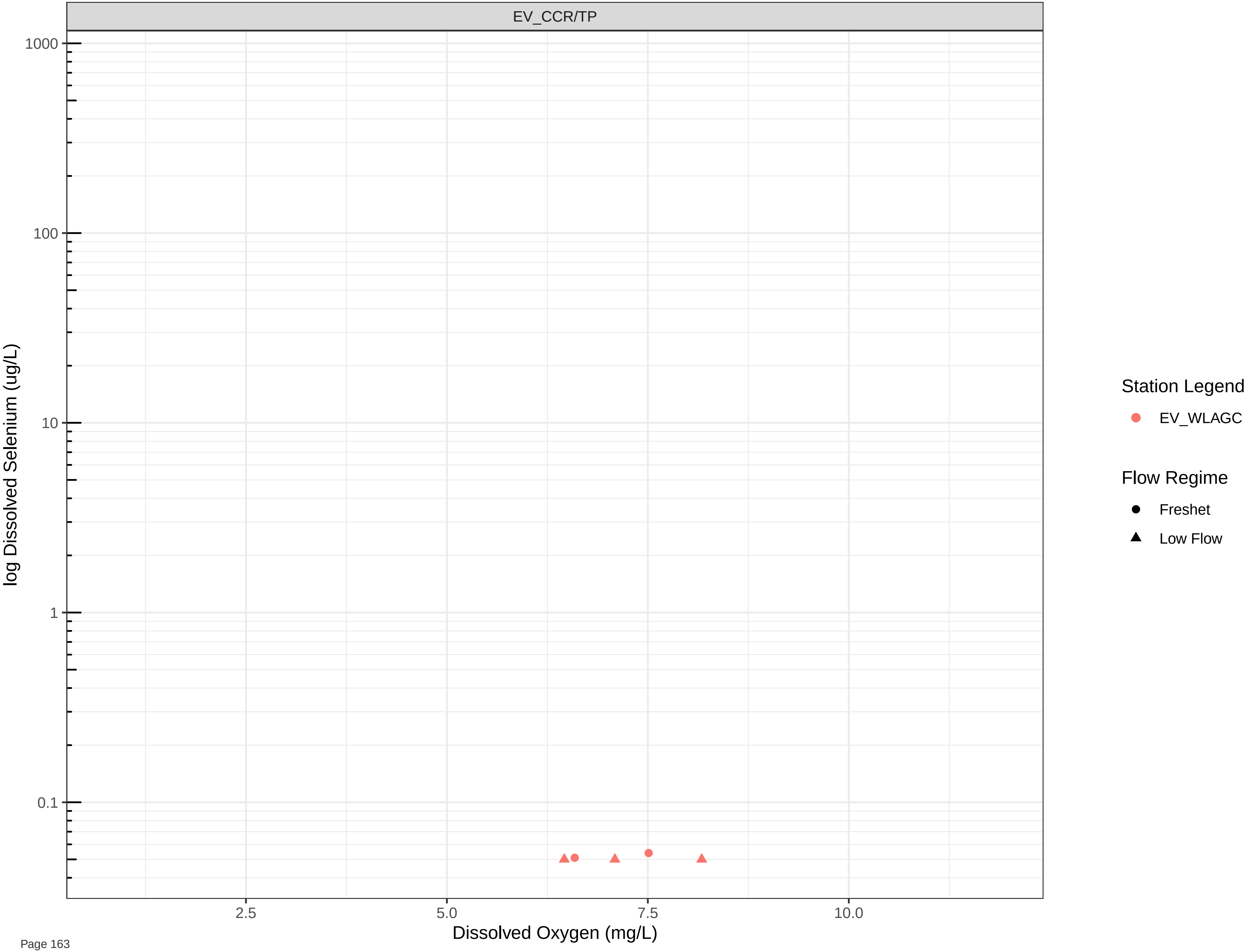

EV_SOUTHSLOPE
log Dissolved Potassium (mg/L)
10
1
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

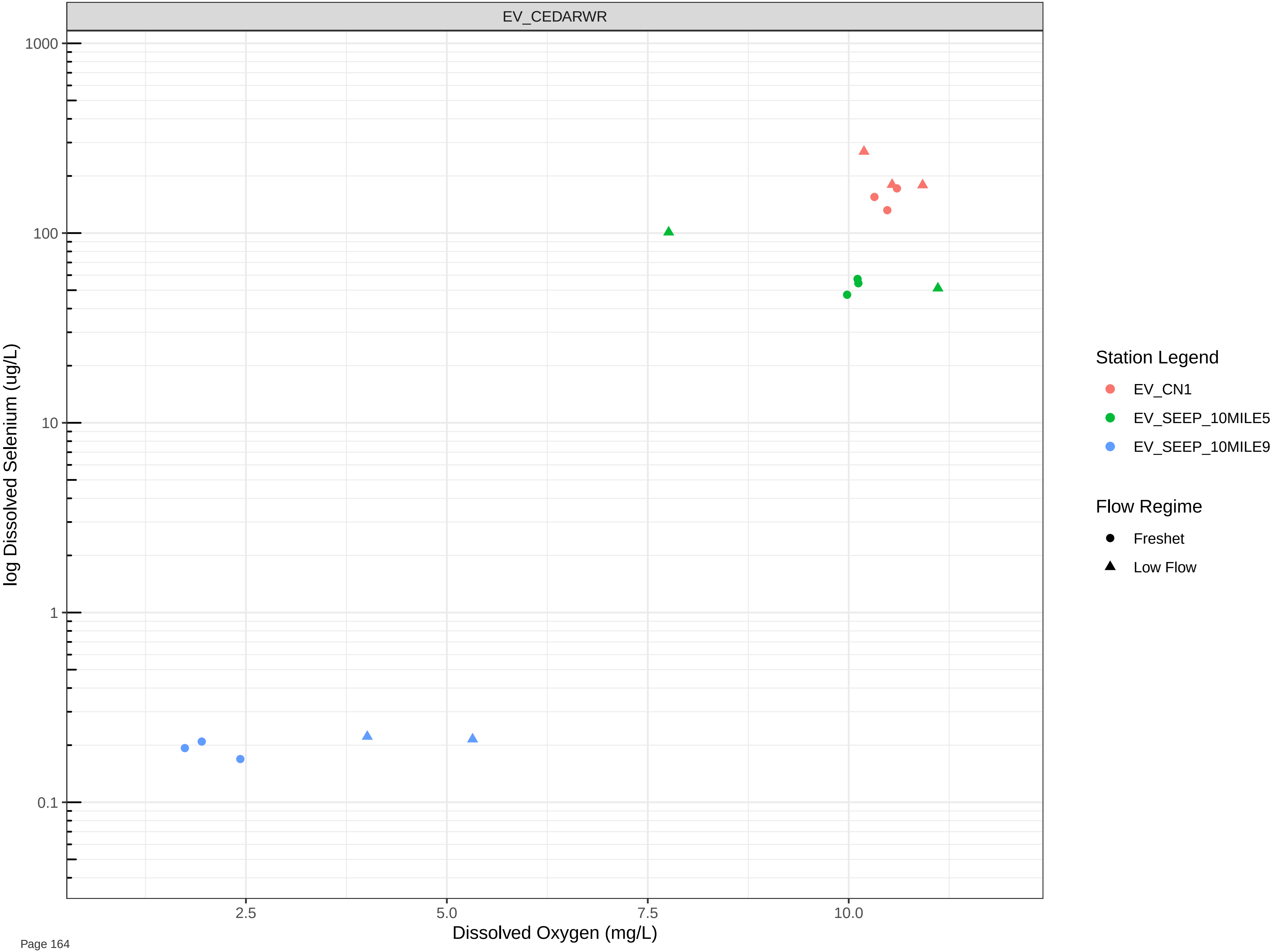


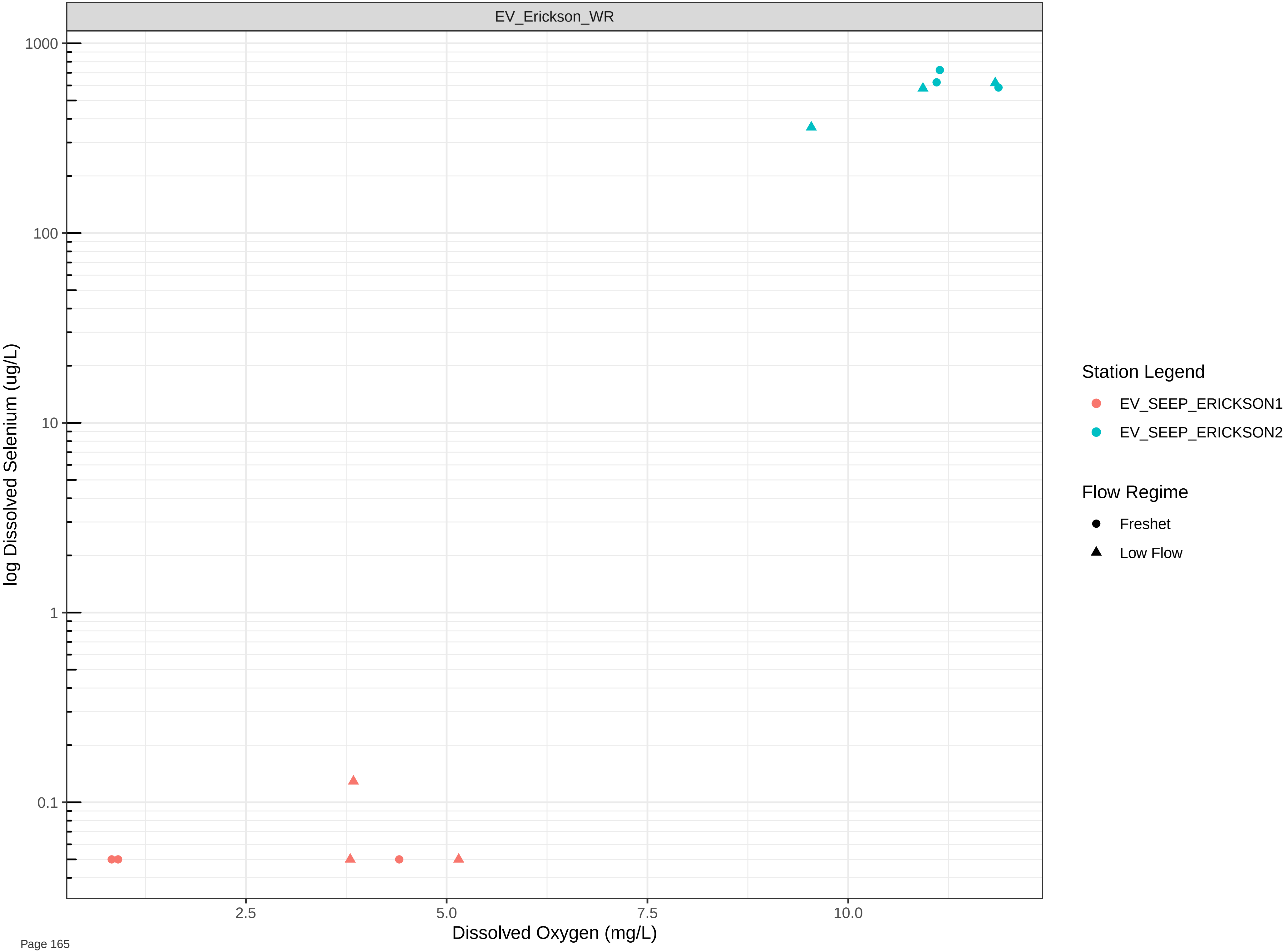
EV_SouthPit_Pit
log Dissolved Potassium (mg/L)
10
1
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

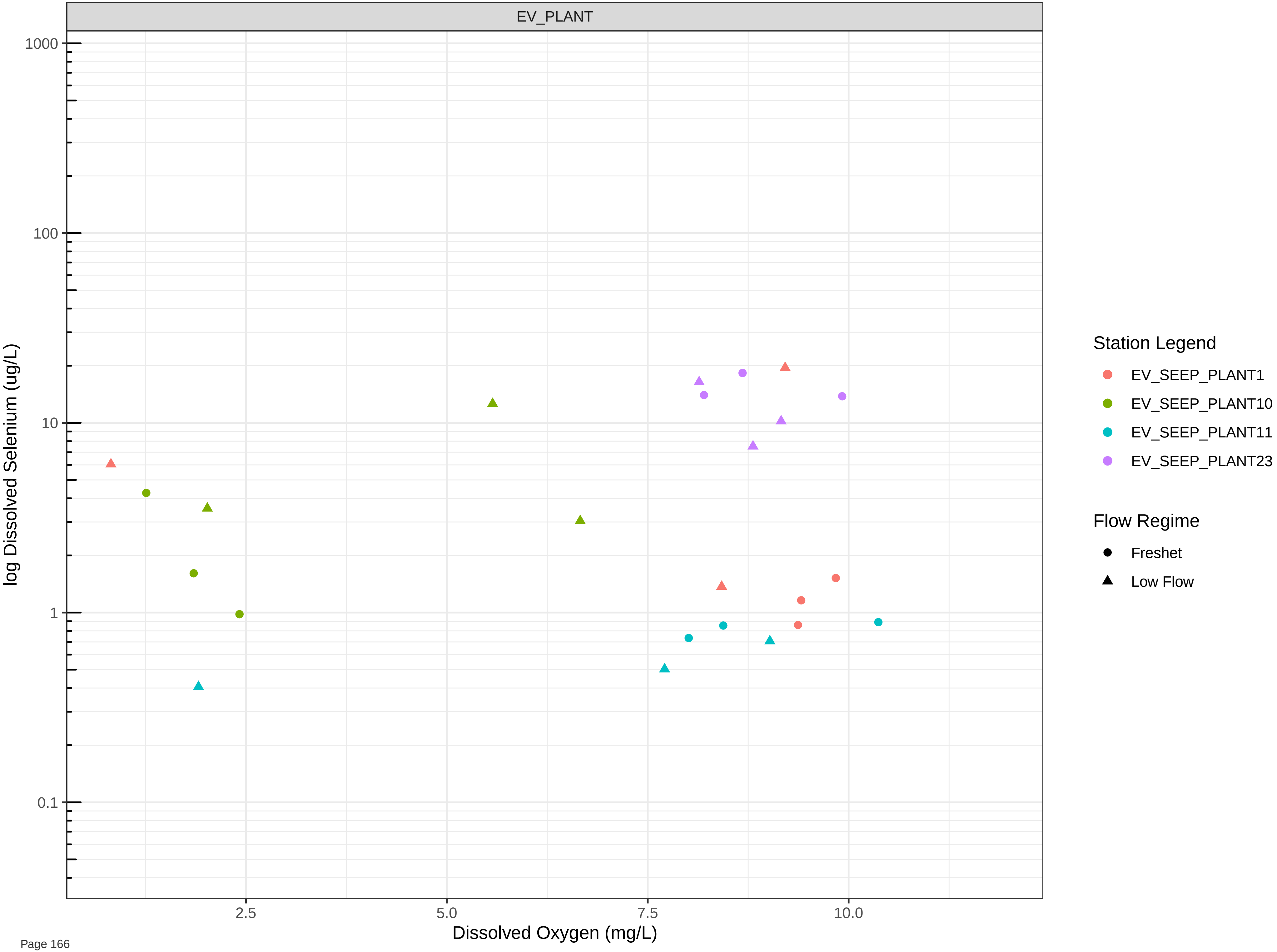

EV_BALDYRIDGEWR
1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

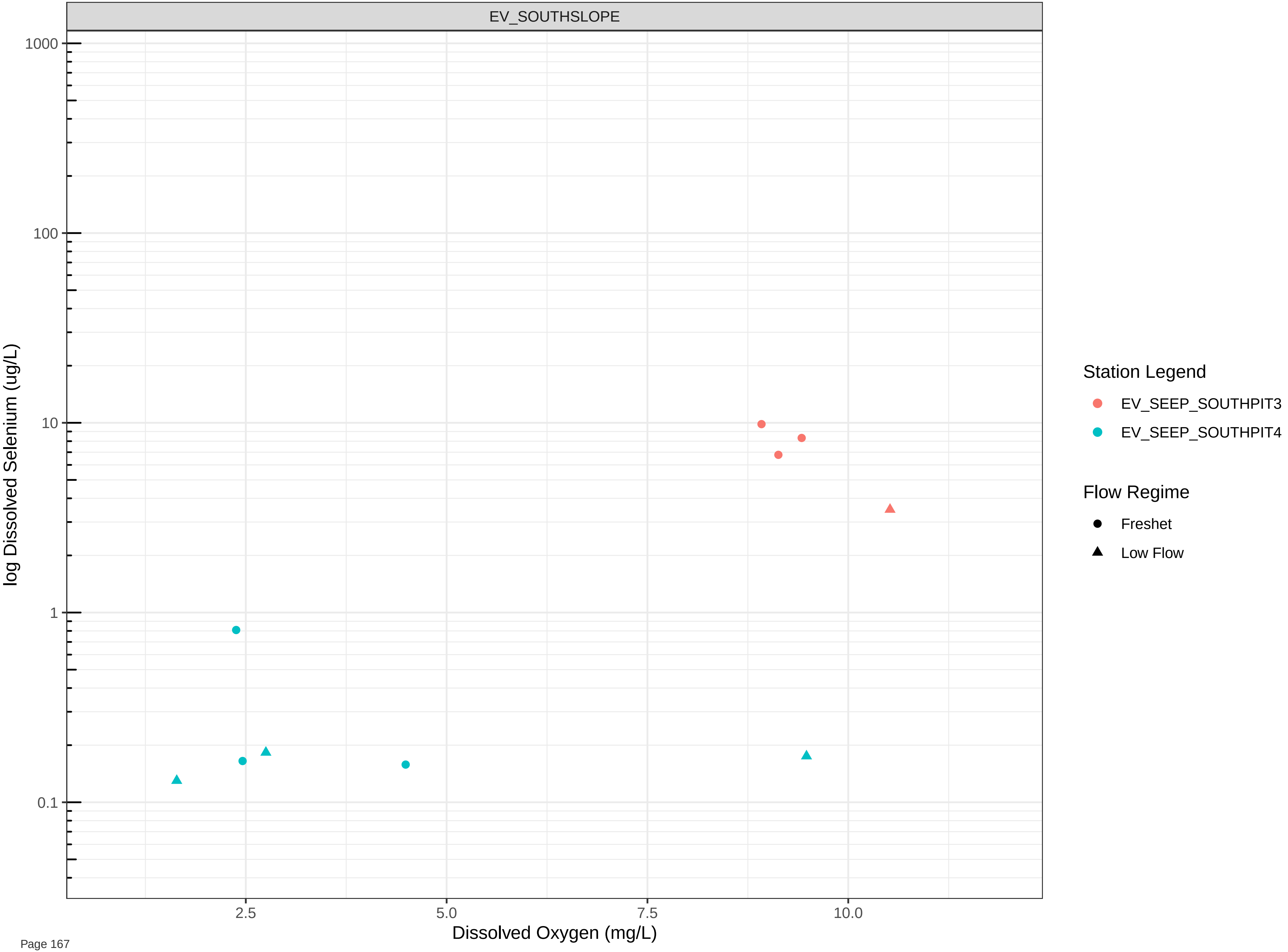

EV_CCR
1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

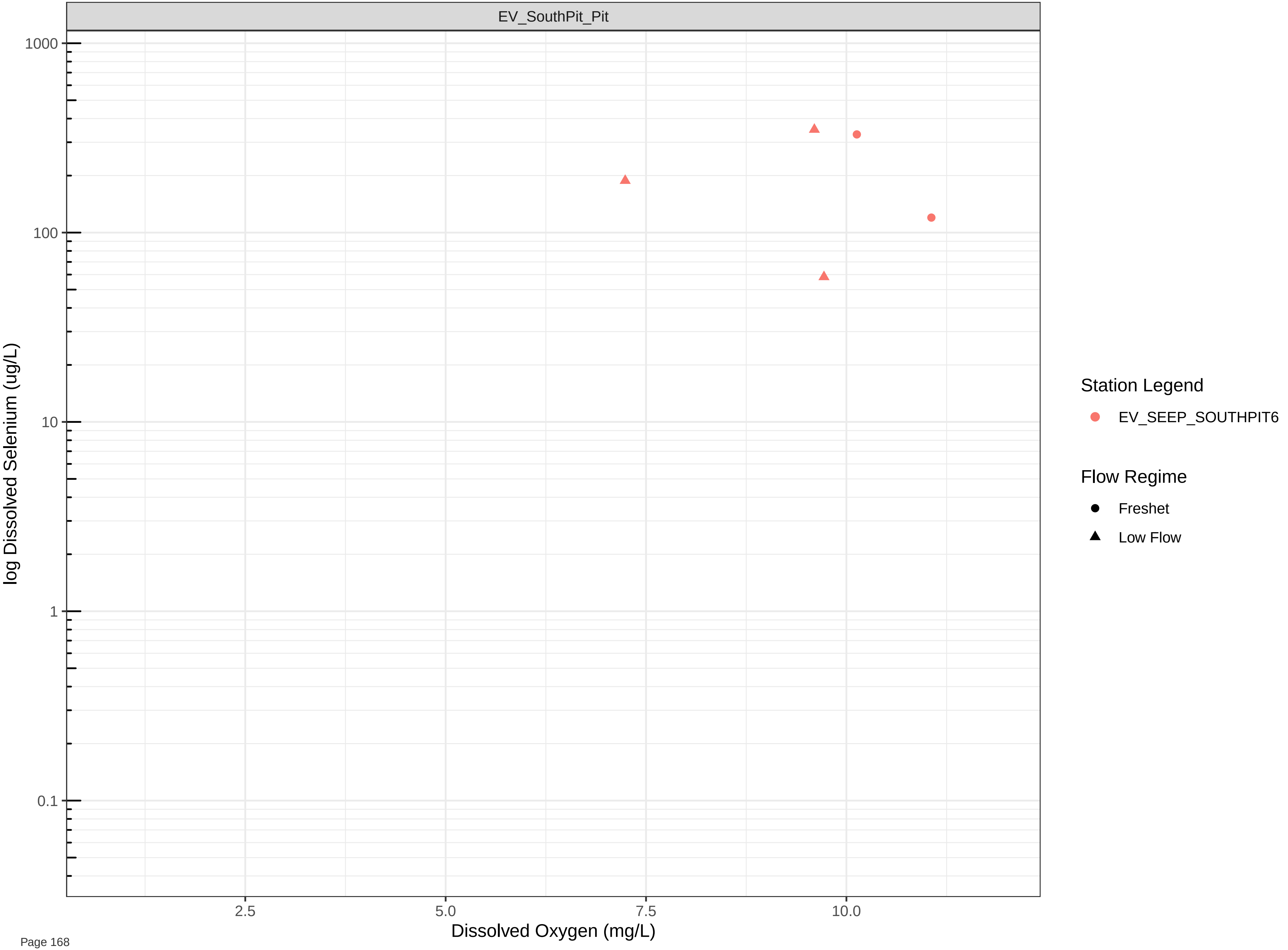

EV_CCR/TP
1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

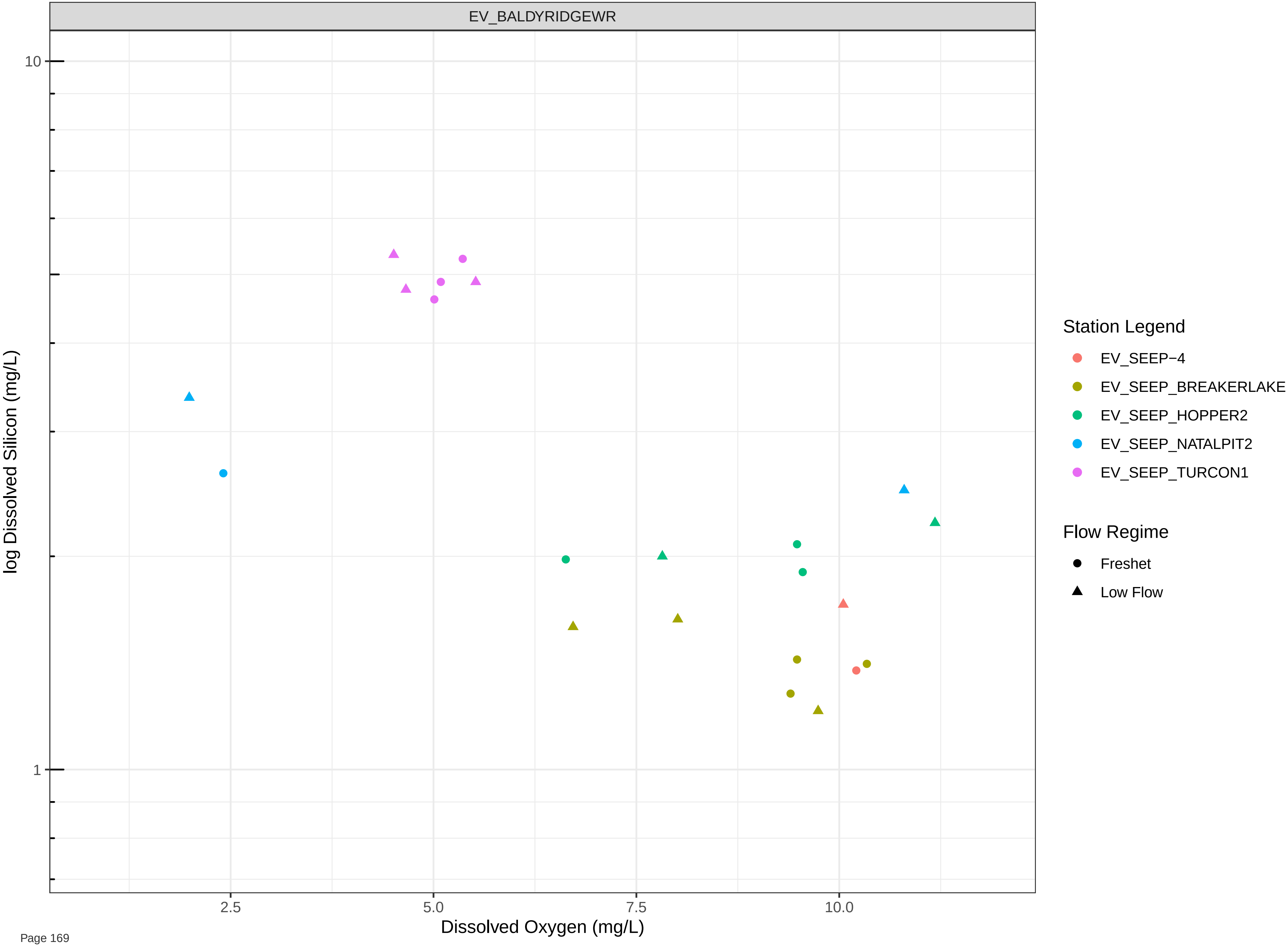

EV_CEDARWR
1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

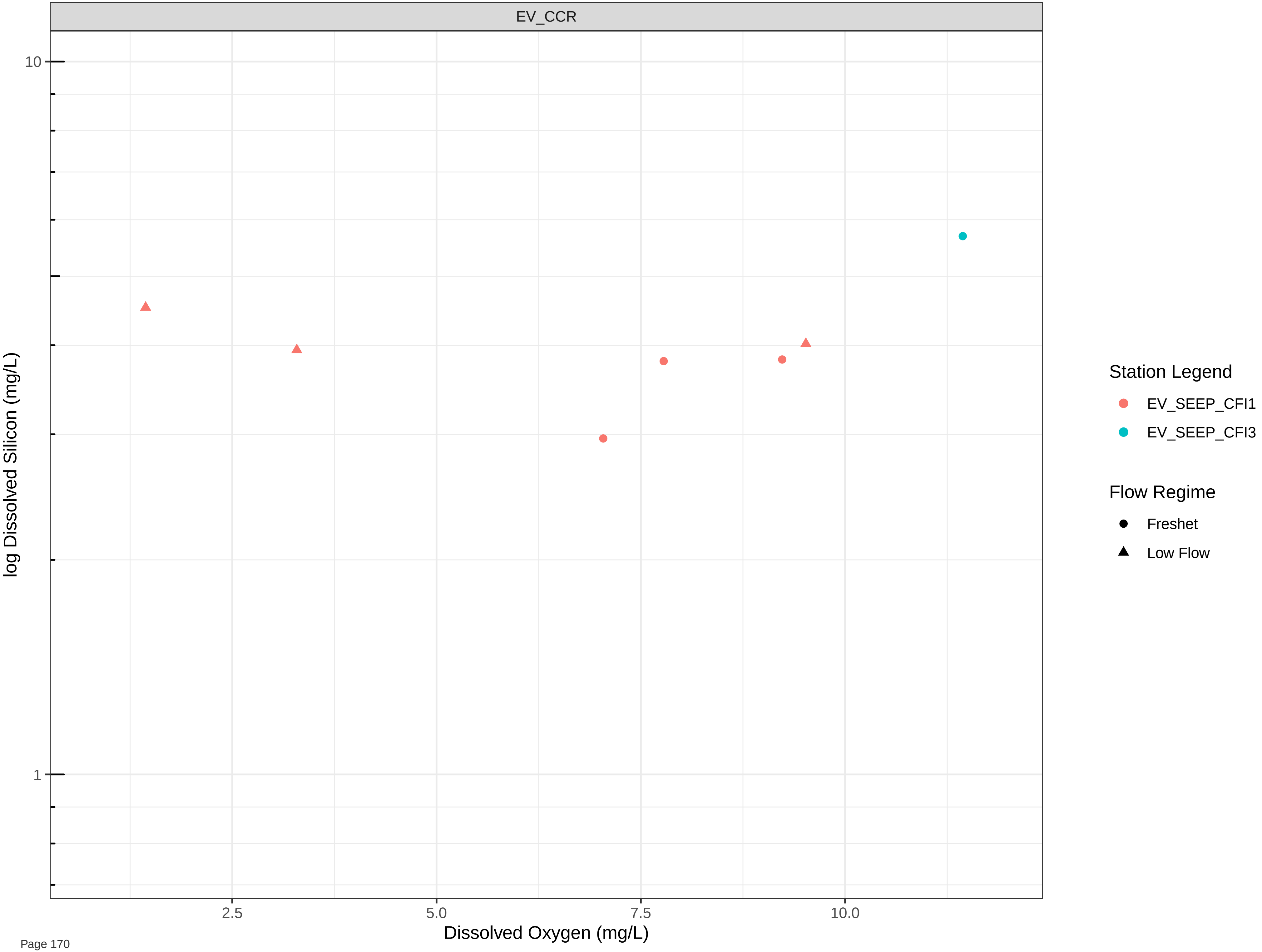

EV_Erickson_WR
log Dissolved Selenium (ug/L)
1000
100
10
1
0.1
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

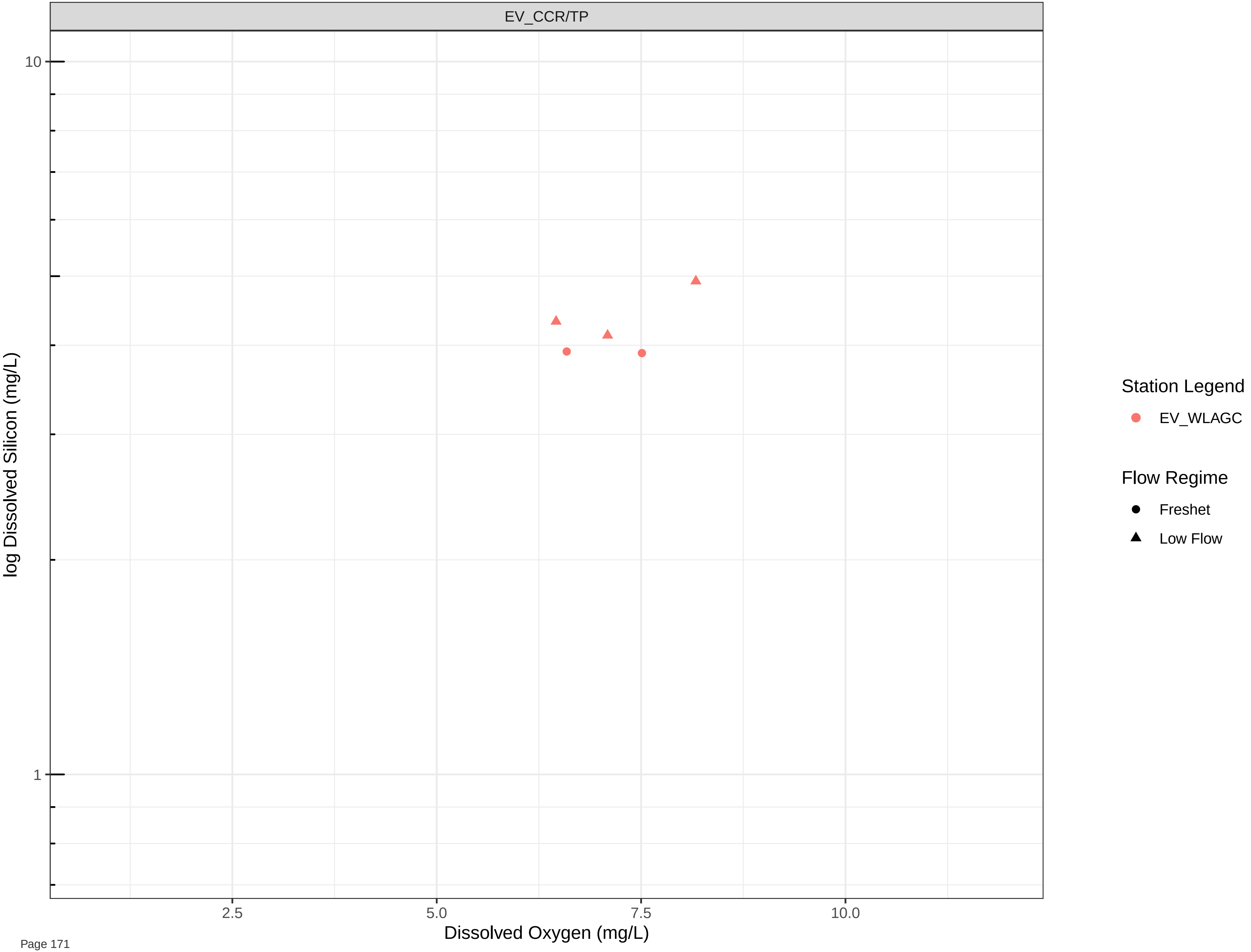

EV_PLANT
log Dissolved Selenium (ug/L)
1000
100
10
1
0.1
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

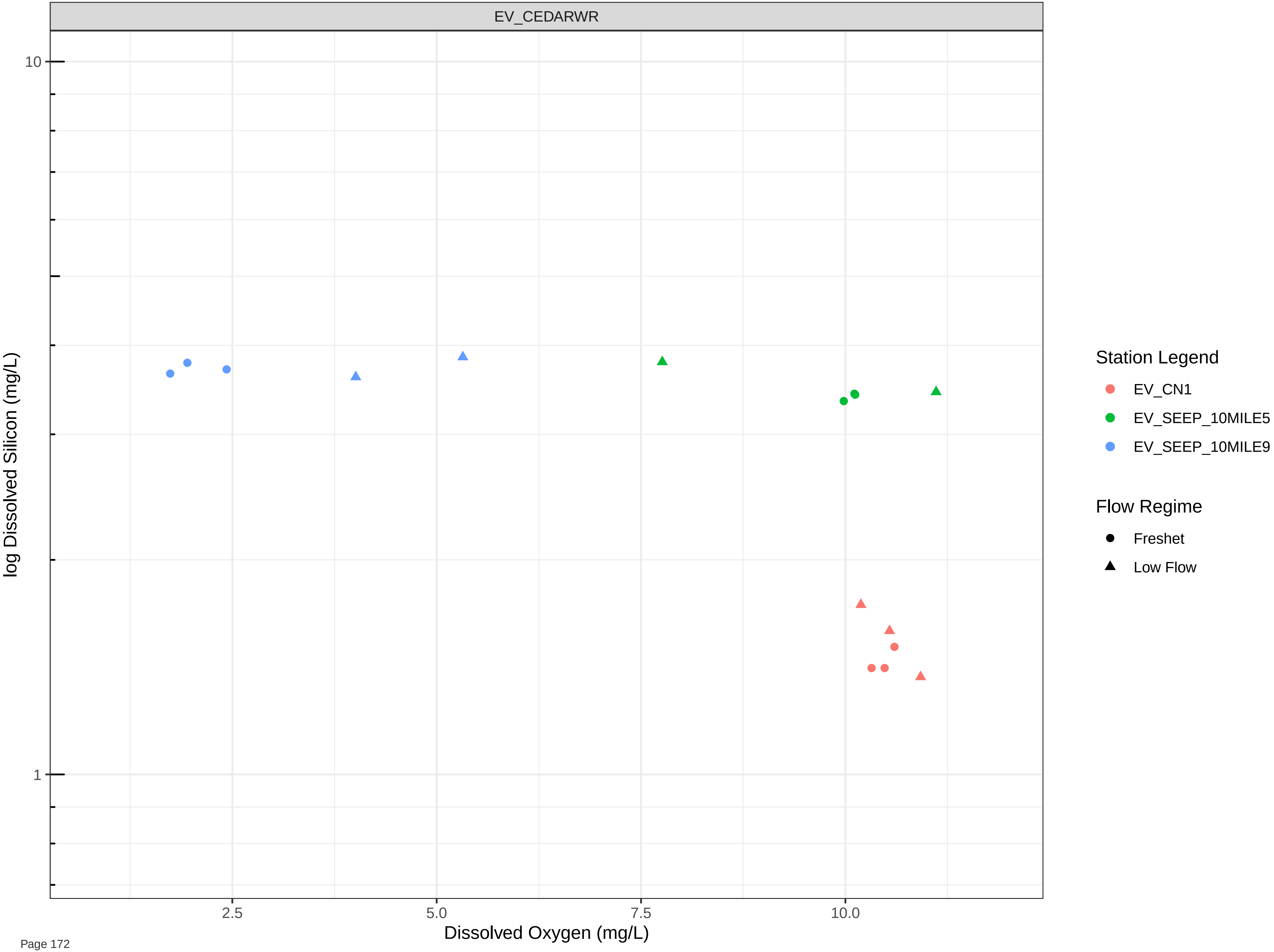

EV_SOUTHSLOPE
1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

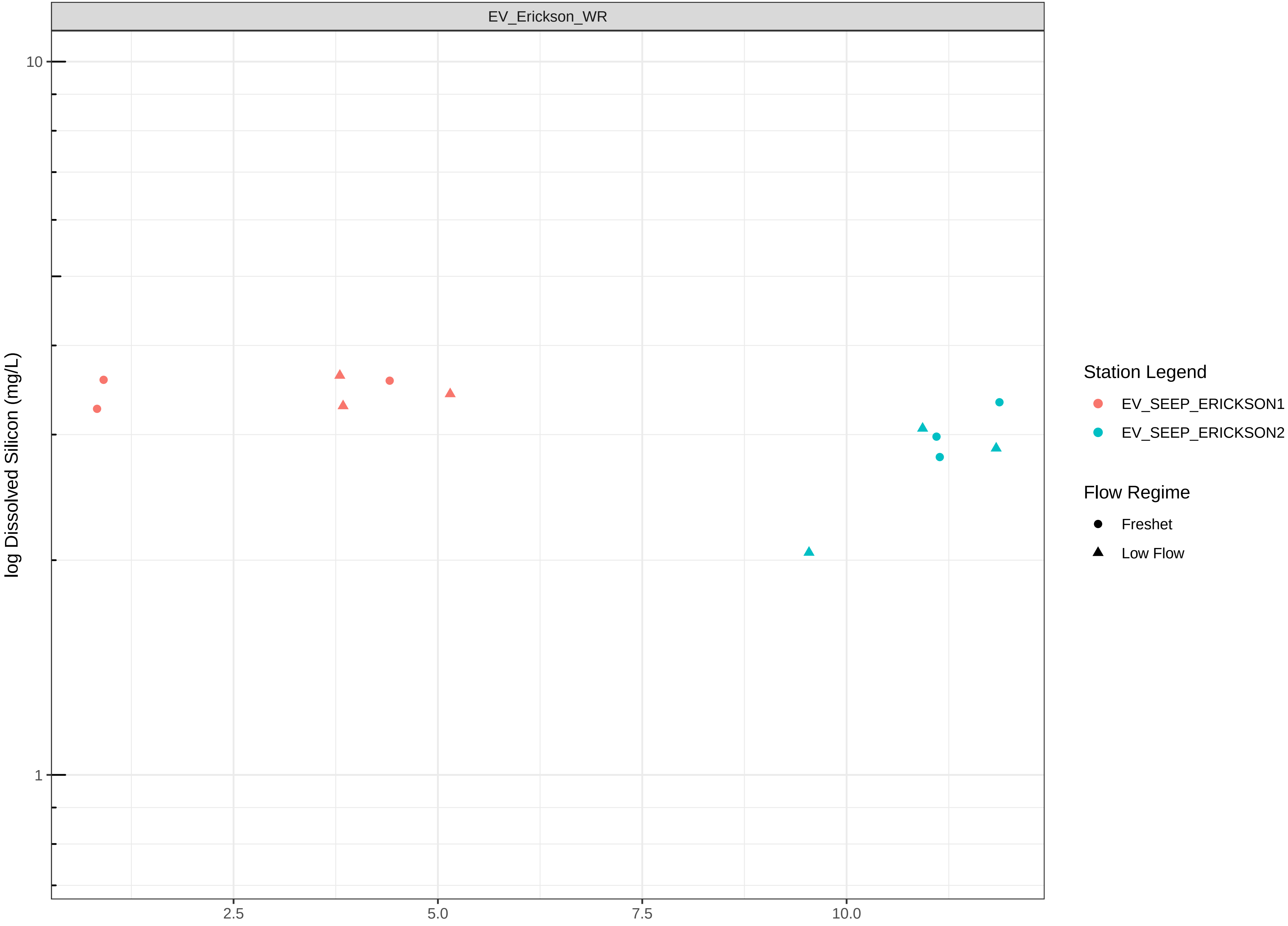

EV_SouthPit_Pit
1000
100
10
1
0.1
log Dissolved Selenium (ug/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

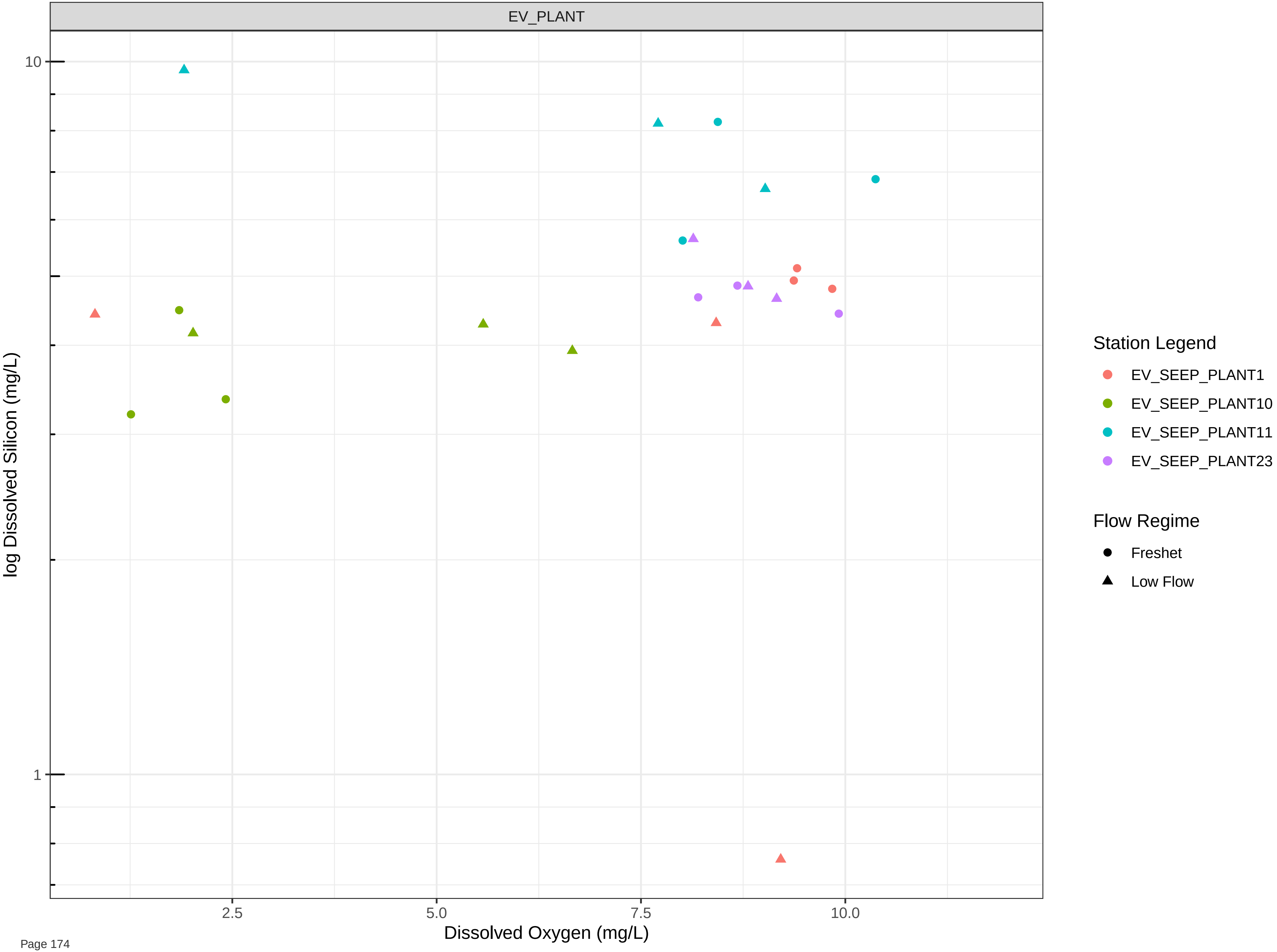

EV_BALDYRIDGEWR
10
1
log Dissolved Silicon (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

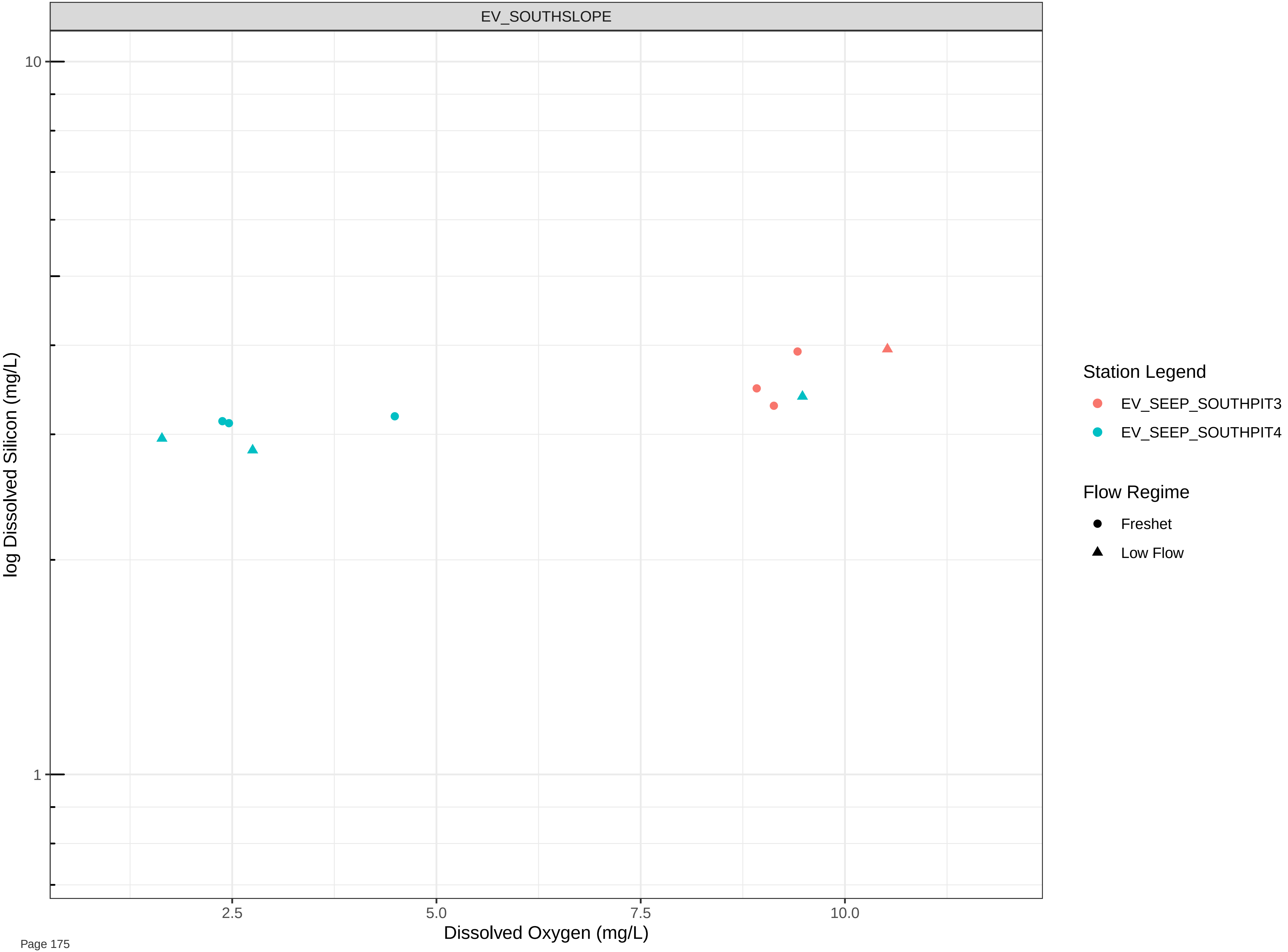

EV_CCR
10
1
log Dissolved Silicon (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

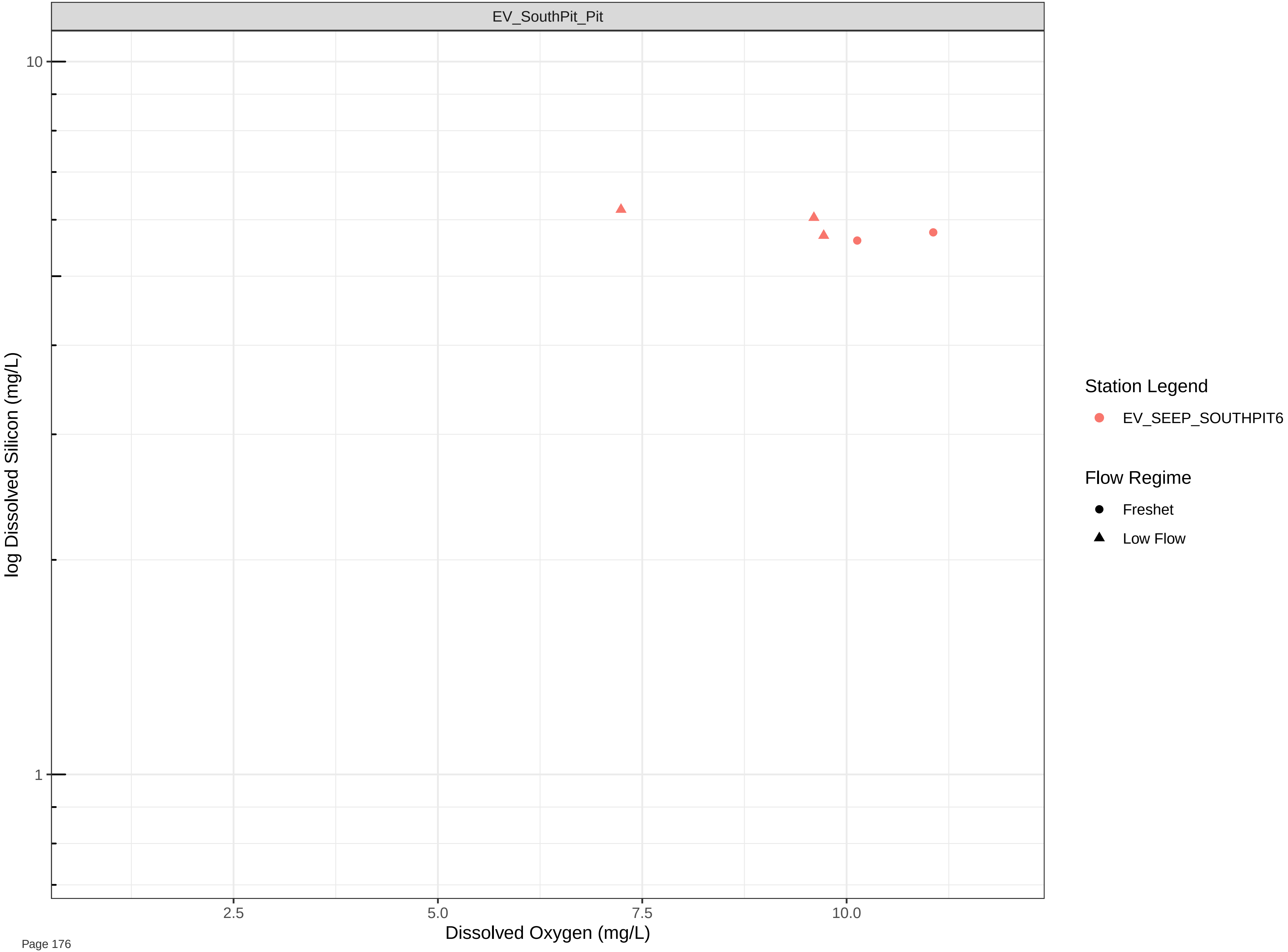

EV_CCR/TP
10
1
log Dissolved Silicon (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

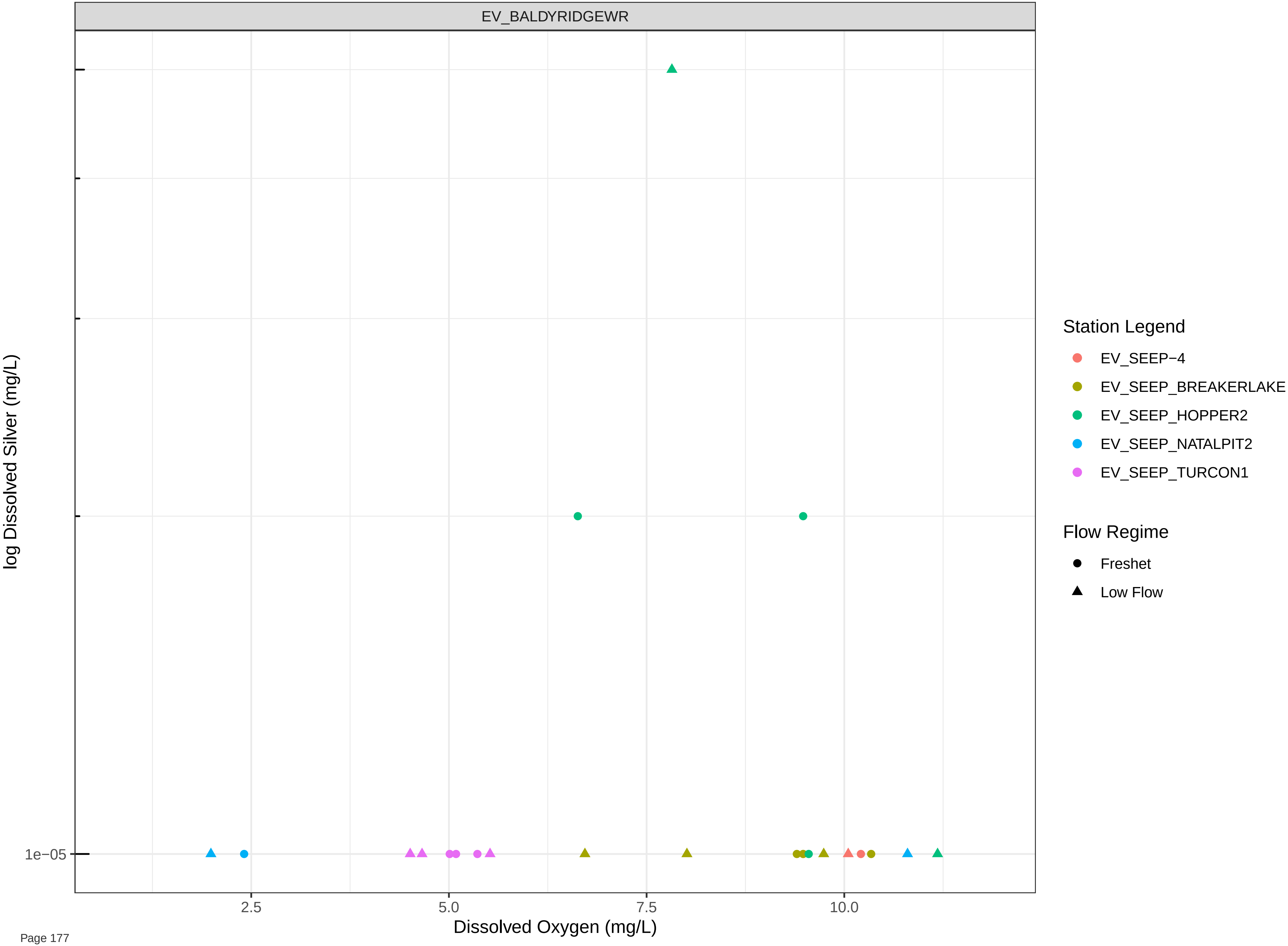

EV_CEDARWR
10
1
log Dissolved Silicon (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

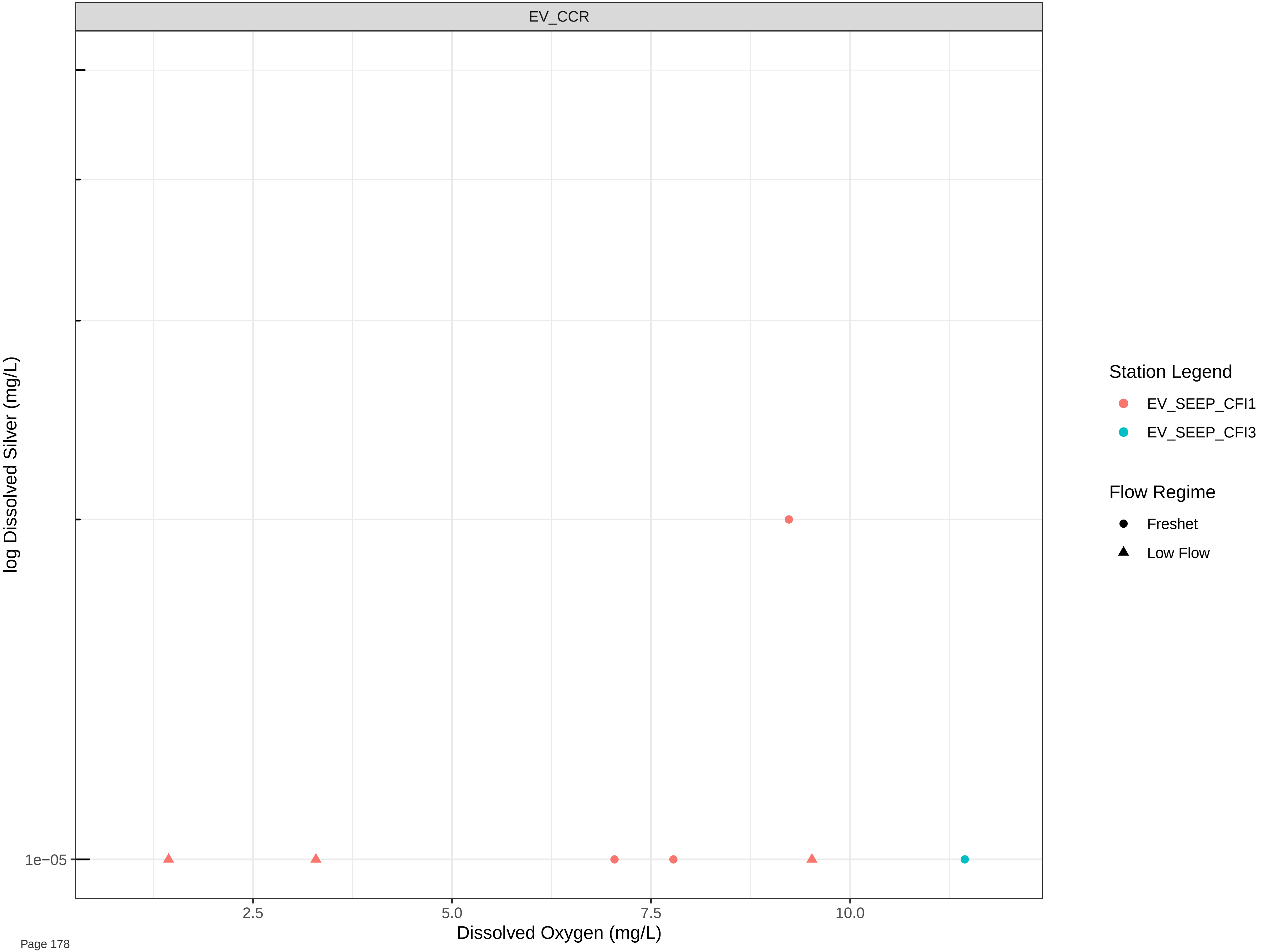

EV_Erickson_WR
10
1
log Dissolved Silicon (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

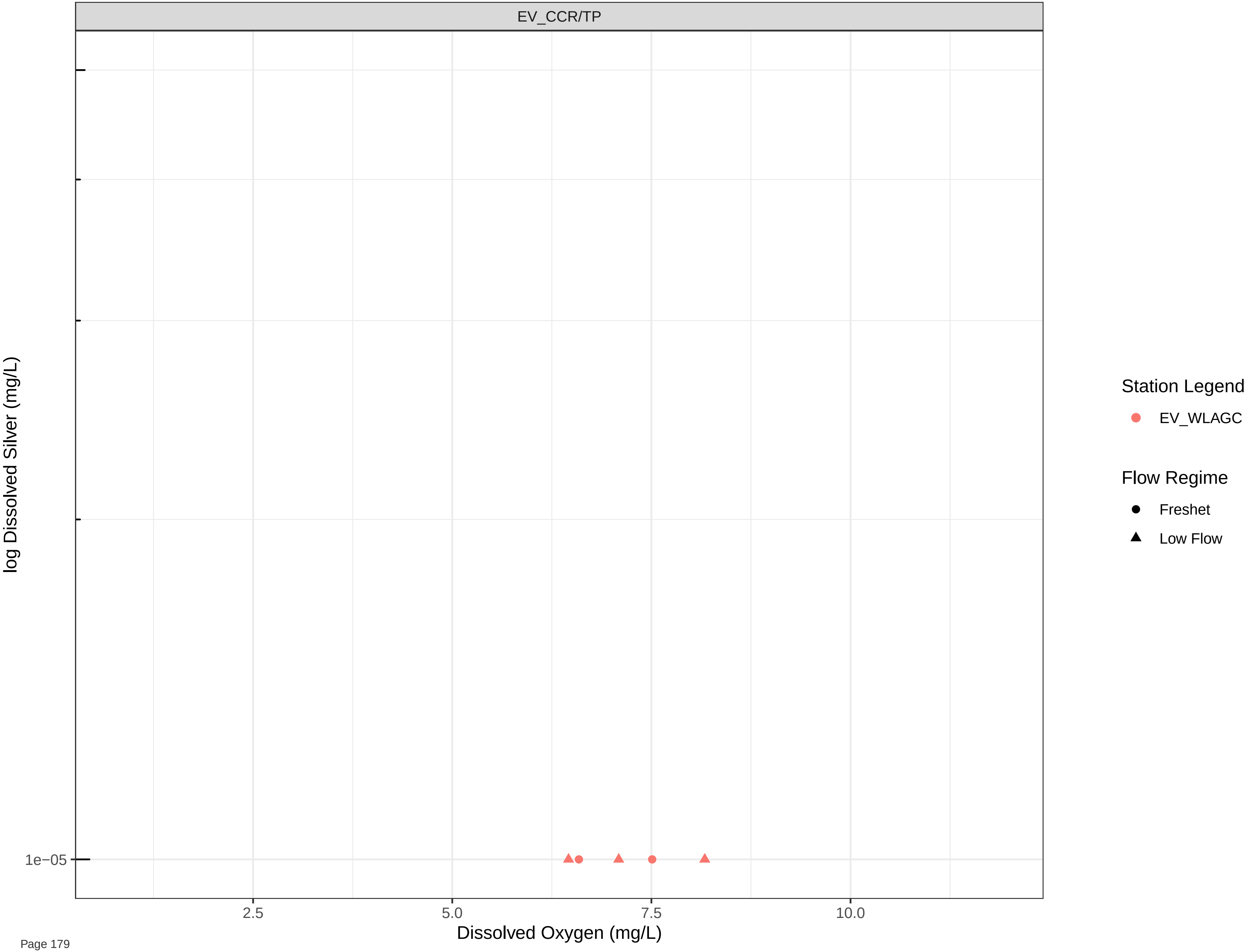

EV_PLANT
10
1
log Dissolved Silicon (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

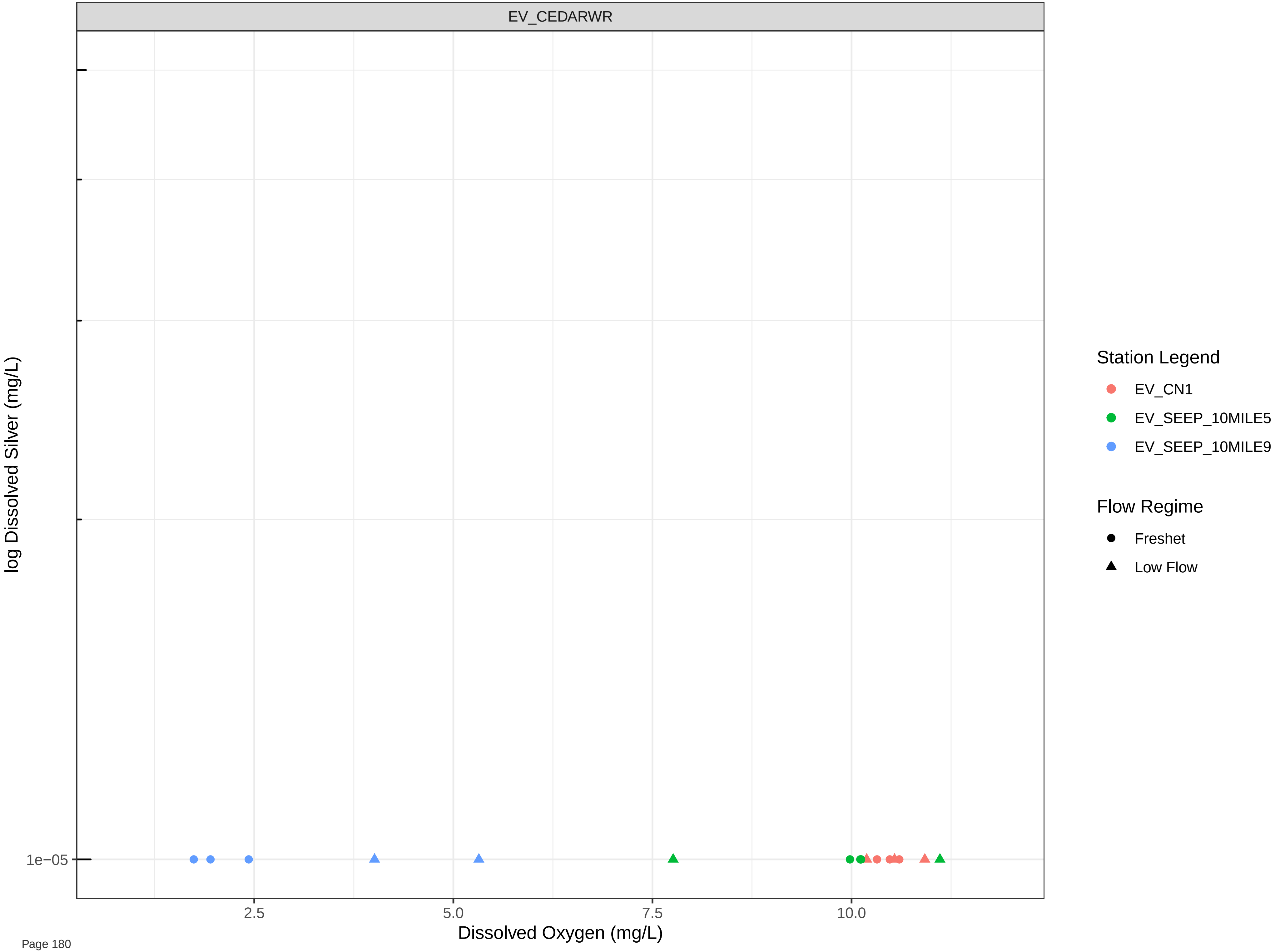

EV_SOUTHSLOPE
10
1
log Dissolved Silicon (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

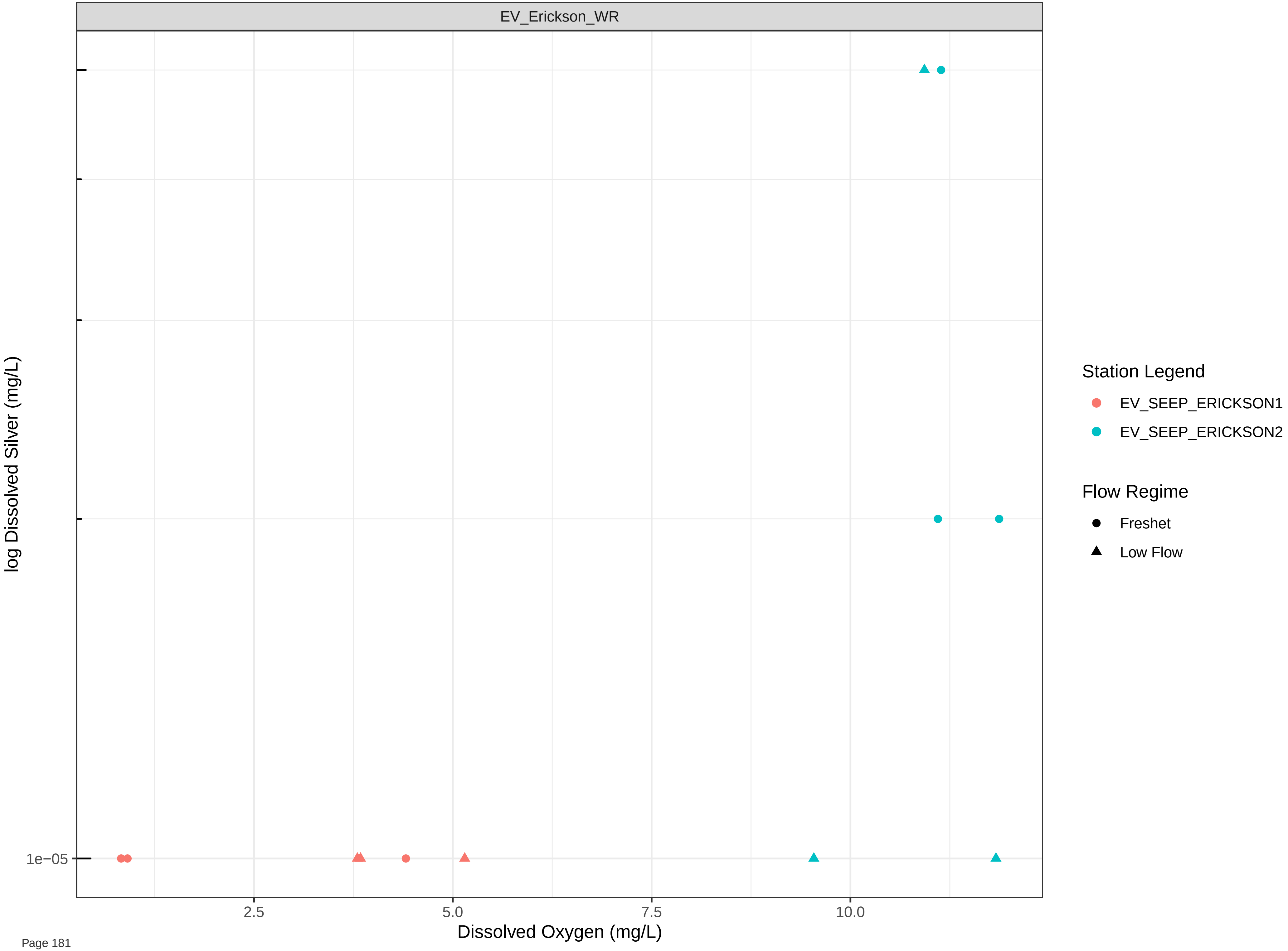

EV_SouthPit_Pit
10
1
log Dissolved Silicon (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

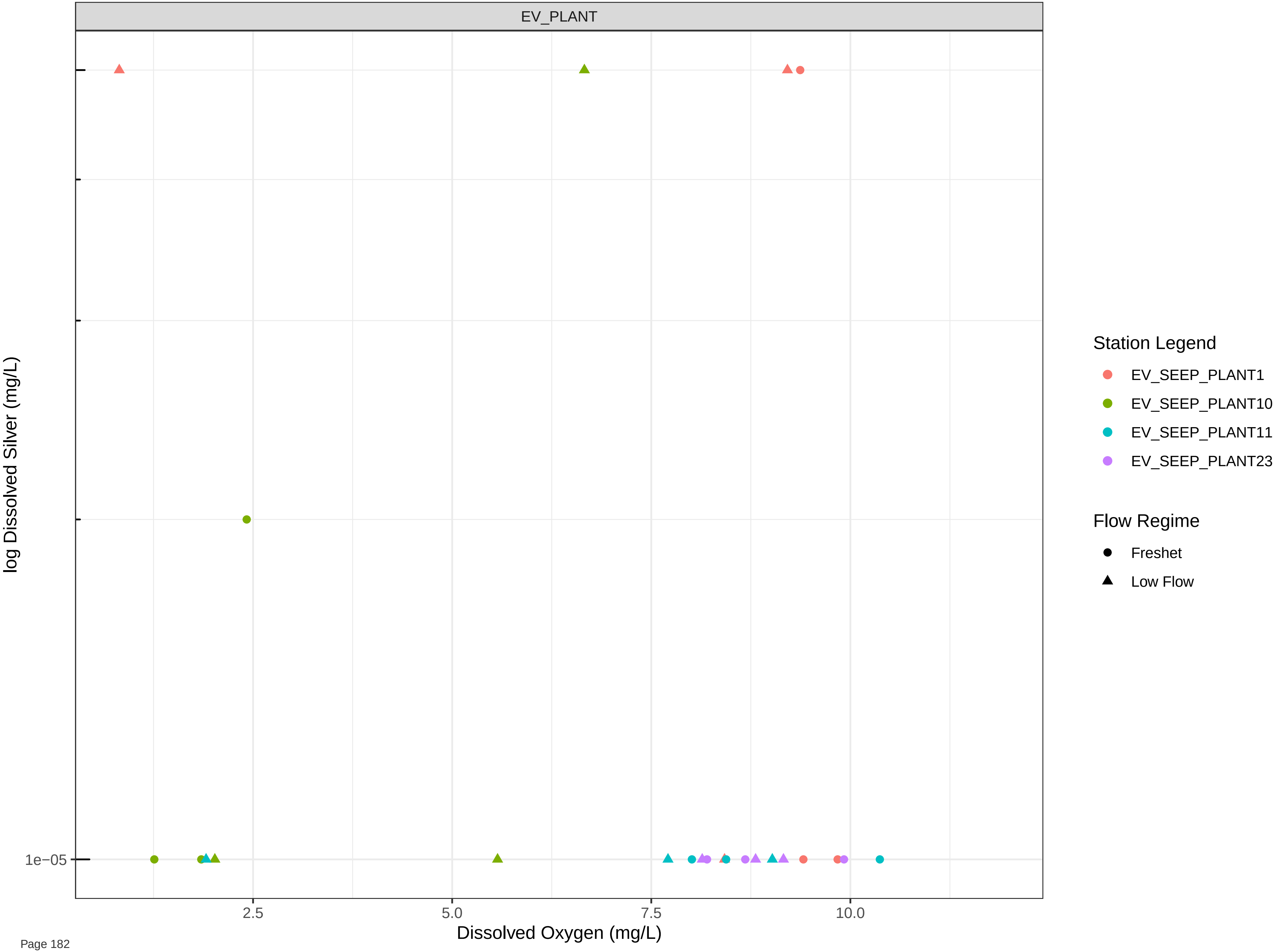

EV_BALDYRIDGEWR
log Dissolved Silver (mg/L)
1e−05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

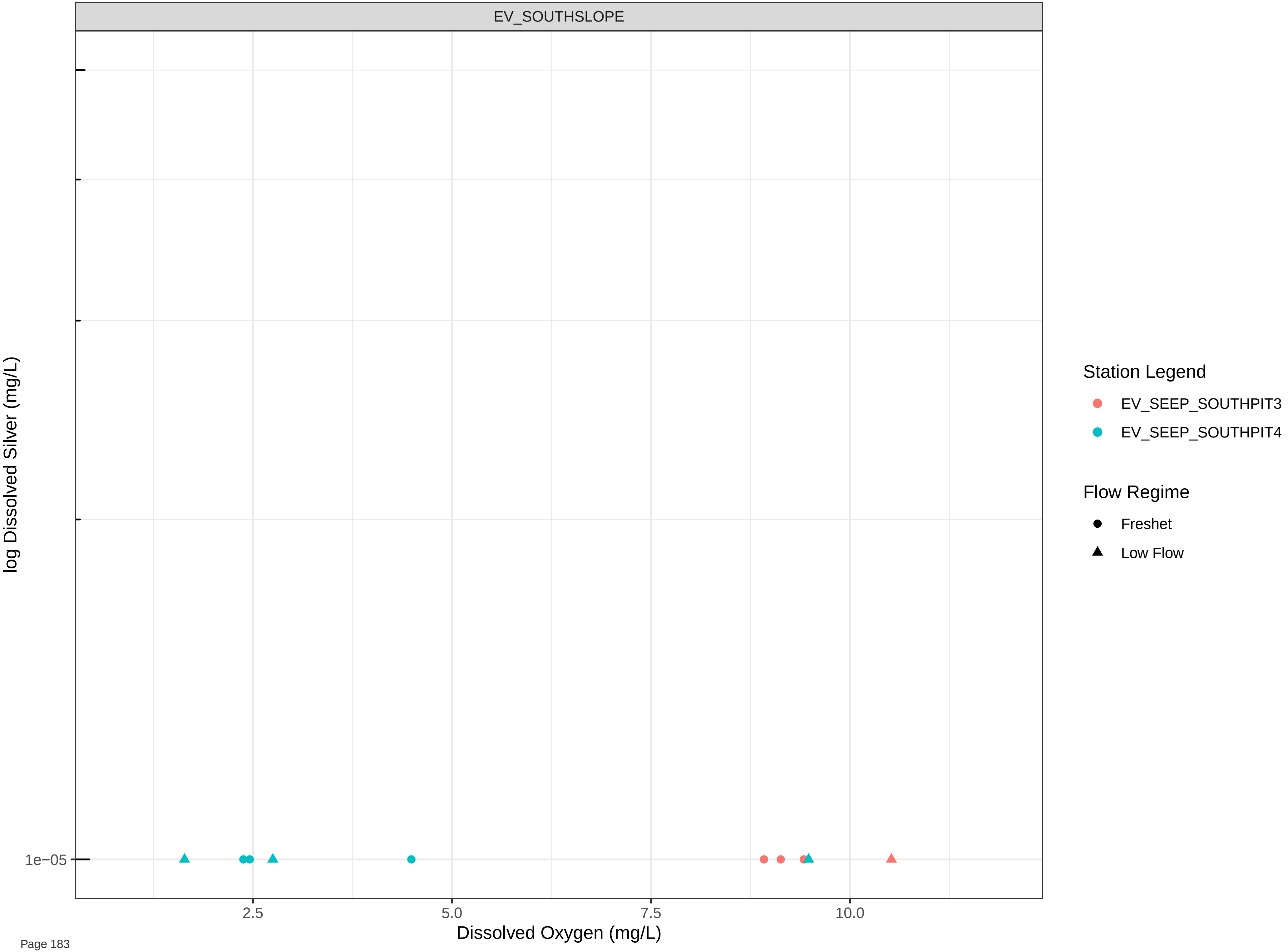

EV_CCR
log Dissolved Silver (mg/L)
1e−05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

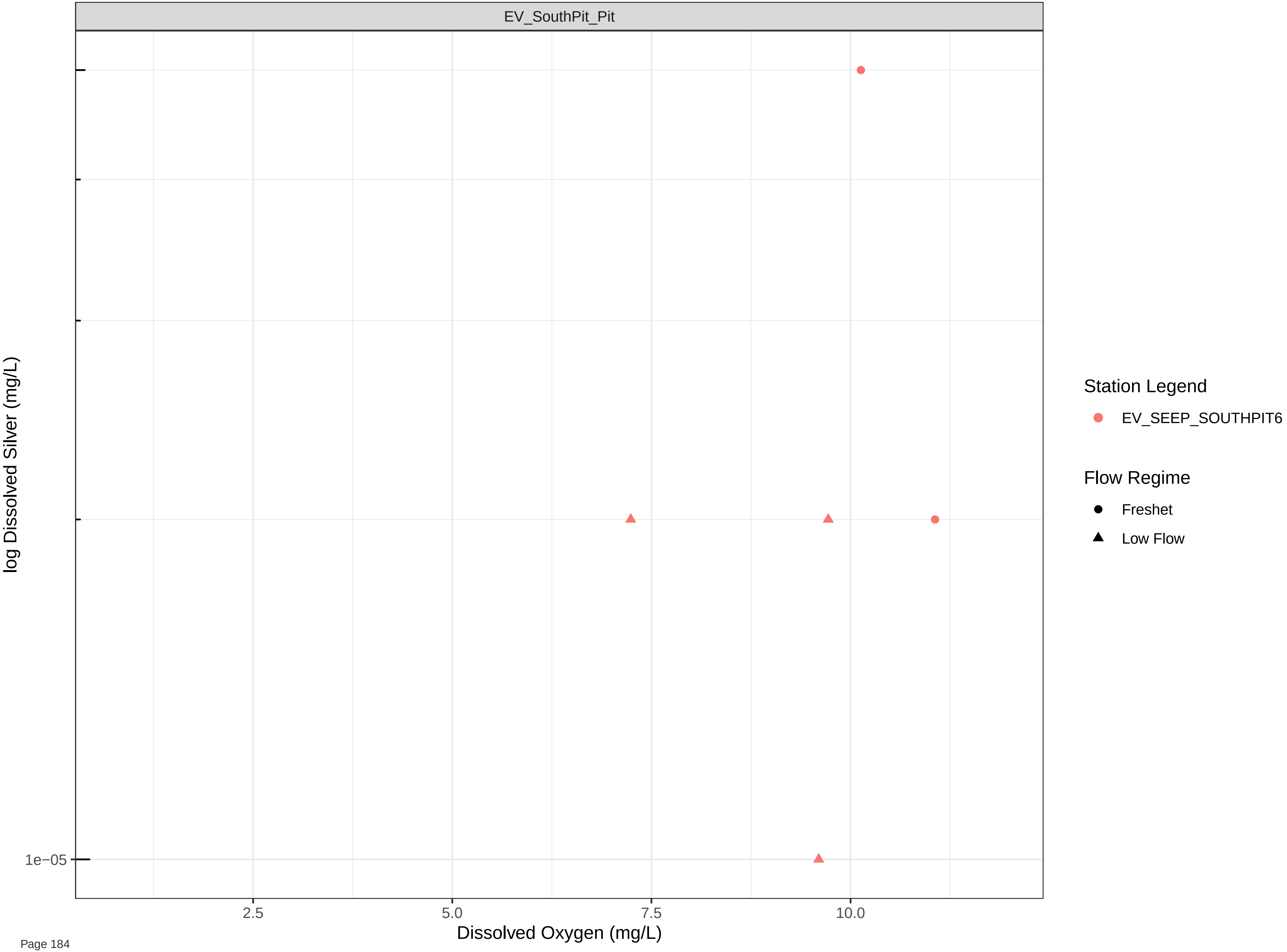

EV_CCR/TP
log Dissolved Silver (mg/L)
1e−05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

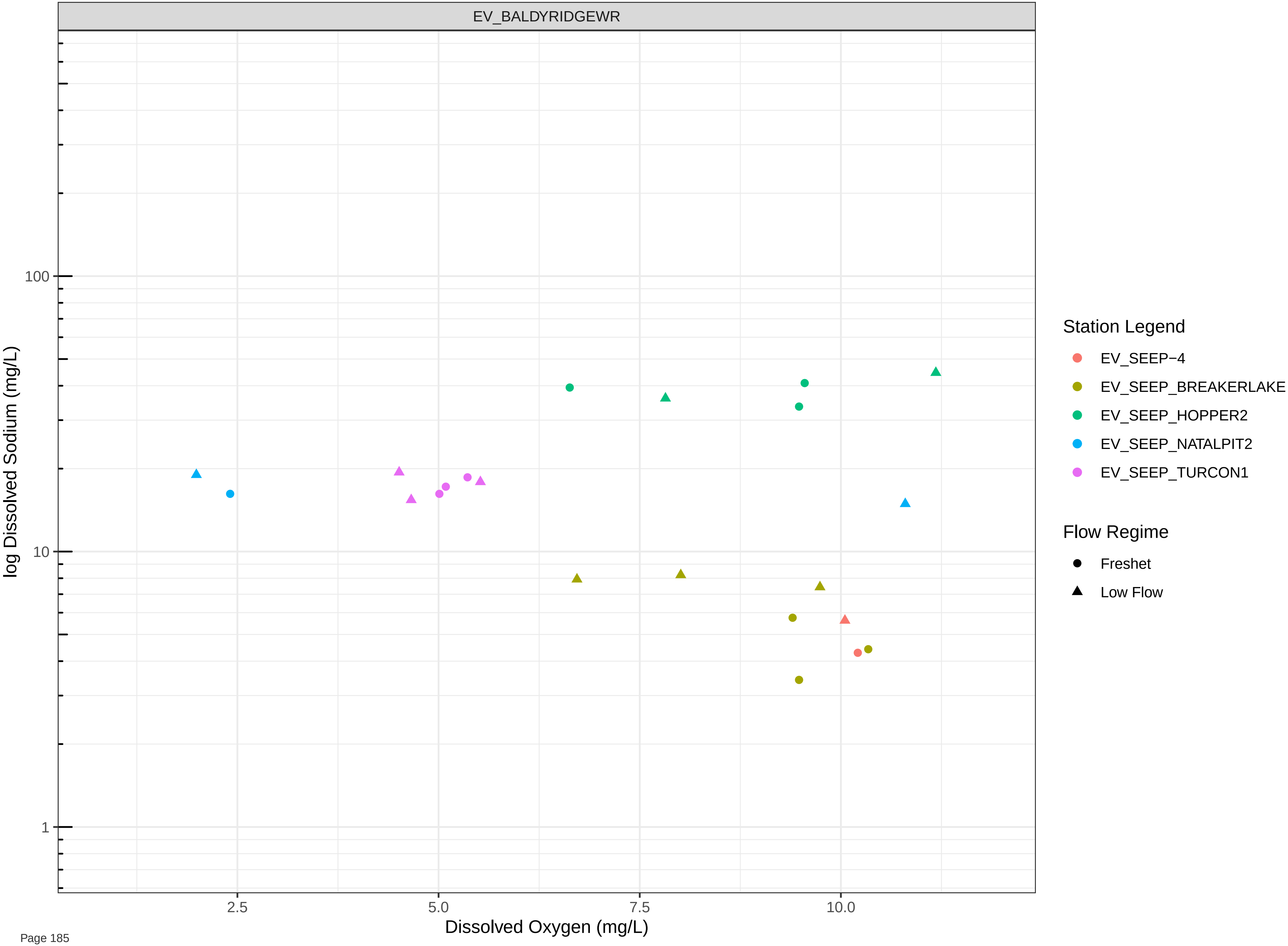

EV_CEDARWR
log Dissolved Silver (mg/L)
1e−05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

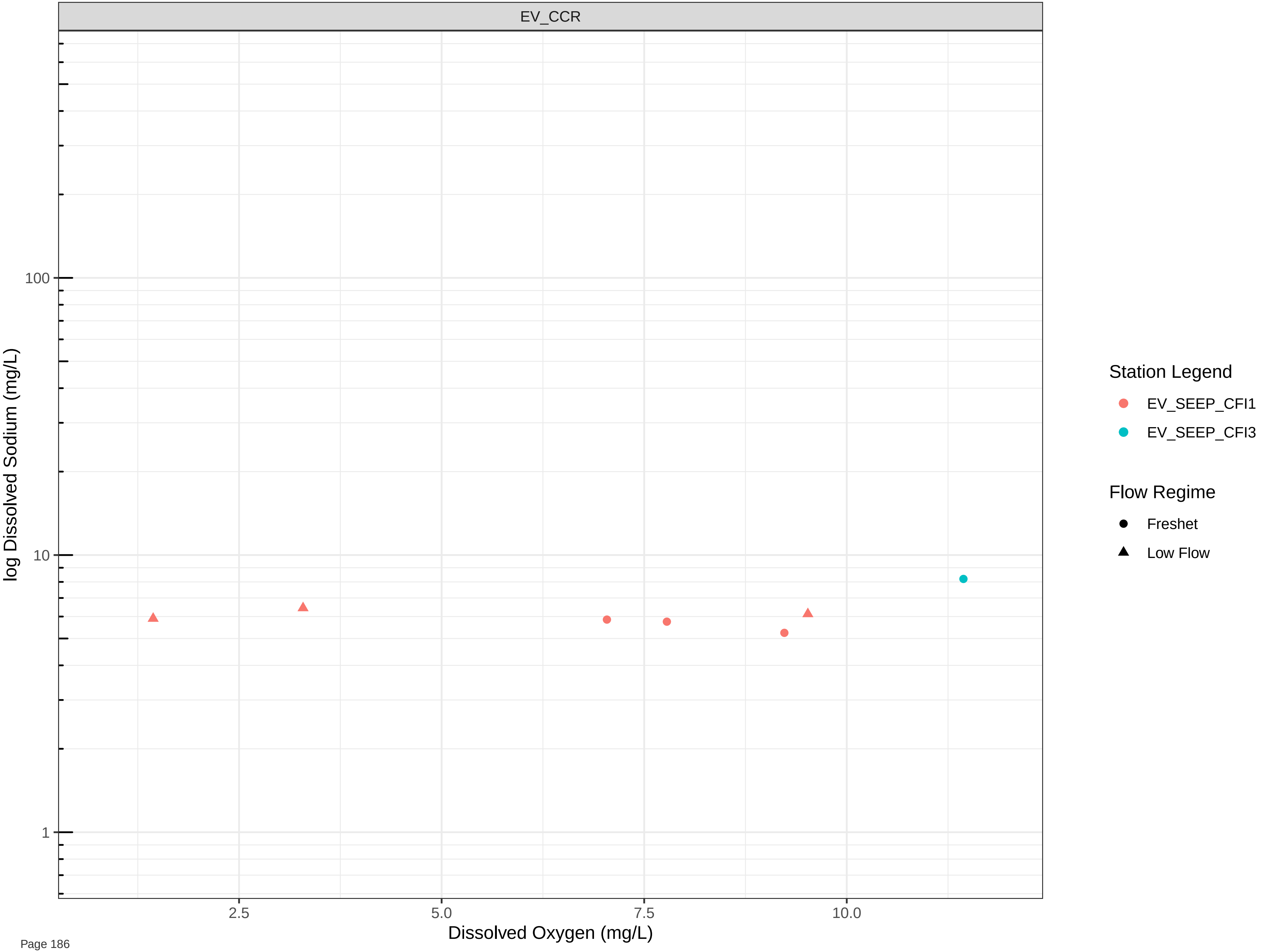

EV_Erickson_WR
log Dissolved Silver (mg/L)
1e−05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

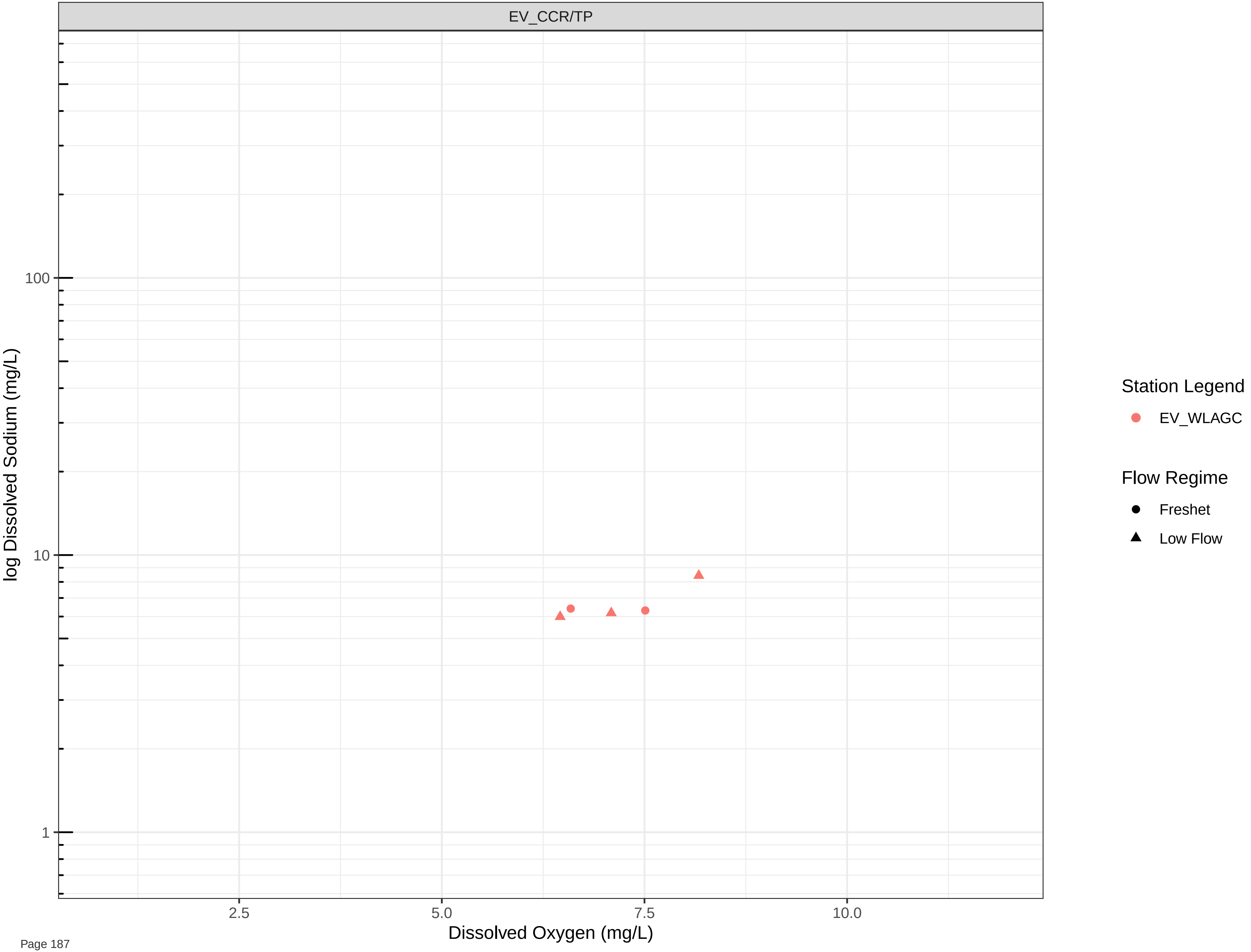

EV_PLANT
log Dissolved Silver (mg/L)
1e−05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_PLANT1
● EV_SEEP_PLANT10
● EV_SEEP_PLANT11
● EV_SEEP_PLANT23
Flow Regime
● Freshet
▲ Low Flow

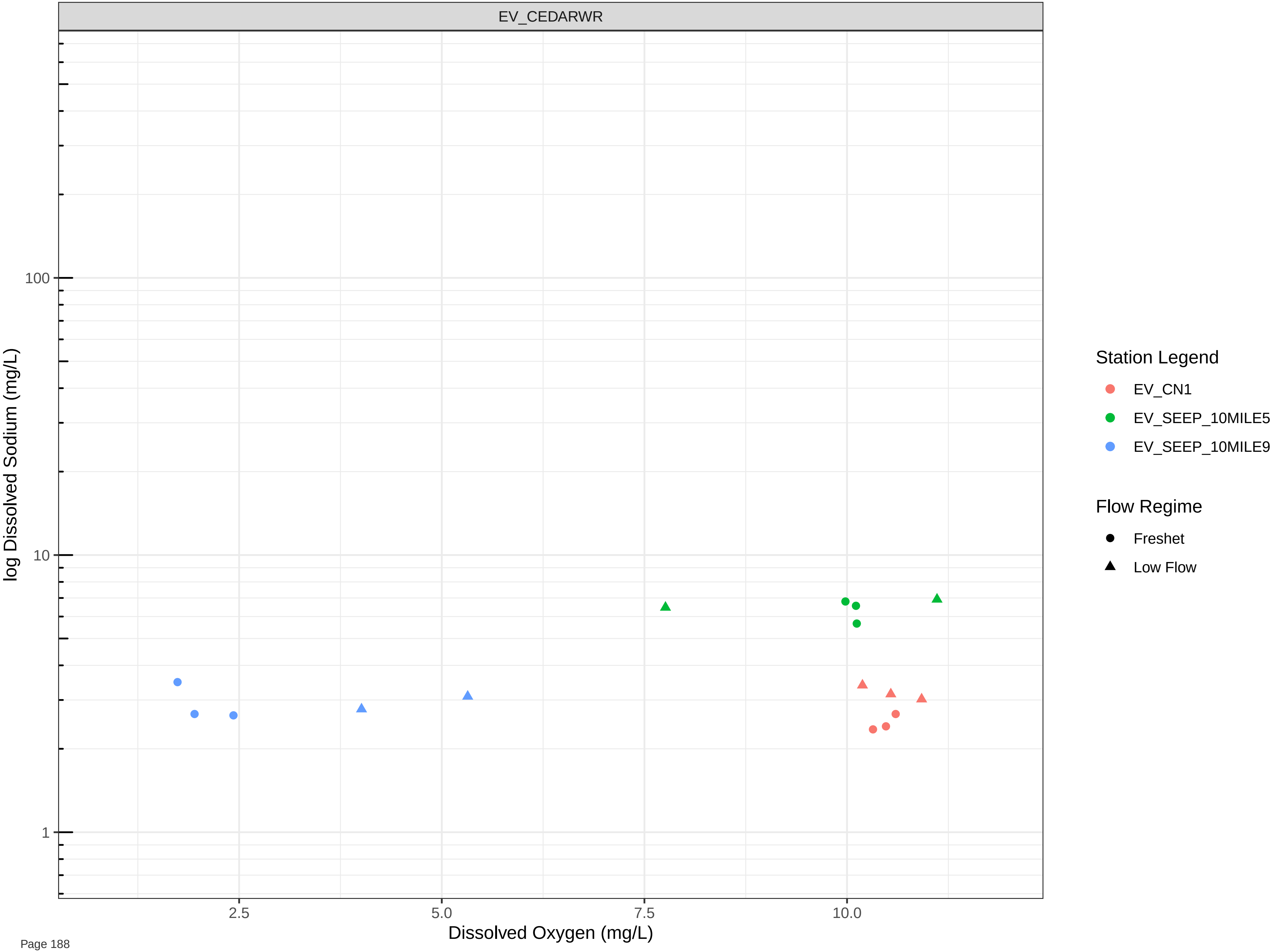

EV_SOUTHSLOPE
log Dissolved Silver (mg/L)
1e−05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

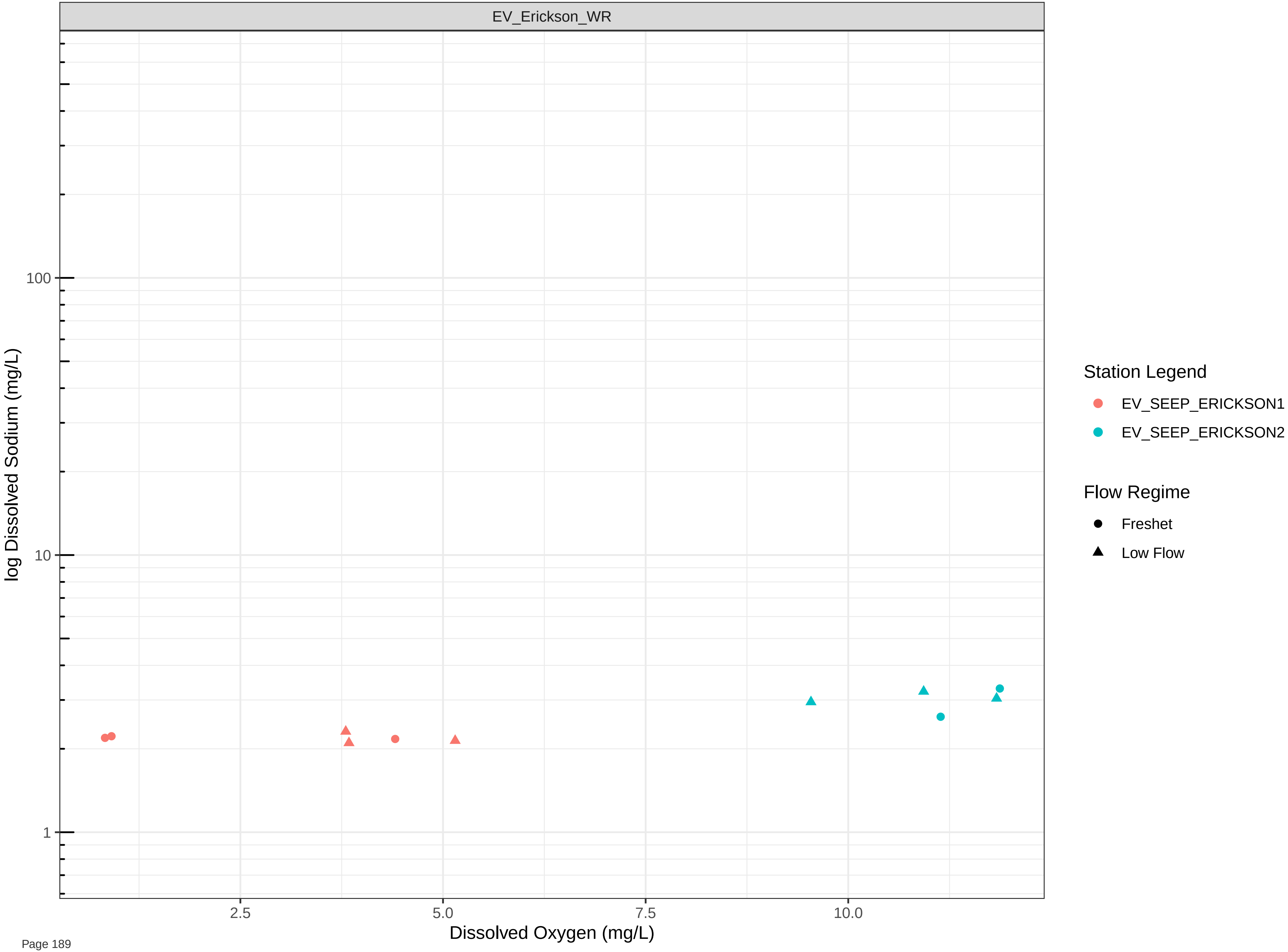

EV_SouthPit_Pit
log Dissolved Silver (mg/L)
1e−05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

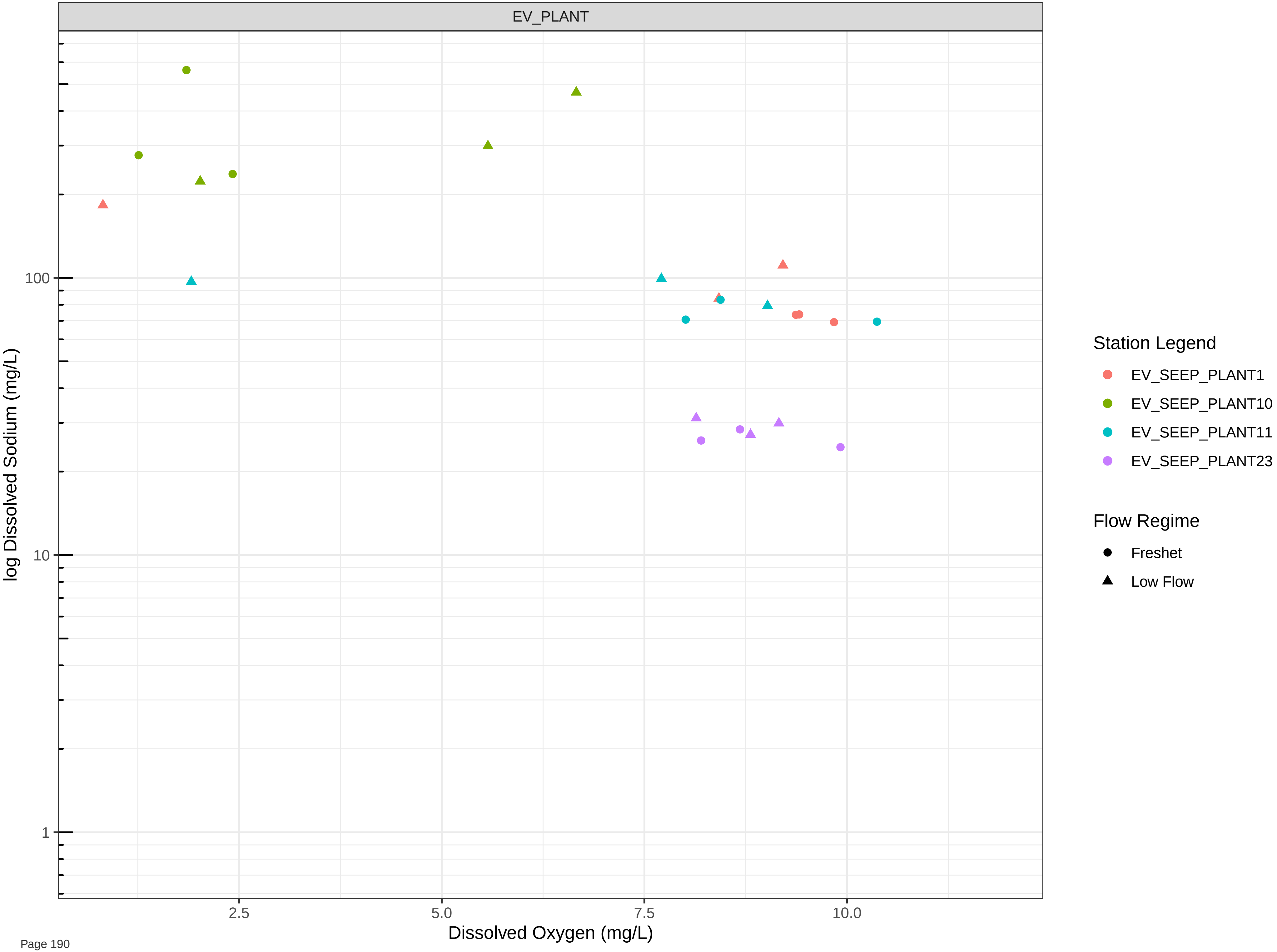

EV_BALDYRIDGEWR
log Dissolved Sodium (mg/L)
100
10
1
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

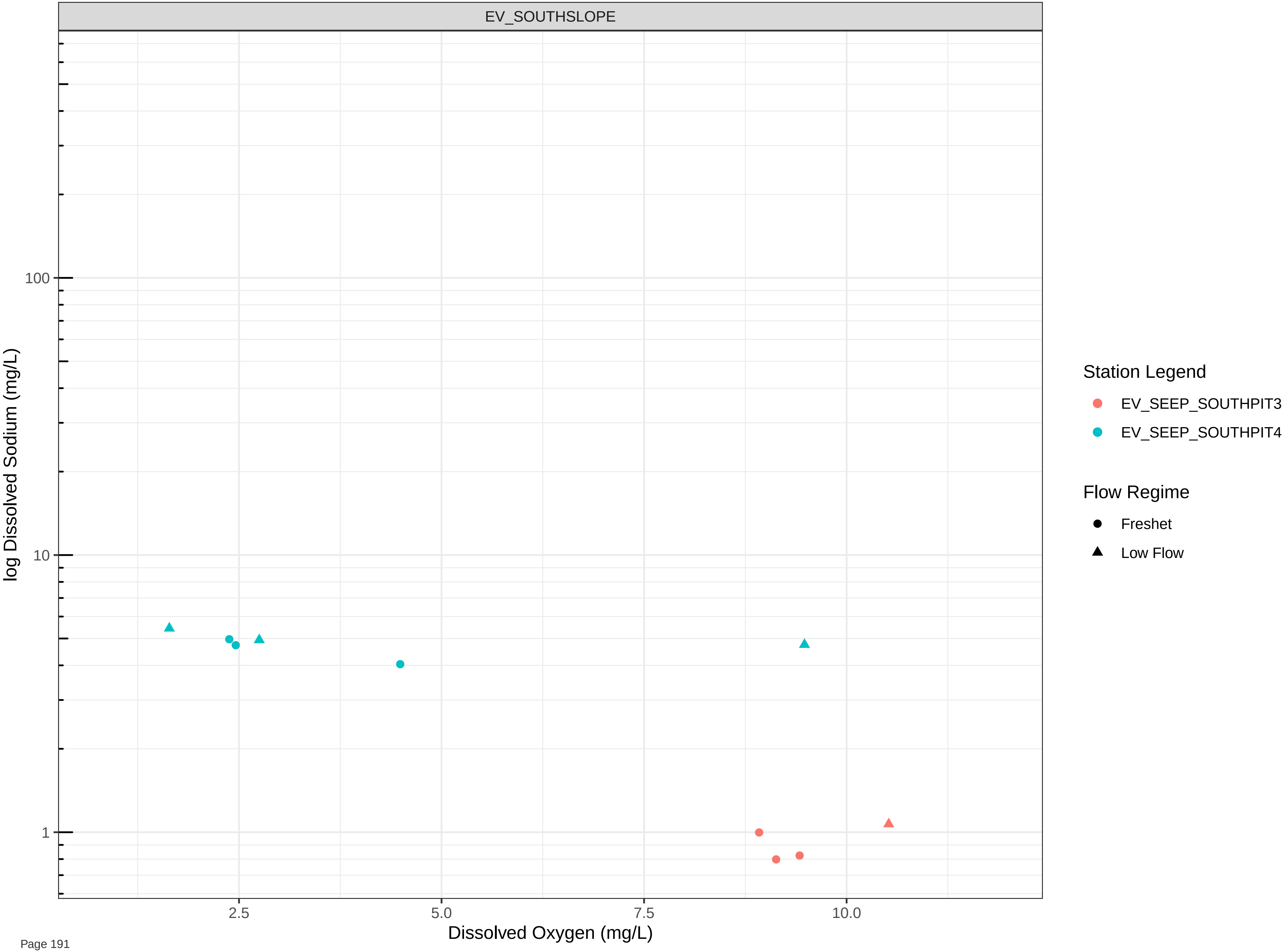

EV_CCR
log Dissolved Sodium (mg/L)
100
10
1
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

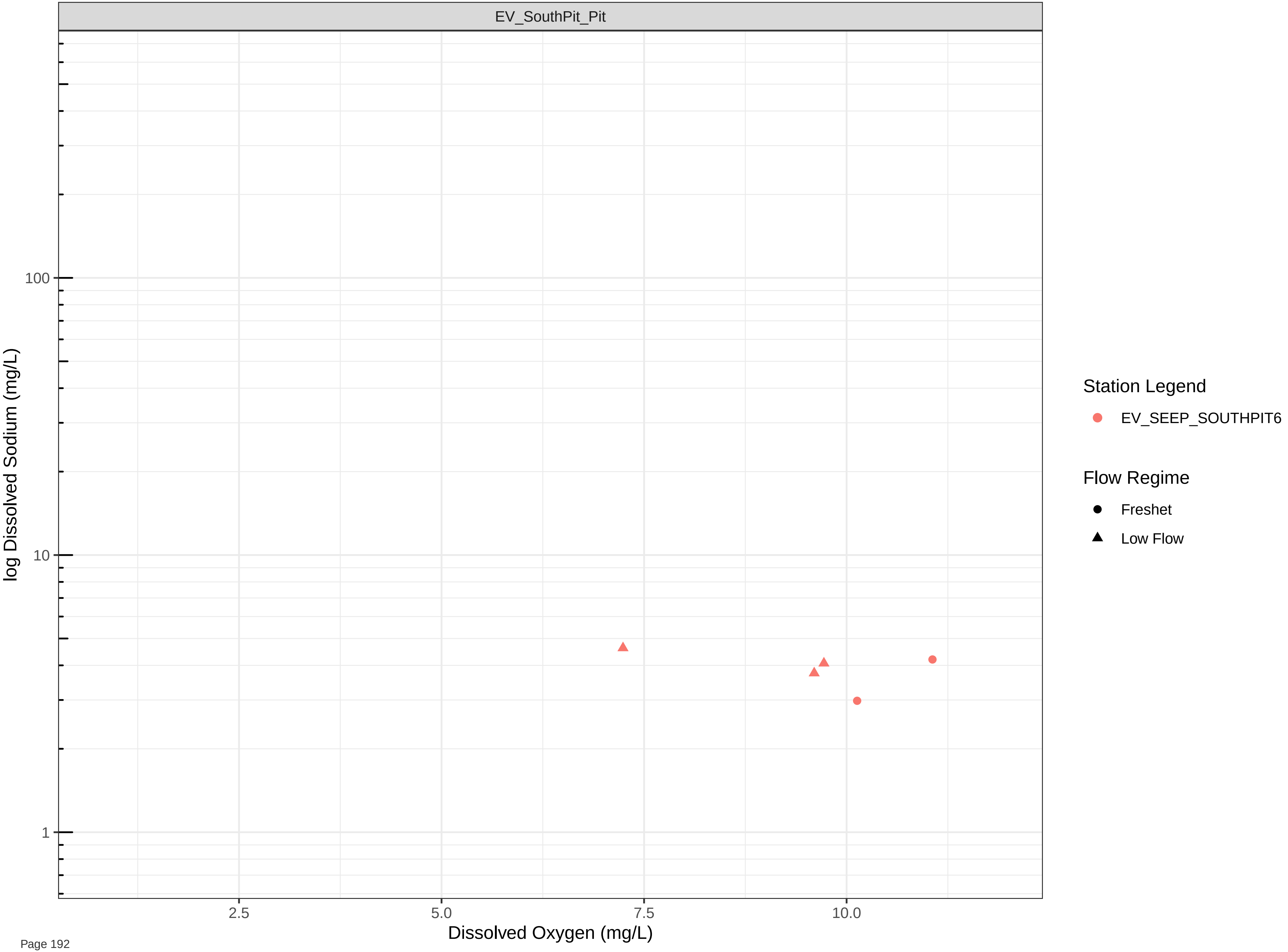

EV_CCR/TP
log Dissolved Sodium (mg/L)
100
10
1
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

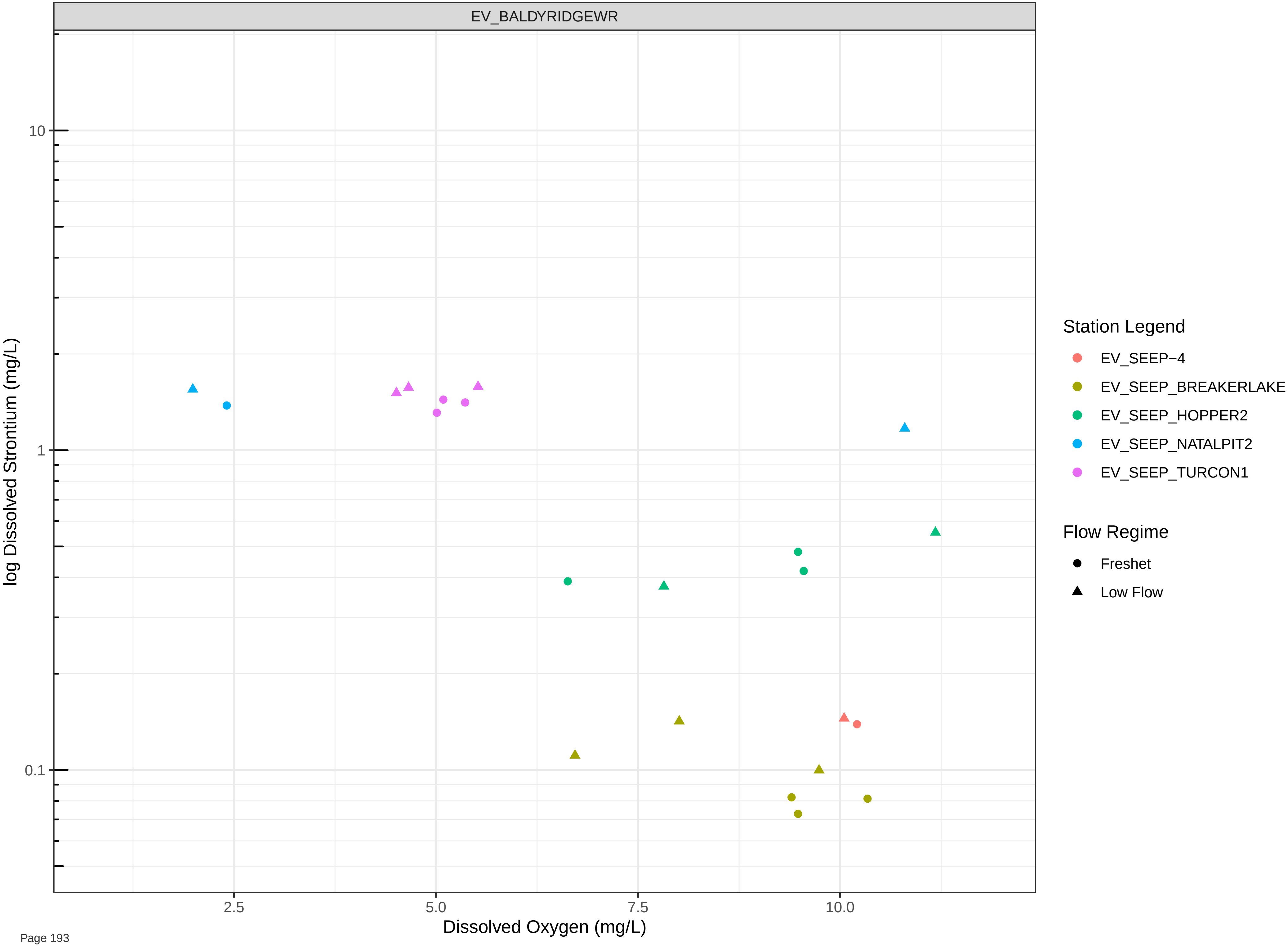

EV_CEDARWR
log Dissolved Sodium (mg/L)
100
10
1
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

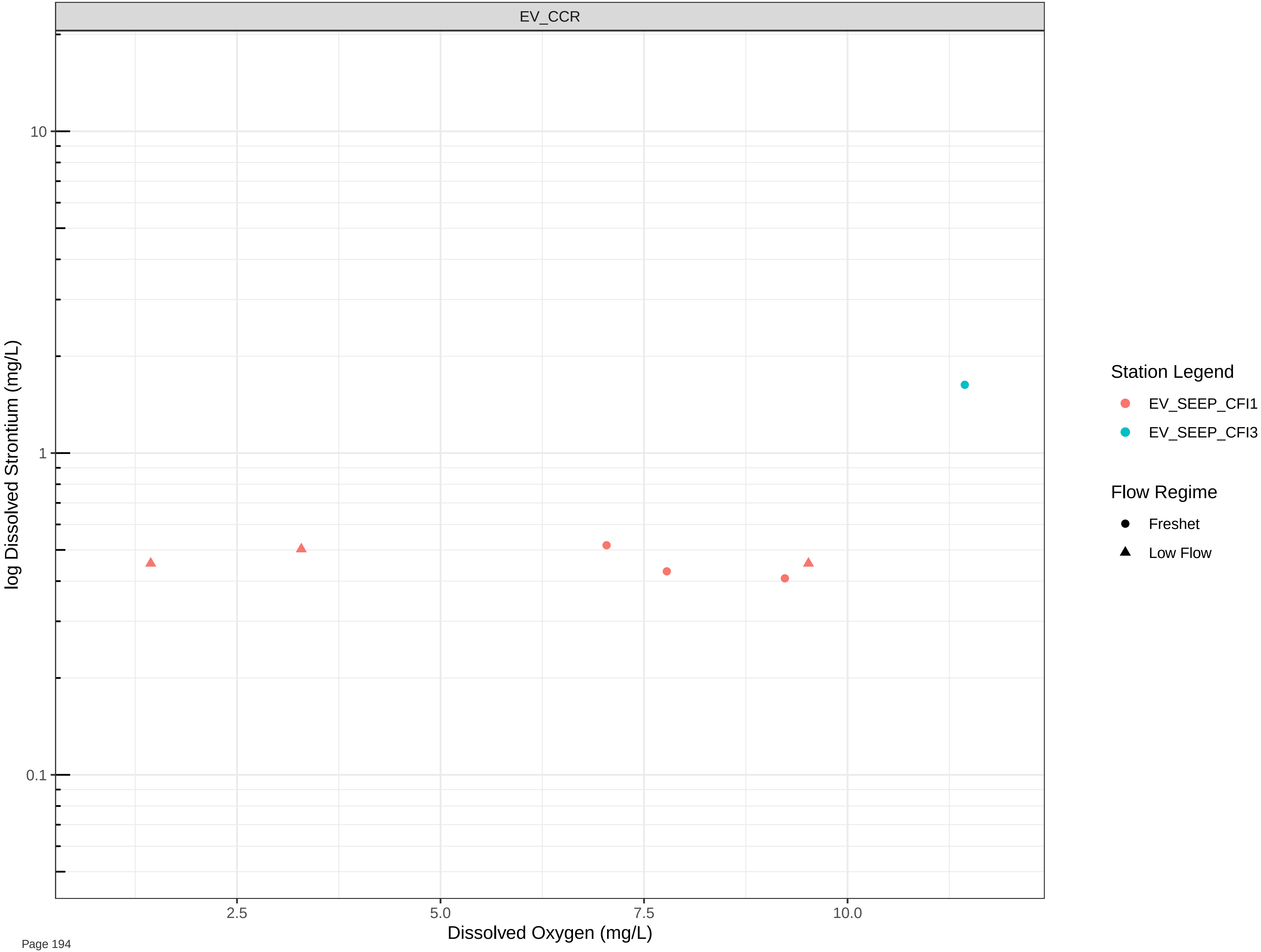

EV_Erickson_WR
log Dissolved Sodium (mg/L)
100
10
1
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

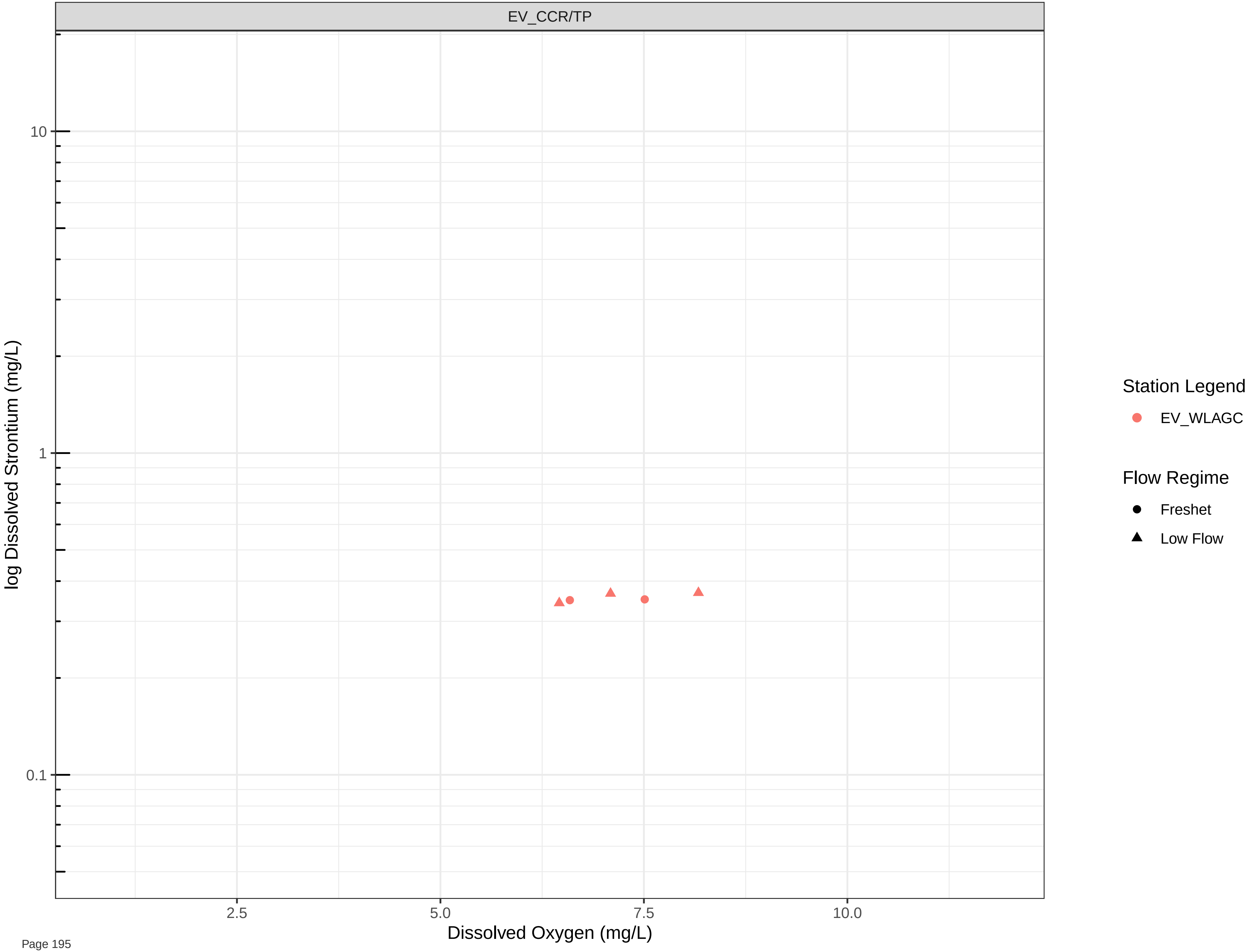

EV_PLANT
log Dissolved Sodium (mg/L)
100
10
1
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

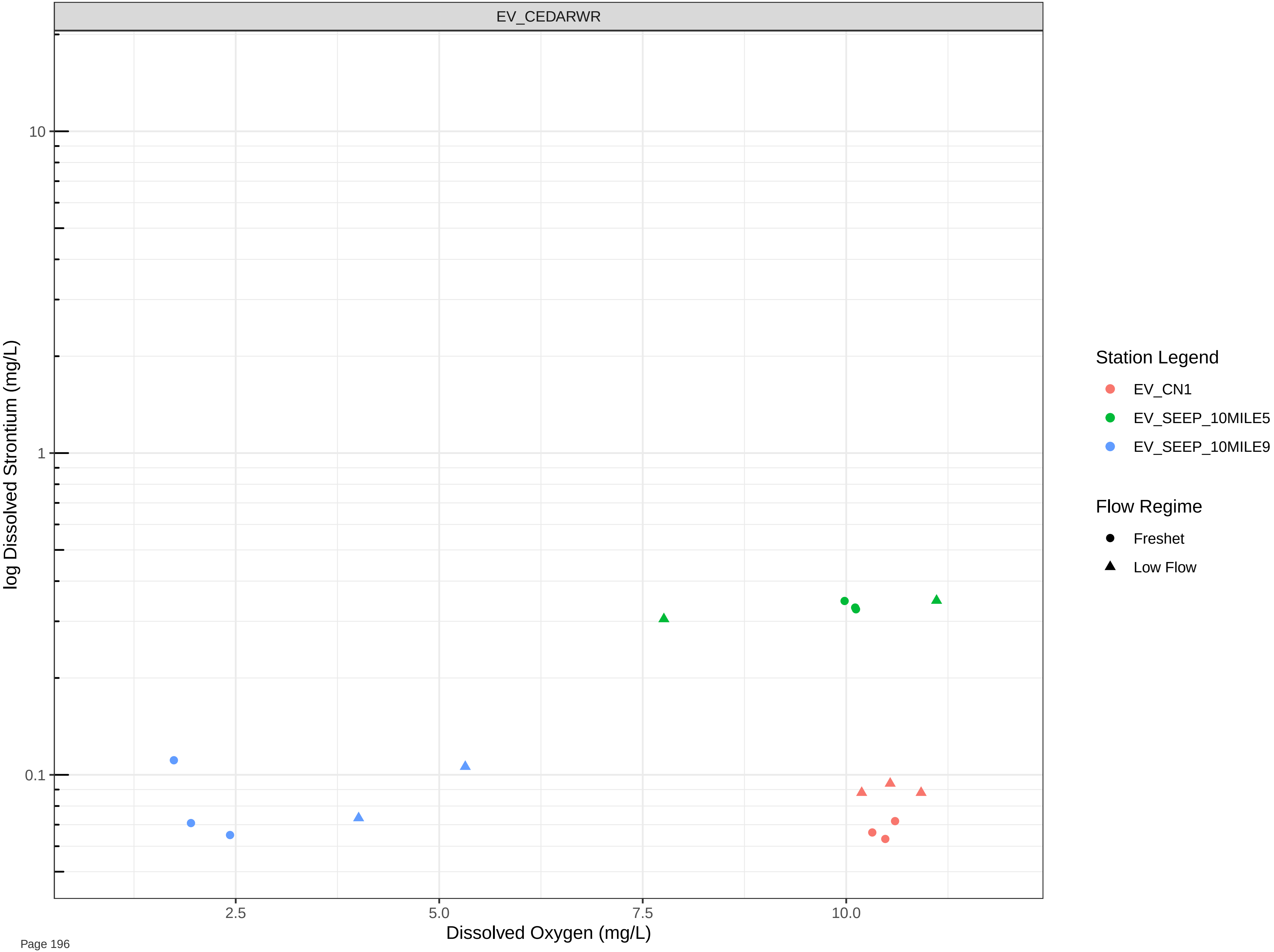

EV_SOUTHSLOPE
log Dissolved Sodium (mg/L)
100
10
1
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

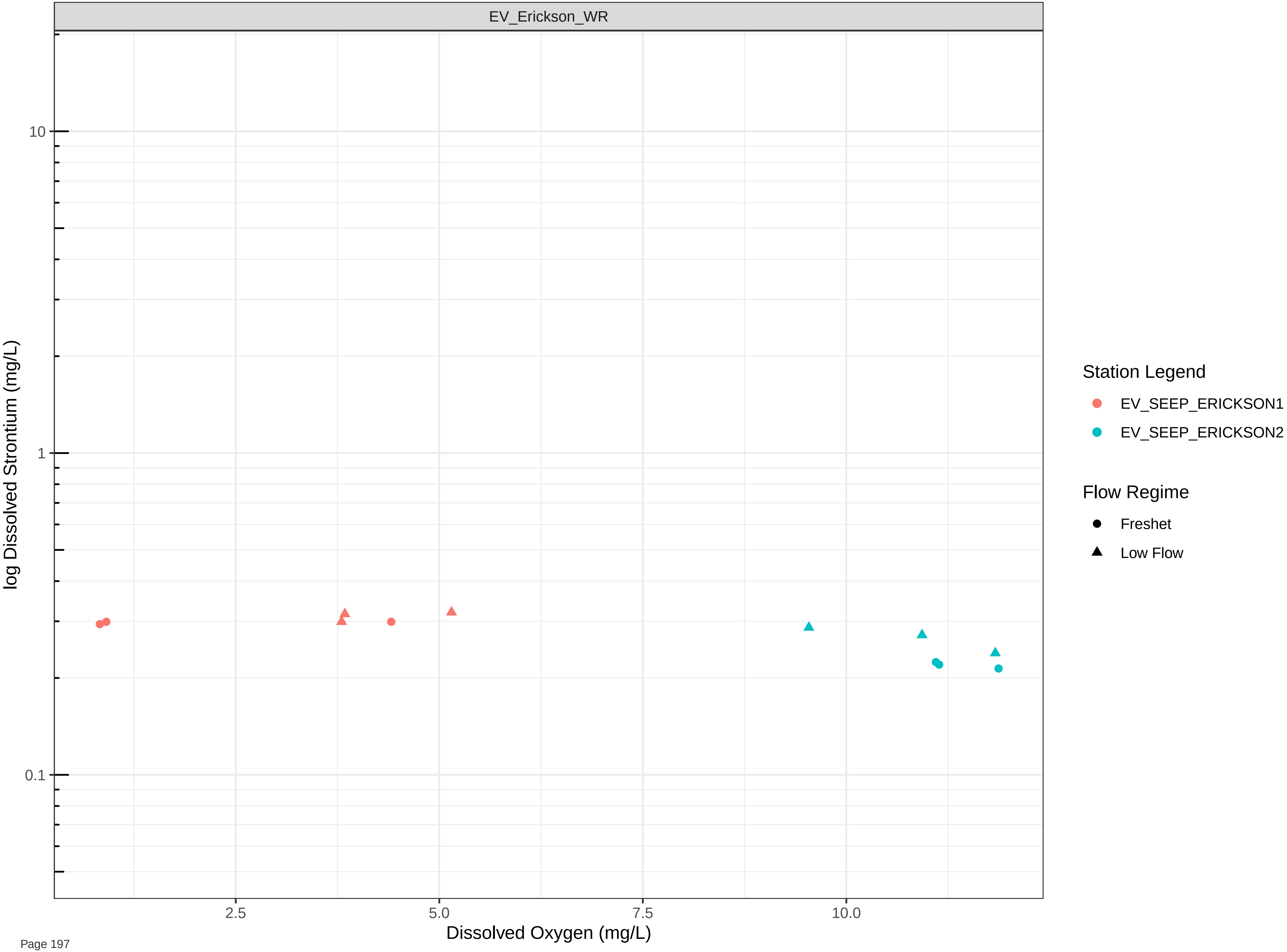

EV_SouthPit_Pit
log Dissolved Sodium (mg/L)
100
10
1
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

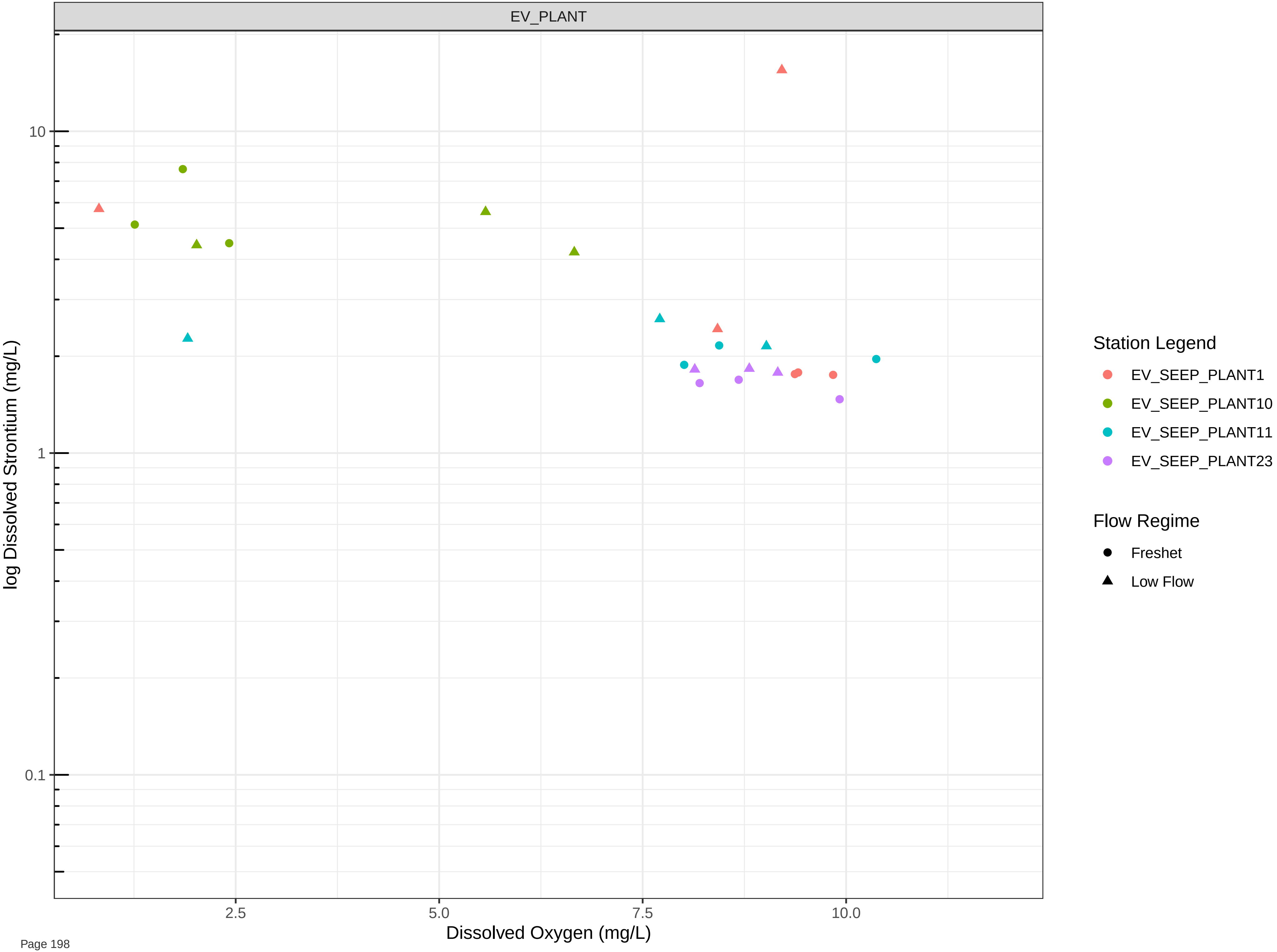

EV_BALDYRIDGEWR
log Dissolved Strontium (mg/L)
10
1
0.1
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

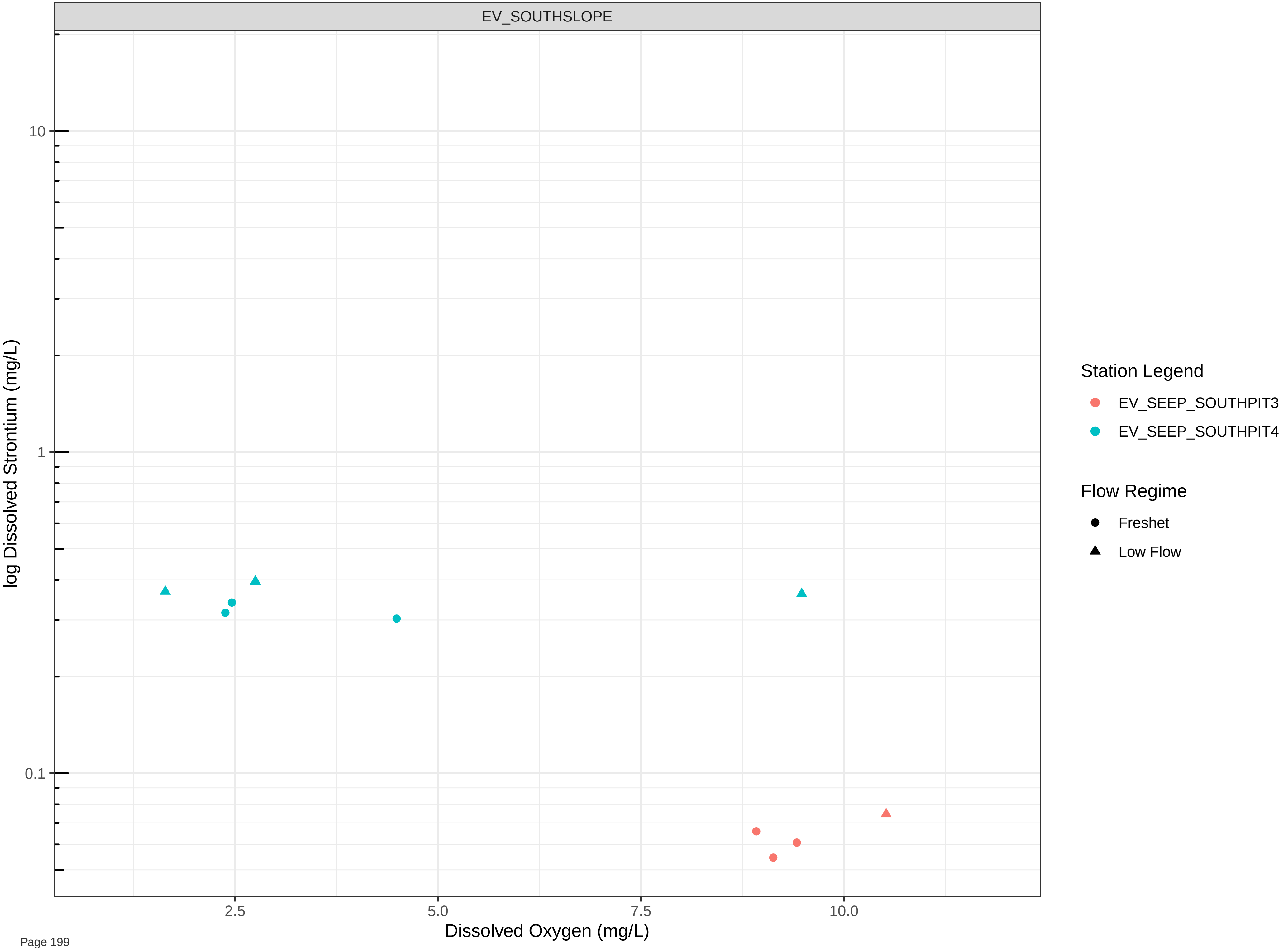

EV_CCR
log Dissolved Strontium (mg/L)
10
1
0.1
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

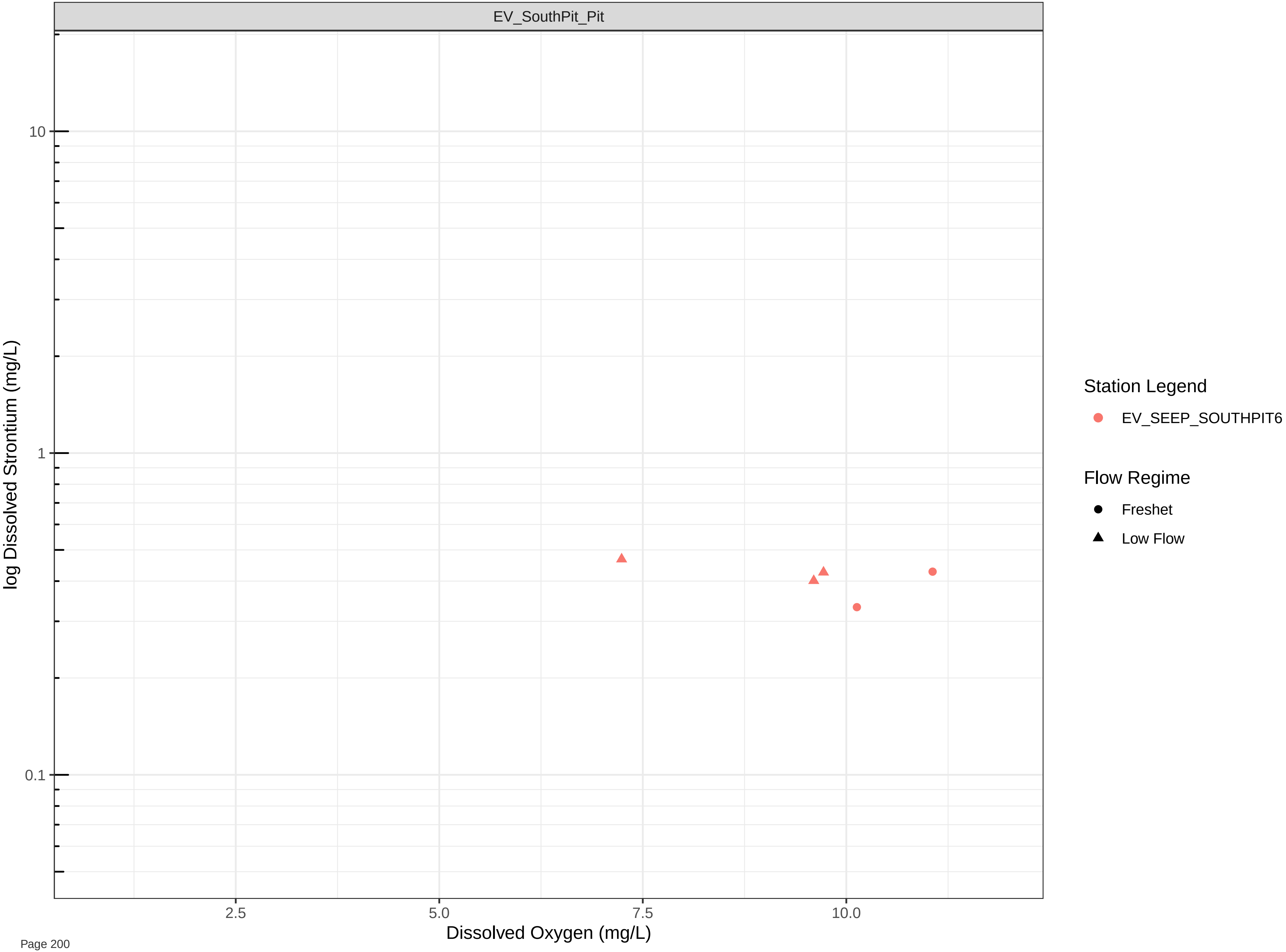

EV_CCR/TP
10
1
0.1
log Dissolved Strontium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

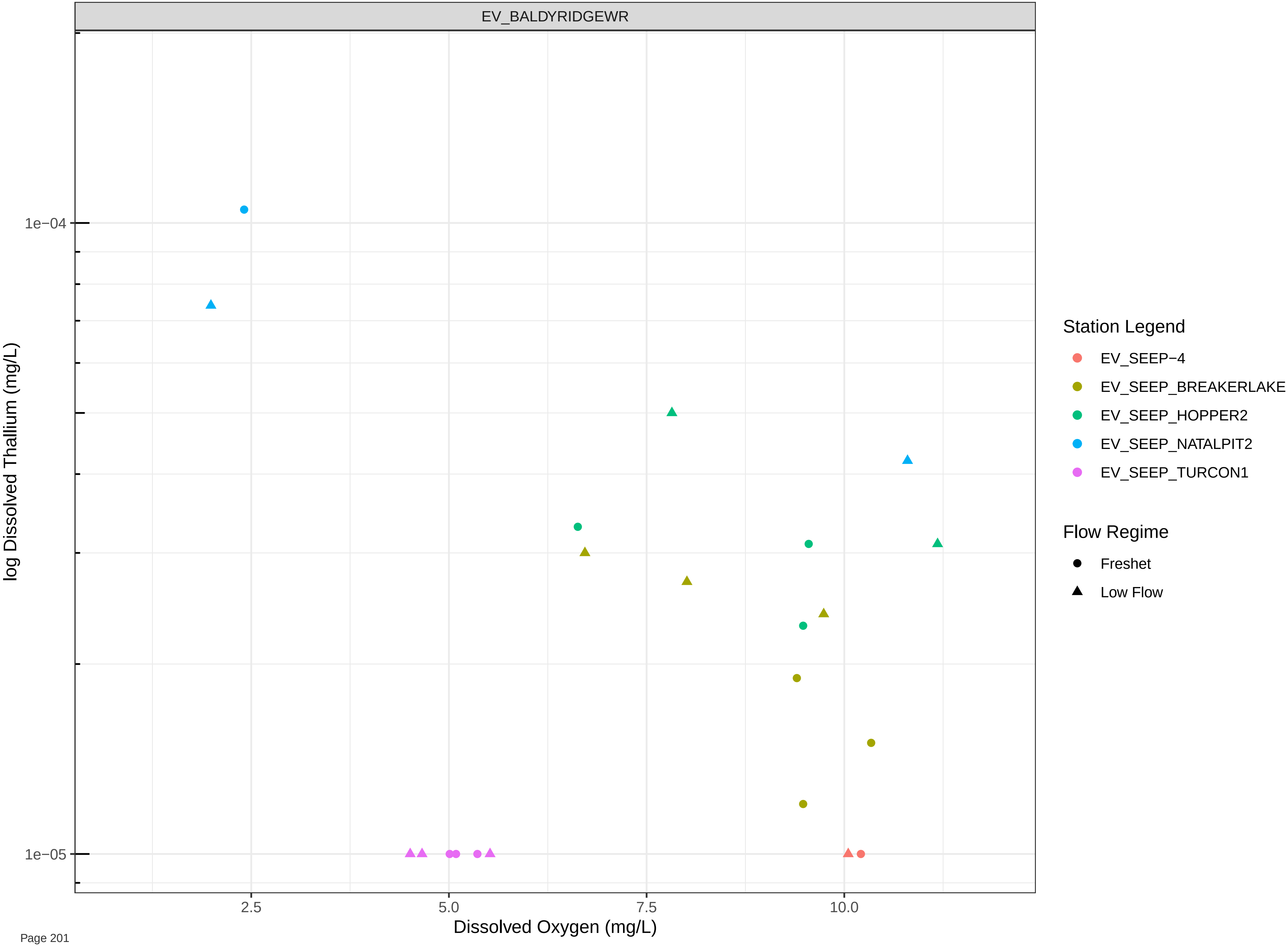

EV_CEDARWR
log Dissolved Strontium (mg/L)
10
1
0.1
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

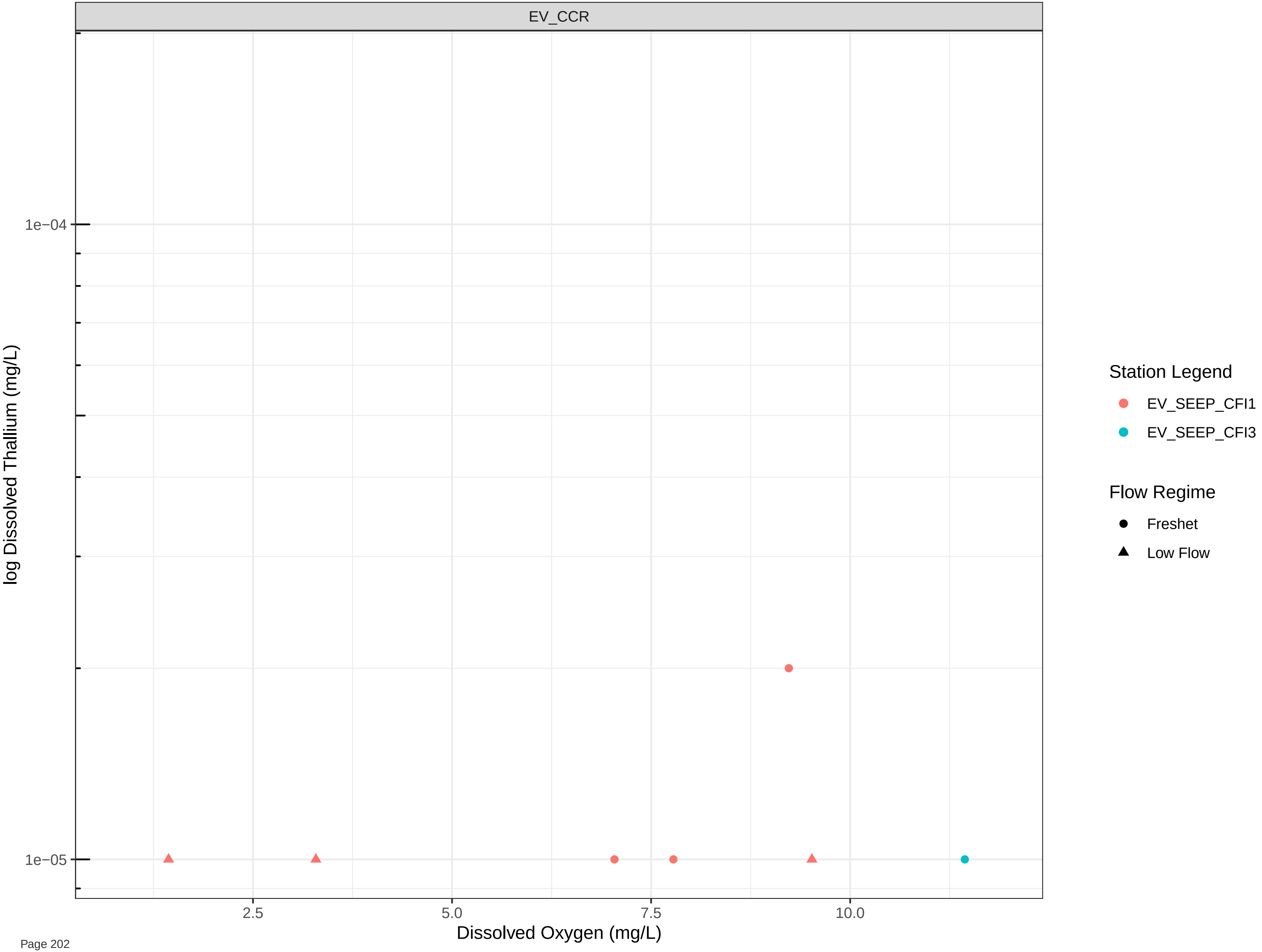

EV_Erickson_WR
log Dissolved Strontium (mg/L)
10
1
0.1
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

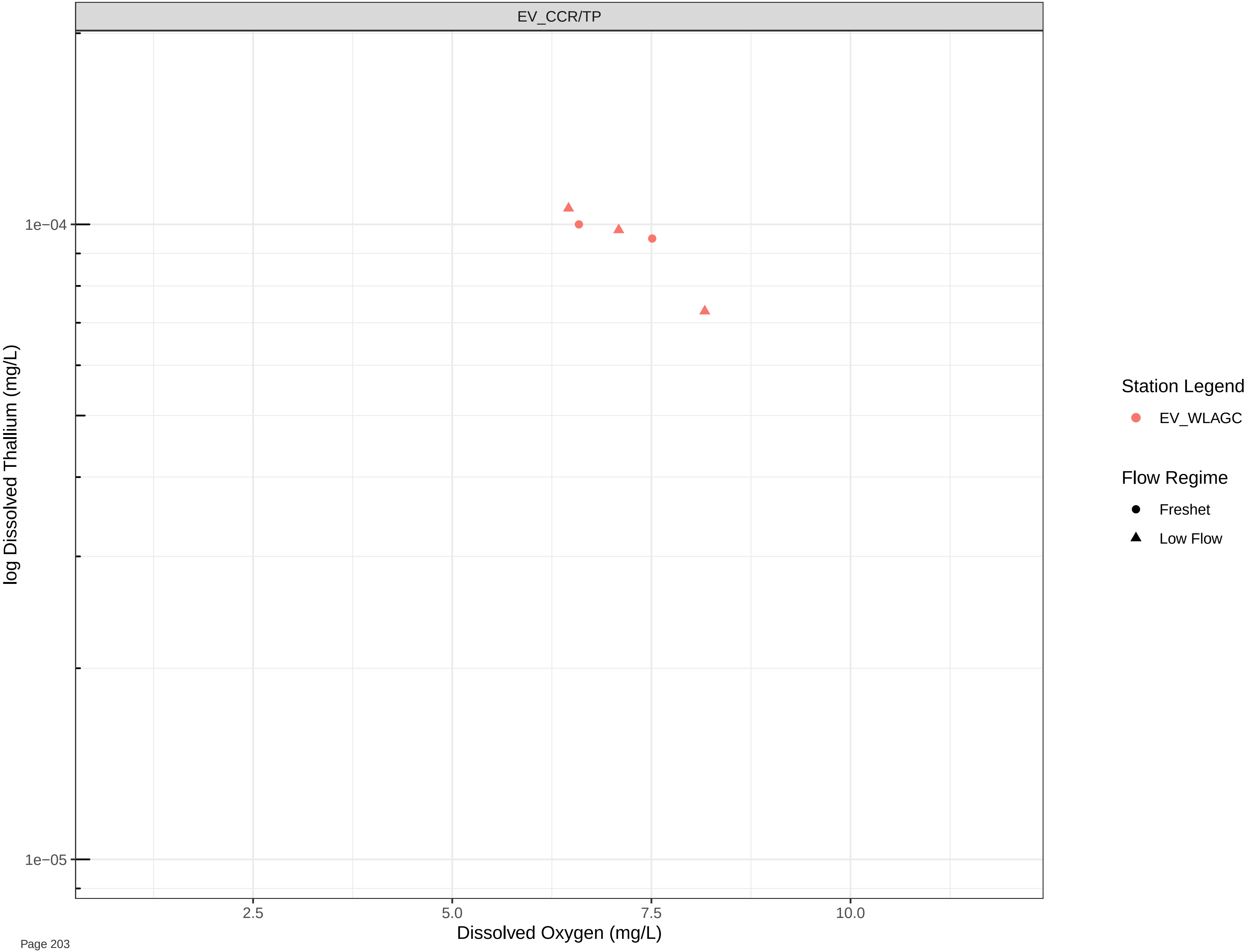

EV_PLANT
10
1
0.1
log Dissolved Strontium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

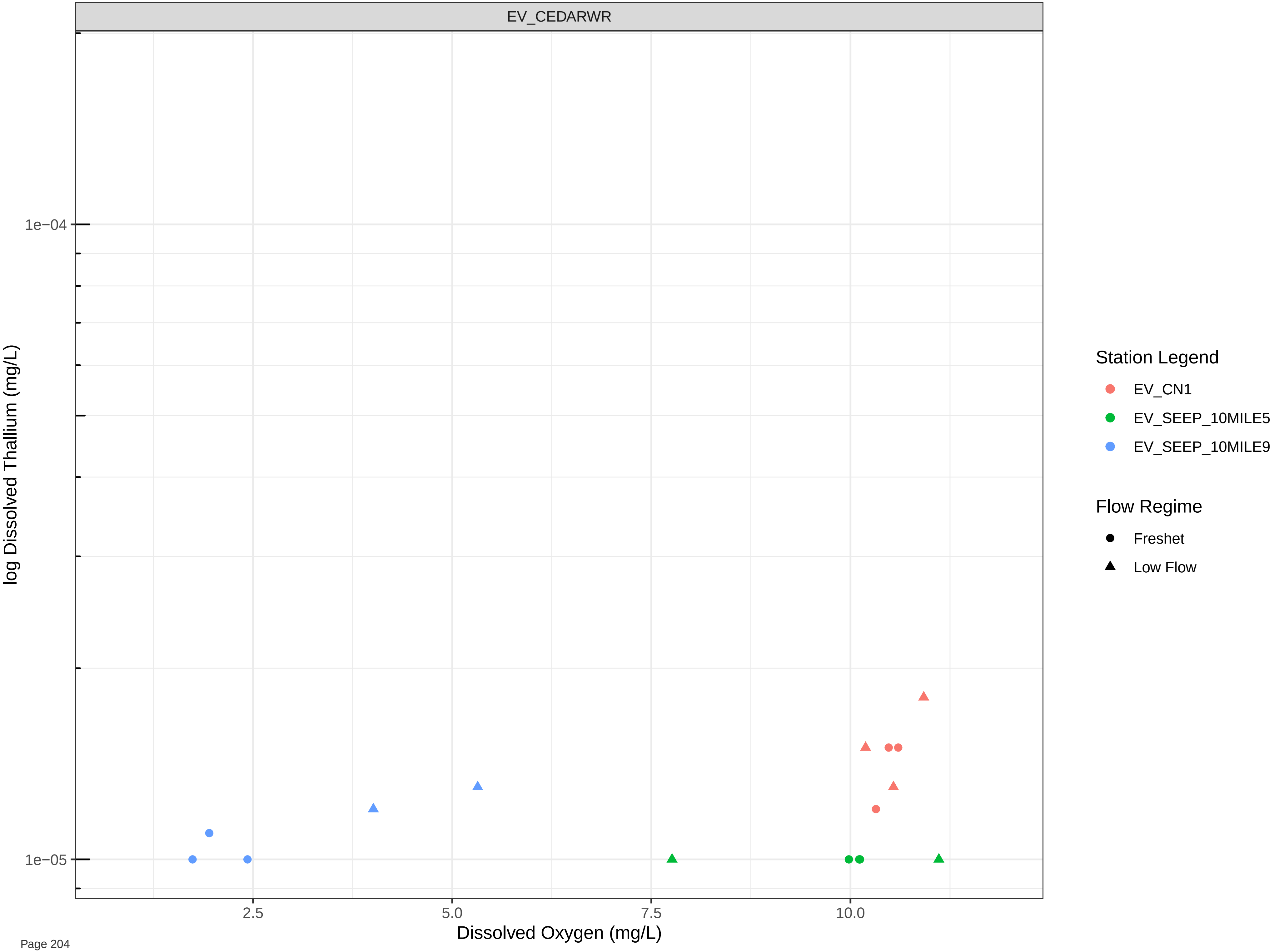

EV_SOUTHSLOPE
log Dissolved Strontium (mg/L)
10
1
0.1
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

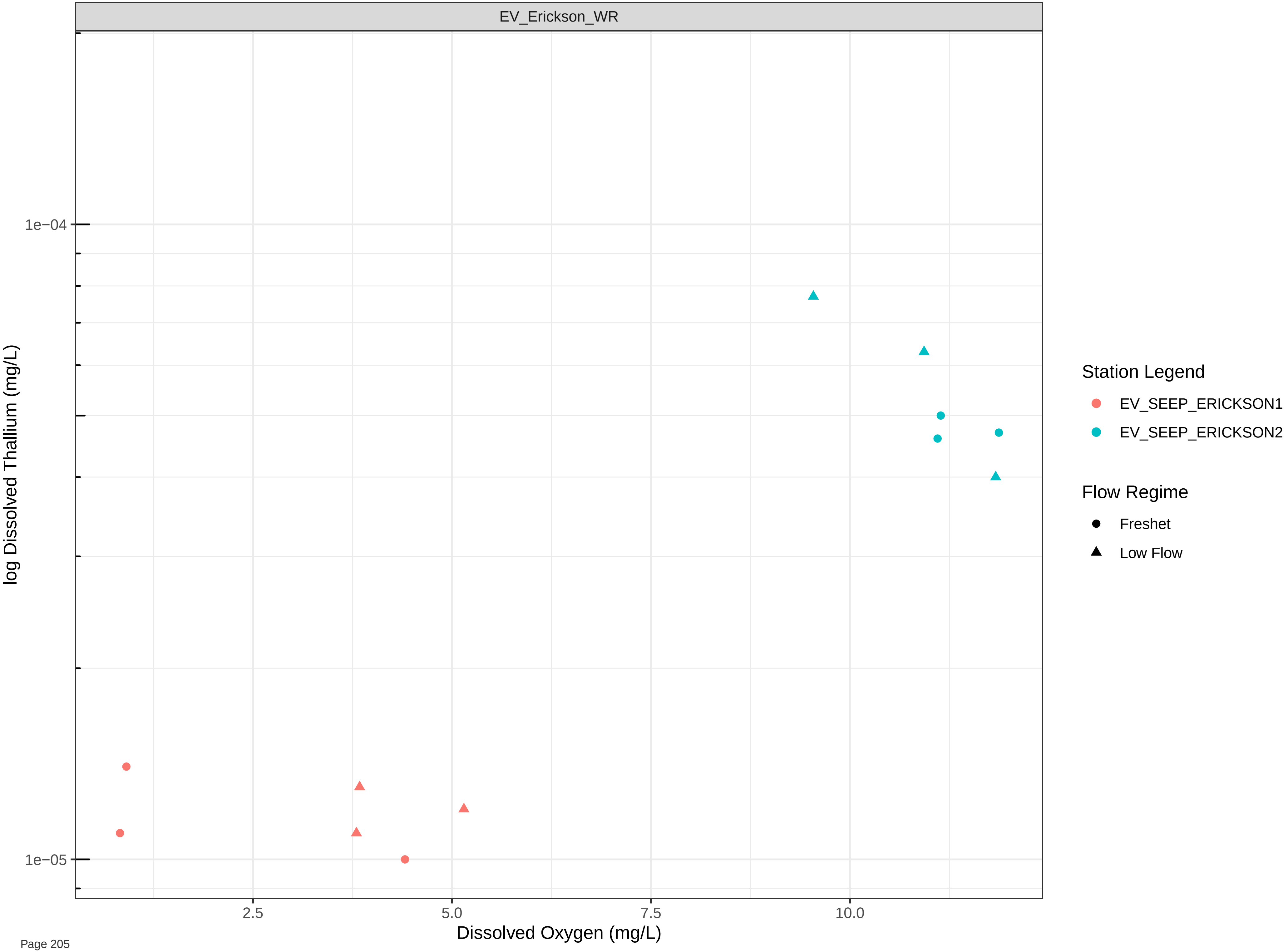

EV_SouthPit_Pit
log Dissolved Strontium (mg/L)
10
1
0.1
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

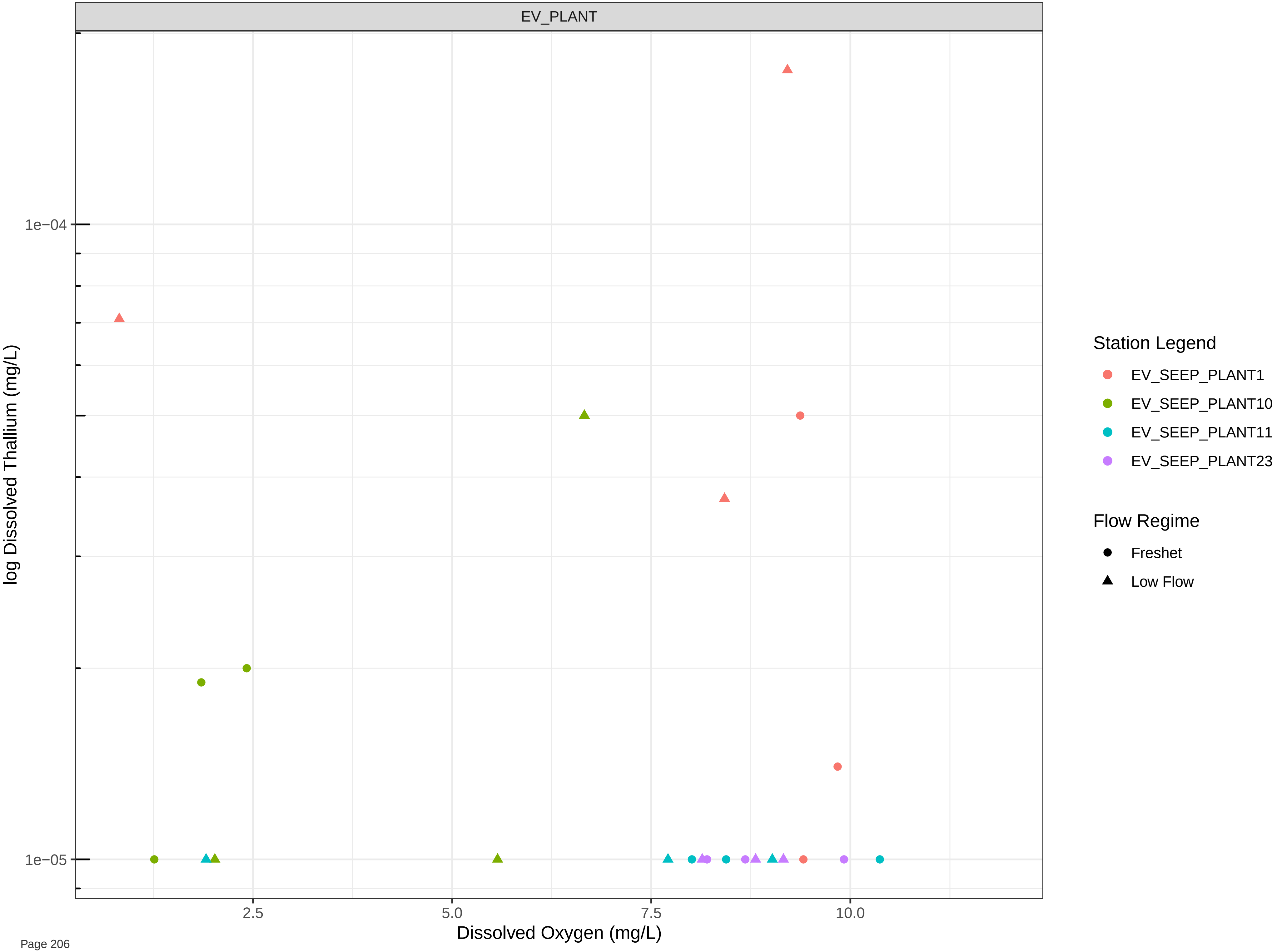

EV_BALDYRIDGEWR
log Dissolved Thallium (mg/L)
1e−04
1e−05
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

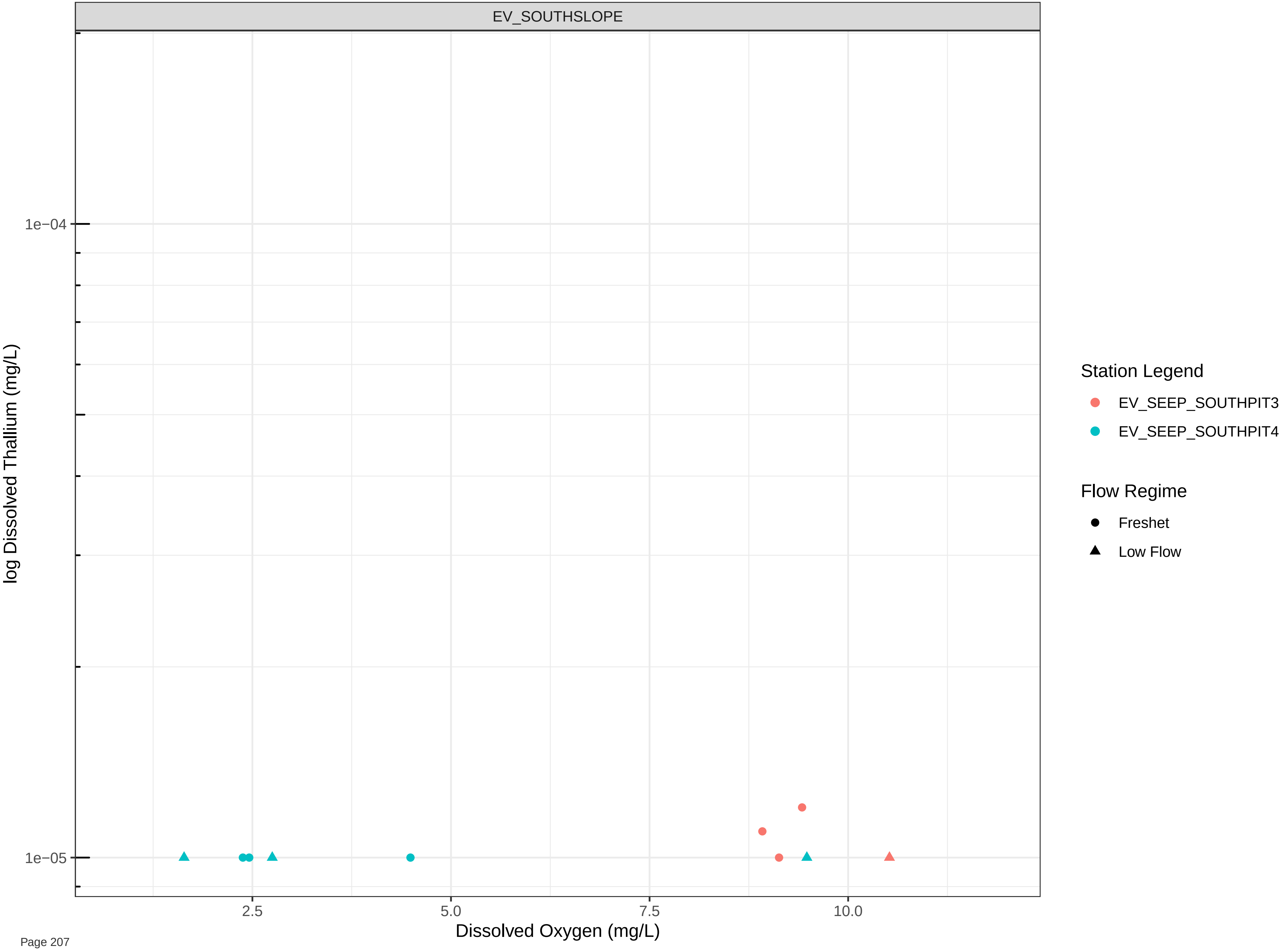

EV_CCR
log Dissolved Thallium (mg/L)
1e−04
1e−05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

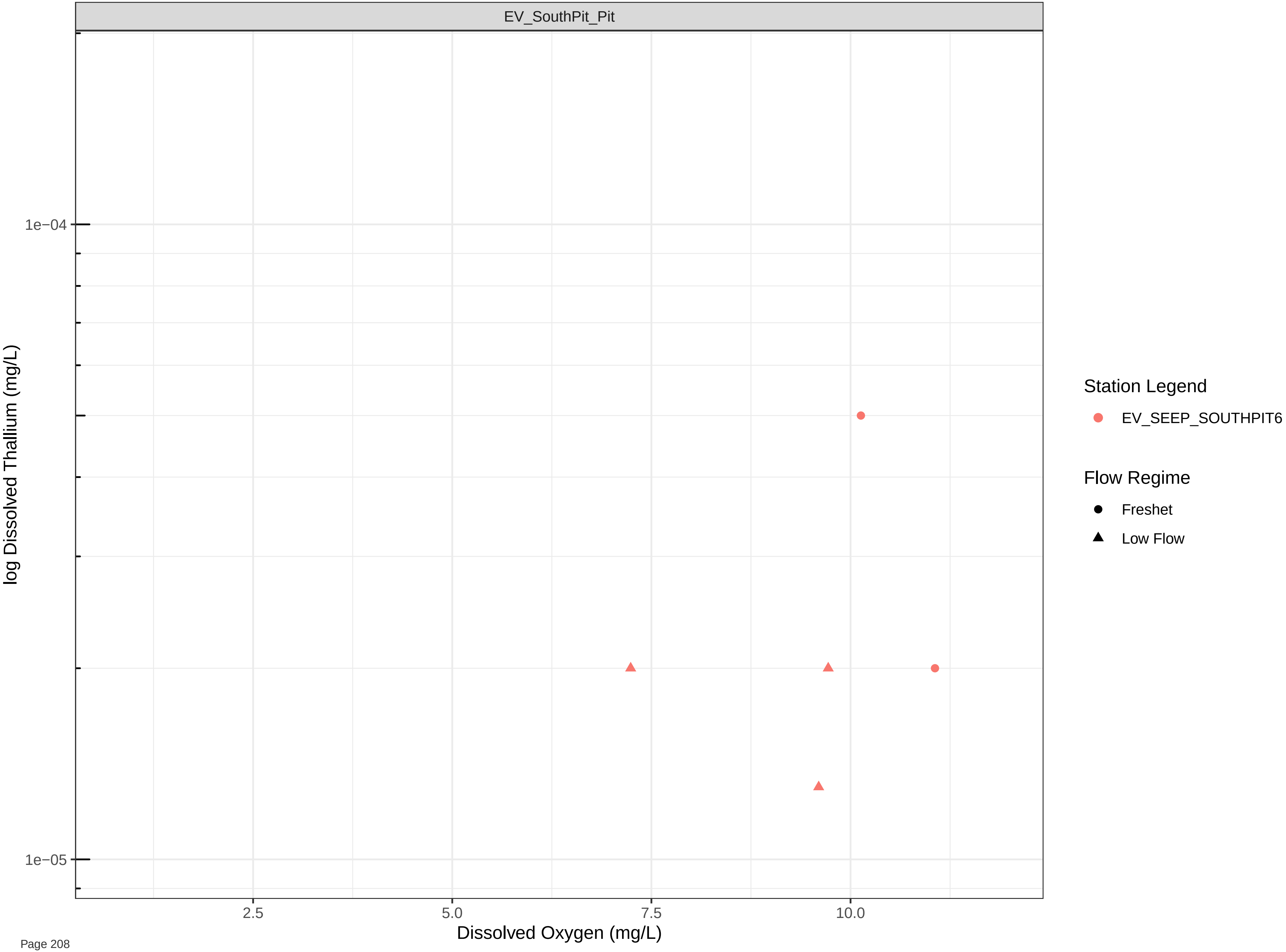

EV_CCR/TP
log Dissolved Thallium (mg/L)
1e−04
1e−05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

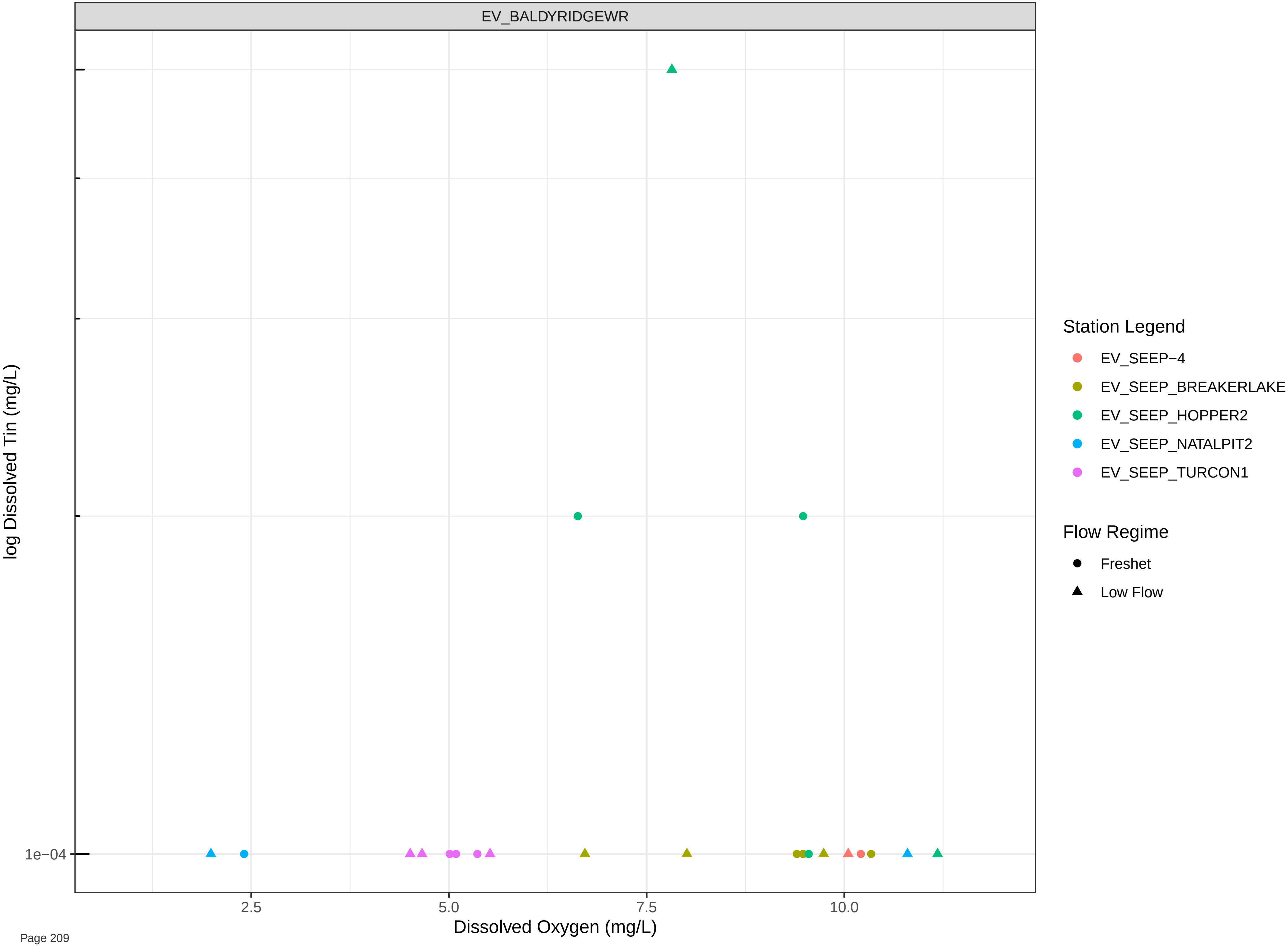

EV_CEDARWR
log Dissolved Thallium (mg/L)
1e−04
1e−05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

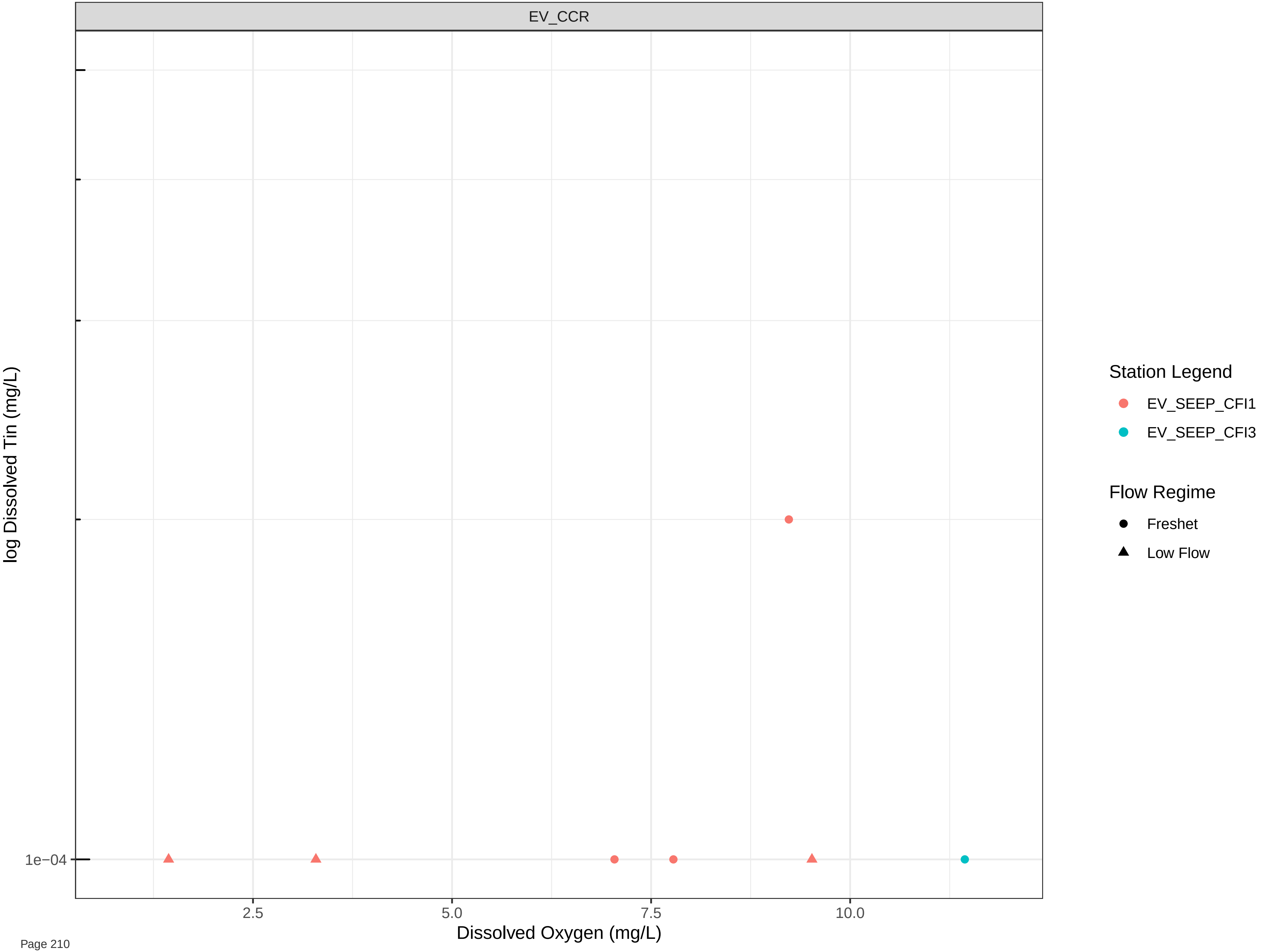

EV_Erickson_WR
1e−04
1e−05
log Dissolved Thallium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

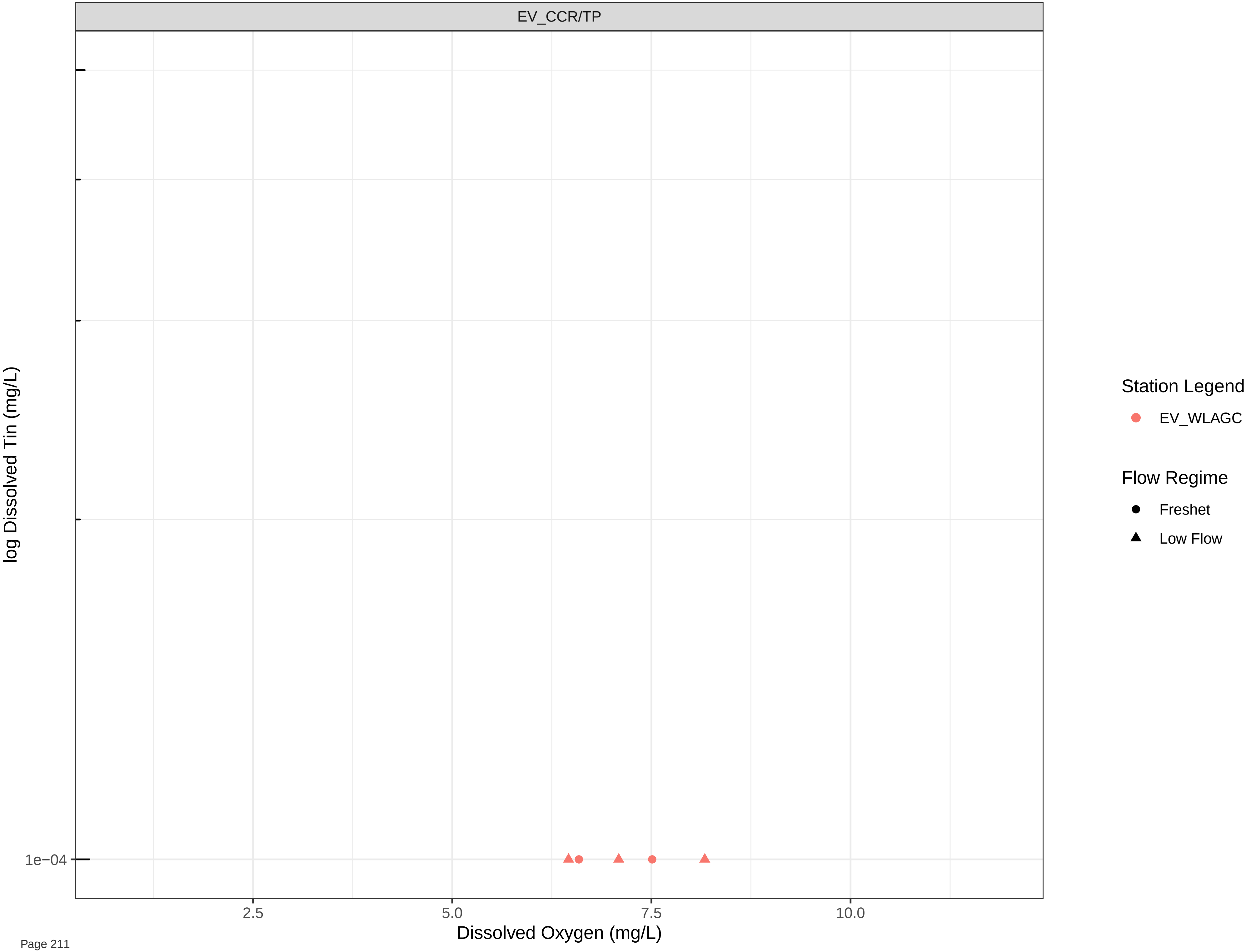

EV_PLANT
log Dissolved Thallium (mg/L)
1e−04
1e−05
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

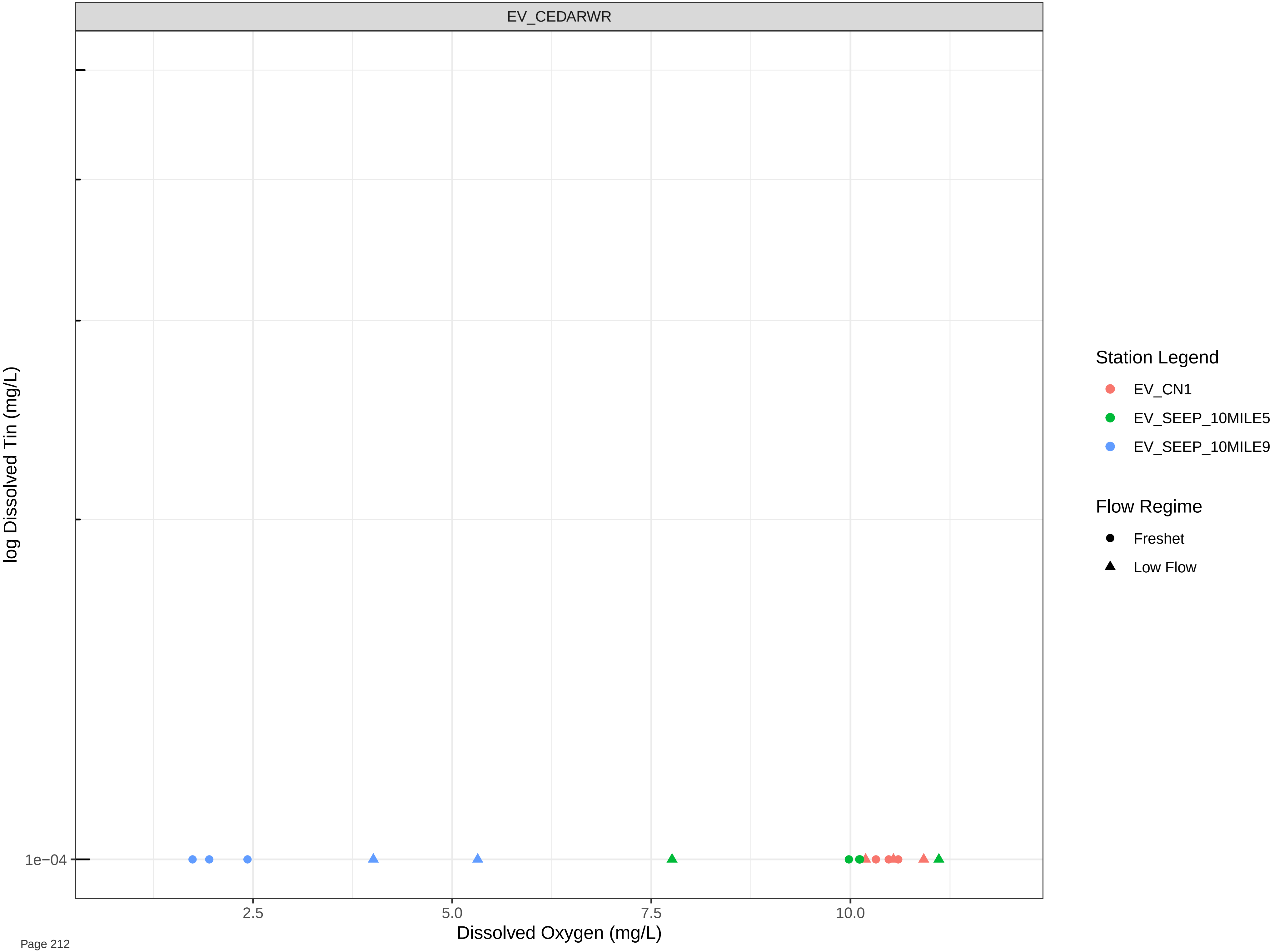

EV_SOUTHSLOPE
log Dissolved Thallium (mg/L)
1e−04
1e−05
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

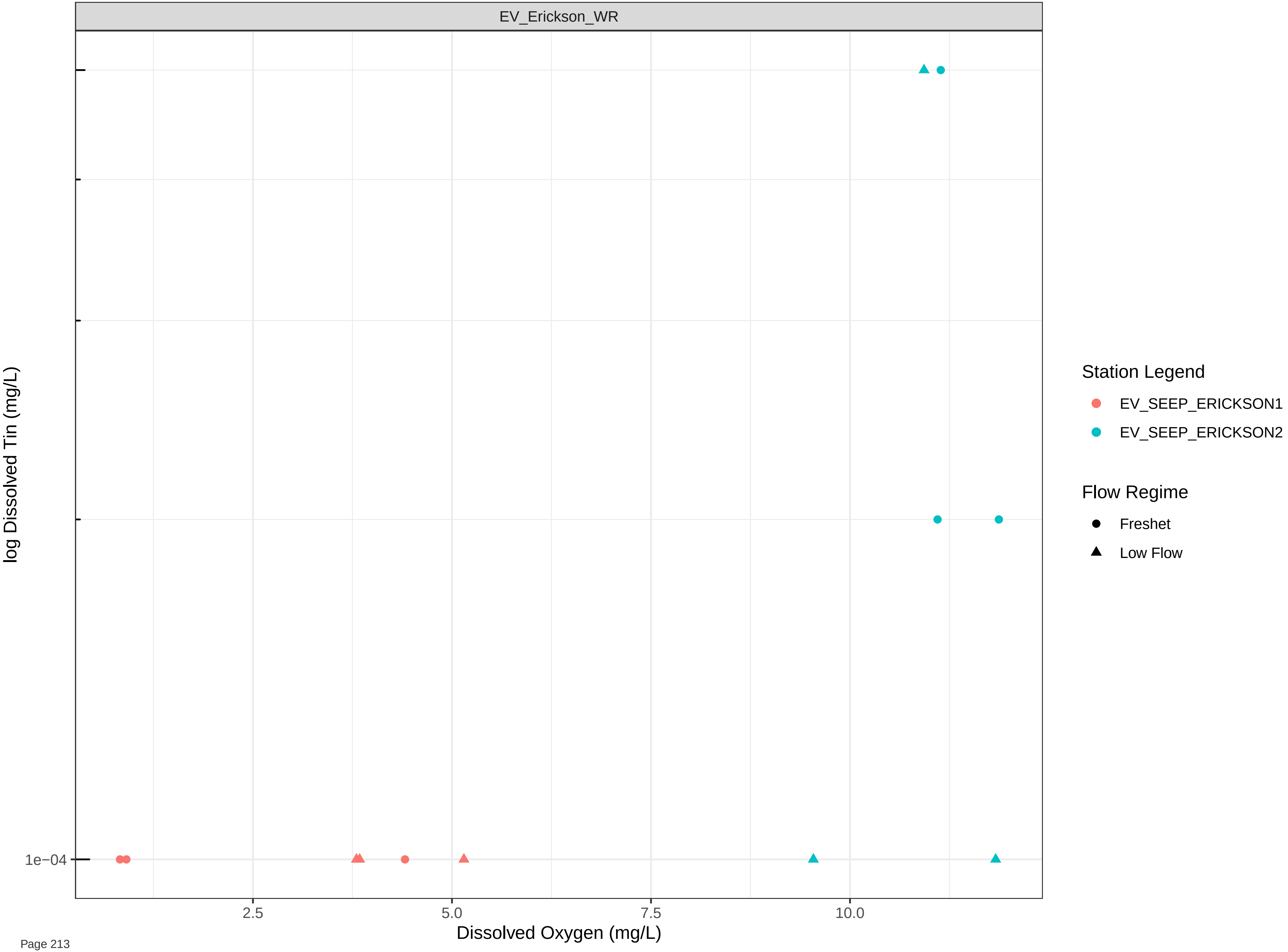

EV_SouthPit_Pit
1e−04
1e−05
log Dissolved Thallium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

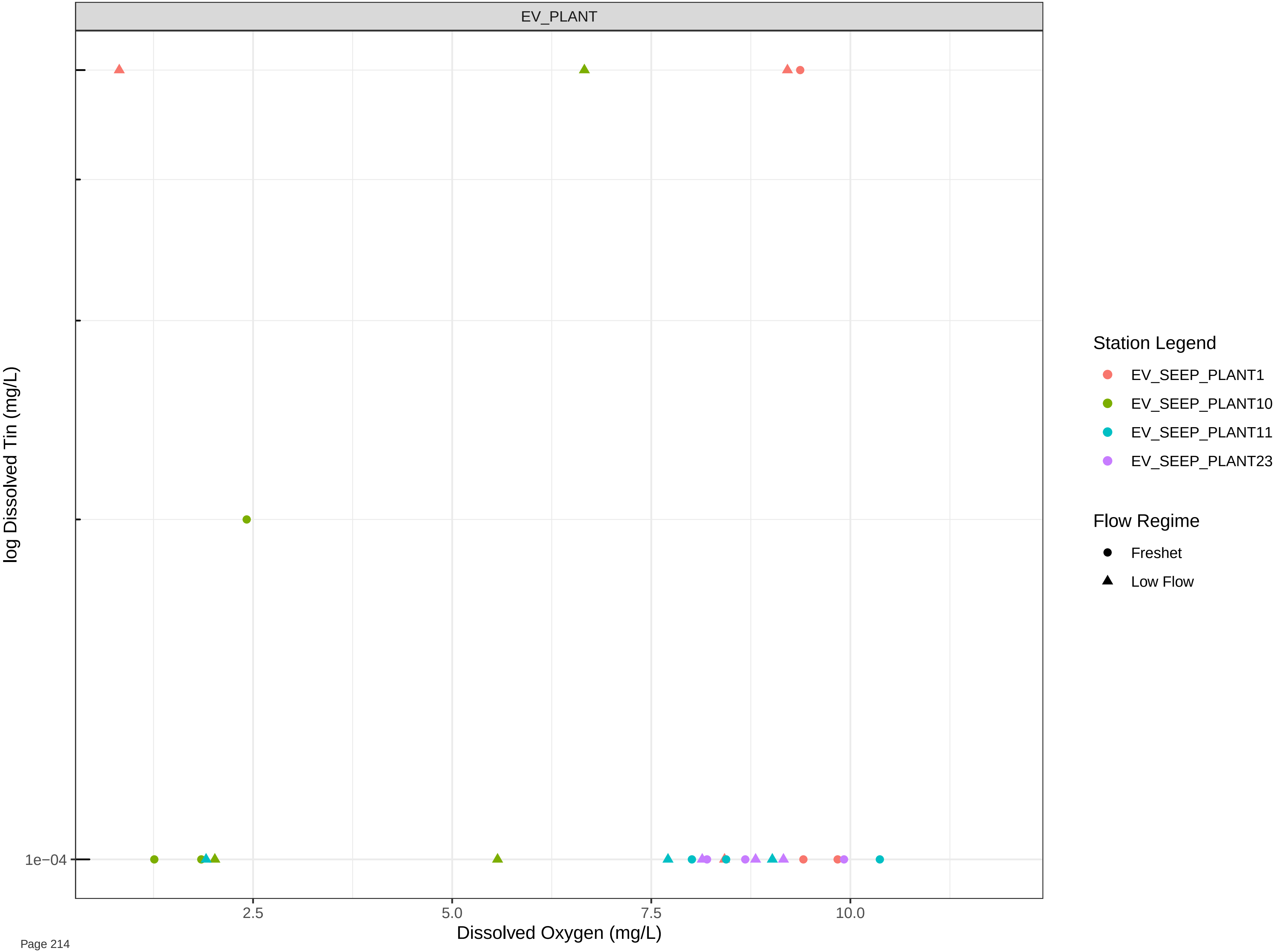

EV_BALDYRIDGEWR
log Dissolved Tin (mg/L)
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

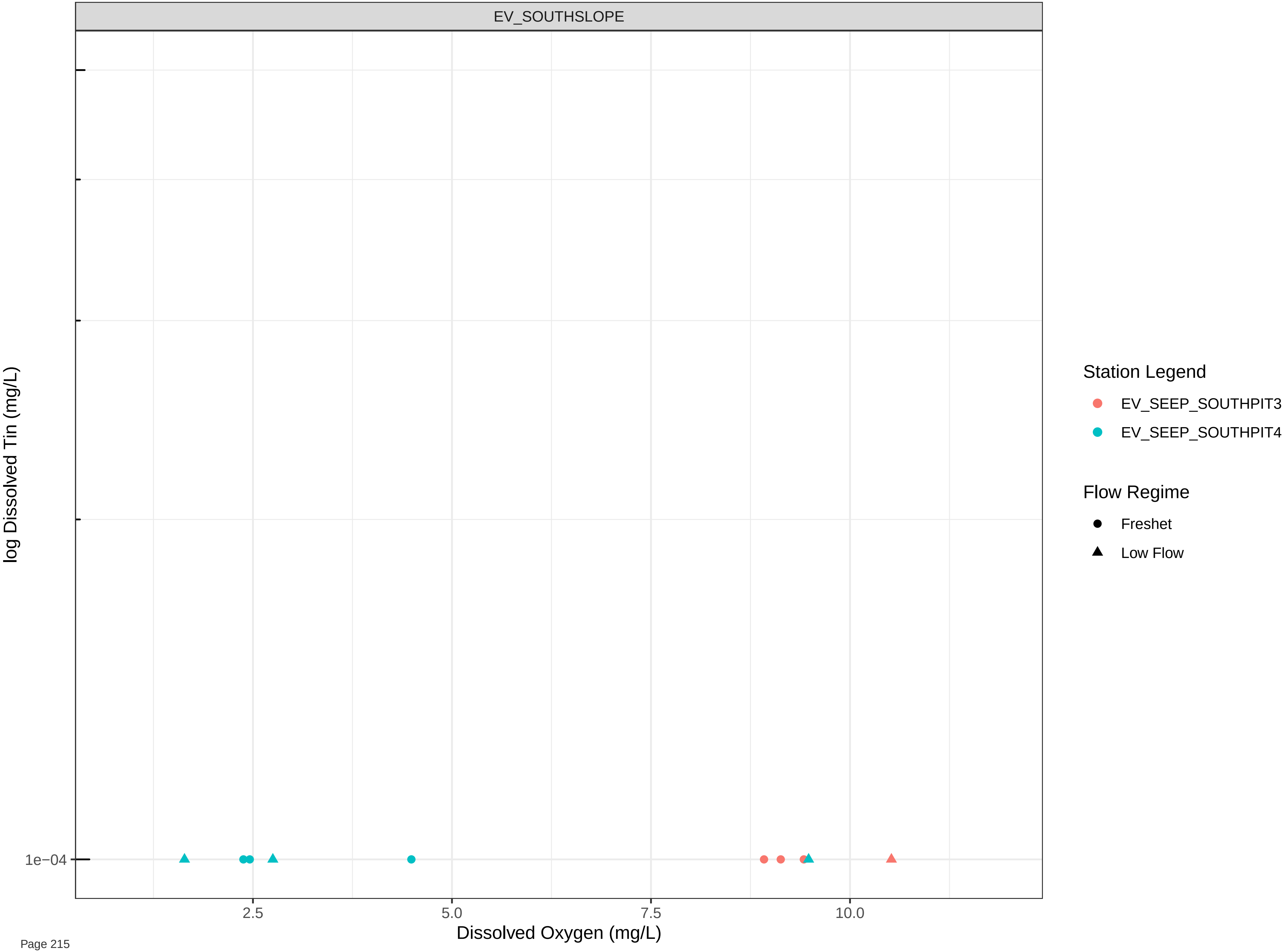

EV_CCR
log Dissolved Tin (mg/L)
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

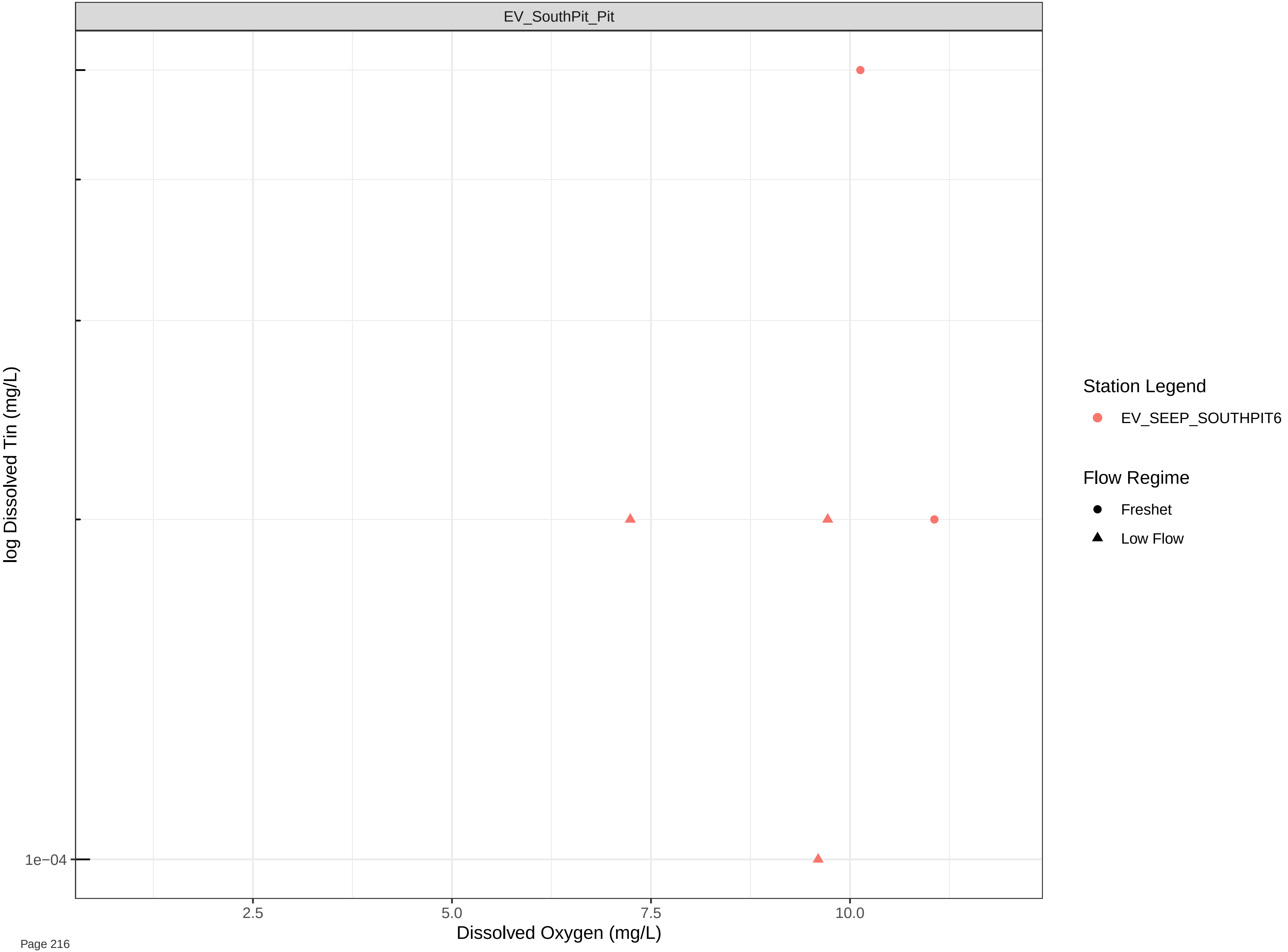

EV_CCR/TP
log Dissolved Tin (mg/L)
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

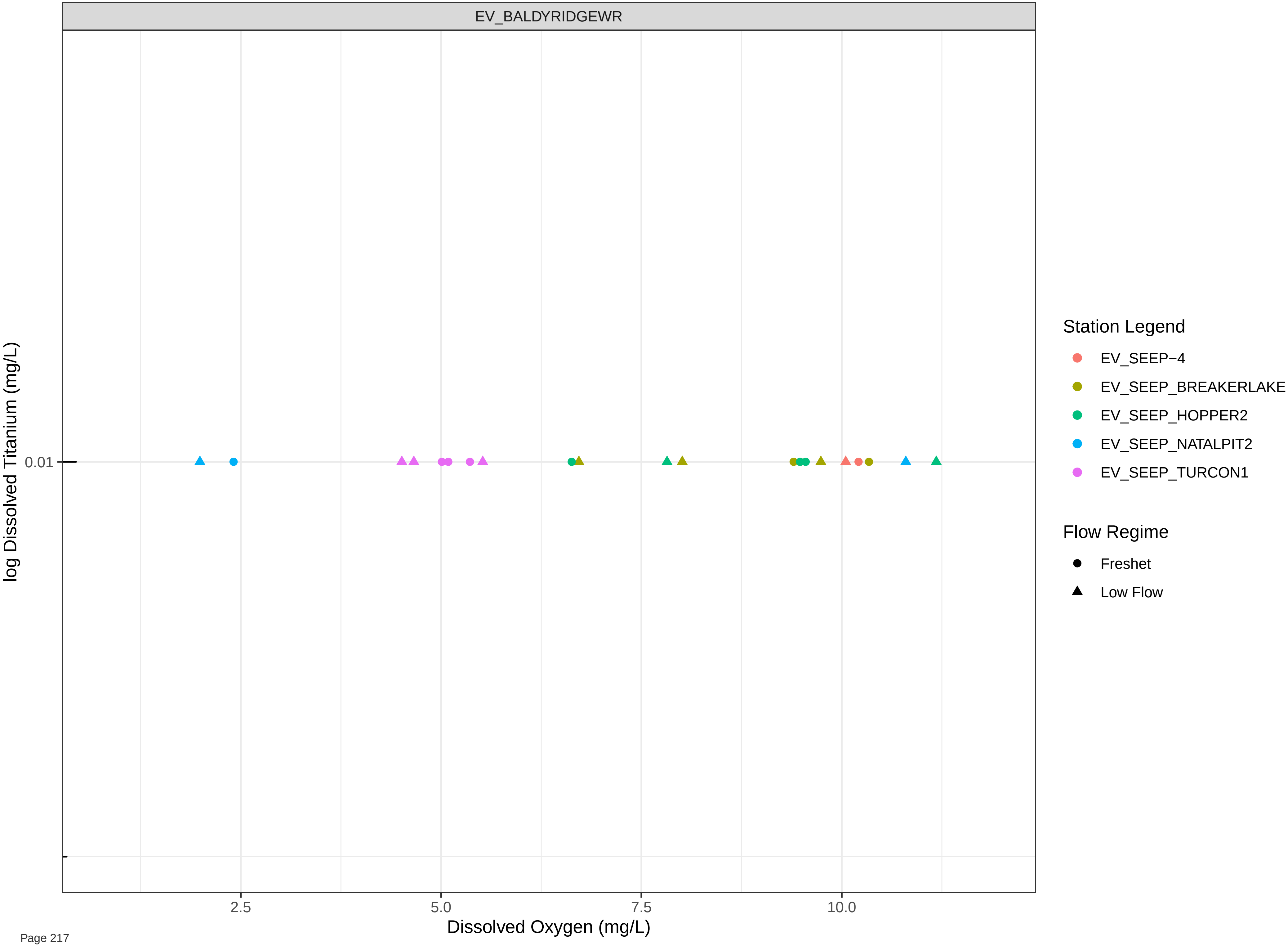

EV_CEDARWR
log Dissolved Tin (mg/L)
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

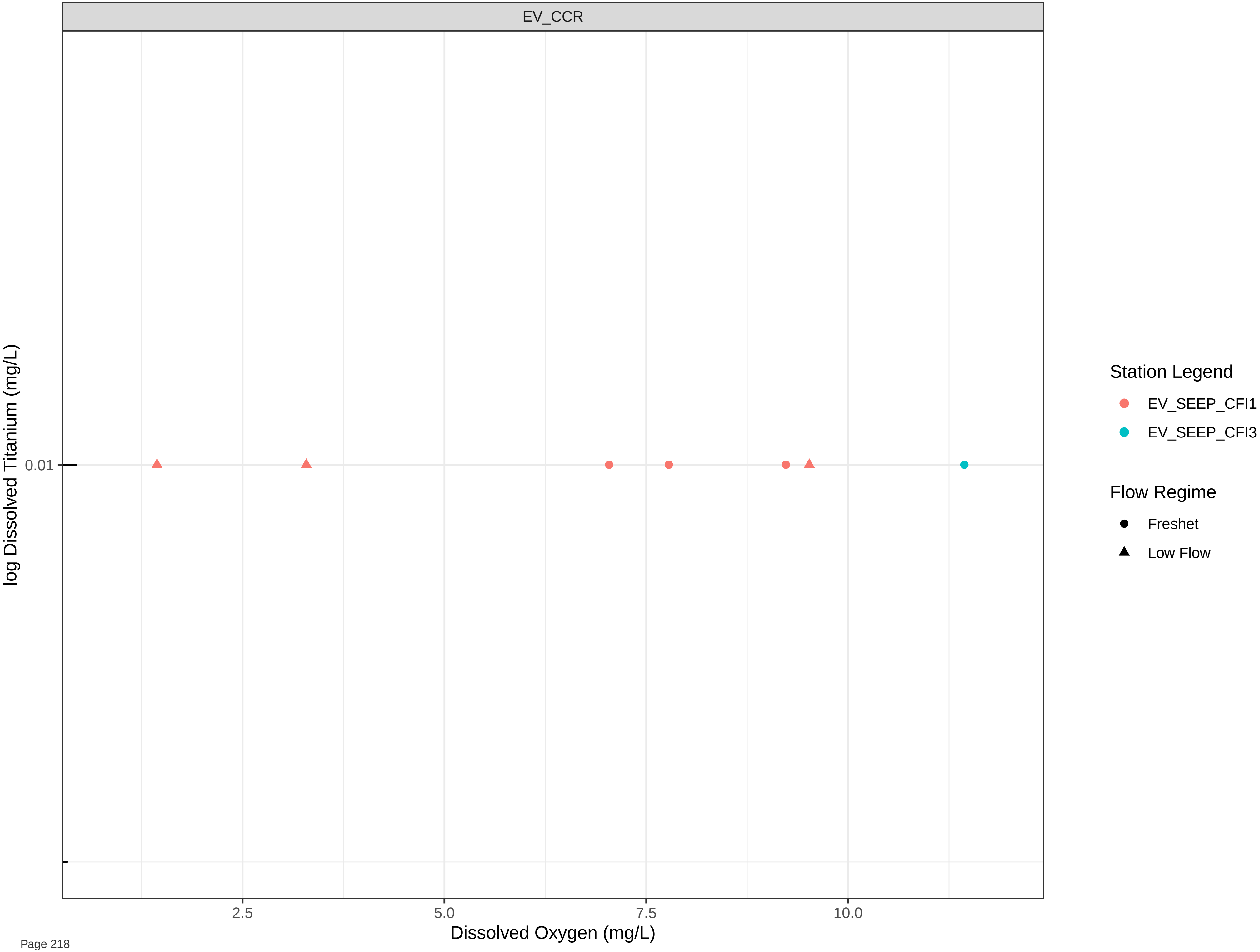

EV_Erickson_WR
log Dissolved Tin (mg/L)
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

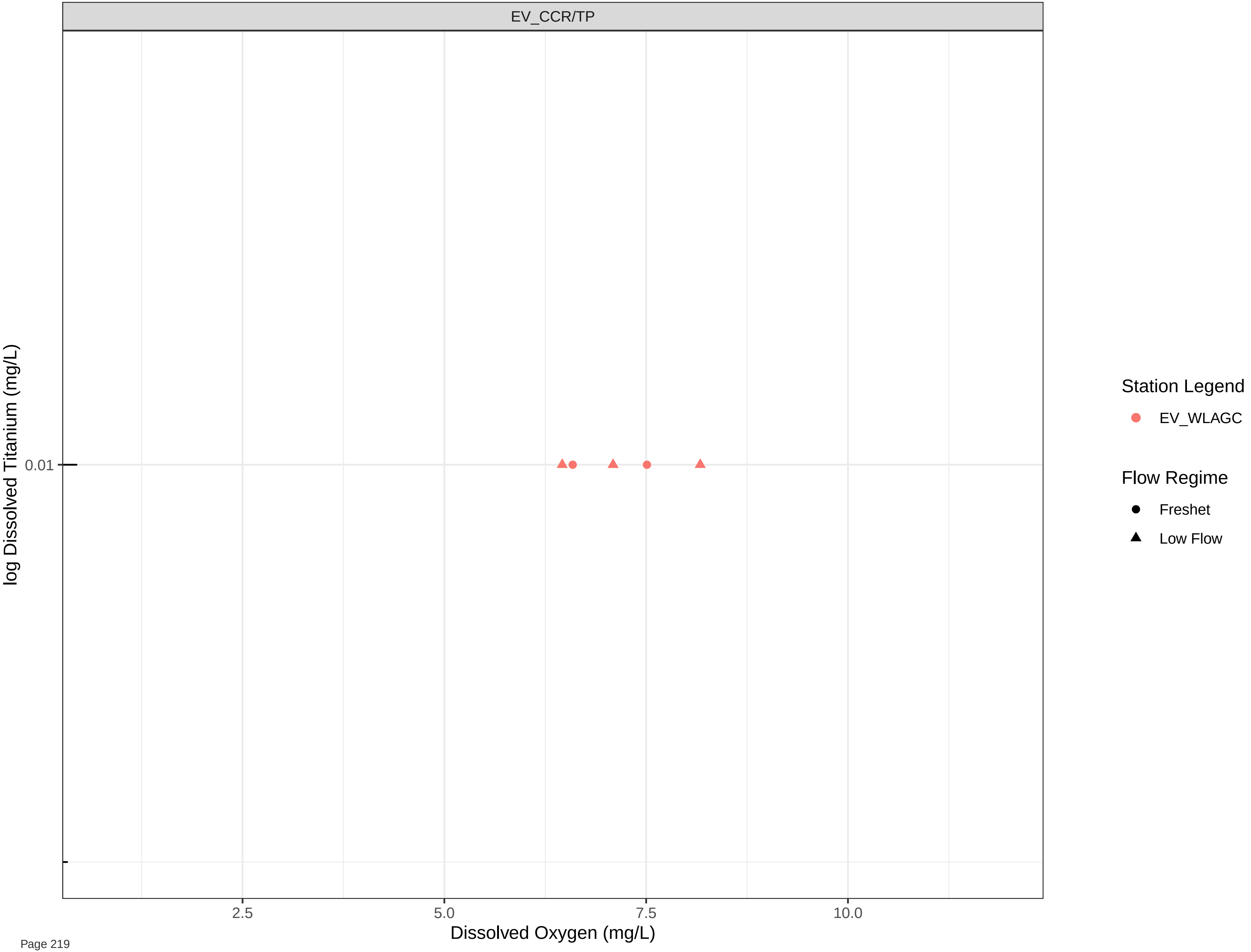

EV_PLANT
log Dissolved Tin (mg/L)
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

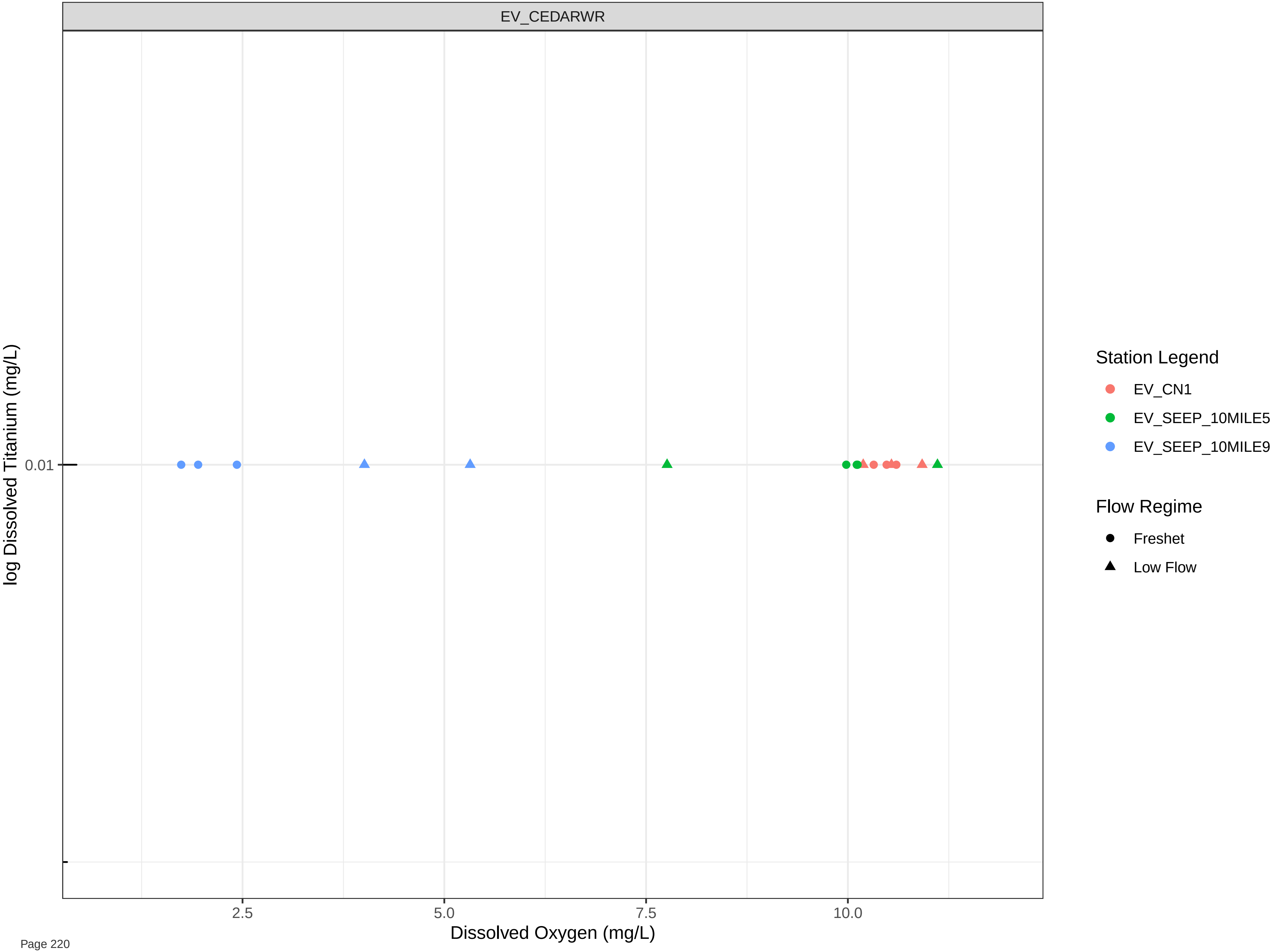

EV_SOUTHSLOPE
log Dissolved Tin (mg/L)
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

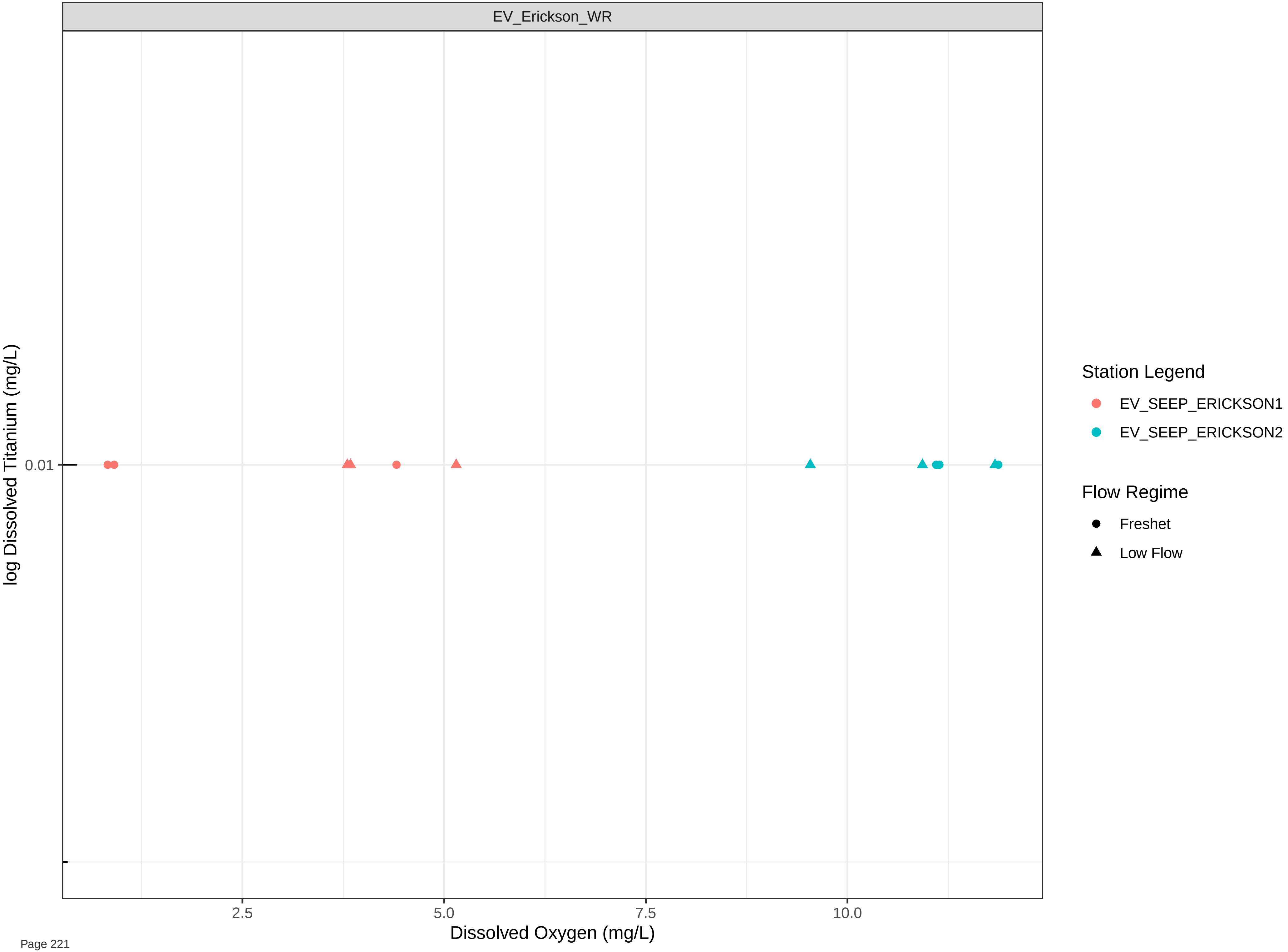

EV_SouthPit_Pit
log Dissolved Tin (mg/L)
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

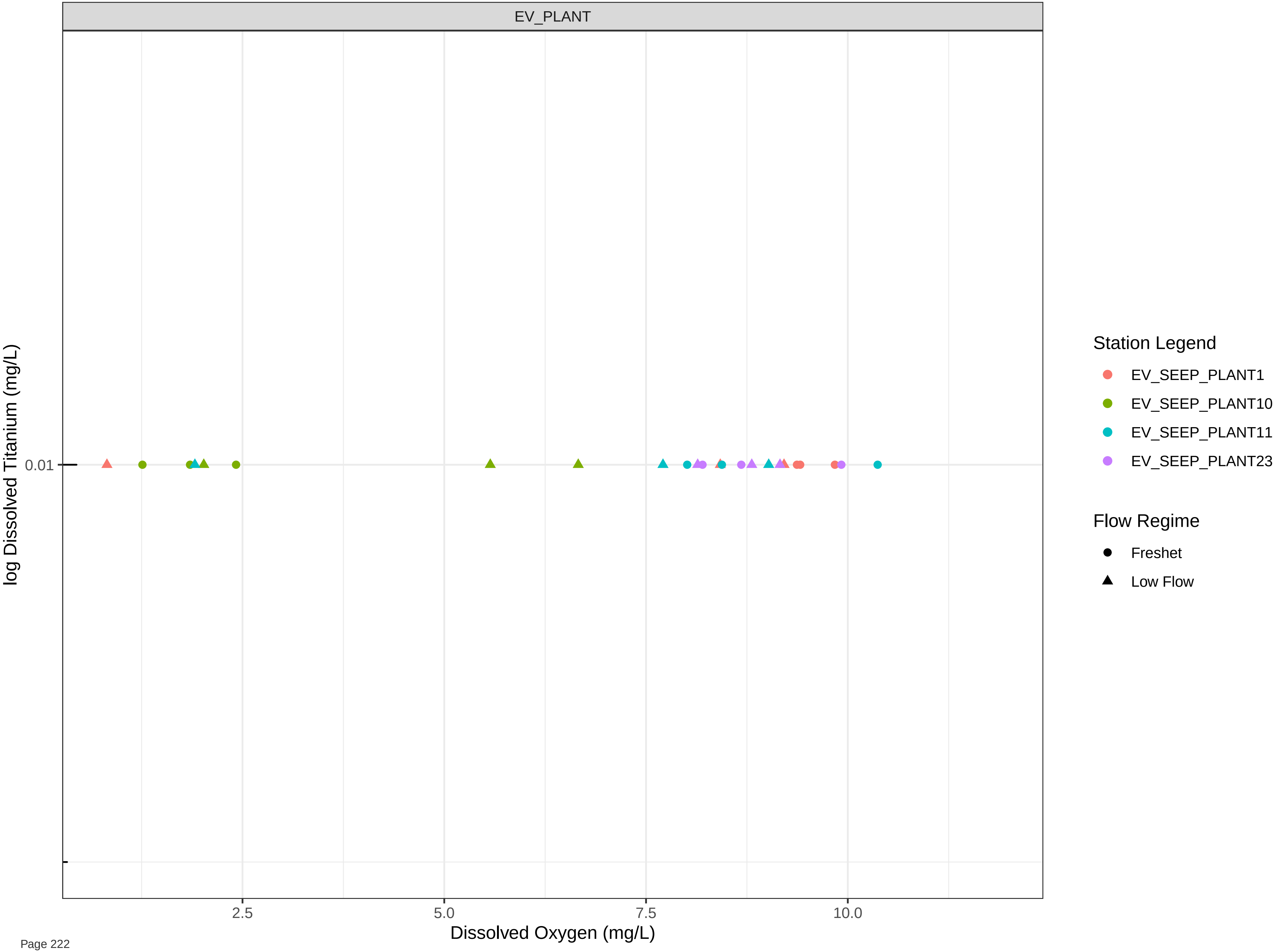

EV_BALDYRIDGEWR
log Dissolved Titanium (mg/L)
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP−4
● EV_SEEP_BREAKERLAKE
● EV_SEEP_HOPPER2
● EV_SEEP_NATALPIT2
● EV_SEEP_TURCON1
Flow Regime
● Freshet
▲ Low Flow

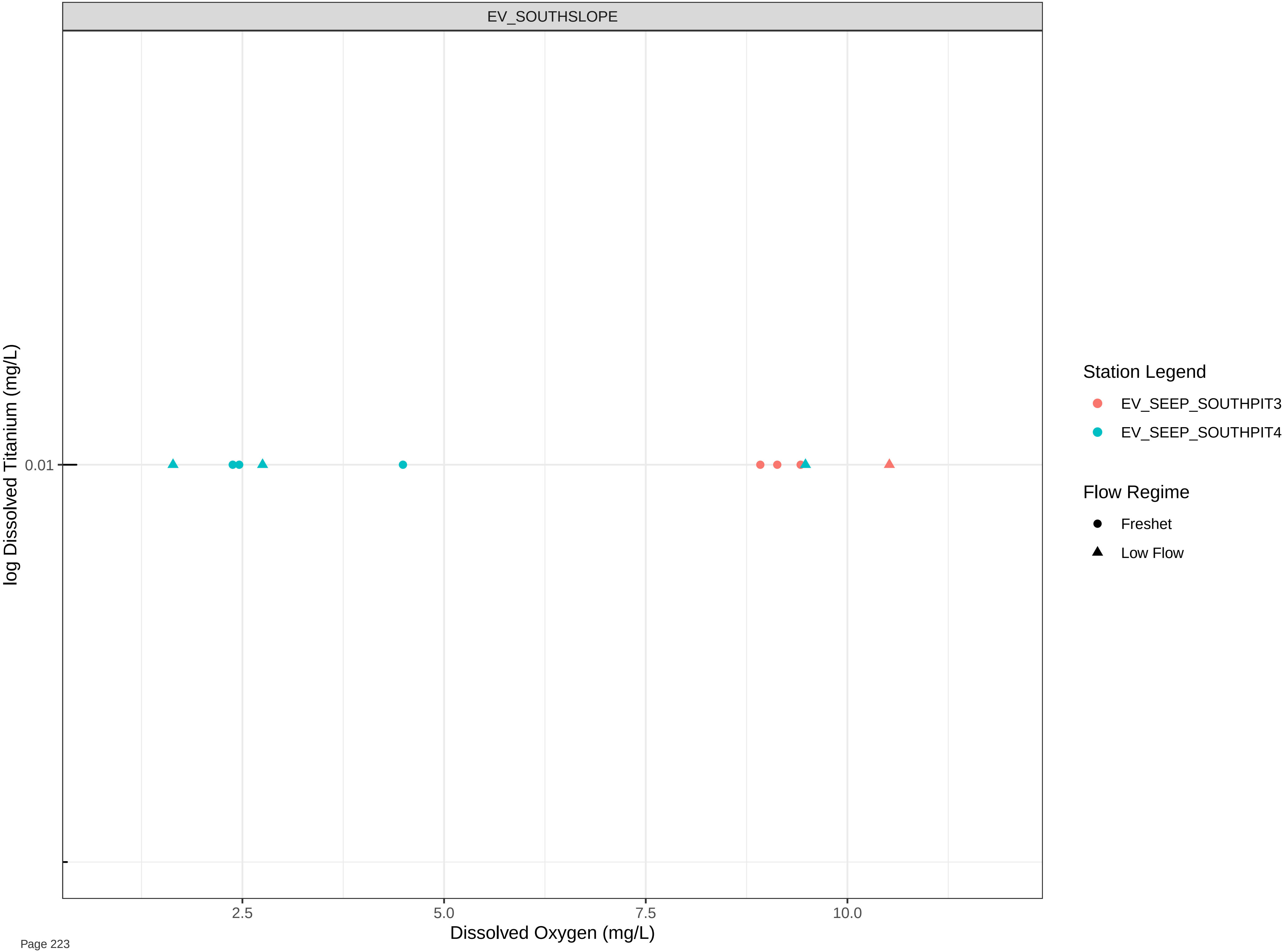

EV_CCR
log Dissolved Titanium (mg/L)
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

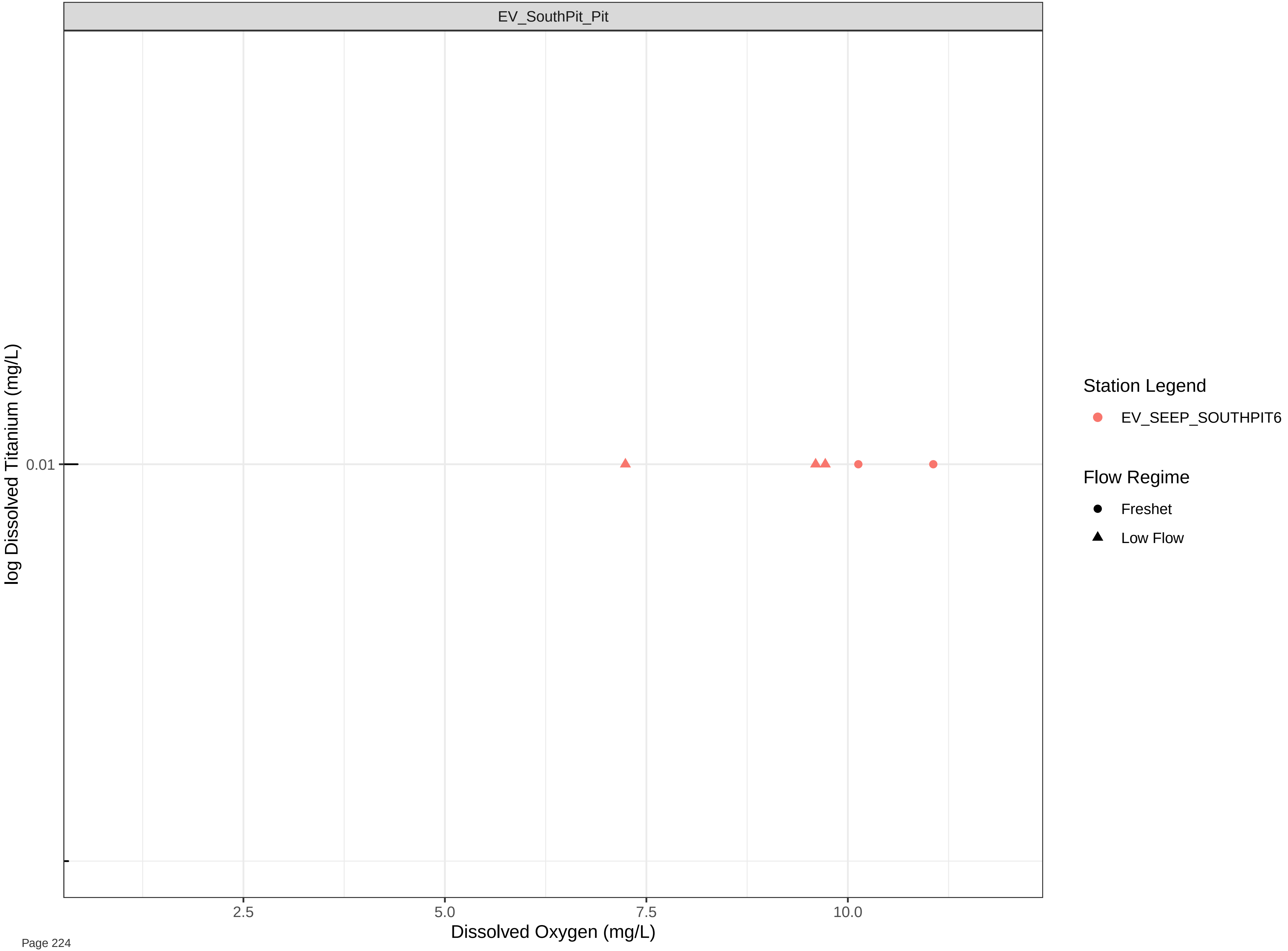

EV_CCR/TP
log Dissolved Titanium (mg/L)
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

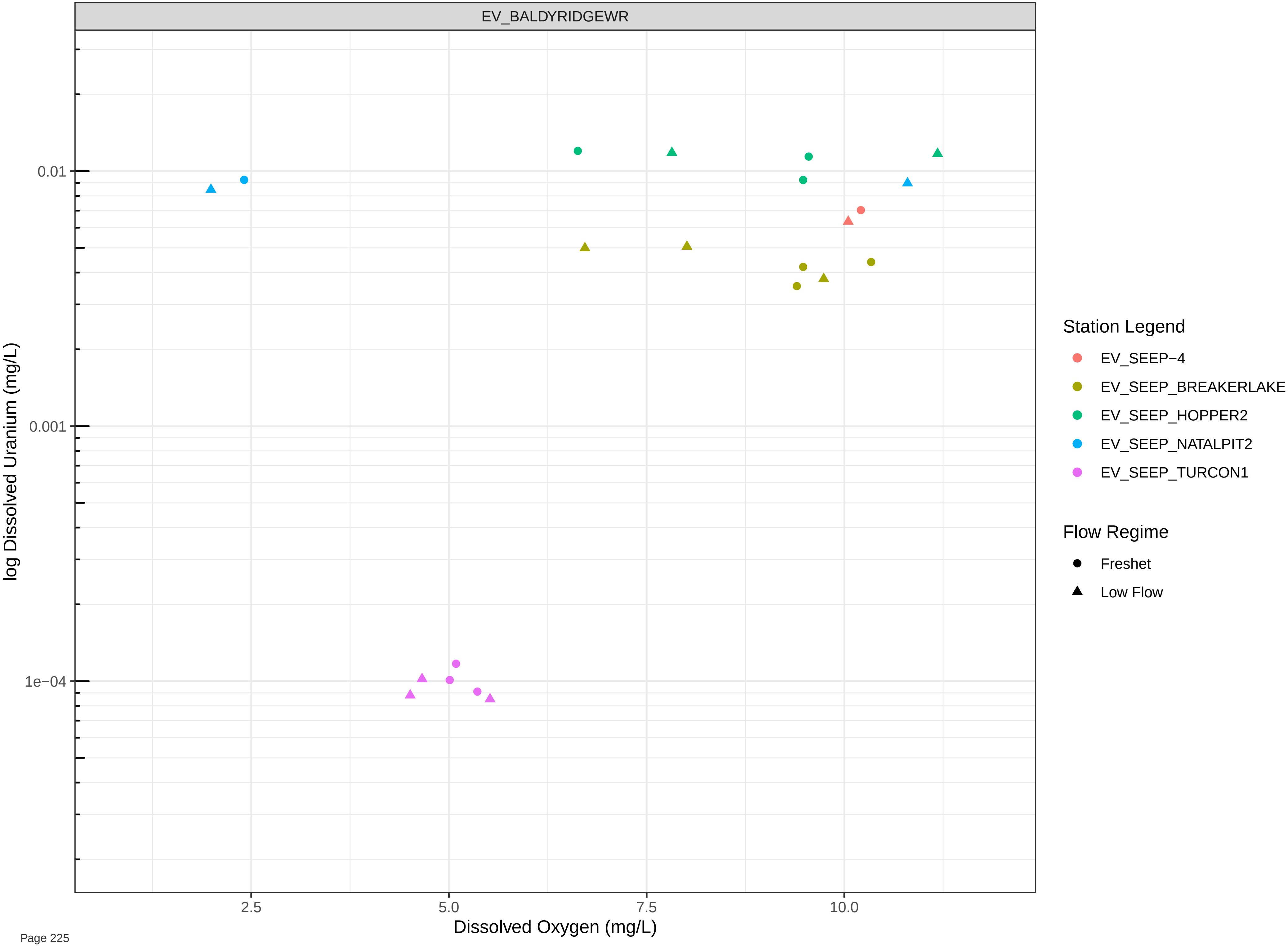

EV_CEDARWR
log Dissolved Titanium (mg/L)
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

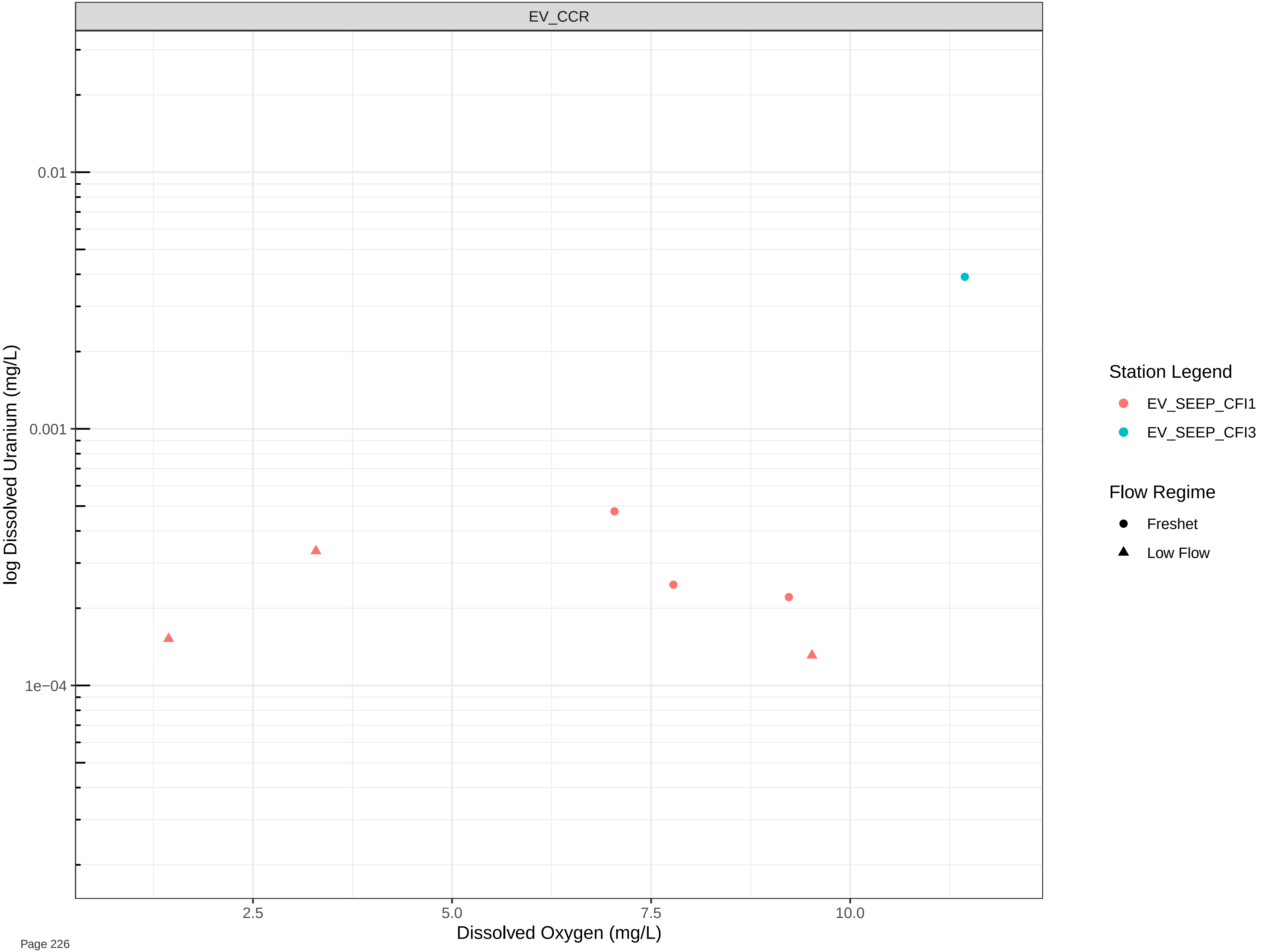

EV_Erickson_WR
log Dissolved Titanium (mg/L)
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

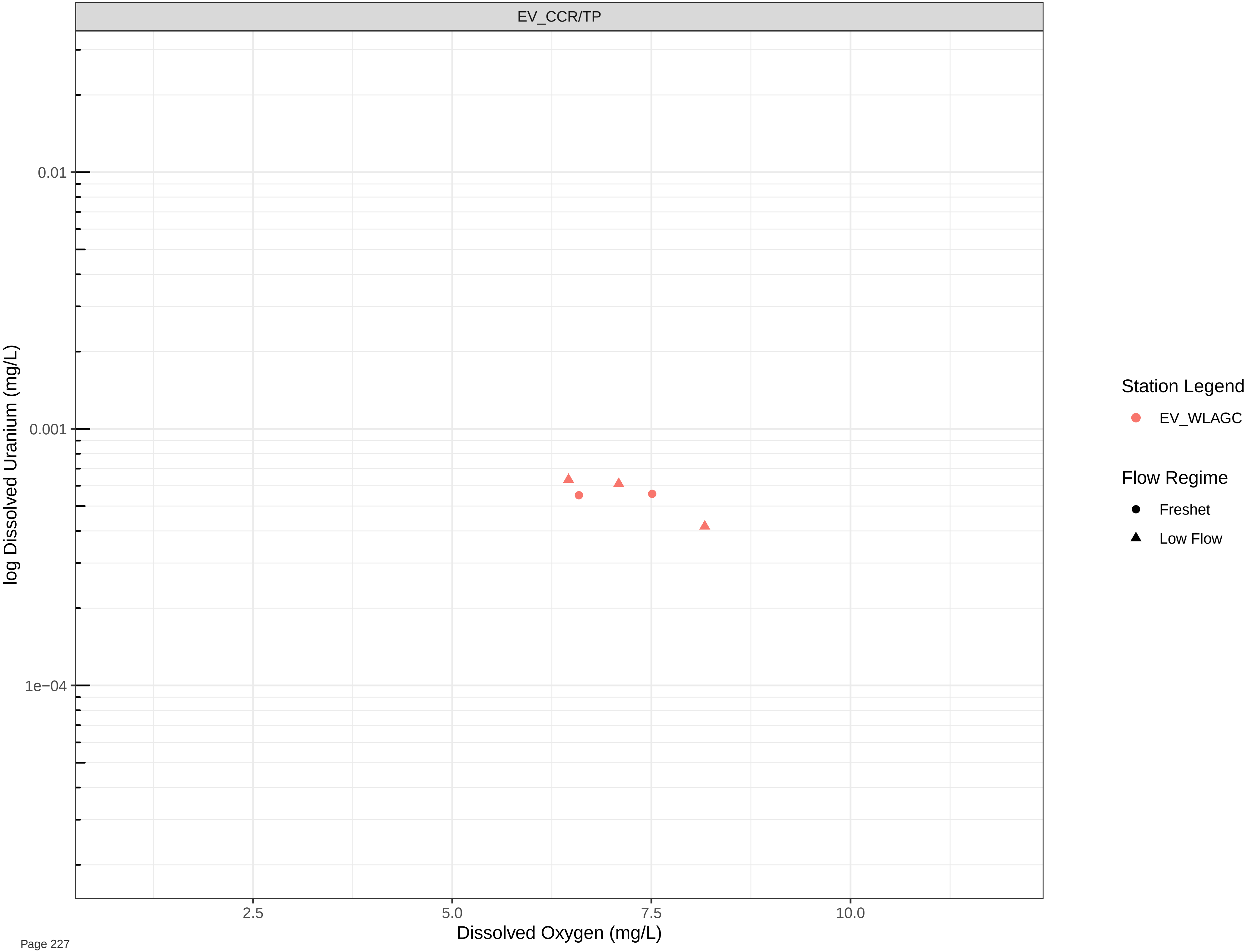

EV_PLANT
log Dissolved Titanium (mg/L)
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

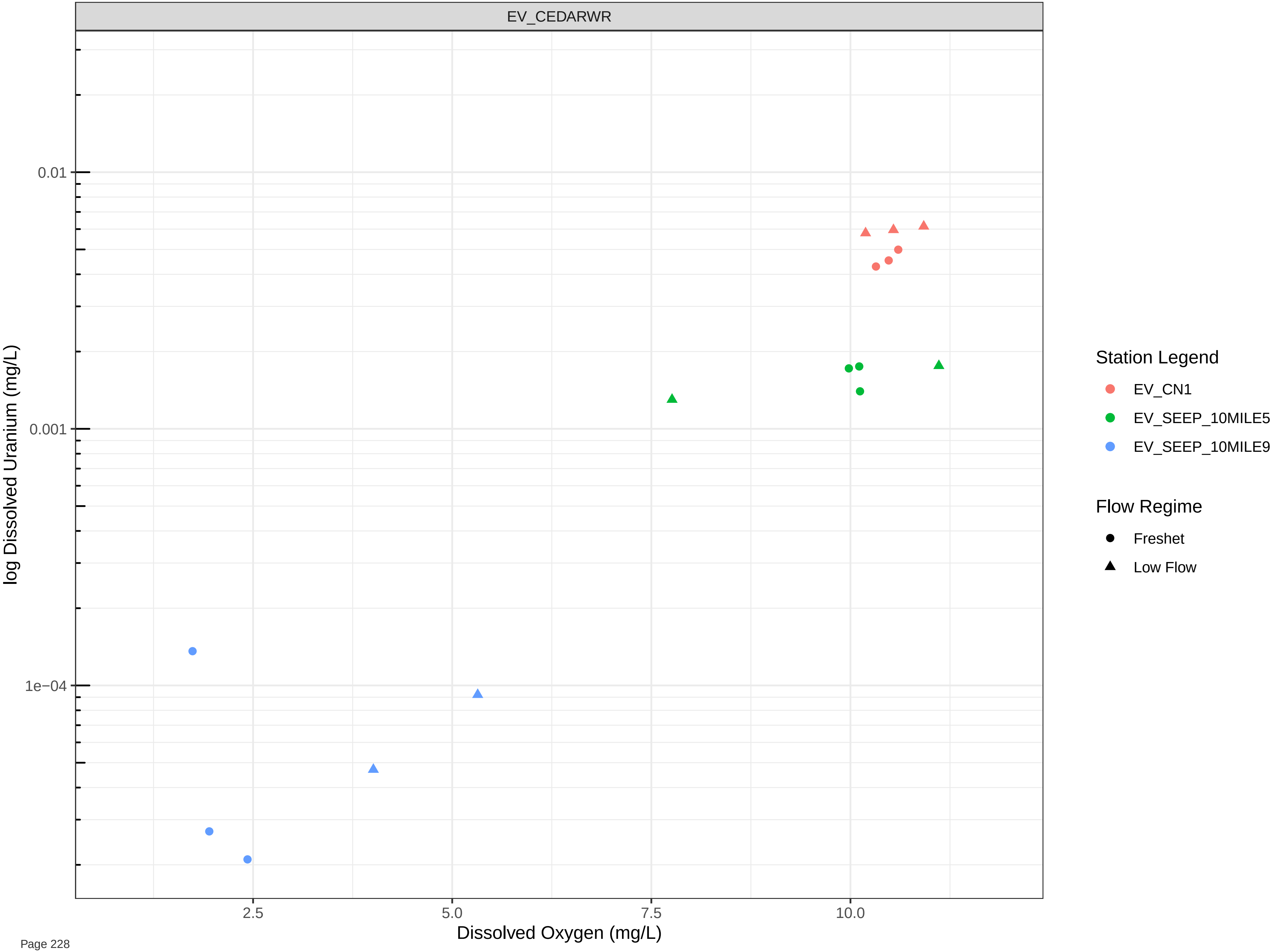

EV_SOUTHSLOPE
log Dissolved Titanium (mg/L)
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

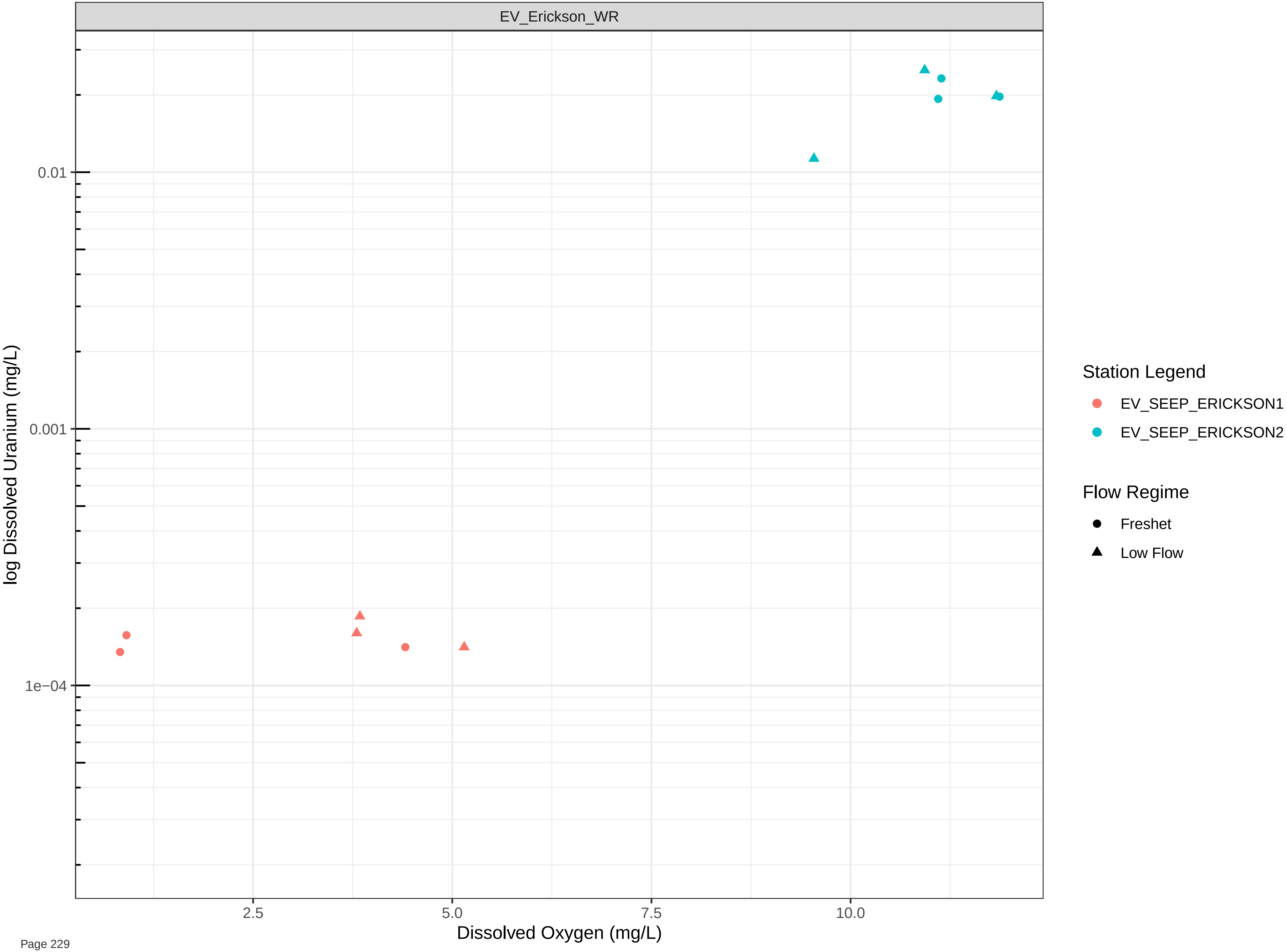

EV_SouthPit_Pit
log Dissolved Titanium (mg/L)
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

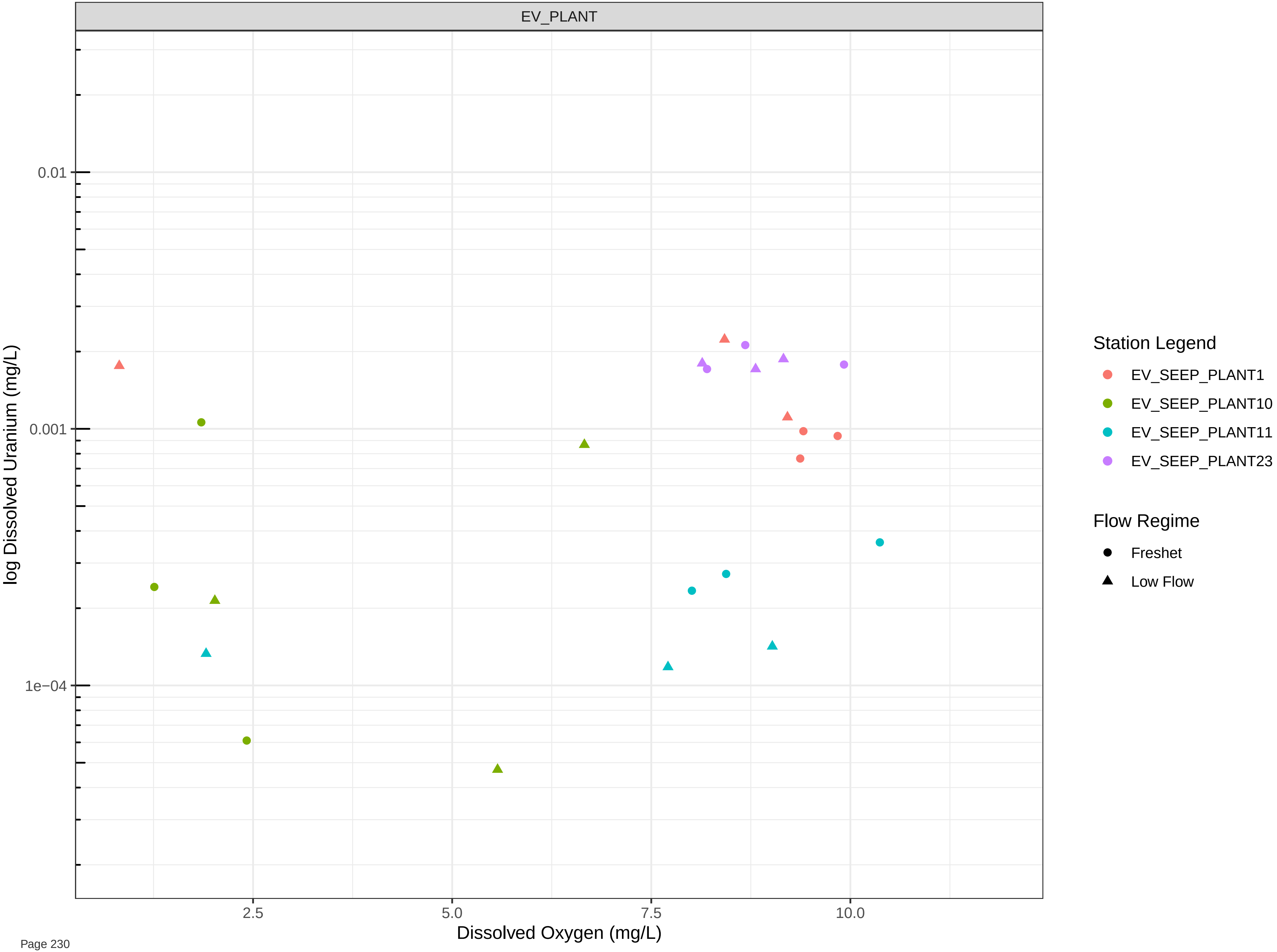

EV_BALDYRIDGEWR
log Dissolved Uranium (mg/L)
0.01
0.001
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

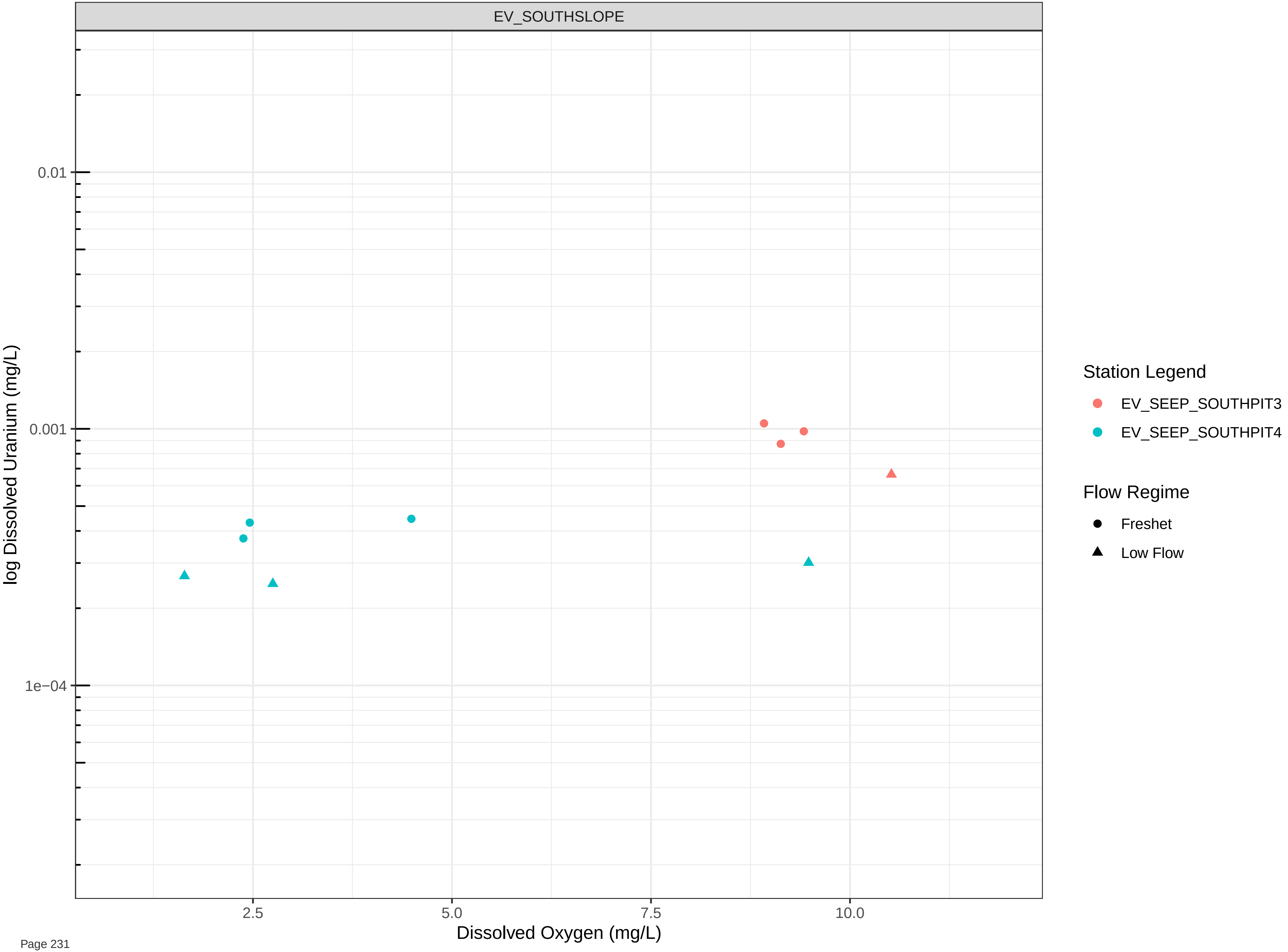

EV_CCR
0.01
0.001
1e−04
log Dissolved Uranium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

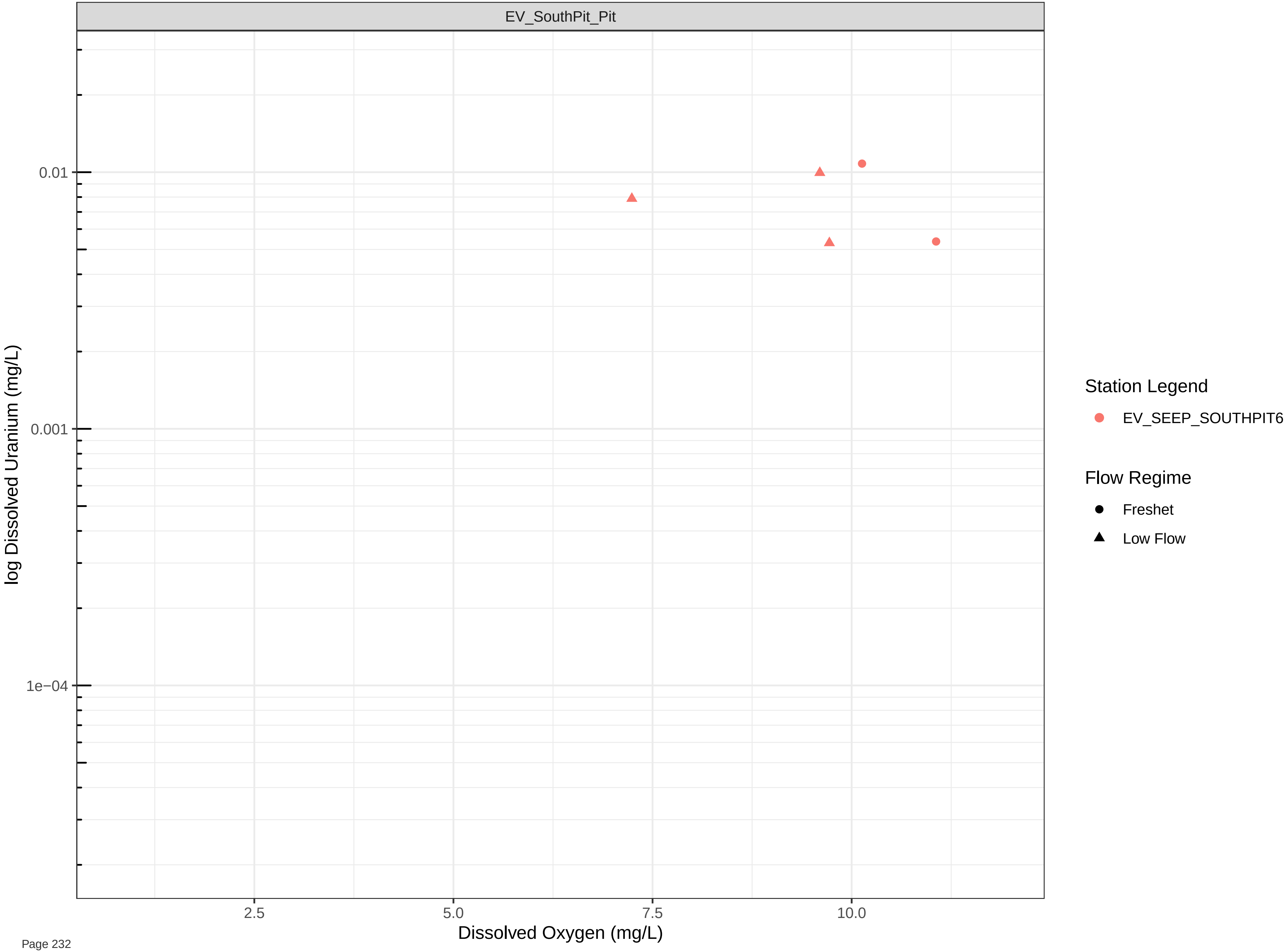

EV_CCR/TP
log Dissolved Uranium (mg/L)
0.01
0.001
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

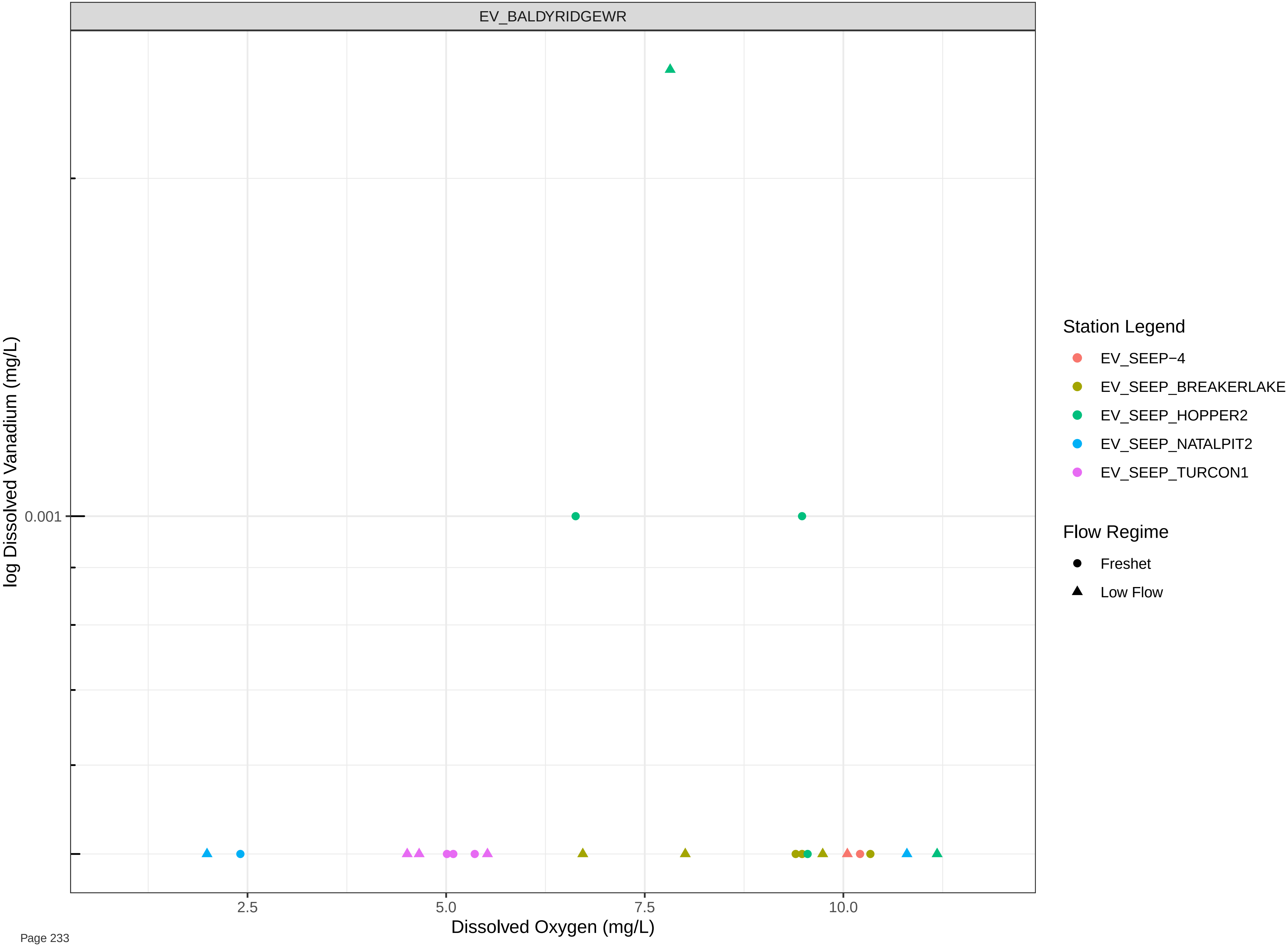

EV_CEDARWR
log Dissolved Uranium (mg/L)
0.01
0.001
1e−04
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

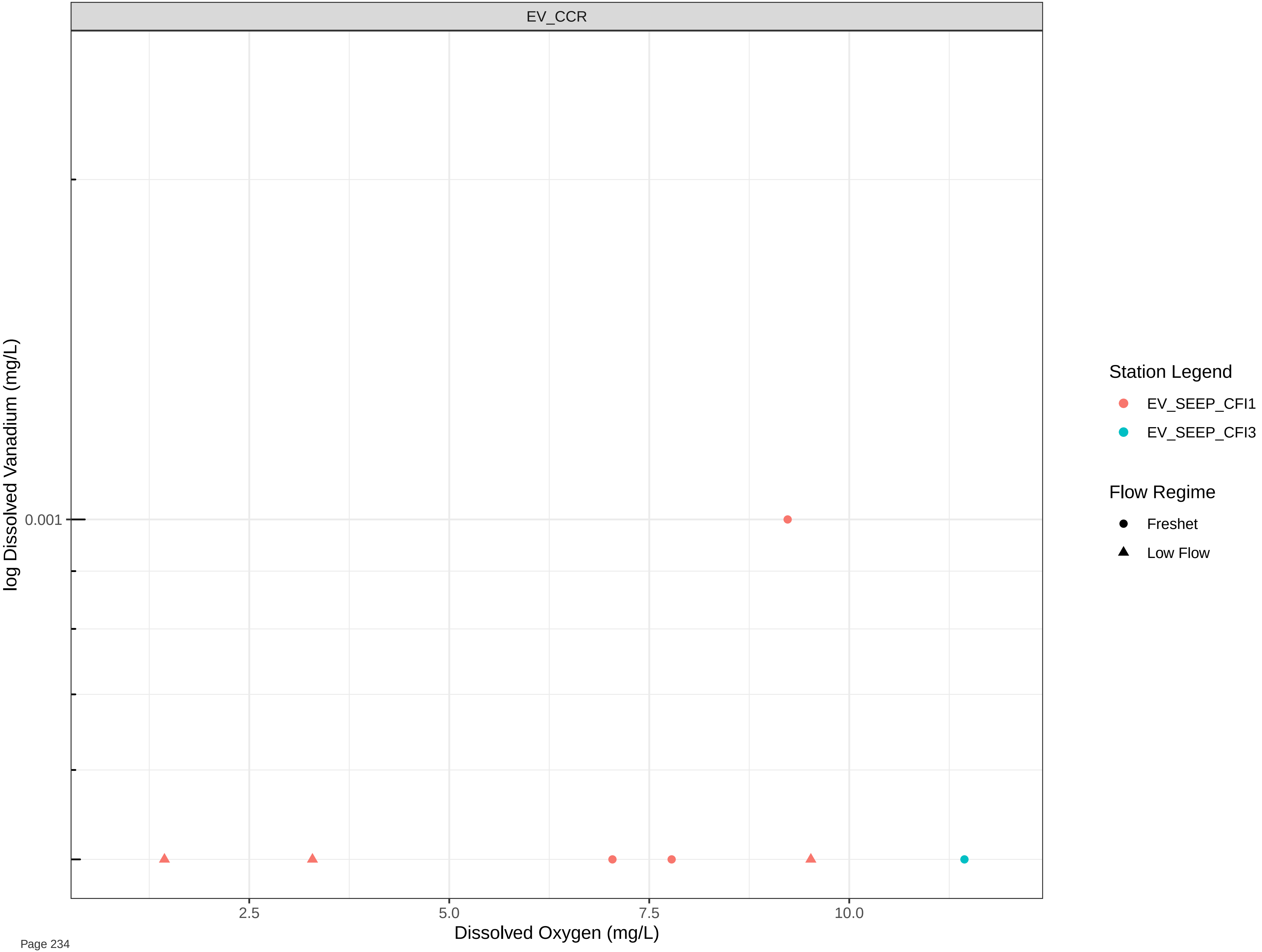

EV_Erickson_WR
log Dissolved Uranium (mg/L)
0.01
0.001
1e−04
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

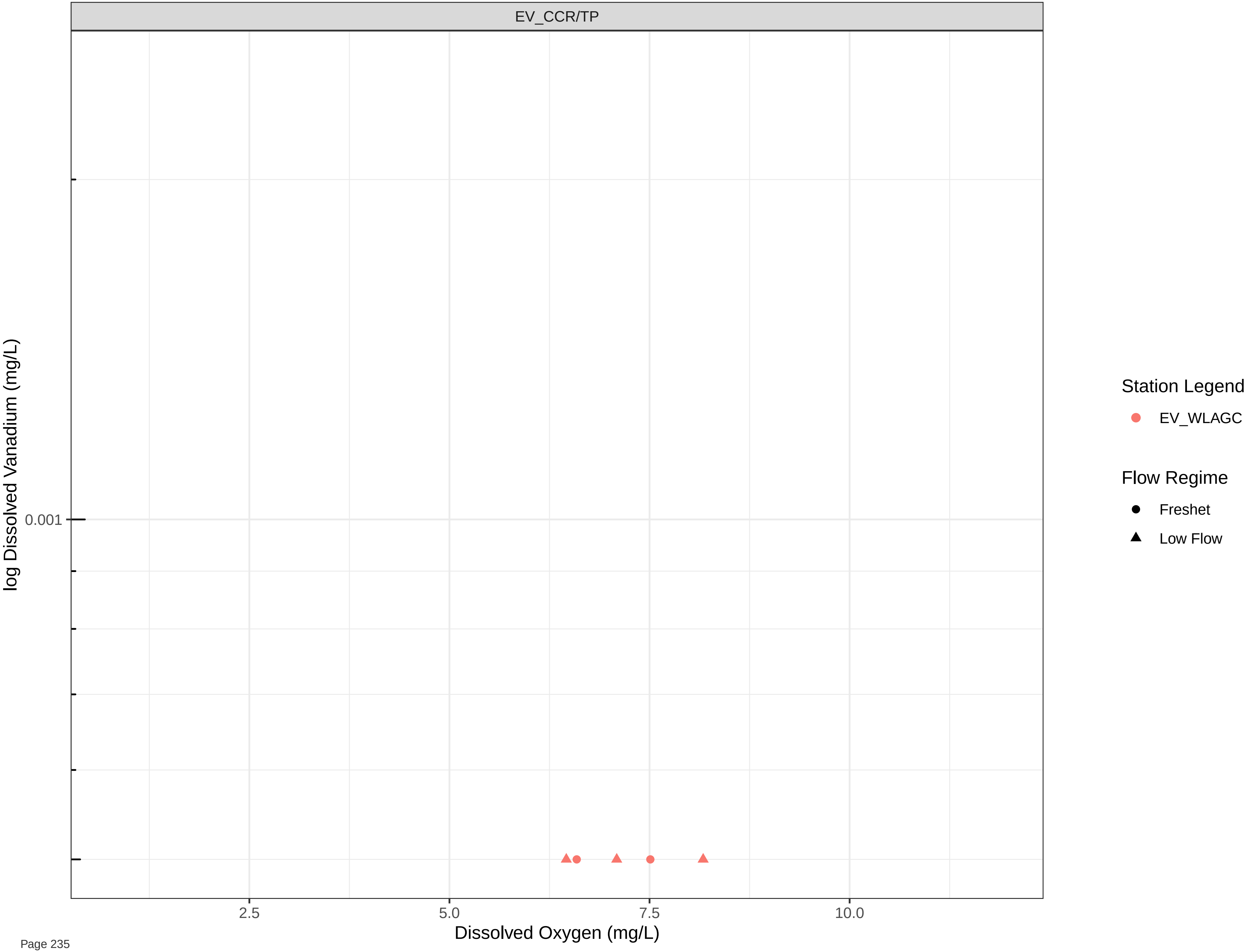

EV_PLANT
log Dissolved Uranium (mg/L)
0.01
0.001
1e−04
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_SEEP_PLANT1
● EV_SEEP_PLANT10
● EV_SEEP_PLANT11
● EV_SEEP_PLANT23
Flow Regime
● Freshet
▲ Low Flow

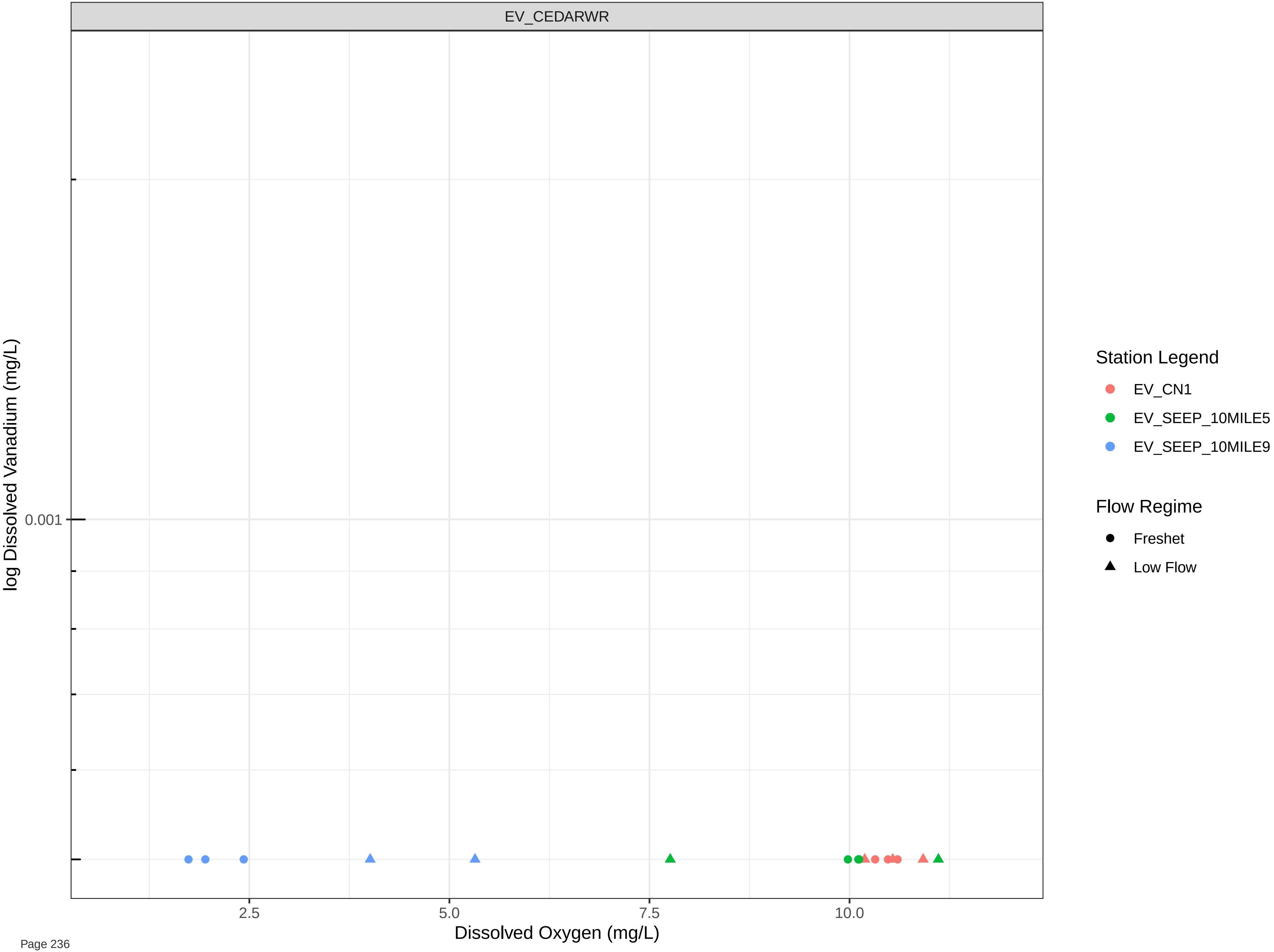

EV_SOUTHSLOPE
log Dissolved Uranium (mg/L)
0.01
0.001
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

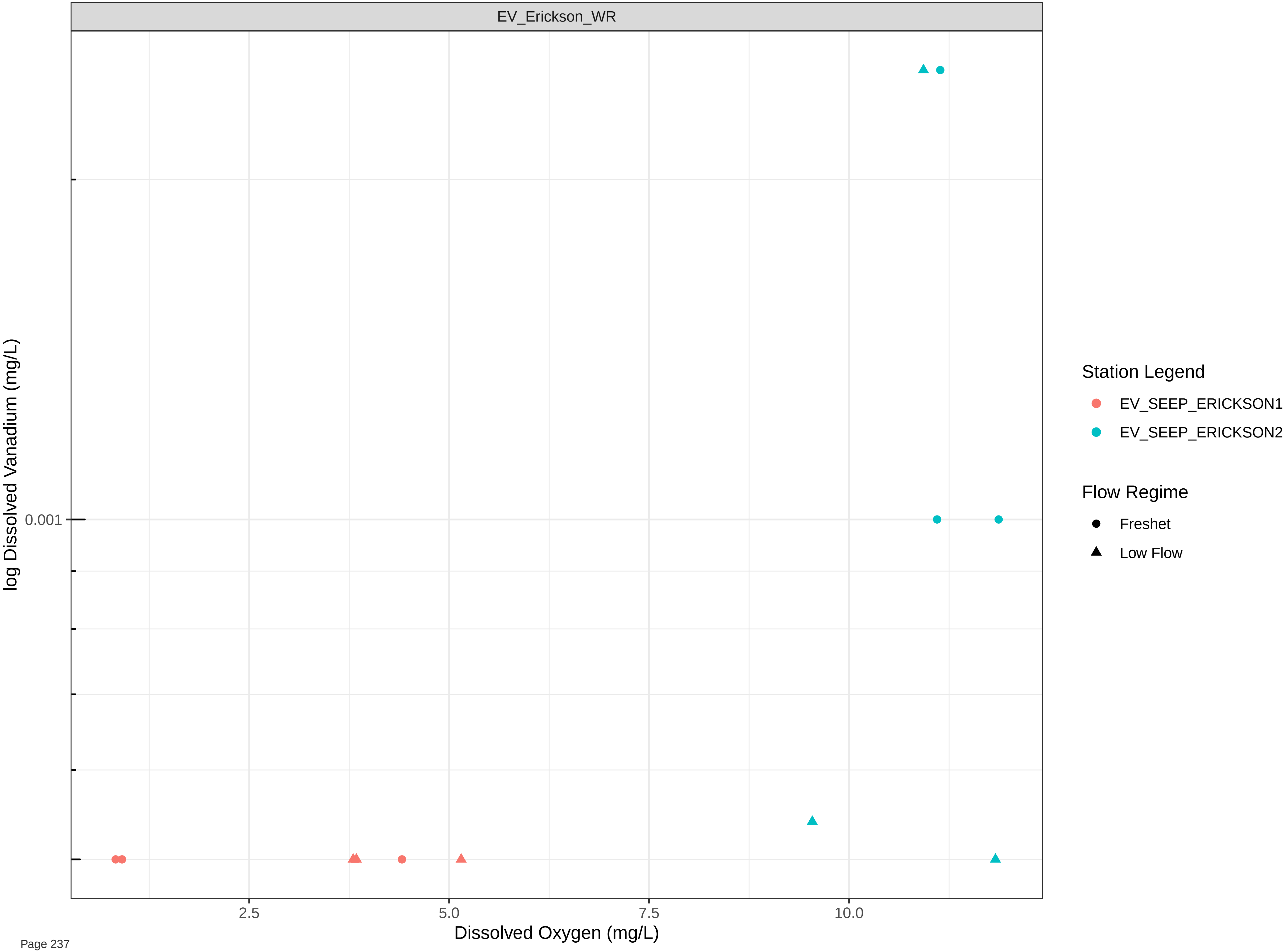

EV_SouthPit_Pit
0.01
0.001
1e−04
log Dissolved Uranium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

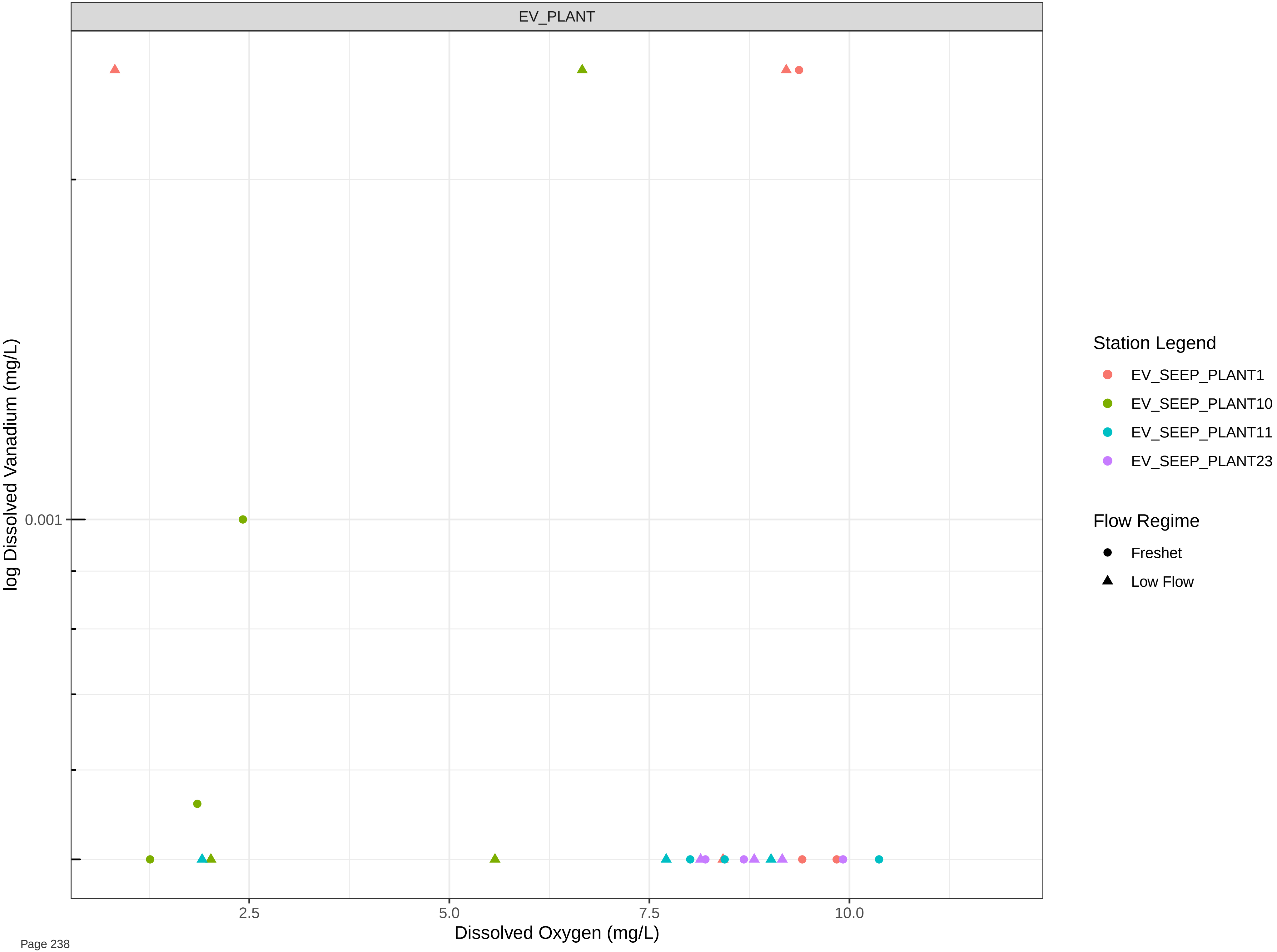

EV_BALDYRIDGEWR
log Dissolved Vanadium (mg/L)
0.001
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

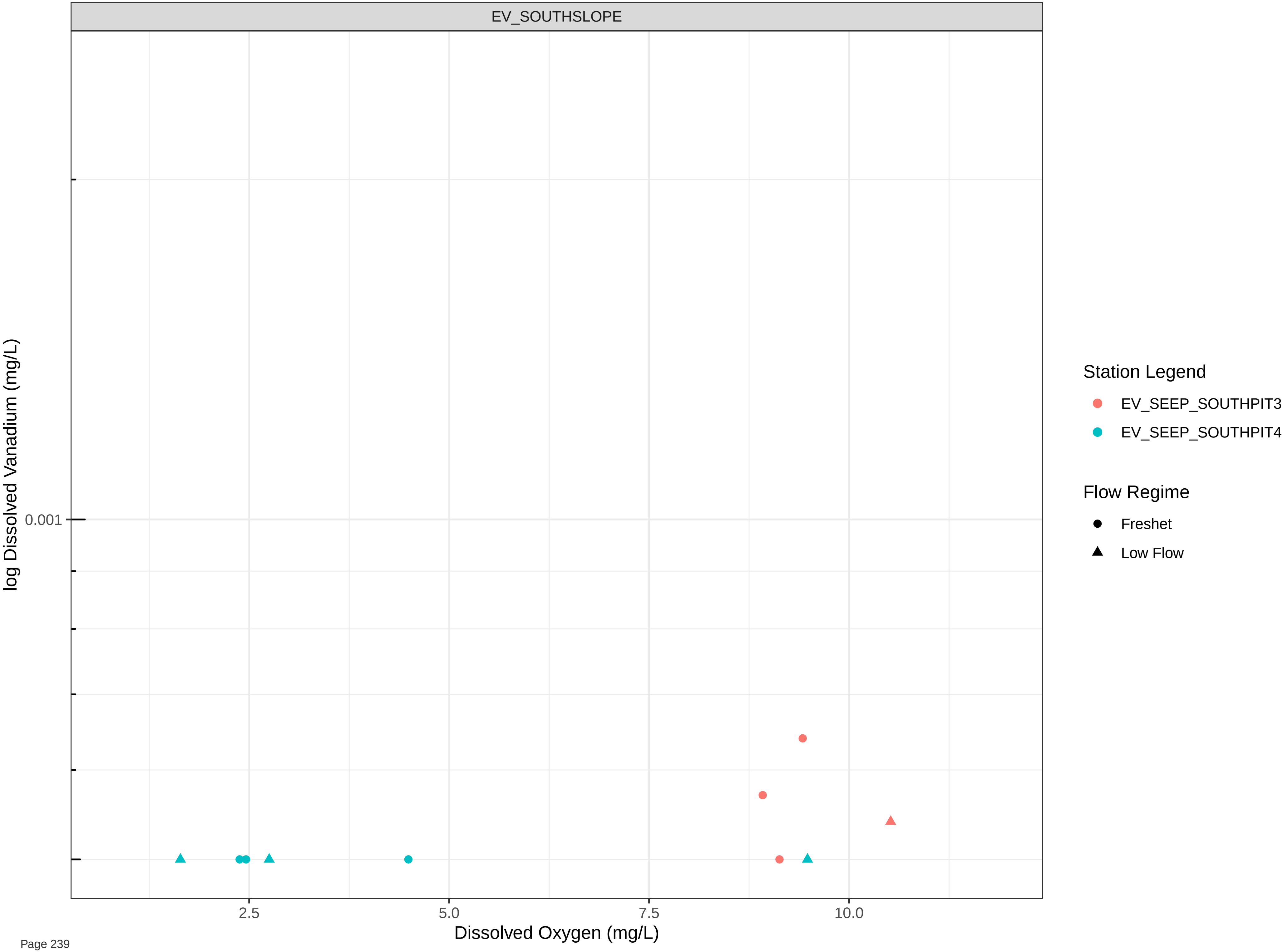

EV_CCR
log Dissolved Vanadium (mg/L)
0.001
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

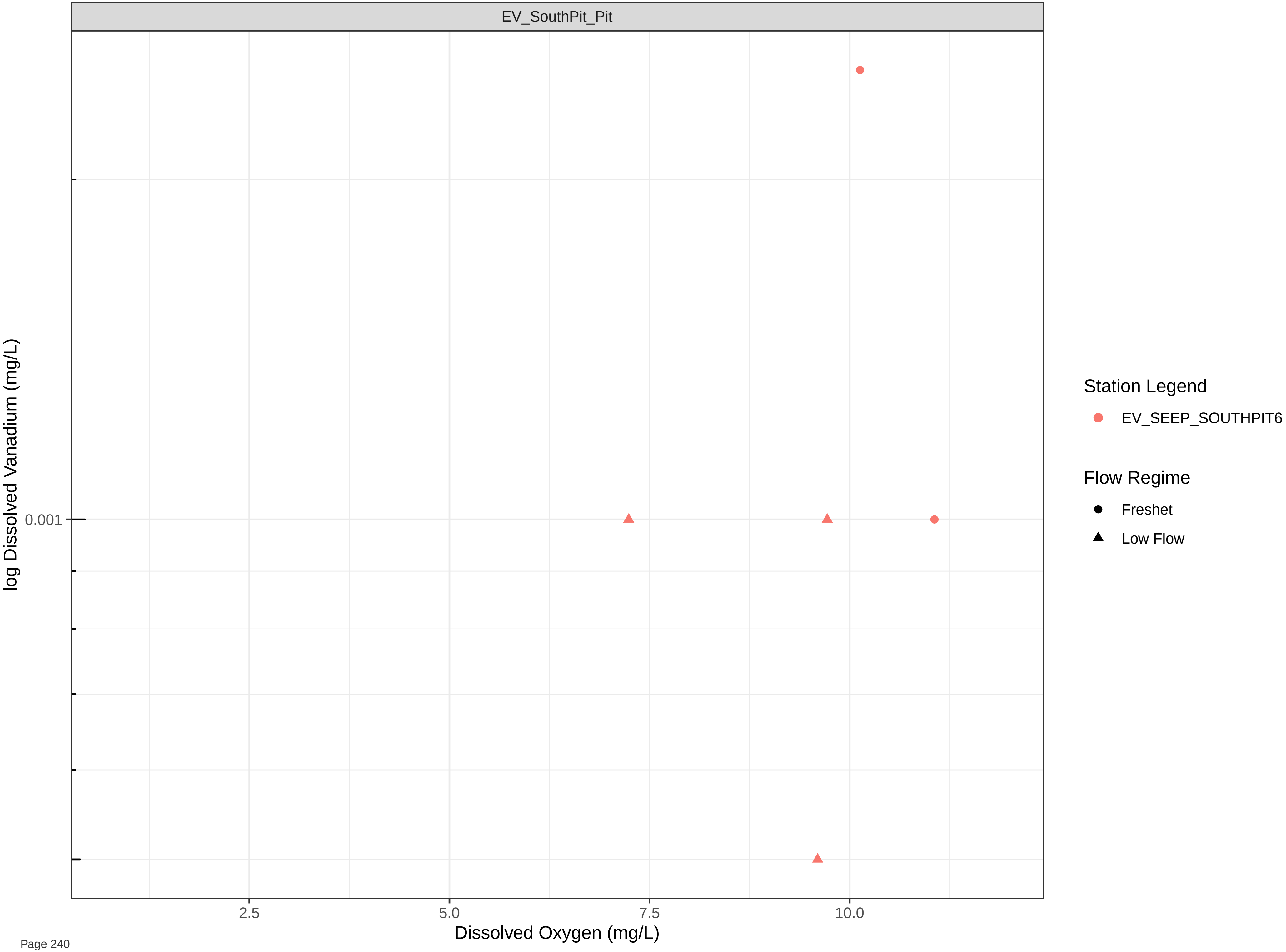

EV_CCR/TP
log Dissolved Vanadium (mg/L)
0.001
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

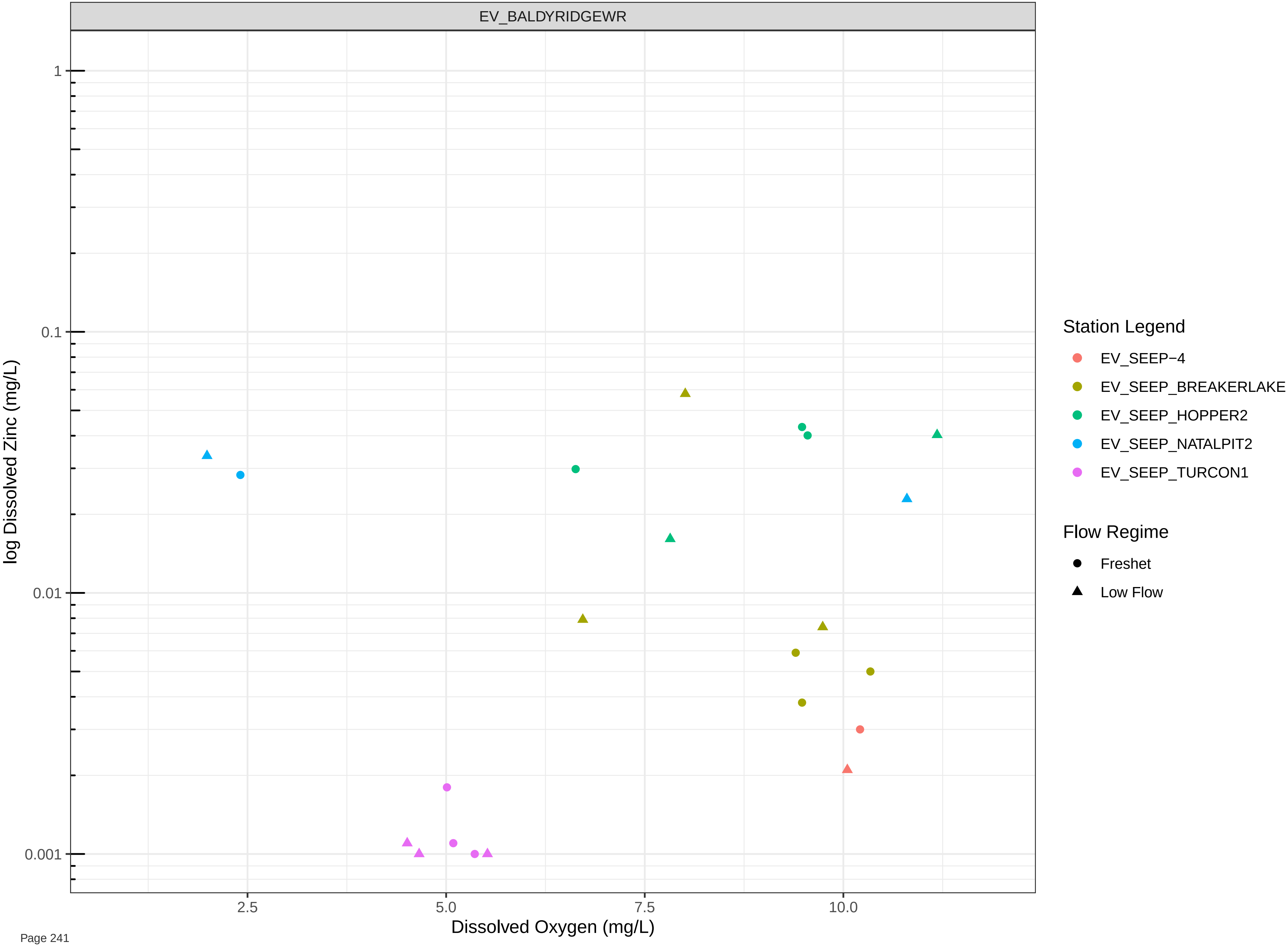

EV_CEDARWR
log Dissolved Vanadium (mg/L)
0.001
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

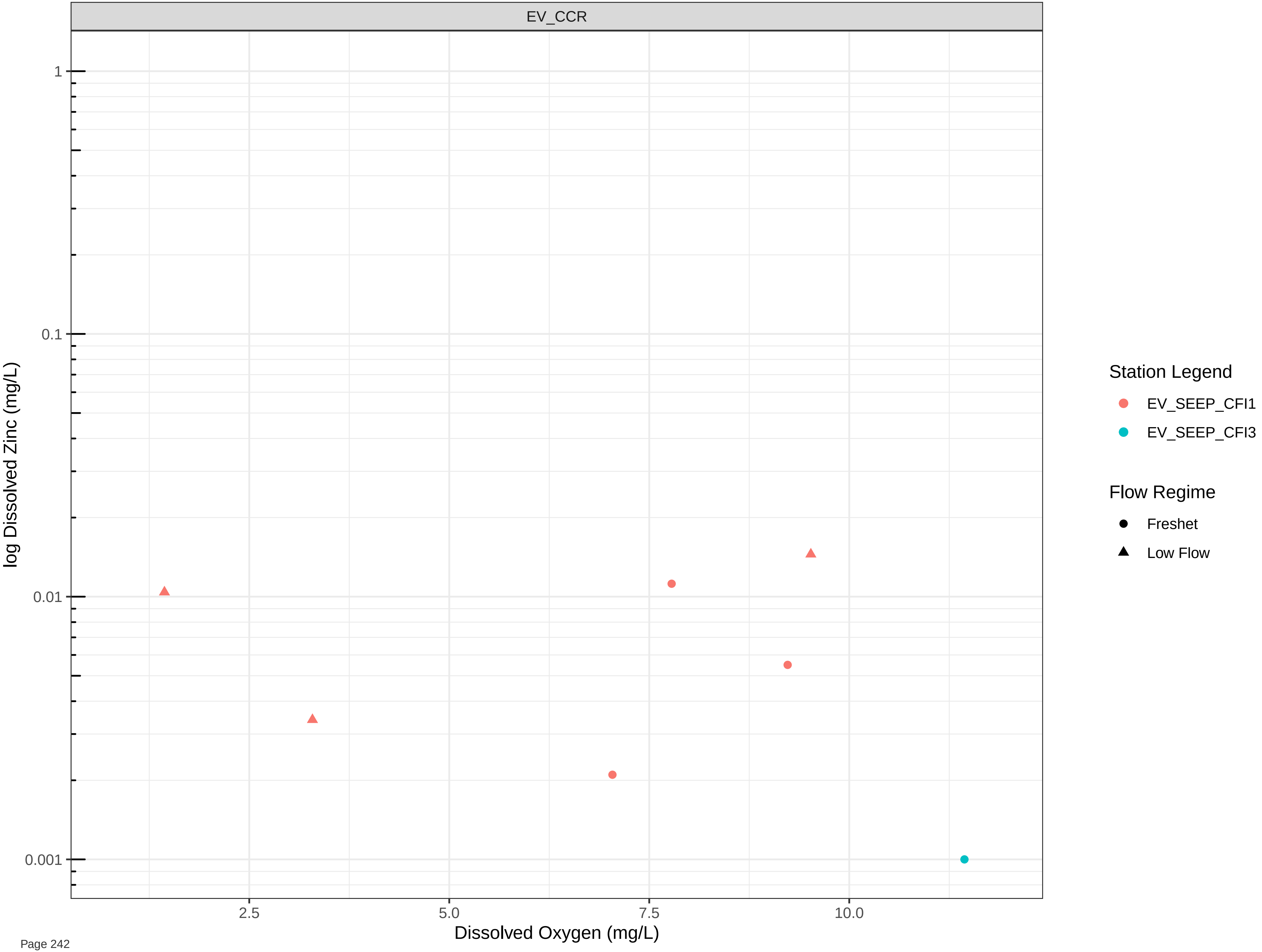

EV_Erickson_WR
log Dissolved Vanadium (mg/L)
0.001
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

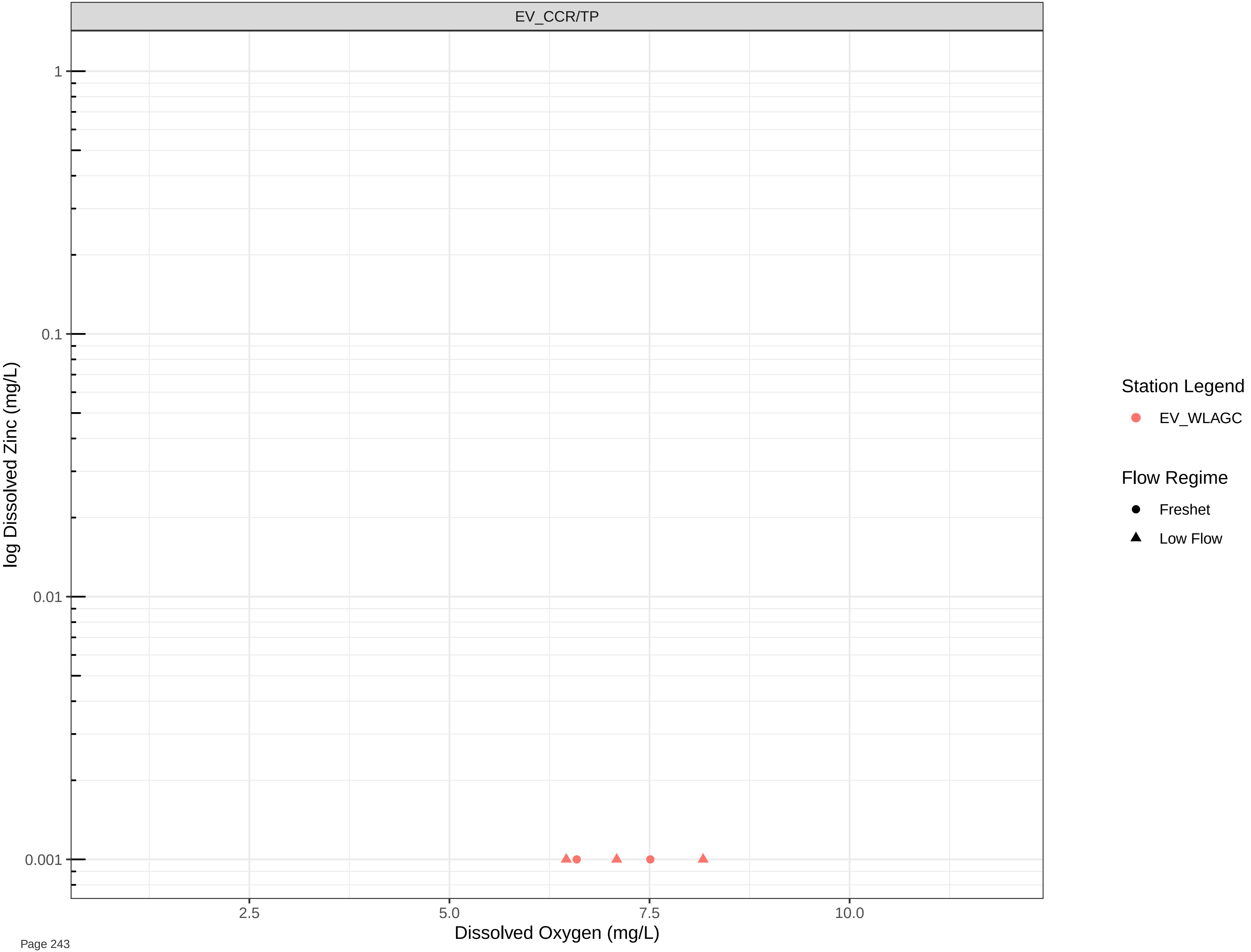

EV_PLANT
log Dissolved Vanadium (mg/L)
0.001
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

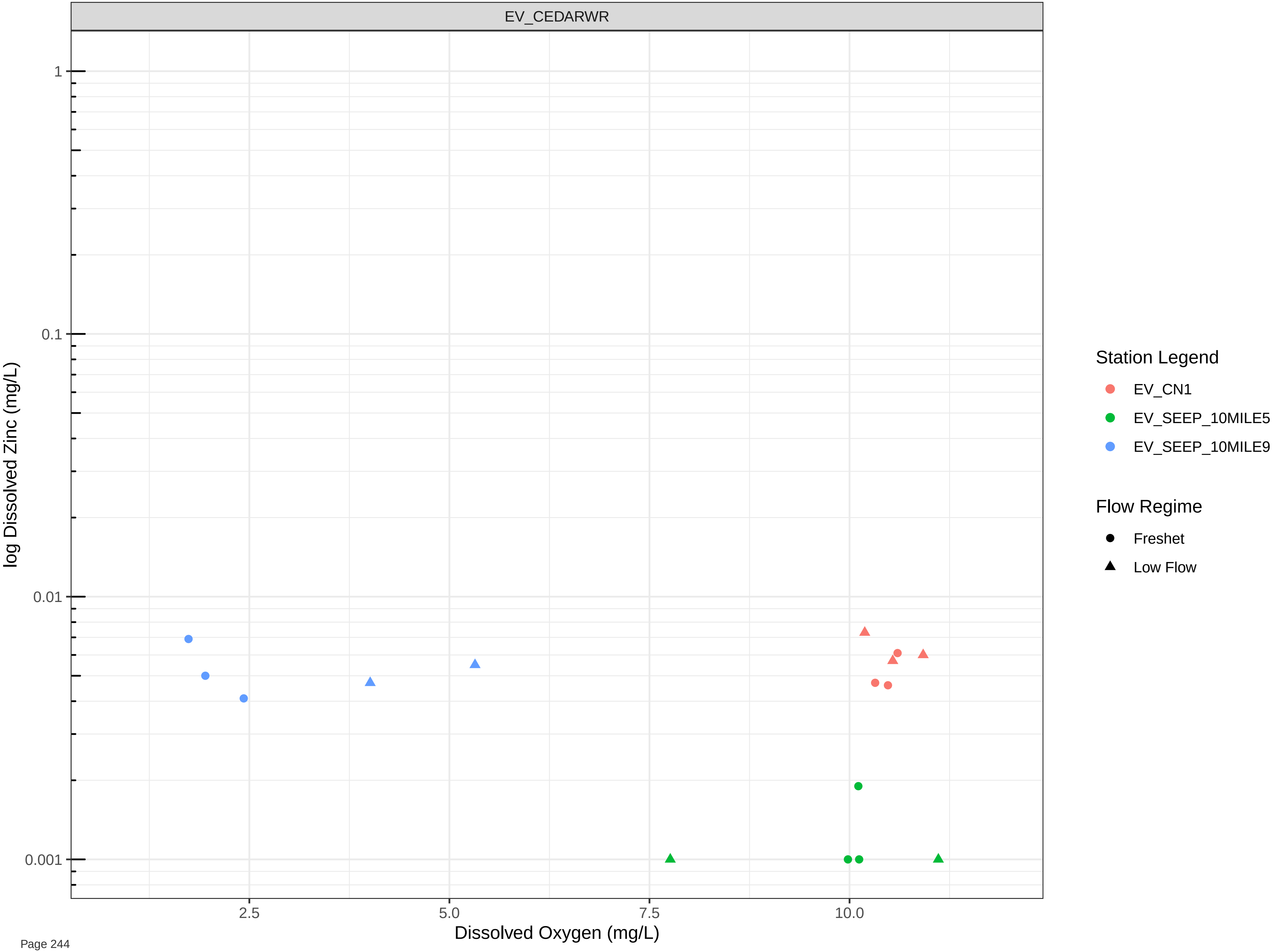

EV_SOUTHSLOPE
log Dissolved Vanadium (mg/L)
0.001
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

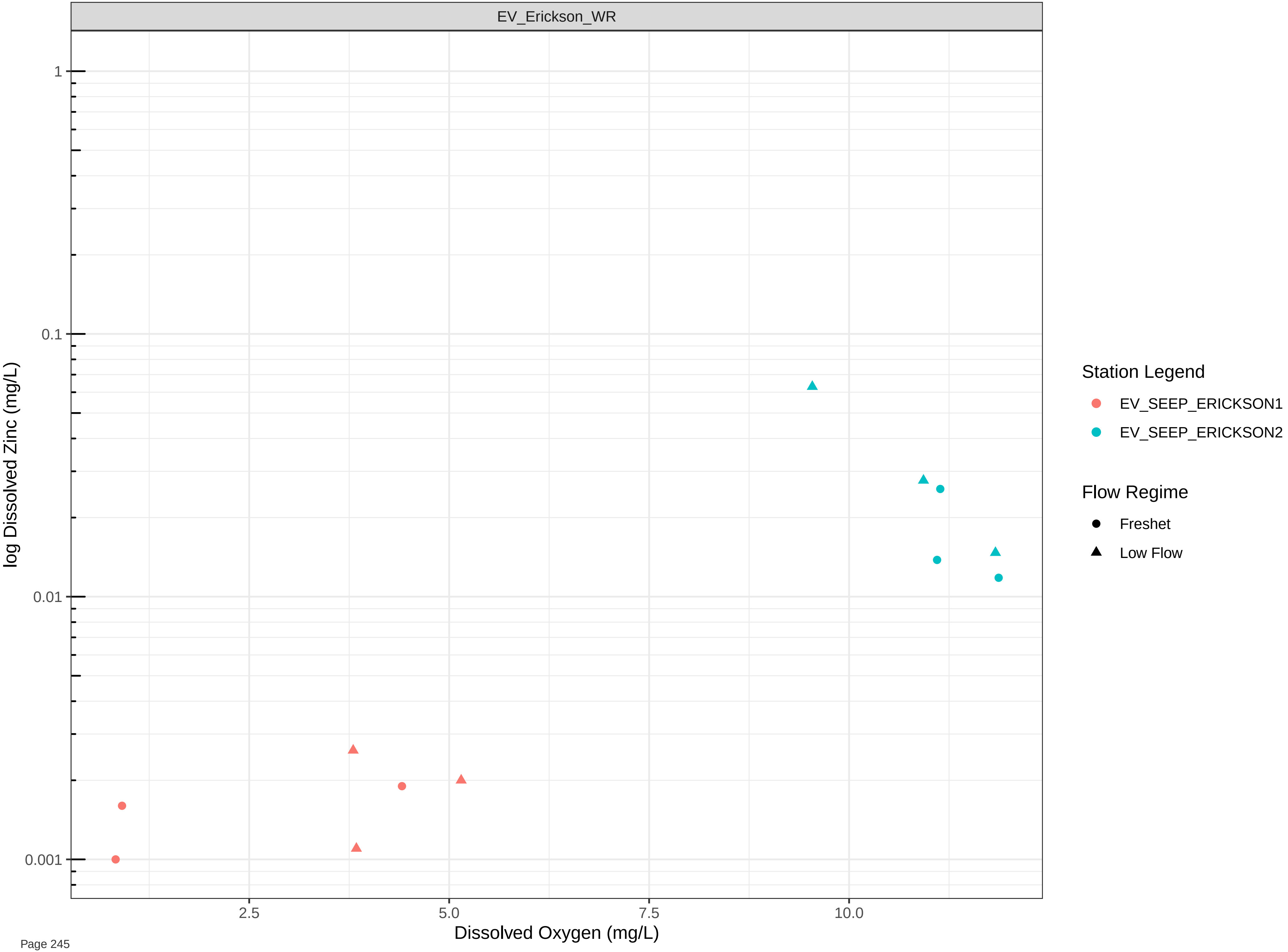

EV_SouthPit_Pit
log Dissolved Vanadium (mg/L)
0.001
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

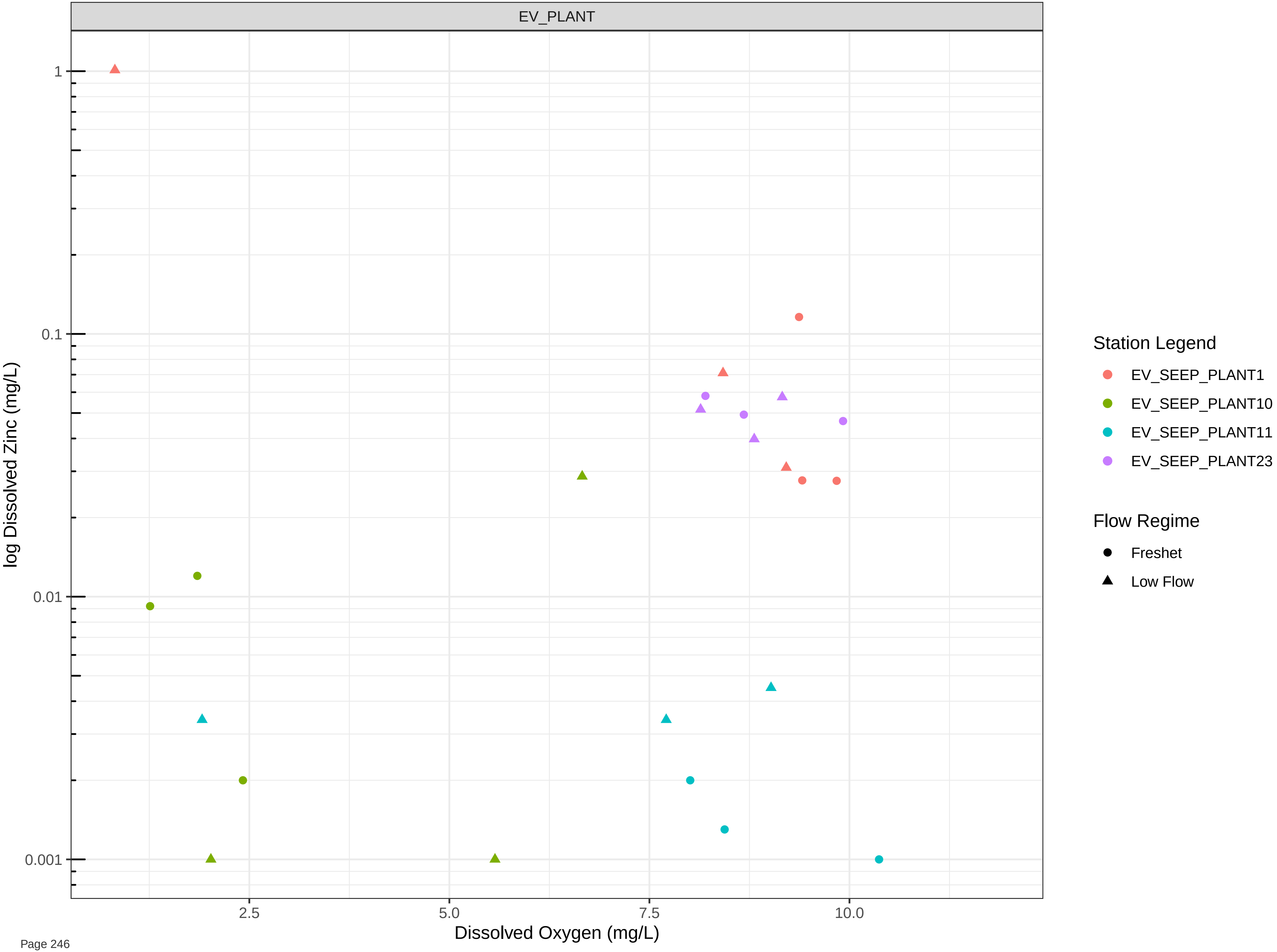

EV_BALDYRIDGEWR
log Dissolved Zinc (mg/L)
1
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

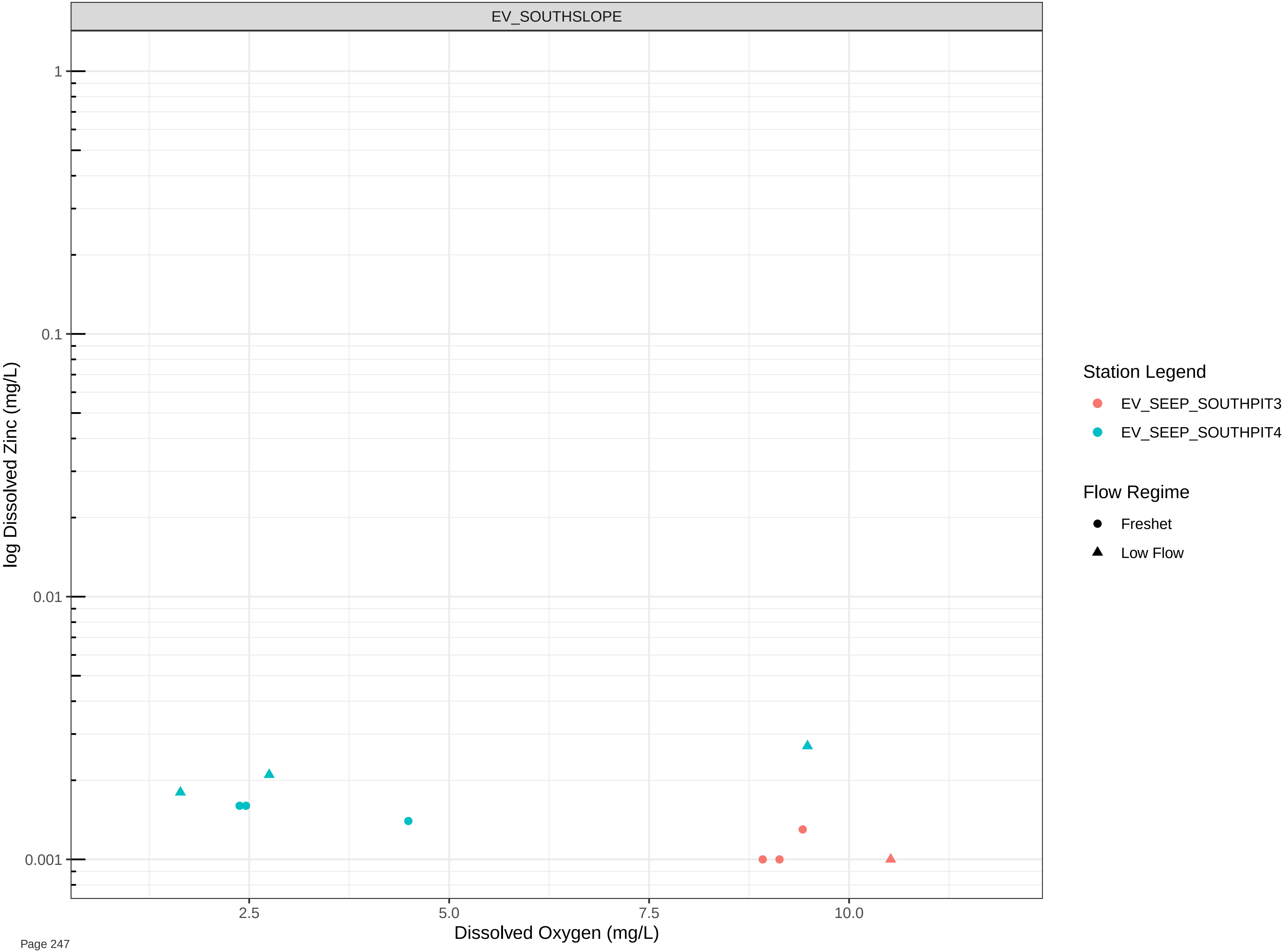

EV_CCR
1
0.1
0.01
0.001
log Dissolved Zinc (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

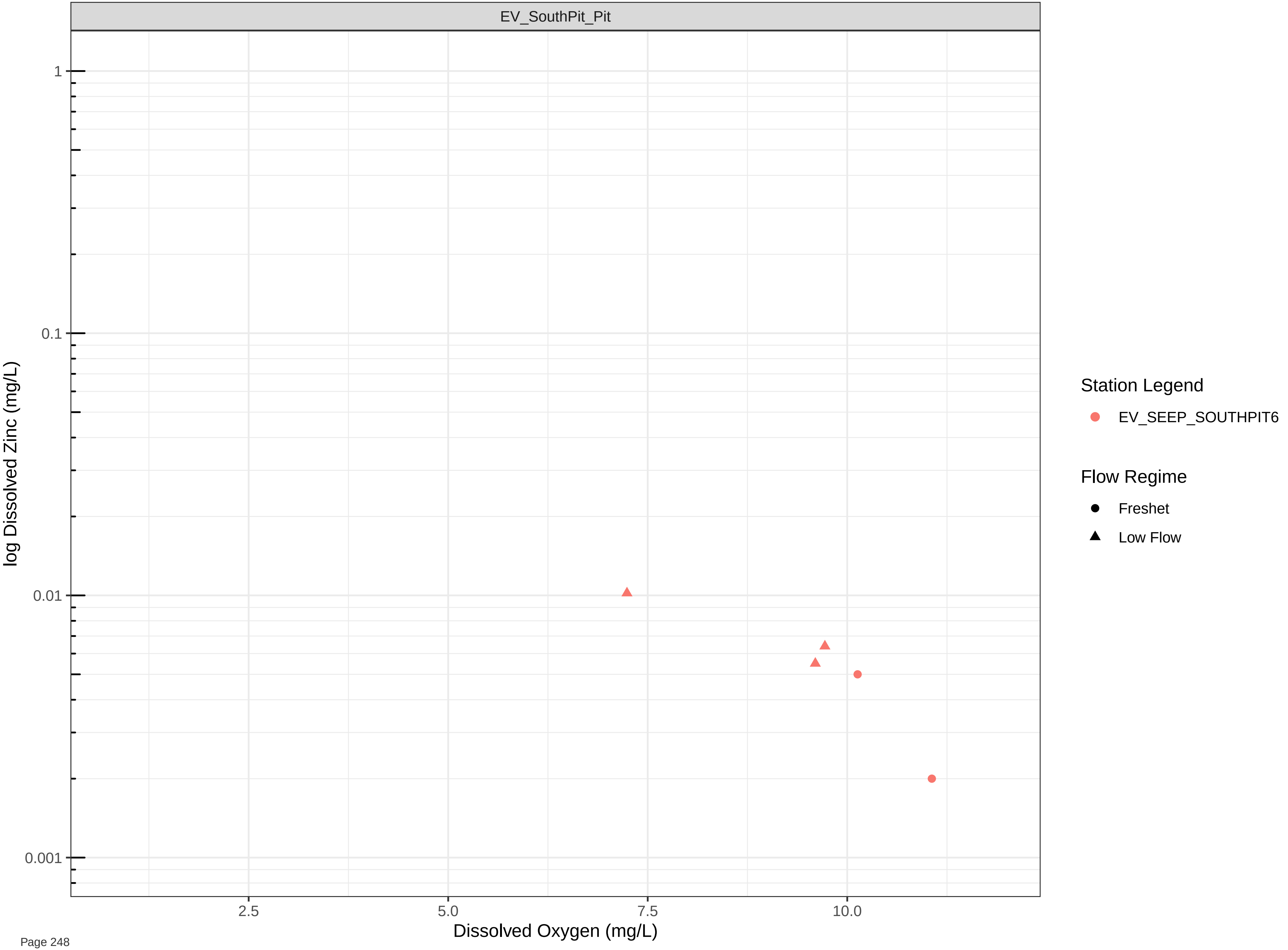

EV_CCR/TP
1
0.1
0.01
0.001
log Dissolved Zinc (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

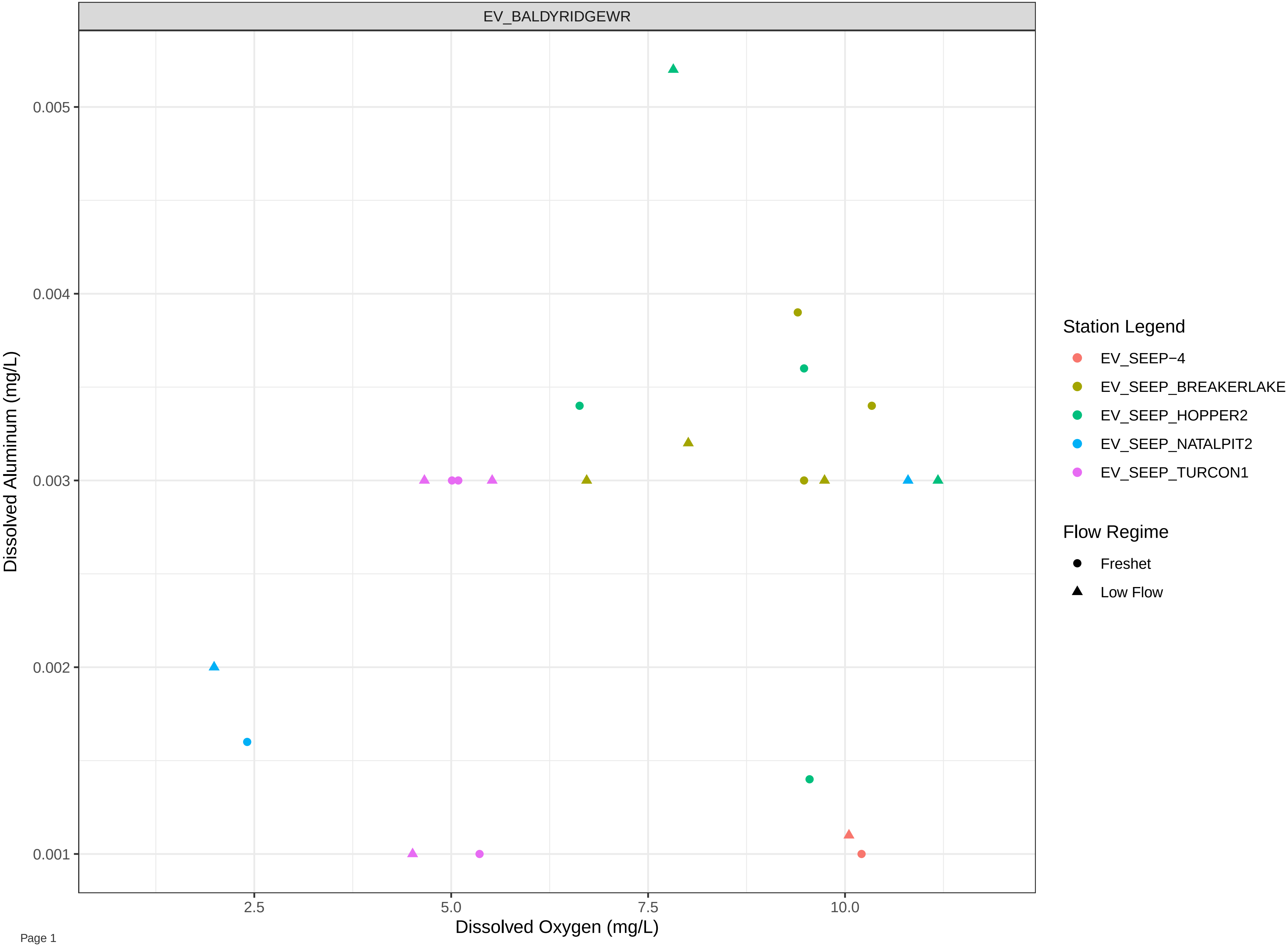

EV_CEDARWR
log Dissolved Zinc (mg/L)
1
0.1
0.01
0.001
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

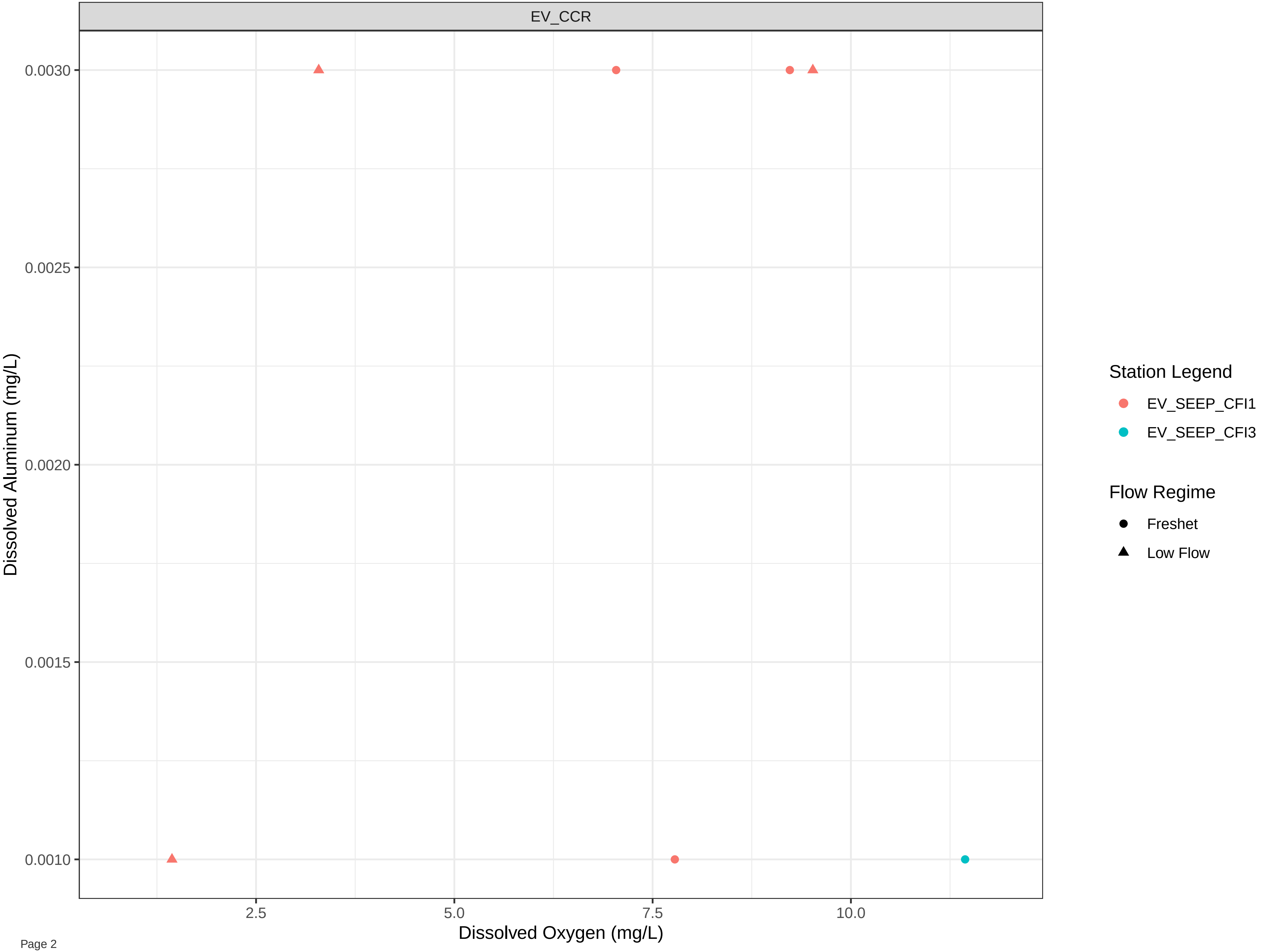

EV_Erickson_WR
log Dissolved Zinc (mg/L)
1
0.1
0.01
0.001
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

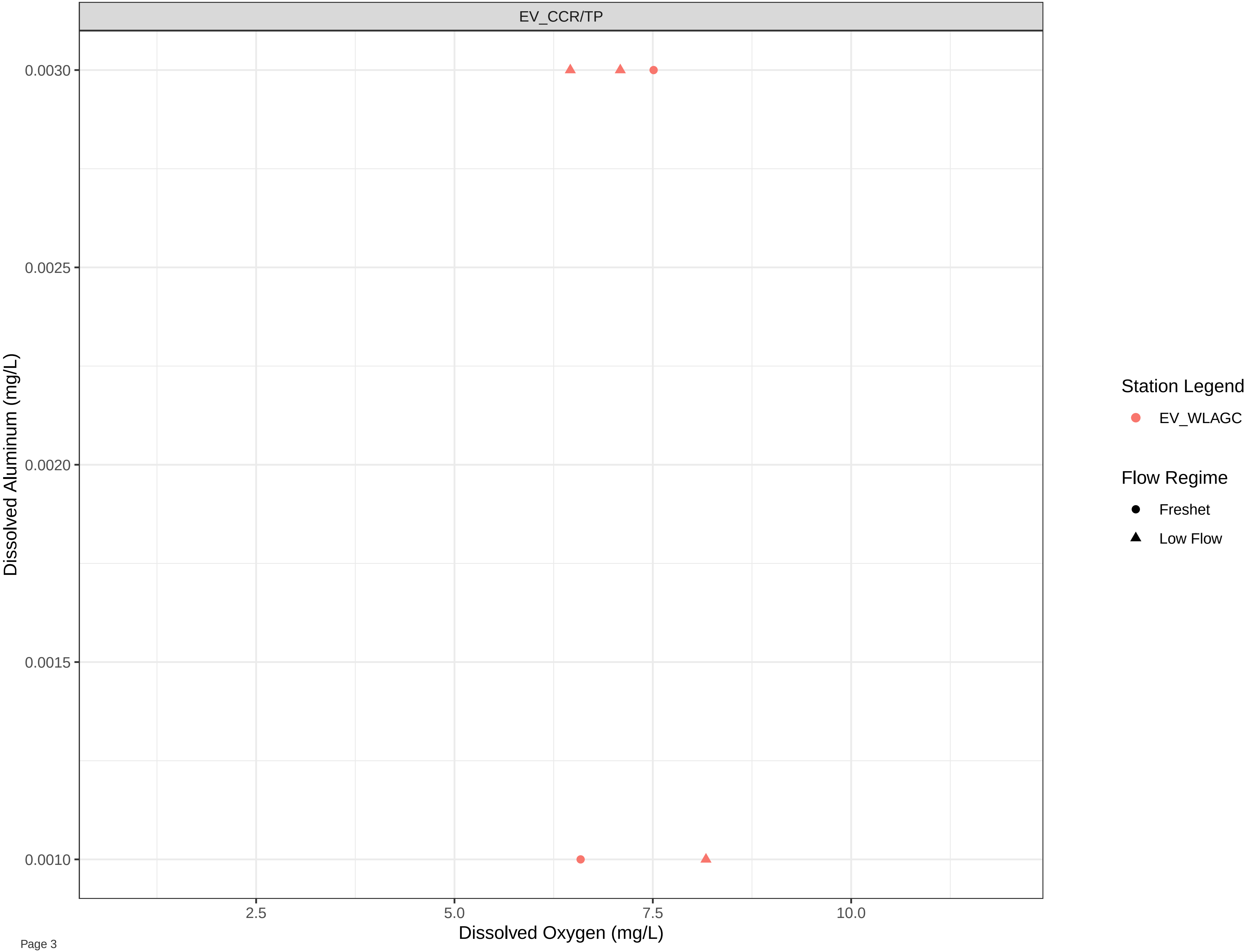

EV_PLANT
log Dissolved Zinc (mg/L)
1
0.1
0.01
0.001
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

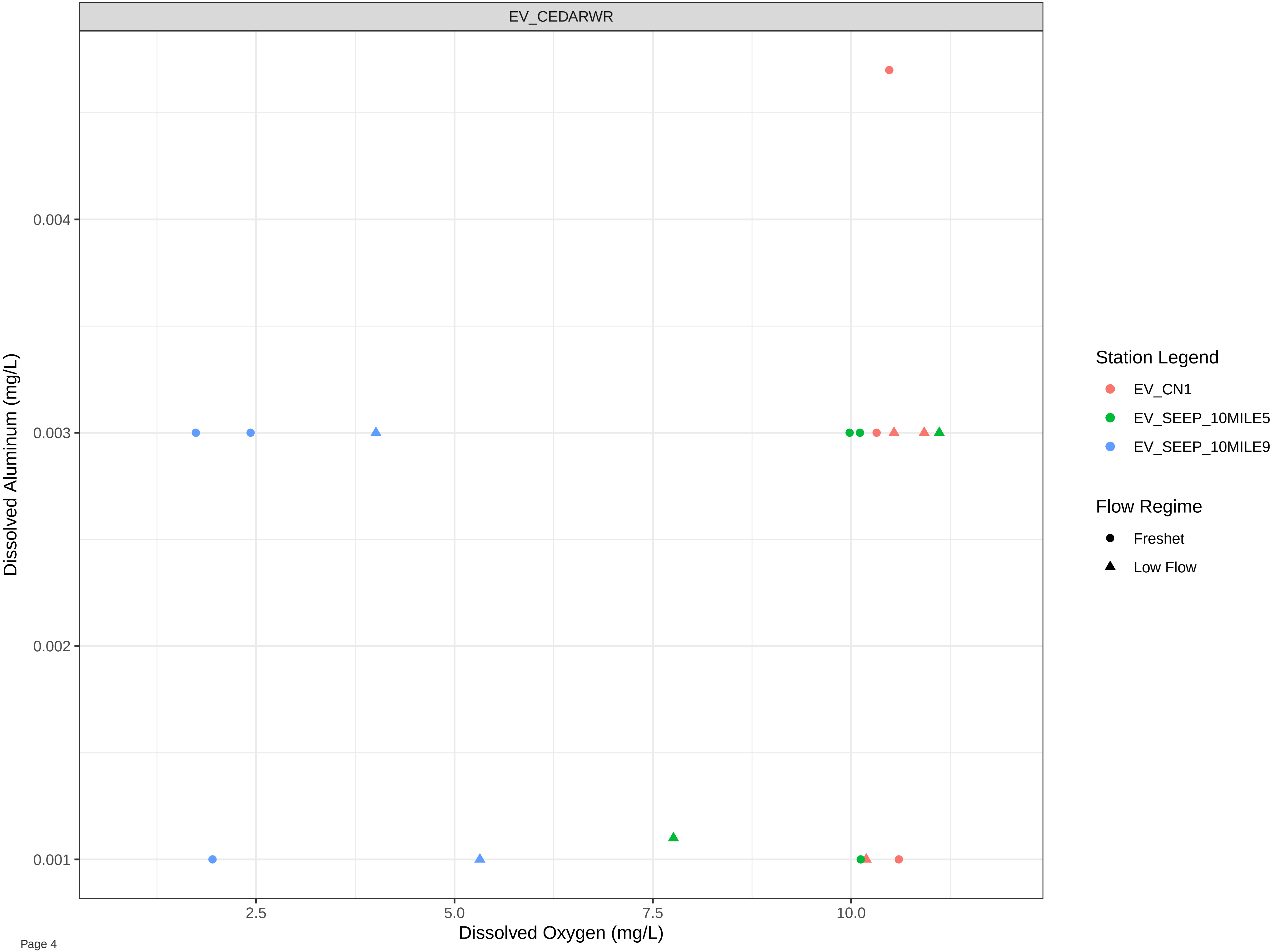

EV_SOUTHSLOPE
log Dissolved Zinc (mg/L)
1
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

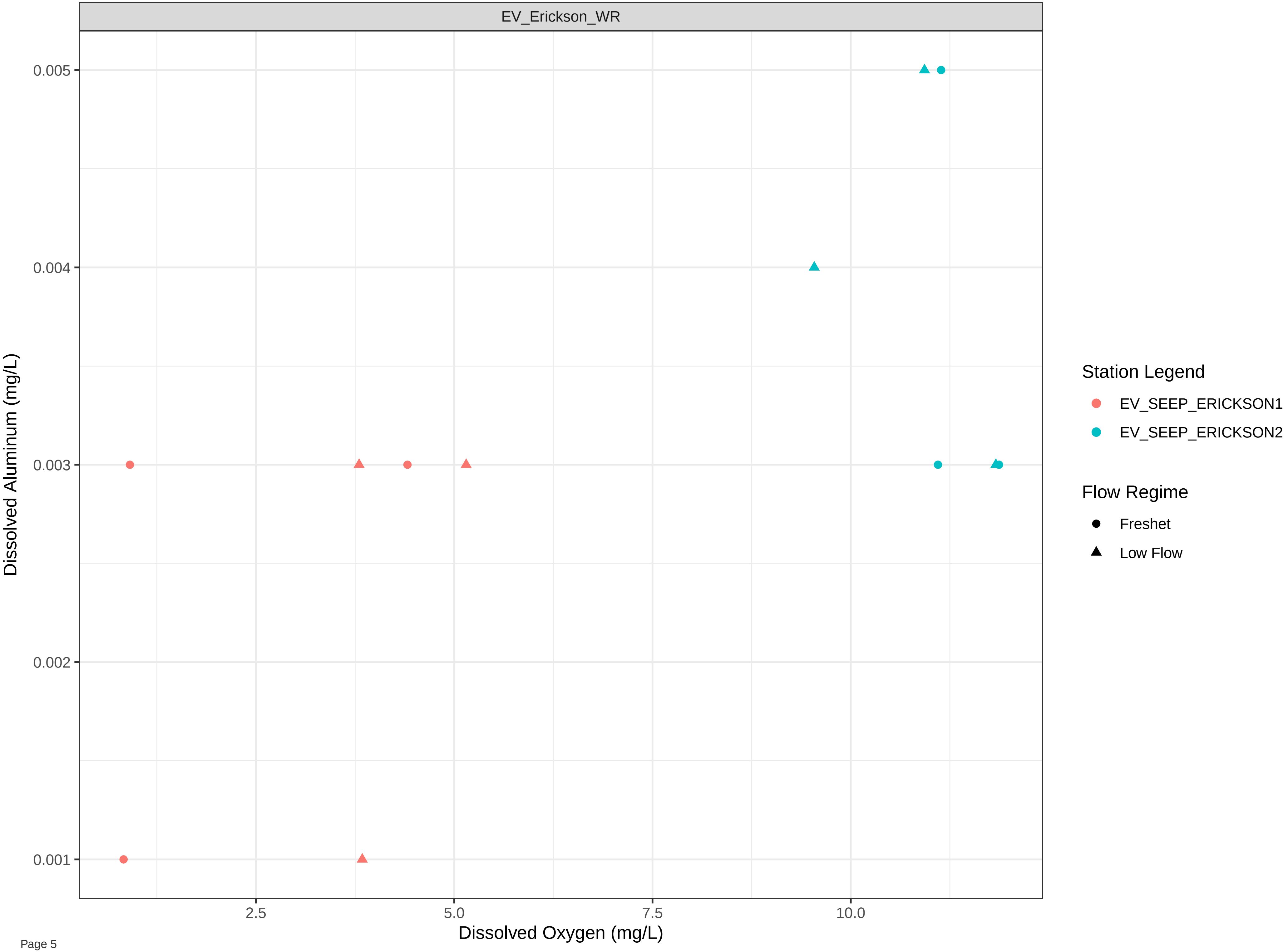

EV_SouthPit_Pit
1
0.1
0.01
0.001
log Dissolved Zinc (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

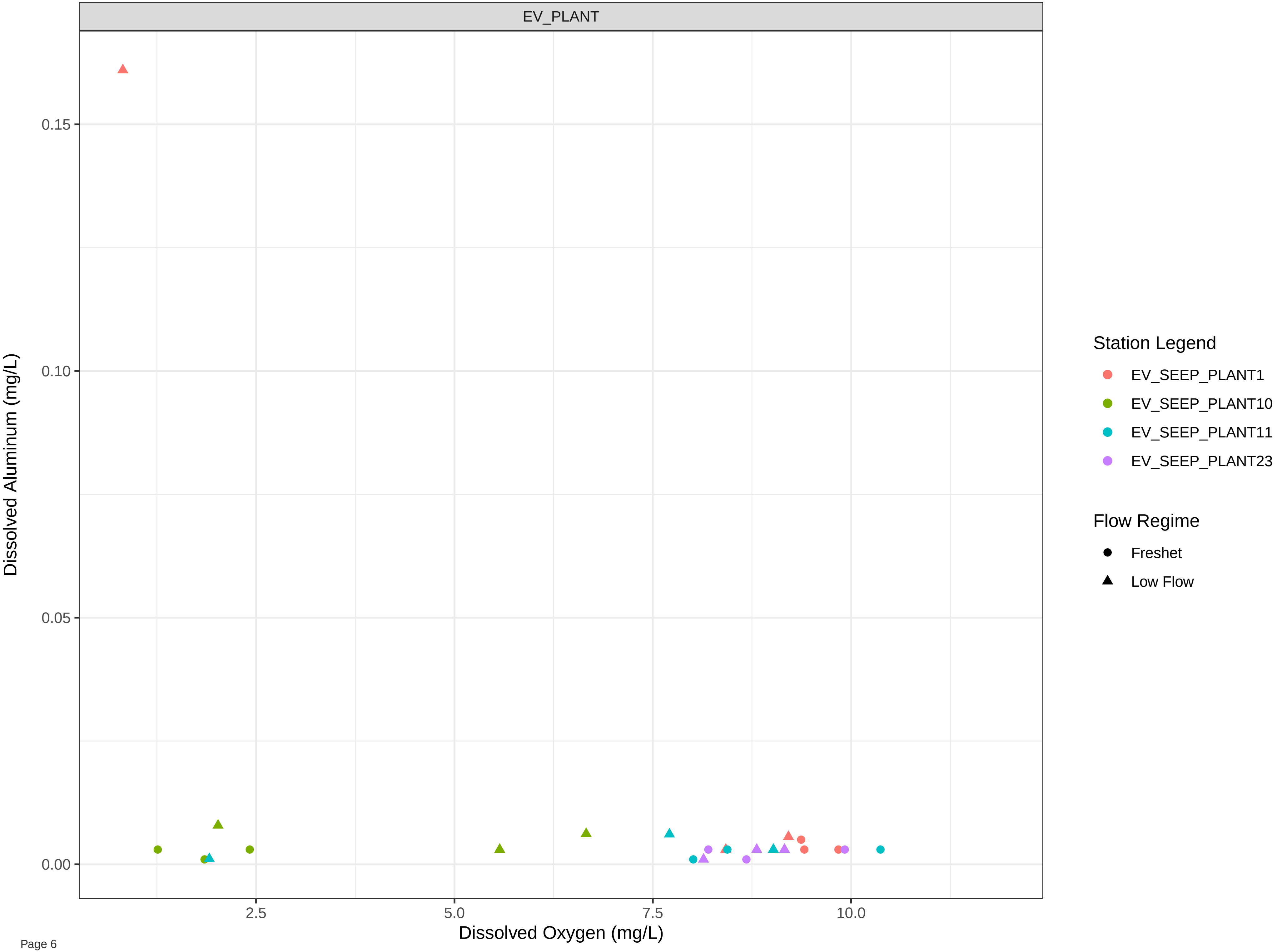

EV_BALDYRIDGEWR
Dissolved Aluminum (mg/L)
0.005
0.004
0.003
0.002
0.001
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

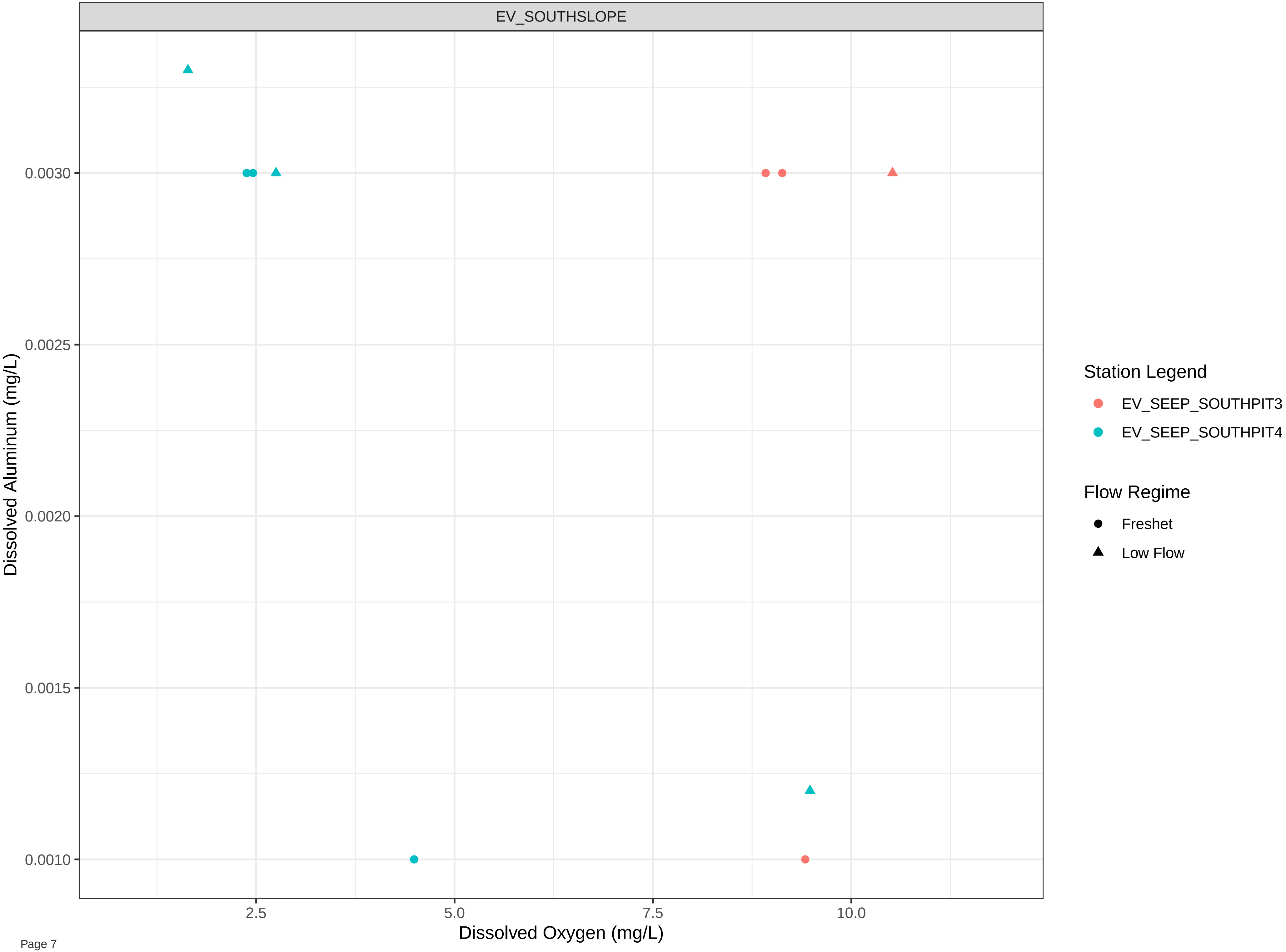

EV_CCR
Dissolved Aluminum (mg/L)
0.0030
0.0025
0.0020
0.0015
0.0010
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

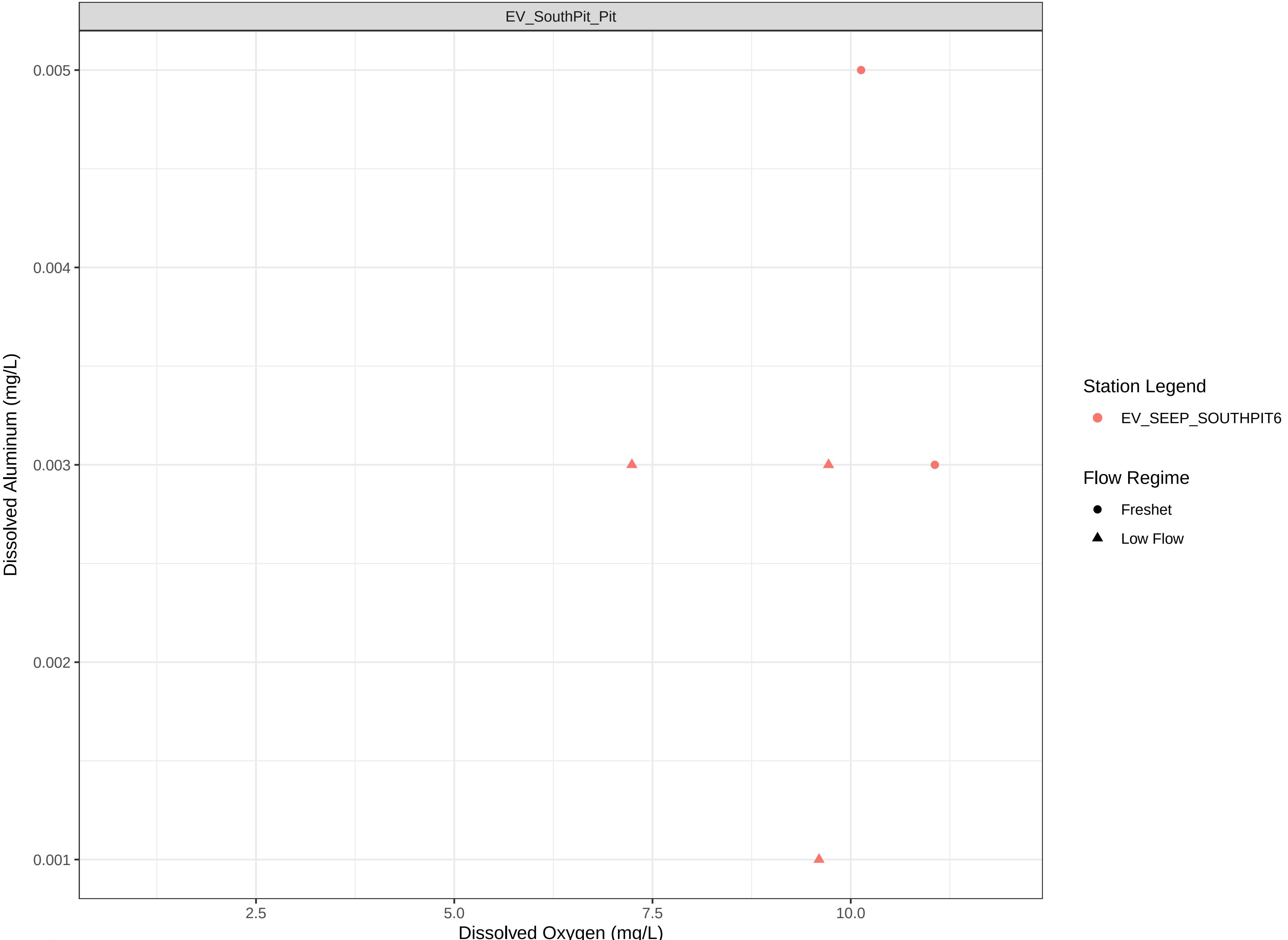

EV_CCR/TP
0.0030
0.0025
0.0020
0.0015
0.0010
Dissolved Aluminum (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

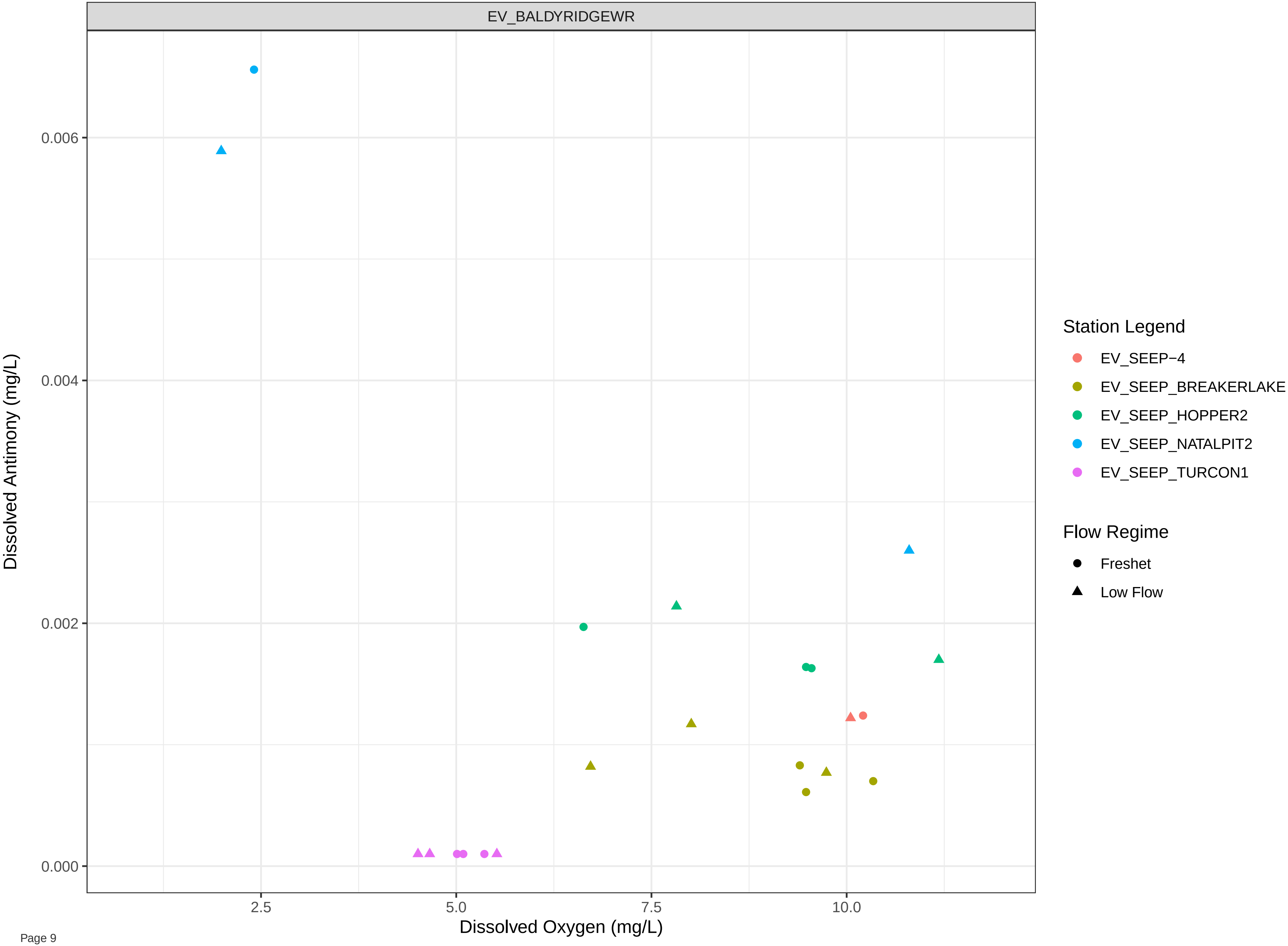

EV_CEDARWR
Dissolved Aluminum (mg/L)
0.004
0.003
0.002
0.001
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

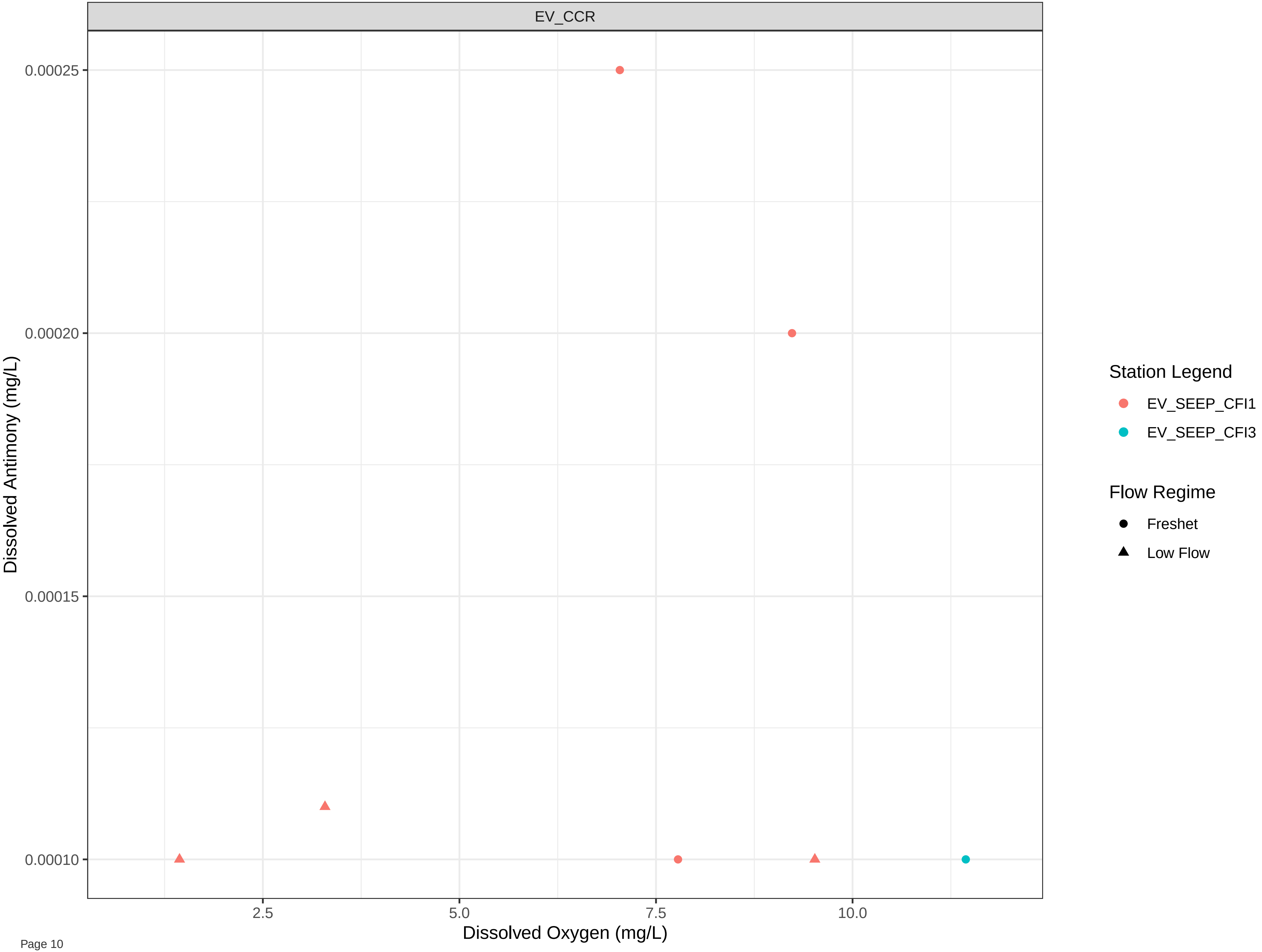

EV_Erickson_WR
Dissolved Aluminum (mg/L)
0.005
0.004
0.003
0.002
0.001
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

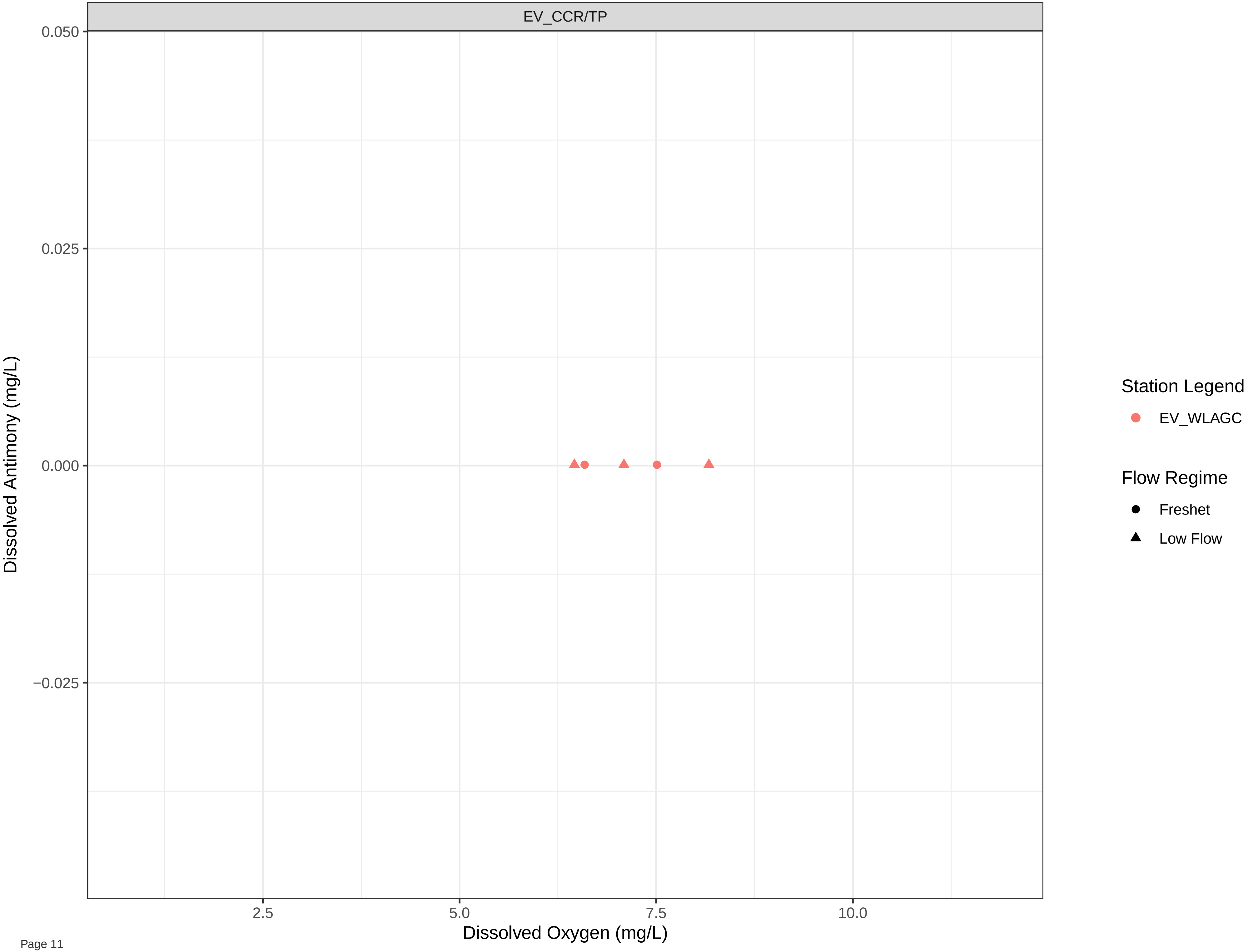

EV_PLANT
Dissolved Aluminum (mg/L)
0.15
0.10
0.05
0.00
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

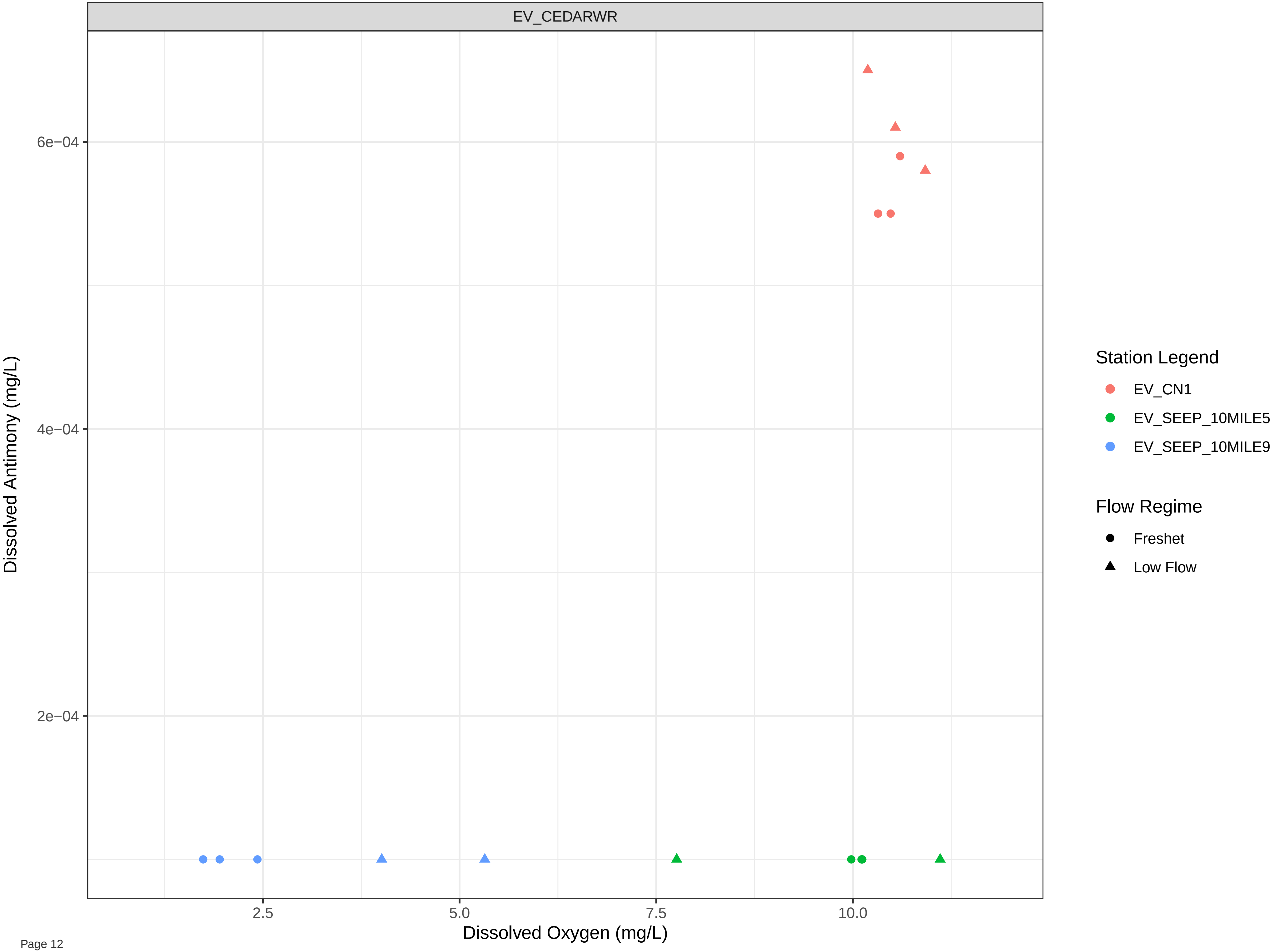

EV_SOUTHSLOPE
Dissolved Aluminum (mg/L)
0.0030
0.0025
0.0020
0.0015
0.0010
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

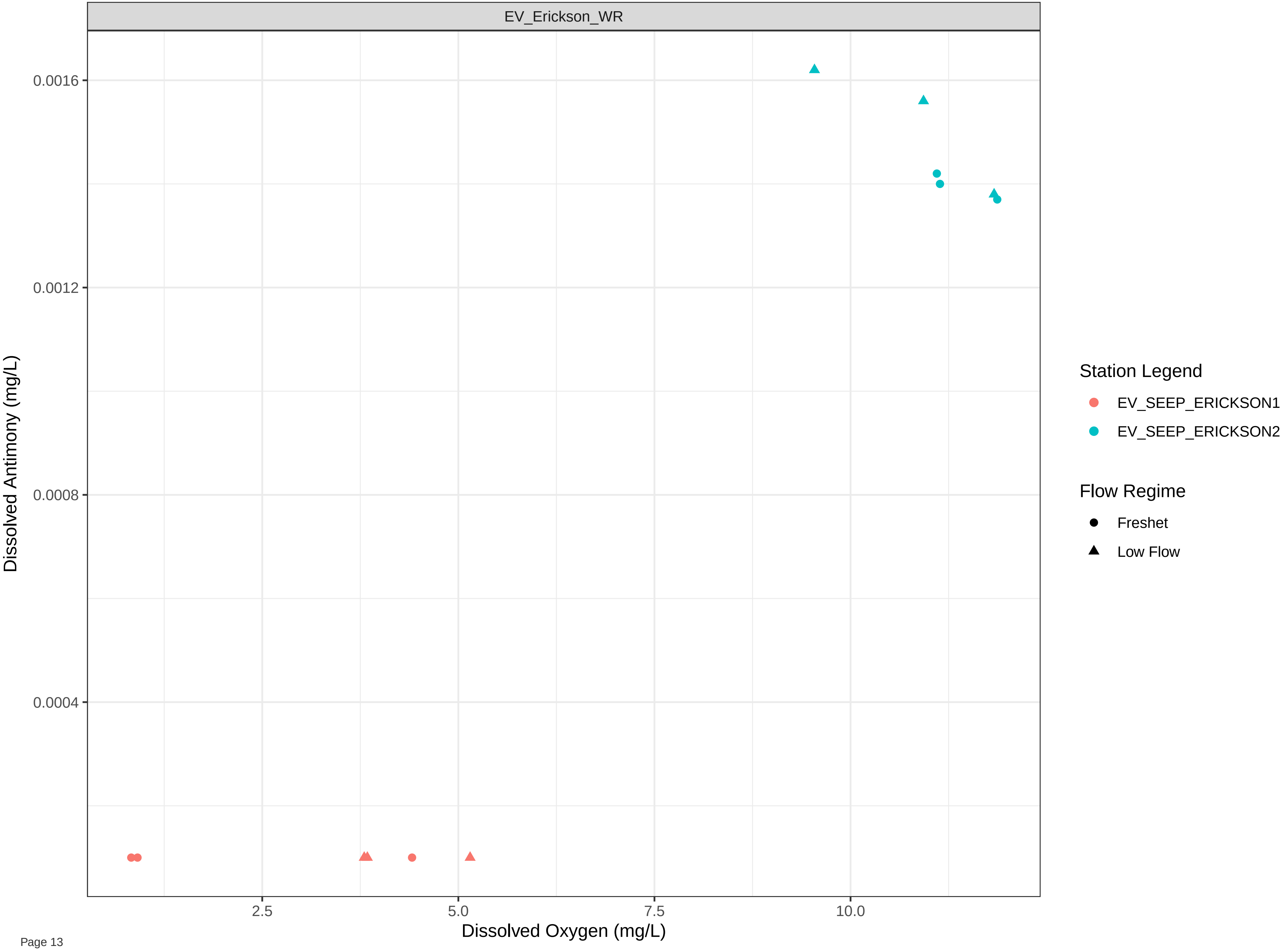

EV_SouthPit_Pit
0.005
0.004
0.003
0.002
0.001
Dissolved Aluminum (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

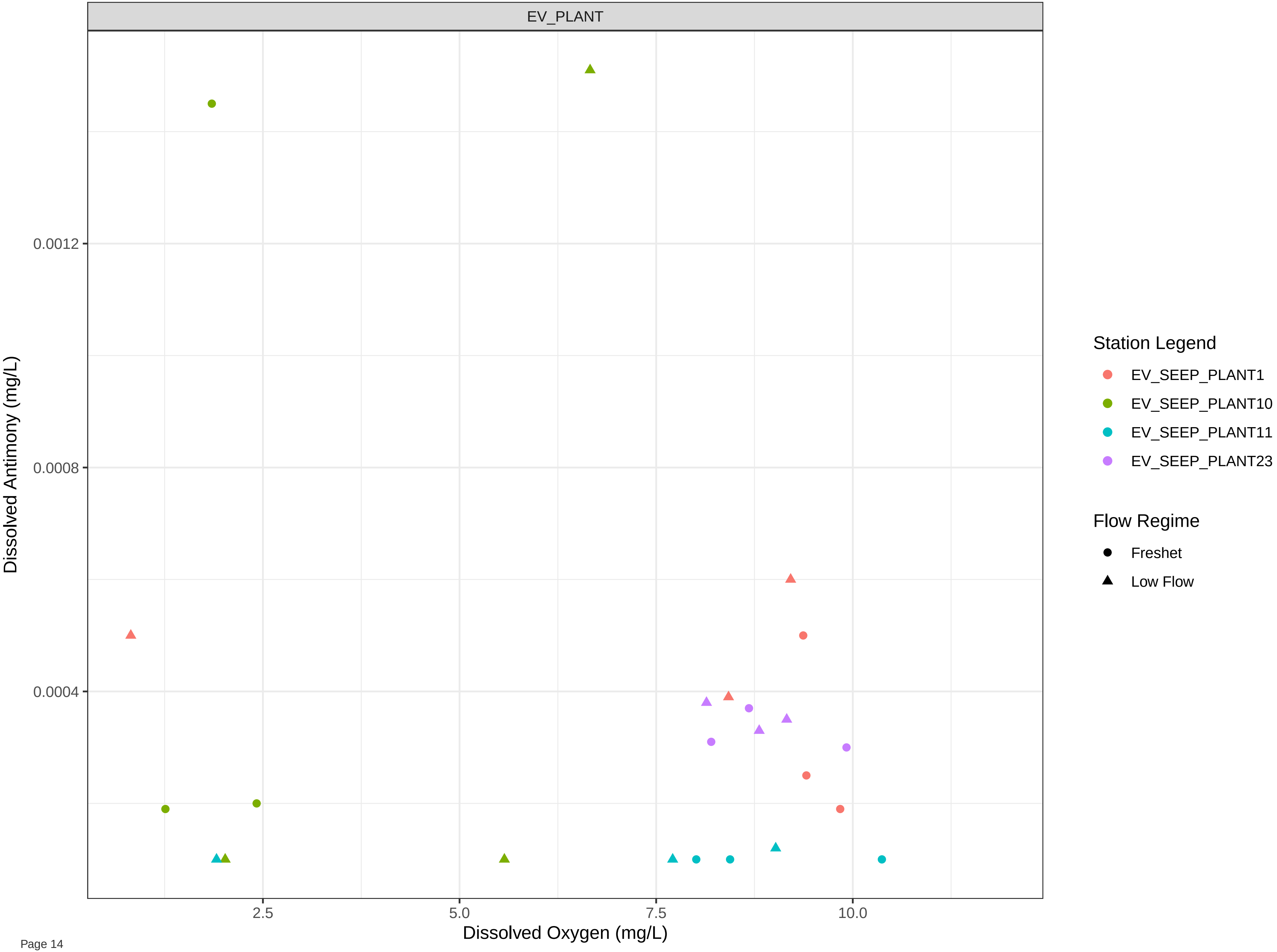

EV_BALDYRIDGEWR
Dissolved Antimony (mg/L)
0.006
0.004
0.002
0.000
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

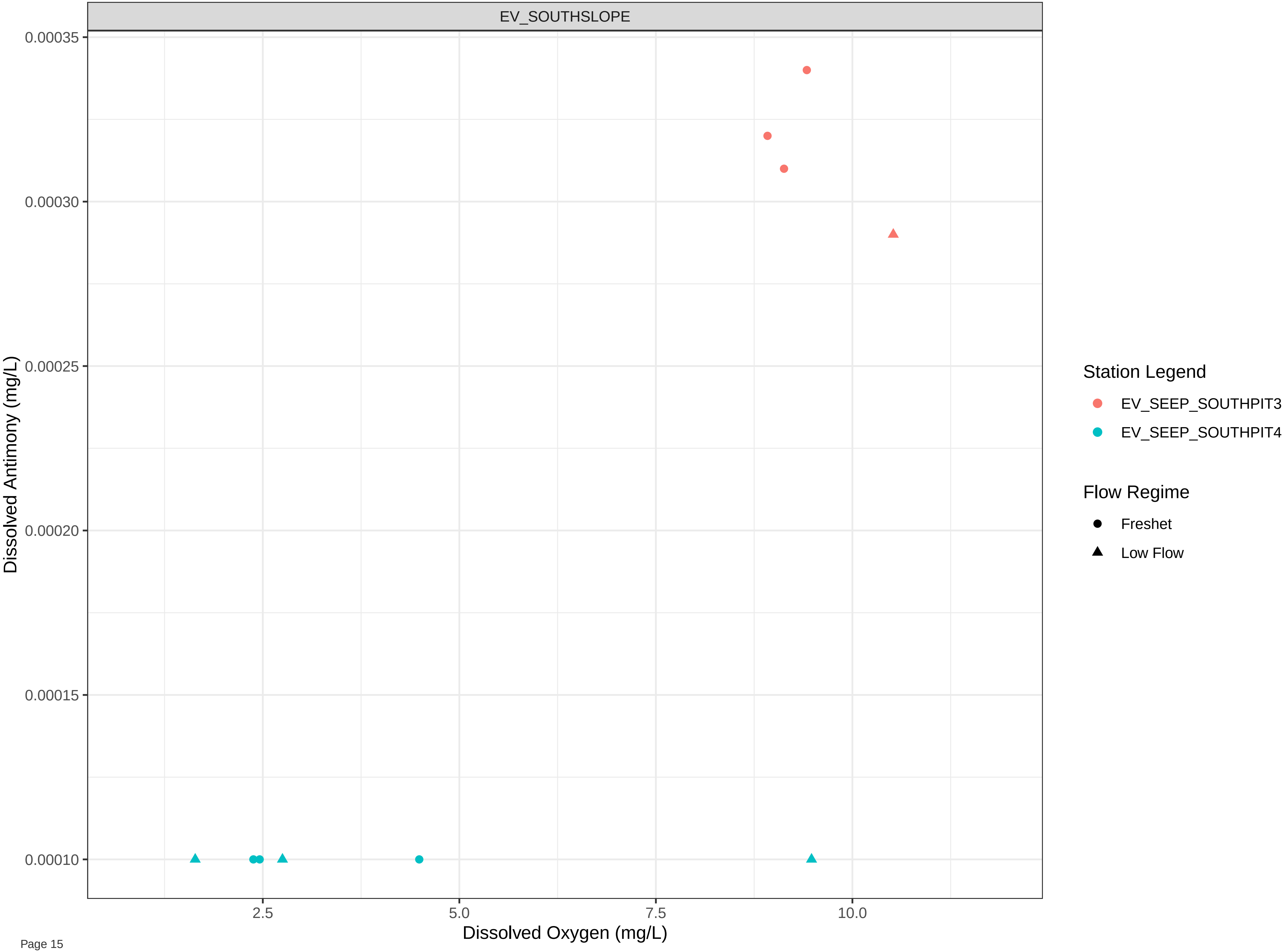

EV_CCR
Dissolved Antimony (mg/L)
0.00025
0.00020
0.00015
0.00010
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

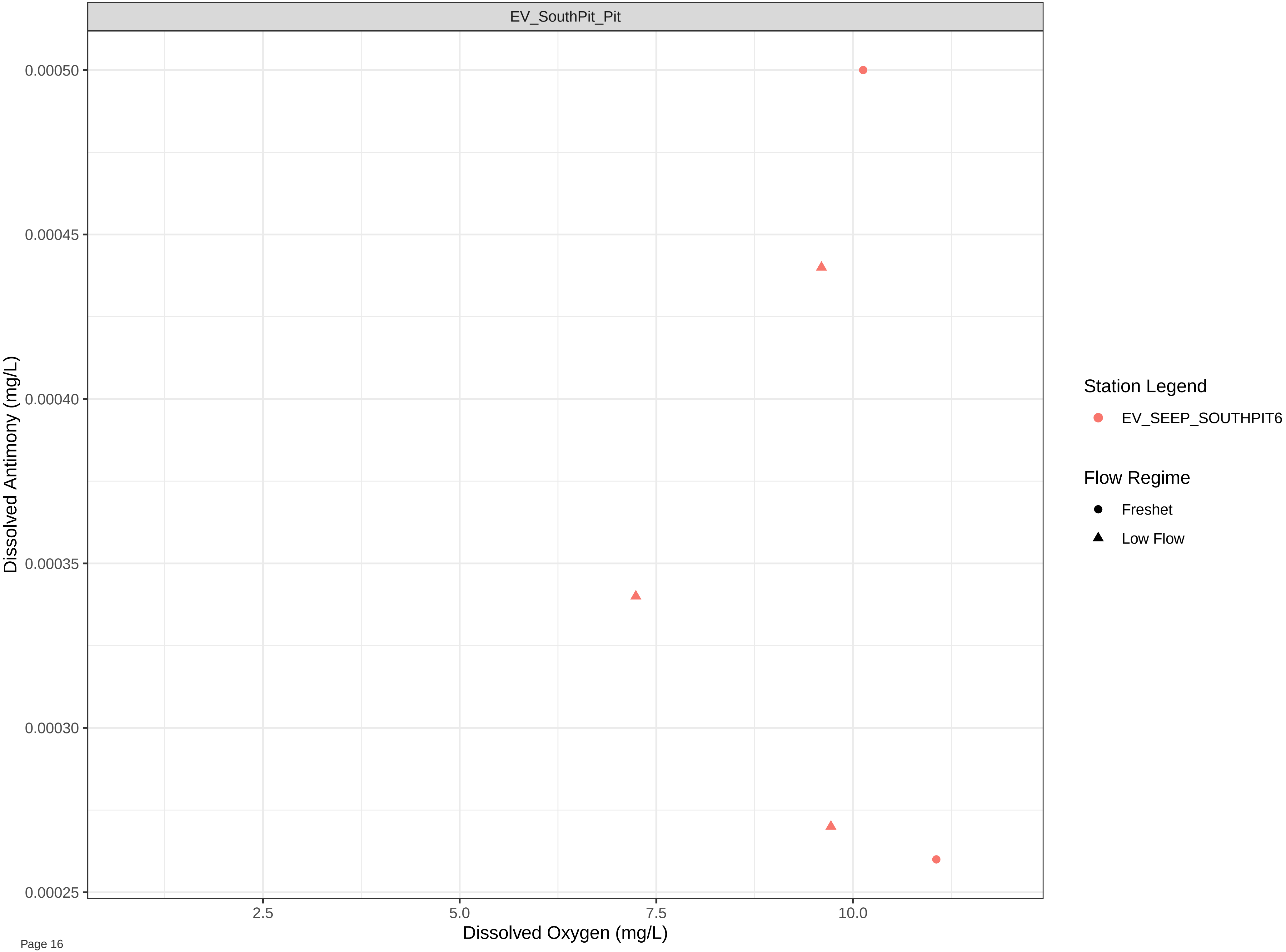

EV_CCR/TP
0.050
0.025
0.000
−0.025
Dissolved Antimony (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

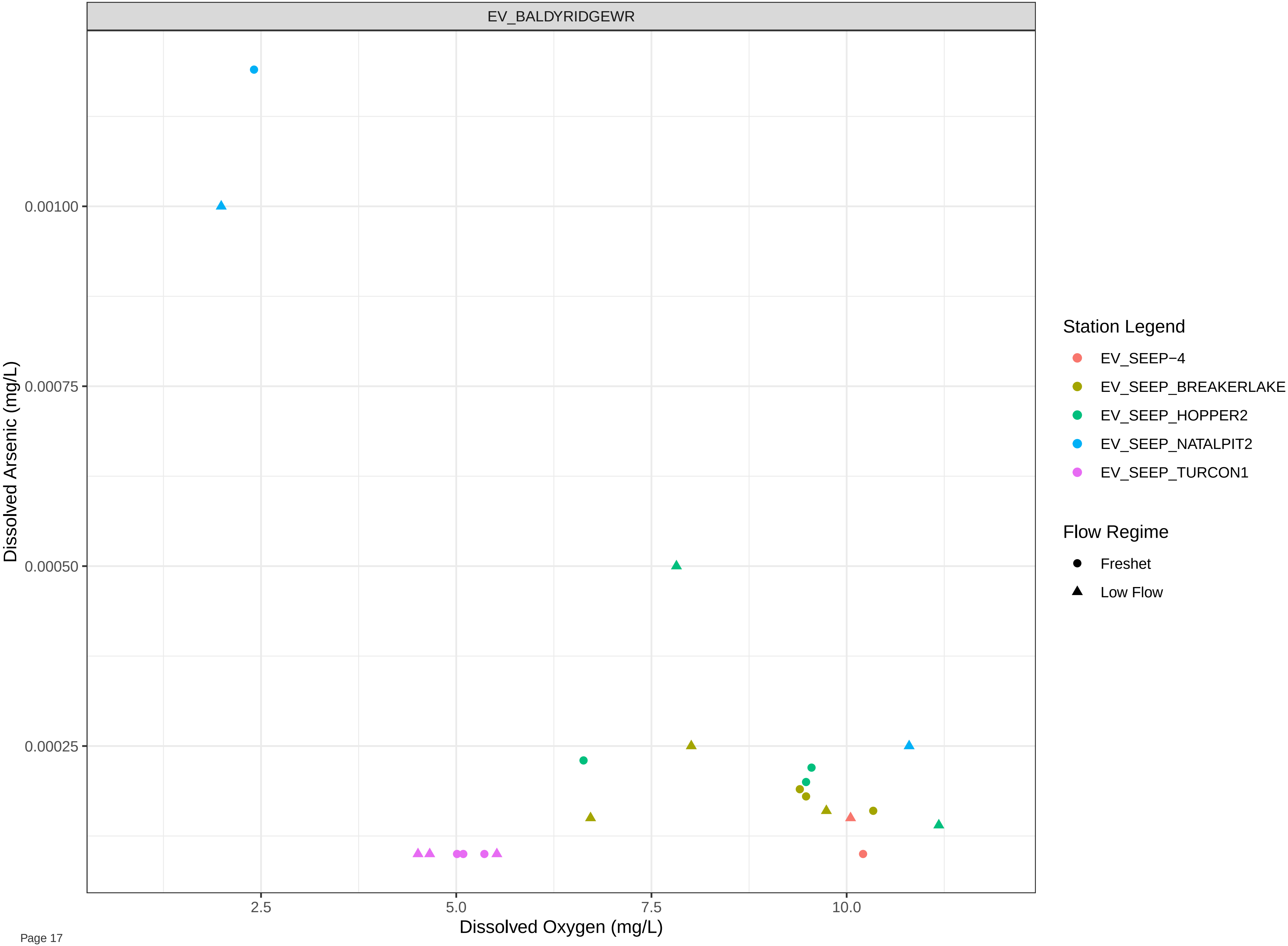

EV_CEDARWR
6e−04
4e−04
2e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Dissolved Antimony (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

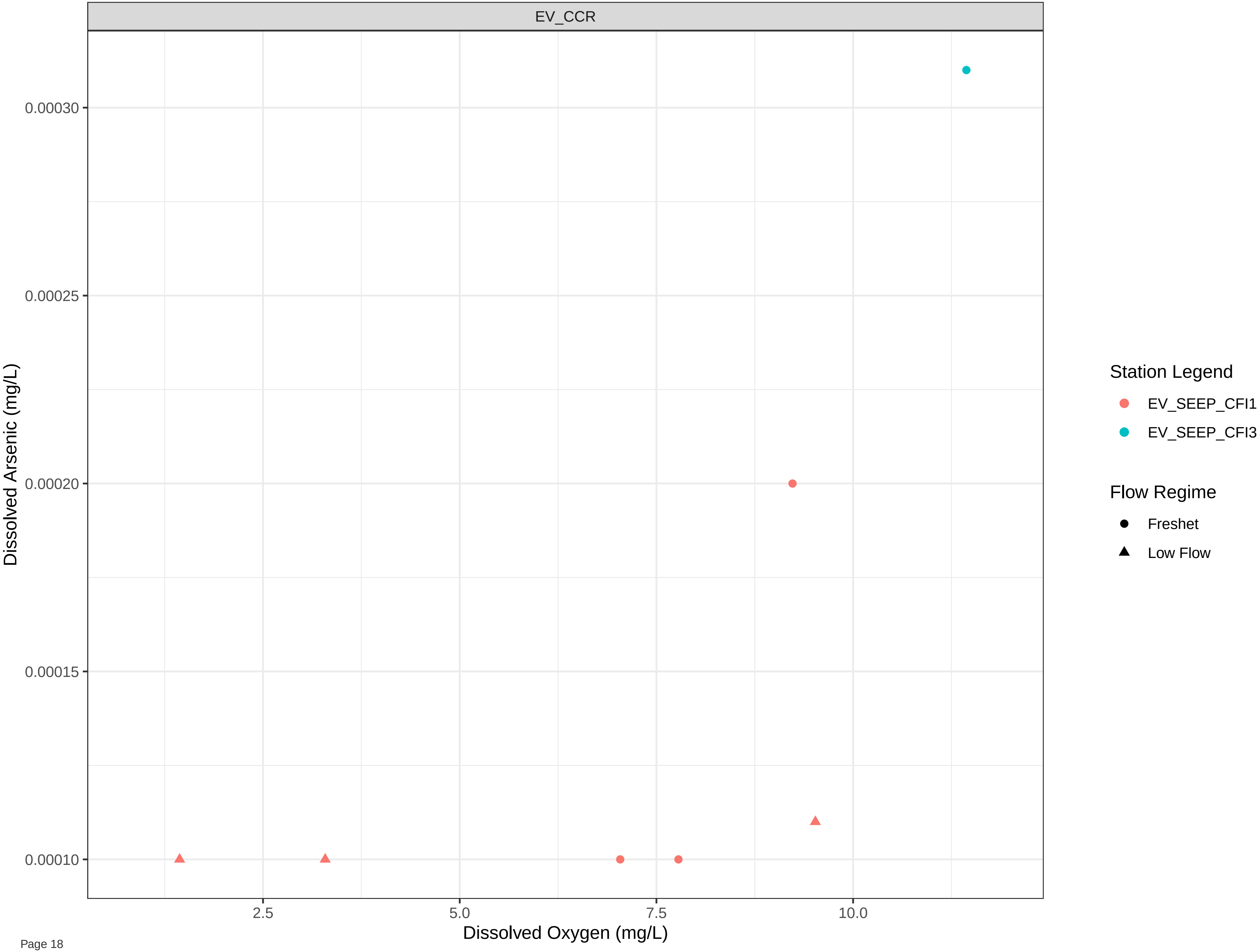

EV_Erickson_WR
0.0016
0.0012
0.0008
0.0004
Dissolved Antimony (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

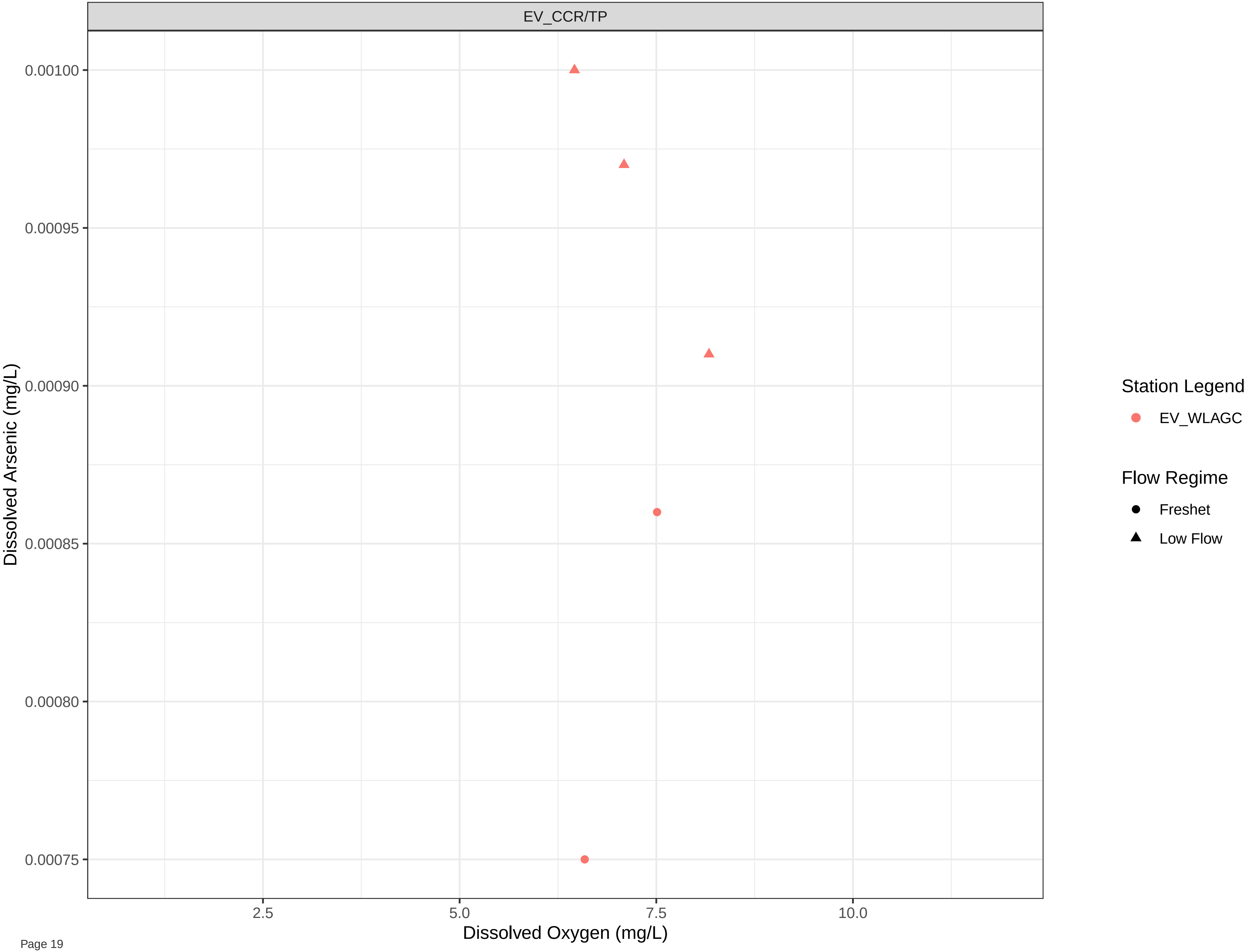

EV_PLANT
Dissolved Antimony (mg/L)
0.0012
0.0008
0.0004
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

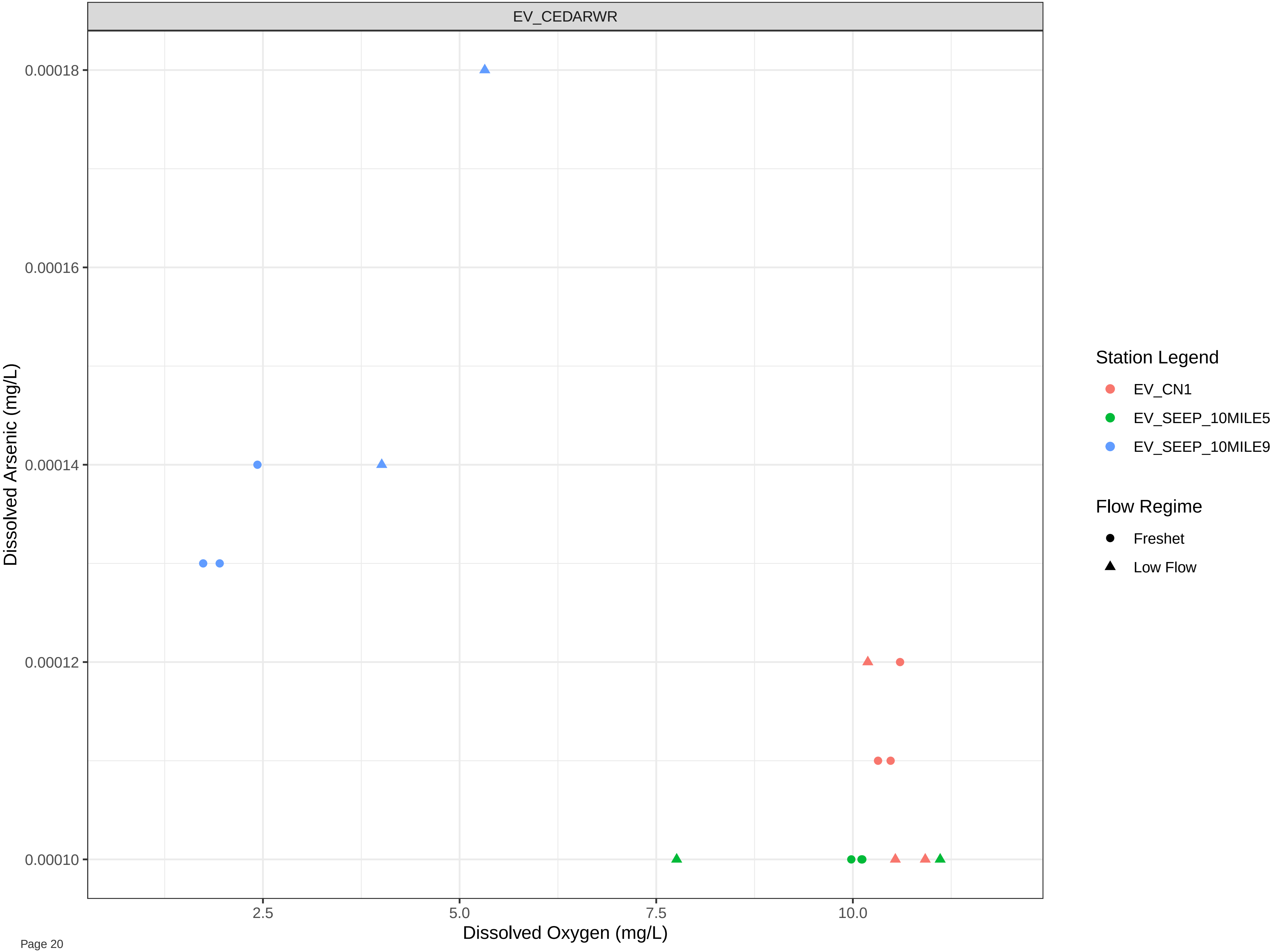

EV_SOUTHSLOPE
Dissolved Antimony (mg/L)
0.00035
0.00030
0.00025
0.00020
0.00015
0.00010
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

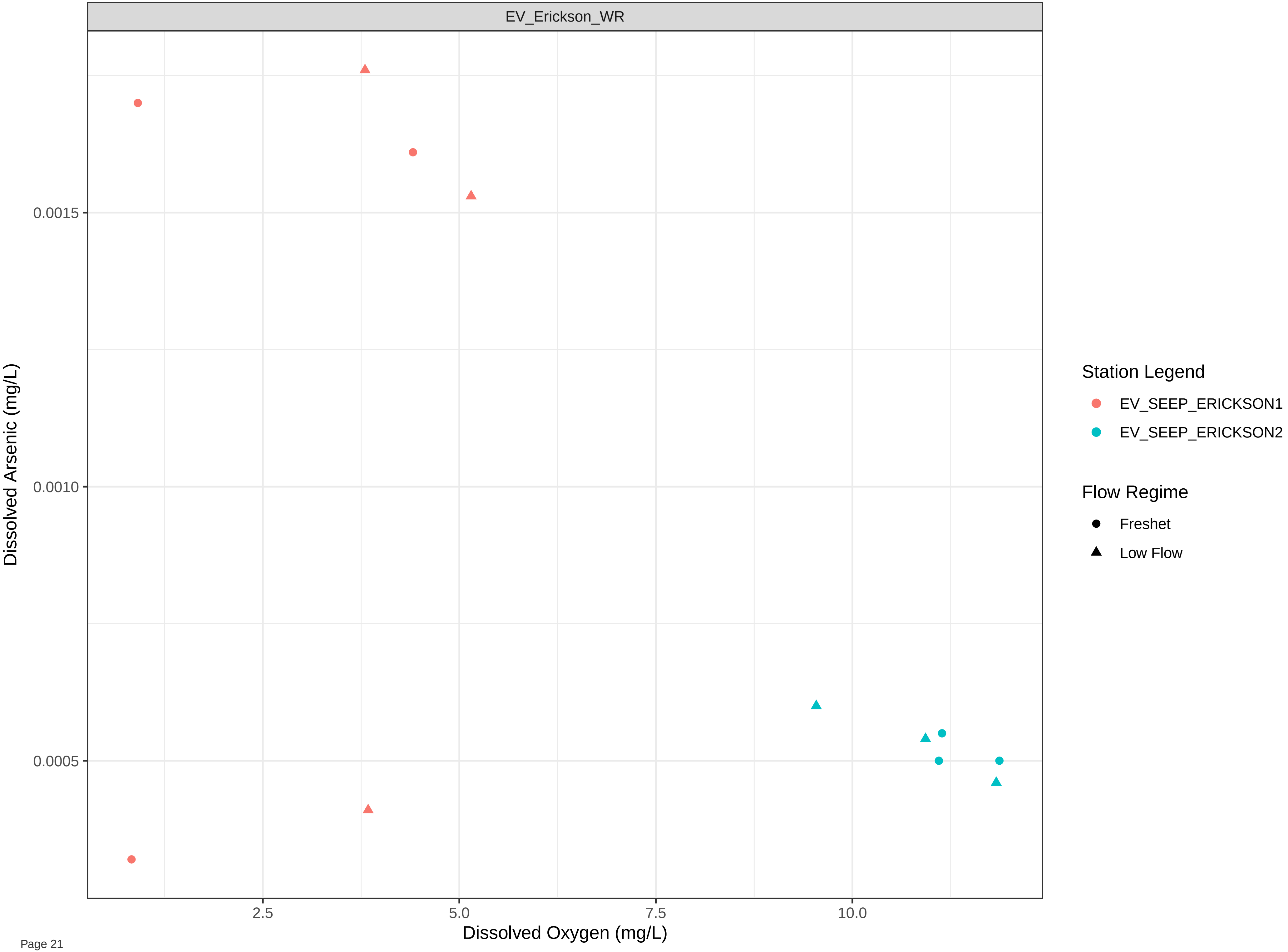

EV_SouthPit_Pit
Dissolved Antimony (mg/L)
0.00050
0.00045
0.00040
0.00035
0.00030
0.00025
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

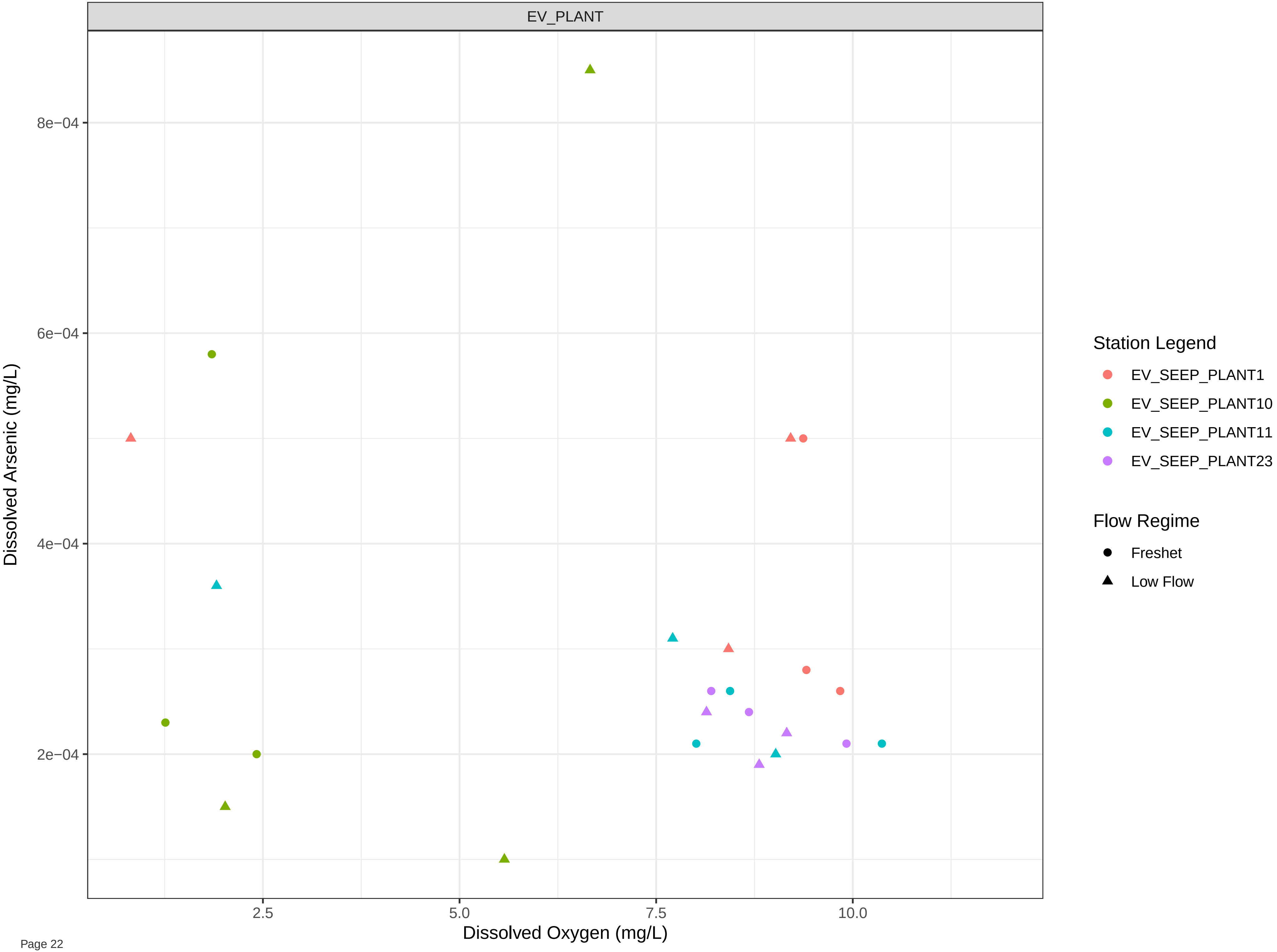

EV_BALDYRIDGEWR
Dissolved Arsenic (mg/L)
0.00100
0.00075
0.00050
0.00025
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

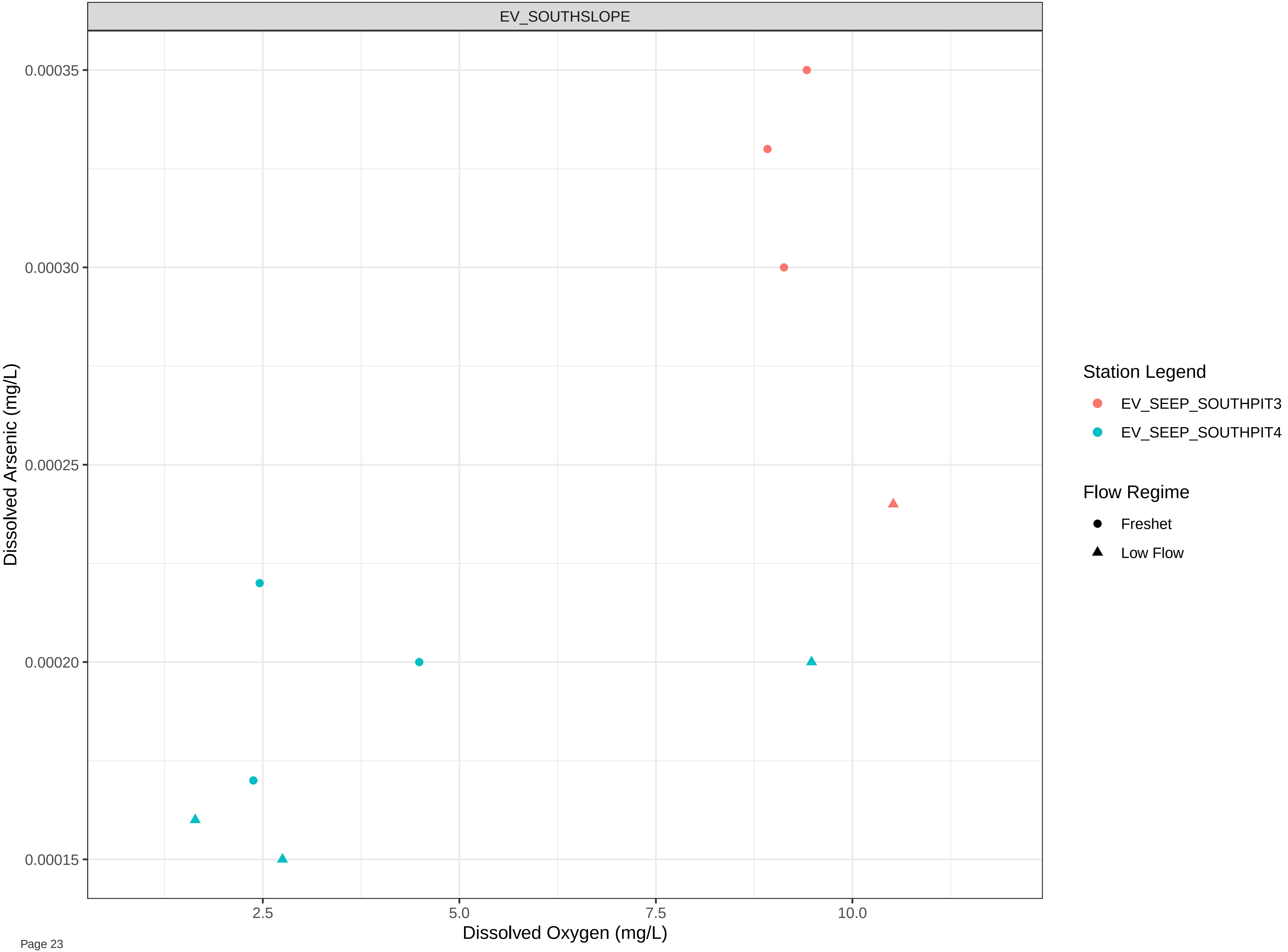

EV_CCR
Dissolved Arsenic (mg/L)
0.00030
0.00025
0.00020
0.00015
0.00010
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

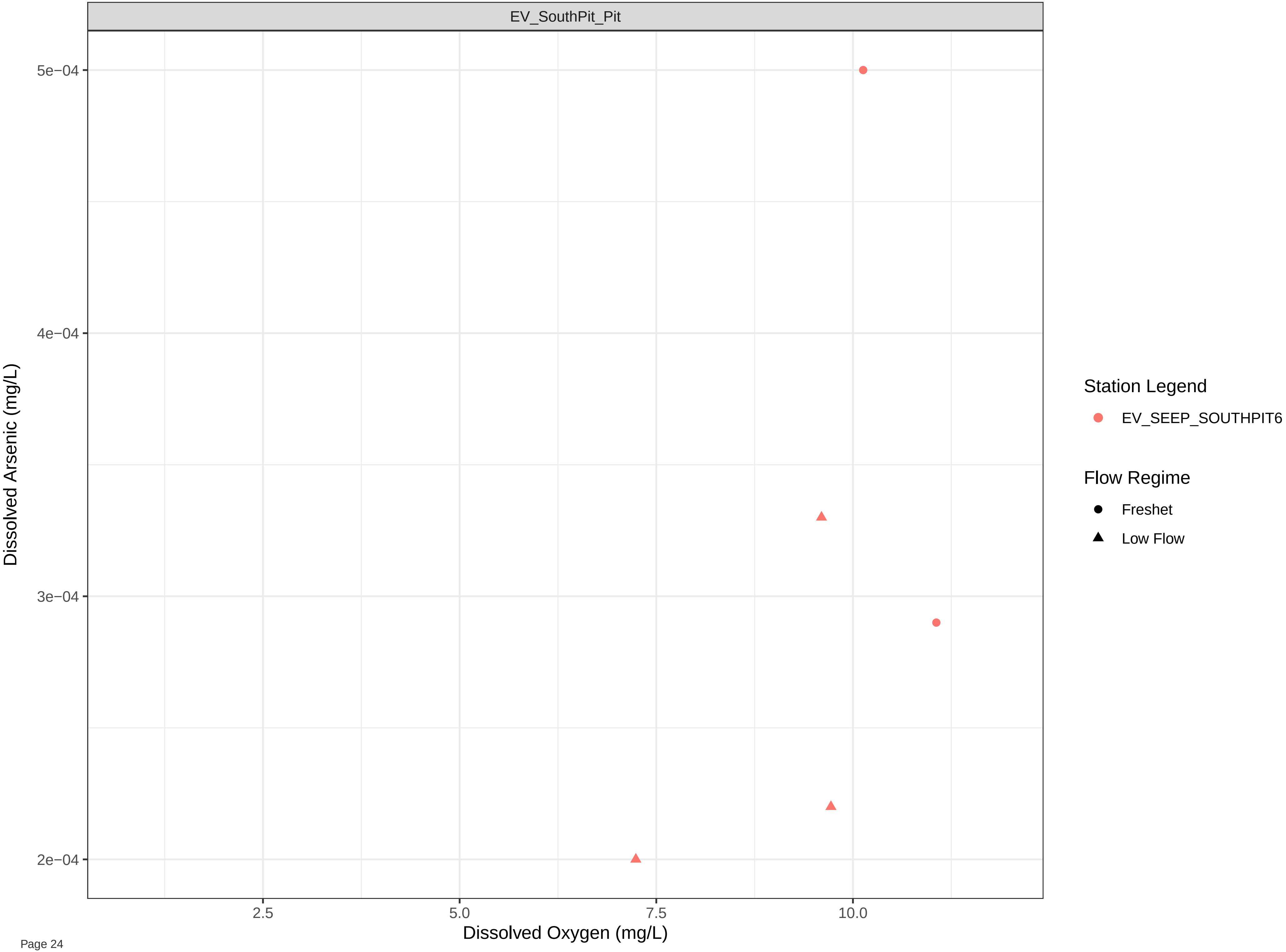

EV_CCR/TP
0.00100
0.00095
0.00090
0.00085
0.00080
0.00075
Dissolved Arsenic (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

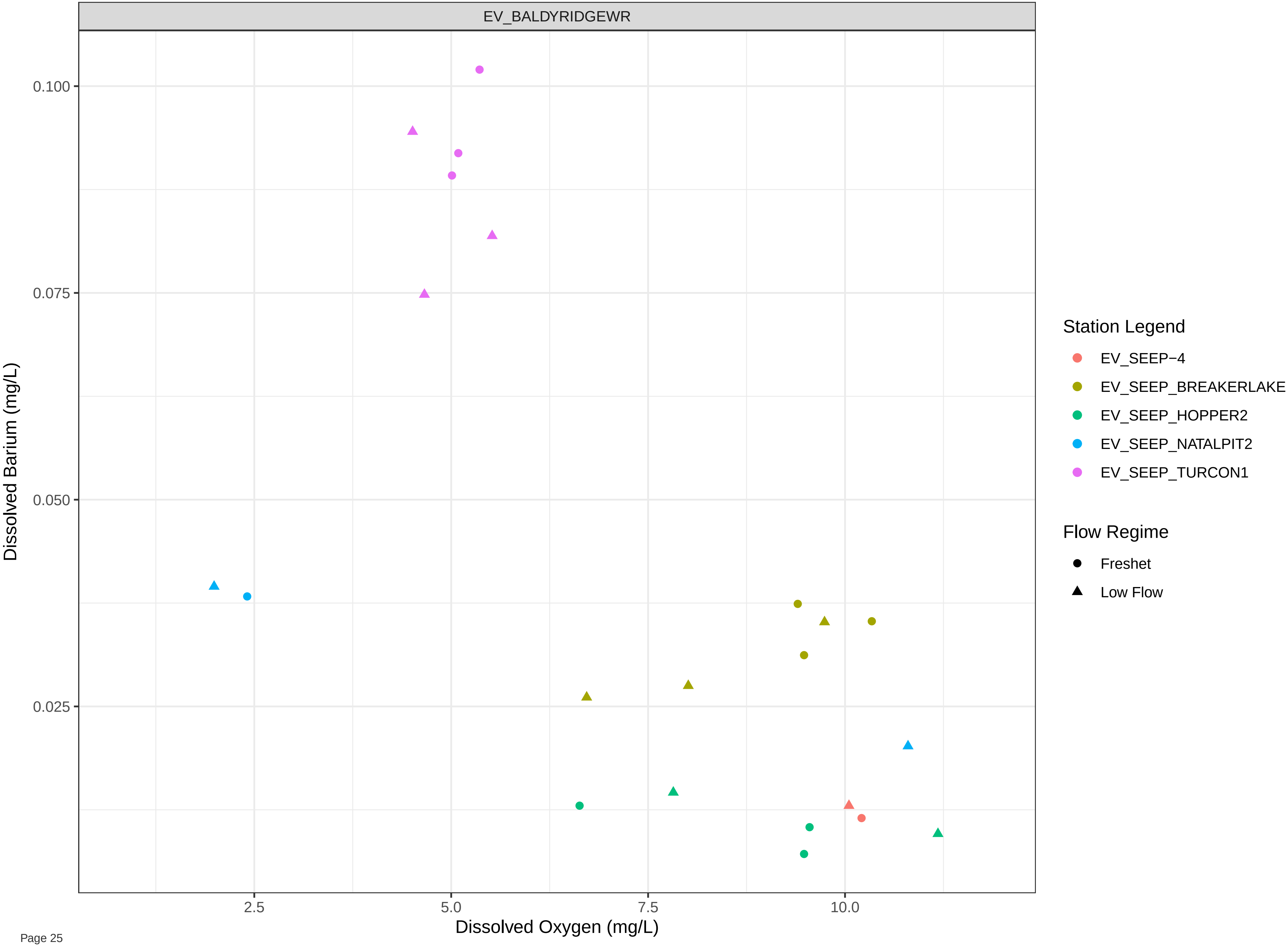

EV_CEDARWR
0.00018
0.00016
0.00014
0.00012
0.00010
Dissolved Arsenic (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

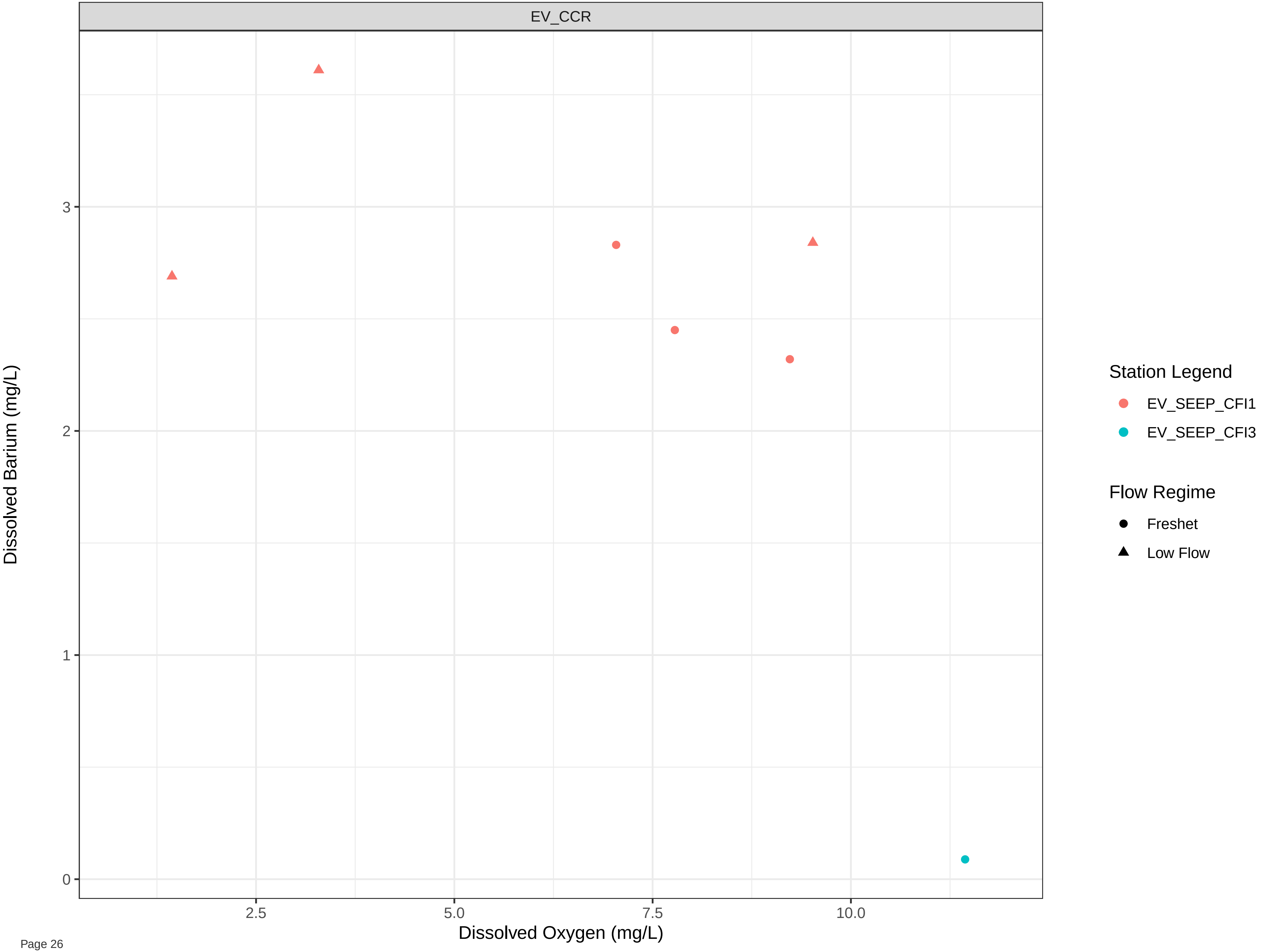

EV_Erickson_WR
Dissolved Arsenic (mg/L)
0.0015
0.0010
0.0005
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

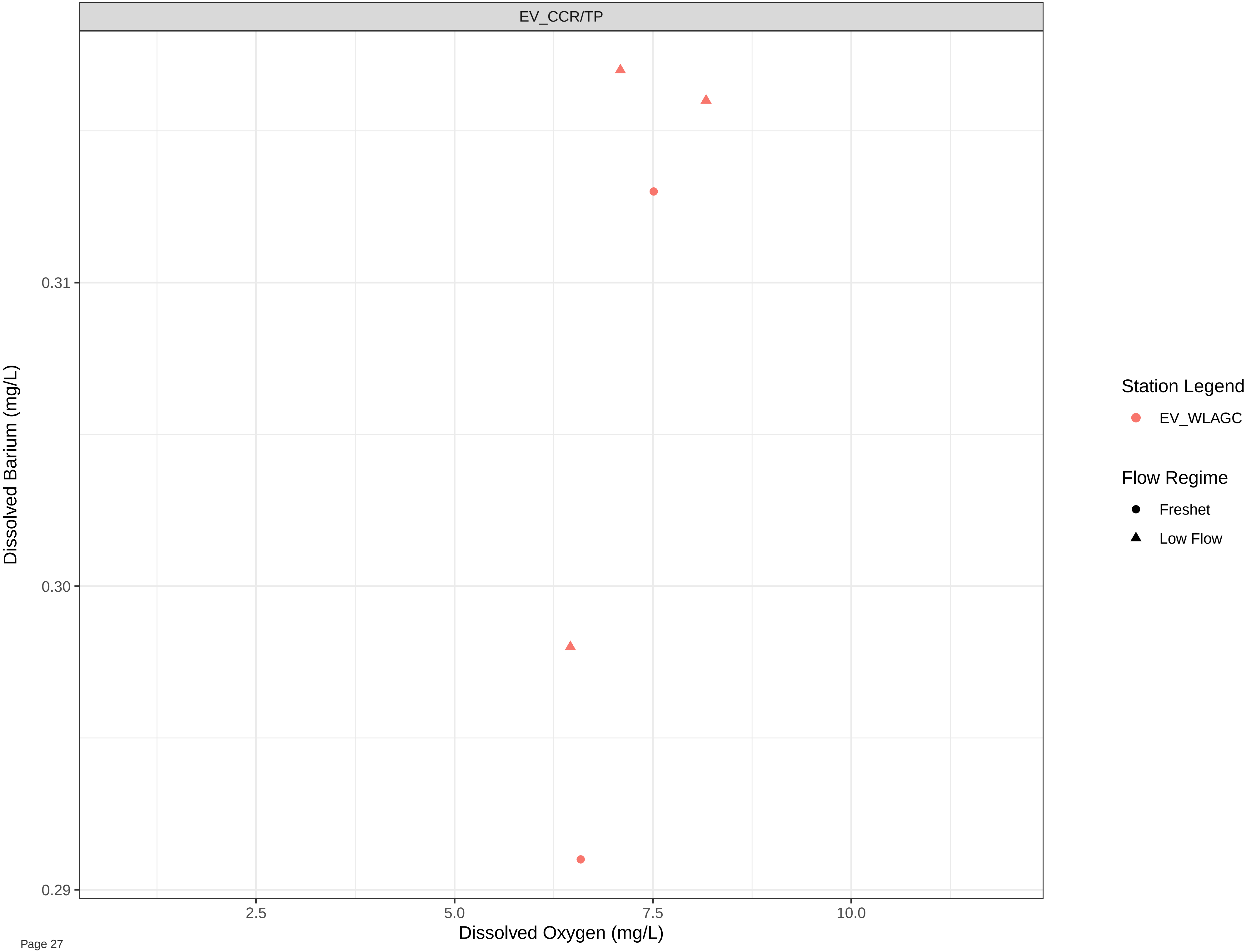

EV_PLANT
Dissolved Arsenic (mg/L)
8e−04
6e−04
4e−04
2e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

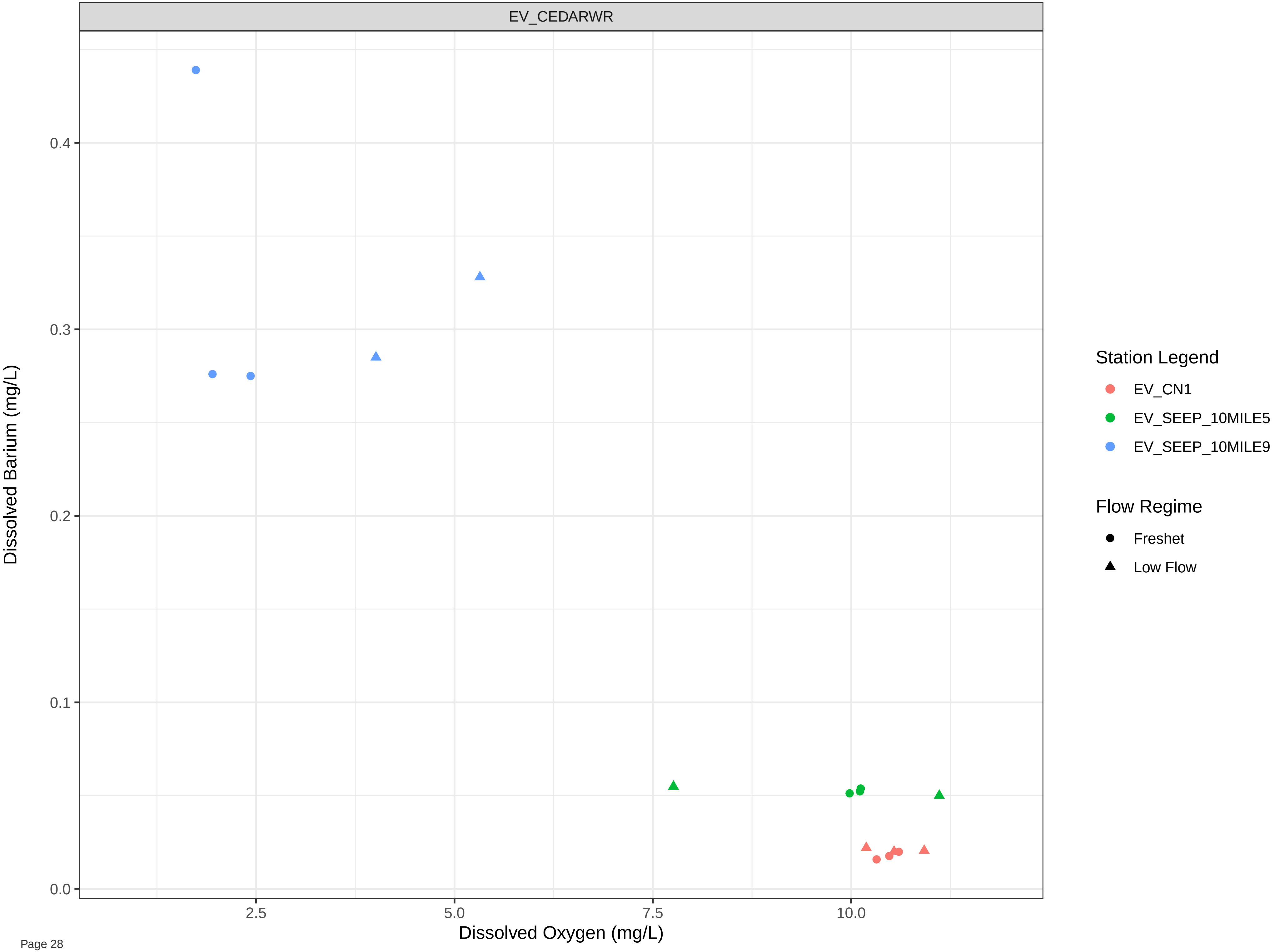

EV_SOUTHSLOPE
Dissolved Arsenic (mg/L)
0.00035
0.00030
0.00025
0.00020
0.00015
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

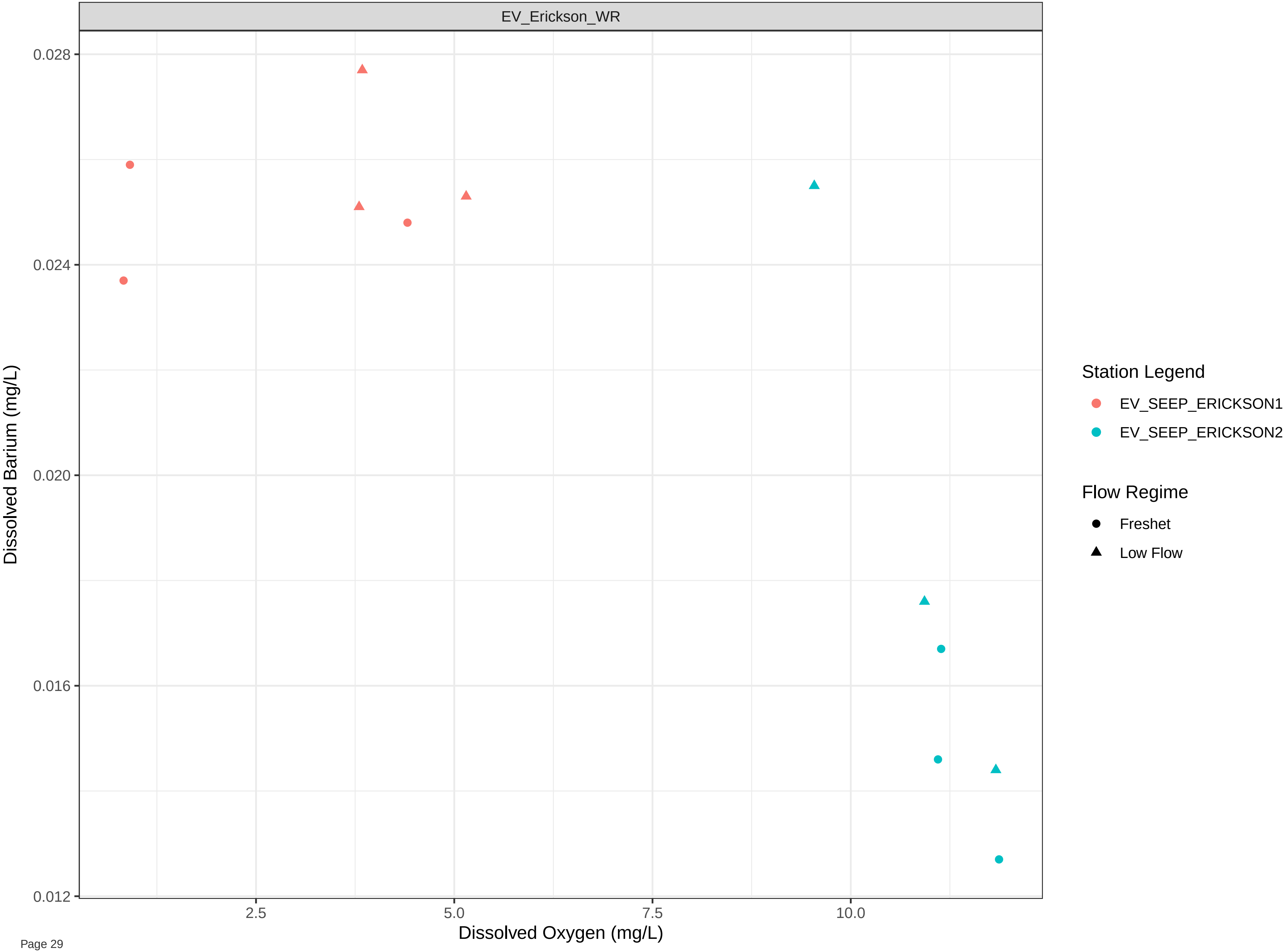

EV_SouthPit_Pit
Dissolved Arsenic (mg/L)
5e−04
4e−04
3e−04
2e−04
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

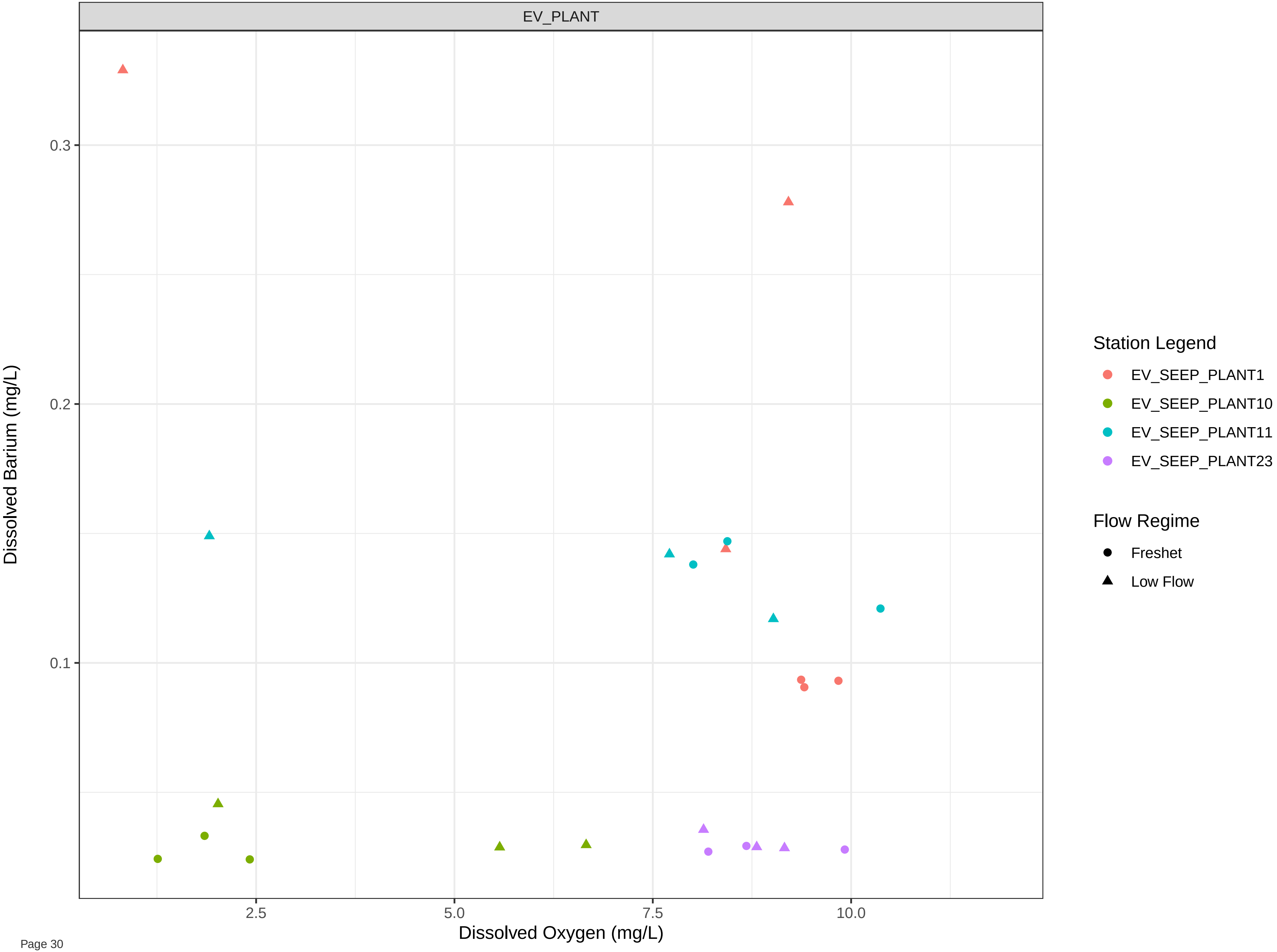

EV_BALDYRIDGEWR
Dissolved Barium (mg/L)
0.100
0.075
0.050
0.025
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

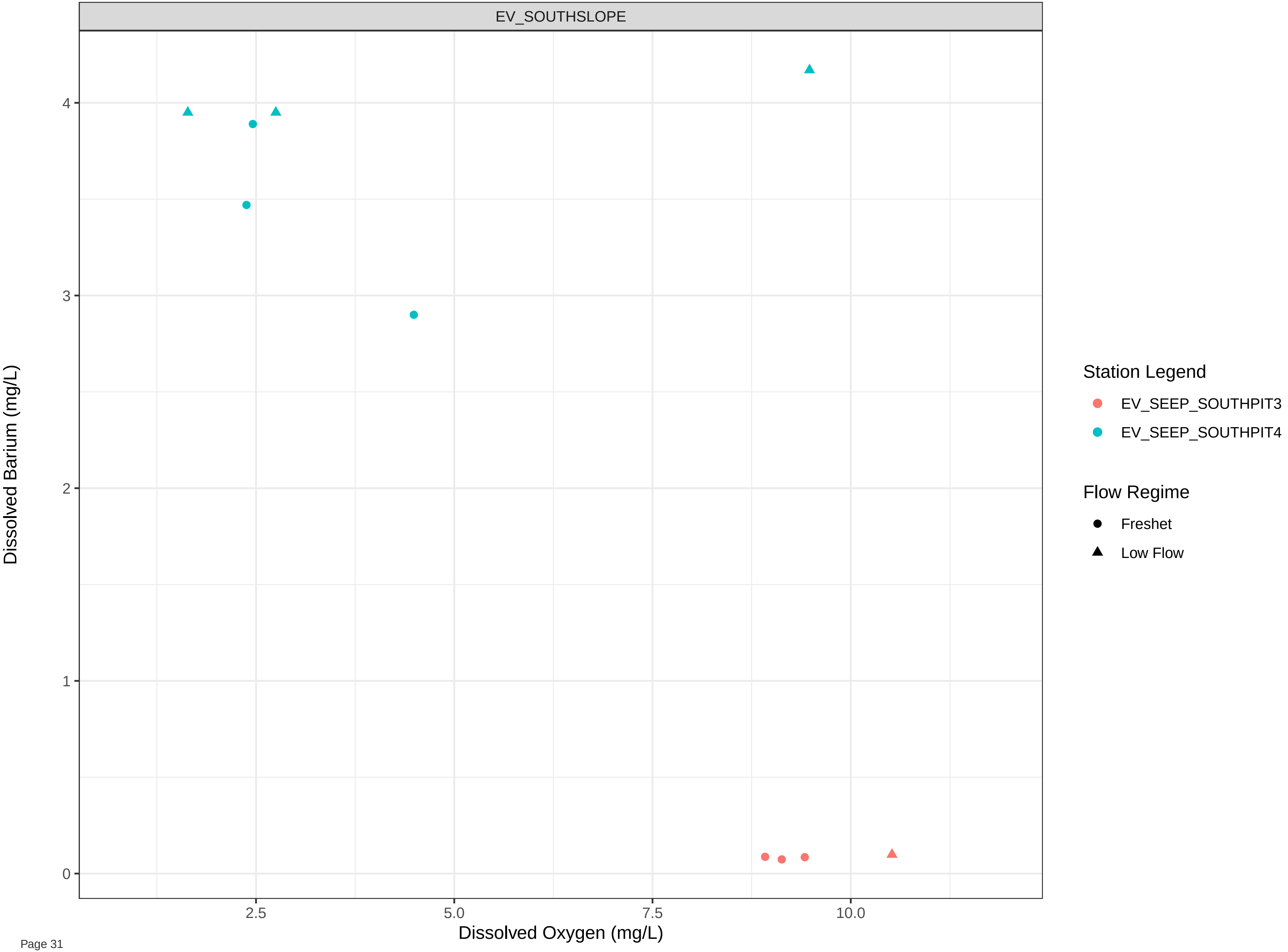

EV_CCR
Dissolved Barium (mg/L)
0
1
2
3
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

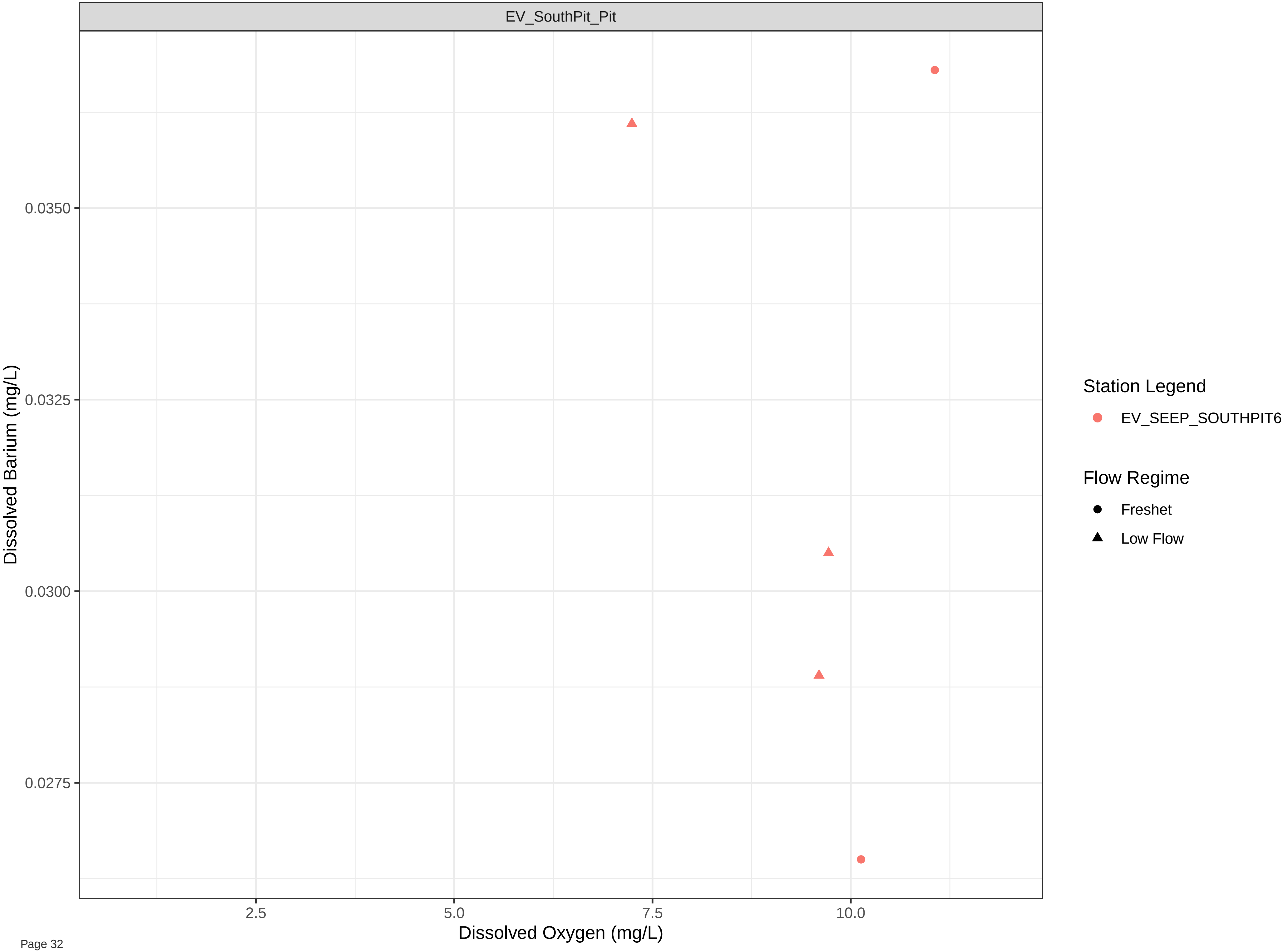

EV_CCR/TP
0.31
0.30
0.29
Dissolved Barium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

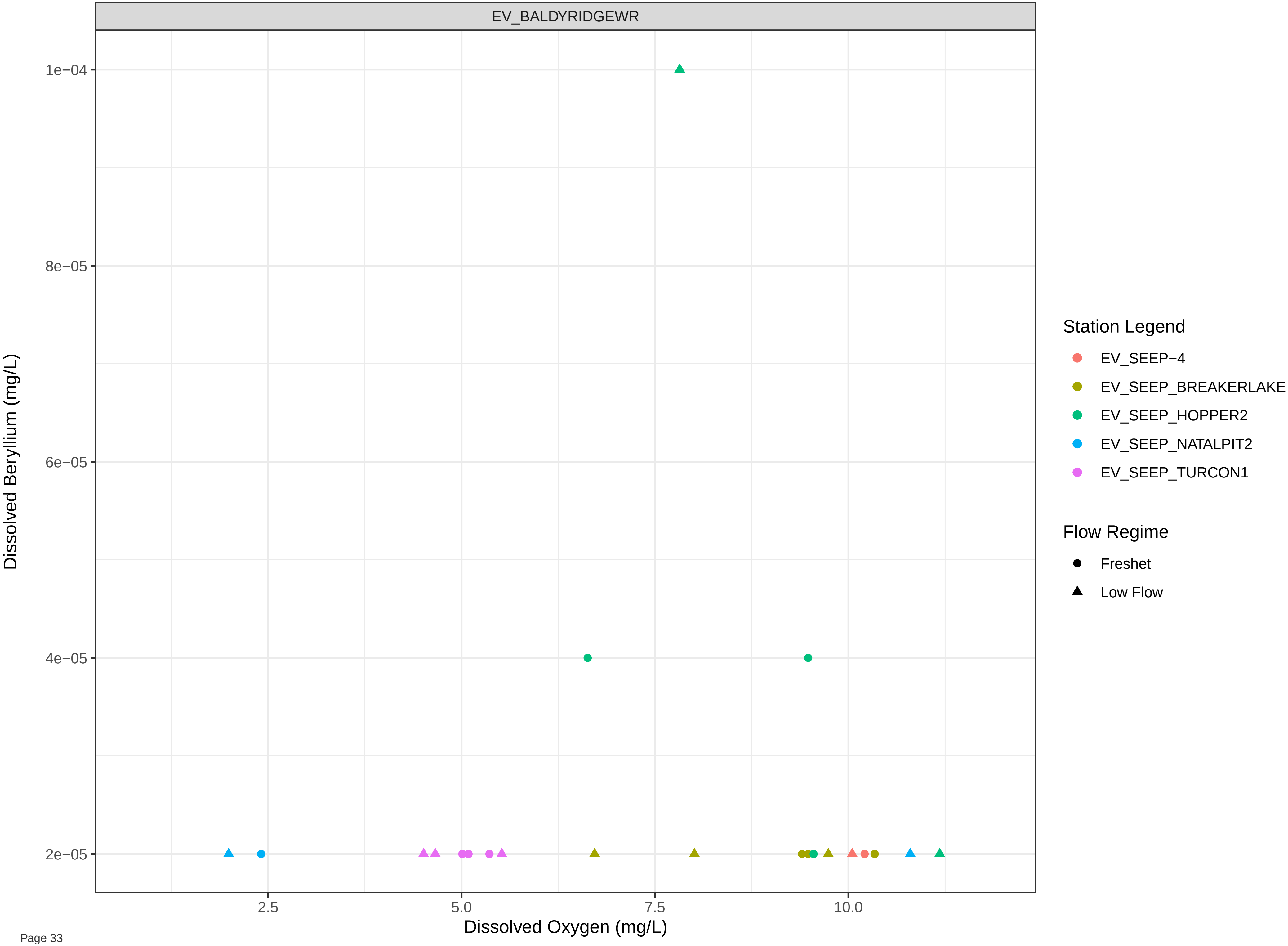

EV_CEDARWR
Dissolved Barium (mg/L)
0.4
0.3
0.2
0.1
0.0
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

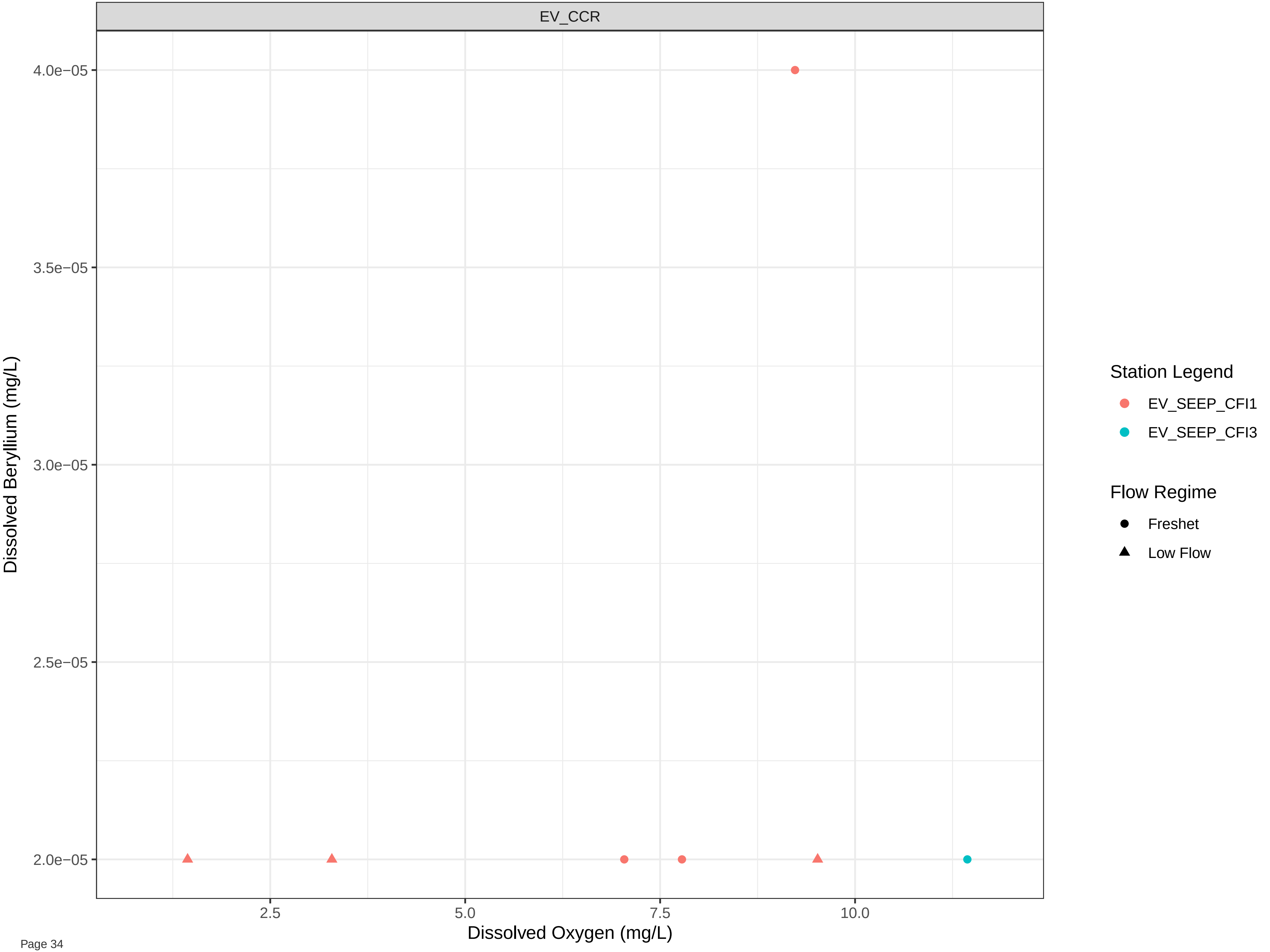

EV_Erickson_WR
Dissolved Barium (mg/L)
0.028
0.024
0.020
0.016
0.012
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

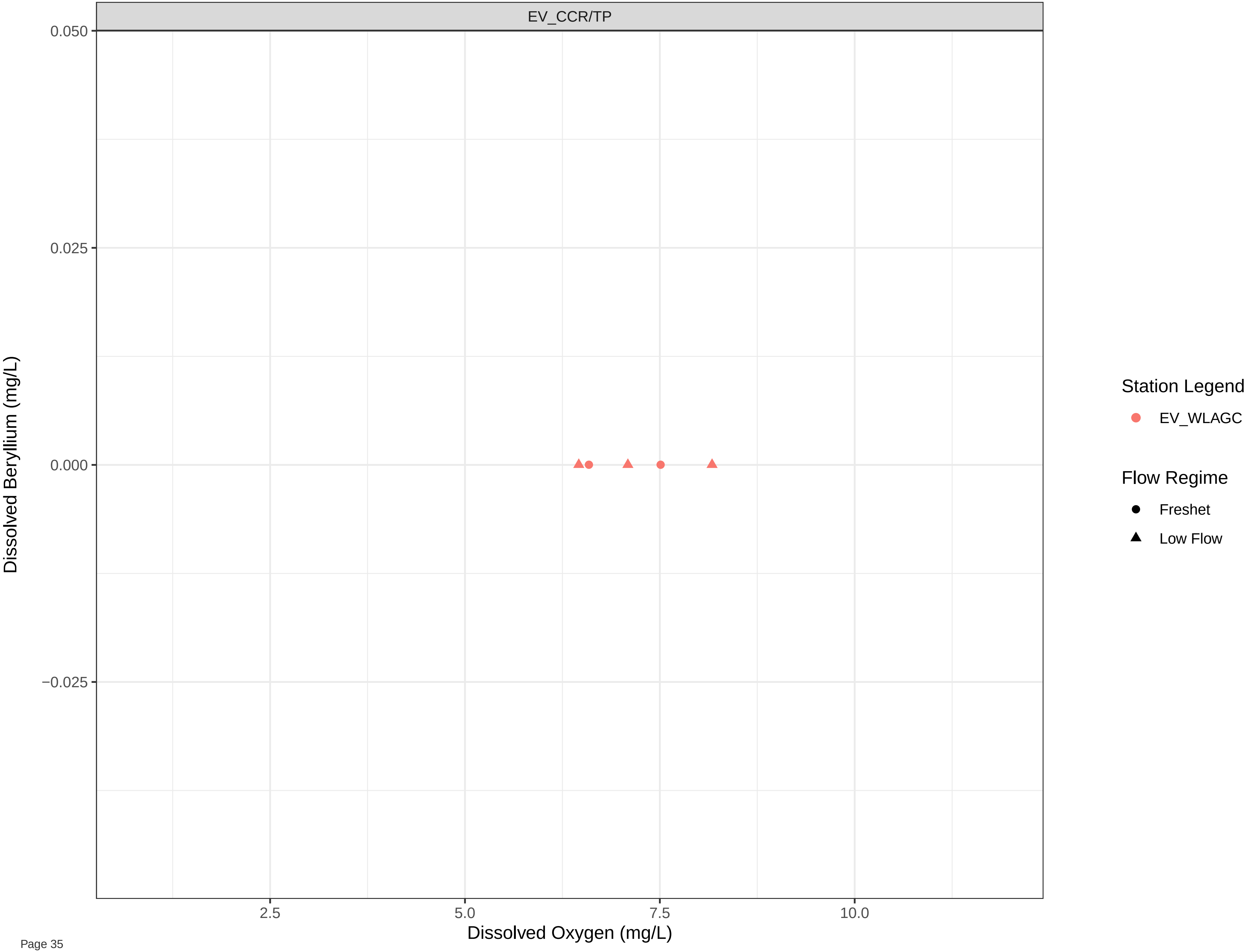

EV_PLANT
Dissolved Barium (mg/L)
0.3
0.2
0.1
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_SEEP_PLANT1
● EV_SEEP_PLANT10
● EV_SEEP_PLANT11
● EV_SEEP_PLANT23
Flow Regime
● Freshet
▲ Low Flow

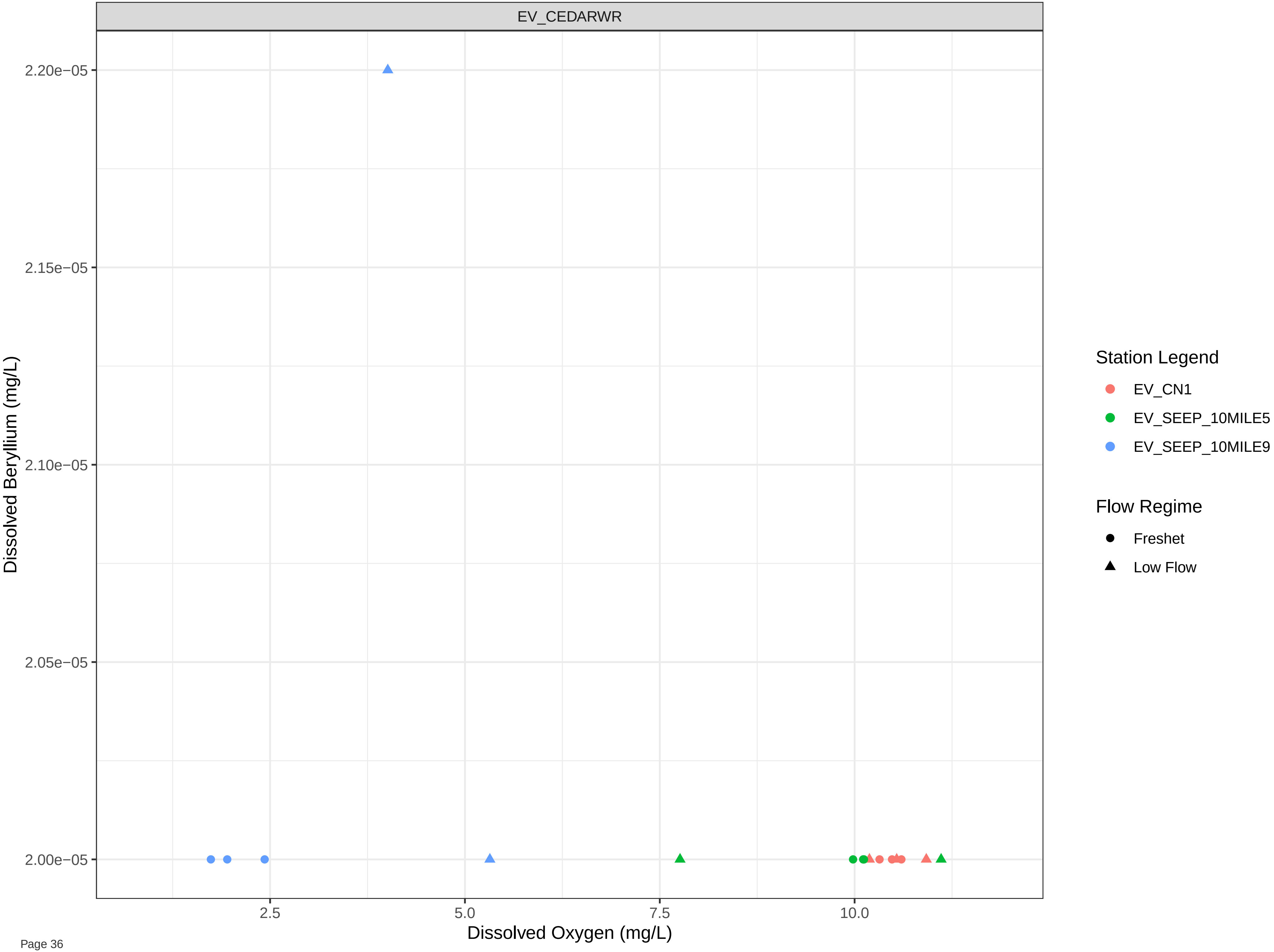

EV_SOUTHSLOPE
Dissolved Barium (mg/L)
4
3
2
1
0
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

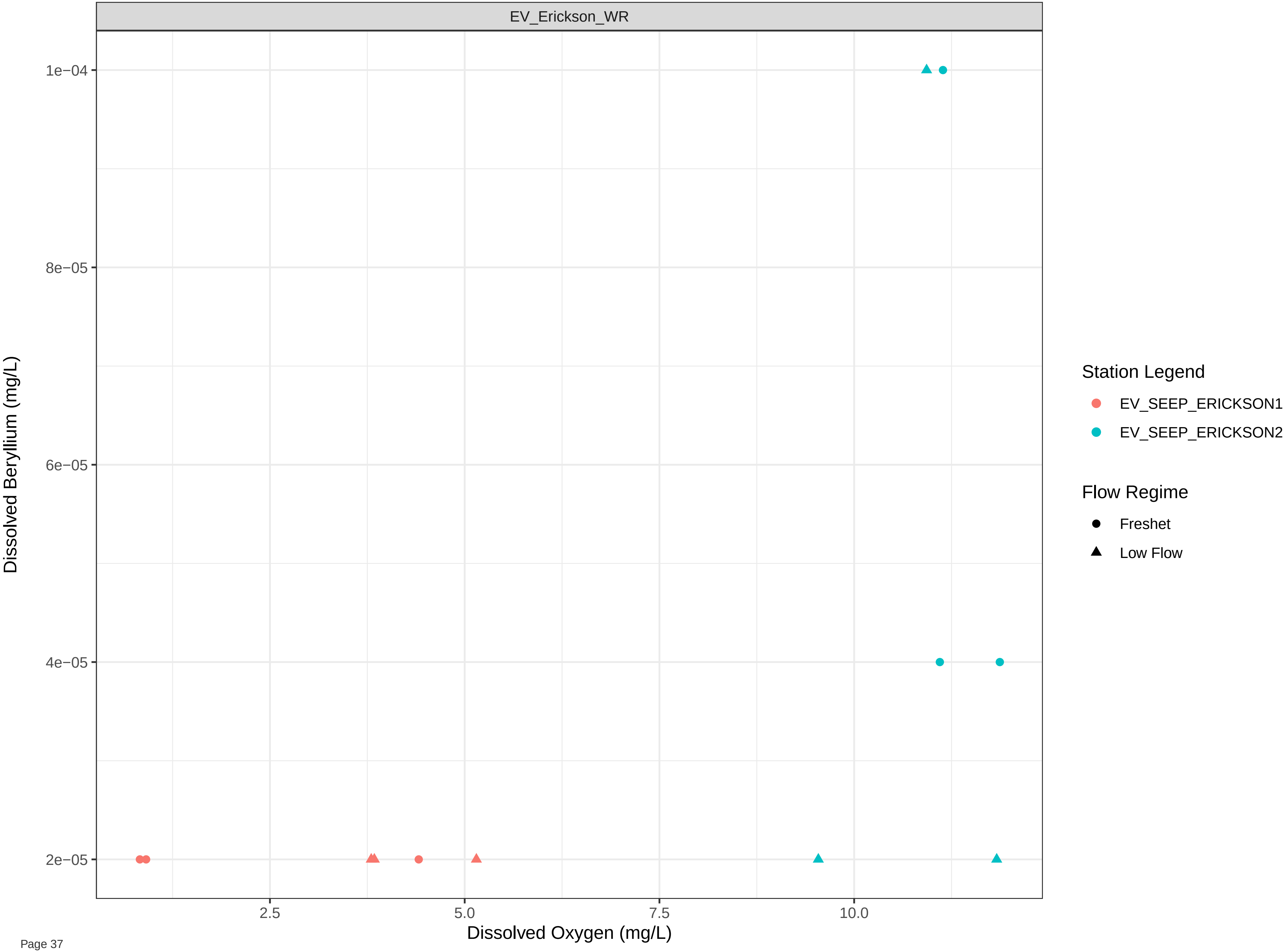

EV_SouthPit_Pit
Dissolved Barium (mg/L)
0.0350
0.0325
0.0300
0.0275
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

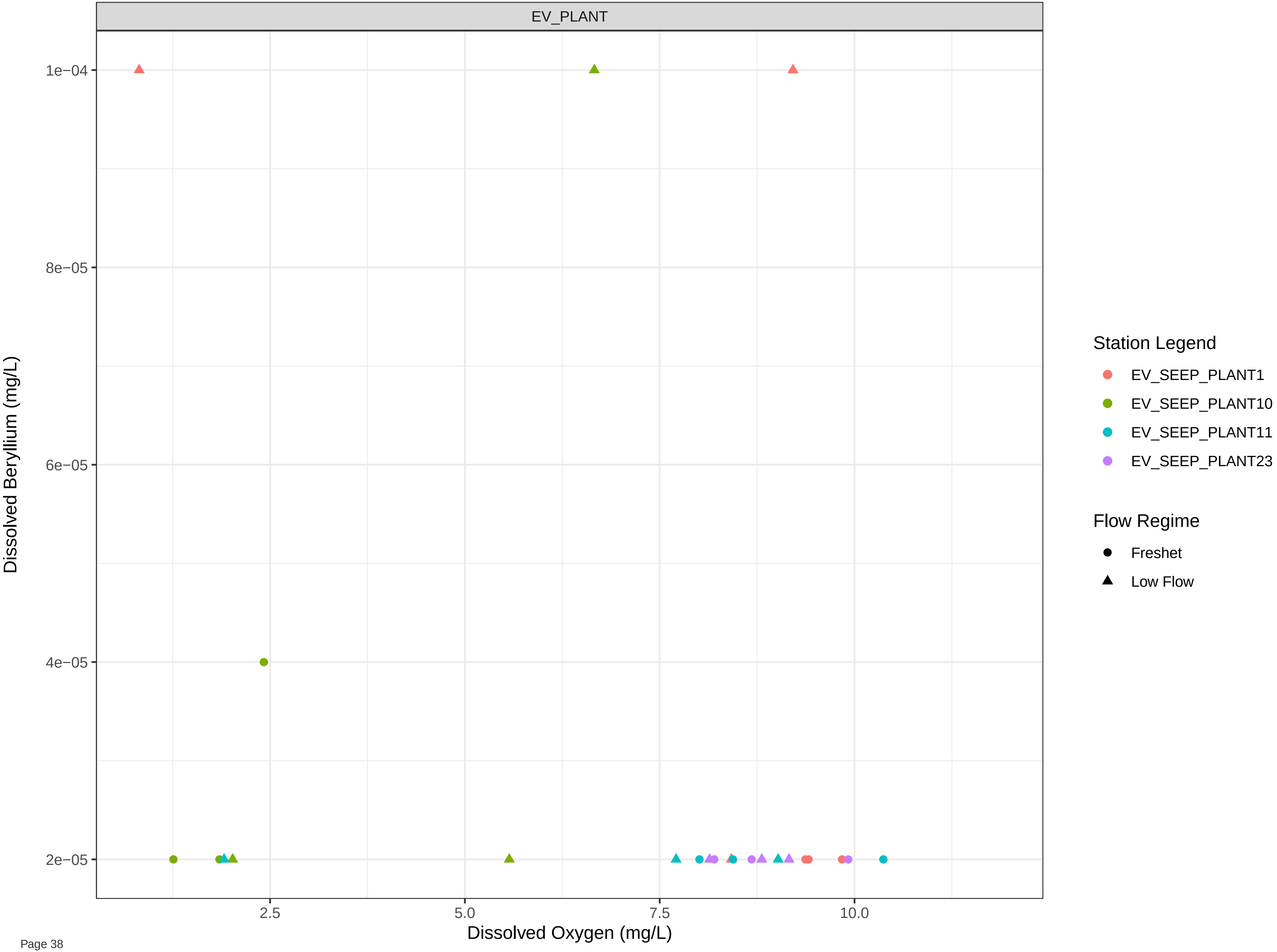

EV_BALDYRIDGEWR
1e−04
8e−05
6e−05
4e−05
2e−05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Dissolved Beryllium (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

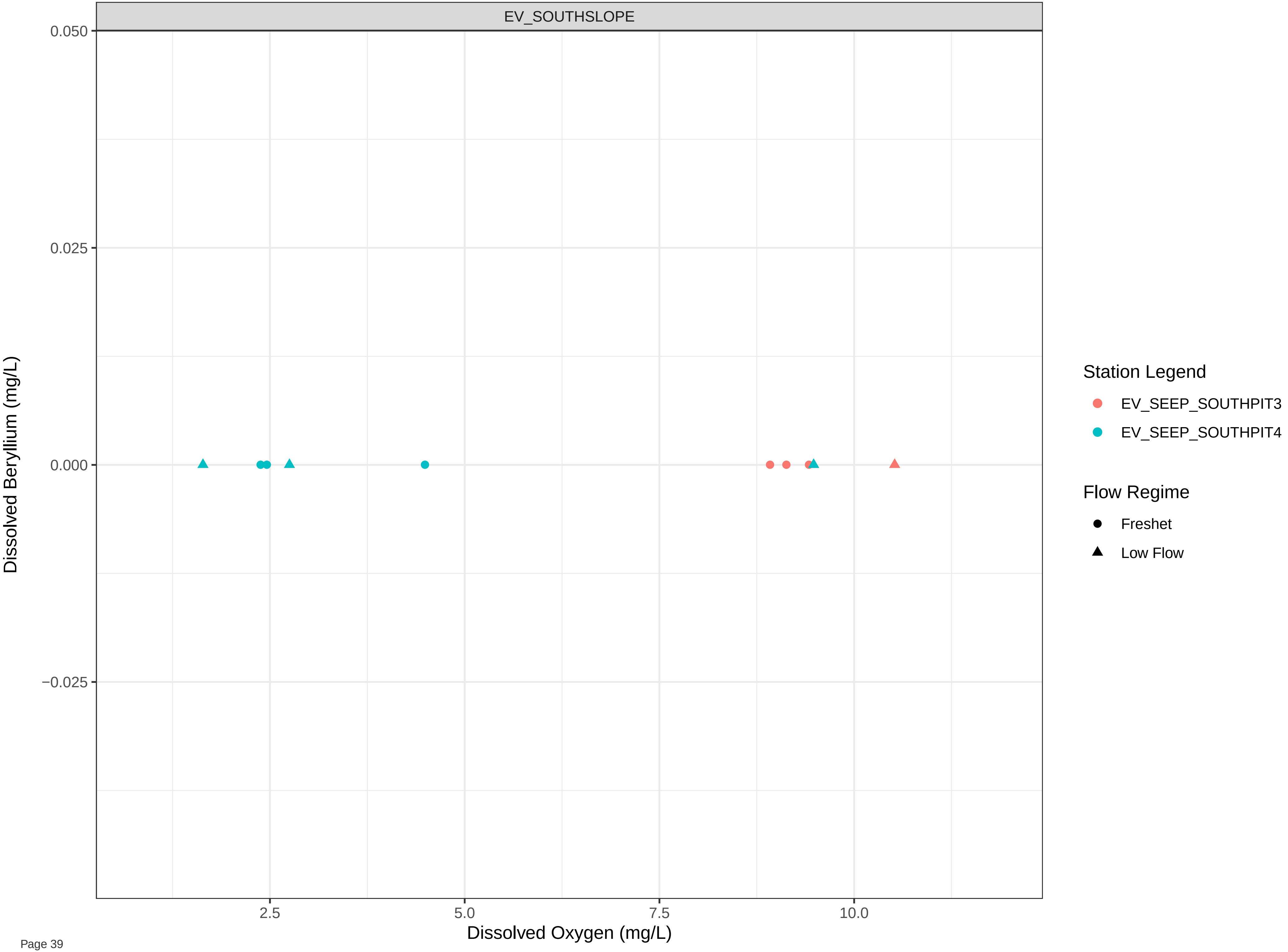

EV_CCR
Dissolved Beryllium (mg/L)
4.0e−05
3.5e−05
3.0e−05
2.5e−05
2.0e−05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

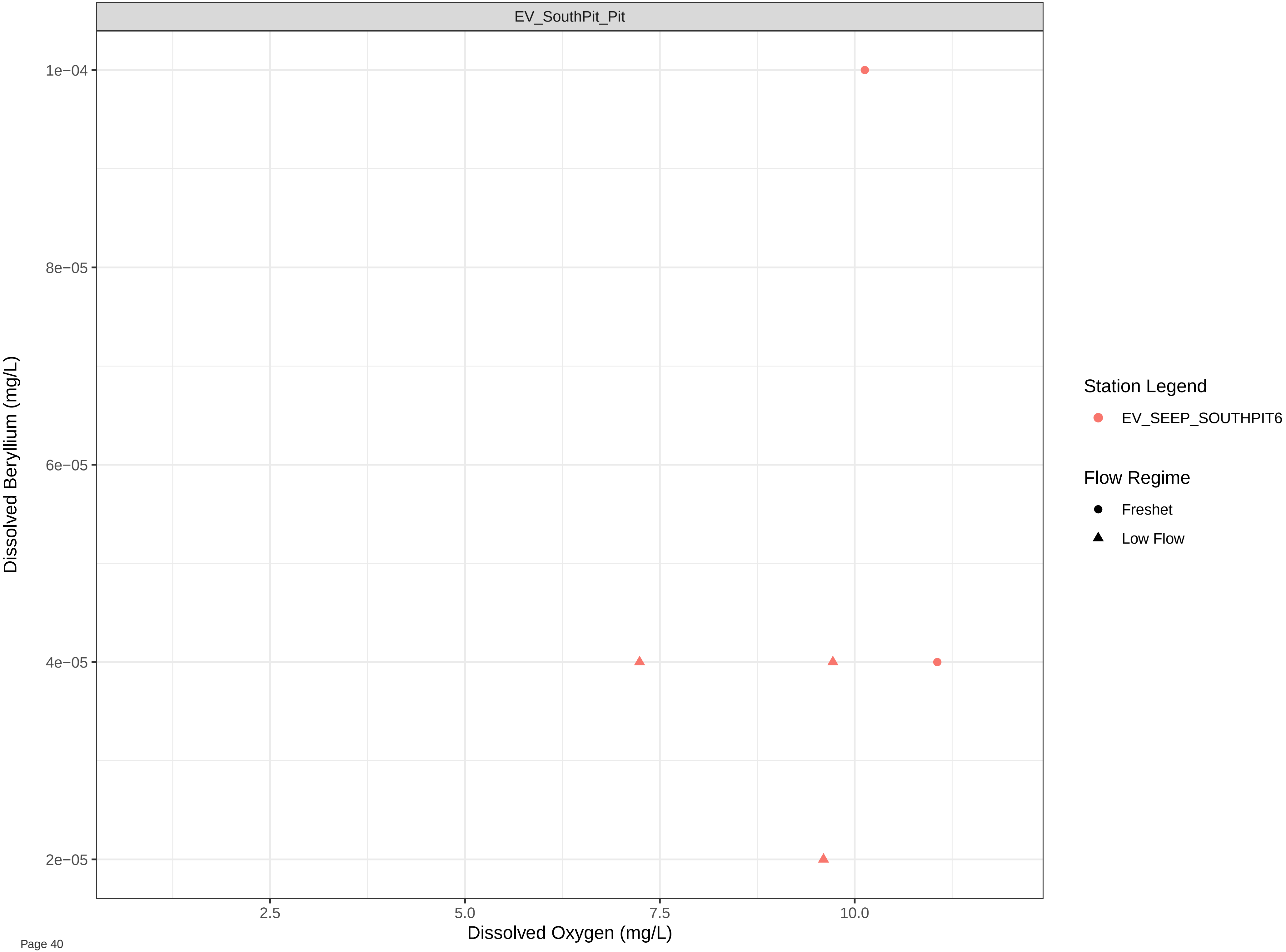

EV_CCR/TP
0.050
0.025
0.000
−0.025
Dissolved Beryllium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

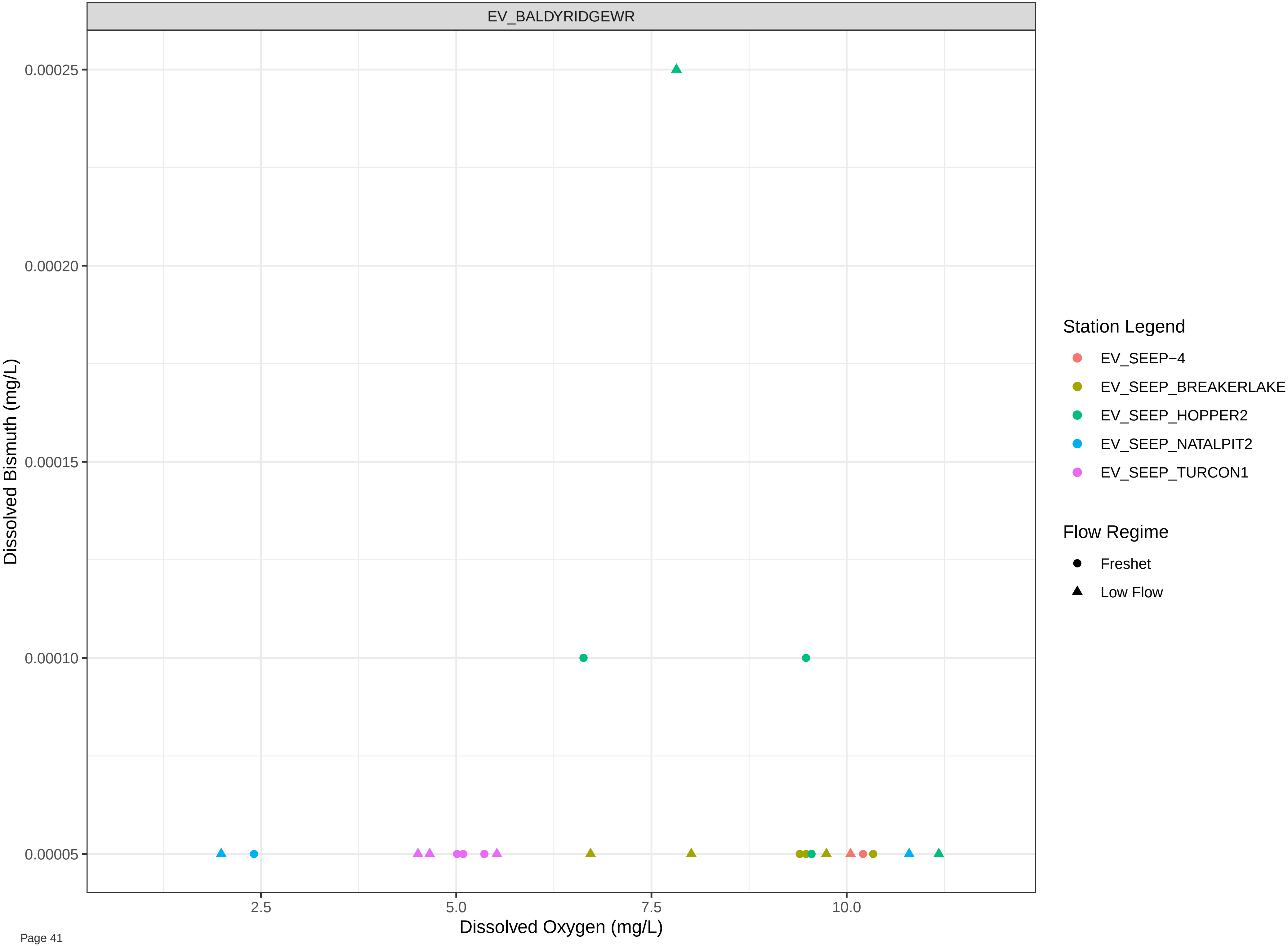

EV_CEDARWR
2.20e−05
2.15e−05
2.10e−05
2.05e−05
2.00e−05
Dissolved Beryllium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

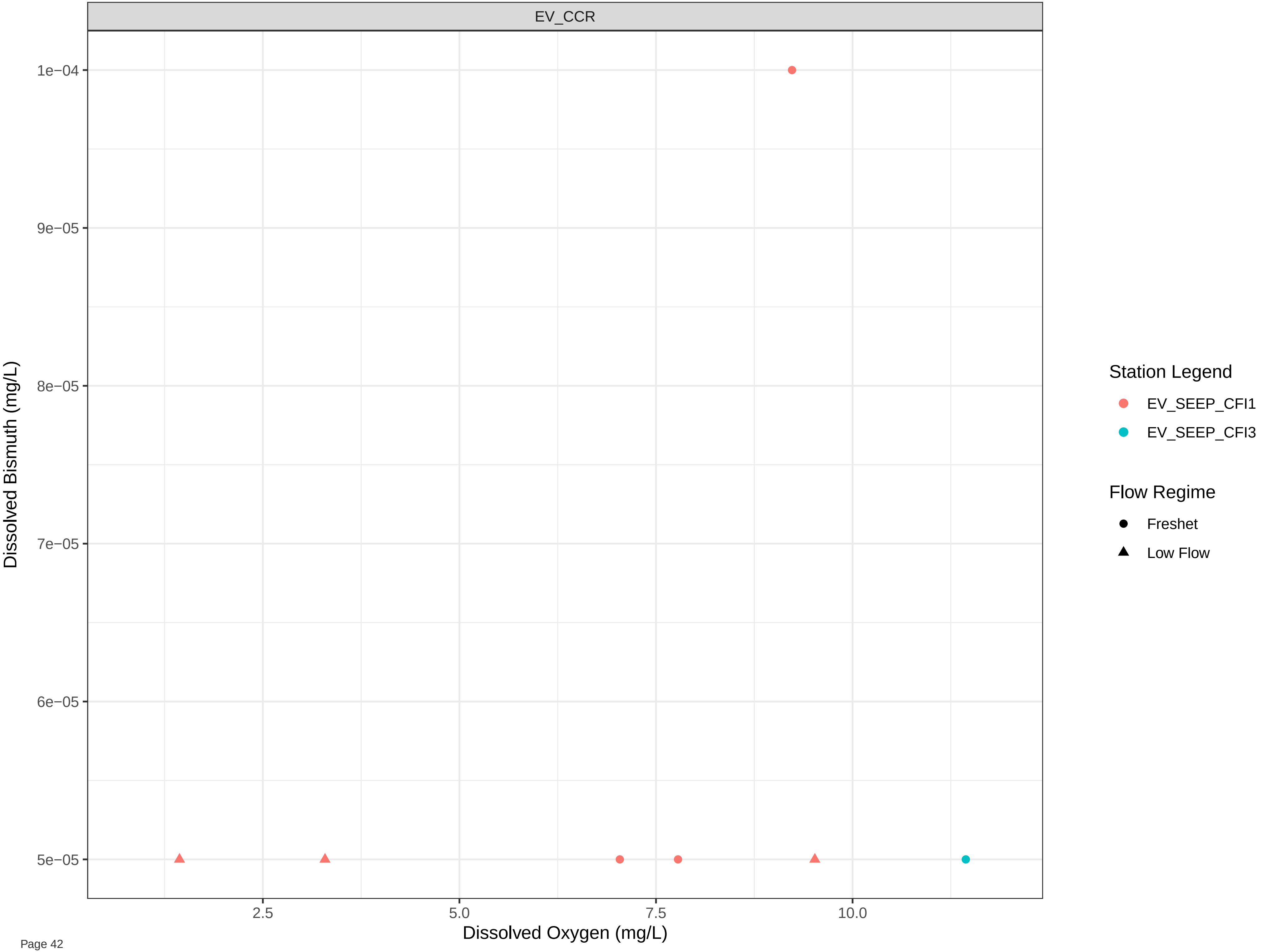

EV_Erickson_WR
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

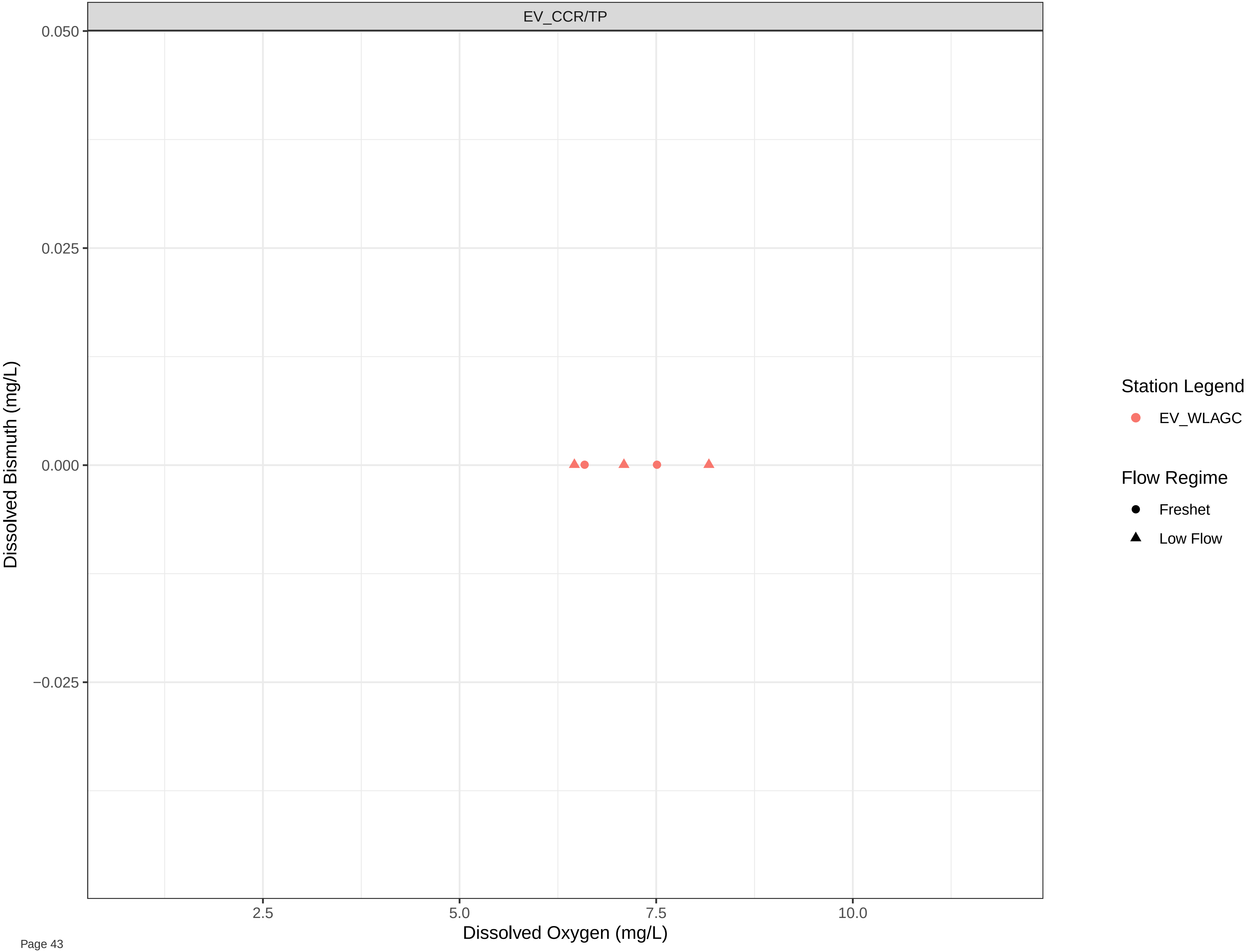

EV_PLANT
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

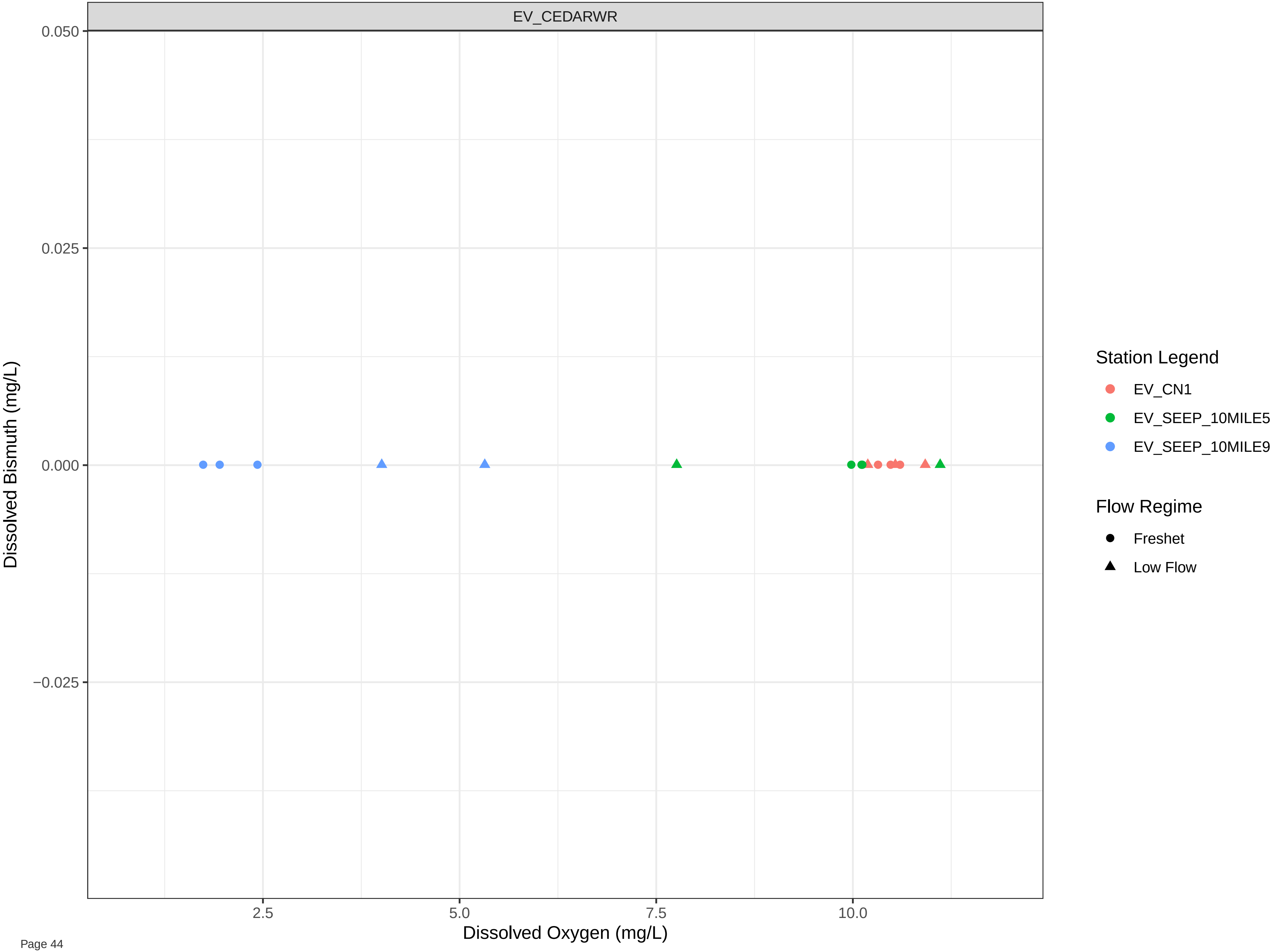

EV_SOUTHSLOPE
Dissolved Beryllium (mg/L)
0.050
0.025
0.000
−0.025
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

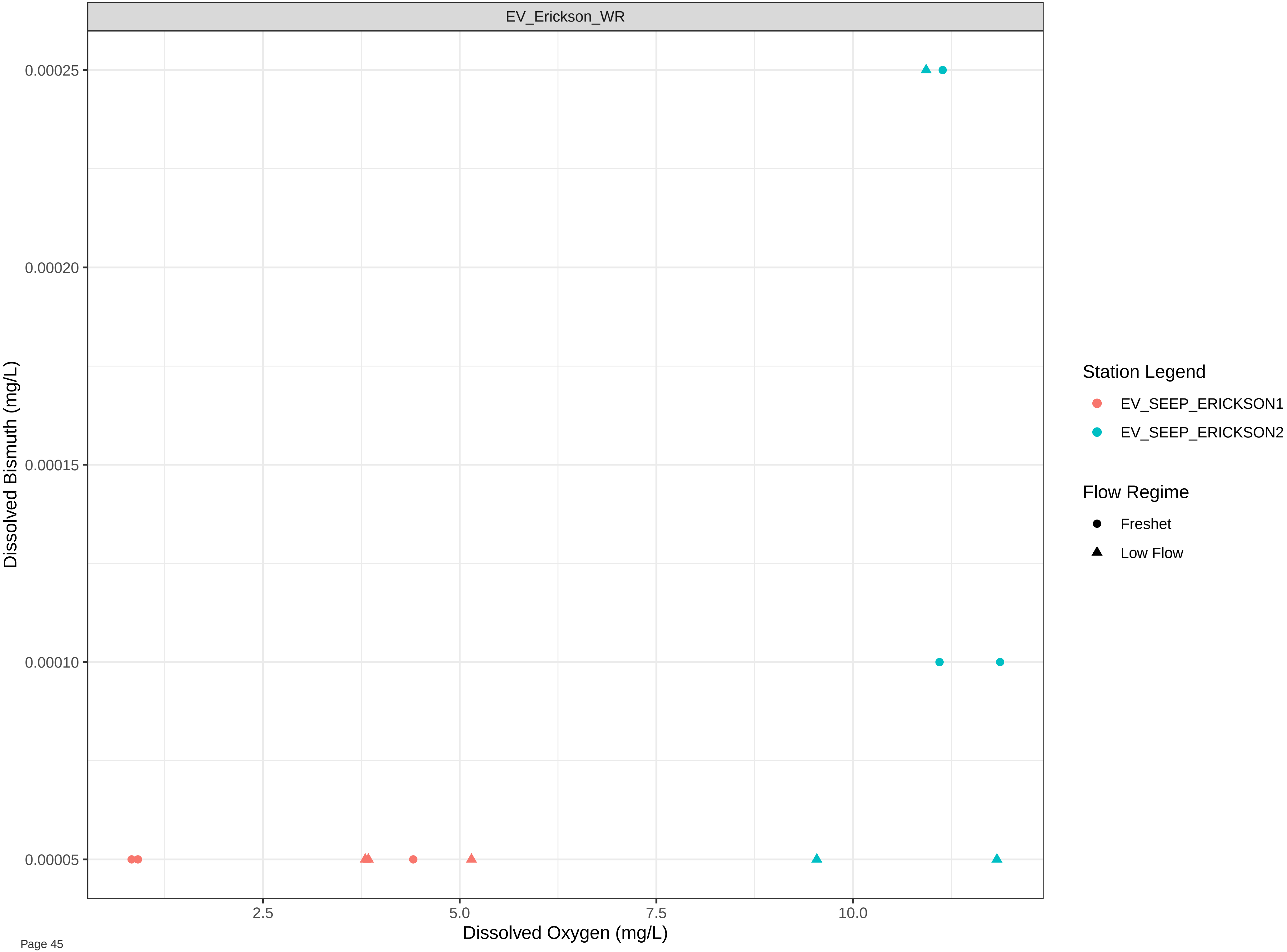

EV_SouthPit_Pit
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

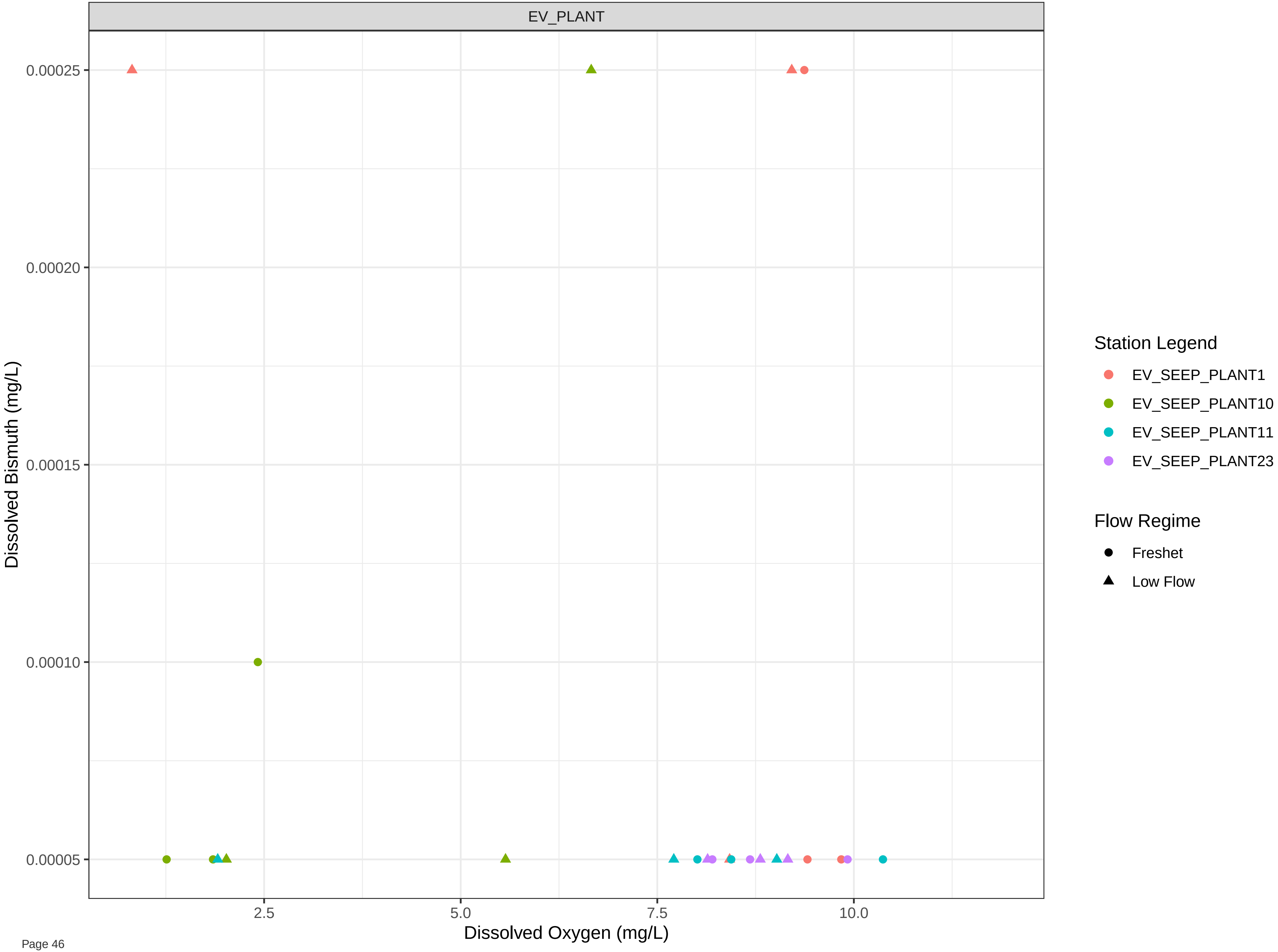

EV_BALDYRIDGEWR
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

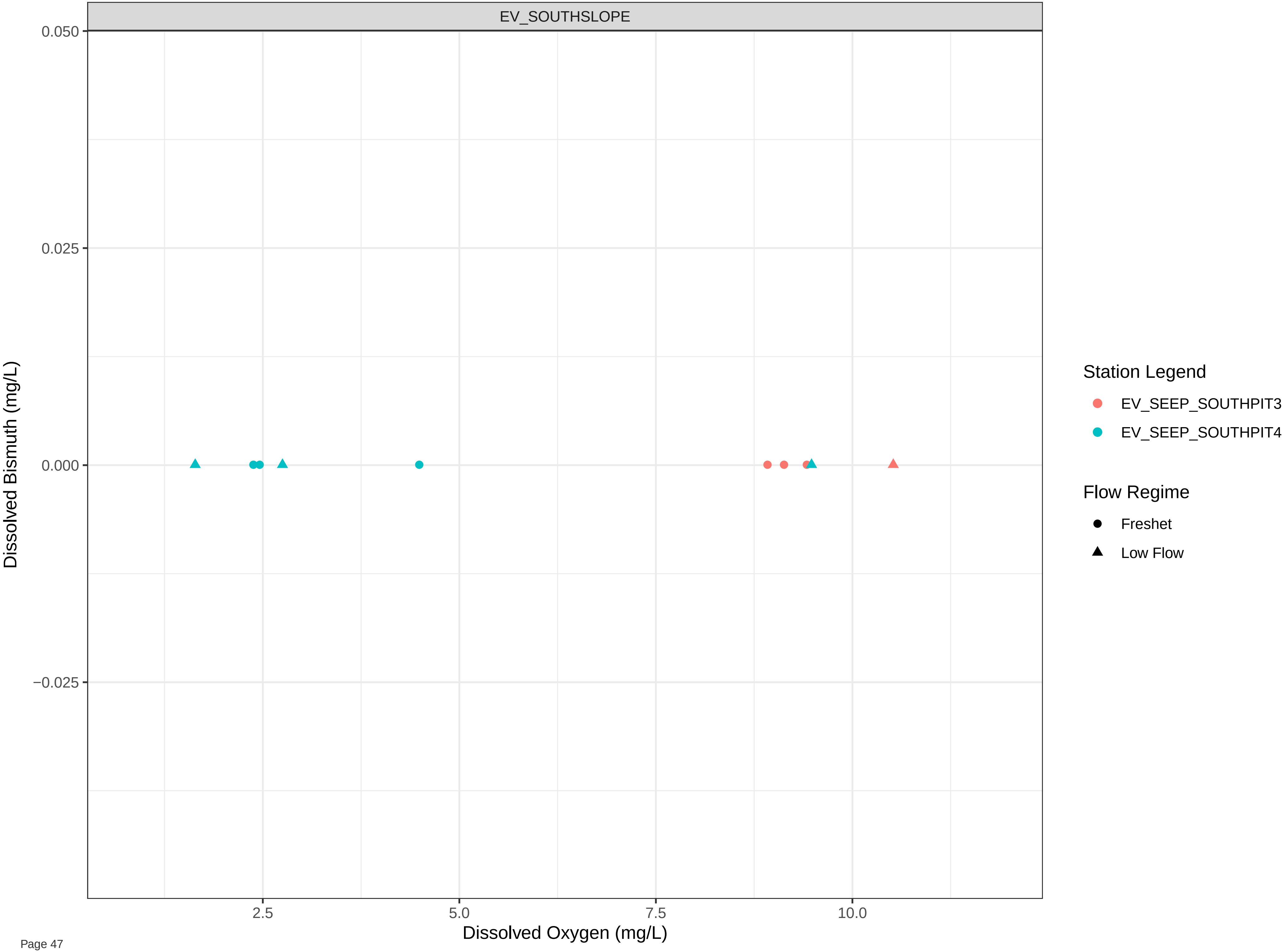

EV_CCR
Dissolved Bismuth (mg/L)
1e−04
9e−05
8e−05
7e−05
6e−05
5e−05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

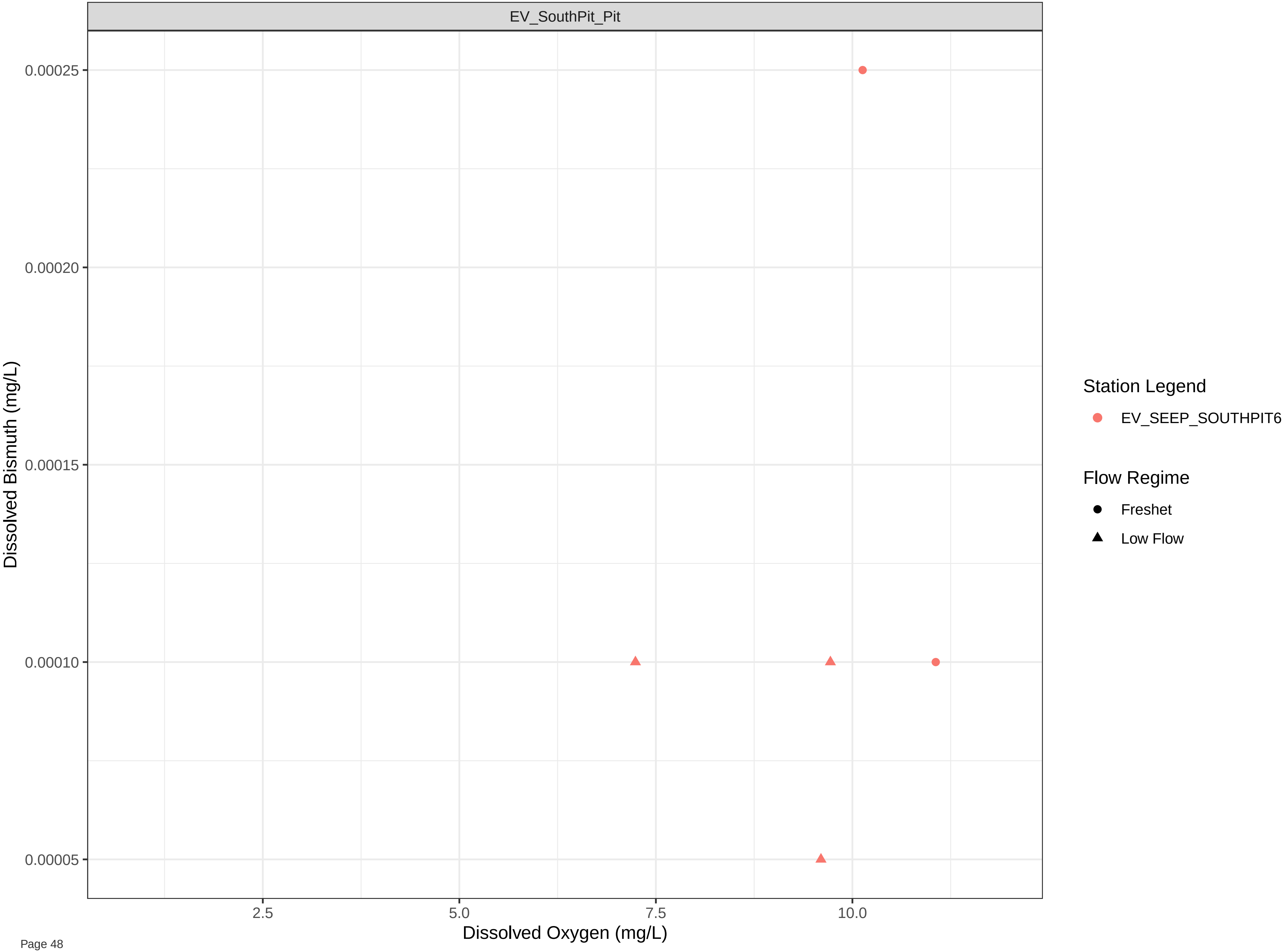

EV_CCR/TP
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

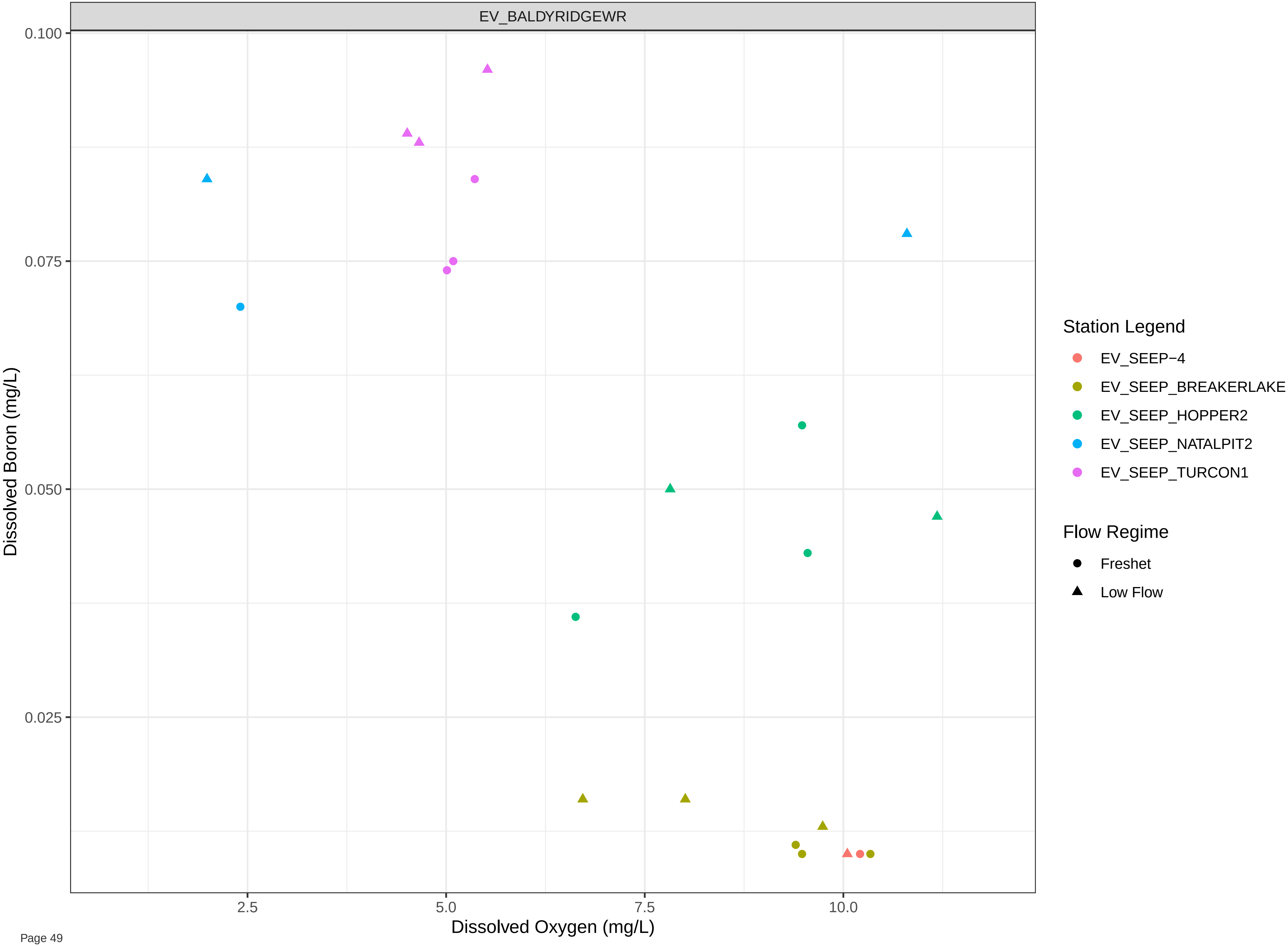

EV_CEDARWR
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

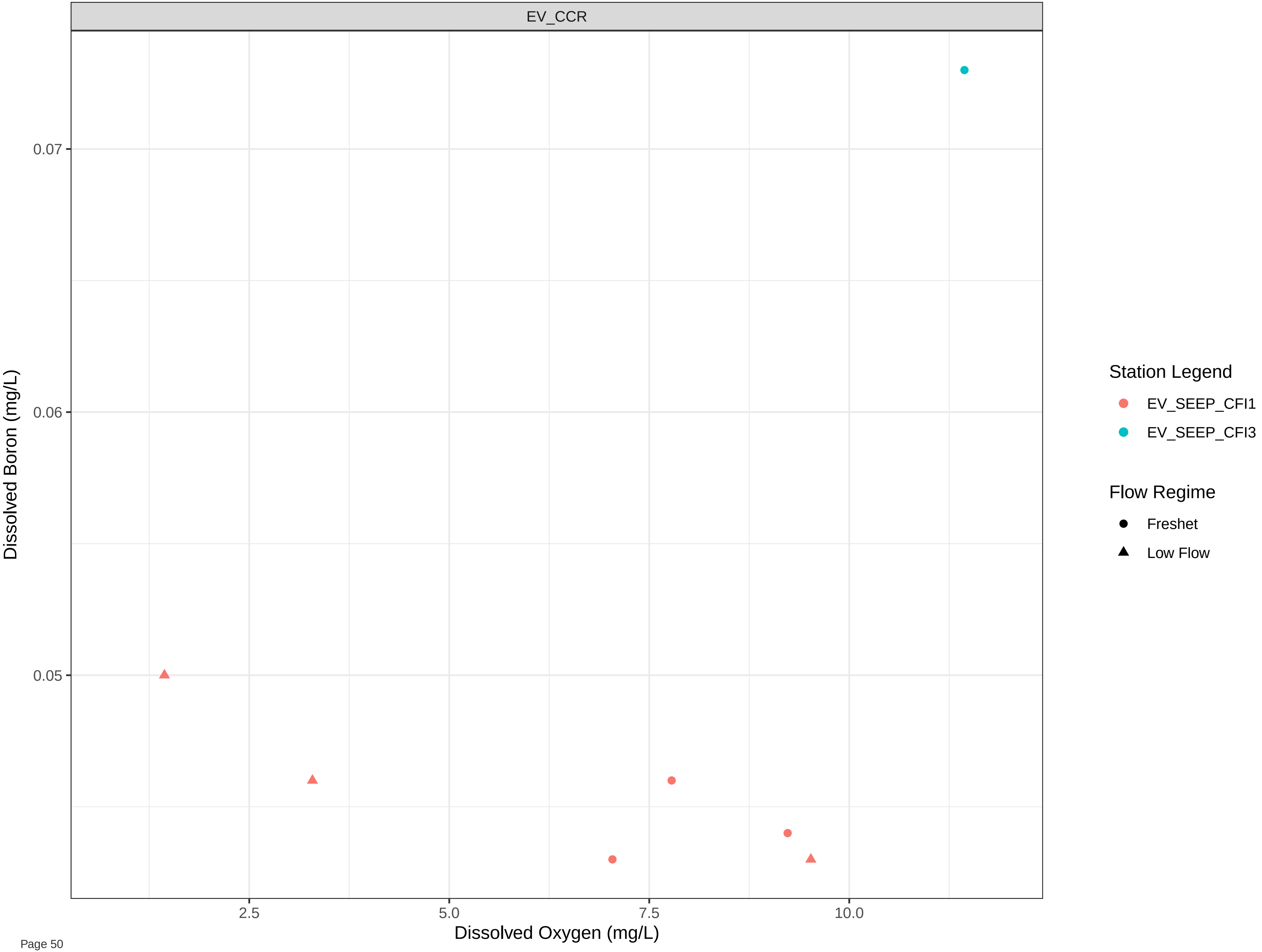

EV_Erickson_WR
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

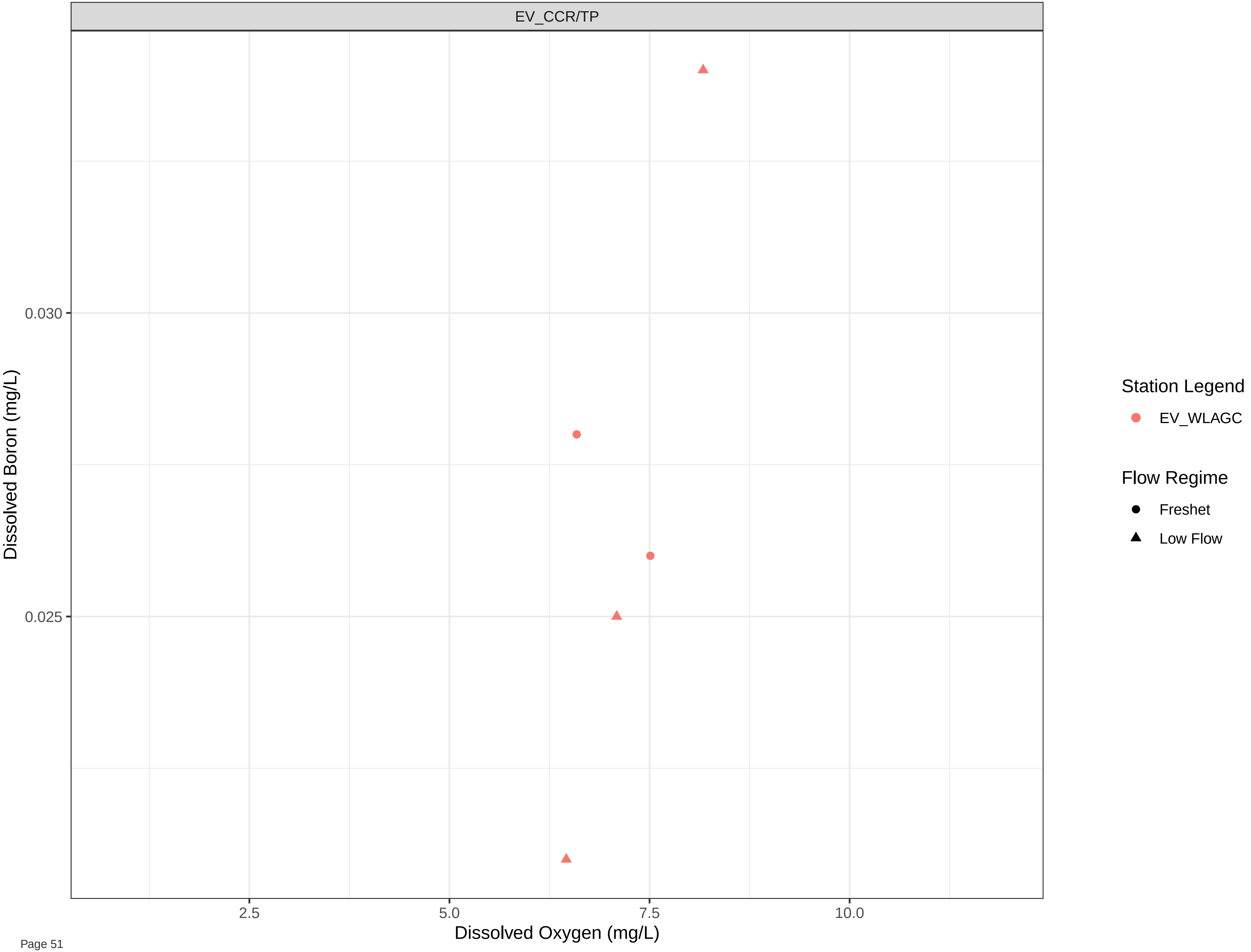

EV_PLANT
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_SEEP_PLANT1
● EV_SEEP_PLANT10
● EV_SEEP_PLANT11
● EV_SEEP_PLANT23
Flow Regime
● Freshet
▲ Low Flow

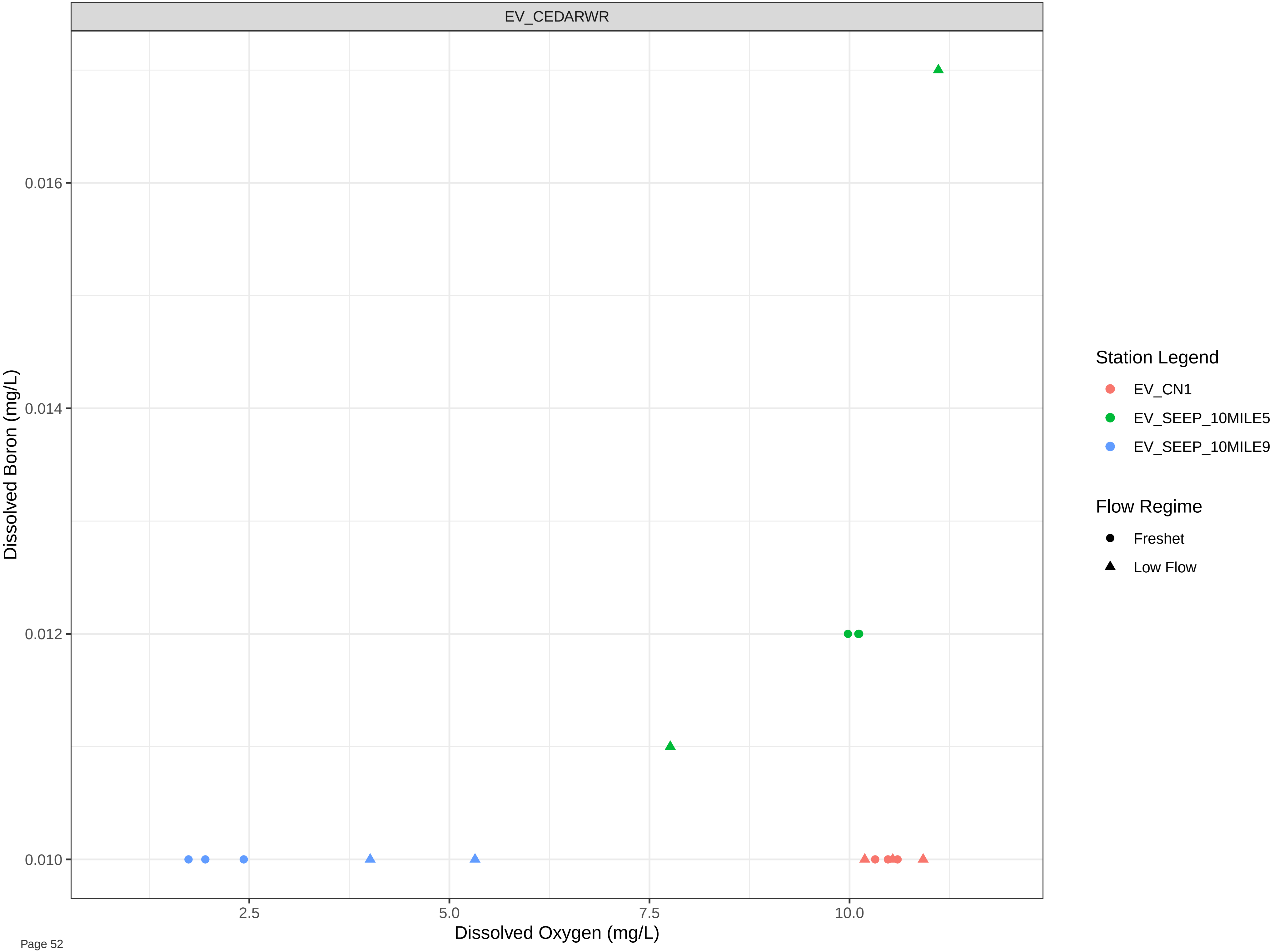

EV_SOUTHSLOPE
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

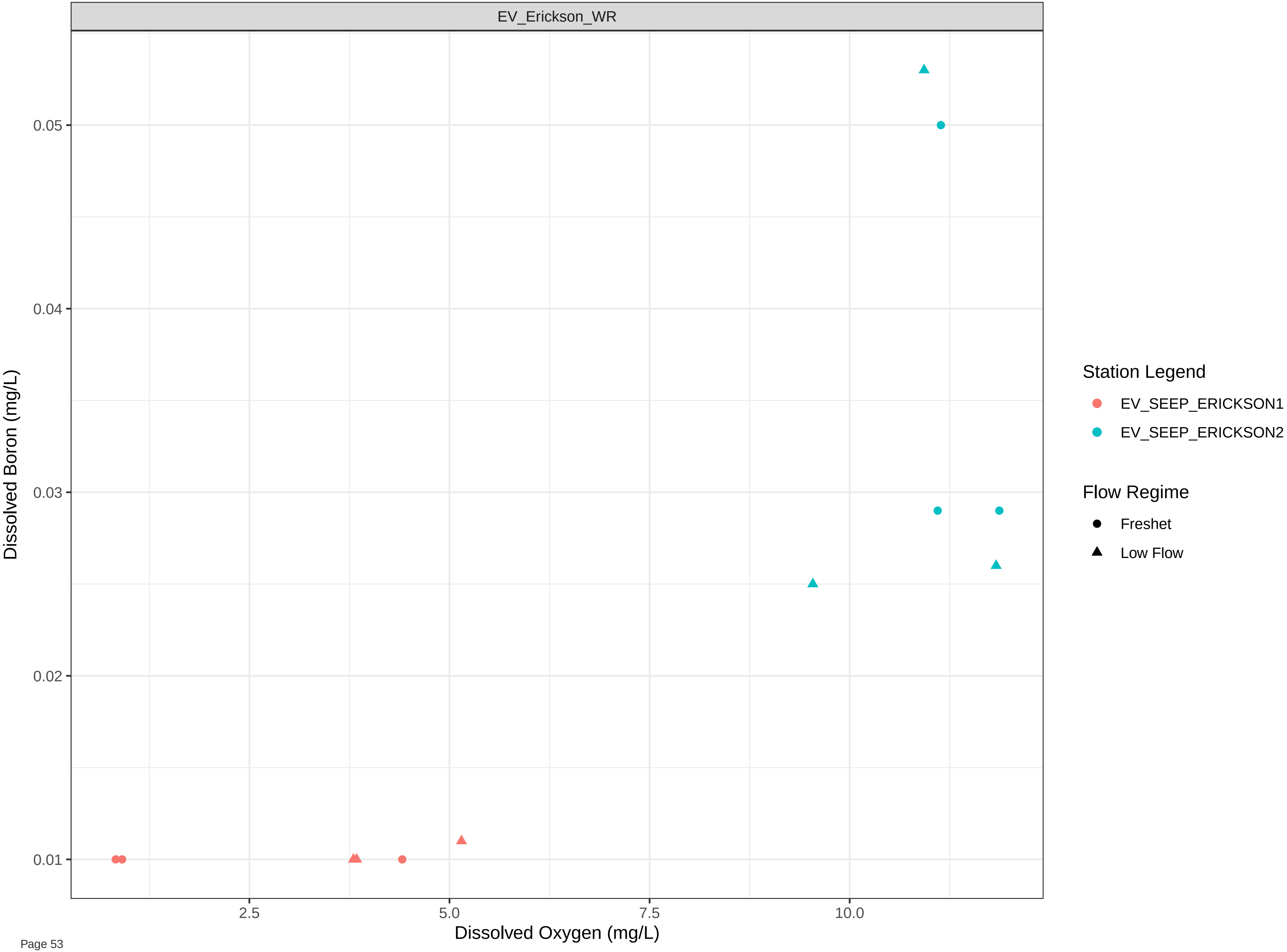

EV_SouthPit_Pit
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

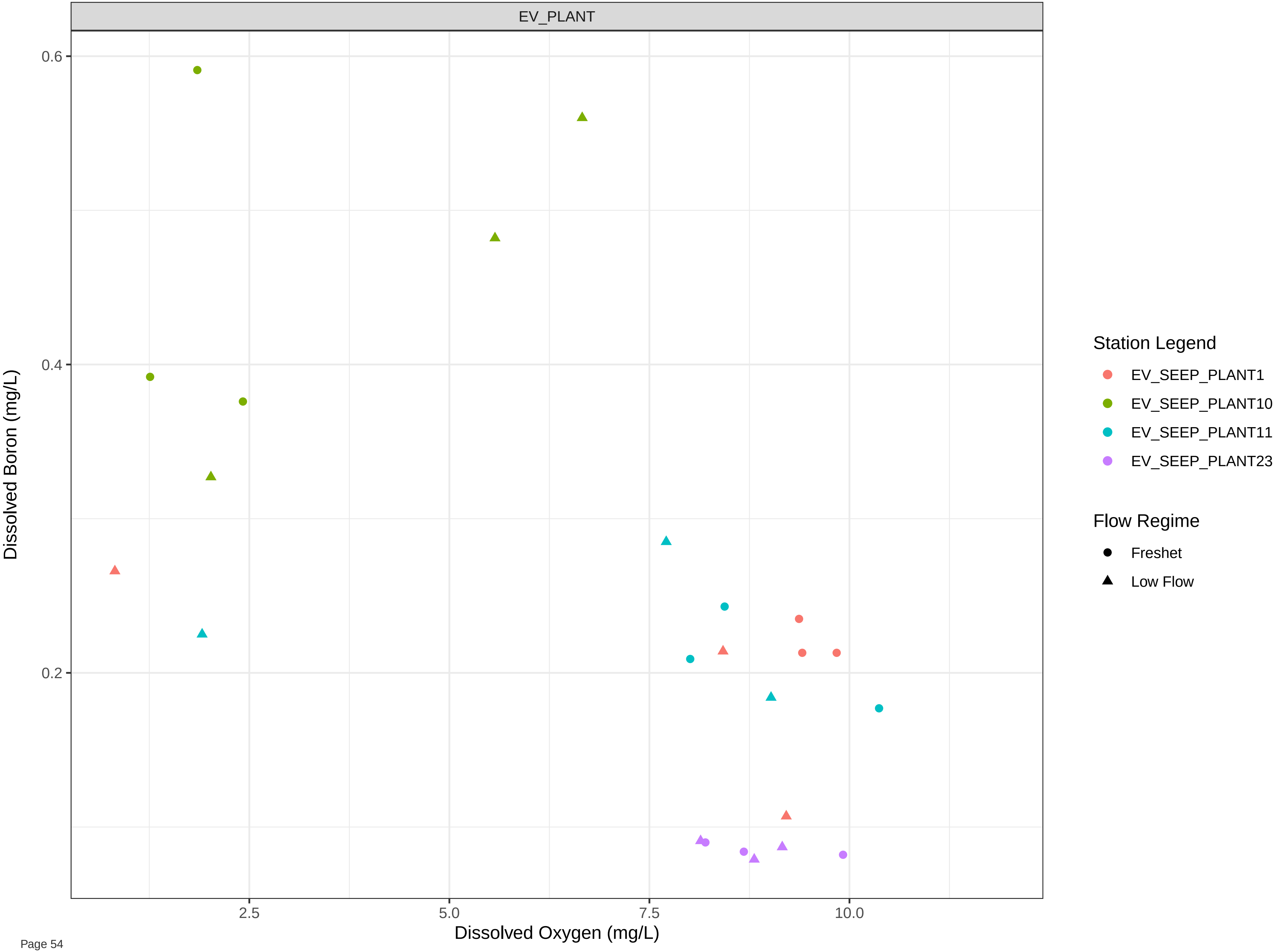

EV_BALDYRIDGEWR
Dissolved Boron (mg/L)
0.100
0.075
0.050
0.025
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

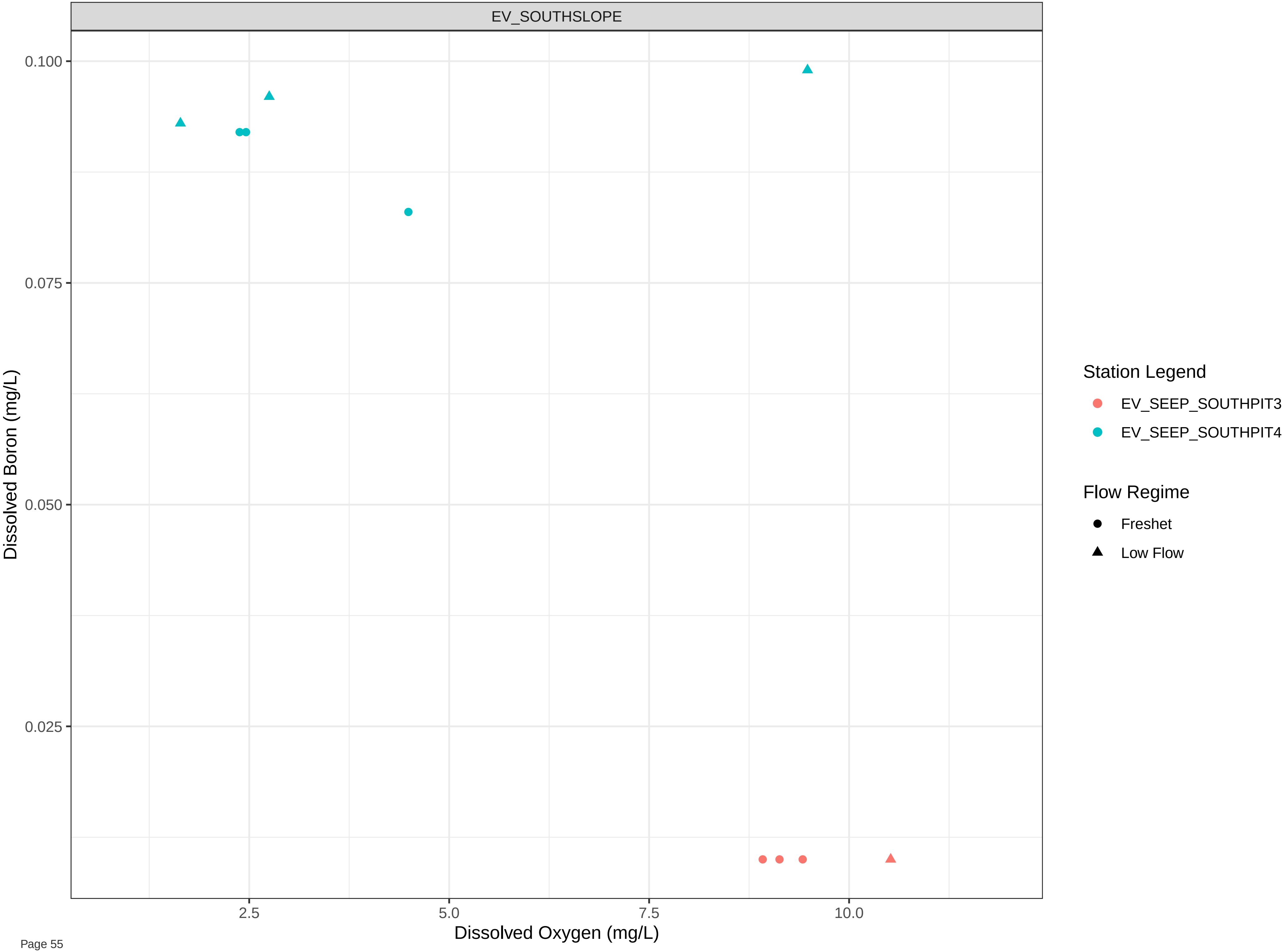

EV_CCR
Dissolved Boron (mg/L)
0.07
0.06
0.05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

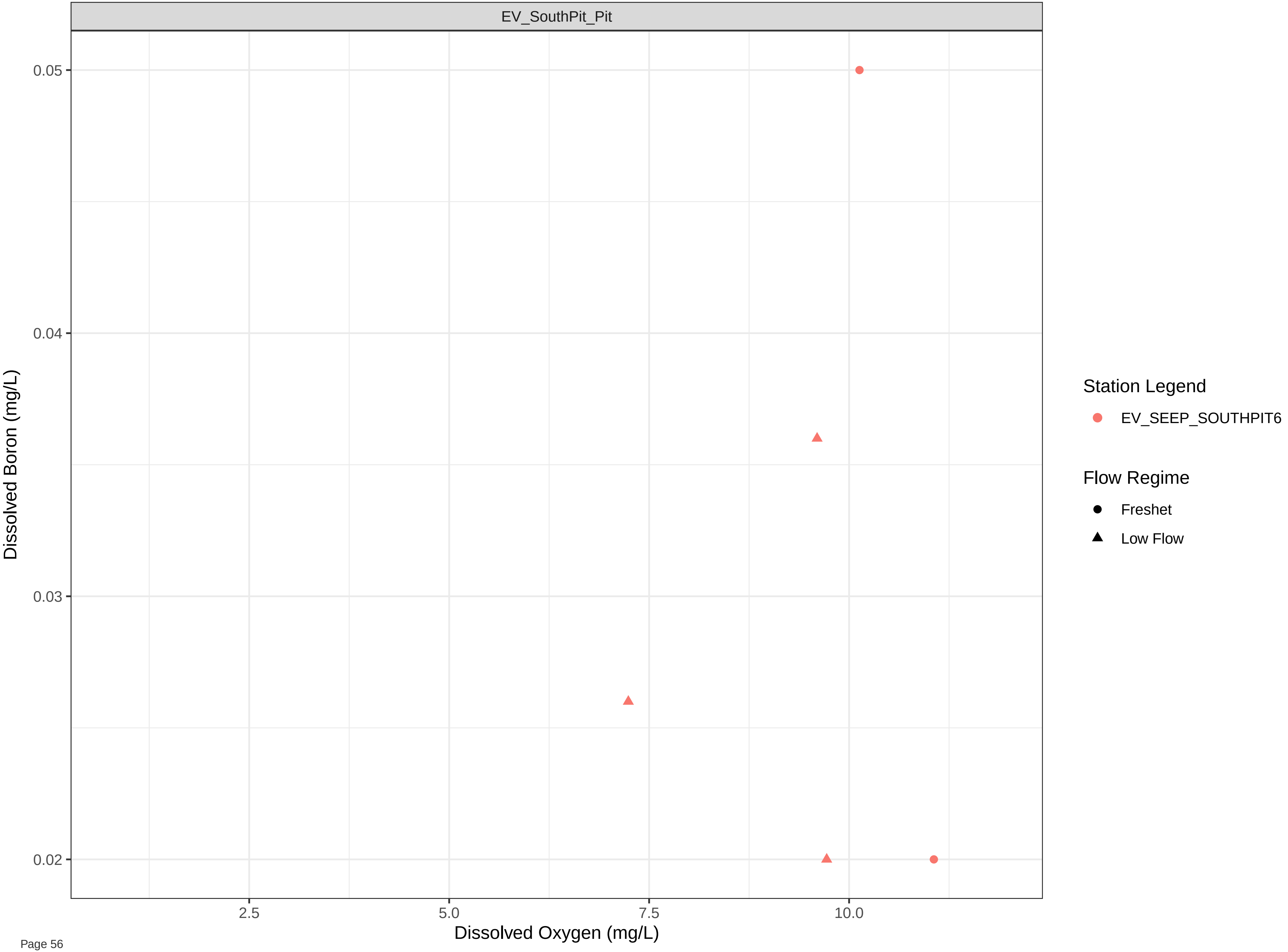

EV_CCR/TP
0.030
0.025
Dissolved Boron (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

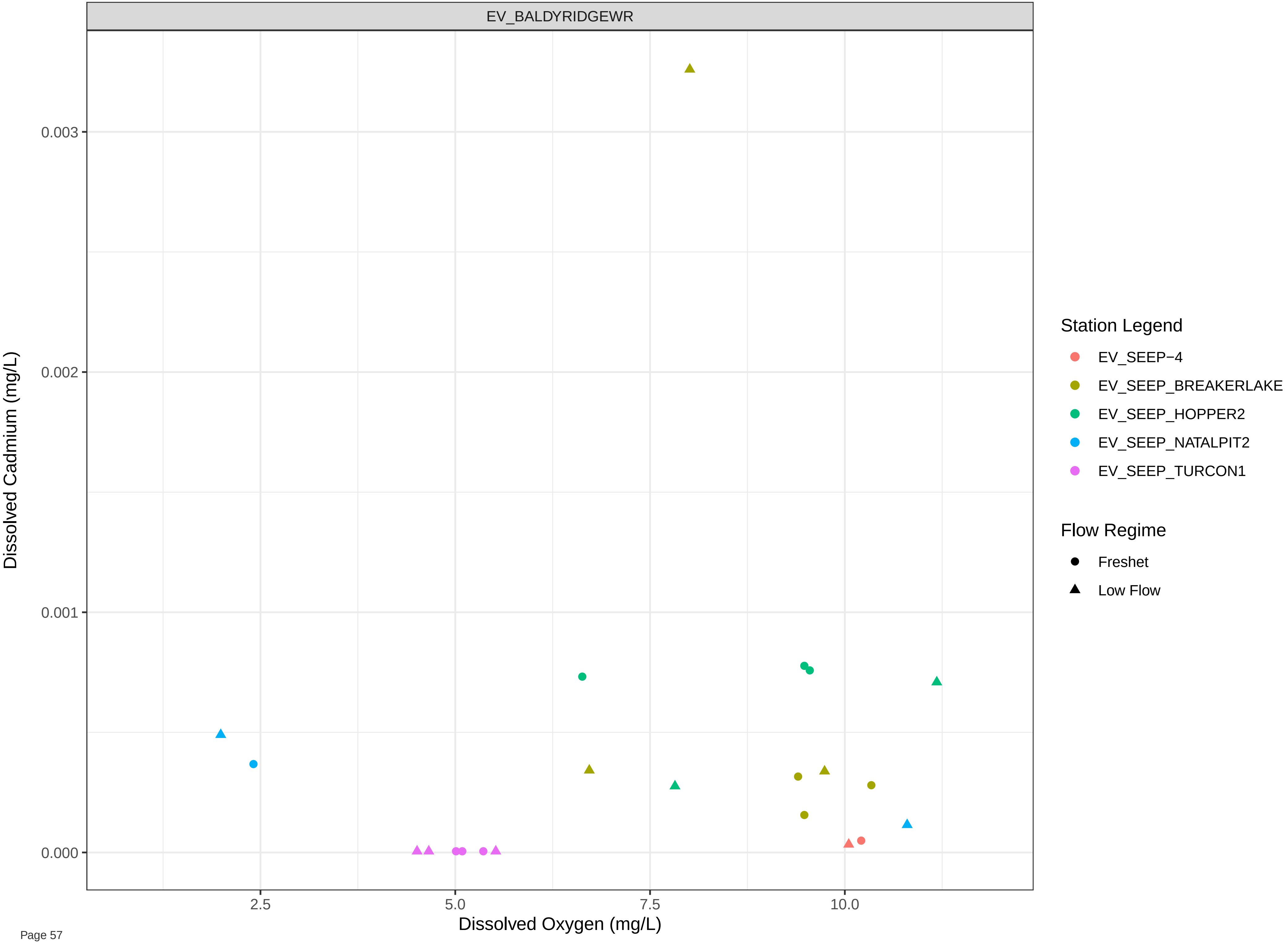

EV_CEDARWR
Dissolved Boron (mg/L)
0.016
0.014
0.012
0.010
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

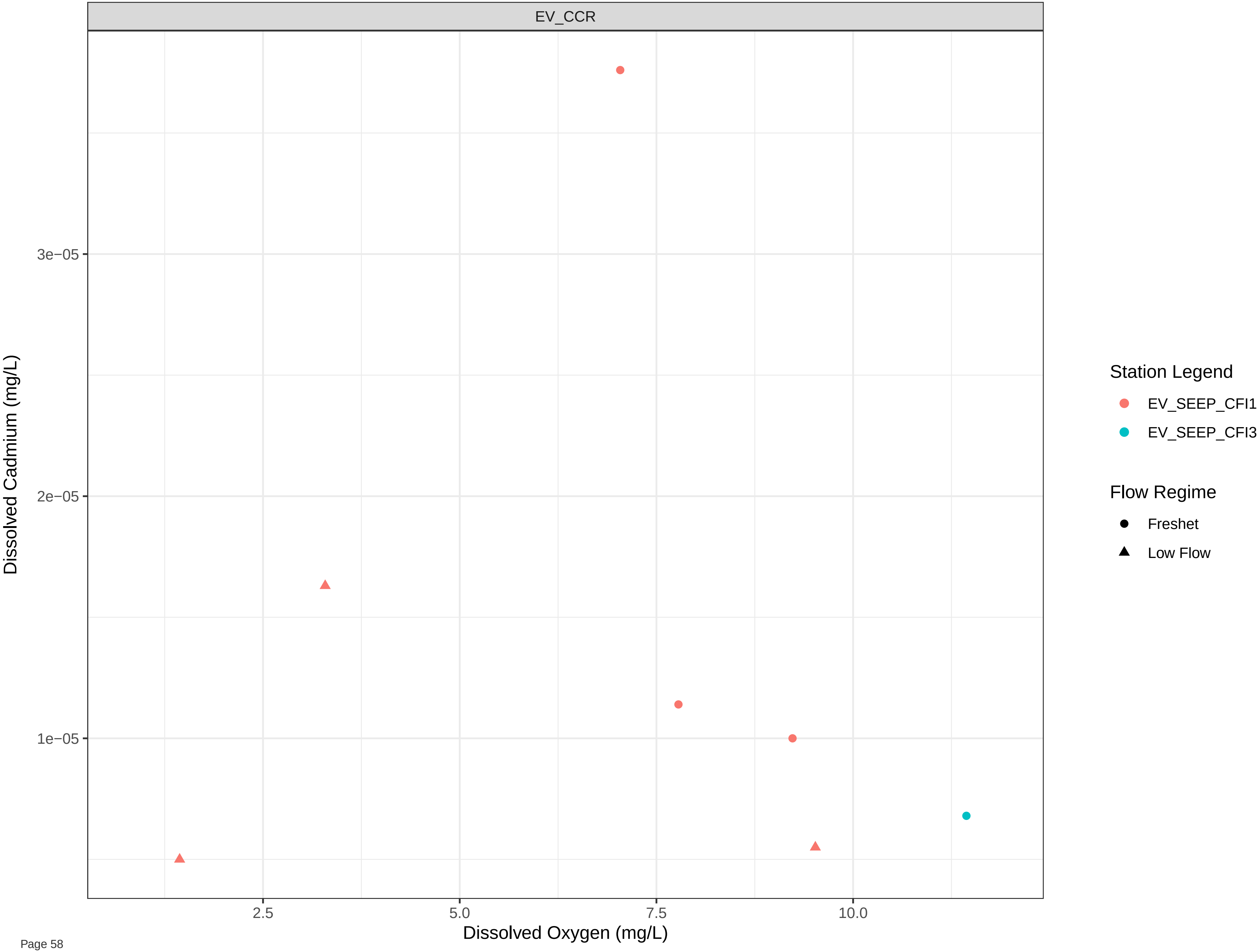

EV_Erickson_WR
Dissolved Boron (mg/L)
0.05
0.04
0.03
0.02
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

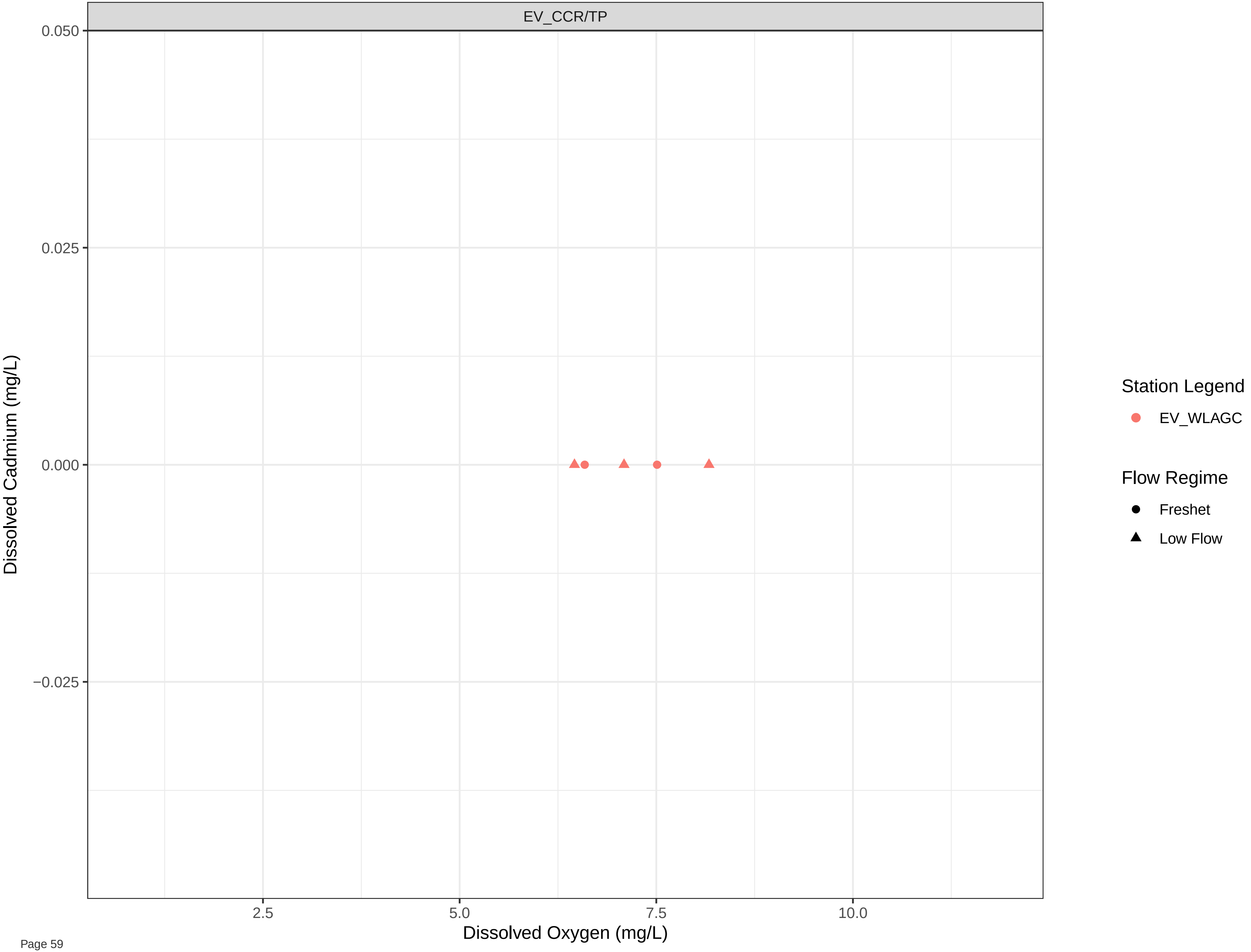

EV_PLANT
0.6
0.4
0.2
Dissolved Boron (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

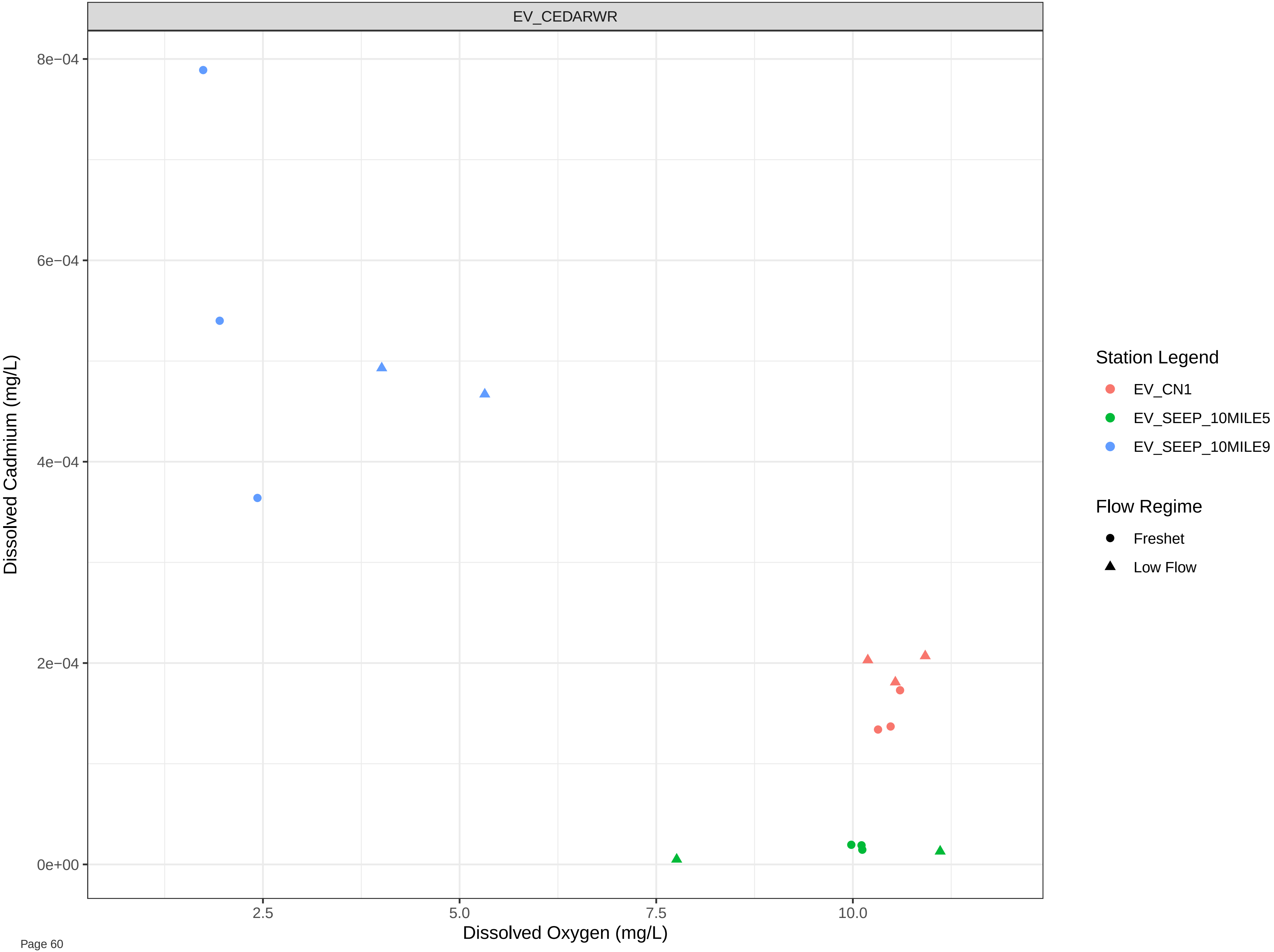

EV_SOUTHSLOPE
Dissolved Boron (mg/L)
0.100
0.075
0.050
0.025
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

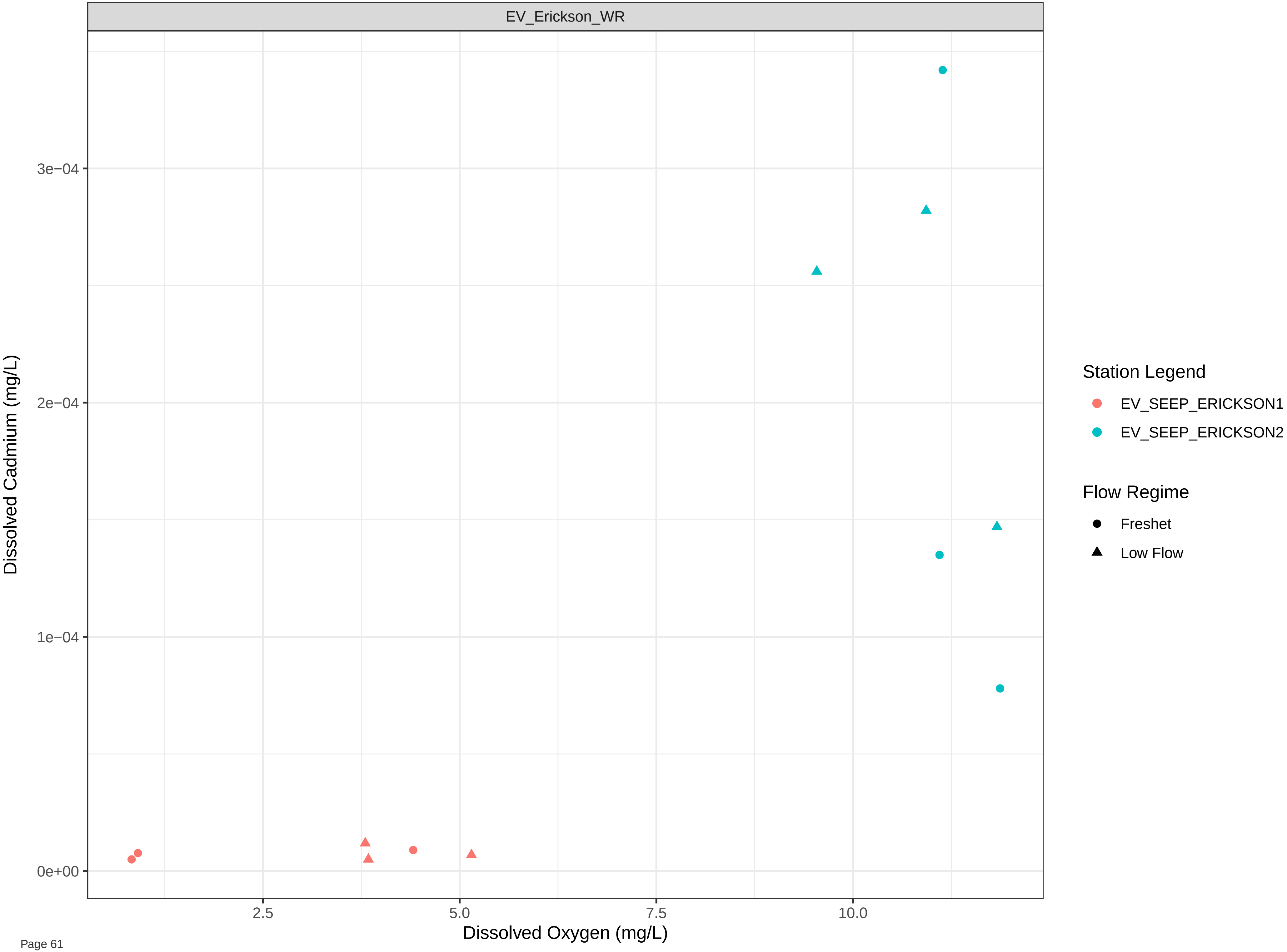

EV_SouthPit_Pit
0.05
0.04
0.03
0.02
Dissolved Boron (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

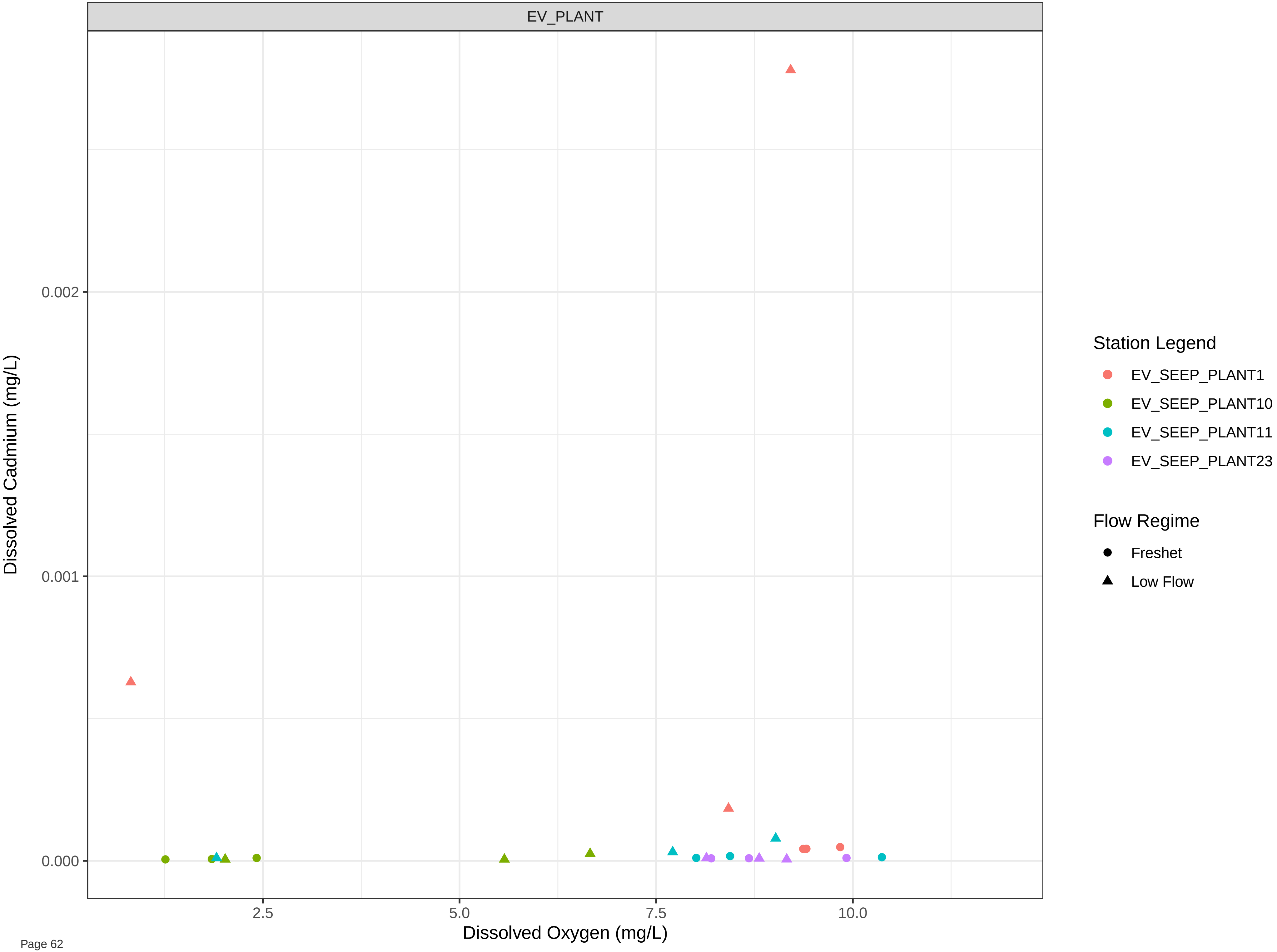

EV_BALDYRIDGEWR
Dissolved Cadmium (mg/L)
0.003
0.002
0.001
0.000
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

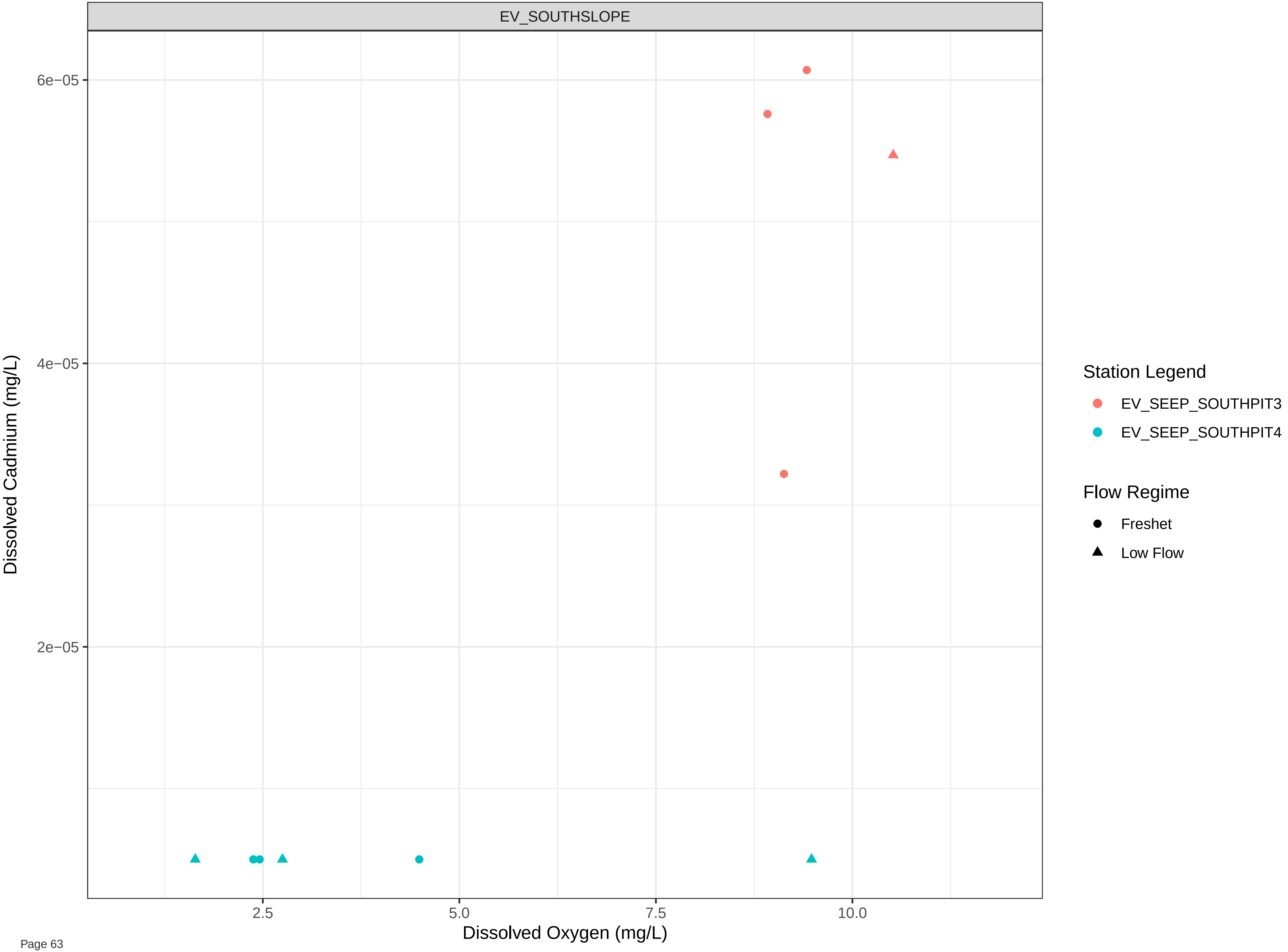

EV_CCR
Dissolved Cadmium (mg/L)
3e−05
2e−05
1e−05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

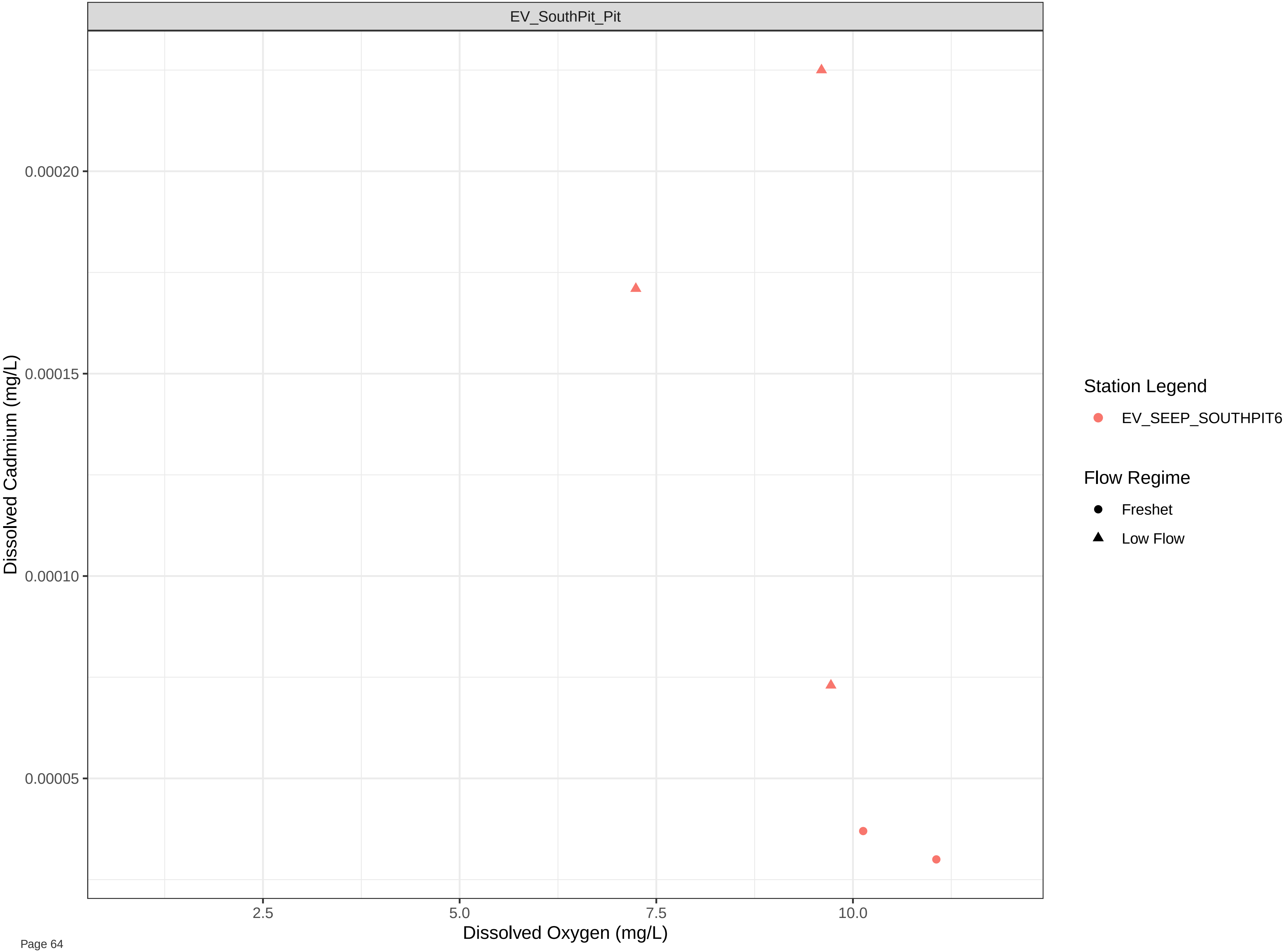

EV_CCR/TP
0.050
0.025
0.000
−0.025
Dissolved Cadmium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

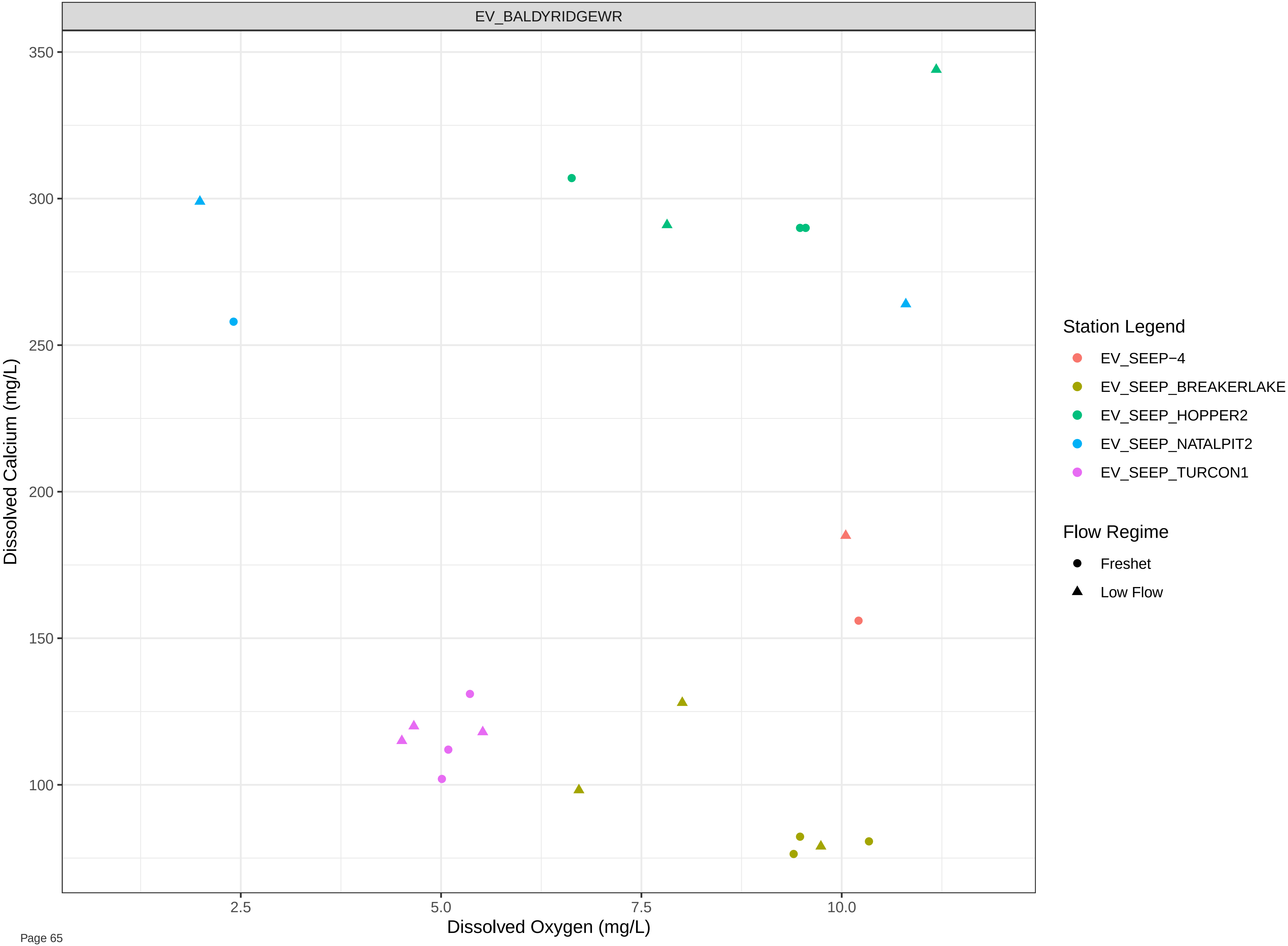

EV_CEDARWR
Dissolved Cadmium (mg/L)
8e−04
6e−04
4e−04
2e−04
0e+00
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

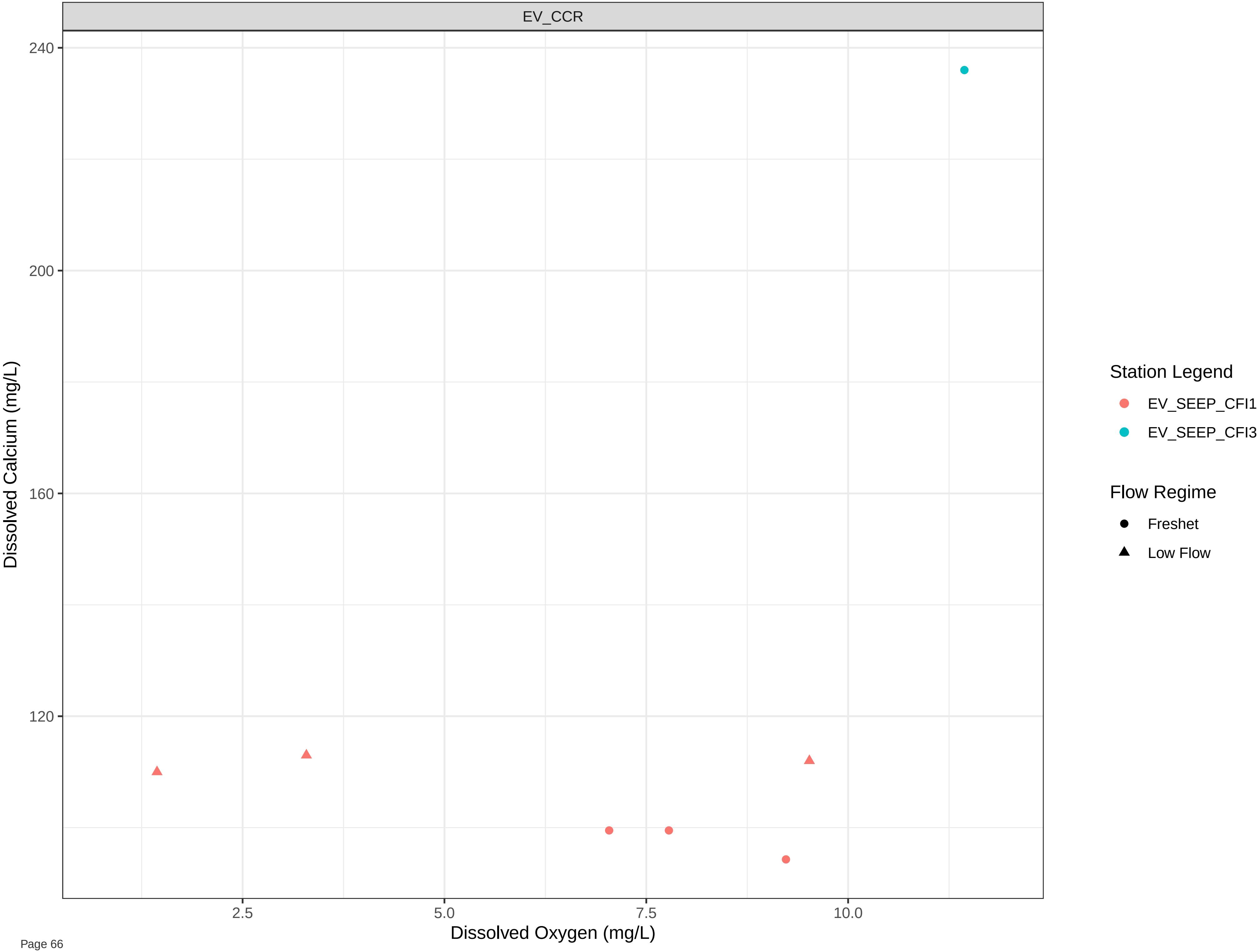

EV_Erickson_WR
Dissolved Cadmium (mg/L)
3e−04
2e−04
1e−04
0e+00
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

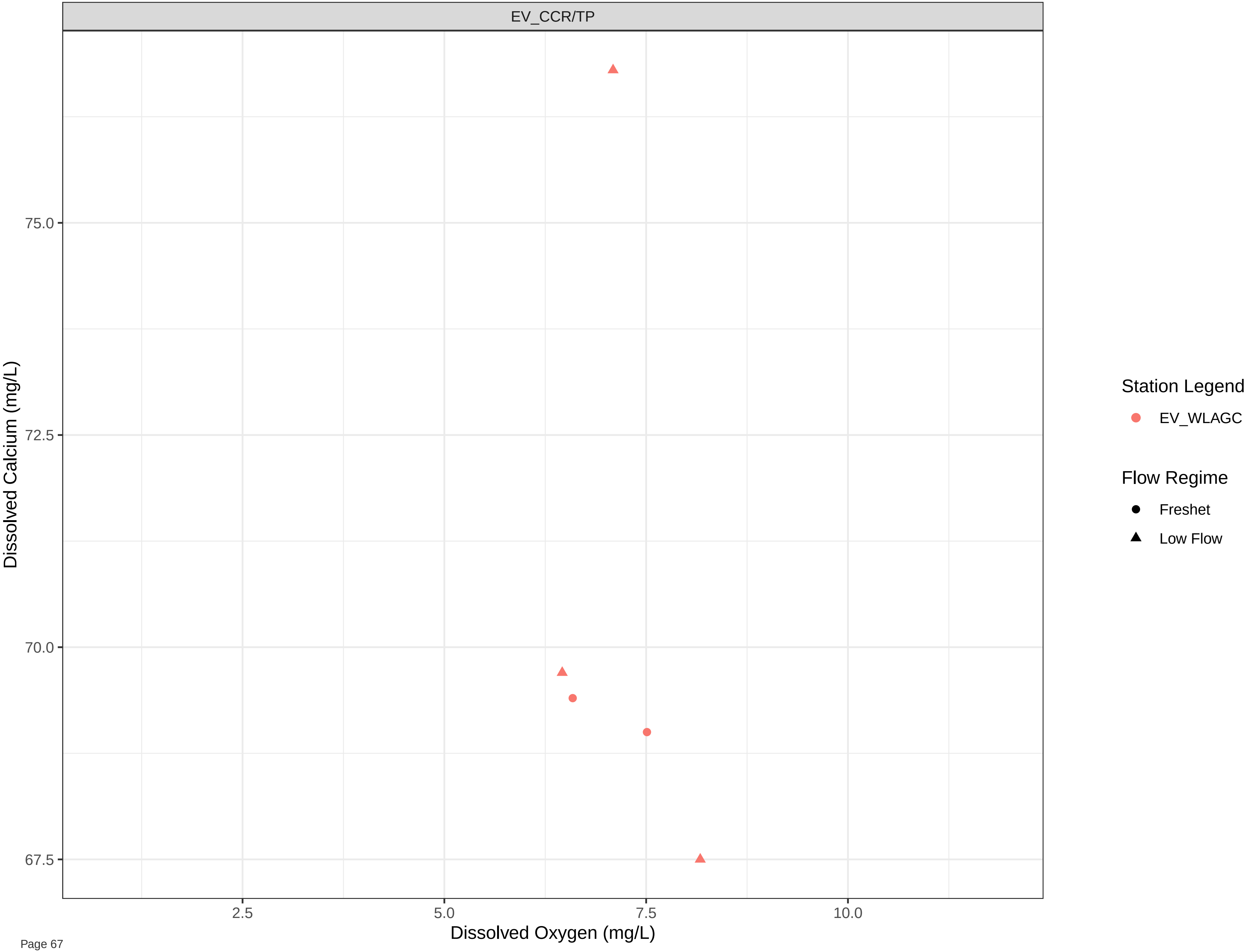

EV_PLANT
Dissolved Cadmium (mg/L)
0.002
0.001
0.000
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

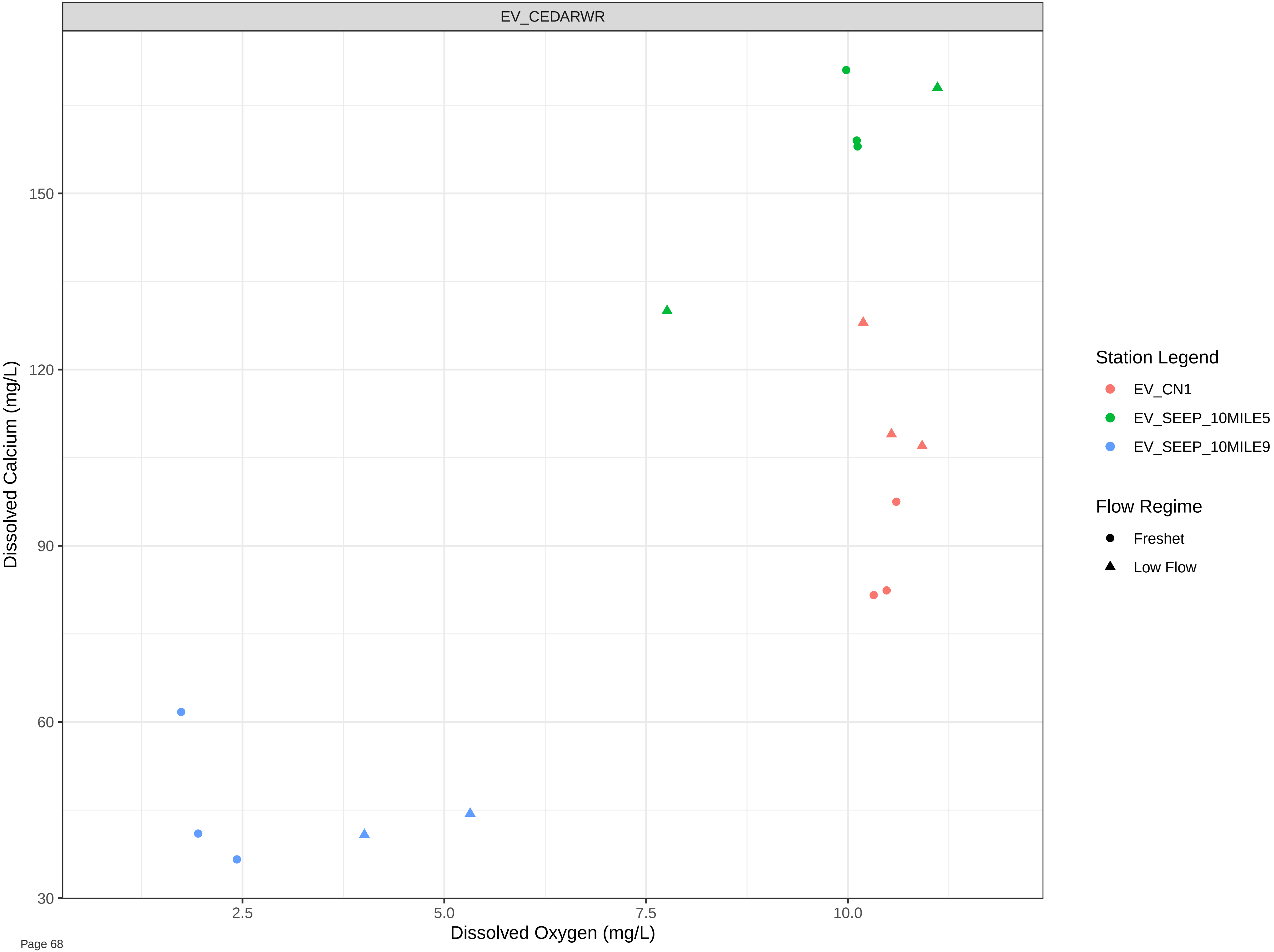

EV_SOUTHSLOPE
6e−05
4e−05
2e−05
Dissolved Cadmium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

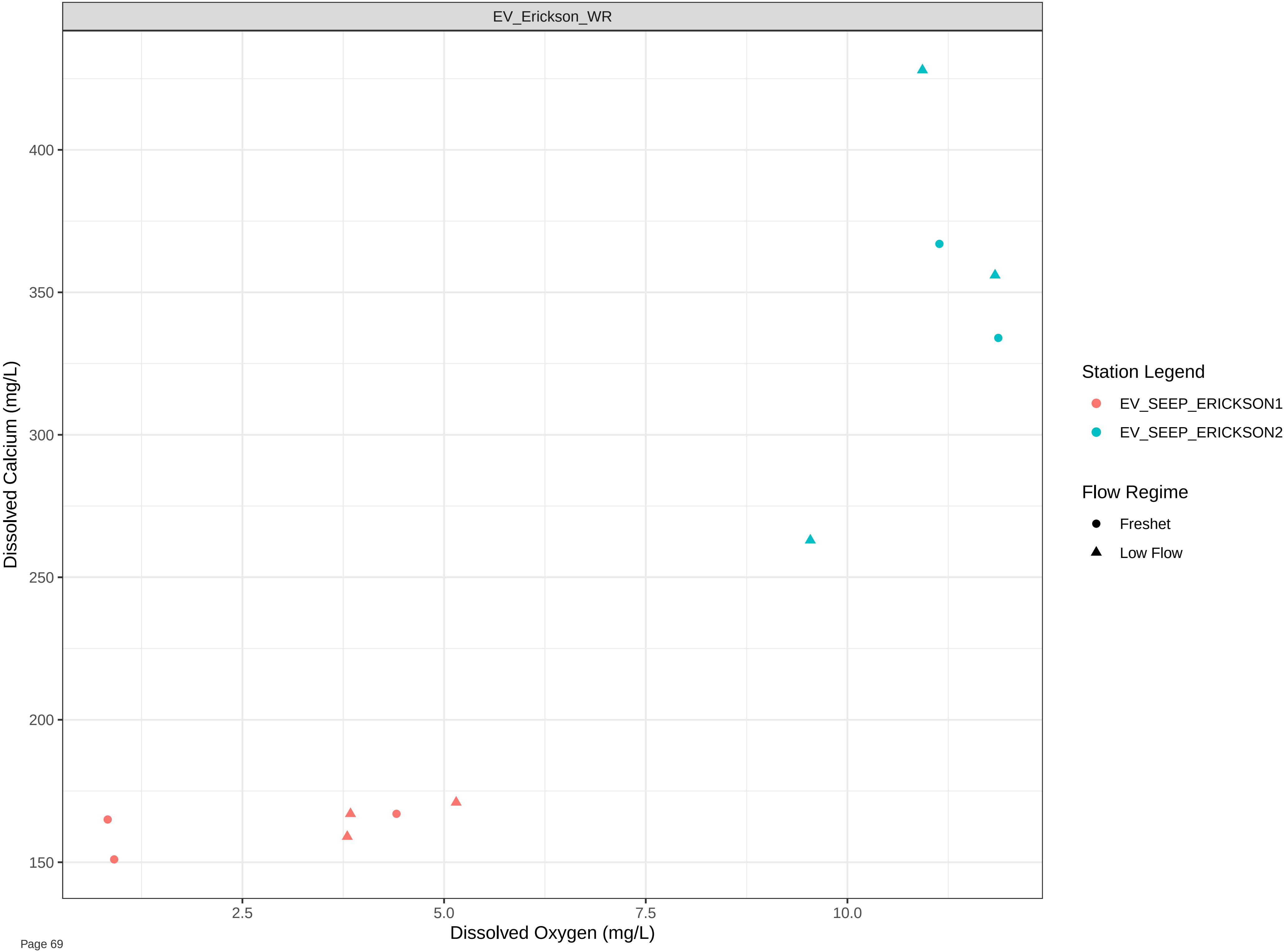

EV_SouthPit_Pit
Dissolved Cadmium (mg/L)
0.00020
0.00015
0.00010
0.00005
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

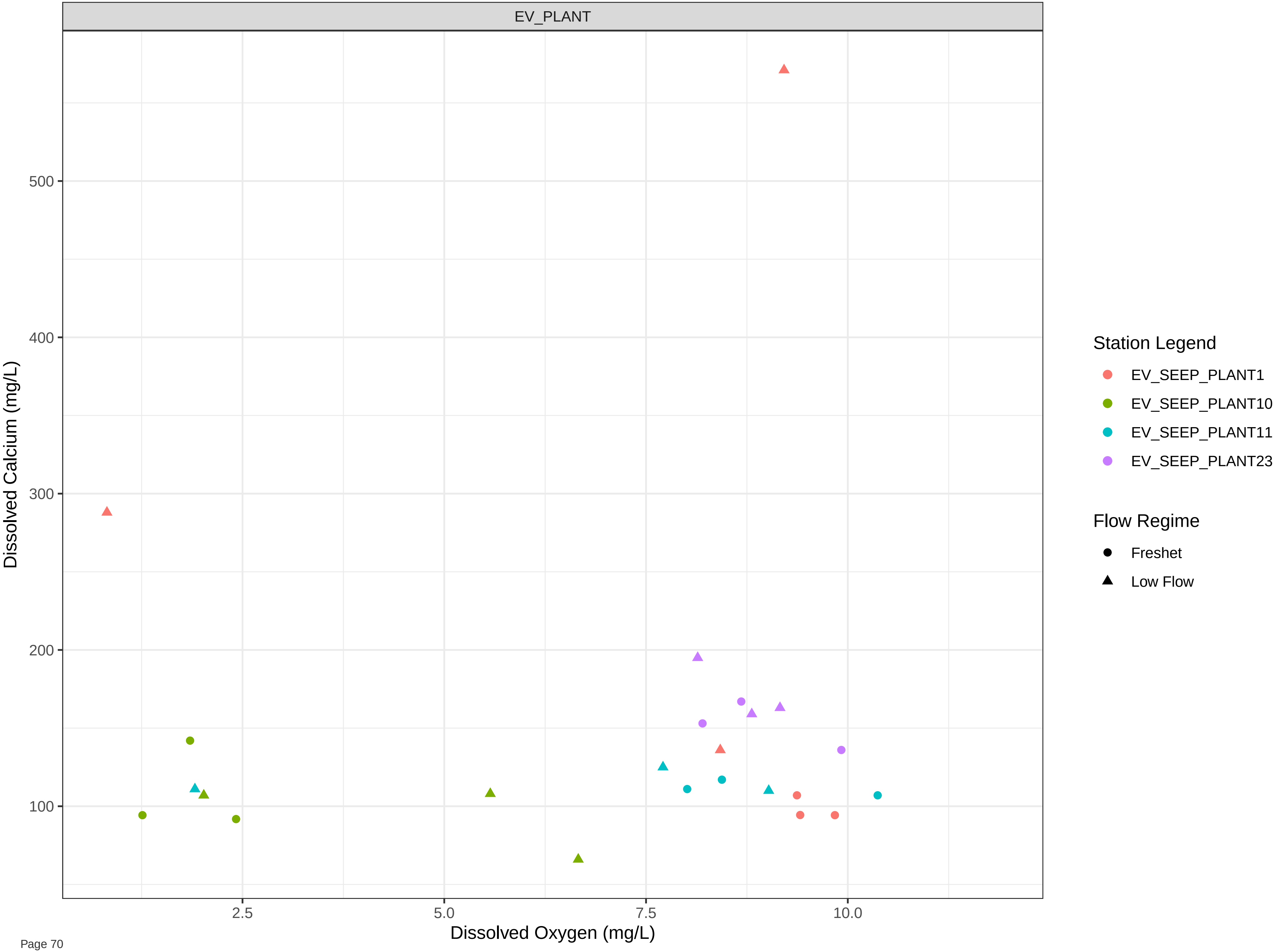

EV_BALDYRIDGEWR
Dissolved Calcium (mg/L)
350
300
250
200
150
100
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

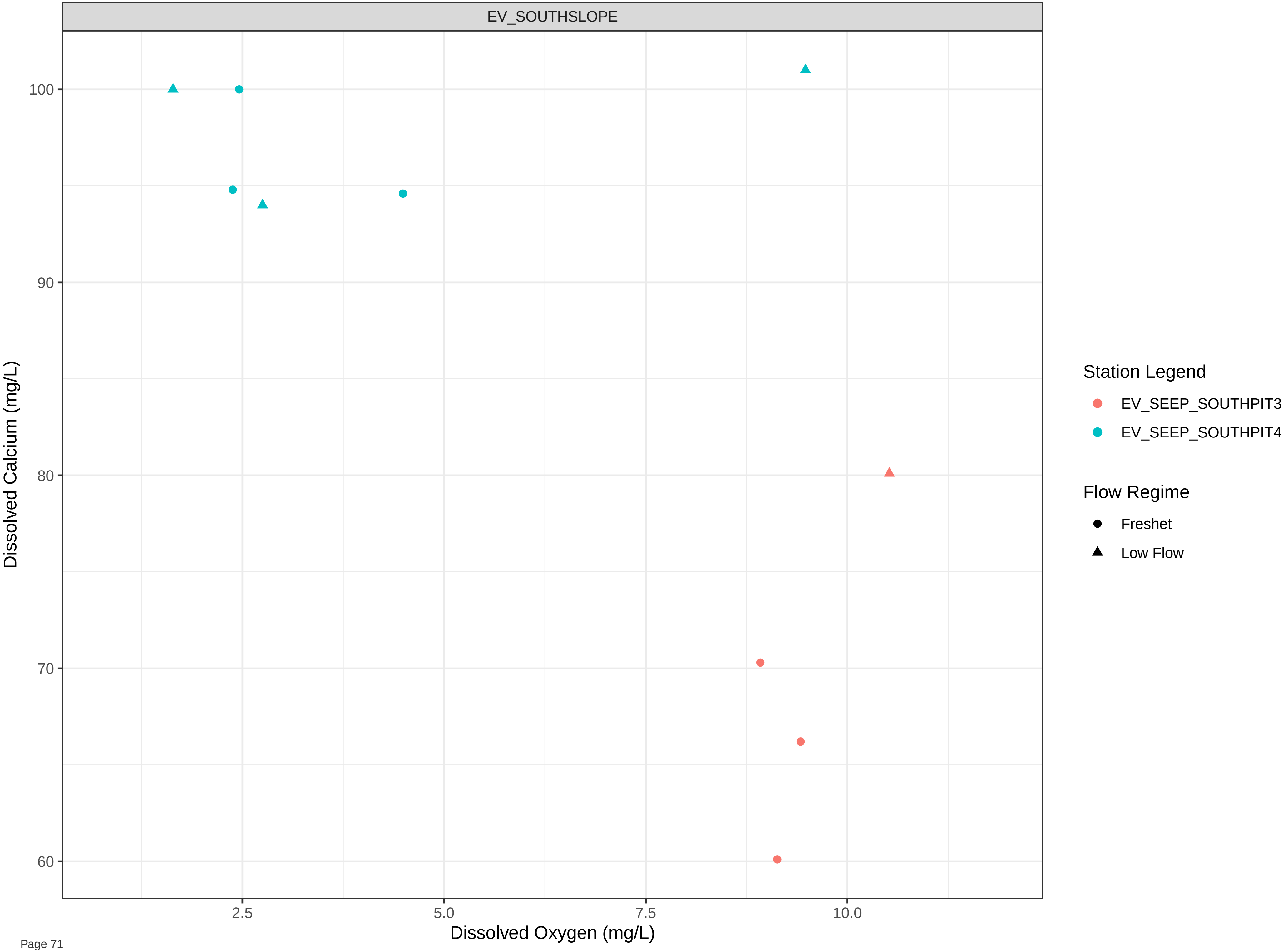

EV_CCR
240
200
160
120
Dissolved Calcium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

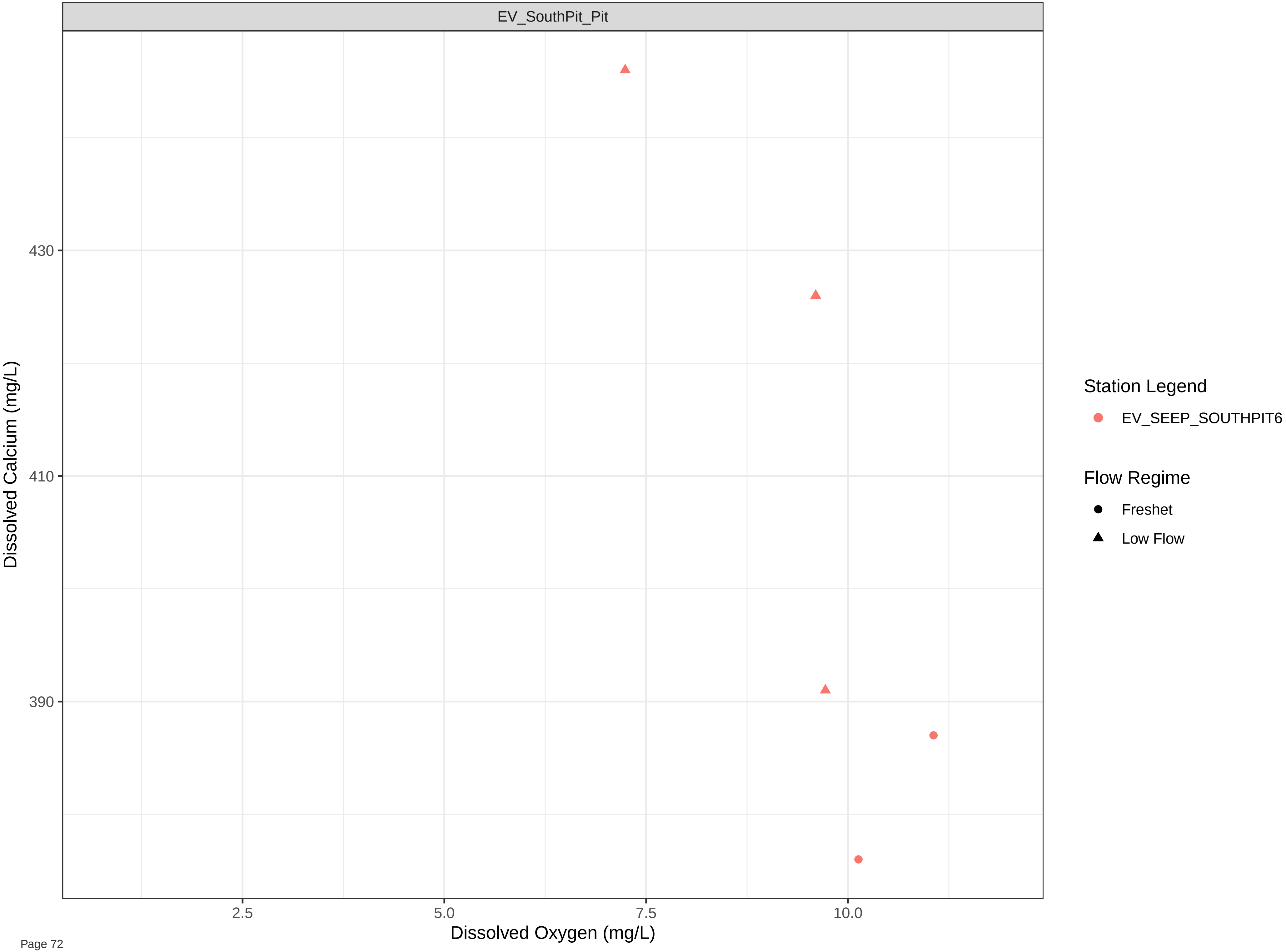

EV_CCR/TP
Dissolved Calcium (mg/L)
75.0
72.5
70.0
67.5
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

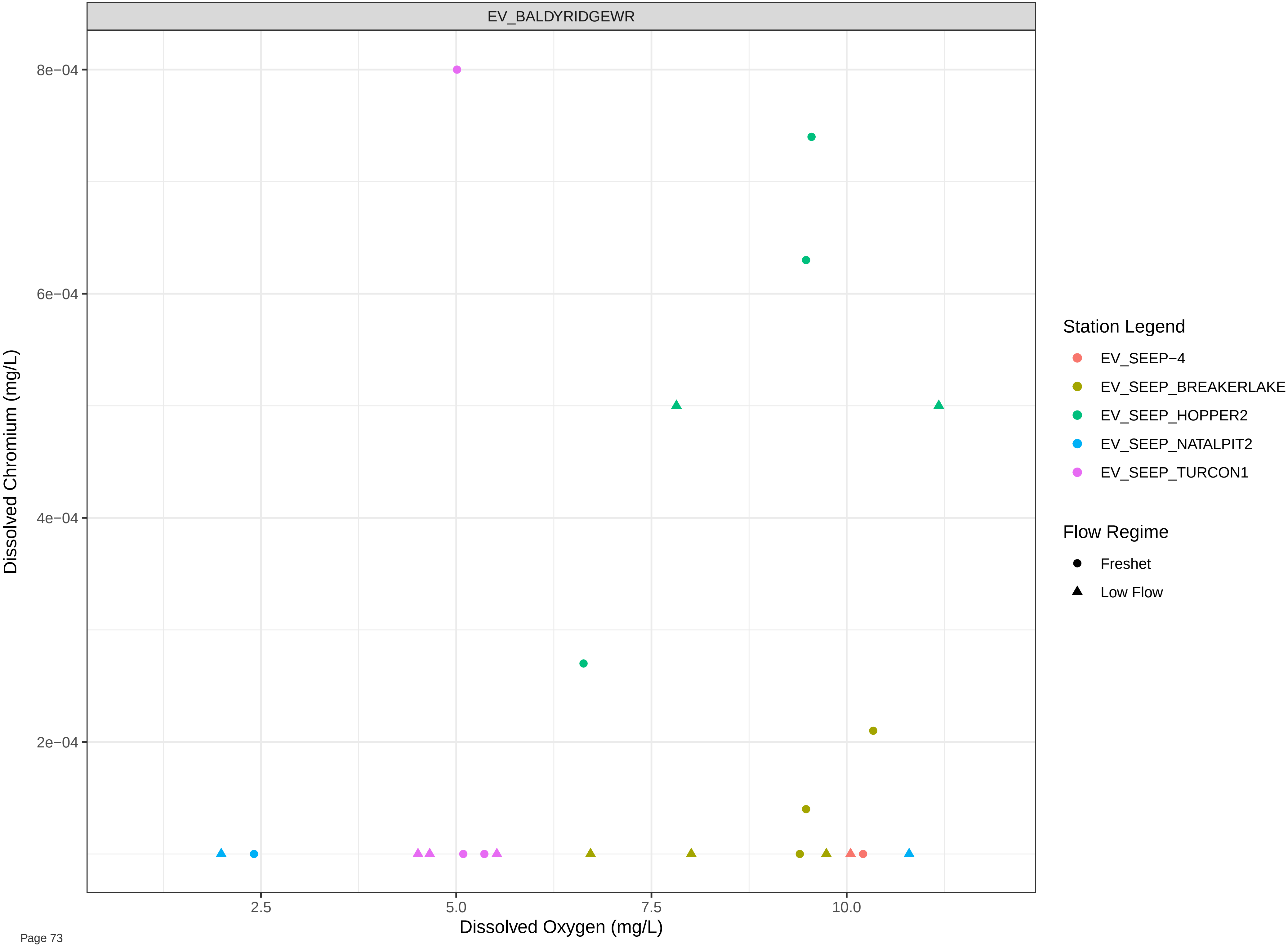

EV_CEDARWR
Dissolved Calcium (mg/L)
150
120
90
60
30
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

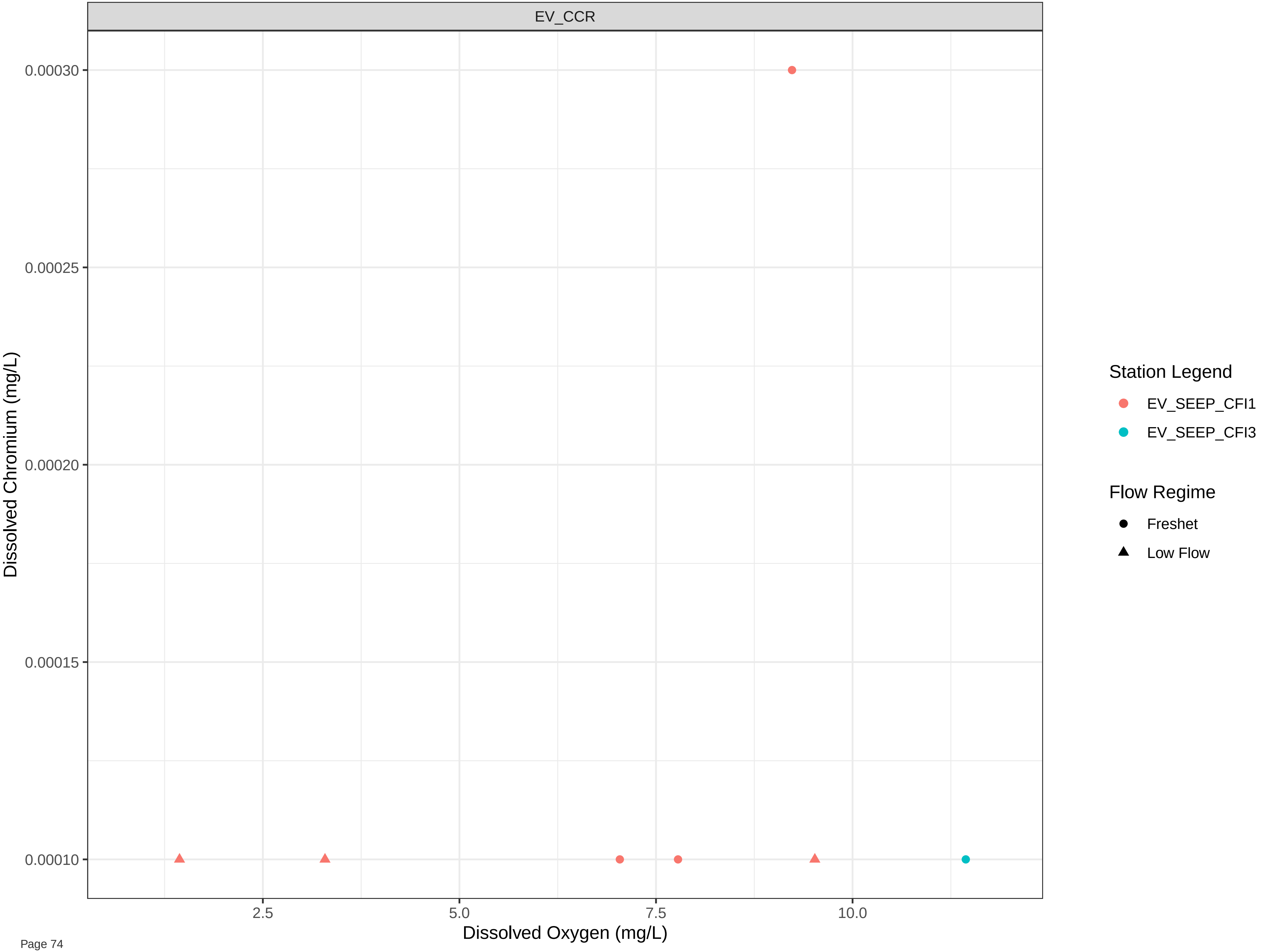

EV_Erickson_WR
Dissolved Calcium (mg/L)
400
350
300
250
200
150
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

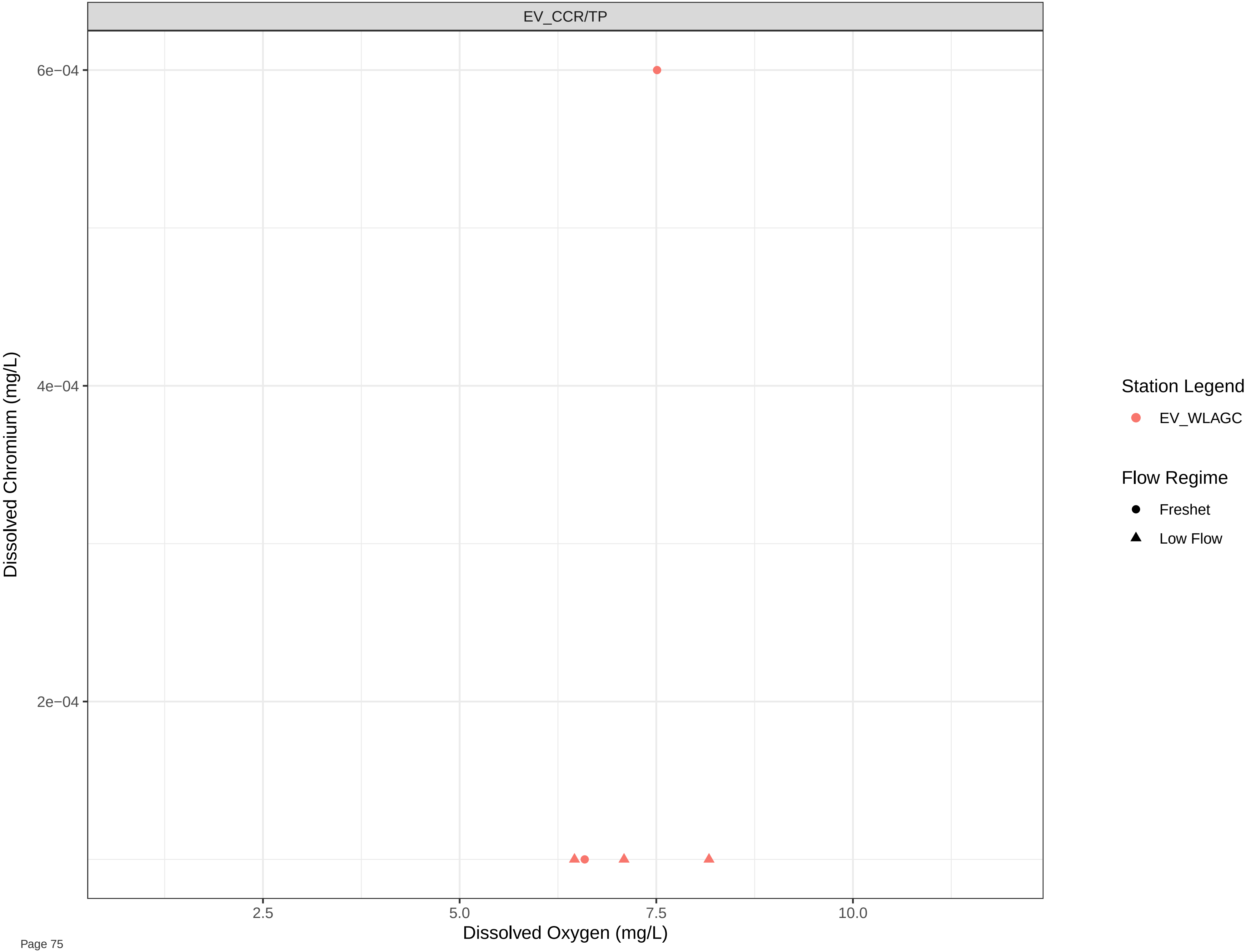

EV_PLANT
Dissolved Calcium (mg/L)
500
400
300
200
100
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

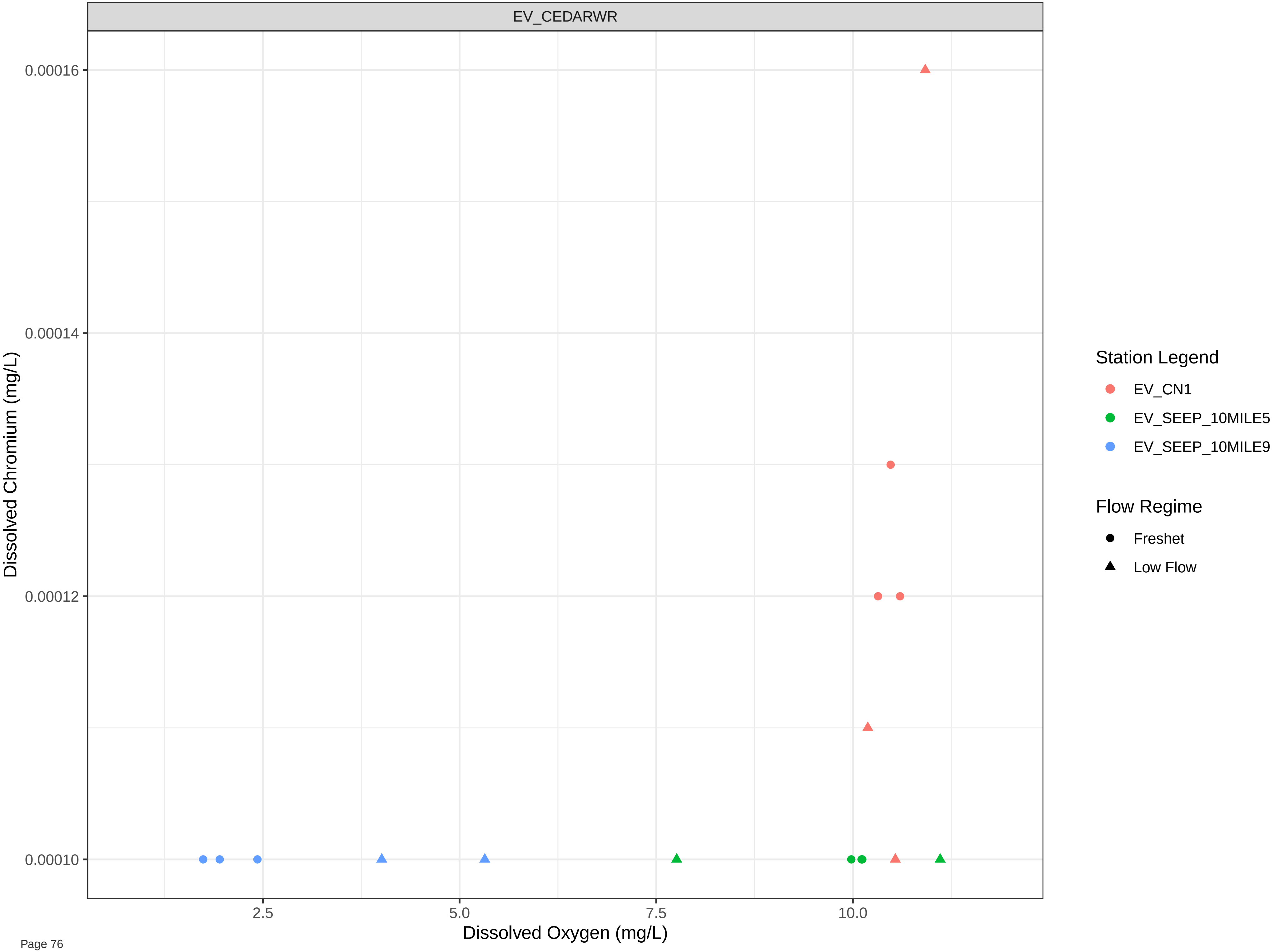

EV_SOUTHSLOPE
Dissolved Calcium (mg/L)
100
90
80
70
60
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

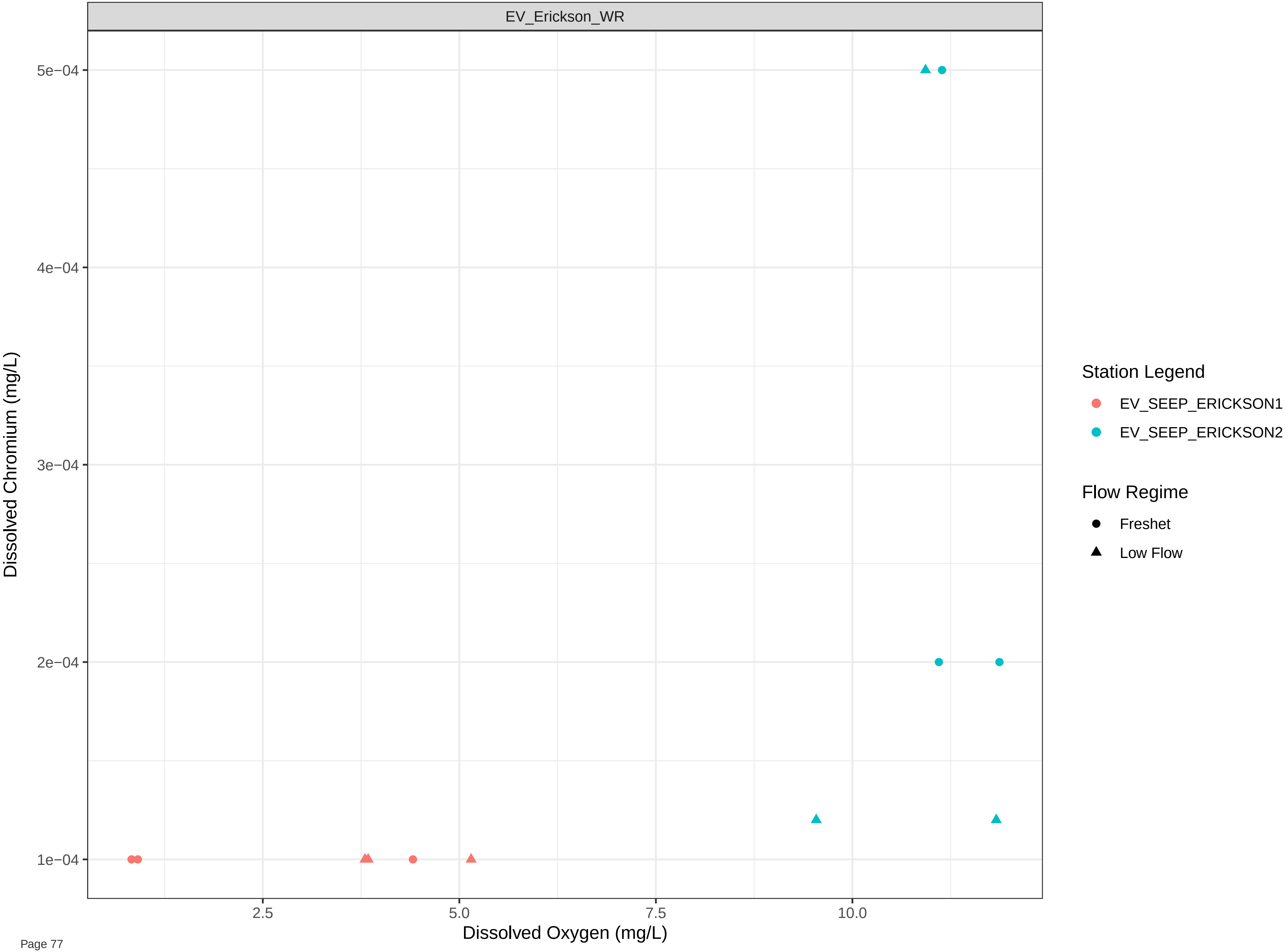

EV_SouthPit_Pit
Dissolved Calcium (mg/L)
430
410
390
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

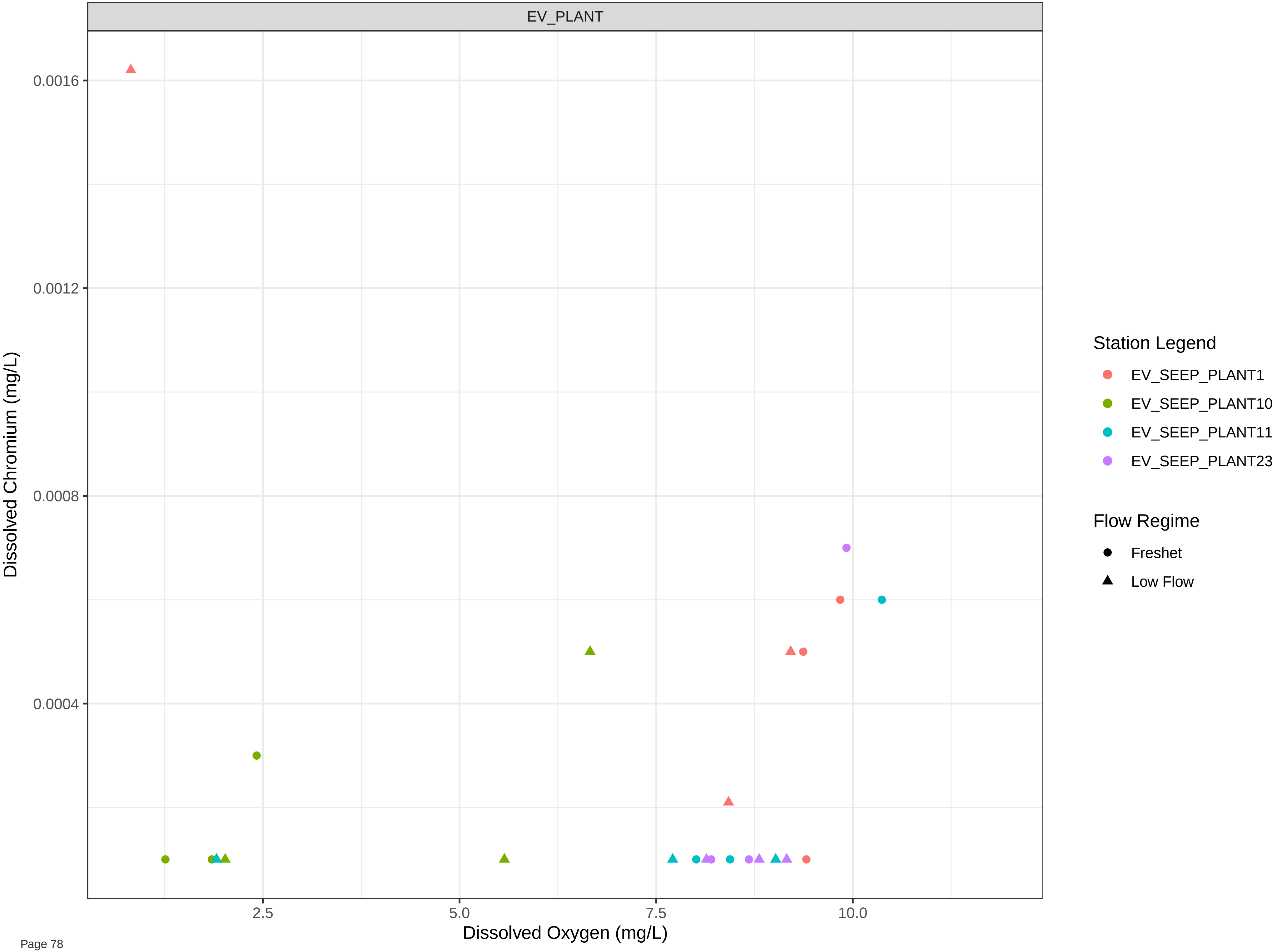

EV_BALDYRIDGEWR
8e−04
6e−04
4e−04
2e−04
Dissolved Chromium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

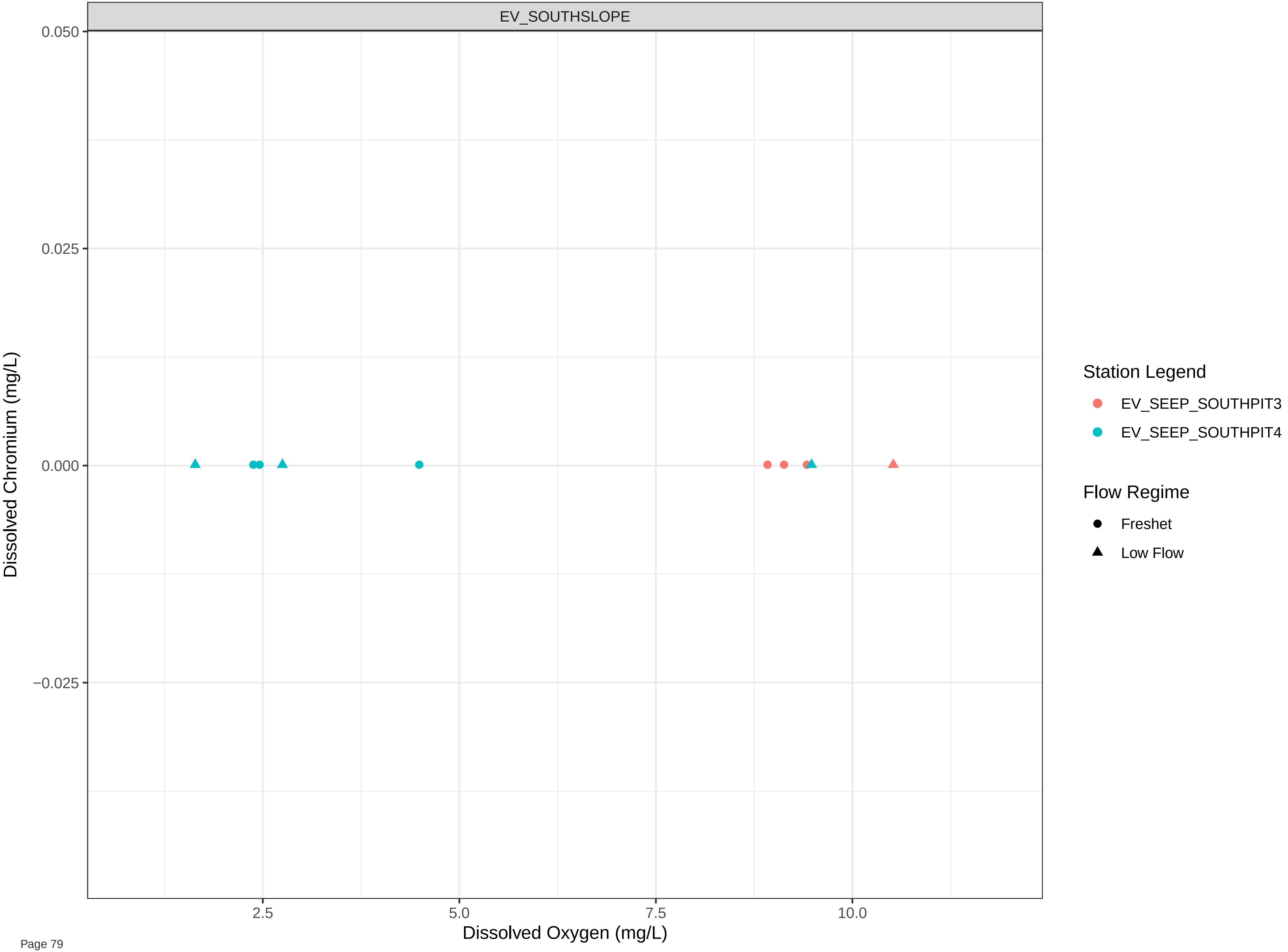

EV_CCR
0.00030
0.00025
0.00020
0.00015
0.00010
Dissolved Chromium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

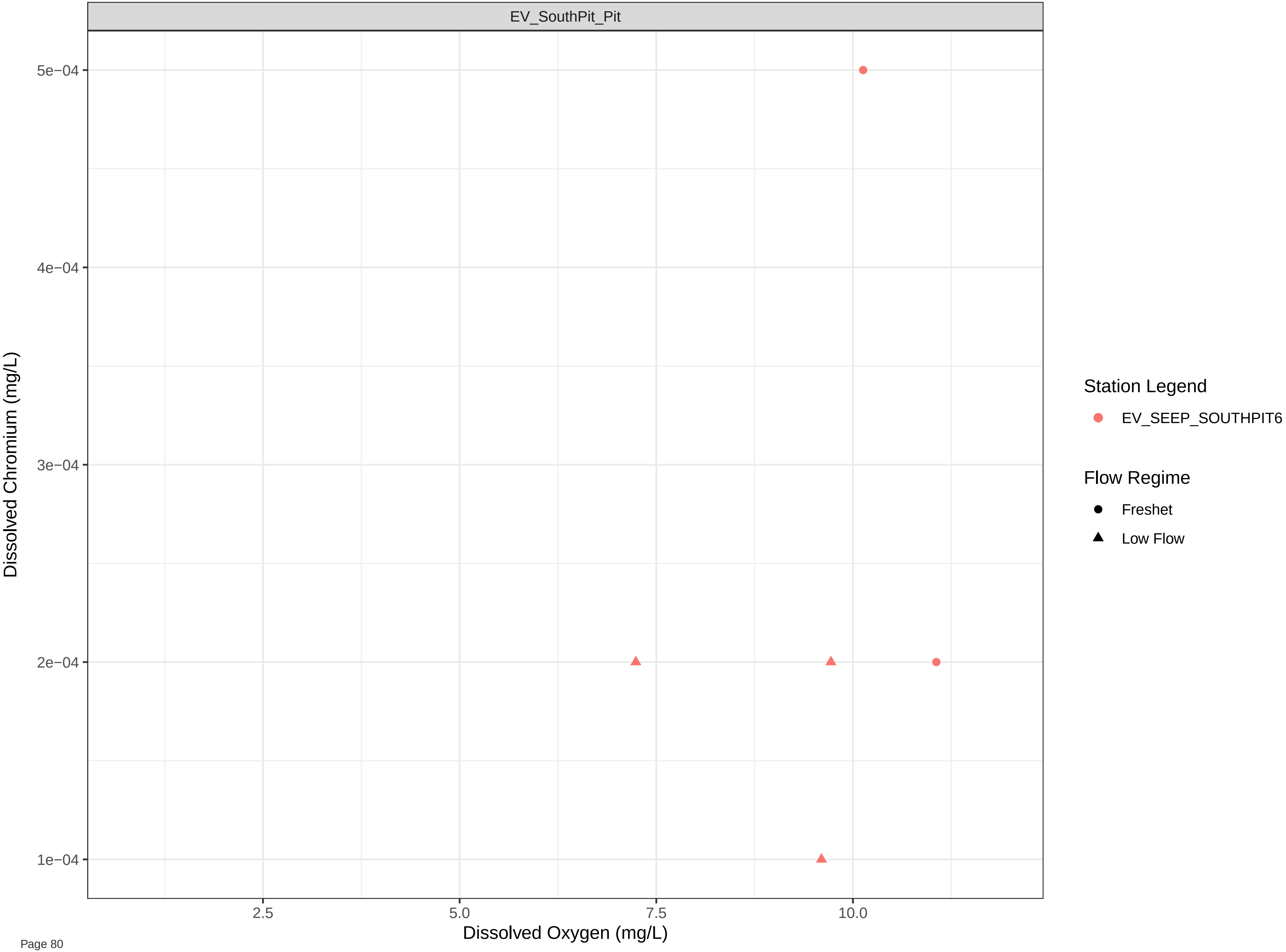

EV_CCR/TP
6e−04
4e−04
2e−04
Dissolved Chromium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

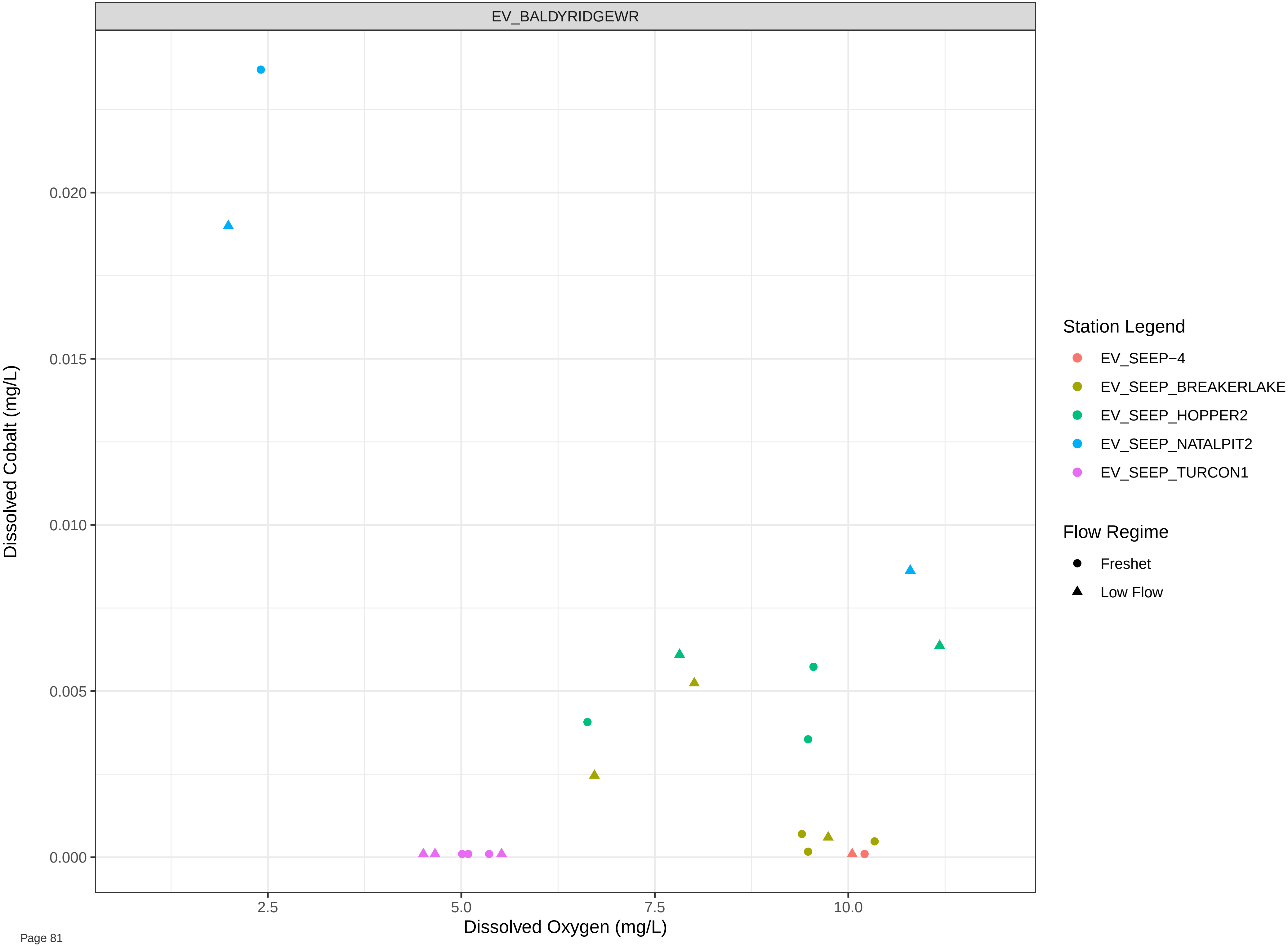

EV_CEDARWR
Dissolved Chromium (mg/L)
0.00016
0.00014
0.00012
0.00010
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

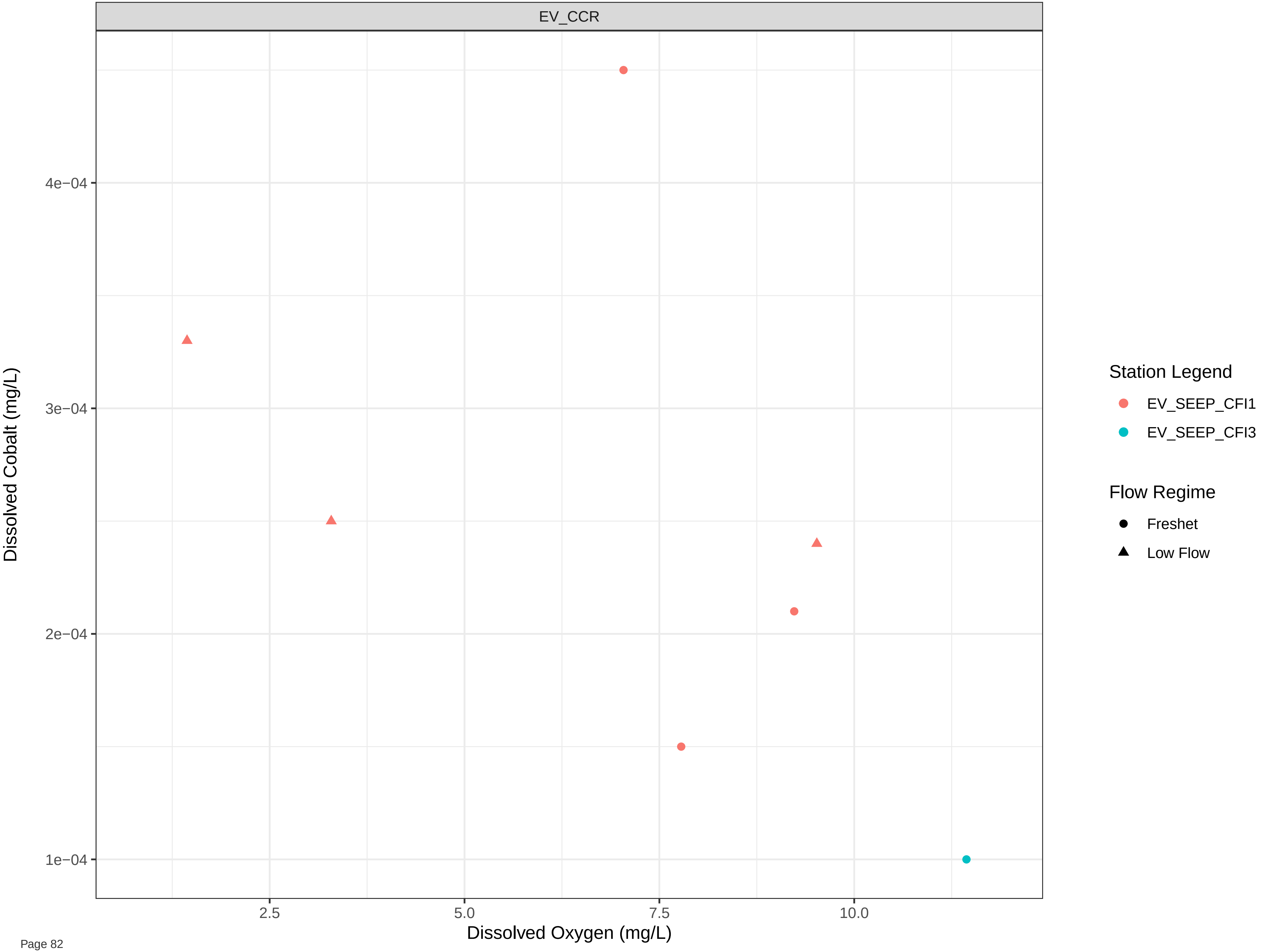

EV_Erickson_WR
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Chromium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

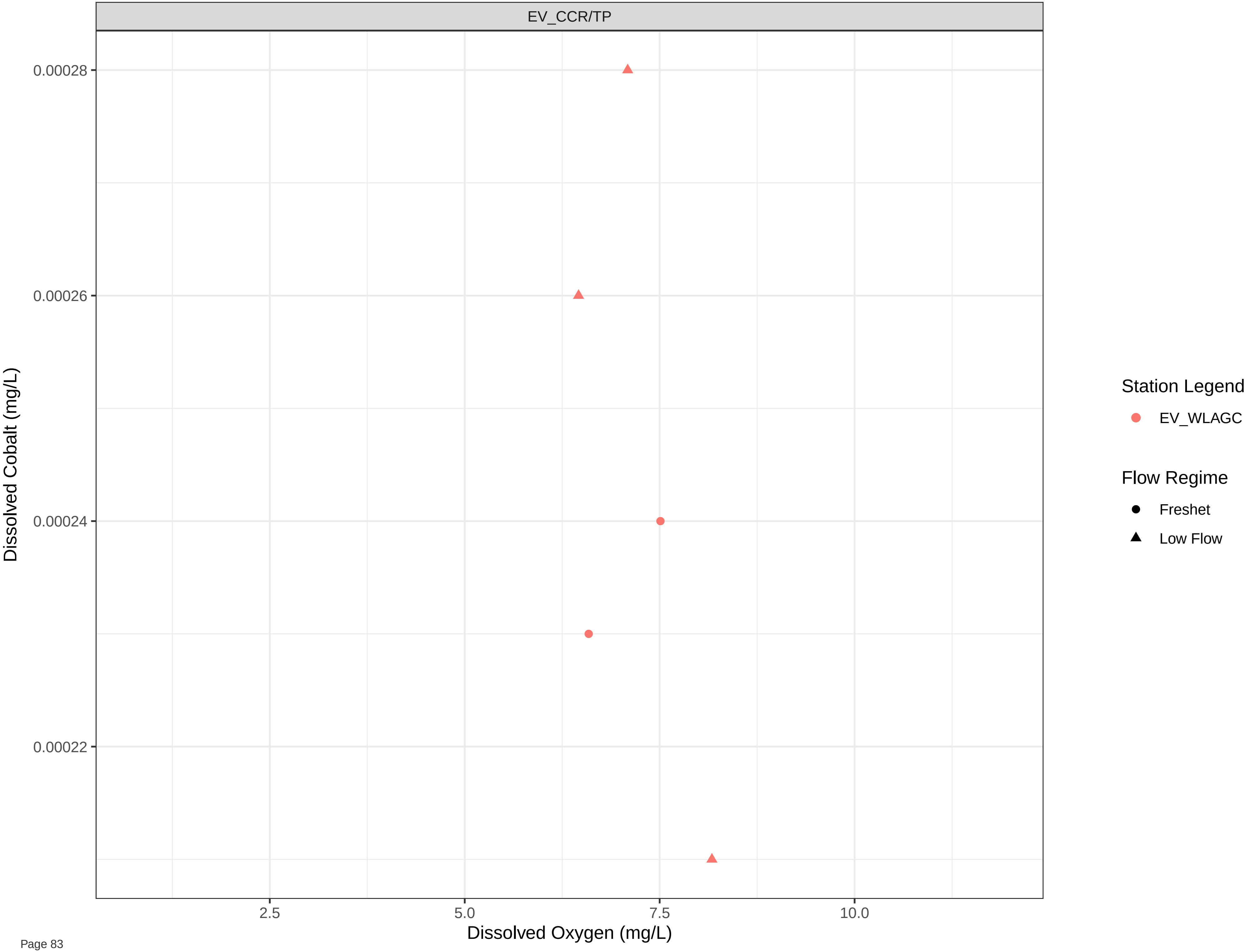

EV_PLANT
Dissolved Chromium (mg/L)
0.0016
0.0012
0.0008
0.0004
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

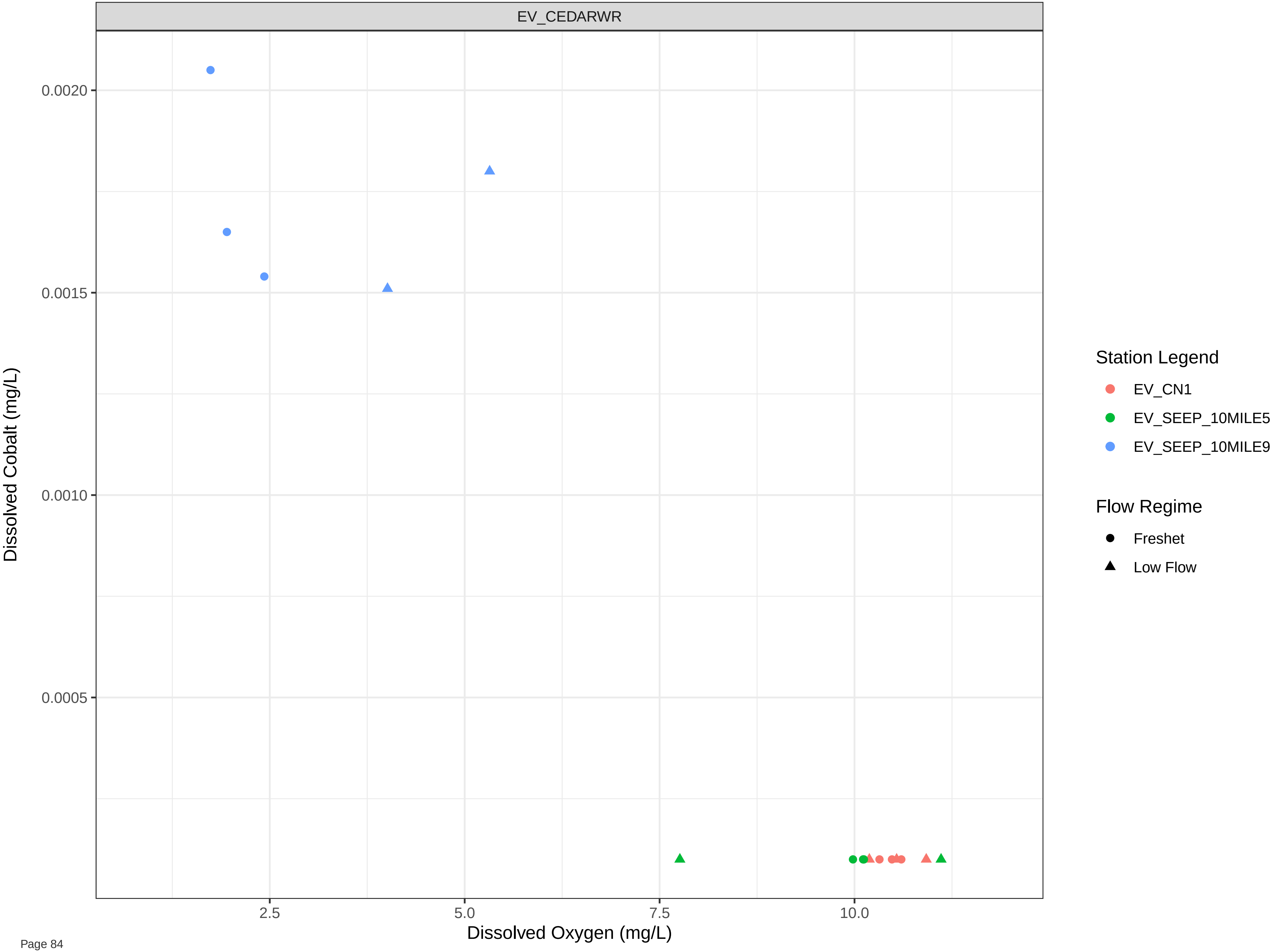

EV_SOUTHSLOPE
0.050
0.025
0.000
−0.025
Dissolved Chromium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

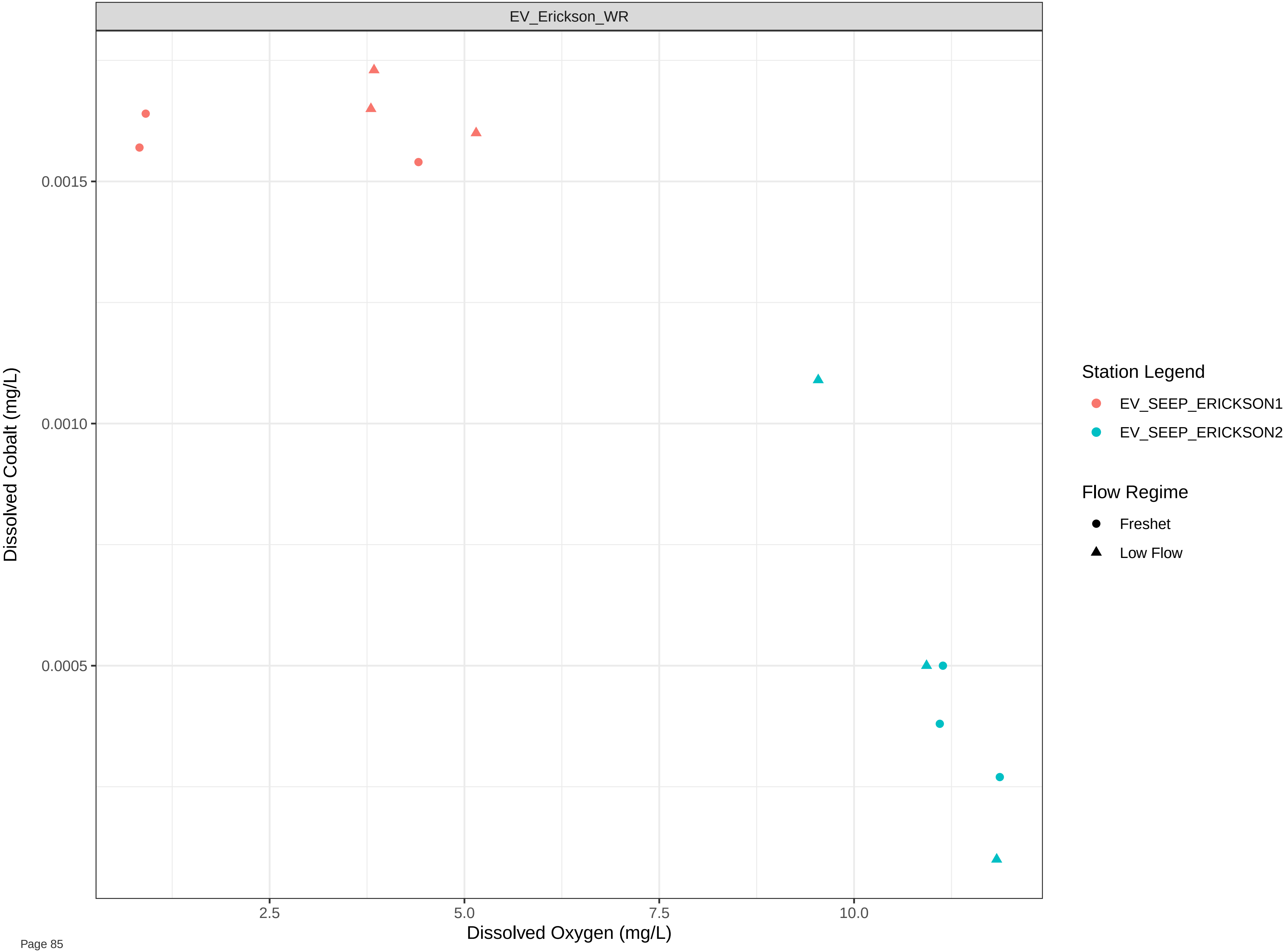

EV_SouthPit_Pit
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Chromium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

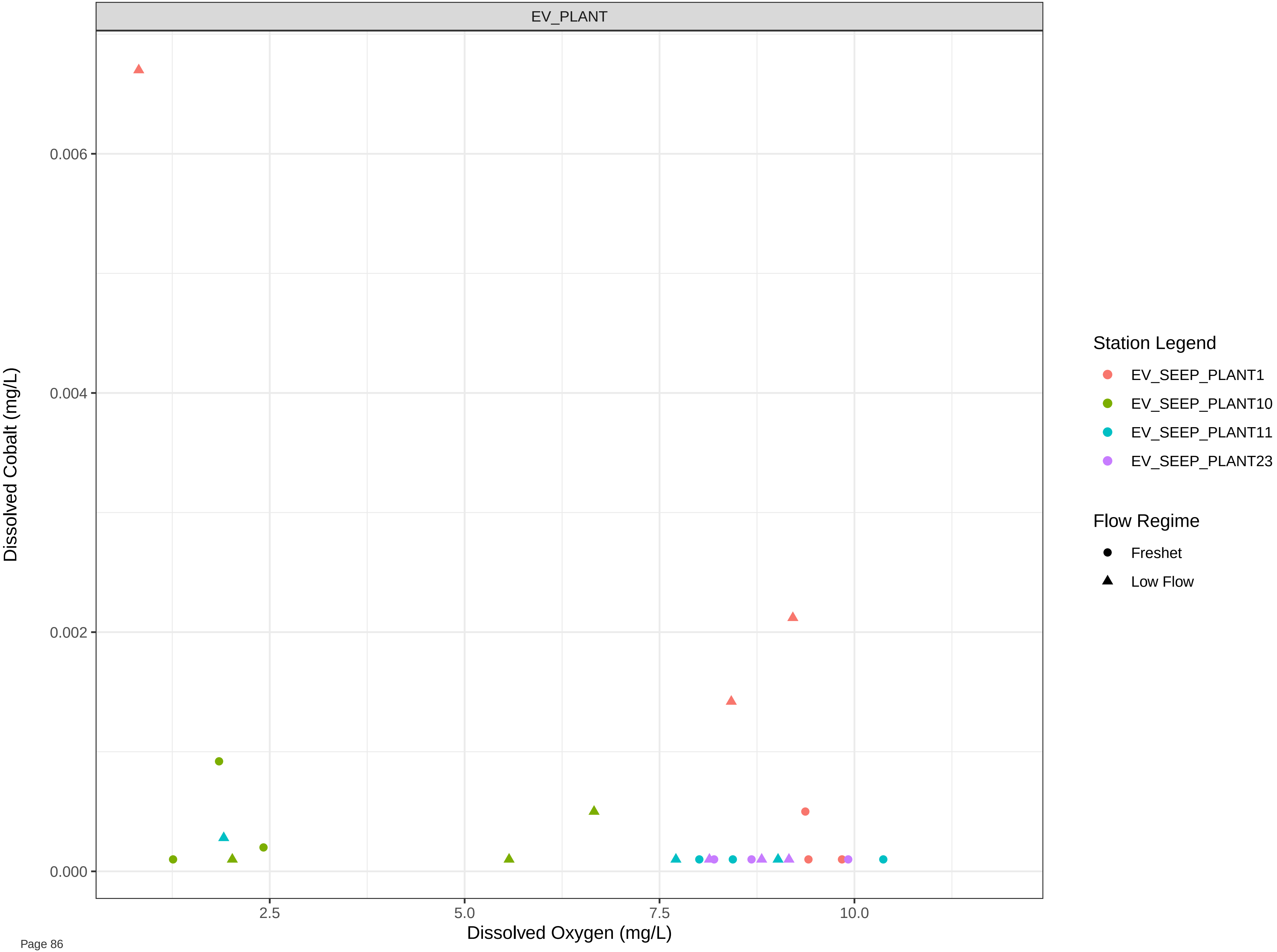

EV_BALDYRIDGEWR
Dissolved Cobalt (mg/L)
0.000
0.005
0.010
0.015
0.020
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

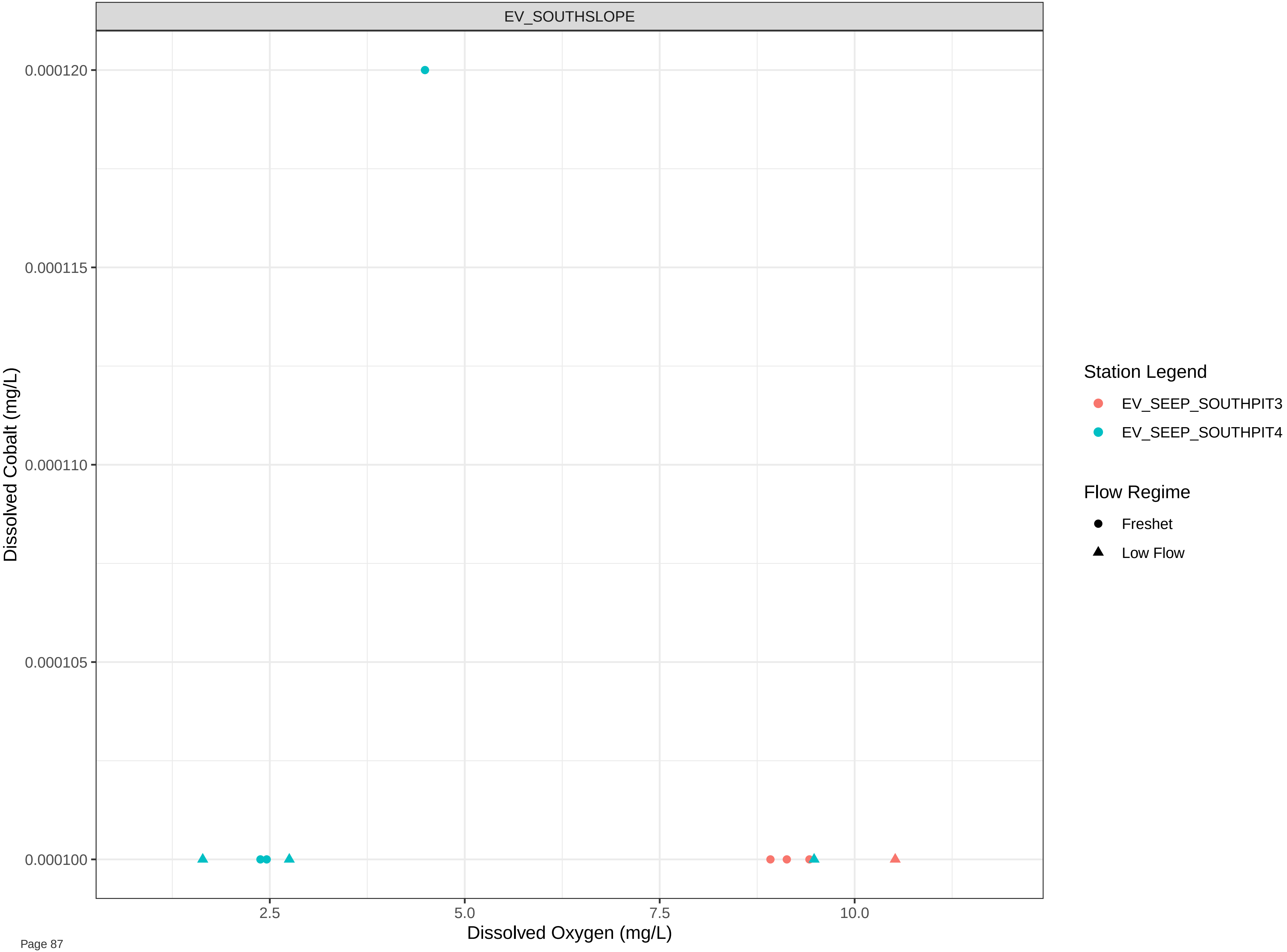

EV_CCR
Dissolved Cobalt (mg/L)
4e−04
3e−04
2e−04
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

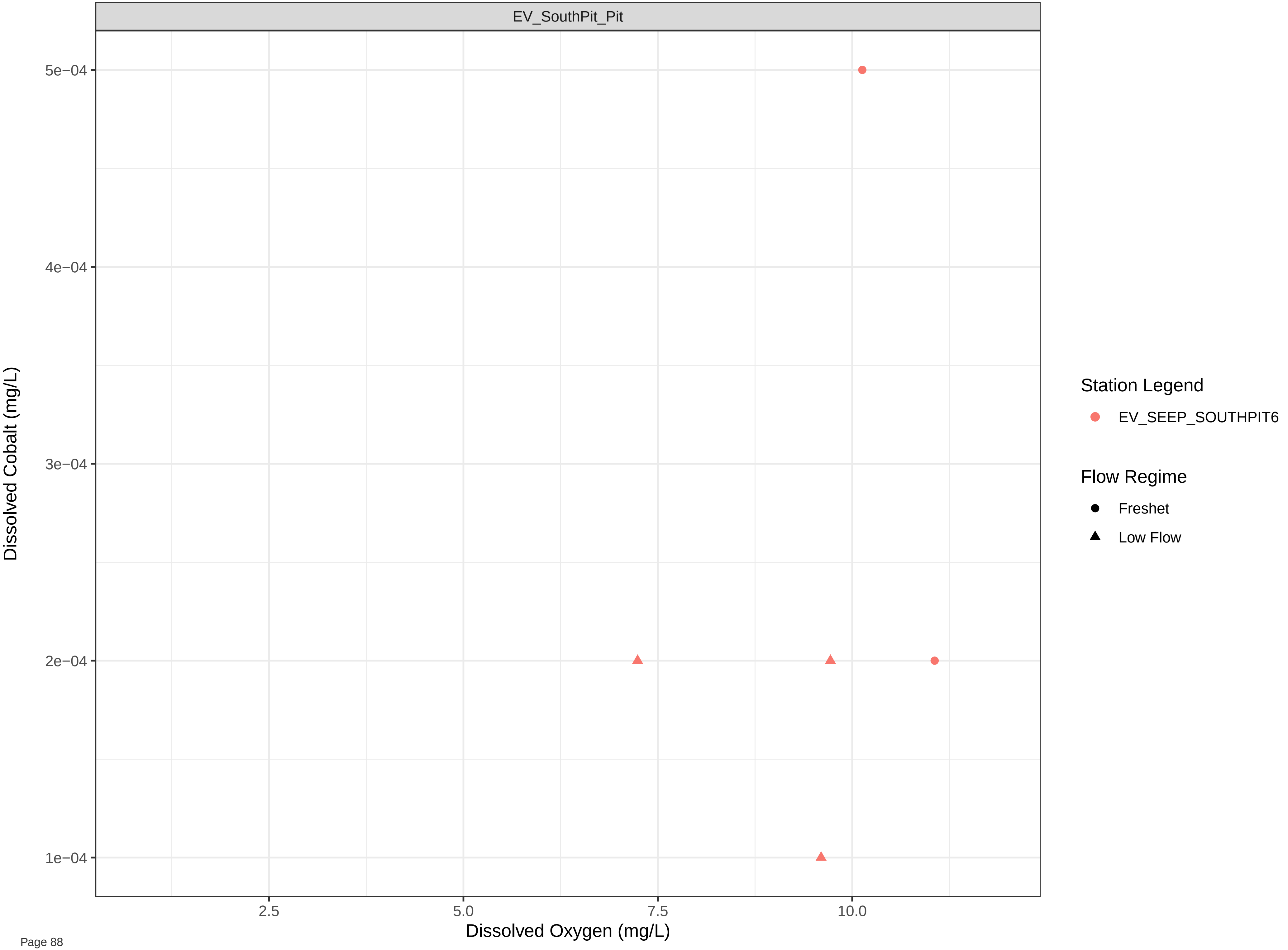

EV_CCR/TP
0.00028
0.00026
0.00024
0.00022
Dissolved Cobalt (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

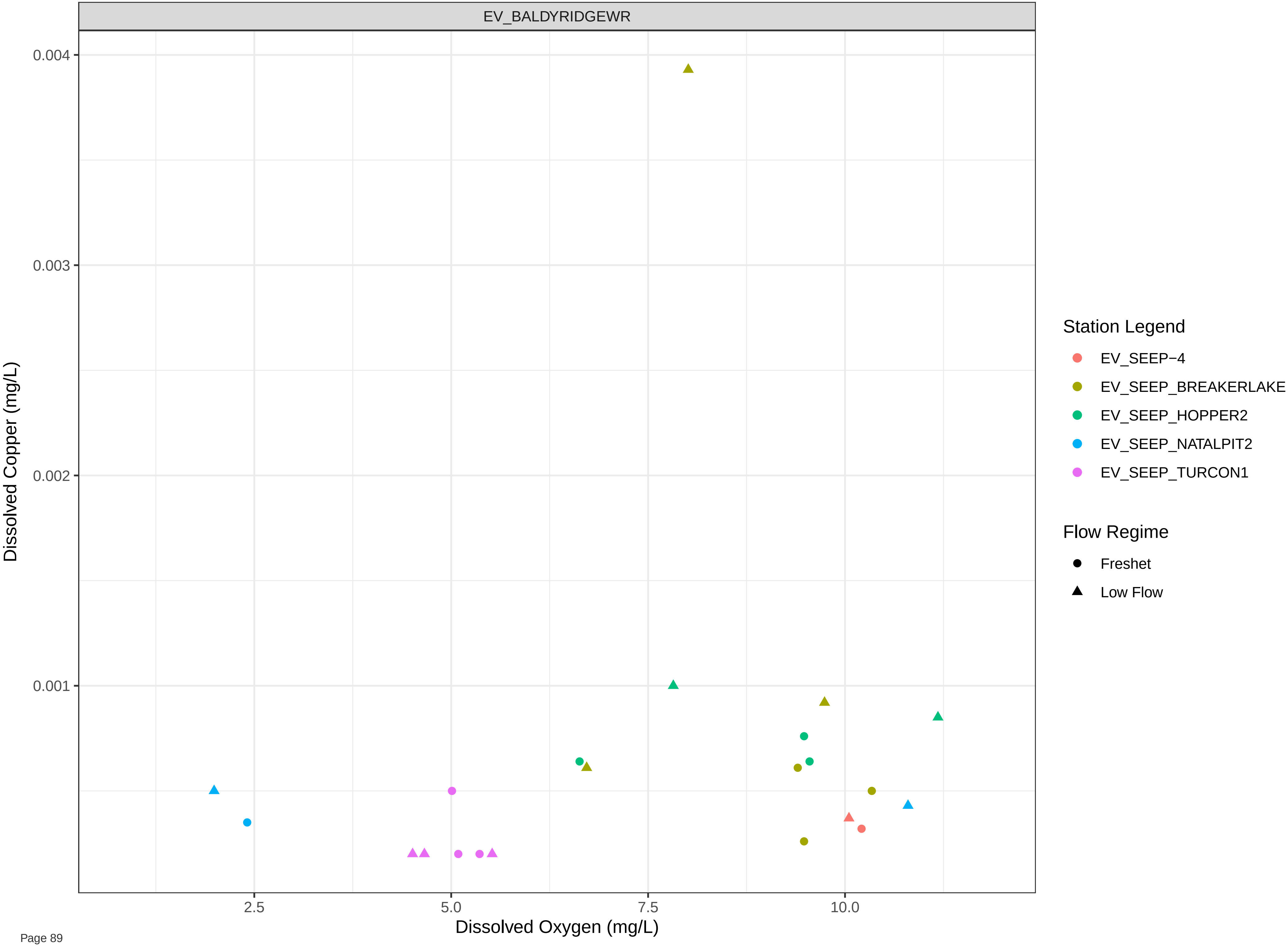

EV_CEDARWR
Dissolved Cobalt (mg/L)
0.0020
0.0015
0.0010
0.0005
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

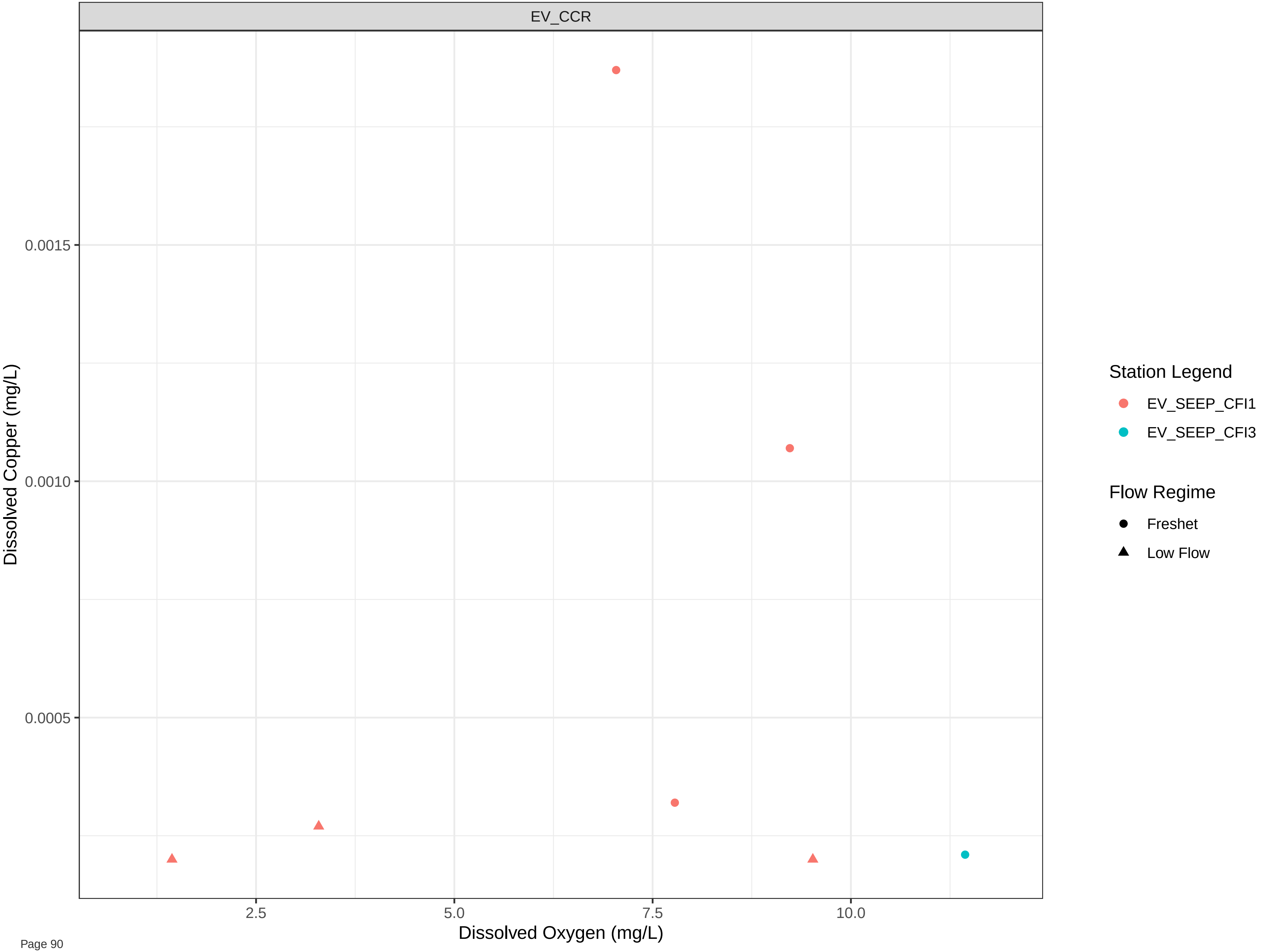

EV_Erickson_WR
Dissolved Cobalt (mg/L)
0.0015
0.0010
0.0005
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow


EV_PLANT
Dissolved Cobalt (mg/L)
0.006
0.004
0.002
0.000
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

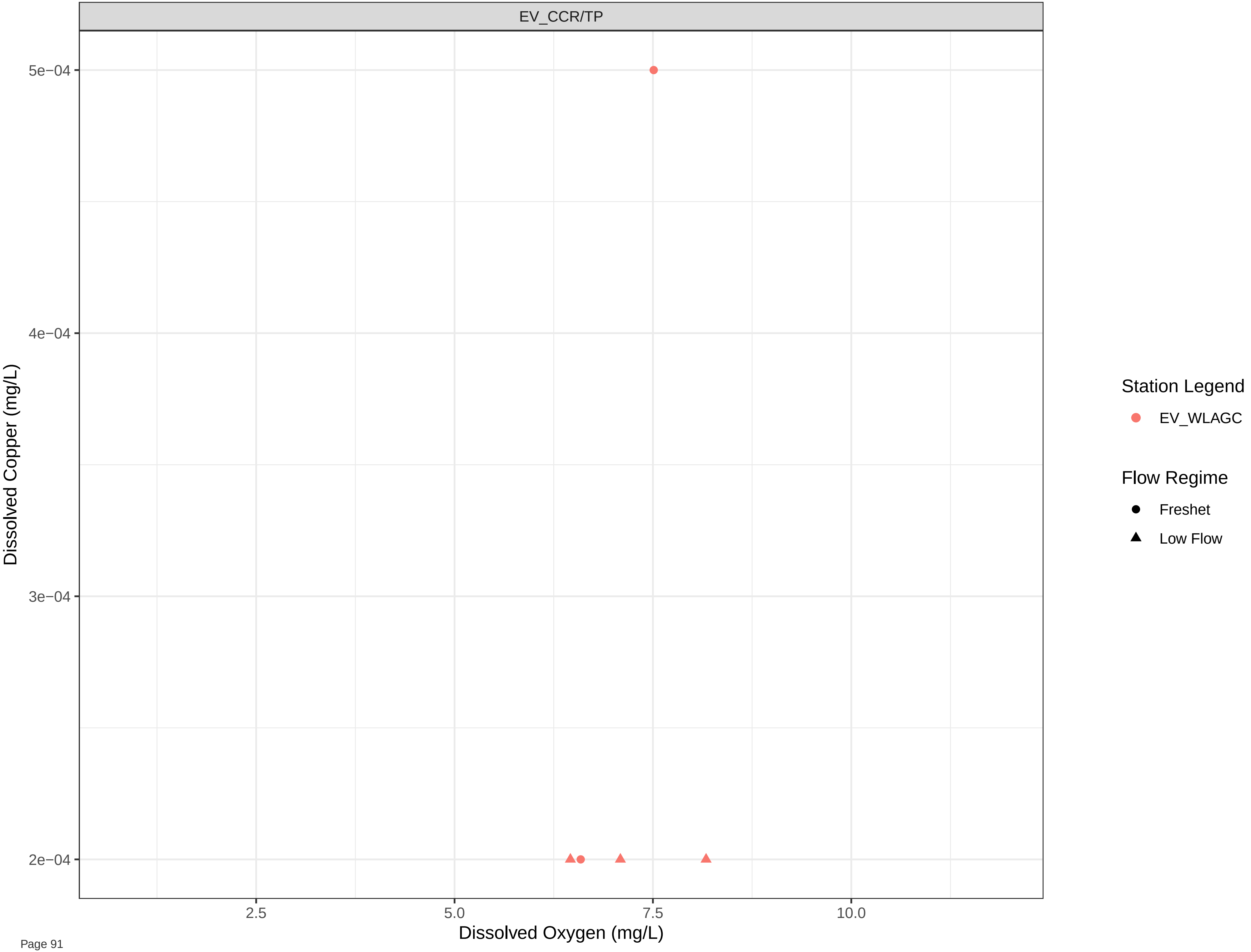

EV_SOUTHSLOPE
Dissolved Cobalt (mg/L)
0.000120
0.000115
0.000110
0.000105
0.000100
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

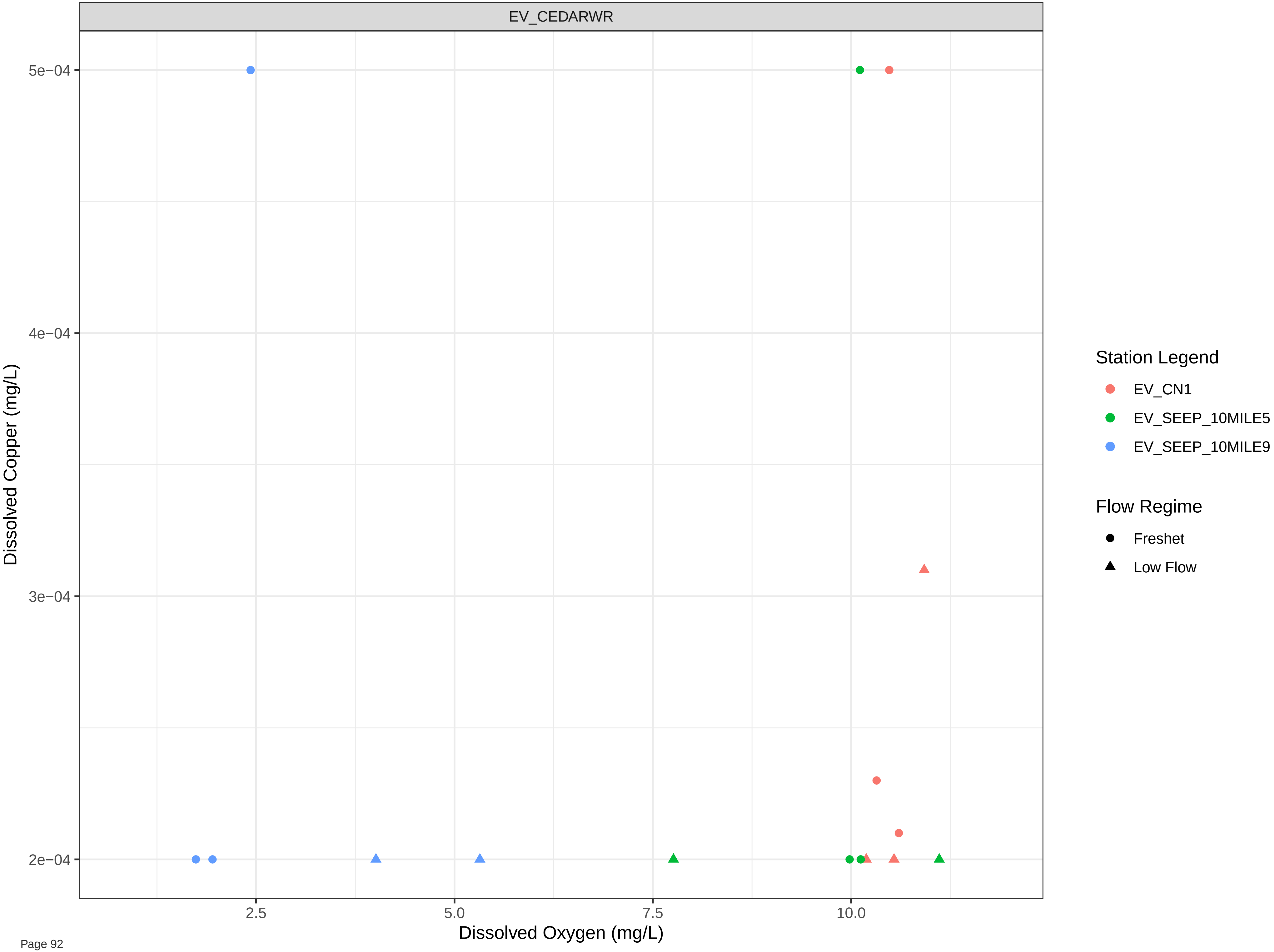

EV_SouthPit_Pit
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Cobalt (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

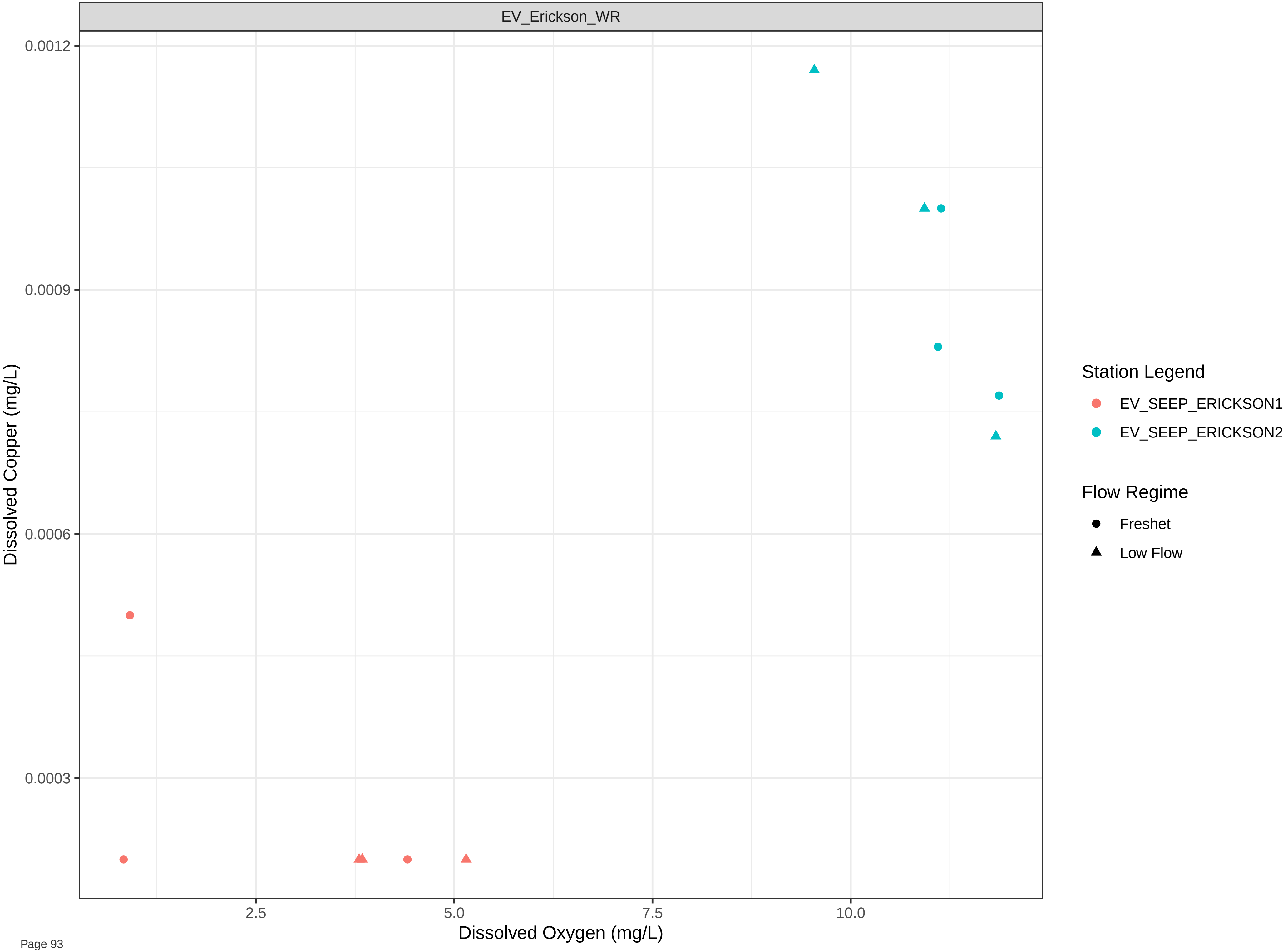

EV_BALDYRIDGEWR
Dissolved Copper (mg/L)
0.004
0.003
0.002
0.001
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

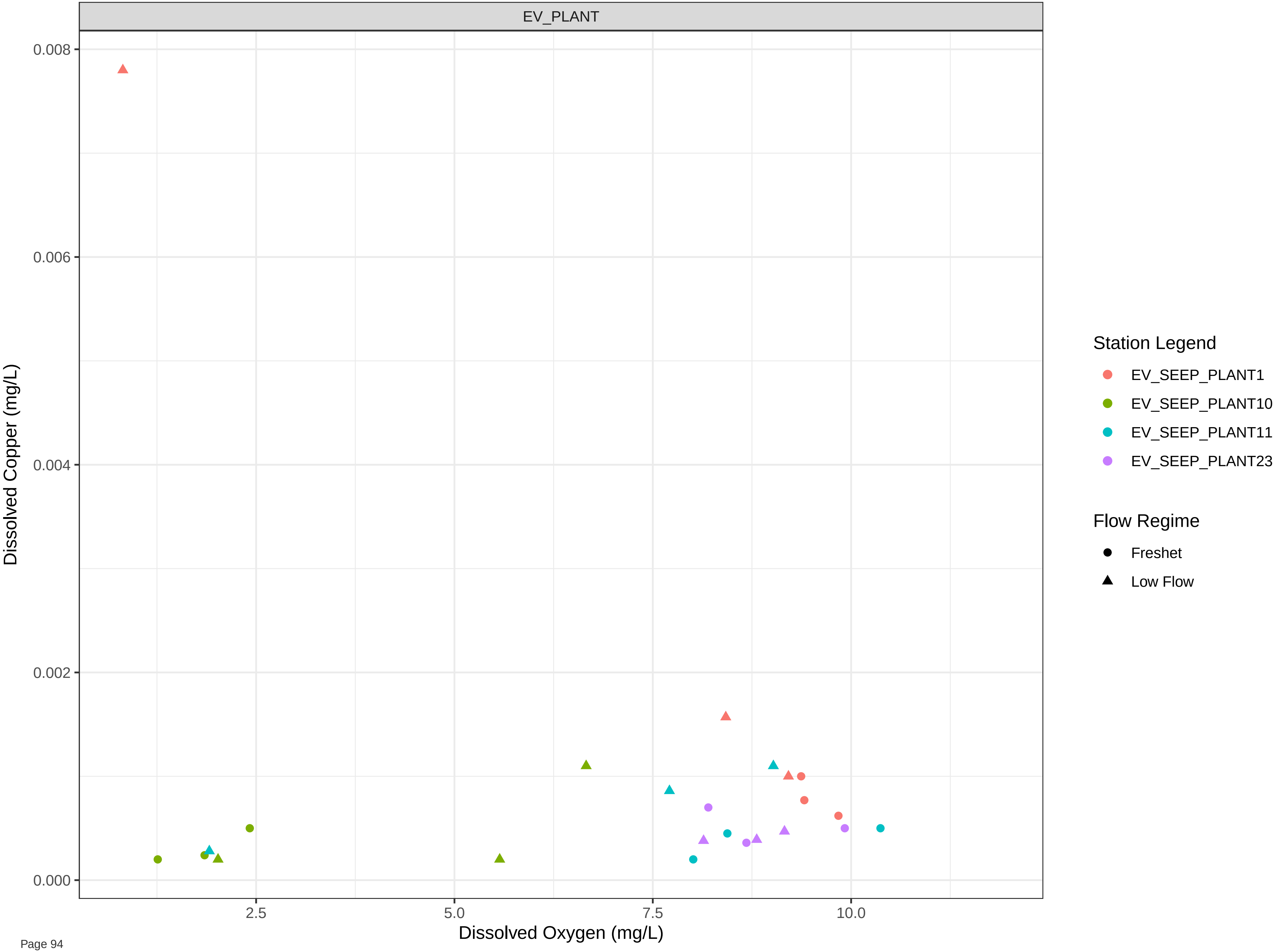


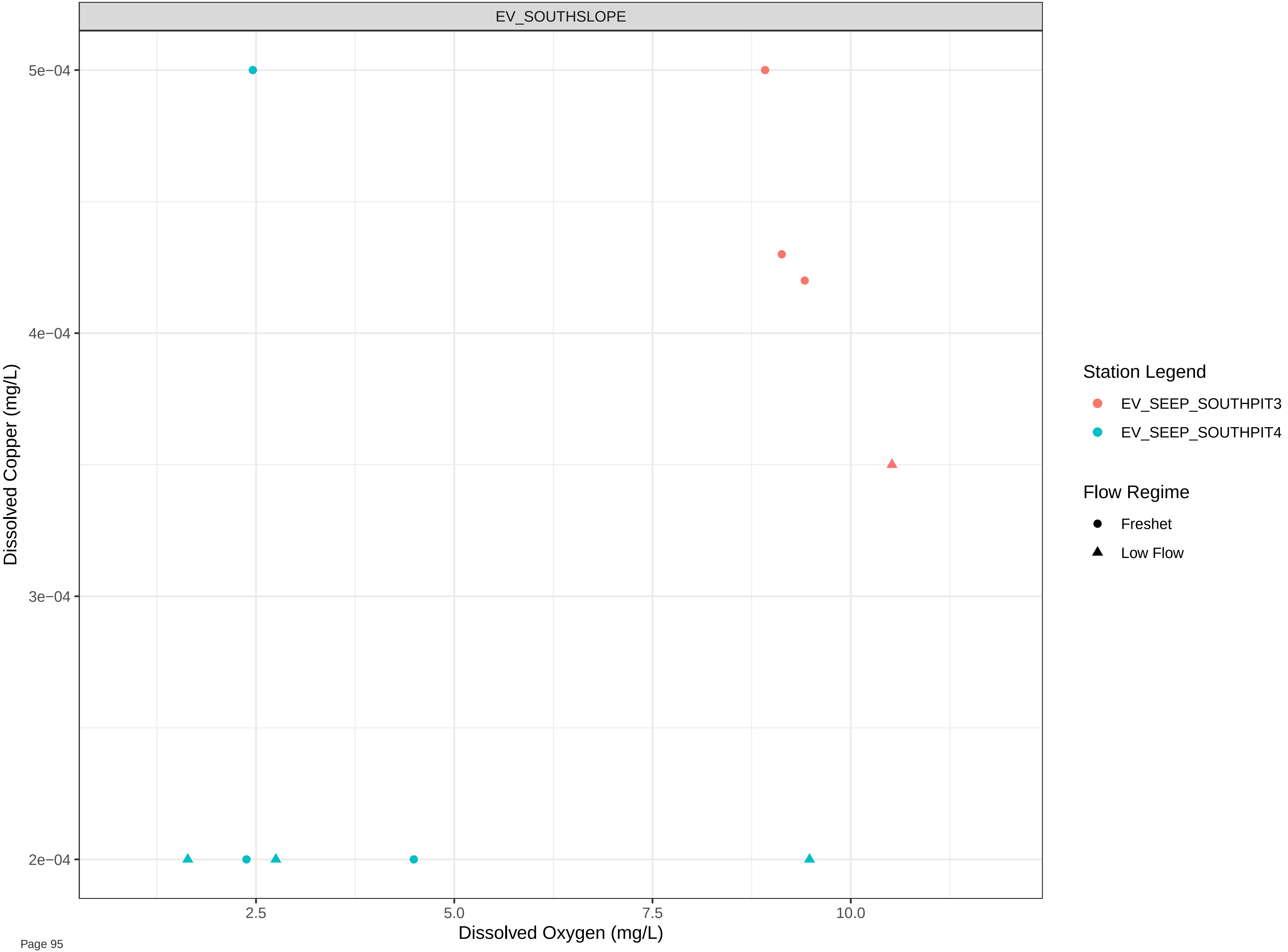
EV_CCR
0.0015
0.0010
0.0005
Dissolved Copper (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

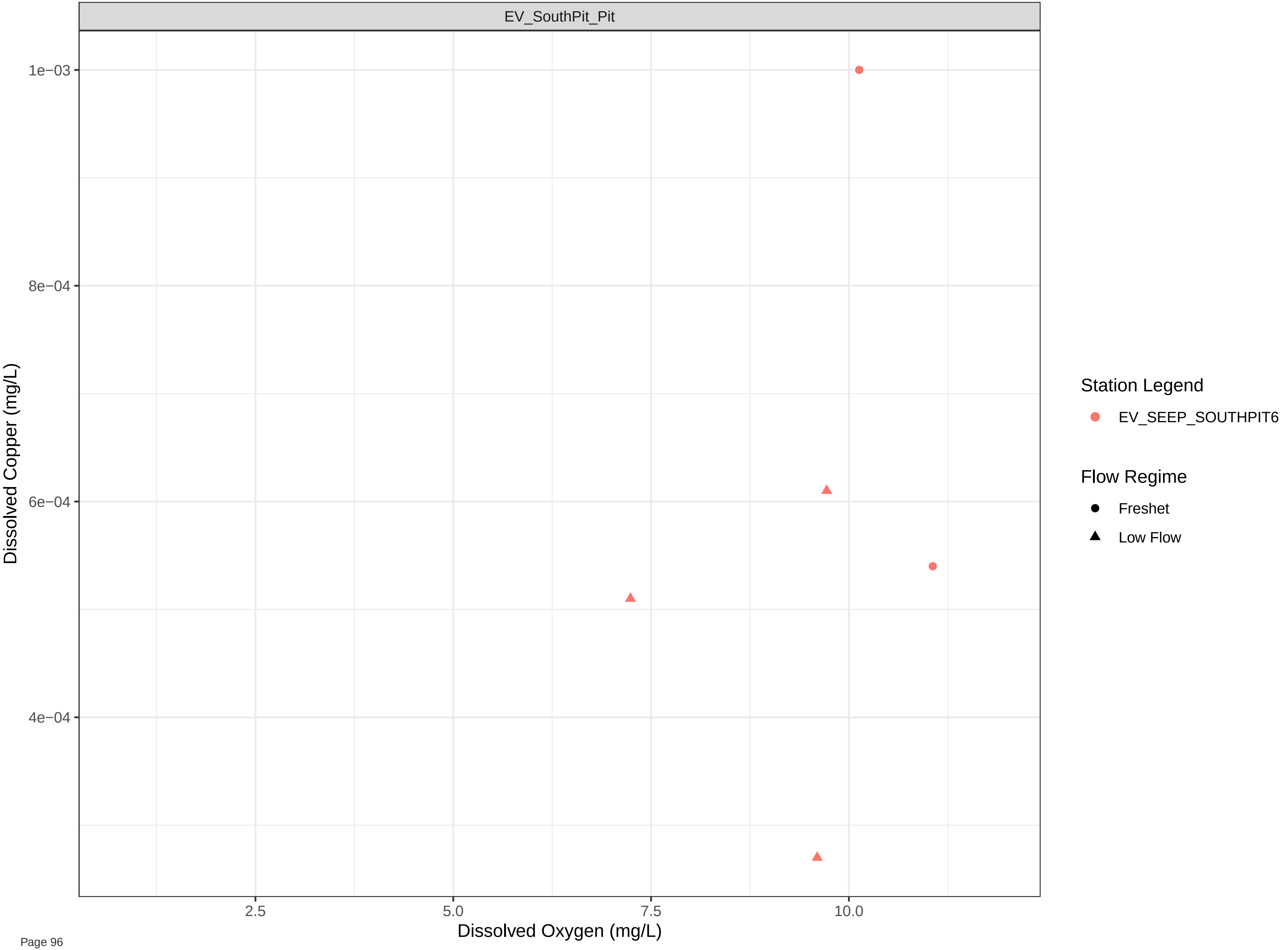

EV_CCR/TP
5e−04
4e−04
3e−04
2e−04
Dissolved Copper (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

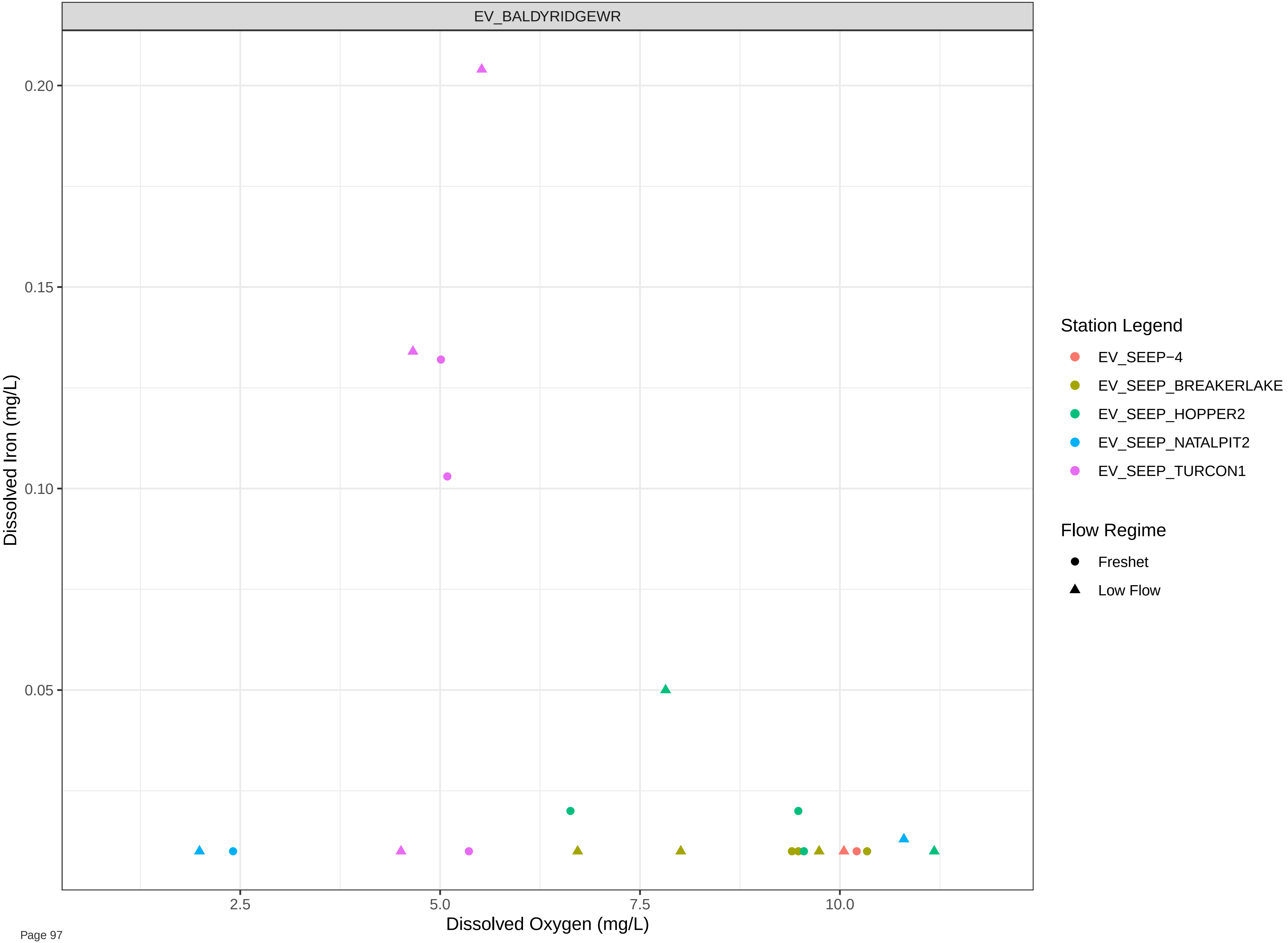

EV_CEDARWR
Dissolved Copper (mg/L)
5e−04
4e−04
3e−04
2e−04
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_CN1
● EV_SEEP_10MILE5
● EV_SEEP_10MILE9
Flow Regime
● Freshet
▲ Low Flow

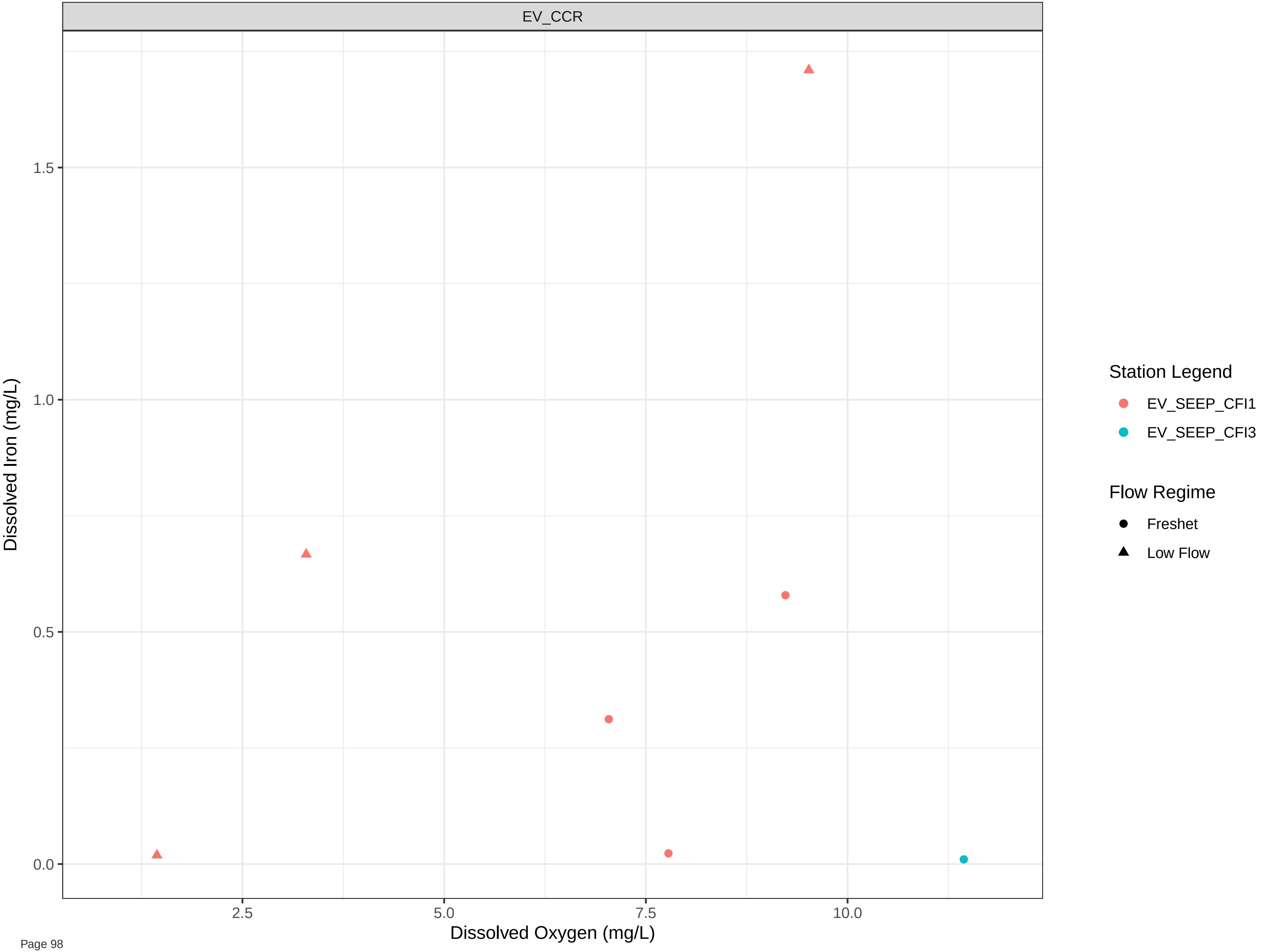

EV_Erickson_WR
0.0012
0.0009
0.0006
0.0003
Dissolved Copper (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

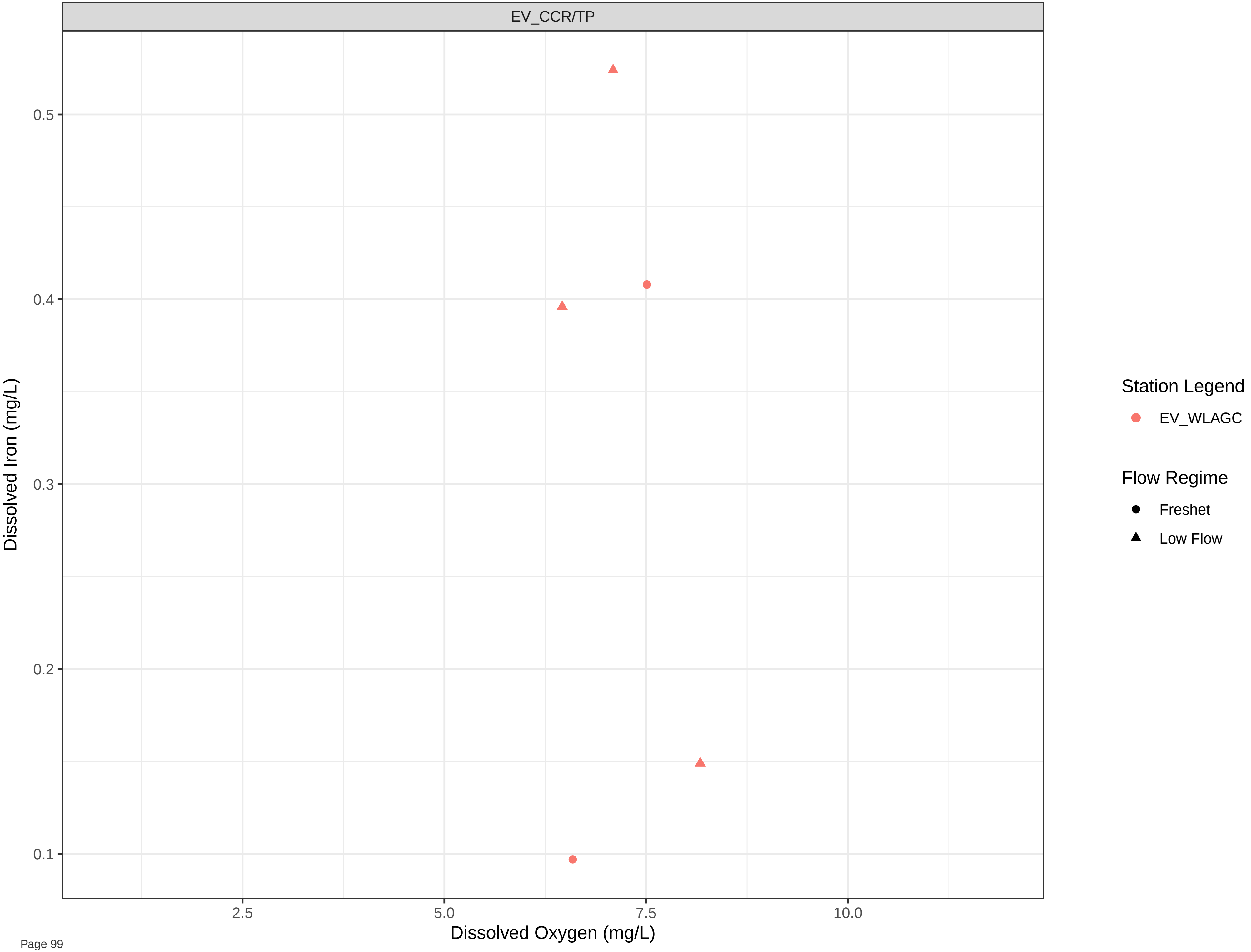

EV_PLANT
Dissolved Copper (mg/L)
0.008
0.006
0.004
0.002
0.000
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

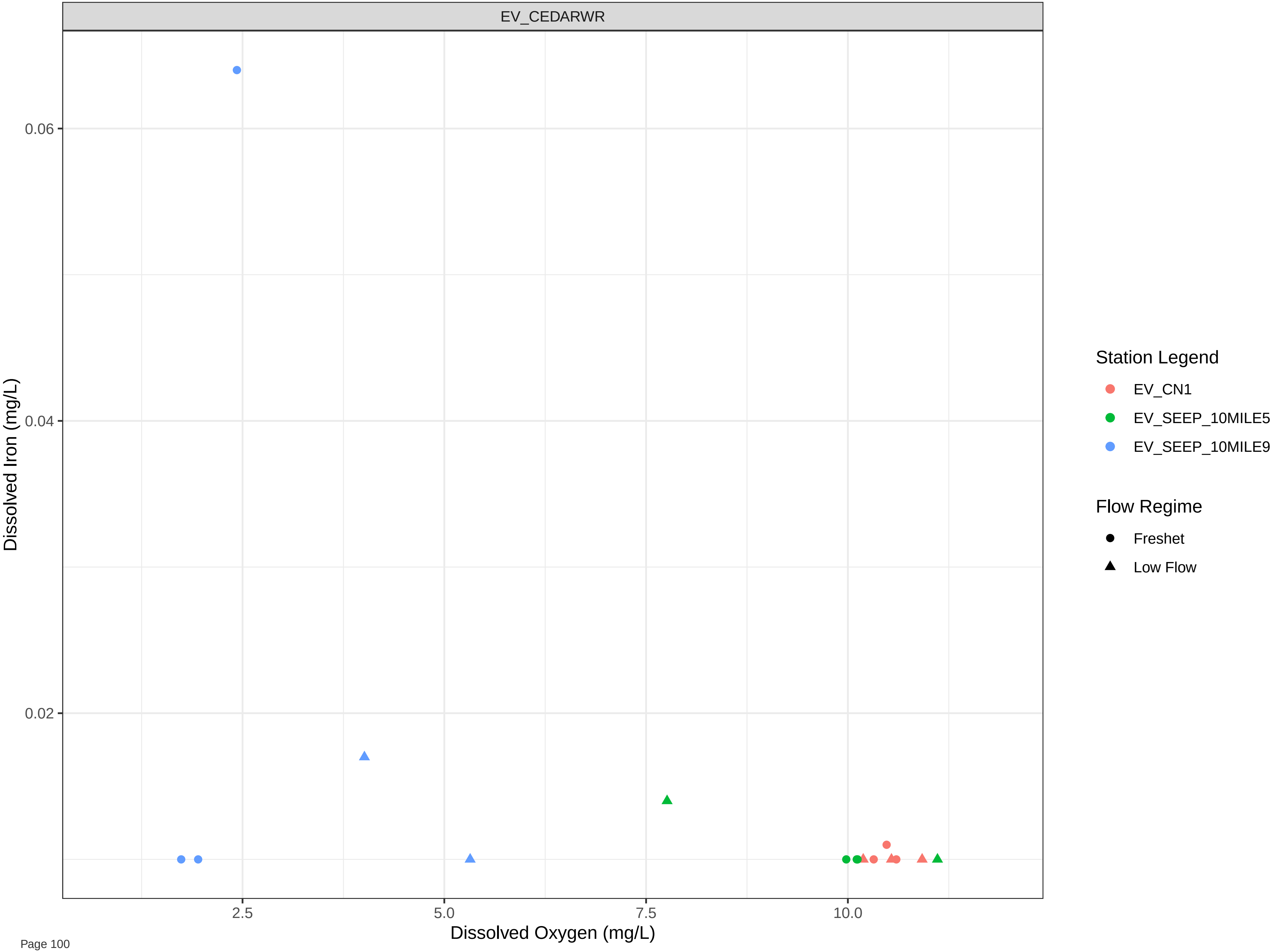

EV_SOUTHSLOPE
5e−04
4e−04
3e−04
2e−04
Dissolved Copper (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

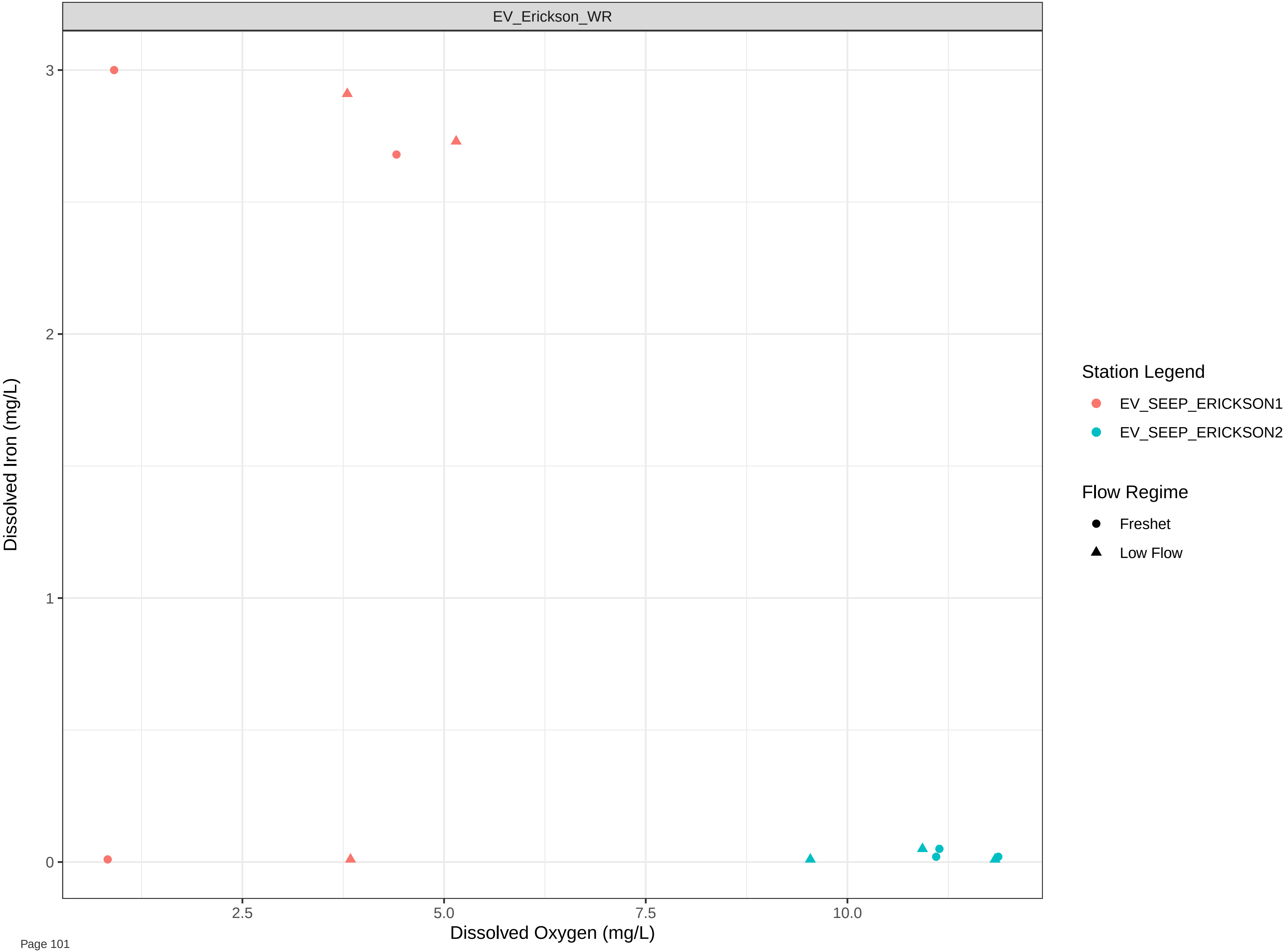

EV_SouthPit_Pit
1e−03
8e−04
6e−04
4e−04
Dissolved Copper (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

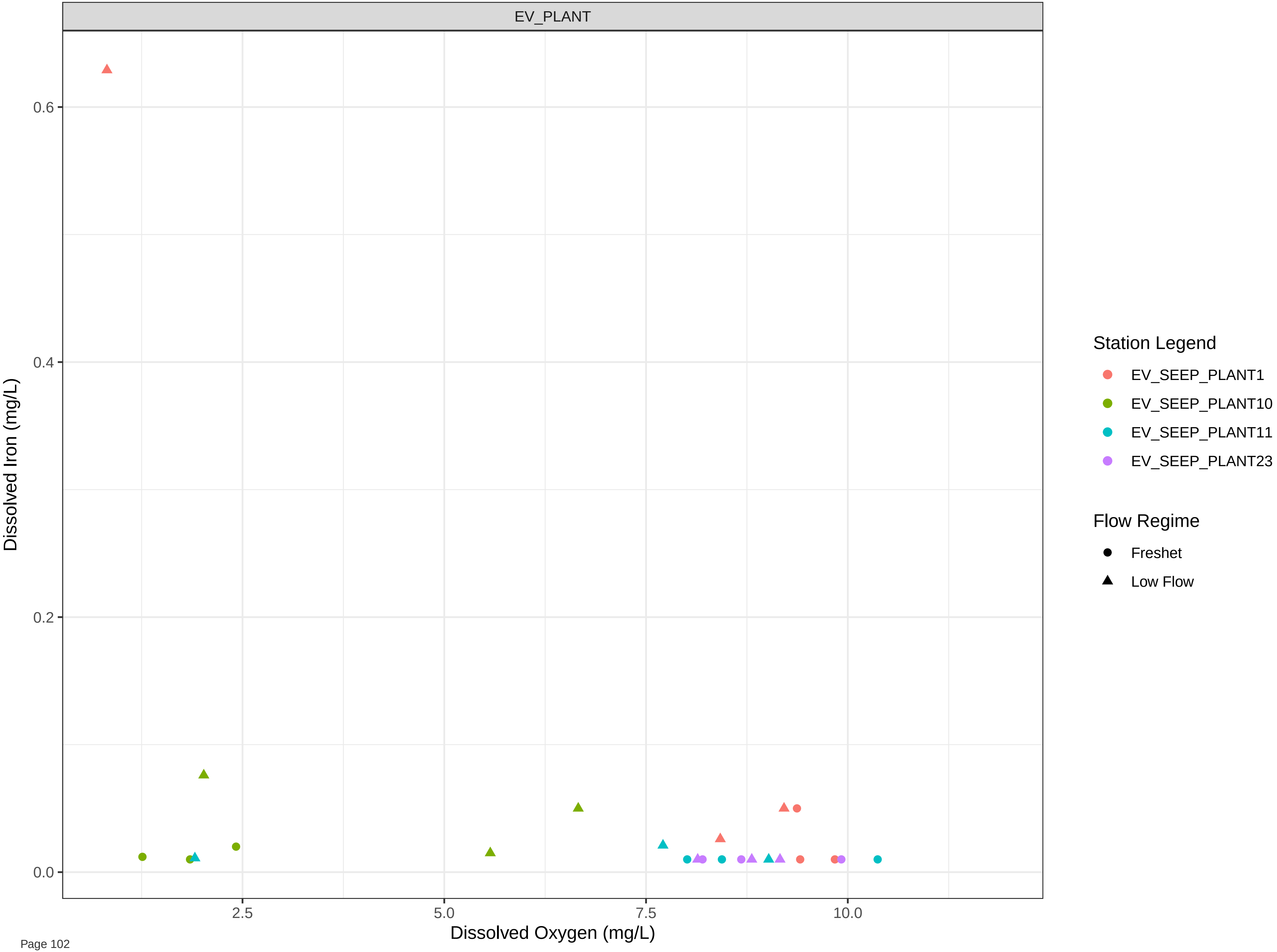

EV_BALDYRIDGEWR
Dissolved Iron (mg/L)
0.20
0.15
0.10
0.05
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

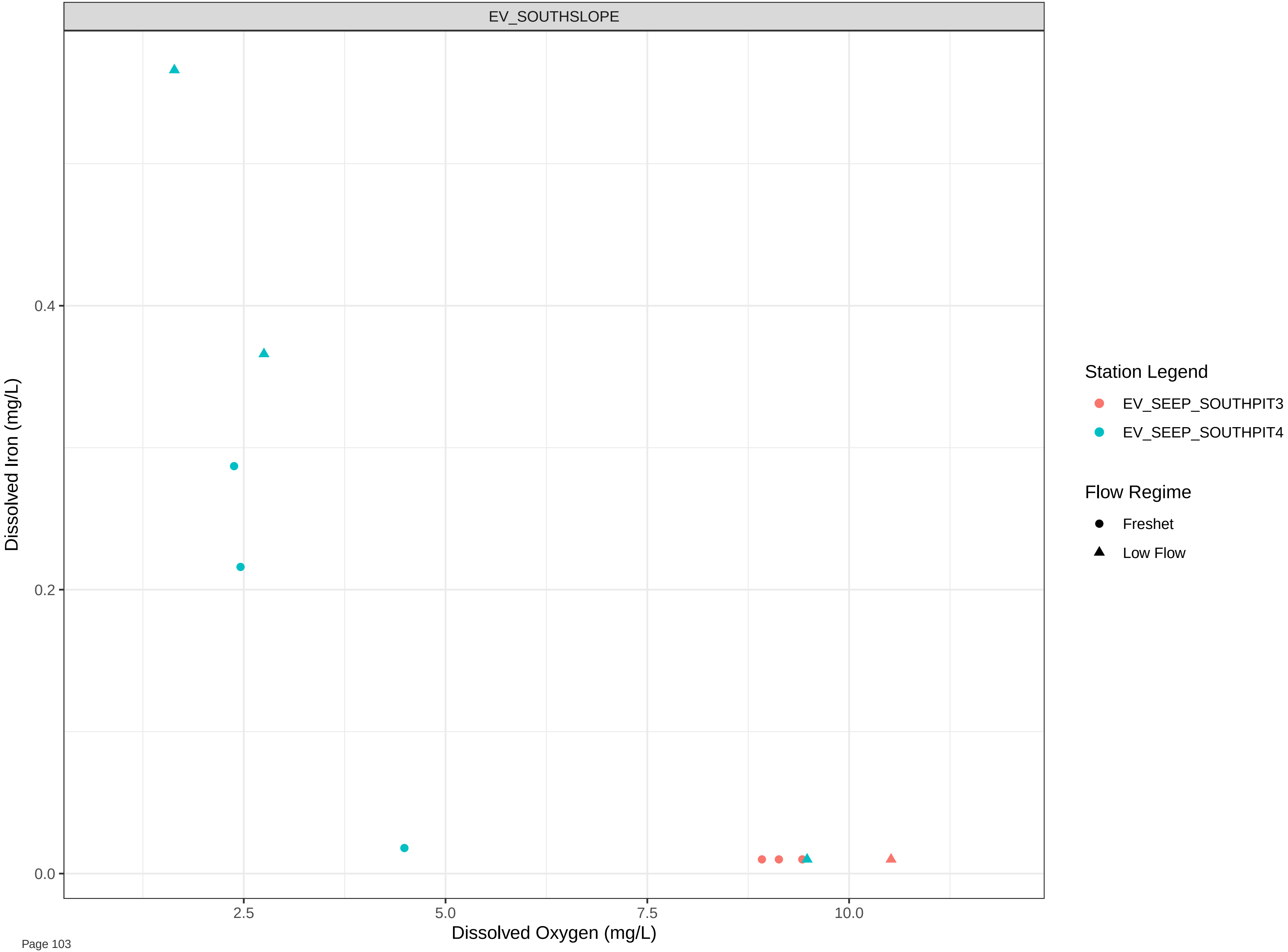

EV_CCR
Dissolved Iron (mg/L)
1.5
1.0
0.5
0.0
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

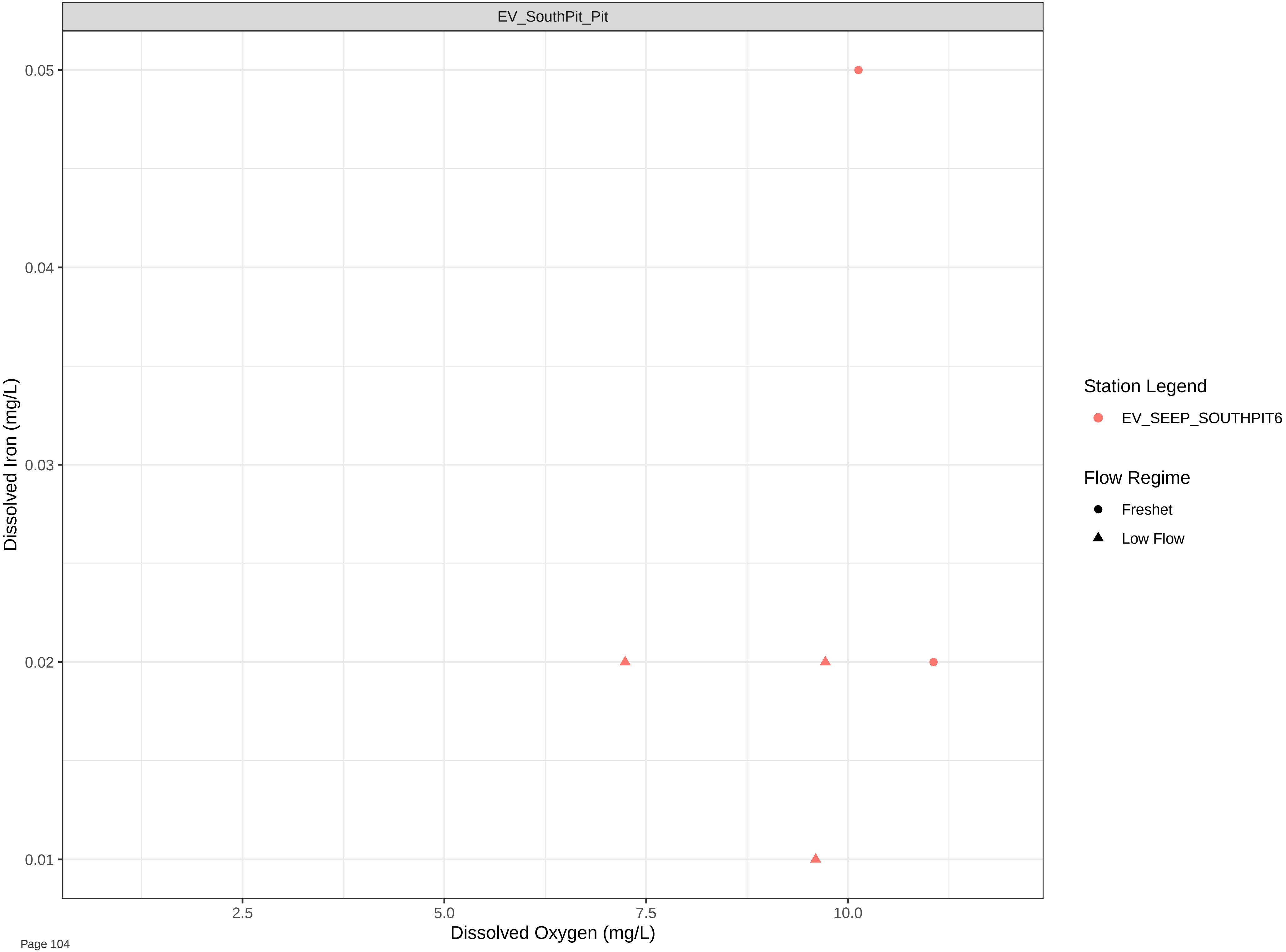

EV_CCR/TP
Dissolved Iron (mg/L)
0.5
0.4
0.3
0.2
0.1
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

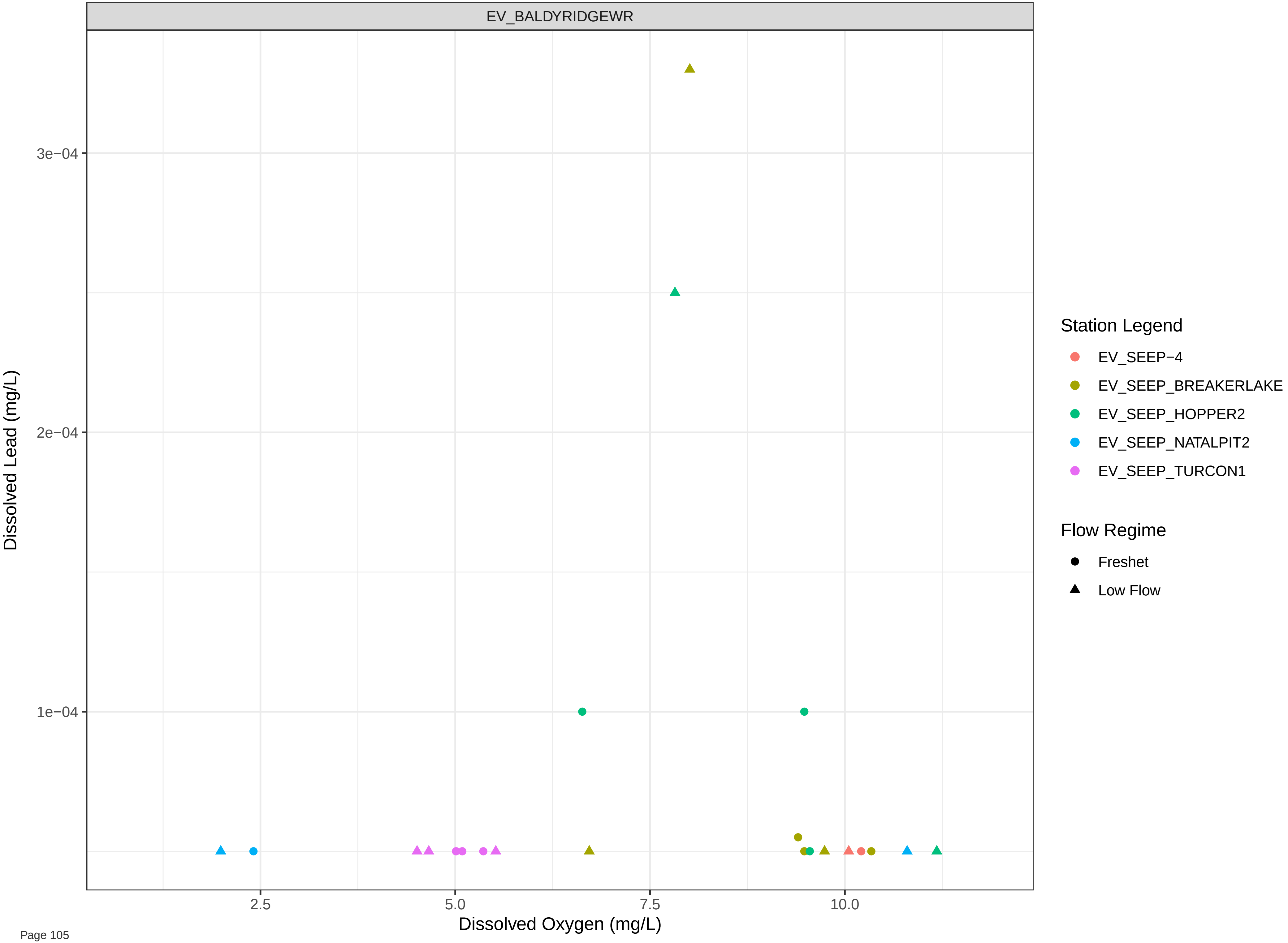

EV_CEDARWR
Dissolved Iron (mg/L)
0.06
0.04
0.02
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

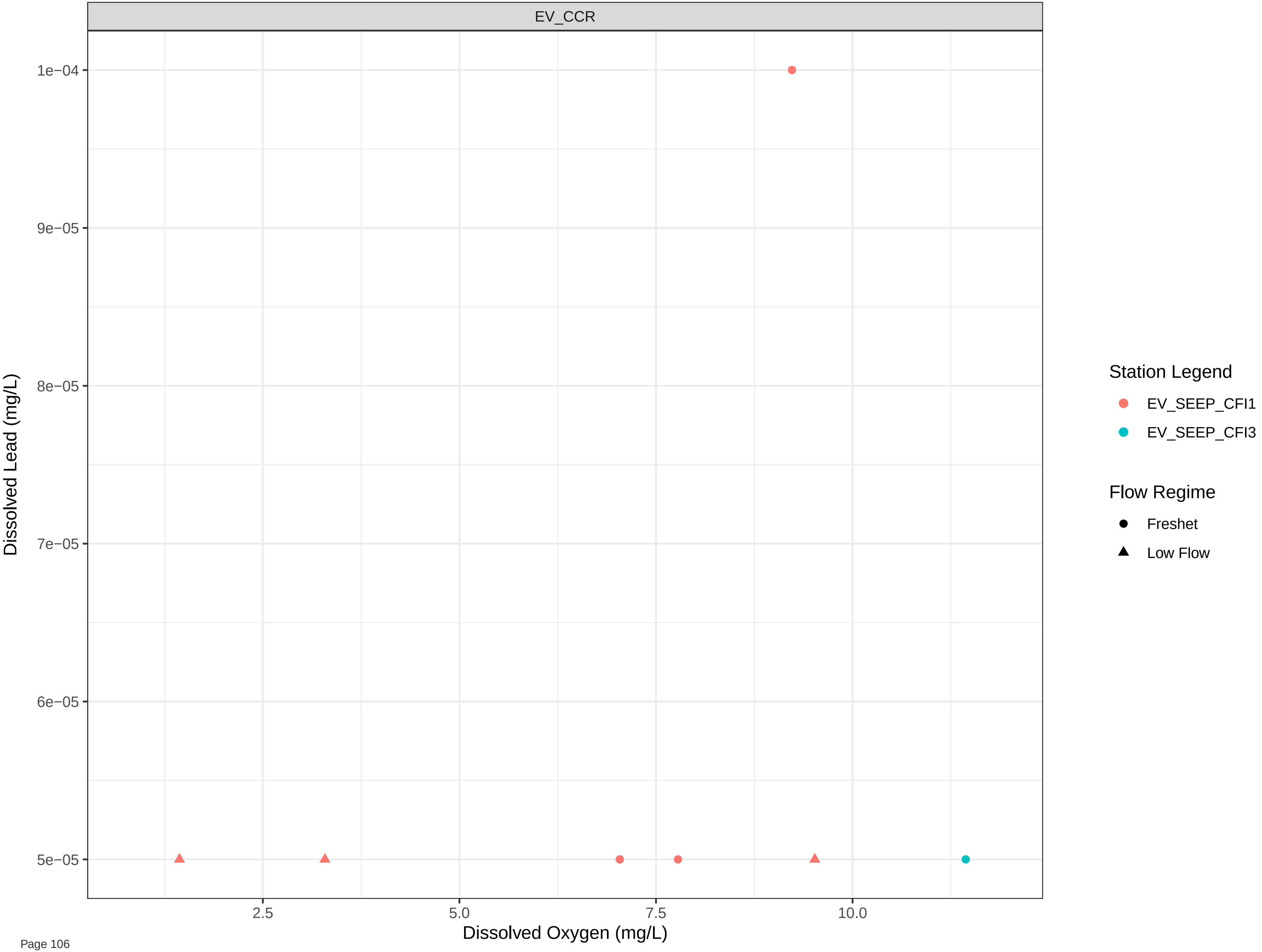

EV_Erickson_WR
Dissolved Iron (mg/L)
3
2
1
0
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

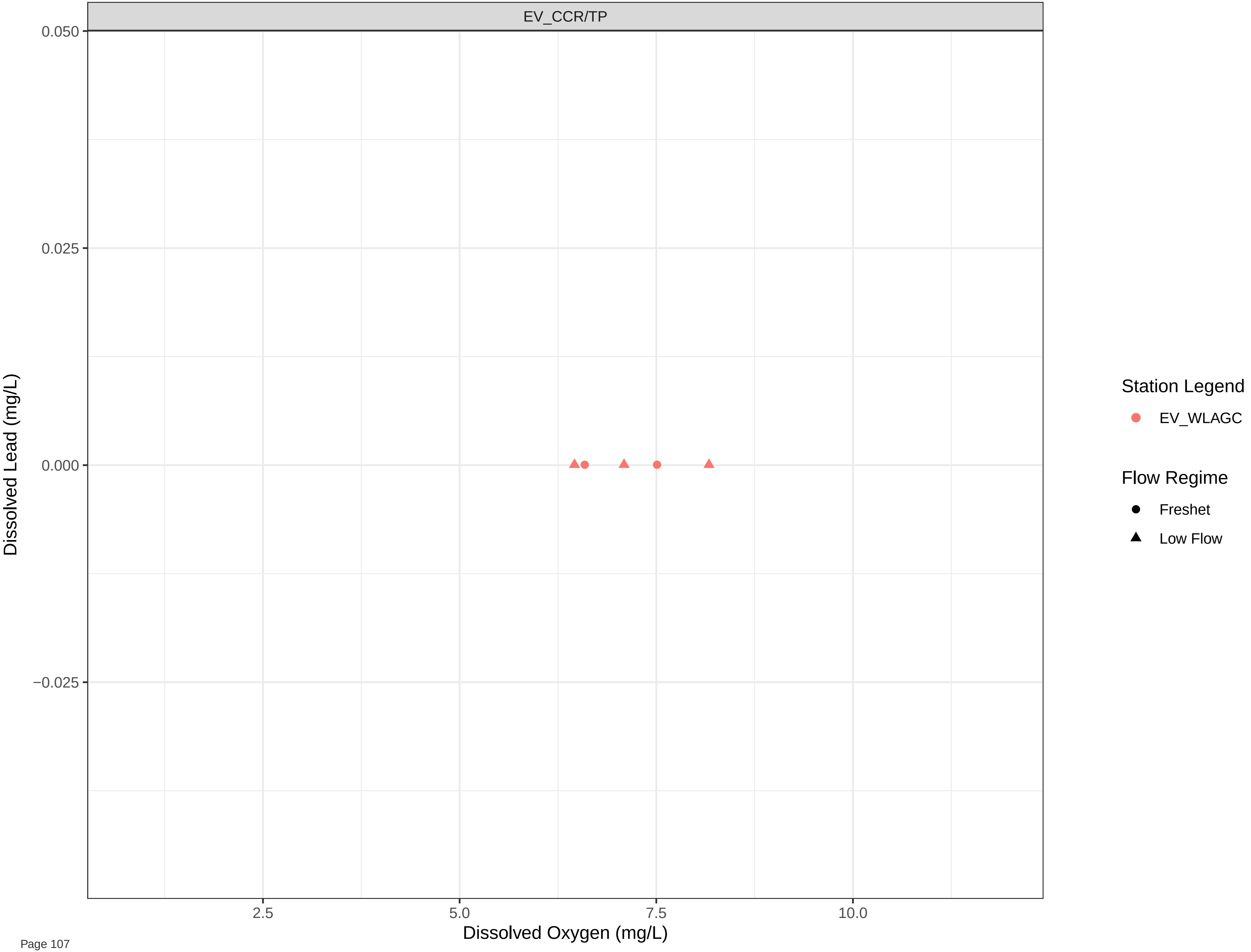

EV_PLANT
Dissolved Iron (mg/L)
0.6
0.4
0.2
0.0
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

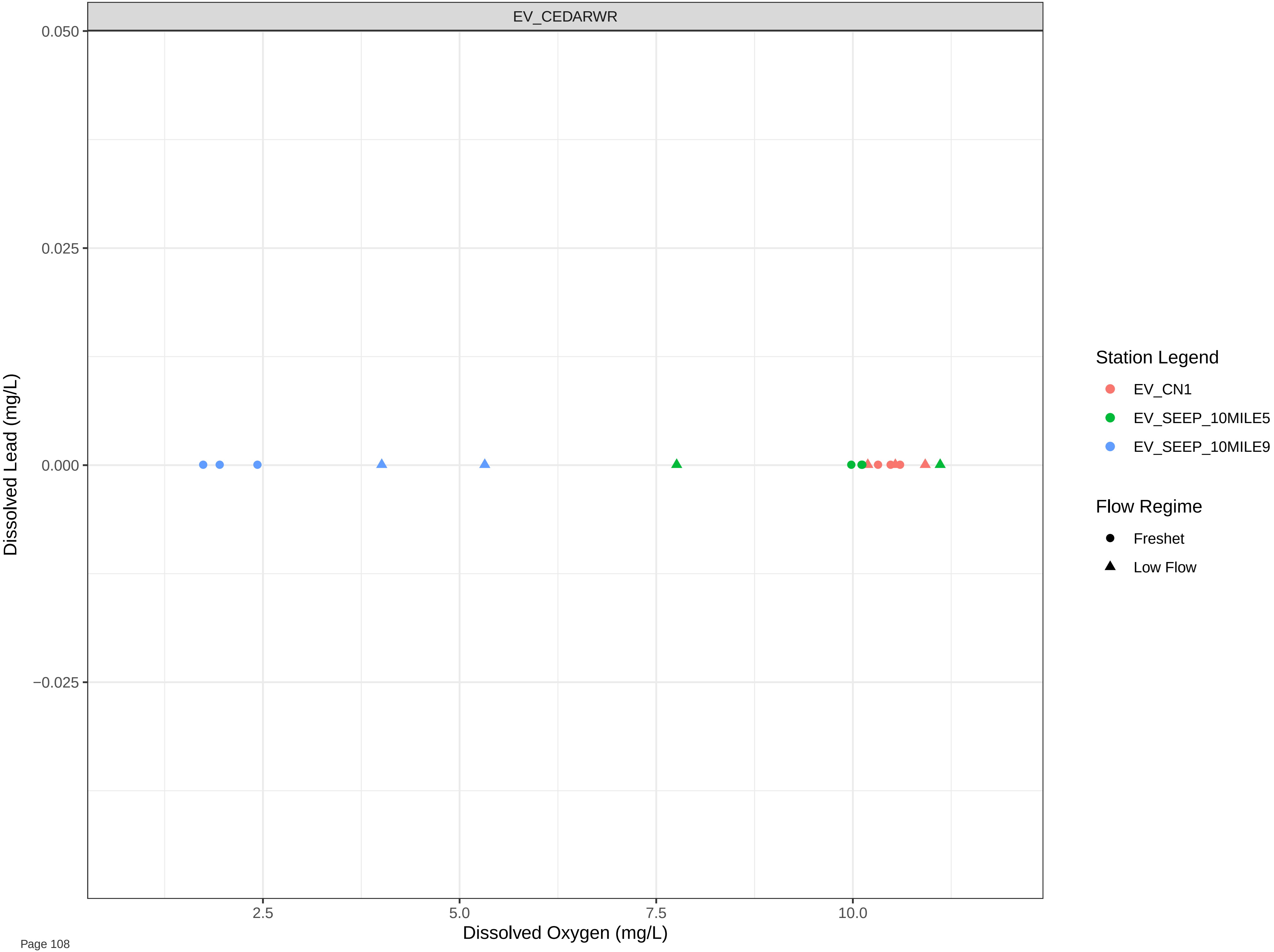

EV_SOUTHSLOPE
Dissolved Iron (mg/L)
0.0
0.2
0.4
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

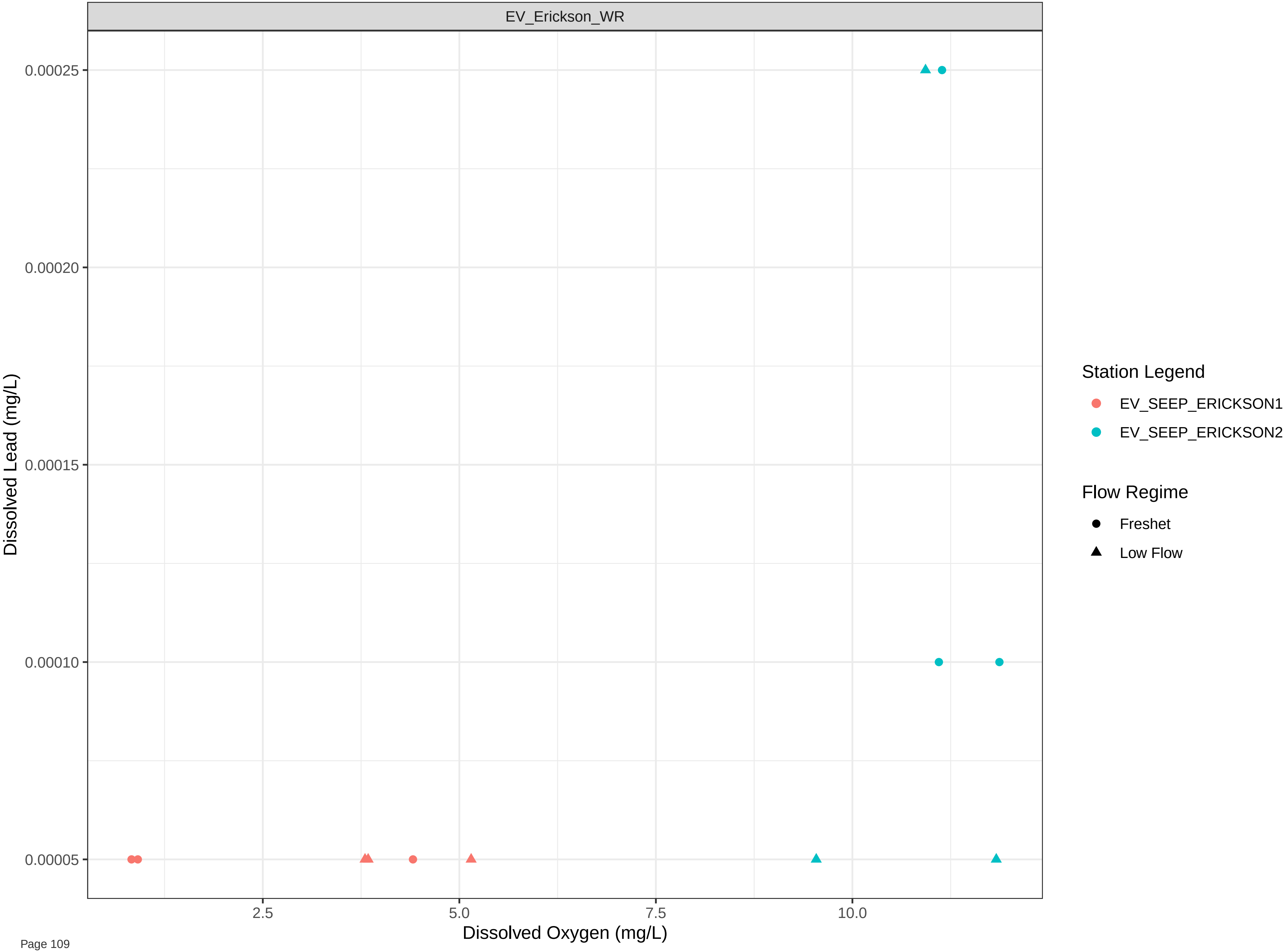

EV_SouthPit_Pit
Dissolved Iron (mg/L)
0.05
0.04
0.03
0.02
0.01
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

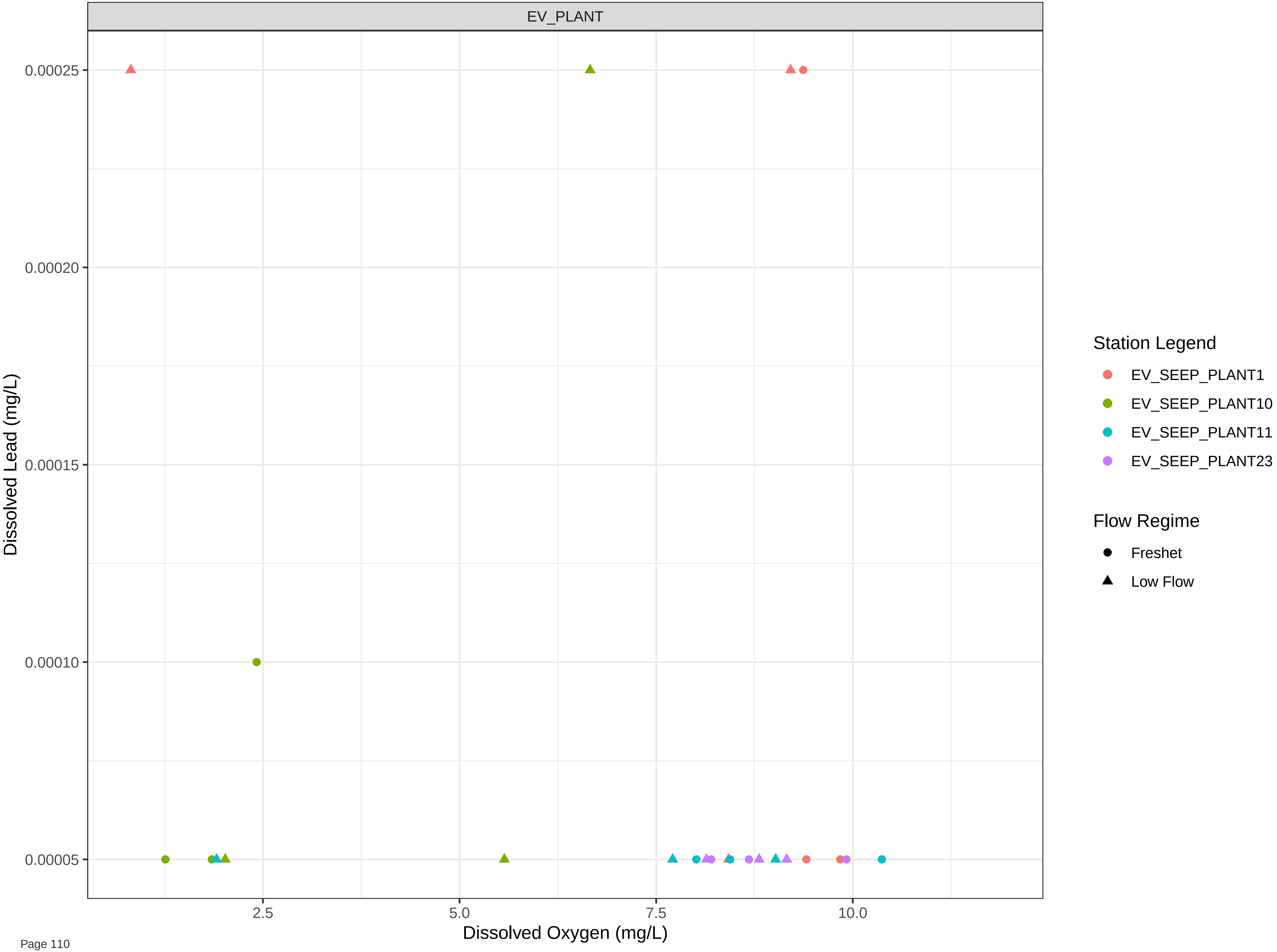

EV_BALDYRIDGEWR
Dissolved Lead (mg/L)
3e−04
2e−04
1e−04
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

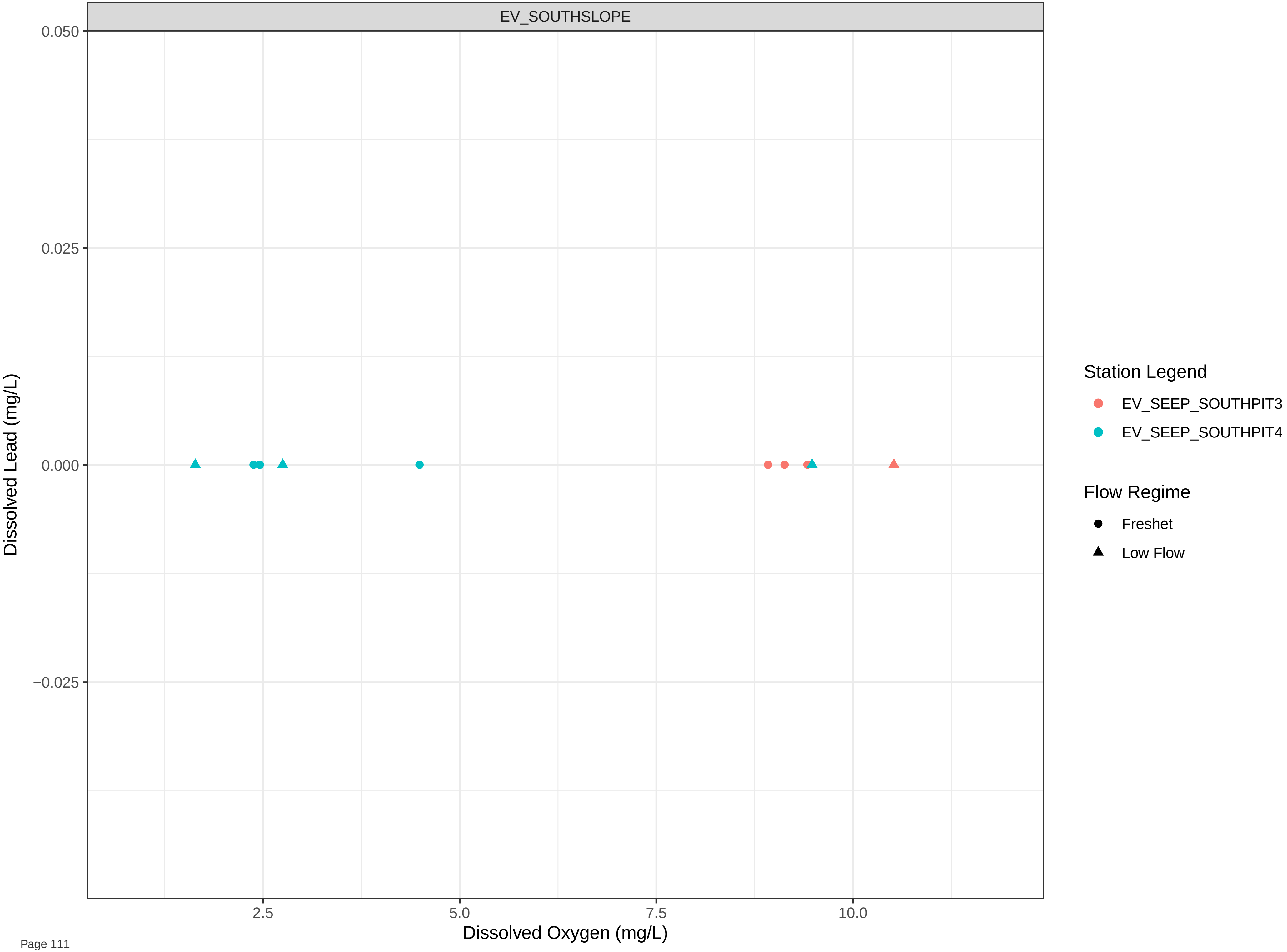

EV_CCR
Dissolved Lead (mg/L)
1e−04
9e−05
8e−05
7e−05
6e−05
5e−05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

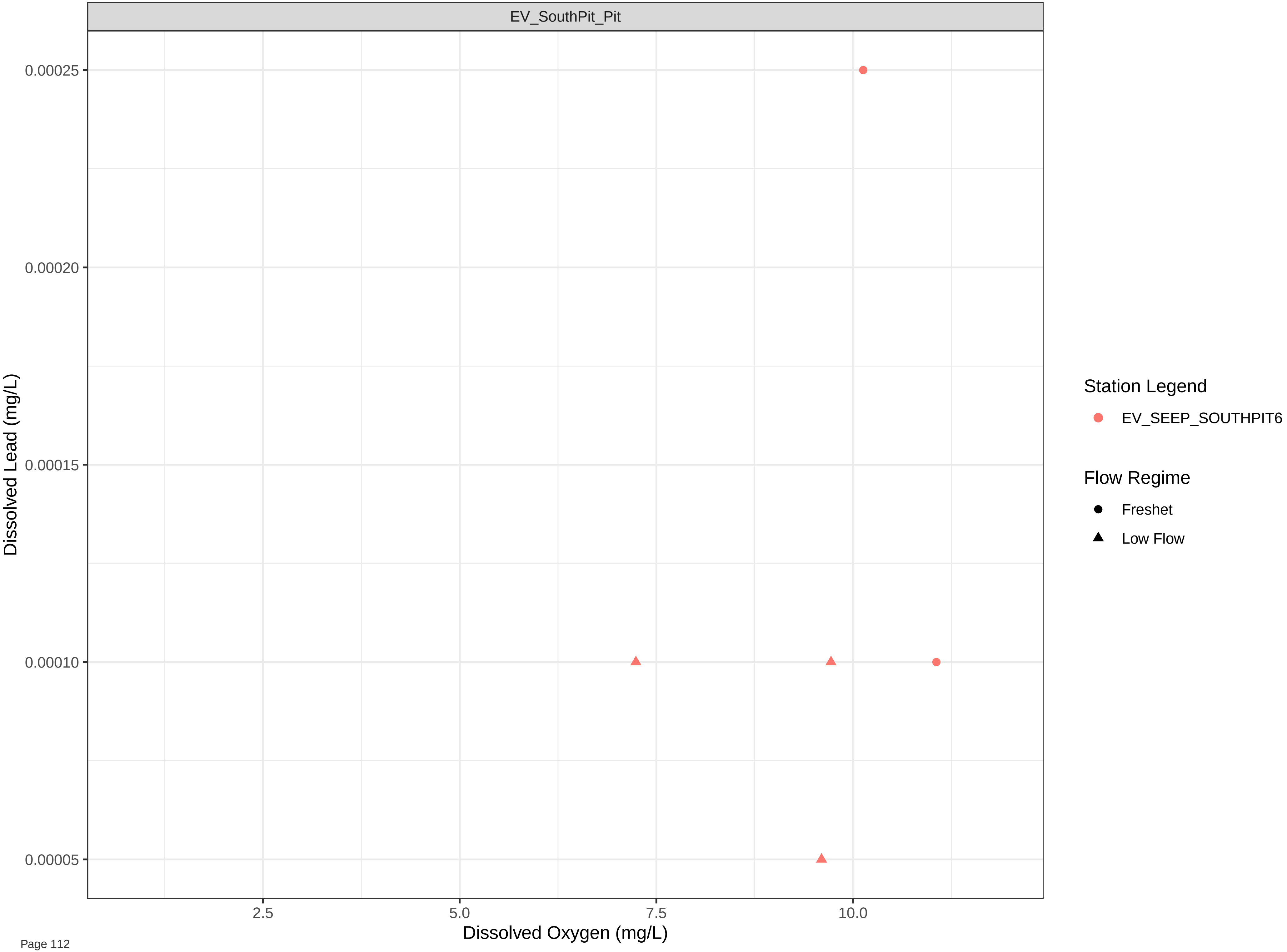

EV_CCR/TP
0.050
0.025
0.000
−0.025
Dissolved Lead (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

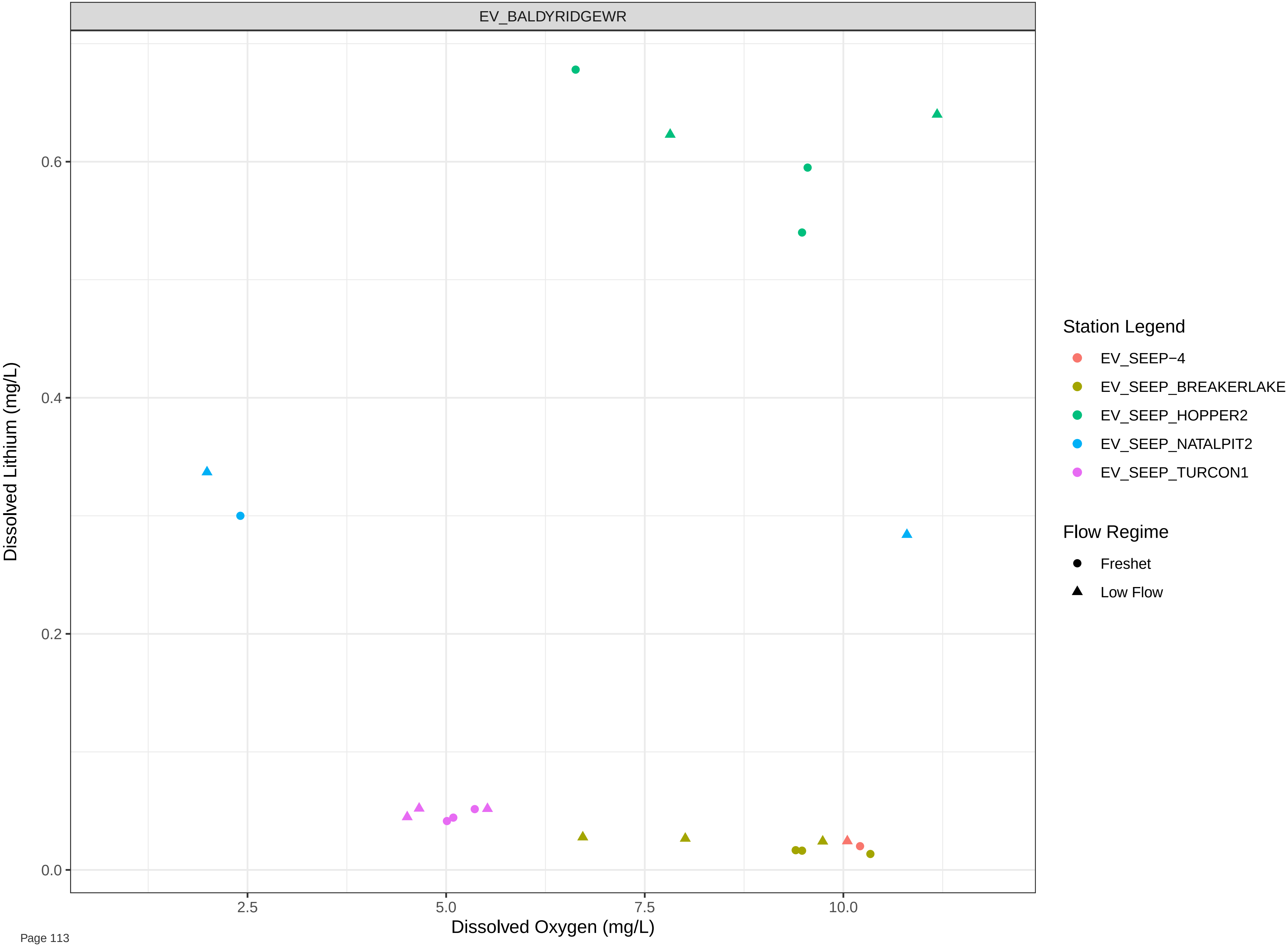

EV_CEDARWR
0.050
0.025
0.000
−0.025
Dissolved Lead (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

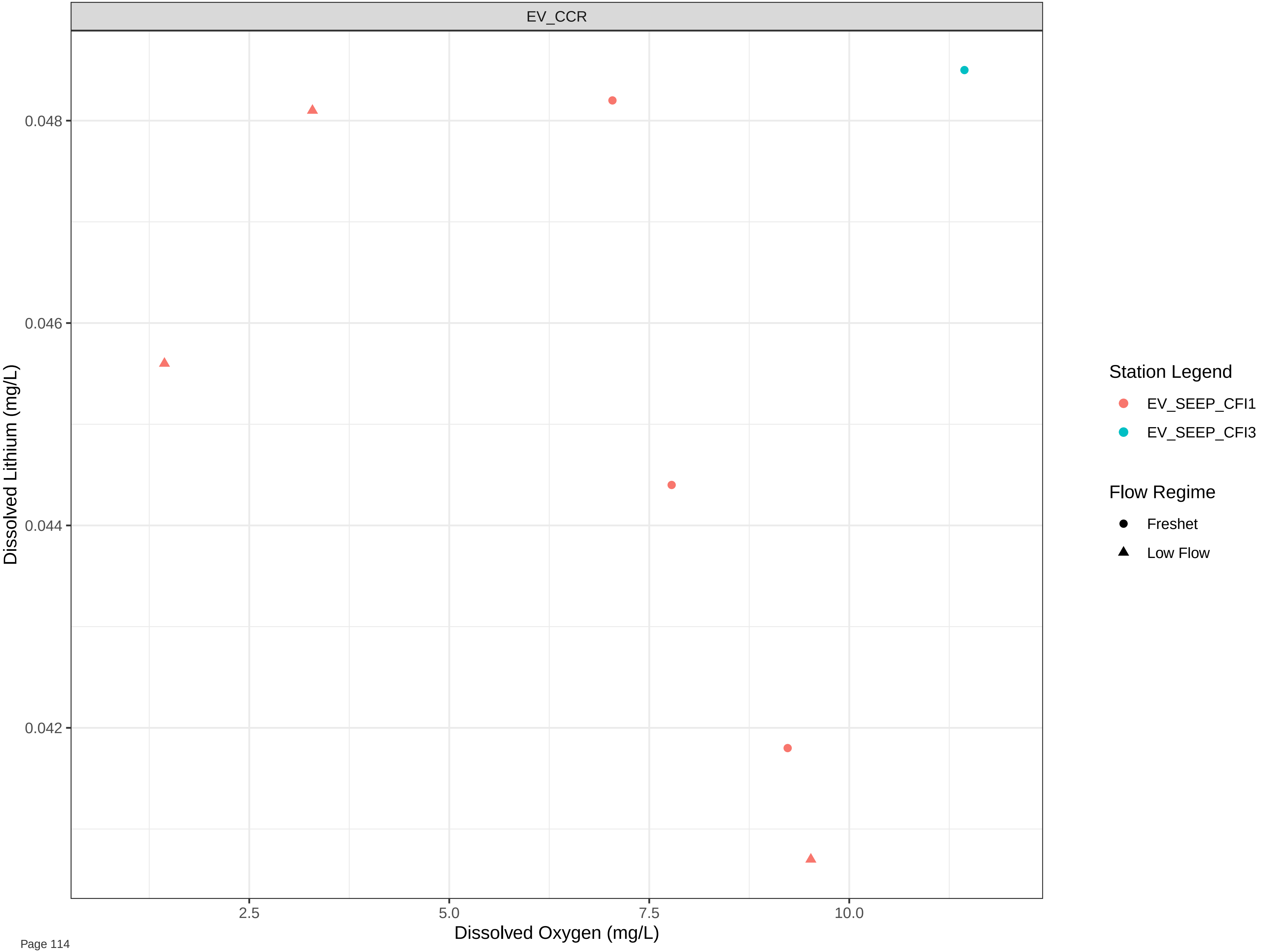

EV_Erickson_WR
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

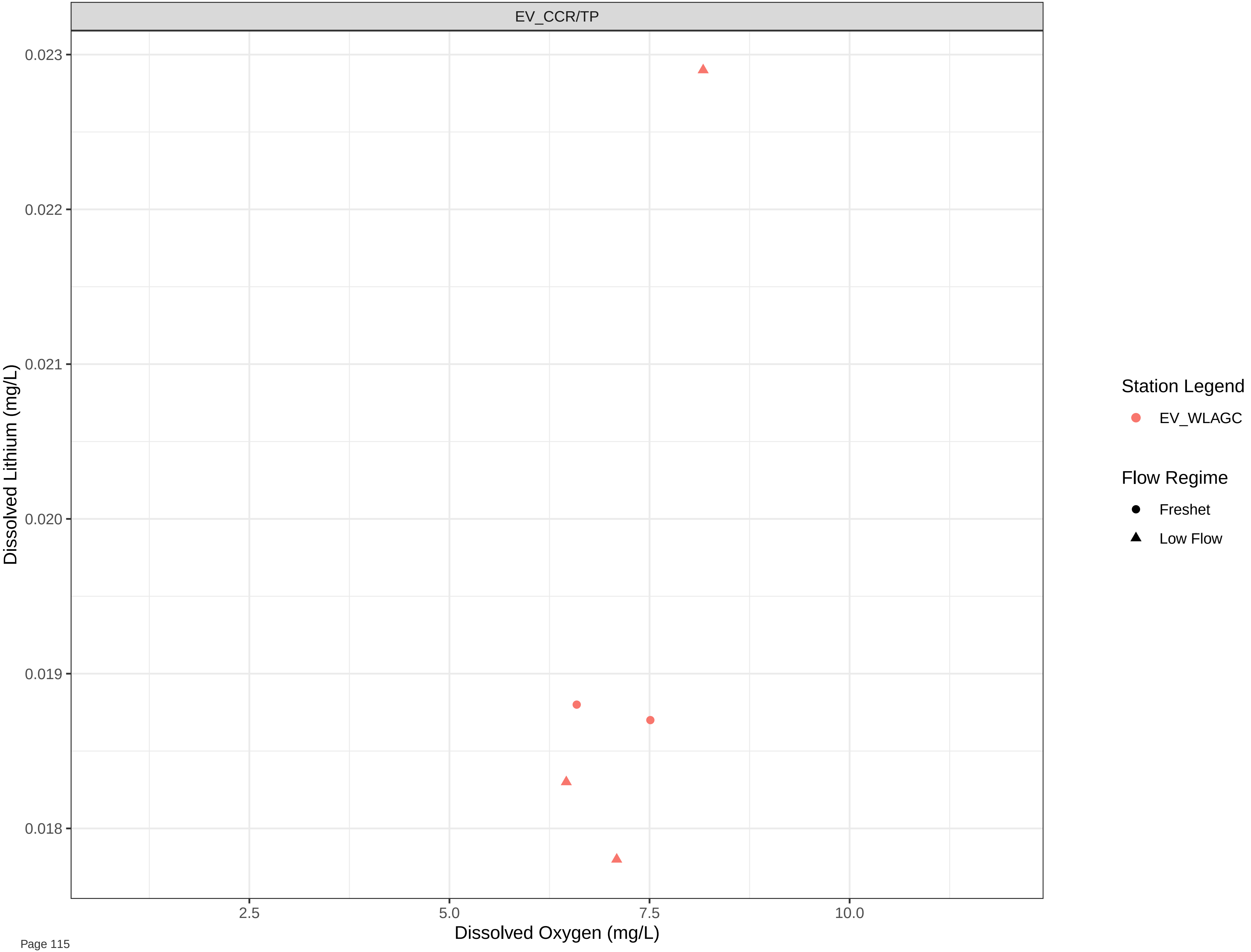

EV_PLANT
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Lead (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

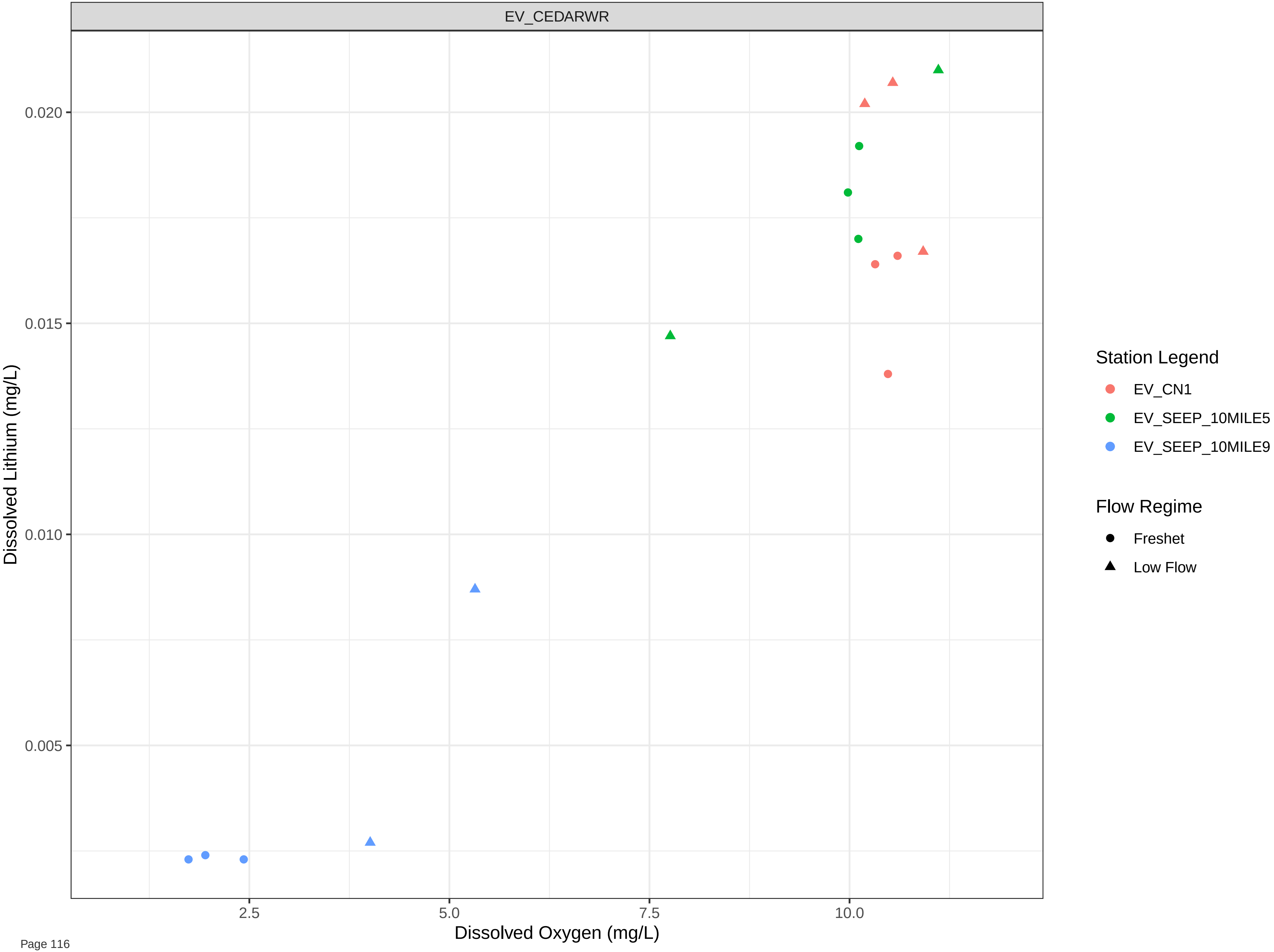

EV_SOUTHSLOPE
0.050
0.025
0.000
−0.025
Dissolved Lead (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

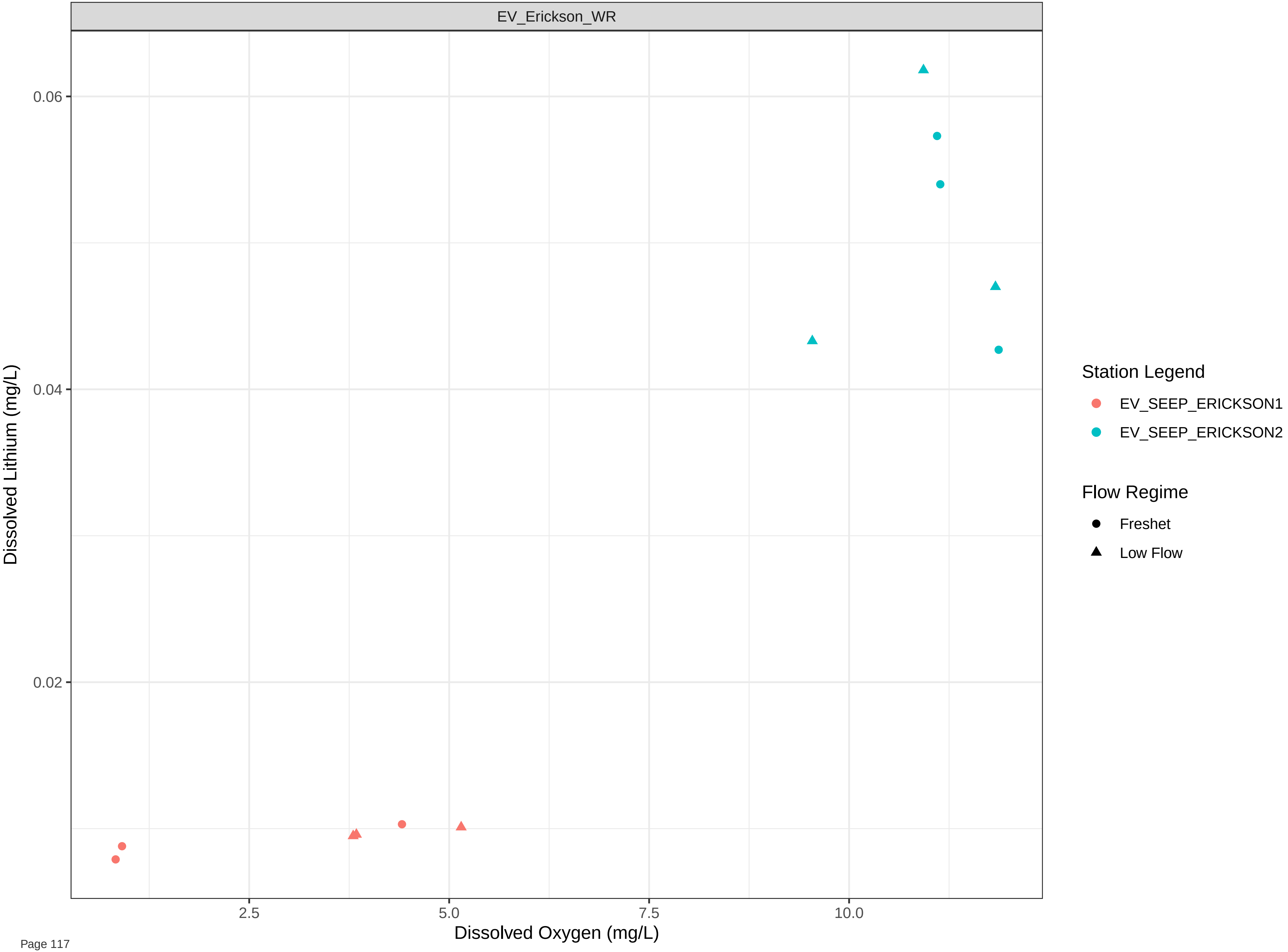

EV_SouthPit_Pit
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Lead (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

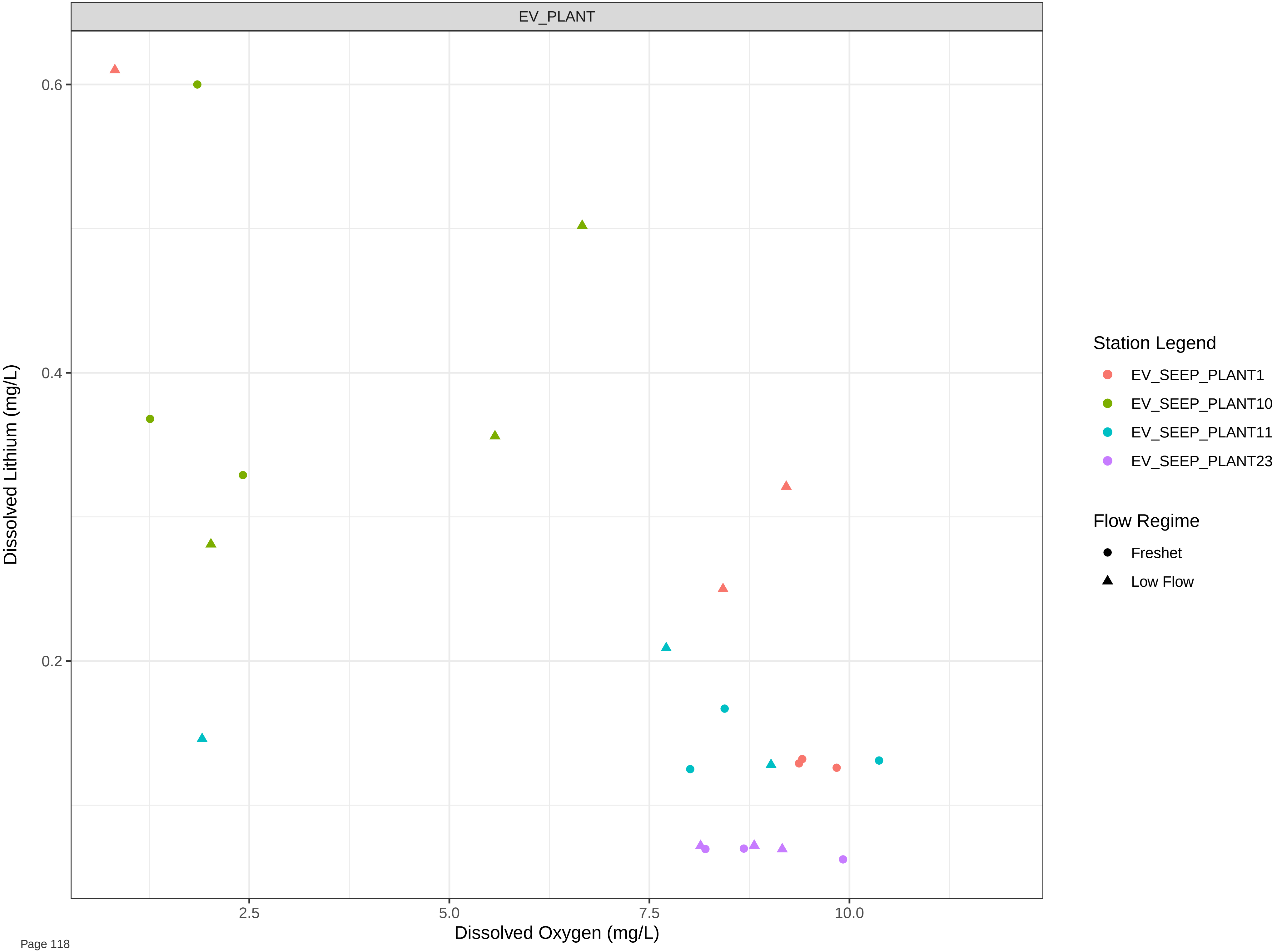

EV_BALDYRIDGEWR
Dissolved Lithium (mg/L)
0.0
0.2
0.4
0.6
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

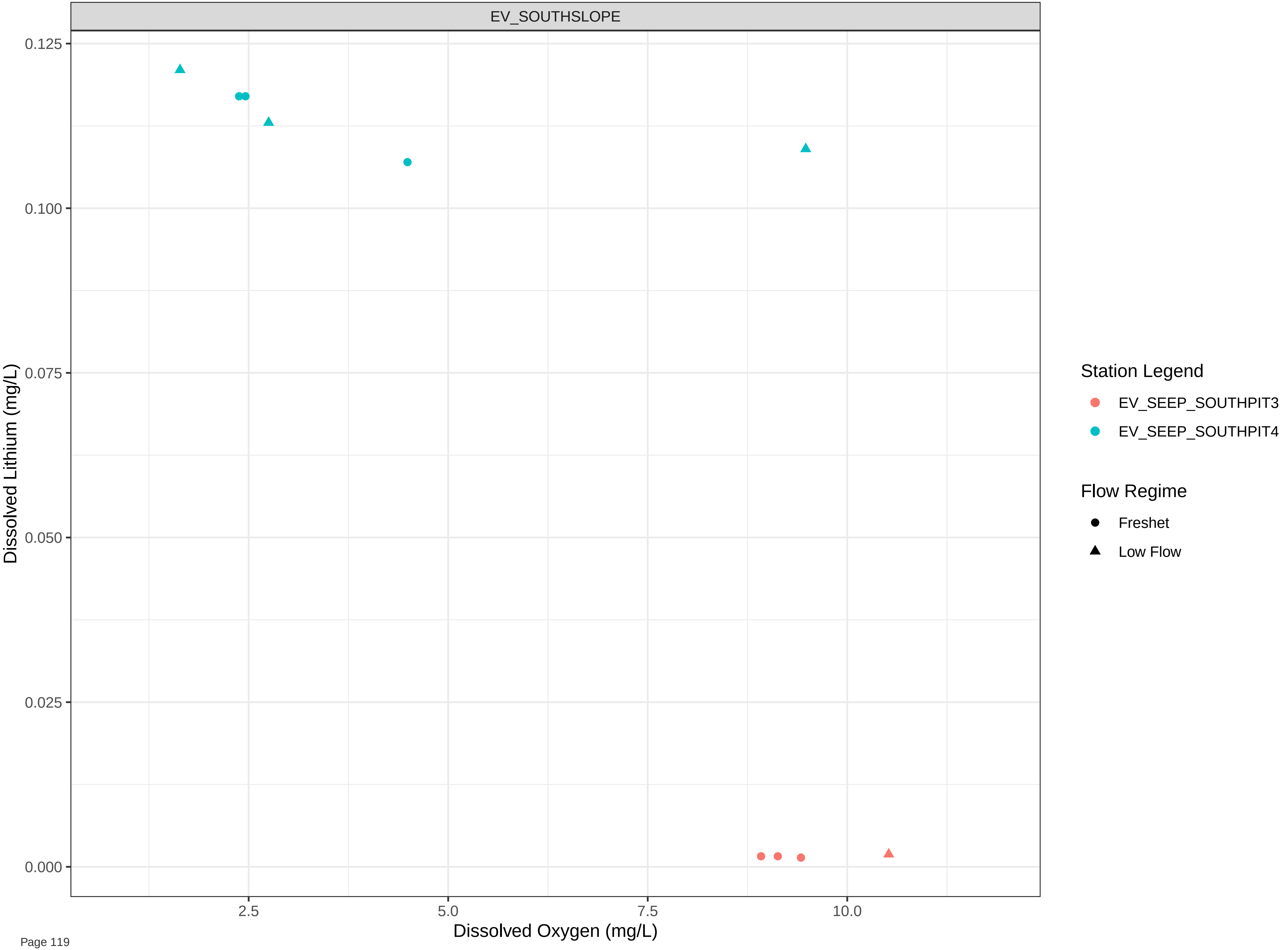

EV_CCR
Dissolved Lithium (mg/L)
0.048
0.046
0.044
0.042
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

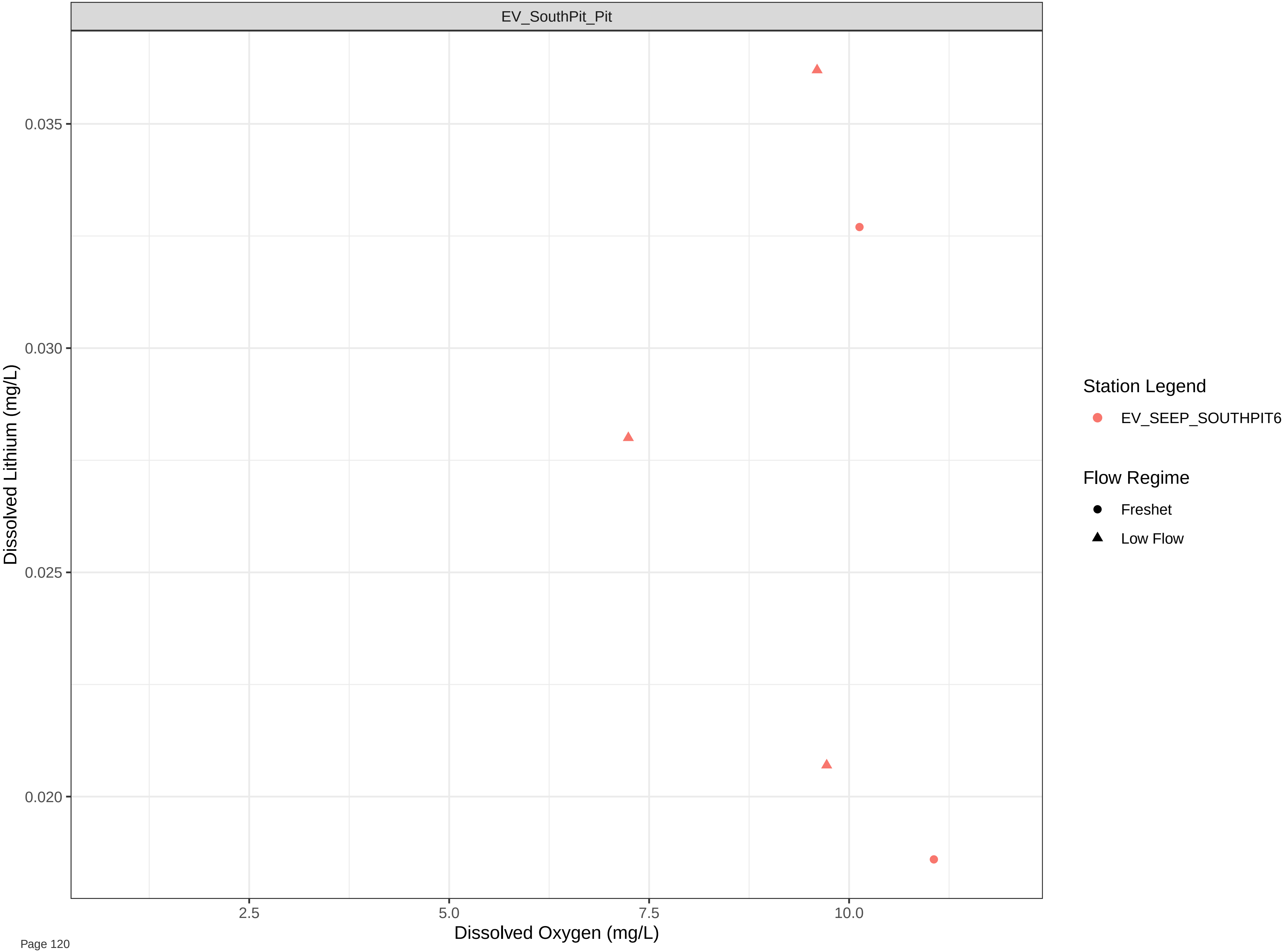

EV_CCR/TP
0.023
0.022
0.021
0.020
0.019
0.018
Dissolved Lithium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

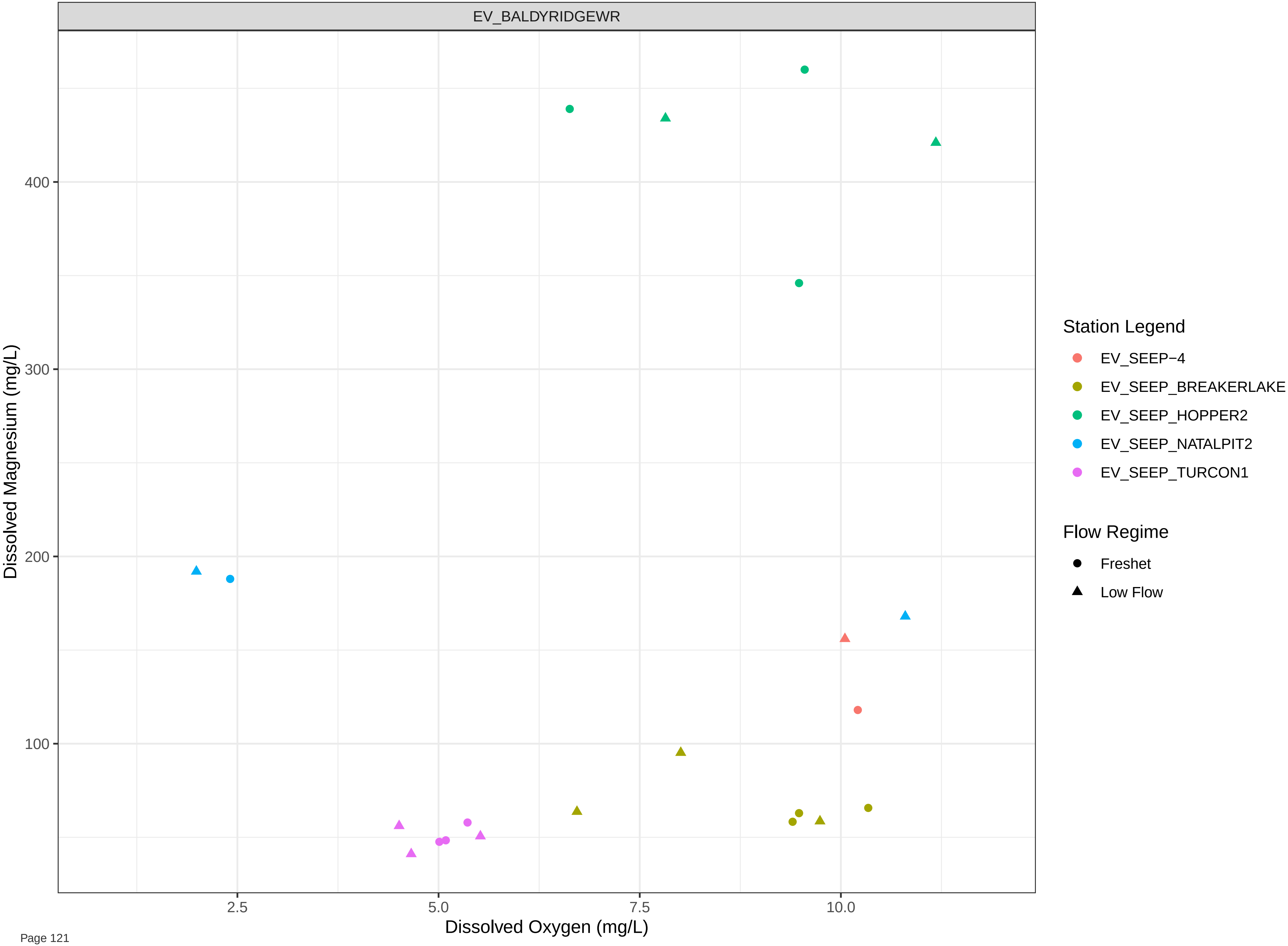

EV_CEDARWR
Dissolved Lithium (mg/L)
0.020
0.015
0.010
0.005
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

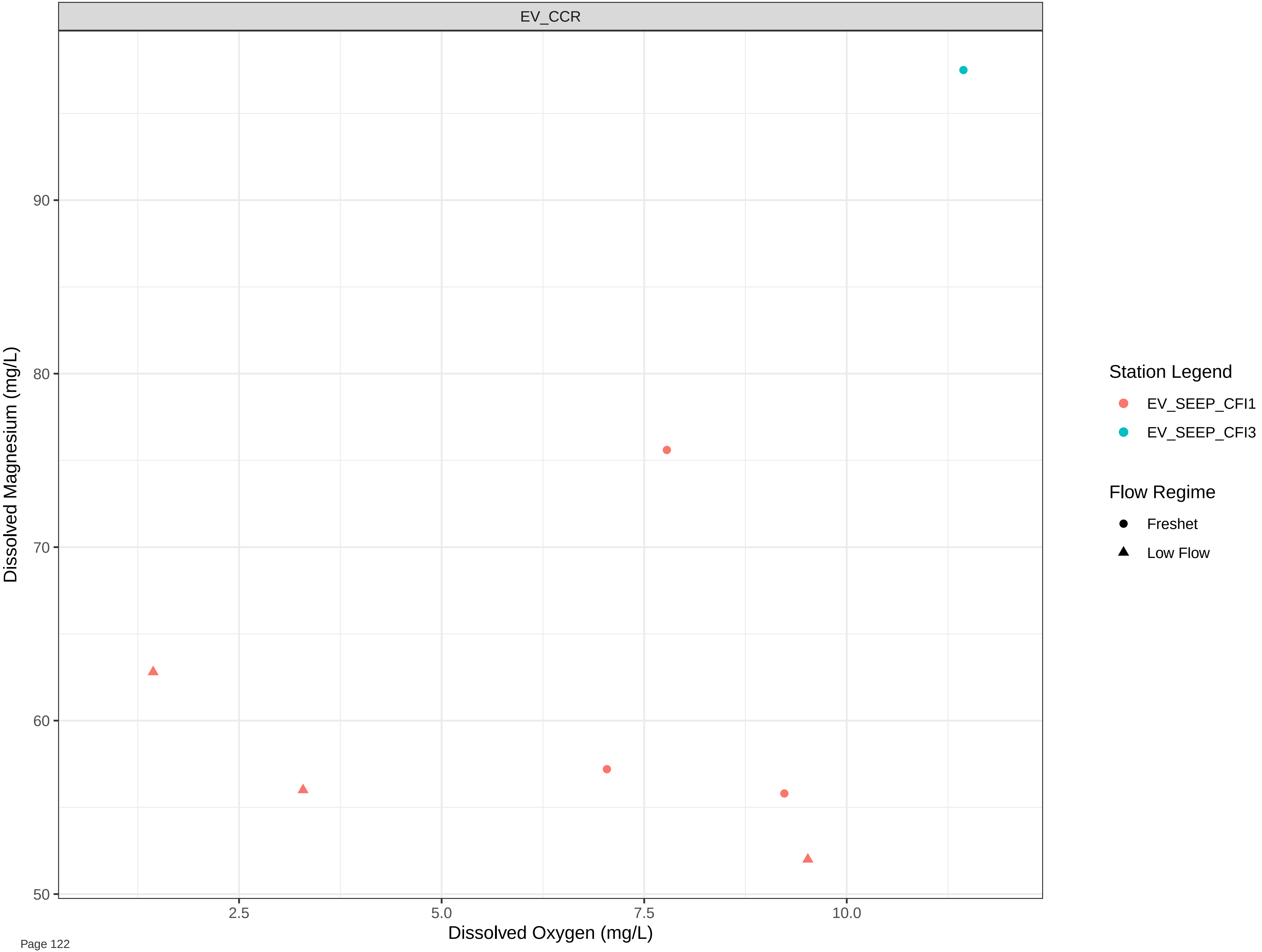

EV_Erickson_WR
Dissolved Lithium (mg/L)
0.06
0.04
0.02
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

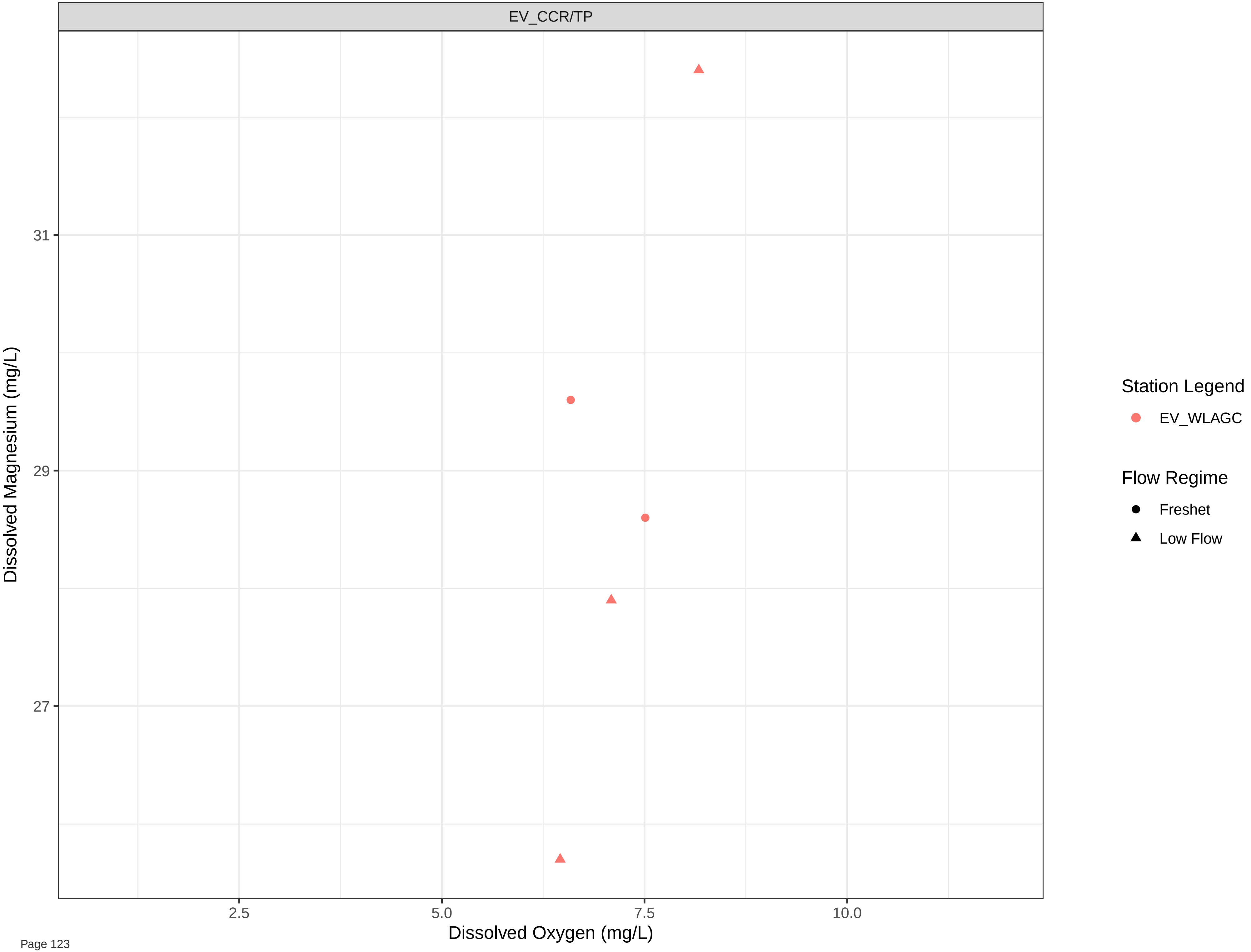

EV_PLANT
Dissolved Lithium (mg/L)
0.6
0.4
0.2
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

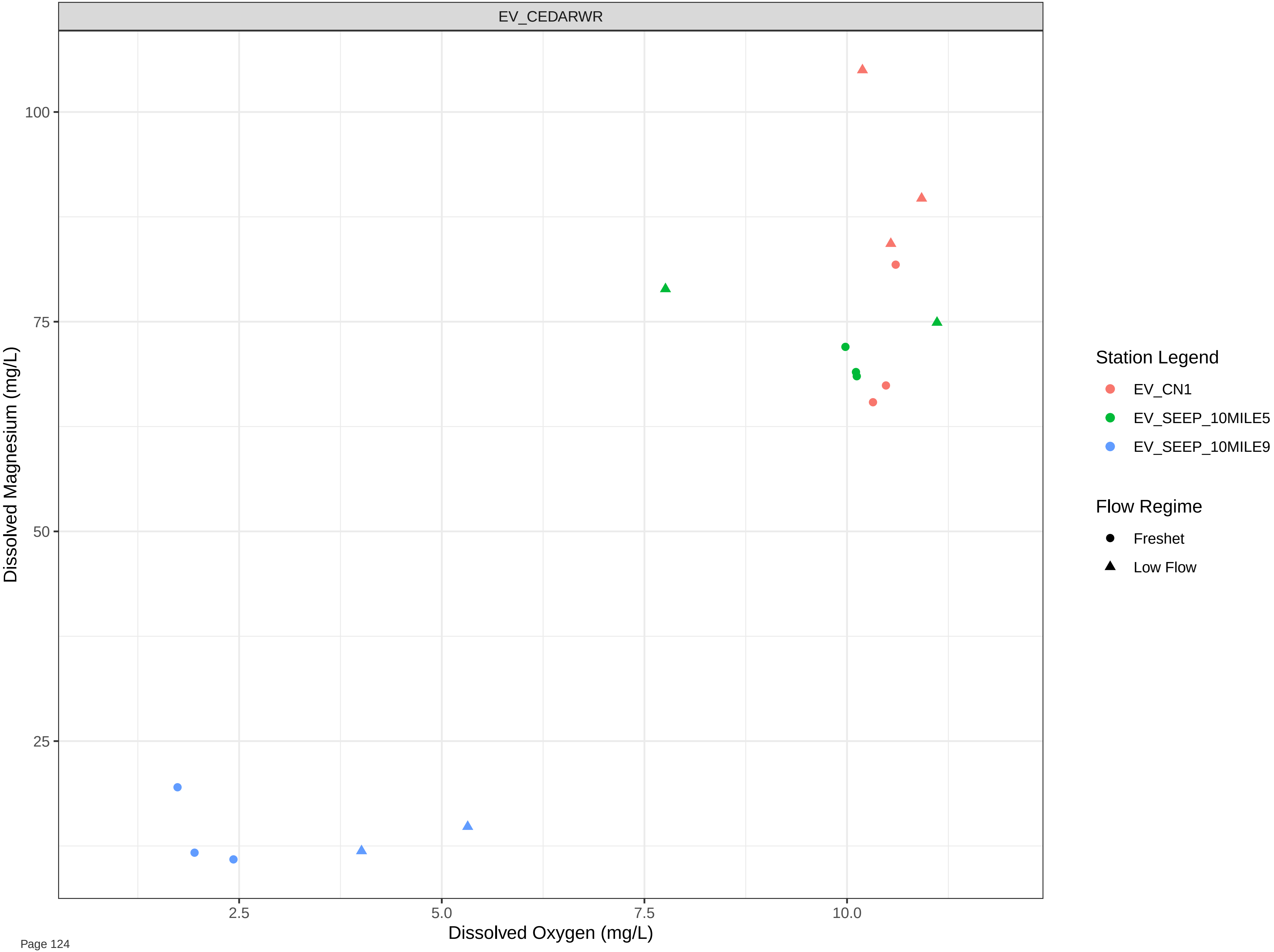

EV_SOUTHSLOPE
0.125
0.100
0.075
0.050
0.025
0.000
Dissolved Lithium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

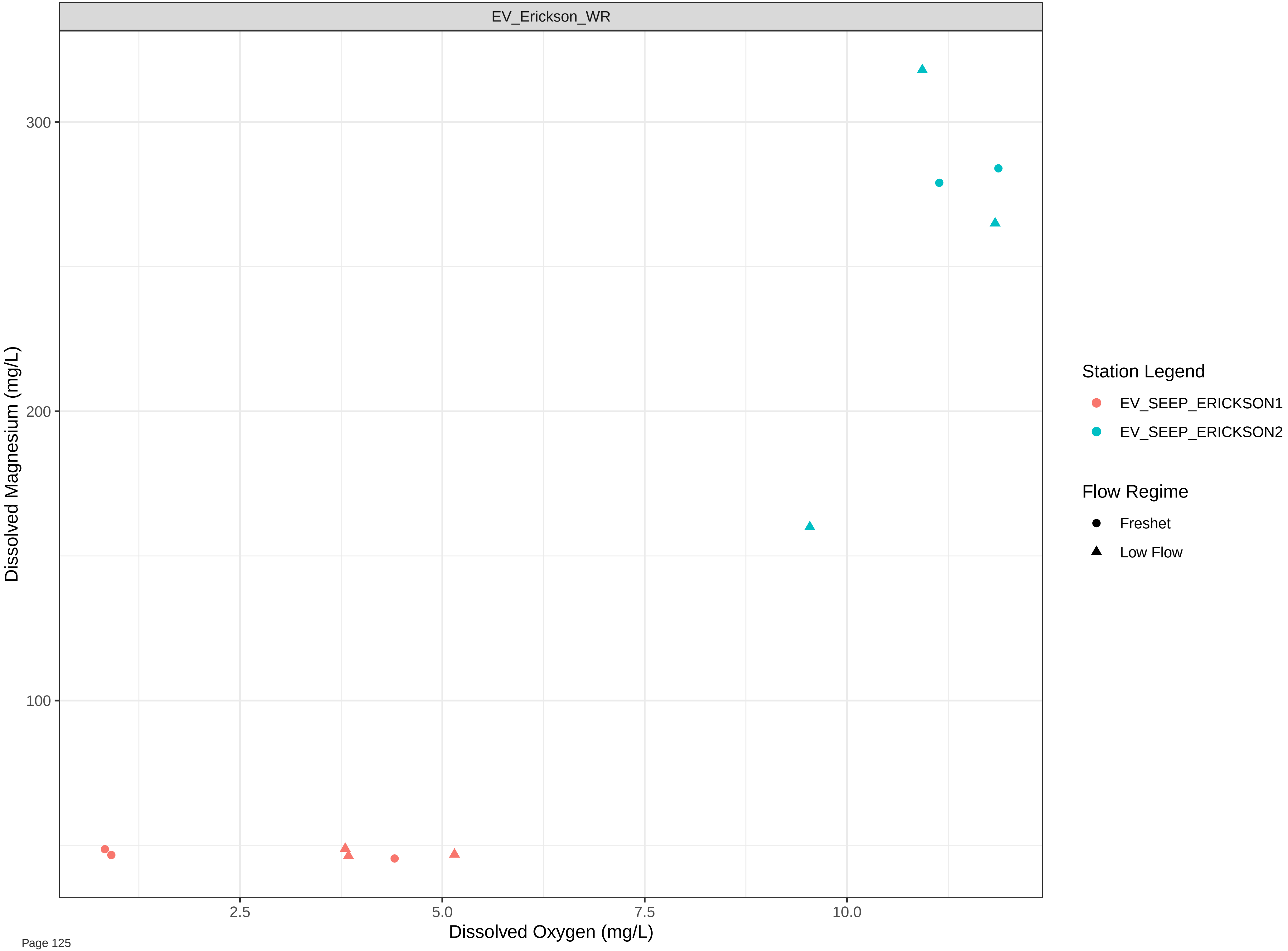

EV_SouthPit_Pit
Dissolved Lithium (mg/L)
0.035
0.030
0.025
0.020
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

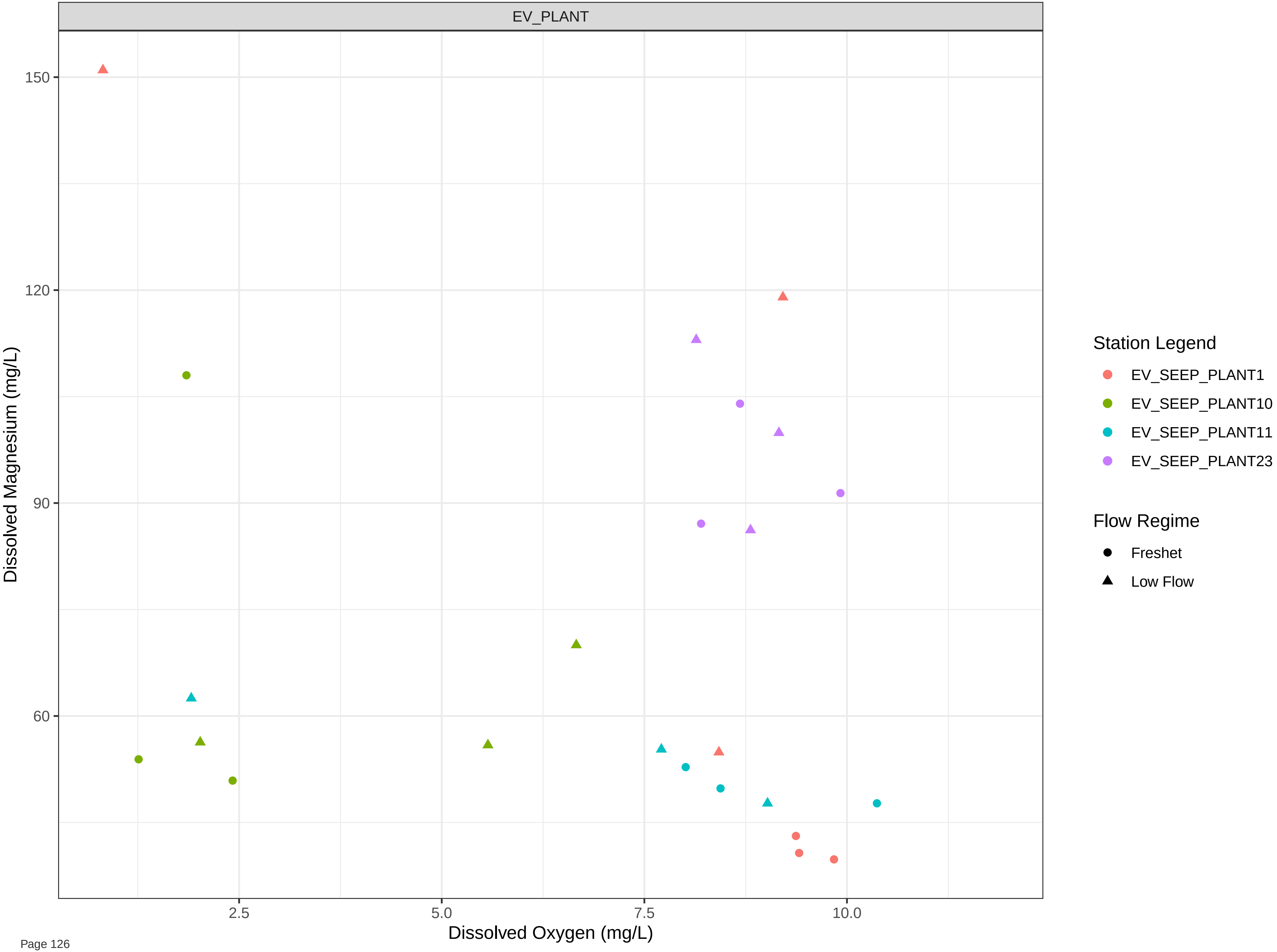

EV_BALDYRIDGEWR
Dissolved Magnesium (mg/L)
400
300
200
100
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

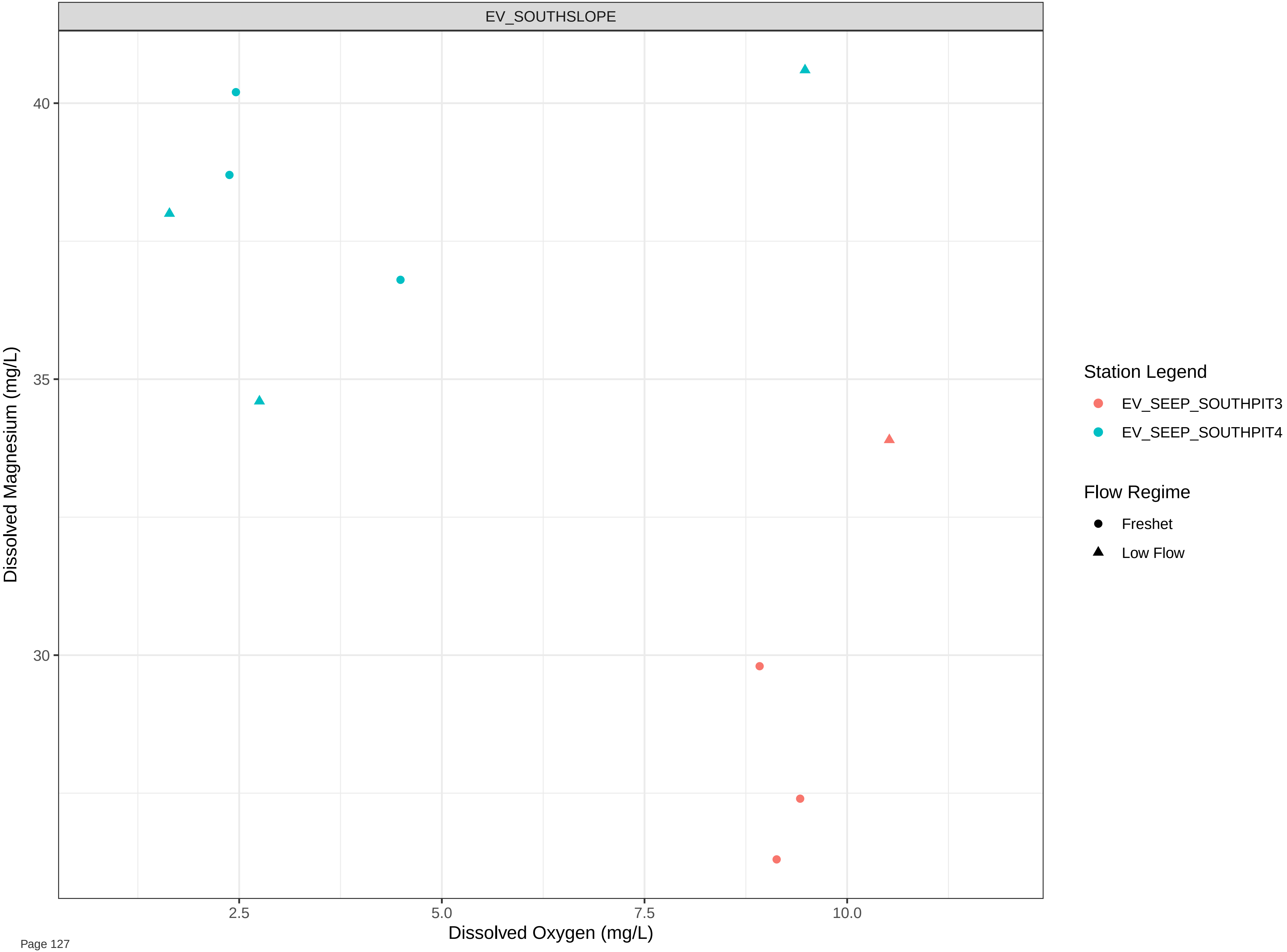

EV_CCR
Dissolved Magnesium (mg/L)
90
80
70
60
50
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

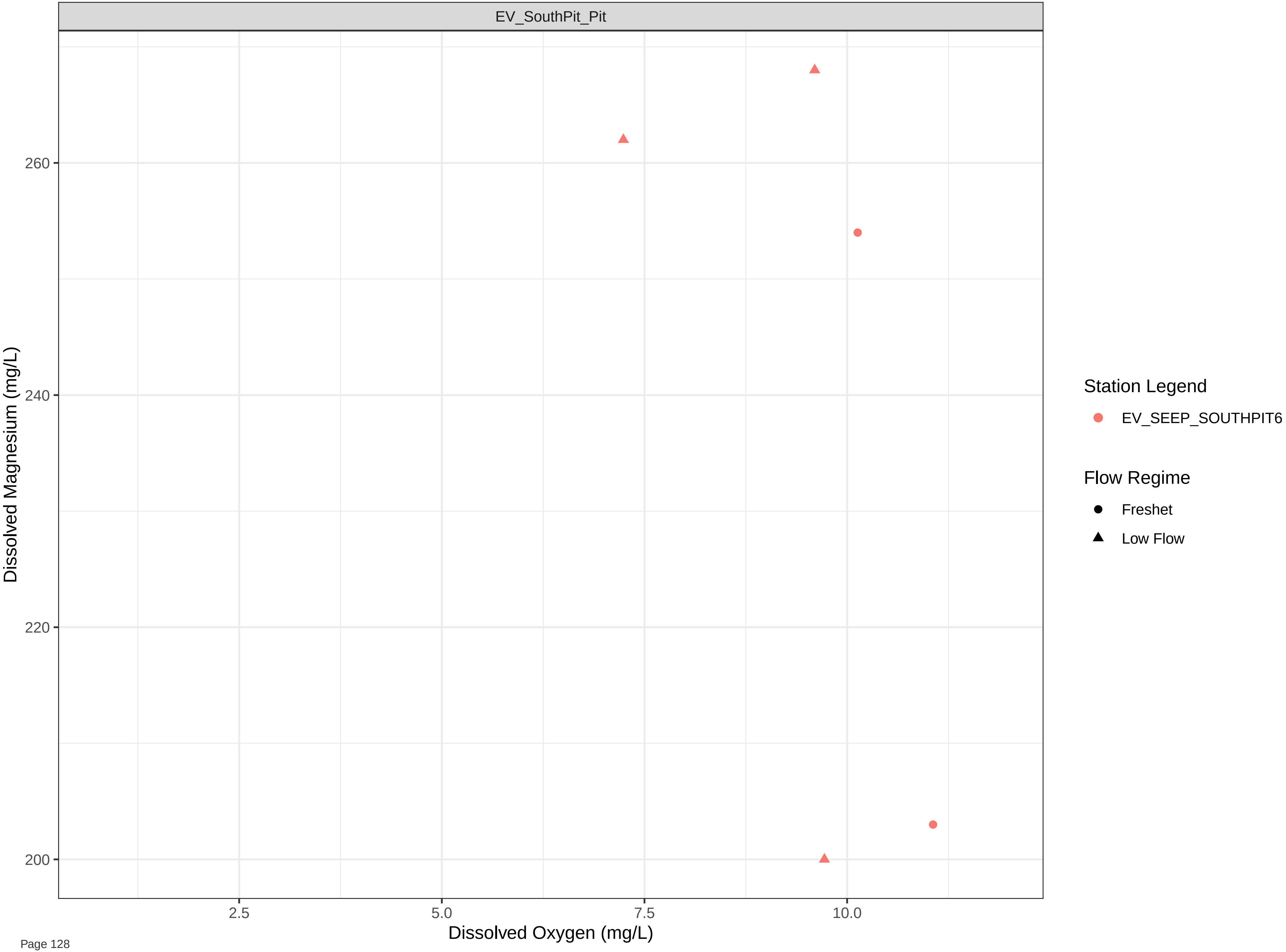

EV_CCR/TP
31
29
27
Dissolved Magnesium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

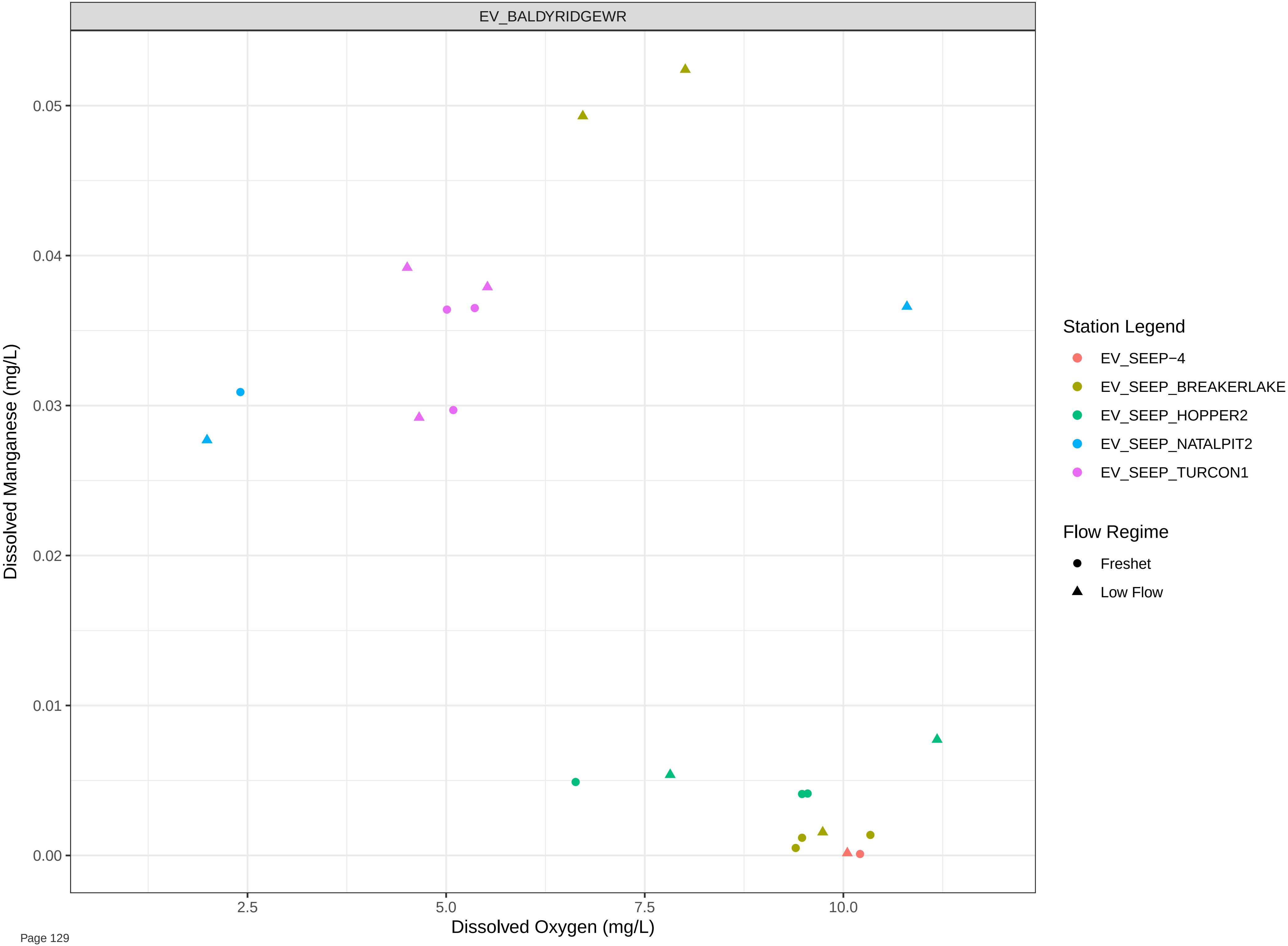

EV_CEDARWR
Dissolved Magnesium (mg/L)
100
75
50
25
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

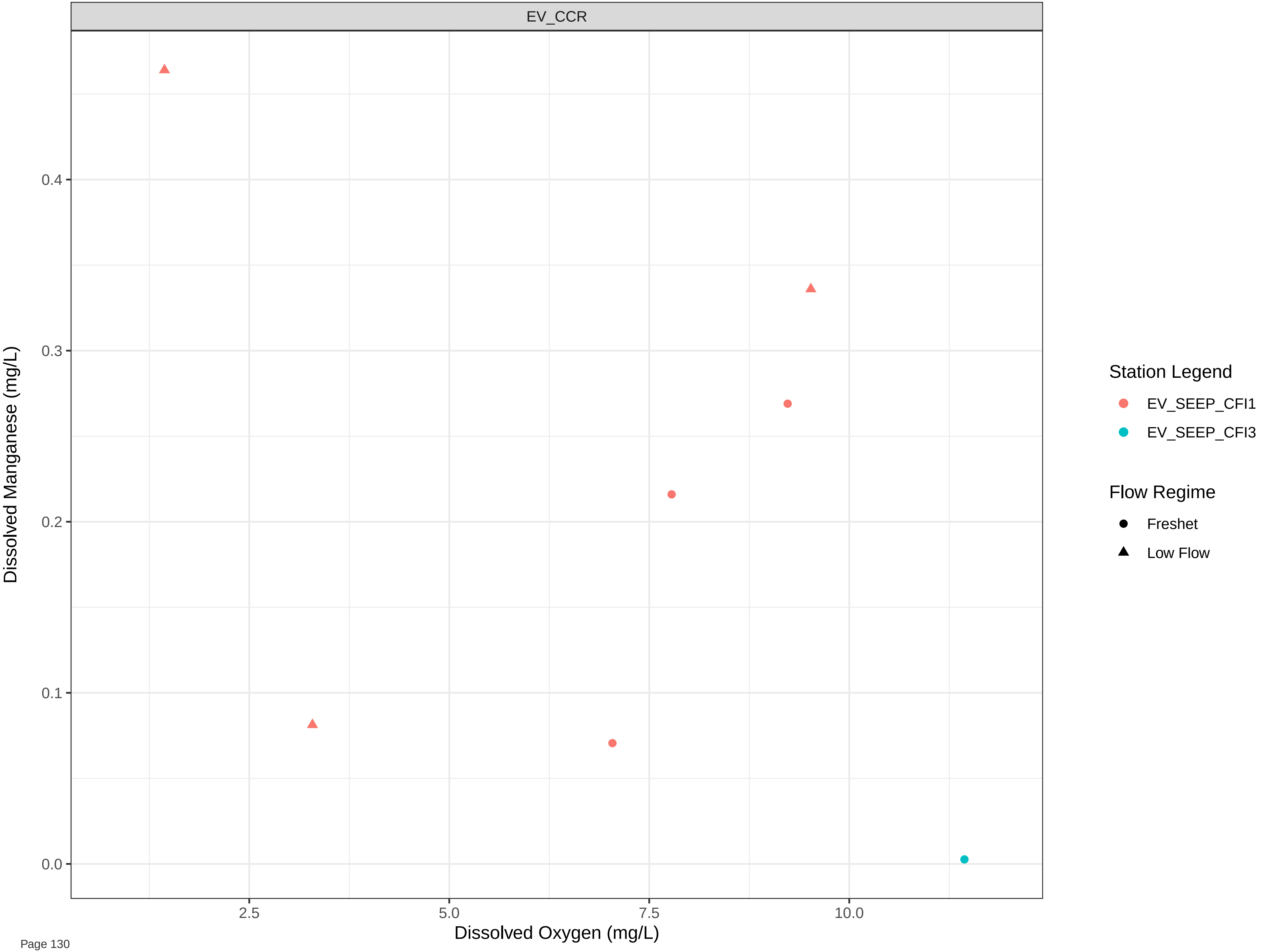

EV_Erickson_WR
Dissolved Magnesium (mg/L)
300
200
100
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

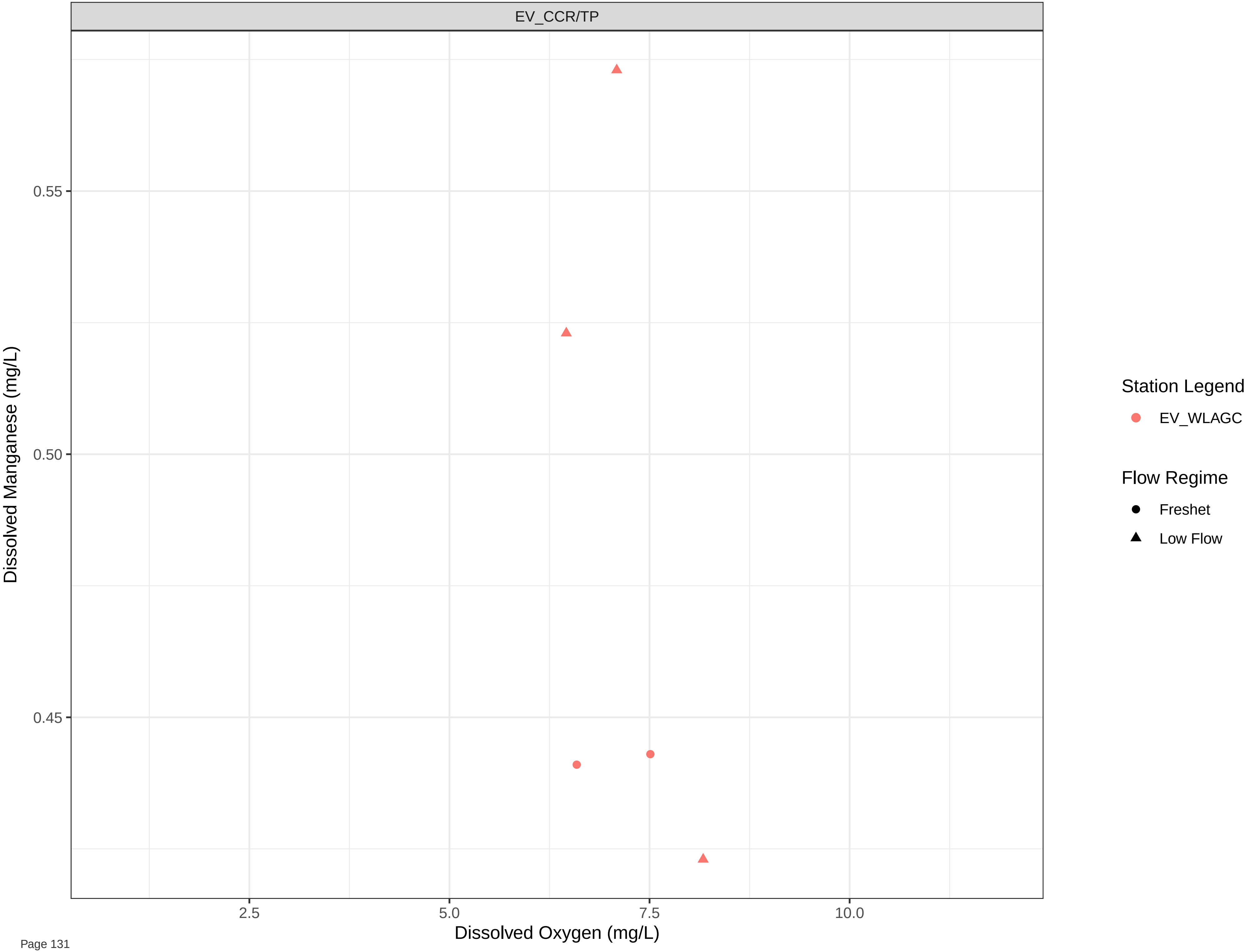

EV_PLANT
Dissolved Magnesium (mg/L)
150
120
90
60
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_PLANT1
● EV_SEEP_PLANT10
● EV_SEEP_PLANT11
● EV_SEEP_PLANT23
Flow Regime
● Freshet
▲ Low Flow

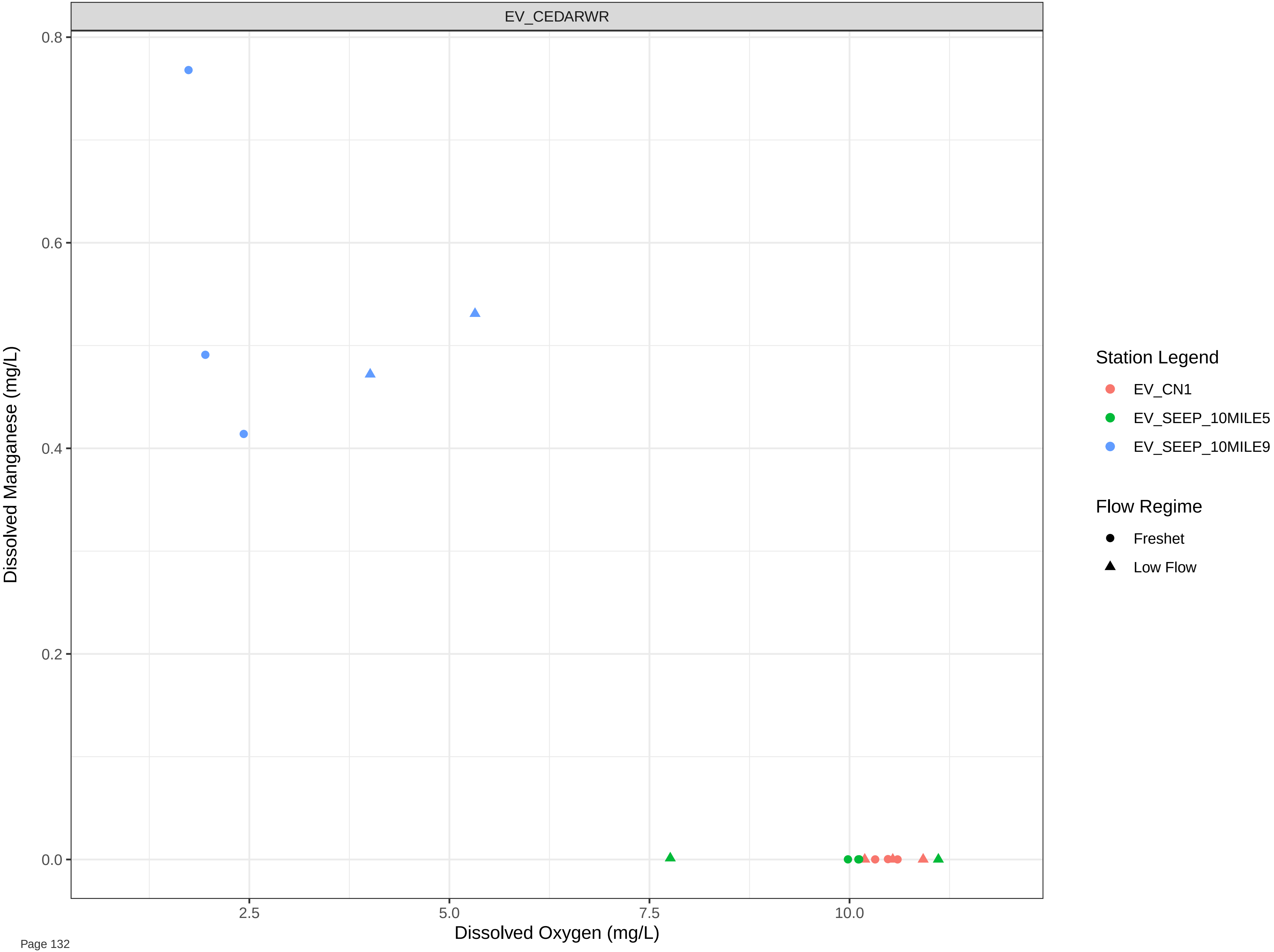

EV_SOUTHSLOPE
40
35
30
2.5
5.0
7.5
10.0
Dissolved Magnesium (mg/L)
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

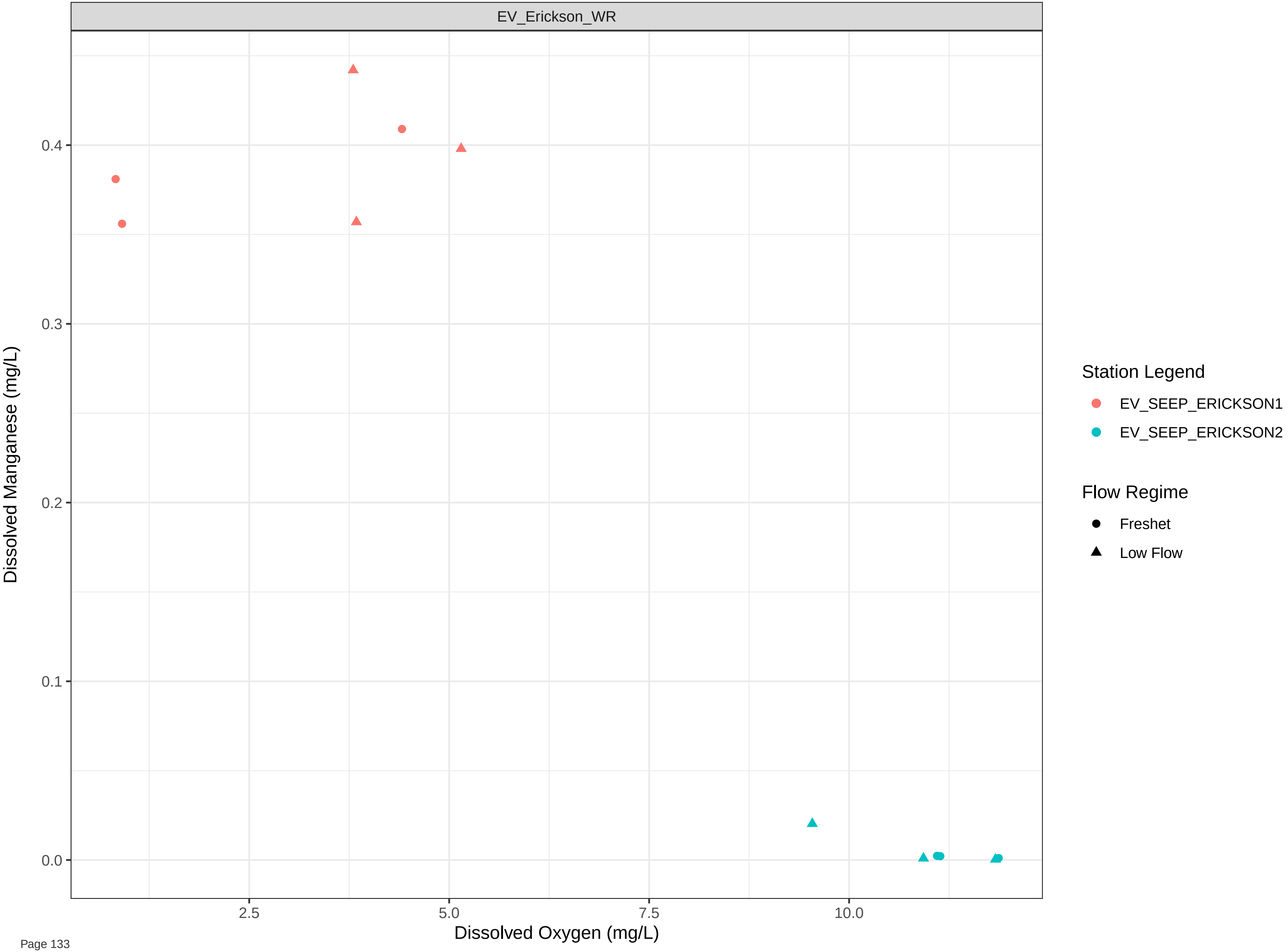

EV_SouthPit_Pit
Dissolved Magnesium (mg/L)
260
240
220
200
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

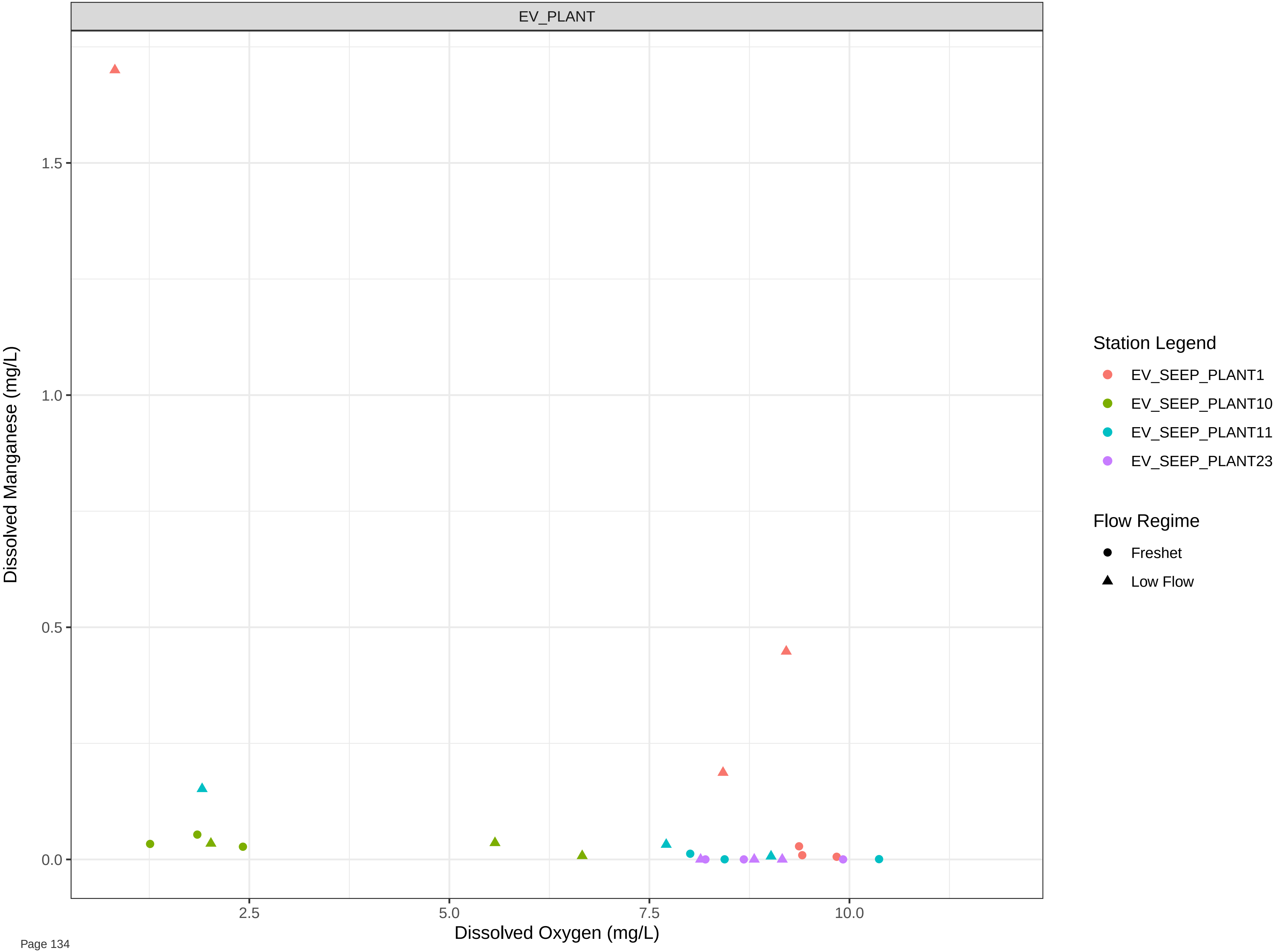

EV_BALDYRIDGEWR
Dissolved Manganese (mg/L)
0.05
0.04
0.03
0.02
0.01
0.00
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

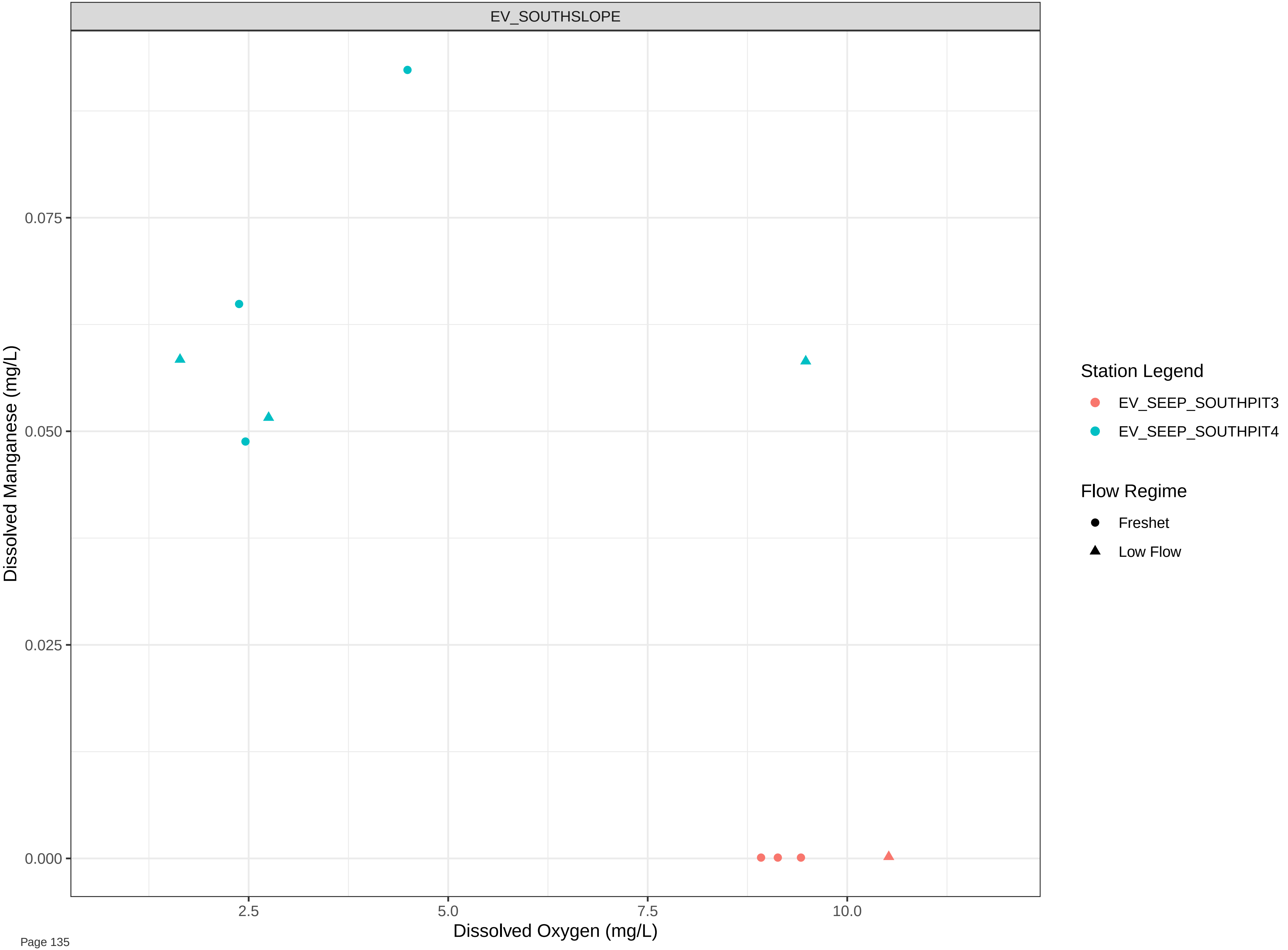

EV_CCR
Dissolved Manganese (mg/L)
0.4
0.3
0.2
0.1
0.0
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

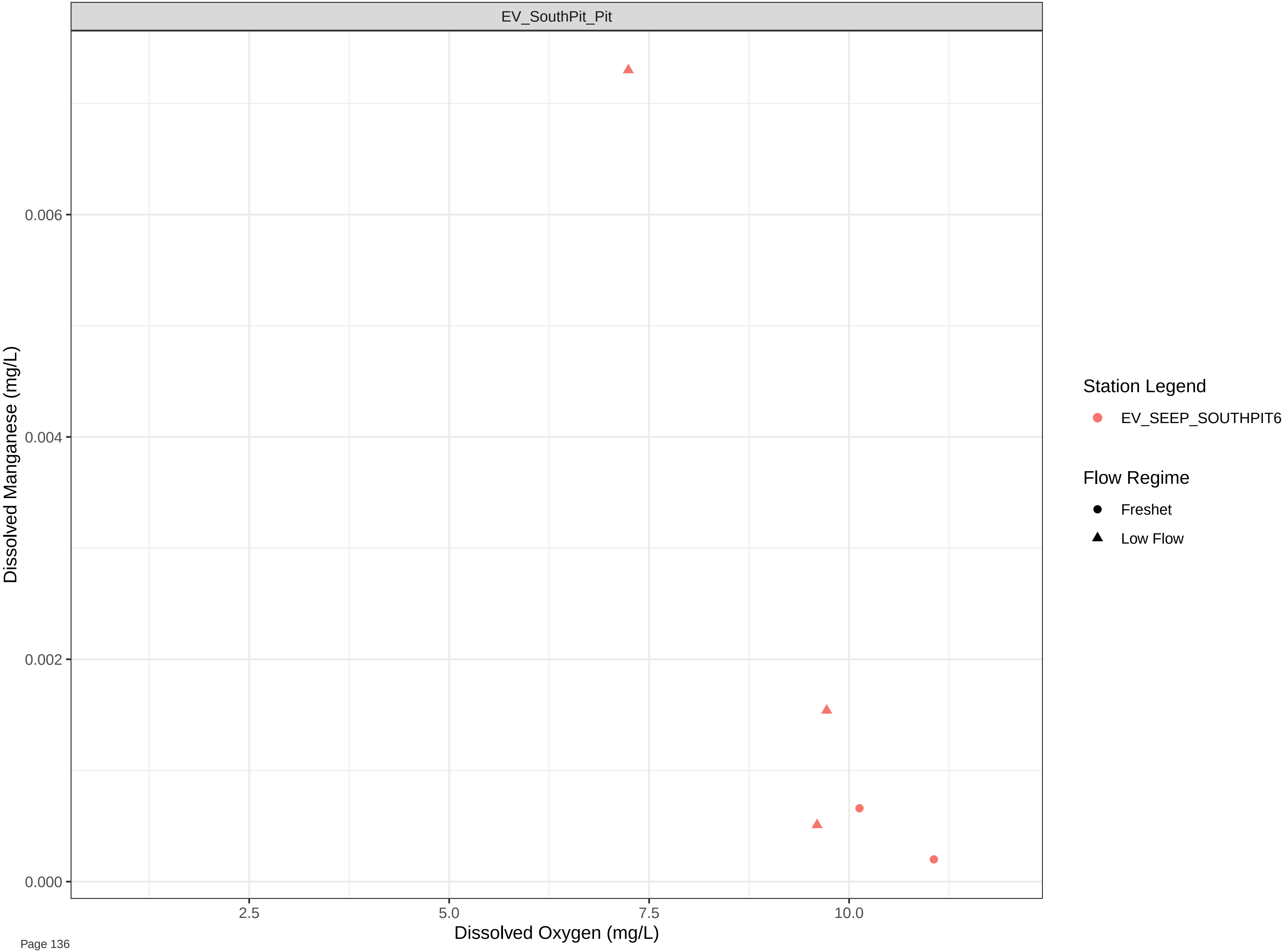

EV_CCR/TP
Dissolved Manganese (mg/L)
0.55
0.50
0.45
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

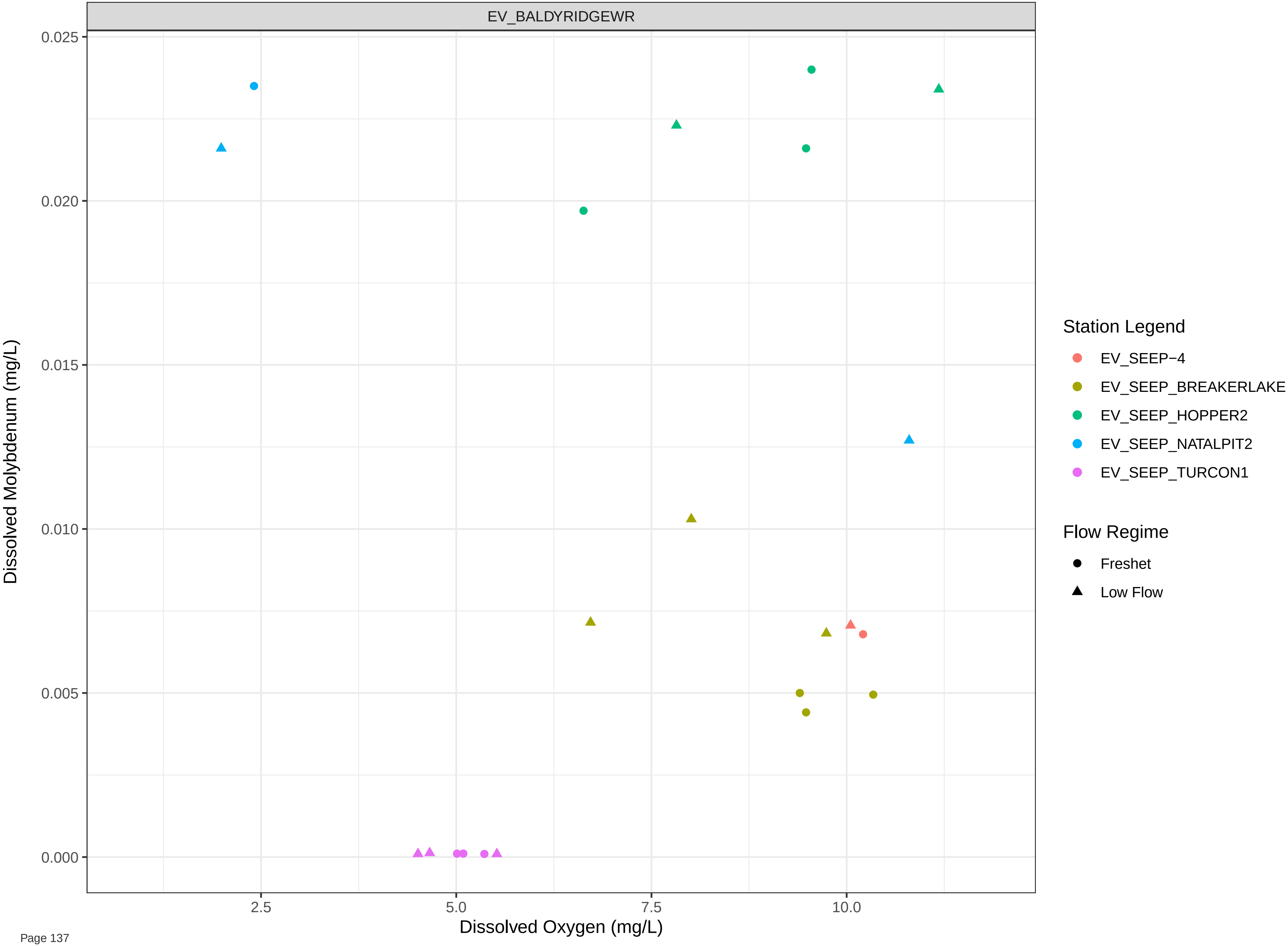

EV_CEDARWR
0.8
0.6
0.4
0.2
0.0
Dissolved Manganese (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

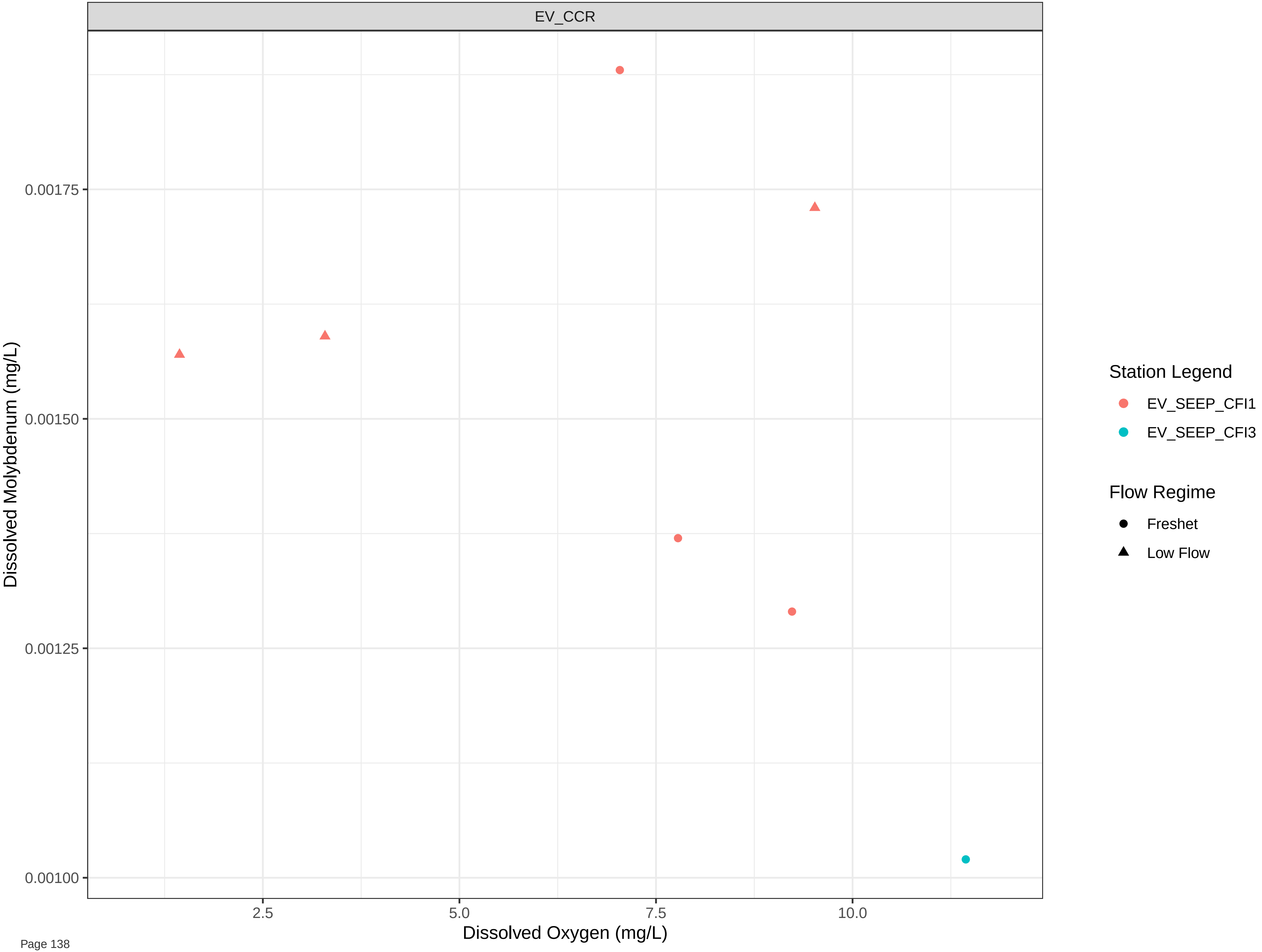

EV_Erickson_WR
Dissolved Manganese (mg/L)
0.0
0.1
0.2
0.3
0.4
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

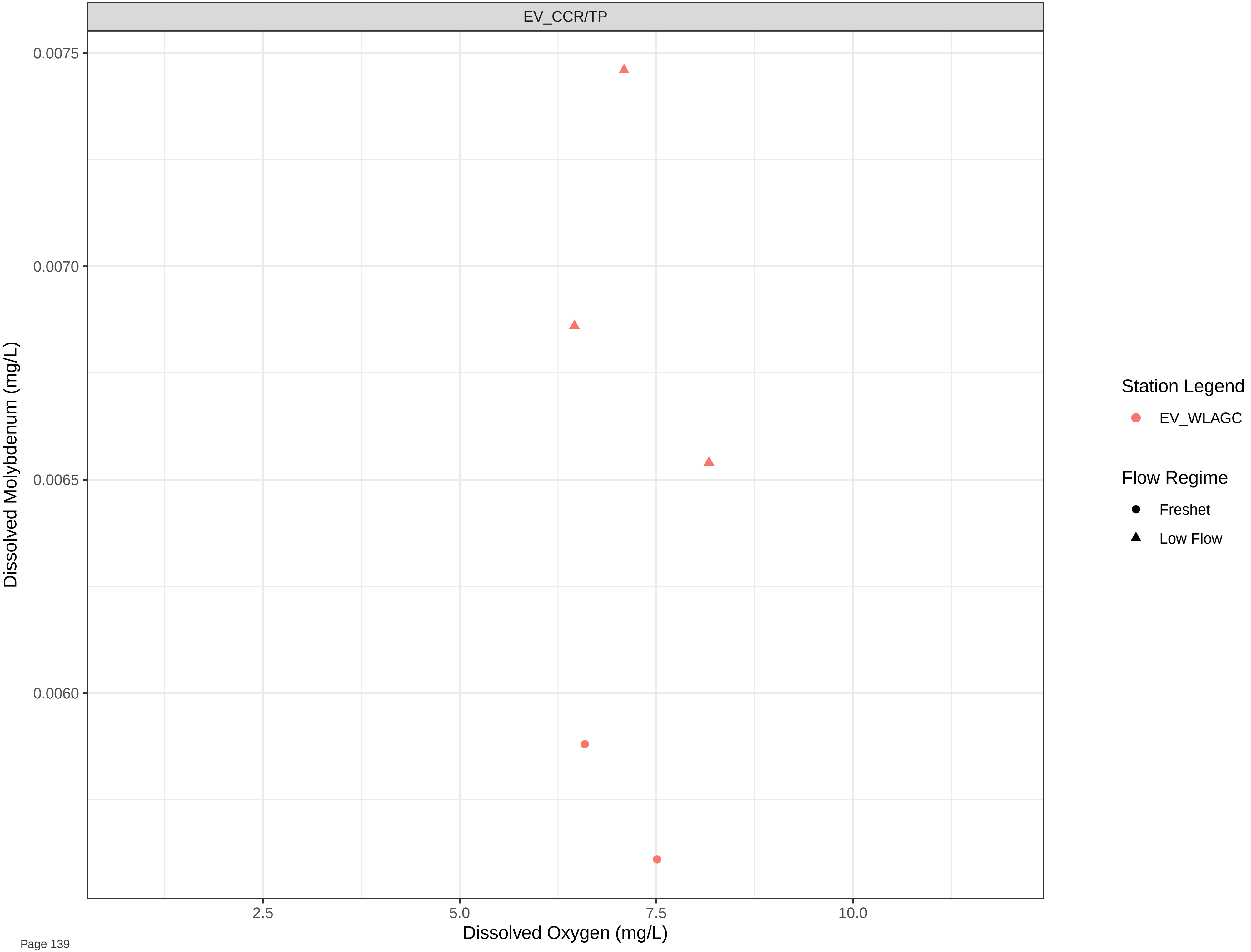

EV_PLANT
Dissolved Manganese (mg/L)
1.5
1.0
0.5
0.0
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

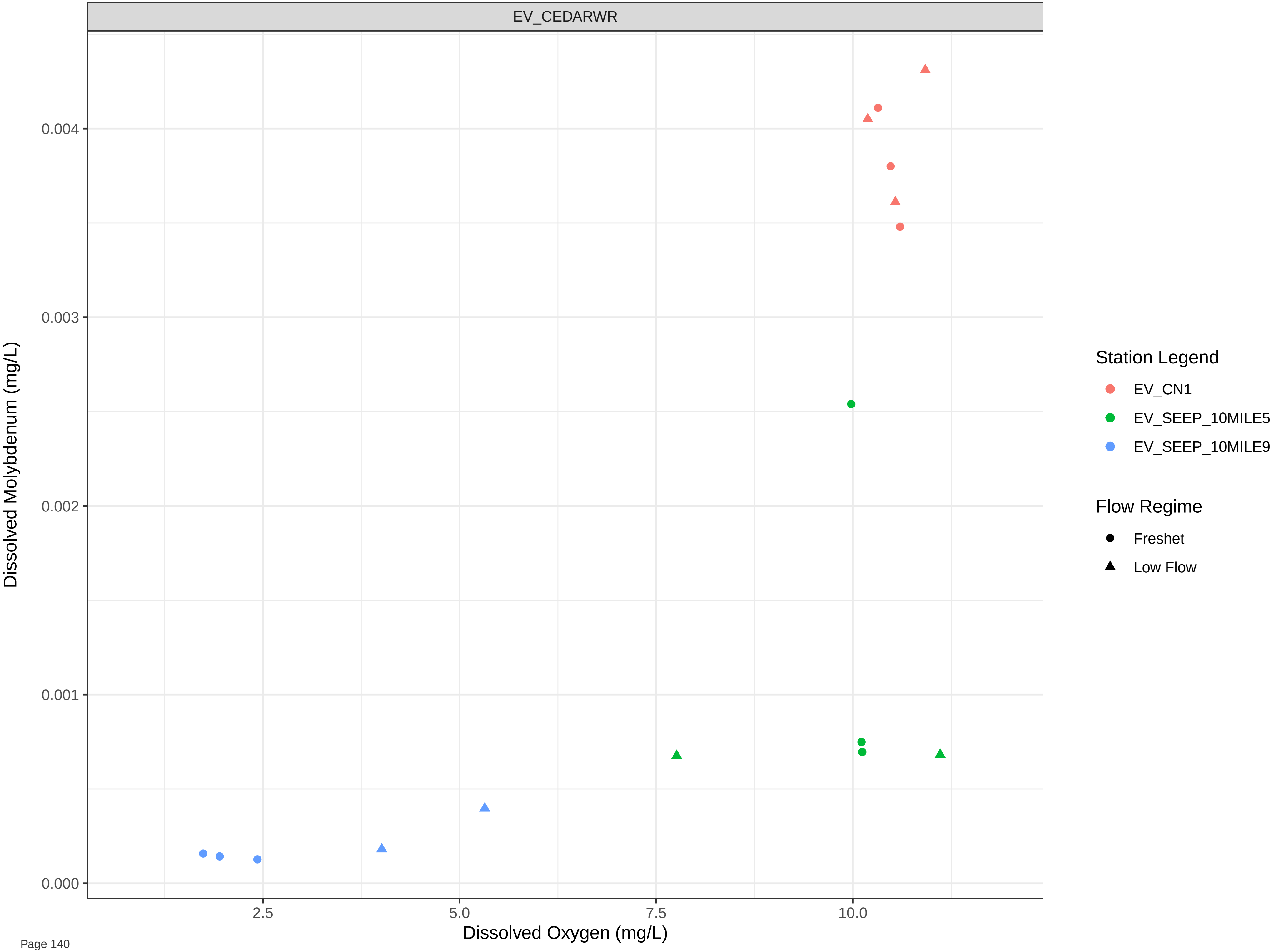

EV_SOUTHSLOPE
Dissolved Manganese (mg/L)
0.075
0.050
0.025
0.000
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

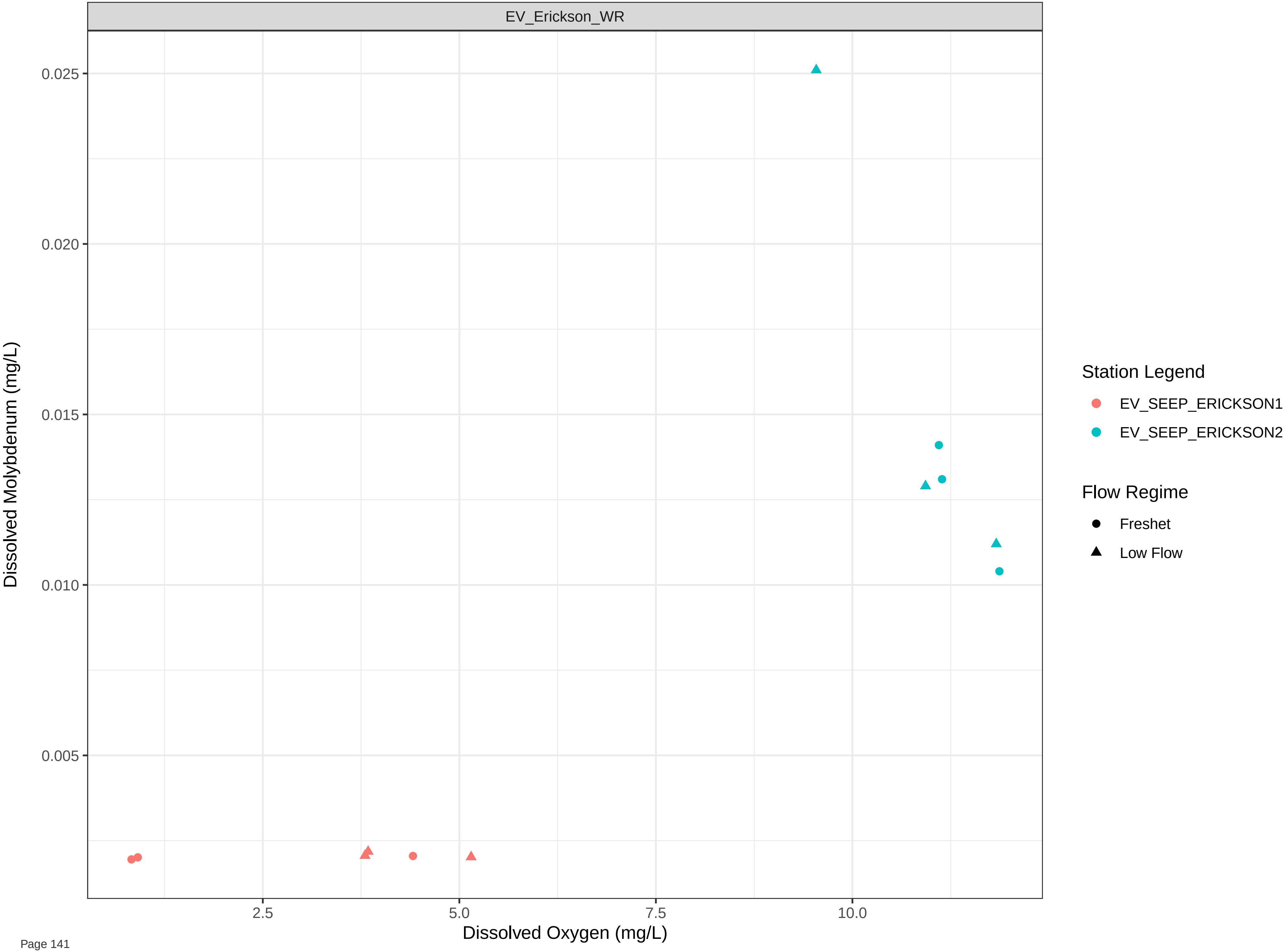

EV_SouthPit_Pit
Dissolved Manganese (mg/L)
0.006
0.004
0.002
0.000
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

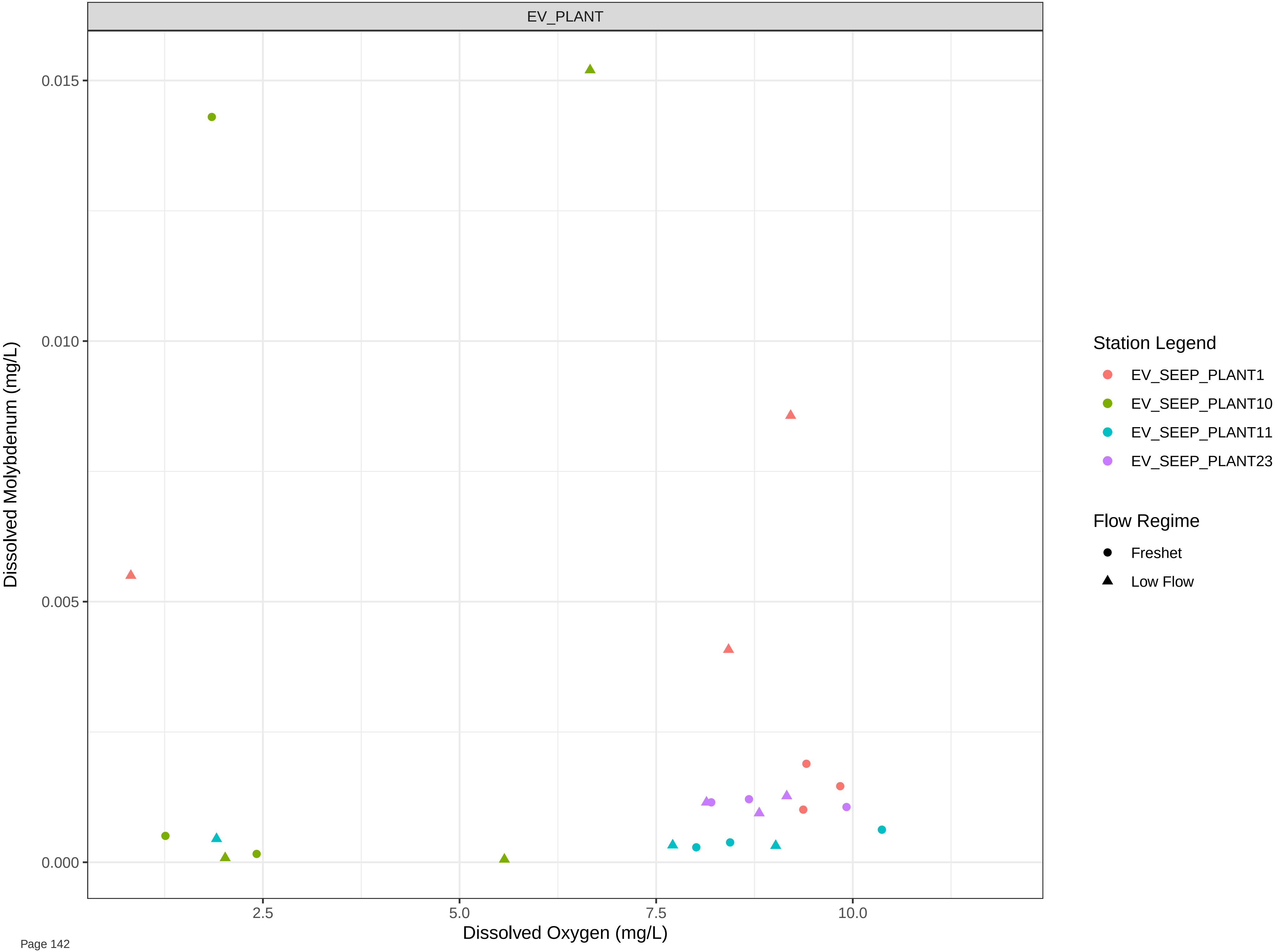

EV_BALDYRIDGEWR
Dissolved Molybdenum (mg/L)
0.025
0.020
0.015
0.010
0.005
0.000
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

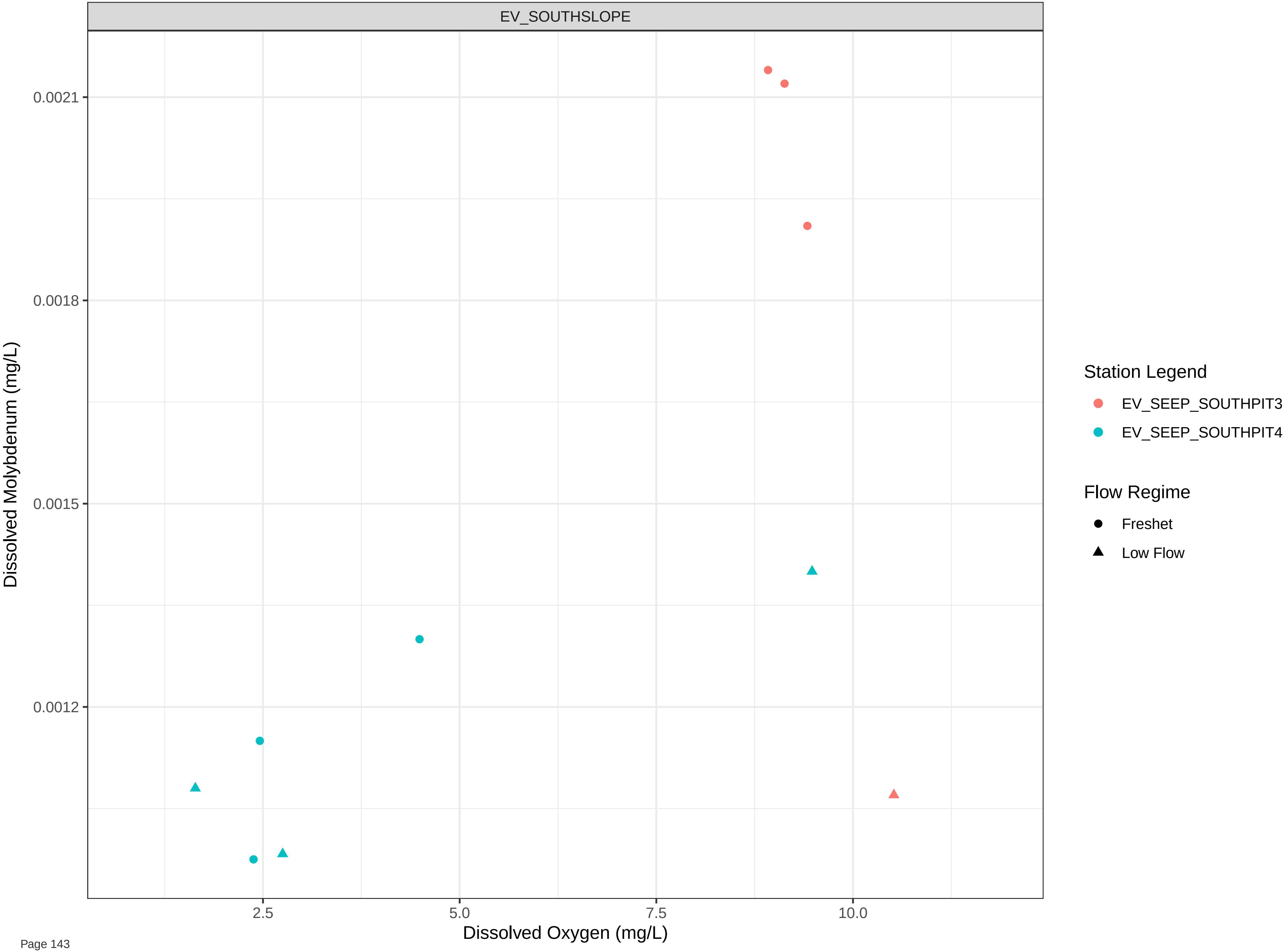

EV_CCR
0.00175
0.00150
0.00125
0.00100
Dissolved Molybdenum (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

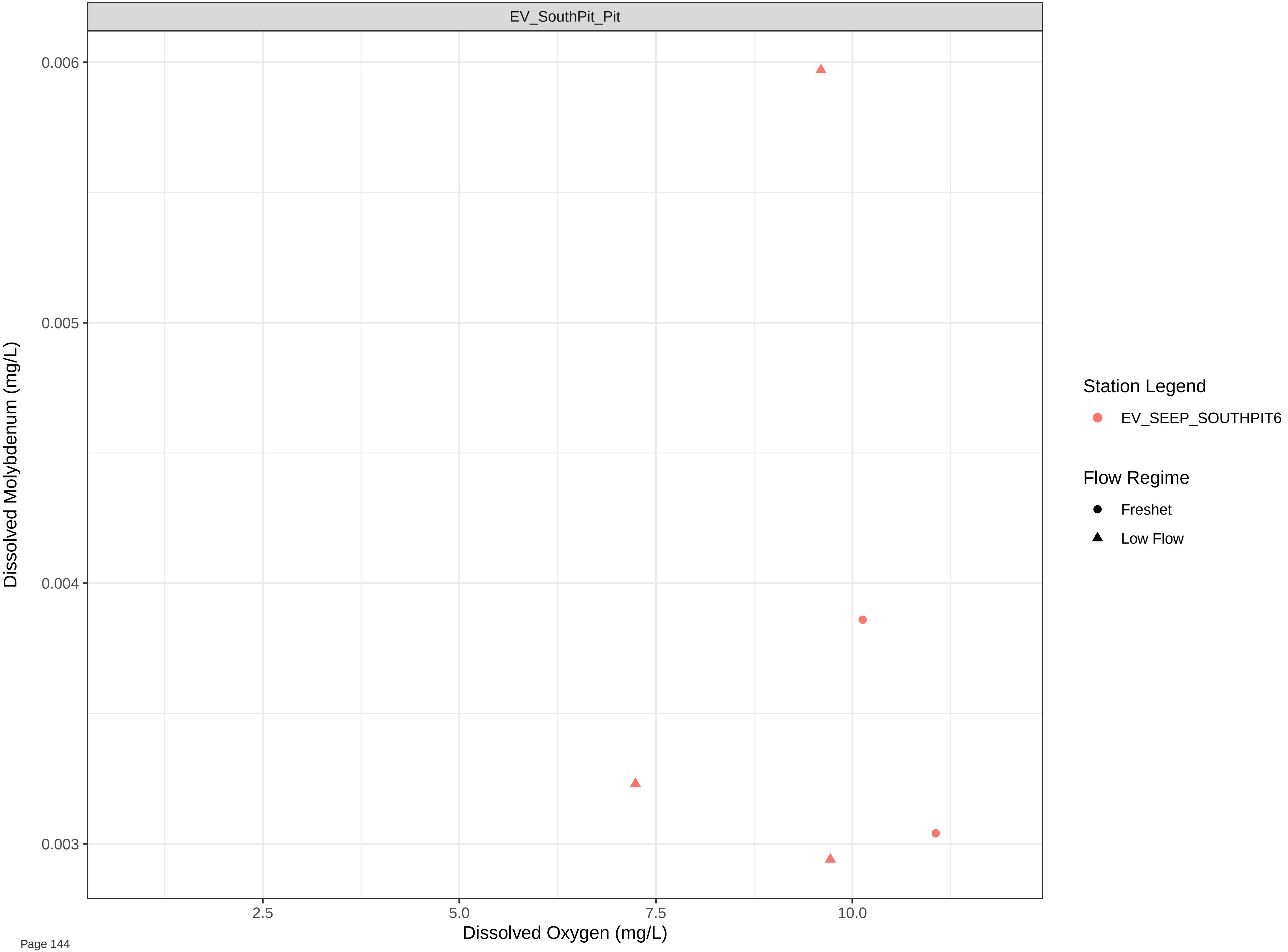

EV_CCR/TP
0.0075
0.0070
0.0065
0.0060
Dissolved Molybdenum (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

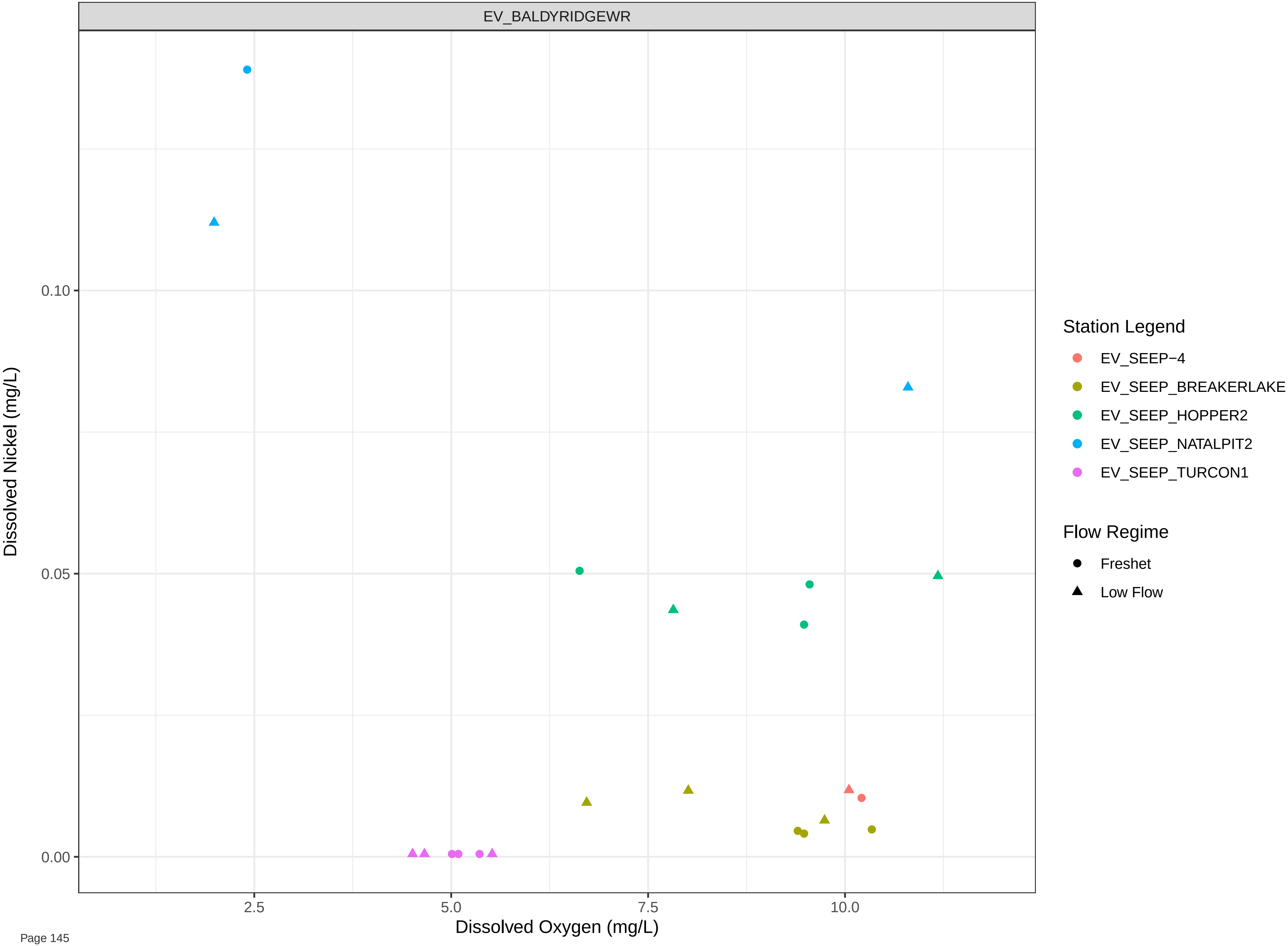

EV_CEDARWR
Dissolved Molybdenum (mg/L)
0.004
0.003
0.002
0.001
0.000
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

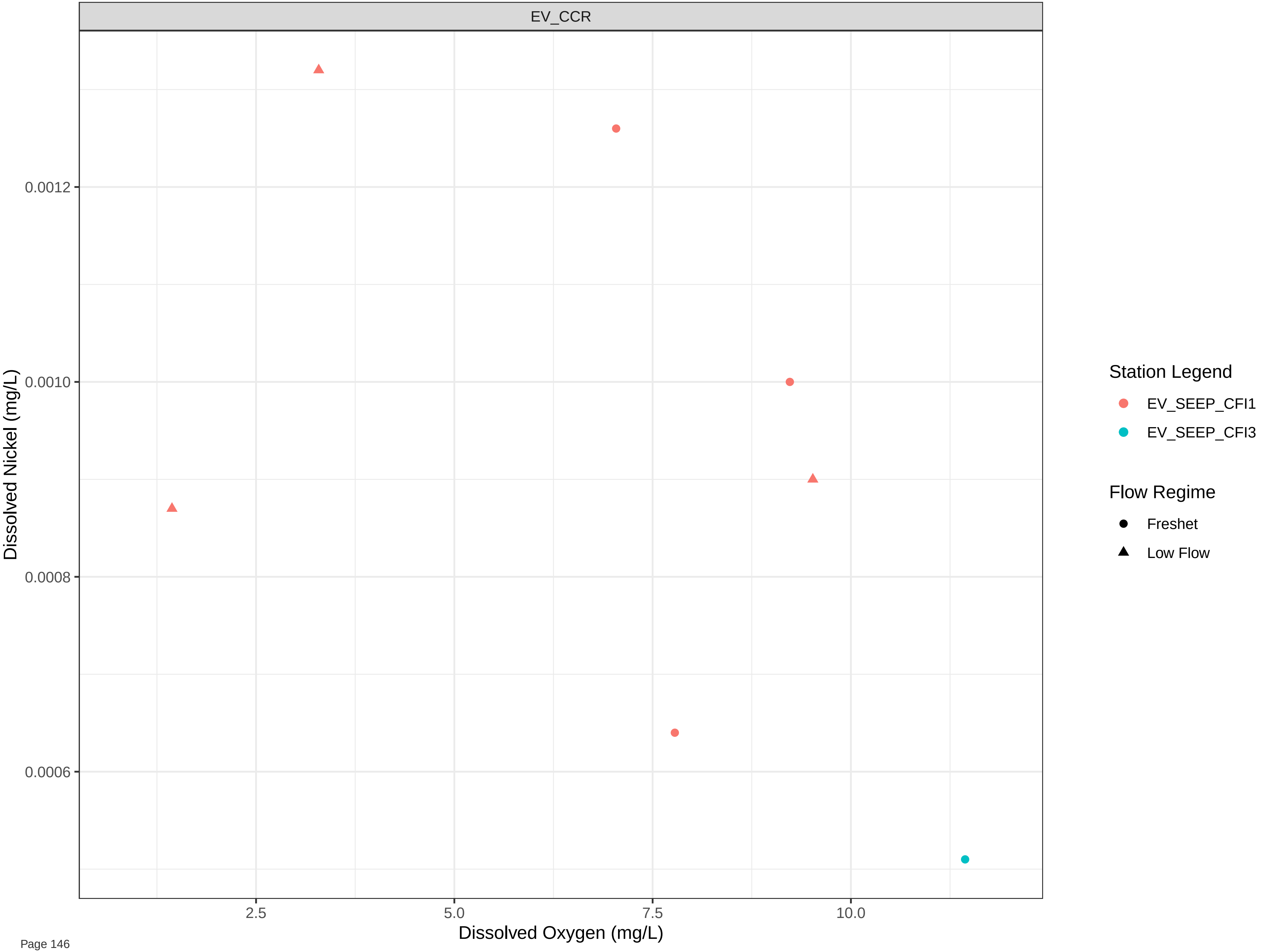

EV_Erickson_WR
Dissolved Molybdenum (mg/L)
0.025
0.020
0.015
0.010
0.005
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

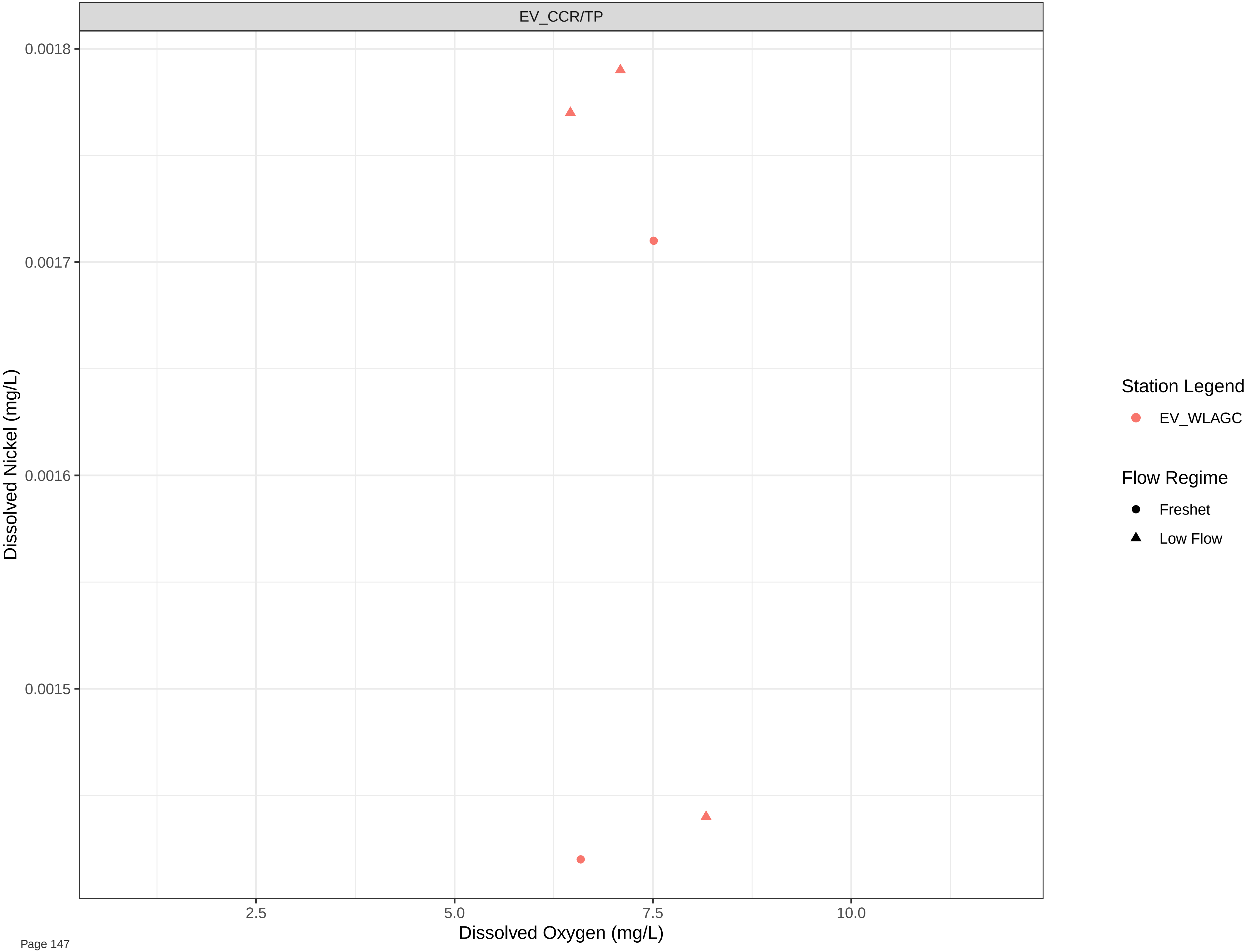

EV_PLANT
Dissolved Molybdenum (mg/L)
0.015
0.010
0.005
0.000
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

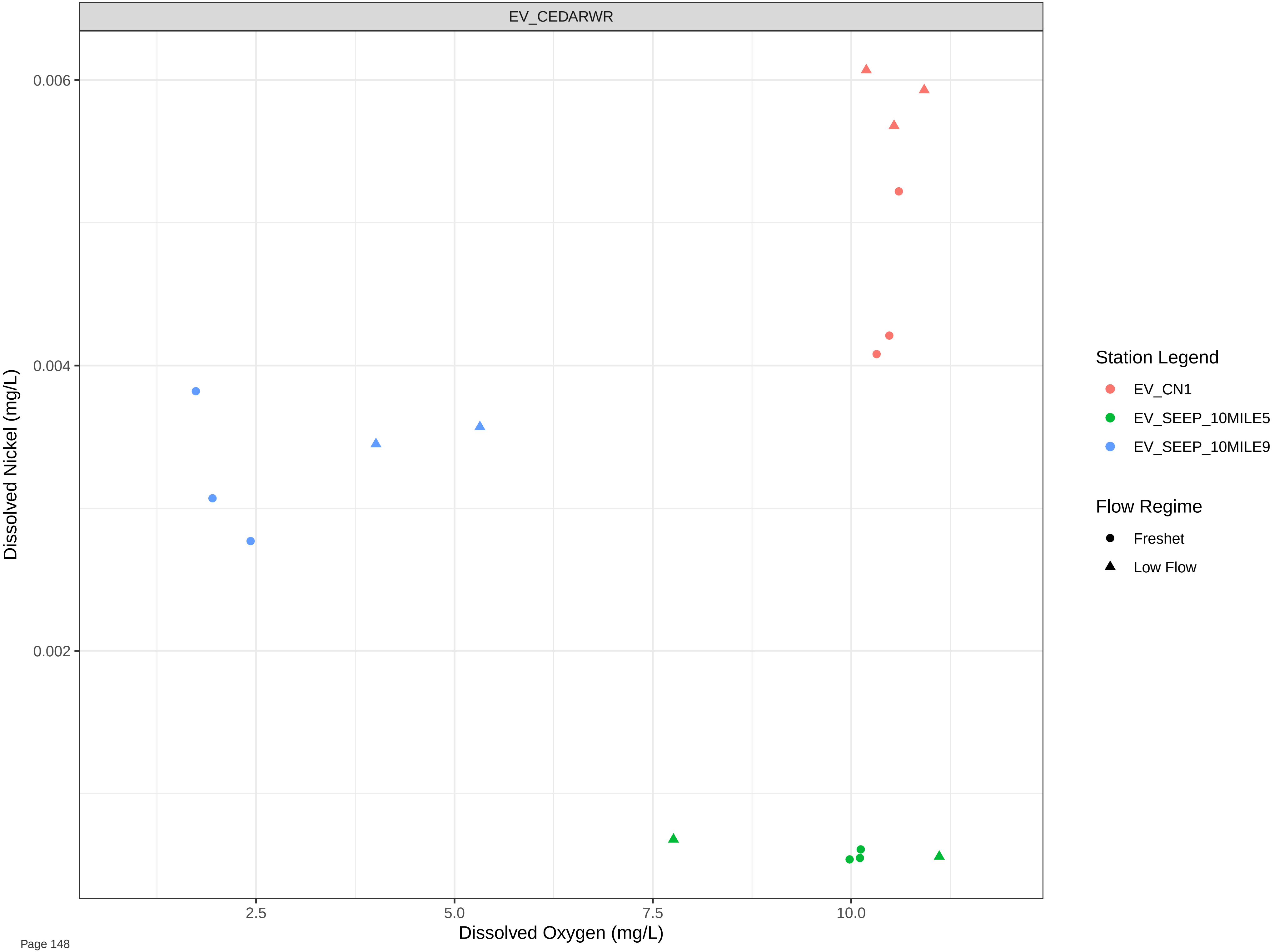

EV_SOUTHSLOPE
Dissolved Molybdenum (mg/L)
0.0021
0.0018
0.0015
0.0012
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

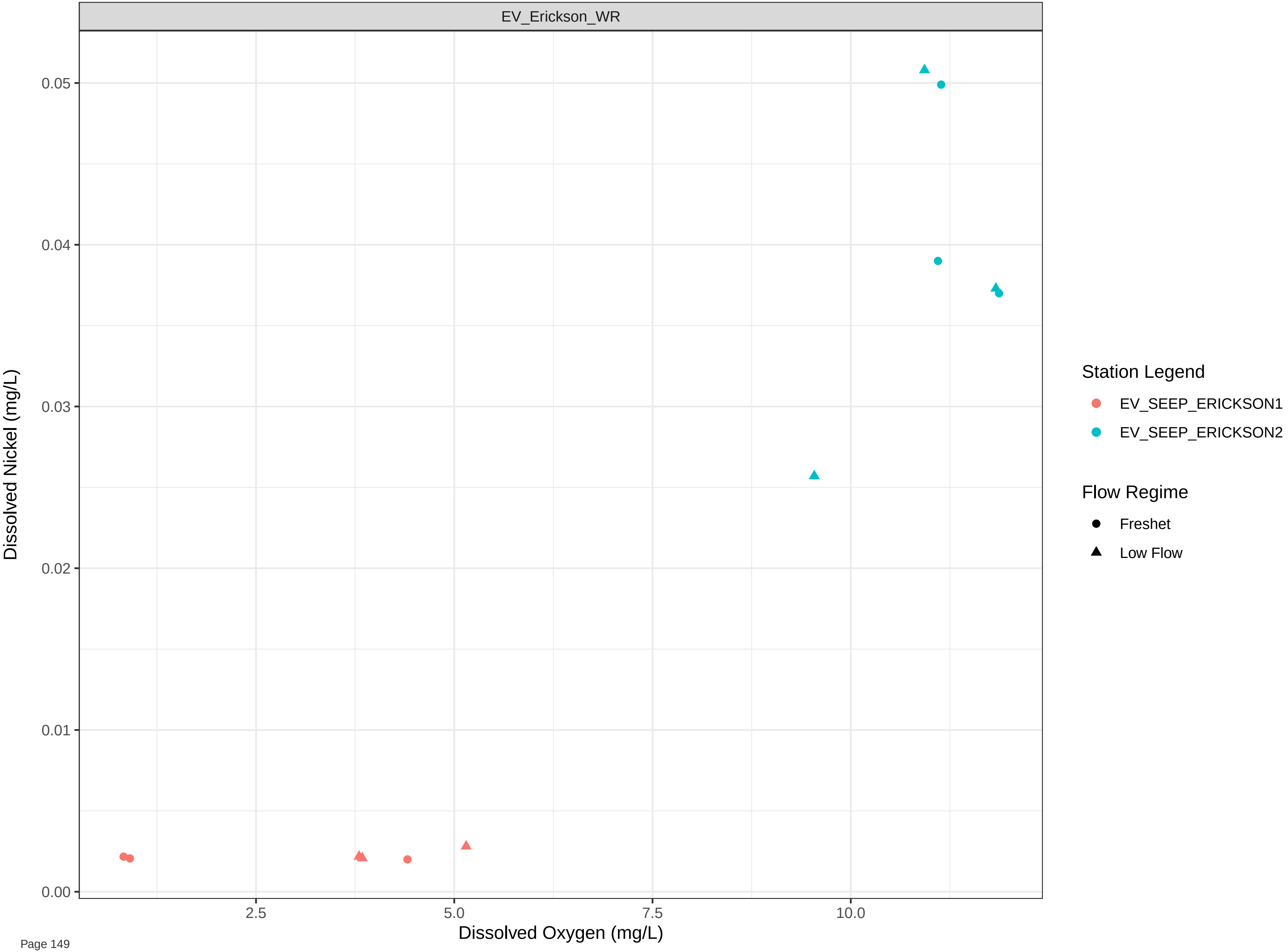

EV_SouthPit_Pit
0.006
0.005
0.004
0.003
Dissolved Molybdenum (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

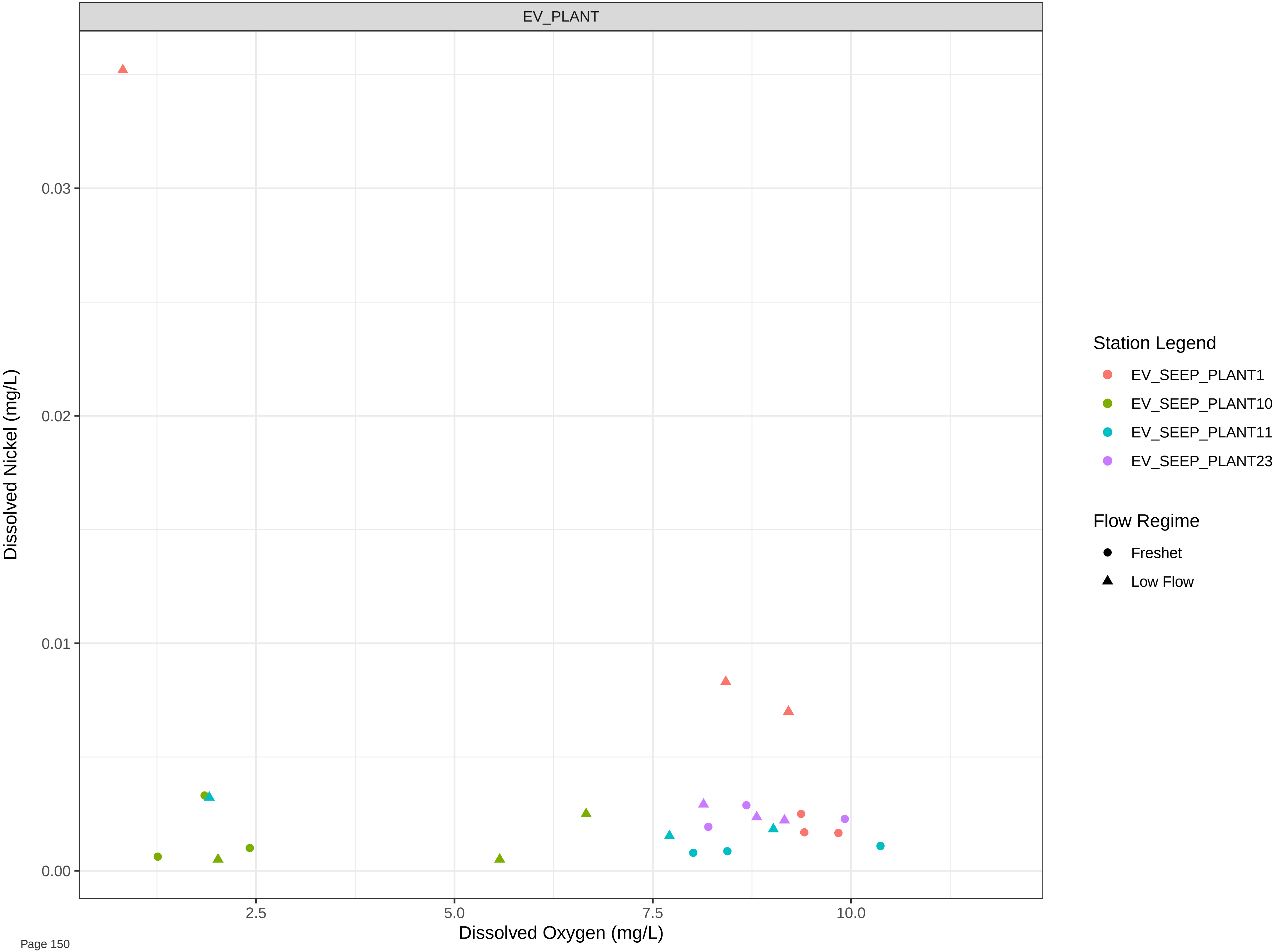

EV_BALDYRIDGEWR
Dissolved Nickel (mg/L)
0.10
0.05
0.00
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

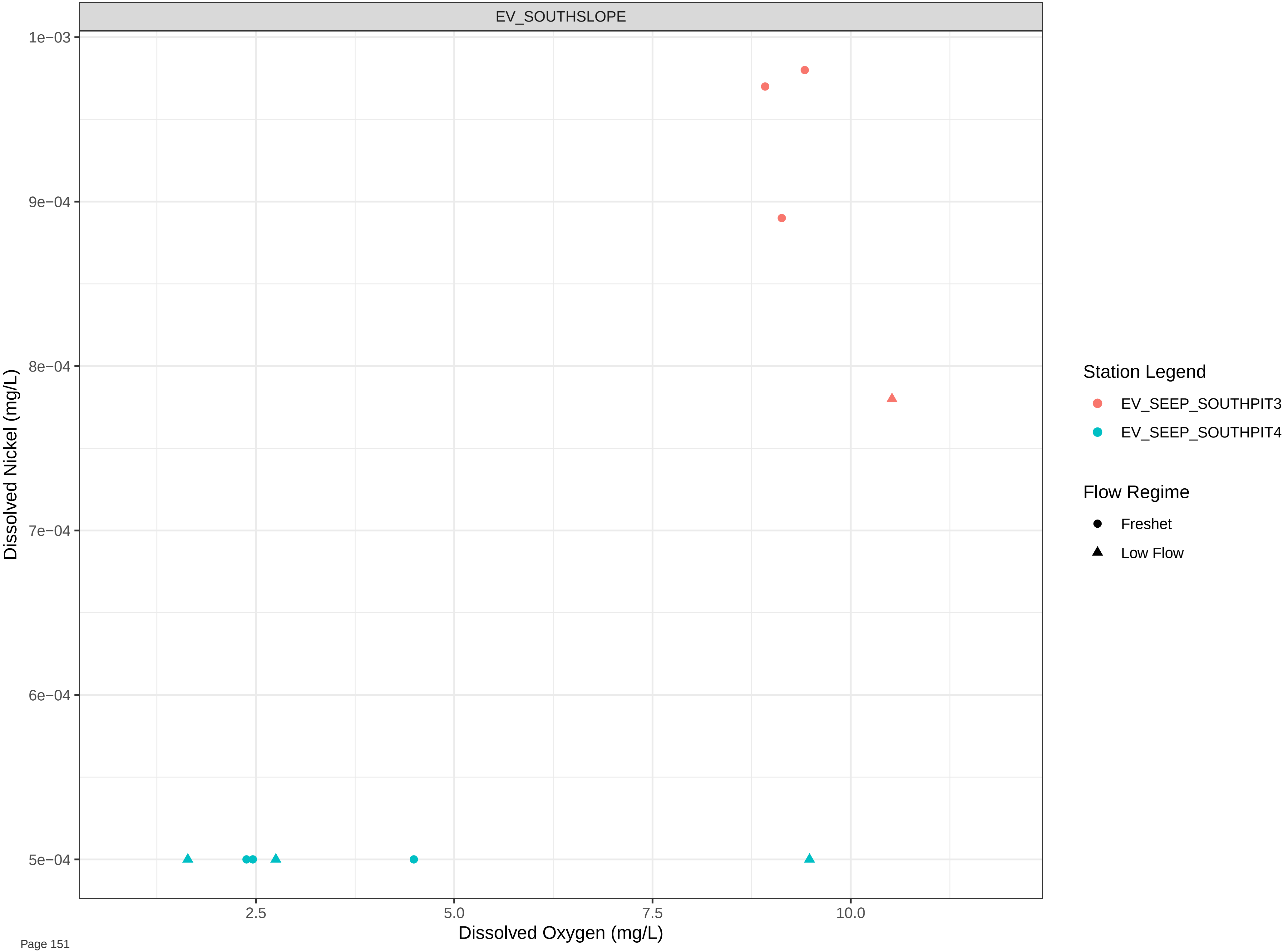

EV_CCR
Dissolved Nickel (mg/L)
0.0012
0.0010
0.0008
0.0006
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

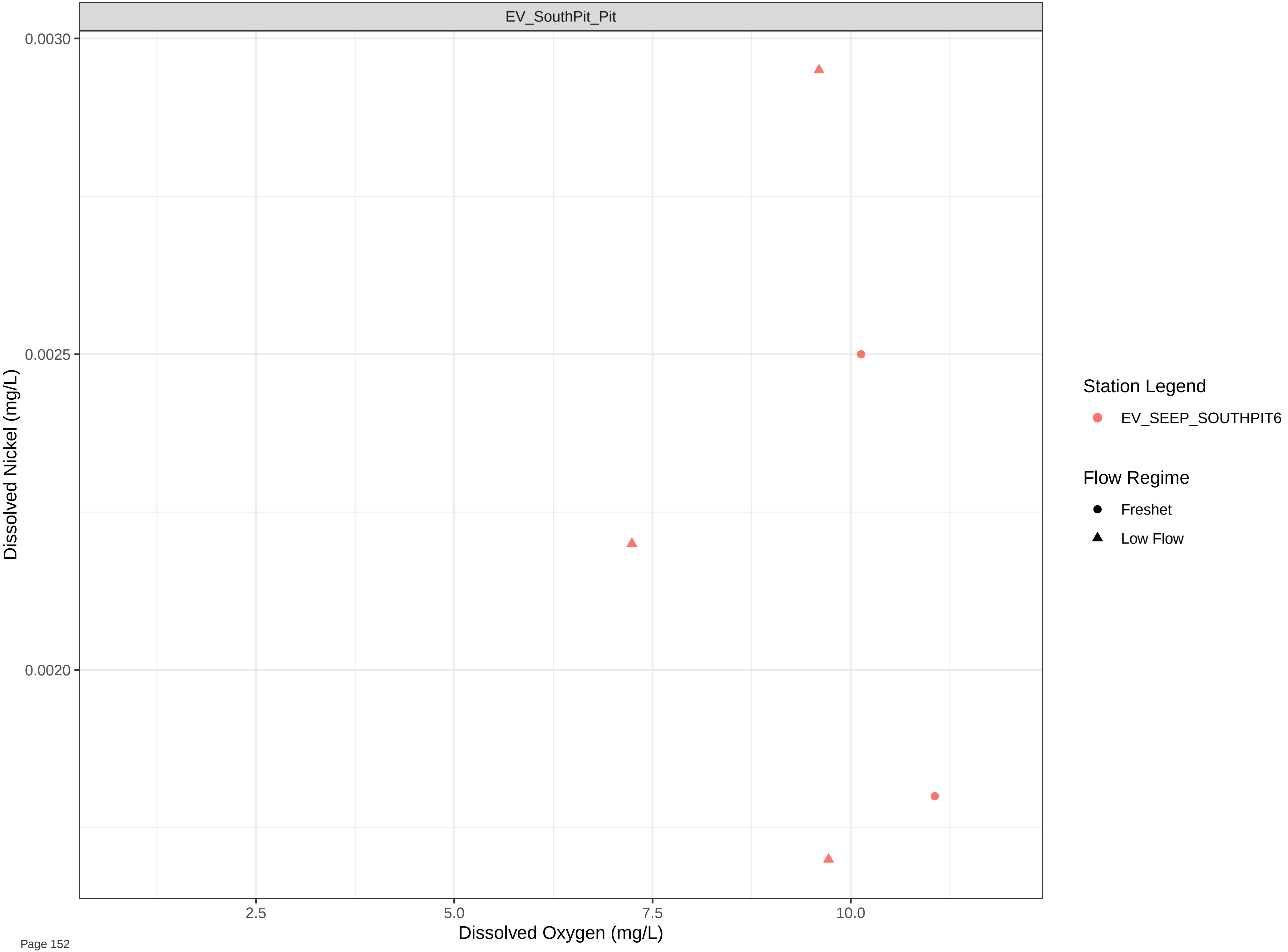

EV_CCR/TP
0.0018
0.0017
0.0016
0.0015
Dissolved Nickel (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

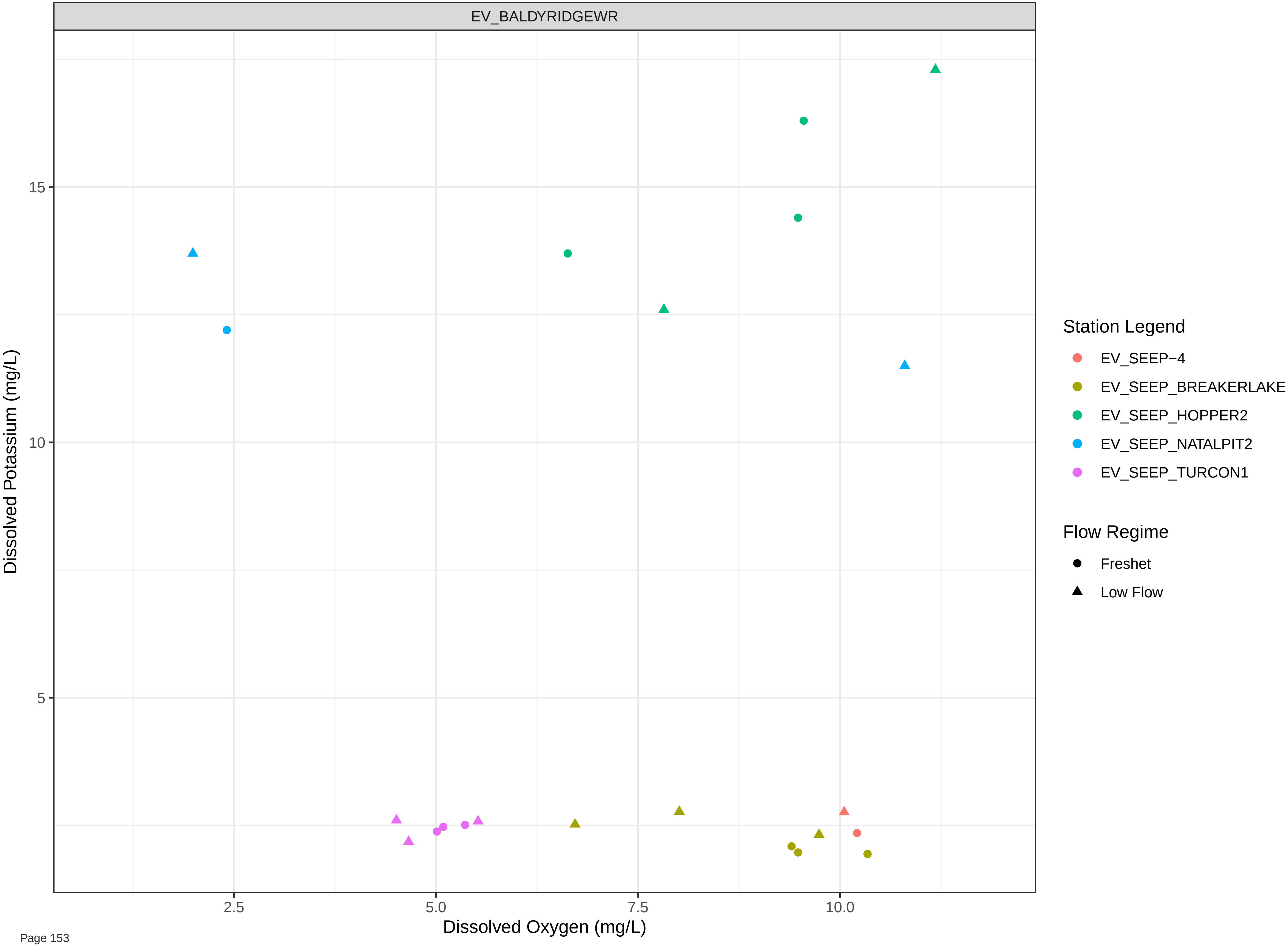

EV_CEDARWR
0.006
0.004
0.002
Dissolved Nickel (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

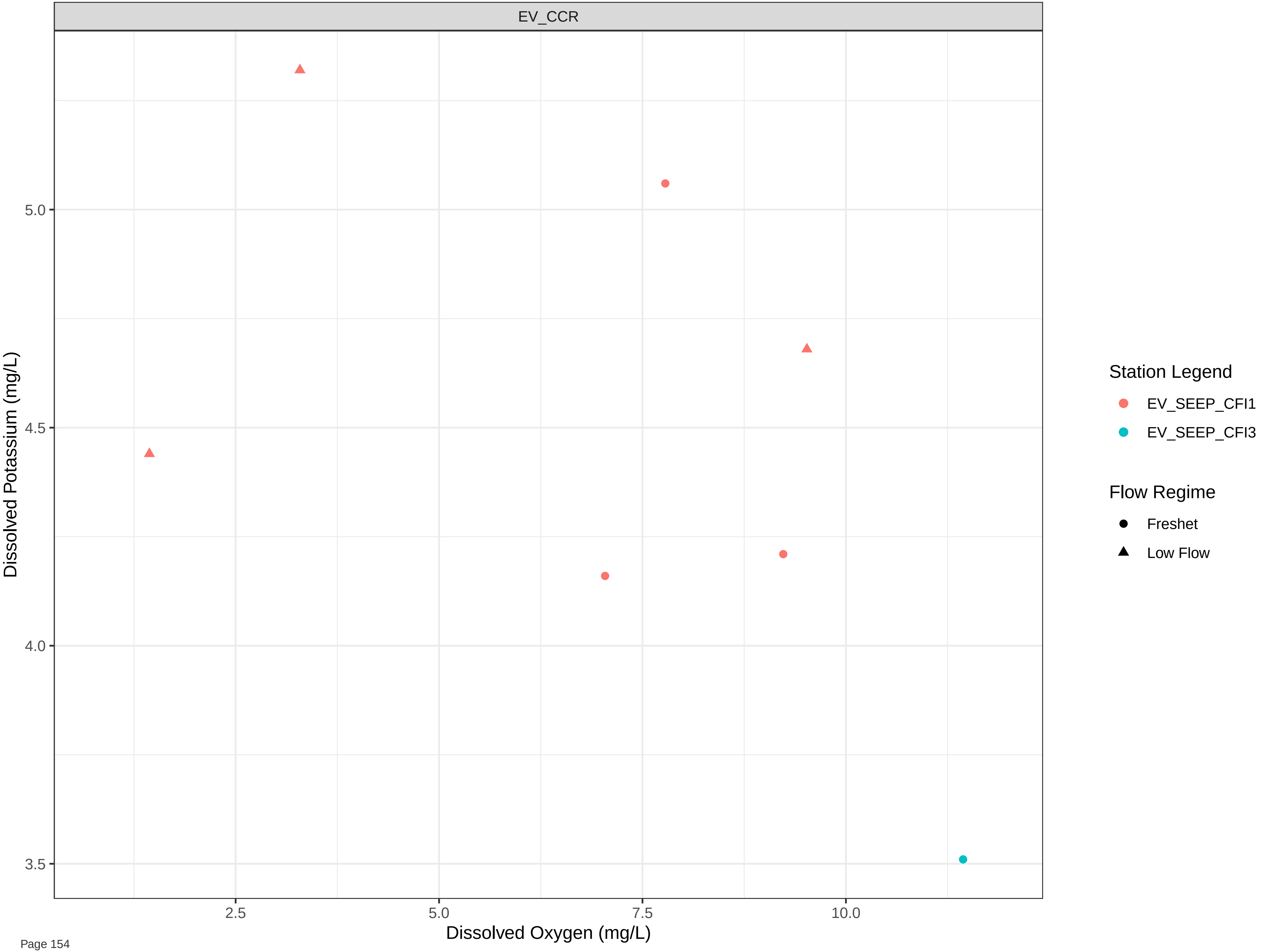

EV_Erickson_WR
Dissolved Nickel (mg/L)
0.05
0.04
0.03
0.02
0.01
0.00
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

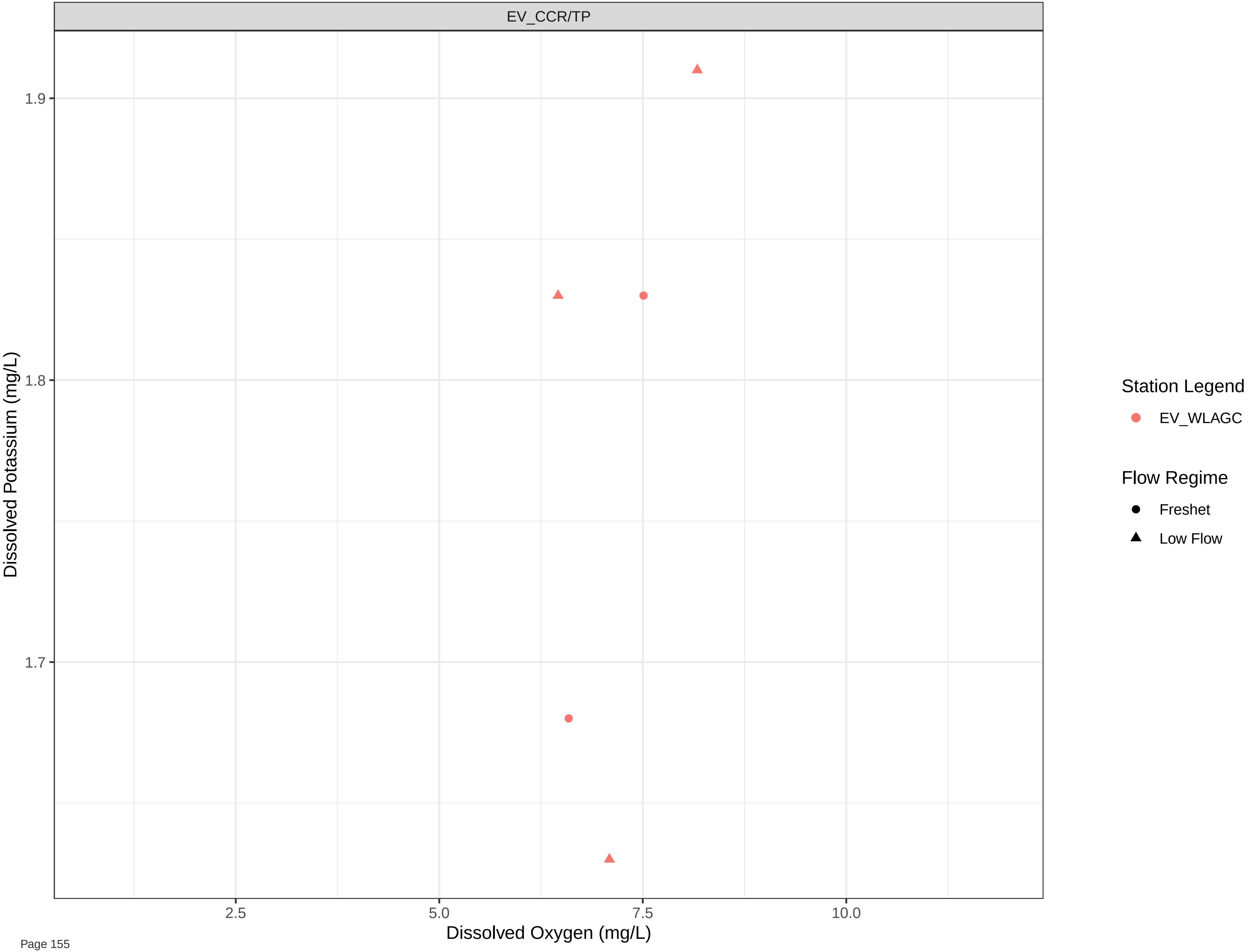

EV_PLANT
Dissolved Nickel (mg/L)
0.03
0.02
0.01
0.00
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

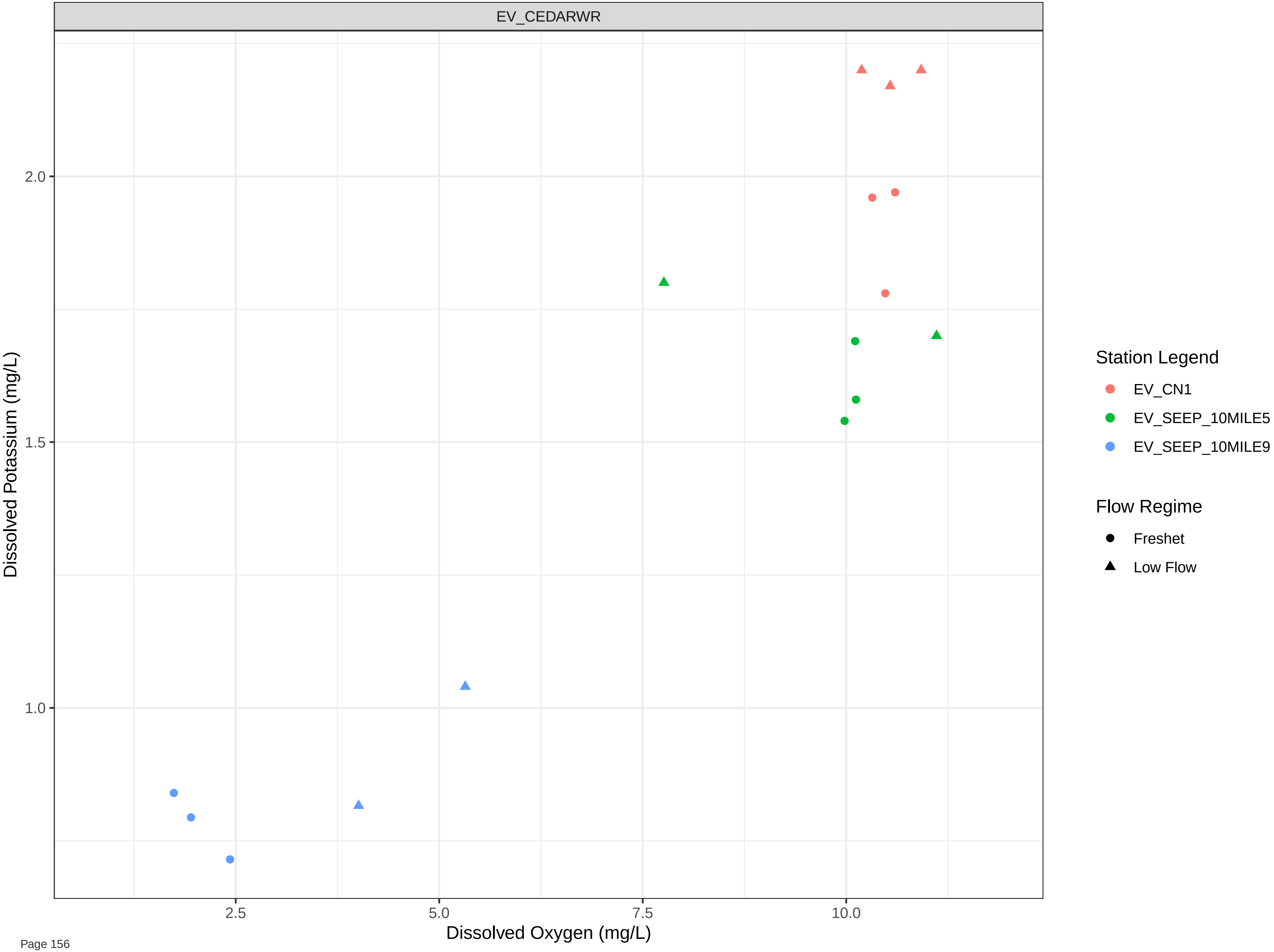

EV_SOUTHSLOPE
Dissolved Nickel (mg/L)
1e−03
9e−04
8e−04
7e−04
6e−04
5e−04
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

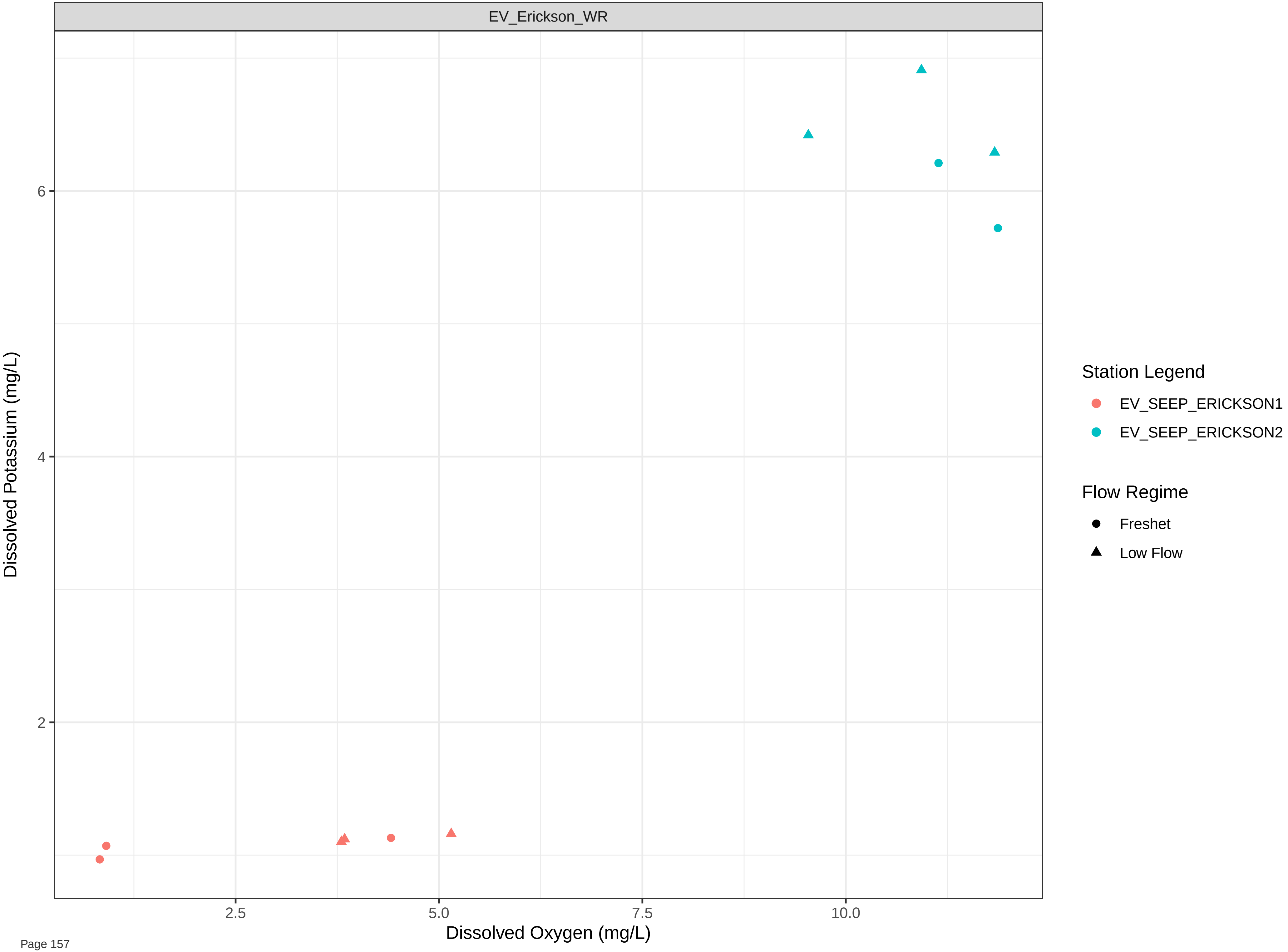

EV_SouthPit_Pit
0.0030
0.0025
0.0020
Dissolved Nickel (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

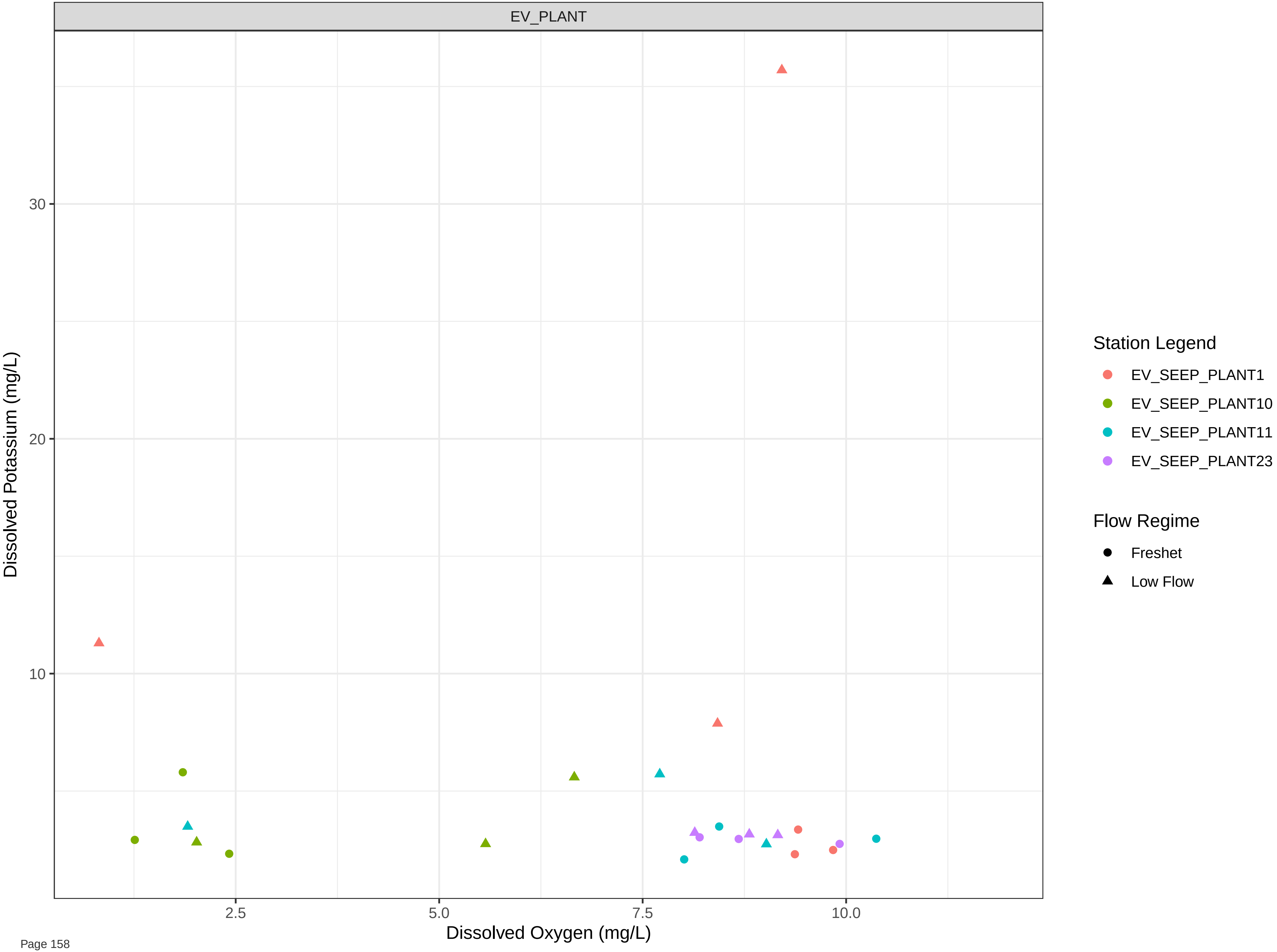

EV_BALDYRIDGEWR
Dissolved Potassium (mg/L)
15
10
5
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

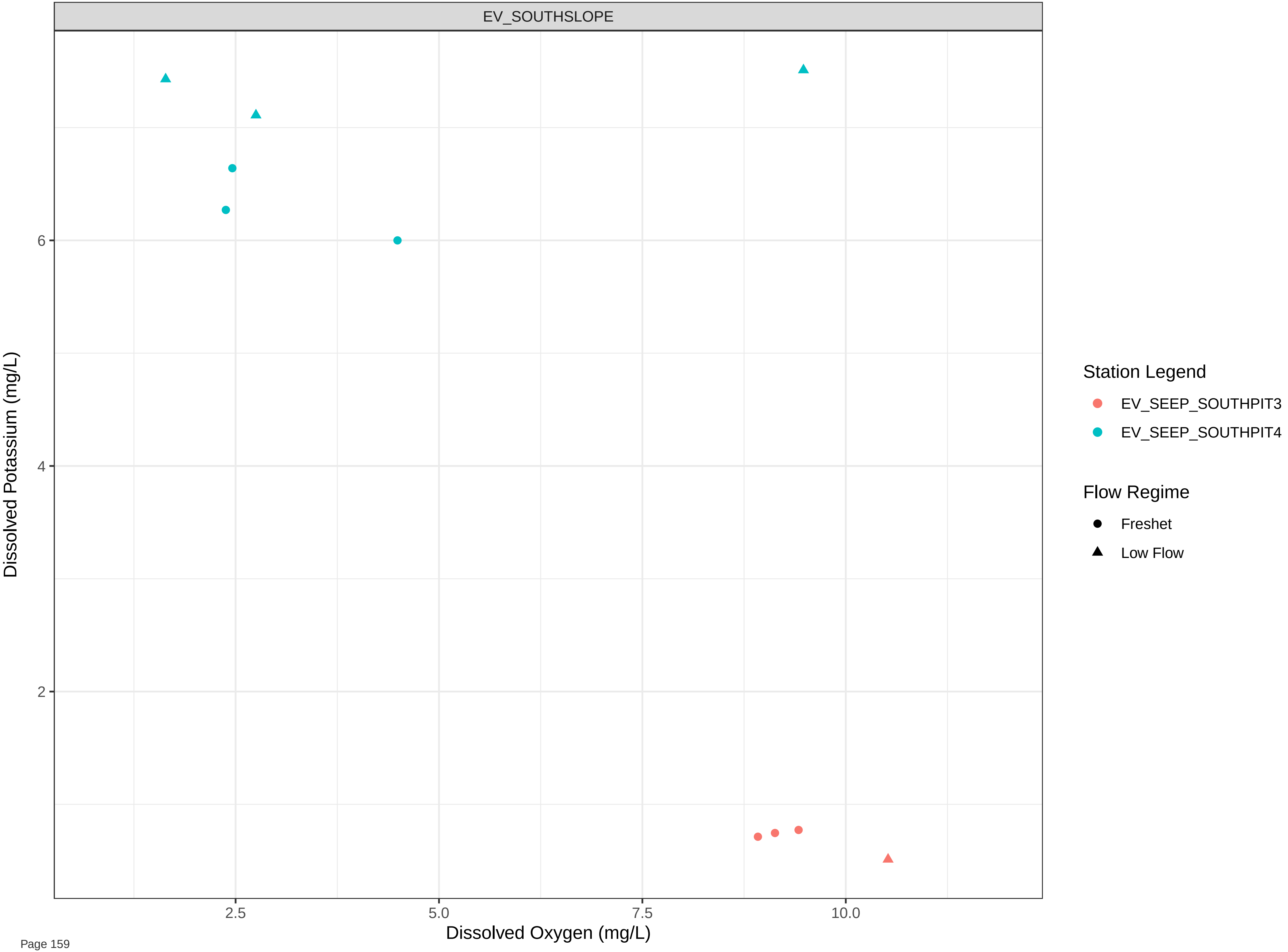

EV_CCR
Dissolved Potassium (mg/L)
5.0
4.5
4.0
3.5
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

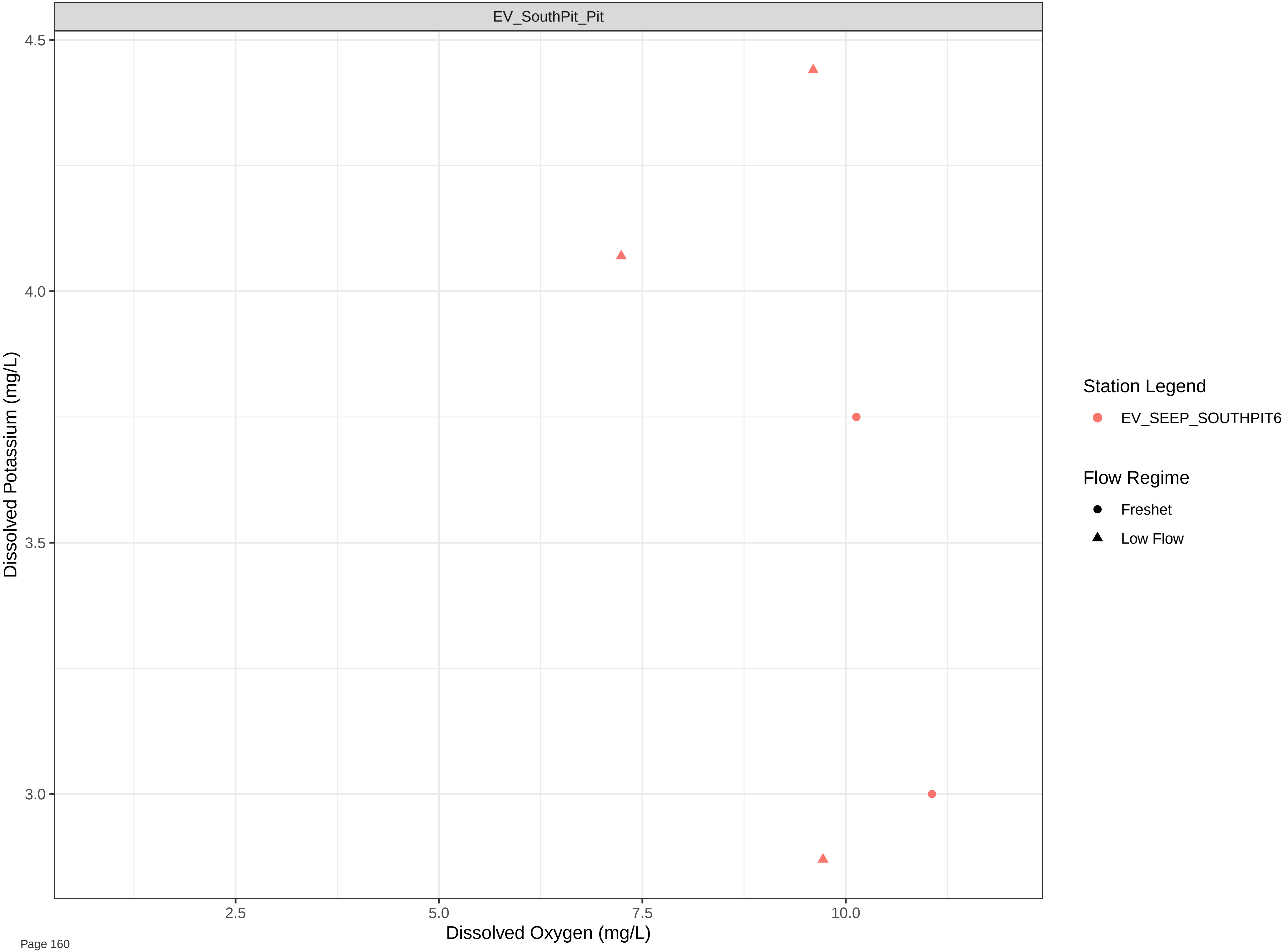

EV_CCR/TP
Dissolved Potassium (mg/L)
1.9
1.8
1.7
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

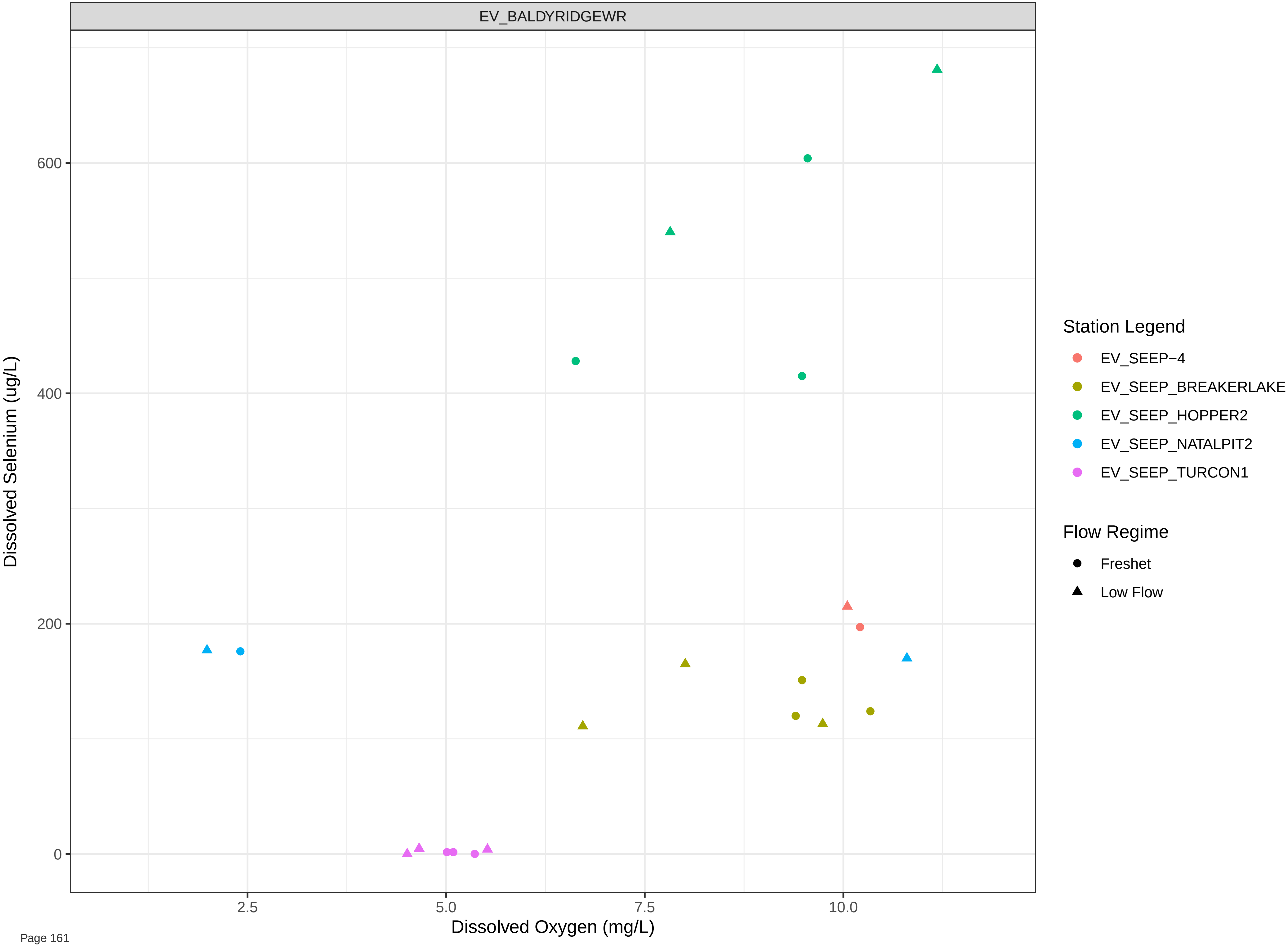

EV_CEDARWR
Dissolved Potassium (mg/L)
2.0
1.5
1.0
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

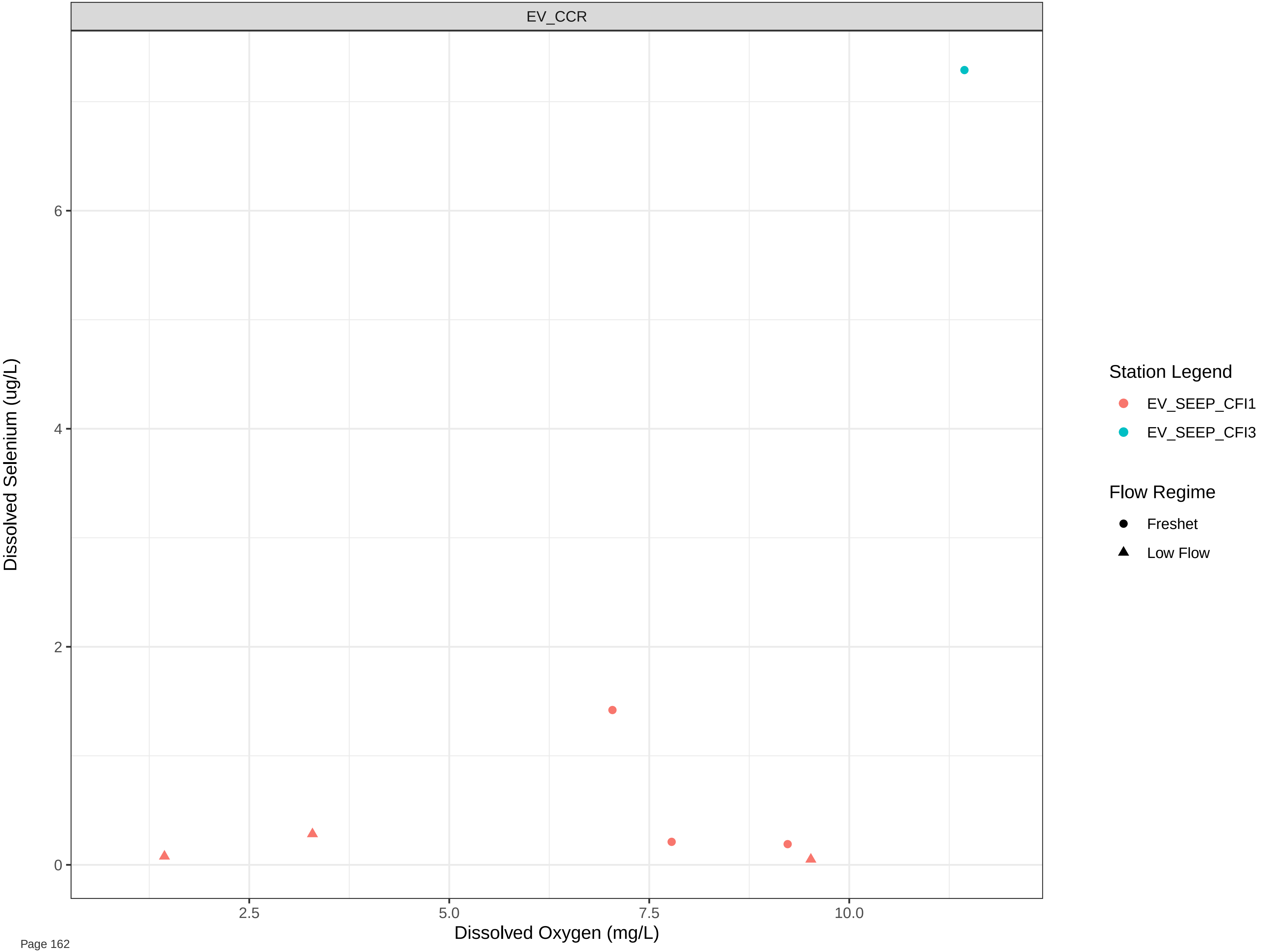

EV_Erickson_WR
Dissolved Potassium (mg/L)
6
4
2
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

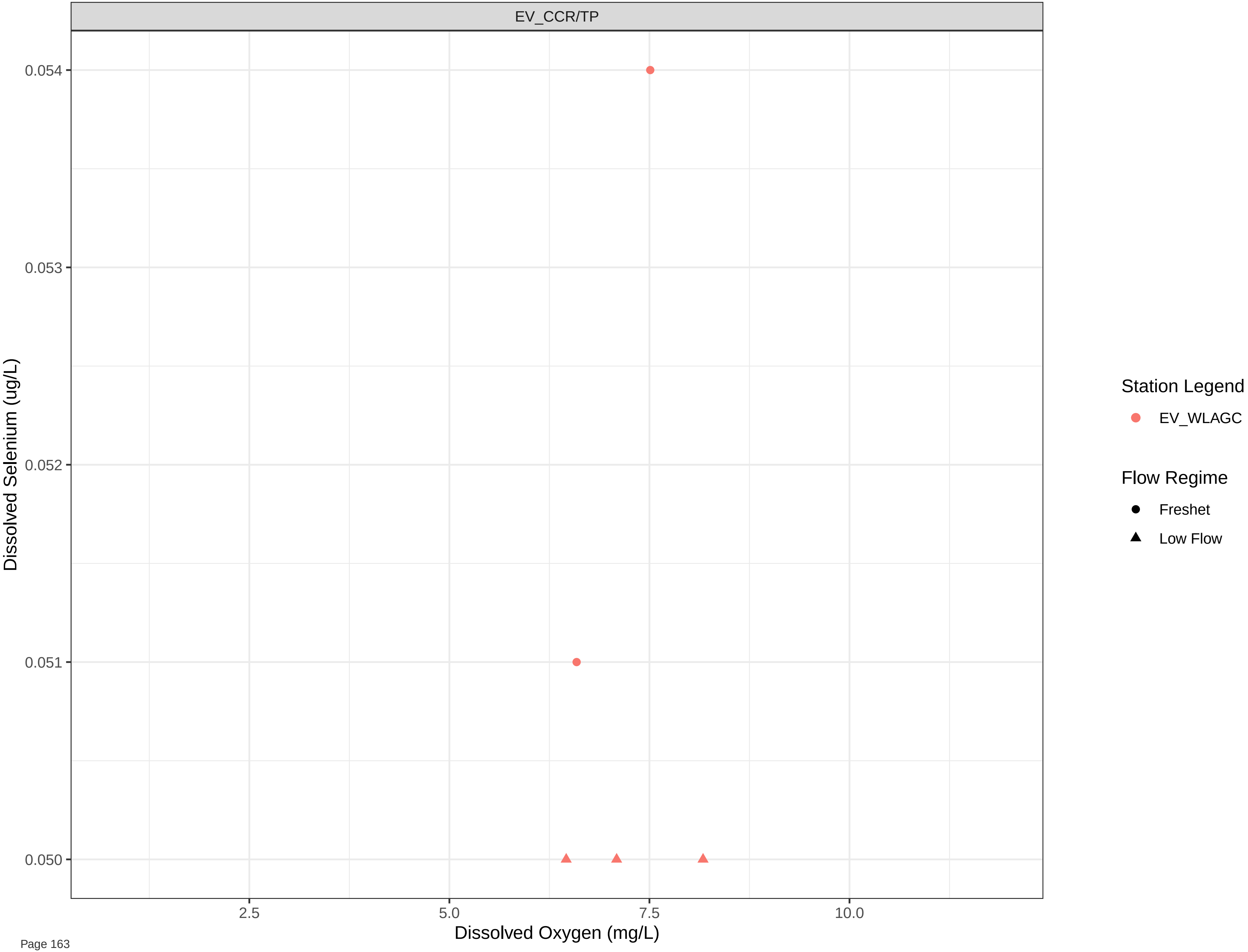

EV_PLANT
Dissolved Potassium (mg/L)
30
20
10
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

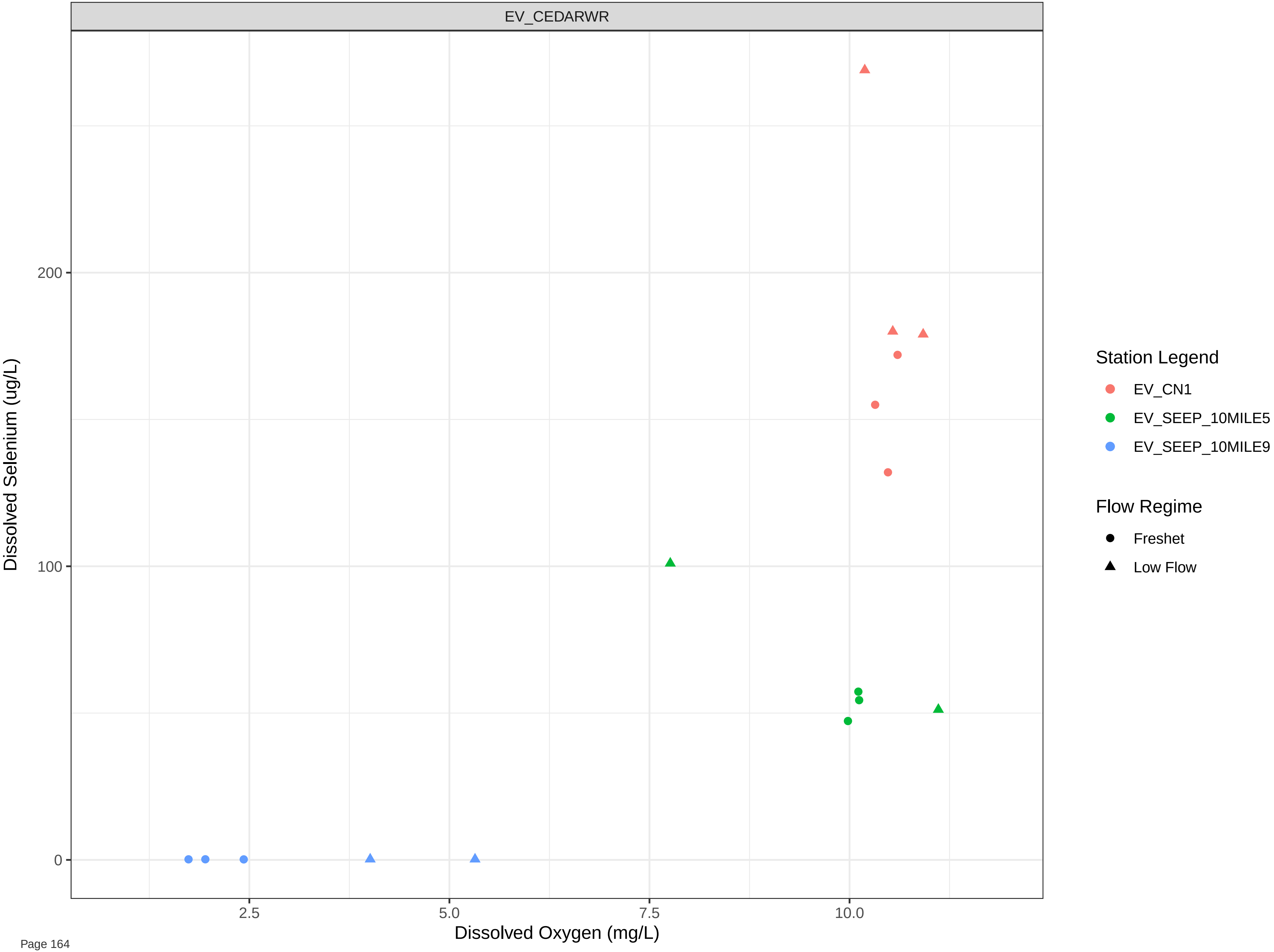

EV_SOUTHSLOPE
Dissolved Potassium (mg/L)
6
4
2
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

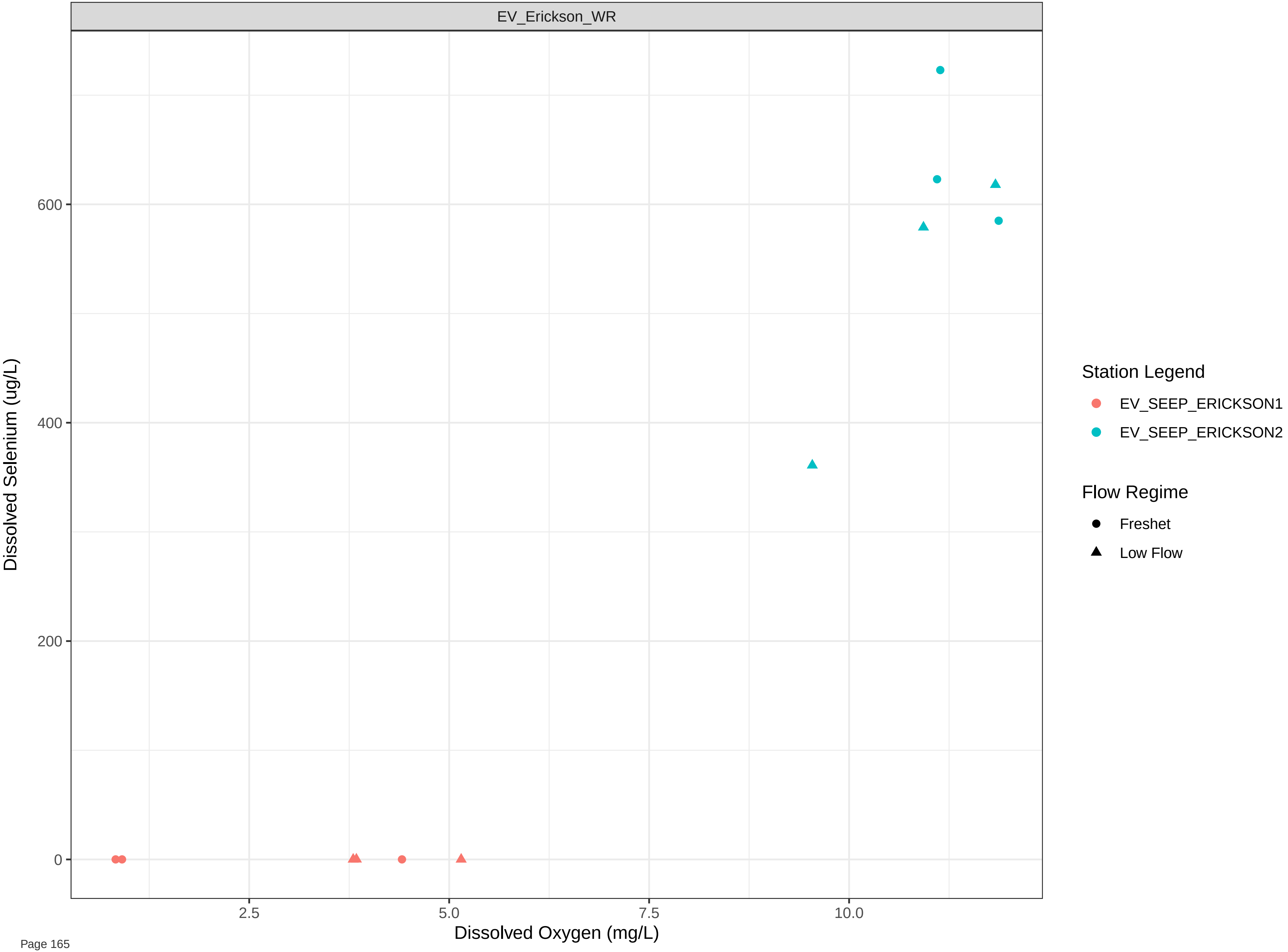

EV_SouthPit_Pit
4.5
4.0
3.5
3.0
Dissolved Potassium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

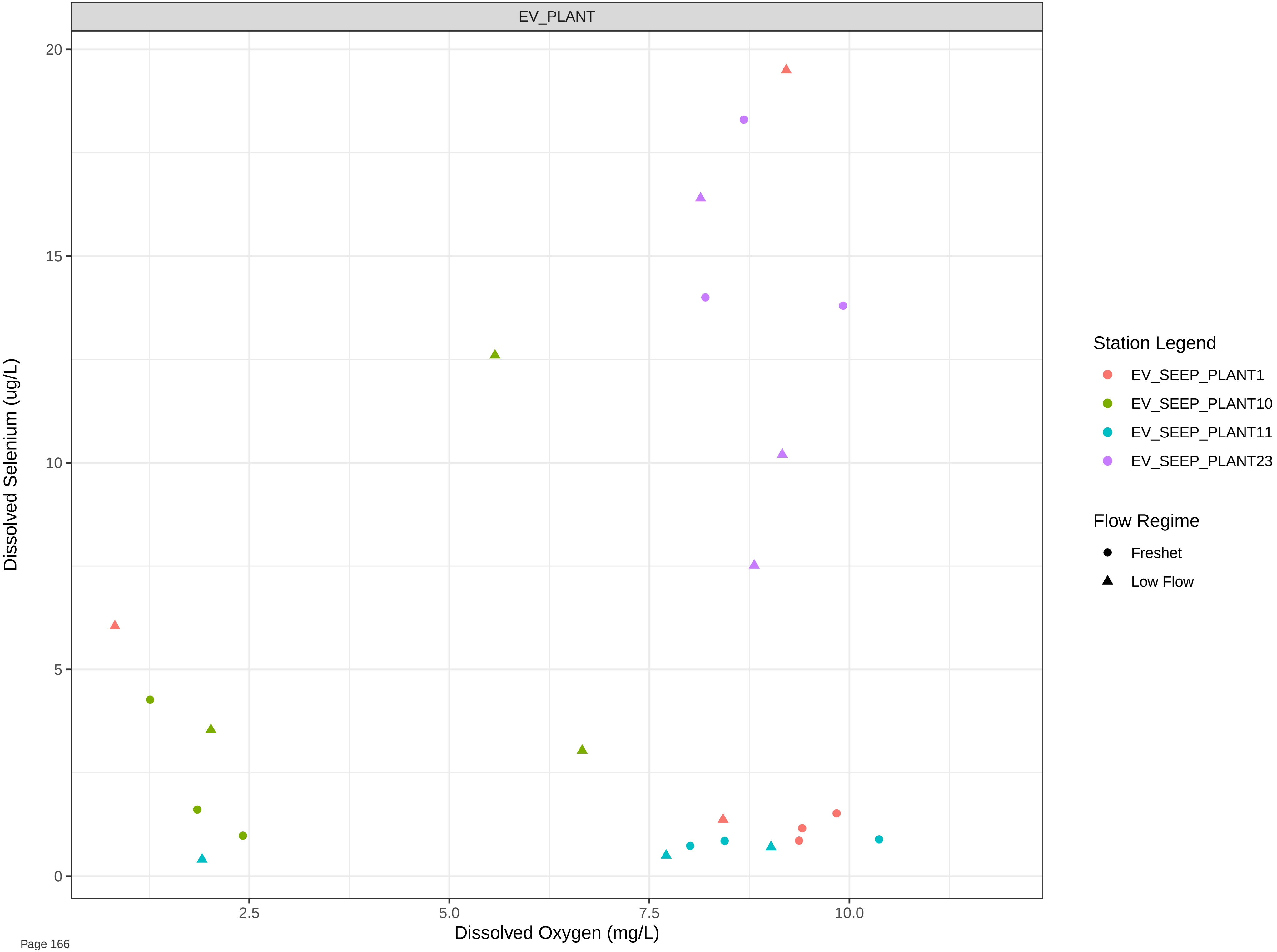

EV_BALDYRIDGEWR
Dissolved Selenium (ug/L)
600
400
200
0
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

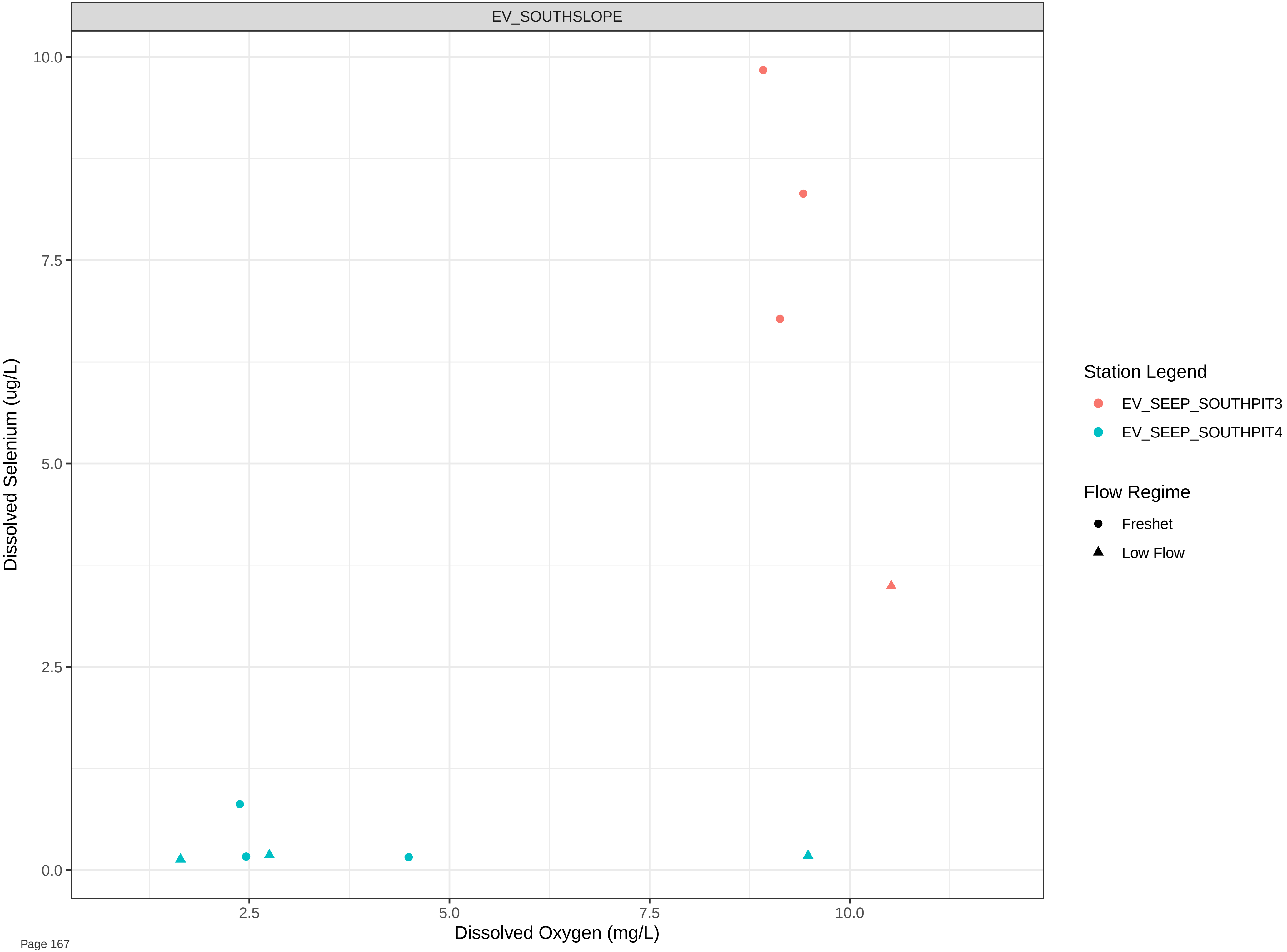

EV_CCR
Dissolved Selenium (ug/L)
6
4
2
0
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

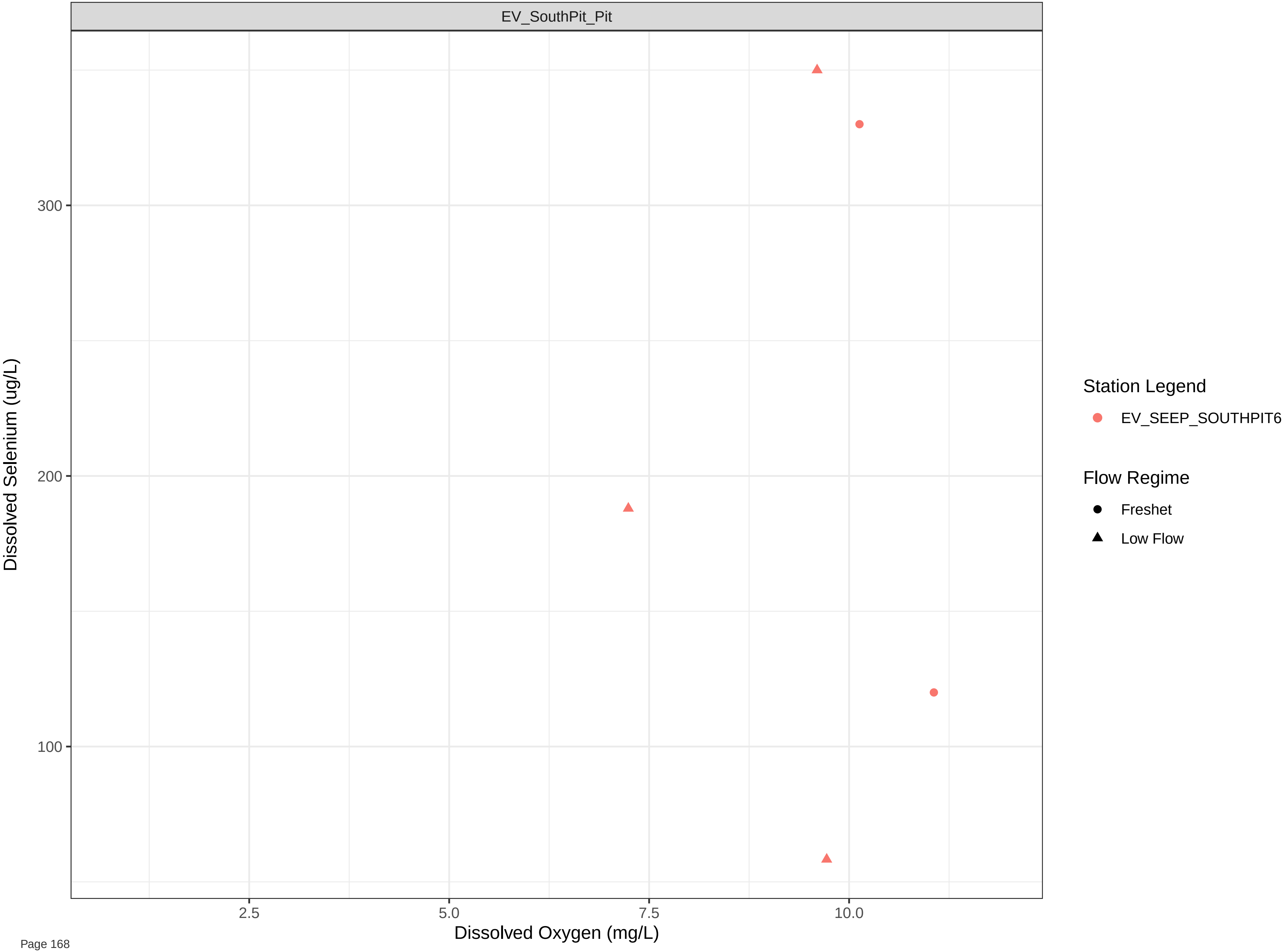

EV_CCR/TP
Dissolved Selenium (ug/L)
0.054
0.053
0.052
0.051
0.050
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

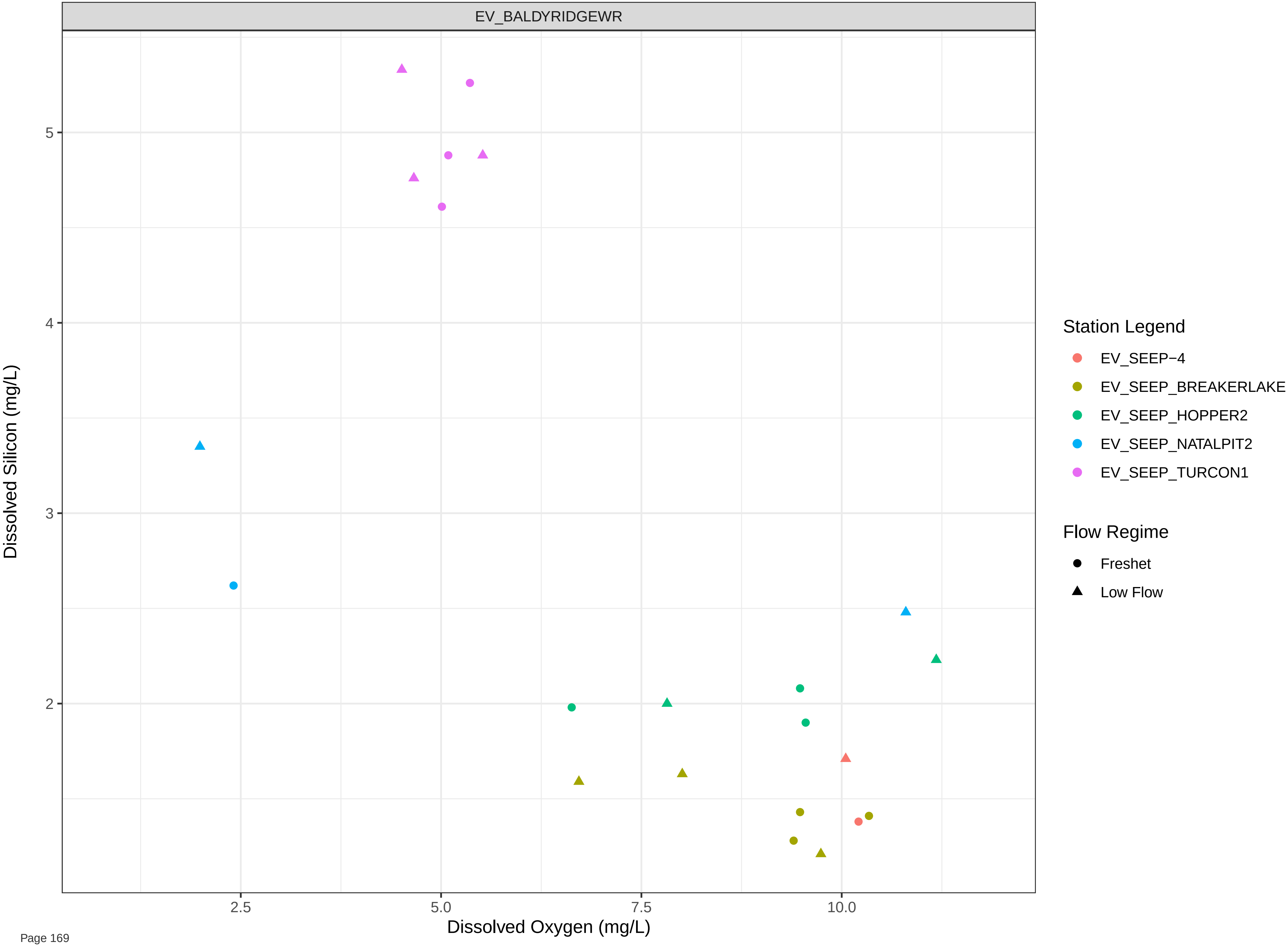

EV_CEDARWR
Dissolved Selenium (ug/L)
200
100
0
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_CN1
● EV_SEEP_10MILE5
● EV_SEEP_10MILE9
Flow Regime
● Freshet
▲ Low Flow

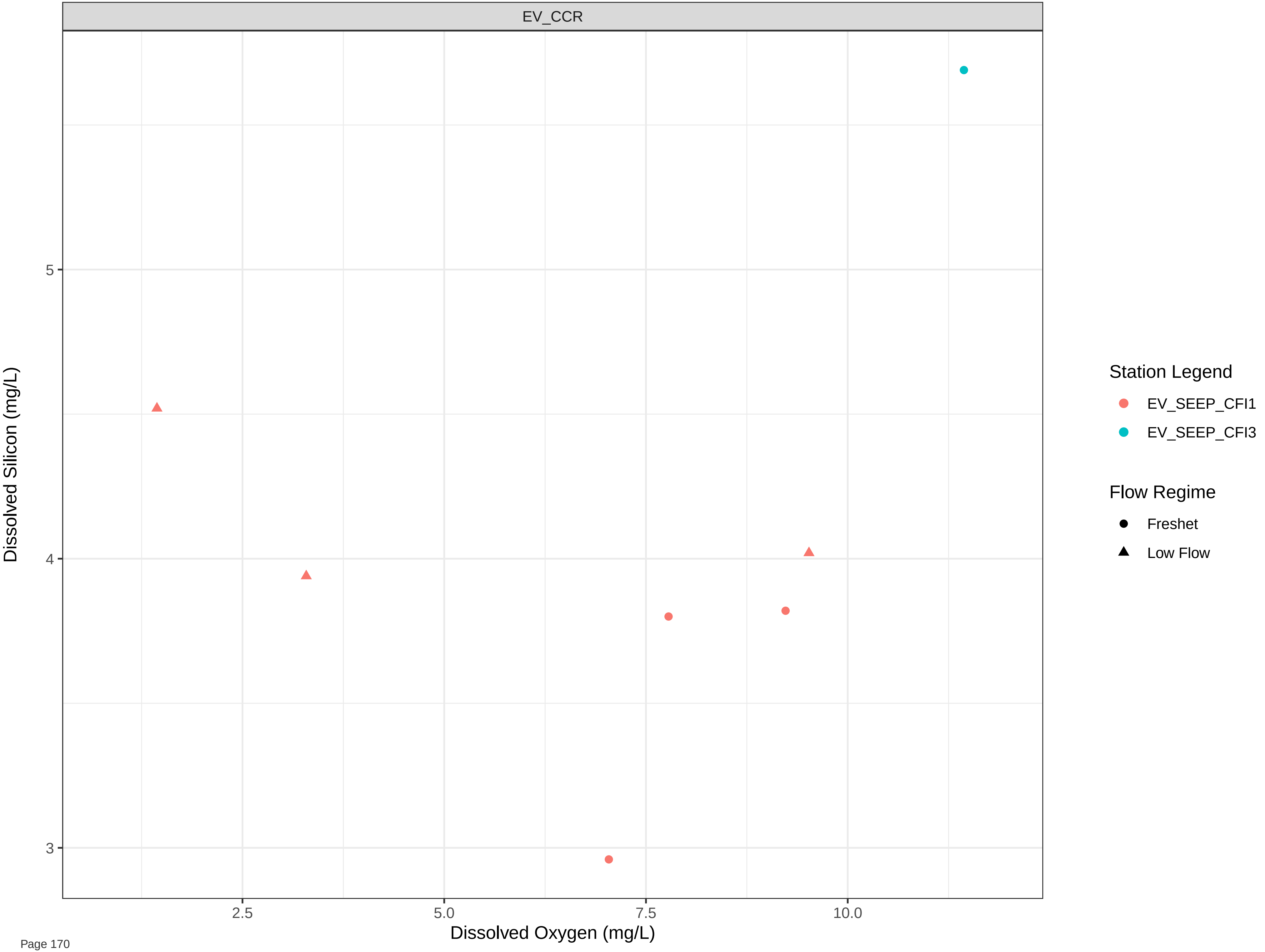

EV_Erickson_WR
Dissolved Selenium (ug/L)
600
400
200
0
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

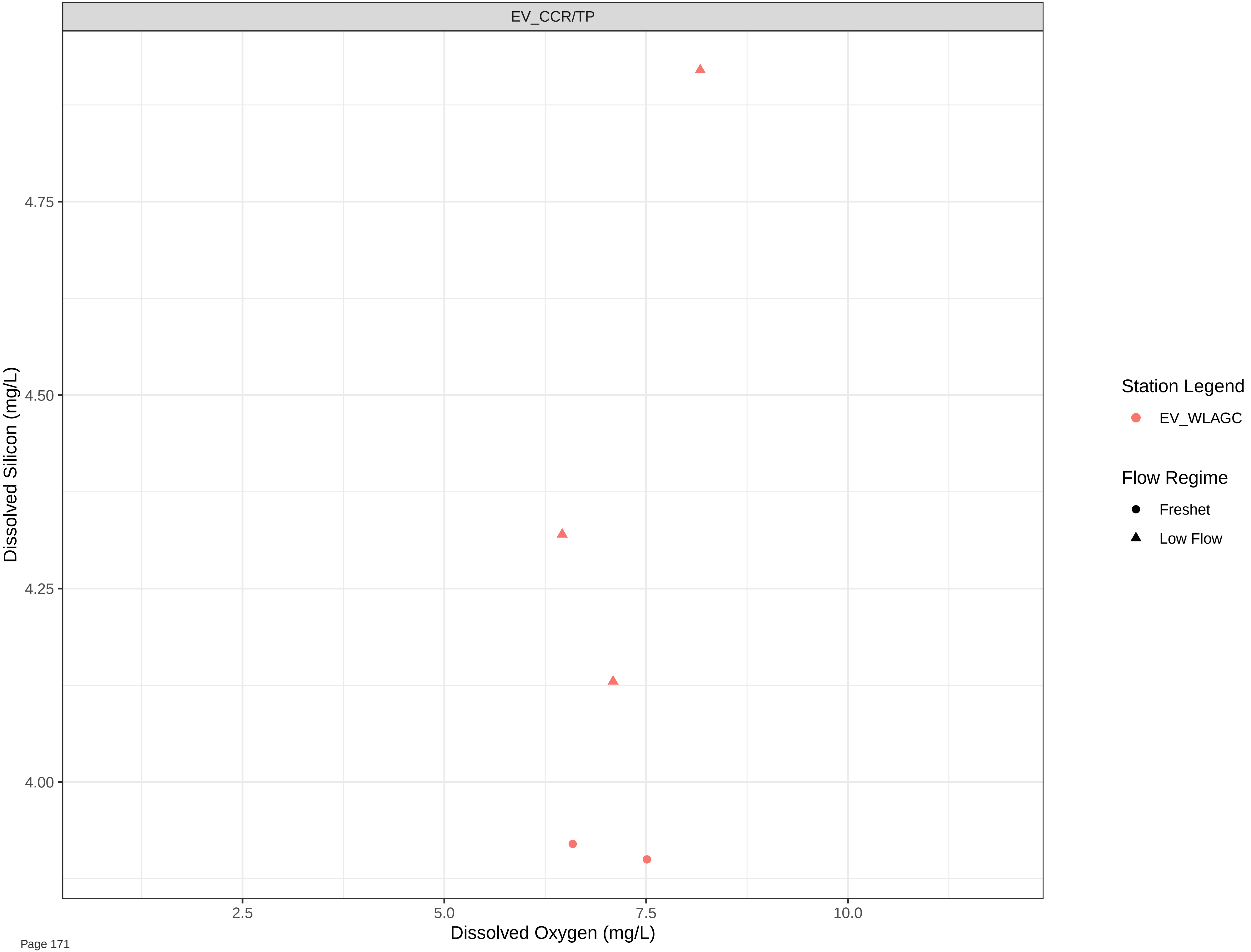

EV_PLANT
Dissolved Selenium (ug/L)
20
15
10
5
0
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

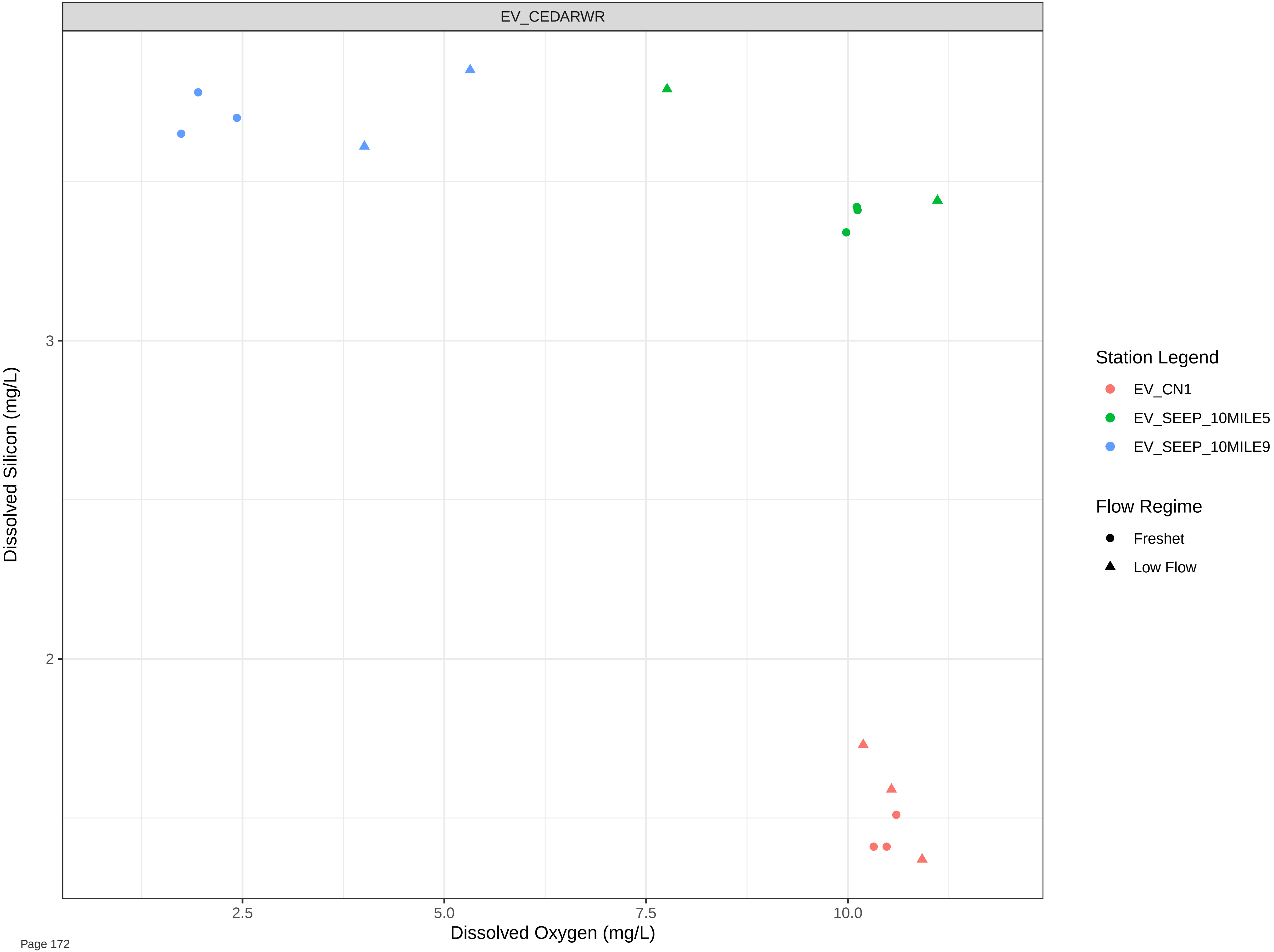

EV_SOUTHSLOPE
Dissolved Selenium (ug/L)
10.0
7.5
5.0
2.5
0.0
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

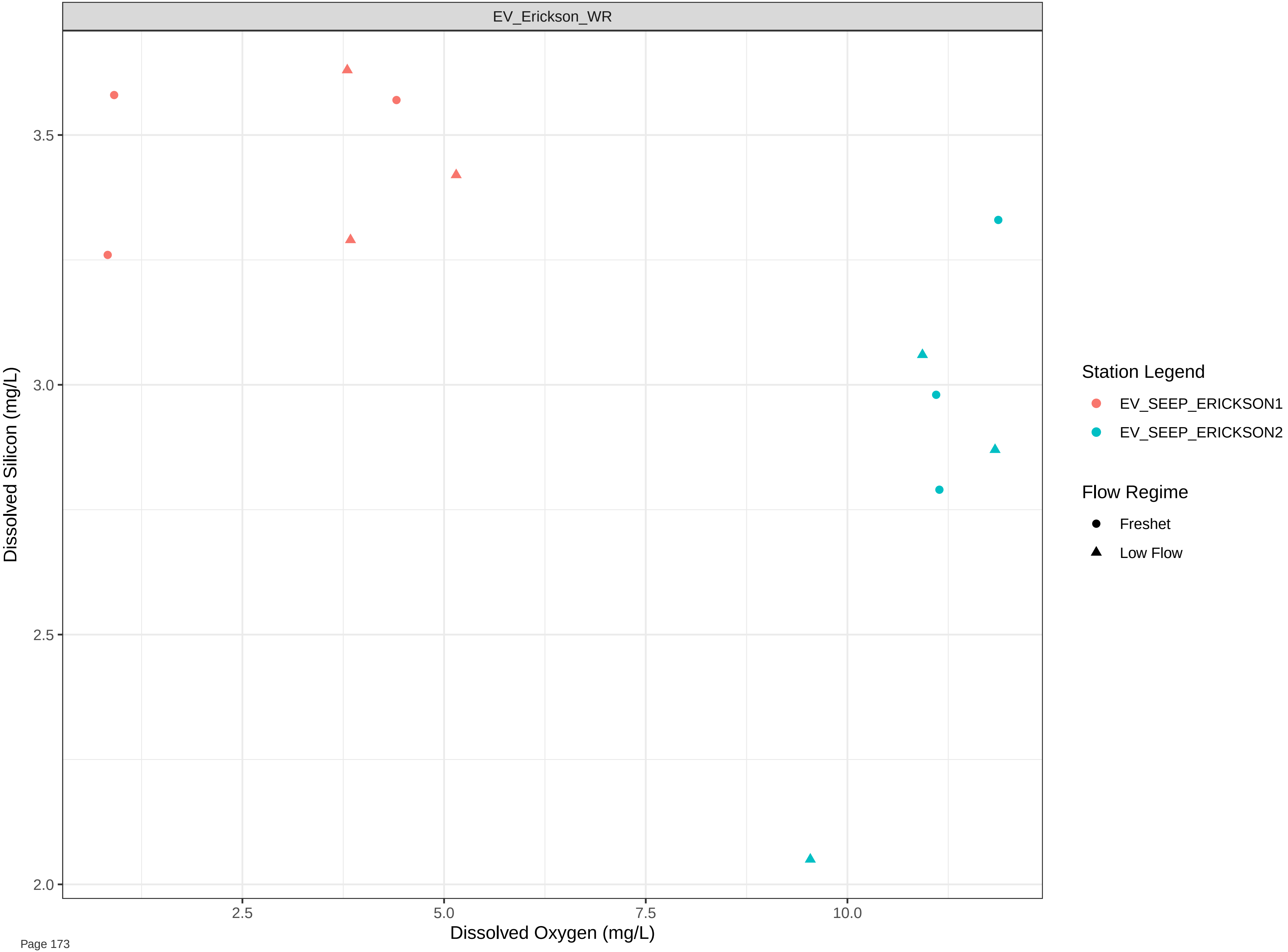

EV_SouthPit_Pit
Dissolved Selenium (ug/L)
300
200
100
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

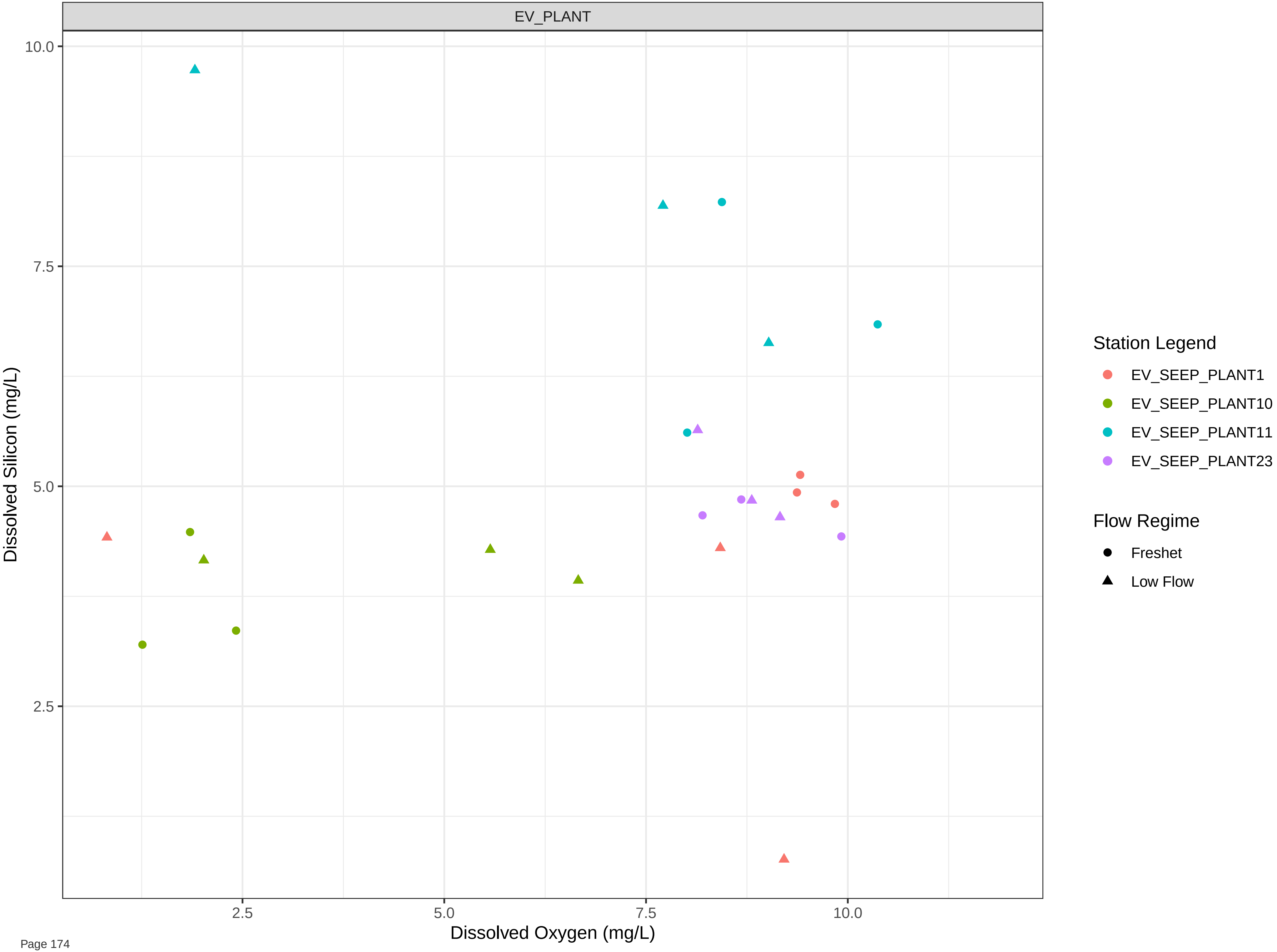

EV_BALDYRIDGEWR
Dissolved Silicon (mg/L)
5
4
3
2
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

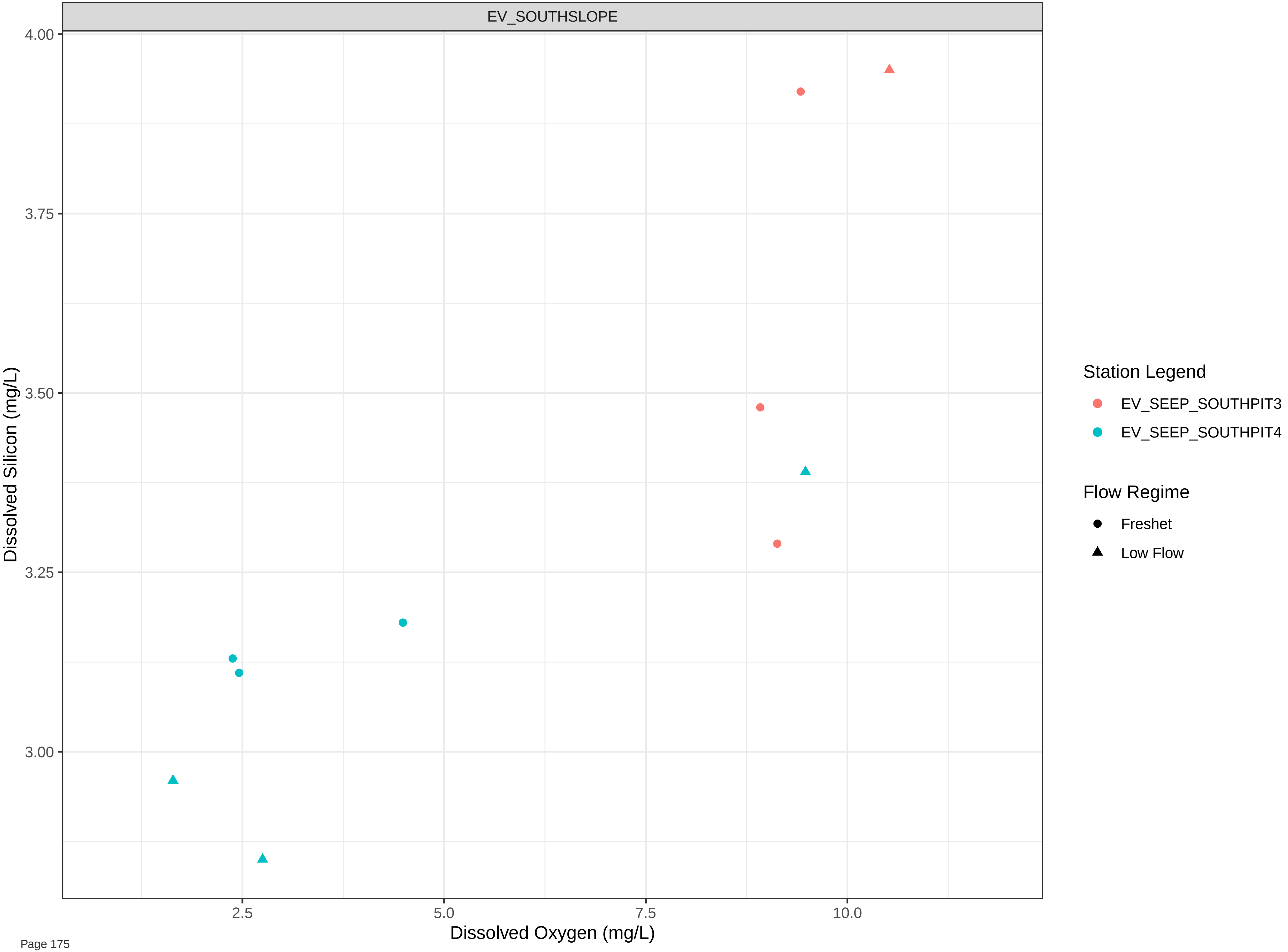

EV_CCR
Dissolved Silicon (mg/L)
5
4
3
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

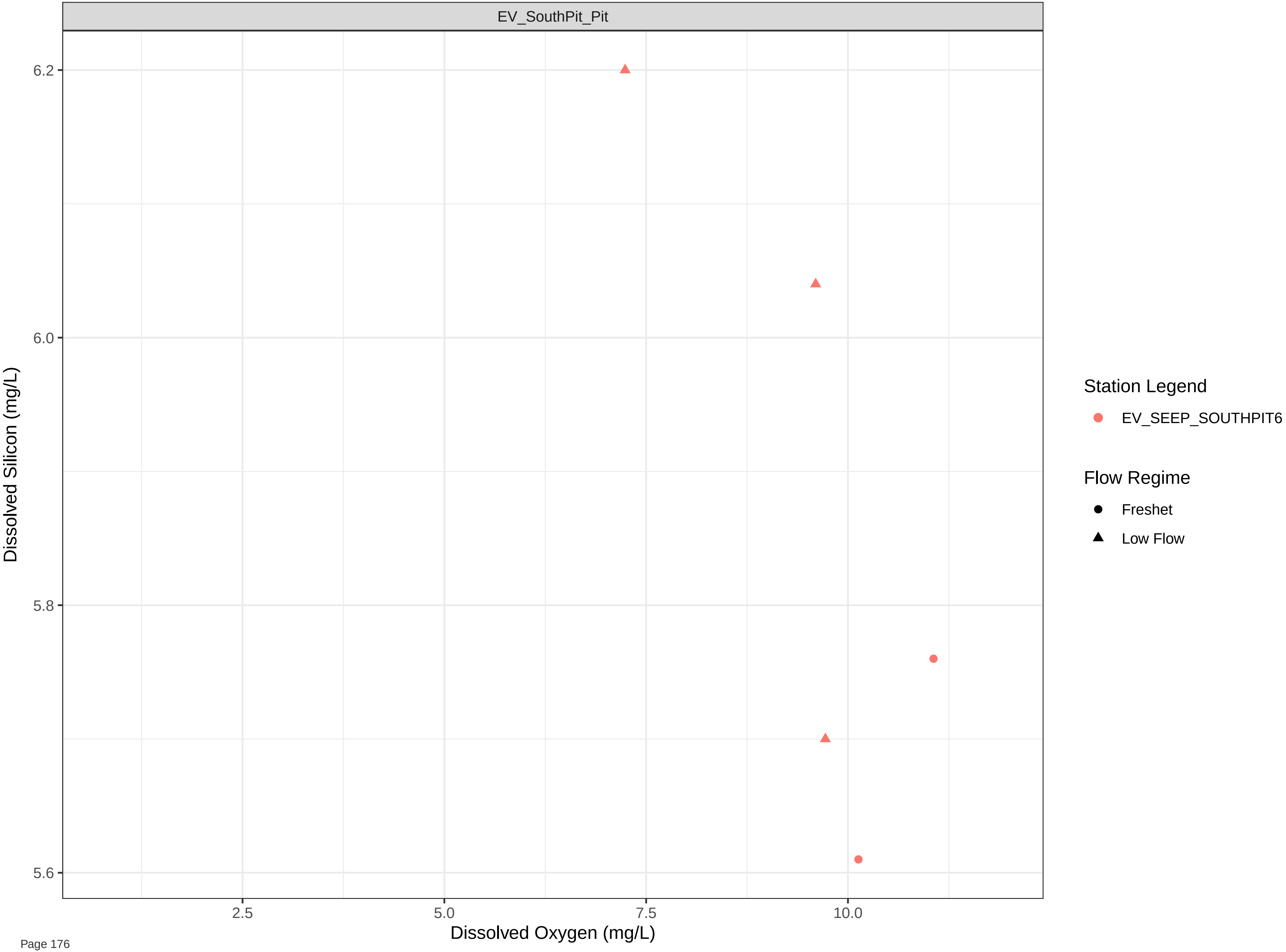

EV_CCR/TP
Dissolved Silicon (mg/L)
4.75
4.50
4.25
4.00
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

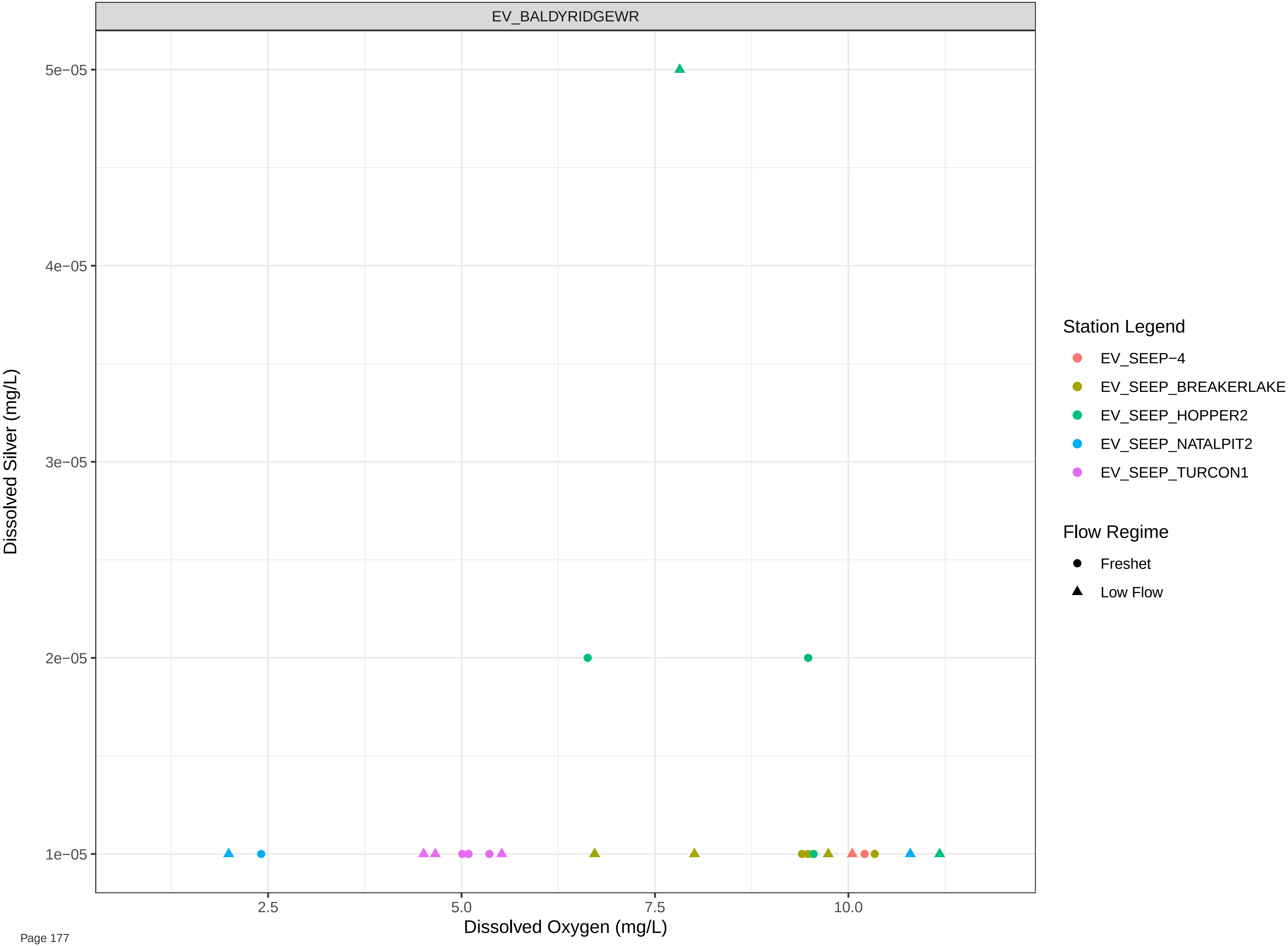

EV_CEDARWR
Dissolved Silicon (mg/L)
3
2
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

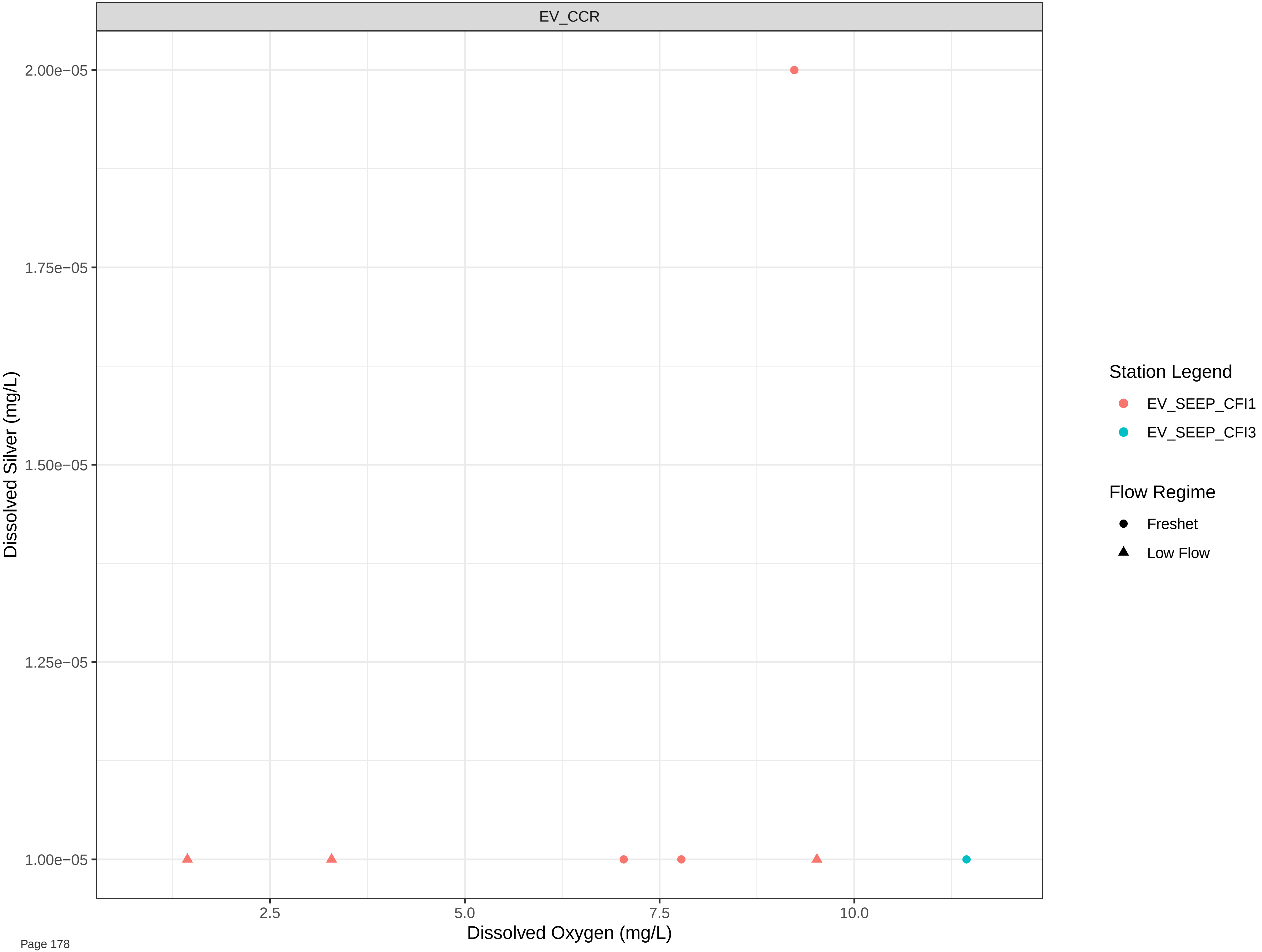

EV_Erickson_WR
Dissolved Silicon (mg/L)
3.5
3.0
2.5
2.0
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

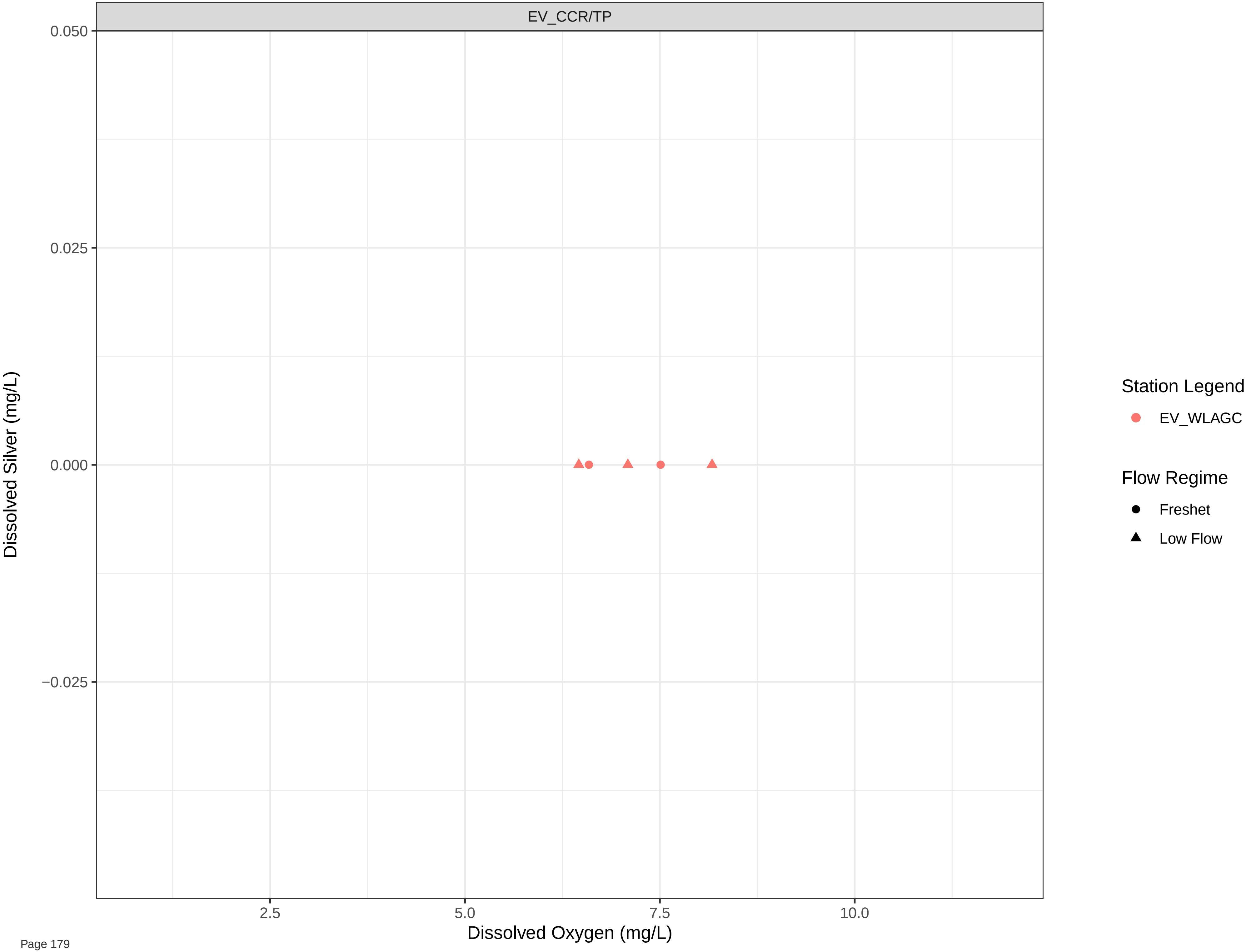

EV_PLANT
Dissolved Silicon (mg/L)
10.0
7.5
5.0
2.5
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

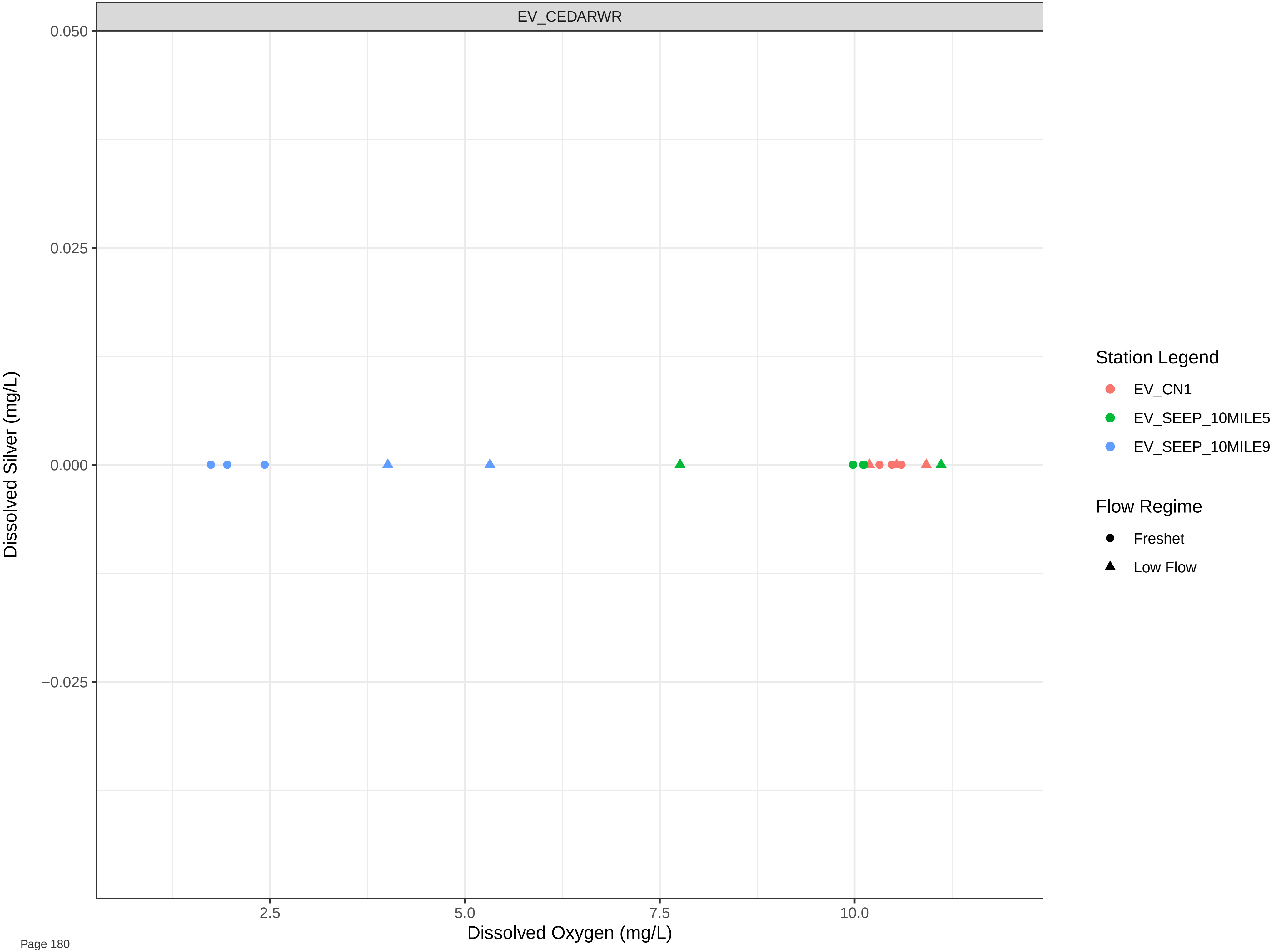

EV_SOUTHSLOPE
Dissolved Silicon (mg/L)
4.00
3.75
3.50
3.25
3.00
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

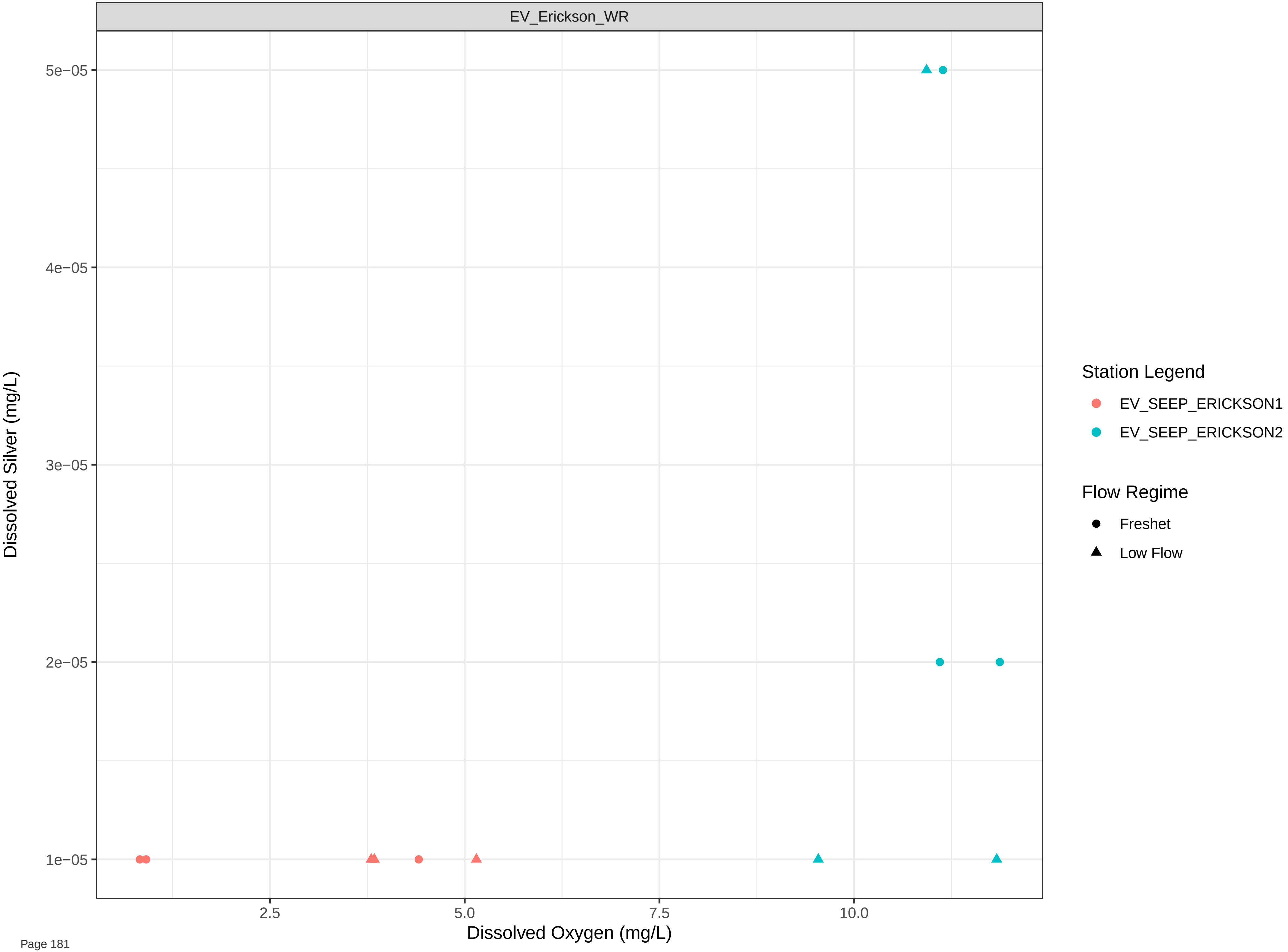

EV_SouthPit_Pit
6.2
6.0
5.8
5.6
Dissolved Silicon (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

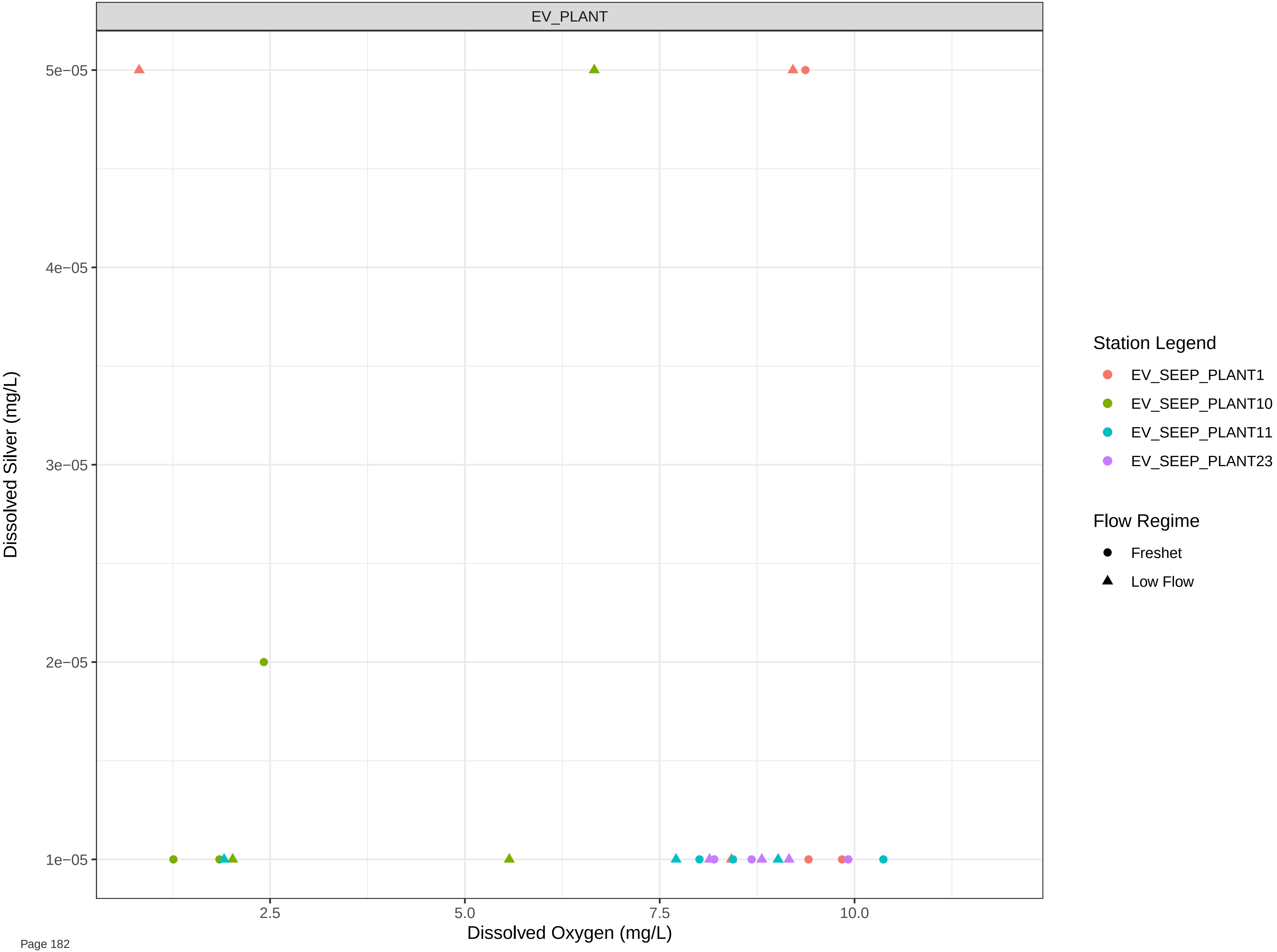

EV_BALDYRIDGEWR
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

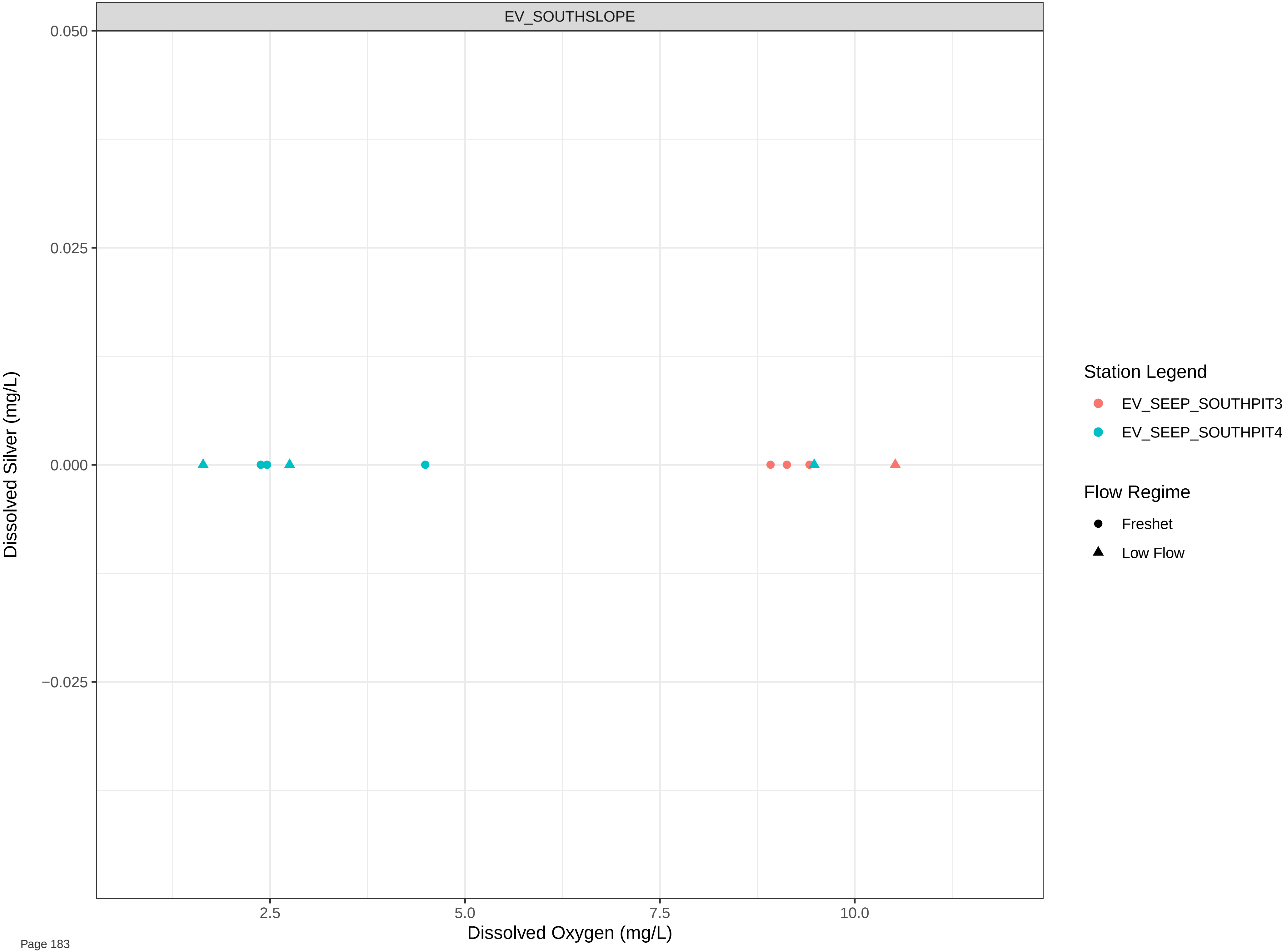

EV_CCR
2.00e−05
1.75e−05
1.50e−05
1.25e−05
1.00e−05
Dissolved Silver (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

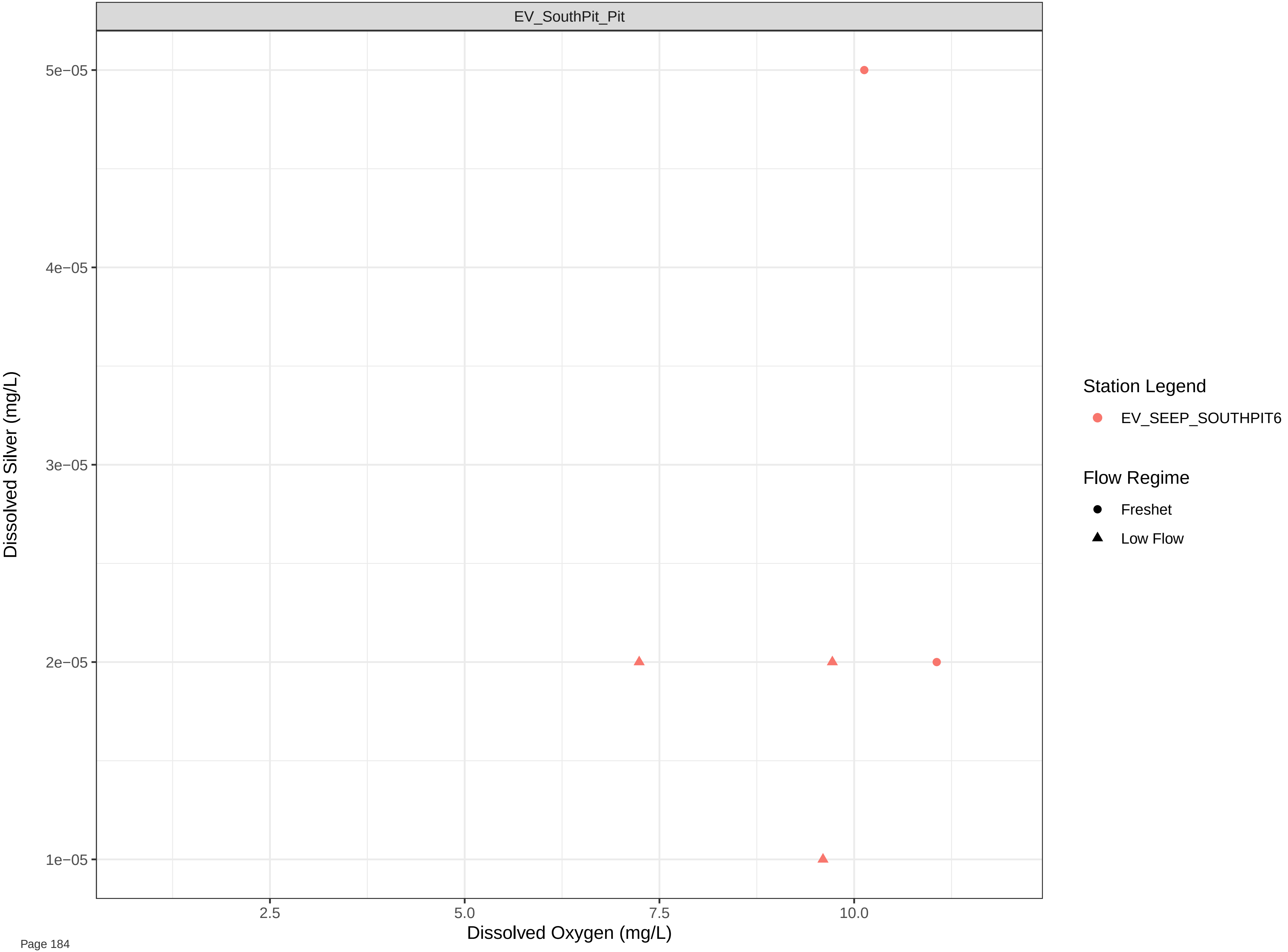

EV_CCR/TP
0.050
0.025
0.000
−0.025
Dissolved Silver (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

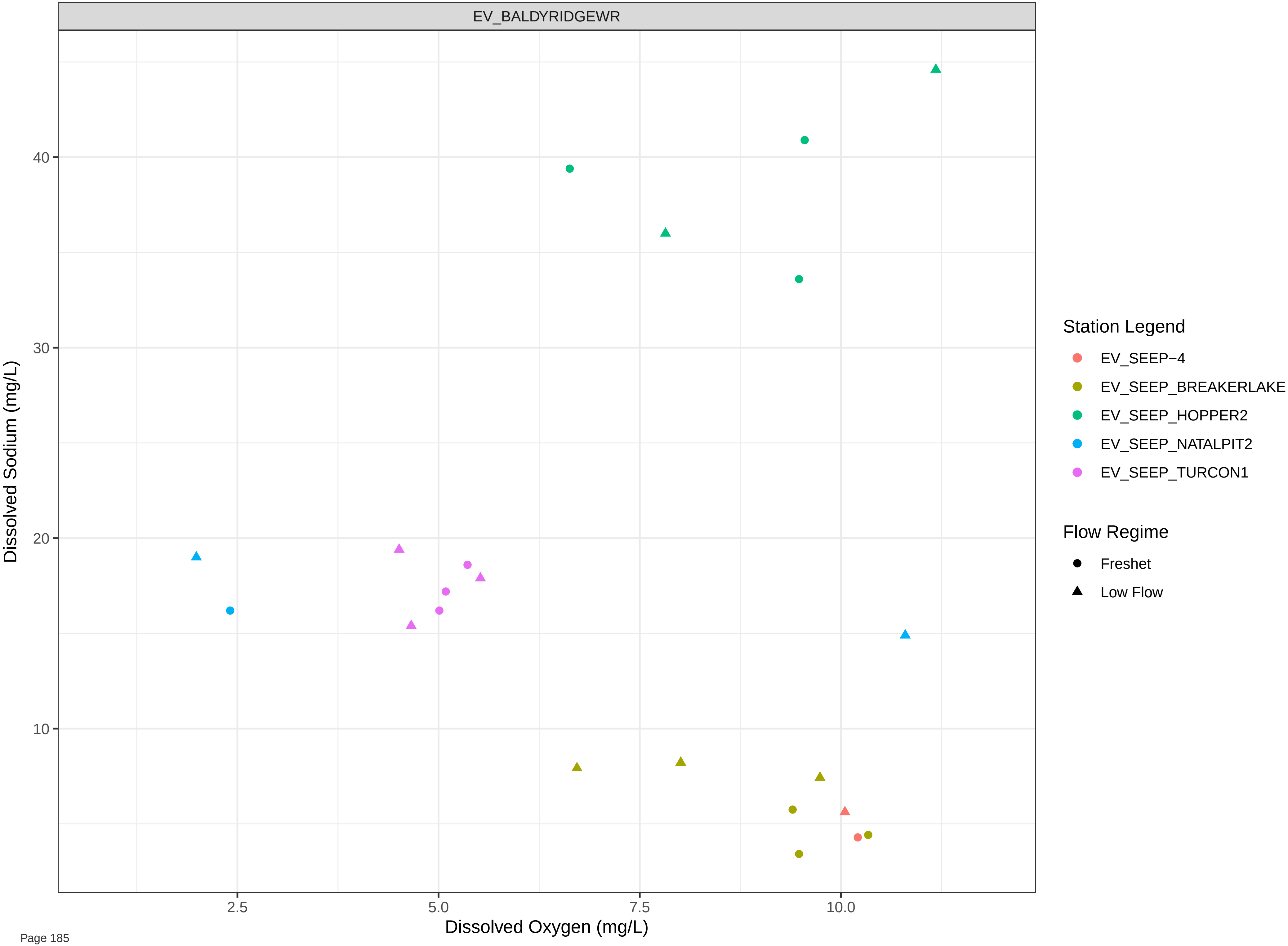

EV_CEDARWR
Dissolved Silver (mg/L)
0.050
0.025
0.000
−0.025
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

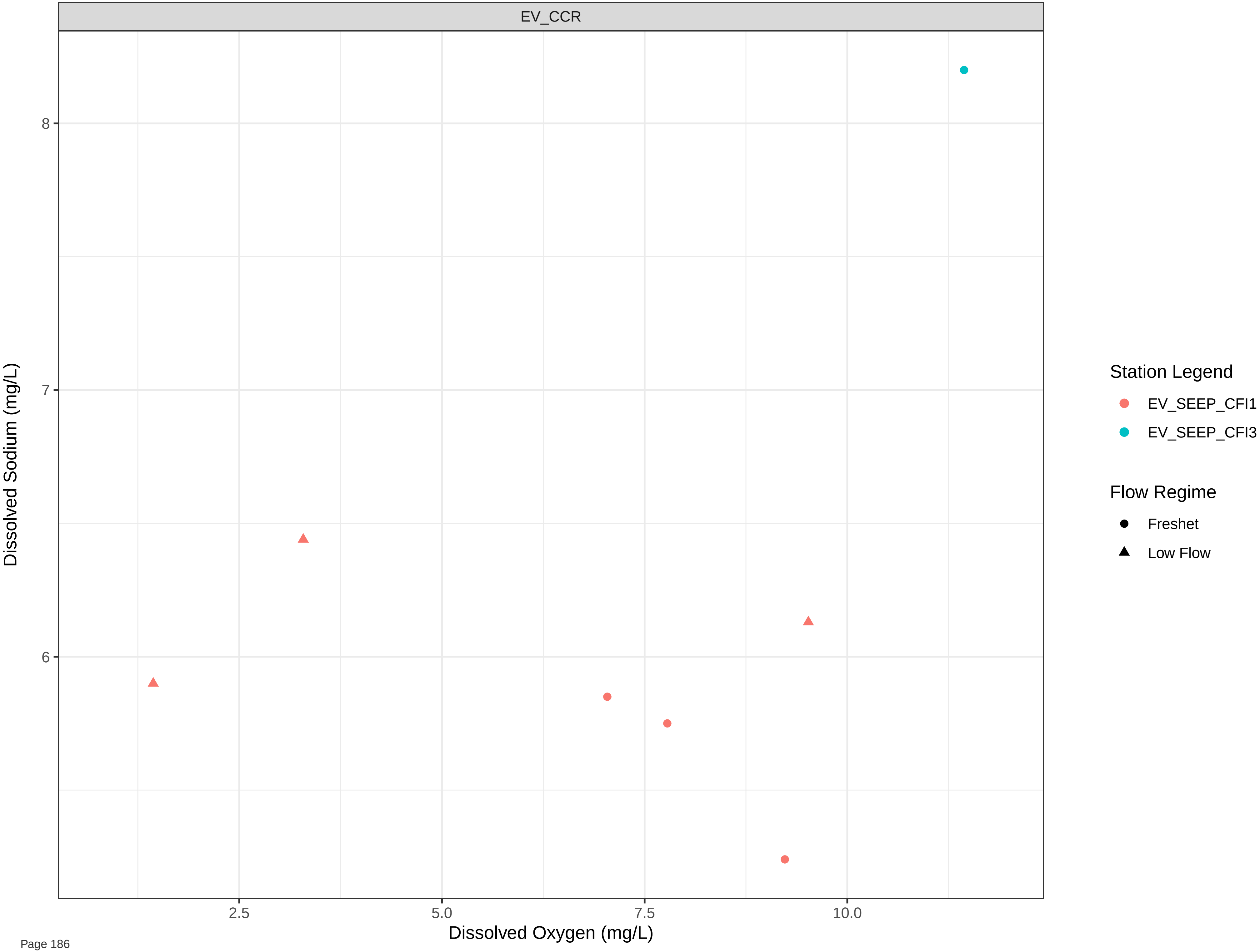

EV_Erickson_WR
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

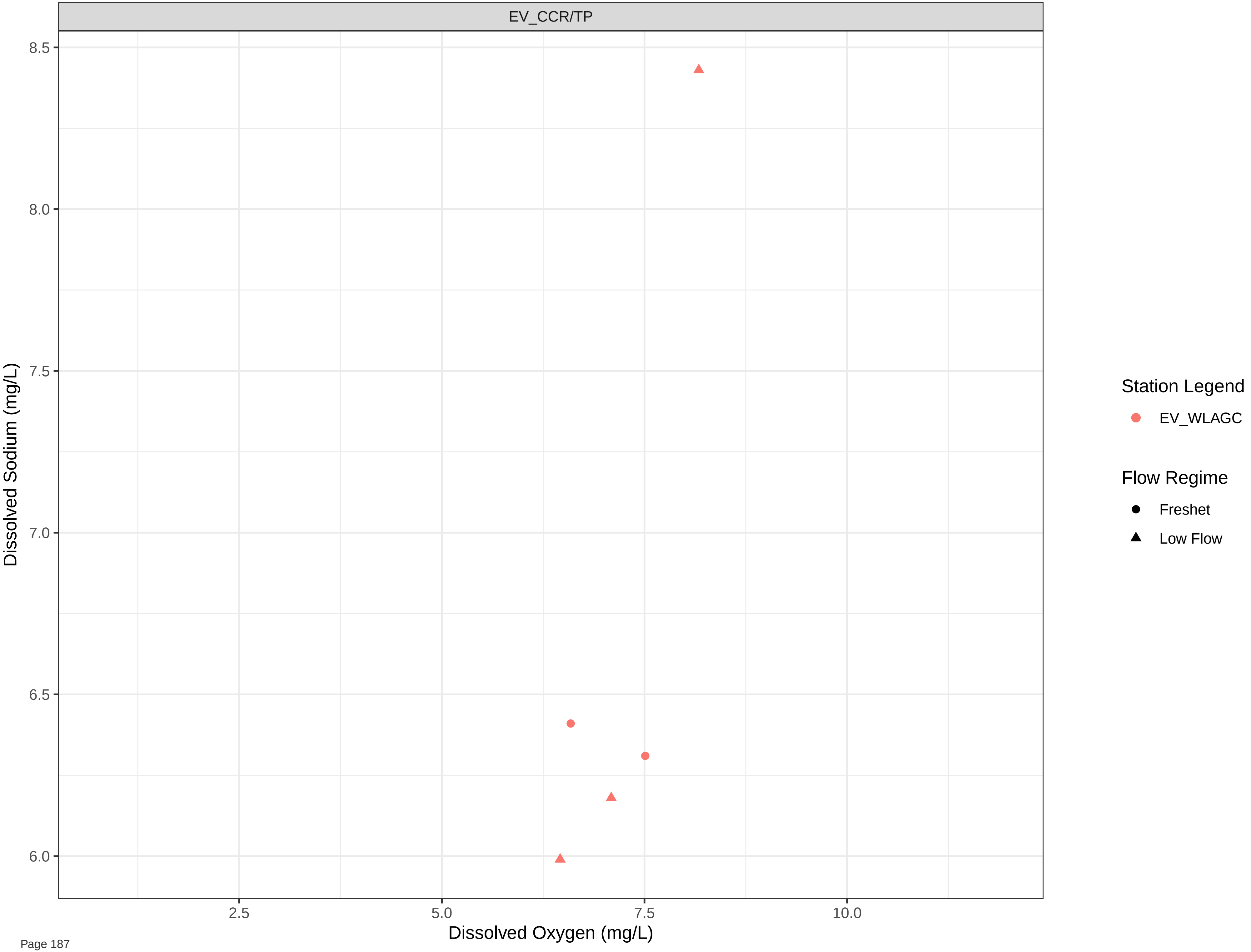

EV_PLANT
5e−05
4e−05
3e−05
2e−05
1e−05
Dissolved Silver (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

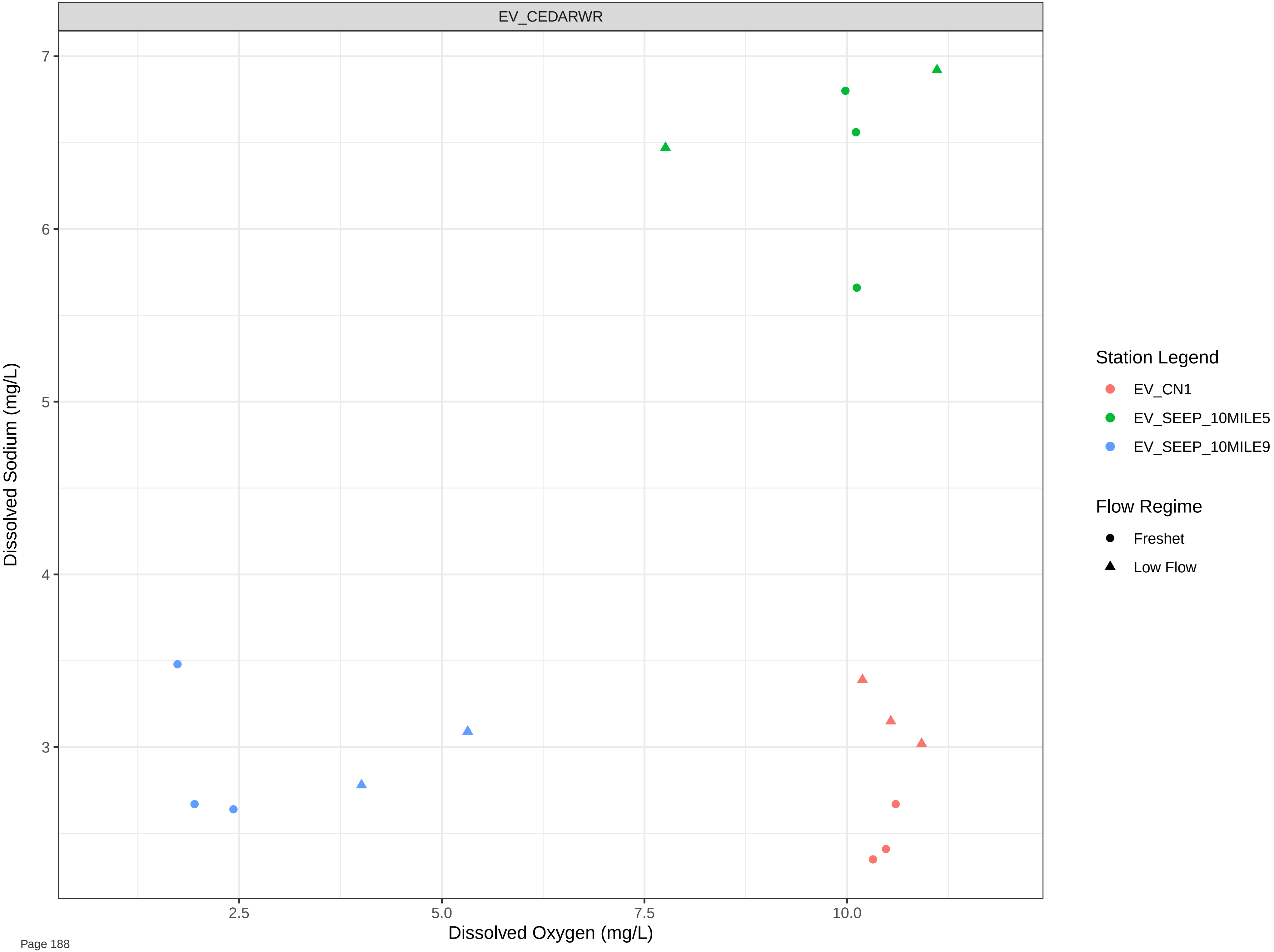

EV_SOUTHSLOPE
0.050
0.025
0.000
−0.025
Dissolved Silver (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

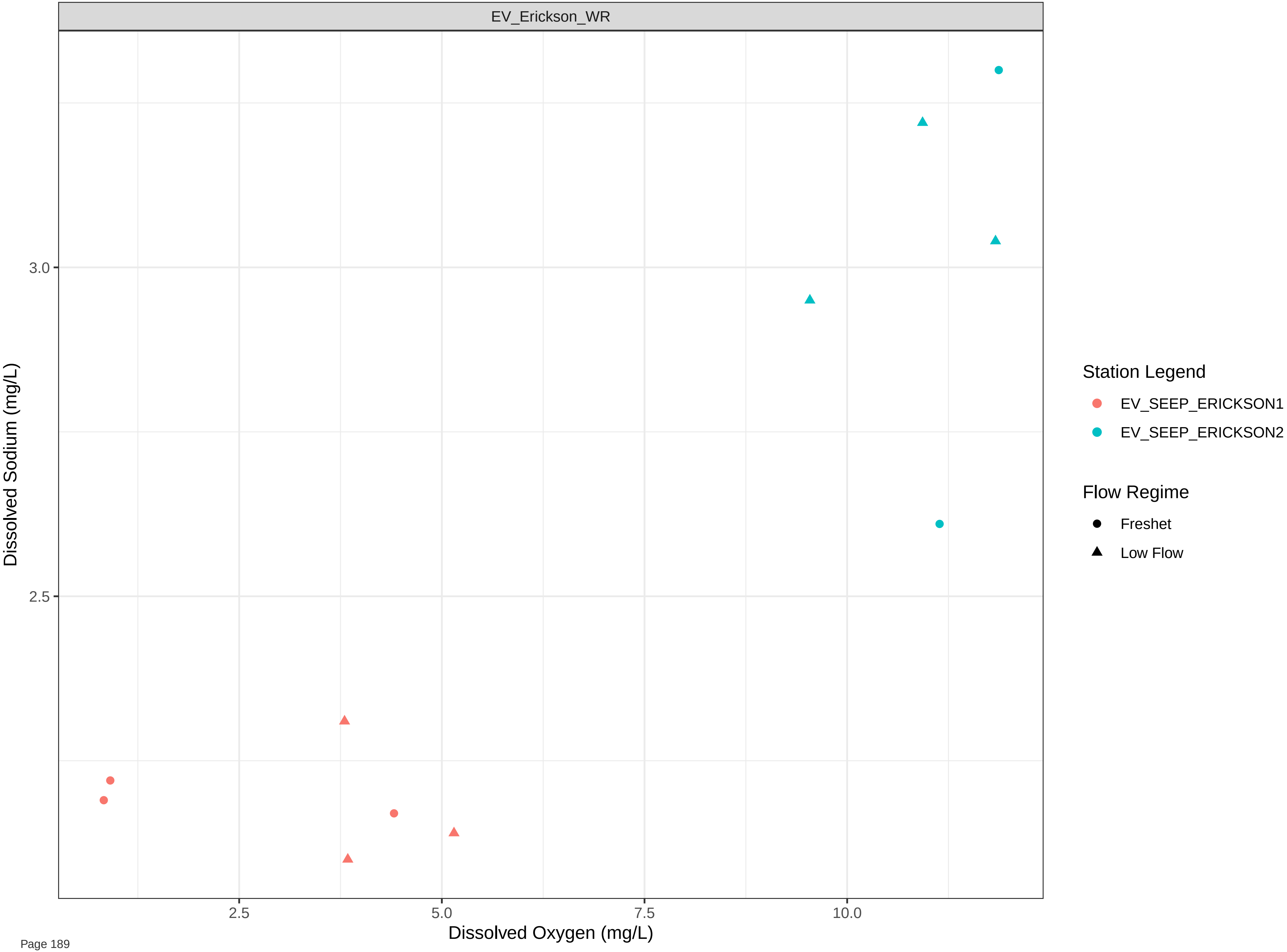

EV_SouthPit_Pit
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

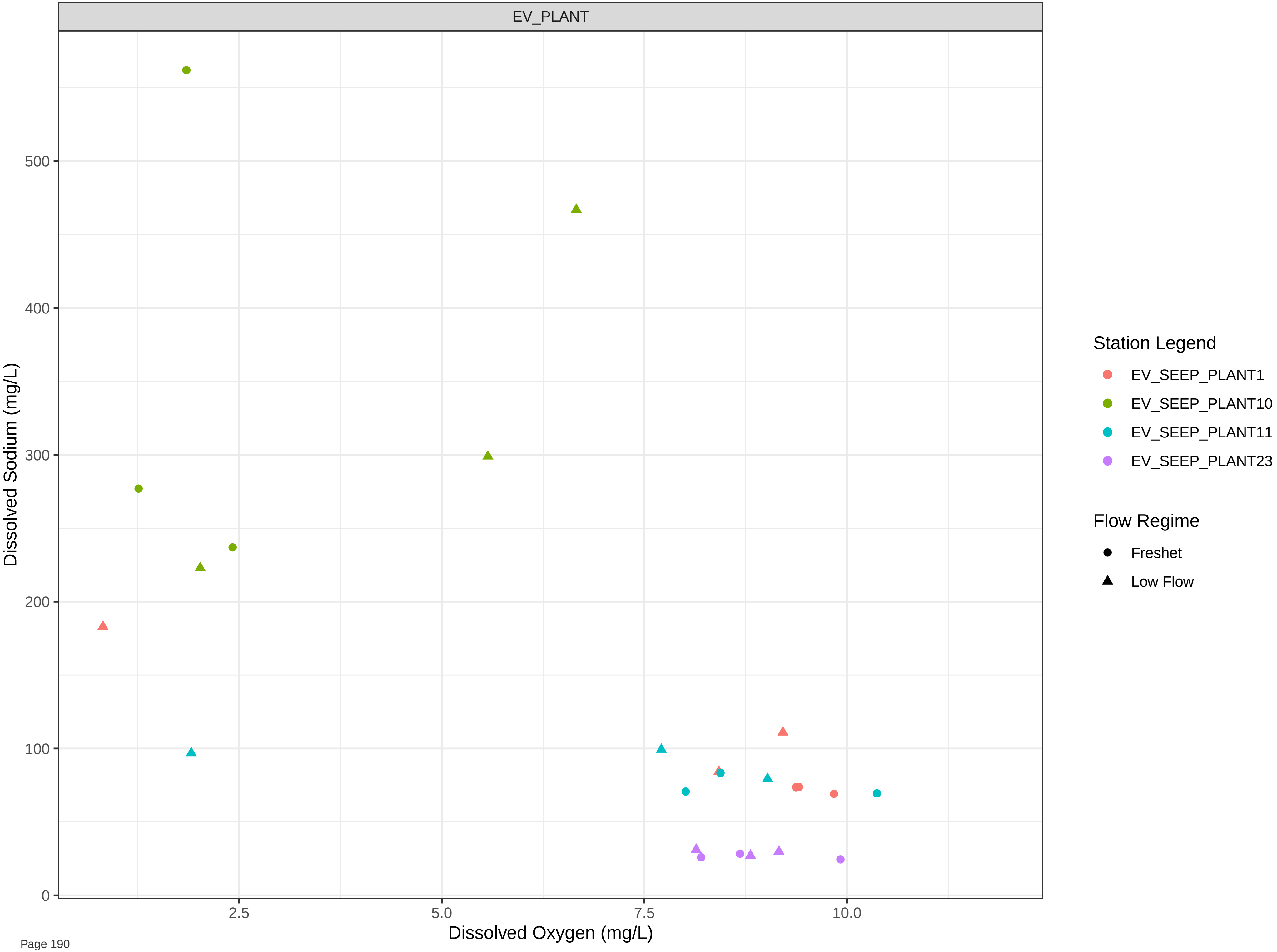

EV_BALDYRIDGEWR
Dissolved Sodium (mg/L)
40
30
20
10
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

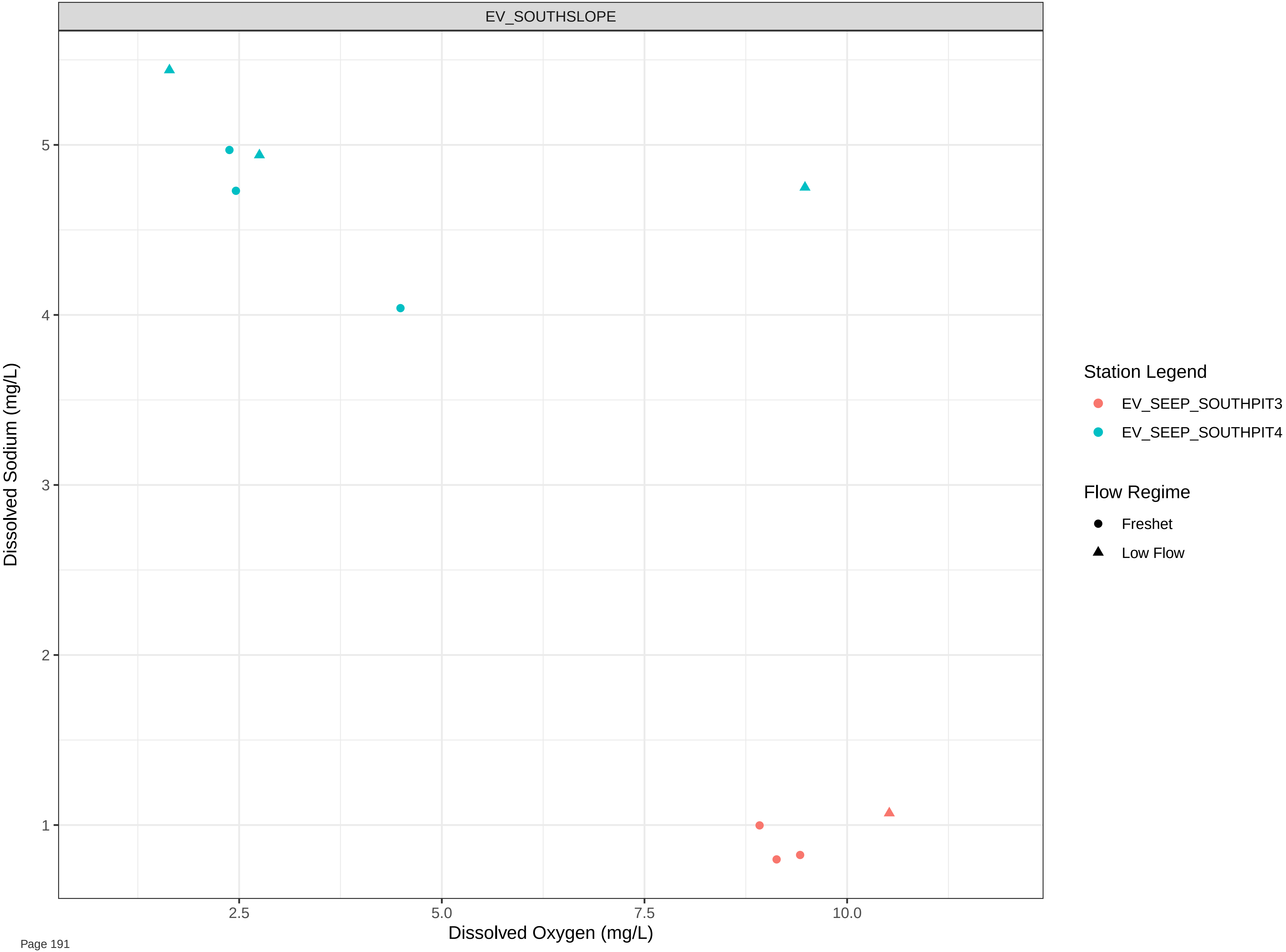

EV_CCR
Dissolved Sodium (mg/L)
8
7
6
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

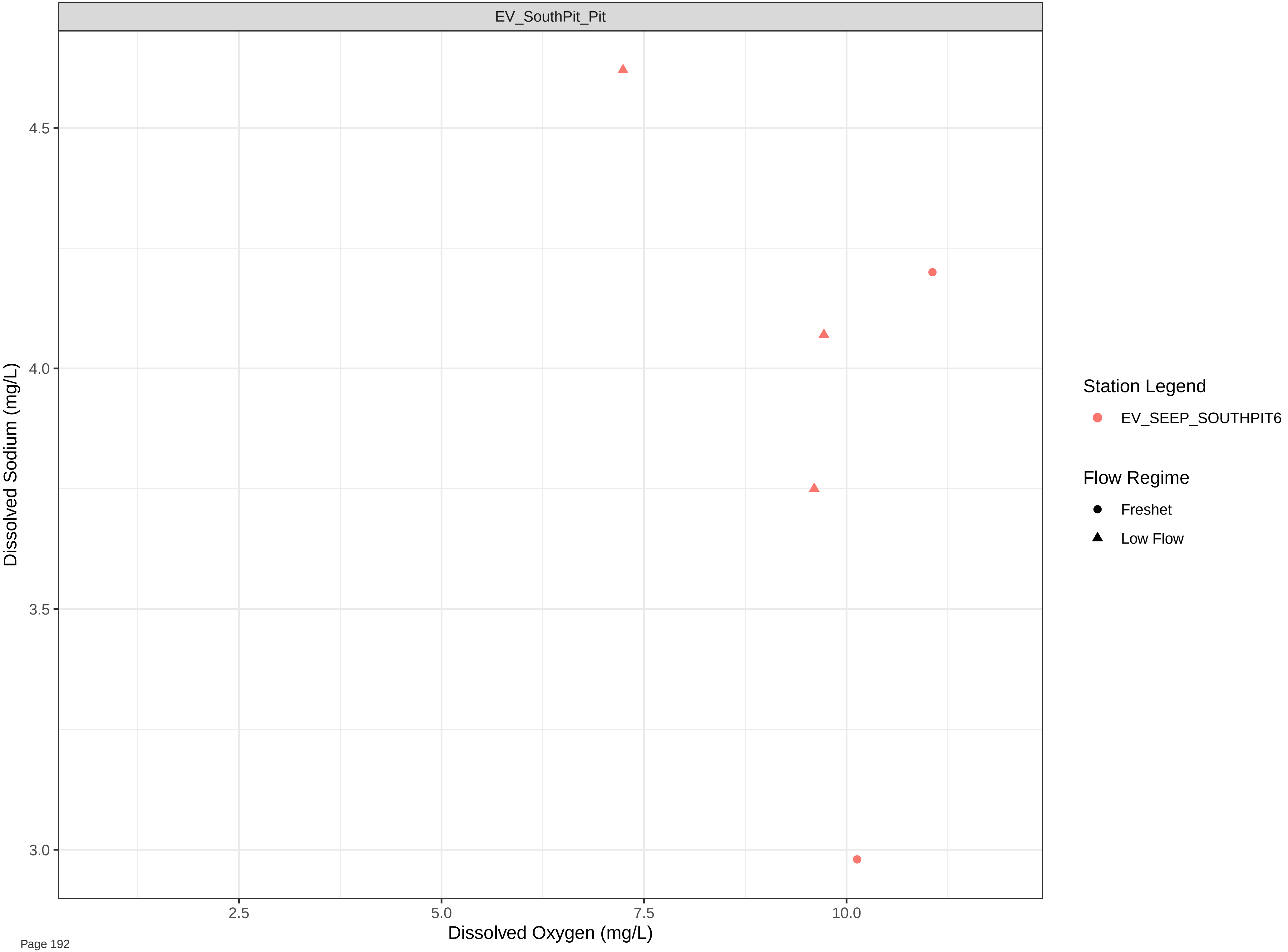

EV_CCR/TP
Dissolved Sodium (mg/L)
8.5
8.0
7.5
7.0
6.5
6.0
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

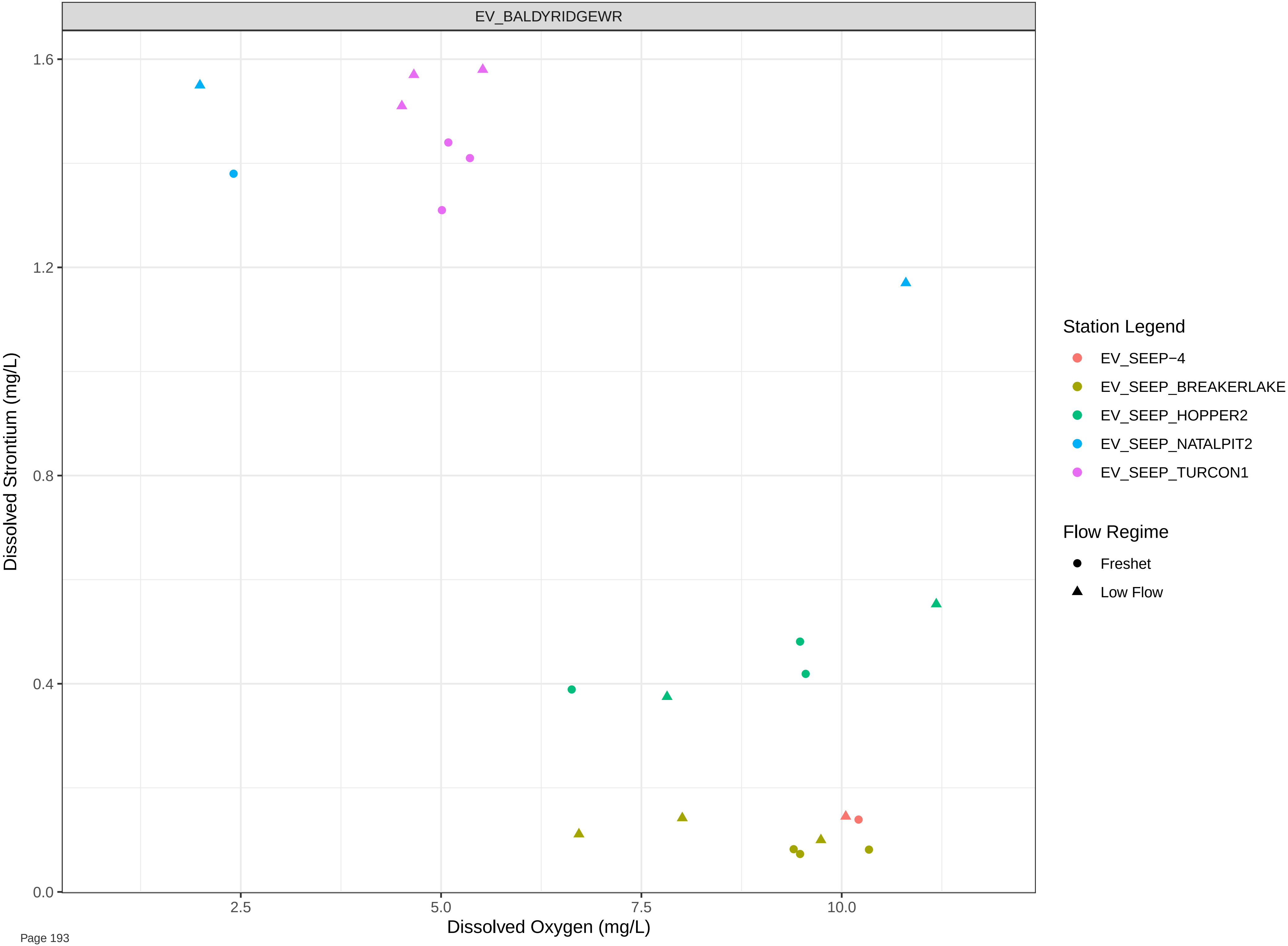

EV_CEDARWR
Dissolved Sodium (mg/L)
7
6
5
4
3
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

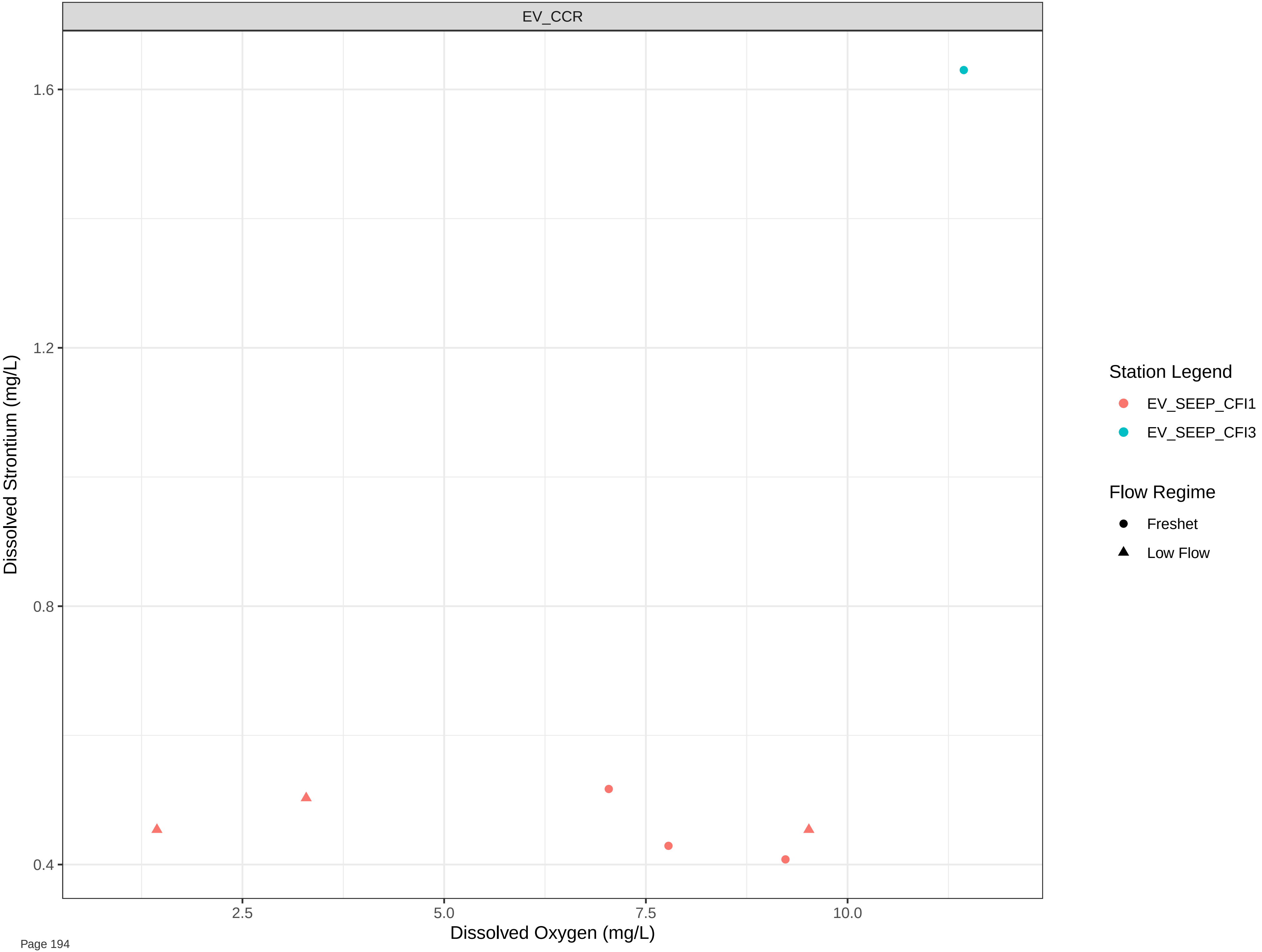

EV_Erickson_WR
Dissolved Sodium (mg/L)
3.0
2.5
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

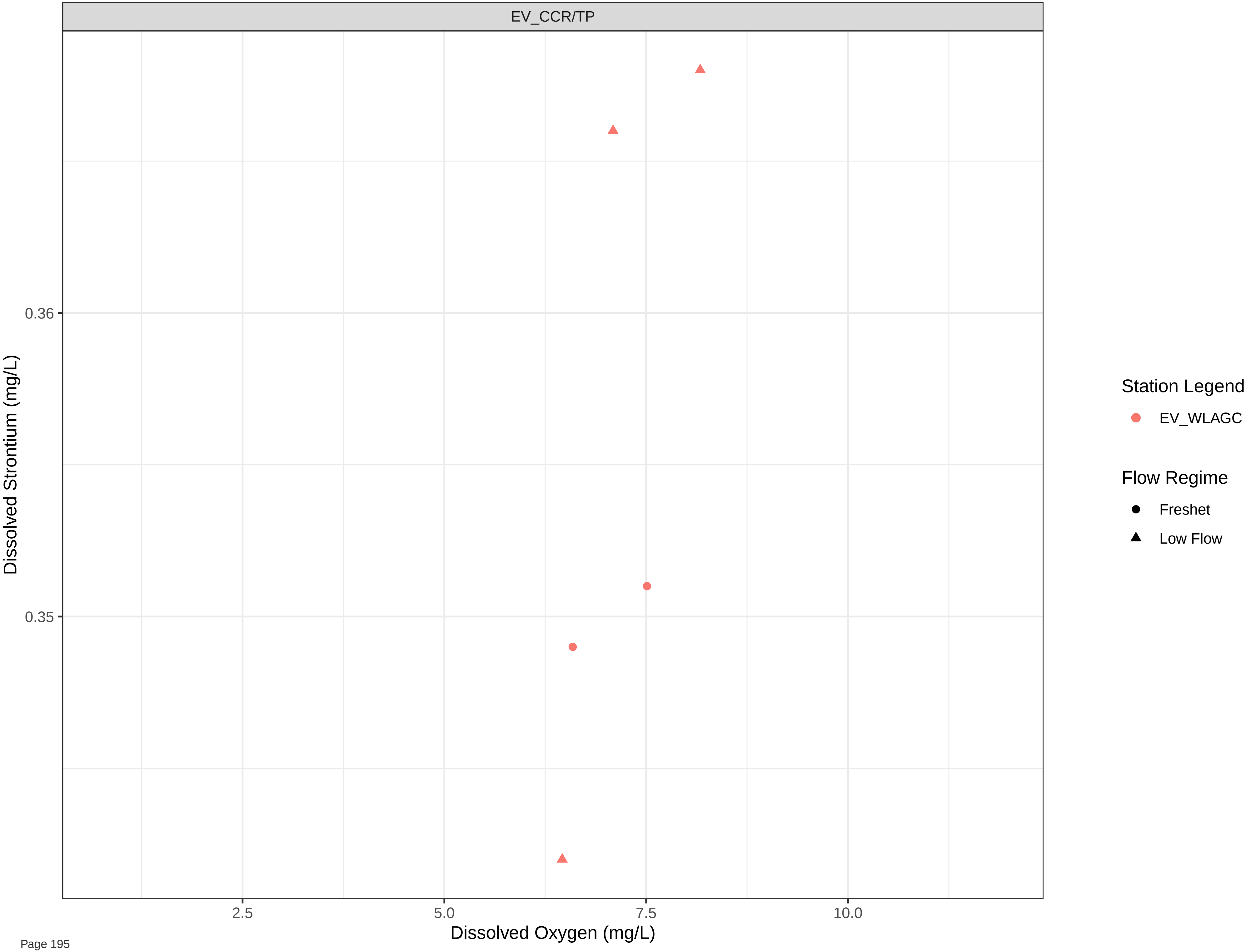

EV_PLANT
Dissolved Sodium (mg/L)
500
400
300
200
100
0
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

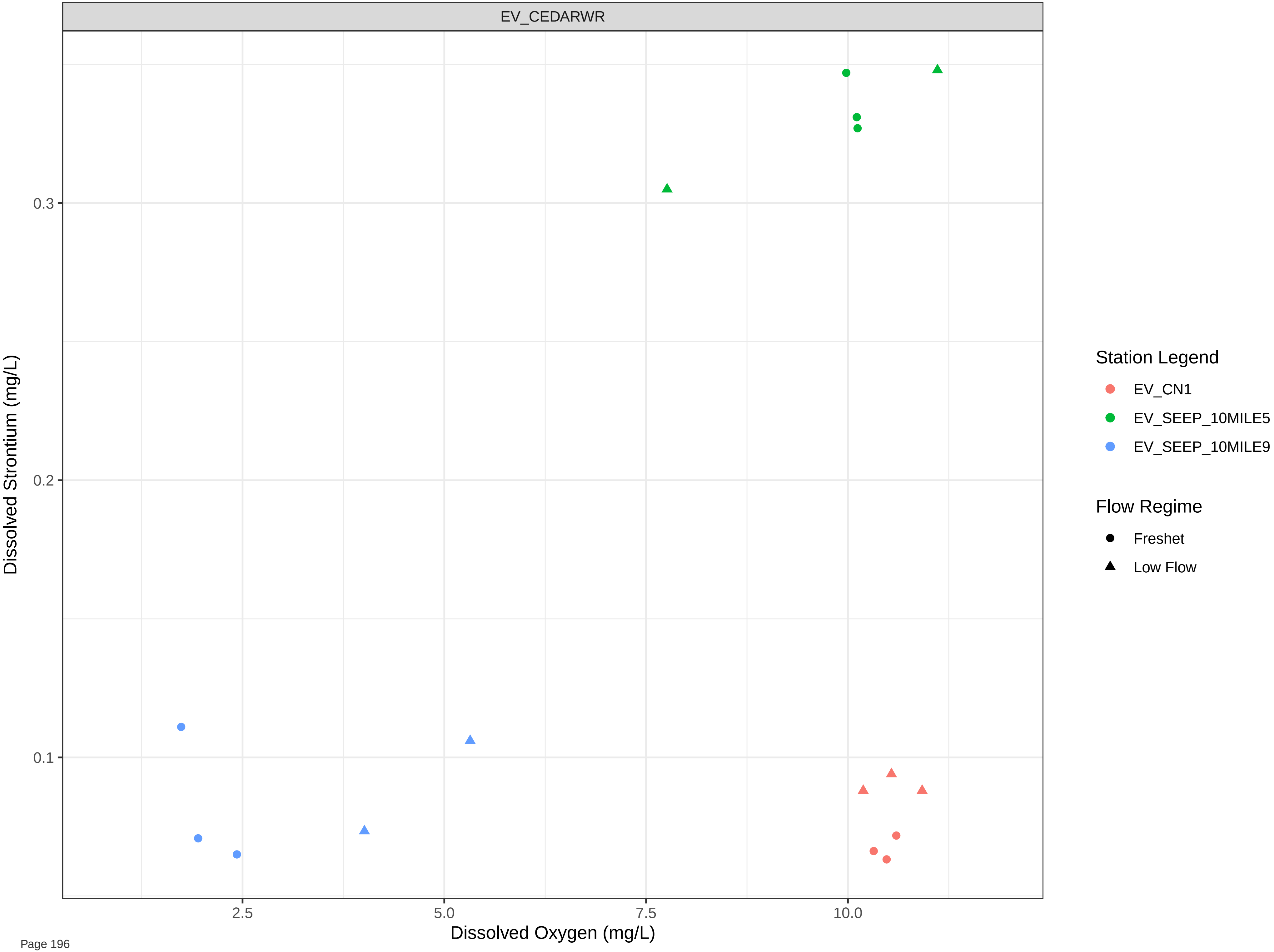

EV_SOUTHSLOPE
Dissolved Sodium (mg/L)
5
4
3
2
1
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

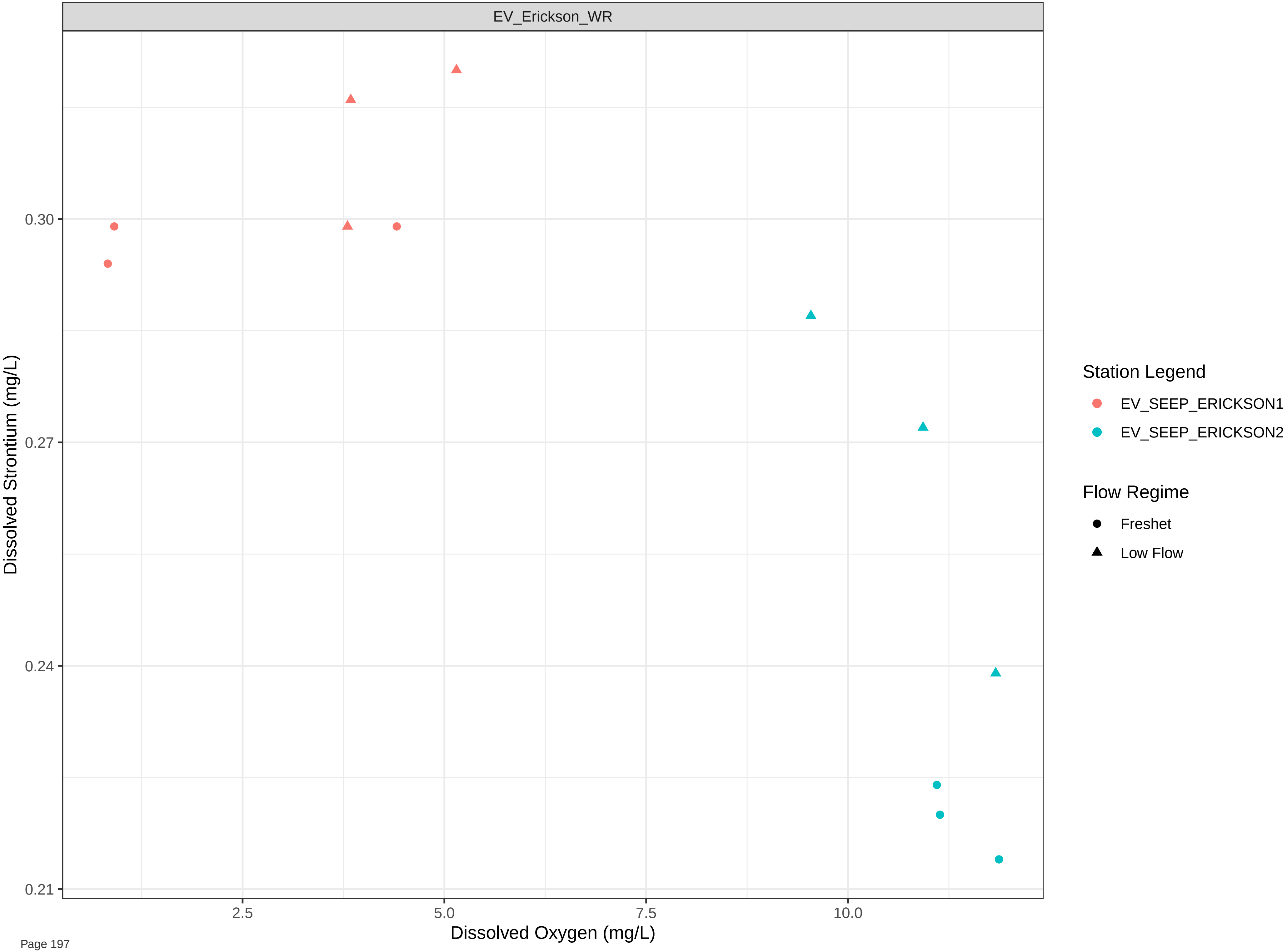

EV_SouthPit_Pit
Dissolved Sodium (mg/L)
4.5
4.0
3.5
3.0
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

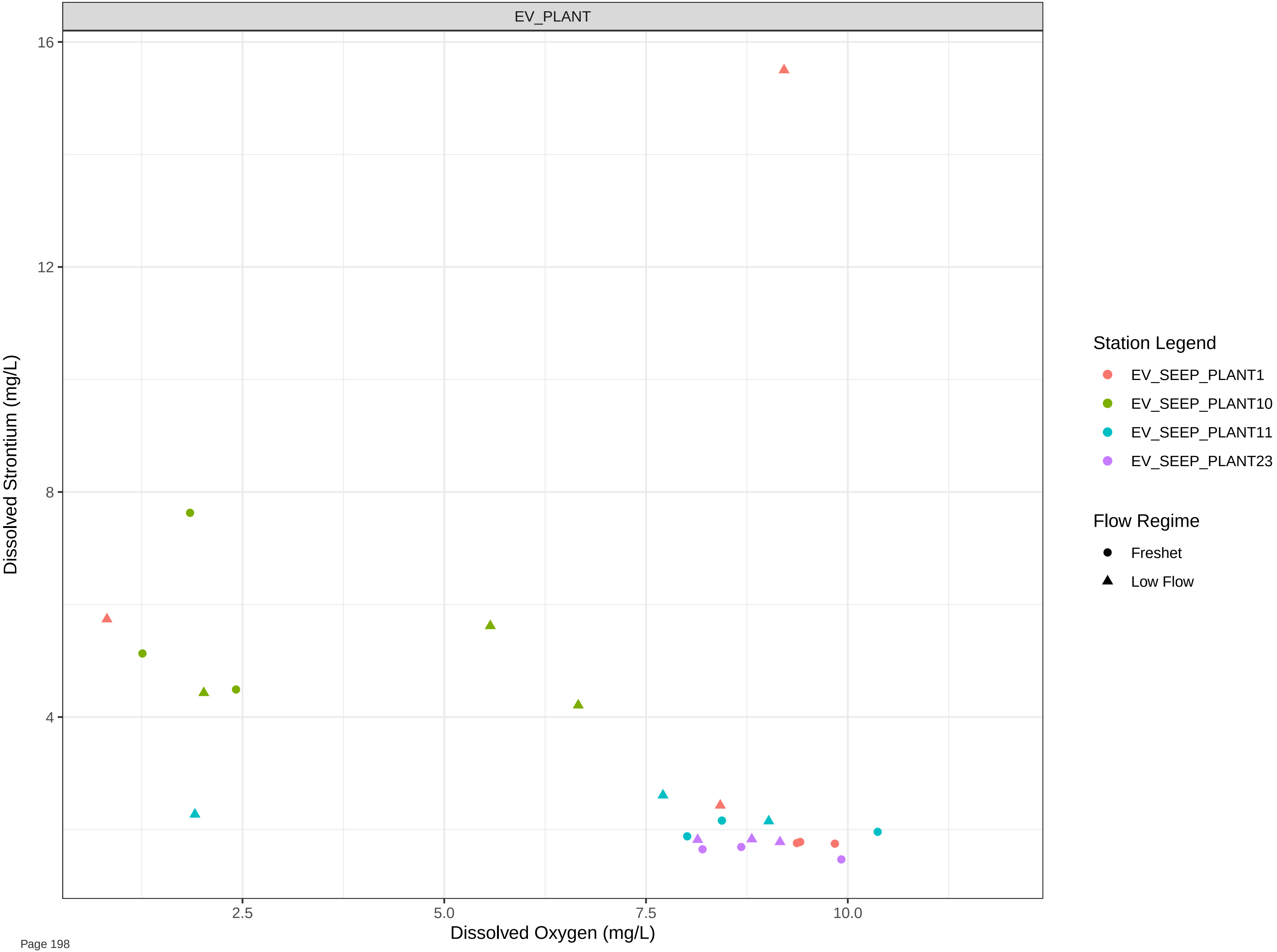

EV_BALDYRIDGEWR
Dissolved Strontium (mg/L)
1.6
1.2
0.8
0.4
0.0
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

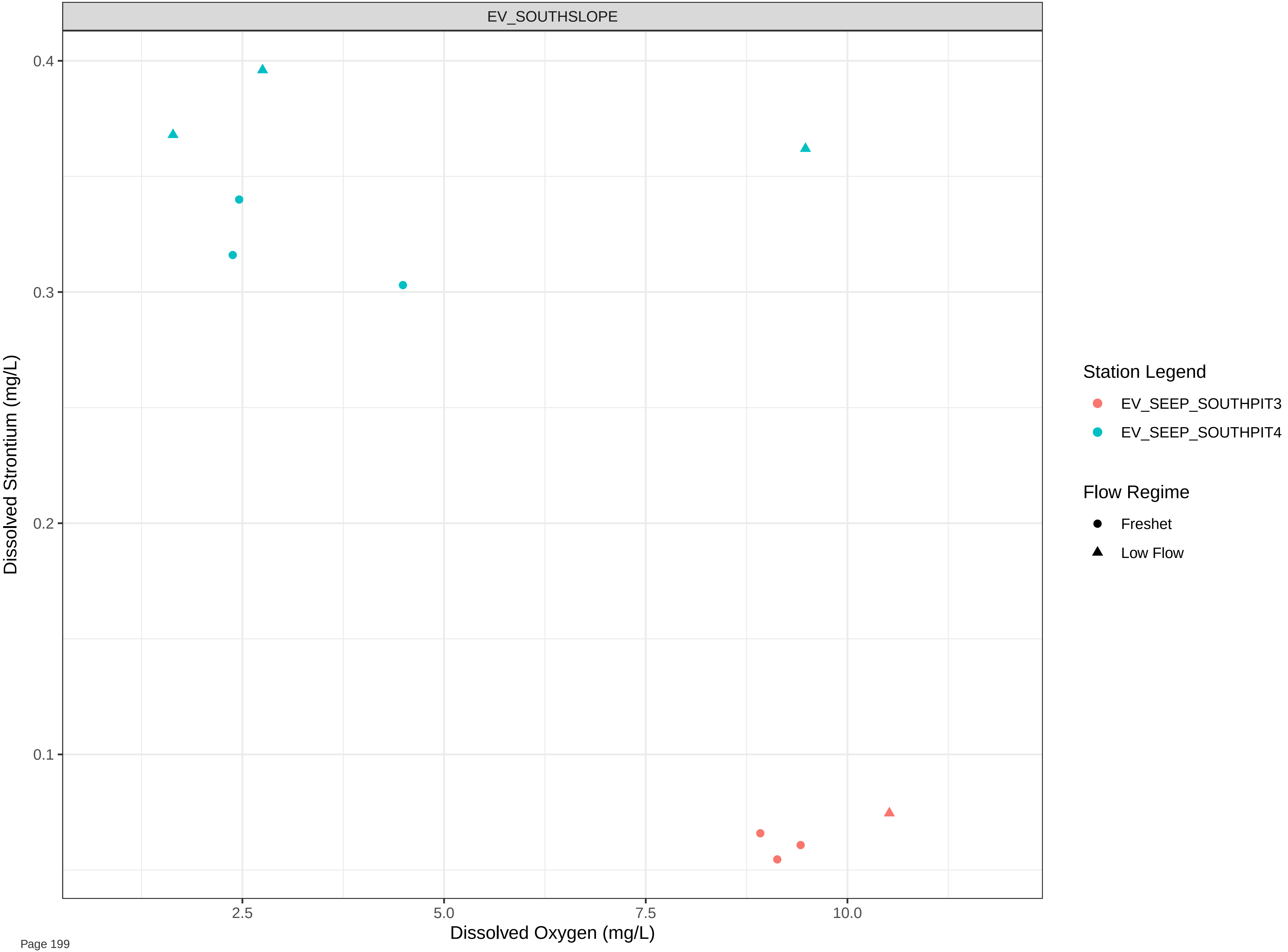

EV_CCR
1.6
1.2
0.8
0.4
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Dissolved Strontium (mg/L)
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

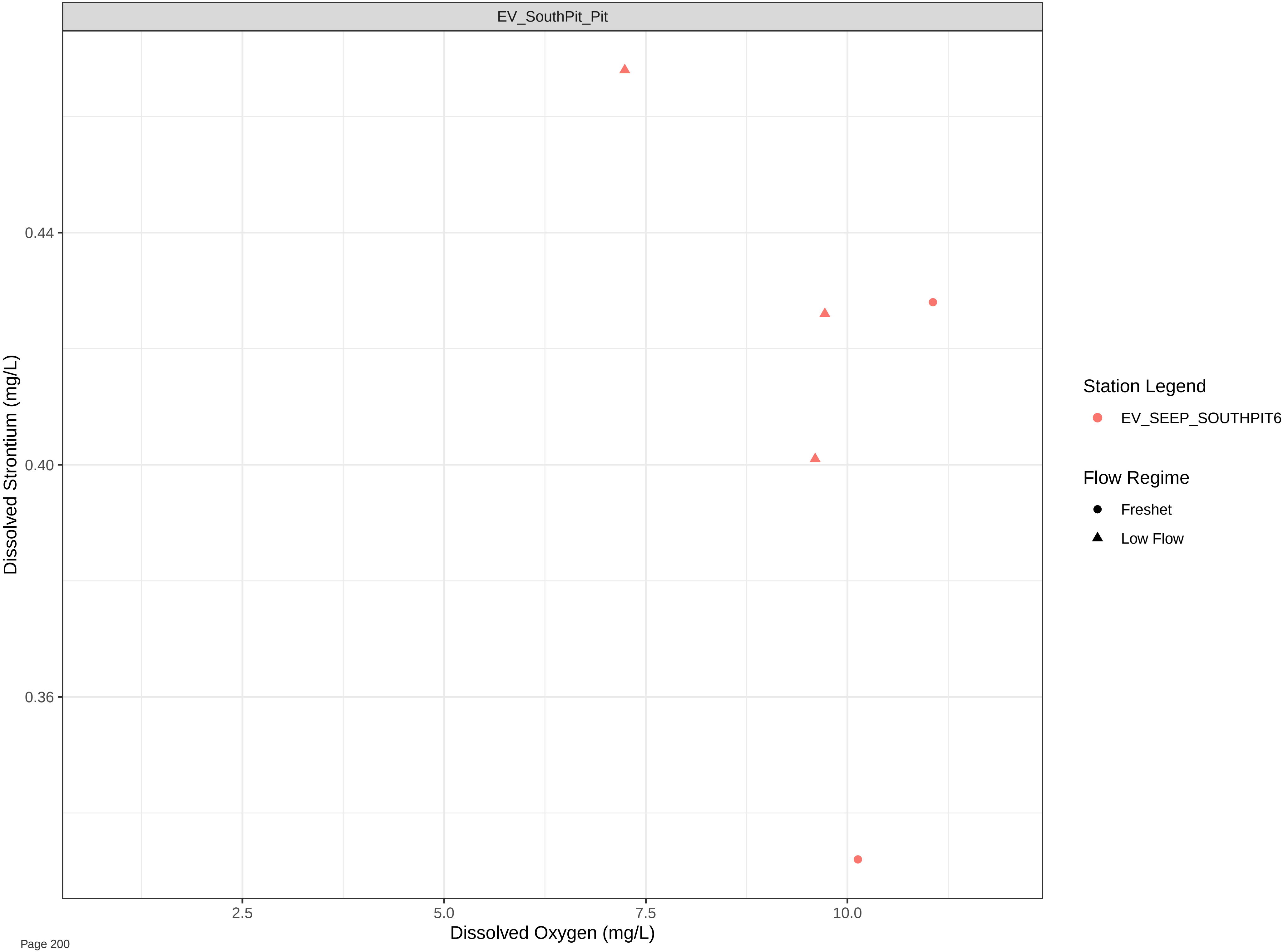

EV_CCR/TP
Dissolved Strontium (mg/L)
0.36
0.35
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

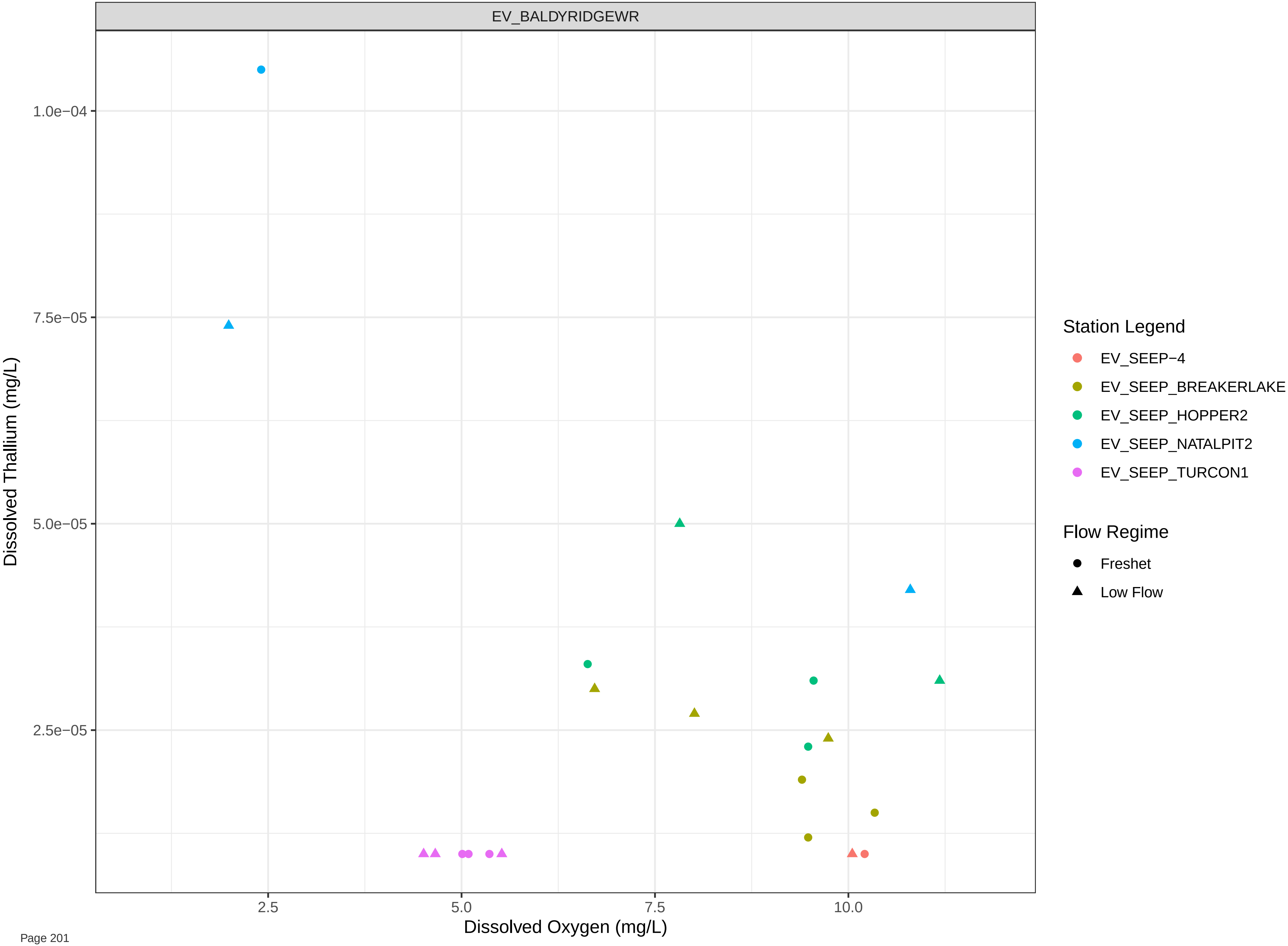

EV_CEDARWR
Dissolved Strontium (mg/L)
0.3
0.2
0.1
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

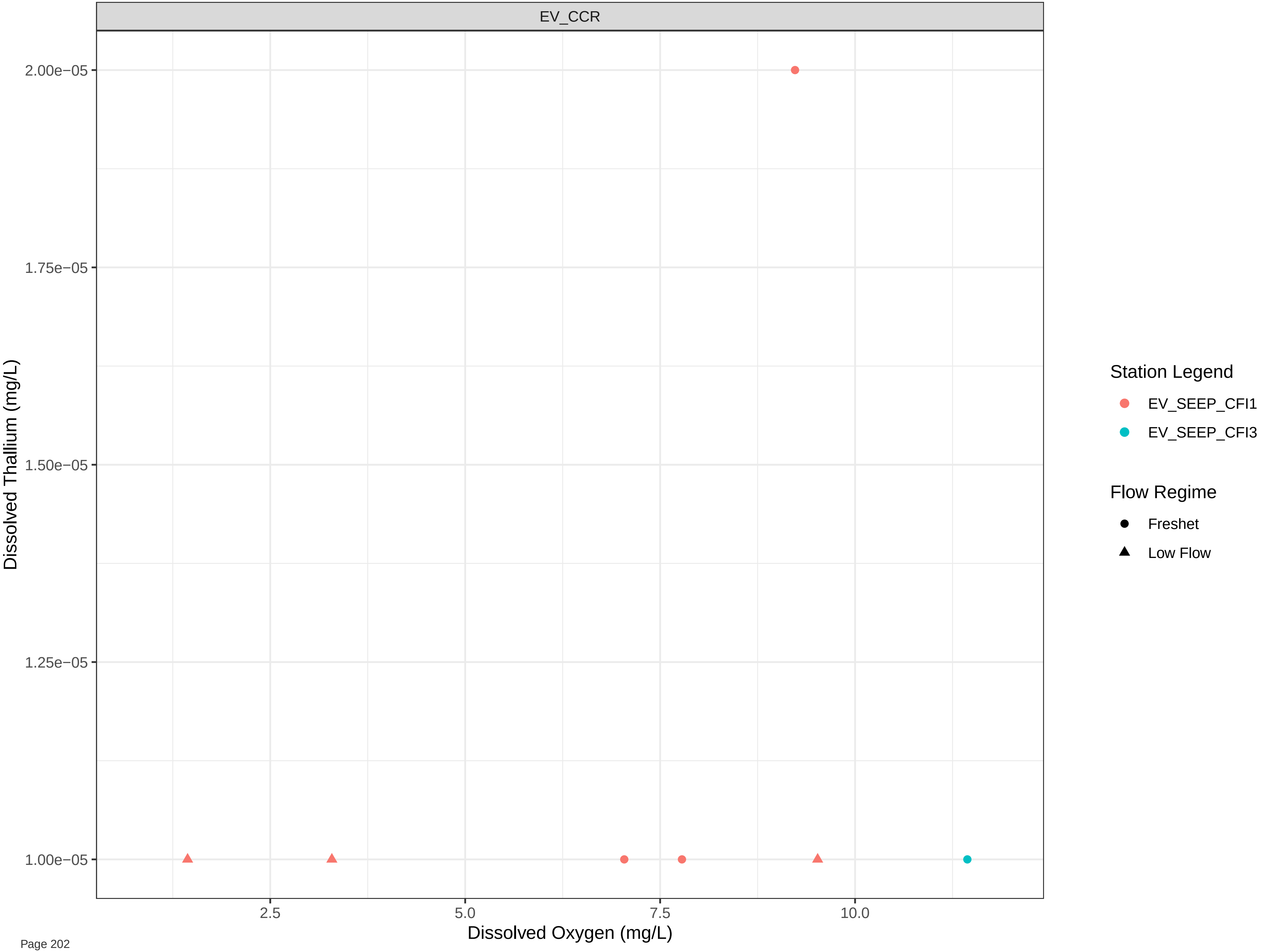

EV_Erickson_WR
Dissolved Strontium (mg/L)
0.30
0.27
0.24
0.21
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

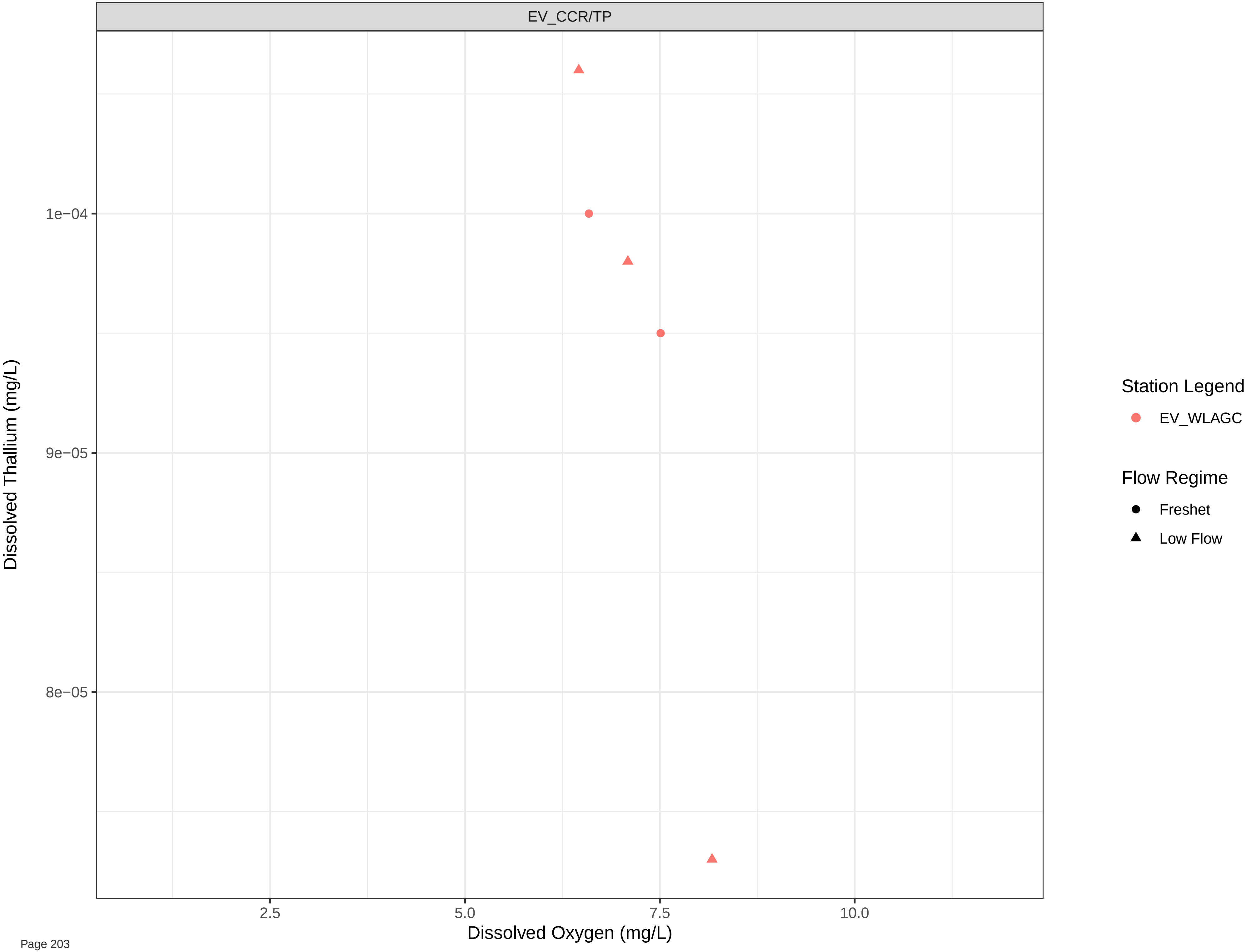

EV_PLANT
Dissolved Strontium (mg/L)
16
12
8
4
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

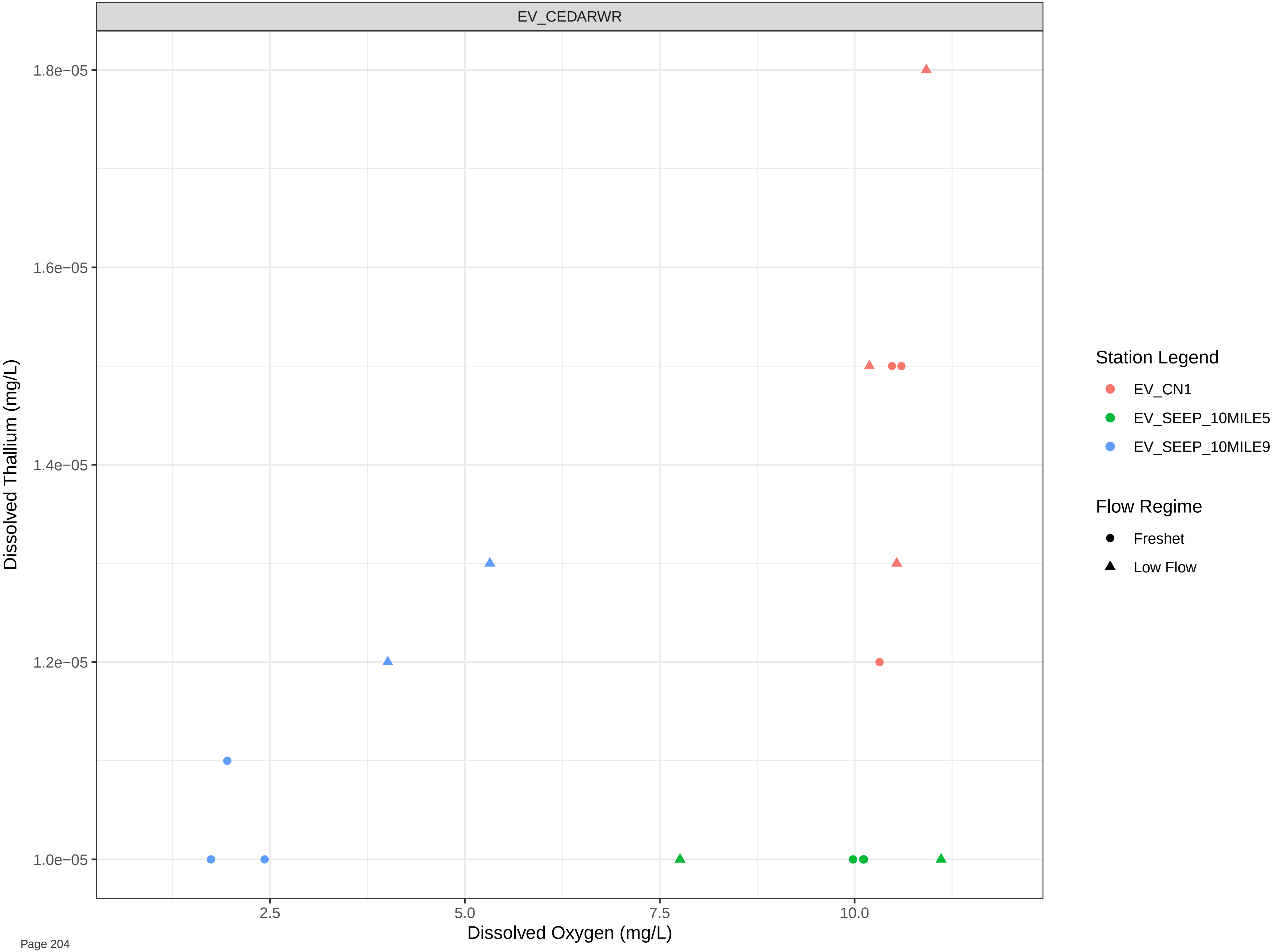

EV_SOUTHSLOPE
0.4
0.3
0.2
0.1
Dissolved Strontium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

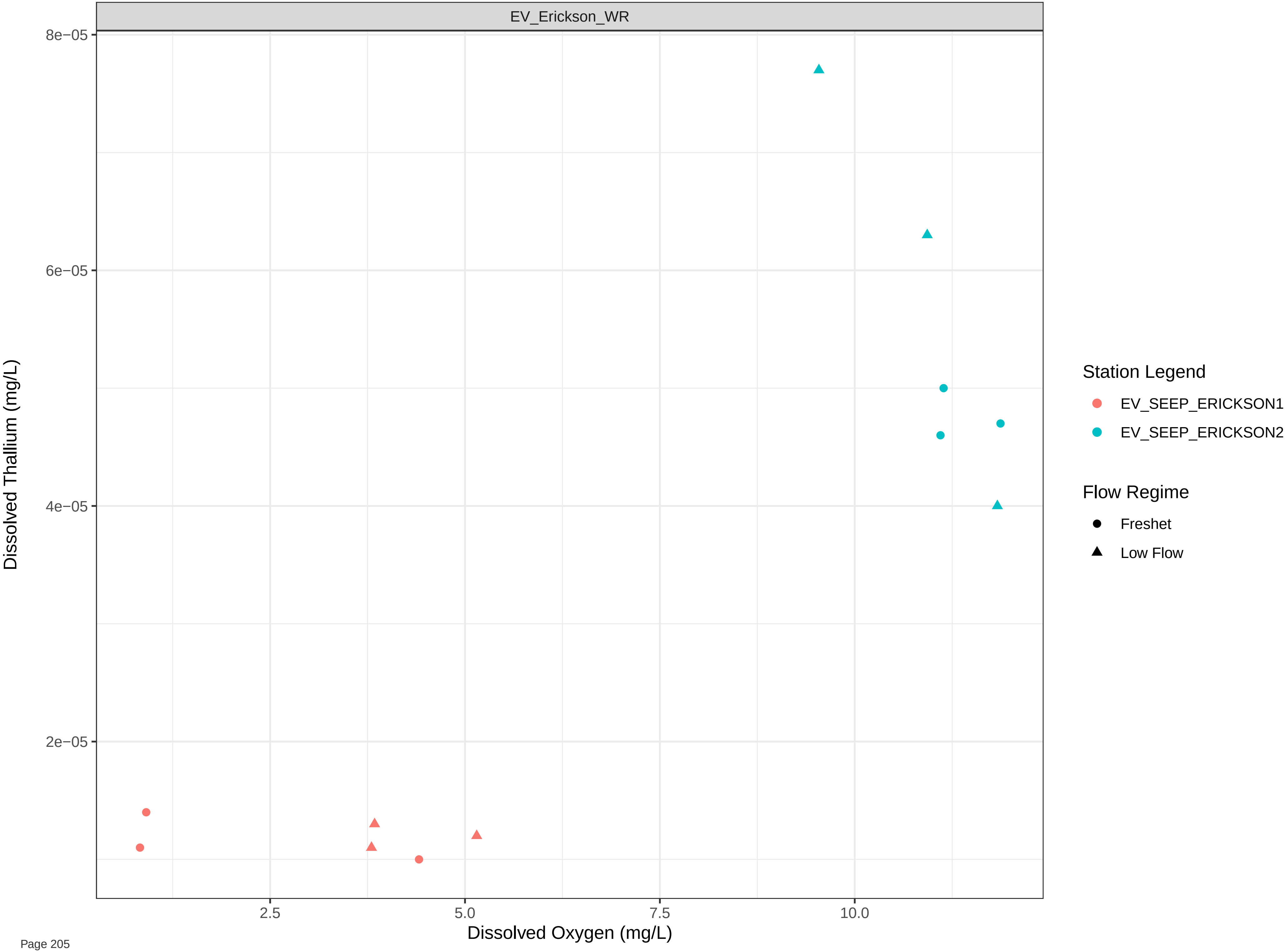

EV_SouthPit_Pit
Dissolved Strontium (mg/L)
0.44
0.40
0.36
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

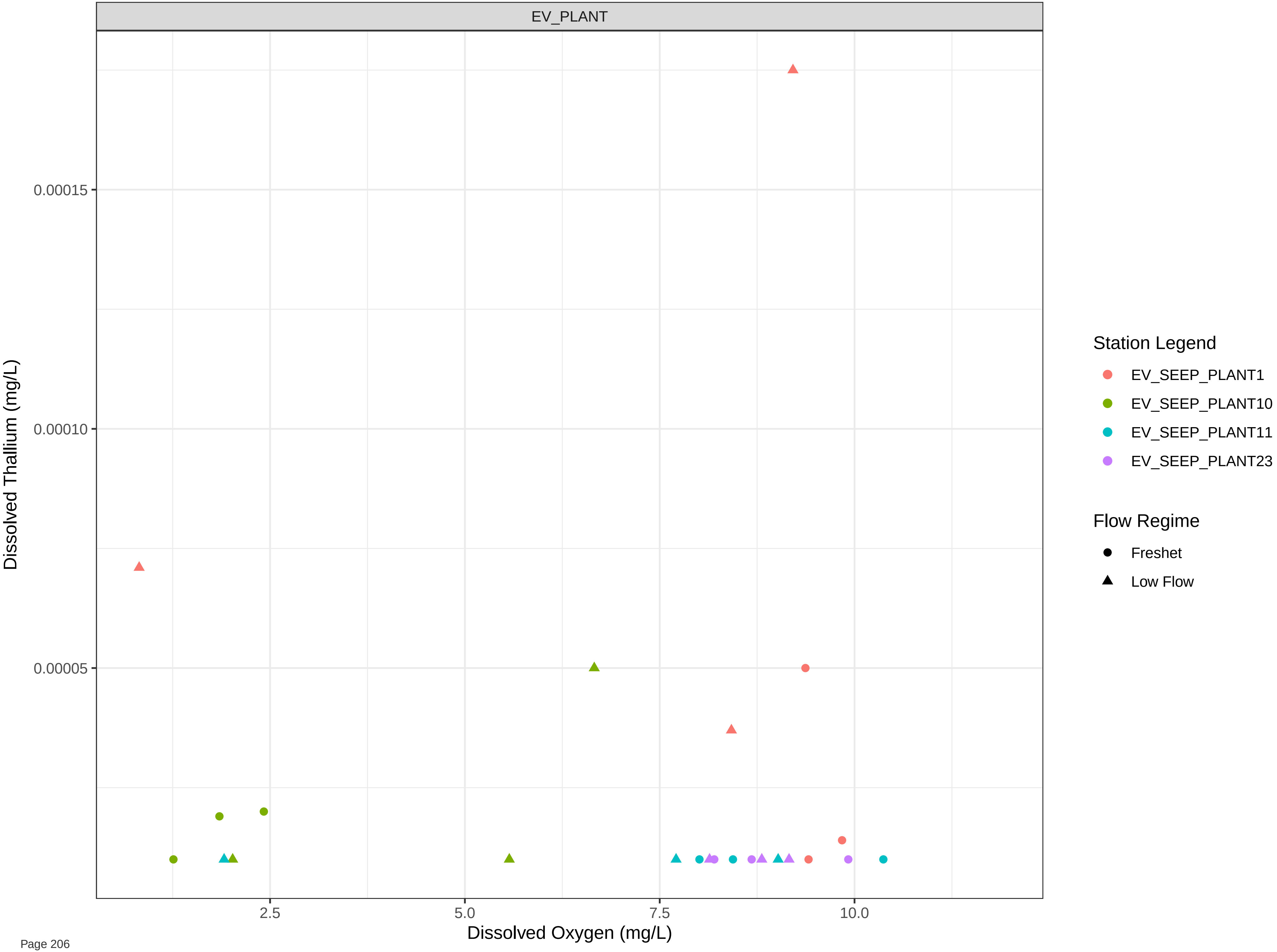

EV_BALDYRIDGEWR
Dissolved Thallium (mg/L)
1.0e−04
7.5e−05
5.0e−05
2.5e−05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

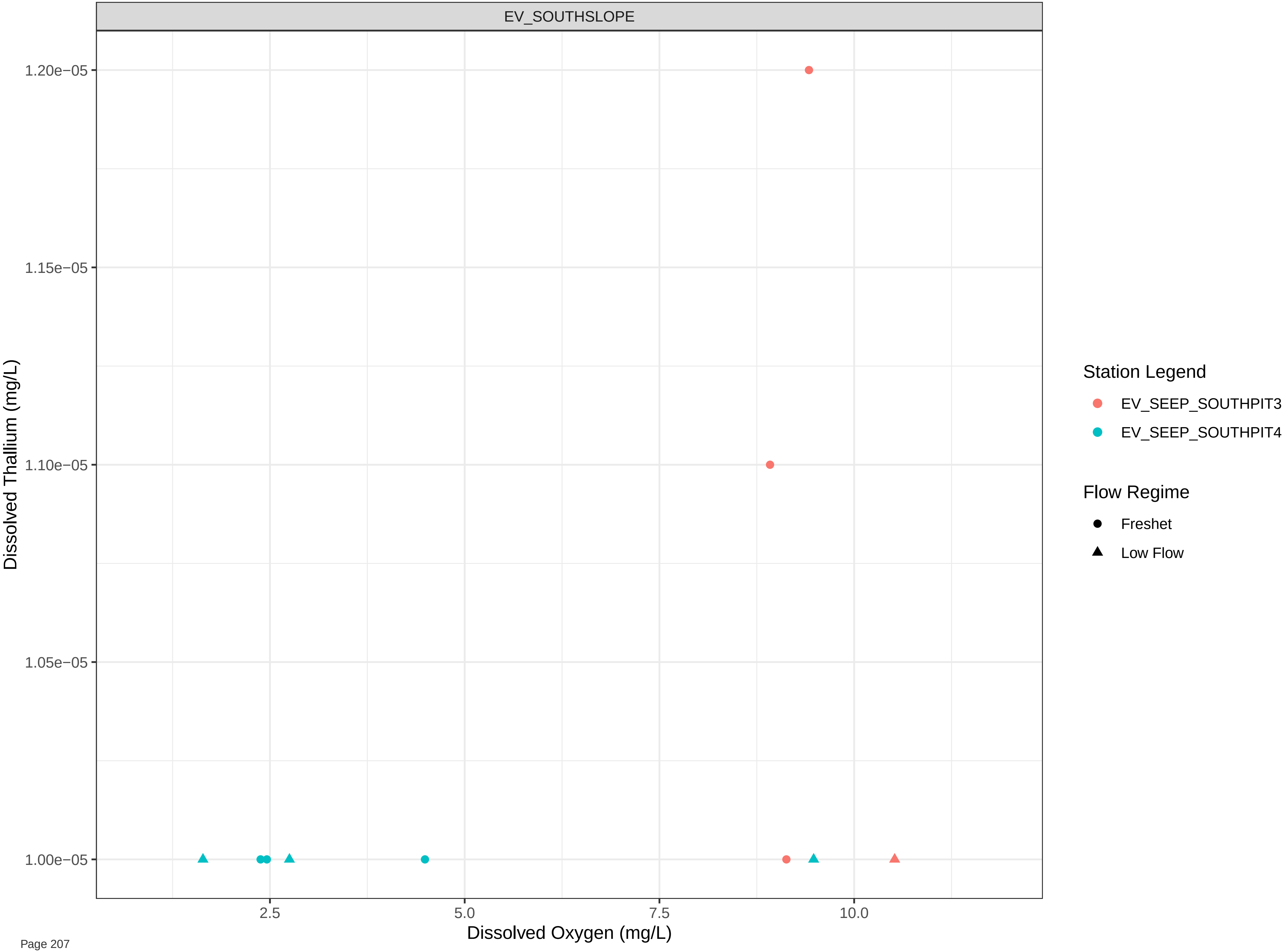

EV_CCR
Dissolved Thallium (mg/L)
2.00e−05
1.75e−05
1.50e−05
1.25e−05
1.00e−05
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

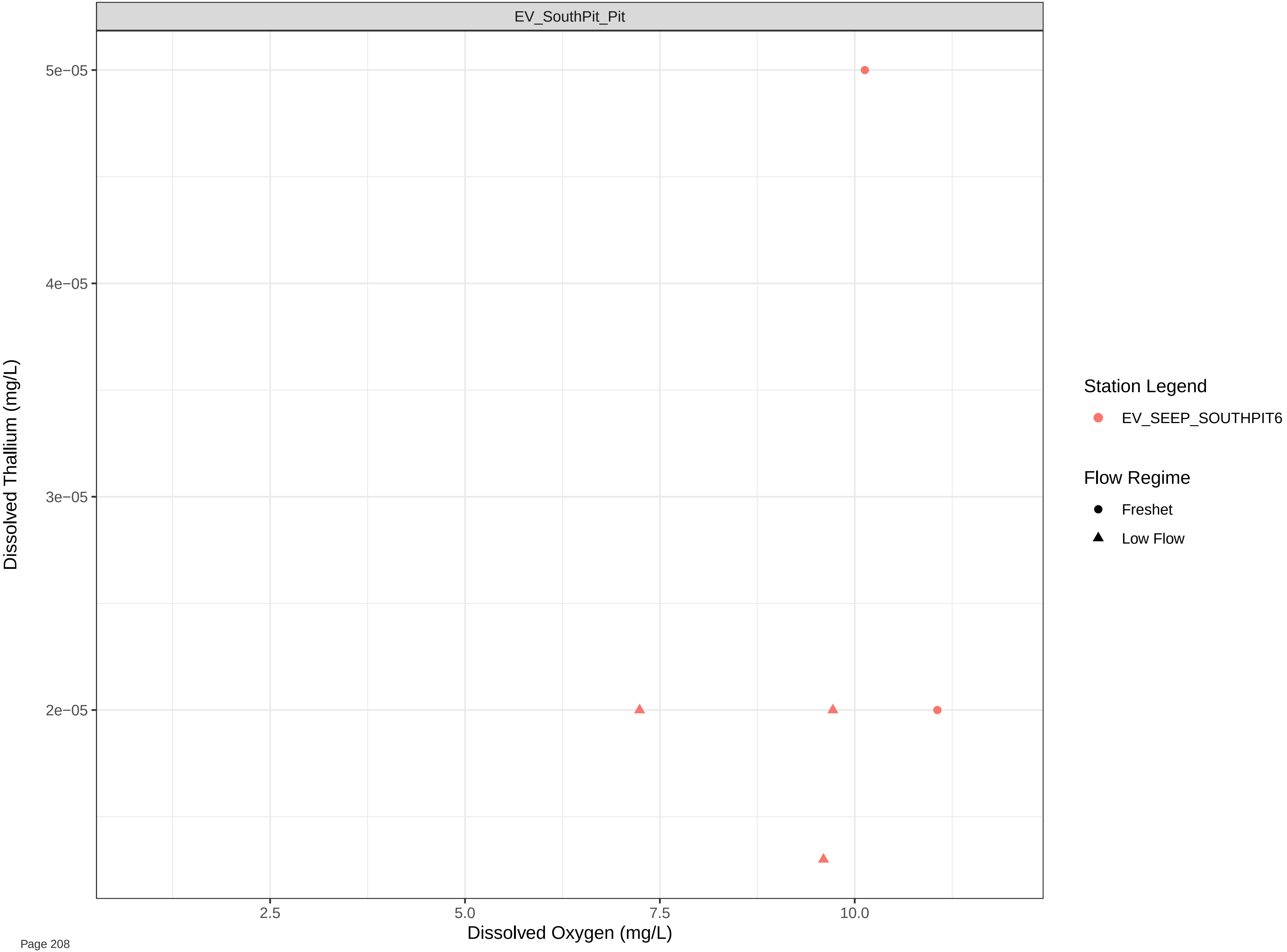

EV_CCR/TP
1e−04
9e−05
8e−05
Dissolved Thallium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

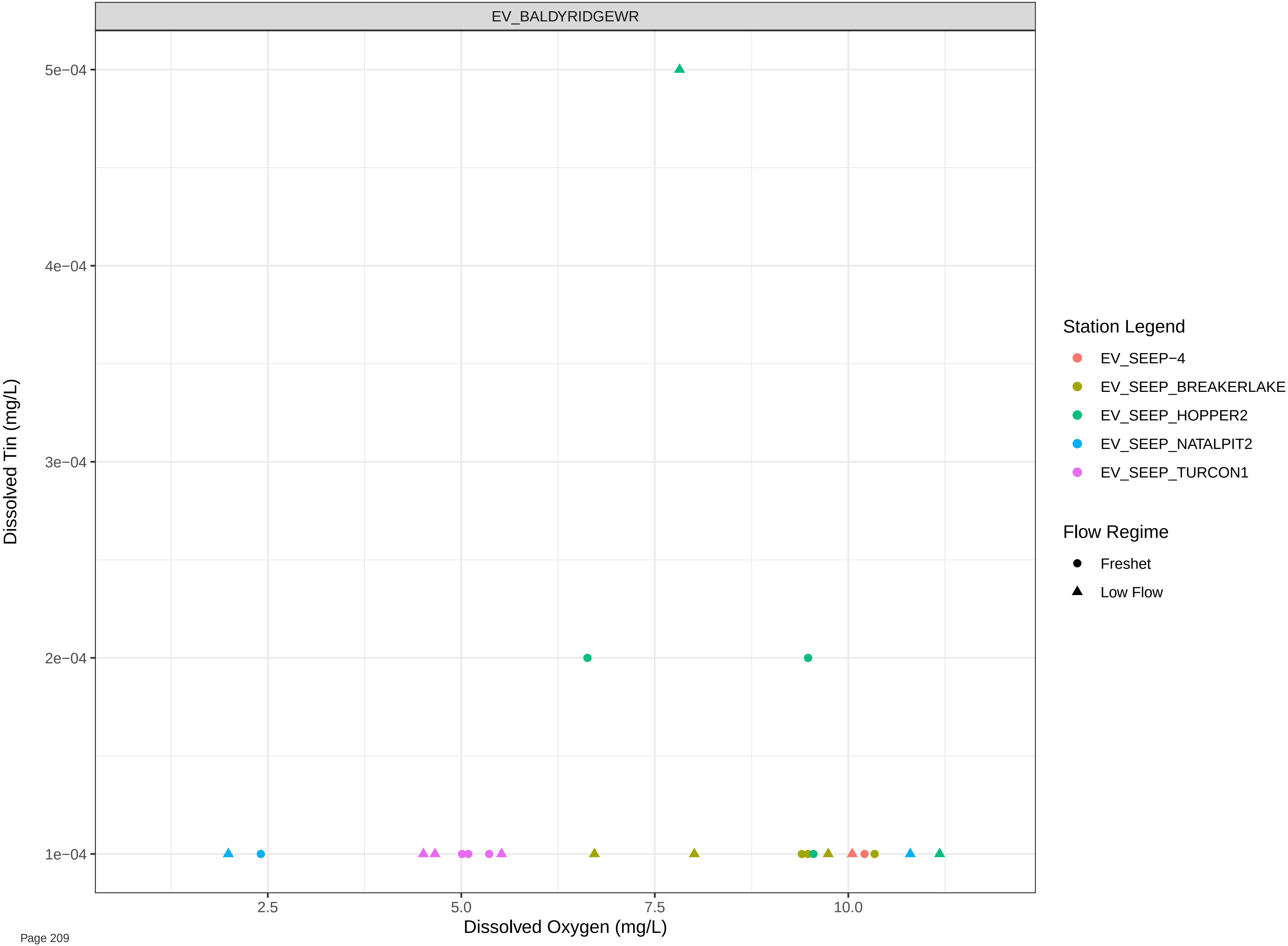

EV_CEDARWR
Dissolved Thallium (mg/L)
1.8e−05
1.6e−05
1.4e−05
1.2e−05
1.0e−05
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

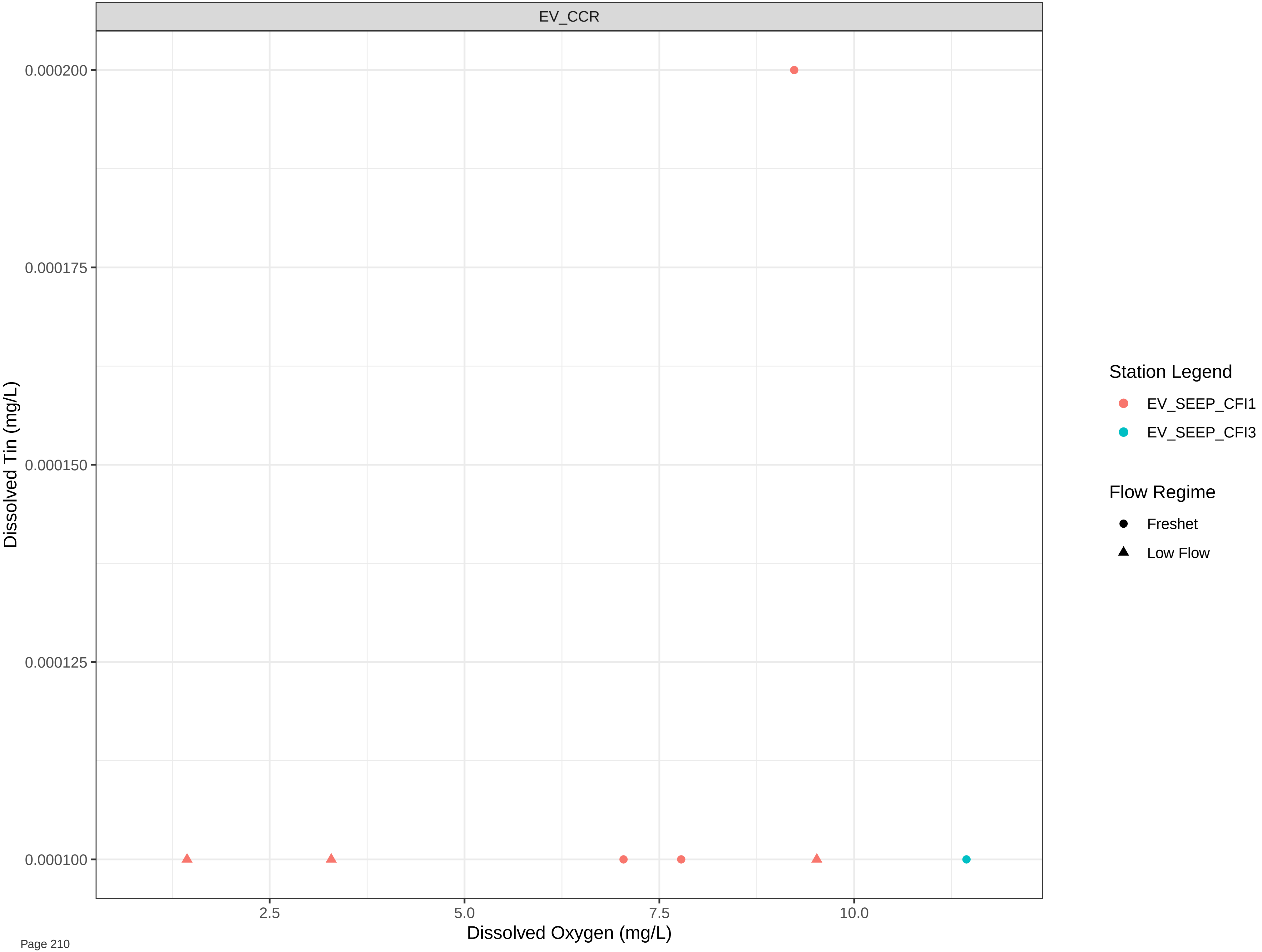

EV_Erickson_WR
8e−05
6e−05
4e−05
2e−05
Dissolved Thallium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

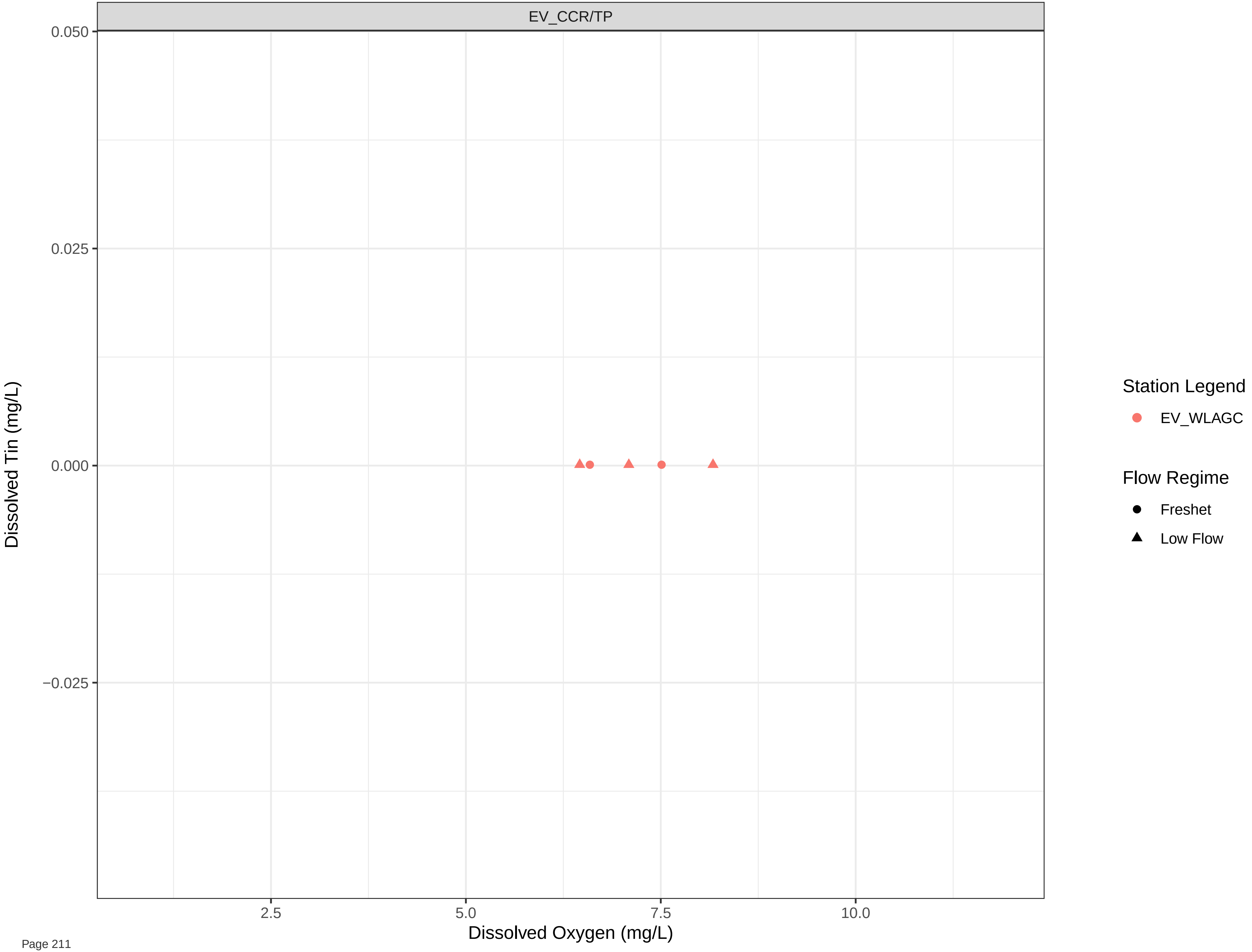

EV_PLANT
Dissolved Thallium (mg/L)
0.00015
0.00010
0.00005
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

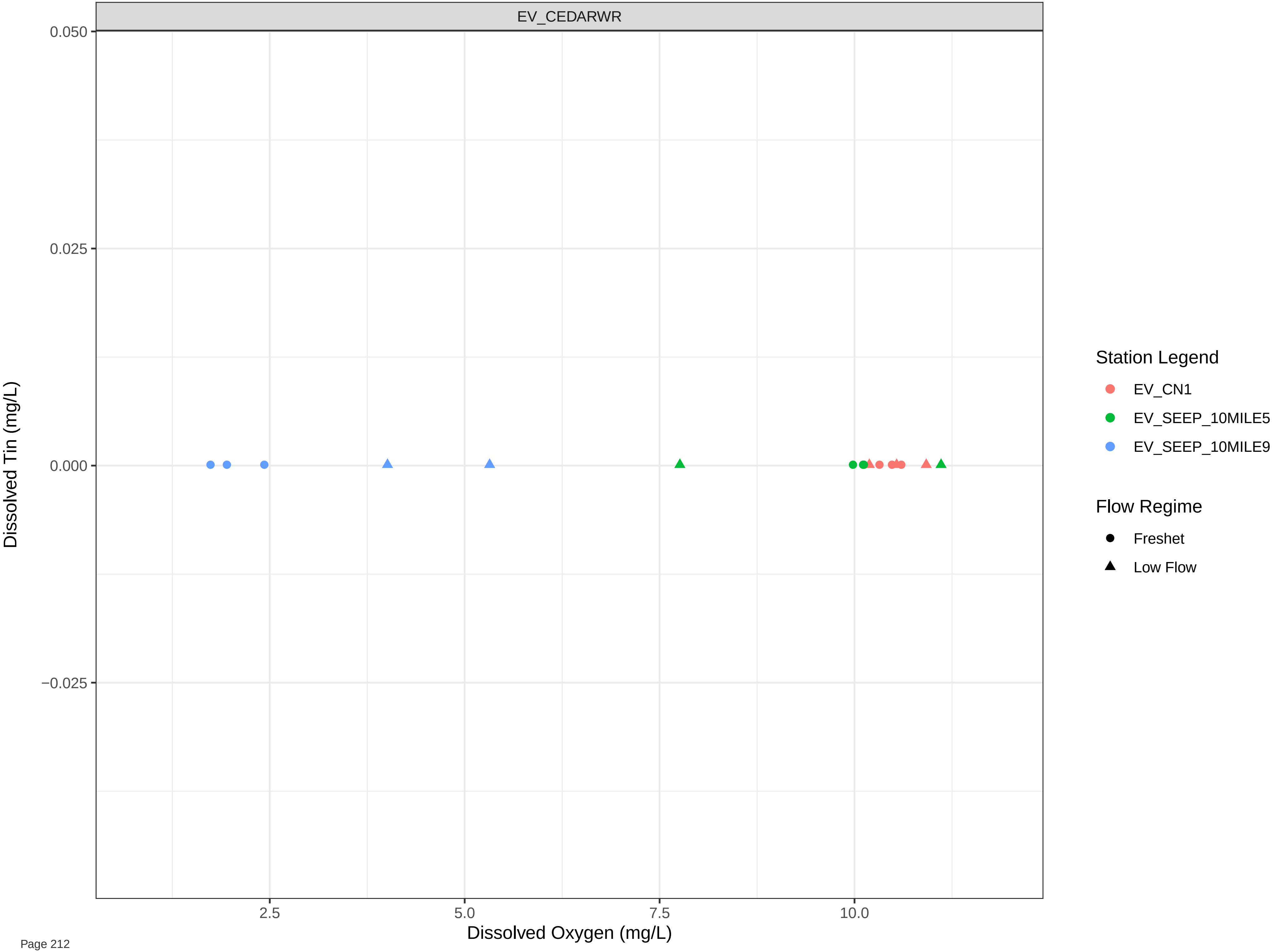

EV_SOUTHSLOPE
Dissolved Thallium (mg/L)
1.20e−05
1.15e−05
1.10e−05
1.05e−05
1.00e−05
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

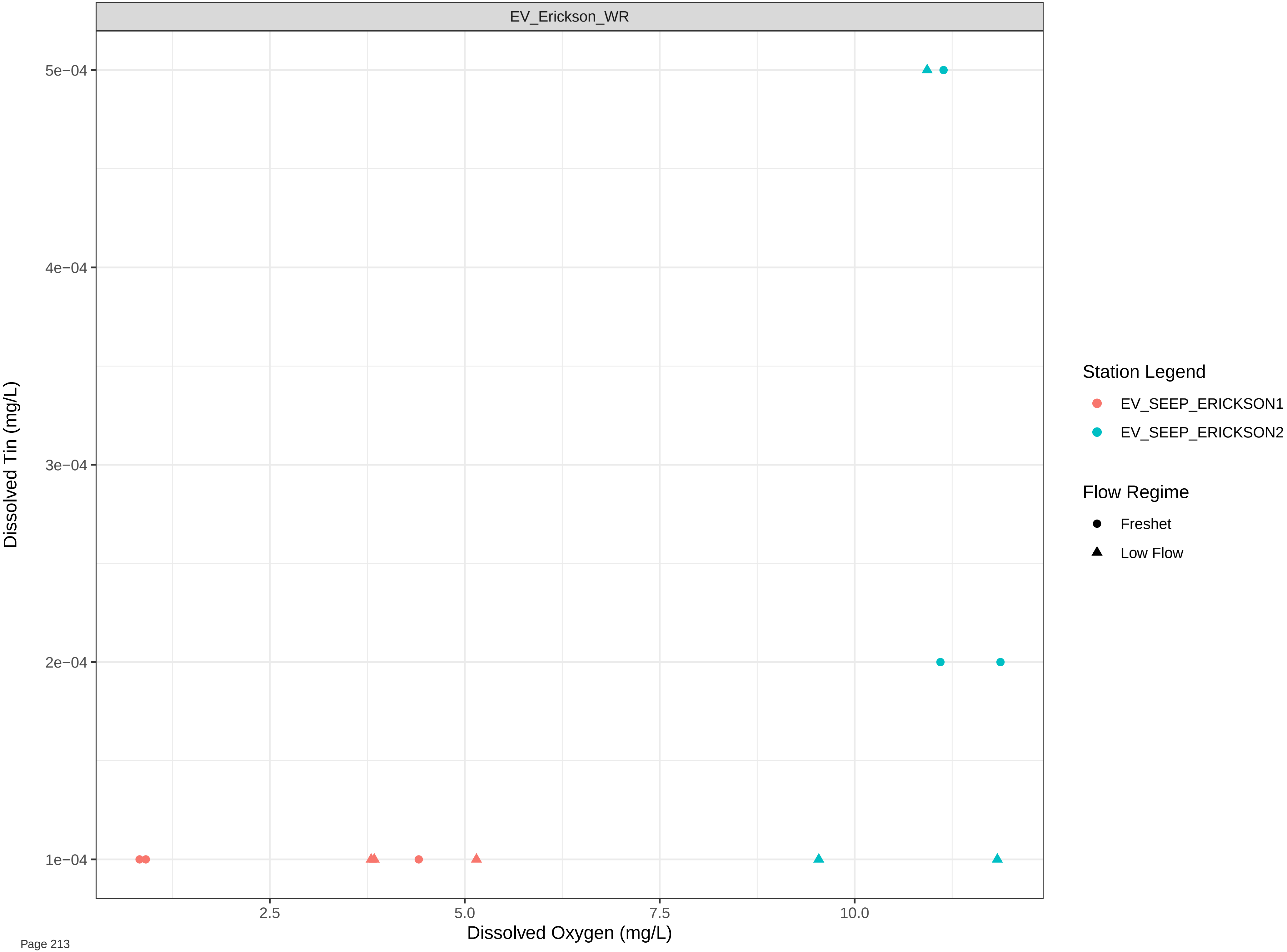

EV_SouthPit_Pit
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

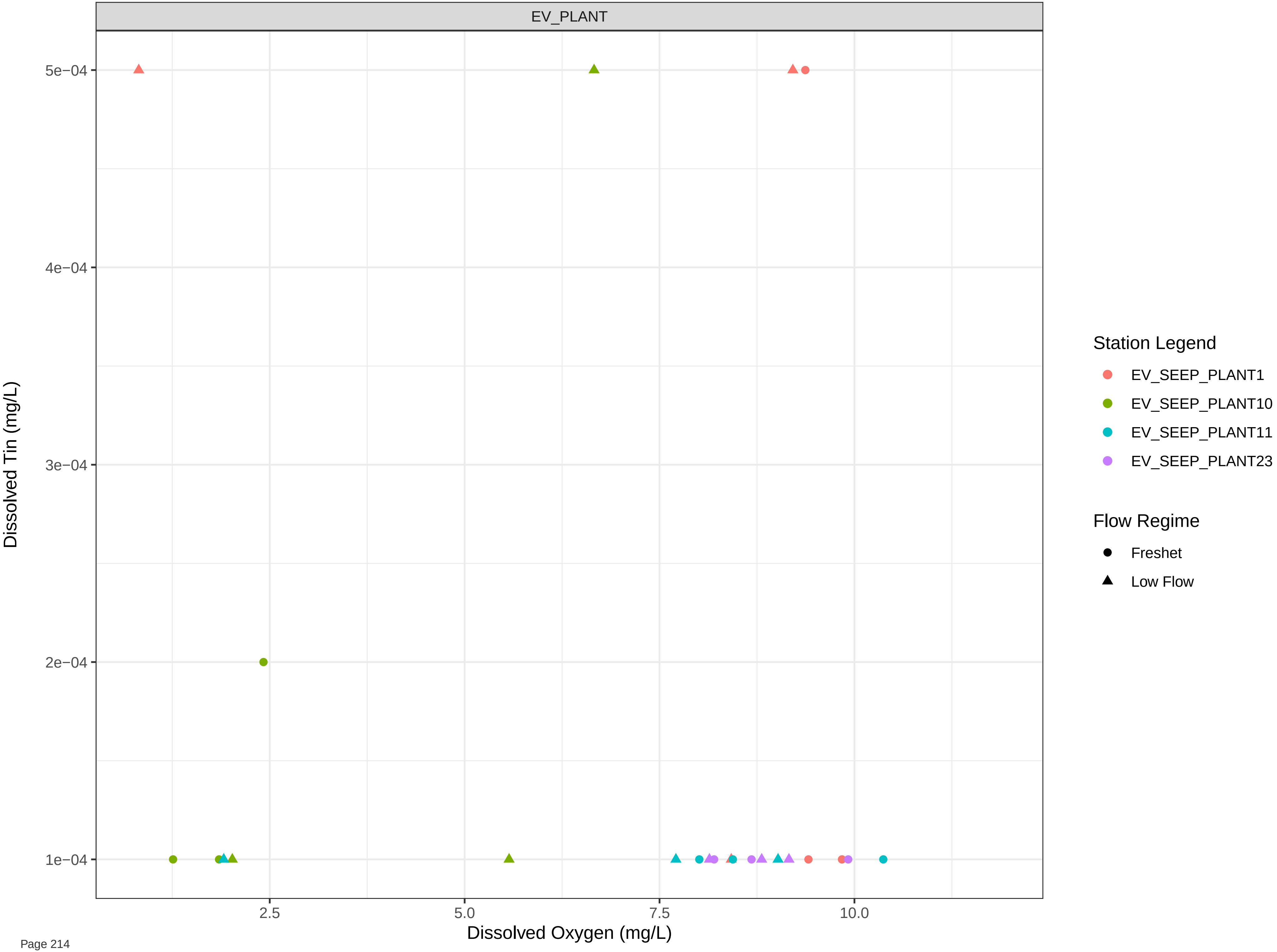

EV_BALDYRIDGEWR
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

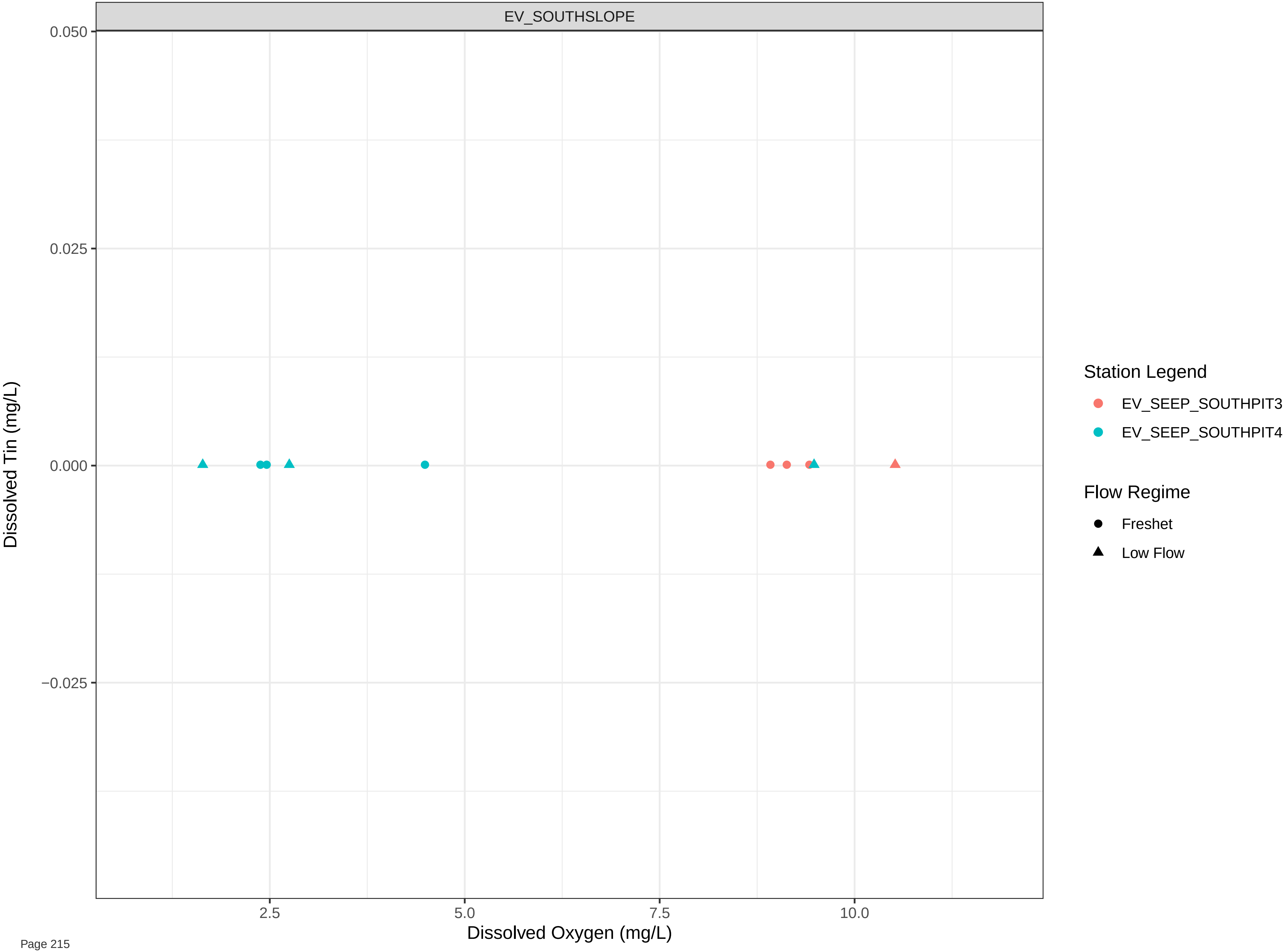

EV_CCR
Dissolved Tin (mg/L)
0.000200
0.000175
0.000150
0.000125
0.000100
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

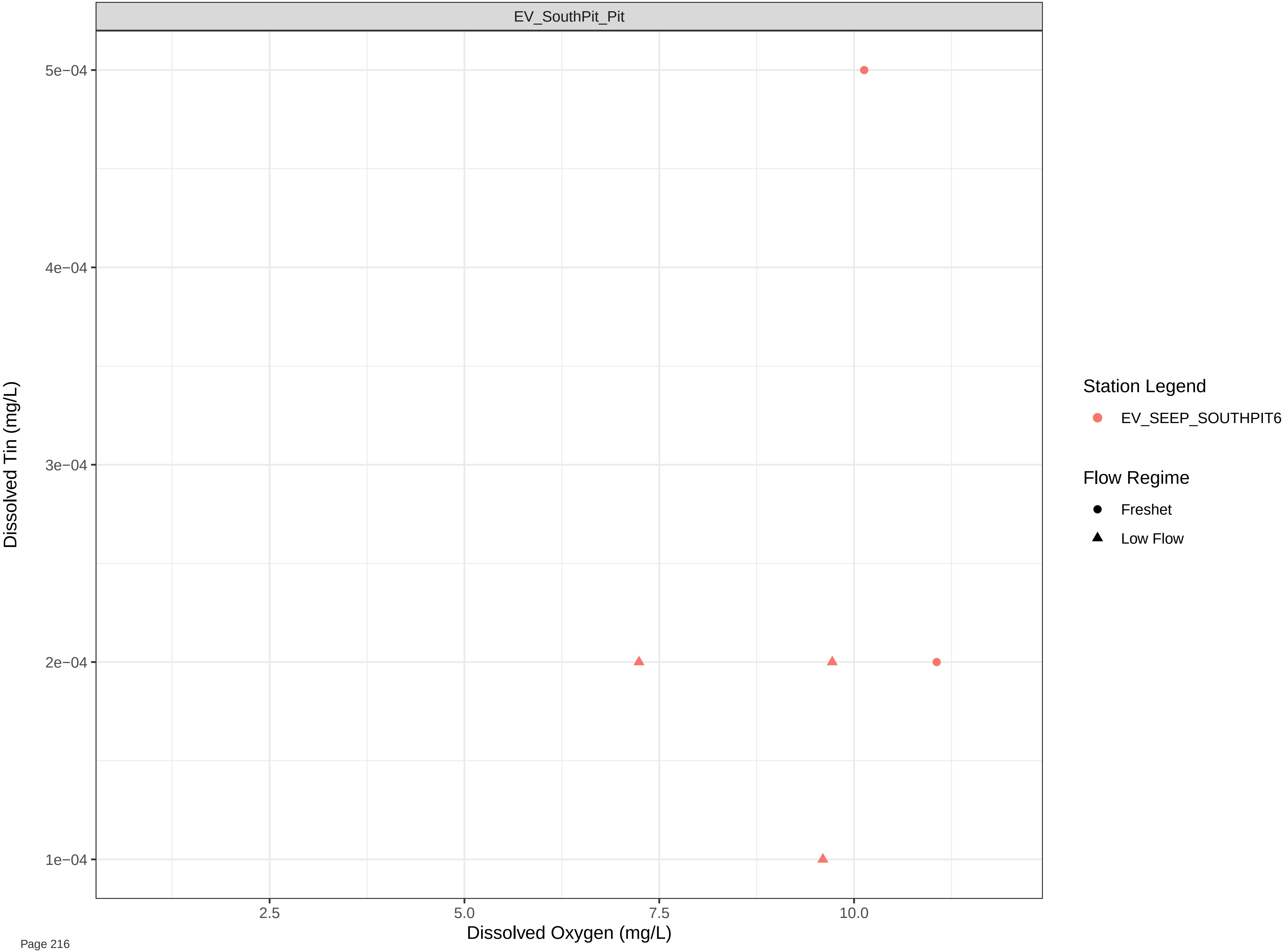

EV_CCR/TP
0.050
0.025
0.000
−0.025
Dissolved Tin (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

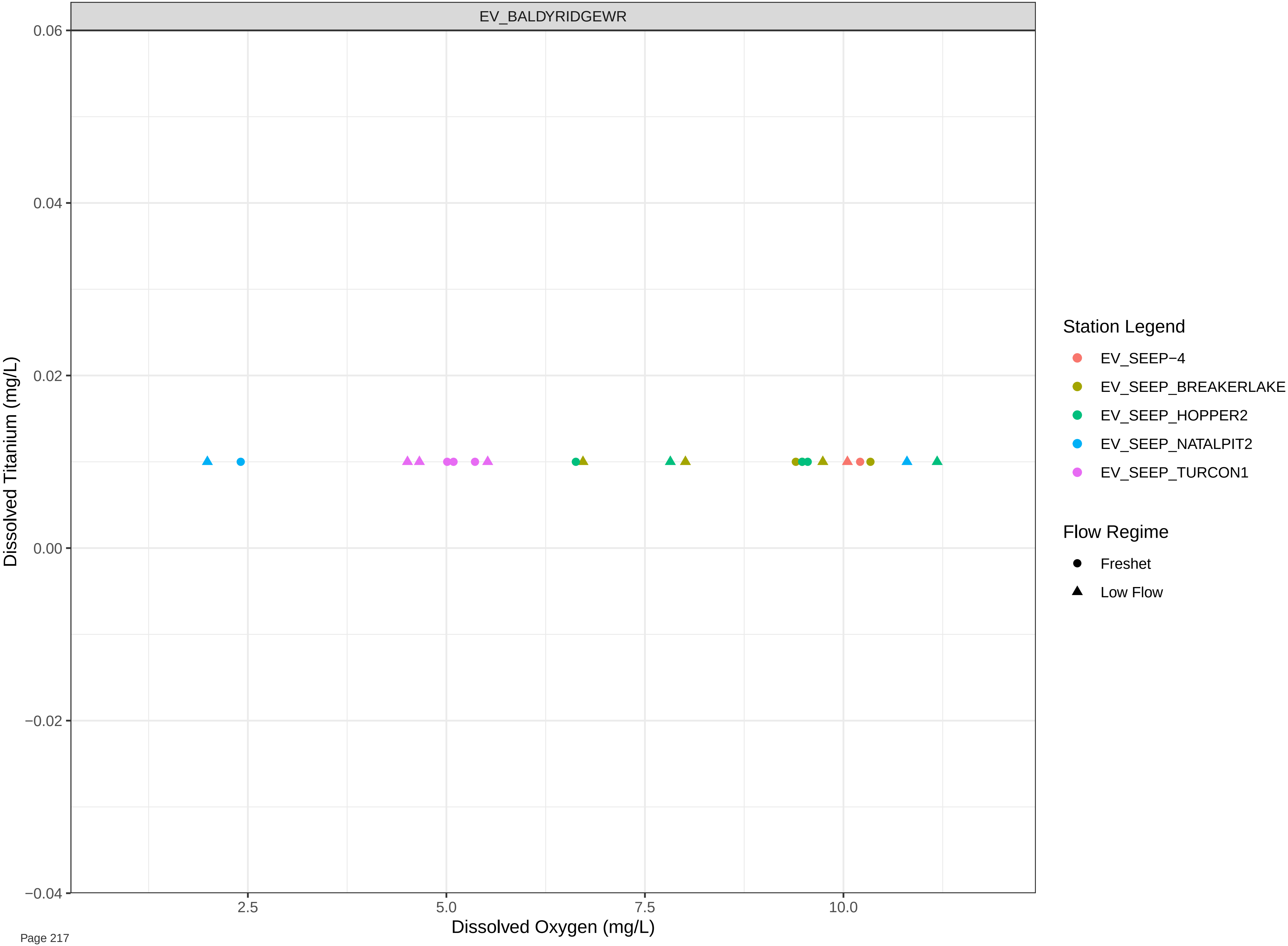

EV_CEDARWR
0.050
0.025
0.000
−0.025
Dissolved Tin (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

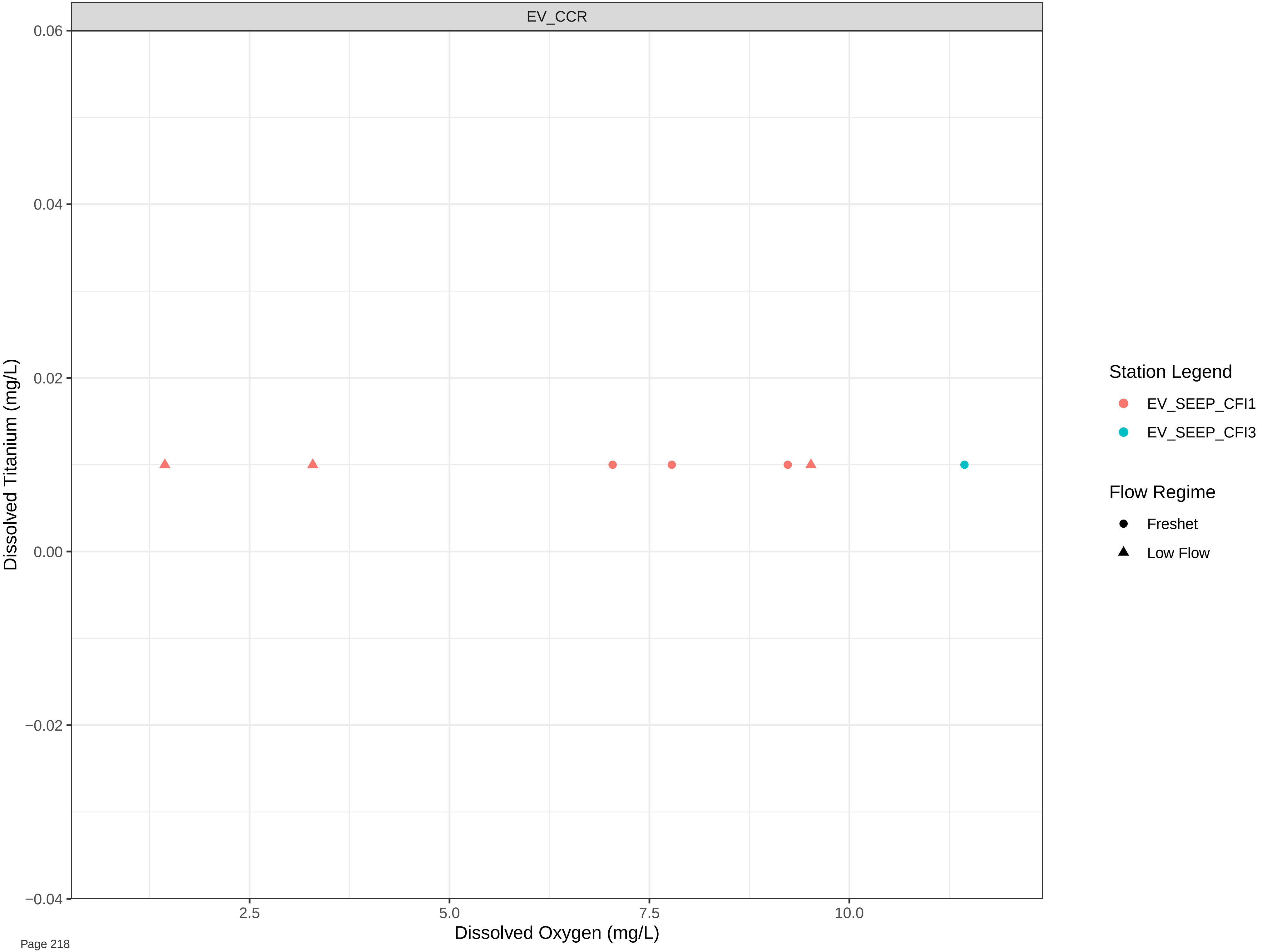

EV_Erickson_WR
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

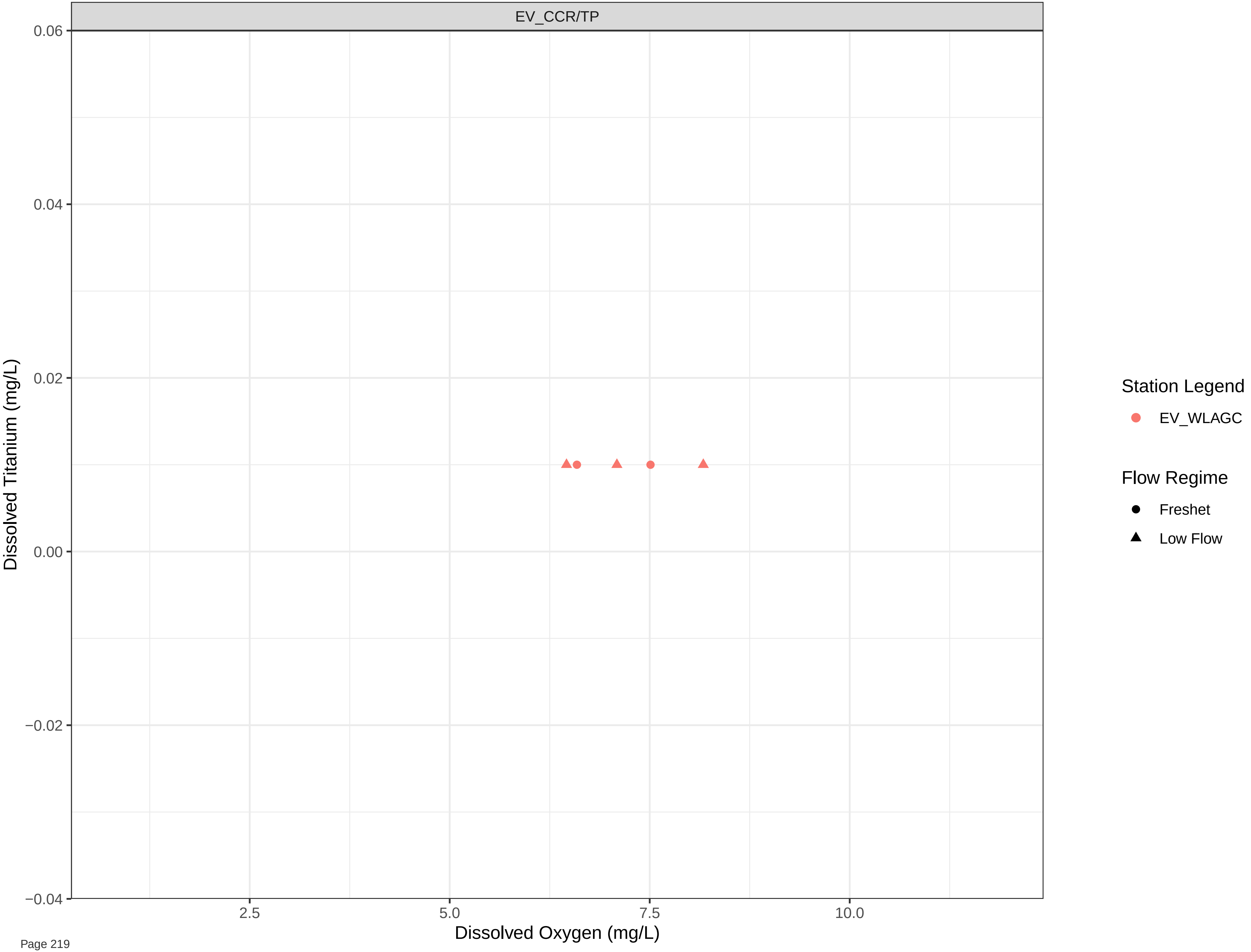

EV_PLANT
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_PLANT1
● EV_SEEP_PLANT10
● EV_SEEP_PLANT11
● EV_SEEP_PLANT23
Flow Regime
● Freshet
▲ Low Flow

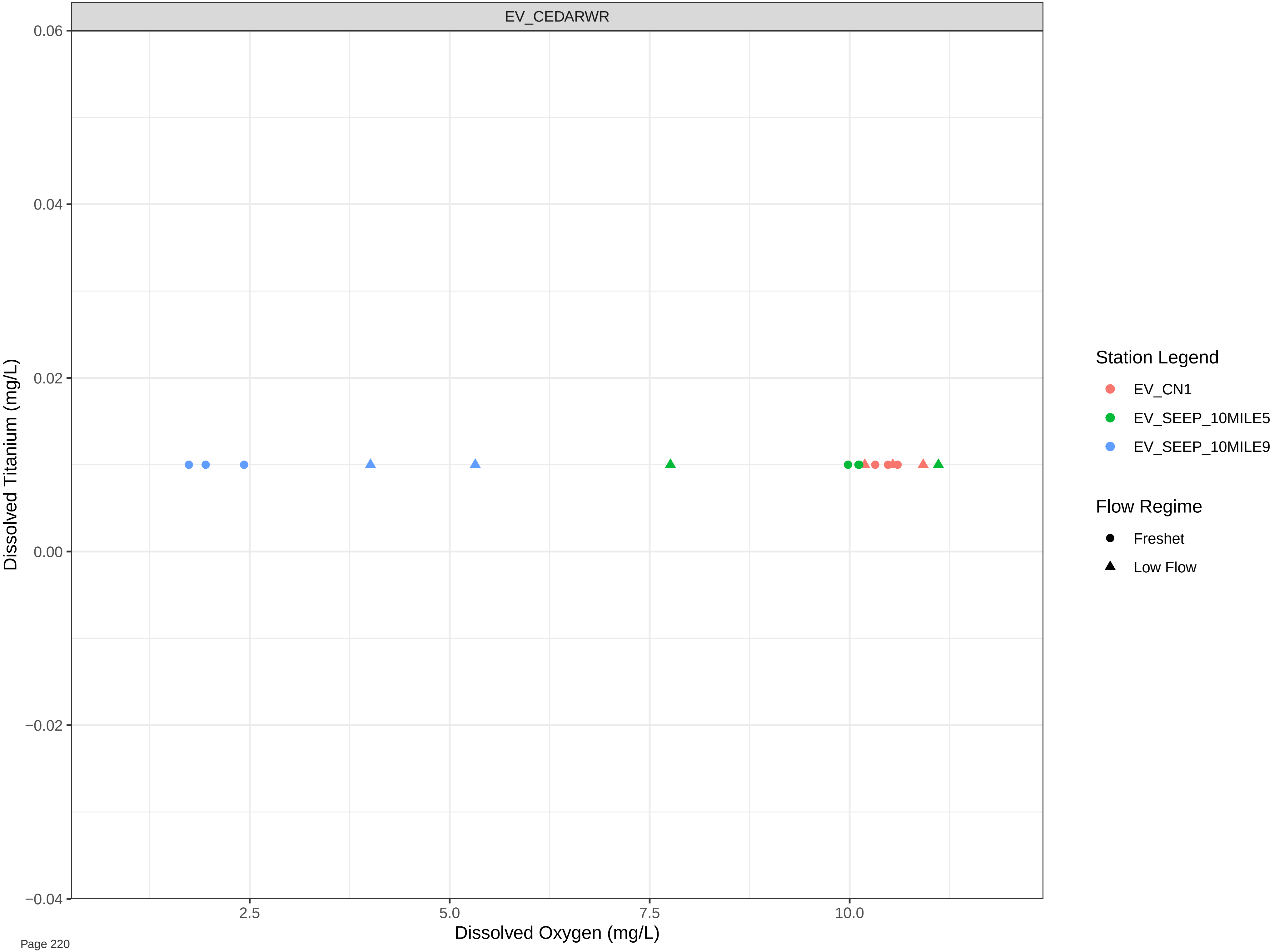

EV_SOUTHSLOPE
0.050
0.025
0.000
−0.025
Dissolved Tin (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

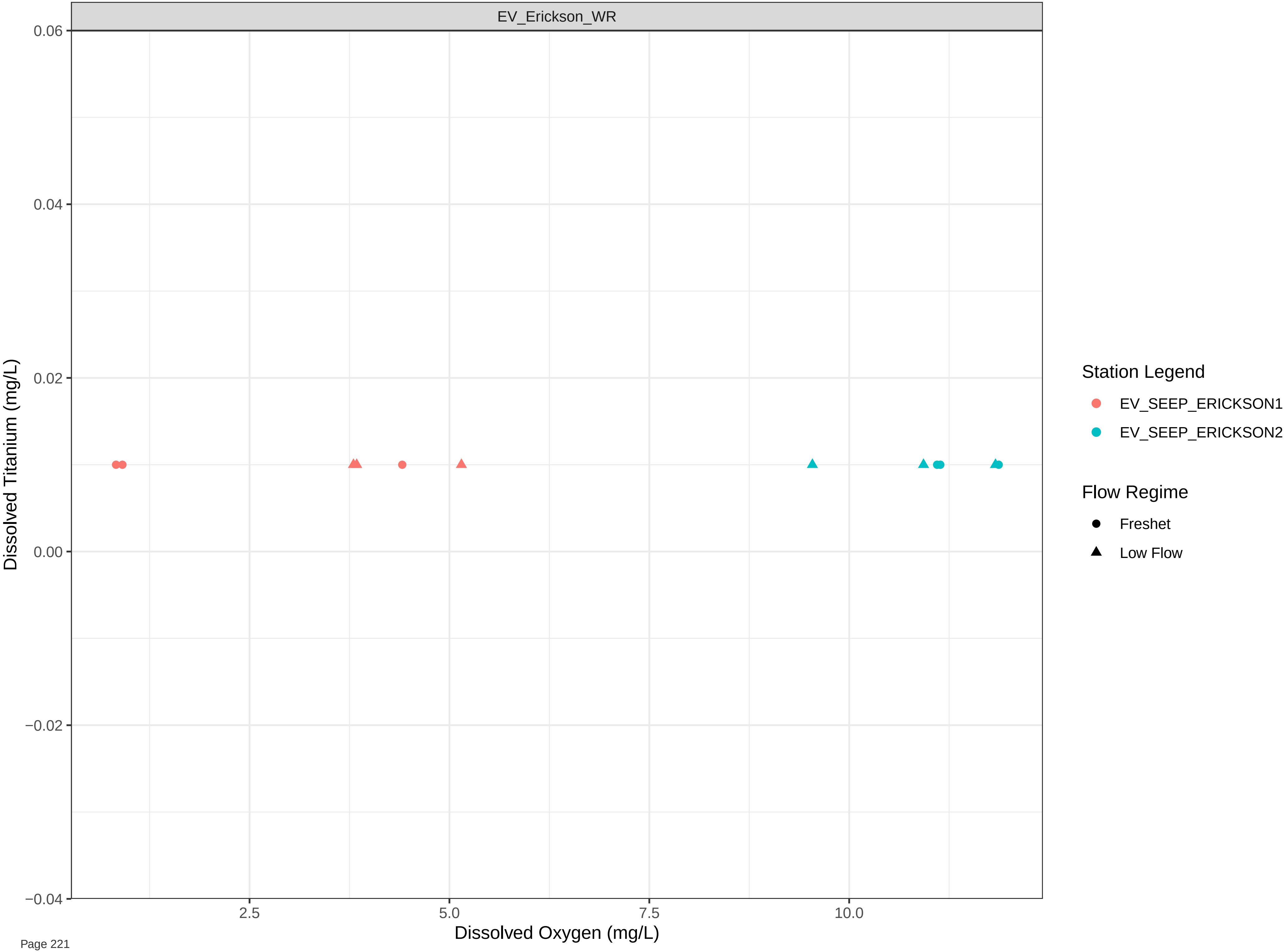

EV_SouthPit_Pit
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

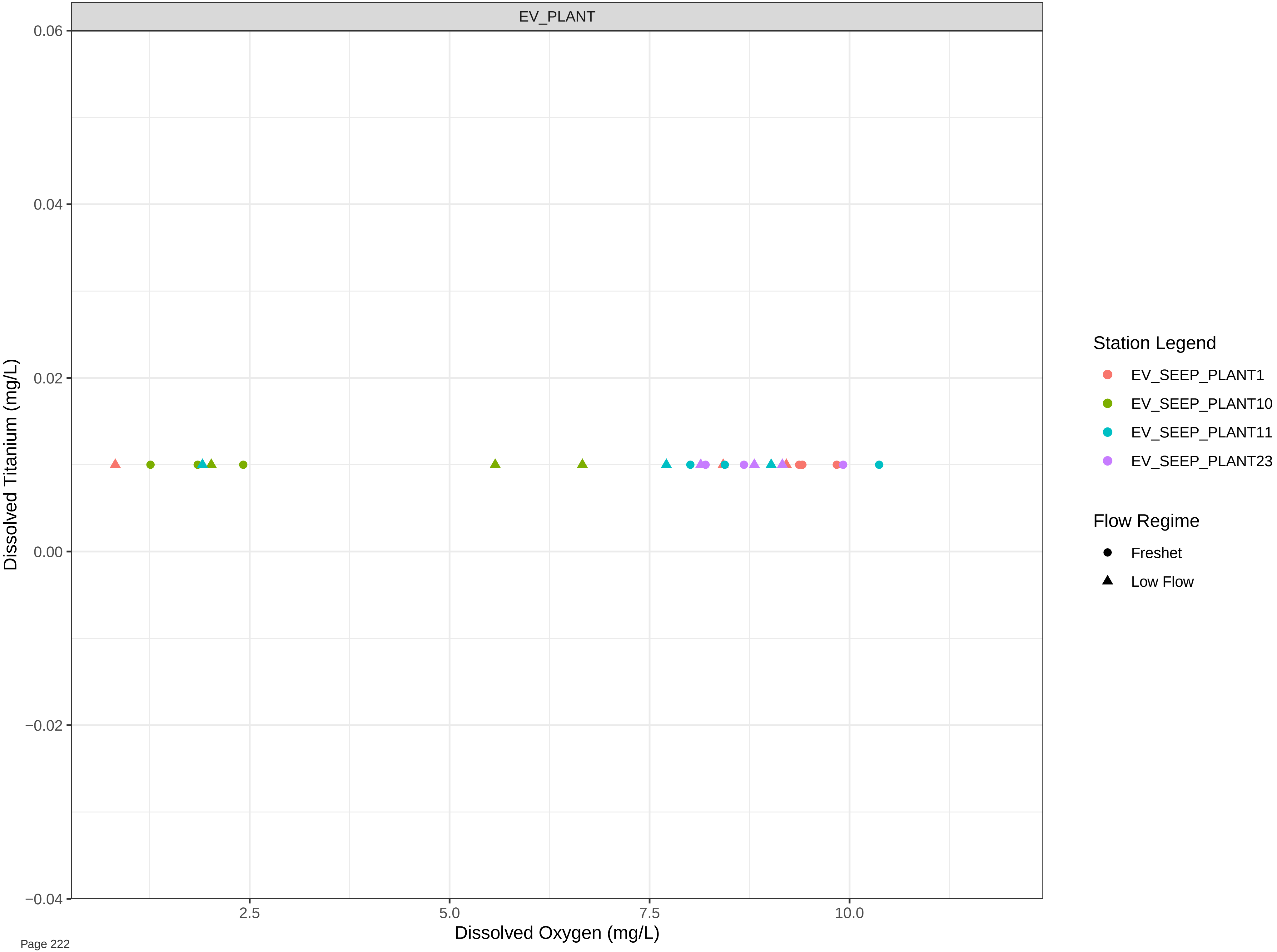

EV_BALDYRIDGEWR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

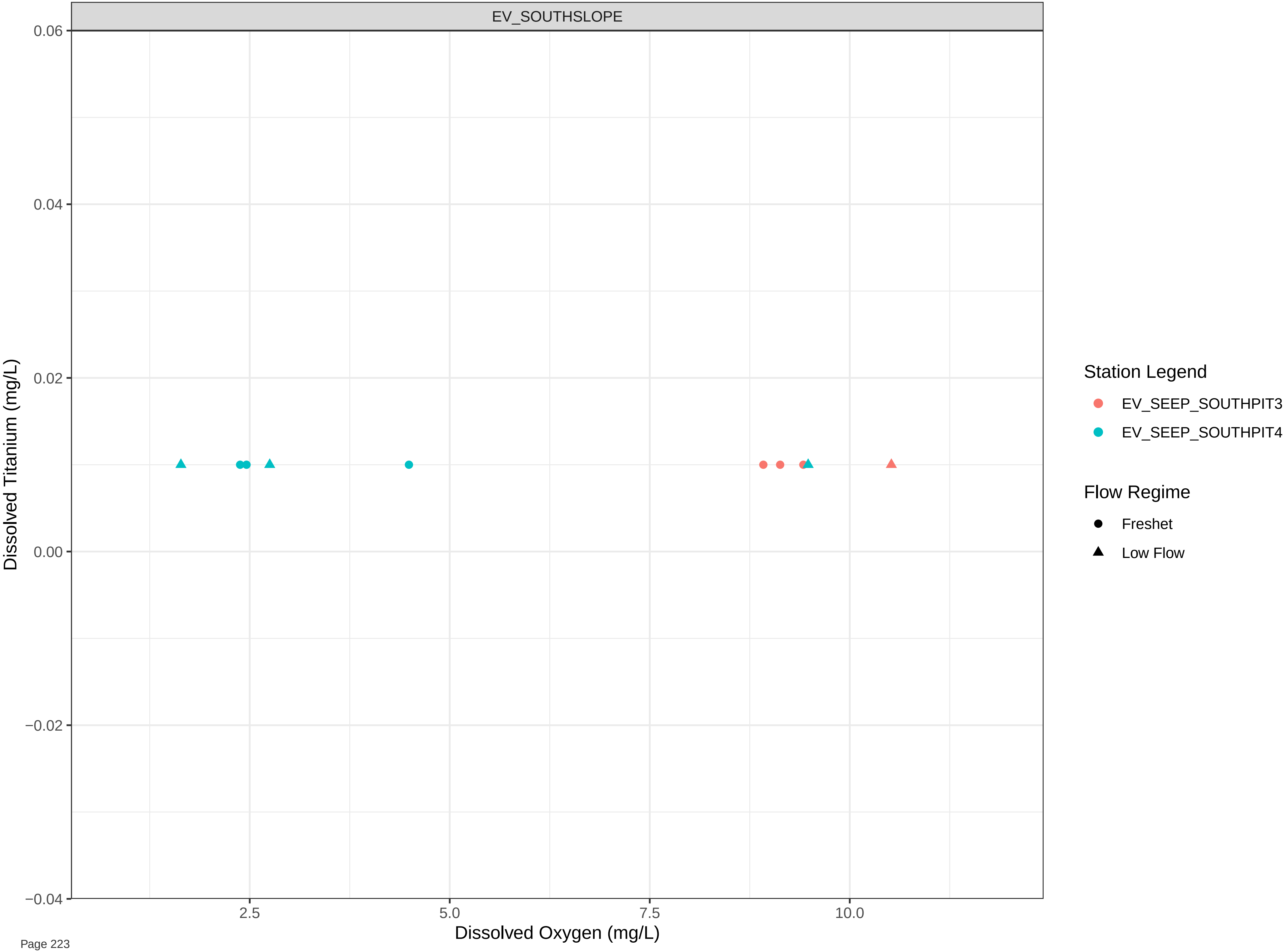

EV_CCR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

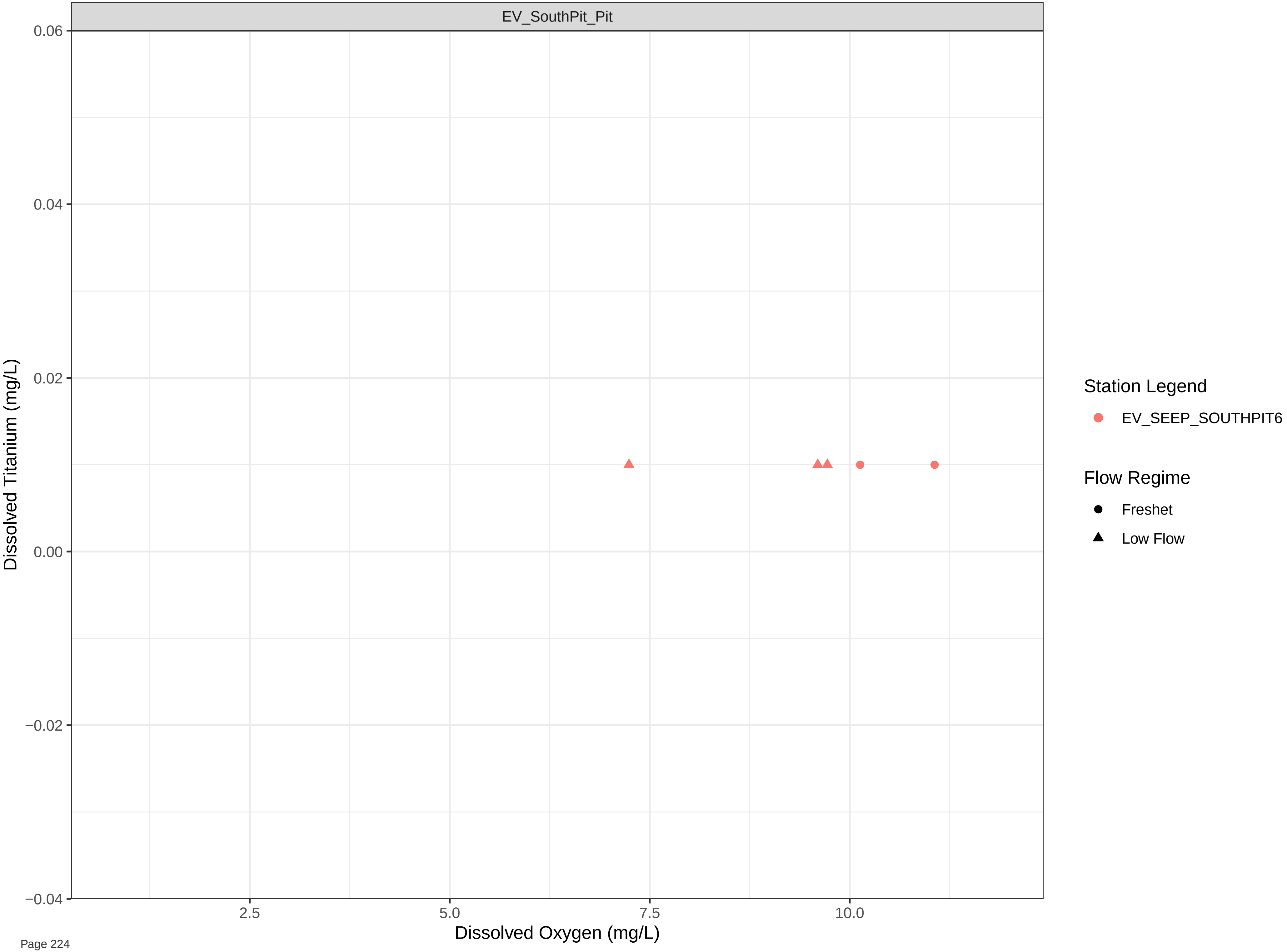

EV_CCR/TP
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

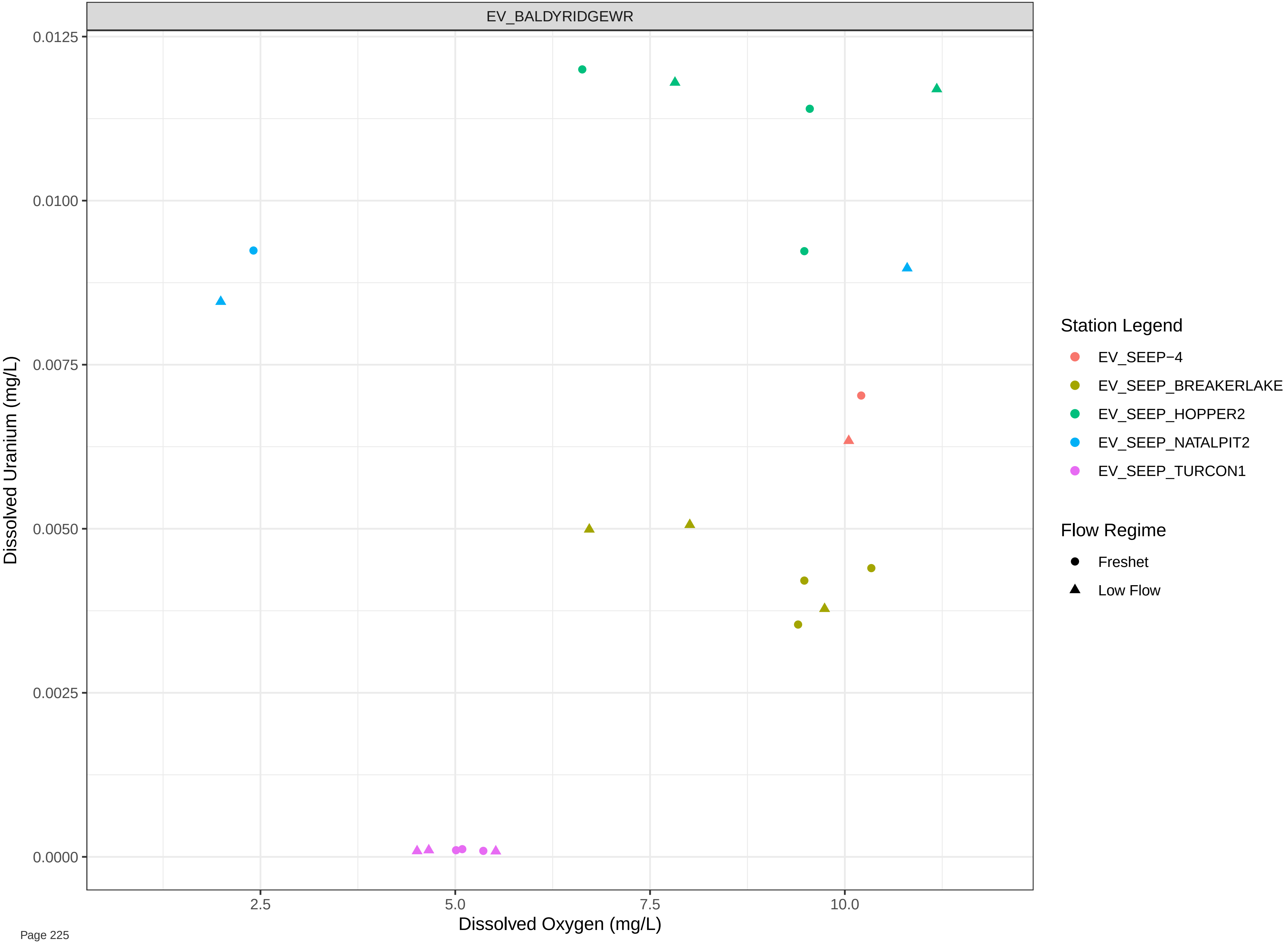

EV_CEDARWR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

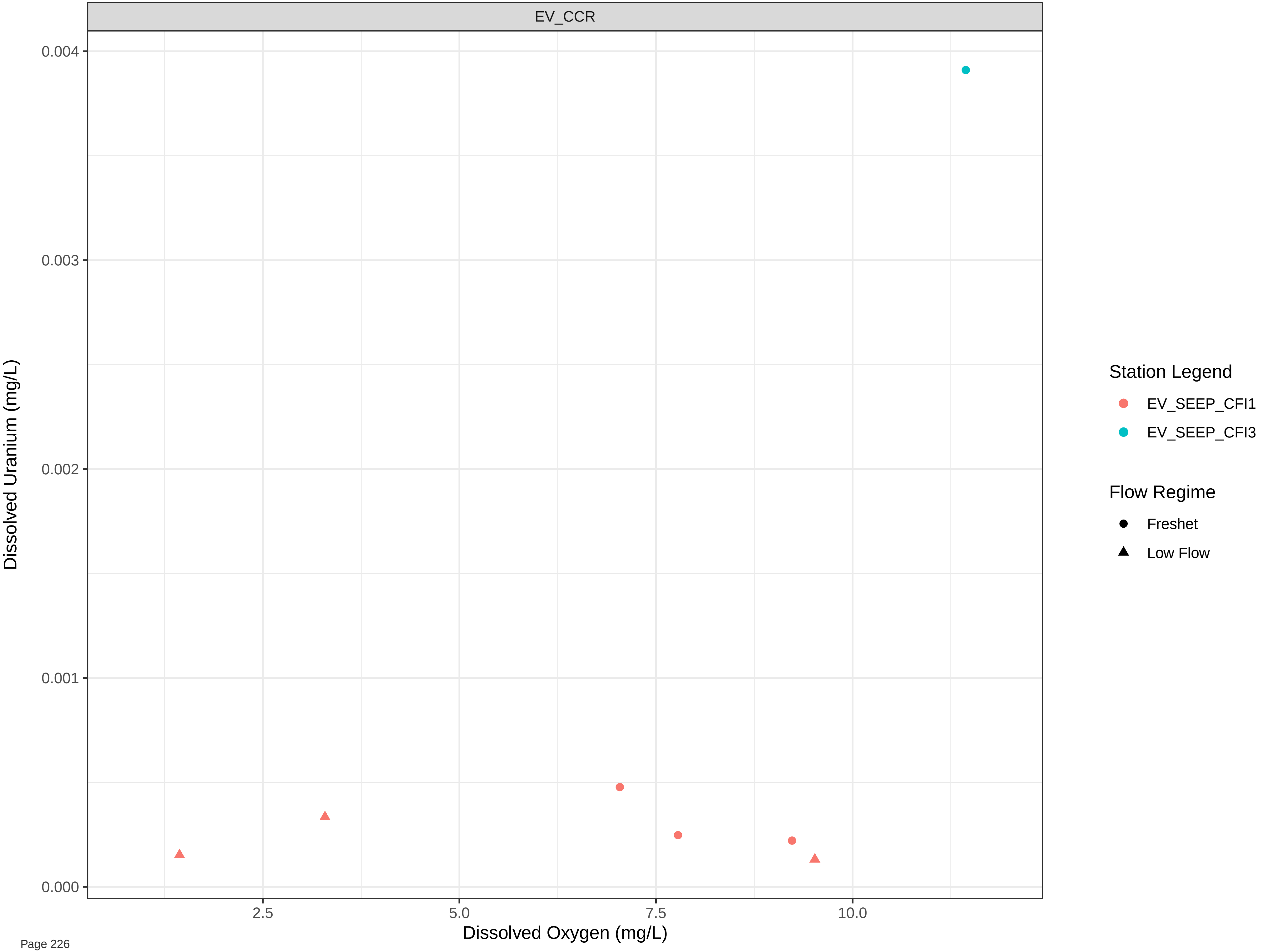

EV_Erickson_WR
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

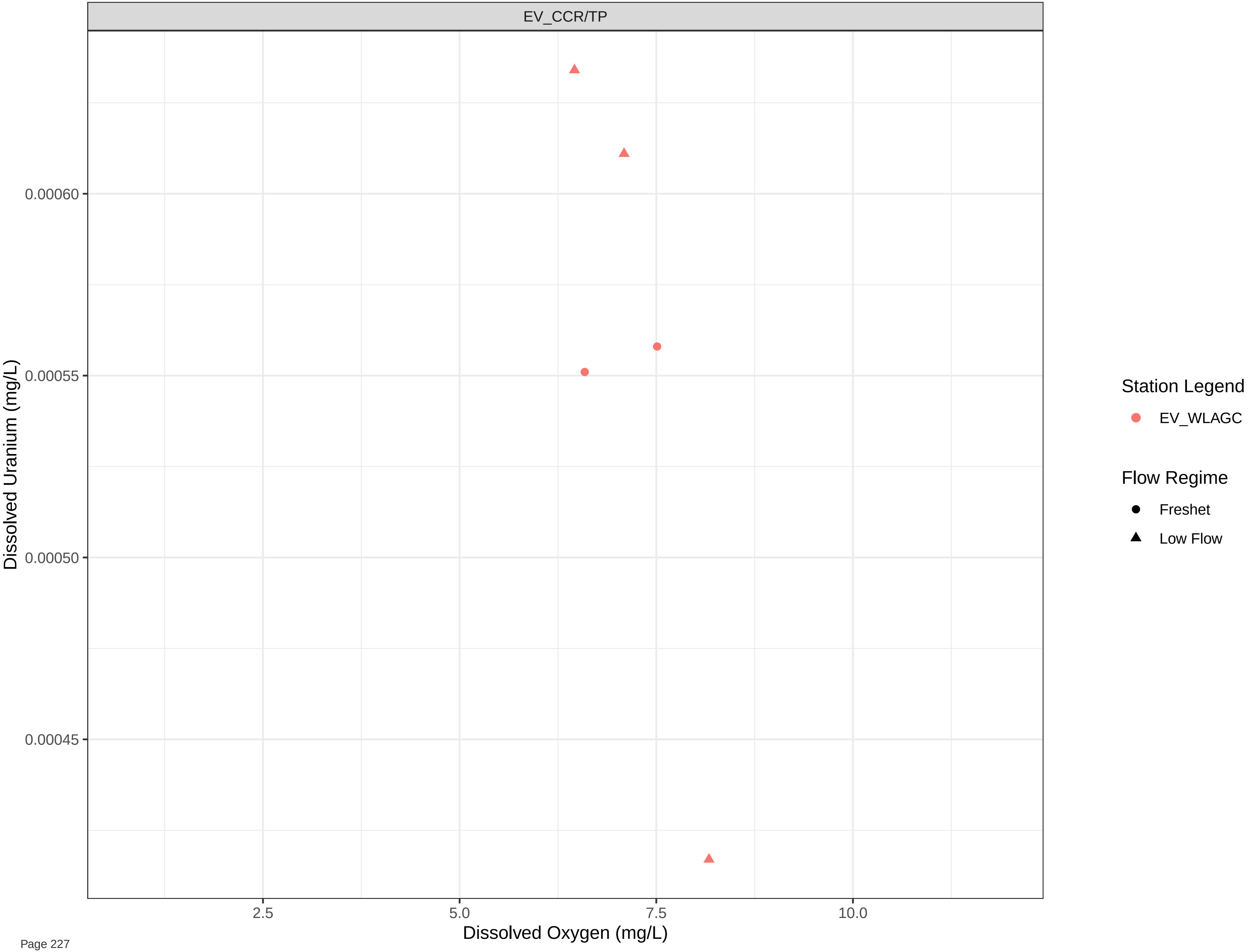

EV_PLANT
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

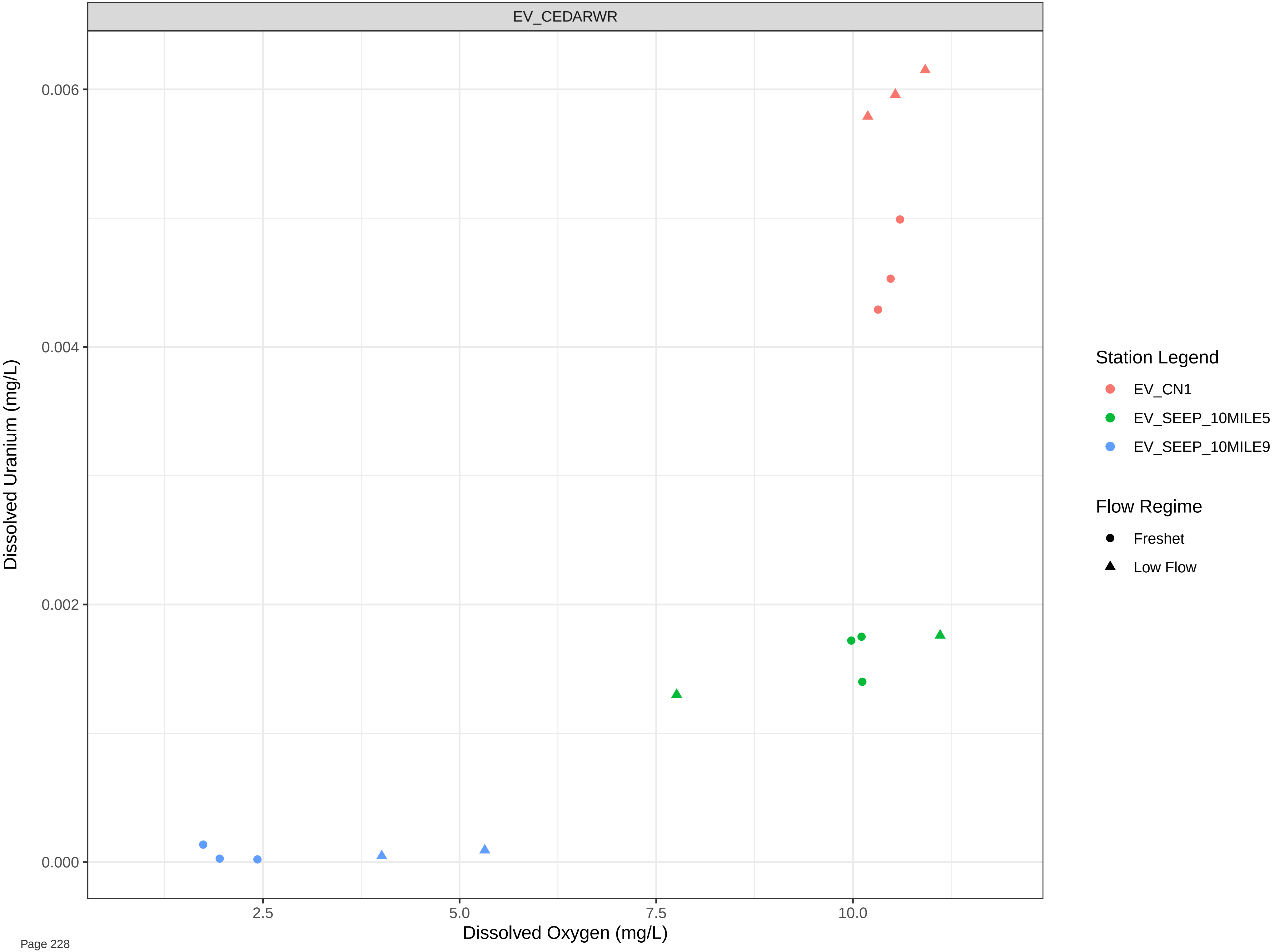

EV_SOUTHSLOPE
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

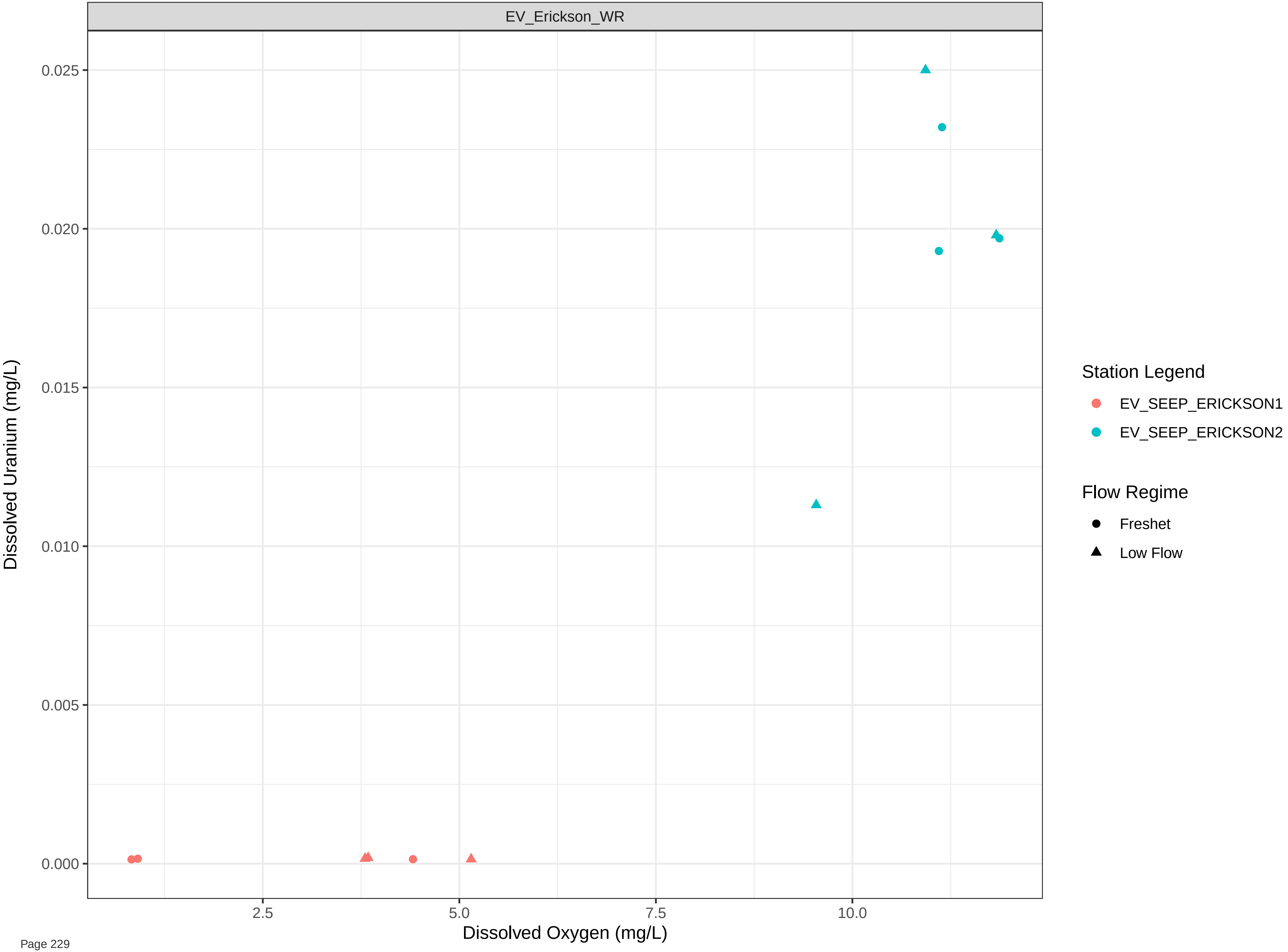

EV_SouthPit_Pit
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

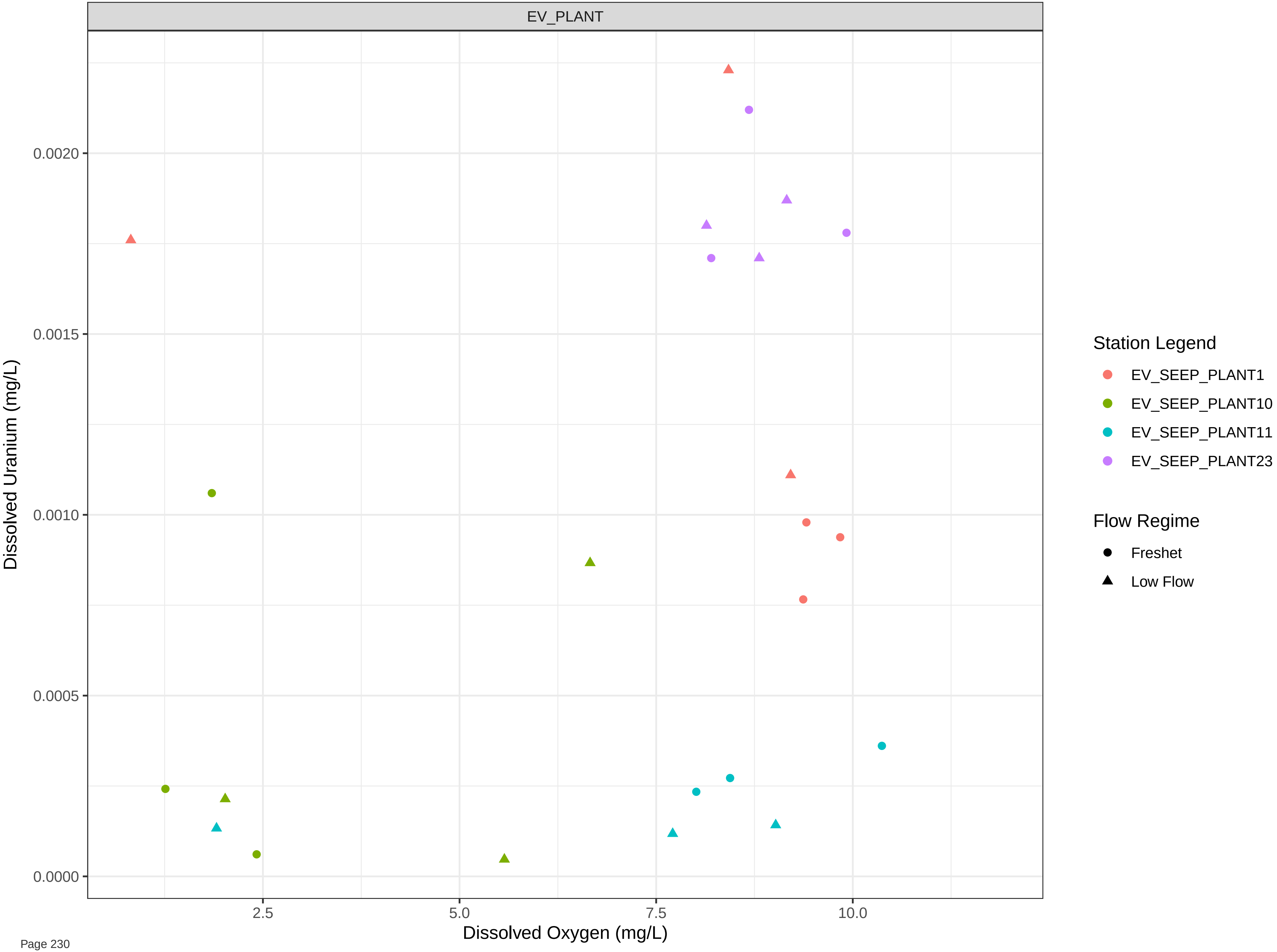

EV_BALDYRIDGEWR
Dissolved Uranium (mg/L)
0.0125
0.0100
0.0075
0.0050
0.0025
0.0000
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

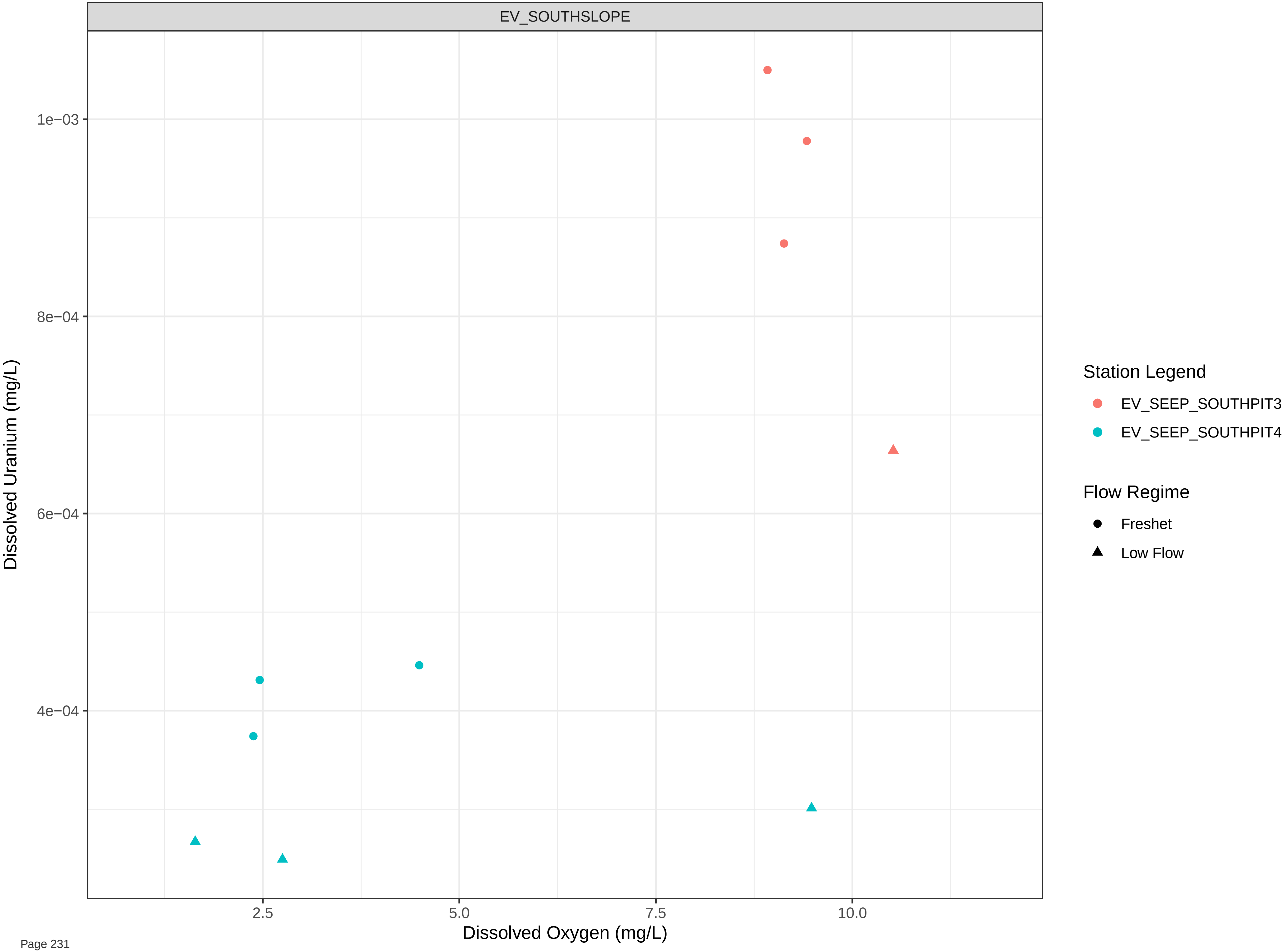

EV_CCR
Dissolved Uranium (mg/L)
0.004
0.003
0.002
0.001
0.000
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

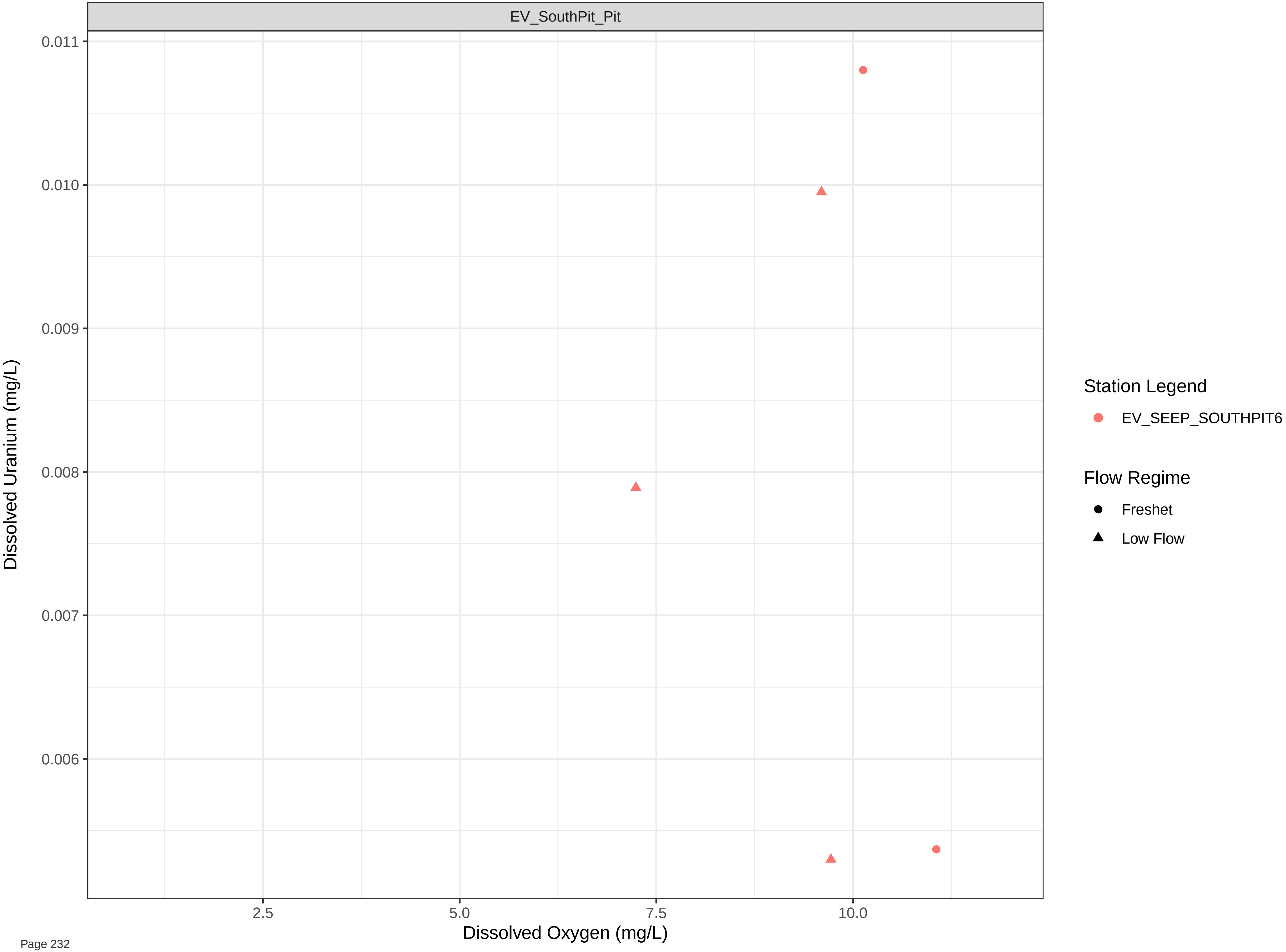

EV_CCR/TP
Dissolved Uranium (mg/L)
0.00060
0.00055
0.00050
0.00045
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

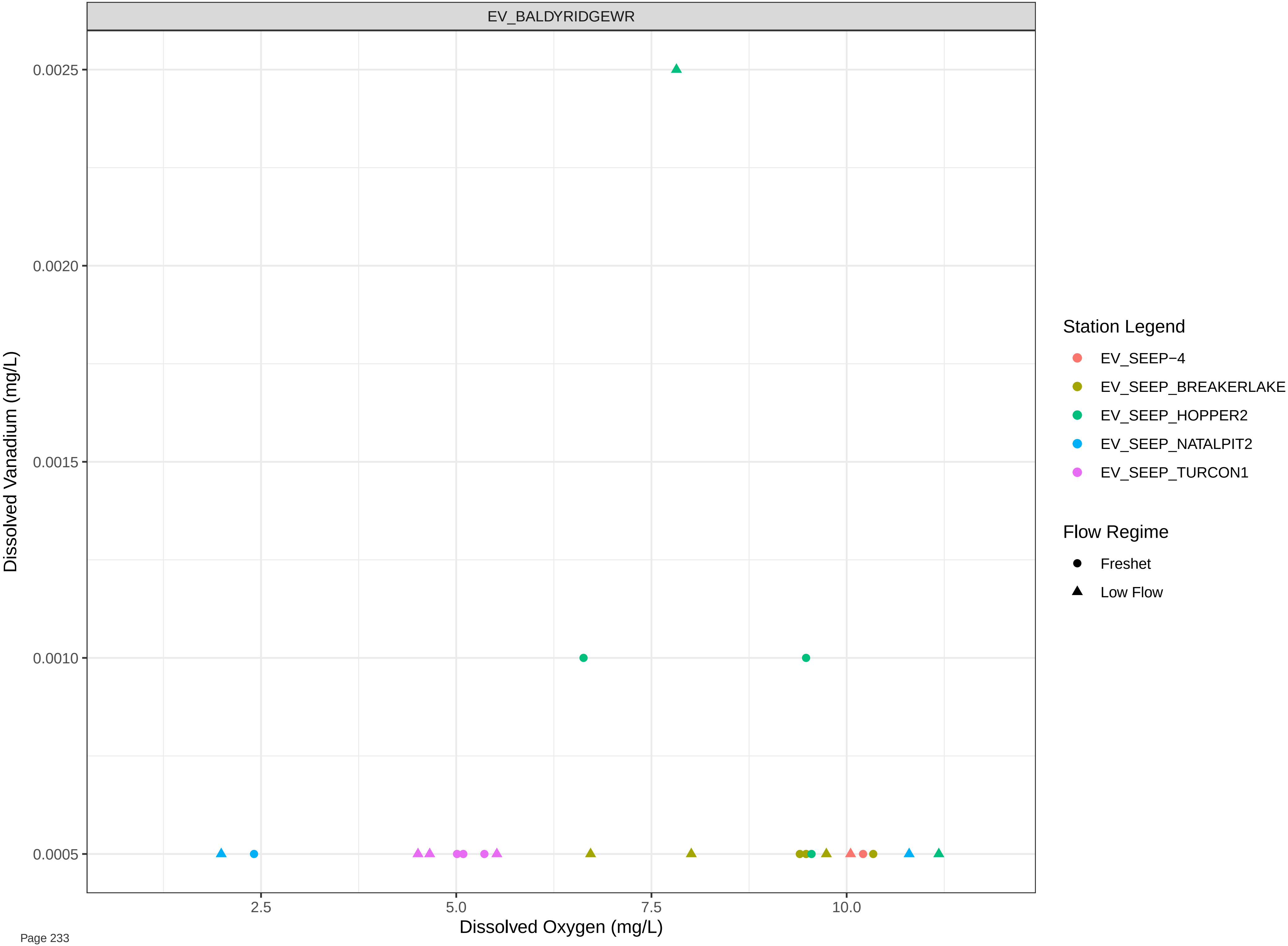

EV_CEDARWR
Dissolved Uranium (mg/L)
0.006
0.004
0.002
0.000
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_CN1
● EV_SEEP_10MILE5
● EV_SEEP_10MILE9
Flow Regime
● Freshet
▲ Low Flow

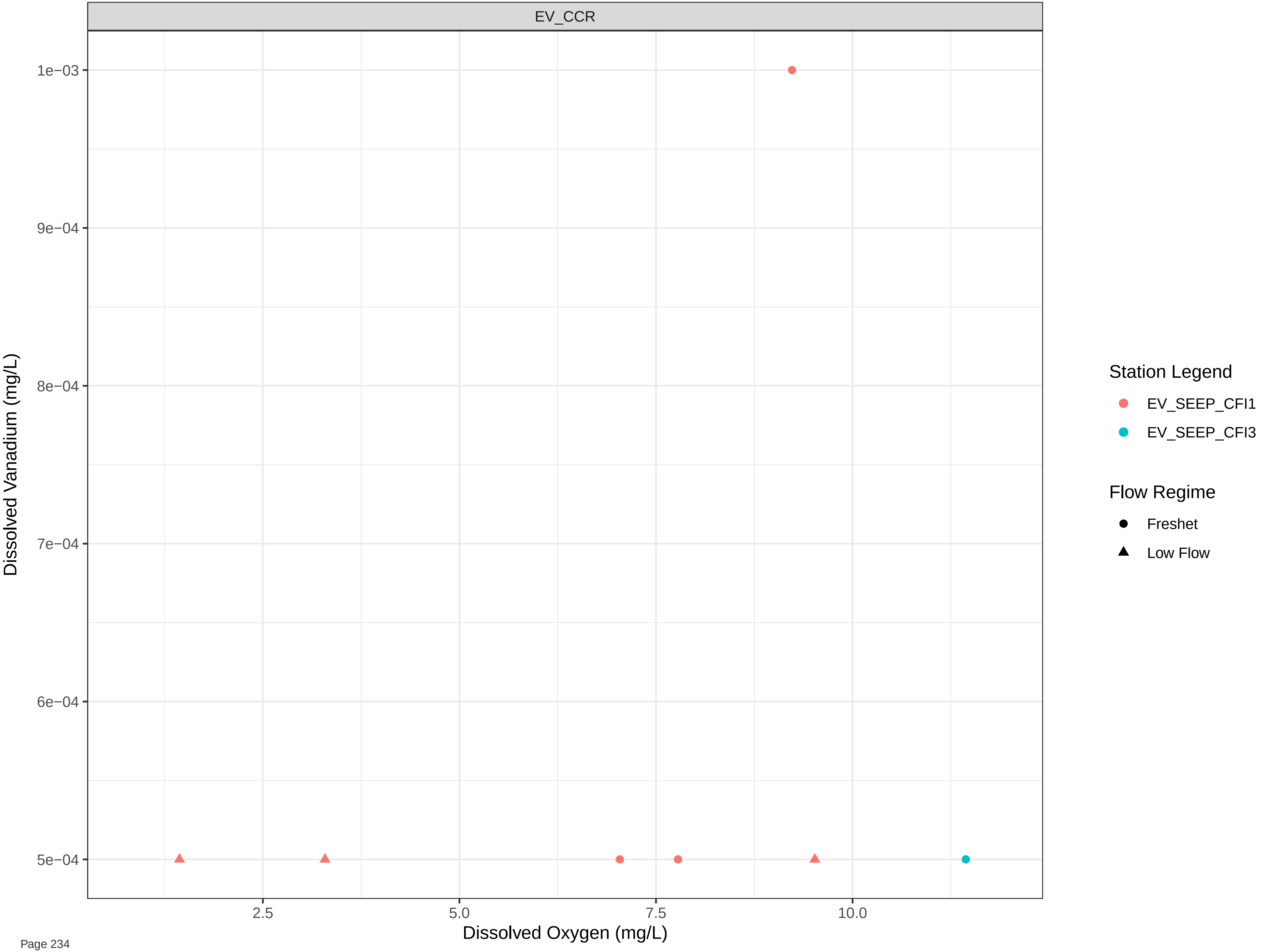

EV_Erickson_WR
Dissolved Uranium (mg/L)
0.025
0.020
0.015
0.010
0.005
0.000
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

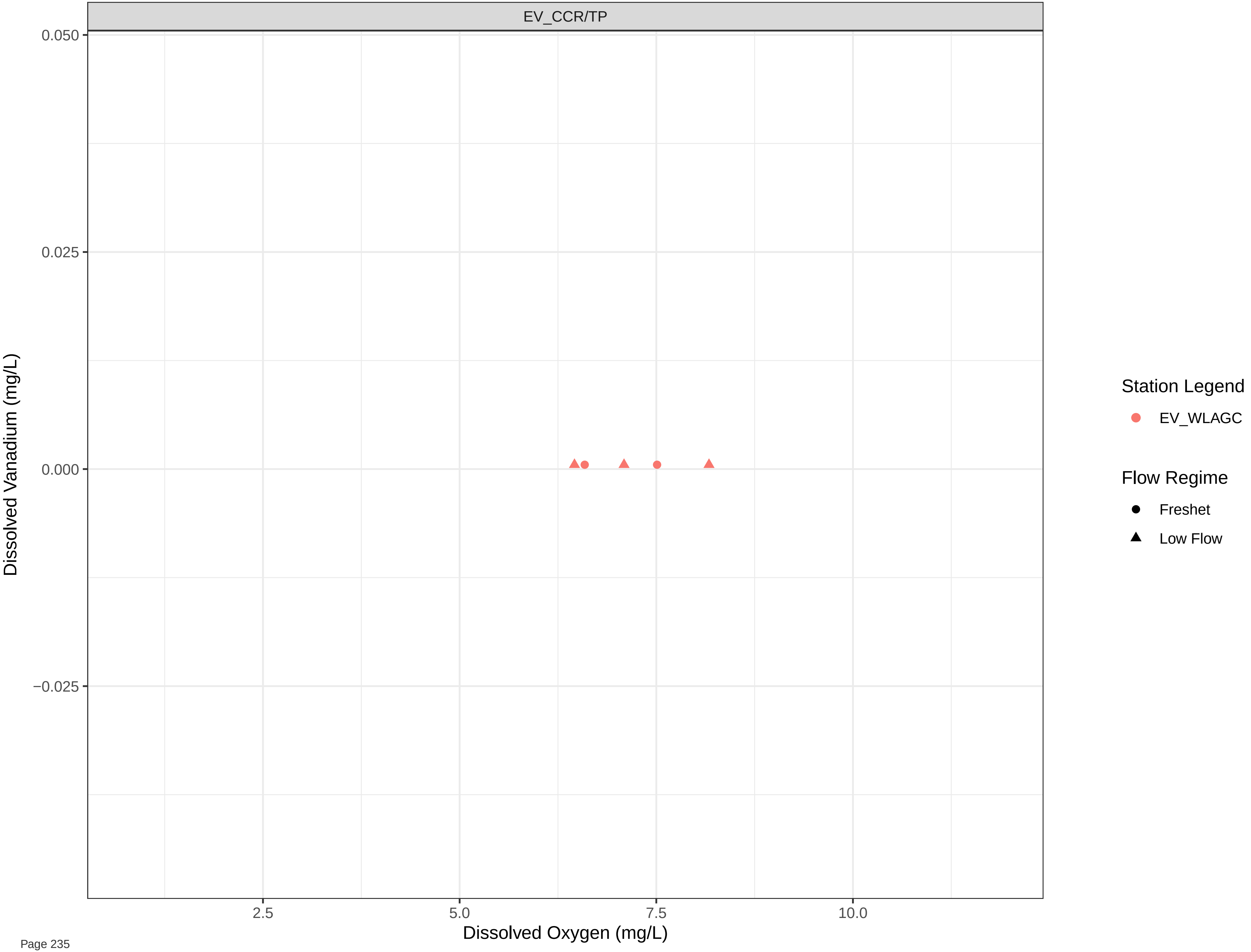

EV_PLANT
Dissolved Uranium (mg/L)
0.0000
0.0005
0.0010
0.0015
0.0020
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

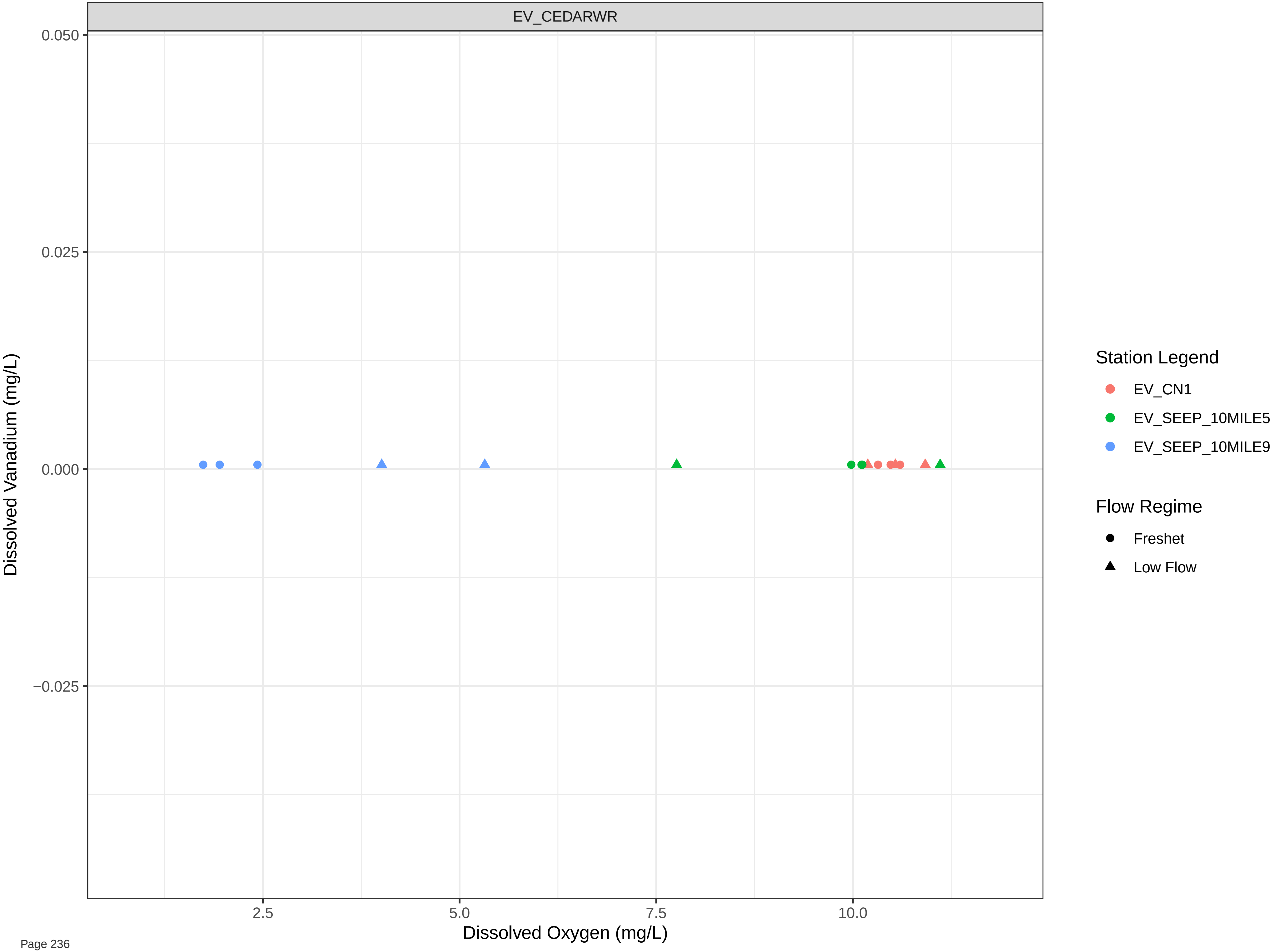

EV_SOUTHSLOPE
Dissolved Uranium (mg/L)
1e−03
8e−04
6e−04
4e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
Flow Regime
● Freshet
▲ Low Flow

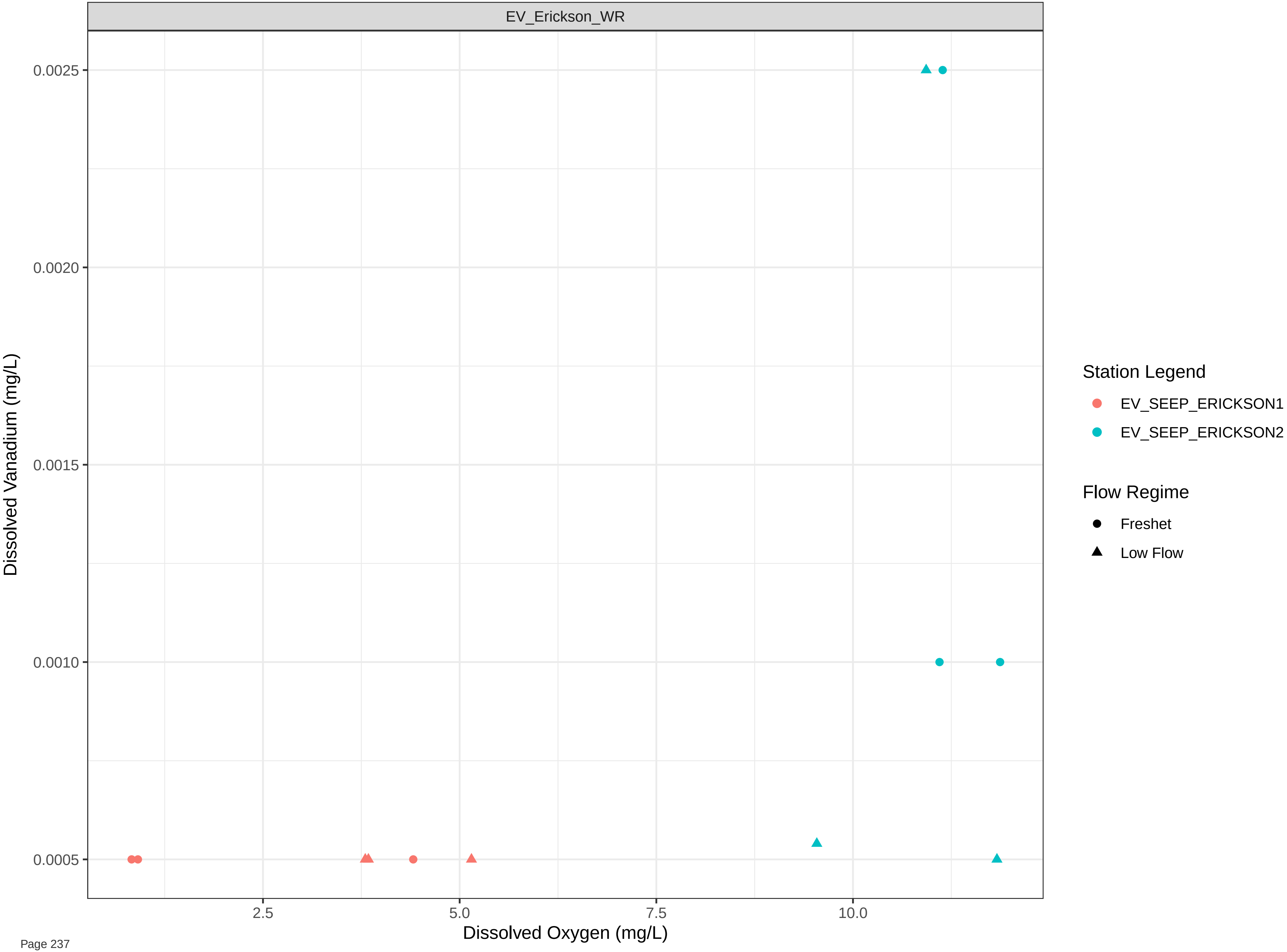

EV_SouthPit_Pit
Dissolved Uranium (mg/L)
0.011
0.010
0.009
0.008
0.007
0.006
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_SOUTHPIT6
Flow Regime
Freshet
Low Flow

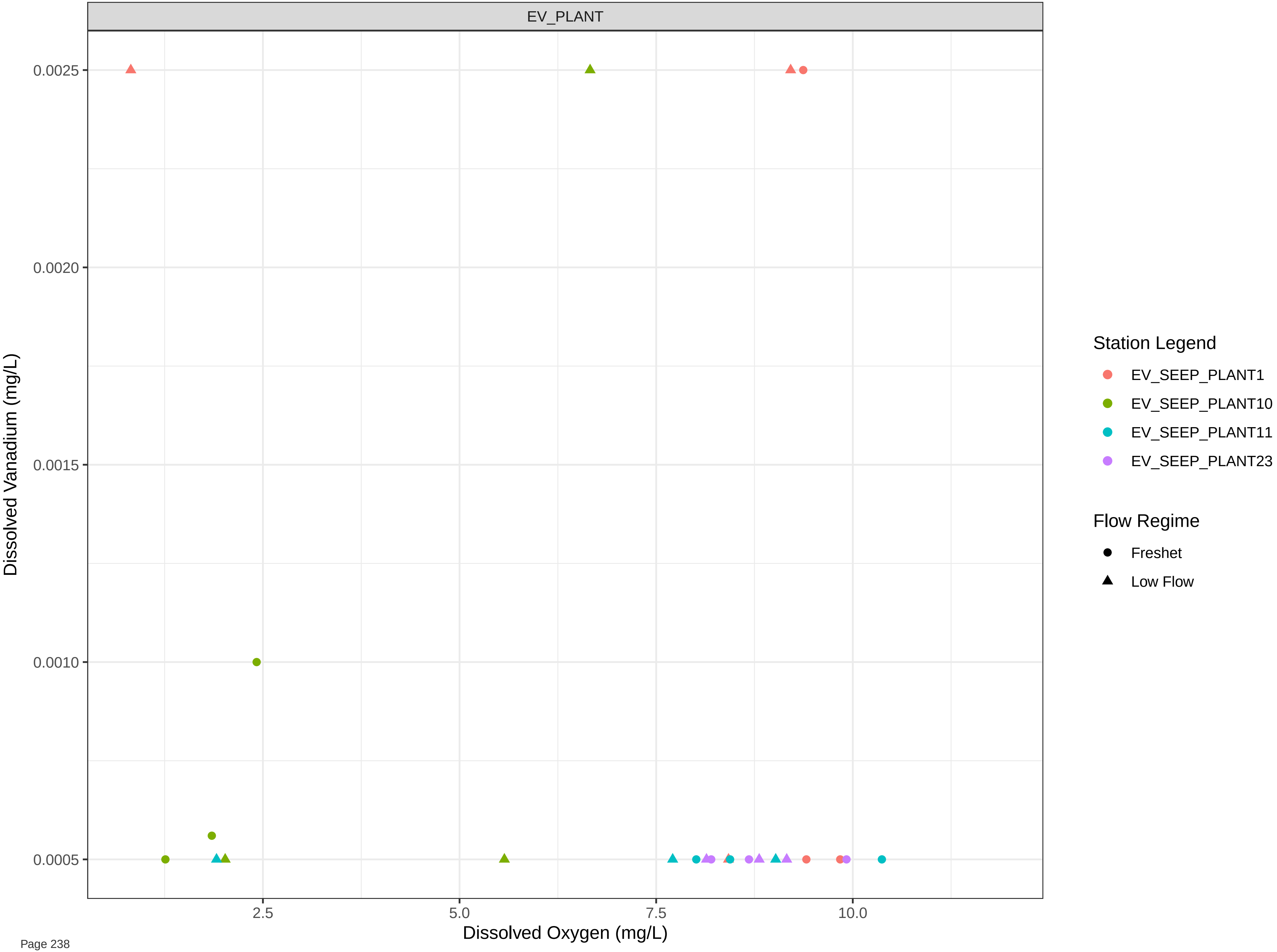

EV_BALDYRIDGEWR
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

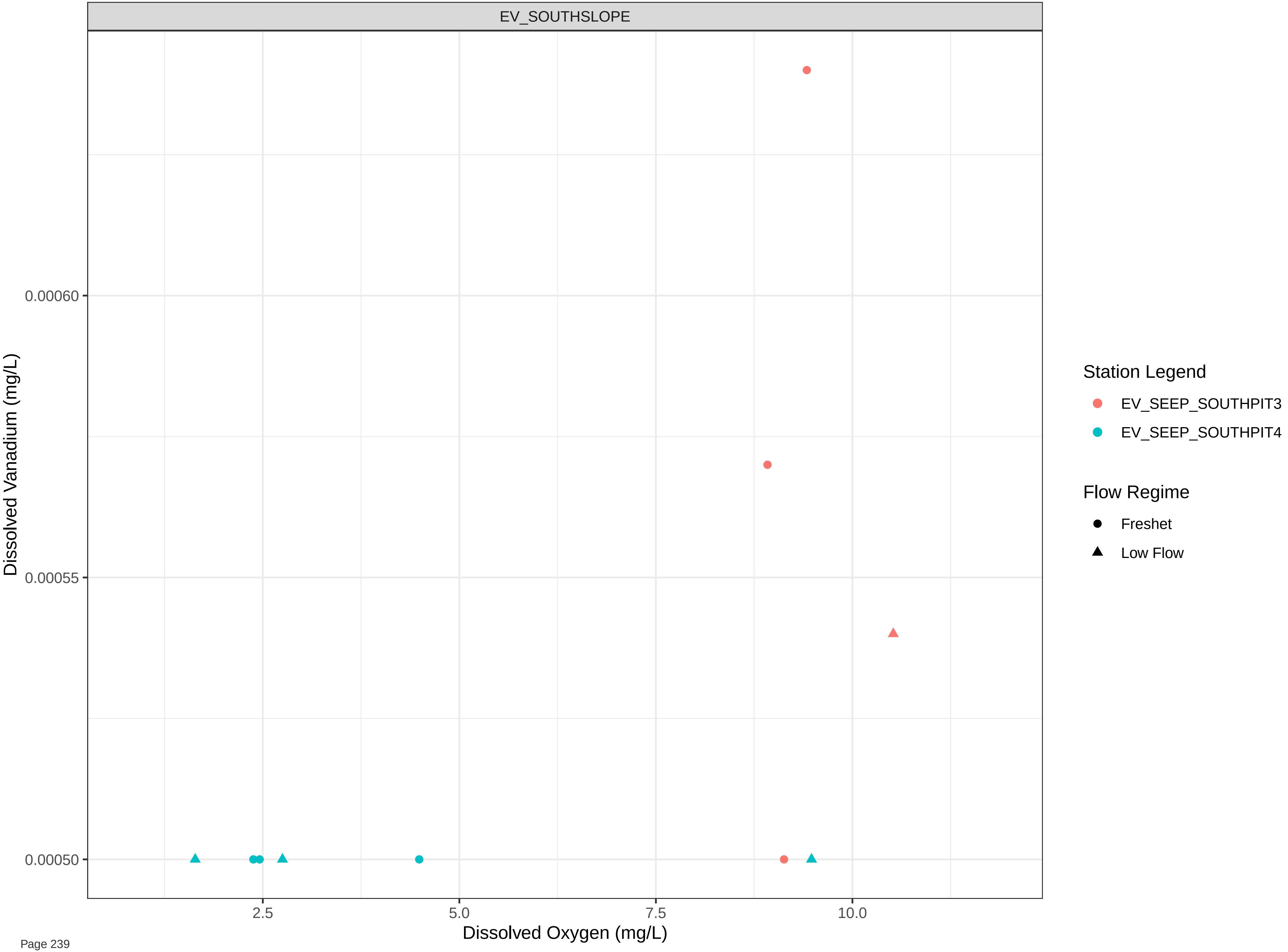

EV_CCR
Dissolved Vanadium (mg/L)
1e−03
9e−04
8e−04
7e−04
6e−04
5e−04
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

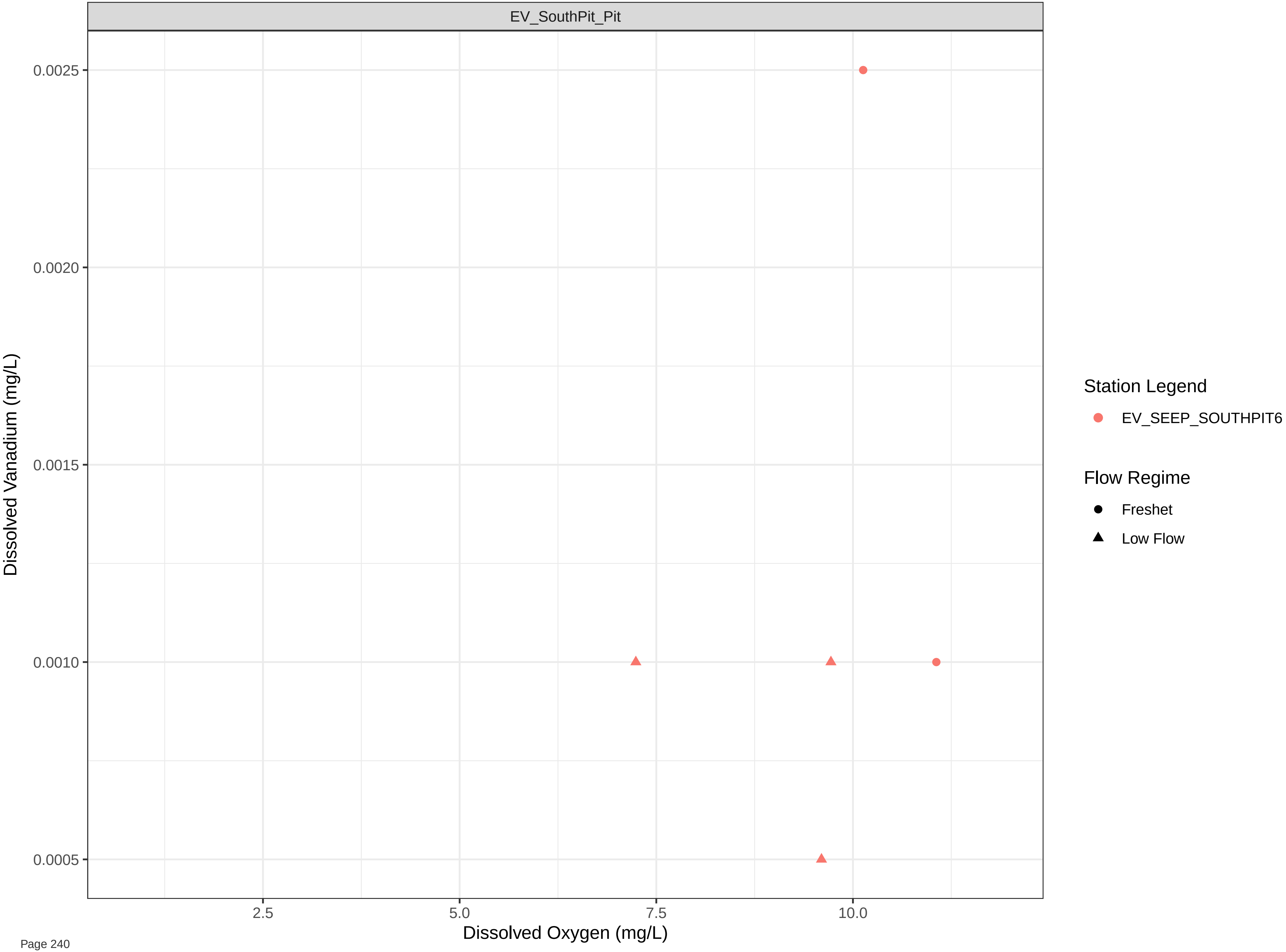

EV_CCR/TP
0.050
0.025
0.000
−0.025
Dissolved Vanadium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_WLAGC
Flow Regime
Freshet
Low Flow

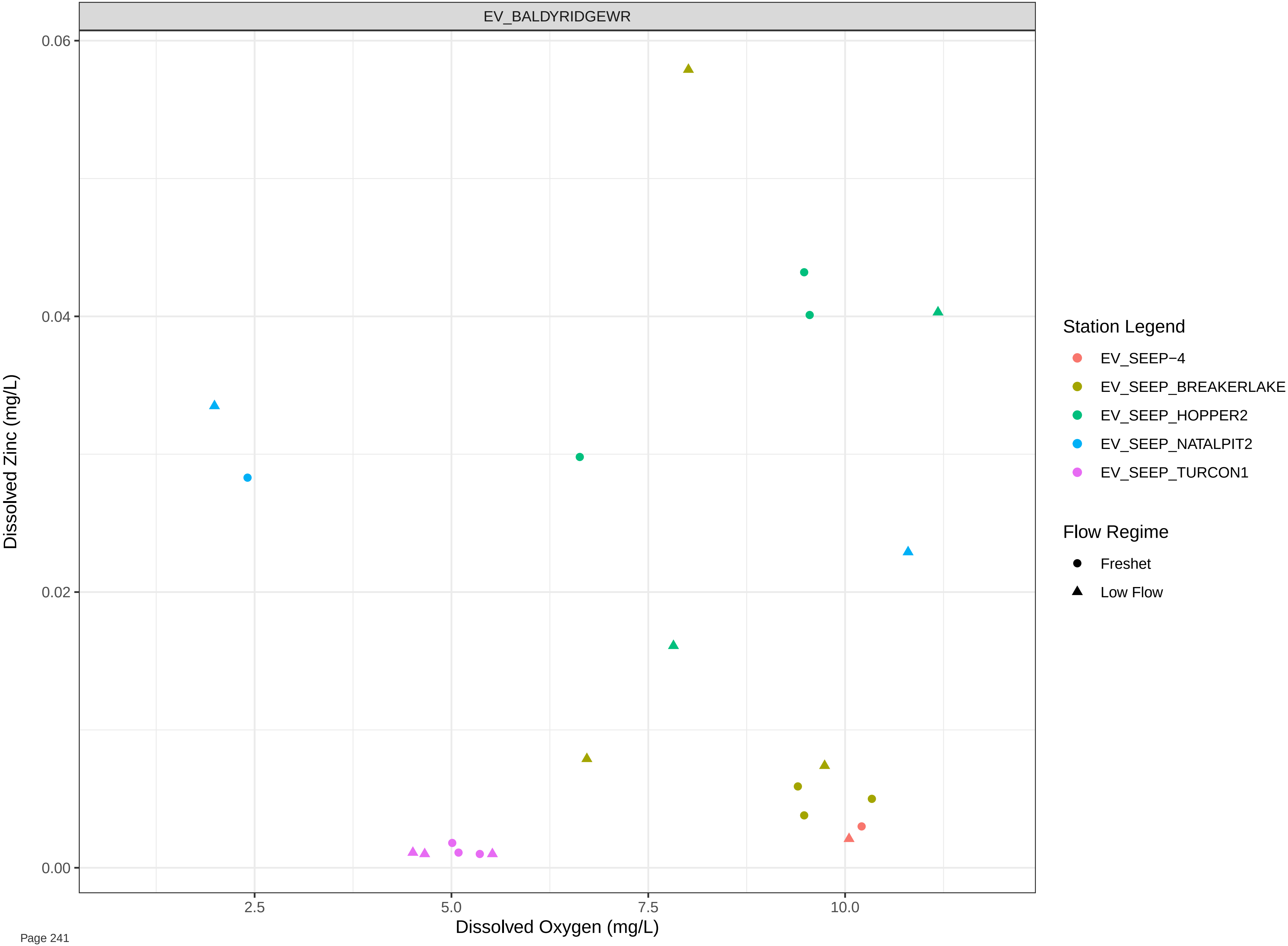

EV_CEDARWR
0.050
0.025
0.000
−0.025
Dissolved Vanadium (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

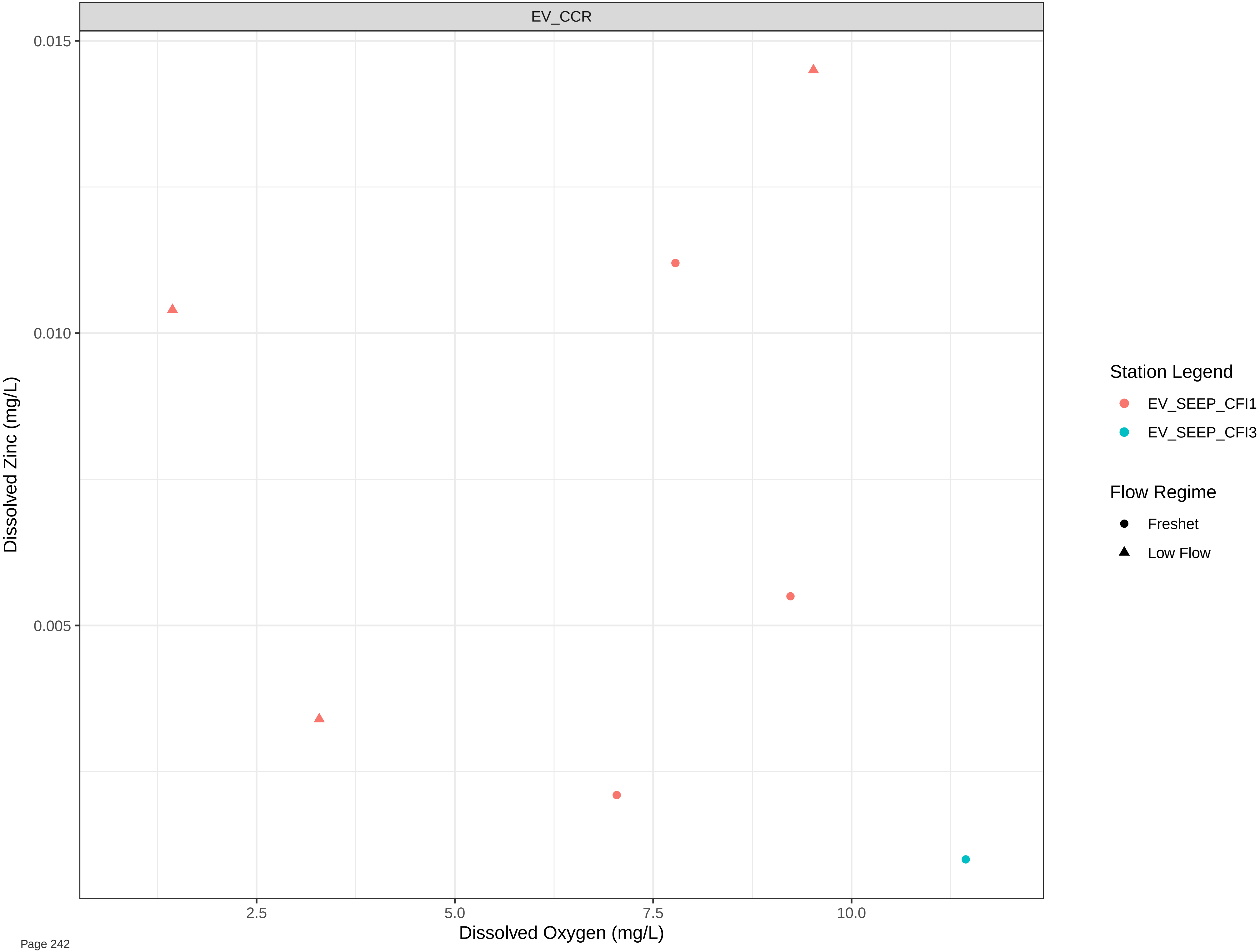

EV_Erickson_WR
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

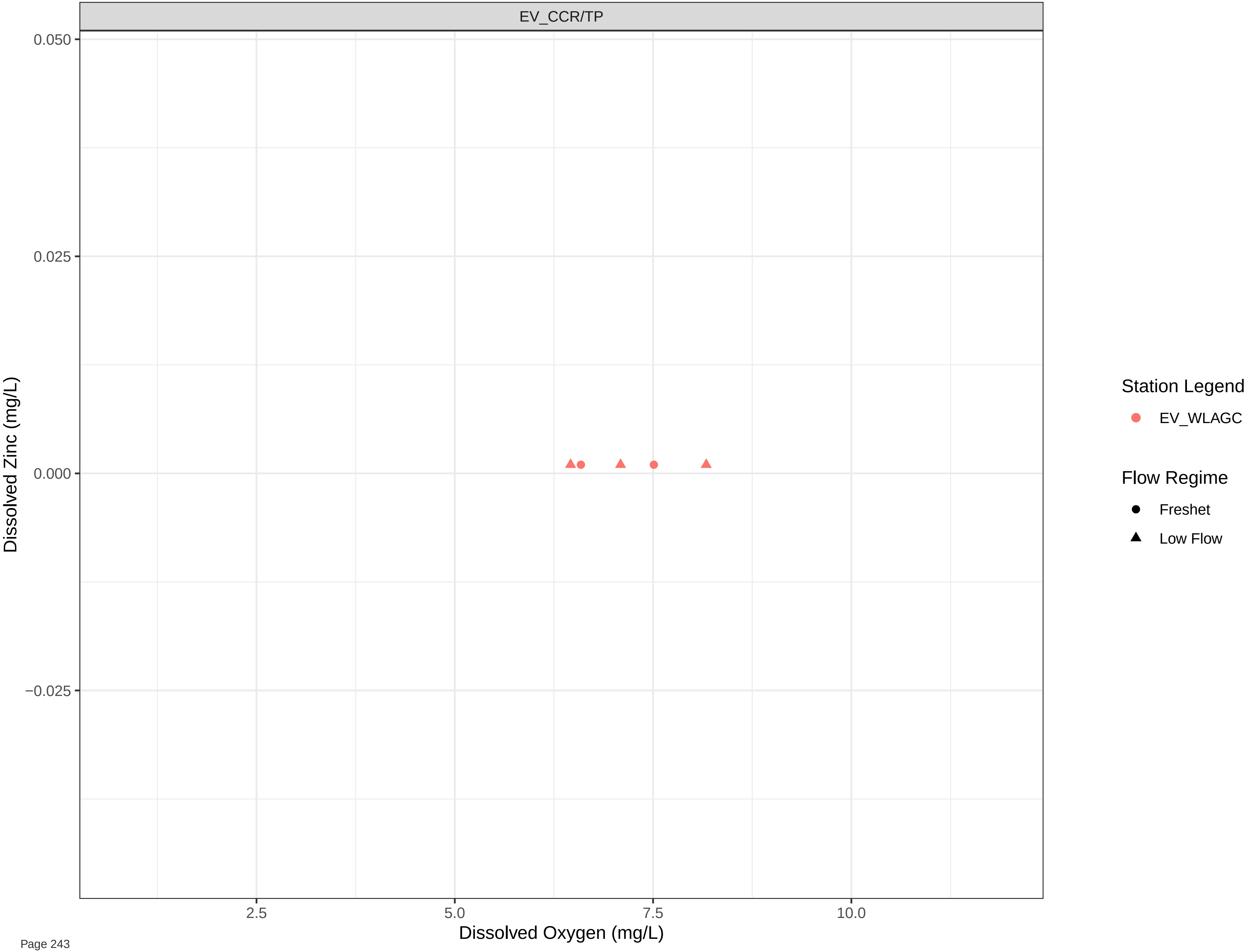

EV_PLANT
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_PLANT1
EV_SEEP_PLANT10
EV_SEEP_PLANT11
EV_SEEP_PLANT23
Flow Regime
Freshet
Low Flow

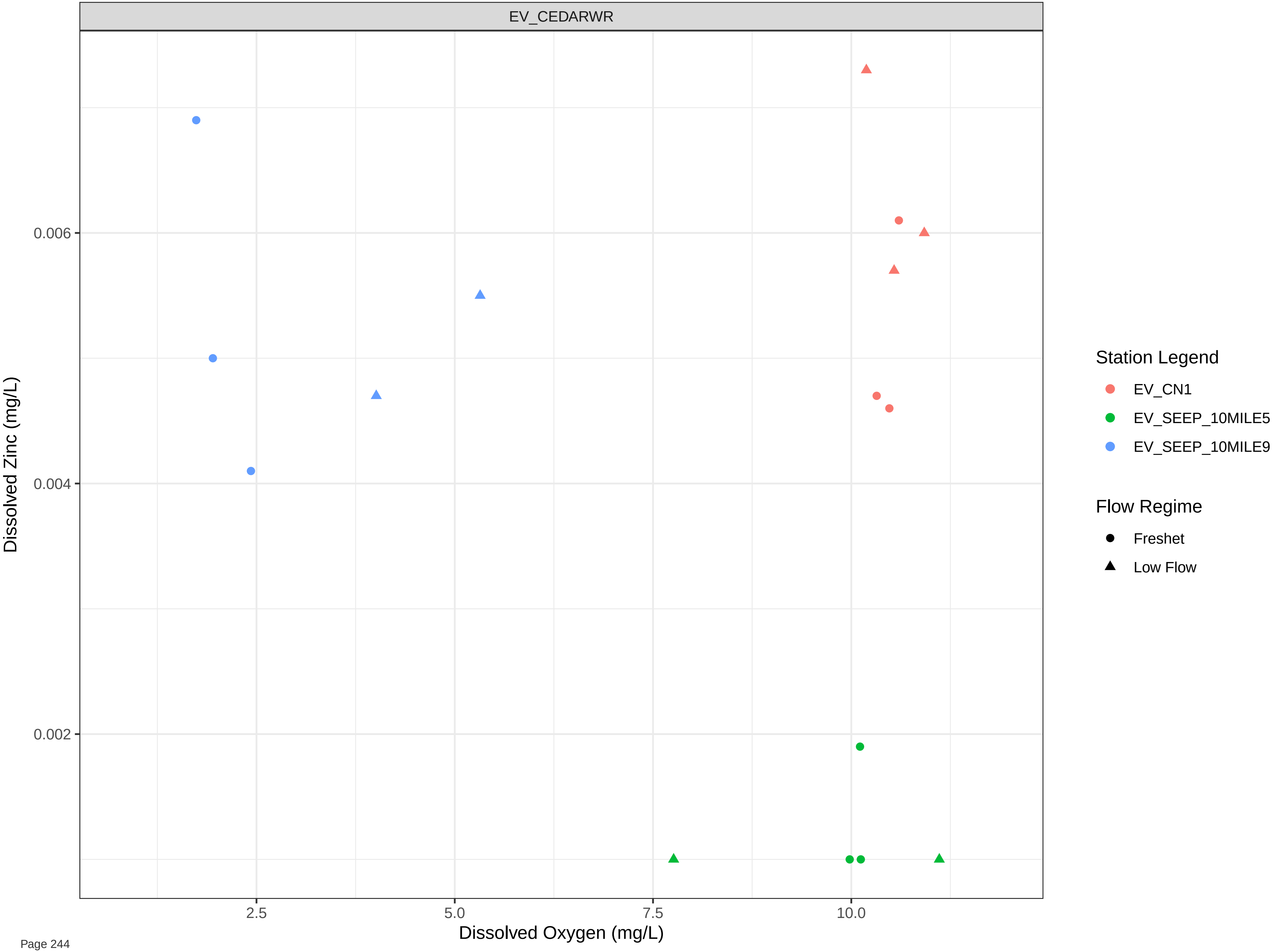

EV_SOUTHSLOPE
Dissolved Vanadium (mg/L)
0.00060
0.00055
0.00050
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

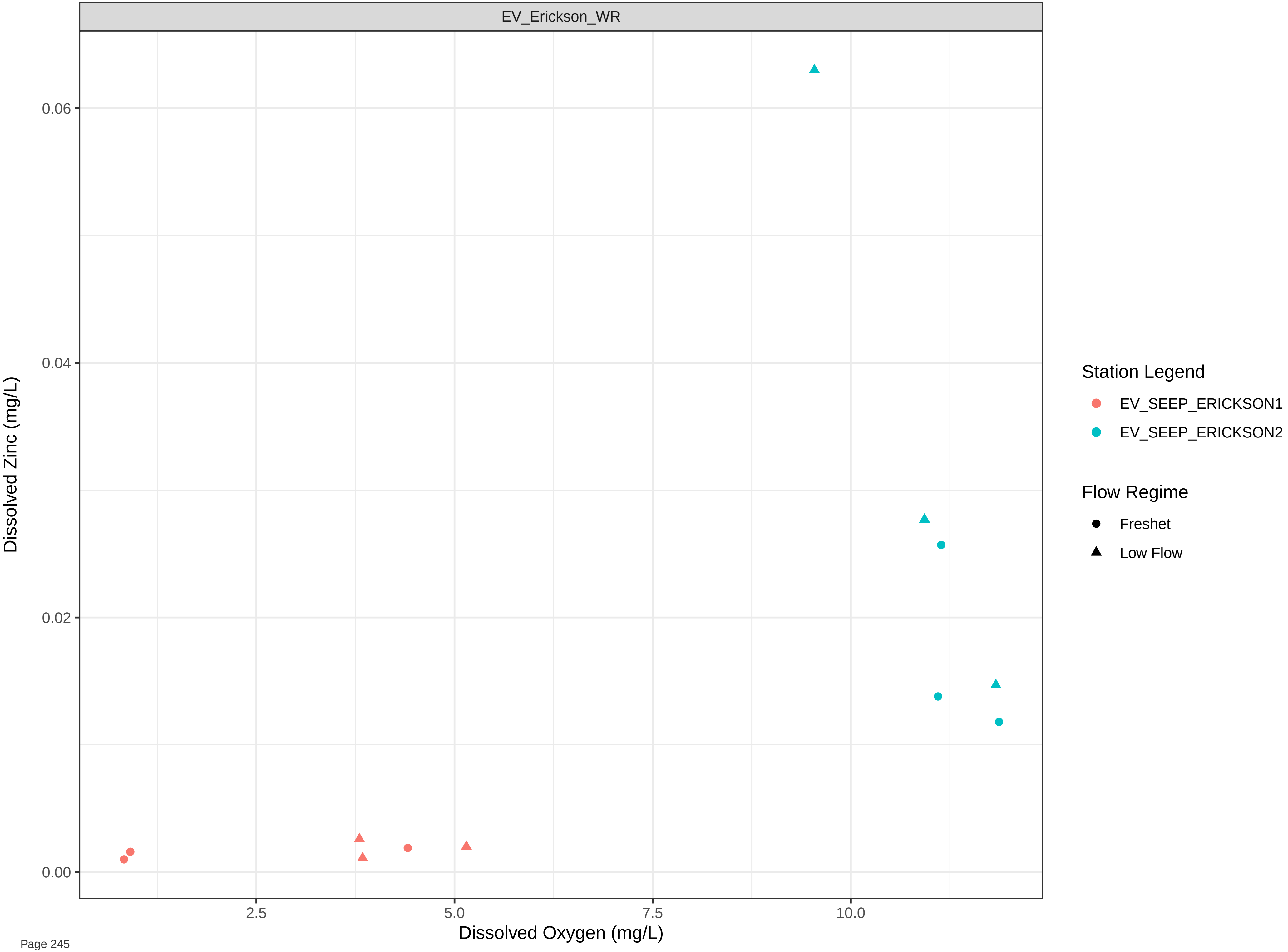

EV_SouthPit_Pit
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

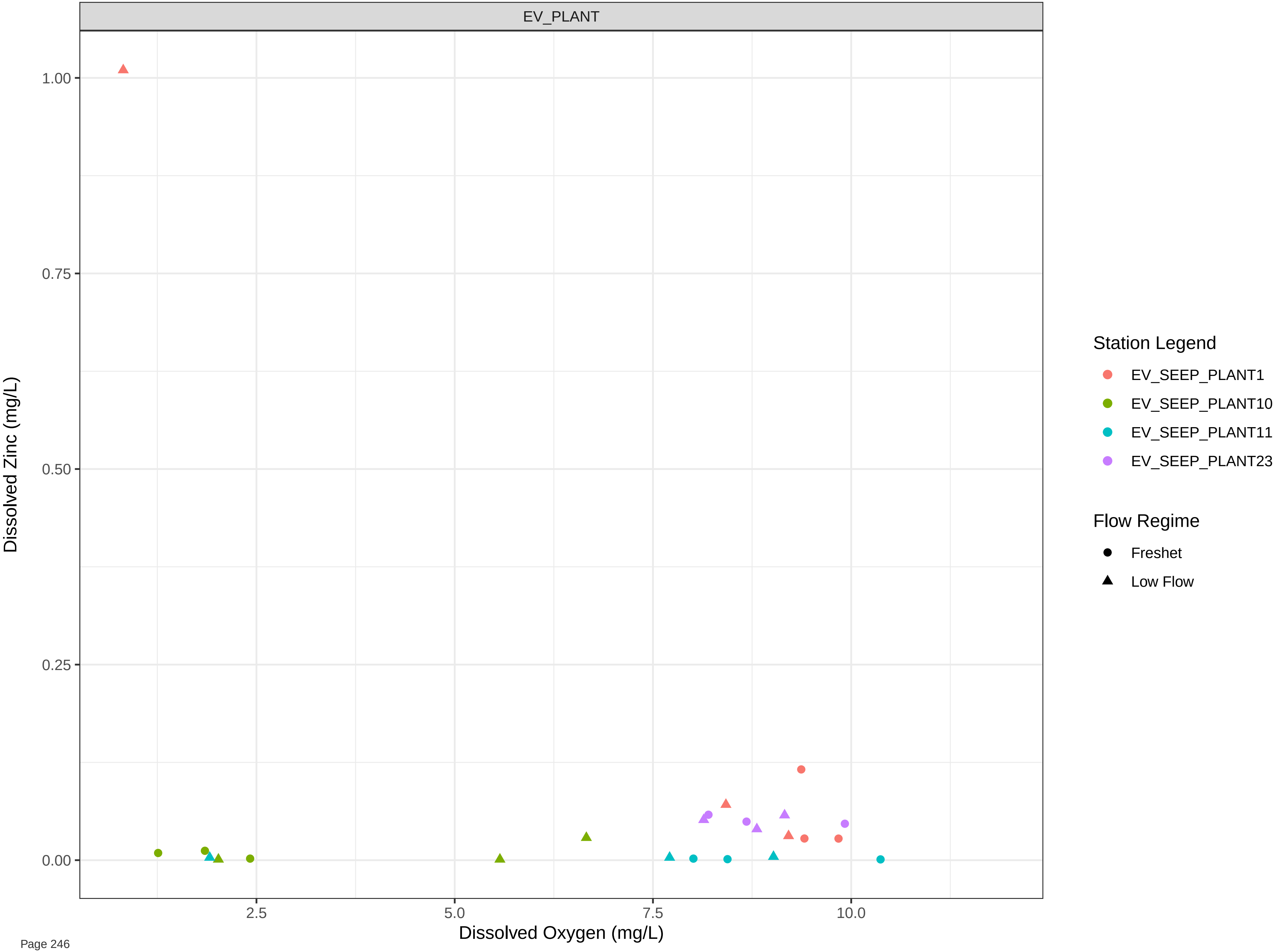

EV_BALDYRIDGEWR
Dissolved Zinc (mg/L)
0.06
0.04
0.02
0.00
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_SEEP−4
● EV_SEEP_BREAKERLAKE
● EV_SEEP_HOPPER2
● EV_SEEP_NATALPIT2
● EV_SEEP_TURCON1
Flow Regime
● Freshet
▲ Low Flow

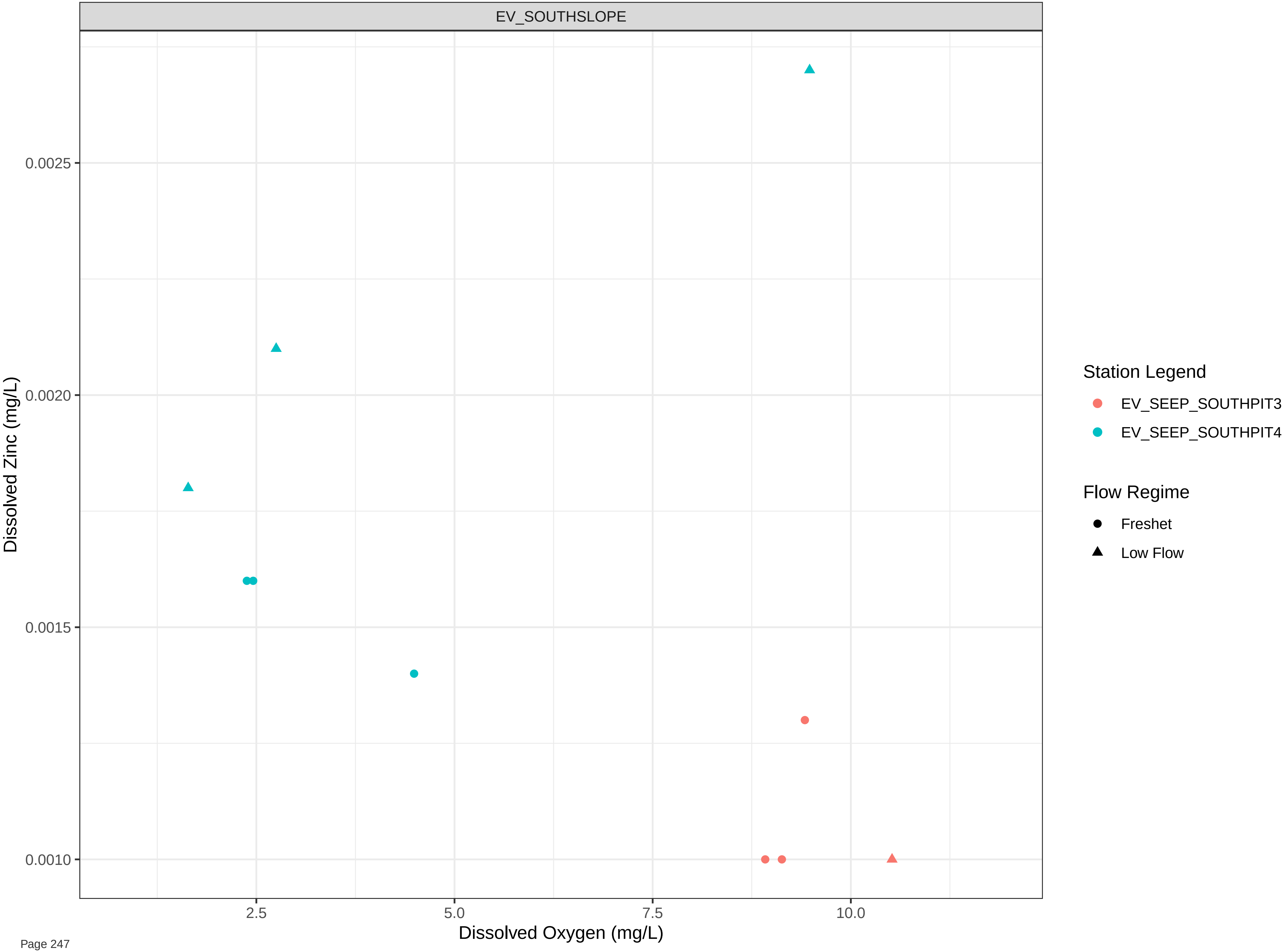

EV_CCR
0.015
0.010
0.005
Dissolved Zinc (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_CFI1
● EV_SEEP_CFI3
Flow Regime
● Freshet
▲ Low Flow

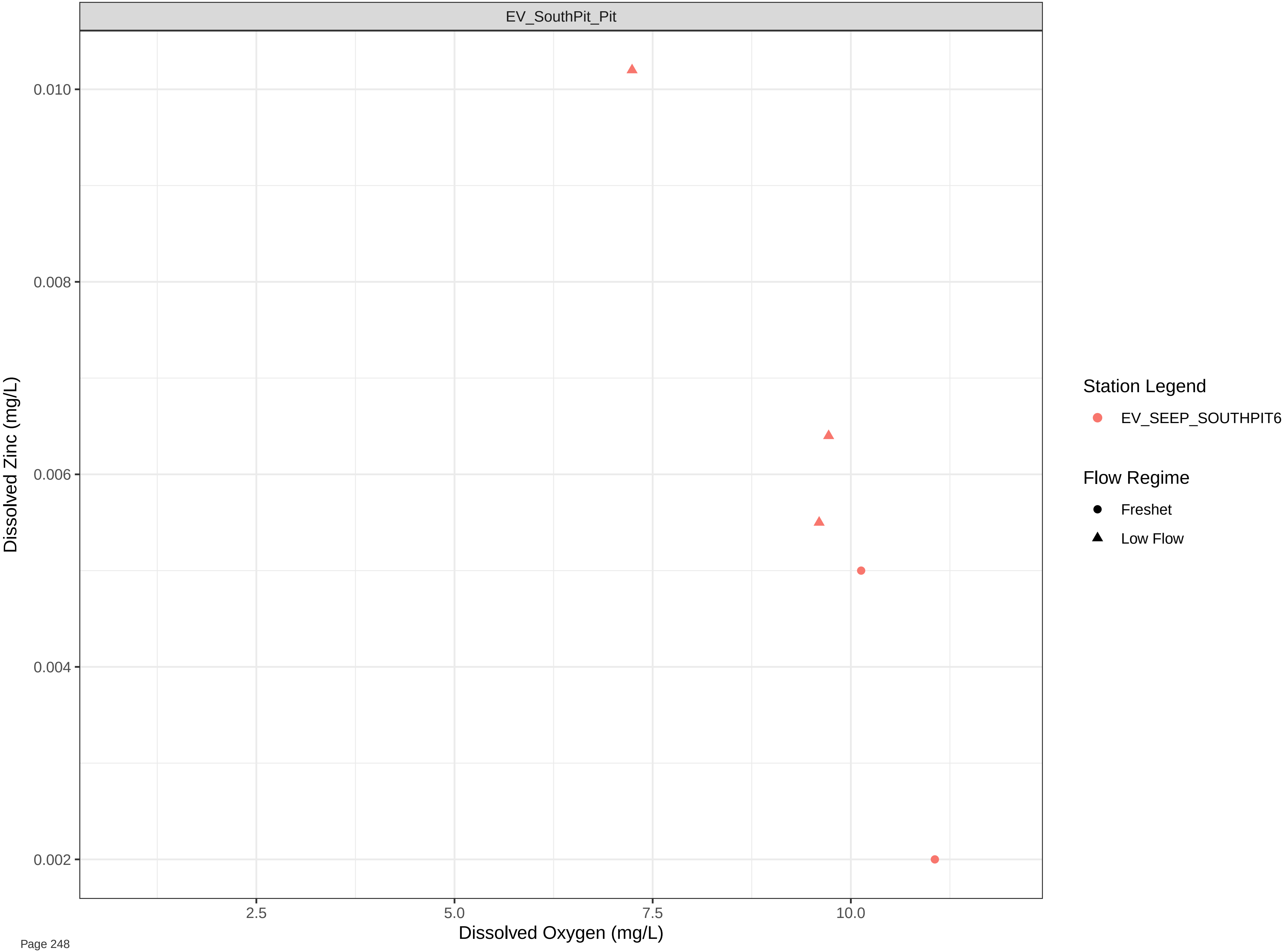

EV_CCR/TP
0.050
0.025
0.000
−0.025
Dissolved Zinc (mg/L)
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

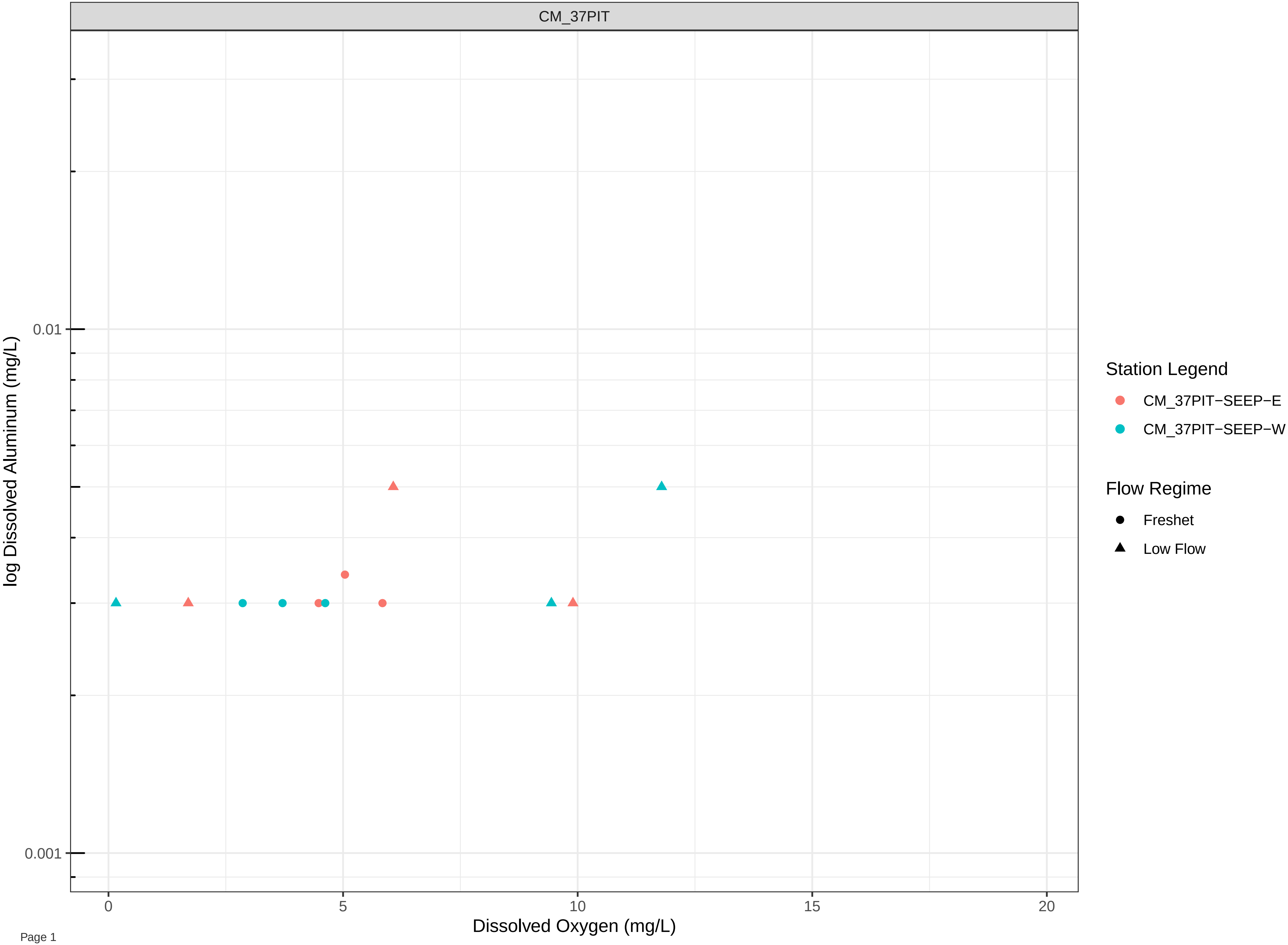

EV_CEDARWR
Dissolved Zinc (mg/L)
0.006
0.004
0.002
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_CN1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
Flow Regime
Freshet
Low Flow

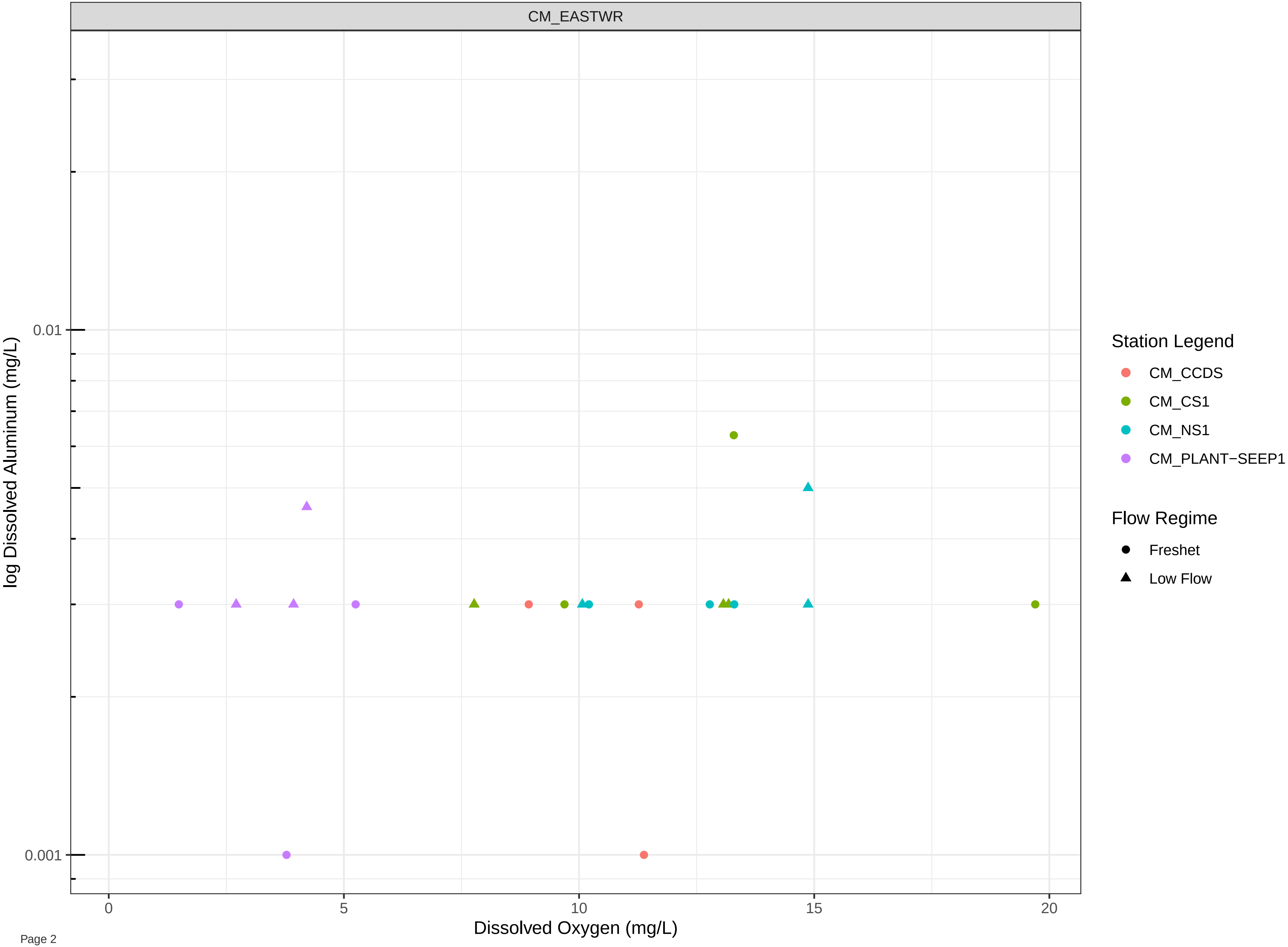

EV_Erickson_WR
Dissolved Zinc (mg/L)
0.06
0.04
0.02
0.00
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

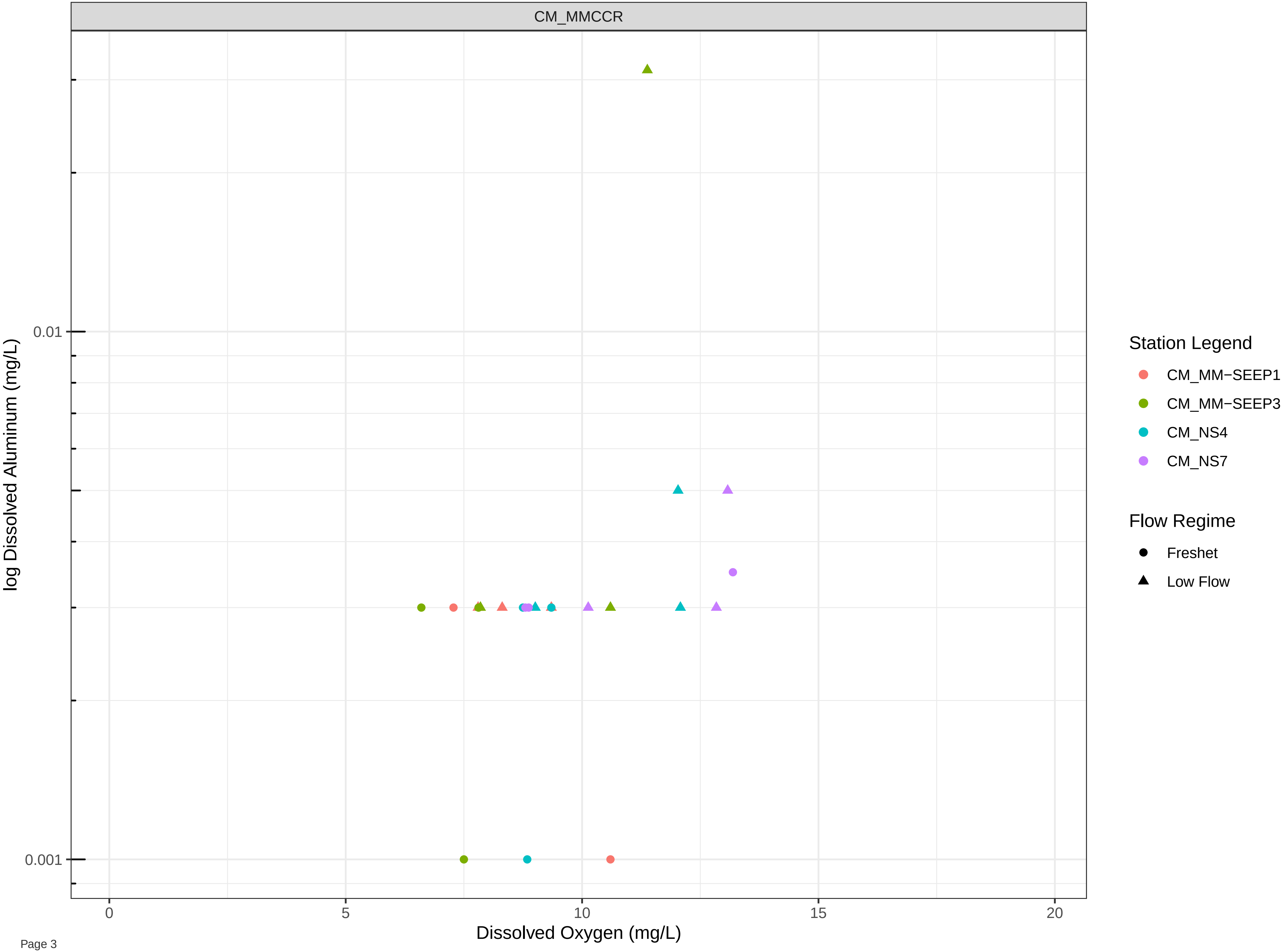

EV_PLANT
Dissolved Zinc (mg/L)
1.00
0.75
0.50
0.25
0.00
2.5
5.0
7.5
10.0
Dissolved Oxygen (mg/L)
Station Legend
● EV_SEEP_PLANT1
● EV_SEEP_PLANT10
● EV_SEEP_PLANT11
● EV_SEEP_PLANT23
Flow Regime
● Freshet
▲ Low Flow

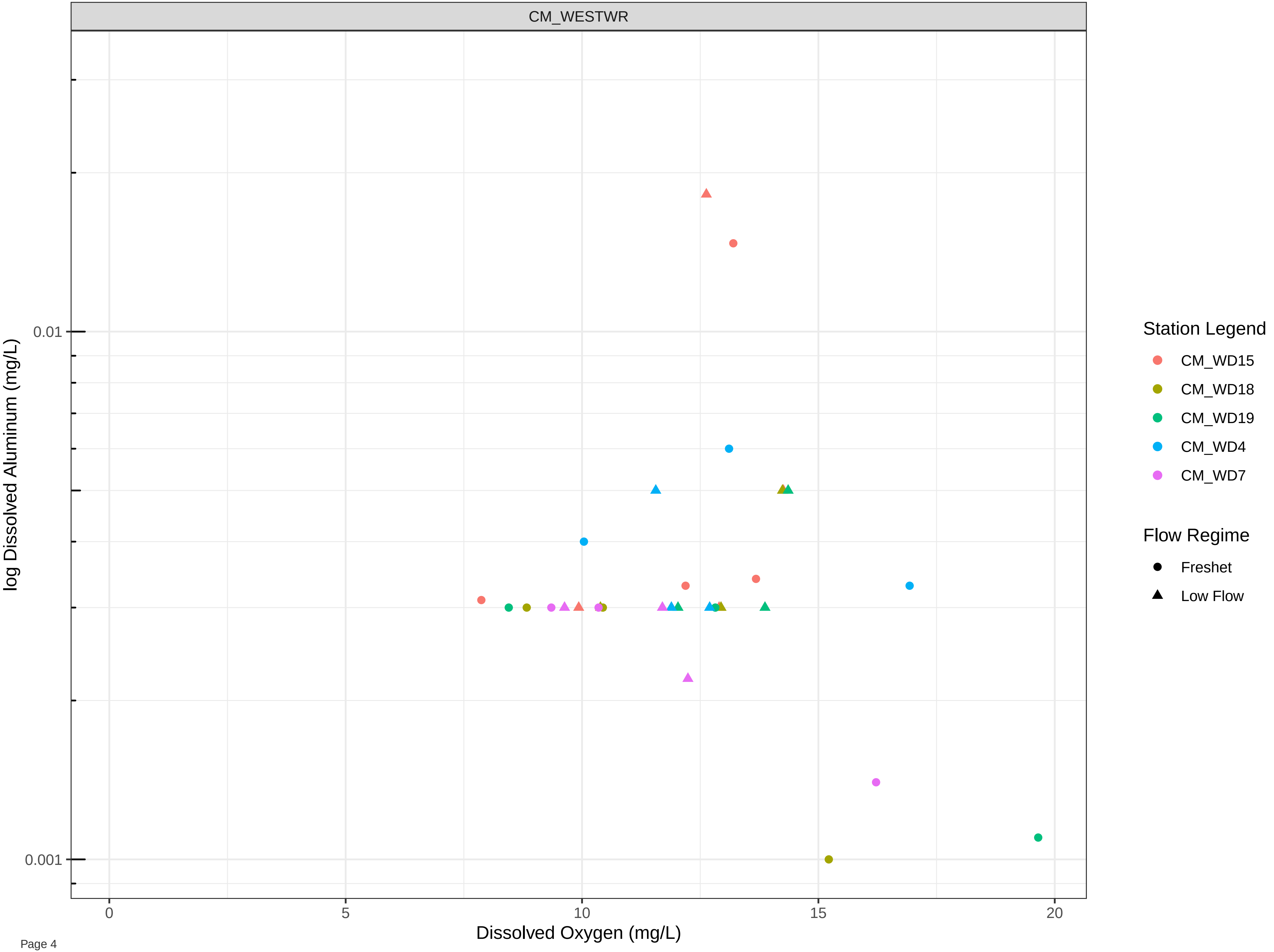

EV_SOUTHSLOPE
Dissolved Zinc (mg/L)
0.0025
0.0020
0.0015
0.0010
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
Flow Regime
Freshet
Low Flow

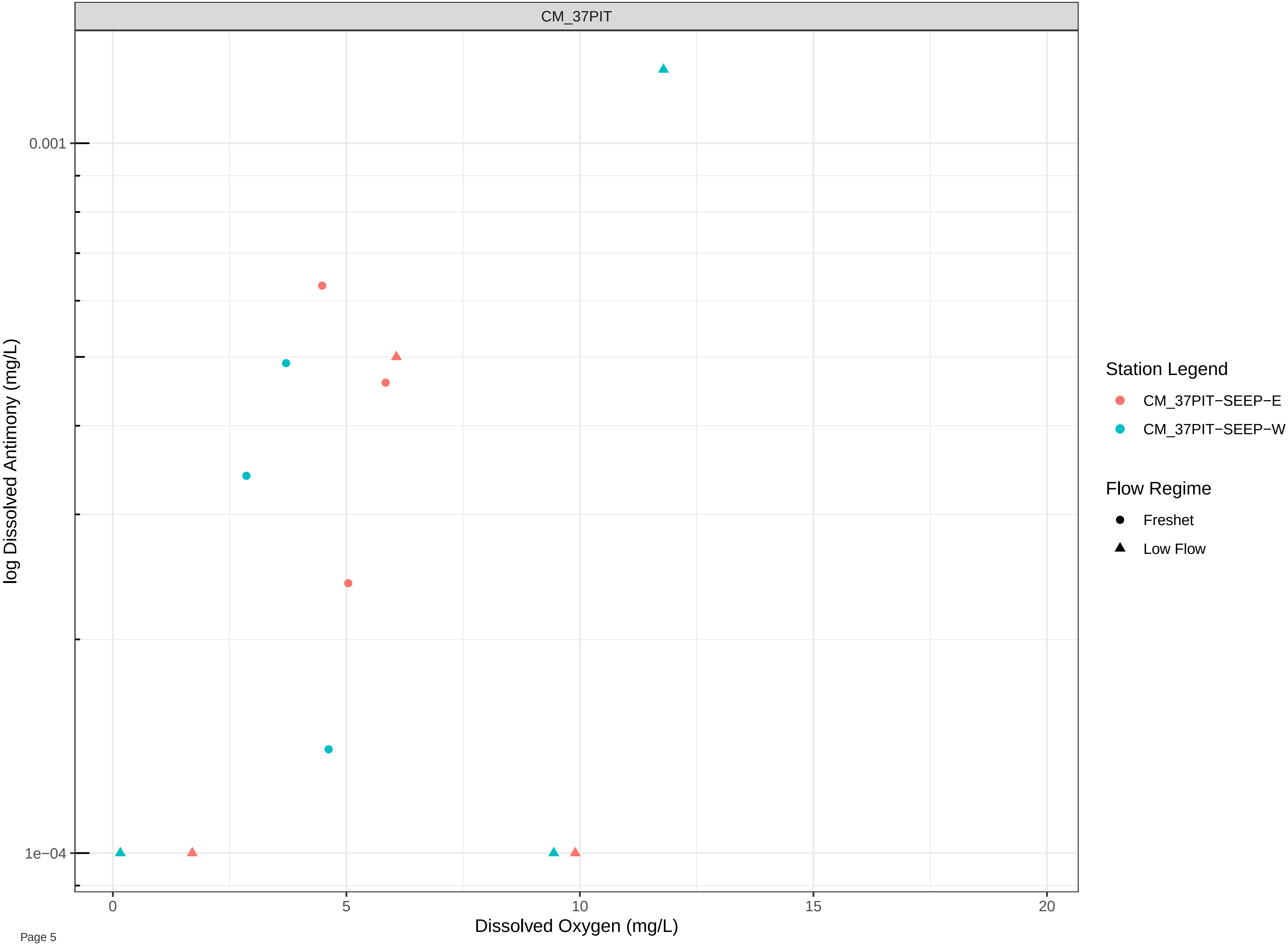

EV_SouthPit_Pit
Dissolved Zinc (mg/L)
0.010
0.008
0.006
0.004
0.002
Dissolved Oxygen (mg/L)
2.5
5.0
7.5
10.0
Station Legend
● EV_SEEP_SOUTHPIT6
Flow Regime
● Freshet
▲ Low Flow

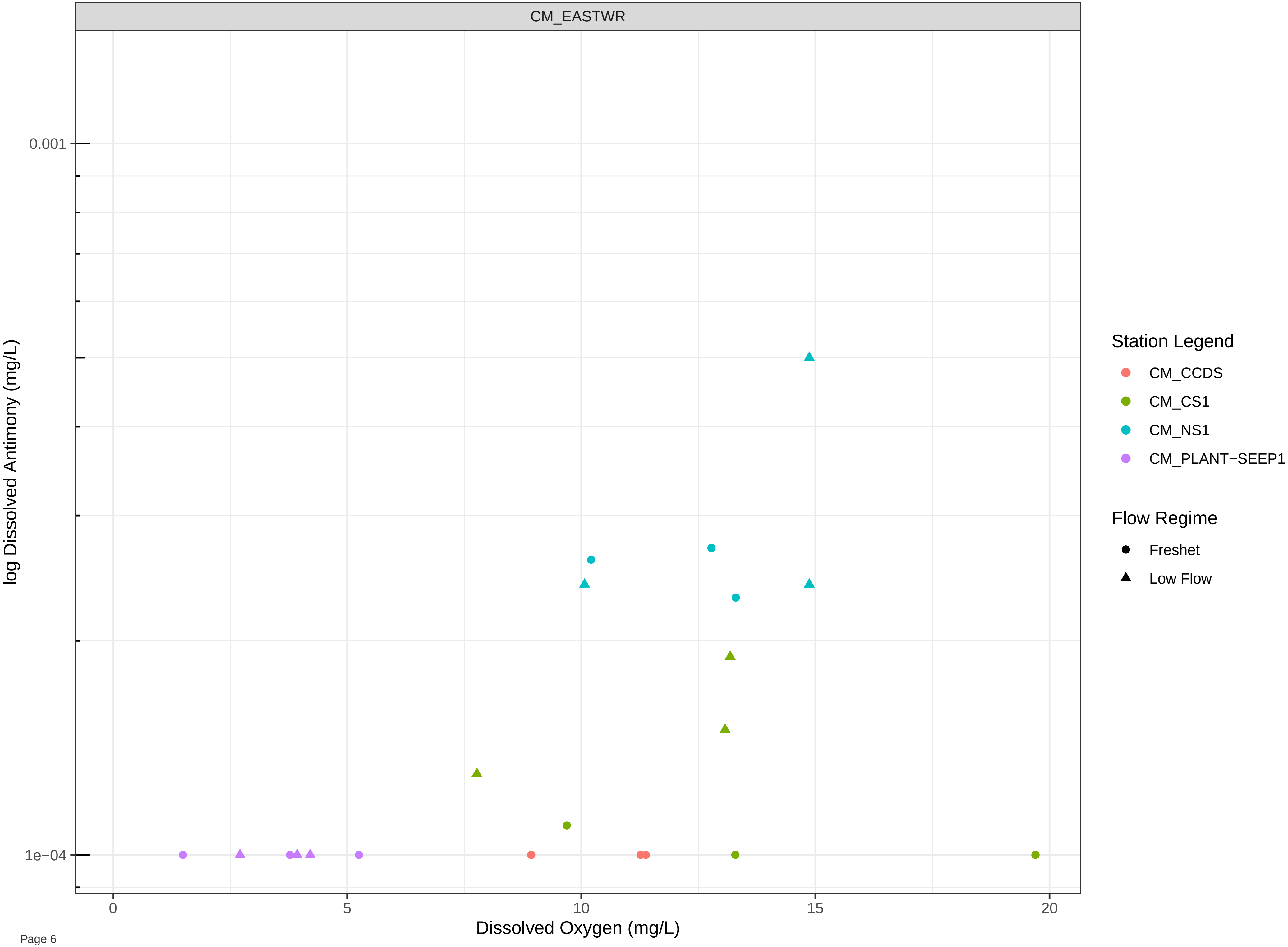

CM_37PIT
log Dissolved Aluminum (mg/L)
0.01
0.001
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

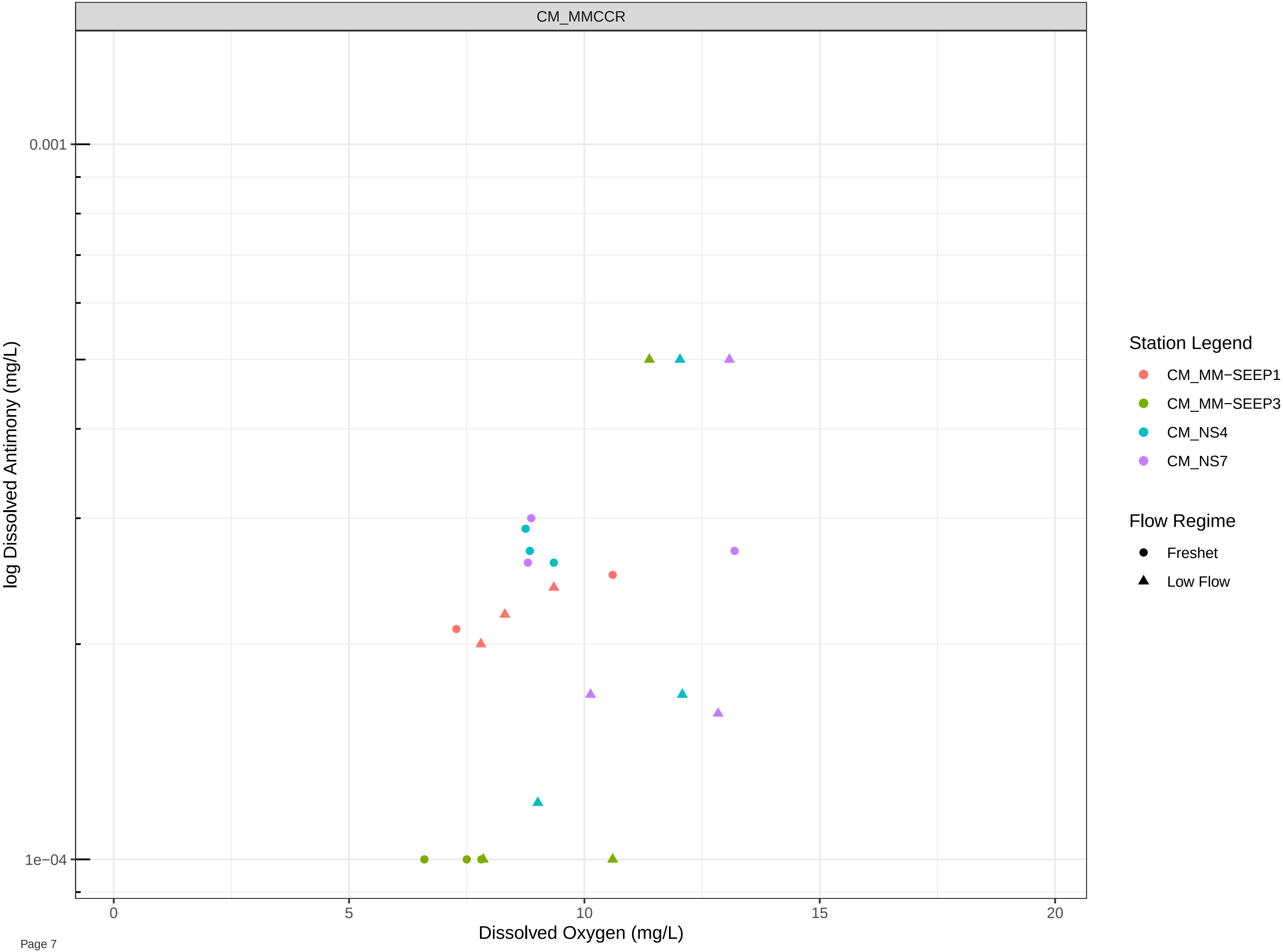

CM_EASTWR
log Dissolved Aluminum (mg/L)
0.01
0.001
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

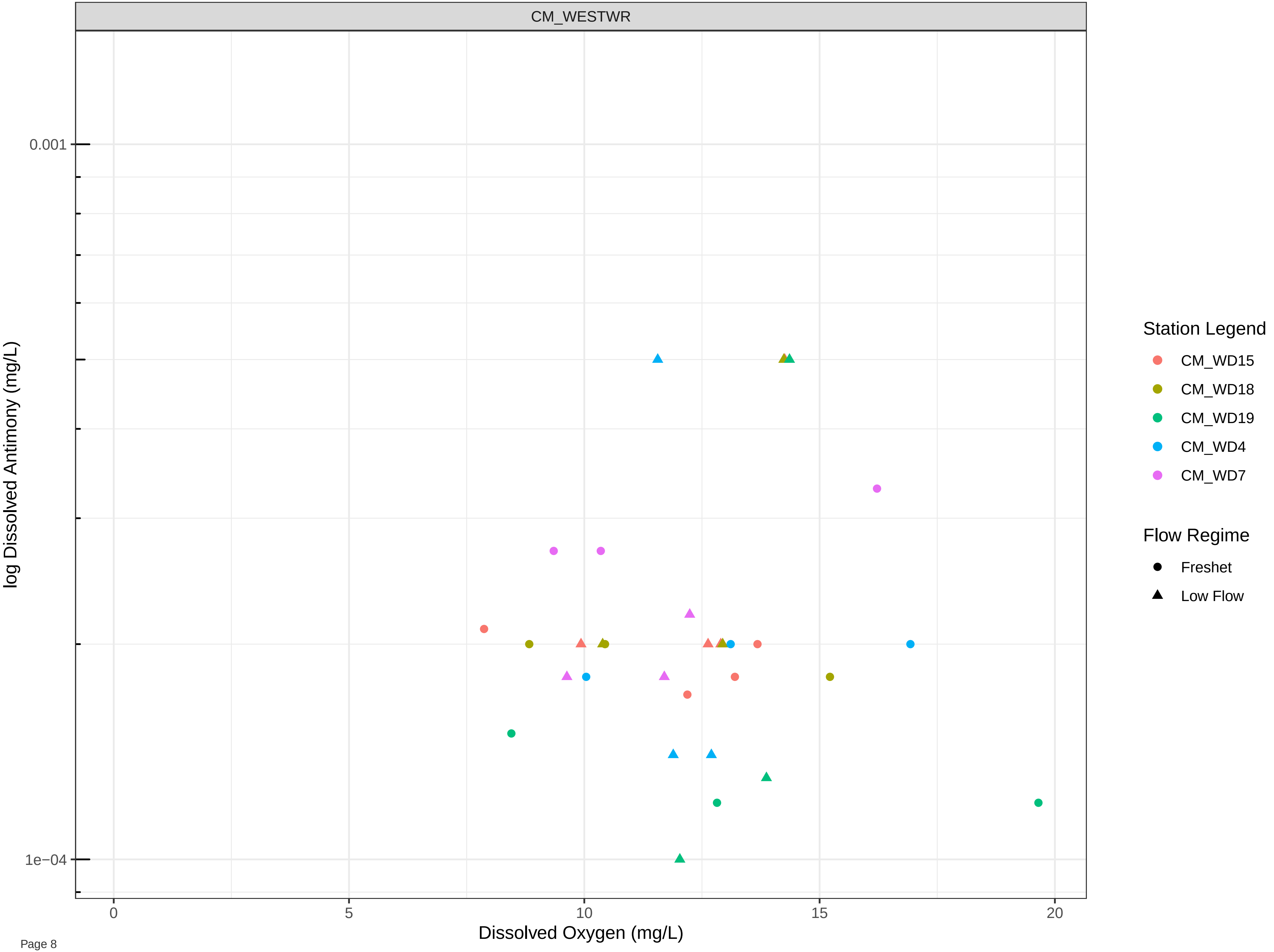

CM_MMCCR
log Dissolved Aluminum (mg/L)
0.01
0.001
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_MM−SEEP1
● CM_MM−SEEP3
● CM_NS4
● CM_NS7
Flow Regime
● Freshet
▲ Low Flow

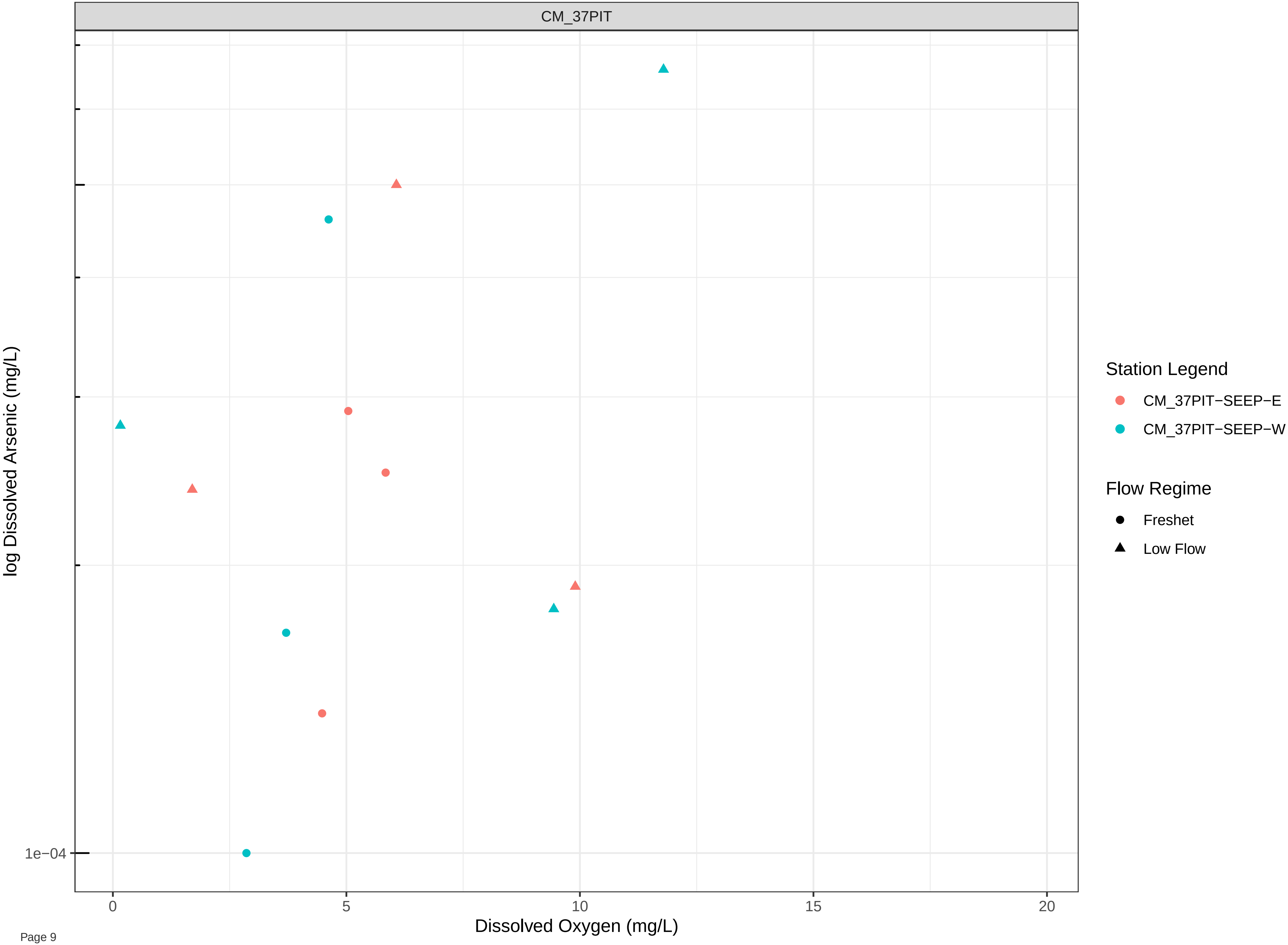

CM_WESTWR
log Dissolved Aluminum (mg/L)
0.01
0.001
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_WD15
● CM_WD18
● CM_WD19
● CM_WD4
● CM_WD7
Flow Regime
● Freshet
▲ Low Flow

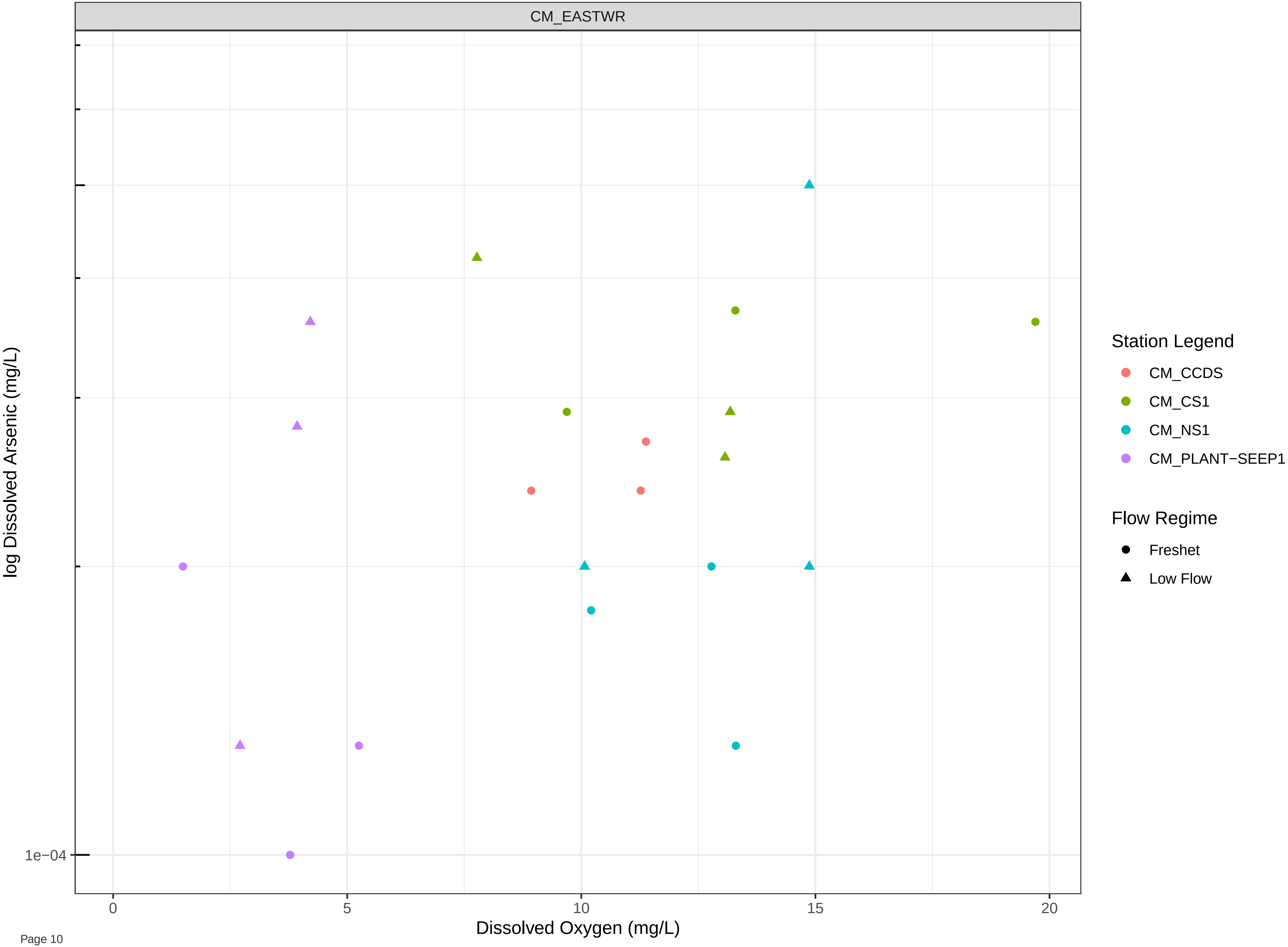

CM_37PIT
log Dissolved Antimony (mg/L)
0.001
1e−04
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

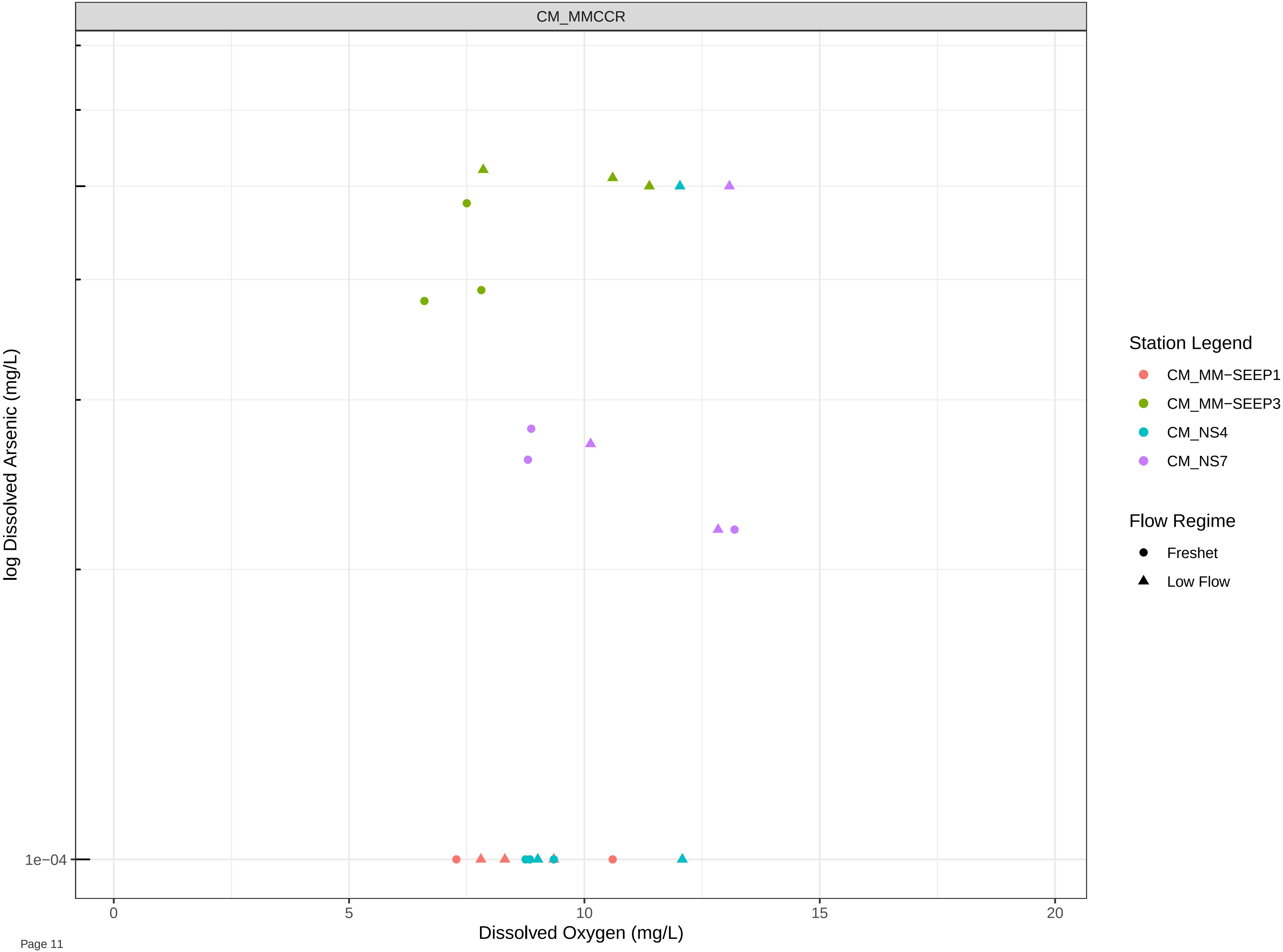

CM_EASTWR
log Dissolved Antimony (mg/L)
0.001
1e−04
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
● CM_CCDS
● CM_CS1
● CM_NS1
● CM_PLANT−SEEP1
Flow Regime
● Freshet
▲ Low Flow

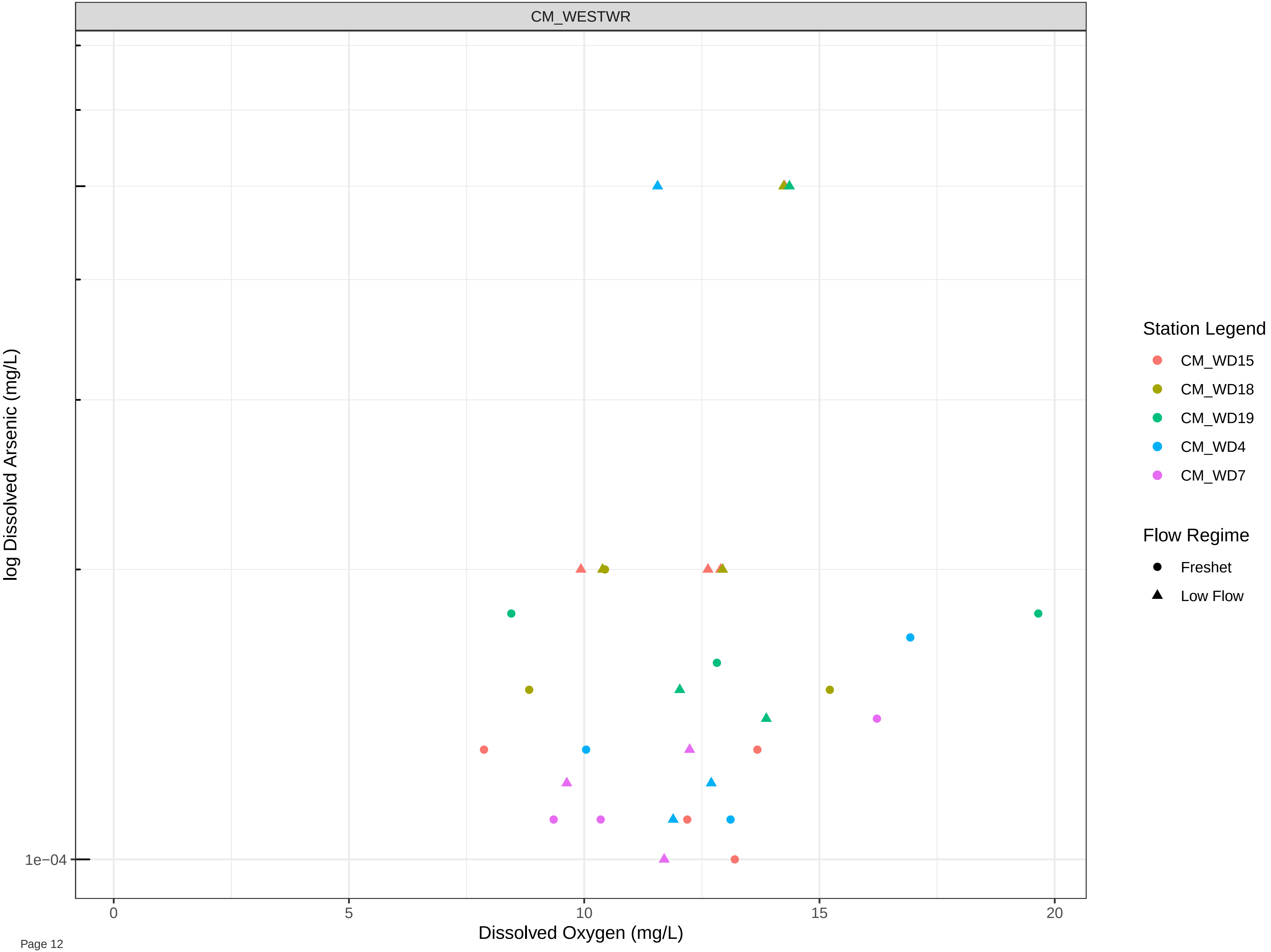

CM_MMCCR
0.001
1e−04
log Dissolved Antimony (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

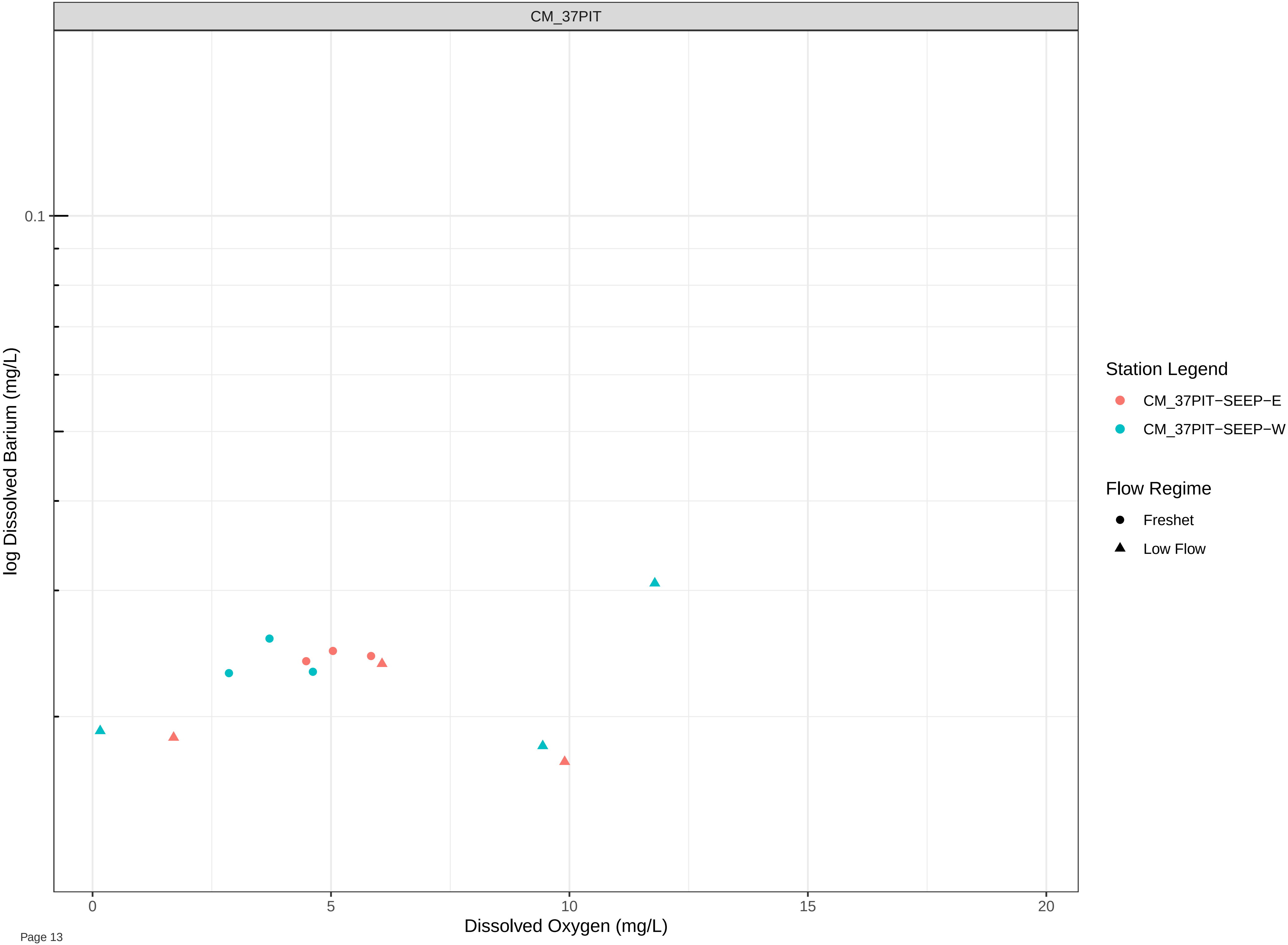

CM_WESTWR
0.001
1e−04
log Dissolved Antimony (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

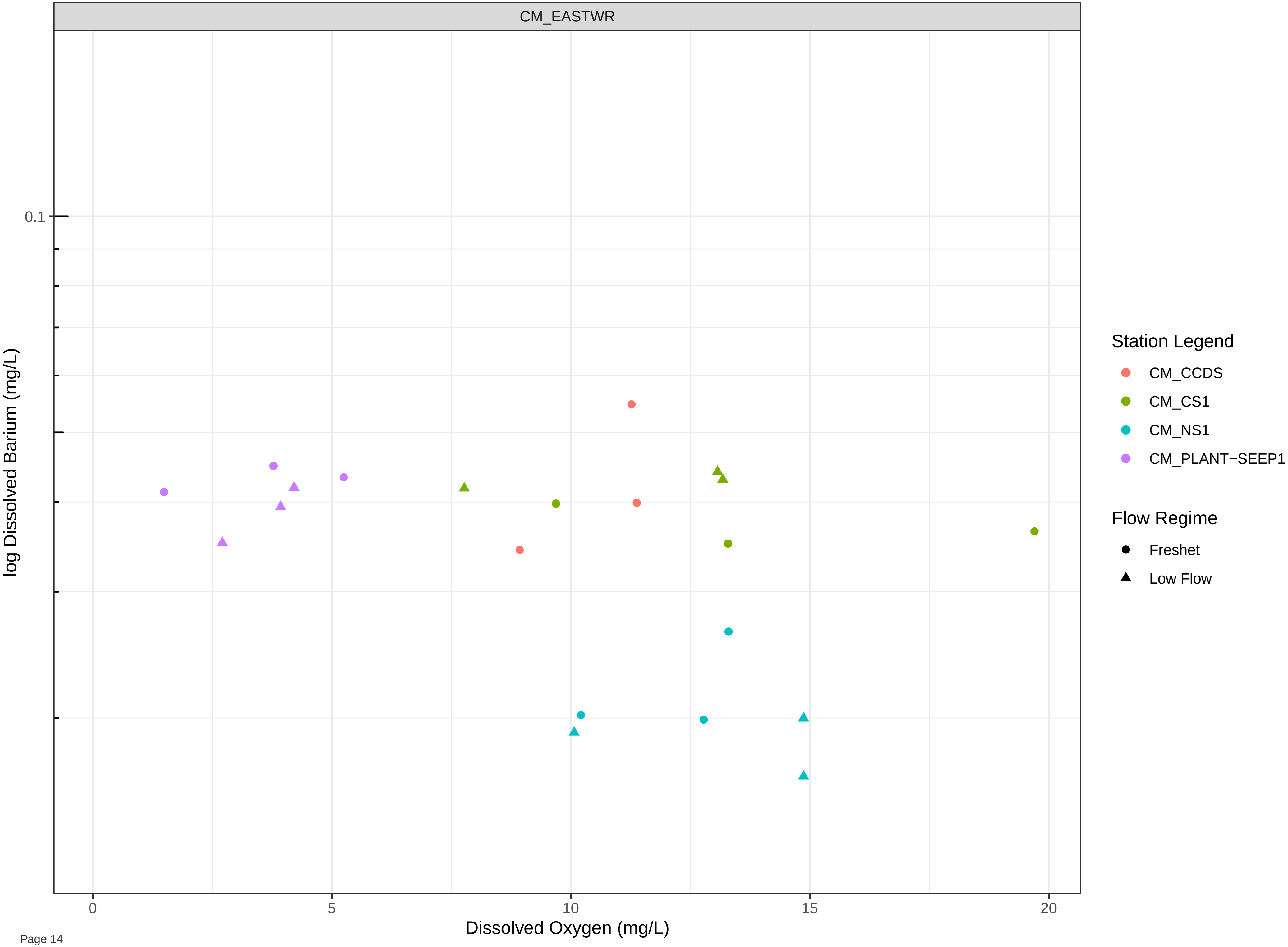

CM_37PIT
log Dissolved Arsenic (mg/L)
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow

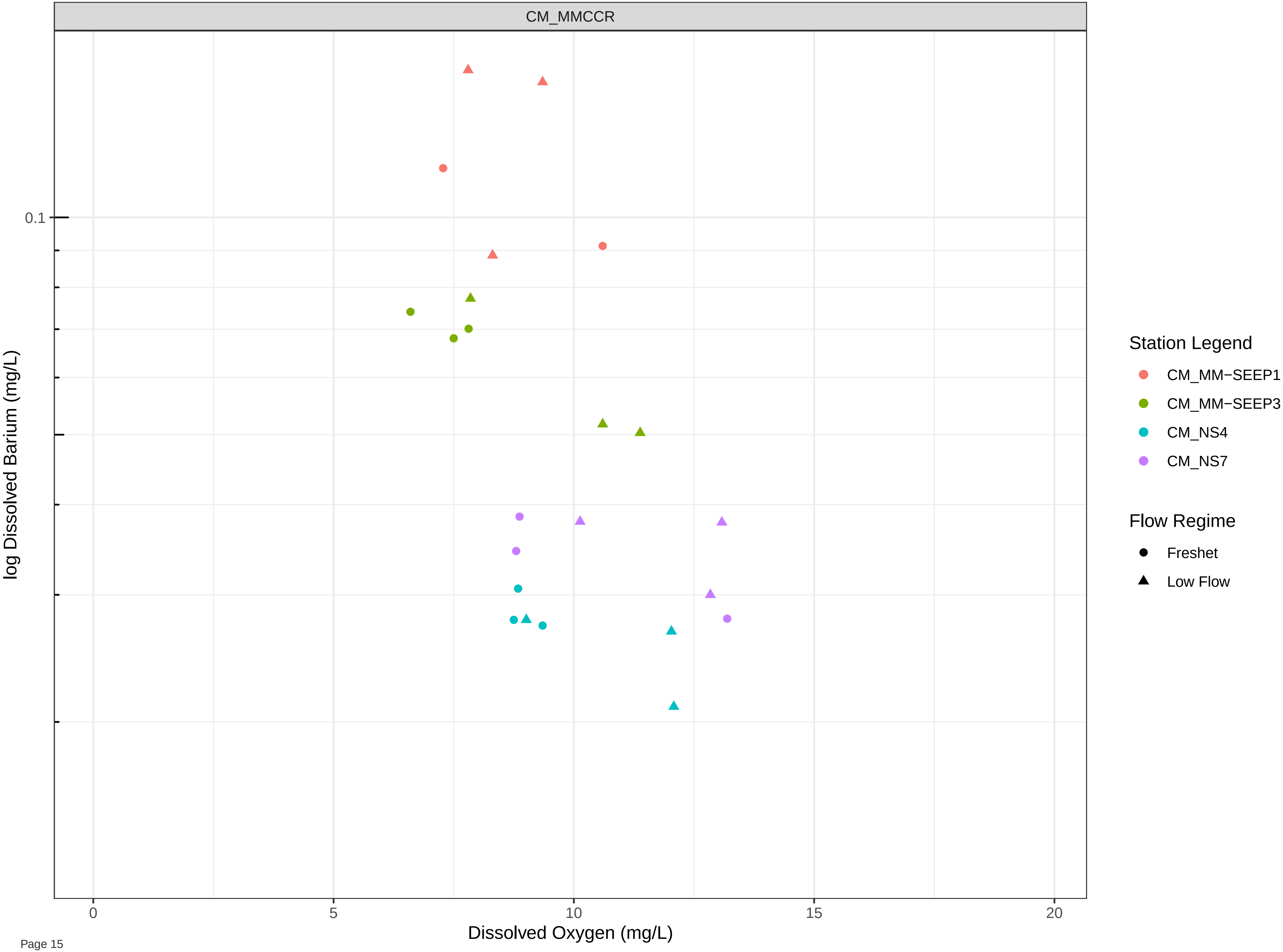

CM_EASTWR
log Dissolved Arsenic (mg/L)
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_CCDS
● CM_CS1
● CM_NS1
● CM_PLANT−SEEP1
Flow Regime
● Freshet
▲ Low Flow

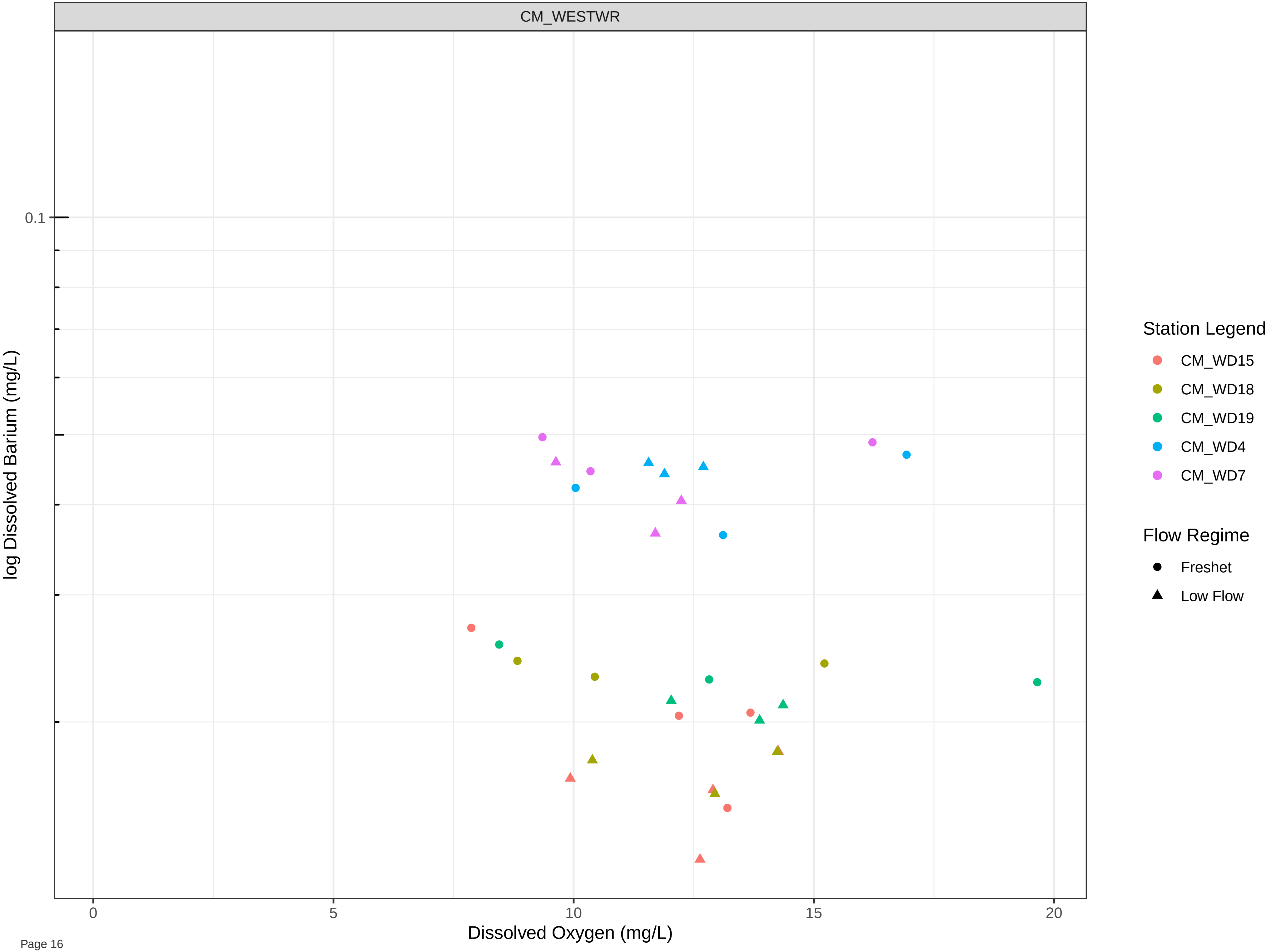

CM_MMCCR
log Dissolved Arsenic (mg/L)
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_MM−SEEP1
● CM_MM−SEEP3
● CM_NS4
● CM_NS7
Flow Regime
● Freshet
▲ Low Flow

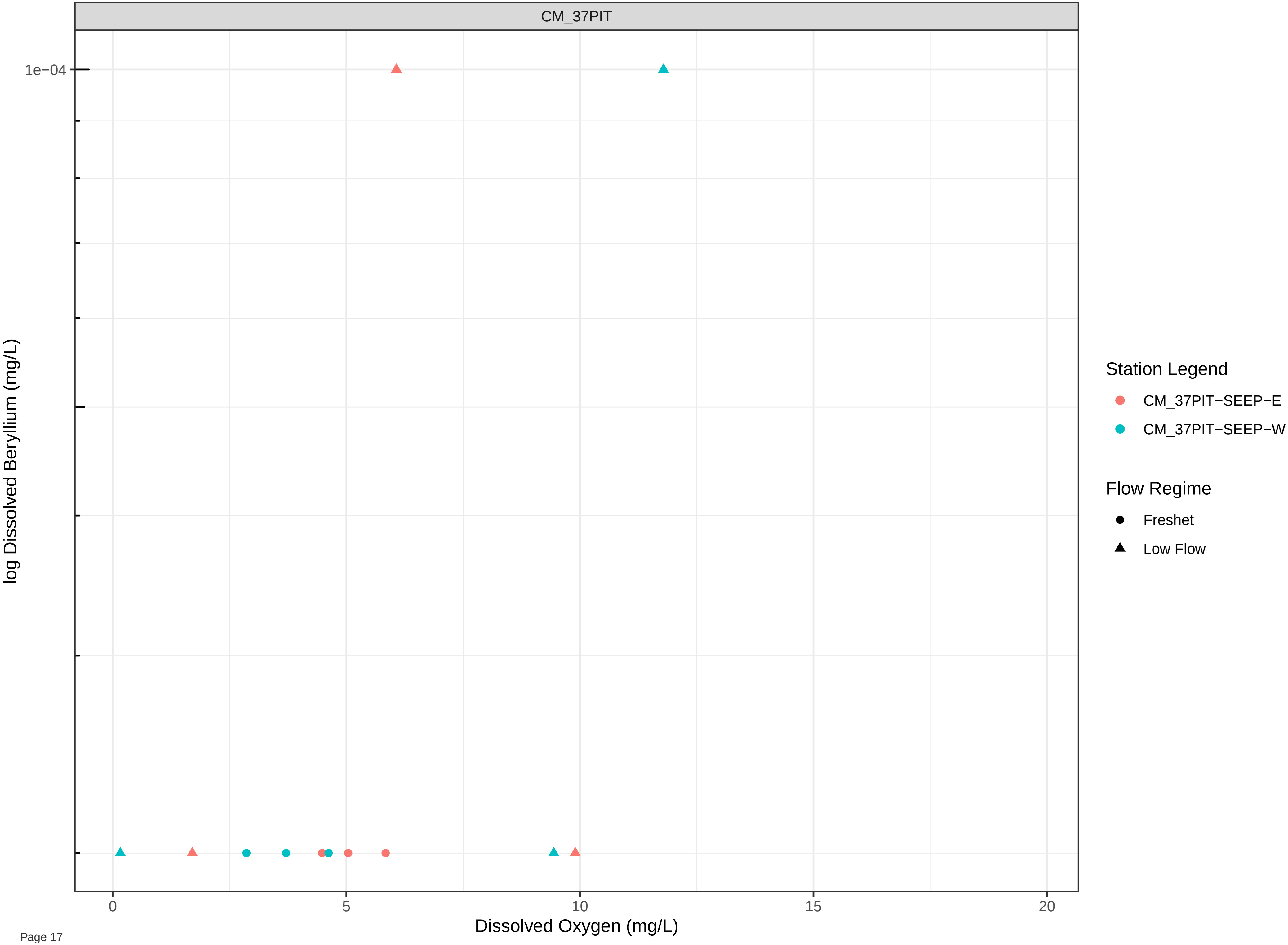

CM_WESTWR
log Dissolved Arsenic (mg/L)
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_WD15
● CM_WD18
● CM_WD19
● CM_WD4
● CM_WD7
Flow Regime
● Freshet
▲ Low Flow

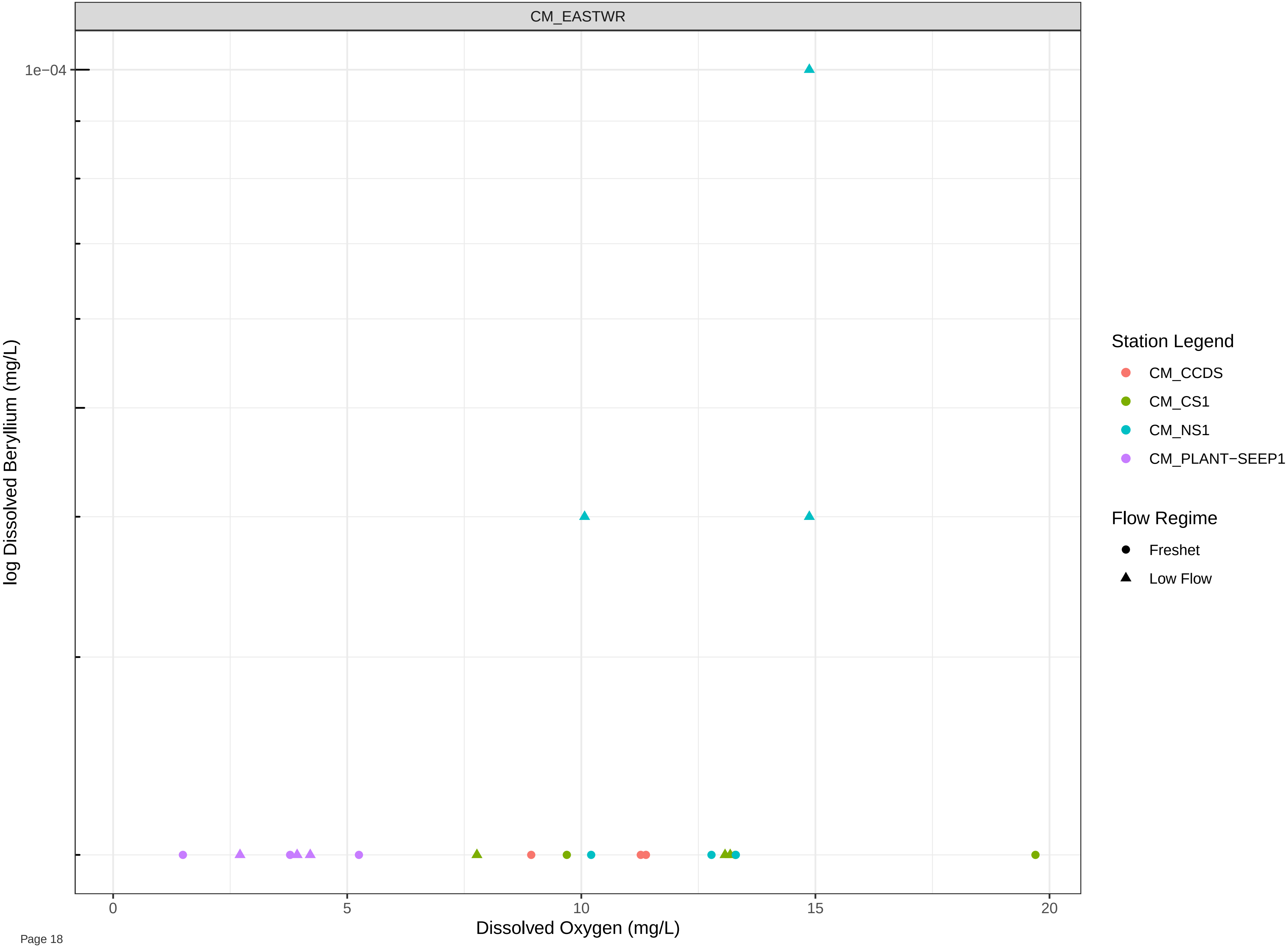

CM_37PIT
0.1
log Dissolved Barium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow


CM_EASTWR
0.1
log Dissolved Barium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

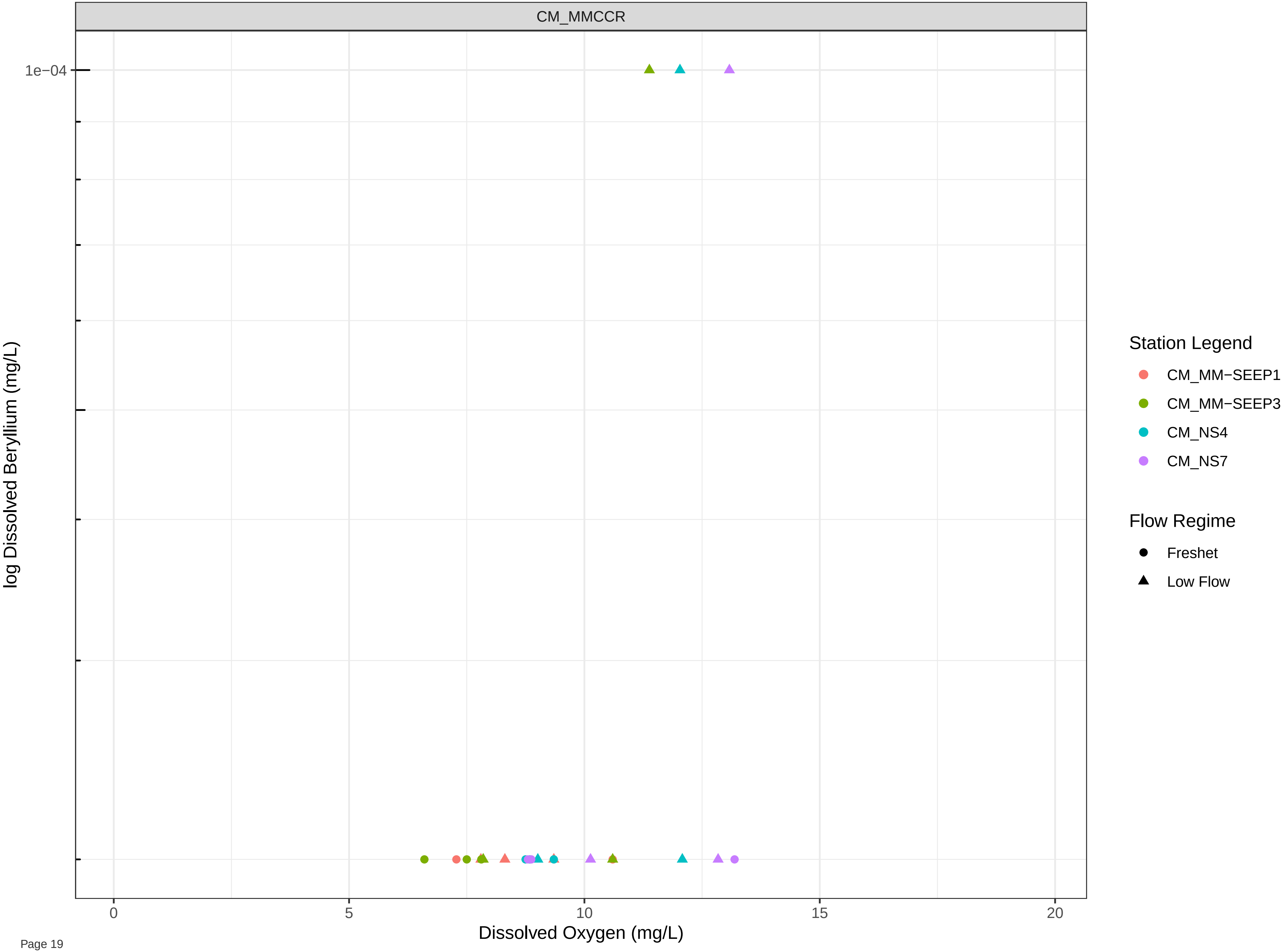

CM_MMCCR
0.1
log Dissolved Barium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_MM−SEEP1
● CM_MM−SEEP3
● CM_NS4
● CM_NS7
Flow Regime
● Freshet
▲ Low Flow

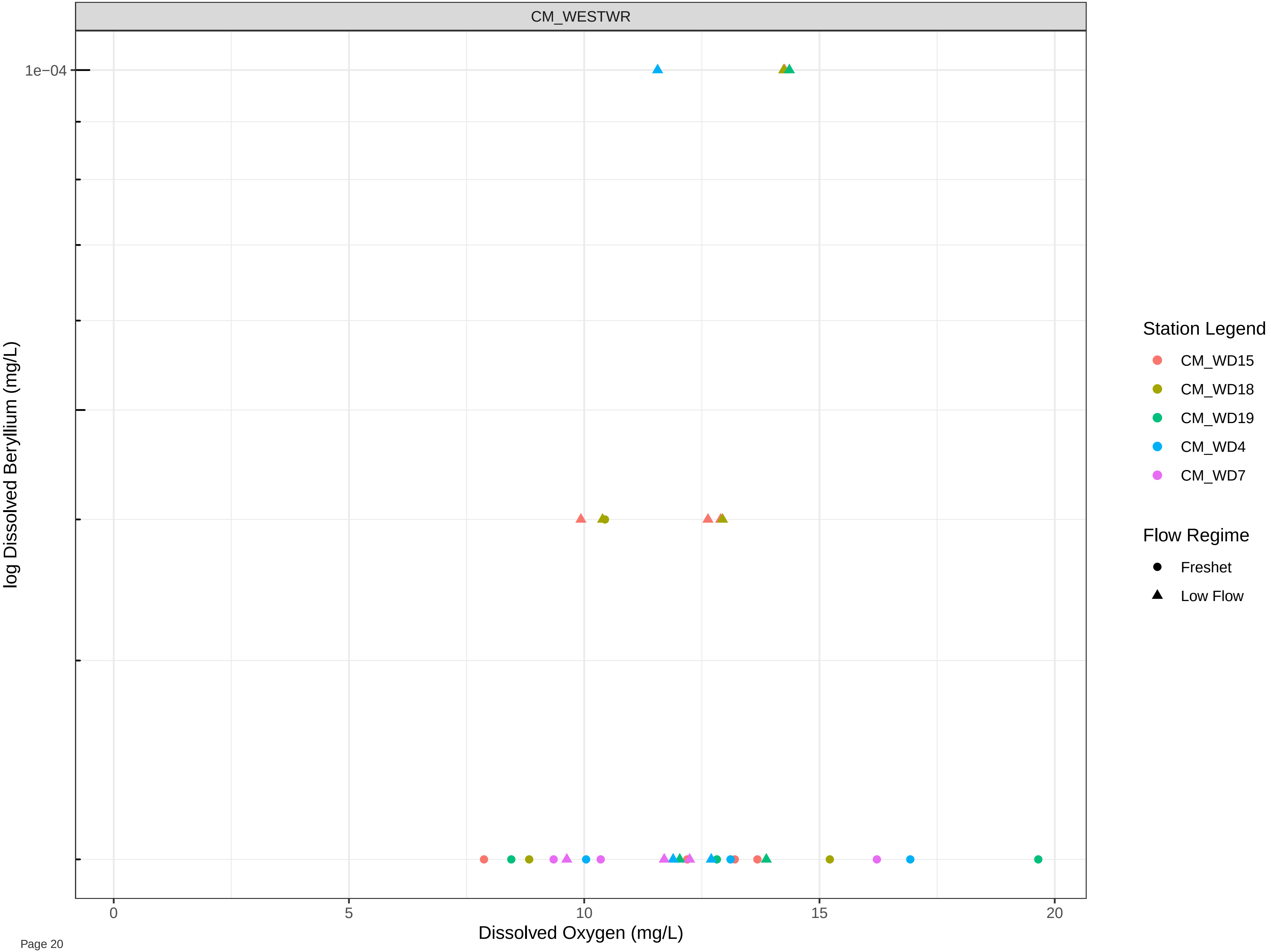

CM_WESTWR
0.1
log Dissolved Barium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

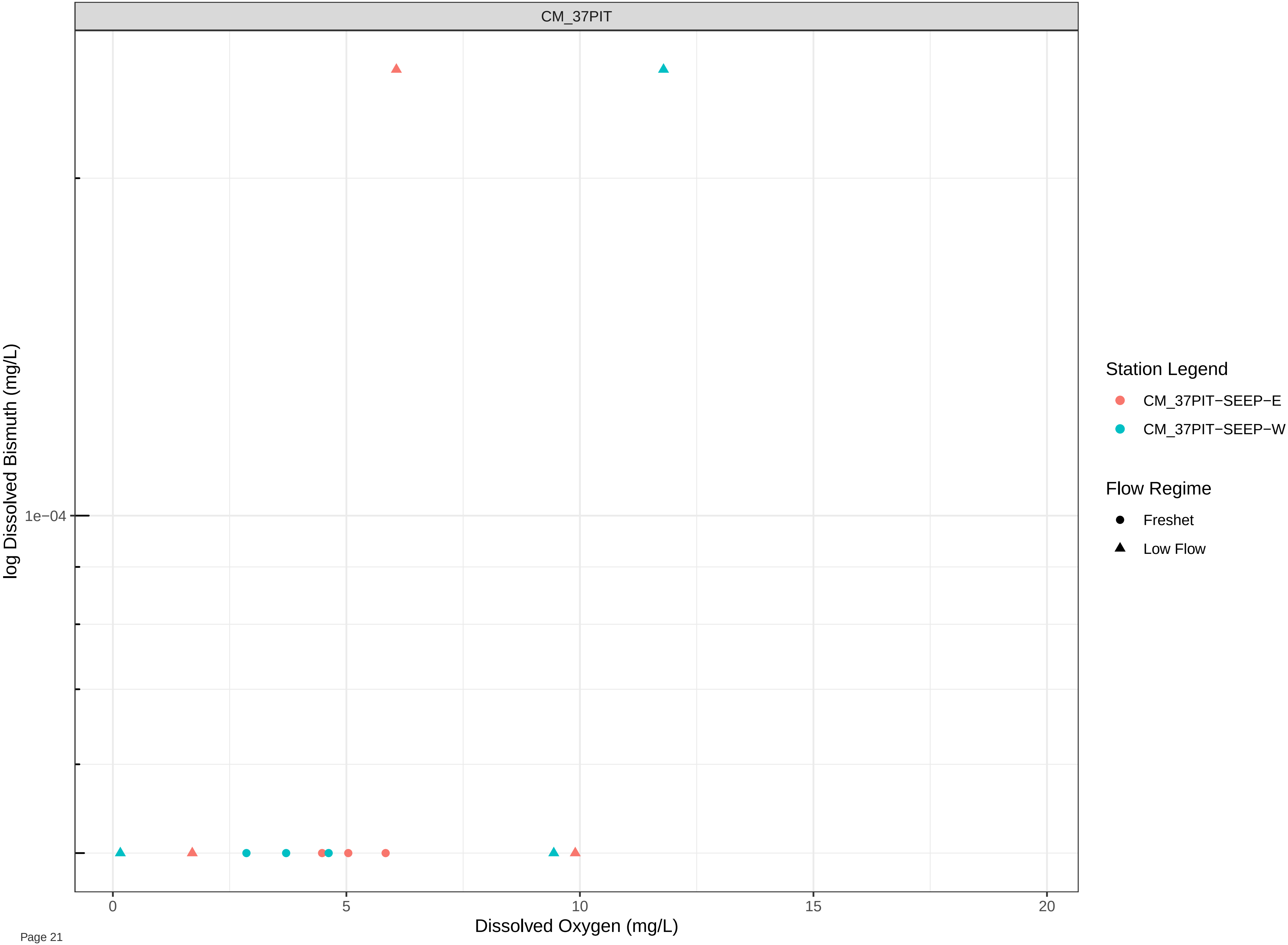

CM_37PIT
1e−04
log Dissolved Beryllium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

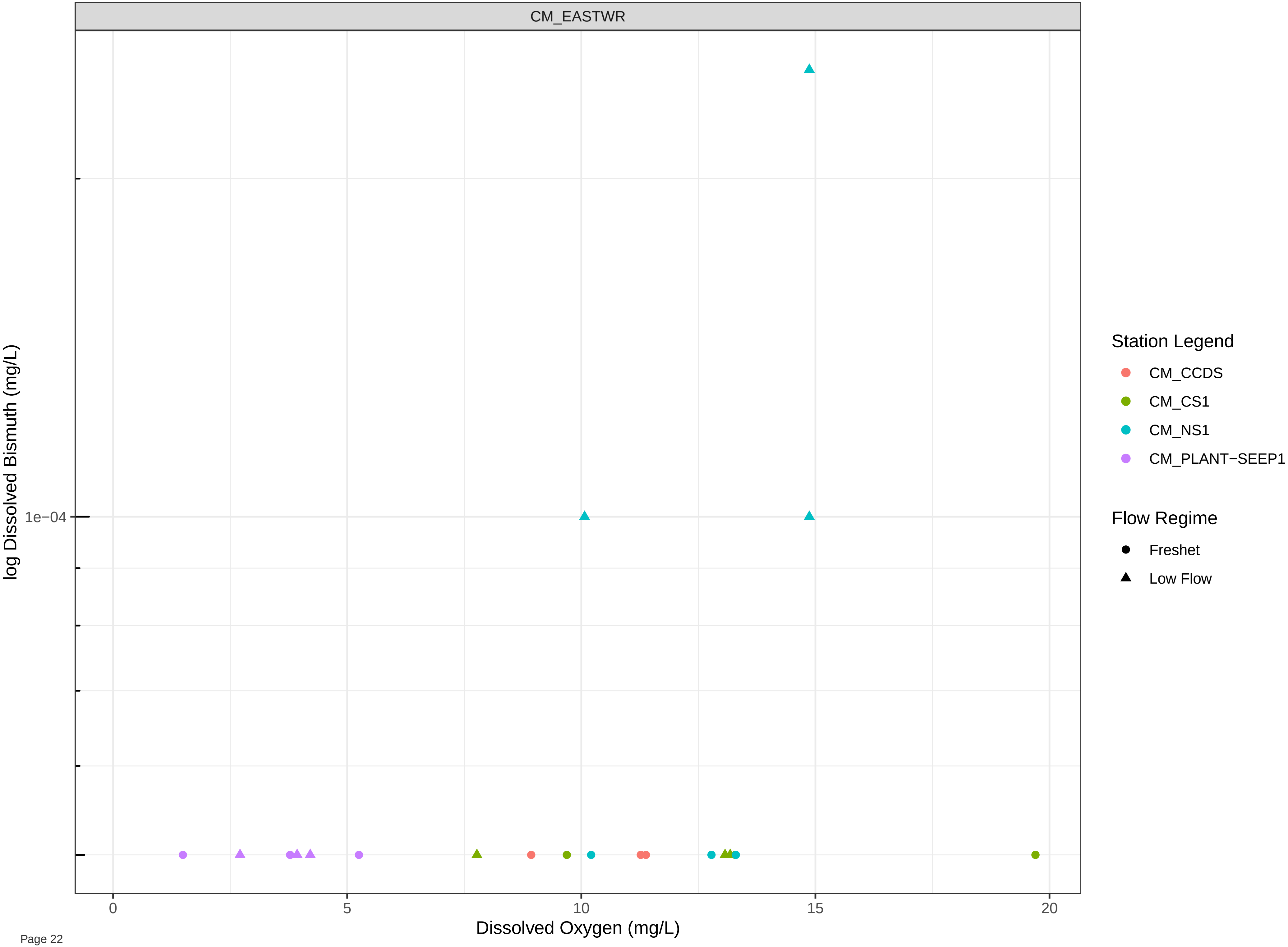


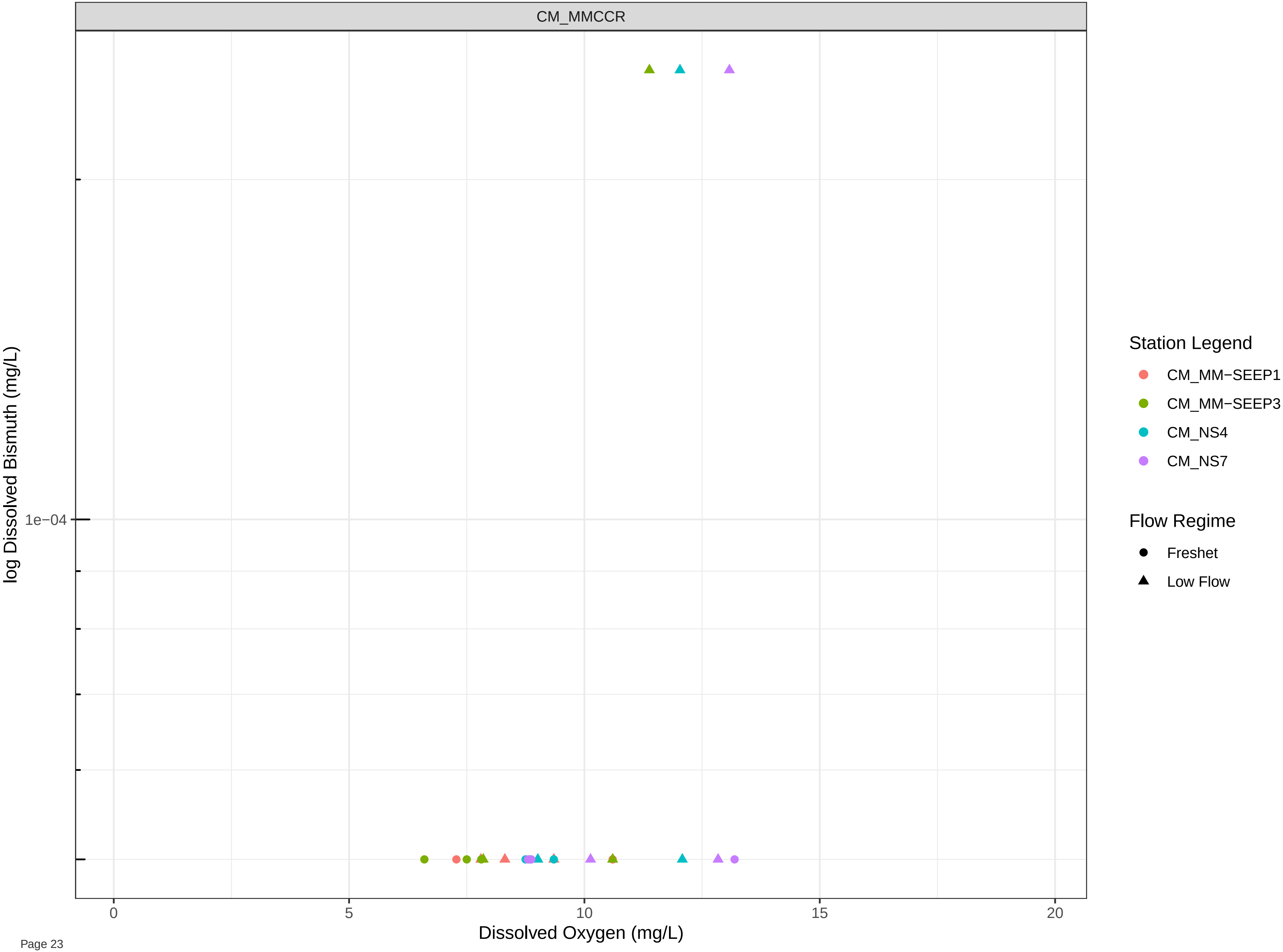
CM_EASTWR
1e−04
log Dissolved Beryllium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

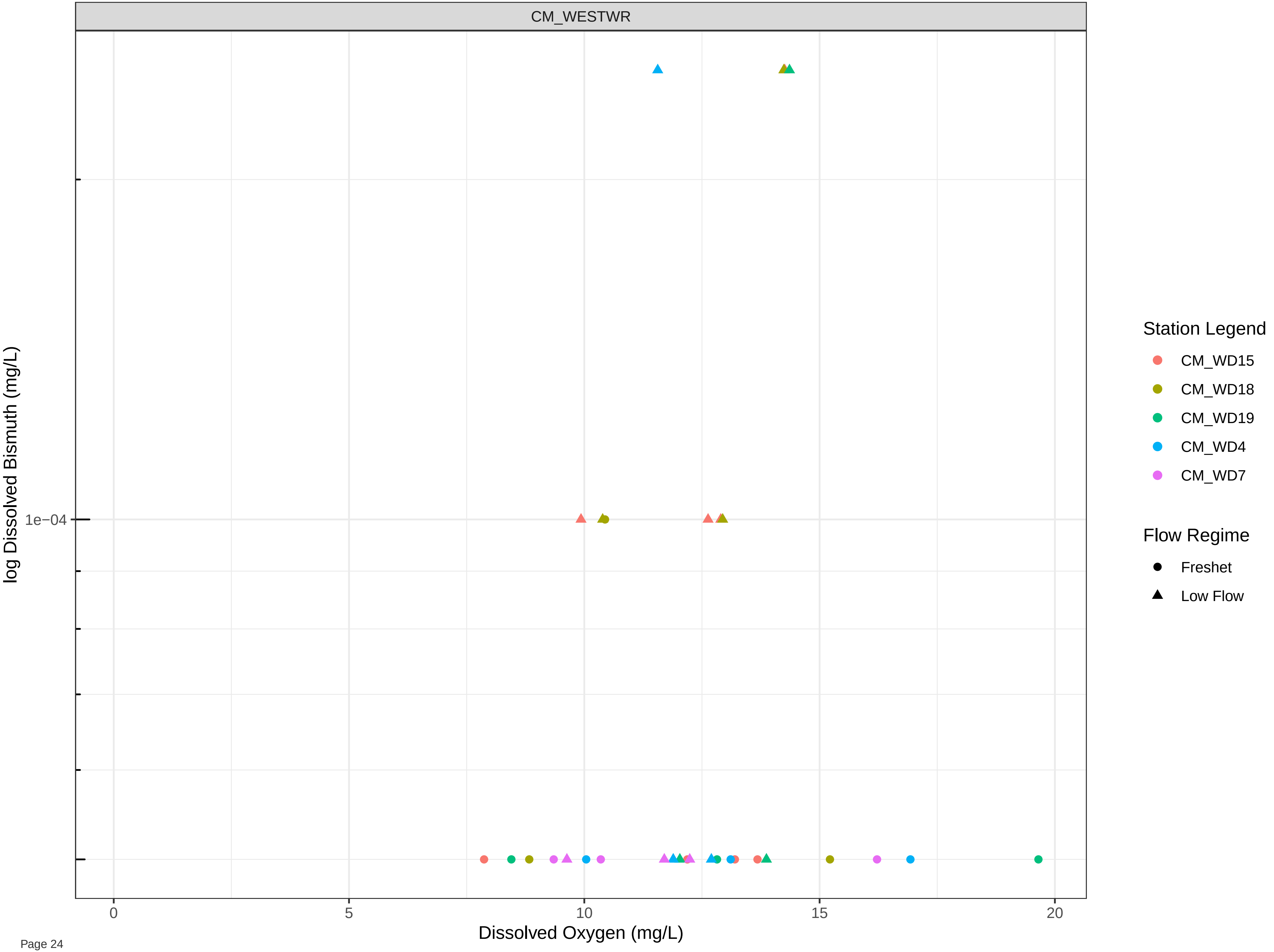

CM_MMCCR
1e−04
log Dissolved Beryllium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_MM−SEEP1
● CM_MM−SEEP3
● CM_NS4
● CM_NS7
Flow Regime
● Freshet
▲ Low Flow

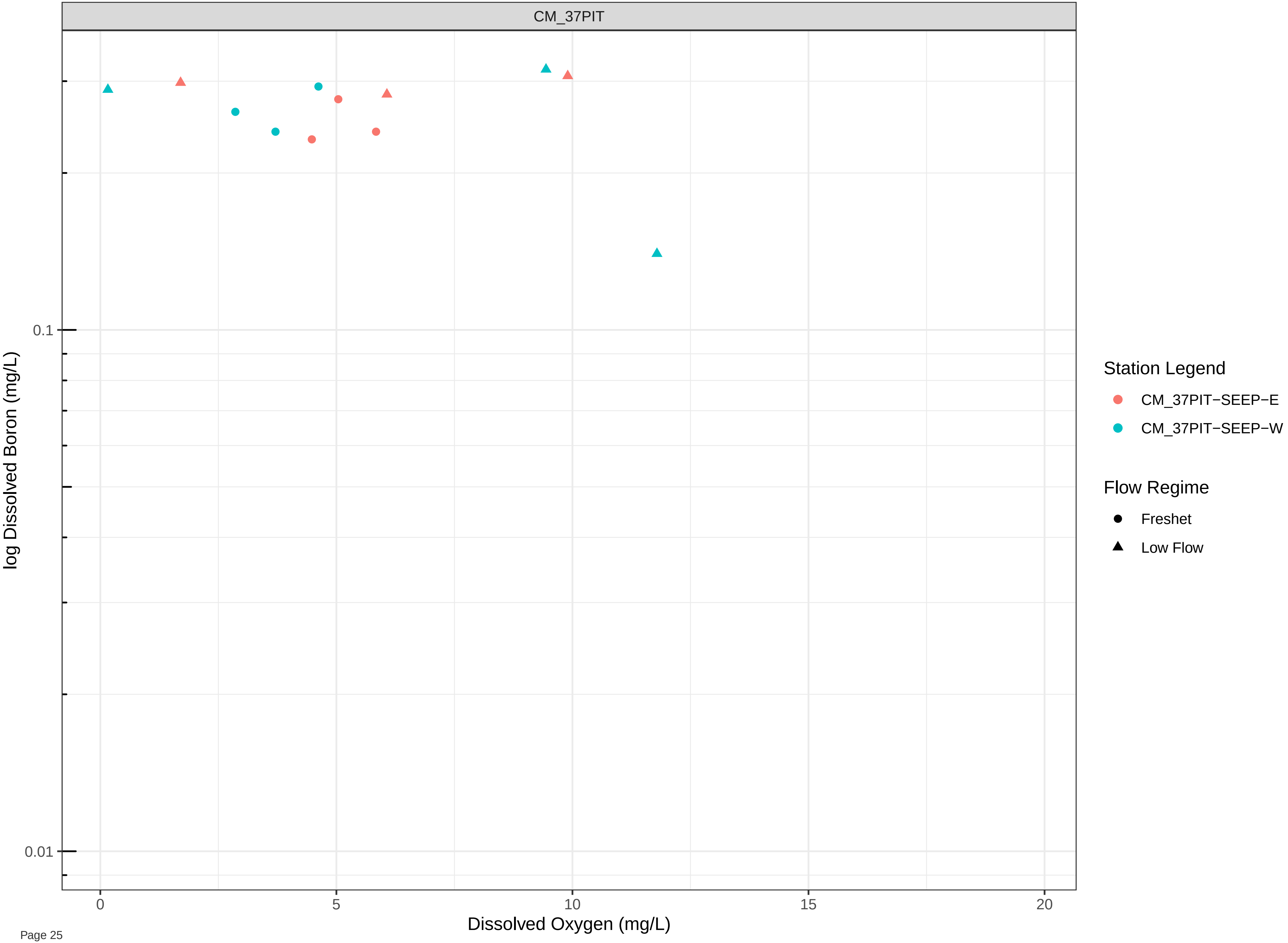

CM_WESTWR
1e−04
log Dissolved Beryllium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

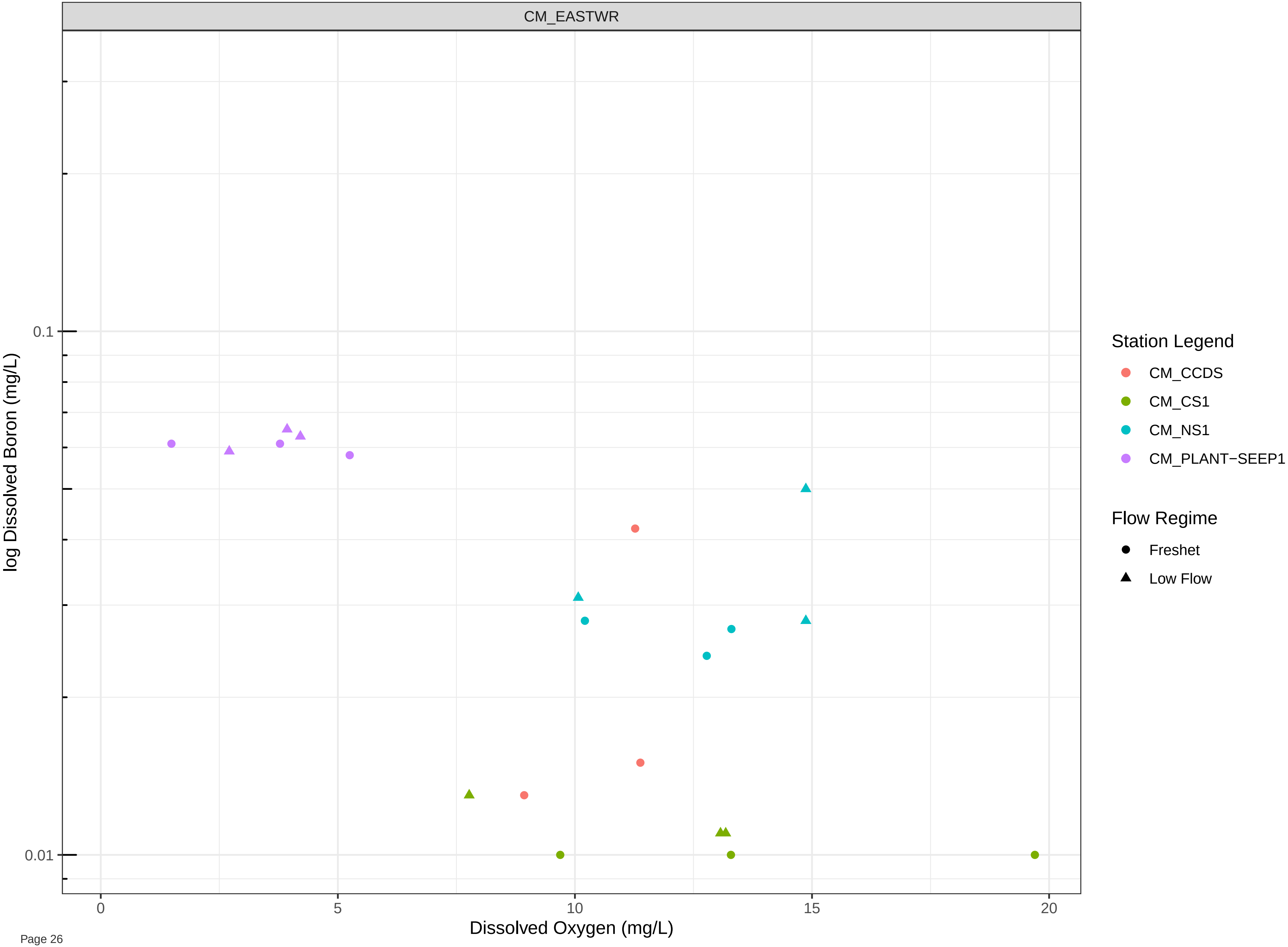

CM_37PIT
log Dissolved Bismuth (mg/L)
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

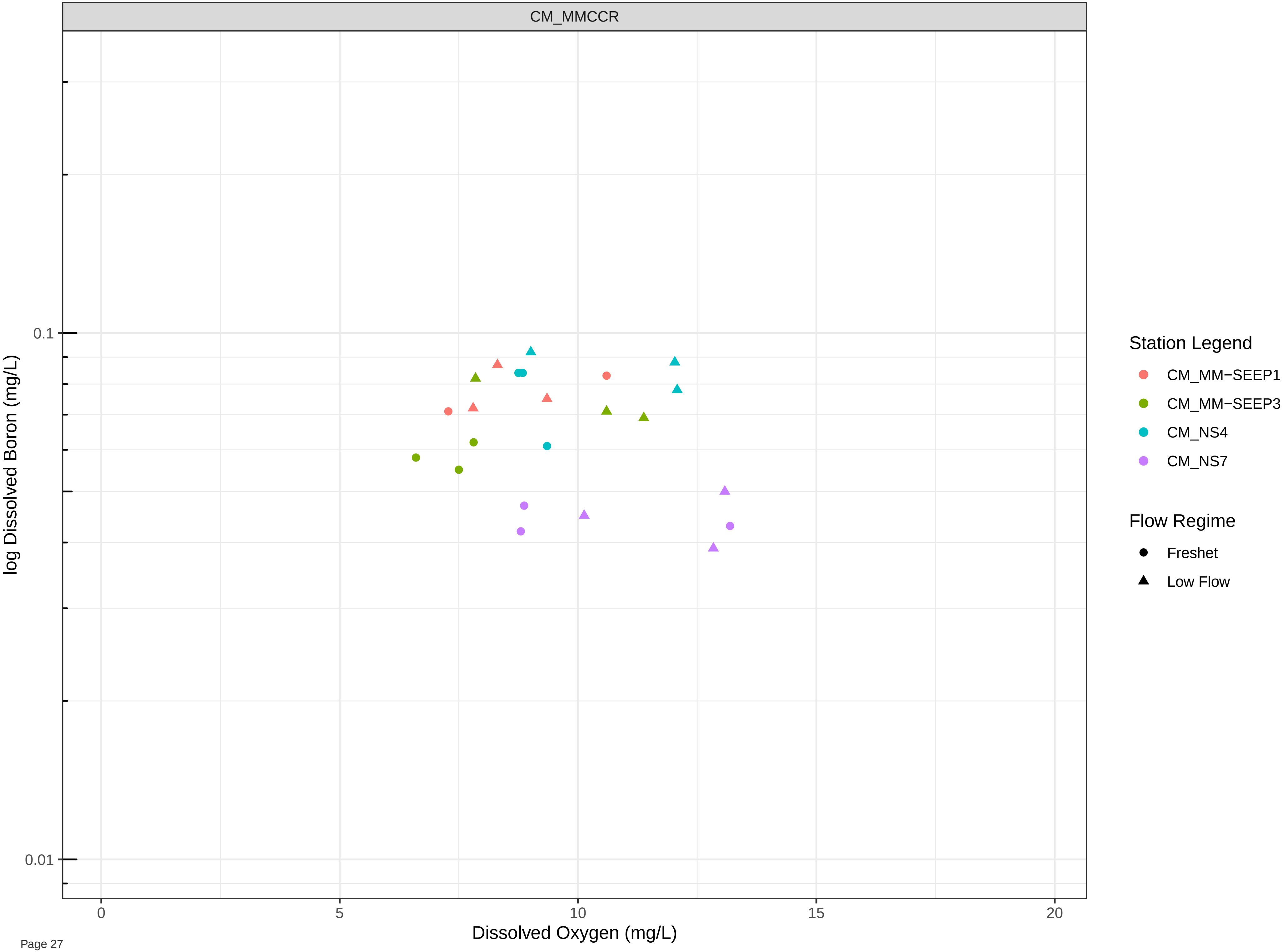

CM_EASTWR
log Dissolved Bismuth (mg/L)
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

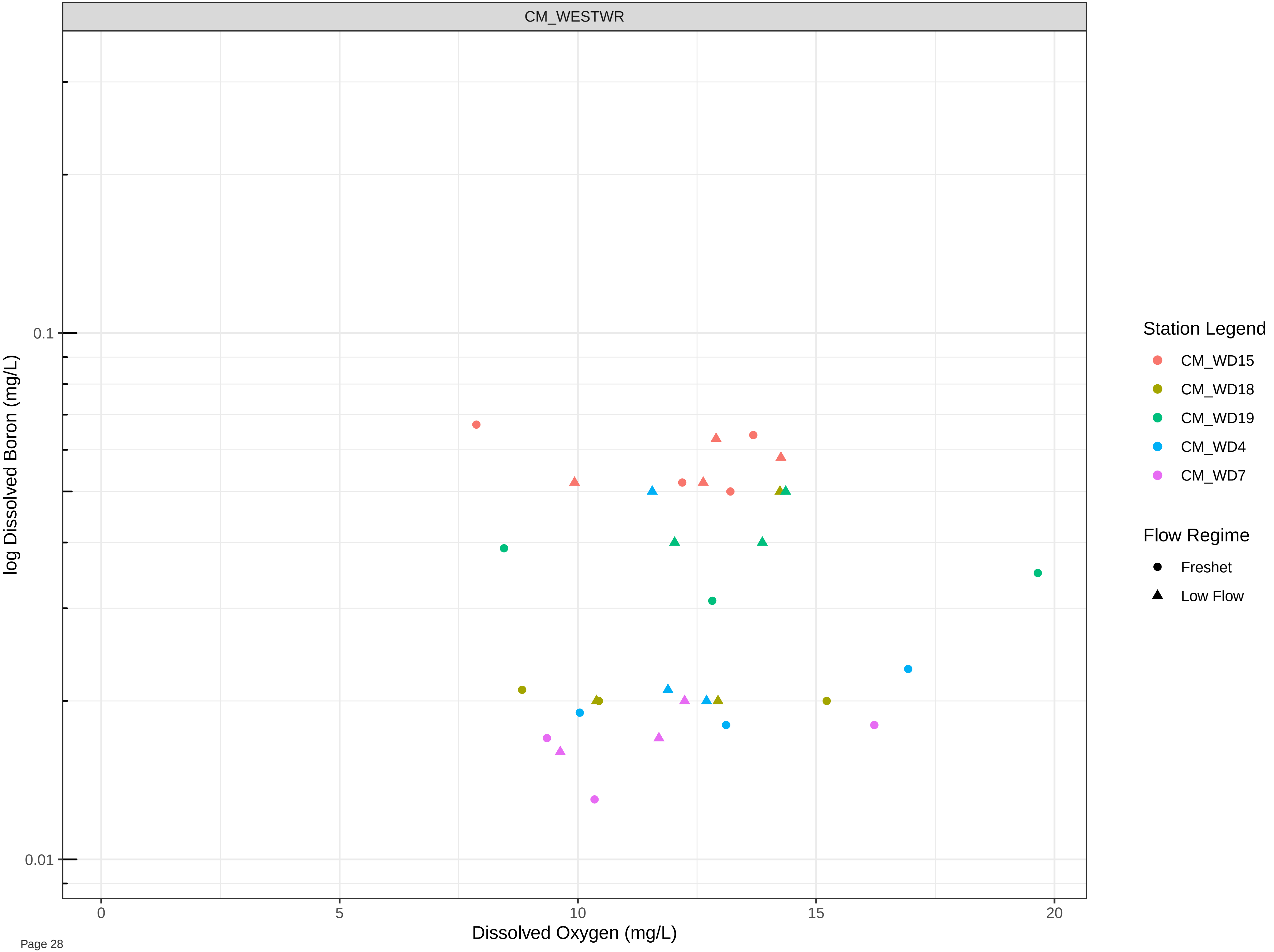

CM_MMCCR
log Dissolved Bismuth (mg/L)
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

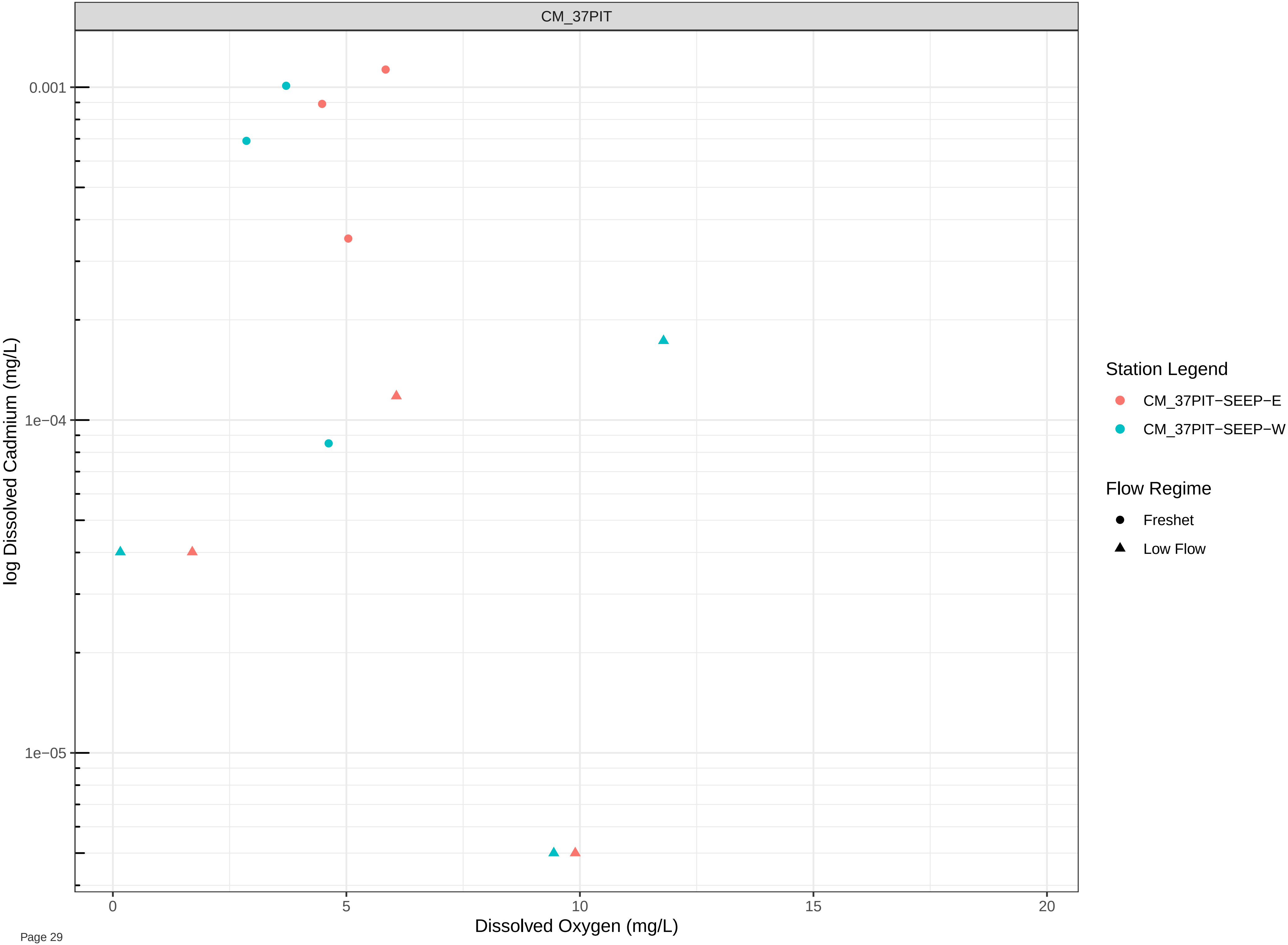

CM_WESTWR
log Dissolved Bismuth (mg/L)
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_WD15
● CM_WD18
● CM_WD19
● CM_WD4
● CM_WD7
Flow Regime
● Freshet
▲ Low Flow


CM_37PIT
log Dissolved Boron (mg/L)
0.1
0.01
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow


CM_EASTWR
log Dissolved Boron (mg/L)
0.1
0.01
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow


CM_MMCCR
0.1
0.01
log Dissolved Boron (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow


CM_WESTWR
log Dissolved Boron (mg/L)
0.1
0.01
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_WD15
● CM_WD18
● CM_WD19
● CM_WD4
● CM_WD7
Flow Regime
● Freshet
▲ Low Flow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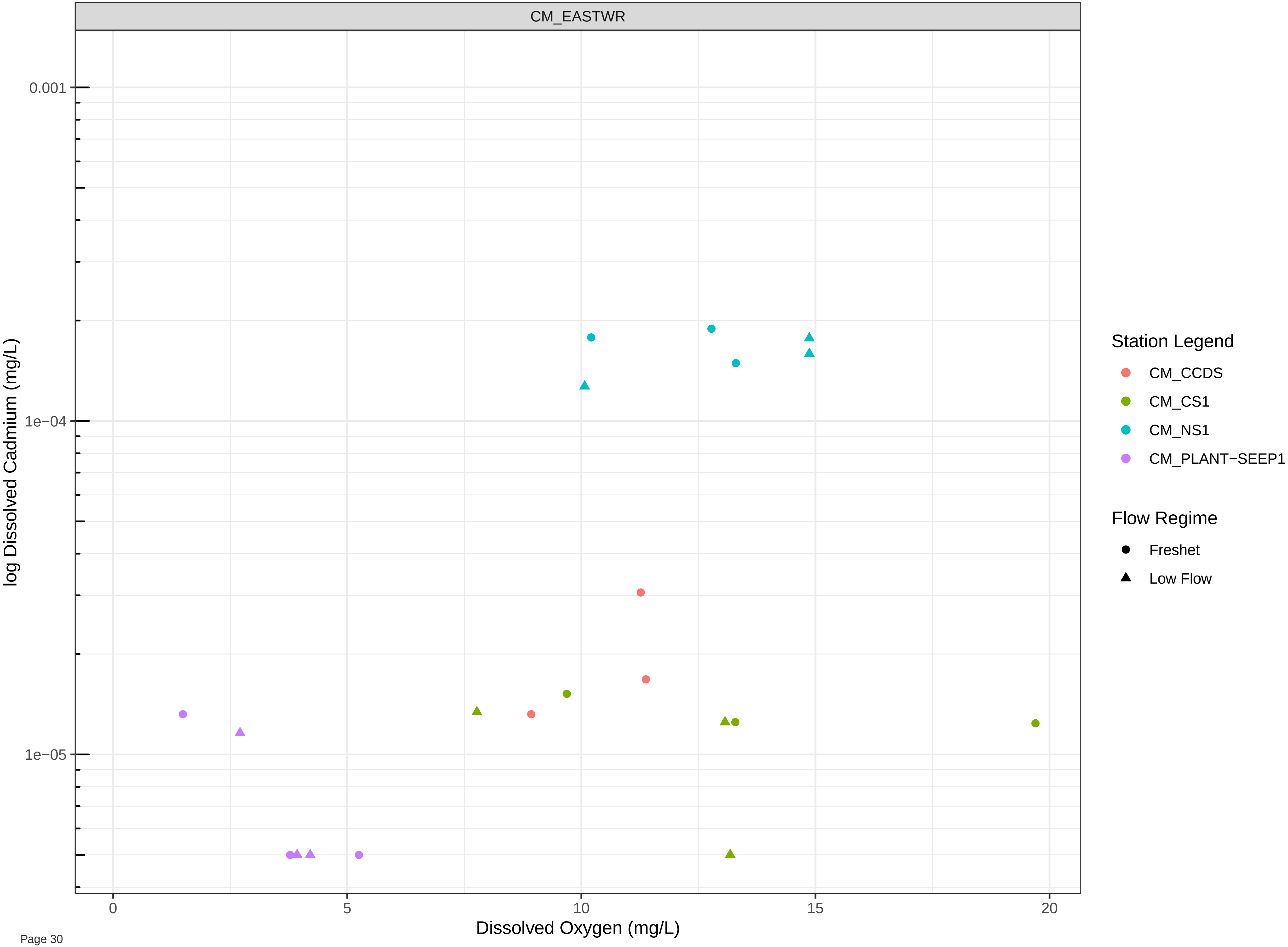
0.001
1e−04
1e−05
log Dissolved Cadmium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow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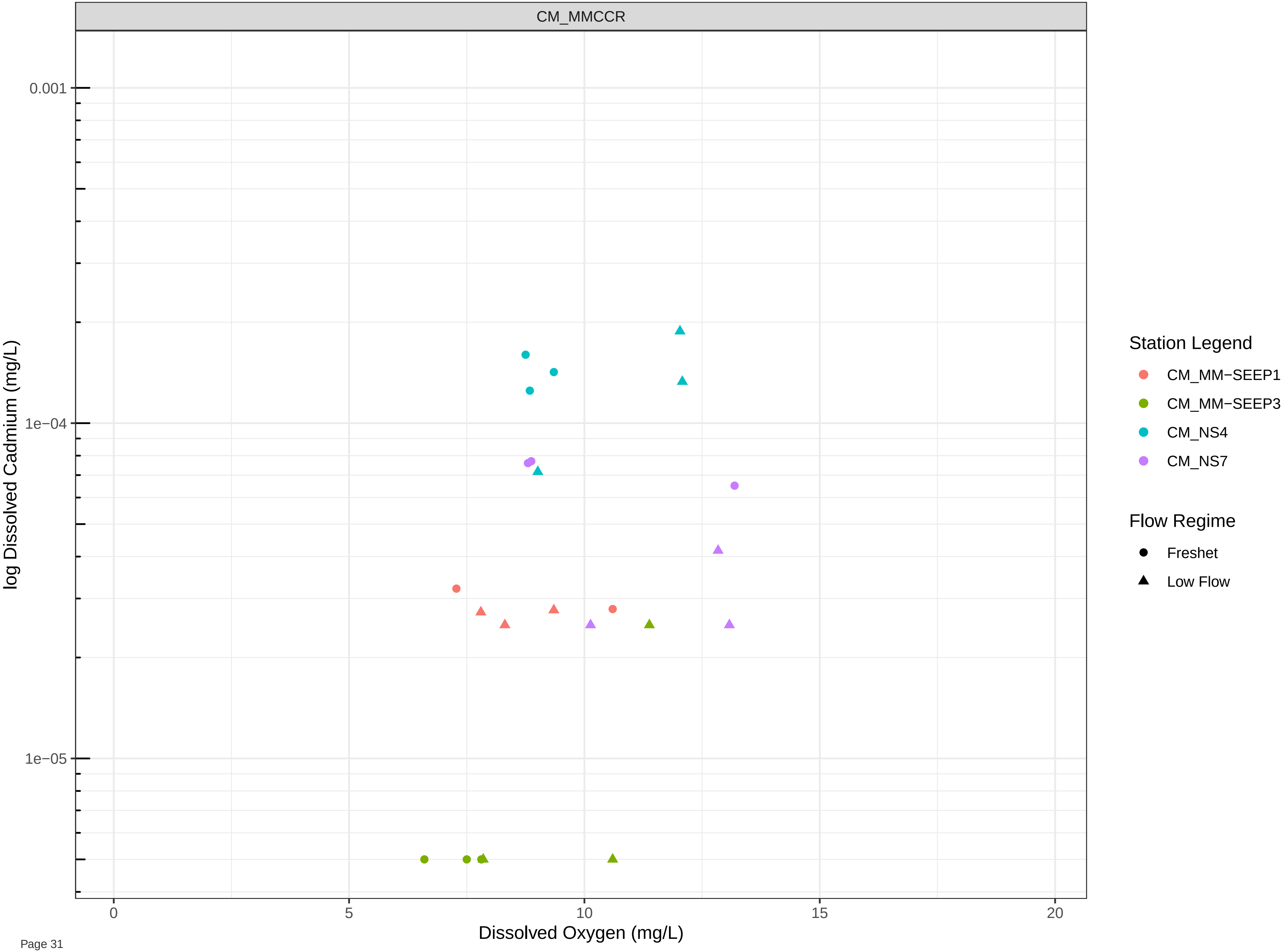
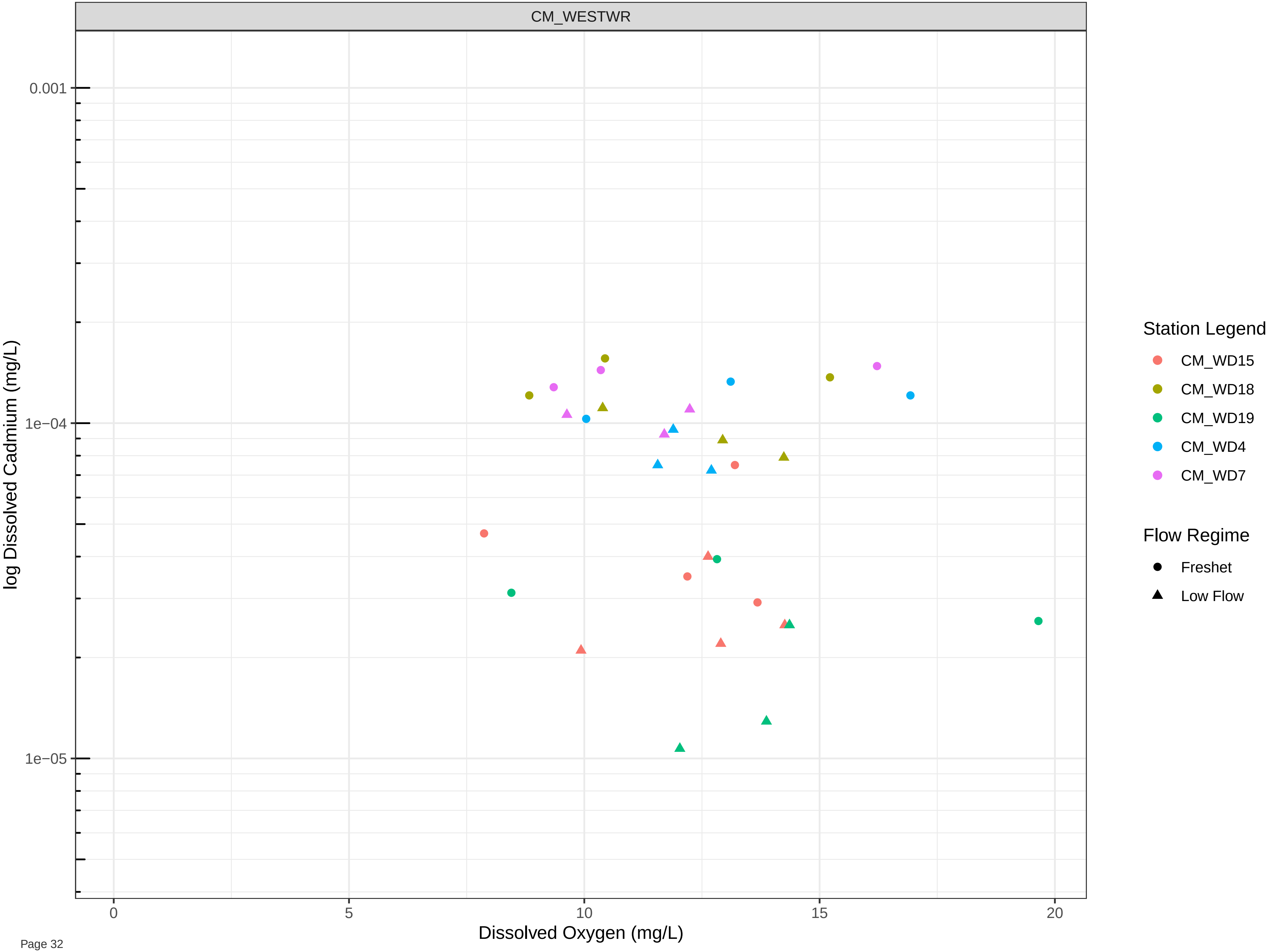
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow


CM_MMCCR
log Dissolved Cadmium (mg/L)
0.001
1e−04
1e−05
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow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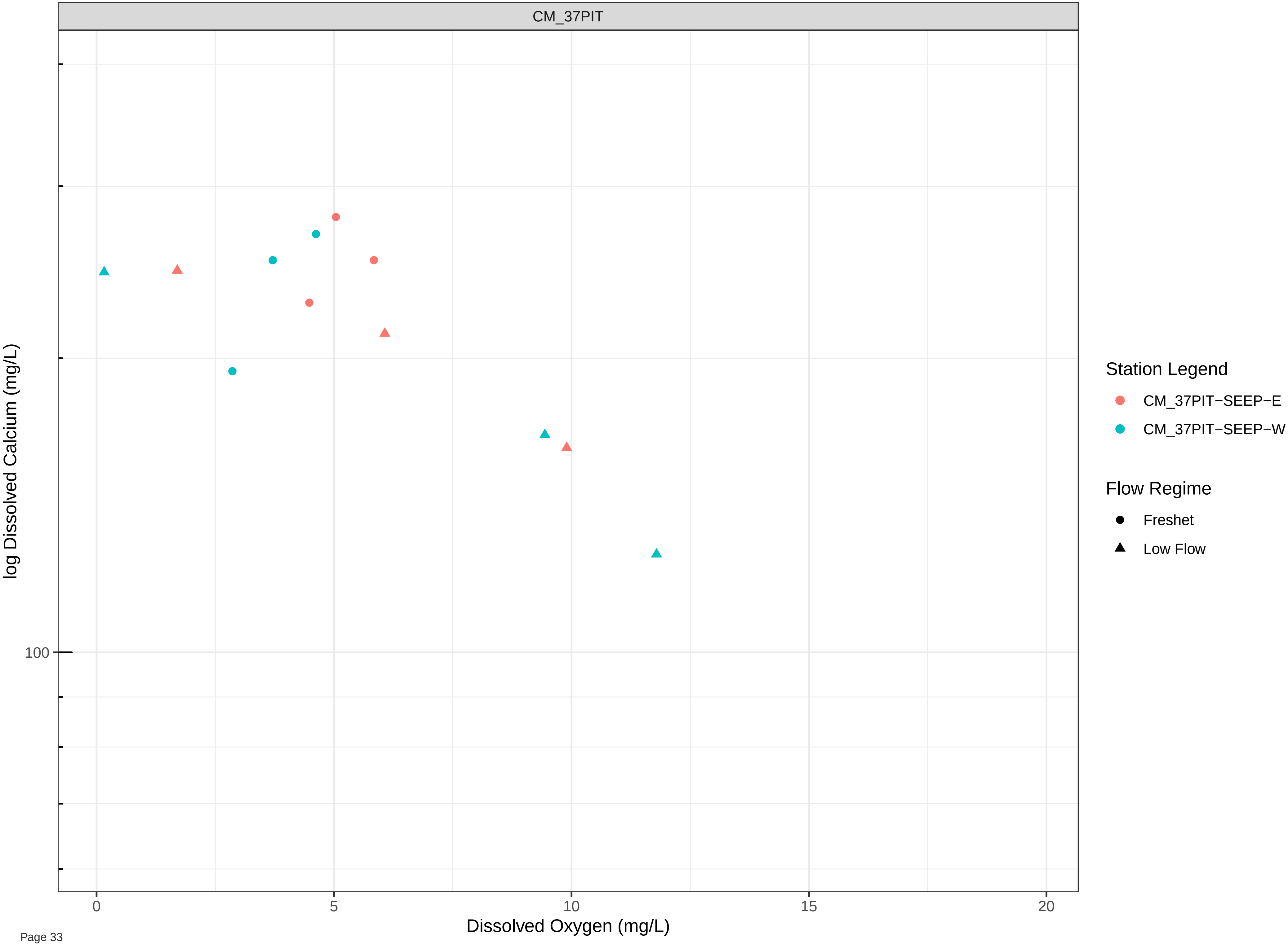
0.001
1e−04
1e−05
log Dissolved Cadmium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow


CM_37PIT
log Dissolved Calcium (mg/L)
100
Dissolved Oxygen (mg/L)
0
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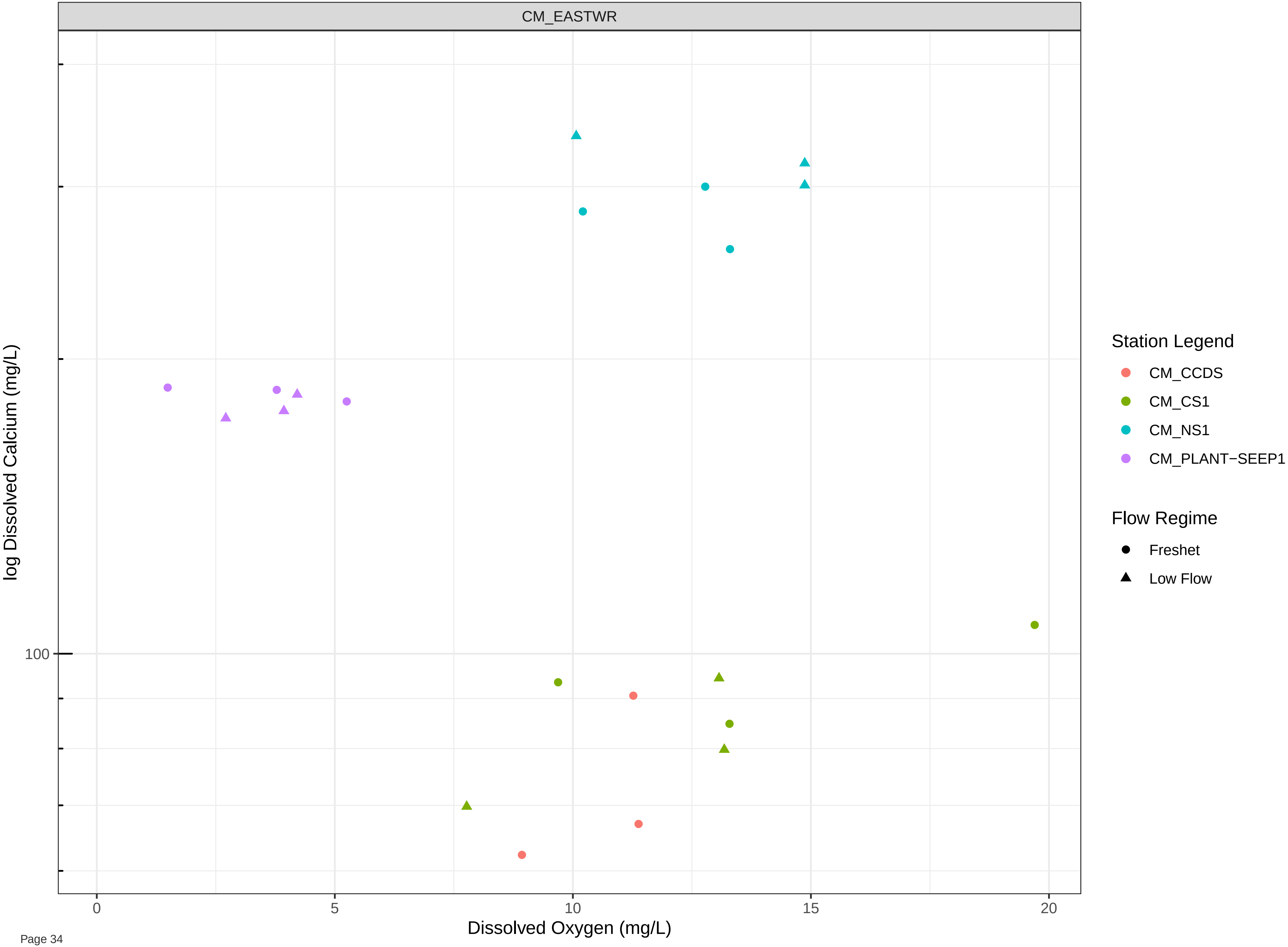
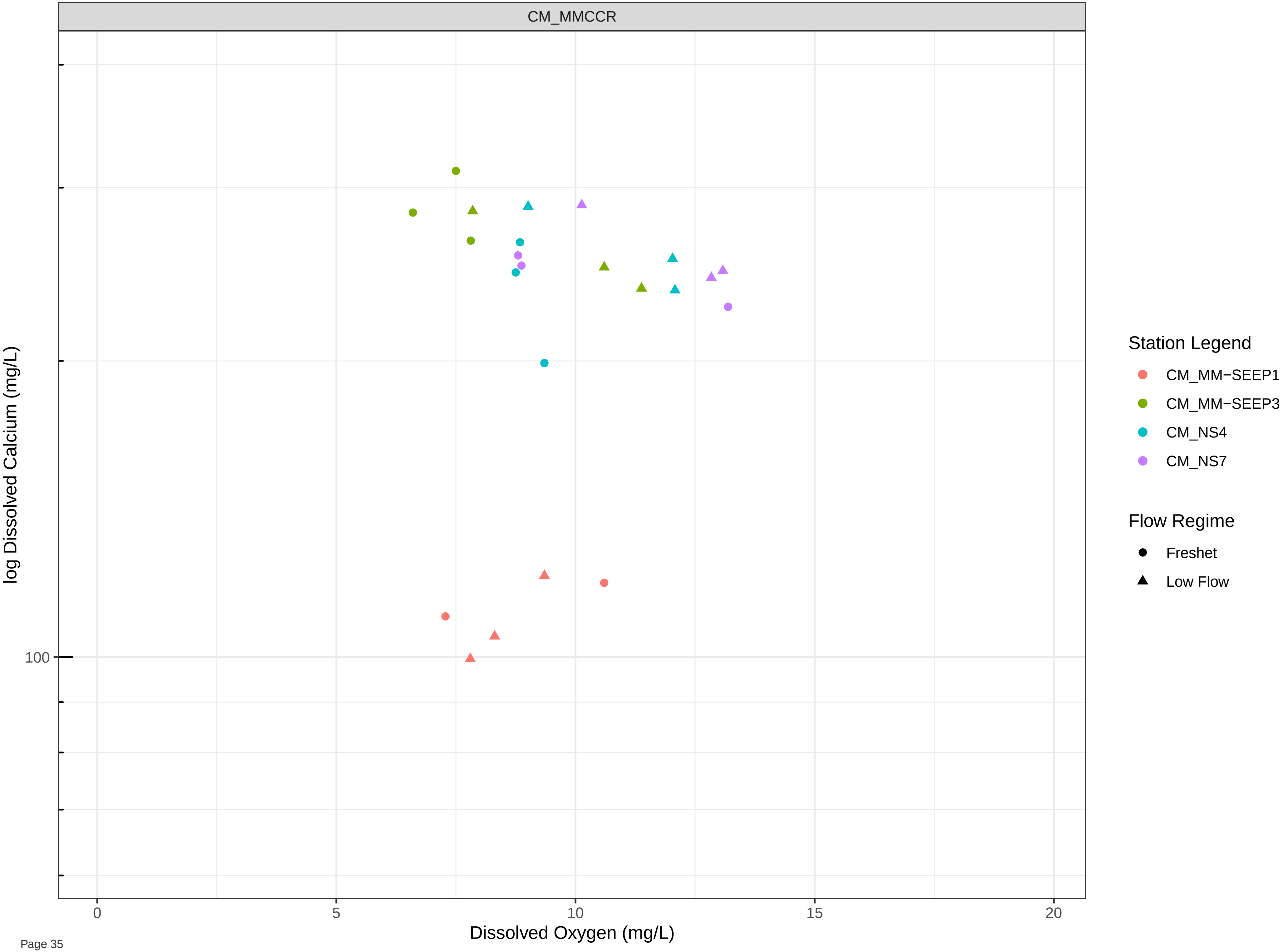
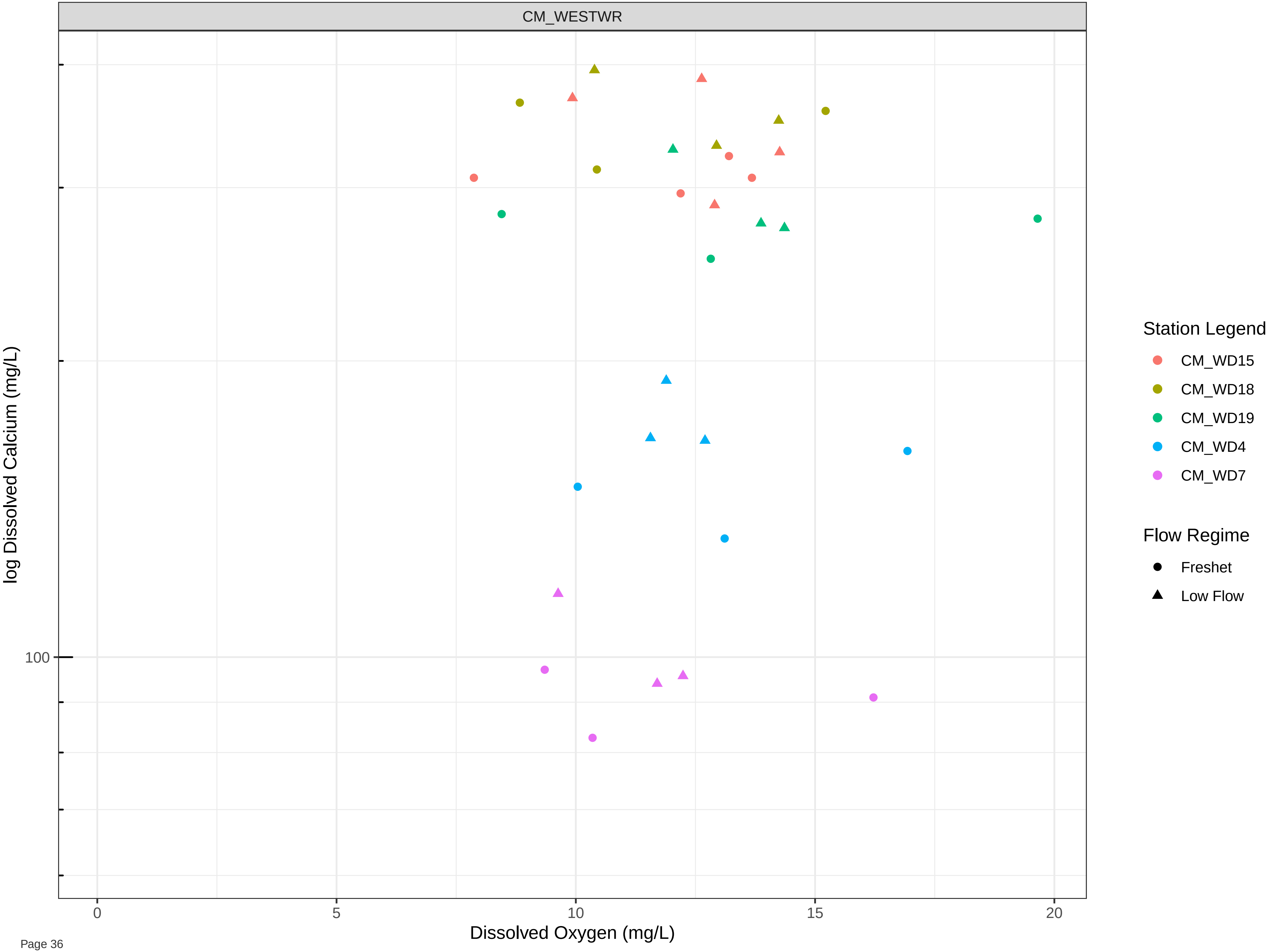
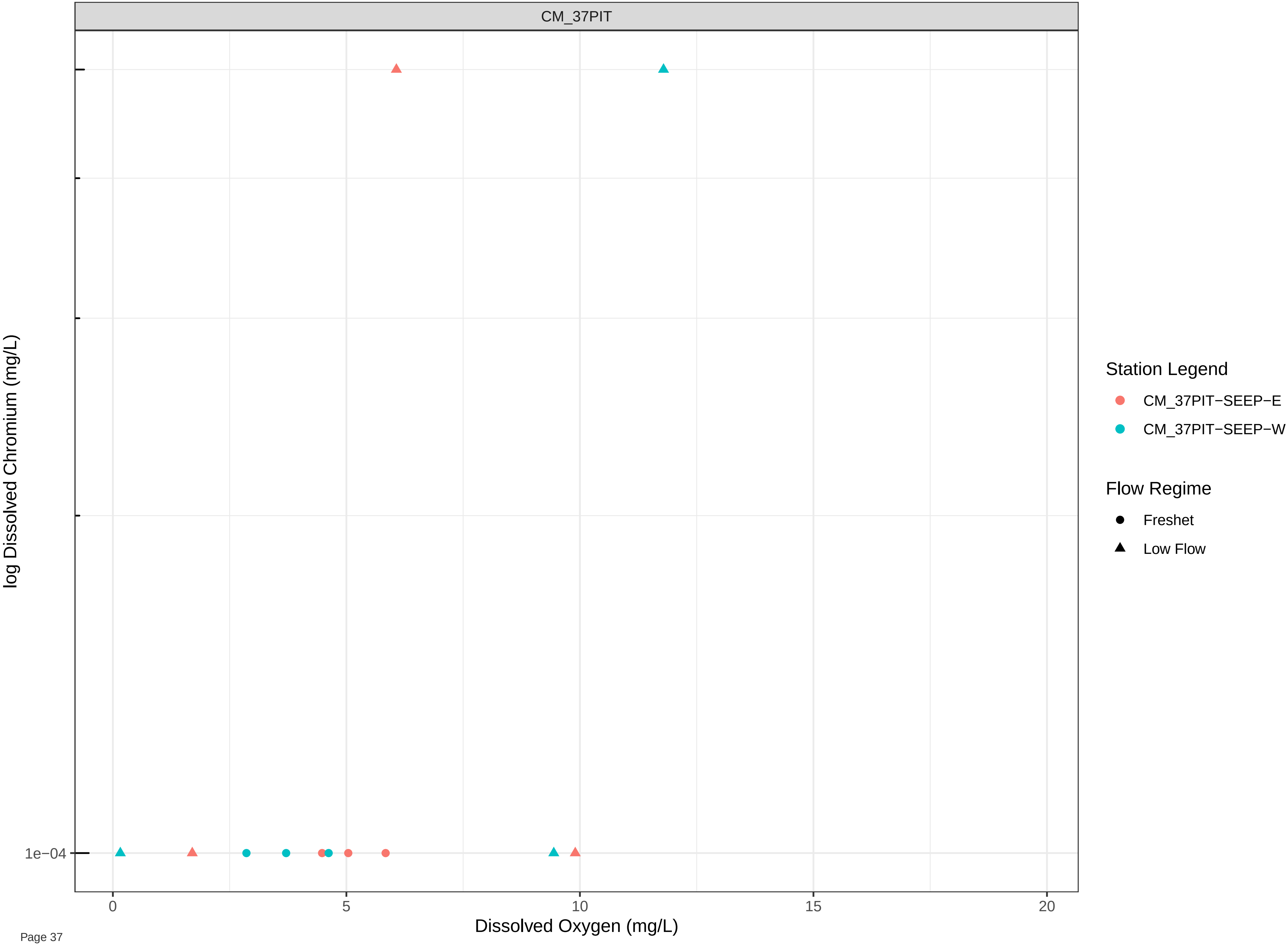
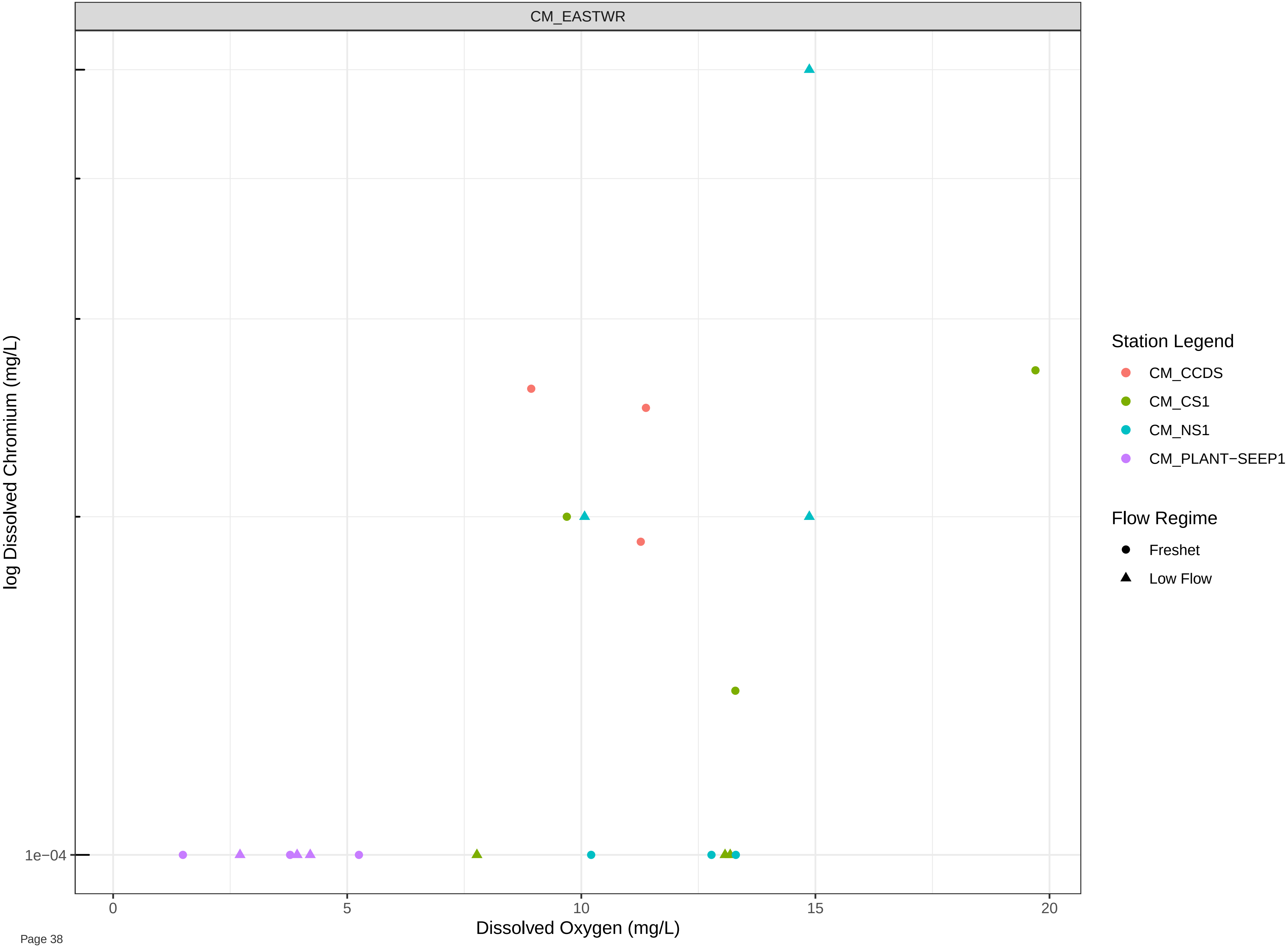
10
15
20
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow


CM_EASTWR
log Dissolved Calcium (mg/L)
100
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow


CM_MMCCR
log Dissolved Calcium (mg/L)
100
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_MM−SEEP1
● CM_MM−SEEP3
● CM_NS4
● CM_NS7
Flow Regime
● Freshet
▲ Low Flow


CM_WESTWR
log Dissolved Calcium (mg/L)
100
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow


CM_37PIT
log Dissolved Chromium (mg/L)
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow


CM_EASTWR
log Dissolved Chromium (mg/L)
1e−04
0
5
10
15
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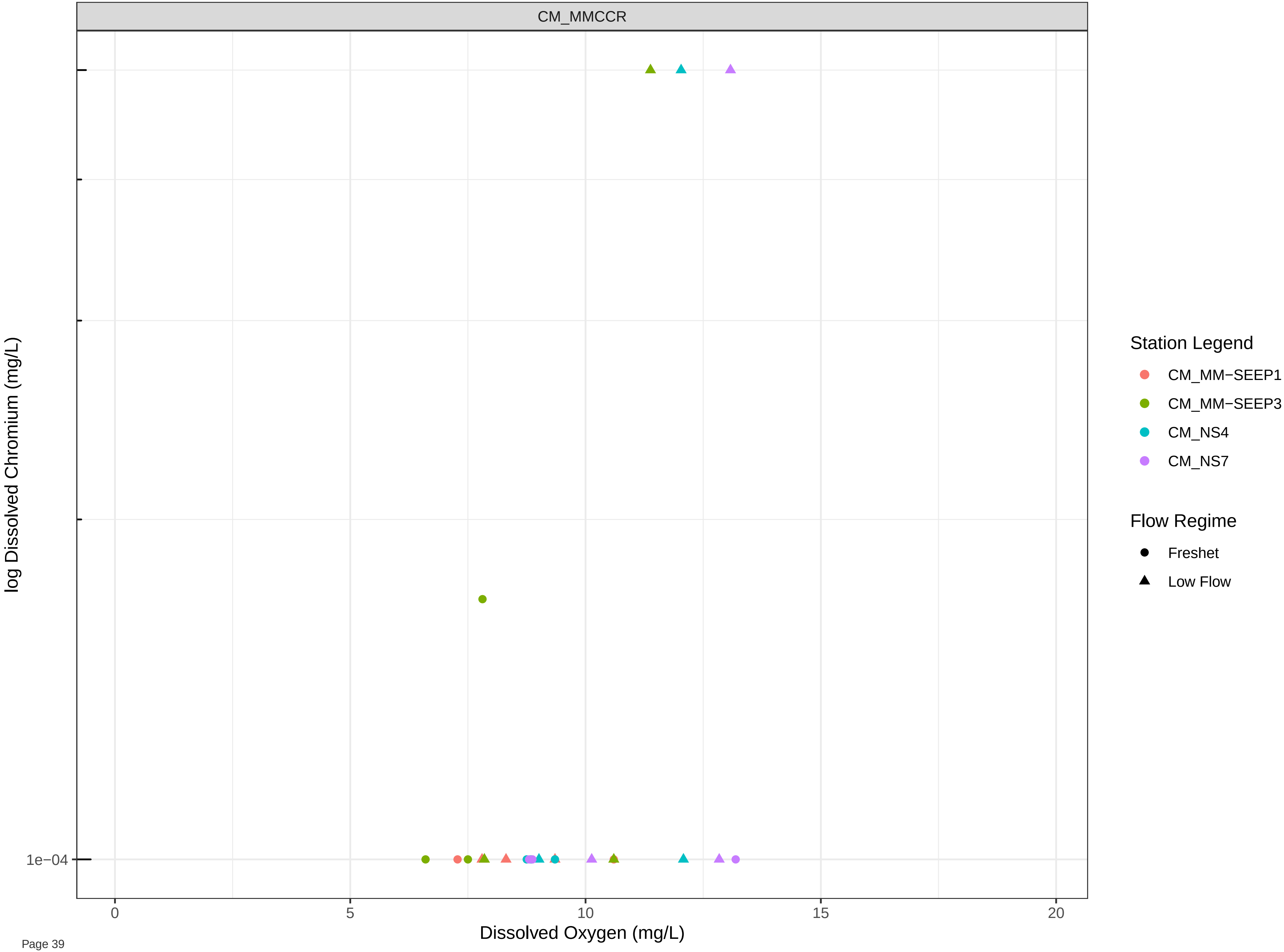
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow


CM_MMCCR
log Dissolved Chromium (mg/L)
1e−04
0
5
10
15
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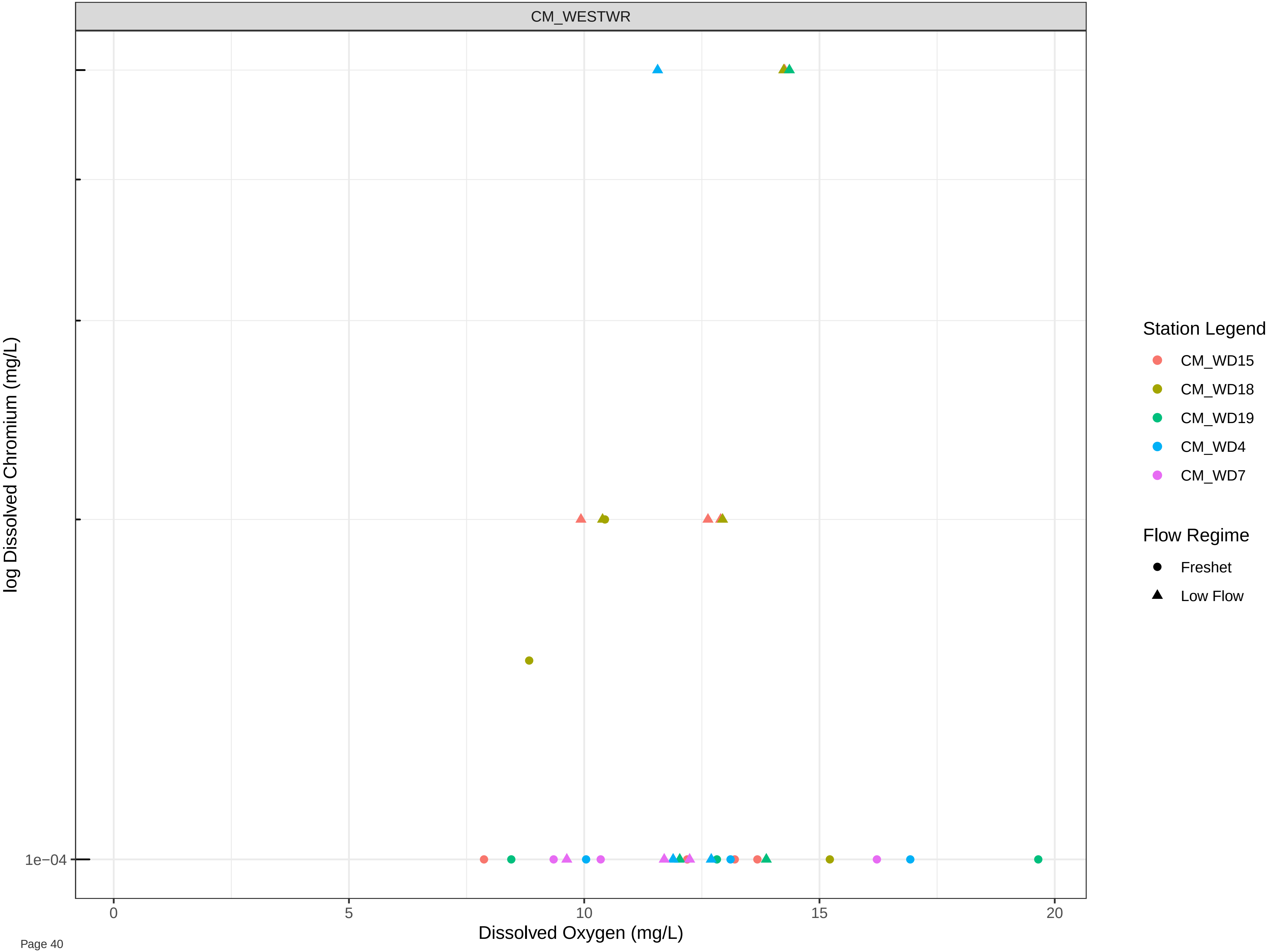
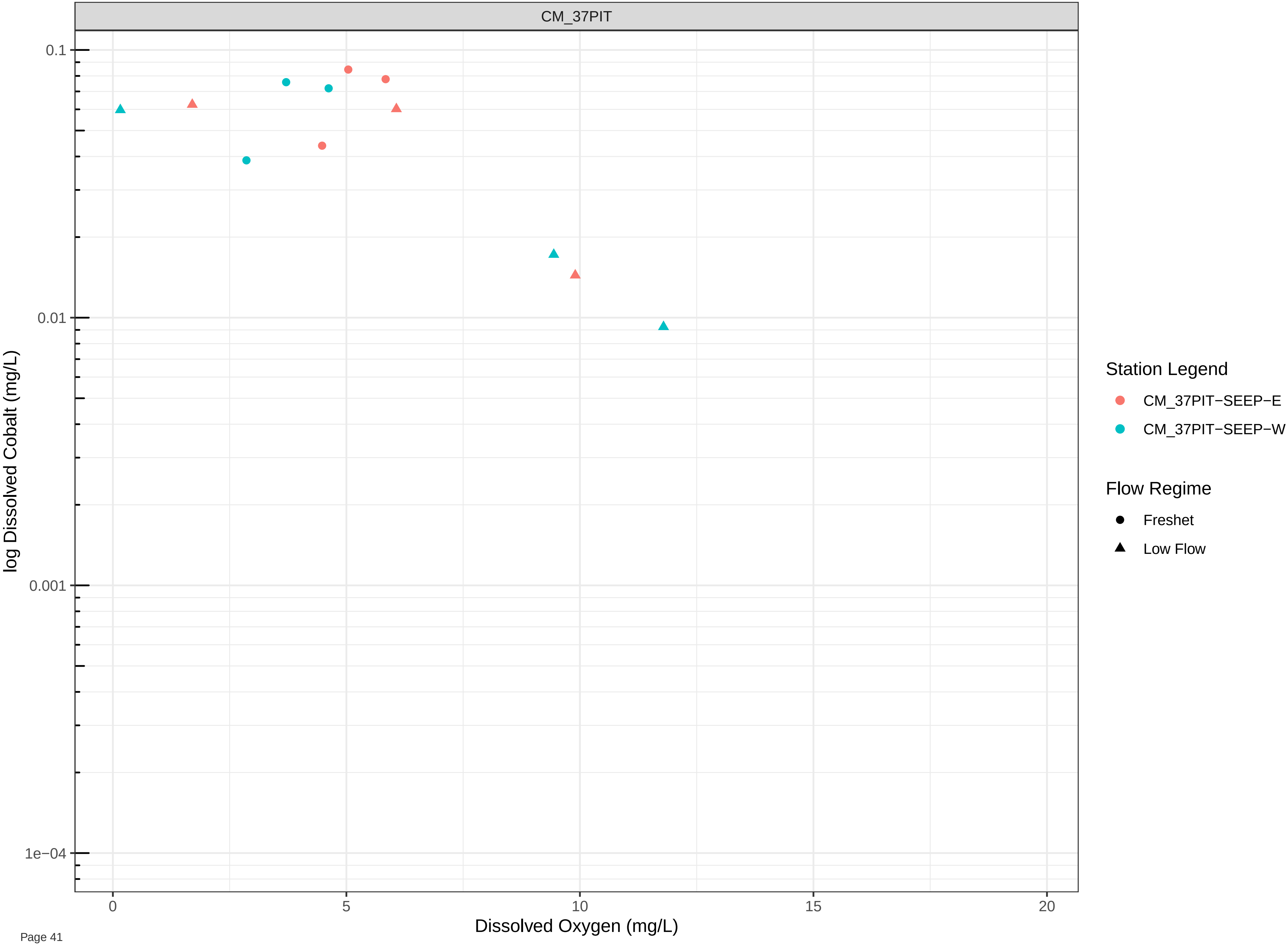
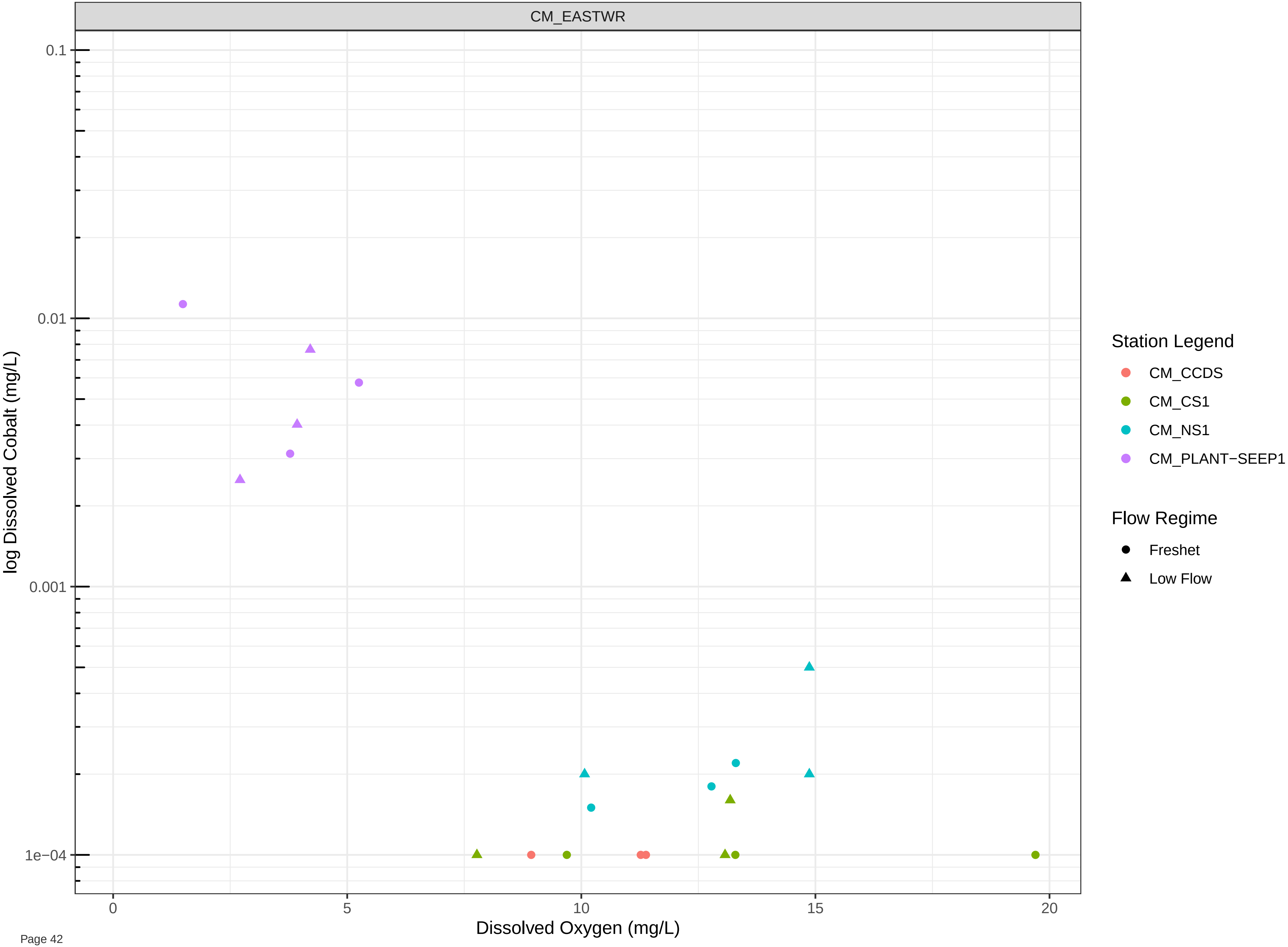
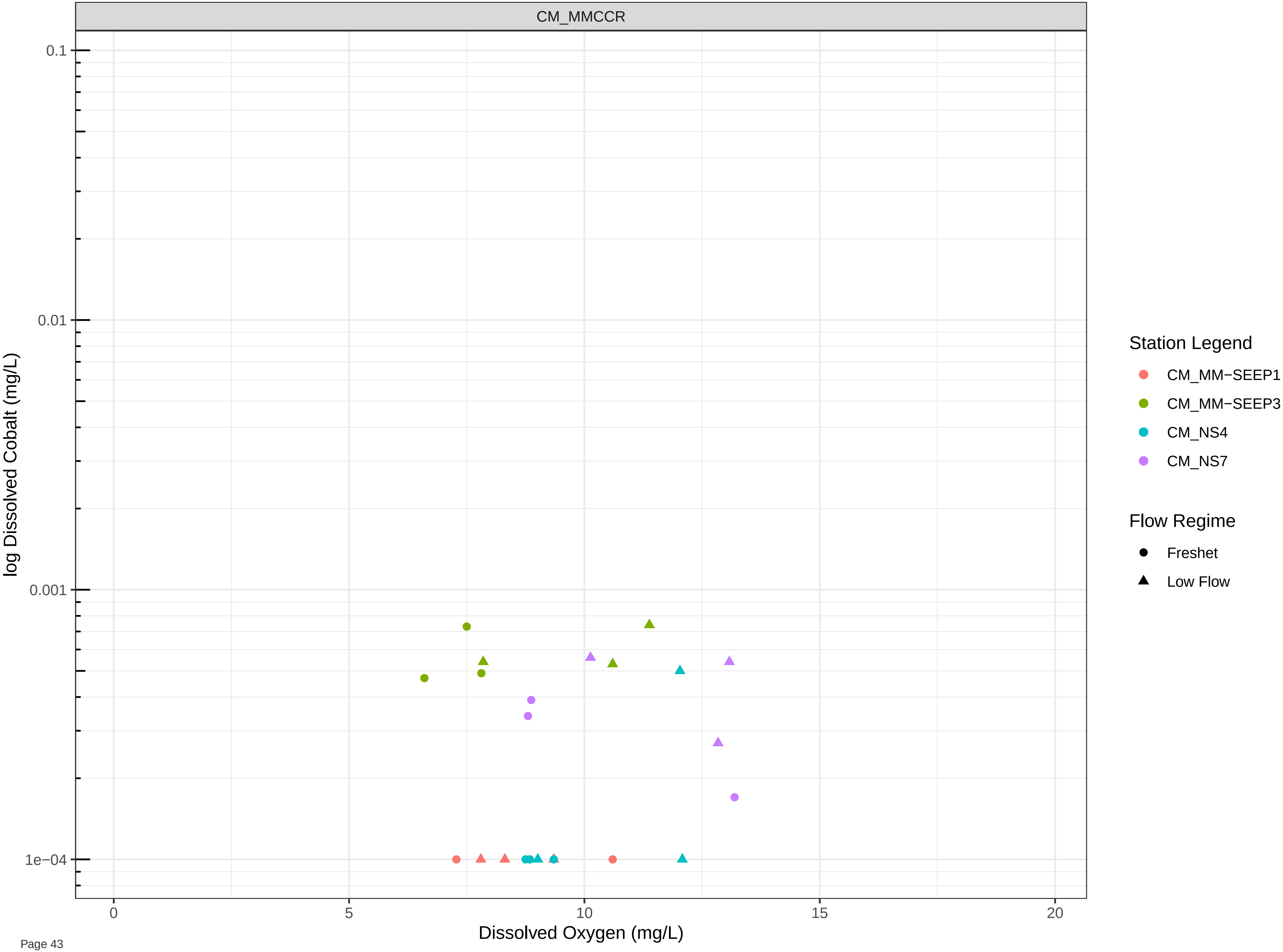
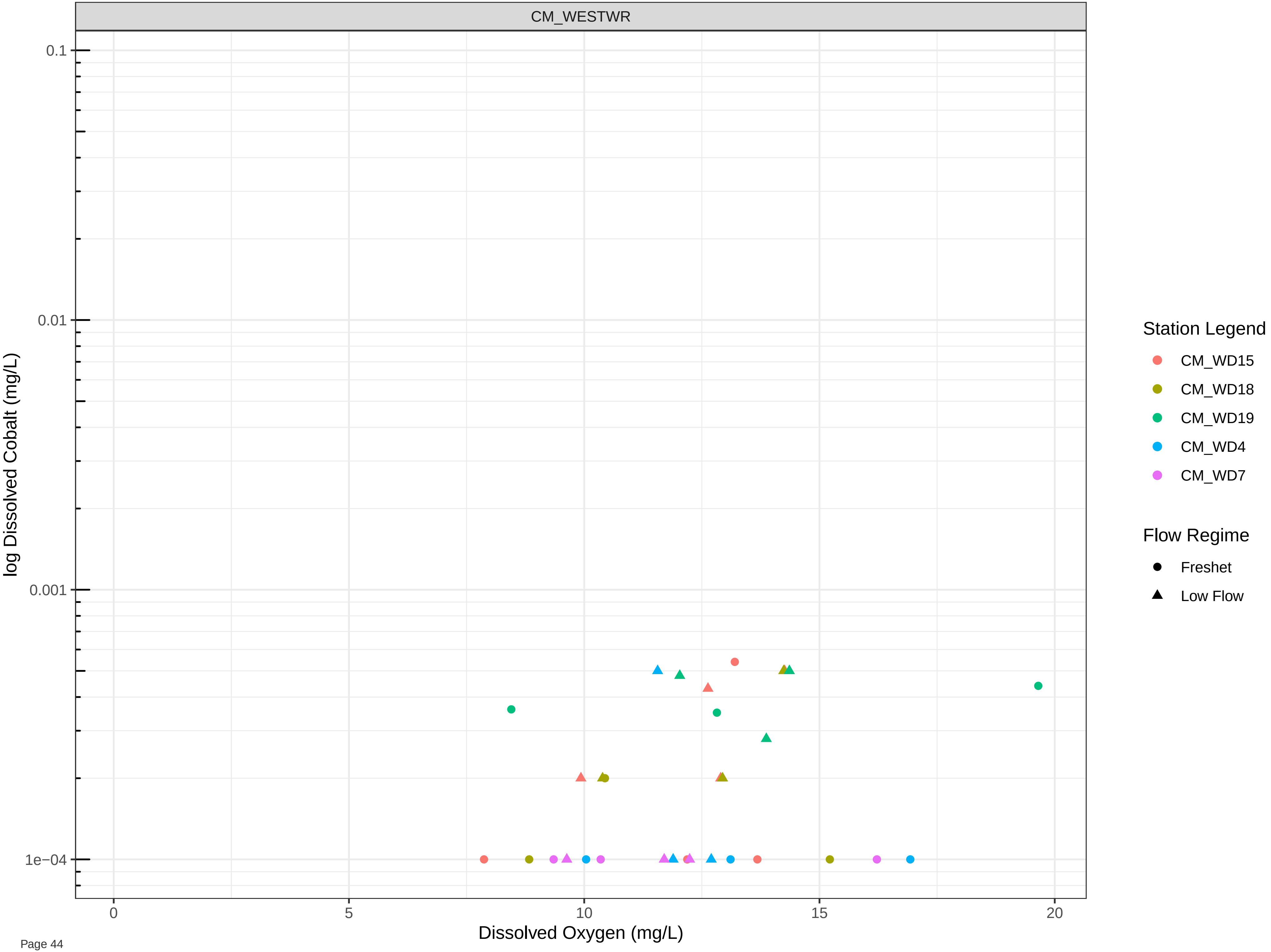
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

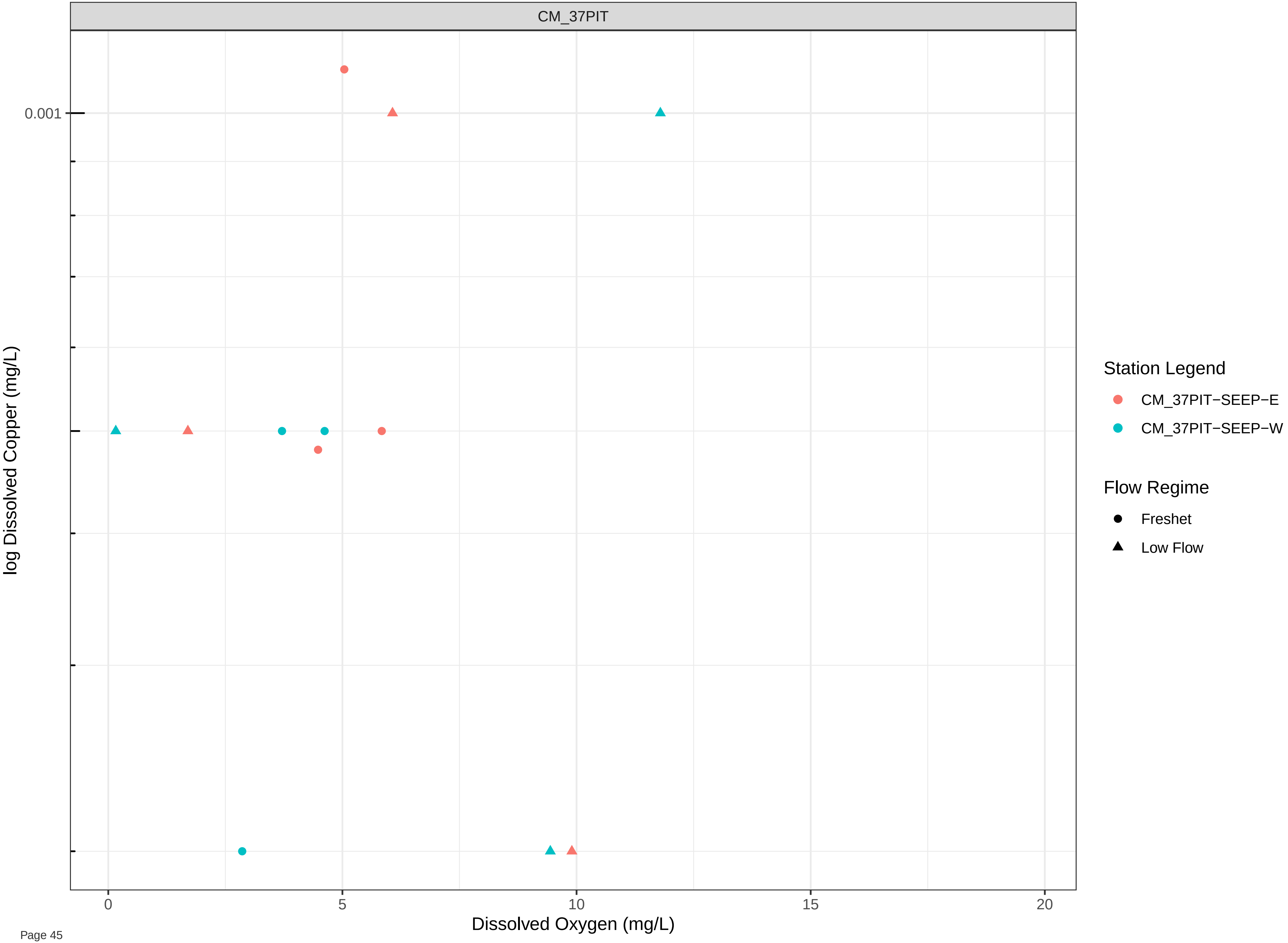

CM_WESTWR
log Dissolved Chromium (mg/L)
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_WD15
● CM_WD18
● CM_WD19
● CM_WD4
● CM_WD7
Flow Regime
● Freshet
▲ Low Flow

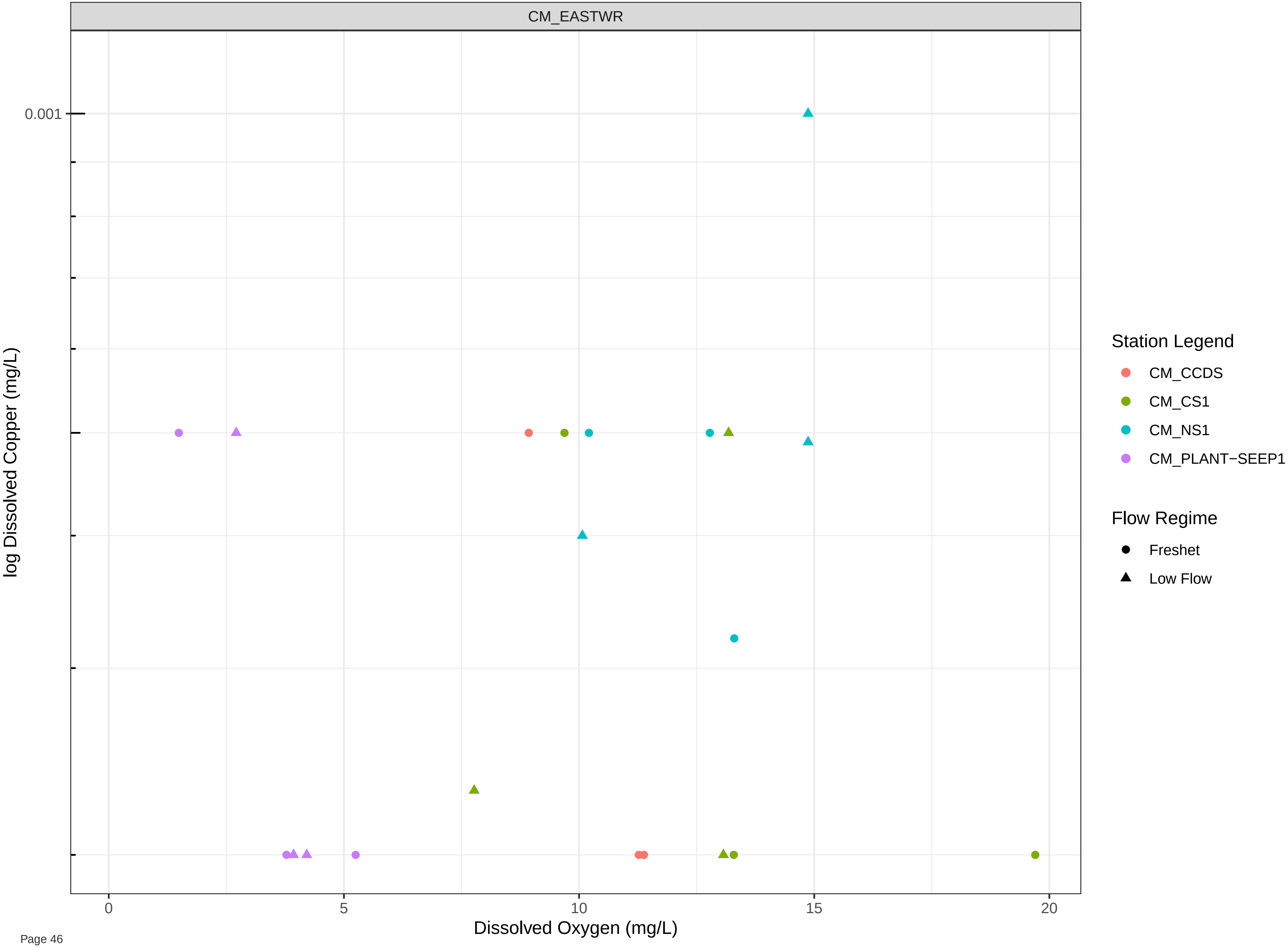

CM_37PIT
log Dissolved Cobalt (mg/L)
0.1
0.01
0.001
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow


CM_EASTWR
log Dissolved Cobalt (mg/L)
0.1
0.01
0.001
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow


CM_MMCCR
0.1
0.01
0.001
1e−04
log Dissolved Cobalt (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow


CM_WESTWR
0.1
0.01
0.001
1e−04
log Dissolved Cobalt (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow


CM_37PIT
0.001
log Dissolved Copper (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow


CM_EASTWR
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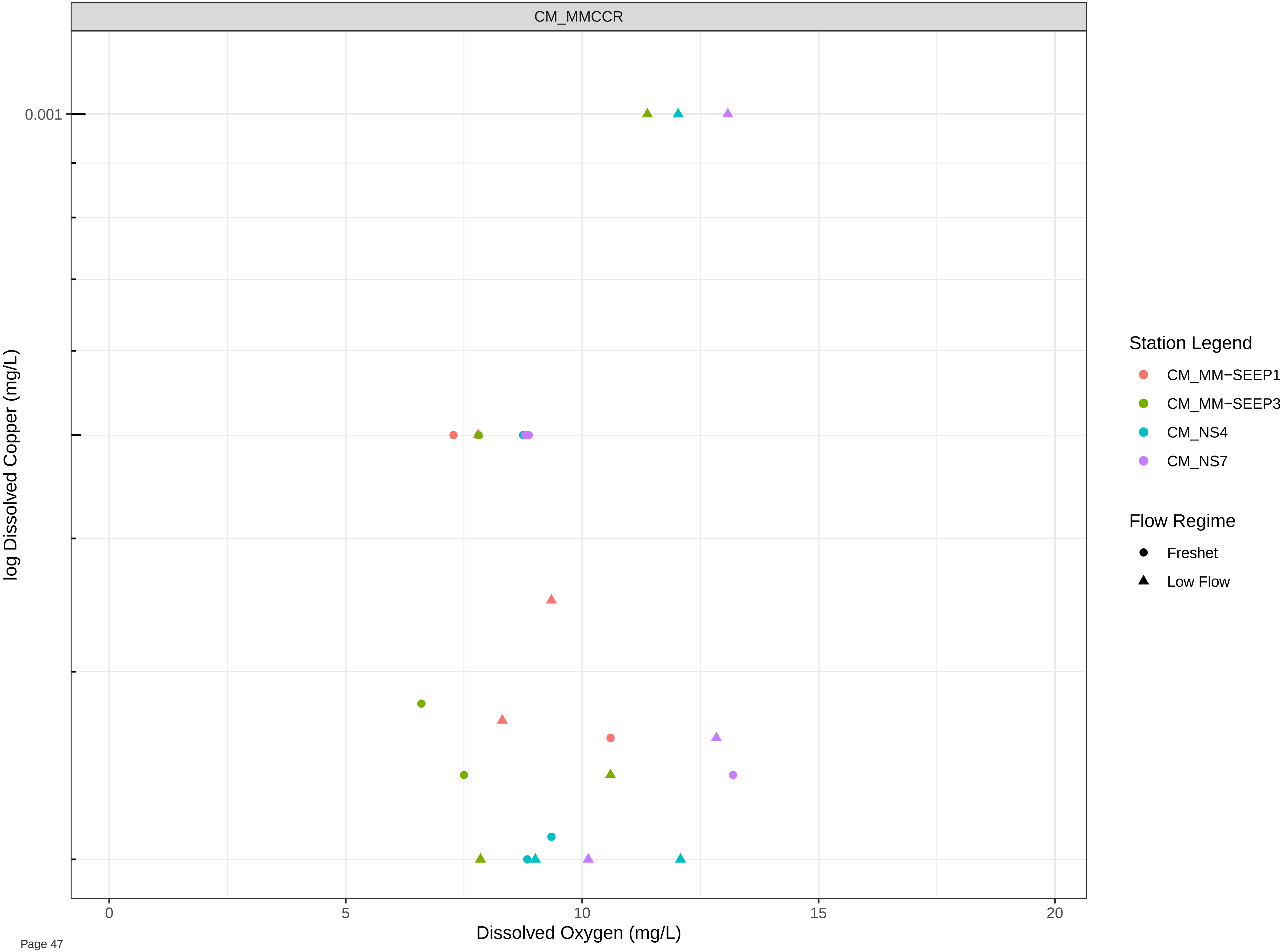
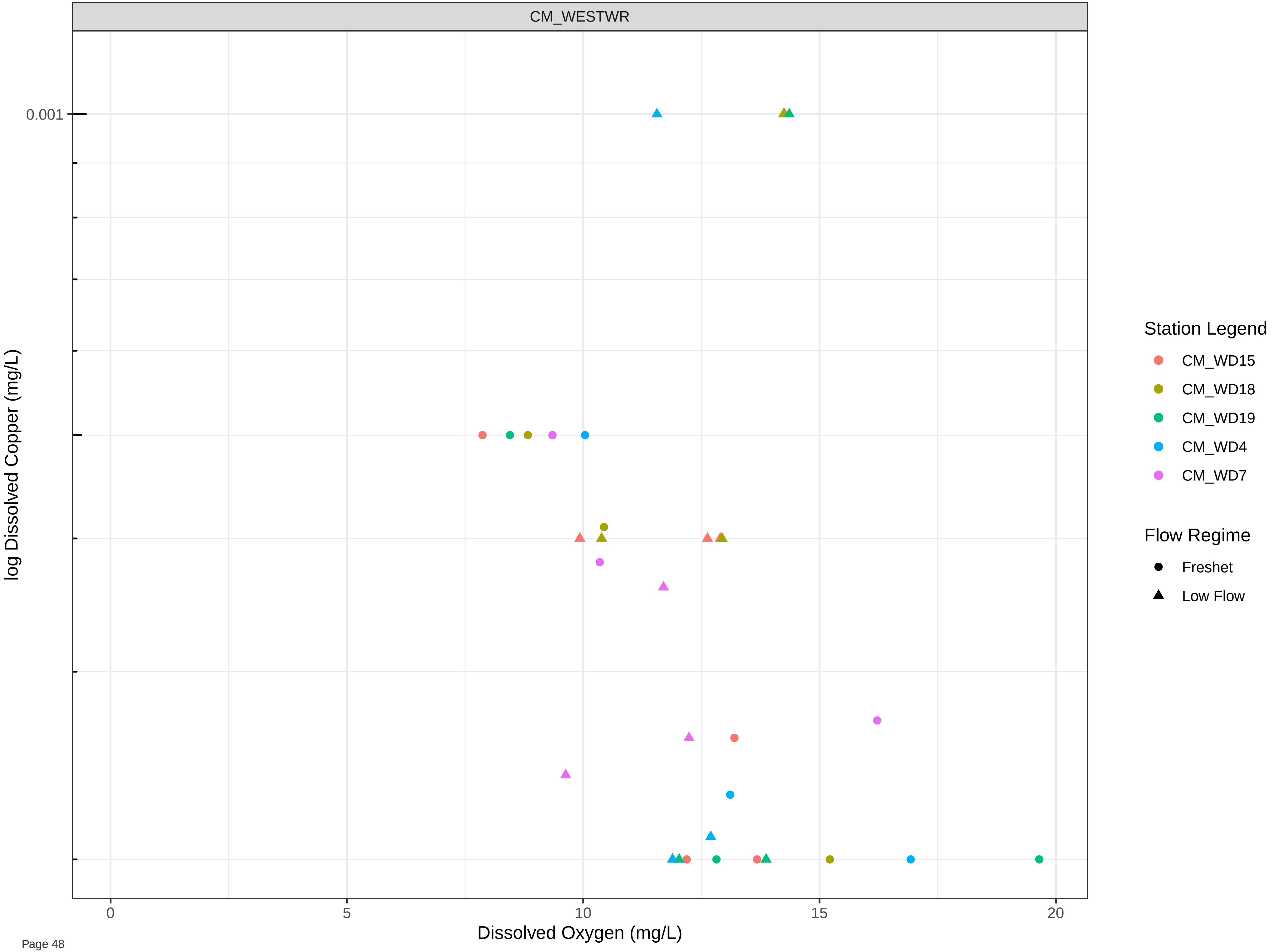
log Dissolved Copper (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow


CM_MMCCR
0.001
log Dissolved Copper (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_MM−SEEP1
● CM_MM−SEEP3
● CM_NS4
● CM_NS7
Flow Regime
● Freshet
▲ Low Flow


CM_WESTWR
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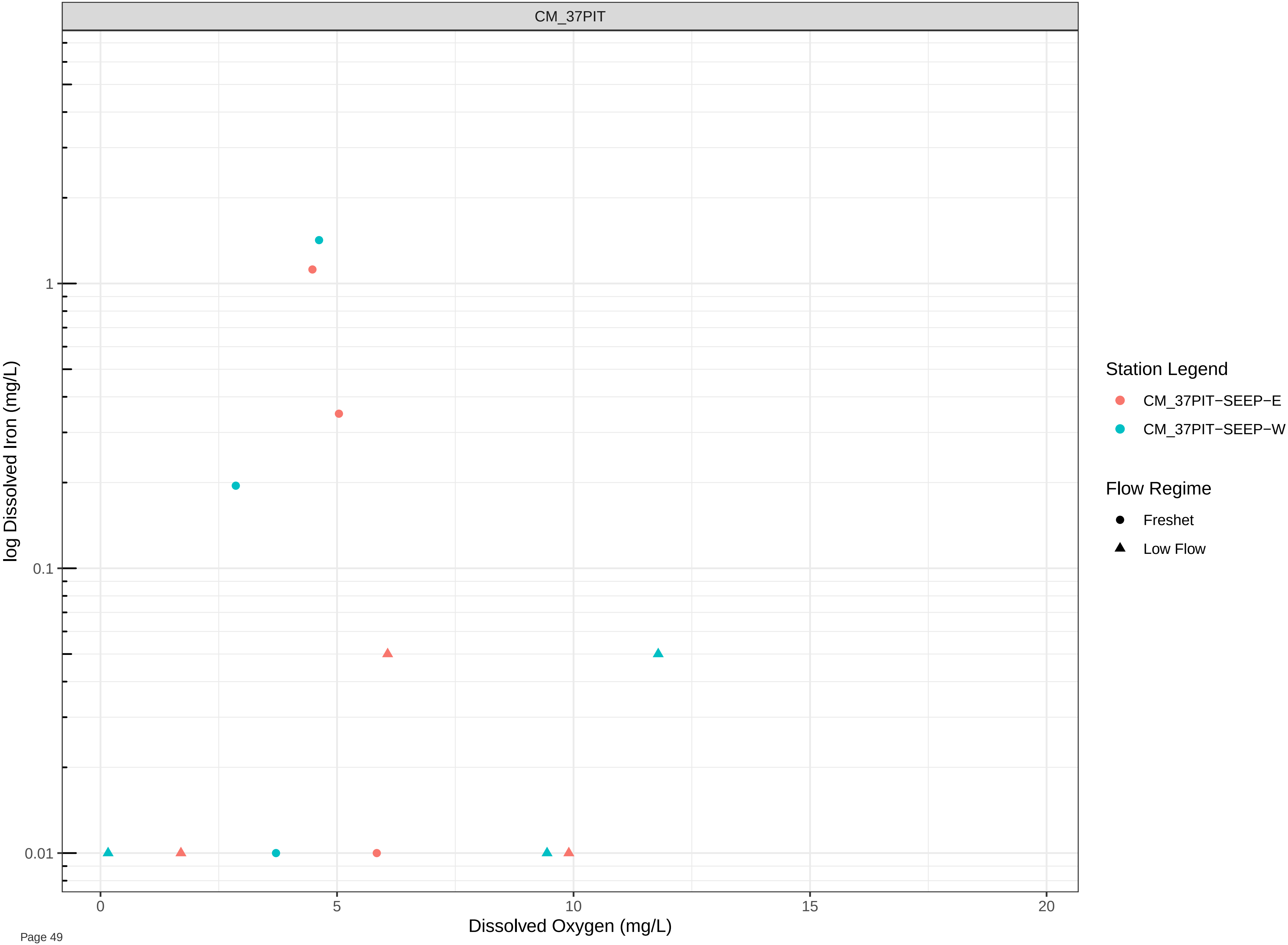
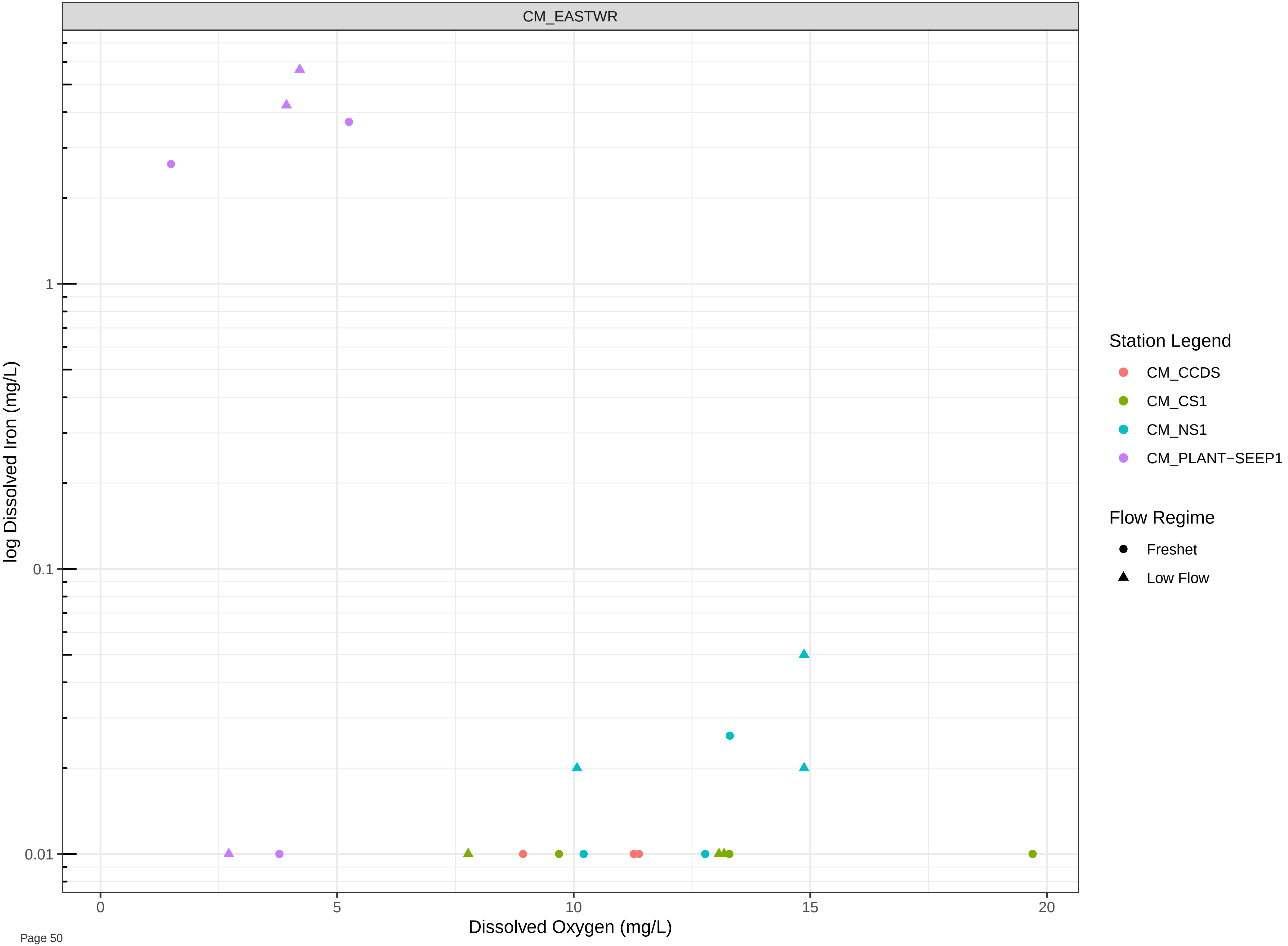
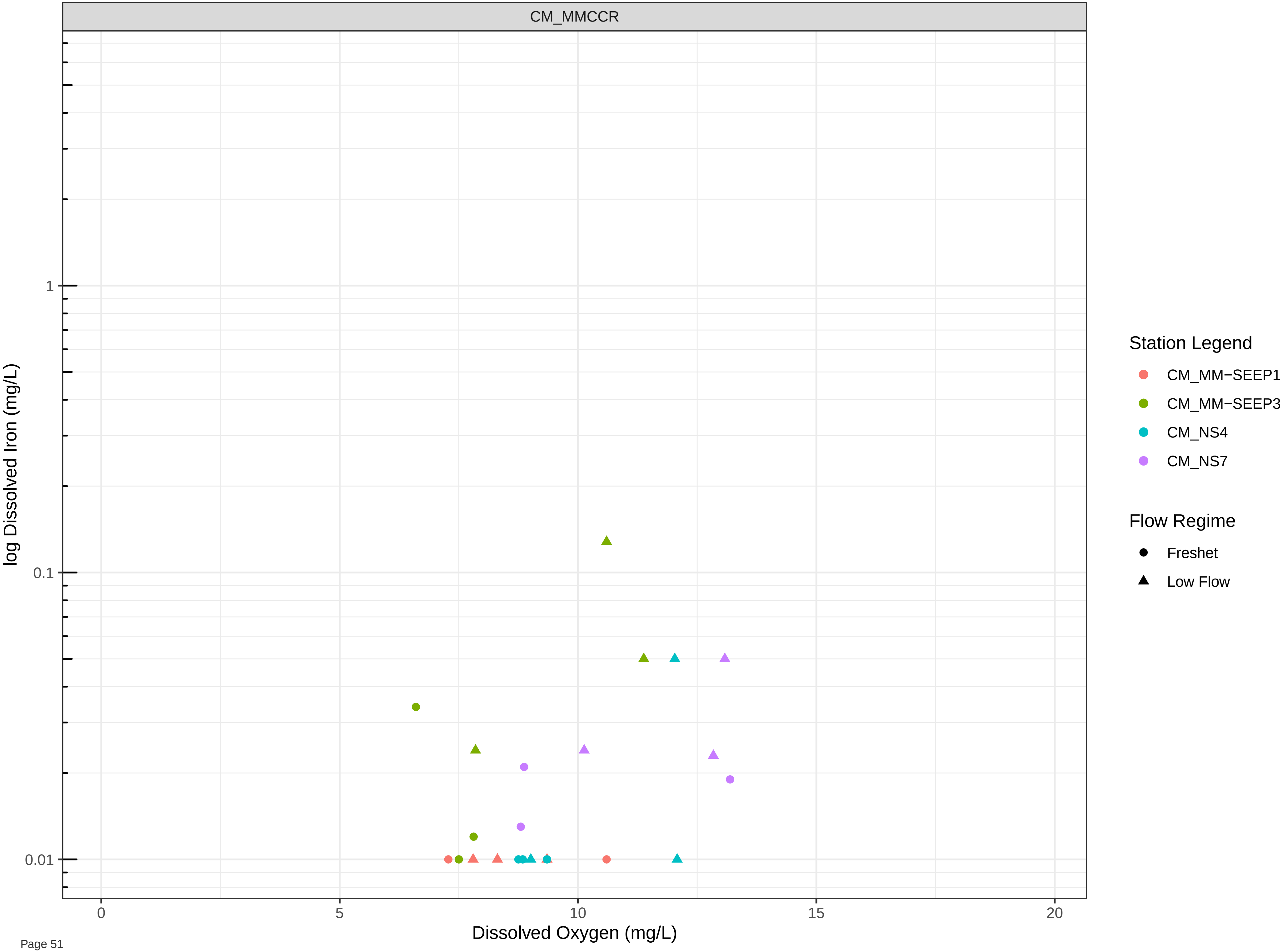
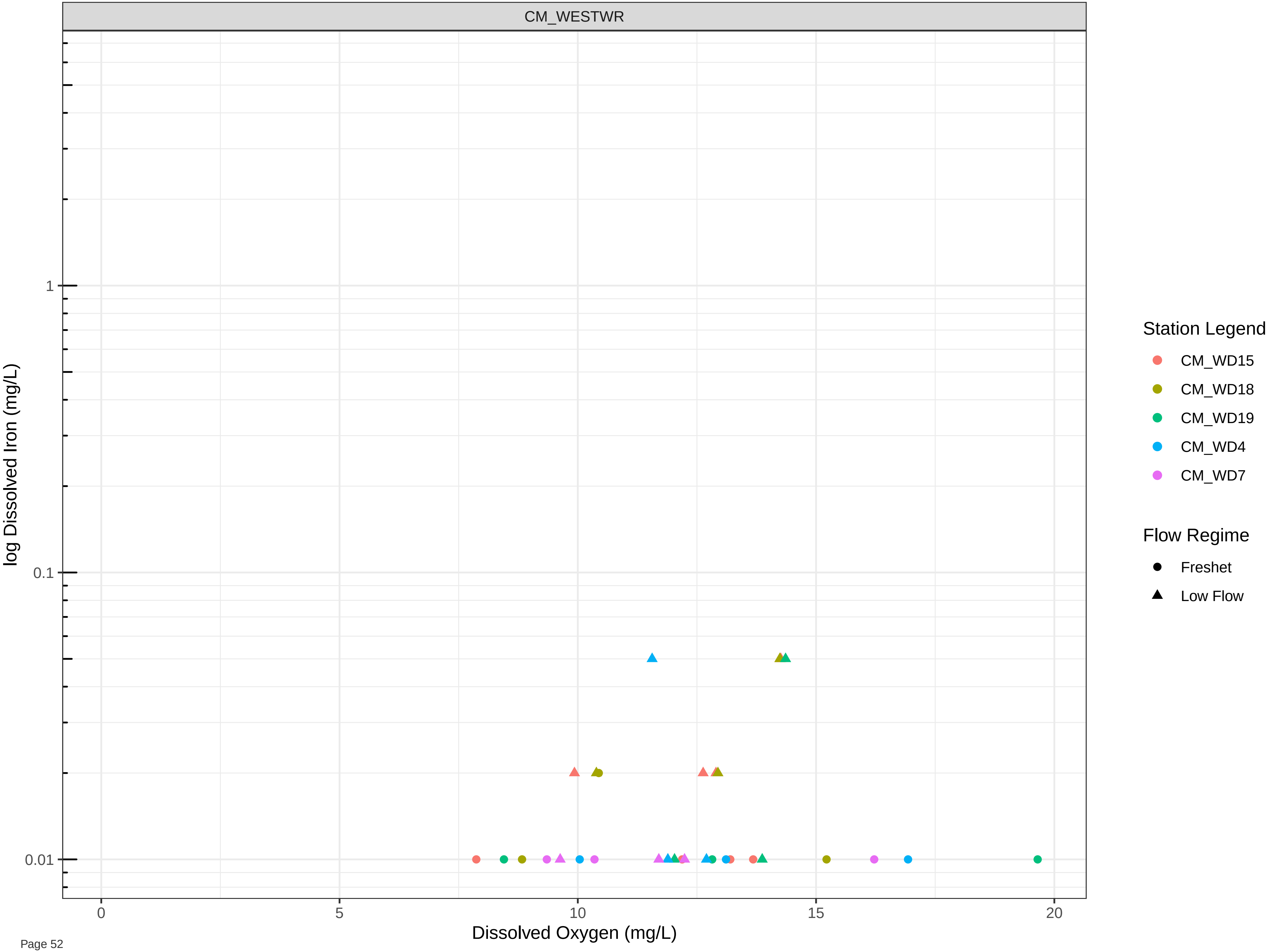
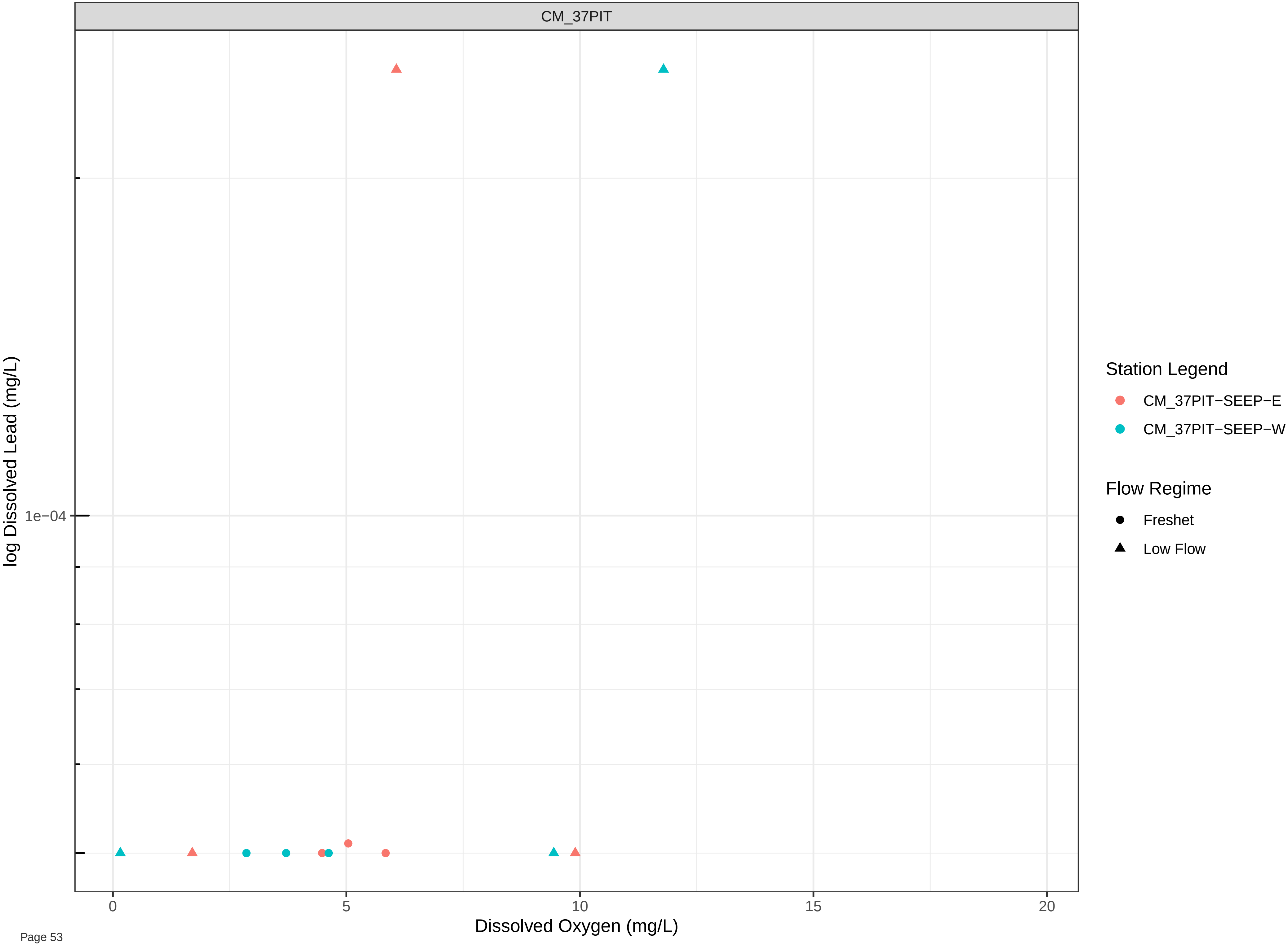
log Dissolved Copper (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_WD15
● CM_WD18
● CM_WD19
● CM_WD4
● CM_WD7
Flow Regime
● Freshet
▲ Low Flow

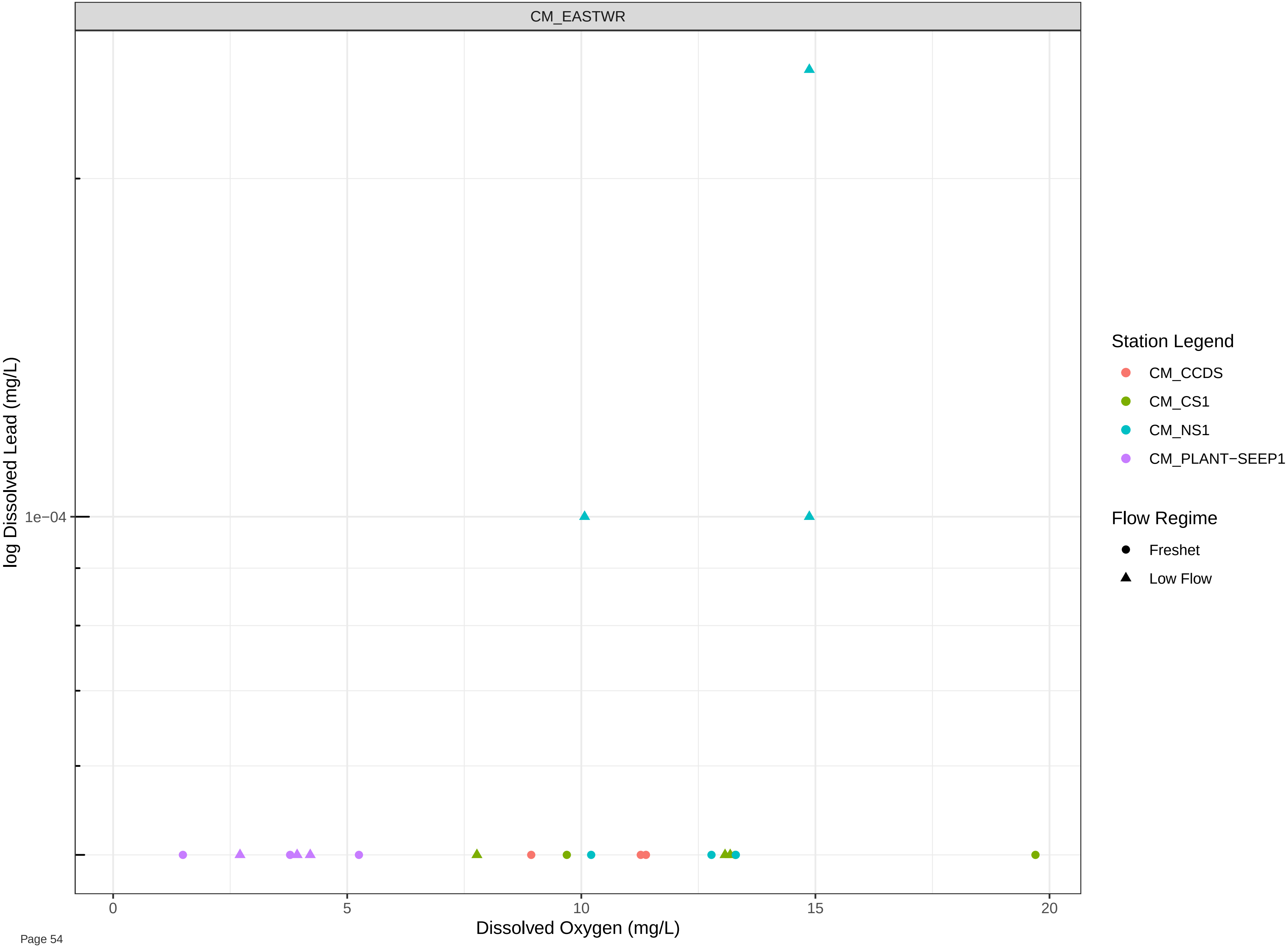

CM_37PIT
log Dissolved Iron (mg/L)
1
0.1
0.01
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

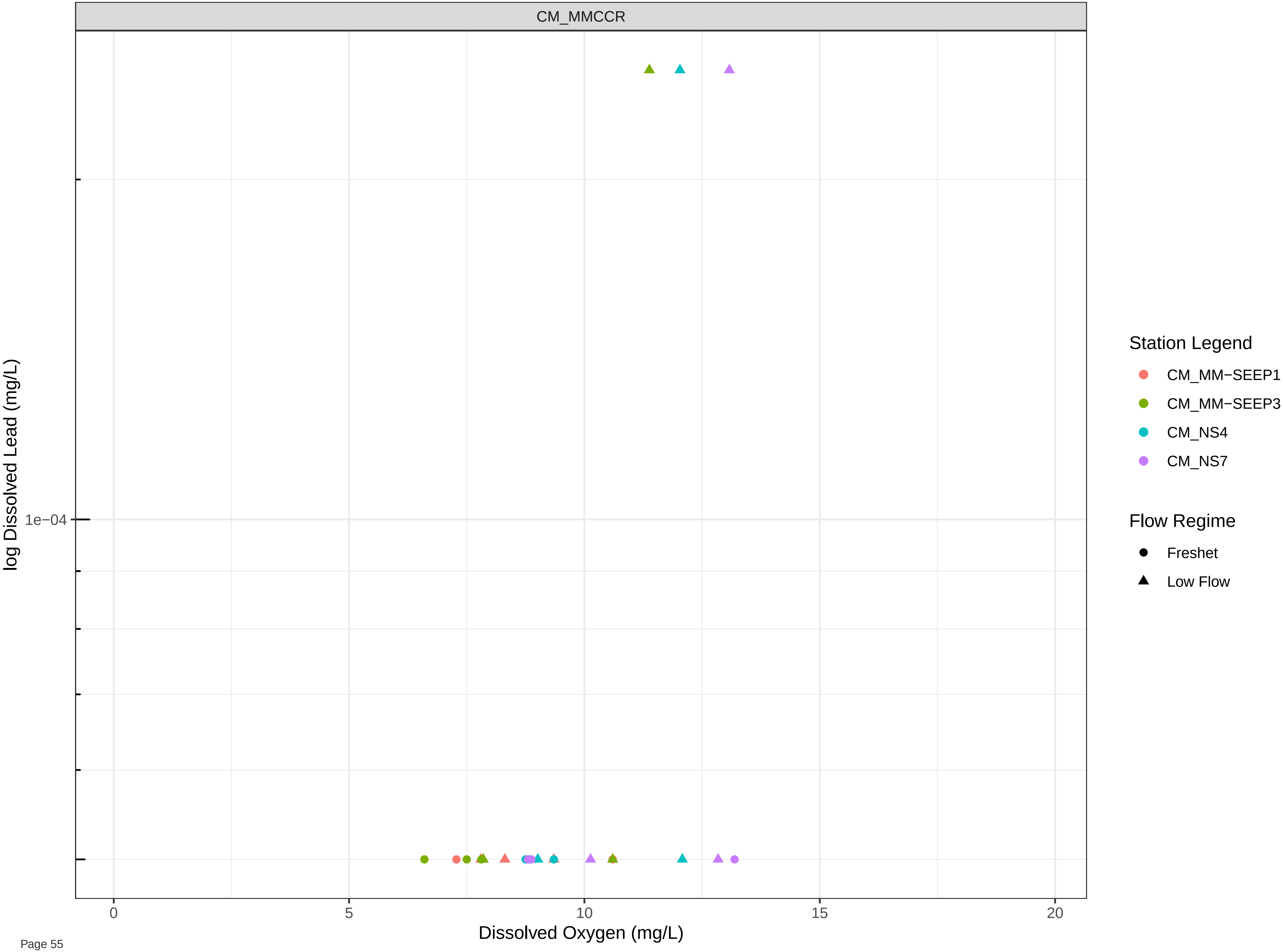

CM_EASTWR
log Dissolved Iron (mg/L)
1
0.1
0.01
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
● CM_CCDS
● CM_CS1
● CM_NS1
● CM_PLANT−SEEP1
Flow Regime
● Freshet
▲ Low Flow

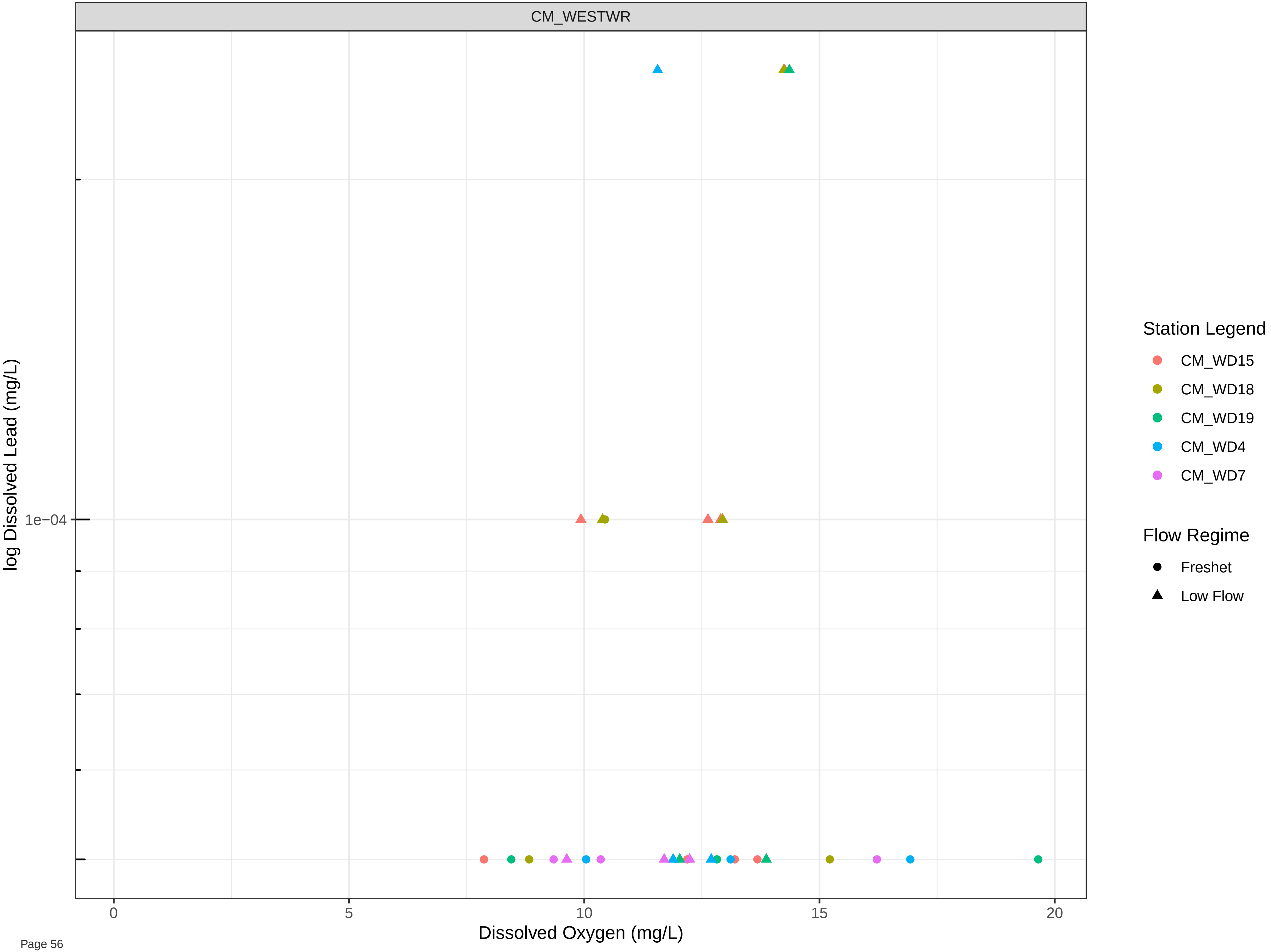

CM_MMCCR
log Dissolved Iron (mg/L)
1
0.1
0.01
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

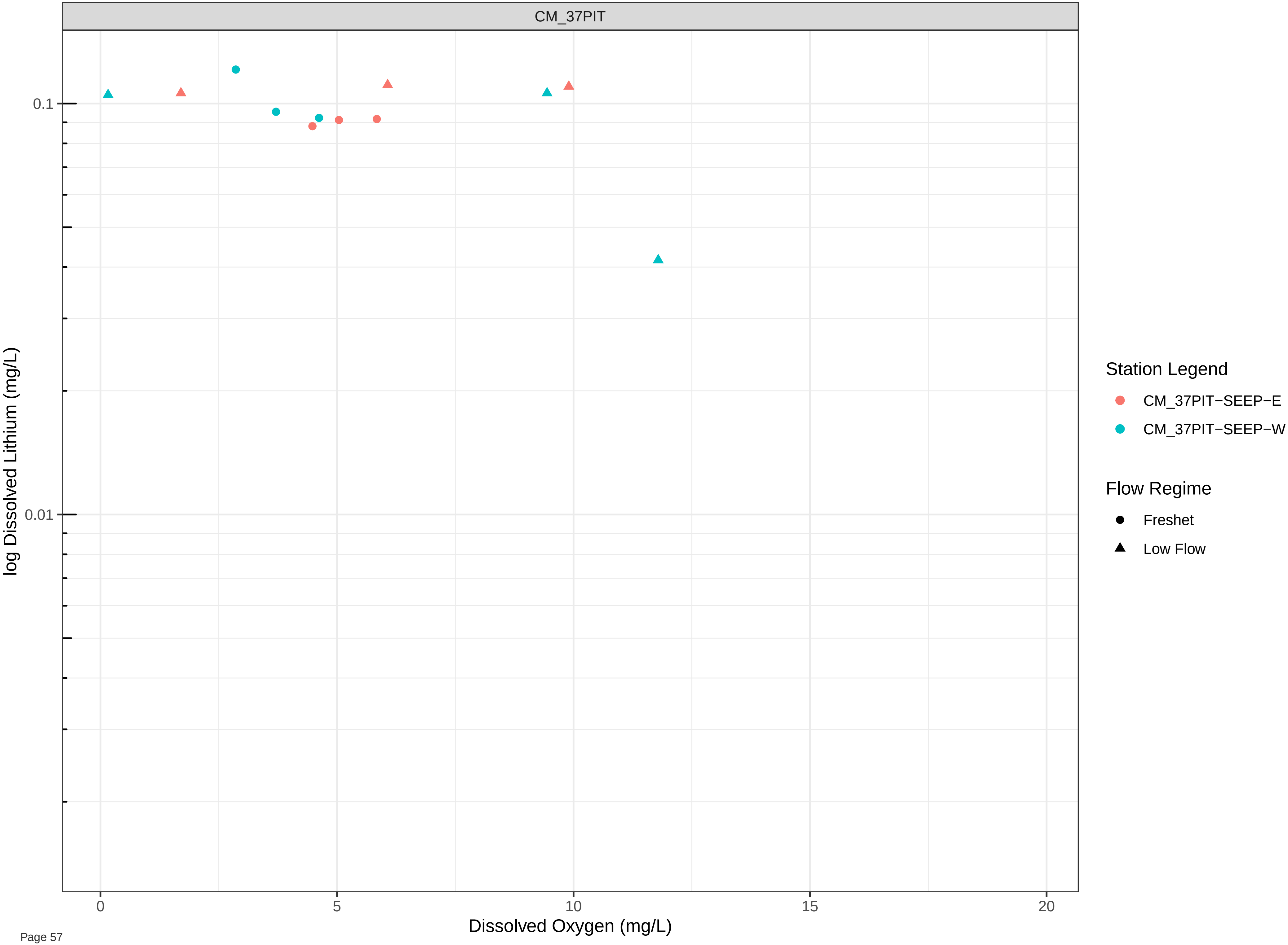

CM_WESTWR
log Dissolved Iron (mg/L)
1
0.1
0.01
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow


CM_37PIT
log Dissolved Lead (mg/L)
1e−04
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow


CM_EASTWR
log Dissolved Lead (mg/L)
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow


CM_MMCCR
log Dissolved Lead (mg/L)
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow


CM_WESTWR
log Dissolved Lead (mg/L)
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow


CM_37PIT
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0.01
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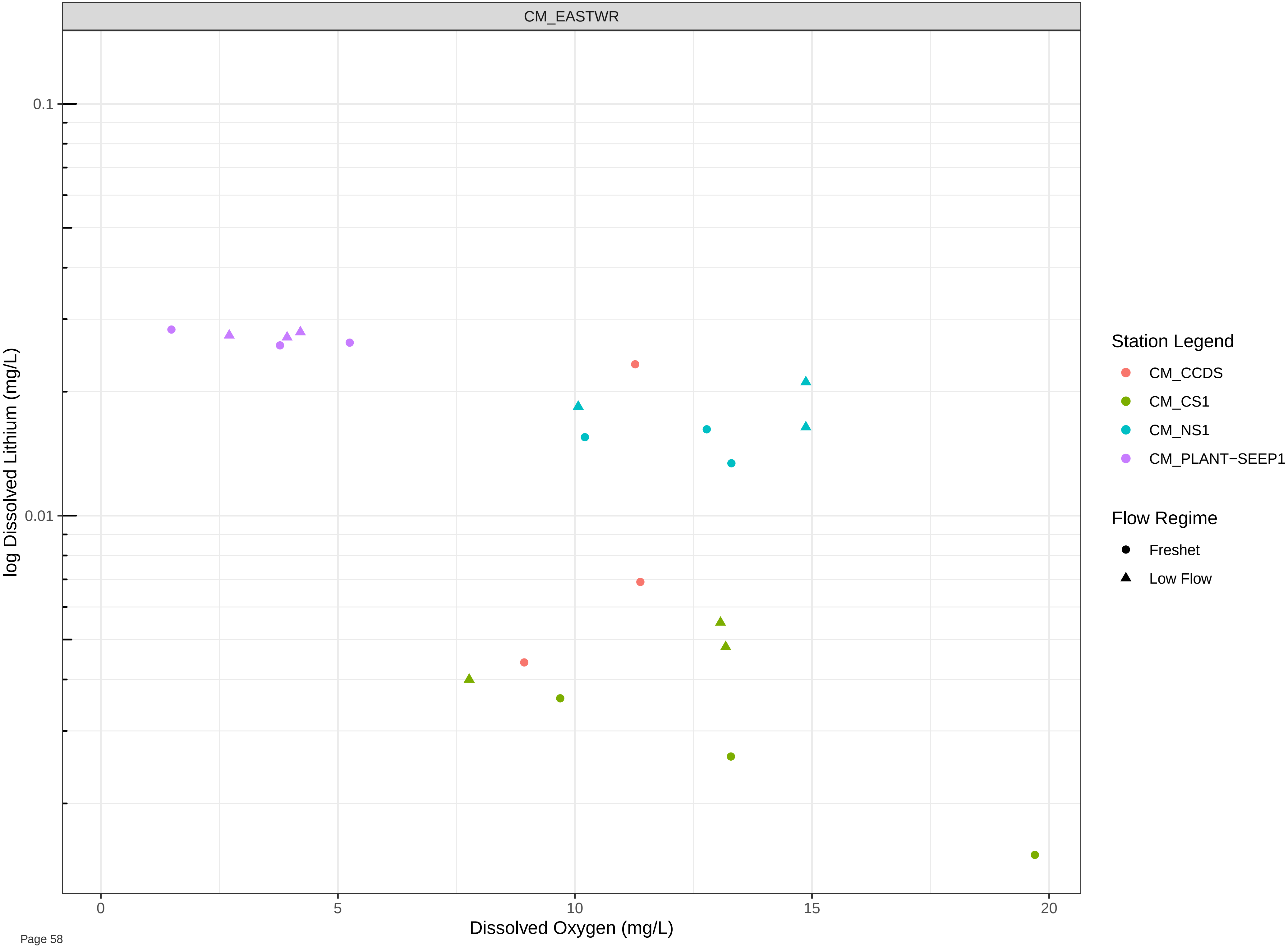
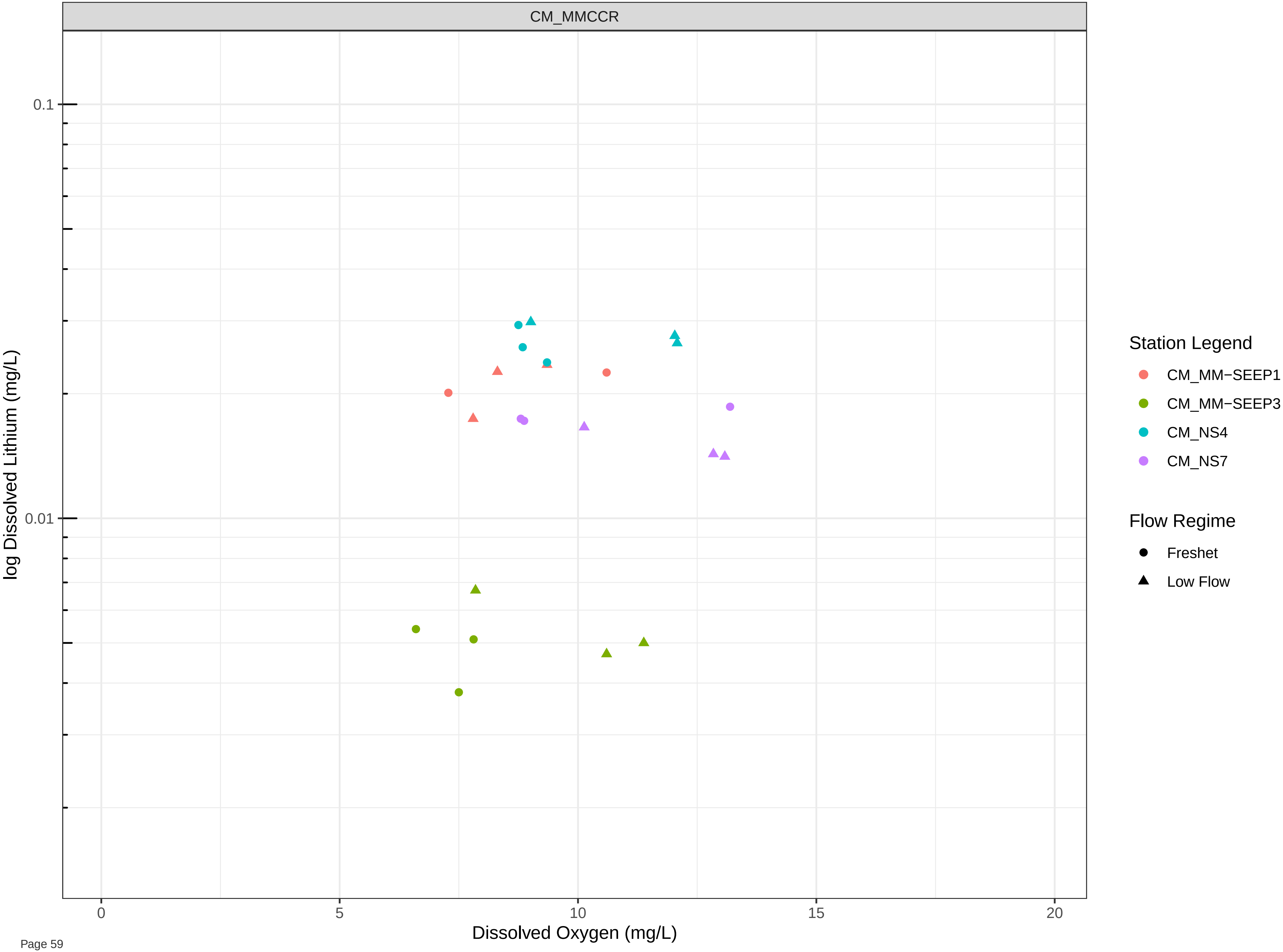
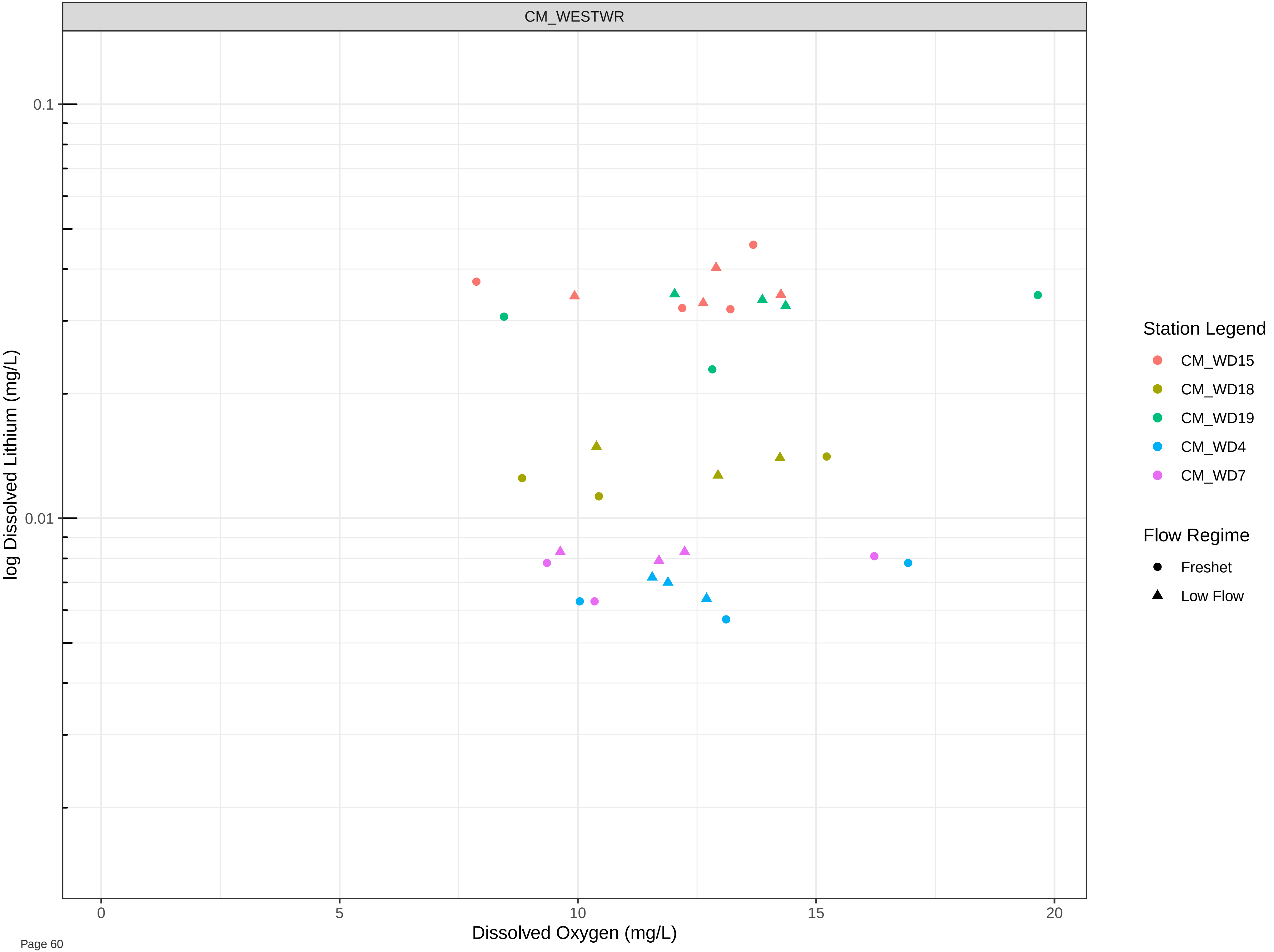
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow


CM_EASTWR
0.1
0.01
log Dissolved Lithium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow



CM_MMCCR
0.1
0.01
log Dissolved Lithium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow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0.01
log Dissolved Lithium (mg/L)
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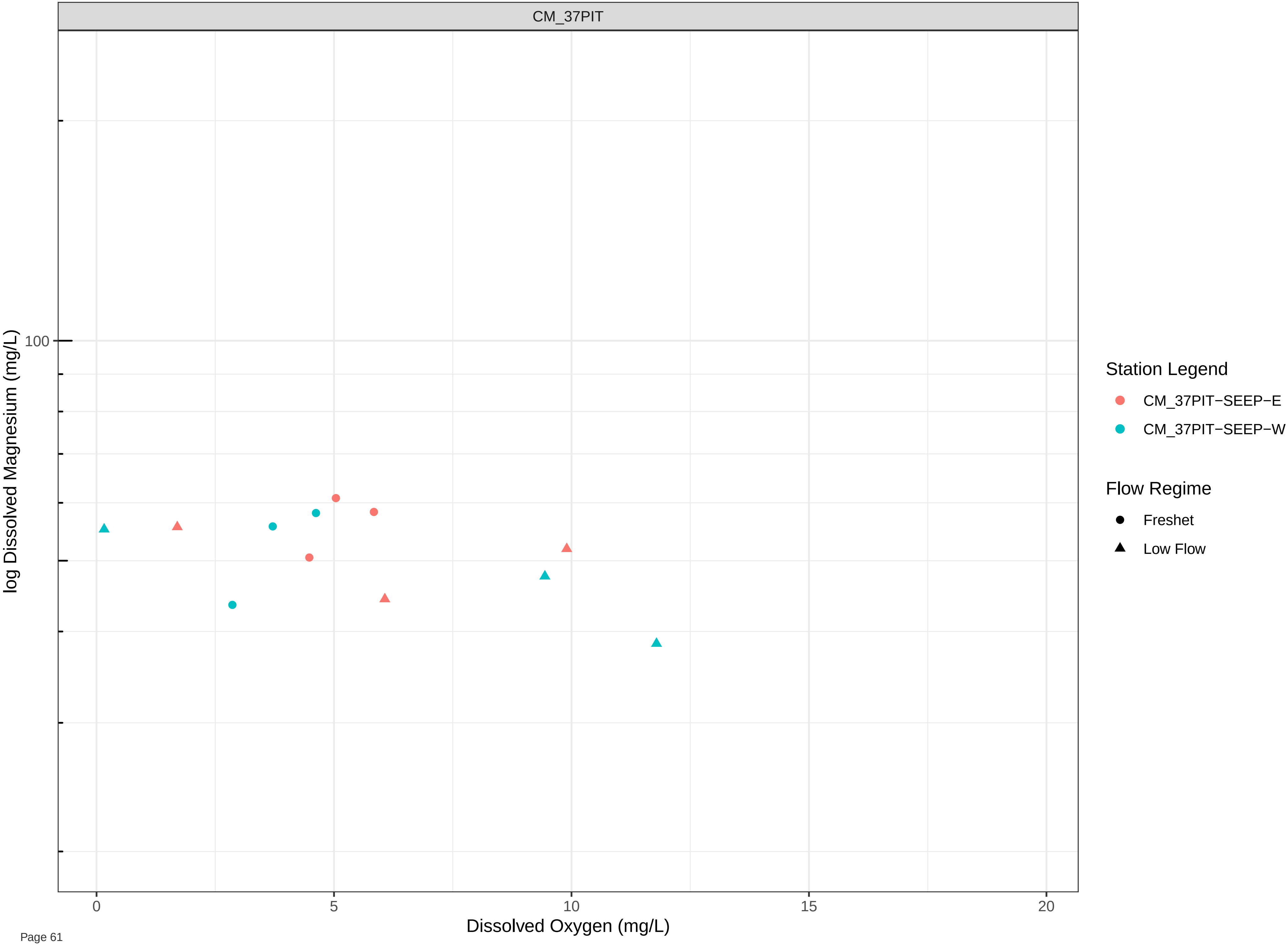
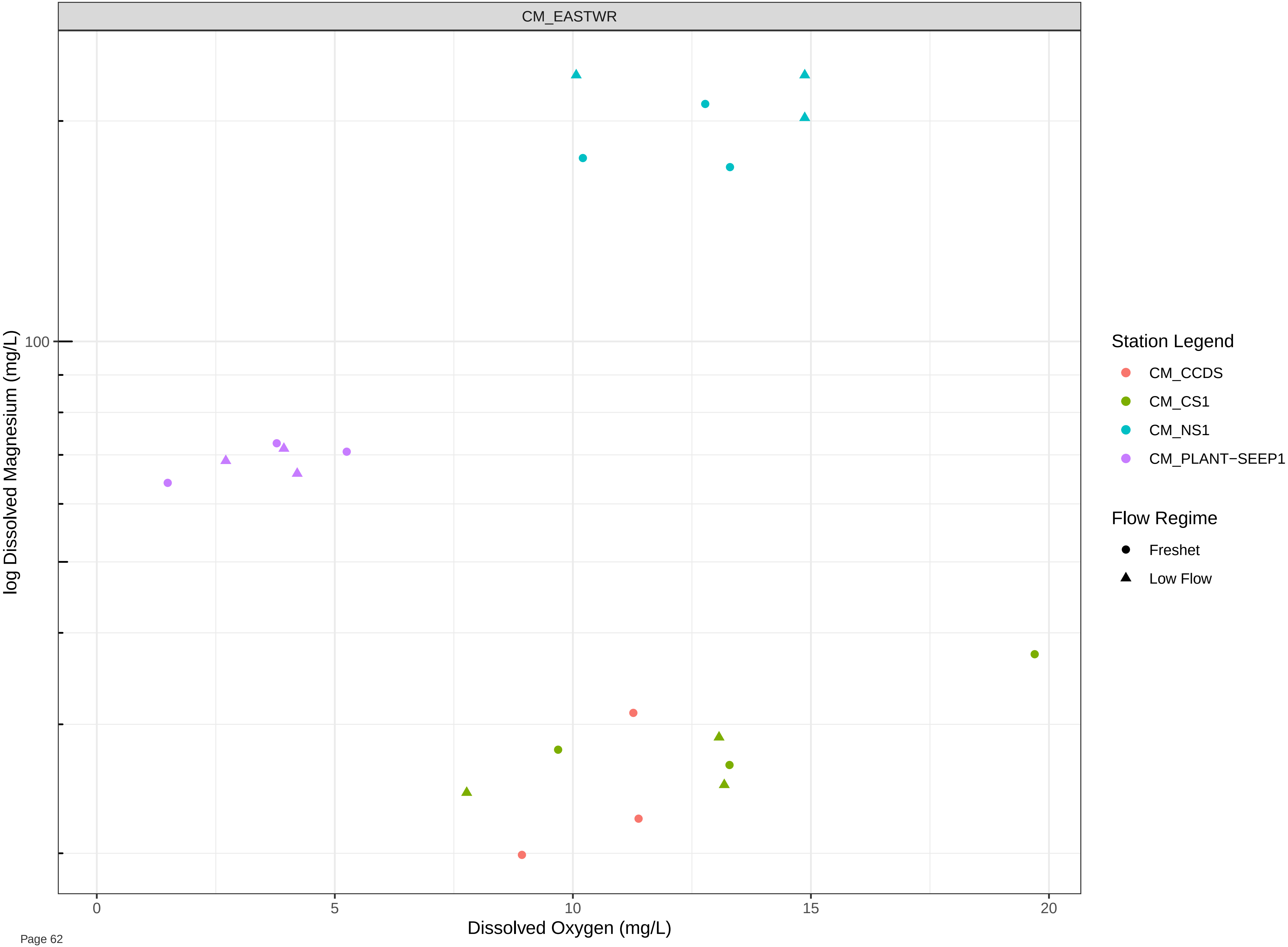
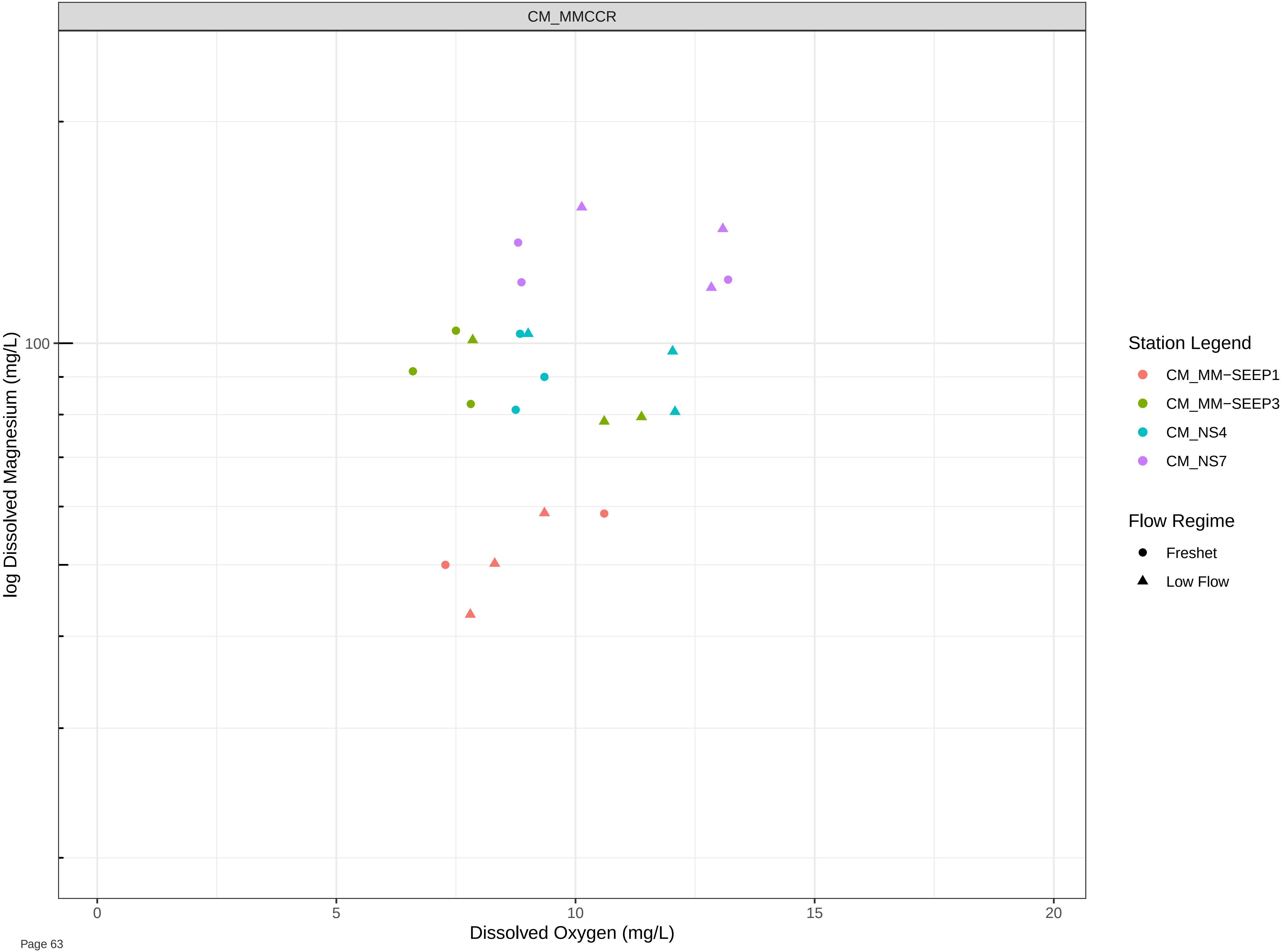
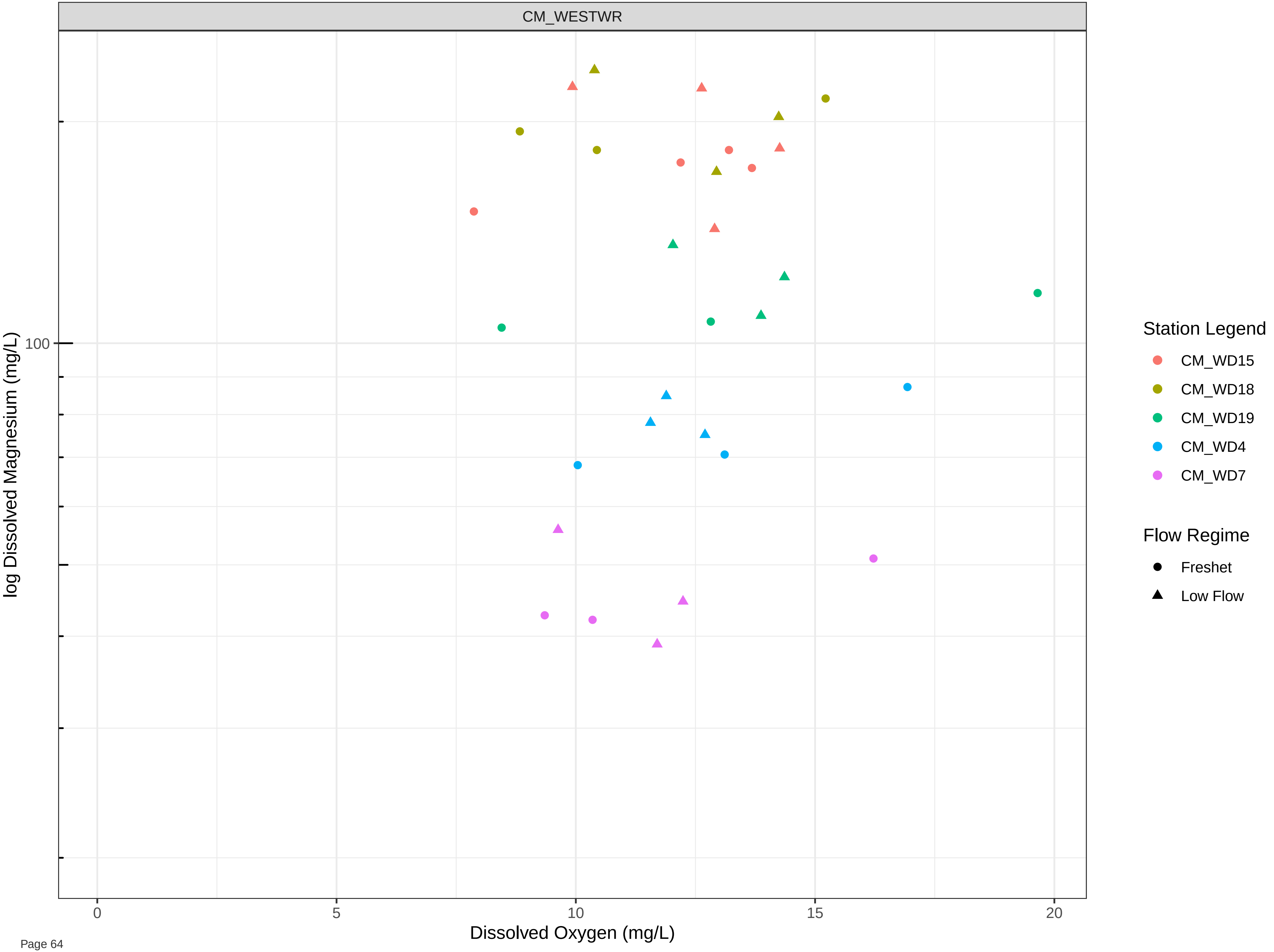
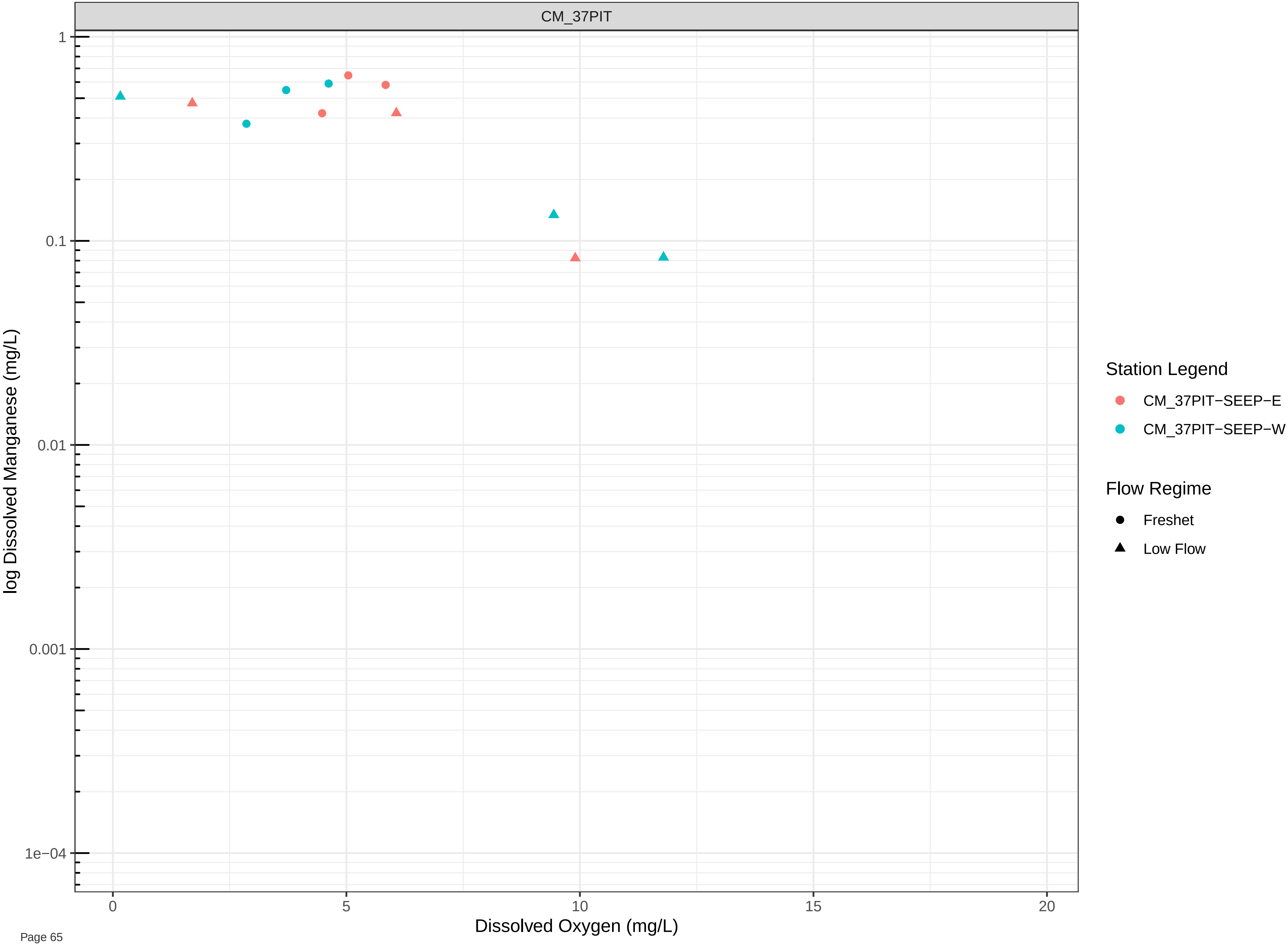
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow


CM_37PIT
log Dissolved Magnesium (mg/L)
100
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow


CM_EASTWR
log Dissolved Magnesium (mg/L)
100
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_CCDS
● CM_CS1
● CM_NS1
● CM_PLANT−SEEP1
Flow Regime
● Freshet
▲ Low Flow


CM_MMCCR
log Dissolved Magnesium (mg/L)
100
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow


CM_WESTWR
log Dissolved Magnesium (mg/L)
100
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow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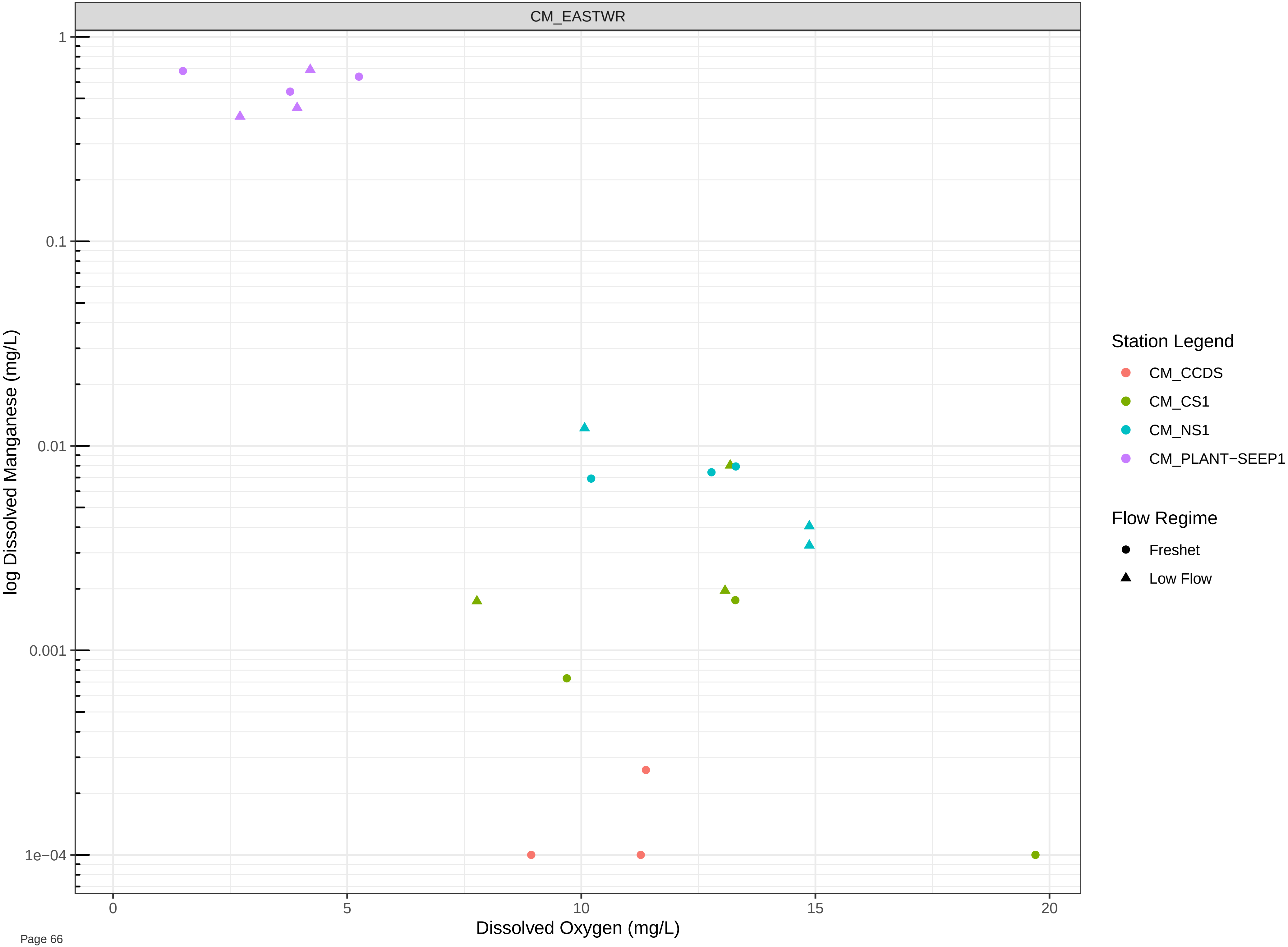
1
0.1
0.01
0.001
1e−04
log Dissolved Manganese (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow


CM_EASTWR
log Dissolved Manganese (mg/L)
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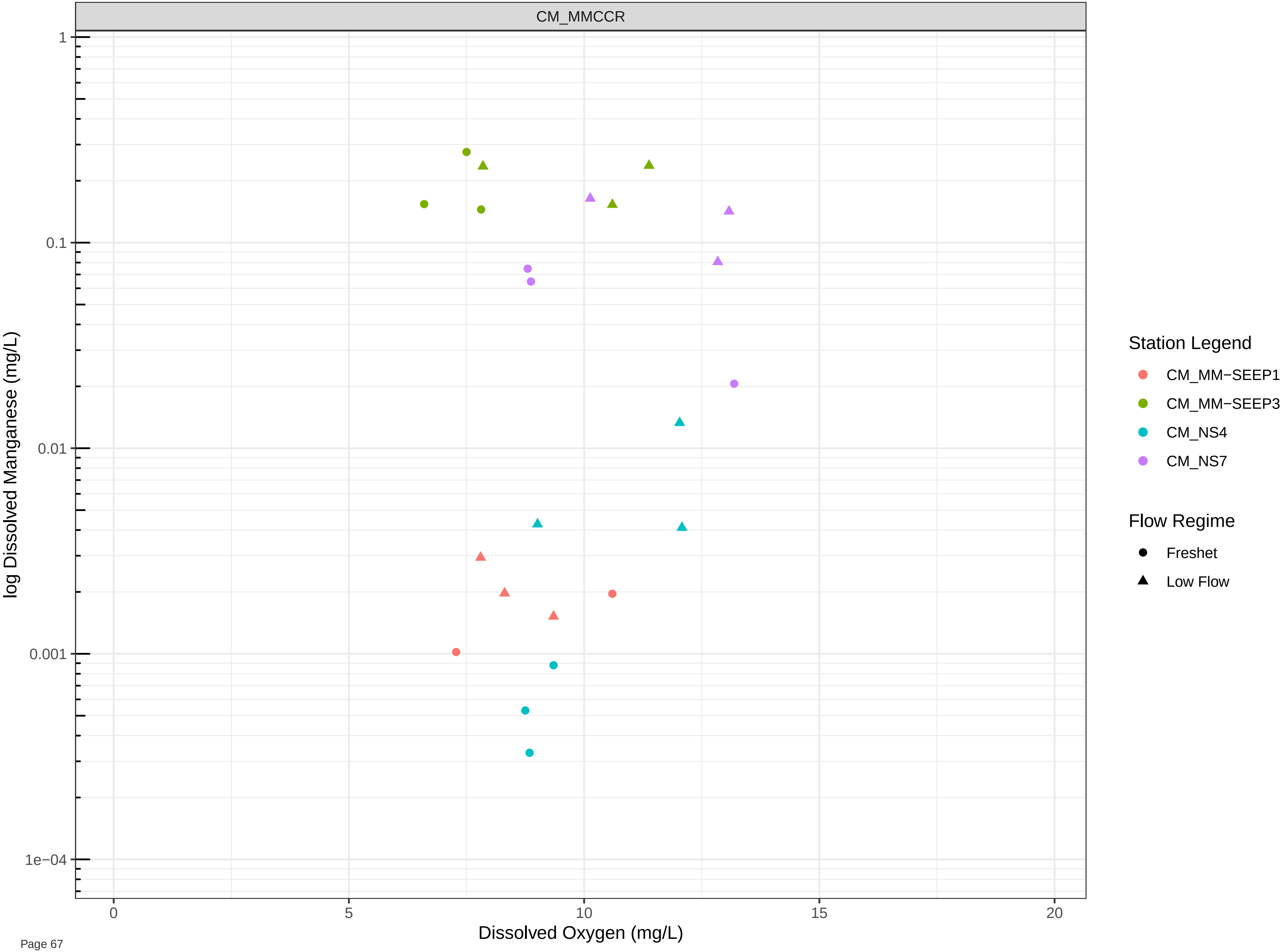
0.1
0.01
0.001
1e−04
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow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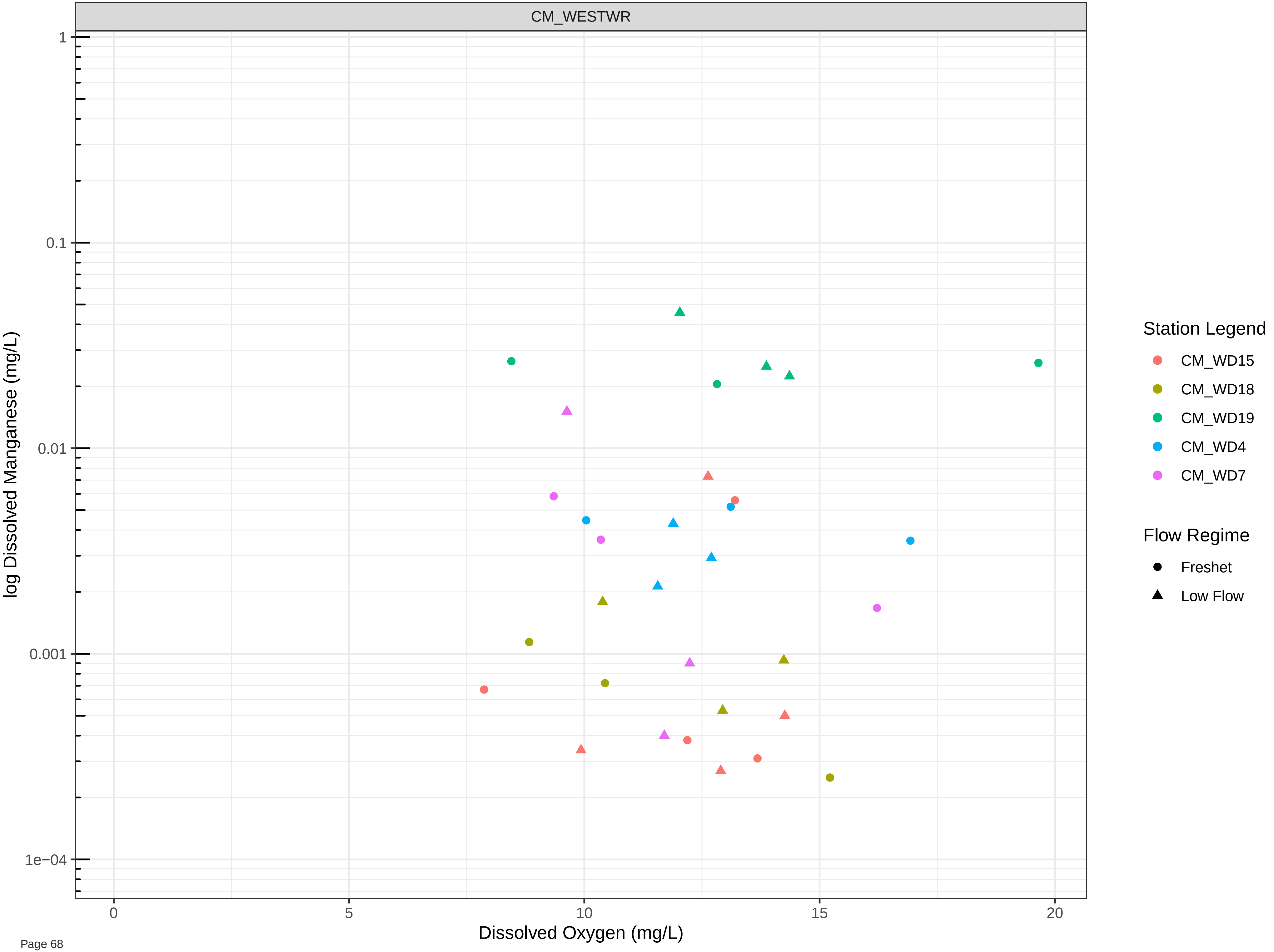
log Dissolved Manganese (mg/L)
1
0.1
0.01
0.001
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_MM−SEEP1
● CM_MM−SEEP3
● CM_NS4
● CM_NS7
Flow Regime
● Freshet
▲ Low Flow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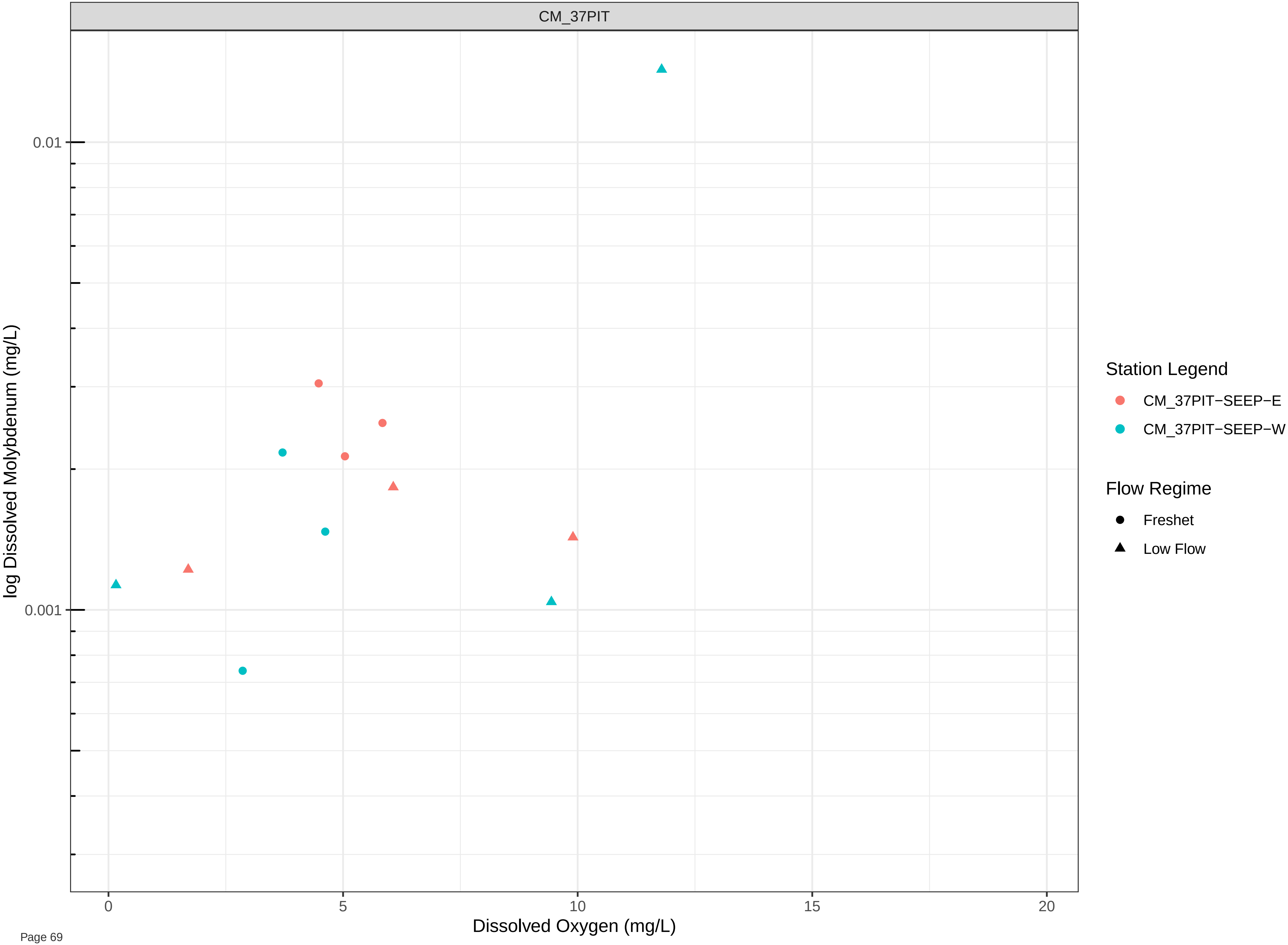
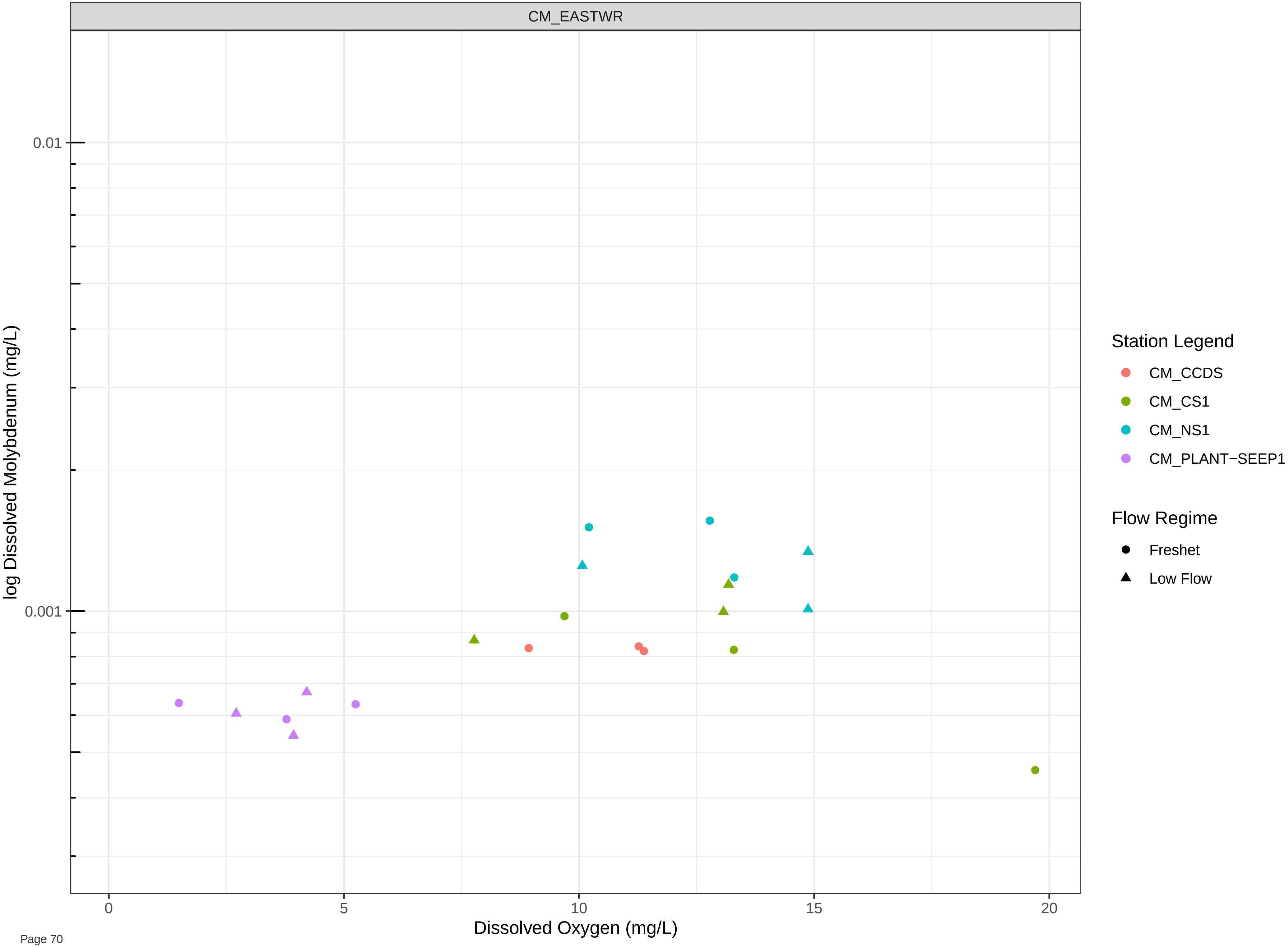
1
0.1
0.01
0.001
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow


CM_37PIT
log Dissolved Molybdenum (mg/L)
0.01
0.001
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow


CM_EASTWR
log Dissolved Molybdenum (mg/L)
0.01
0.001
Dissolved Oxygen (mg/L)
0
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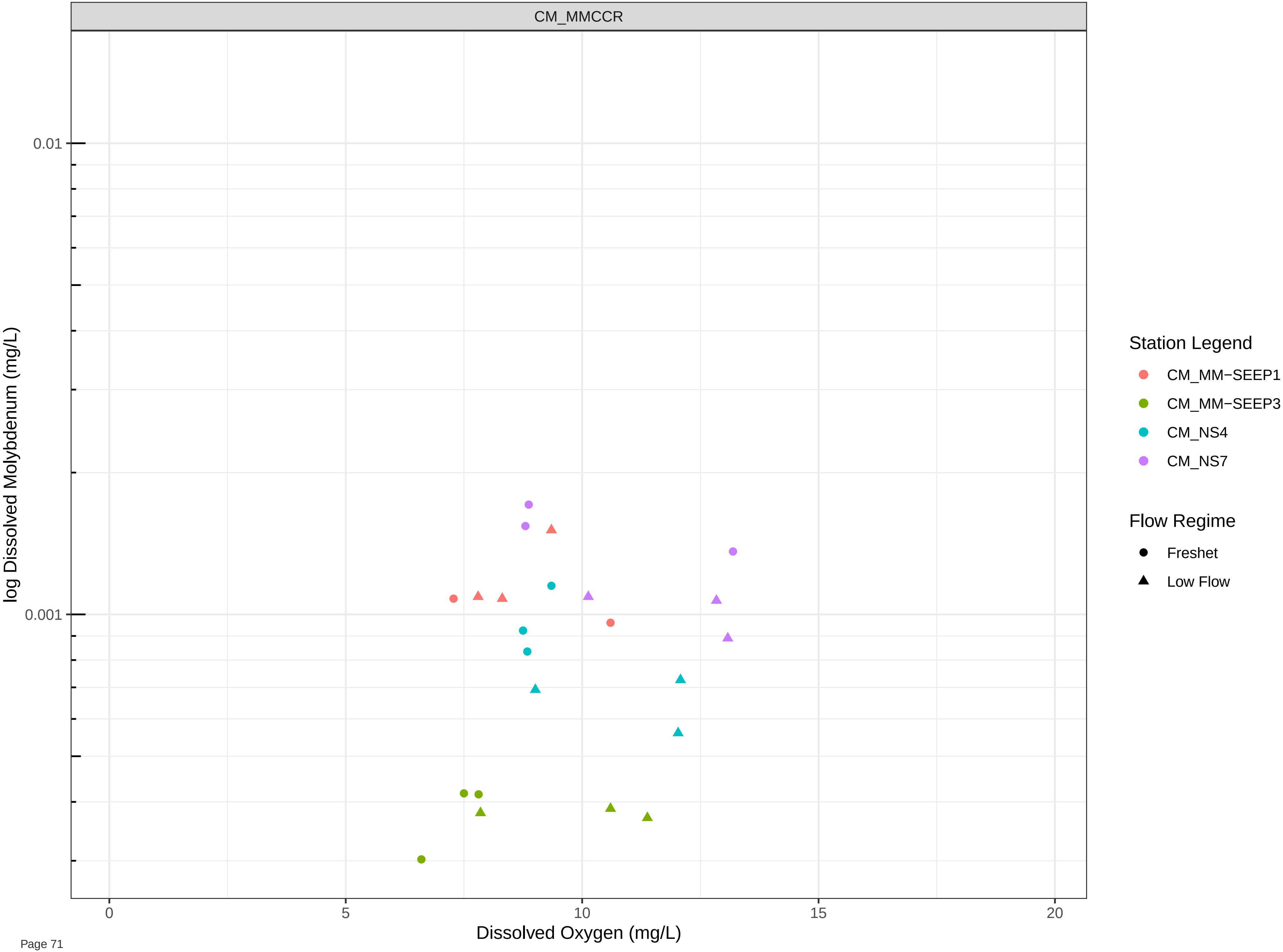
10
15
20
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow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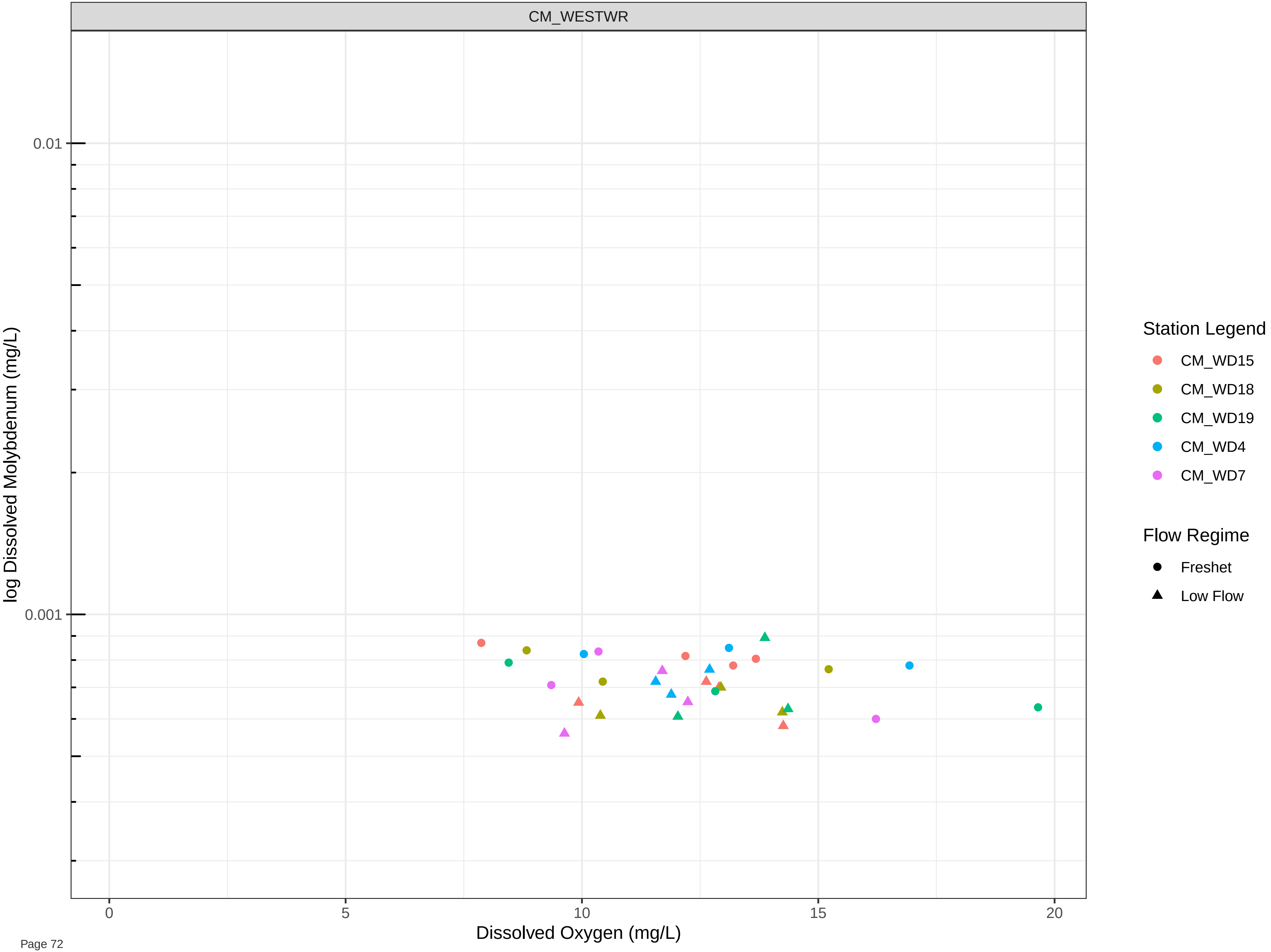
0.01
0.001
log Dissolved Molybdenum (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow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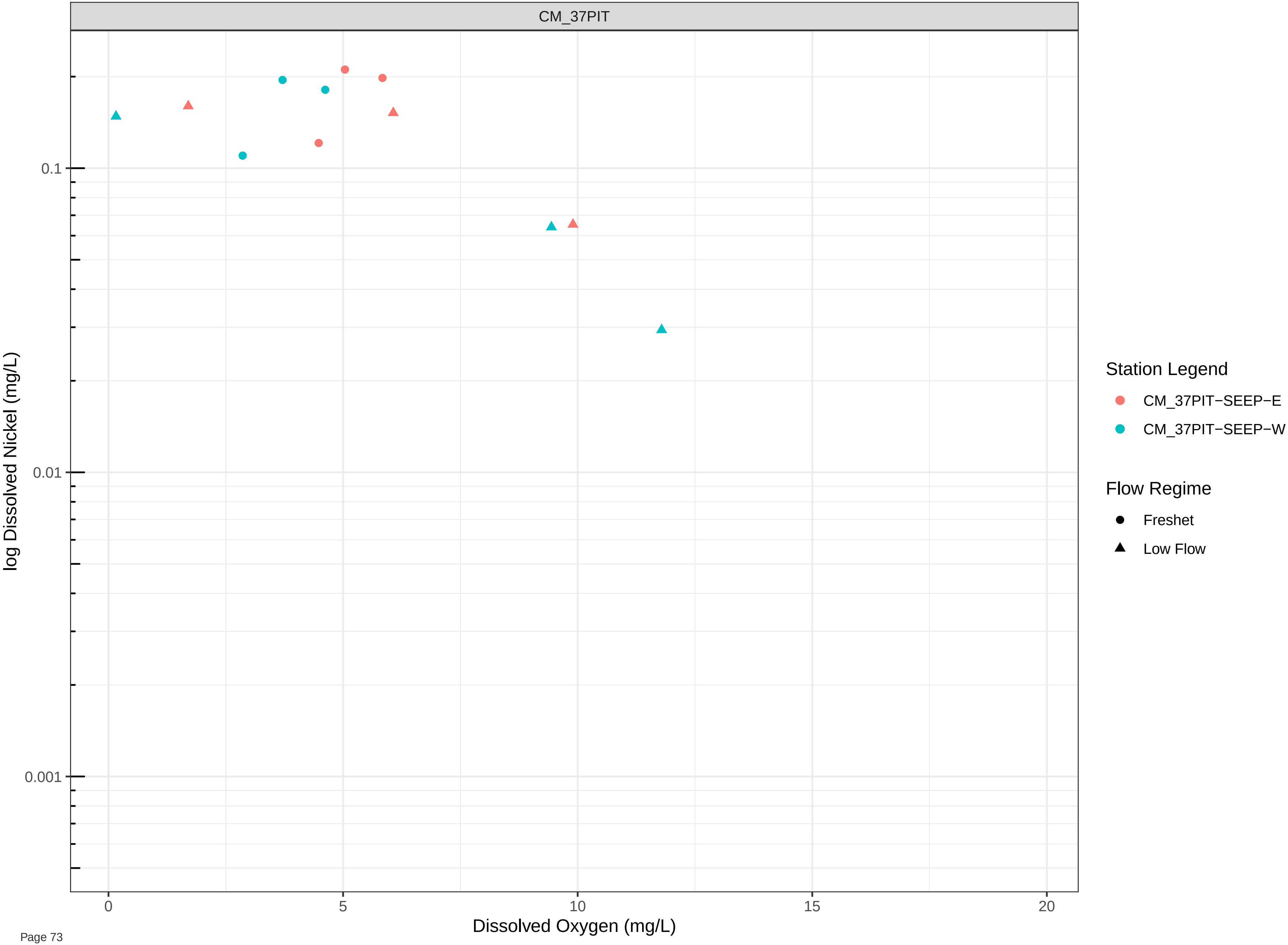
0.001
log Dissolved Molybdenum (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow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0.1
0.01
0.001
Dissolved Oxygen (mg/L)
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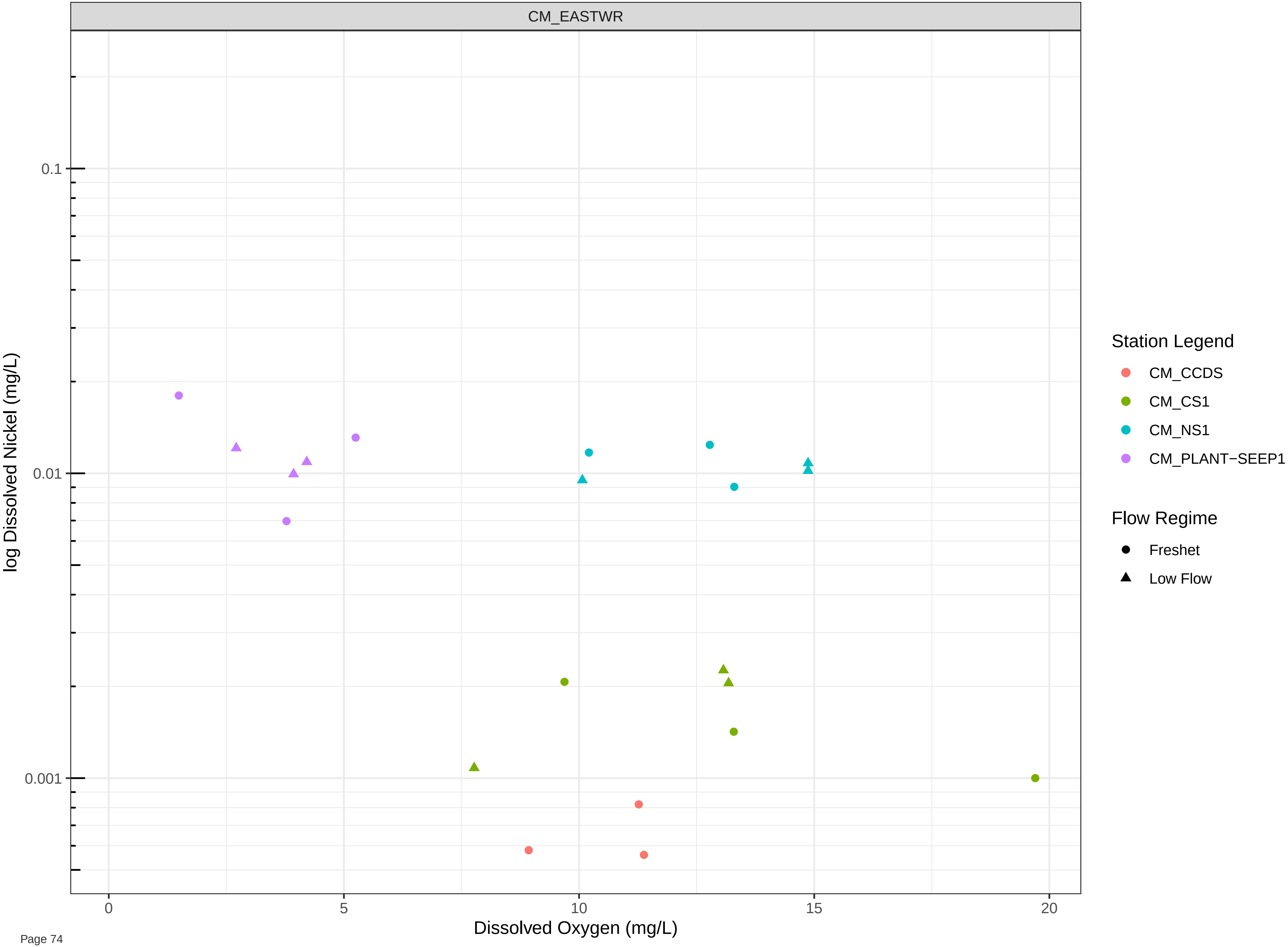
10
15
20
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow


CM_EASTWR
log Dissolved Nickel (mg/L)
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
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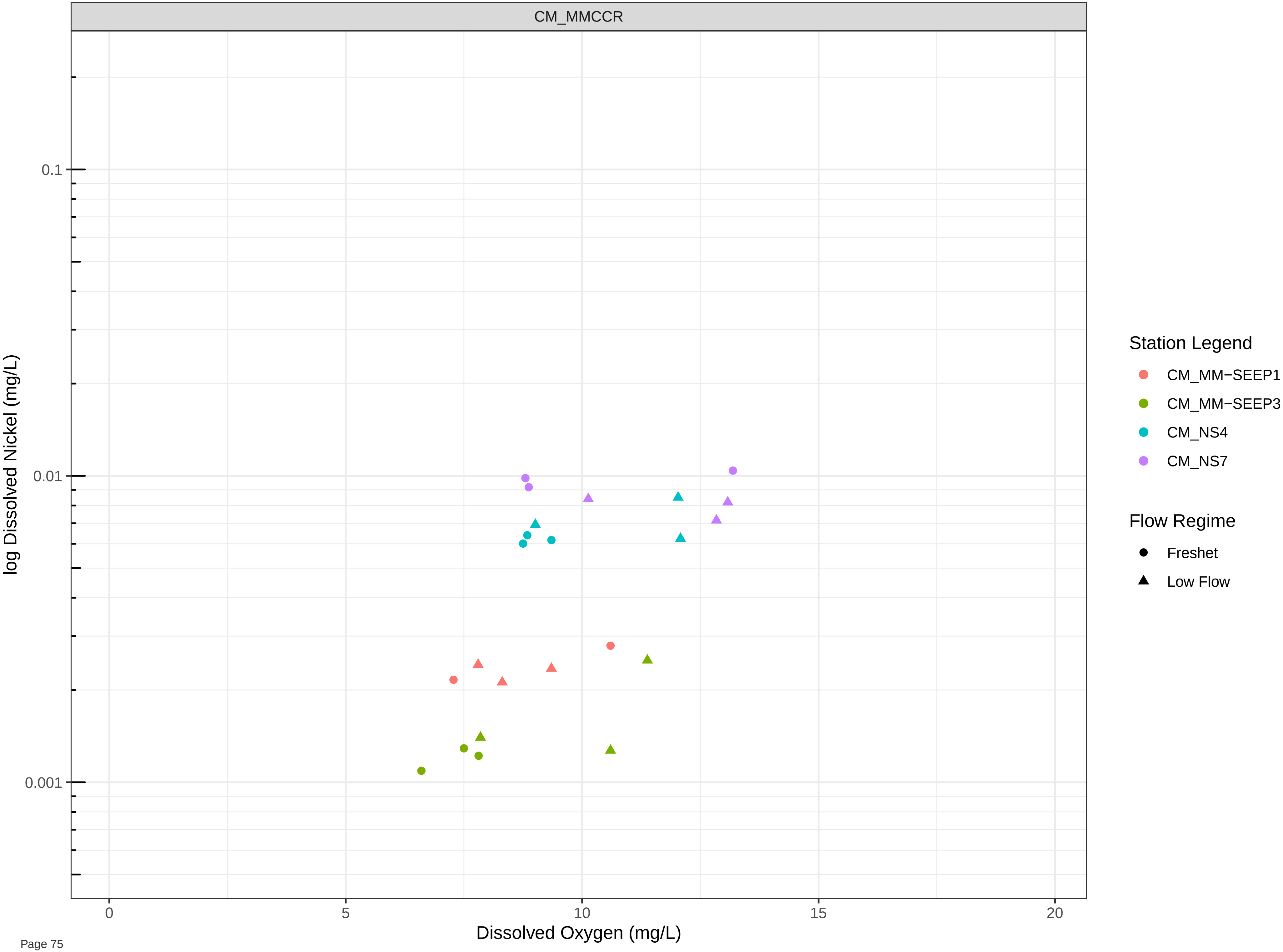
15
20
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow


CM_MMCCR
log Dissolved Nickel (mg/L)
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0.01
0.001
Dissolved Oxygen (mg/L)
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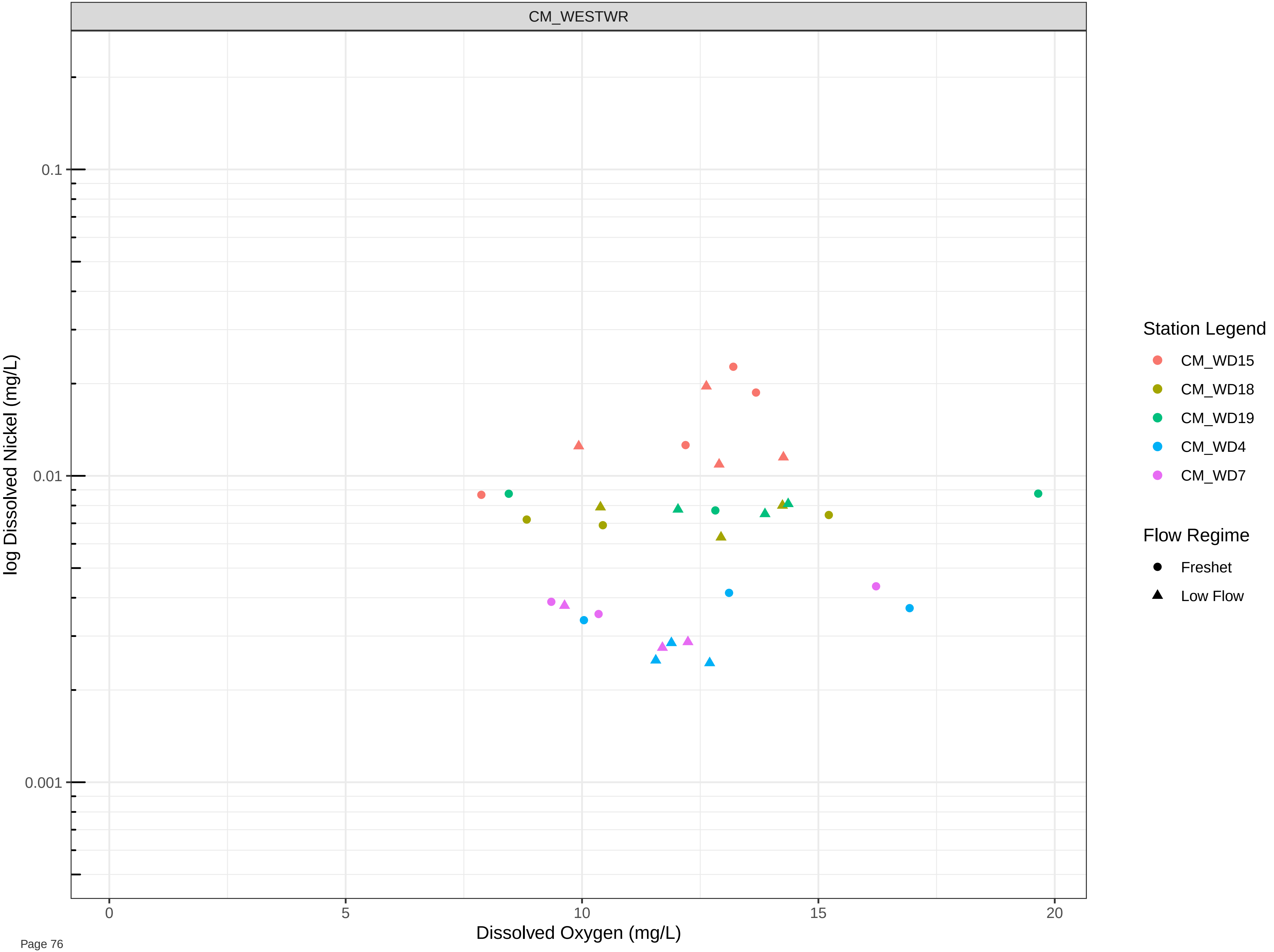
10
15
20
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow


CM_WESTWR
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0.01
0.001
Dissolved Oxygen (mg/L)
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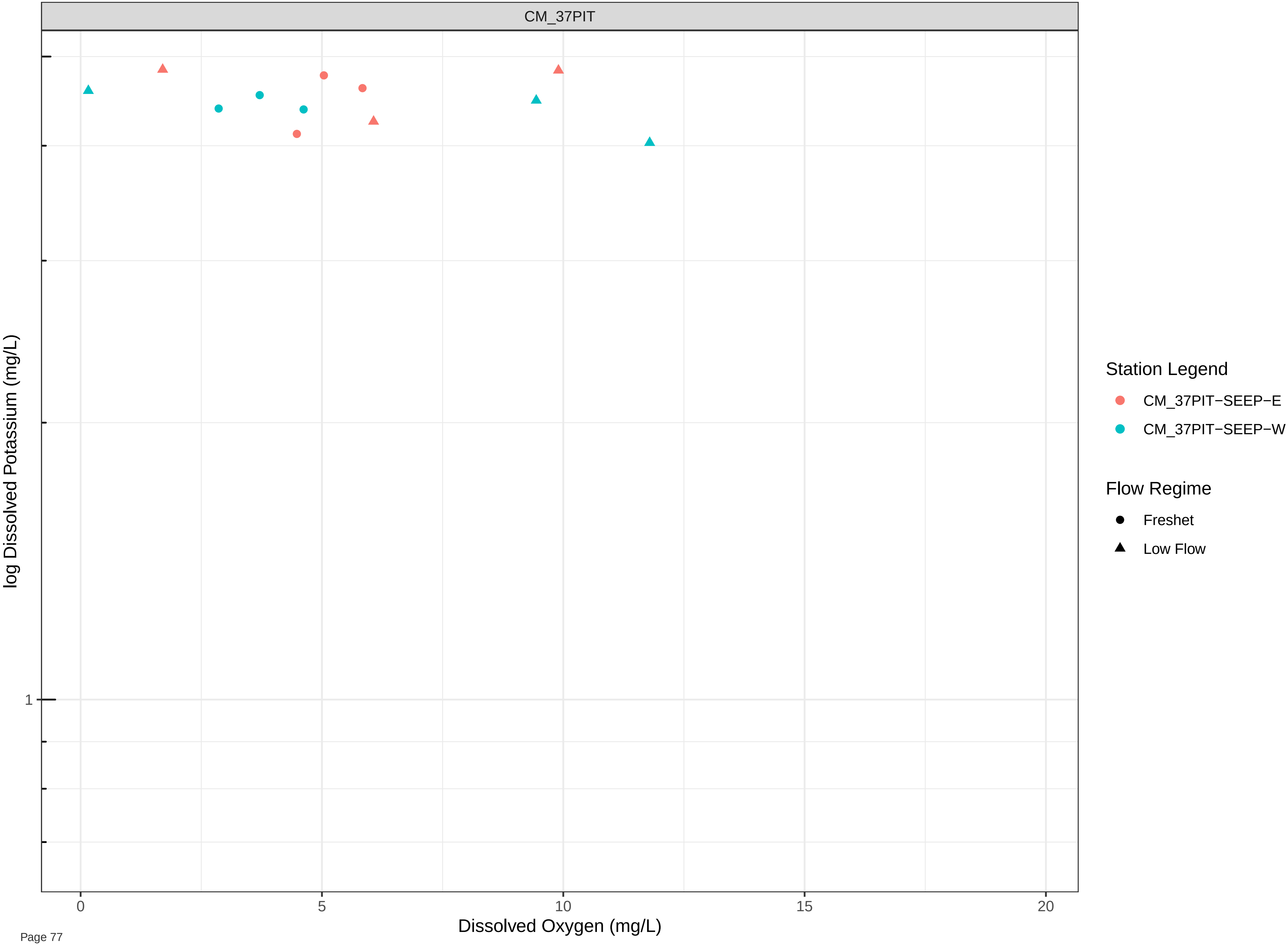
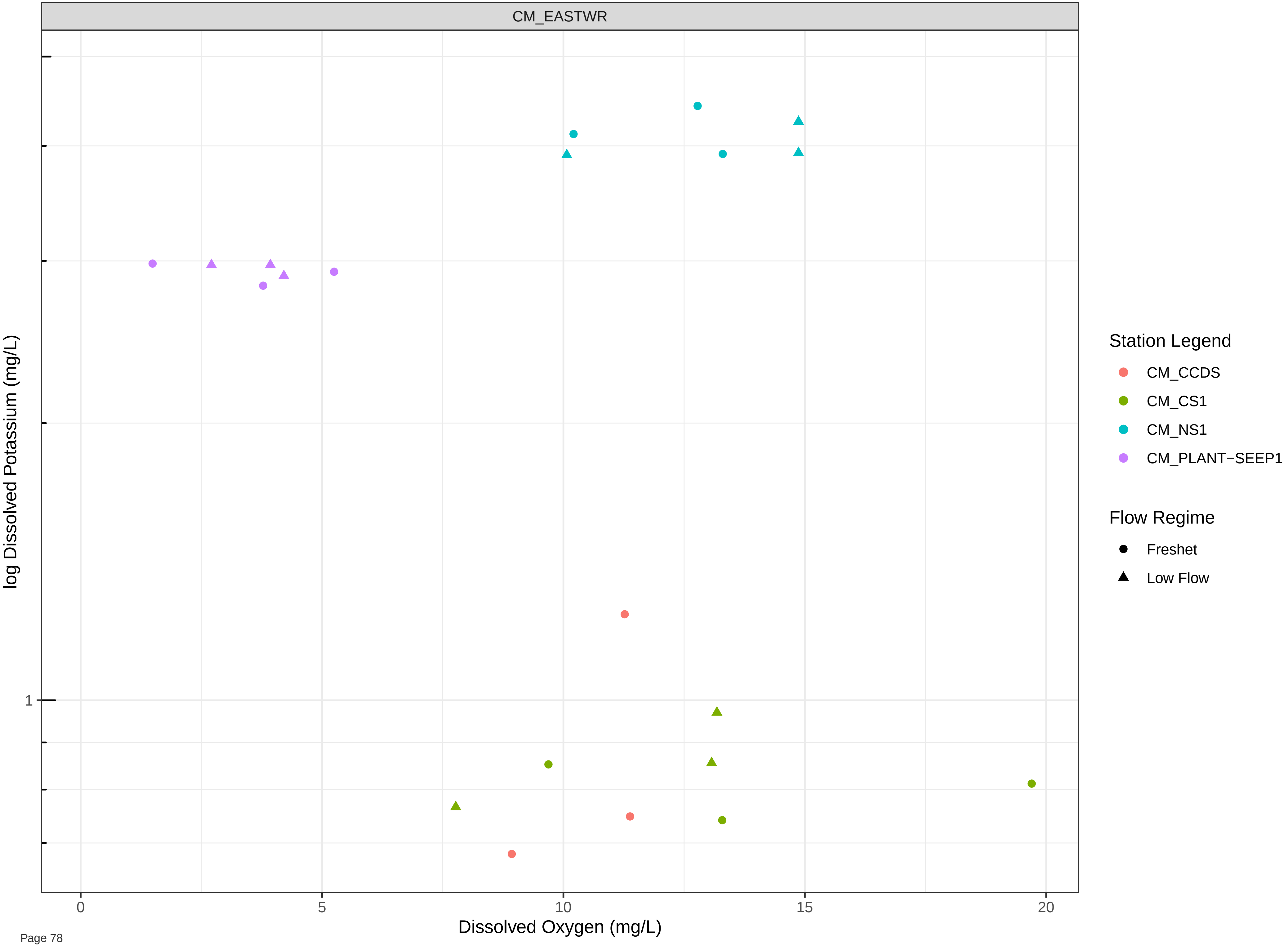
5
10
15
20
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow


CM_37PIT
log Dissolved Potassium (mg/L)
1
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow


CM_EASTWR
log Dissolved Potassium (mg/L)
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0
5
10
15
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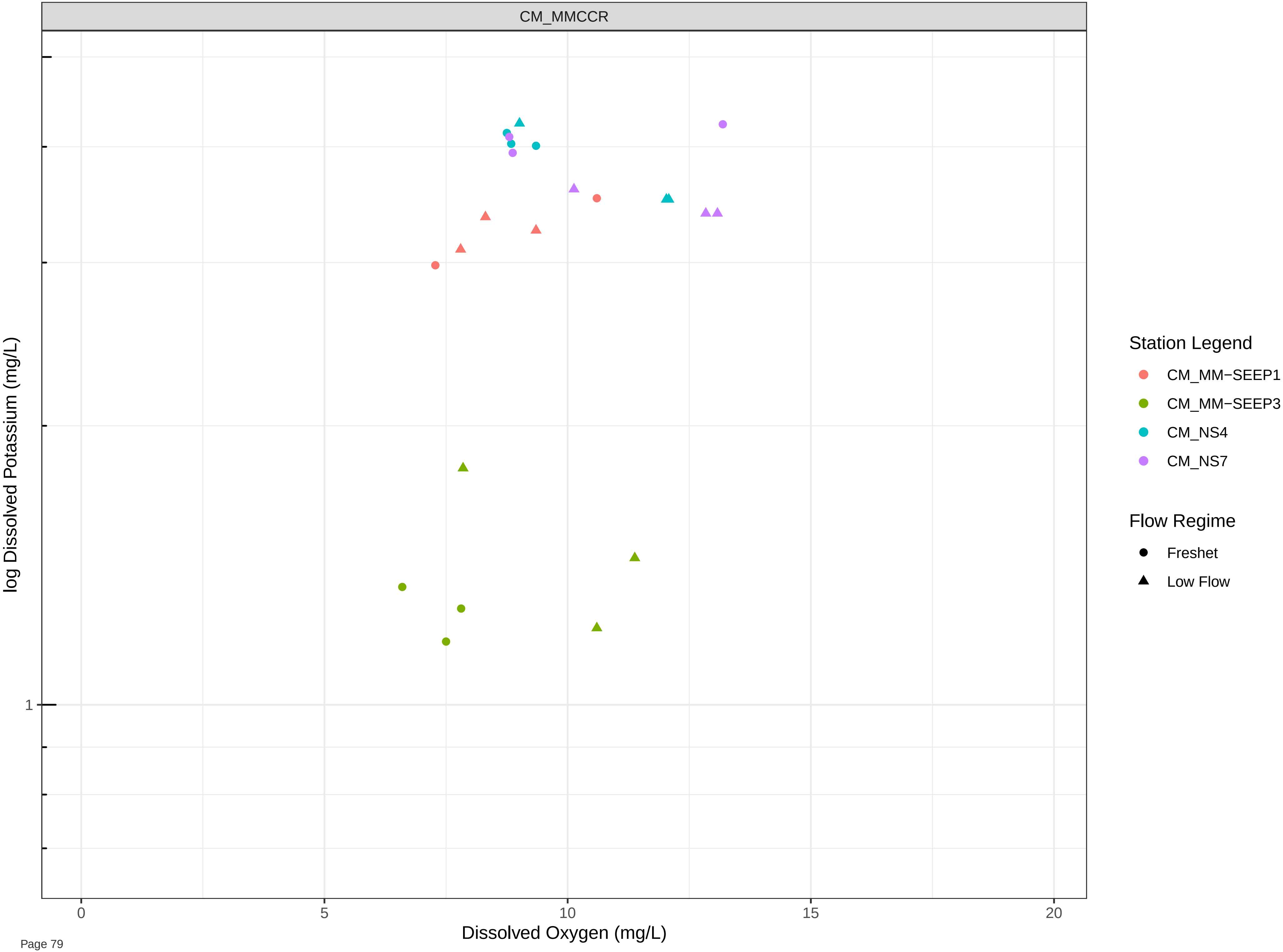
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow


CM_MMCCR
log Dissolved Potassium (mg/L)
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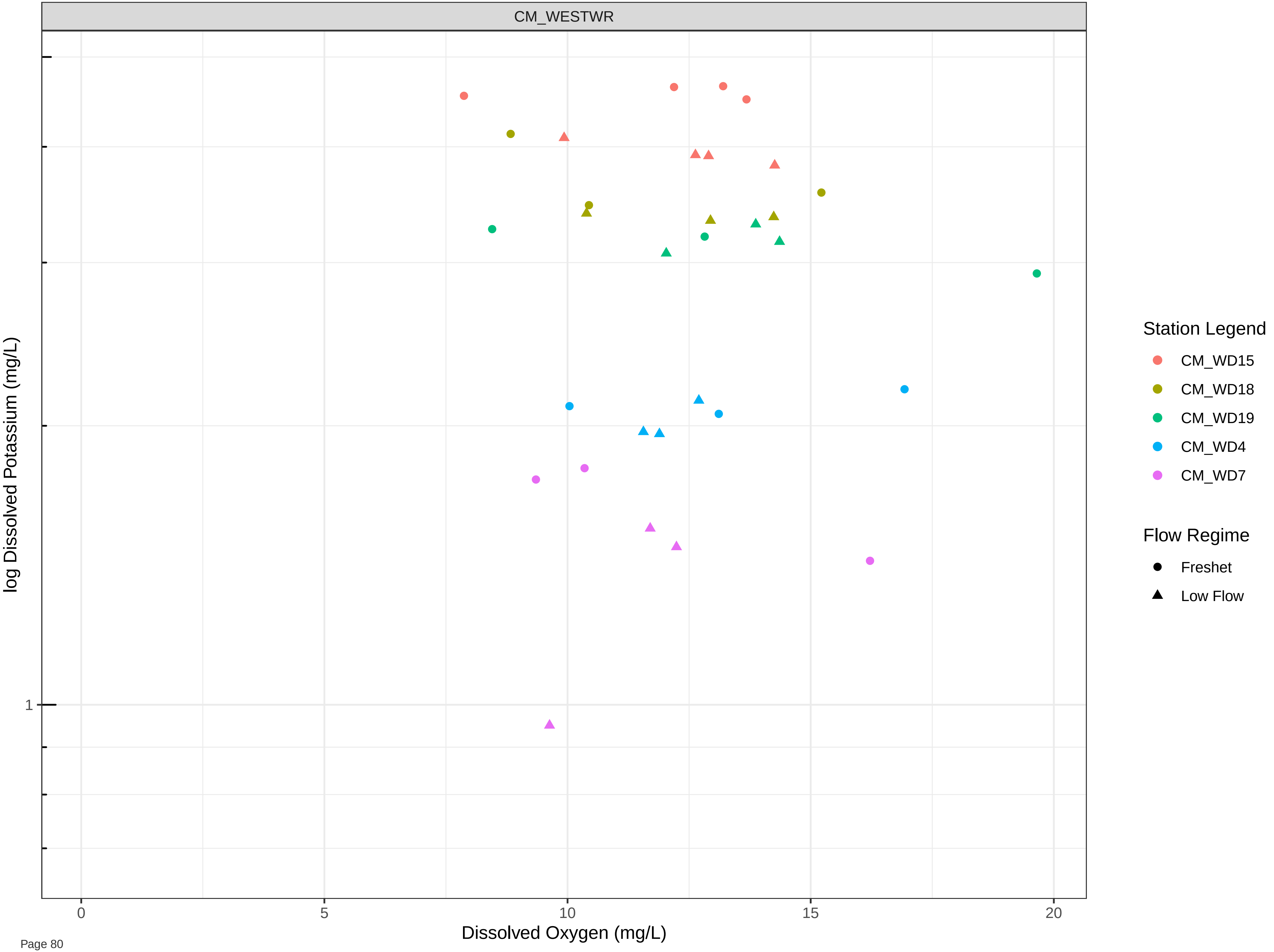
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow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Dissolved Oxygen (mg/L)
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5
10
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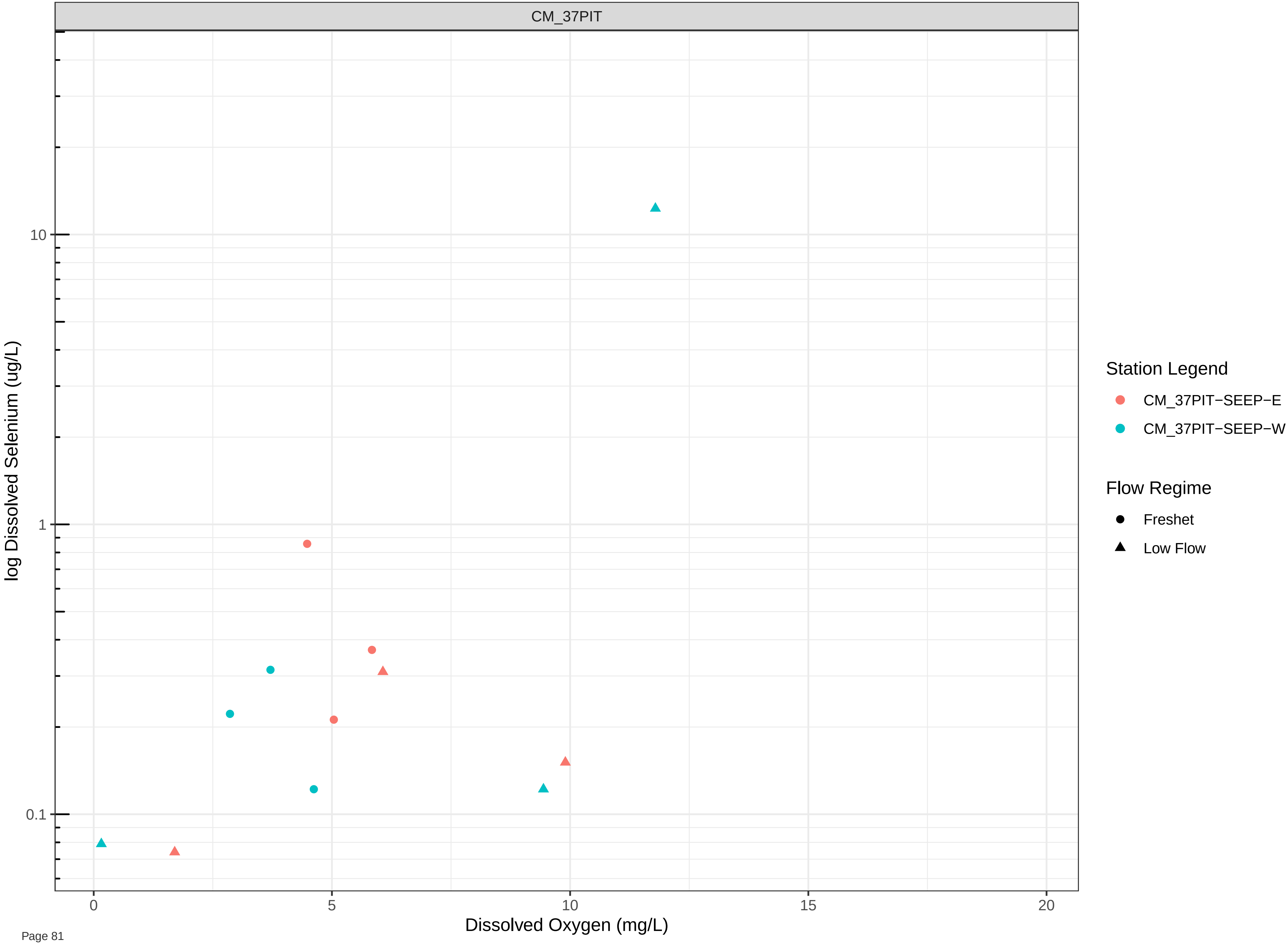
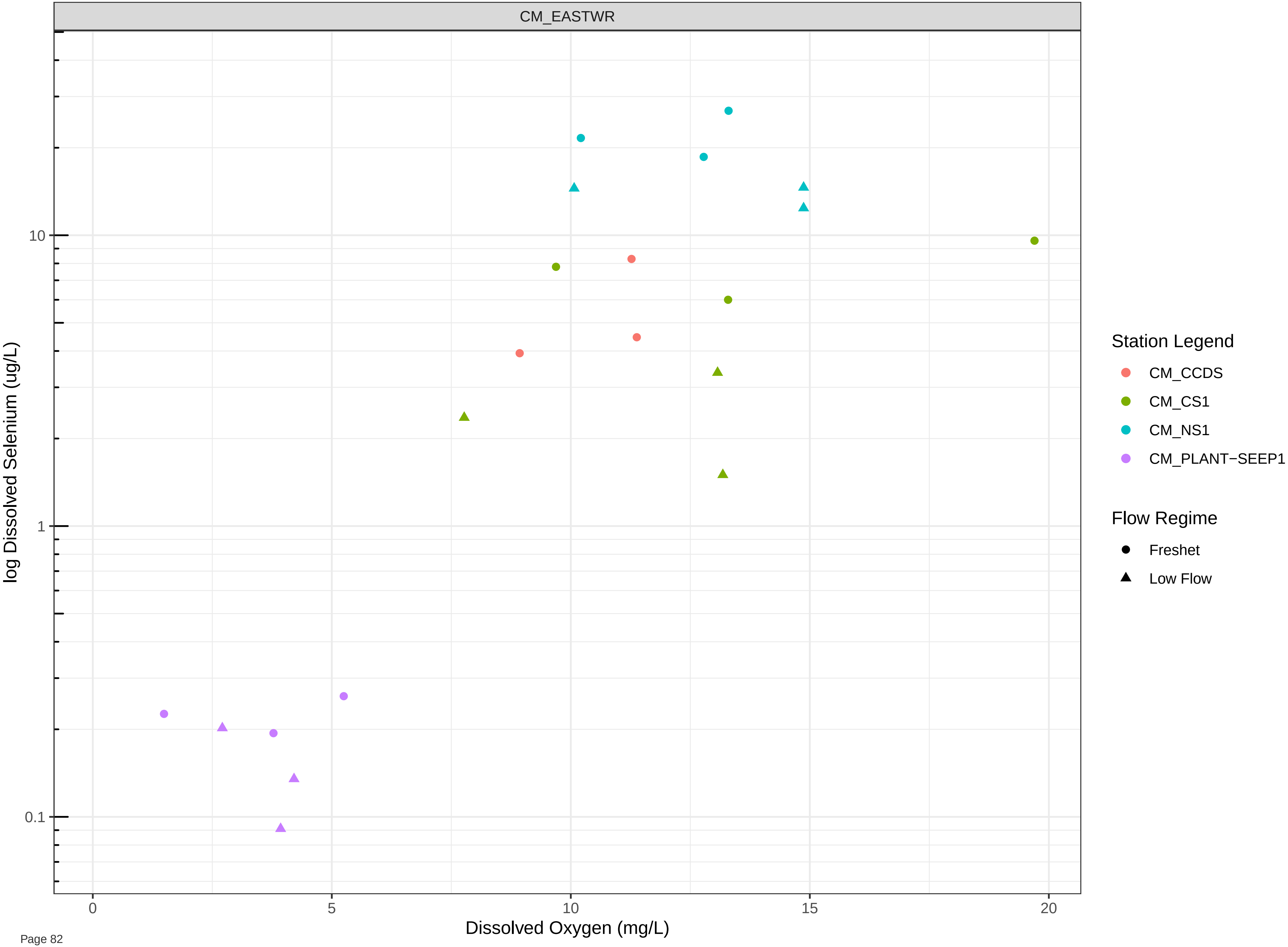
Station Legend
● CM_WD15
● CM_WD18
● CM_WD19
● CM_WD4
● CM_WD7
Flow Regime
● Freshet
▲ Low Flow


CM_37PIT
log Dissolved Selenium (ug/L)
10
1
0.1
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow


CM_EASTWR
log Dissolved Selenium (ug/L)
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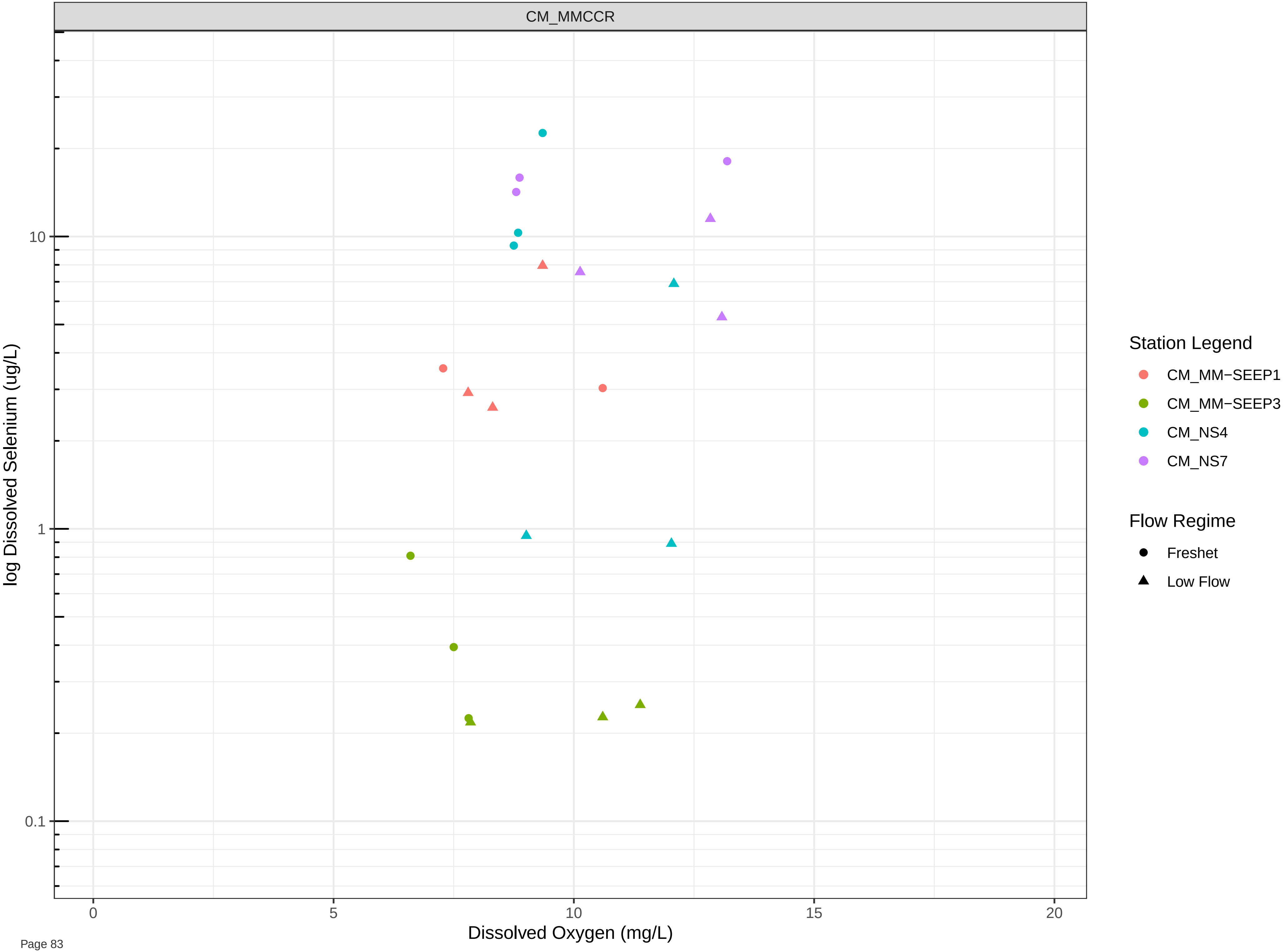
1
0.1
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow


CM_MMCCR
log Dissolved Selenium (ug/L)
10
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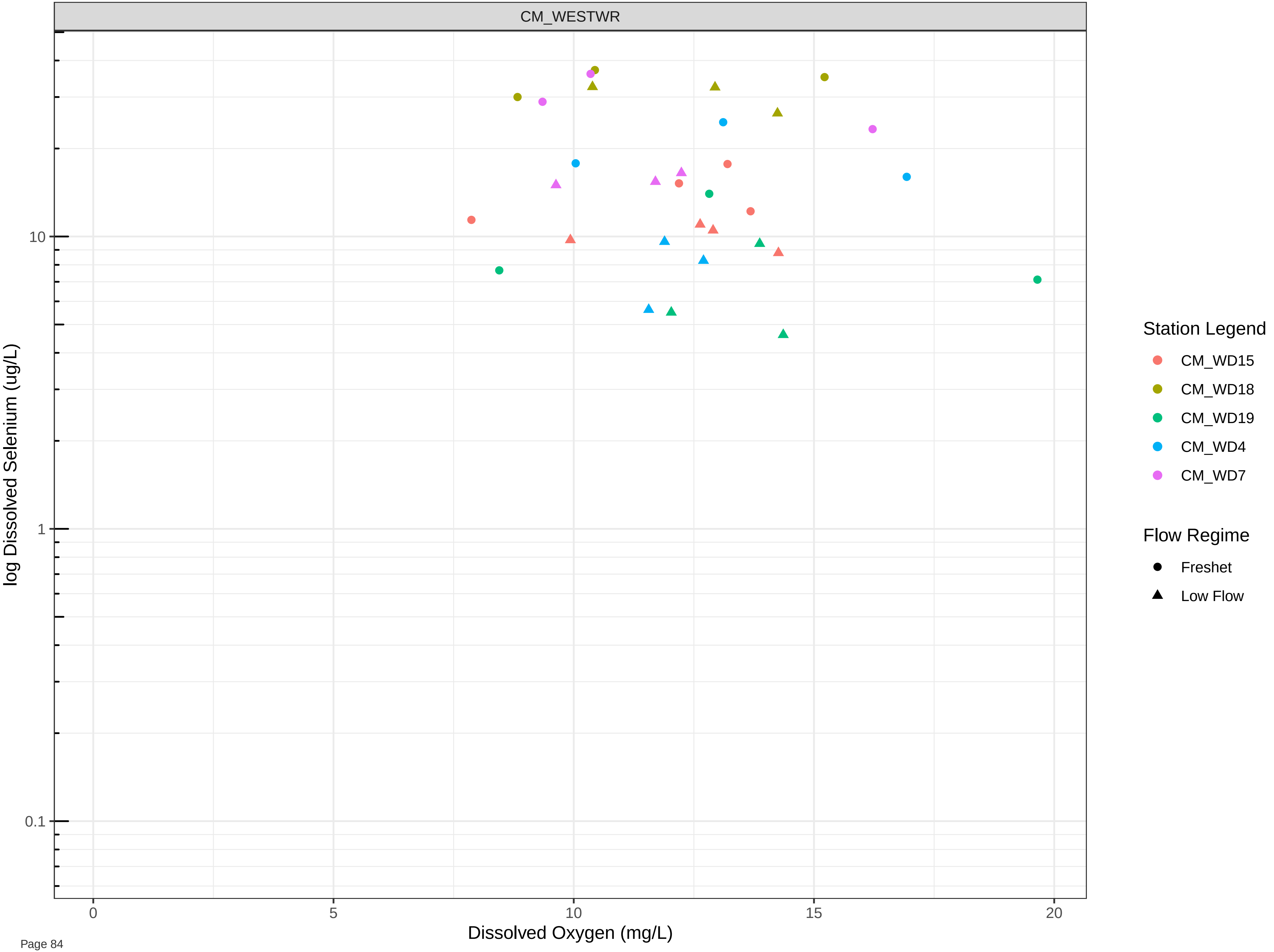
0.1
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow


CM_WESTWR
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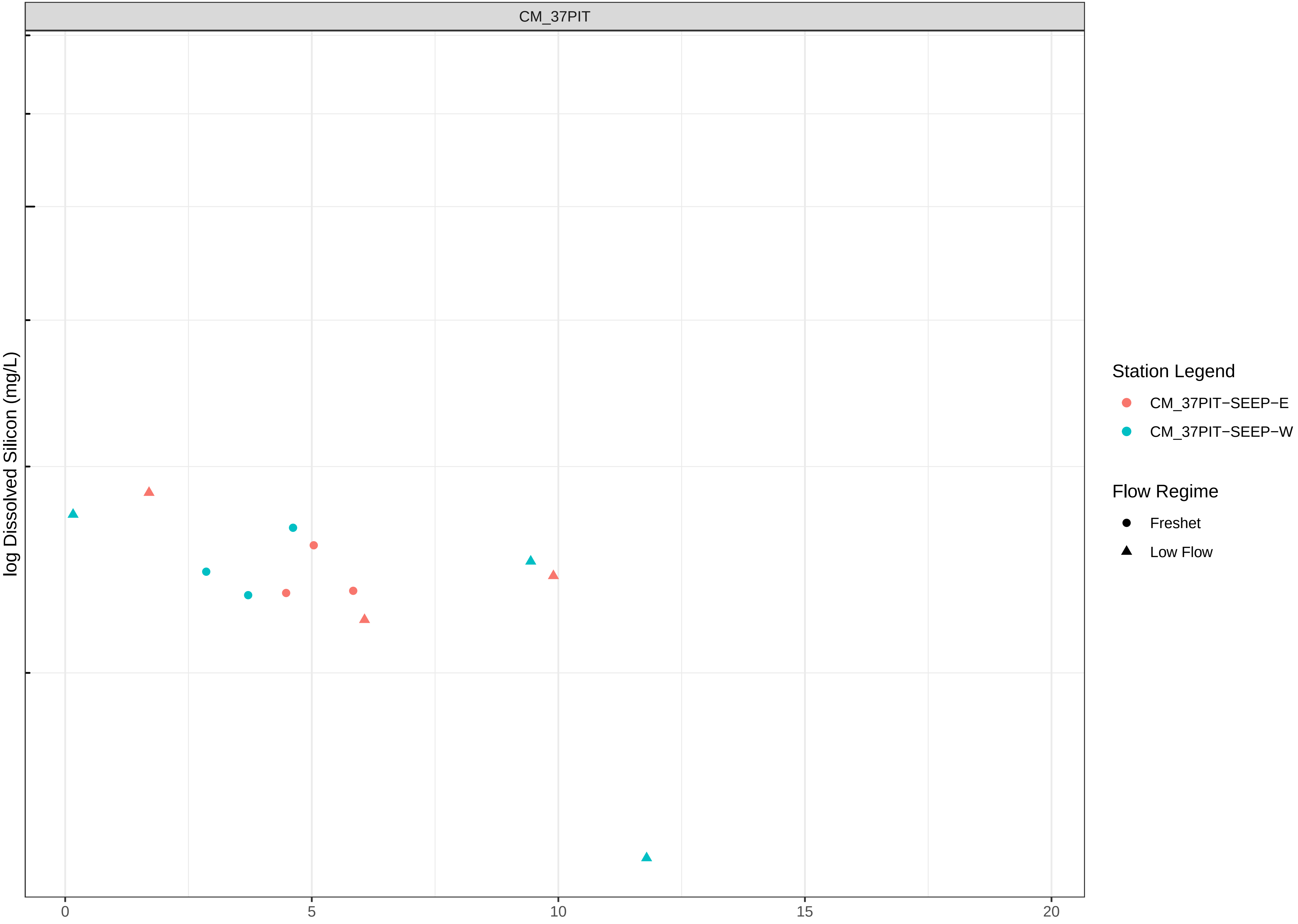
10
1
0.1
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow


CM_37PIT
log Dissolved Silicon (mg/L)
0
5
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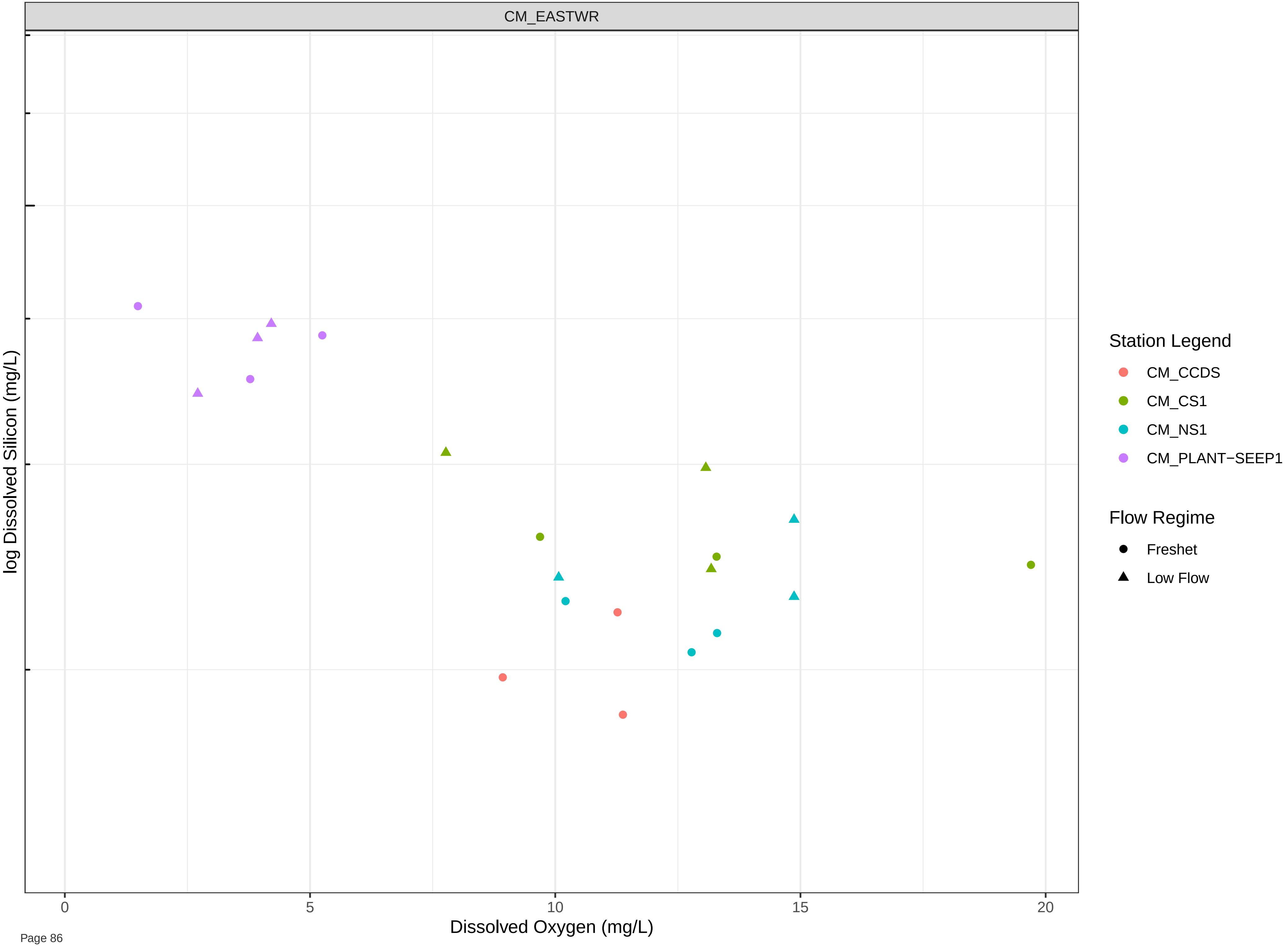
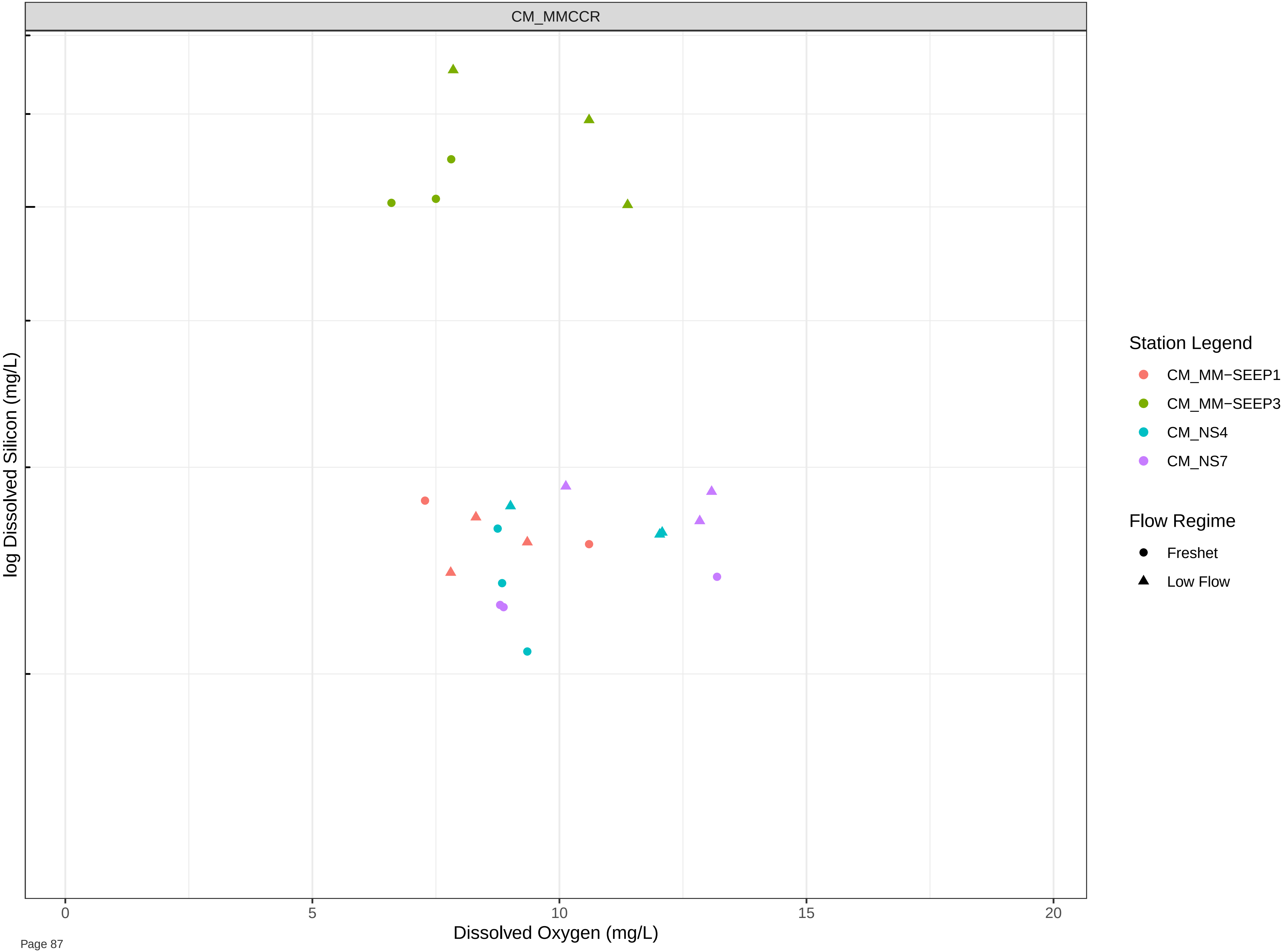
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow


CM_EASTWR
log Dissolved Silicon (mg/L)
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
● CM_CCDS
● CM_CS1
● CM_NS1
● CM_PLANT−SEEP1
Flow Regime
● Freshet
▲ Low Flow


CM_MMCCR
log Dissolved Silicon (mg/L)
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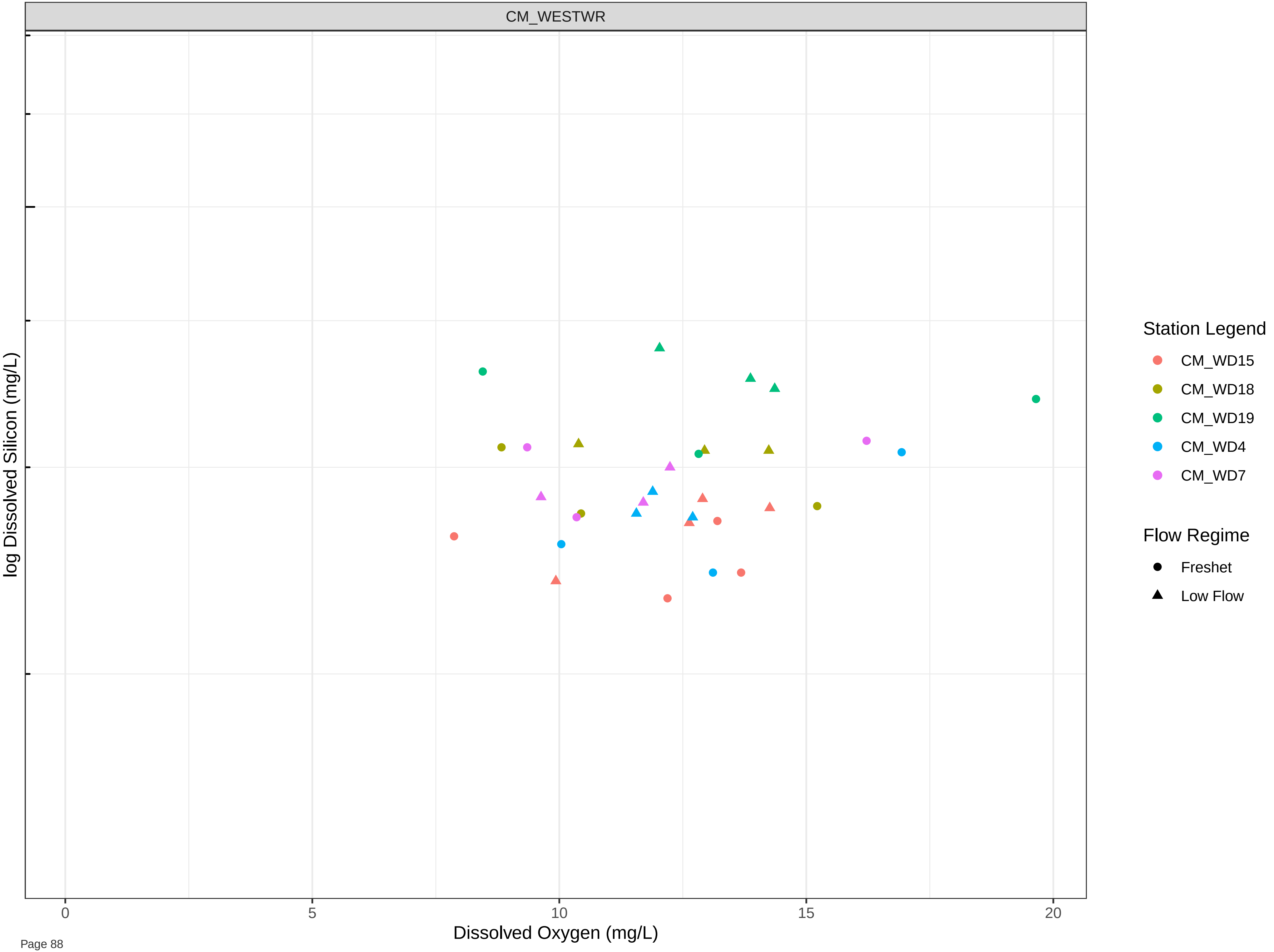
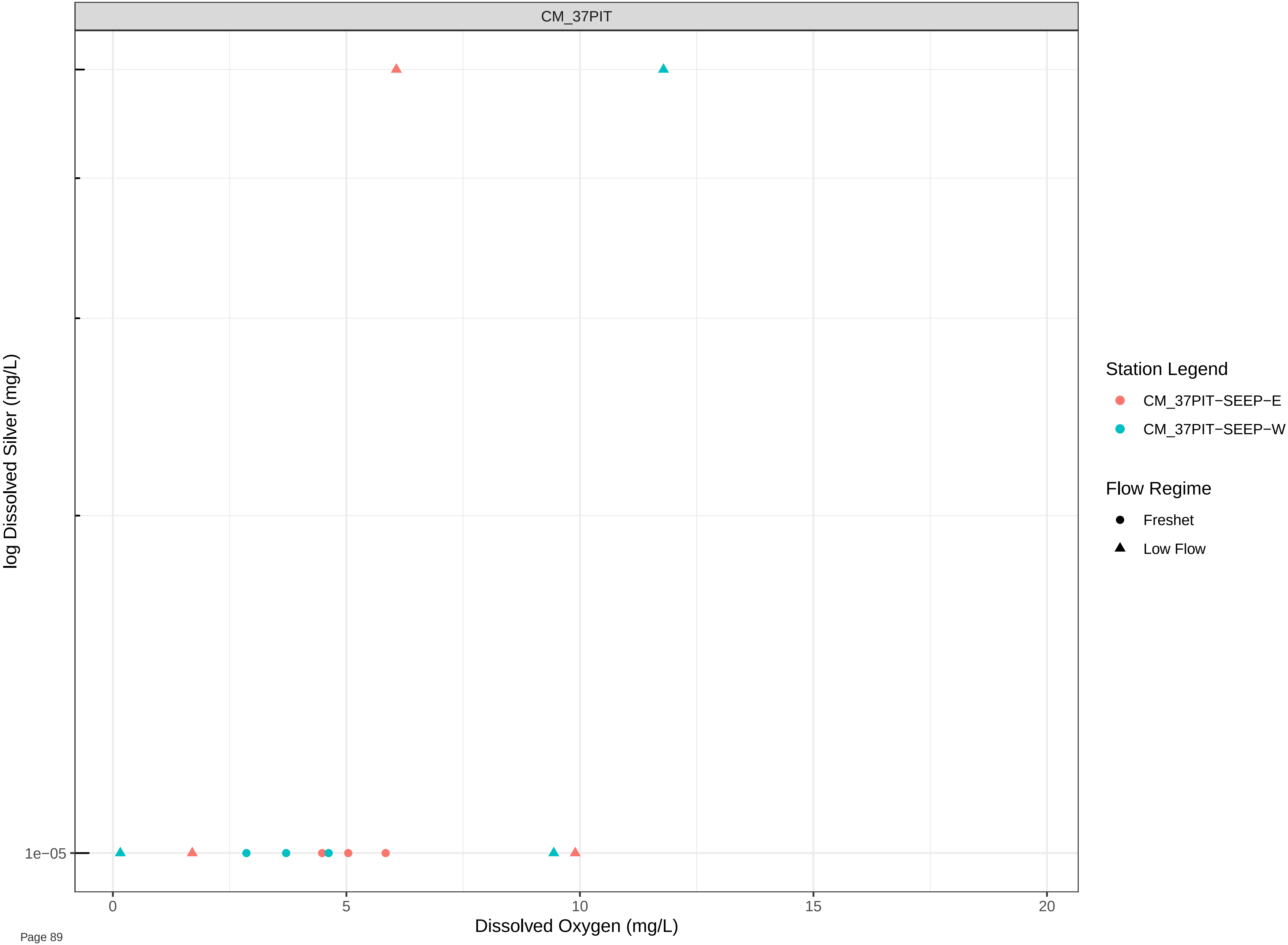
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow


CM_WESTWR
log Dissolved Silicon (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_WD15
● CM_WD18
● CM_WD19
● CM_WD4
● CM_WD7
Flow Regime
● Freshet
▲ Low Flow


CM_37PIT
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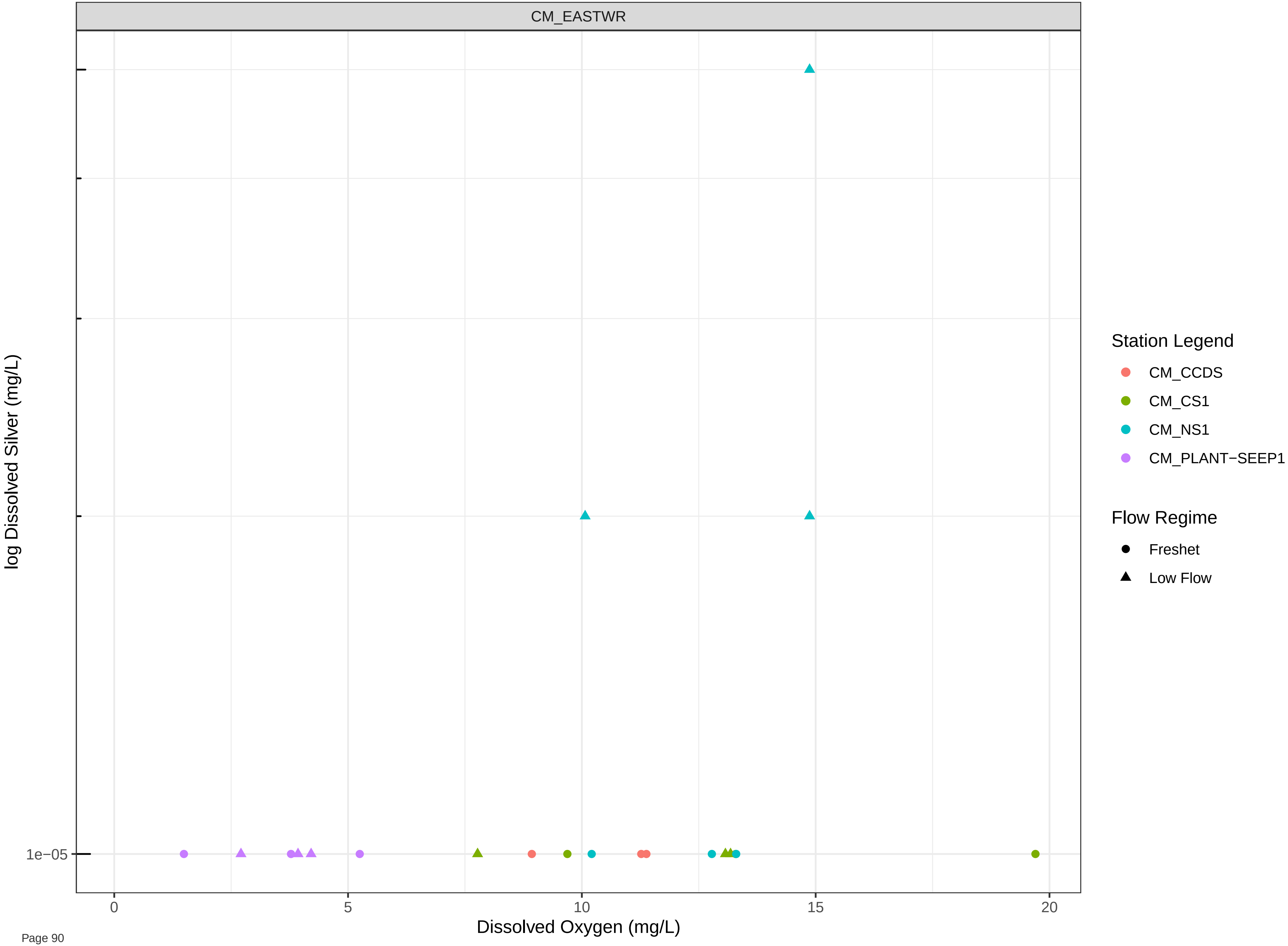
1e−05
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow


CM_EASTWR
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1e−05
0
5
10
15
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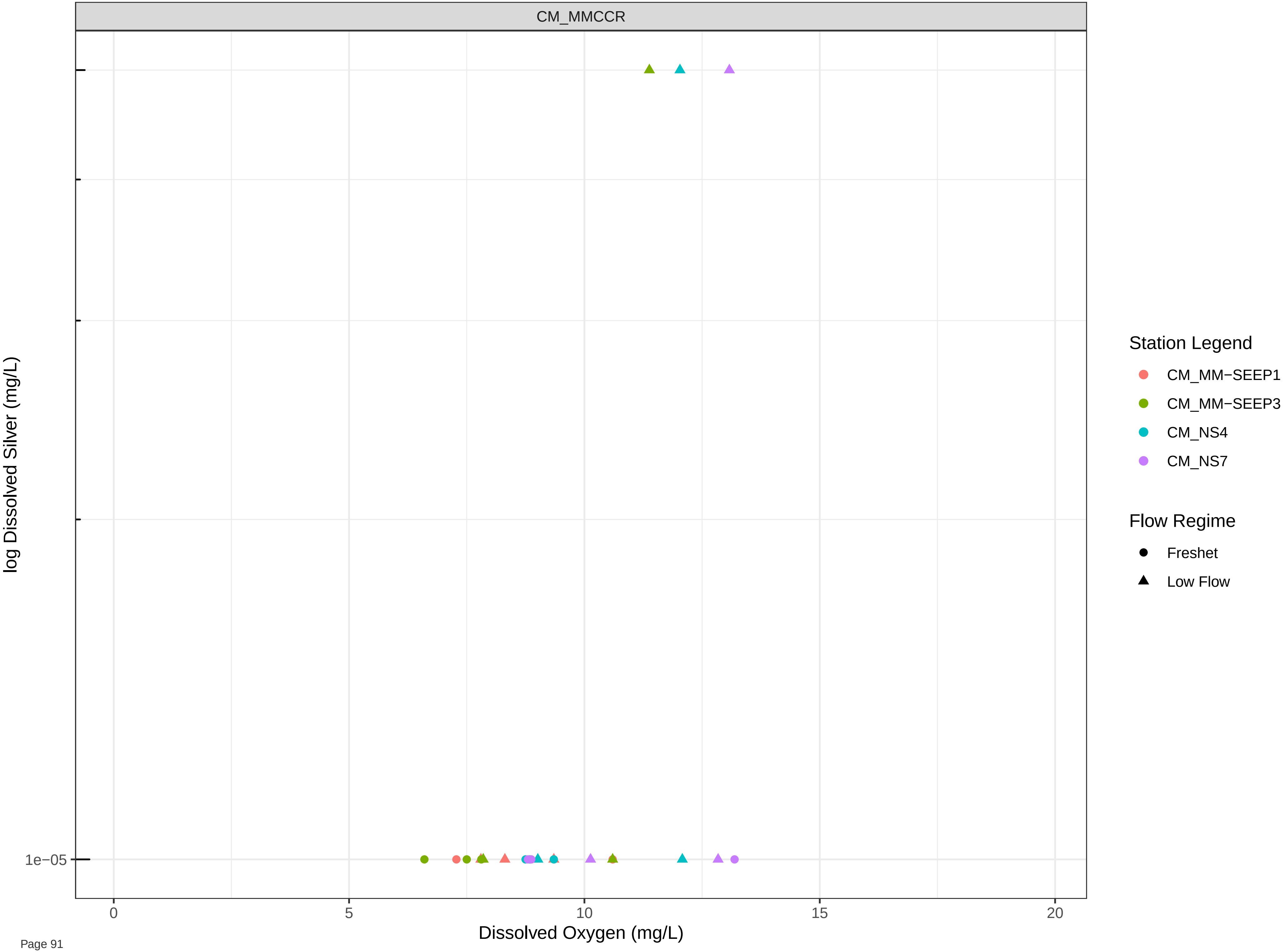
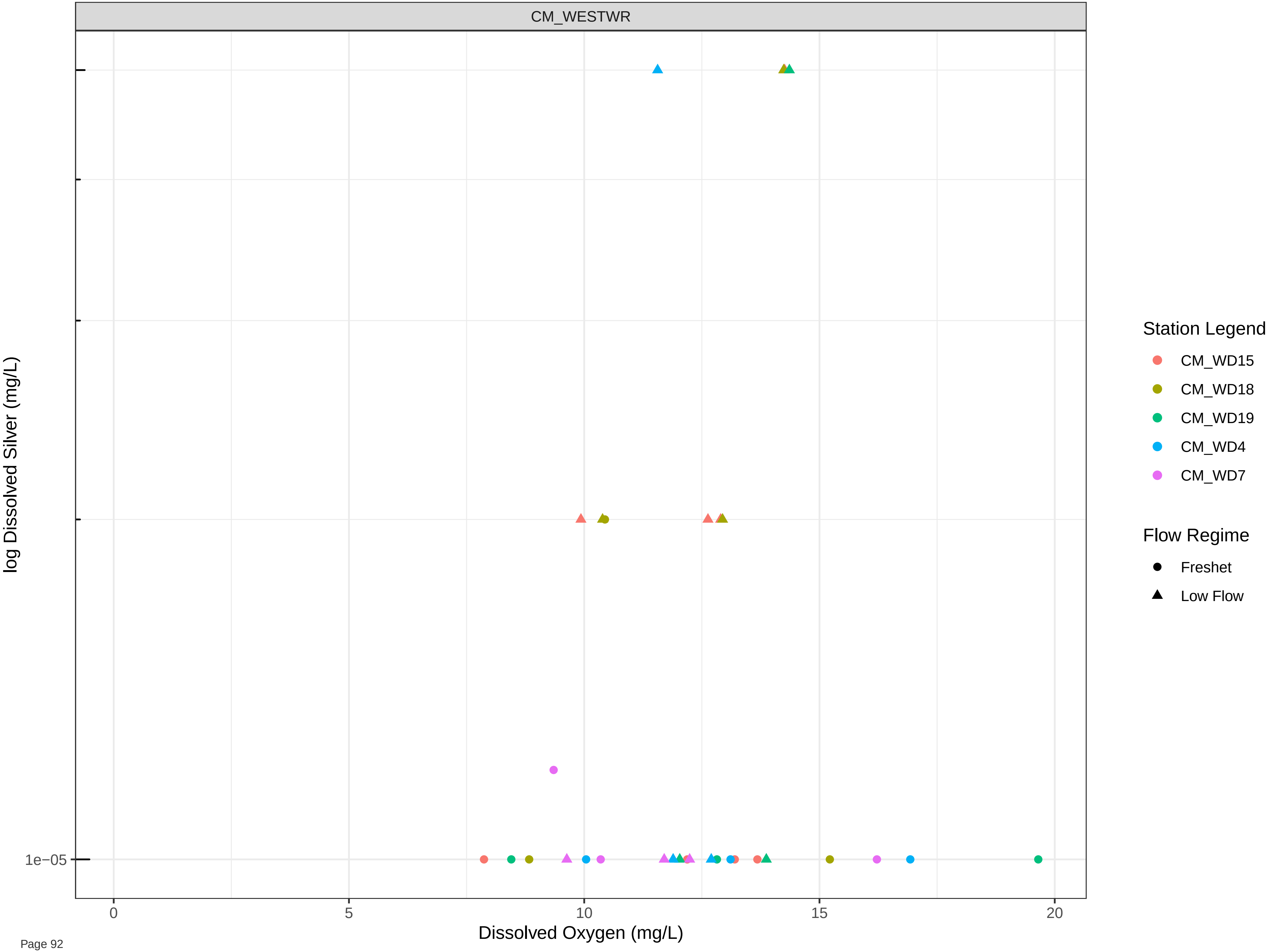
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow


CM_MMCCR
log Dissolved Silver (mg/L)
1e−05
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow


CM_WESTWR
log Dissolved Silver (mg/L)
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0
5
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15
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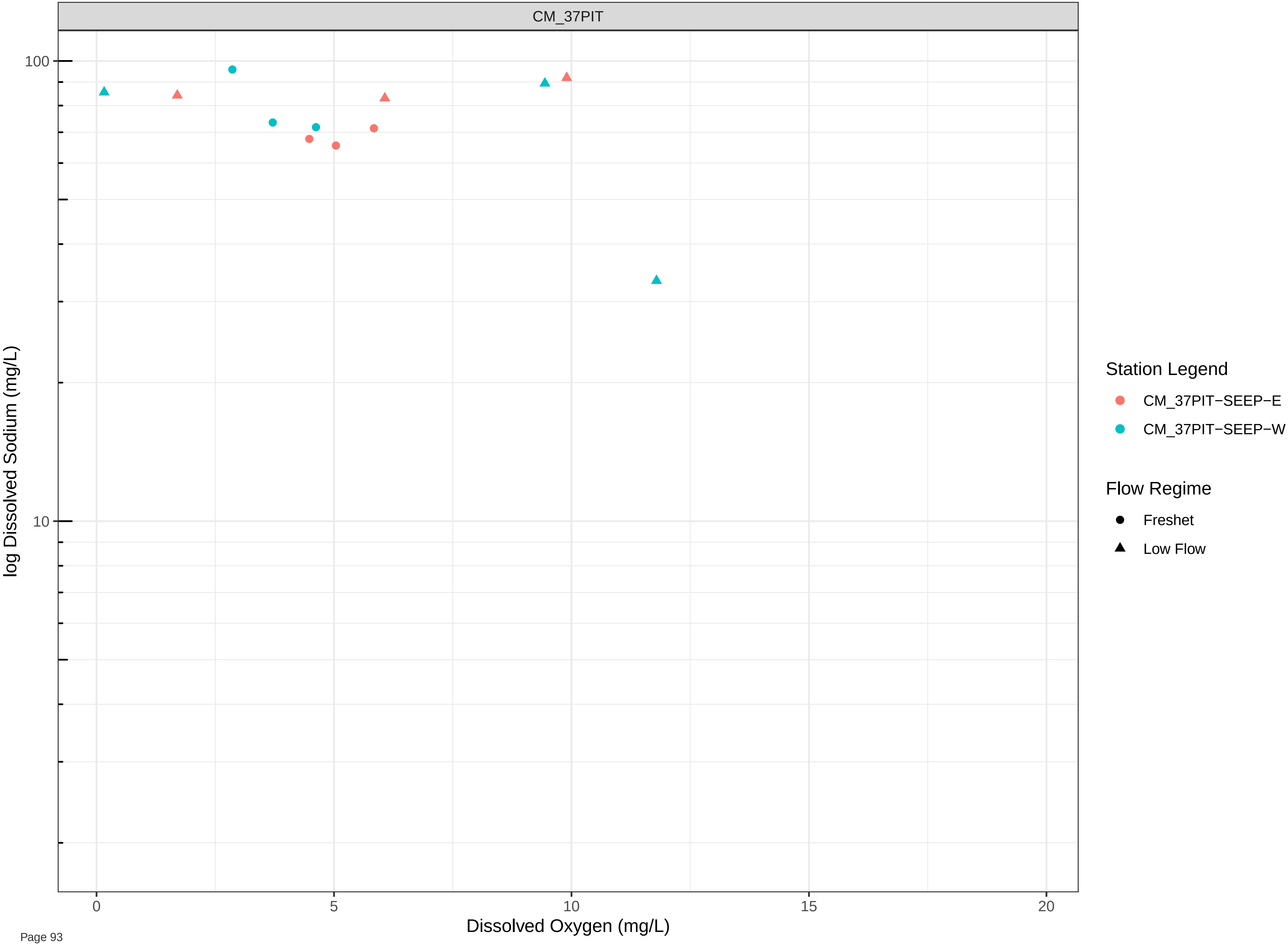
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow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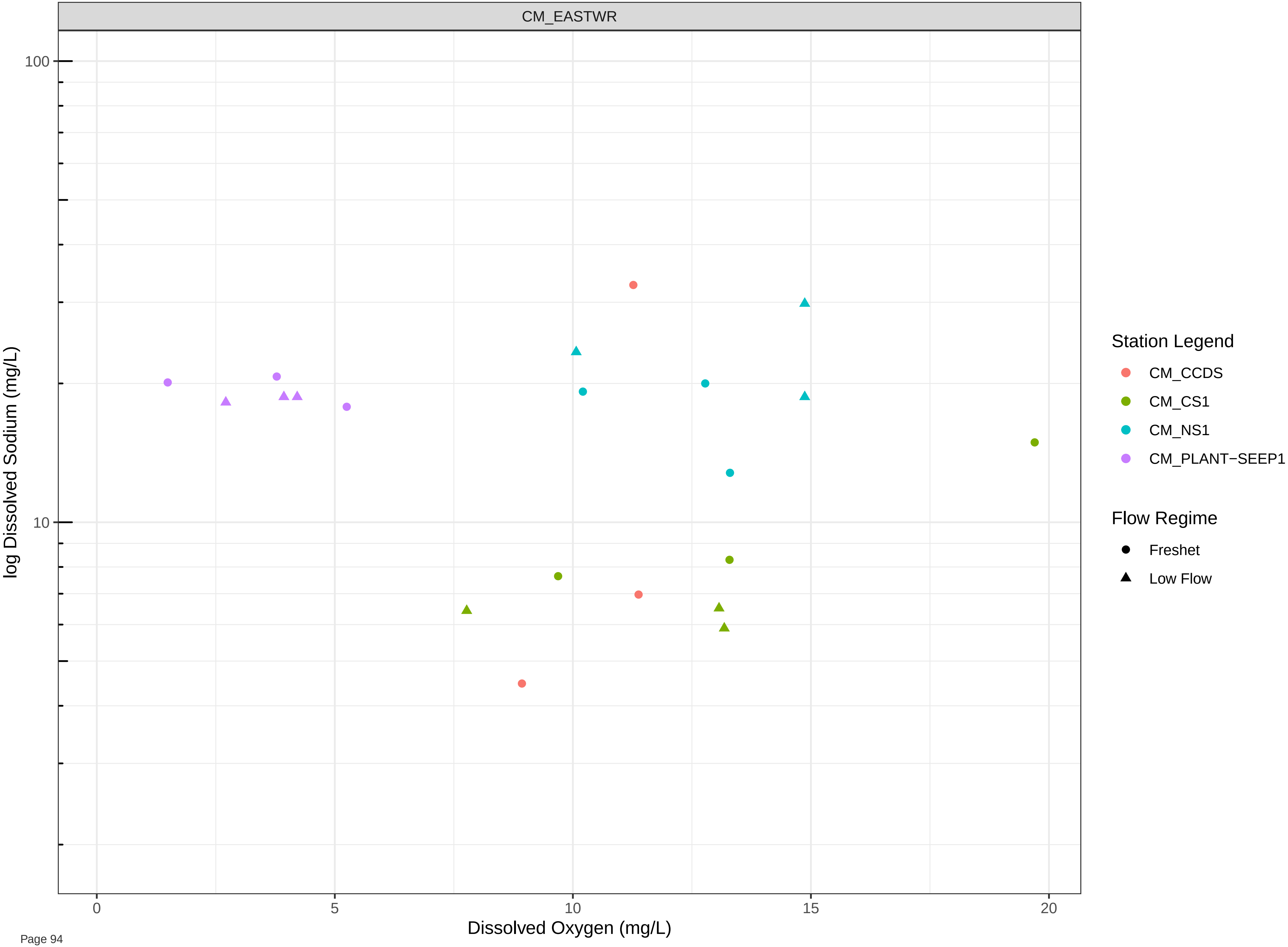
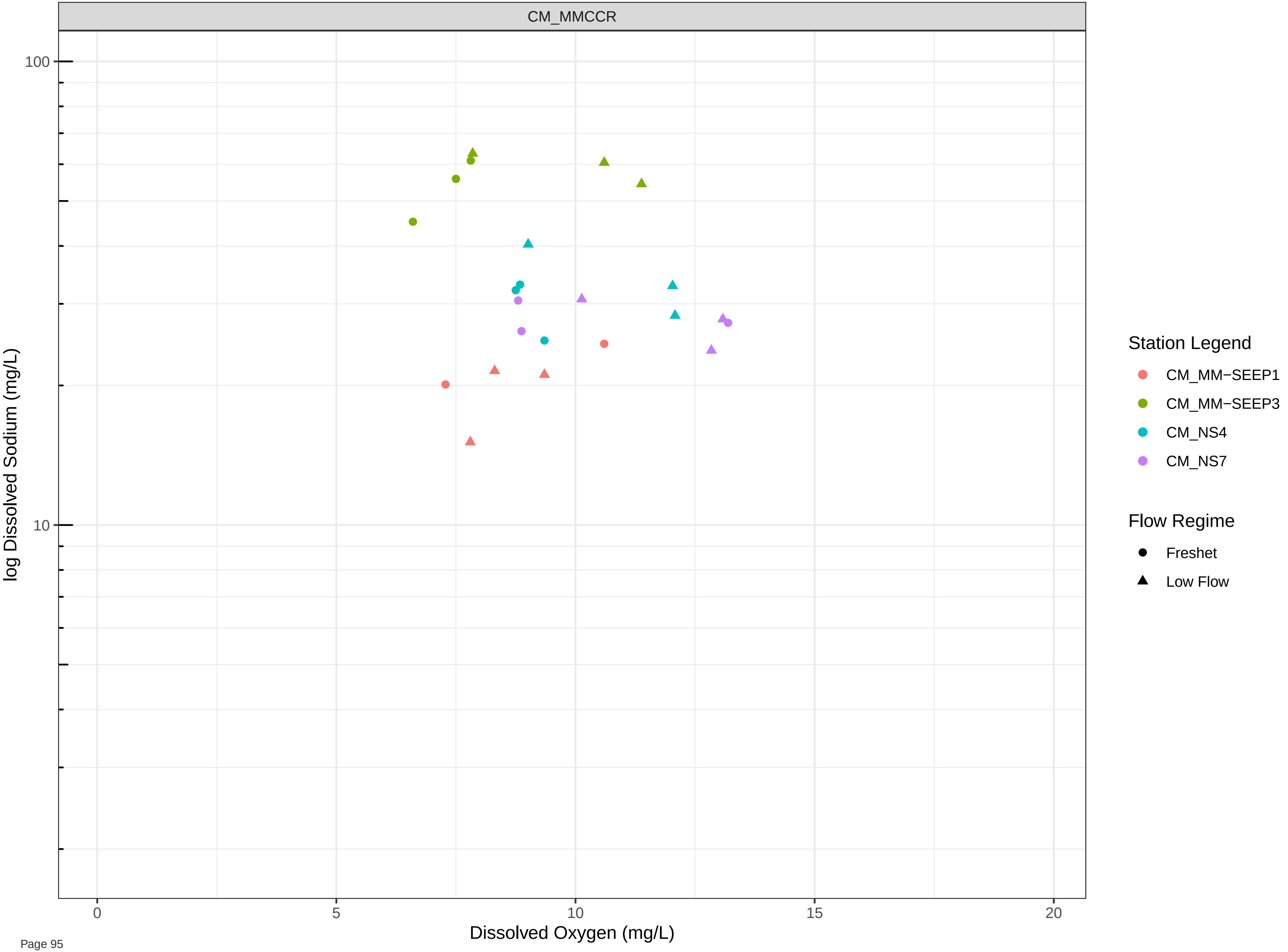
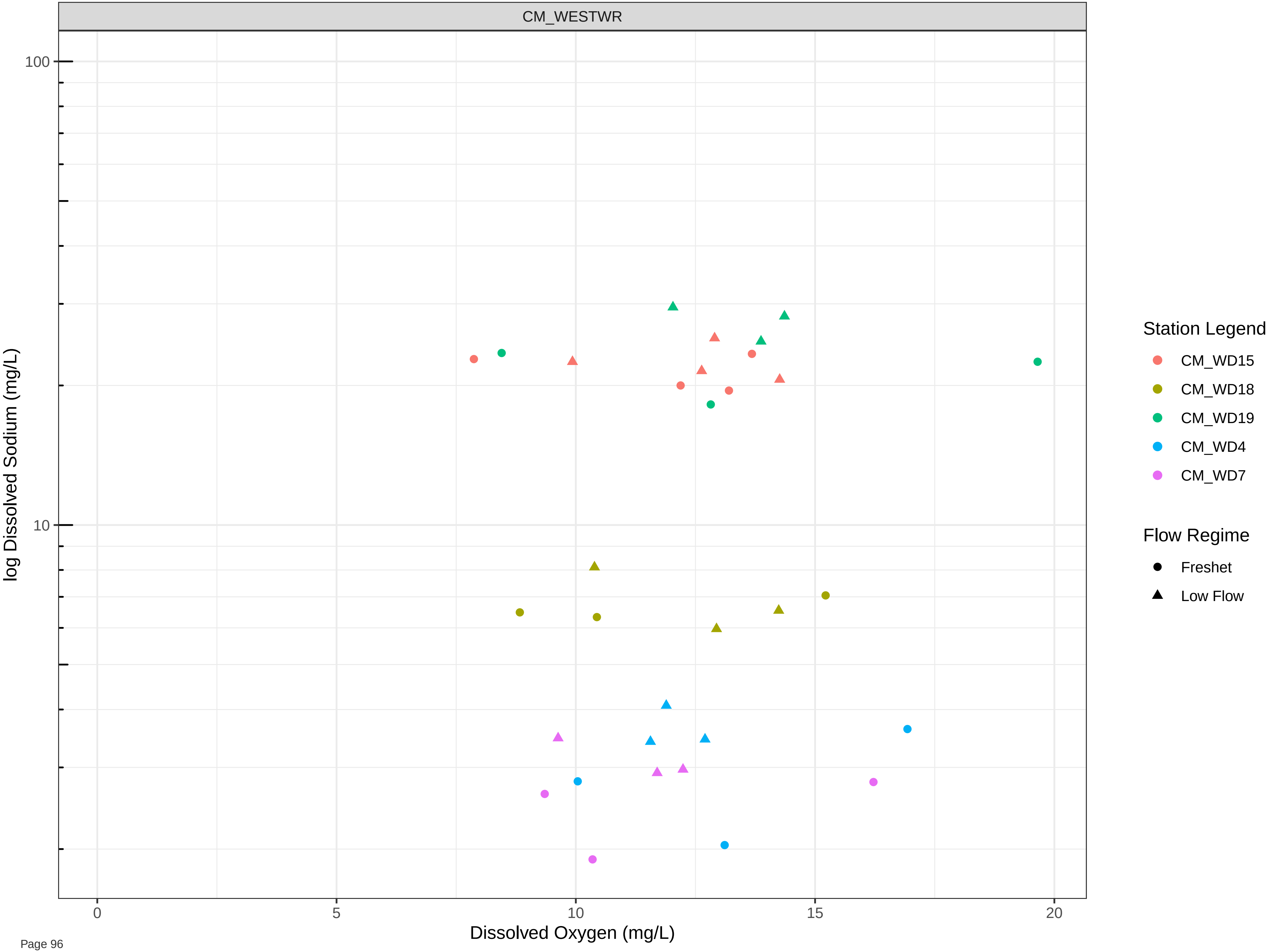
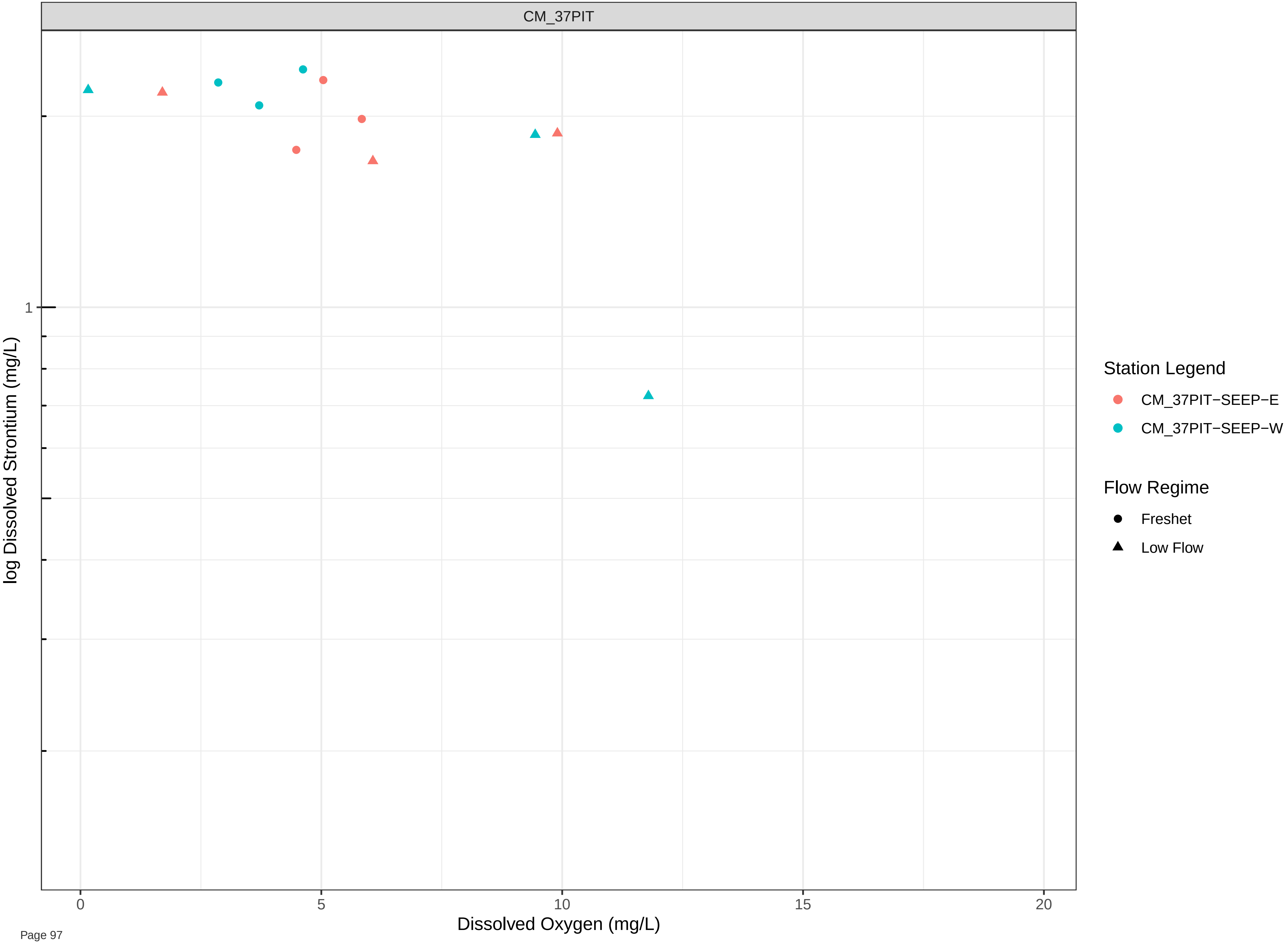
100
10
log Dissolved Sodium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow


CM_EASTWR
100
10
log Dissolved Sodium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow


CM_MMCCR
100
10
log Dissolved Sodium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow


CM_WESTWR
100
10
log Dissolved Sodium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow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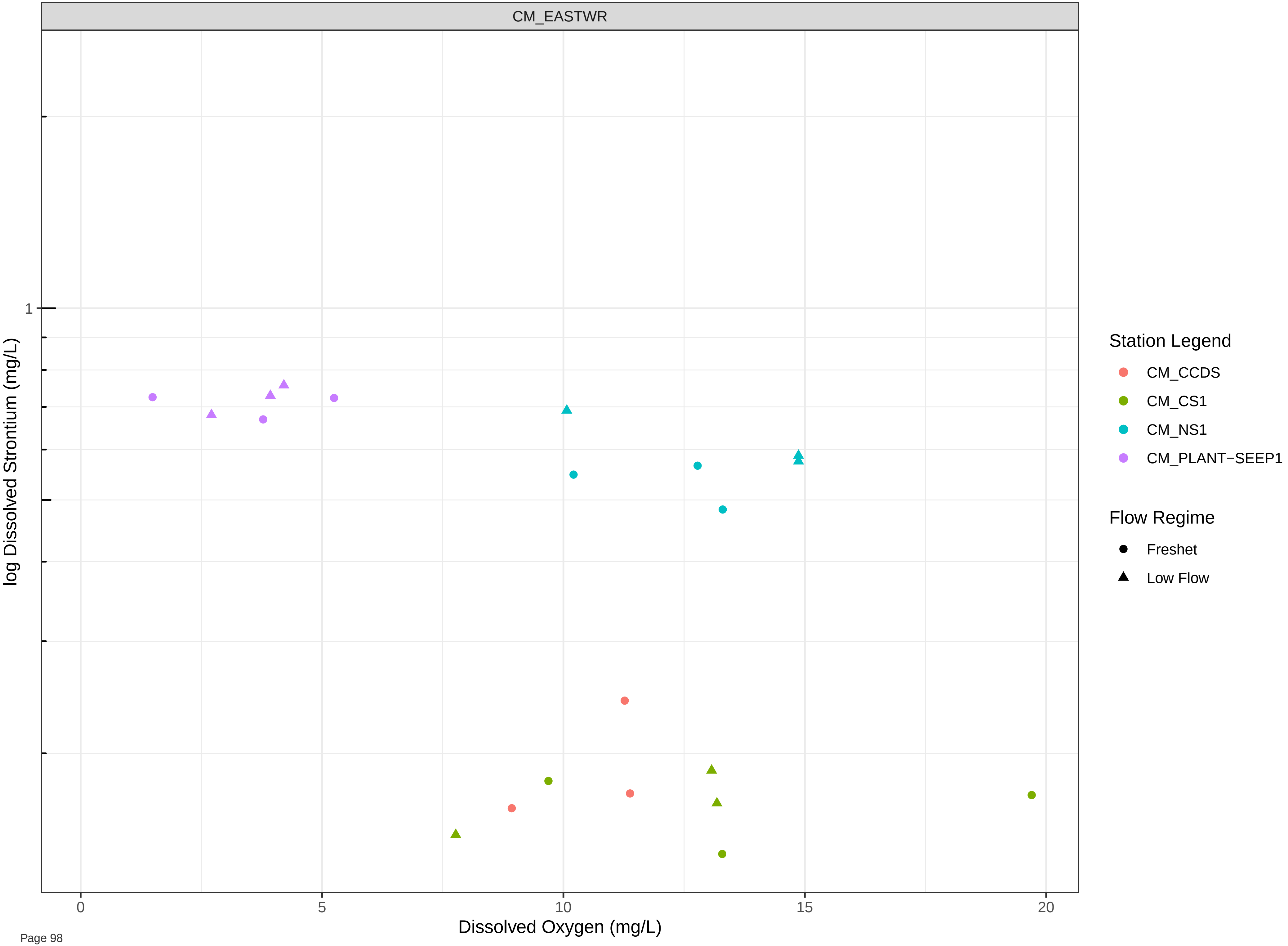
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow


CM_EASTWR
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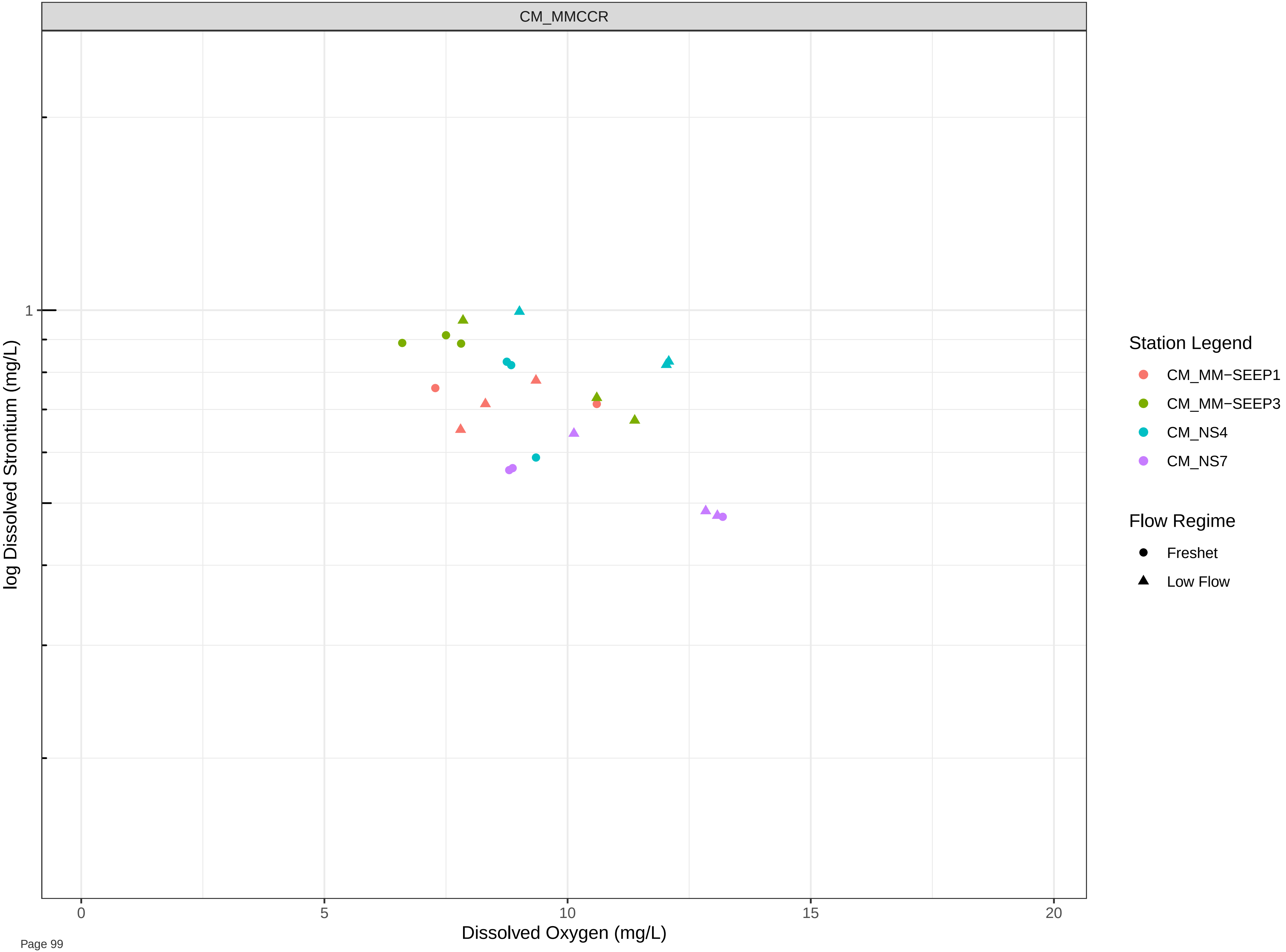
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_CCDS
● CM_CS1
● CM_NS1
● CM_PLANT−SEEP1
Flow Regime
● Freshet
▲ Low Flow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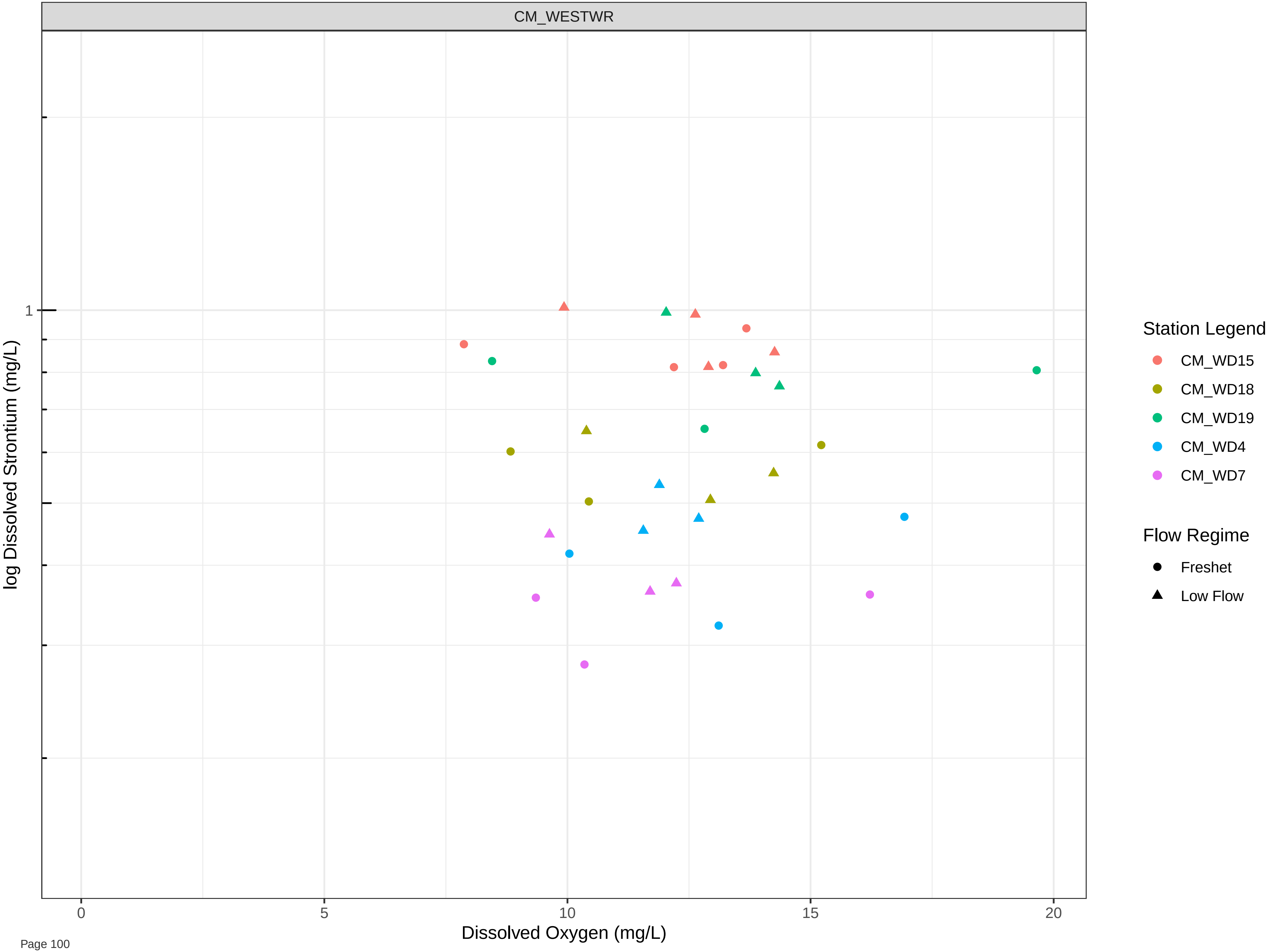
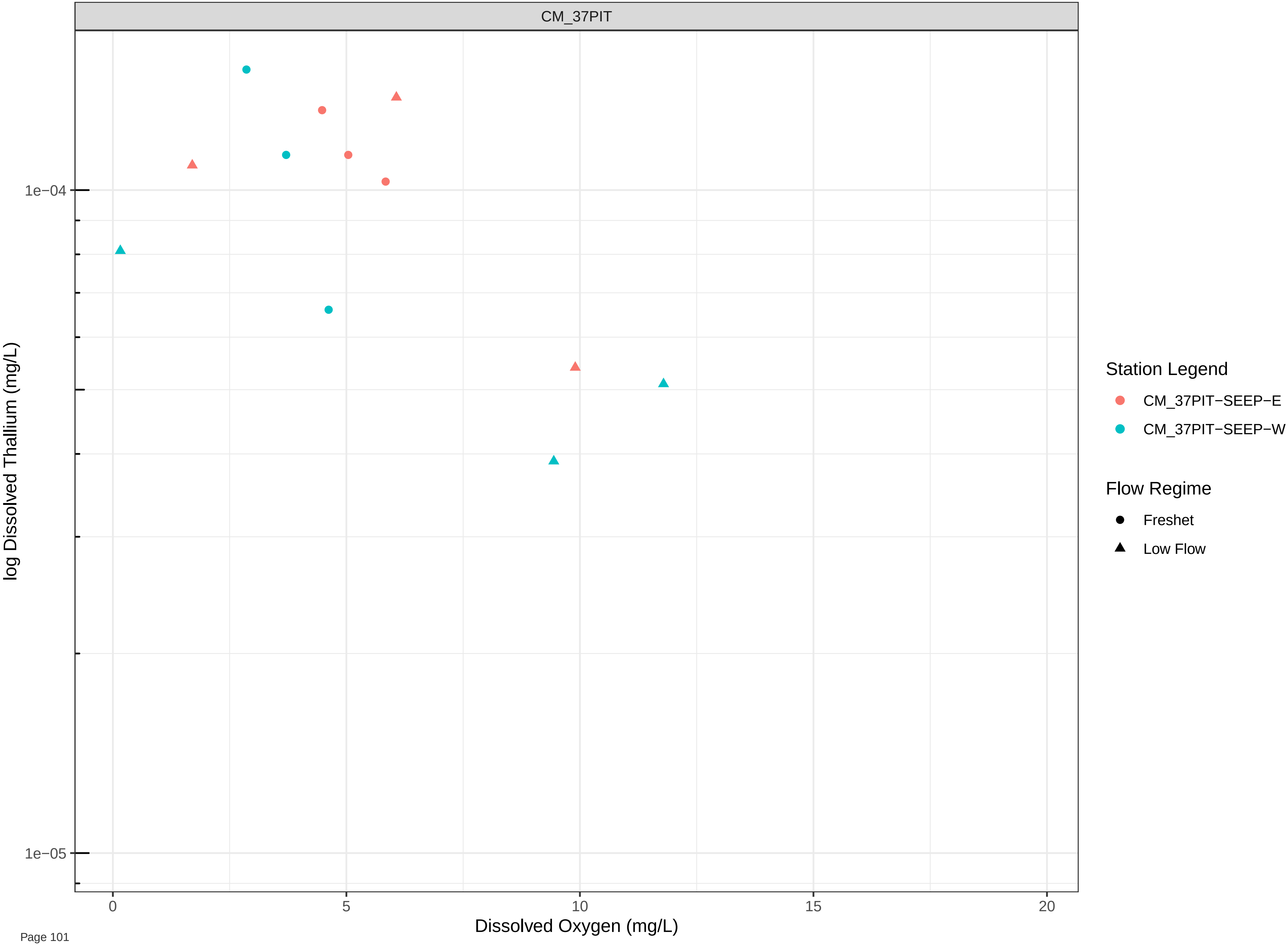
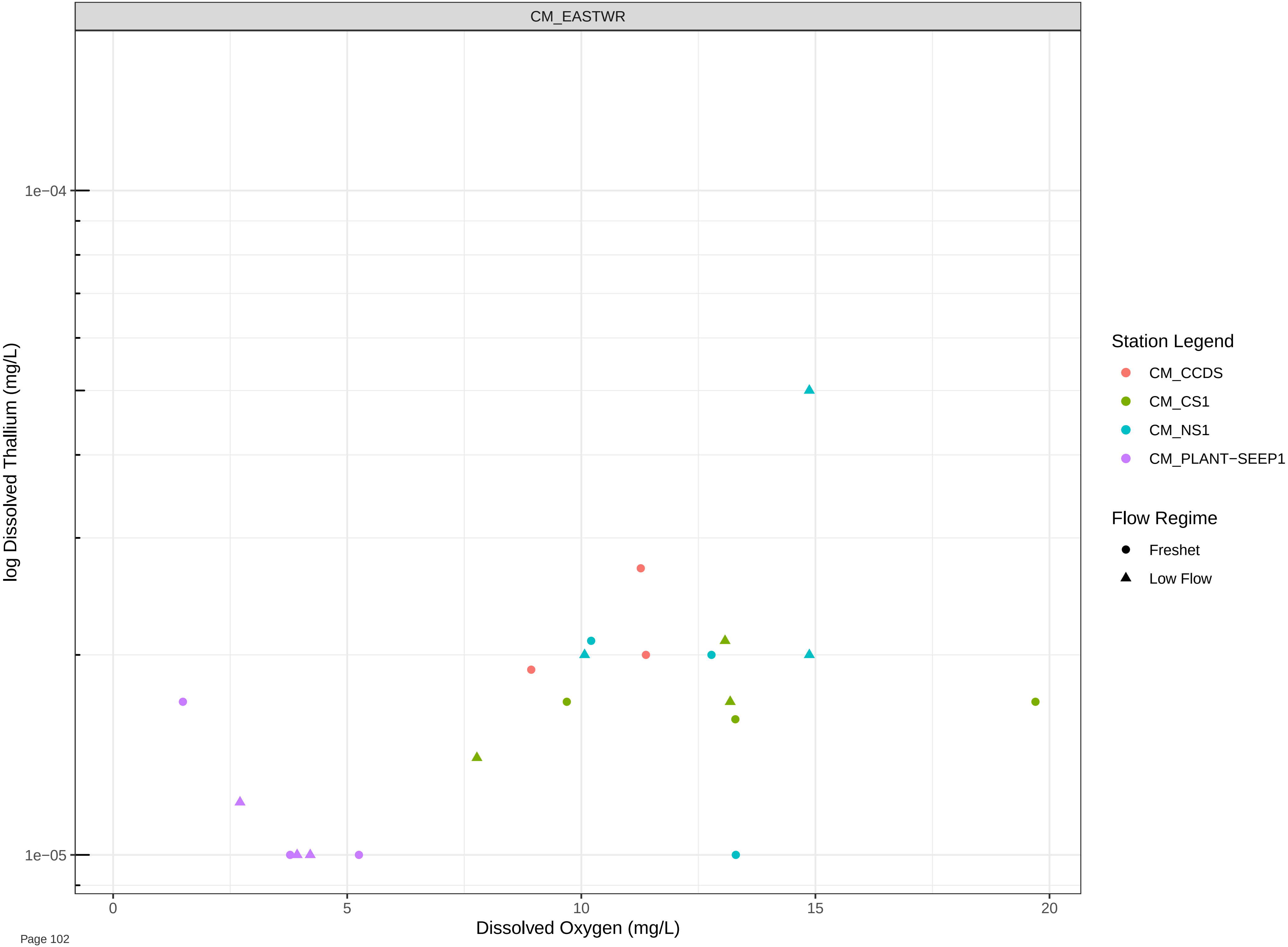
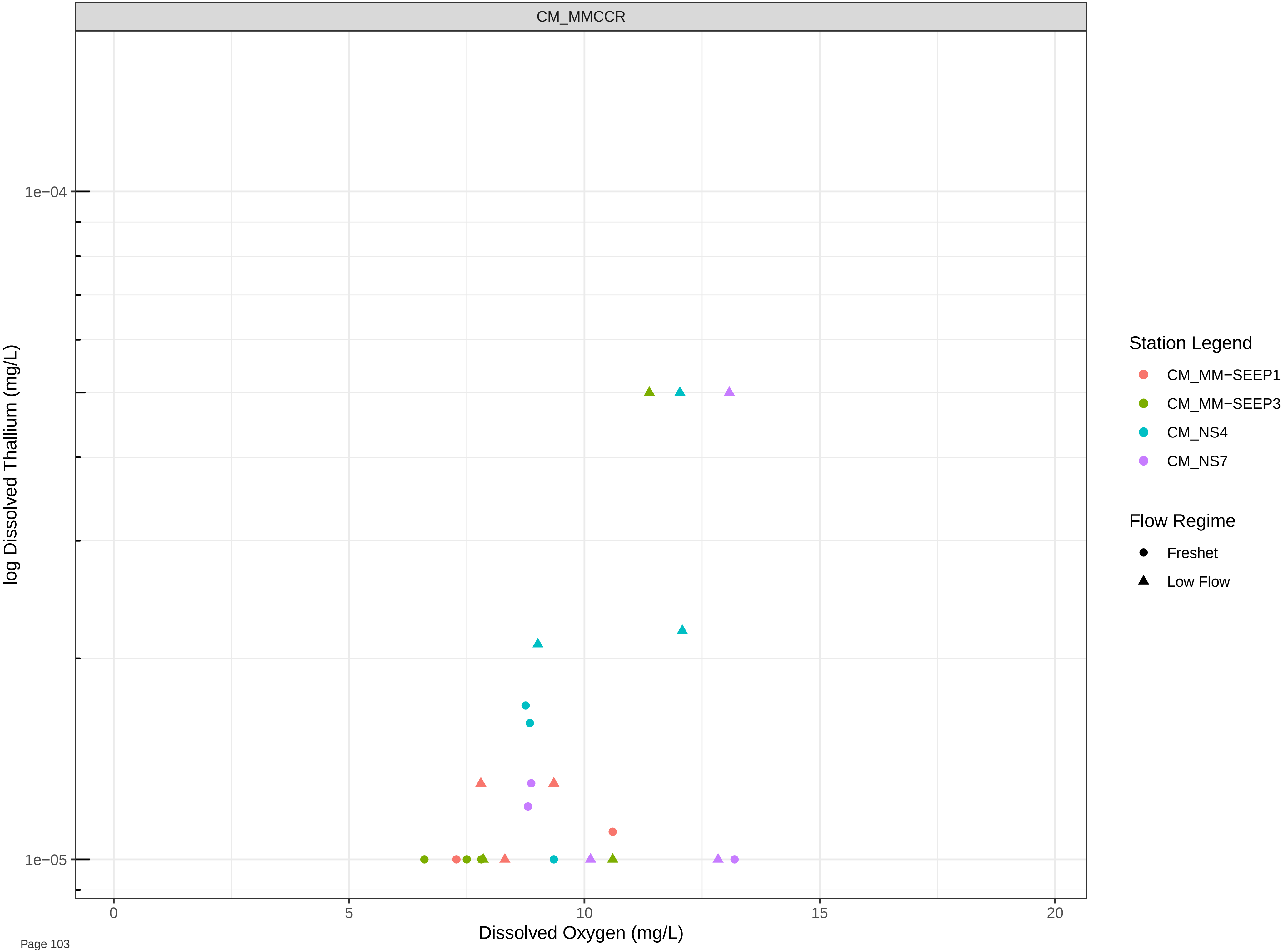
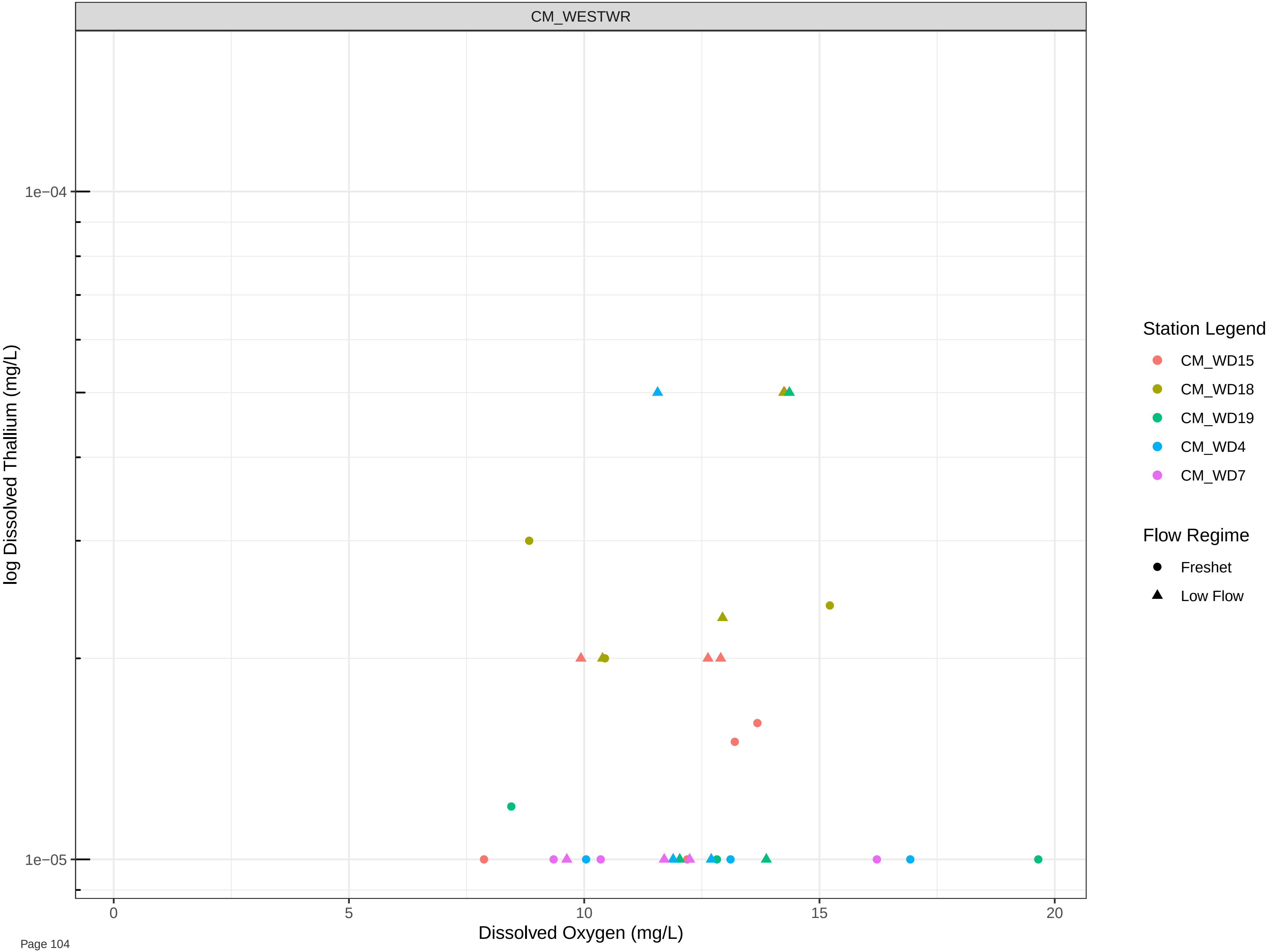
5
10
15
20
Dissolved Oxygen (mg/L)
log Dissolved Strontium (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

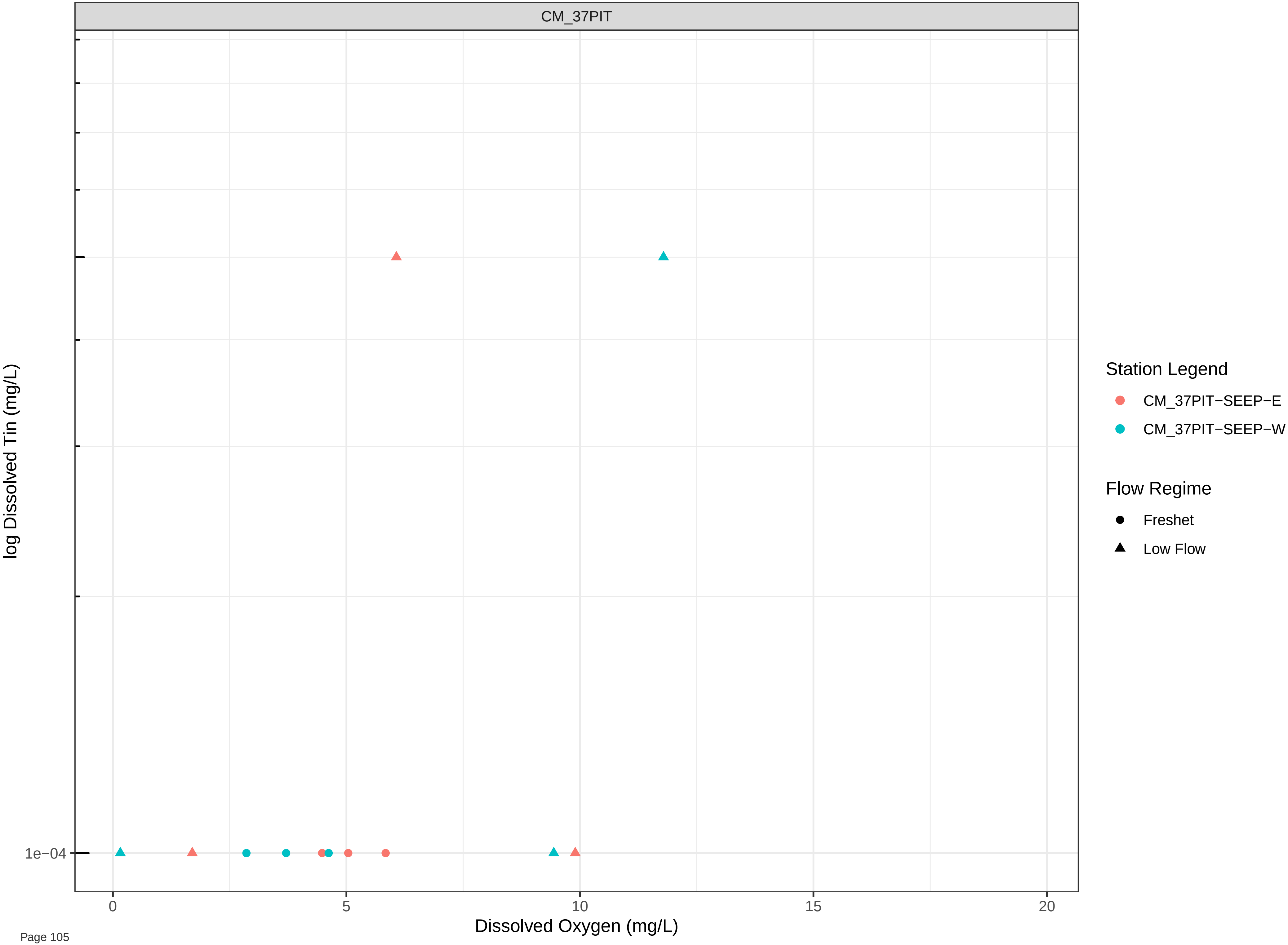

CM_WESTWR
log Dissolved Strontium (mg/L)
1
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
● CM_WD15
● CM_WD18
● CM_WD19
● CM_WD4
● CM_WD7
Flow Regime
● Freshet
▲ Low Flow

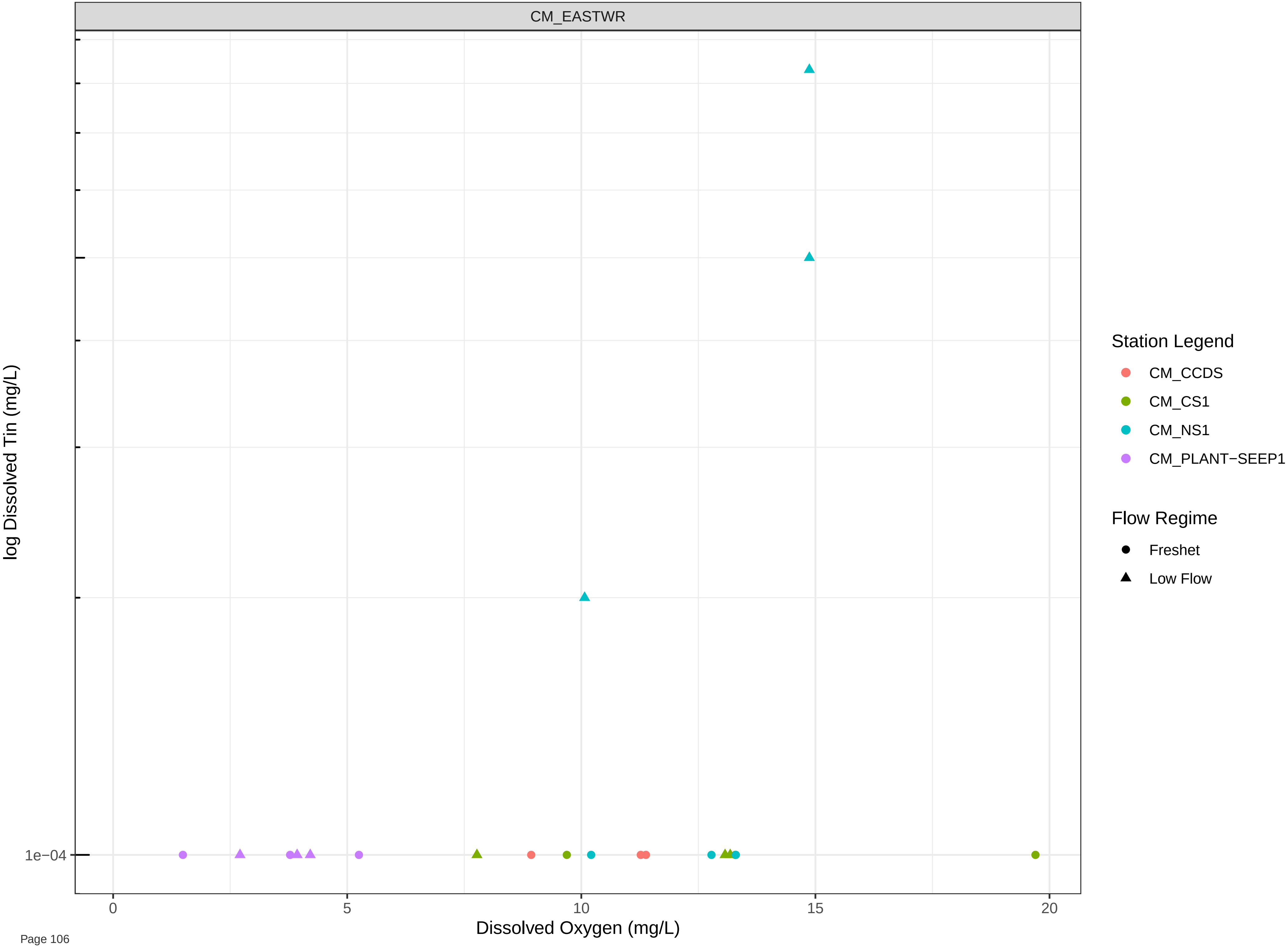

CM_37PIT
log Dissolved Thallium (mg/L)
1e−04
1e−05
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

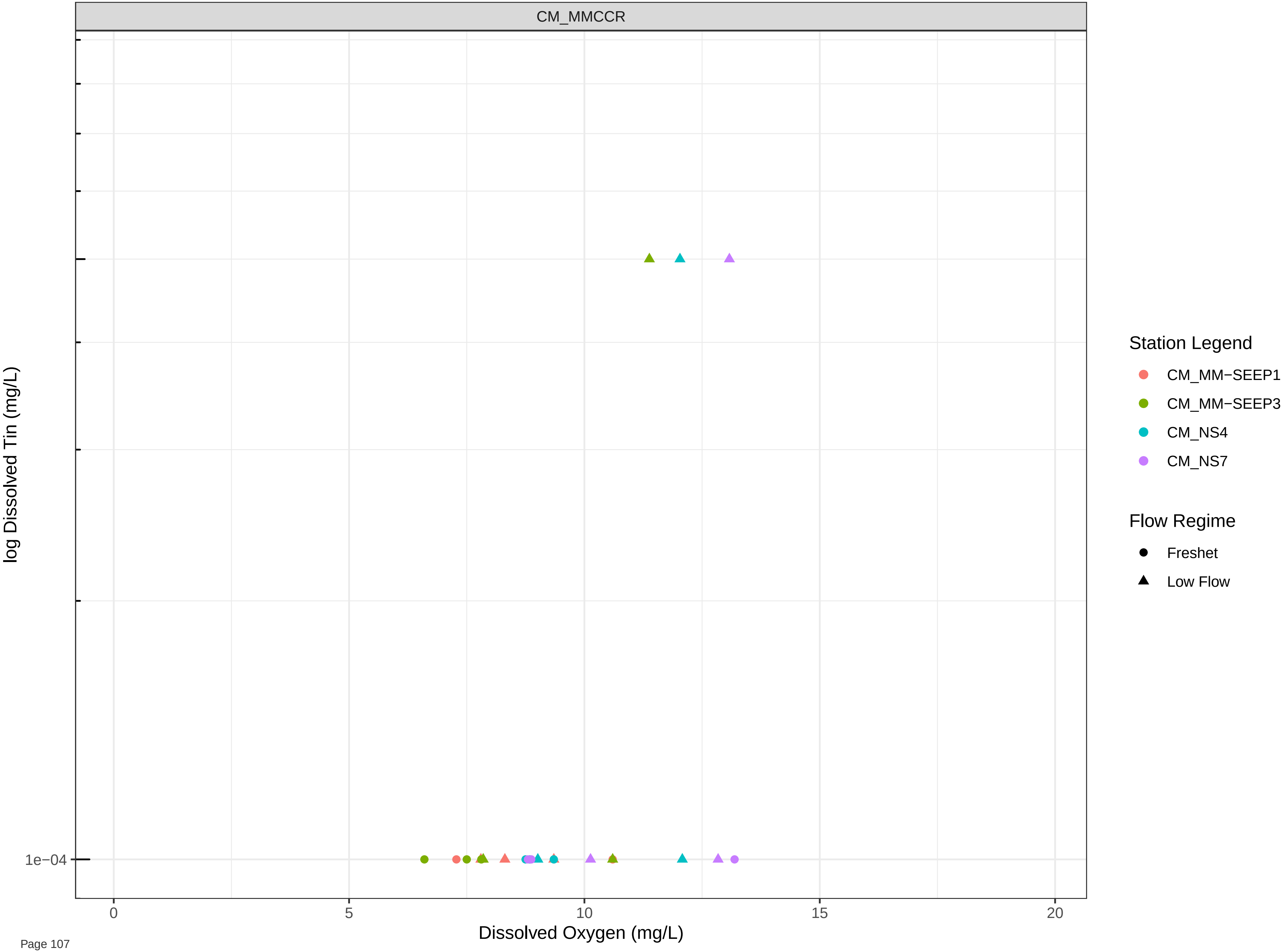

CM_EASTWR
log Dissolved Thallium (mg/L)
1e−04
1e−05
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

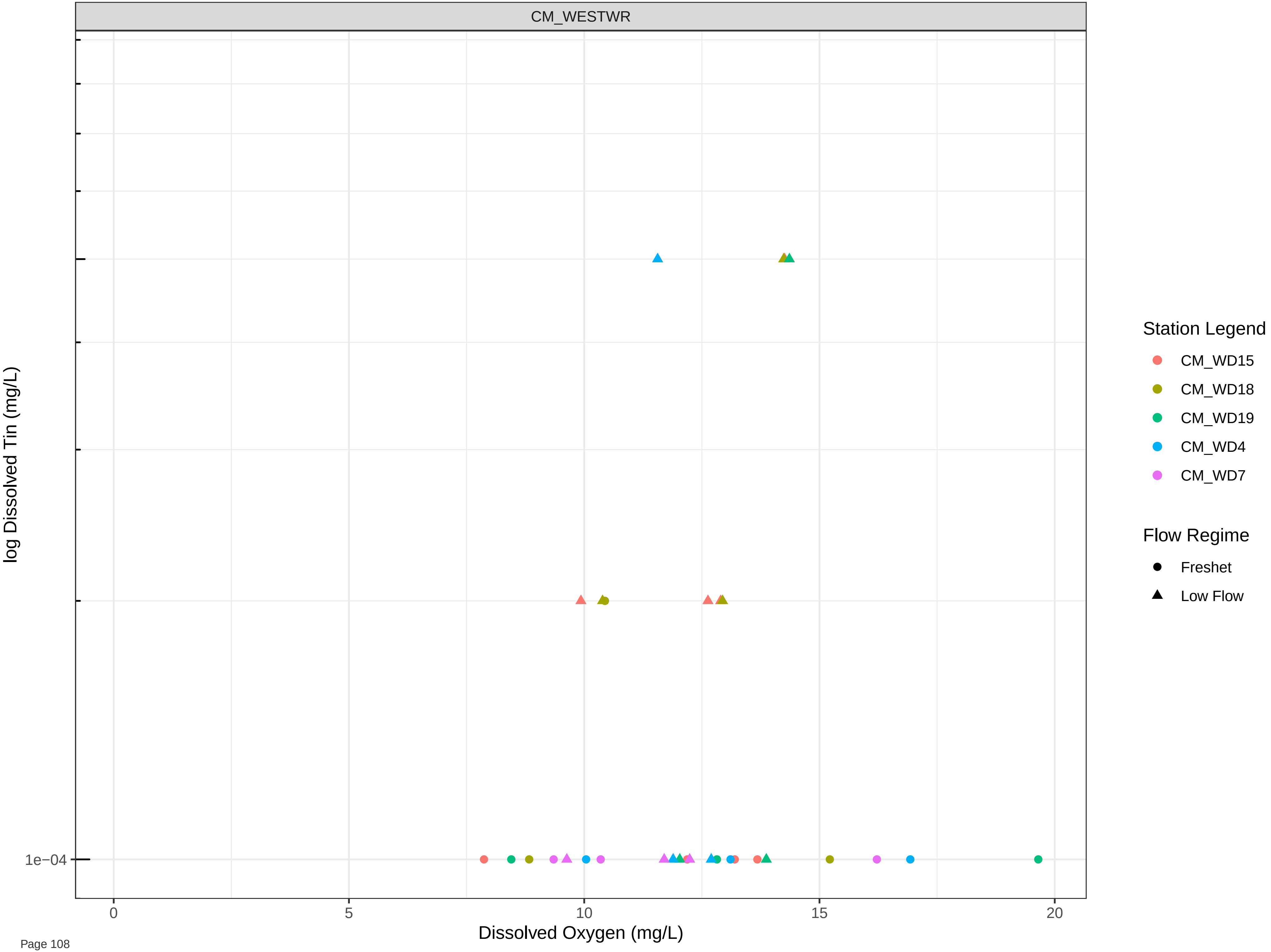

CM_MMCCR
1e−04
1e−05
log Dissolved Thallium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

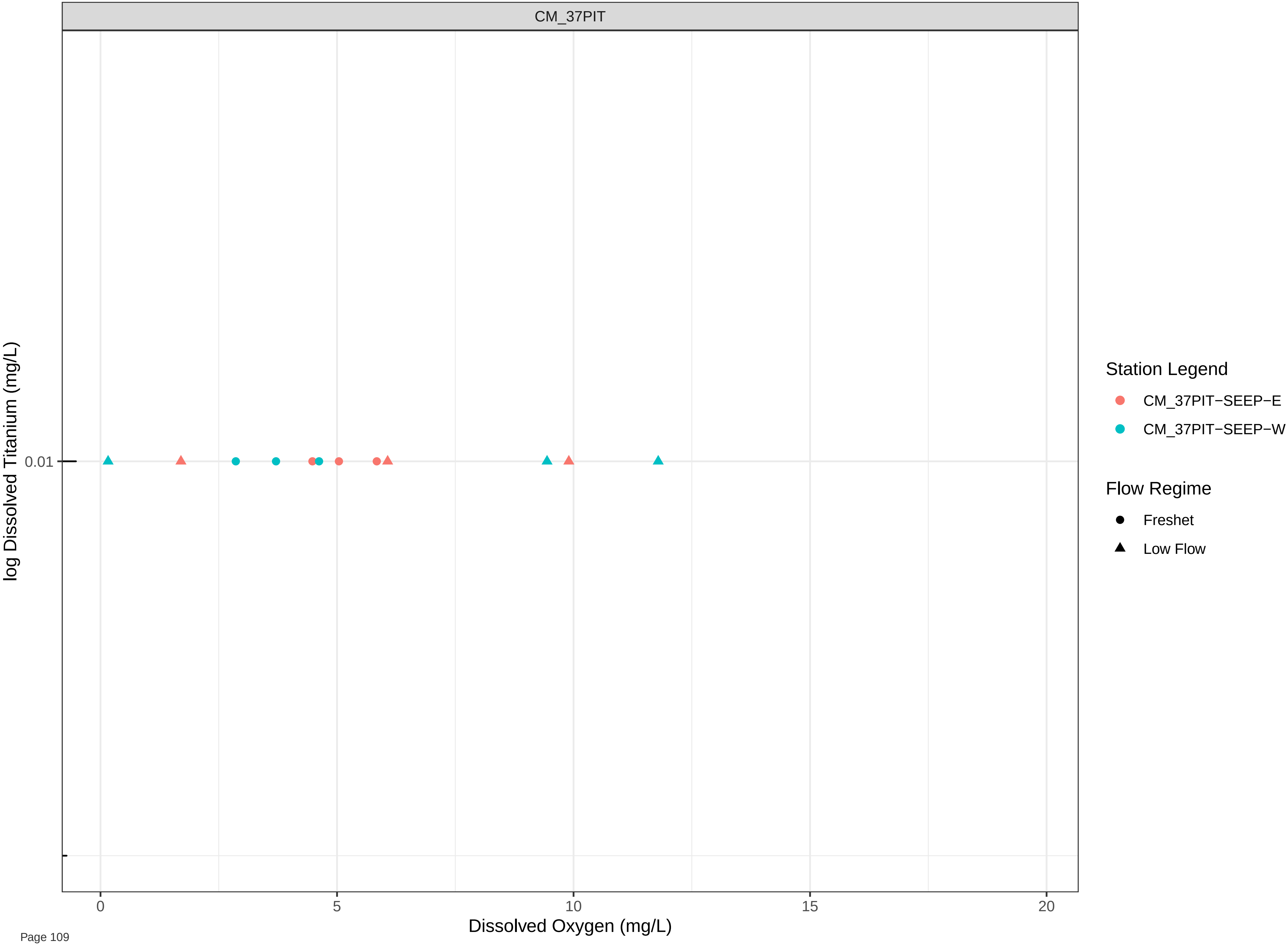

CM_WESTWR
log Dissolved Thallium (mg/L)
1e−04
1e−05
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

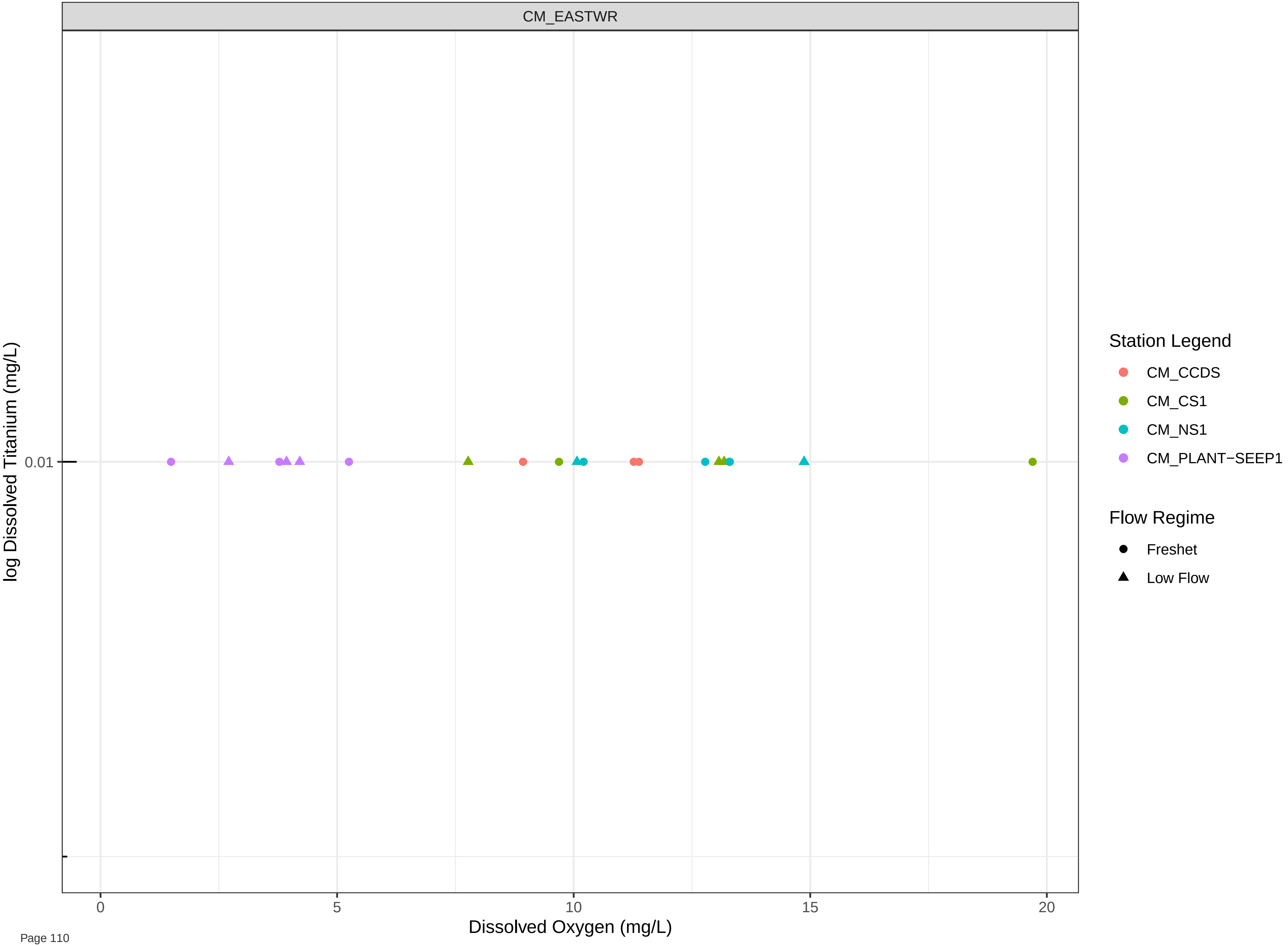

CM_37PIT
log Dissolved Tin (mg/L)
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

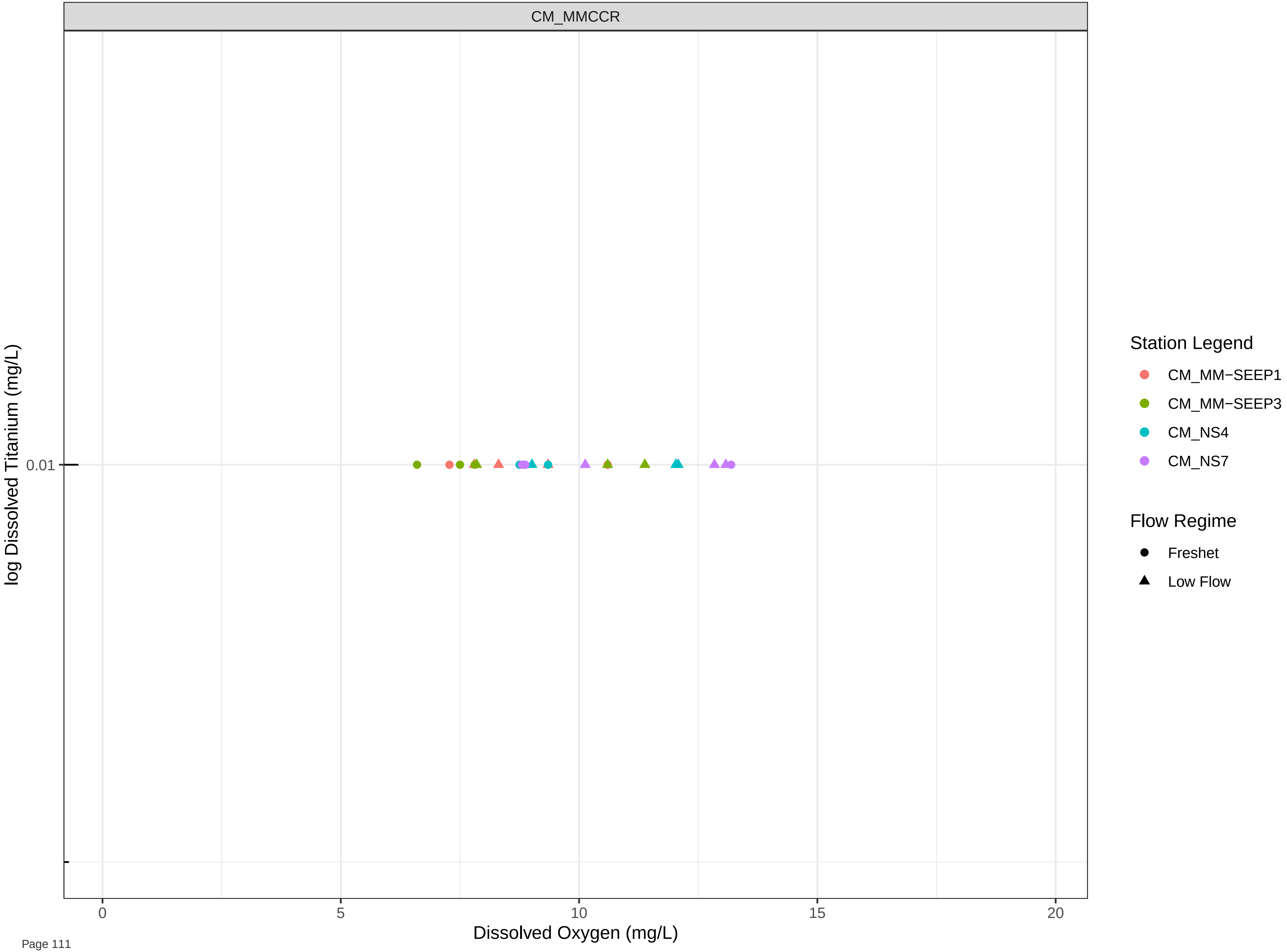

CM_EASTWR
log Dissolved Tin (mg/L)
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

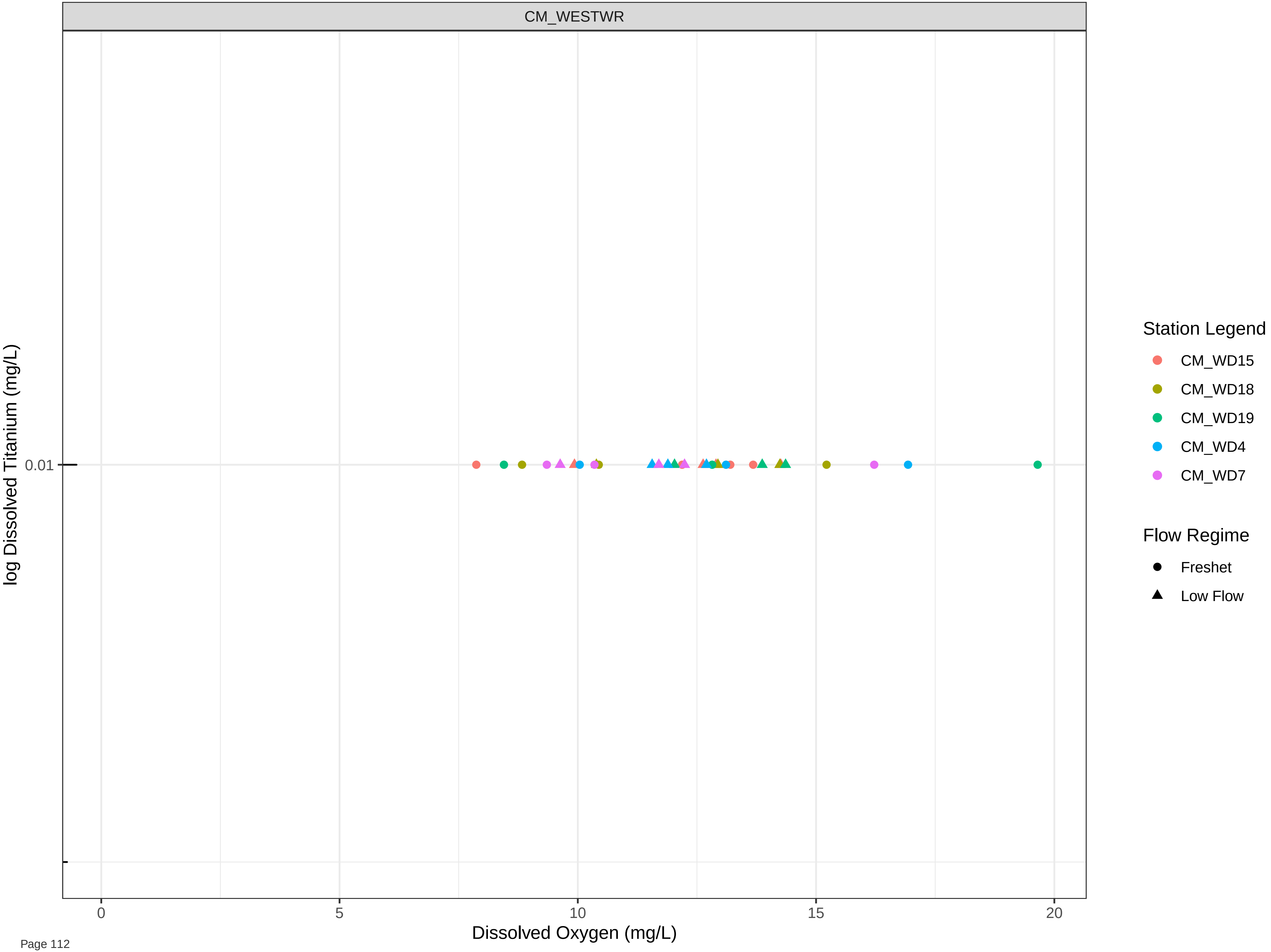

CM_MMCCR
log Dissolved Tin (mg/L)
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_MM−SEEP1
● CM_MM−SEEP3
● CM_NS4
● CM_NS7
Flow Regime
● Freshet
▲ Low Flow

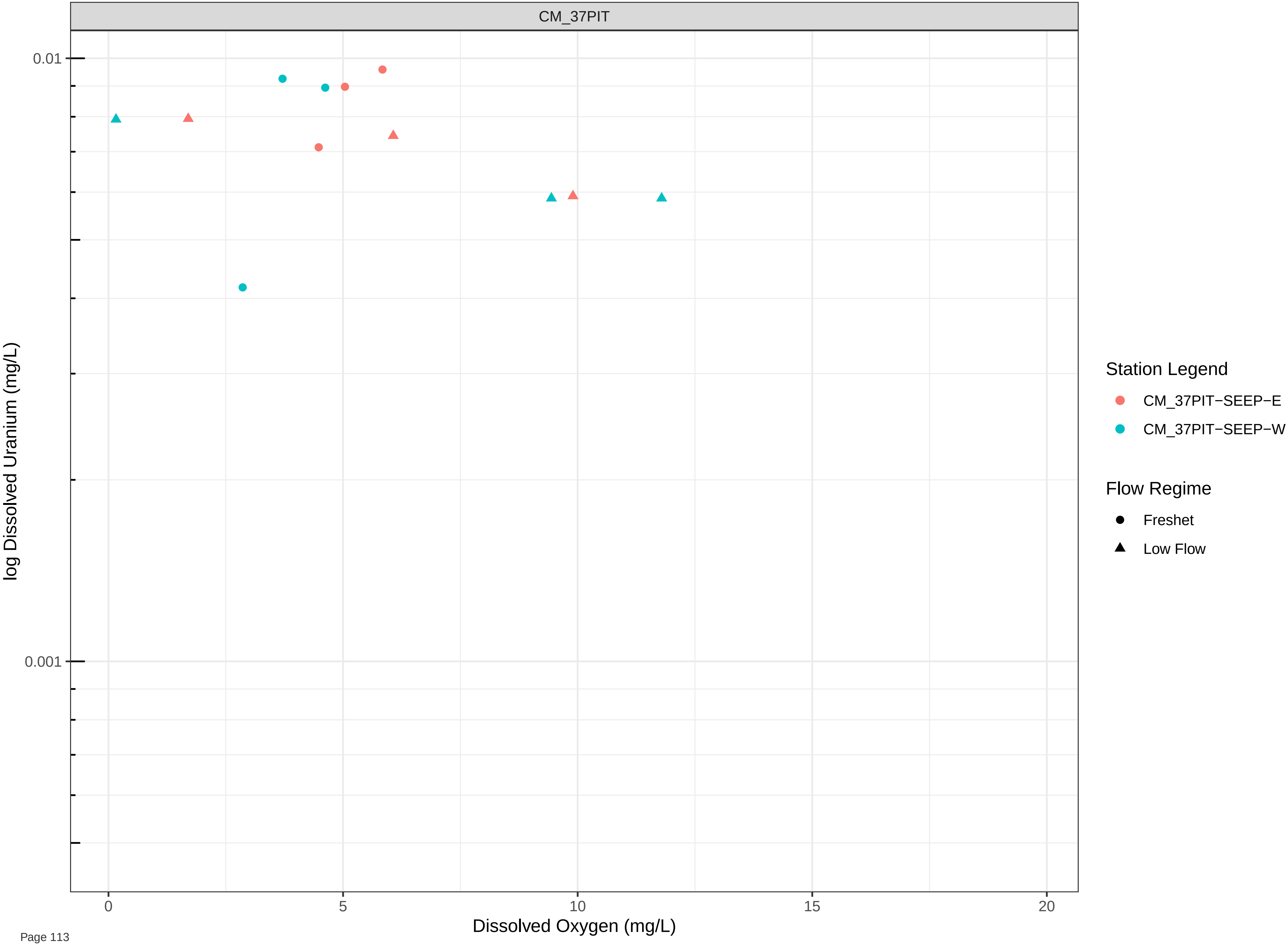

CM_WESTWR
log Dissolved Tin (mg/L)
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

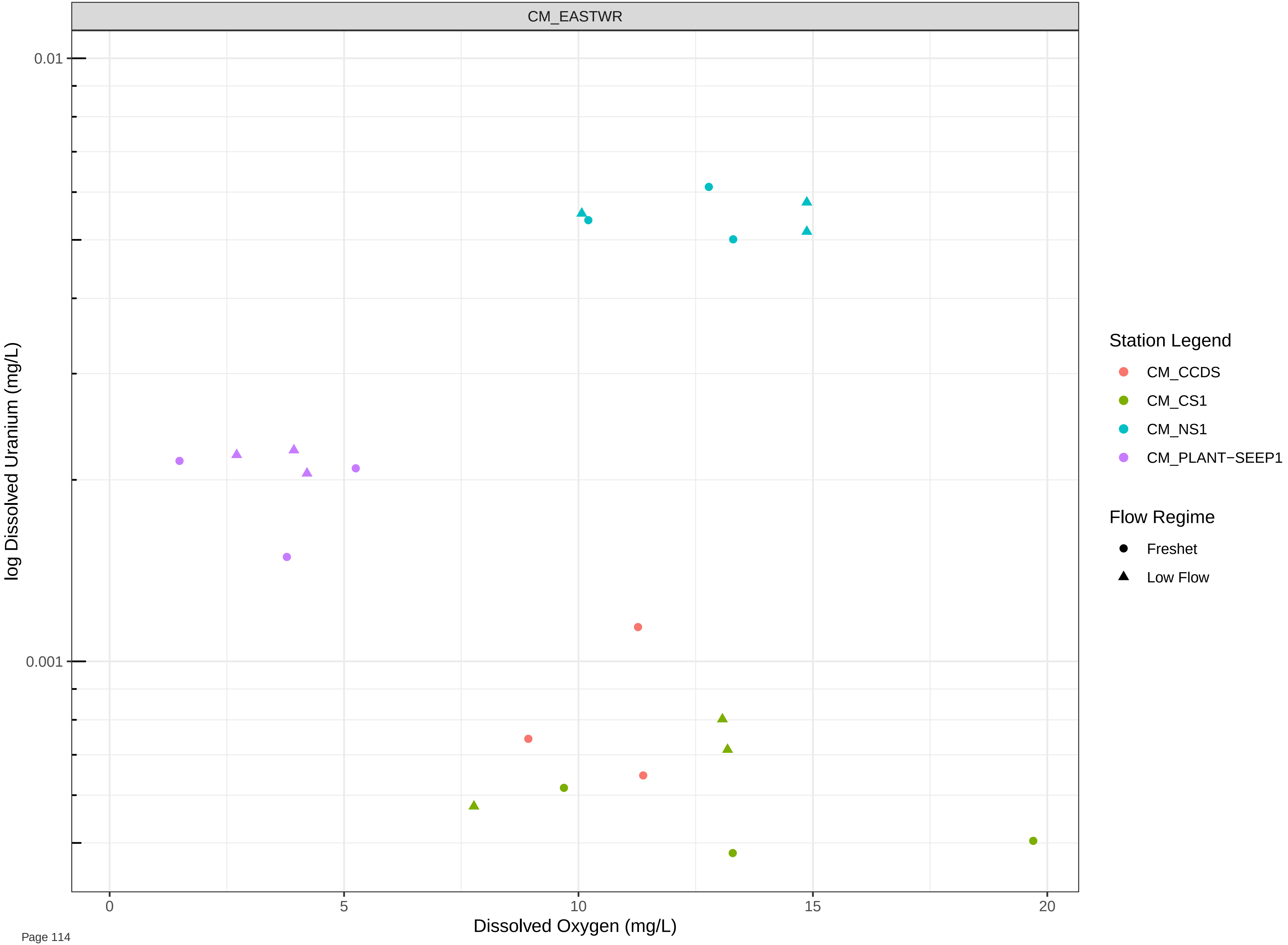

CM_37PIT
log Dissolved Titanium (mg/L)
0.01
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

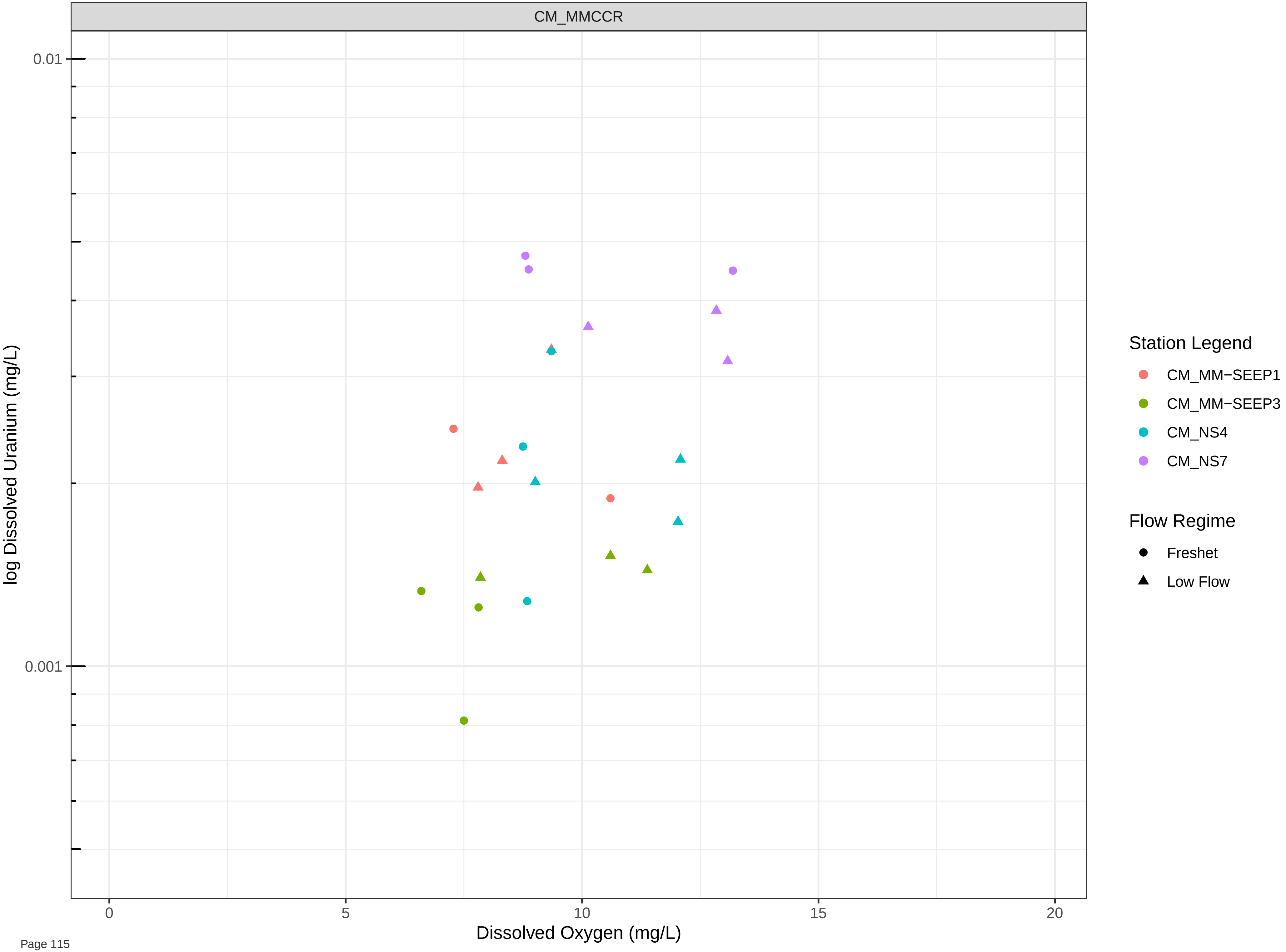

CM_EASTWR
log Dissolved Titanium (mg/L)
0.01
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

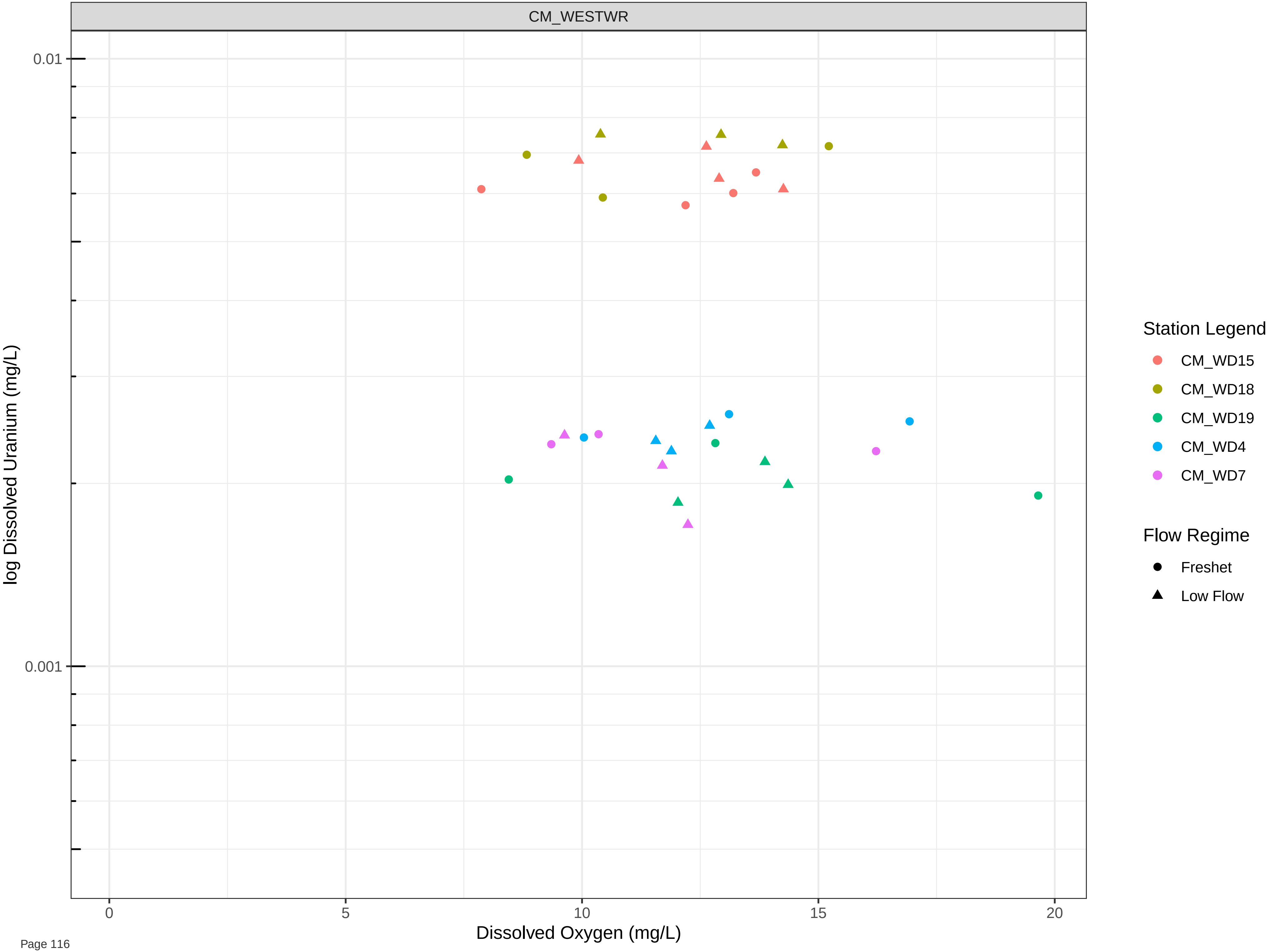

CM_MMCCR
log Dissolved Titanium (mg/L)
0.01
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_MM−SEEP1
● CM_MM−SEEP3
● CM_NS4
● CM_NS7
Flow Regime
● Freshet
▲ Low Flow

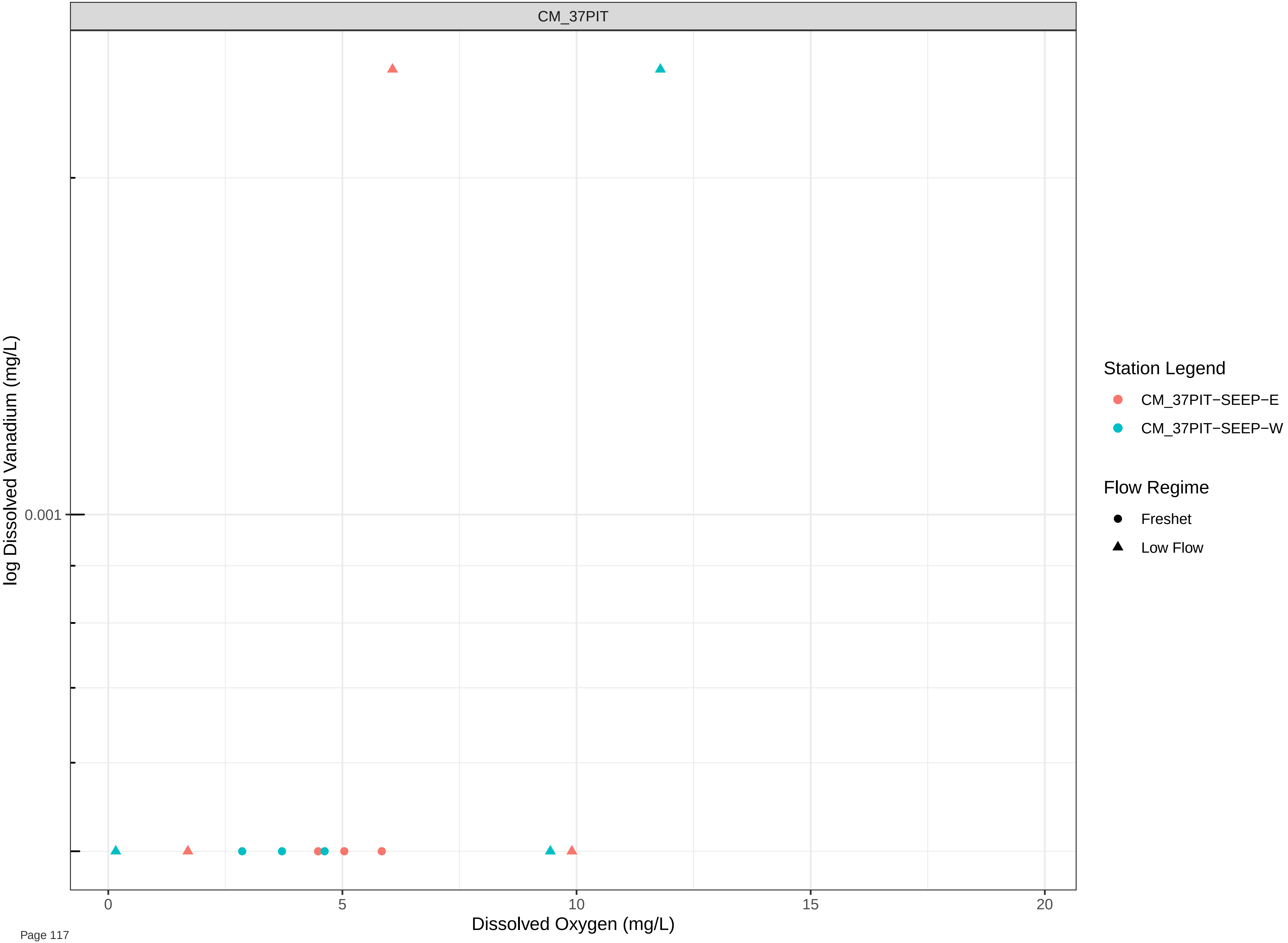

CM_WESTWR
log Dissolved Titanium (mg/L)
0.01
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

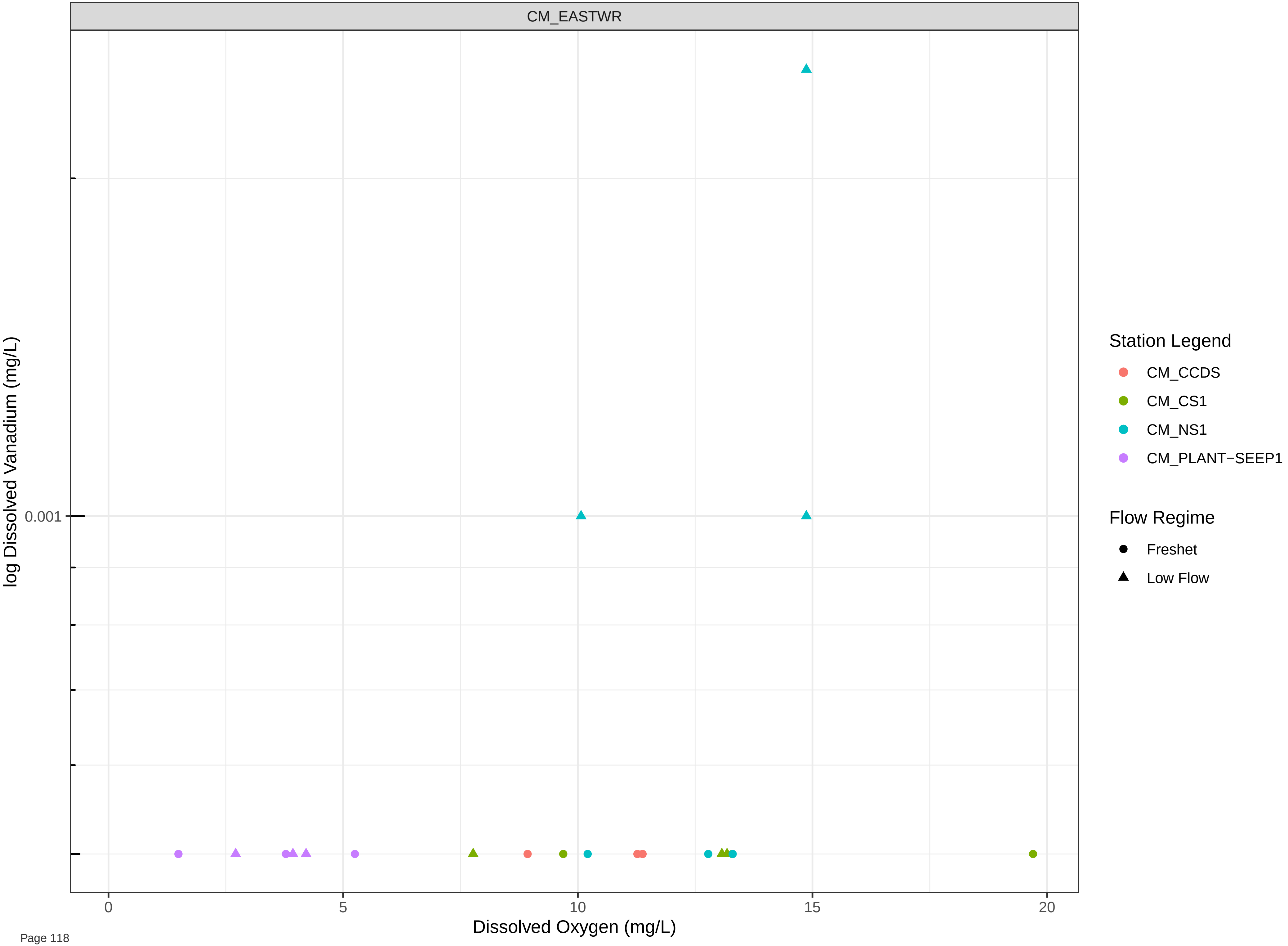

CM_37PIT
0.01
0.001
log Dissolved Uranium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

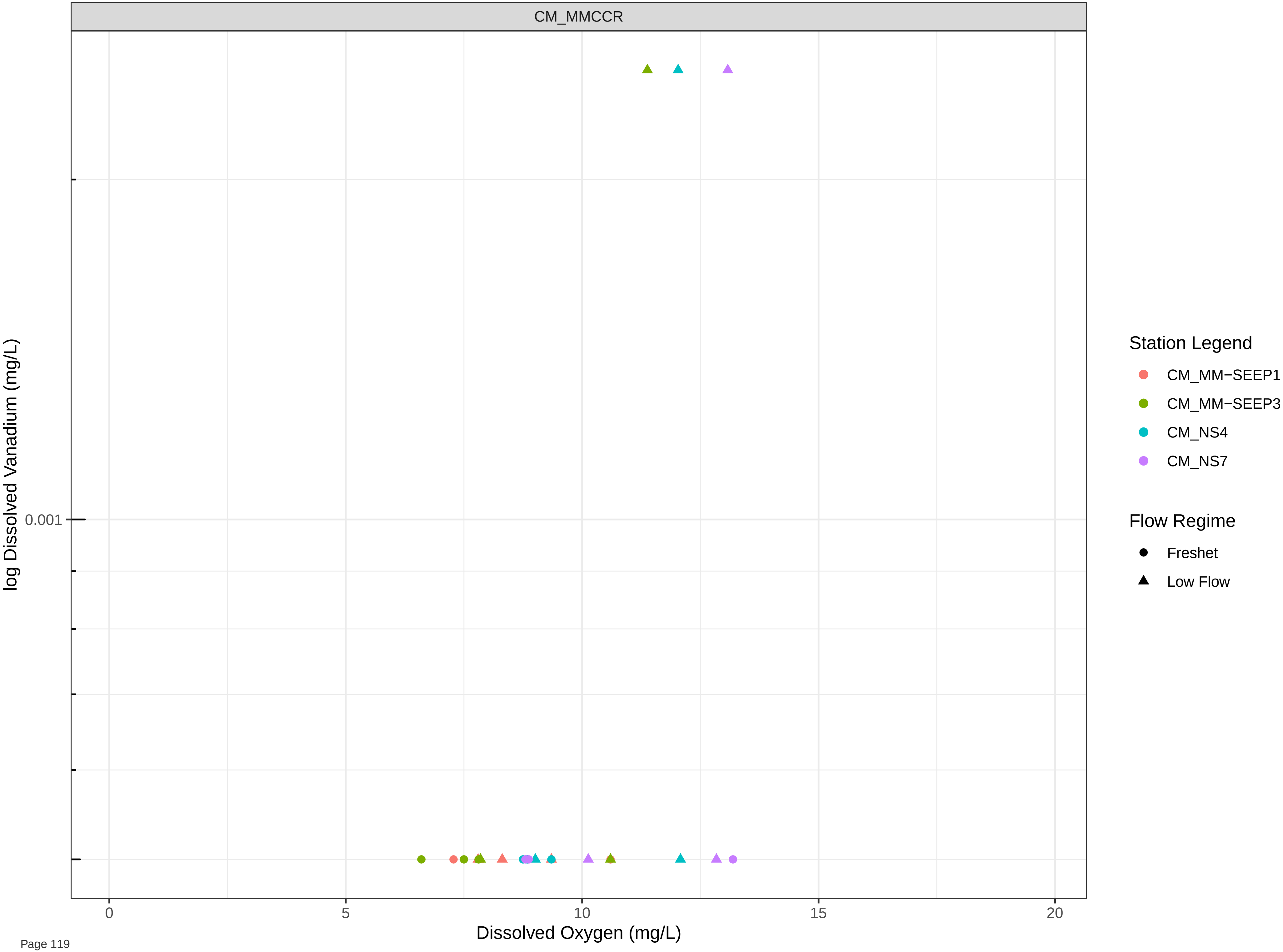

CM_EASTWR
0.01
0.001
log Dissolved Uranium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

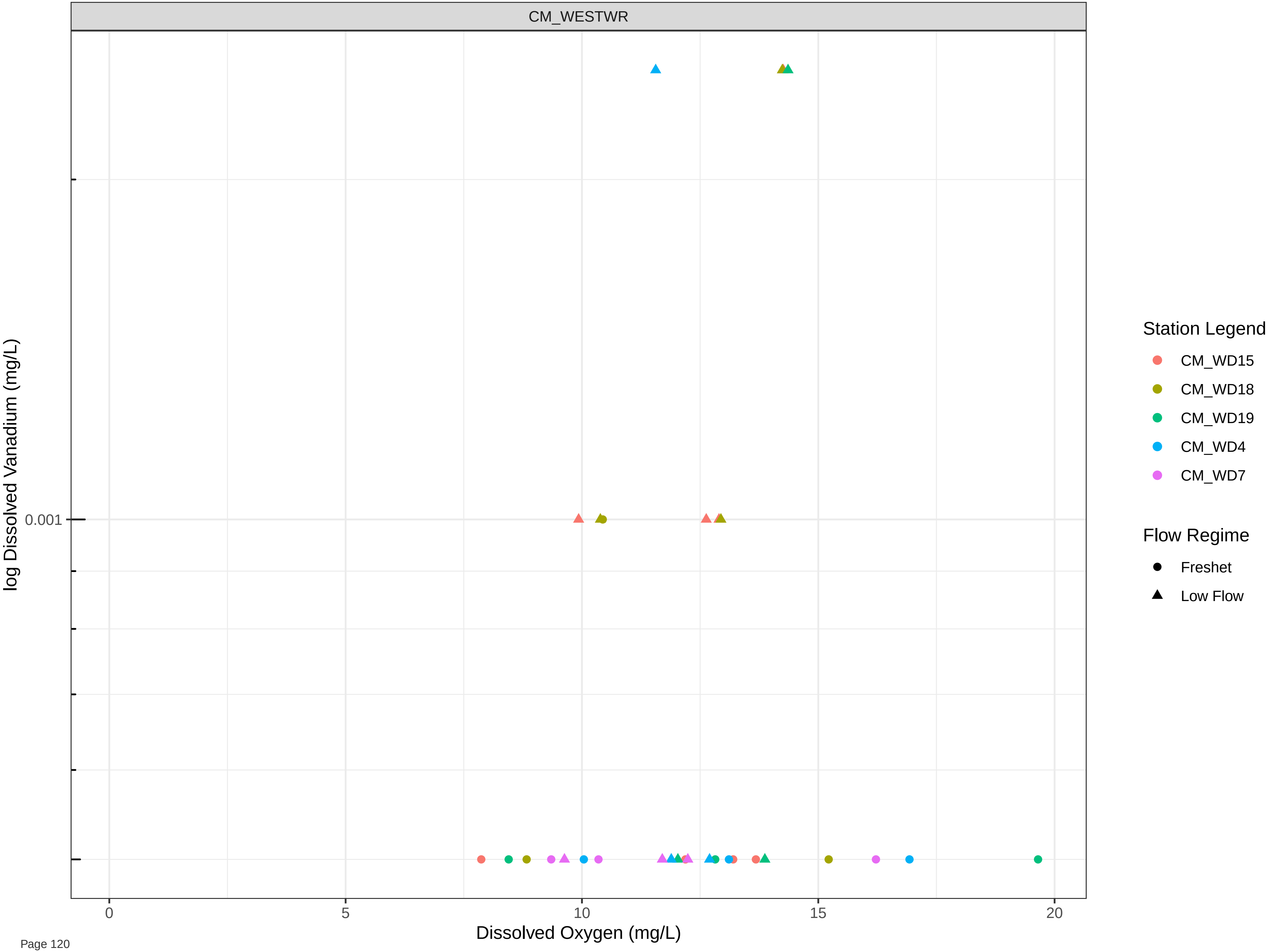

CM_MMCCR
0.01
0.001
log Dissolved Uranium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
● Freshet
▲ Low Flow

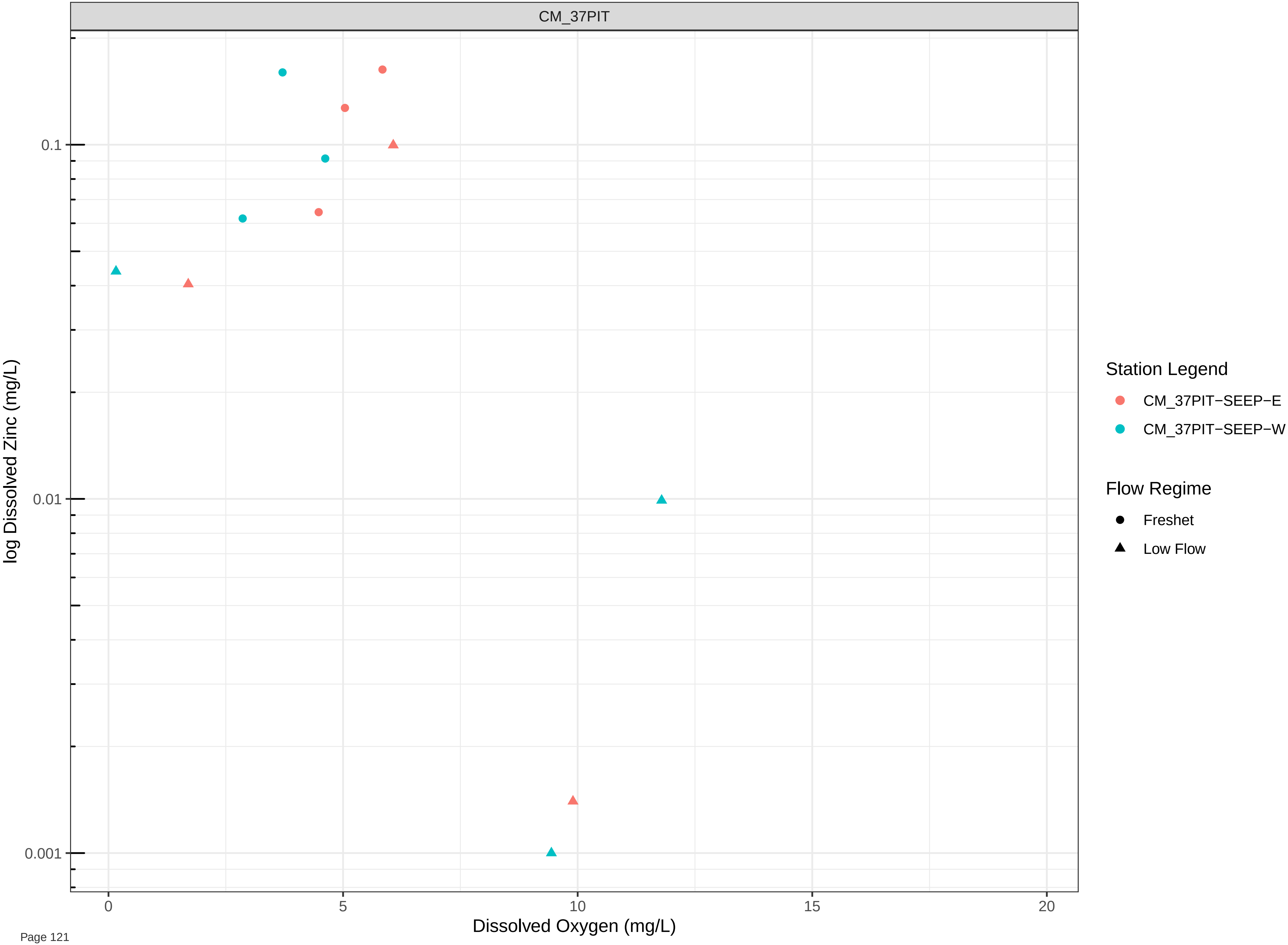

CM_WESTWR
0.01
0.001
log Dissolved Uranium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

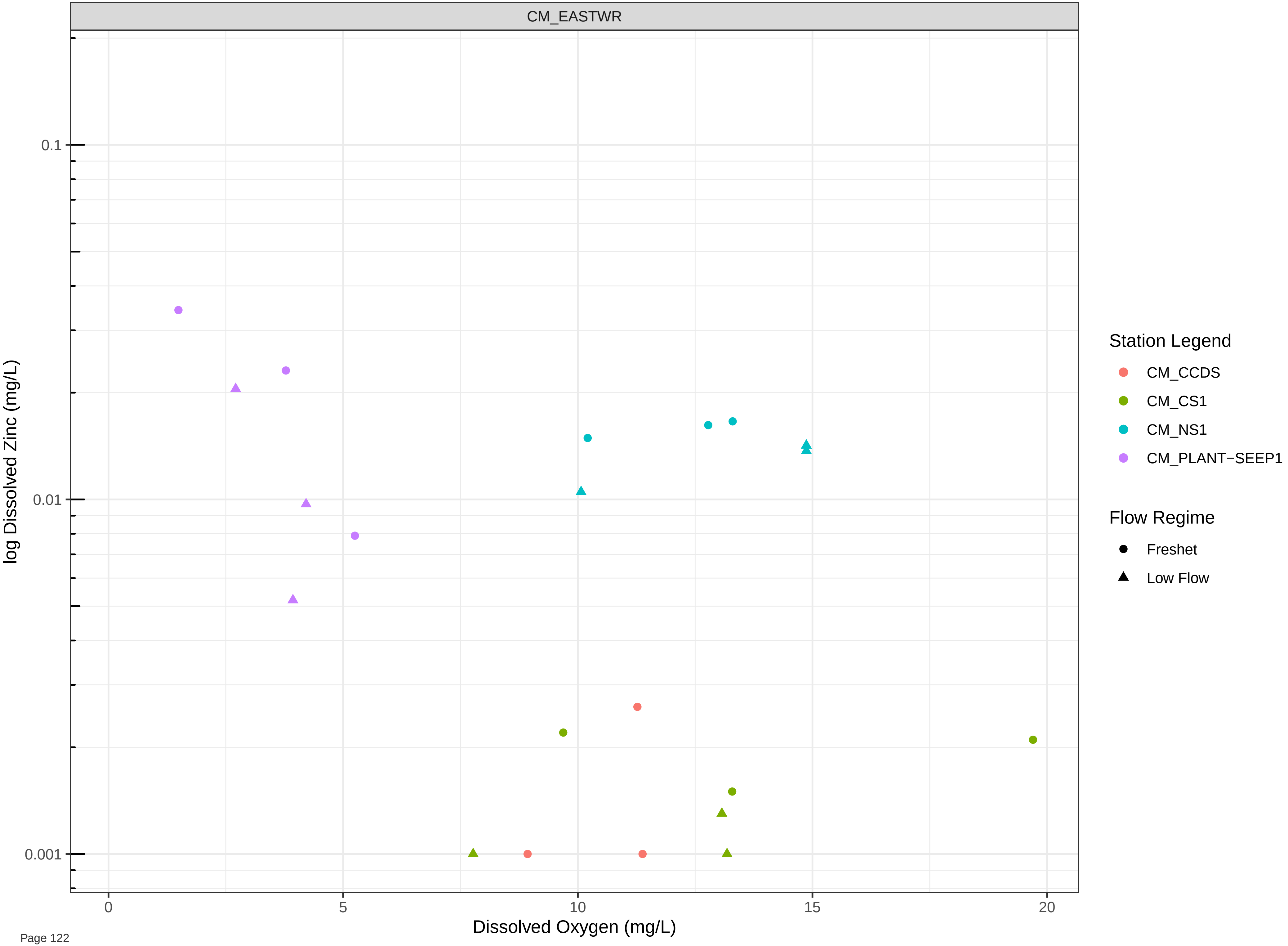

CM_37PIT
log Dissolved Vanadium (mg/L)
0.001
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

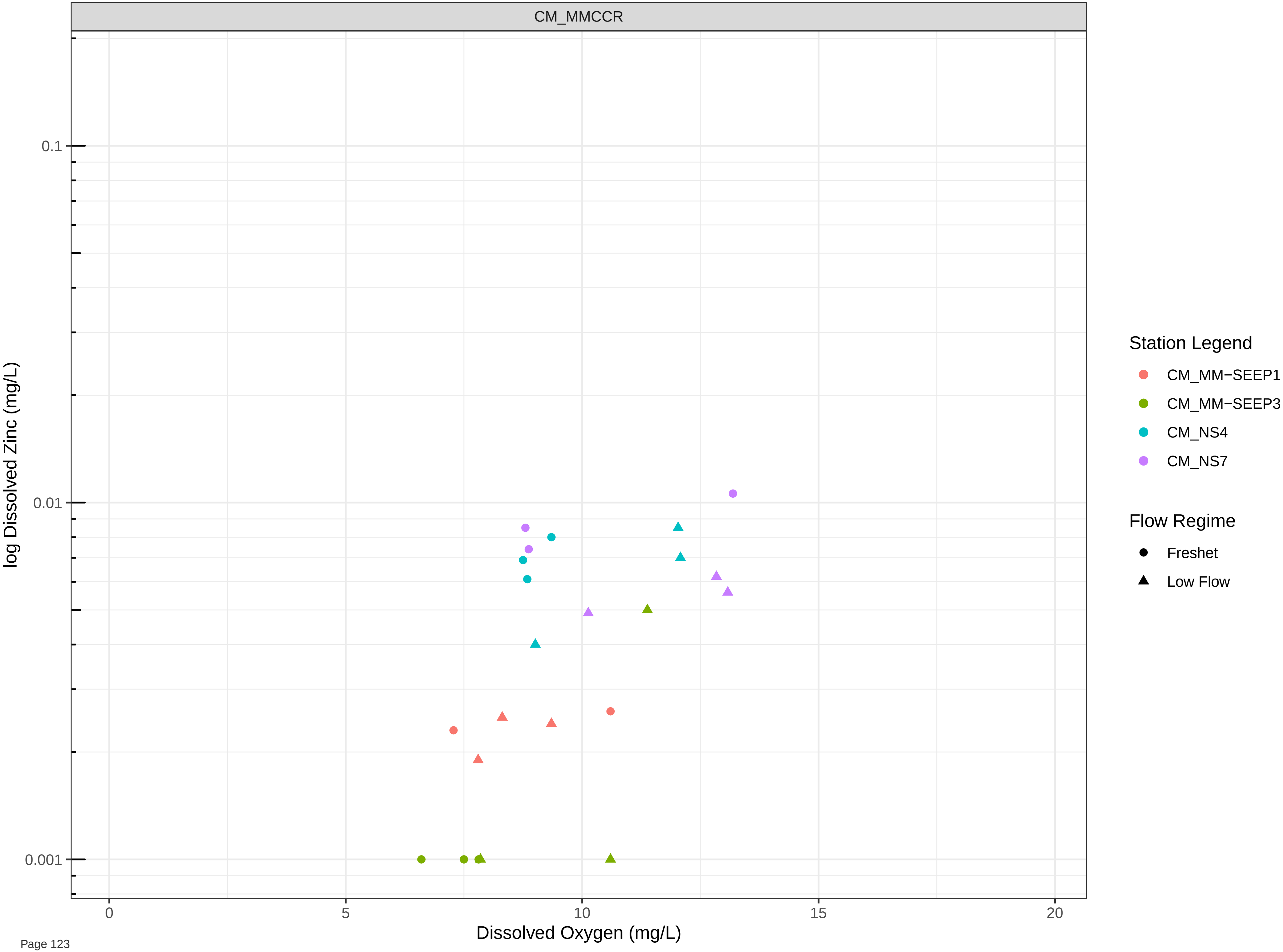

CM_EASTWR
log Dissolved Vanadium (mg/L)
0.001
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
● CM_CCDS
● CM_CS1
● CM_NS1
● CM_PLANT−SEEP1
Flow Regime
● Freshet
▲ Low Flow

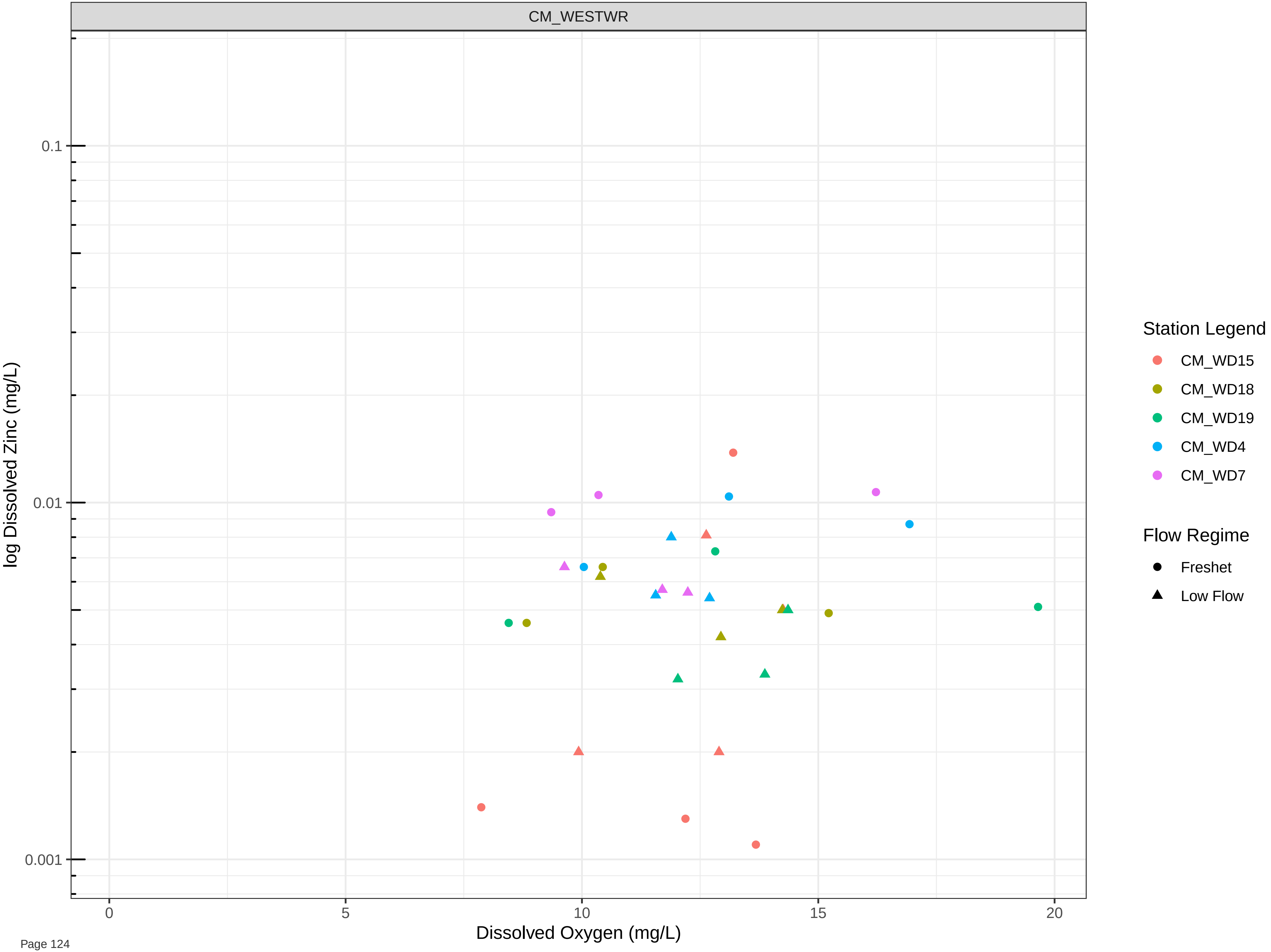

CM_MMCCR
log Dissolved Vanadium (mg/L)
0.001
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
● CM_MM−SEEP1
● CM_MM−SEEP3
● CM_NS4
● CM_NS7
Flow Regime
● Freshet
▲ Low Flow

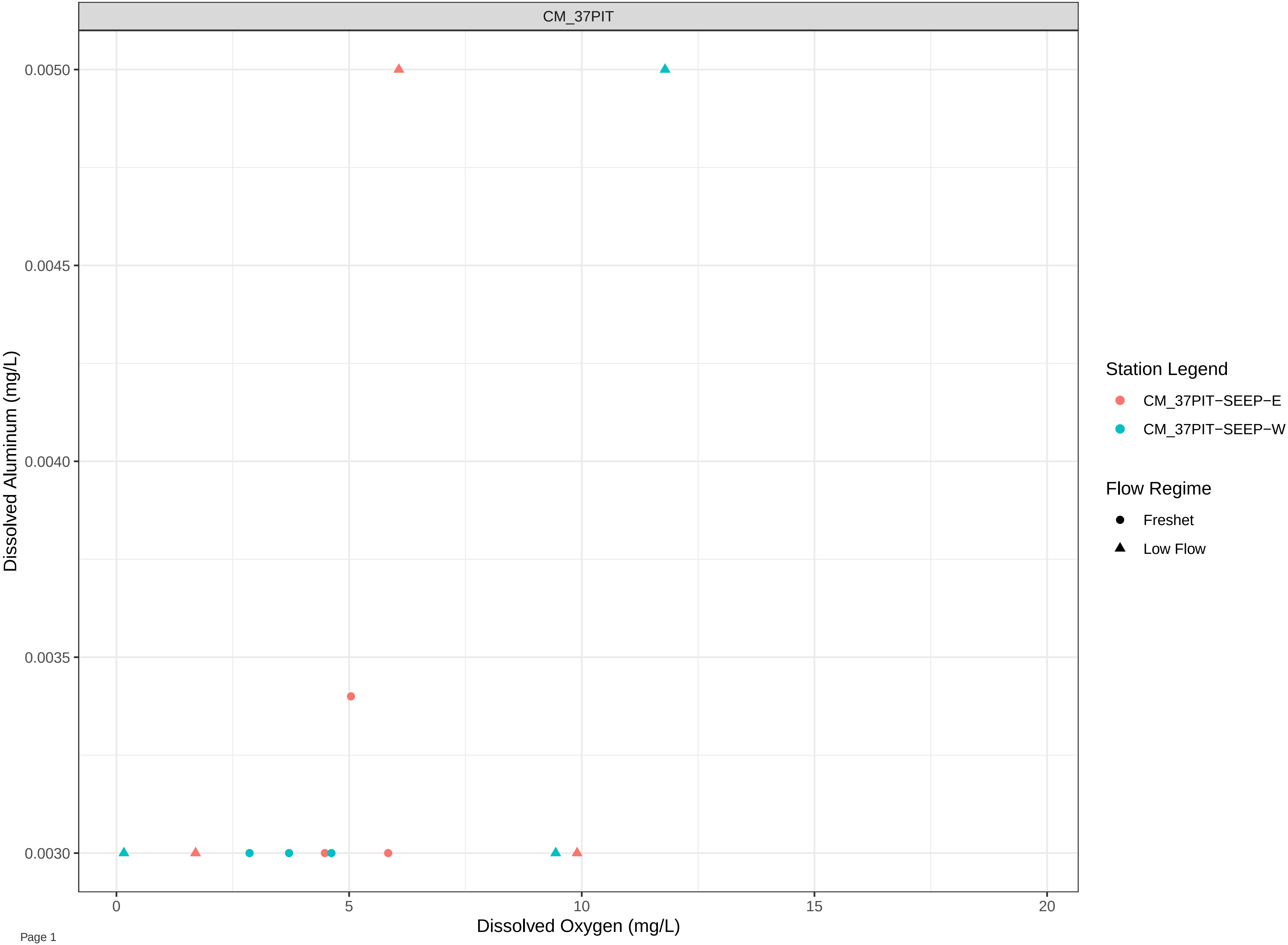

CM_WESTWR
log Dissolved Vanadium (mg/L)
0.001
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

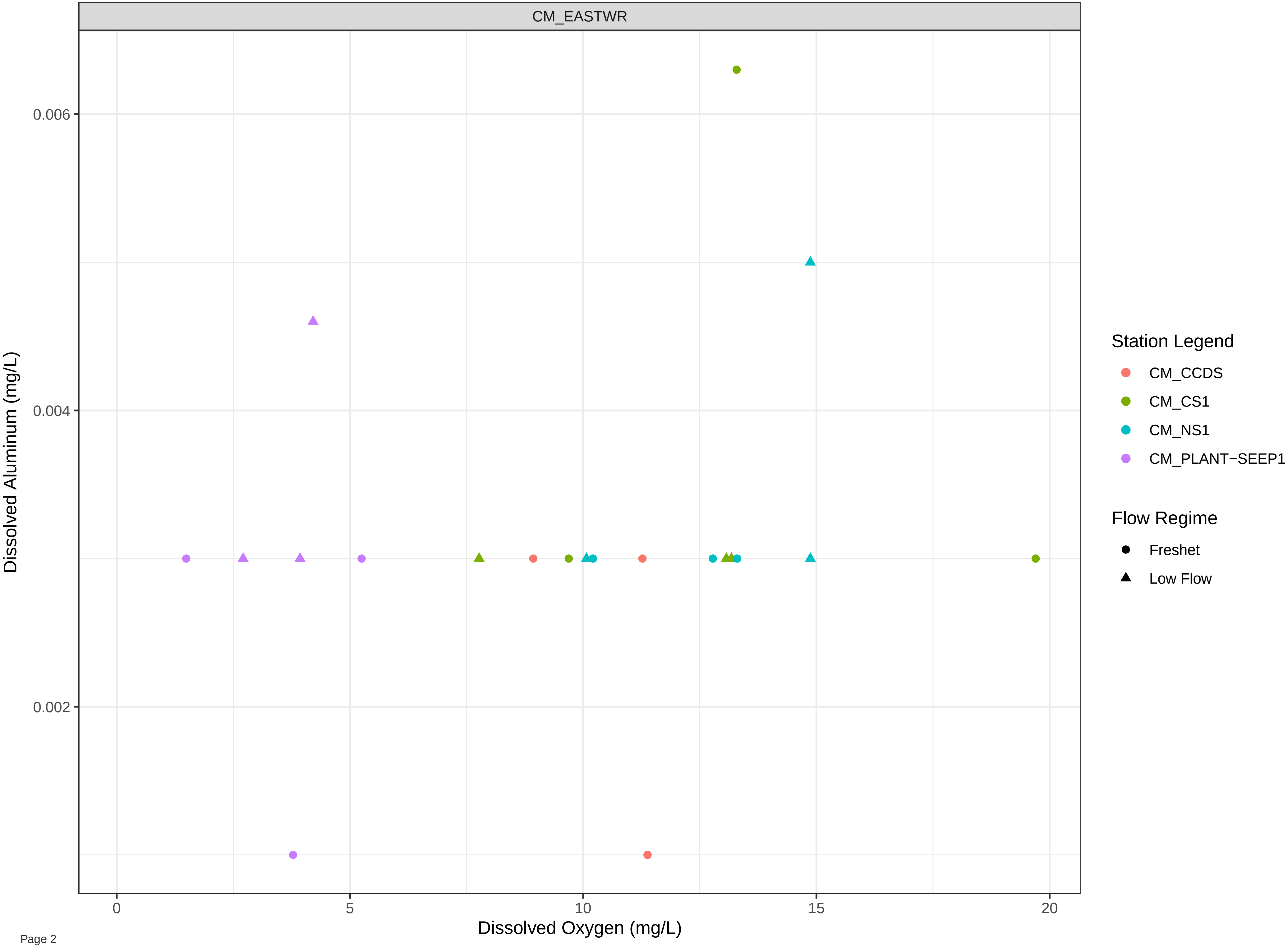

CM_37PIT
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow

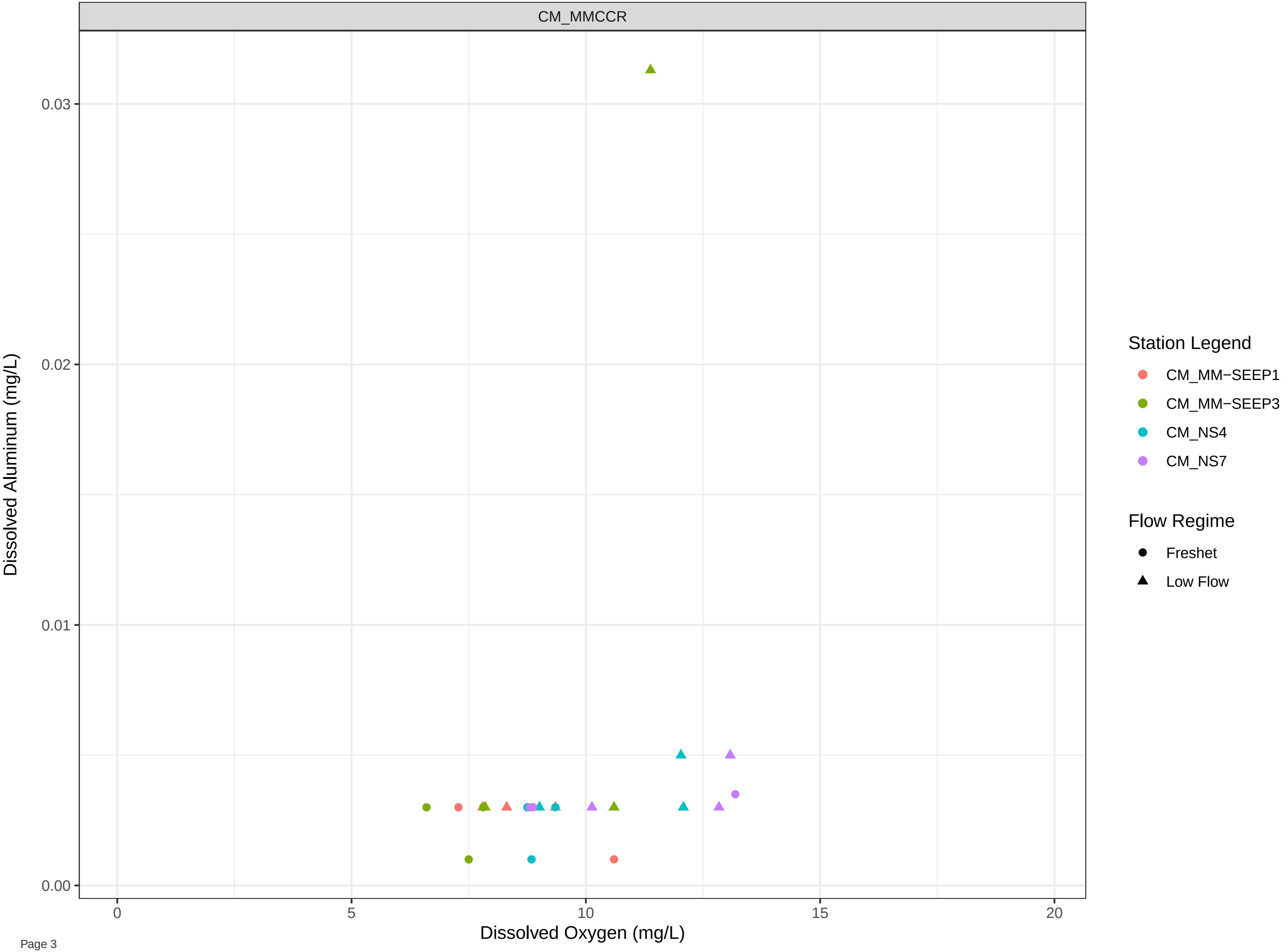

CM_EASTWR
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

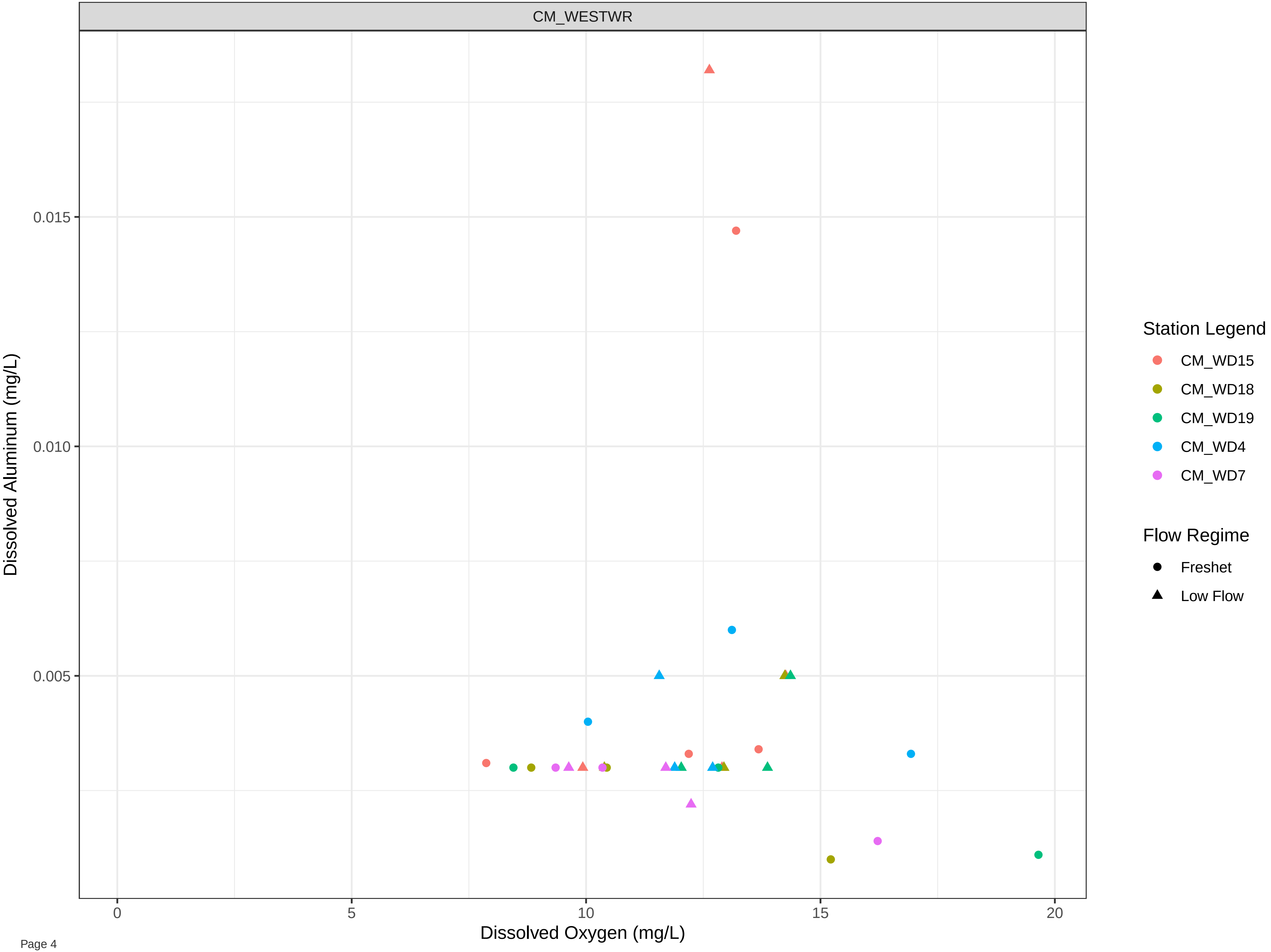

CM_MMCCR
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

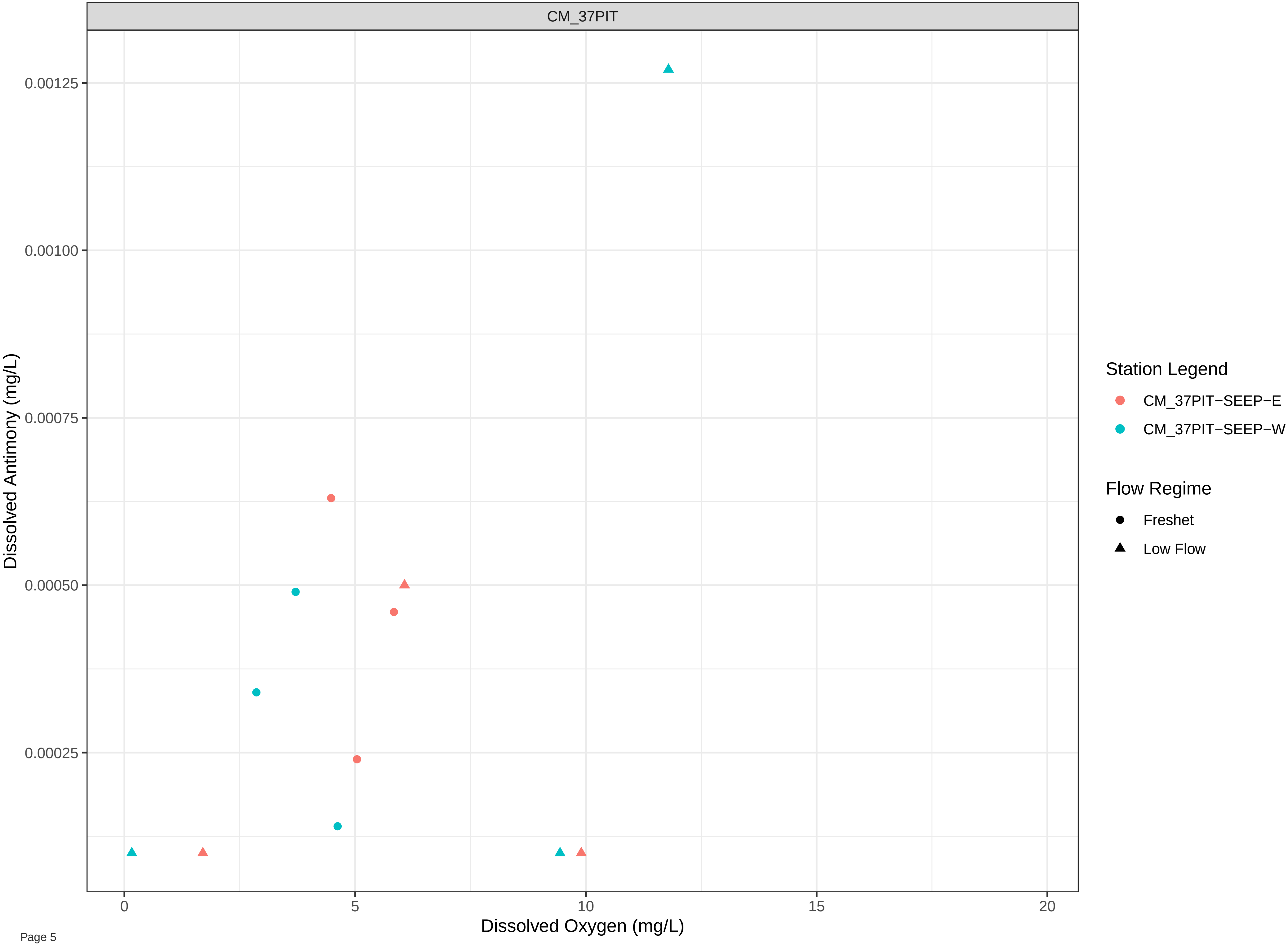

CM_WESTWR
log Dissolved Zinc (mg/L)
0.1
0.01
0.001
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

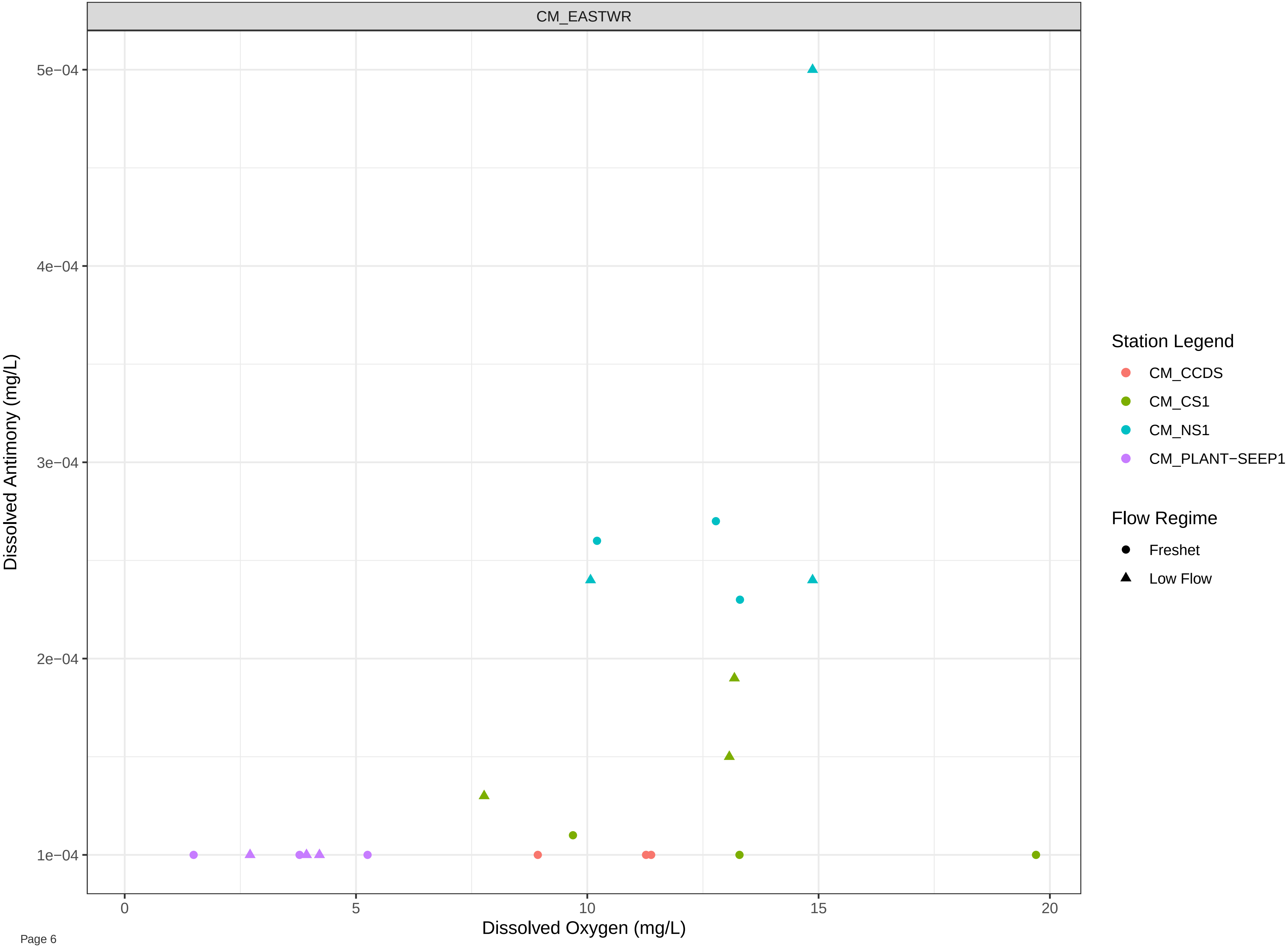

CM_37PIT
Dissolved Aluminum (mg/L)
0.0050
0.0045
0.0040
0.0035
0.0030
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

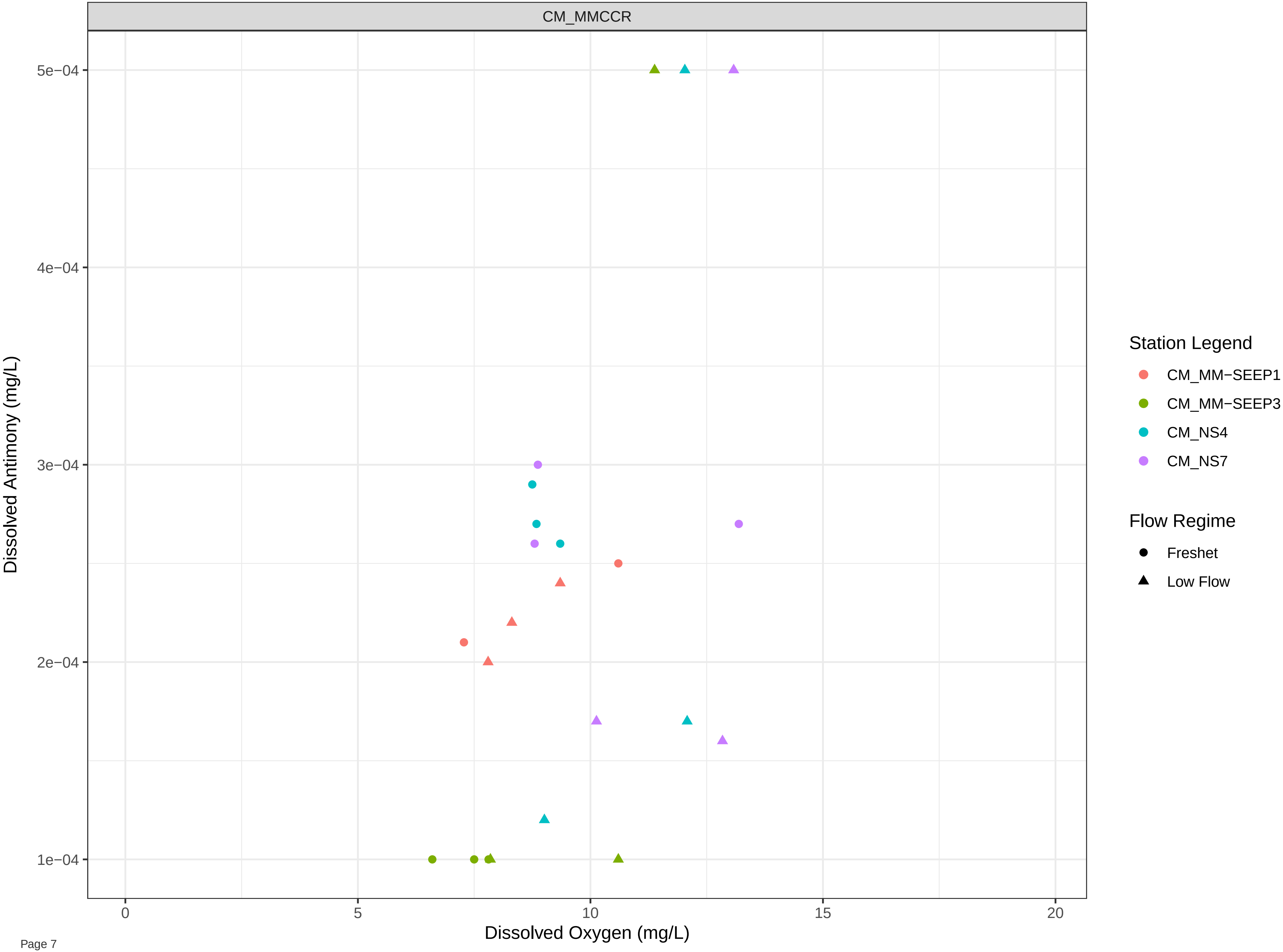

CM_EASTWR
Dissolved Aluminum (mg/L)
0.006
0.004
0.002
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

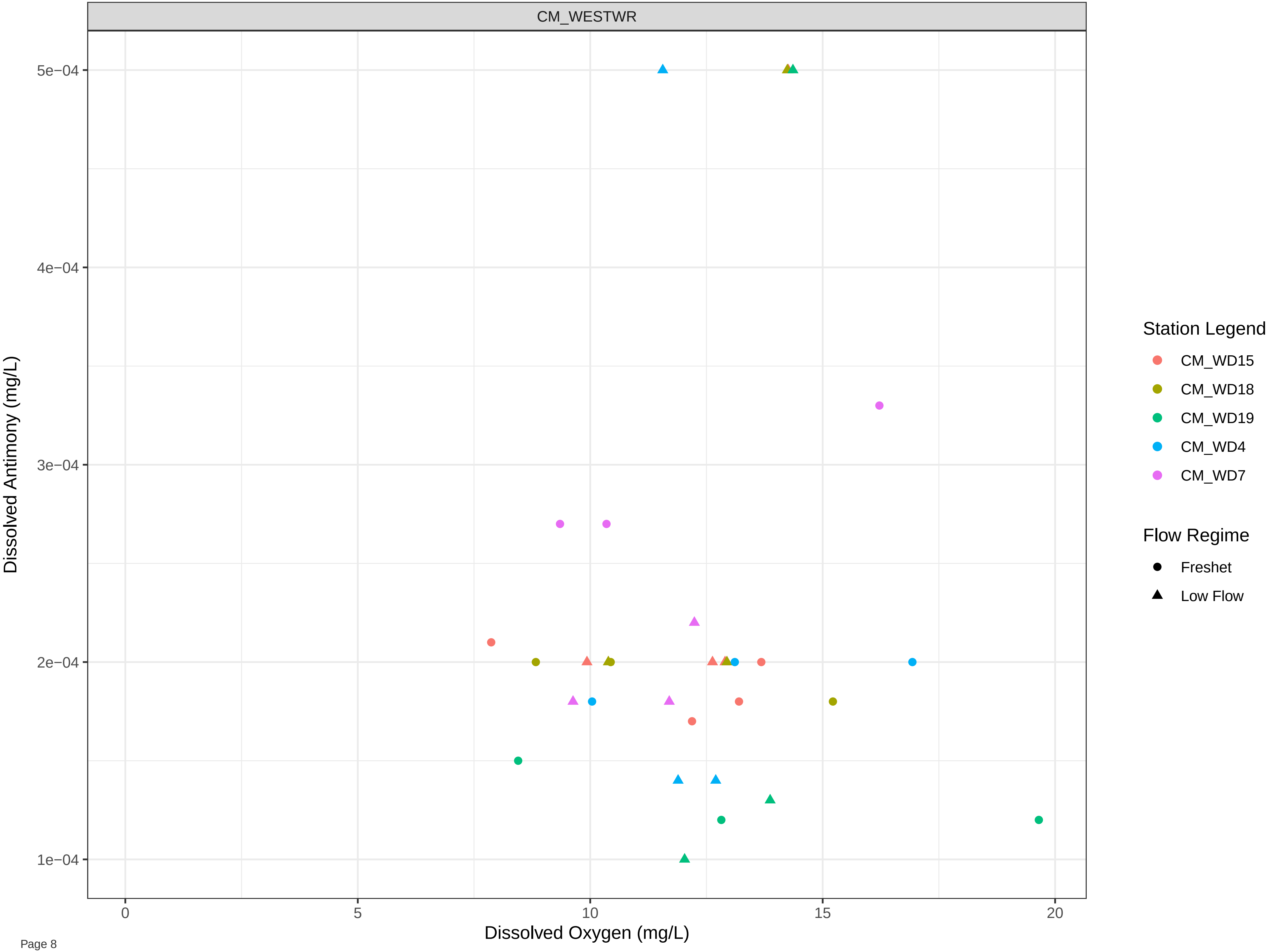

CM_MMCCR
Dissolved Aluminum (mg/L)
0.03
0.02
0.01
0.00
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

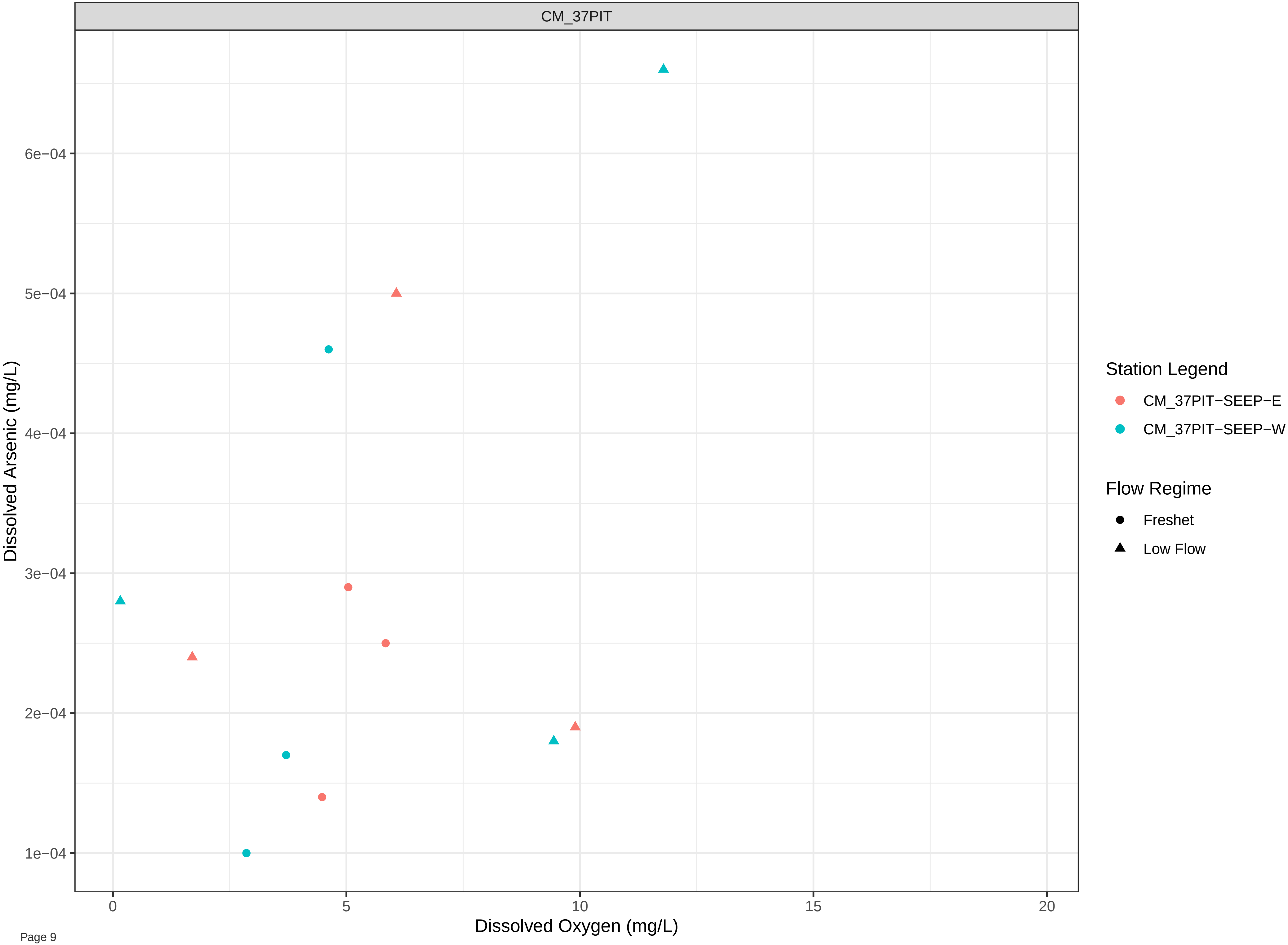

CM_WESTWR
Dissolved Aluminum (mg/L)
0.015
0.010
0.005
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

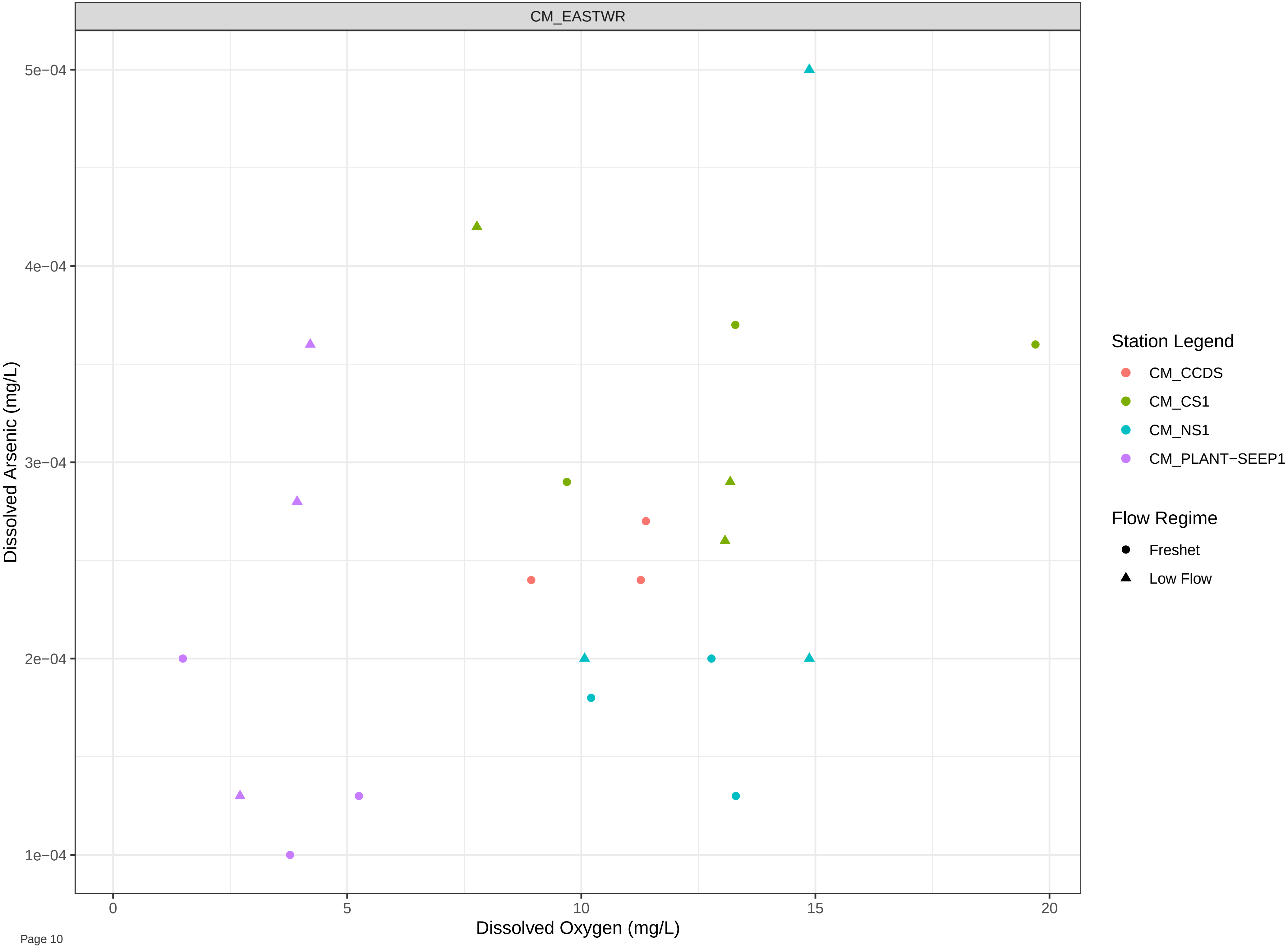

CM_37PIT
Dissolved Antimony (mg/L)
0.00125
0.00100
0.00075
0.00050
0.00025
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

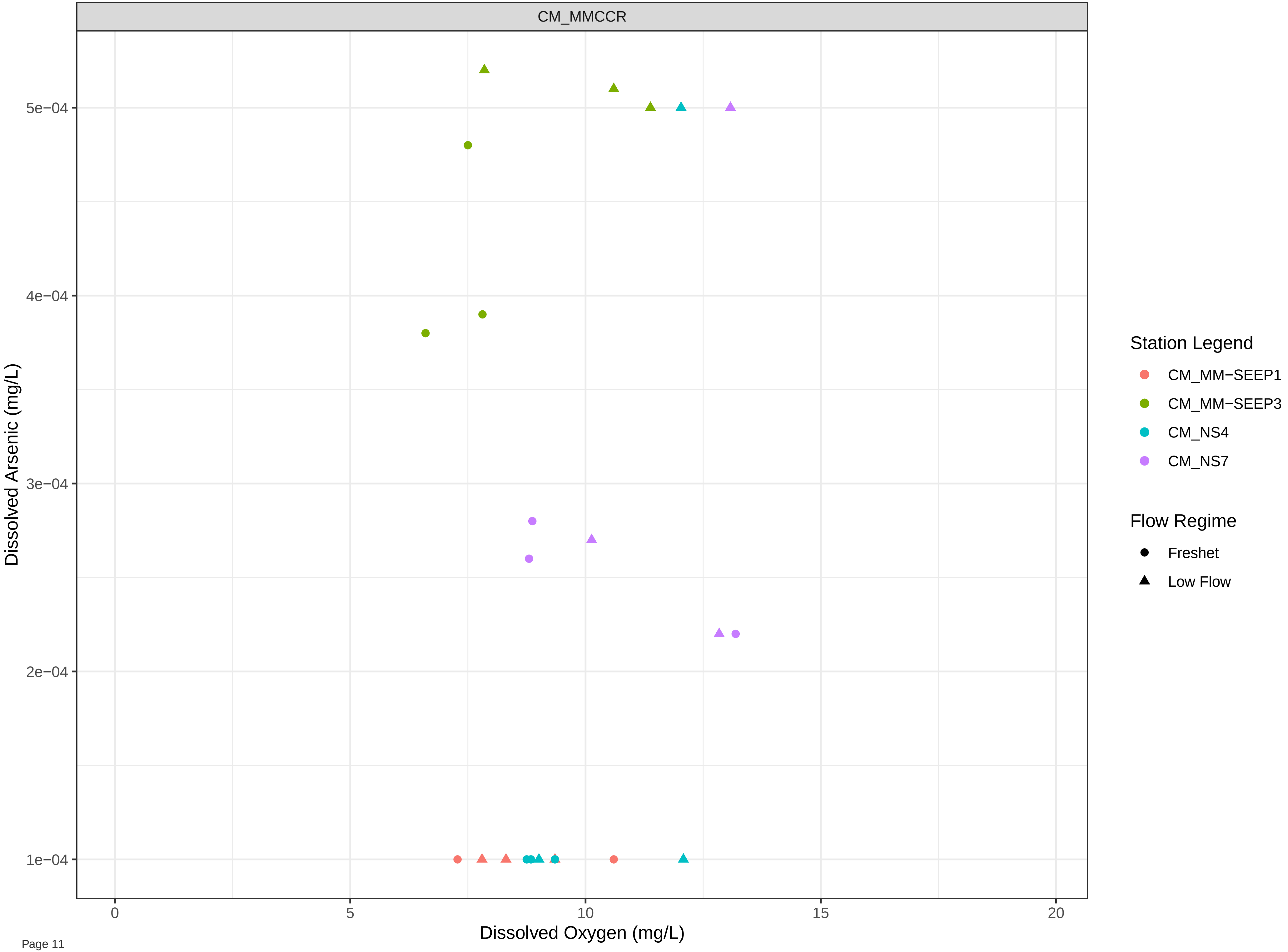

CM_EASTWR
Dissolved Antimony (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

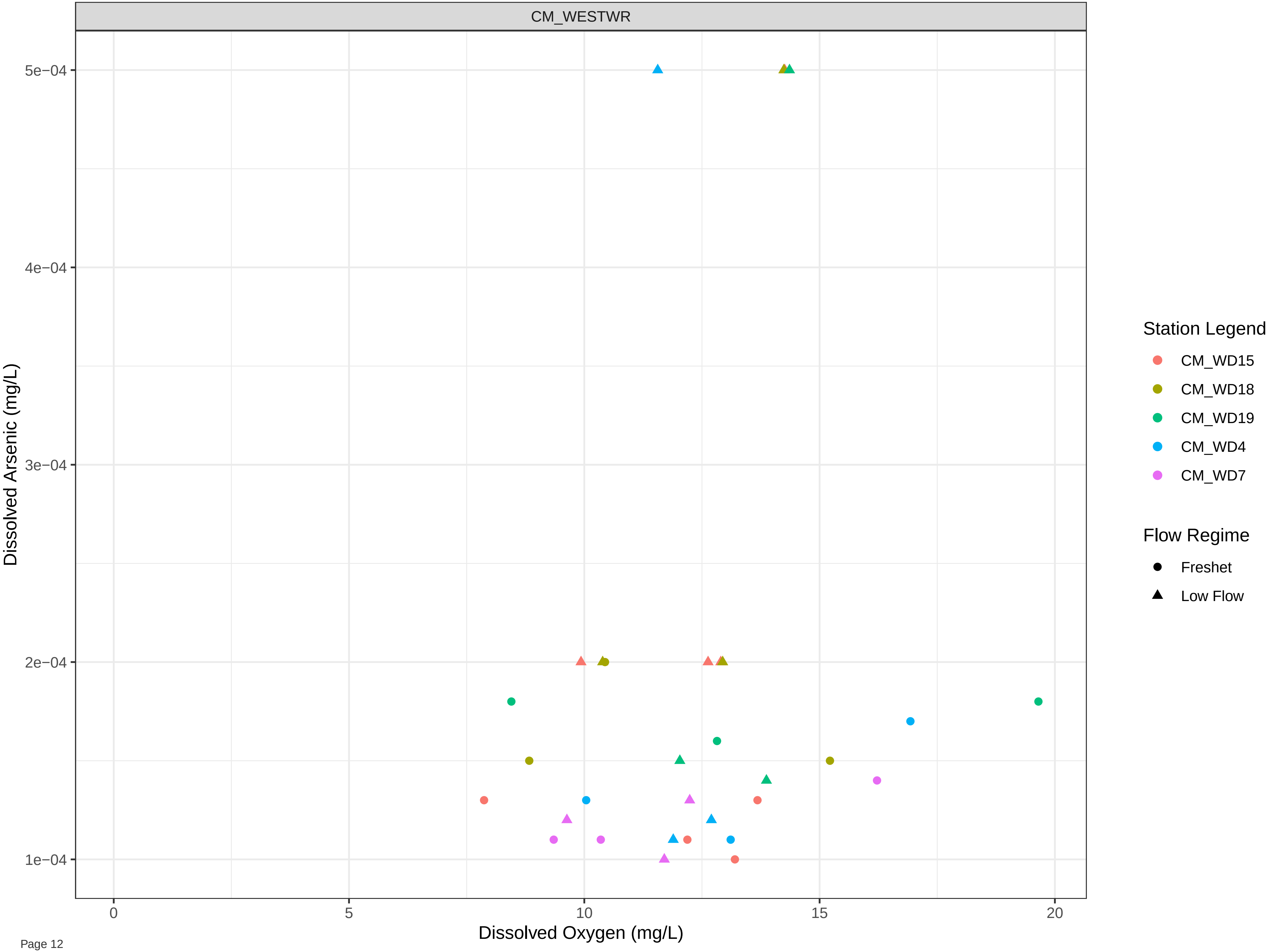

CM_MMCCR
Dissolved Antimony (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

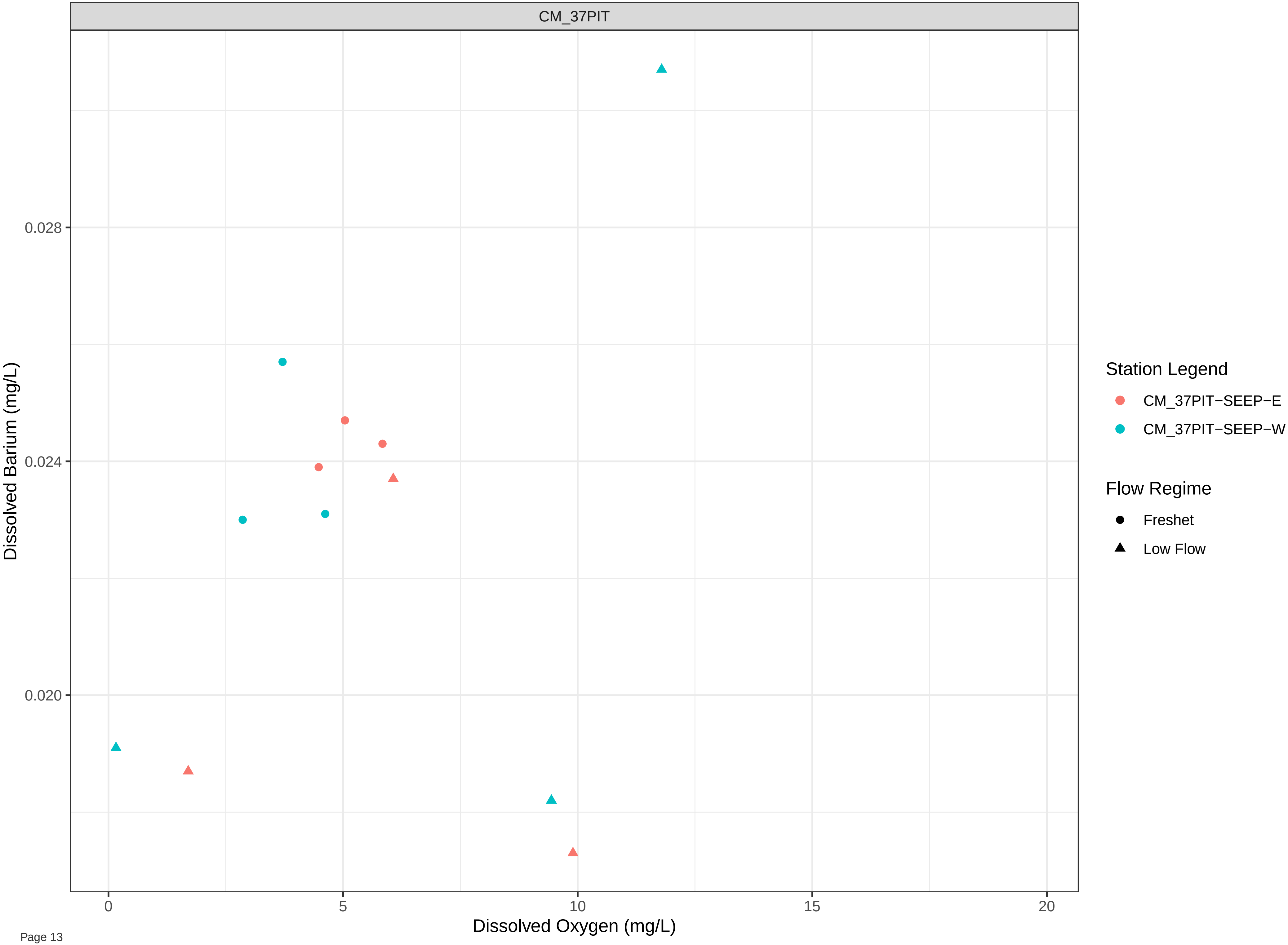

CM_WESTWR
Dissolved Antimony (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

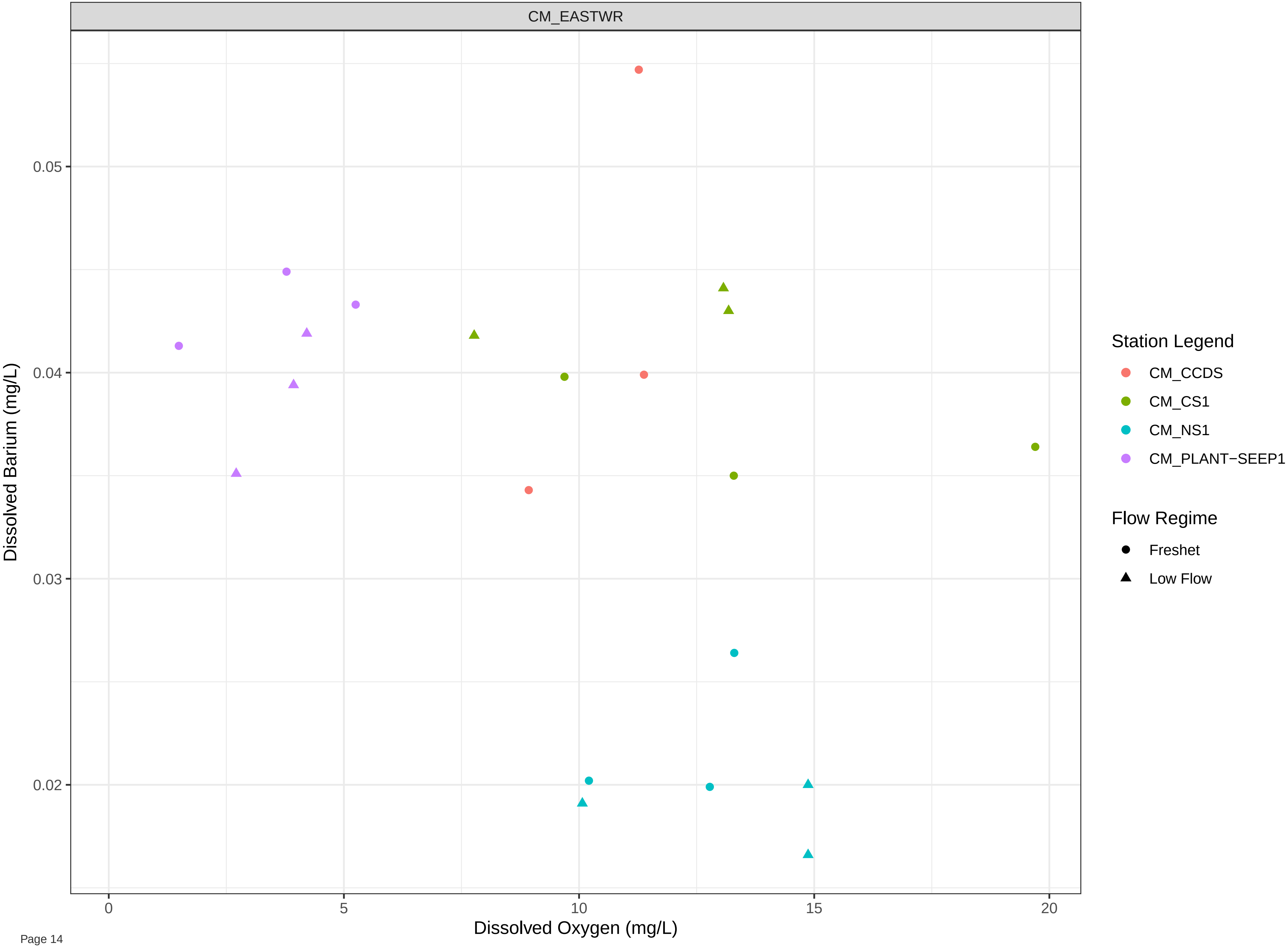

CM_37PIT
Dissolved Arsenic (mg/L)
6e−04
5e−04
4e−04
3e−04
2e−04
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

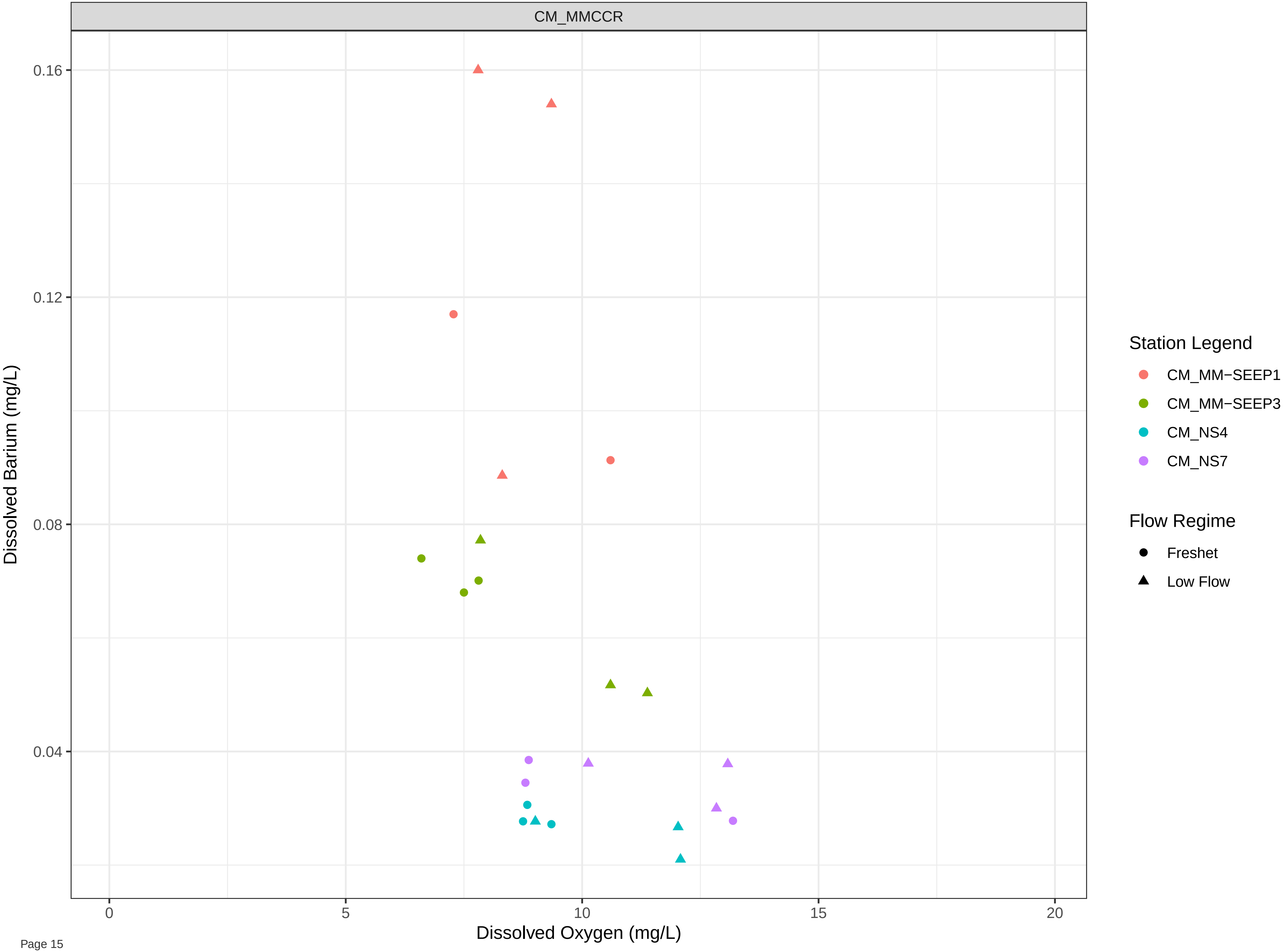

CM_EASTWR
Dissolved Arsenic (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

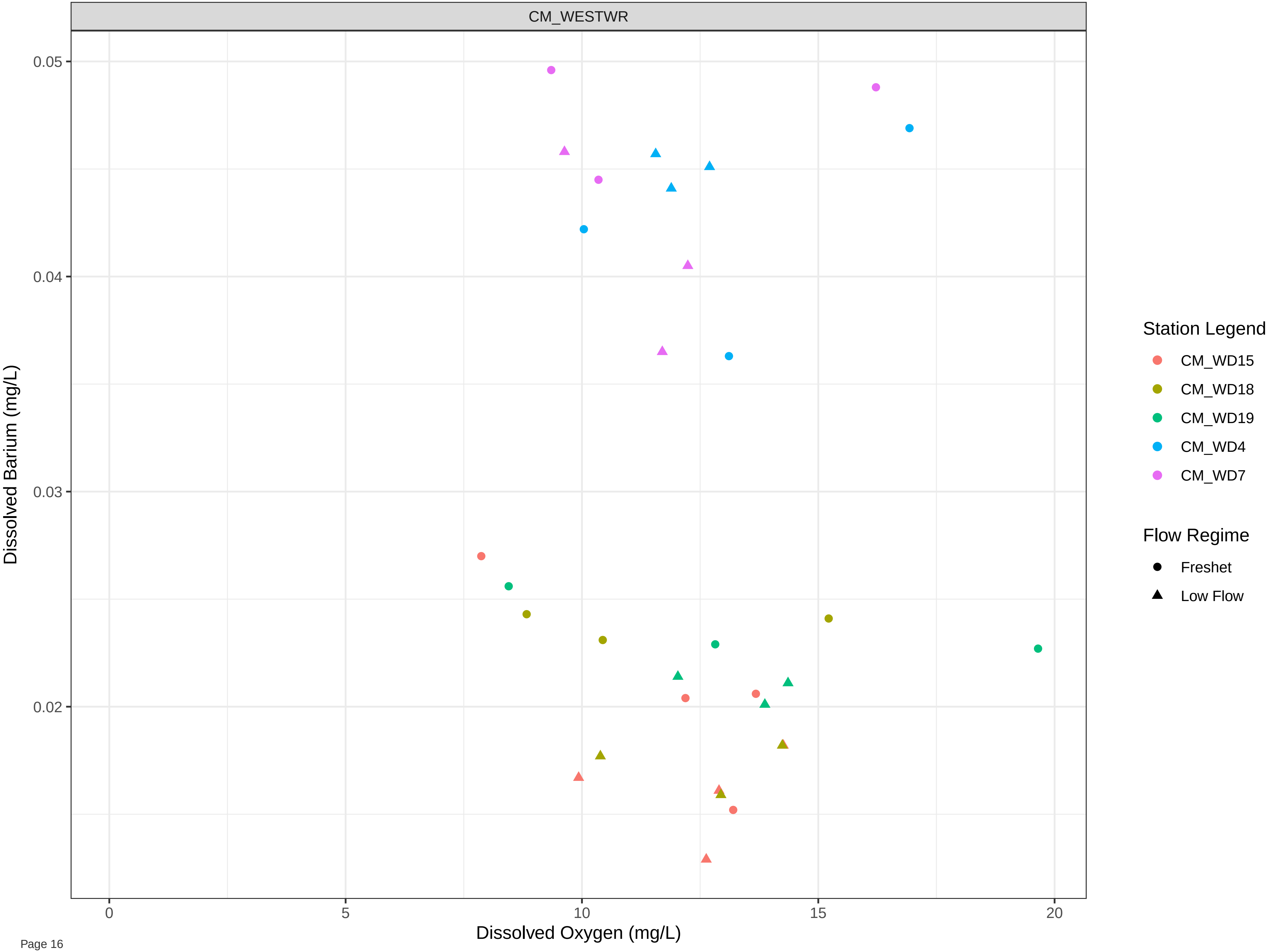

CM_MMCCR
Dissolved Arsenic (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

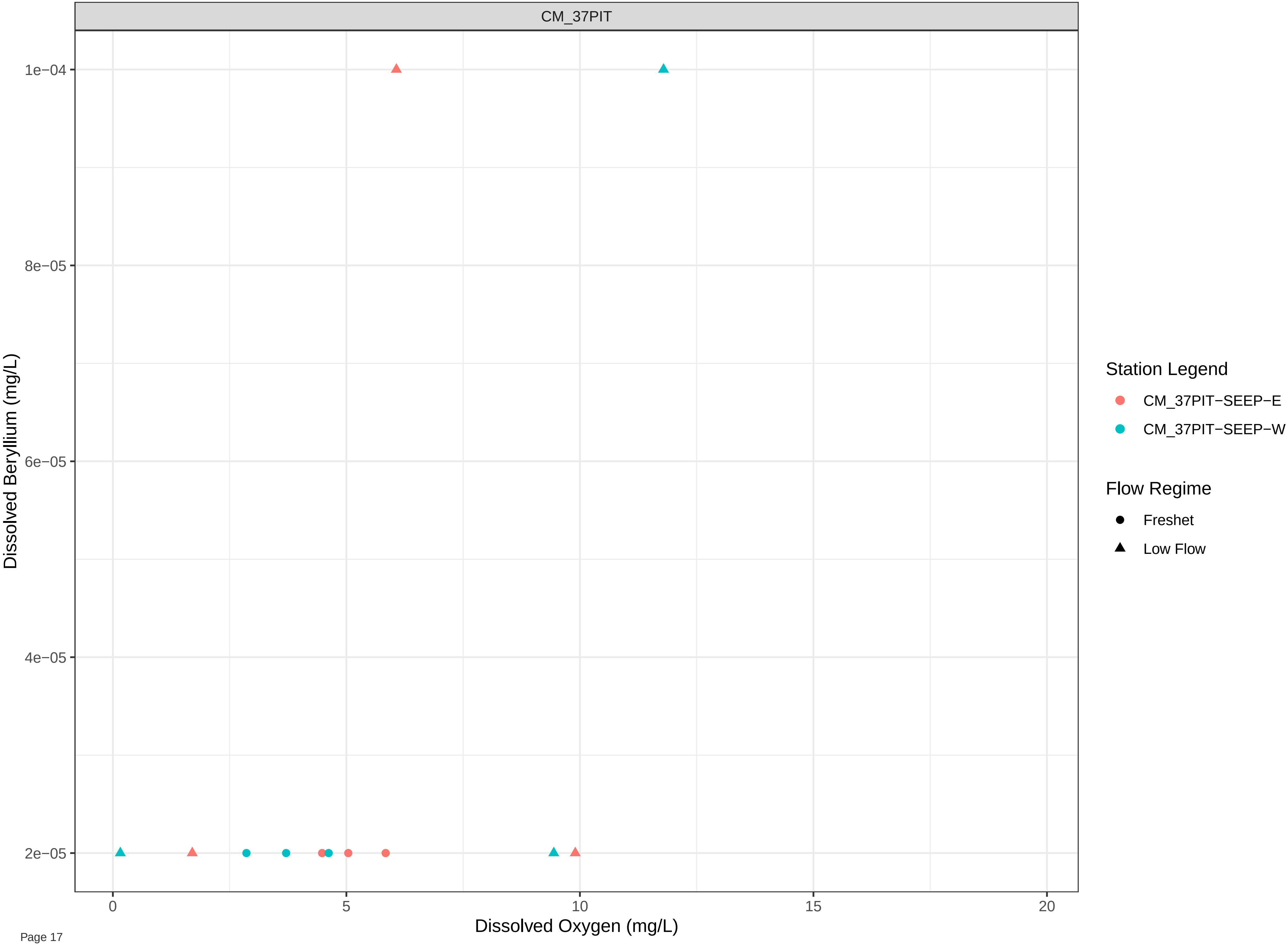

CM_WESTWR
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Arsenic (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

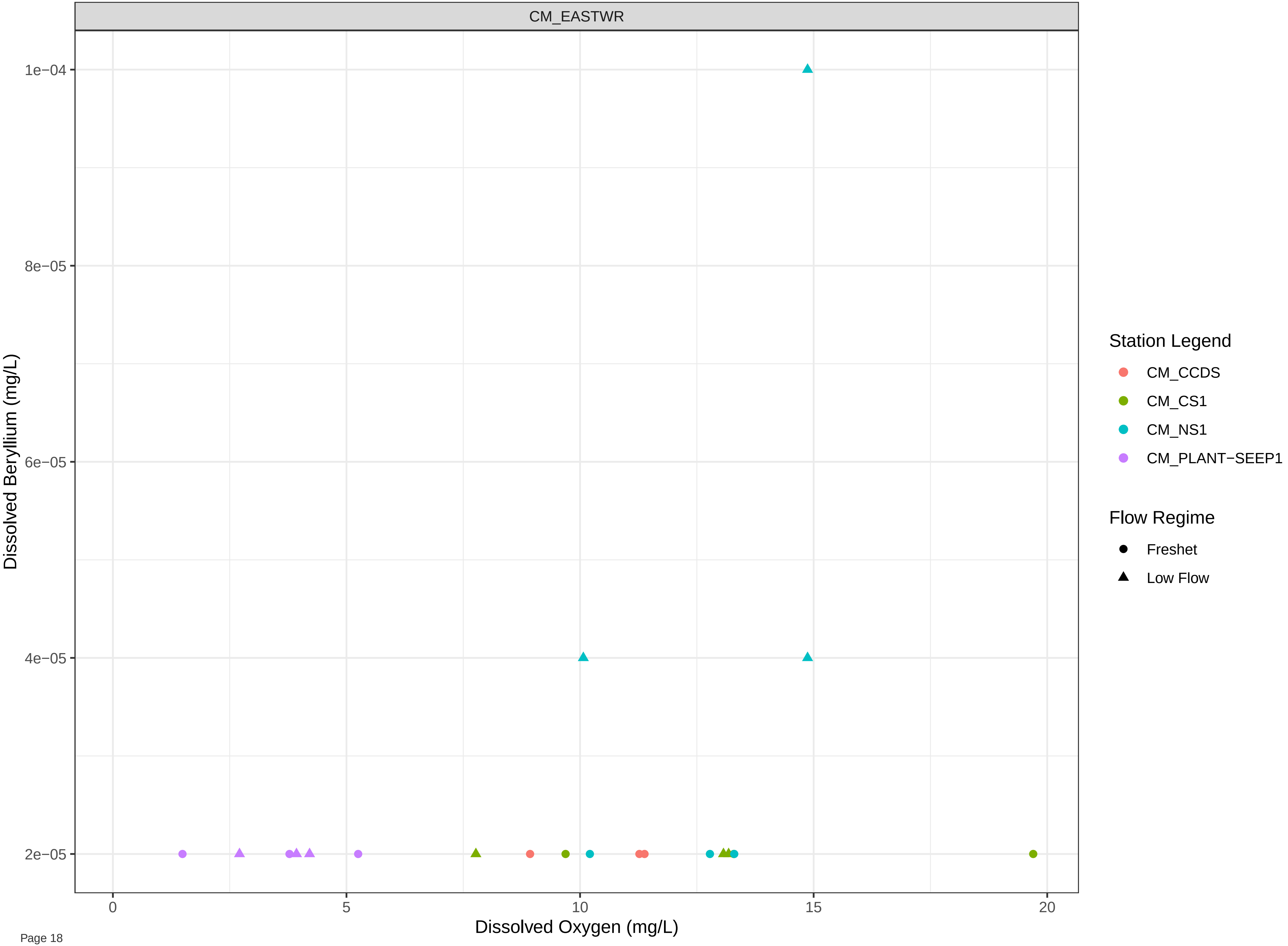

CM_37PIT
Dissolved Barium (mg/L)
0.028
0.024
0.020
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

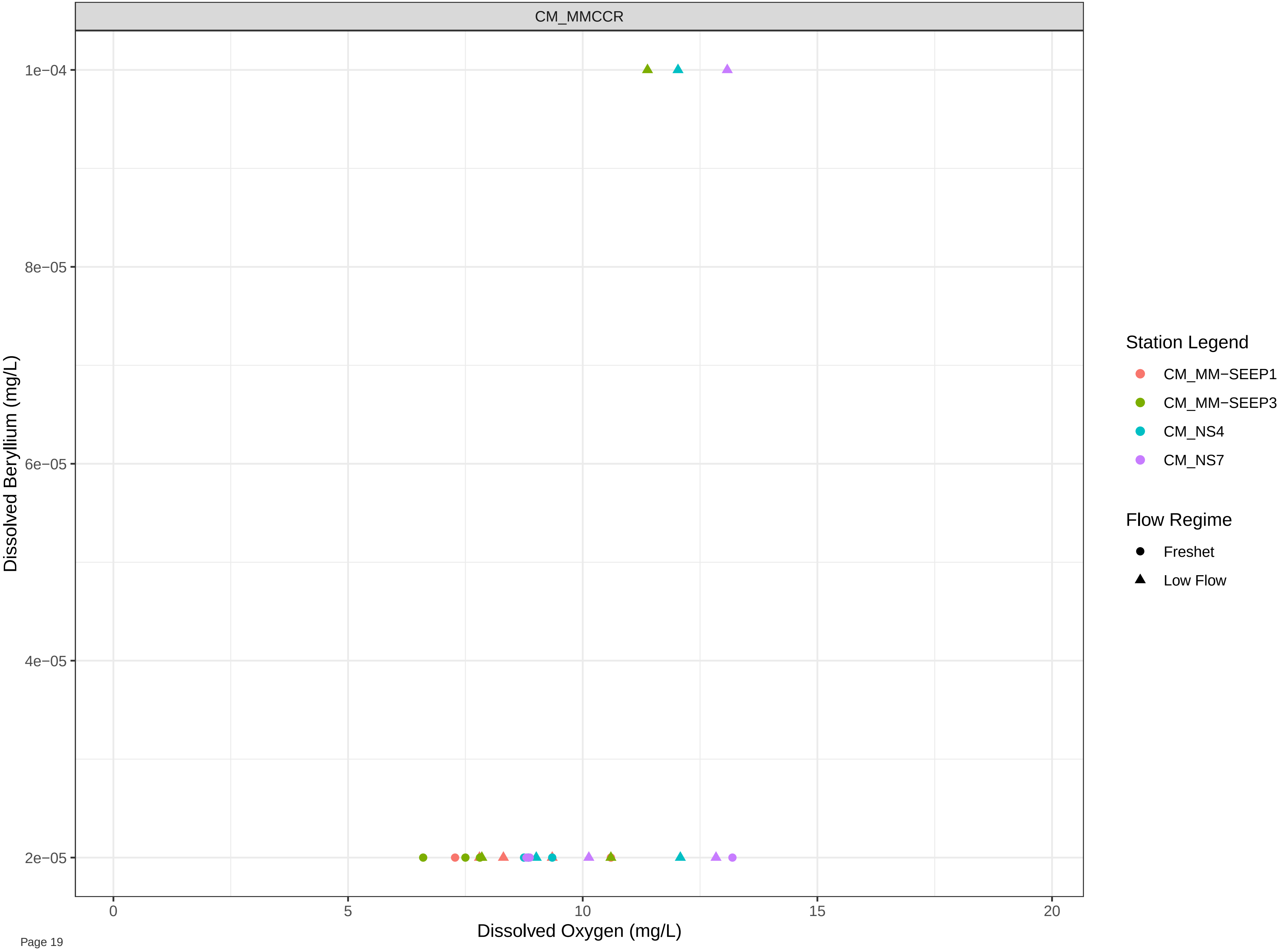

CM_EASTWR
Dissolved Barium (mg/L)
0.05
0.04
0.03
0.02
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

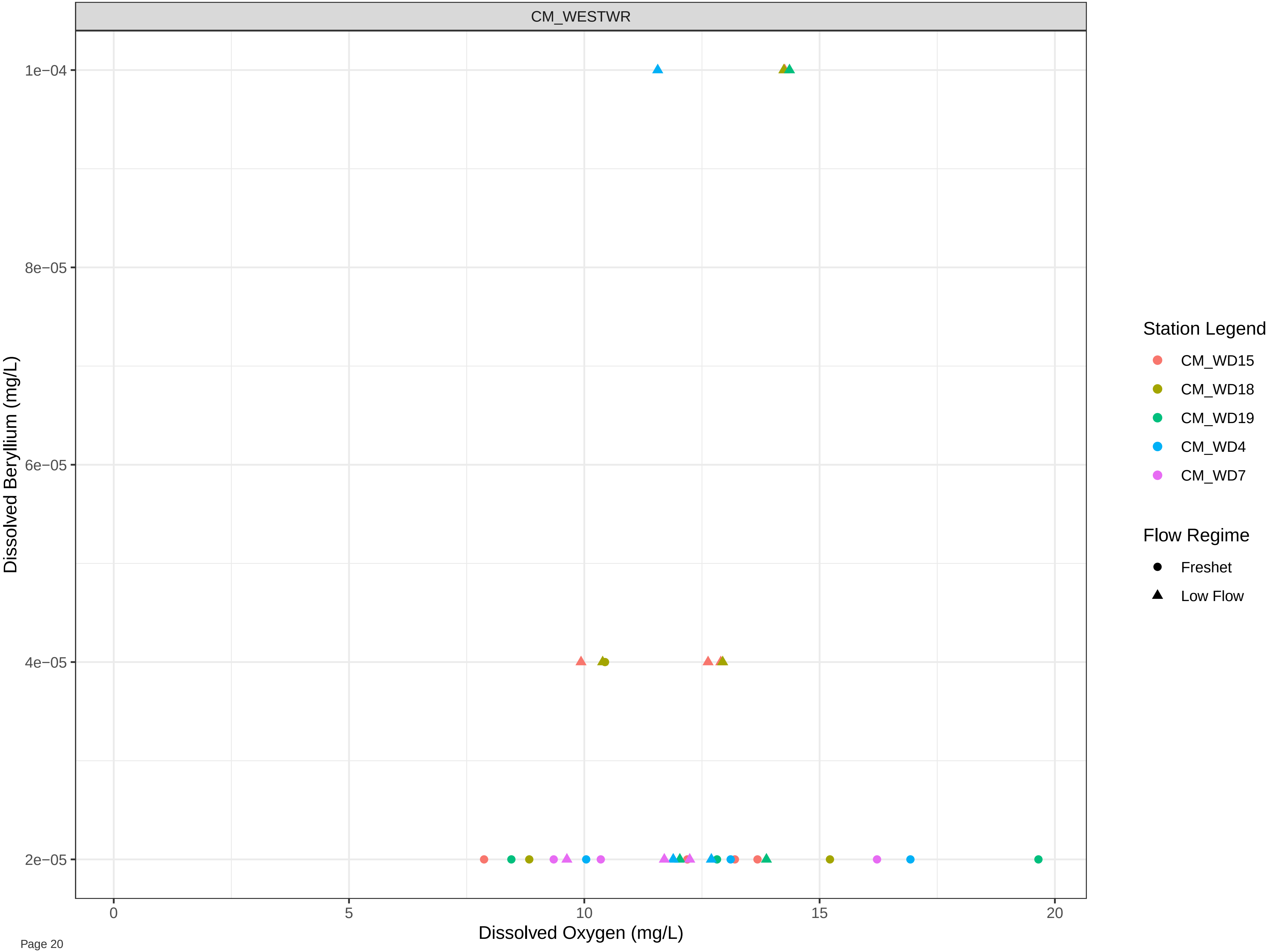

CM_MMCCR
Dissolved Barium (mg/L)
0.16
0.12
0.08
0.04
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

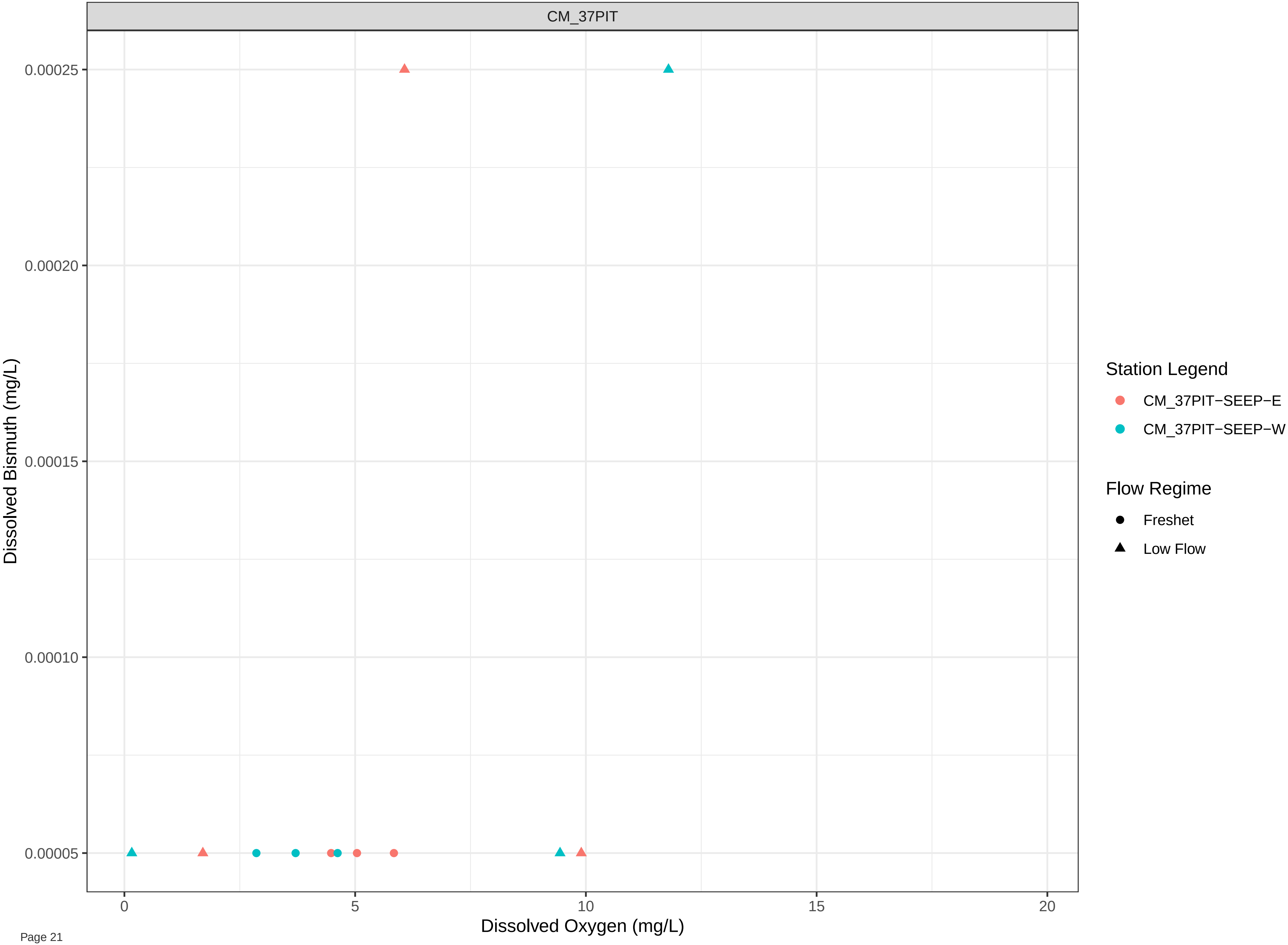

CM_WESTWR
Dissolved Barium (mg/L)
0.05
0.04
0.03
0.02
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

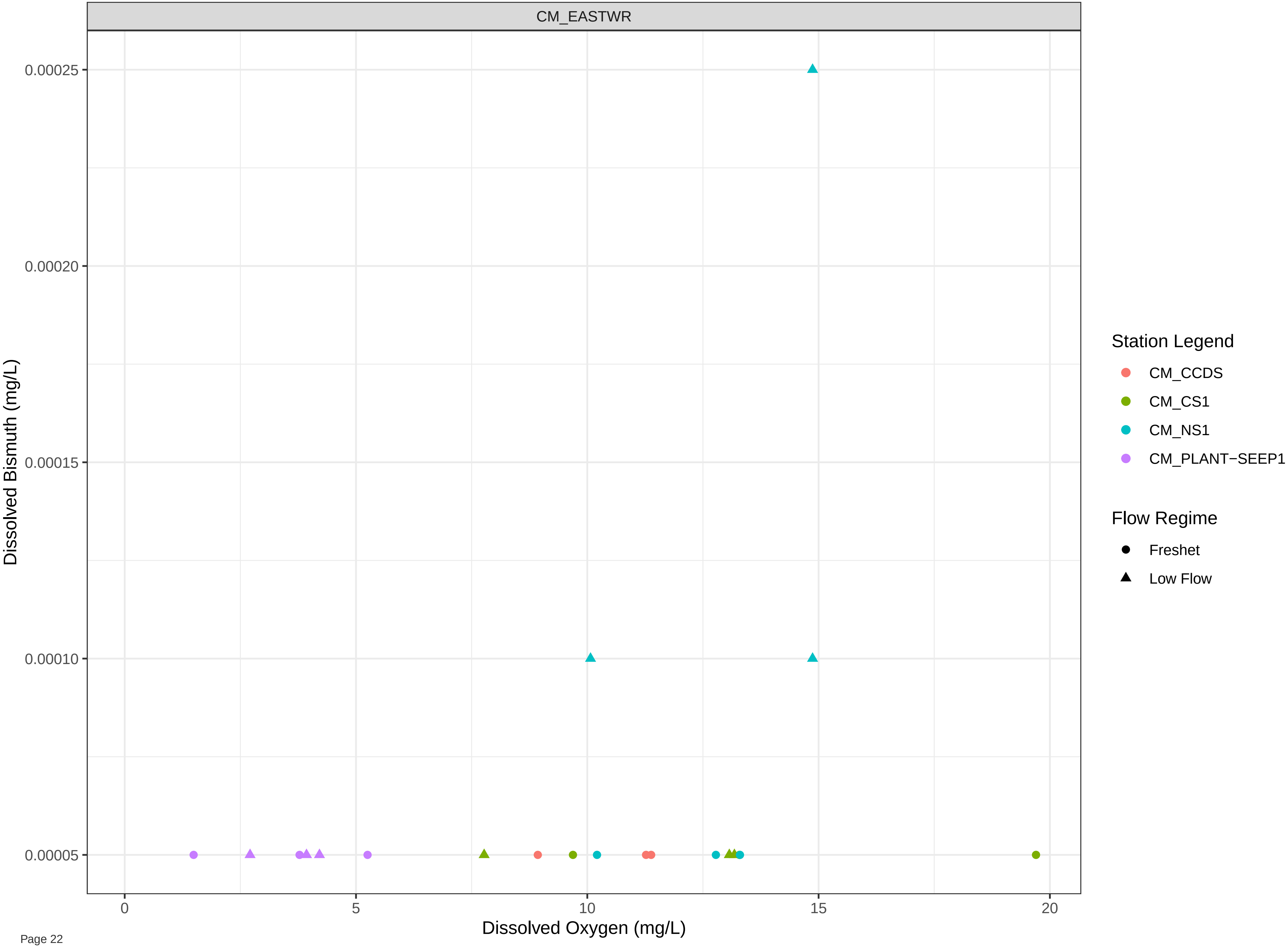

CM_37PIT
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

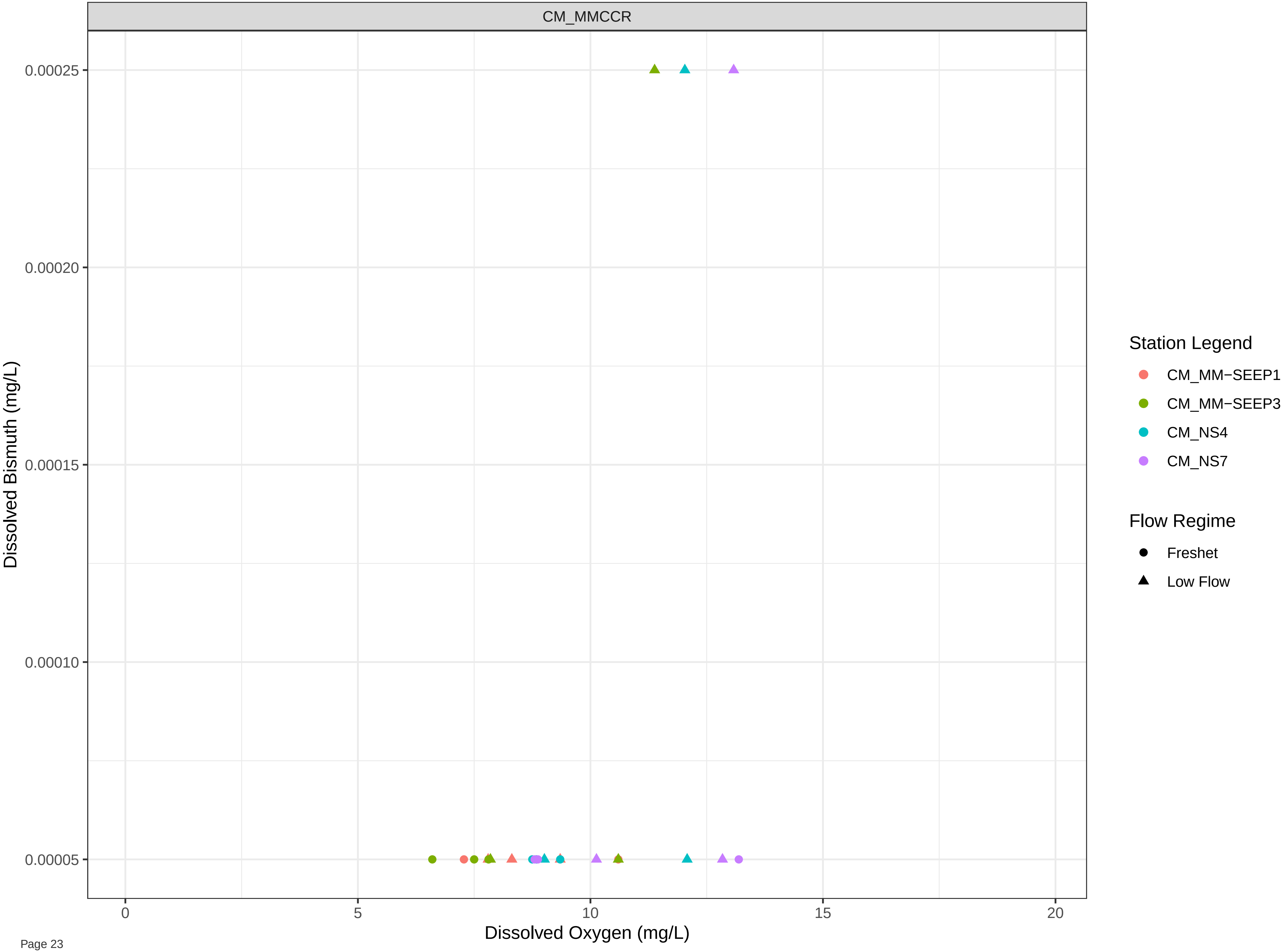

CM_EASTWR
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

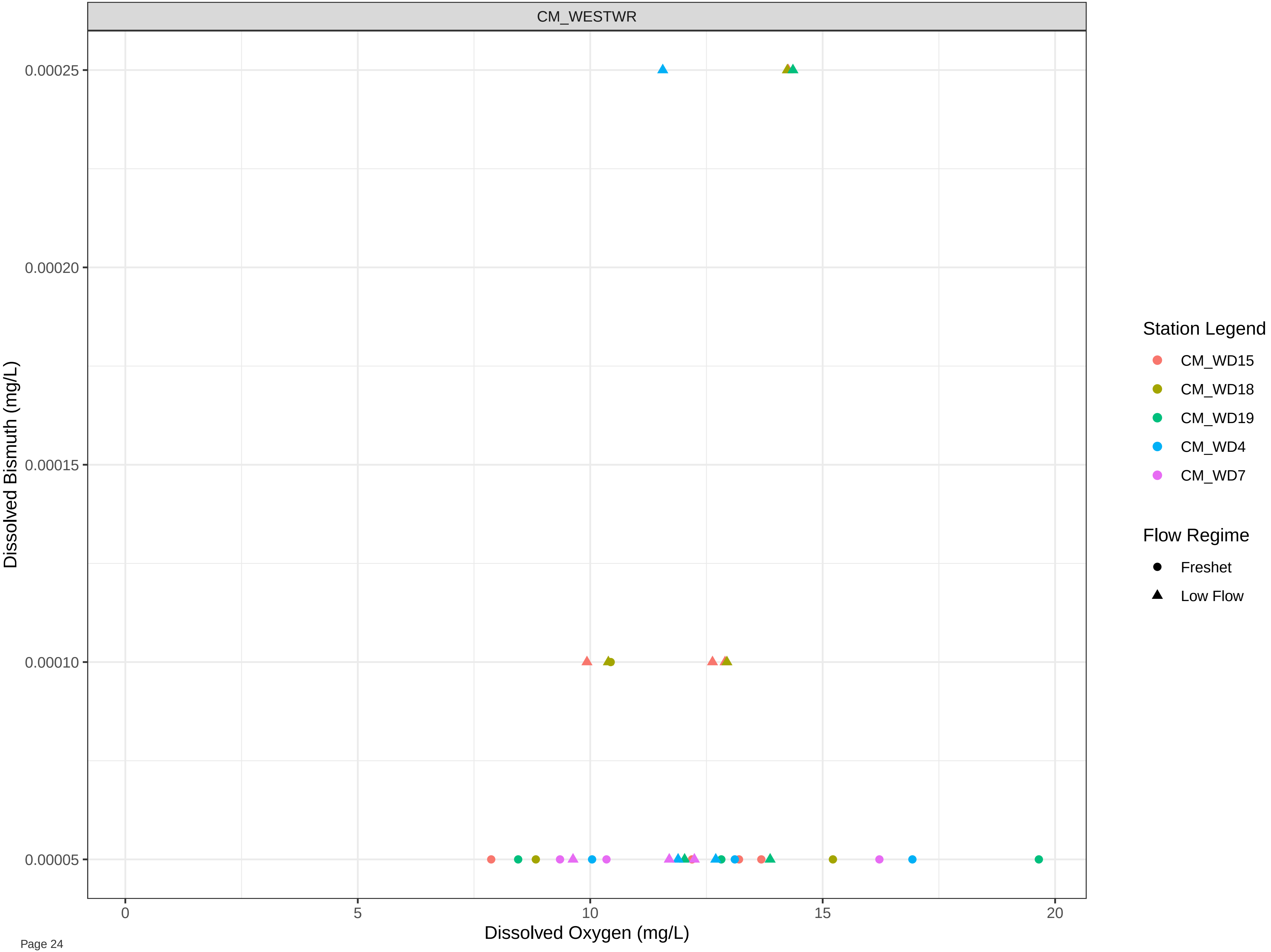

CM_MMCCR
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

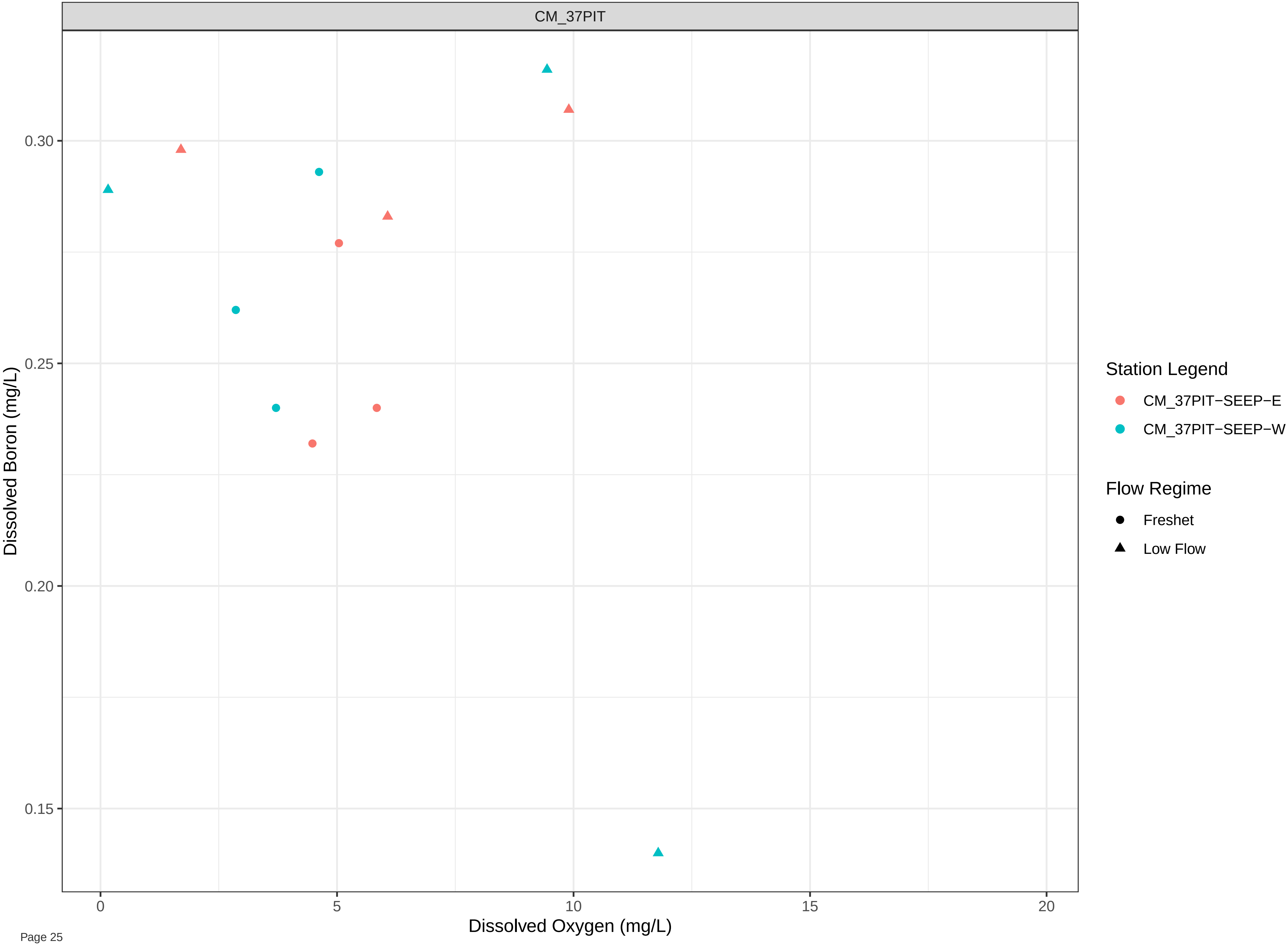

CM_WESTWR
1e−04
8e−05
6e−05
4e−05
2e−05
0
5
10
15
20
Dissolved Beryllium (mg/L)
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

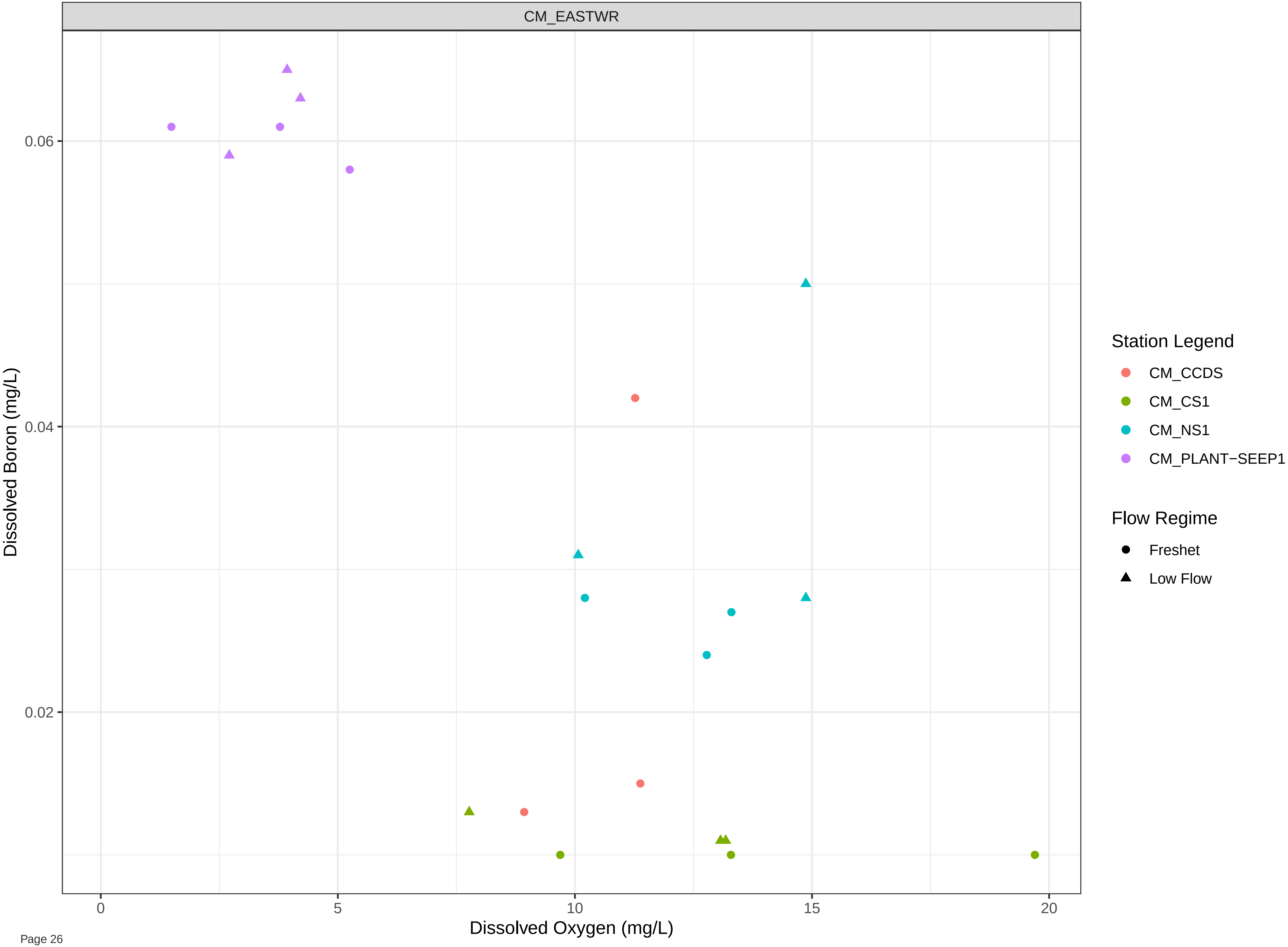

CM_37PIT
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Bismuth (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

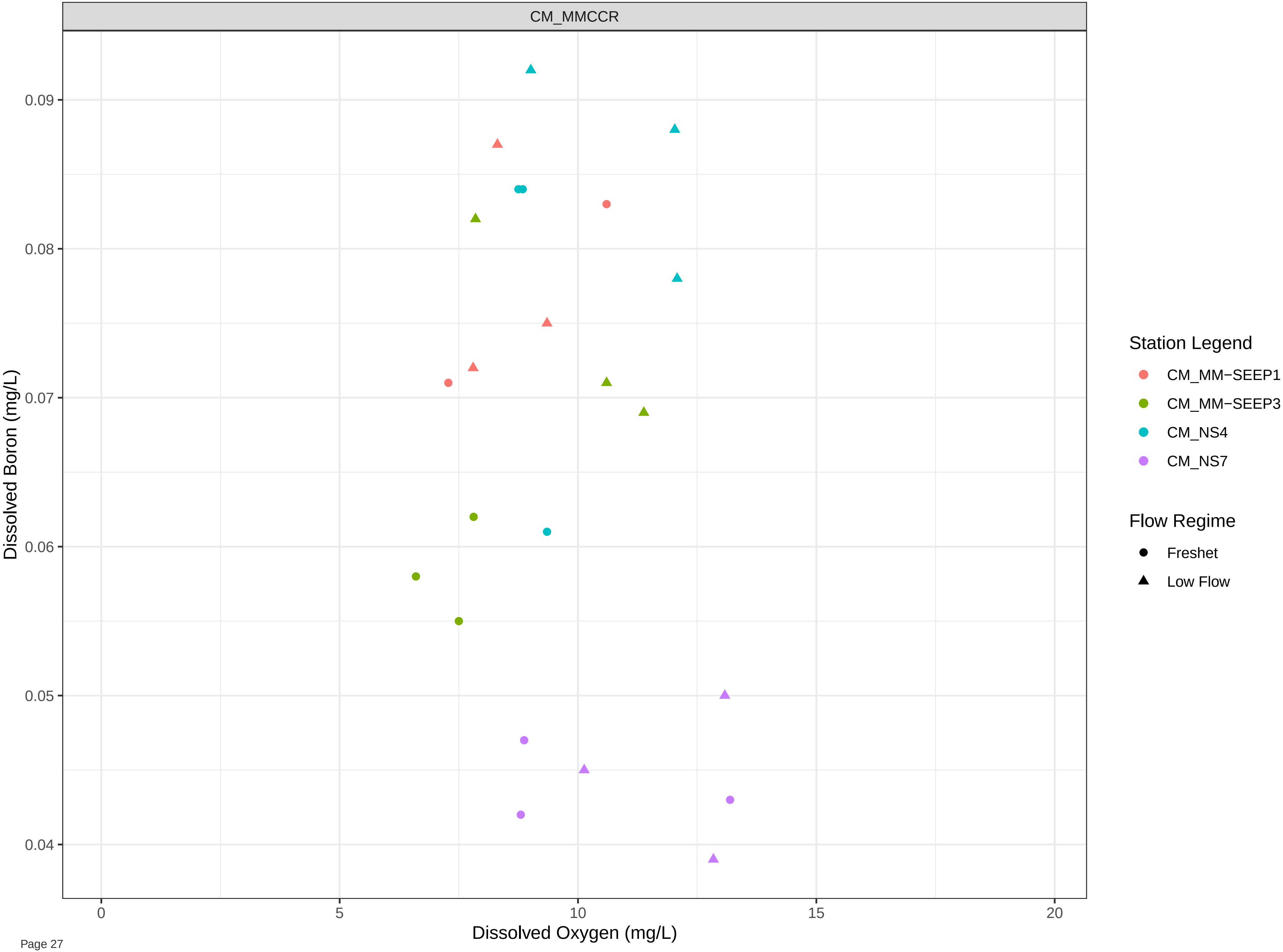

CM_EASTWR
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

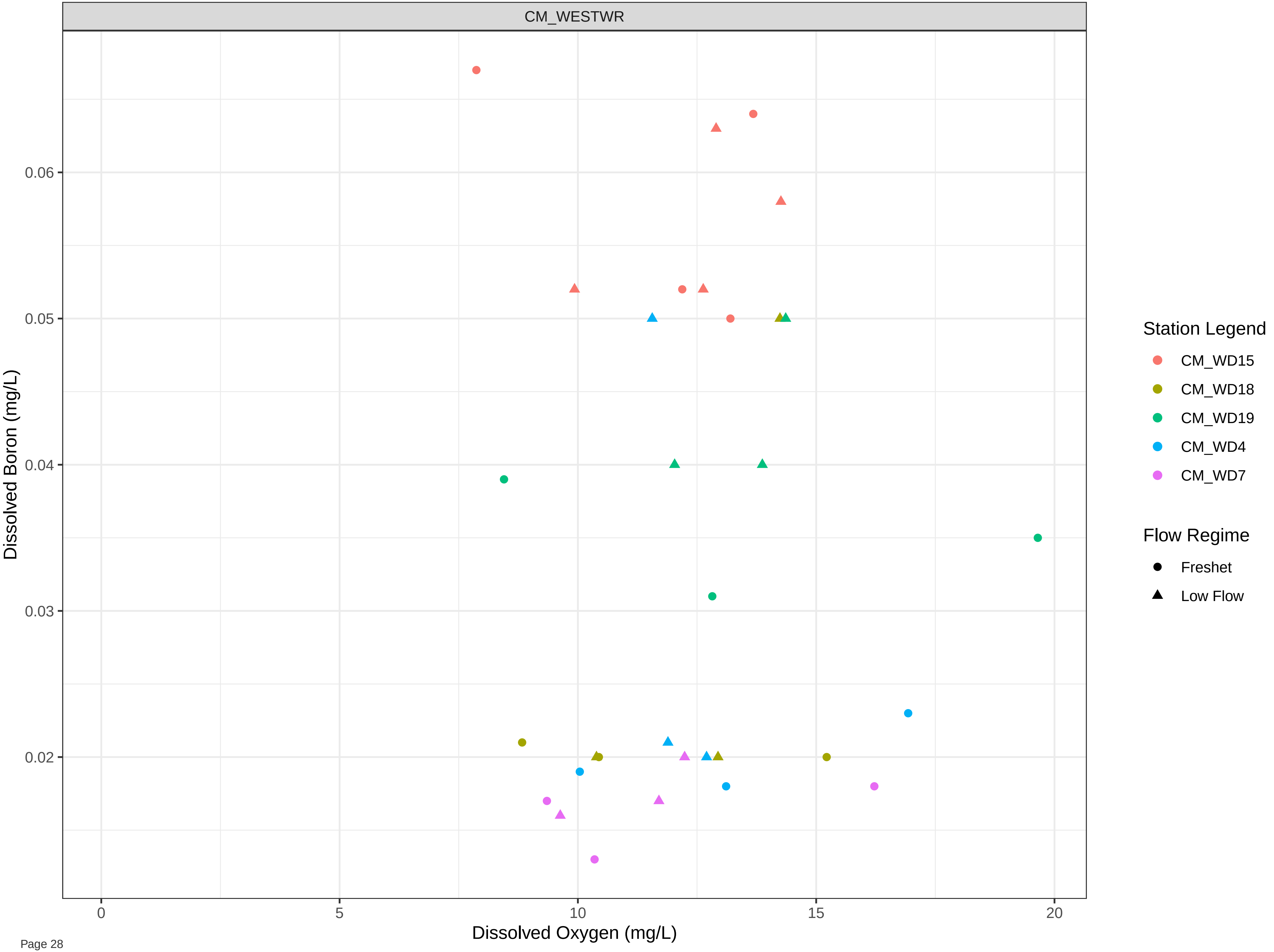

CM_MMCCR
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

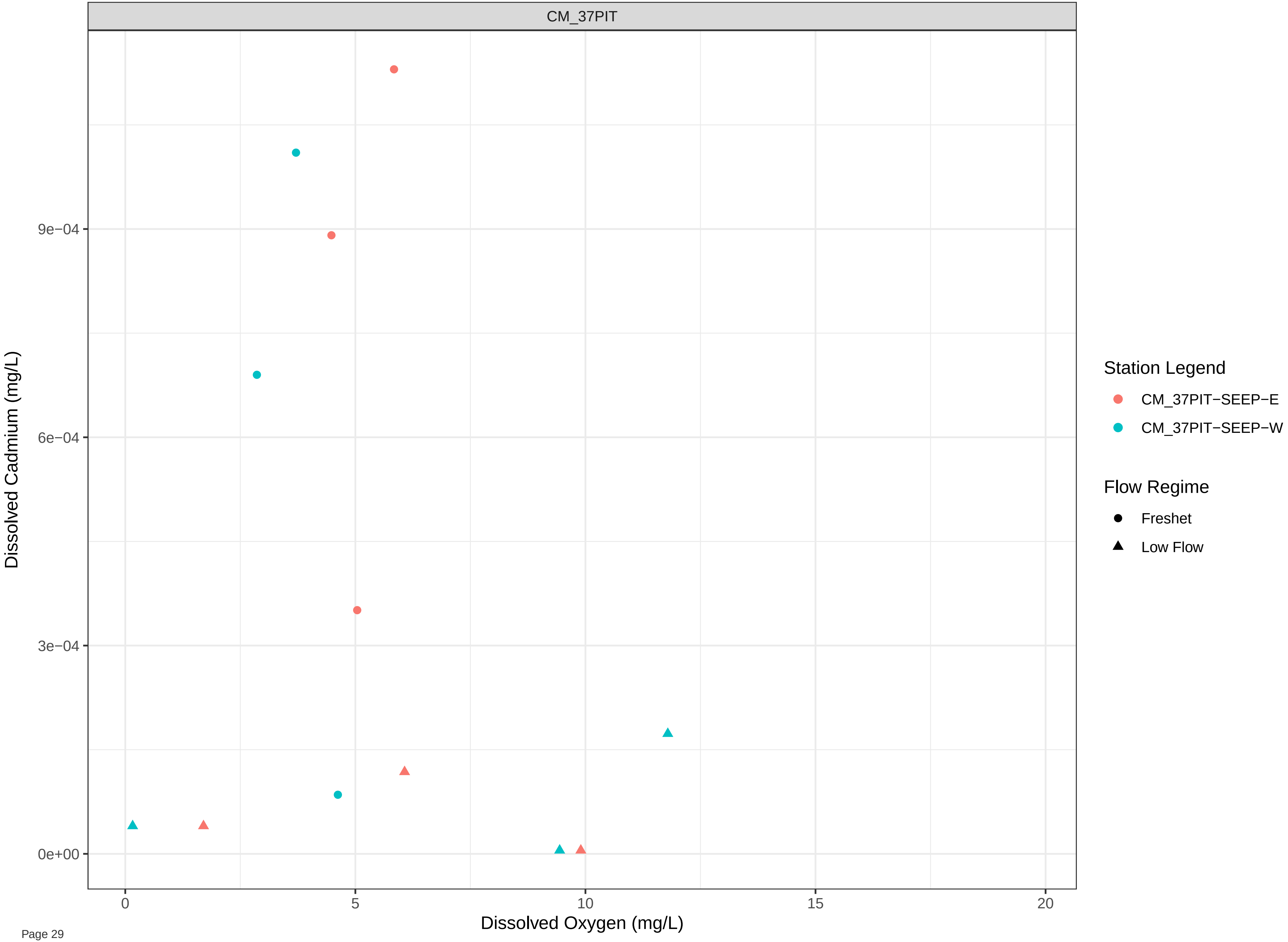

CM_WESTWR
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

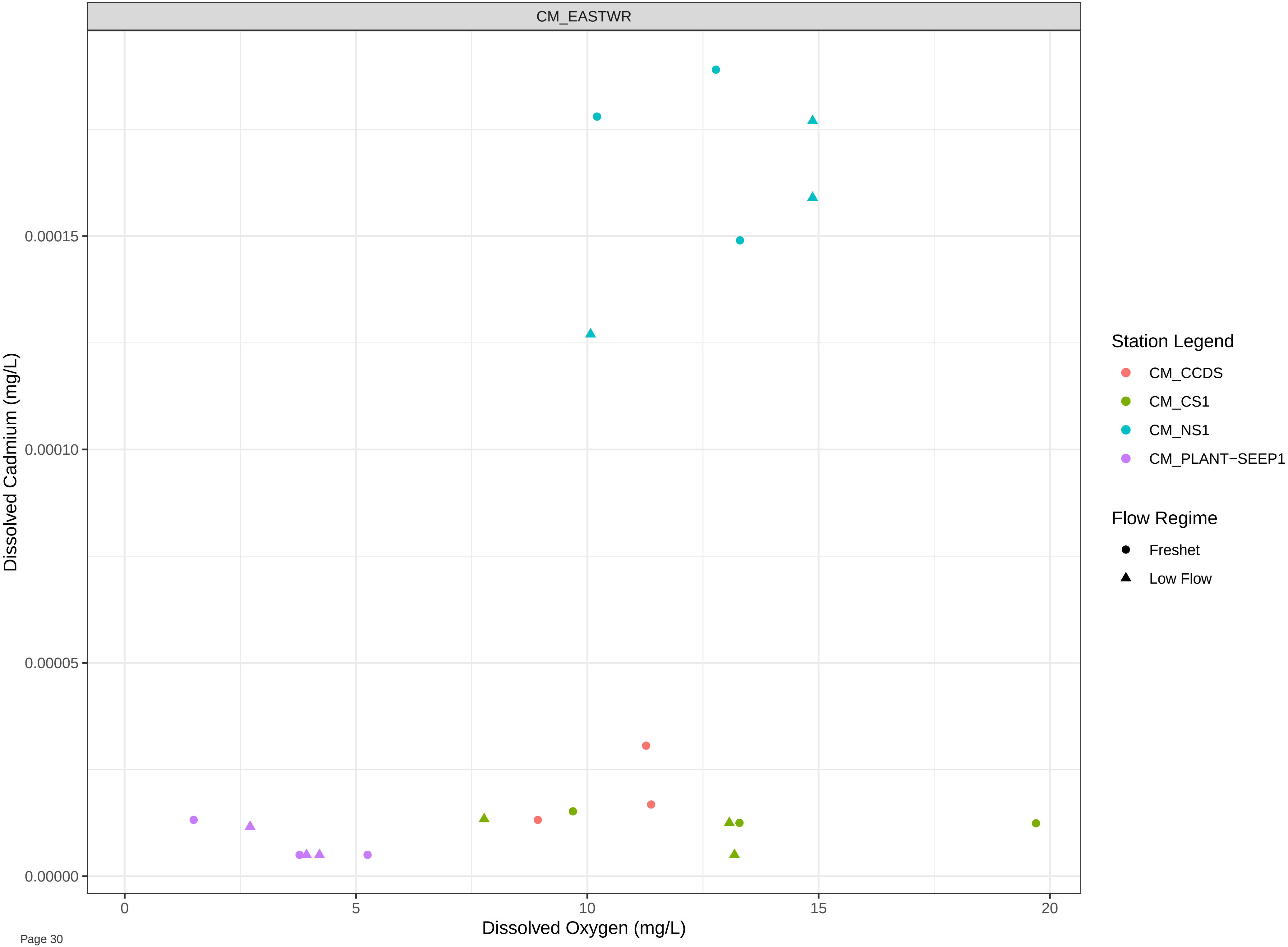

CM_37PIT
Dissolved Boron (mg/L)
0.30
0.25
0.20
0.15
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

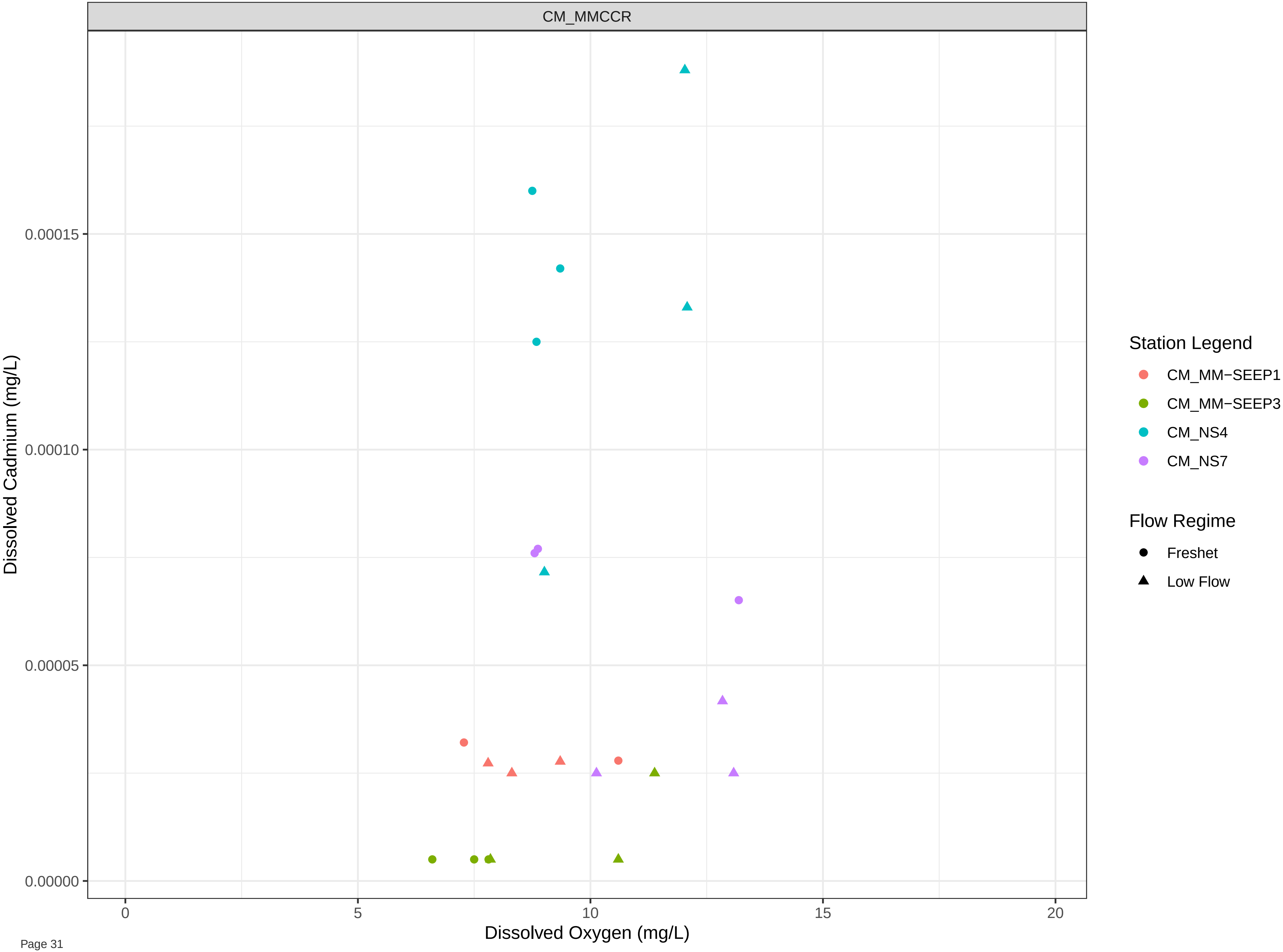

CM_EASTWR
Dissolved Boron (mg/L)
0.06
0.04
0.02
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

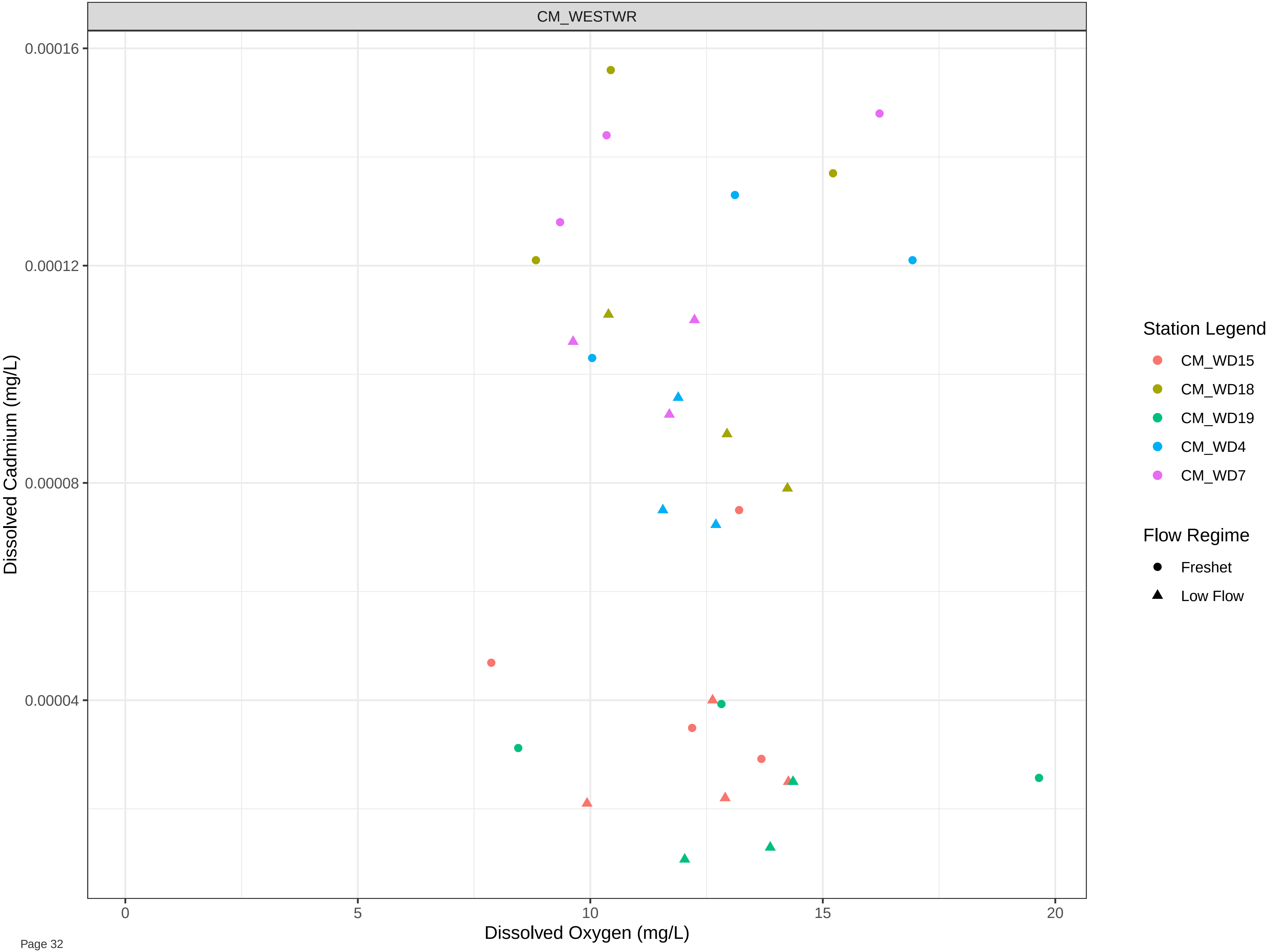

CM_MMCCR
Dissolved Boron (mg/L)
0.09
0.08
0.07
0.06
0.05
0.04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

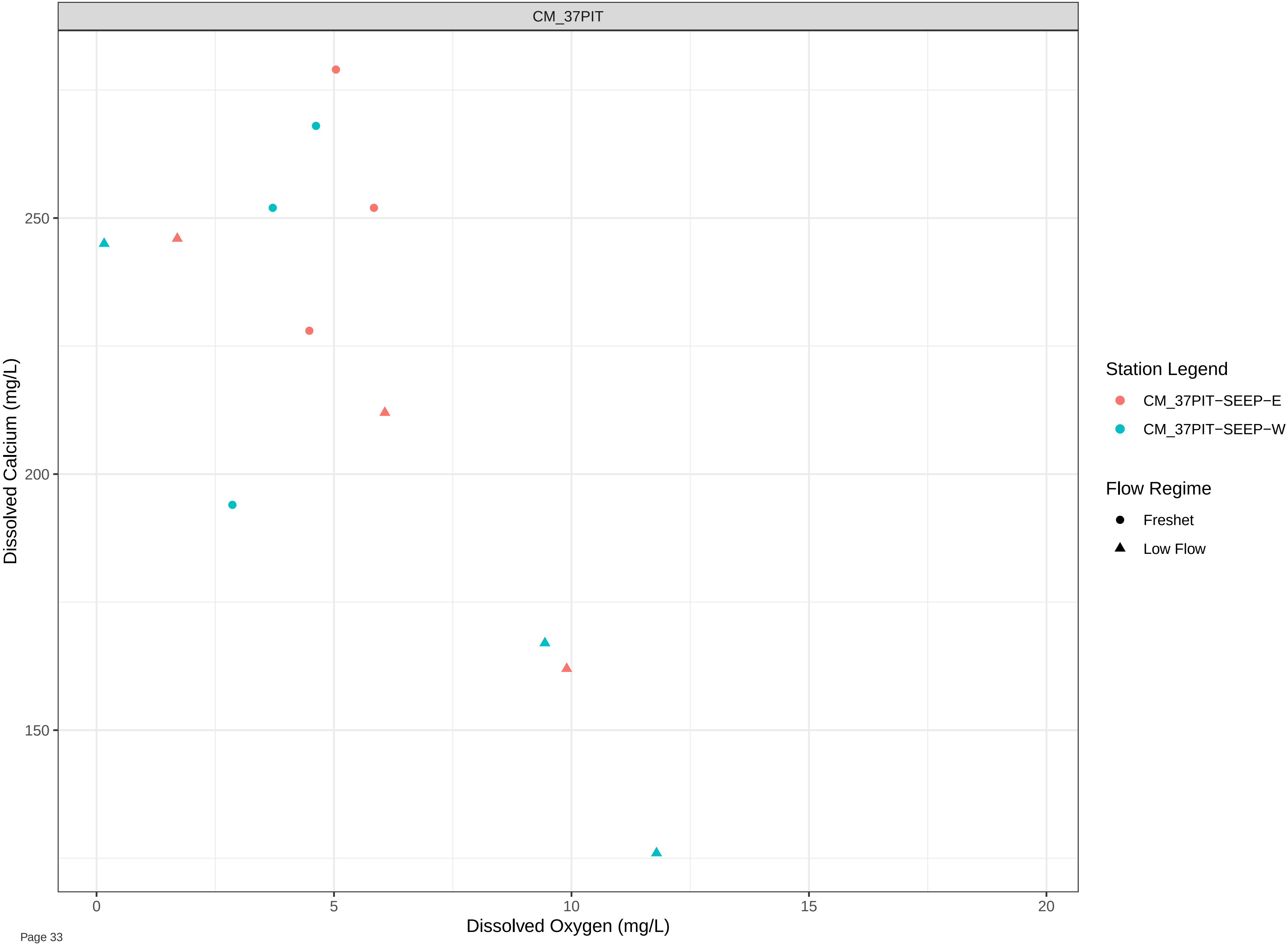

CM_WESTWR
Dissolved Boron (mg/L)
0.06
0.05
0.04
0.03
0.02
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

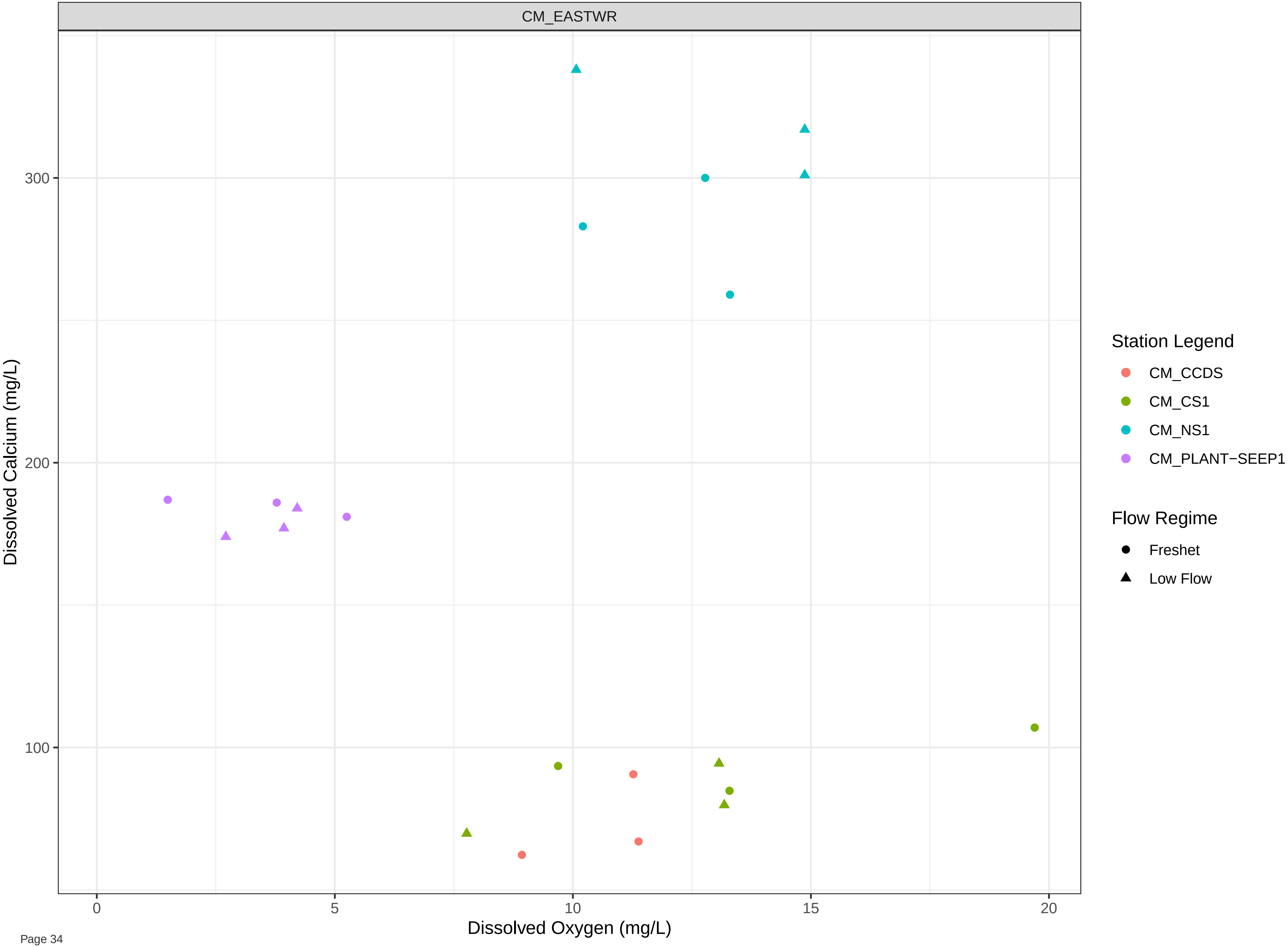

CM_37PIT
Dissolved Cadmium (mg/L)
9e−04
6e−04
3e−04
0e+00
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

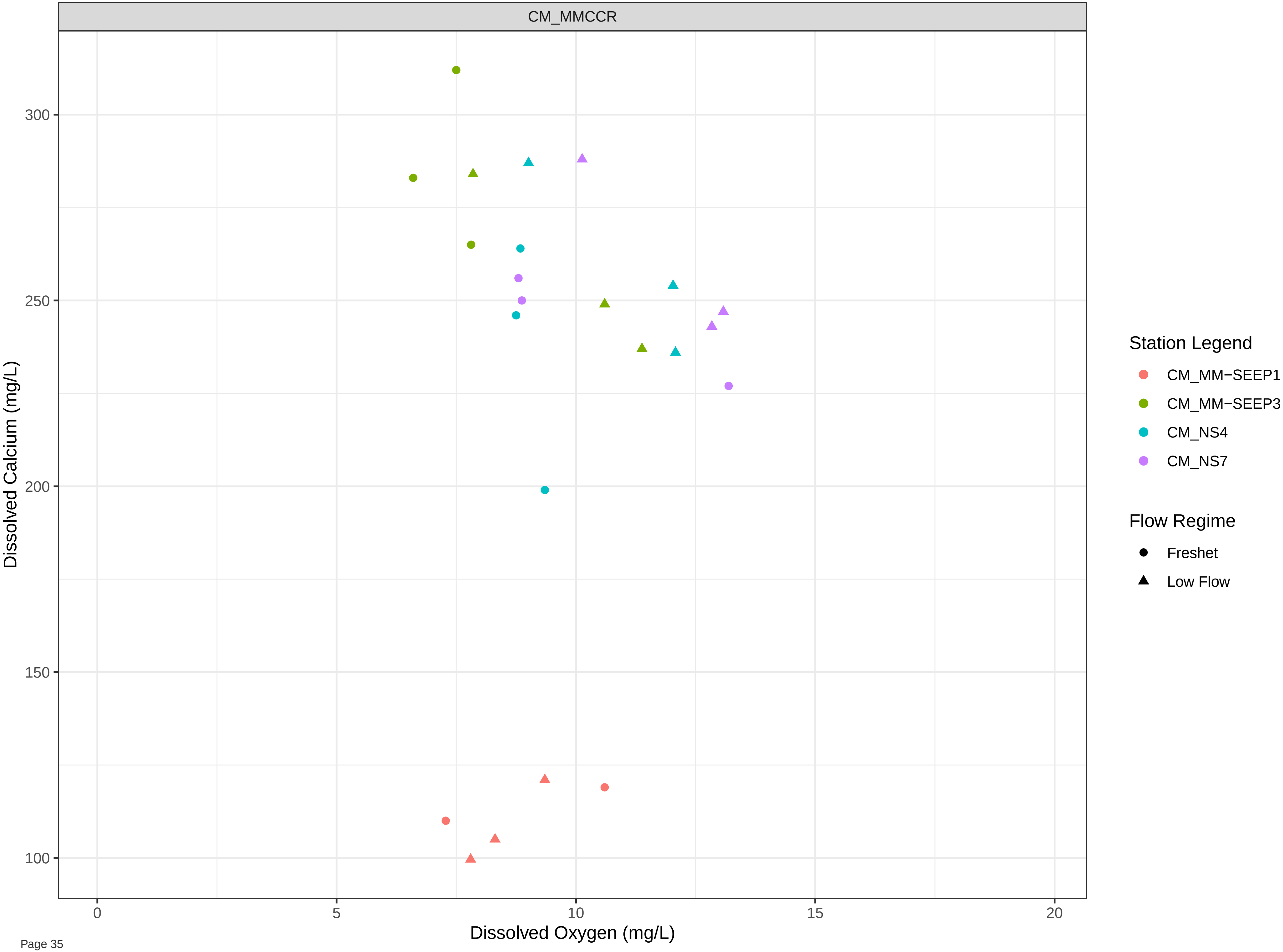

CM_EASTWR
Dissolved Cadmium (mg/L)
0.00015
0.00010
0.00005
0.00000
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

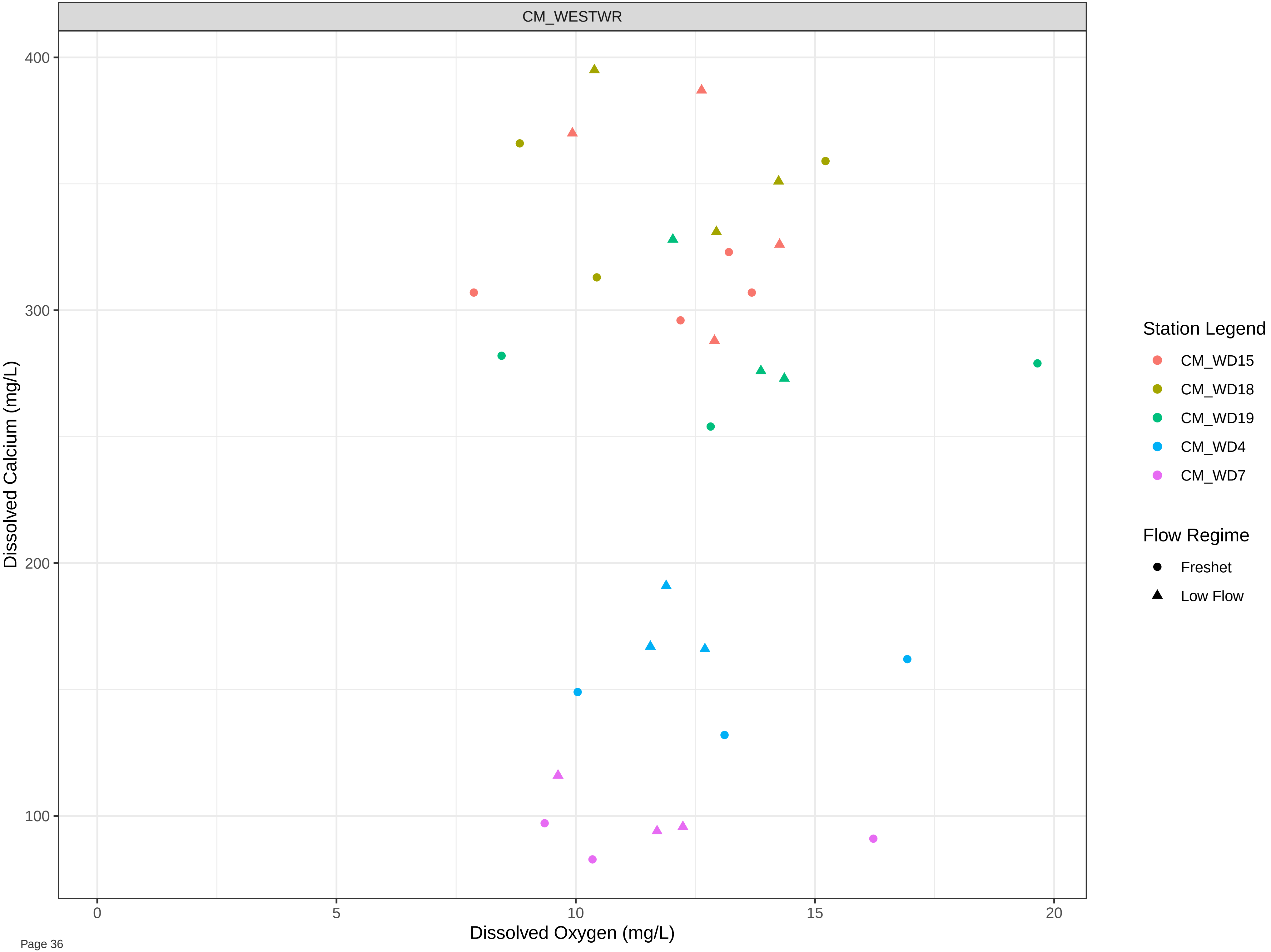

CM_MMCCR
Dissolved Cadmium (mg/L)
0.00015
0.00010
0.00005
0.00000
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

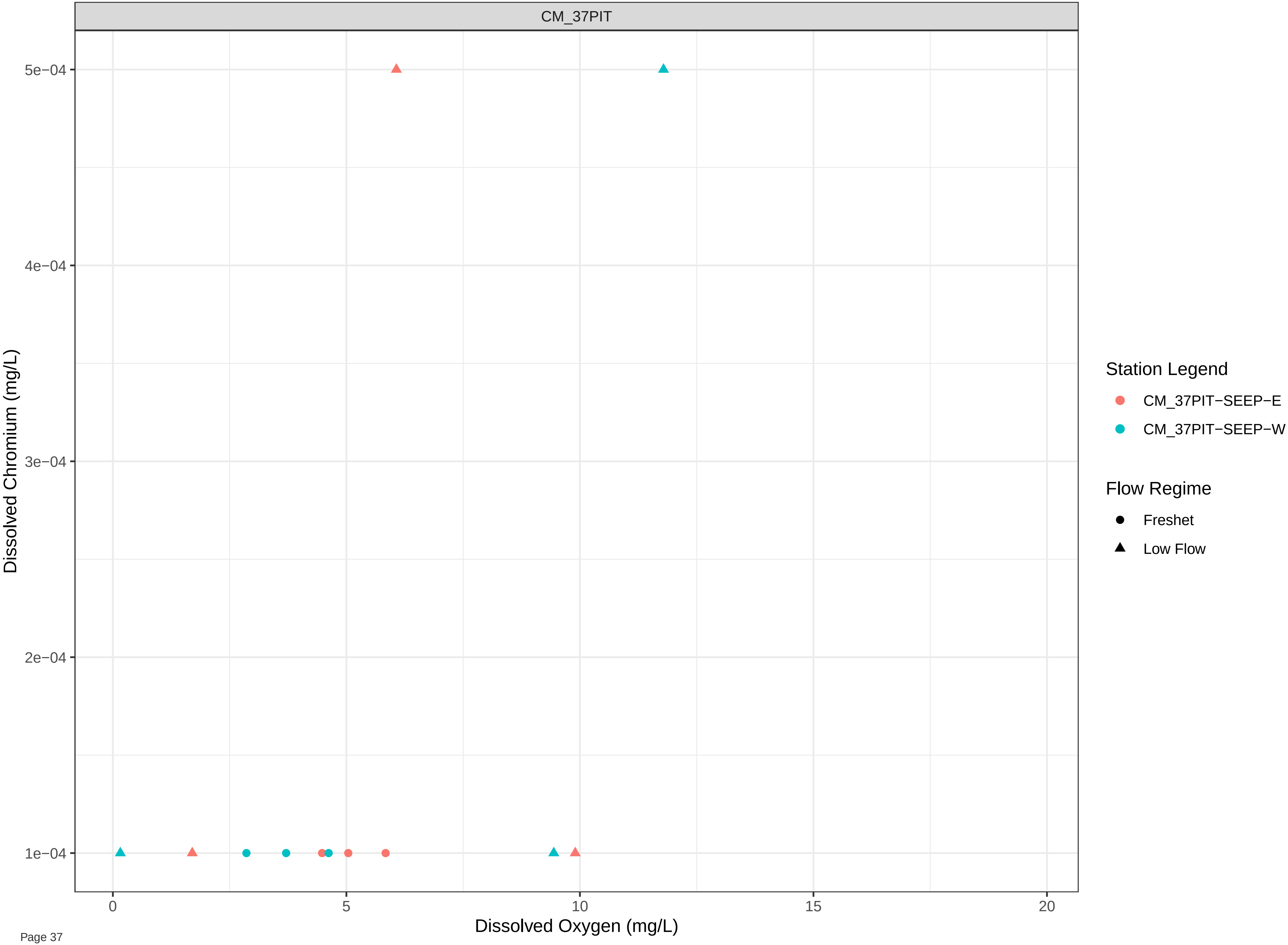

CM_WESTWR
0.00016
0.00012
0.00008
0.00004
Dissolved Cadmium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

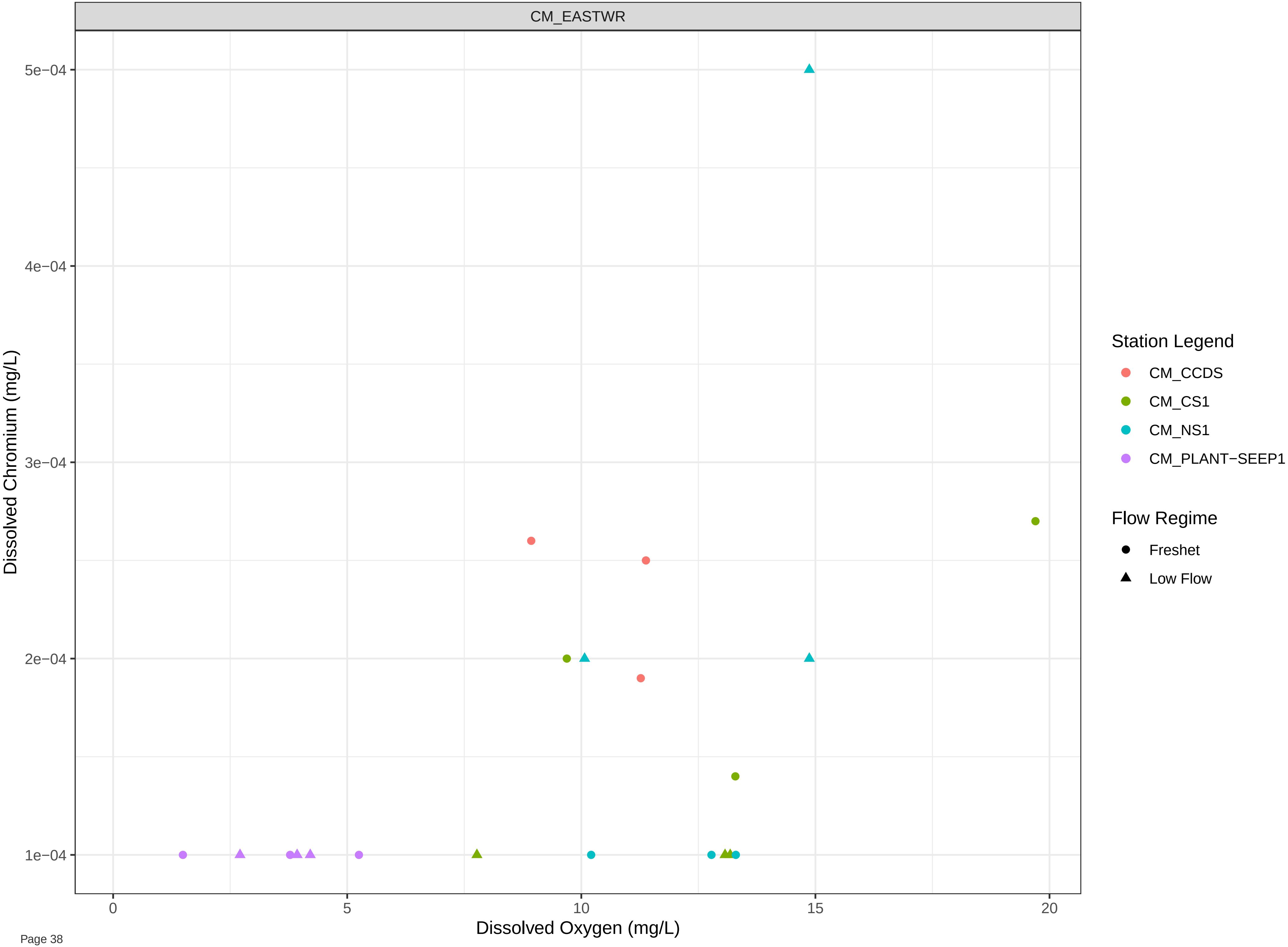

CM_37PIT
Dissolved Calcium (mg/L)
250
200
150
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

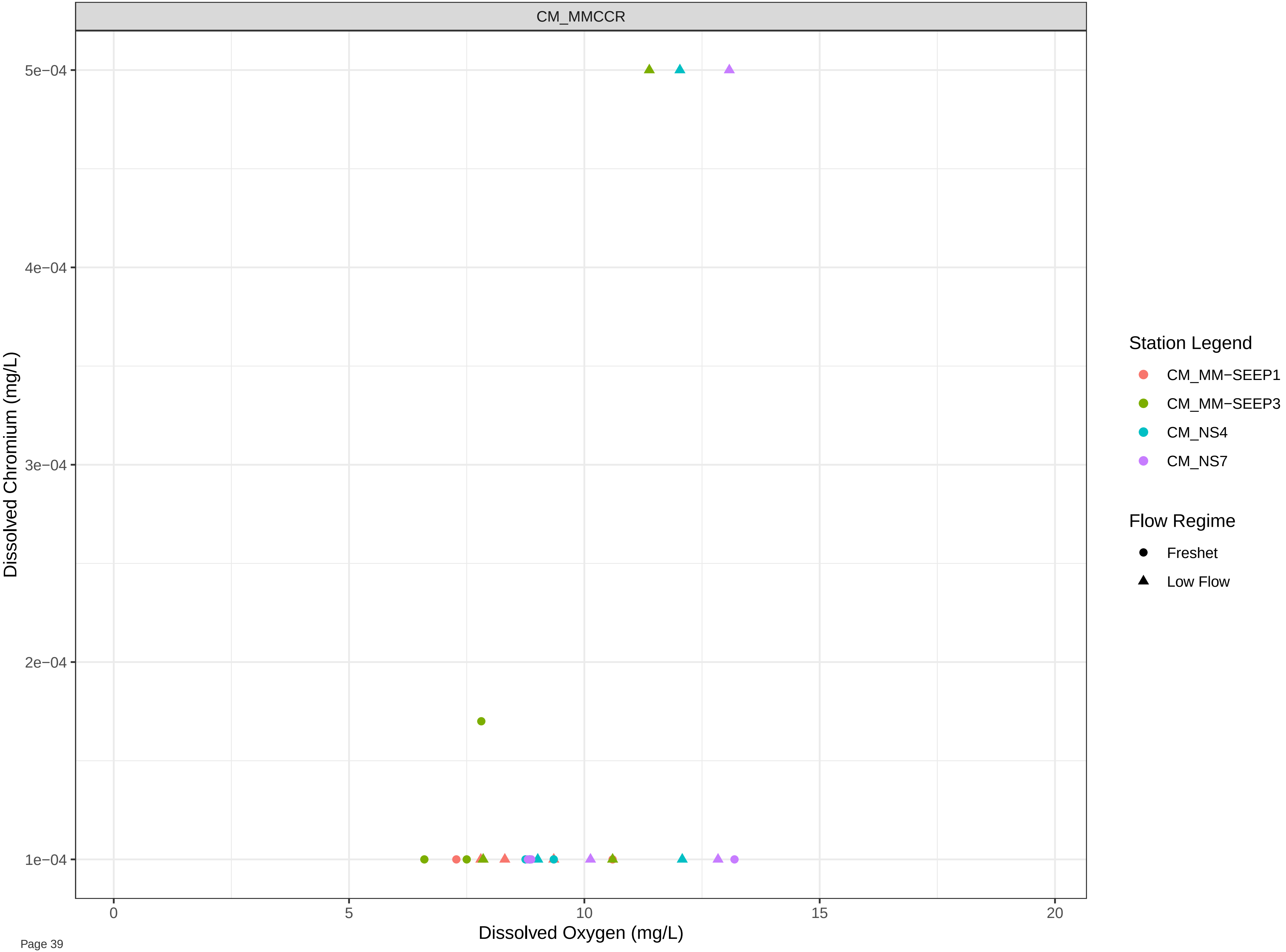

CM_EASTWR
Dissolved Calcium (mg/L)
300
200
100
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

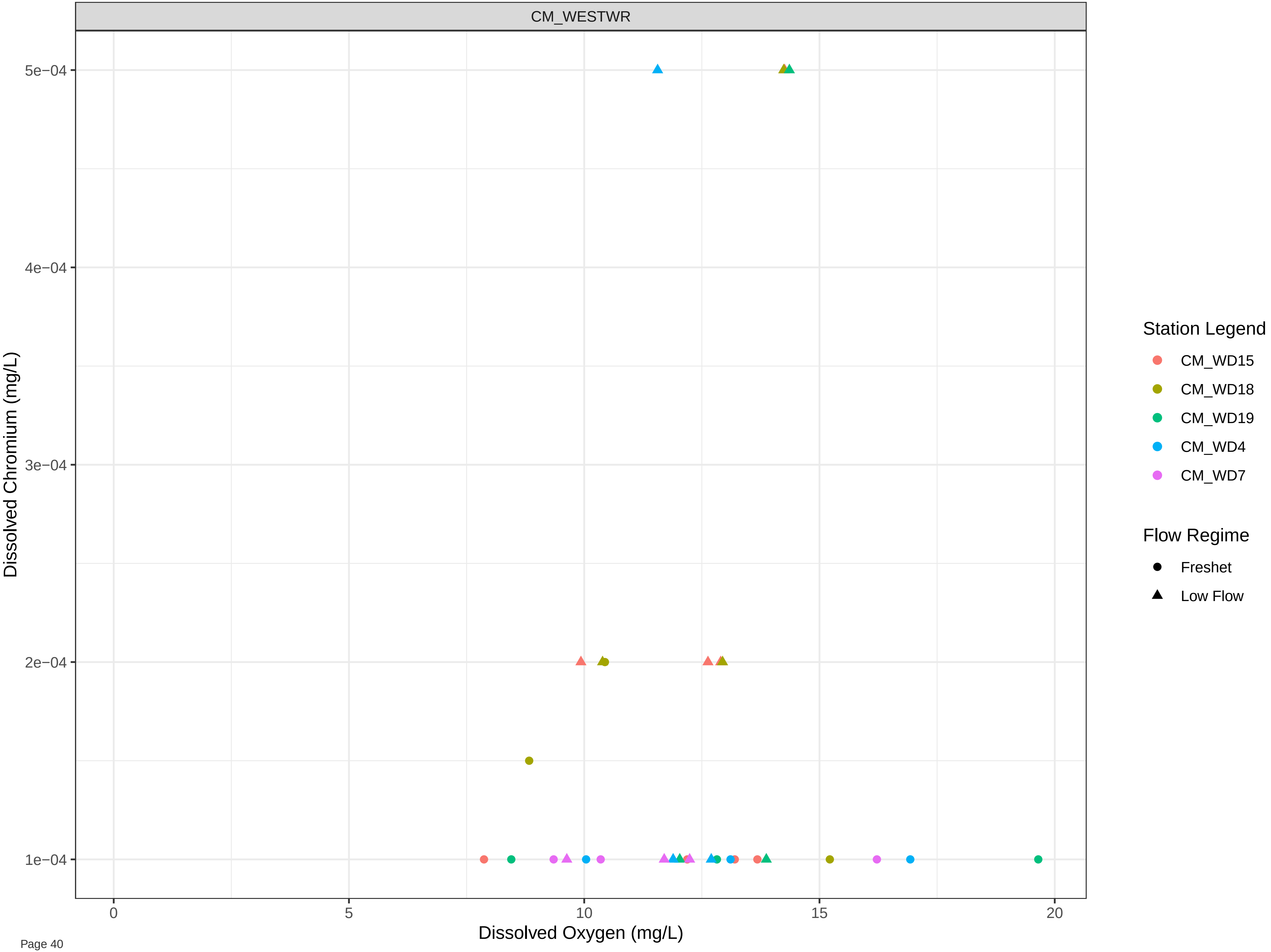

CM_MMCCR
Dissolved Calcium (mg/L)
300
250
200
150
100
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

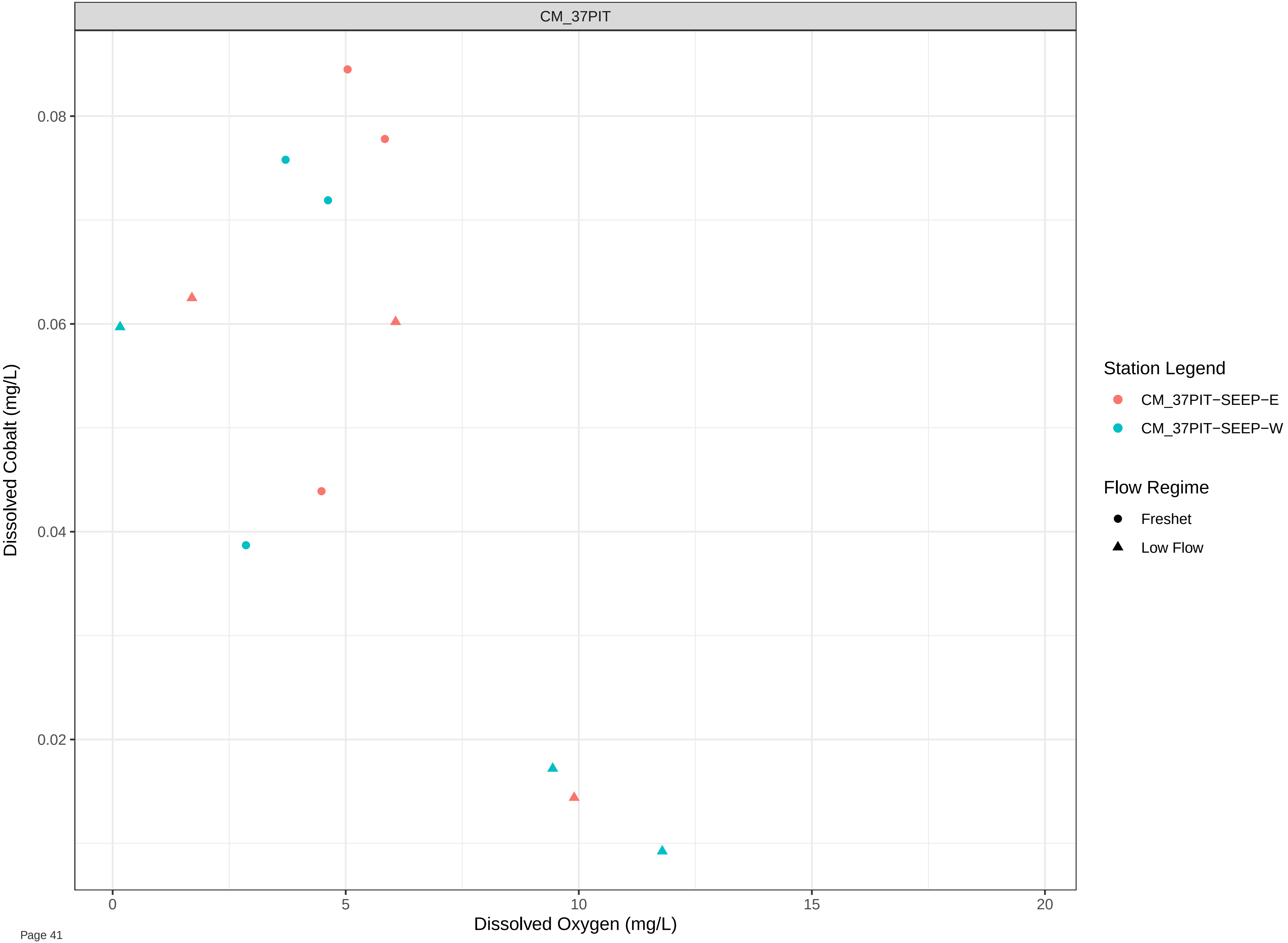

CM_WESTWR
Dissolved Calcium (mg/L)
400
300
200
100
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow


CM_37PIT
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Chromium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

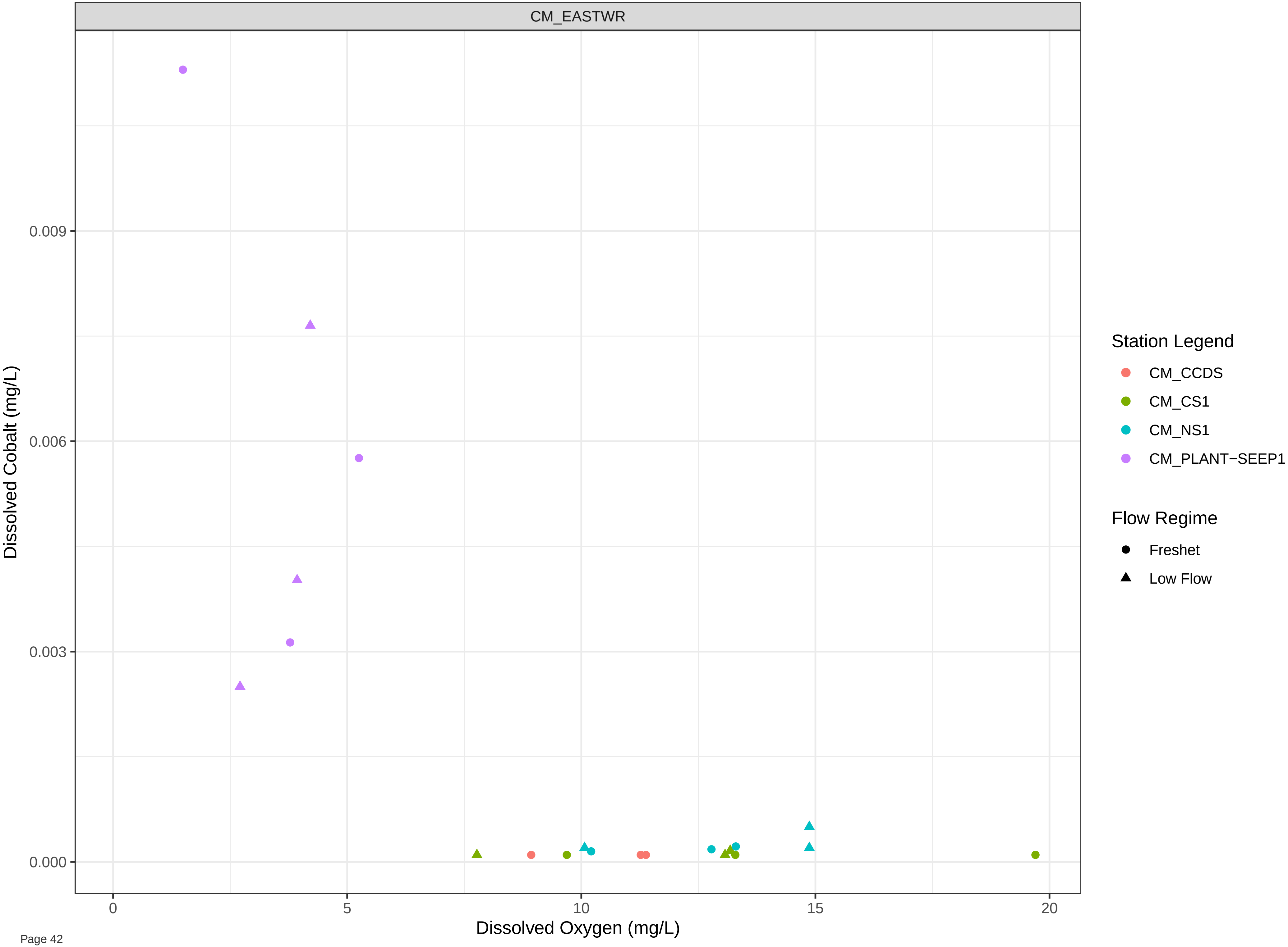

CM_EASTWR
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

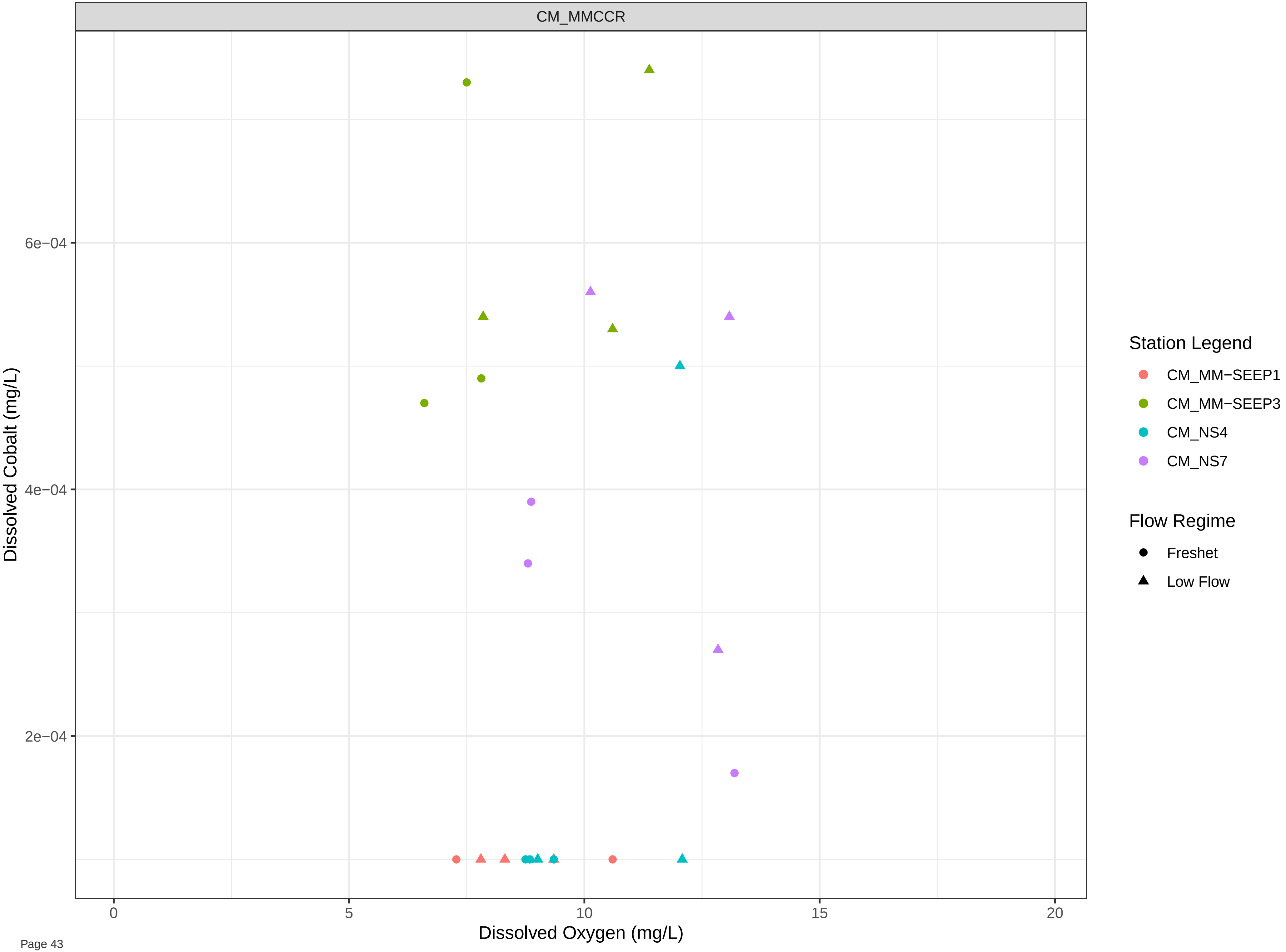

CM_MMCCR
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

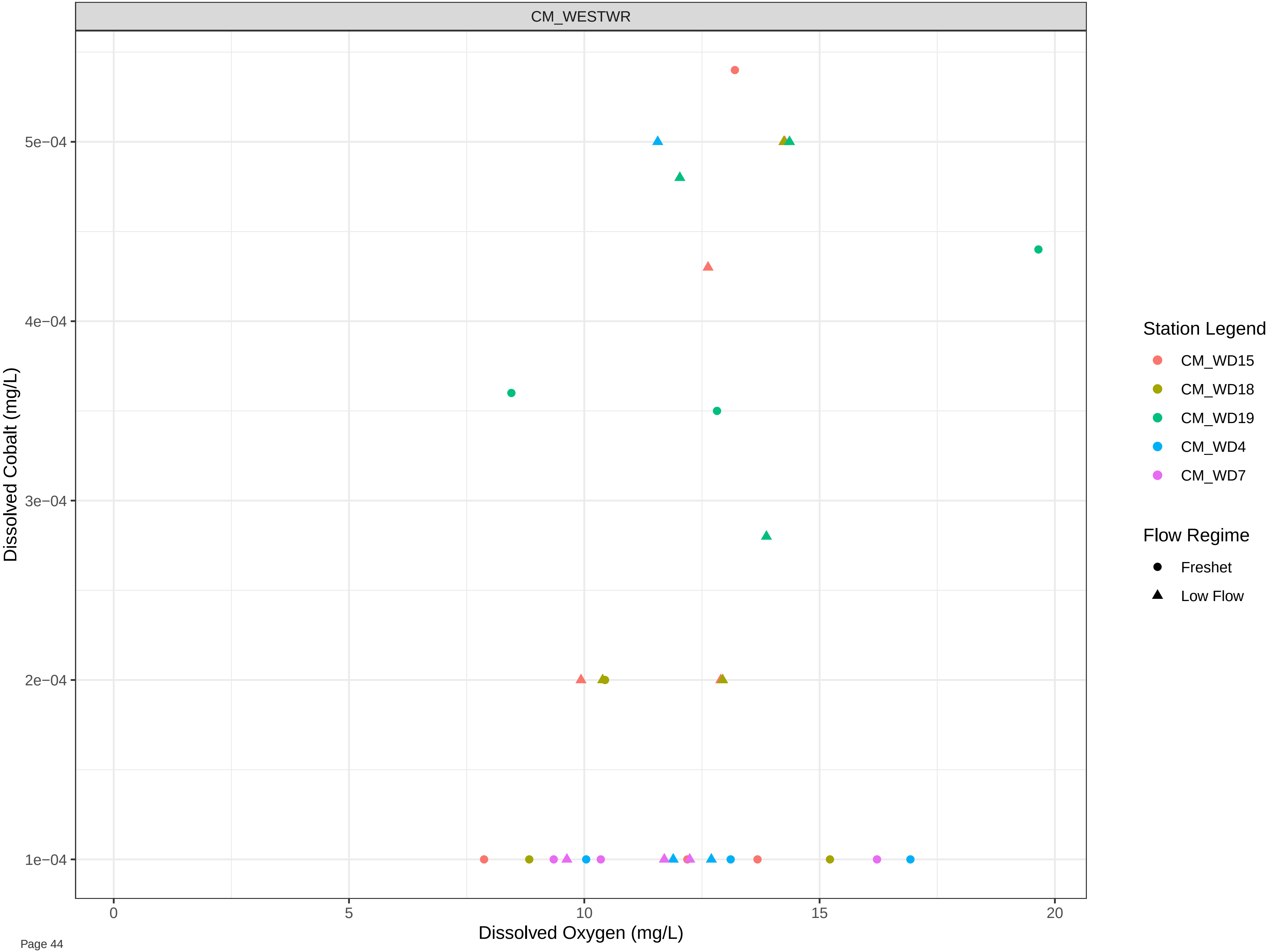

CM_WESTWR
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Chromium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

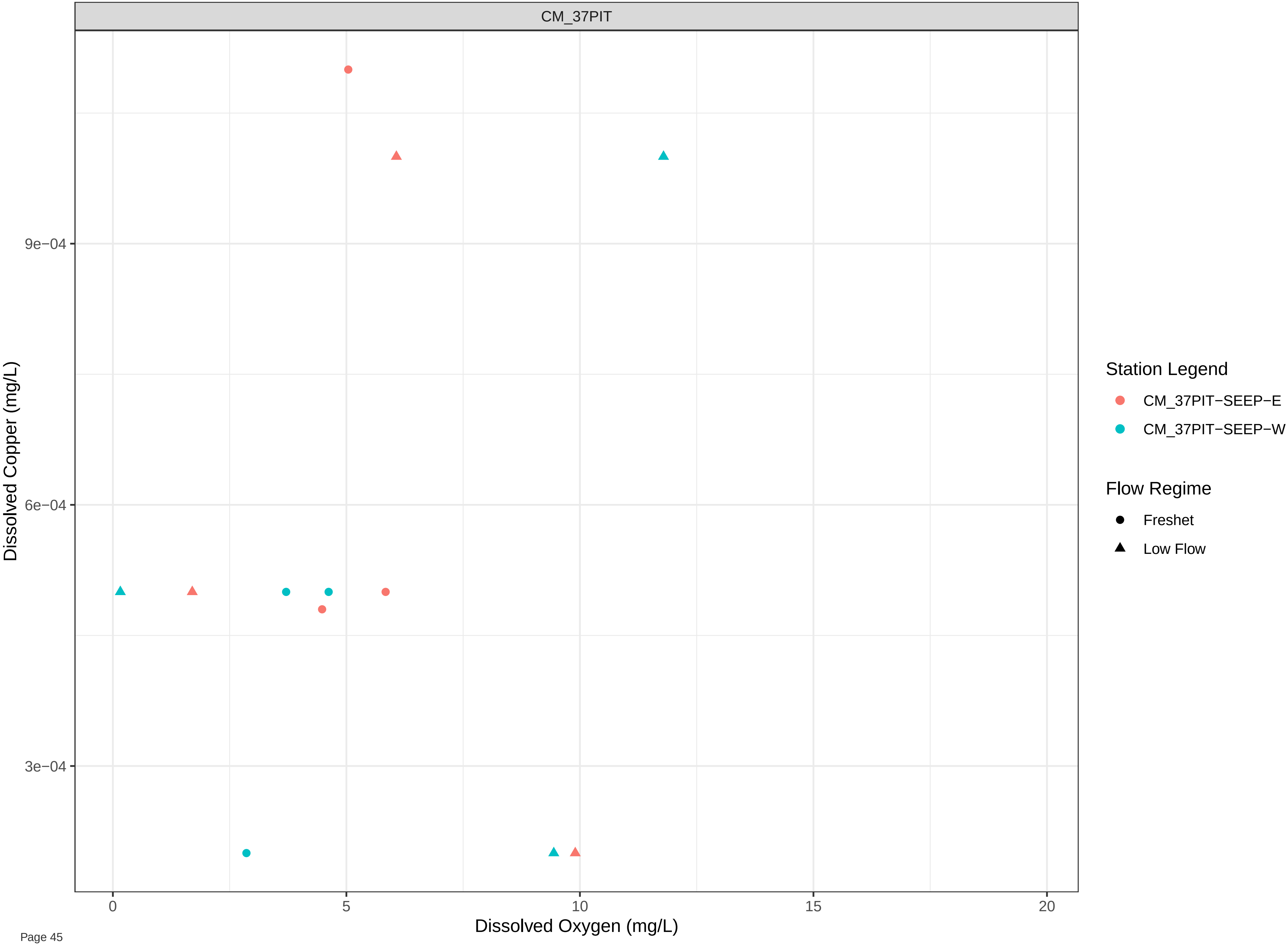


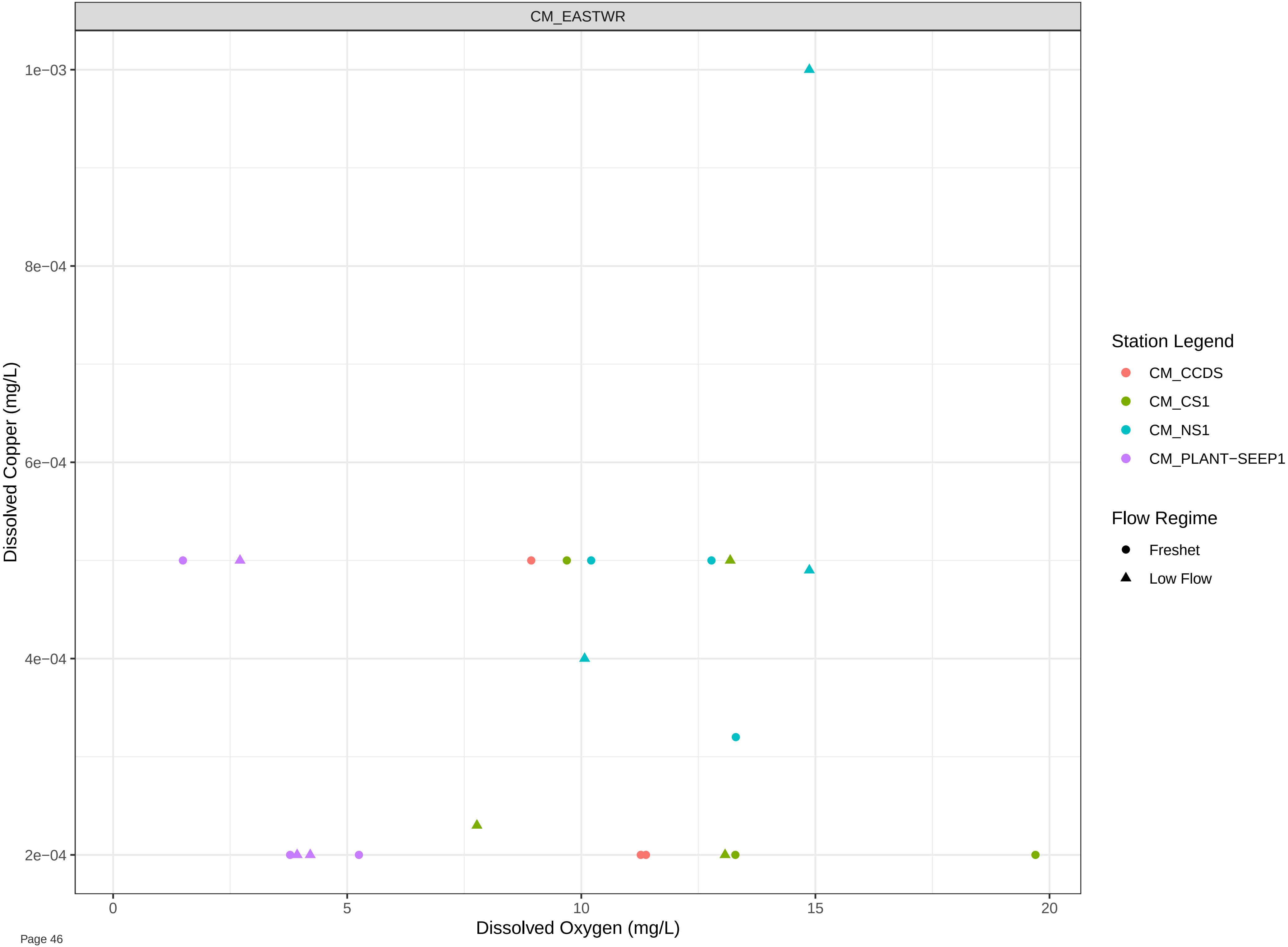
CM_37PIT
Dissolved Cobalt (mg/L)
0.08
0.06
0.04
0.02
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

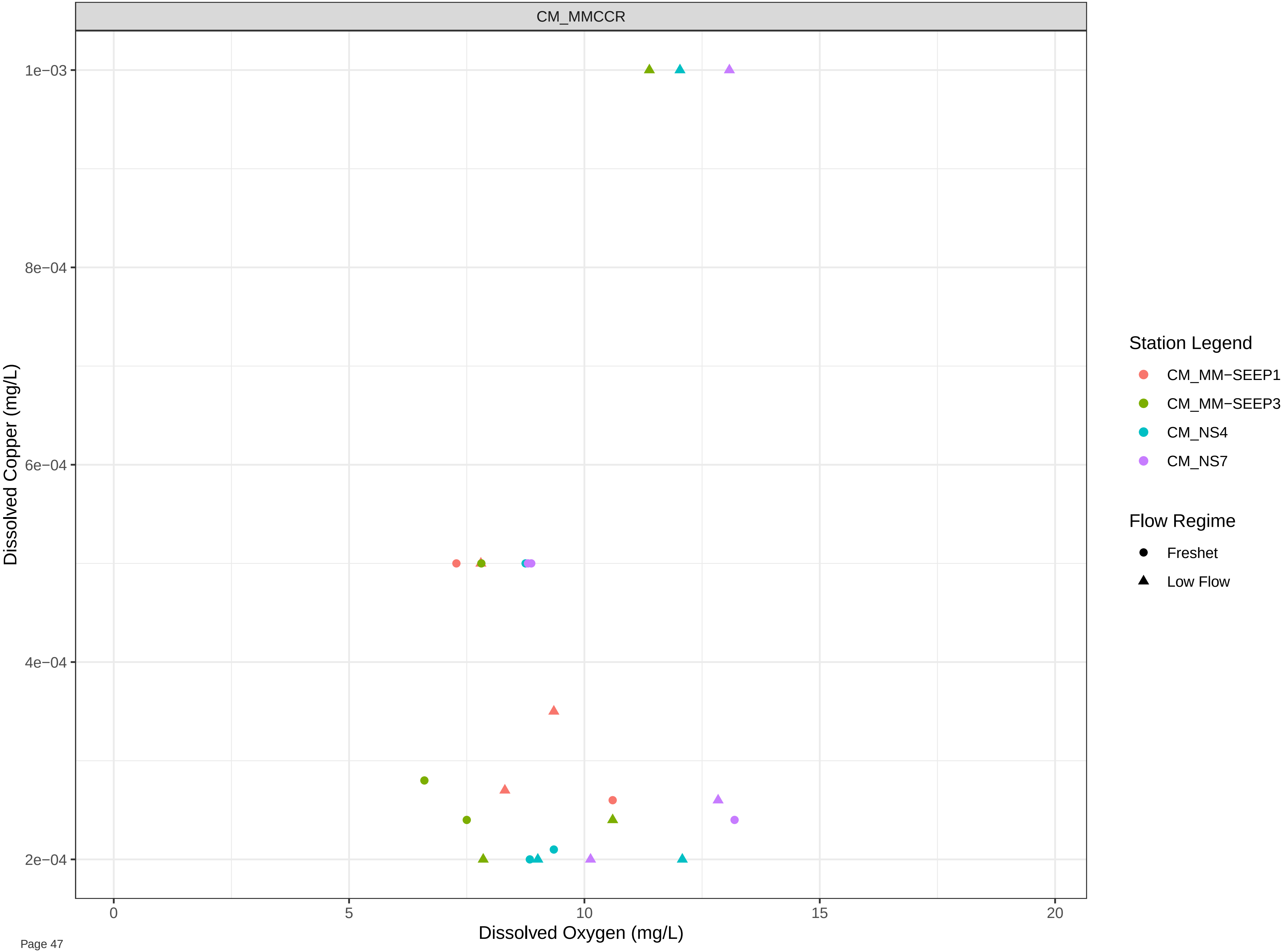

CM_EASTWR
Dissolved Cobalt (mg/L)
0.009
0.006
0.003
0.000
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_CCDS
● CM_CS1
● CM_NS1
● CM_PLANT−SEEP1
Flow Regime
● Freshet
▲ Low Flow

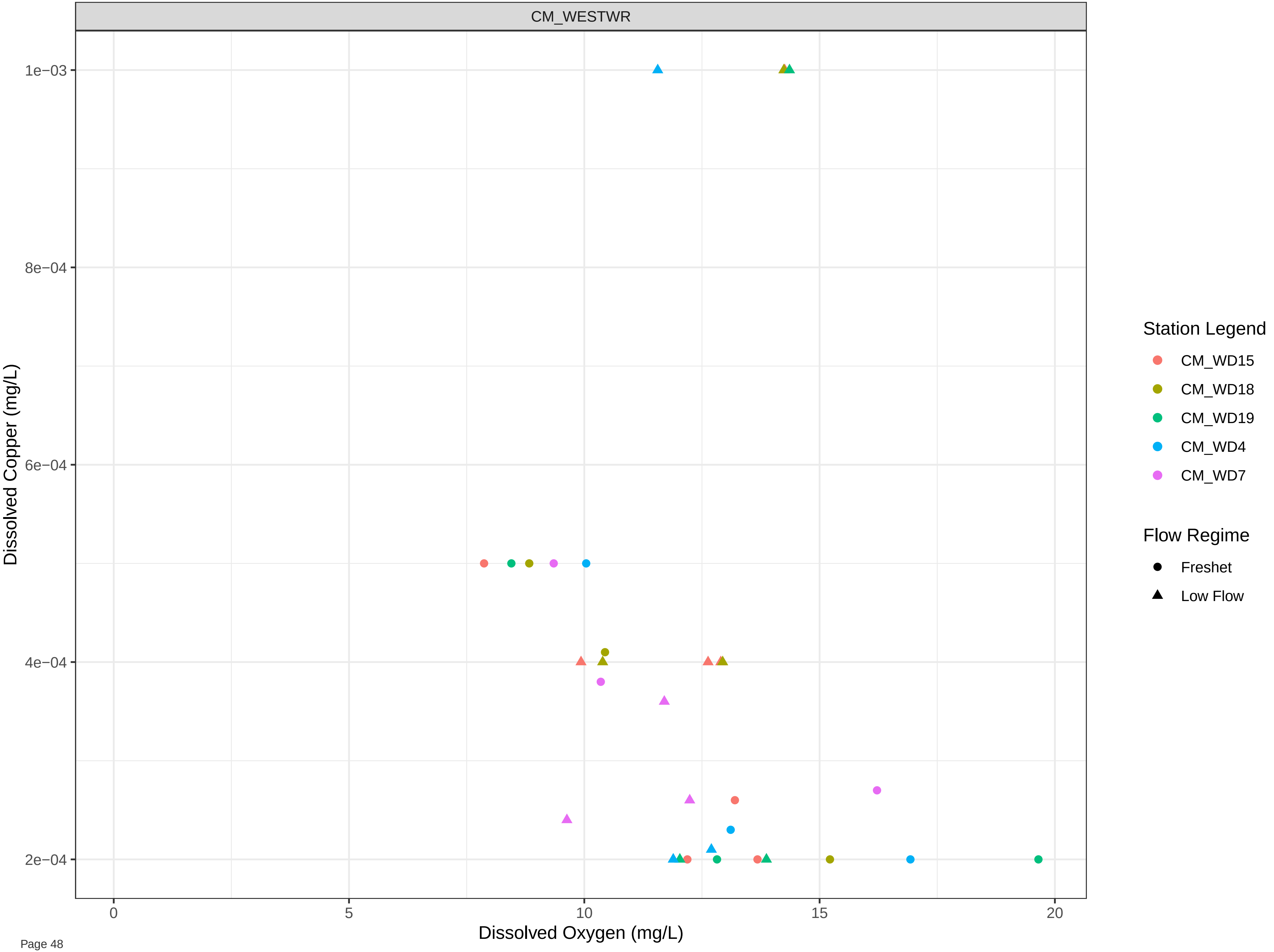

CM_MMCCR
Dissolved Cobalt (mg/L)
6e−04
4e−04
2e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

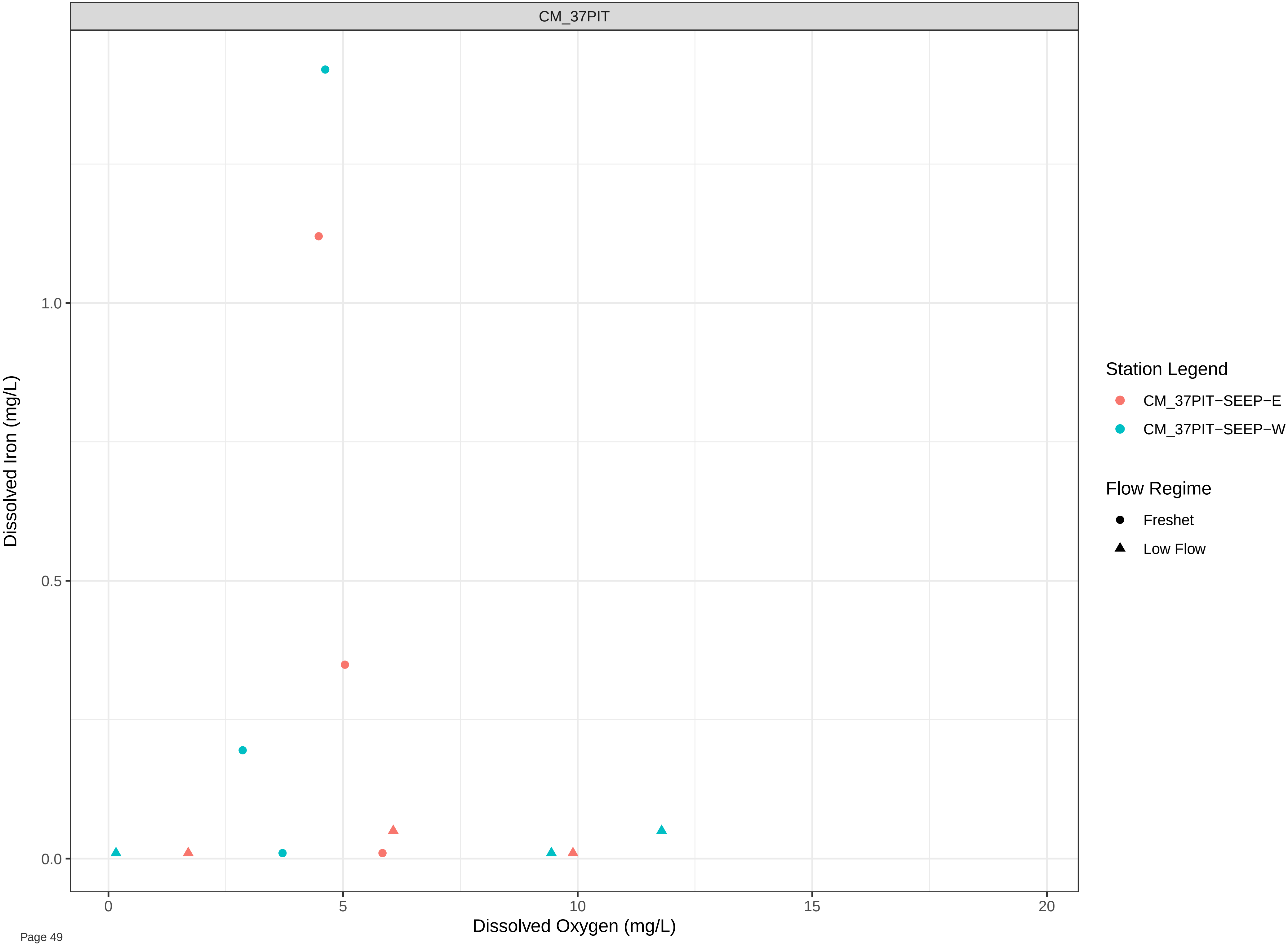

CM_WESTWR
Dissolved Cobalt (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

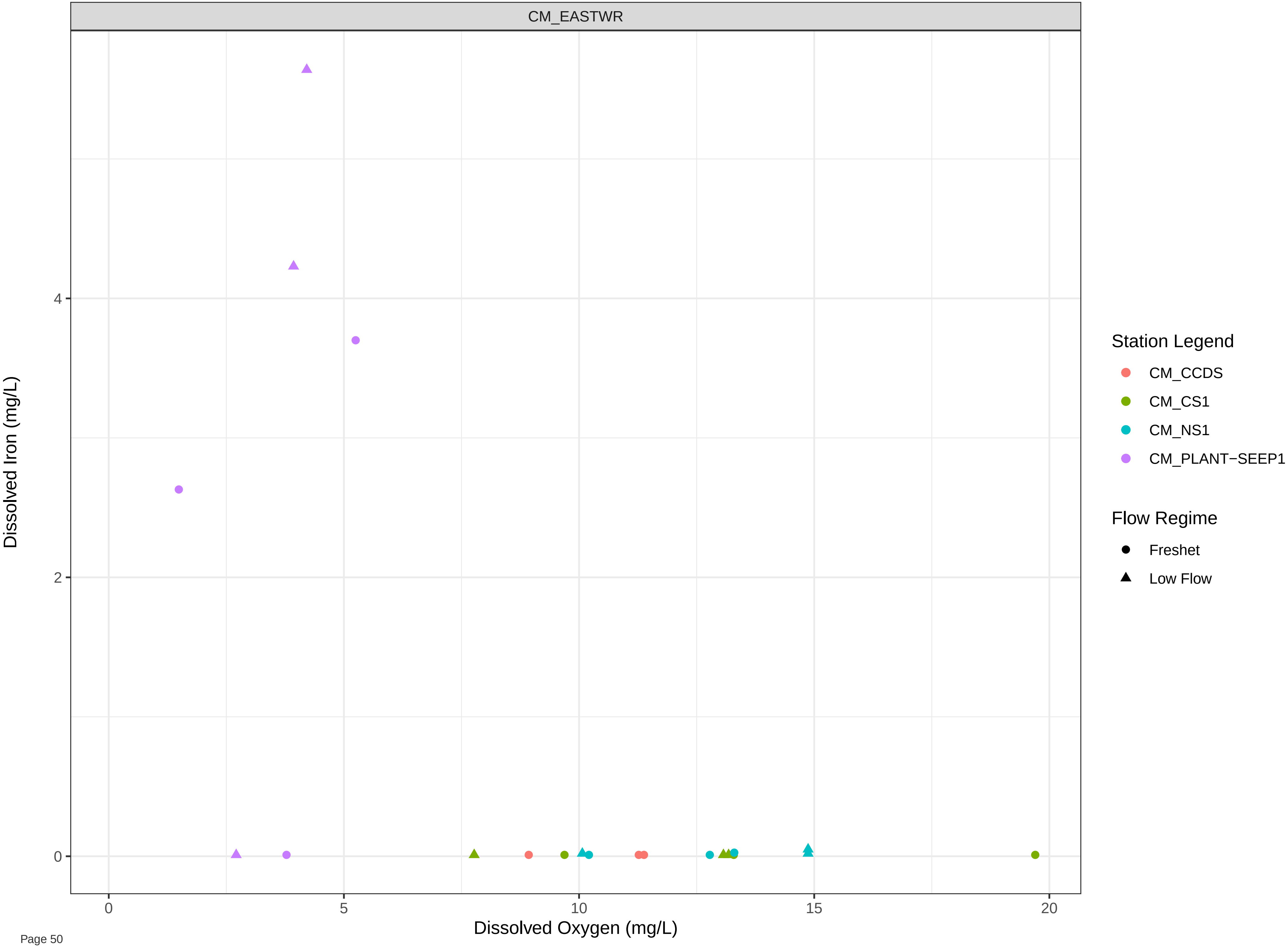

CM_37PIT
Dissolved Copper (mg/L)
9e−04
6e−04
3e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

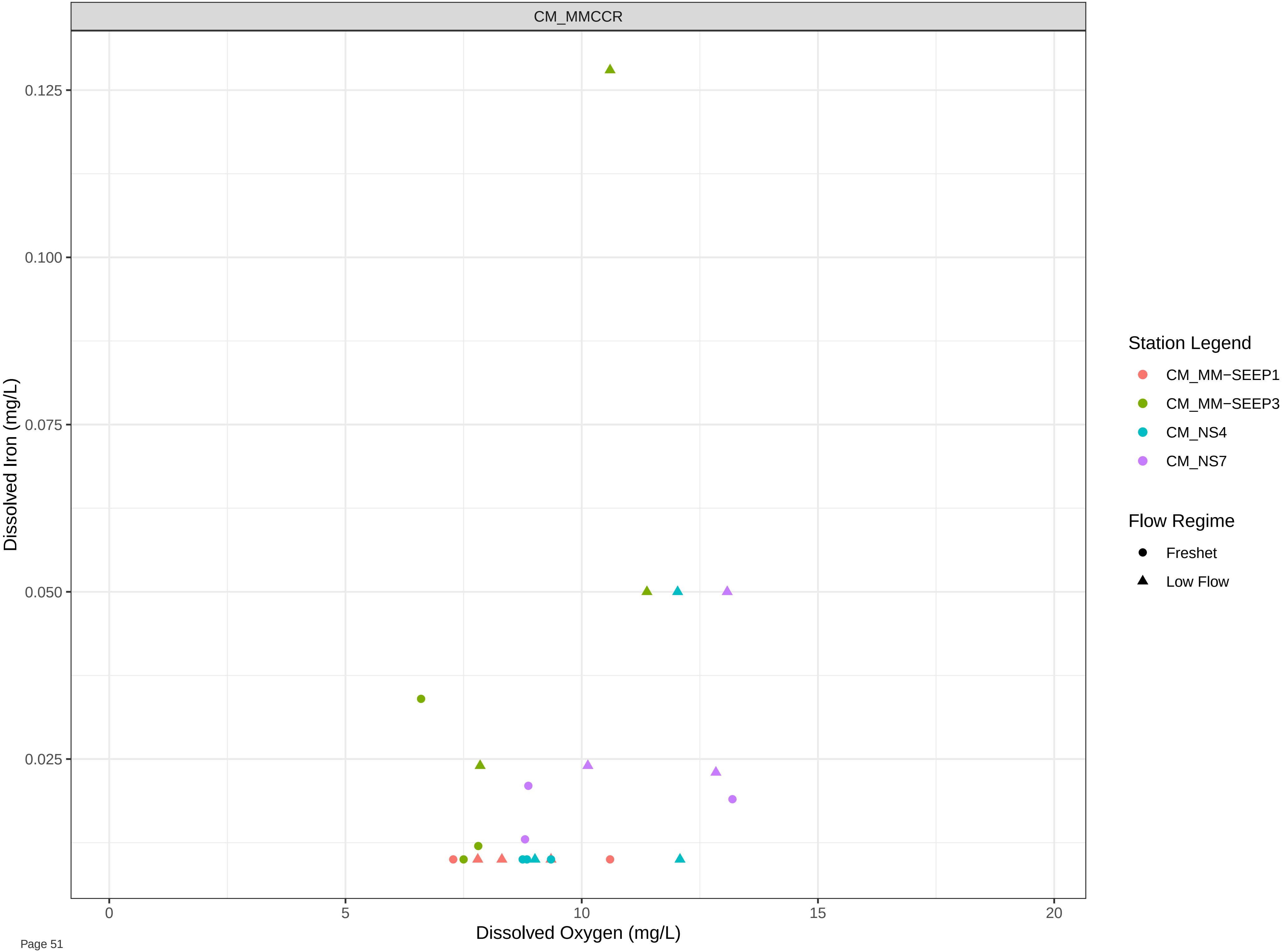

CM_EASTWR
Dissolved Copper (mg/L)
1e−03
8e−04
6e−04
4e−04
2e−04
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
● CM_CCDS
● CM_CS1
● CM_NS1
● CM_PLANT−SEEP1
Flow Regime
● Freshet
▲ Low Flow

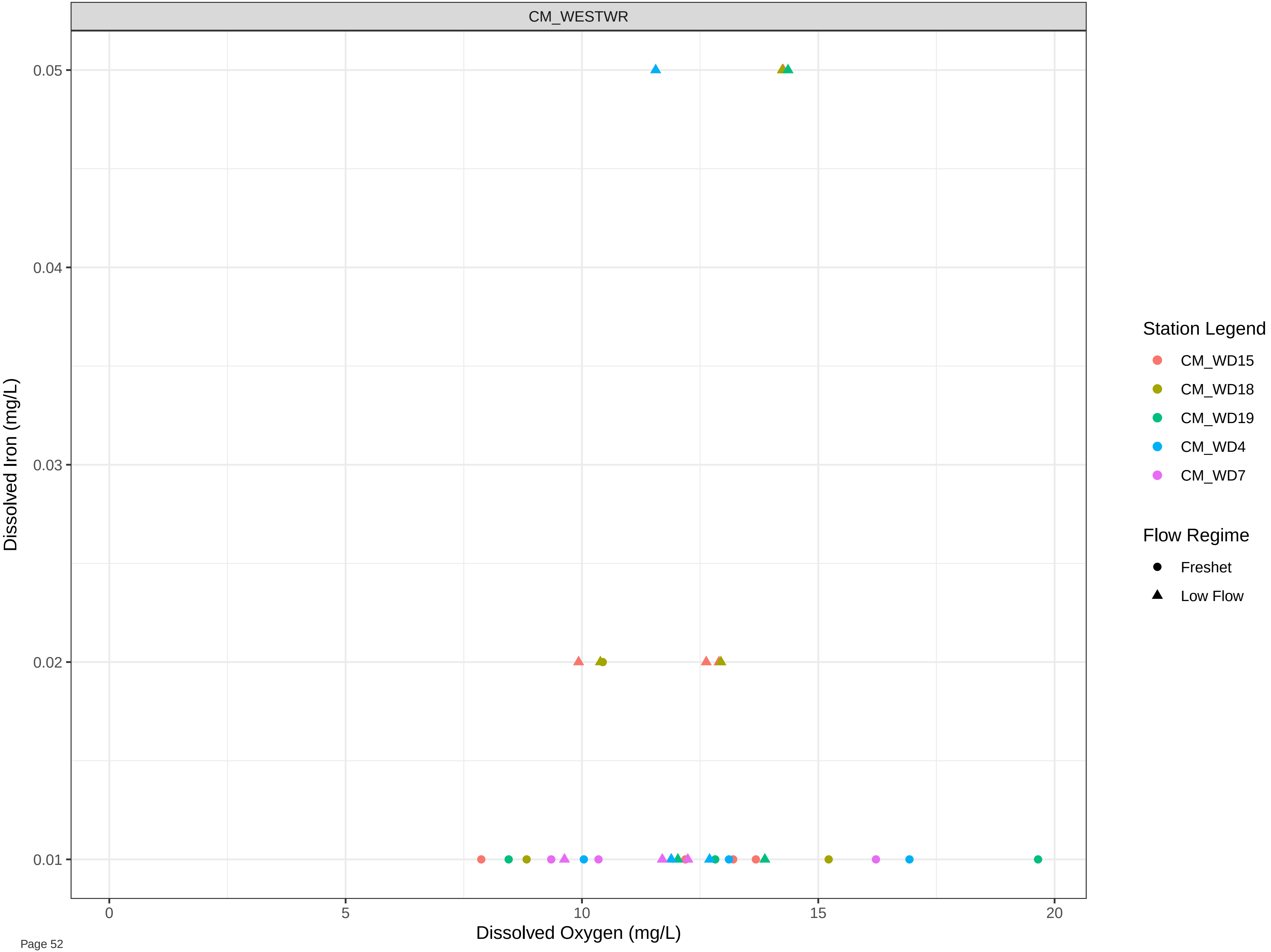

CM_MMCCR
Dissolved Copper (mg/L)
1e−03
8e−04
6e−04
4e−04
2e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

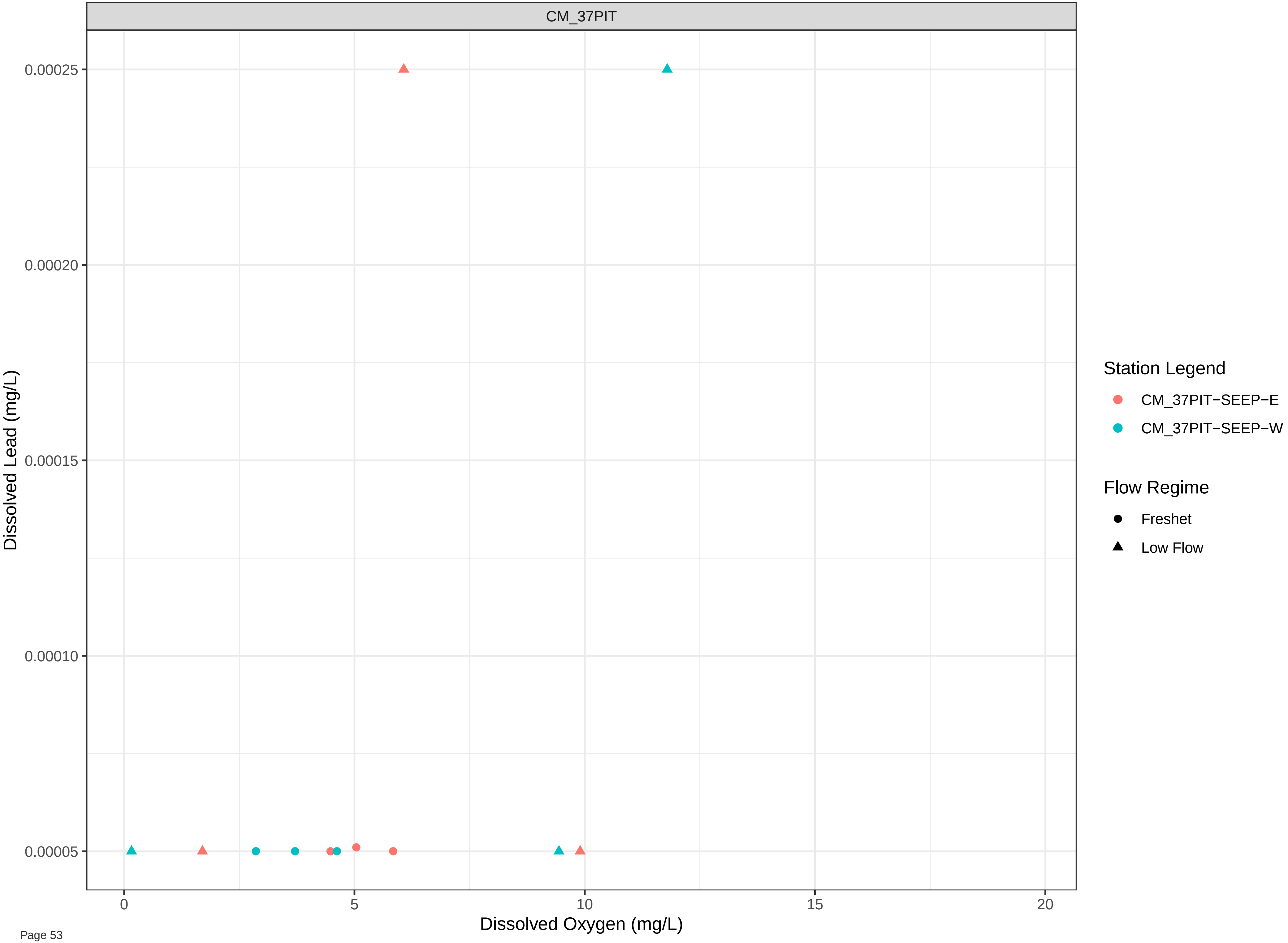

CM_WESTWR
Dissolved Copper (mg/L)
1e−03
8e−04
6e−04
4e−04
2e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

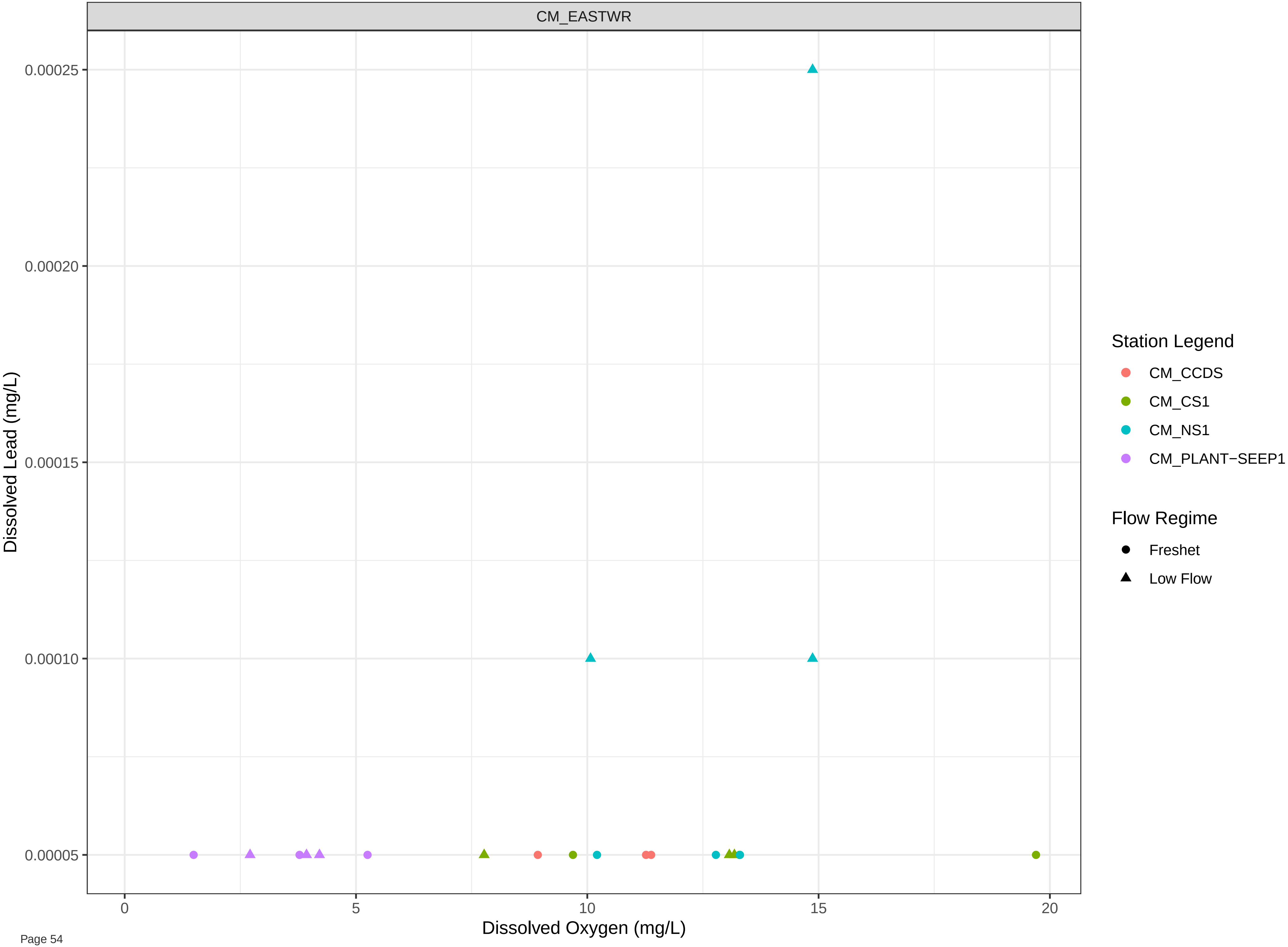

CM_37PIT
Dissolved Iron (mg/L)
1.0
0.5
0.0
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

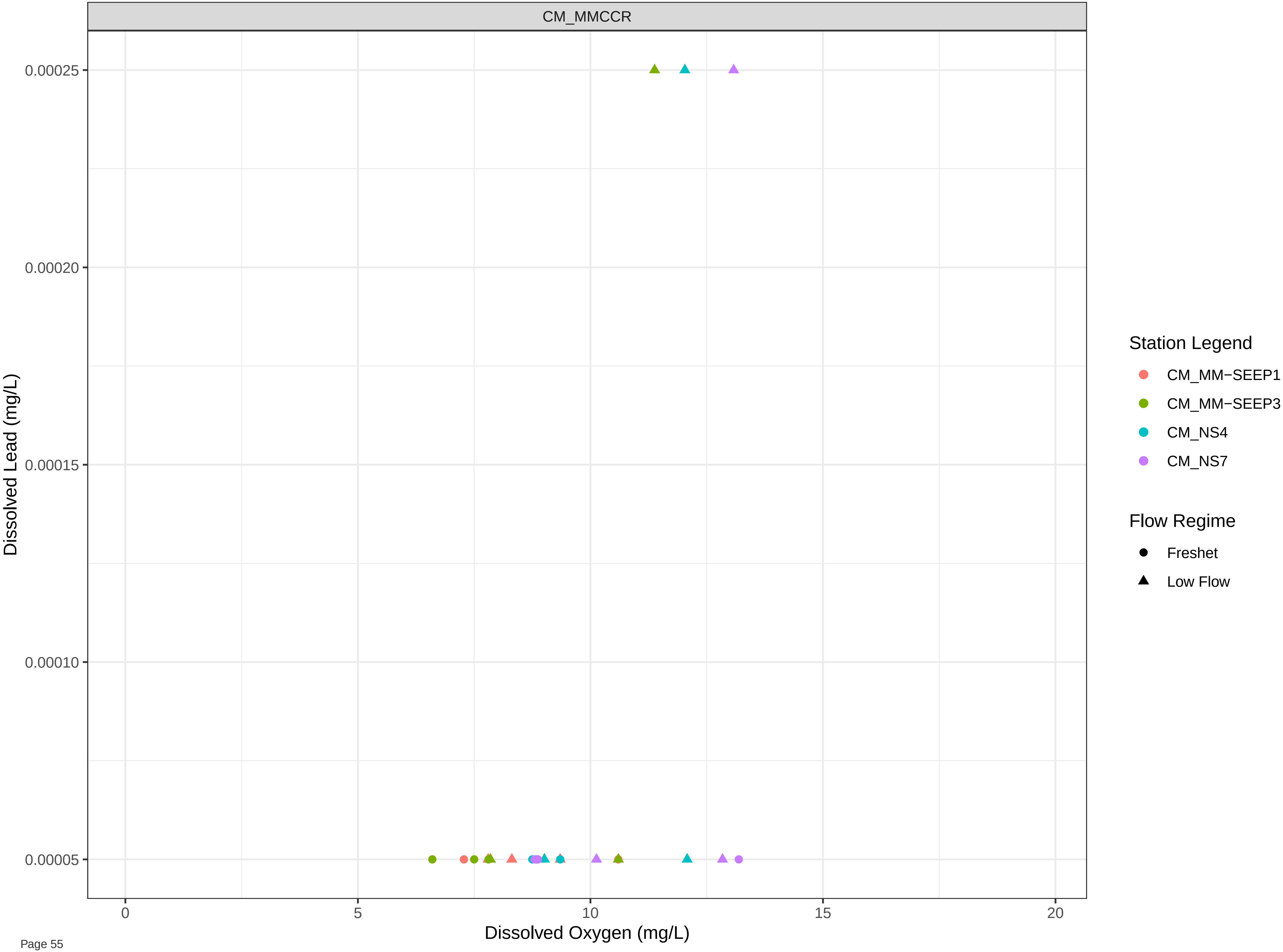

CM_EASTWR
Dissolved Iron (mg/L)
0
2
4
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

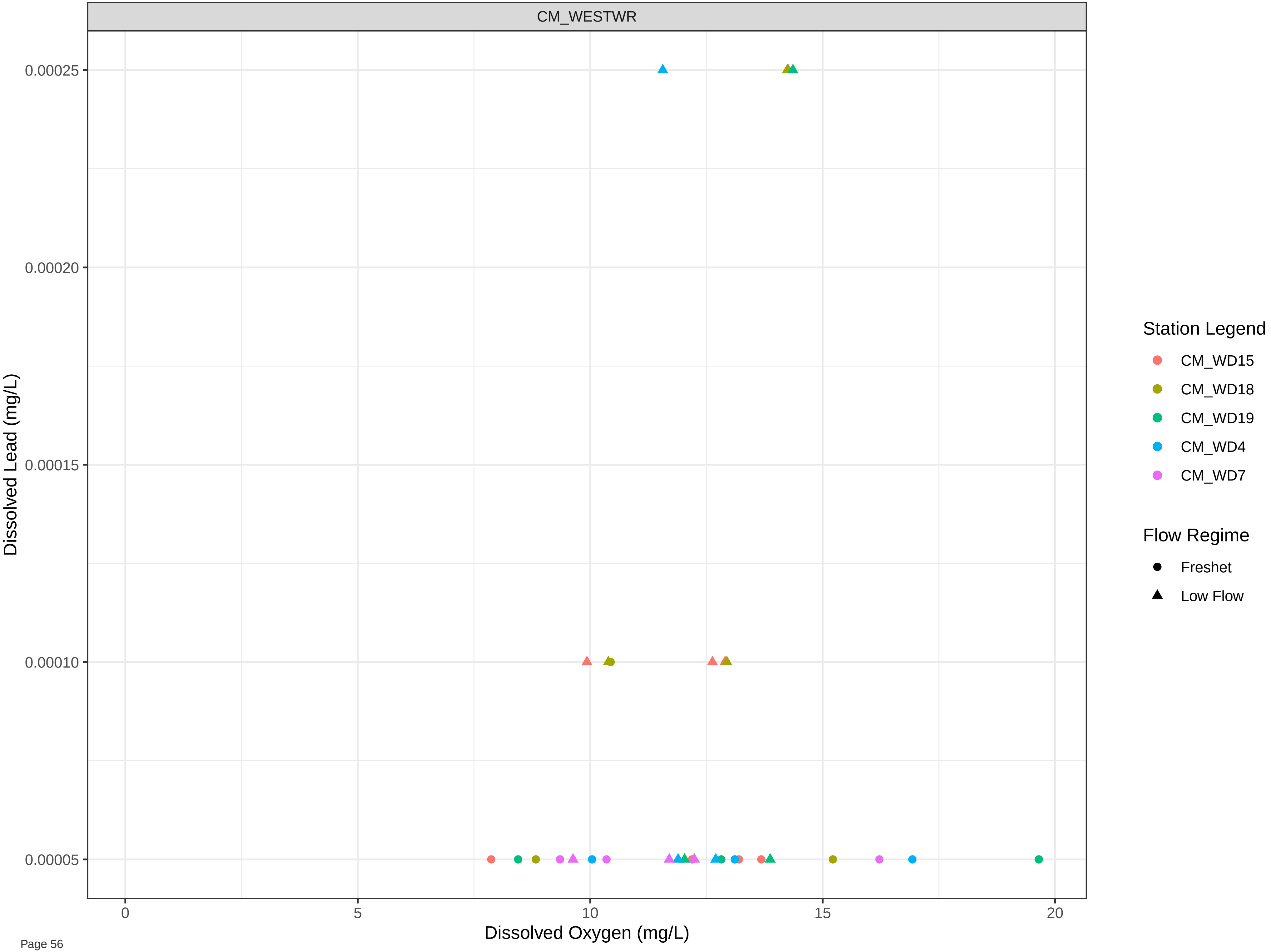

CM_MMCCR
Dissolved Iron (mg/L)
0.125
0.100
0.075
0.050
0.025
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
● CM_MM−SEEP1
● CM_MM−SEEP3
● CM_NS4
● CM_NS7
Flow Regime
● Freshet
▲ Low Flow

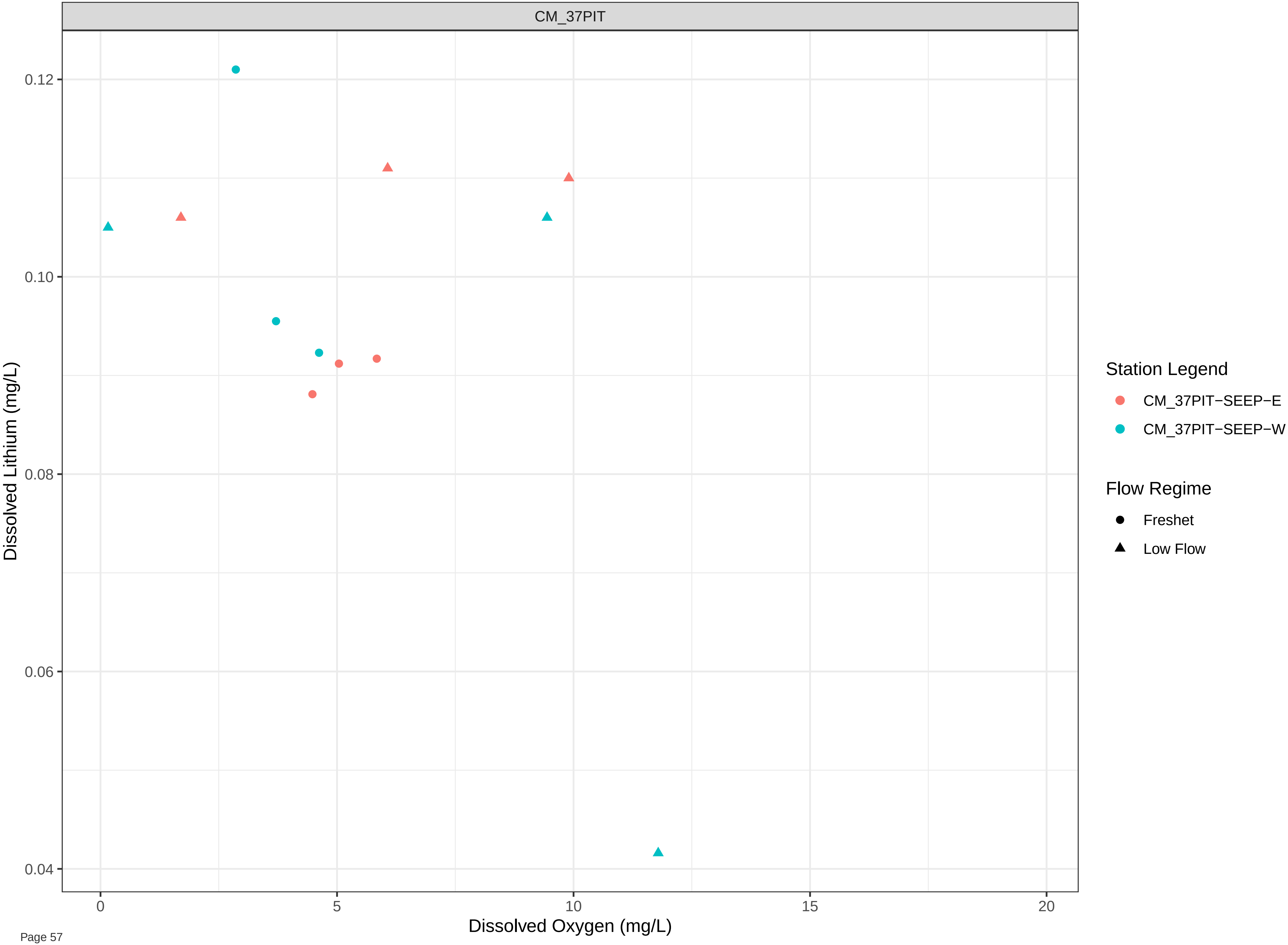

CM_WESTWR
Dissolved Iron (mg/L)
0.05
0.04
0.03
0.02
0.01
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

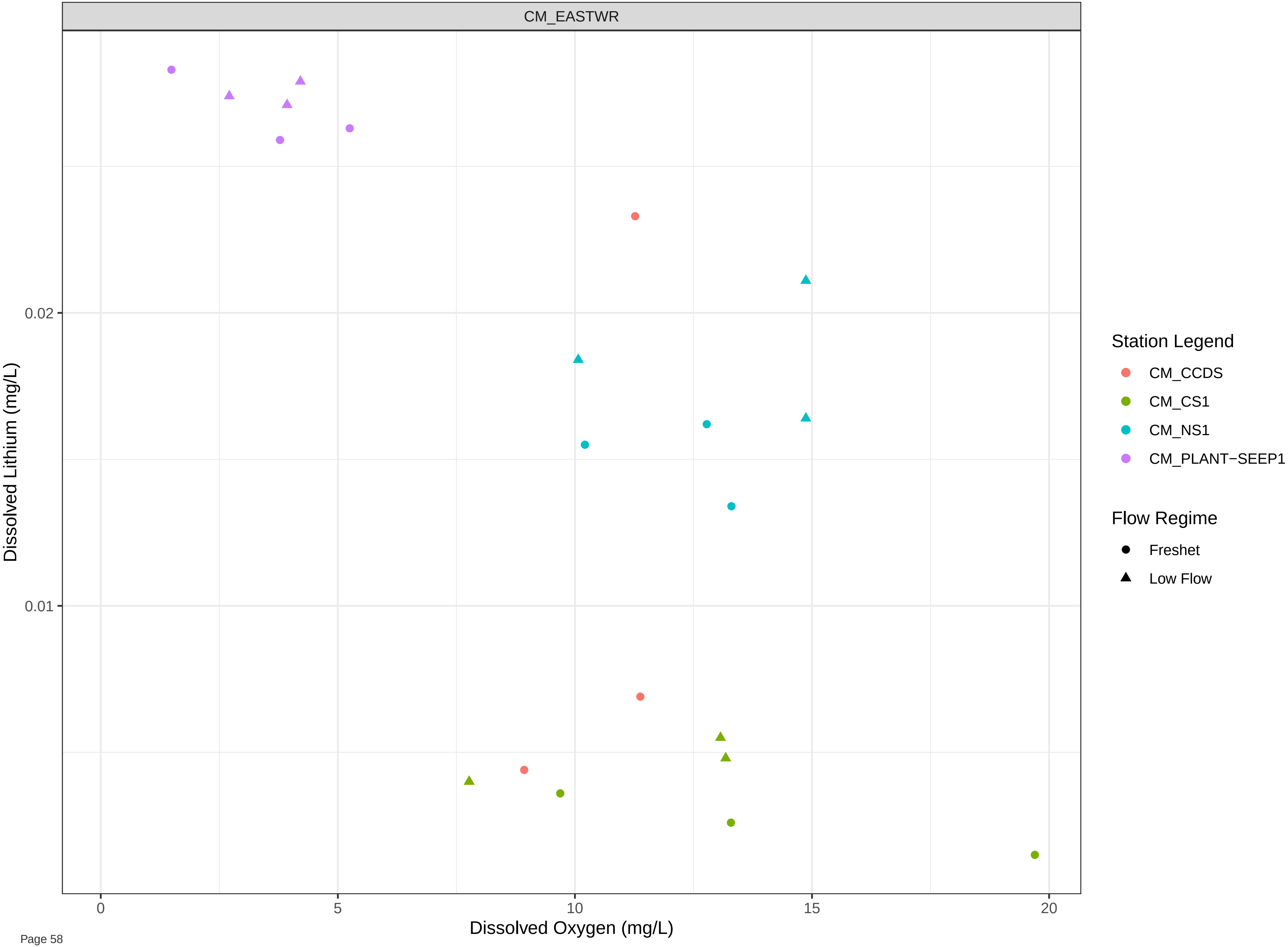

CM_37PIT
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

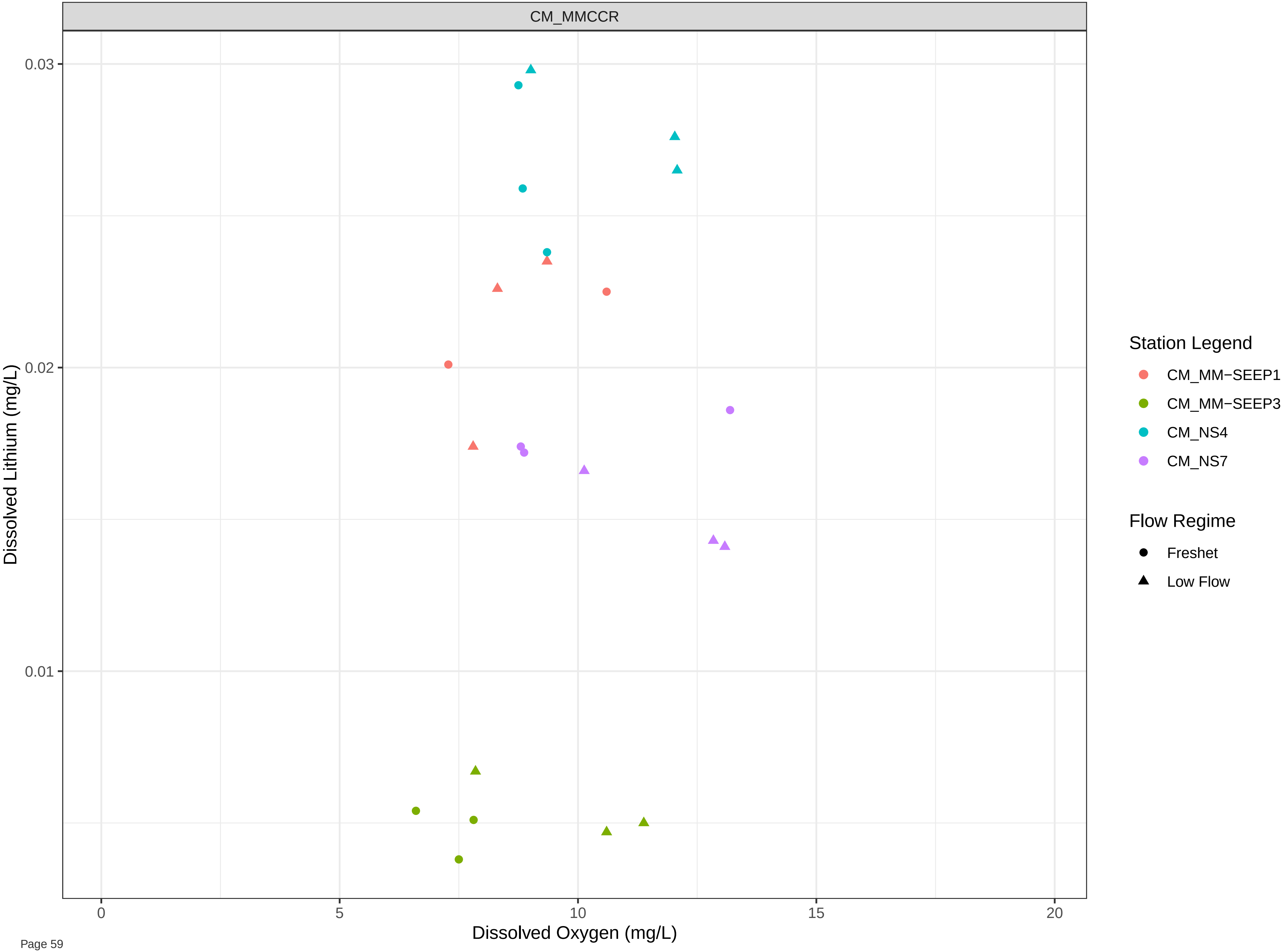

CM_EASTWR
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

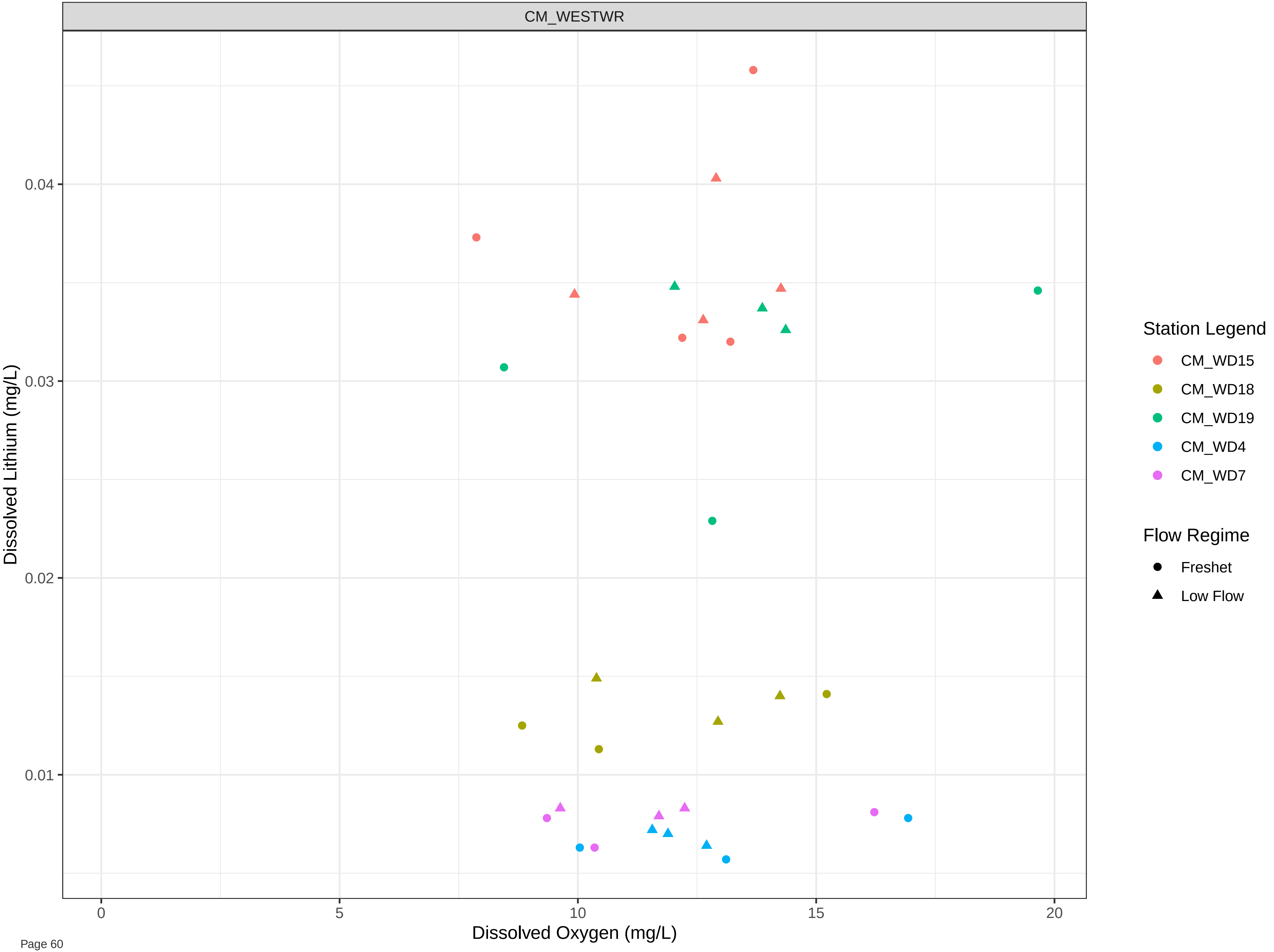

CM_MMCCR
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

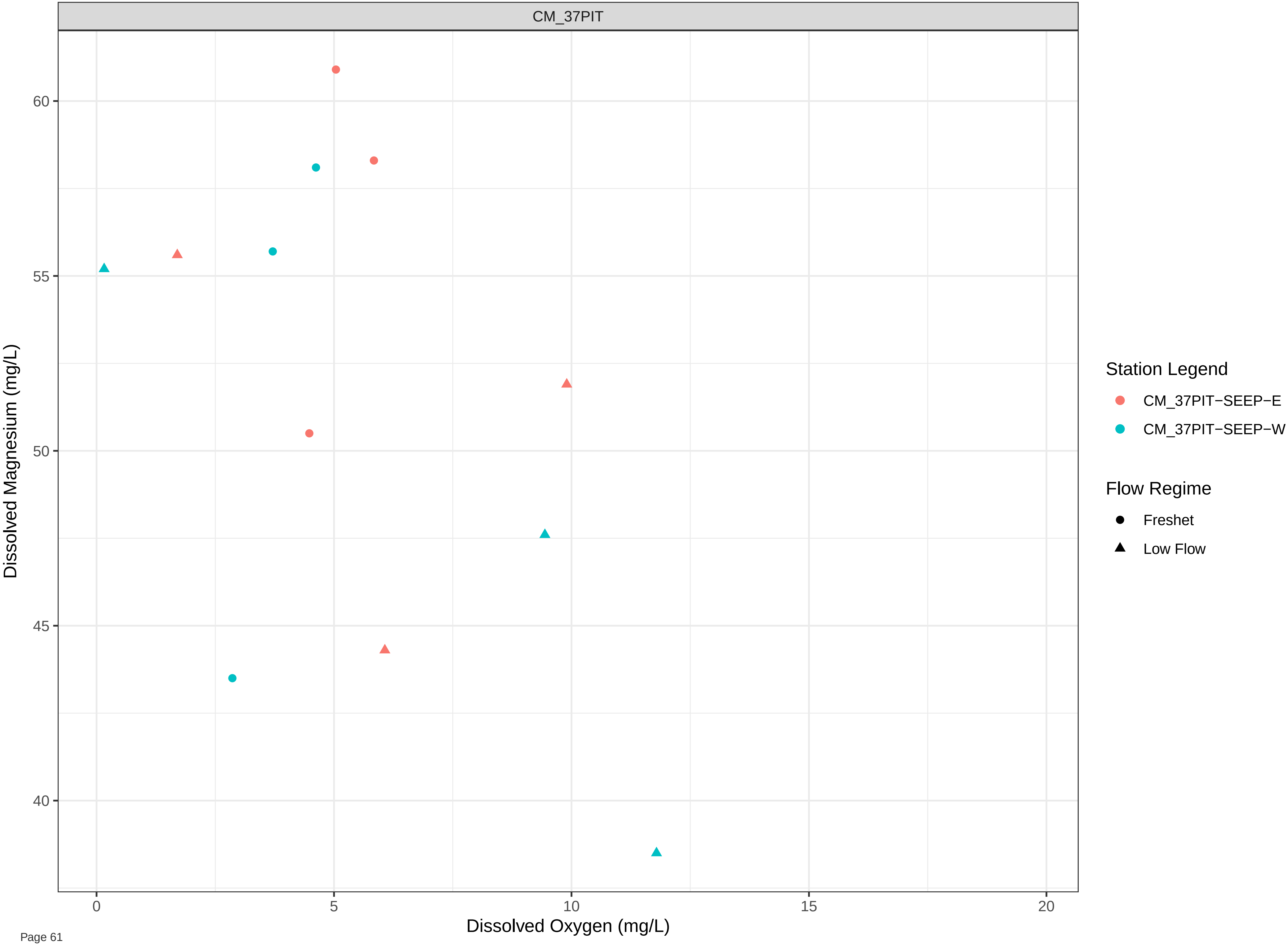

CM_WESTWR
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

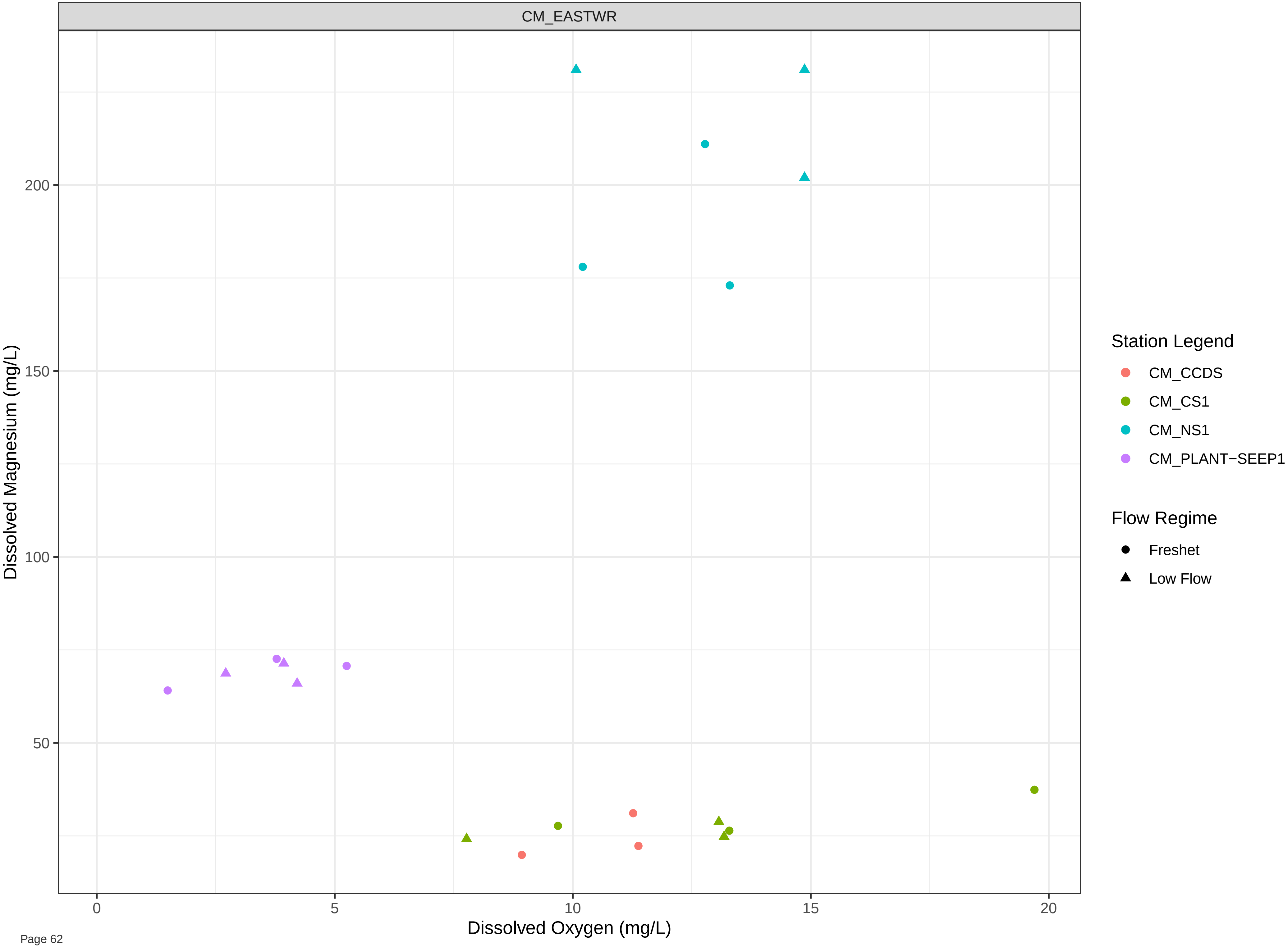

CM_37PIT
Dissolved Lithium (mg/L)
0.12
0.10
0.08
0.06
0.04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

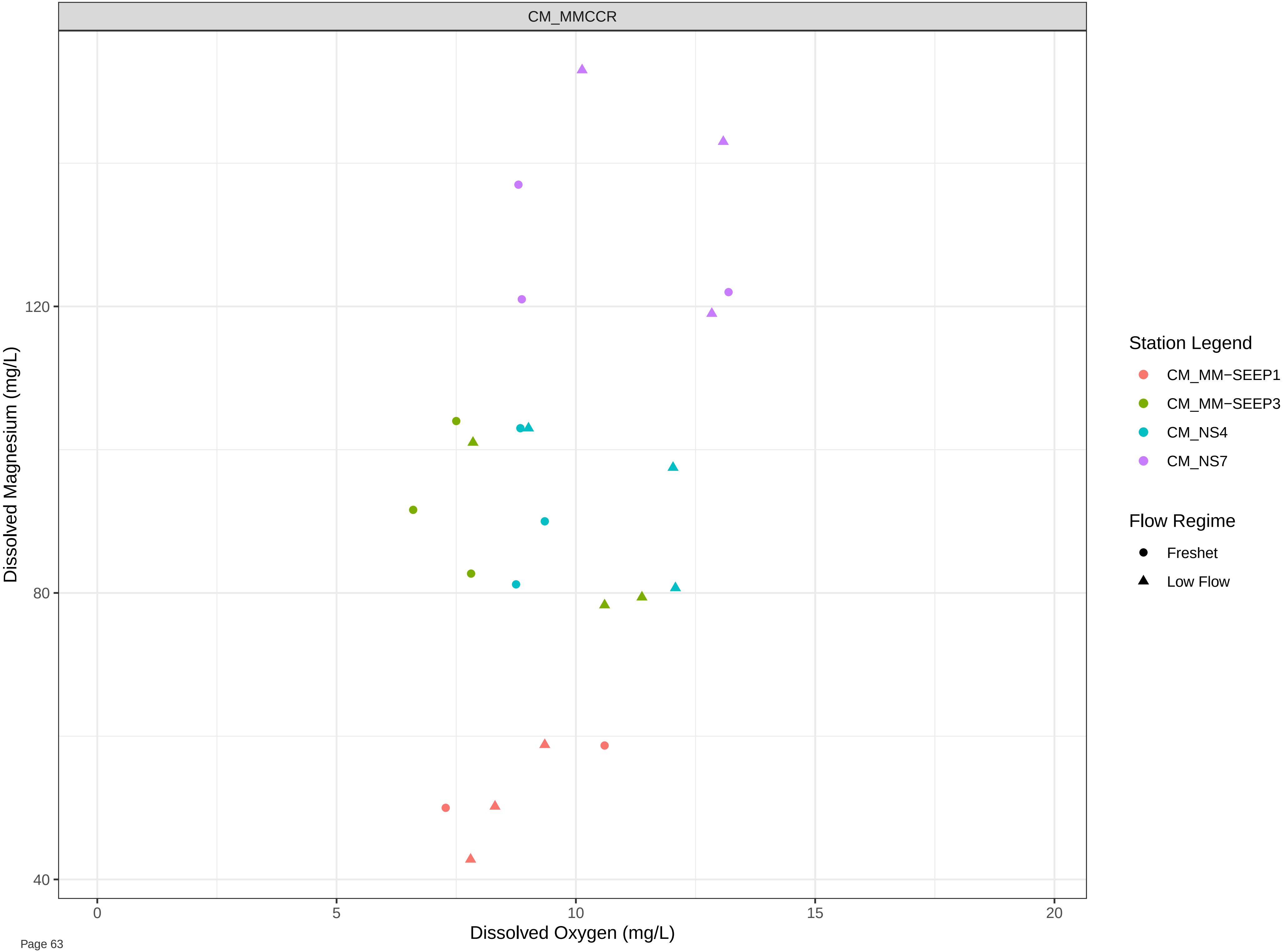

CM_EASTWR
Dissolved Lithium (mg/L)
0.02
0.01
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

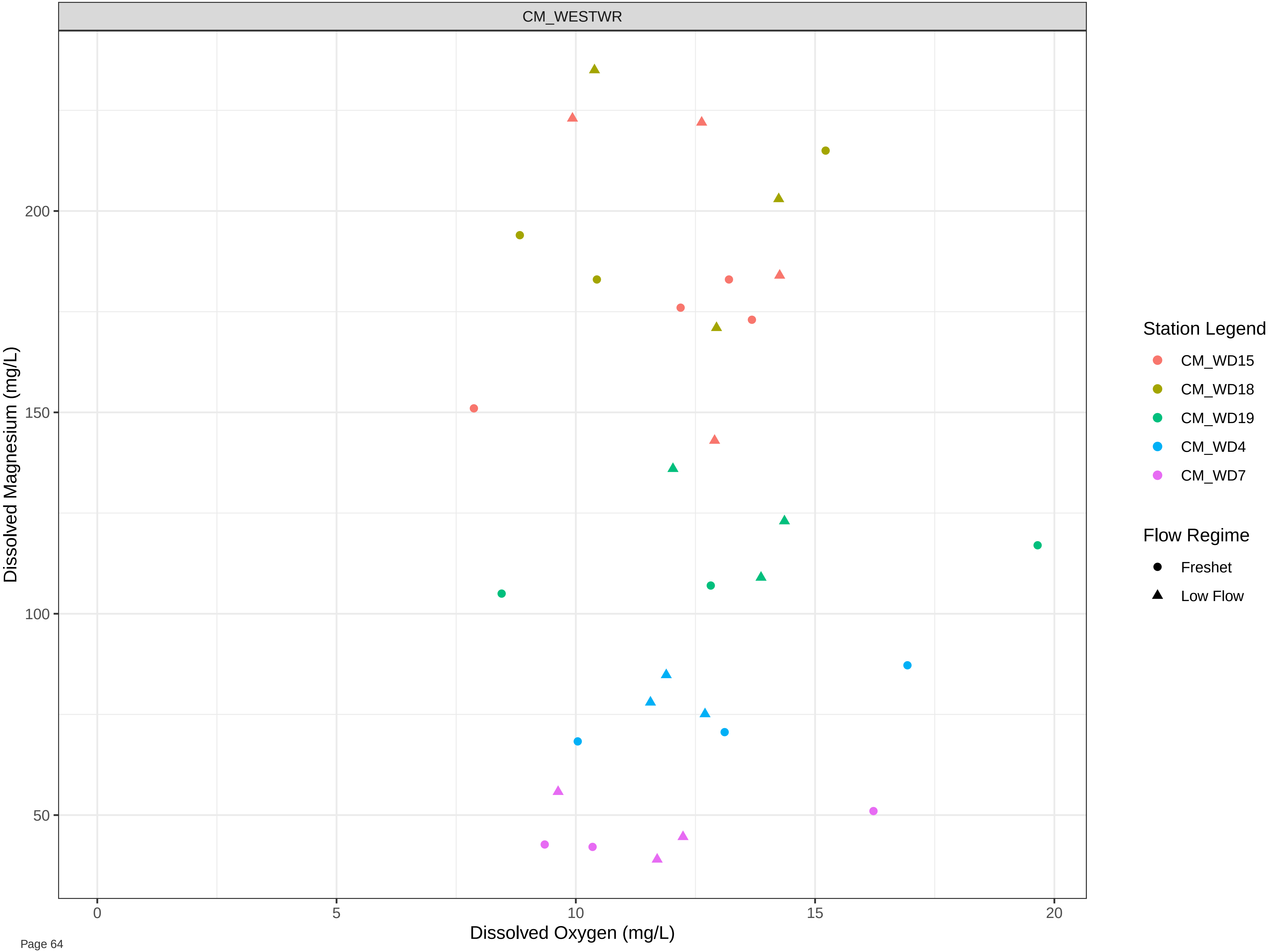

CM_MMCCR
Dissolved Lithium (mg/L)
0.03
0.02
0.01
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

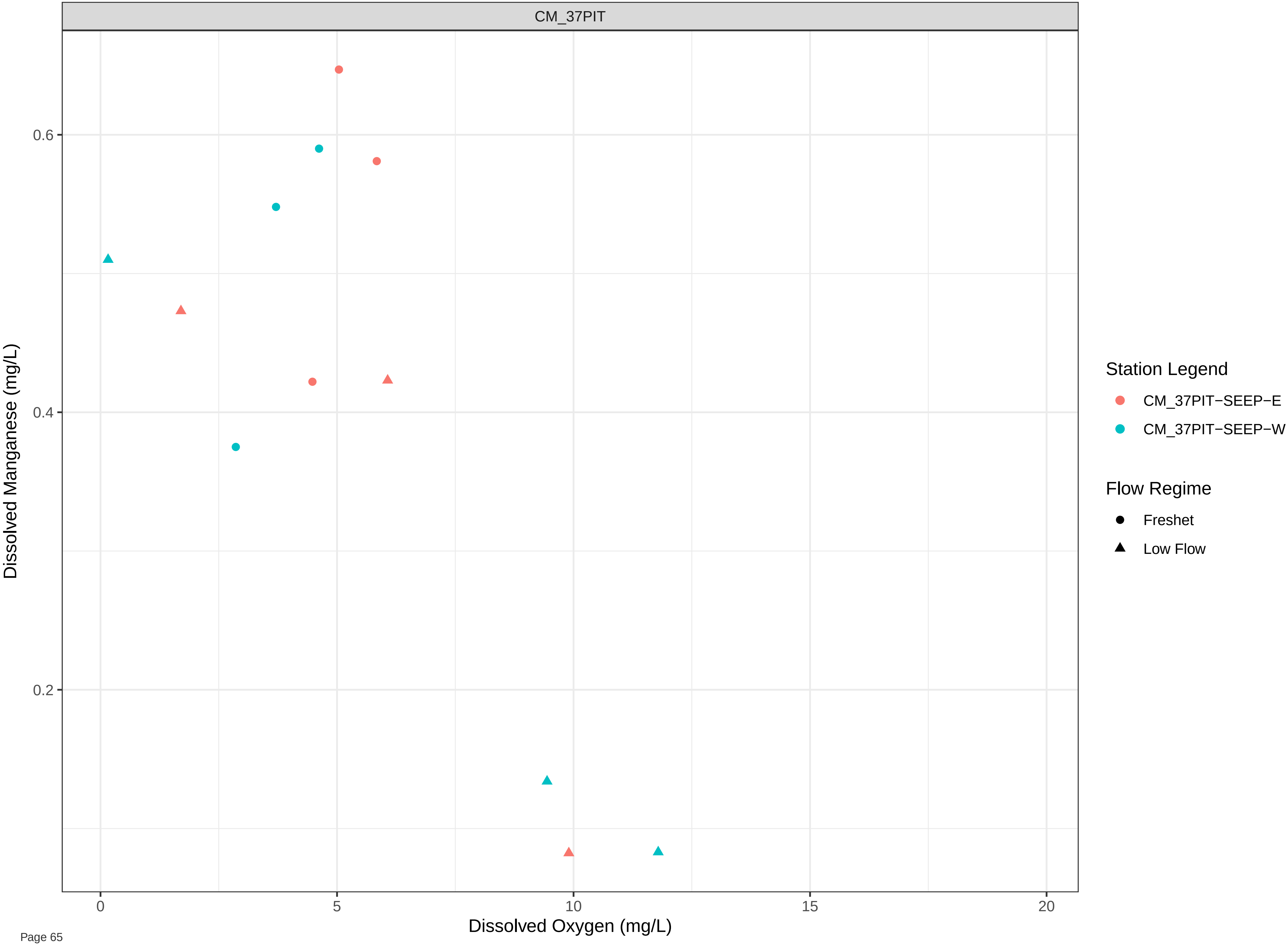

CM_WESTWR
Dissolved Lithium (mg/L)
0.04
0.03
0.02
0.01
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

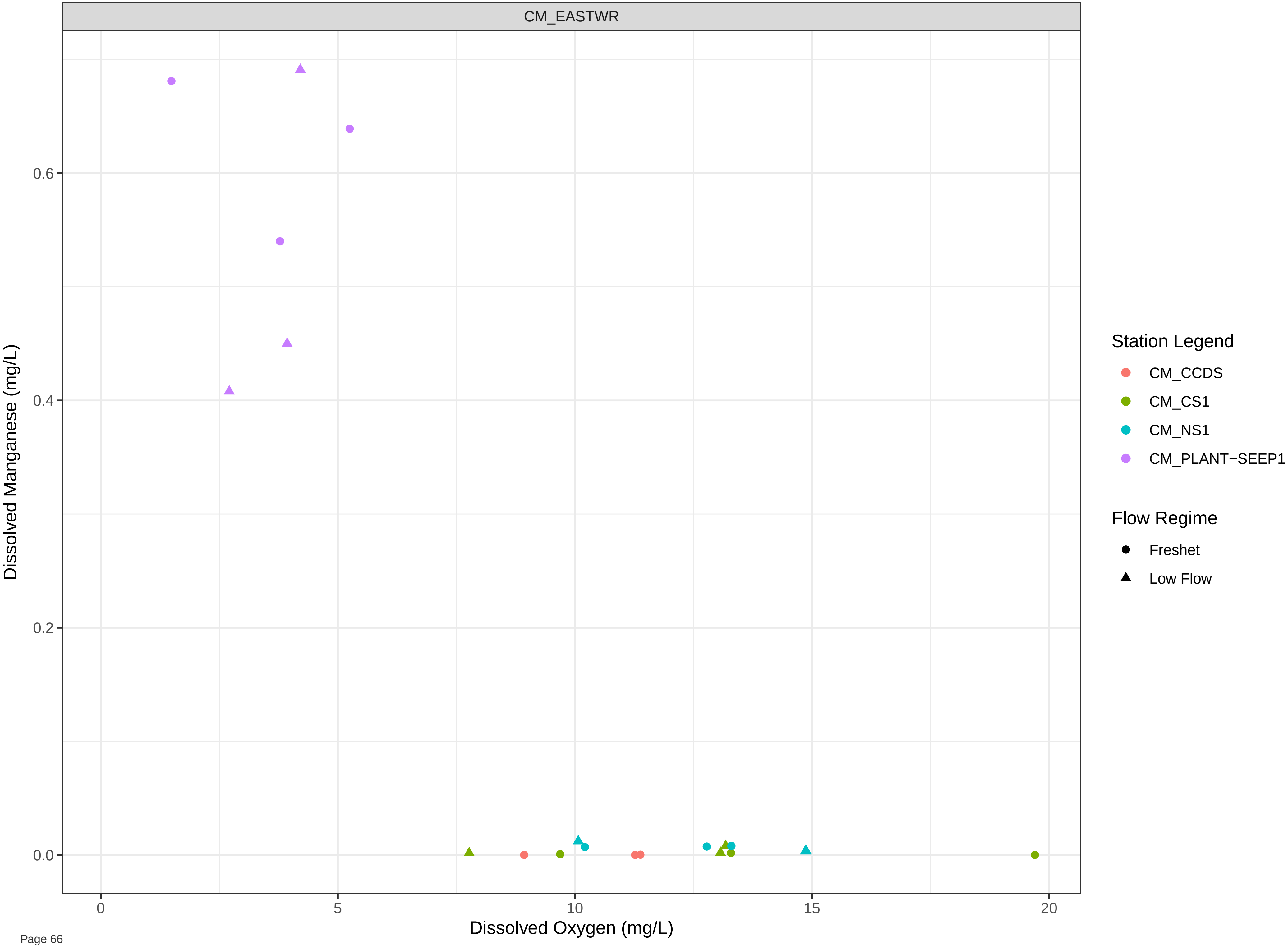

CM_37PIT
Dissolved Magnesium (mg/L)
60
55
50
45
40
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

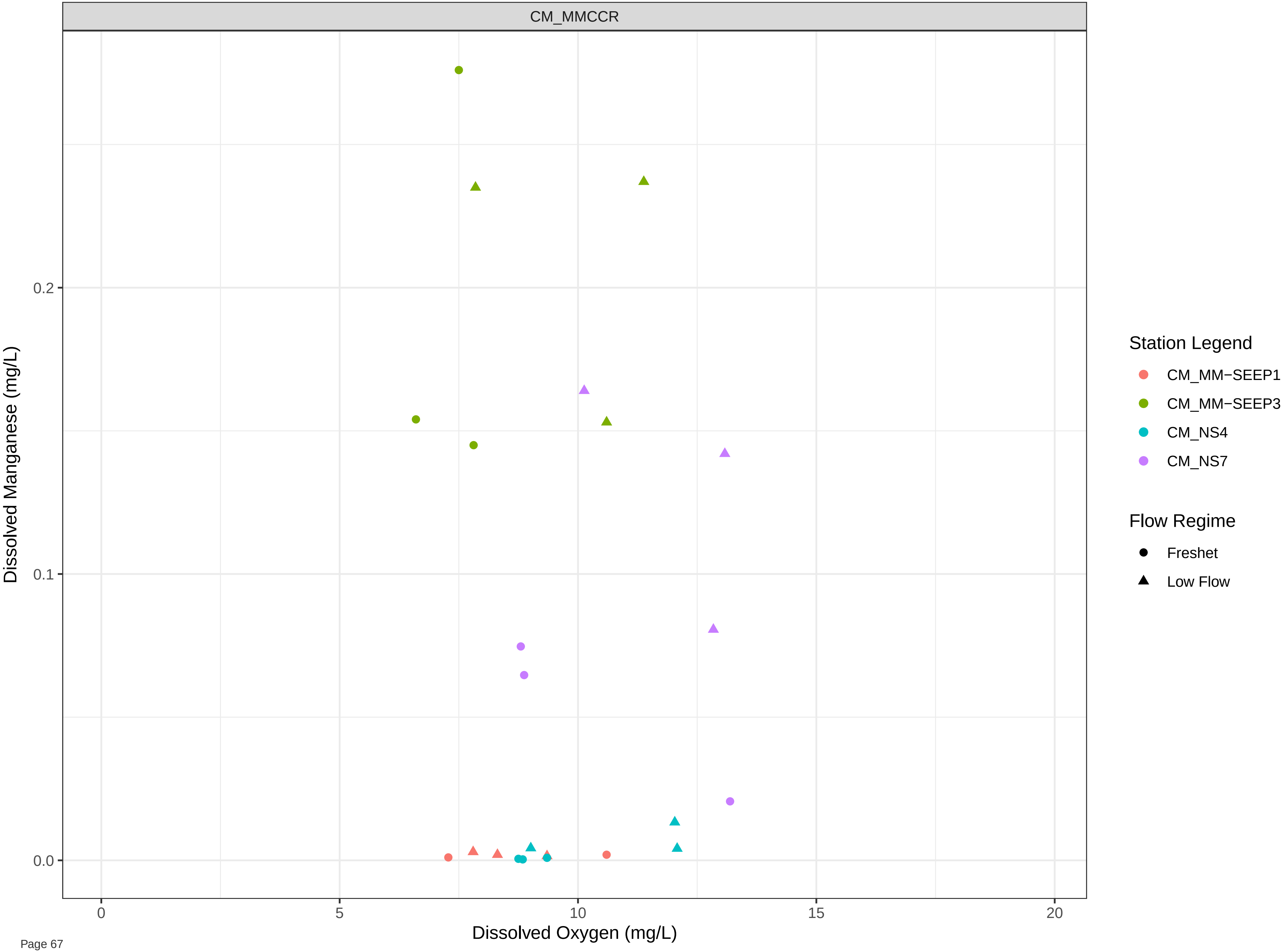

CM_EASTWR
Dissolved Magnesium (mg/L)
200
150
100
50
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_CCDS
● CM_CS1
● CM_NS1
● CM_PLANT−SEEP1
Flow Regime
● Freshet
▲ Low Flow

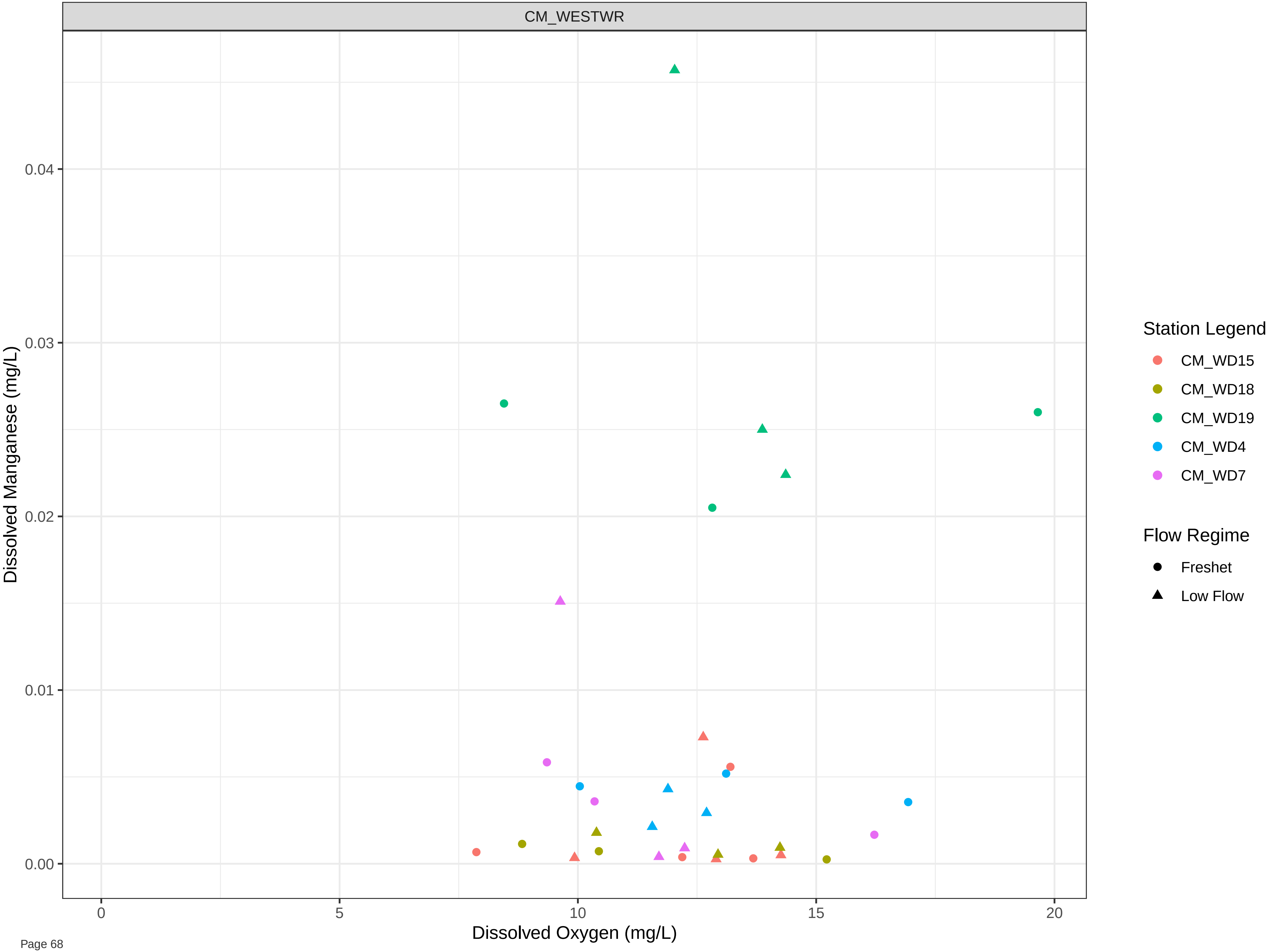

CM_MMCCR
Dissolved Magnesium (mg/L)
120
80
40
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

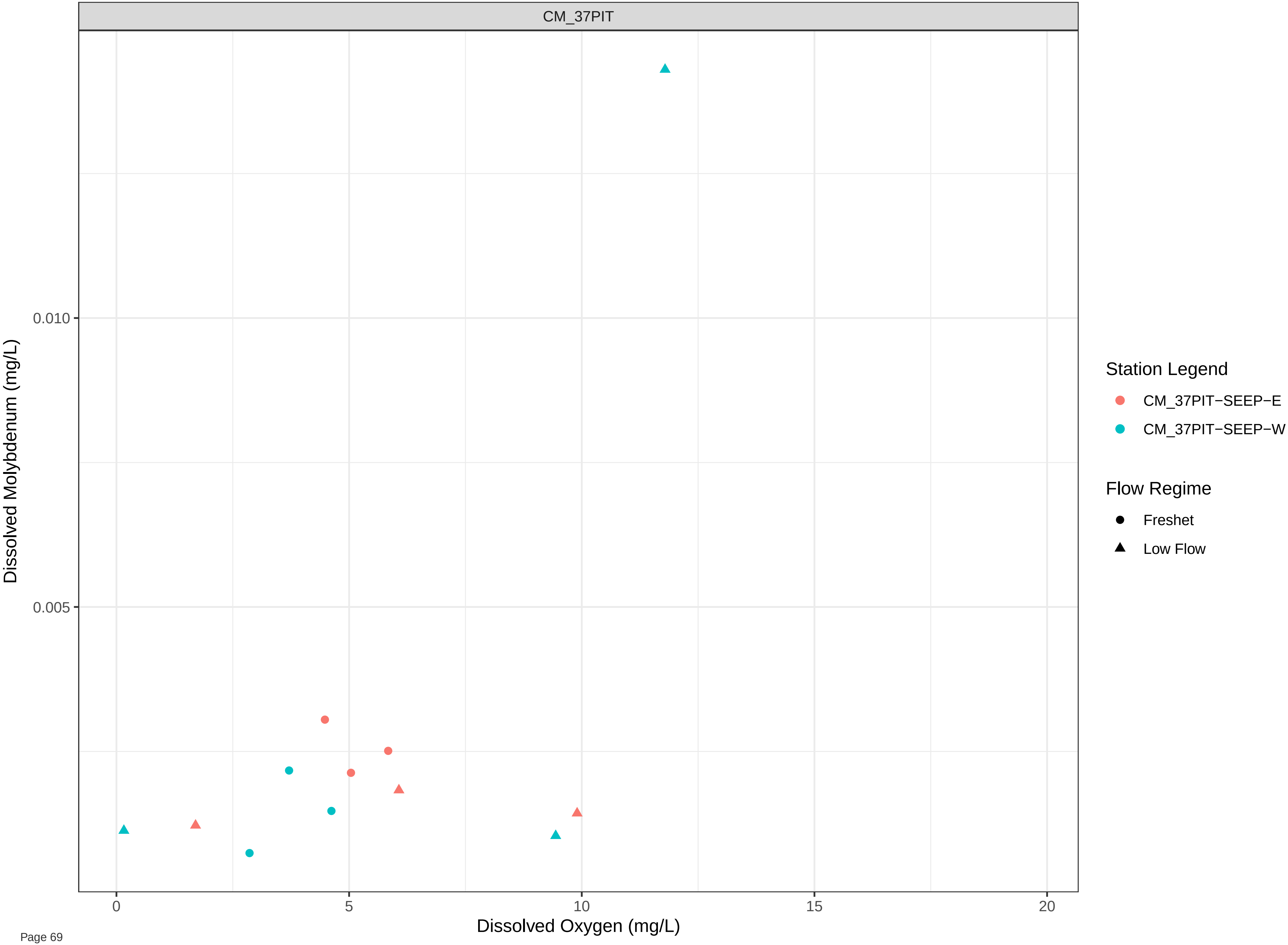

CM_WESTWR
Dissolved Magnesium (mg/L)
200
150
100
50
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

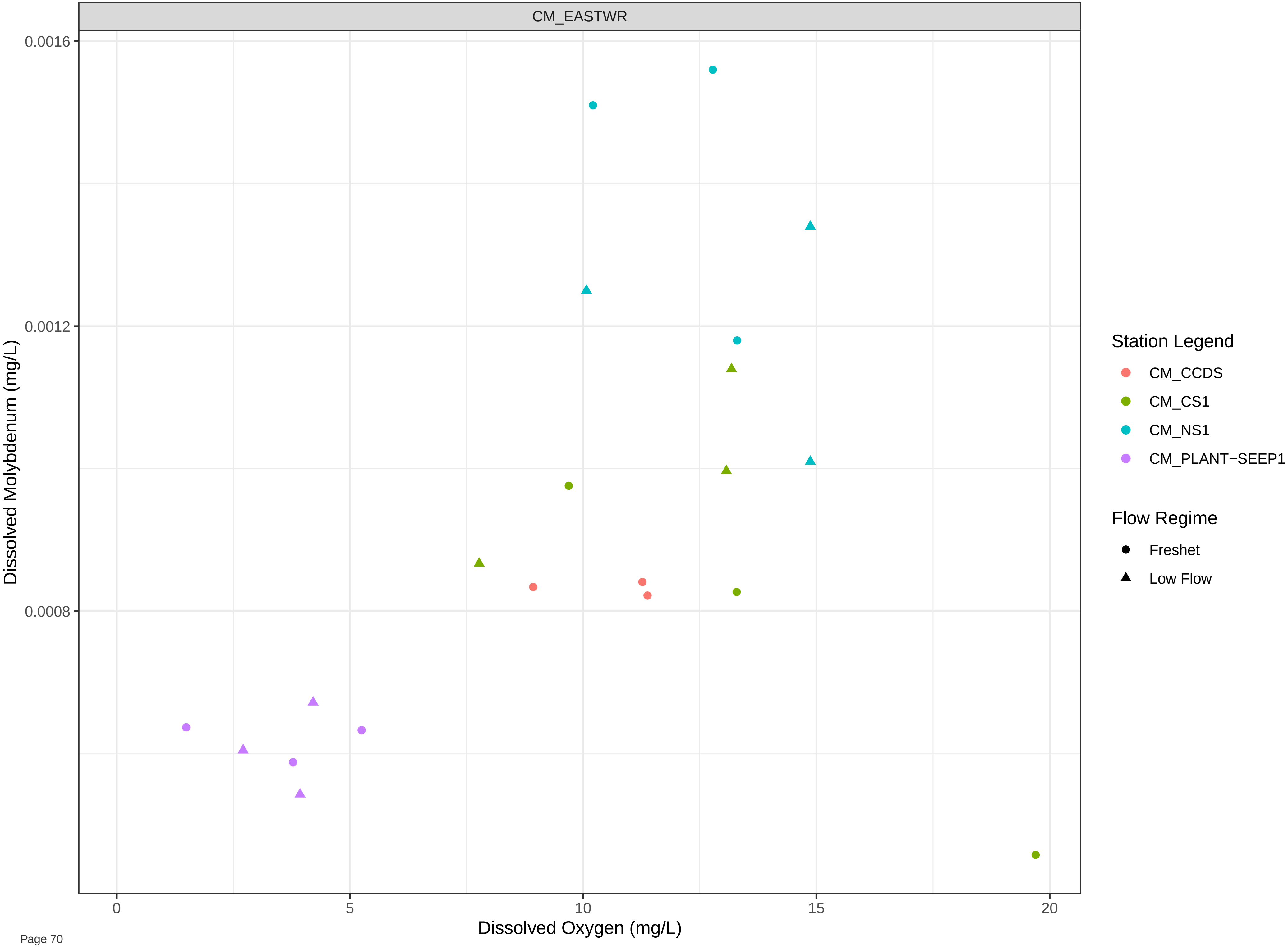

CM_37PIT
Dissolved Manganese (mg/L)
0.6
0.4
0.2
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

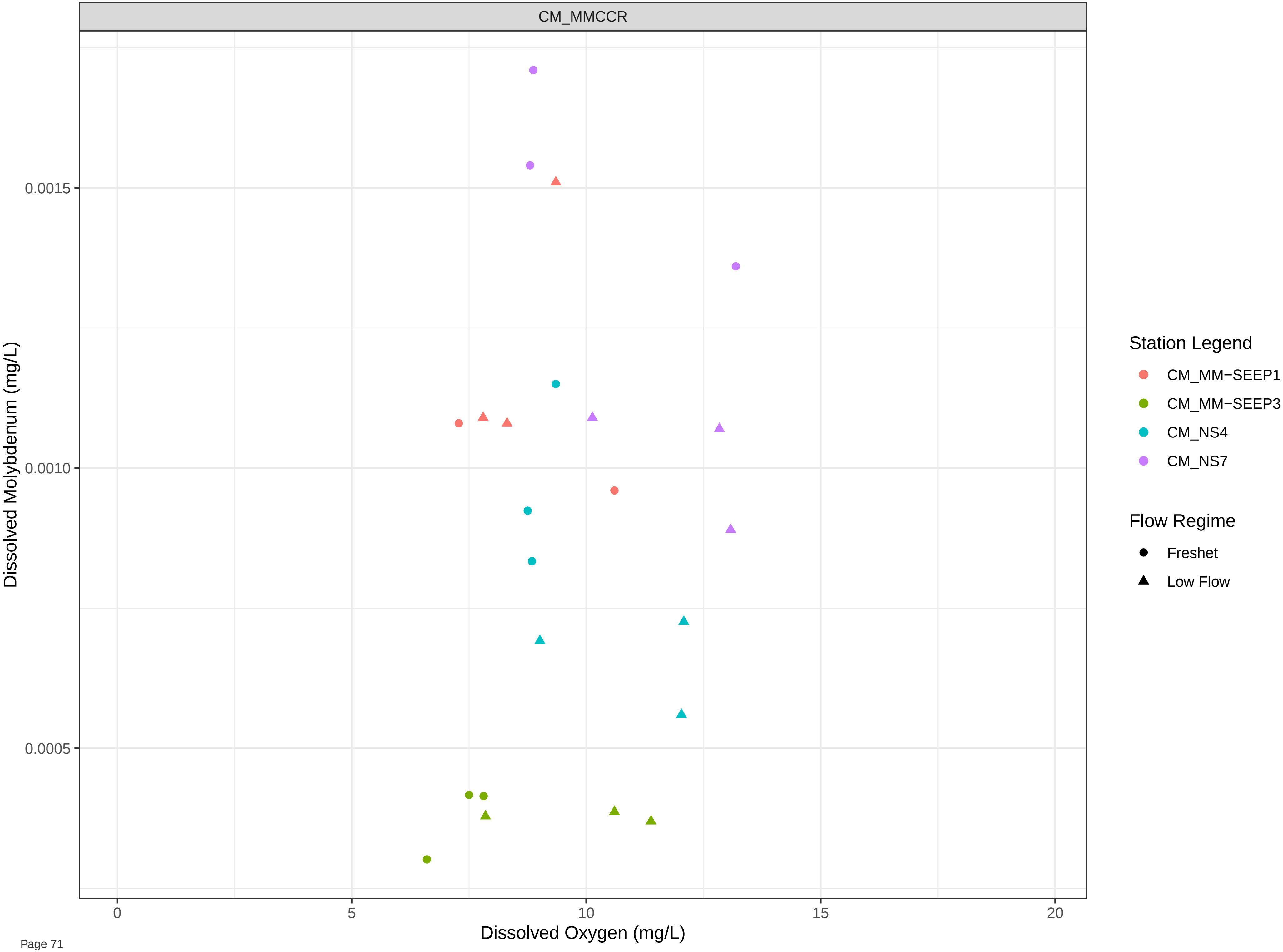

CM_EASTWR
Dissolved Manganese (mg/L)
0.6
0.4
0.2
0.0
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_CCDS
● CM_CS1
● CM_NS1
● CM_PLANT−SEEP1
Flow Regime
● Freshet
▲ Low Flow

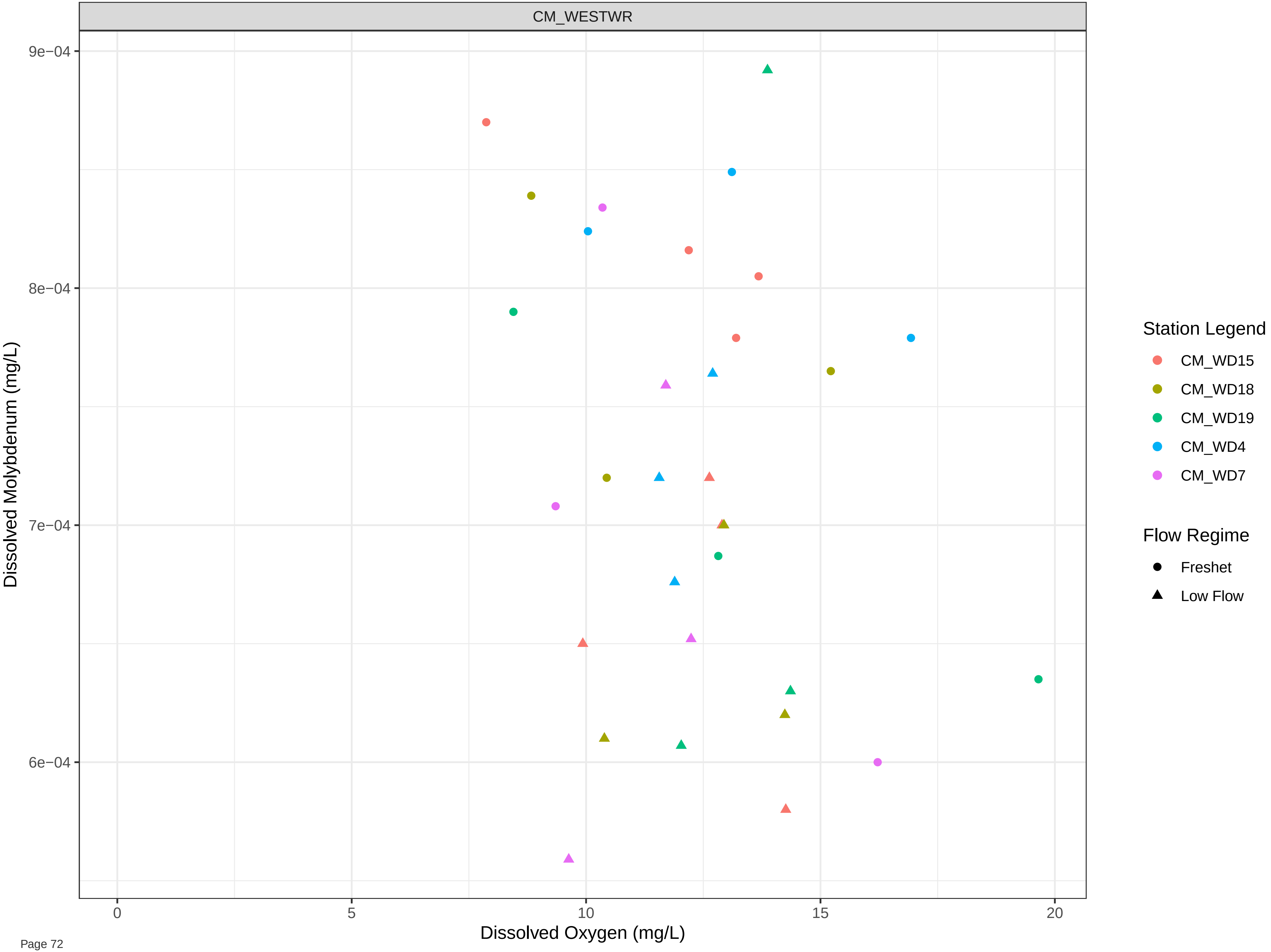

CM_MMCCR
Dissolved Manganese (mg/L)
0.2
0.1
0.0
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

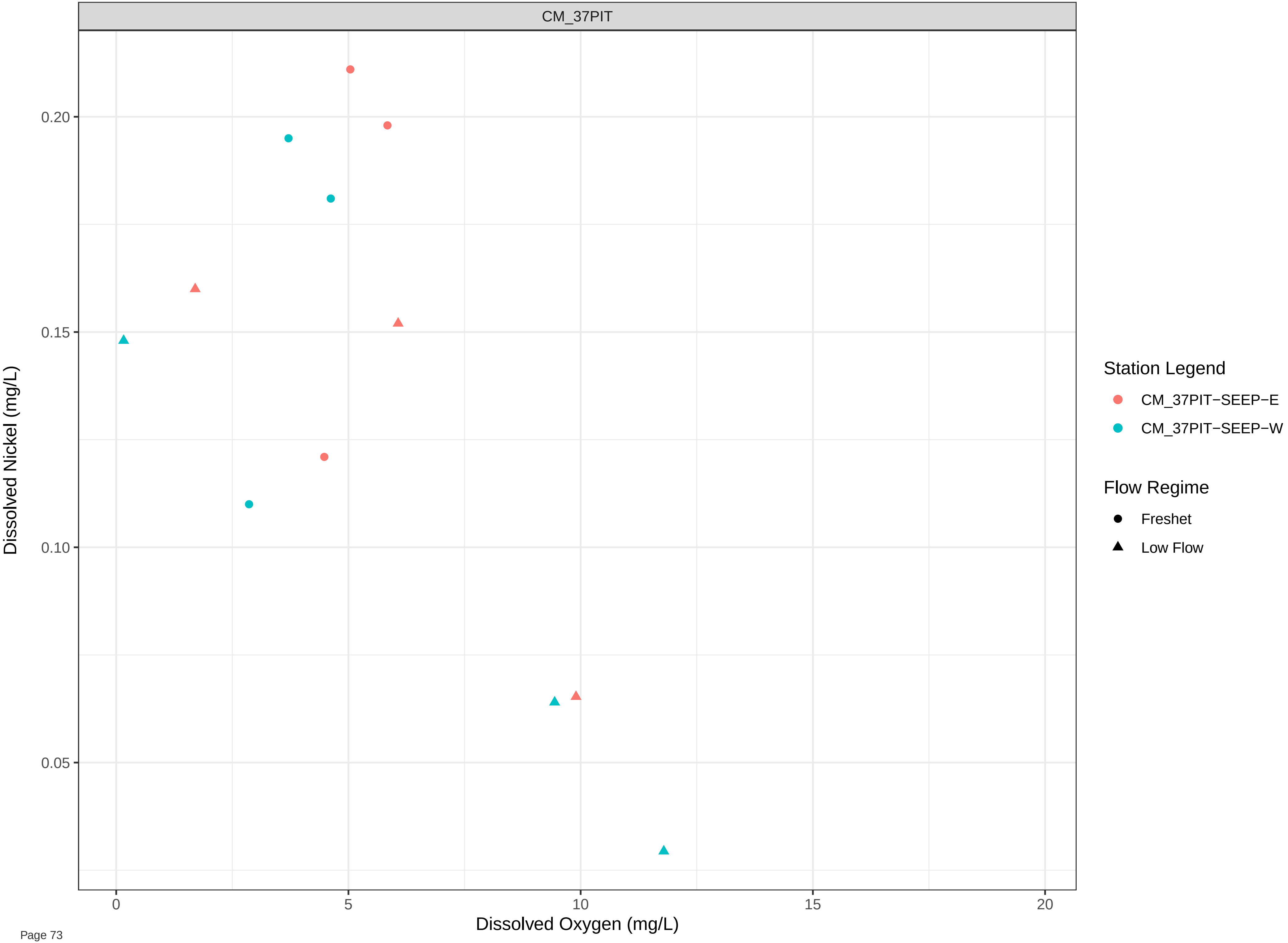

CM_WESTWR
Dissolved Manganese (mg/L)
0.04
0.03
0.02
0.01
0.00
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

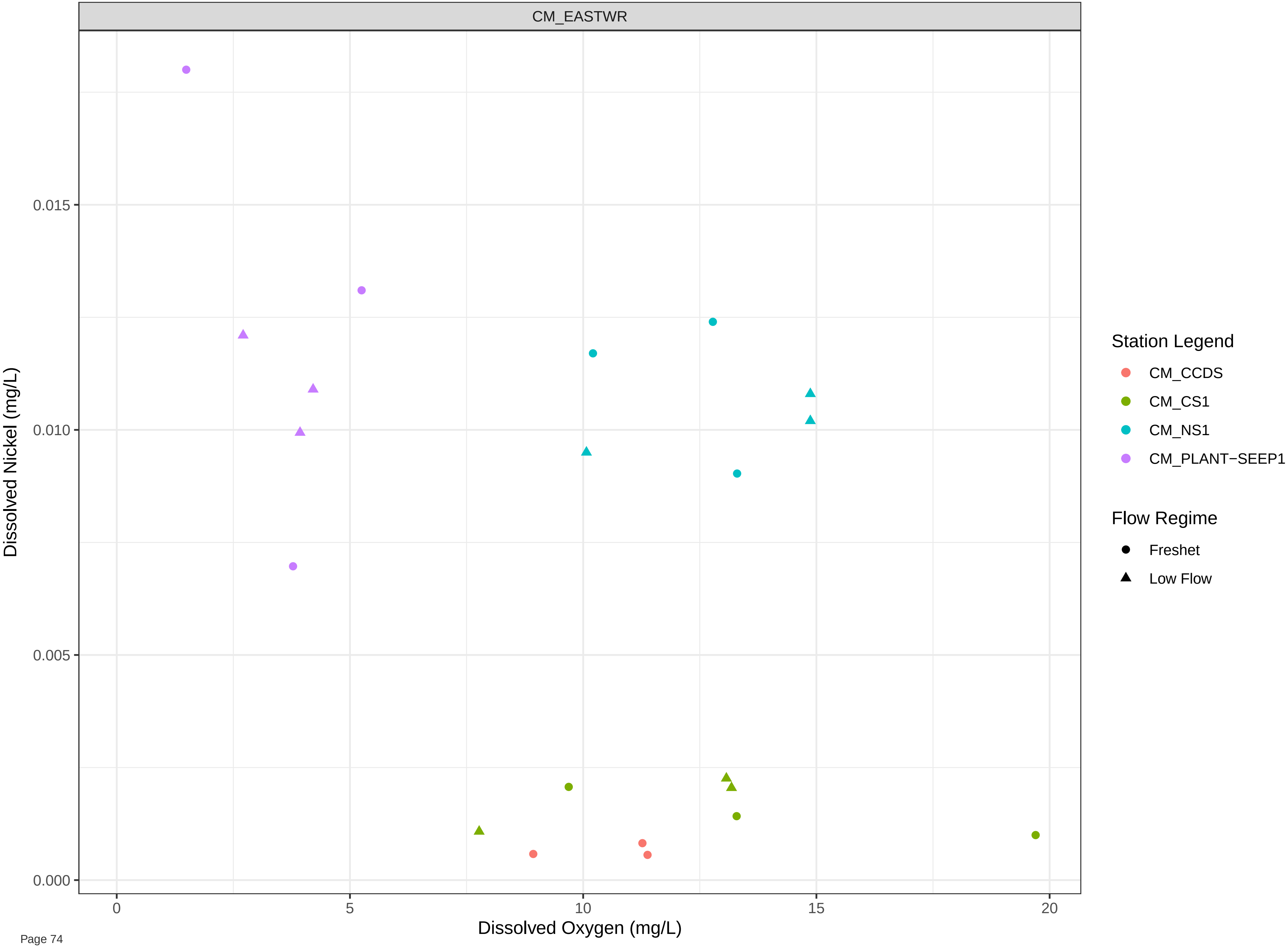

CM_37PIT
Dissolved Molybdenum (mg/L)
0.010
0.005
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

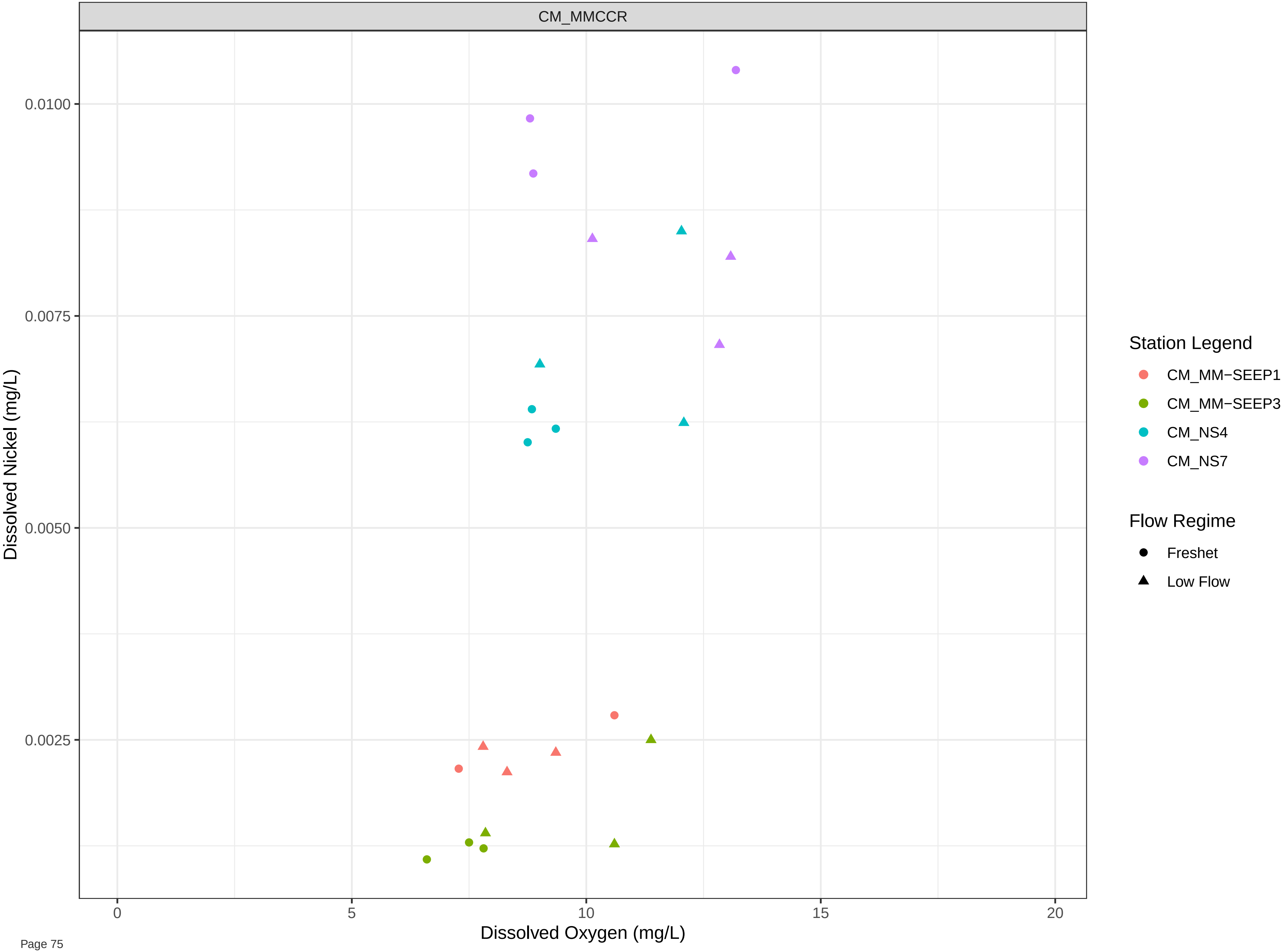

CM_EASTWR
Dissolved Molybdenum (mg/L)
0.0016
0.0012
0.0008
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

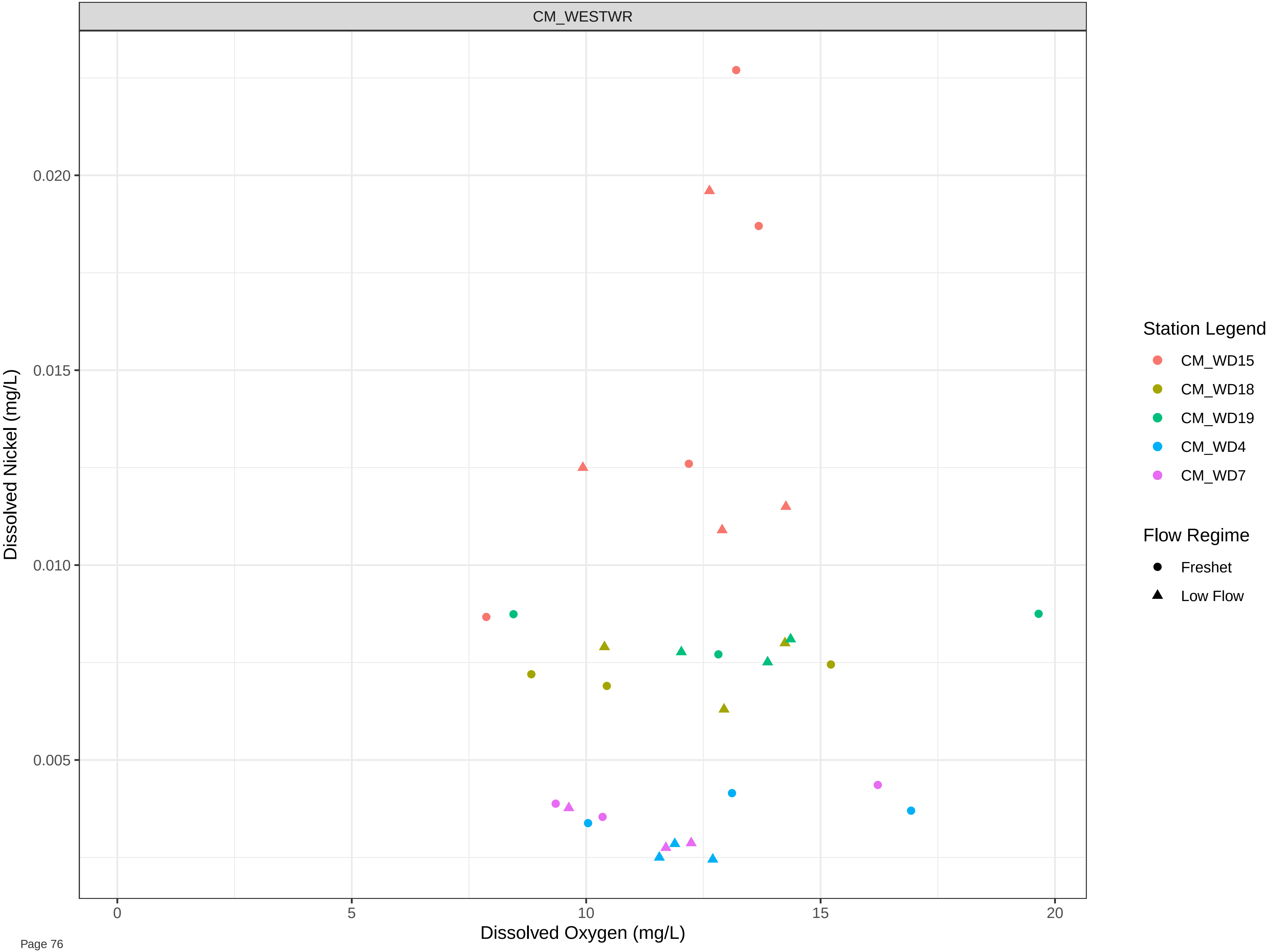

CM_MMCCR
Dissolved Molybdenum (mg/L)
0.0015
0.0010
0.0005
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

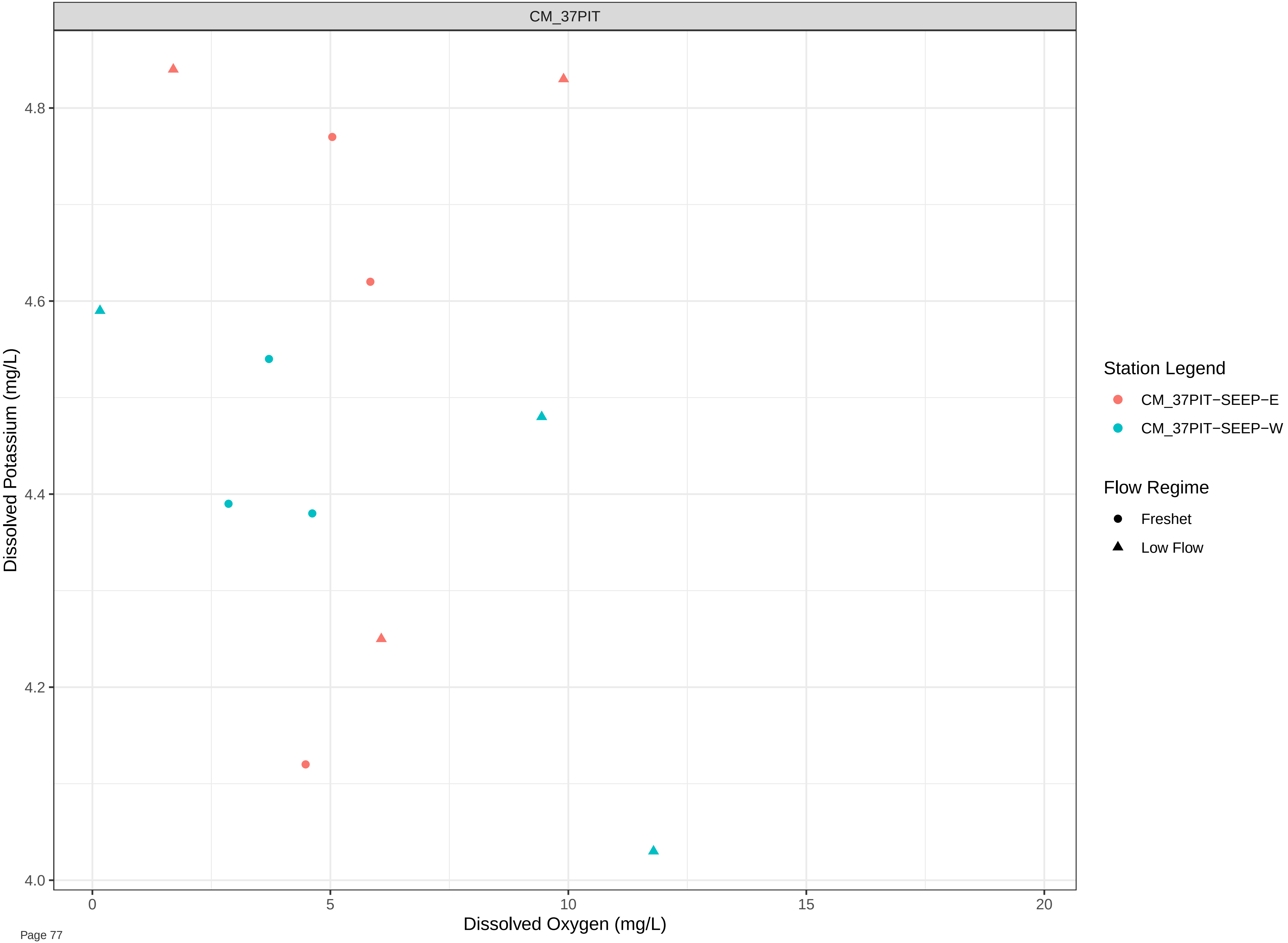

CM_WESTWR
9e−04
8e−04
7e−04
6e−04
Dissolved Molybdenum (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

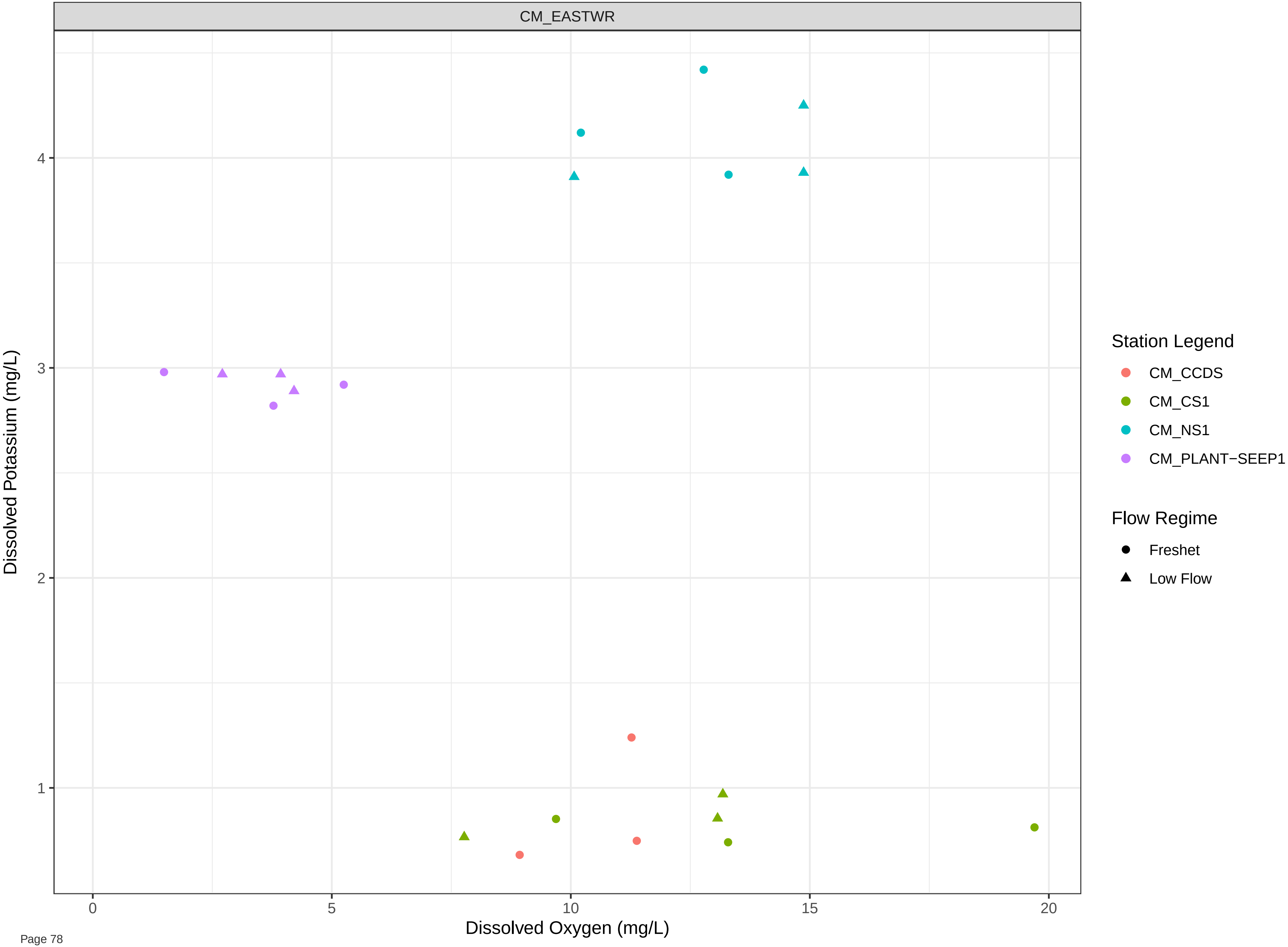

CM_37PIT
Dissolved Nickel (mg/L)
0.20
0.15
0.10
0.05
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

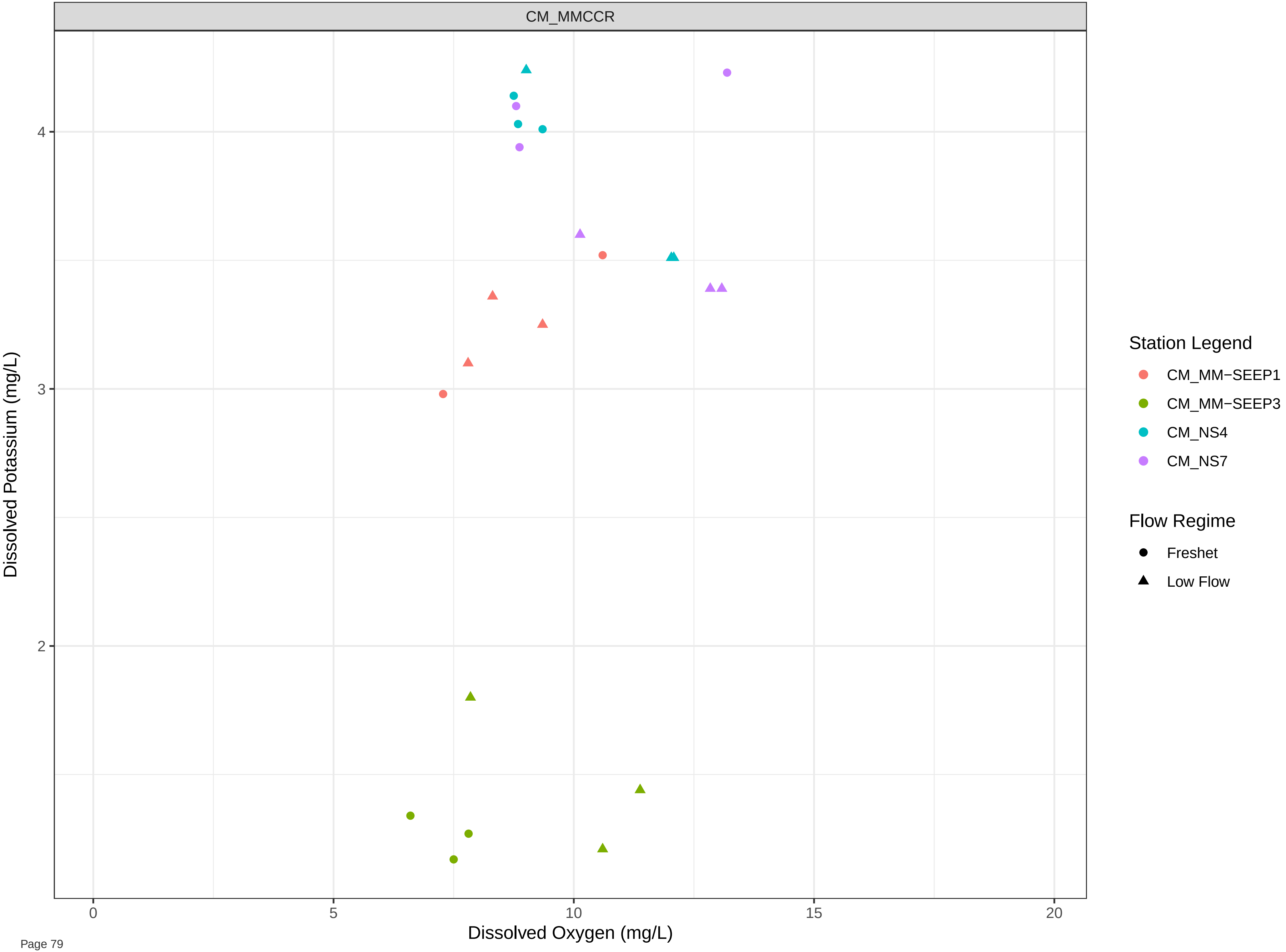

CM_EASTWR
Dissolved Nickel (mg/L)
0.000
0.005
0.010
0.015
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

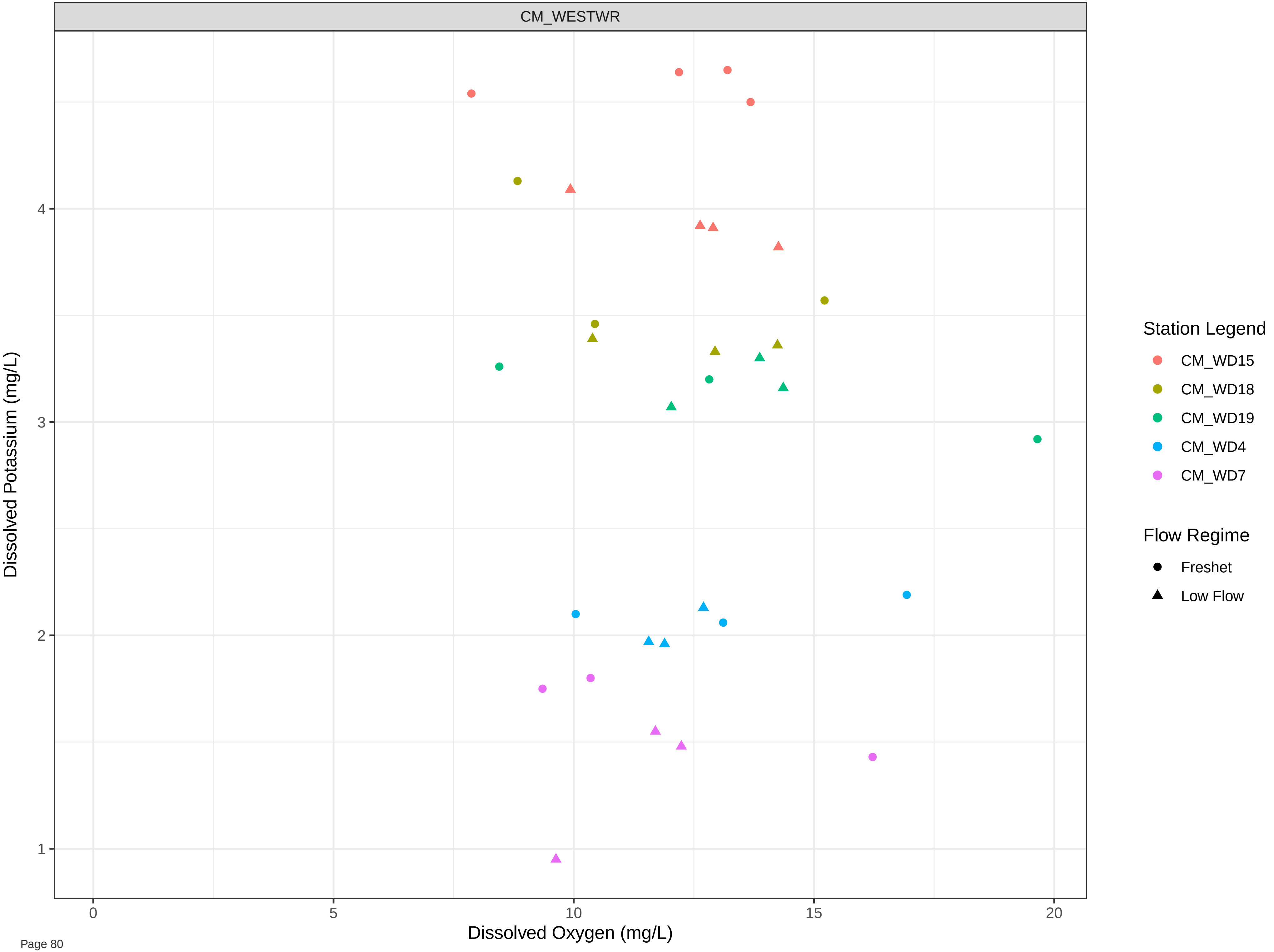

CM_MMCCR
Dissolved Nickel (mg/L)
0.0100
0.0075
0.0050
0.0025
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

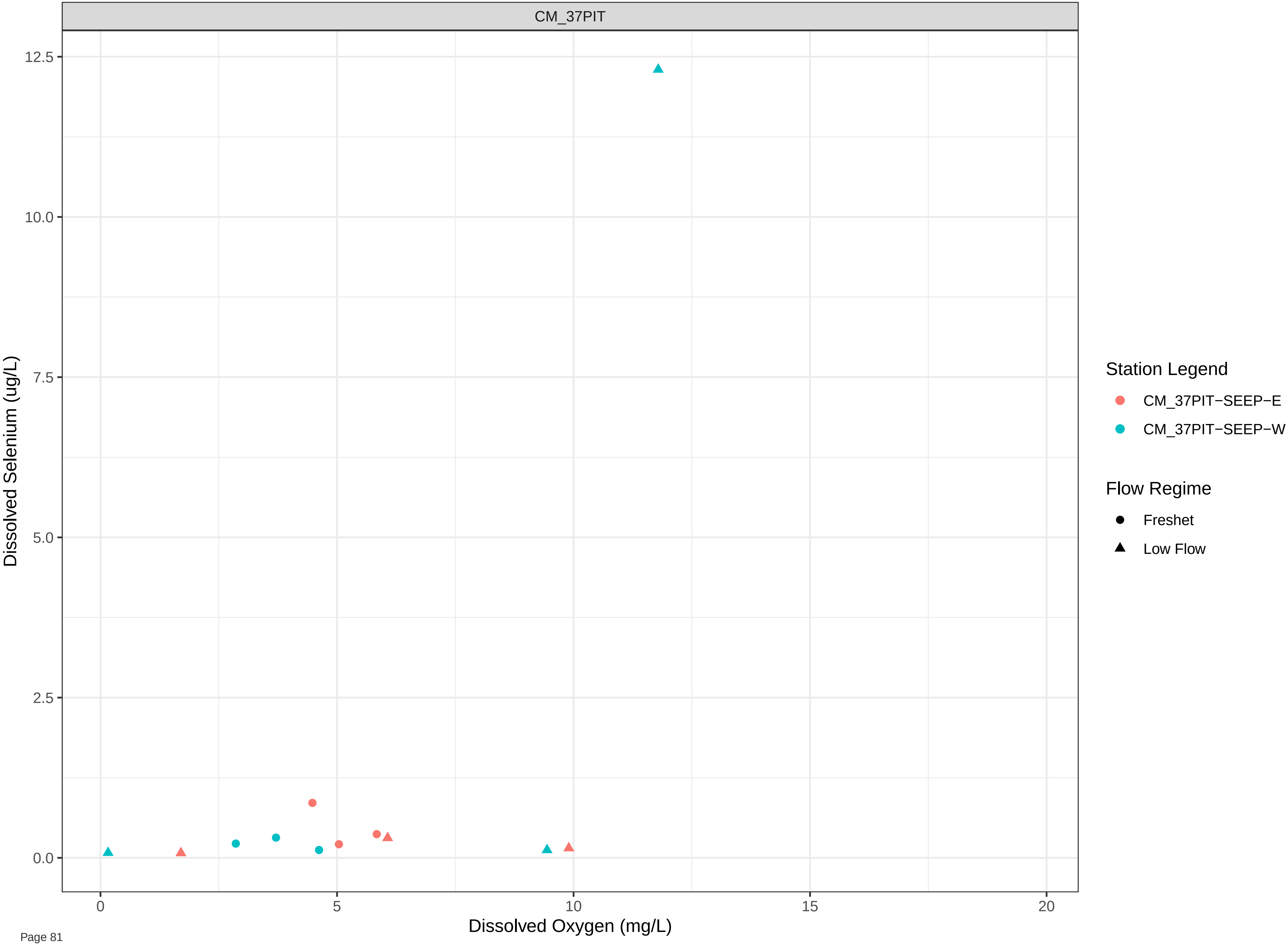

CM_WESTWR
Dissolved Nickel (mg/L)
0.020
0.015
0.010
0.005
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

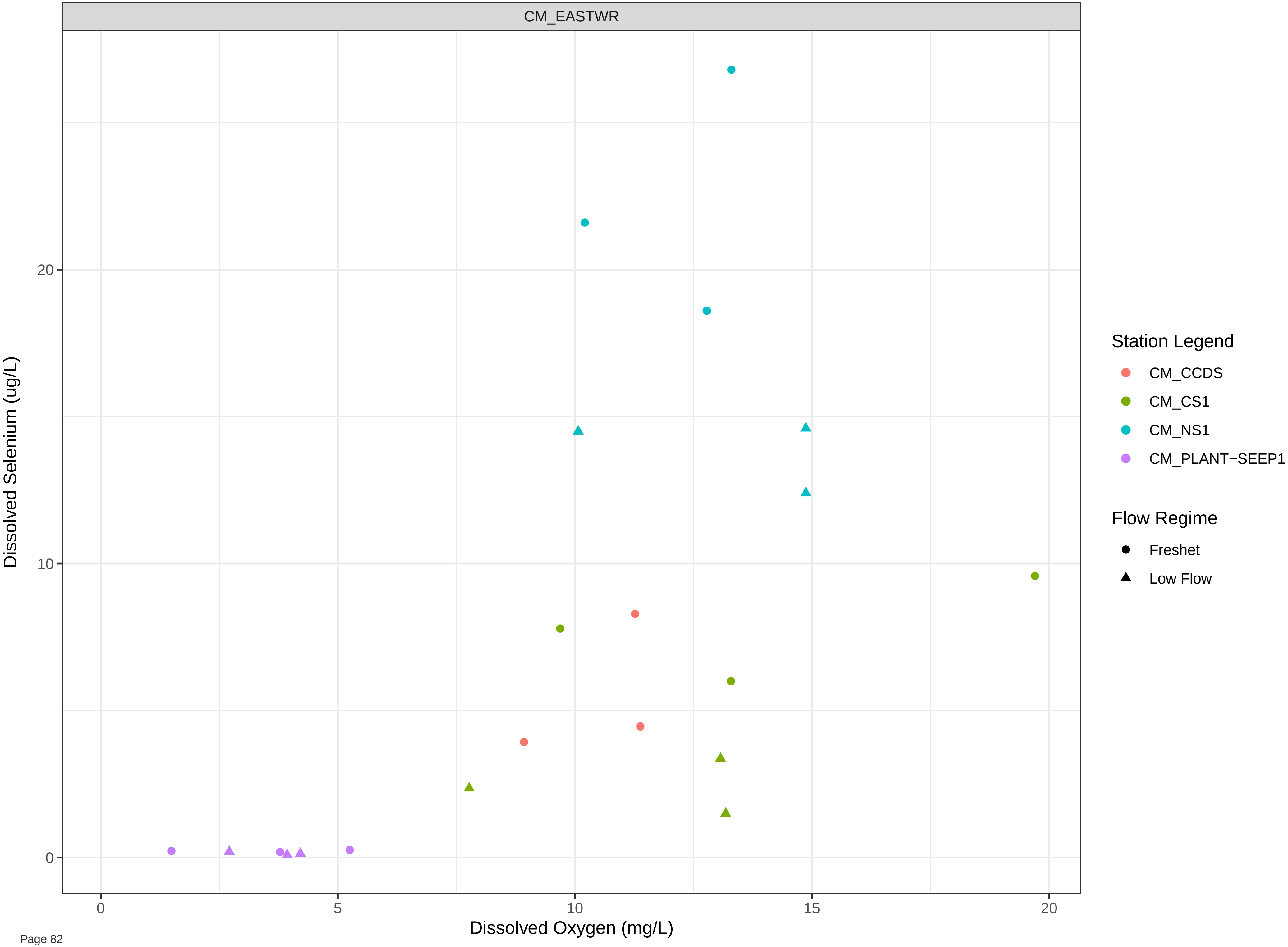

CM_37PIT
Dissolved Potassium (mg/L)
4.8
4.6
4.4
4.2
4.0
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow

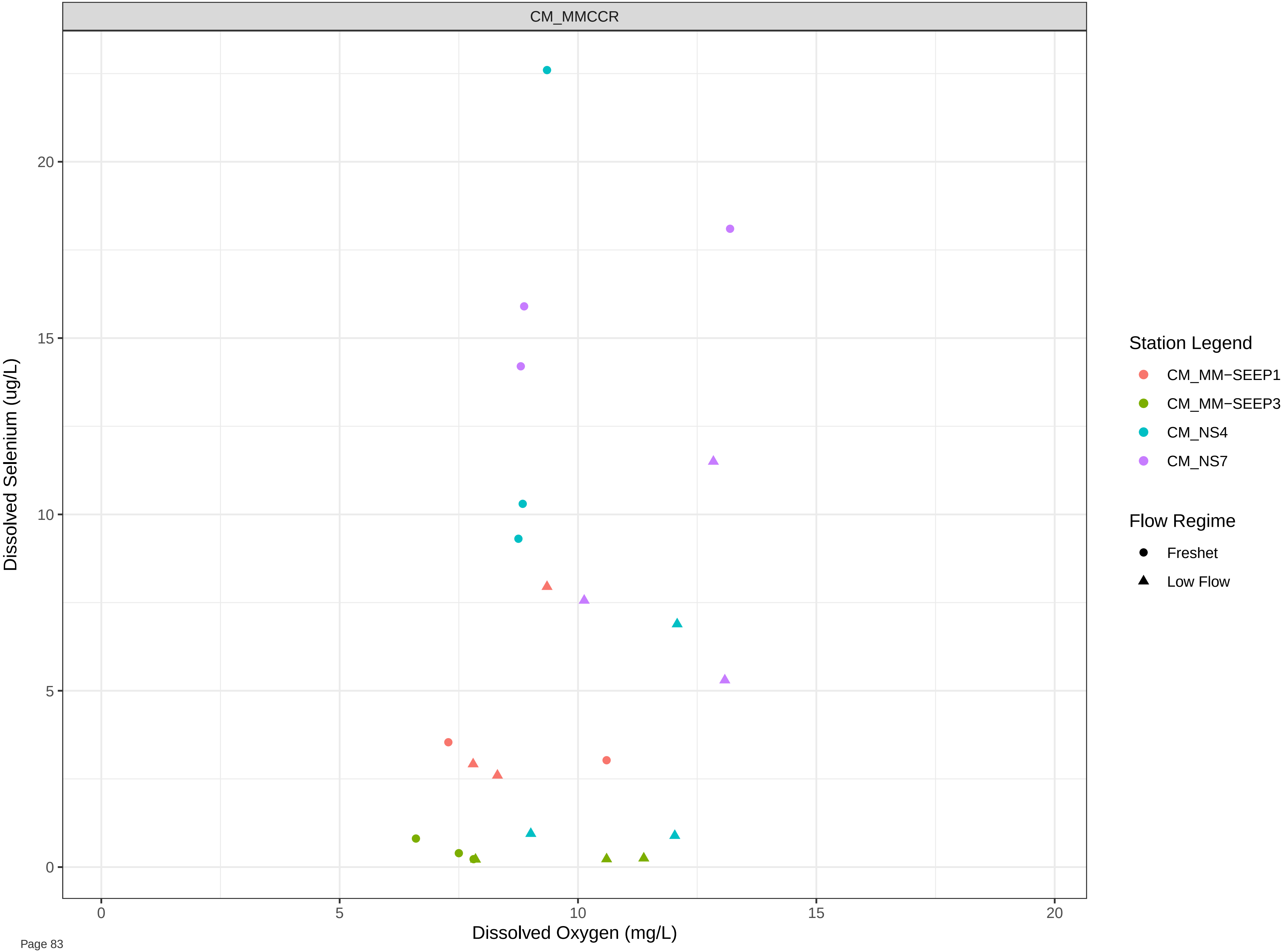

CM_EASTWR
Dissolved Potassium (mg/L)
1
2
3
4
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
● CM_CCDS
● CM_CS1
● CM_NS1
● CM_PLANT−SEEP1
Flow Regime
● Freshet
▲ Low Flow

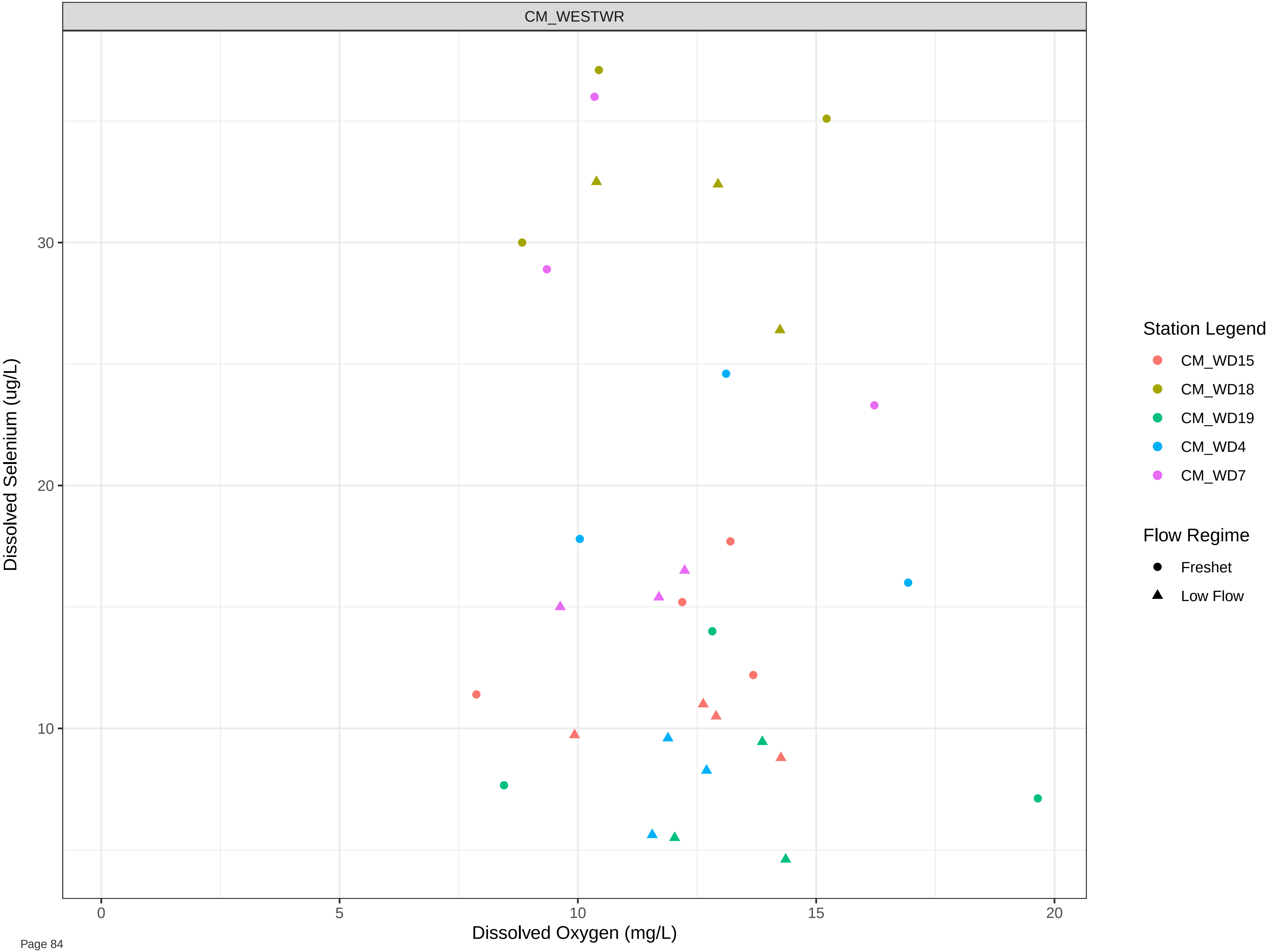

CM_MMCCR
Dissolved Potassium (mg/L)
4
3
2
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

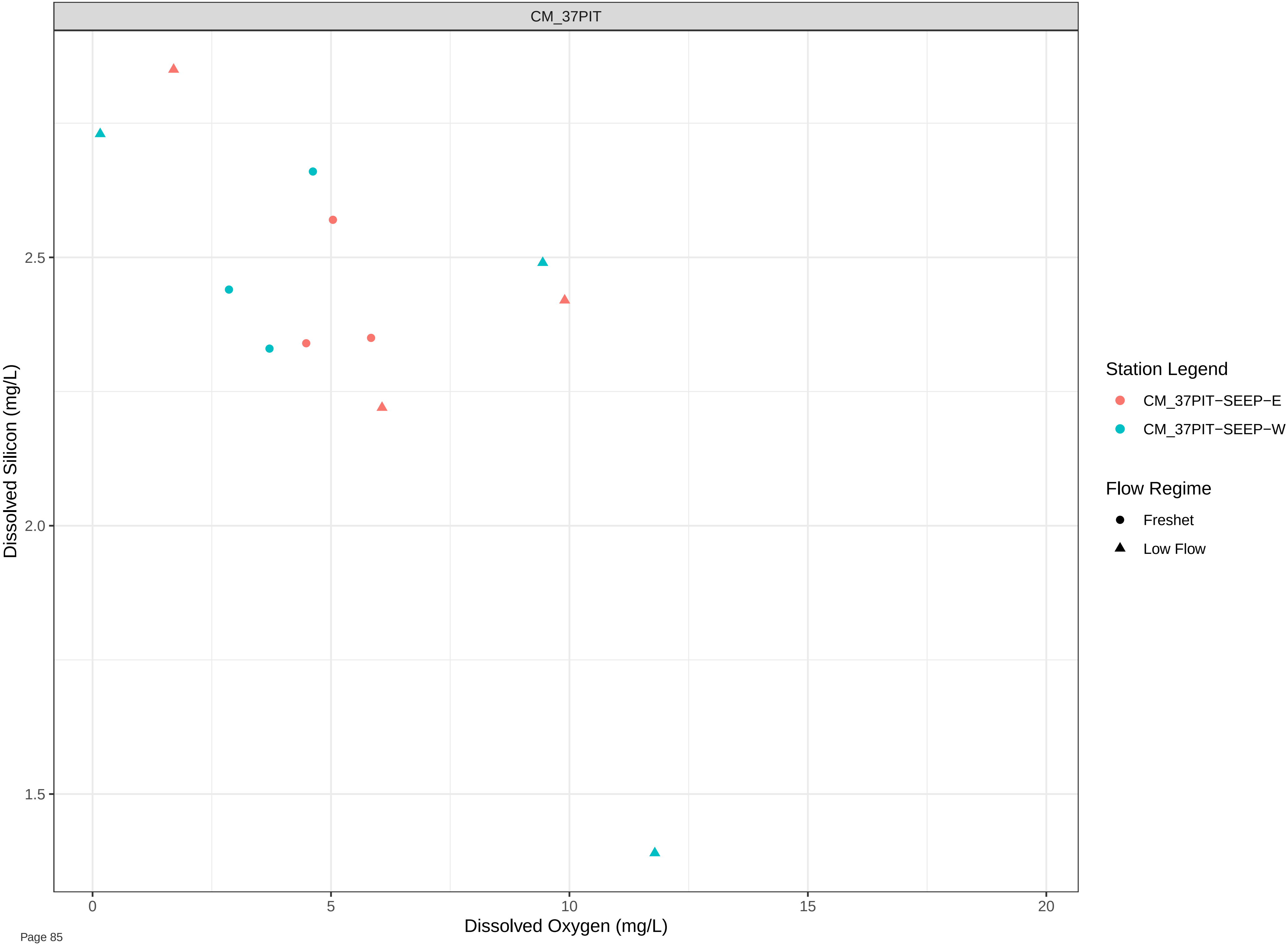

CM_WESTWR
Dissolved Potassium (mg/L)
1
2
3
4
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_WD15
● CM_WD18
● CM_WD19
● CM_WD4
● CM_WD7
Flow Regime
● Freshet
▲ Low Flow

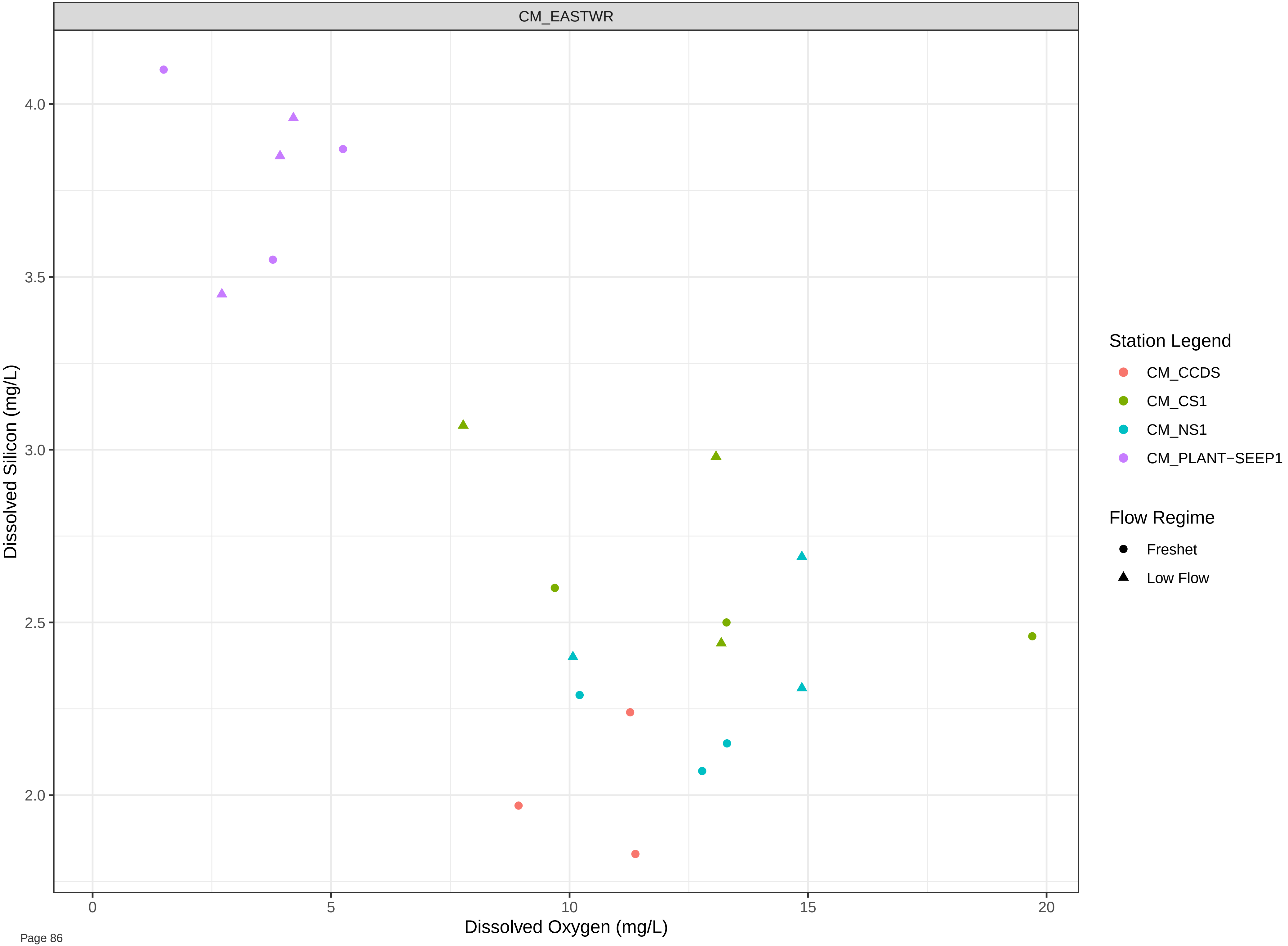

CM_37PIT
12.5
10.0
7.5
5.0
2.5
0.0
Dissolved Selenium (ug/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

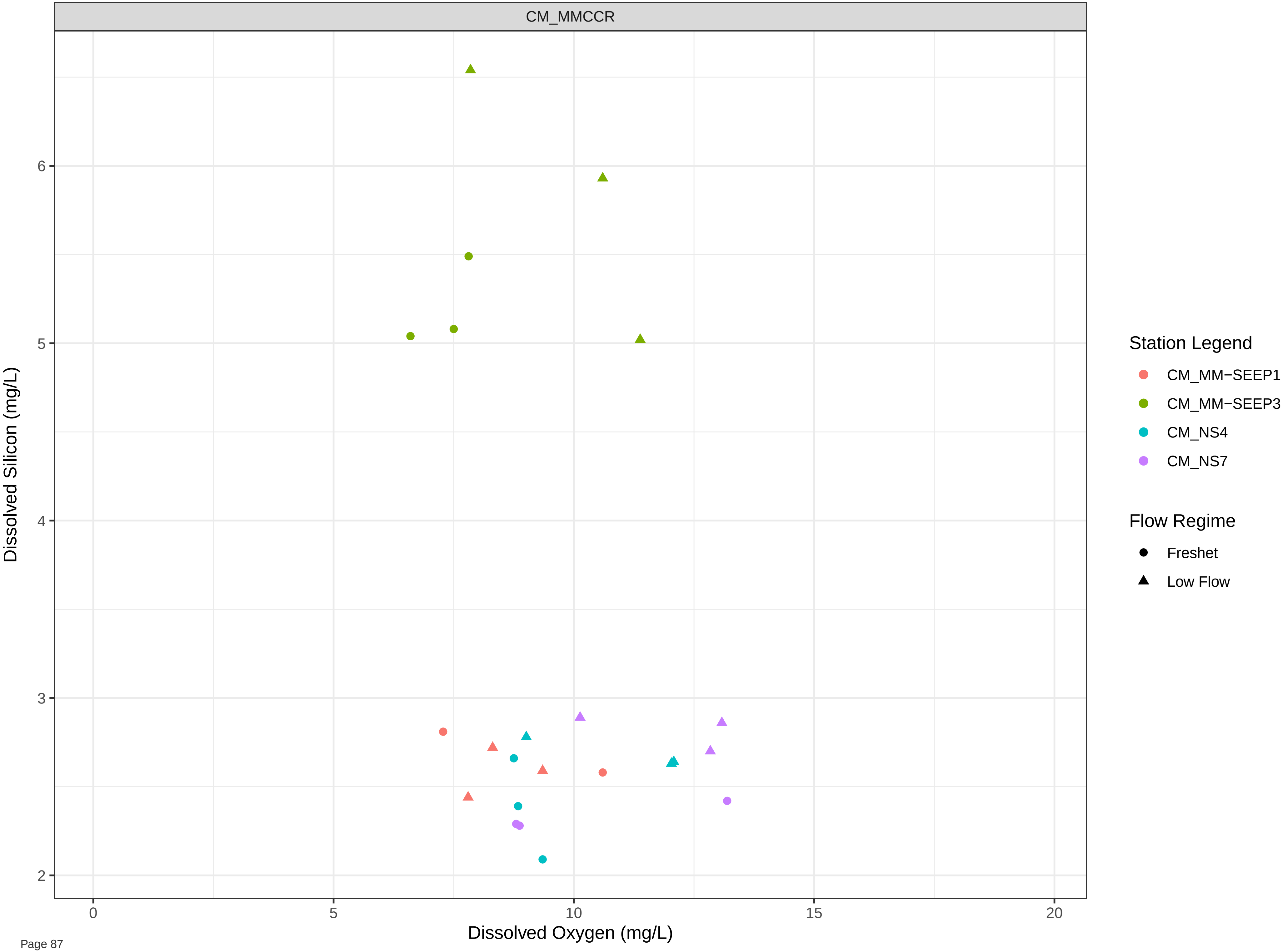

CM_EASTWR
Dissolved Selenium (ug/L)
0
10
20
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

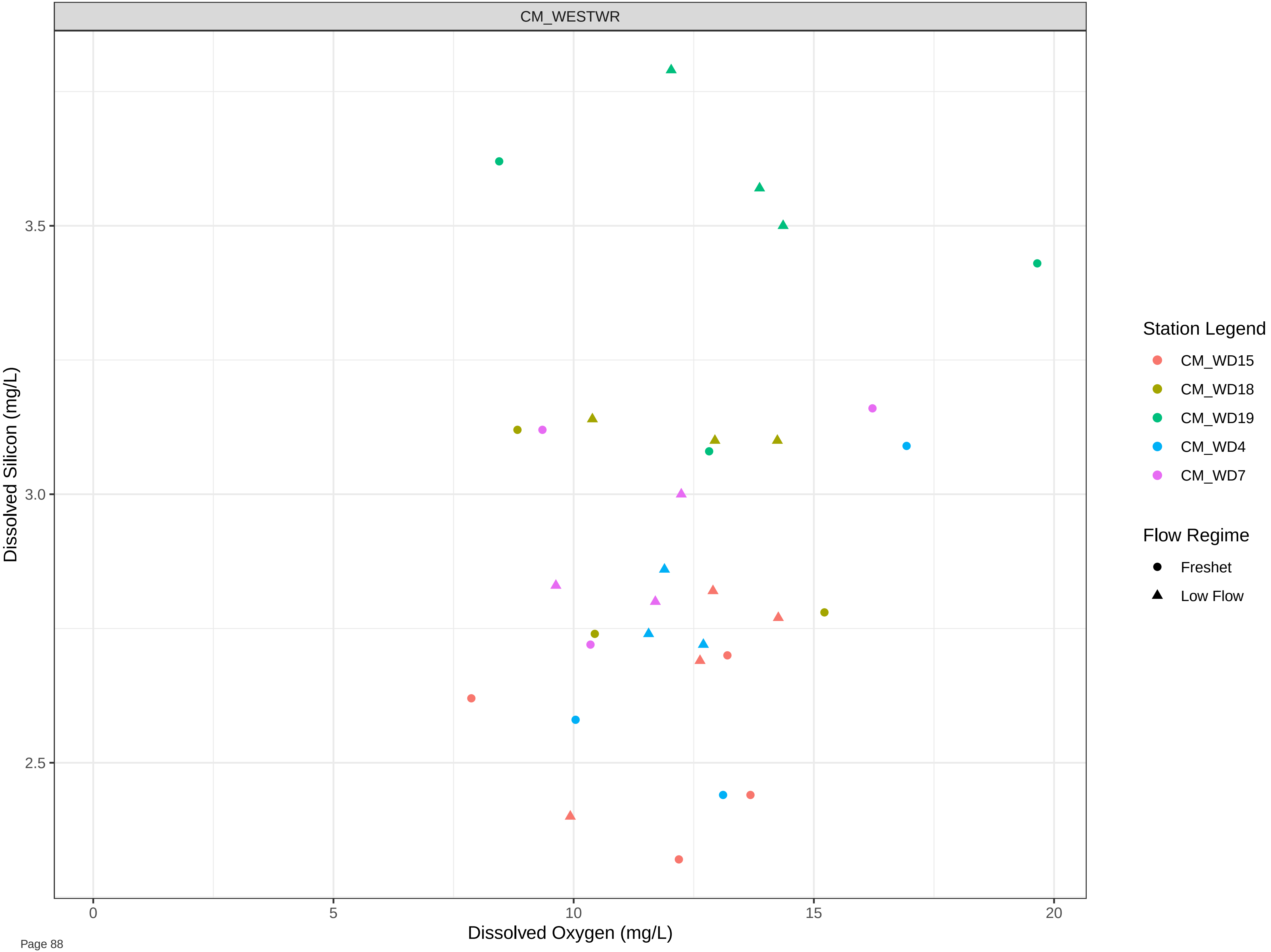

CM_MMCCR
Dissolved Selenium (ug/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

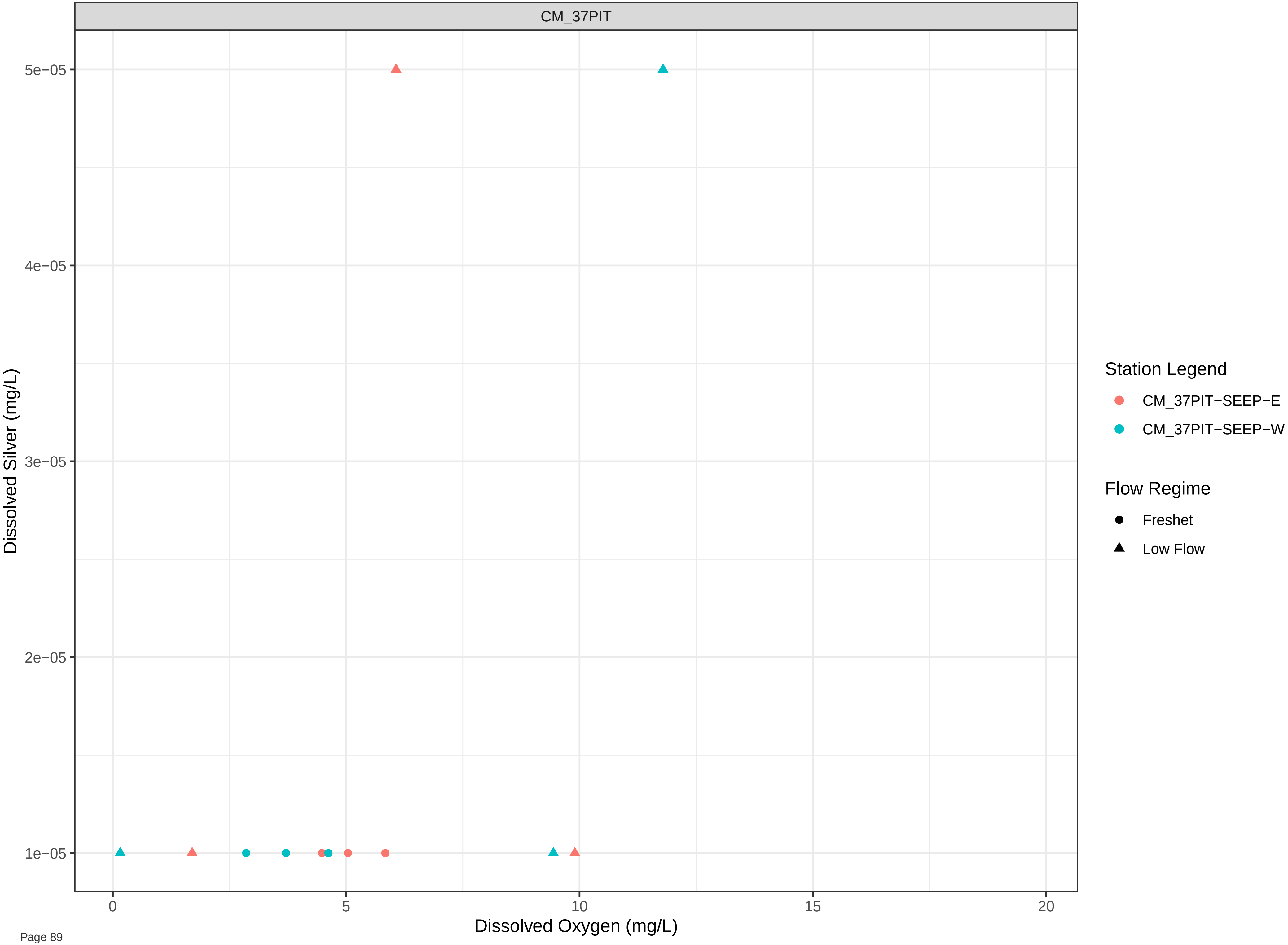

CM_WESTWR
Dissolved Selenium (ug/L)
30
20
10
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

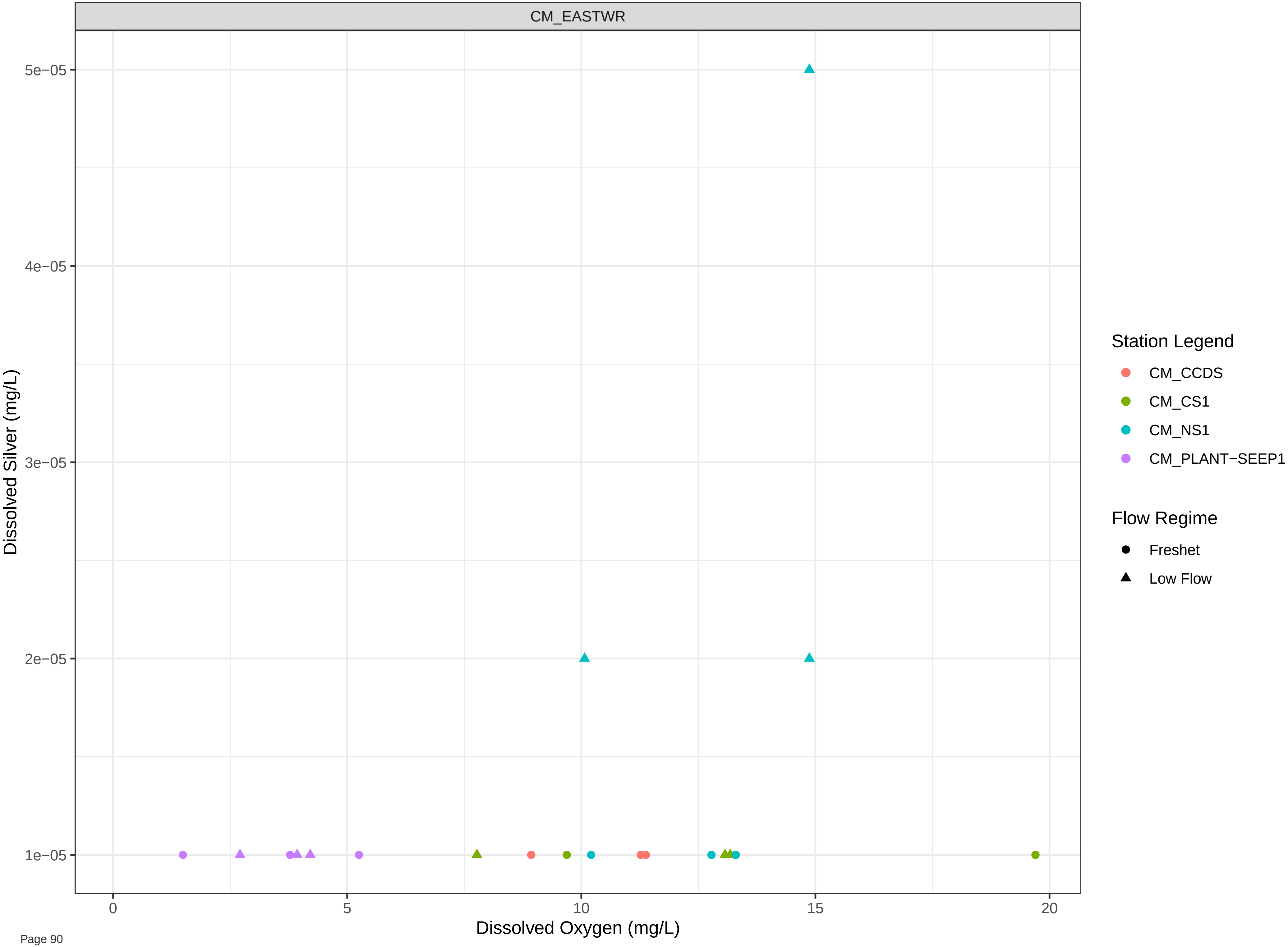

CM_37PIT
Dissolved Silicon (mg/L)
2.5
2.0
1.5
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow

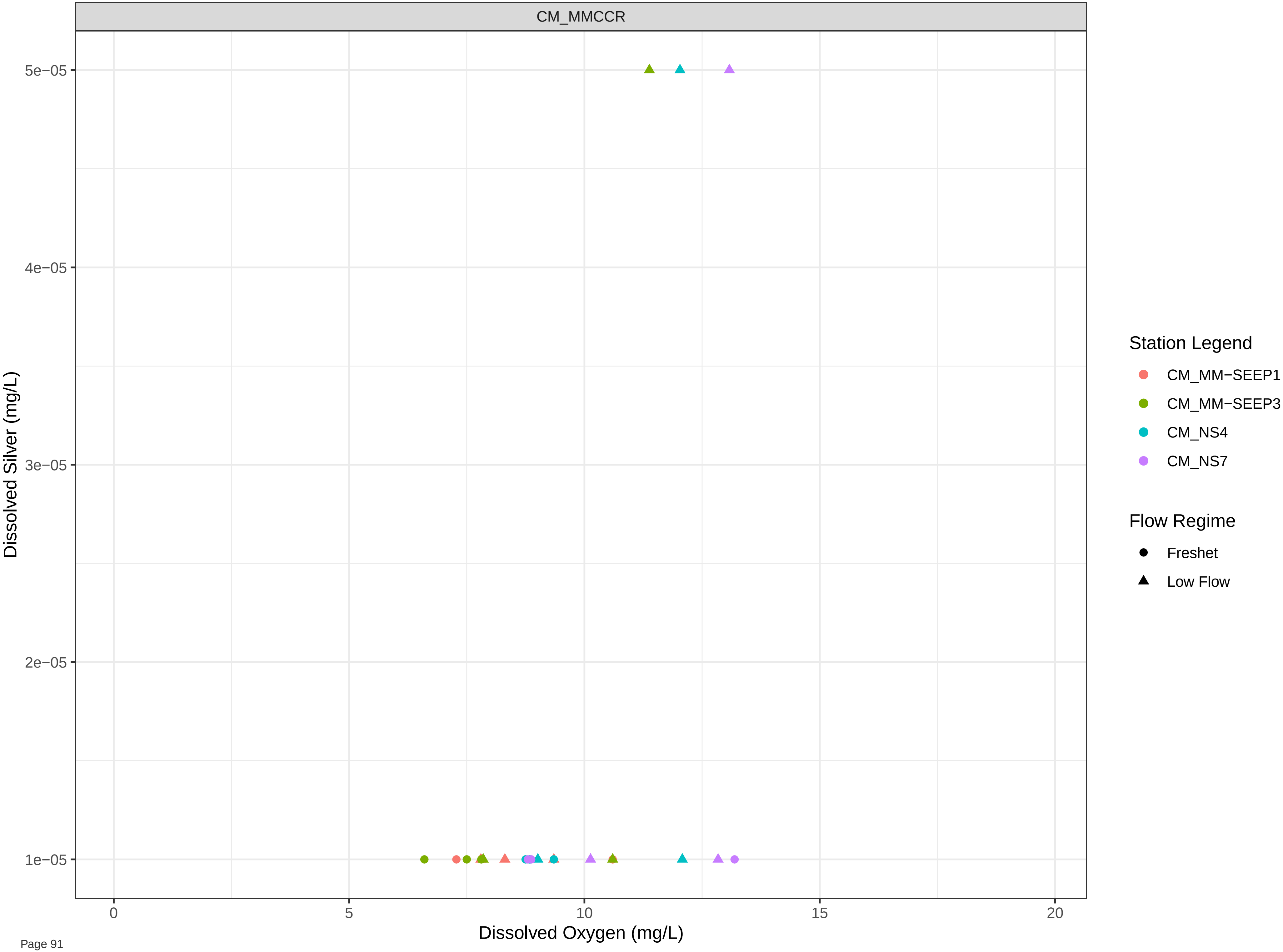

CM_EASTWR
Dissolved Silicon (mg/L)
4.0
3.5
3.0
2.5
2.0
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

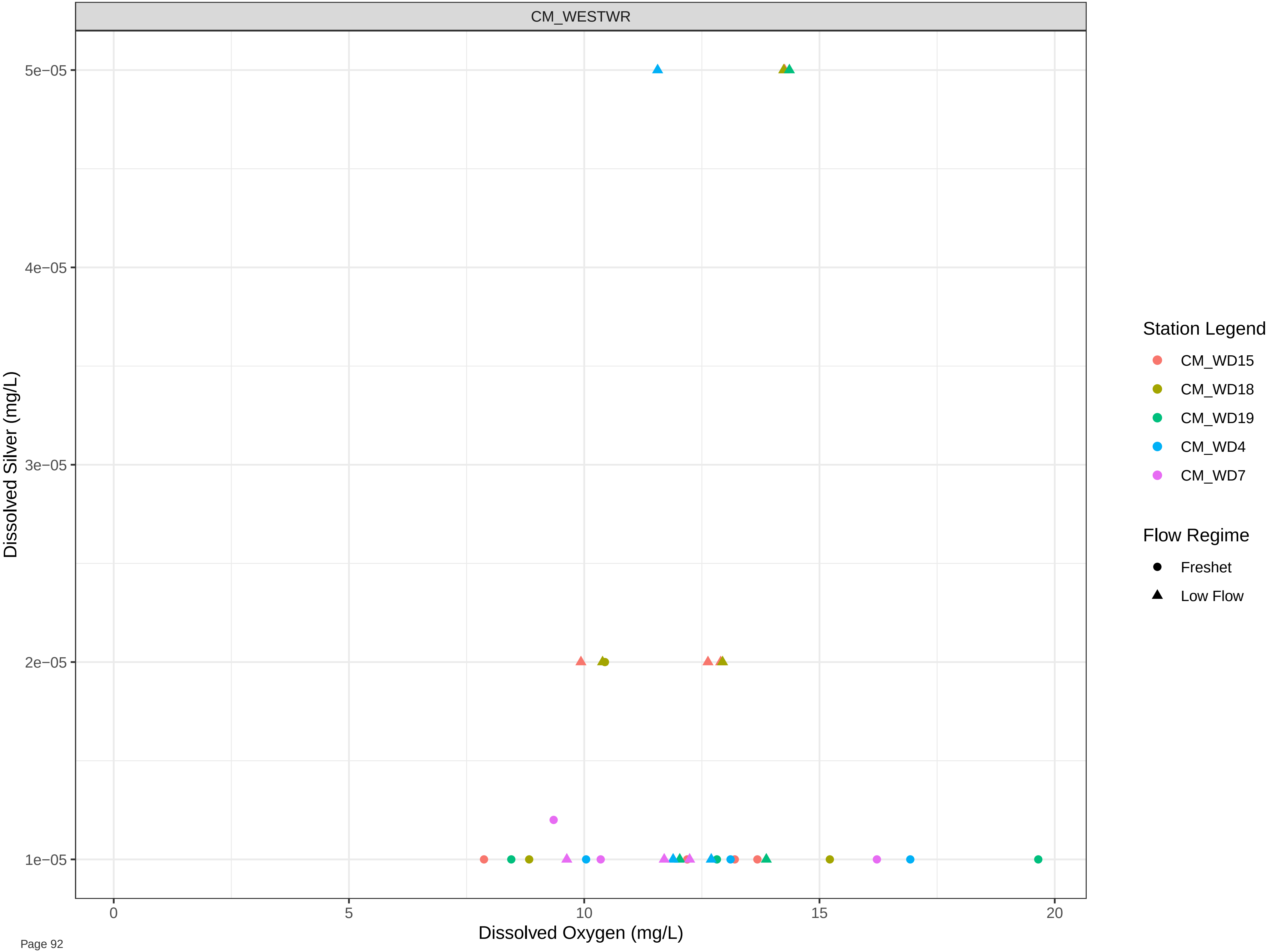

CM_MMCCR
Dissolved Silicon (mg/L)
6
5
4
3
2
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

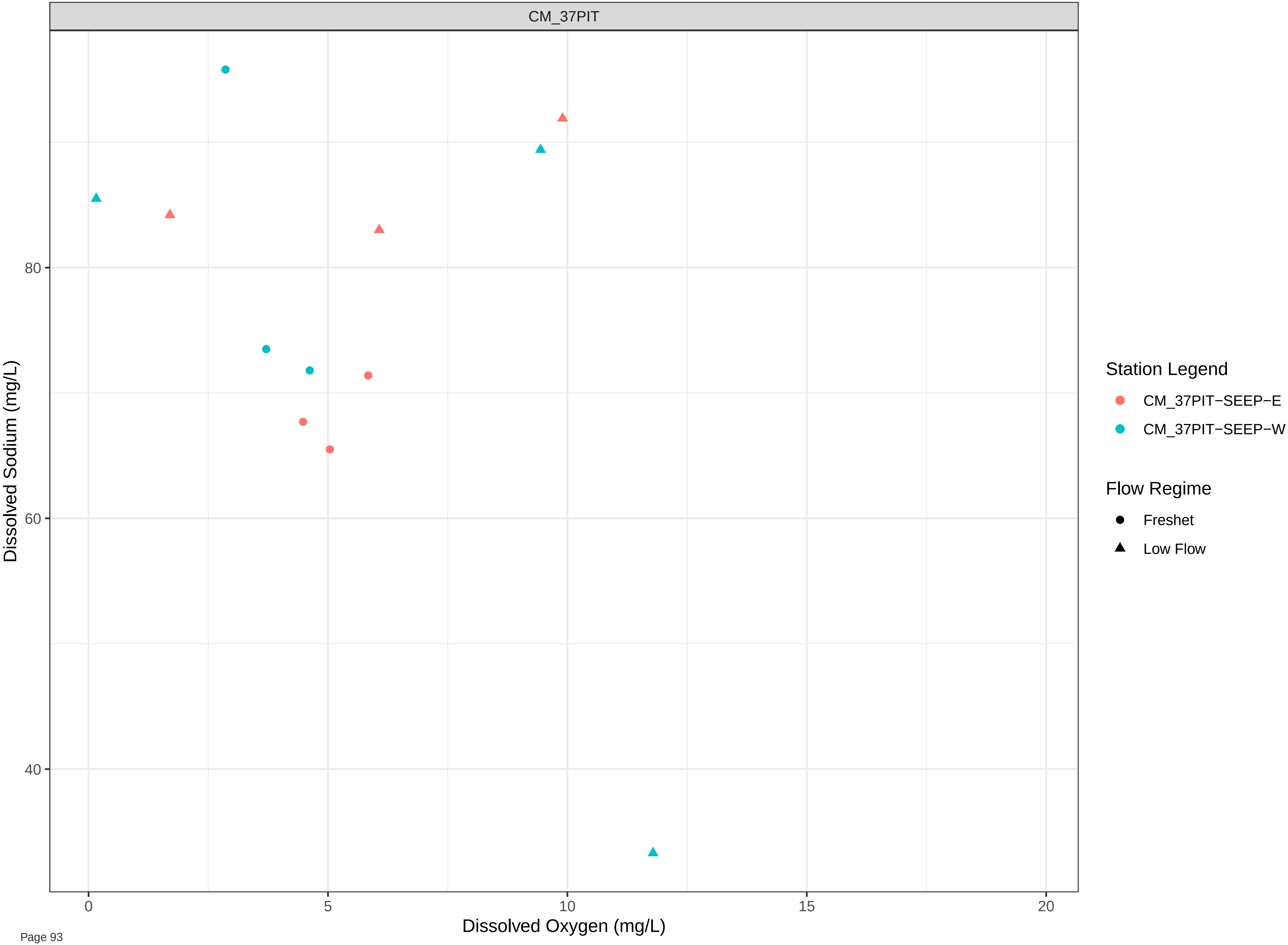

CM_WESTWR
Dissolved Silicon (mg/L)
3.5
3.0
2.5
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_WD15
● CM_WD18
● CM_WD19
● CM_WD4
● CM_WD7
Flow Regime
● Freshet
▲ Low Flow

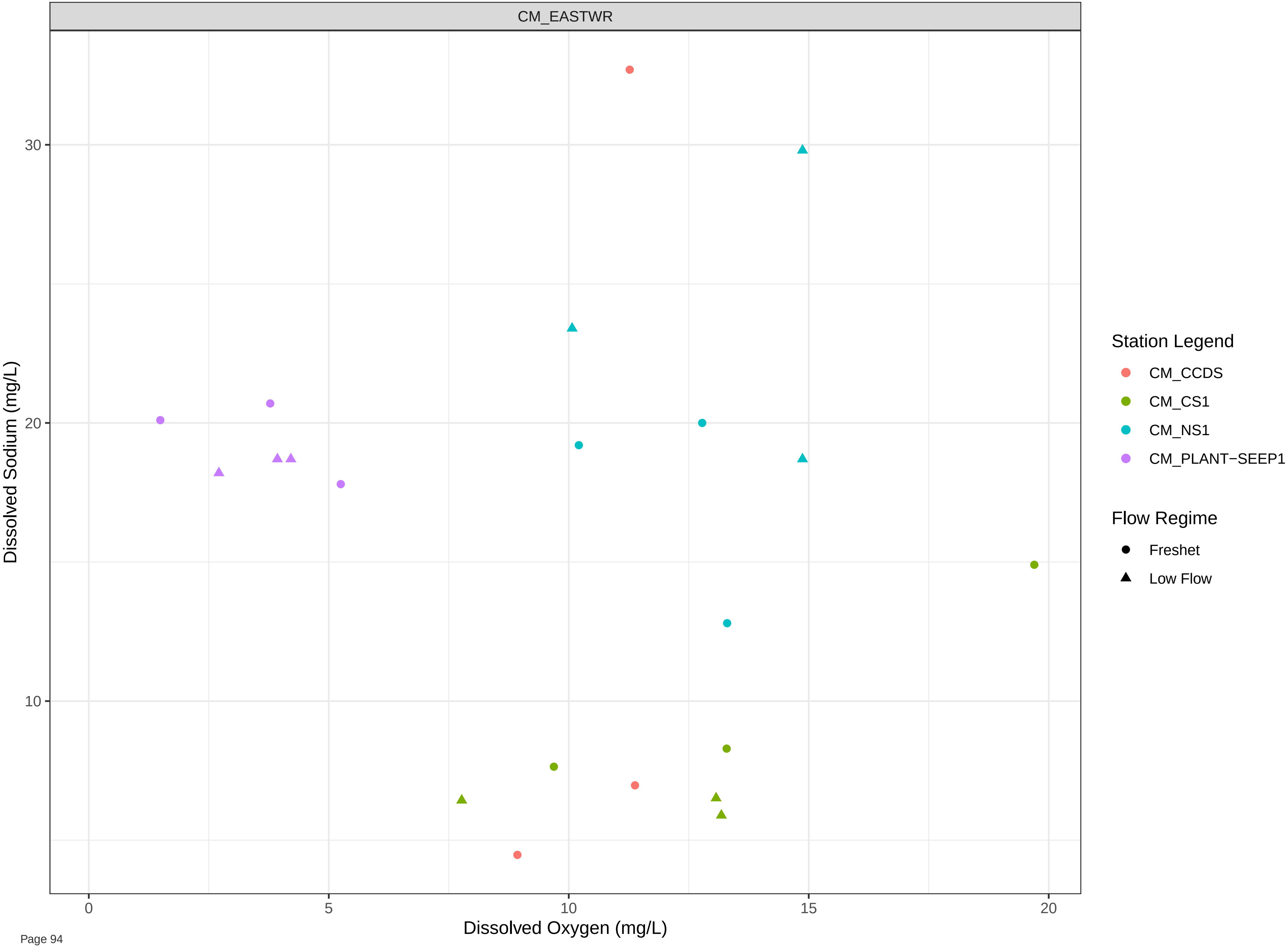

CM_37PIT
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

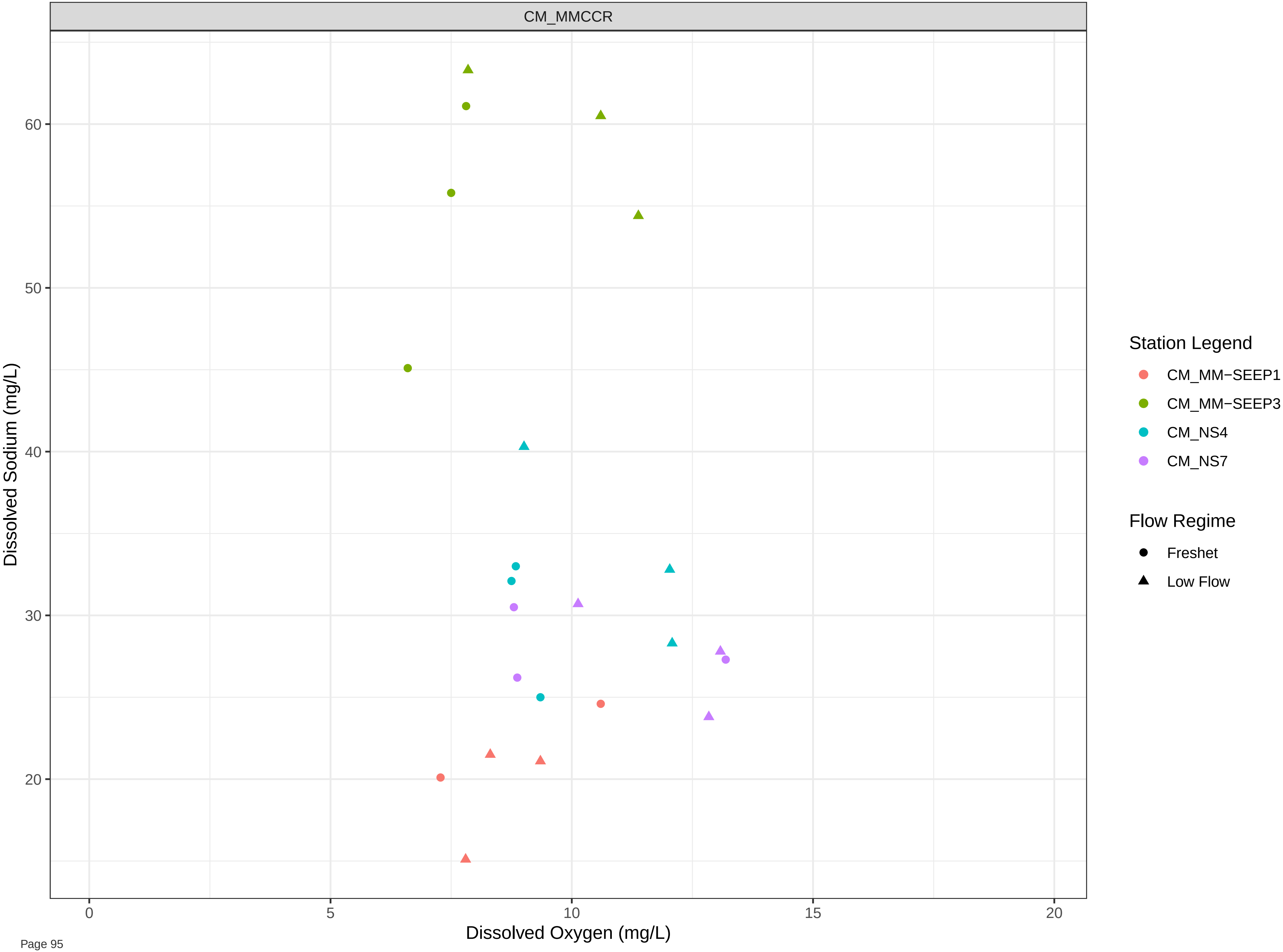

CM_EASTWR
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

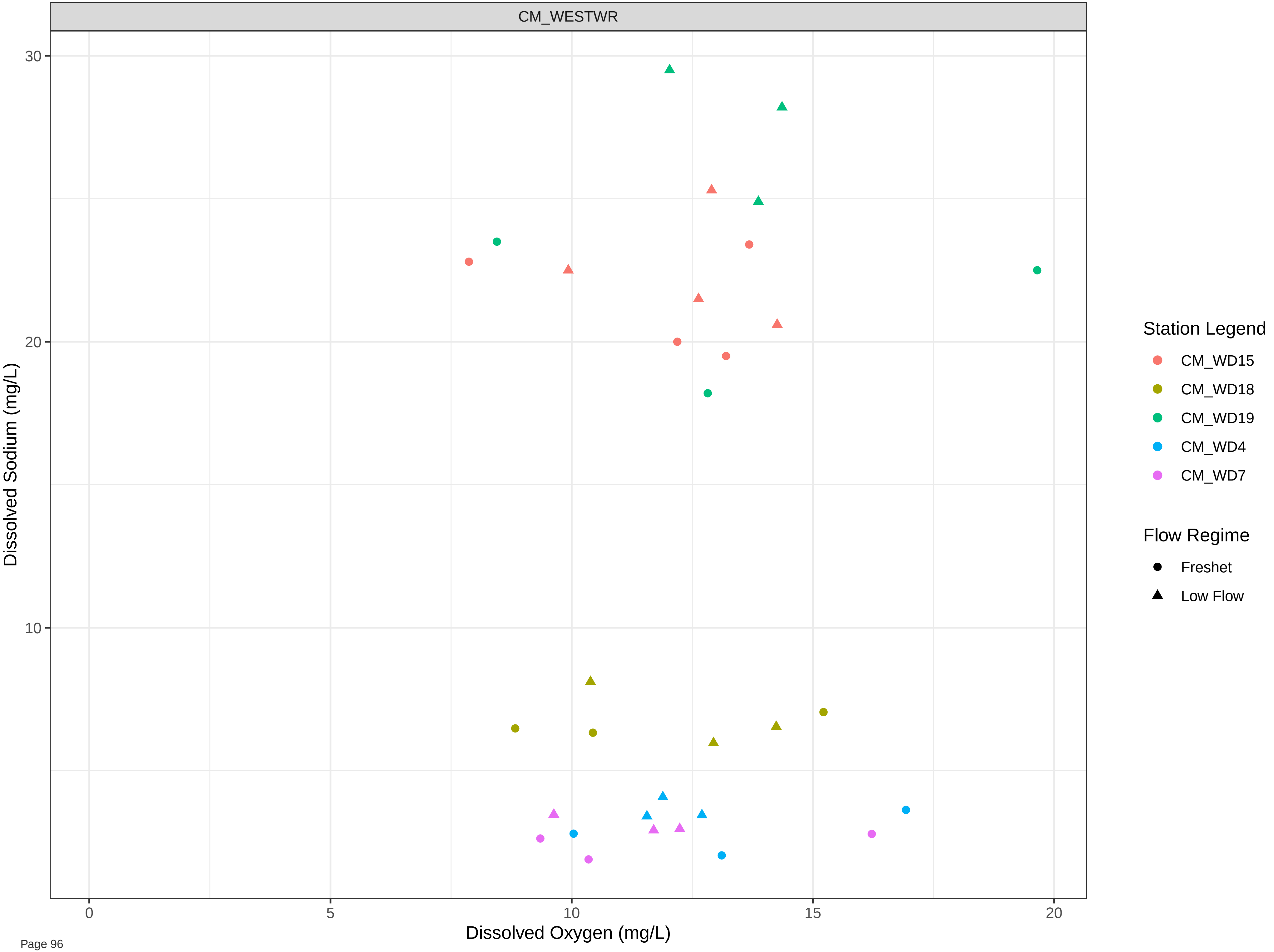

CM_MMCCR
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

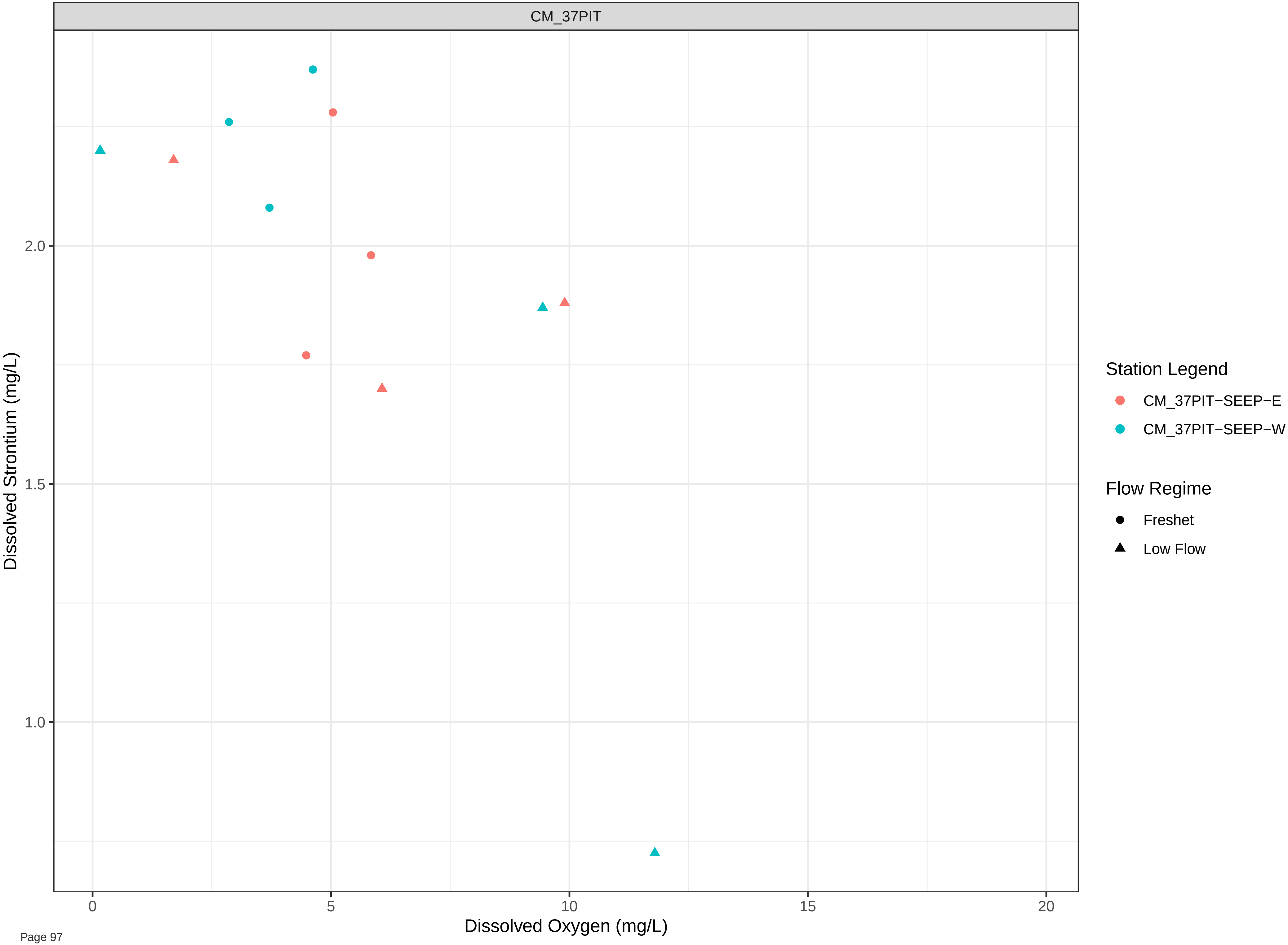

CM_WESTWR
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

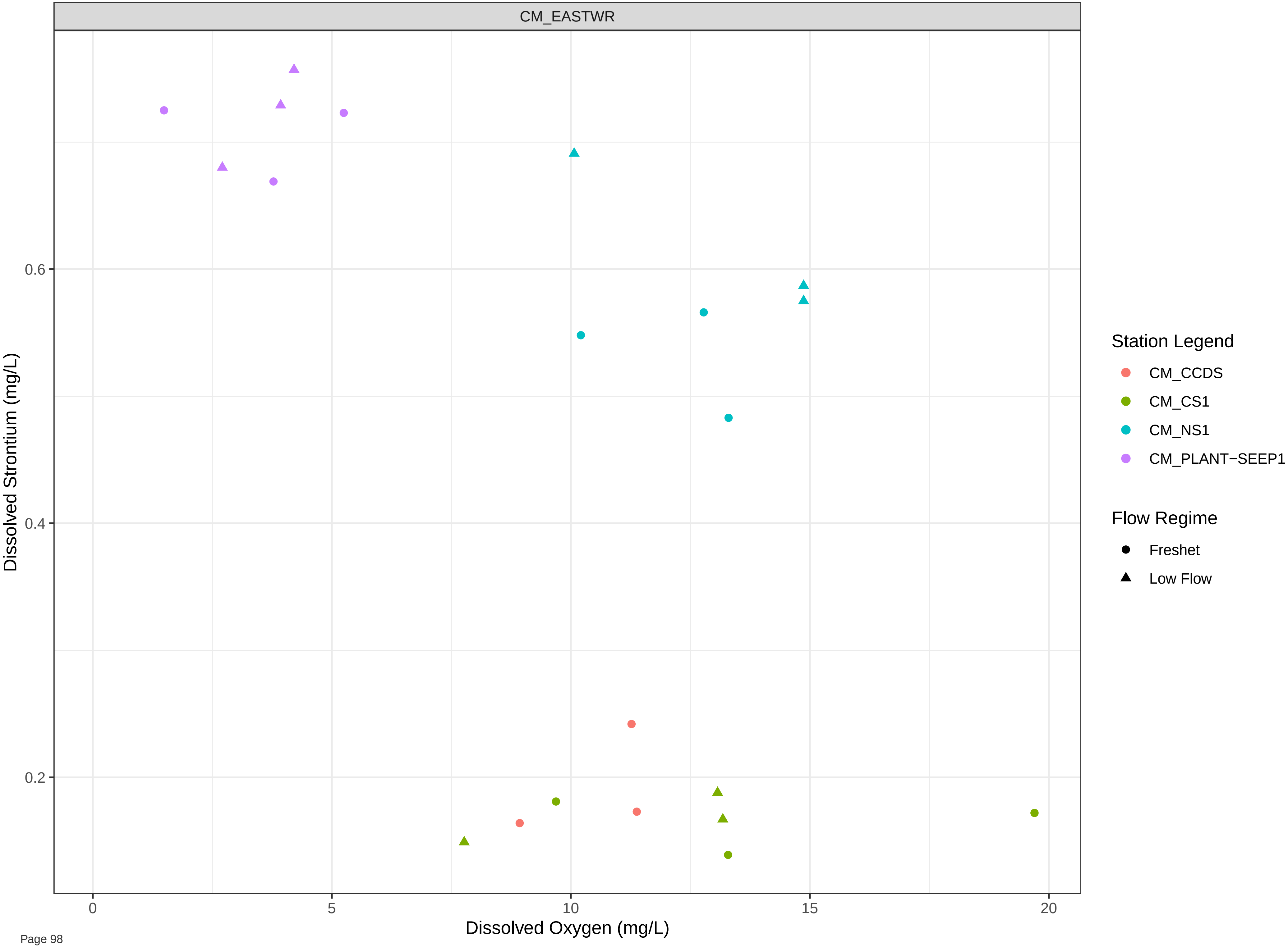

CM_37PIT
Dissolved Sodium (mg/L)
80
60
40
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

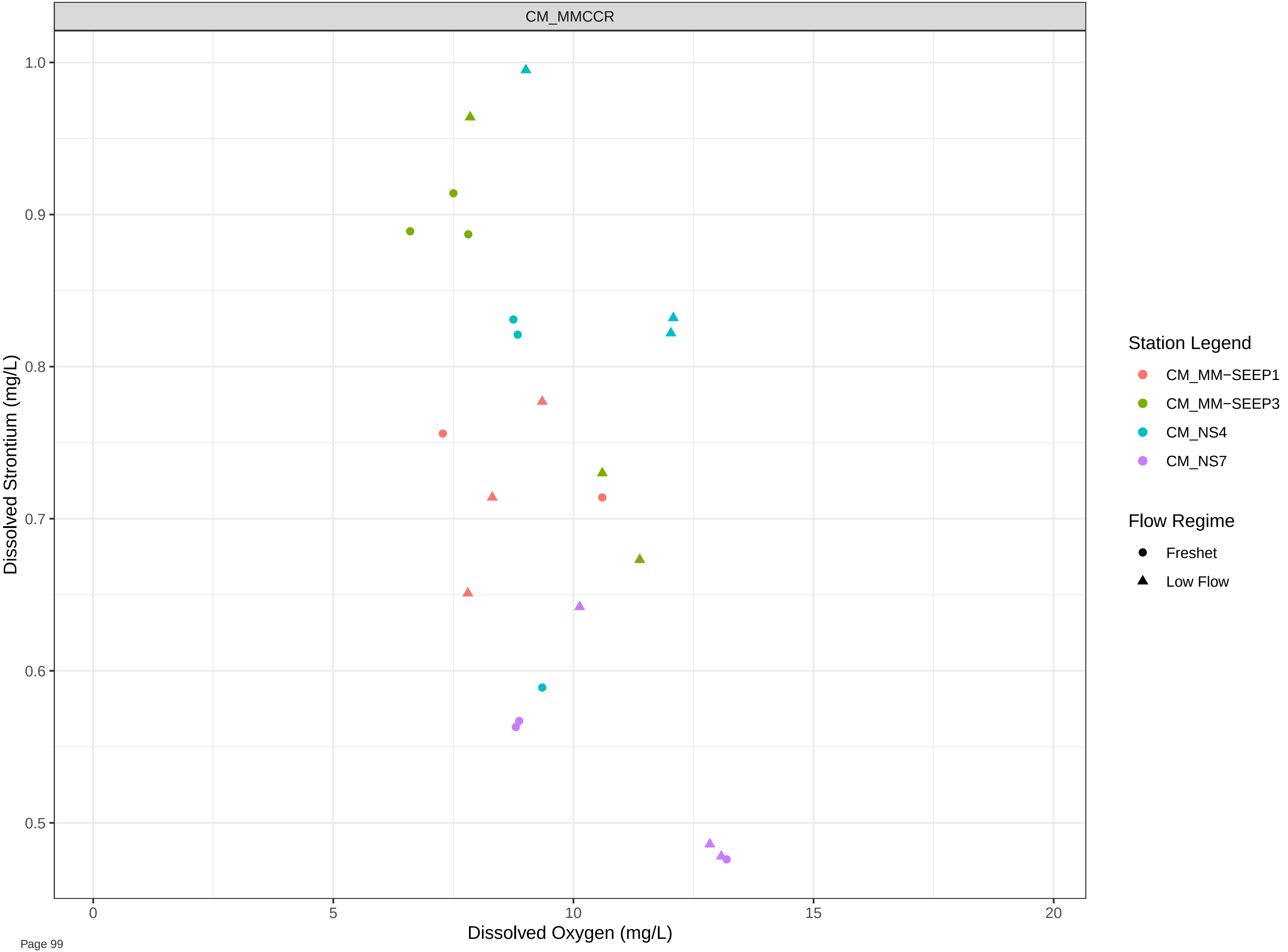

CM_EASTWR
Dissolved Sodium (mg/L)
30
20
10
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

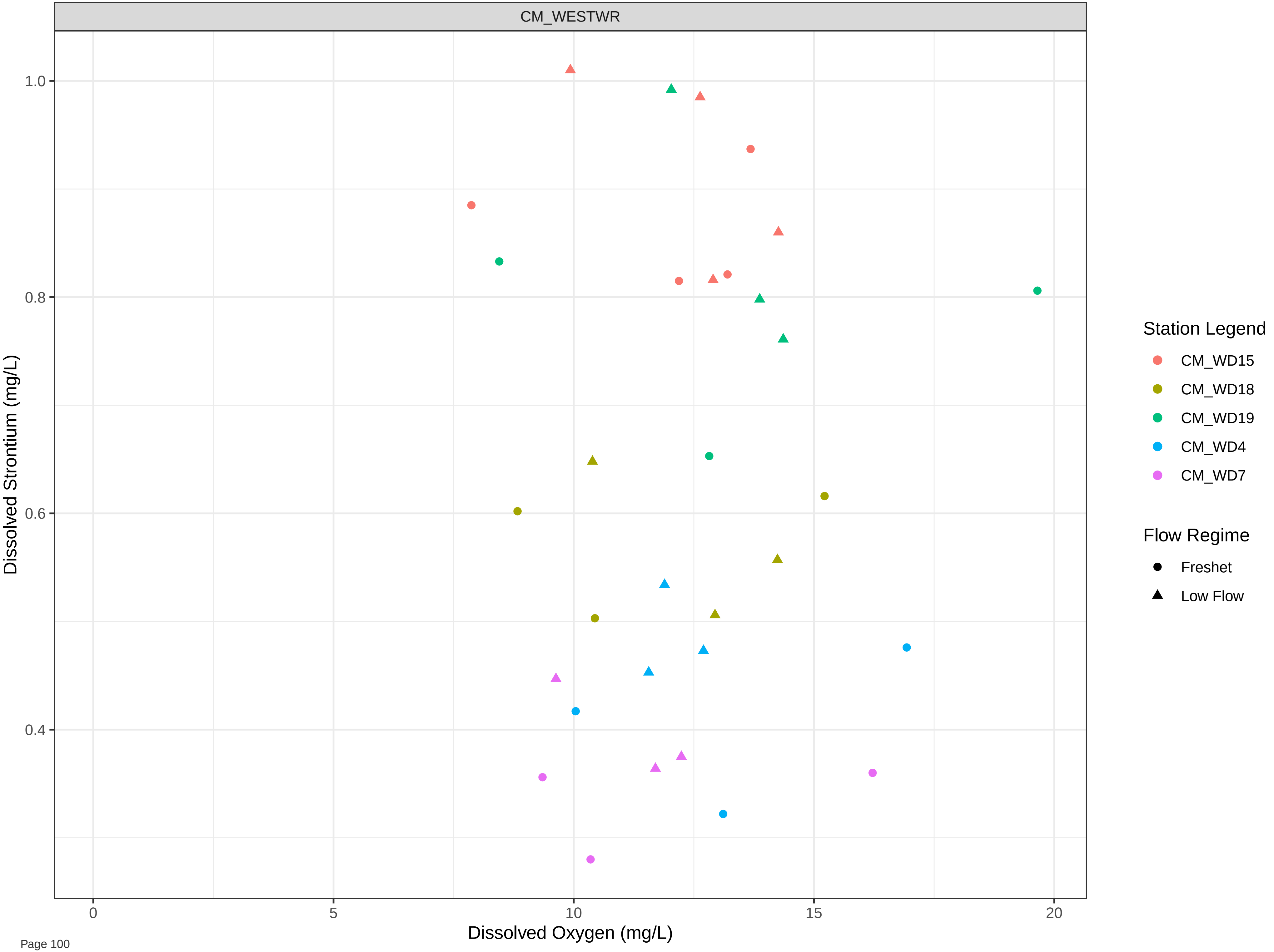

CM_MMCCR
Dissolved Sodium (mg/L)
60
50
40
30
20
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

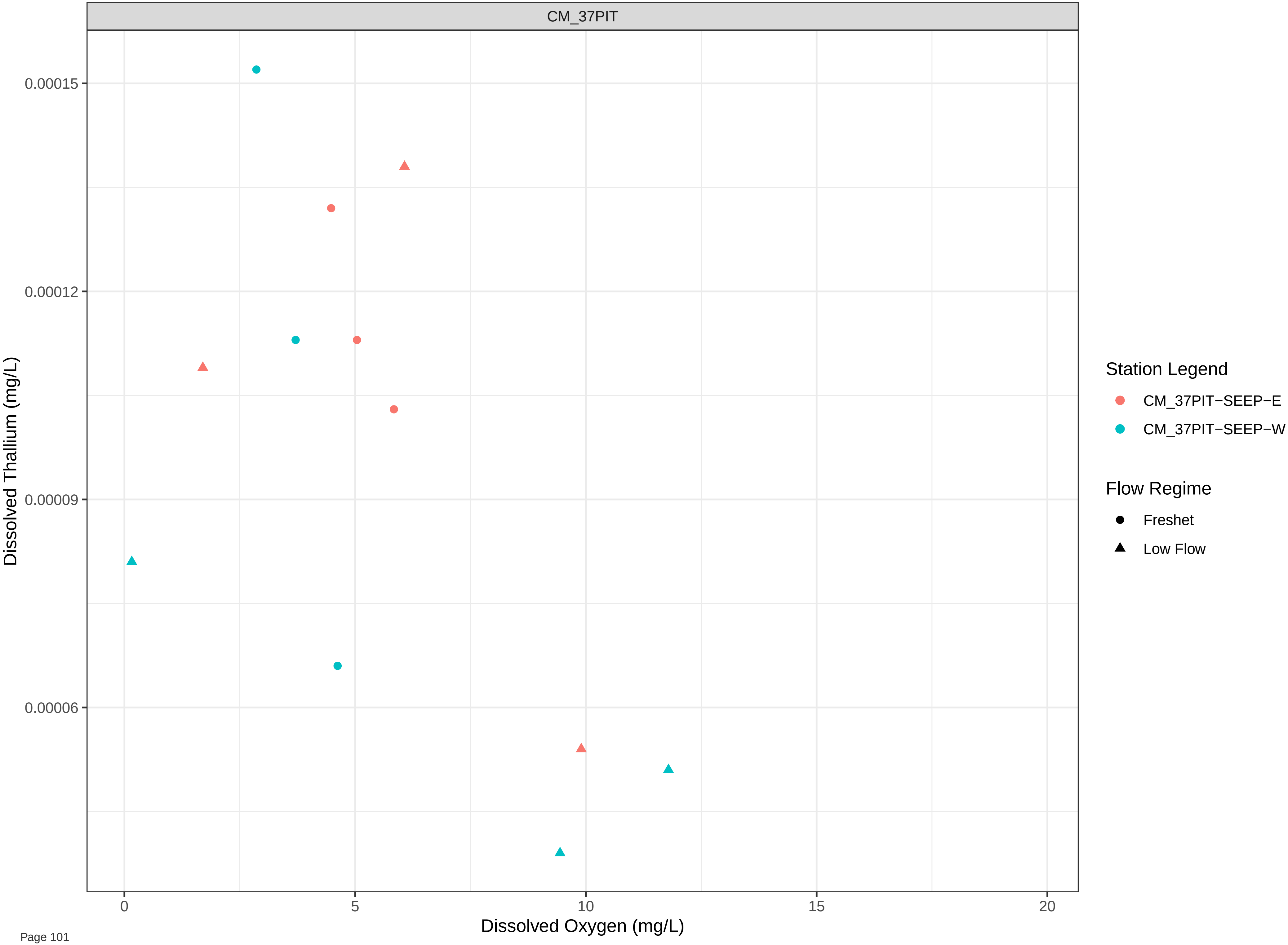

CM_WESTWR
Dissolved Sodium (mg/L)
30
20
10
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

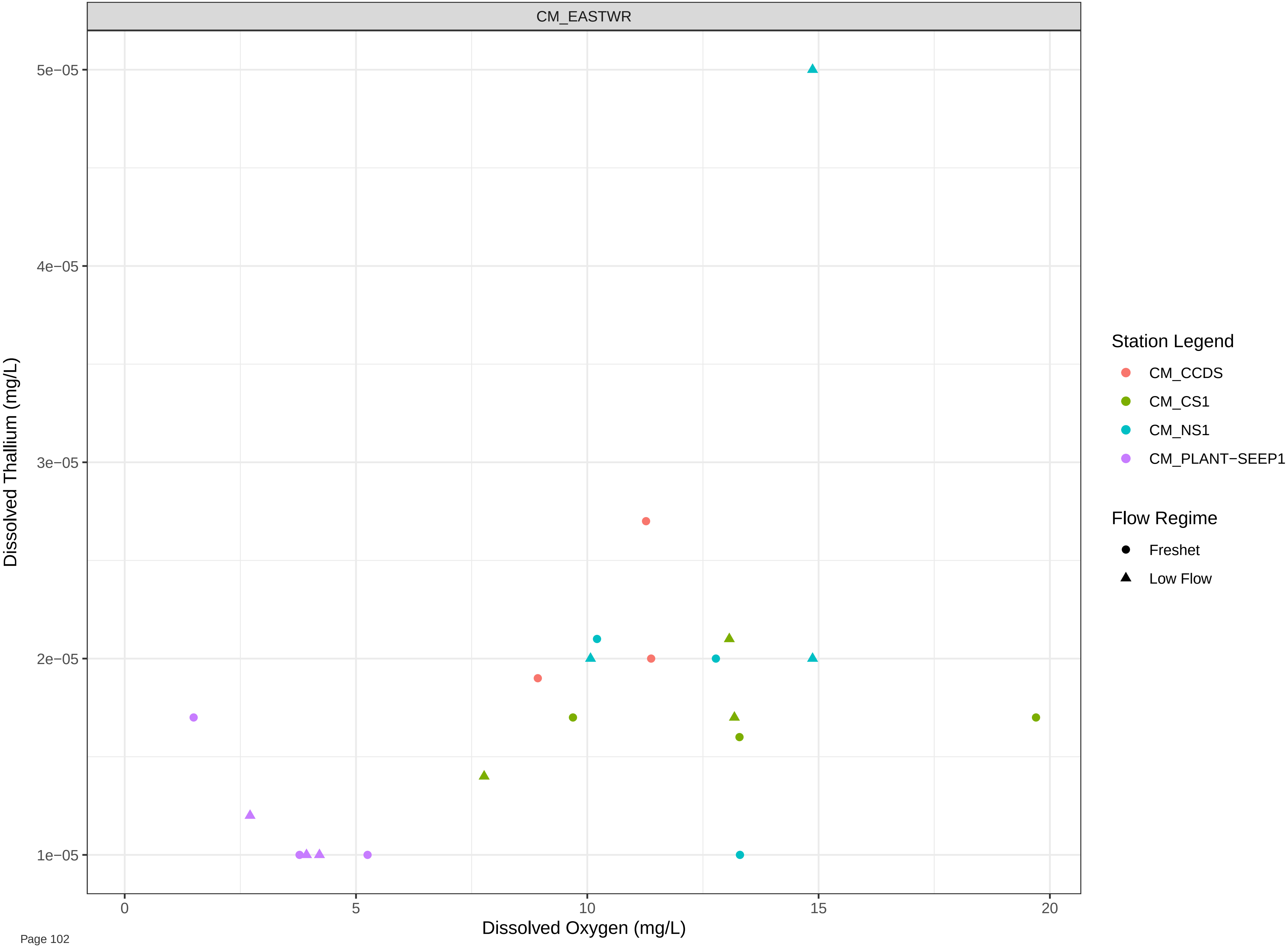

CM_37PIT
Dissolved Strontium (mg/L)
2.0
1.5
1.0
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow

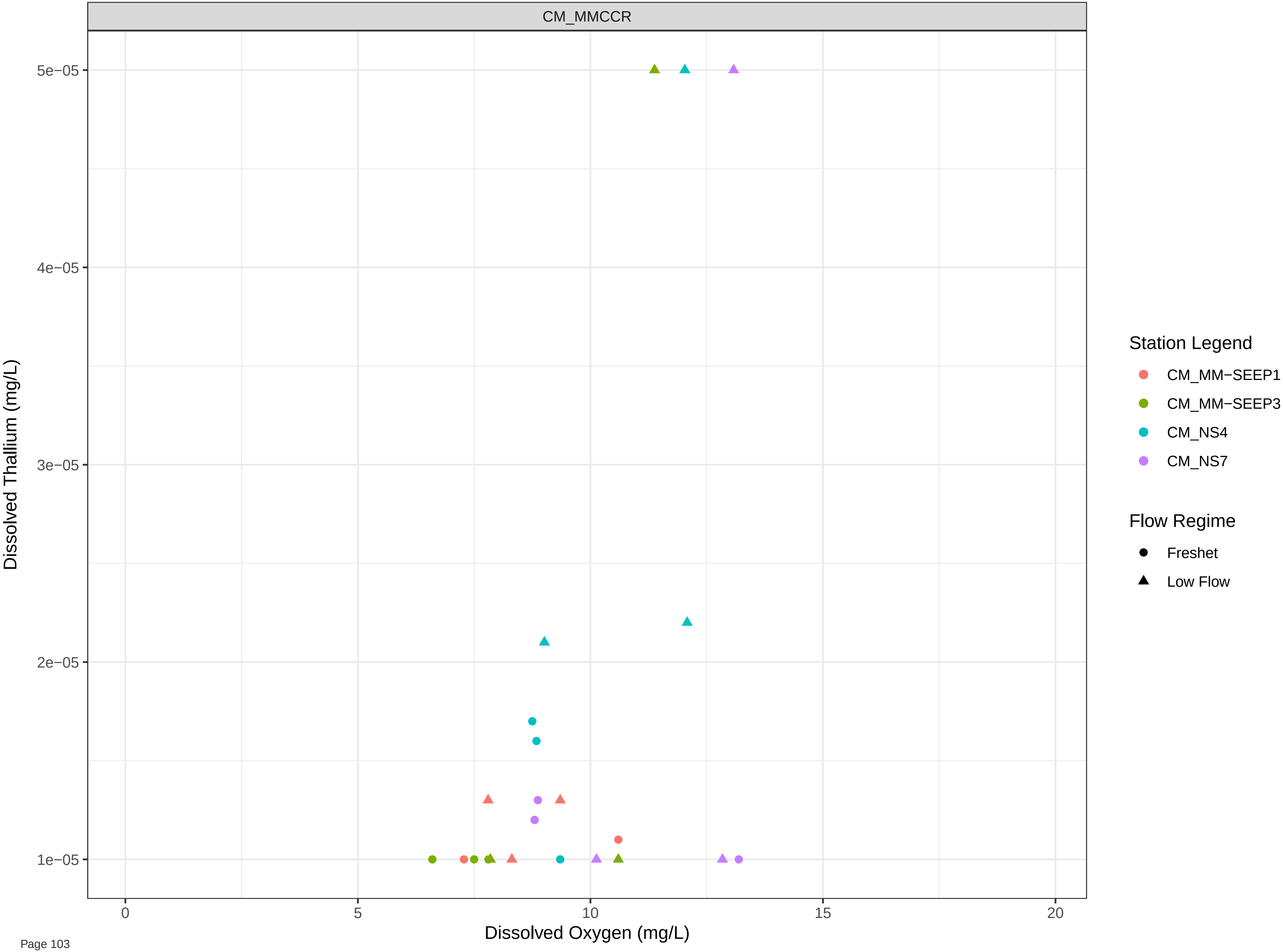

CM_EASTWR
Dissolved Strontium (mg/L)
0.6
0.4
0.2
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

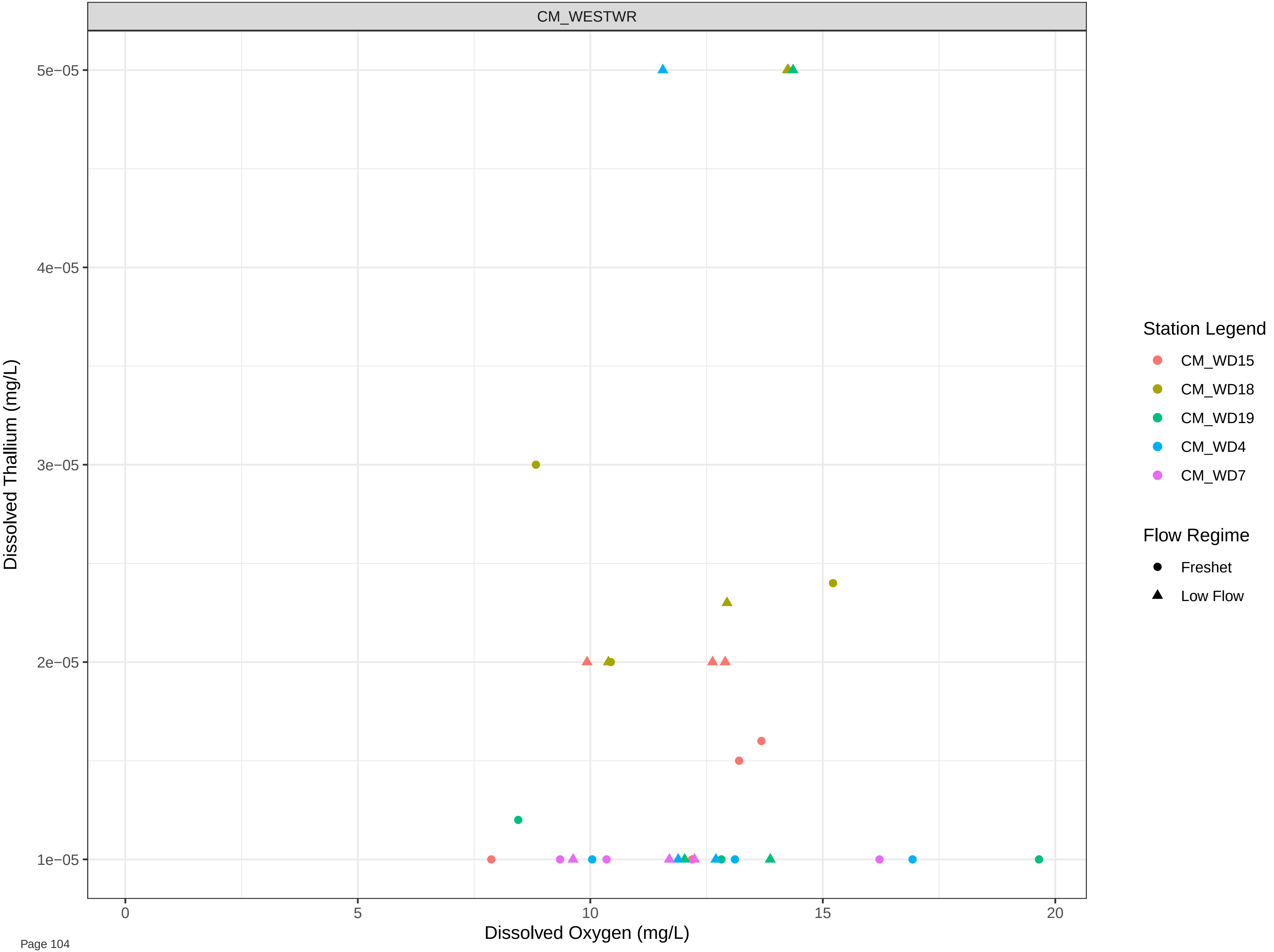

CM_MMCCR
Dissolved Strontium (mg/L)
1.0
0.9
0.8
0.7
0.6
0.5
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

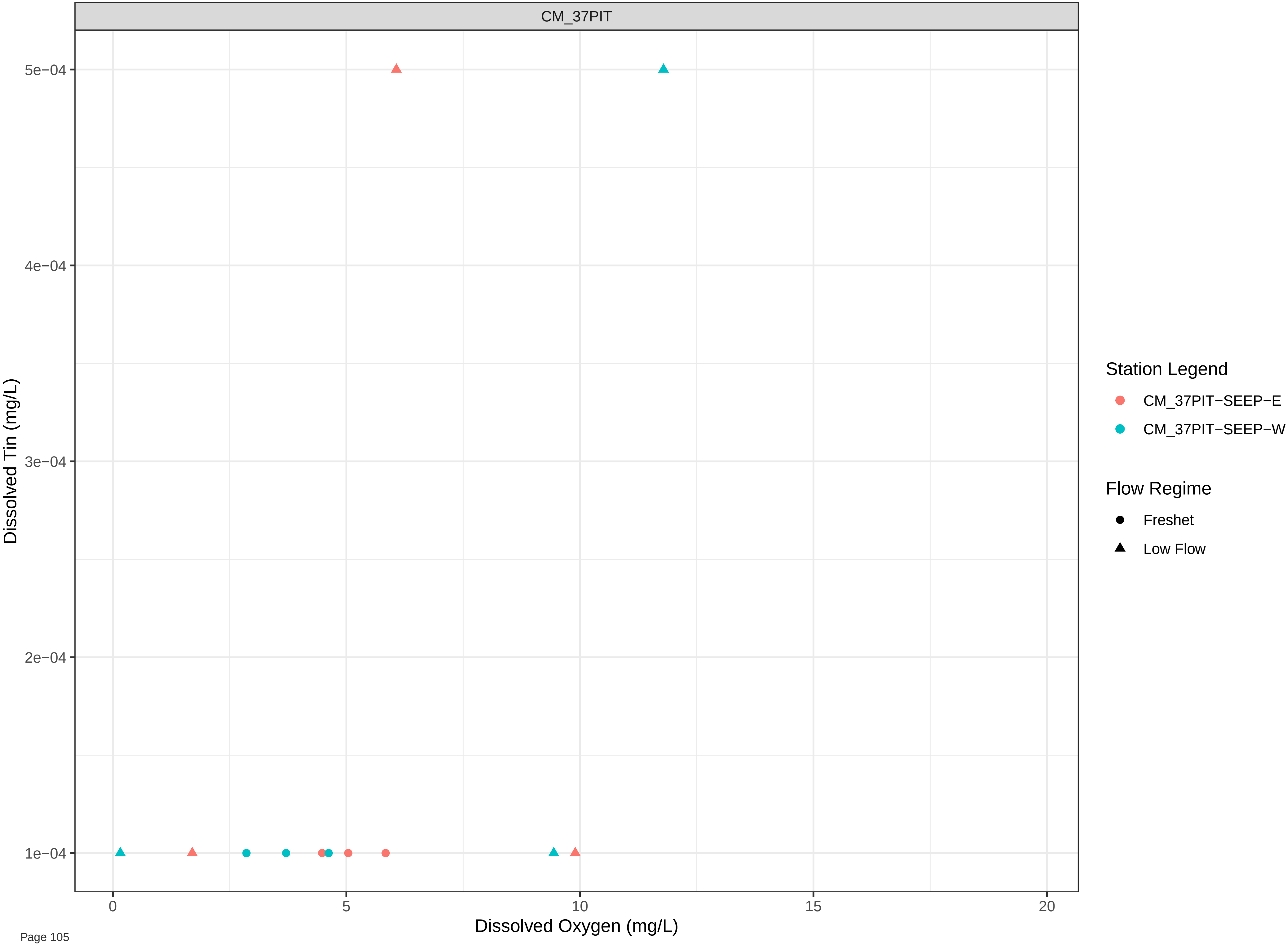

CM_WESTWR
Dissolved Strontium (mg/L)
1.0
0.8
0.6
0.4
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

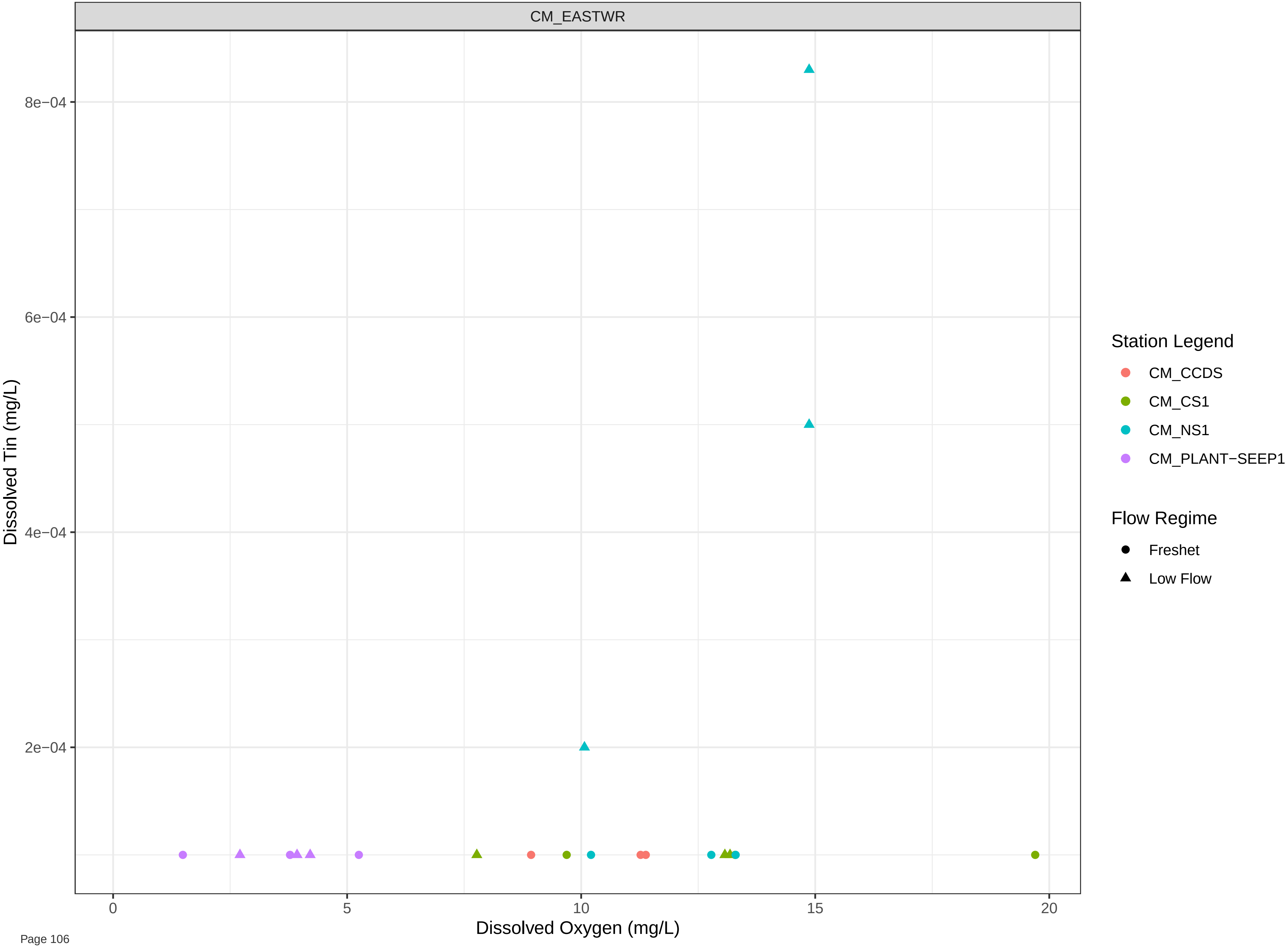

CM_37PIT
Dissolved Thallium (mg/L)
0.00015
0.00012
0.00009
0.00006
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

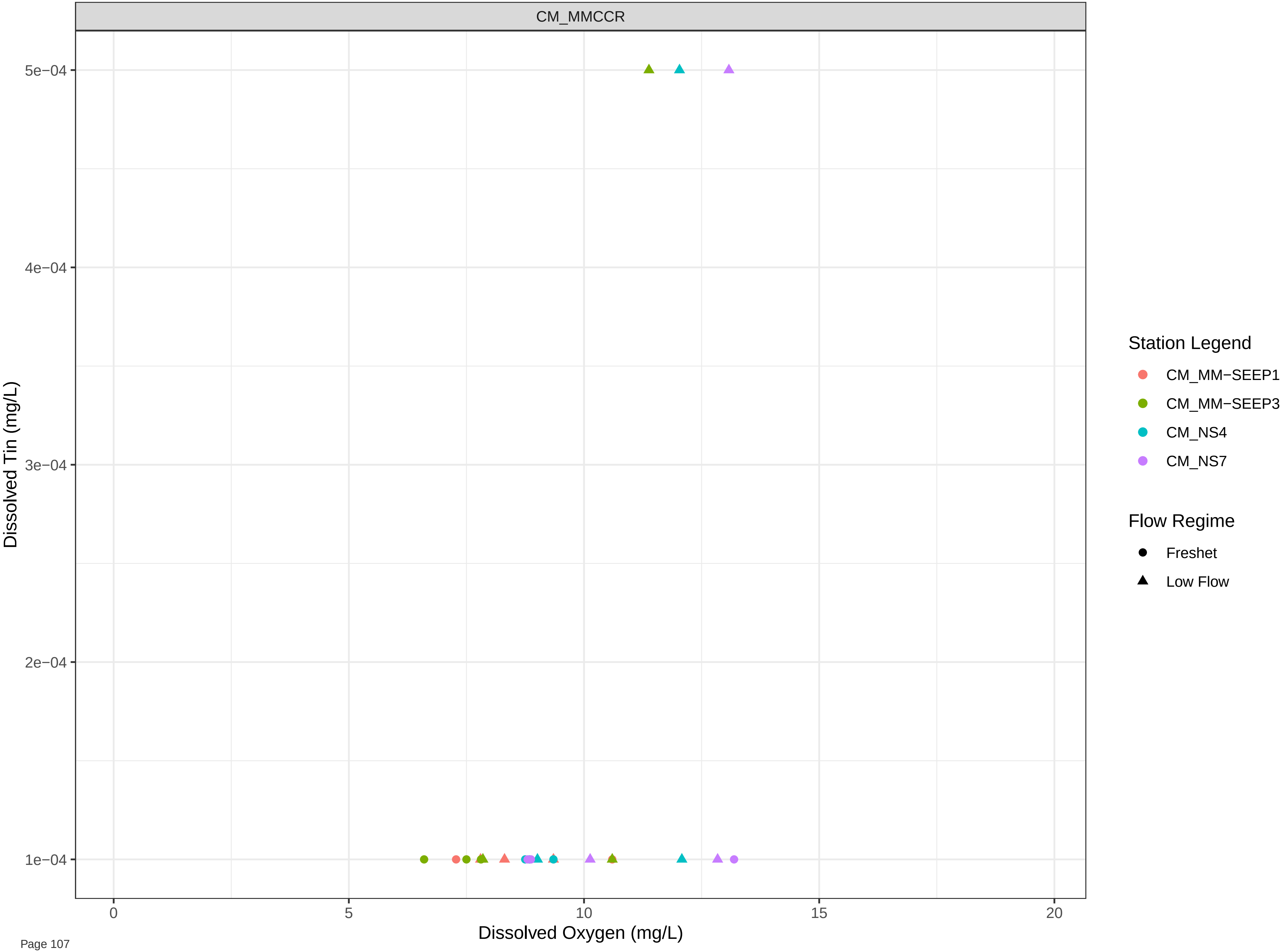

CM_EASTWR
5e−05
4e−05
3e−05
2e−05
1e−05
Dissolved Thallium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

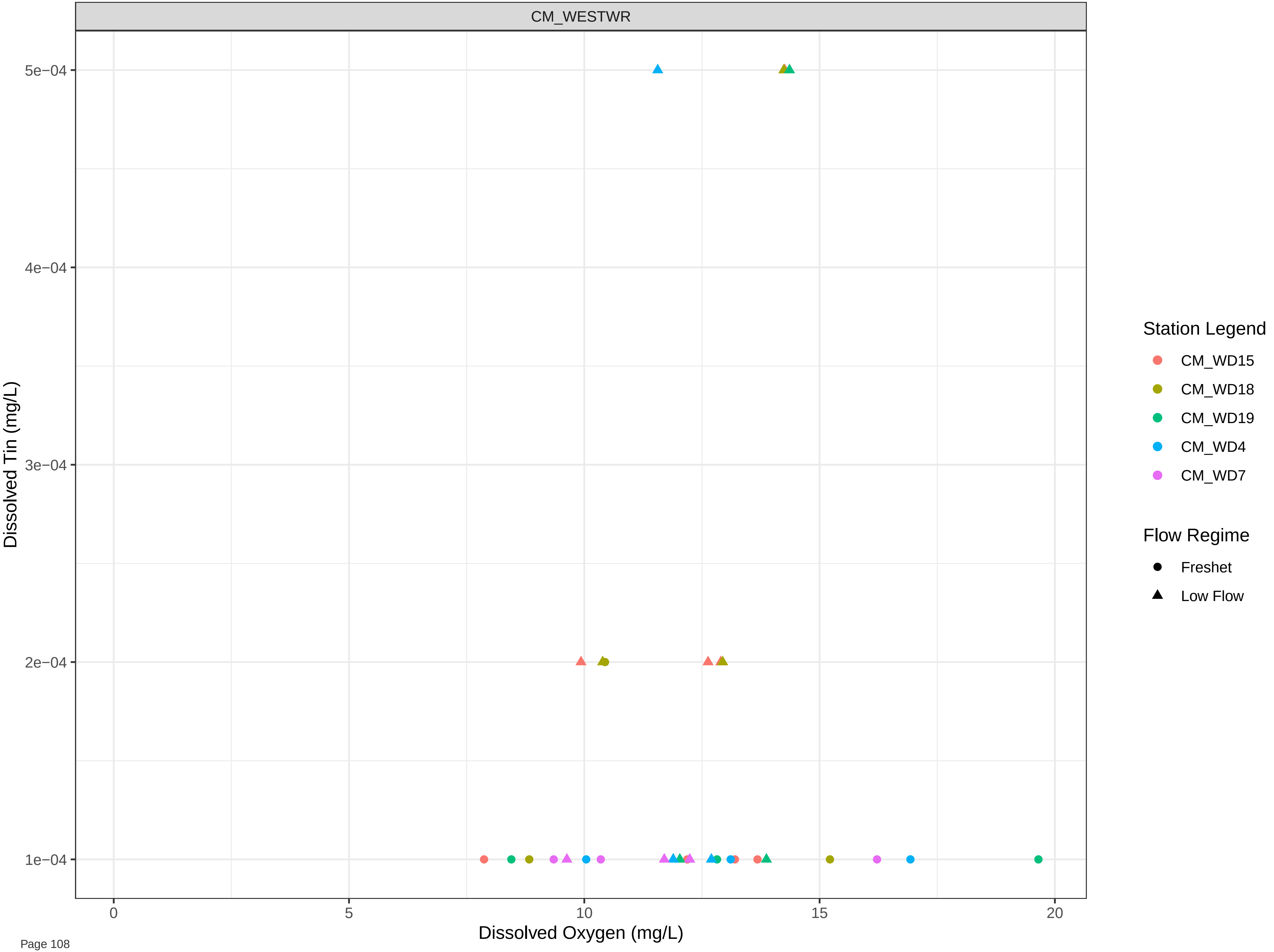

CM_MMCCR
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

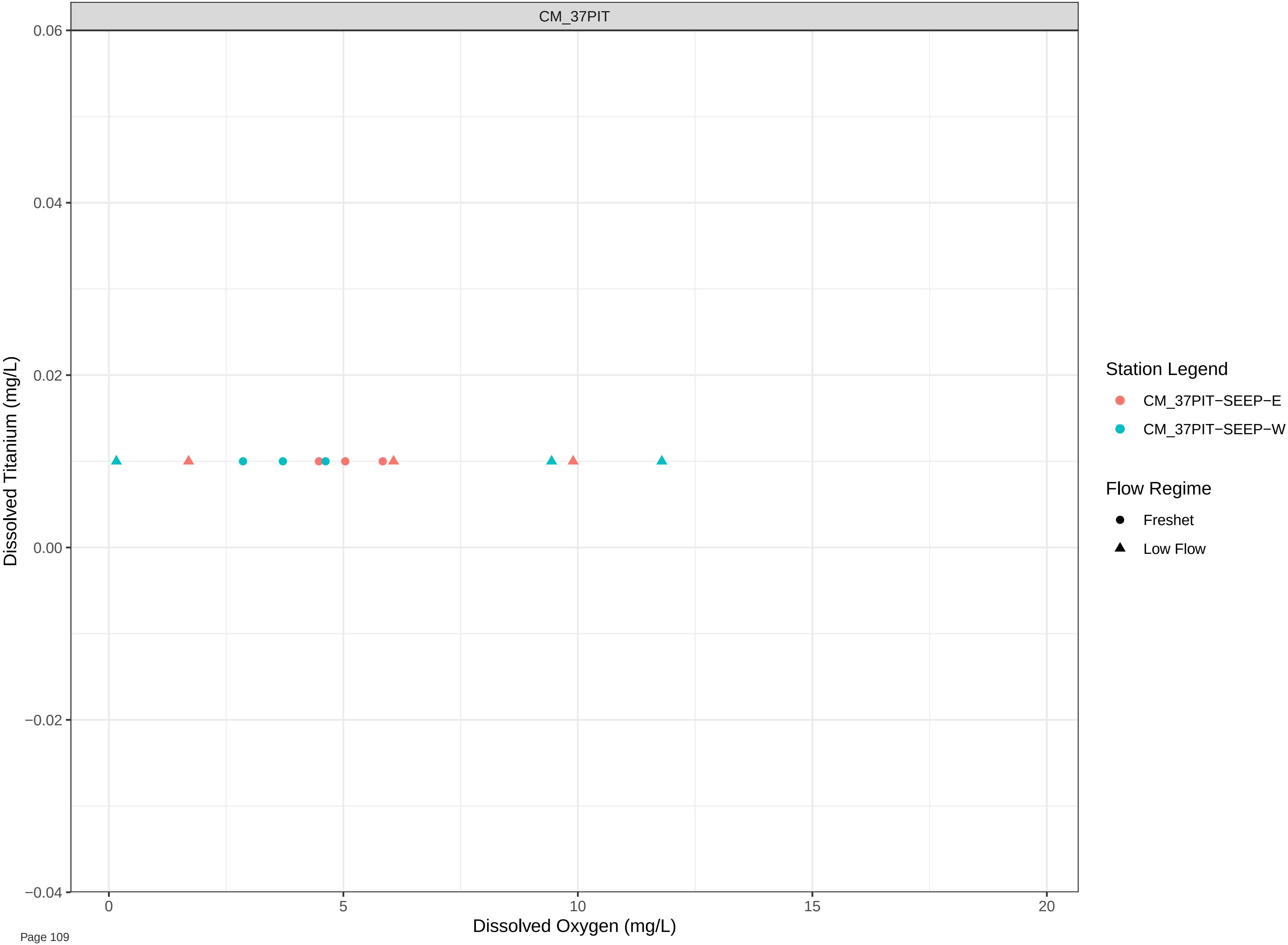

CM_WESTWR
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

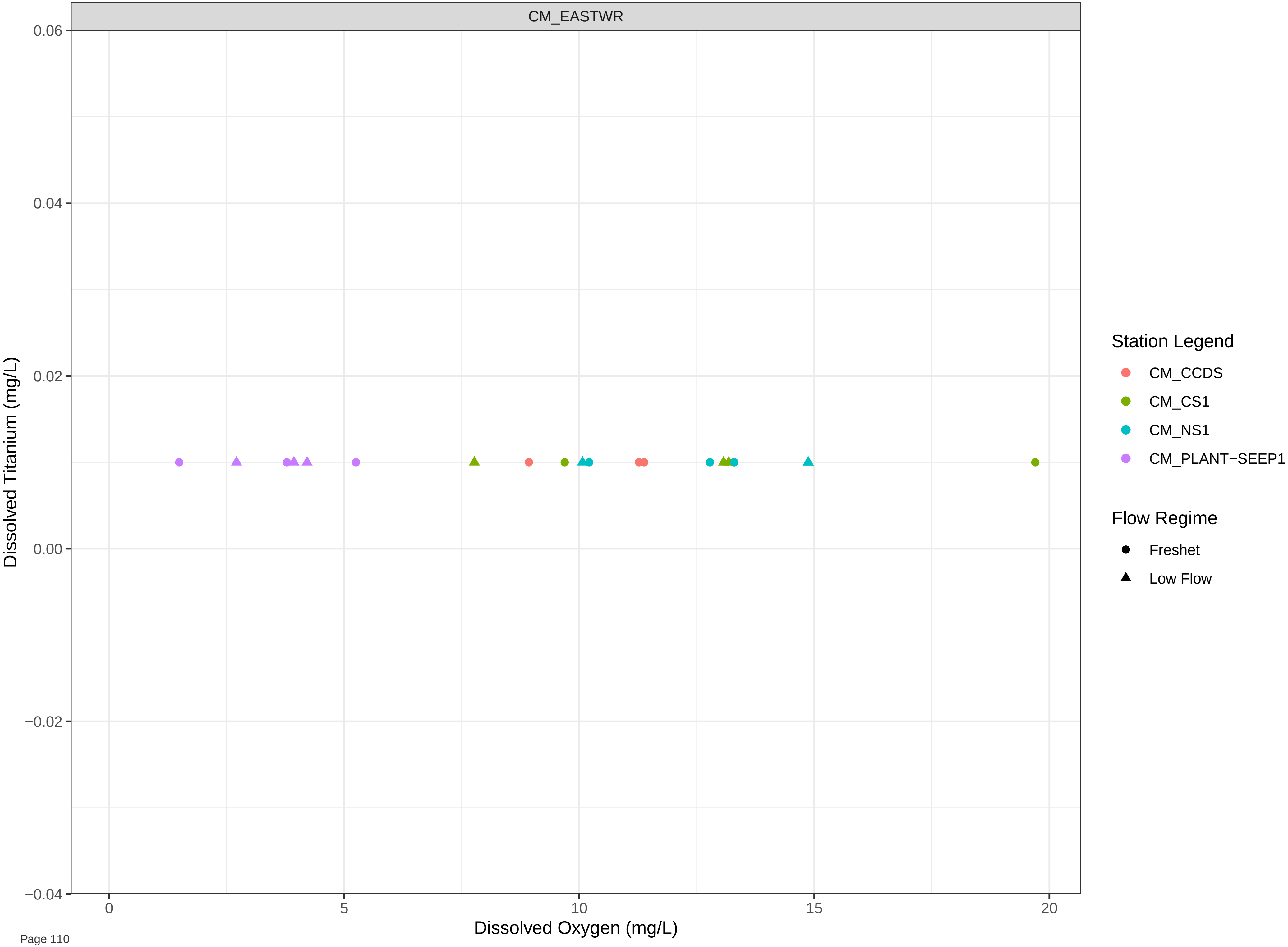

CM_37PIT
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

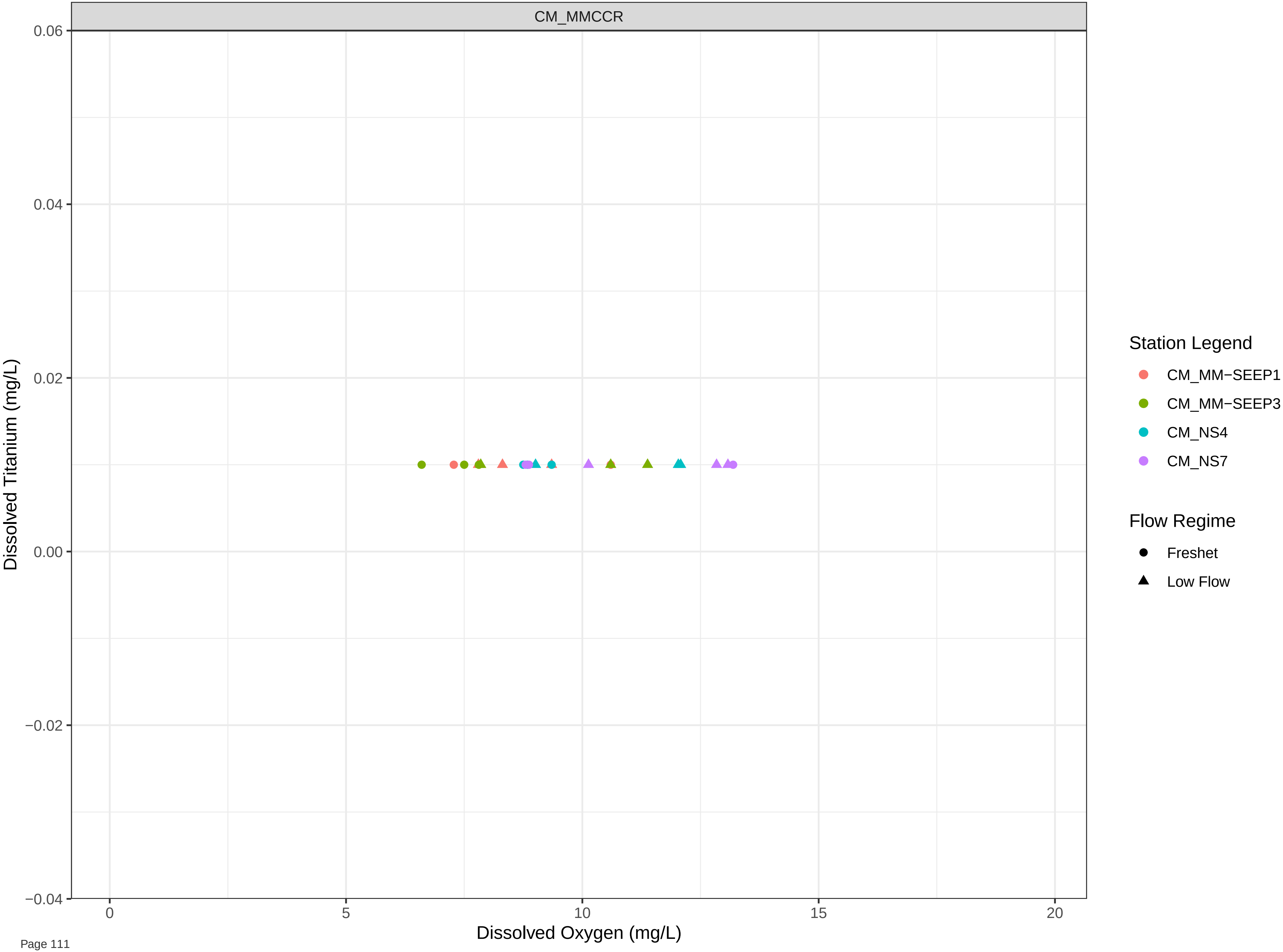

CM_EASTWR
Dissolved Tin (mg/L)
8e−04
6e−04
4e−04
2e−04
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

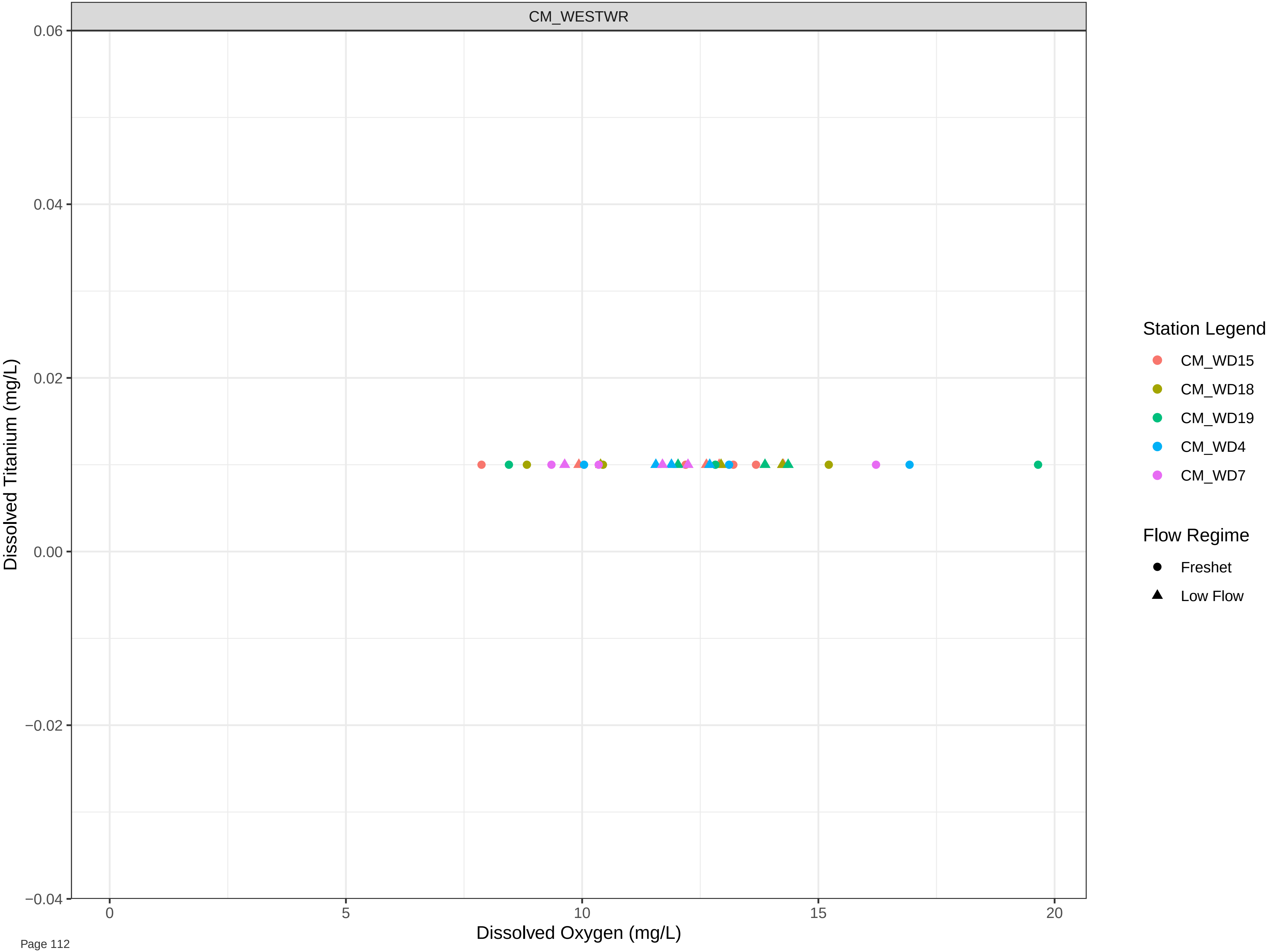

CM_MMCCR
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

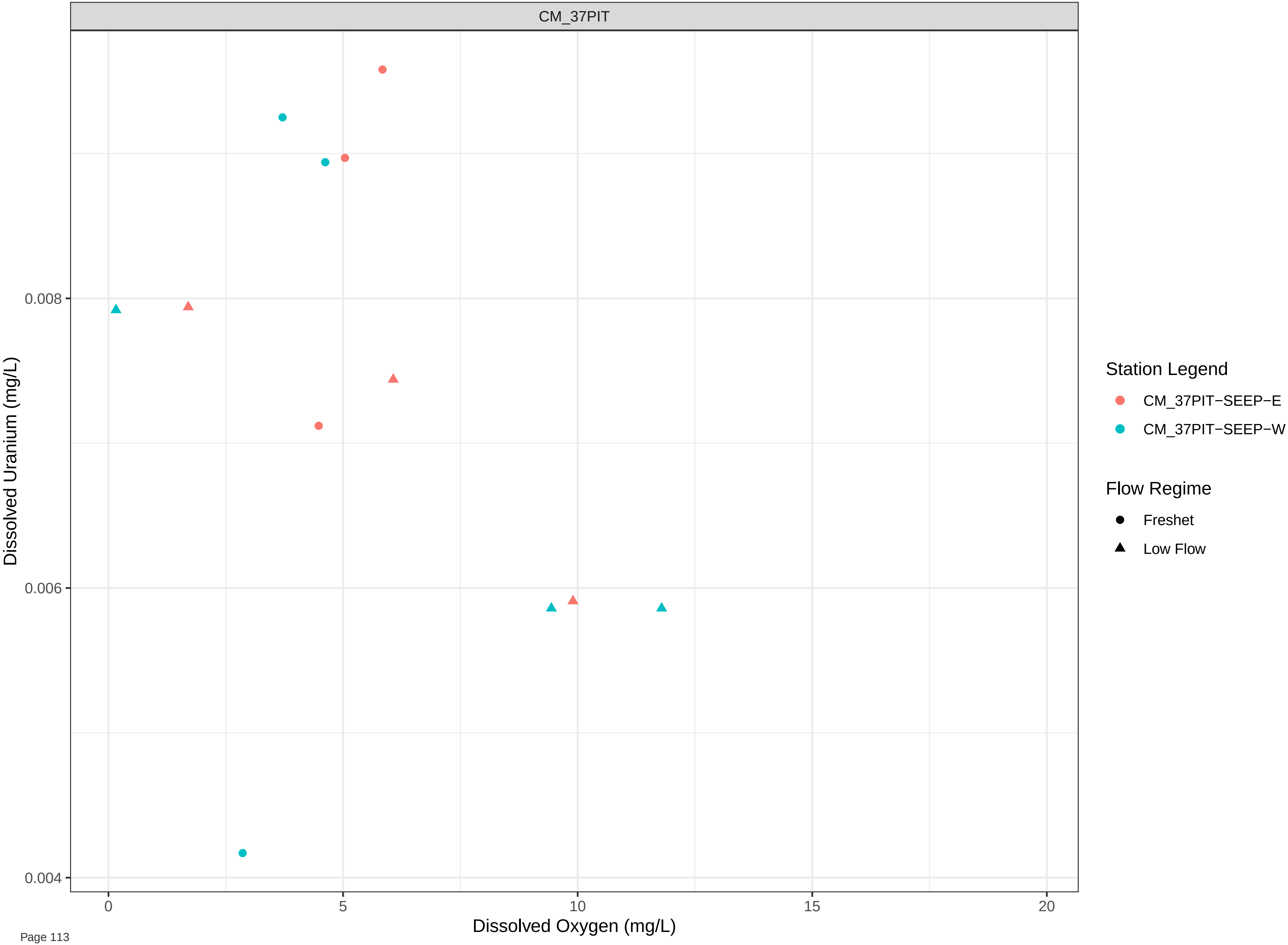

CM_WESTWR
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

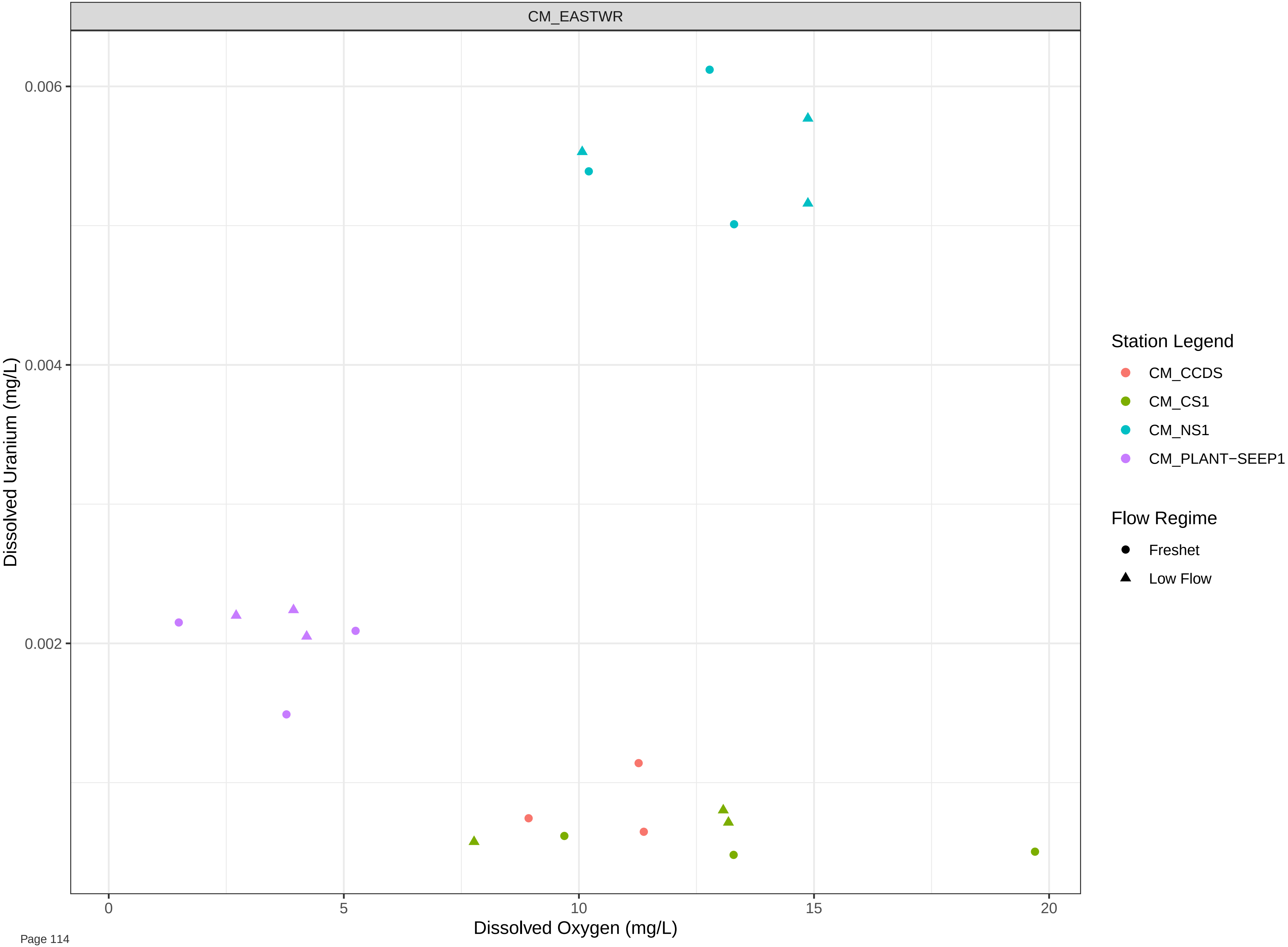

CM_37PIT
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

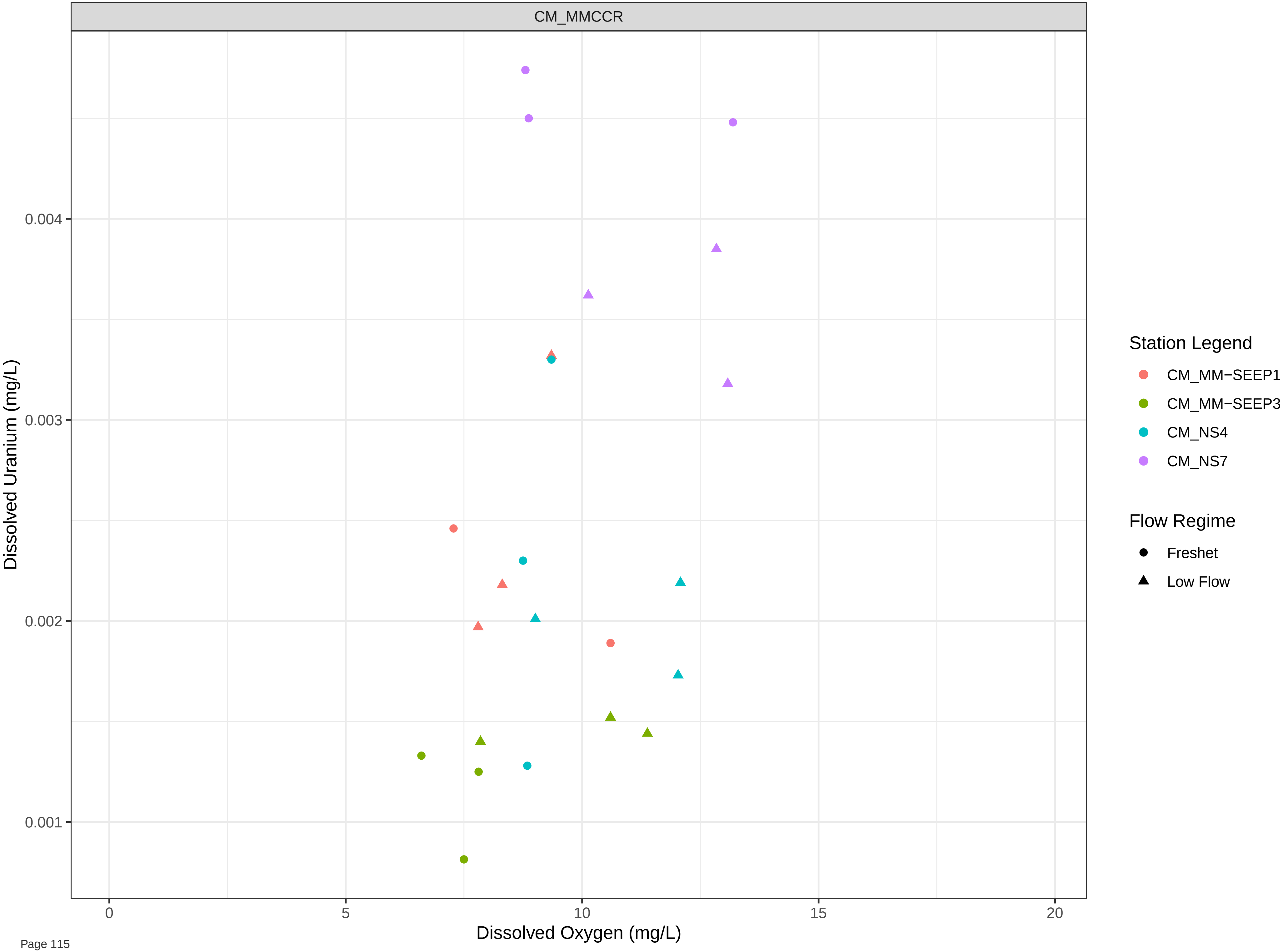

CM_EASTWR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

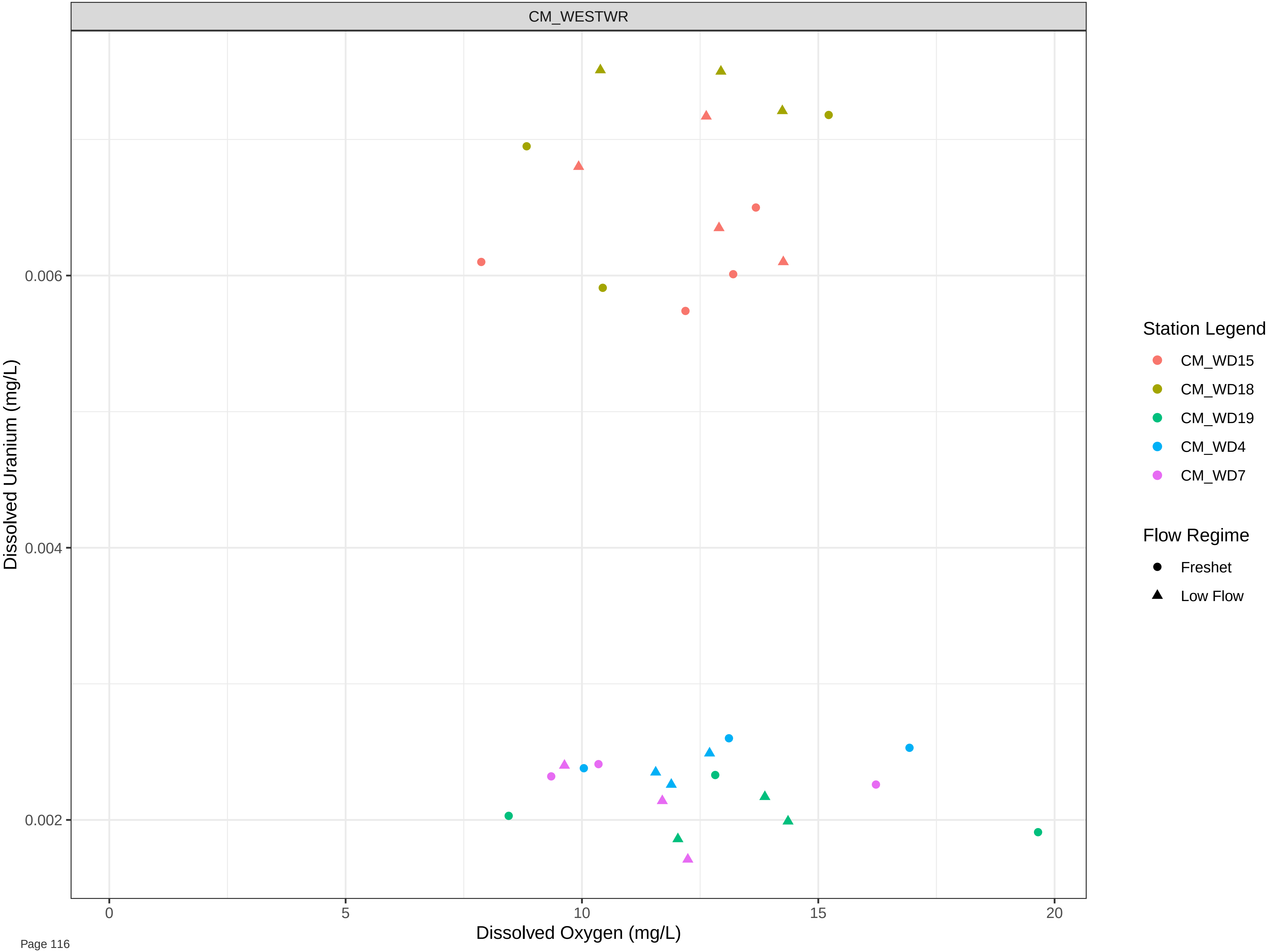

CM_MMCCR
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

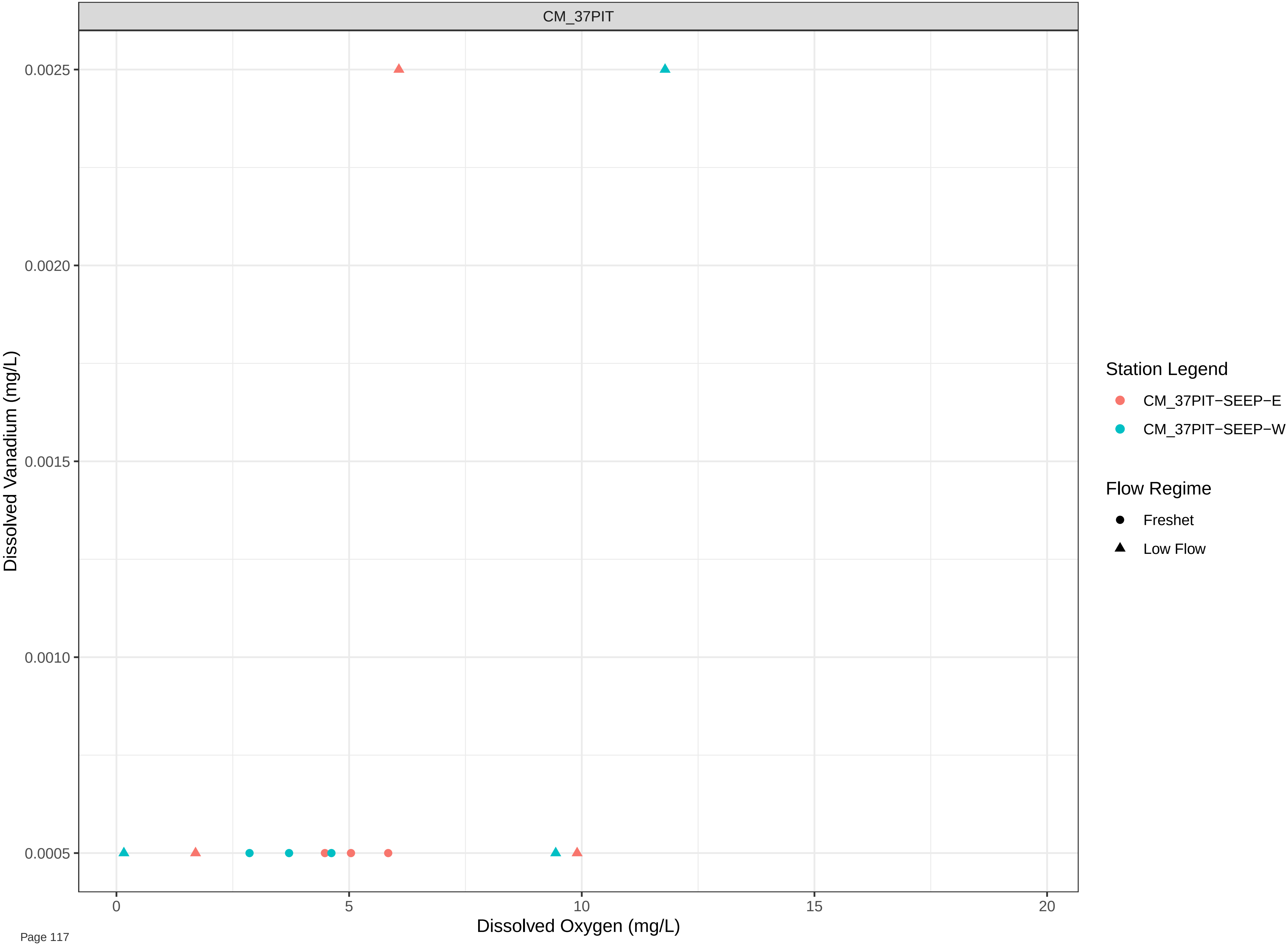

CM_WESTWR
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

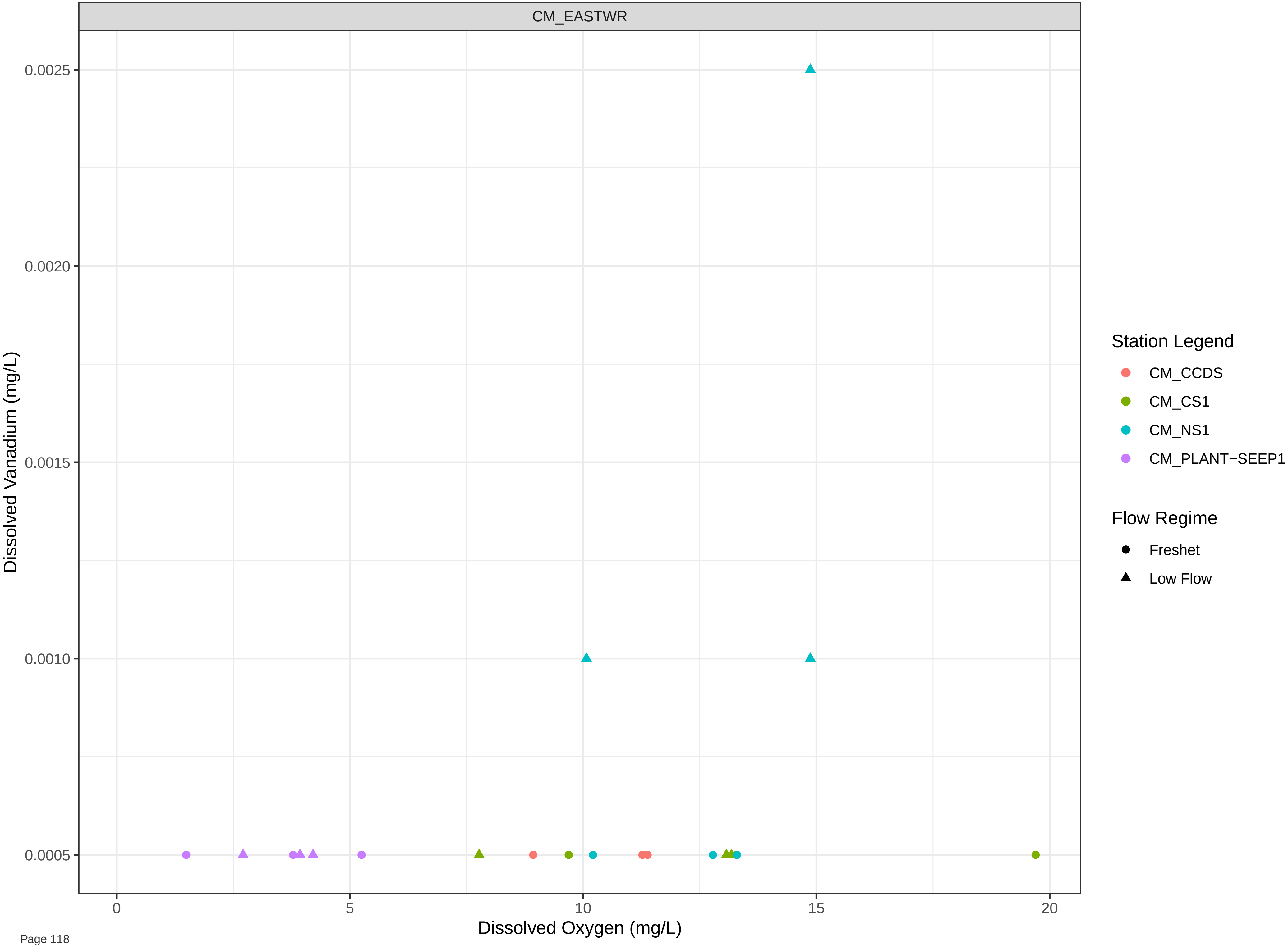

CM_37PIT
Dissolved Uranium (mg/L)
0.008
0.006
0.004
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
● CM_37PIT−SEEP−E
● CM_37PIT−SEEP−W
Flow Regime
● Freshet
▲ Low Flow

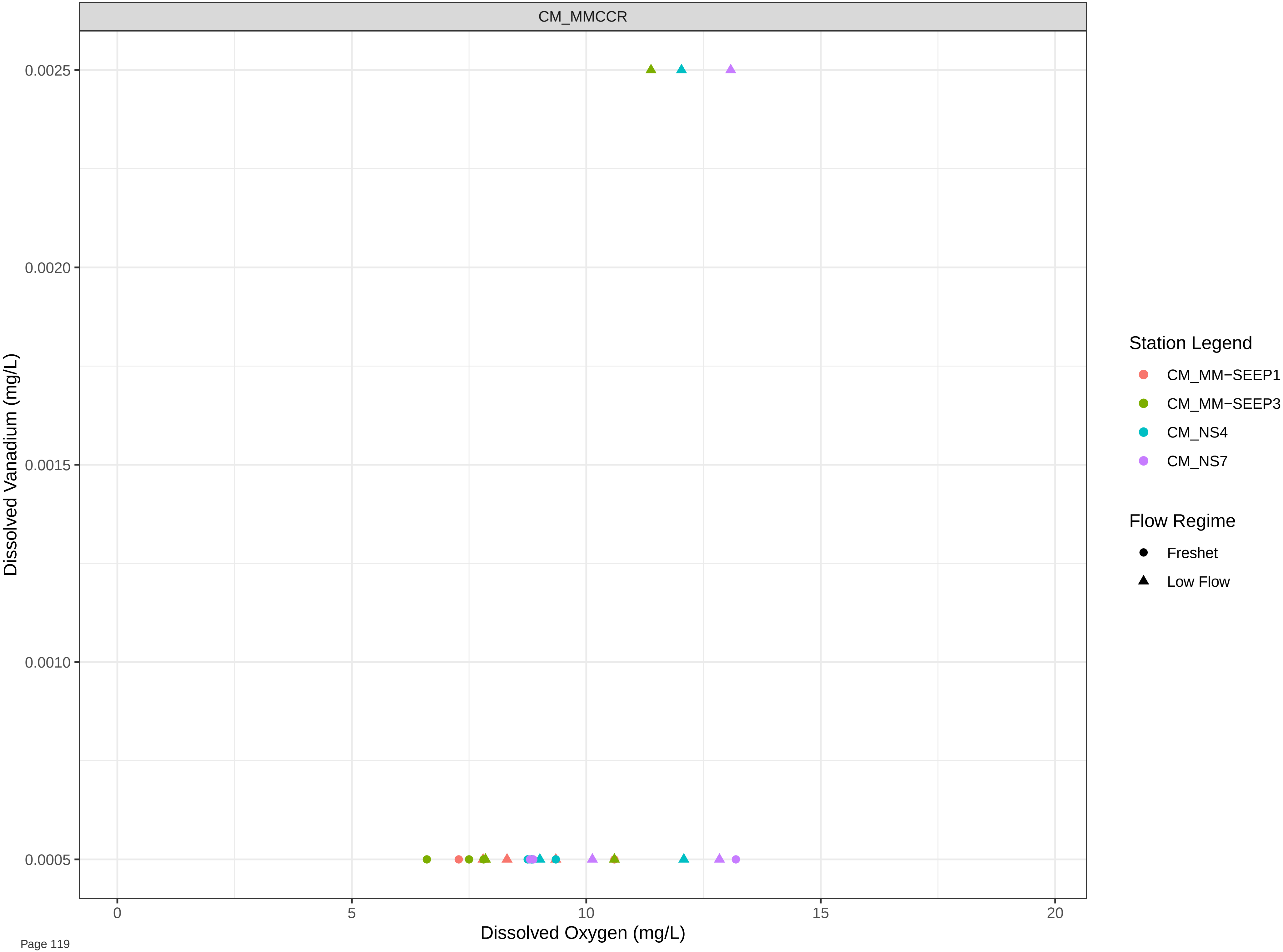

CM_EASTWR
Dissolved Uranium (mg/L)
0.006
0.004
0.002
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

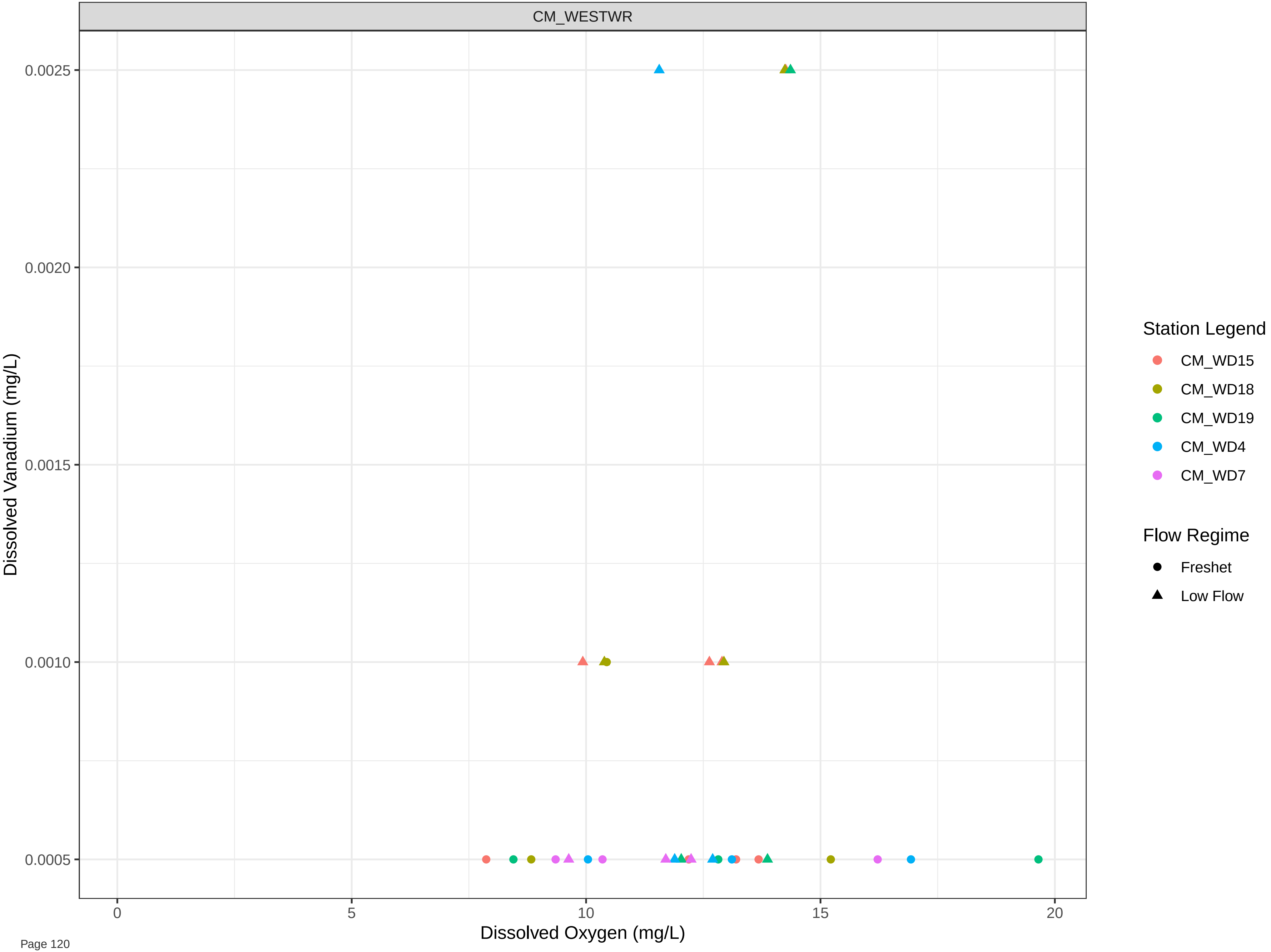

CM_MMCCR
Dissolved Uranium (mg/L)
0.004
0.003
0.002
0.001
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow

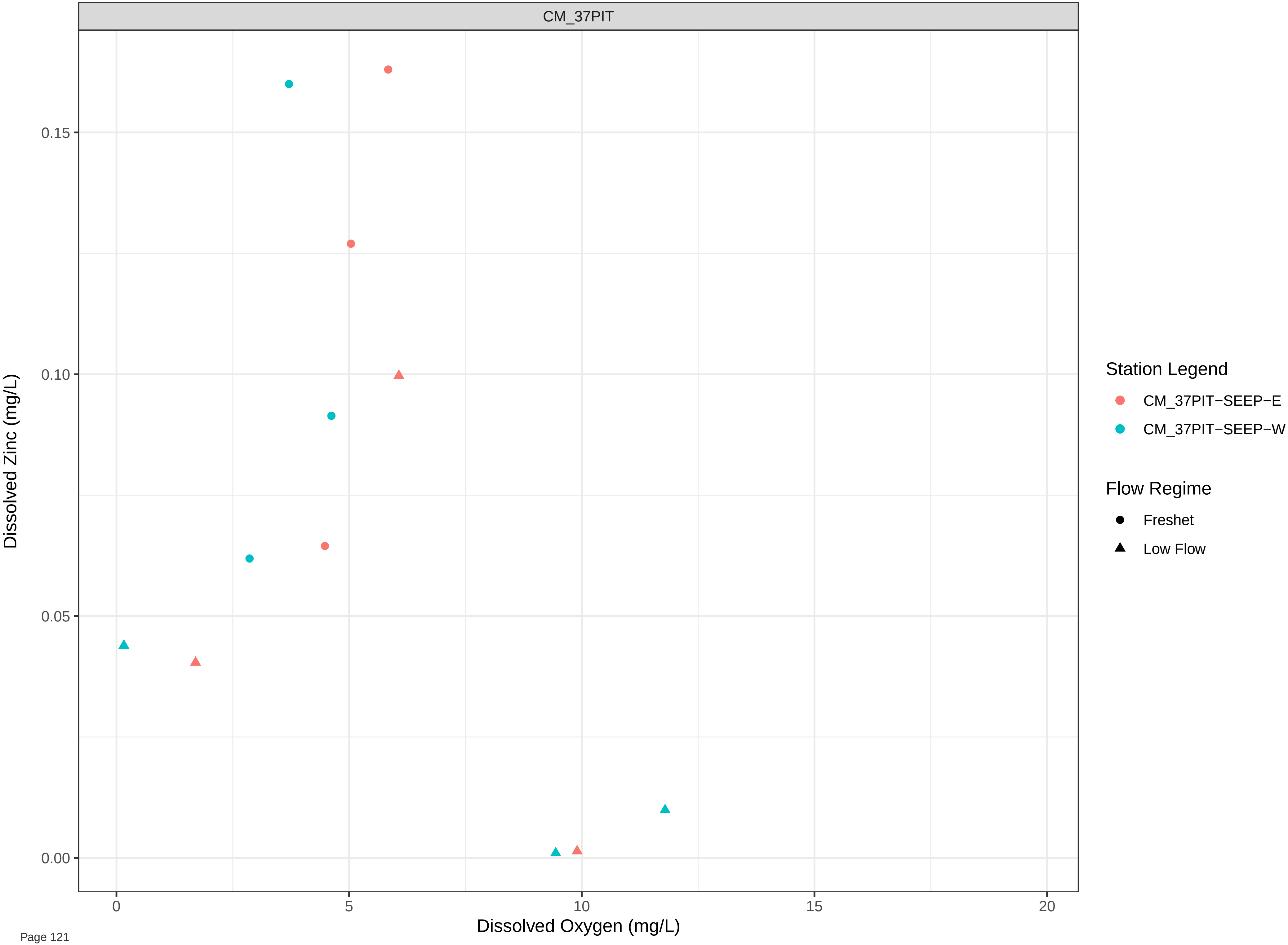

CM_WESTWR
Dissolved Uranium (mg/L)
0.006
0.004
0.002
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
● CM_WD15
● CM_WD18
● CM_WD19
● CM_WD4
● CM_WD7
Flow Regime
● Freshet
▲ Low Flow

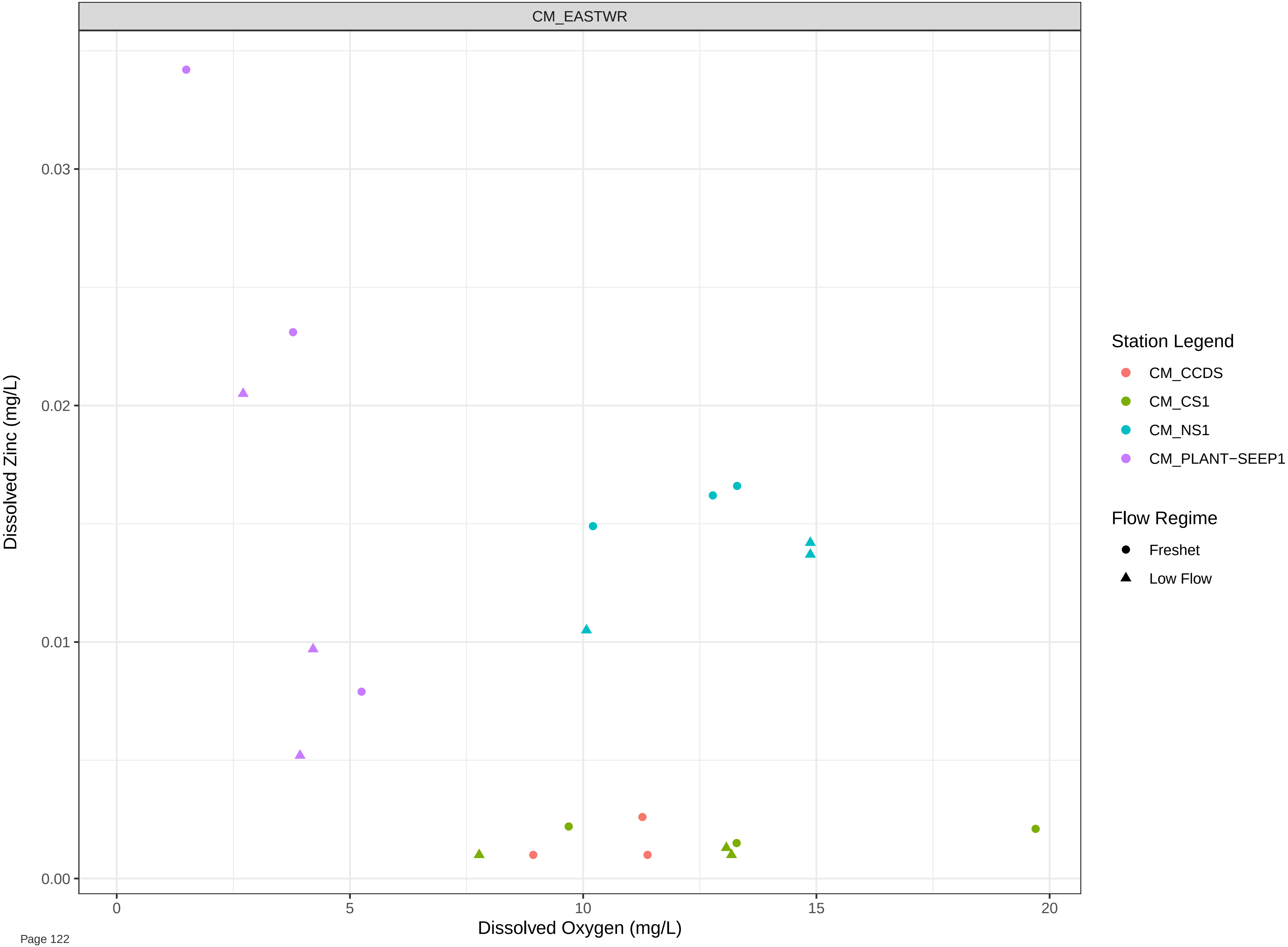

CM_37PIT
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow

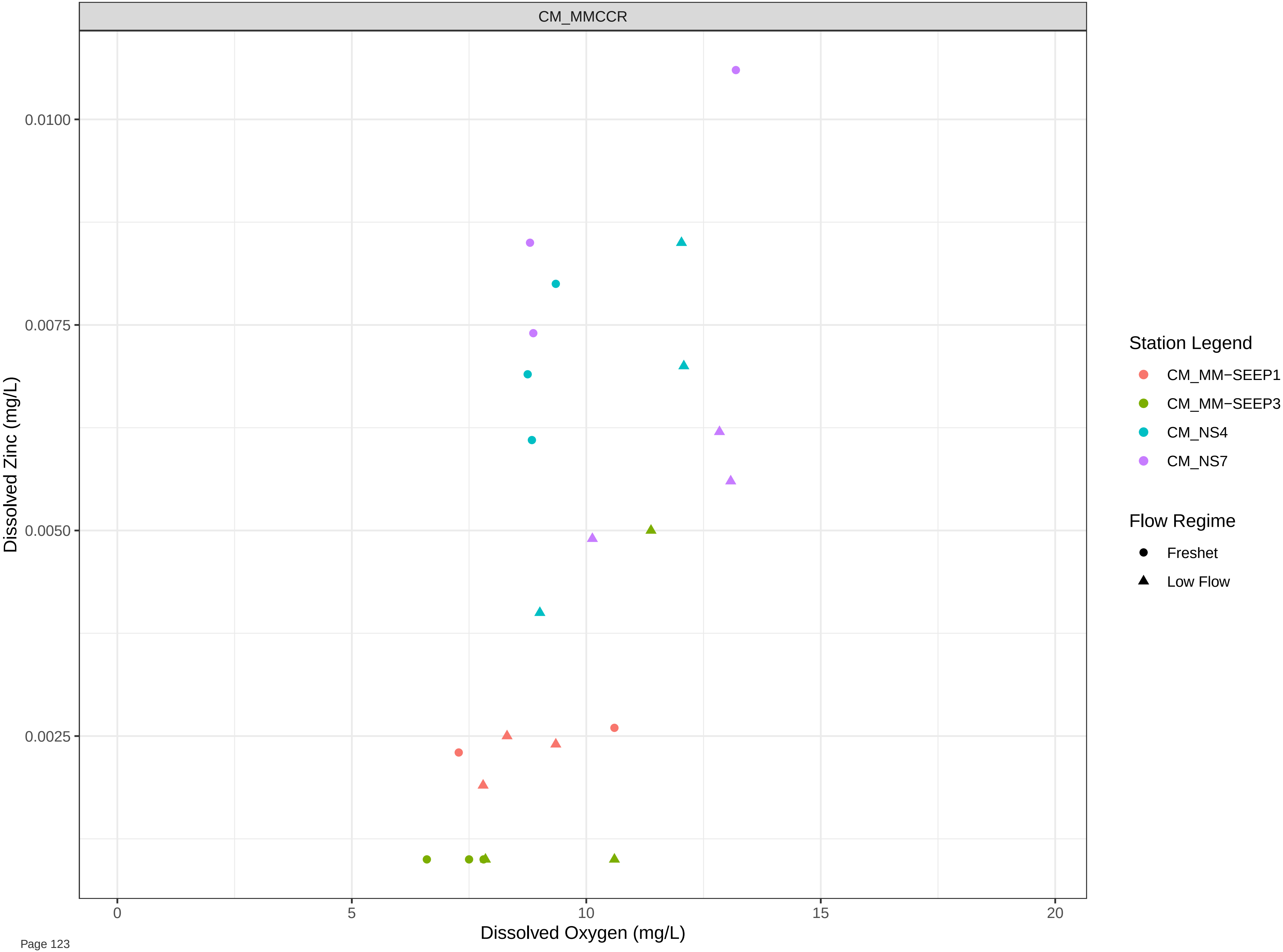

CM_EASTWR
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

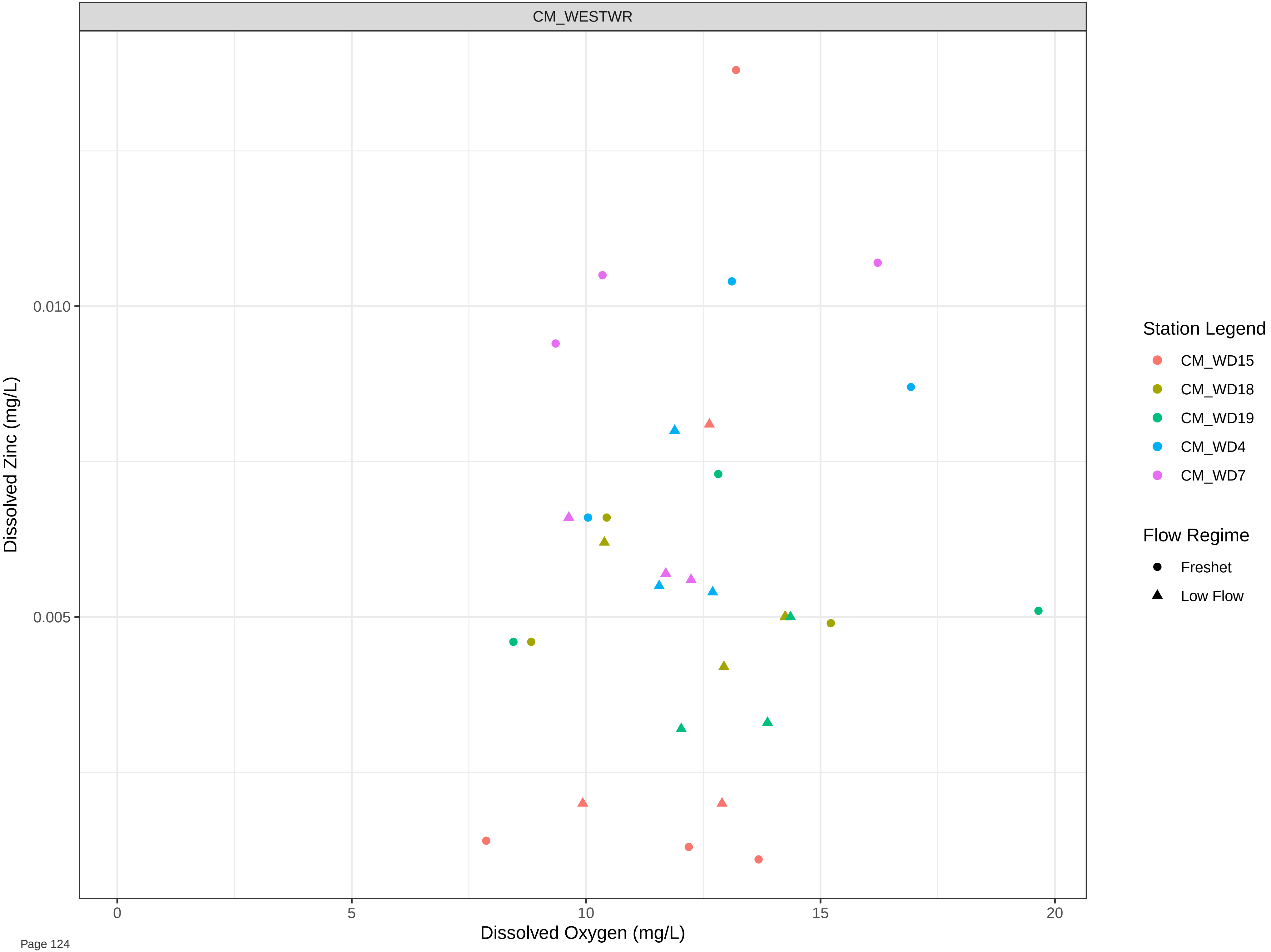

CM_MMCCR
0.0025
0.0020
0.0015
0.0010
0.0005
Dissolved Vanadium (mg/L)
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS4
CM_NS7
Flow Regime
Freshet
Low Flow


CM_WESTWR
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

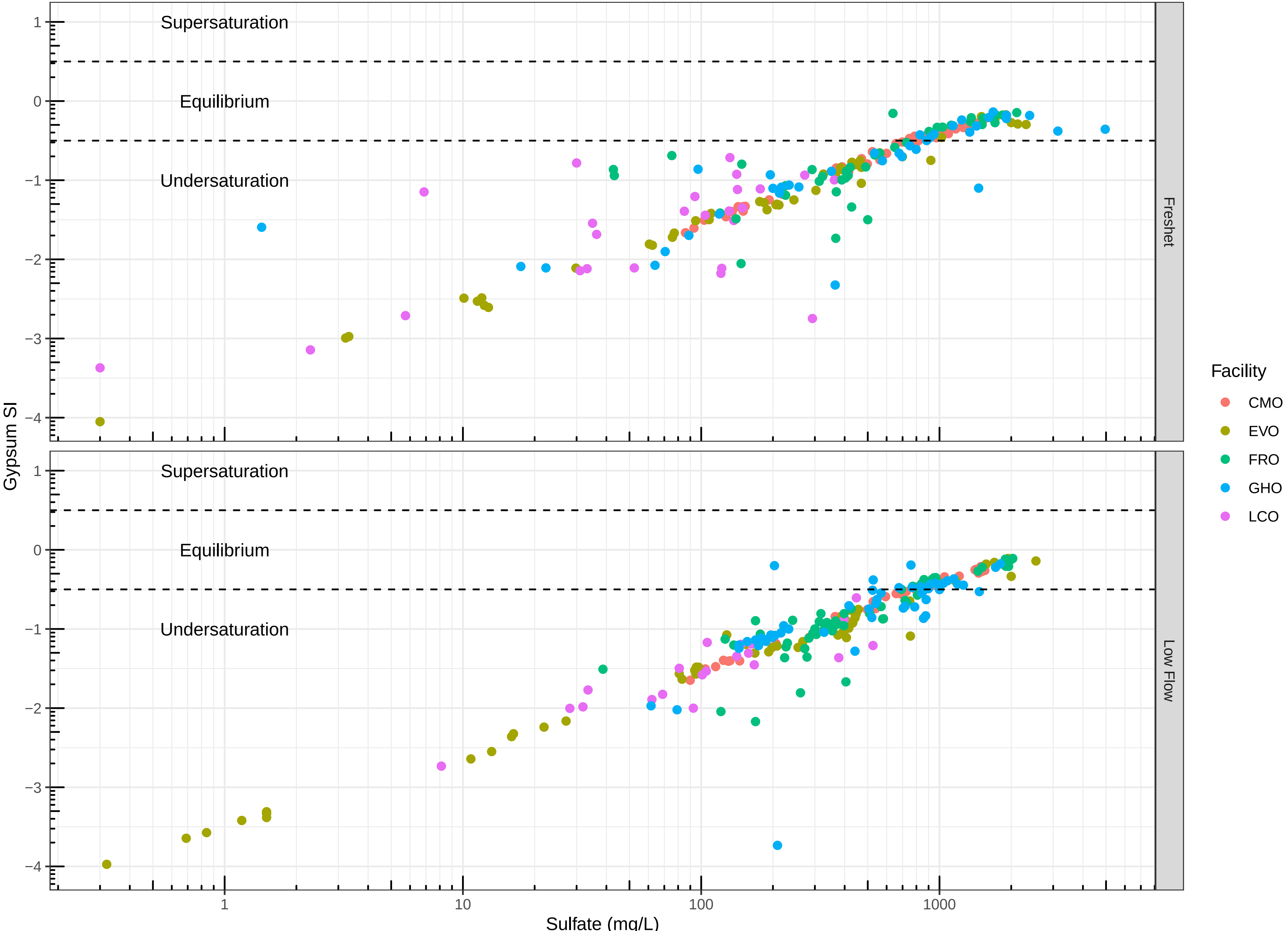

CM_37PIT
Dissolved Zinc (mg/L)
0.15
0.10
0.05
0.00
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
Flow Regime
Freshet
Low Flow


CM_EASTWR
Dissolved Zinc (mg/L)
0.00
0.01
0.02
0.03
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
CM_CCDS
CM_CS1
CM_NS1
CM_PLANT−SEEP1
Flow Regime
Freshet
Low Flow

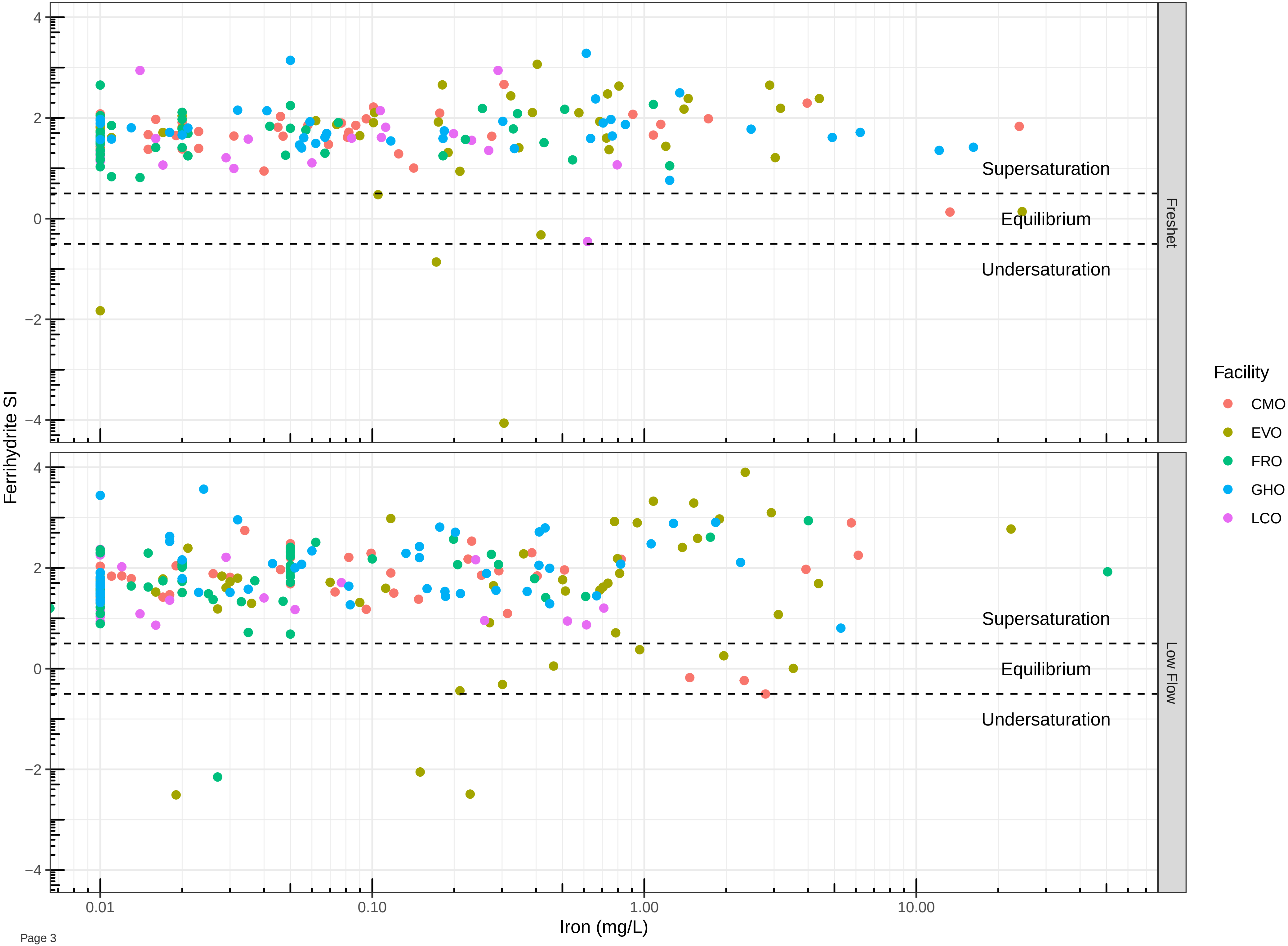

CM_MMCCR
Dissolved Zinc (mg/L)
0.0100
0.0075
0.0050
0.0025
Dissolved Oxygen (mg/L)
0
5
10
15
20
Station Legend
● CM_MM−SEEP1
● CM_MM−SEEP3
● CM_NS4
● CM_NS7
Flow Regime
● Freshet
▲ Low Flow


CM_WESTWR
Dissolved Zinc (mg/L)
0.010
0.005
0
5
10
15
20
Dissolved Oxygen (mg/L)
Station Legend
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

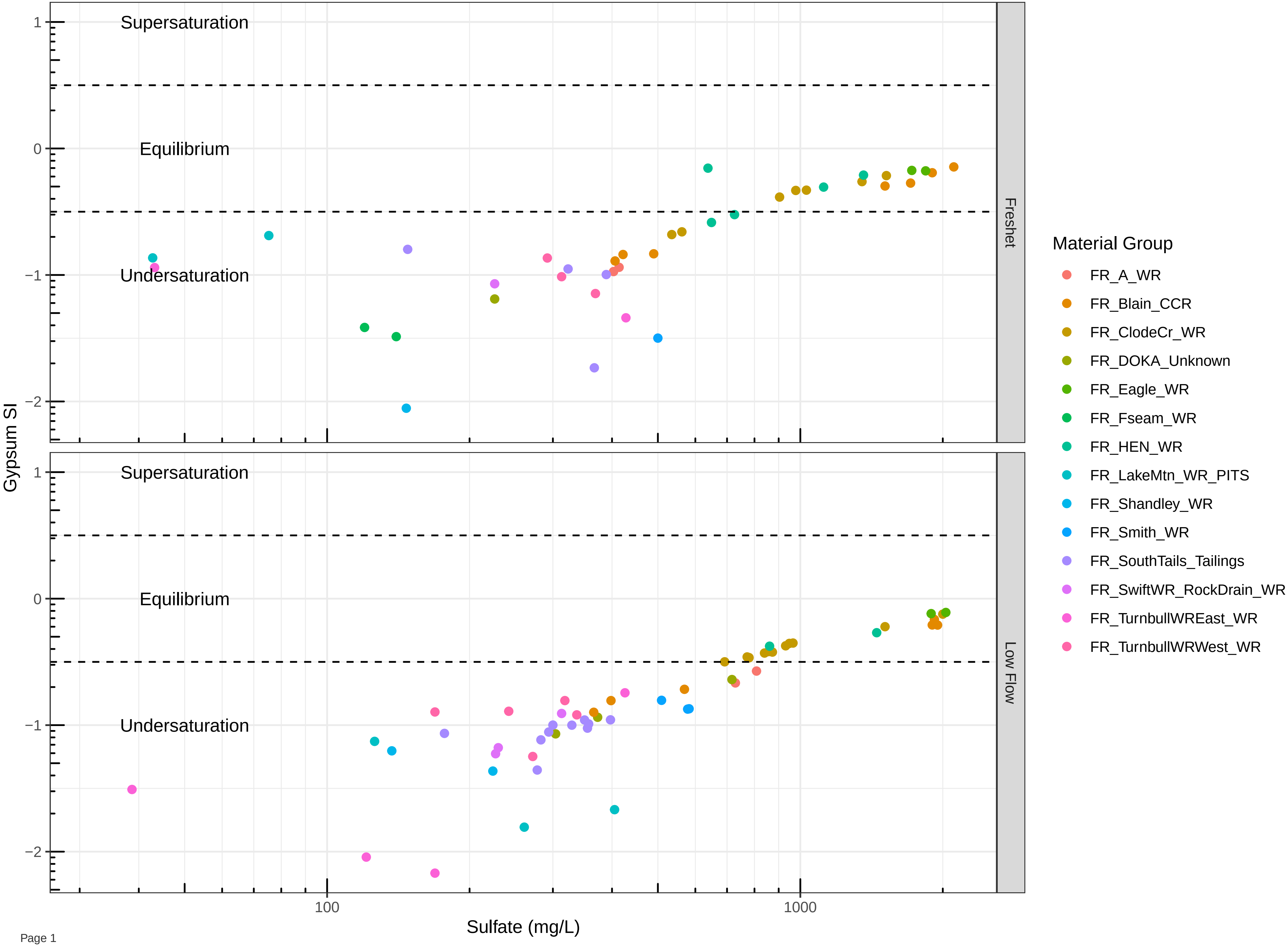
Appendix I Modelled Mineral Saturation Indices Plots

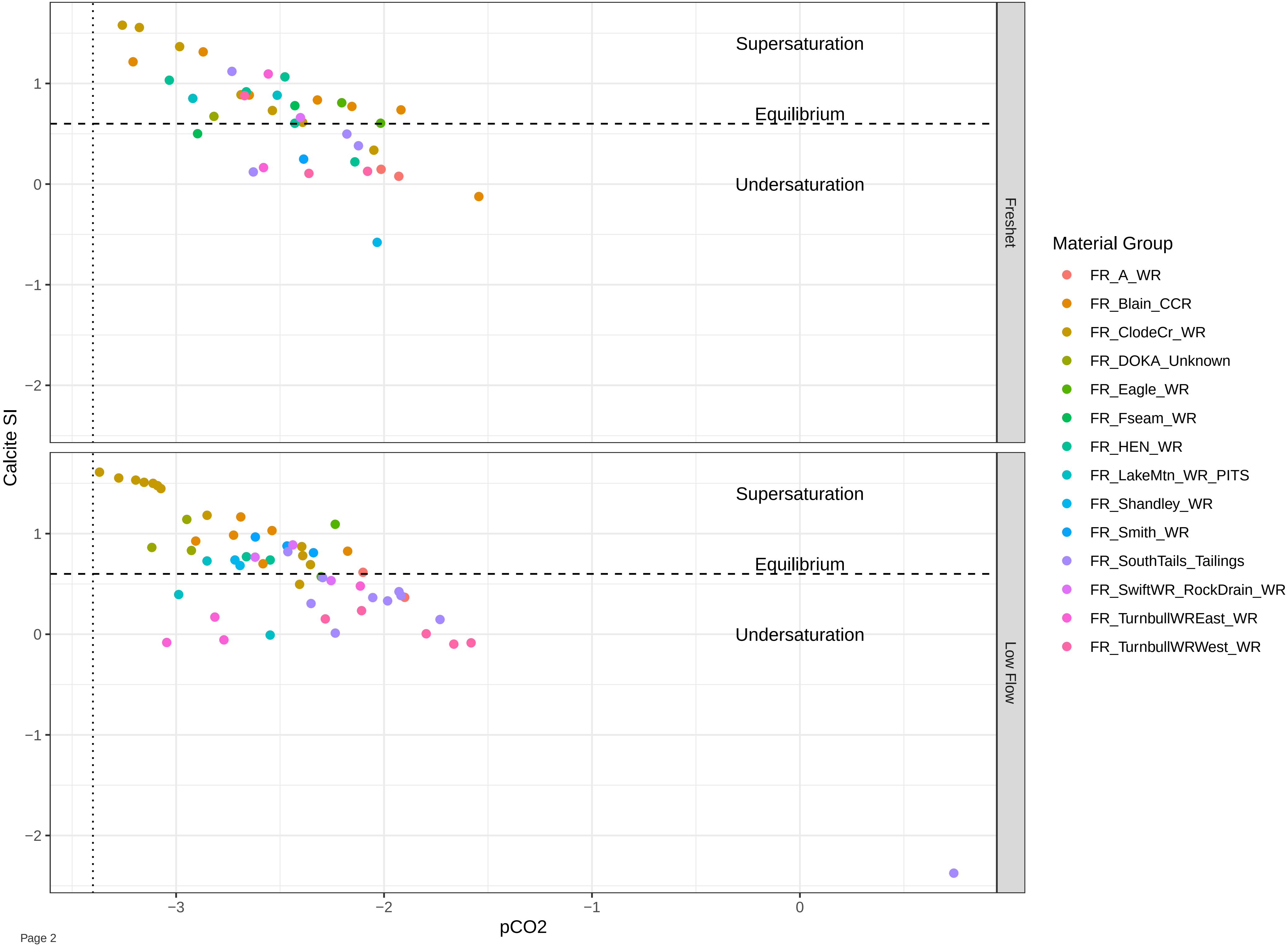

Supersaturation
Equilibrium
Undersaturation
Freshet
Low Flow
Gypsum SI
Sulfate (mg/L)
1
0
−1
−2
−3
−4
1
10
100
1000
Facility
CMO
EVO
FRO
GHO
LCO

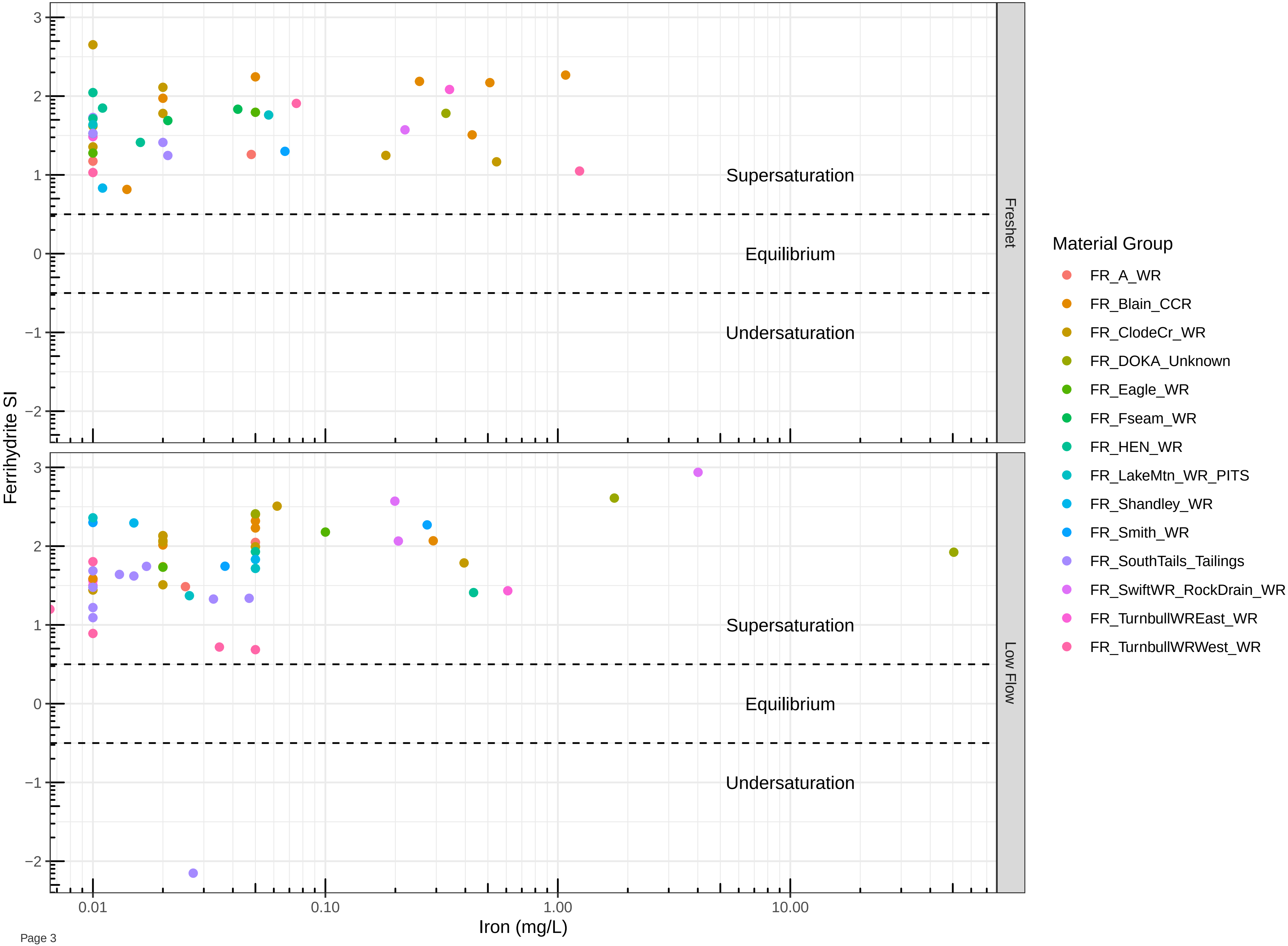
Supersaturation
Equilibrium
Undersaturation
Freshet
Low Flow
Calcite SI
pCO2
2
1
0
−1
−2
−4
−3
−2
−1
0
1
Facility
CMO
EVO
FRO
GHO
LCO

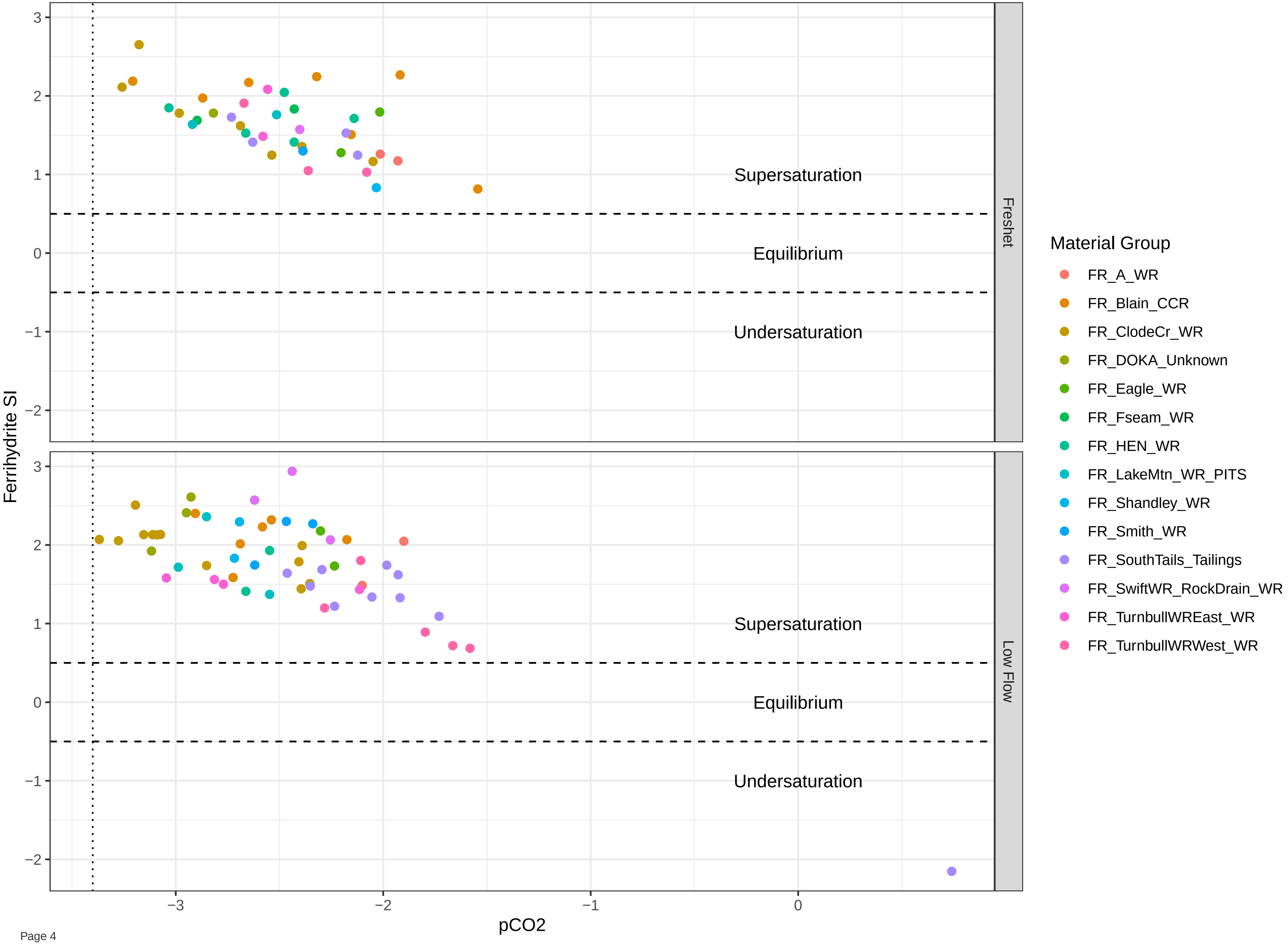

Ferrihydrite SI
4
2
0
−2
−4
Supersaturation
Equilibrium
Undersaturation
Freshet
Low Flow
0.01
0.10
1.00
10.00
Iron (mg/L)
Facility
CMO
EVO
FRO
GHO
LCO

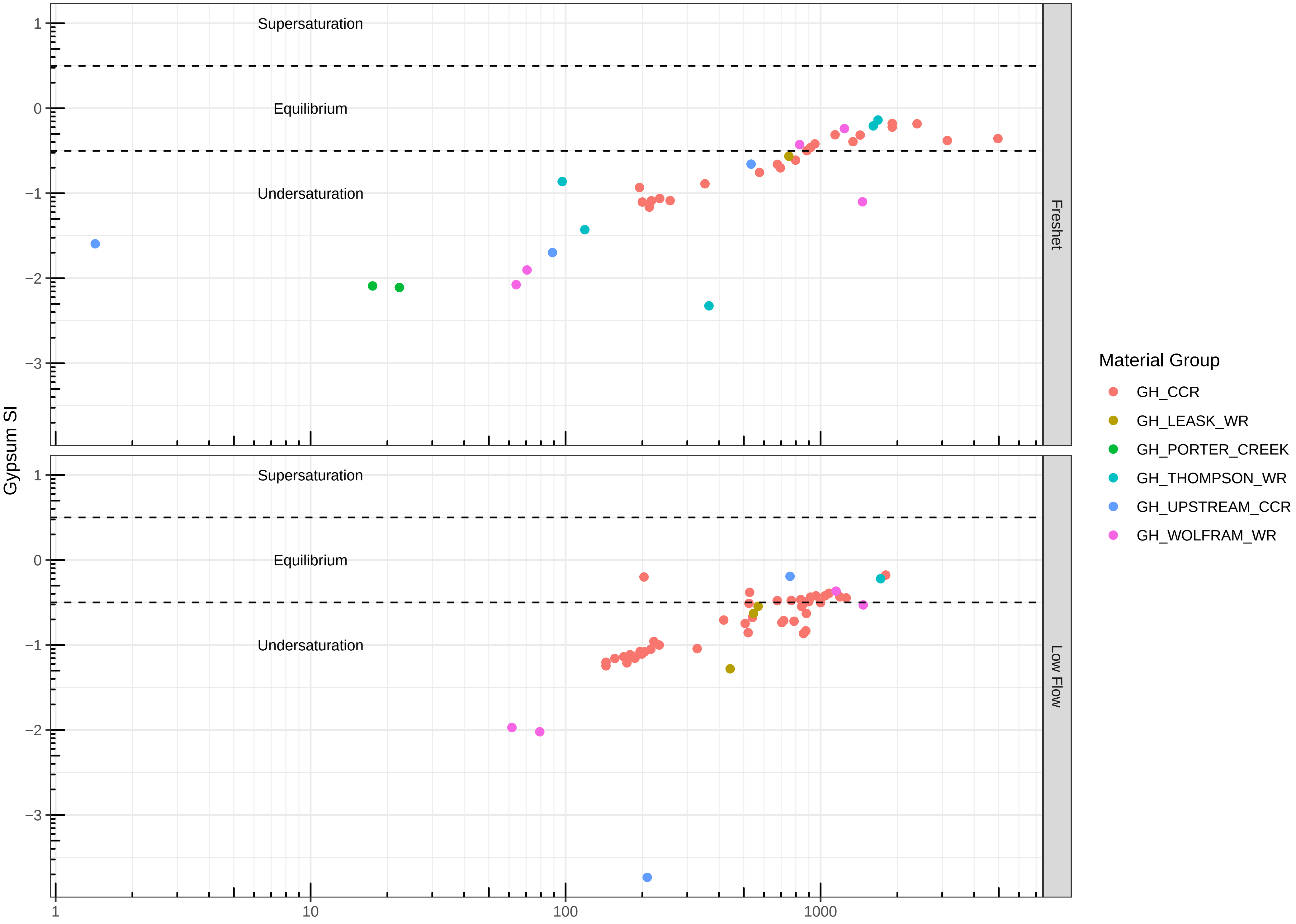

Ferrihydrite SI
pCO2
4
2
0
−2
−4
−4
−3
−2
−1
0
1
Supersaturation
Equilibrium
Undersaturation
Freshet
Low Flow
Facility
CMO
EVO
FRO
GHO
LCO

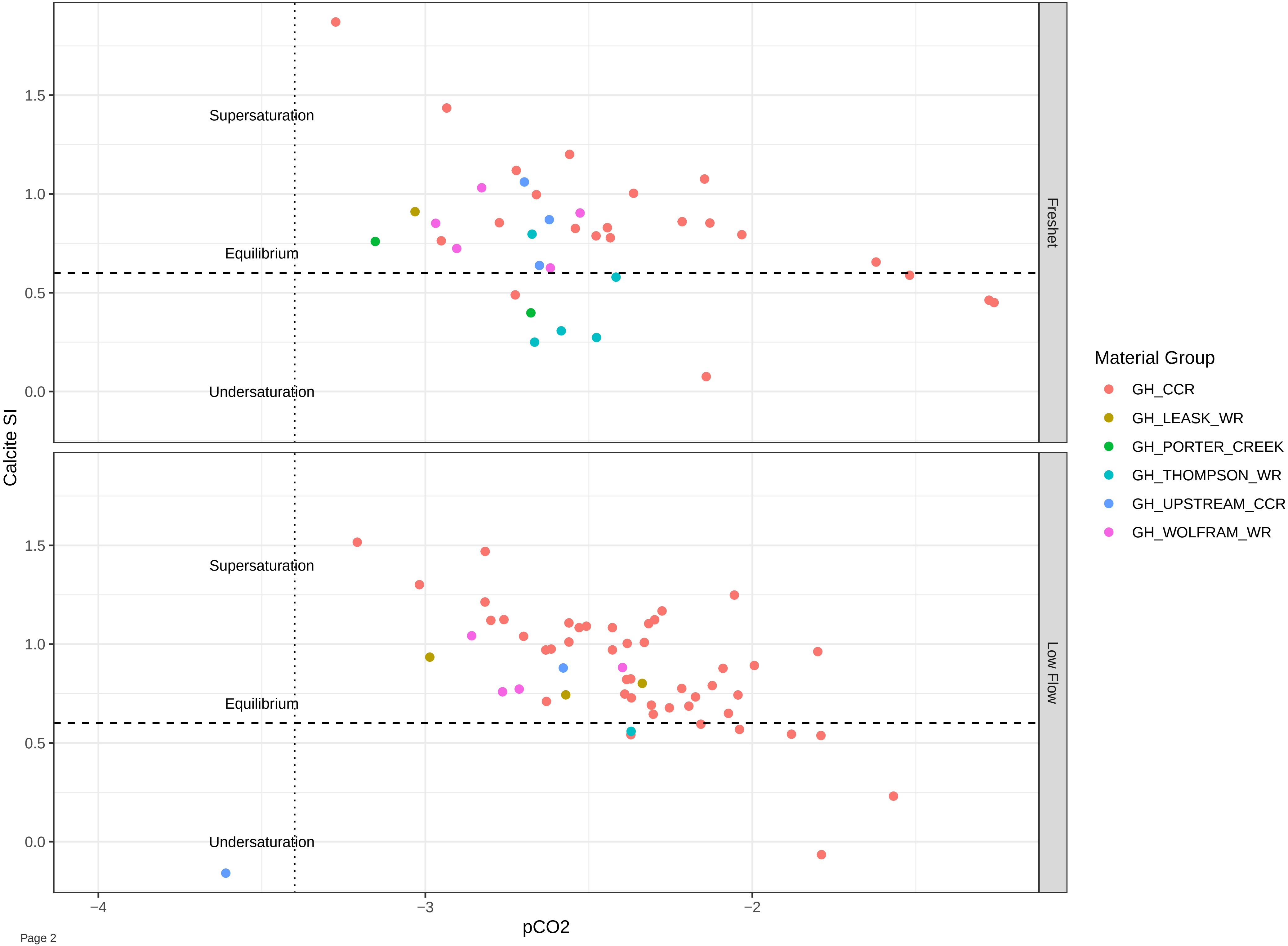

Supersaturation
Equilibrium
Undersaturation
Supersaturation
Equilibrium
Undersaturation
1
0
−1
−2
1
0
−1
−2
Gypsum SI
Freshet
Low Flow
100
1000
Sulfate (mg/L)
Material Group
FR_A_WR
FR_Blain_CCR
FR_ClodeCr_WR
FR_DOKA_Unknown
FR_Eagle_WR
FR_Fseam_WR
FR_HEN_WR
FR_LakeMtn_WR_PITS
FR_Shandley_WR
FR_Smith_WR
FR_SouthTails_Tailings
FR_SwiftWR_RockDrain_WR
FR_TurnbullWREast_WR
FR_TurnbullWRWest_WR

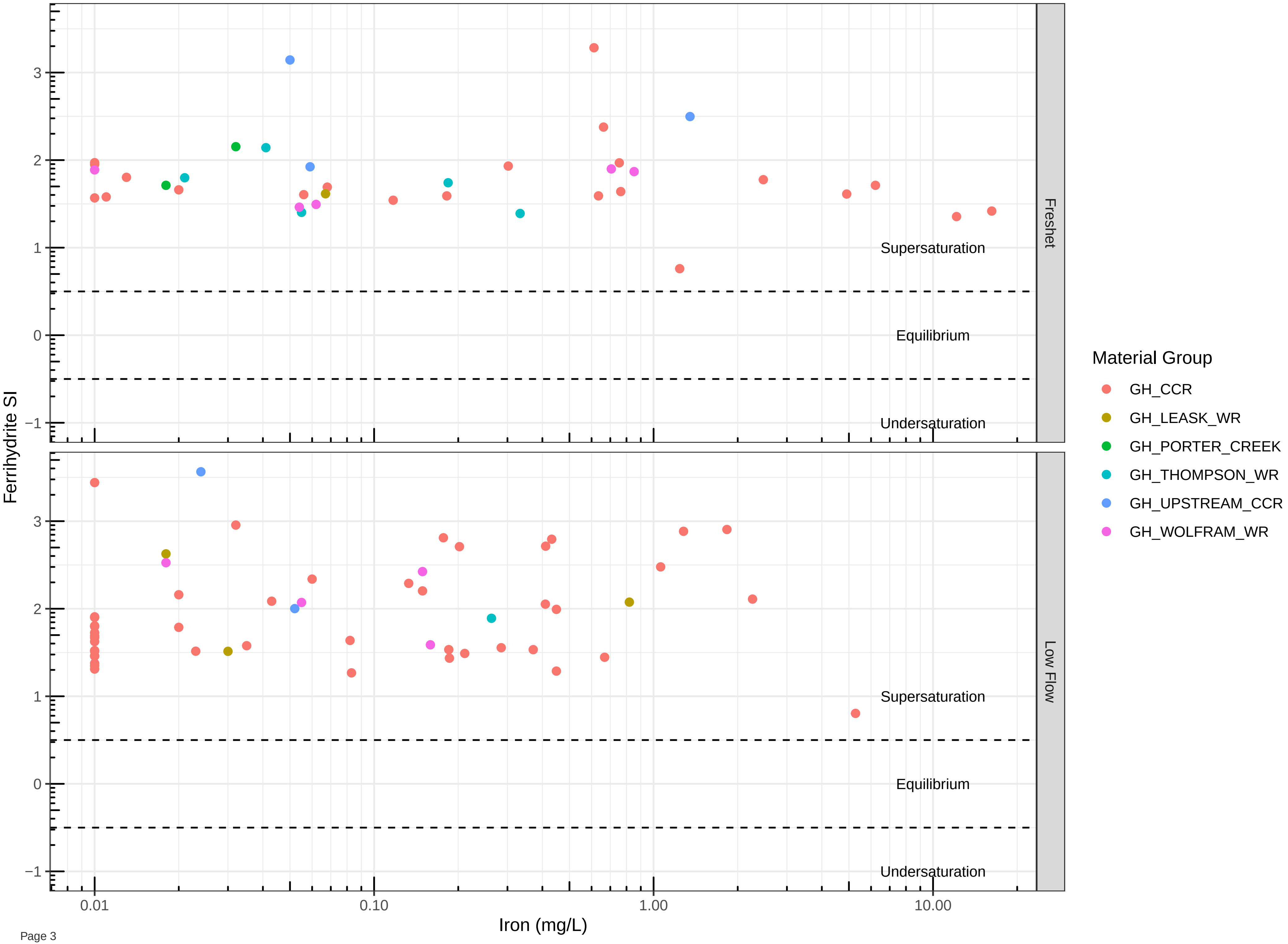

Supersaturation
Equilibrium
Undersaturation
Freshet
Low Flow
Calcite SI
pCO2
1
0
−1
−2
−3
−2
−1
0
Material Group
FR_A_WR
FR_Blain_CCR
FR_ClodeCr_WR
FR_DOKA_Unknown
FR_Eagle_WR
FR_Fseam_WR
FR_HEN_WR
FR_LakeMtn_WR_PITS
FR_Shandley_WR
FR_Smith_WR
FR_SouthTails_Tailings
FR_SwiftWR_RockDrain_WR
FR_TurnbullWREast_WR
FR_TurnbullWRWest_WR


Ferrihydrite SI
3
2
1
0
−1
−2
Supersaturation
Equilibrium
Undersaturation
Freshet
Low Flow
0.01
0.10
1.00
10.00
Iron (mg/L)
Material Group
FR_A_WR
FR_Blain_CCR
FR_ClodeCr_WR
FR_DOKA_Unknown
FR_Eagle_WR
FR_Fseam_WR
FR_HEN_WR
FR_LakeMtn_WR_PITS
FR_Shandley_WR
FR_Smith_WR
FR_SouthTails_Tailings
FR_SwiftWR_RockDrain_WR
FR_TurnbullWREast_WR
FR_TurnbullWRWest_WR

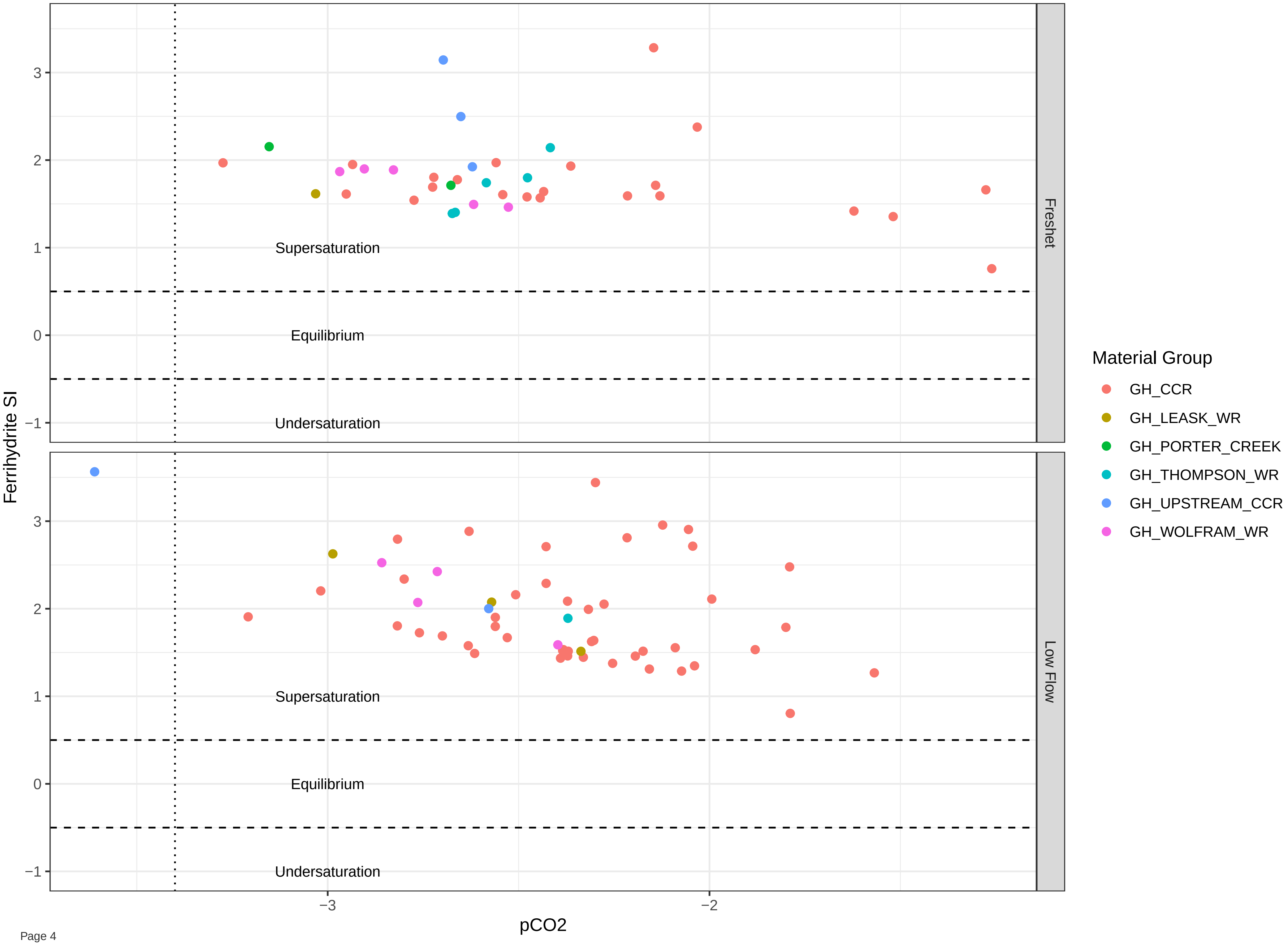

3
2
1
0
−1
−2
Supersaturation
Equilibrium
Undersaturation
Freshet
3
2
1
0
−1
−2
Supersaturation
Equilibrium
Undersaturation
Low Flow
Ferrihydrite SI
−3
−2
−1
0
pCO2
Material Group
FR_A_WR
FR_Blain_CCR
FR_ClodeCr_WR
FR_DOKA_Unknown
FR_Eagle_WR
FR_Fseam_WR
FR_HEN_WR
FR_LakeMtn_WR_PITS
FR_Shandley_WR
FR_Smith_WR
FR_SouthTails_Tailings
FR_SwiftWR_RockDrain_WR
FR_TurnbullWREast_WR
FR_TurnbullWRWest_WR

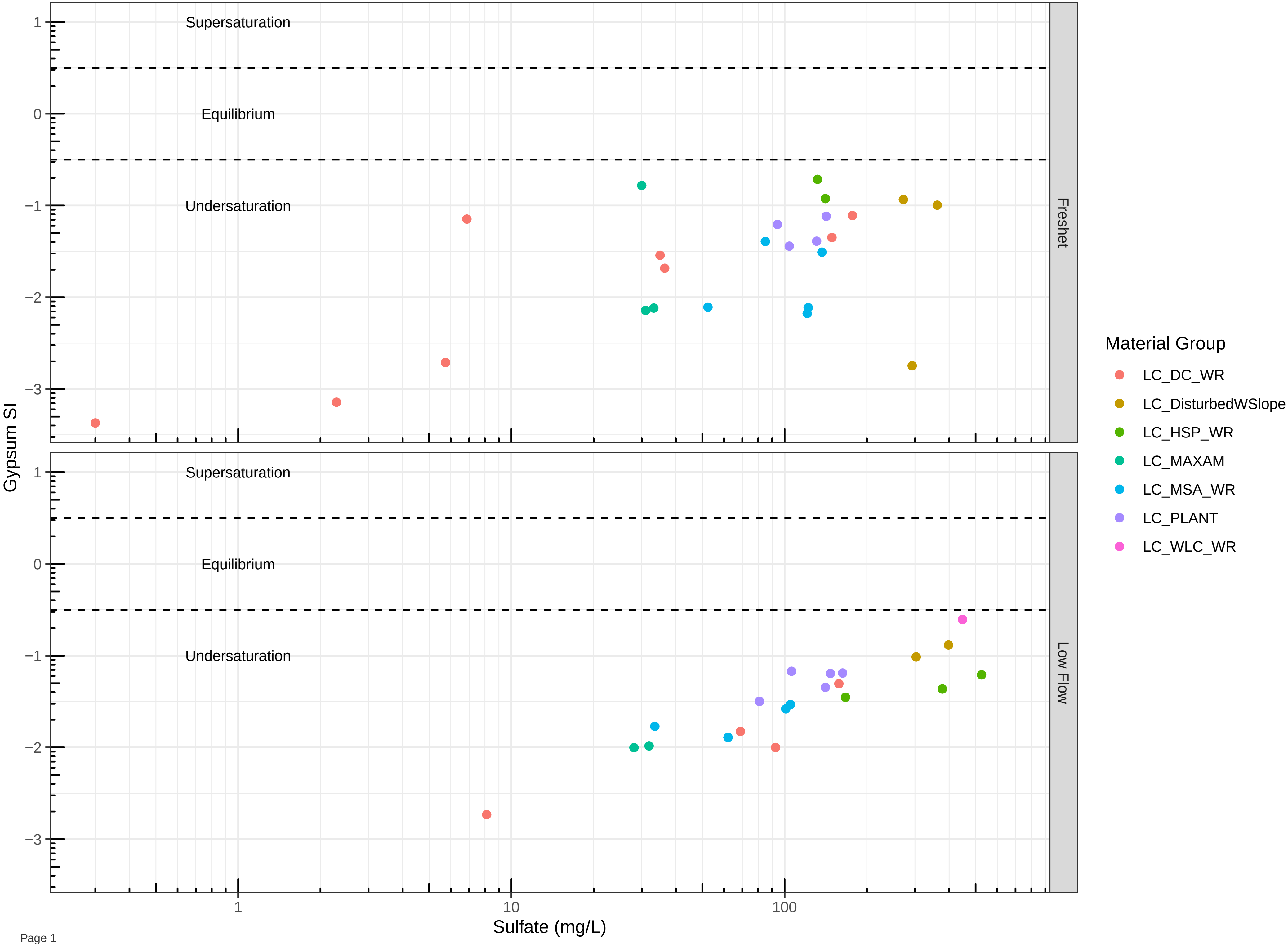

Supersaturation
Equilibrium
Undersaturation
Supersaturation
Equilibrium
Undersaturation
Freshet
Low Flow
1
0
−1
−2
−3
1
0
−1
−2
−3
Gypsum SI
1
10
100
1000
Sulfate (mg/L)
Material Group
GH_CCR
GH_LEASK_WR
GH_PORTER_CREEK
GH_THOMPSON_WR
GH_UPSTREAM_CCR
GH_WOLFRAM_WR

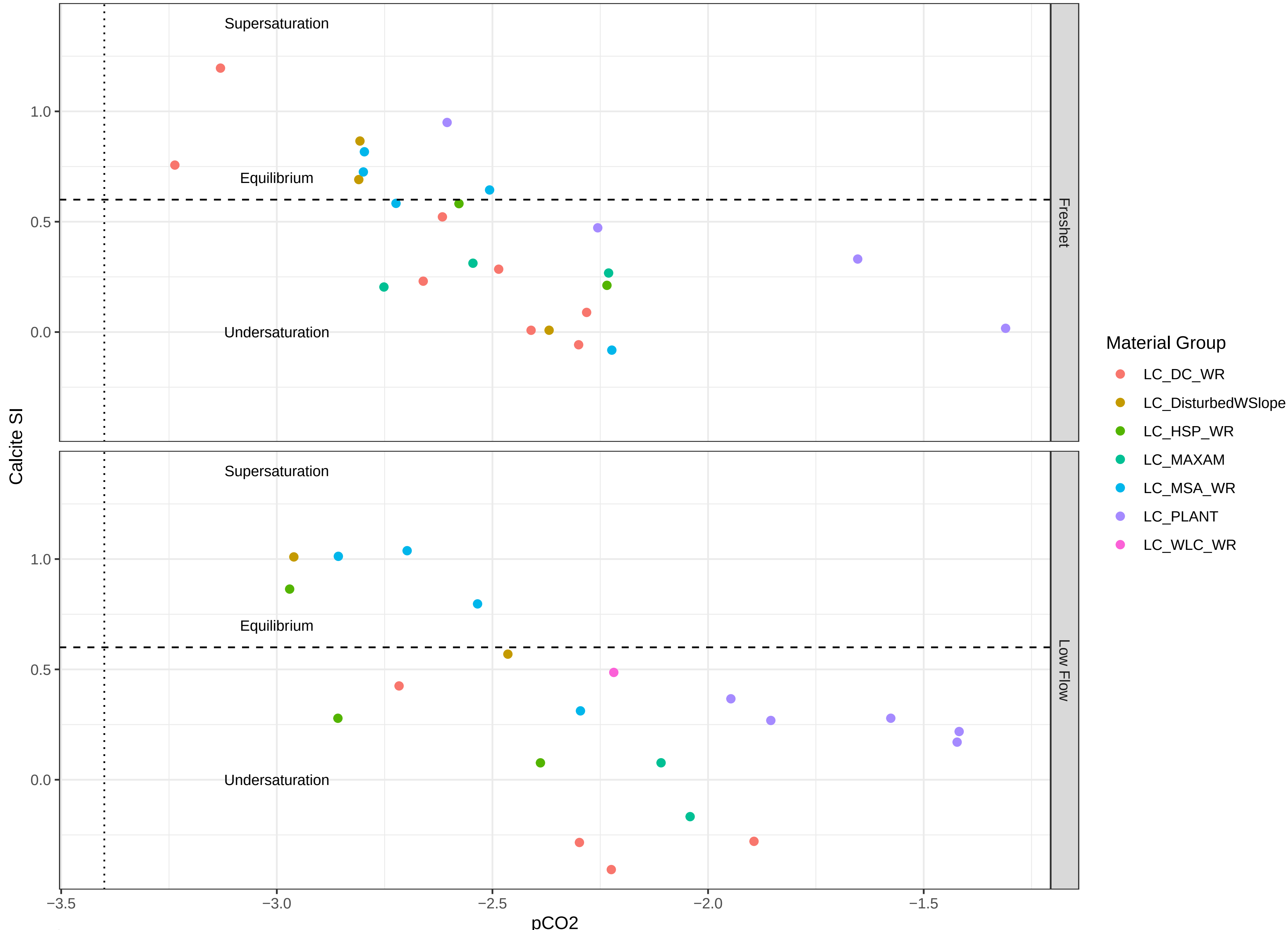

Calcite SI
pCO2
Supersaturation
Equilibrium
Undersaturation
1.5
1.0
0.5
0.0
−4
−3
−2
Freshet
Low Flow
Material Group
GH_CCR
GH_LEASK_WR
GH_PORTER_CREEK
GH_THOMPSON_WR
GH_UPSTREAM_CCR
GH_WOLFRAM_WR

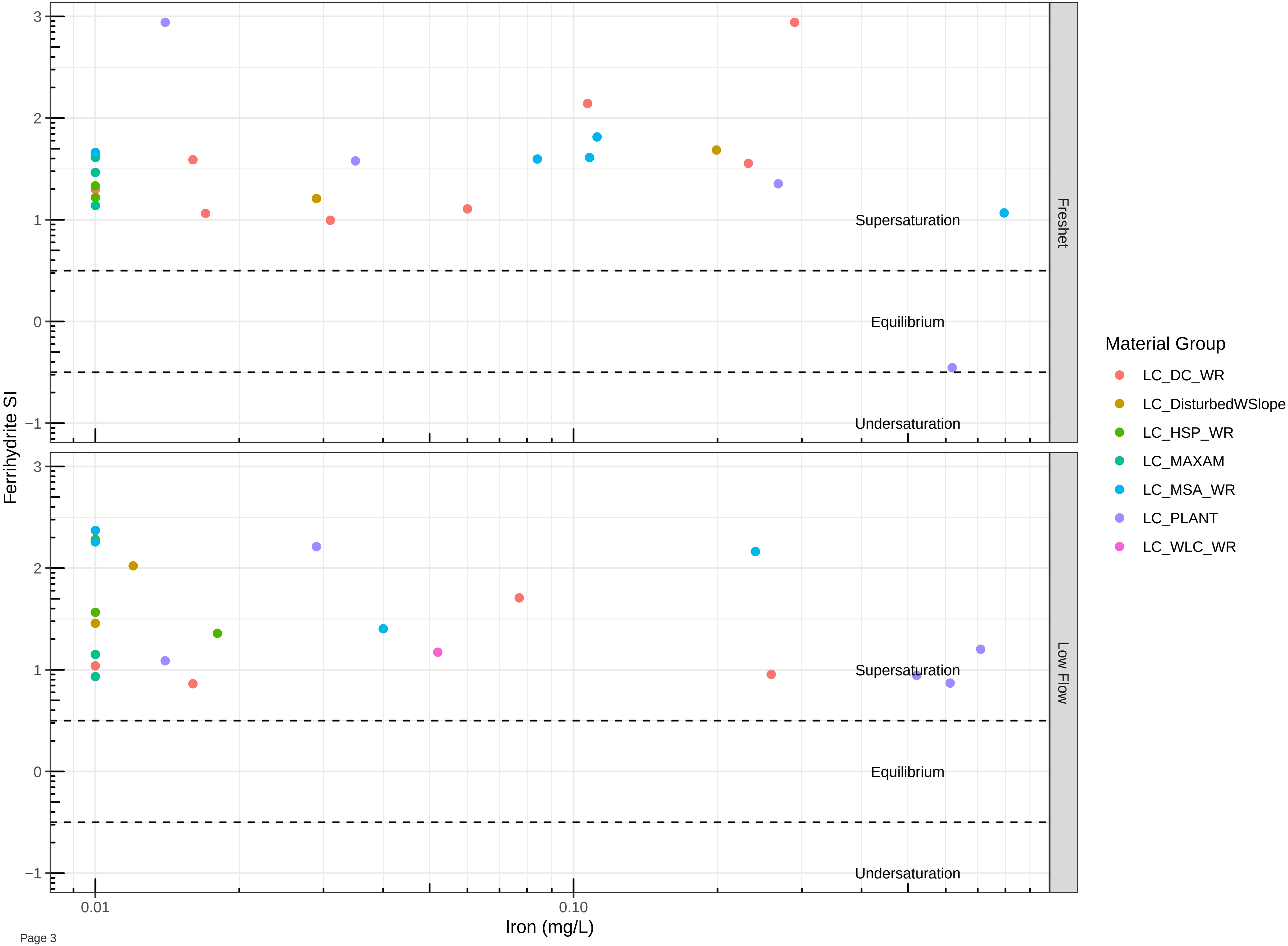


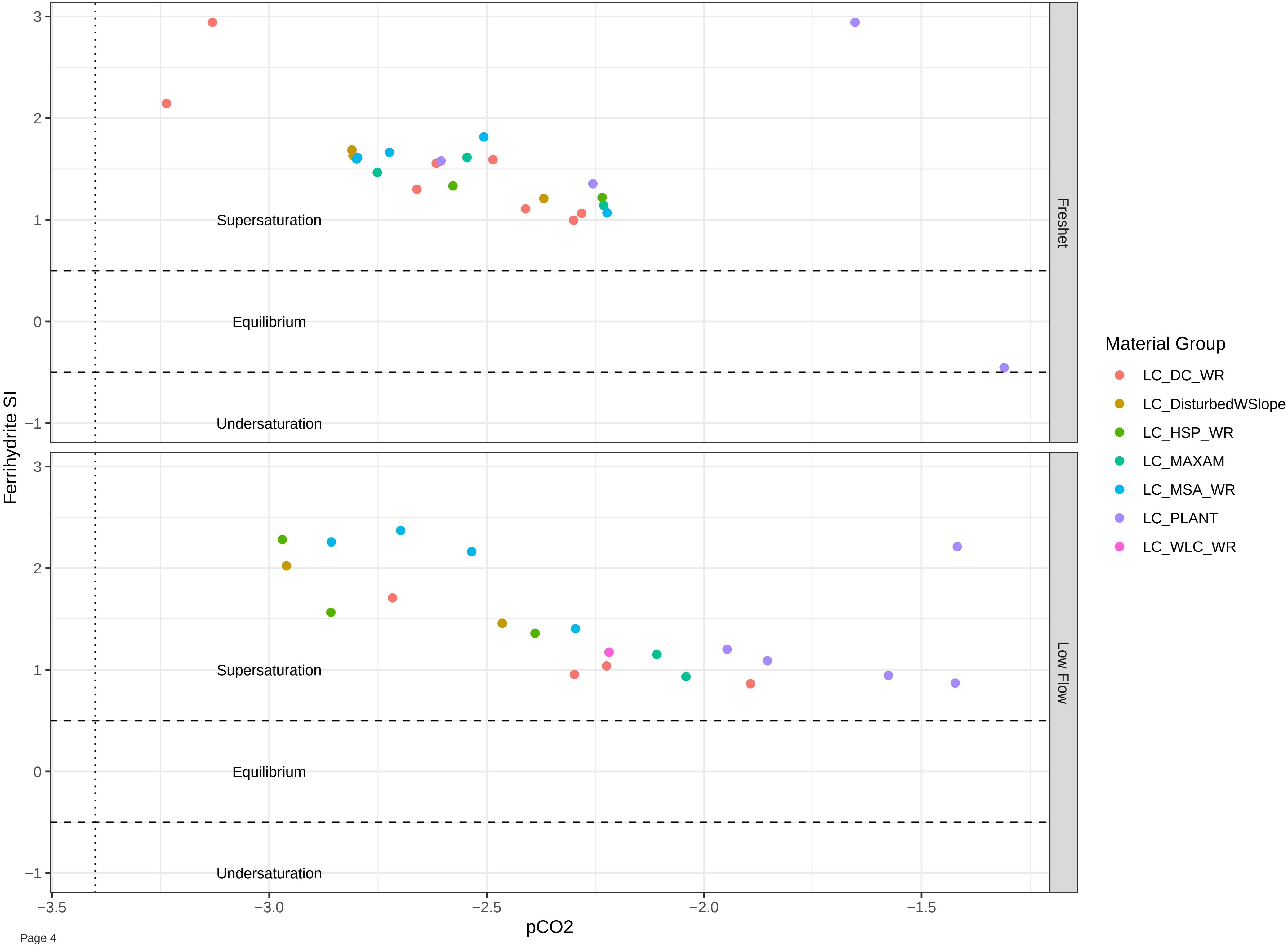
Ferrihydrite SI
3
2
1
0
−1
Supersaturation
Equilibrium
Undersaturation
Freshet
Low Flow
0.01
0.10
1.00
10.00
Iron (mg/L)
Material Group
GH_CCR
GH_LEASK_WR
GH_PORTER_CREEK
GH_THOMPSON_WR
GH_UPSTREAM_CCR
GH_WOLFRAM_WR

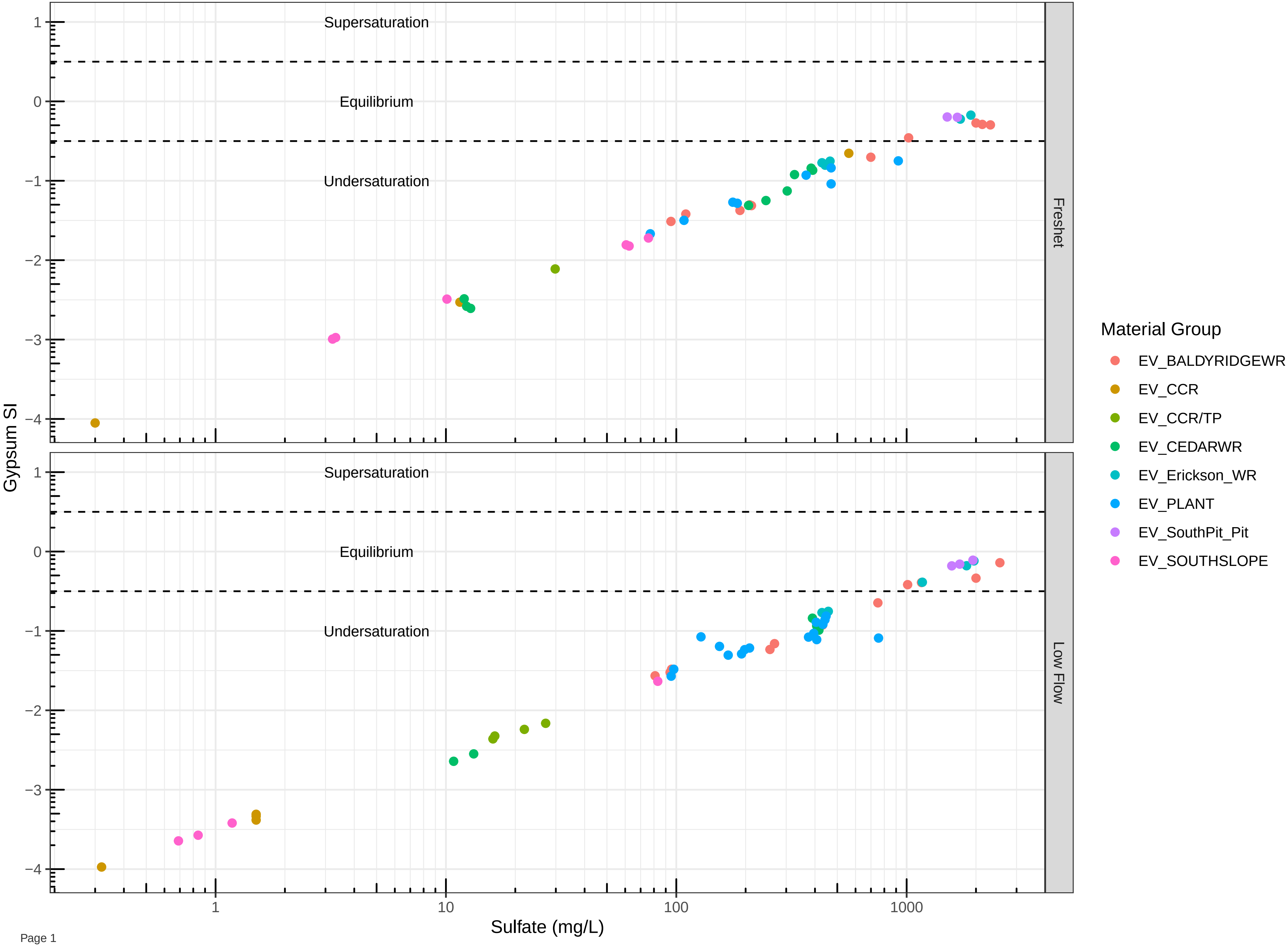

Ferrihydrite SI
3
2
1
0
−1
Supersaturation
Equilibrium
Undersaturation
Freshet
Low Flow
−3
−2
pCO2
Material Group
GH_CCR
GH_LEASK_WR
GH_PORTER_CREEK
GH_THOMPSON_WR
GH_UPSTREAM_CCR
GH_WOLFRAM_WR

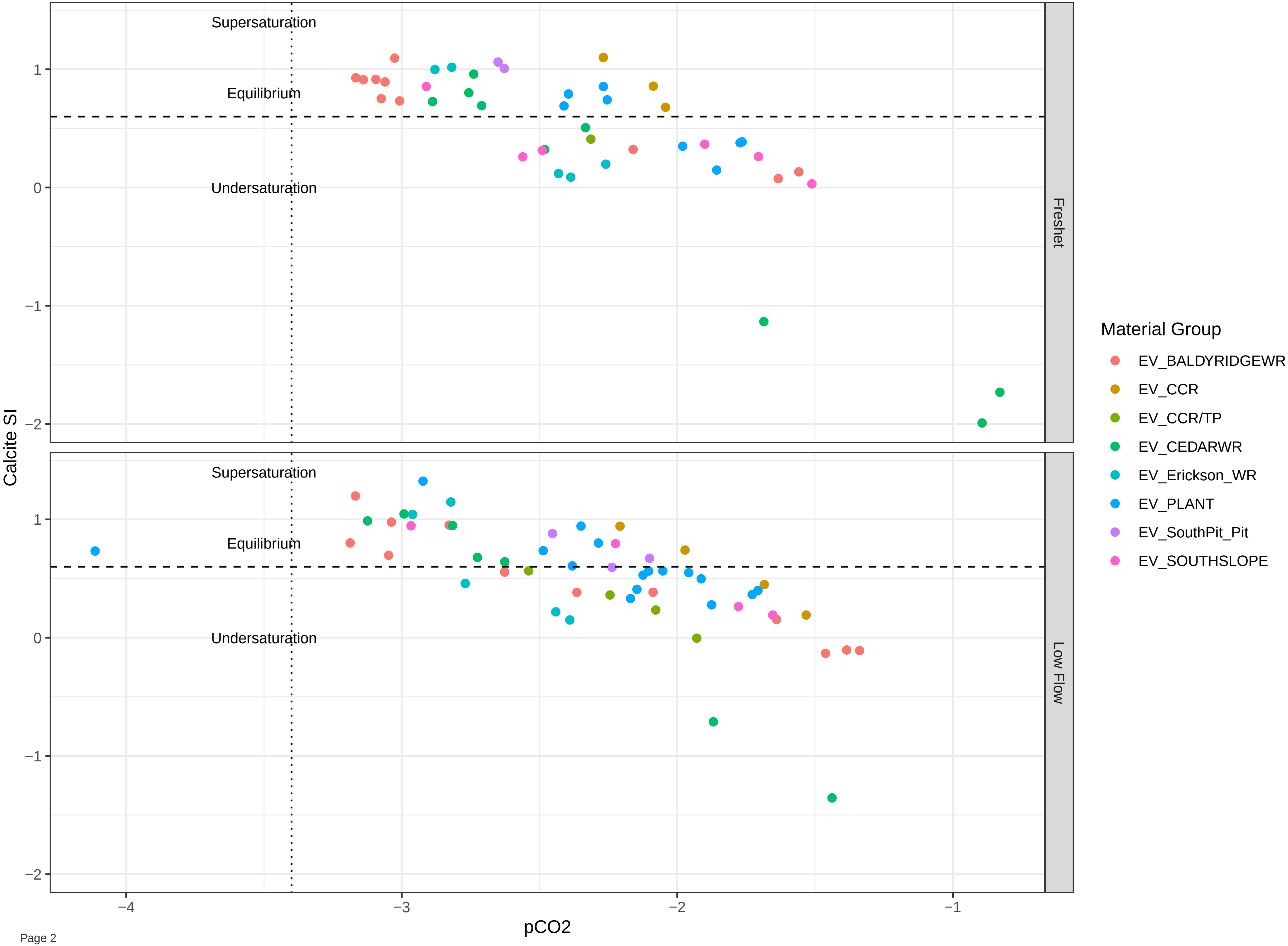

Supersaturation
Equilibrium
Undersaturation
Supersaturation
Equilibrium
Undersaturation
1
0
−1
−2
−3
Gypsum SI
Freshet
Low Flow
1
10
100
Sulfate (mg/L)
Material Group
LC_DC_WR
LC_DisturbedWSlope
LC_HSP_WR
LC_MAXAM
LC_MSA_WR
LC_PLANT
LC_WLC_WR

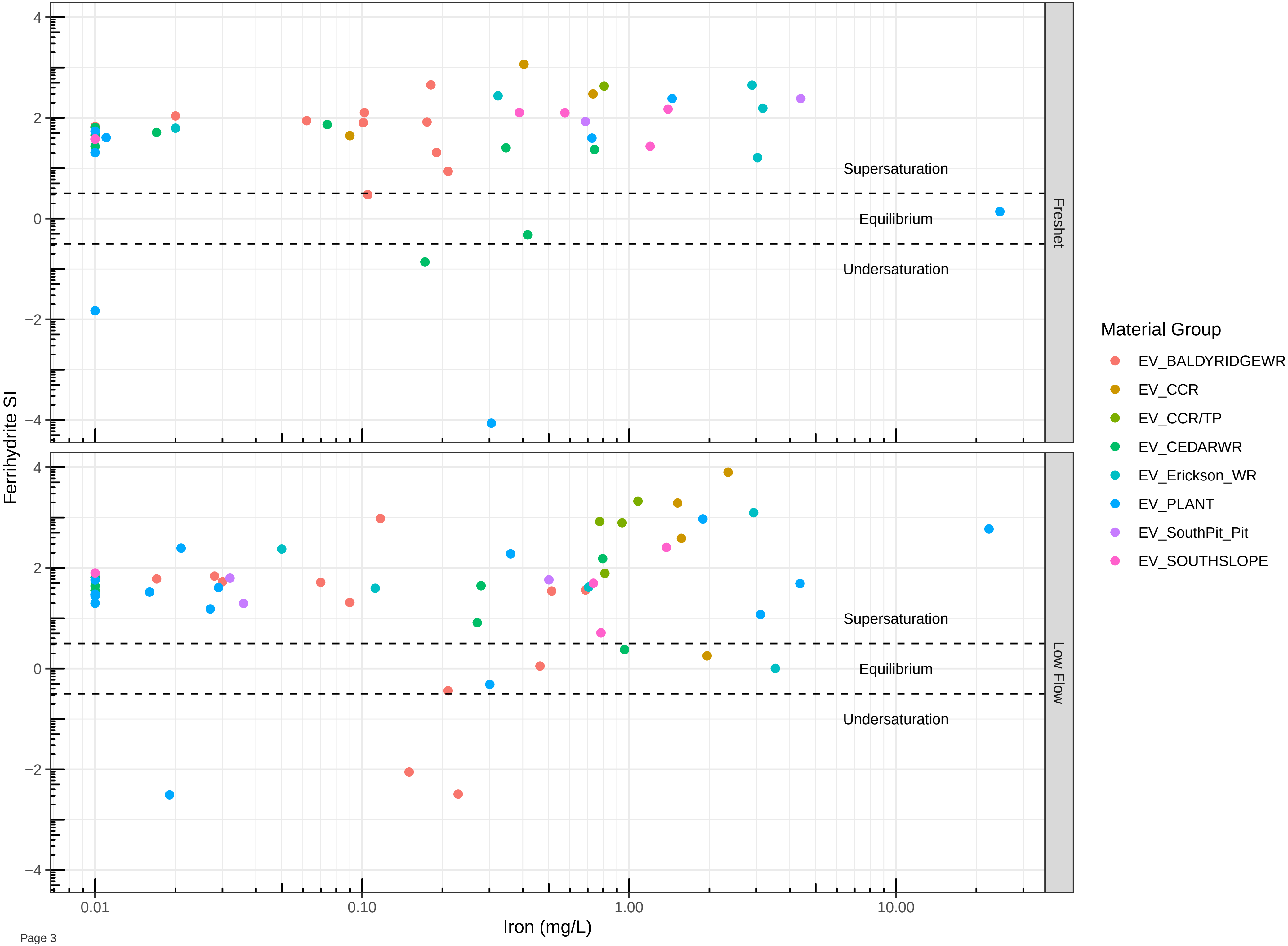

Supersaturation
Equilibrium
Undersaturation
Freshet
Supersaturation
Equilibrium
Undersaturation
Low Flow
Calcite SI
1.0
0.5
0.0
pCO2
−3.5
−3.0
−2.5
−2.0
−1.5
Material Group
LC_DC_WR
LC_DisturbedWSlope
LC_HSP_WR
LC_MAXAM
LC_MSA_WR
LC_PLANT
LC_WLC_WR


Ferrihydrite SI
Iron (mg/L)
3
2
1
0
−1
0.01
0.10
Supersaturation
Equilibrium
Undersaturation
Freshet
Low Flow
Material Group
LC_DC_WR
LC_DisturbedWSlope
LC_HSP_WR
LC_MAXAM
LC_MSA_WR
LC_PLANT
LC_WLC_WR

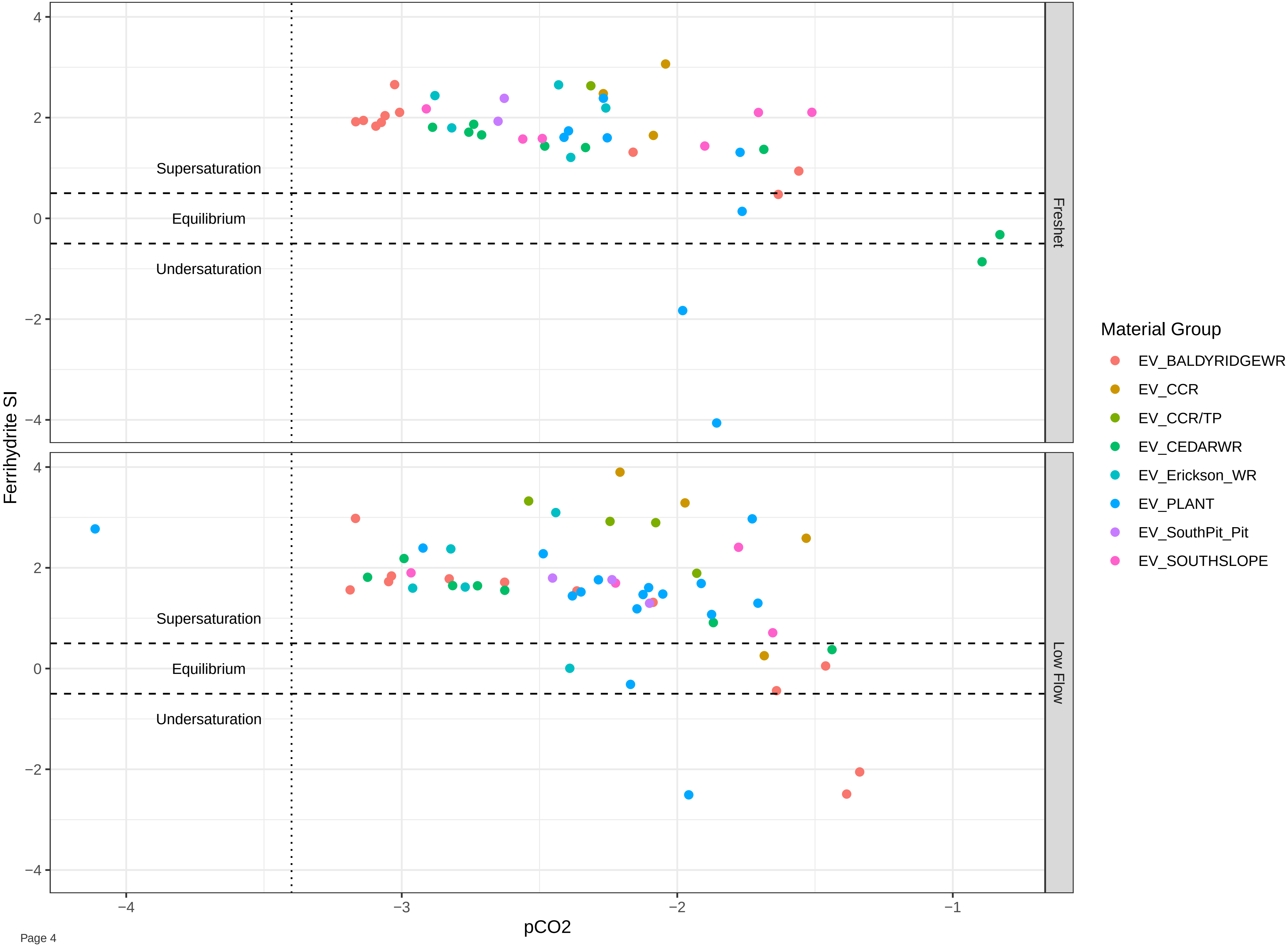

Ferrihydrite SI
3
2
1
0
−1
Supersaturation
Equilibrium
Undersaturation
Freshet
Low Flow
−3.5
−3.0
−2.5
−2.0
−1.5
pCO2
Material Group
LC_DC_WR
LC_DisturbedWSlope
LC_HSP_WR
LC_MAXAM
LC_MSA_WR
LC_PLANT
LC_WLC_WR

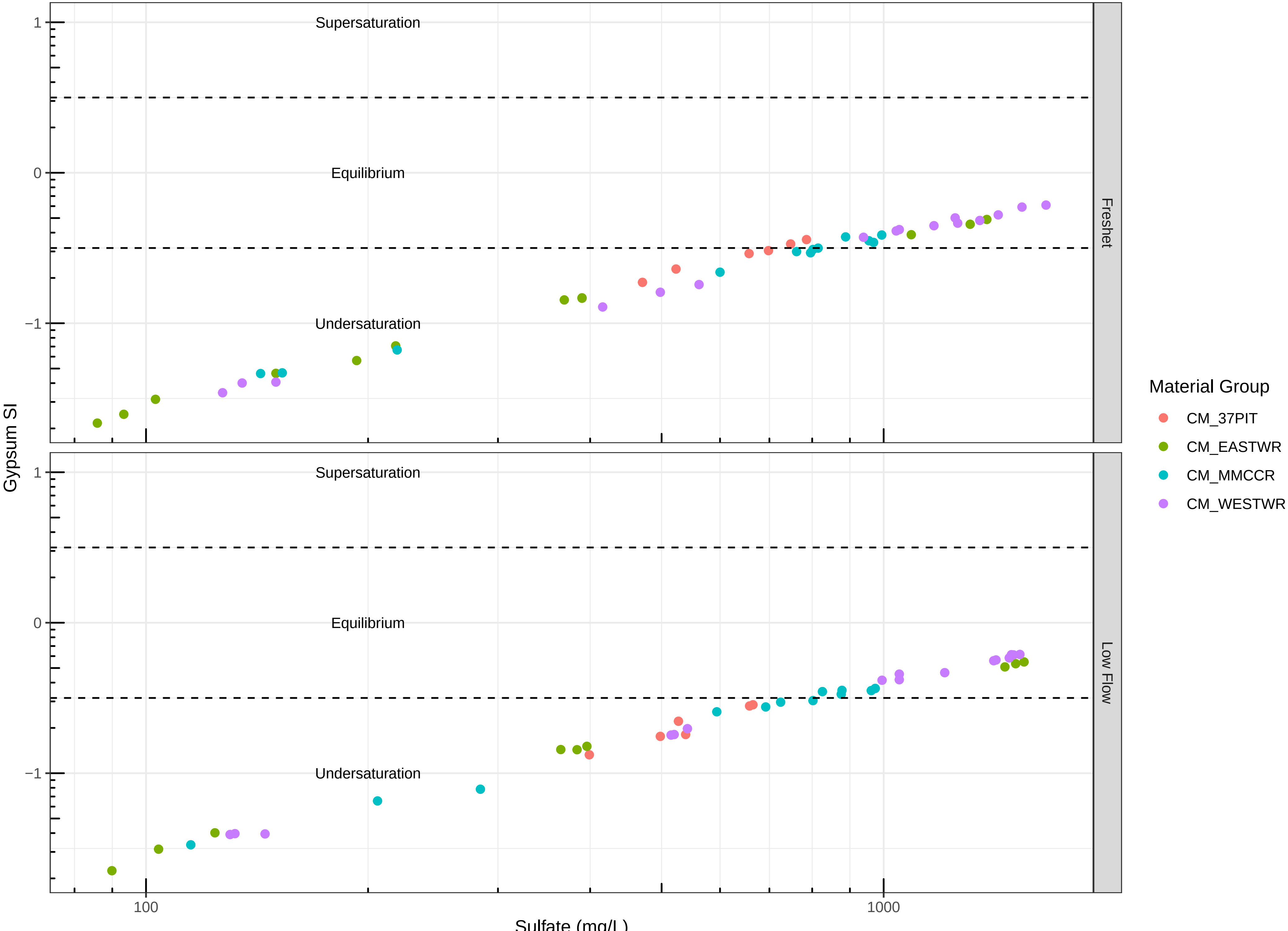

Supersaturation
Equilibrium
Undersaturation
Freshet
Low Flow
Gypsum SI
Sulfate (mg/L)
1
0
−1
−2
−3
−4
1
10
100
1000
Material Group
EV_BALDYRIDGEWR
EV_CCR
EV_CCR/TP
EV_CEDARWR
EV_Erickson_WR
EV_PLANT
EV_SouthPit_Pit
EV_SOUTHSLOPE

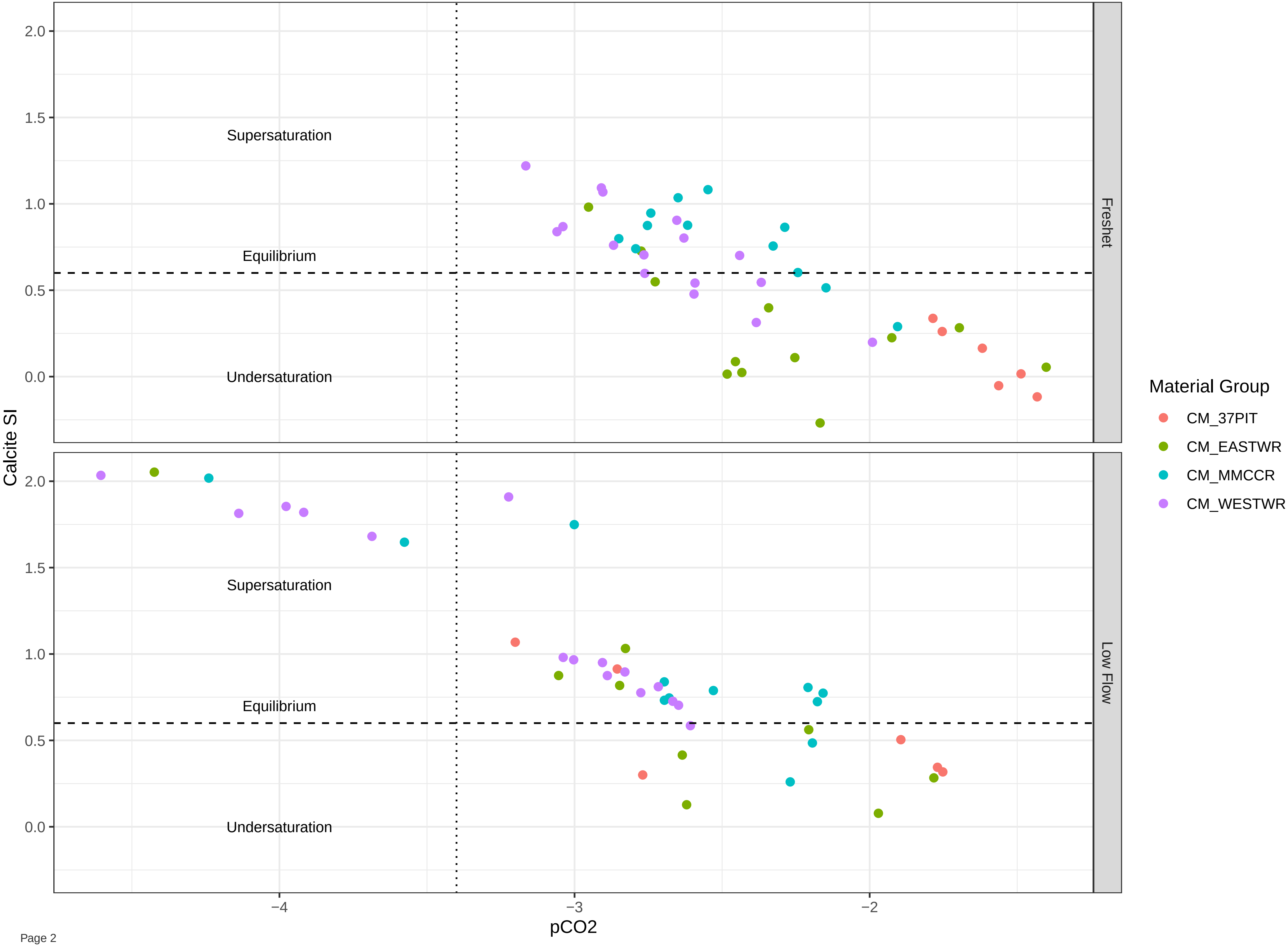

Supersaturation
Equilibrium
Undersaturation
Freshet
Low Flow
Calcite SI
pCO2
1
0
−1
−2
−4
−3
−2
−1
Material Group
EV_BALDYRIDGEWR
EV_CCR
EV_CCR/TP
EV_CEDARWR
EV_Erickson_WR
EV_PLANT
EV_SouthPit_Pit
EV_SOUTHSLOPE

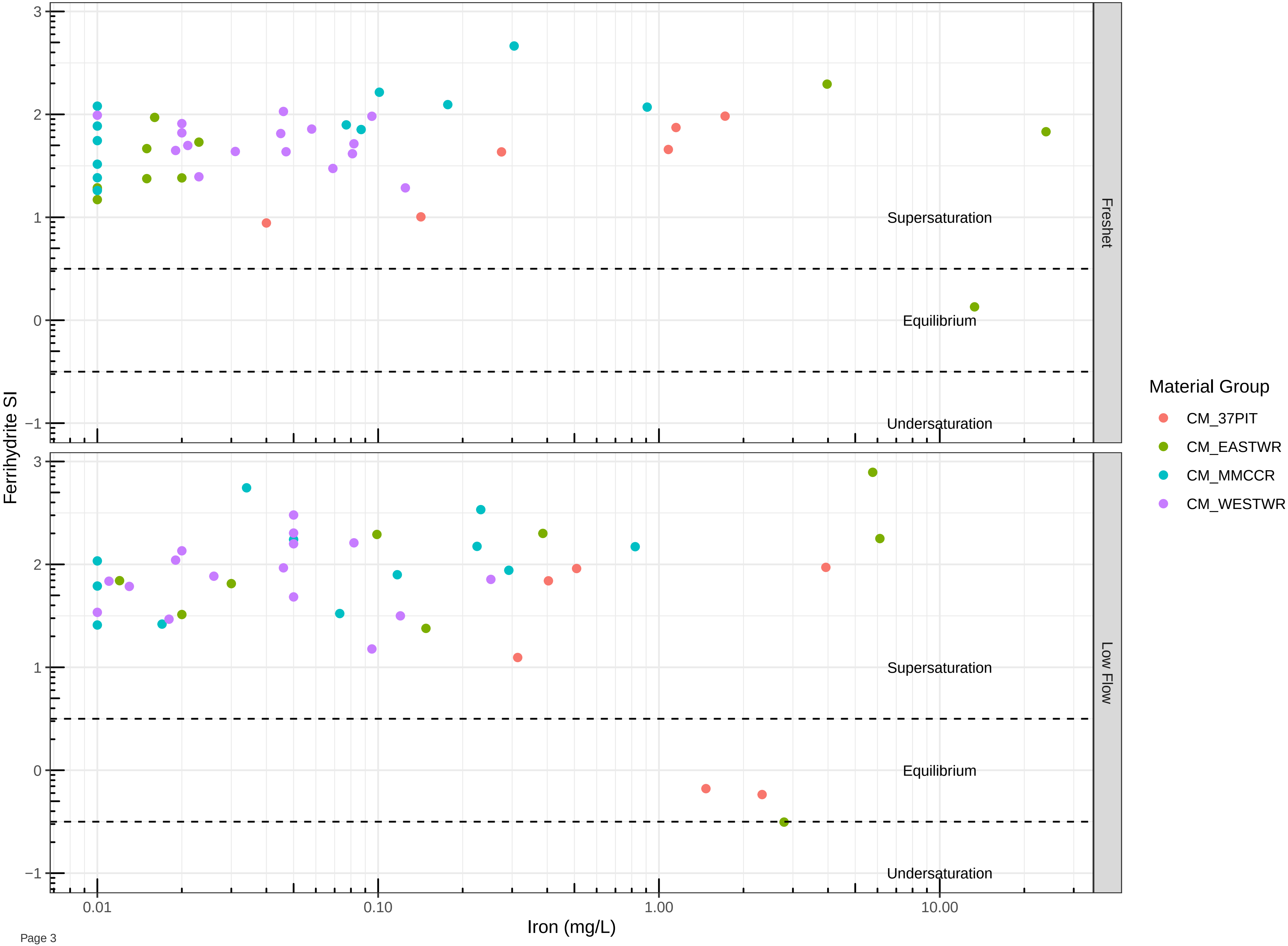


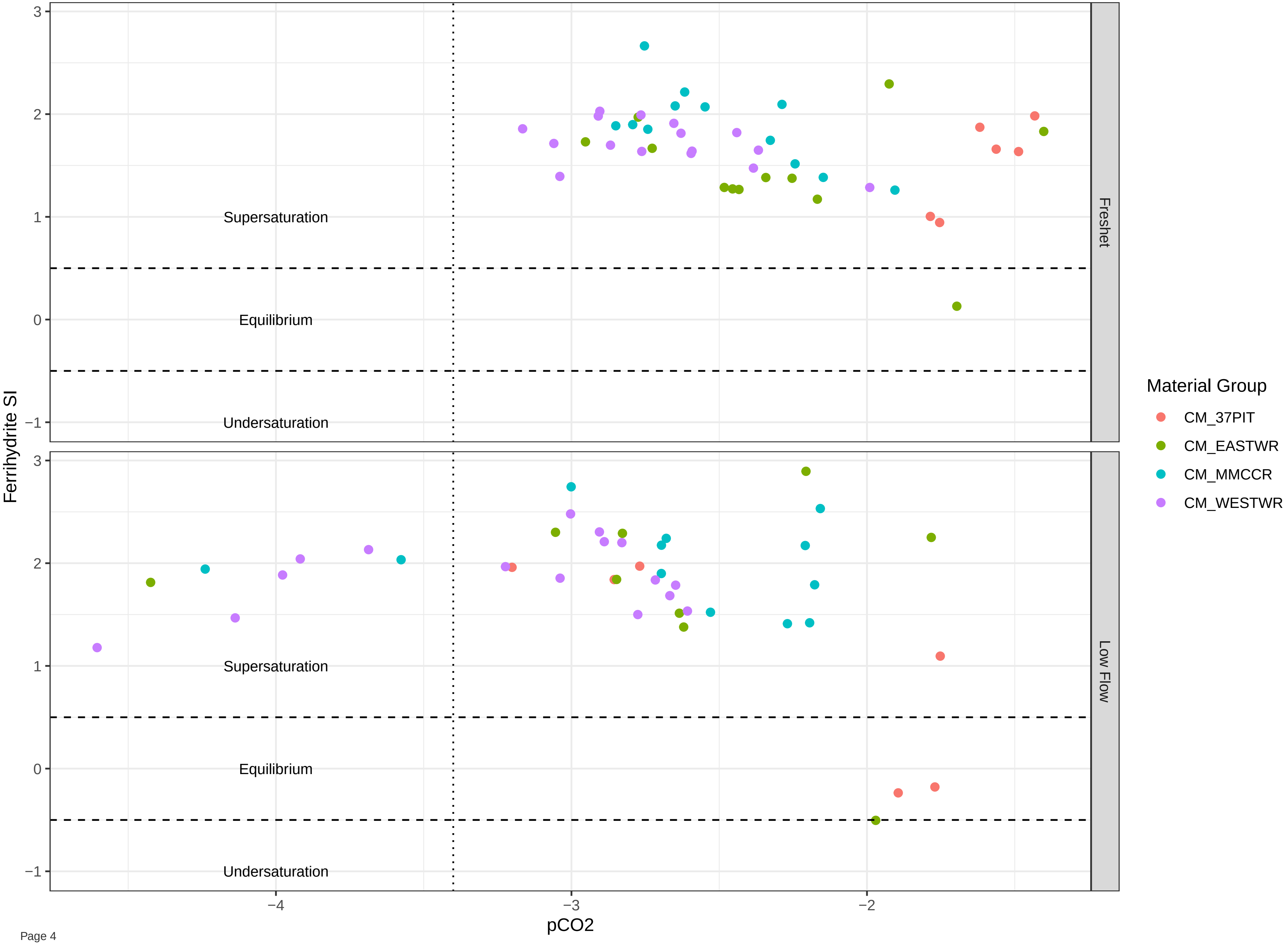
Ferrihydrite SI
4
2
0
−2
−4
Supersaturation
Equilibrium
Undersaturation
Freshet
Low Flow
0.01
0.10
1.00
10.00
Iron (mg/L)
Material Group
EV_BALDYRIDGEWR
EV_CCR
EV_CCR/TP
EV_CEDARWR
EV_Erickson_WR
EV_PLANT
EV_SouthPit_Pit
EV_SOUTHSLOPE


Supersaturation
Equilibrium
Undersaturation
Freshet
Low Flow
Ferrihydrite SI
pCO2
4
2
0
−2
−4
−4
−3
−2
−1
Material Group
EV_BALDYRIDGEWR
EV_CCR
EV_CCR/TP
EV_CEDARWR
EV_Erickson_WR
EV_PLANT
EV_SouthPit_Pit
EV_SOUTHSLOPE

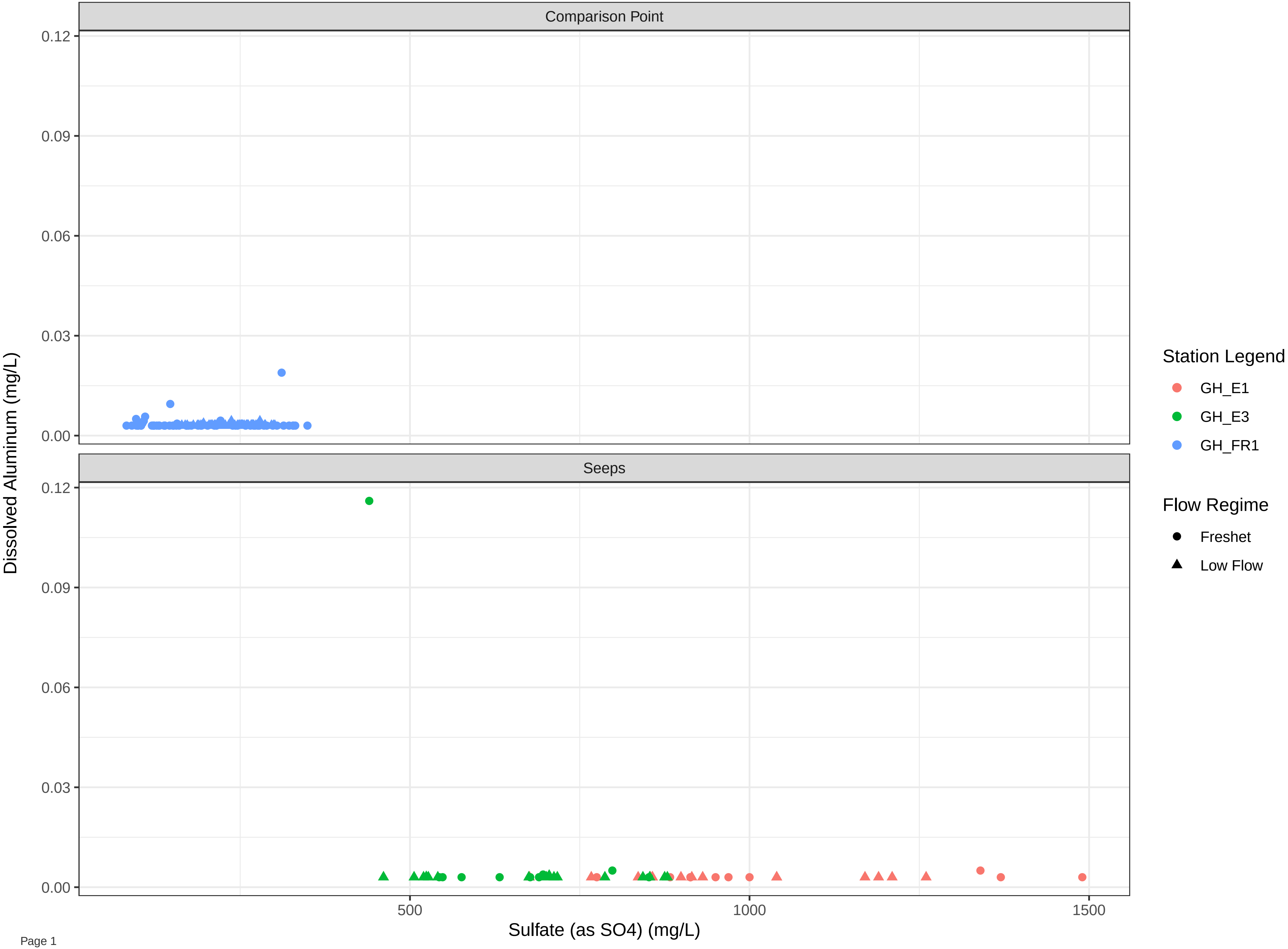

Supersaturation
Equilibrium
Undersaturation
Freshet
Low Flow
Gypsum SI
1
0
−1
100
1000
Sulfate (mg/L)
Material Group
CM_37PIT
CM_EASTWR
CM_MMCCR
CM_WESTWR

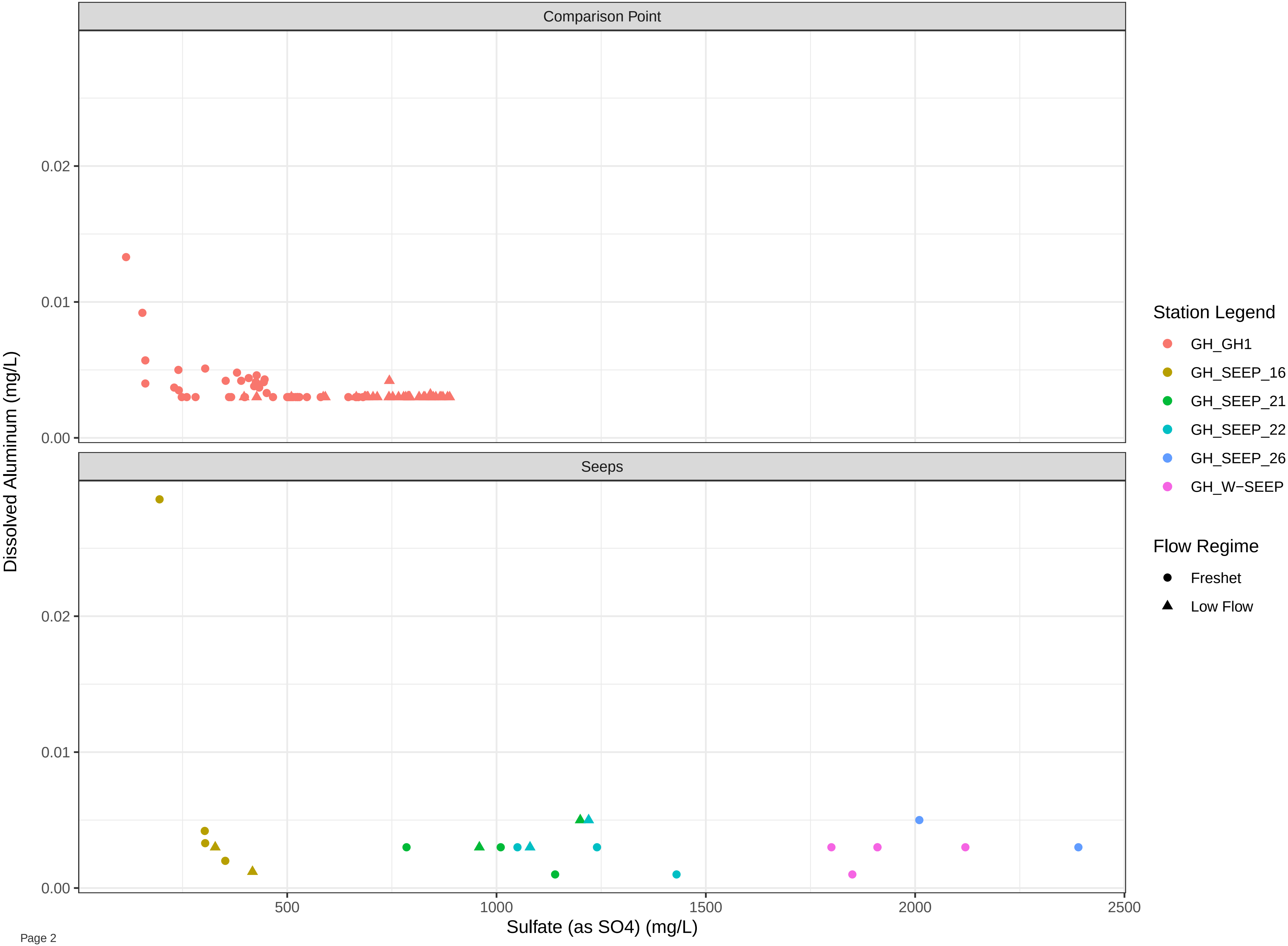

Calcite SI
pCO2
2.0
1.5
1.0
0.5
0.0
−4
−3
−2
Supersaturation
Equilibrium
Undersaturation
Freshet
Low Flow
Material Group
CM_37PIT
CM_EASTWR
CM_MMCCR
CM_WESTWR

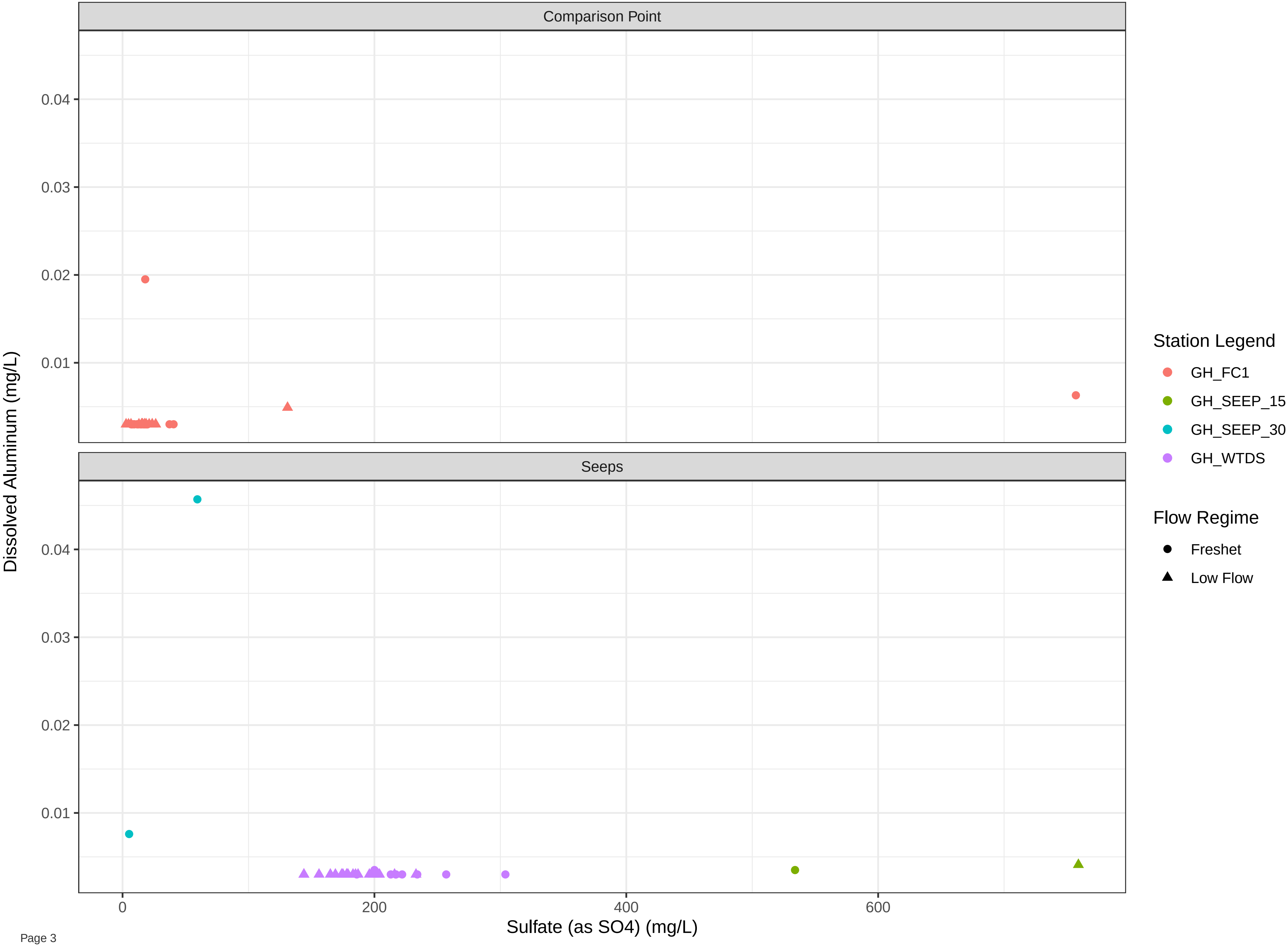

Ferrihydrite SI
Iron (mg/L)
0.01
0.10
1.00
10.00
3
2
1
0
−1
Supersaturation
Equilibrium
Undersaturation
Freshet
Low Flow
Material Group
● CM_37PIT
● CM_EASTWR
● CM_MMCCR
● CM_WESTWR

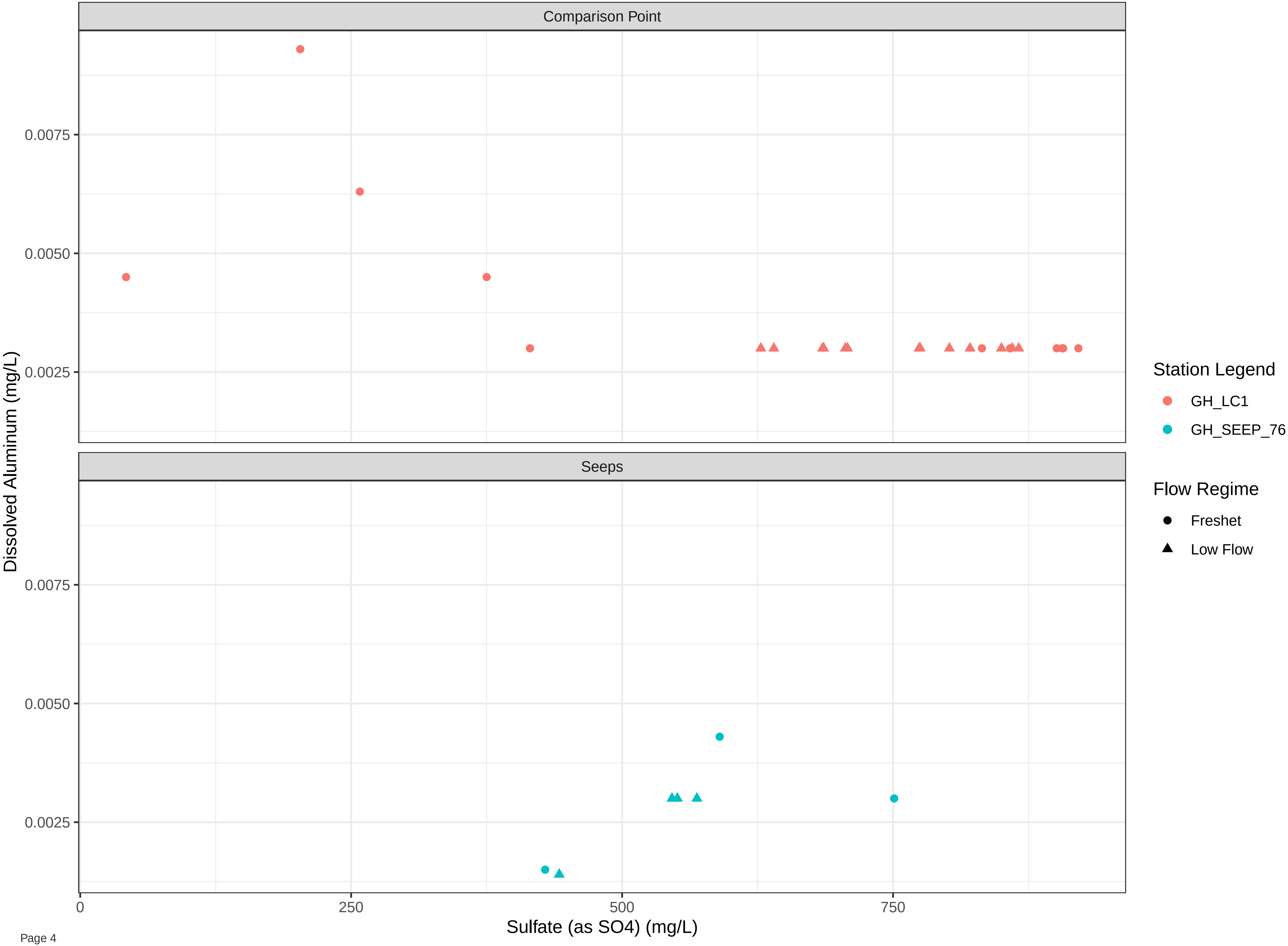

Ferrihydrite SI
pCO2
Freshet
Low Flow
Supersaturation
Equilibrium
Undersaturation
3
2
1
0
−1
−4
−3
−2
Material Group
CM_37PIT
CM_EASTWR
CM_MMCCR
CM_WESTWR

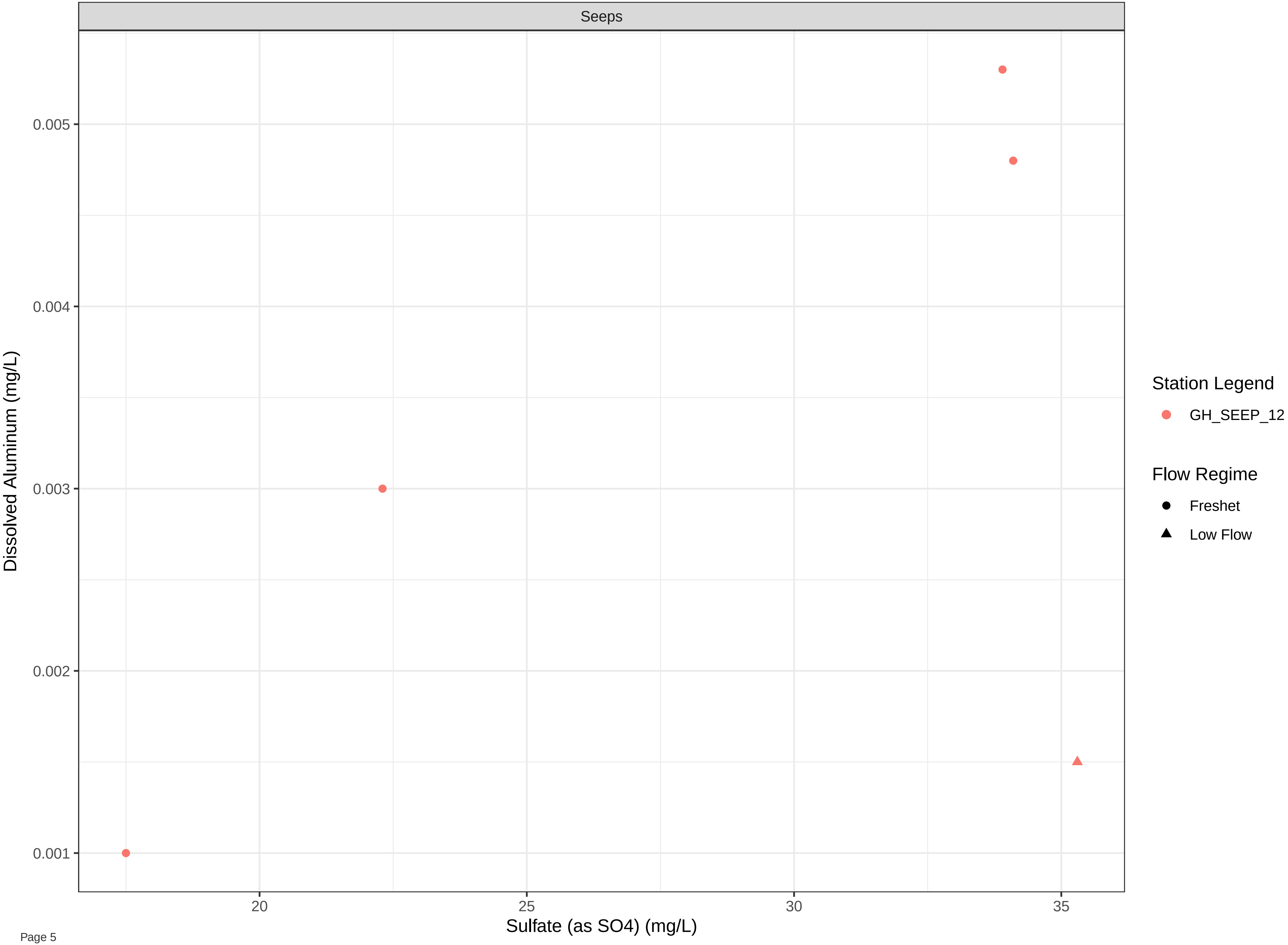
Appendix J Comparison to Permitted Surface Water Monitoring Locations for Metals versus Sulfate

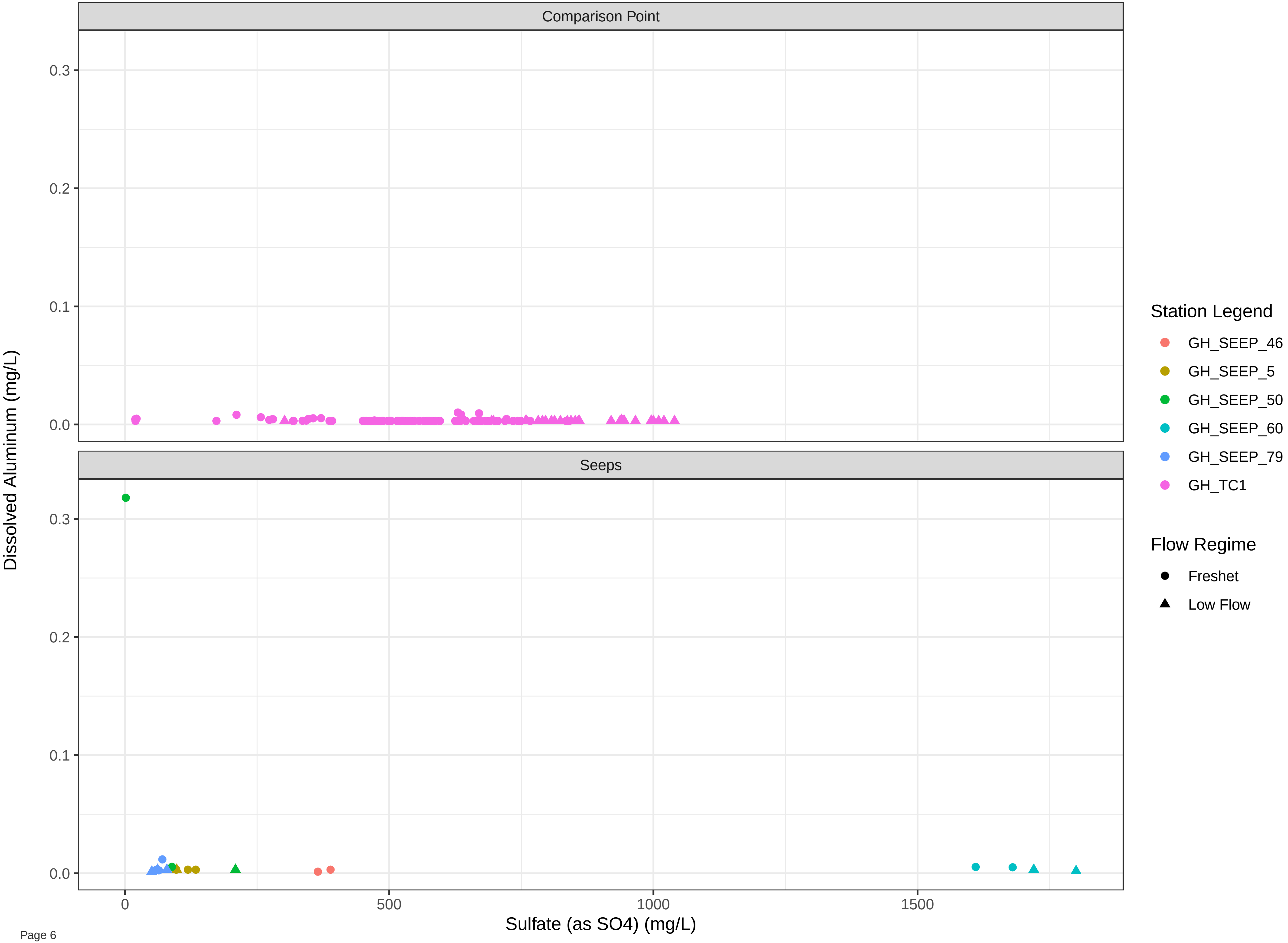

Comparison Point
Seeps
0.12
0.09
0.06
0.03
0.00
500
1000
1500
Dissolved Aluminum (mg/L)
Sulfate (as SO4) (mg/L)
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

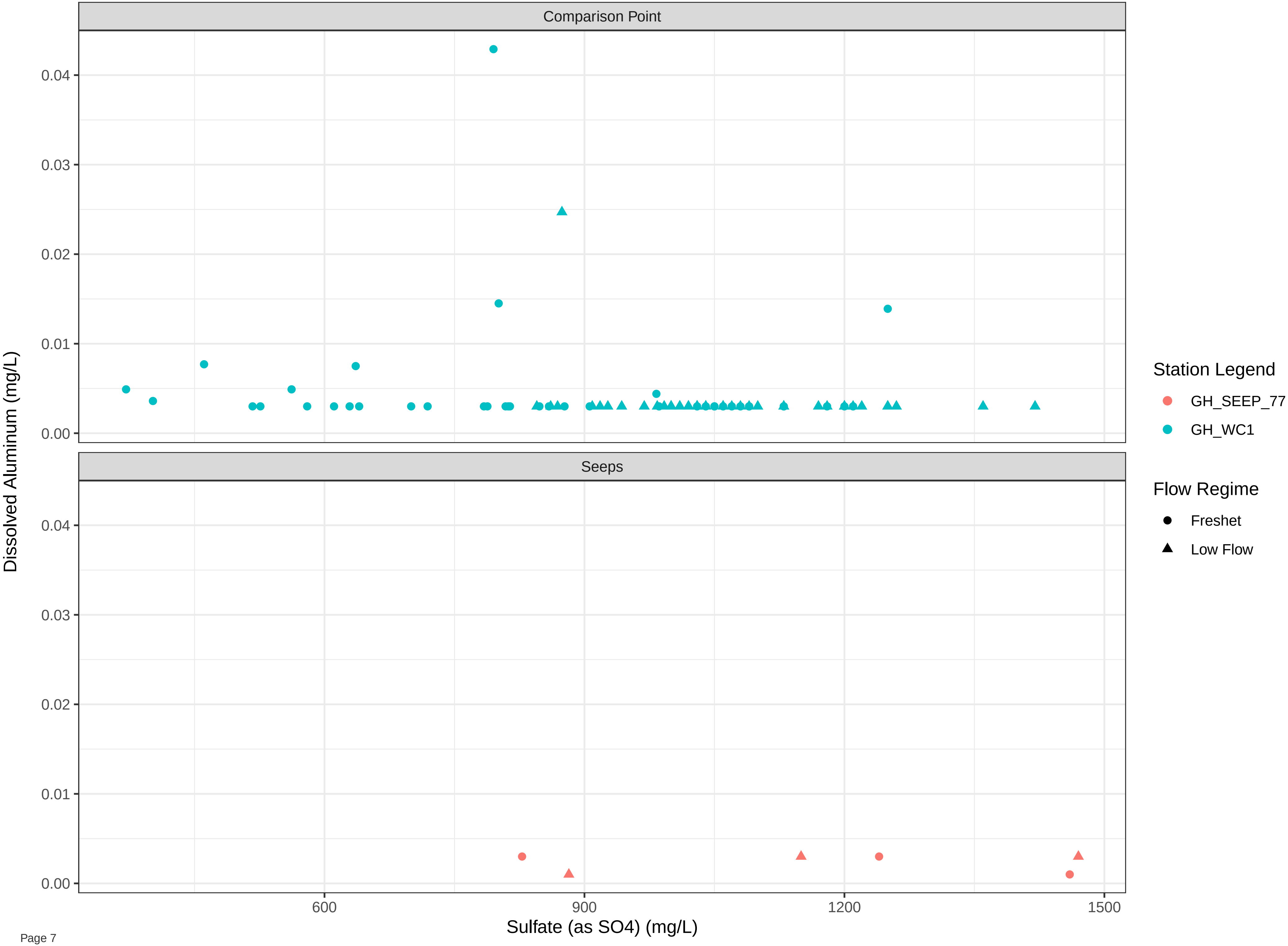

Comparison Point
Seeps
Dissolved Aluminum (mg/L)
0.00
0.01
0.02
0.00
0.01
0.02
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
Dissolved Aluminum (mg/L)
0.04
0.03
0.02
0.01
0
200
400
600
Sulfate (as SO4) (mg/L)
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow

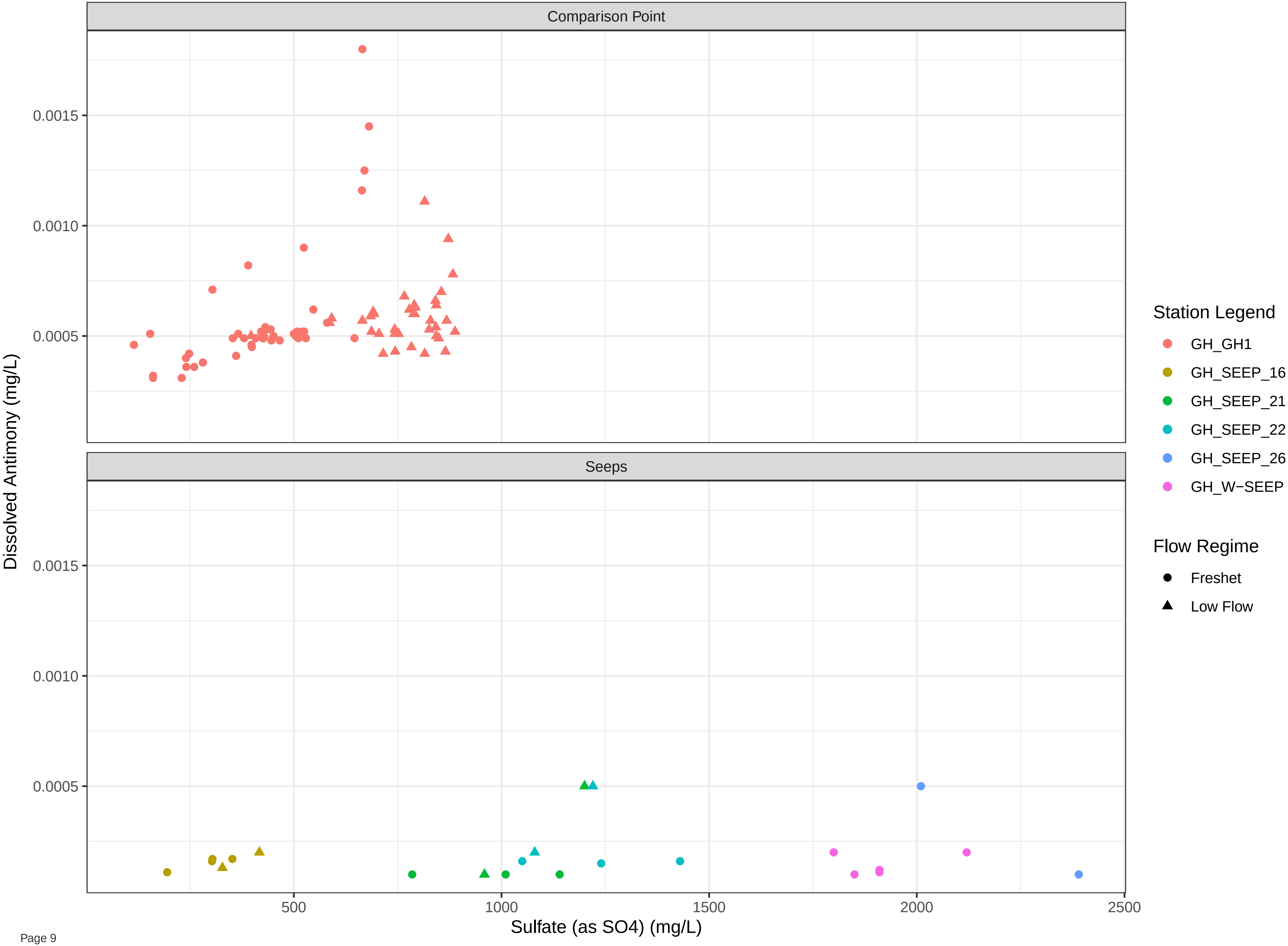

Comparison Point
Seeps
0.0075
0.0050
0.0025
0.0075
0.0050
0.0025
Dissolved Aluminum (mg/L)
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
Freshet
Low Flow


Seeps
0.005
0.004
0.003
0.002
0.001
Dissolved Aluminum (mg/L)
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

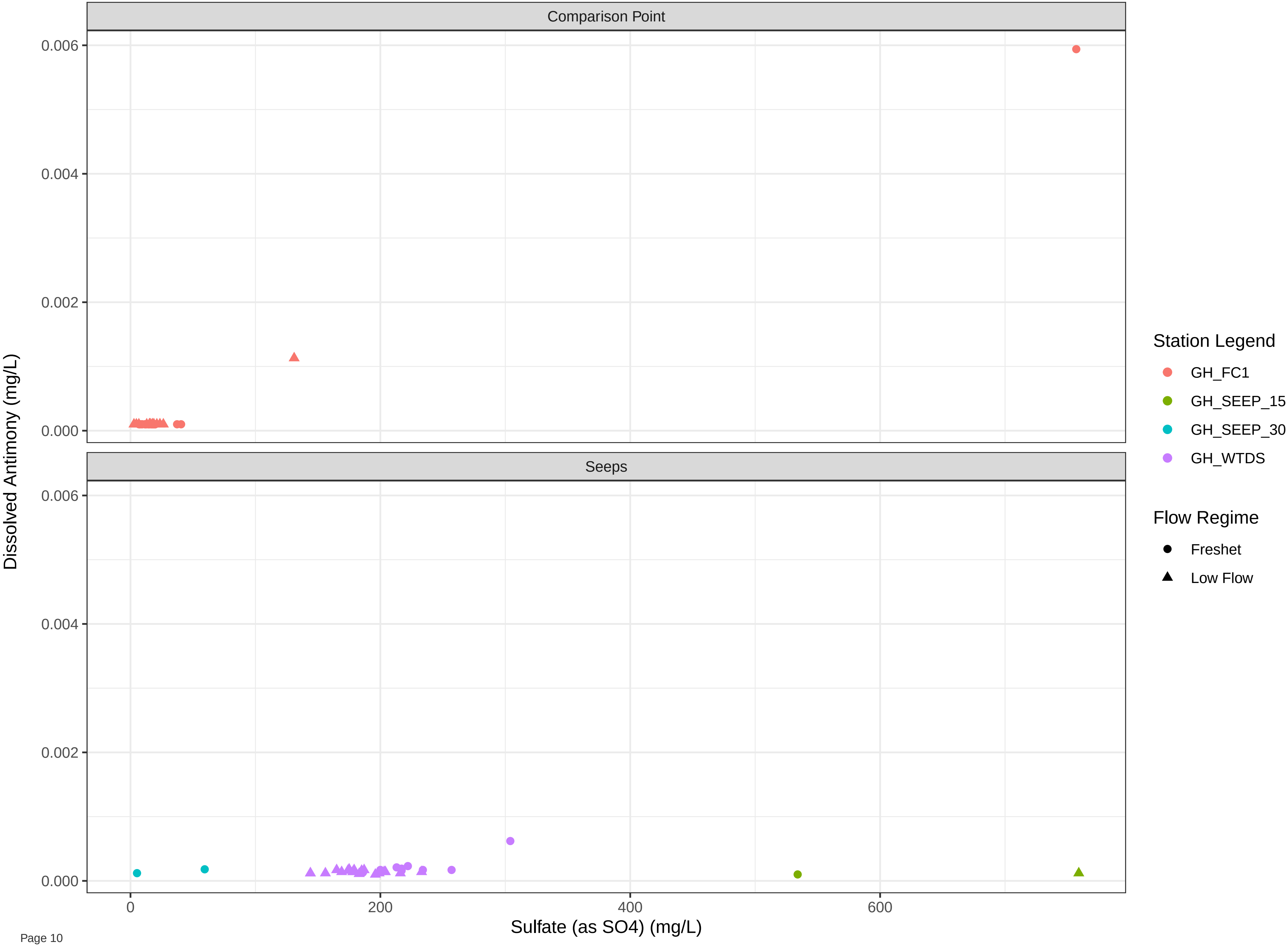

Comparison Point
Seeps
Dissolved Aluminum (mg/L)
0.0
0.1
0.2
0.3
0
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

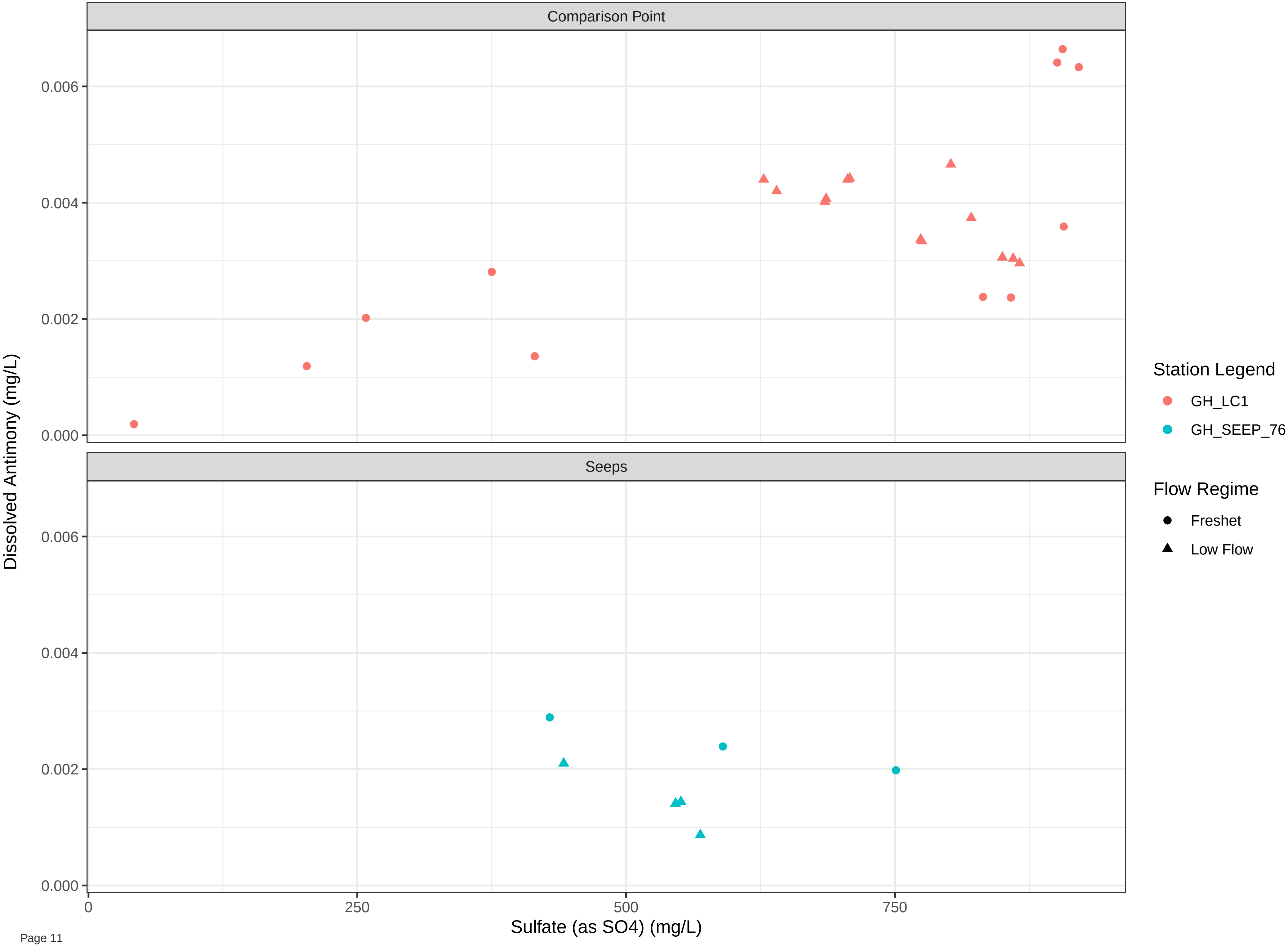

Comparison Point
Seeps
0.04
0.03
0.02
0.01
0.00
600
900
1200
1500
Dissolved Aluminum (mg/L)
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

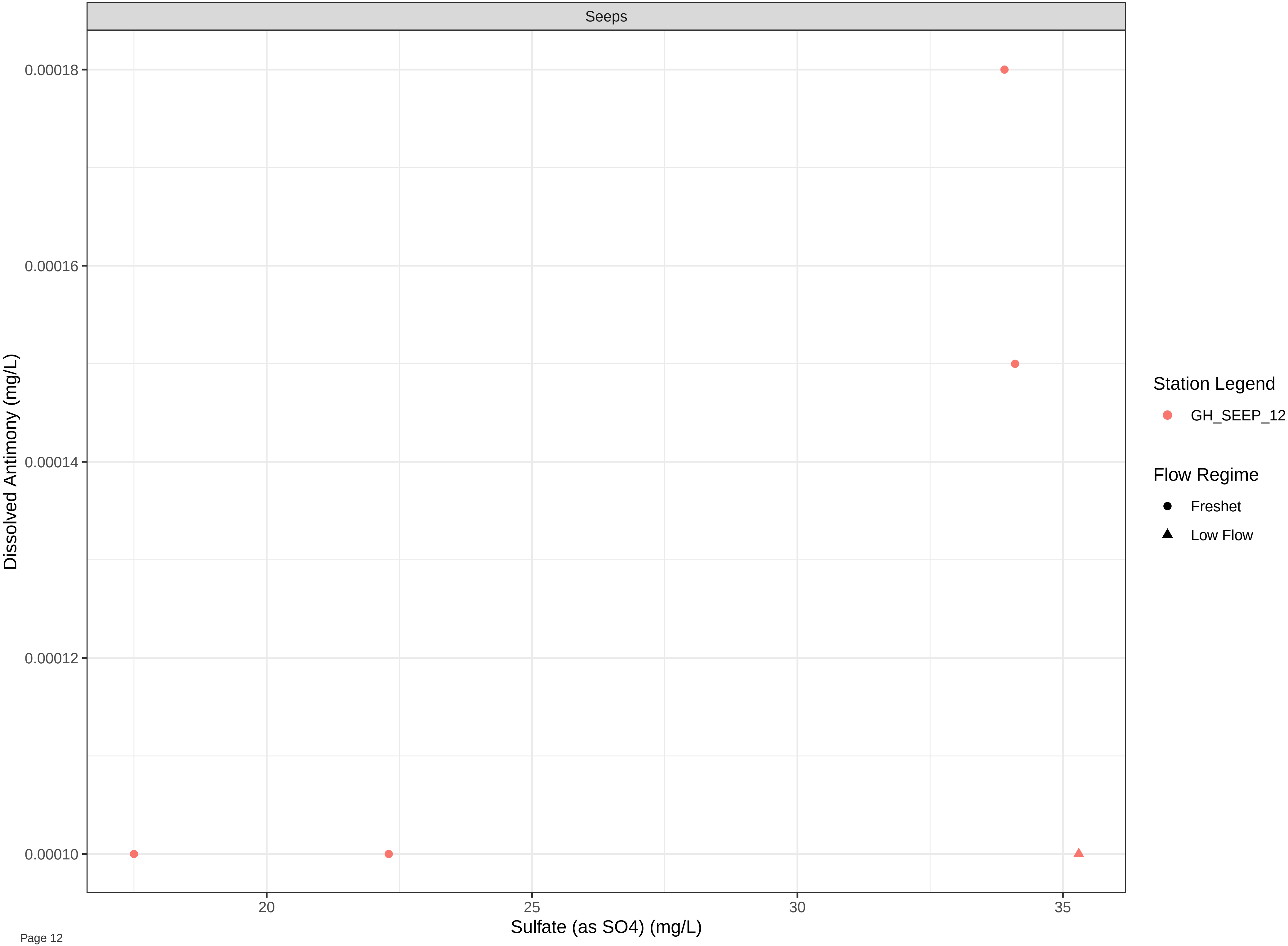

Comparison Point
Seeps
Dissolved Antimony (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

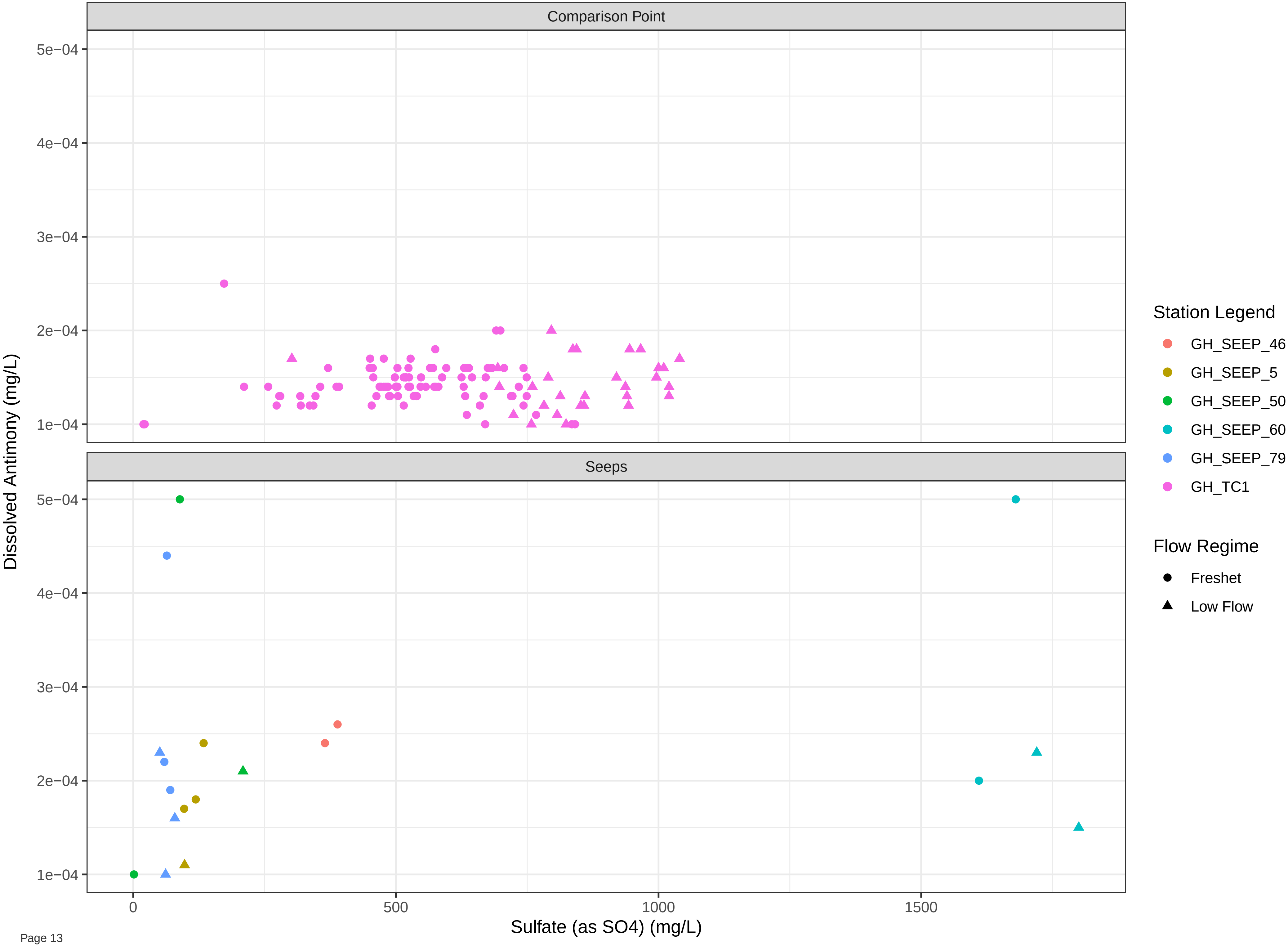


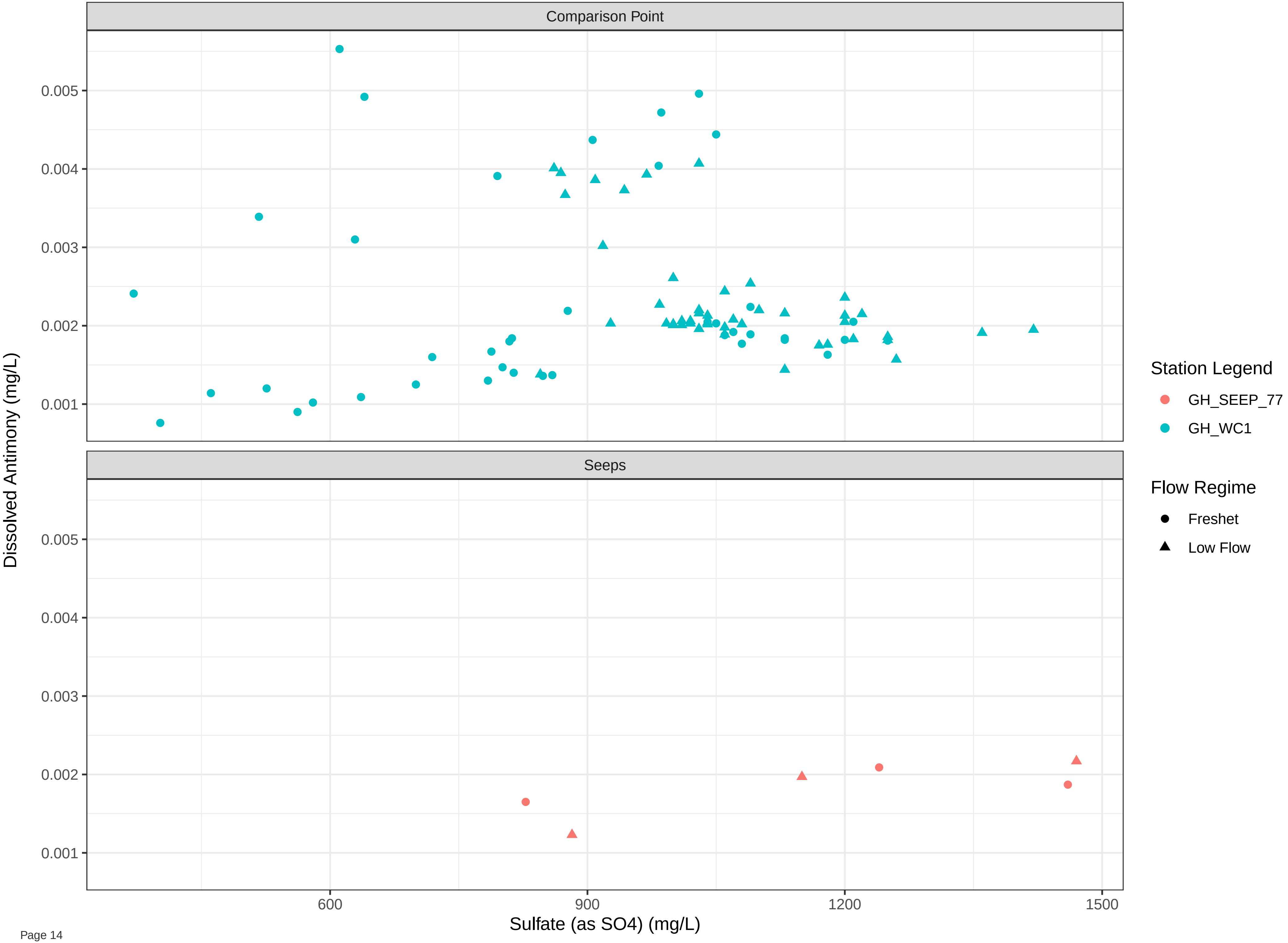
Comparison Point
Seeps
0.0015
0.0010
0.0005
0.0015
0.0010
0.0005
Dissolved Antimony (mg/L)
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow

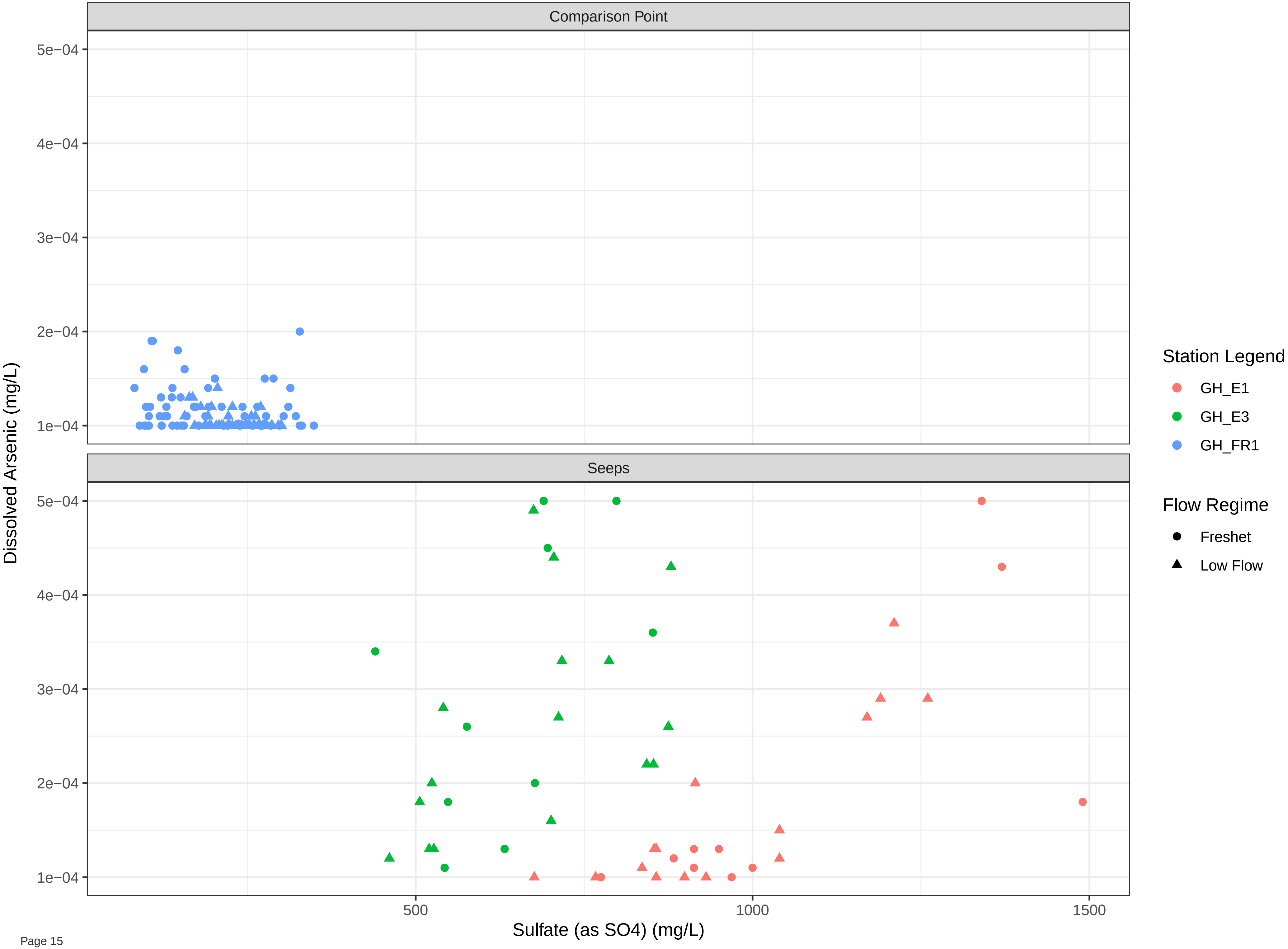

Comparison Point
Seeps
Dissolved Antimony (mg/L)
0.006
0.004
0.002
0.000
0
200
400
600
Sulfate (as SO4) (mg/L)
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow

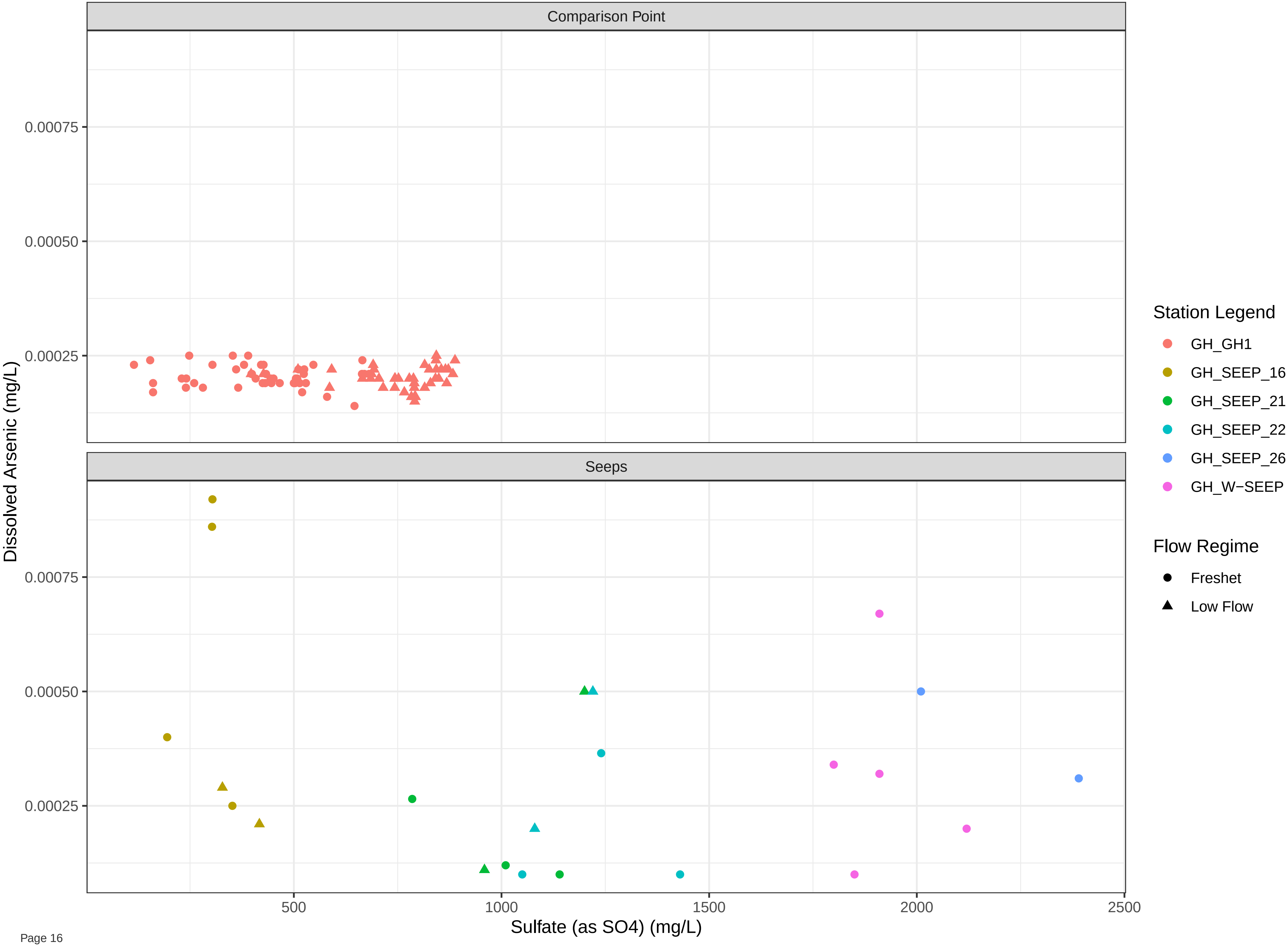

Comparison Point
Seeps
Dissolved Antimony (mg/L)
0.006
0.004
0.002
0.000
0.006
0.004
0.002
0.000
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
● GH_LC1
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow

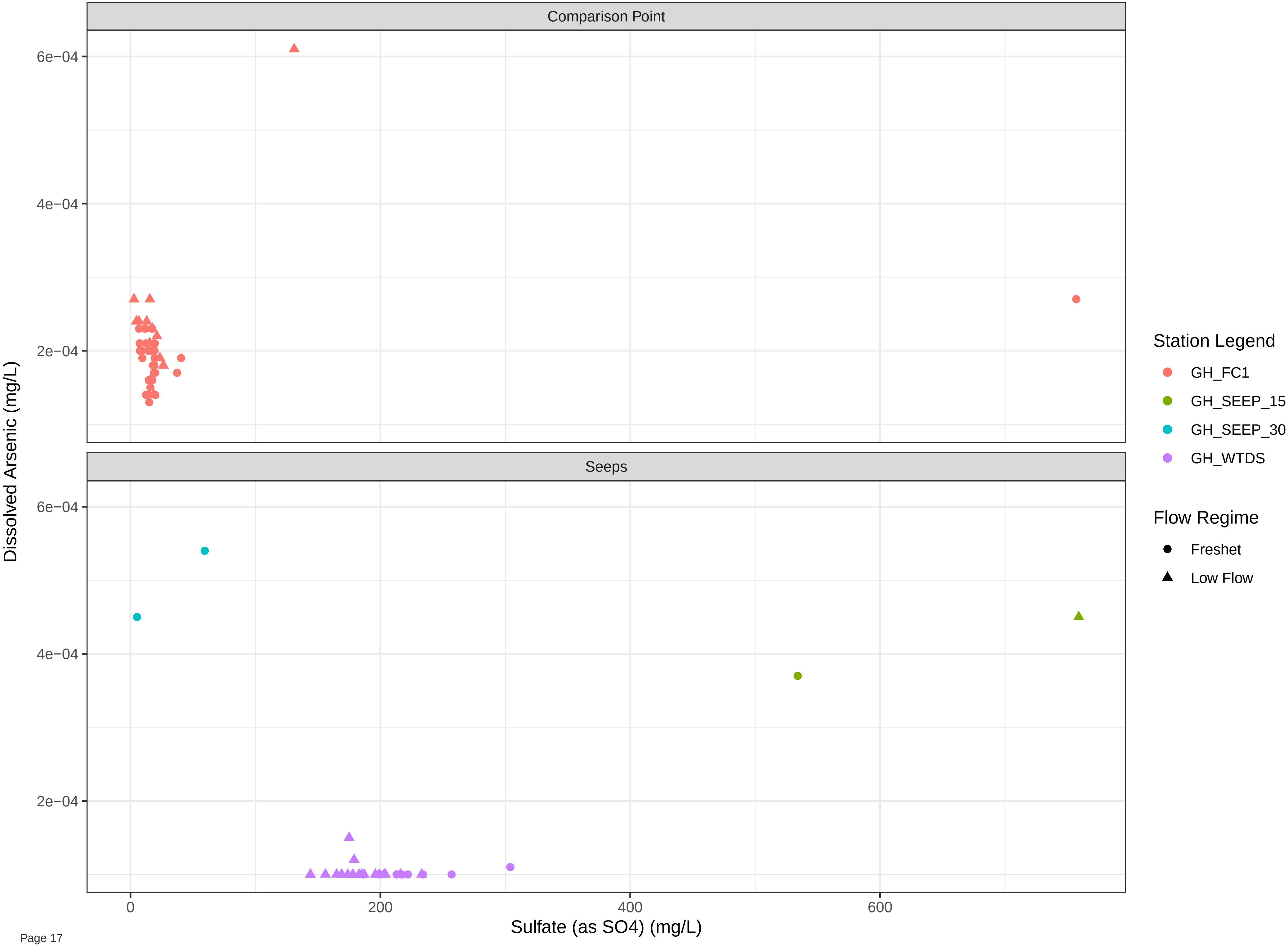

Seeps
0.00018
0.00016
0.00014
0.00012
0.00010
Dissolved Antimony (mg/L)
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

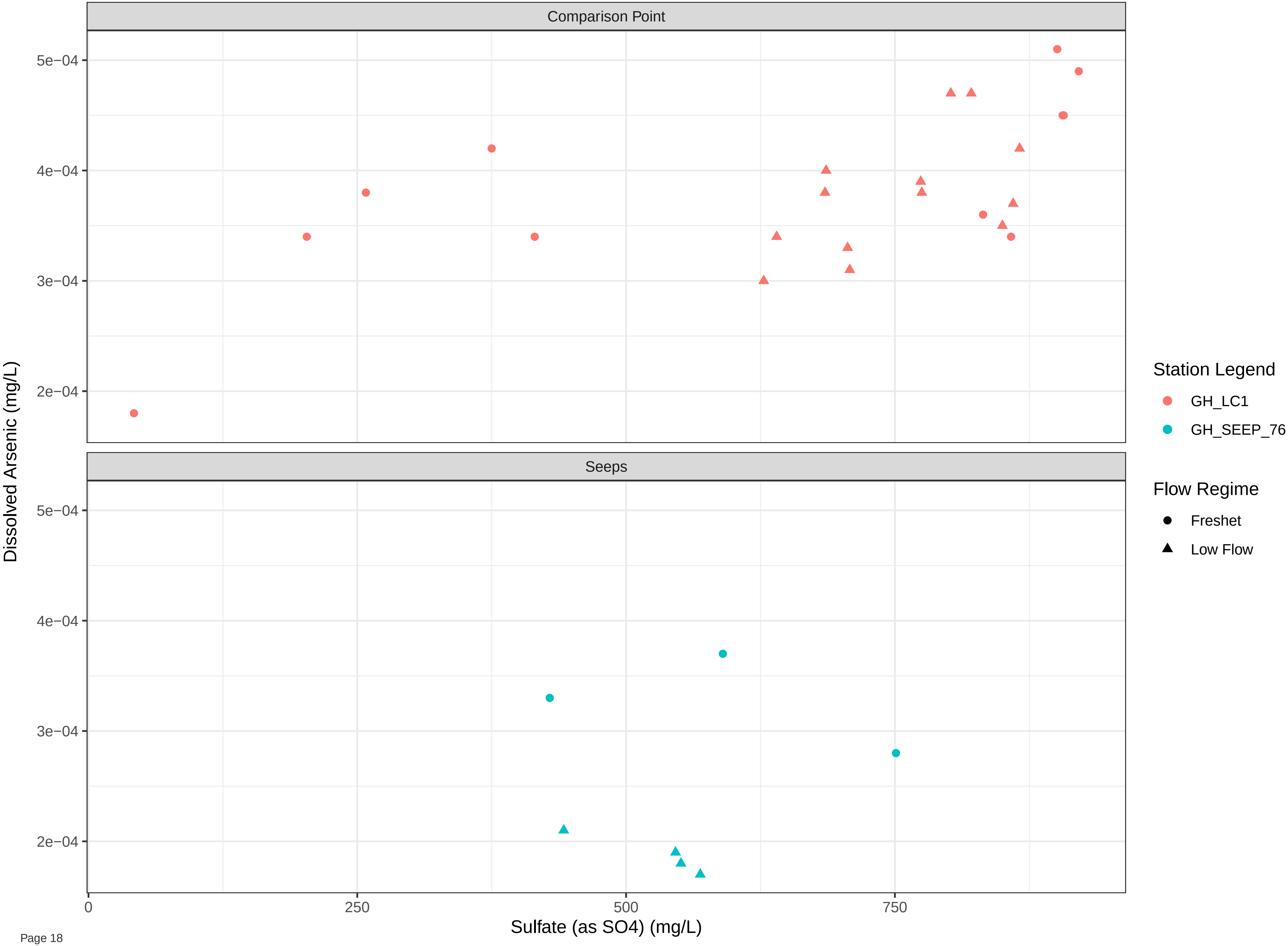

Comparison Point
Seeps
Dissolved Antimony (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
0
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
● Freshet
▲ Low Flow

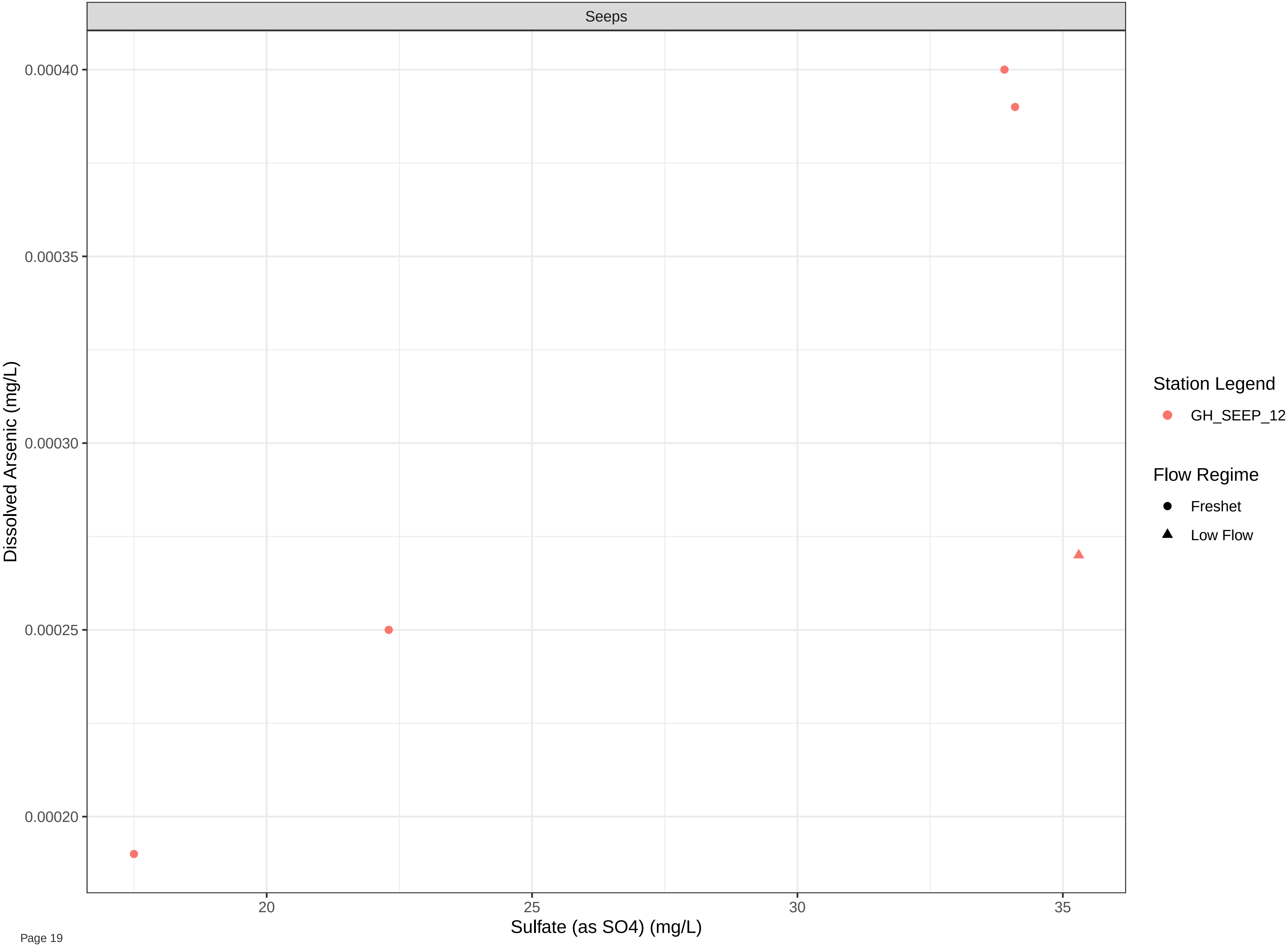

Comparison Point
Seeps
Dissolved Antimony (mg/L)
0.001
0.002
0.003
0.004
0.005
Sulfate (as SO4) (mg/L)
600
900
1200
1500
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

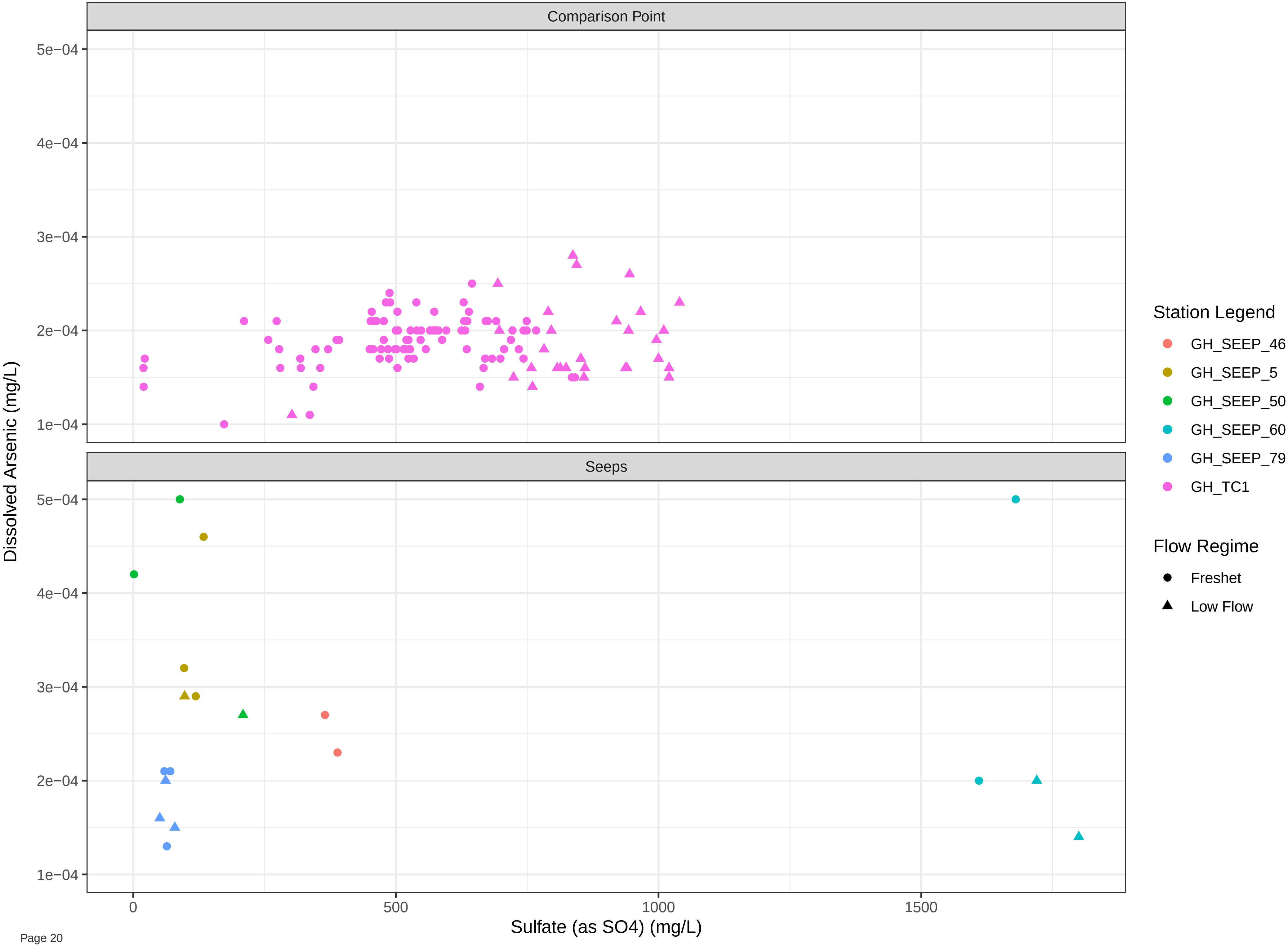

Comparison Point
Seeps
Dissolved Arsenic (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
Sulfate (as SO4) (mg/L)
500
1000
1500
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

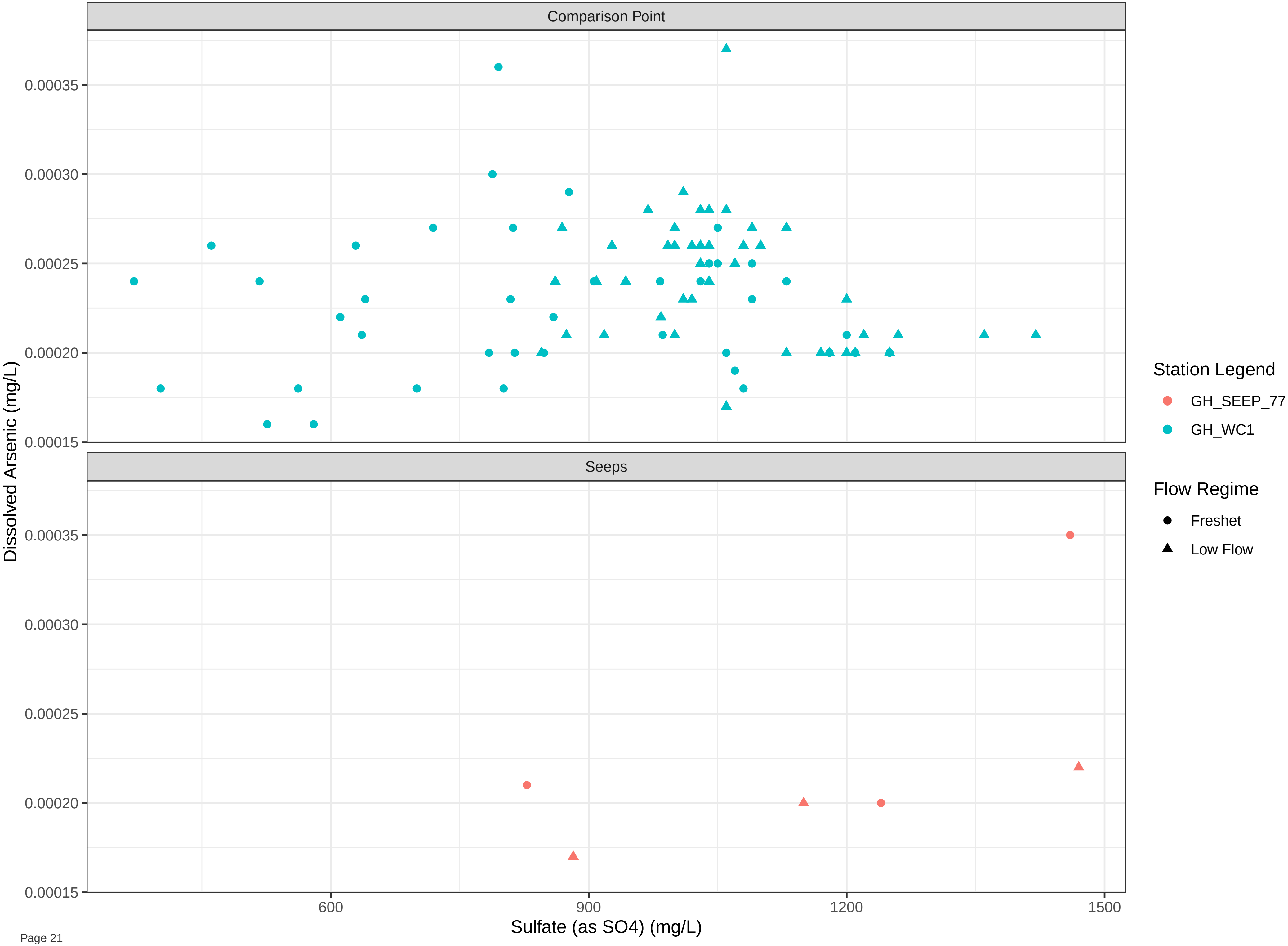

Comparison Point
Seeps
Dissolved Arsenic (mg/L)
0.00075
0.00050
0.00025
0.00075
0.00050
0.00025
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow

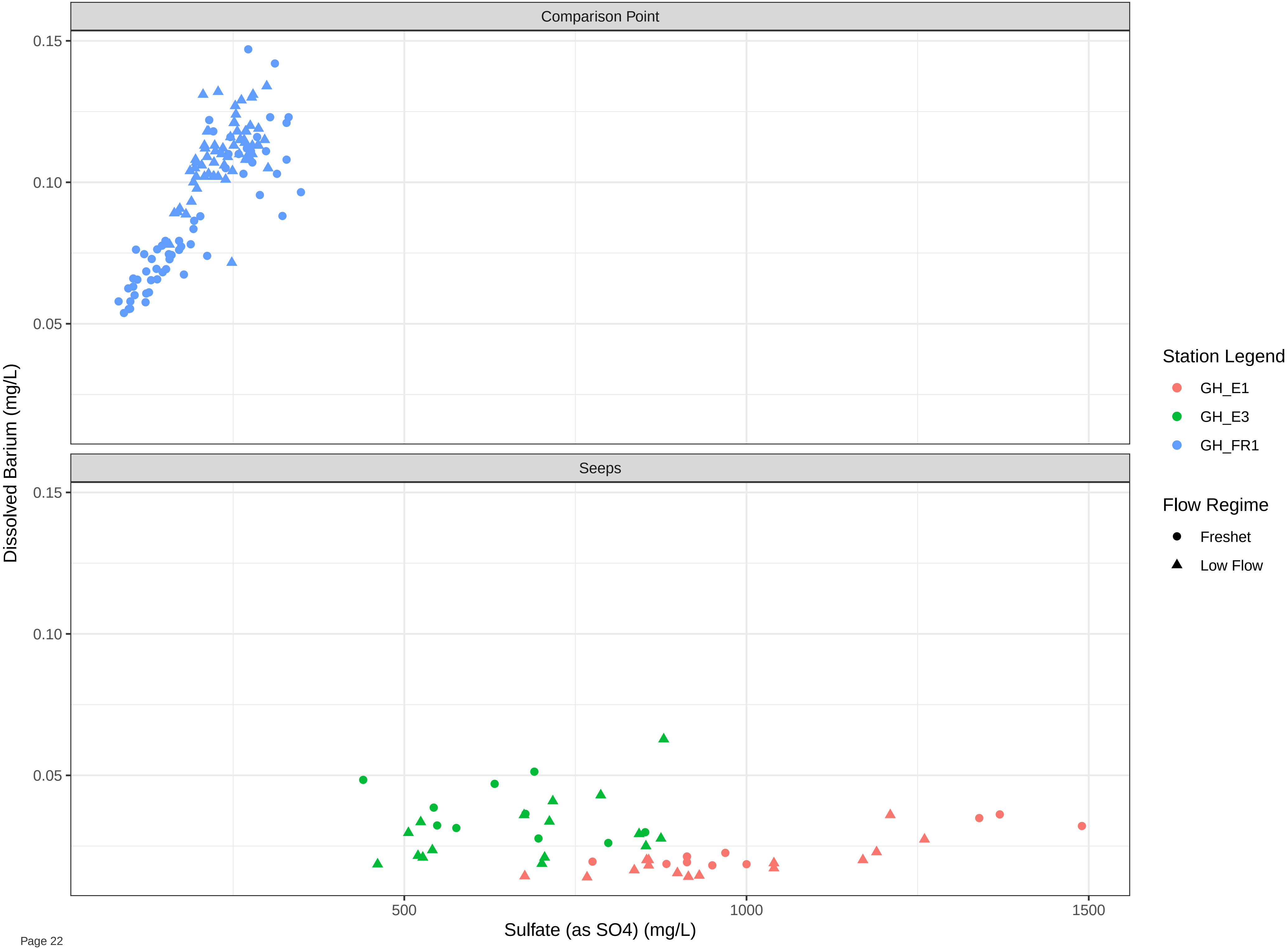

Comparison Point
Seeps
6e−04
4e−04
2e−04
Dissolved Arsenic (mg/L)
0
200
400
600
Sulfate (as SO4) (mg/L)
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow

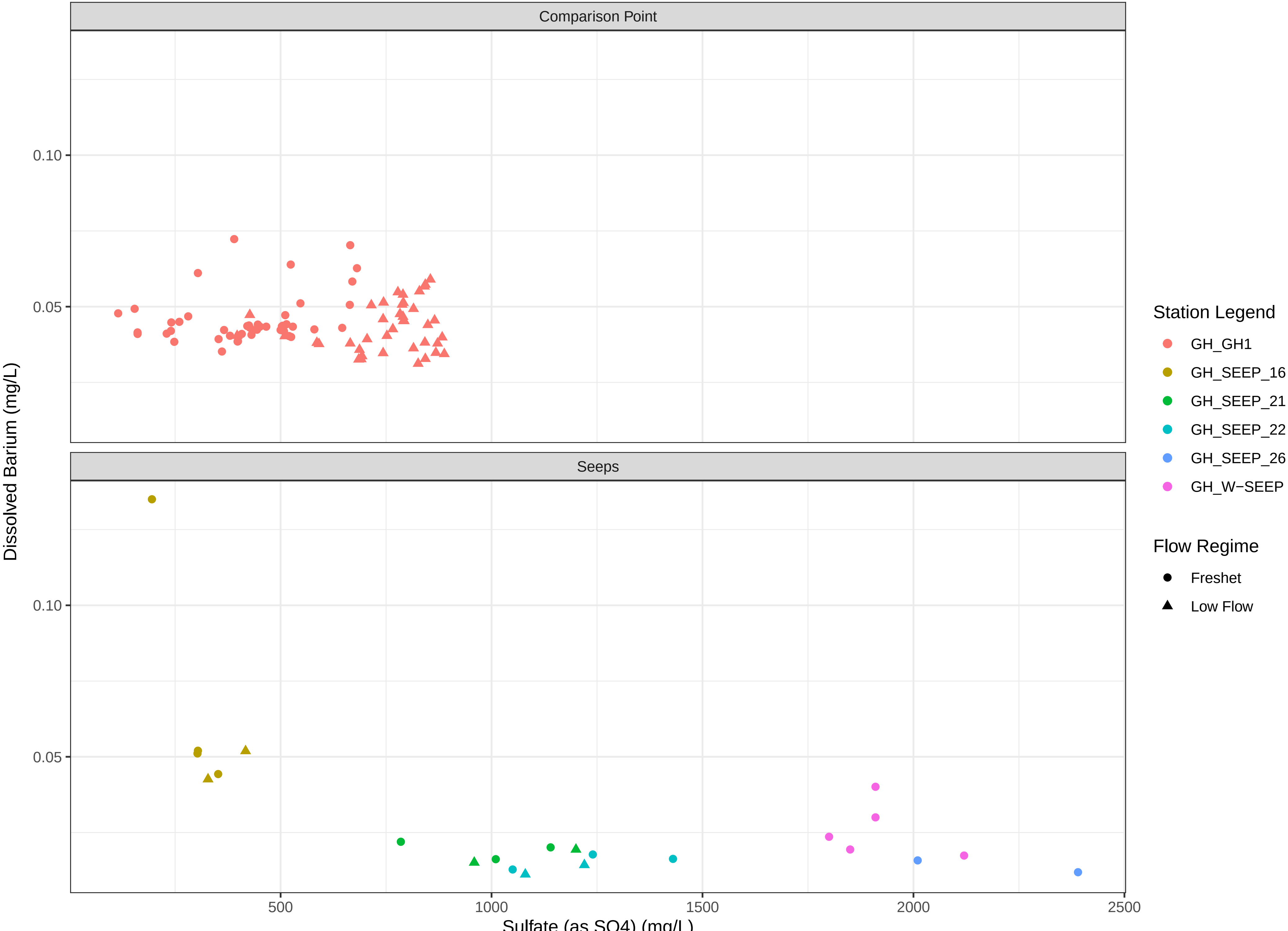

Comparison Point
Seeps
Dissolved Arsenic (mg/L)
5e−04
4e−04
3e−04
2e−04
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
Freshet
Low Flow

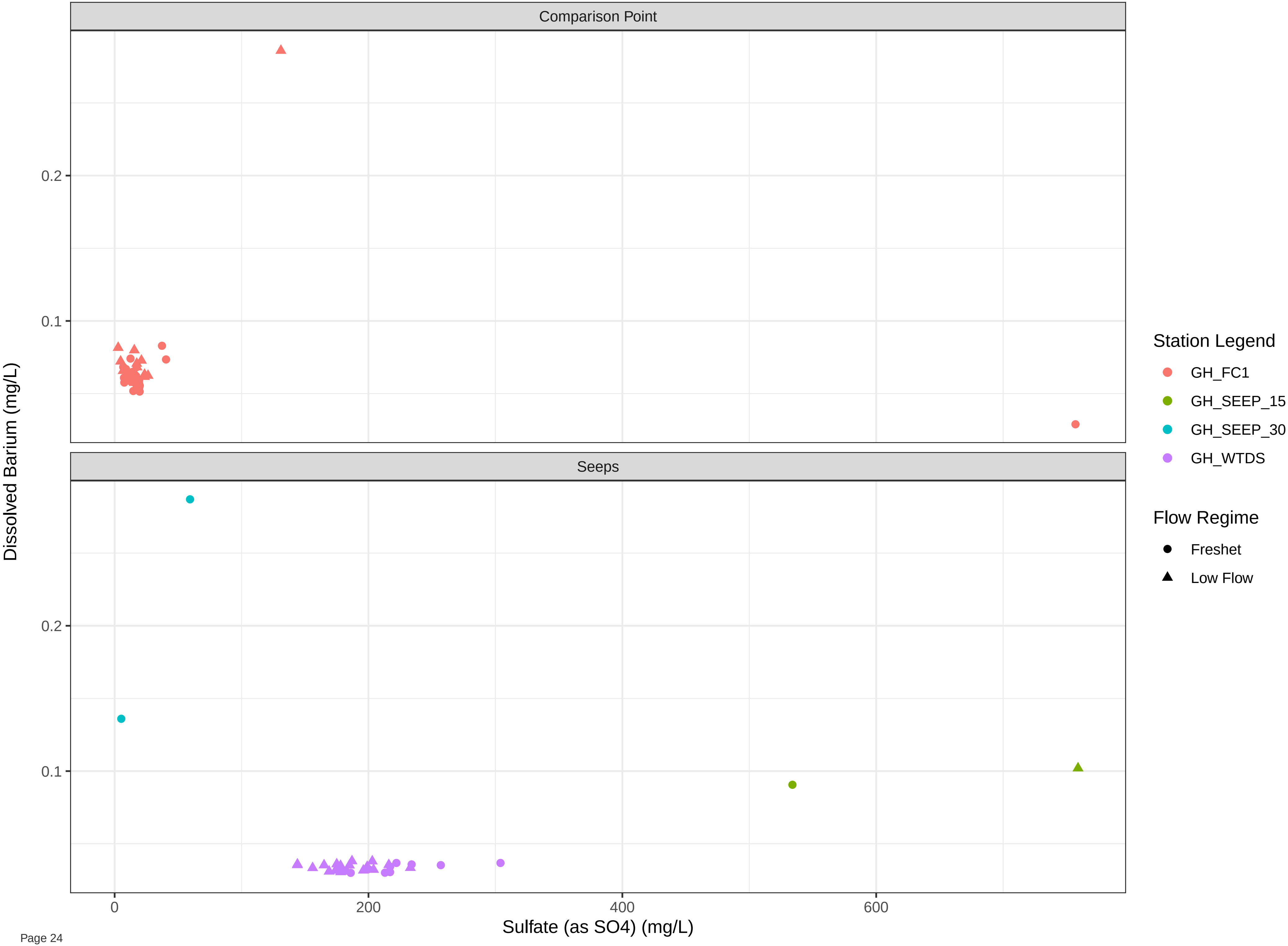

Seeps
0.00040
0.00035
0.00030
0.00025
0.00020
Dissolved Arsenic (mg/L)
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

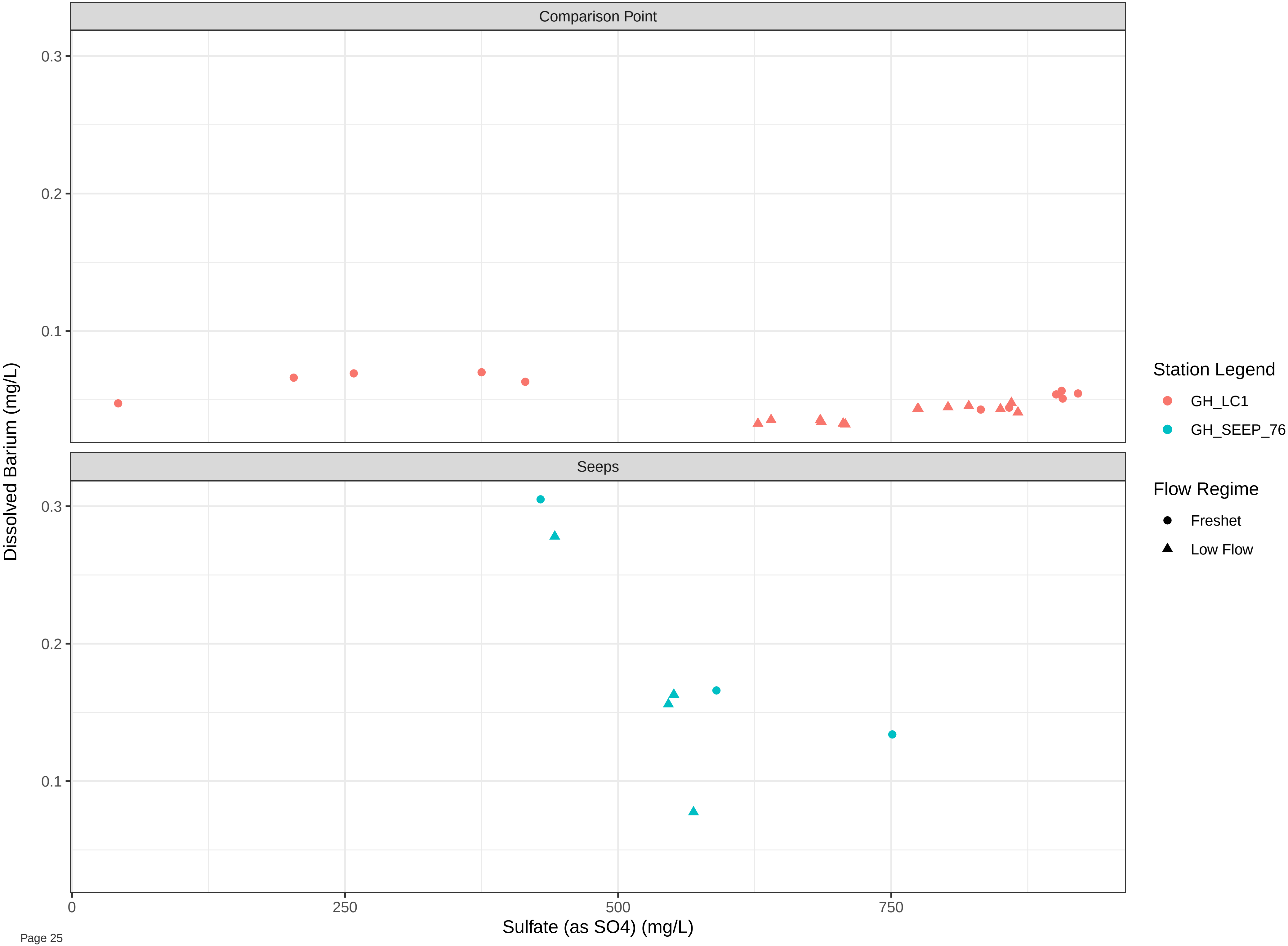

Comparison Point
Seeps
Dissolved Arsenic (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
Sulfate (as SO4) (mg/L)
0
500
1000
1500
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

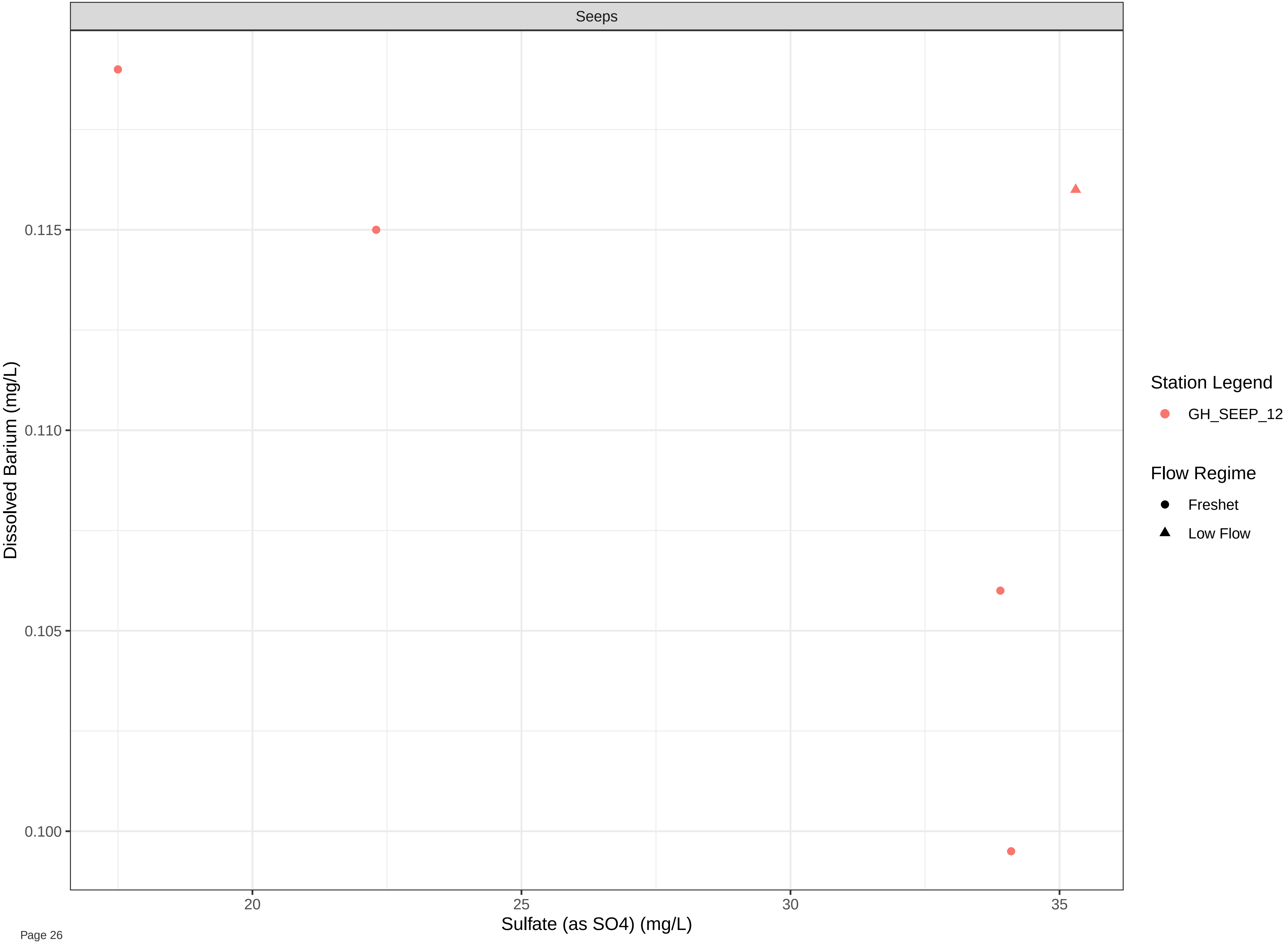

Comparison Point
Seeps
Dissolved Arsenic (mg/L)
0.00035
0.00030
0.00025
0.00020
0.00015
Sulfate (as SO4) (mg/L)
600
900
1200
1500
Station Legend
● GH_SEEP_77
● GH_WC1
Flow Regime
● Freshet
▲ Low Flow

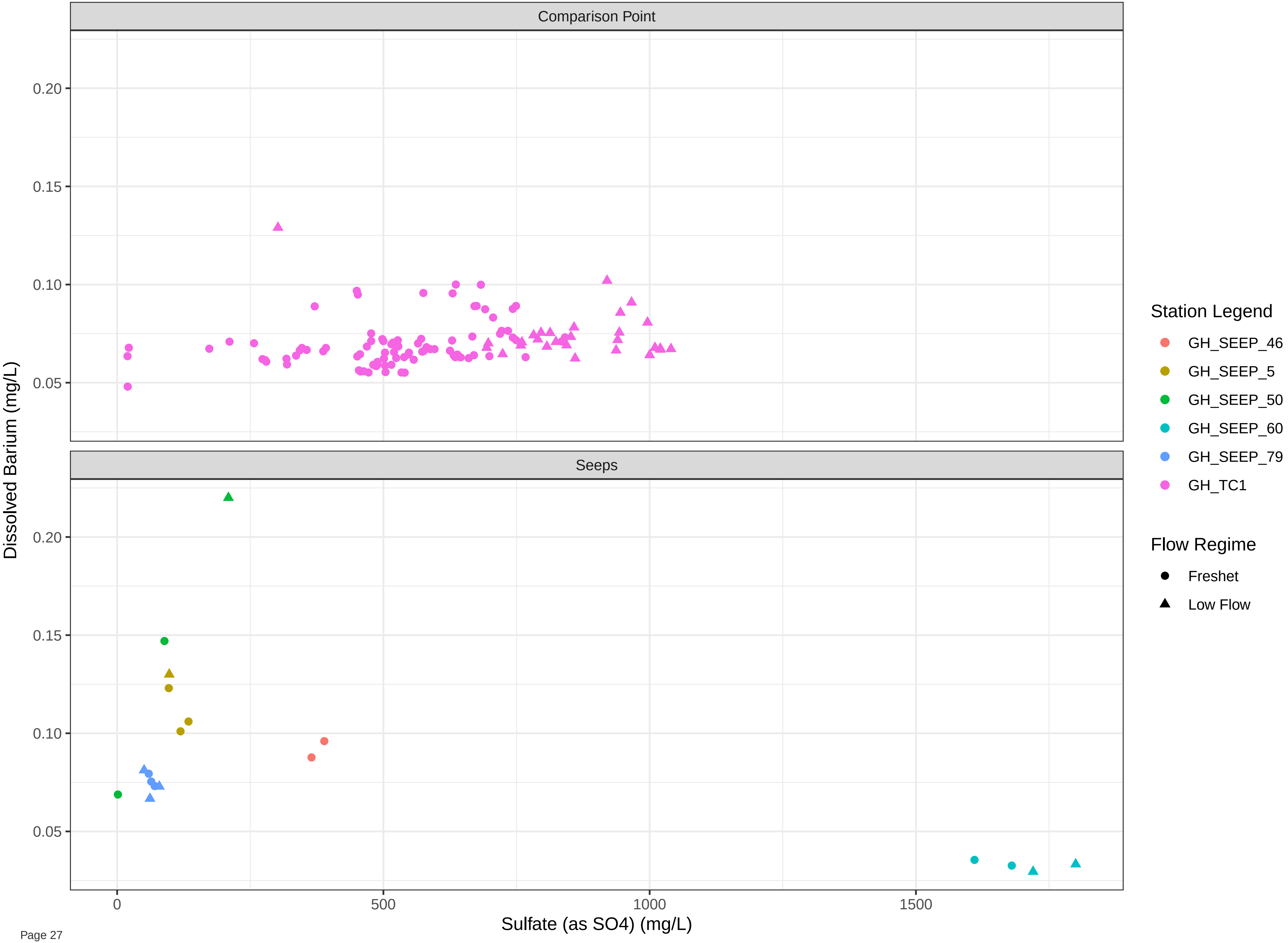

Comparison Point
Seeps
Dissolved Barium (mg/L)
0.15
0.10
0.05
Sulfate (as SO4) (mg/L)
500
1000
1500
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

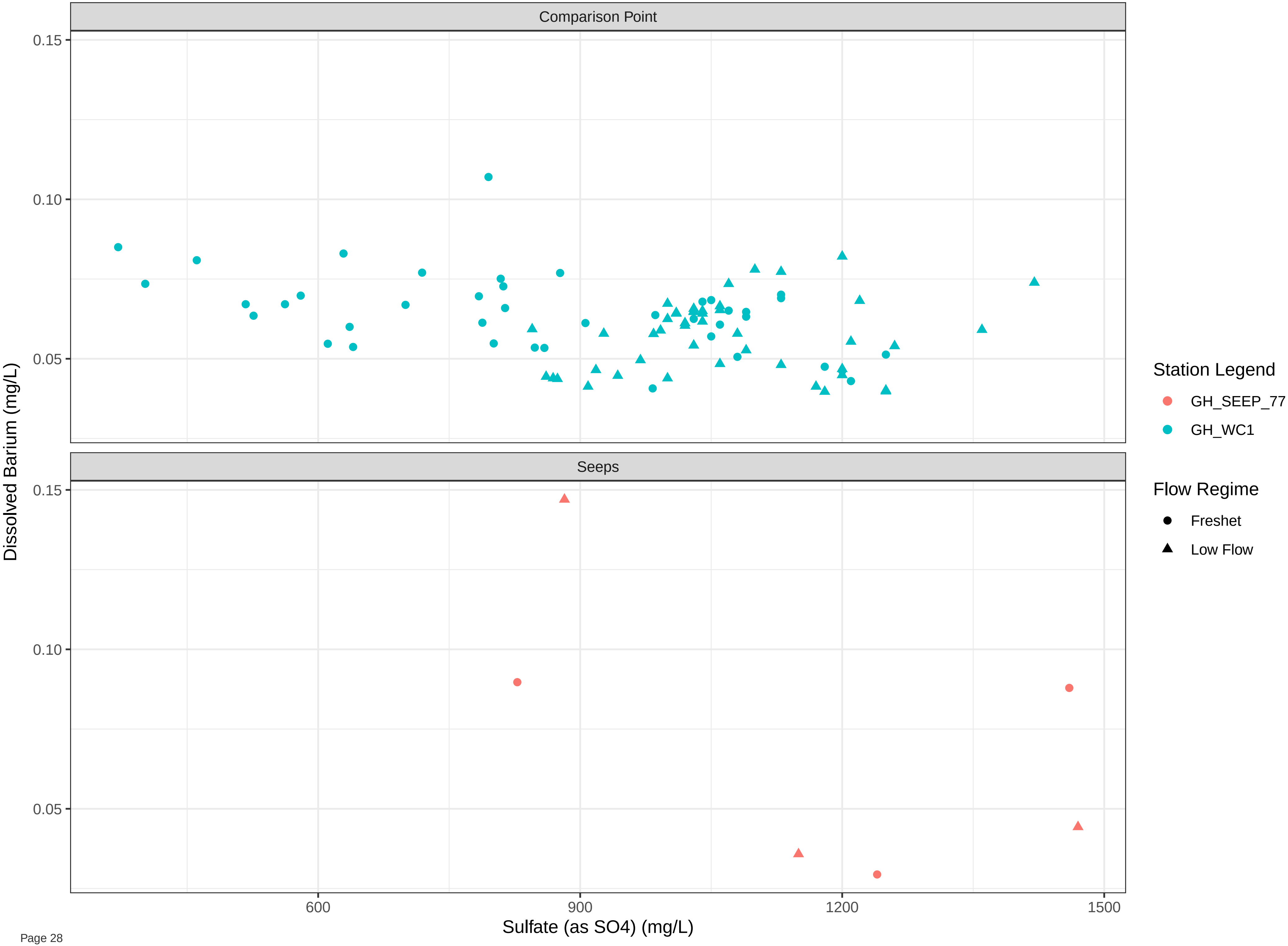

Comparison Point
Seeps
0.10
0.05
0.10
0.05
Dissolved Barium (mg/L)
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow

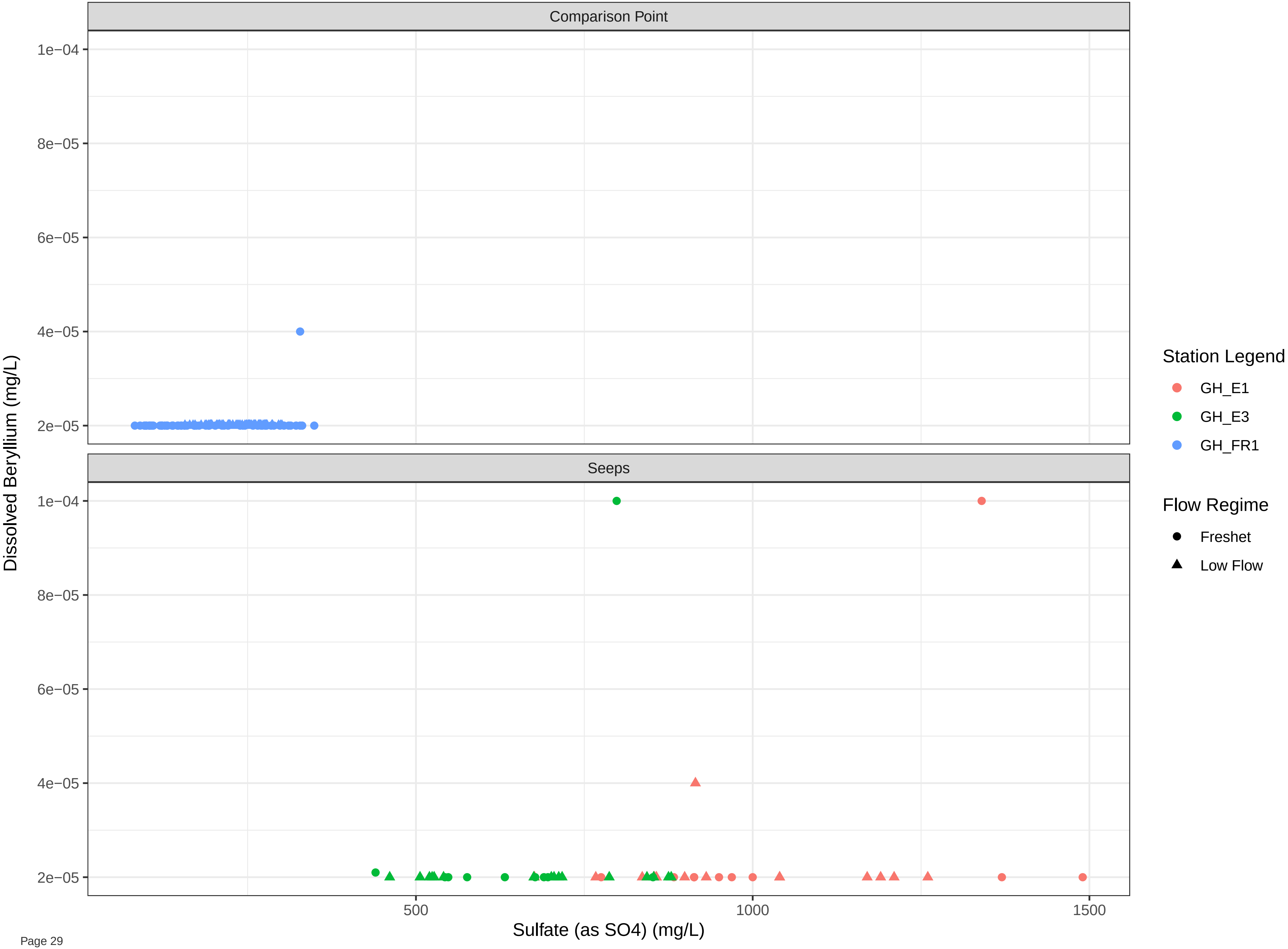

Comparison Point
Seeps
Dissolved Barium (mg/L)
0.1
0.2
0.1
0.2
0
200
400
600
Sulfate (as SO4) (mg/L)
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
Dissolved Barium (mg/L)
0.3
0.2
0.1
0.3
0.2
0.1
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
Freshet
Low Flow

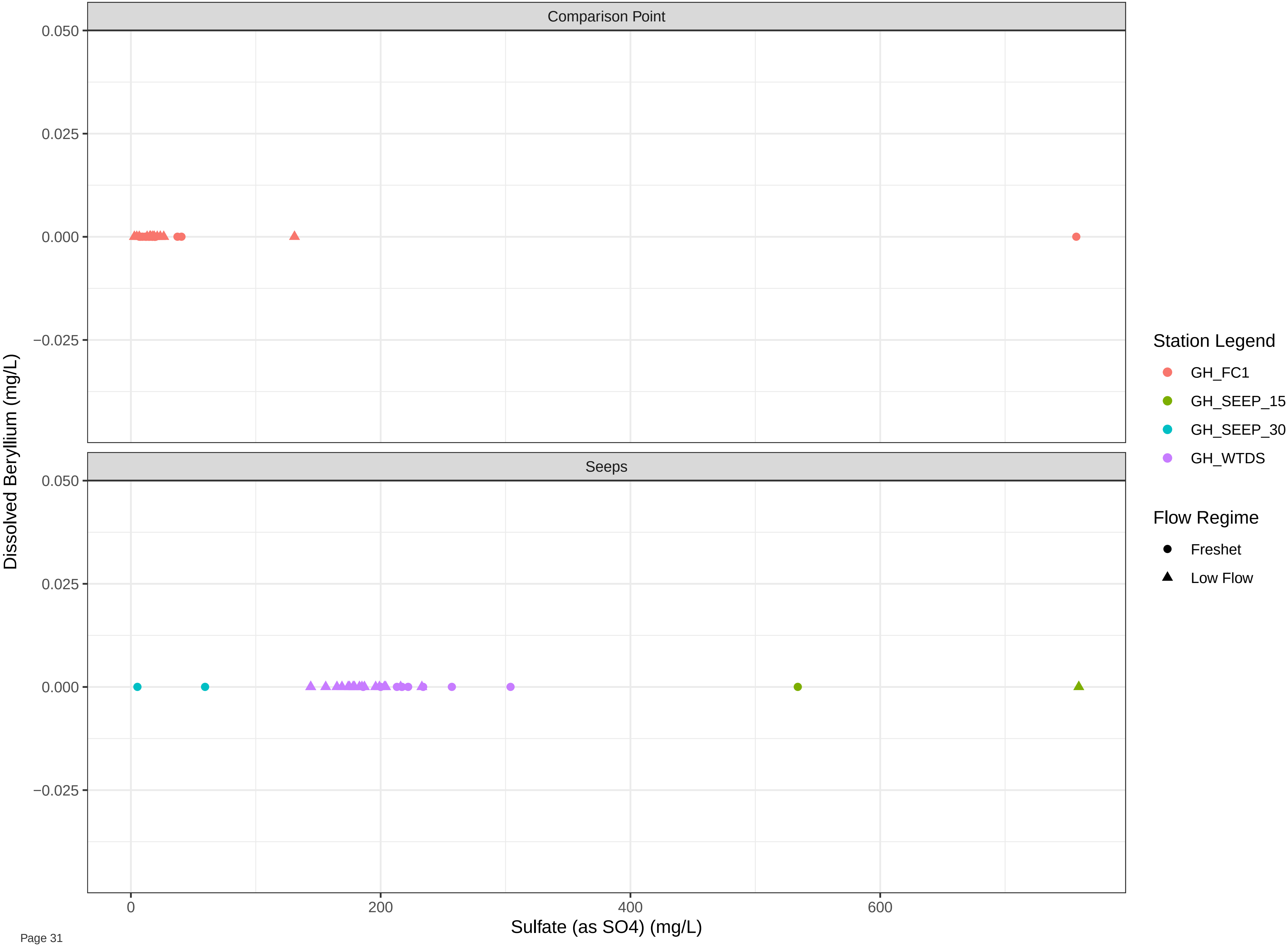

Seeps
Dissolved Barium (mg/L)
0.115
0.110
0.105
0.100
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

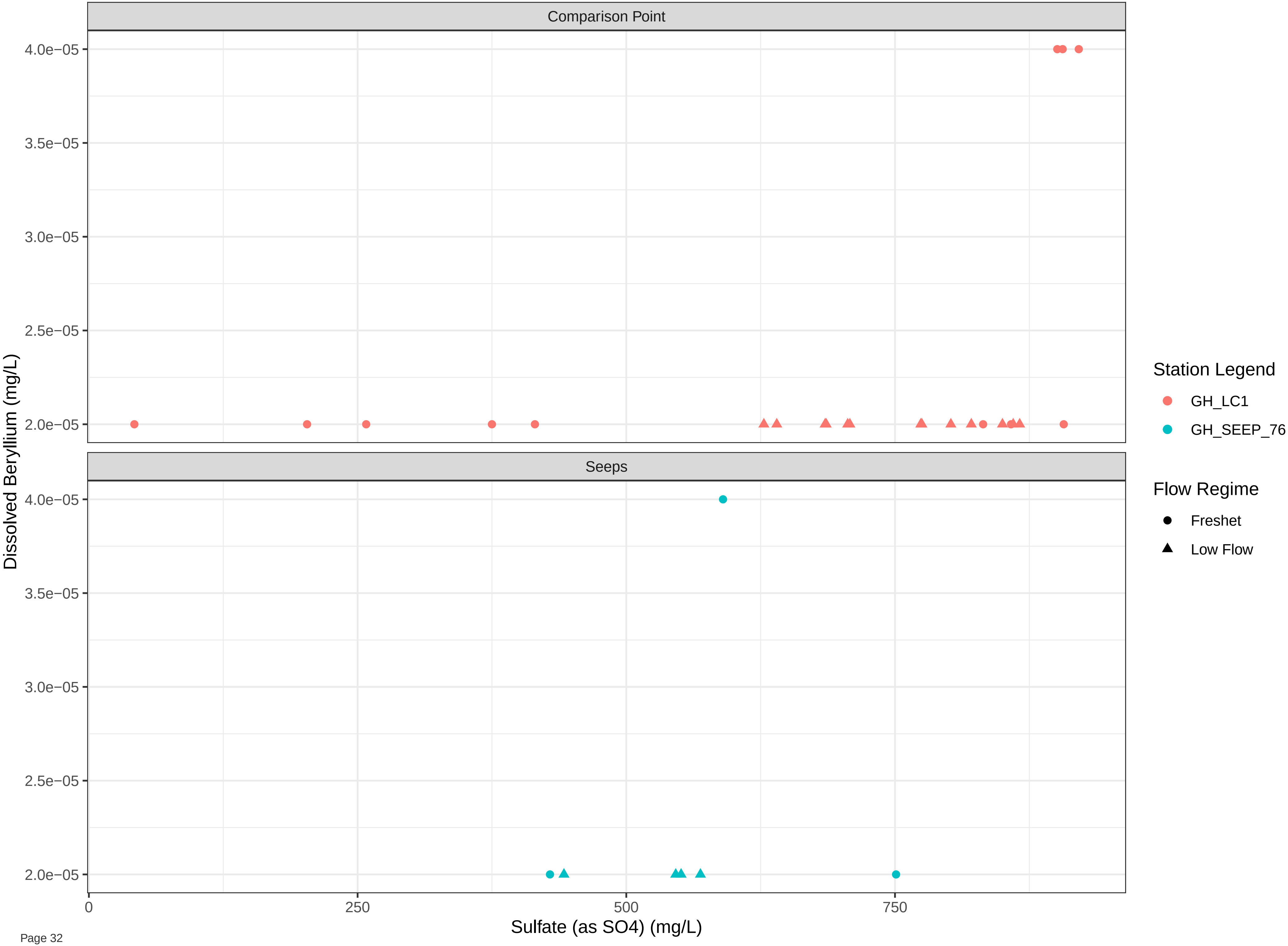

Comparison Point
Seeps
Dissolved Barium (mg/L)
0.05
0.10
0.15
0.20
Sulfate (as SO4) (mg/L)
0
500
1000
1500
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

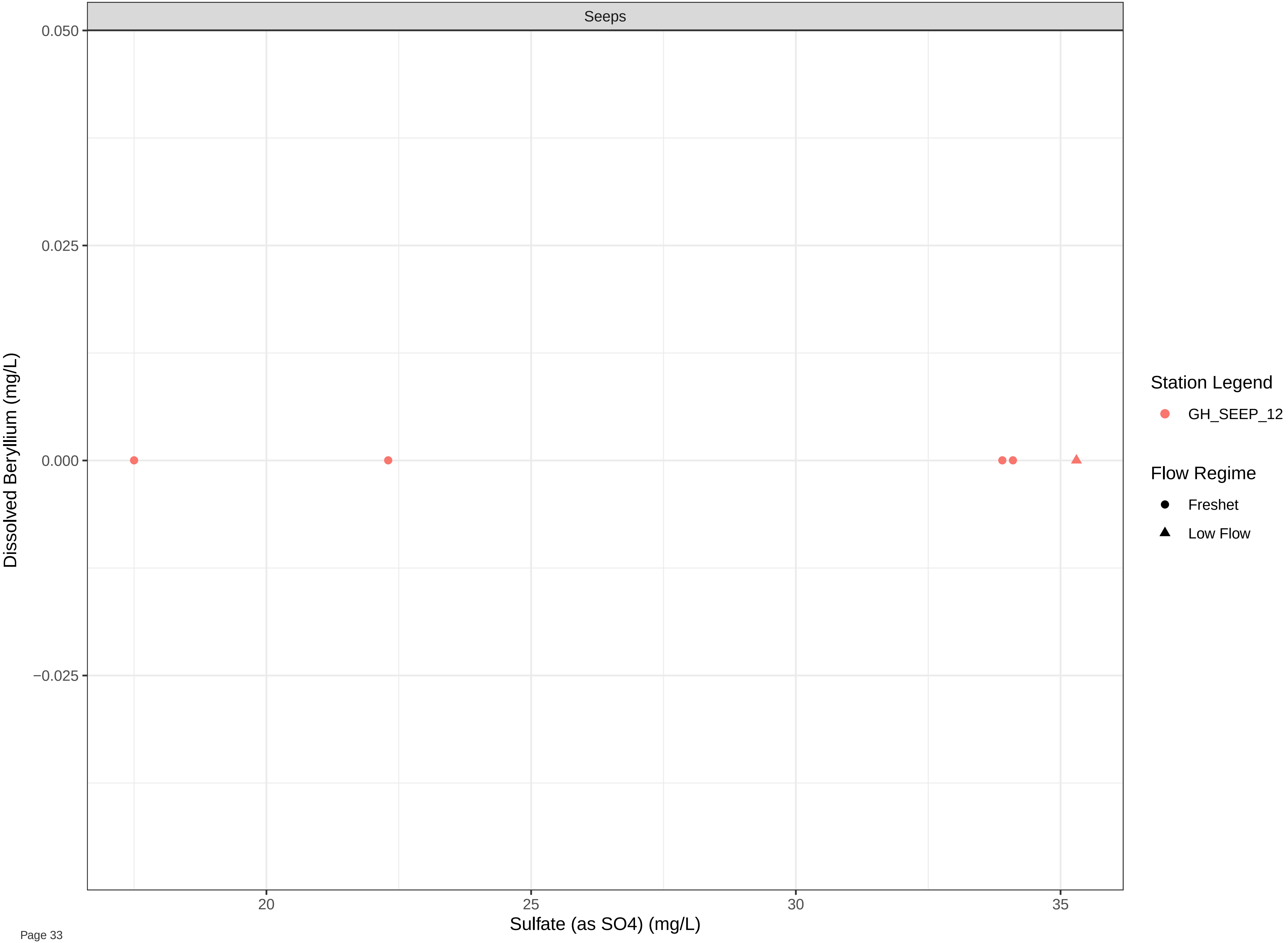

Comparison Point
Seeps
Dissolved Barium (mg/L)
0.15
0.10
0.05
0.15
0.10
0.05
600
900
1200
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

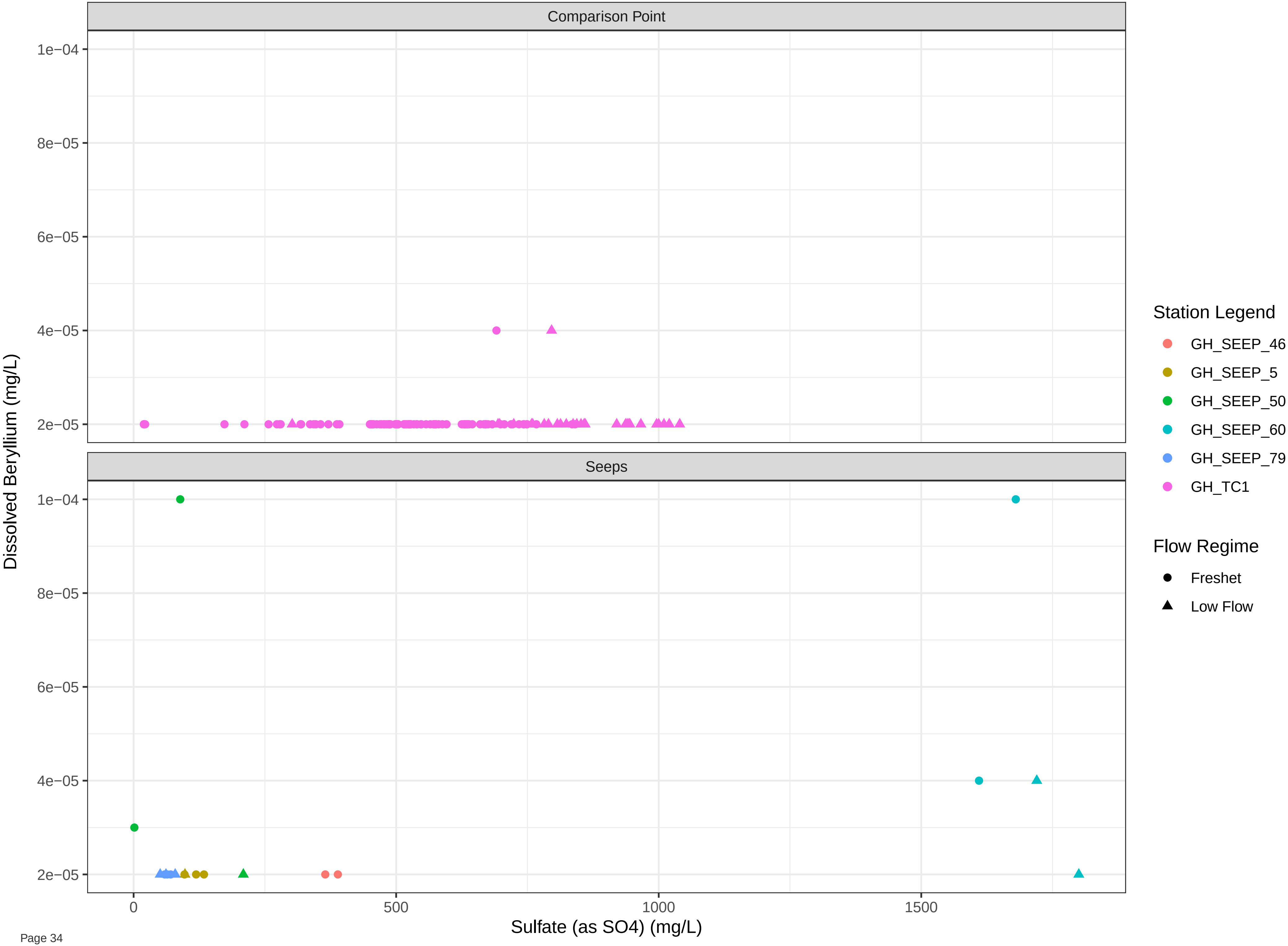

Comparison Point
Seeps
1e−04
8e−05
6e−05
4e−05
2e−05
Dissolved Beryllium (mg/L)
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

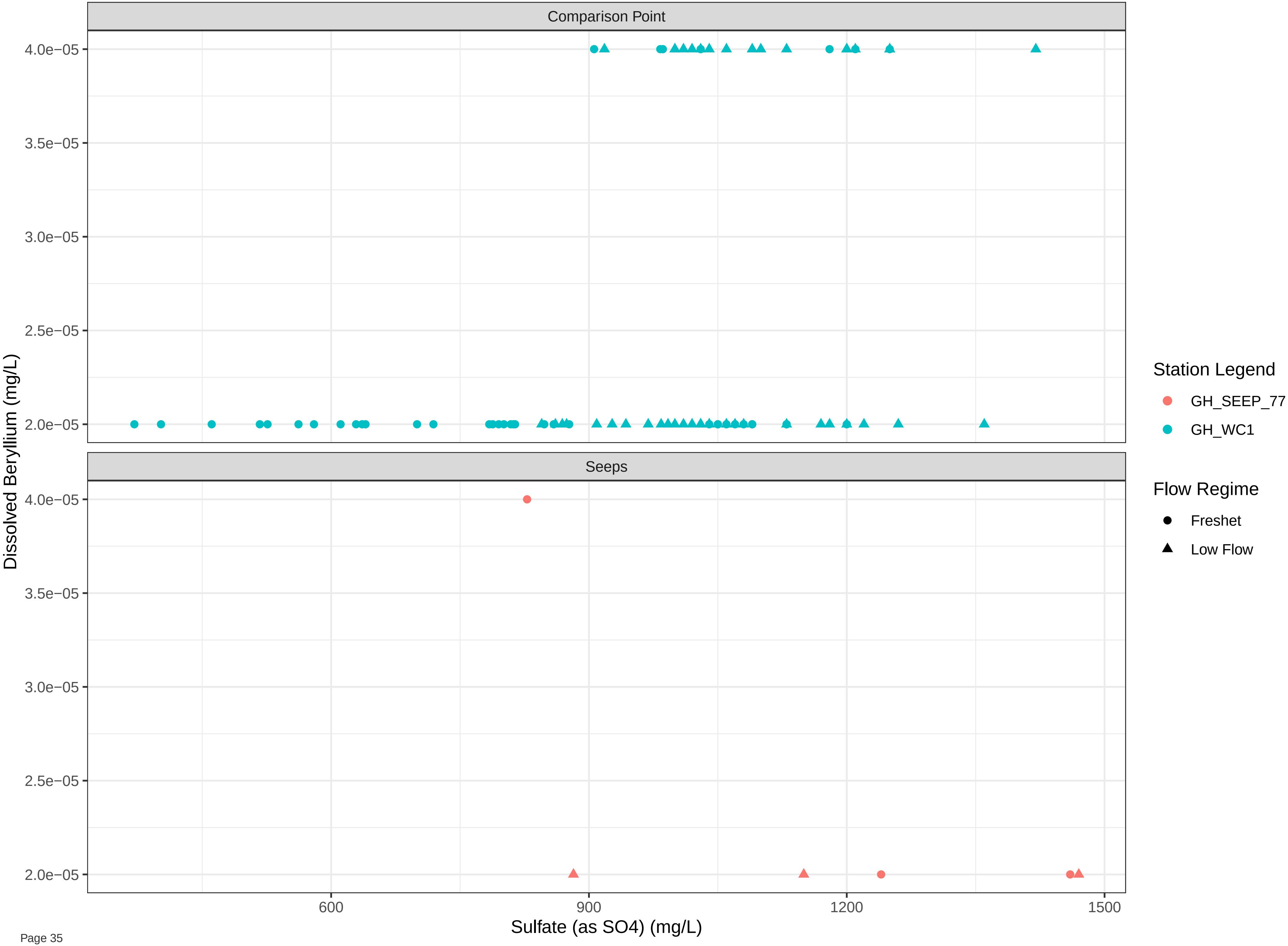

Comparison Point
Seeps
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
Sulfate (as SO4) (mg/L)
500
1000
1500
2000
2500
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow

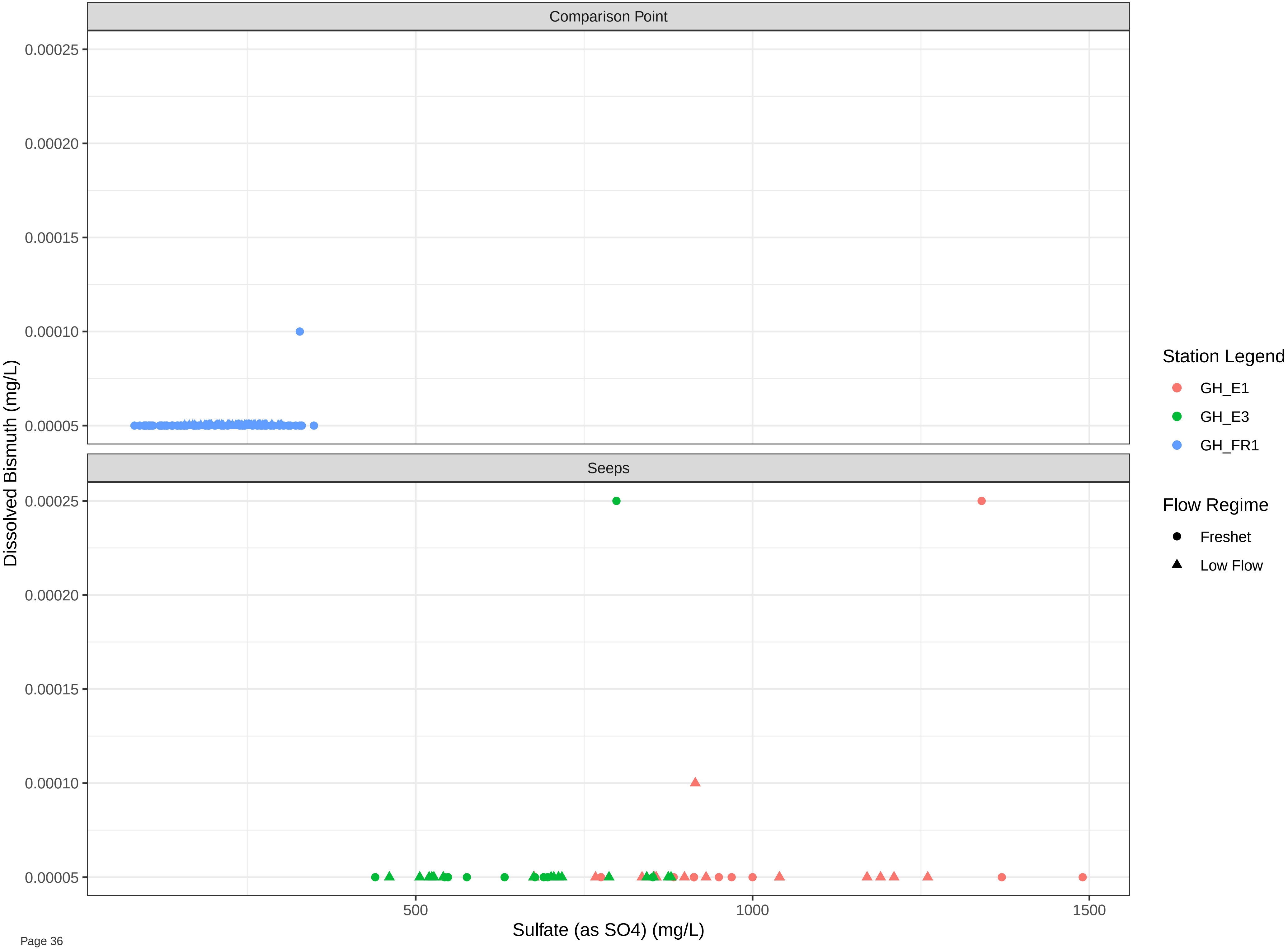

Comparison Point
Seeps
Dissolved Beryllium (mg/L)
0.050
0.025
0.000
−0.025
0
200
400
600
Sulfate (as SO4) (mg/L)
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow

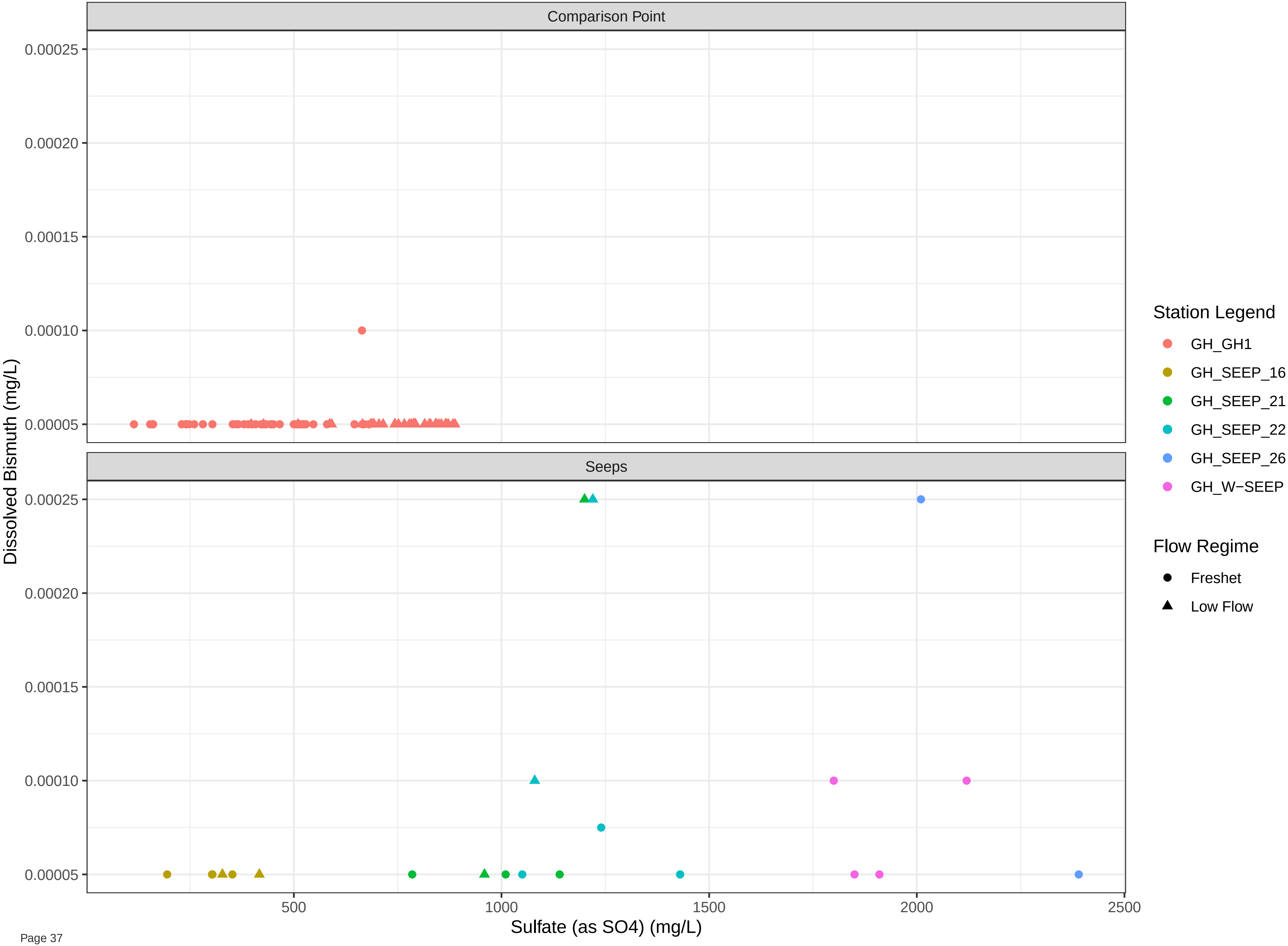

Comparison Point
Seeps
Dissolved Beryllium (mg/L)
4.0e−05
3.5e−05
3.0e−05
2.5e−05
2.0e−05
4.0e−05
3.5e−05
3.0e−05
2.5e−05
2.0e−05
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
● GH_LC1
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow

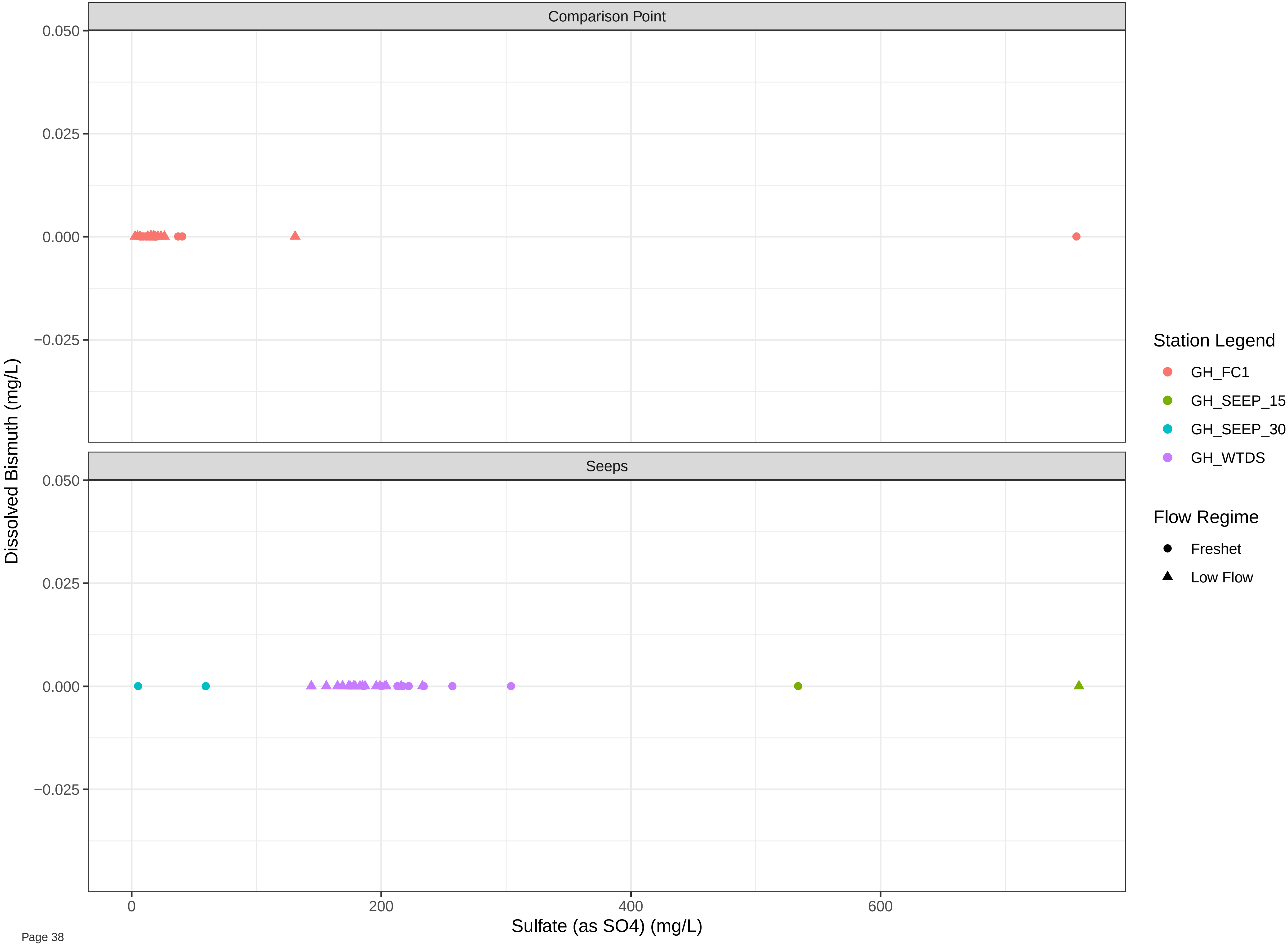

Seeps
0.050
0.025
0.000
−0.025
Dissolved Beryllium (mg/L)
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

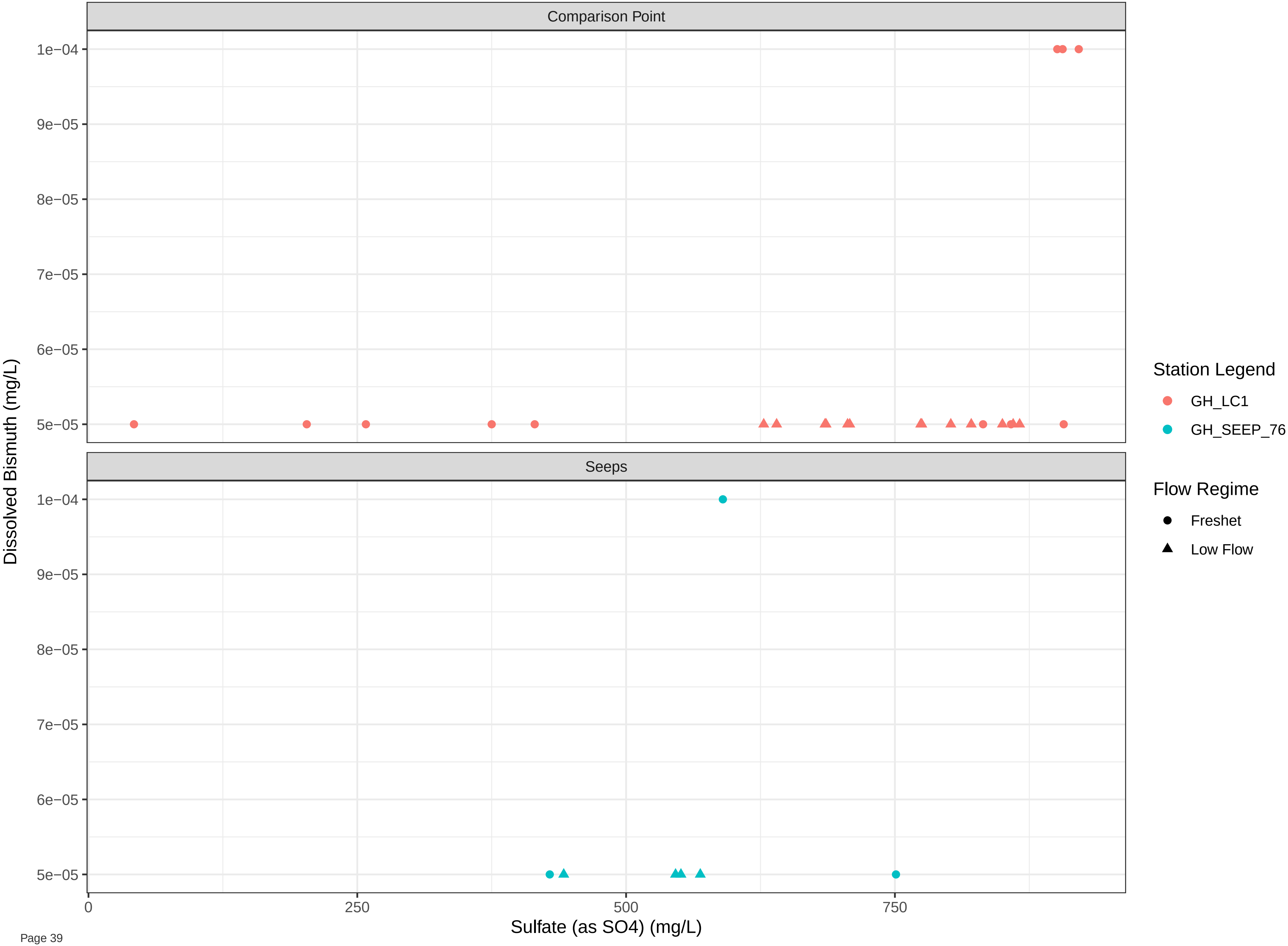

Comparison Point
Seeps
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
0
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

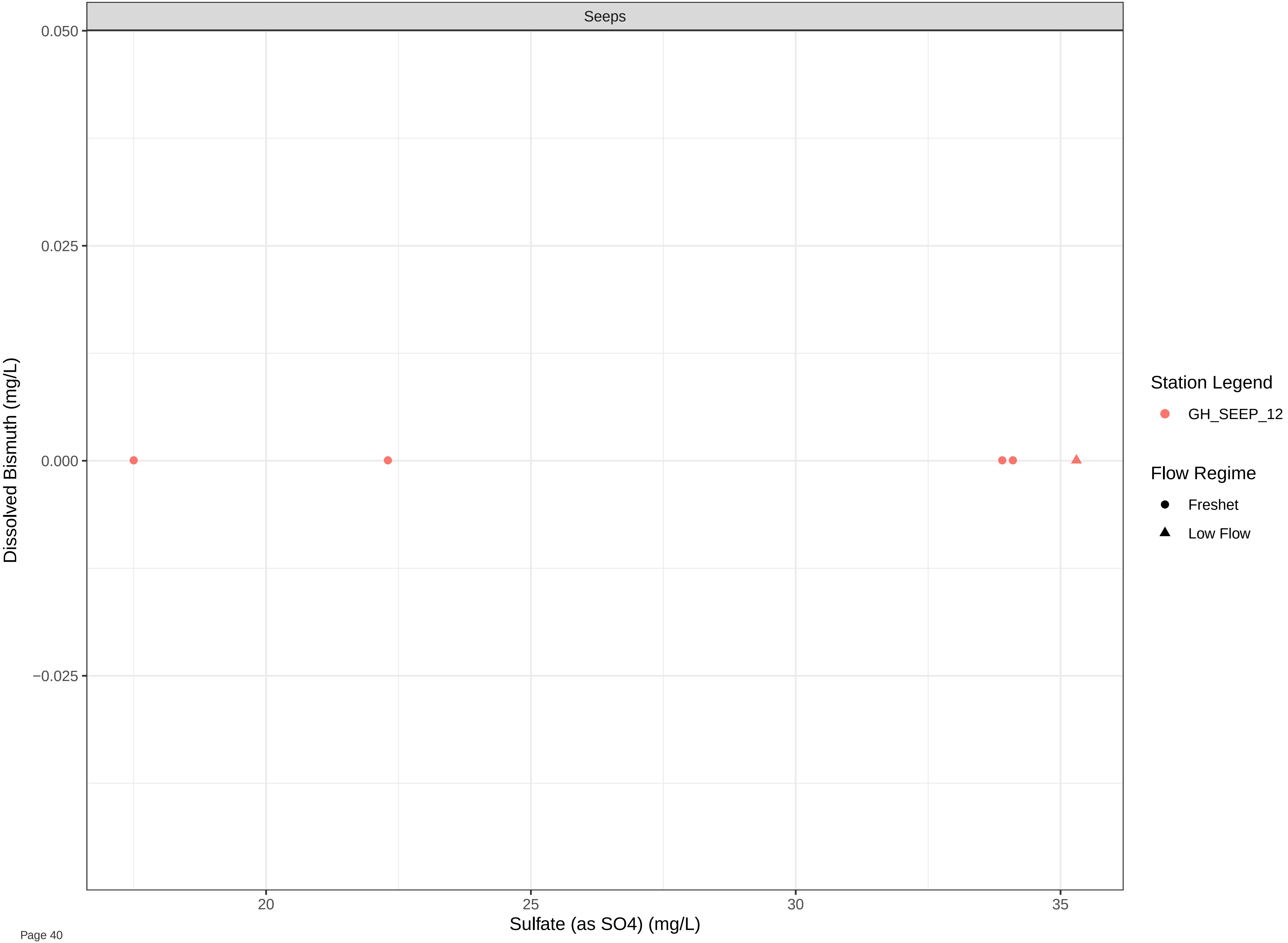

Comparison Point
Seeps
4.0e−05
3.5e−05
3.0e−05
2.5e−05
2.0e−05
Dissolved Beryllium (mg/L)
600
900
1200
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

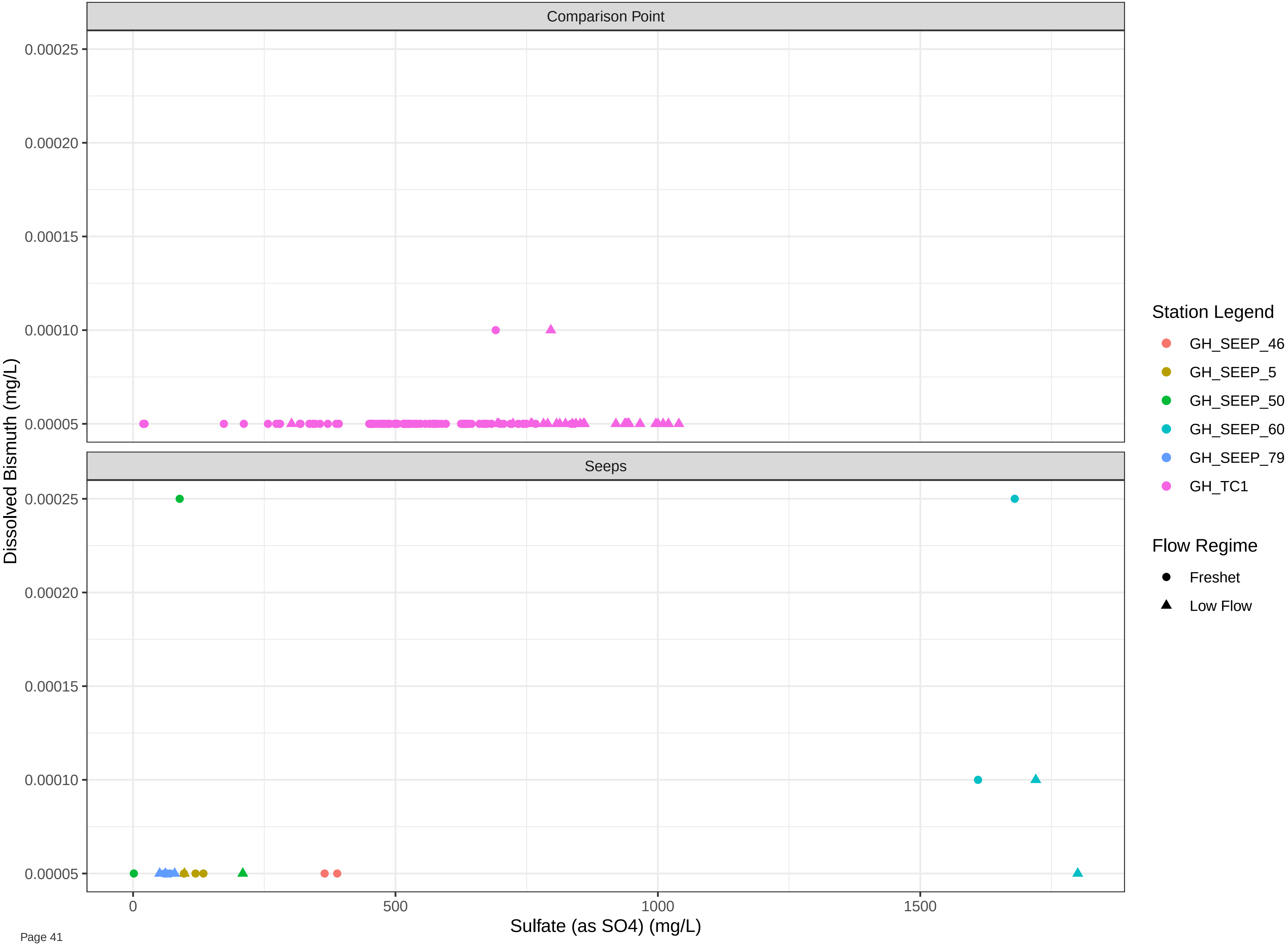

Comparison Point
Seeps
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
Sulfate (as SO4) (mg/L)
500
1000
1500
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

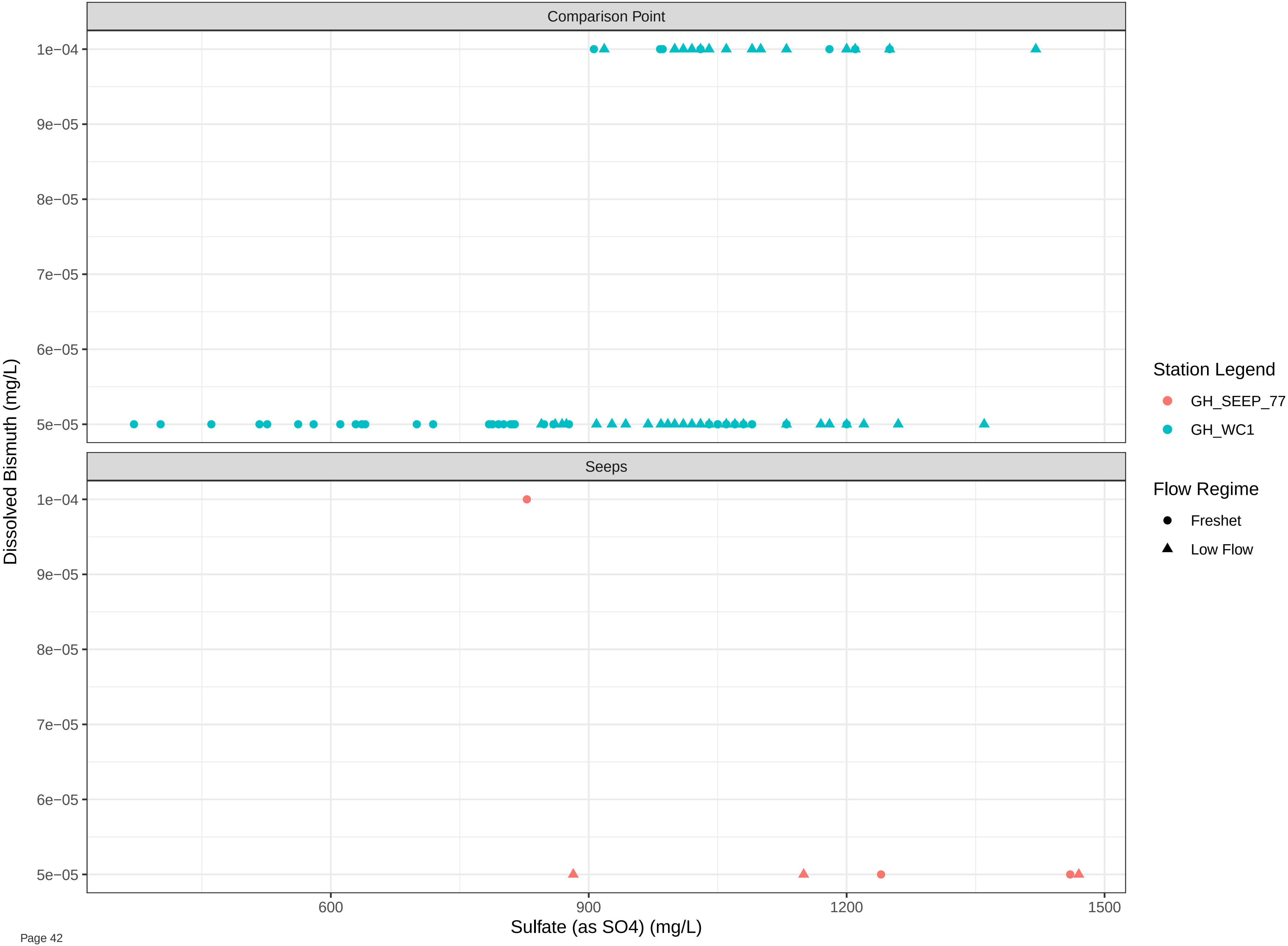

Comparison Point
Seeps
Dissolved Bismuth (mg/L)
0.00005
0.00010
0.00015
0.00020
0.00025
Sulfate (as SO4) (mg/L)
500
1000
1500
2000
2500
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow

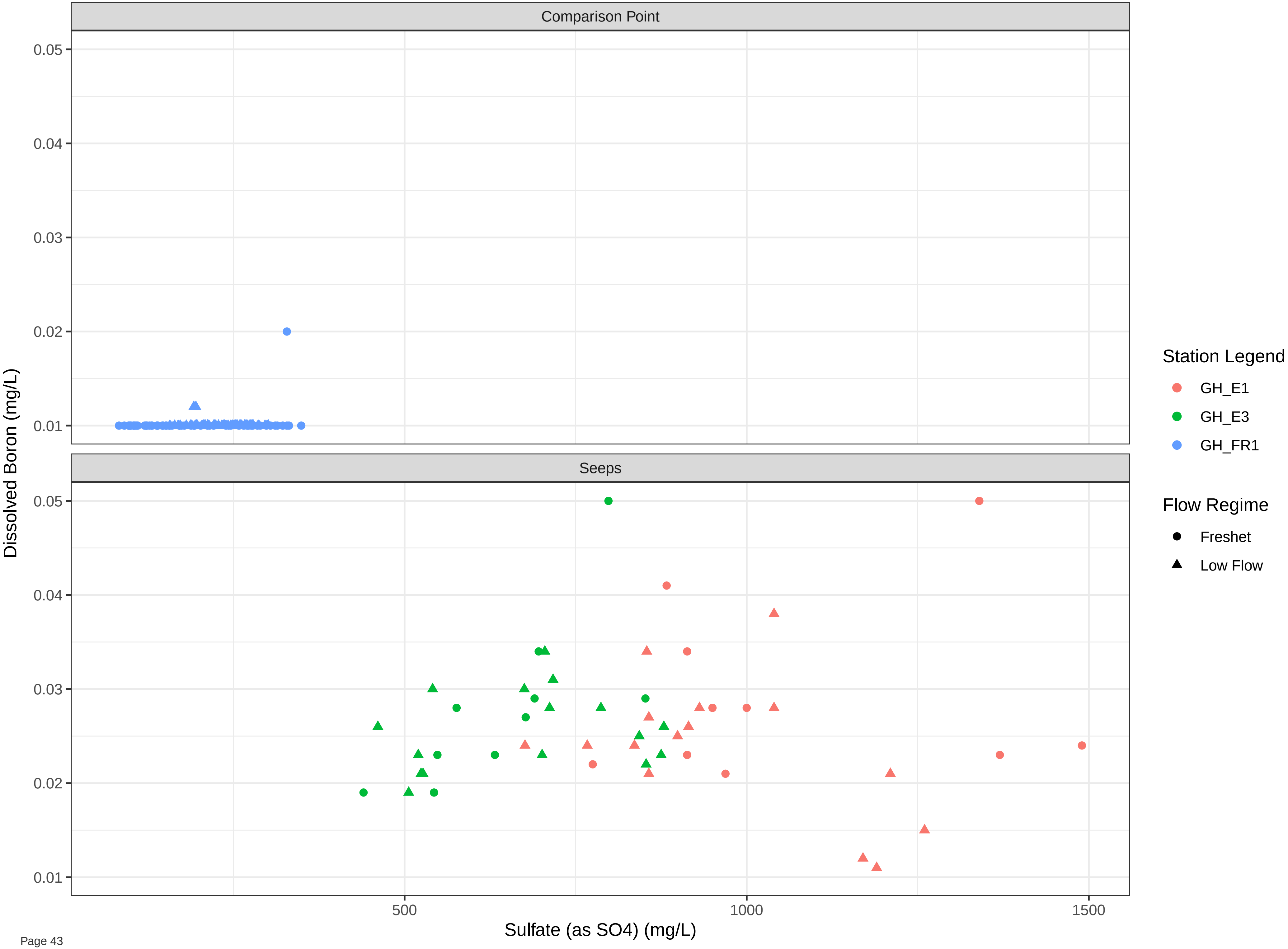

Comparison Point
Seeps
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
0
200
400
600
Sulfate (as SO4) (mg/L)
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
Dissolved Bismuth (mg/L)
1e−04
9e−05
8e−05
7e−05
6e−05
5e−05
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
Freshet
Low Flow

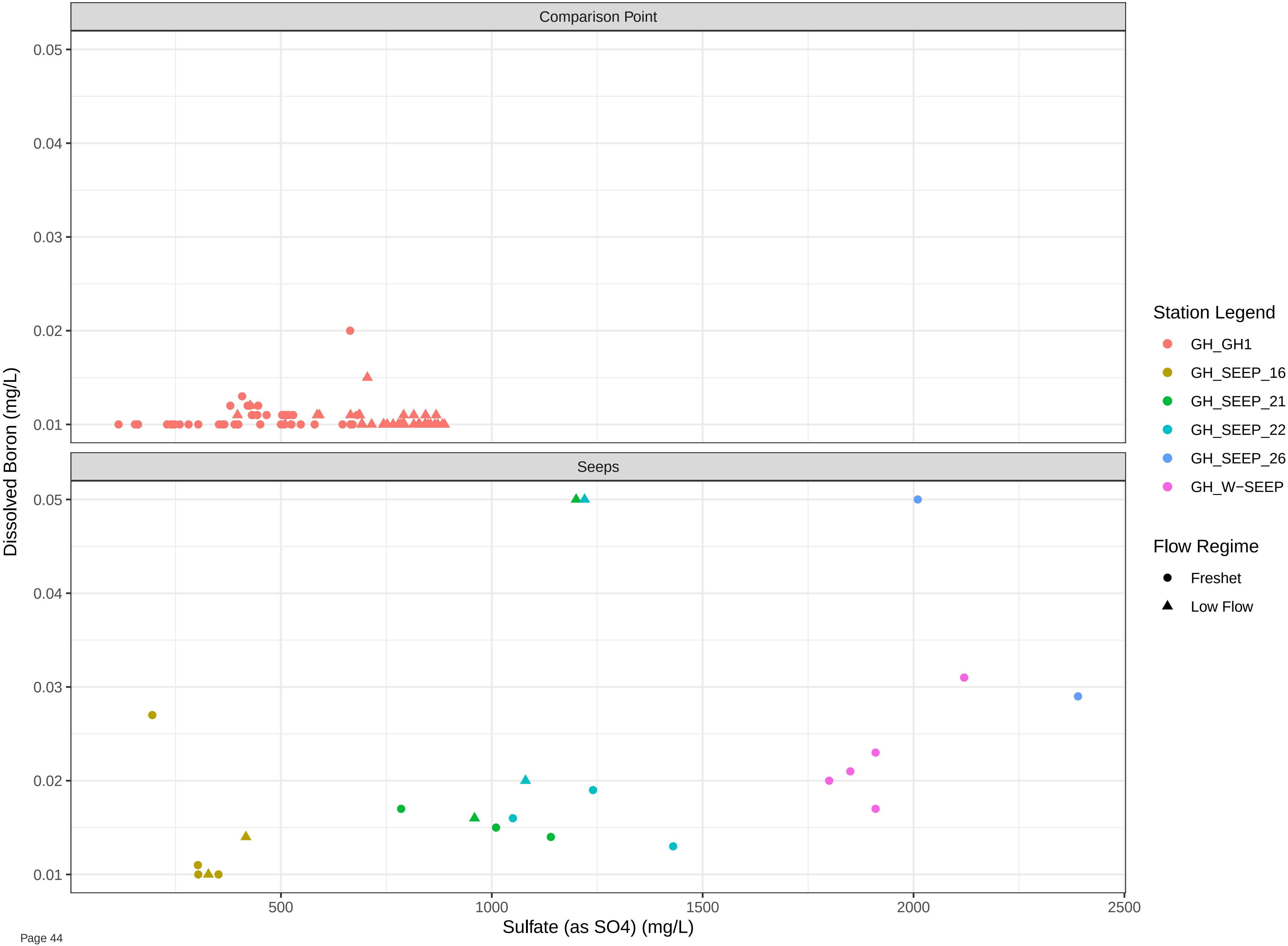

Seeps
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

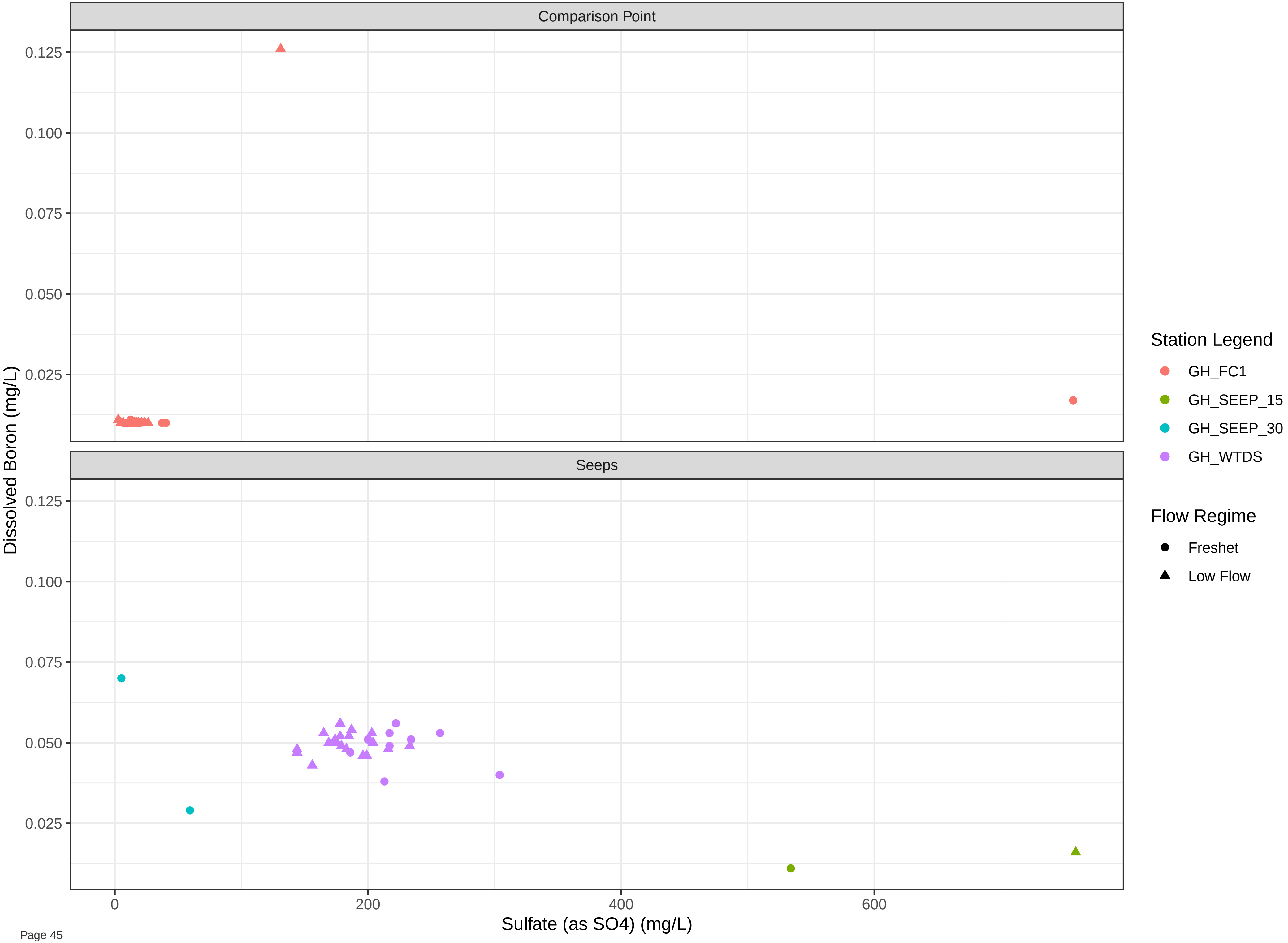

Comparison Point
Seeps
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
0
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

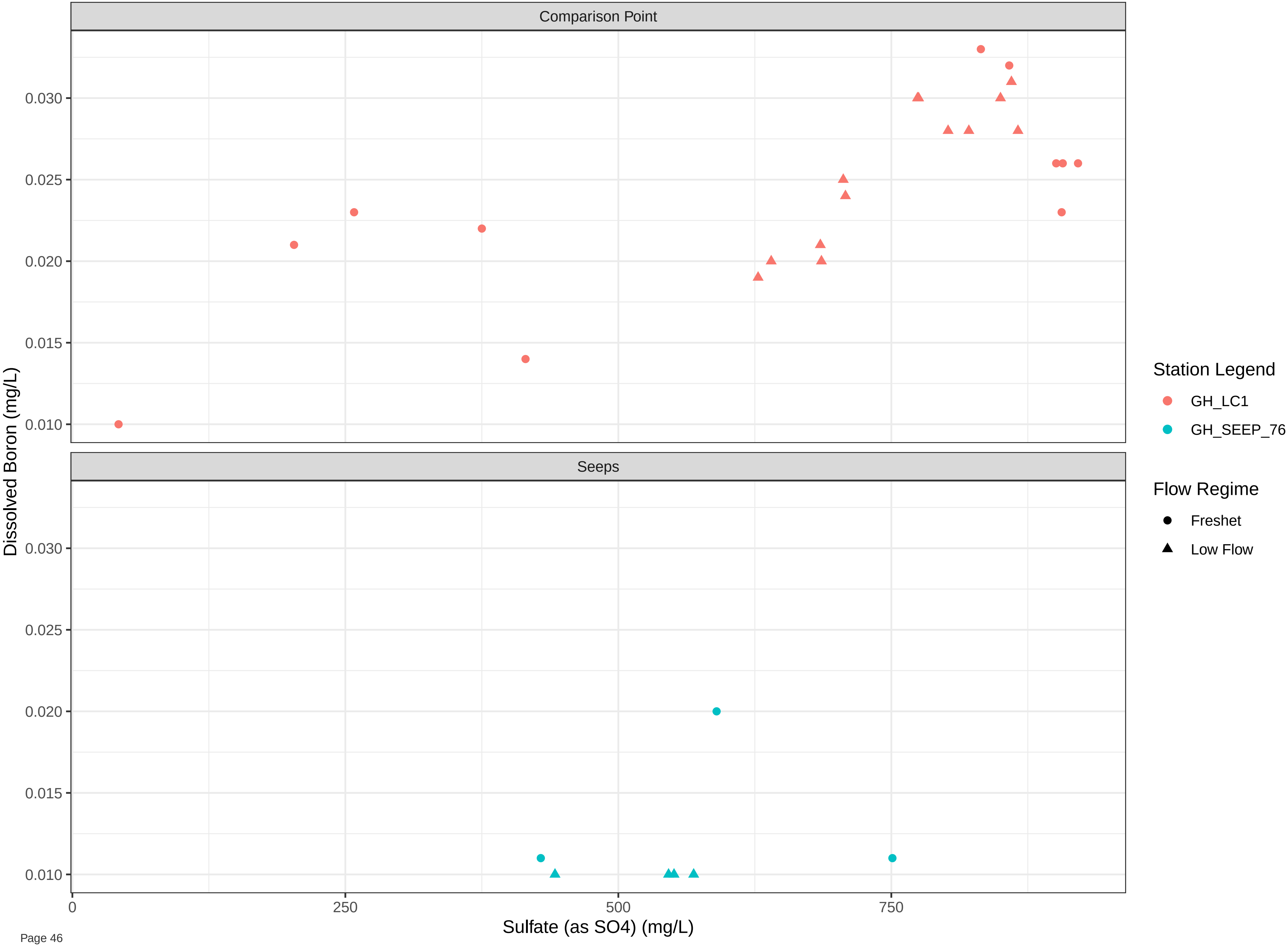

Comparison Point
Seeps
Dissolved Bismuth (mg/L)
1e−04
9e−05
8e−05
7e−05
6e−05
5e−05
600
900
1200
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

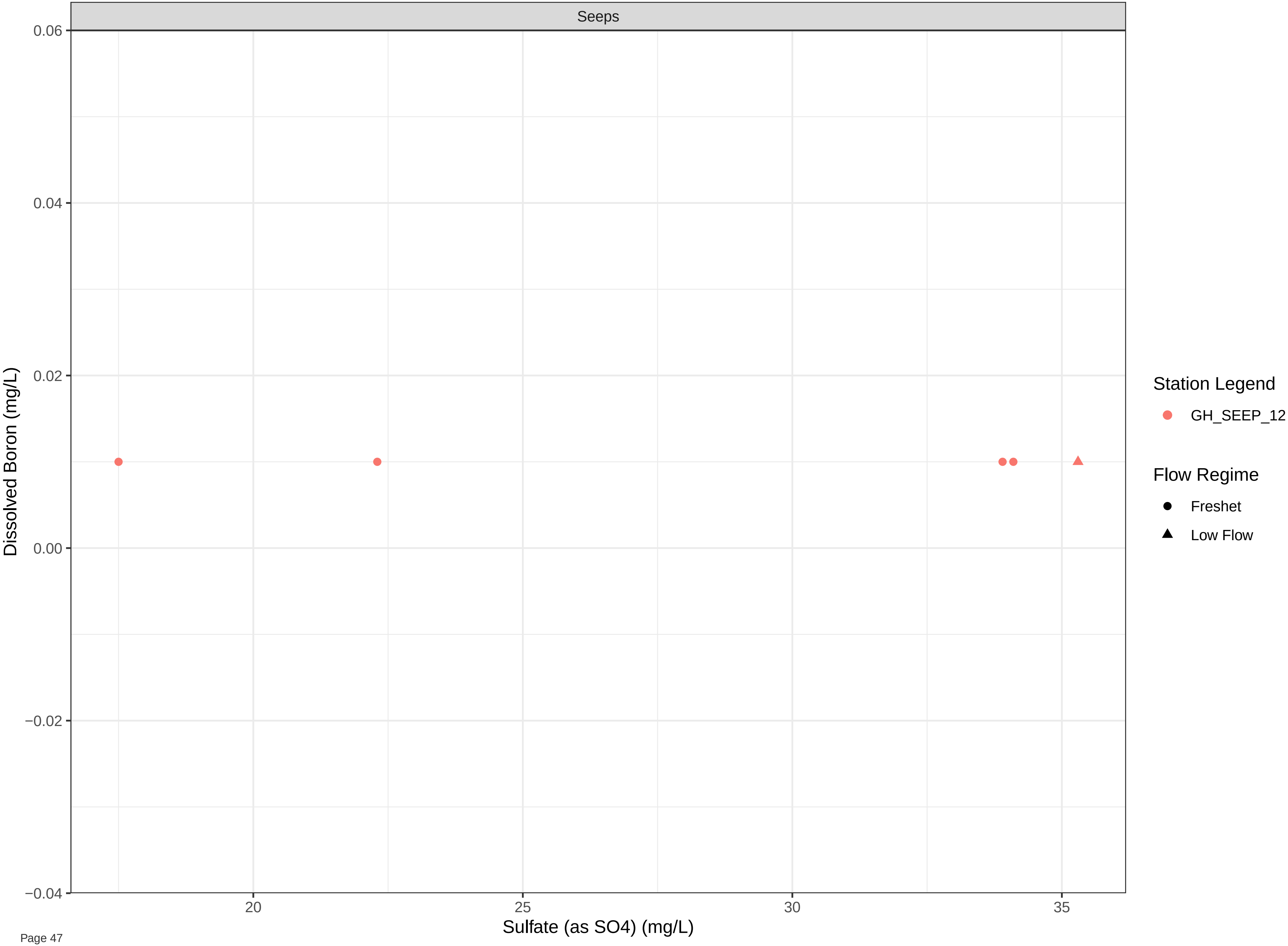


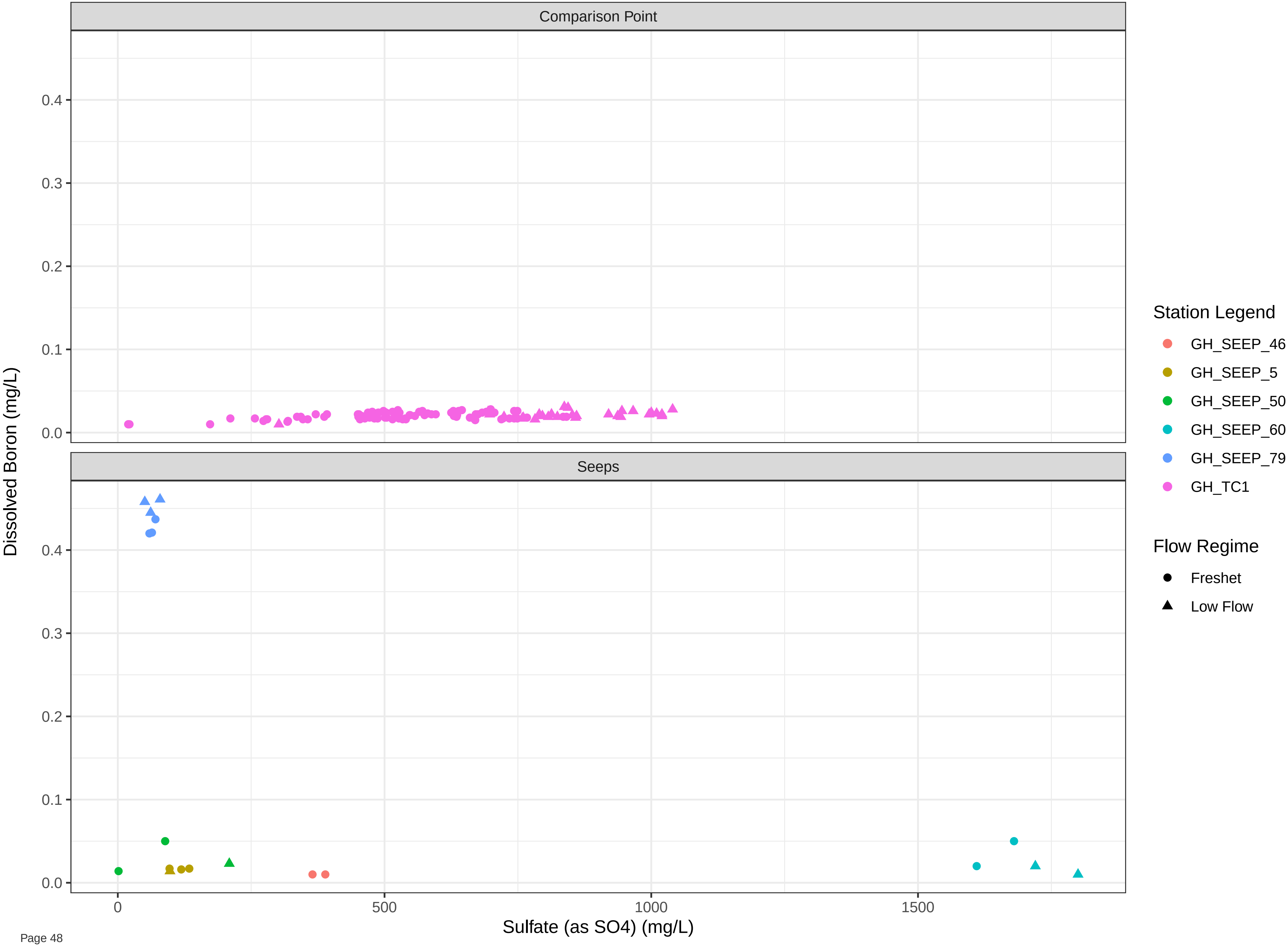
Comparison Point
Seeps
Dissolved Boron (mg/L)
0.05
0.04
0.03
0.02
0.01
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

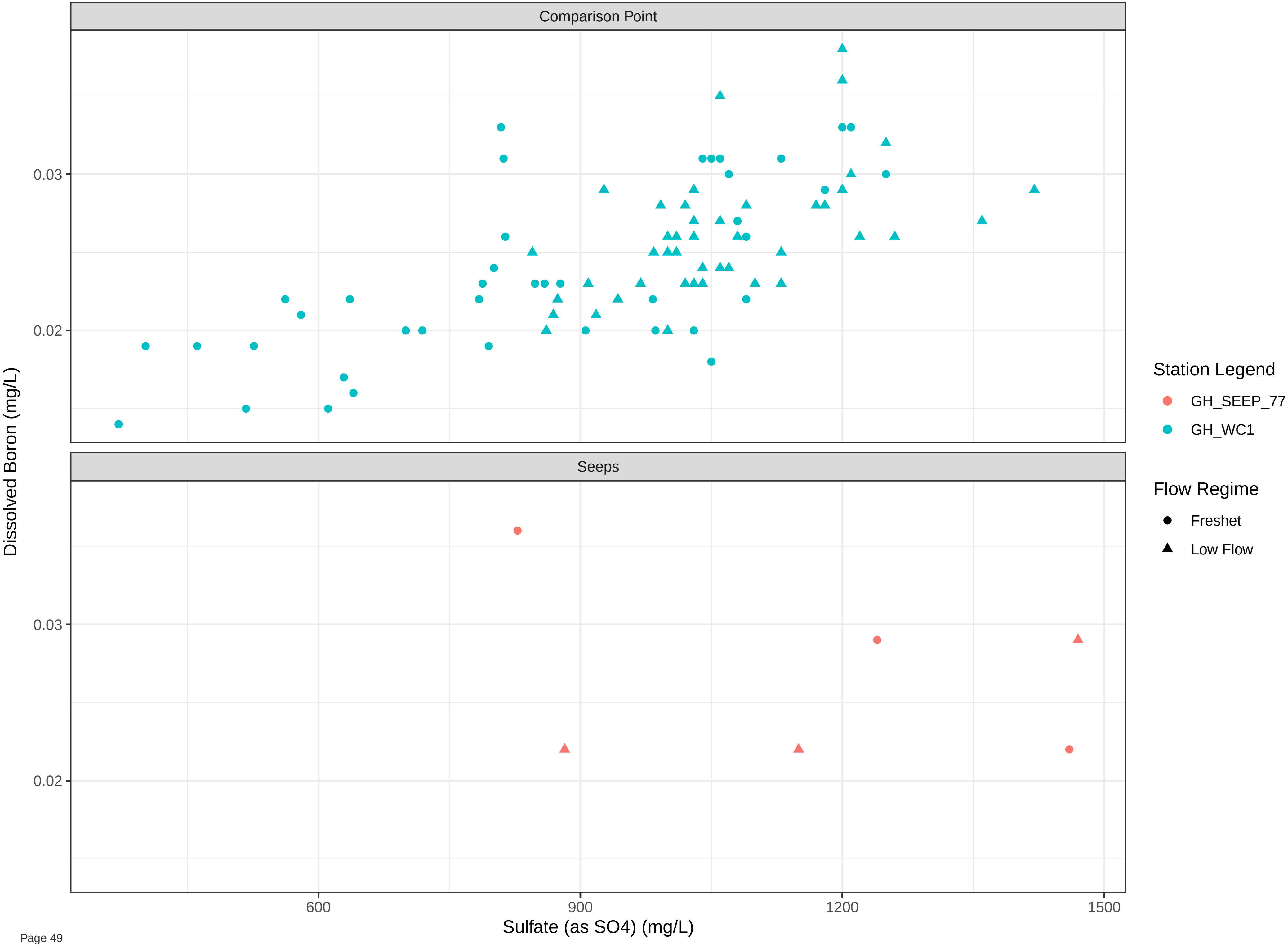

Comparison Point
Seeps
Dissolved Boron (mg/L)
0.05
0.04
0.03
0.02
0.01
Sulfate (as SO4) (mg/L)
500
1000
1500
2000
2500
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow

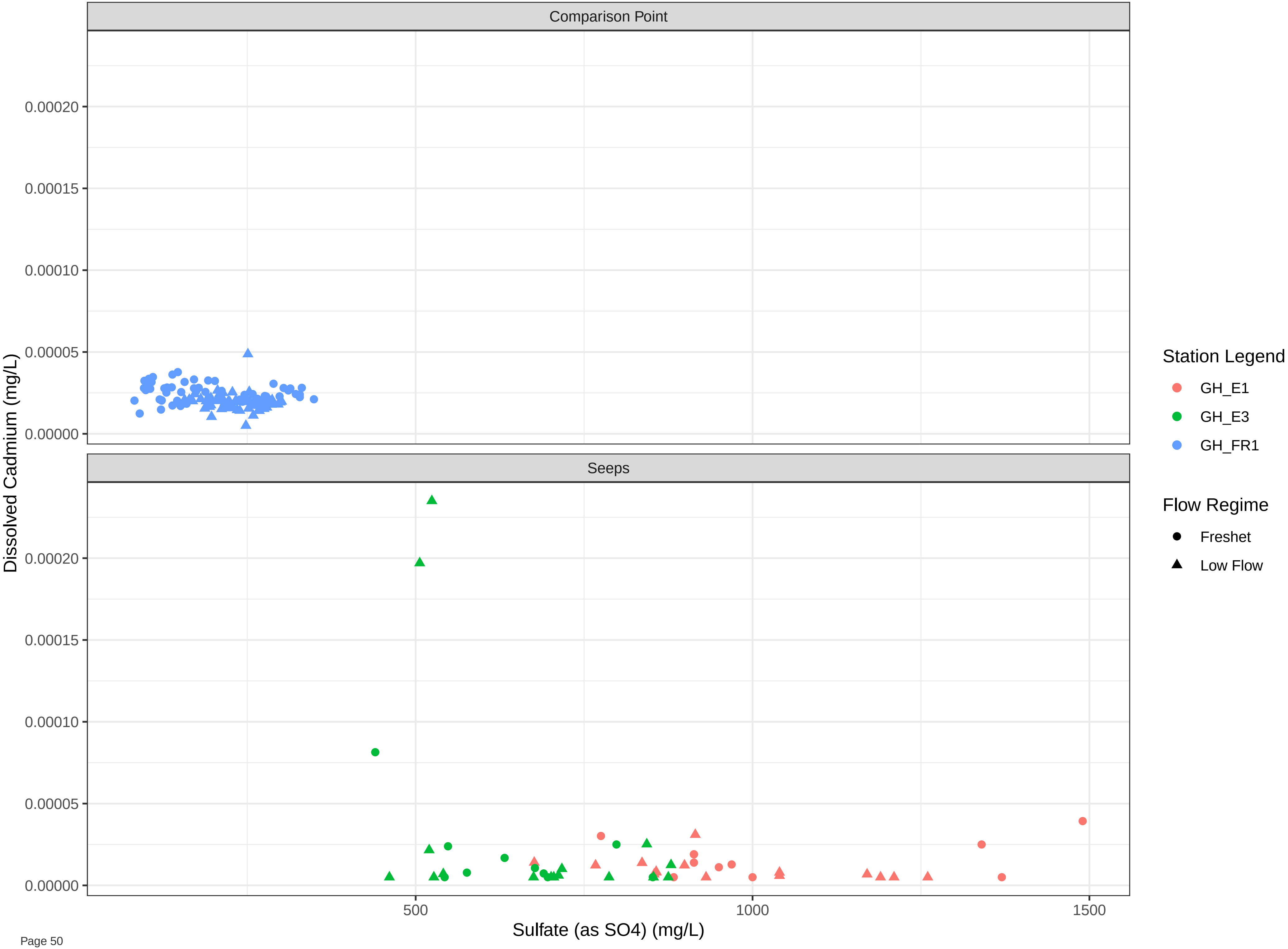

Comparison Point
Seeps
Dissolved Boron (mg/L)
0.125
0.100
0.075
0.050
0.025
0
200
400
600
Sulfate (as SO4) (mg/L)
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow

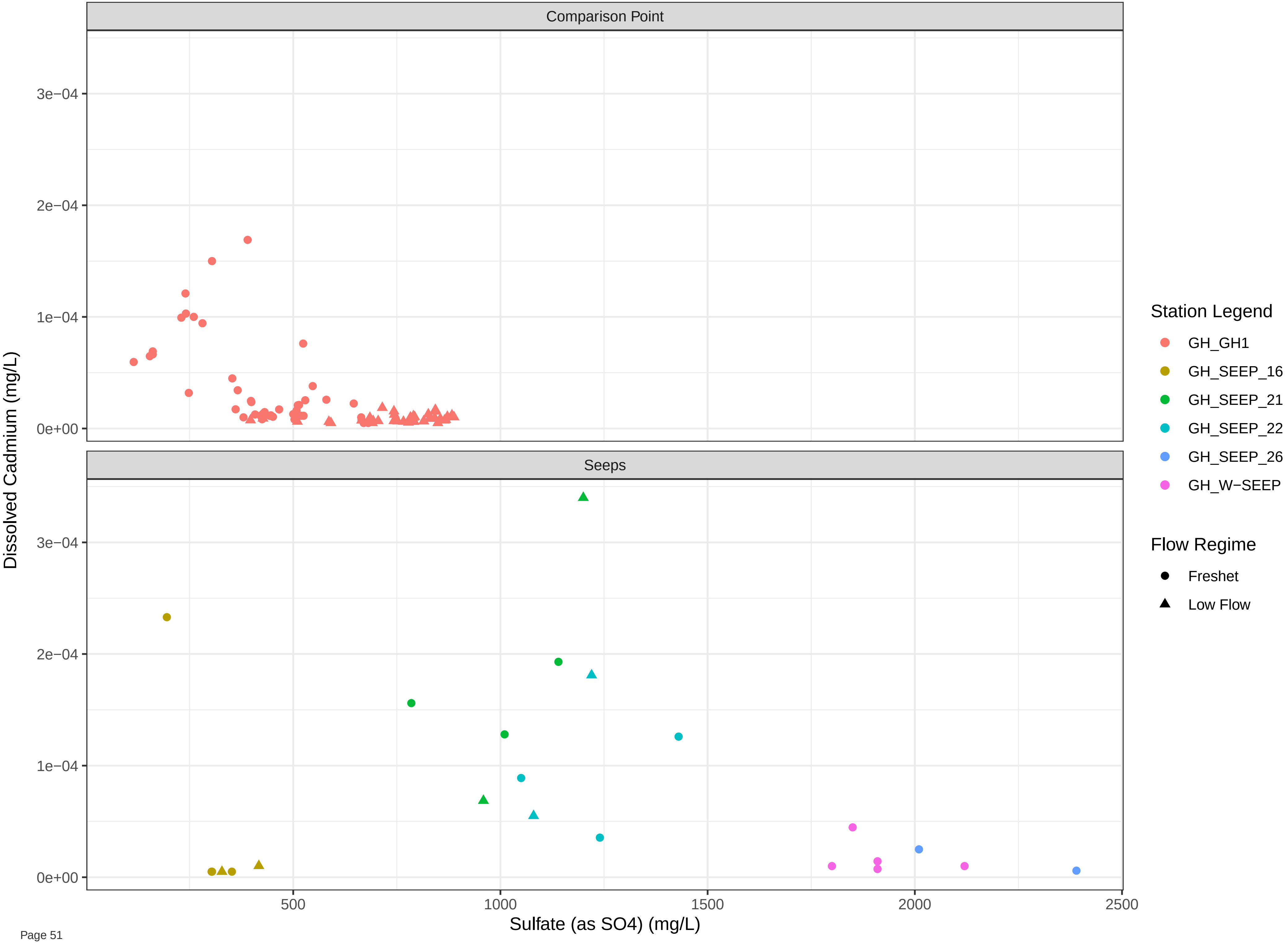

Comparison Point
Seeps
Dissolved Boron (mg/L)
0.010
0.015
0.020
0.025
0.030
Sulfate (as SO4) (mg/L)
0
250
500
750
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
Freshet
Low Flow

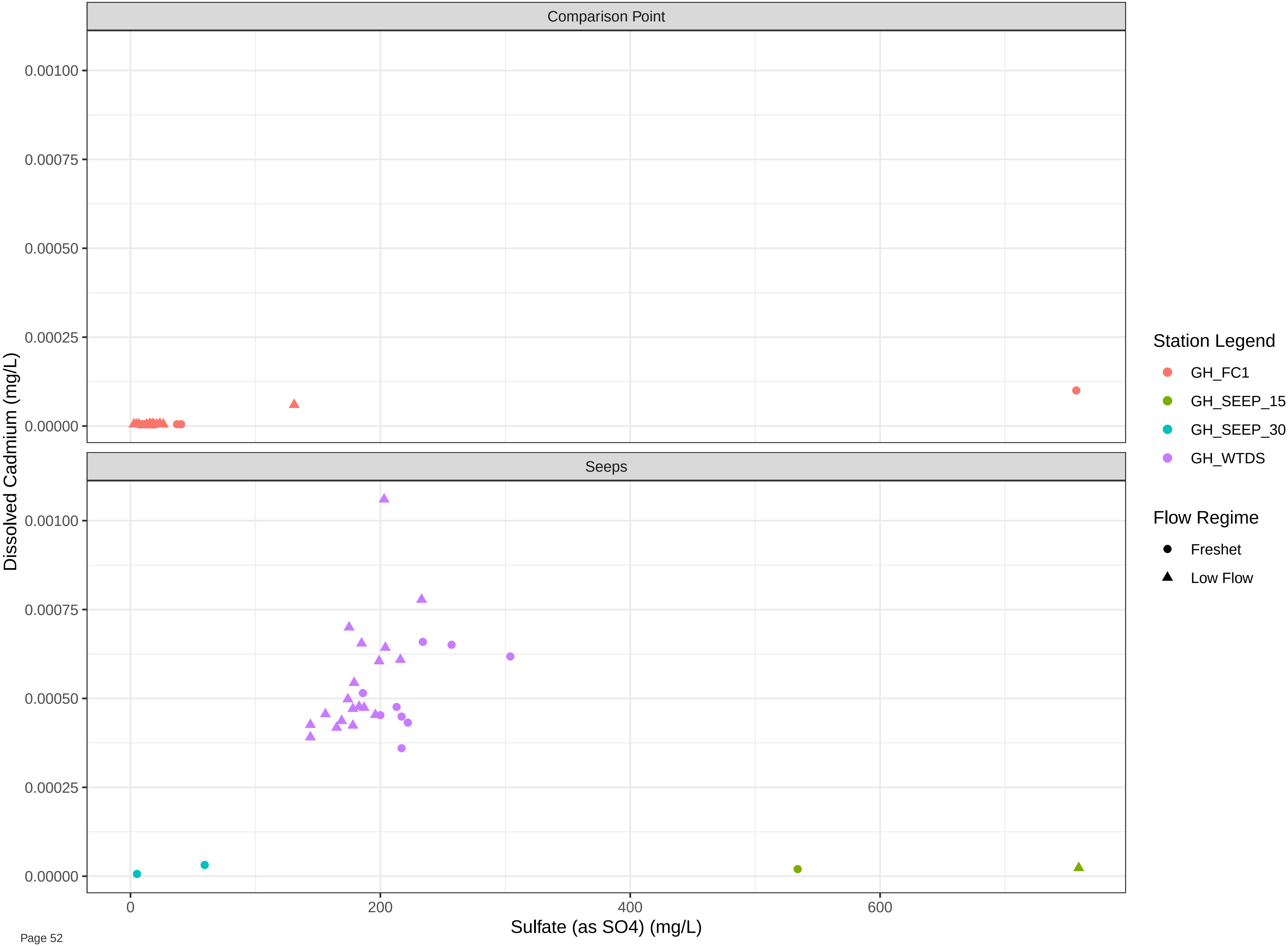

Seeps
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Boron (mg/L)
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

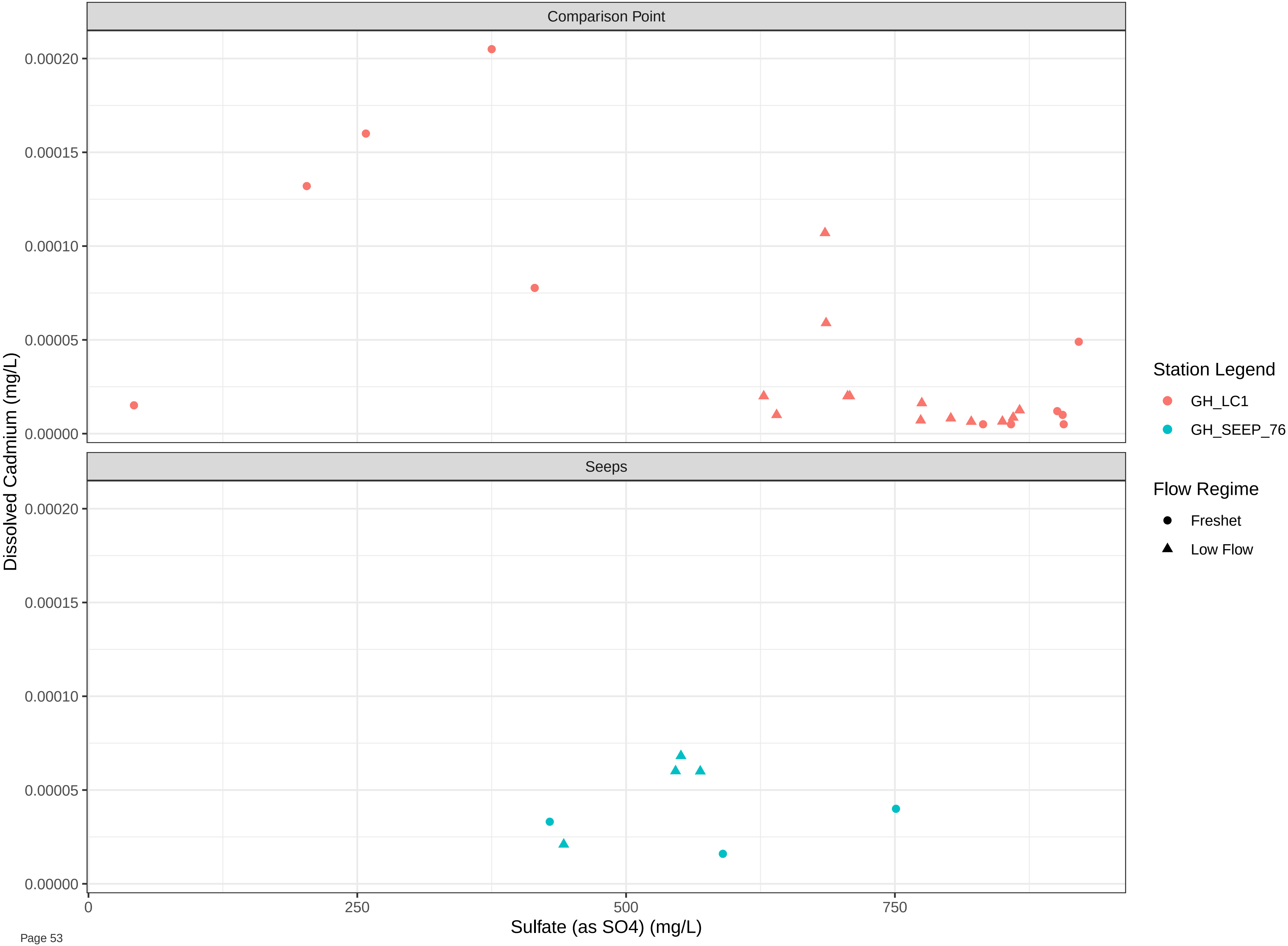

Comparison Point
Seeps
Dissolved Boron (mg/L)
0.0
0.1
0.2
0.3
0.4
Sulfate (as SO4) (mg/L)
0
500
1000
1500
Station Legend
● GH_SEEP_46
● GH_SEEP_5
● GH_SEEP_50
● GH_SEEP_60
● GH_SEEP_79
● GH_TC1
Flow Regime
● Freshet
▲ Low Flow

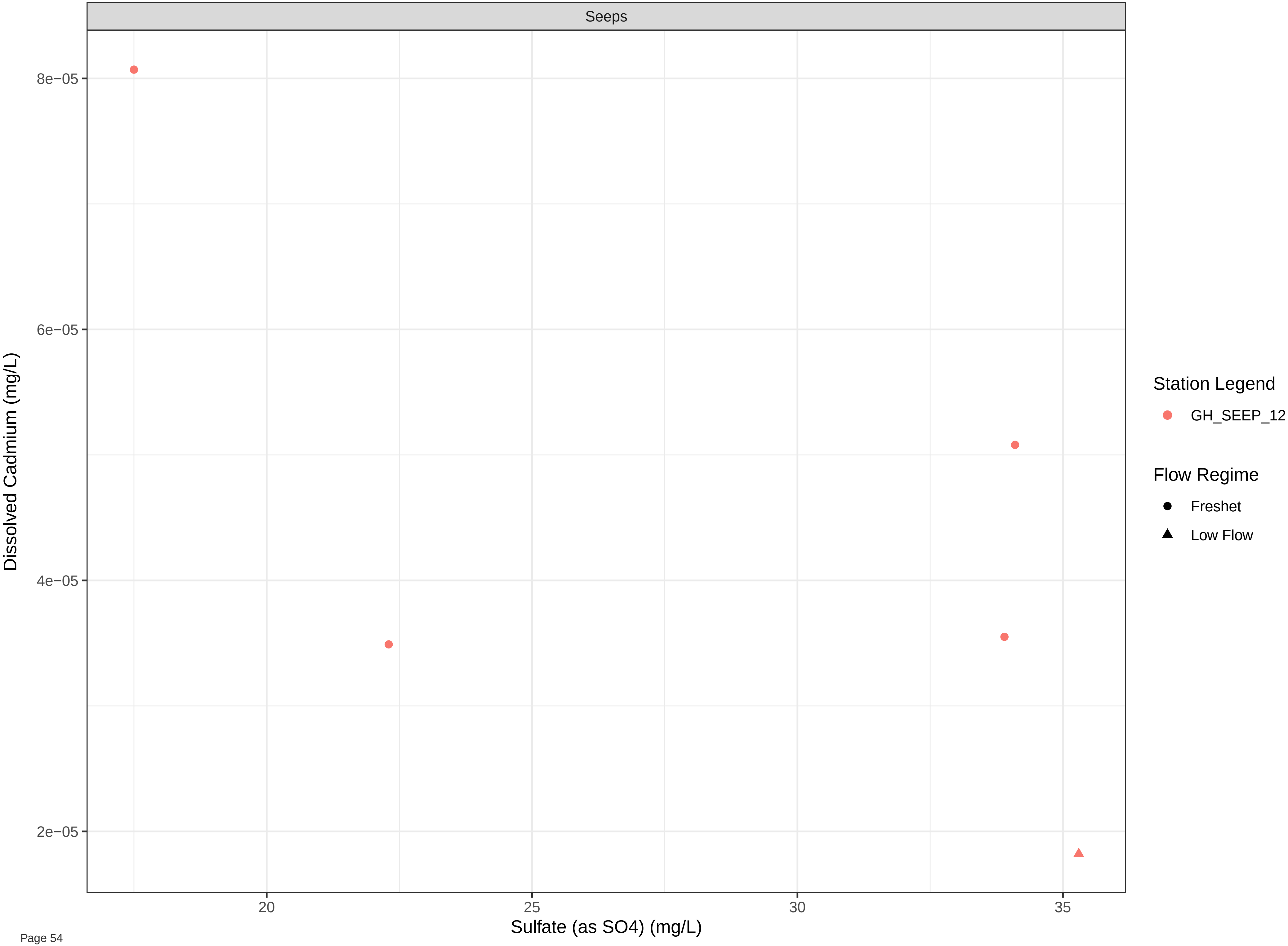

Comparison Point
Seeps
Dissolved Boron (mg/L)
0.03
0.02
0.03
0.02
600
900
1200
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

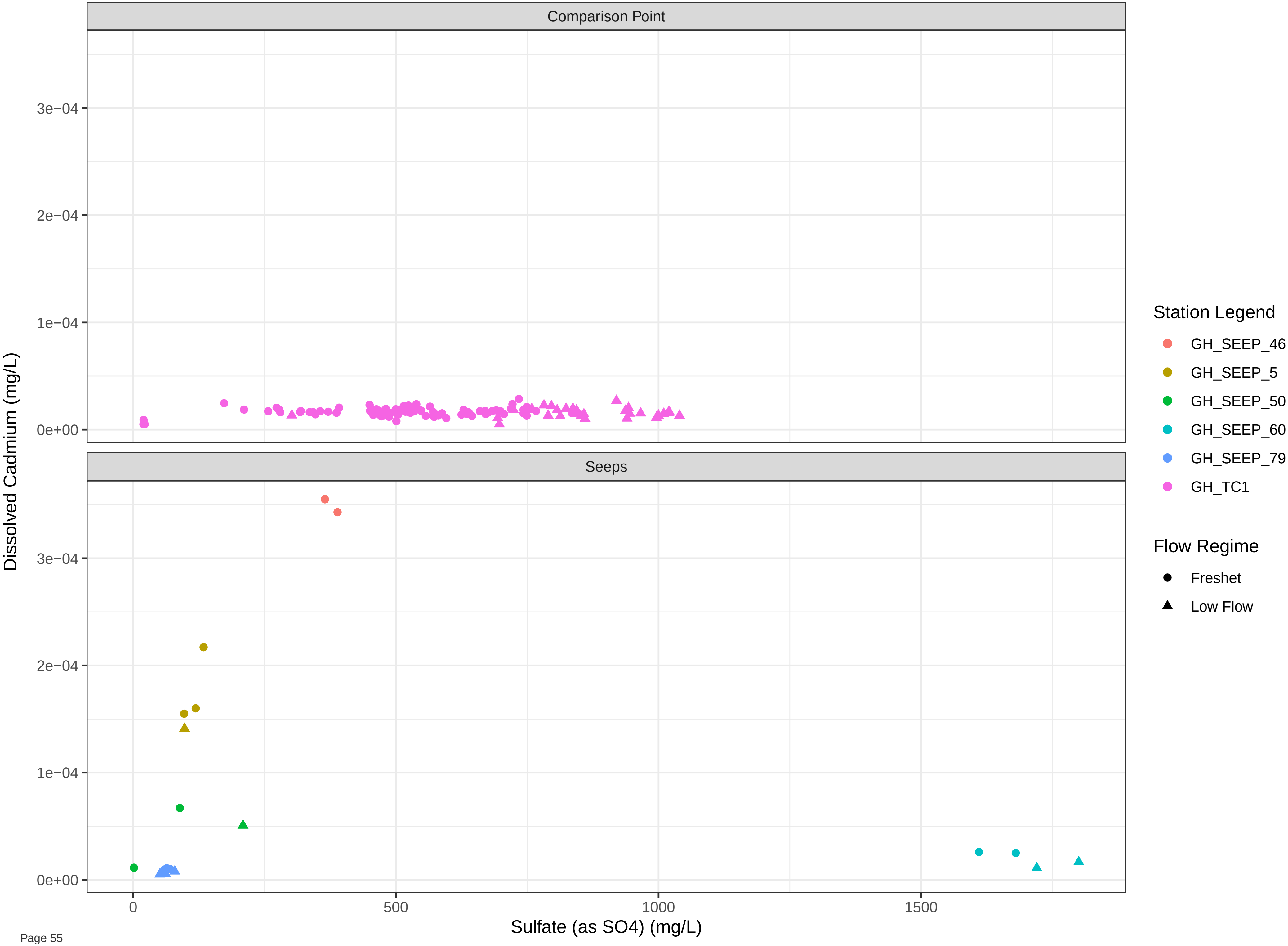

Comparison Point
Seeps
Dissolved Cadmium (mg/L)
0.00000
0.00005
0.00010
0.00015
0.00020
Sulfate (as SO4) (mg/L)
500
1000
1500
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

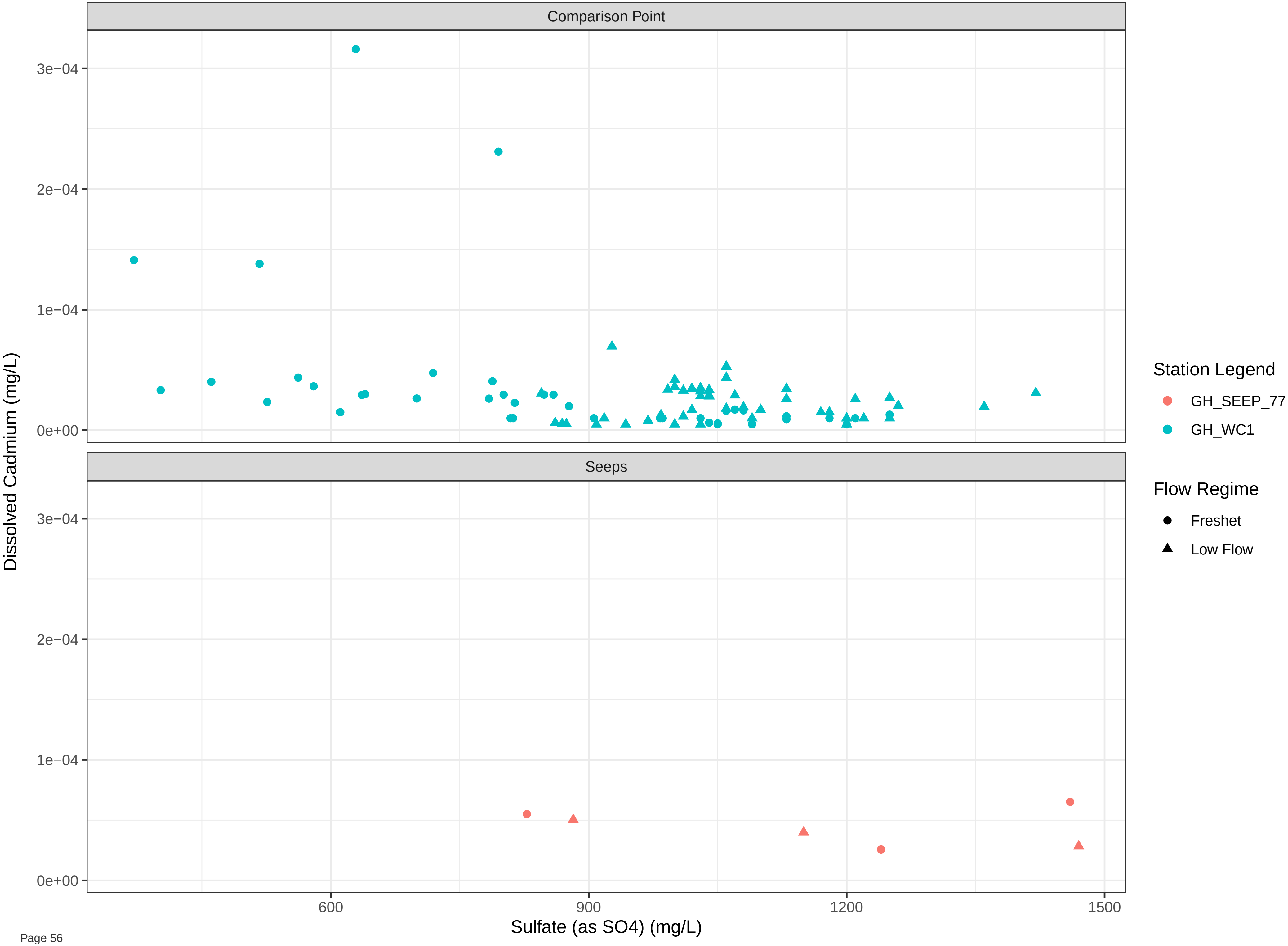

Comparison Point
Seeps
3e−04
2e−04
1e−04
0e+00
Dissolved Cadmium (mg/L)
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
Dissolved Cadmium (mg/L)
0.00100
0.00075
0.00050
0.00025
0.00000
Sulfate (as SO4) (mg/L)
0
200
400
600
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow

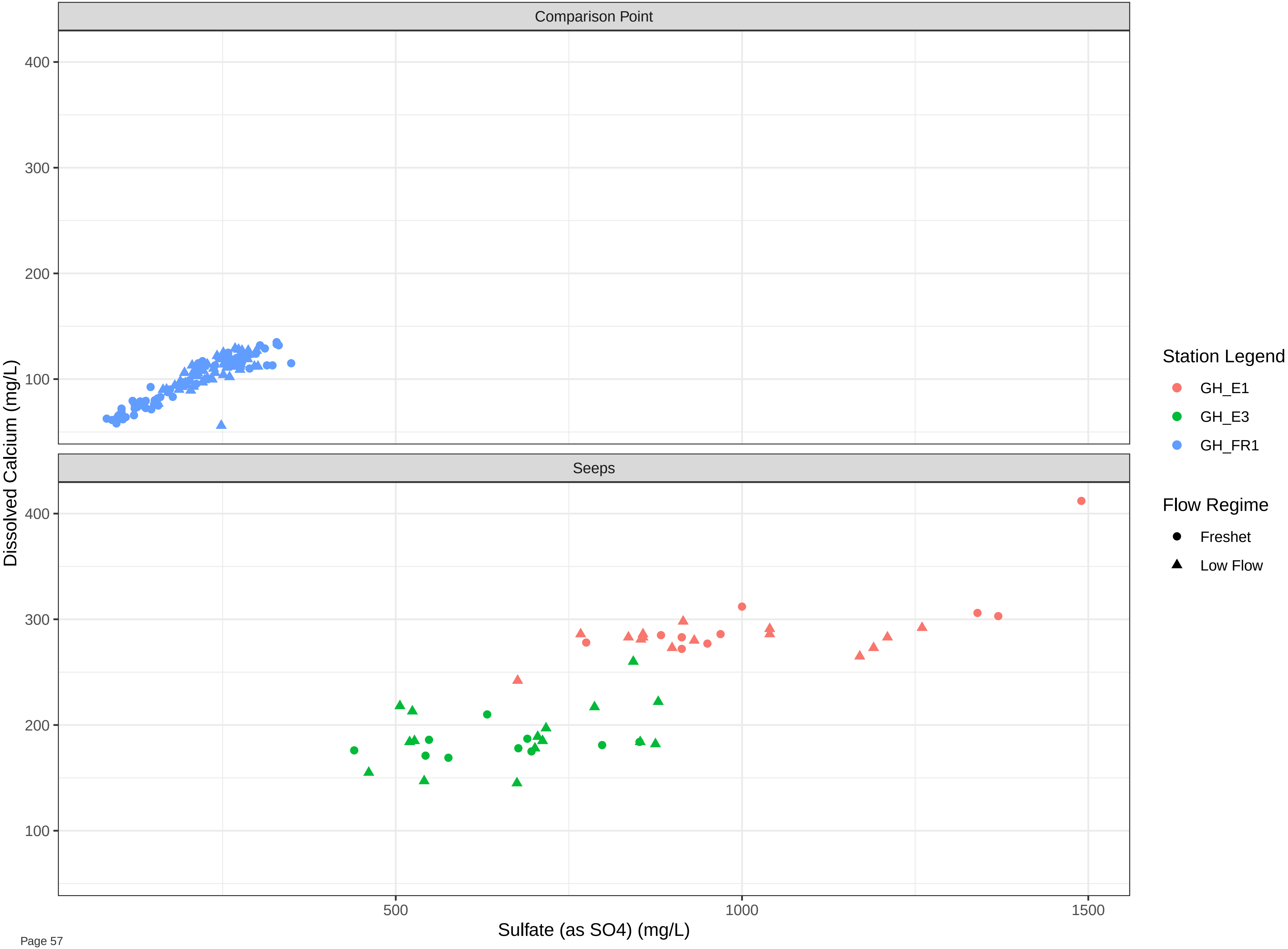

Comparison Point
Seeps
Dissolved Cadmium (mg/L)
0.00020
0.00015
0.00010
0.00005
0.00000
0.00020
0.00015
0.00010
0.00005
0.00000
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
Freshet
Low Flow

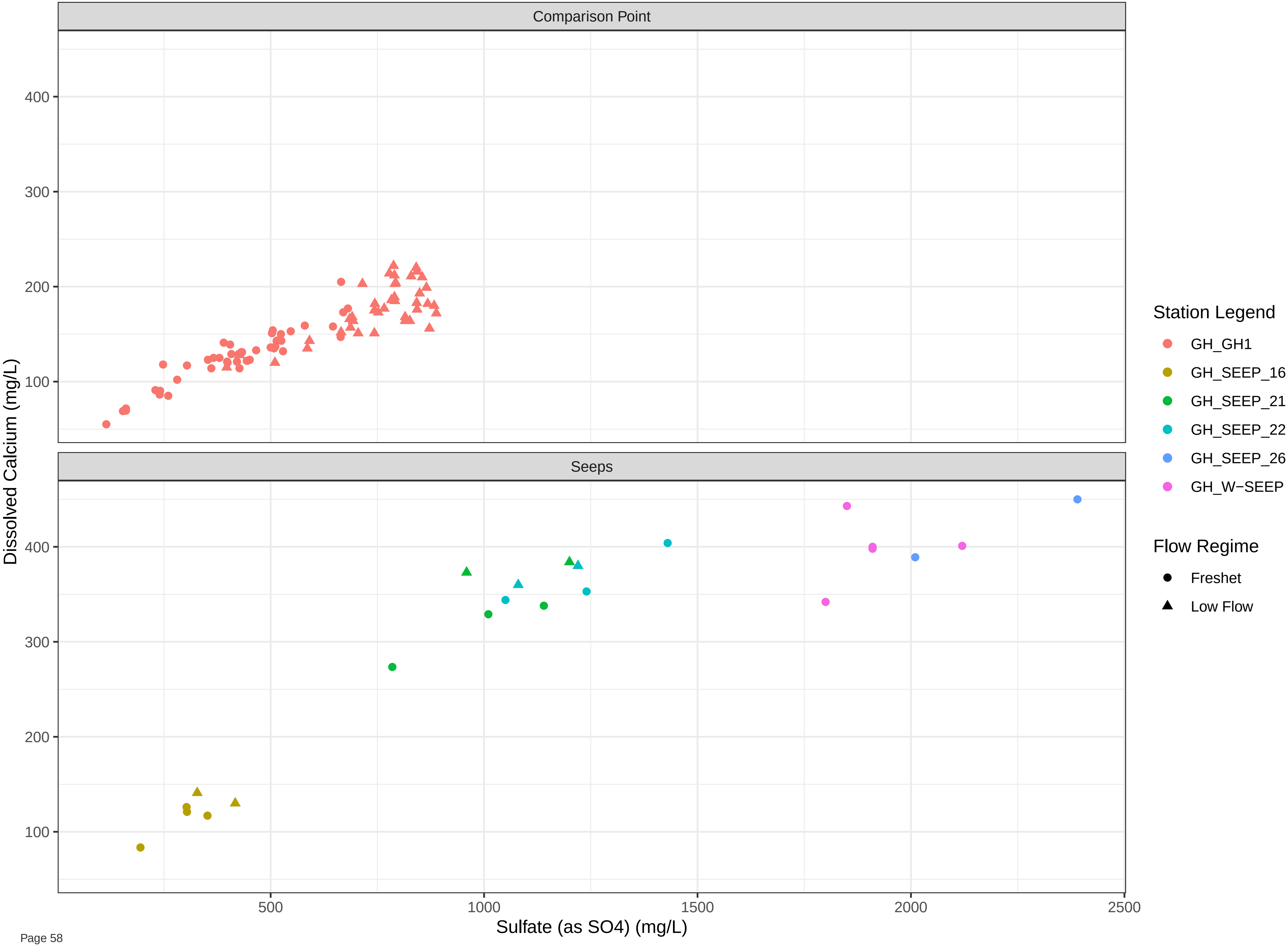

Seeps
Dissolved Cadmium (mg/L)
8e−05
6e−05
4e−05
2e−05
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

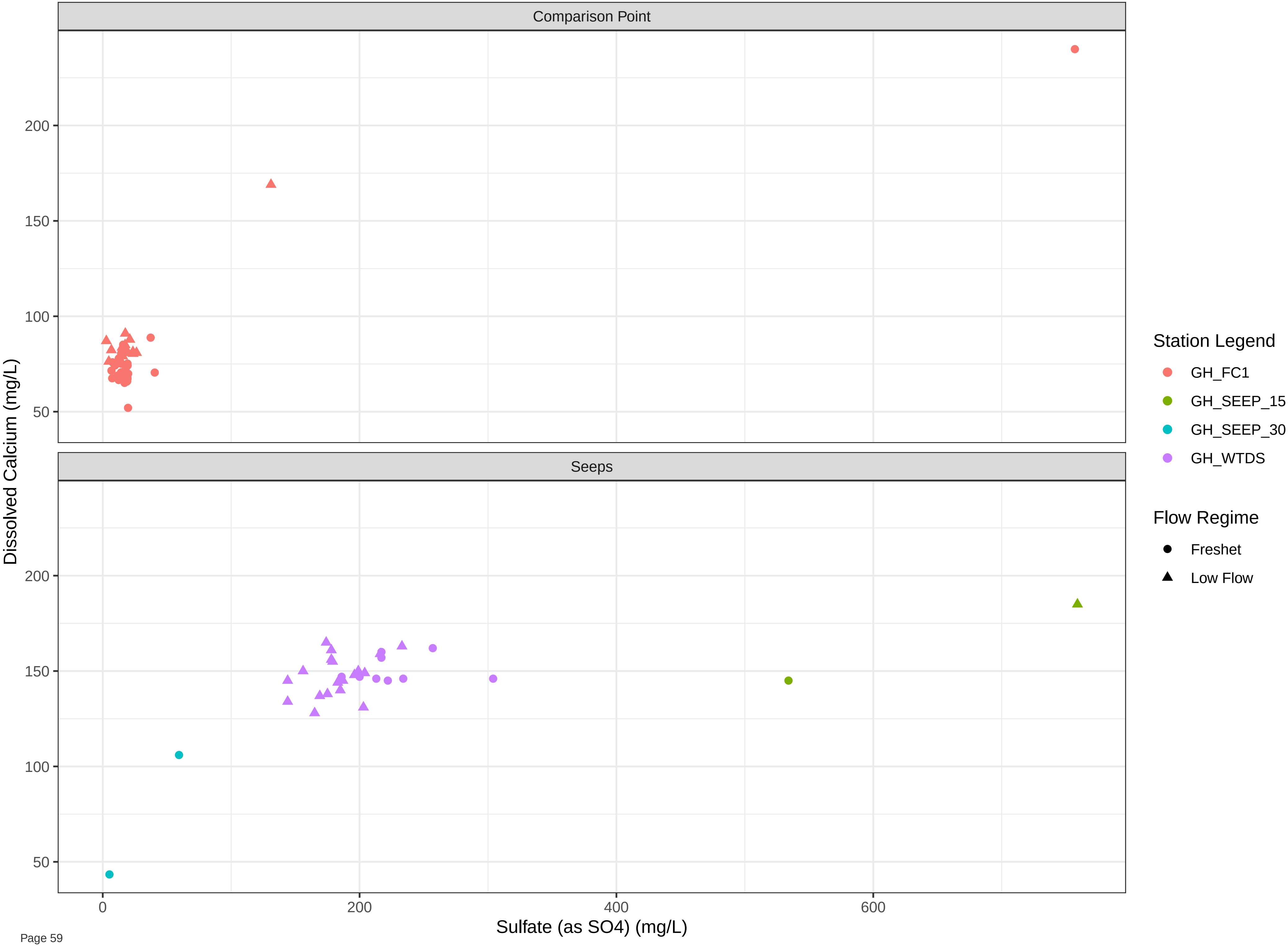

Comparison Point
Seeps
3e−04
2e−04
1e−04
0e+00
Dissolved Cadmium (mg/L)
0
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

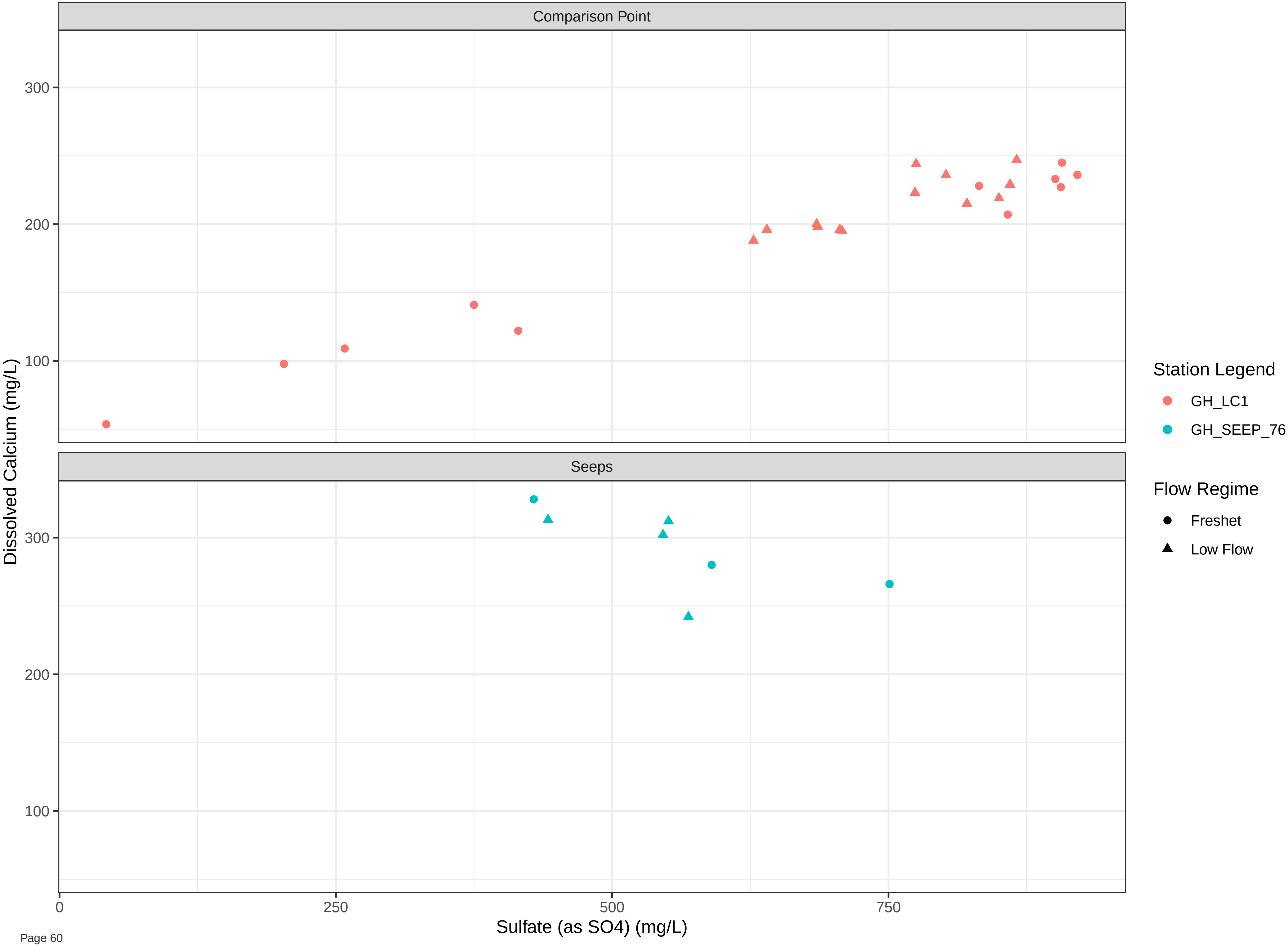


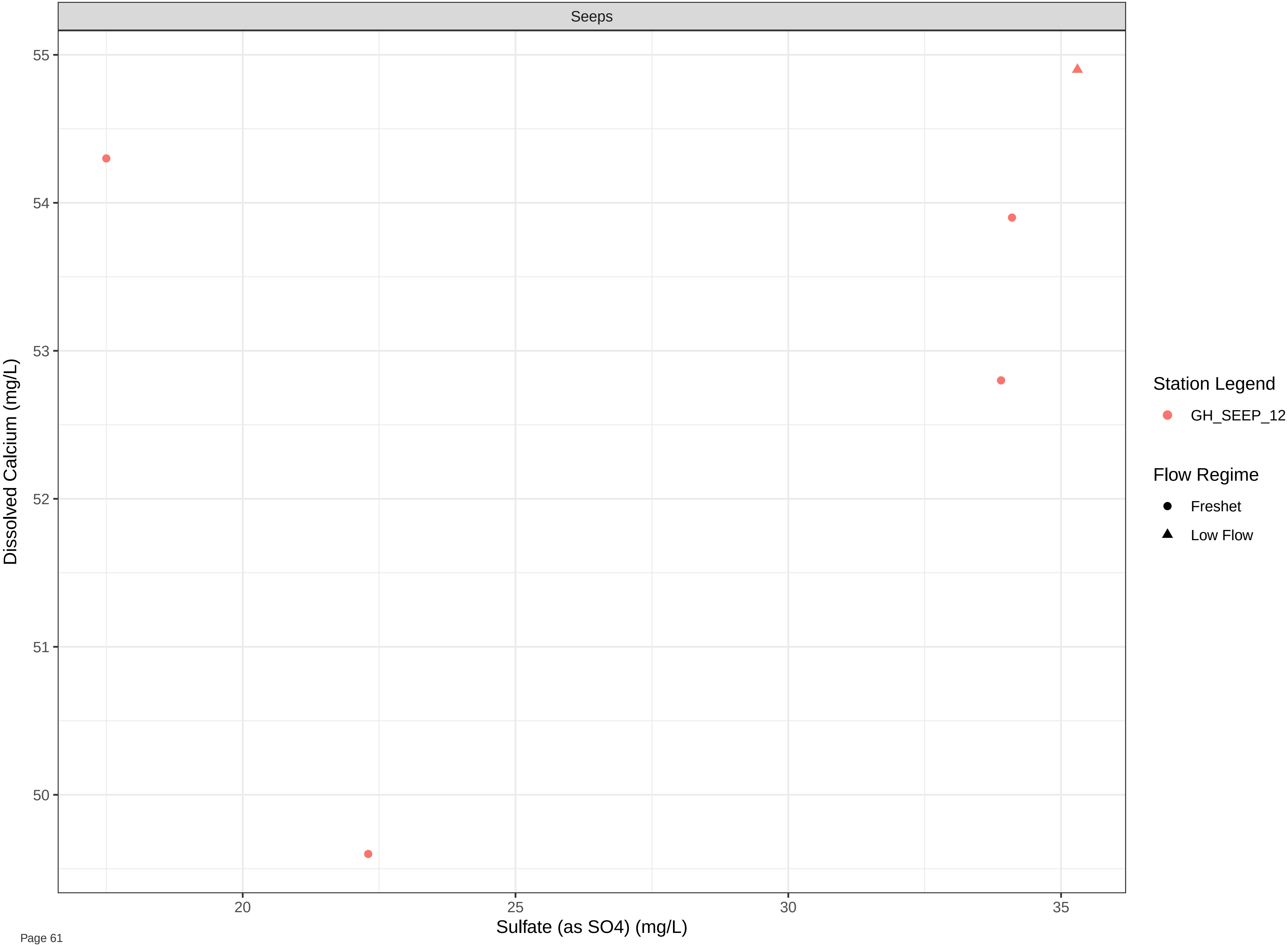
Comparison Point
Seeps
Dissolved Cadmium (mg/L)
3e−04
2e−04
1e−04
0e+00
600
900
1200
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

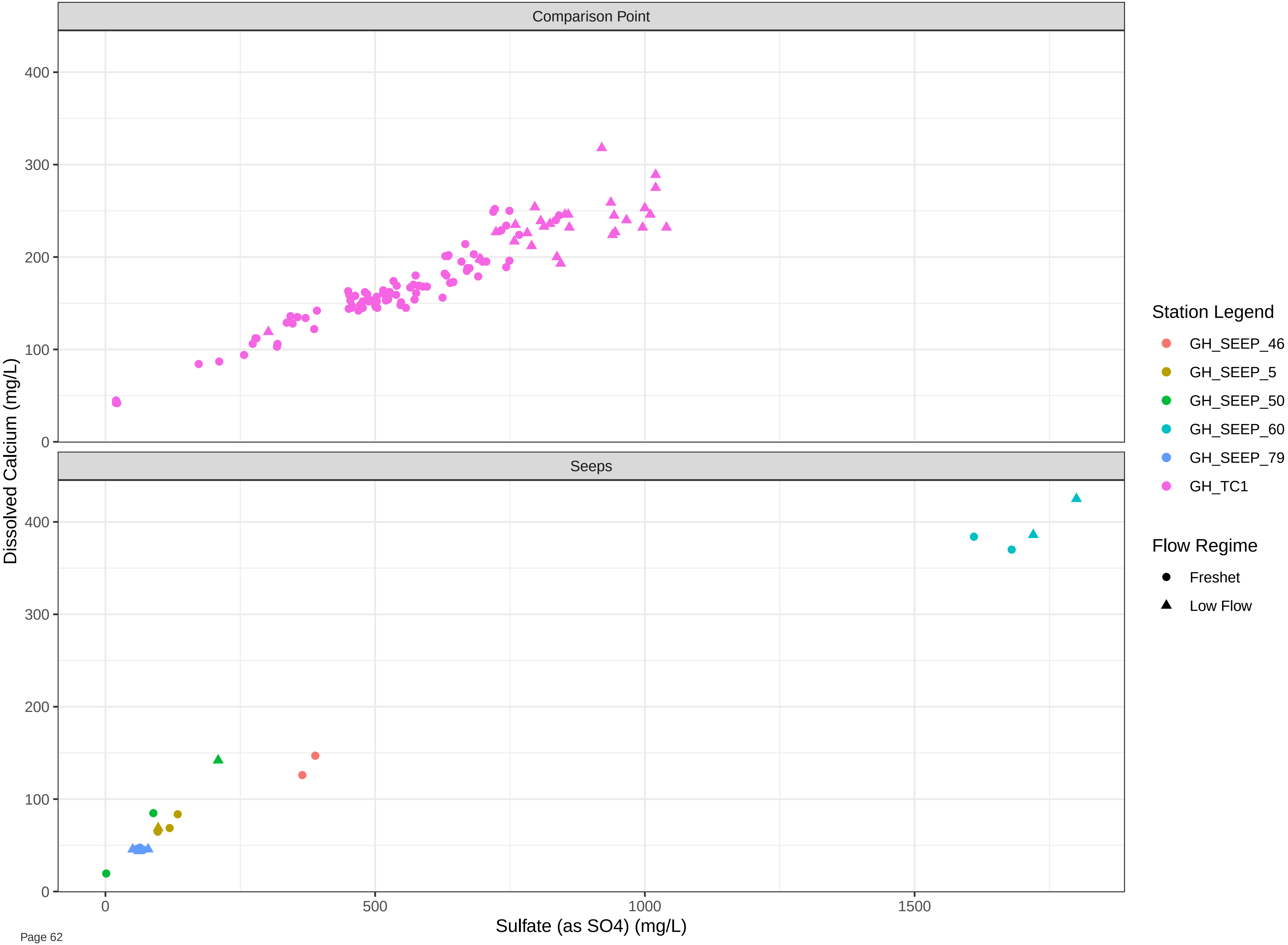

Comparison Point
Seeps
Dissolved Calcium (mg/L)
400
300
200
100
Sulfate (as SO4) (mg/L)
500
1000
1500
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

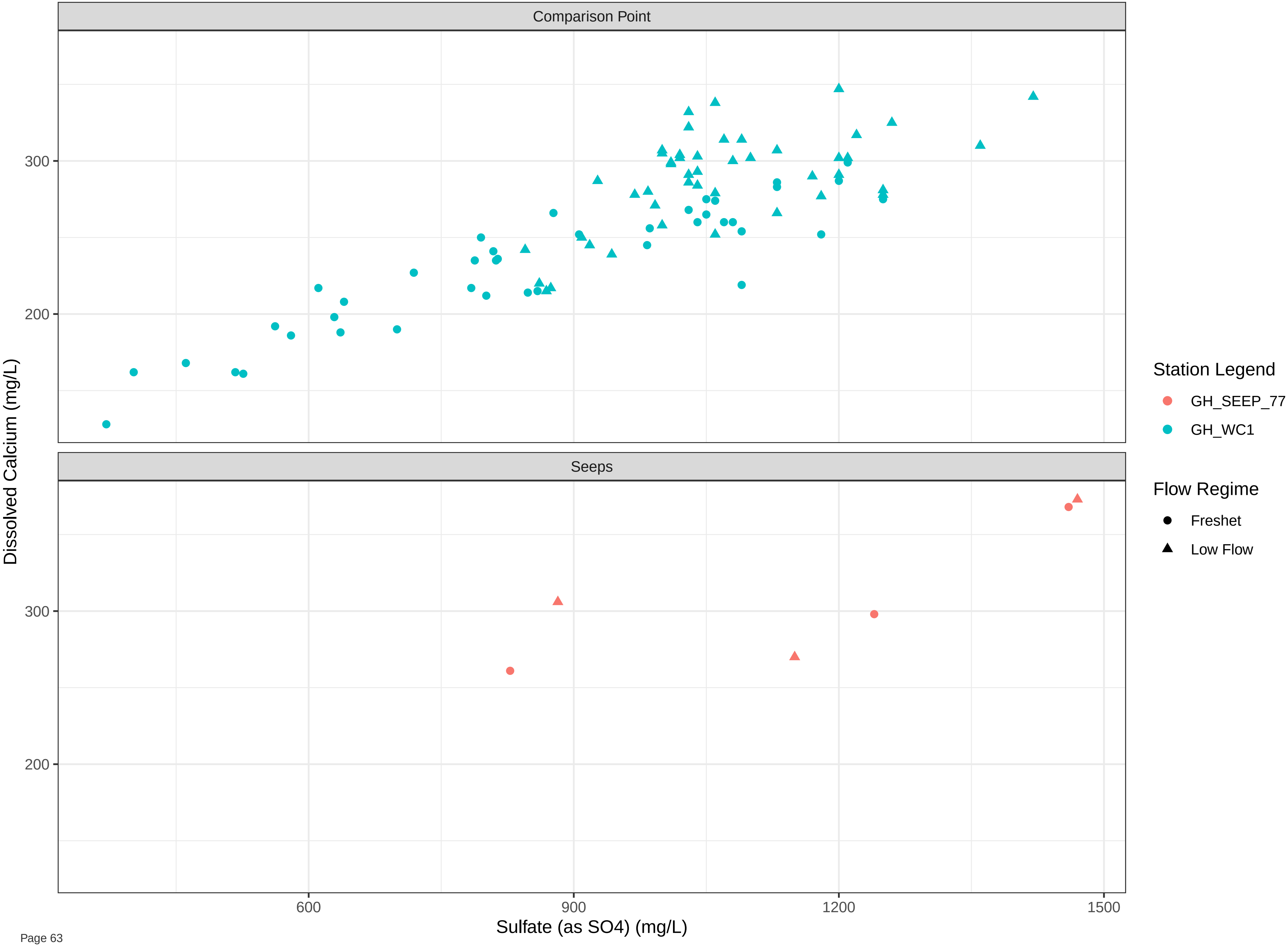

Comparison Point
Seeps
400
300
200
100
Dissolved Calcium (mg/L)
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow

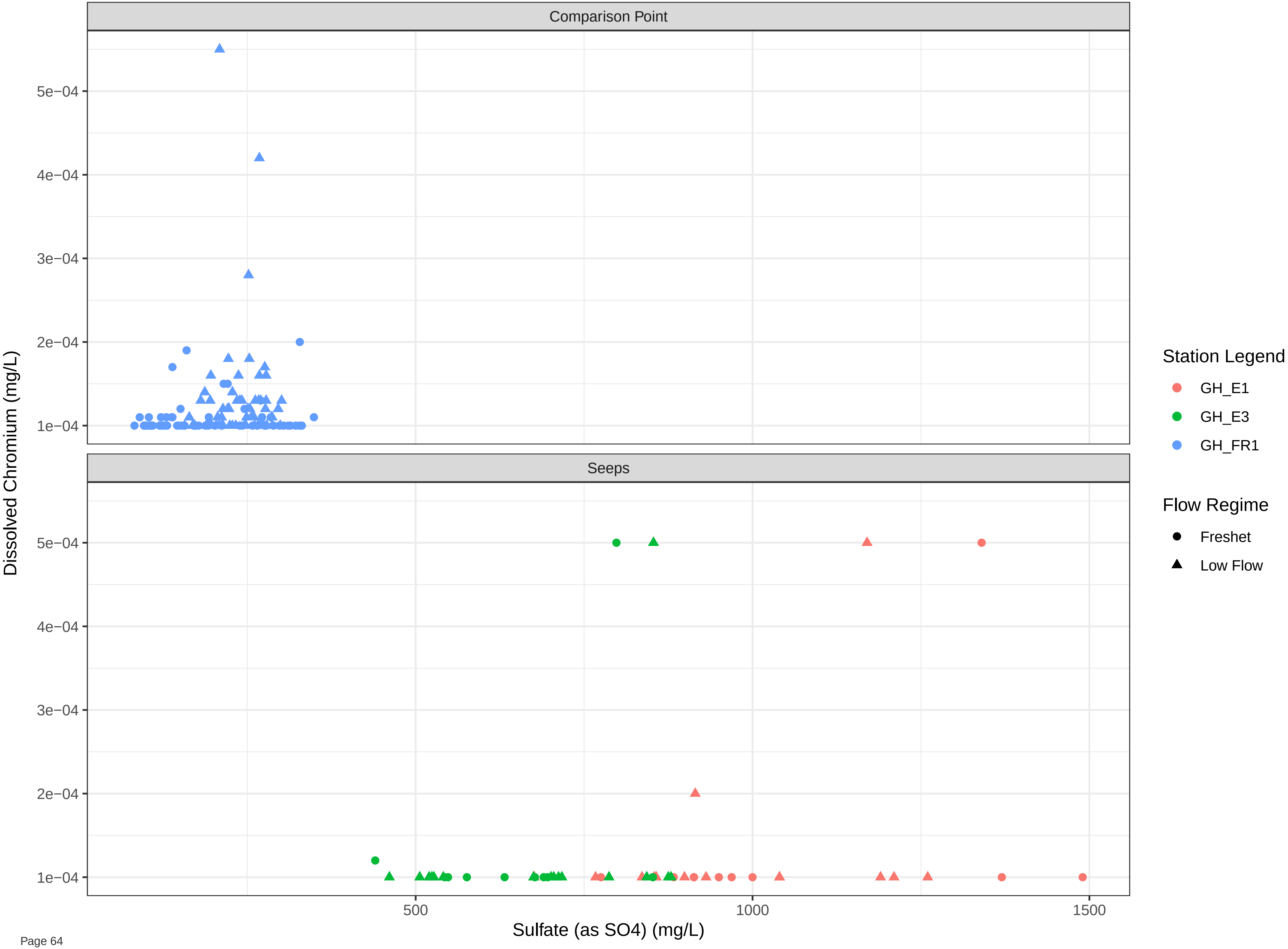

Comparison Point
Seeps
Dissolved Calcium (mg/L)
50
100
150
200
50
100
150
200
0
200
400
600
Sulfate (as SO4) (mg/L)
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow

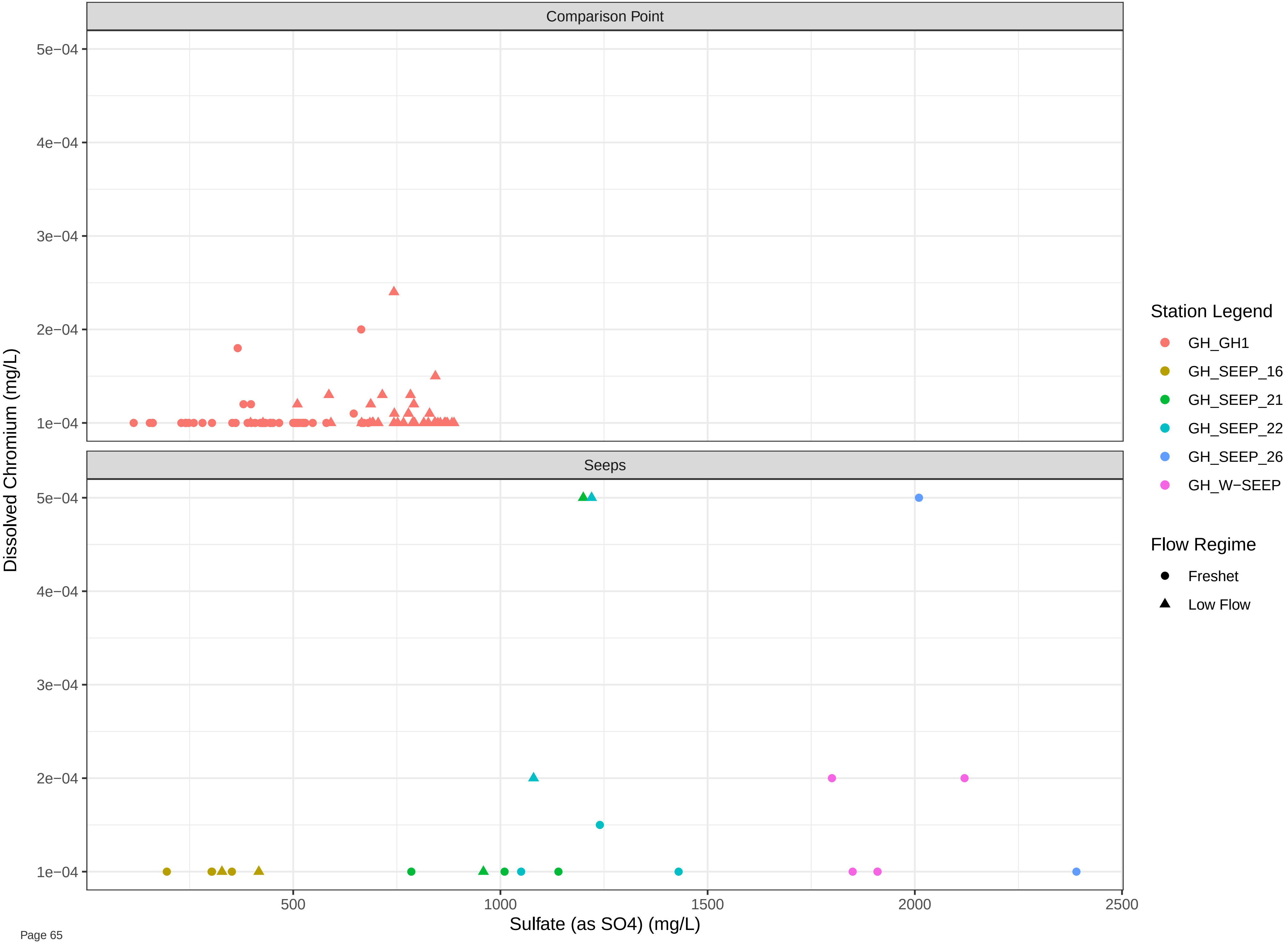

Comparison Point
Seeps
Dissolved Calcium (mg/L)
300
200
100
300
200
100
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
Freshet
Low Flow

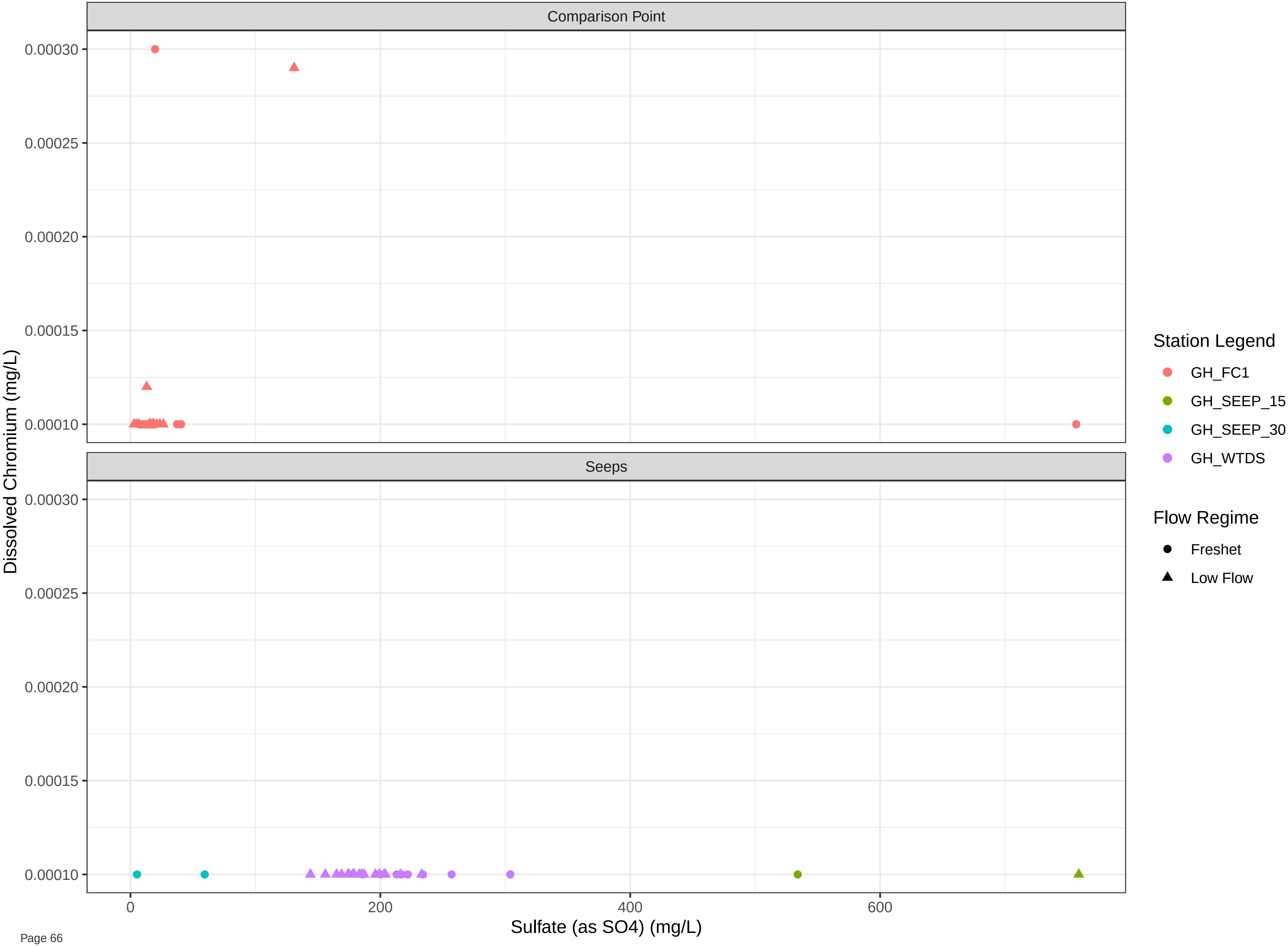

Seeps
55
54
53
52
51
50
20
25
30
35
Dissolved Calcium (mg/L)
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

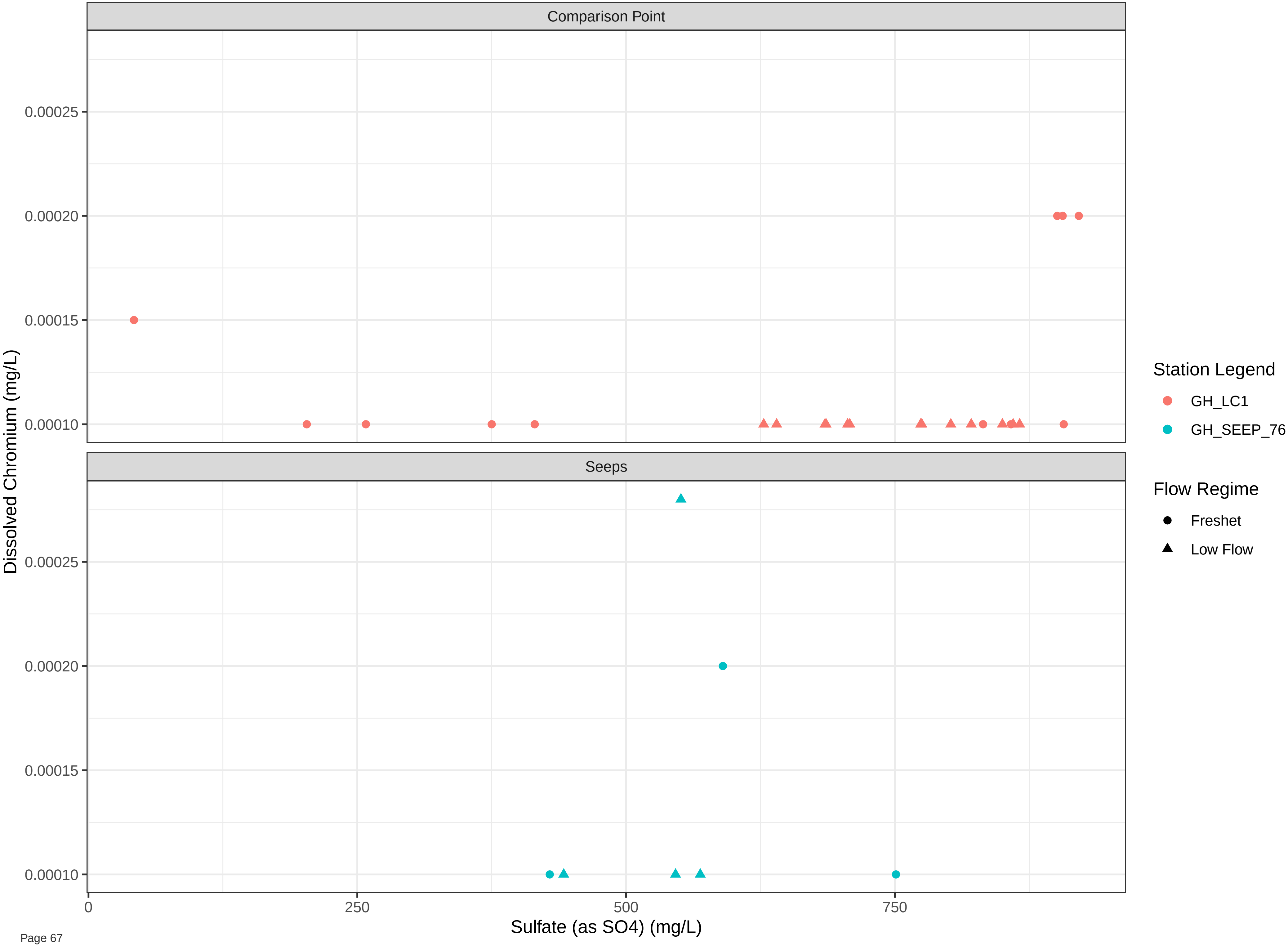

Comparison Point
Seeps
Dissolved Calcium (mg/L)
Sulfate (as SO4) (mg/L)
0
100
200
300
400
0
500
1000
1500
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

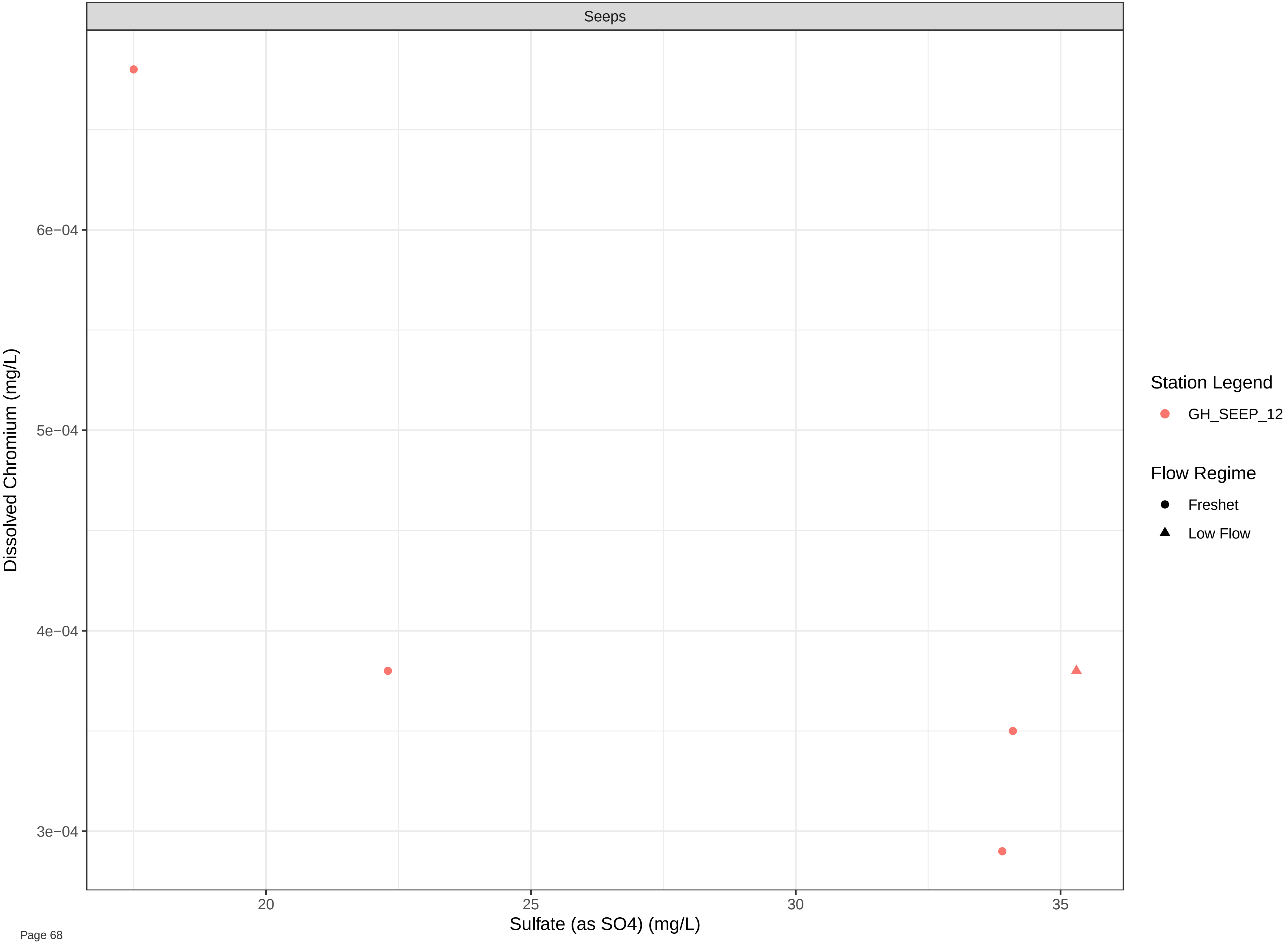

Comparison Point
Seeps
Dissolved Calcium (mg/L)
300
200
300
200
600
900
1200
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

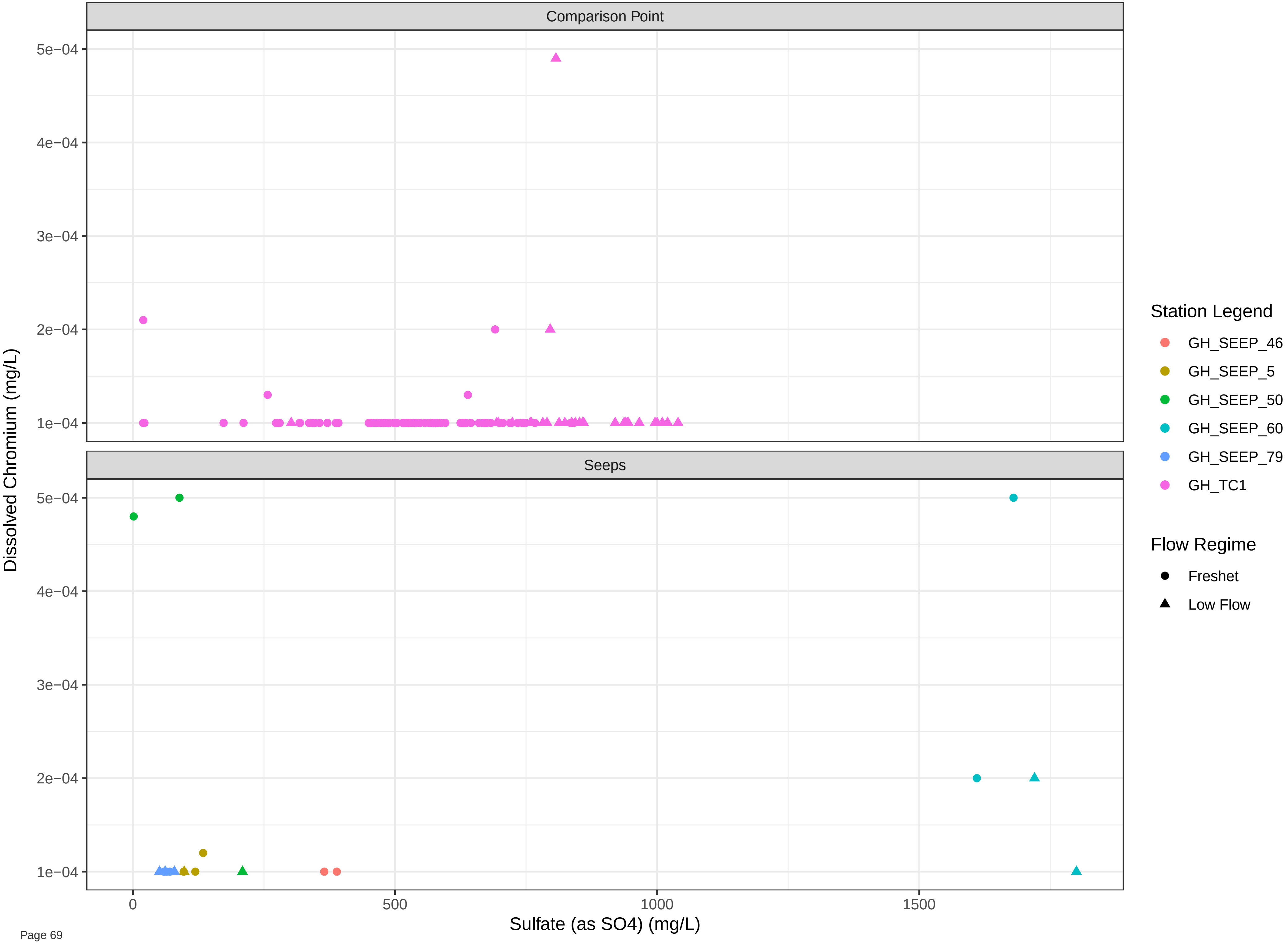

Comparison Point
Seeps
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
Sulfate (as SO4) (mg/L)
500
1000
1500
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

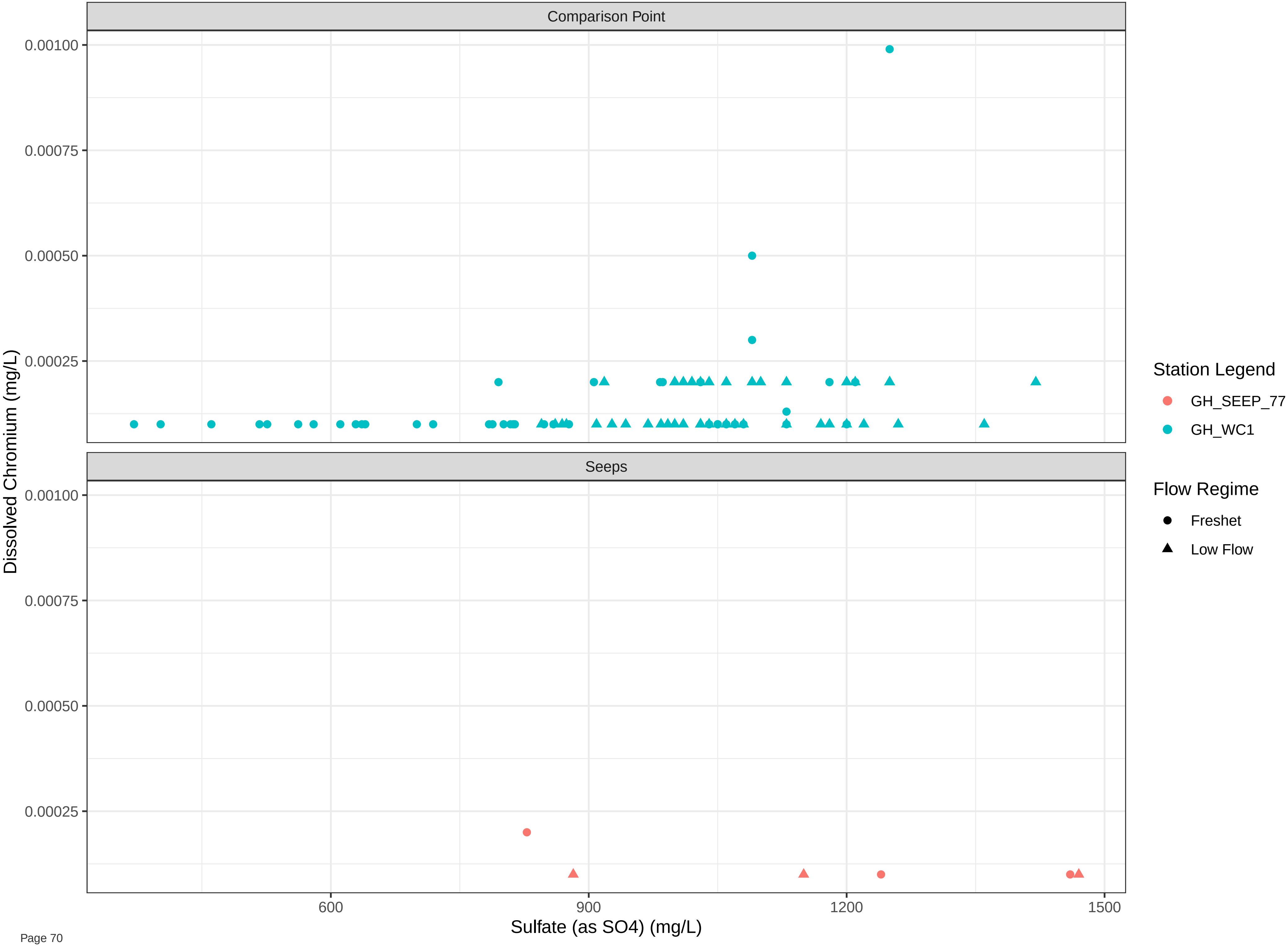

Comparison Point
Seeps
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow

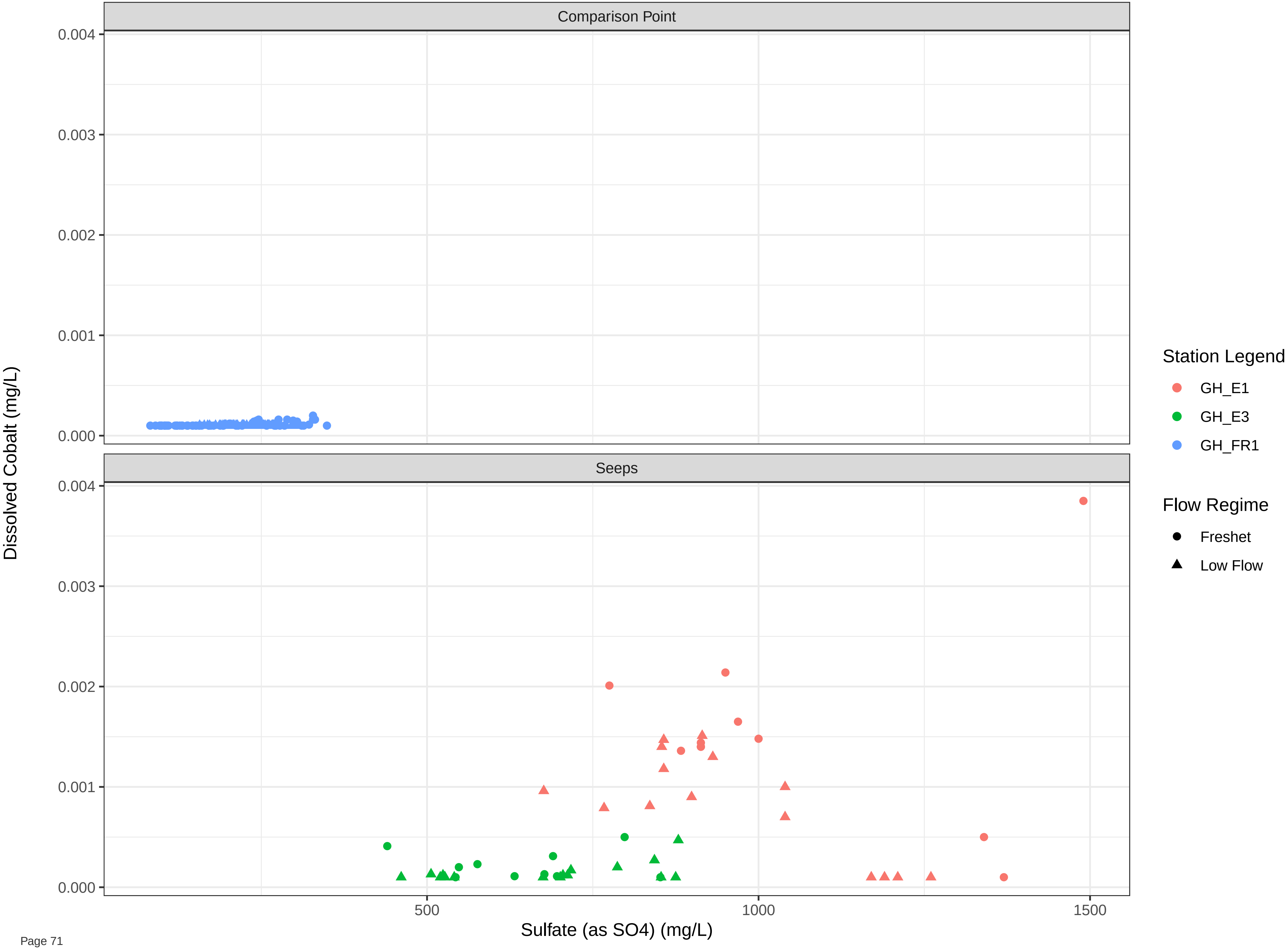

Comparison Point
Seeps
0.00030
0.00025
0.00020
0.00015
0.00010
Dissolved Chromium (mg/L)
0
200
400
600
Sulfate (as SO4) (mg/L)
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow

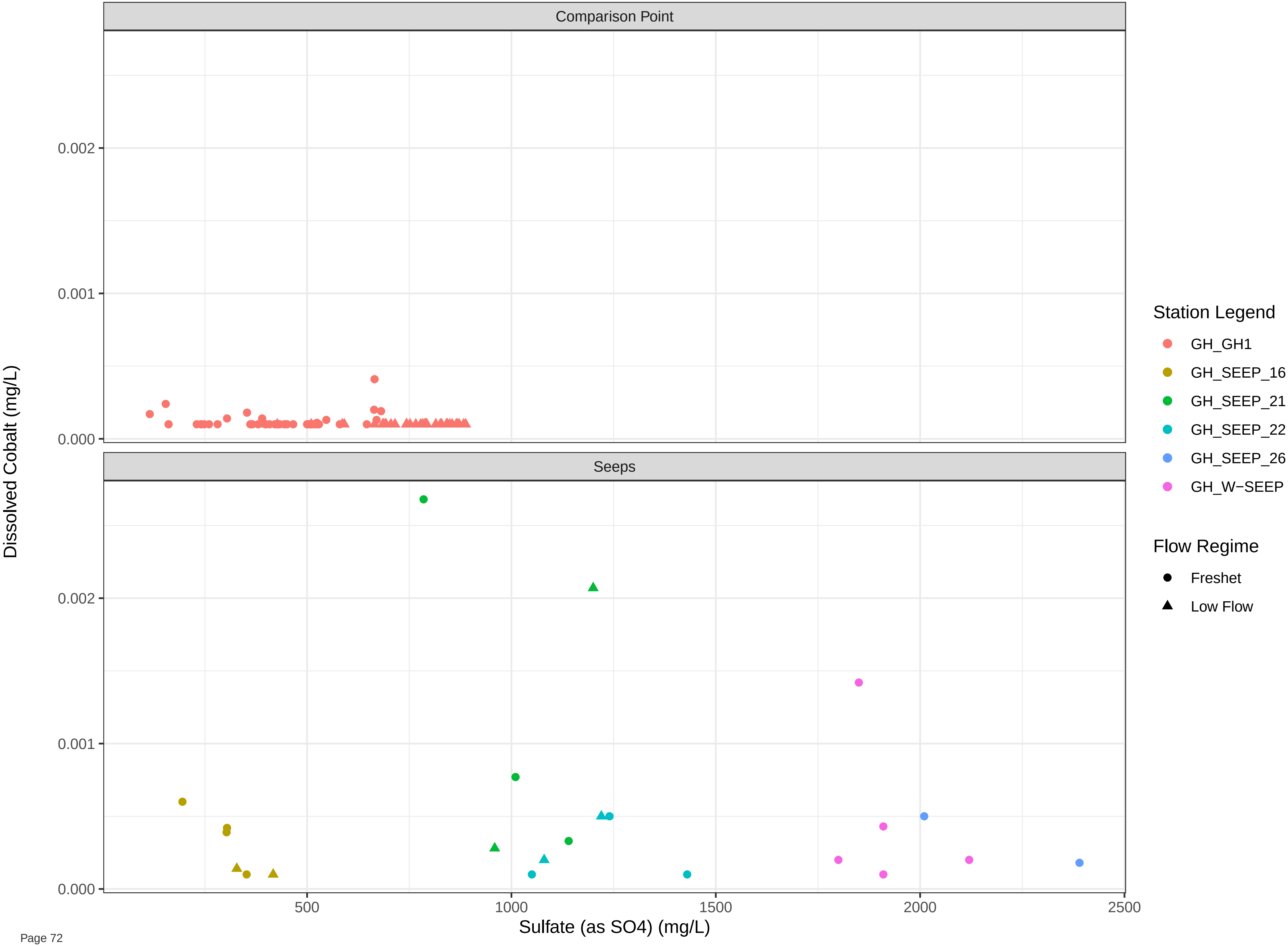

Comparison Point
Seeps
Dissolved Chromium (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00025
0.00020
0.00015
0.00010
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
Freshet
Low Flow

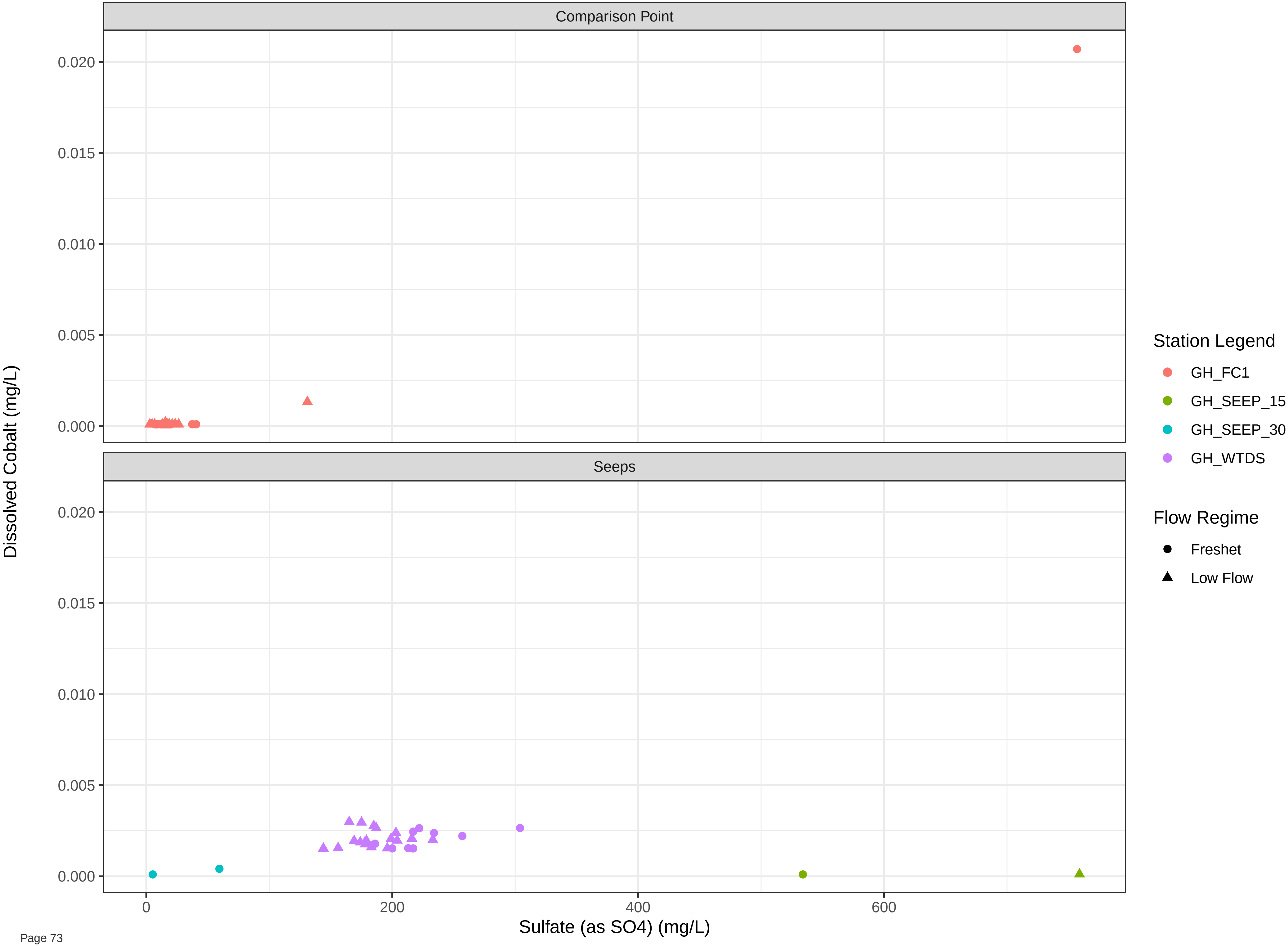

Seeps
Dissolved Chromium (mg/L)
6e−04
5e−04
4e−04
3e−04
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

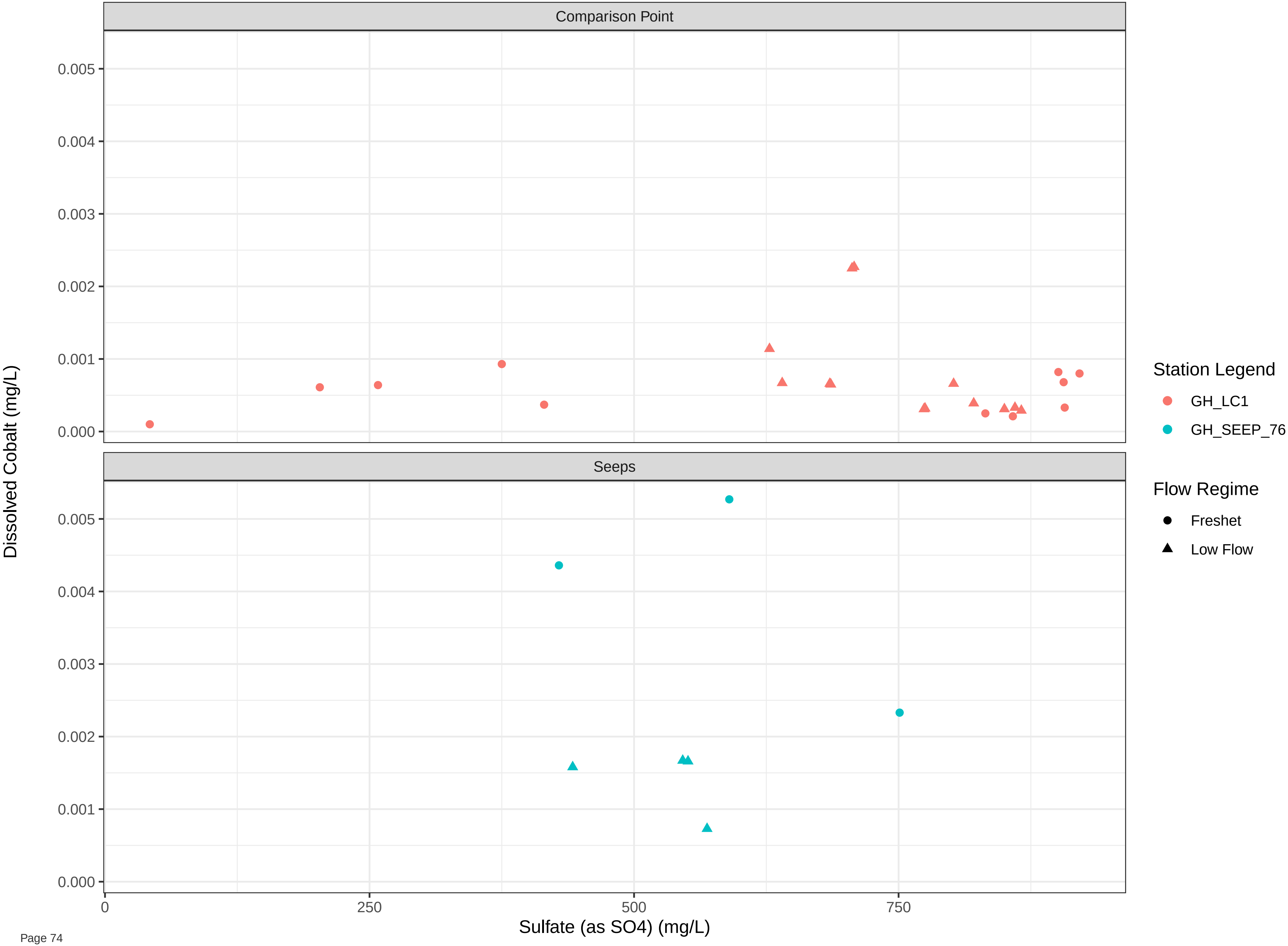

Comparison Point
Seeps
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
0
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

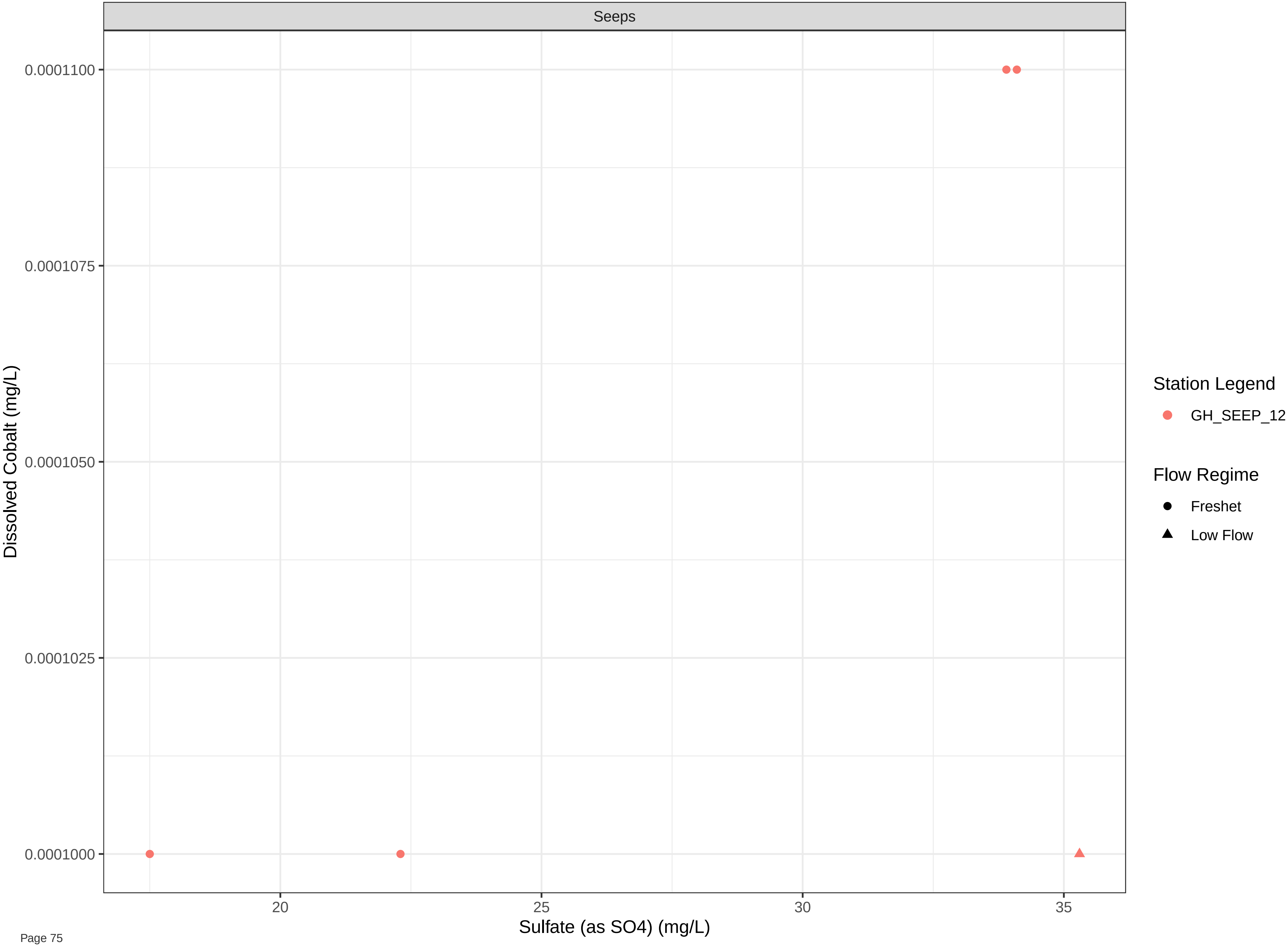

Comparison Point
Seeps
Dissolved Chromium (mg/L)
0.00100
0.00075
0.00050
0.00025
Sulfate (as SO4) (mg/L)
600
900
1200
1500
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

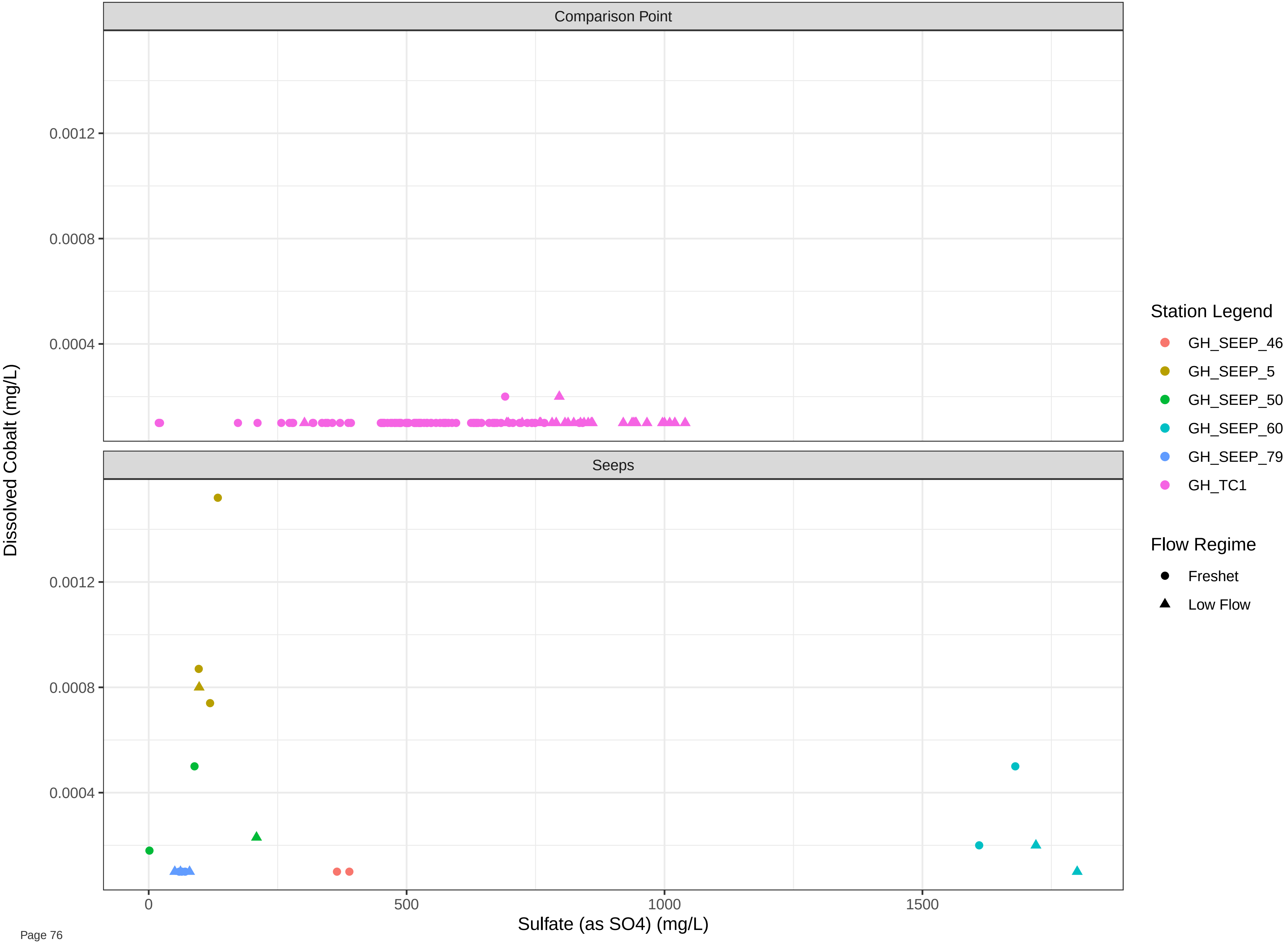

Comparison Point
Seeps
Dissolved Cobalt (mg/L)
0.000
0.001
0.002
0.003
0.004
Sulfate (as SO4) (mg/L)
500
1000
1500
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

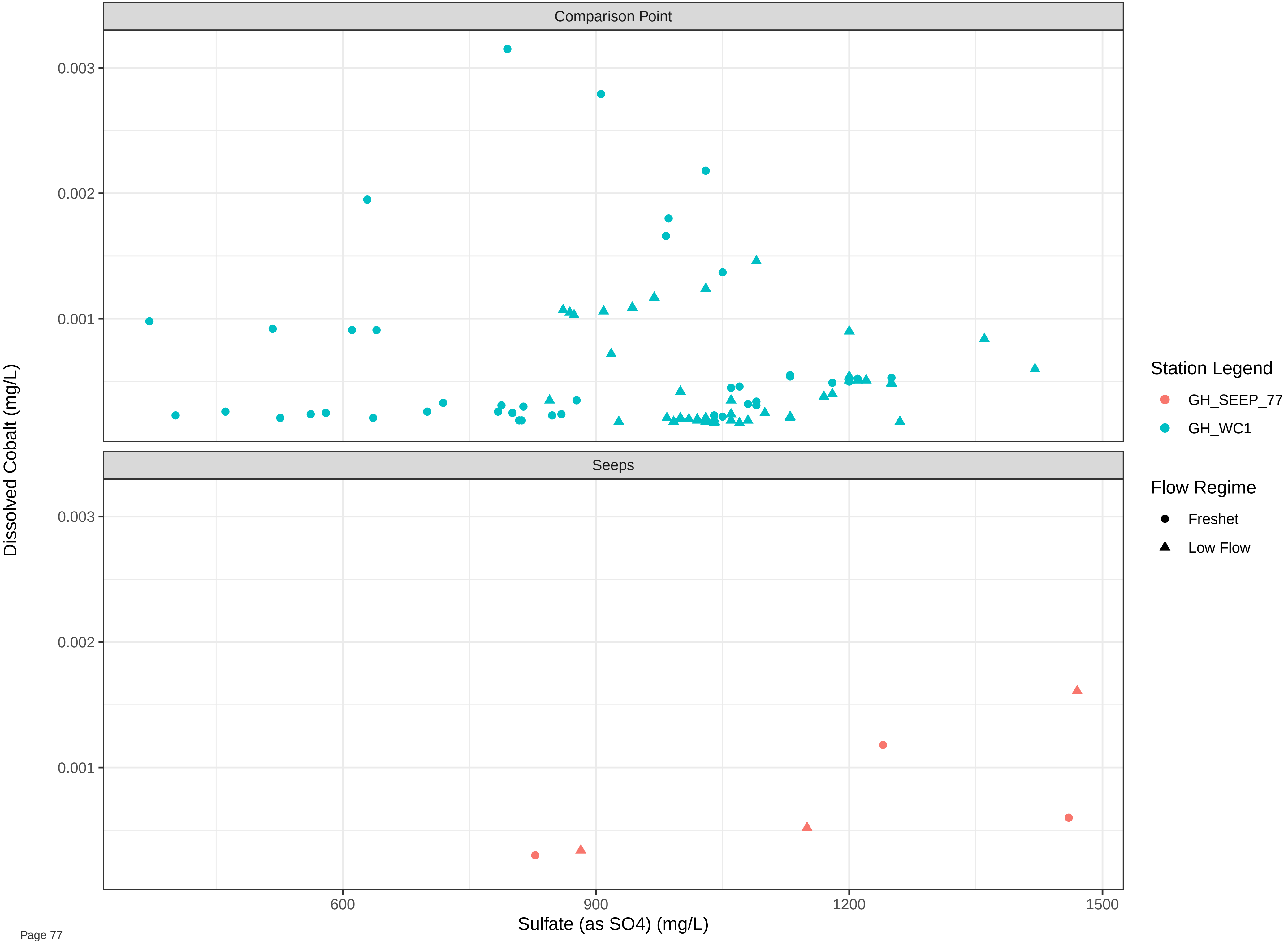

Comparison Point
Seeps
Dissolved Cobalt (mg/L)
0.000
0.001
0.002
0.000
0.001
0.002
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow

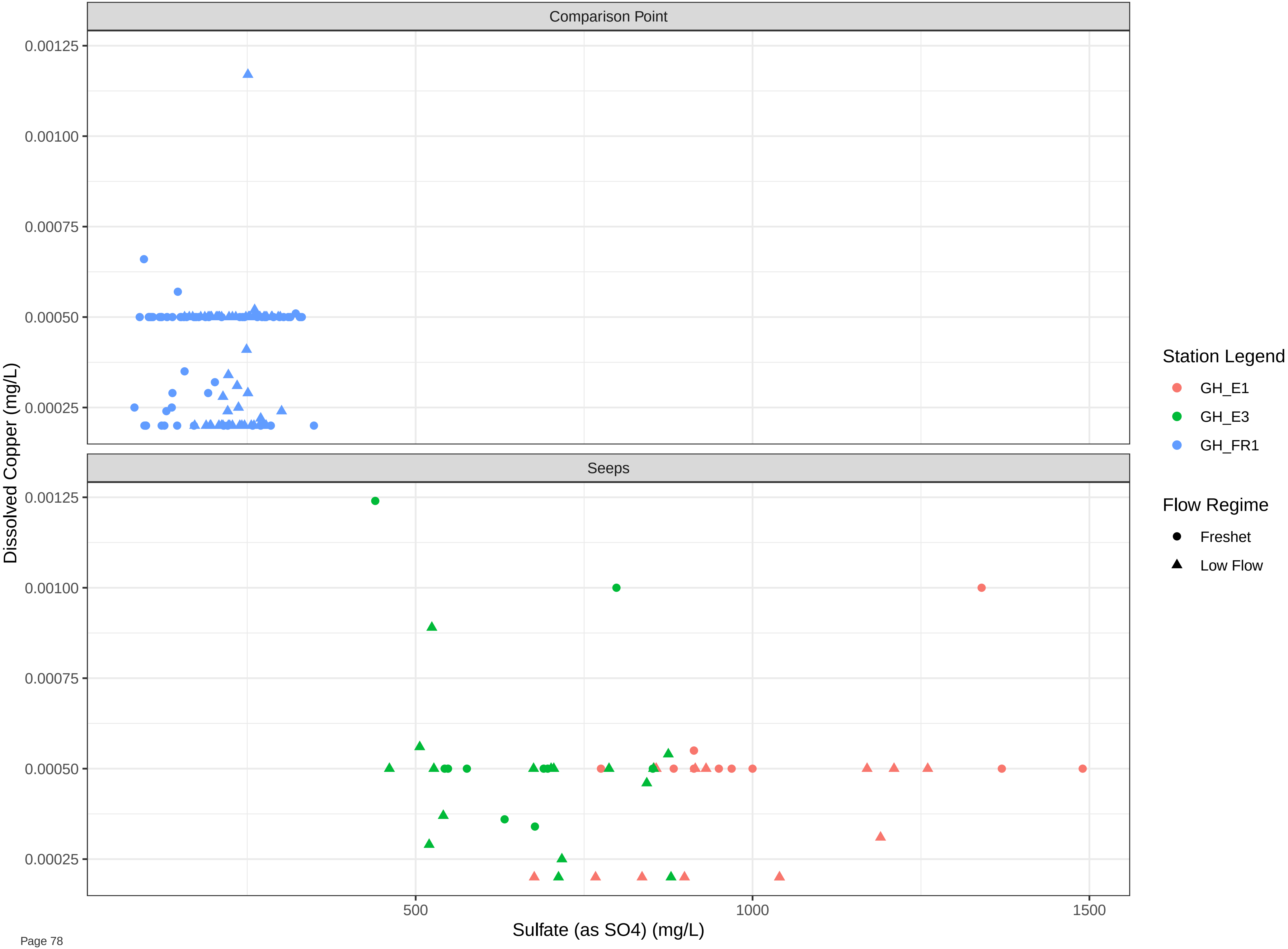

Comparison Point
Seeps
Dissolved Cobalt (mg/L)
0.020
0.015
0.010
0.005
0.000
0
200
400
600
Sulfate (as SO4) (mg/L)
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow

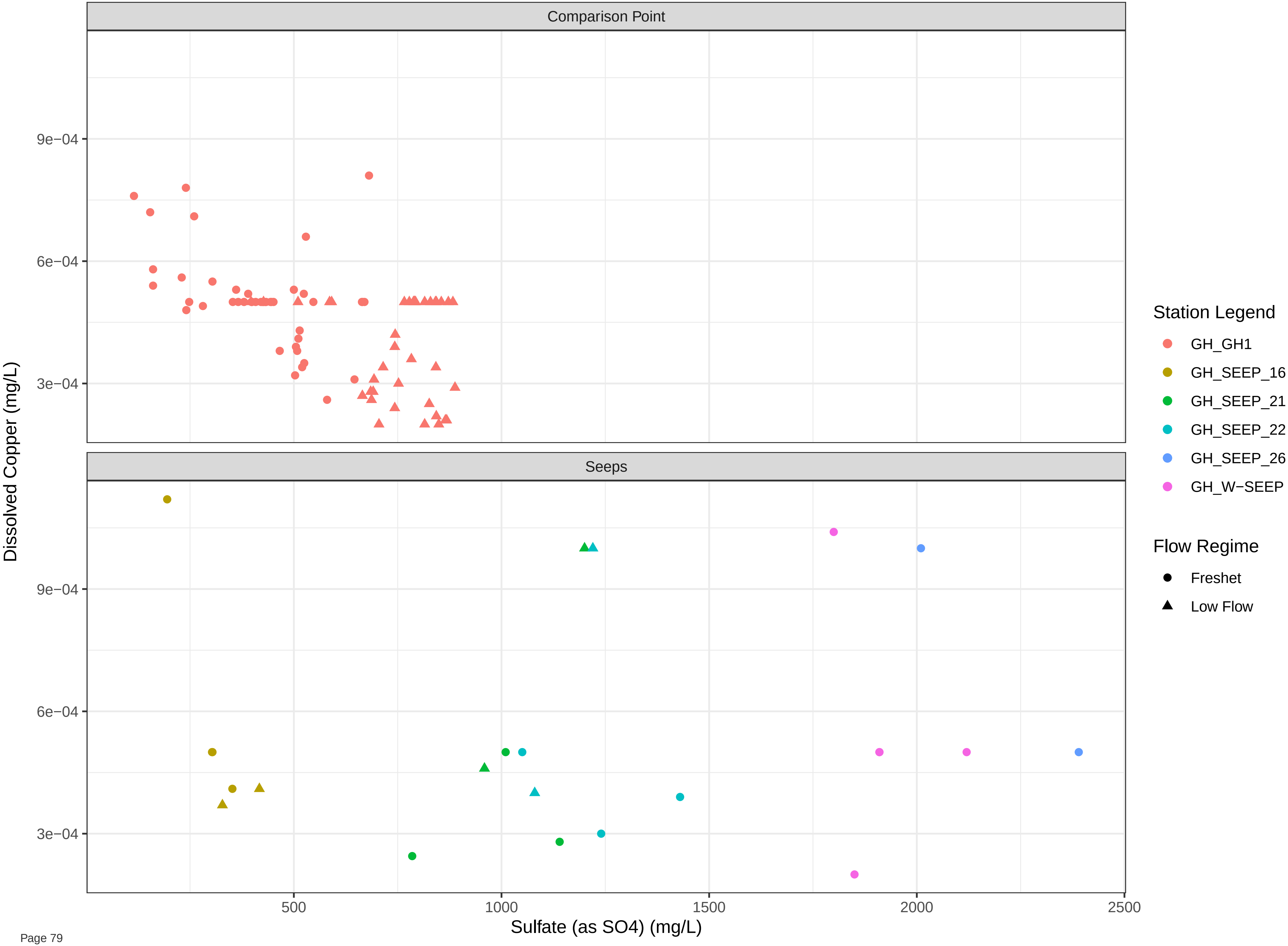

Comparison Point
Seeps
Dissolved Cobalt (mg/L)
0.000
0.001
0.002
0.003
0.004
0.005
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
Freshet
Low Flow

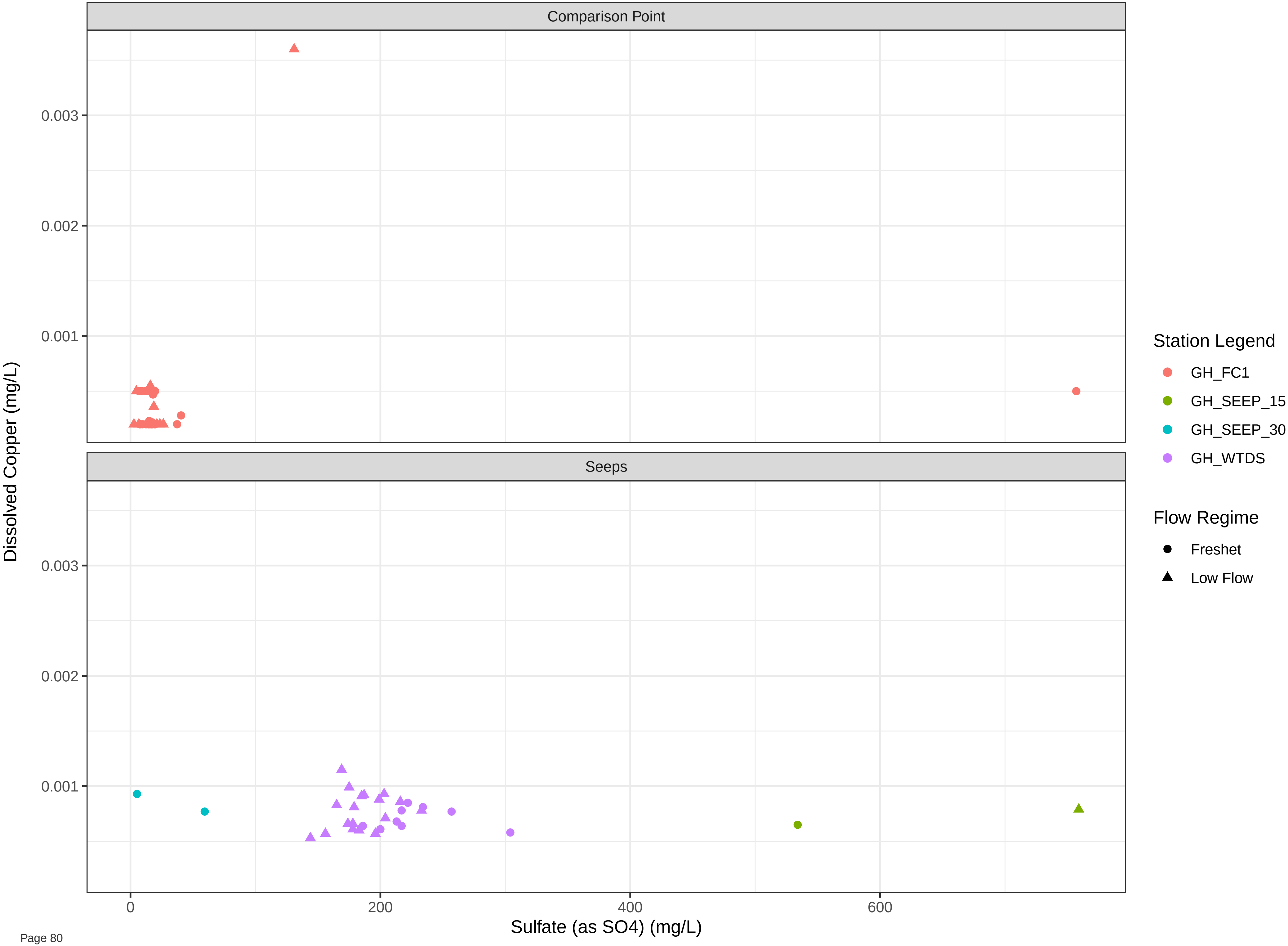

Seeps
Dissolved Cobalt (mg/L)
0.0001100
0.0001075
0.0001050
0.0001025
0.0001000
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

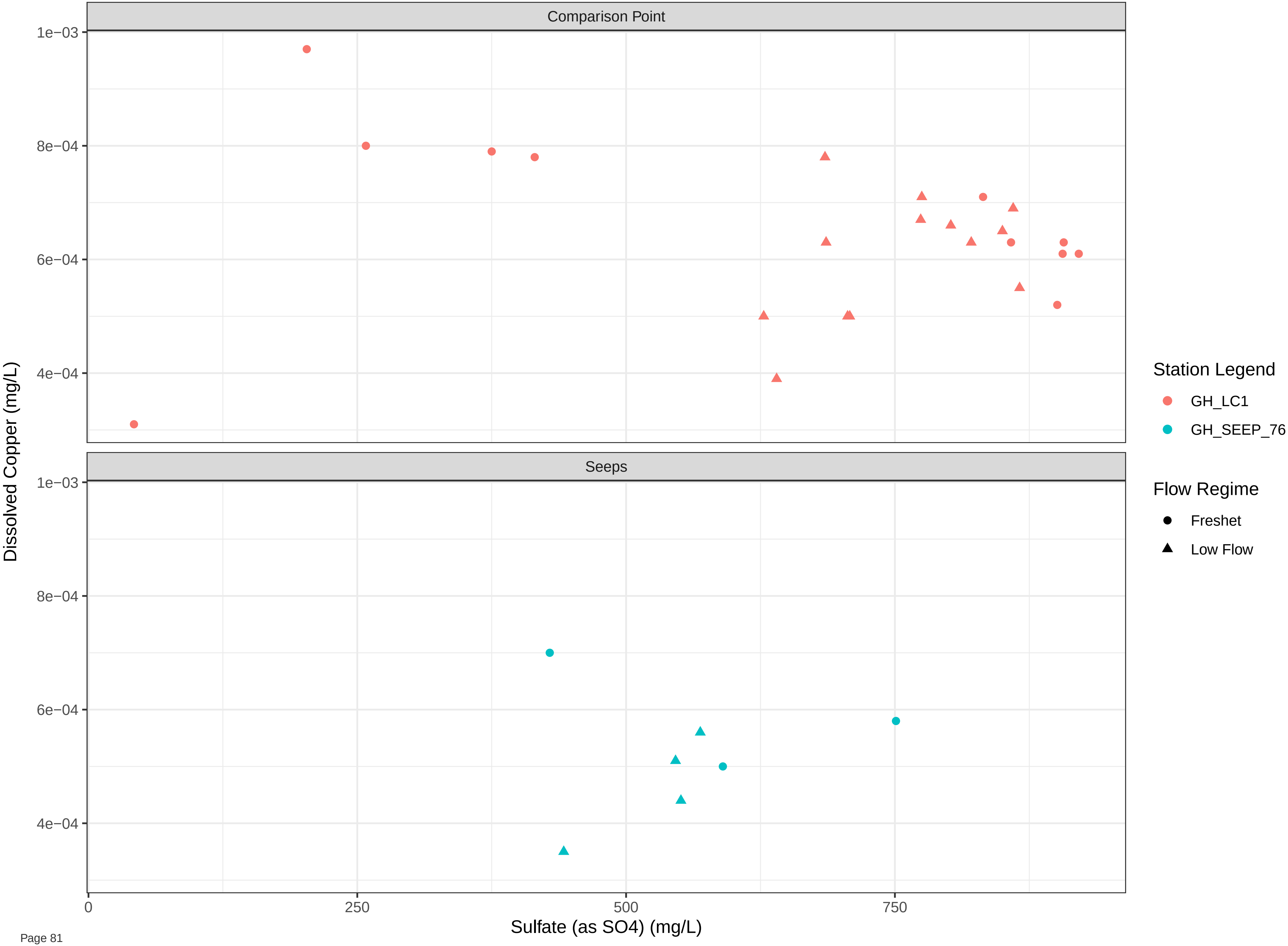

Comparison Point
Seeps
0.0012
0.0008
0.0004
Dissolved Cobalt (mg/L)
0
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

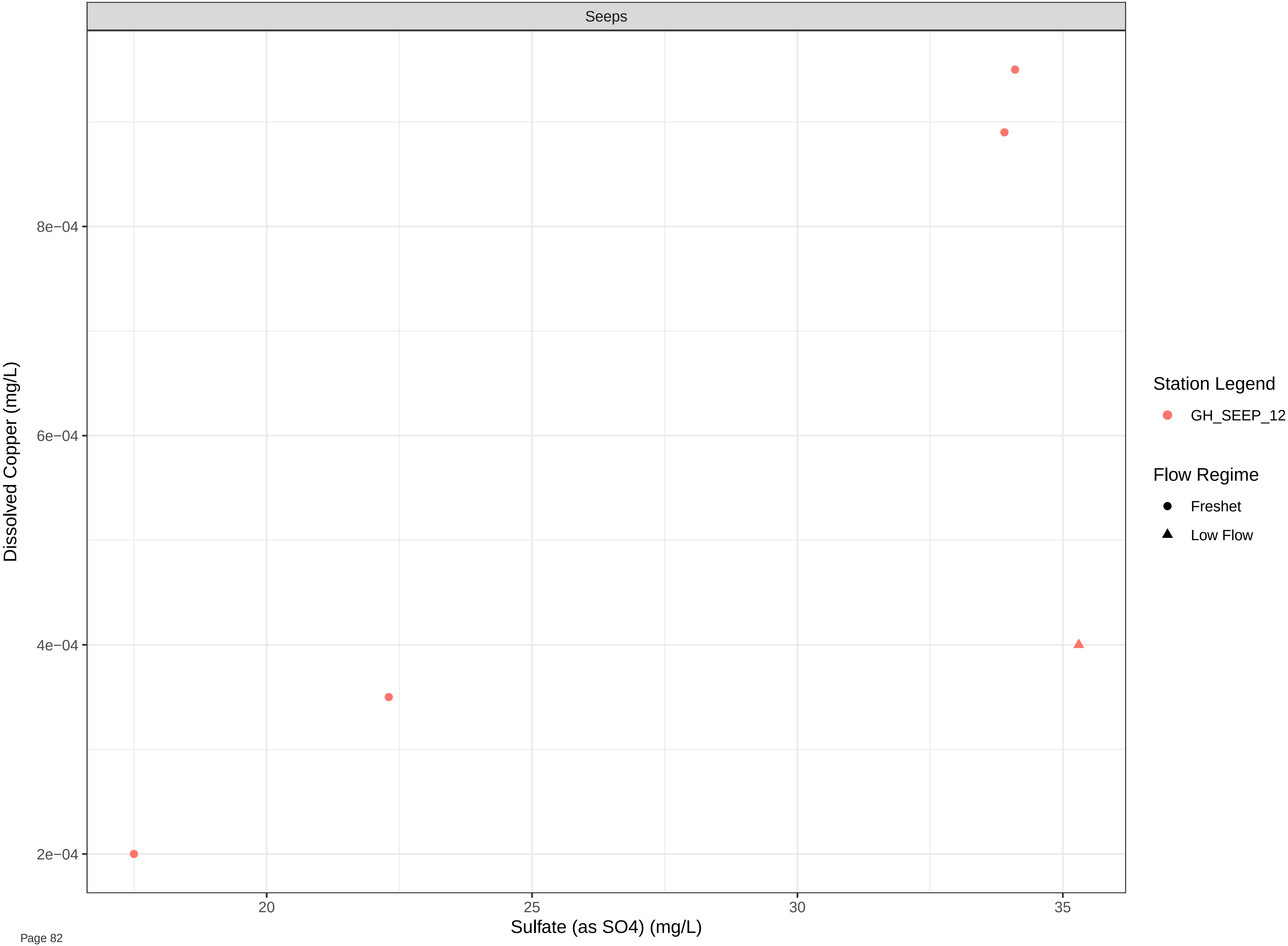

Comparison Point
Seeps
Dissolved Cobalt (mg/L)
0.003
0.002
0.001
0.003
0.002
0.001
600
900
1200
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

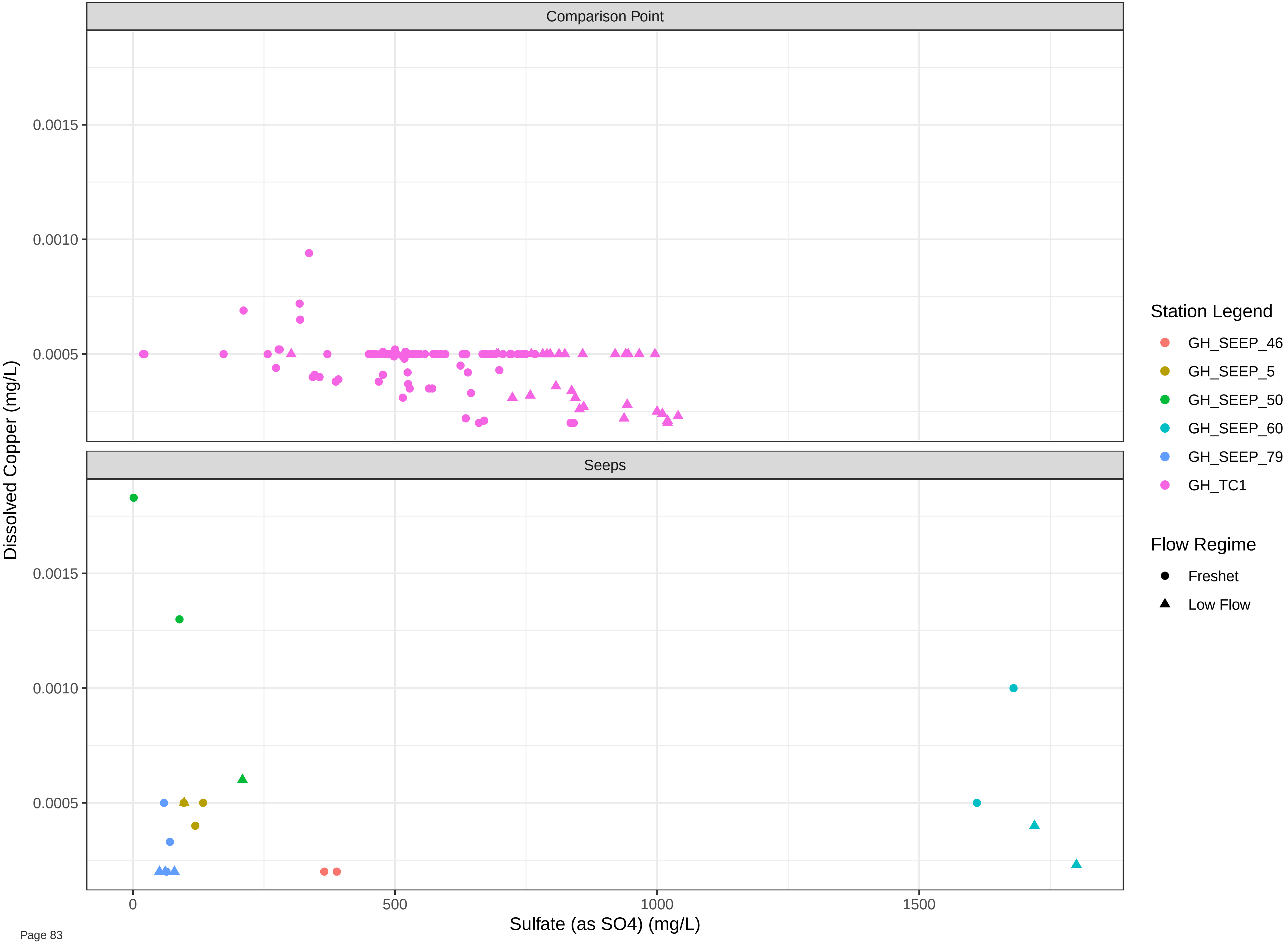

Comparison Point
Seeps
Dissolved Copper (mg/L)
0.00125
0.00100
0.00075
0.00050
0.00025
Sulfate (as SO4) (mg/L)
500
1000
1500
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

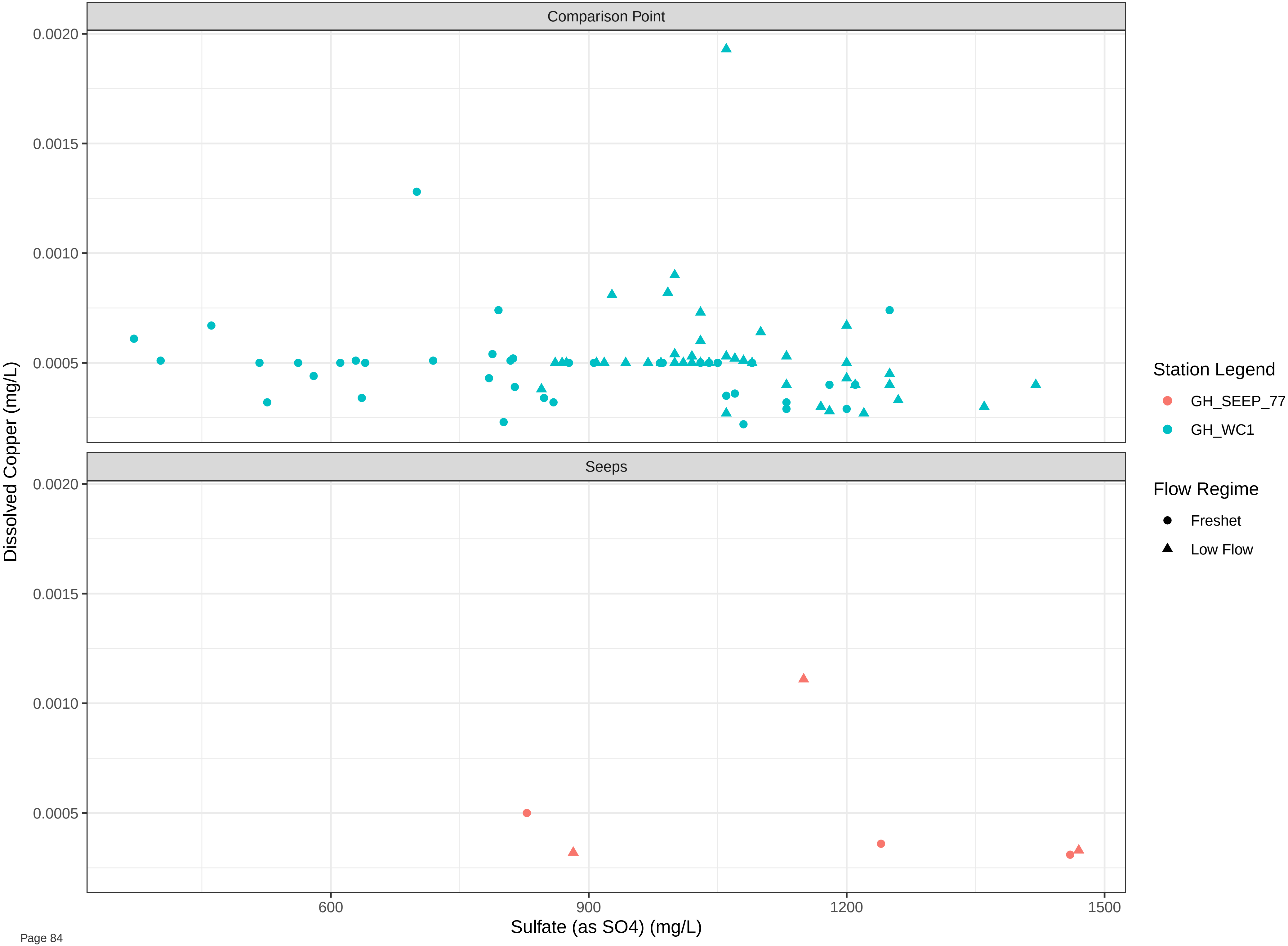

Comparison Point
Seeps
Dissolved Copper (mg/L)
9e−04
6e−04
3e−04
9e−04
6e−04
3e−04
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow

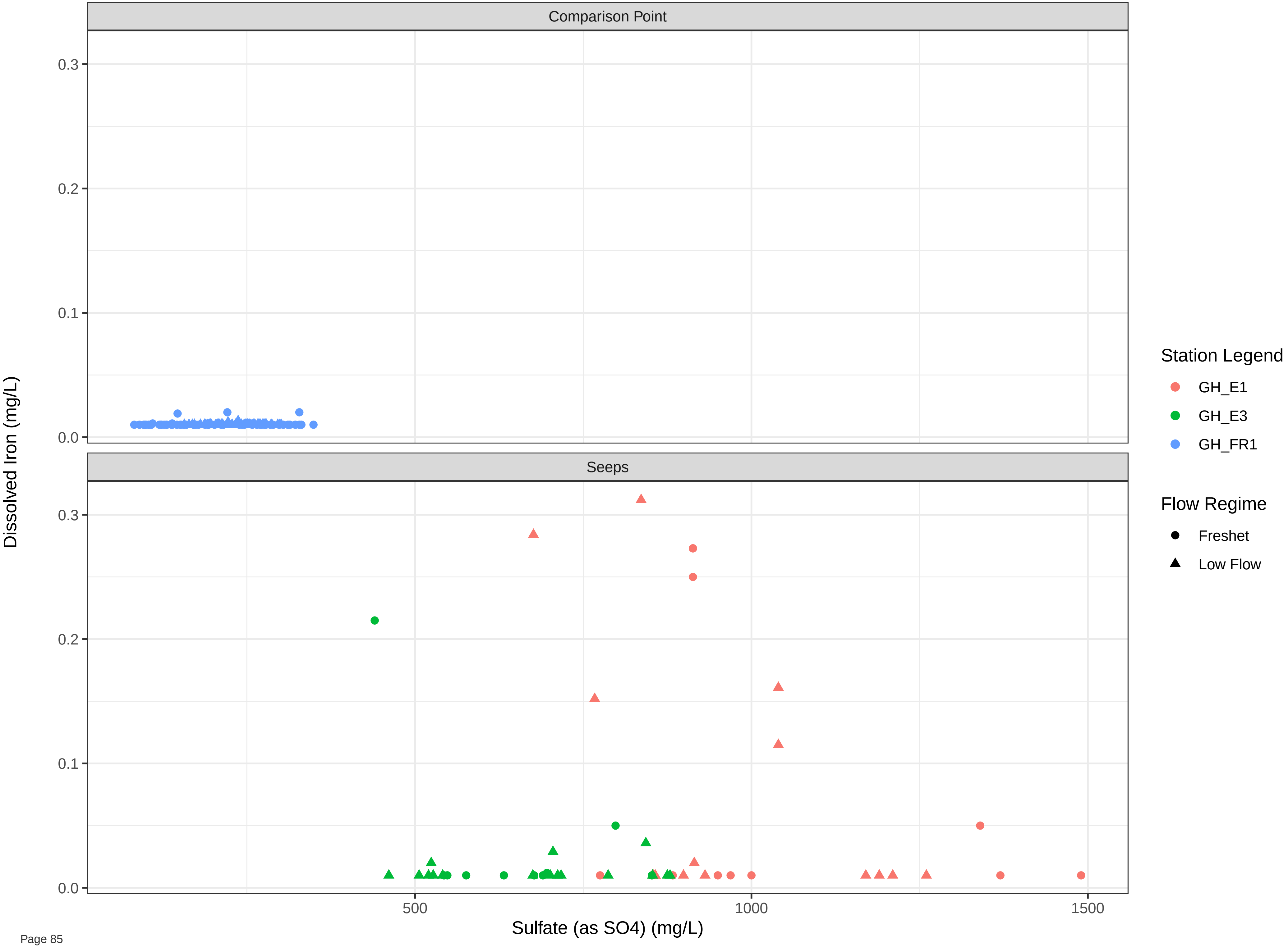

Comparison Point
Seeps
Dissolved Copper (mg/L)
0.003
0.002
0.001
0.003
0.002
0.001
0
200
400
600
Sulfate (as SO4) (mg/L)
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow

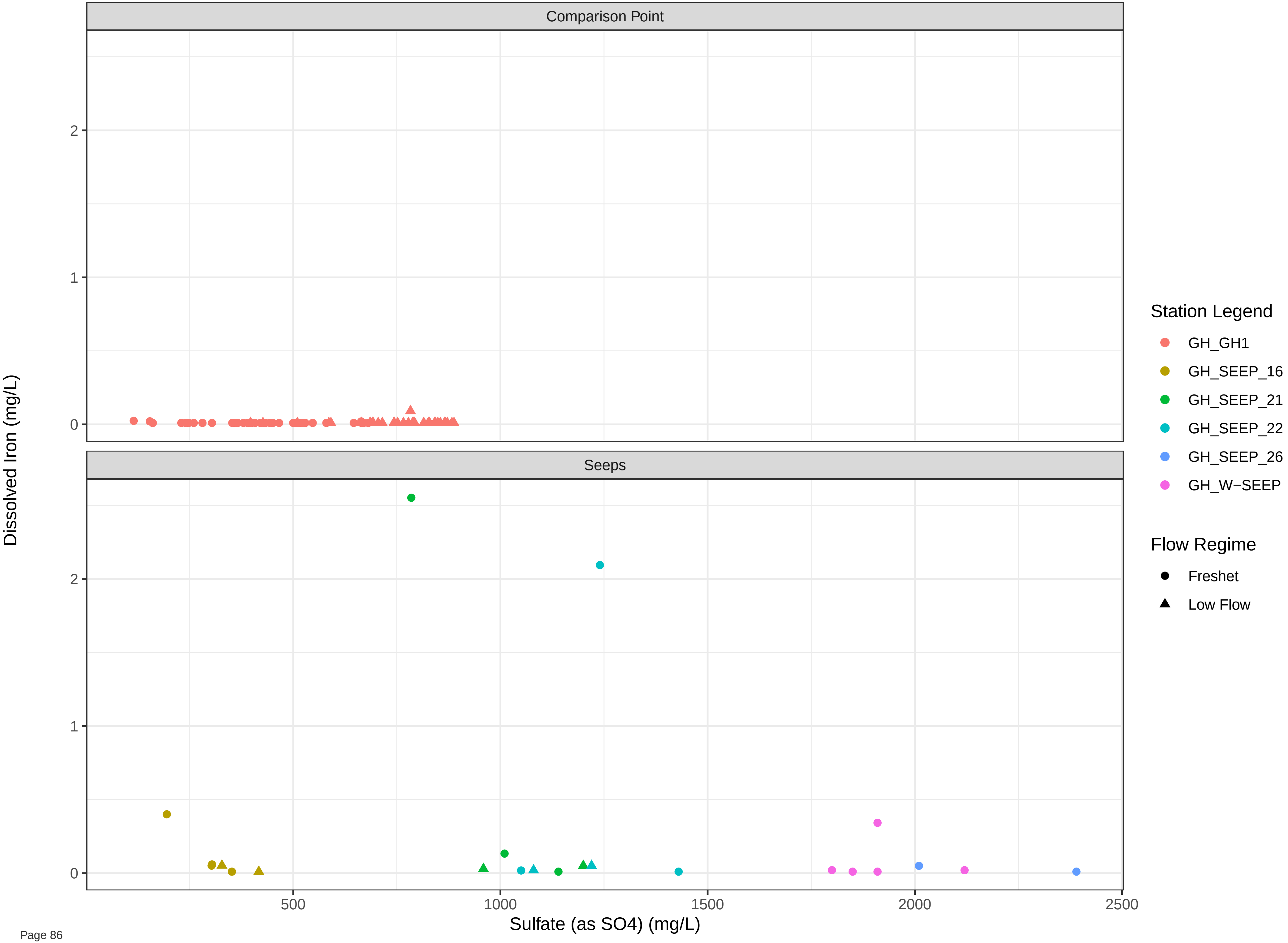

Comparison Point
Seeps
Dissolved Copper (mg/L)
1e−03
8e−04
6e−04
4e−04
Sulfate (as SO4) (mg/L)
0
250
500
750
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
Freshet
Low Flow

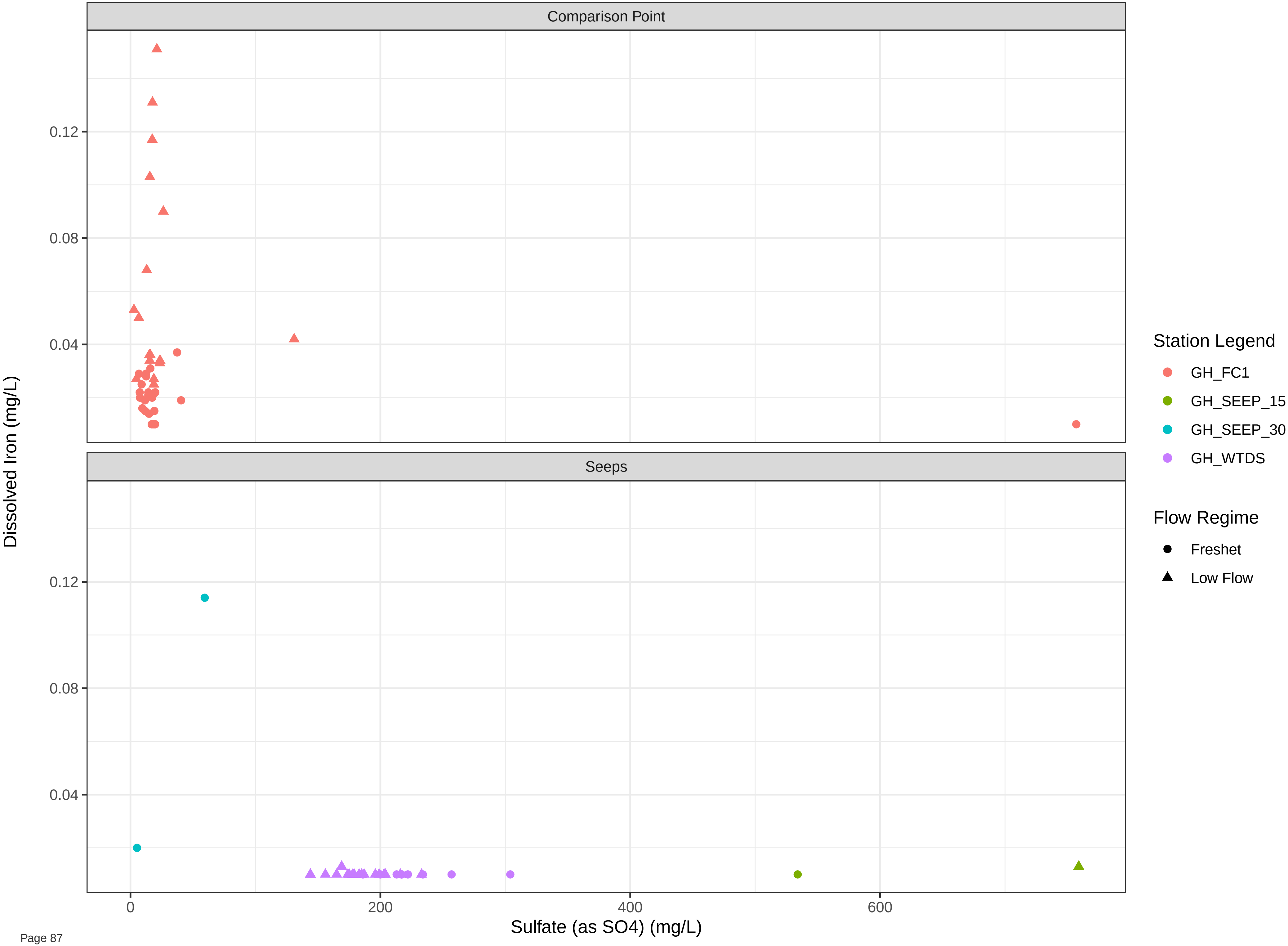

Seeps
Dissolved Copper (mg/L)
8e−04
6e−04
4e−04
2e−04
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

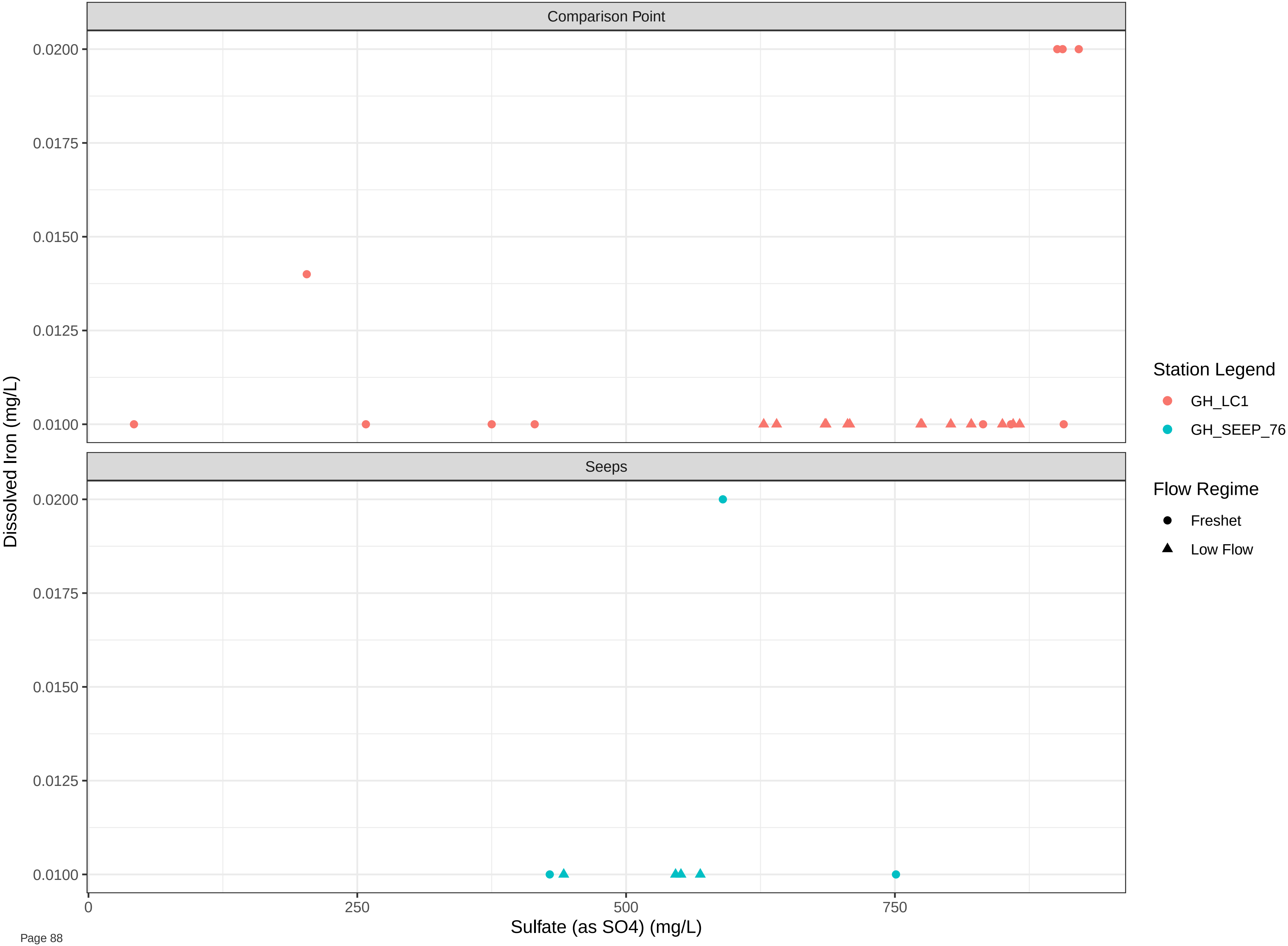

Comparison Point
Seeps
Dissolved Copper (mg/L)
0.0015
0.0010
0.0005
0.0015
0.0010
0.0005
0
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
Dissolved Copper (mg/L)
0.0020
0.0015
0.0010
0.0005
Sulfate (as SO4) (mg/L)
600
900
1200
1500
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

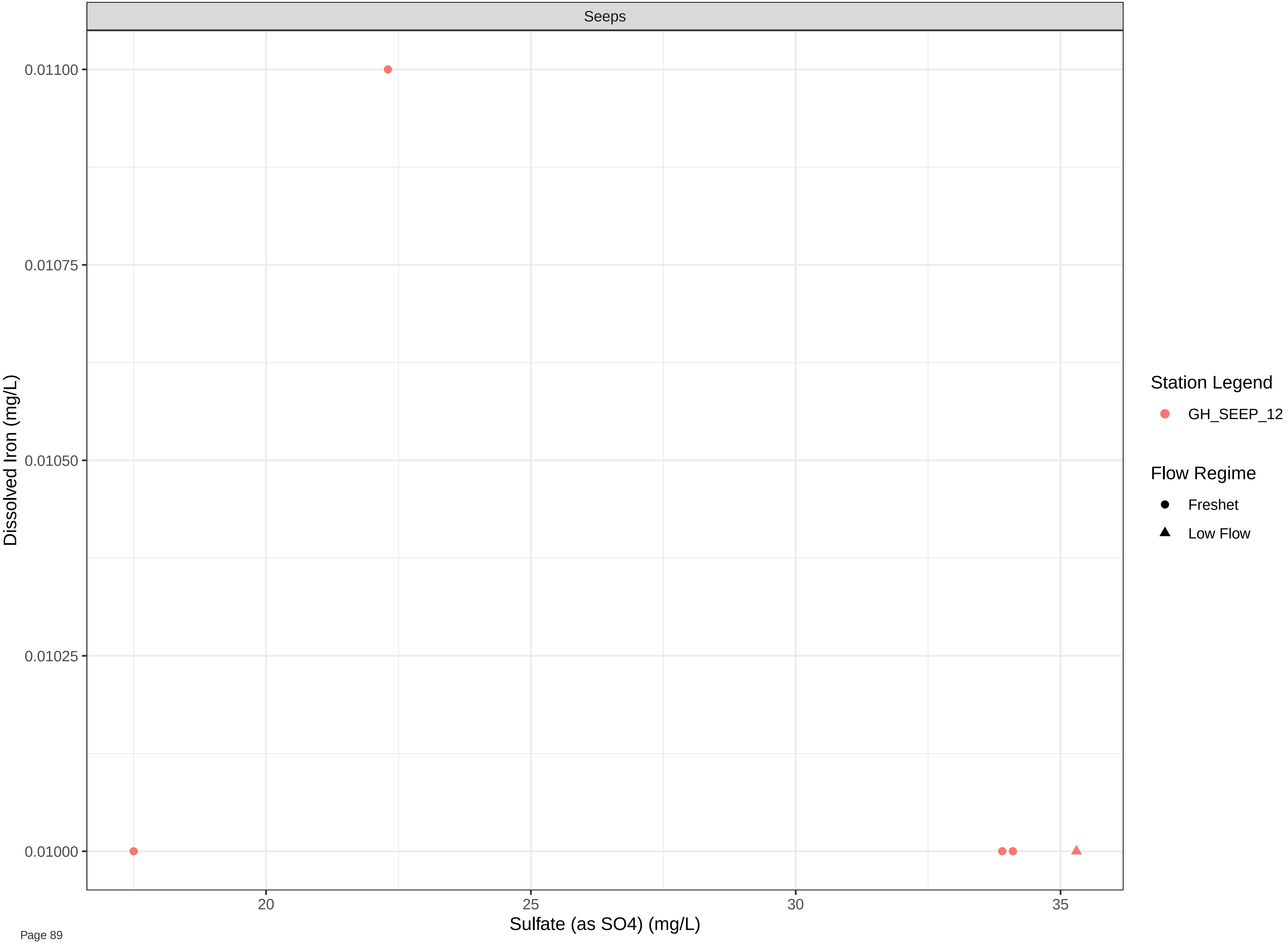

Comparison Point
Seeps
Dissolved Iron (mg/L)
0.0
0.1
0.2
0.3
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

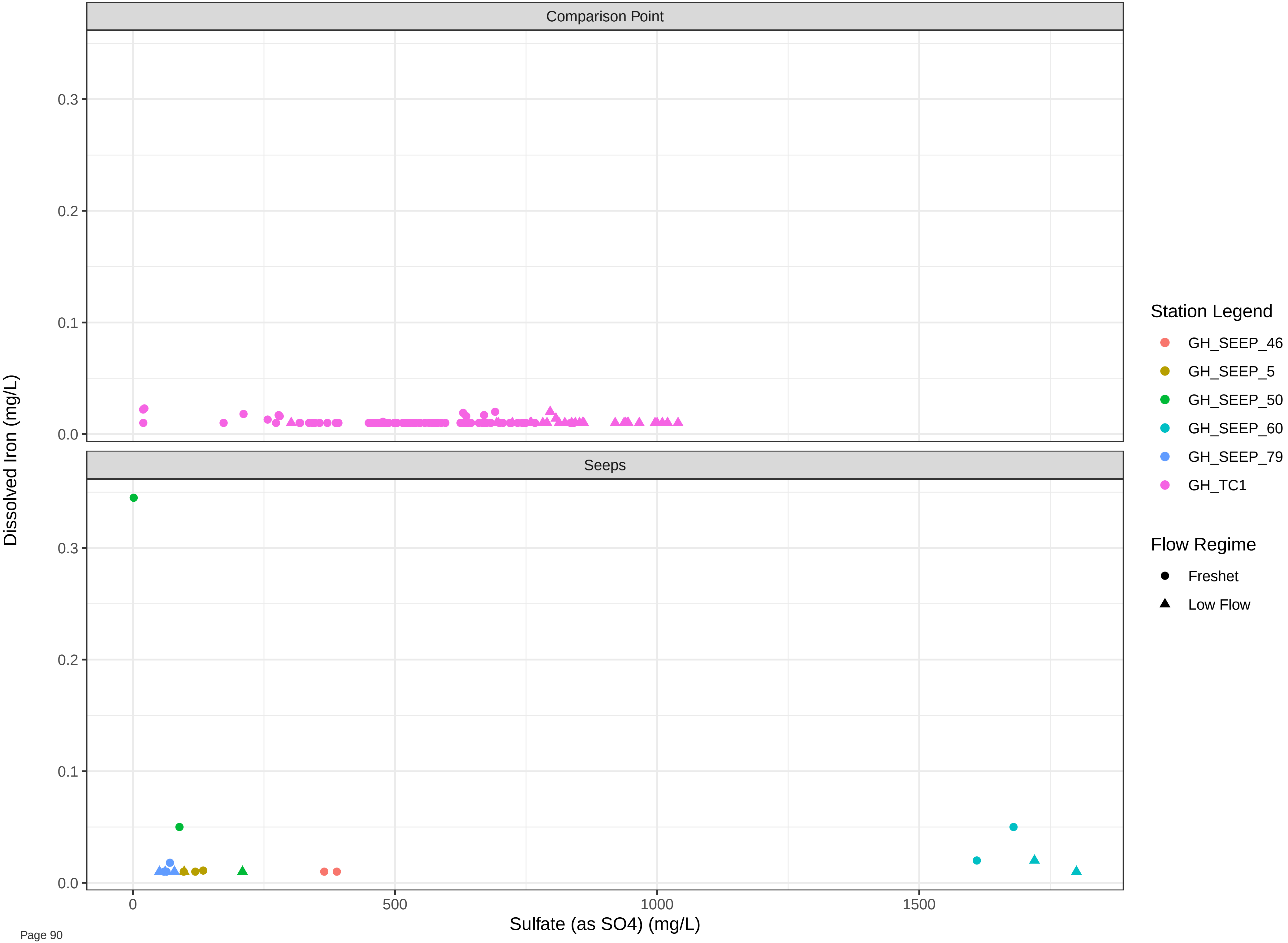

Comparison Point
Seeps
Dissolved Iron (mg/L)
0
1
2
0
1
2
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow

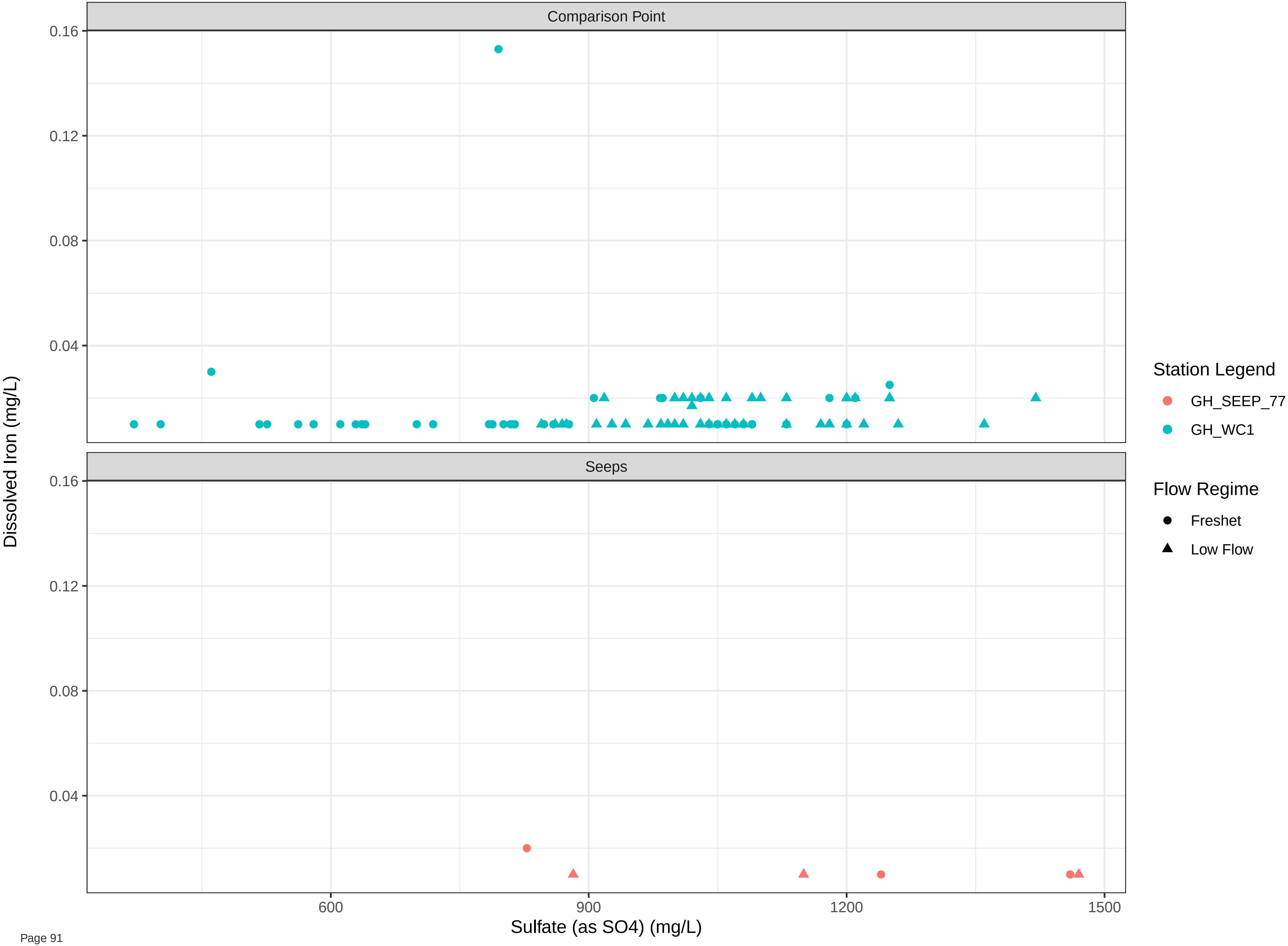

Comparison Point
Seeps
Dissolved Iron (mg/L)
0.12
0.08
0.04
Sulfate (as SO4) (mg/L)
0
200
400
600
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow



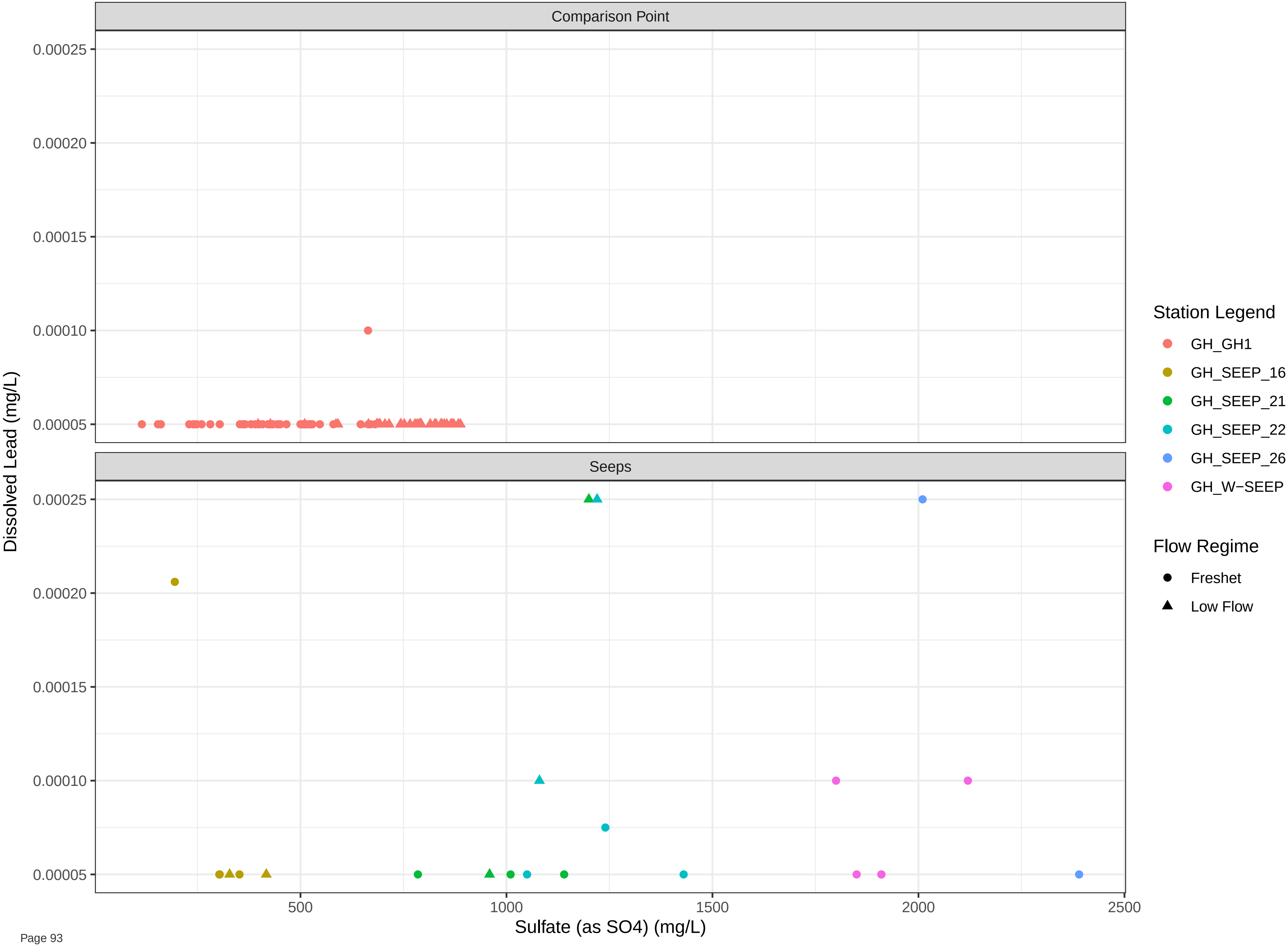
Comparison Point
Seeps
Dissolved Iron (mg/L)
0.0200
0.0175
0.0150
0.0125
0.0100
Sulfate (as SO4) (mg/L)
0
250
500
750
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
Freshet
Low Flow

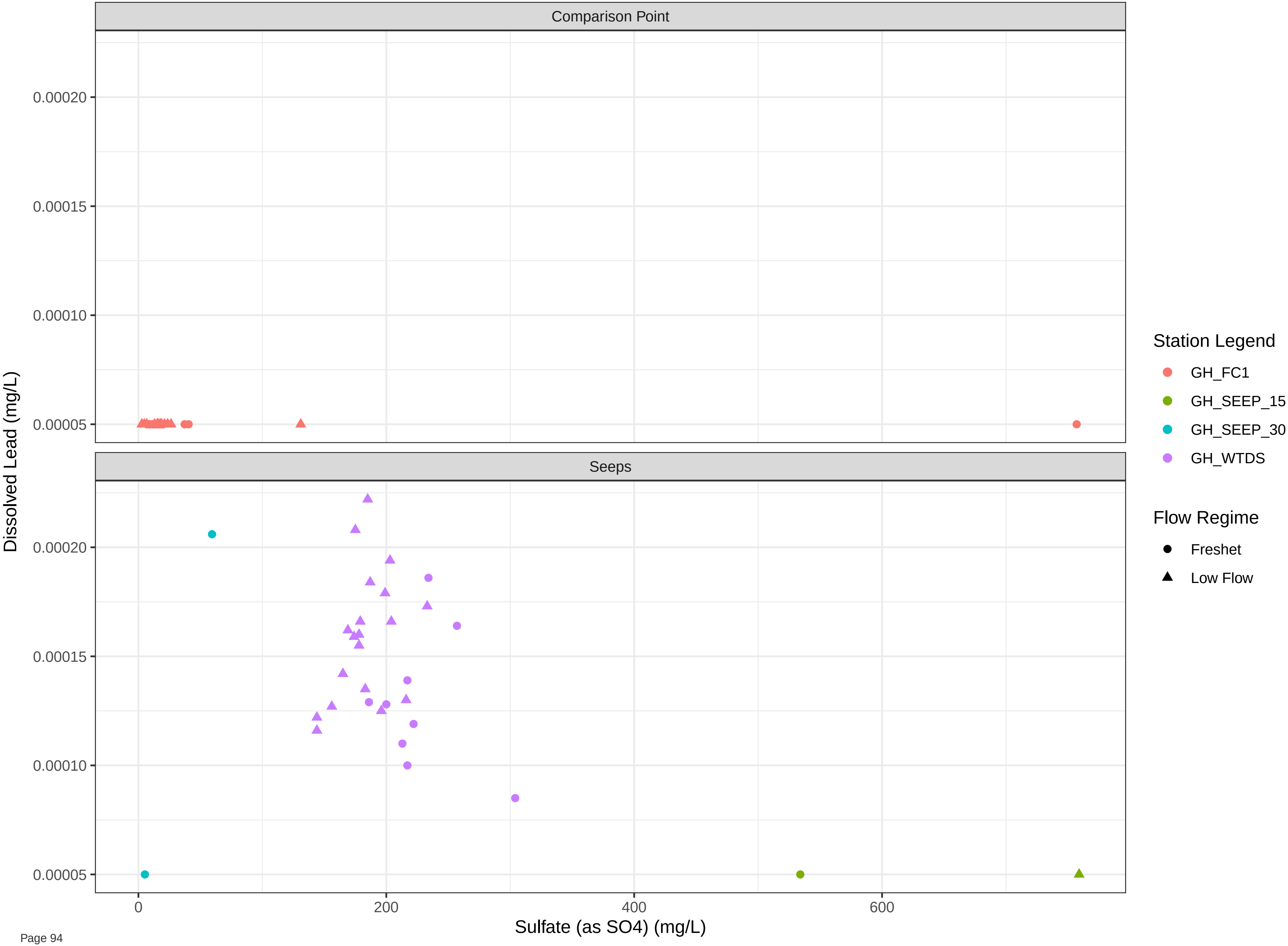

Seeps
0.01100
0.01075
0.01050
0.01025
0.01000
Dissolved Iron (mg/L)
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

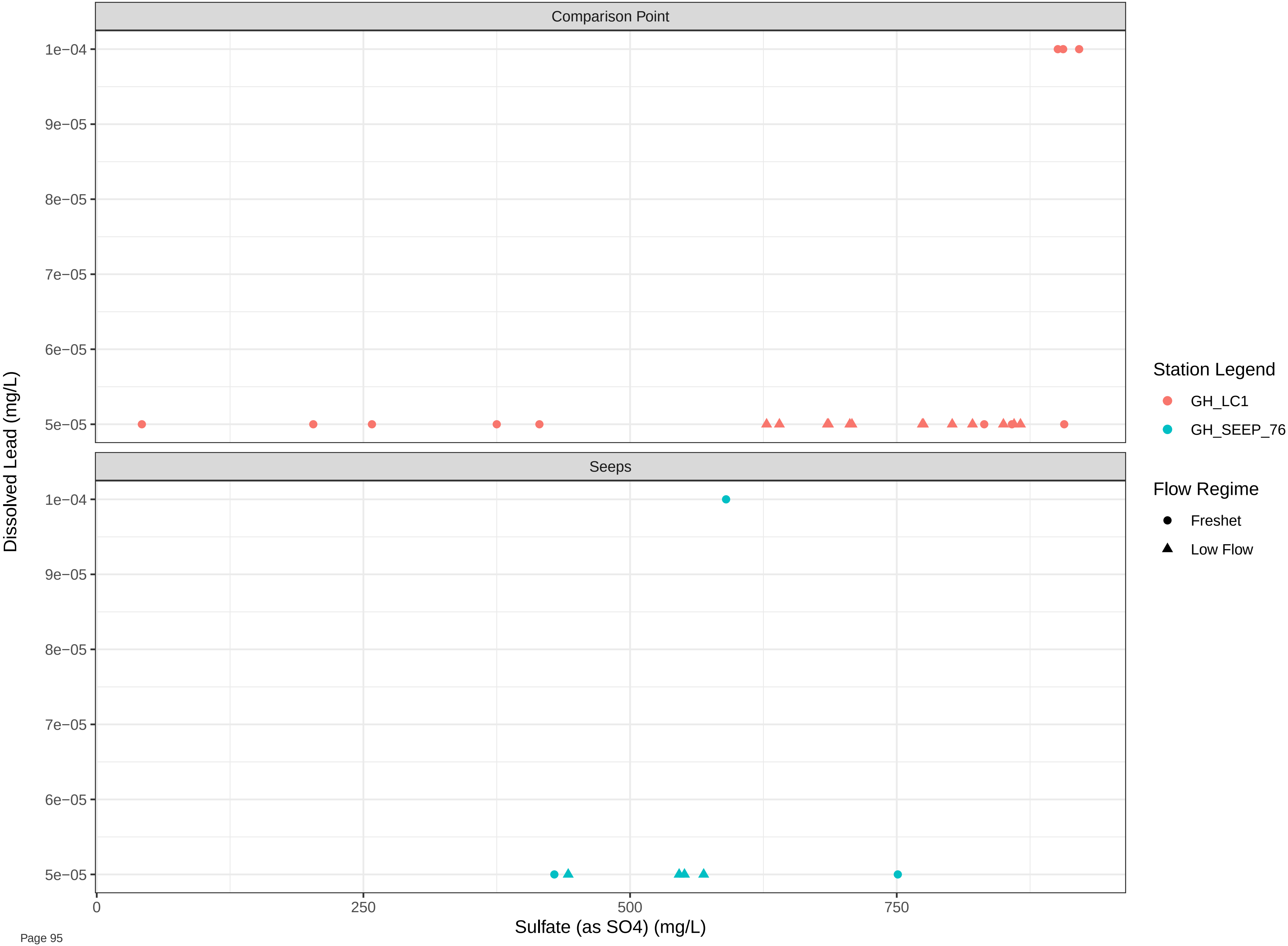

Comparison Point
Seeps
Dissolved Iron (mg/L)
0.0
0.1
0.2
0.3
0
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

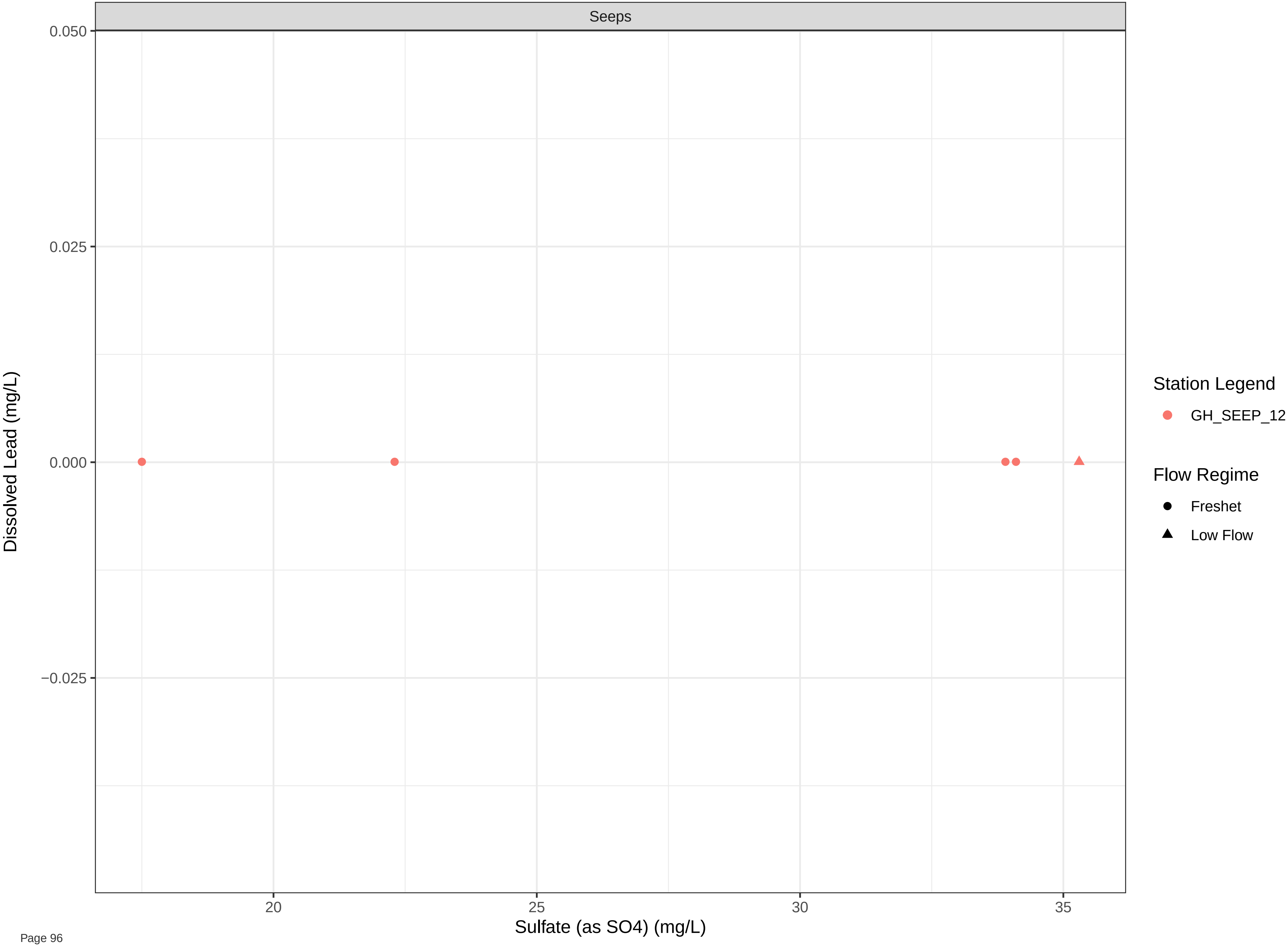

Comparison Point
Seeps
Dissolved Iron (mg/L)
0.16
0.12
0.08
0.04
600
900
1200
1500
Sulfate (as SO4) (mg/L)
Station Legend
● GH_SEEP_77
● GH_WC1
Flow Regime
● Freshet
▲ Low Flow

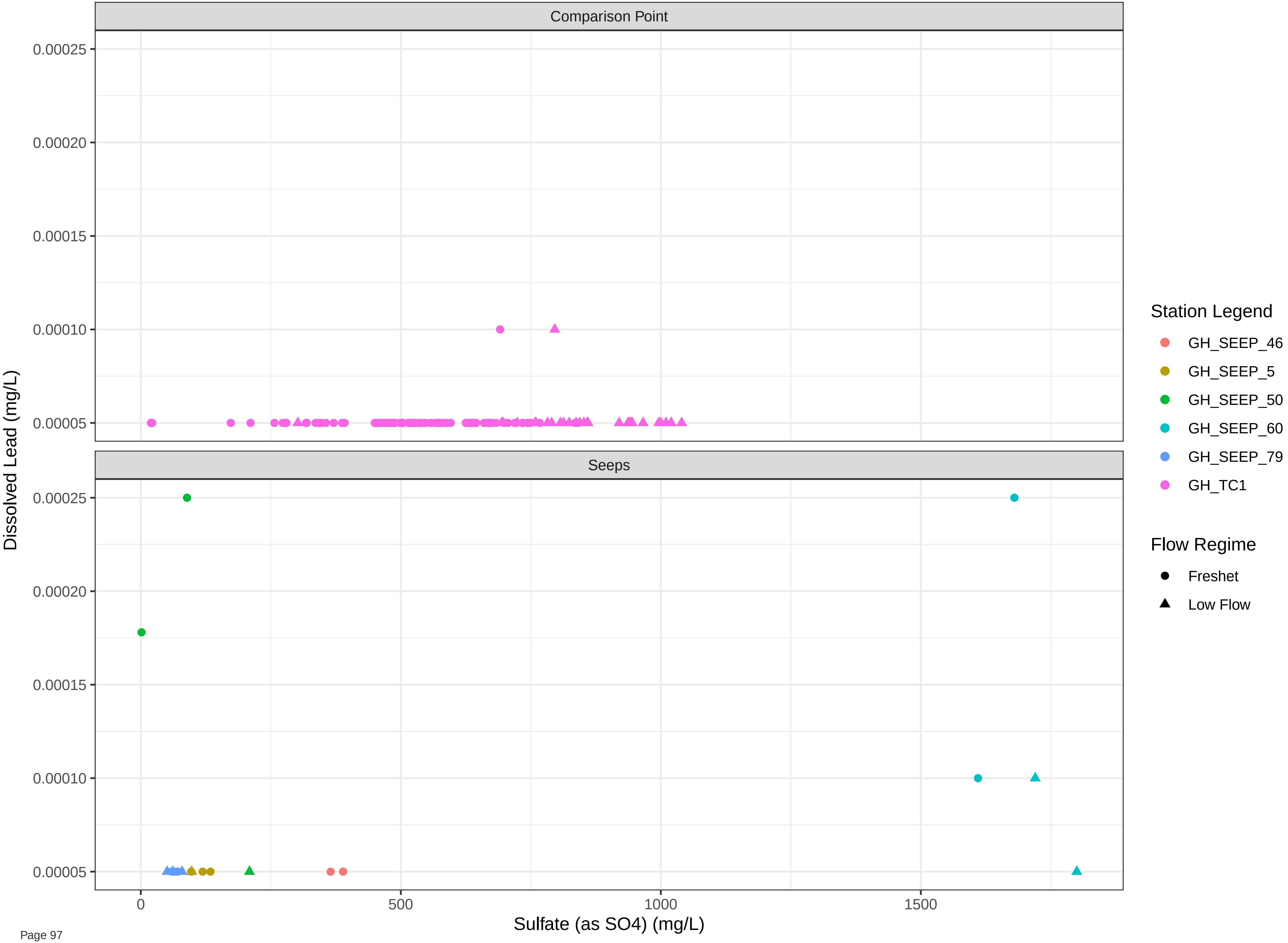

Comparison Point
Seeps
3e−04
2e−04
1e−04
3e−04
2e−04
1e−04
500
1000
1500
Dissolved Lead (mg/L)
Sulfate (as SO4) (mg/L)
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

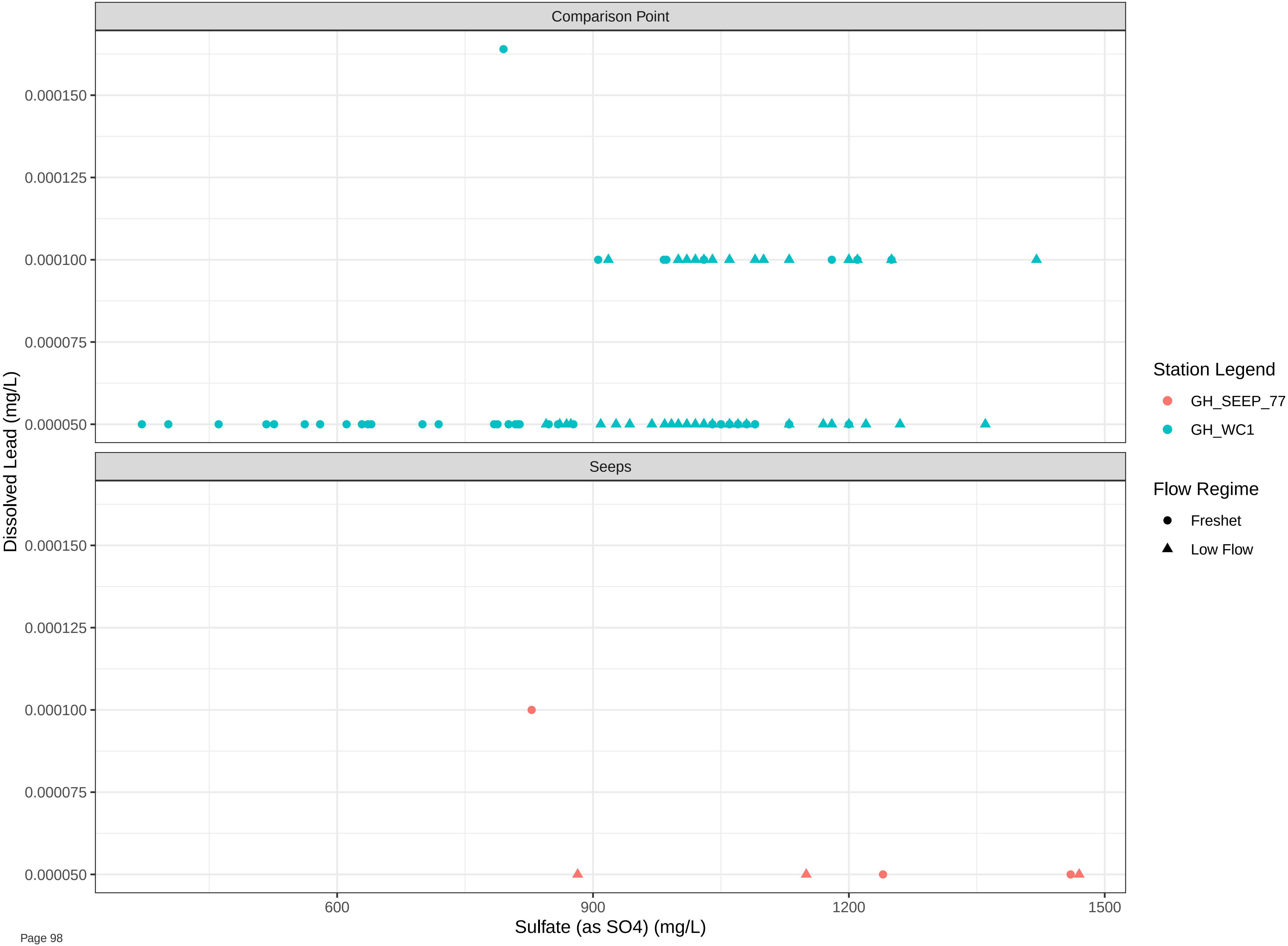

Comparison Point
Seeps
Dissolved Lead (mg/L)
0.00005
0.00010
0.00015
0.00020
0.00025
Sulfate (as SO4) (mg/L)
500
1000
1500
2000
2500
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow

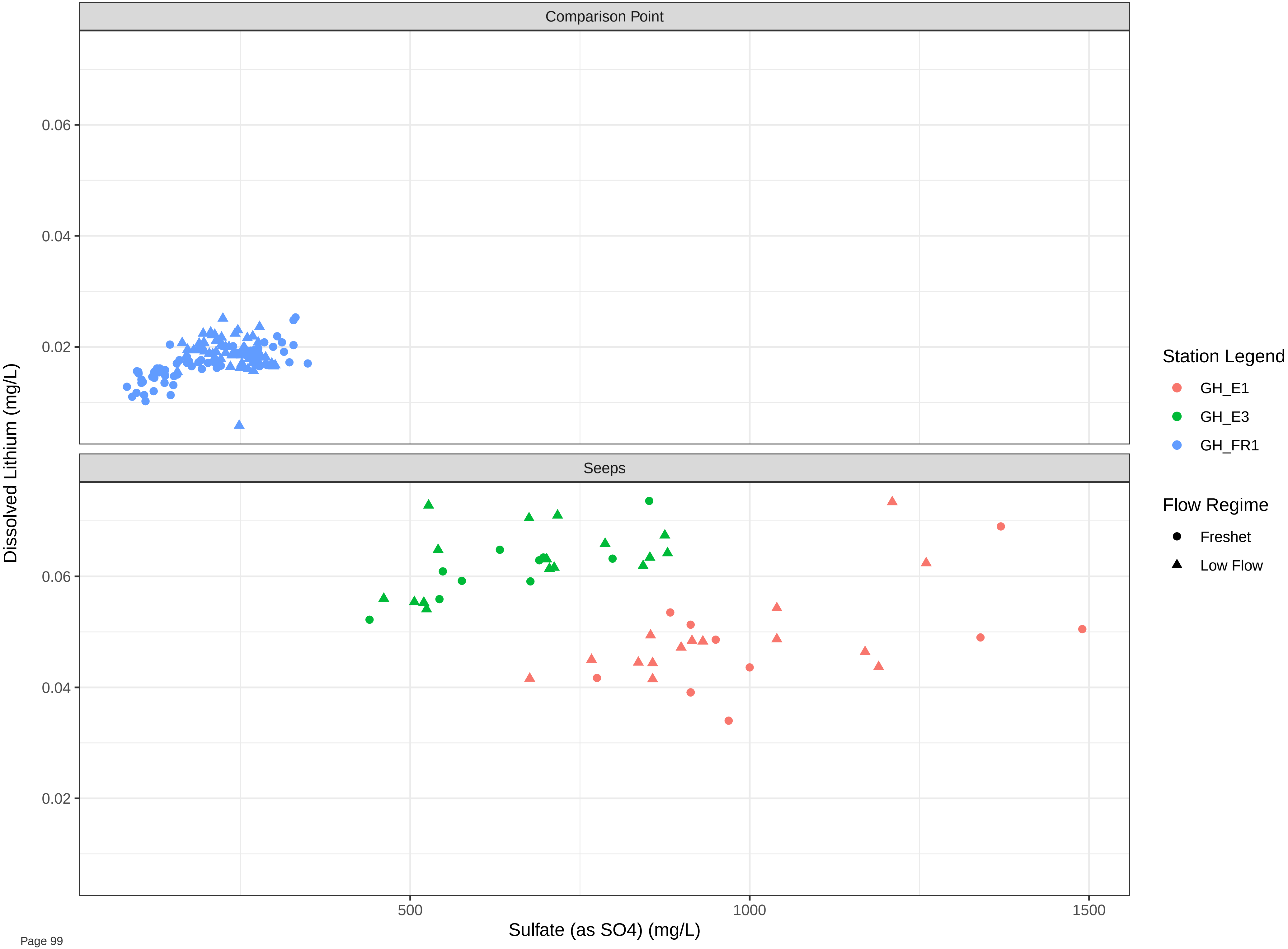

Comparison Point
Seeps
0.00020
0.00015
0.00010
0.00005
Dissolved Lead (mg/L)
0
200
400
600
Sulfate (as SO4) (mg/L)
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow

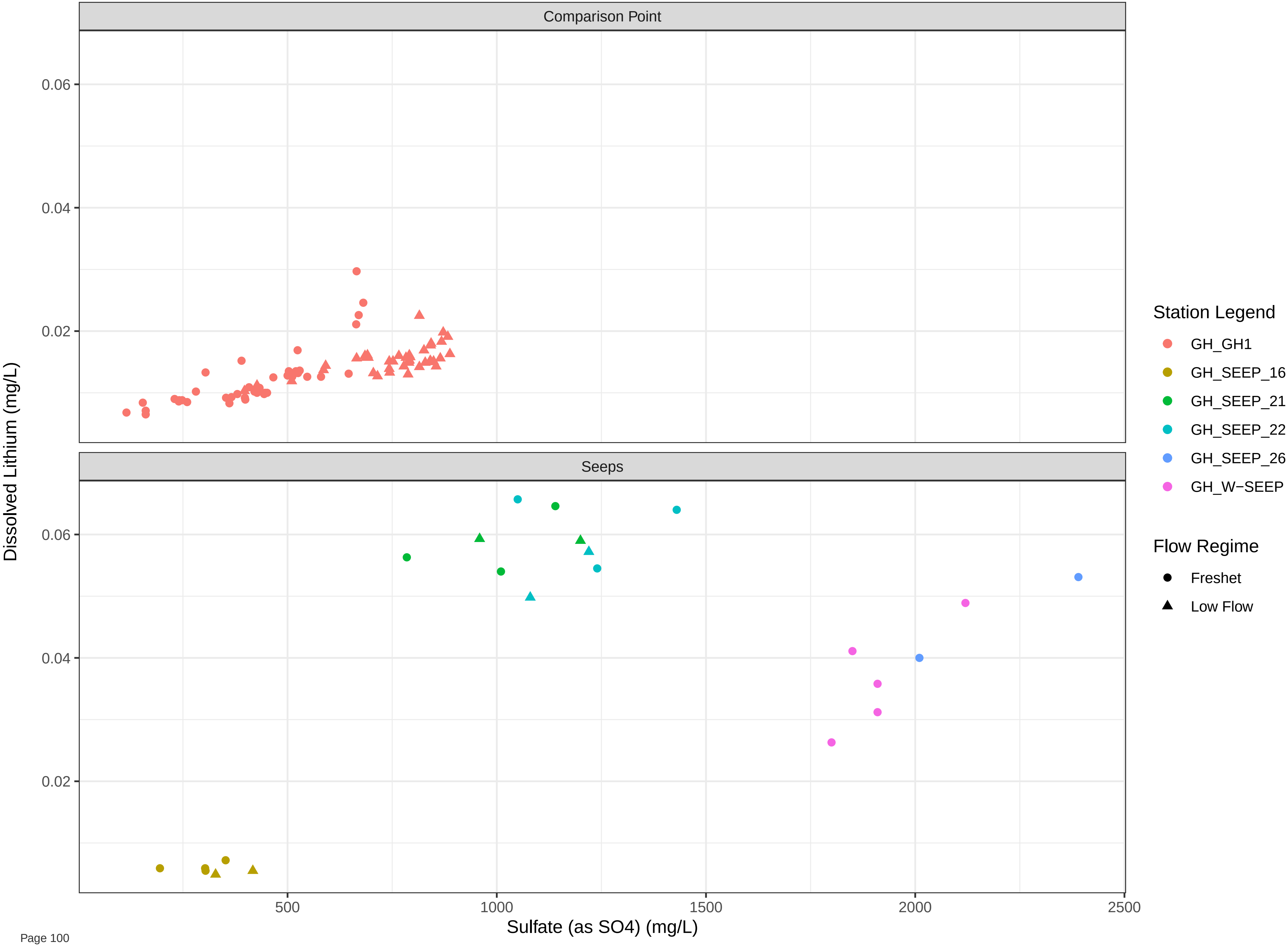

Comparison Point
Seeps
1e−04
9e−05
8e−05
7e−05
6e−05
5e−05
Dissolved Lead (mg/L)
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
Freshet
Low Flow

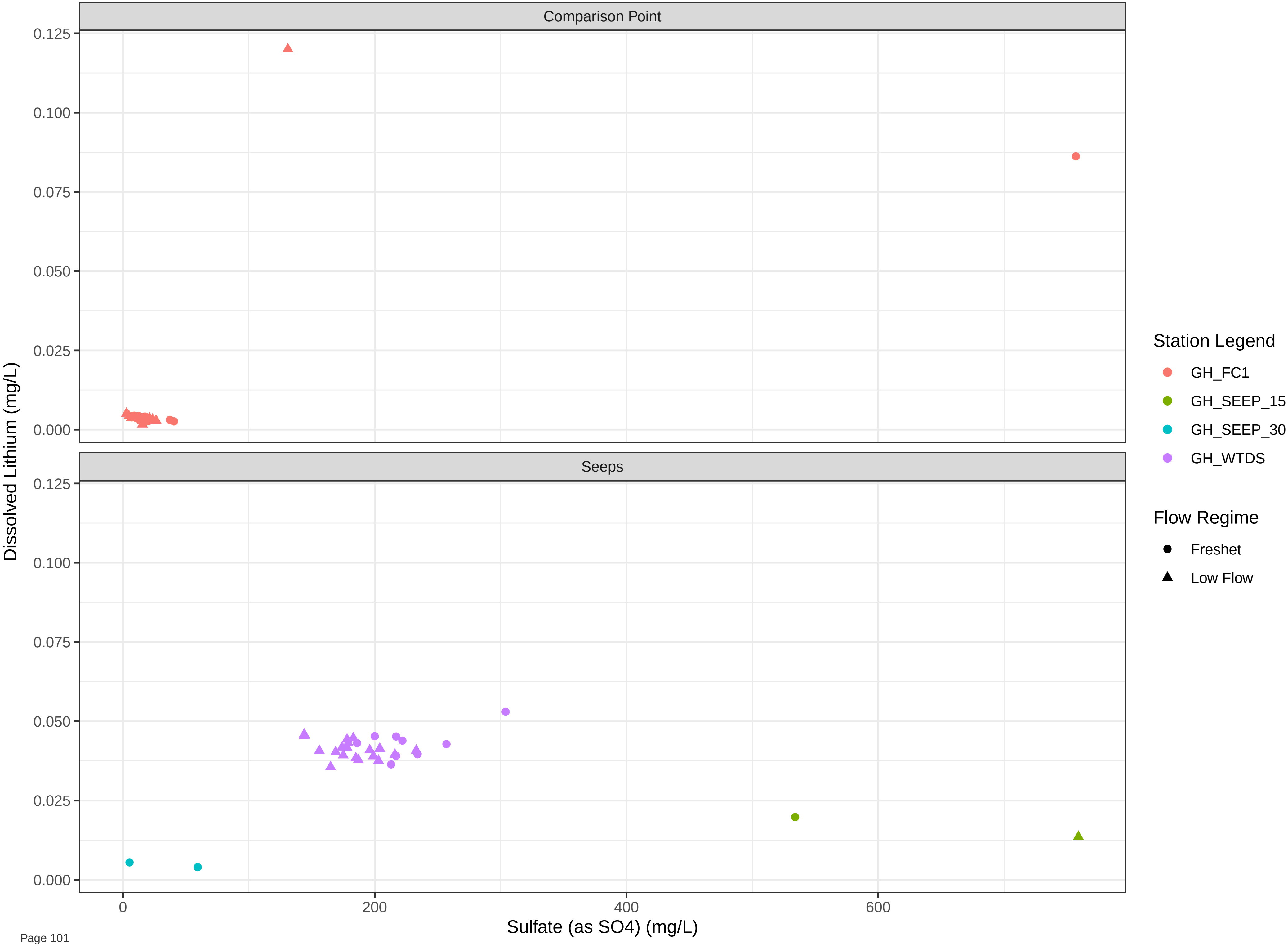

Seeps
0.050
0.025
0.000
−0.025
Dissolved Lead (mg/L)
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

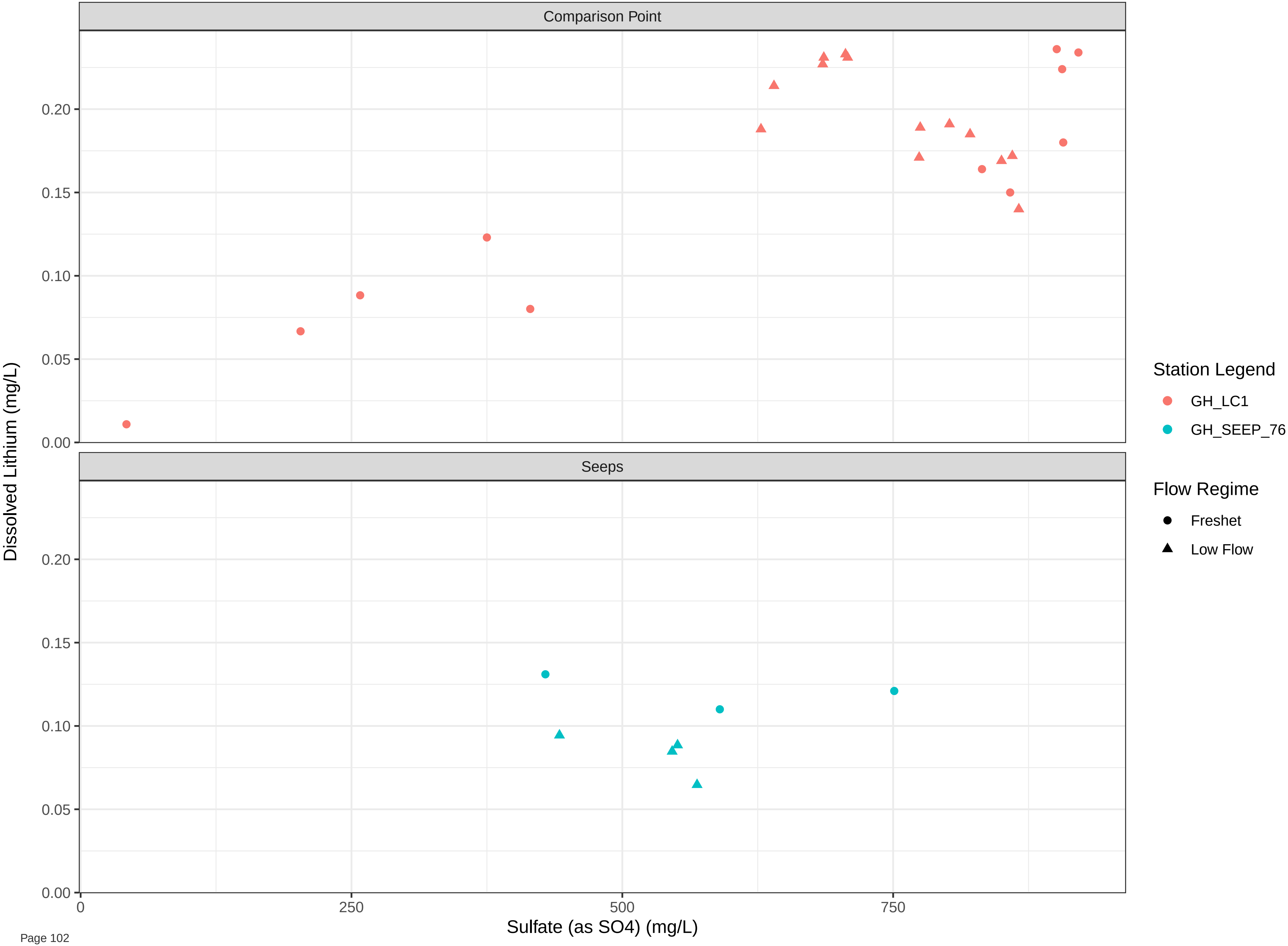

Comparison Point
Seeps
0.00025
0.00020
0.00015
0.00010
0.00005
0
500
1000
1500
Dissolved Lead (mg/L)
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

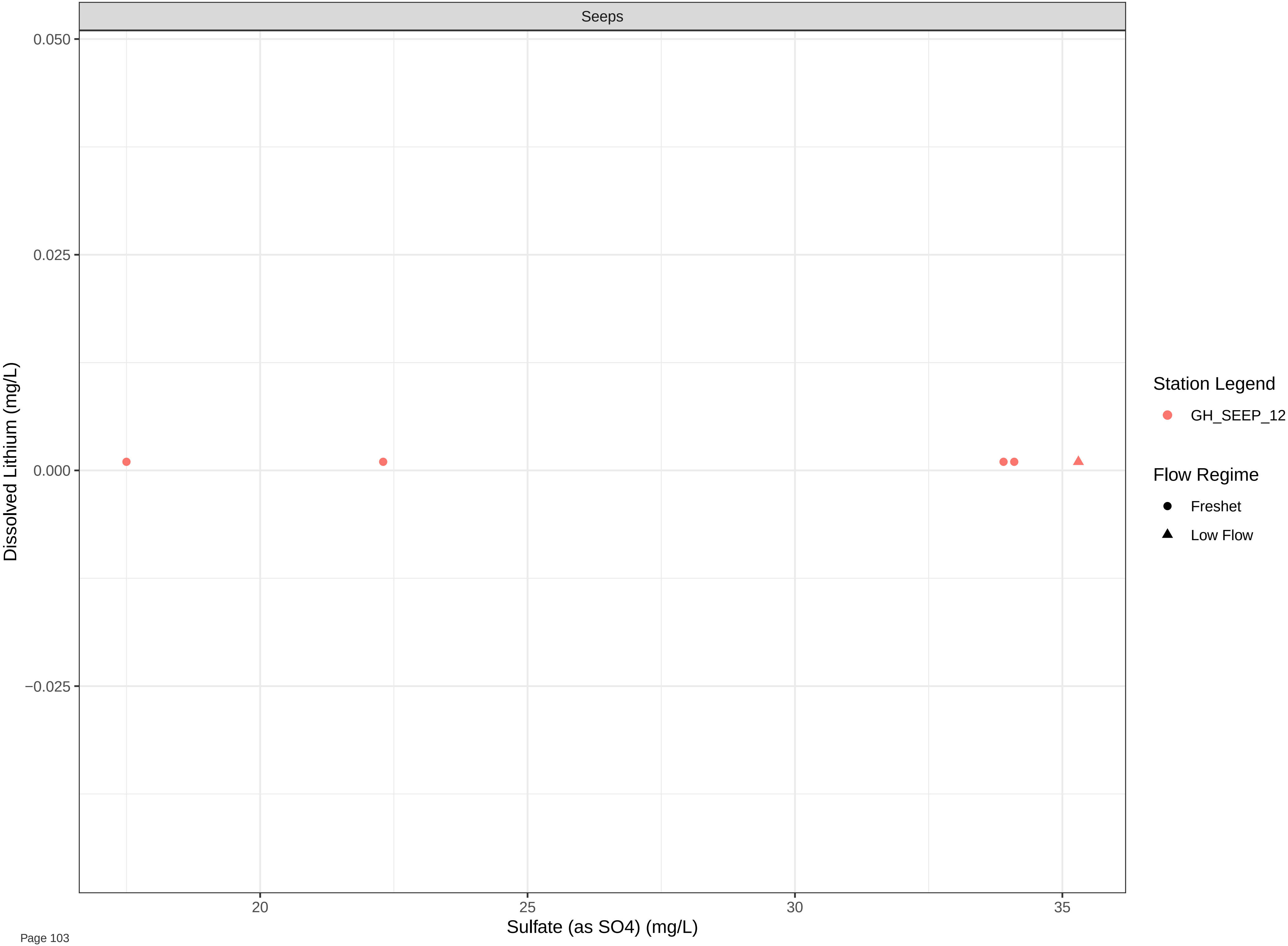

Comparison Point
Seeps
Dissolved Lead (mg/L)
0.000150
0.000125
0.000100
0.000075
0.000050
Sulfate (as SO4) (mg/L)
600
900
1200
1500
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

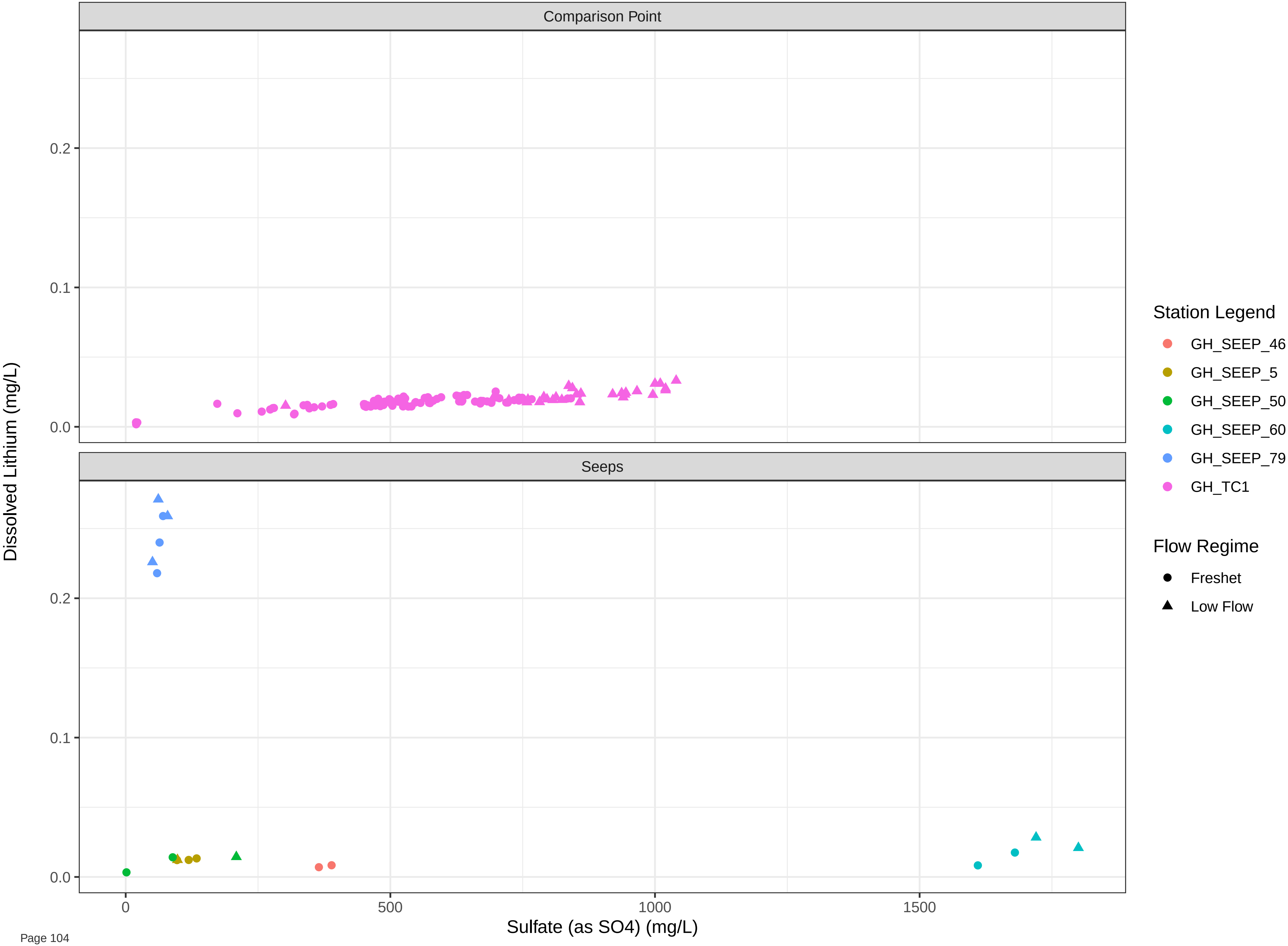

Comparison Point
Seeps
Dissolved Lithium (mg/L)
0.06
0.04
0.02
0.06
0.04
0.02
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

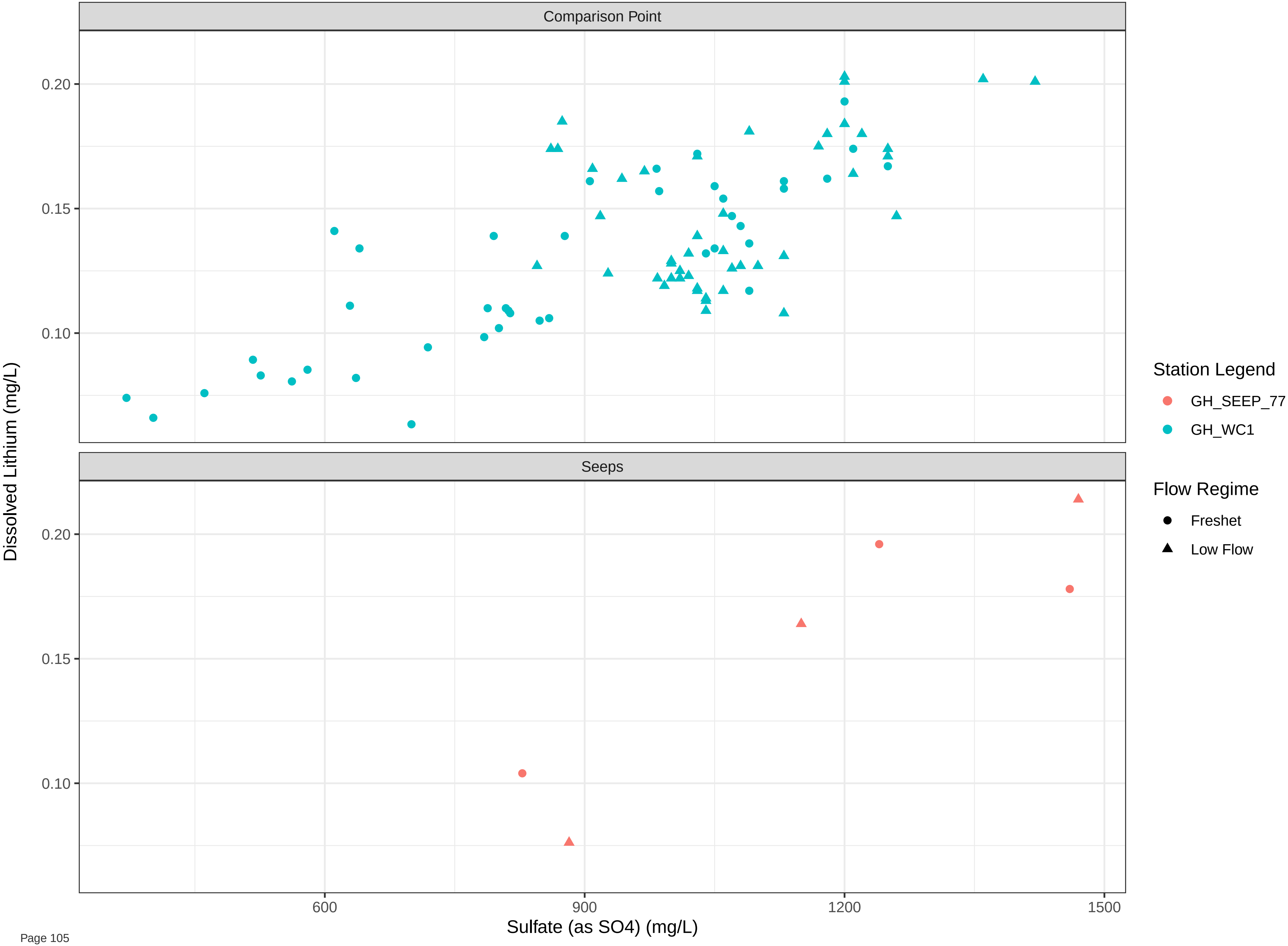

Comparison Point
Seeps
Dissolved Lithium (mg/L)
0.06
0.04
0.02
0.06
0.04
0.02
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow

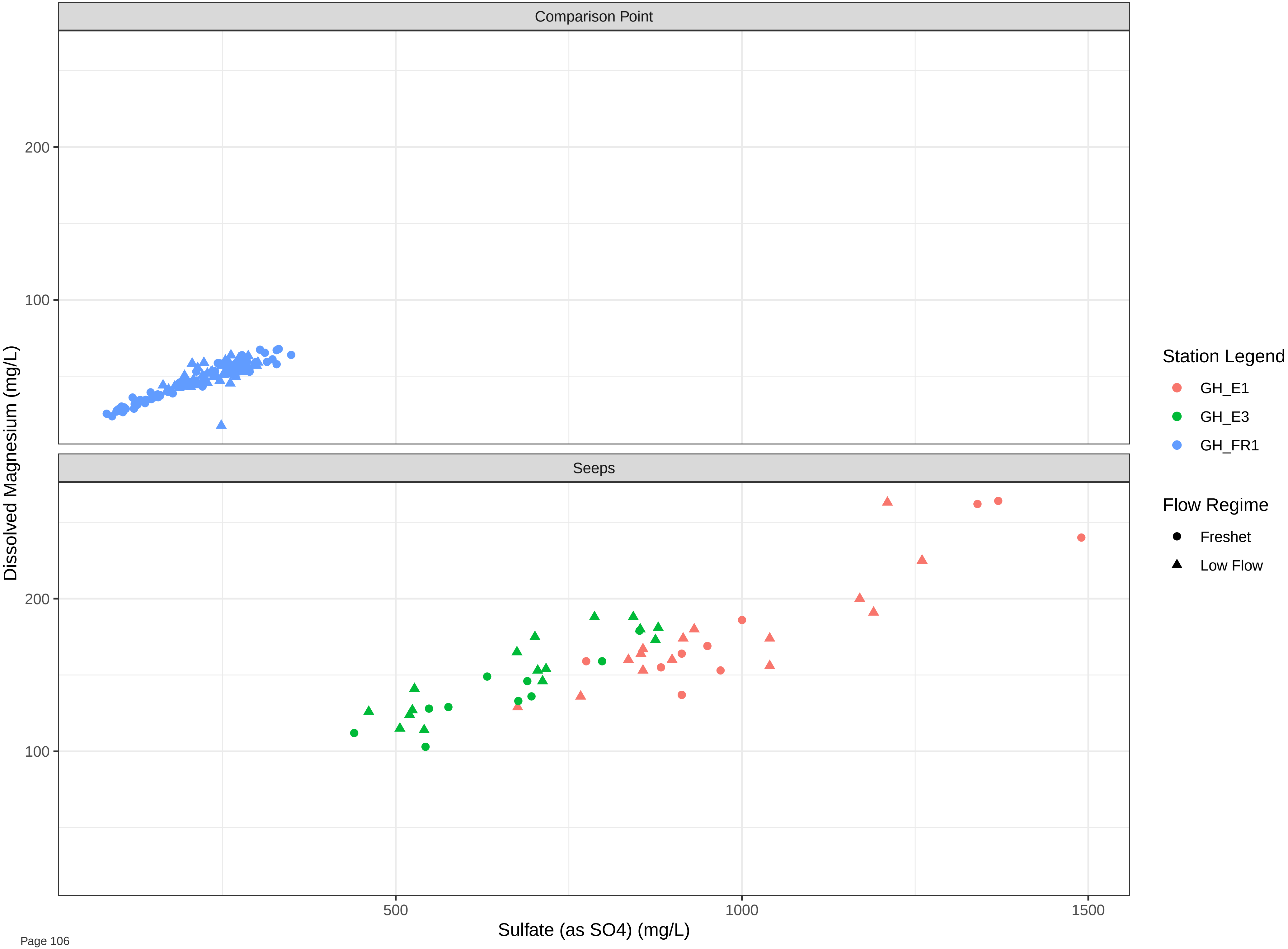

Comparison Point
Seeps
Dissolved Lithium (mg/L)
0.125
0.100
0.075
0.050
0.025
0.000
0
200
400
600
Sulfate (as SO4) (mg/L)
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow

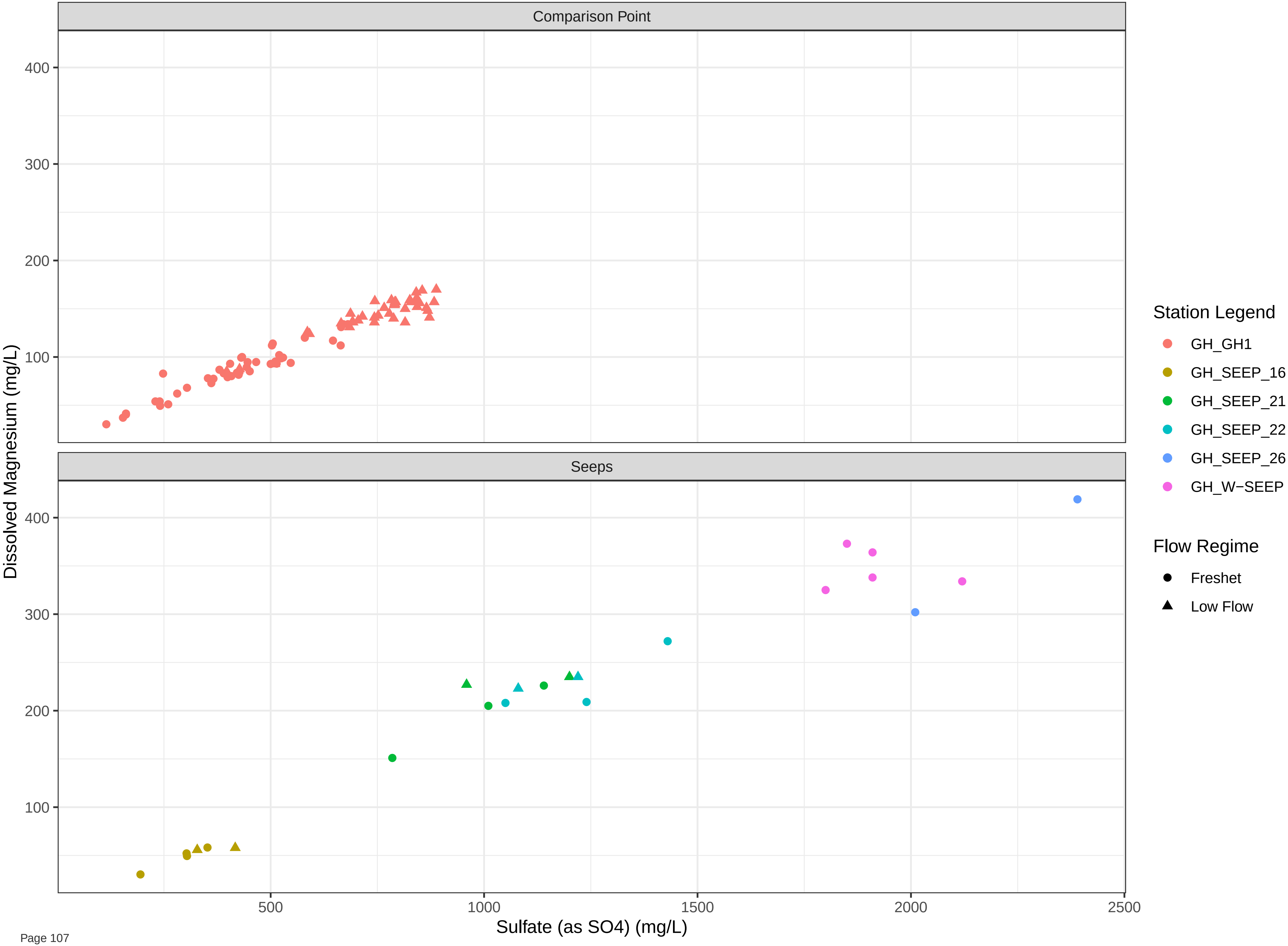

Comparison Point
Seeps
Dissolved Lithium (mg/L)
0.00
0.05
0.10
0.15
0.20
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
Freshet
Low Flow

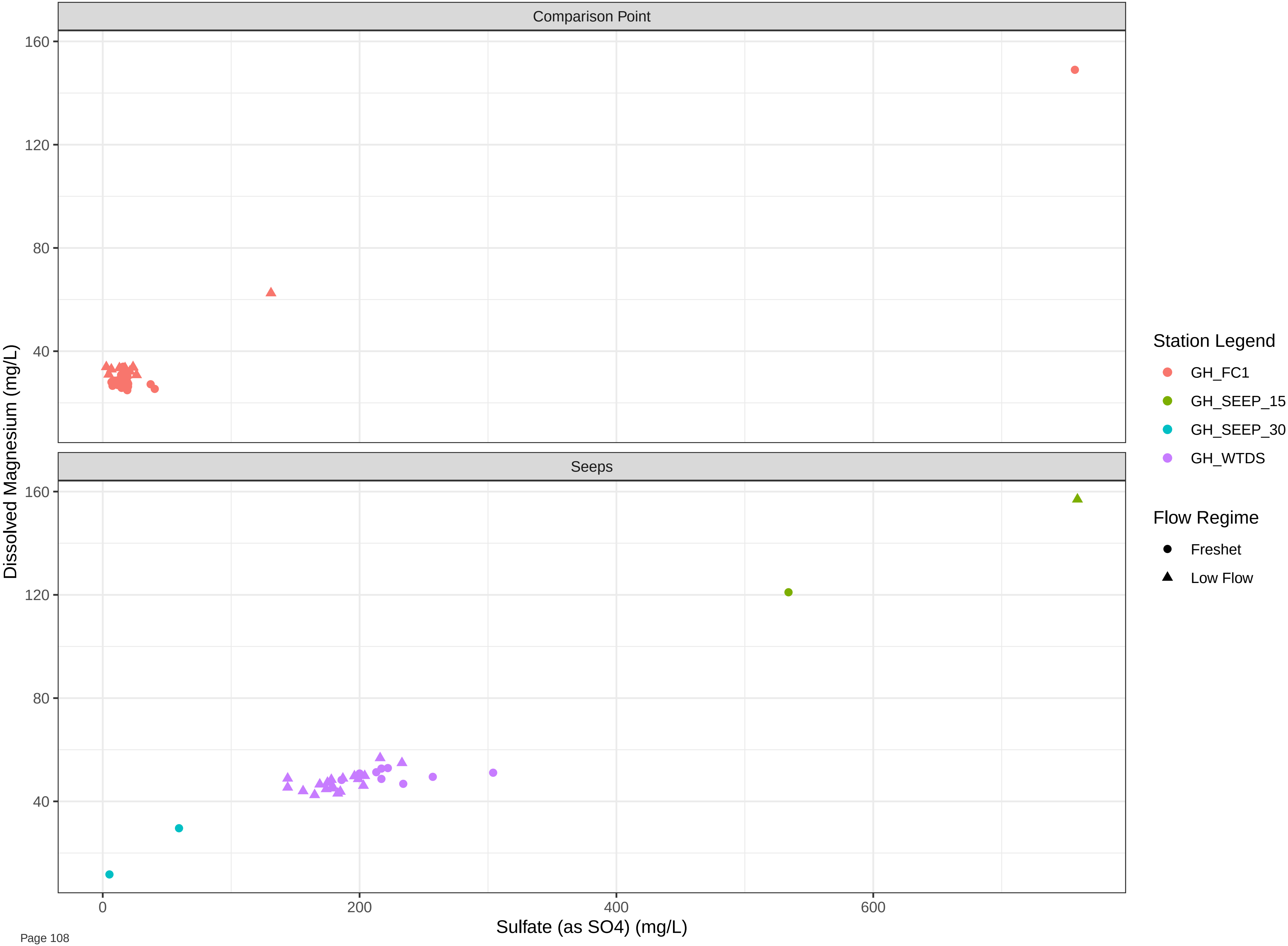

Seeps
Dissolved Lithium (mg/L)
0.050
0.025
0.000
−0.025
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

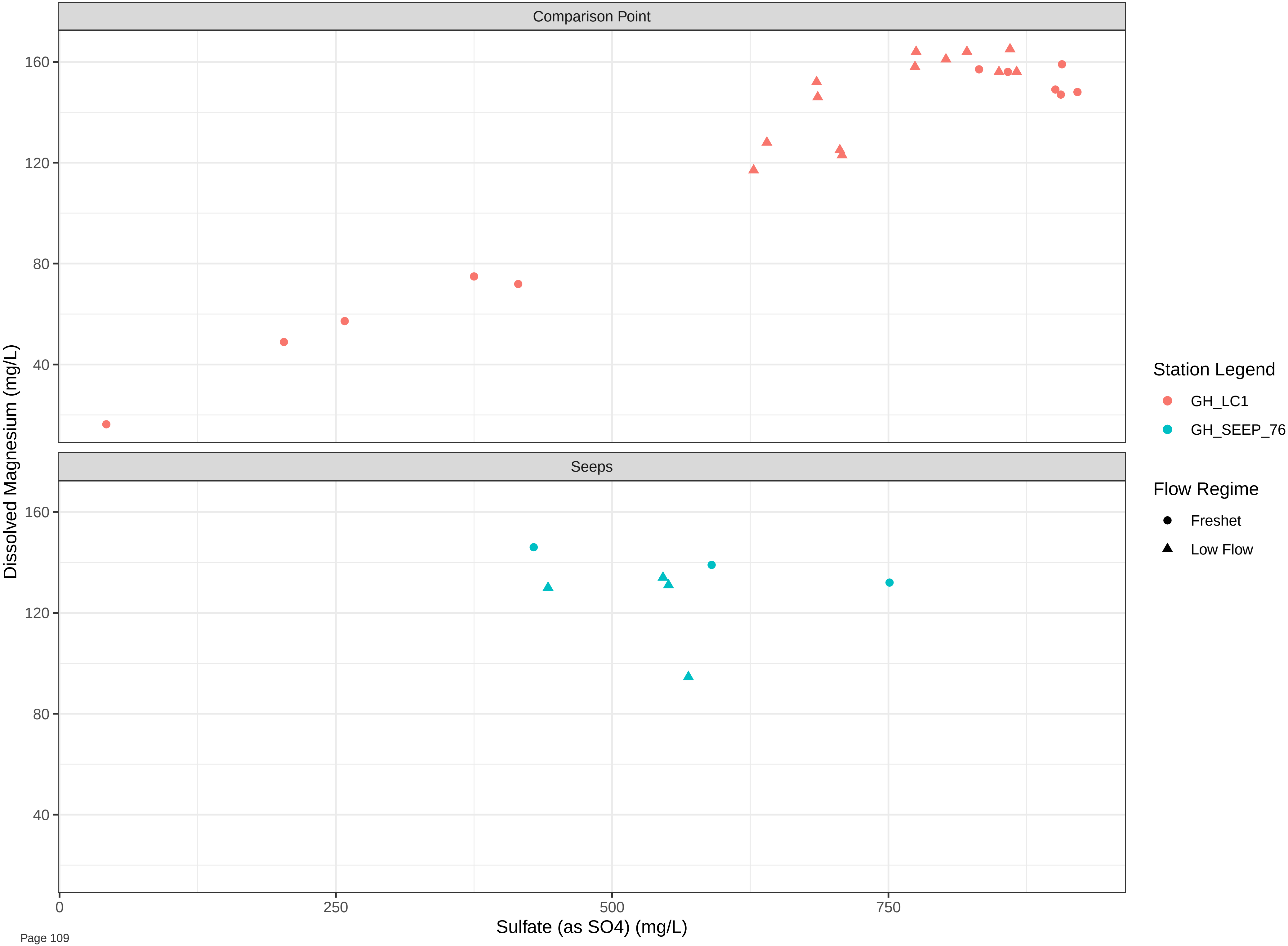

Comparison Point
Seeps
Dissolved Lithium (mg/L)
0.0
0.1
0.2
0.0
0.1
0.2
0
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

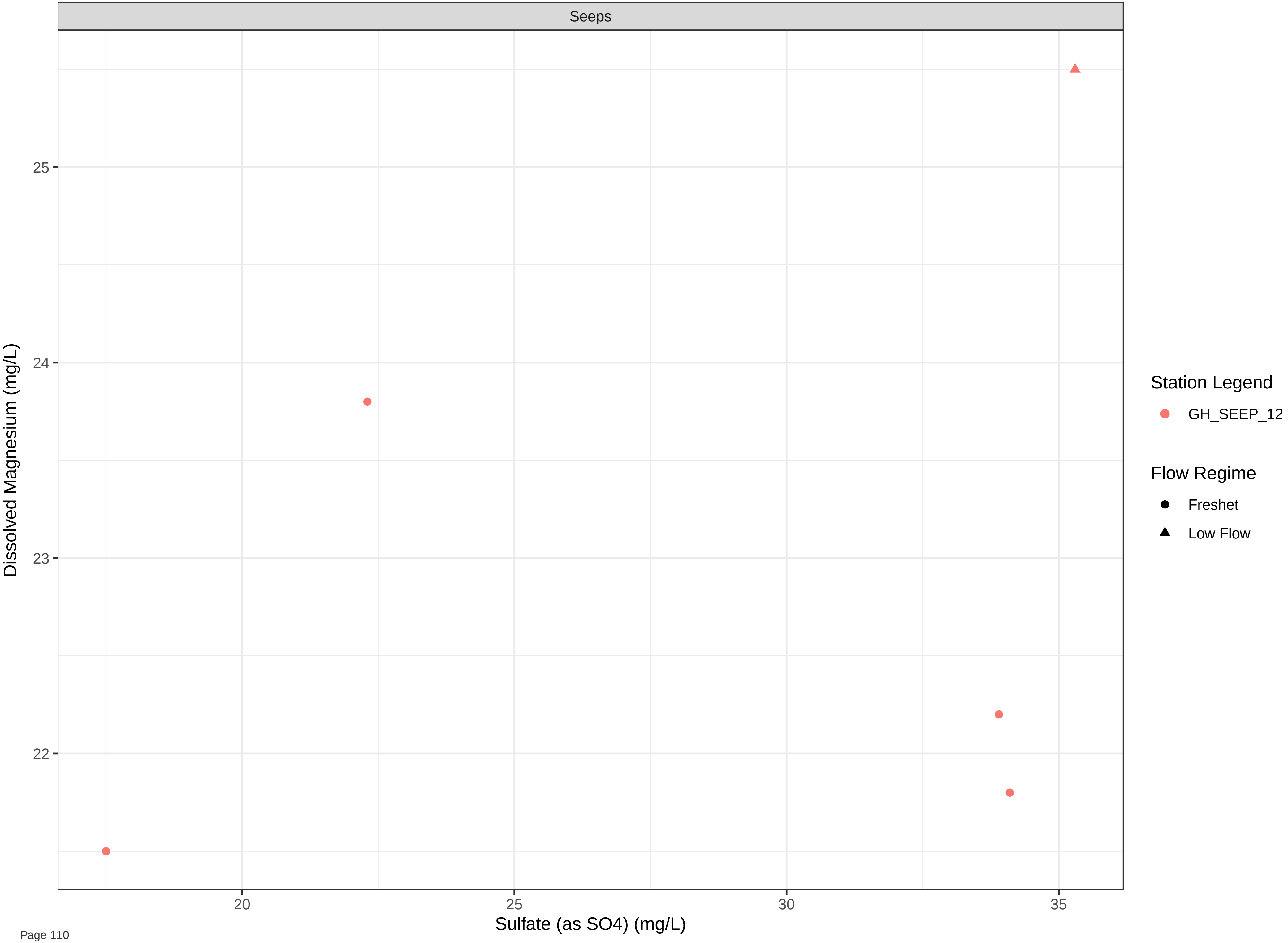

Comparison Point
Seeps
Dissolved Lithium (mg/L)
0.20
0.15
0.10
600
900
1200
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

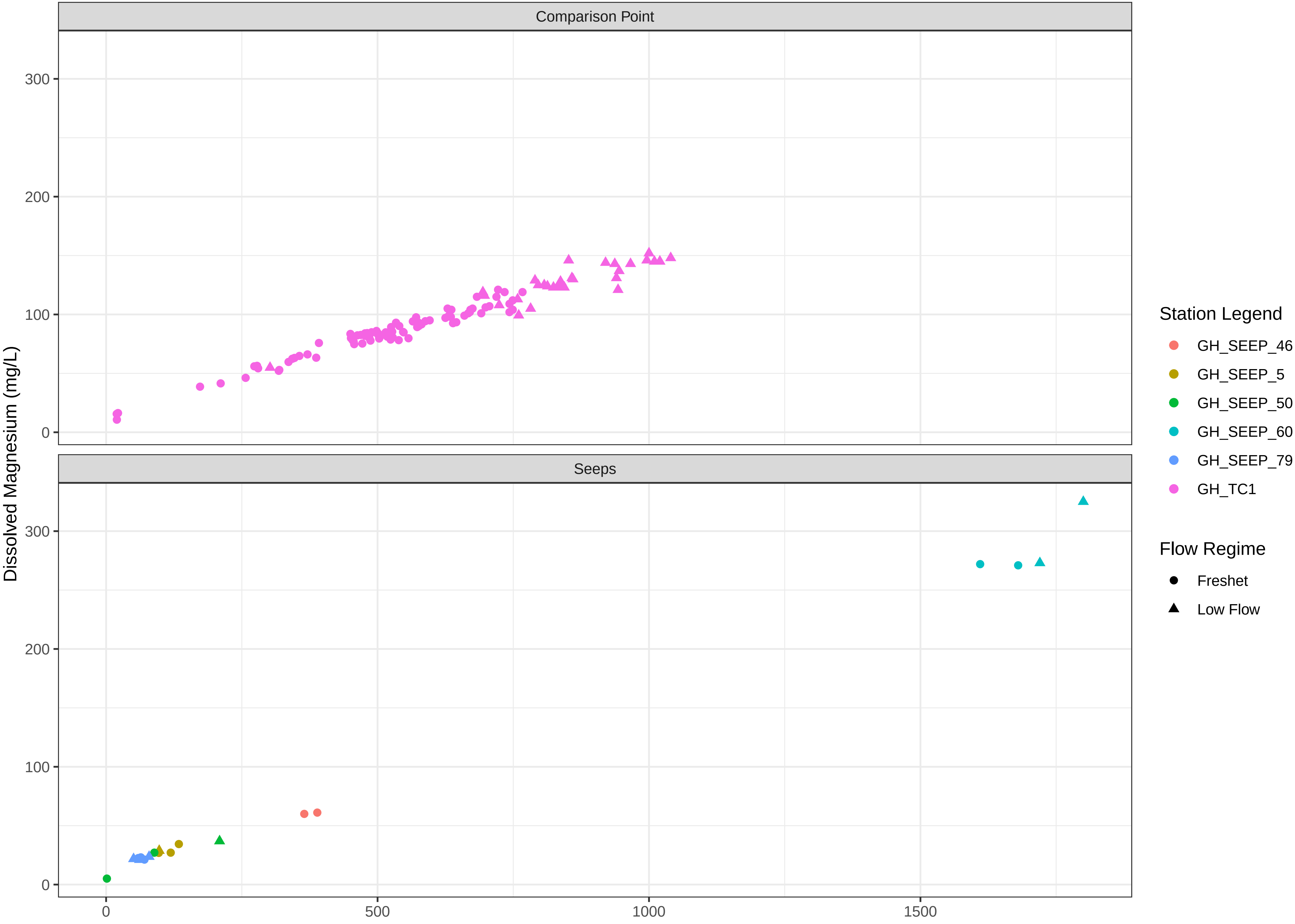

Comparison Point
Seeps
Dissolved Magnesium (mg/L)
200
100
200
100
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

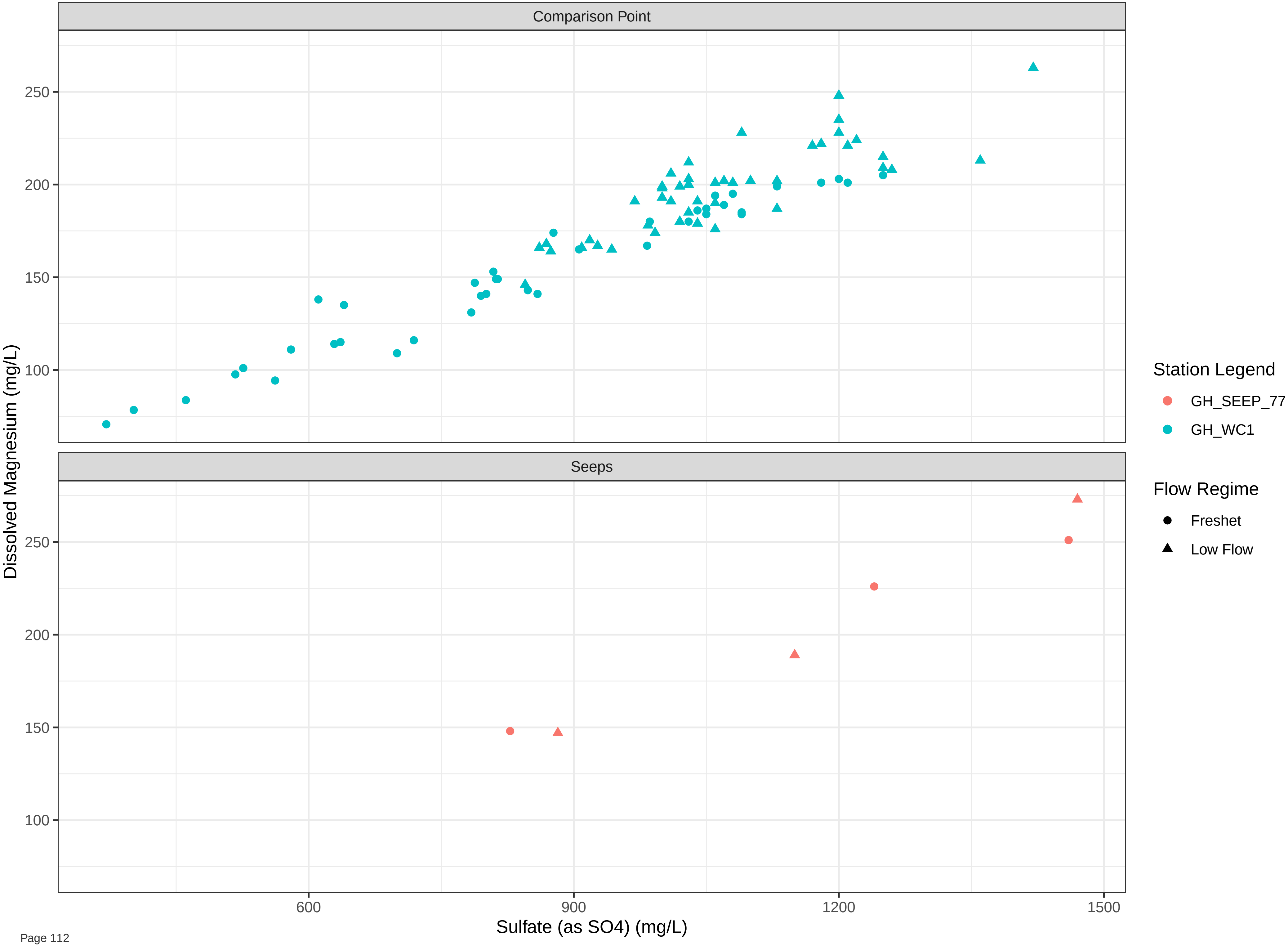

Comparison Point
Seeps
Dissolved Magnesium (mg/L)
400
300
200
100
Sulfate (as SO4) (mg/L)
500
1000
1500
2000
2500
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow

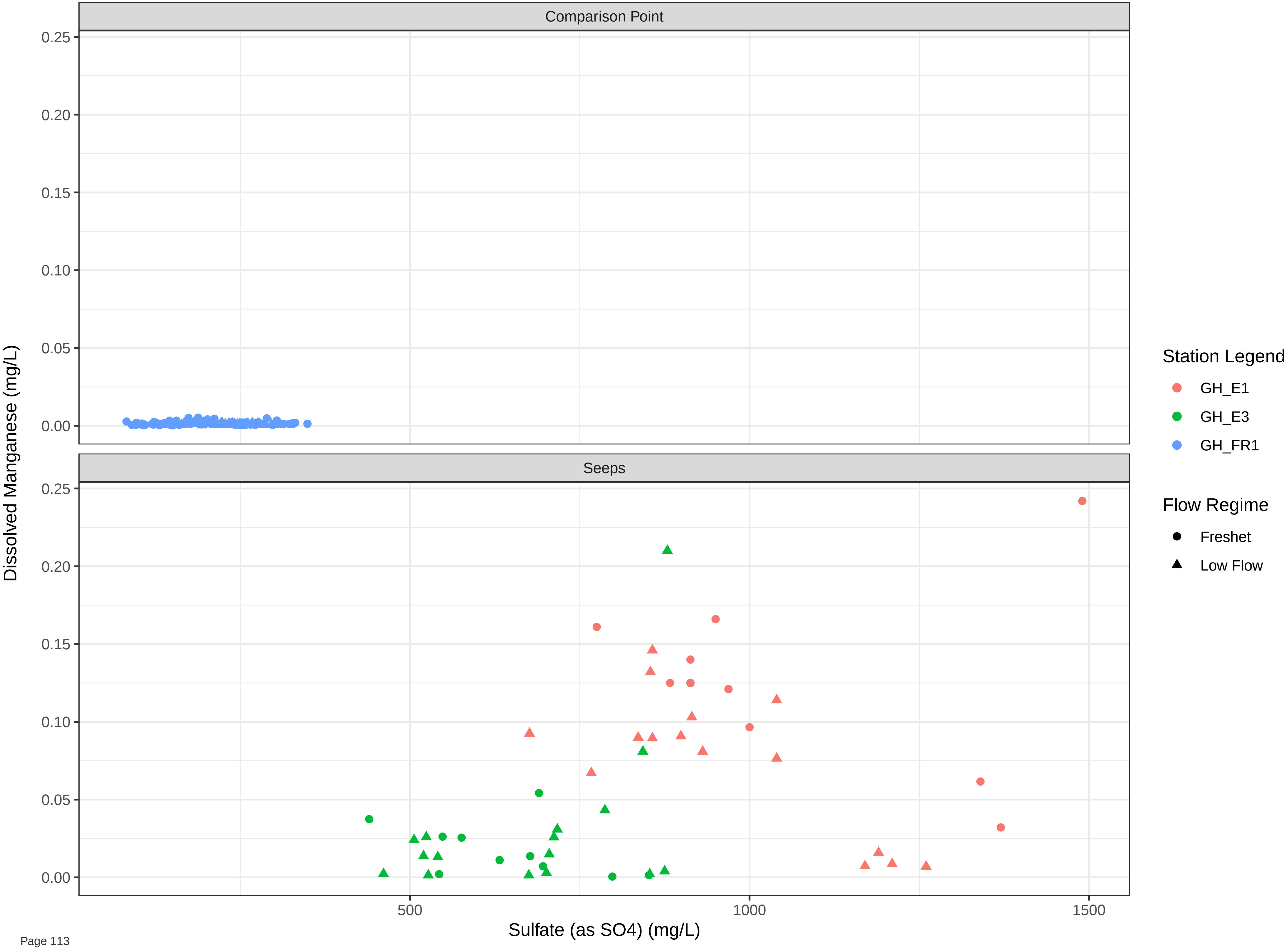

Comparison Point
Seeps
Dissolved Magnesium (mg/L)
160
120
80
40
0
200
400
600
Sulfate (as SO4) (mg/L)
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow

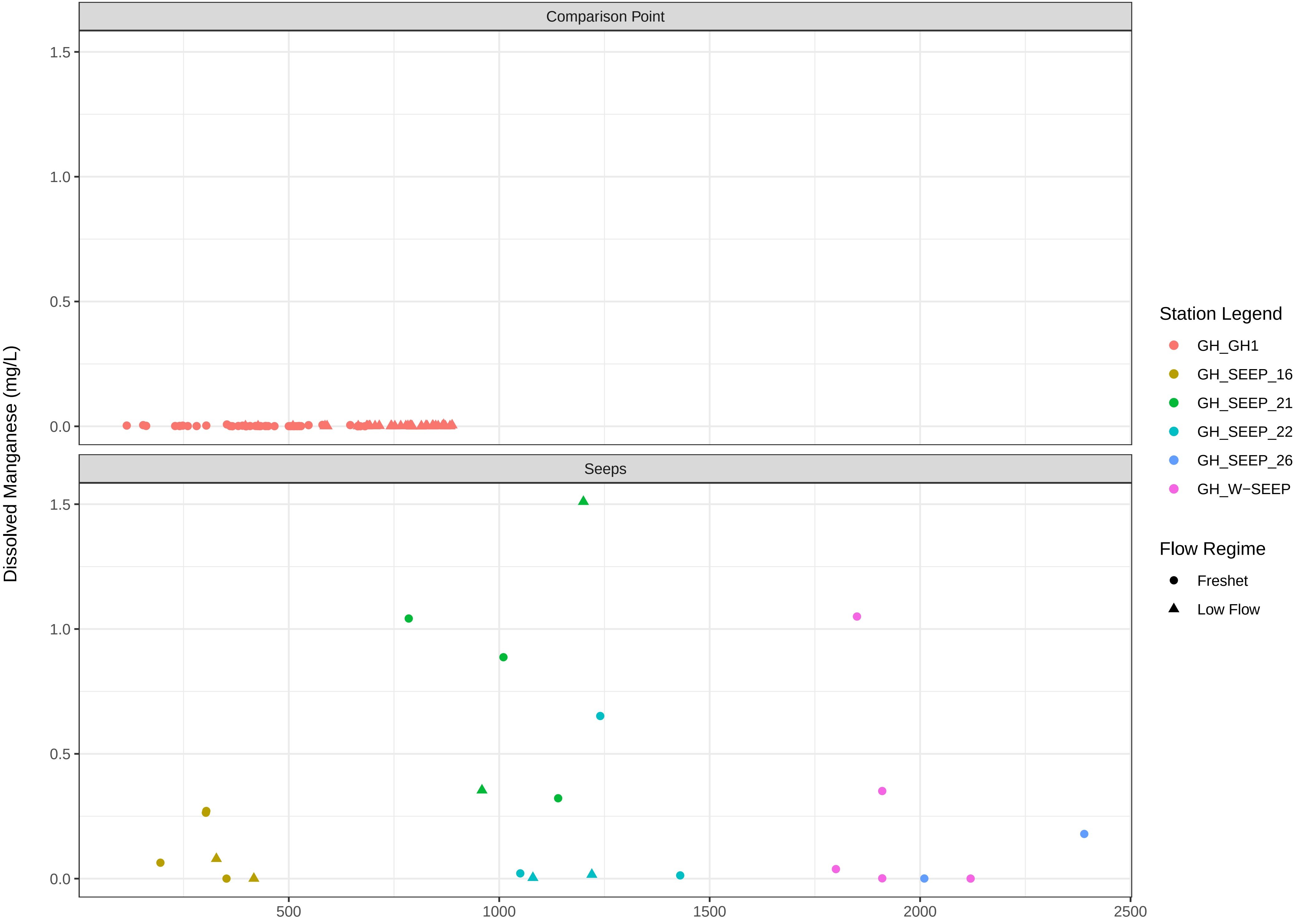

Comparison Point
Seeps
Dissolved Magnesium (mg/L)
160
120
80
40
160
120
80
40
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
Freshet
Low Flow

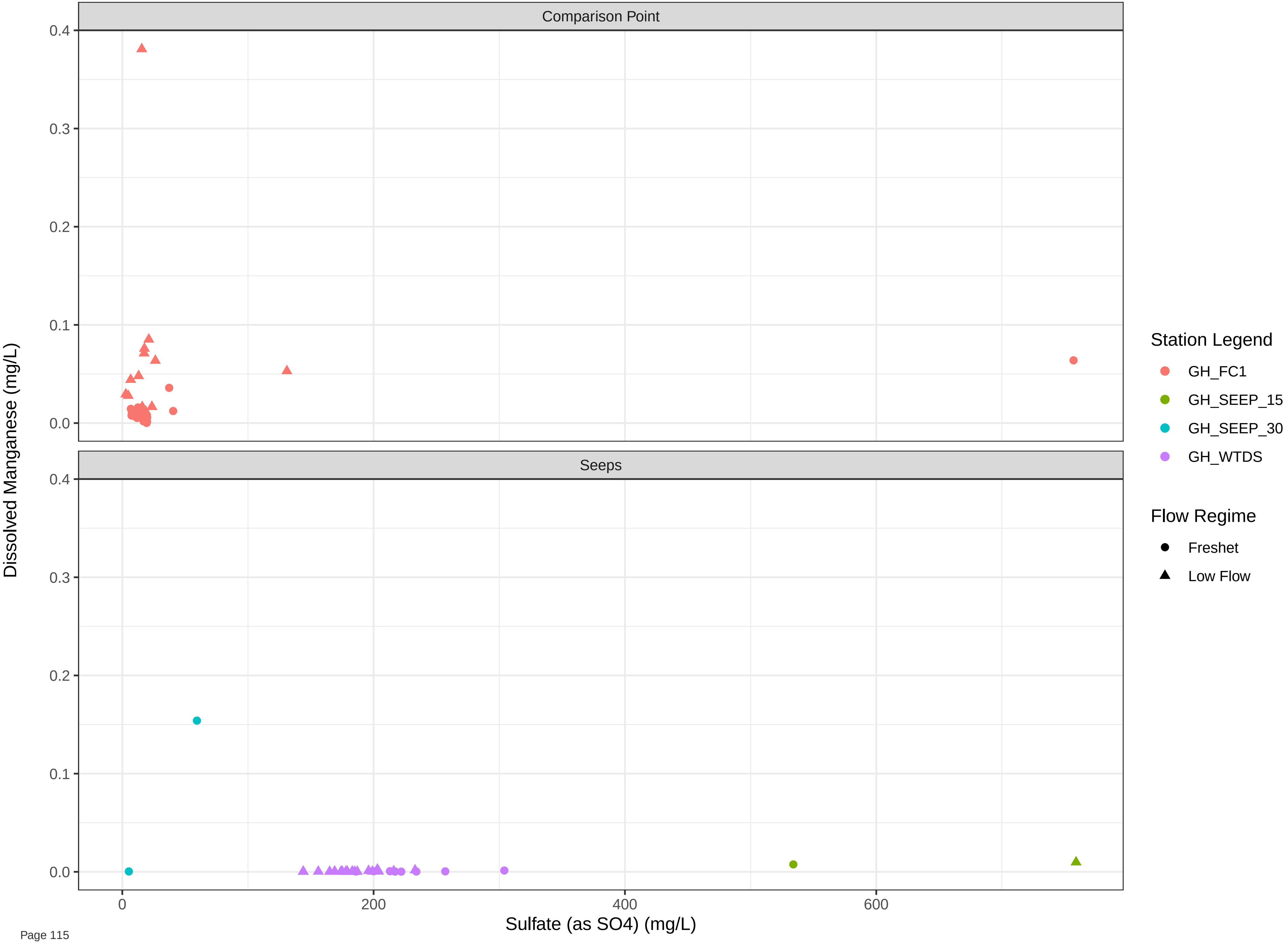

Seeps
Dissolved Magnesium (mg/L)
25
24
23
22
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

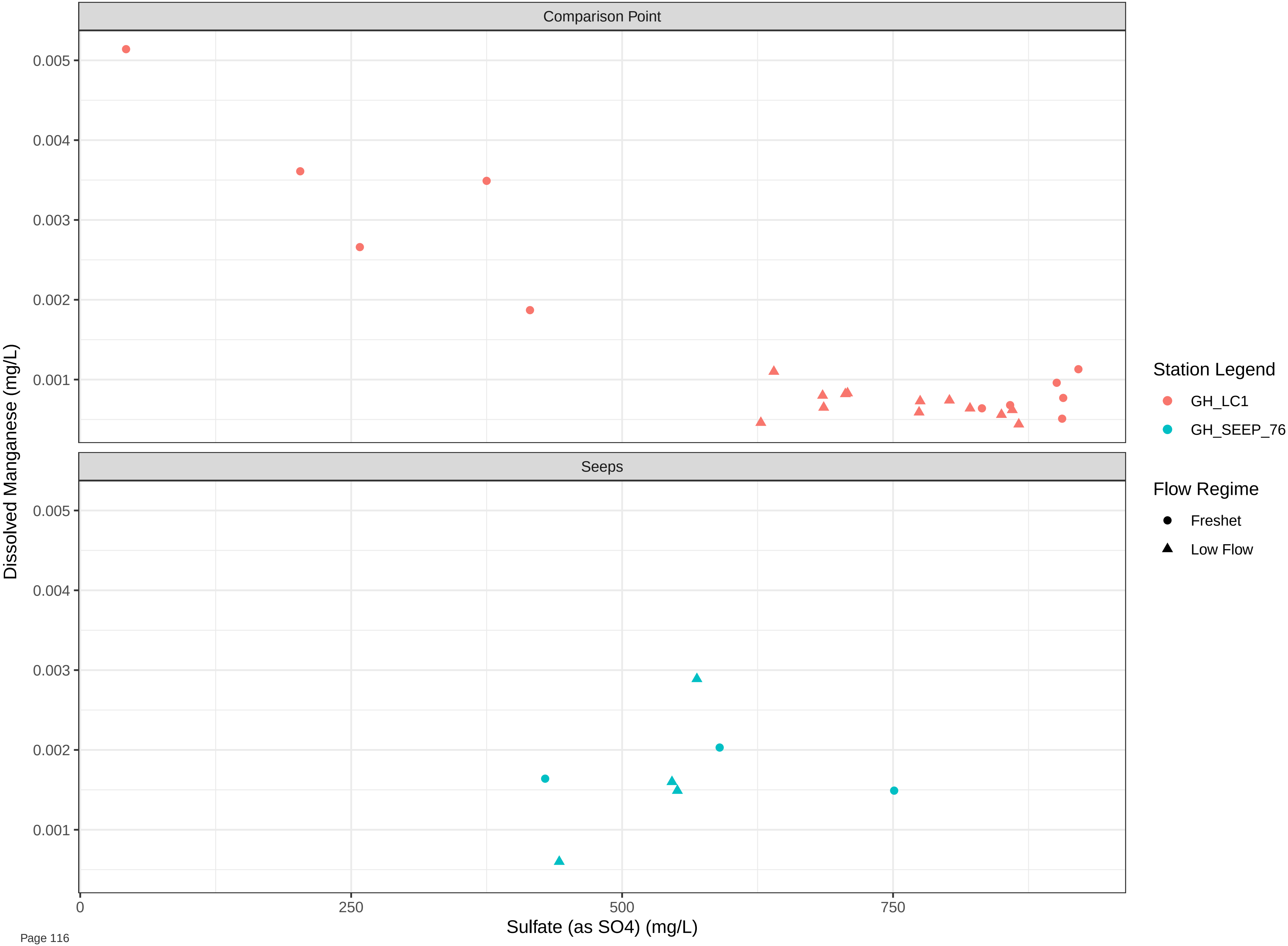

Comparison Point
Seeps
Dissolved Magnesium (mg/L)
0
100
200
300
0
100
200
300
0
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

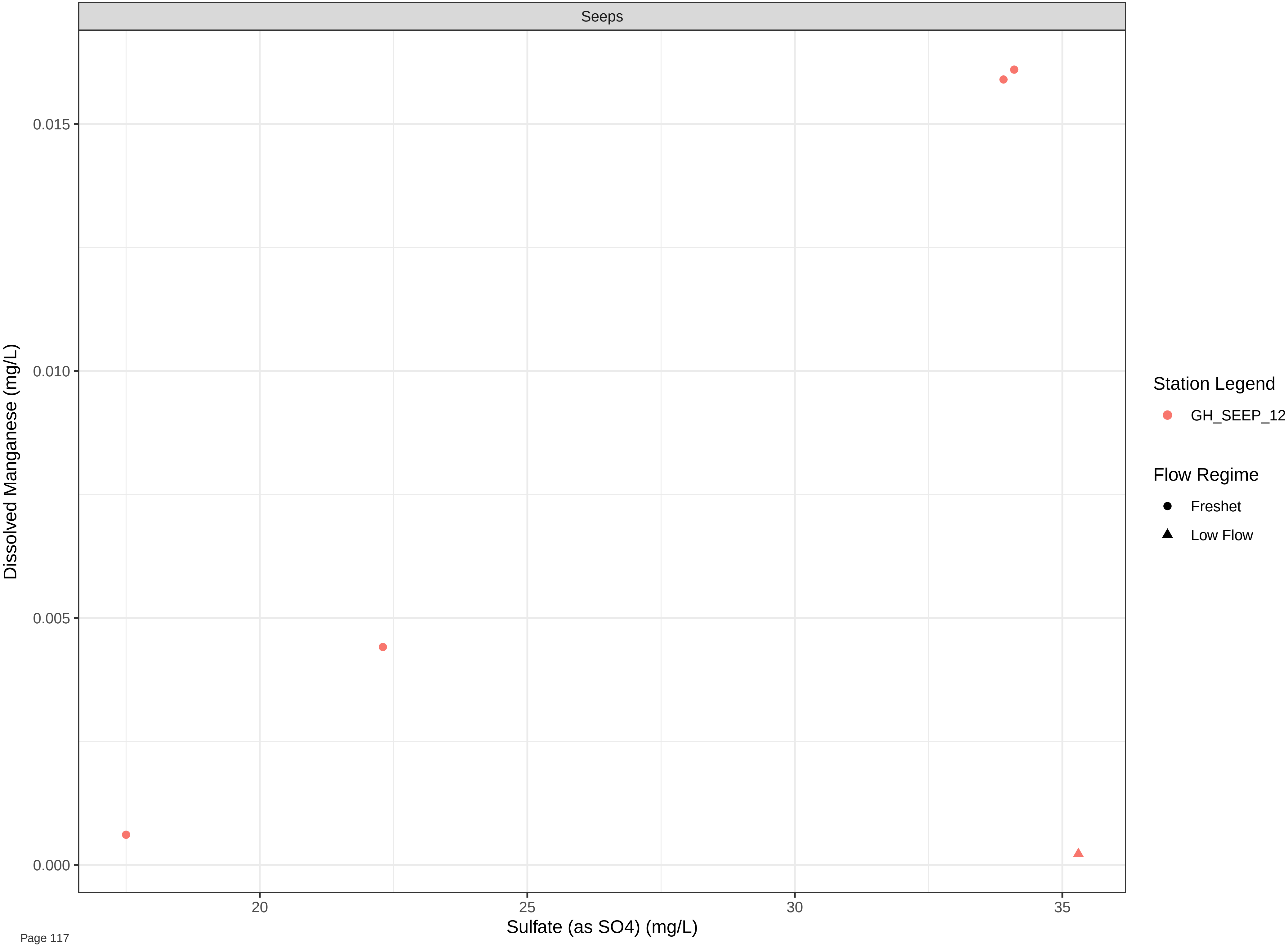

Comparison Point
Seeps
Dissolved Magnesium (mg/L)
250
200
150
100
600
900
1200
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

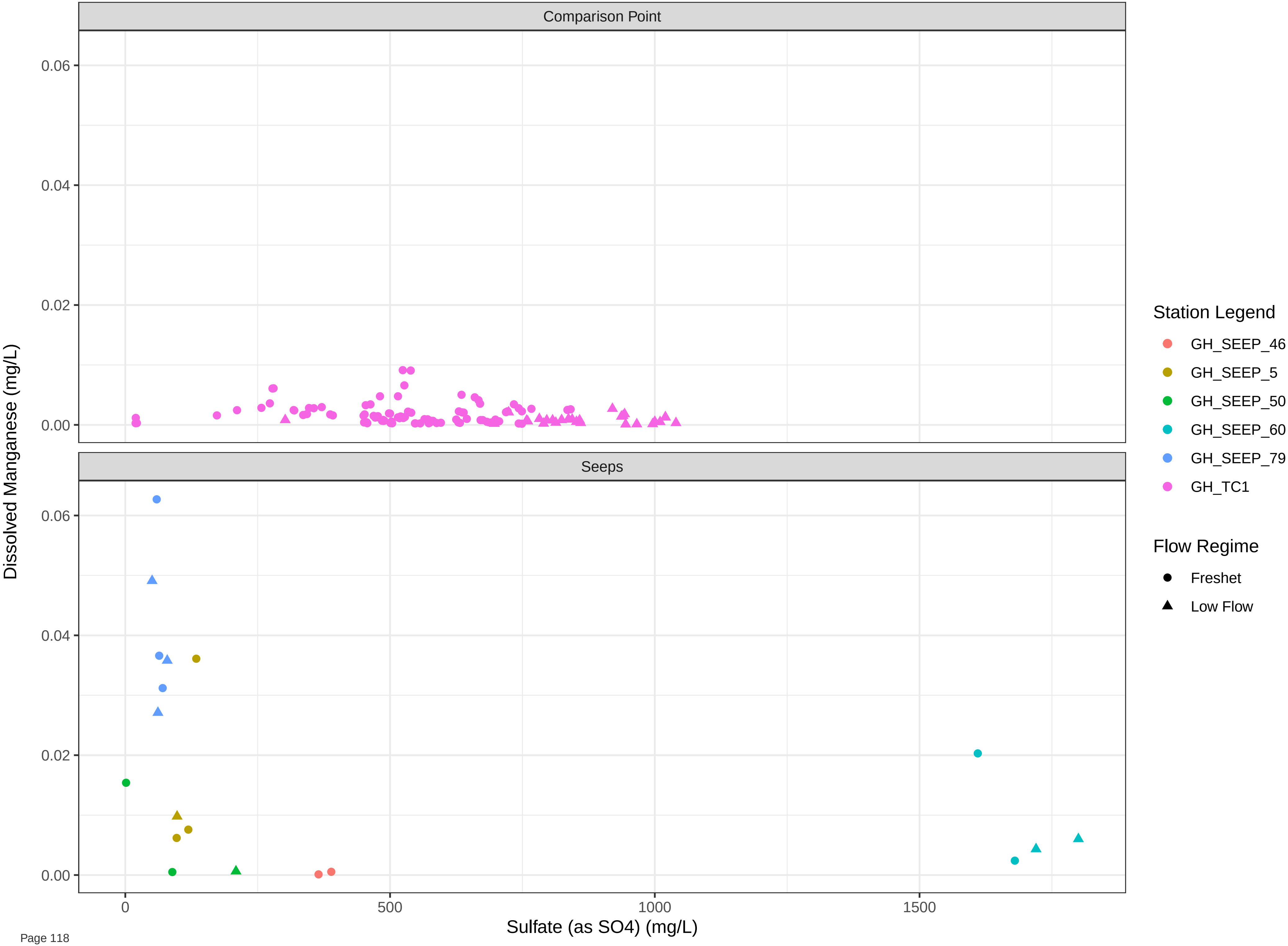

Comparison Point
Seeps
Dissolved Manganese (mg/L)
0.25
0.20
0.15
0.10
0.05
0.00
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
● GH_E1
● GH_E3
● GH_FR1
Flow Regime
● Freshet
▲ Low Flow

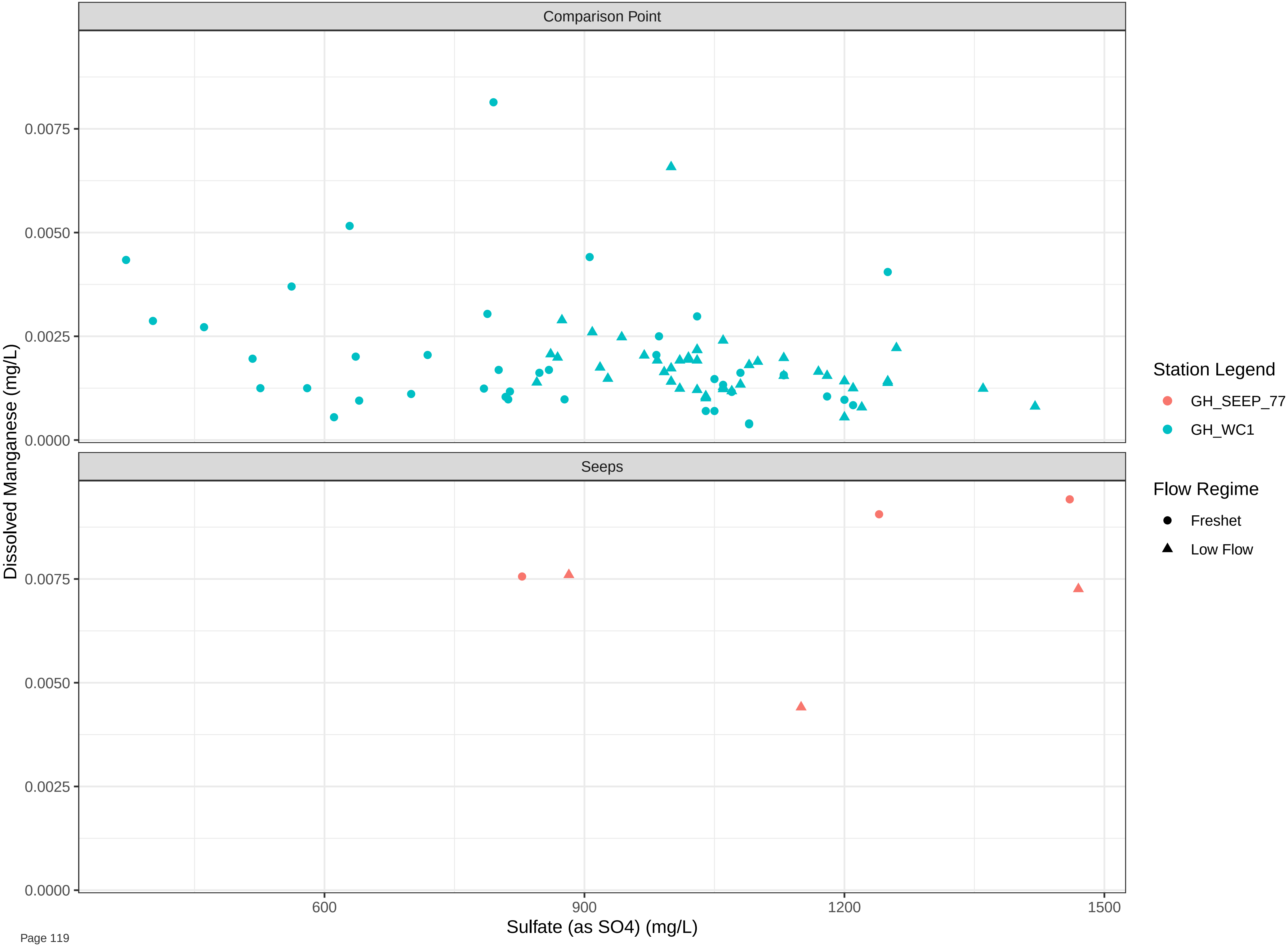

Comparison Point
Seeps
Dissolved Manganese (mg/L)
0.0
0.5
1.0
1.5
Sulfate (as SO4) (mg/L)
500
1000
1500
2000
2500
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow

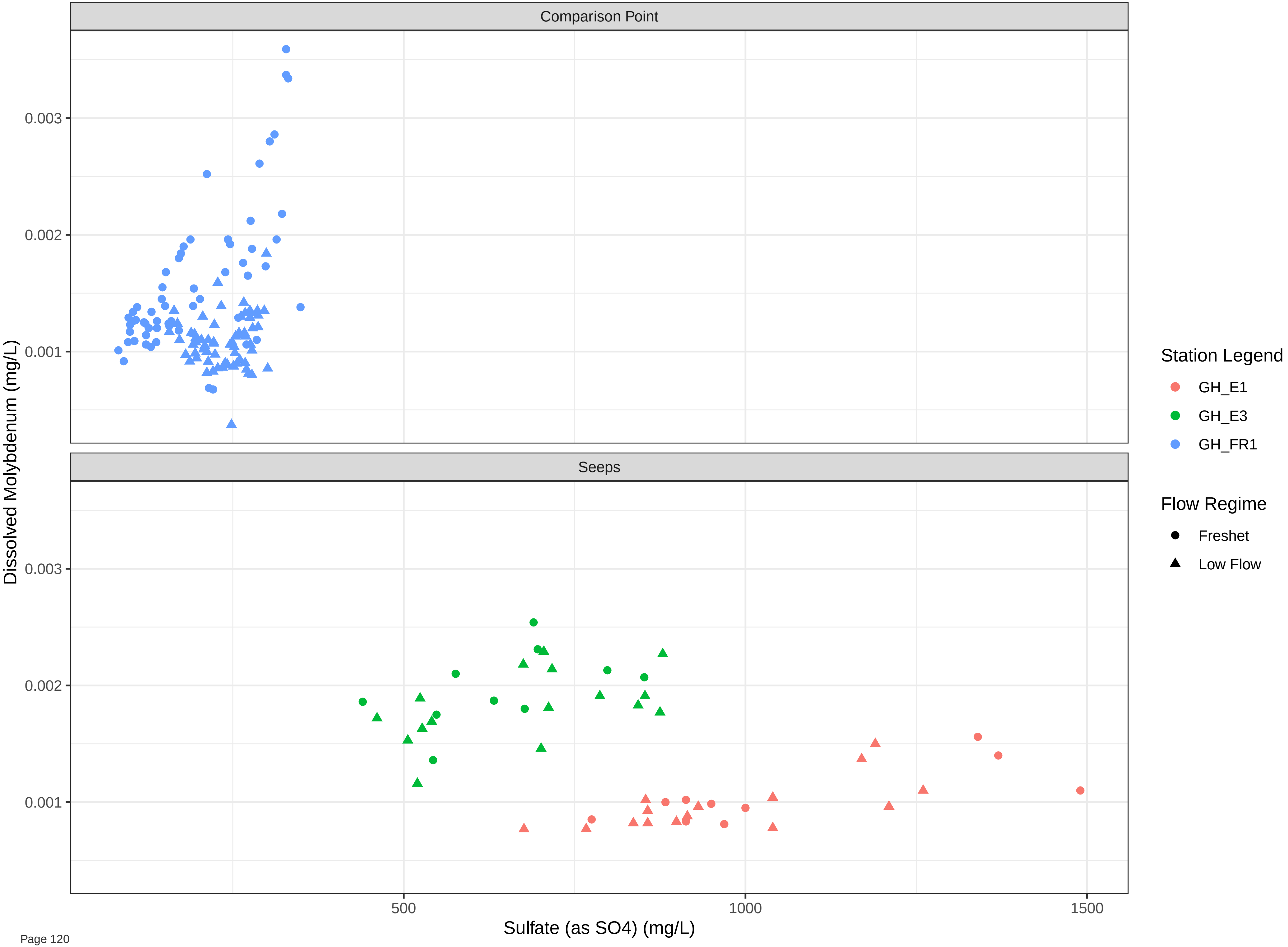

Comparison Point
Seeps
Dissolved Manganese (mg/L)
0.4
0.3
0.2
0.1
0.0
Sulfate (as SO4) (mg/L)
0
200
400
600
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow

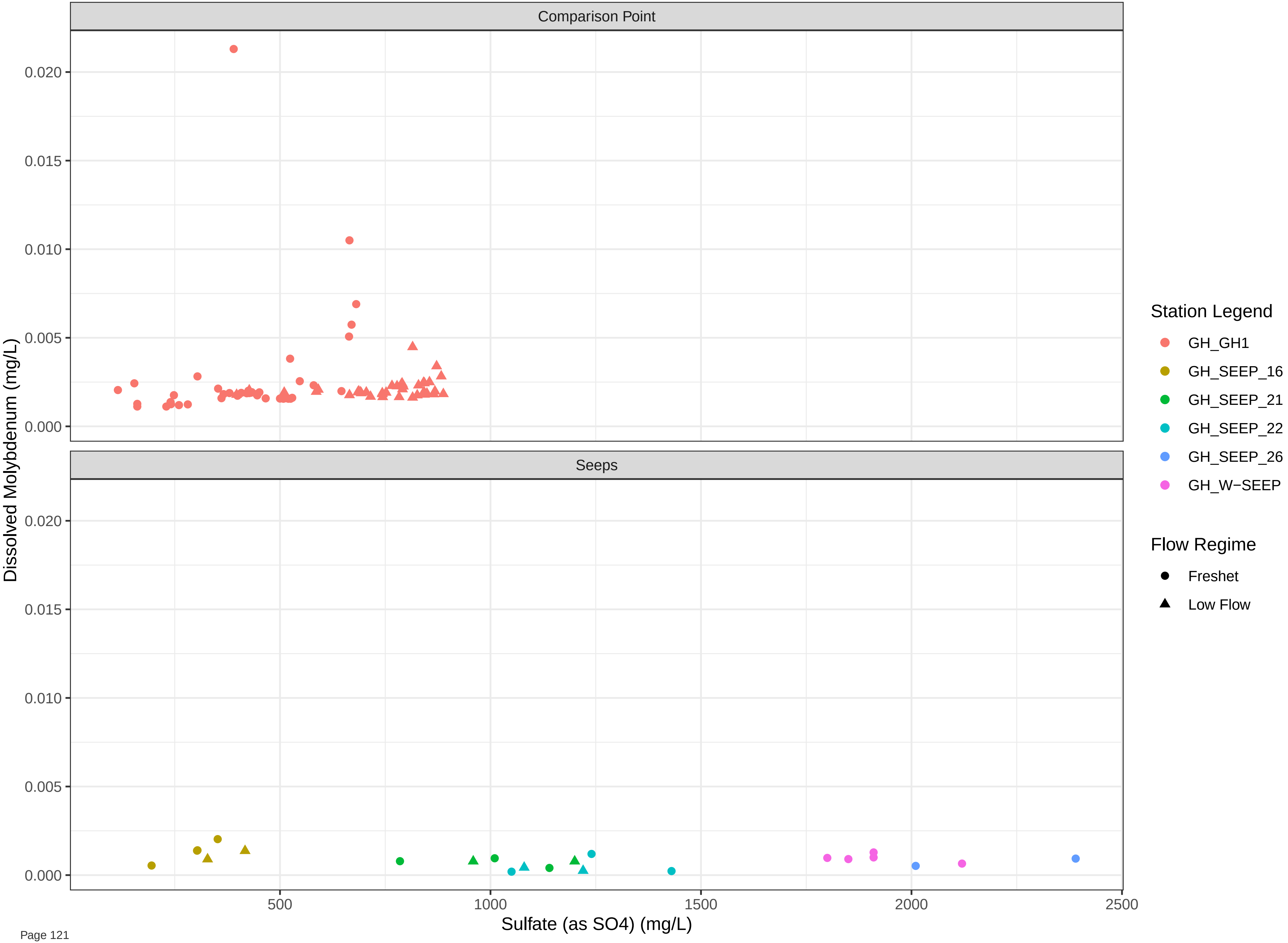

Comparison Point
Seeps
Dissolved Manganese (mg/L)
0.005
0.004
0.003
0.002
0.001
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
Freshet
Low Flow

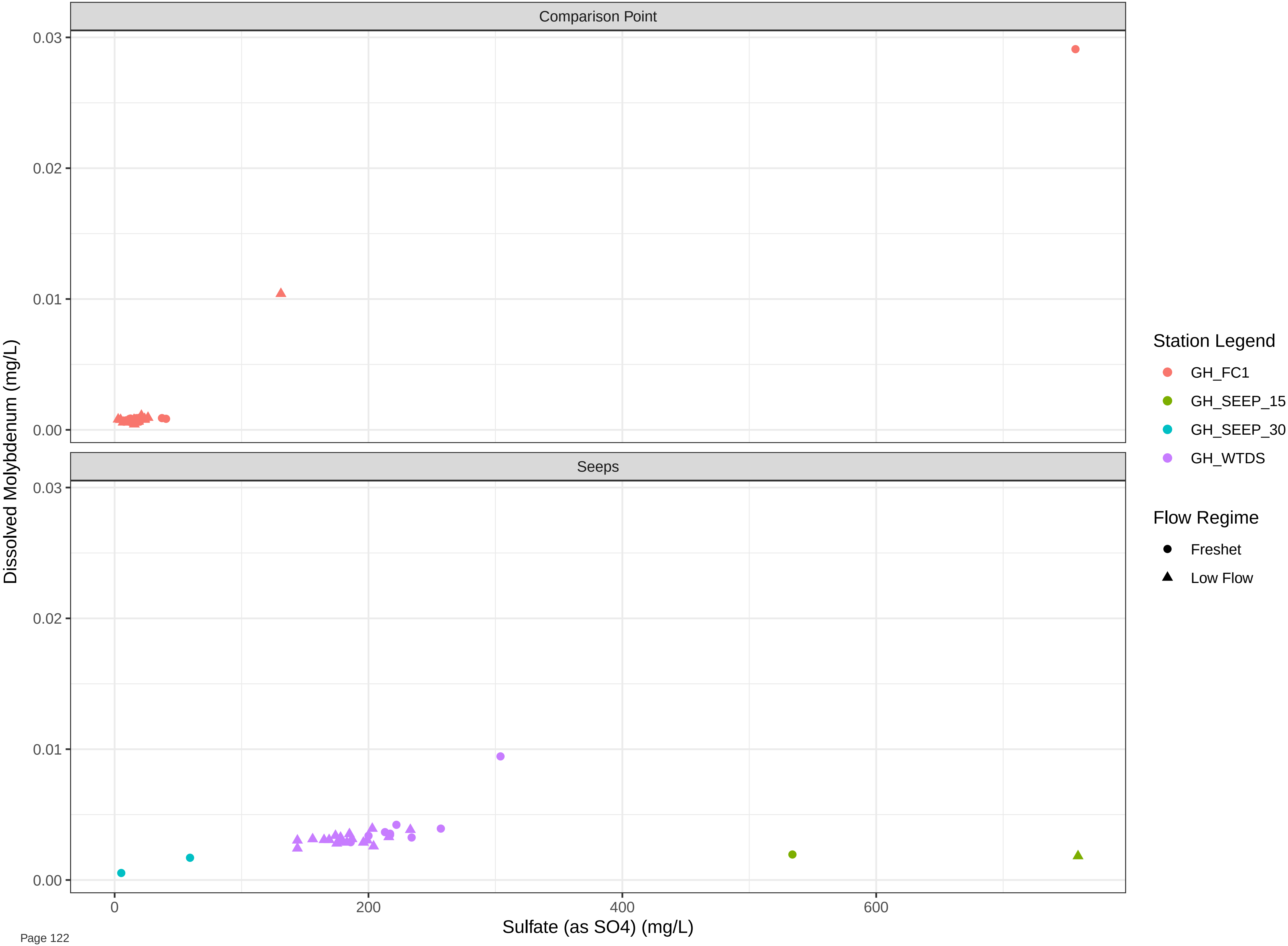

Seeps
0.015
0.010
0.005
0.000
20
25
30
35
Sulfate (as SO4) (mg/L)
Dissolved Manganese (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

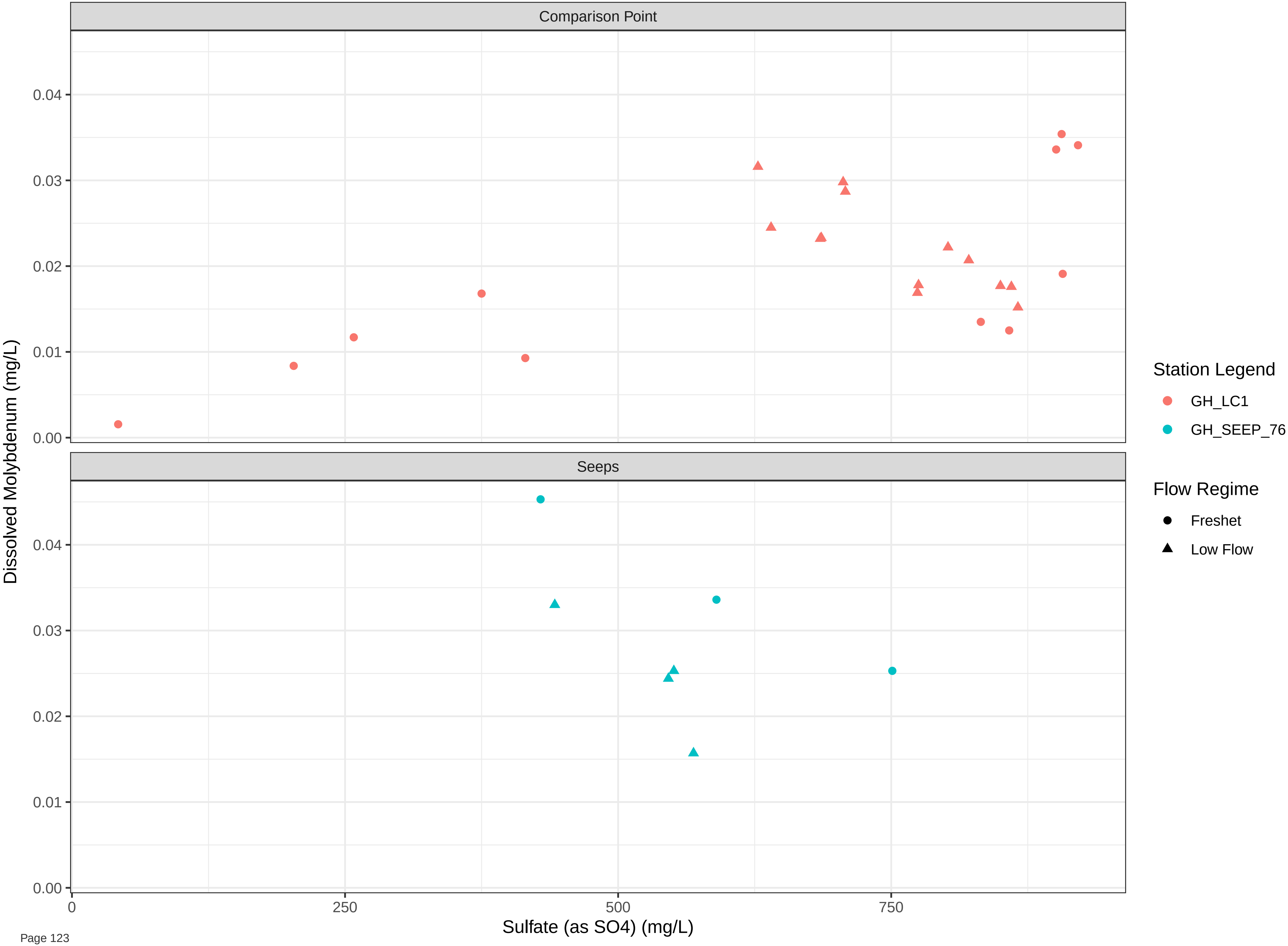

Comparison Point
Seeps
Dissolved Manganese (mg/L)
0.06
0.04
0.02
0.00
0
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

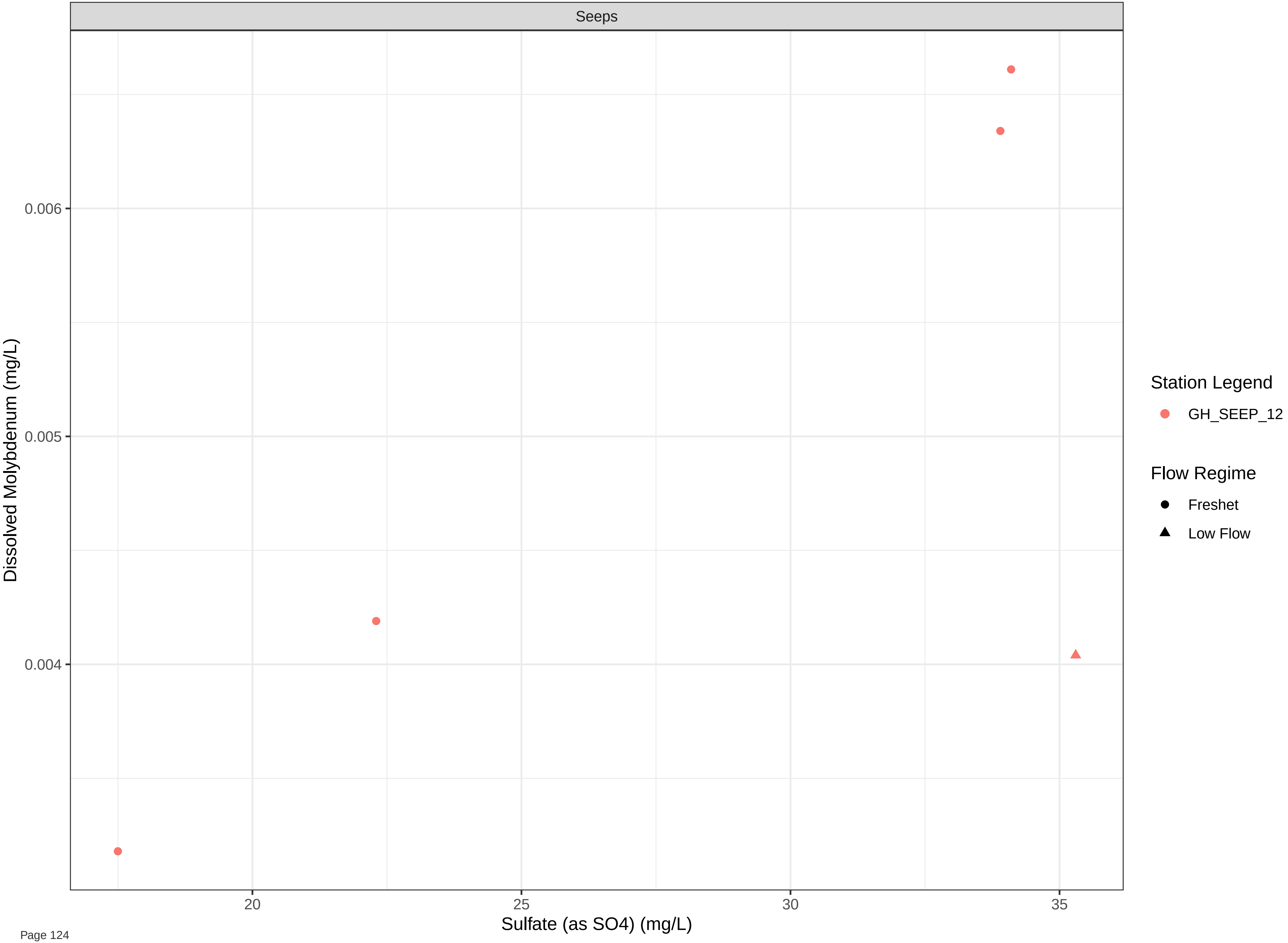

Comparison Point
Seeps
Dissolved Manganese (mg/L)
0.0000
0.0025
0.0050
0.0075
600
900
1200
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

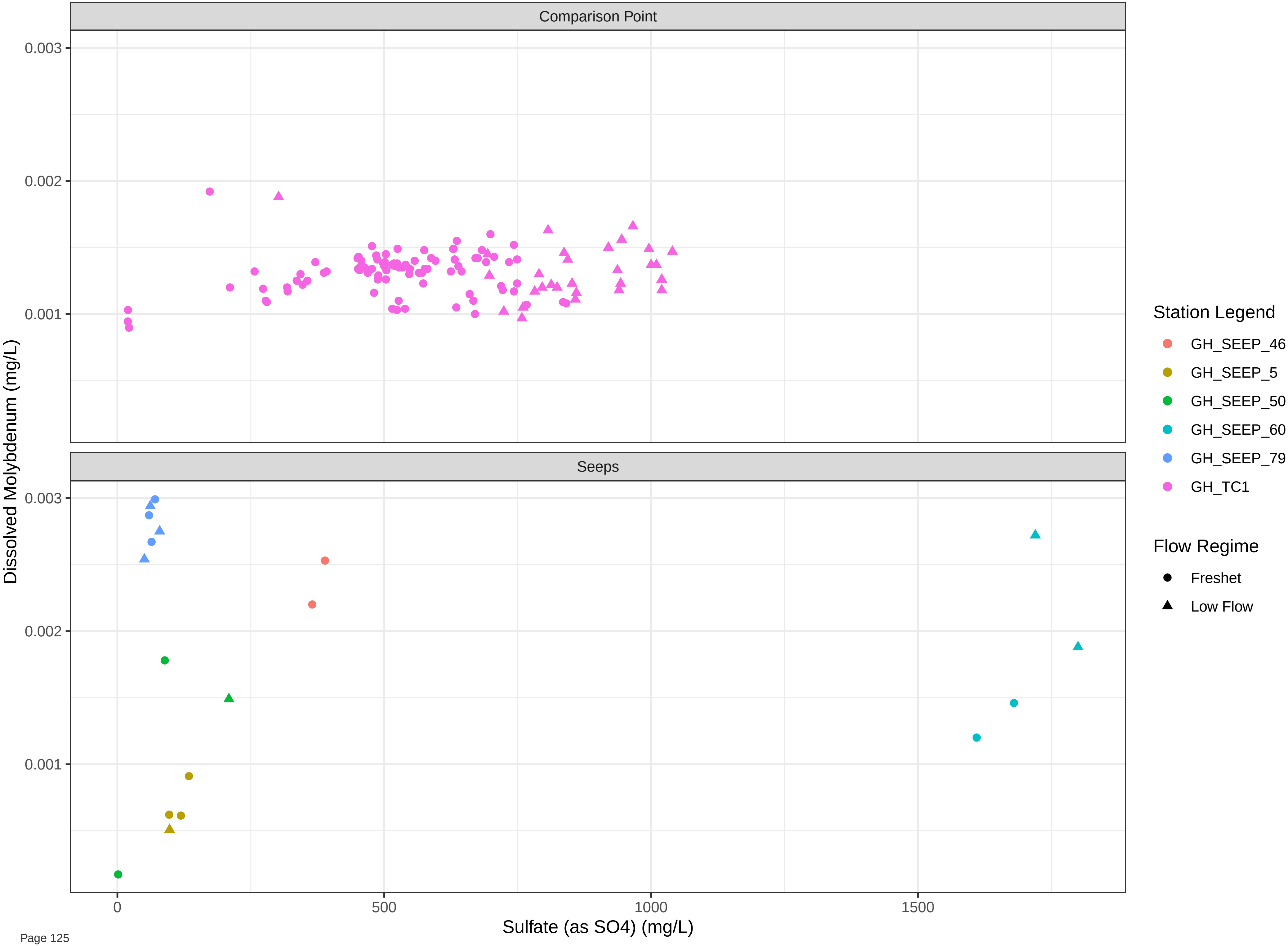

Comparison Point
Seeps
Dissolved Molybdenum (mg/L)
0.003
0.002
0.001
0.003
0.002
0.001
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

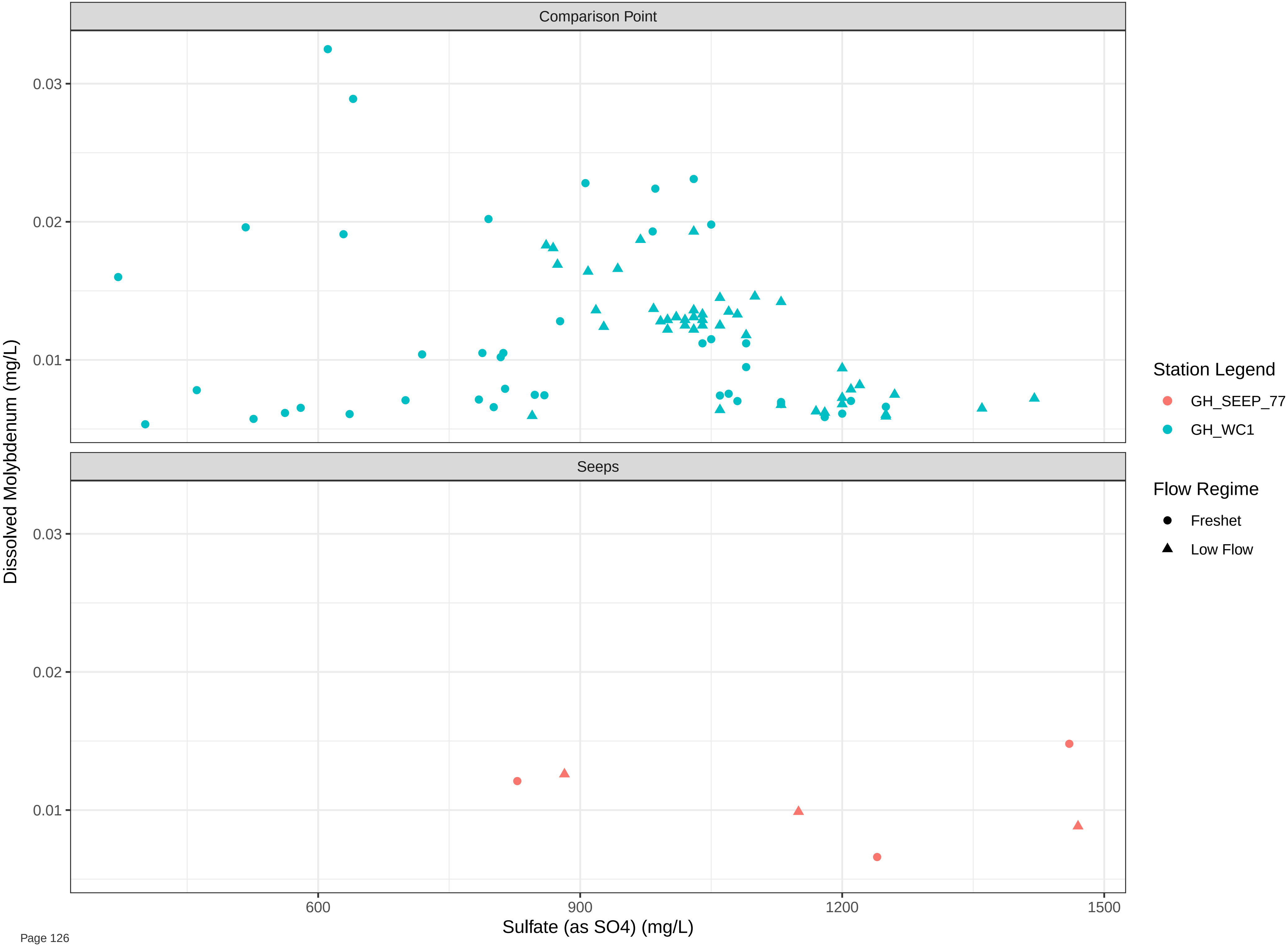

Comparison Point
Seeps
Dissolved Molybdenum (mg/L)
0.000
0.005
0.010
0.015
0.020
Sulfate (as SO4) (mg/L)
500
1000
1500
2000
2500
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow

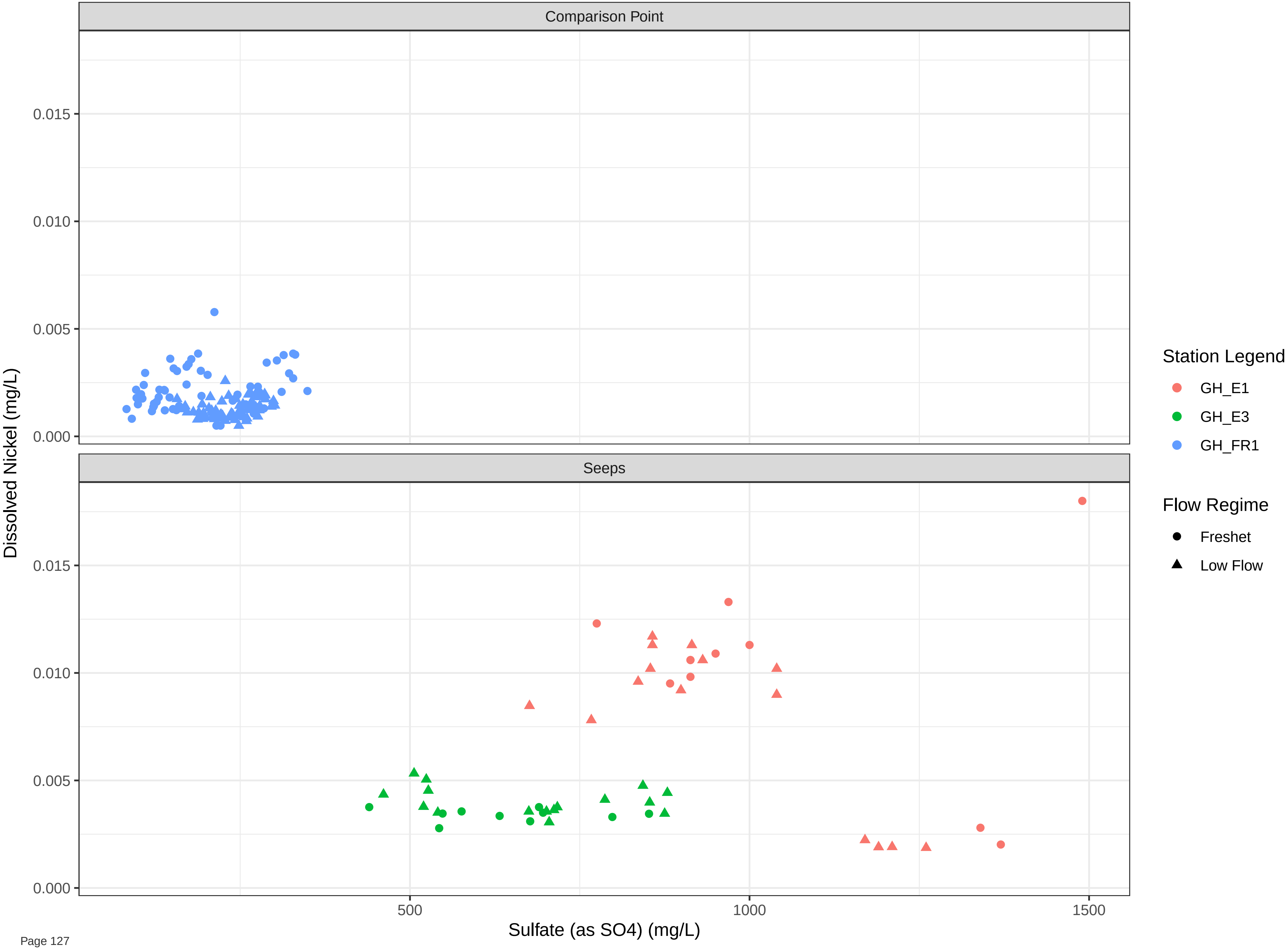

Comparison Point
Seeps
Dissolved Molybdenum (mg/L)
0.03
0.02
0.01
0.00
0
200
400
600
Sulfate (as SO4) (mg/L)
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow

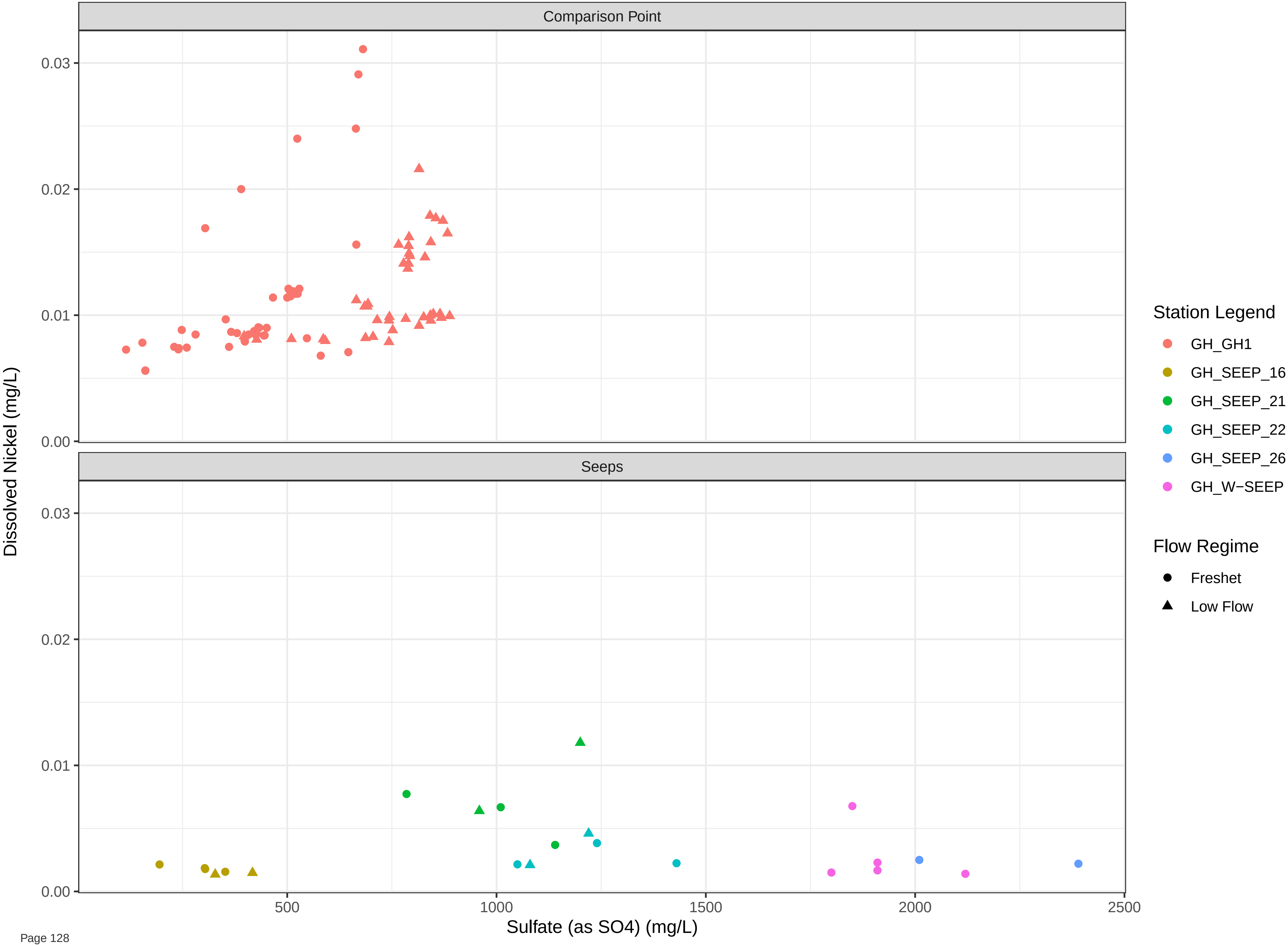

Comparison Point
Seeps
Dissolved Molybdenum (mg/L)
0.00
0.01
0.02
0.03
0.04
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
Freshet
Low Flow

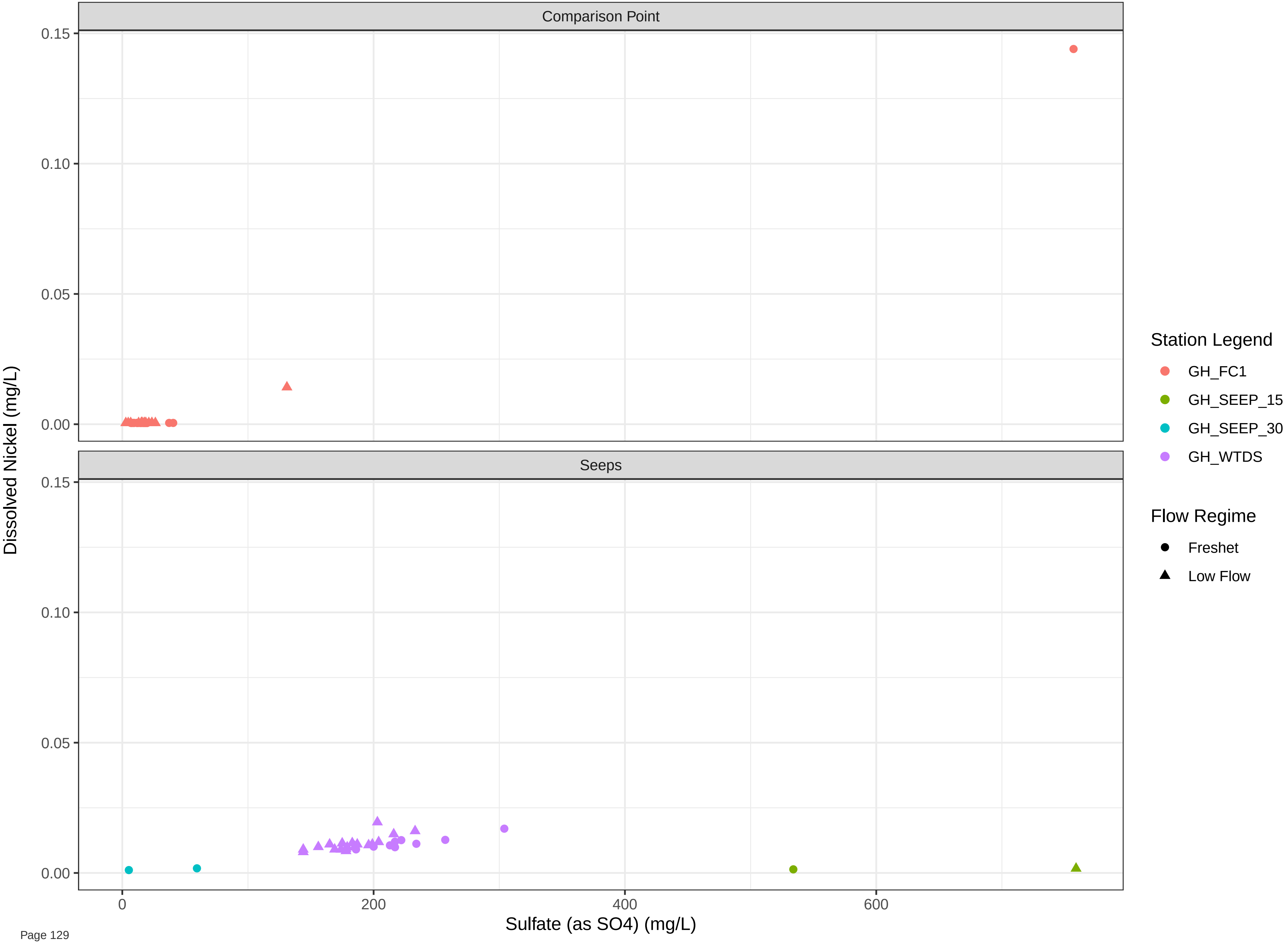

Seeps
0.006
0.005
0.004
Dissolved Molybdenum (mg/L)
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

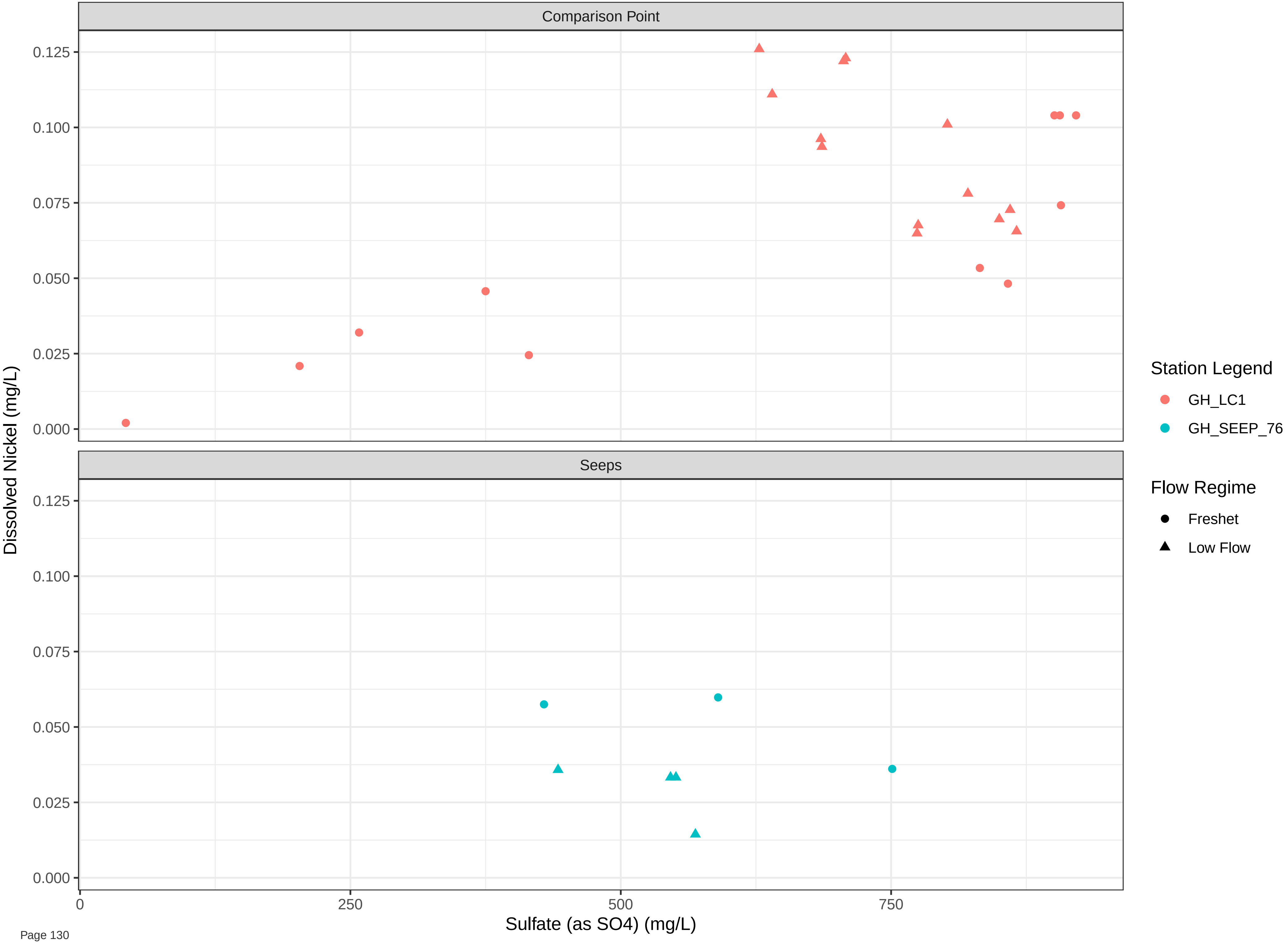

Comparison Point
Seeps
Dissolved Molybdenum (mg/L)
0.003
0.002
0.001
0
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

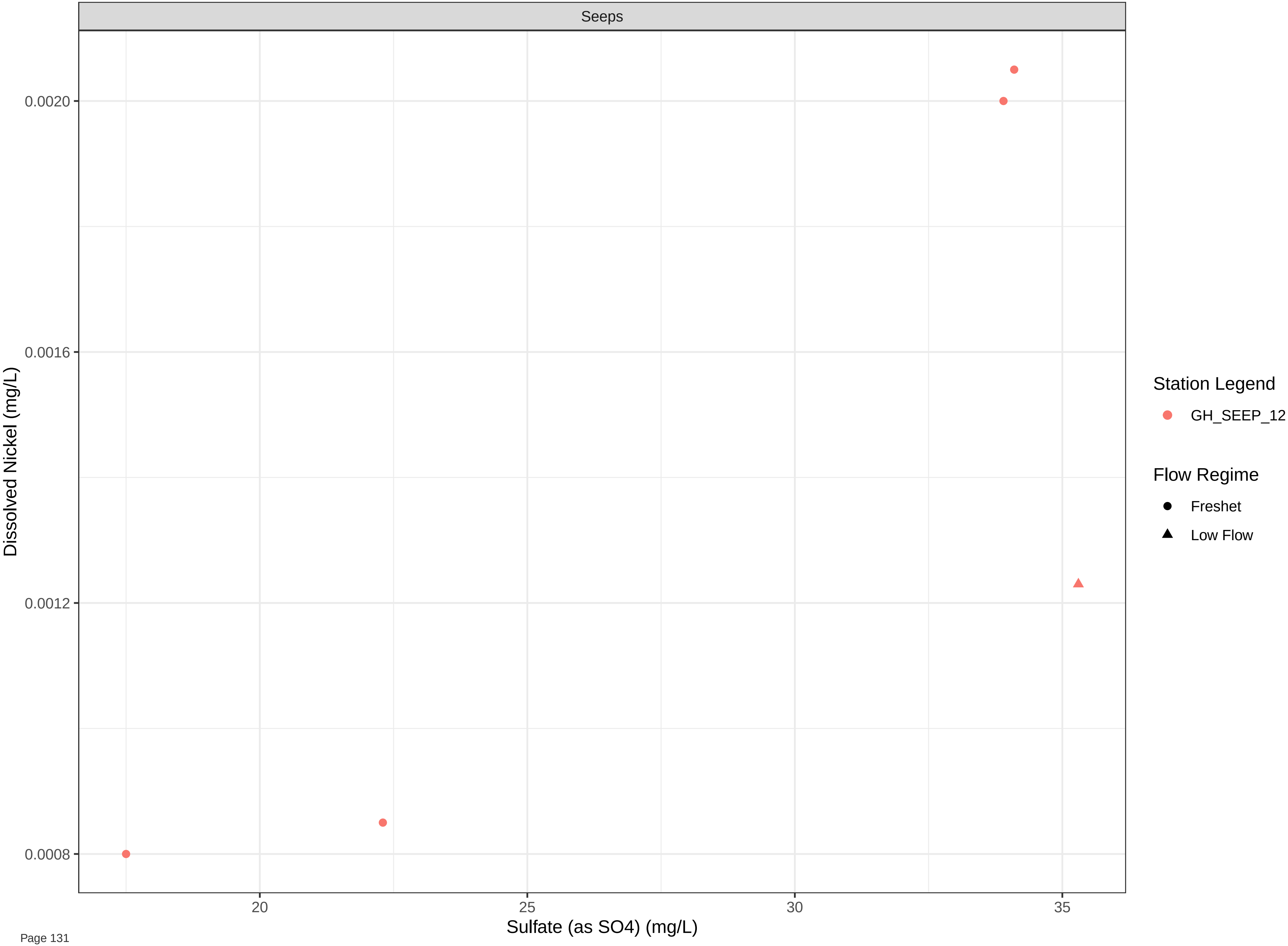

Comparison Point
Seeps
0.03
0.02
0.01
600
900
1200
1500
Dissolved Molybdenum (mg/L)
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

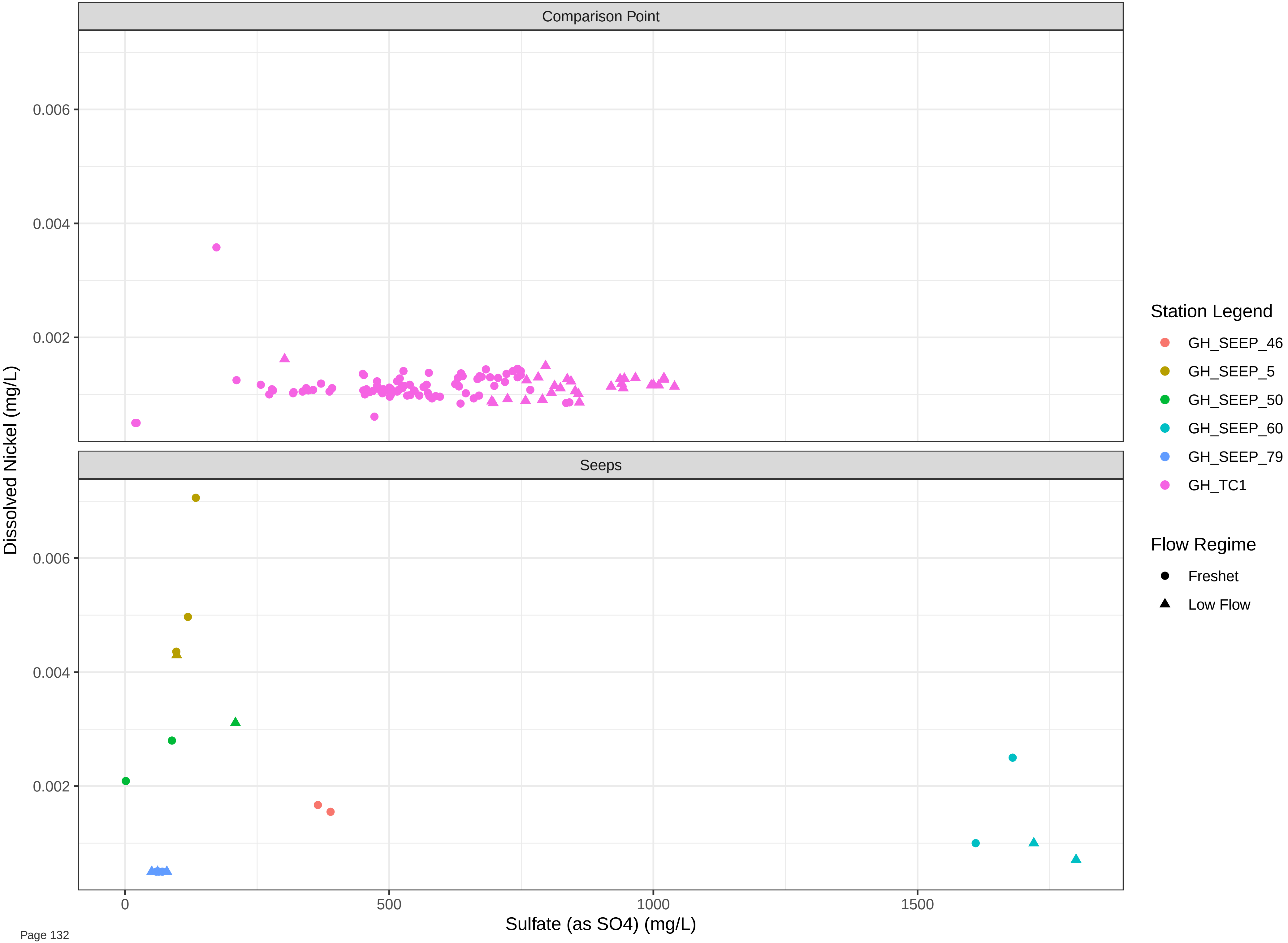

Comparison Point
Seeps
Dissolved Nickel (mg/L)
0.000
0.005
0.010
0.015
Sulfate (as SO4) (mg/L)
500
1000
1500
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

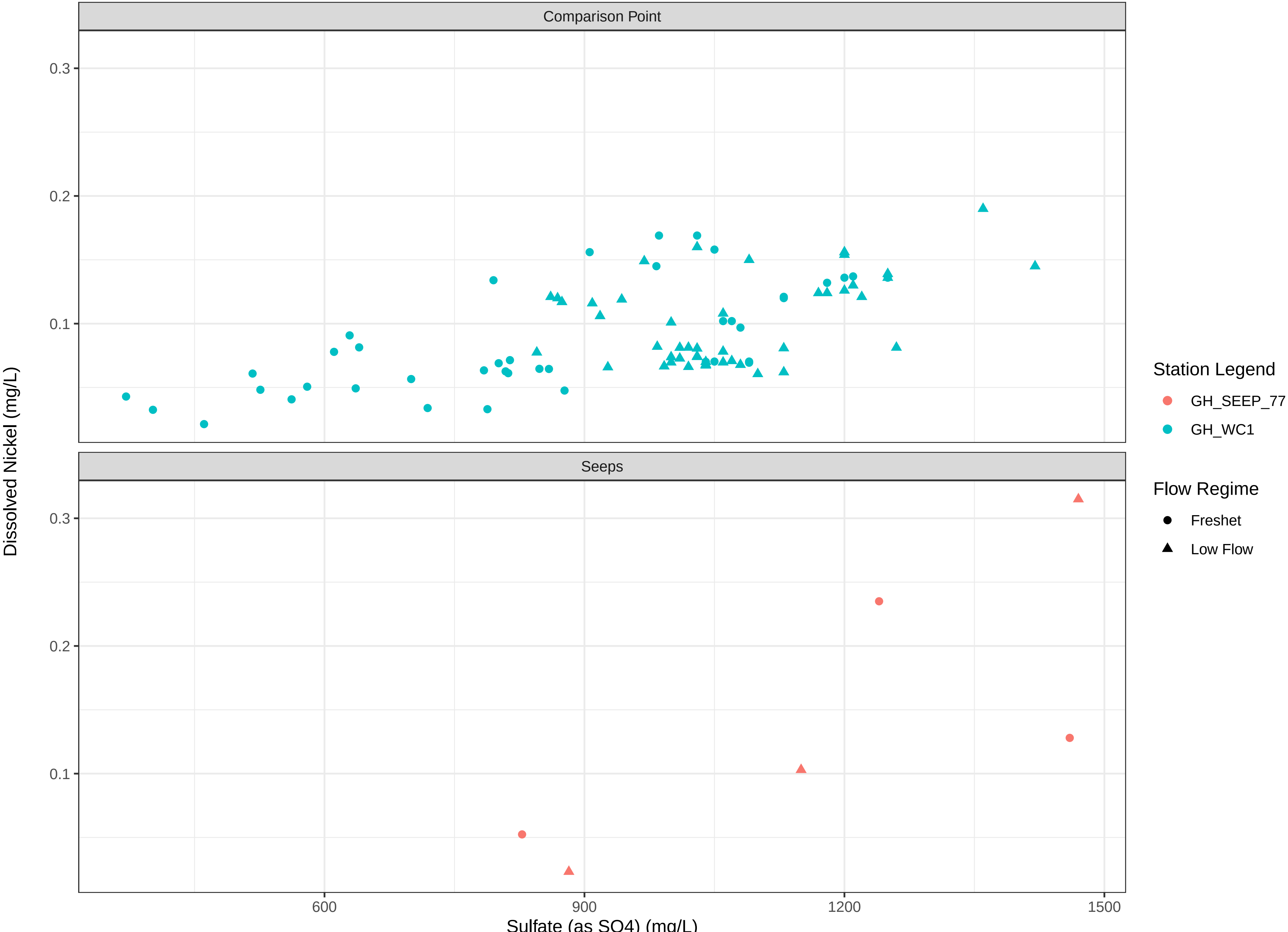

Comparison Point
Seeps
Dissolved Nickel (mg/L)
0.00
0.01
0.02
0.03
Sulfate (as SO4) (mg/L)
500
1000
1500
2000
2500
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow

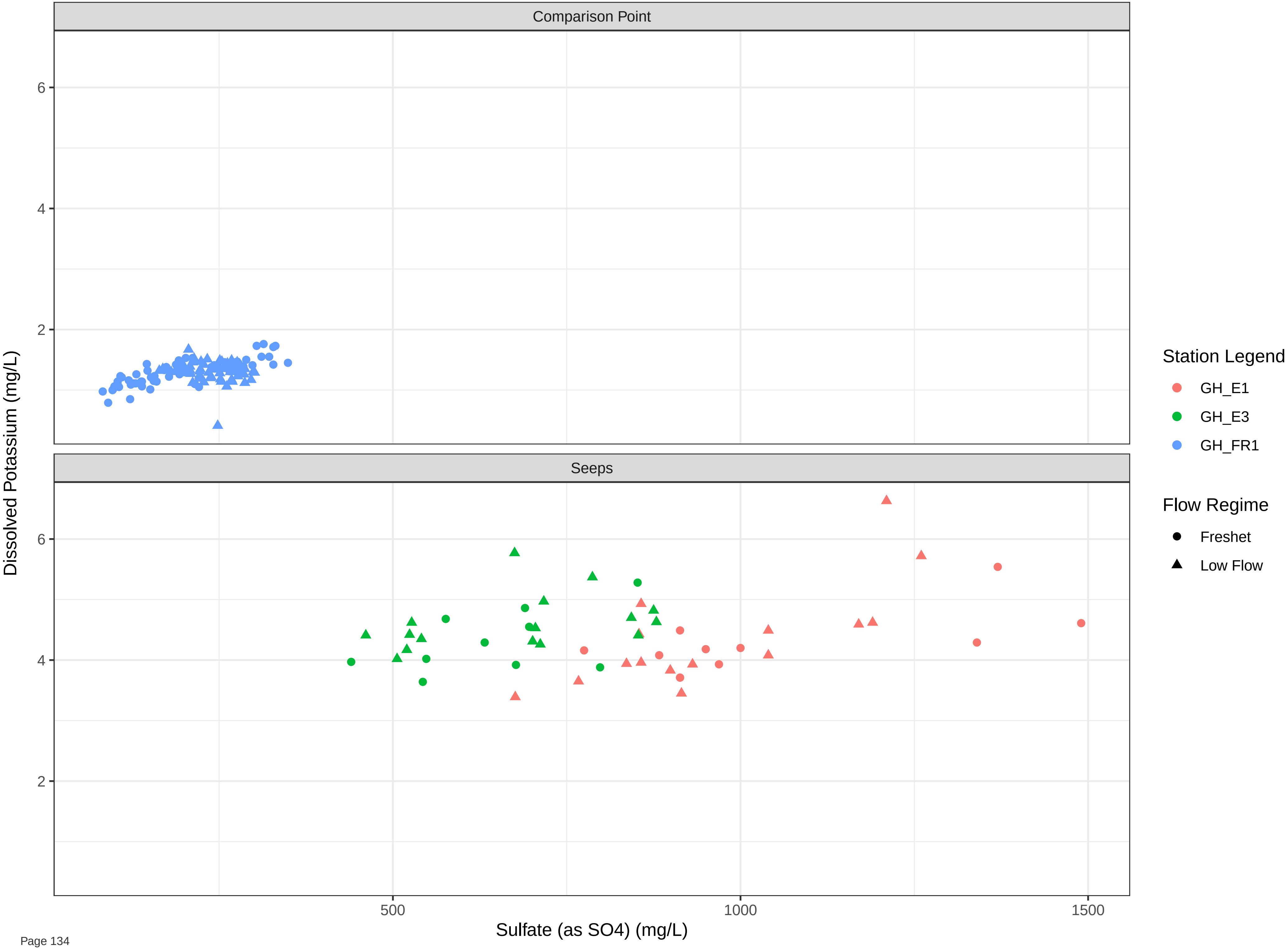

Comparison Point
Seeps
Dissolved Nickel (mg/L)
0.15
0.10
0.05
0.00
0.15
0.10
0.05
0.00
0
200
400
600
Sulfate (as SO4) (mg/L)
Station Legend
● GH_FC1
● GH_SEEP_15
● GH_SEEP_30
● GH_WTDS
Flow Regime
● Freshet
▲ Low Flow

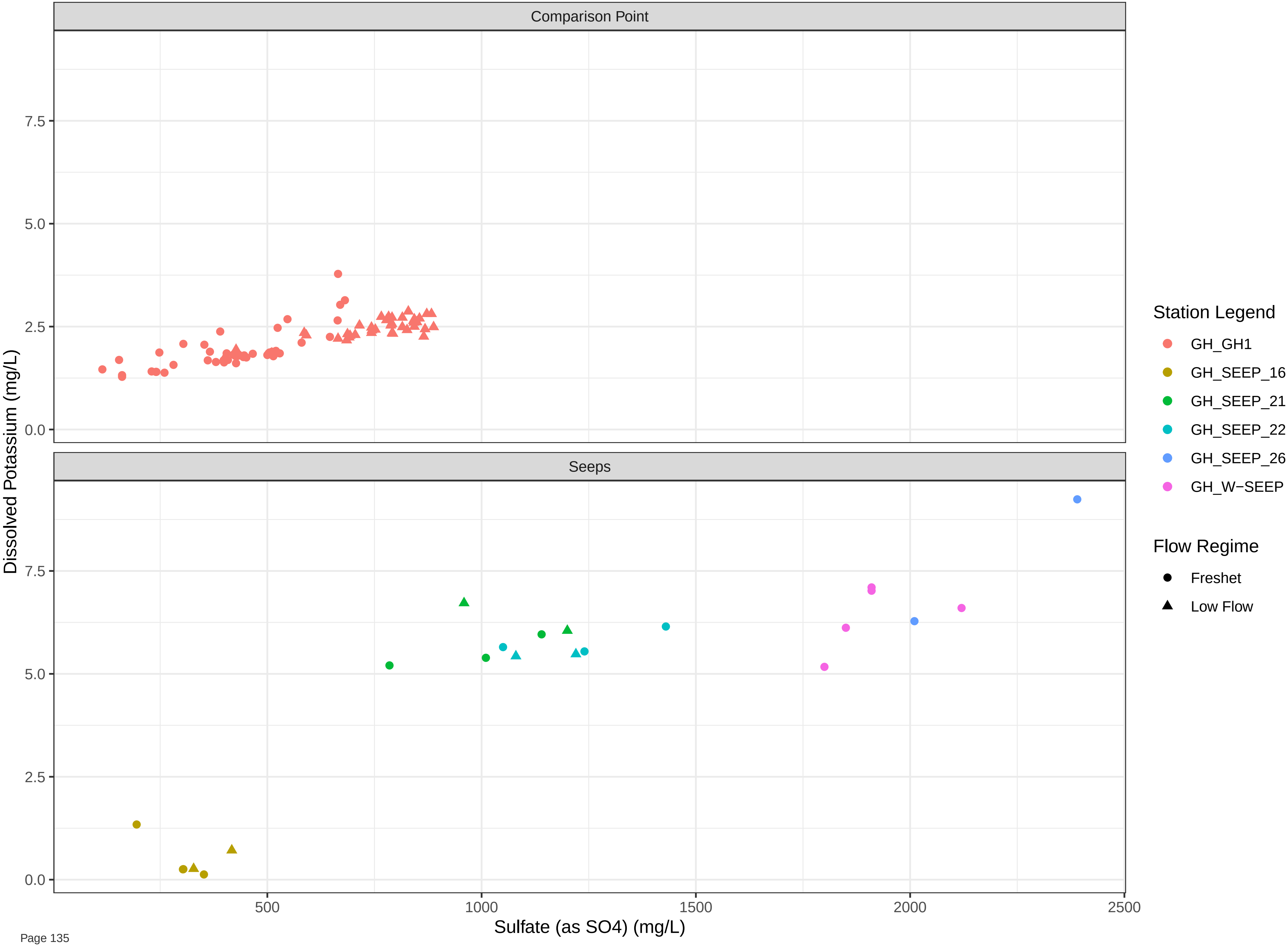

Comparison Point
Seeps
Dissolved Nickel (mg/L)
0.000
0.025
0.050
0.075
0.100
0.125
0.000
0.025
0.050
0.075
0.100
0.125
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
Freshet
Low Flow

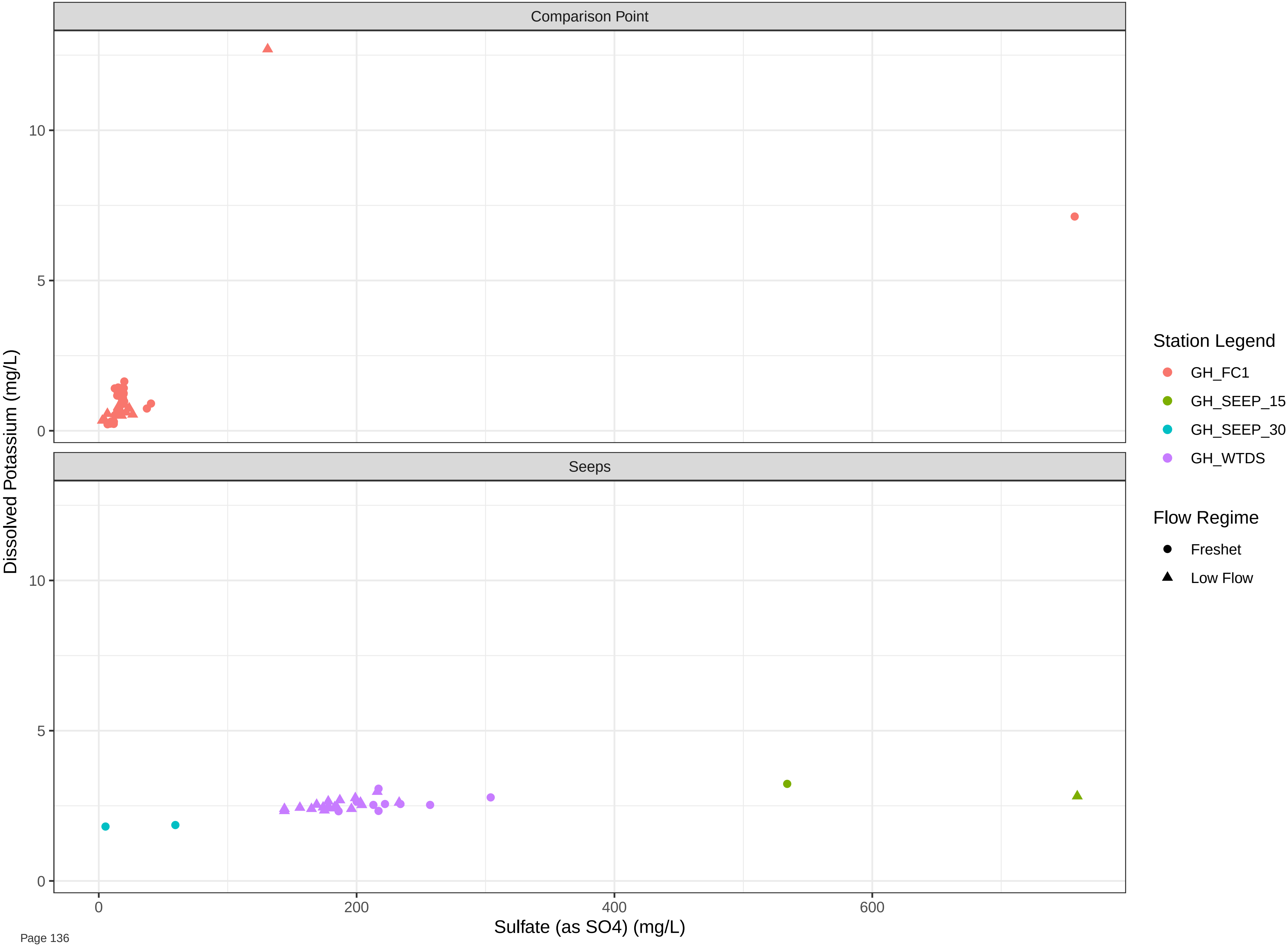

Seeps
Dissolved Nickel (mg/L)
0.0020
0.0016
0.0012
0.0008
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

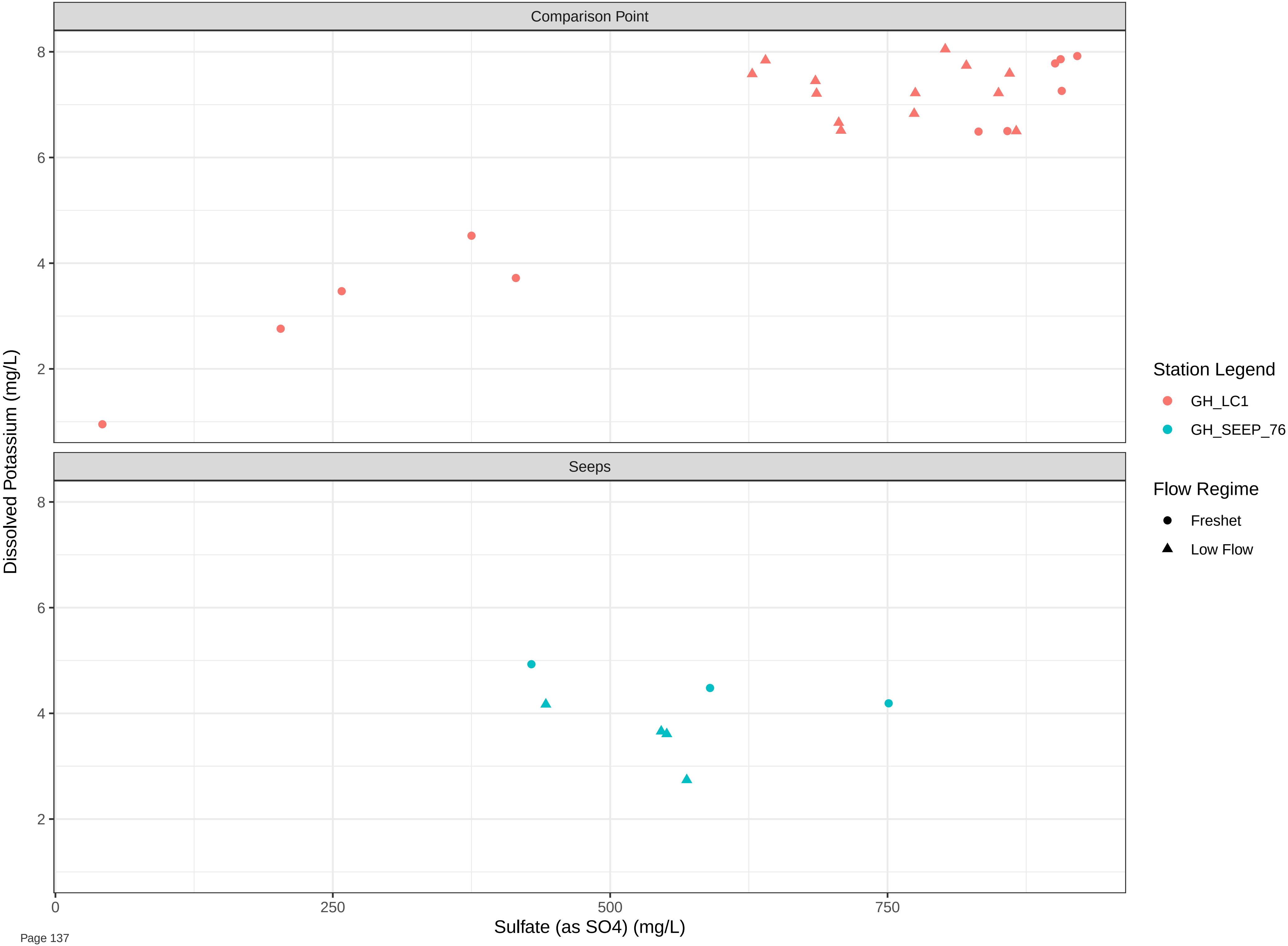

Comparison Point
Seeps
Dissolved Nickel (mg/L)
0.002
0.004
0.006
Sulfate (as SO4) (mg/L)
0
500
1000
1500
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

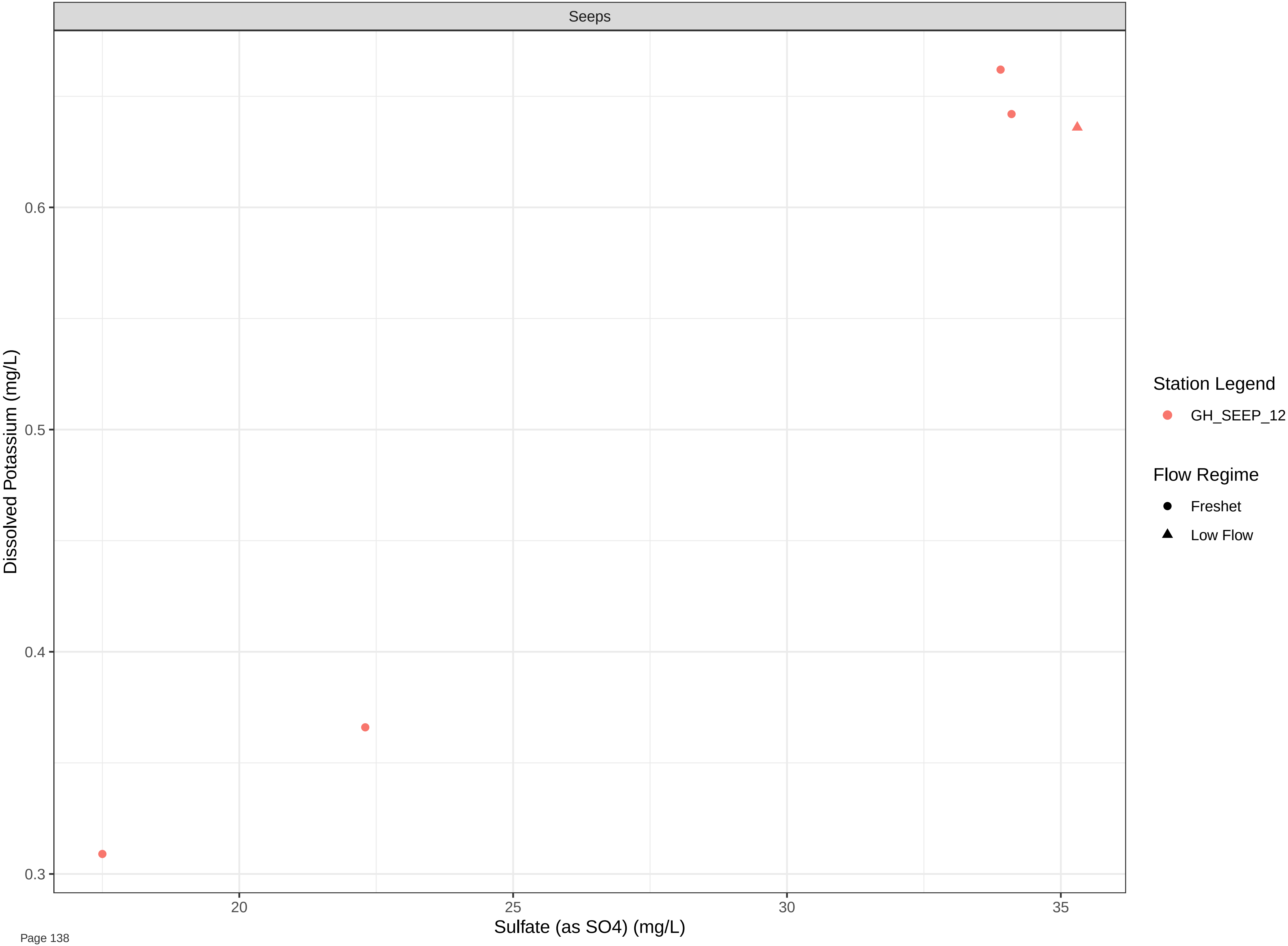

Comparison Point
Seeps
0.3
0.2
0.1
600
900
1200
1500
Dissolved Nickel (mg/L)
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

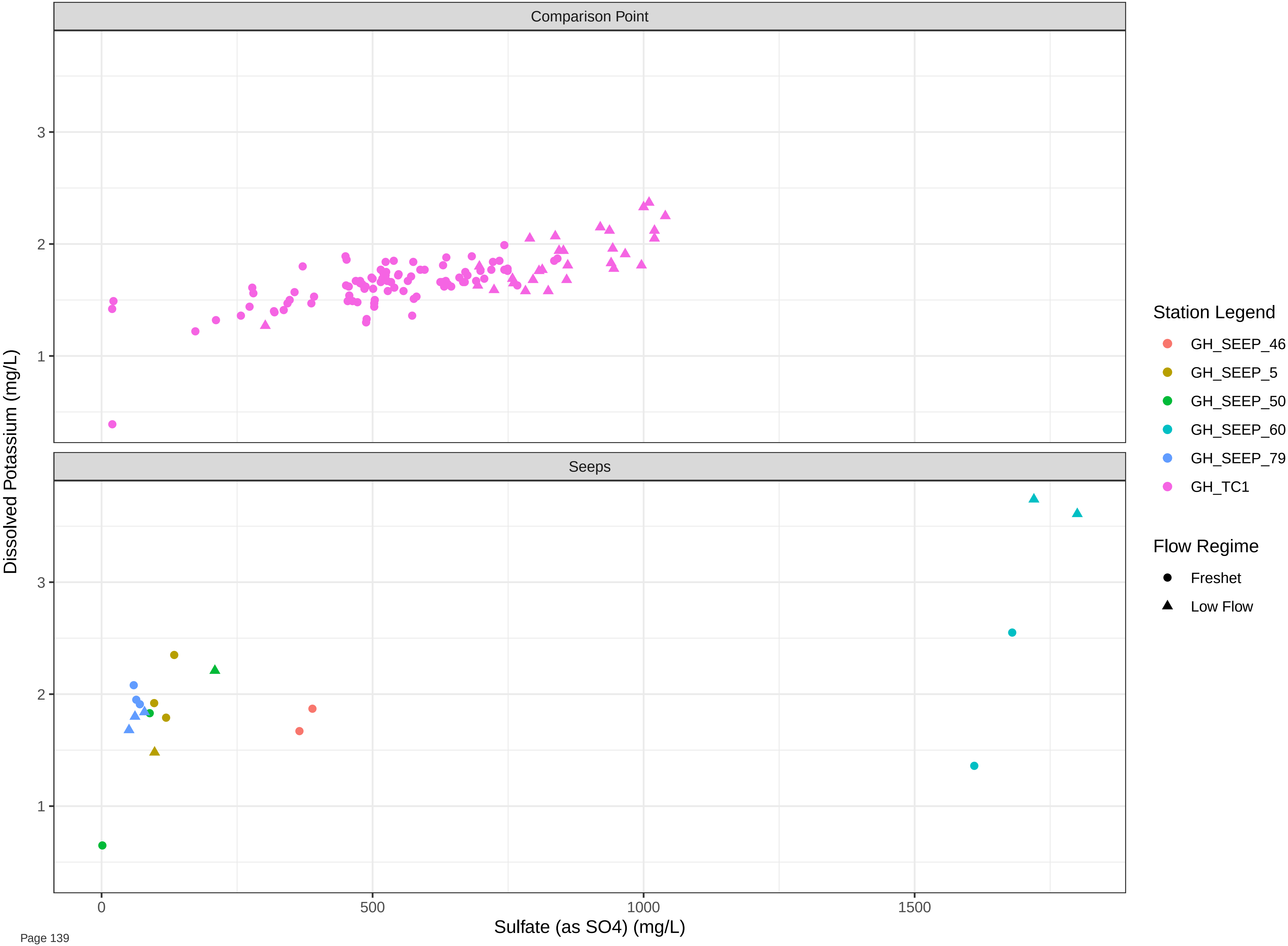

Comparison Point
Seeps
Dissolved Potassium (mg/L)
Sulfate (as SO4) (mg/L)
2
4
6
2
4
6
500
1000
1500
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

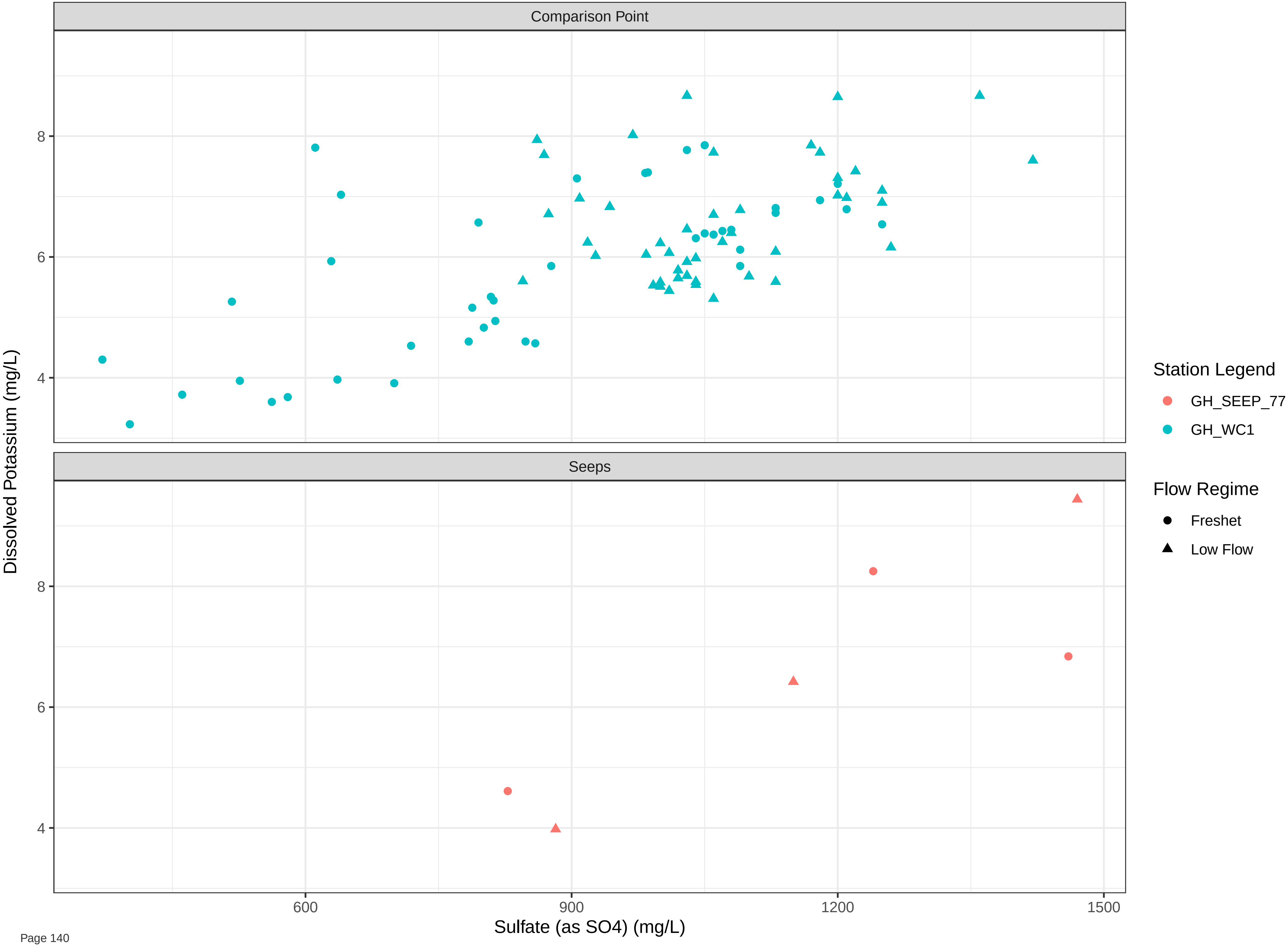

Comparison Point
Seeps
Dissolved Potassium (mg/L)
0.0
2.5
5.0
7.5
Sulfate (as SO4) (mg/L)
500
1000
1500
2000
2500
Station Legend
● GH_GH1
● GH_SEEP_16
● GH_SEEP_21
● GH_SEEP_22
● GH_SEEP_26
● GH_W−SEEP
Flow Regime
● Freshet
▲ Low Flow

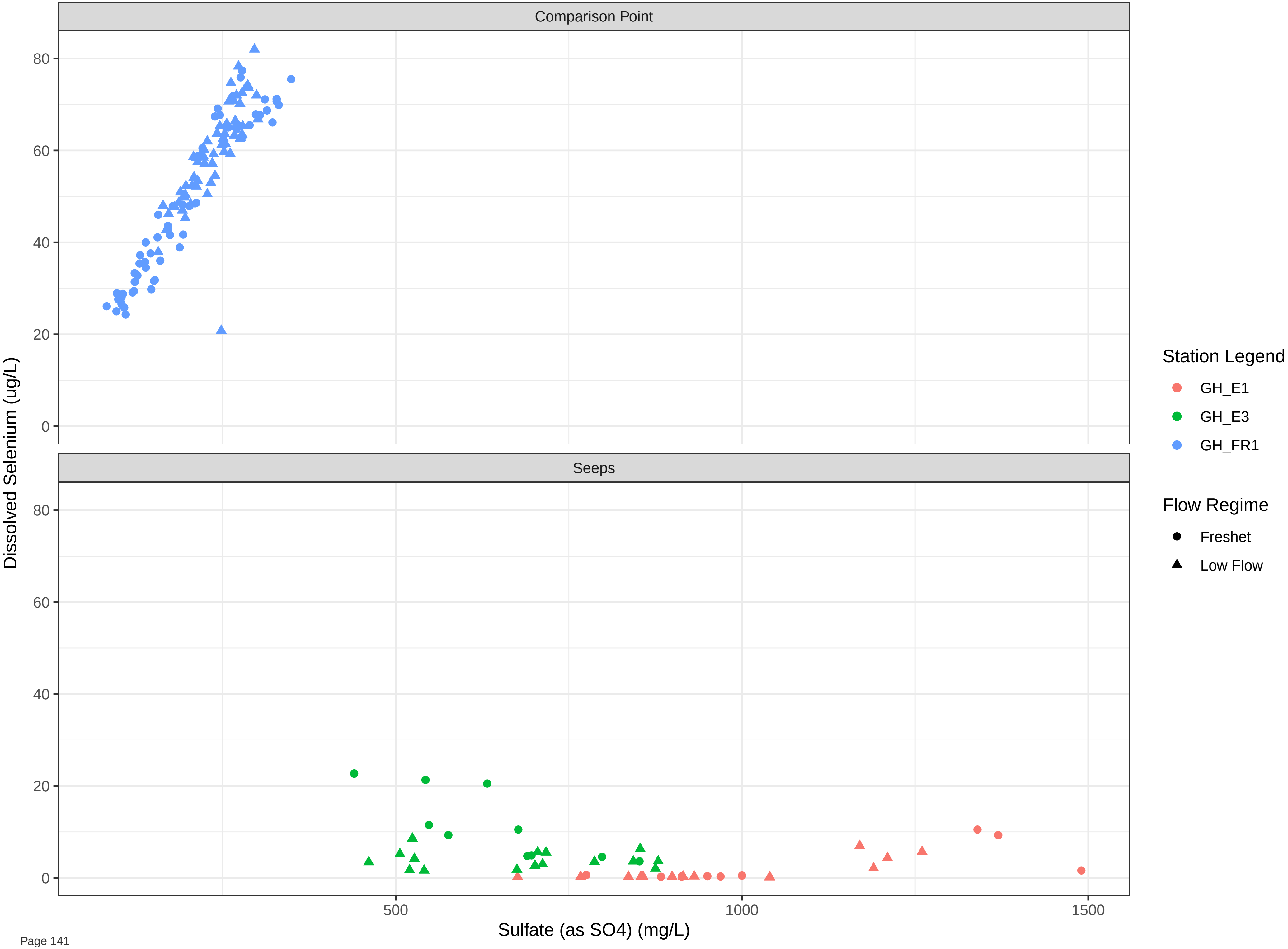

Comparison Point
Seeps
Dissolved Potassium (mg/L)
Sulfate (as SO4) (mg/L)
0
5
10
0
200
400
600
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow

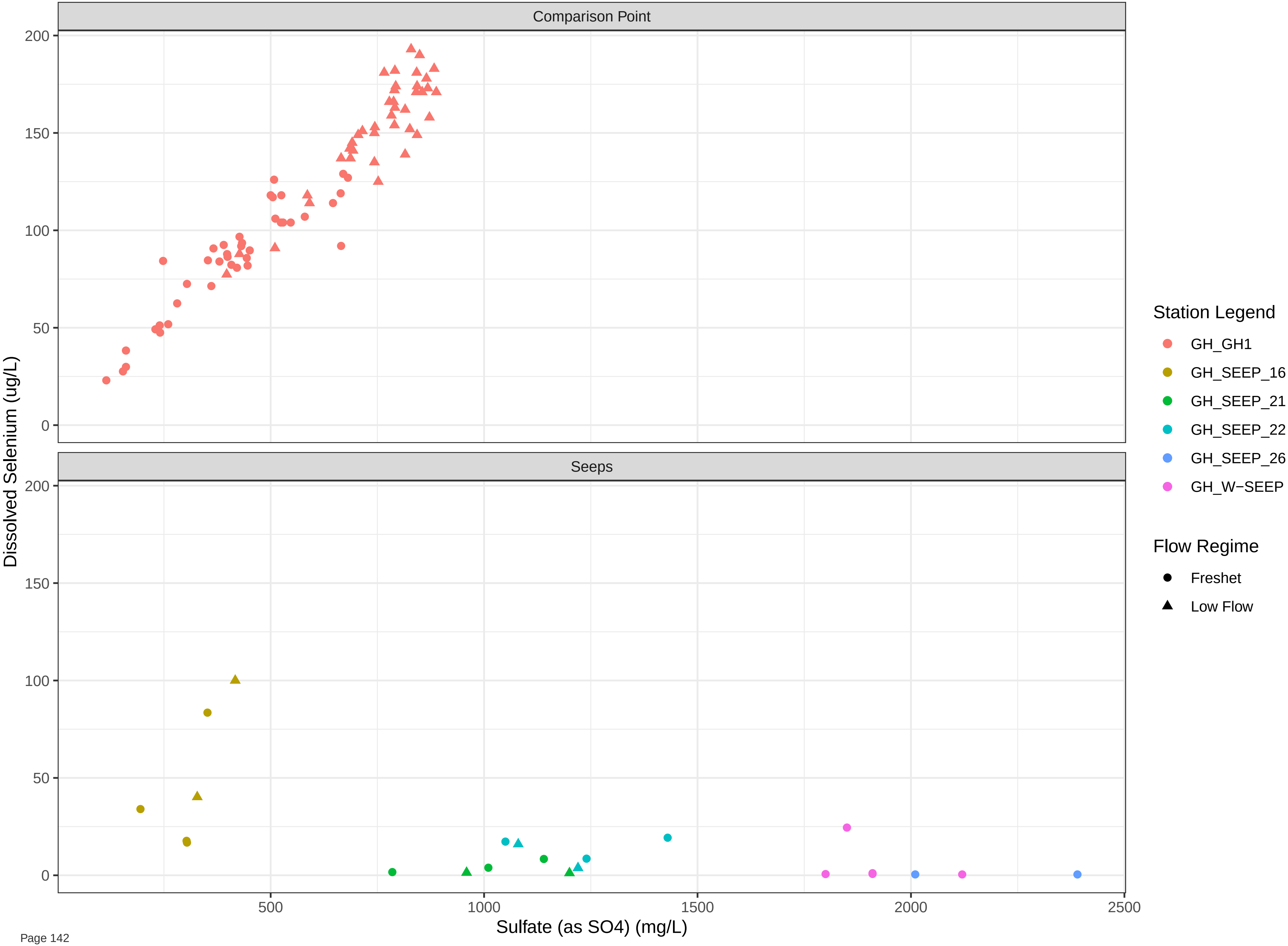

Comparison Point
Seeps
Dissolved Potassium (mg/L)
8
6
4
2
8
6
4
2
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
Freshet
Low Flow

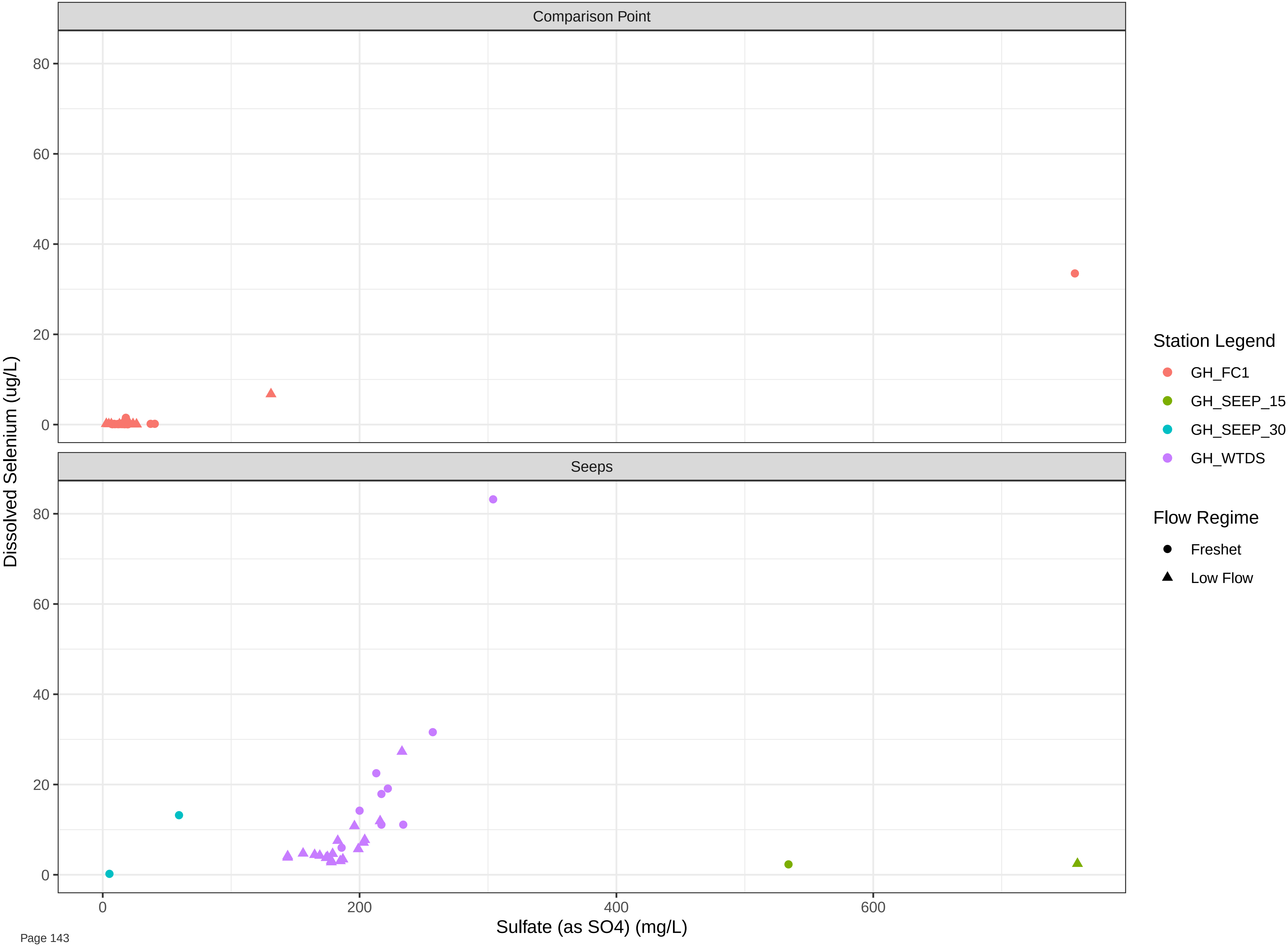

Seeps
Dissolved Potassium (mg/L)
0.6
0.5
0.4
0.3
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

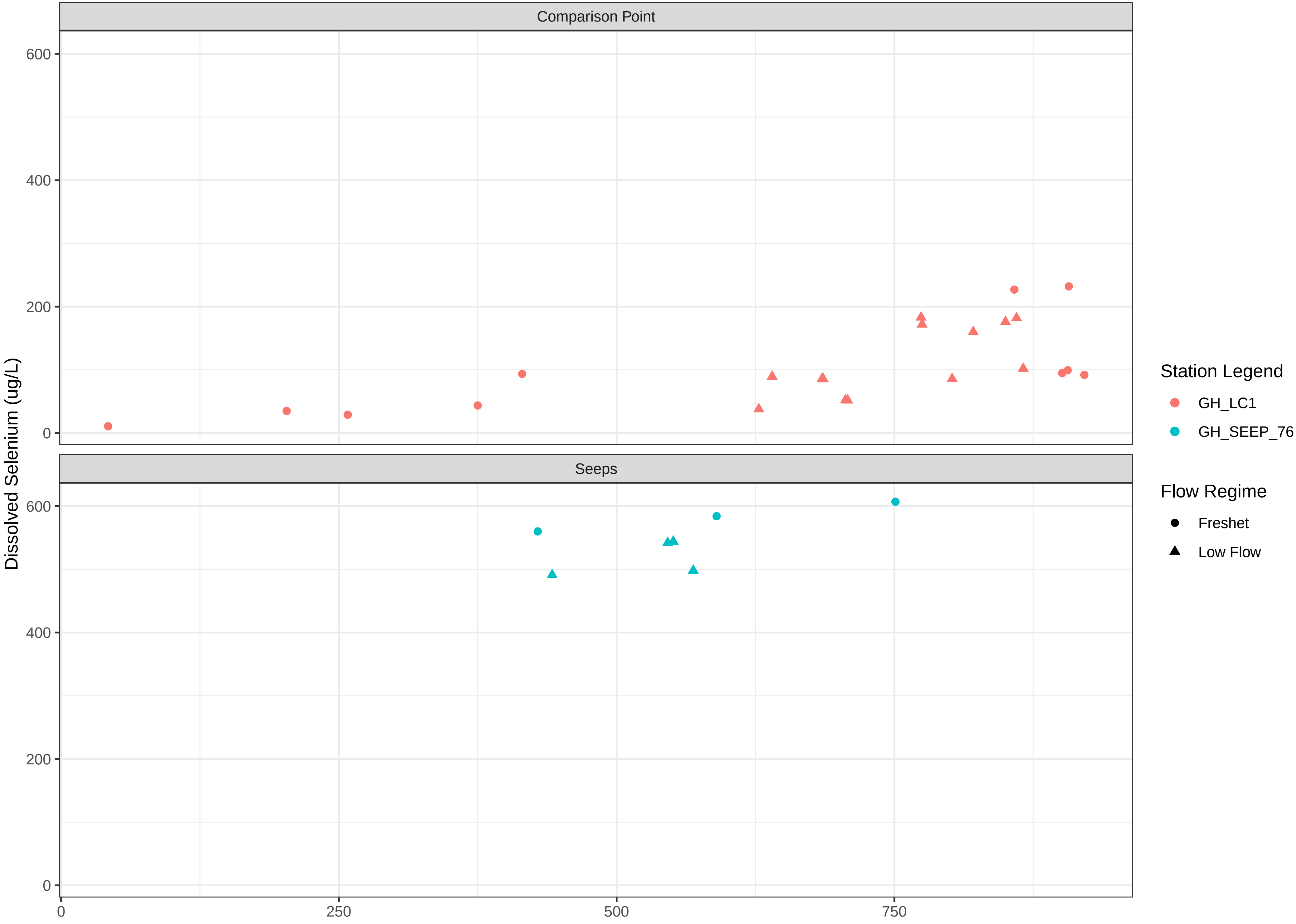

Comparison Point
Seeps
Dissolved Potassium (mg/L)
Sulfate (as SO4) (mg/L)
1
2
3
0
500
1000
1500
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

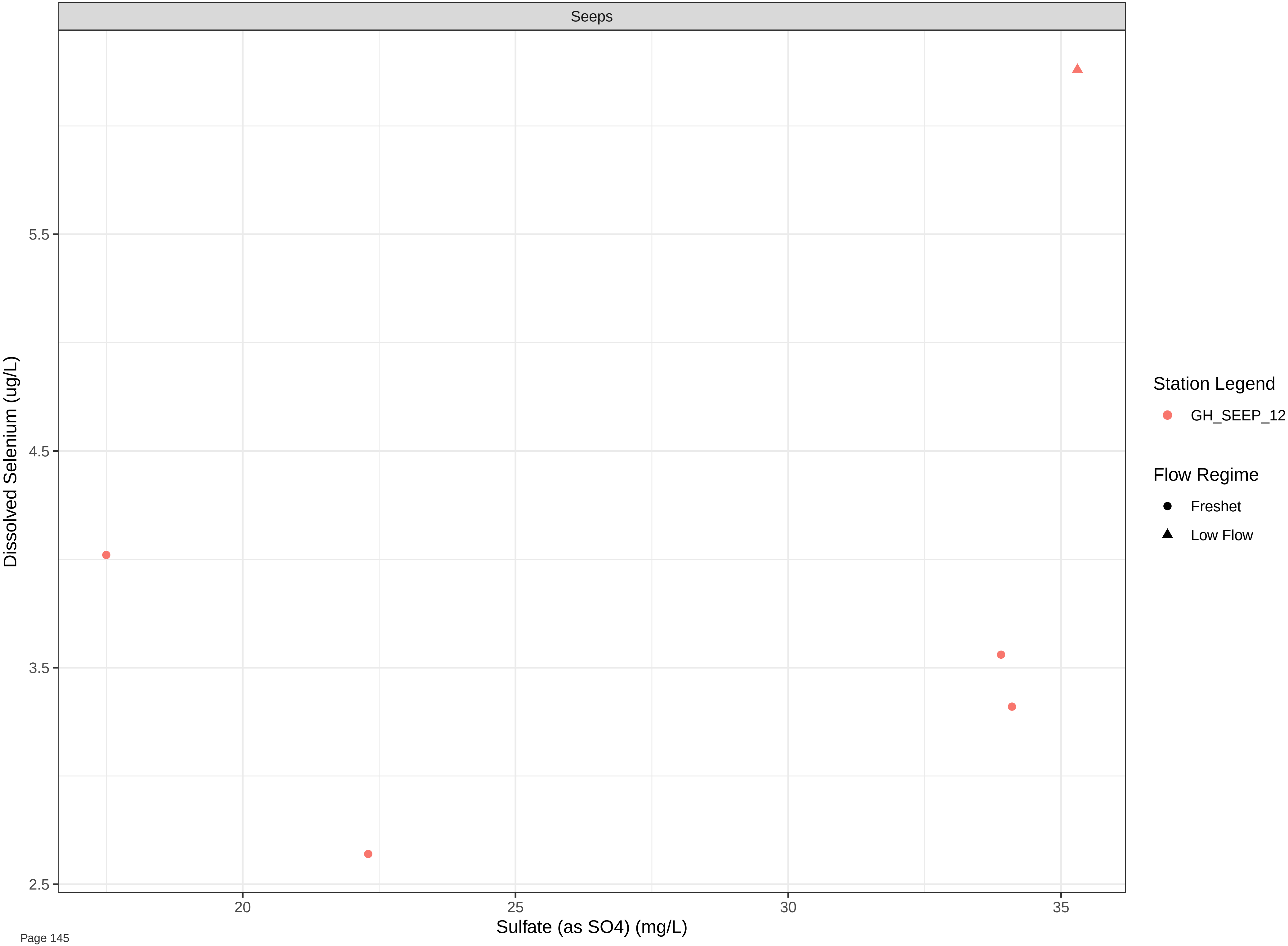

Comparison Point
Seeps
Dissolved Potassium (mg/L)
8
6
4
8
6
4
600
900
1200
1500
Sulfate (as SO4) (mg/L)
Station Legend
● GH_SEEP_77
● GH_WC1
Flow Regime
● Freshet
▲ Low Flow

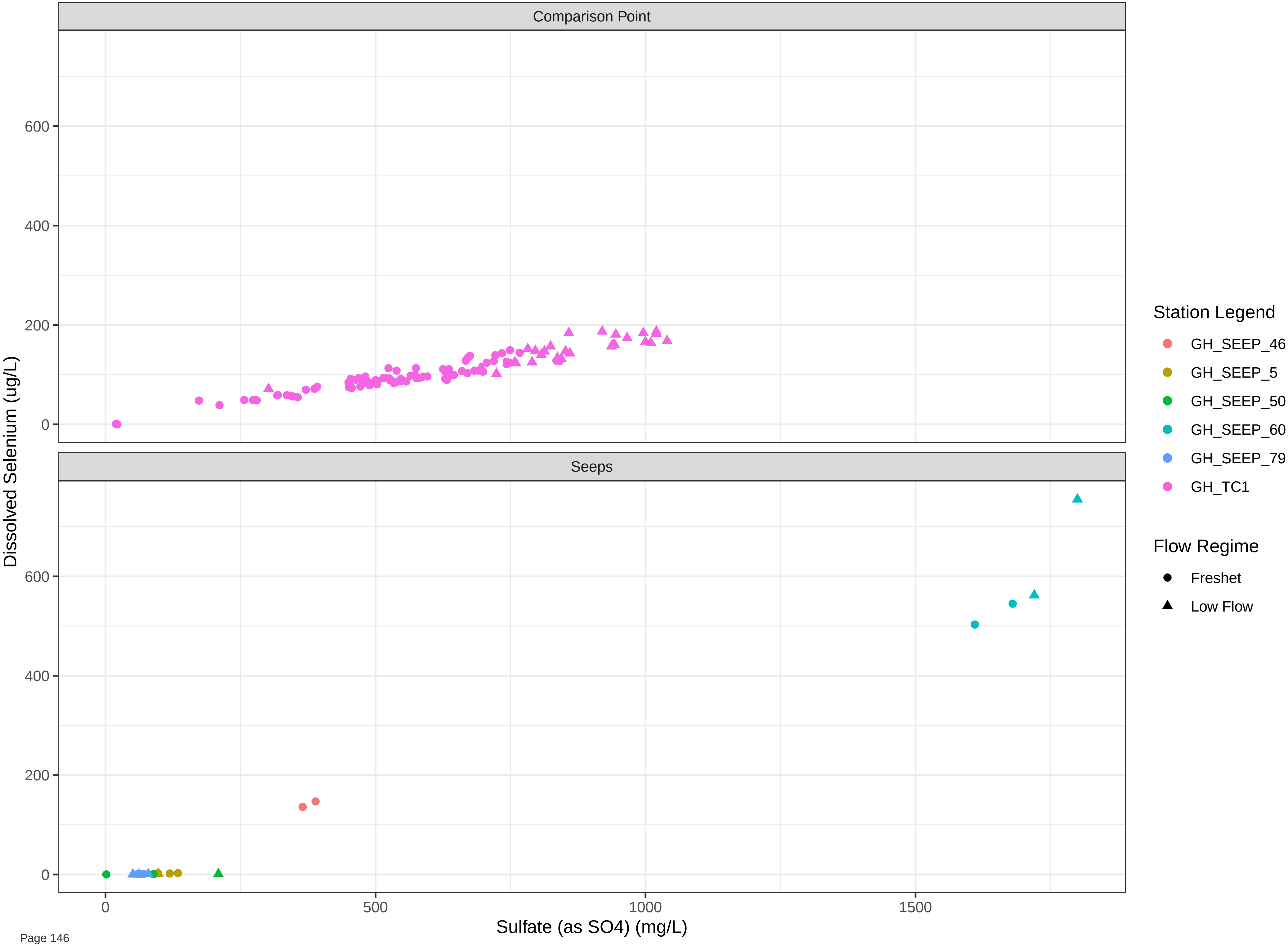

Comparison Point
Seeps
Dissolved Selenium (ug/L)
0
20
40
60
80
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

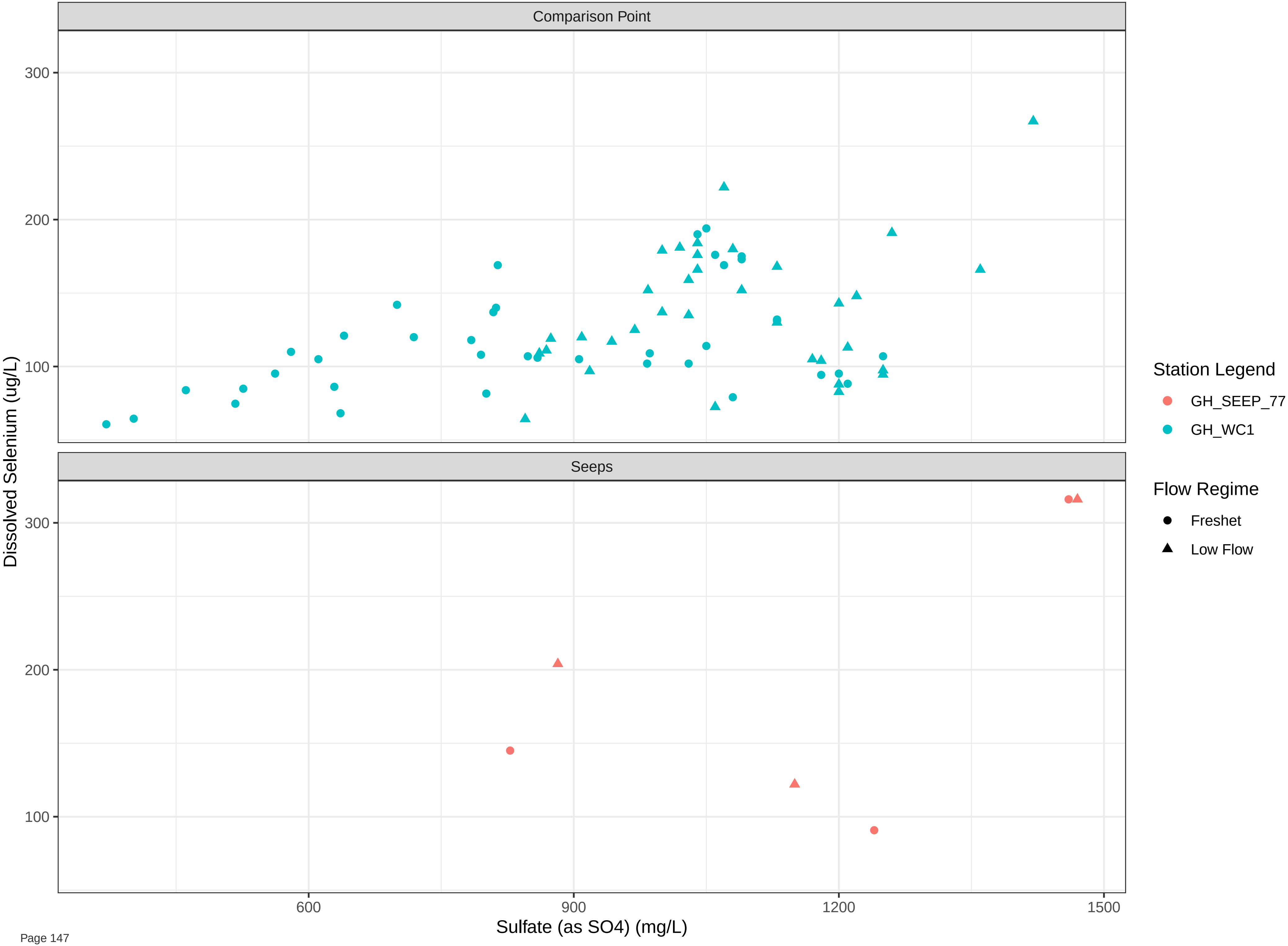

Comparison Point
Seeps
Dissolved Selenium (ug/L)
0
50
100
150
200
Sulfate (as SO4) (mg/L)
500
1000
1500
2000
2500
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow

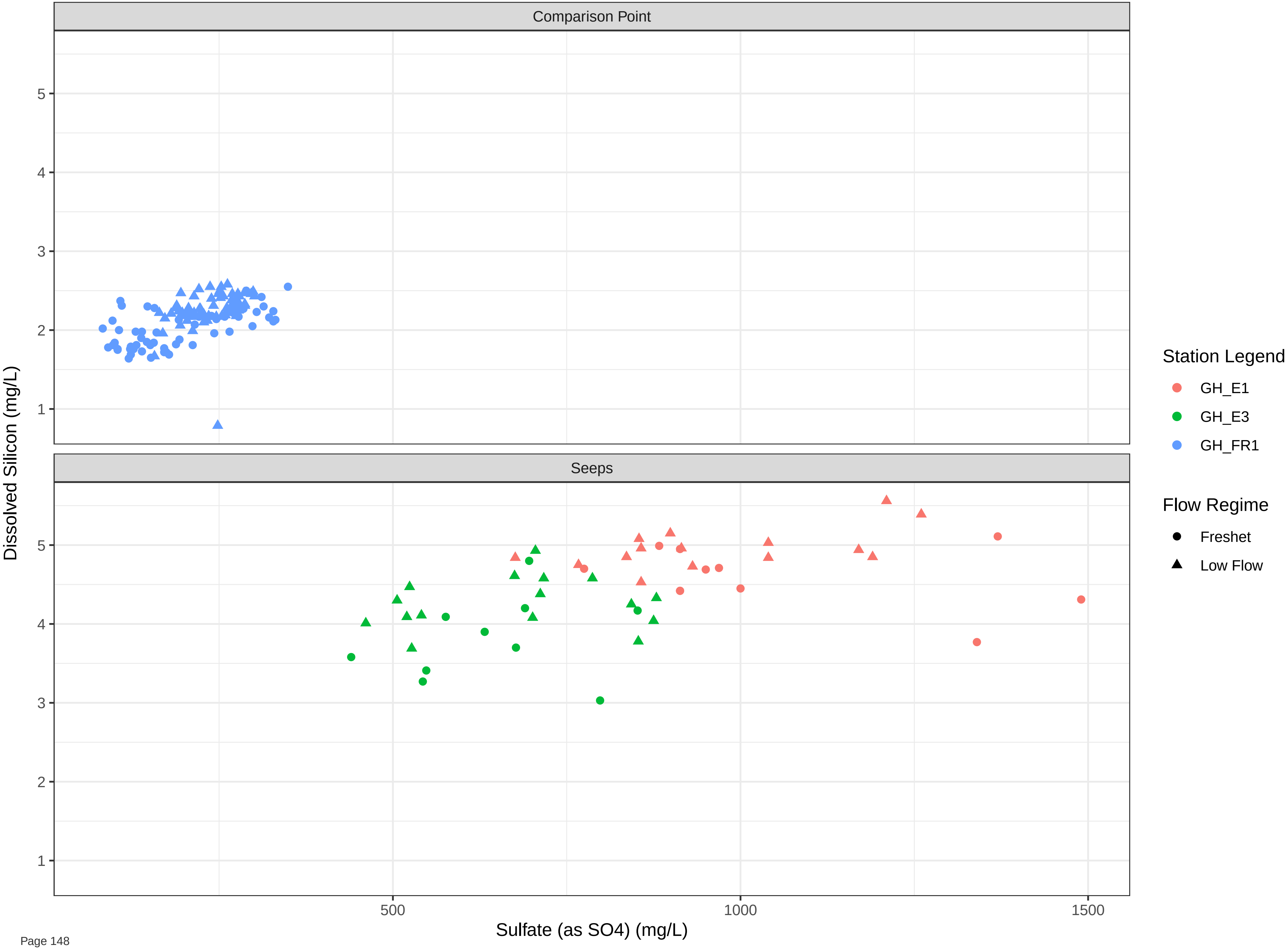

Comparison Point
Seeps
Dissolved Selenium (ug/L)
Sulfate (as SO4) (mg/L)
0
20
40
60
80
0
200
400
600
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow

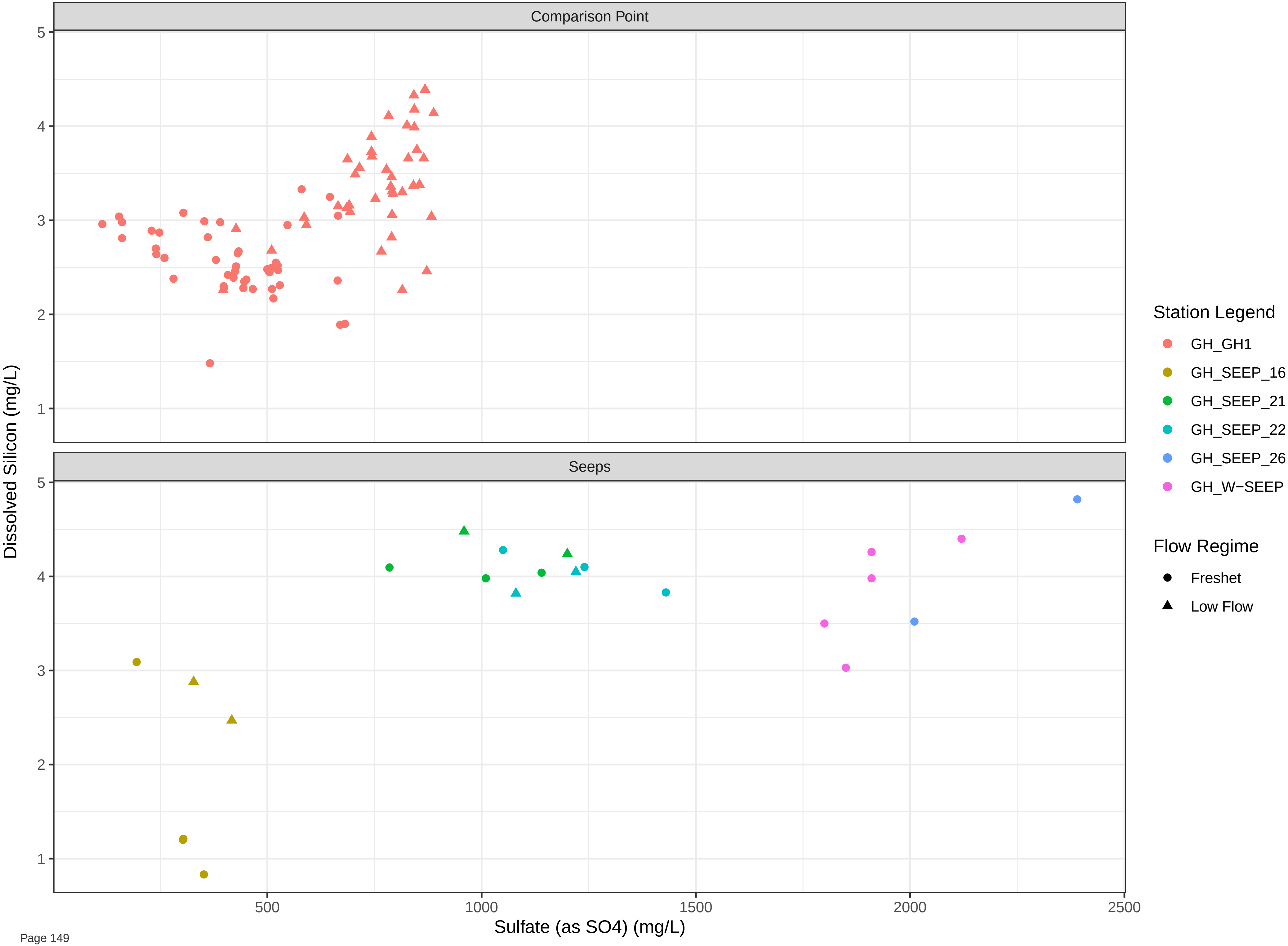

Comparison Point
Seeps
Dissolved Selenium (ug/L)
600
400
200
0
600
400
200
0
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
● GH_LC1
● GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow

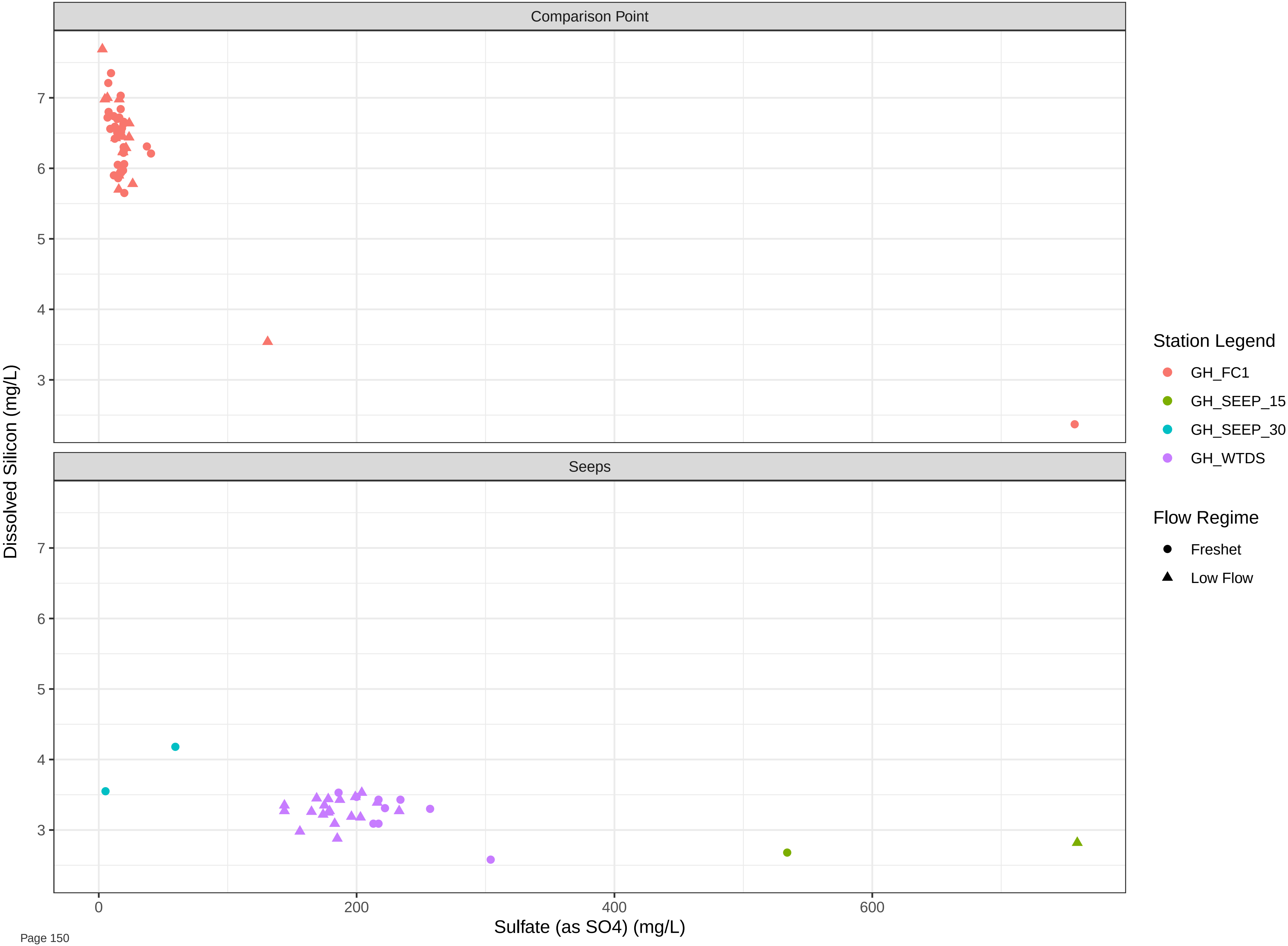

Seeps
Dissolved Selenium (ug/L)
5.5
4.5
3.5
2.5
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

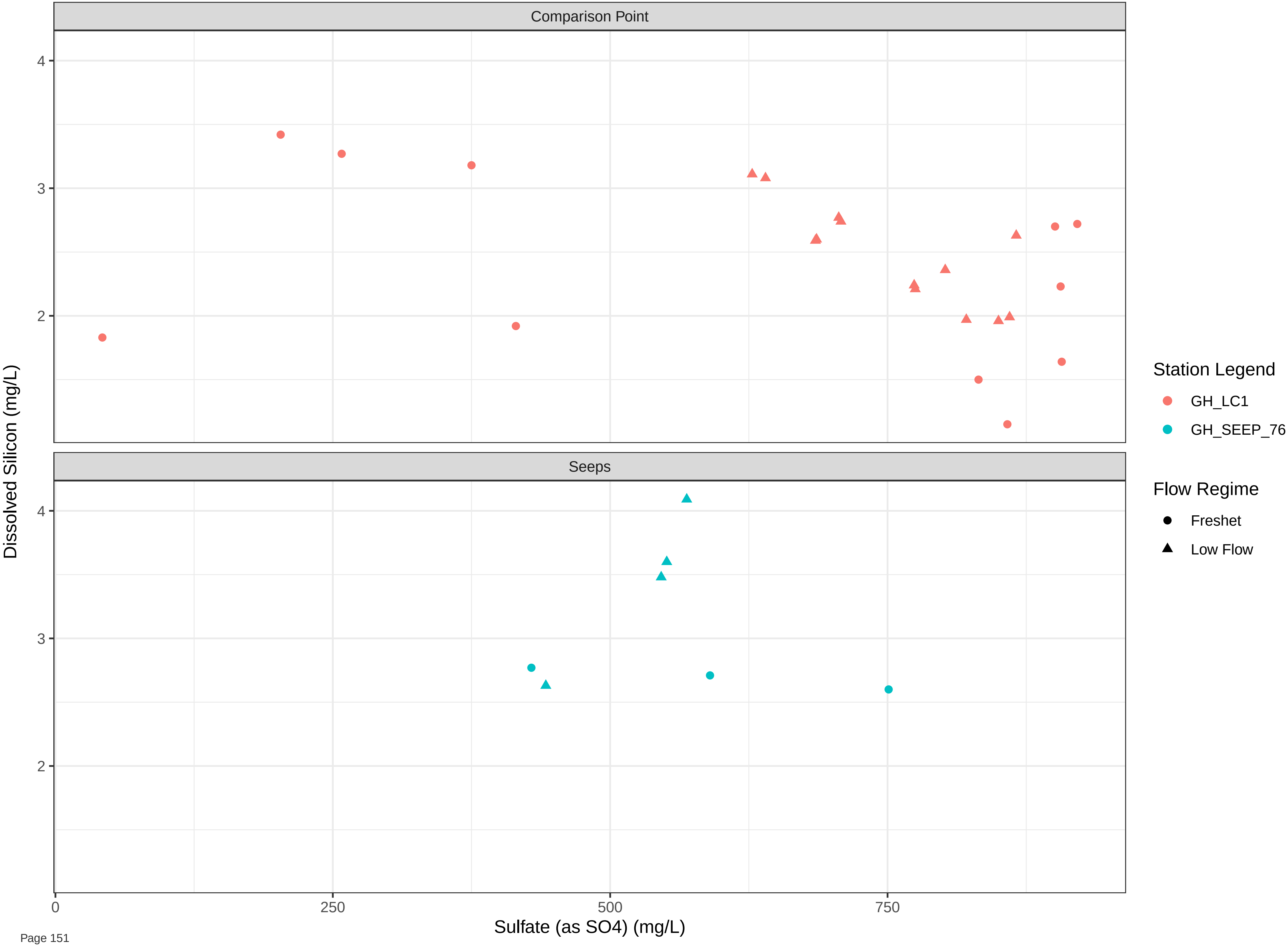

Comparison Point
Seeps
Dissolved Selenium (ug/L)
0
200
400
600
0
200
400
600
0
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

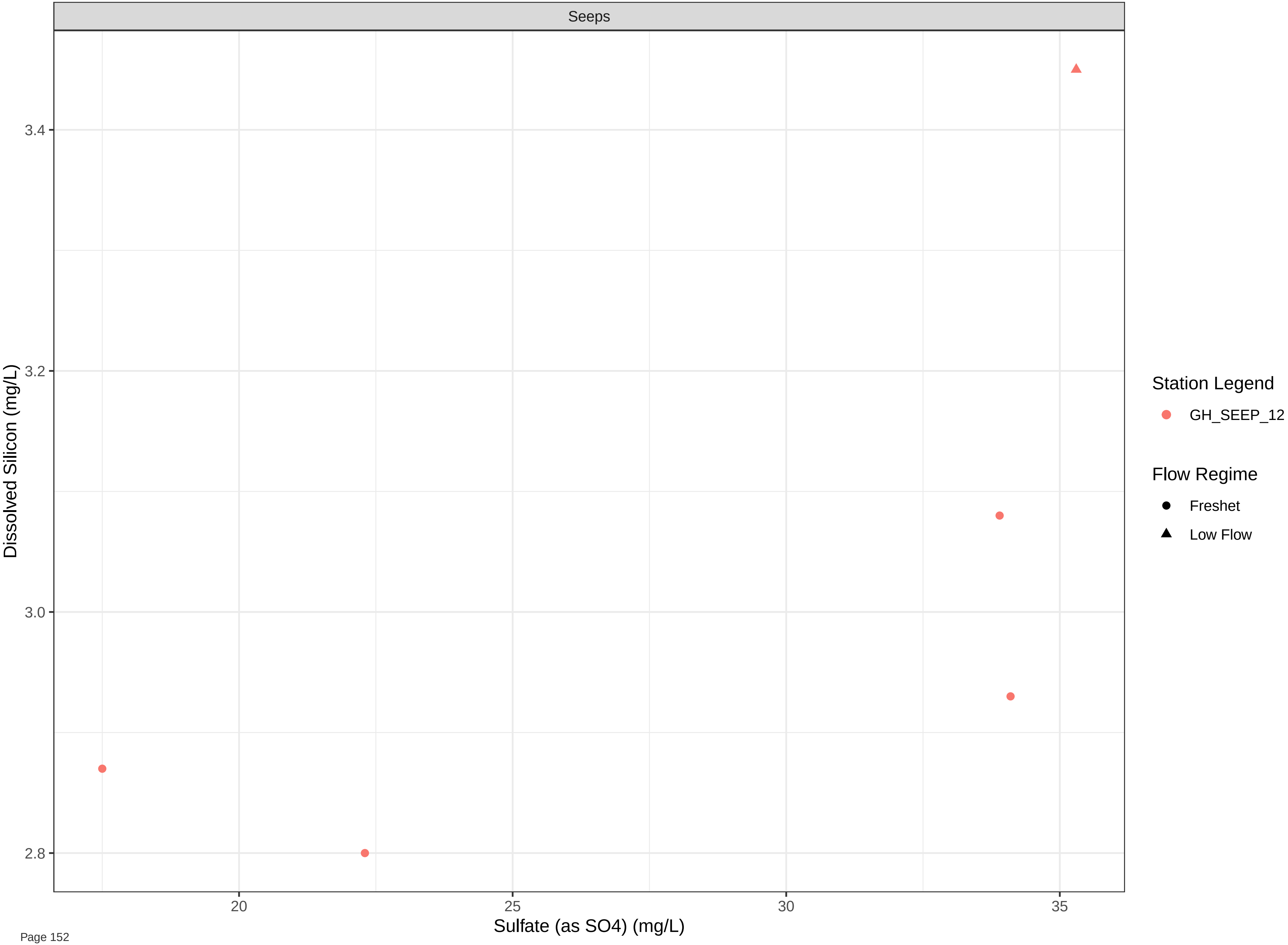

Comparison Point
Seeps
300
200
100
600
900
1200
1500
Dissolved Selenium (ug/L)
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

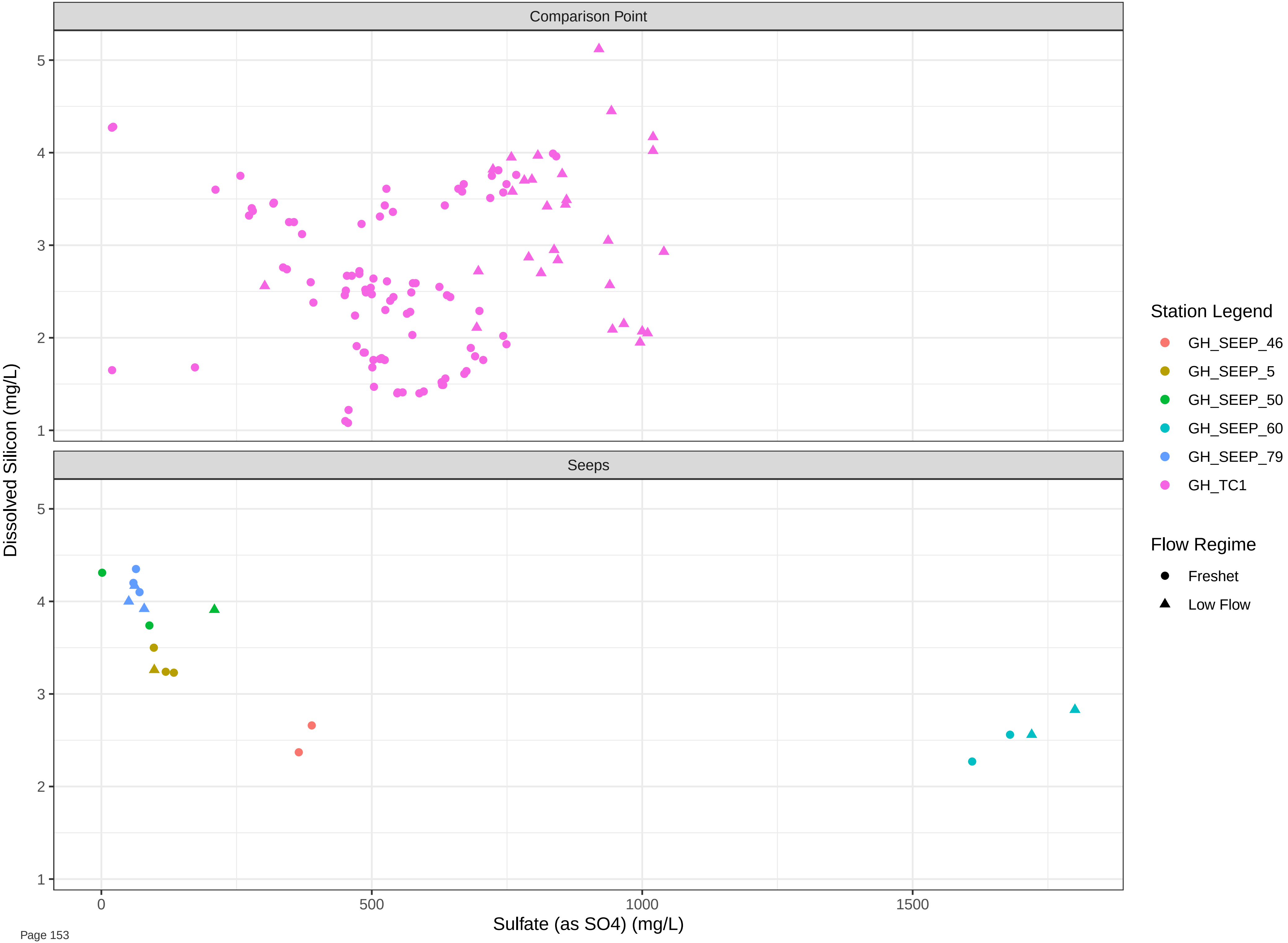

Comparison Point
Seeps
Dissolved Silicon (mg/L)
Sulfate (as SO4) (mg/L)
1
2
3
4
5
500
1000
1500
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

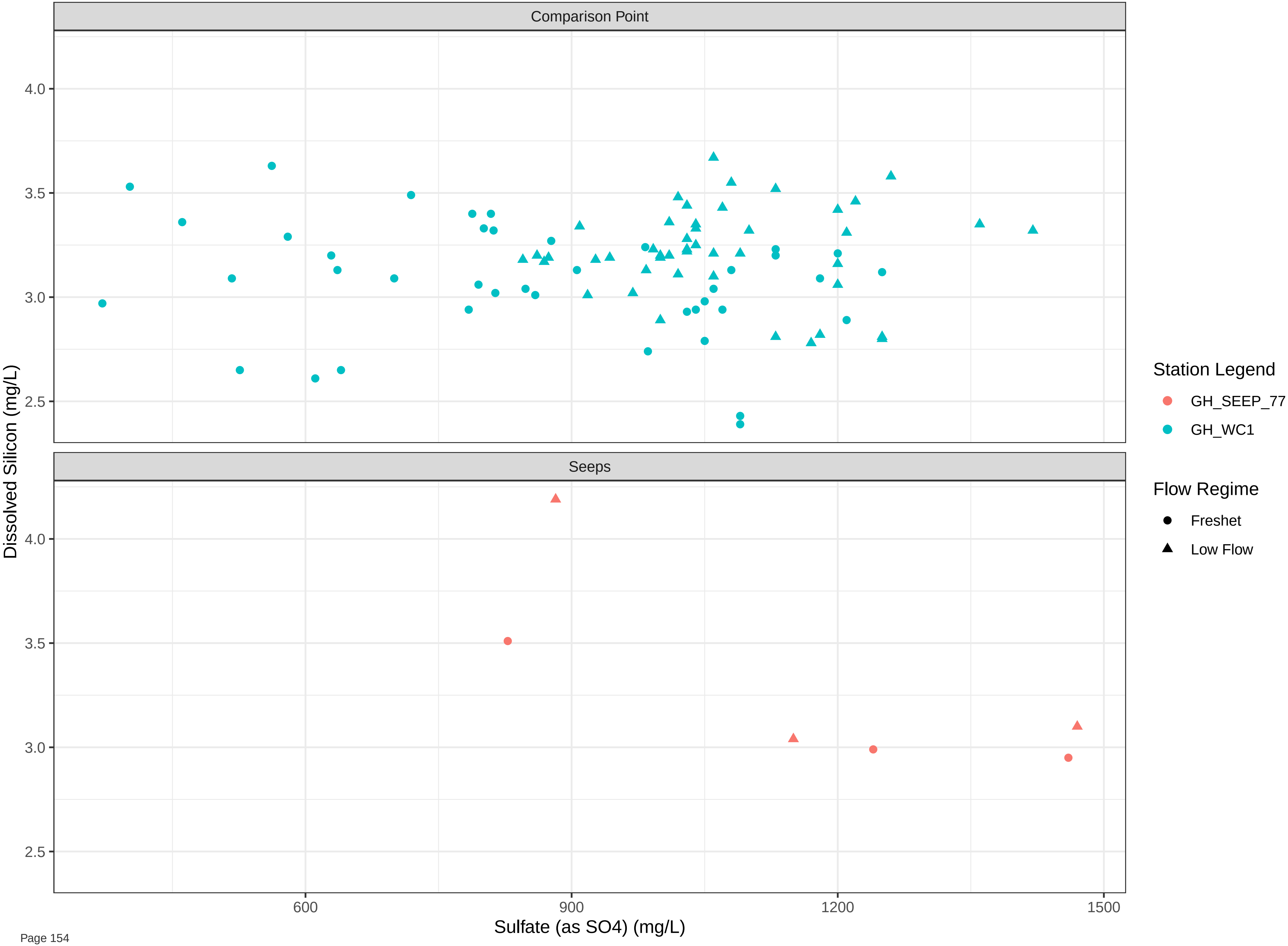

Comparison Point
Seeps
Dissolved Silicon (mg/L)
Sulfate (as SO4) (mg/L)
1
2
3
4
5
500
1000
1500
2000
2500
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
Dissolved Silicon (mg/L)
7
6
5
4
3
0
200
400
600
Sulfate (as SO4) (mg/L)
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow

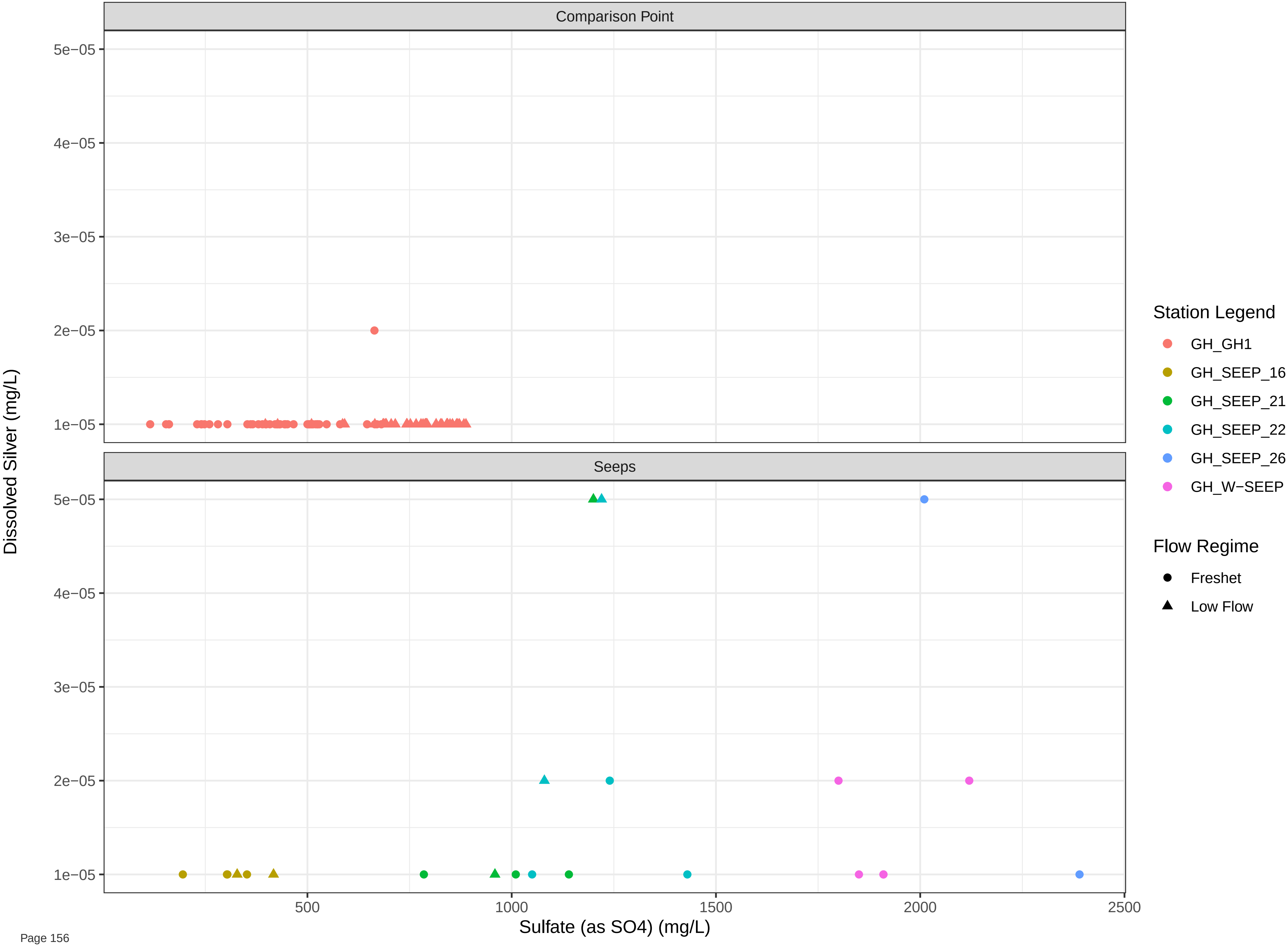

Comparison Point
Seeps
Dissolved Silicon (mg/L)
4
3
2
Sulfate (as SO4) (mg/L)
0
250
500
750
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
● Freshet
▲ Low Flow

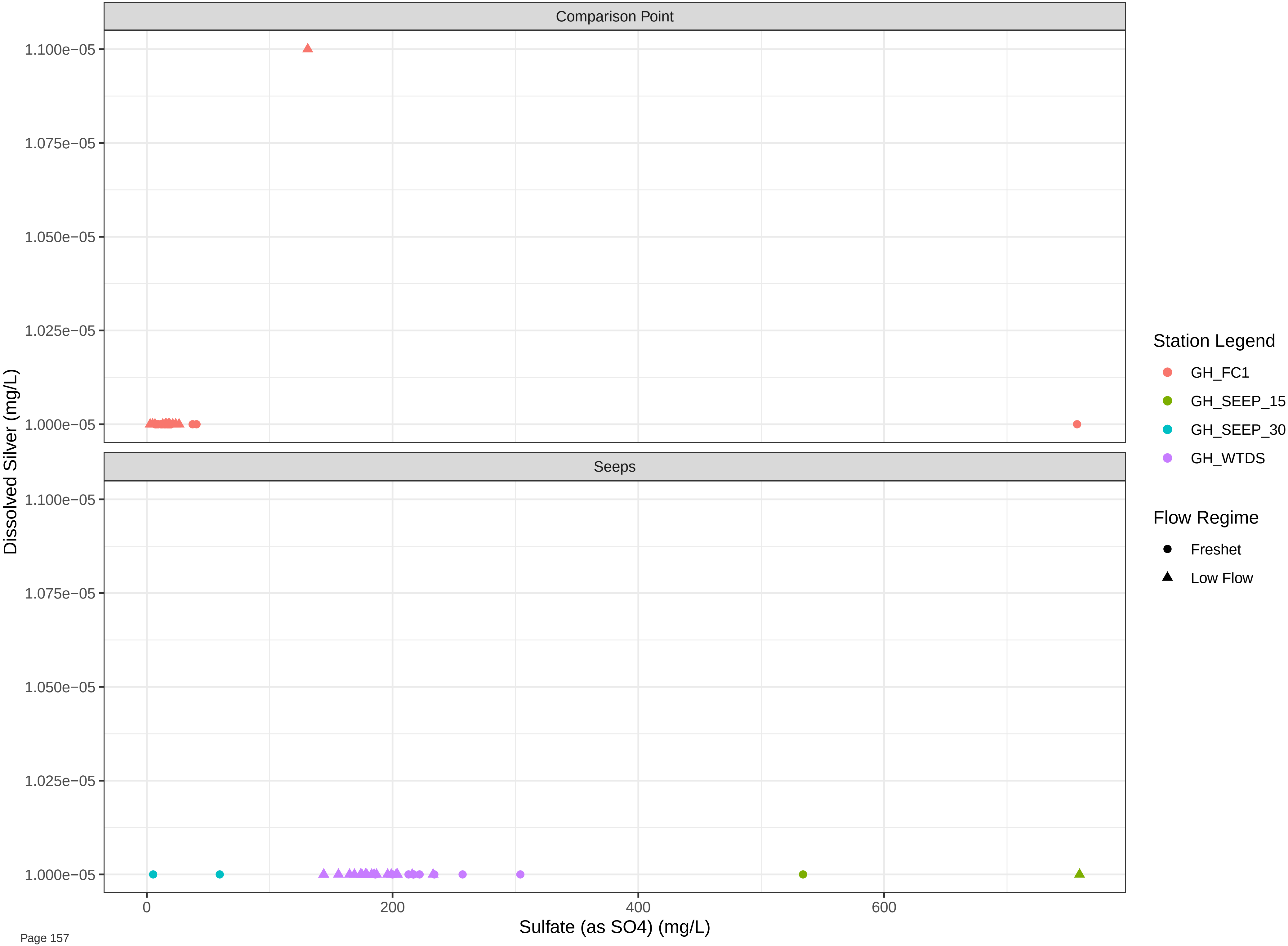

Seeps
Dissolved Silicon (mg/L)
3.4
3.2
3.0
2.8
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

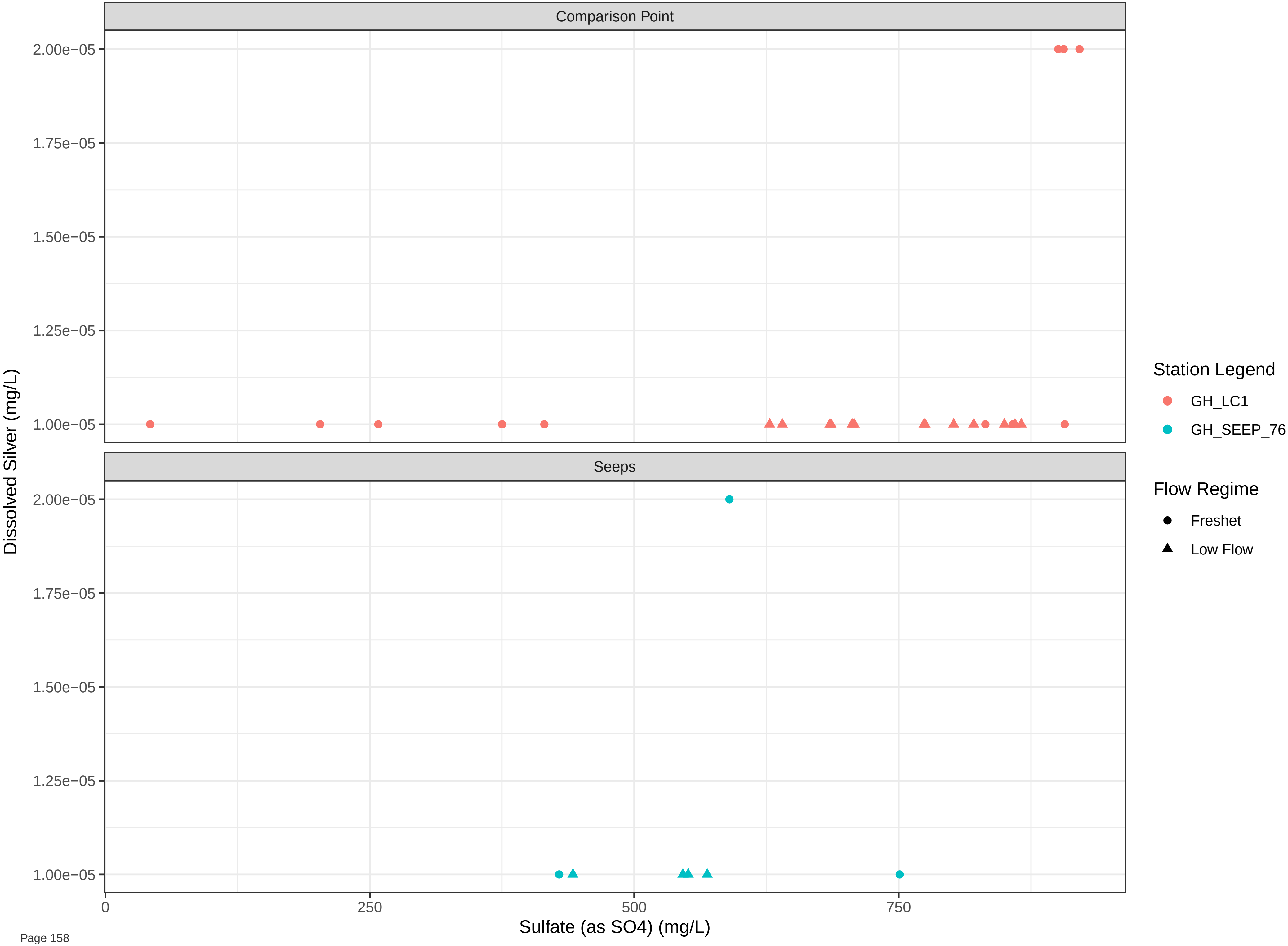

Comparison Point
Seeps
Dissolved Silicon (mg/L)
1
2
3
4
5
0
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

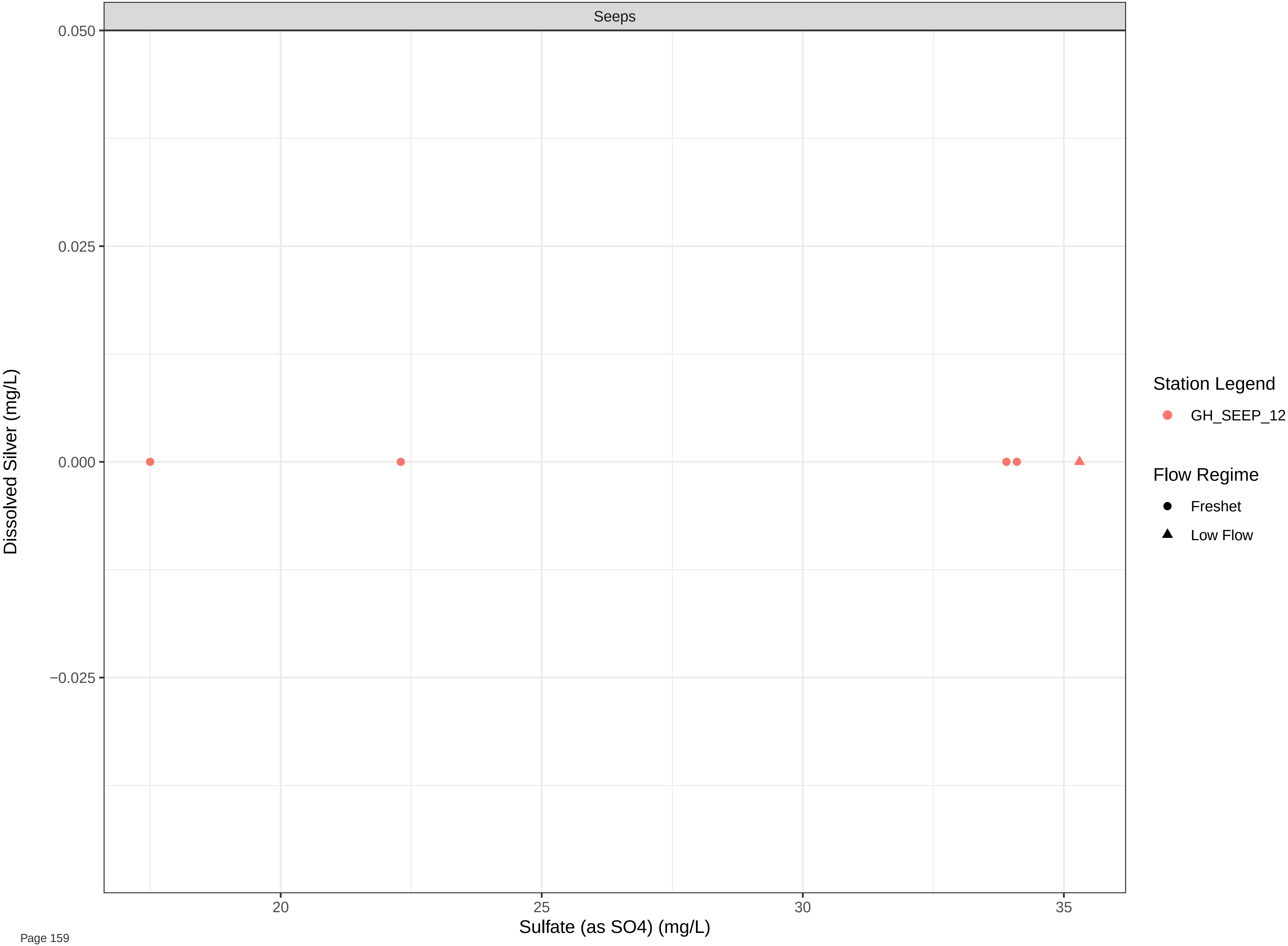

Comparison Point
Seeps
Dissolved Silicon (mg/L)
4.0
3.5
3.0
2.5
600
900
1200
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

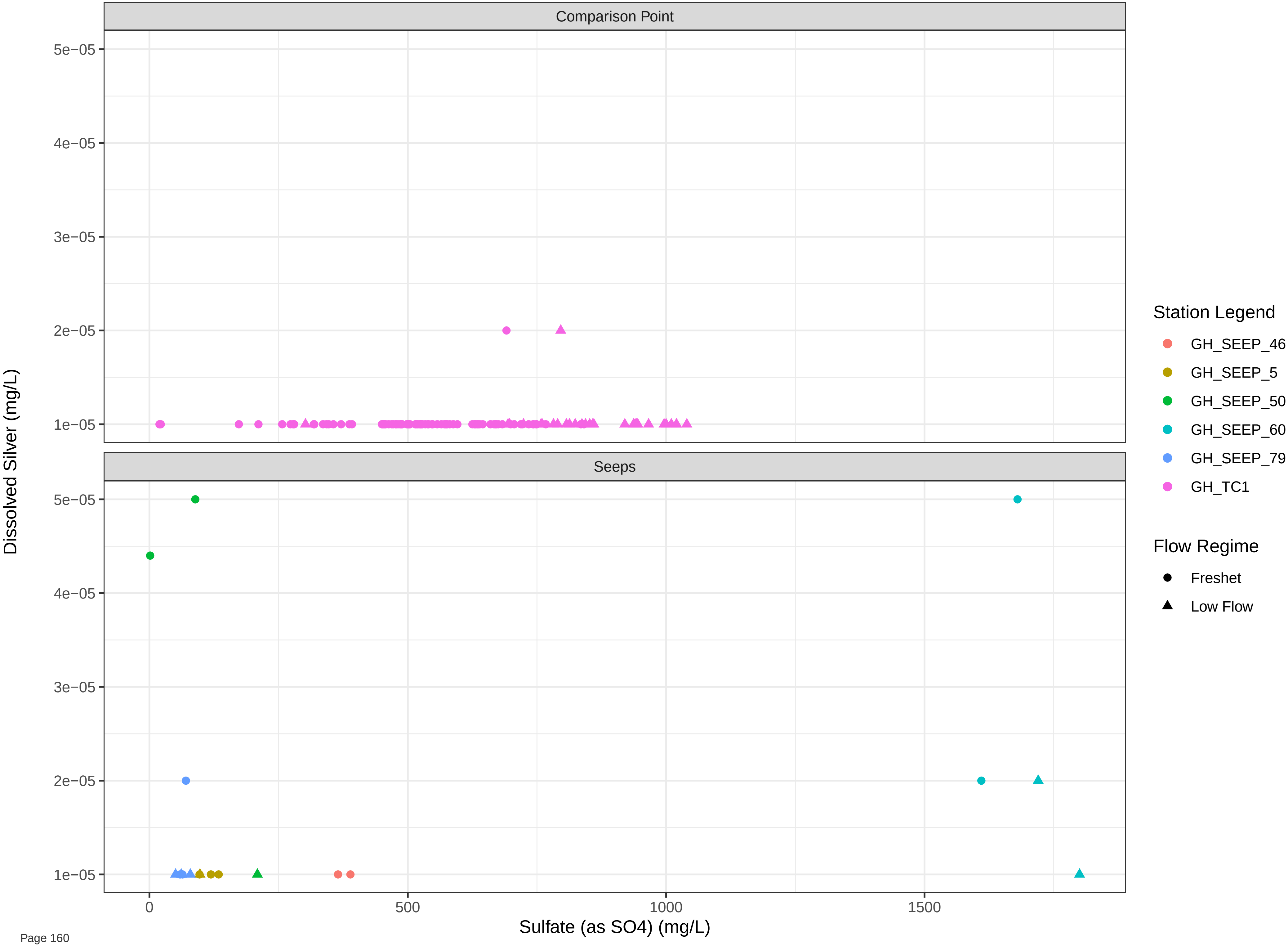

Comparison Point
Seeps
5e−05
4e−05
3e−05
2e−05
1e−05
Dissolved Silver (mg/L)
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

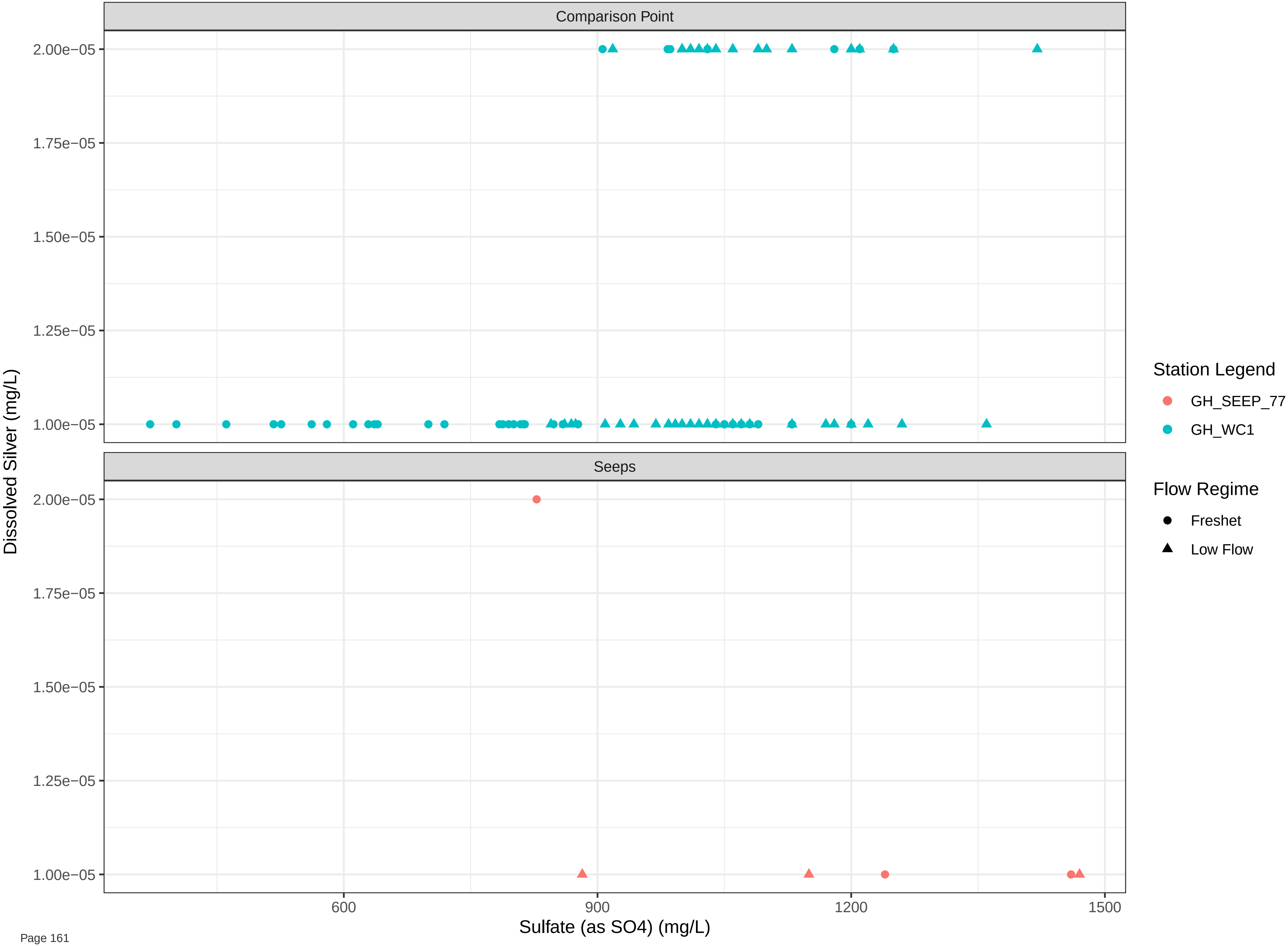

Comparison Point
Seeps
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
Sulfate (as SO4) (mg/L)
500
1000
1500
2000
2500
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow

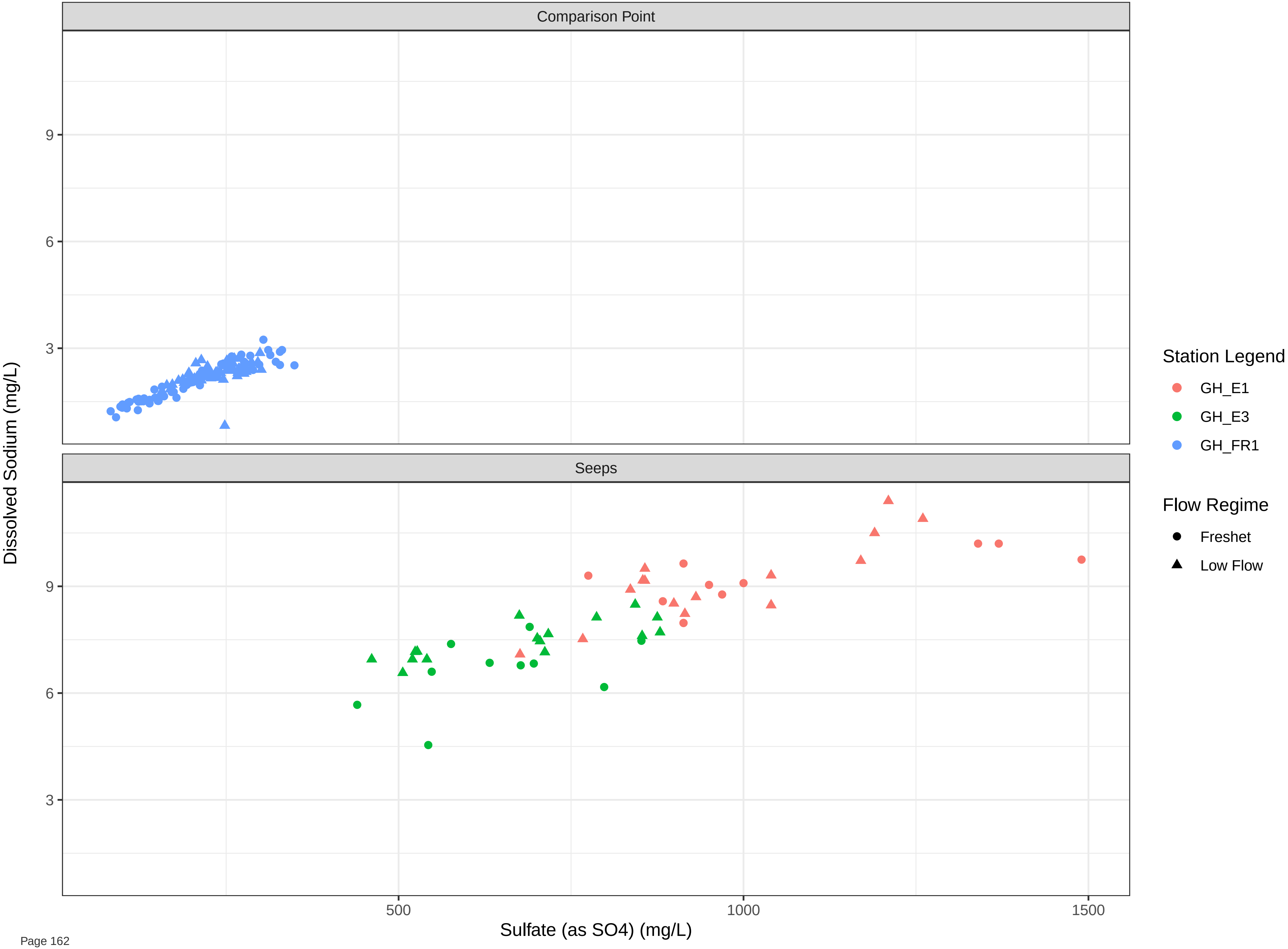

Comparison Point
Seeps
1.100e−05
1.075e−05
1.050e−05
1.025e−05
1.000e−05
Dissolved Silver (mg/L)
0
200
400
600
Sulfate (as SO4) (mg/L)
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow

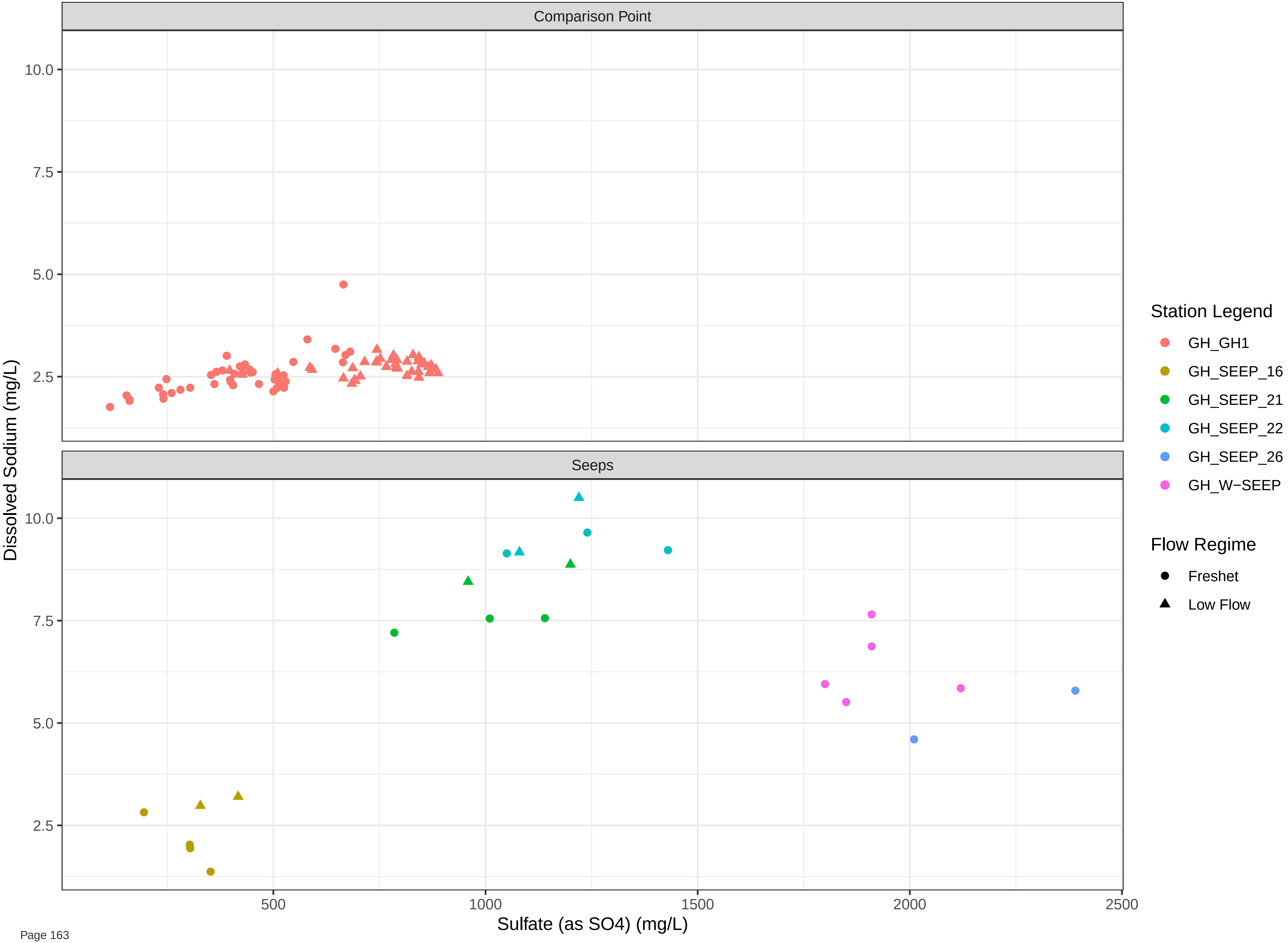

Comparison Point
Seeps
2.00e−05
1.75e−05
1.50e−05
1.25e−05
1.00e−05
Dissolved Silver (mg/L)
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
Freshet
Low Flow

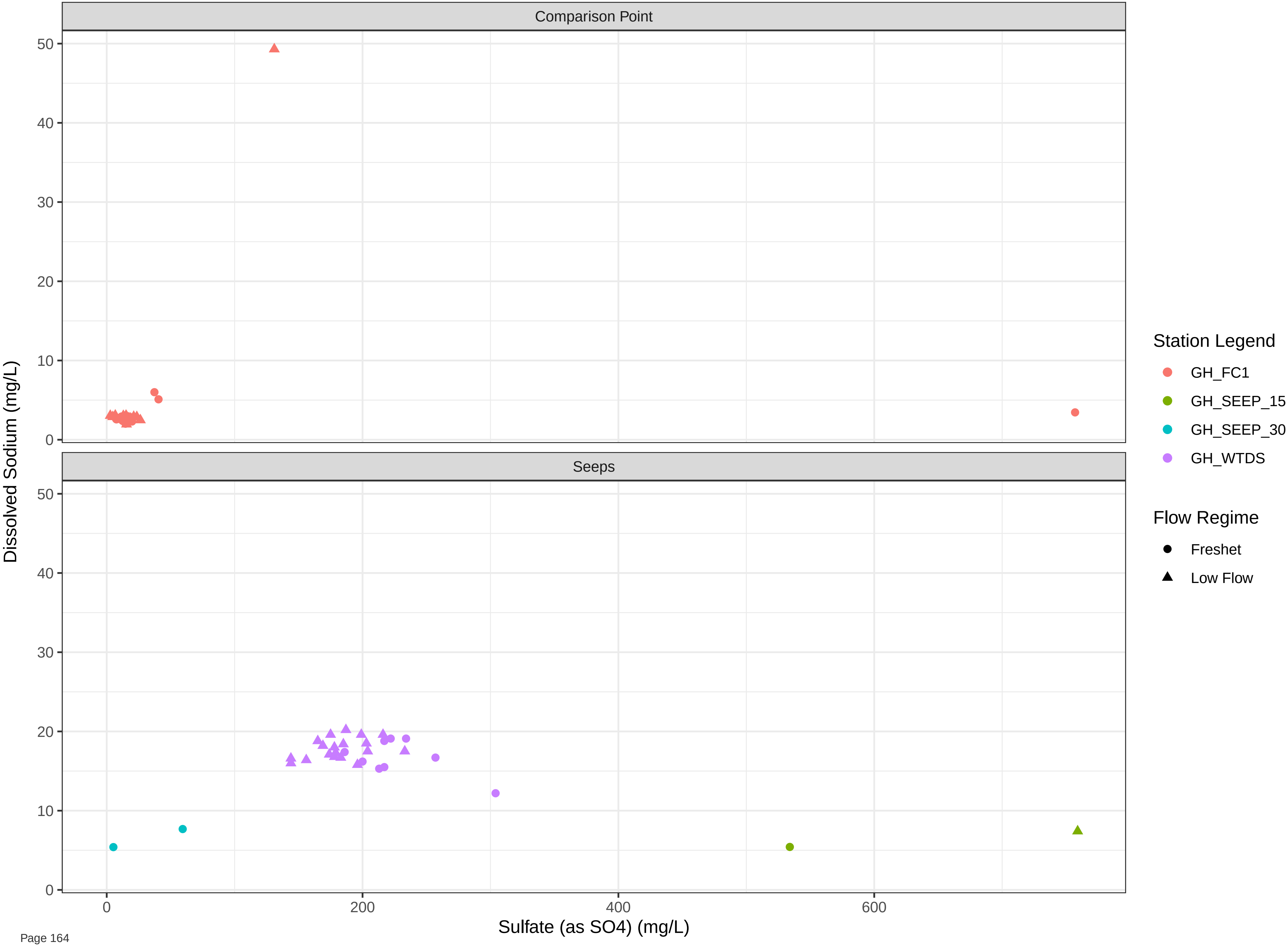

Seeps
0.050
0.025
0.000
−0.025
Dissolved Silver (mg/L)
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

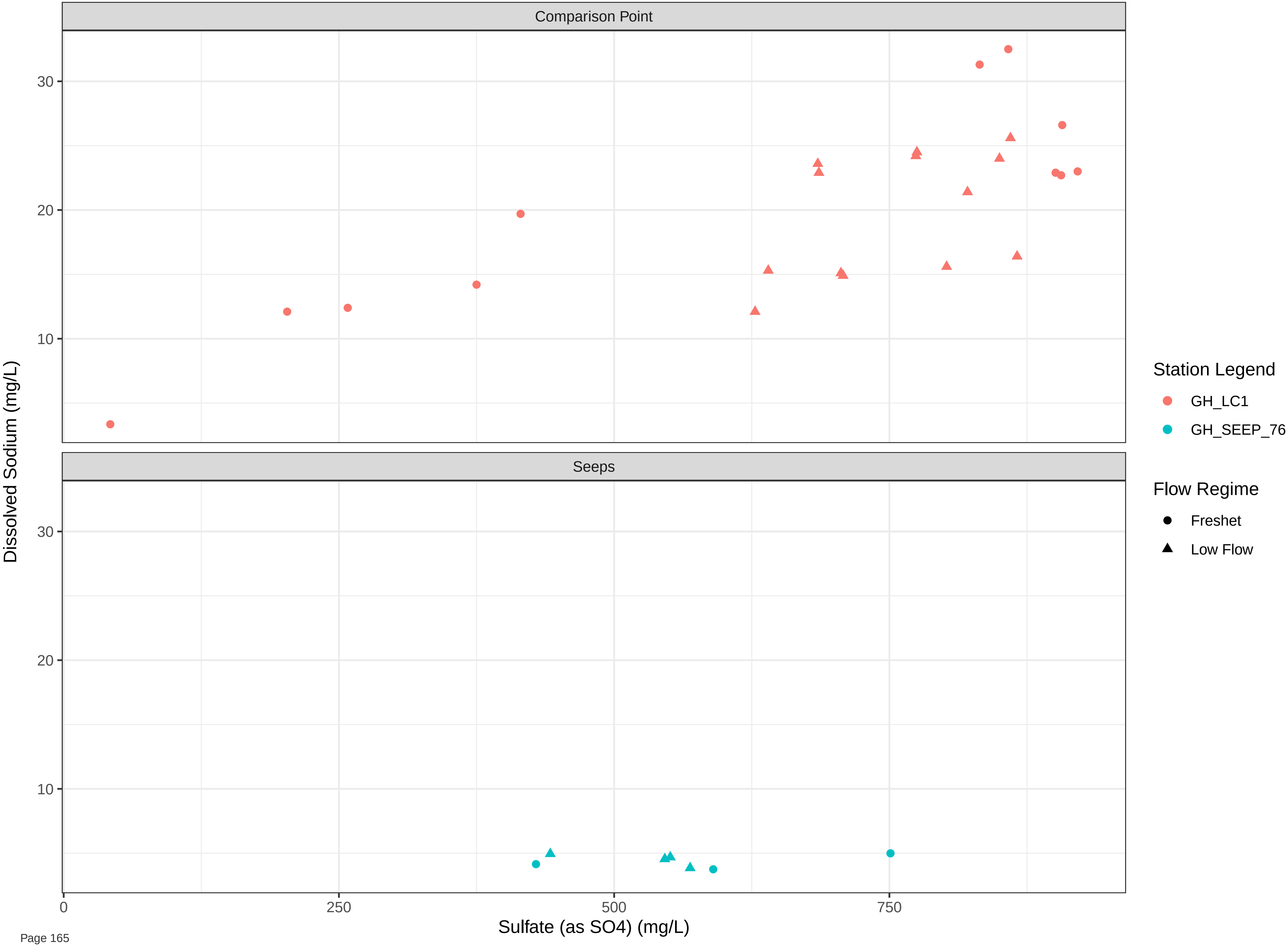

Comparison Point
Seeps
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
0
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

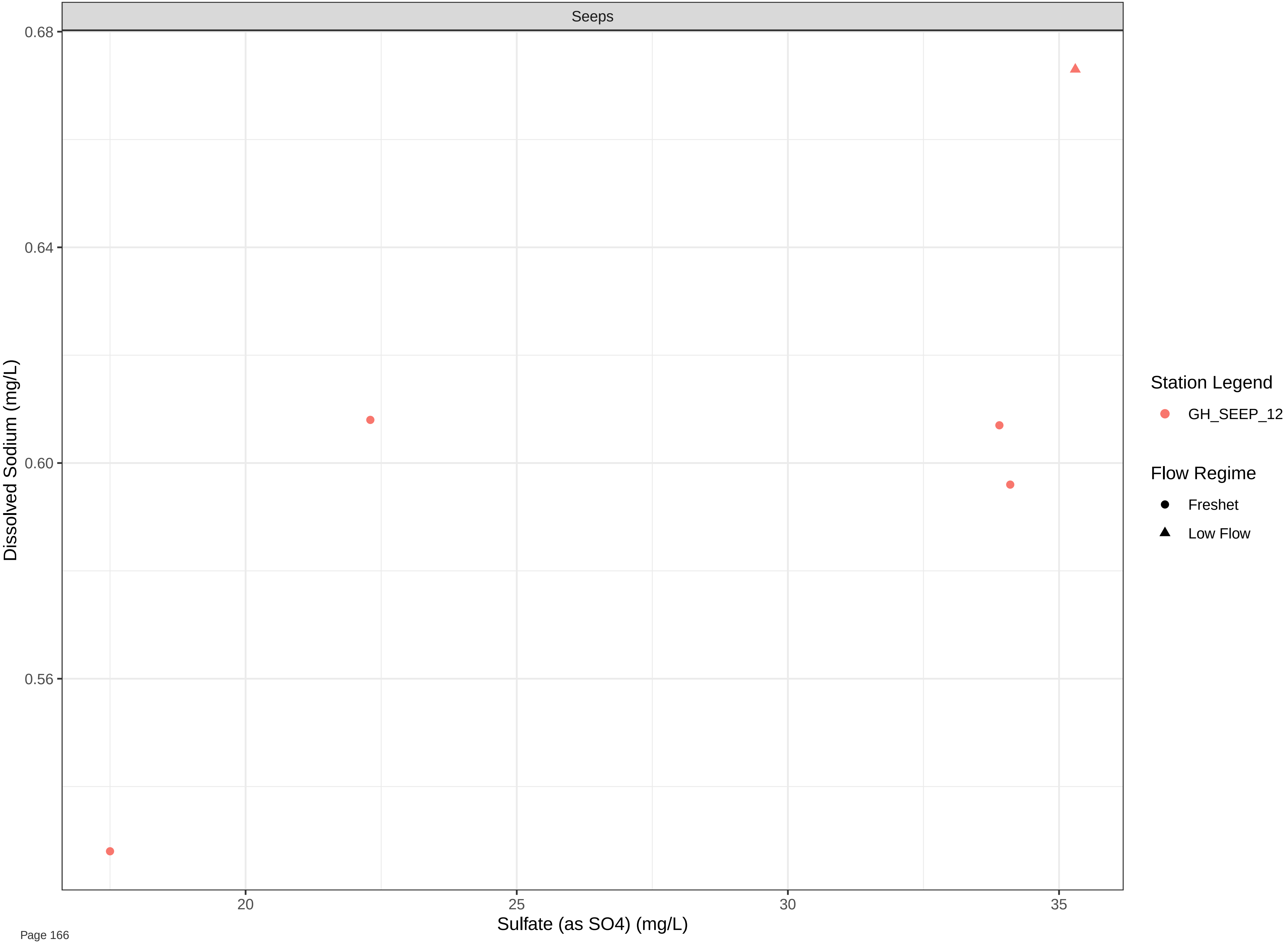

Comparison Point
Seeps
Dissolved Silver (mg/L)
2.00e−05
1.75e−05
1.50e−05
1.25e−05
1.00e−05
600
900
1200
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

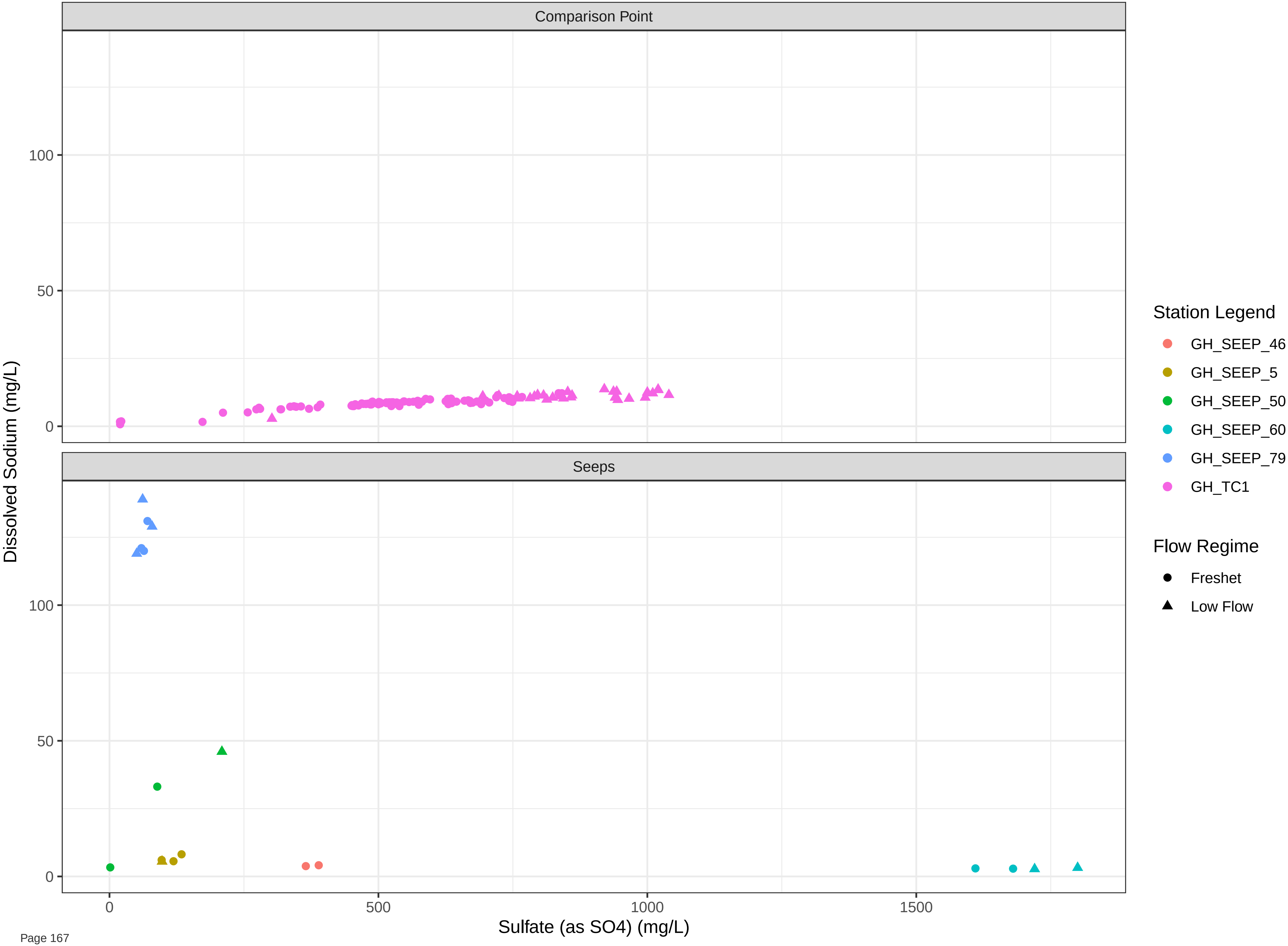

Comparison Point
Seeps
Dissolved Sodium (mg/L)
9
6
3
9
6
3
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

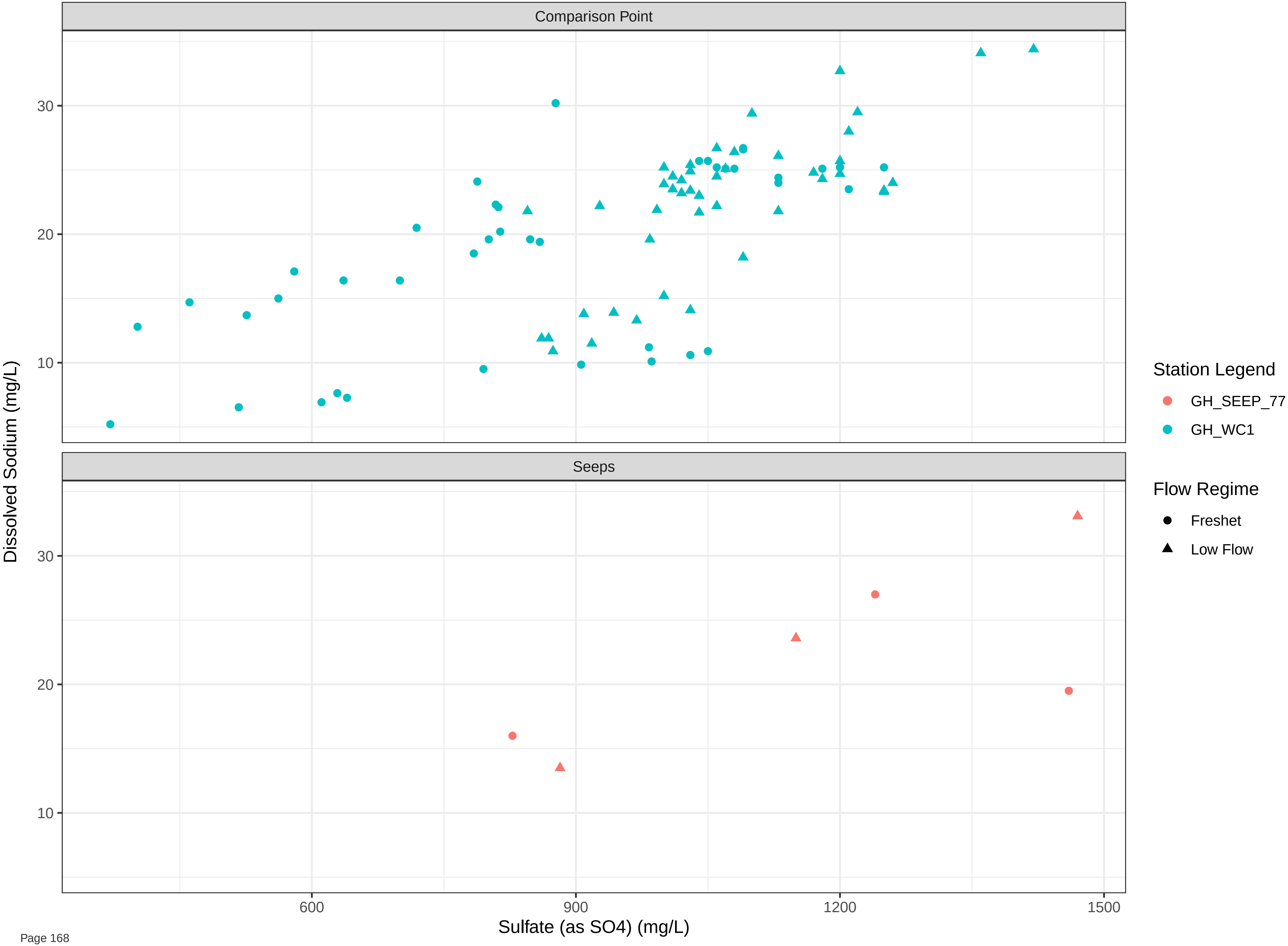

Comparison Point
Seeps
Dissolved Sodium (mg/L)
10.0
7.5
5.0
2.5
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow

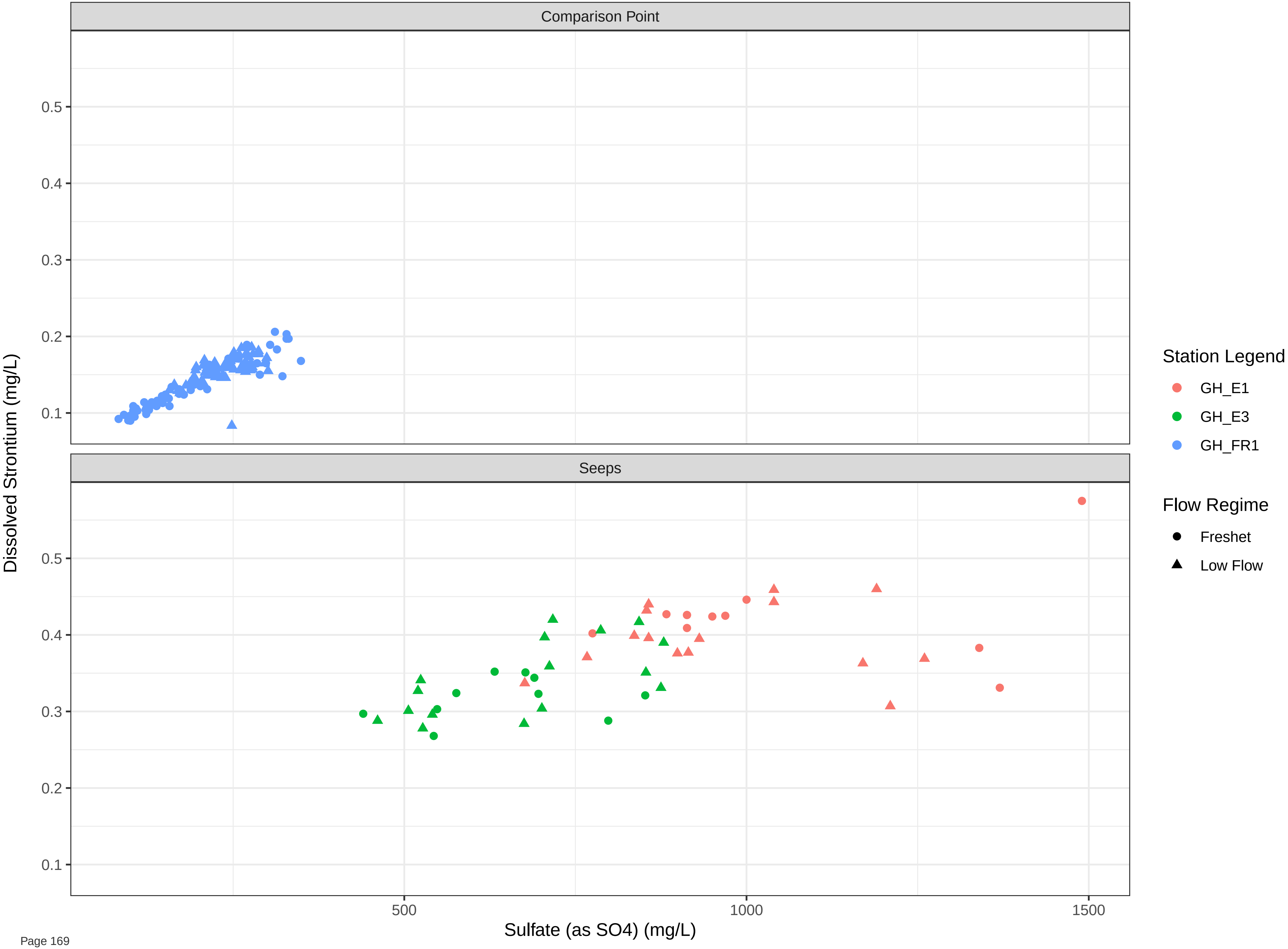

Comparison Point
Seeps
Dissolved Sodium (mg/L)
Sulfate (as SO4) (mg/L)
0
10
20
30
40
50
0
200
400
600
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow

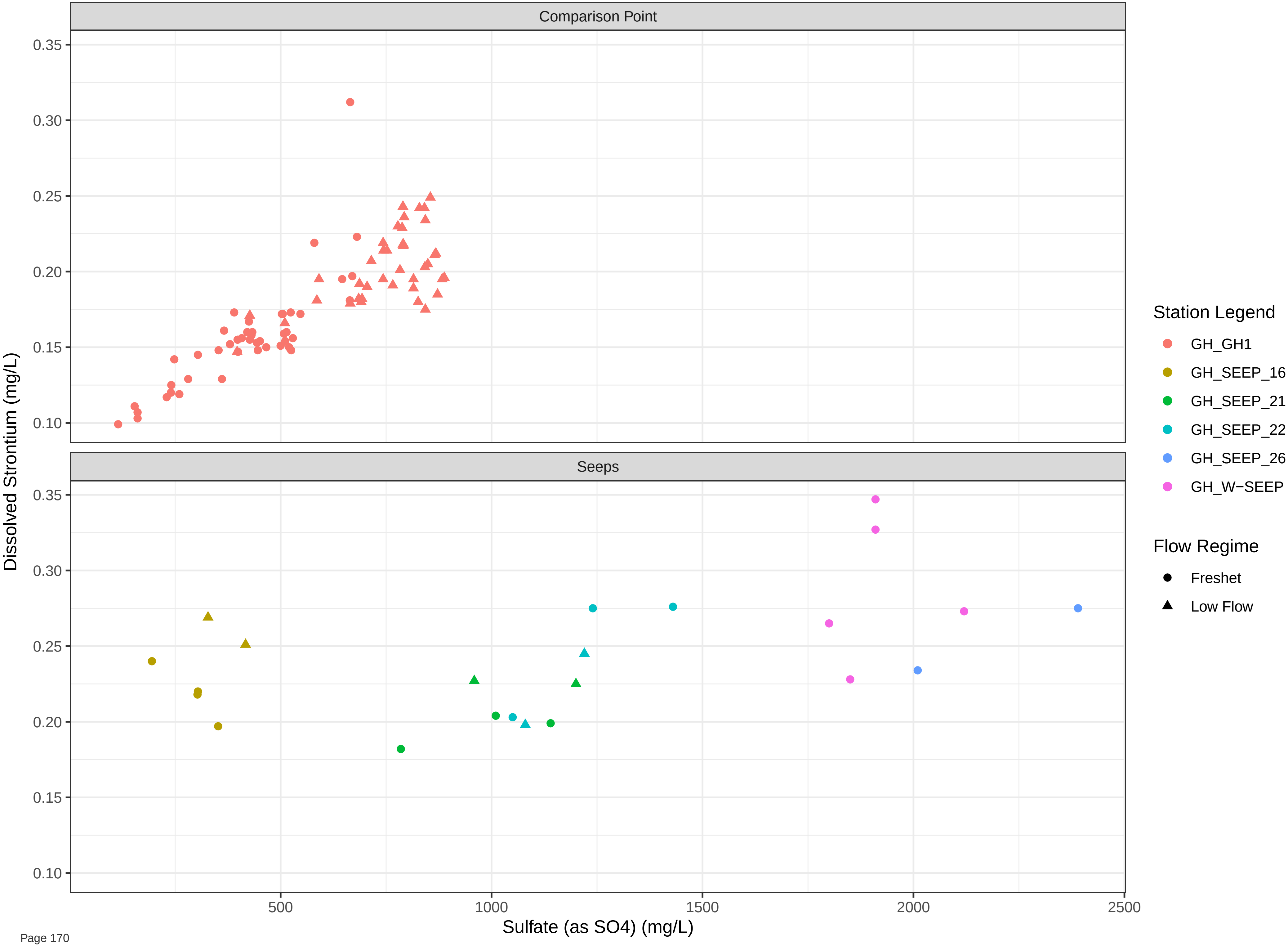

Comparison Point
Seeps
Dissolved Sodium (mg/L)
30
20
10
30
20
10
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
Freshet
Low Flow

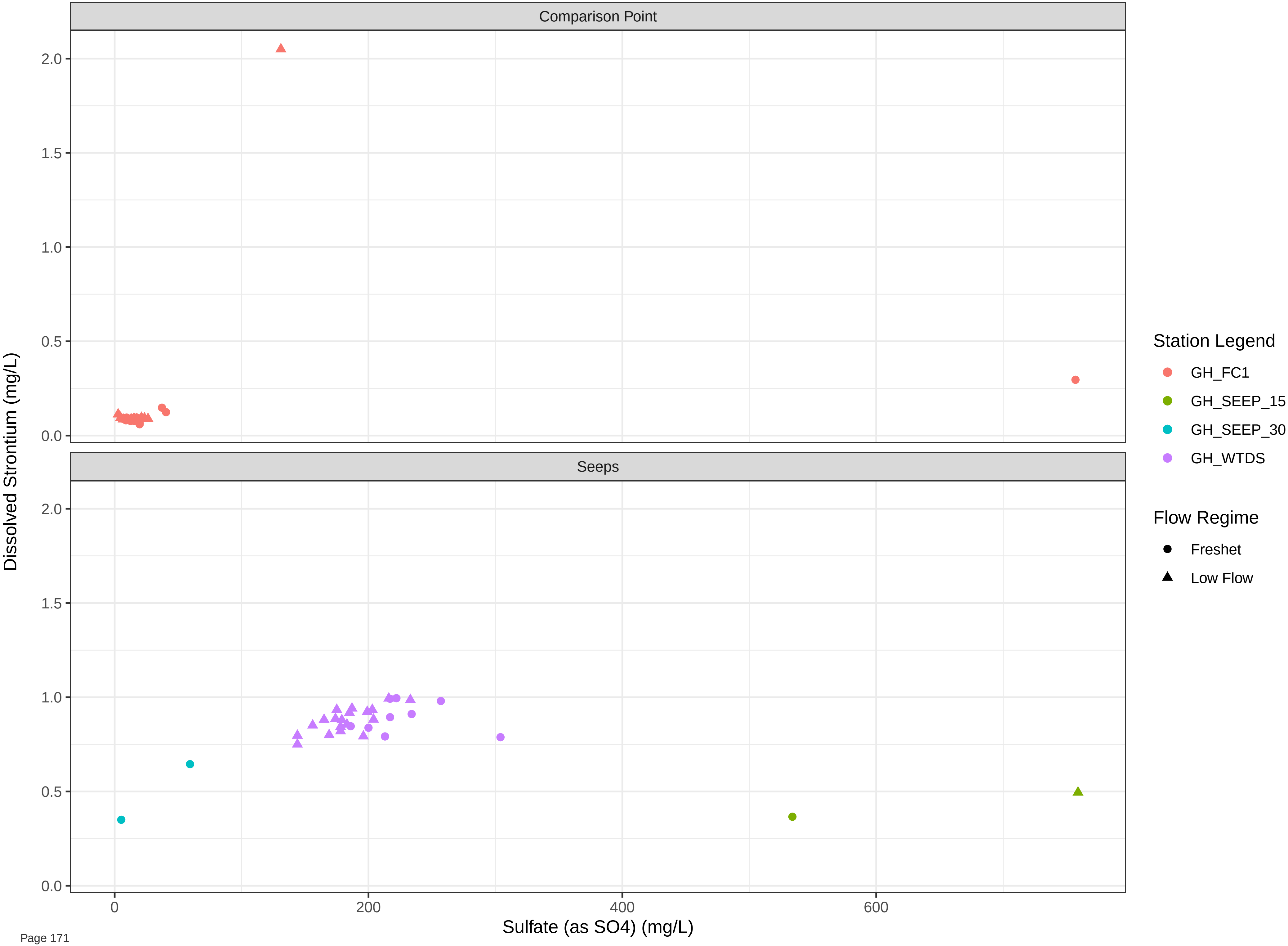

Seeps
0.68
0.64
0.60
0.56
Dissolved Sodium (mg/L)
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

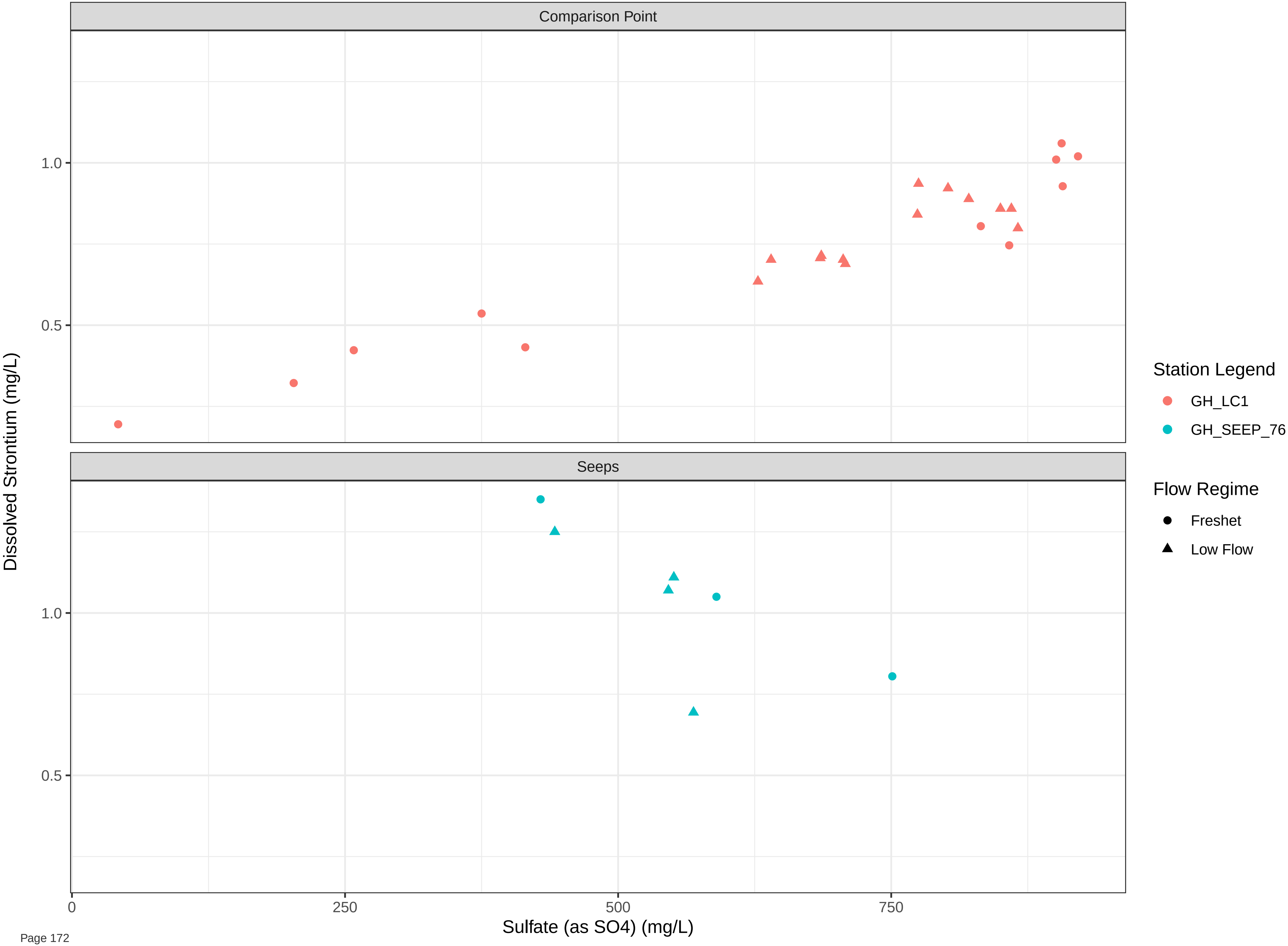

Comparison Point
Seeps
Dissolved Sodium (mg/L)
Sulfate (as SO4) (mg/L)
0
50
100
0
500
1000
1500
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

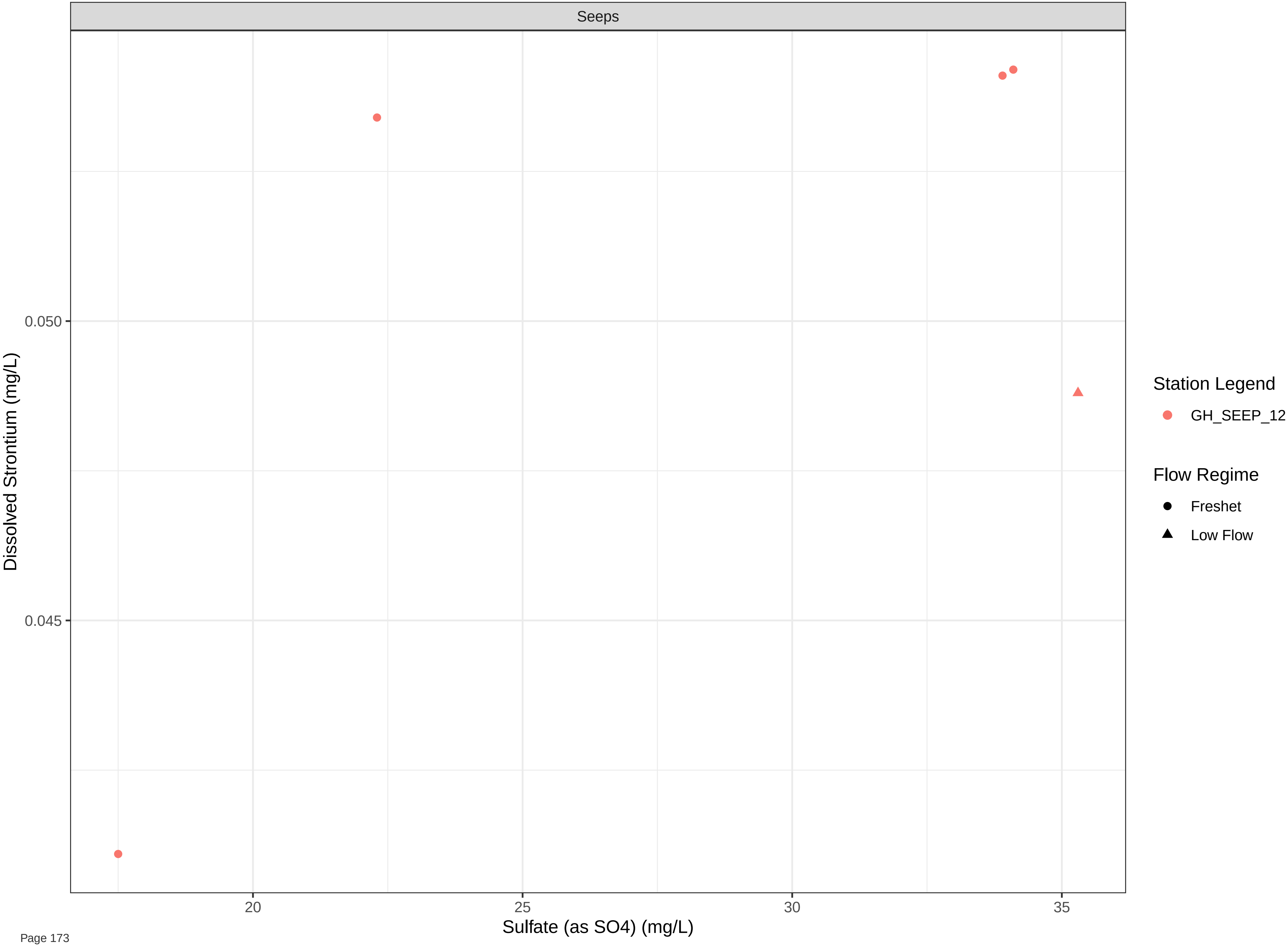

Comparison Point
Seeps
Dissolved Sodium (mg/L)
30
20
10
30
20
10
600
900
1200
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

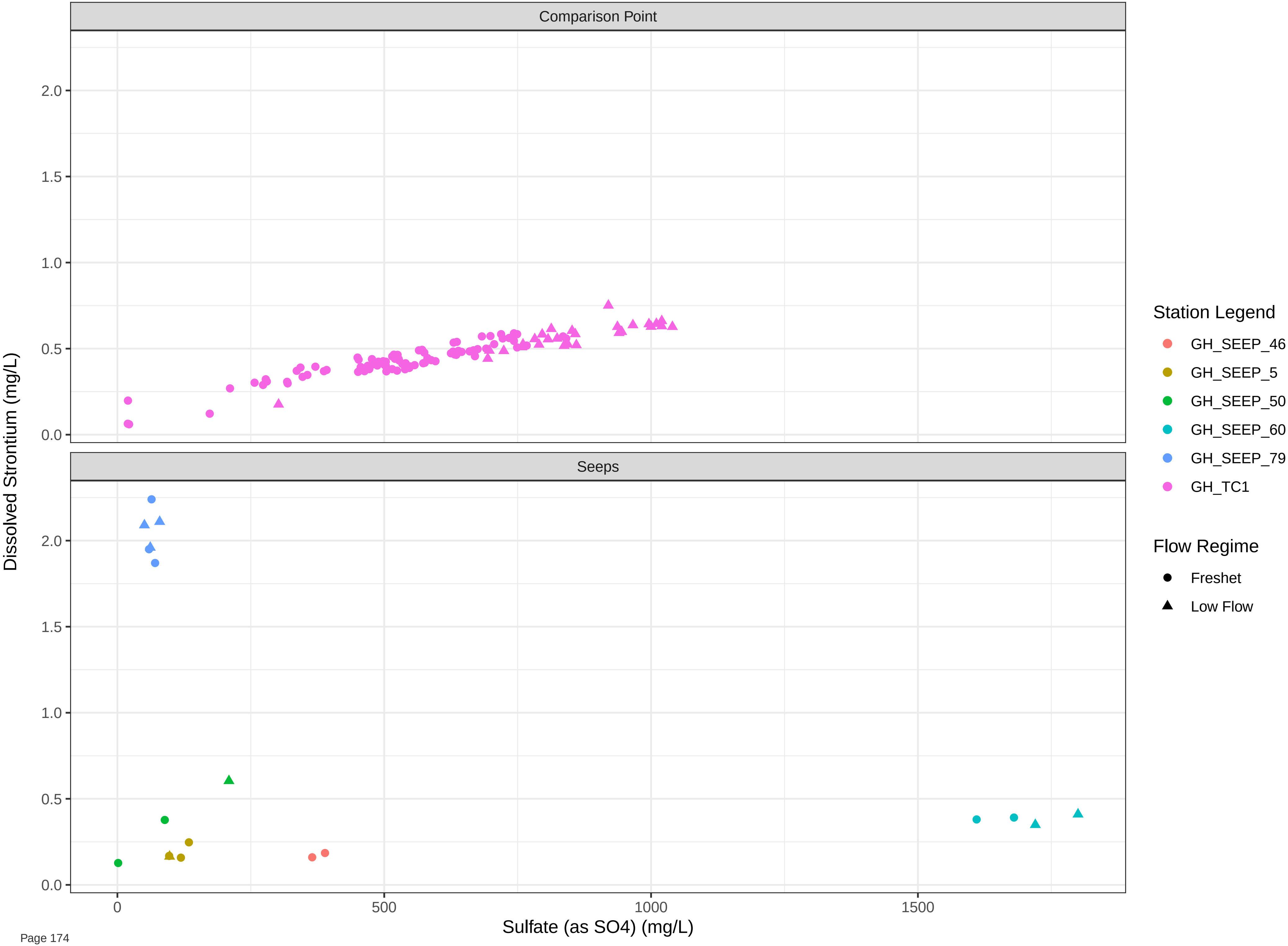

Comparison Point
Seeps
Dissolved Strontium (mg/L)
0.5
0.4
0.3
0.2
0.1
Sulfate (as SO4) (mg/L)
500
1000
1500
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

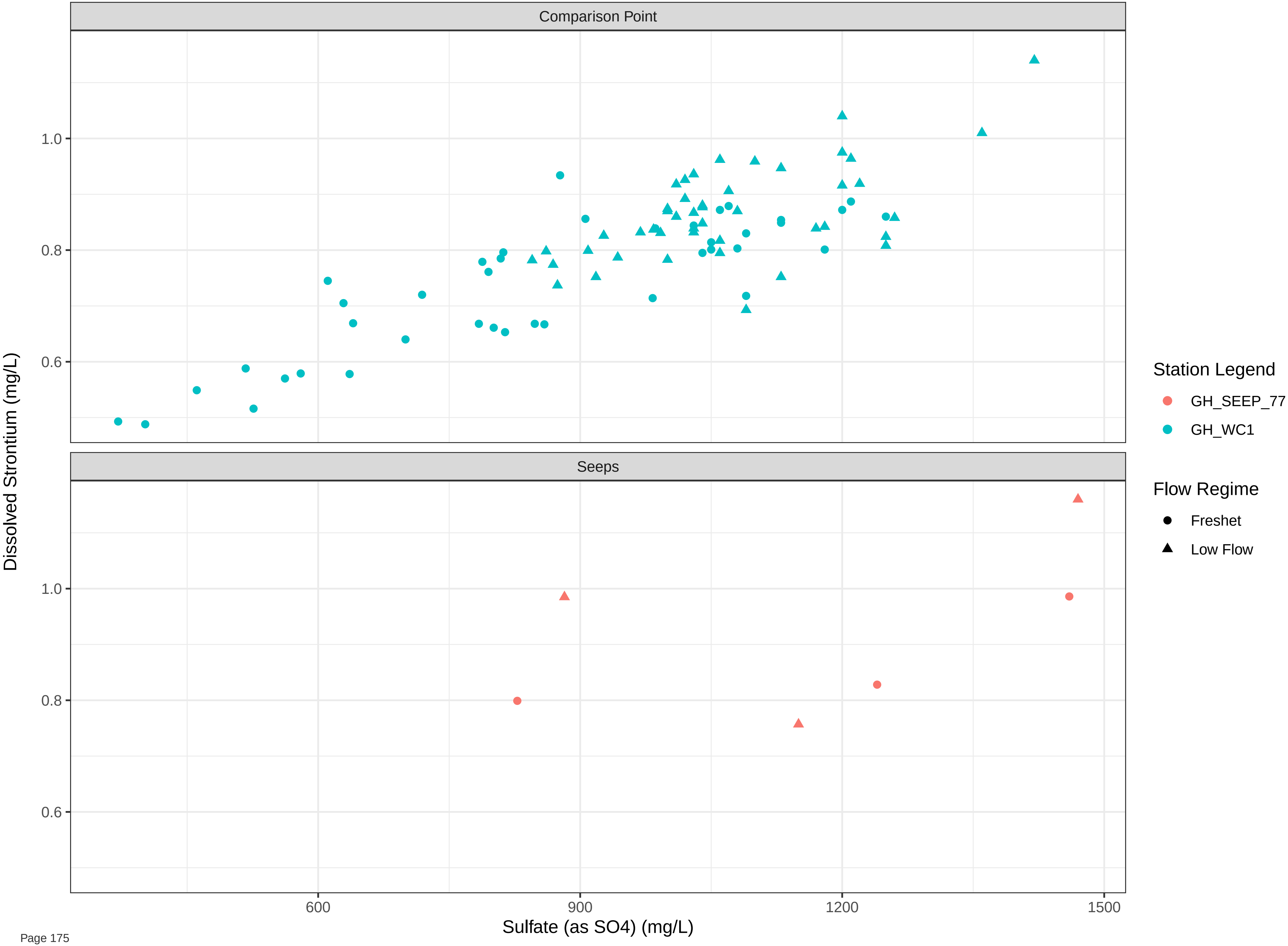

Comparison Point
Seeps
Dissolved Strontium (mg/L)
0.35
0.30
0.25
0.20
0.15
0.10
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow

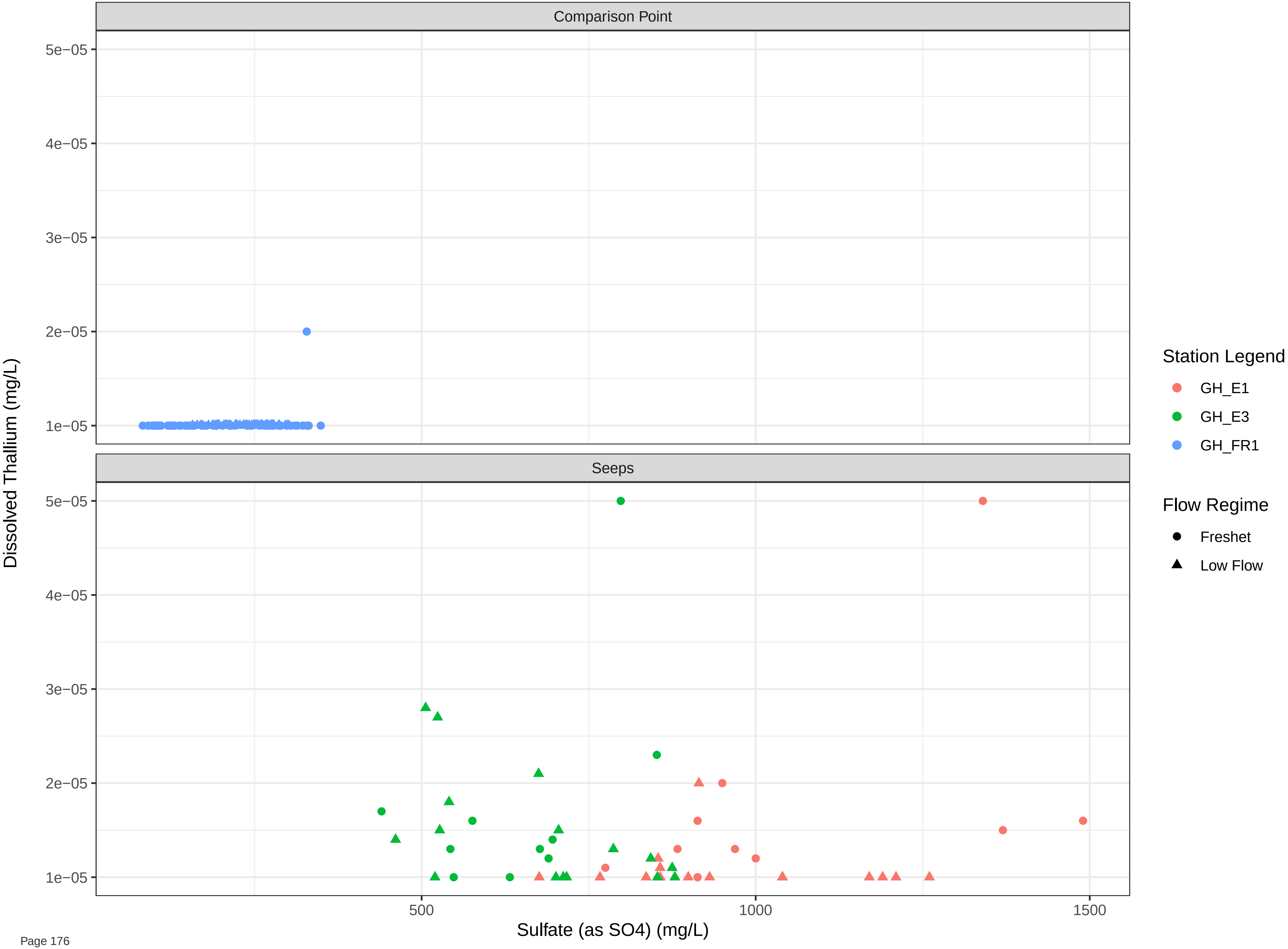

Comparison Point
Seeps
Dissolved Strontium (mg/L)
Sulfate (as SO4) (mg/L)
0.0
0.5
1.0
1.5
2.0
0
200
400
600
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow

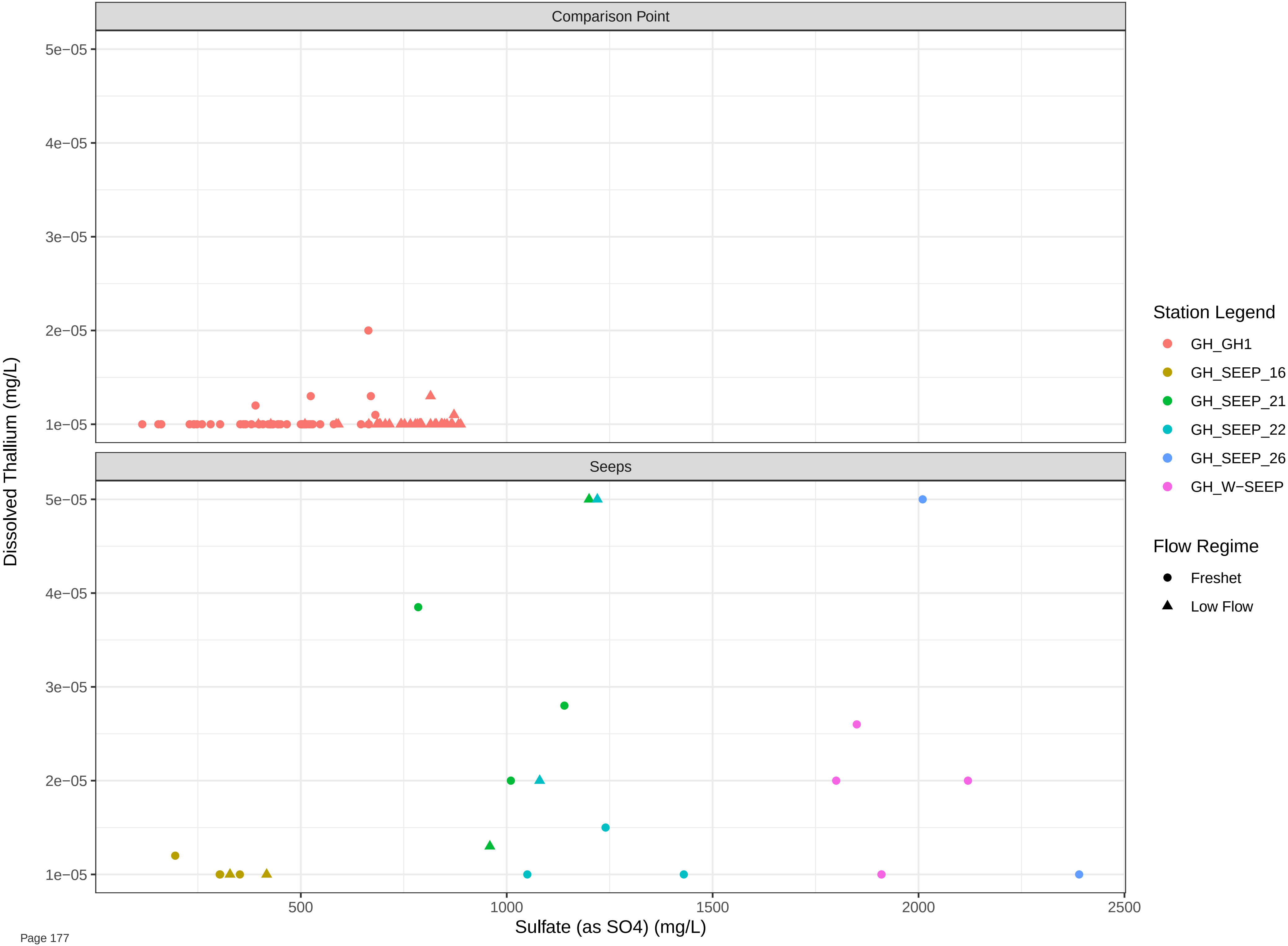

Comparison Point
Seeps
Dissolved Strontium (mg/L)
1.0
0.5
1.0
0.5
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
Freshet
Low Flow

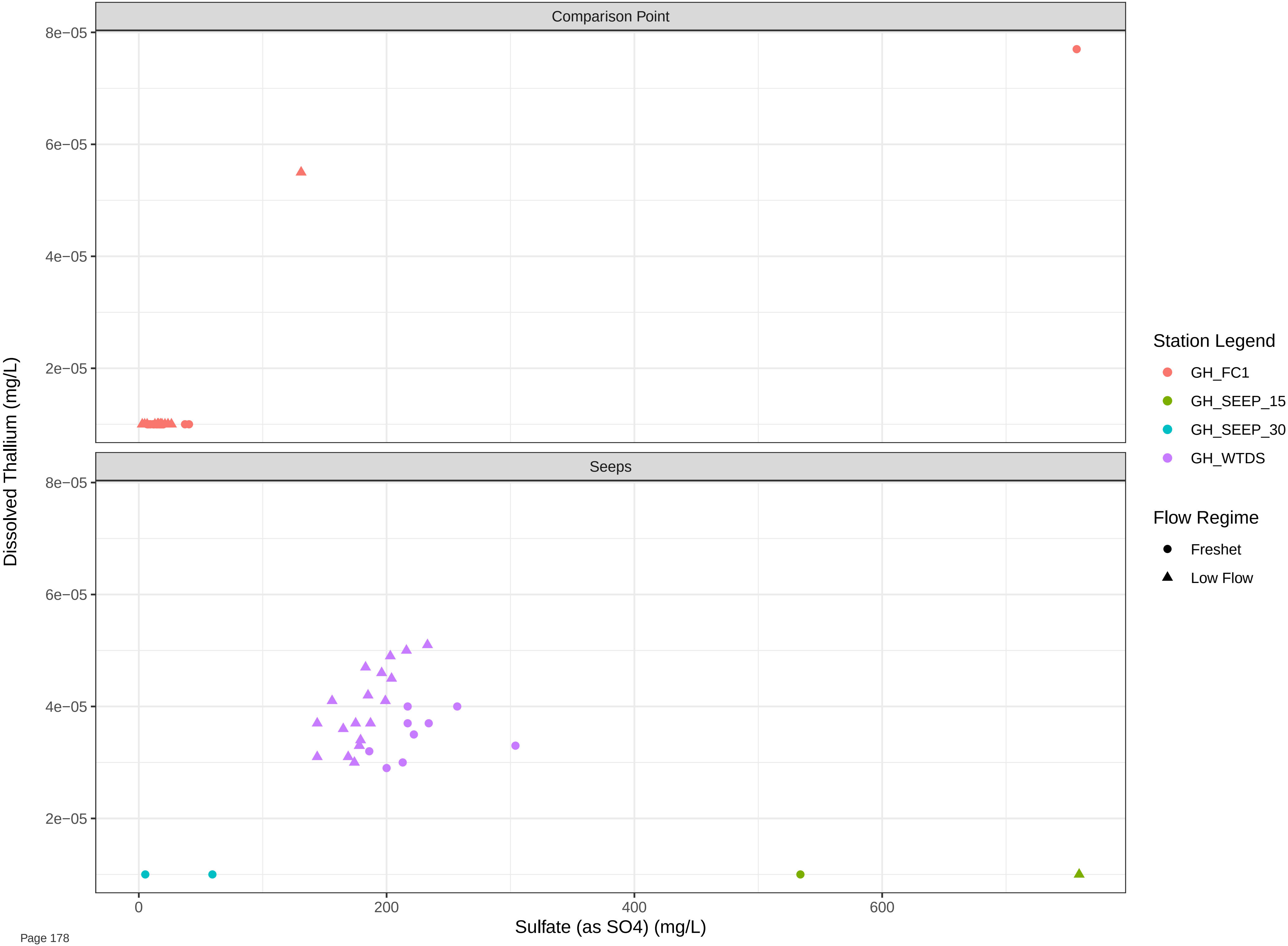

Seeps
0.050
0.045
Dissolved Strontium (mg/L)
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

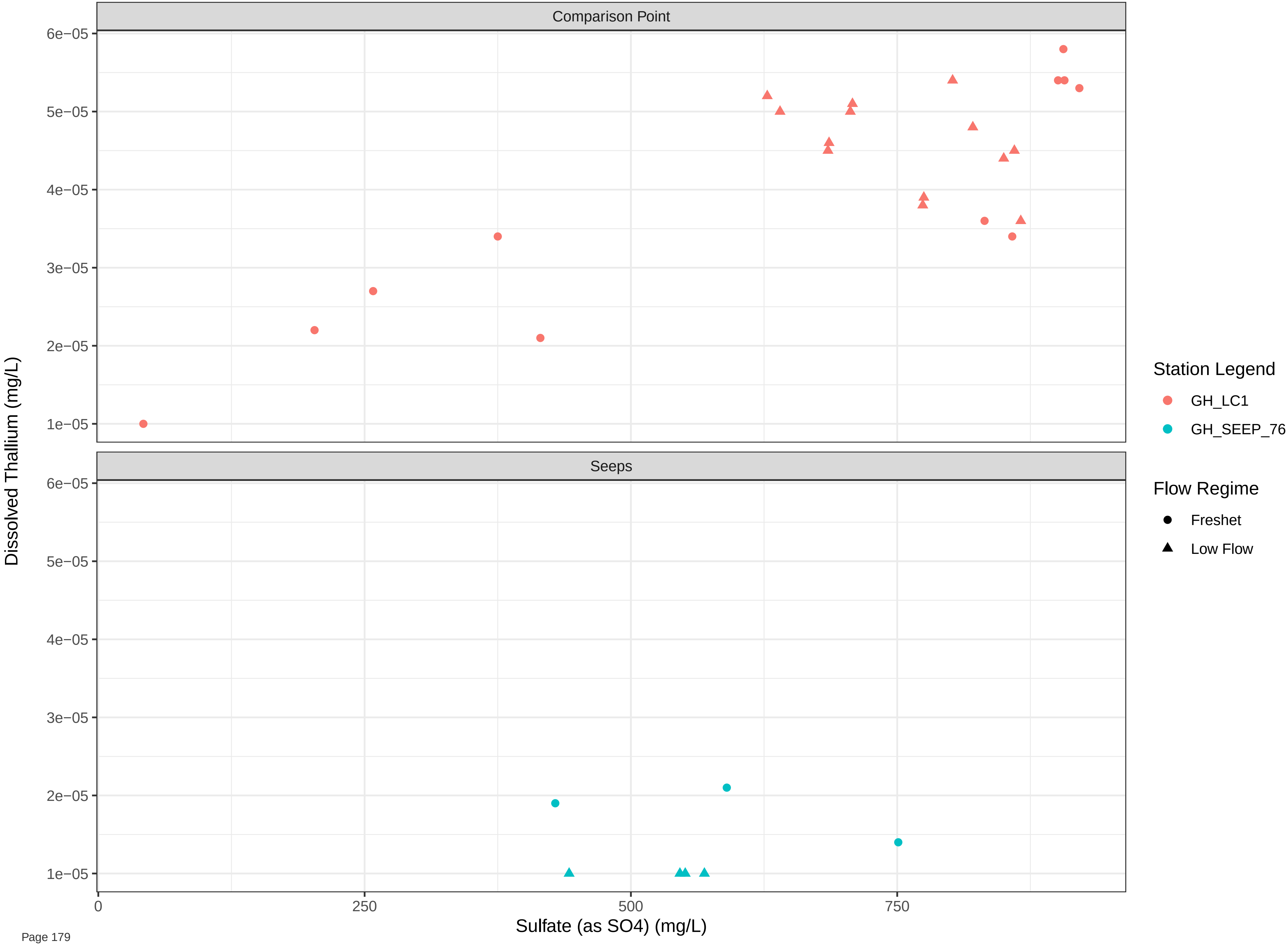

Comparison Point
Seeps
Dissolved Strontium (mg/L)
0.0
0.5
1.0
1.5
2.0
0
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

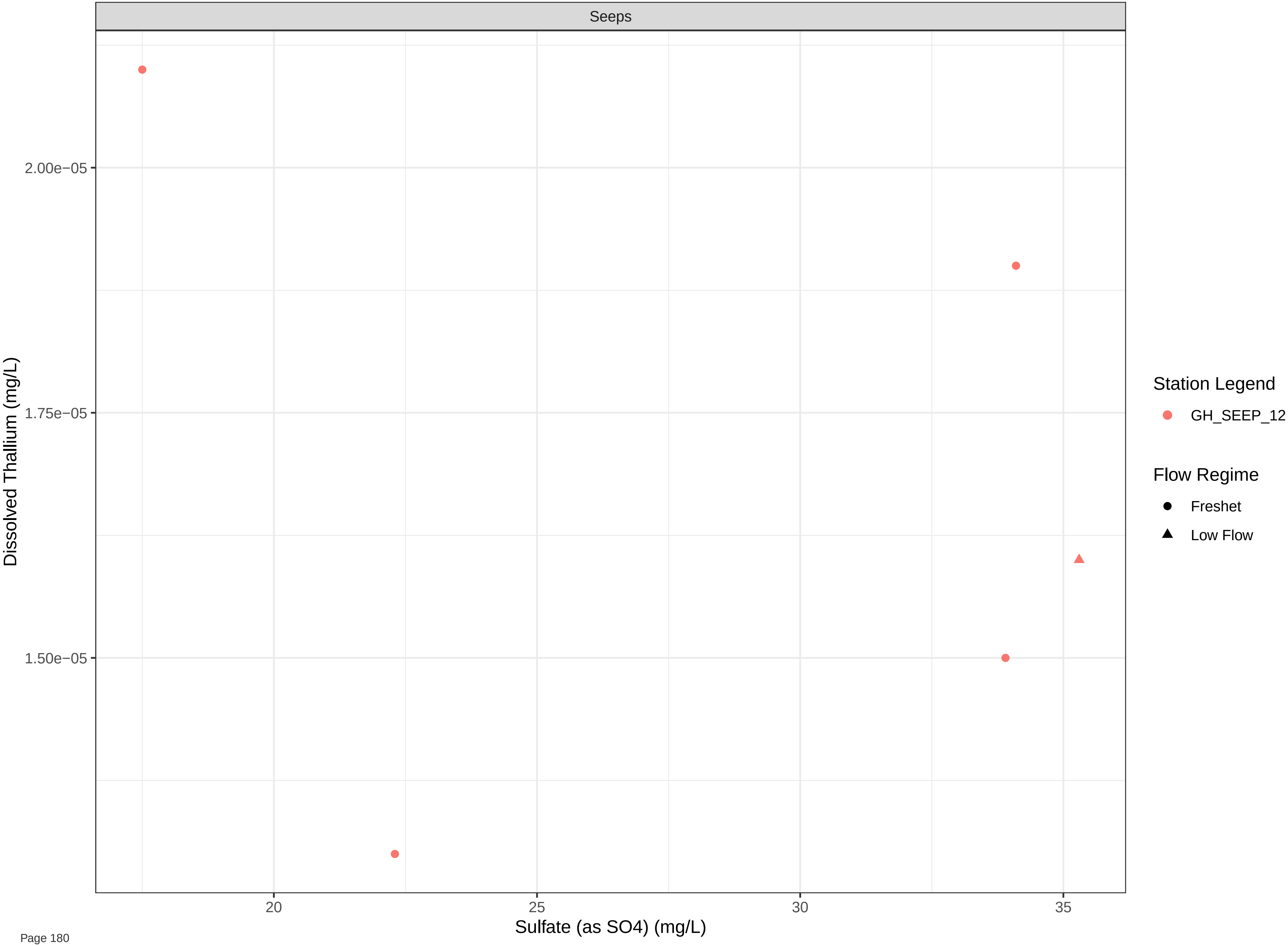

Comparison Point
Seeps
1.0
0.8
0.6
Dissolved Strontium (mg/L)
600
900
1200
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

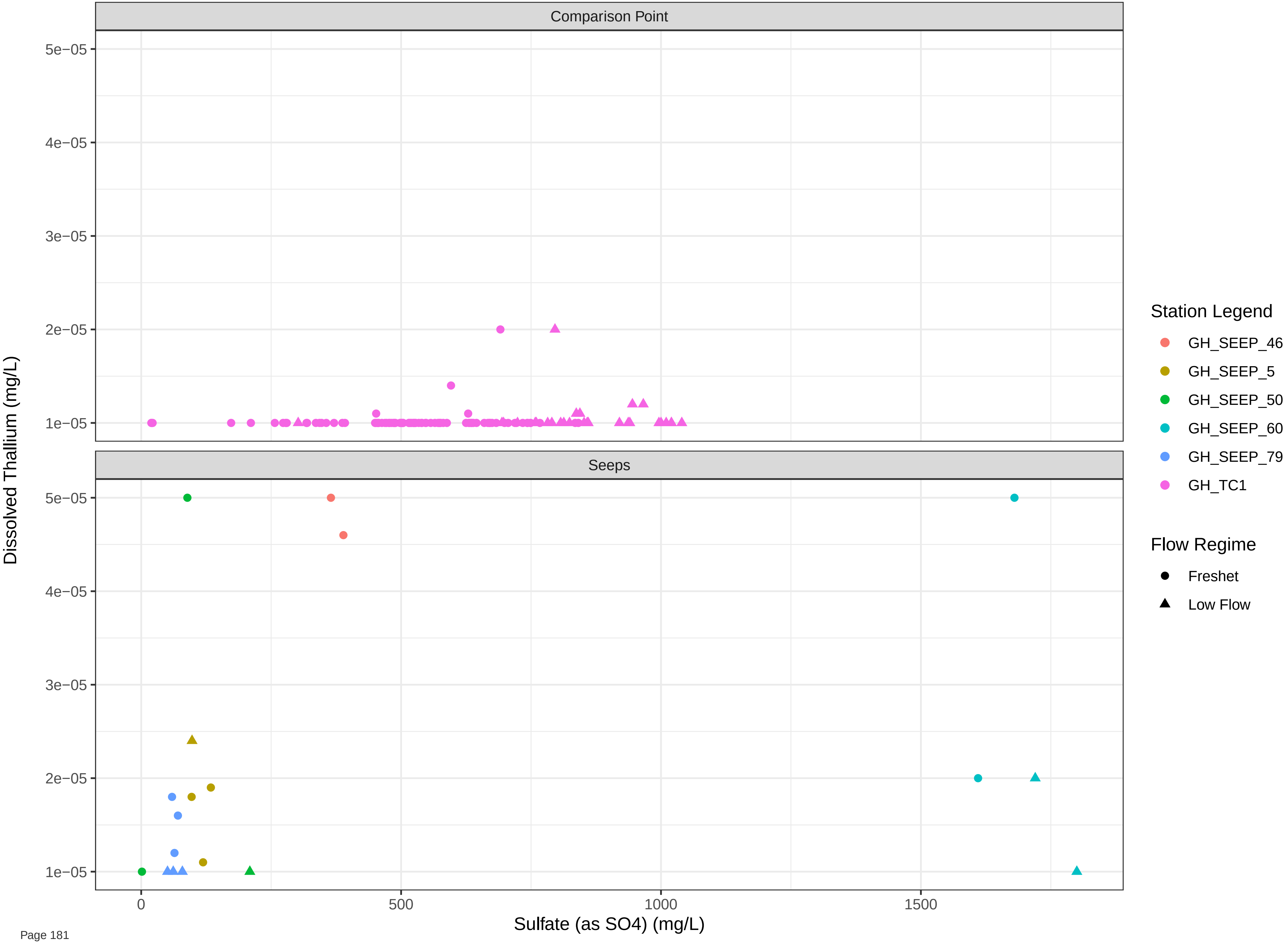

Comparison Point
Seeps
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

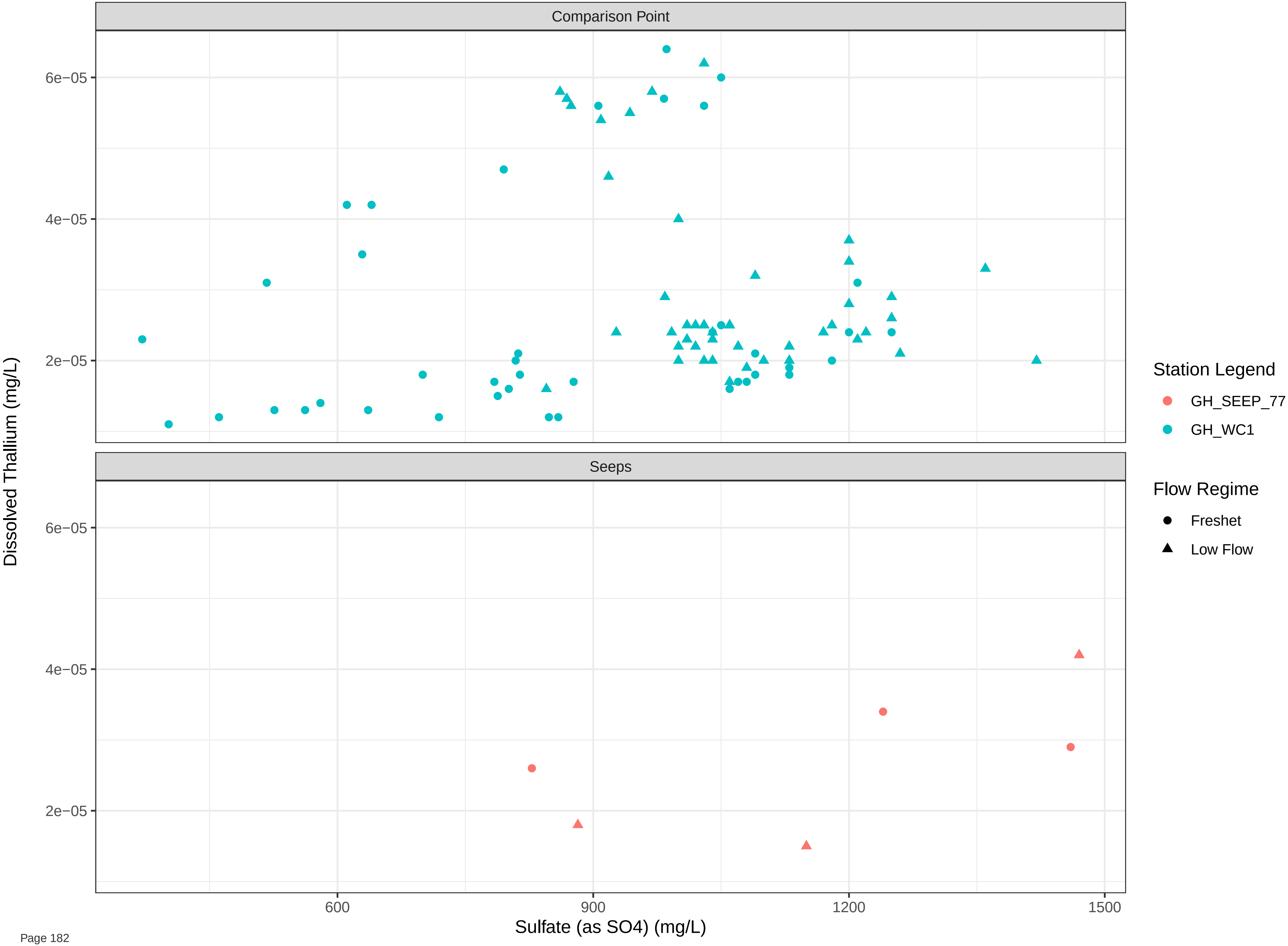

Comparison Point
Seeps
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
8e−05
6e−05
4e−05
2e−05
Dissolved Thallium (mg/L)
0
200
400
600
Sulfate (as SO4) (mg/L)
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow

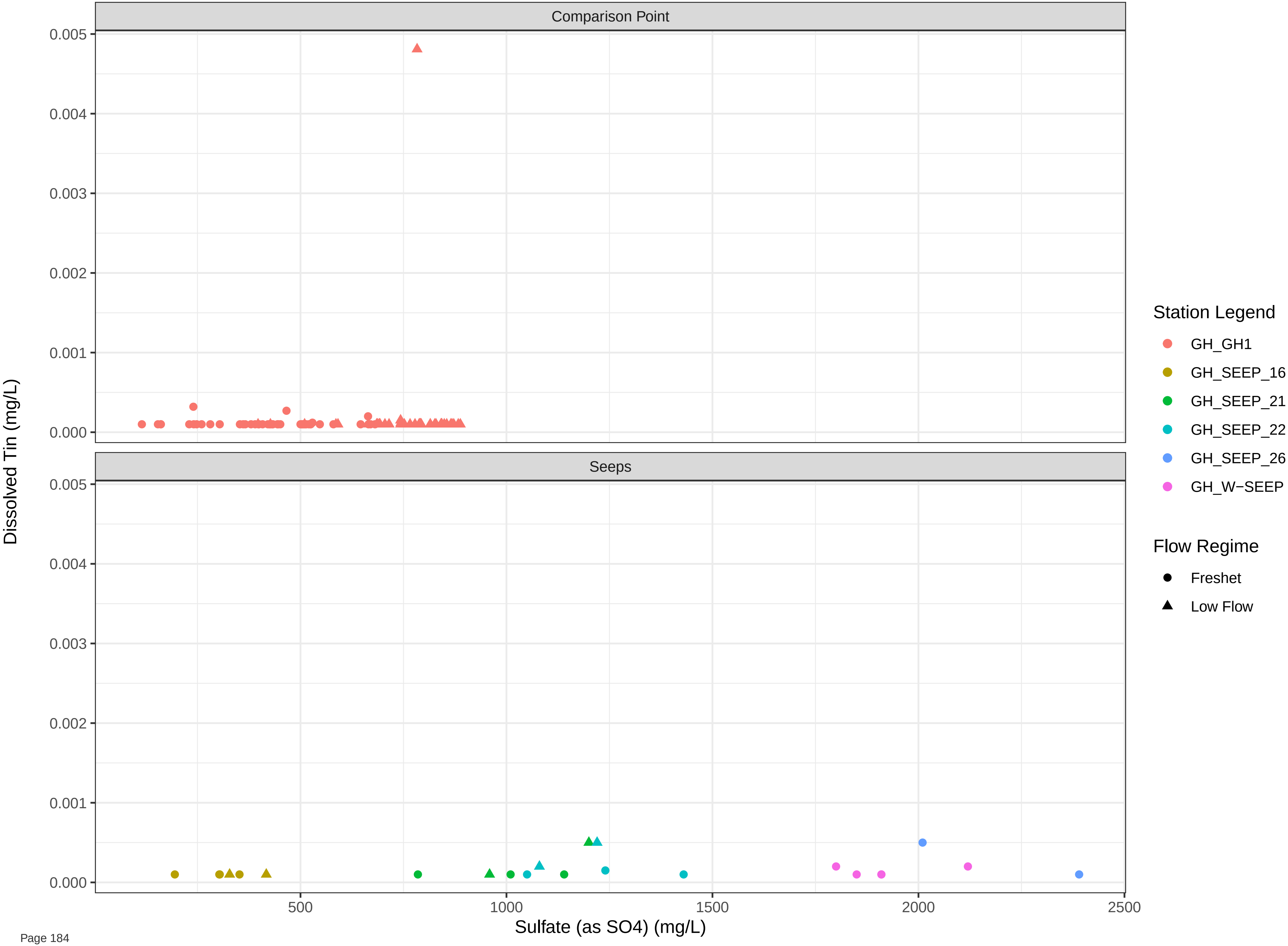

Comparison Point
Seeps
6e−05
5e−05
4e−05
3e−05
2e−05
1e−05
Dissolved Thallium (mg/L)
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
Freshet
Low Flow

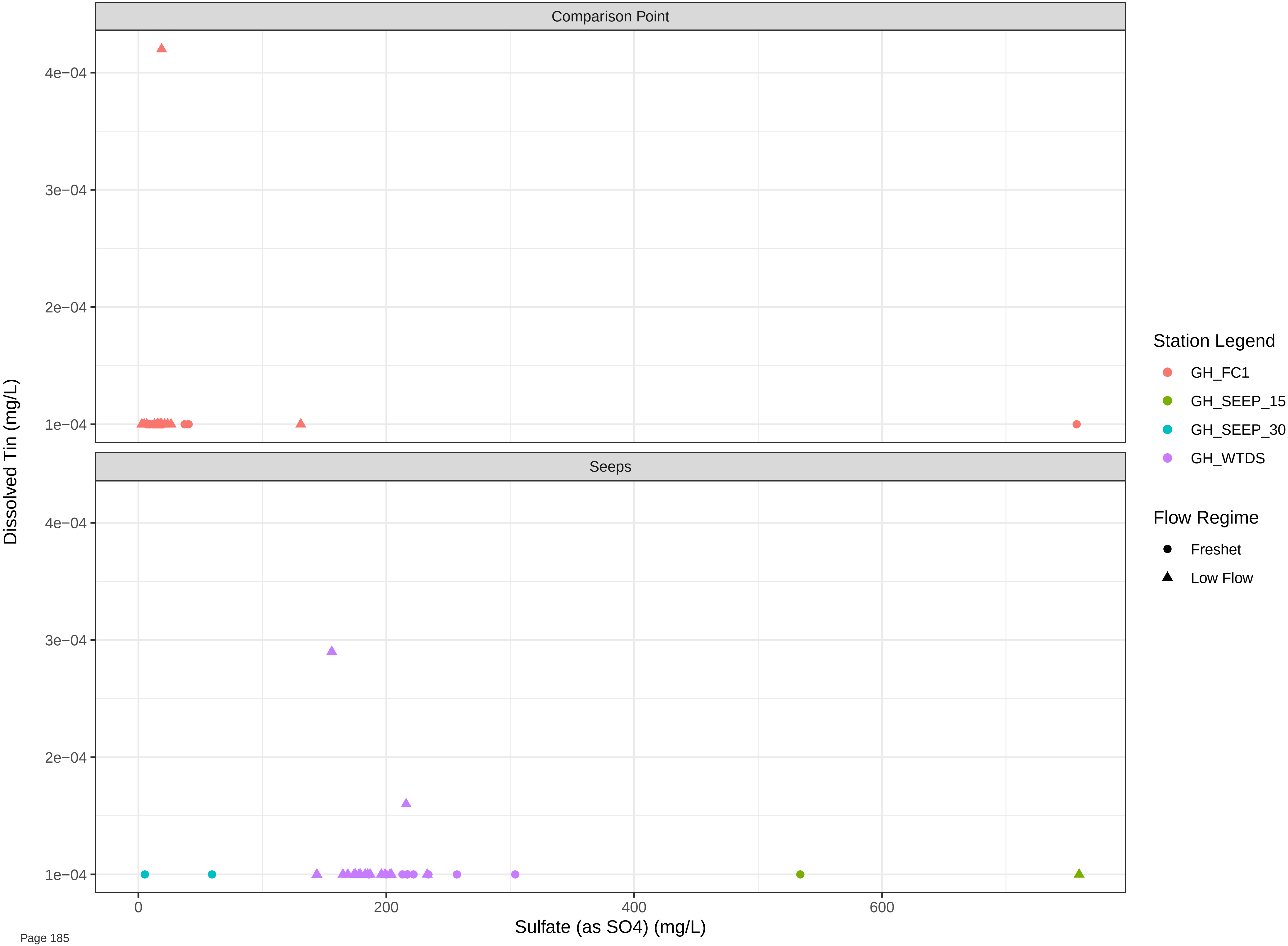

Seeps
Dissolved Thallium (mg/L)
2.00e−05
1.75e−05
1.50e−05
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

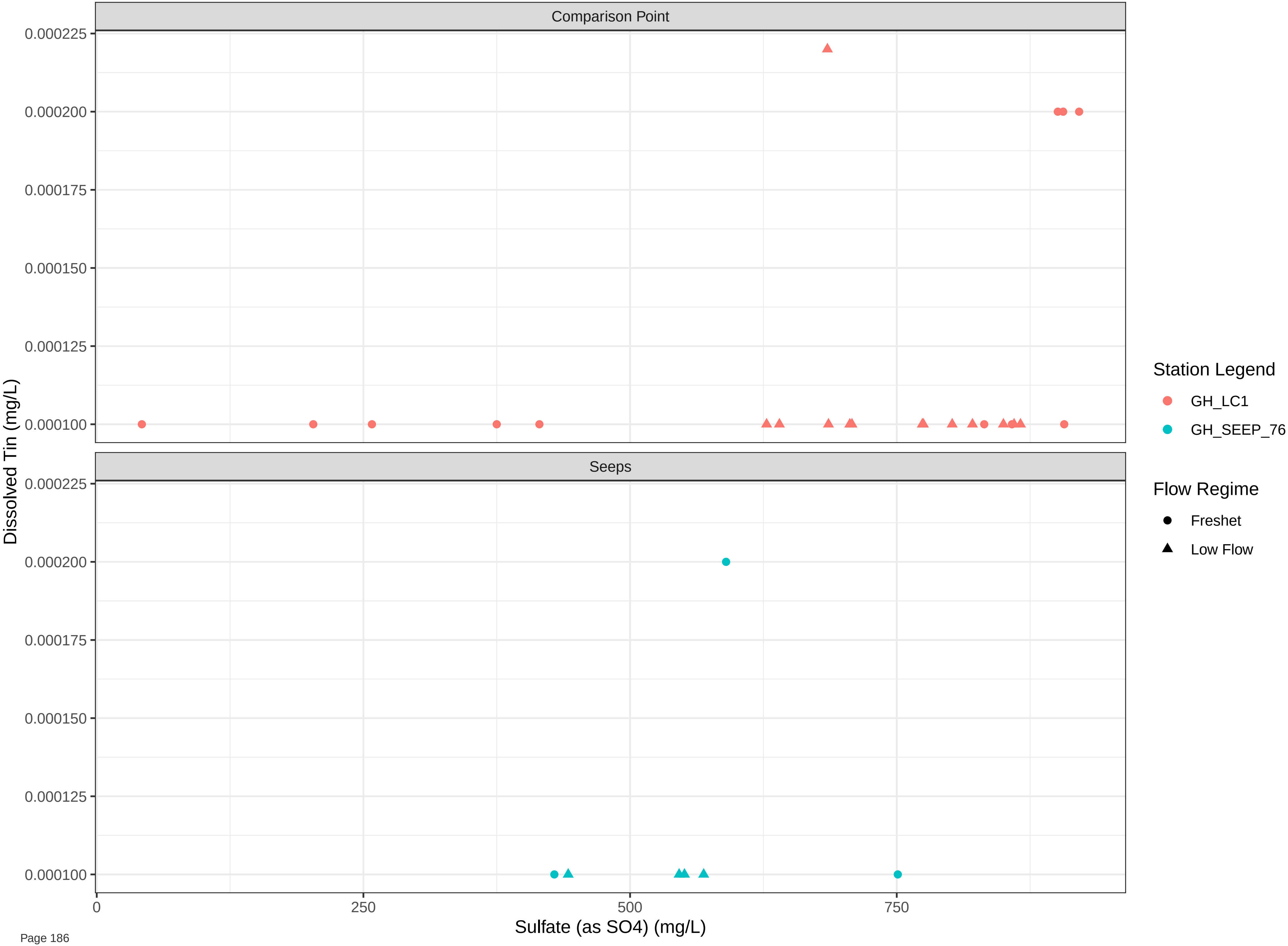

Comparison Point
Seeps
Dissolved Thallium (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
0
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

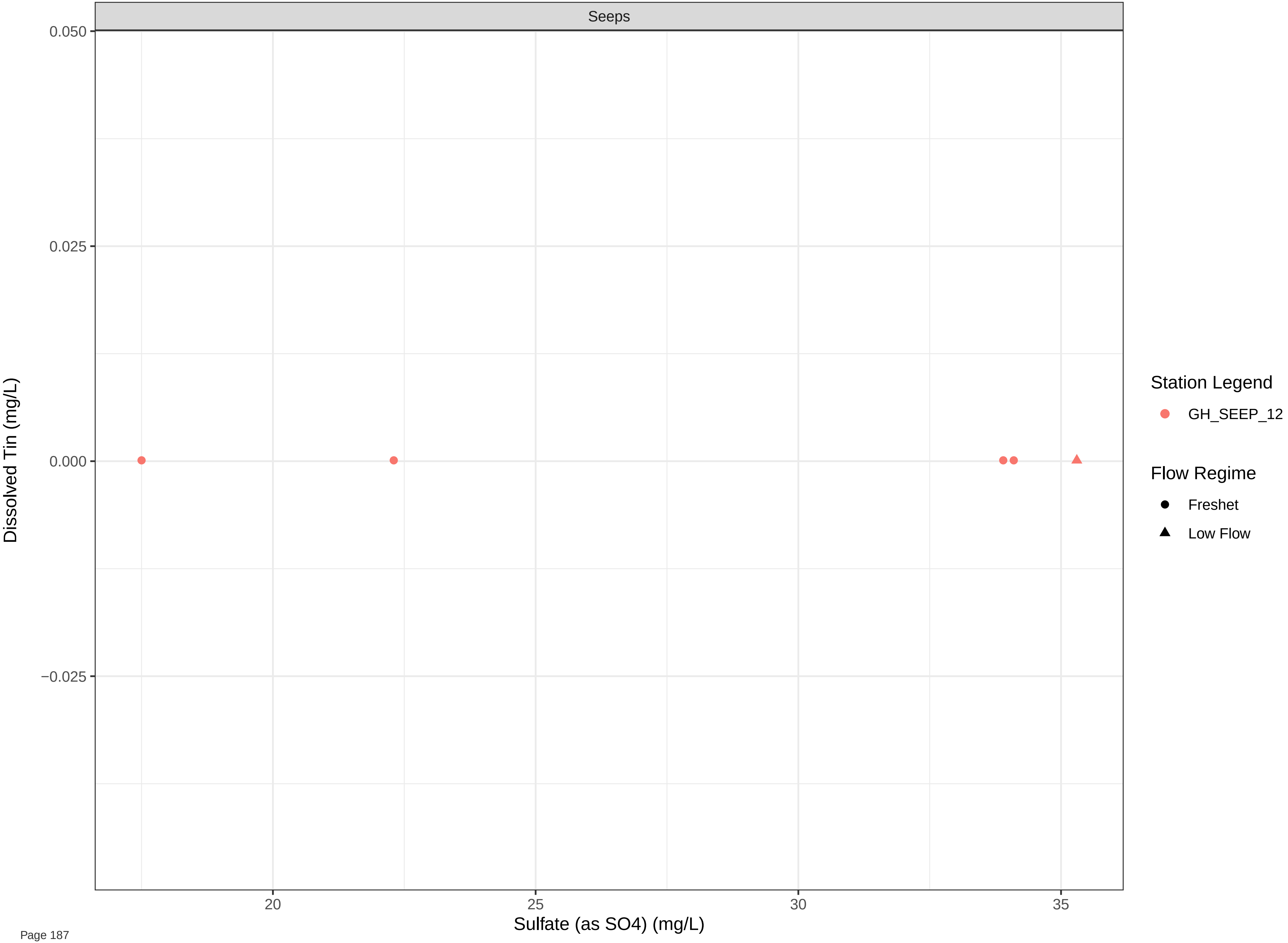

Comparison Point
Seeps
6e−05
4e−05
2e−05
600
900
1200
1500
Dissolved Thallium (mg/L)
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

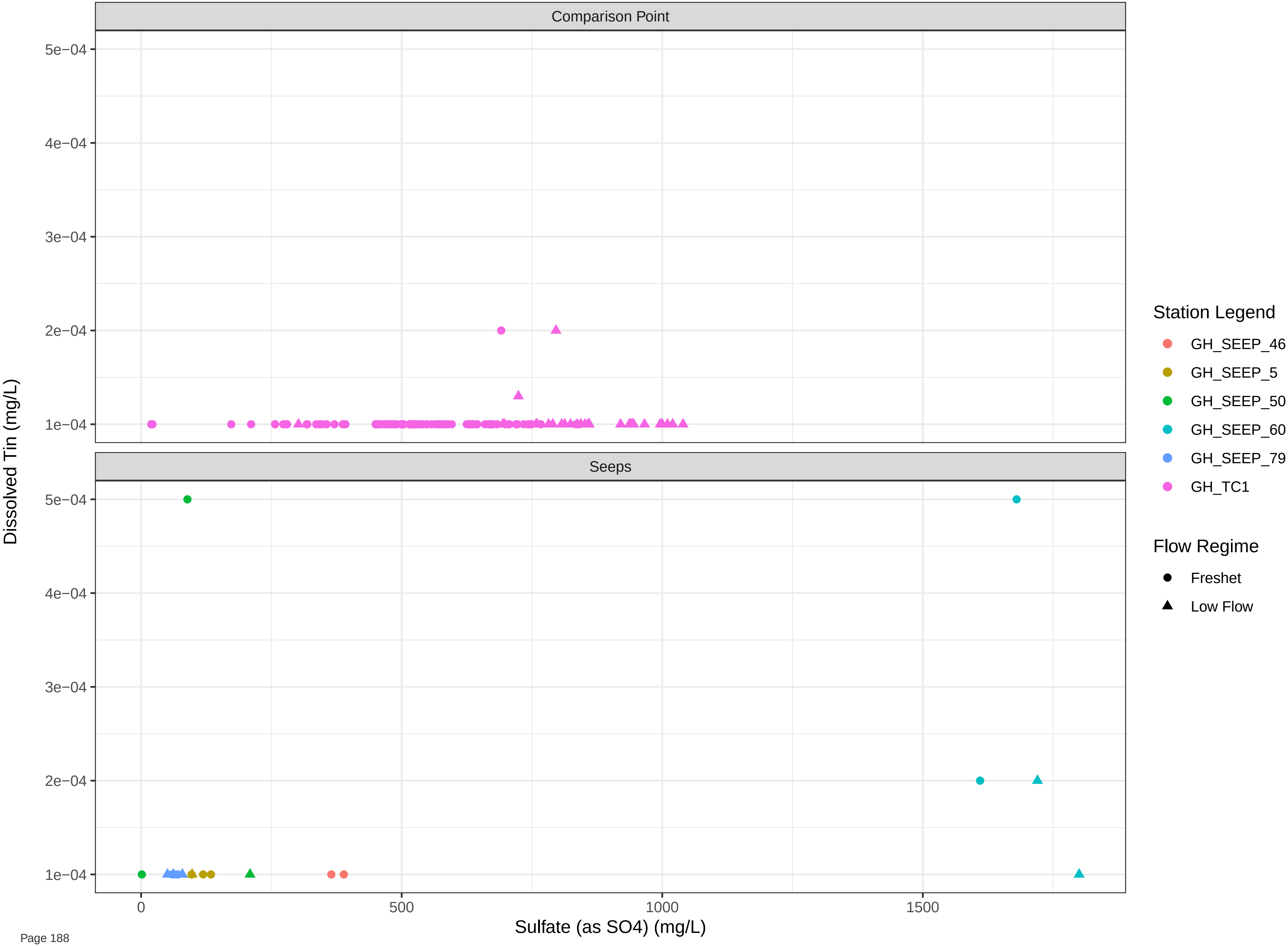

Comparison Point
Seeps
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Tin (mg/L)
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

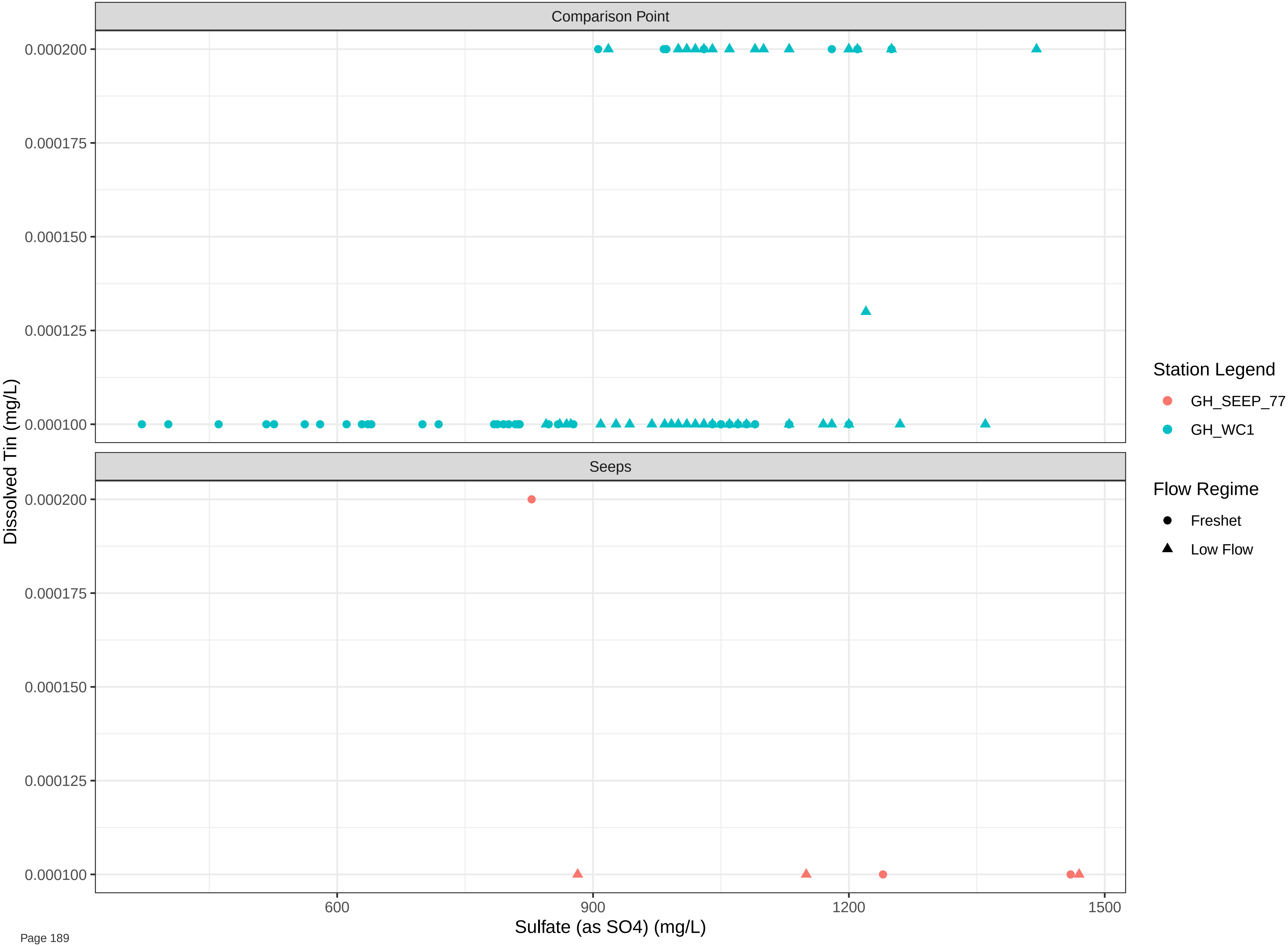

Comparison Point
Seeps
Dissolved Tin (mg/L)
0.005
0.004
0.003
0.002
0.001
0.000
Sulfate (as SO4) (mg/L)
500
1000
1500
2000
2500
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow

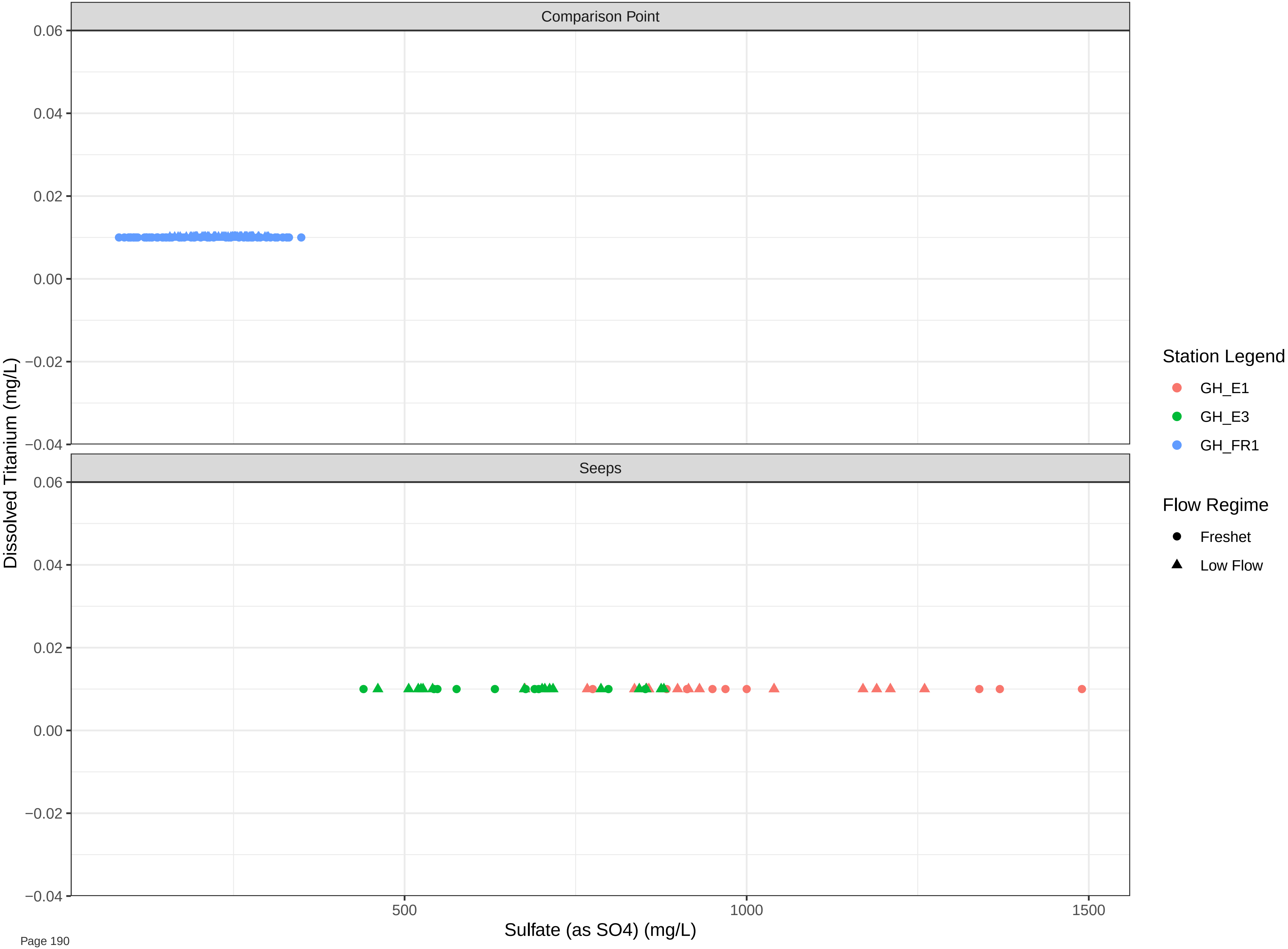

Comparison Point
Seeps
Dissolved Tin (mg/L)
4e−04
3e−04
2e−04
1e−04
0
200
400
600
Sulfate (as SO4) (mg/L)
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow

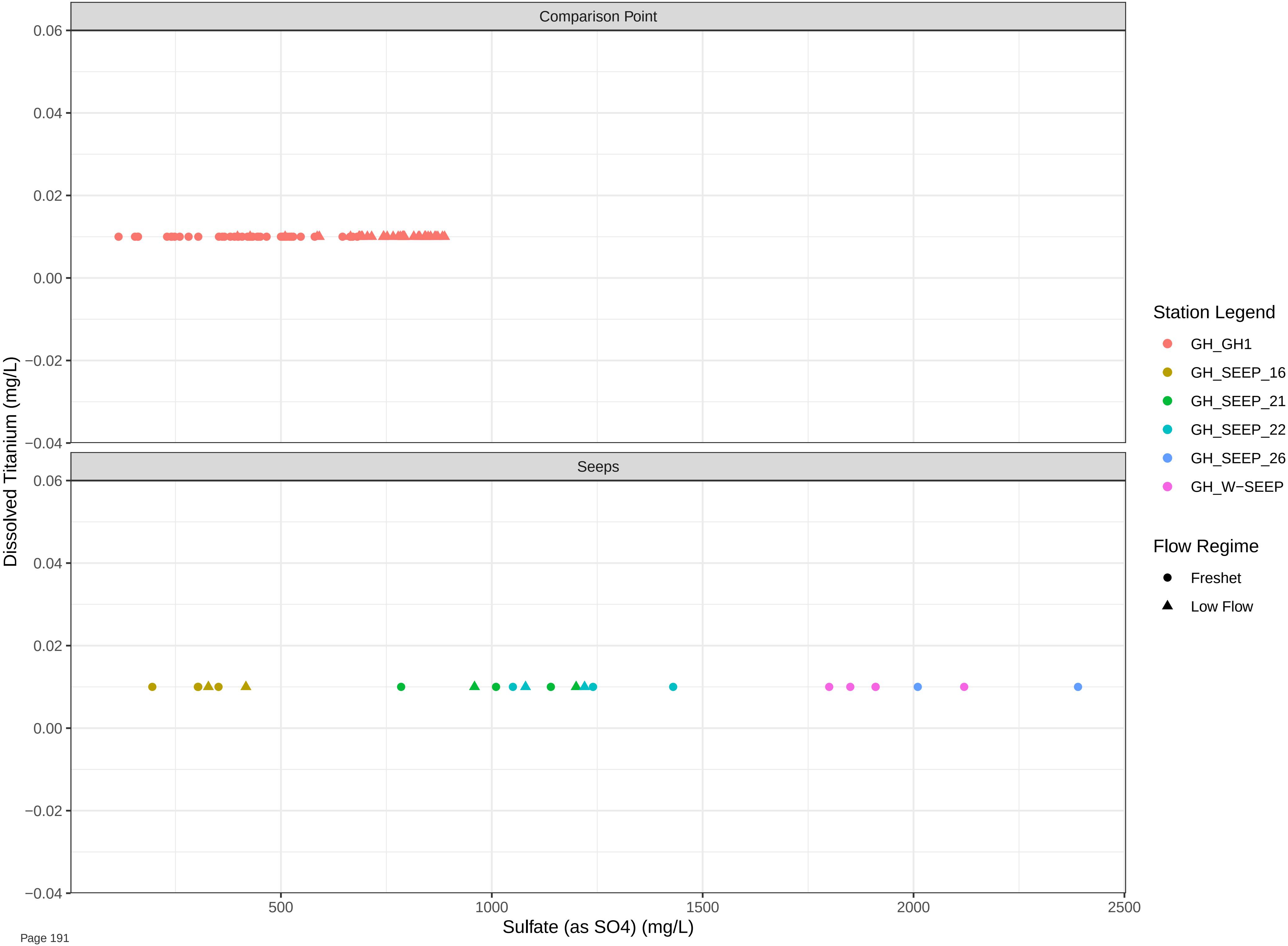

Comparison Point
Seeps
Dissolved Tin (mg/L)
0.000225
0.000200
0.000175
0.000150
0.000125
0.000100
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
Freshet
Low Flow

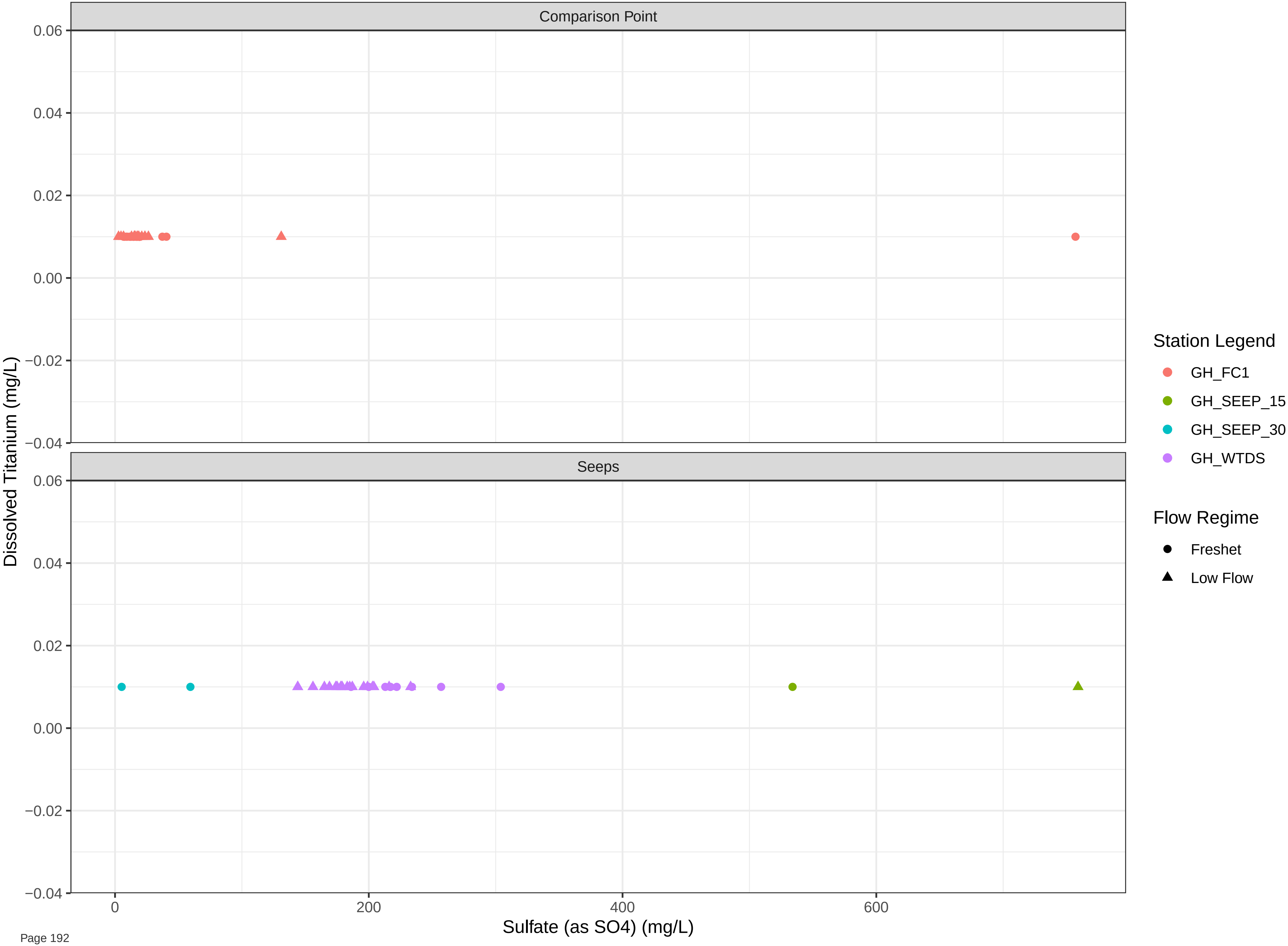

Seeps
0.050
0.025
0.000
−0.025
Dissolved Tin (mg/L)
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
Sulfate (as SO4) (mg/L)
0
500
1000
1500
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

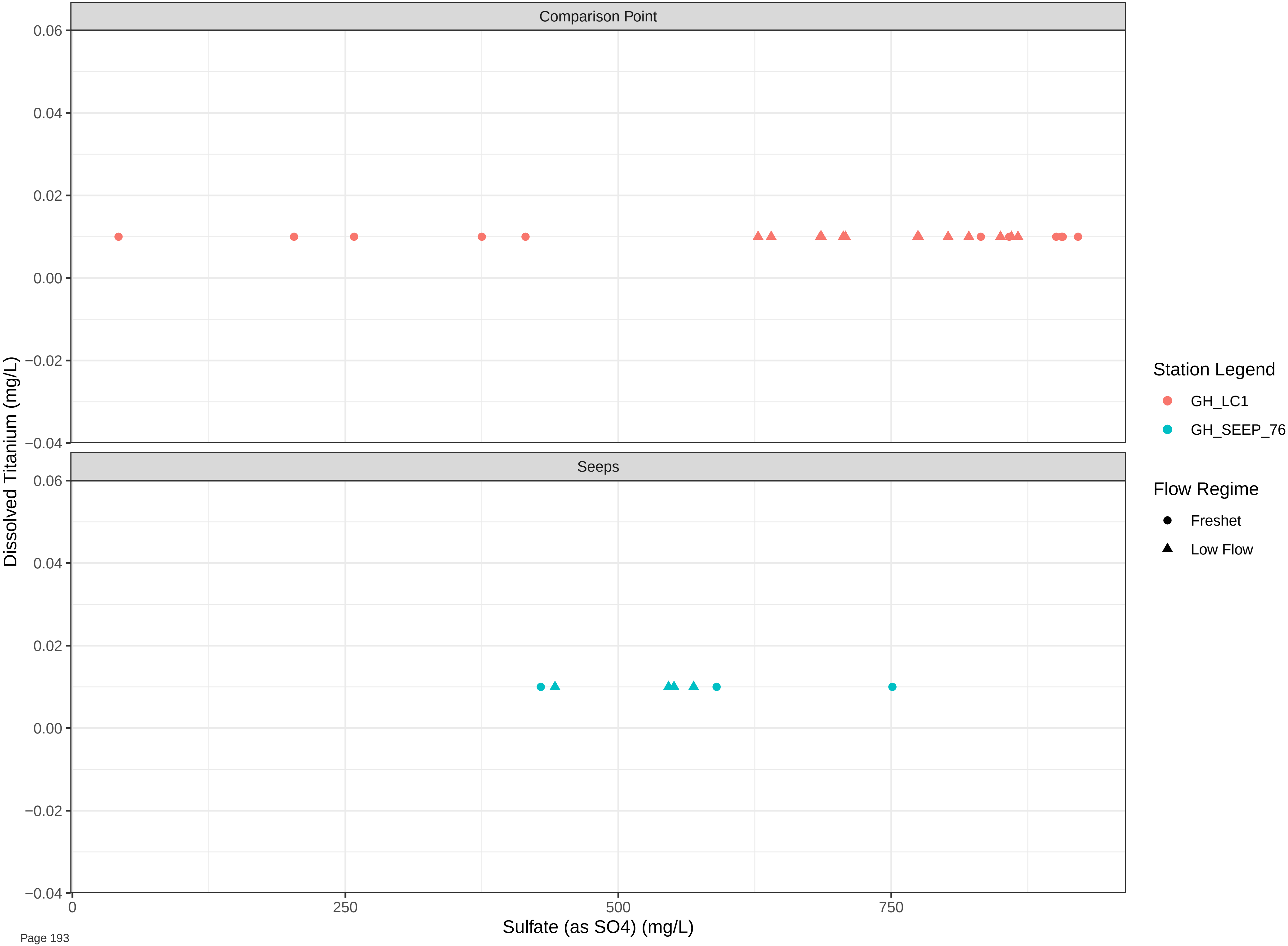

Comparison Point
Seeps
0.000200
0.000175
0.000150
0.000125
0.000100
Dissolved Tin (mg/L)
600
900
1200
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

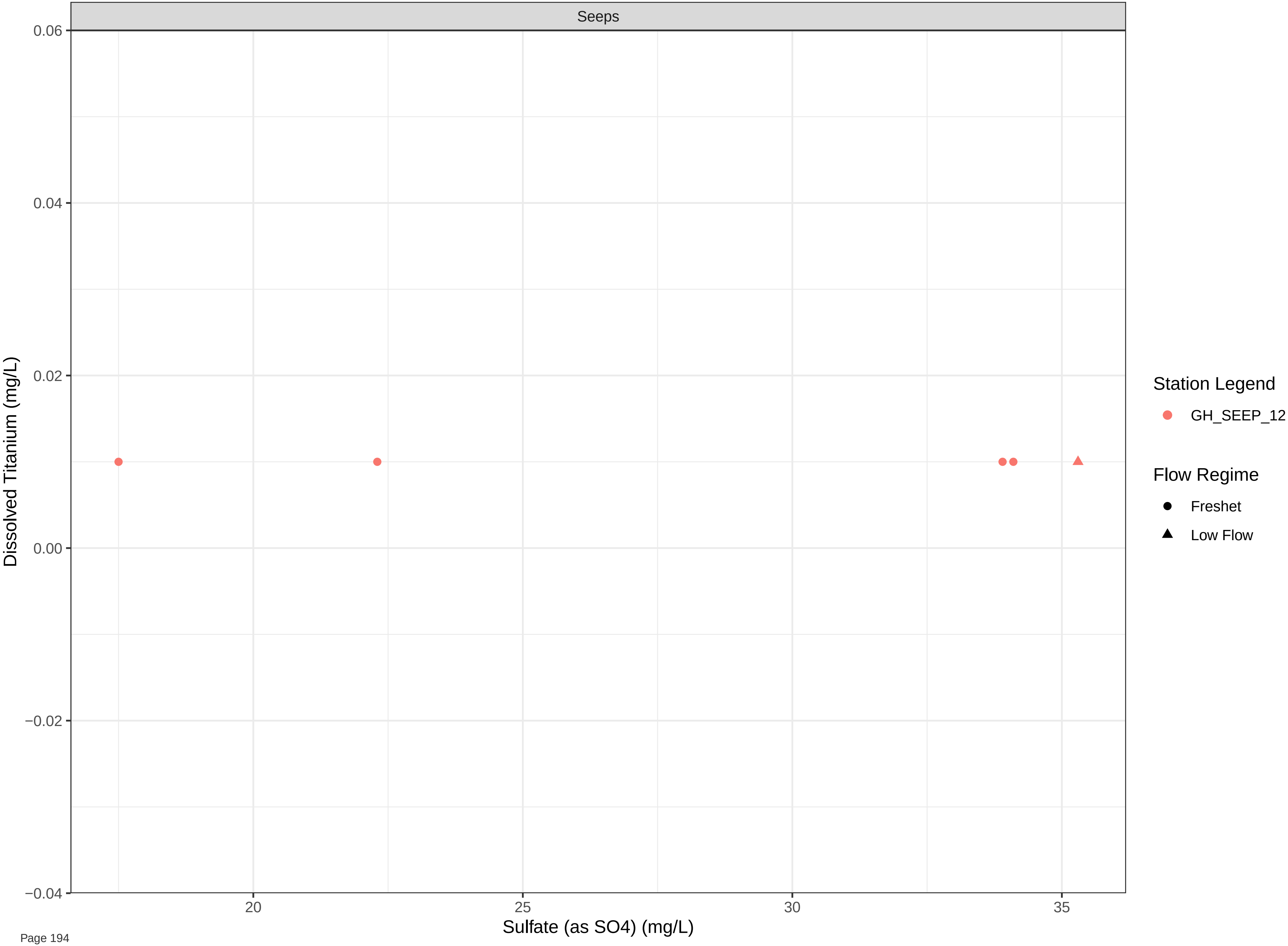

Comparison Point
Seeps
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

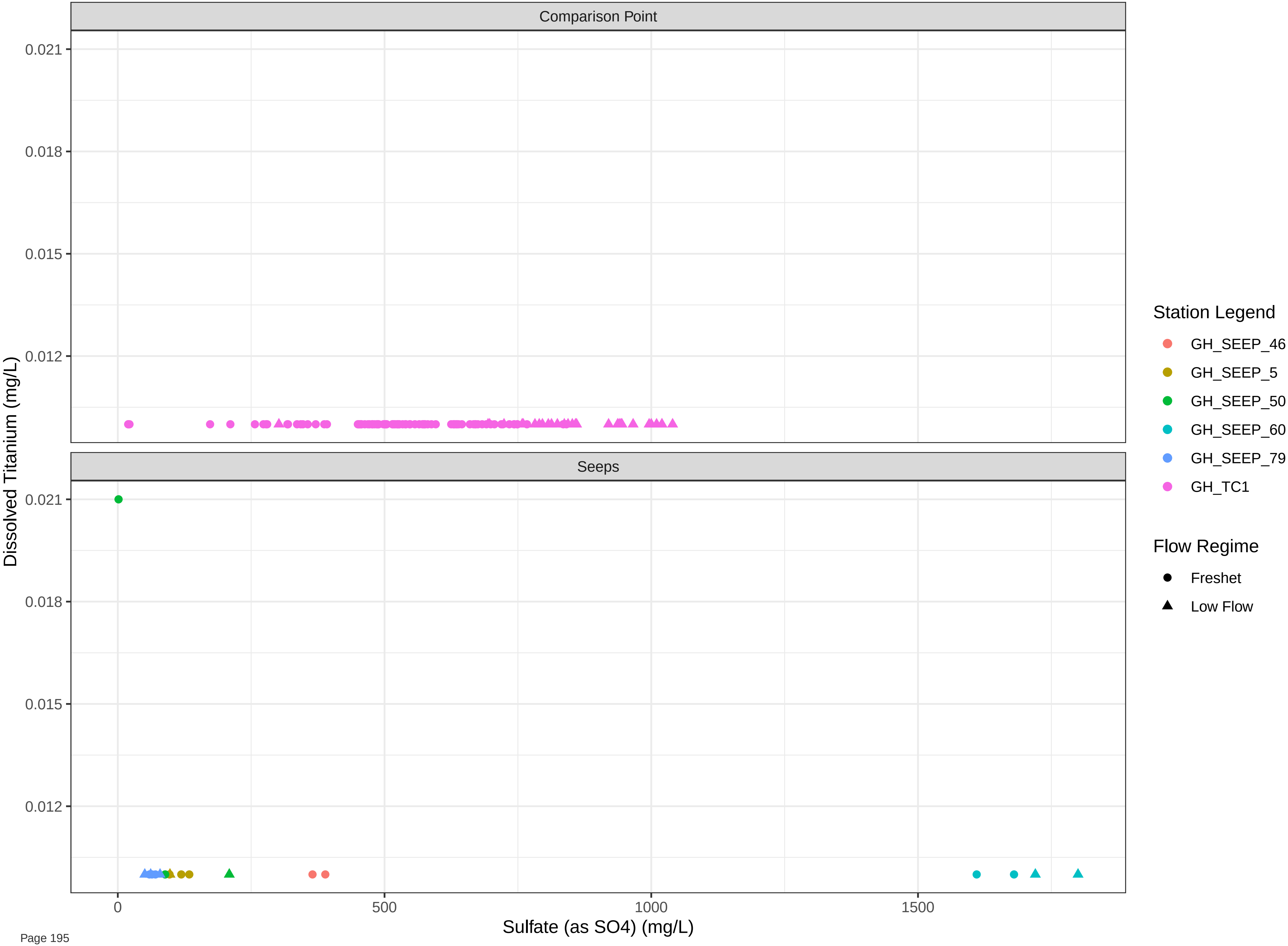

Comparison Point
Seeps
Dissolved Titanium (mg/L)
Sulfate (as SO4) (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
500
1000
1500
2000
2500
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow

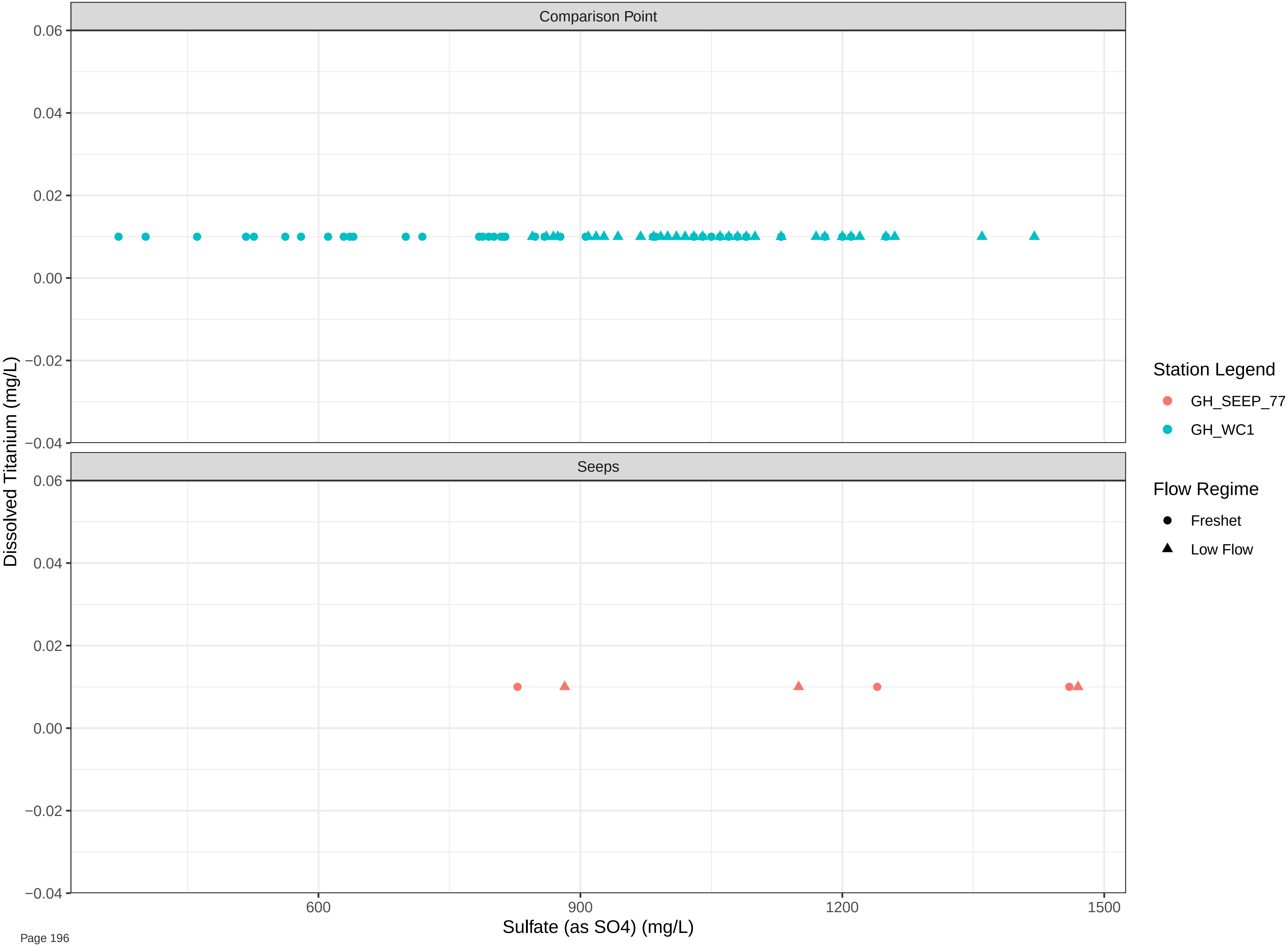


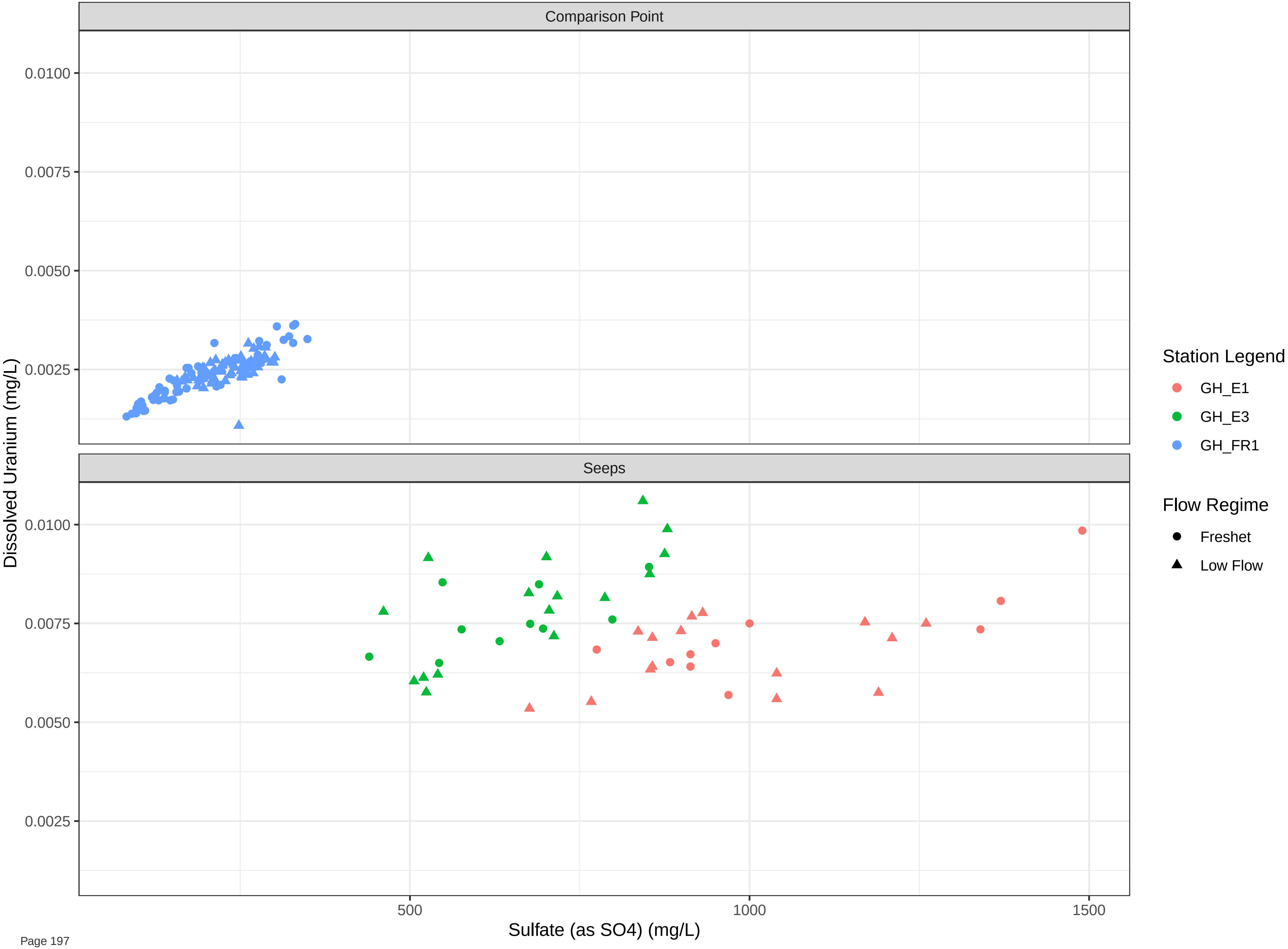
Comparison Point
Seeps
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Sulfate (as SO4) (mg/L)
0
200
400
600
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow

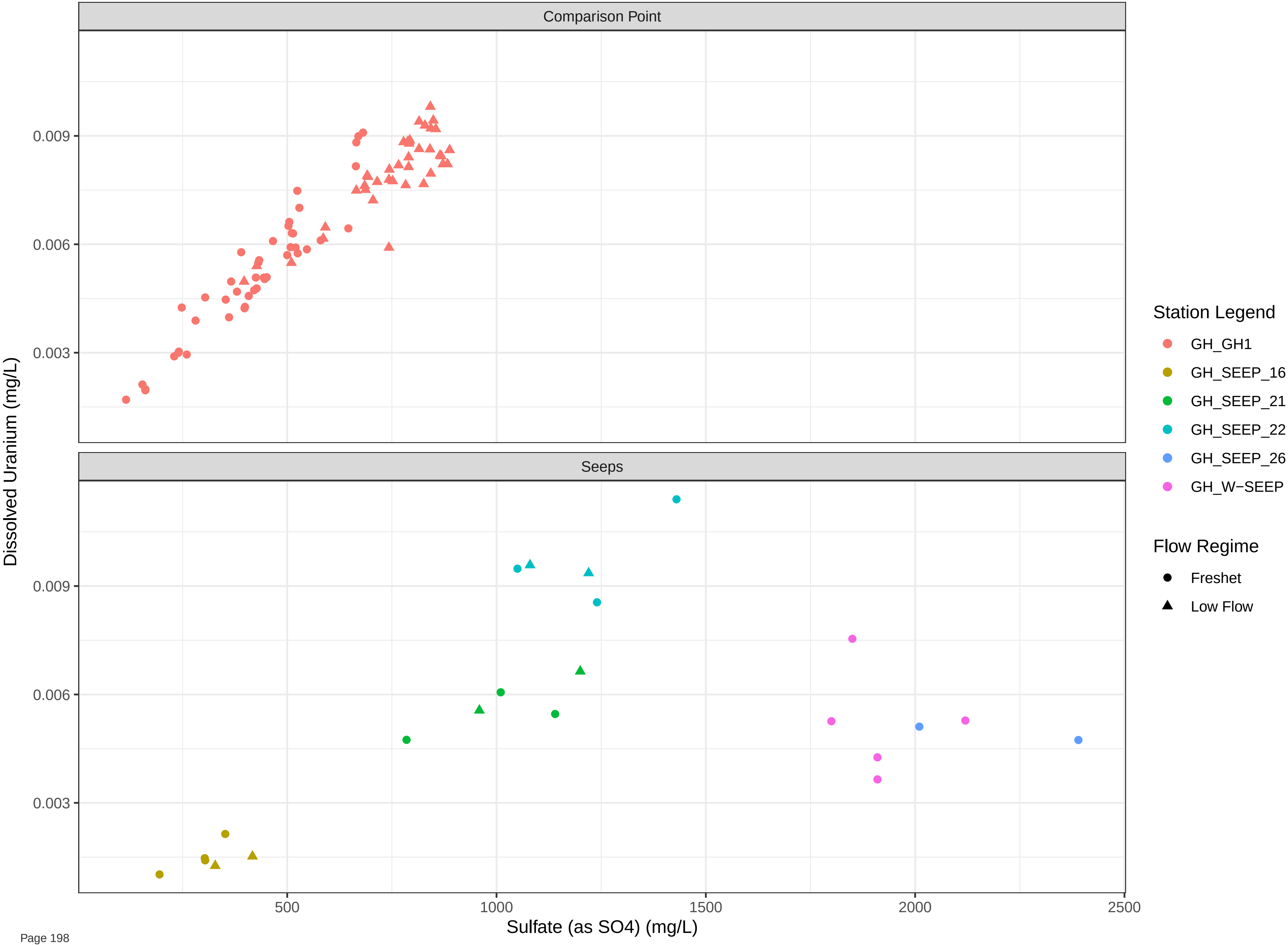

Comparison Point
Seeps
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
Freshet
Low Flow

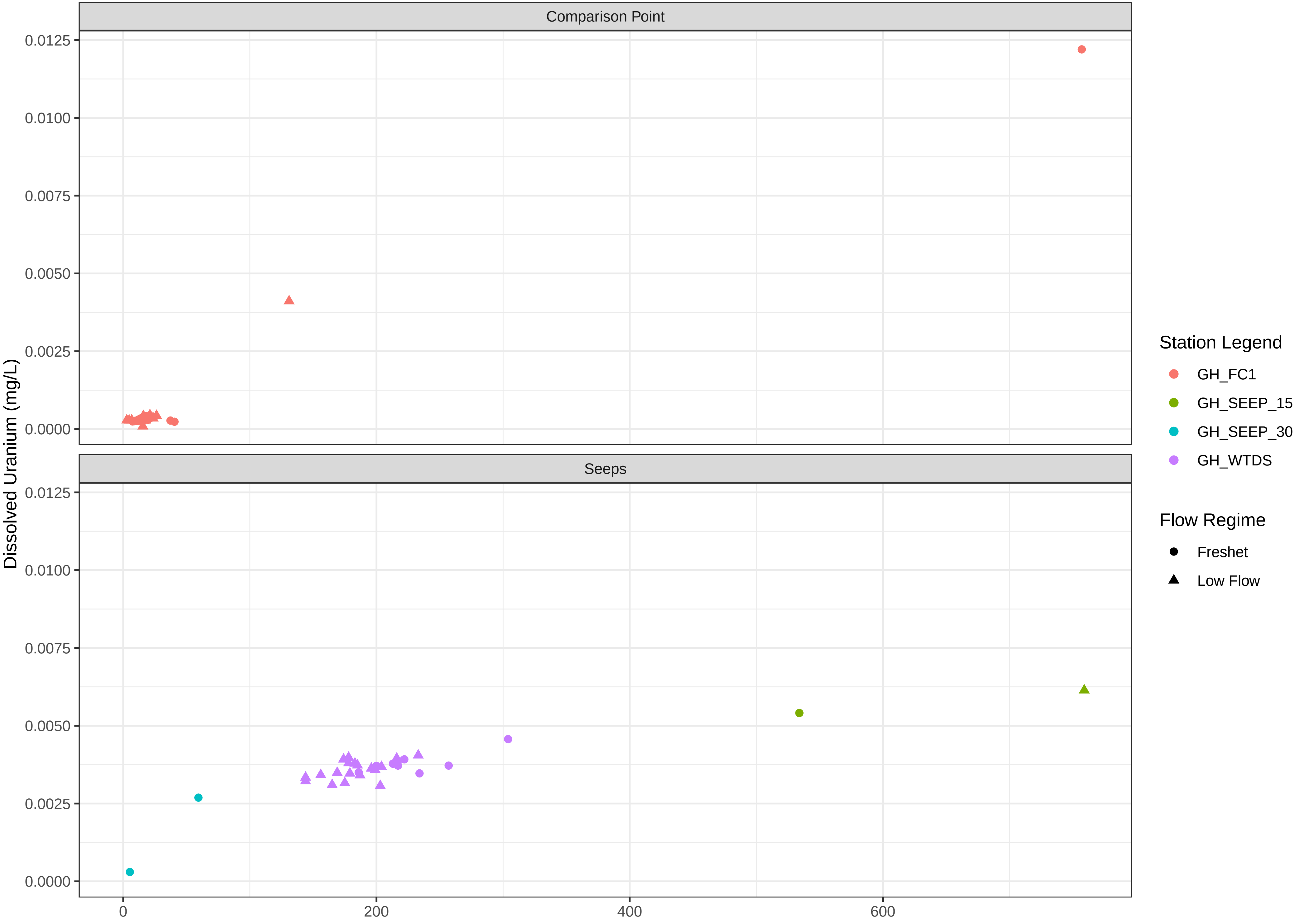

Seeps
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
Dissolved Titanium (mg/L)
0.021
0.018
0.015
0.012
0.021
0.018
0.015
0.012
0
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

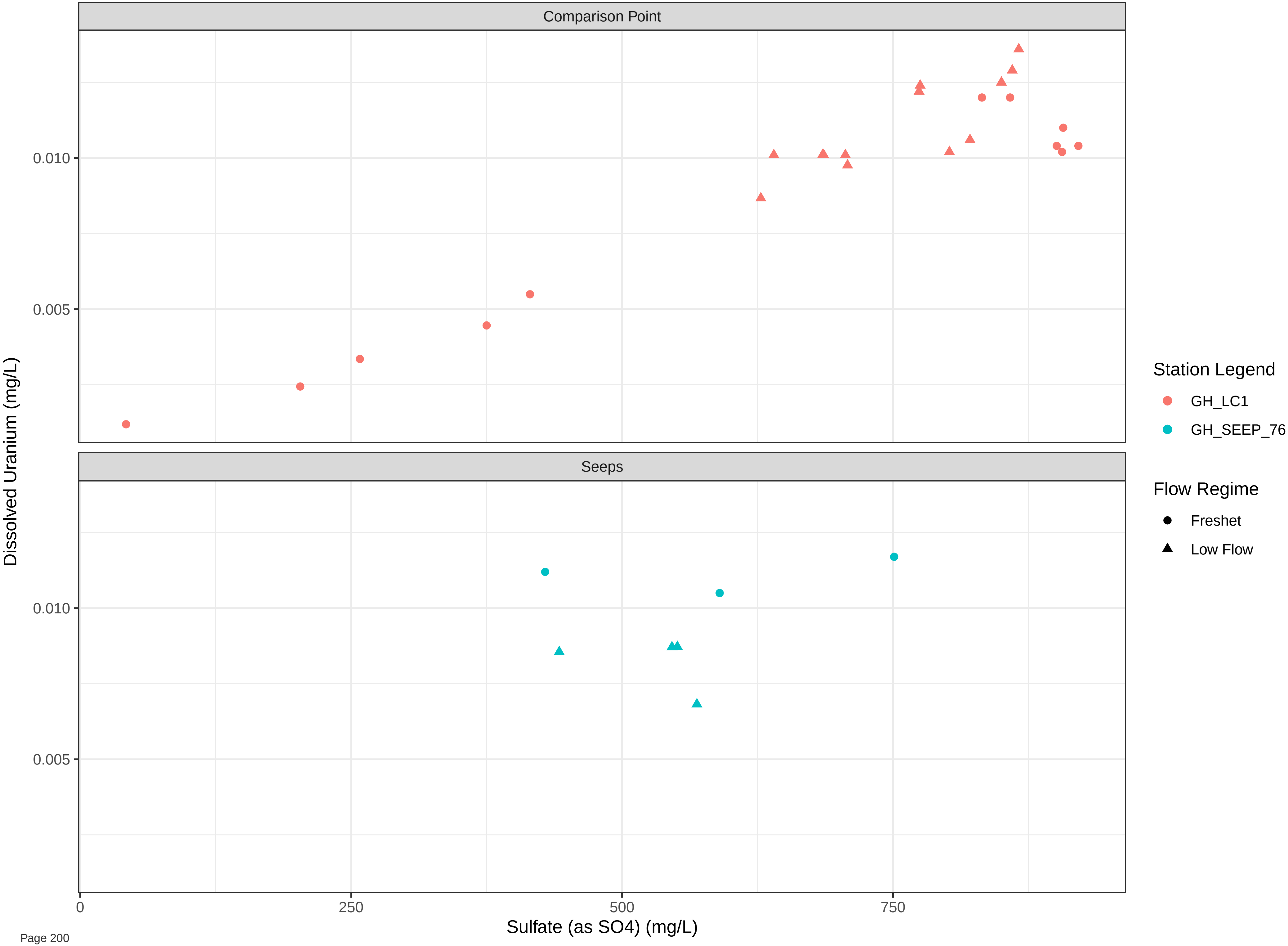

Comparison Point
Seeps
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
600
900
1200
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

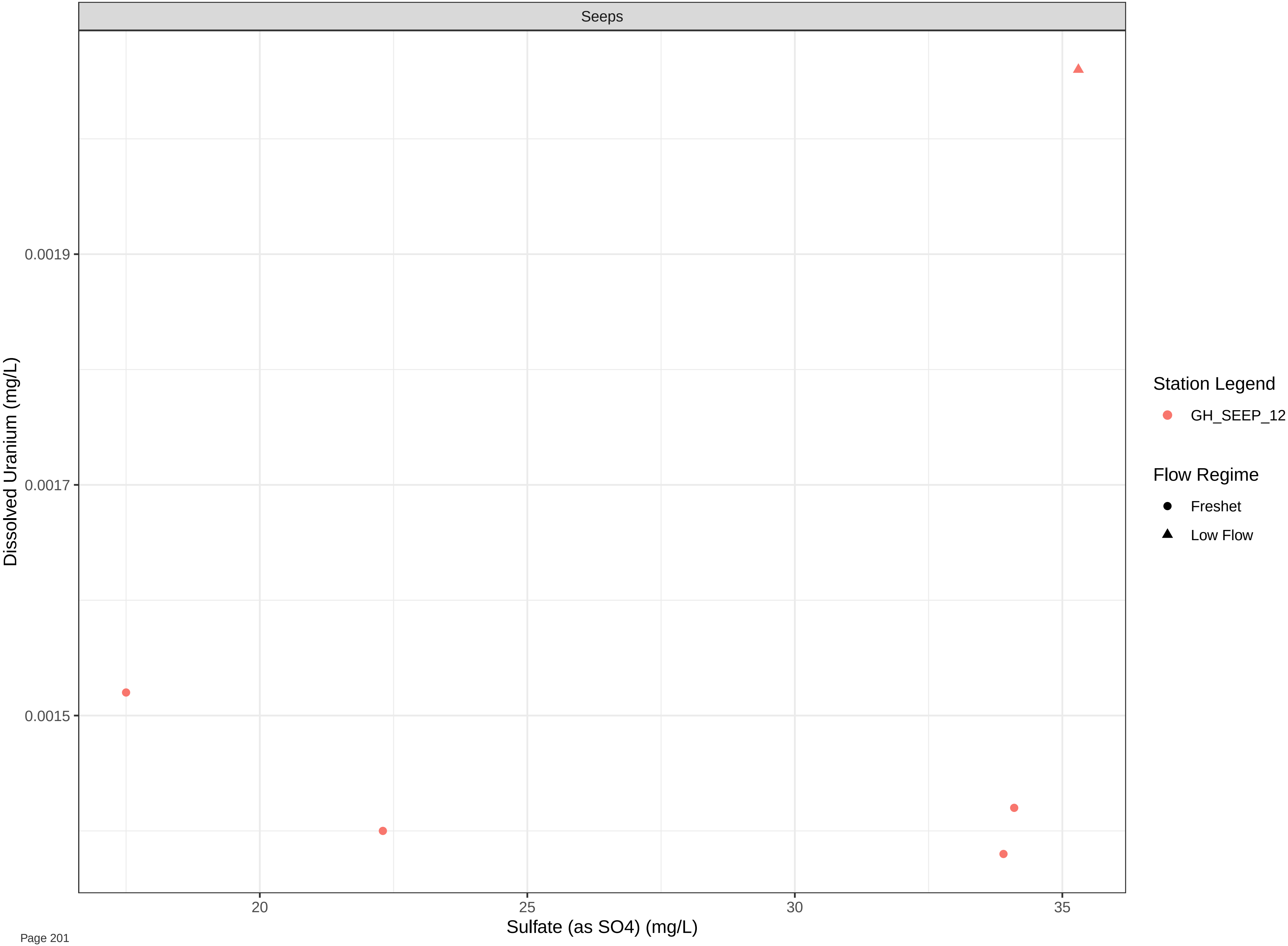

Comparison Point
Seeps
0.0100
0.0075
0.0050
0.0025
Dissolved Uranium (mg/L)
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

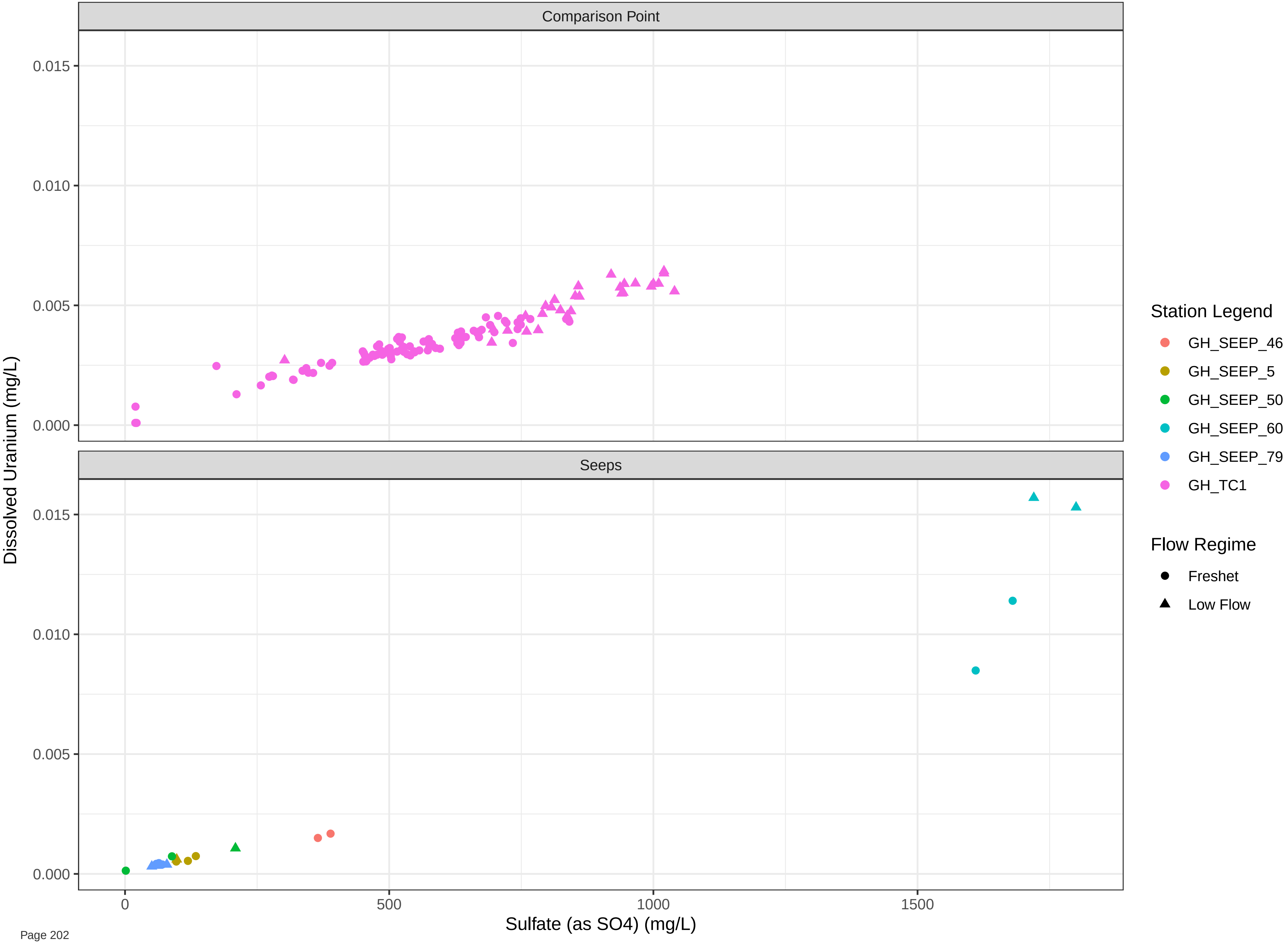

Comparison Point
Seeps
Dissolved Uranium (mg/L)
0.009
0.006
0.003
0.009
0.006
0.003
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow

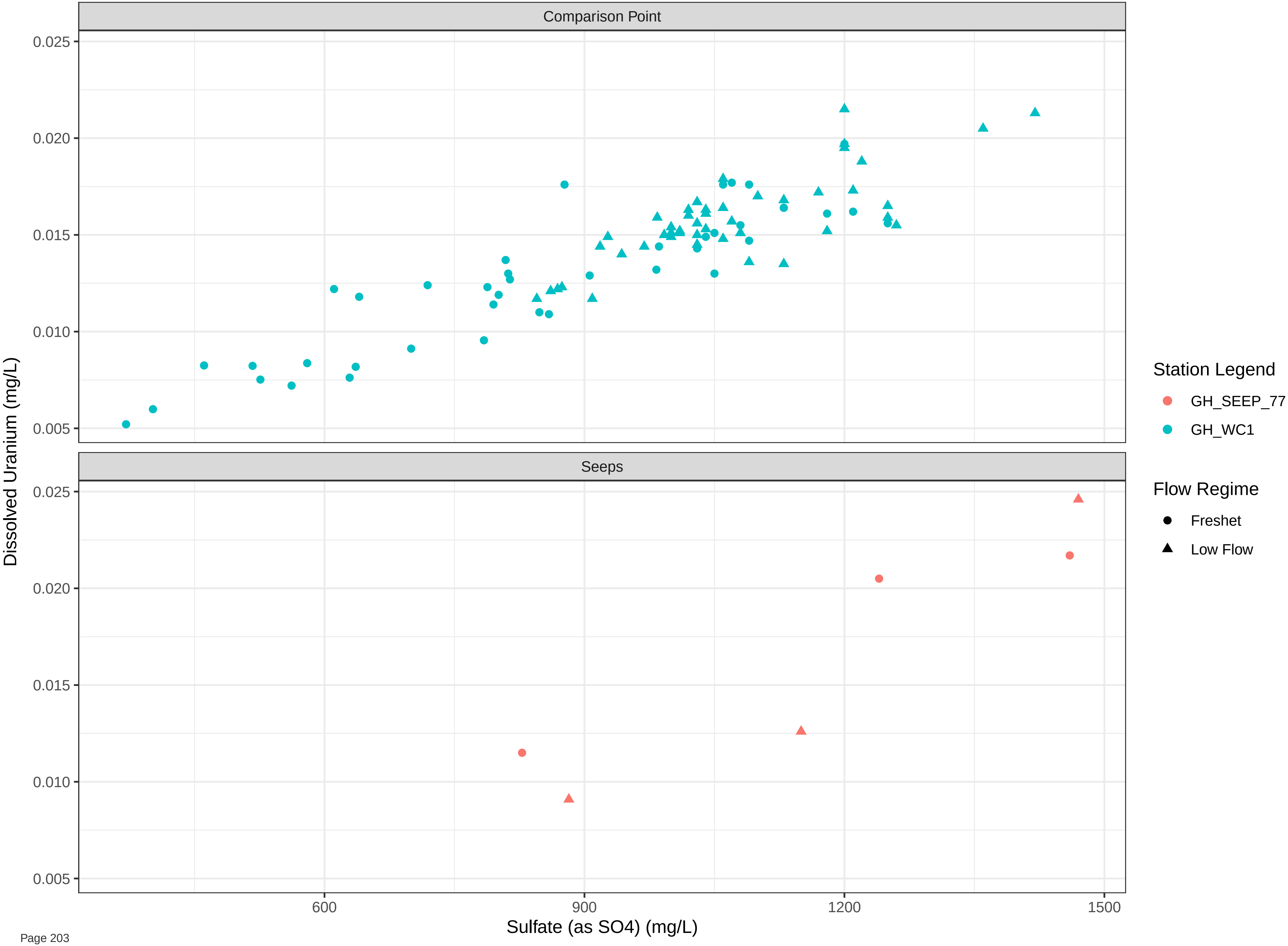


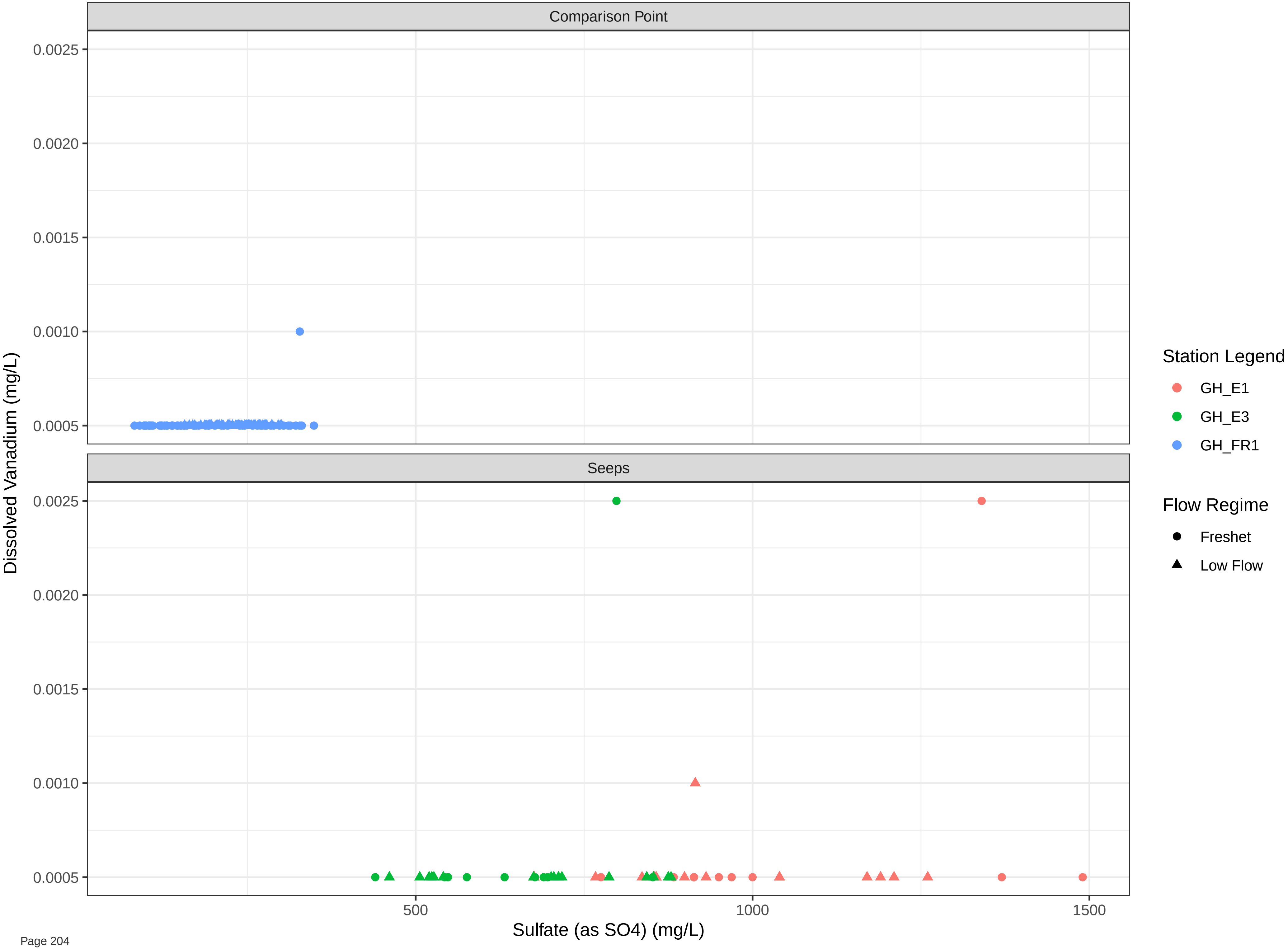
Comparison Point
Seeps
Dissolved Uranium (mg/L)
0.0125
0.0100
0.0075
0.0050
0.0025
0.0000
Sulfate (as SO4) (mg/L)
0
200
400
600
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow

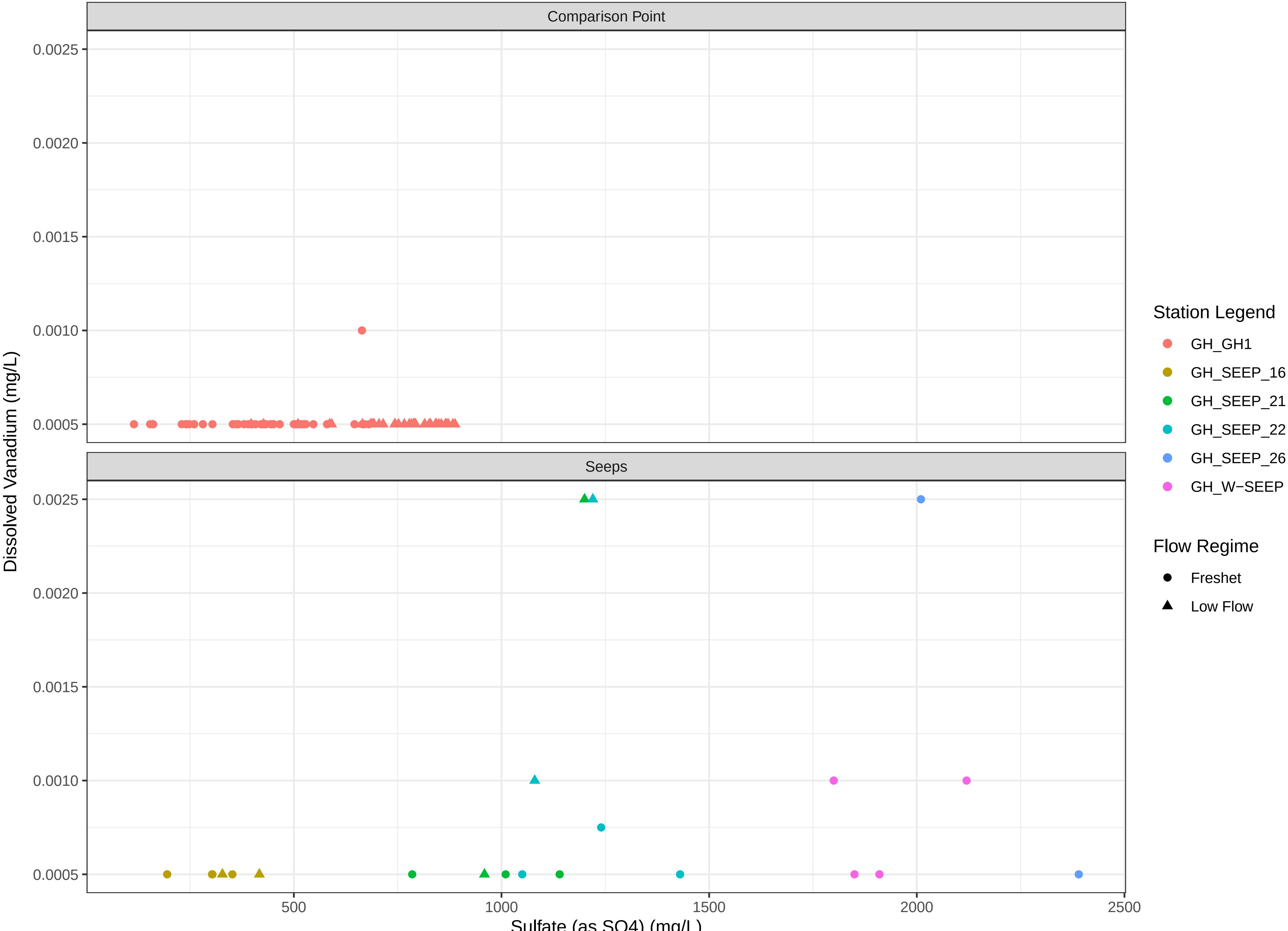

Comparison Point
Seeps
Dissolved Uranium (mg/L)
0.010
0.005
0.010
0.005
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
Freshet
Low Flow

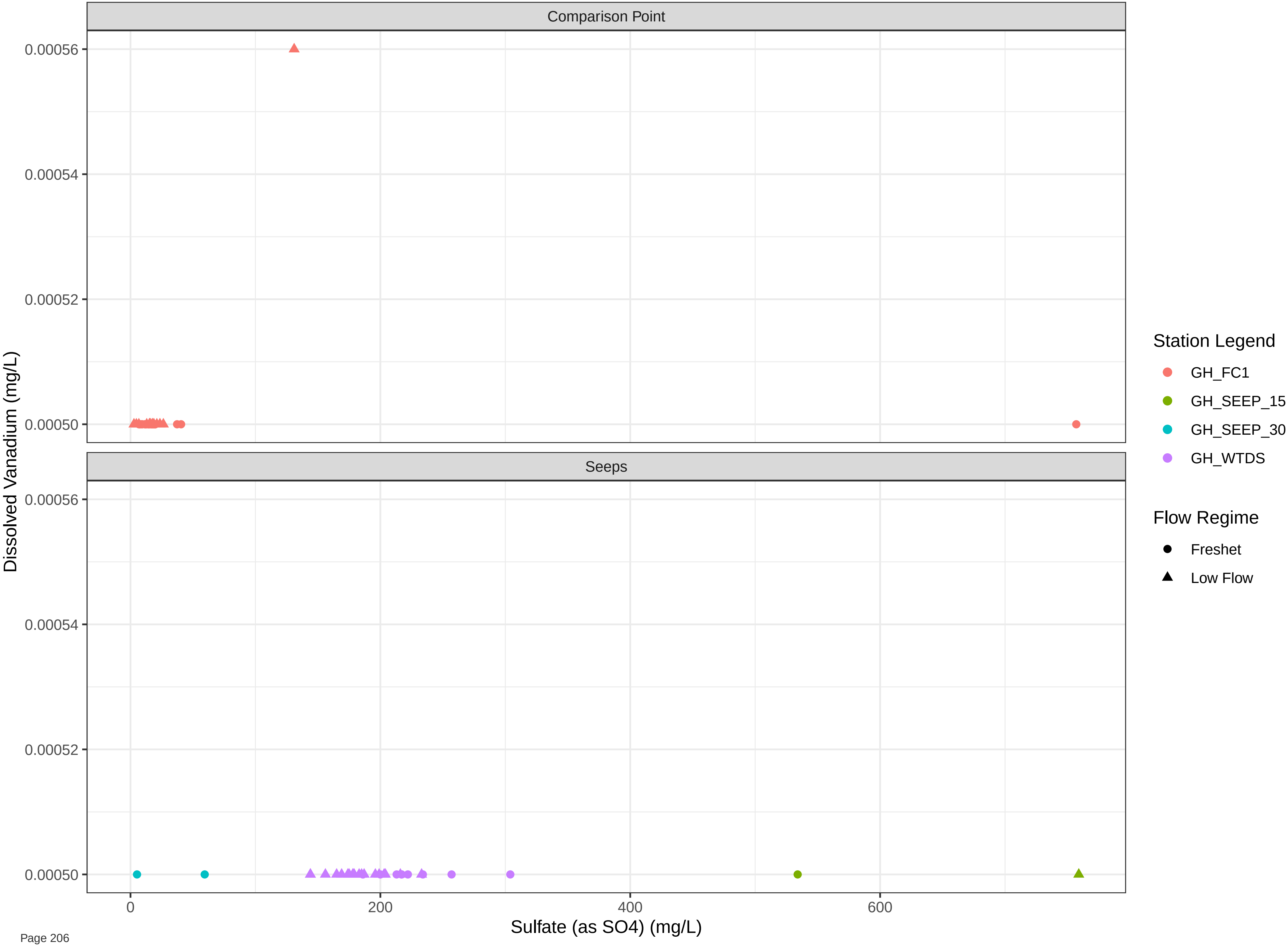

Seeps
0.0019
0.0017
0.0015
Dissolved Uranium (mg/L)
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

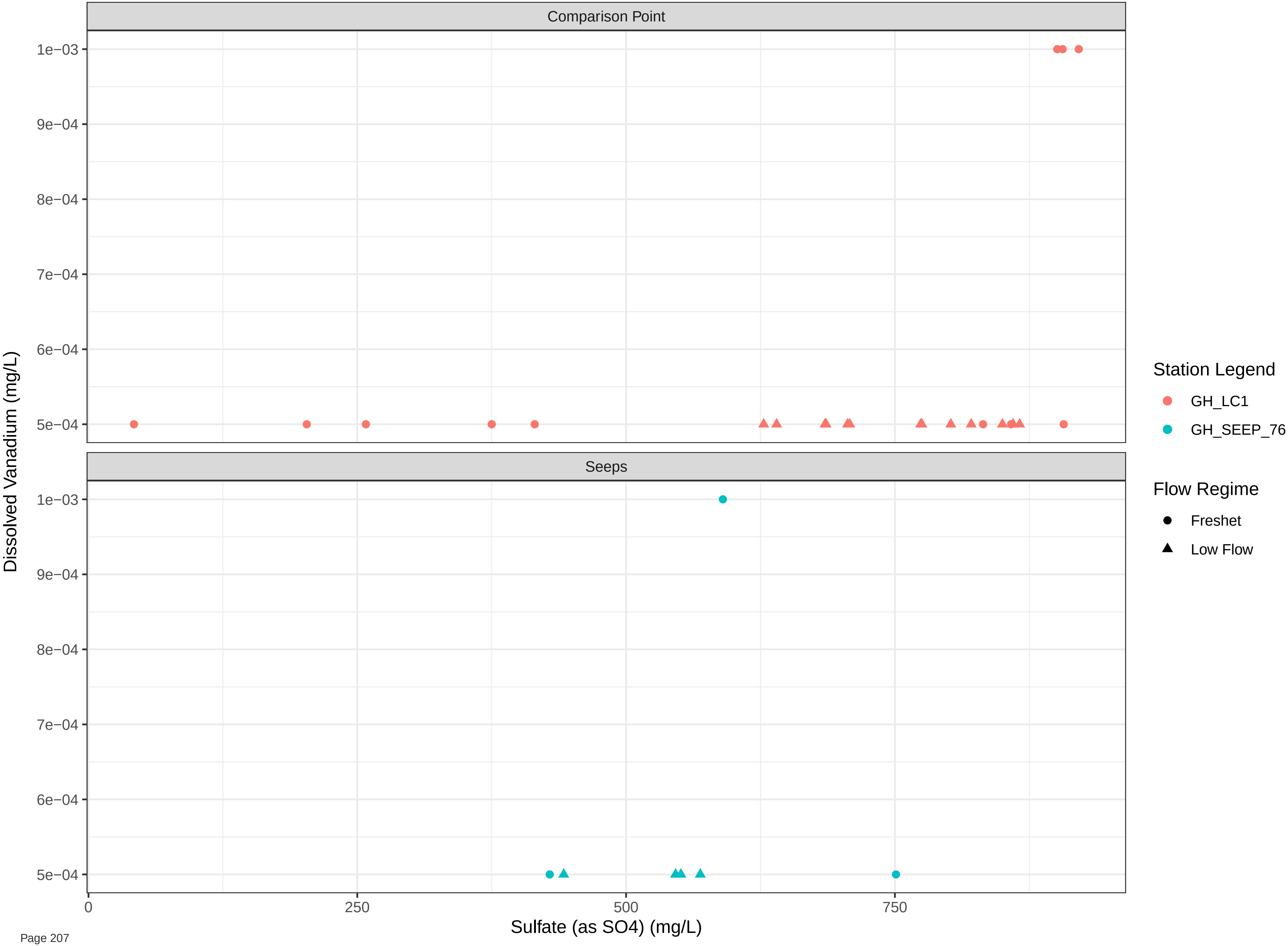

Comparison Point
Seeps
0.015
0.010
0.005
0.000
Dissolved Uranium (mg/L)
0
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

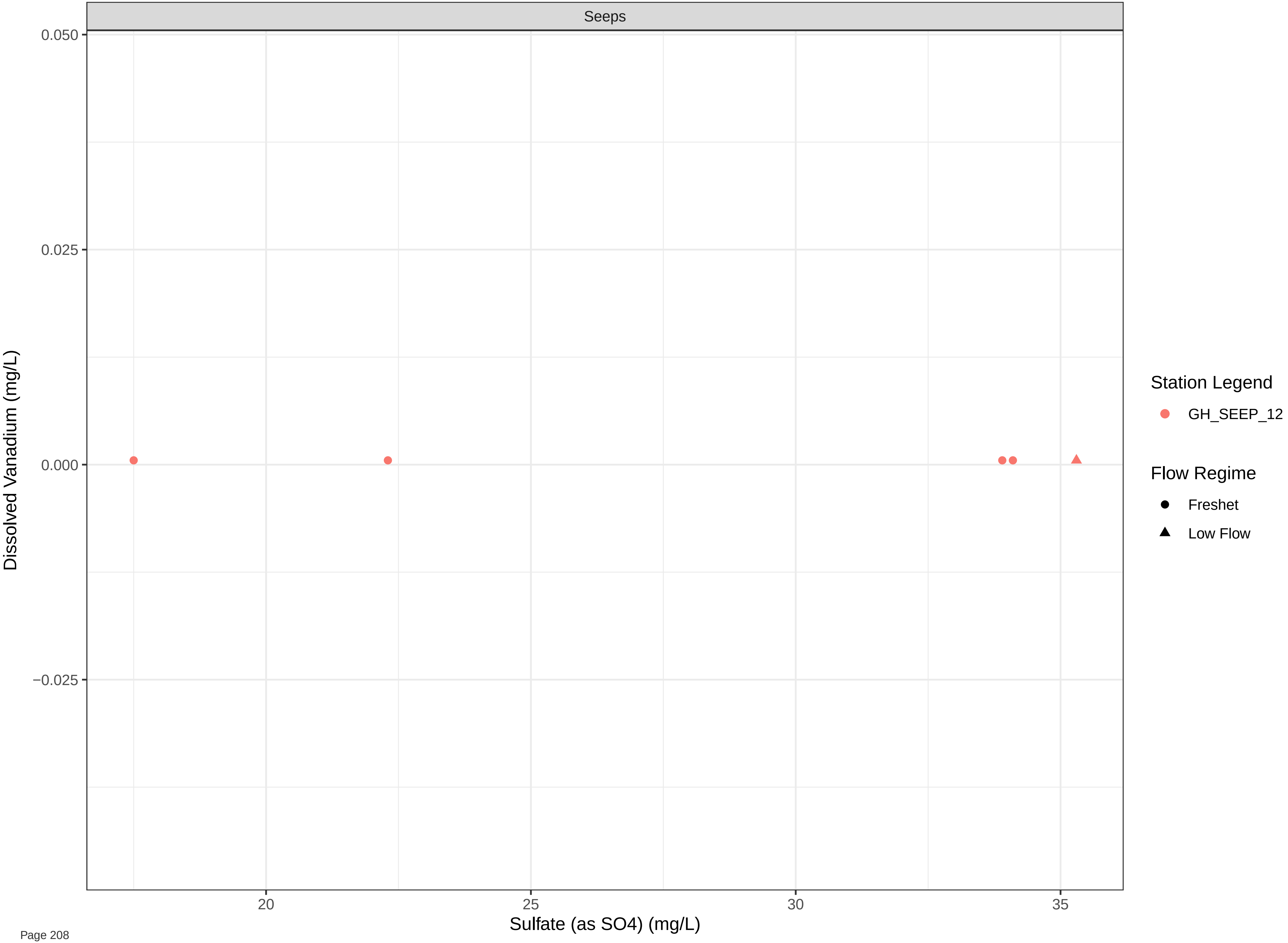

Comparison Point
Seeps
Dissolved Uranium (mg/L)
0.025
0.020
0.015
0.010
0.005
600
900
1200
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

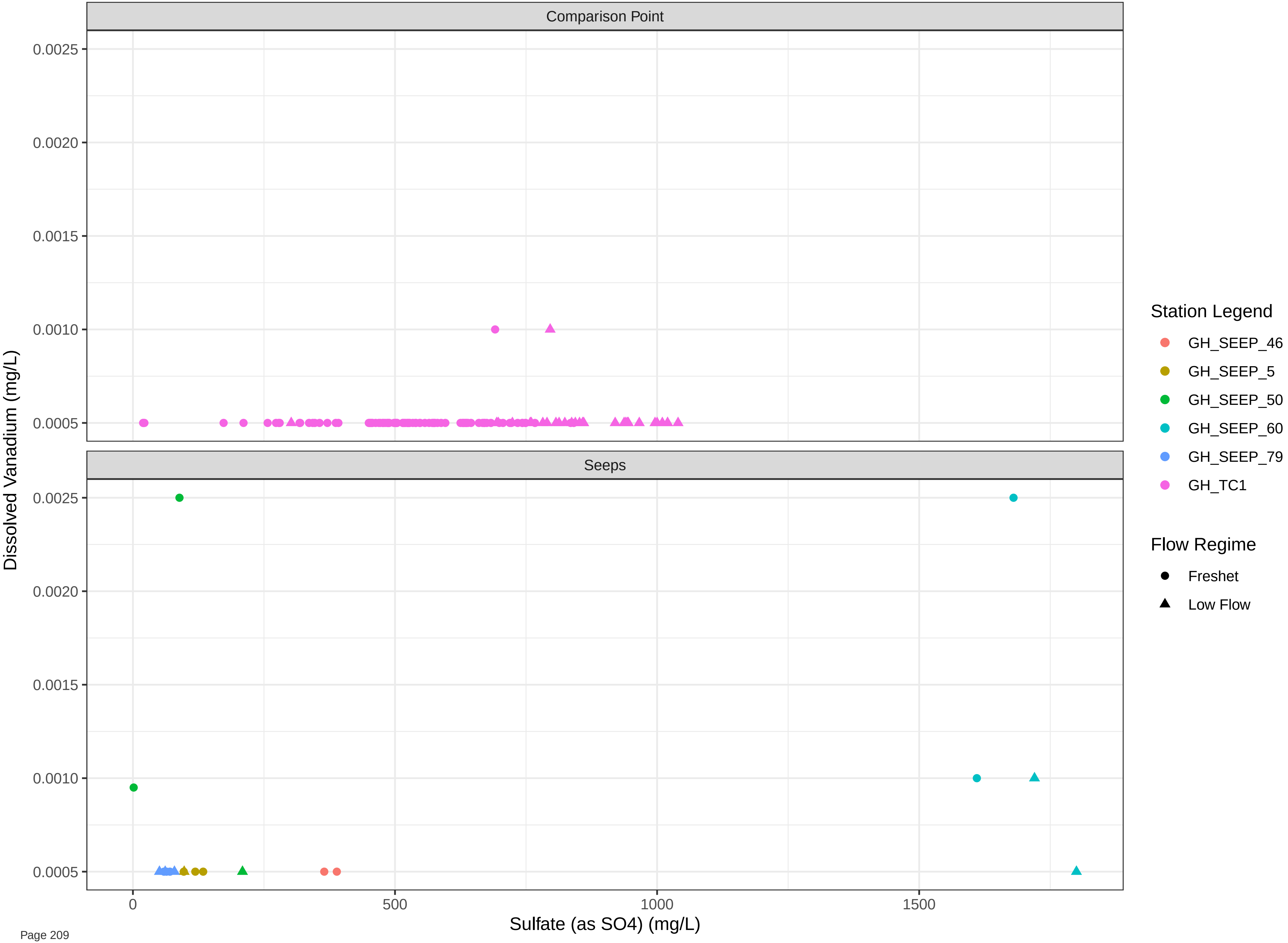

Comparison Point
Seeps
Dissolved Vanadium (mg/L)
0.0005
0.0010
0.0015
0.0020
0.0025
Sulfate (as SO4) (mg/L)
500
1000
1500
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

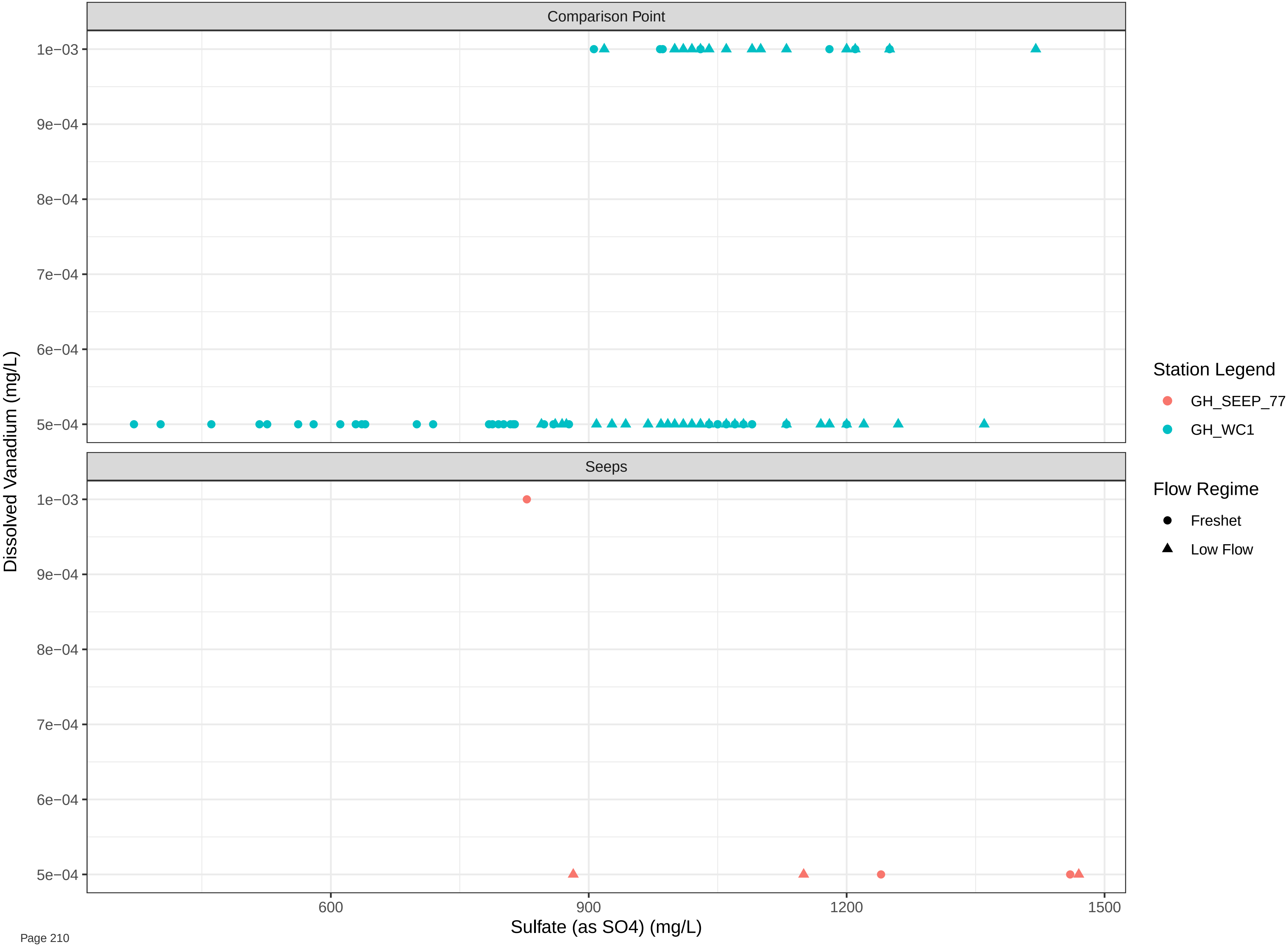

Comparison Point
Seeps
Dissolved Vanadium (mg/L)
Sulfate (as SO4) (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
500
1000
1500
2000
2500
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow

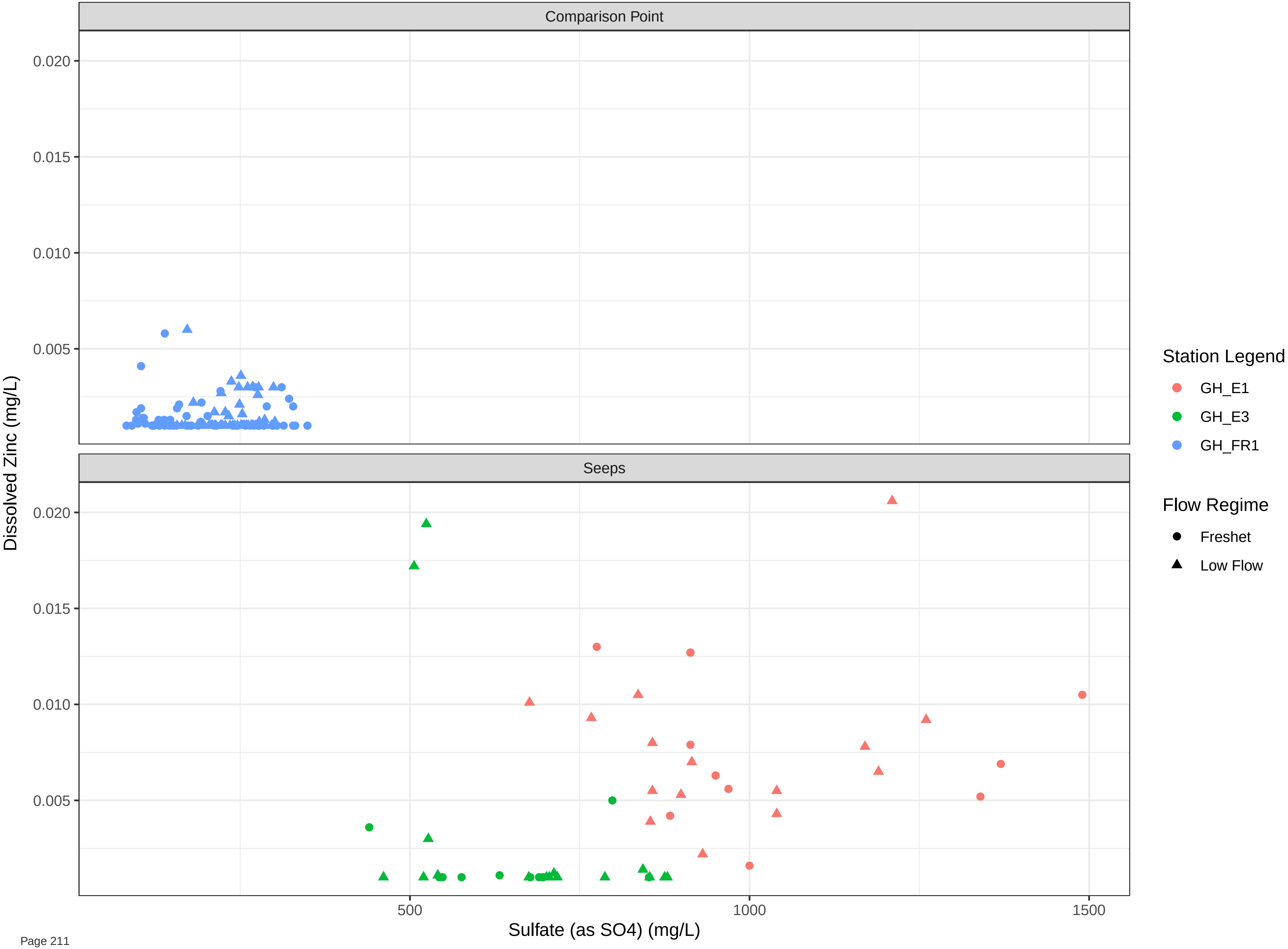

Comparison Point
Seeps
Dissolved Vanadium (mg/L)
0.00056
0.00054
0.00052
0.00050
0
200
400
600
Sulfate (as SO4) (mg/L)
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow

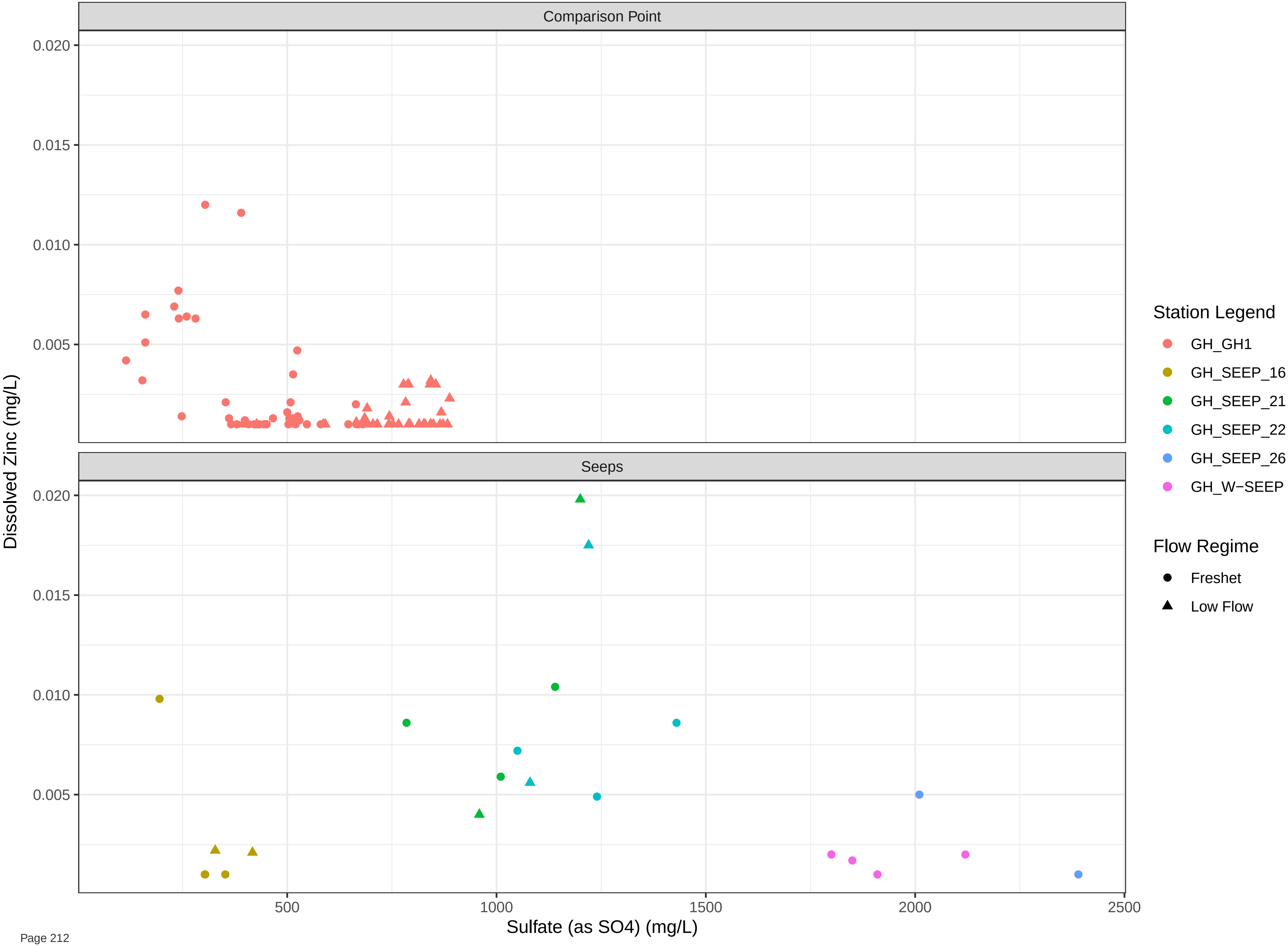

Comparison Point
Seeps
Dissolved Vanadium (mg/L)
1e−03
9e−04
8e−04
7e−04
6e−04
5e−04
Sulfate (as SO4) (mg/L)
0
250
500
750
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
Freshet
Low Flow

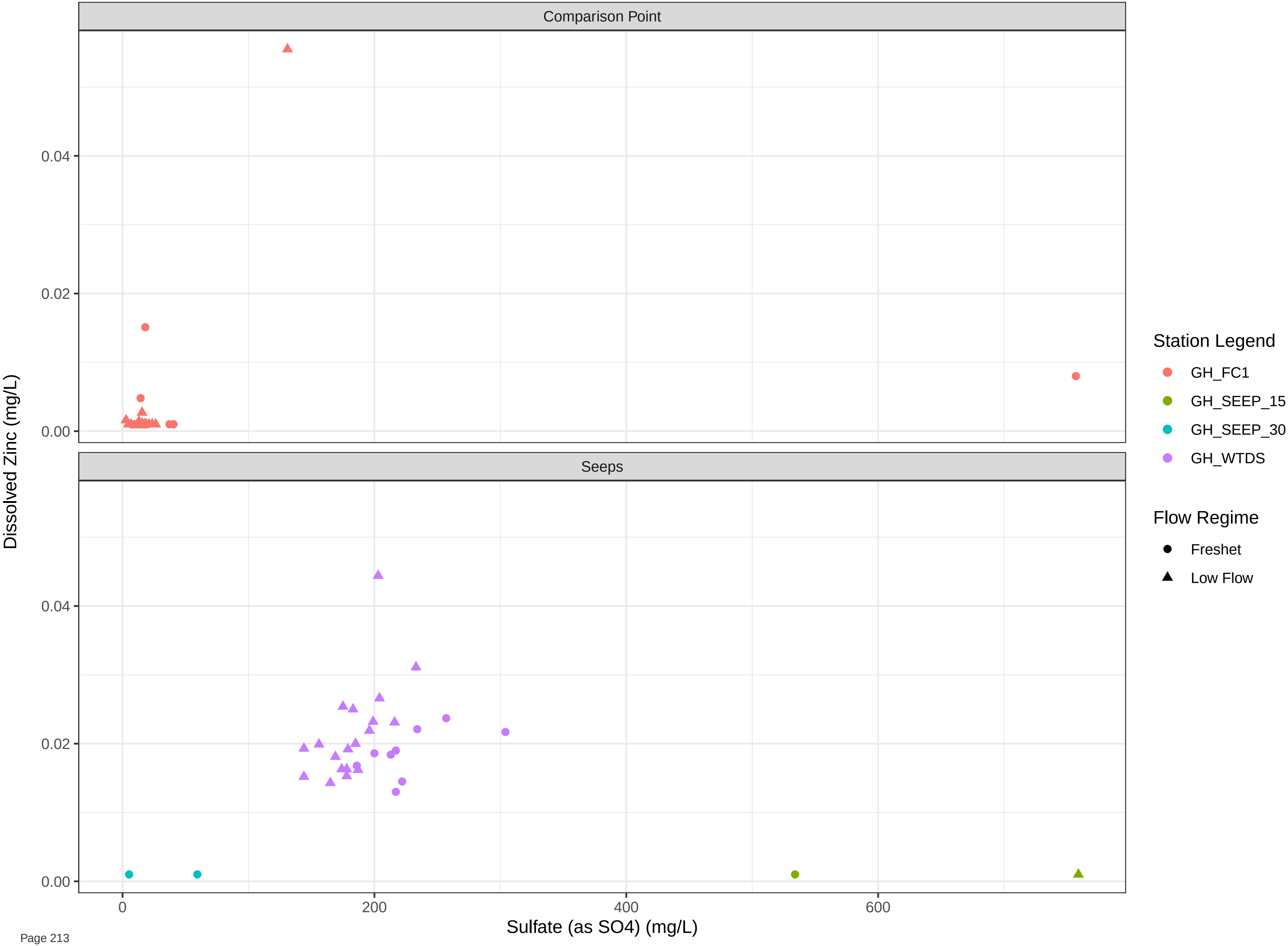

Seeps
0.050
0.025
0.000
−0.025
Dissolved Vanadium (mg/L)
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
● GH_SEEP_12
Flow Regime
● Freshet
▲ Low Flow

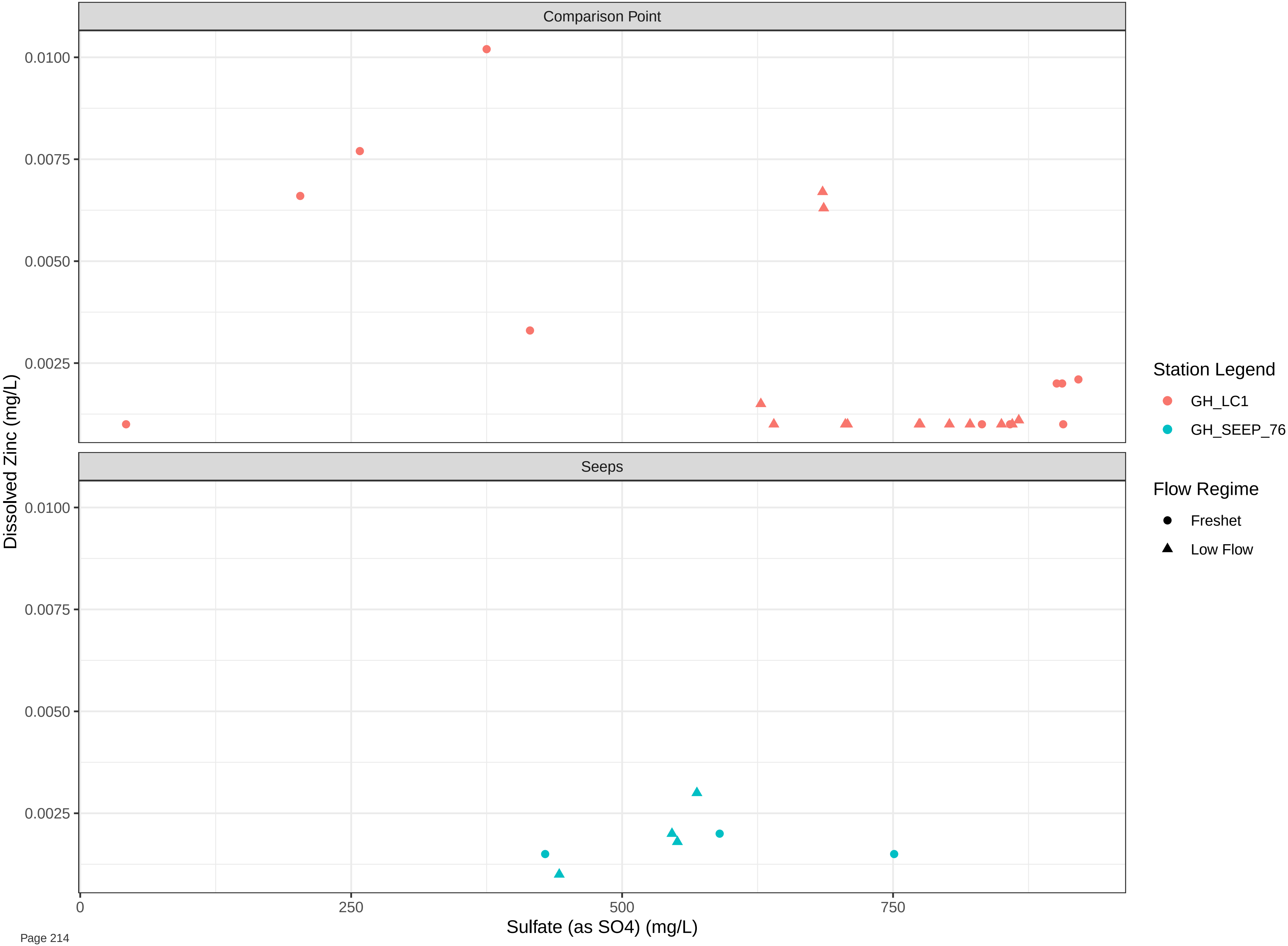

Comparison Point
Seeps
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
Sulfate (as SO4) (mg/L)
0
500
1000
1500
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

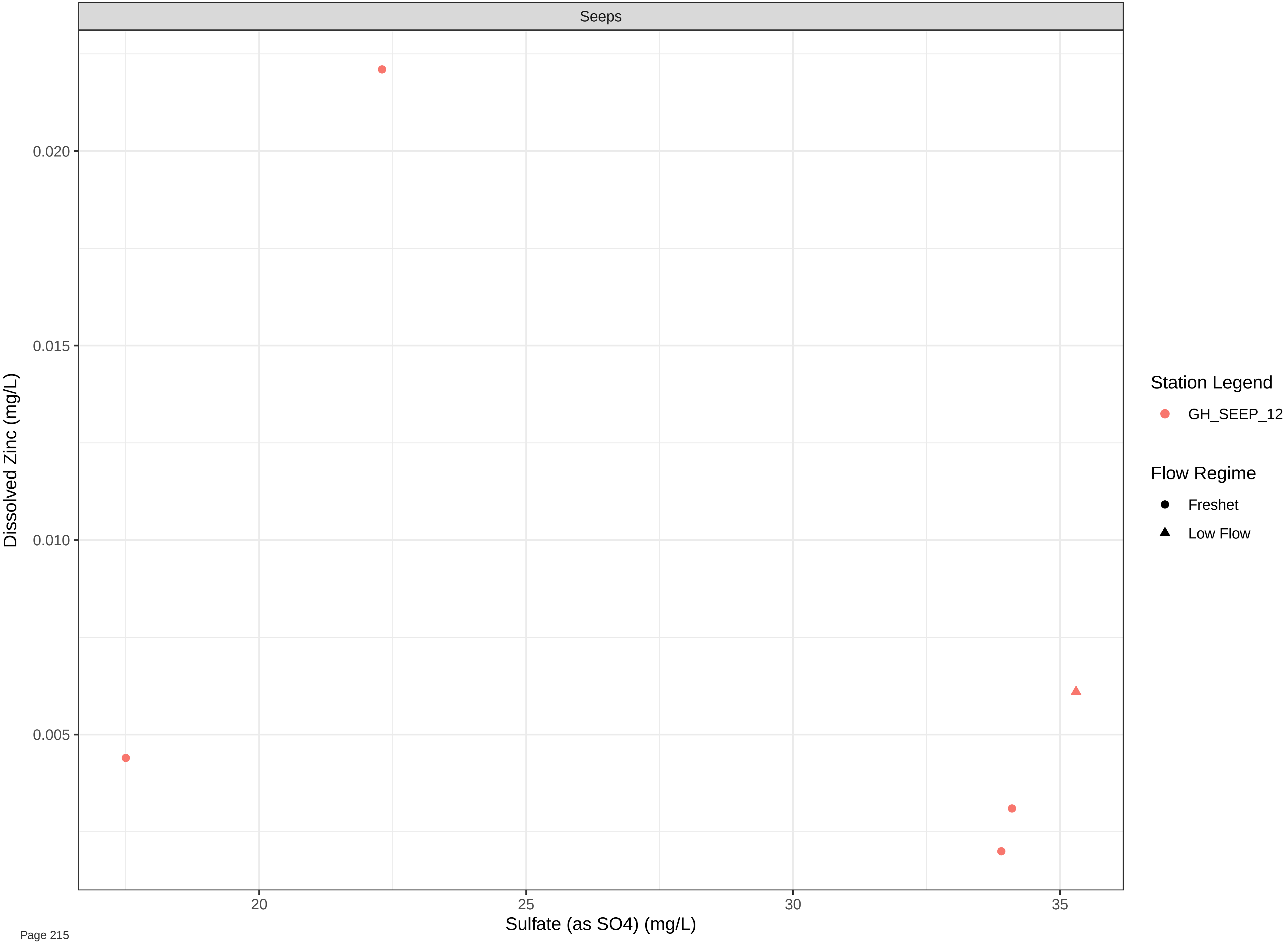

Comparison Point
Seeps
Dissolved Vanadium (mg/L)
1e−03
9e−04
8e−04
7e−04
6e−04
5e−04
600
900
1200
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

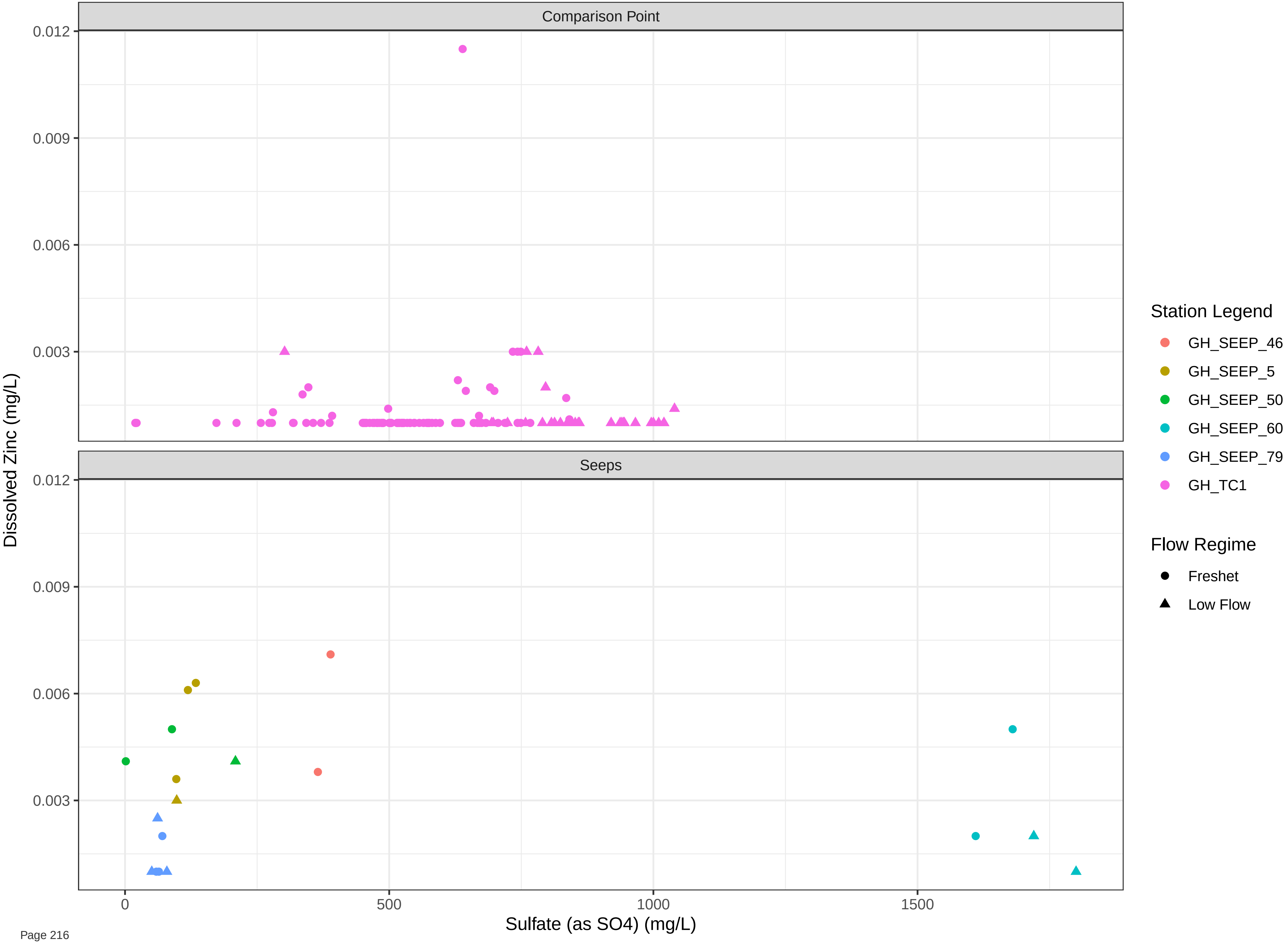

Comparison Point
Seeps
0.020
0.015
0.010
0.005
Dissolved Zinc (mg/L)
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_E1
GH_E3
GH_FR1
Flow Regime
Freshet
Low Flow

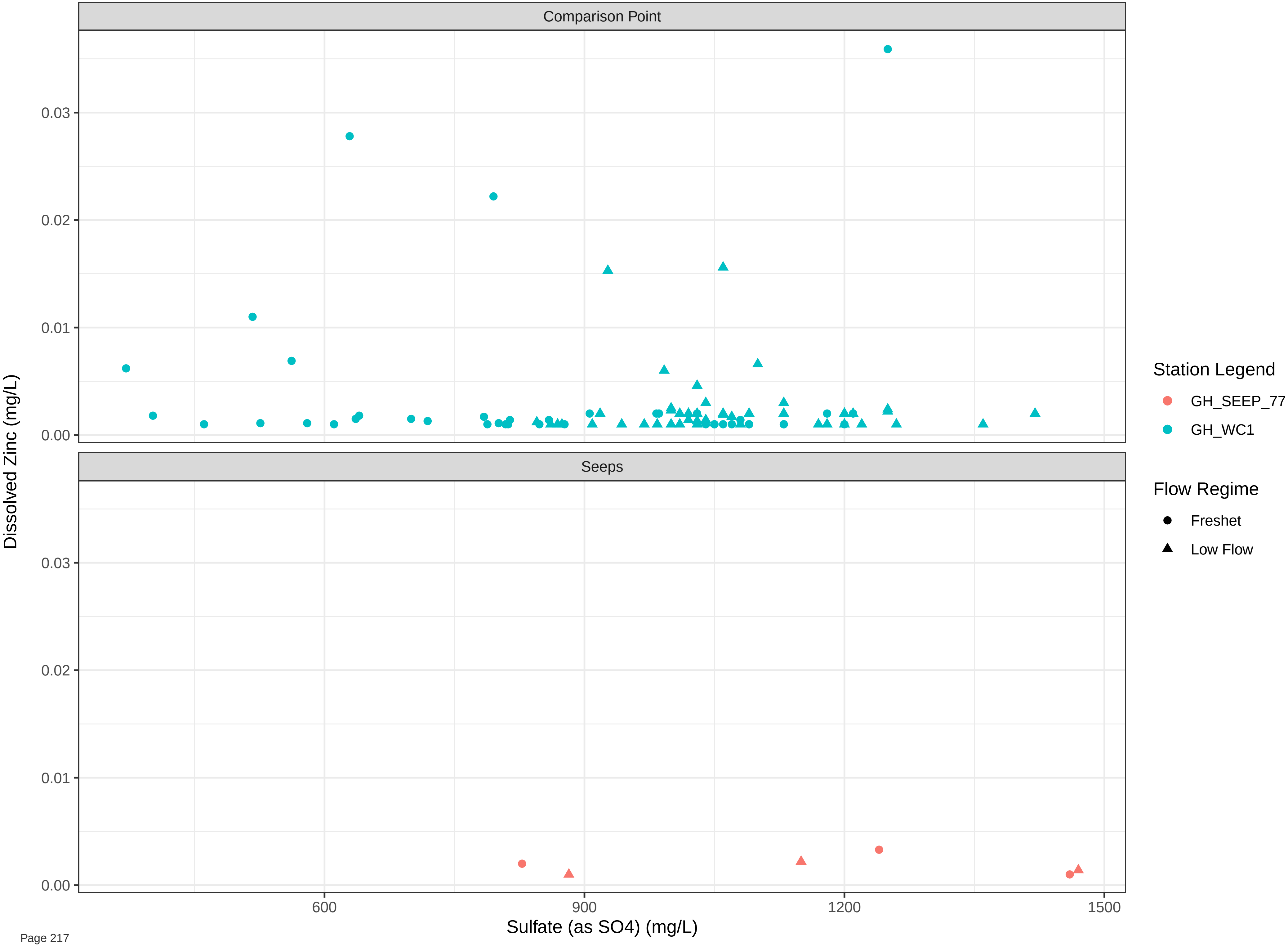

Comparison Point
Seeps
Dissolved Zinc (mg/L)
0.020
0.015
0.010
0.005
Sulfate (as SO4) (mg/L)
500
1000
1500
2000
2500
Station Legend
GH_GH1
GH_SEEP_16
GH_SEEP_21
GH_SEEP_22
GH_SEEP_26
GH_W−SEEP
Flow Regime
Freshet
Low Flow

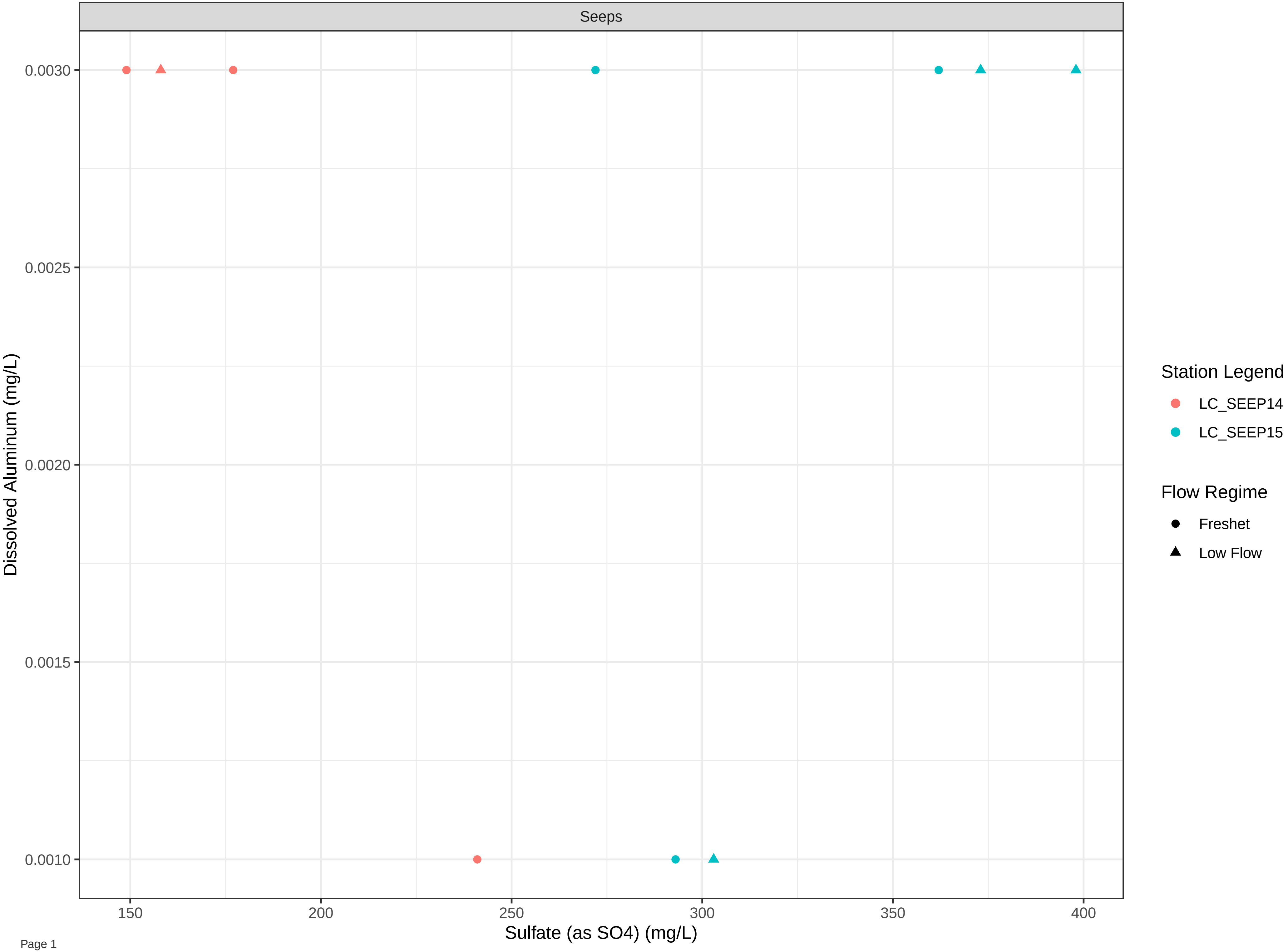

Comparison Point
Seeps
Dissolved Zinc (mg/L)
0.00
0.02
0.04
0.00
0.02
0.04
0
200
400
600
Sulfate (as SO4) (mg/L)
Station Legend
GH_FC1
GH_SEEP_15
GH_SEEP_30
GH_WTDS
Flow Regime
Freshet
Low Flow

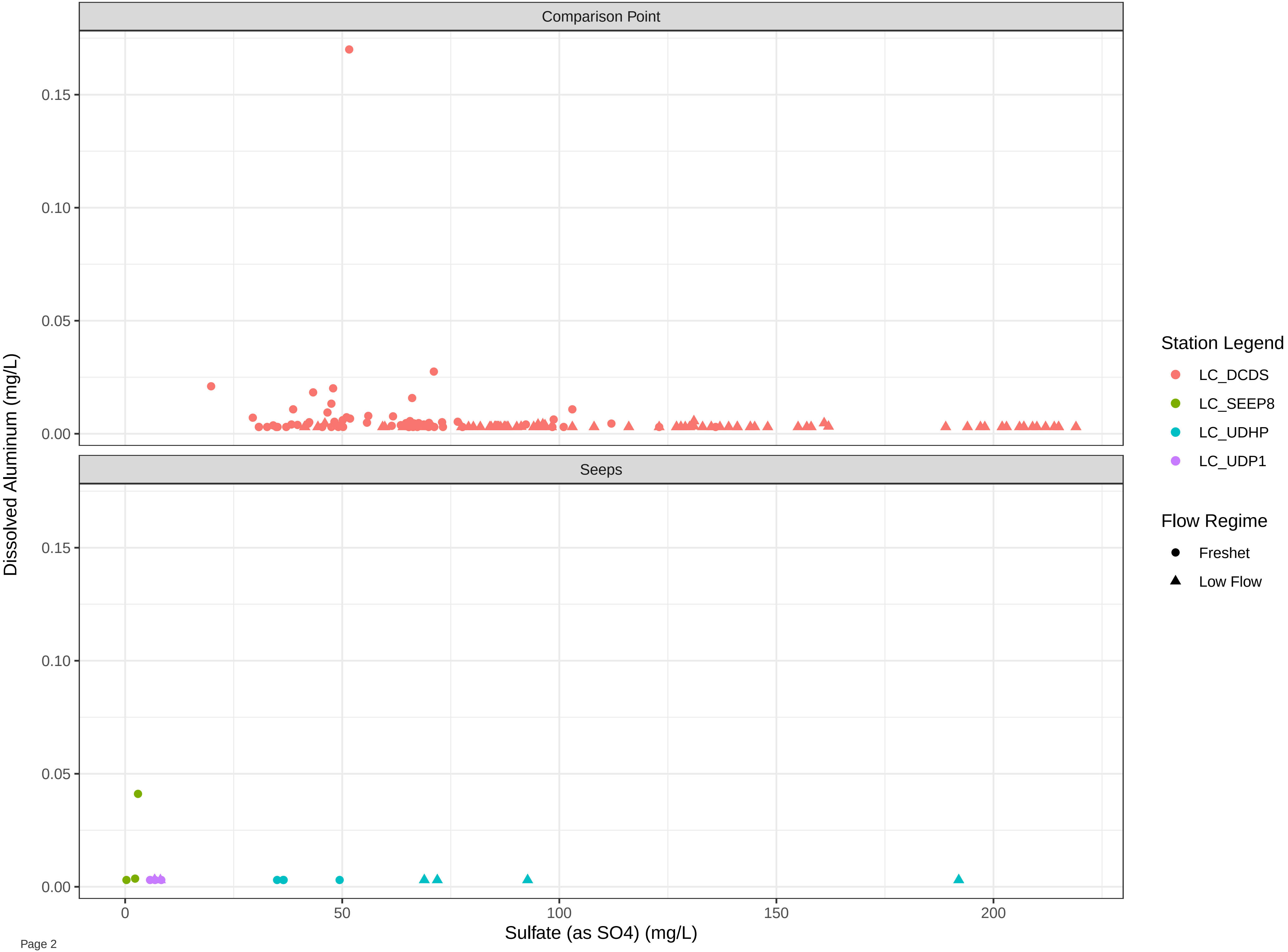

Comparison Point
Seeps
Dissolved Zinc (mg/L)
0.0100
0.0075
0.0050
0.0025
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
GH_LC1
GH_SEEP_76
Flow Regime
Freshet
Low Flow

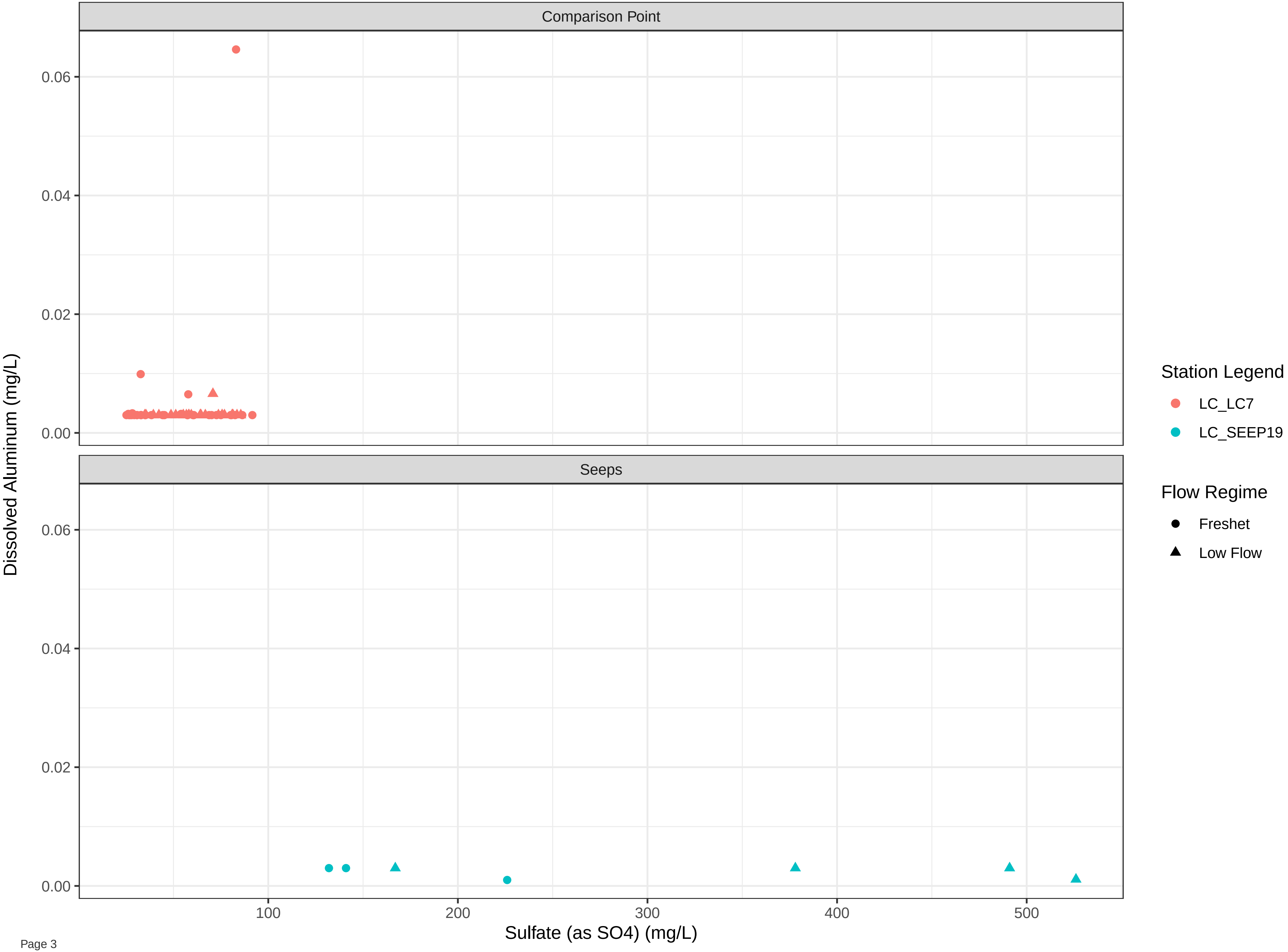

Seeps
Dissolved Zinc (mg/L)
0.020
0.015
0.010
0.005
20
25
30
35
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_12
Flow Regime
Freshet
Low Flow

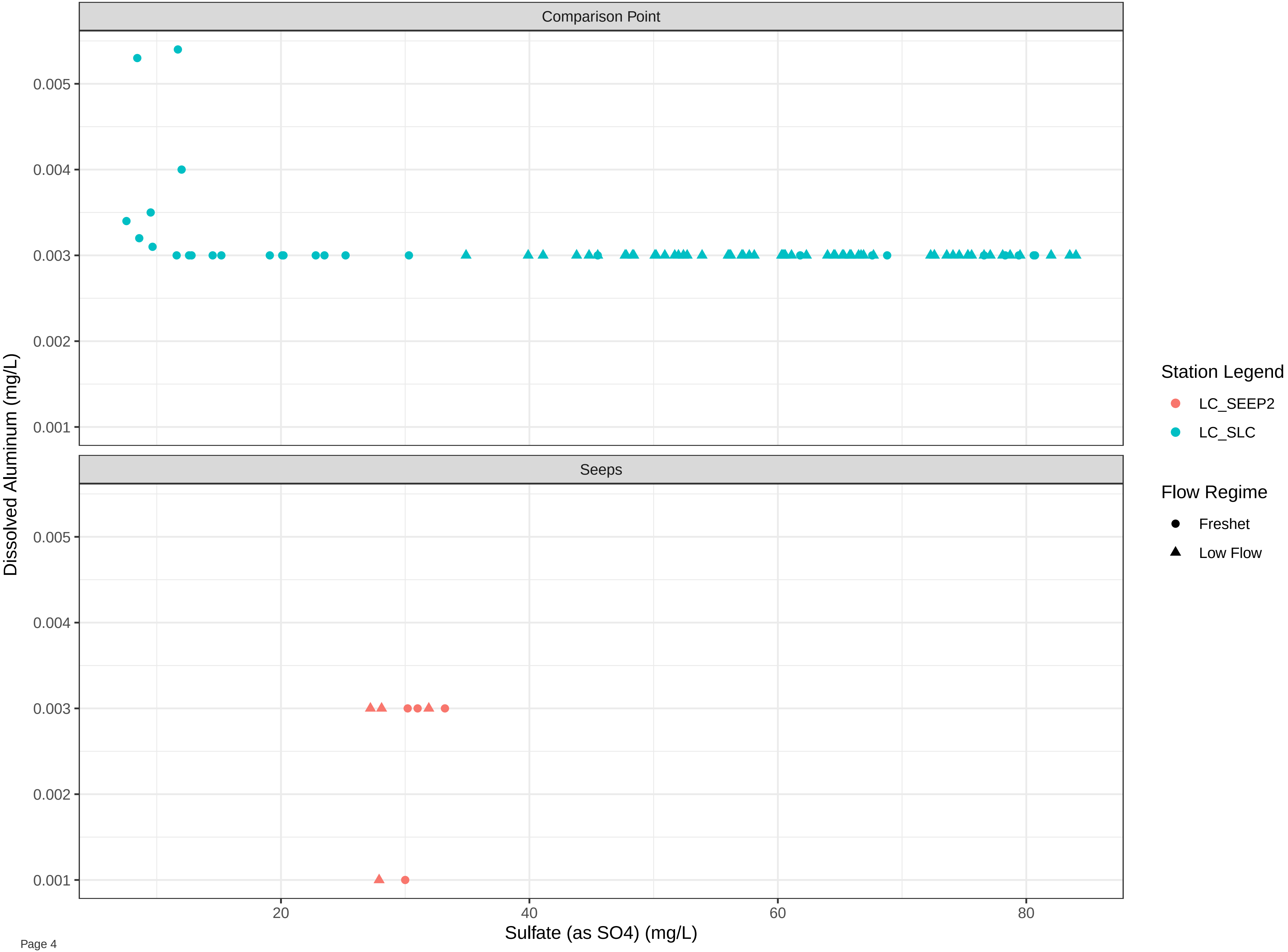

Comparison Point
Seeps
0.012
0.009
0.006
0.003
Dissolved Zinc (mg/L)
0
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
GH_SEEP_46
GH_SEEP_5
GH_SEEP_50
GH_SEEP_60
GH_SEEP_79
GH_TC1
Flow Regime
Freshet
Low Flow

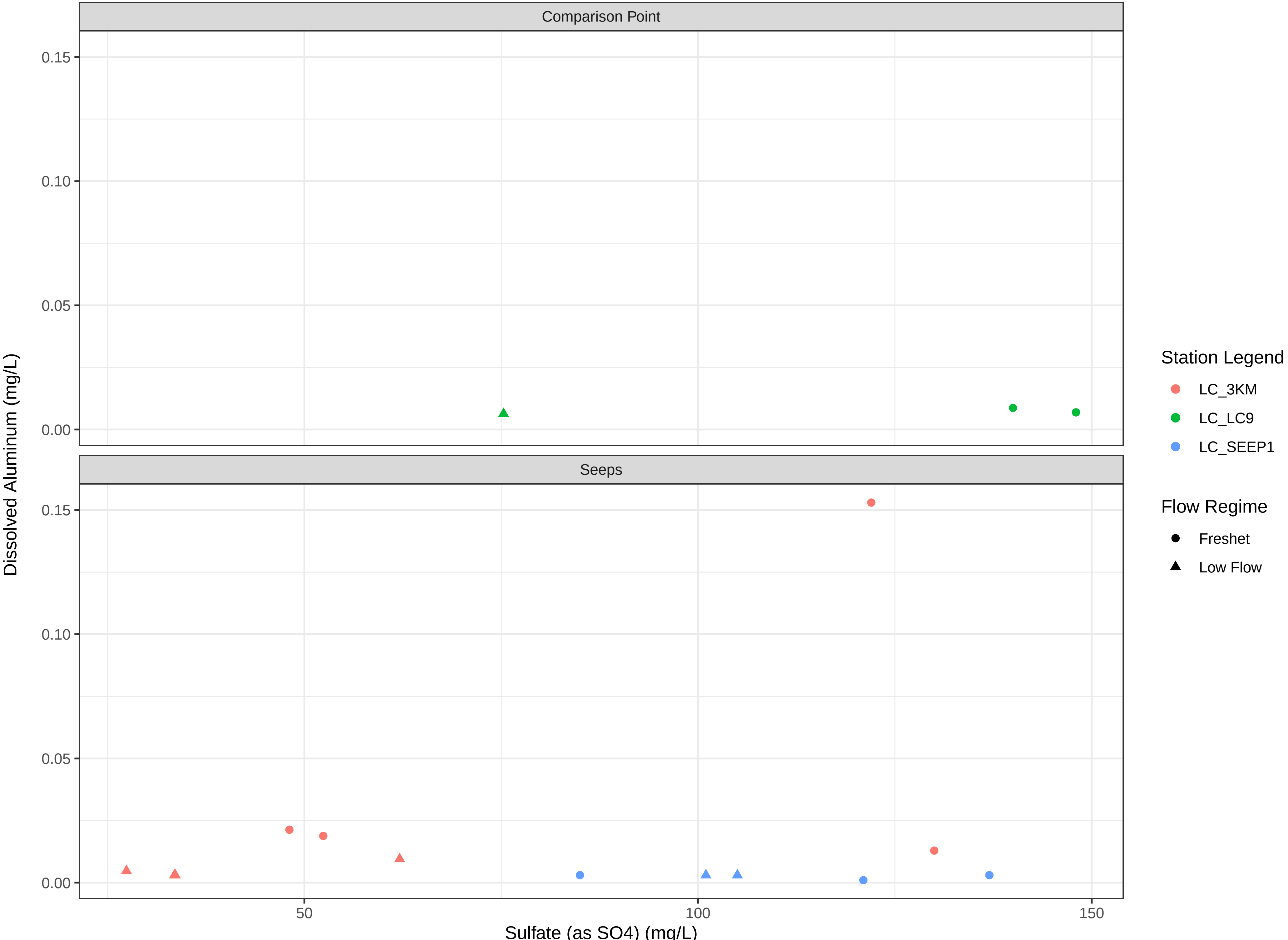

Comparison Point
Seeps
Dissolved Zinc (mg/L)
0.00
0.01
0.02
0.03
Sulfate (as SO4) (mg/L)
600
900
1200
1500
Station Legend
GH_SEEP_77
GH_WC1
Flow Regime
Freshet
Low Flow

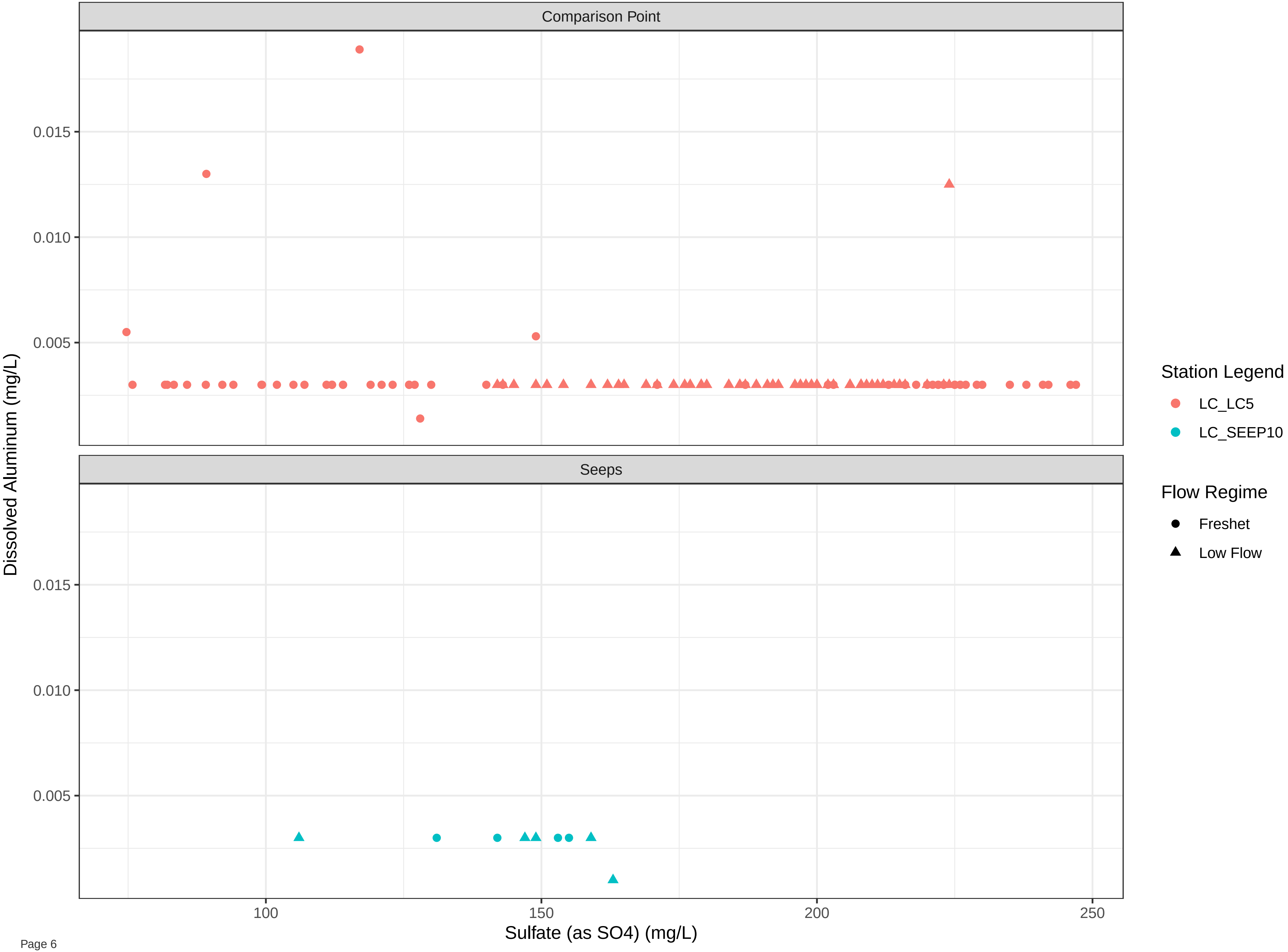

Seeps
Dissolved Aluminum (mg/L)
0.0030
0.0025
0.0020
0.0015
0.0010
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP14
LC_SEEP15
Flow Regime
Freshet
Low Flow

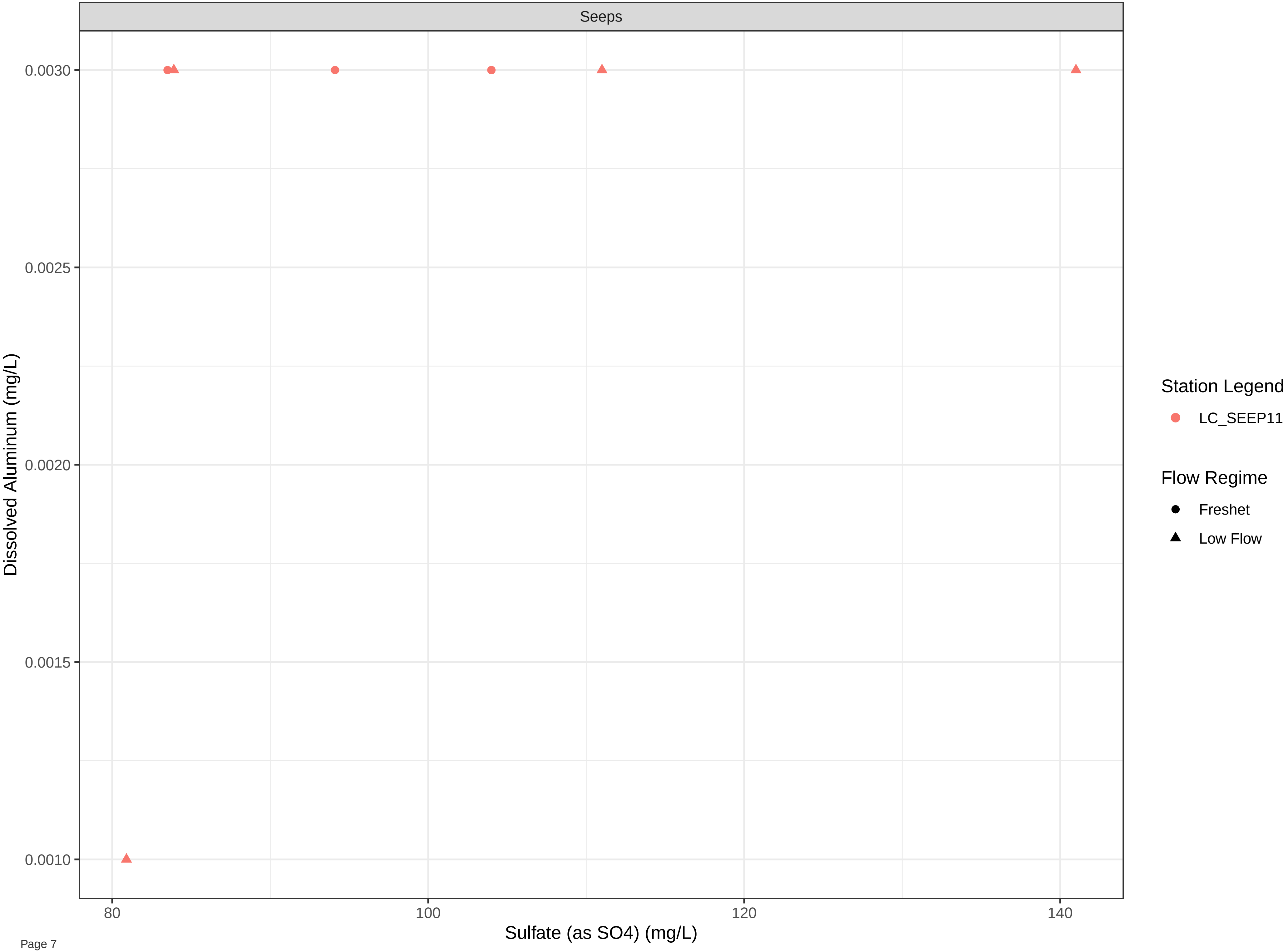

Comparison Point
Seeps
Dissolved Aluminum (mg/L)
0.00
0.05
0.10
0.15
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
LC_DCDS
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

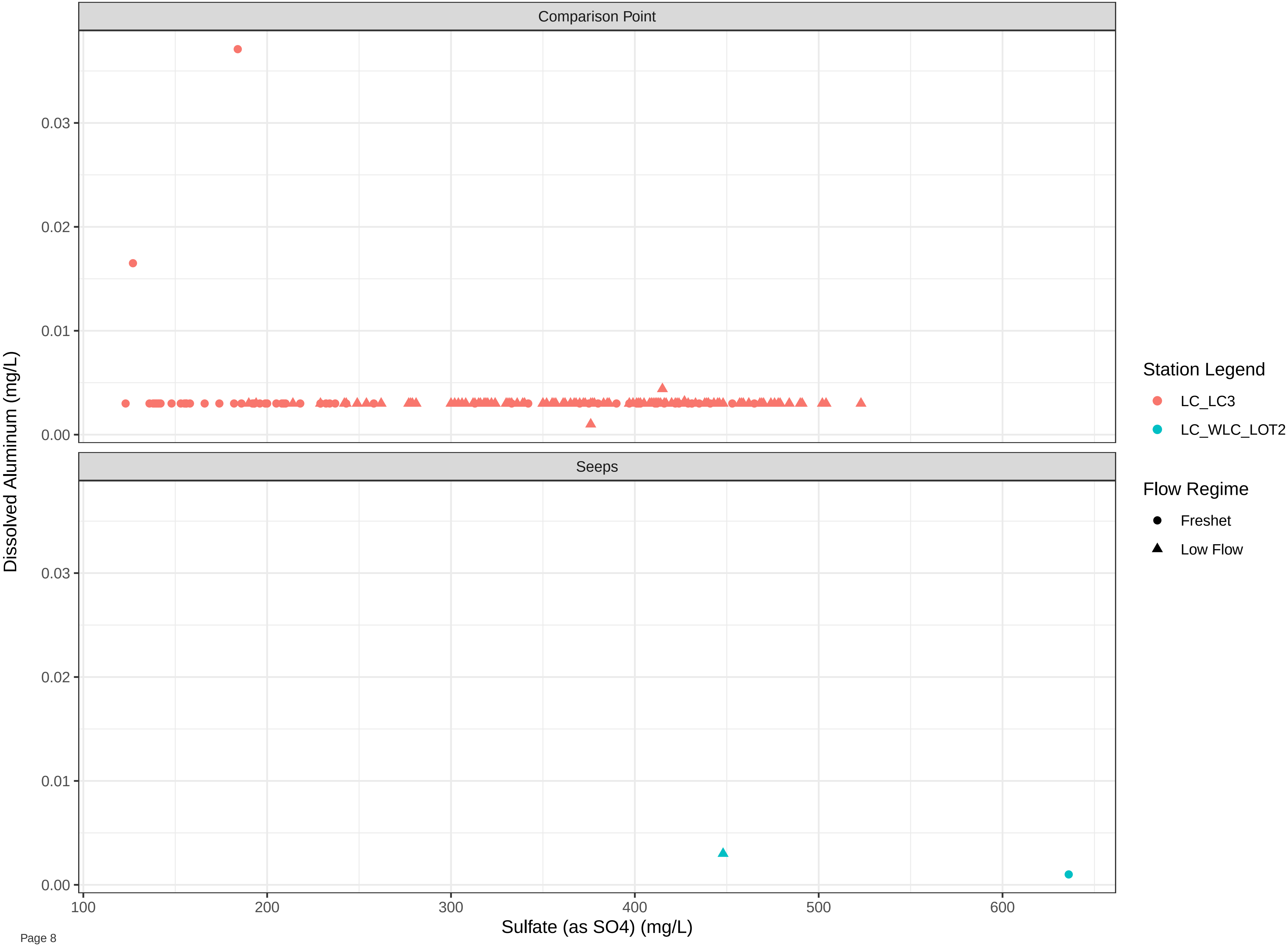

Comparison Point
Seeps
Dissolved Aluminum (mg/L)
0.00
0.02
0.04
0.06
0.00
0.02
0.04
0.06
100
200
300
400
500
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC7
LC_SEEP19
Flow Regime
Freshet
Low Flow

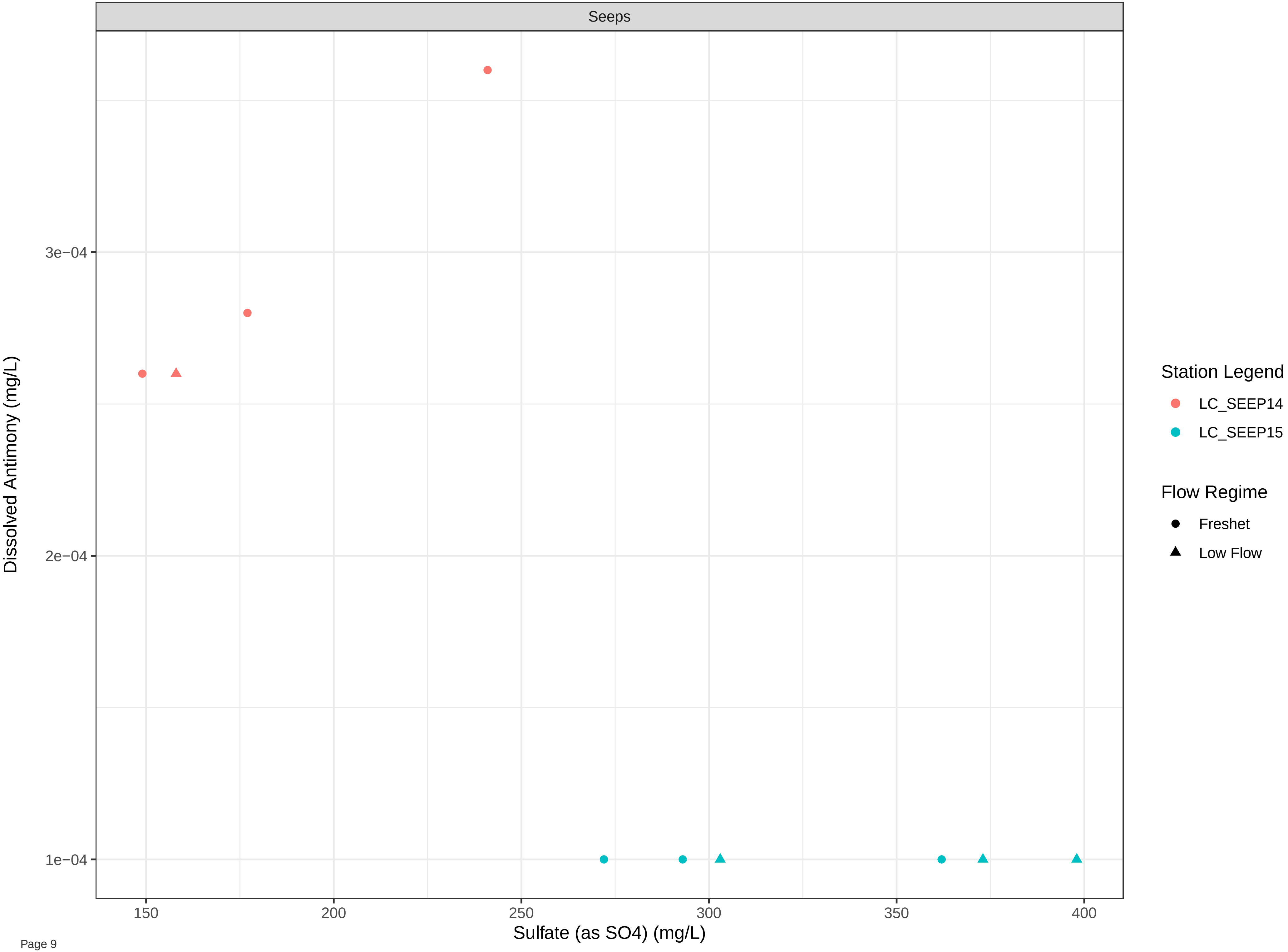

Comparison Point
Seeps
Dissolved Aluminum (mg/L)
0.005
0.004
0.003
0.002
0.001
Sulfate (as SO4) (mg/L)
20
40
60
80
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
Freshet
Low Flow

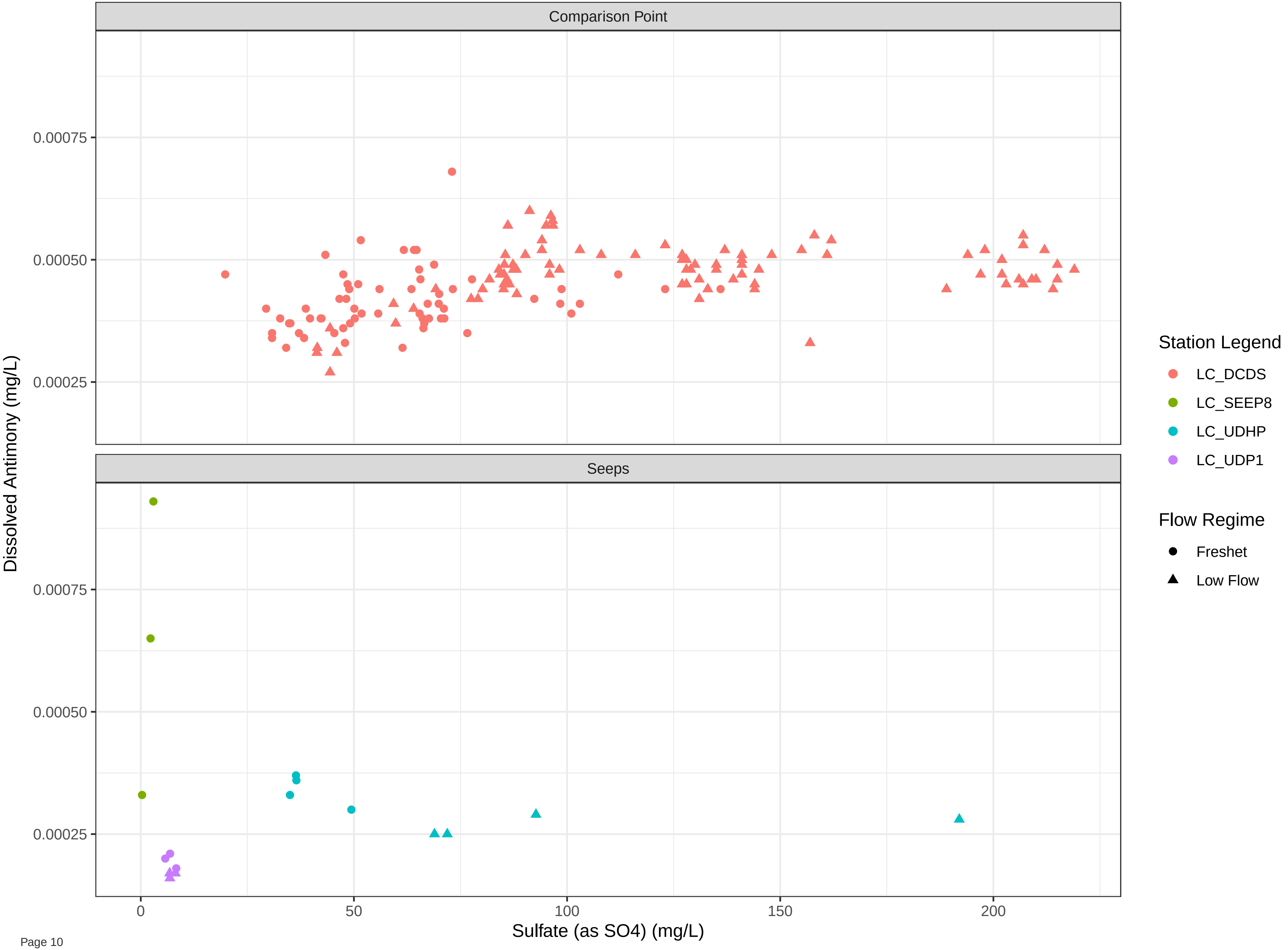

Comparison Point
Seeps
Dissolved Aluminum (mg/L)
0.15
0.10
0.05
0.00
50
100
150
Sulfate (as SO4) (mg/L)
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

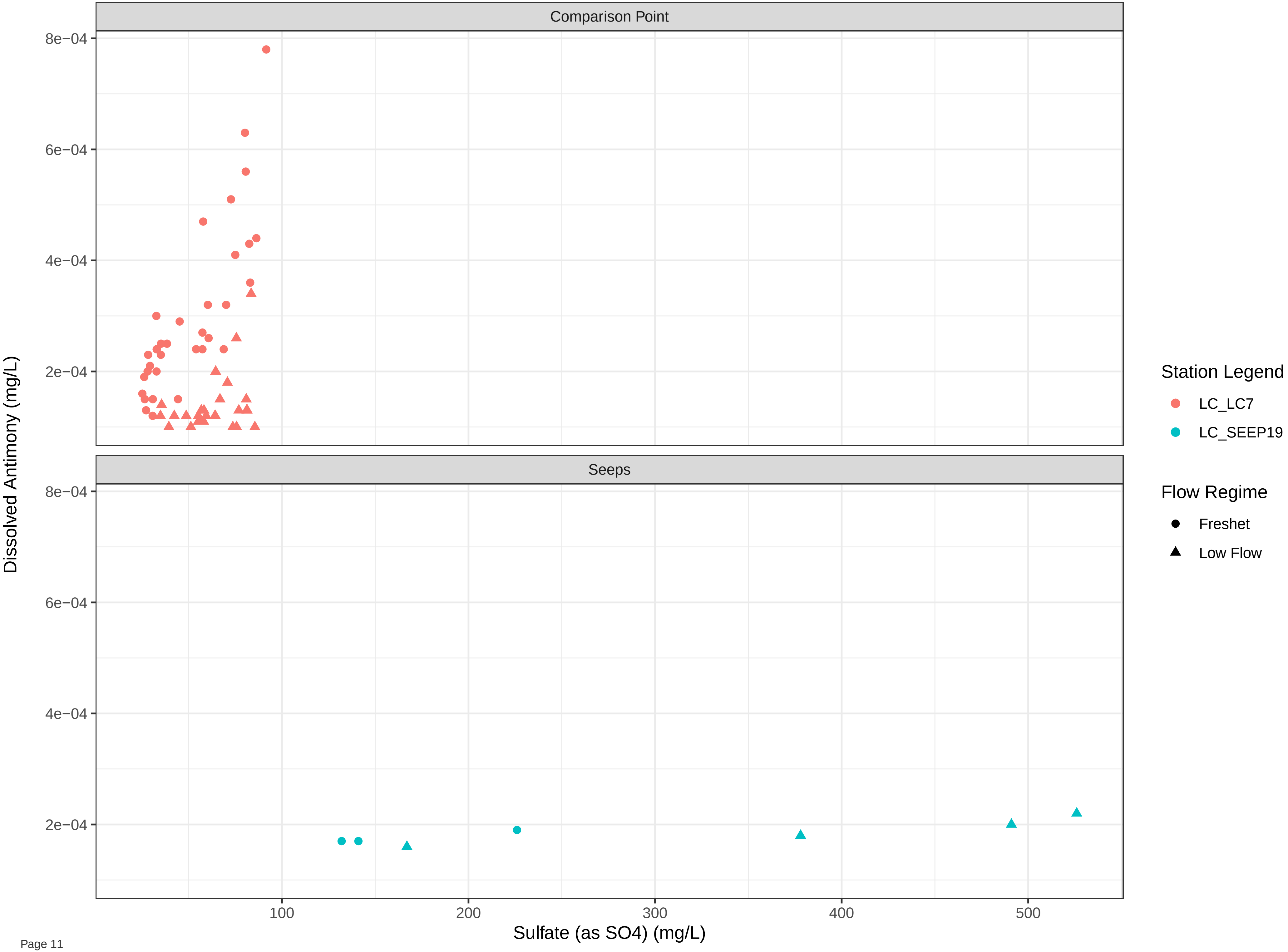

Comparison Point
Seeps
Dissolved Aluminum (mg/L)
0.015
0.010
0.005
0.015
0.010
0.005
100
150
200
250
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC5
LC_SEEP10
Flow Regime
Freshet
Low Flow

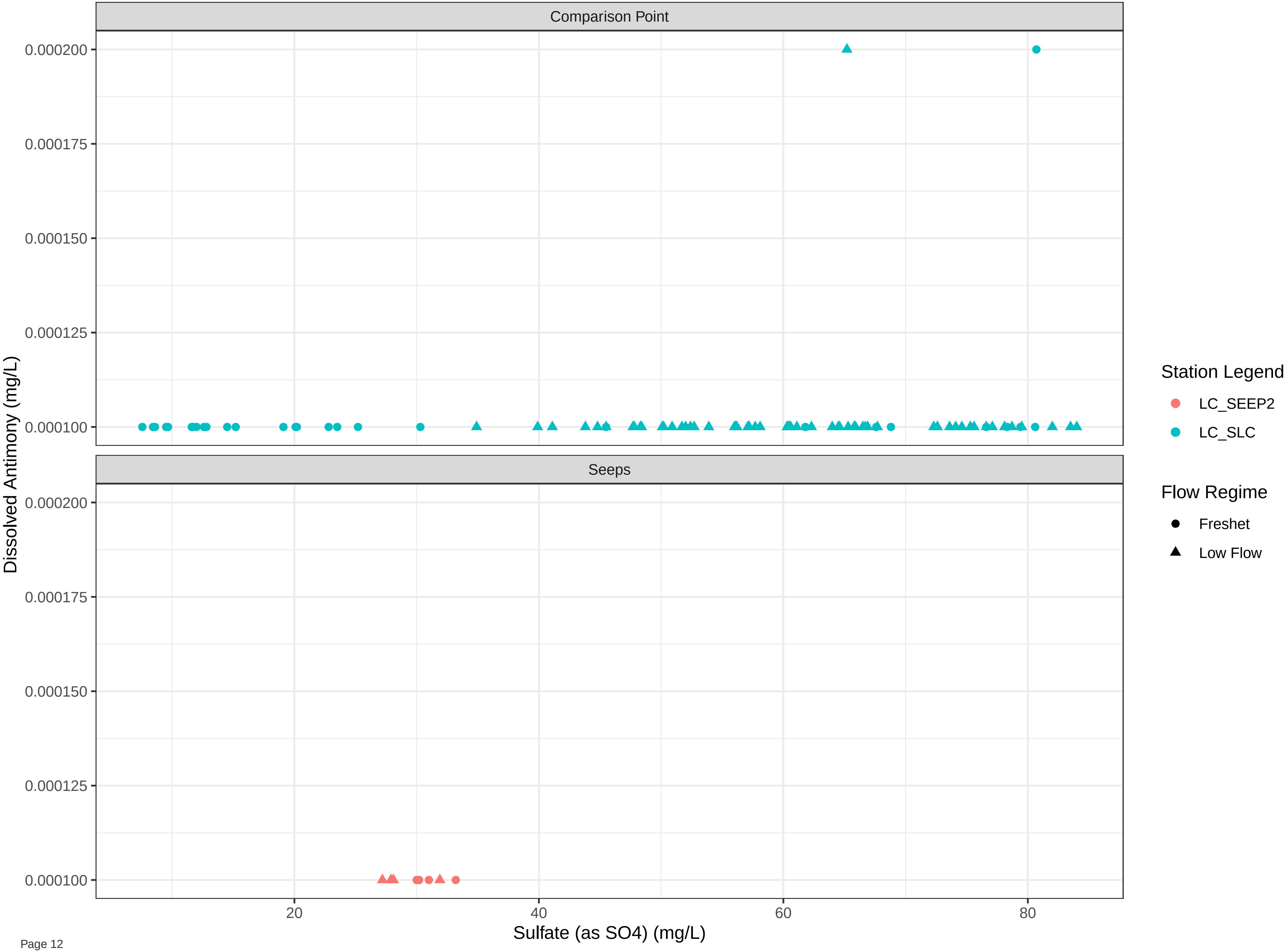

Seeps
0.0030
0.0025
0.0020
0.0015
0.0010
Dissolved Aluminum (mg/L)
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP11
Flow Regime
Freshet
Low Flow

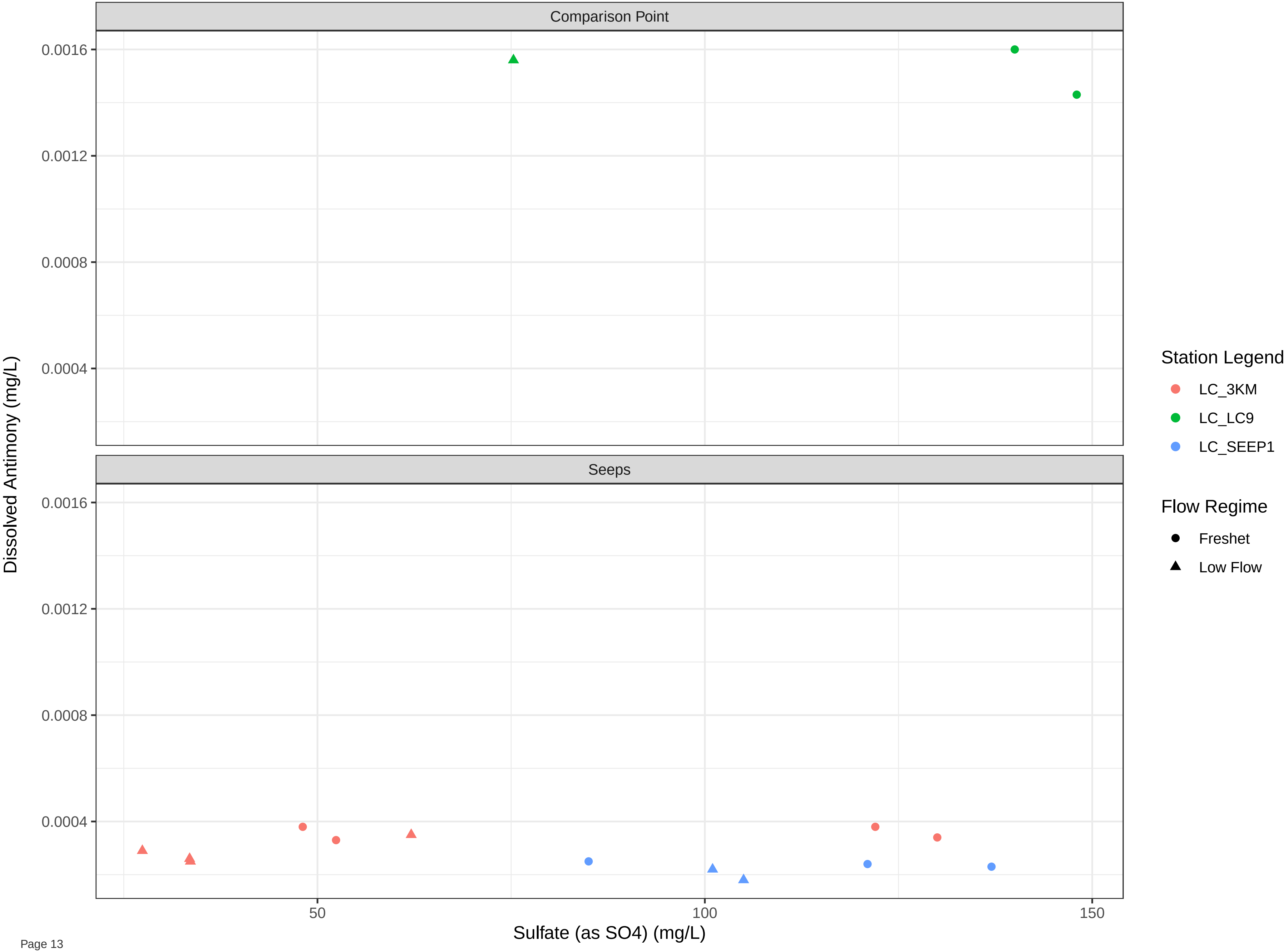

Comparison Point
Seeps
Dissolved Aluminum (mg/L)
0.00
0.01
0.02
0.03
Sulfate (as SO4) (mg/L)
100
200
300
400
500
600
Station Legend
LC_LC3
LC_WLC_LOT2
Flow Regime
Freshet
Low Flow

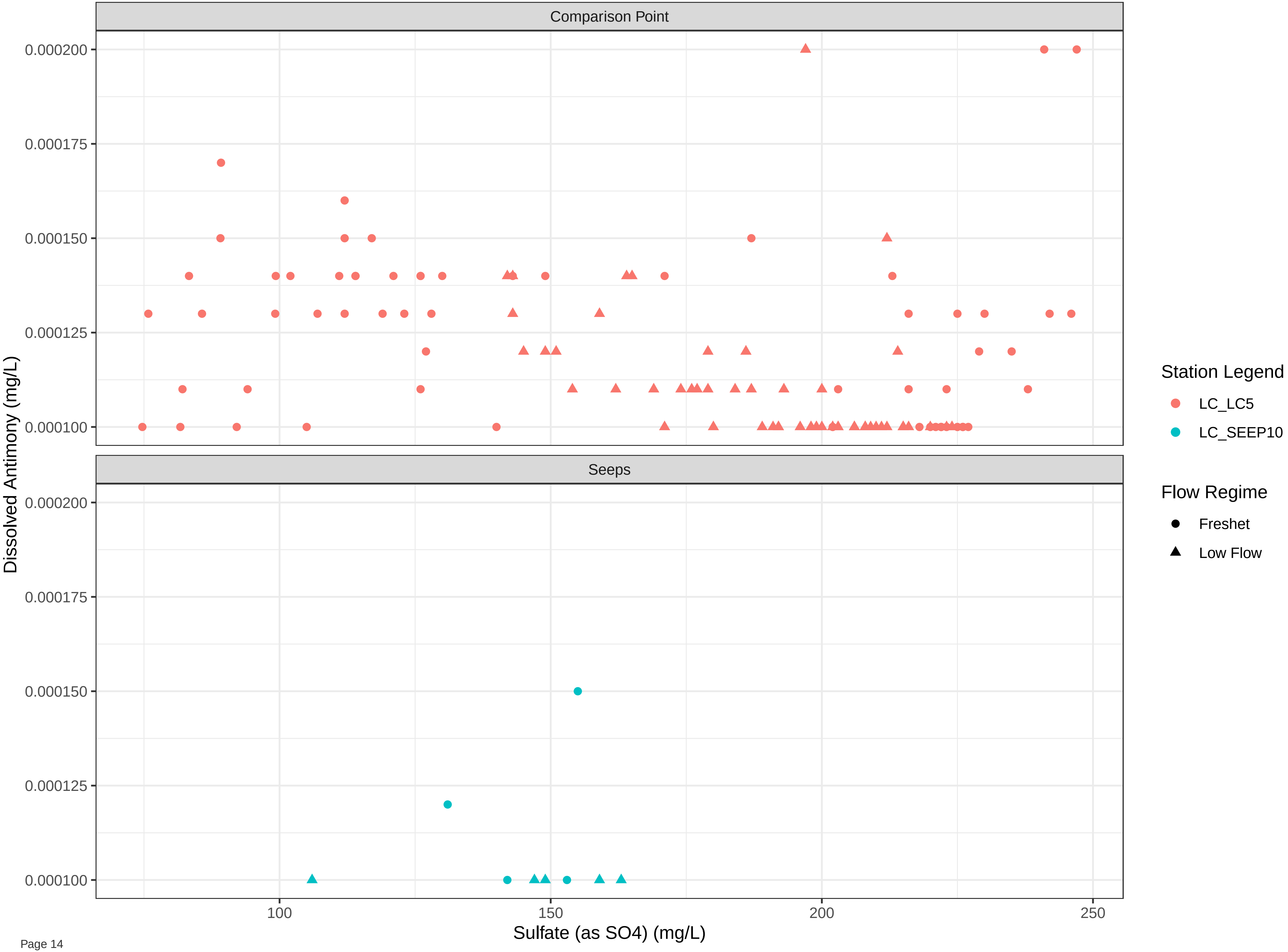

Seeps
Dissolved Antimony (mg/L)
3e−04
2e−04
1e−04
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
● LC_SEEP14
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow

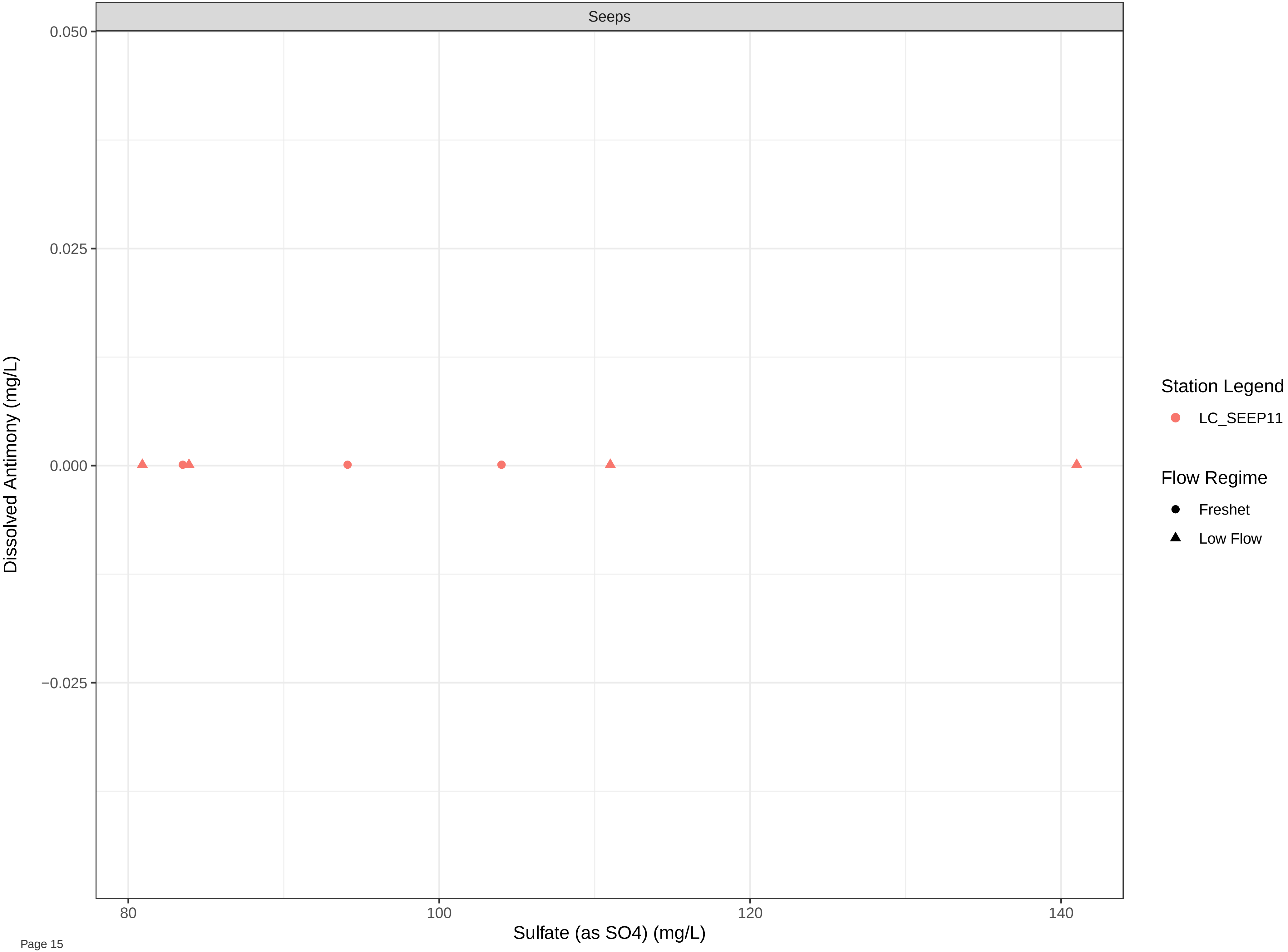

Comparison Point
Seeps
0.00075
0.00050
0.00025
Dissolved Antimony (mg/L)
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
LC_DCDS
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

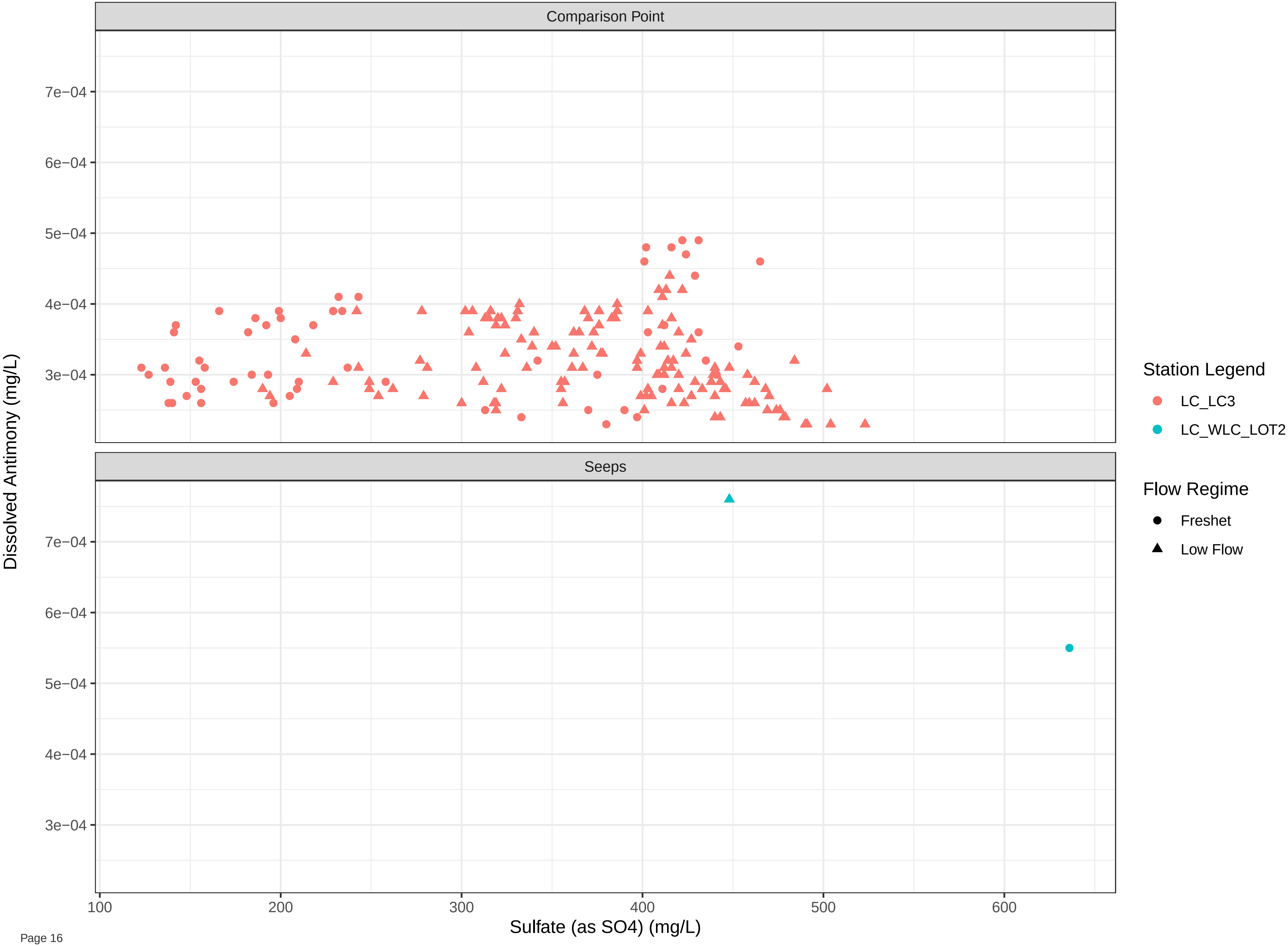

Comparison Point
Seeps
Dissolved Antimony (mg/L)
8e−04
6e−04
4e−04
2e−04
8e−04
6e−04
4e−04
2e−04
100
200
300
400
500
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC7
LC_SEEP19
Flow Regime
Freshet
Low Flow

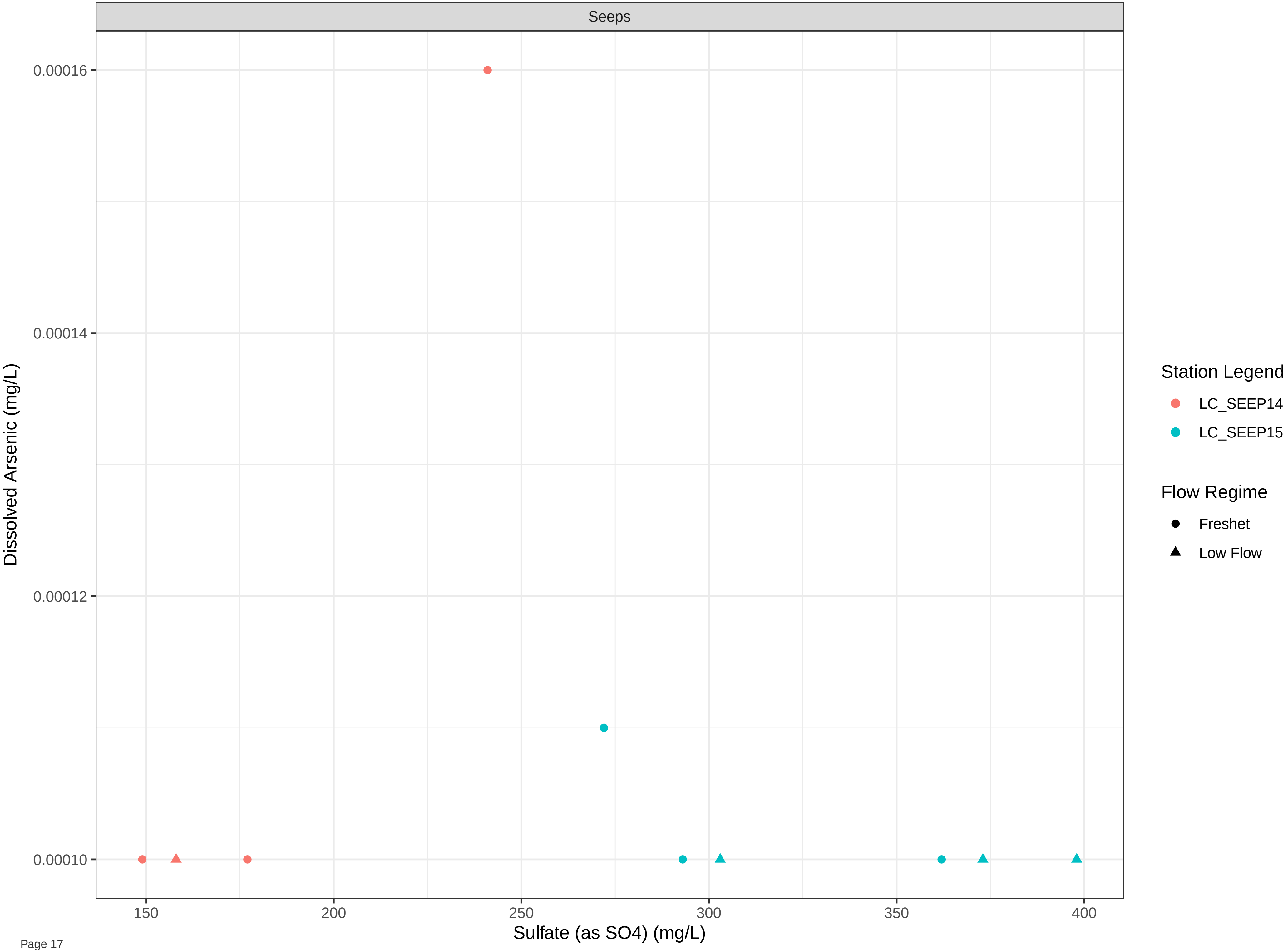

Comparison Point
Seeps
Dissolved Antimony (mg/L)
0.000200
0.000175
0.000150
0.000125
0.000100
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
Freshet
Low Flow

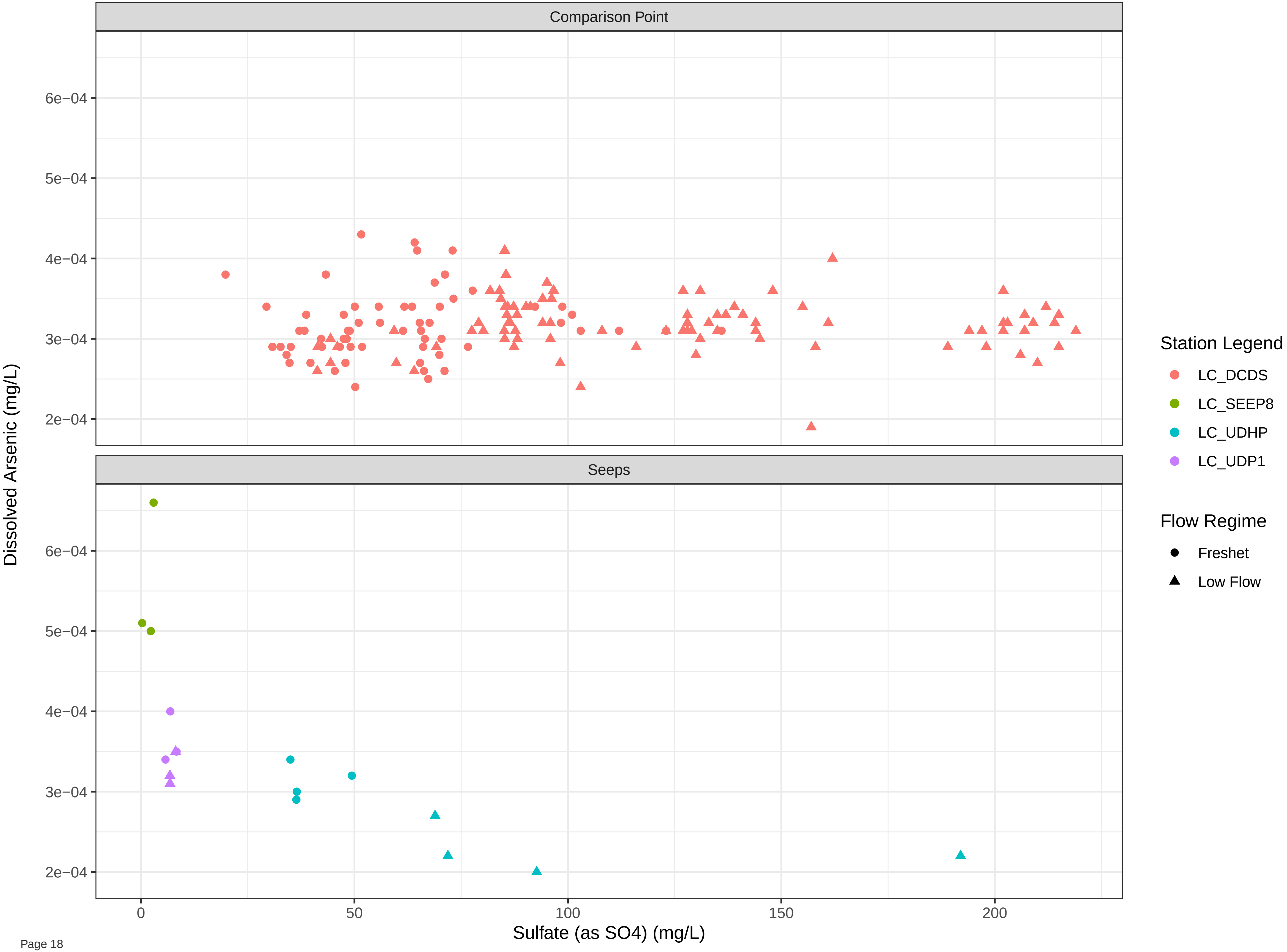

Comparison Point
Seeps
Dissolved Antimony (mg/L)
0.0016
0.0012
0.0008
0.0004
50
100
150
Sulfate (as SO4) (mg/L)
Station Legend
● LC_3KM
● LC_LC9
● LC_SEEP1
Flow Regime
● Freshet
▲ Low Flow

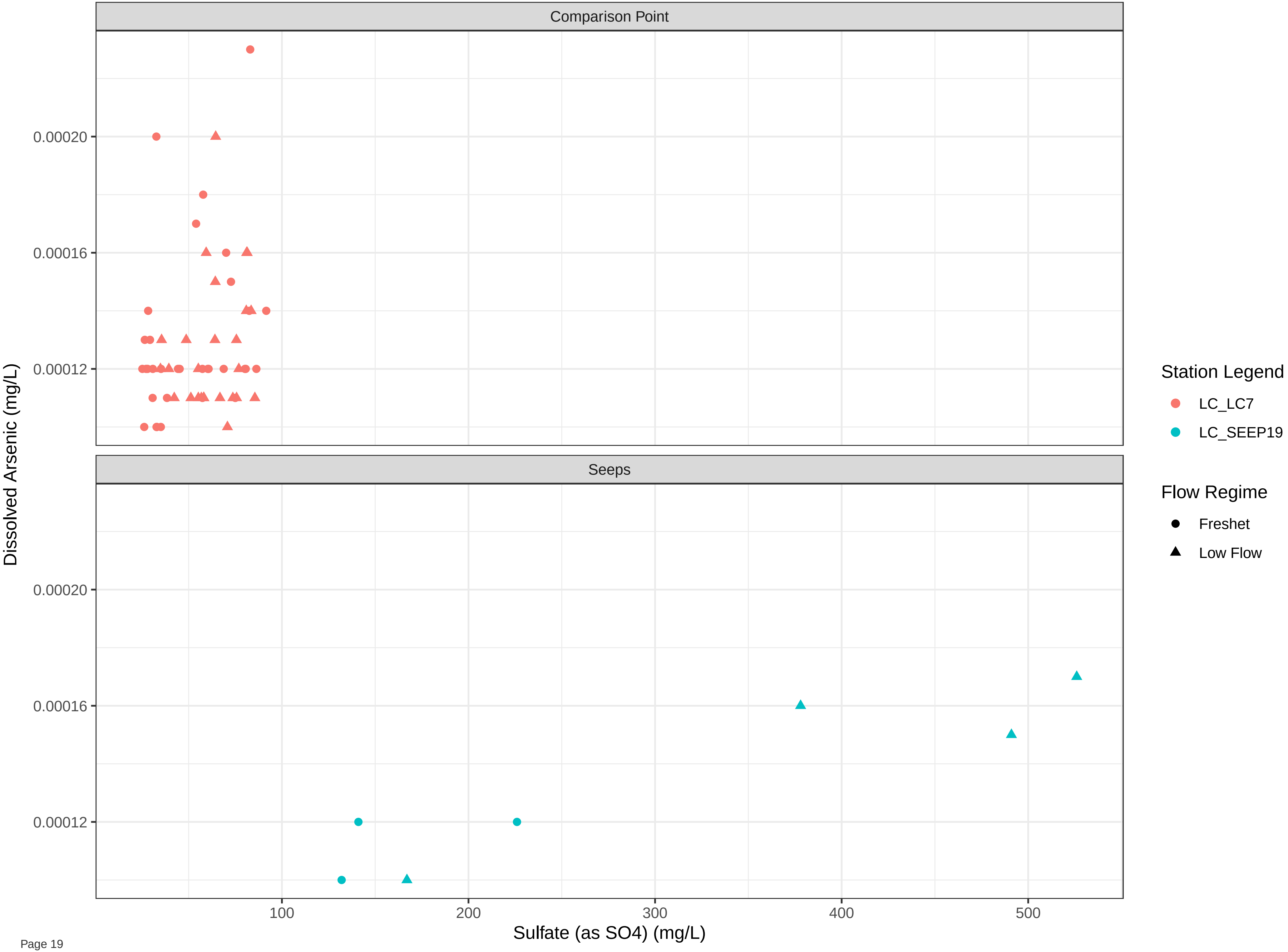

Comparison Point
Seeps
Dissolved Antimony (mg/L)
0.000200
0.000175
0.000150
0.000125
0.000100
Sulfate (as SO4) (mg/L)
100
150
200
250
Station Legend
LC_LC5
LC_SEEP10
Flow Regime
Freshet
Low Flow

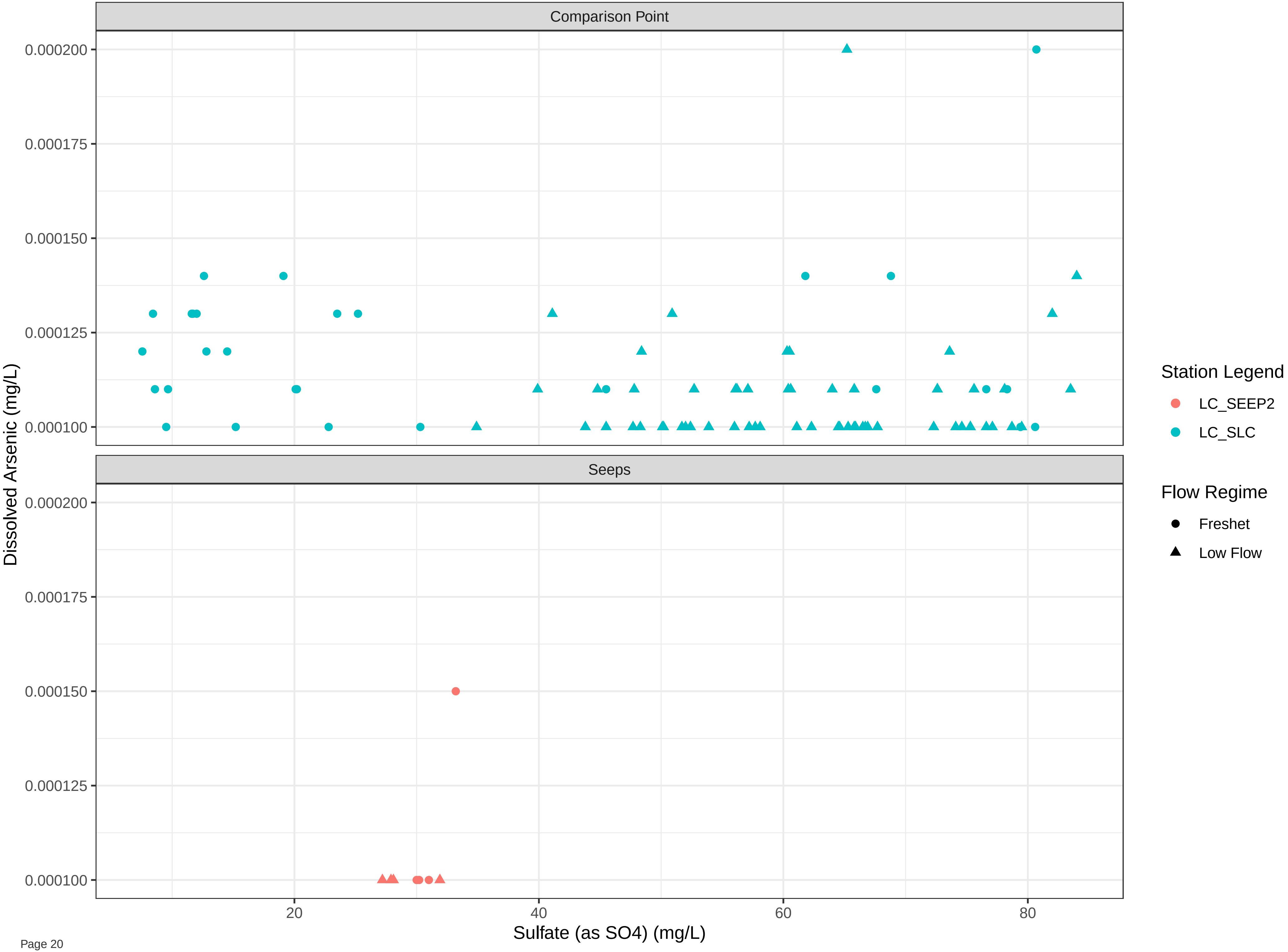

Seeps
0.050
0.025
0.000
−0.025
Dissolved Antimony (mg/L)
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP11
Flow Regime
Freshet
Low Flow

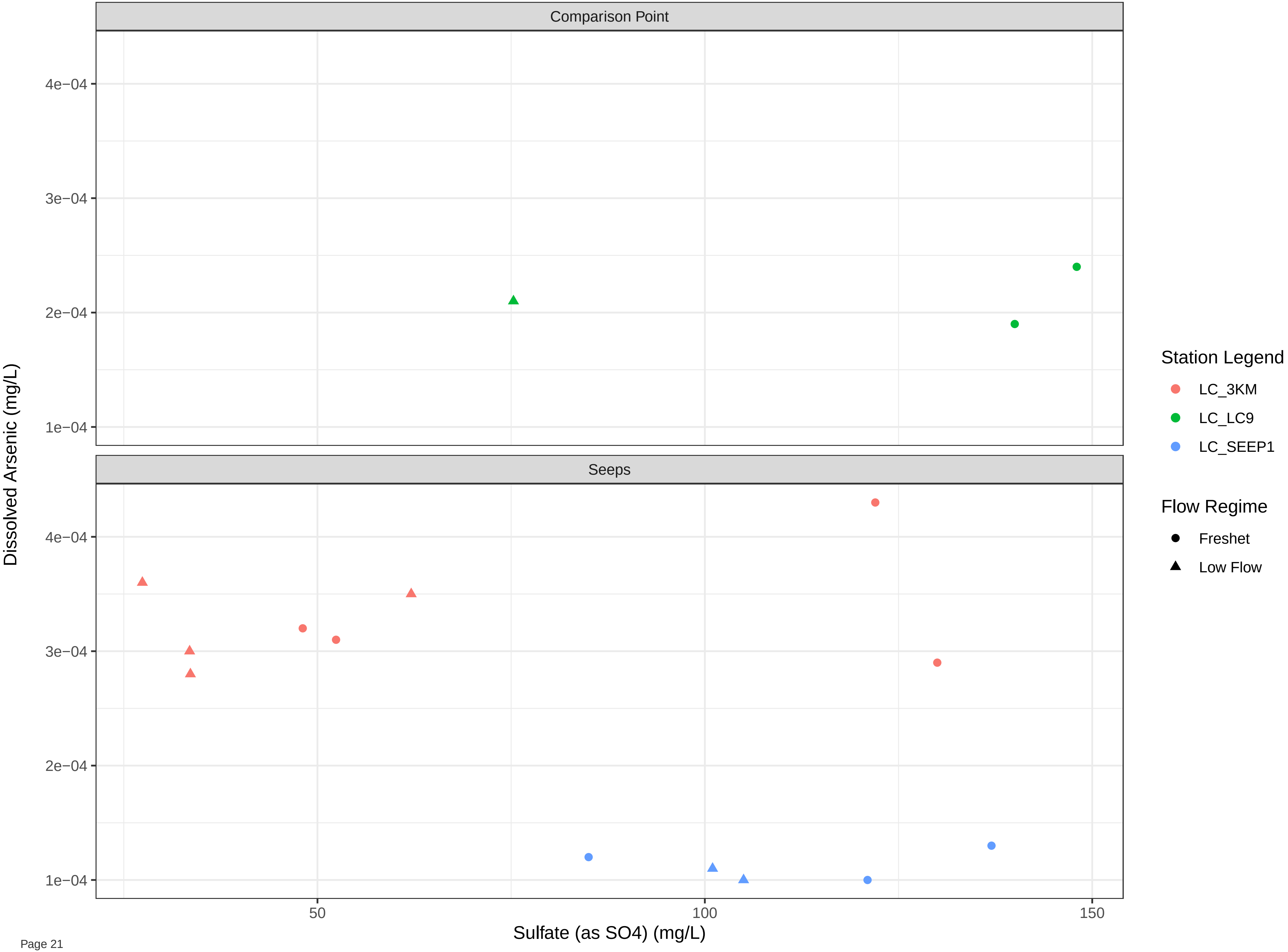

Comparison Point
Seeps
7e−04
6e−04
5e−04
4e−04
3e−04
Dissolved Antimony (mg/L)
100
200
300
400
500
600
Sulfate (as SO4) (mg/L)
Station Legend
● LC_LC3
● LC_WLC_LOT2
Flow Regime
● Freshet
▲ Low Flow

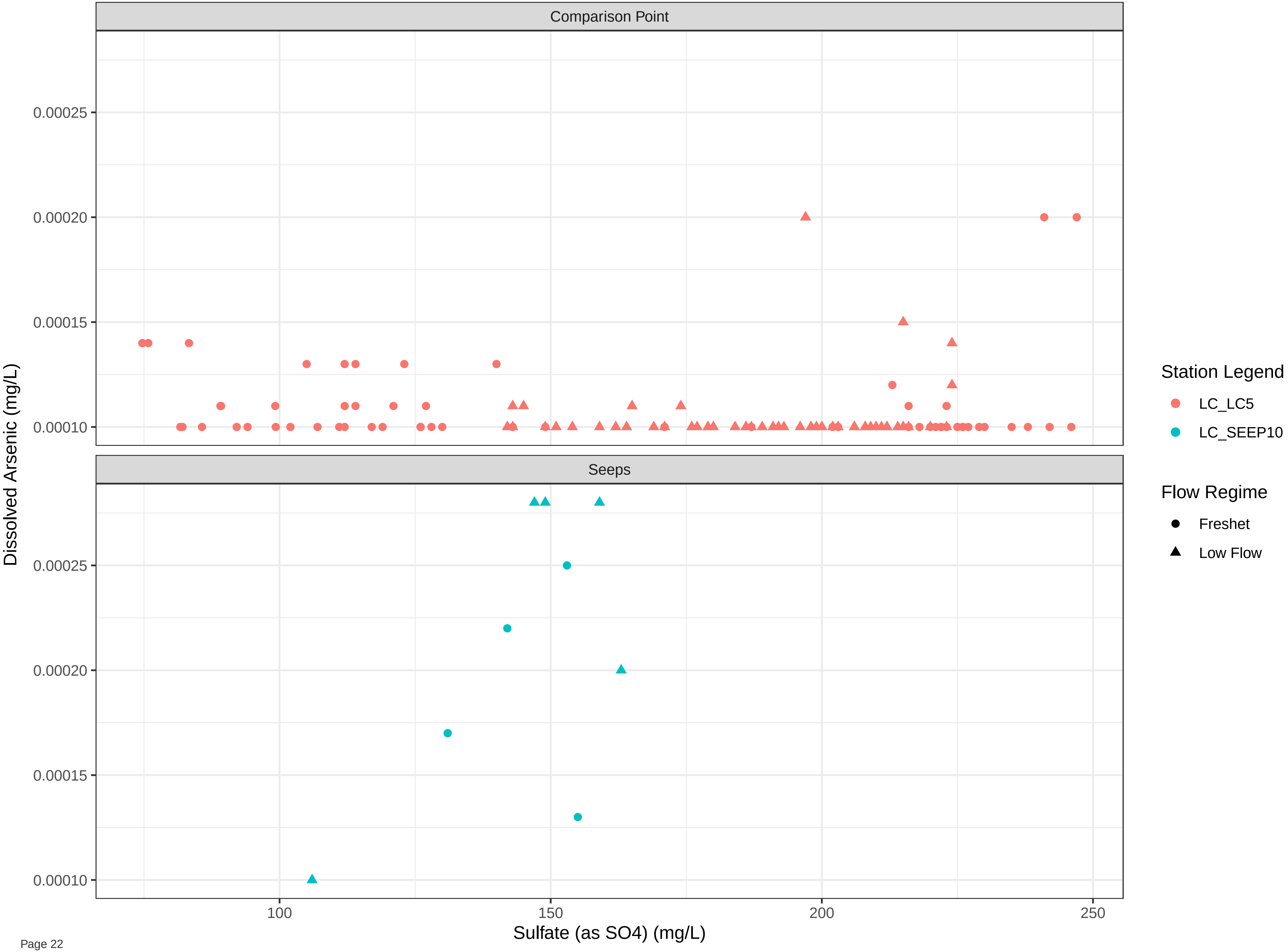

Seeps
0.00016
0.00014
0.00012
0.00010
Dissolved Arsenic (mg/L)
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP14
LC_SEEP15
Flow Regime
Freshet
Low Flow

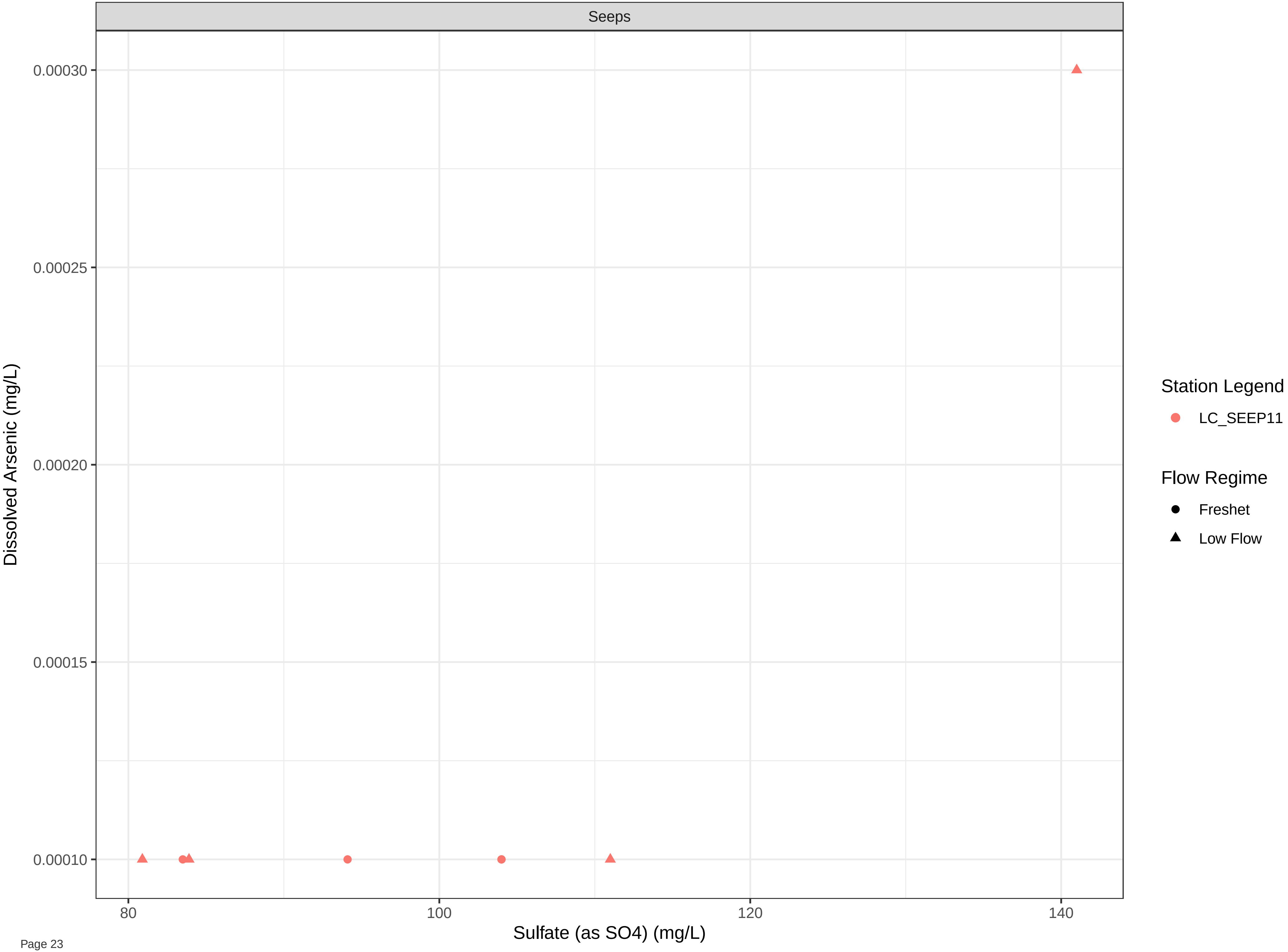

Comparison Point
Seeps
Dissolved Arsenic (mg/L)
6e−04
5e−04
4e−04
3e−04
2e−04
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
LC_DCDS
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

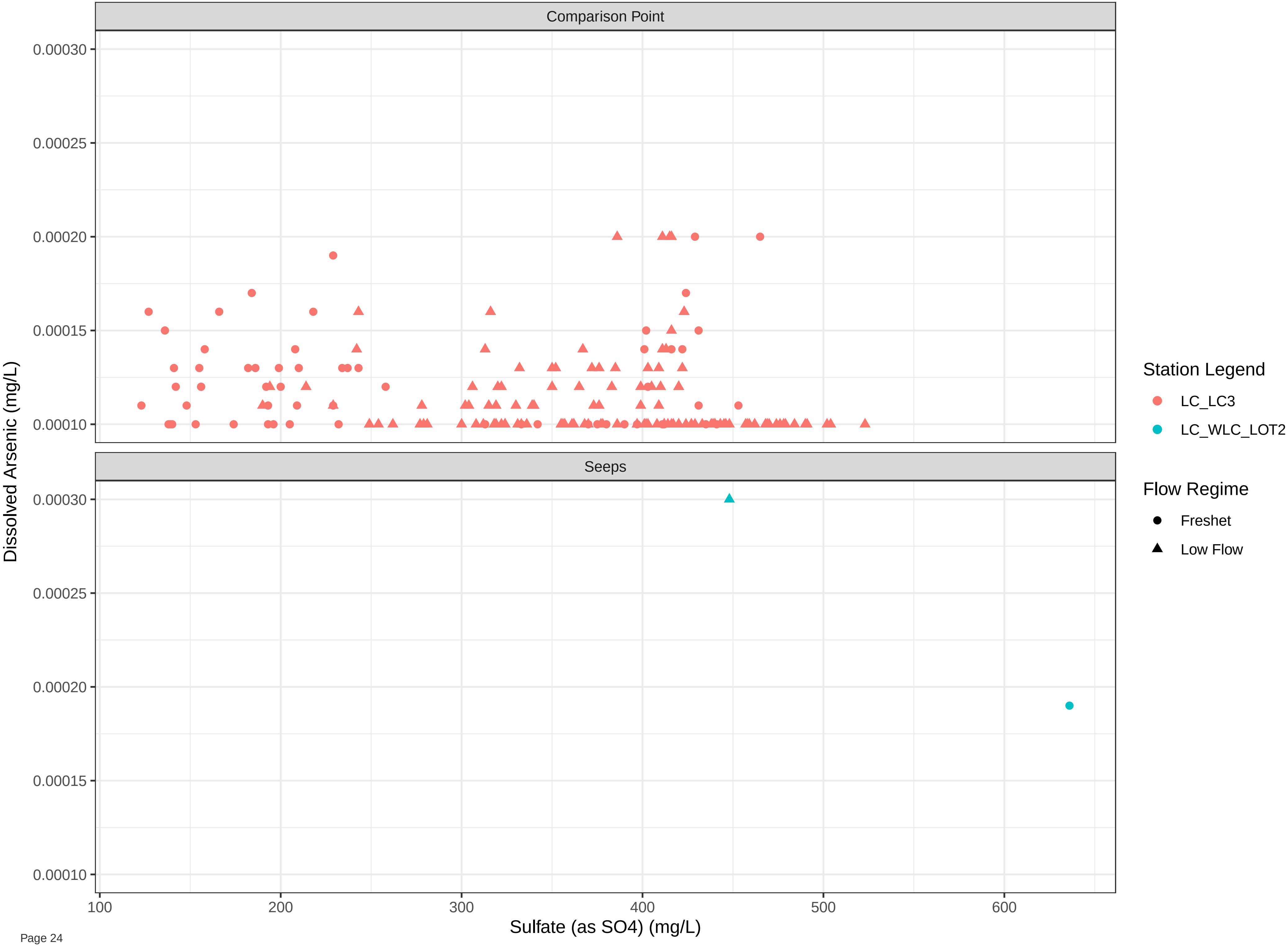

Comparison Point
Seeps
Dissolved Arsenic (mg/L)
0.00020
0.00016
0.00012
0.00020
0.00016
0.00012
100
200
300
400
500
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC7
LC_SEEP19
Flow Regime
Freshet
Low Flow

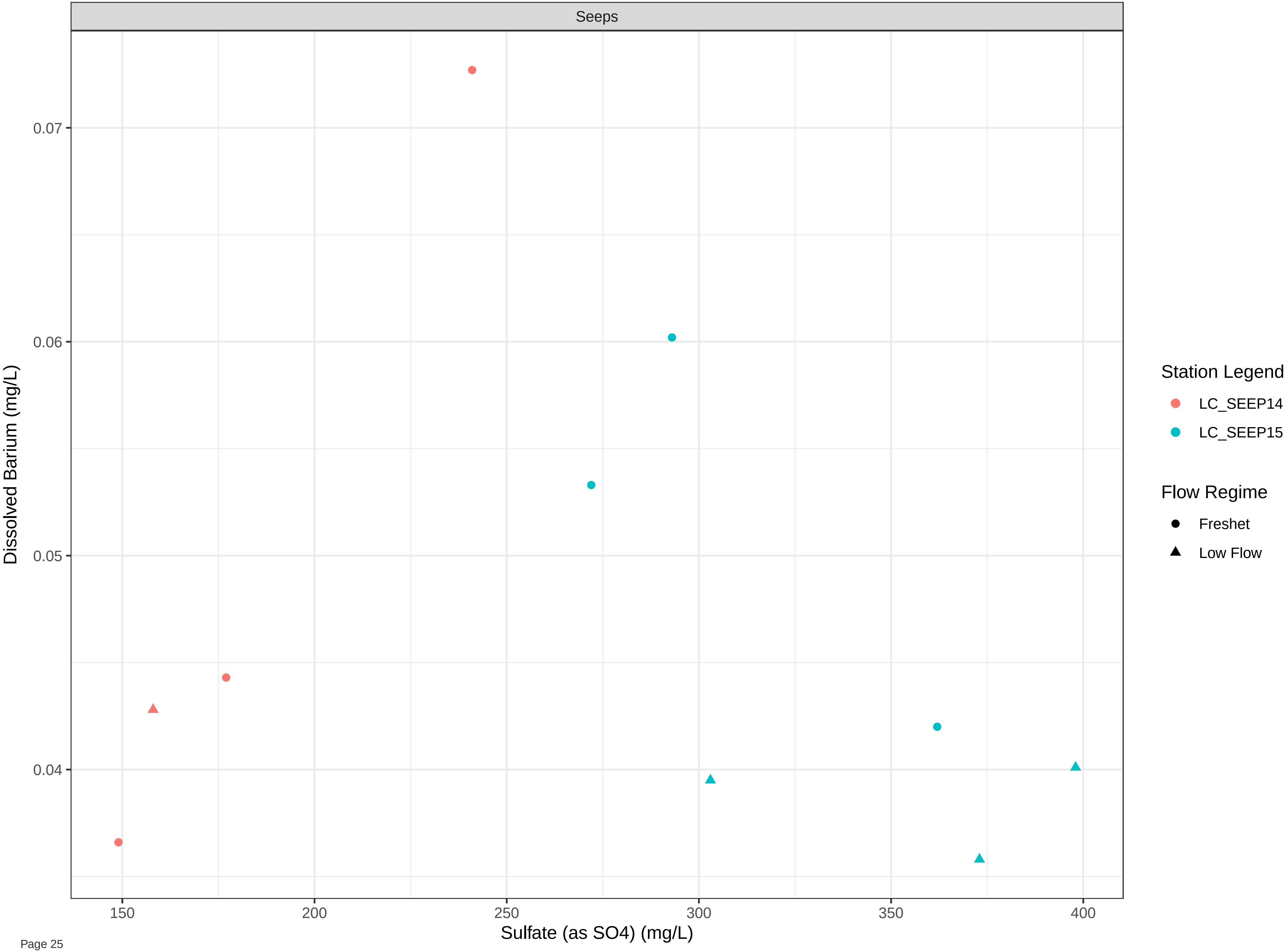

Comparison Point
Seeps
Dissolved Arsenic (mg/L)
0.000200
0.000175
0.000150
0.000125
0.000100
Sulfate (as SO4) (mg/L)
20
40
60
80
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
Freshet
Low Flow

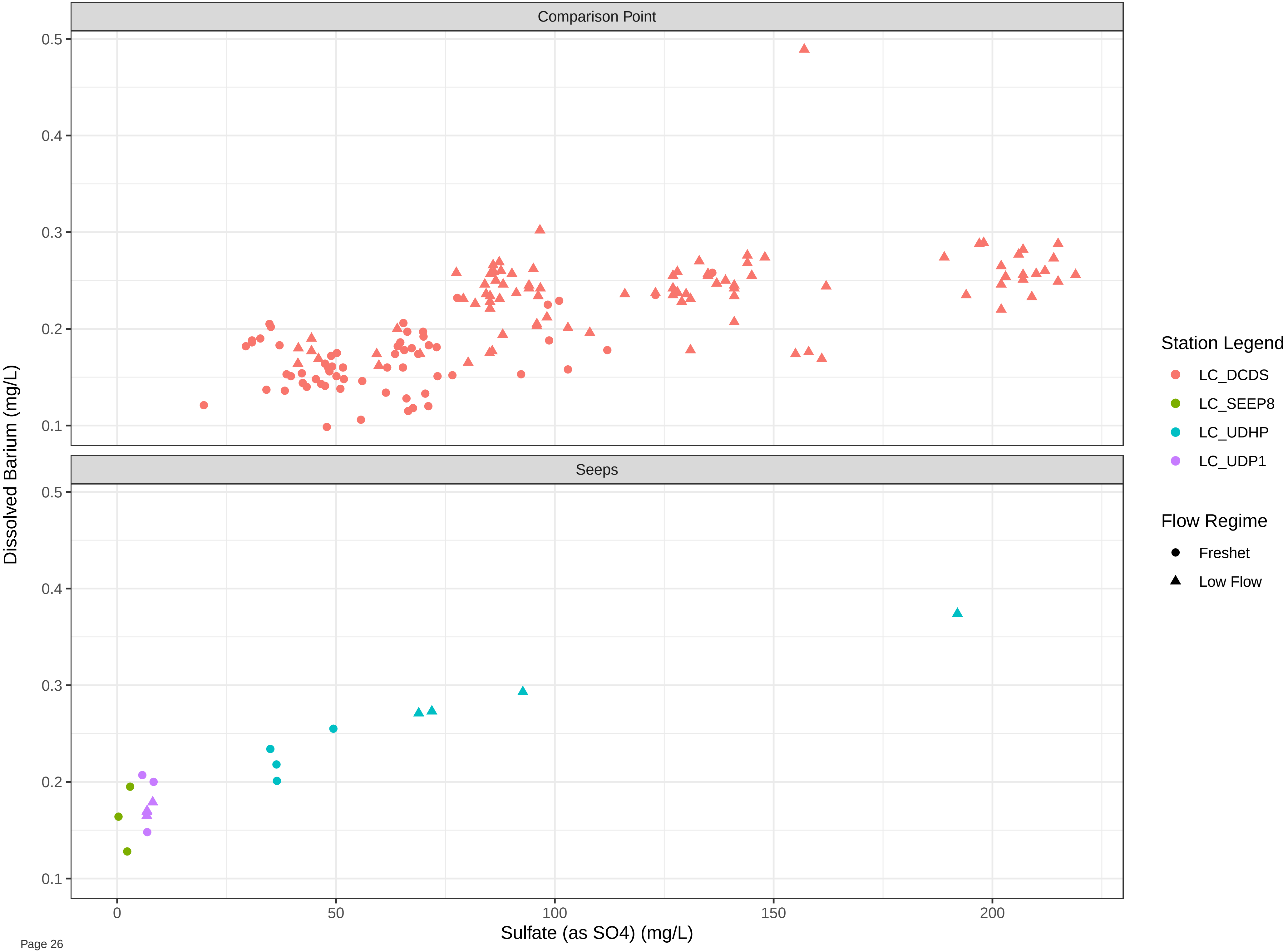

Comparison Point
Seeps
4e−04
3e−04
2e−04
1e−04
Dissolved Arsenic (mg/L)
50
100
150
Sulfate (as SO4) (mg/L)
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

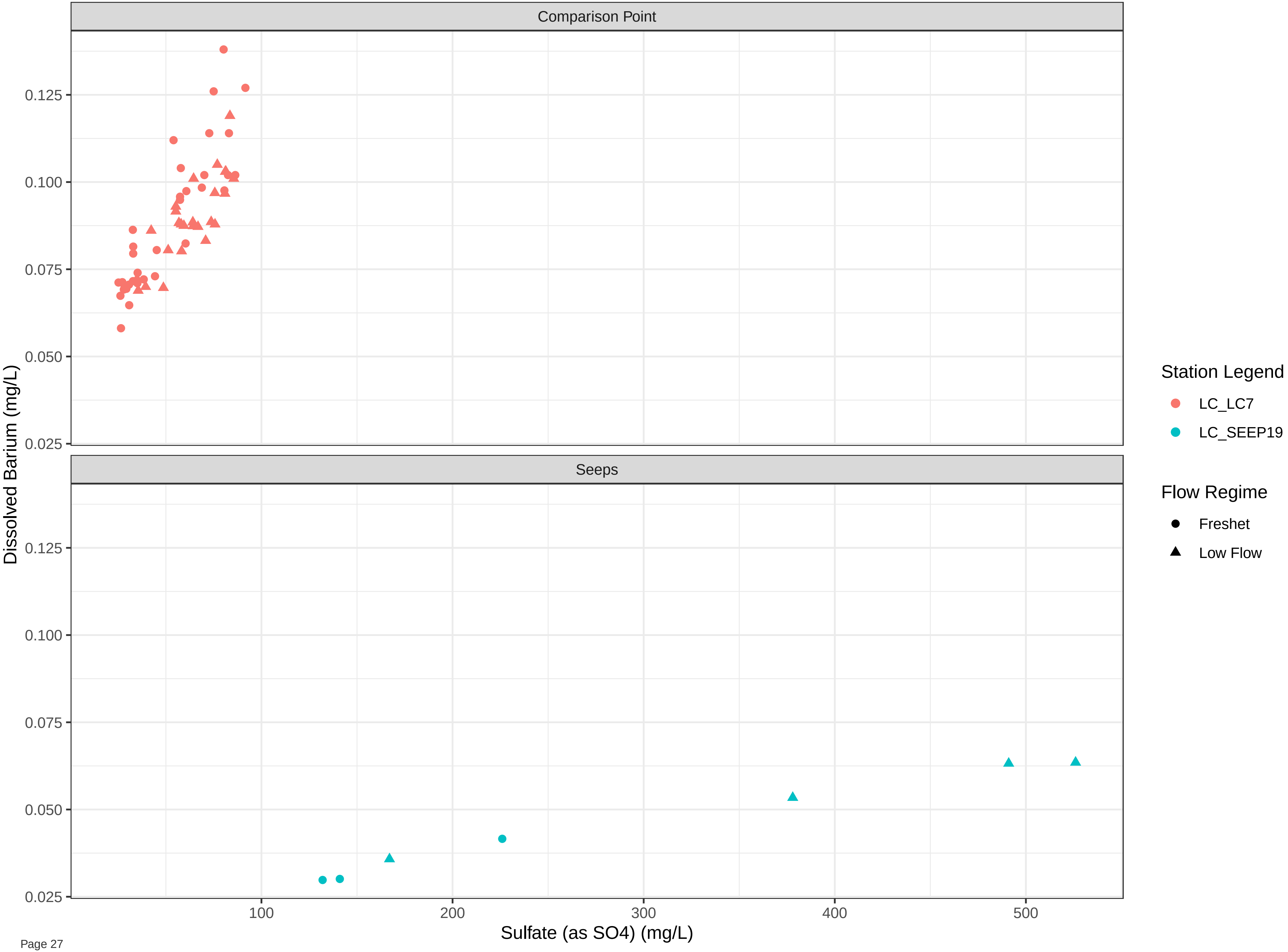

Comparison Point
Seeps
Dissolved Arsenic (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00025
0.00020
0.00015
0.00010
100
150
200
250
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC5
LC_SEEP10
Flow Regime
Freshet
Low Flow


Seeps
Dissolved Arsenic (mg/L)
0.00030
0.00025
0.00020
0.00015
0.00010
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

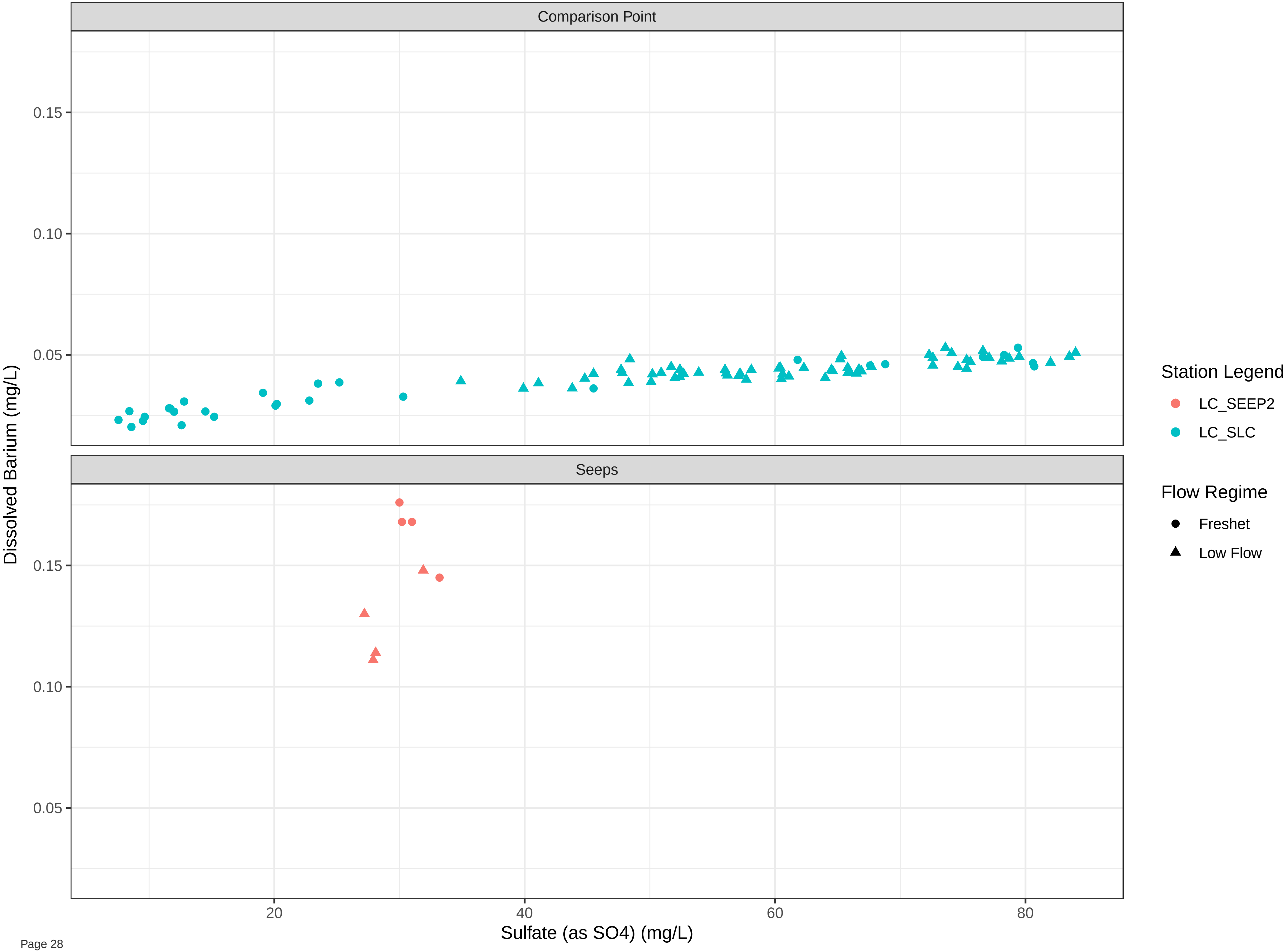

Comparison Point
Seeps
Dissolved Arsenic (mg/L)
Sulfate (as SO4) (mg/L)
0.00030
0.00025
0.00020
0.00015
0.00010
100
200
300
400
500
600
Station Legend
LC_LC3
LC_WLC_LOT2
Flow Regime
Freshet
Low Flow

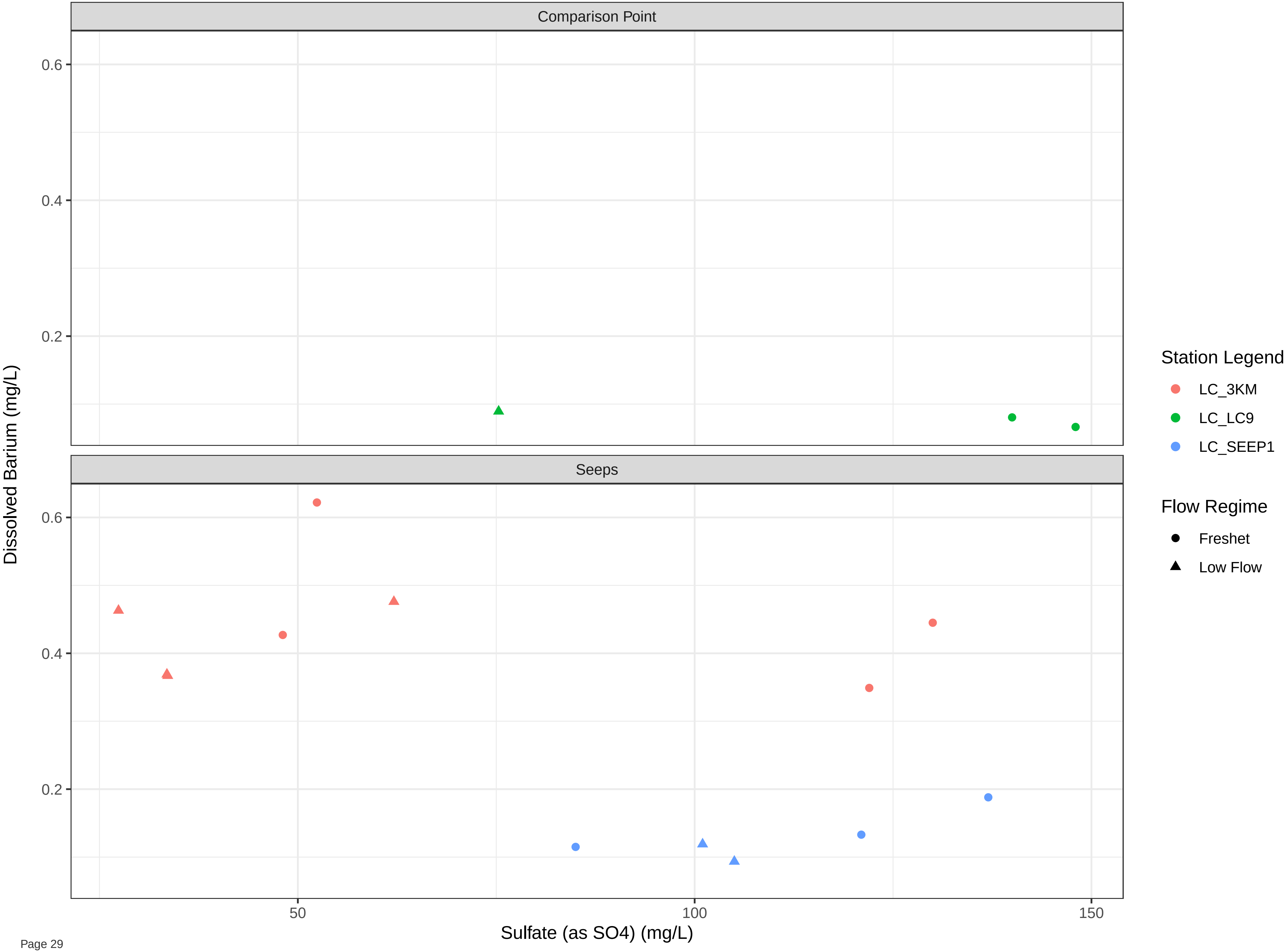

Seeps
Dissolved Barium (mg/L)
0.07
0.06
0.05
0.04
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
● LC_SEEP14
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow

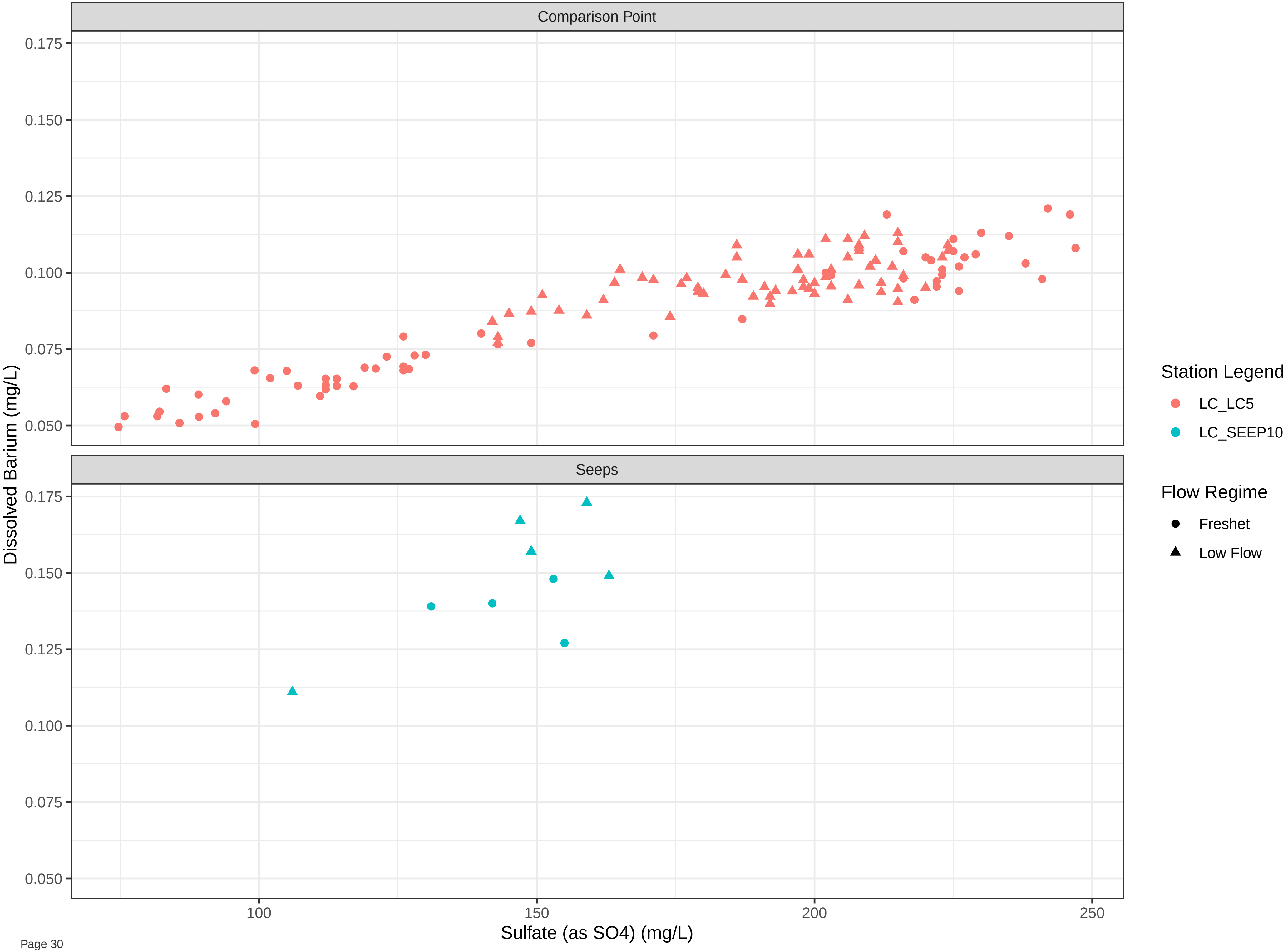

Comparison Point
Seeps
Dissolved Barium (mg/L)
0.1
0.2
0.3
0.4
0.5
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
LC_DCDS
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

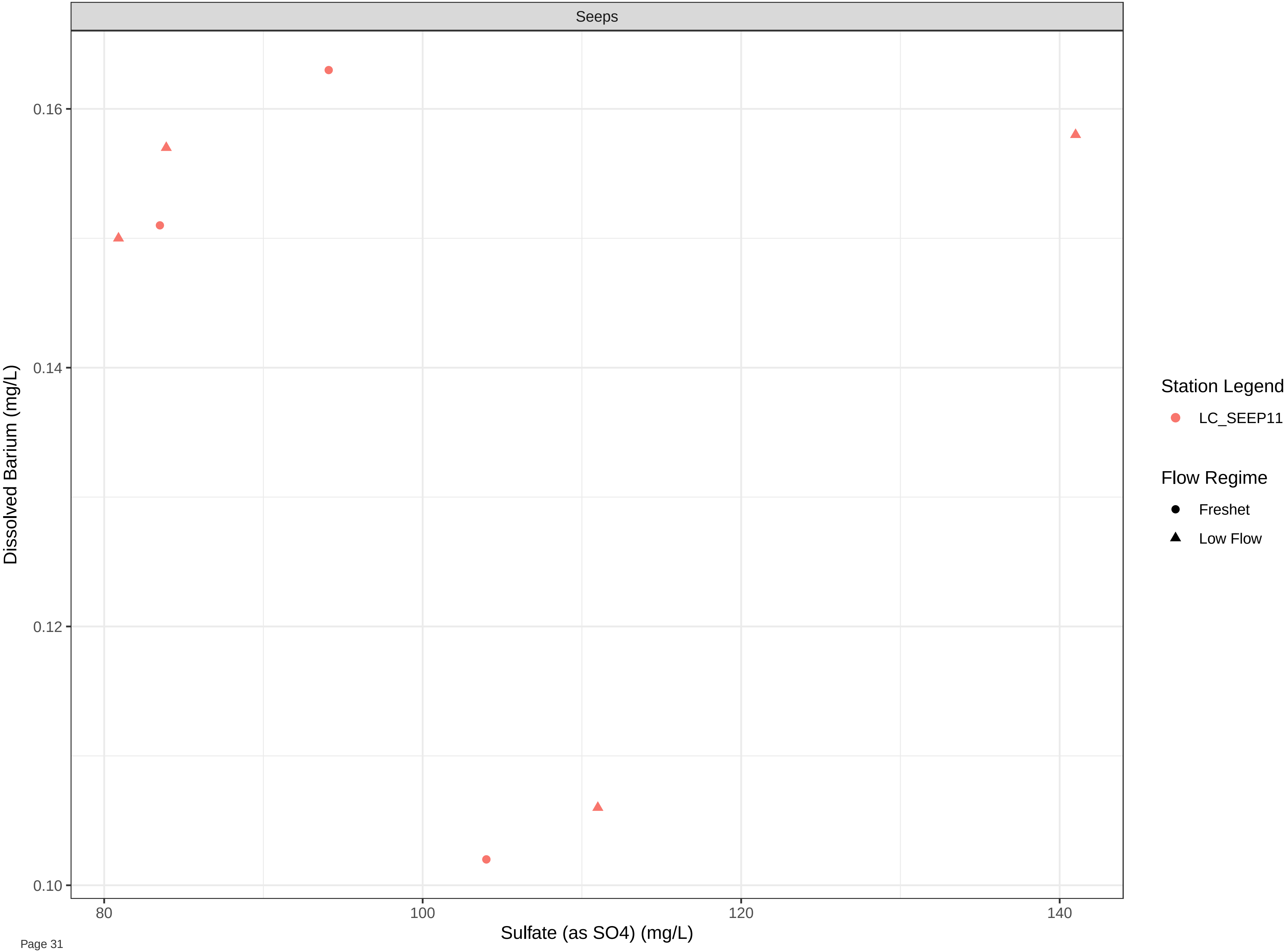


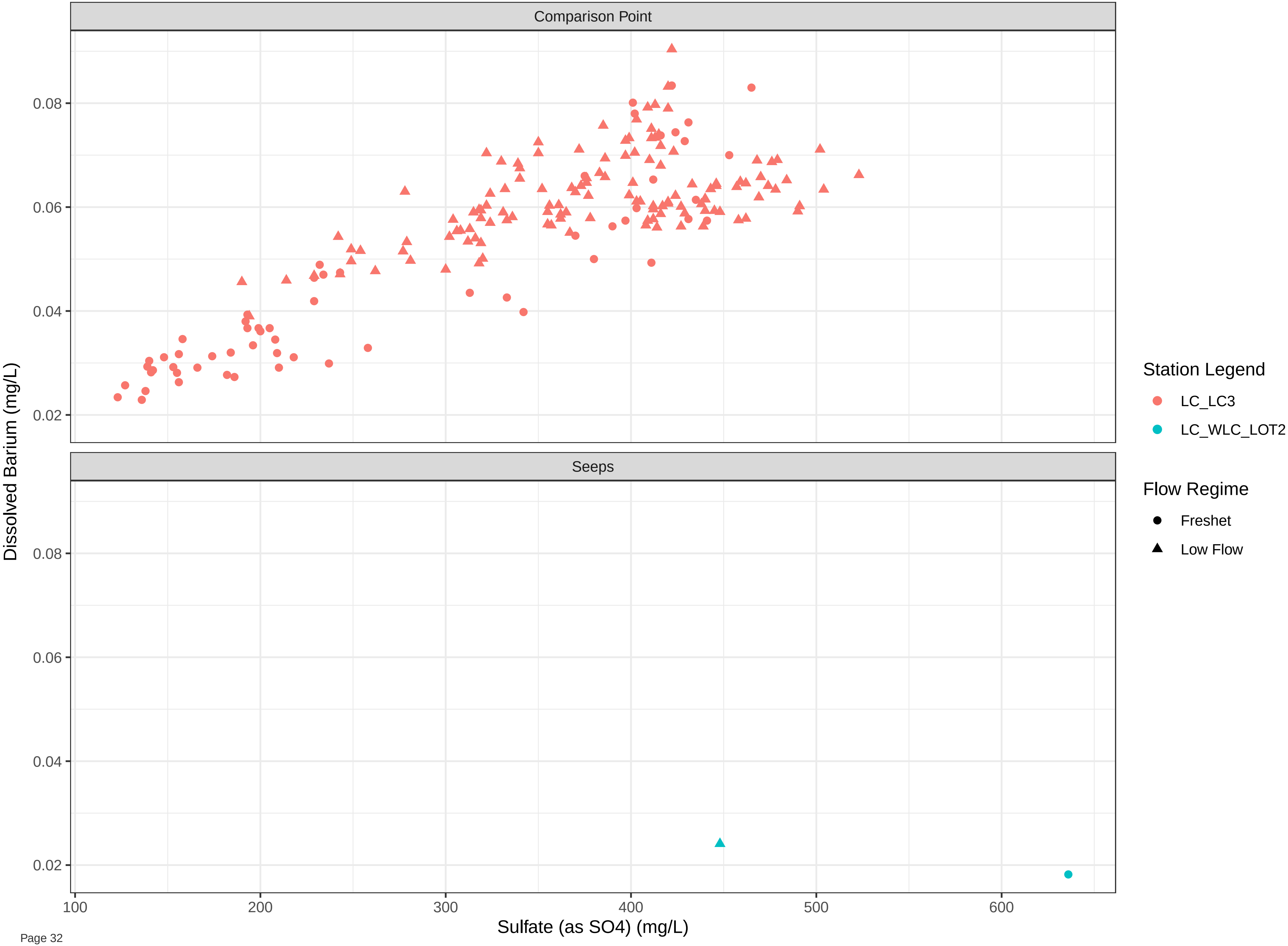
Comparison Point
Seeps
Dissolved Barium (mg/L)
0.025
0.050
0.075
0.100
0.125
Sulfate (as SO4) (mg/L)
100
200
300
400
500
Station Legend
LC_LC7
LC_SEEP19
Flow Regime
Freshet
Low Flow

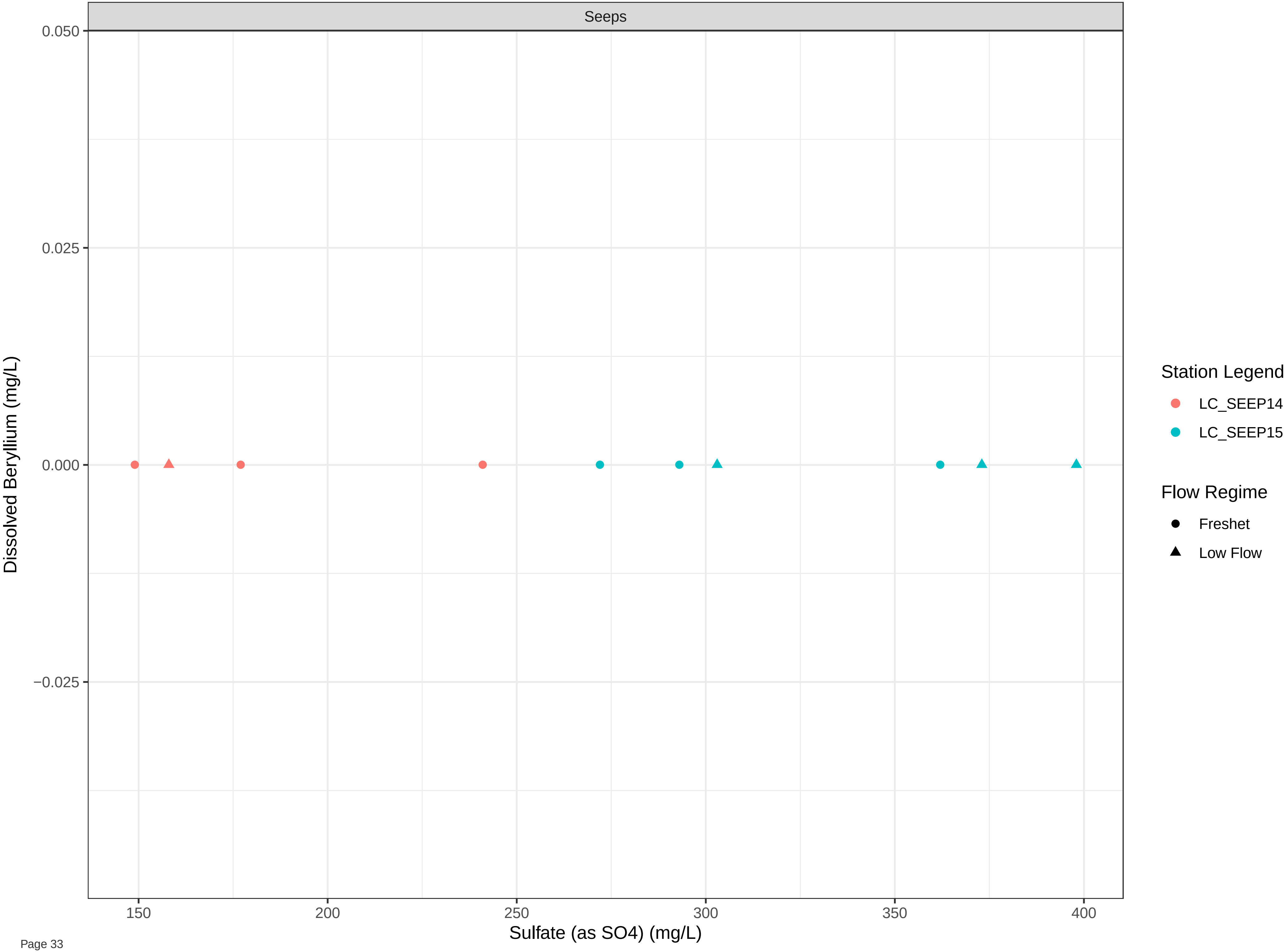

Comparison Point
Seeps
Dissolved Barium (mg/L)
0.15
0.10
0.05
0.15
0.10
0.05
Sulfate (as SO4) (mg/L)
20
40
60
80
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
Freshet
Low Flow

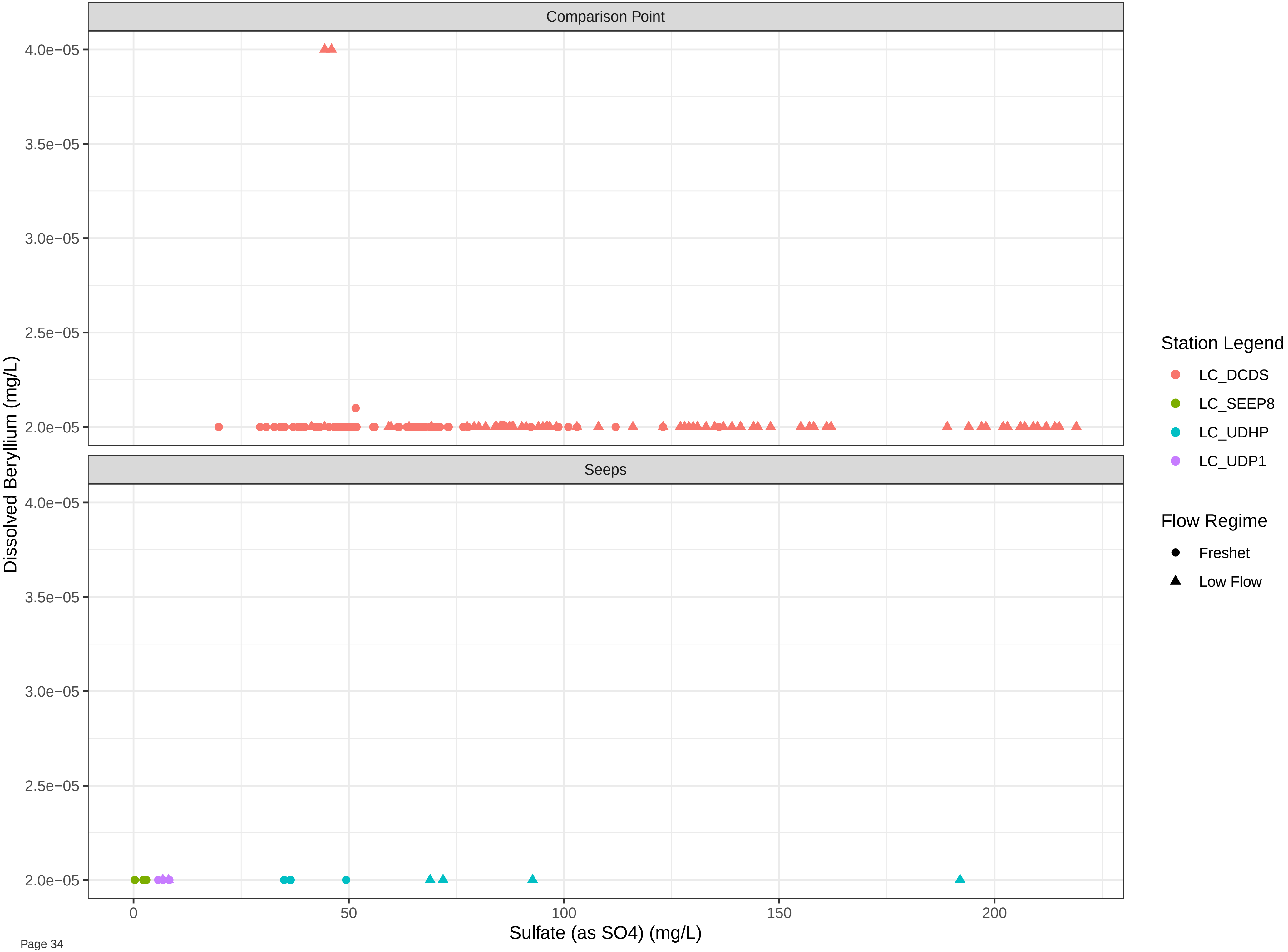

Comparison Point
Seeps
Dissolved Barium (mg/L)
0.6
0.4
0.2
0.6
0.4
0.2
50
100
150
Sulfate (as SO4) (mg/L)
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

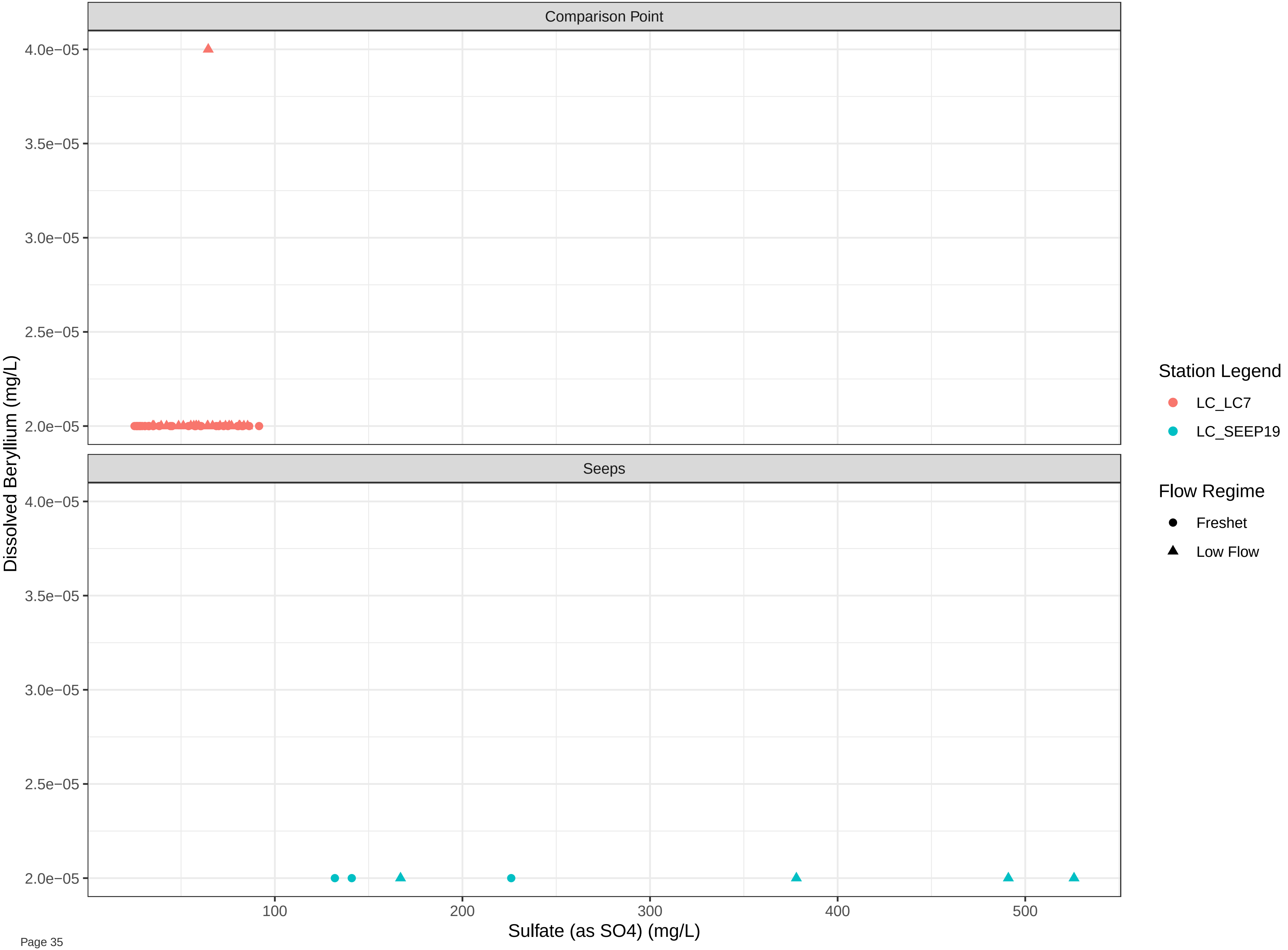

Comparison Point
Seeps
Dissolved Barium (mg/L)
0.175
0.150
0.125
0.100
0.075
0.050
100
150
200
250
Sulfate (as SO4) (mg/L)
Station Legend
● LC_LC5
● LC_SEEP10
Flow Regime
● Freshet
▲ Low Flow

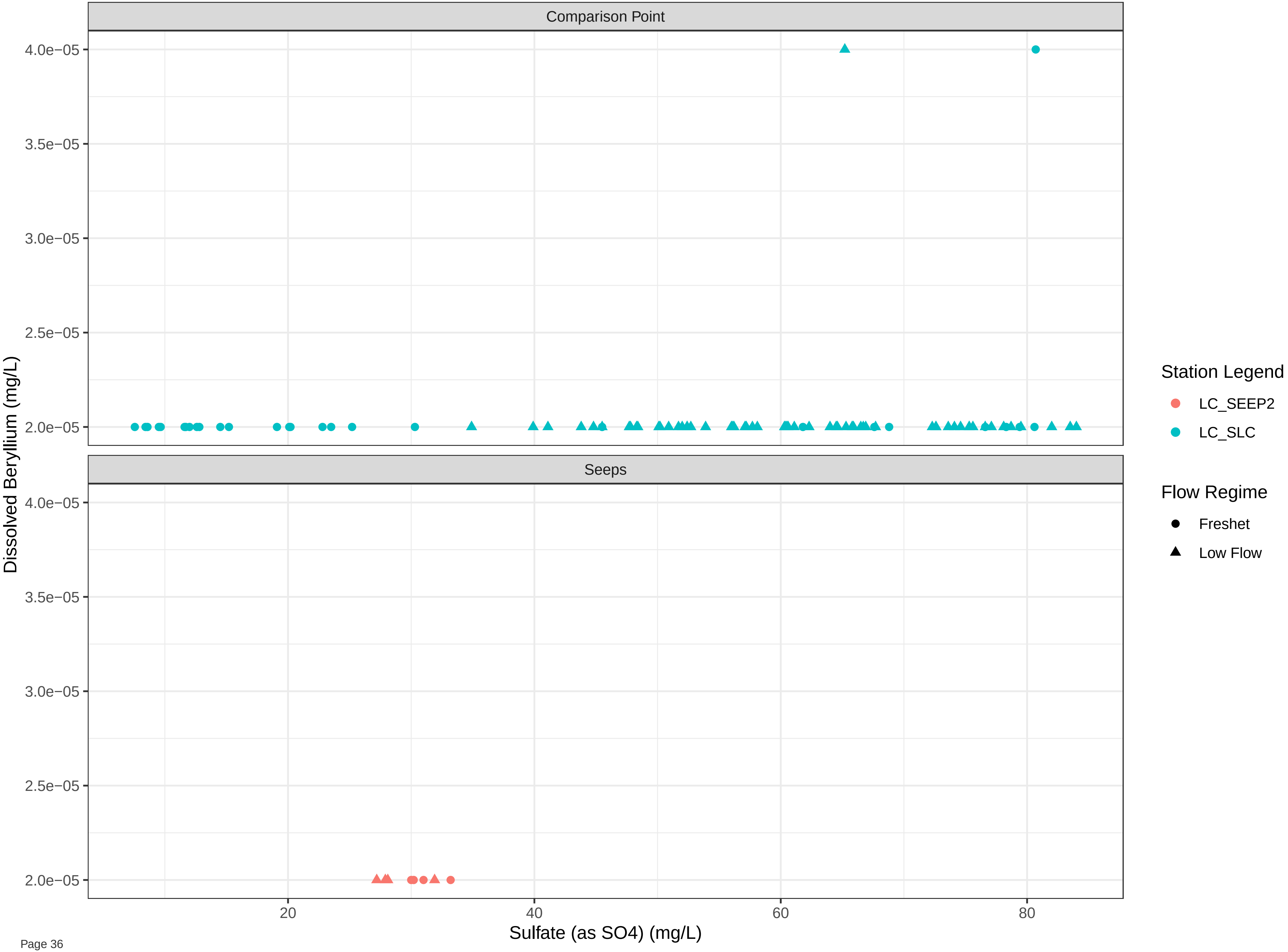

Seeps
0.16
0.14
0.12
0.10
Dissolved Barium (mg/L)
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

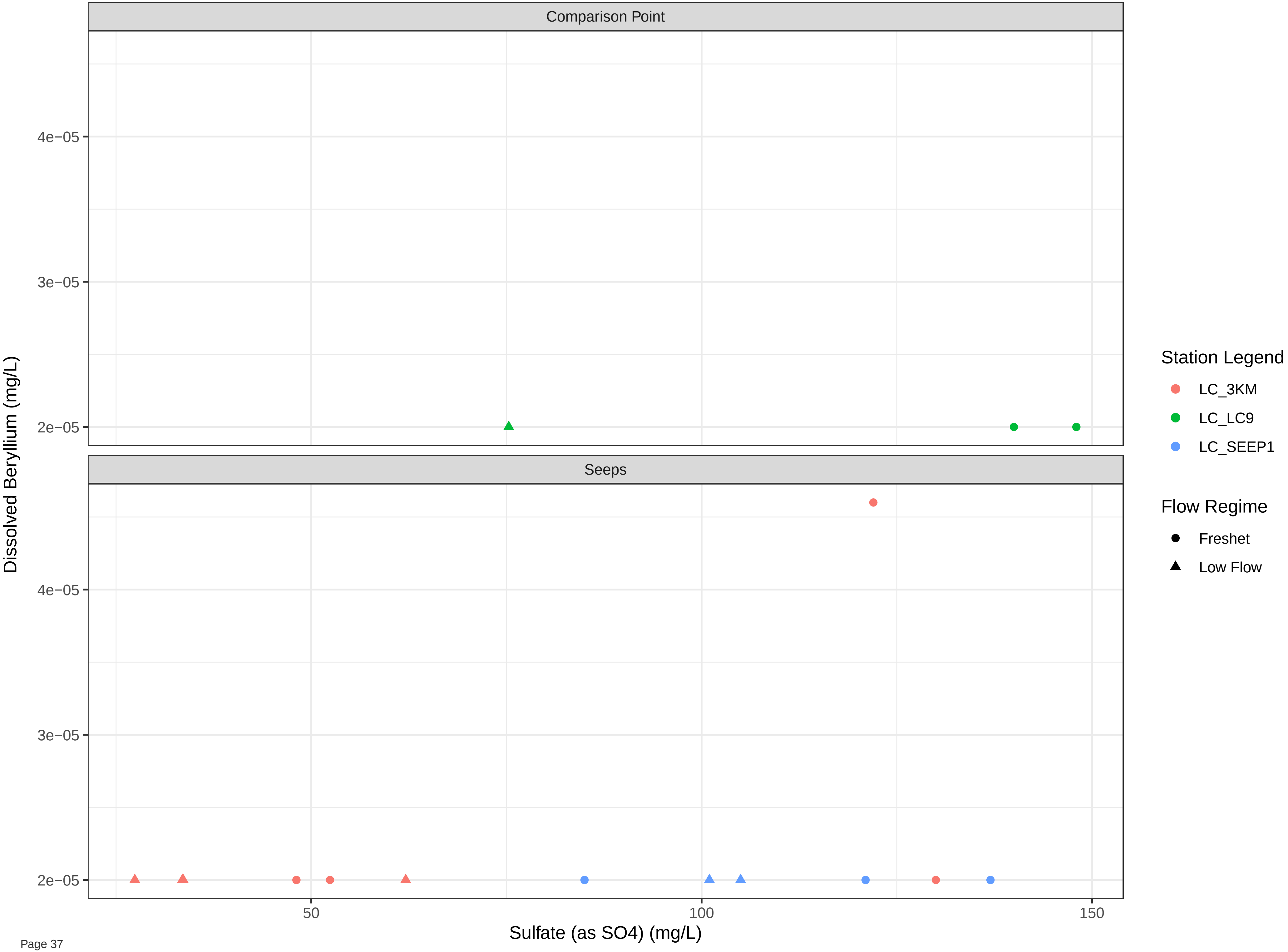

Comparison Point
Seeps
Dissolved Barium (mg/L)
0.08
0.06
0.04
0.02
0.08
0.06
0.04
0.02
100
200
300
400
500
600
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC3
LC_WLC_LOT2
Flow Regime
Freshet
Low Flow

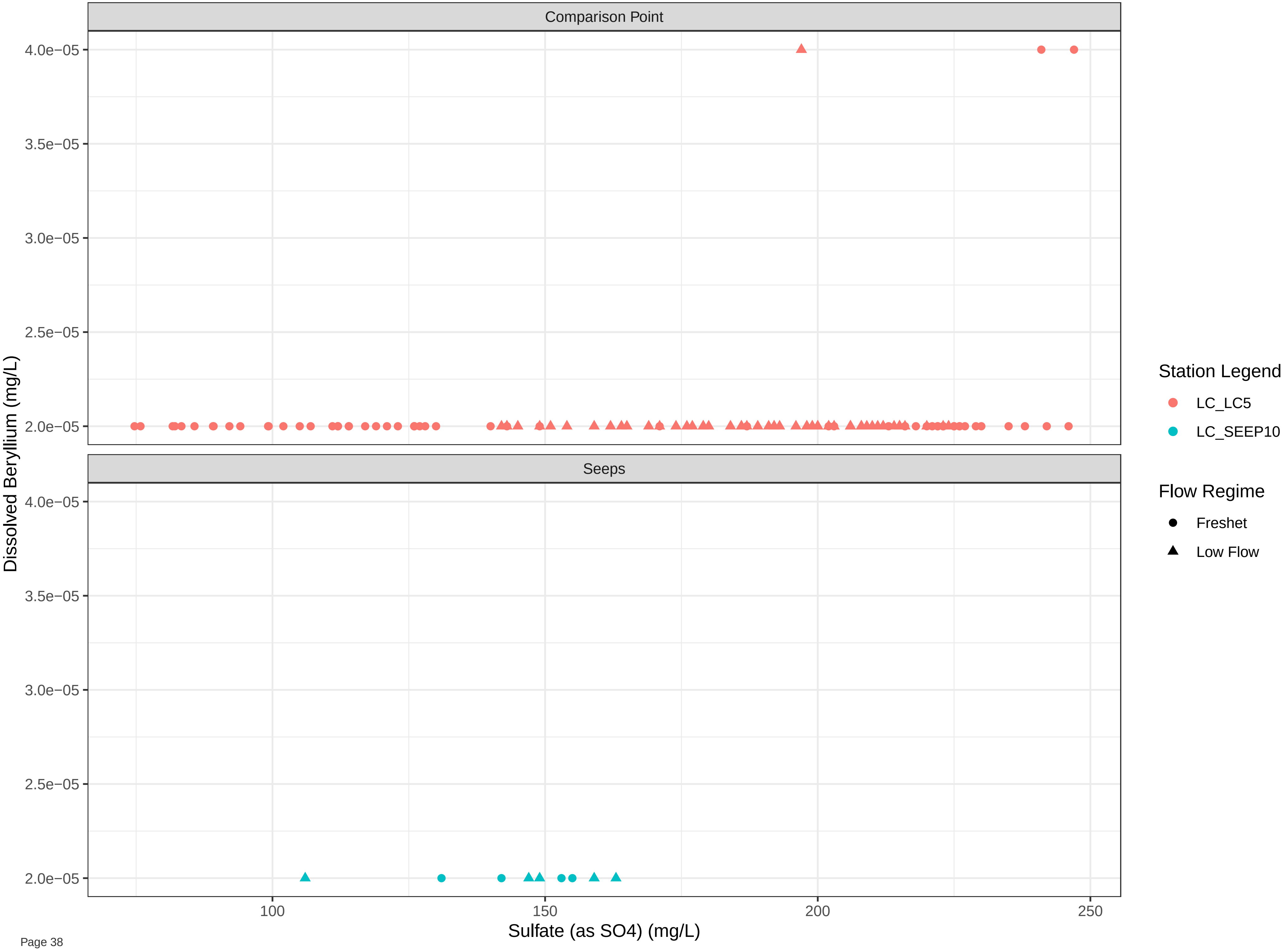

Seeps
0.050
0.025
0.000
−0.025
Dissolved Beryllium (mg/L)
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP14
LC_SEEP15
Flow Regime
Freshet
Low Flow

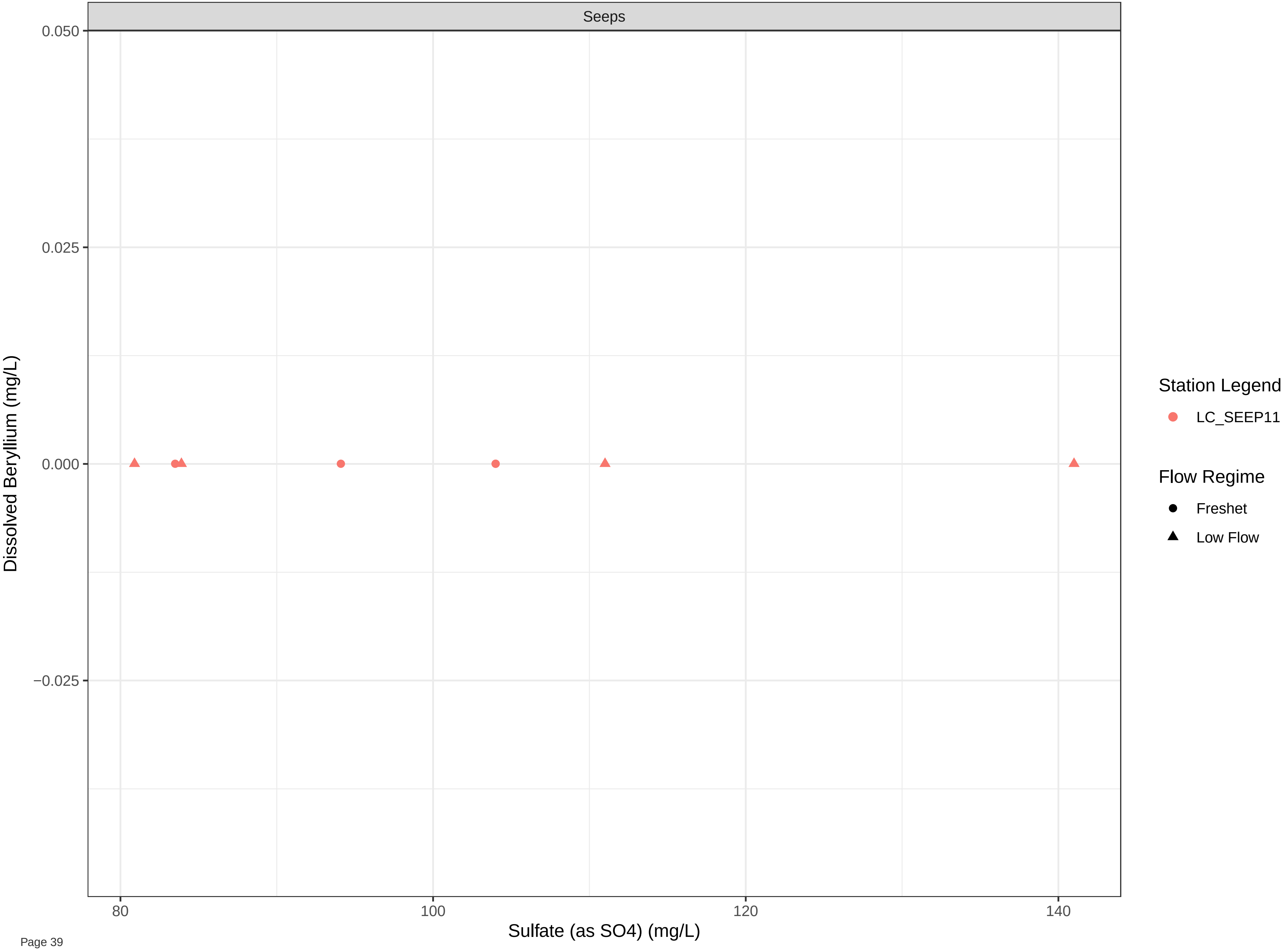

Comparison Point
Seeps
Dissolved Beryllium (mg/L)
4.0e−05
3.5e−05
3.0e−05
2.5e−05
2.0e−05
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
LC_DCDS
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

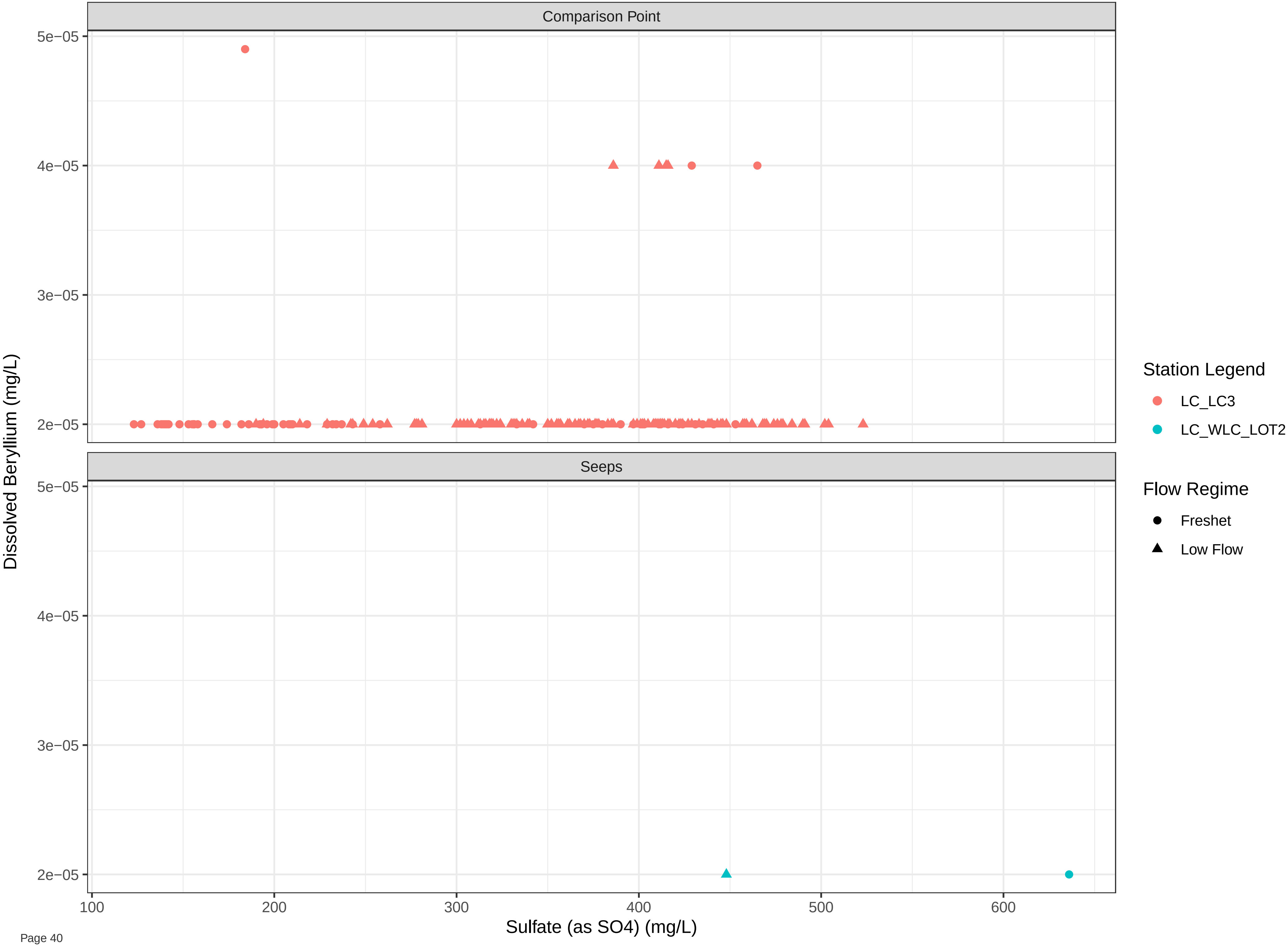

Comparison Point
Seeps
Dissolved Beryllium (mg/L)
4.0e−05
3.5e−05
3.0e−05
2.5e−05
2.0e−05
100
200
300
400
500
Sulfate (as SO4) (mg/L)
Station Legend
● LC_LC7
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

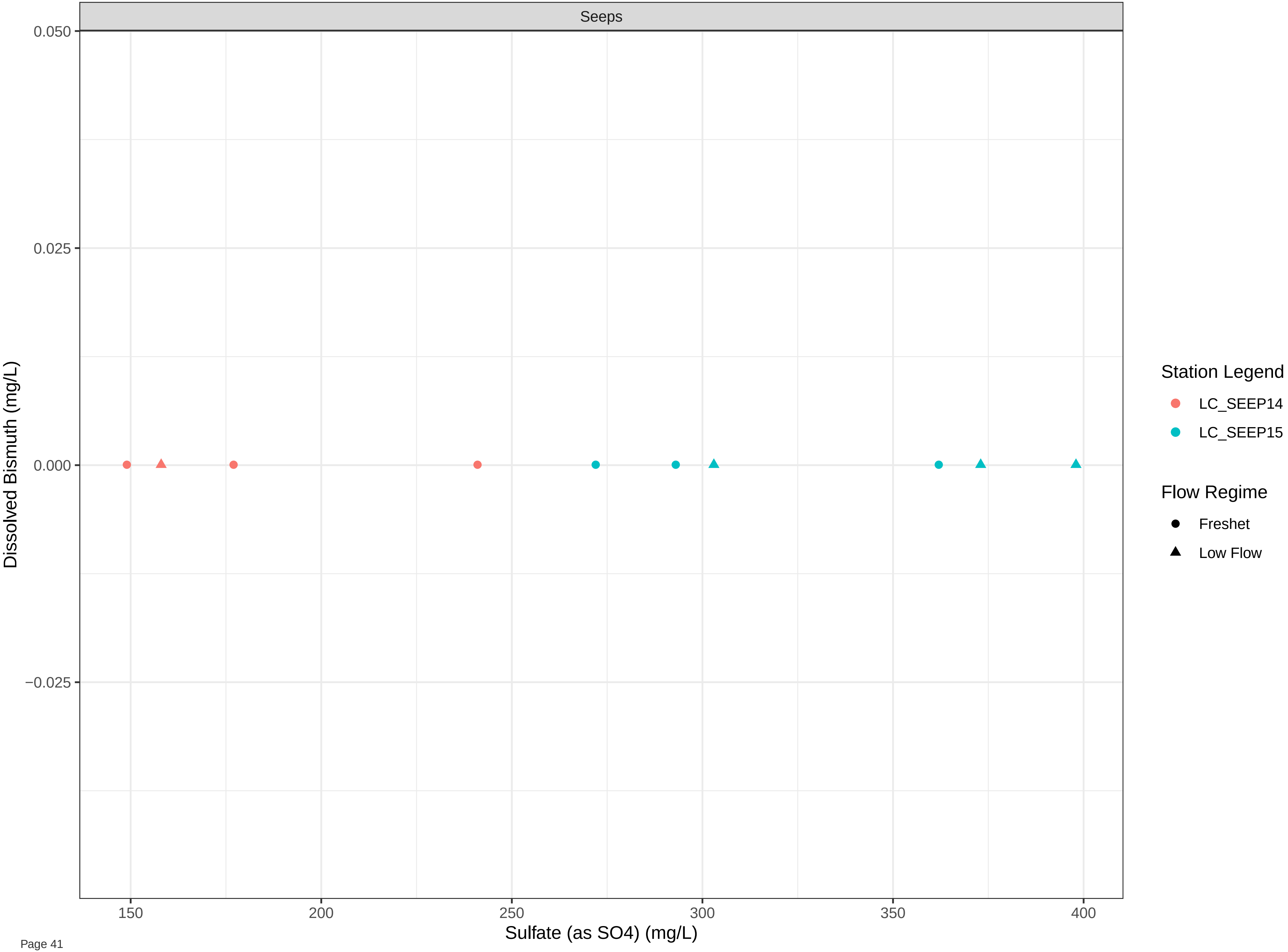

Comparison Point
Seeps
Dissolved Beryllium (mg/L)
4.0e−05
3.5e−05
3.0e−05
2.5e−05
2.0e−05
Sulfate (as SO4) (mg/L)
20
40
60
80
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
Freshet
Low Flow

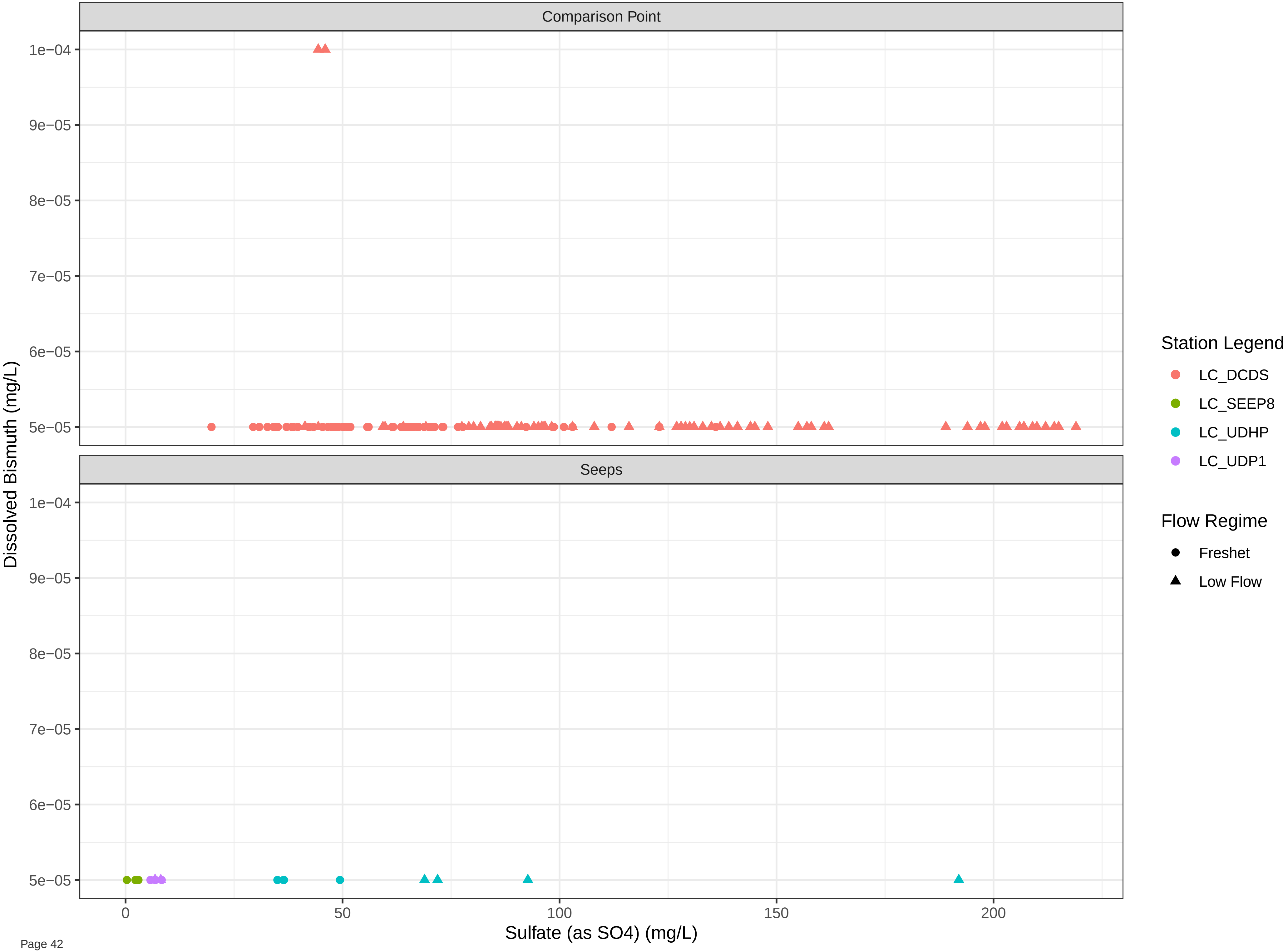

Comparison Point
Seeps
Dissolved Beryllium (mg/L)
4e−05
3e−05
2e−05
4e−05
3e−05
2e−05
50
100
150
Sulfate (as SO4) (mg/L)
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

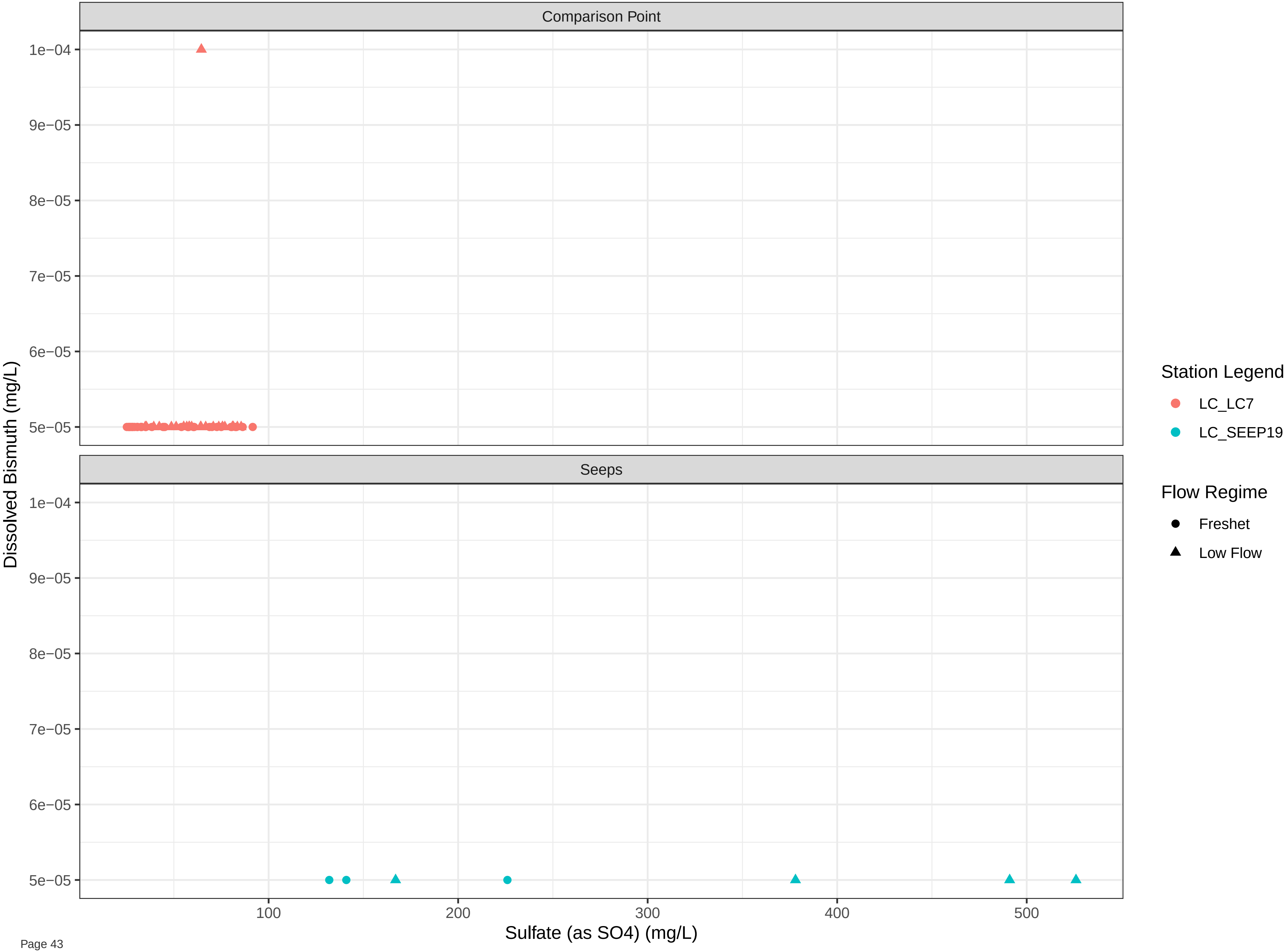

Comparison Point
Seeps
Dissolved Beryllium (mg/L)
4.0e−05
3.5e−05
3.0e−05
2.5e−05
2.0e−05
100
150
200
250
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC5
LC_SEEP10
Flow Regime
Freshet
Low Flow

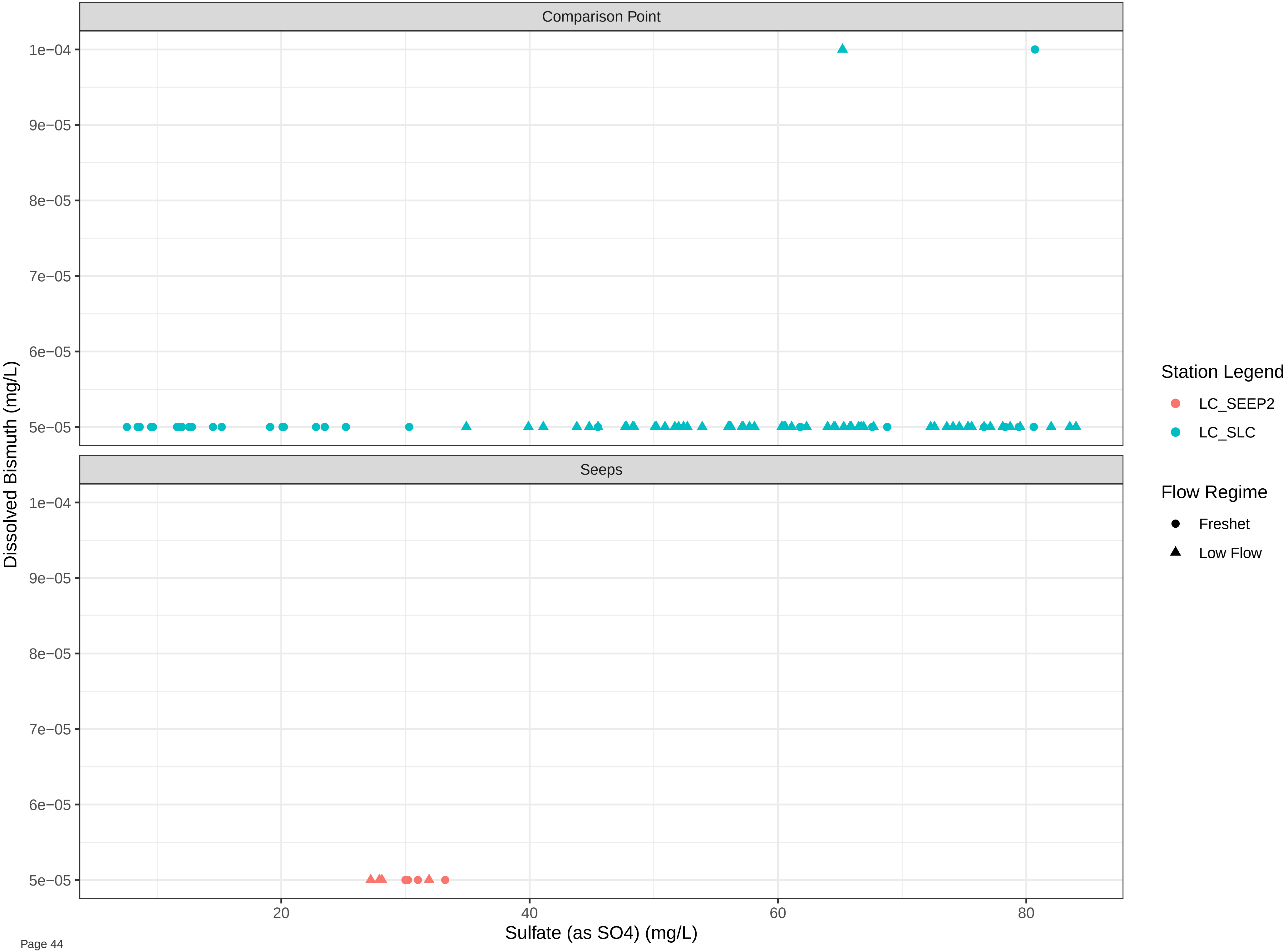

Seeps
0.050
0.025
0.000
−0.025
Dissolved Beryllium (mg/L)
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

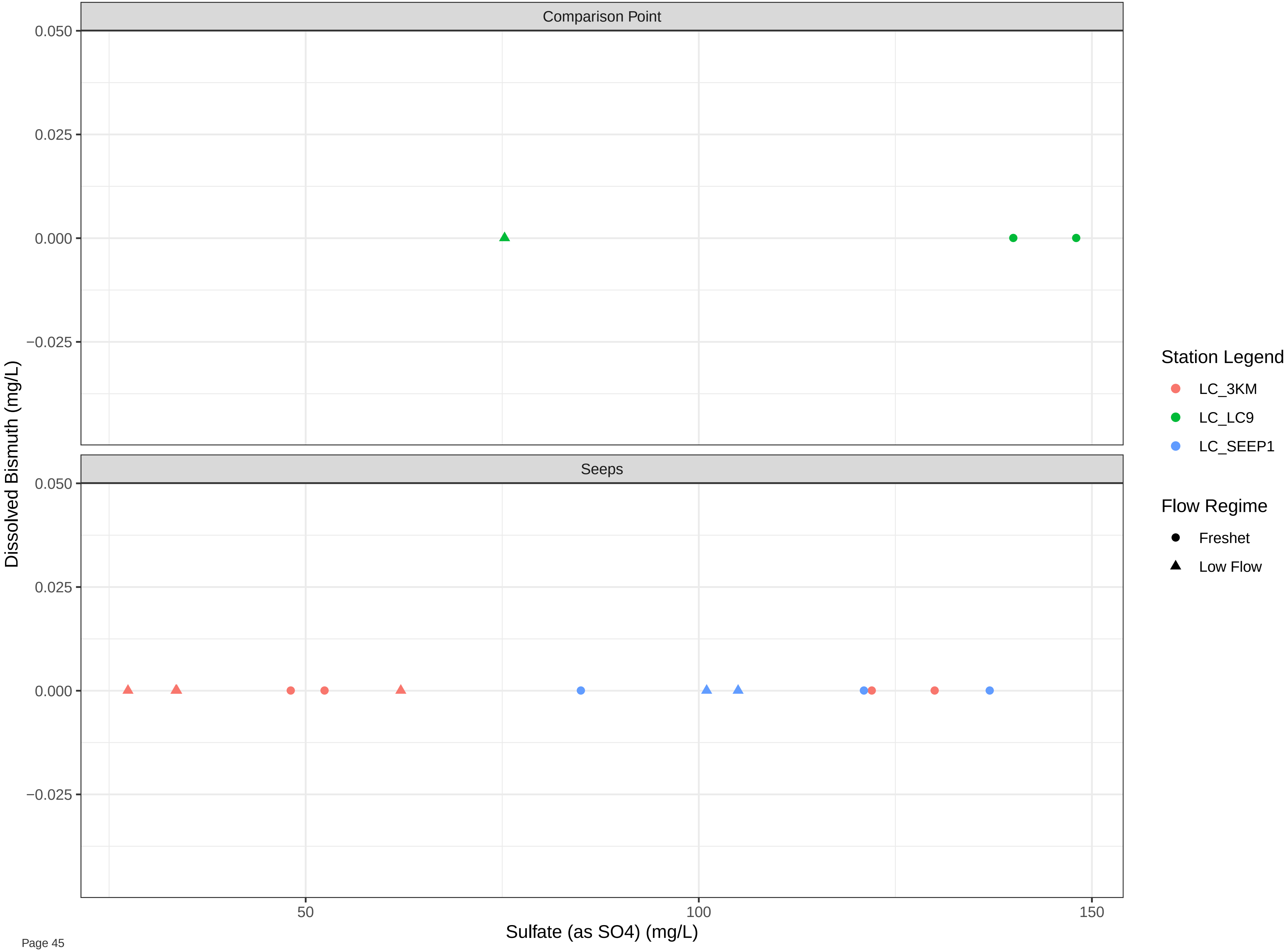

Comparison Point
Seeps
5e−05
4e−05
3e−05
2e−05
Dissolved Beryllium (mg/L)
100
200
300
400
500
600
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC3
LC_WLC_LOT2
Flow Regime
Freshet
Low Flow

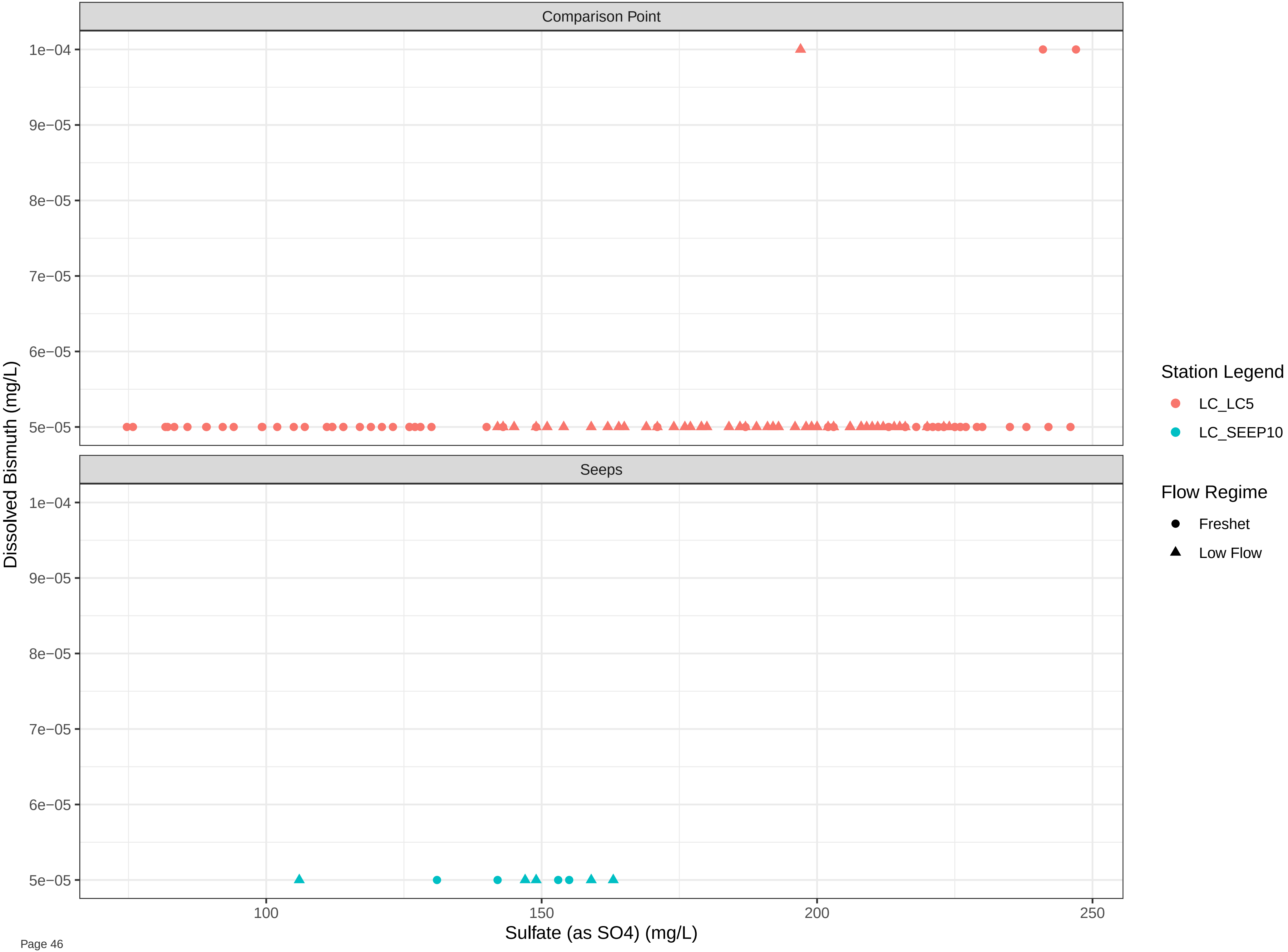

Seeps
Dissolved Bismuth (mg/L)
0.050
0.025
0.000
−0.025
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP14
LC_SEEP15
Flow Regime
Freshet
Low Flow

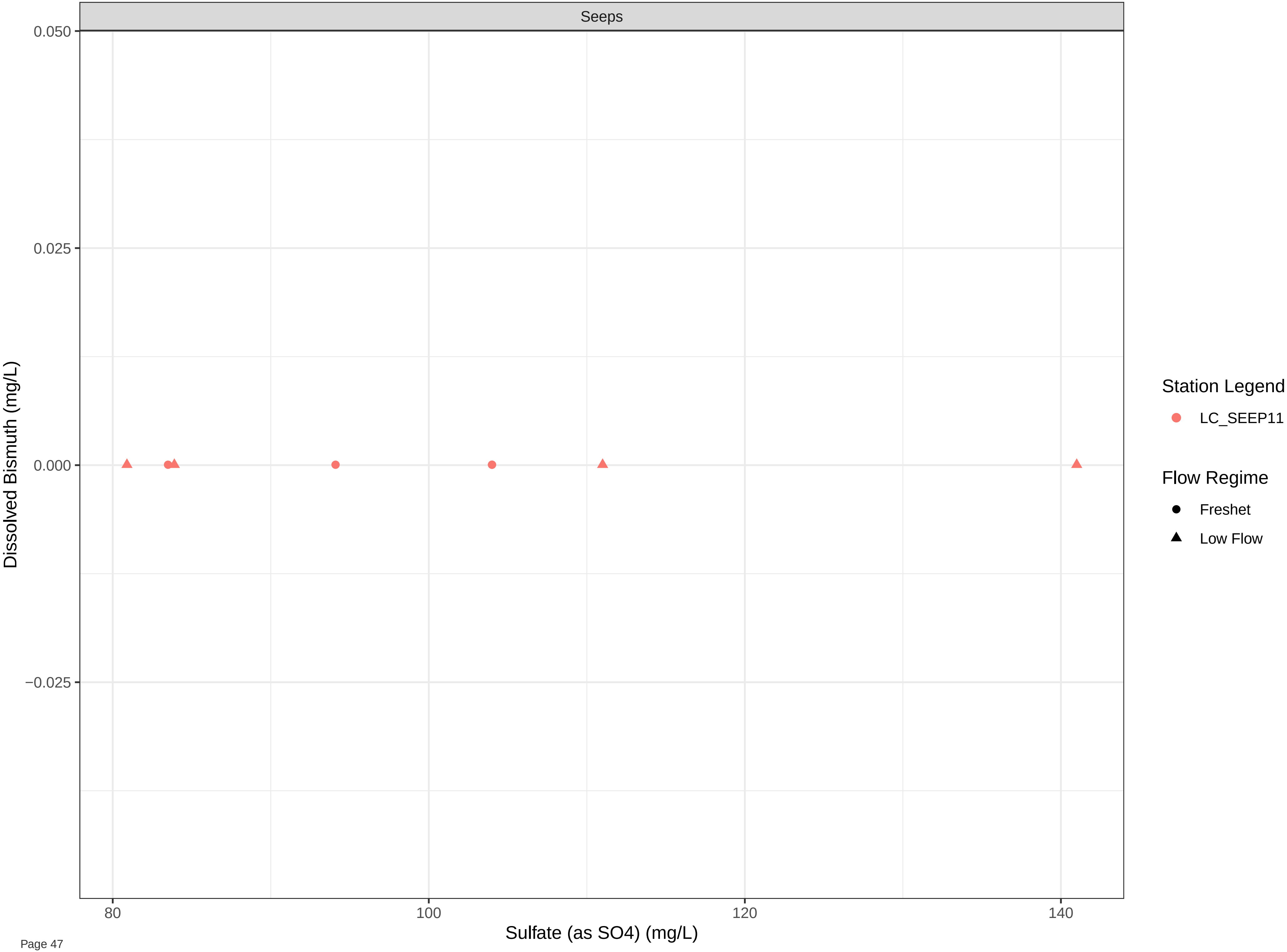

Comparison Point
Seeps
Dissolved Bismuth (mg/L)
1e−04
9e−05
8e−05
7e−05
6e−05
5e−05
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
LC_DCDS
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

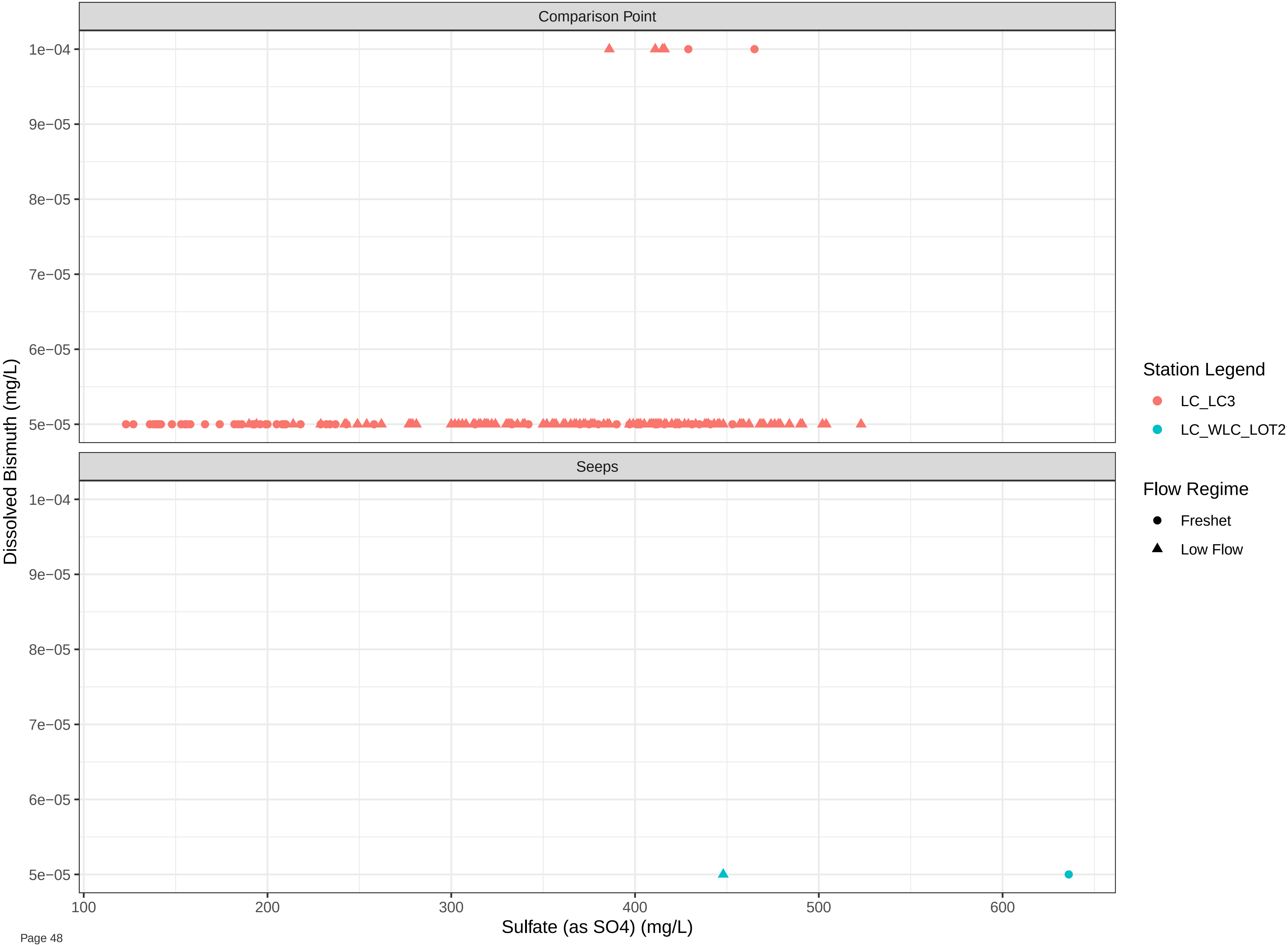

Comparison Point
Seeps
Dissolved Bismuth (mg/L)
1e−04
9e−05
8e−05
7e−05
6e−05
5e−05
100
200
300
400
500
Sulfate (as SO4) (mg/L)
Station Legend
● LC_LC7
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

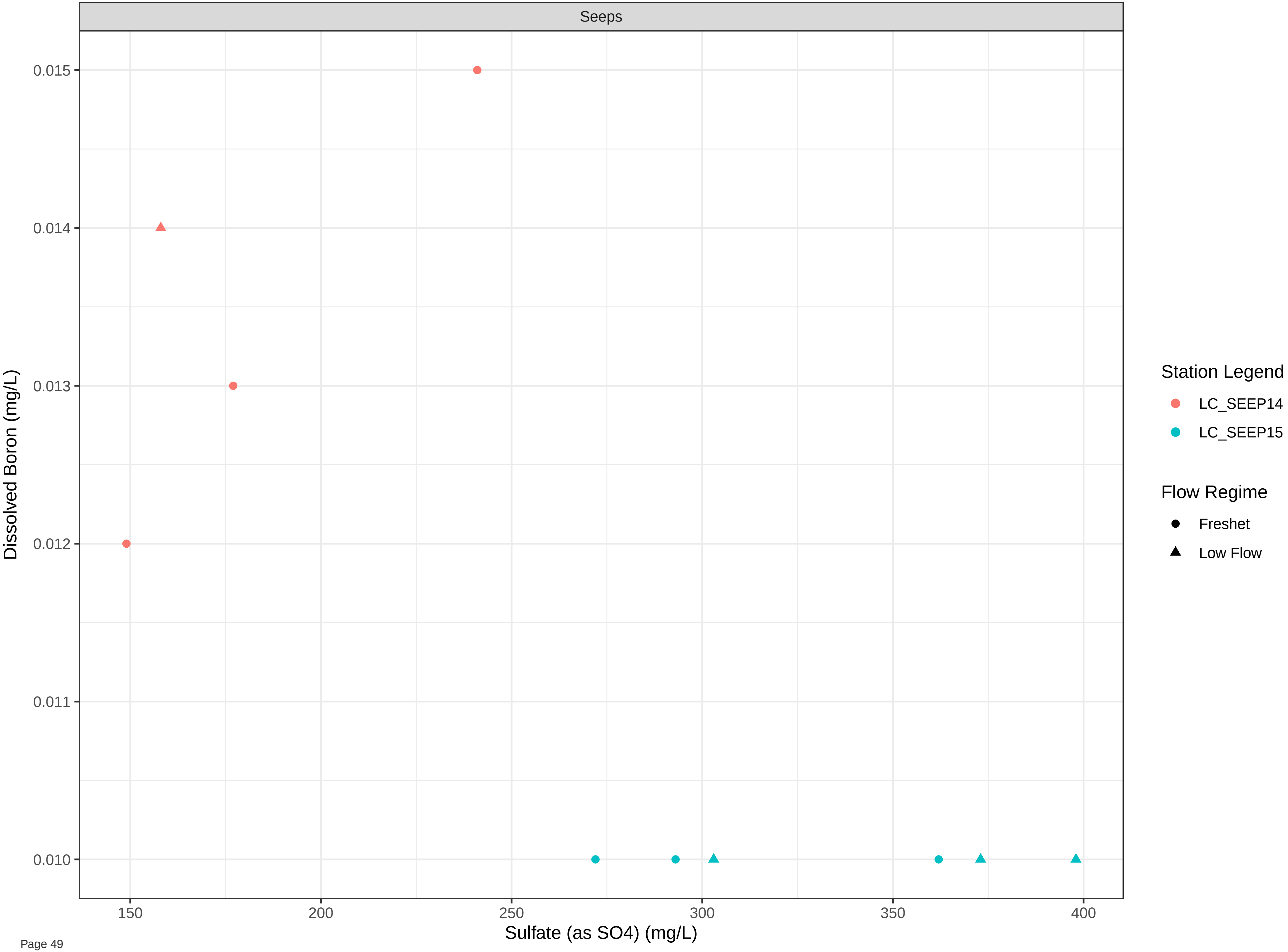

Comparison Point
Seeps
1e−04
9e−05
8e−05
7e−05
6e−05
5e−05
Dissolved Bismuth (mg/L)
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
Freshet
Low Flow

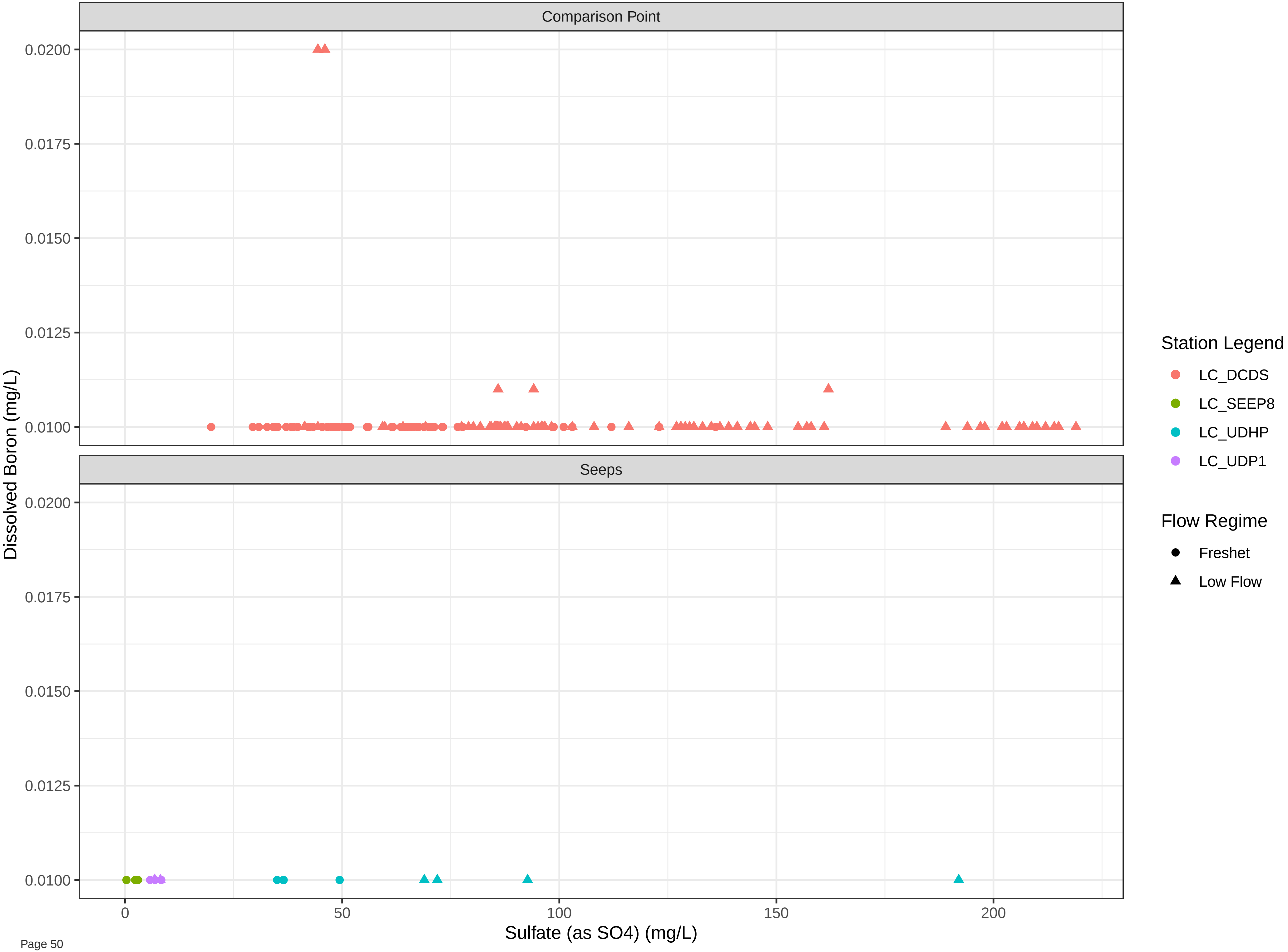

Comparison Point
Seeps
Dissolved Bismuth (mg/L)
0.050
0.025
0.000
−0.025
50
100
150
Sulfate (as SO4) (mg/L)
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

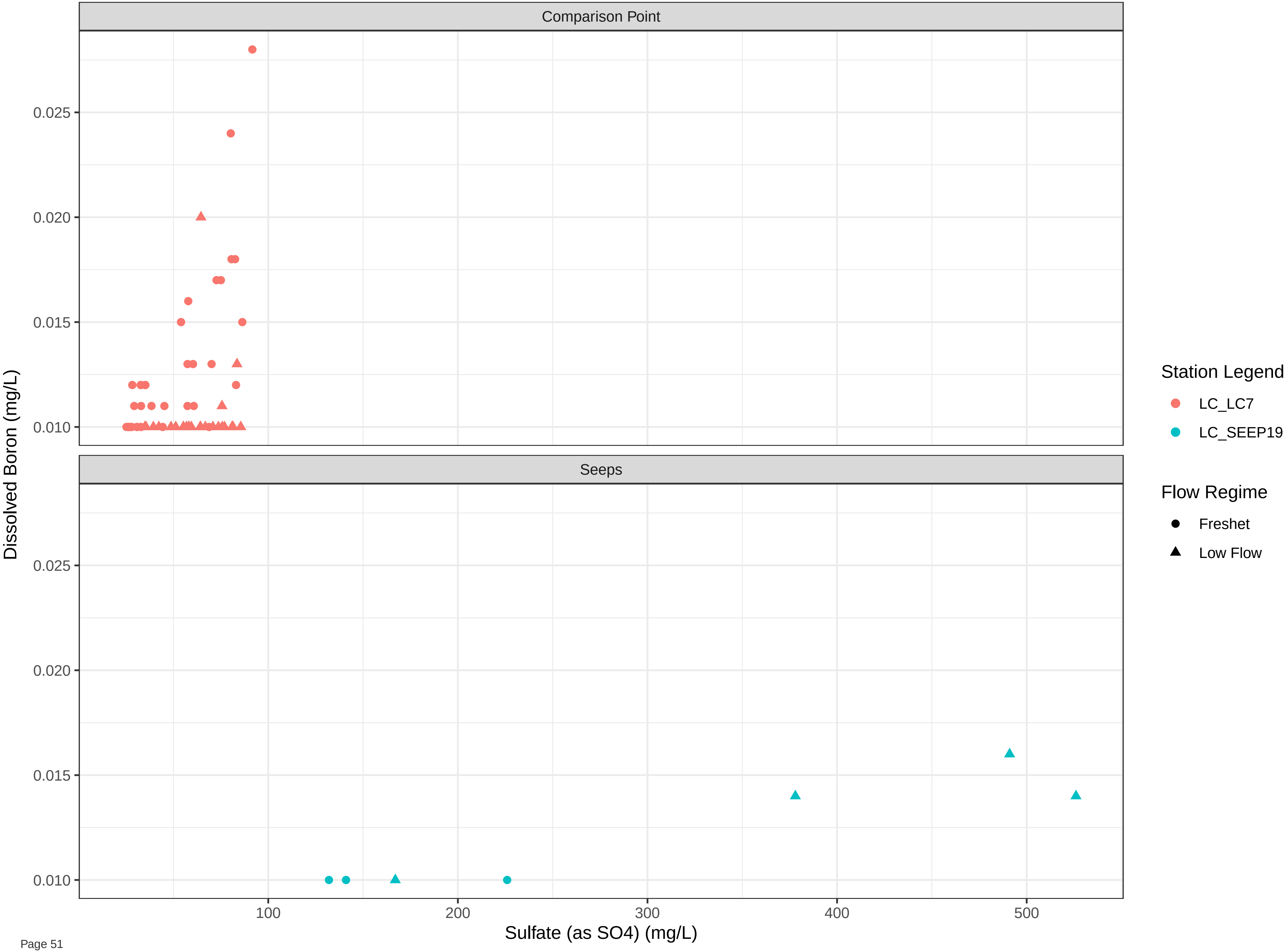

Comparison Point
Seeps
Dissolved Bismuth (mg/L)
1e−04
9e−05
8e−05
7e−05
6e−05
5e−05
100
150
200
250
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC5
LC_SEEP10
Flow Regime
Freshet
Low Flow

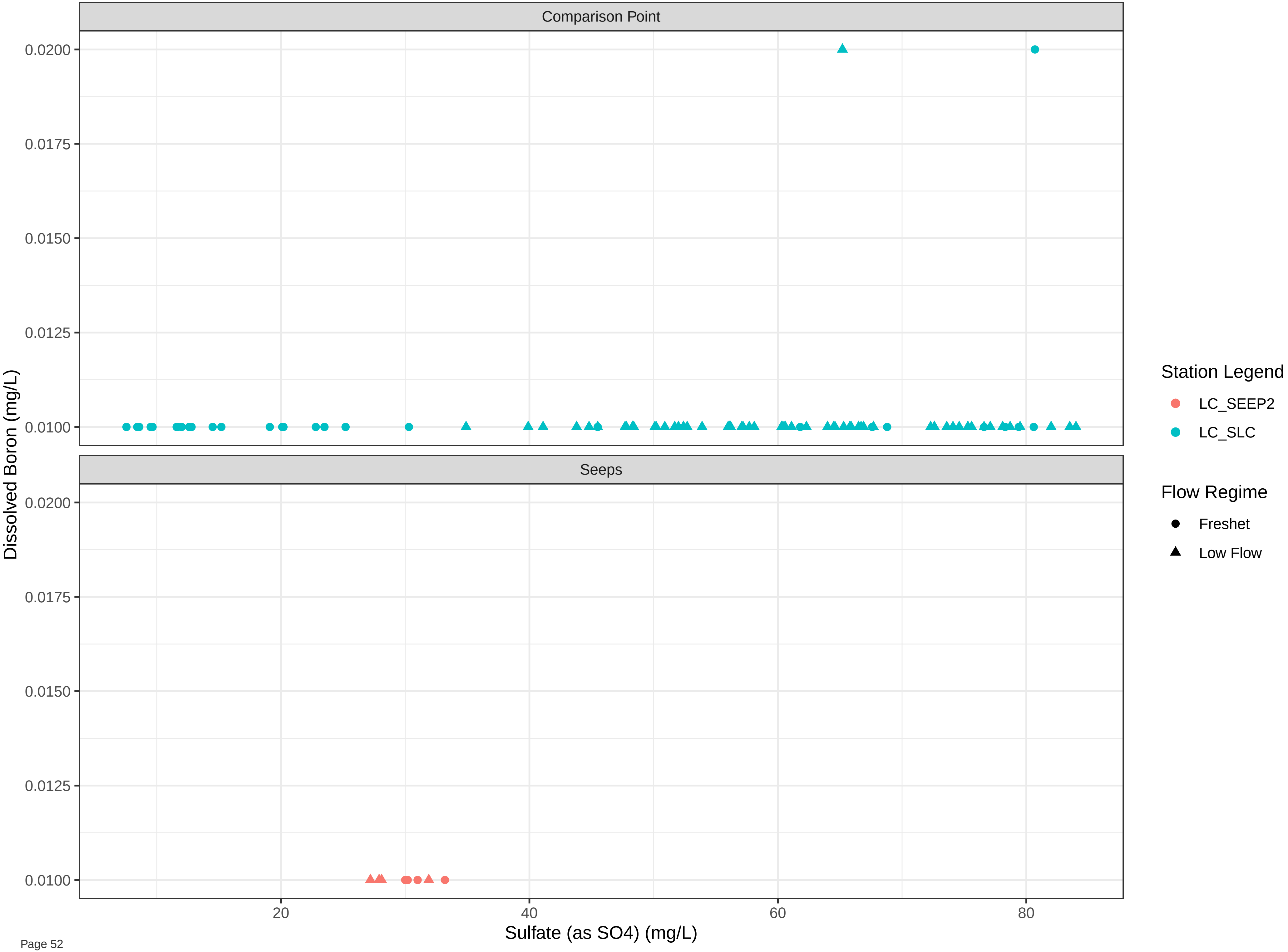

Seeps
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP11
Flow Regime
Freshet
Low Flow

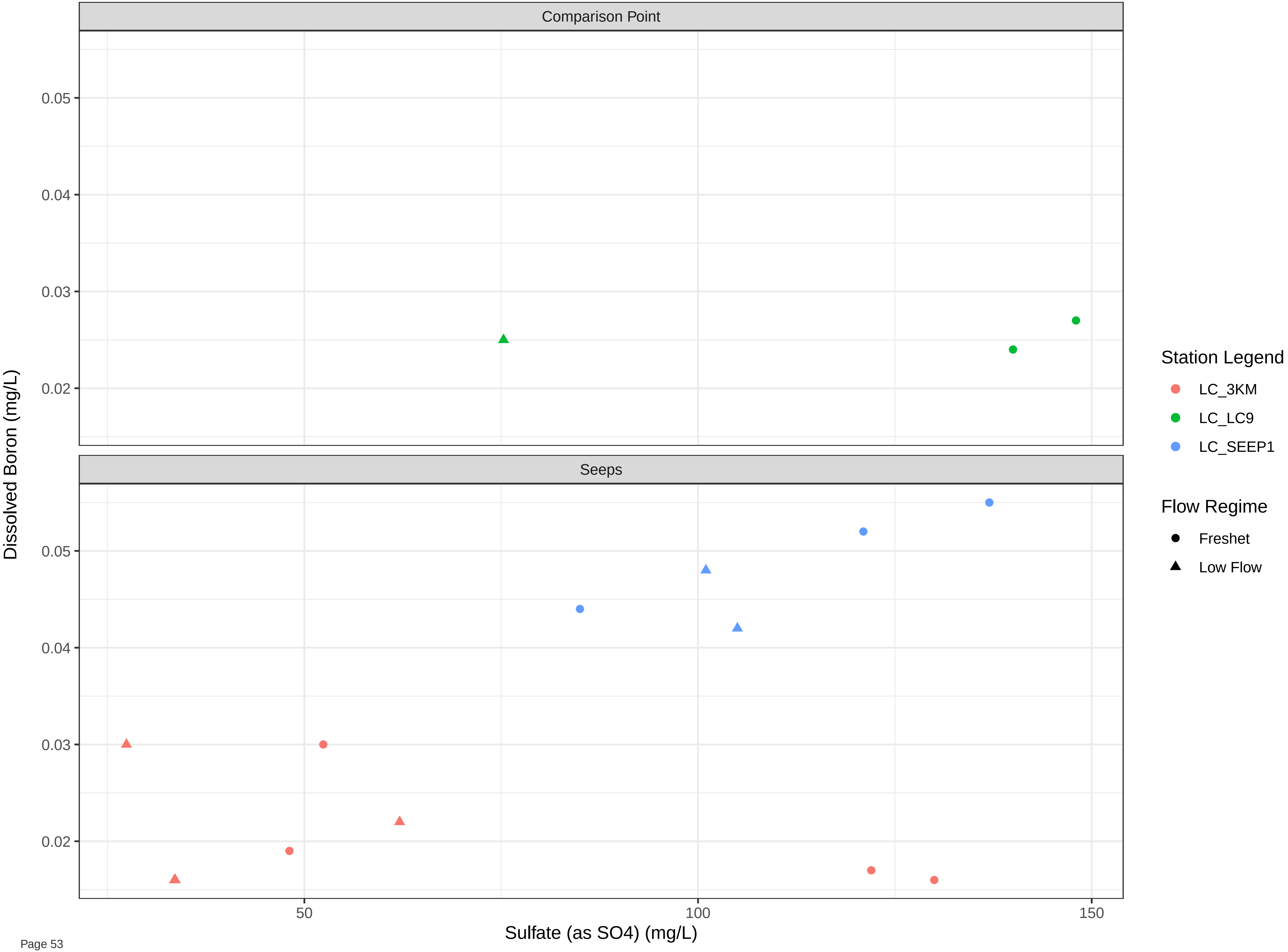

Comparison Point
Seeps
Dissolved Bismuth (mg/L)
1e−04
9e−05
8e−05
7e−05
6e−05
5e−05
Sulfate (as SO4) (mg/L)
100
200
300
400
500
600
Station Legend
LC_LC3
LC_WLC_LOT2
Flow Regime
Freshet
Low Flow

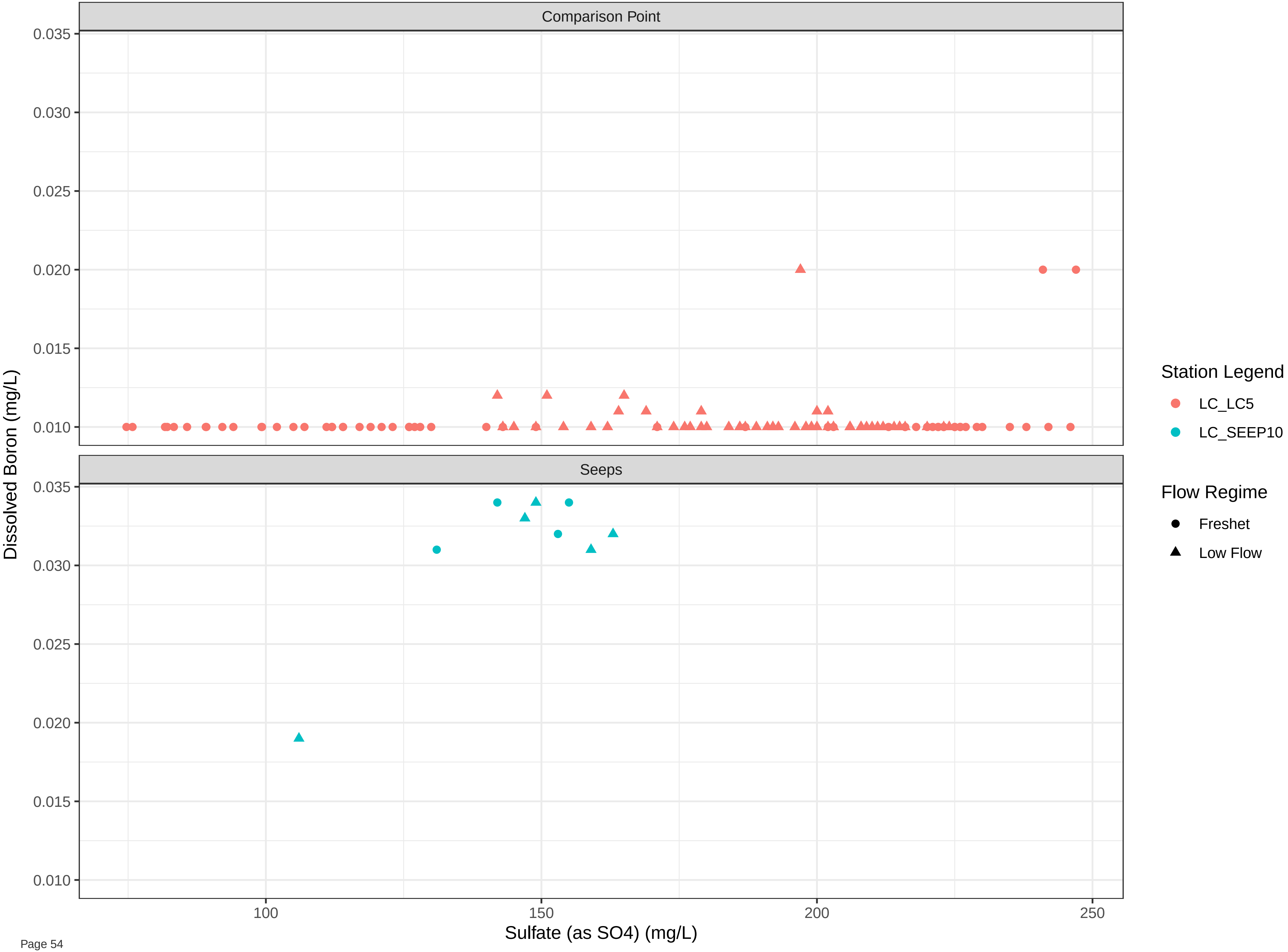

Seeps
Dissolved Boron (mg/L)
0.015
0.014
0.013
0.012
0.011
0.010
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP14
LC_SEEP15
Flow Regime
Freshet
Low Flow

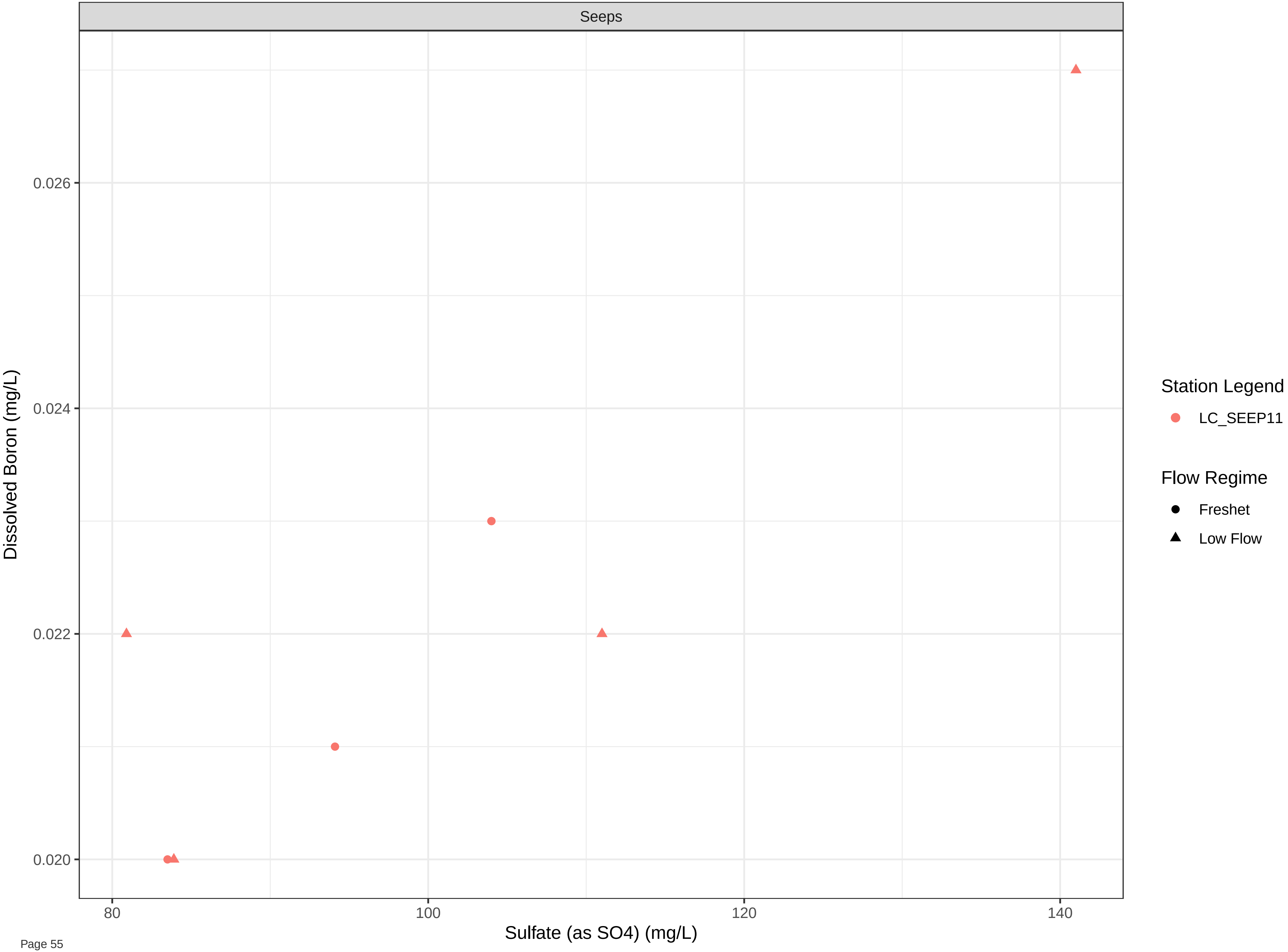

Comparison Point
Seeps
Dissolved Boron (mg/L)
0.0200
0.0175
0.0150
0.0125
0.0100
0.0200
0.0175
0.0150
0.0125
0.0100
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
● LC_DCDS
● LC_SEEP8
● LC_UDHP
● LC_UDP1
Flow Regime
● Freshet
▲ Low Flow

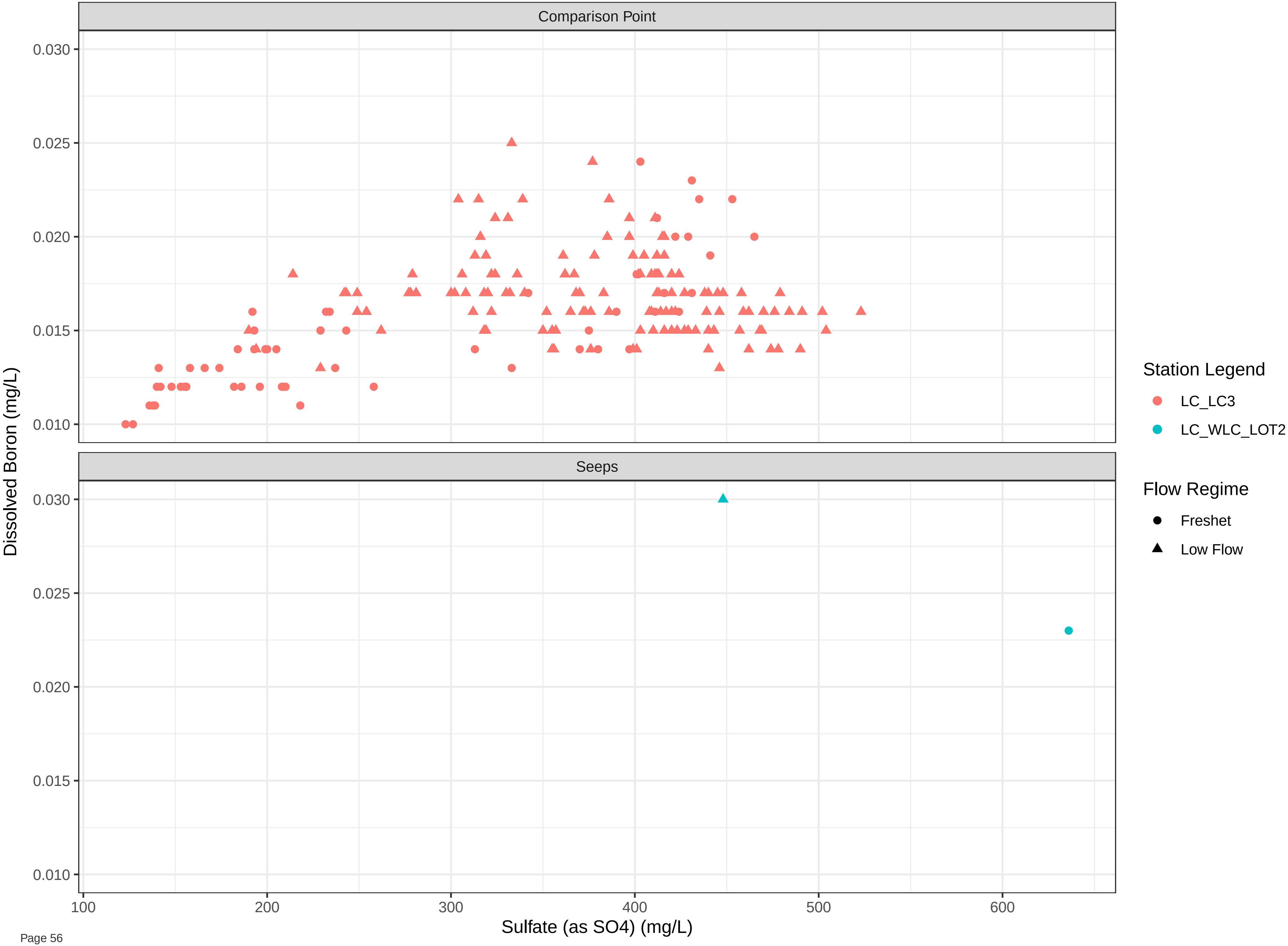

Comparison Point
Seeps
Dissolved Boron (mg/L)
0.025
0.020
0.015
0.010
Sulfate (as SO4) (mg/L)
100
200
300
400
500
Station Legend
● LC_LC7
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow


Comparison Point
Seeps
Dissolved Boron (mg/L)
0.0200
0.0175
0.0150
0.0125
0.0100
Sulfate (as SO4) (mg/L)
20
40
60
80
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
Freshet
Low Flow

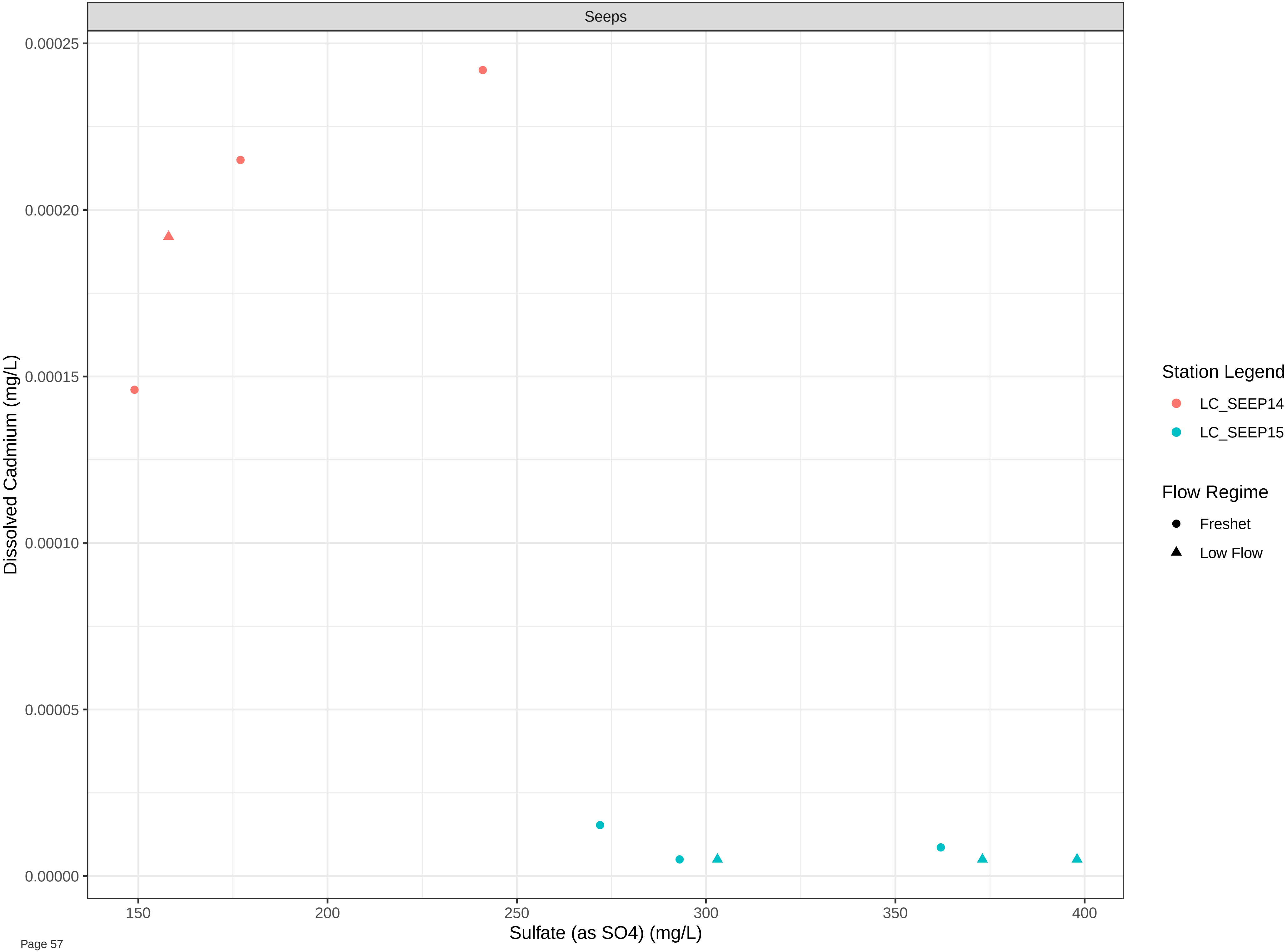

Comparison Point
Seeps
0.05
0.04
0.03
0.02
Dissolved Boron (mg/L)
50
100
150
Sulfate (as SO4) (mg/L)
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

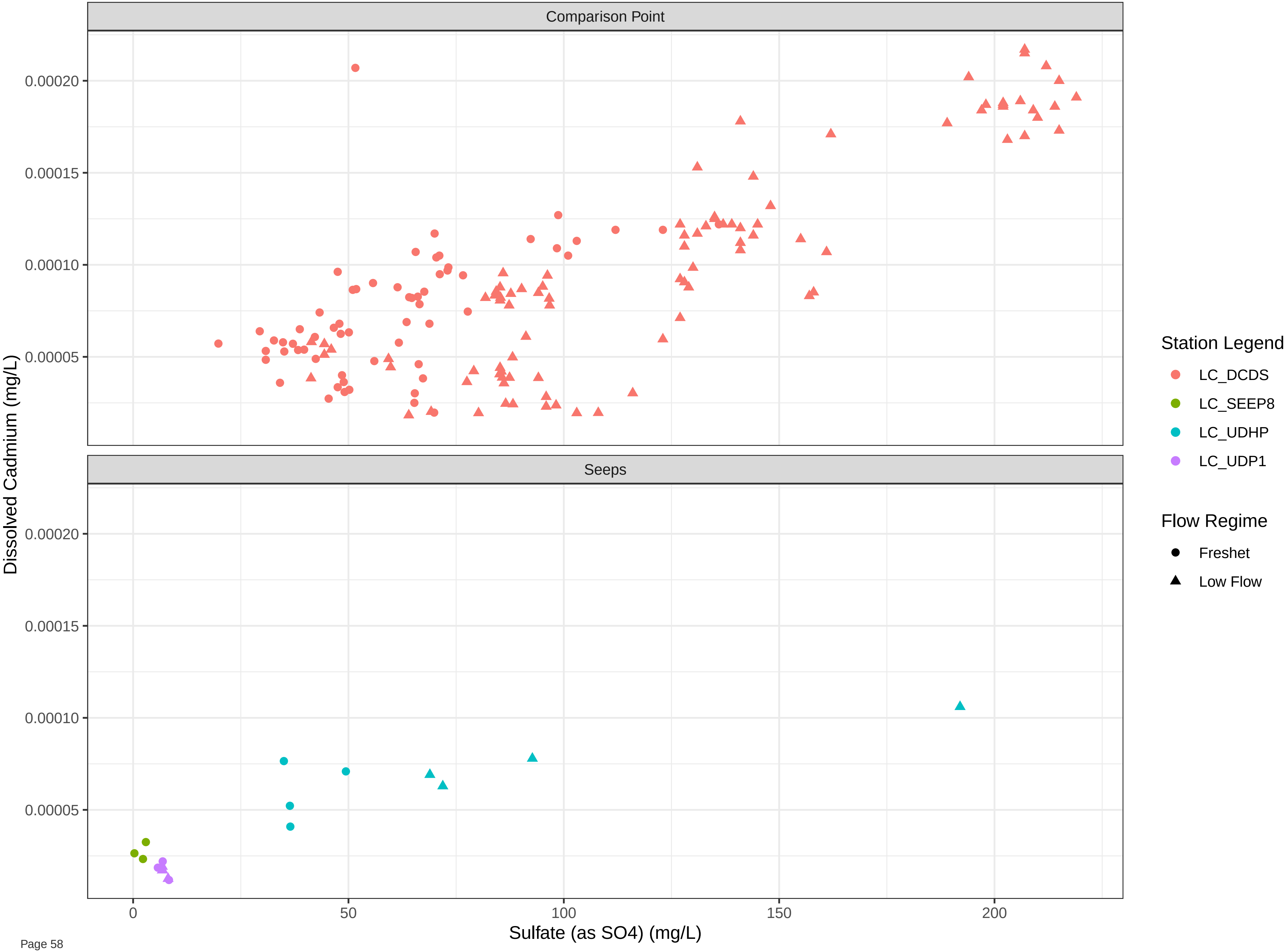

Comparison Point
Seeps
0.035
0.030
0.025
0.020
0.015
0.010
Dissolved Boron (mg/L)
100
150
200
250
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC5
LC_SEEP10
Flow Regime
Freshet
Low Flow

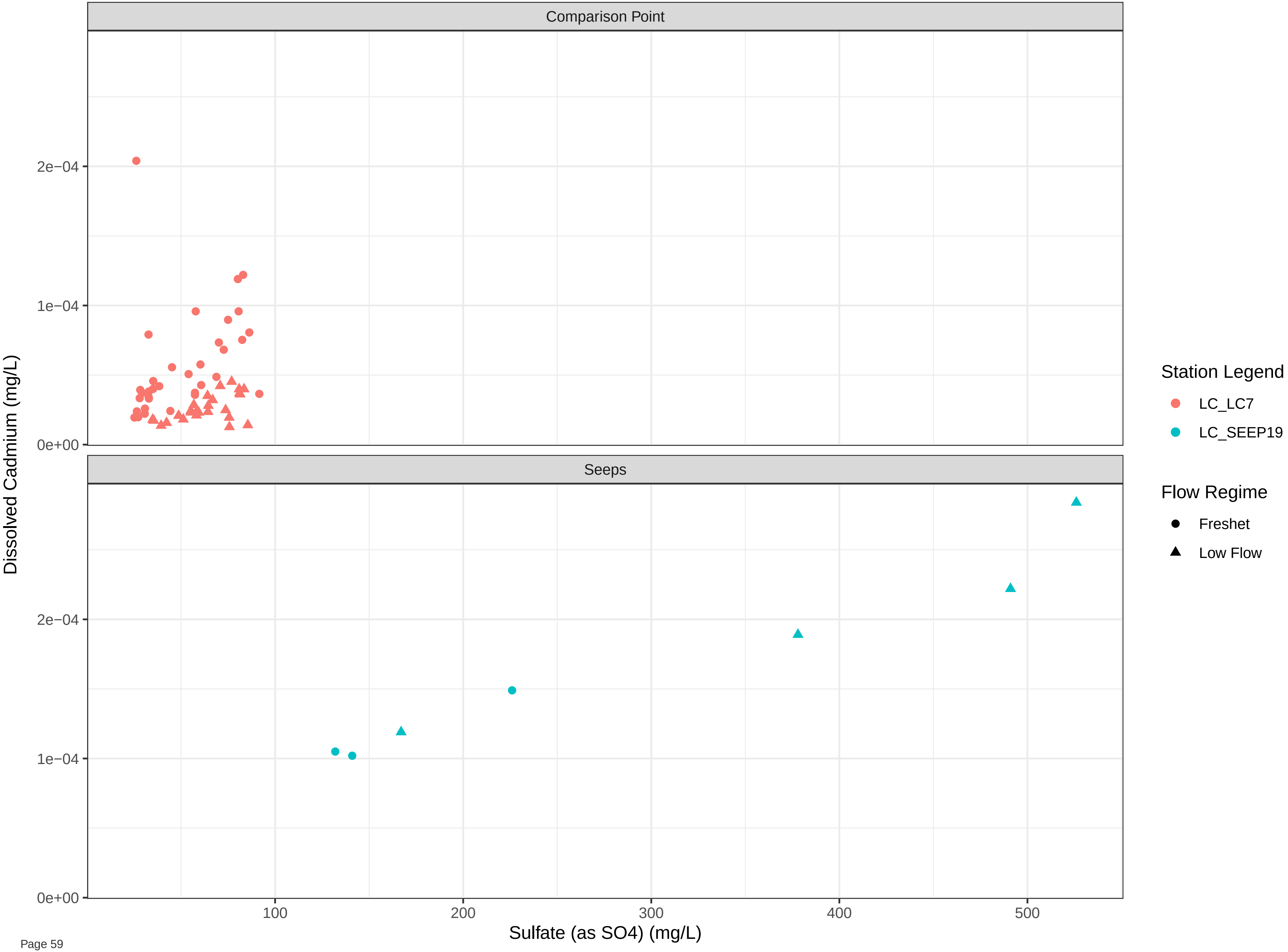

Seeps
Dissolved Boron (mg/L)
0.026
0.024
0.022
0.020
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP11
Flow Regime
Freshet
Low Flow

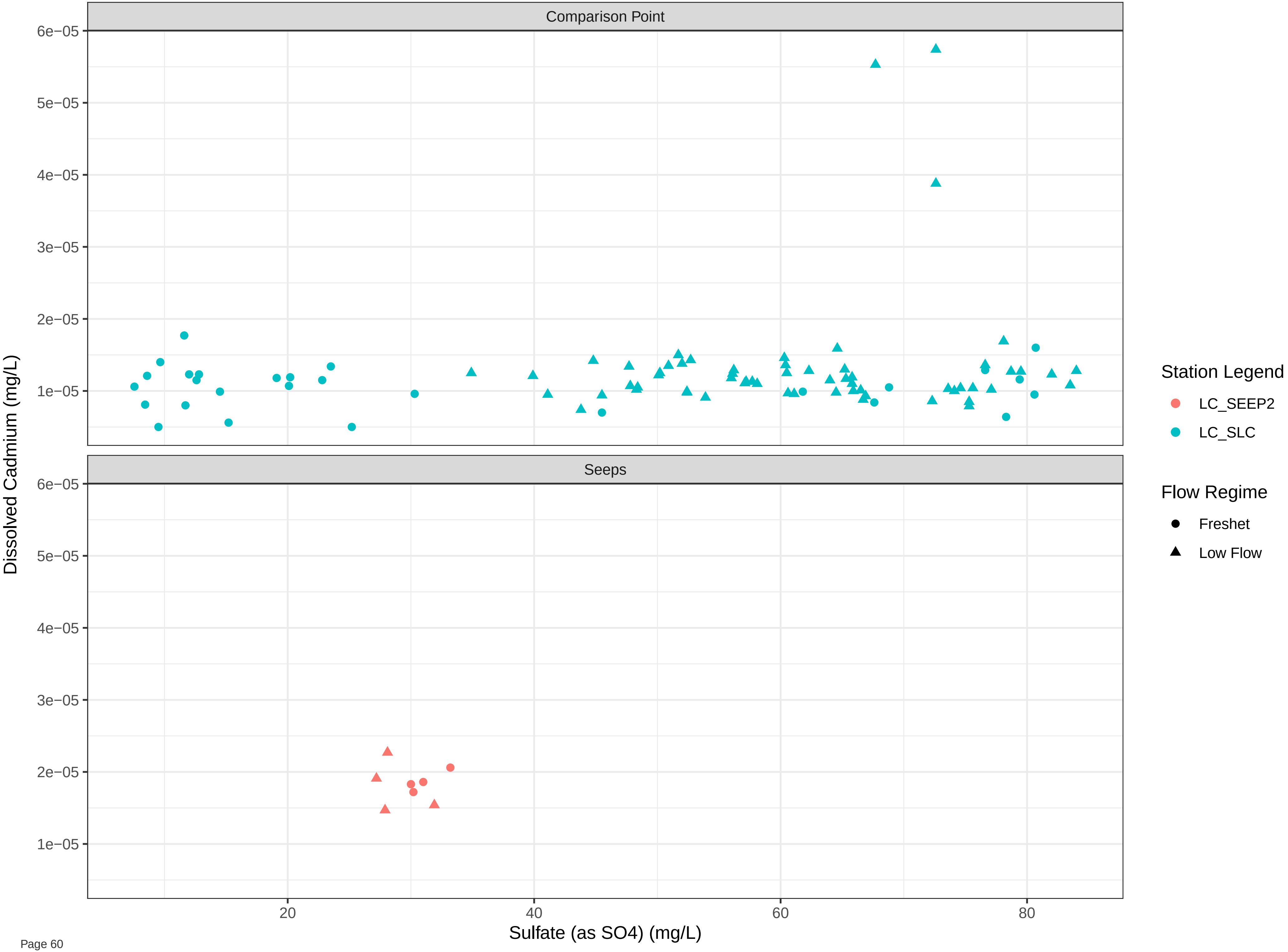


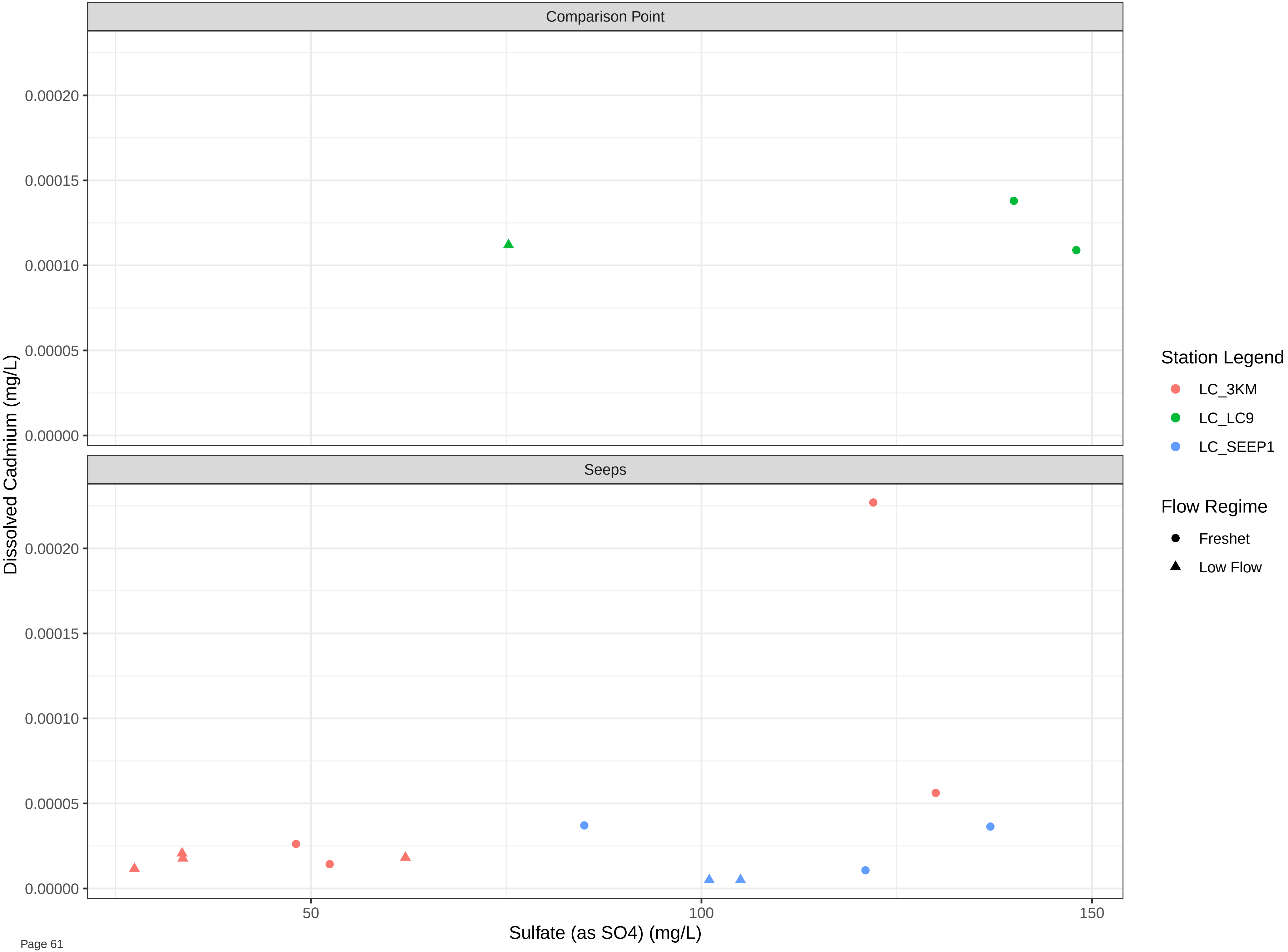
Comparison Point
Seeps
Dissolved Boron (mg/L)
0.030
0.025
0.020
0.015
0.010
100
200
300
400
500
600
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC3
LC_WLC_LOT2
Flow Regime
Freshet
Low Flow

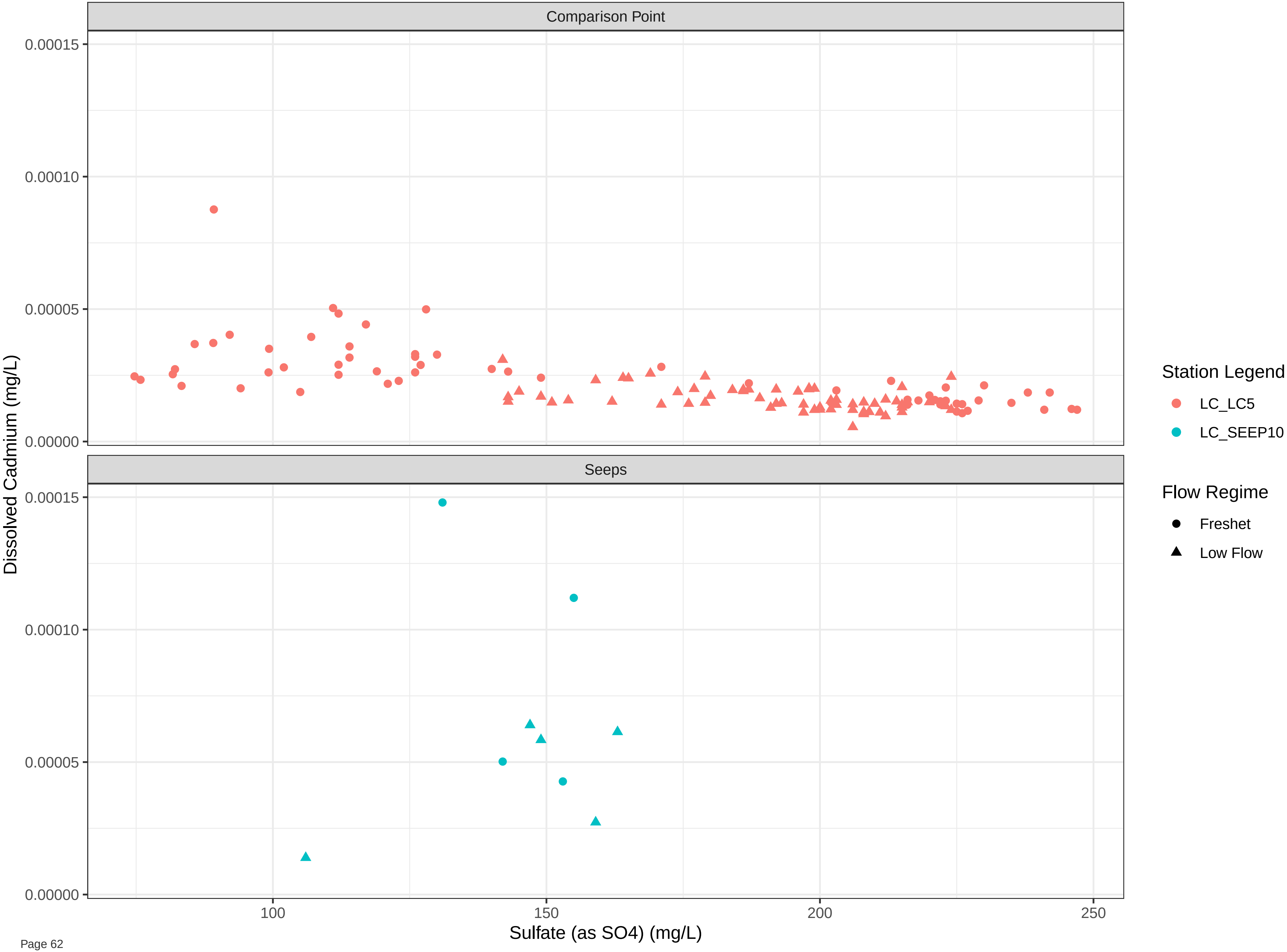

Seeps
Dissolved Cadmium (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
0.00000
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP14
LC_SEEP15
Flow Regime
Freshet
Low Flow

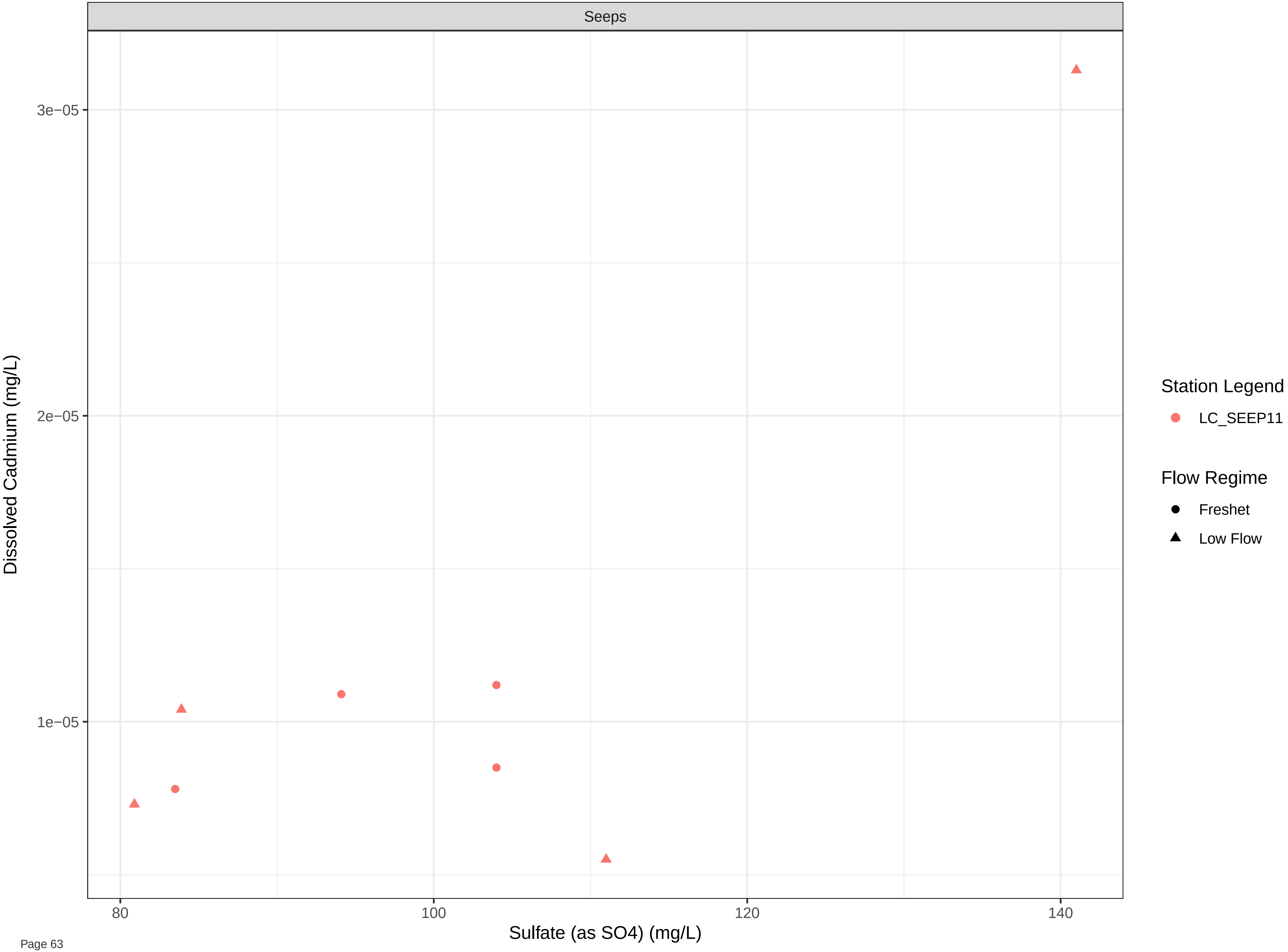

Comparison Point
Seeps
Dissolved Cadmium (mg/L)
0.00020
0.00015
0.00010
0.00005
Sulfate (as SO4) (mg/L)
0
50
100
150
200
Station Legend
● LC_DCDS
● LC_SEEP8
● LC_UDHP
● LC_UDP1
Flow Regime
● Freshet
▲ Low Flow

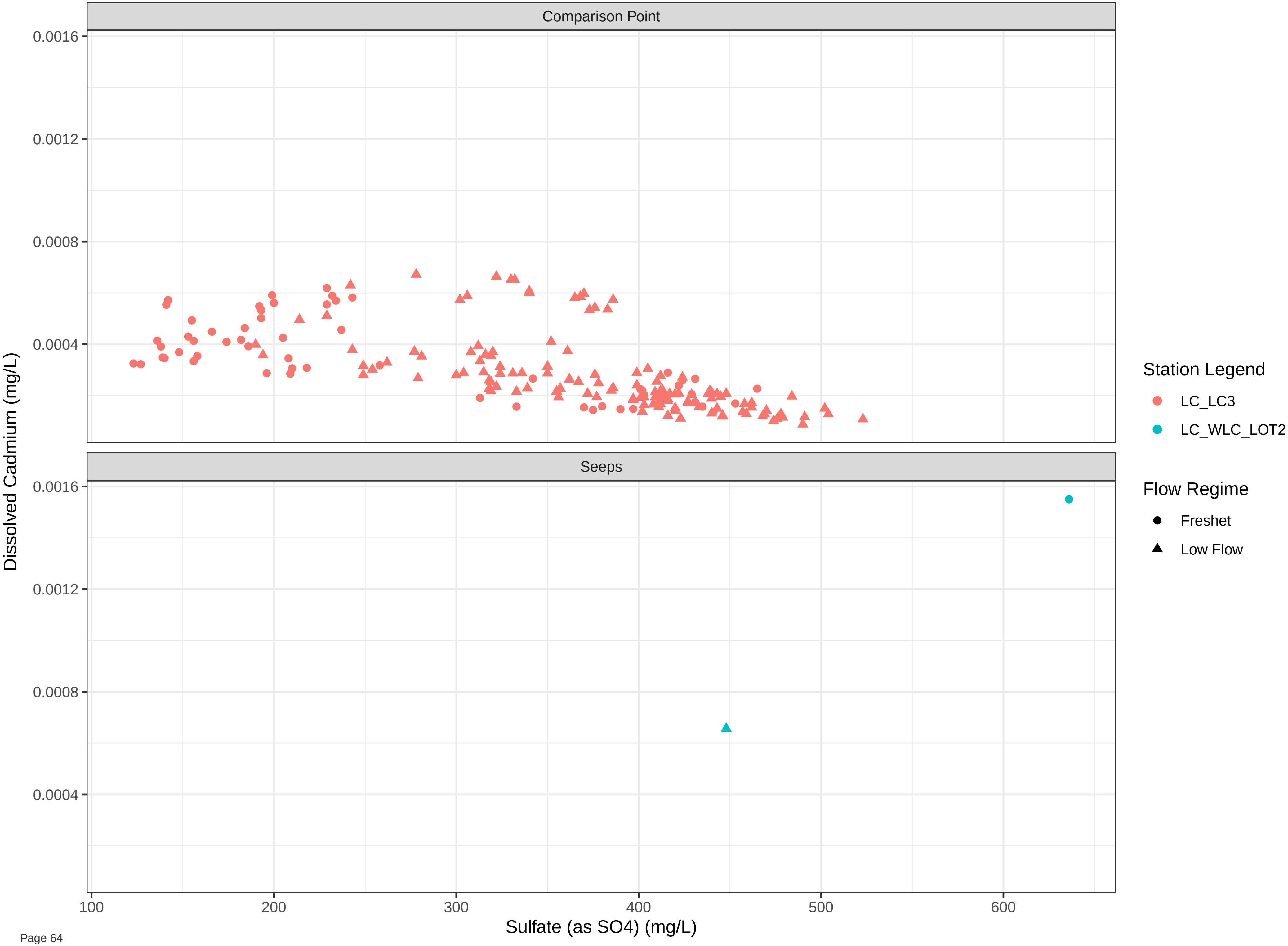

Comparison Point
Seeps
Dissolved Cadmium (mg/L)
2e−04
1e−04
0e+00
2e−04
1e−04
0e+00
100
200
300
400
500
Sulfate (as SO4) (mg/L)
Station Legend
● LC_LC7
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

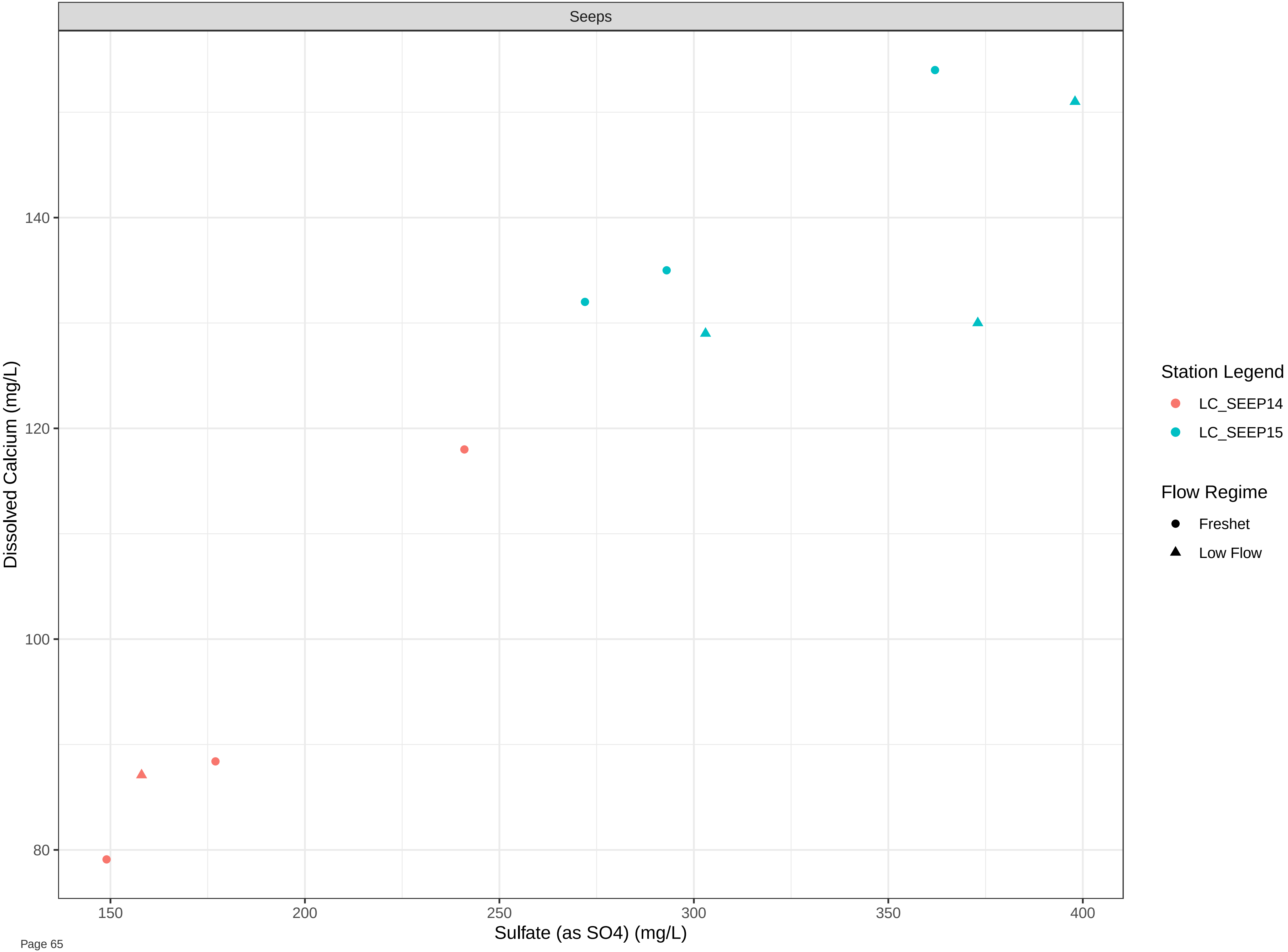

Comparison Point
Seeps
Dissolved Cadmium (mg/L)
6e−05
5e−05
4e−05
3e−05
2e−05
1e−05
Sulfate (as SO4) (mg/L)
20
40
60
80
Station Legend
● LC_SEEP2
● LC_SLC
Flow Regime
● Freshet
▲ Low Flow

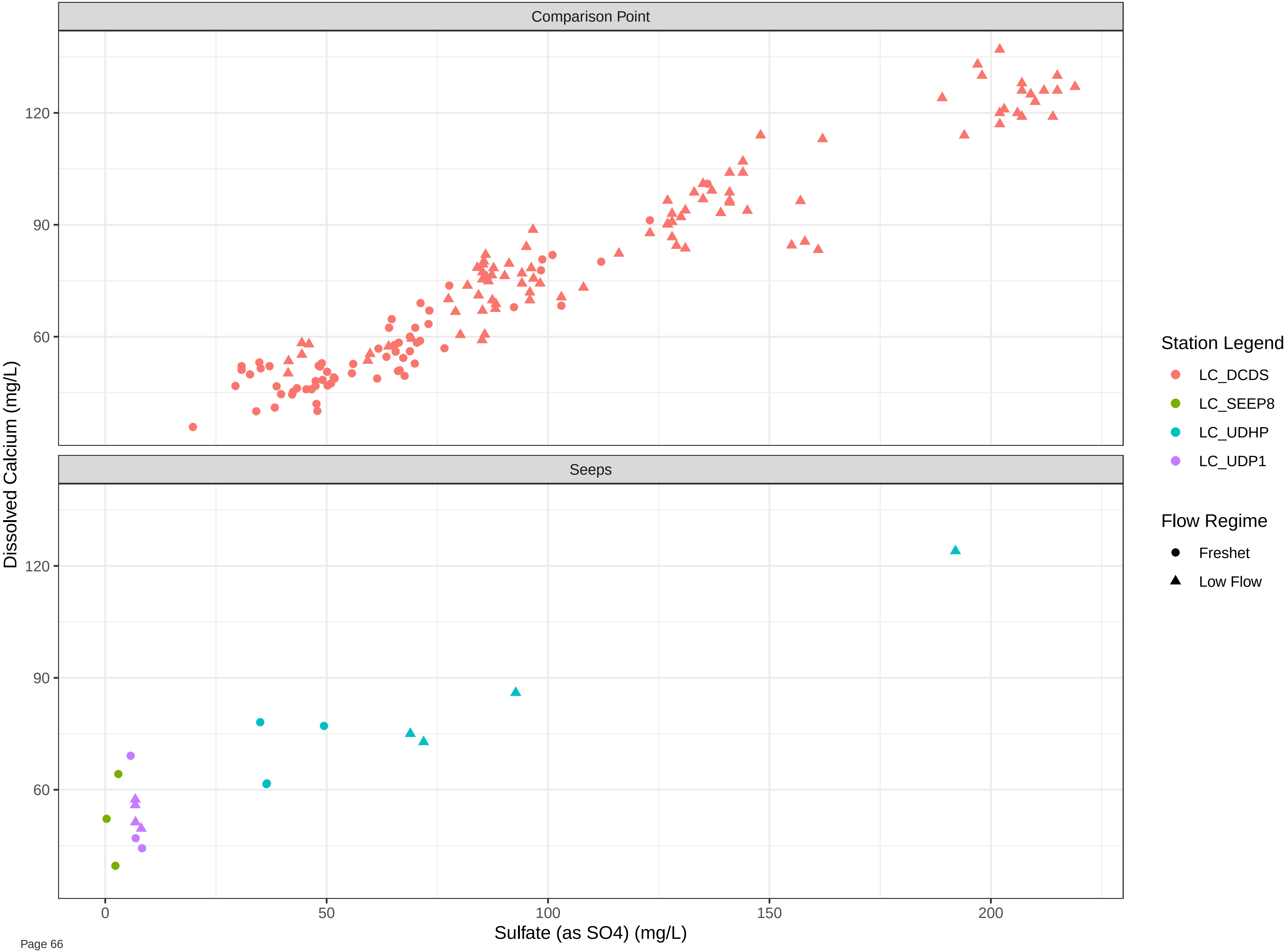

Comparison Point
Seeps
Dissolved Cadmium (mg/L)
0.00020
0.00015
0.00010
0.00005
0.00000
Sulfate (as SO4) (mg/L)
50
100
150
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

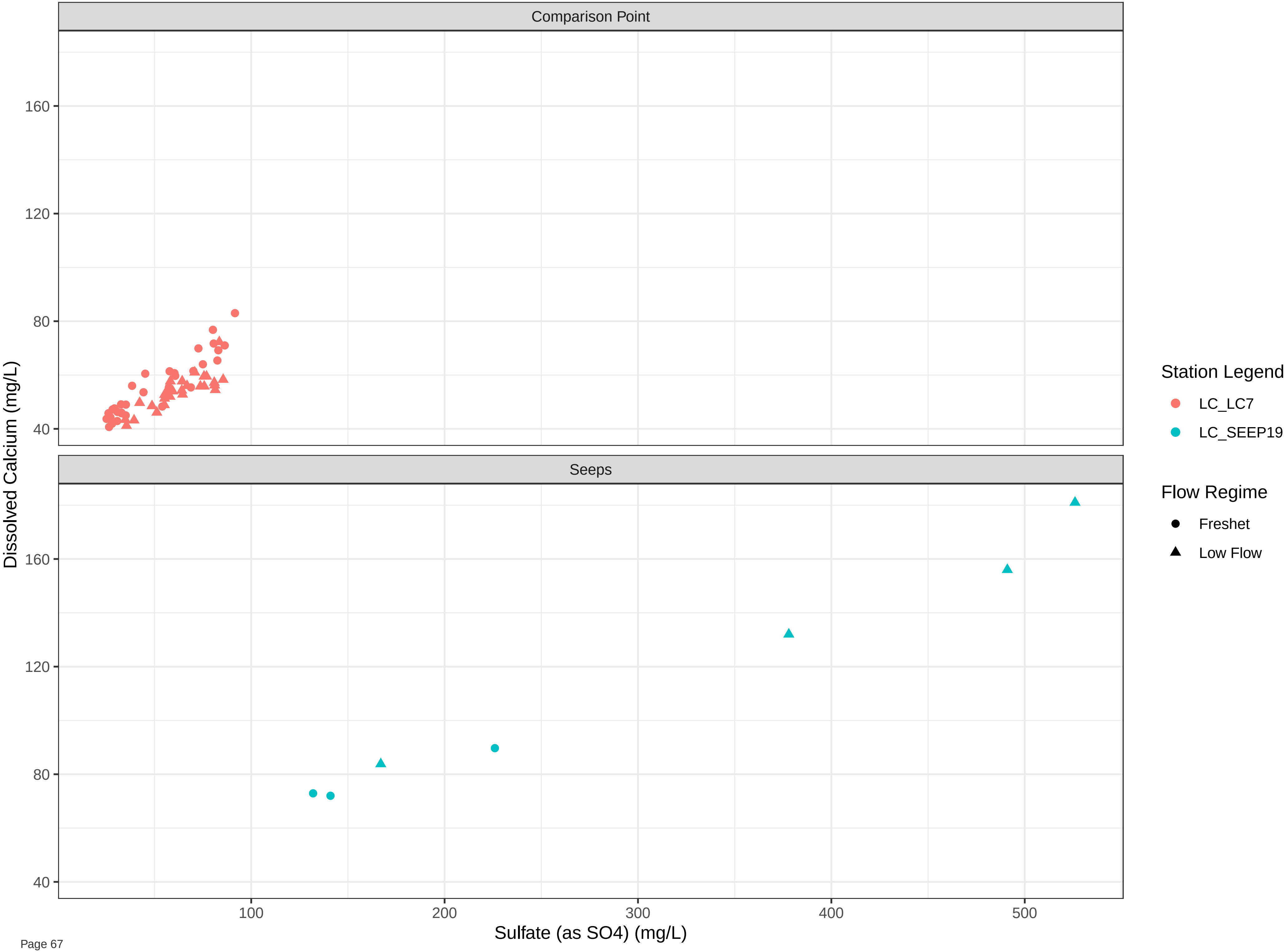

Comparison Point
Seeps
0.00015
0.00010
0.00005
0.00000
100
150
200
250
Dissolved Cadmium (mg/L)
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC5
LC_SEEP10
Flow Regime
Freshet
Low Flow

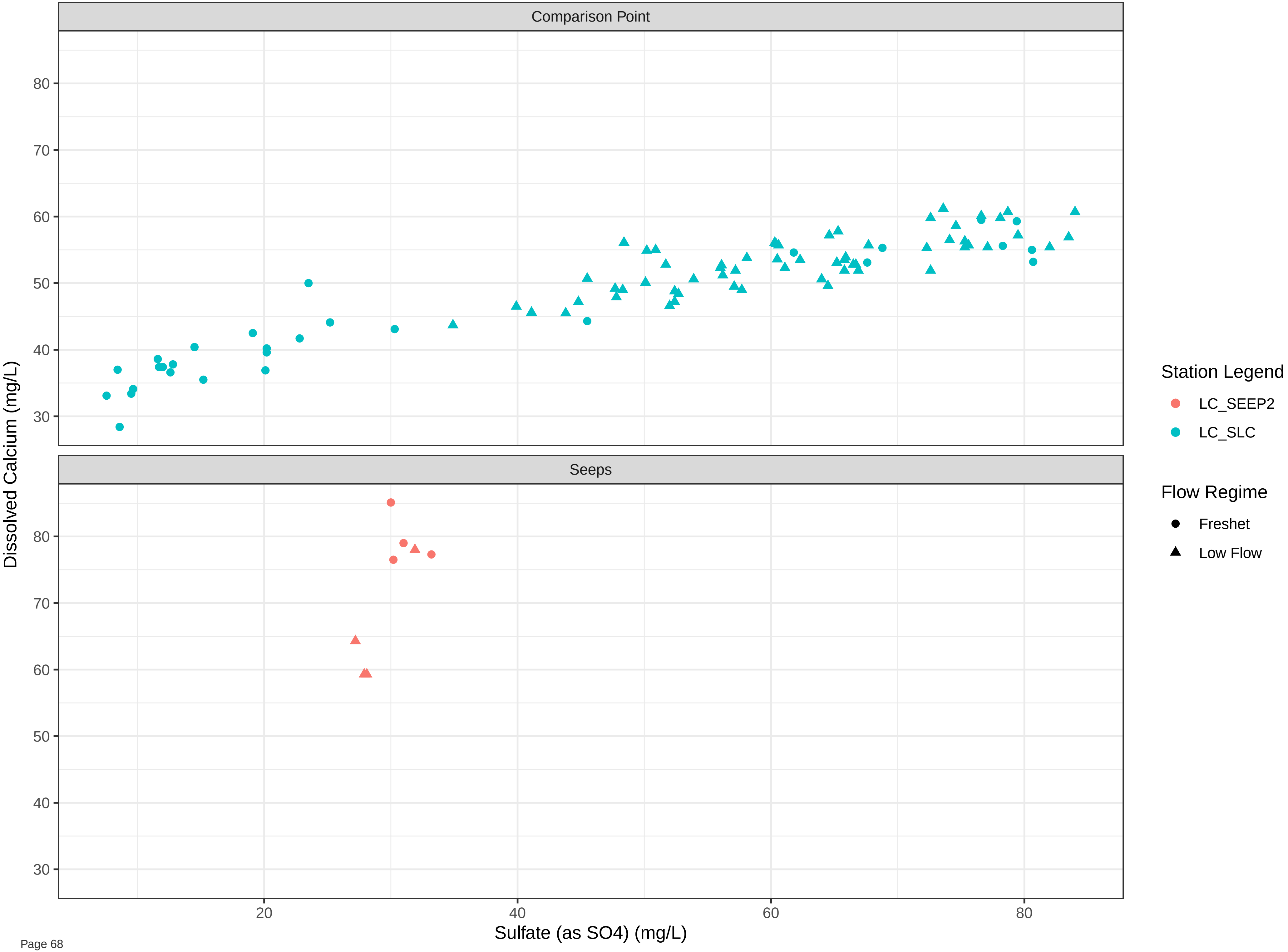

Seeps
Dissolved Cadmium (mg/L)
3e−05
2e−05
1e−05
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

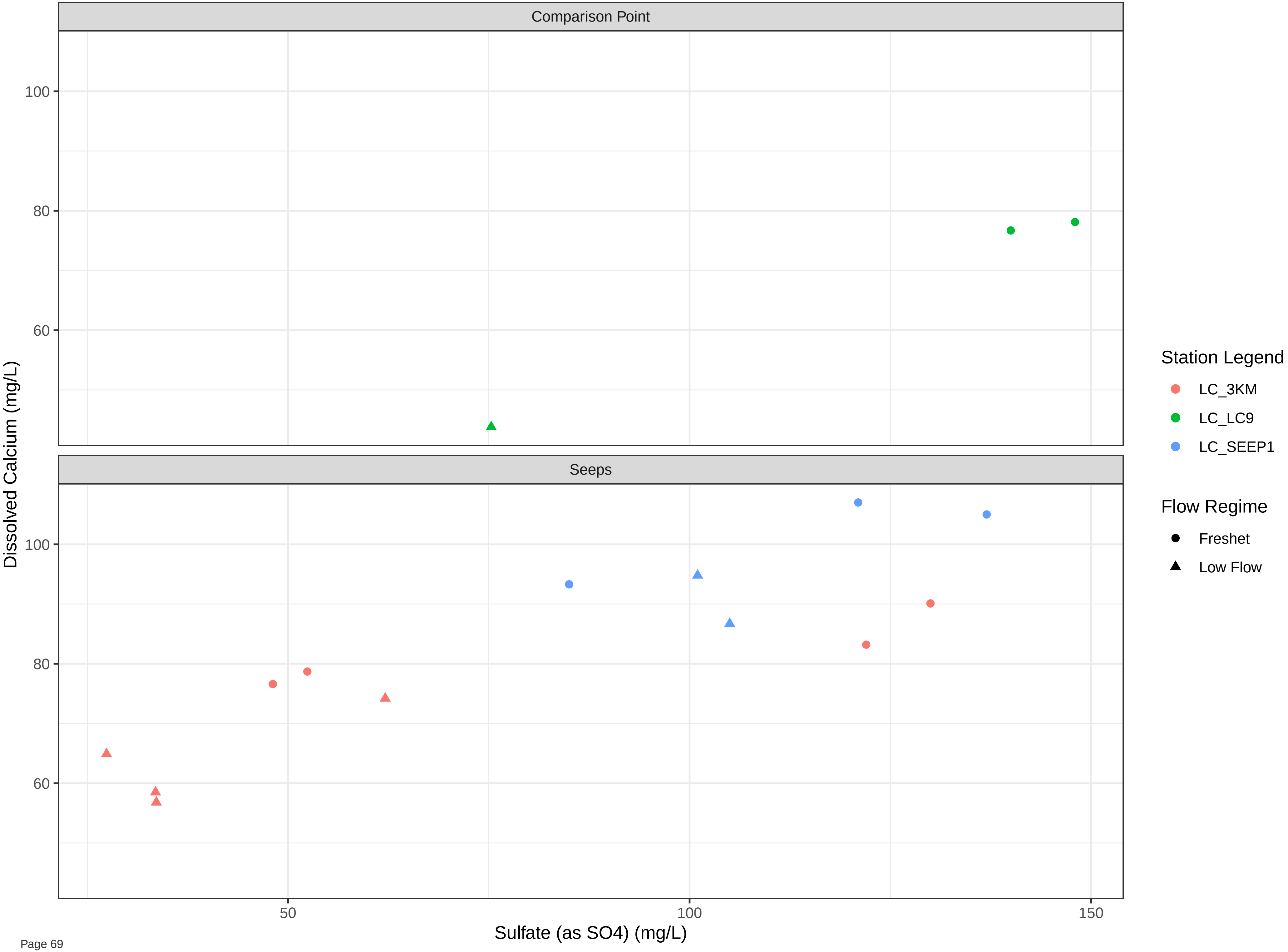

Comparison Point
Seeps
Dissolved Cadmium (mg/L)
0.0016
0.0012
0.0008
0.0004
0.0016
0.0012
0.0008
0.0004
Sulfate (as SO4) (mg/L)
100
200
300
400
500
600
Station Legend
● LC_LC3
● LC_WLC_LOT2
Flow Regime
● Freshet
▲ Low Flow

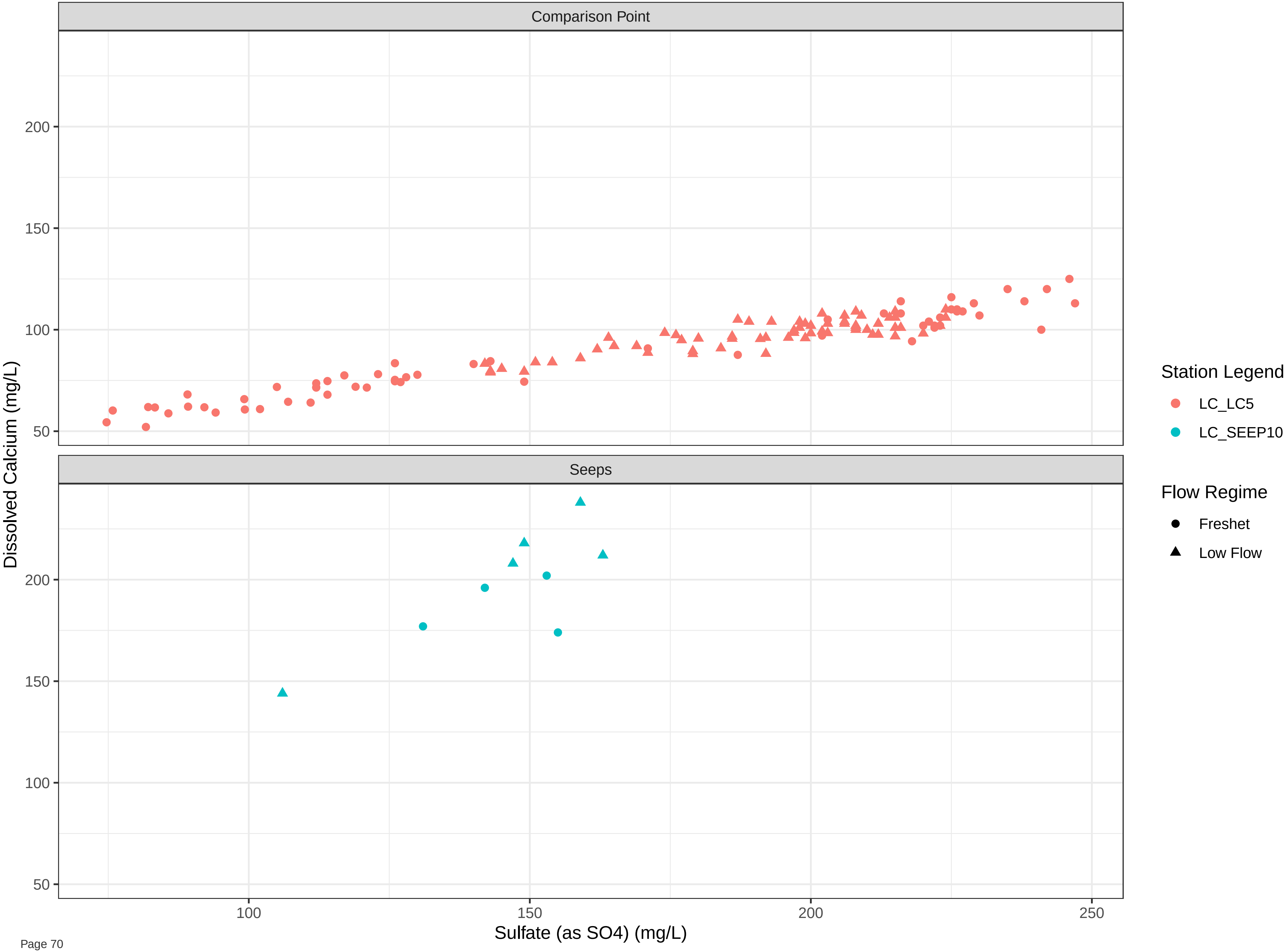

Seeps
Dissolved Calcium (mg/L)
140
120
100
80
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP14
LC_SEEP15
Flow Regime
Freshet
Low Flow

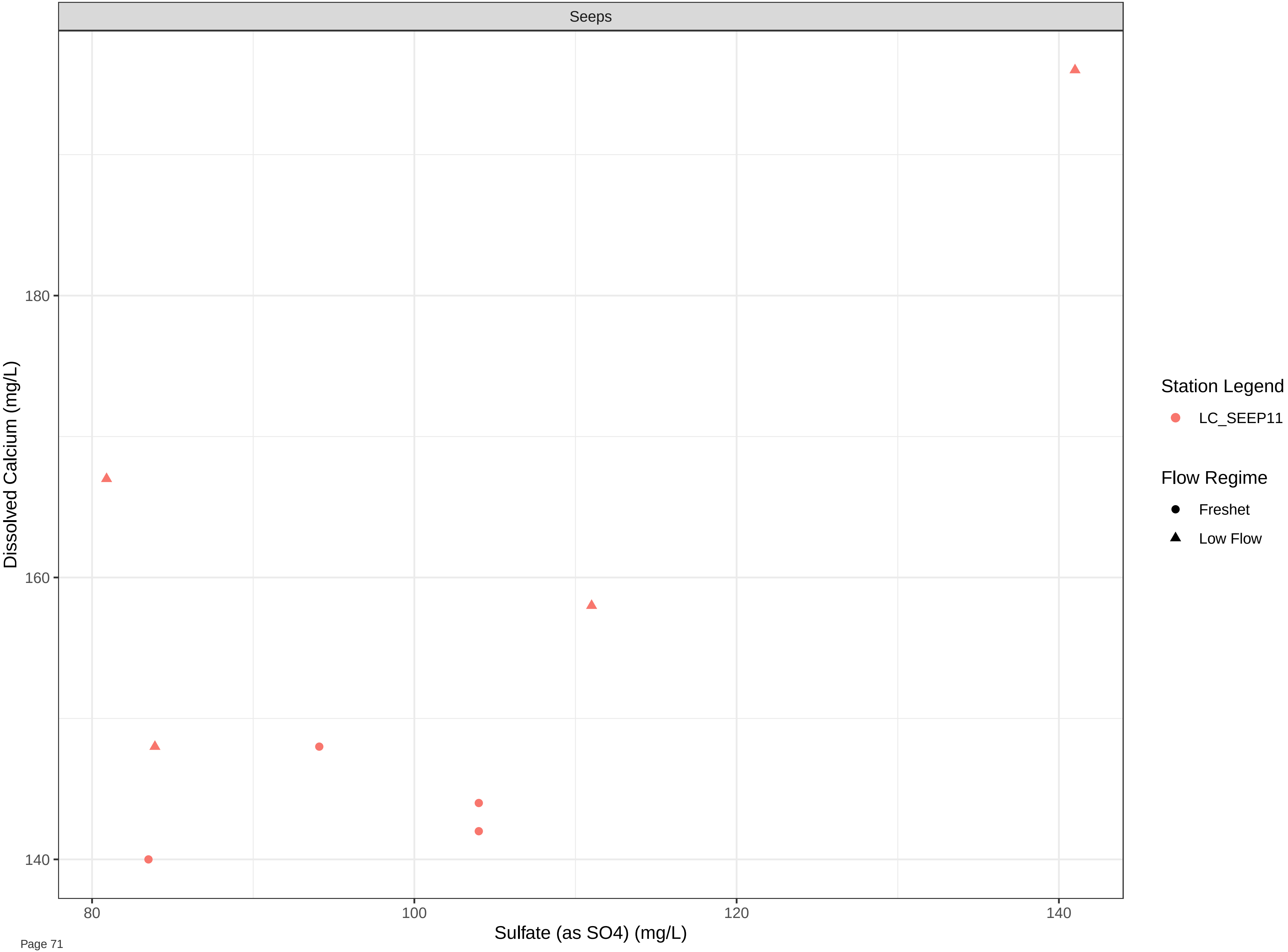

Comparison Point
Seeps
Dissolved Calcium (mg/L)
120
90
60
120
90
60
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
LC_DCDS
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

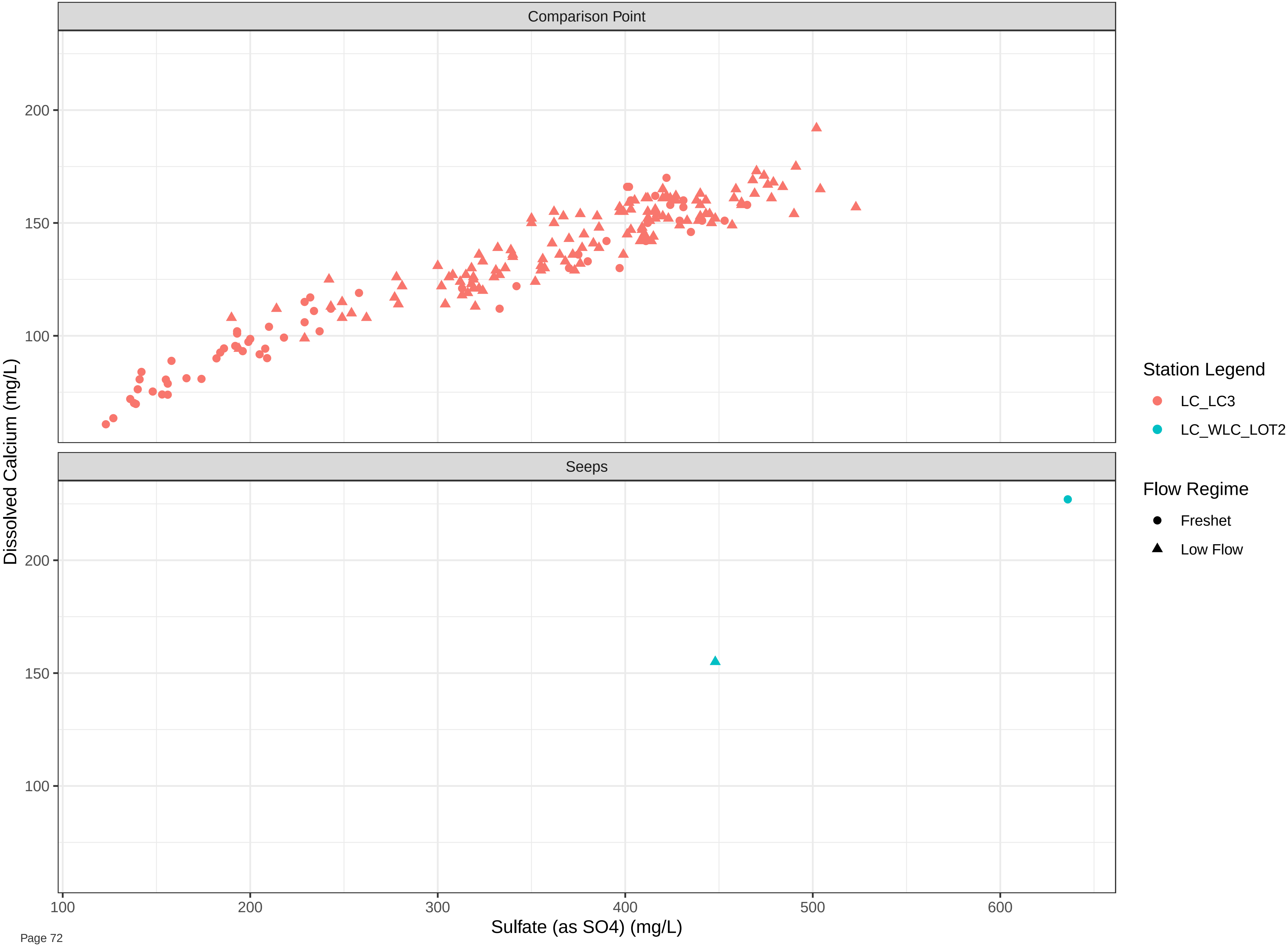

Comparison Point
Seeps
Dissolved Calcium (mg/L)
160
120
80
40
160
120
80
40
100
200
300
400
500
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC7
LC_SEEP19
Flow Regime
Freshet
Low Flow

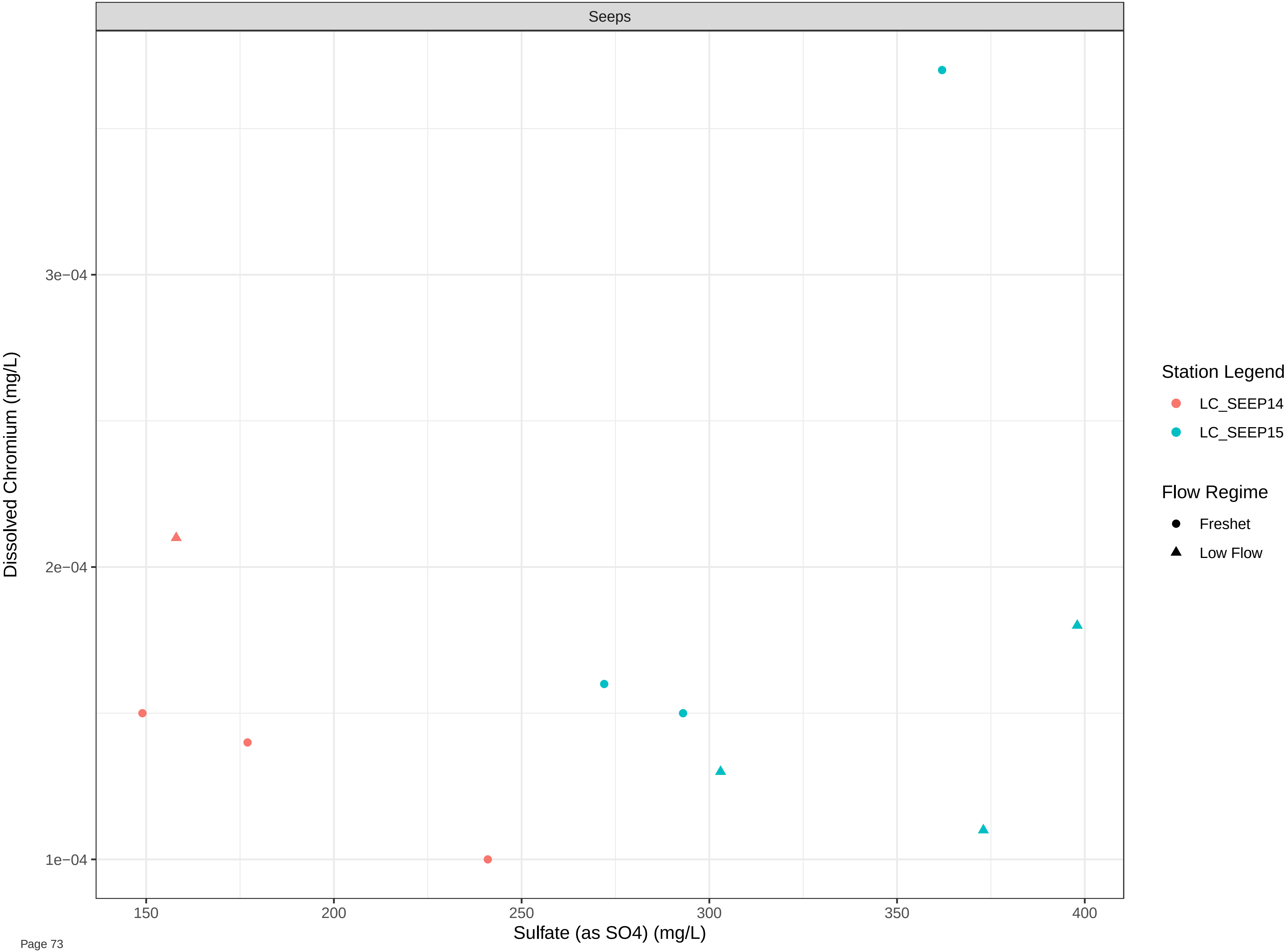

Comparison Point
Seeps
Dissolved Calcium (mg/L)
80
70
60
50
40
30
80
70
60
50
40
30
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
Freshet
Low Flow

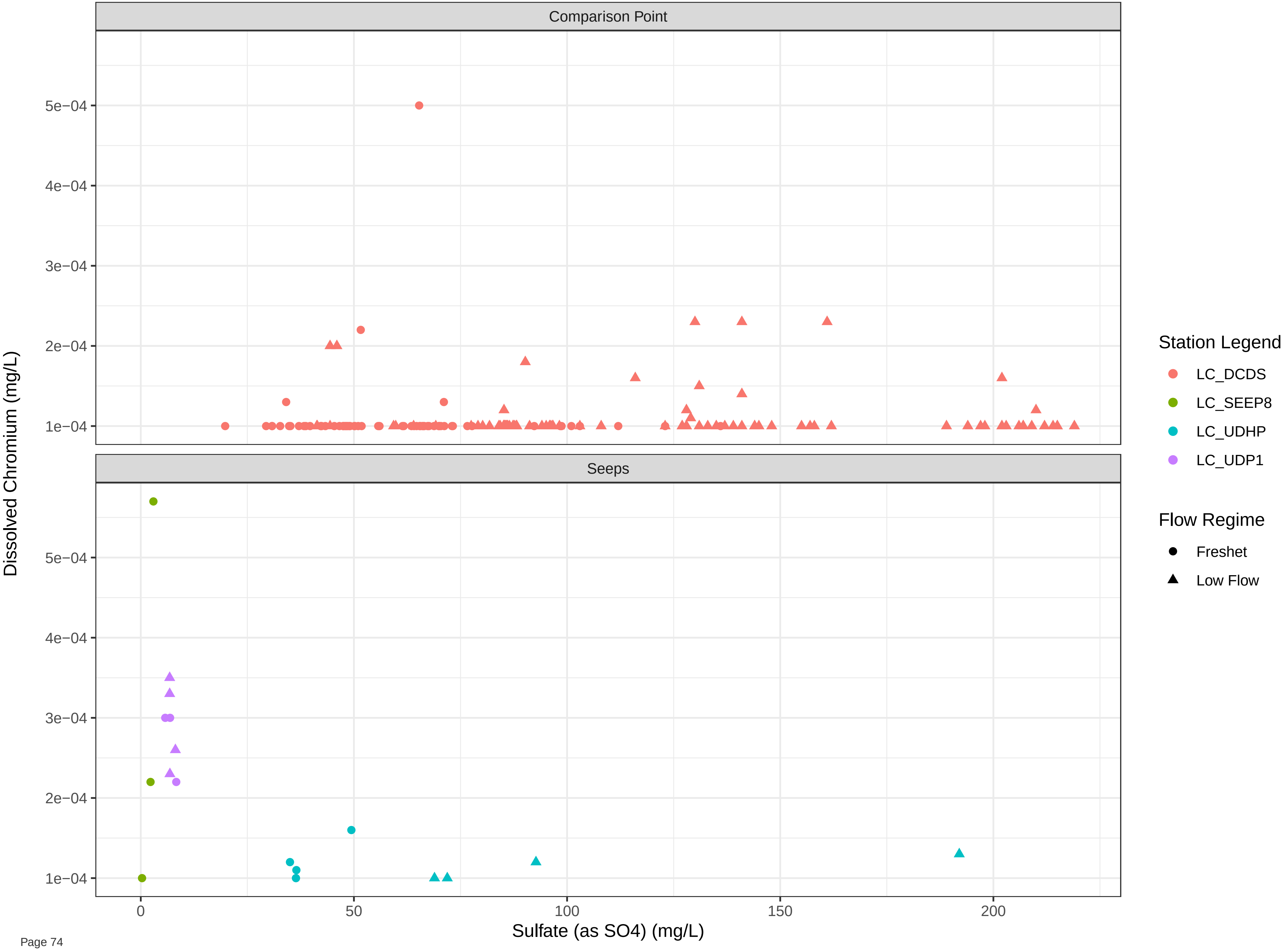

Comparison Point
Seeps
Dissolved Calcium (mg/L)
100
80
60
Sulfate (as SO4) (mg/L)
50
100
150
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

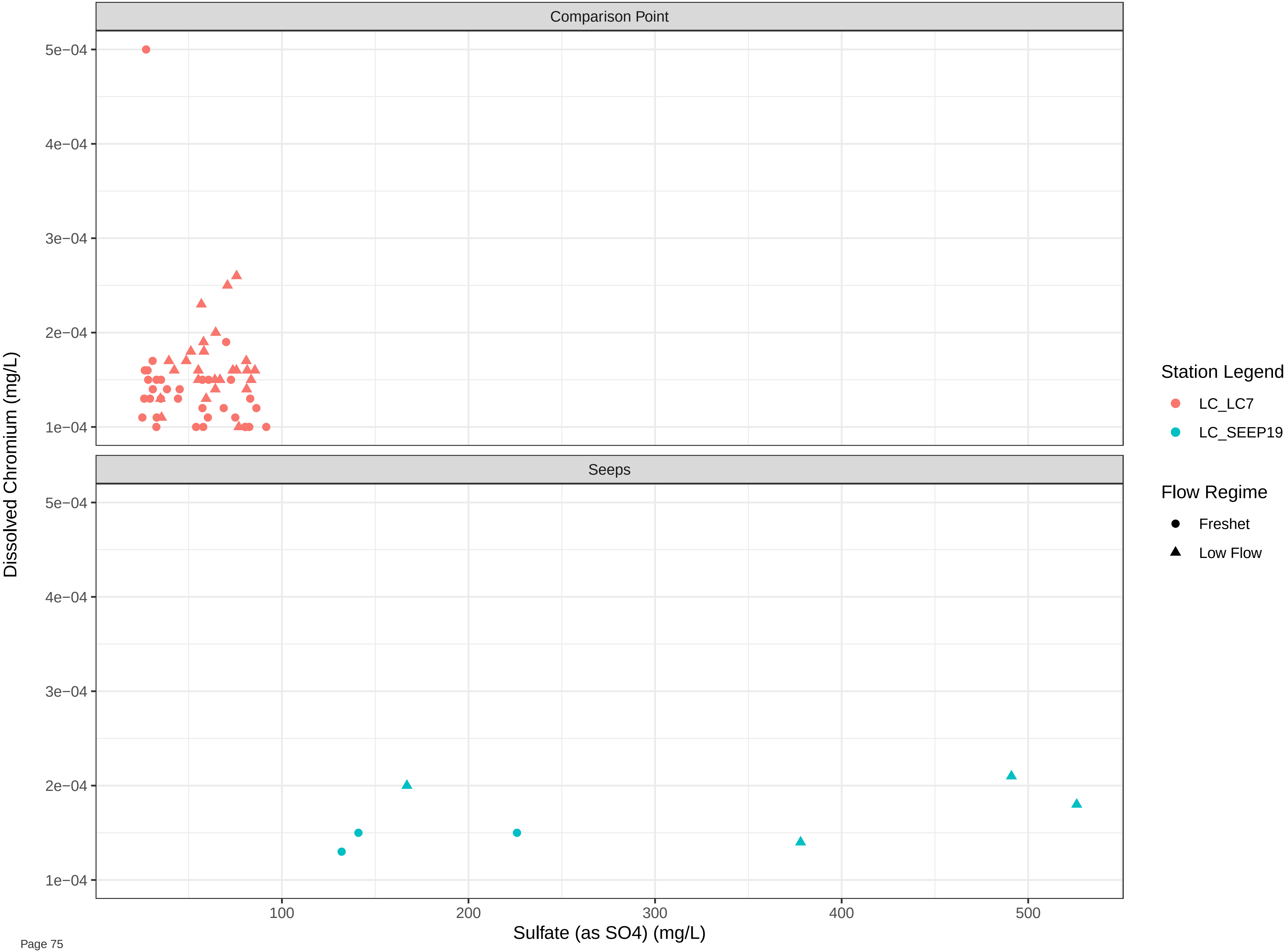

Comparison Point
Seeps
Dissolved Calcium (mg/L)
50
100
150
200
Sulfate (as SO4) (mg/L)
100
150
200
250
Station Legend
LC_LC5
LC_SEEP10
Flow Regime
Freshet
Low Flow

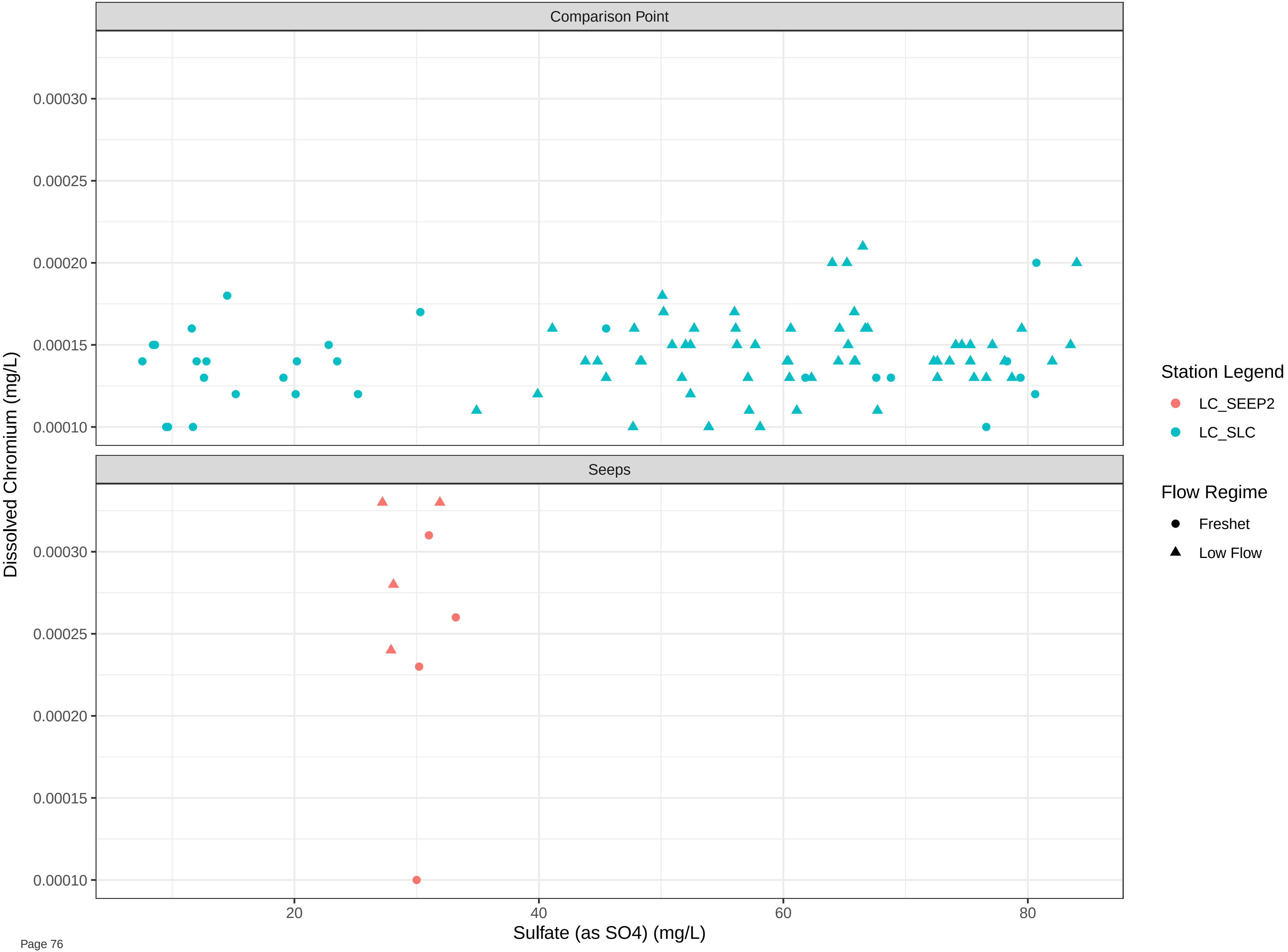

Seeps
Dissolved Calcium (mg/L)
180
160
140
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

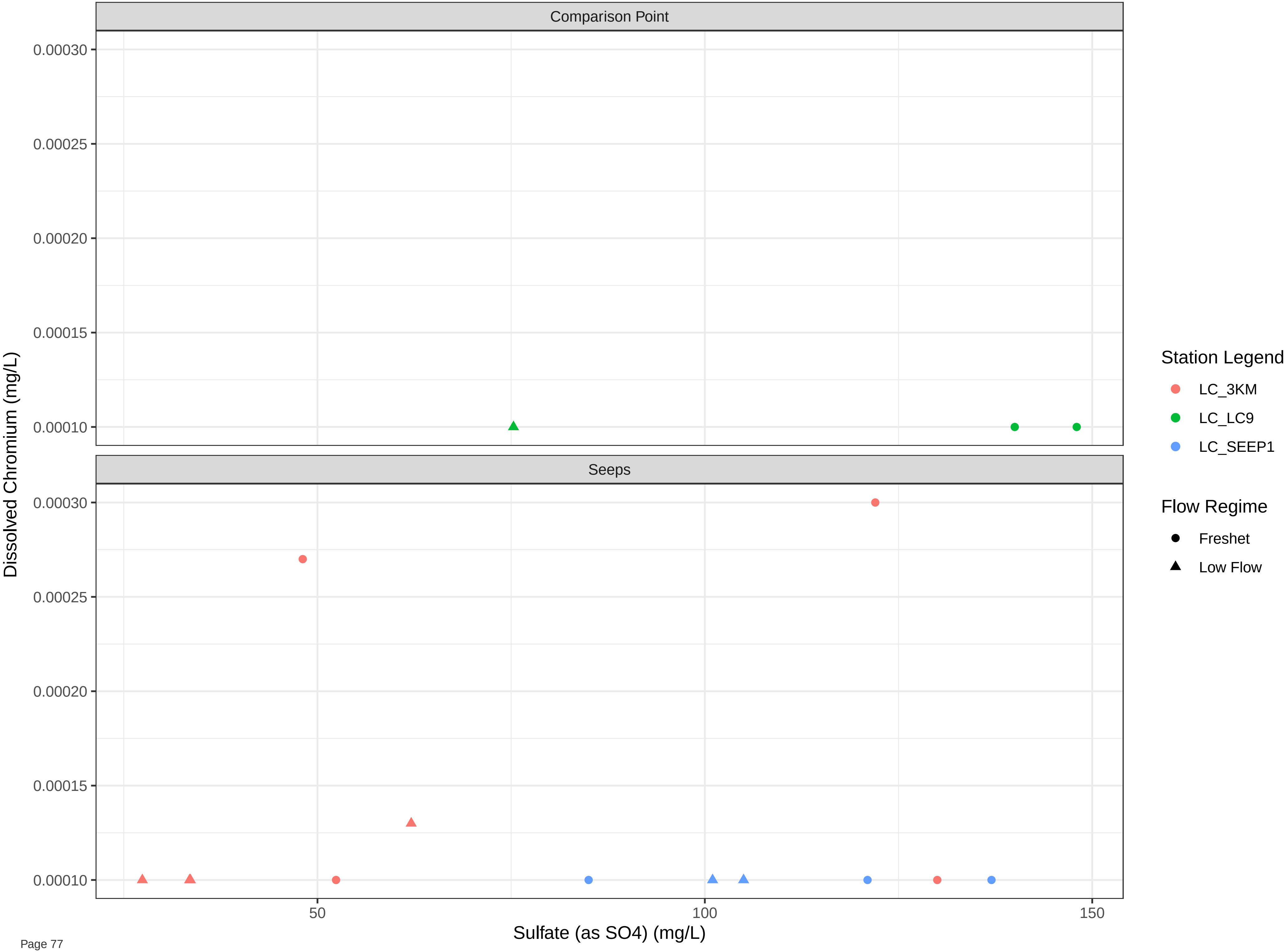

Comparison Point
Seeps
Dissolved Calcium (mg/L)
Sulfate (as SO4) (mg/L)
200
150
100
200
150
100
100
200
300
400
500
600
Station Legend
● LC_LC3
● LC_WLC_LOT2
Flow Regime
● Freshet
▲ Low Flow


Seeps
Dissolved Chromium (mg/L)
3e−04
2e−04
1e−04
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
● LC_SEEP14
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow

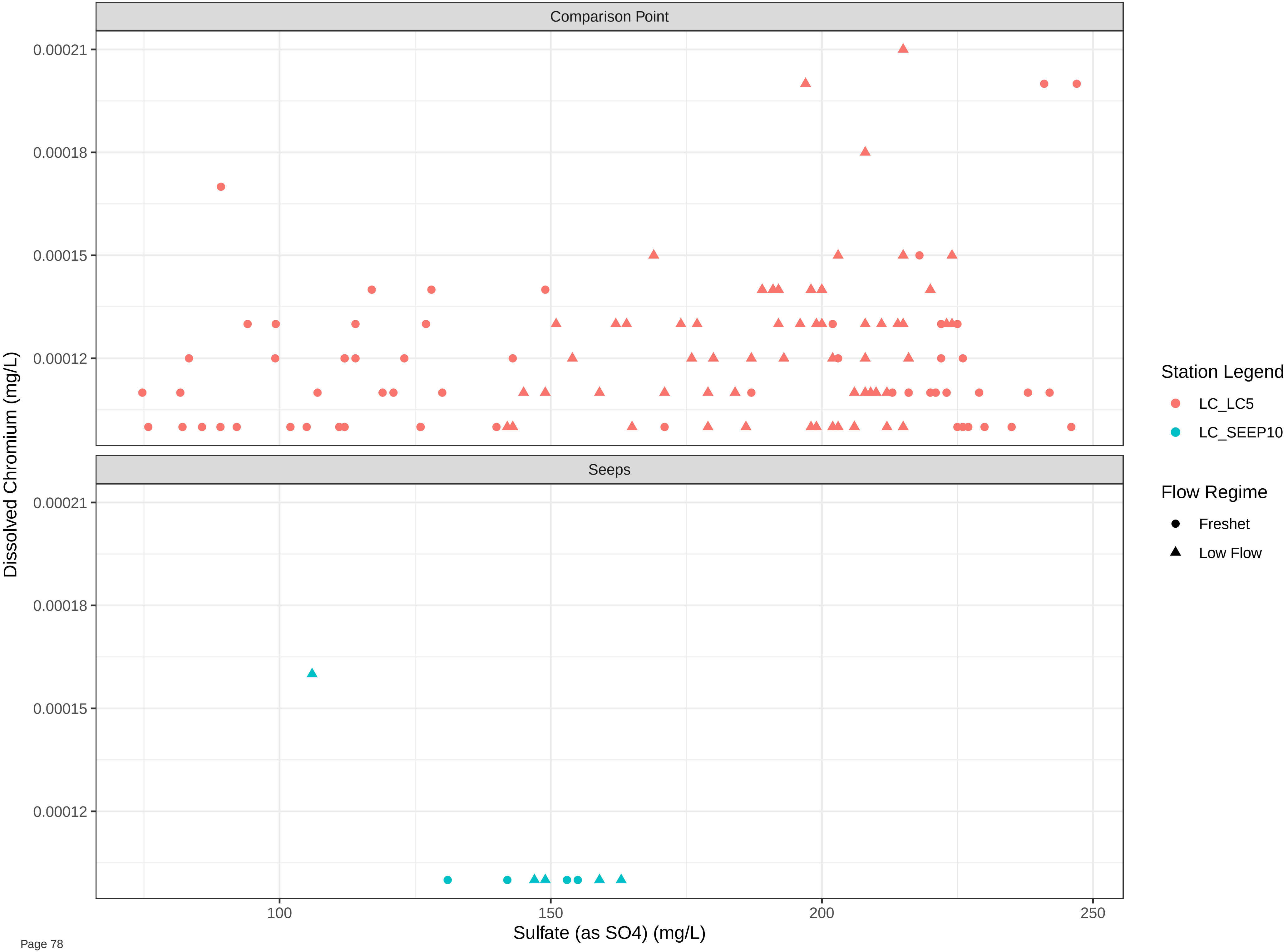

Comparison Point
Seeps
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
LC_DCDS
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

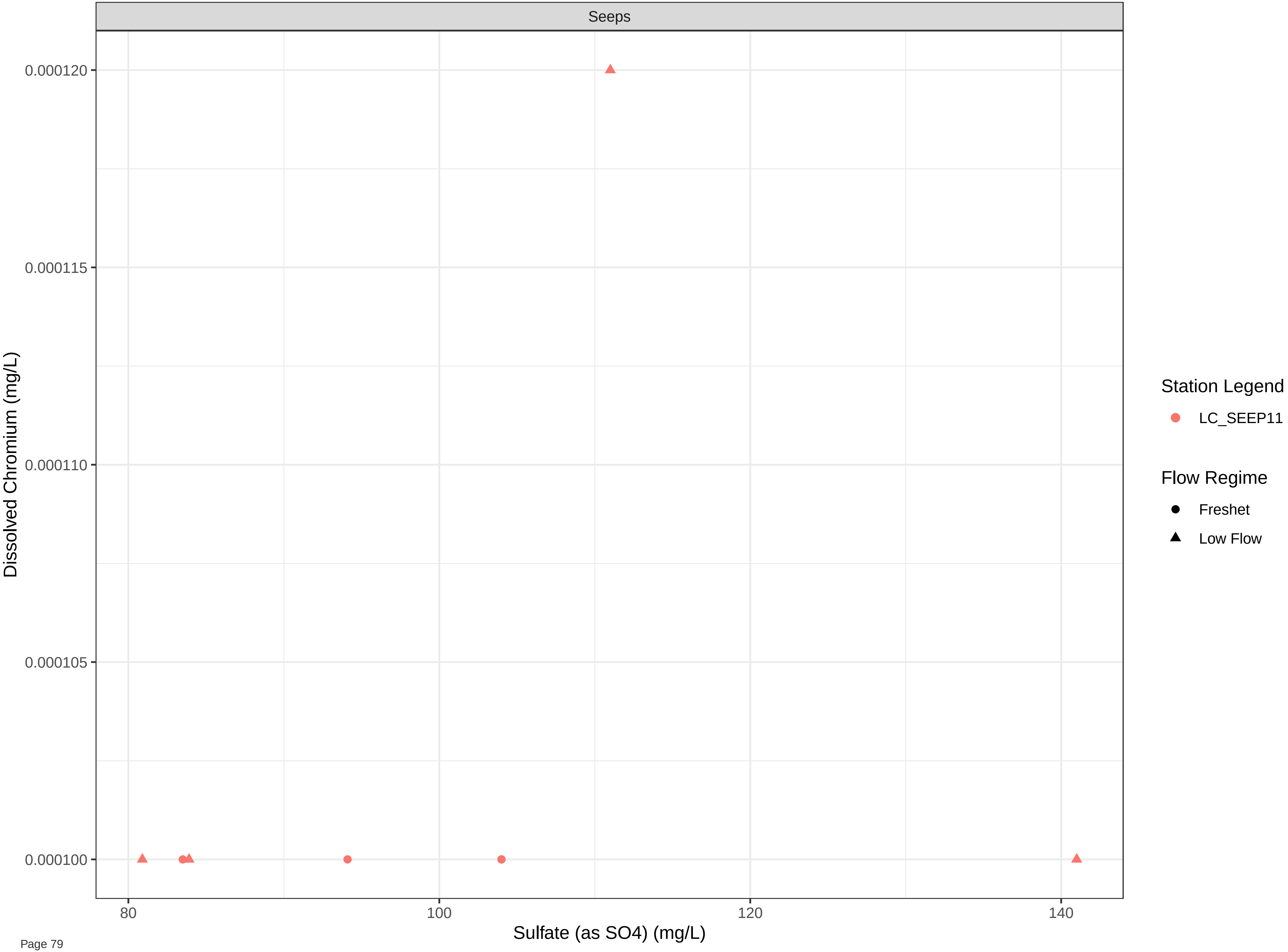

Comparison Point
Seeps
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
100
200
300
400
500
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC7
LC_SEEP19
Flow Regime
Freshet
Low Flow

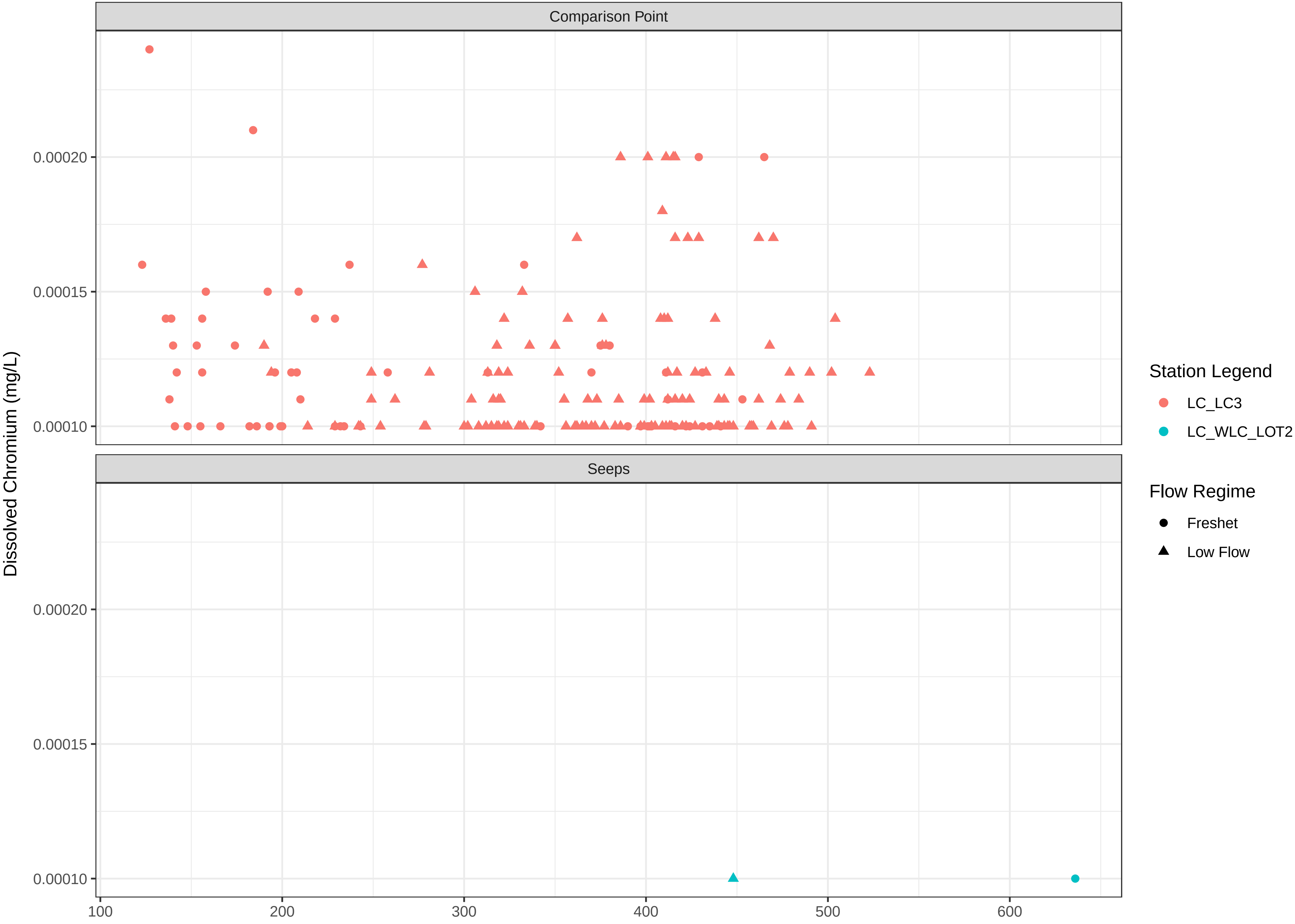

Comparison Point
Seeps
Dissolved Chromium (mg/L)
0.00030
0.00025
0.00020
0.00015
0.00010
Sulfate (as SO4) (mg/L)
20
40
60
80
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
Freshet
Low Flow

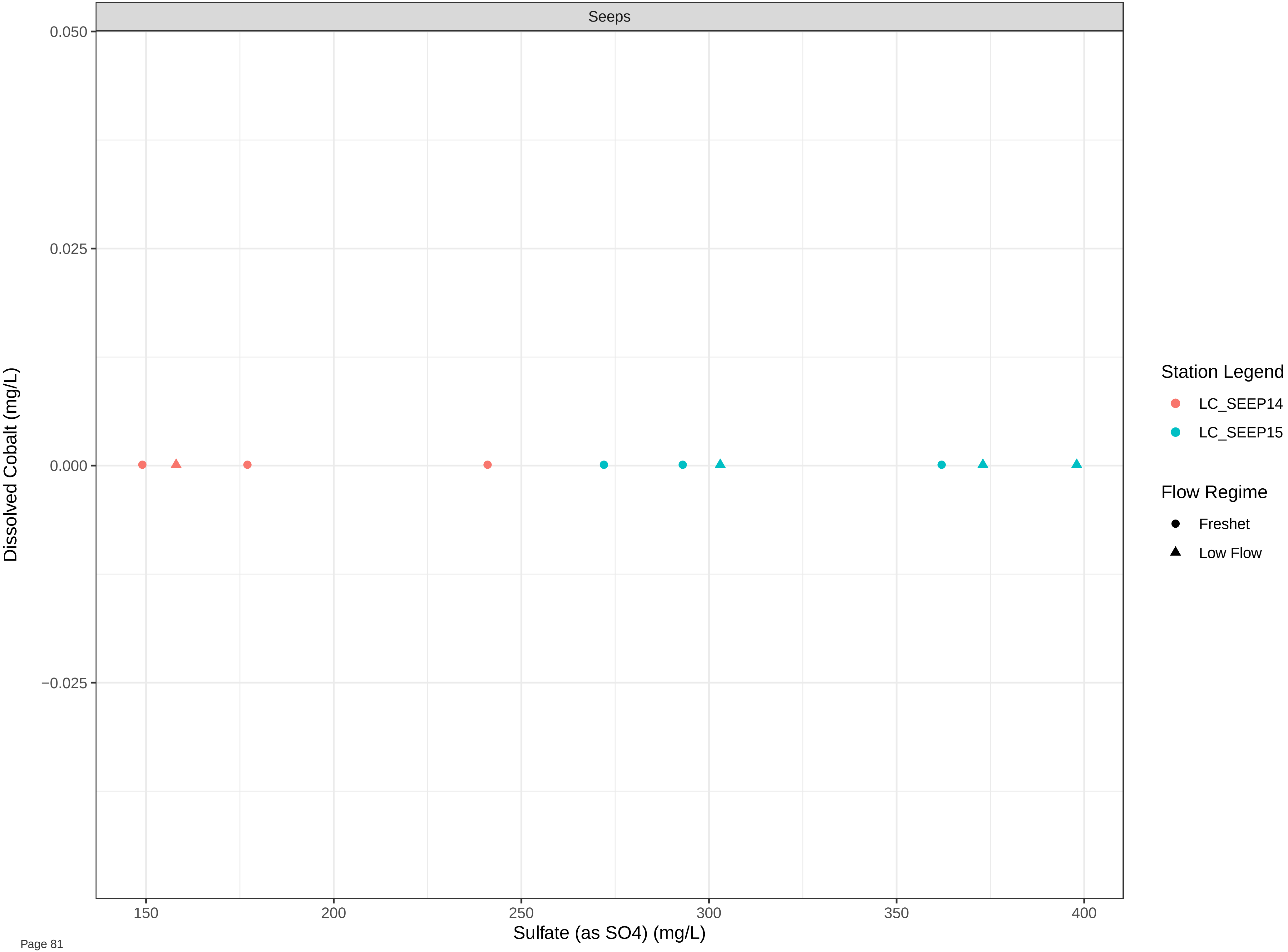


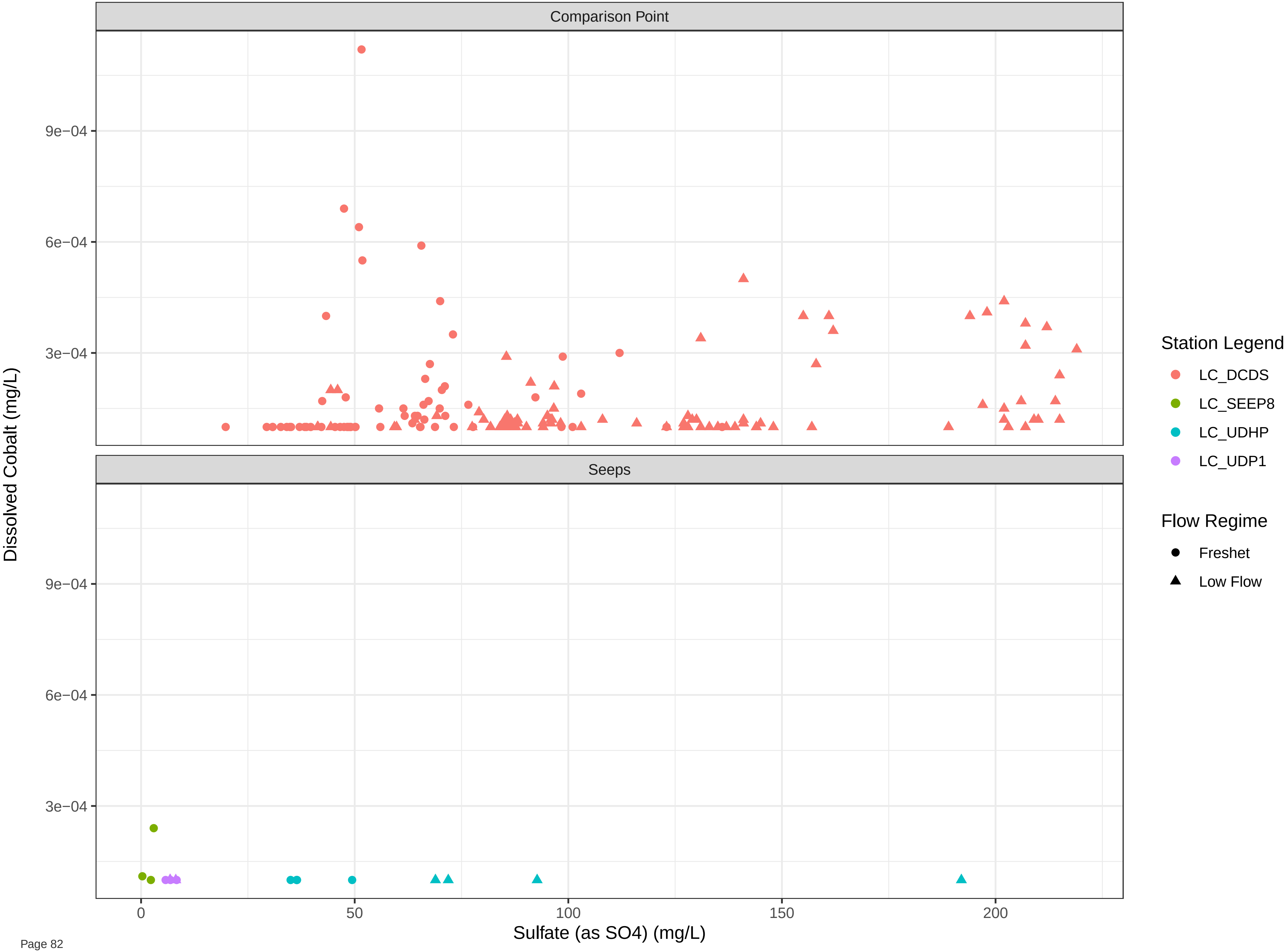
Comparison Point
Seeps
Dissolved Chromium (mg/L)
0.00030
0.00025
0.00020
0.00015
0.00010
Sulfate (as SO4) (mg/L)
50
100
150
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

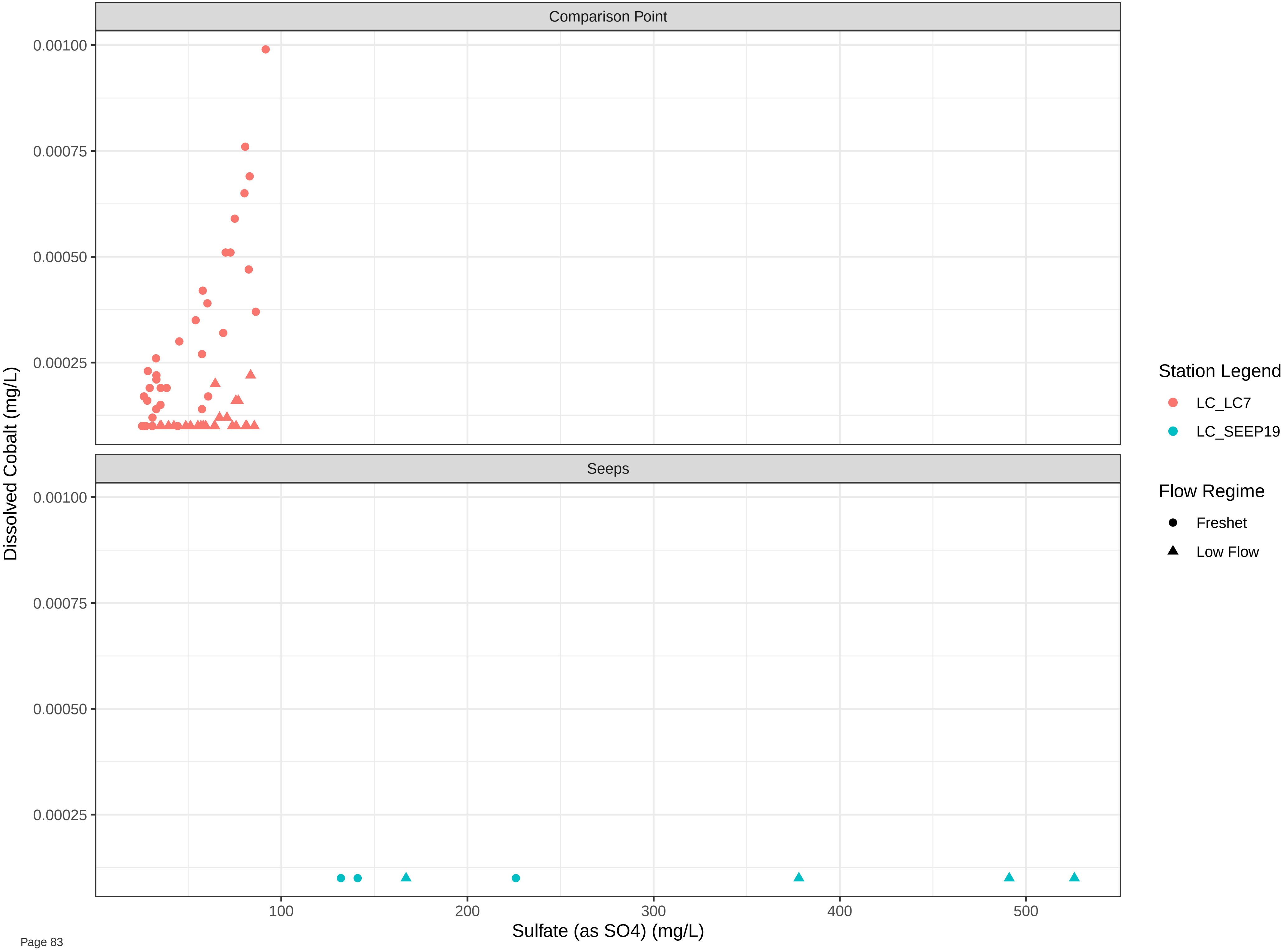

Comparison Point
Seeps
0.00021
0.00018
0.00015
0.00012
Dissolved Chromium (mg/L)
100
150
200
250
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC5
LC_SEEP10
Flow Regime
Freshet
Low Flow

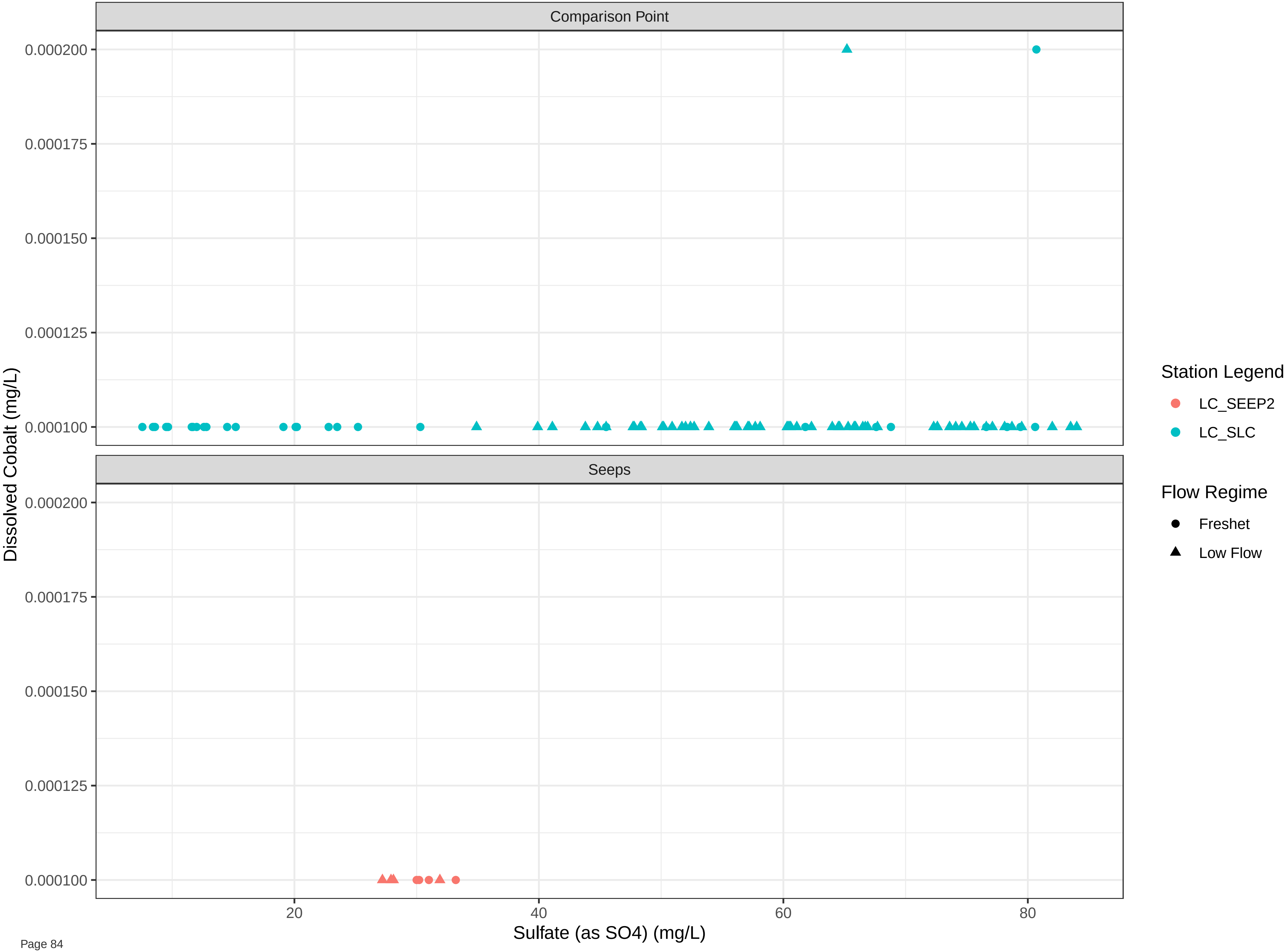

Seeps
0.000120
0.000115
0.000110
0.000105
0.000100
Dissolved Chromium (mg/L)
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

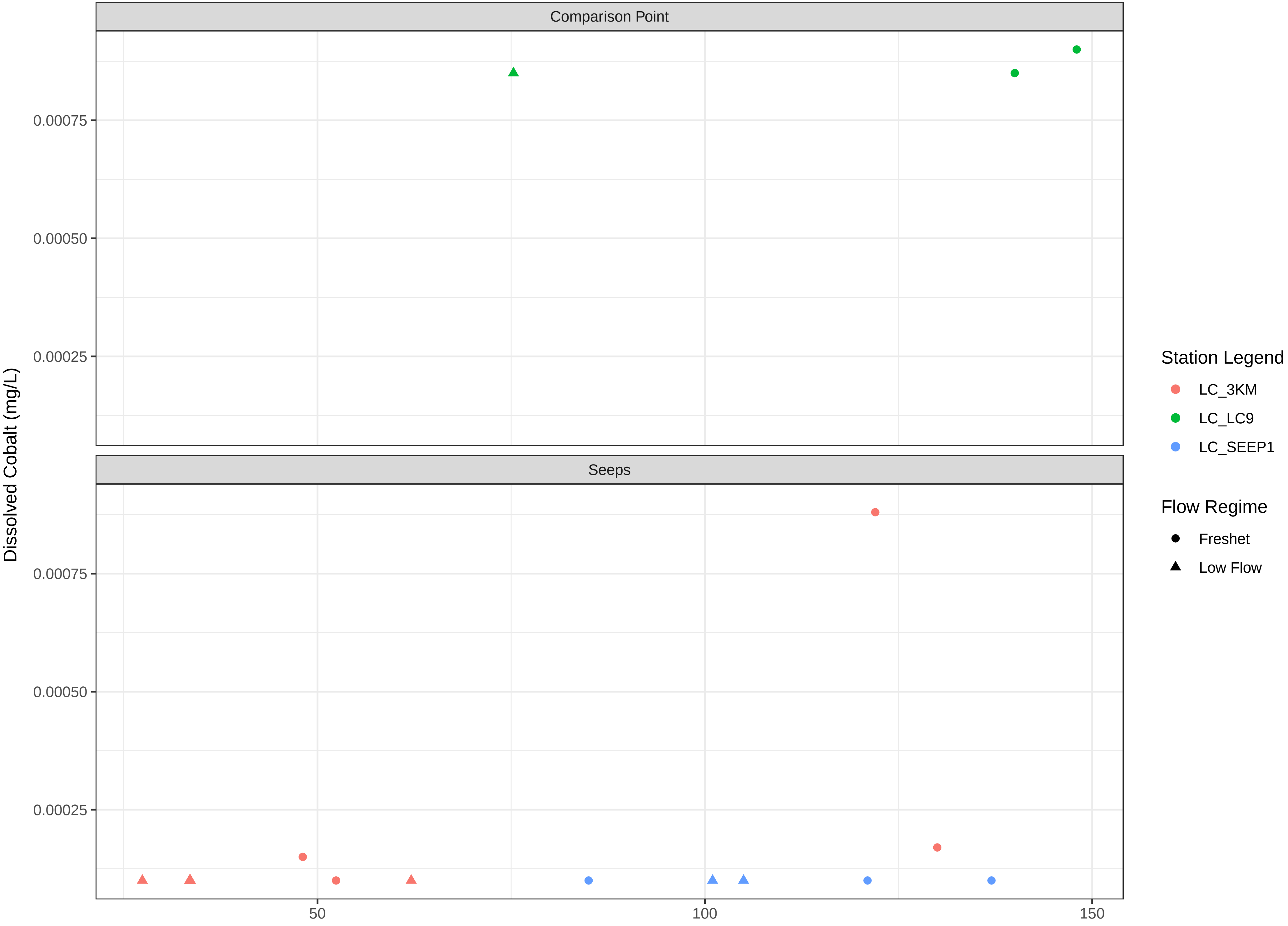

Comparison Point
Seeps
Dissolved Chromium (mg/L)
0.00020
0.00015
0.00010
0.00020
0.00015
0.00010
100
200
300
400
500
600
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC3
LC_WLC_LOT2
Flow Regime
Freshet
Low Flow

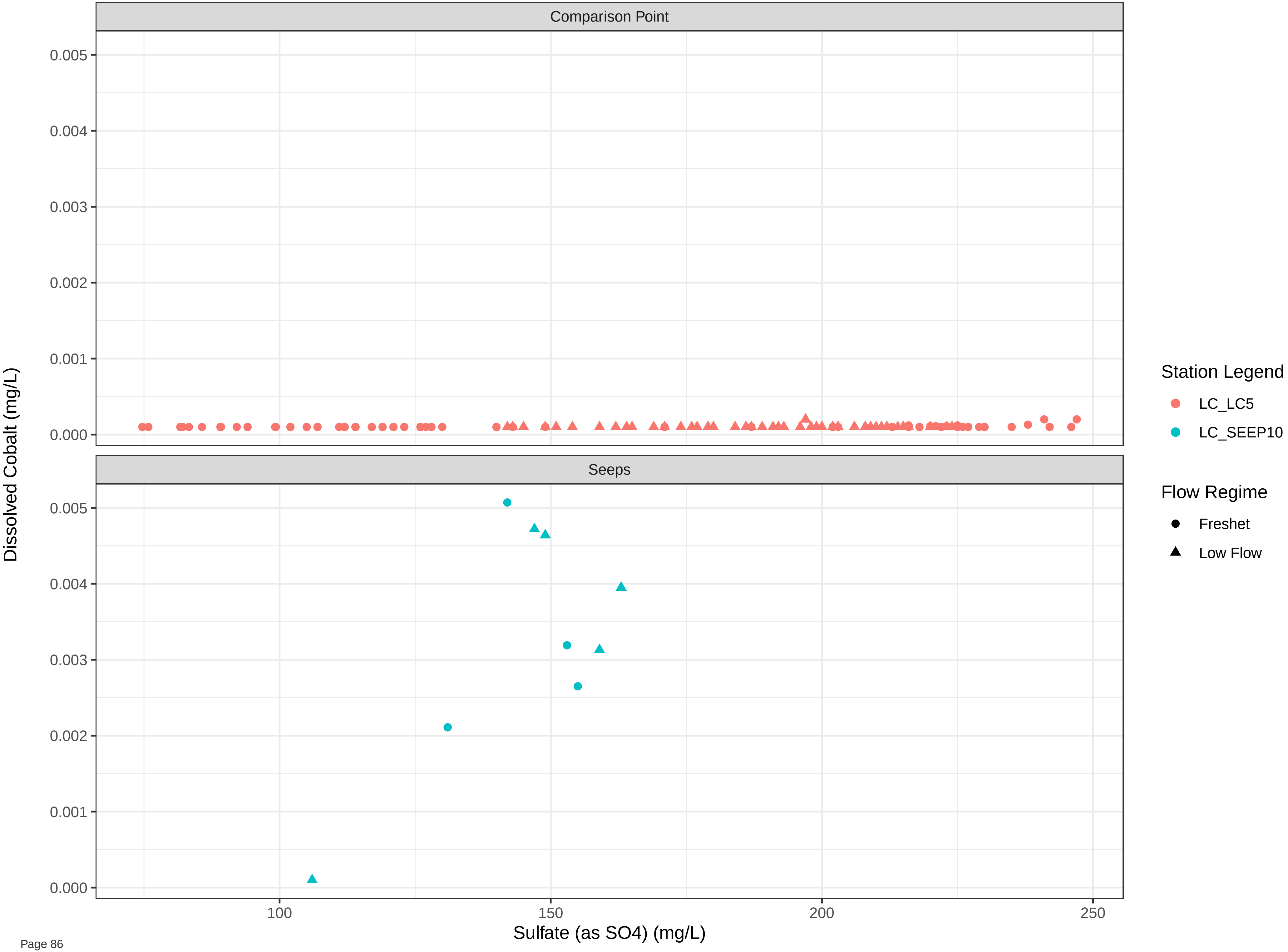

Seeps
0.050
0.025
0.000
−0.025
Dissolved Cobalt (mg/L)
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP14
LC_SEEP15
Flow Regime
Freshet
Low Flow

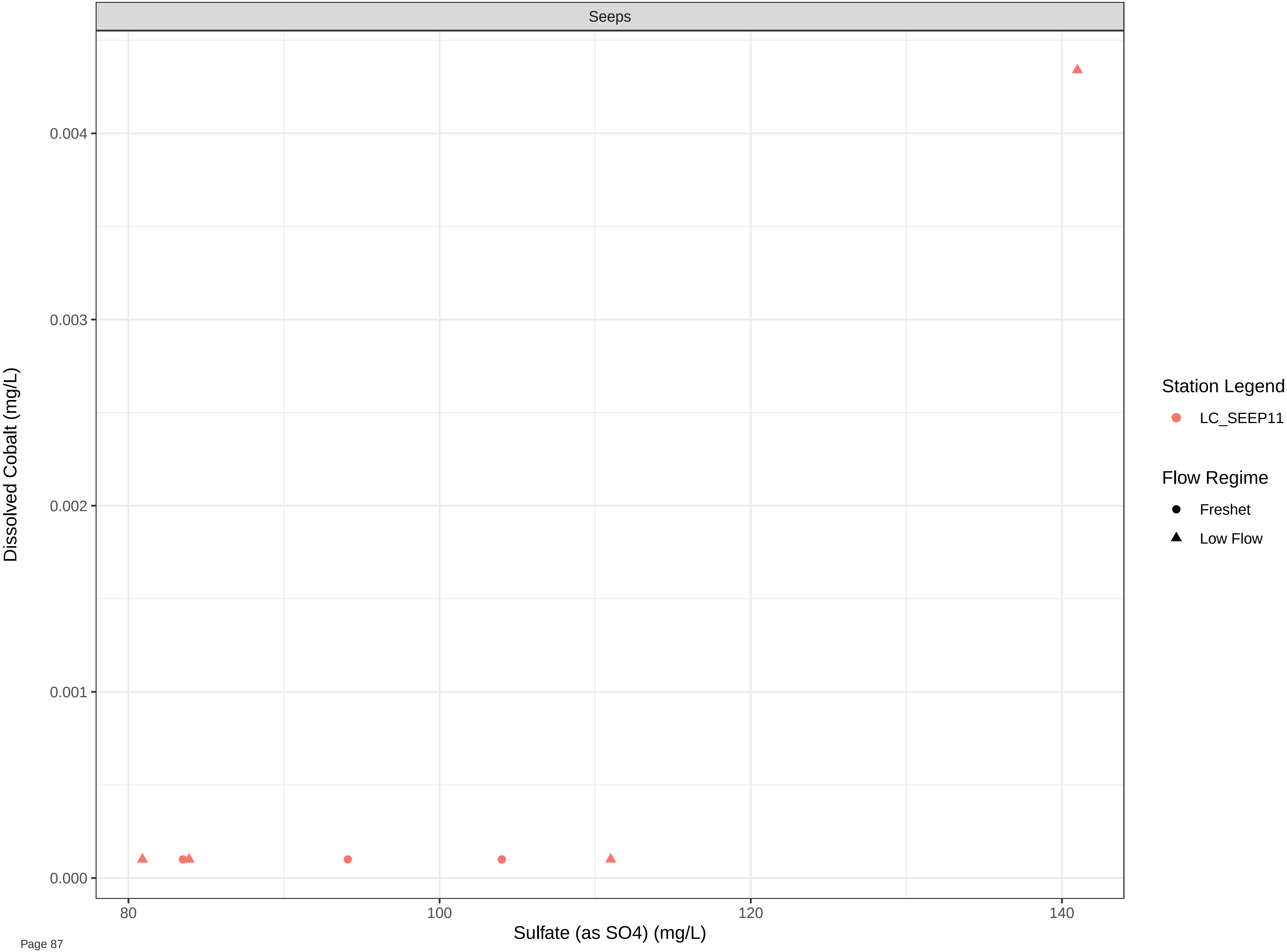

Comparison Point
Seeps
Dissolved Cobalt (mg/L)
9e−04
6e−04
3e−04
9e−04
6e−04
3e−04
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
● LC_DCDS
● LC_SEEP8
● LC_UDHP
● LC_UDP1
Flow Regime
● Freshet
▲ Low Flow

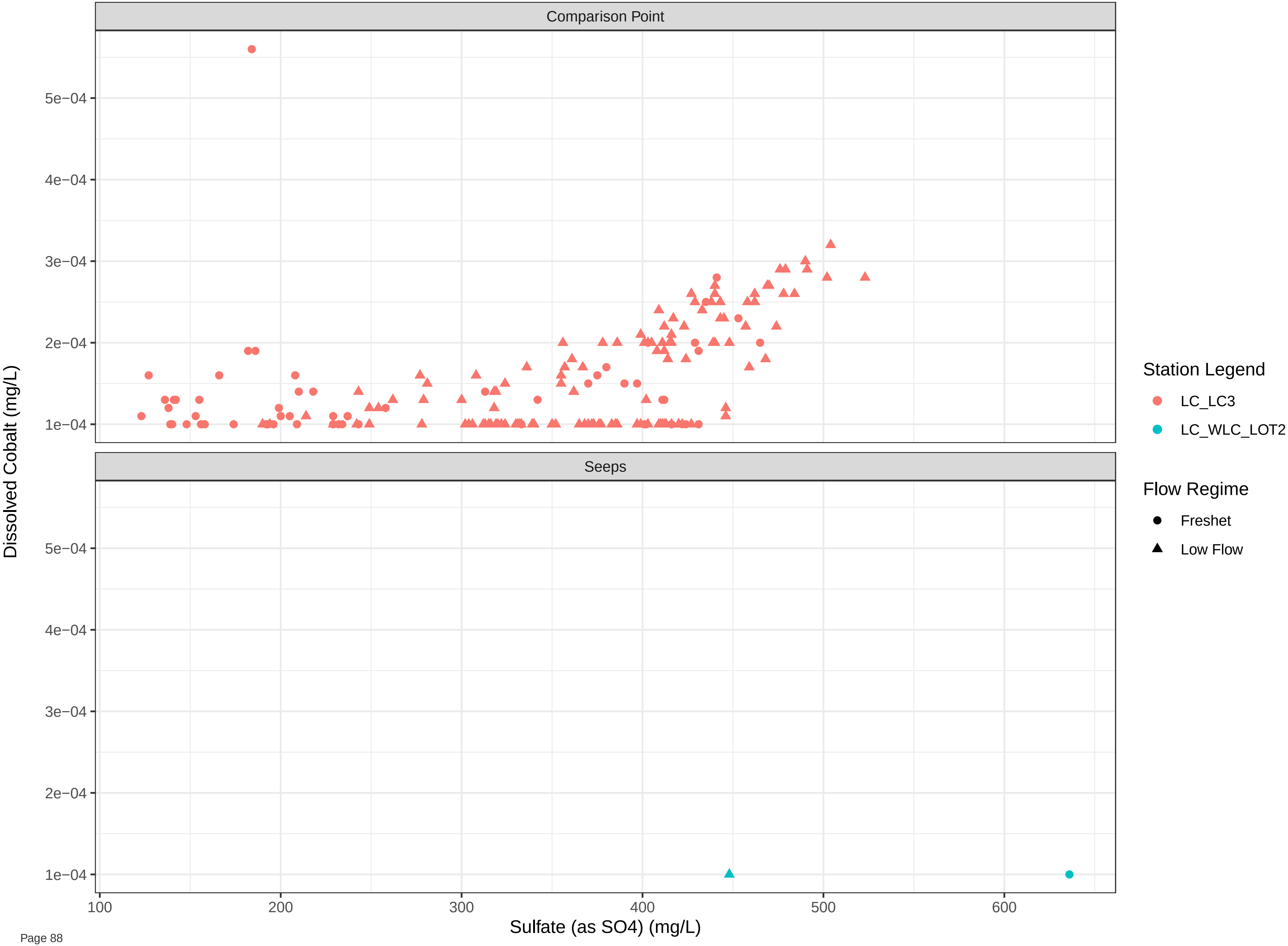

Comparison Point
Seeps
Dissolved Cobalt (mg/L)
0.00100
0.00075
0.00050
0.00025
100
200
300
400
500
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC7
LC_SEEP19
Flow Regime
Freshet
Low Flow

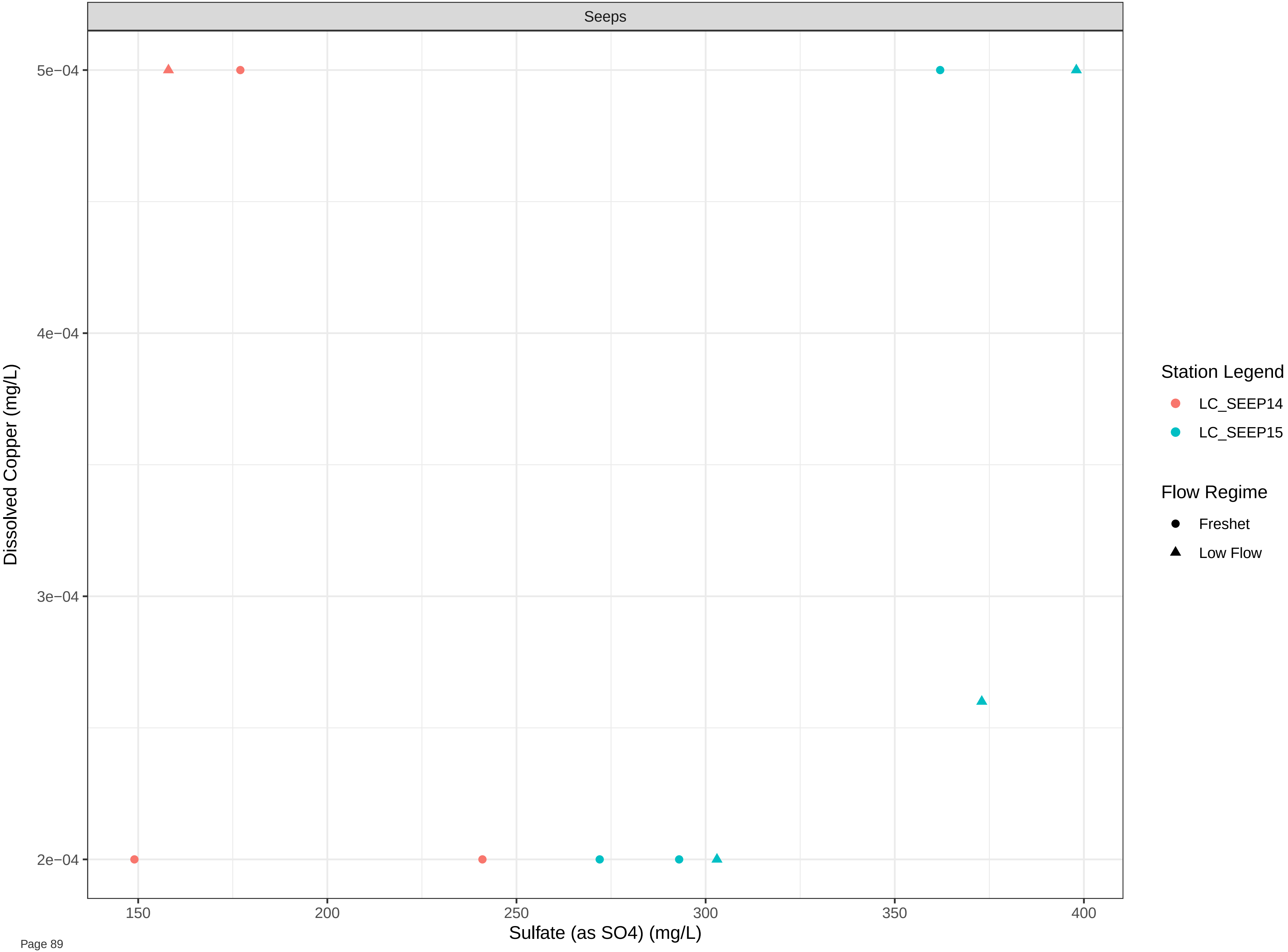

Comparison Point
Seeps
Dissolved Cobalt (mg/L)
0.000200
0.000175
0.000150
0.000125
0.000100
Sulfate (as SO4) (mg/L)
20
40
60
80
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
Freshet
Low Flow

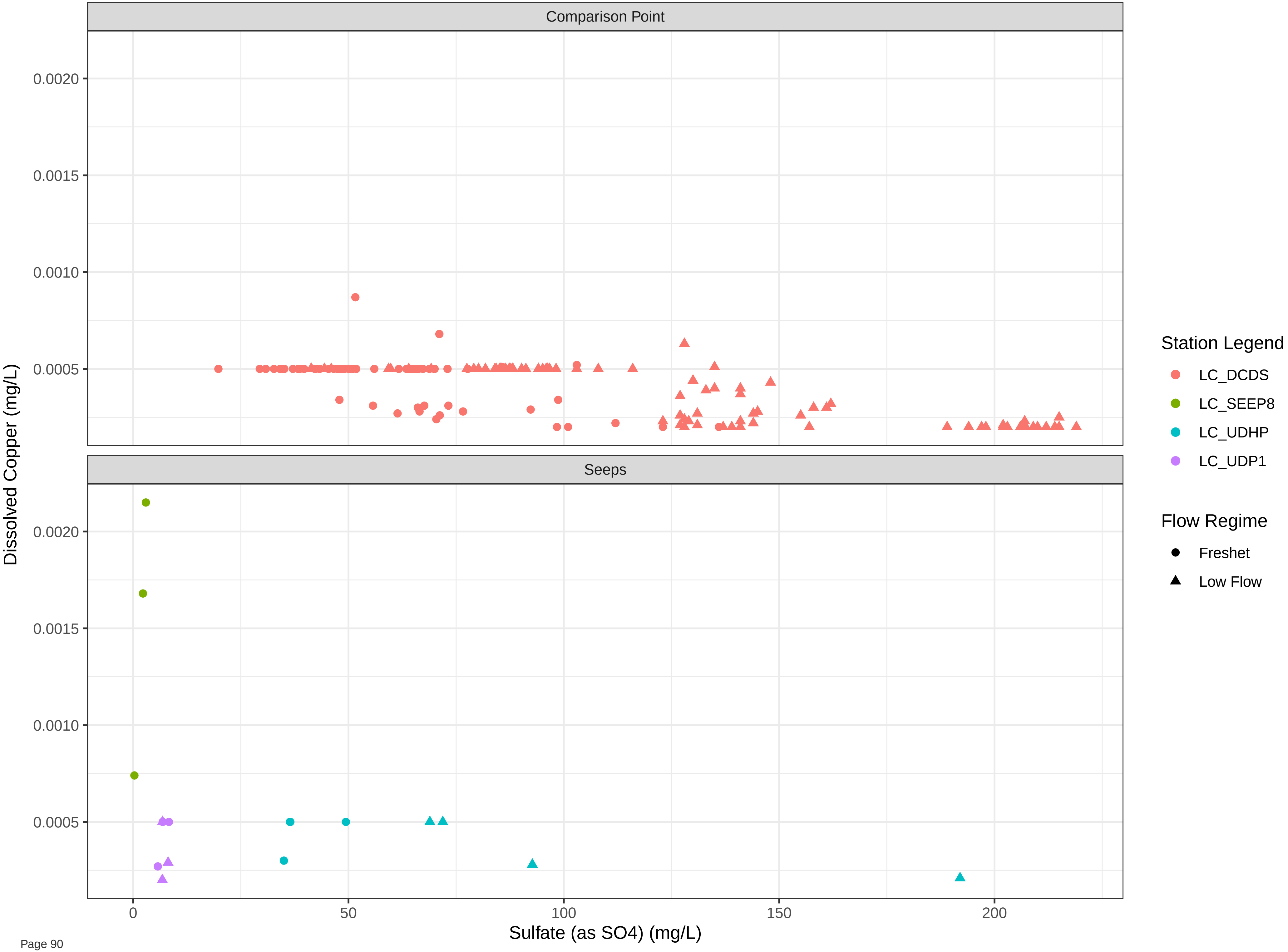

Comparison Point
Seeps
Dissolved Cobalt (mg/L)
0.00075
0.00050
0.00025
0.00075
0.00050
0.00025
50
100
150
Sulfate (as SO4) (mg/L)
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

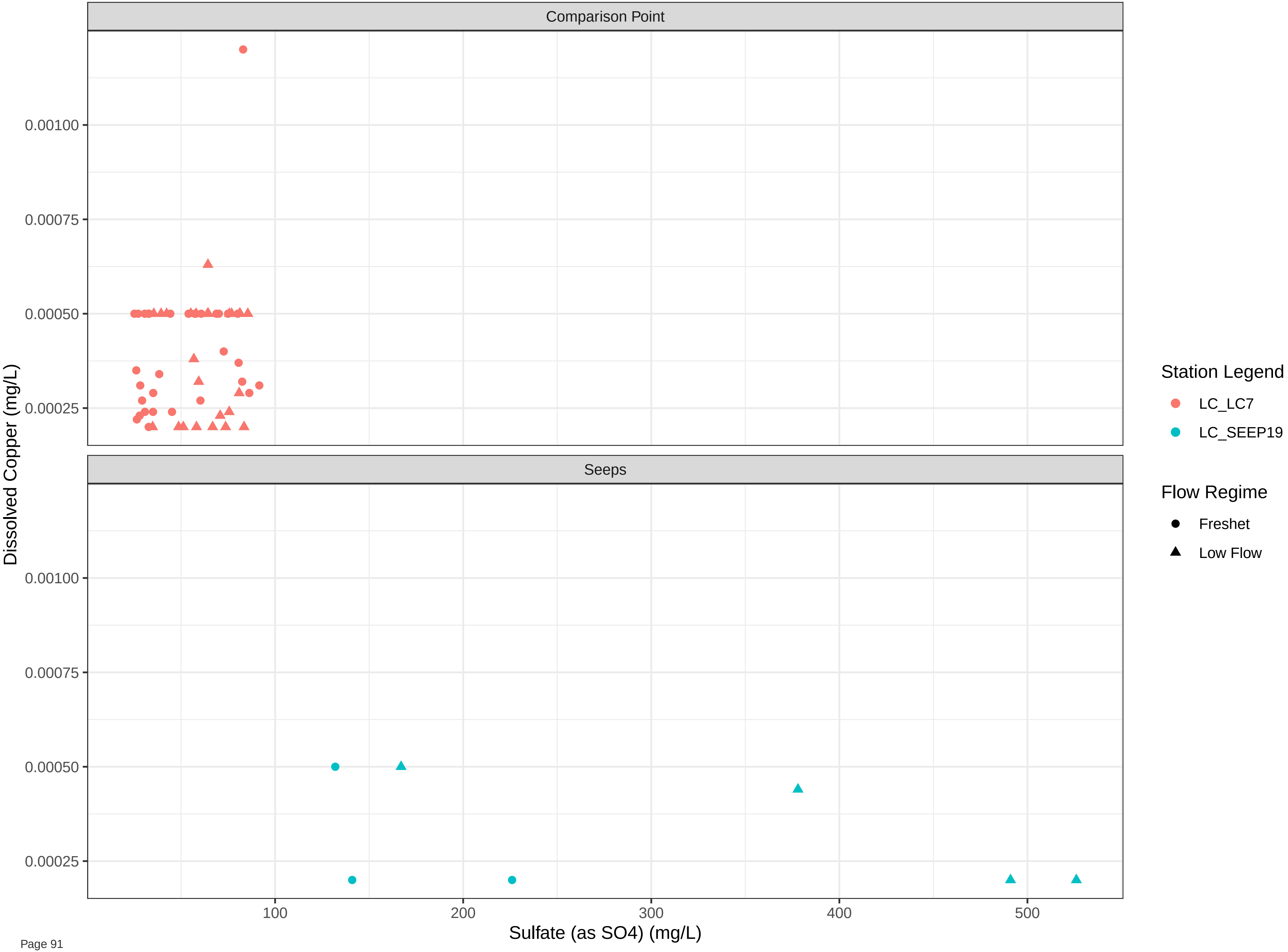

Comparison Point
Seeps
Dissolved Cobalt (mg/L)
0.005
0.004
0.003
0.002
0.001
0.000
100
150
200
250
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC5
LC_SEEP10
Flow Regime
Freshet
Low Flow

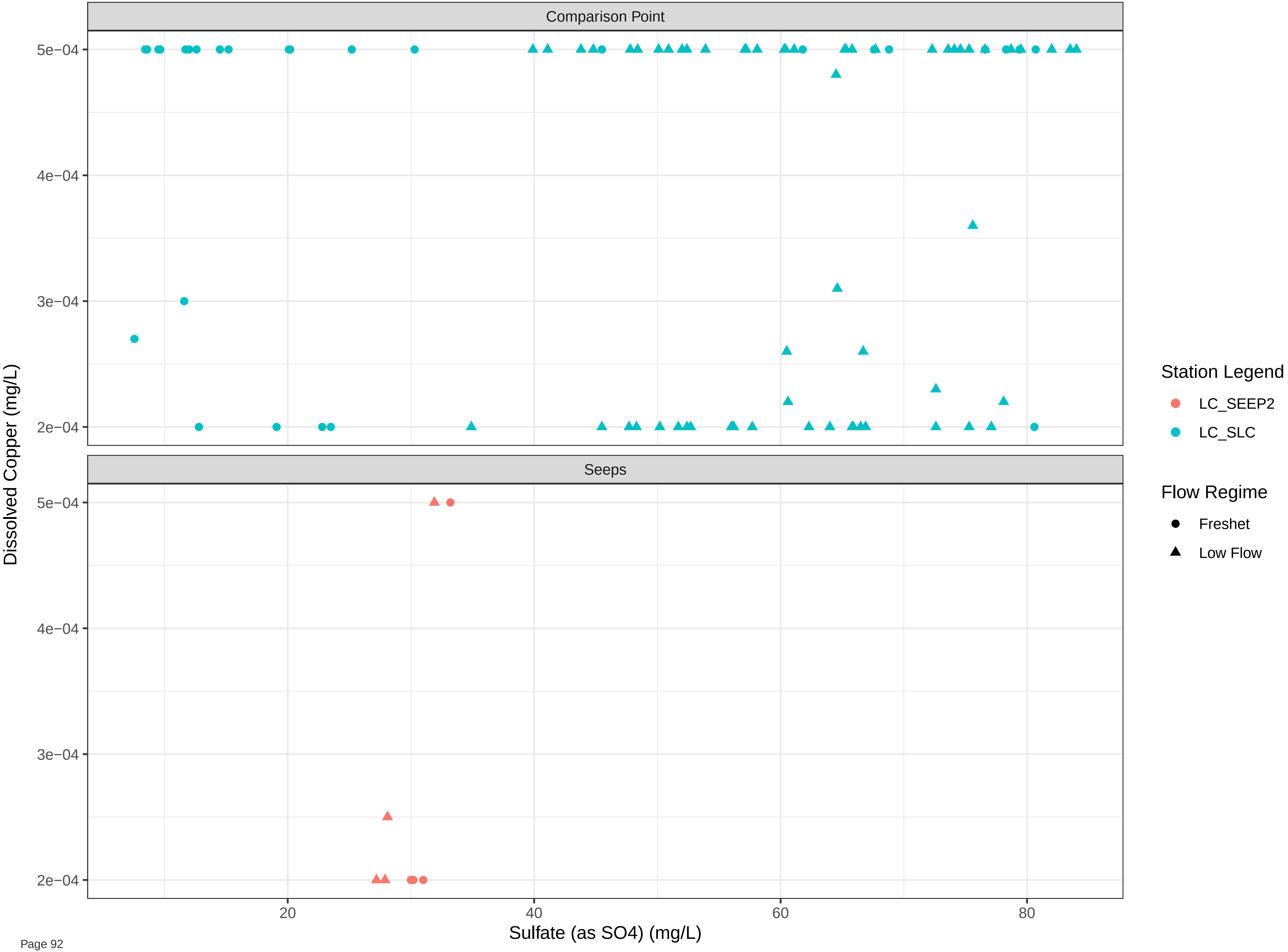

Seeps
0.004
0.003
0.002
0.001
0.000
Dissolved Cobalt (mg/L)
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP11
Flow Regime
Freshet
Low Flow

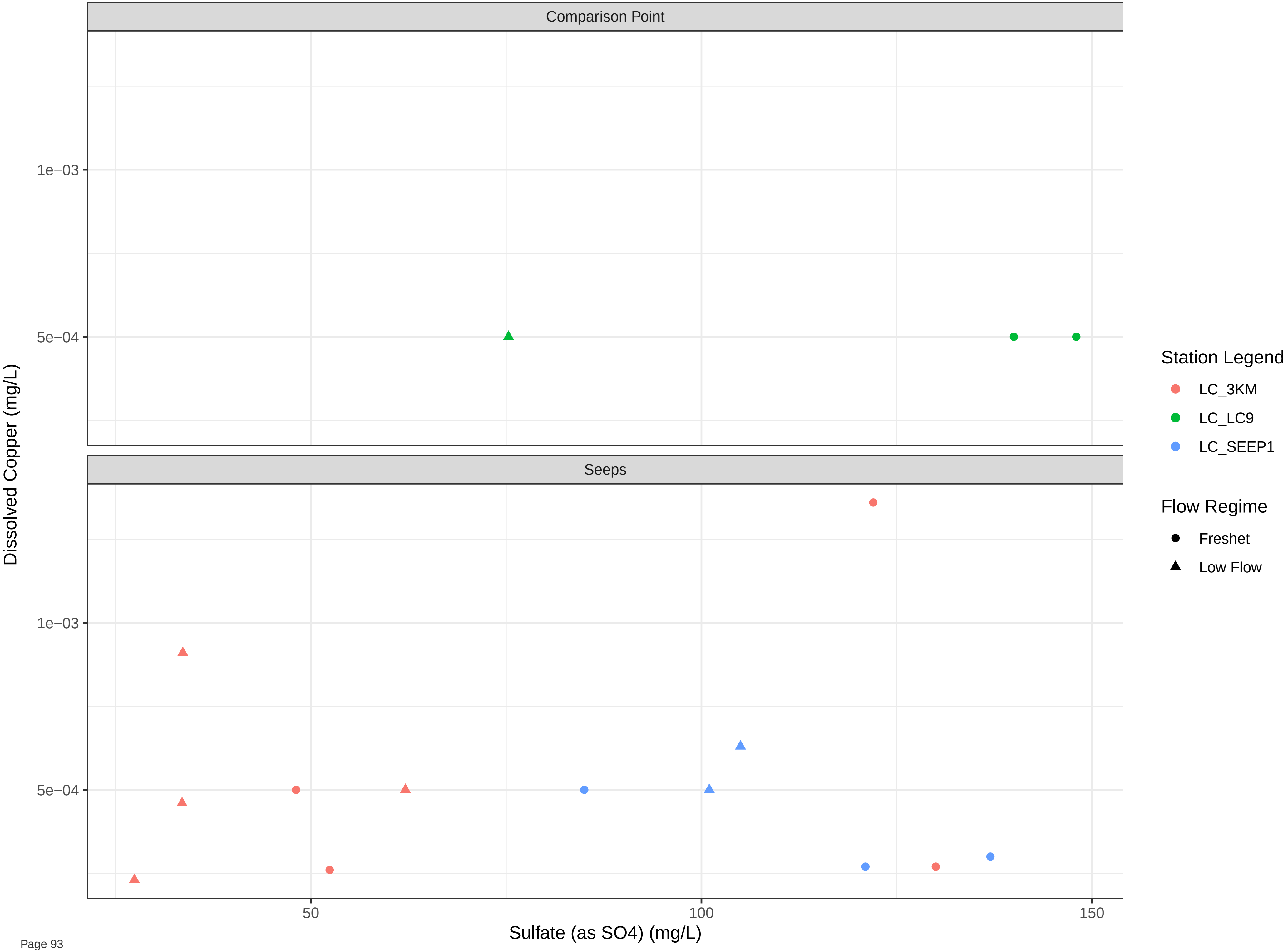

Comparison Point
Seeps
Dissolved Cobalt (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
Sulfate (as SO4) (mg/L)
100
200
300
400
500
600
Station Legend
LC_LC3
LC_WLC_LOT2
Flow Regime
Freshet
Low Flow

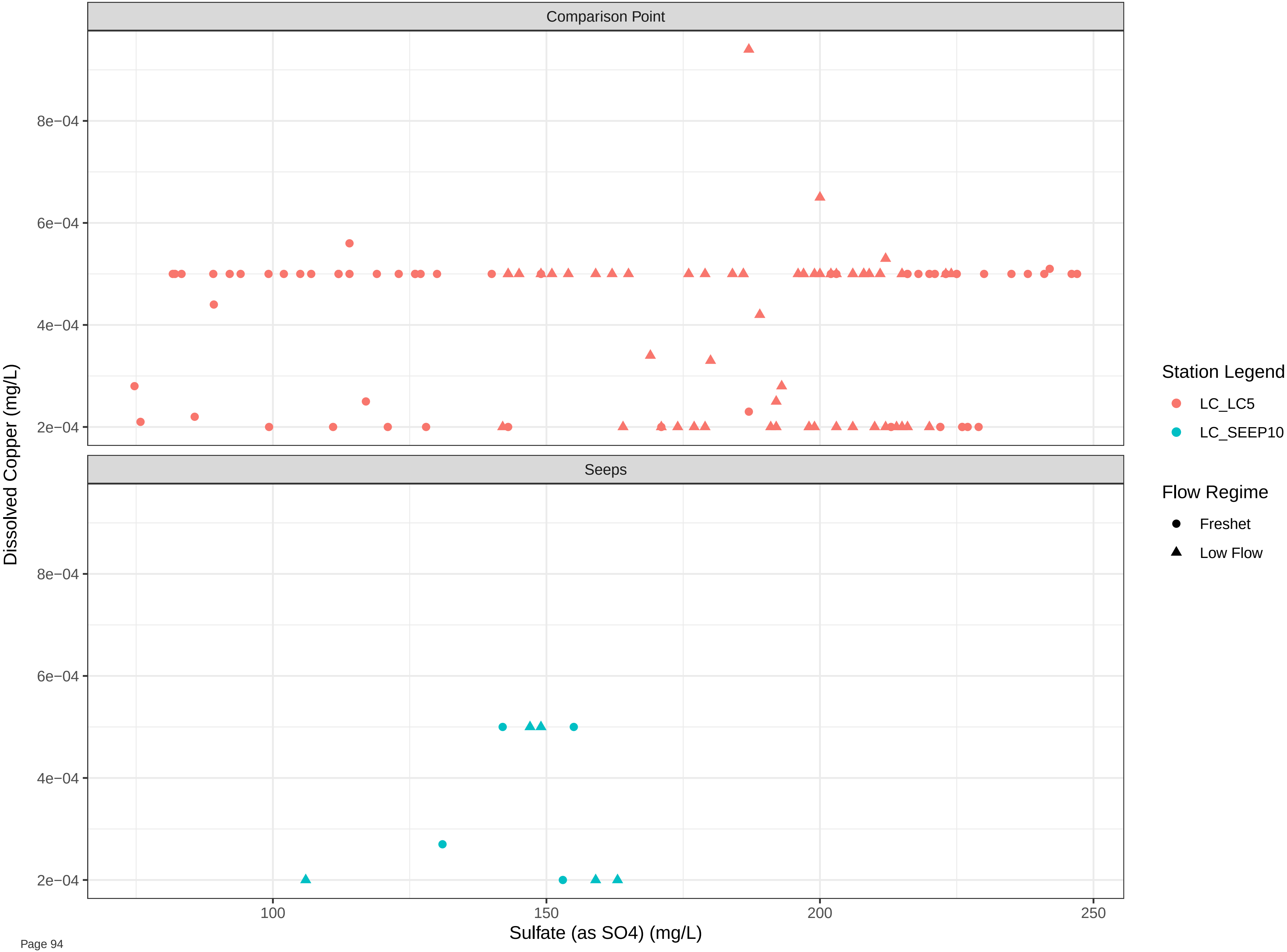

Seeps
Dissolved Copper (mg/L)
5e−04
4e−04
3e−04
2e−04
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP14
LC_SEEP15
Flow Regime
Freshet
Low Flow

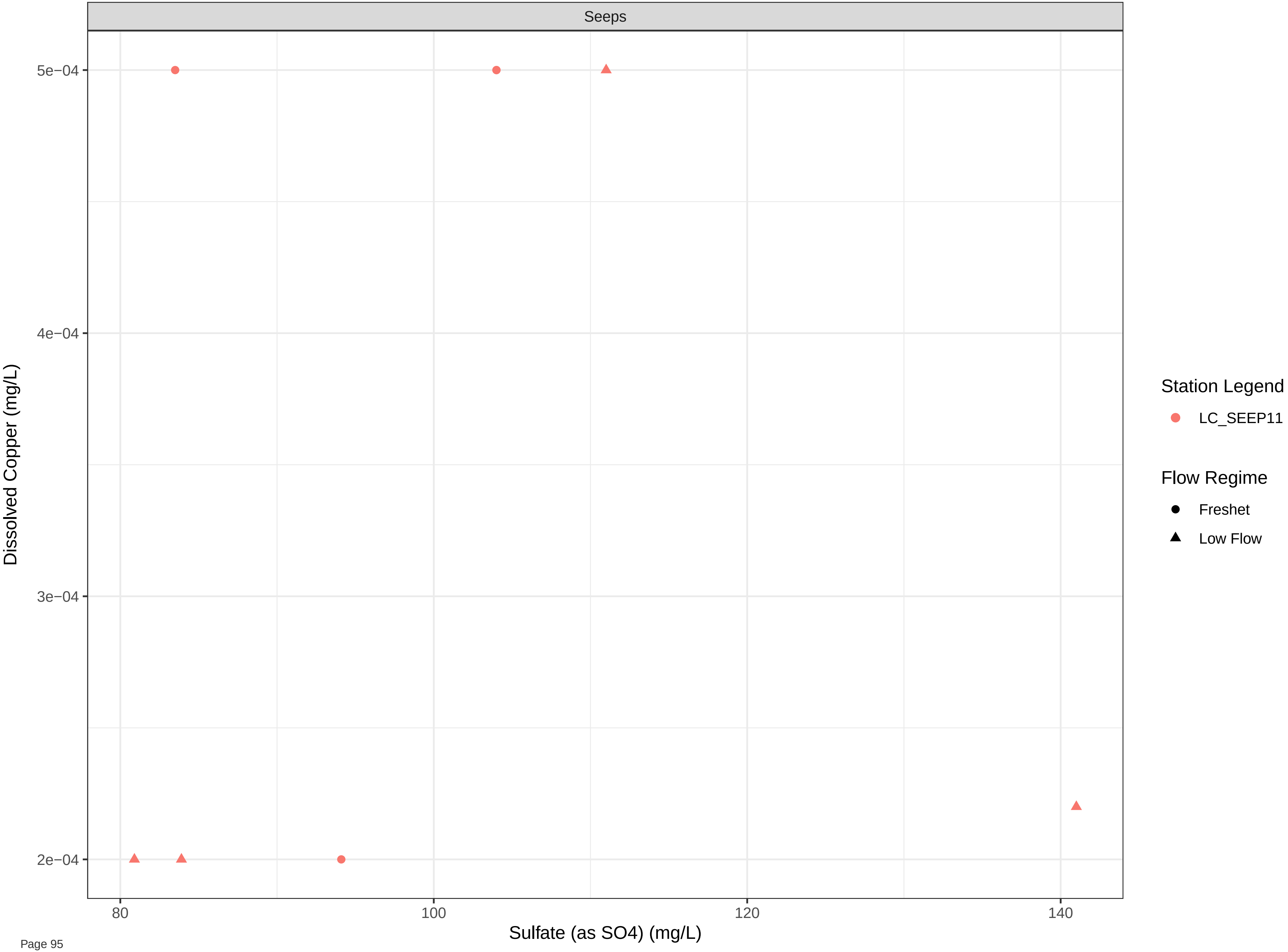

Comparison Point
Seeps
Dissolved Copper (mg/L)
0.0020
0.0015
0.0010
0.0005
Sulfate (as SO4) (mg/L)
0
50
100
150
200
Station Legend
● LC_DCDS
● LC_SEEP8
● LC_UDHP
● LC_UDP1
Flow Regime
● Freshet
▲ Low Flow

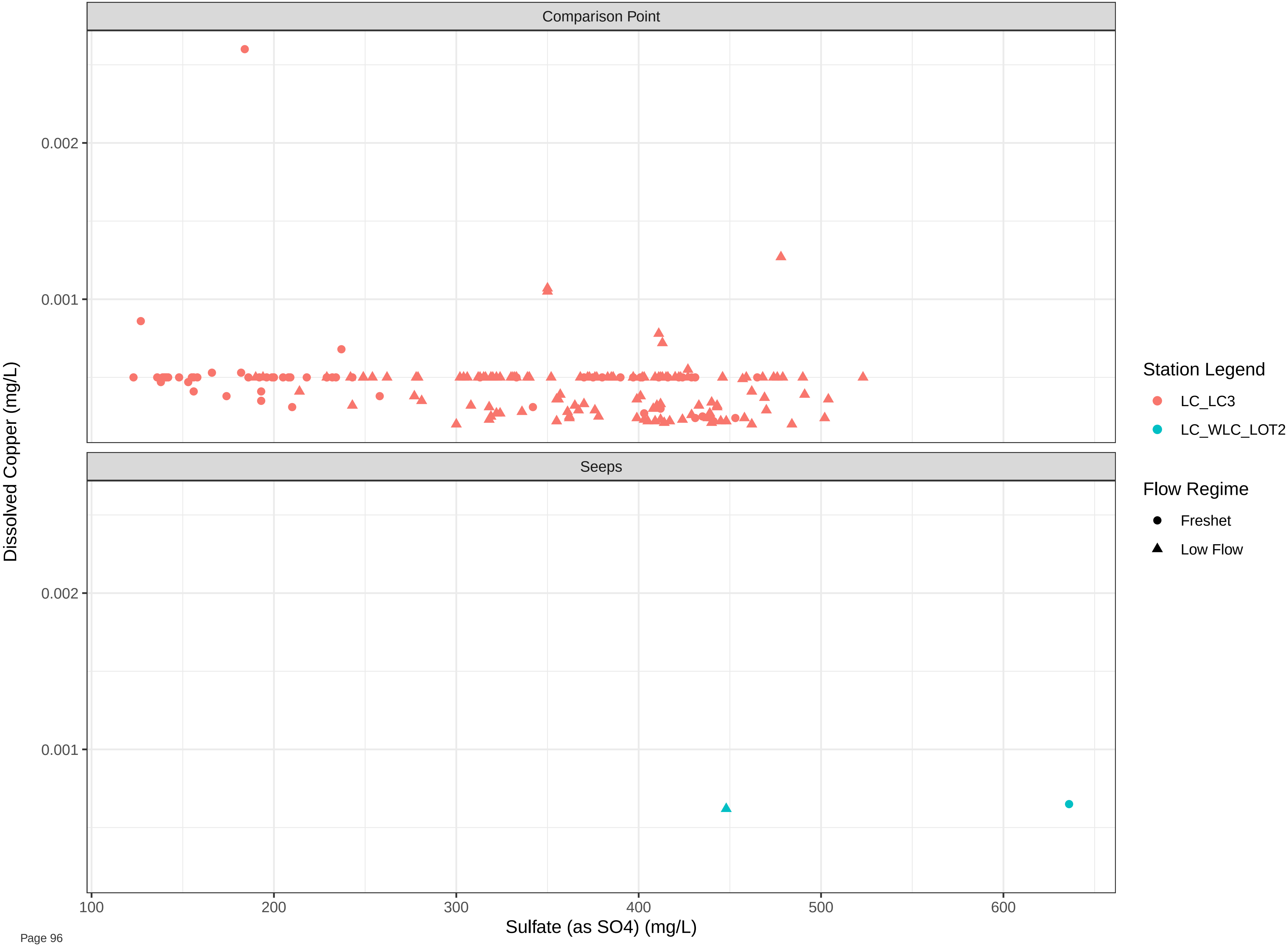

Comparison Point
Seeps
0.00100
0.00075
0.00050
0.00025
Dissolved Copper (mg/L)
100
200
300
400
500
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC7
LC_SEEP19
Flow Regime
Freshet
Low Flow

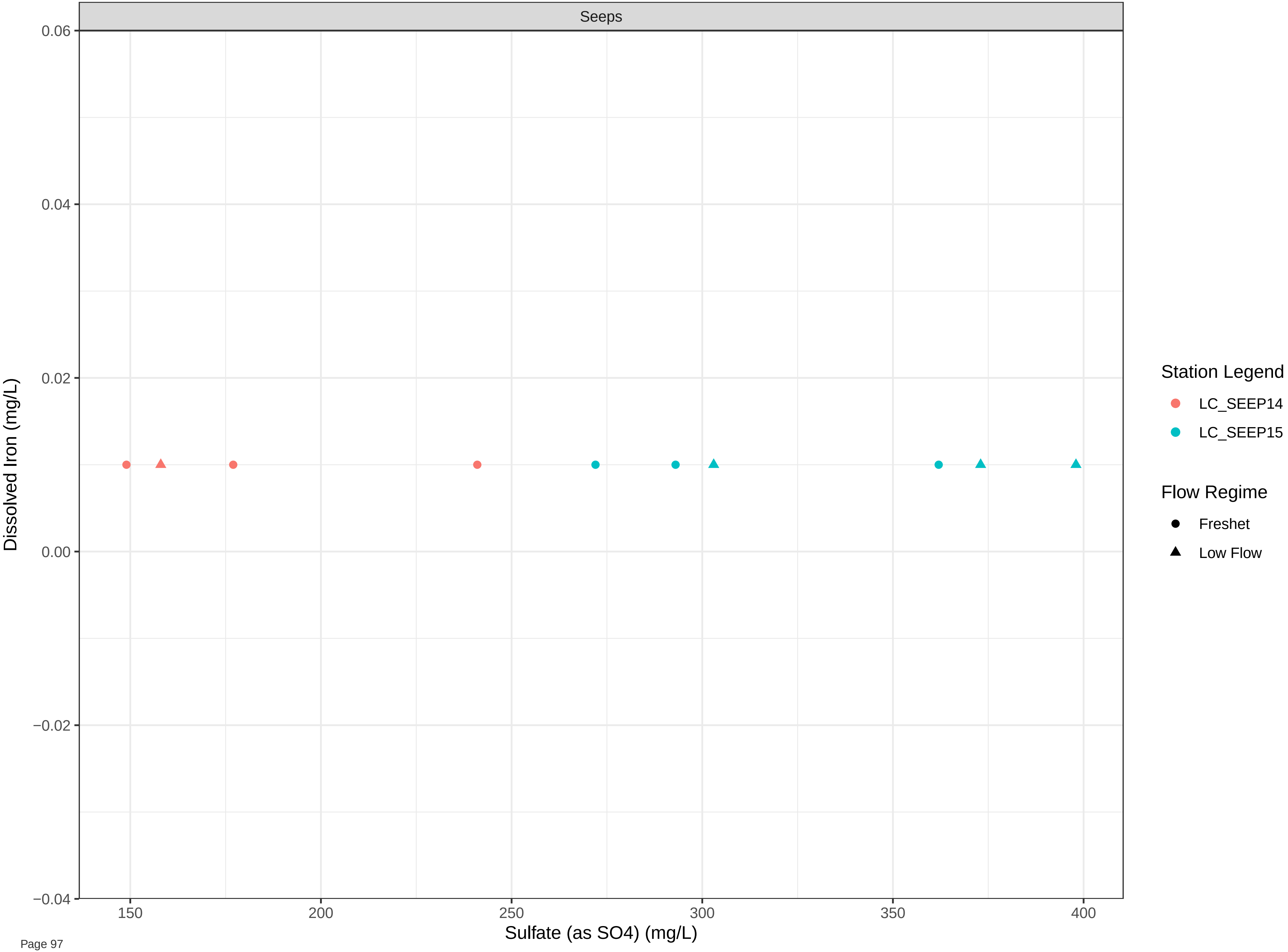

Comparison Point
Seeps
Dissolved Copper (mg/L)
5e−04
4e−04
3e−04
2e−04
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
Freshet
Low Flow

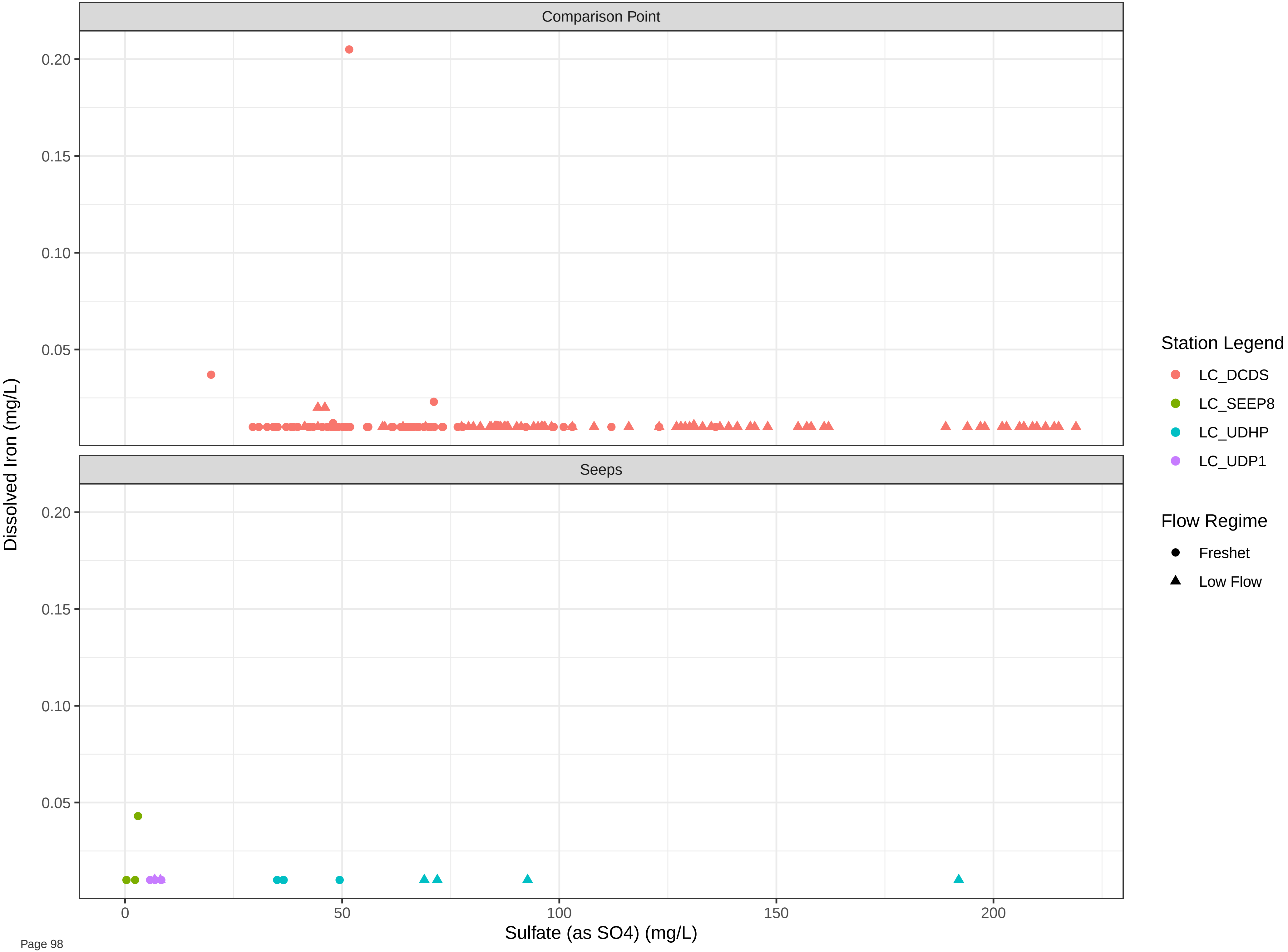

Comparison Point
Seeps
Dissolved Copper (mg/L)
1e−03
5e−04
1e−03
5e−04
50
100
150
Sulfate (as SO4) (mg/L)
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

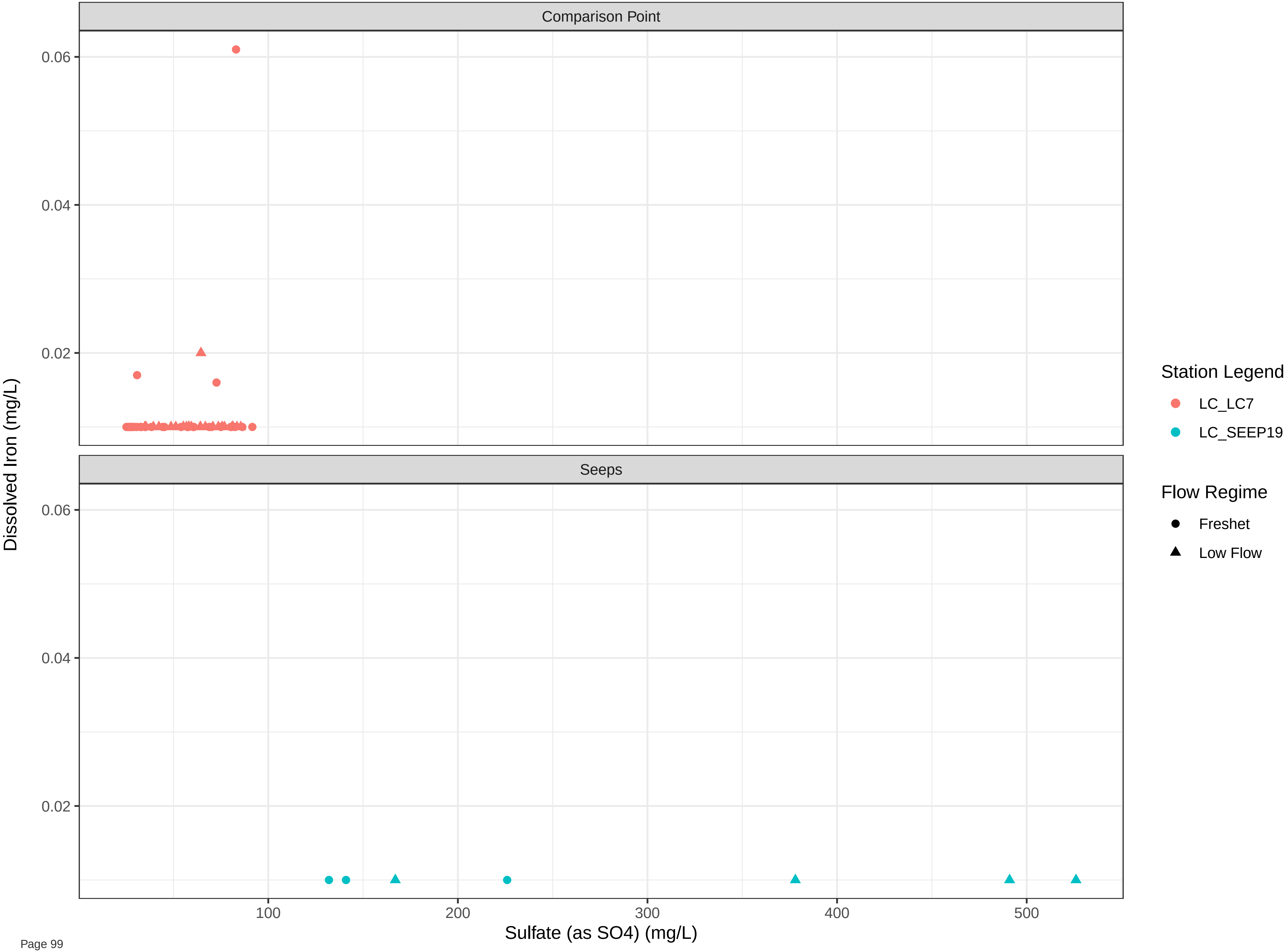

Comparison Point
Seeps
8e−04
6e−04
4e−04
2e−04
Dissolved Copper (mg/L)
100
150
200
250
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC5
LC_SEEP10
Flow Regime
Freshet
Low Flow

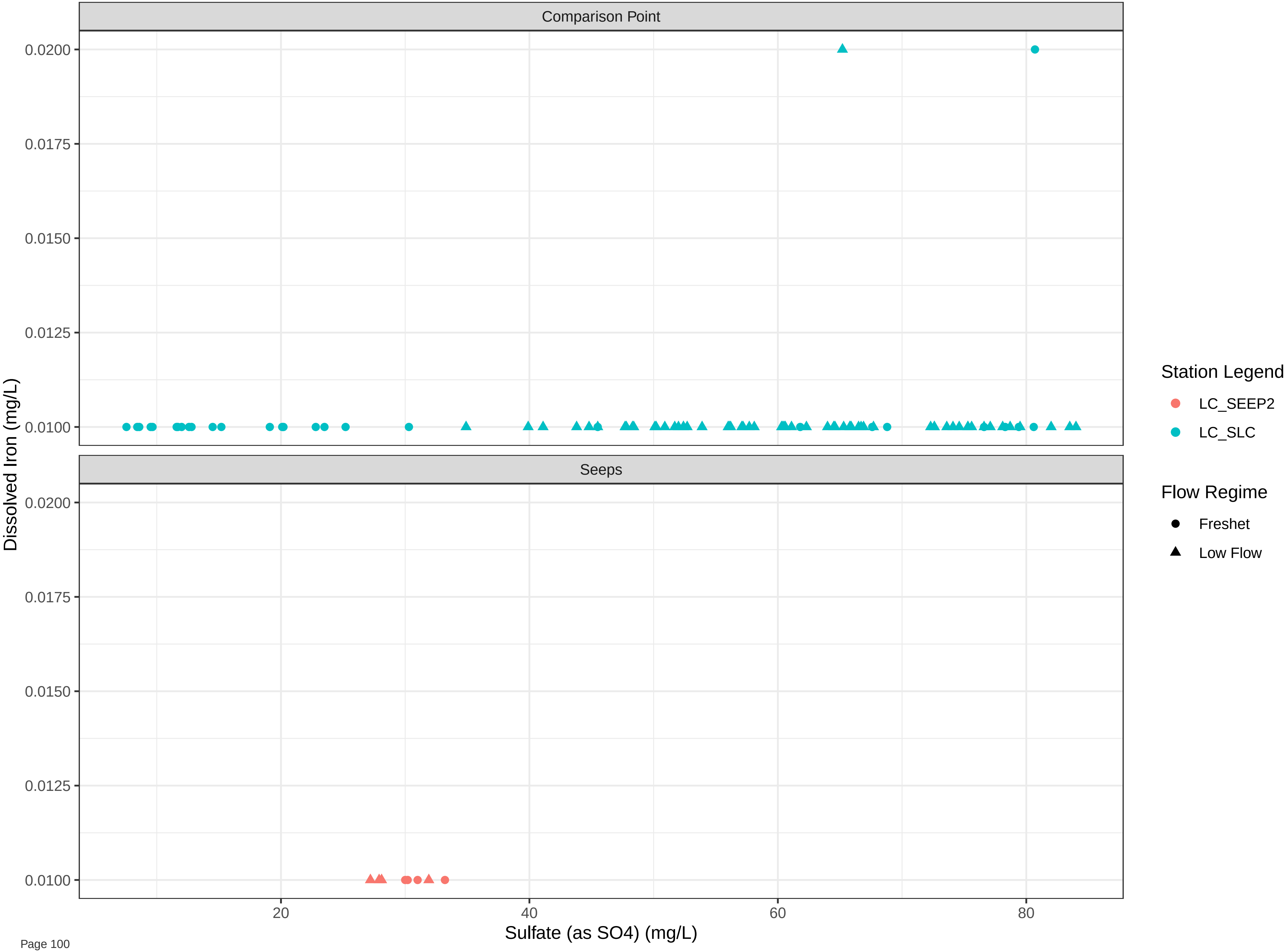

Seeps
Dissolved Copper (mg/L)
5e−04
4e−04
3e−04
2e−04
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP11
Flow Regime
Freshet
Low Flow

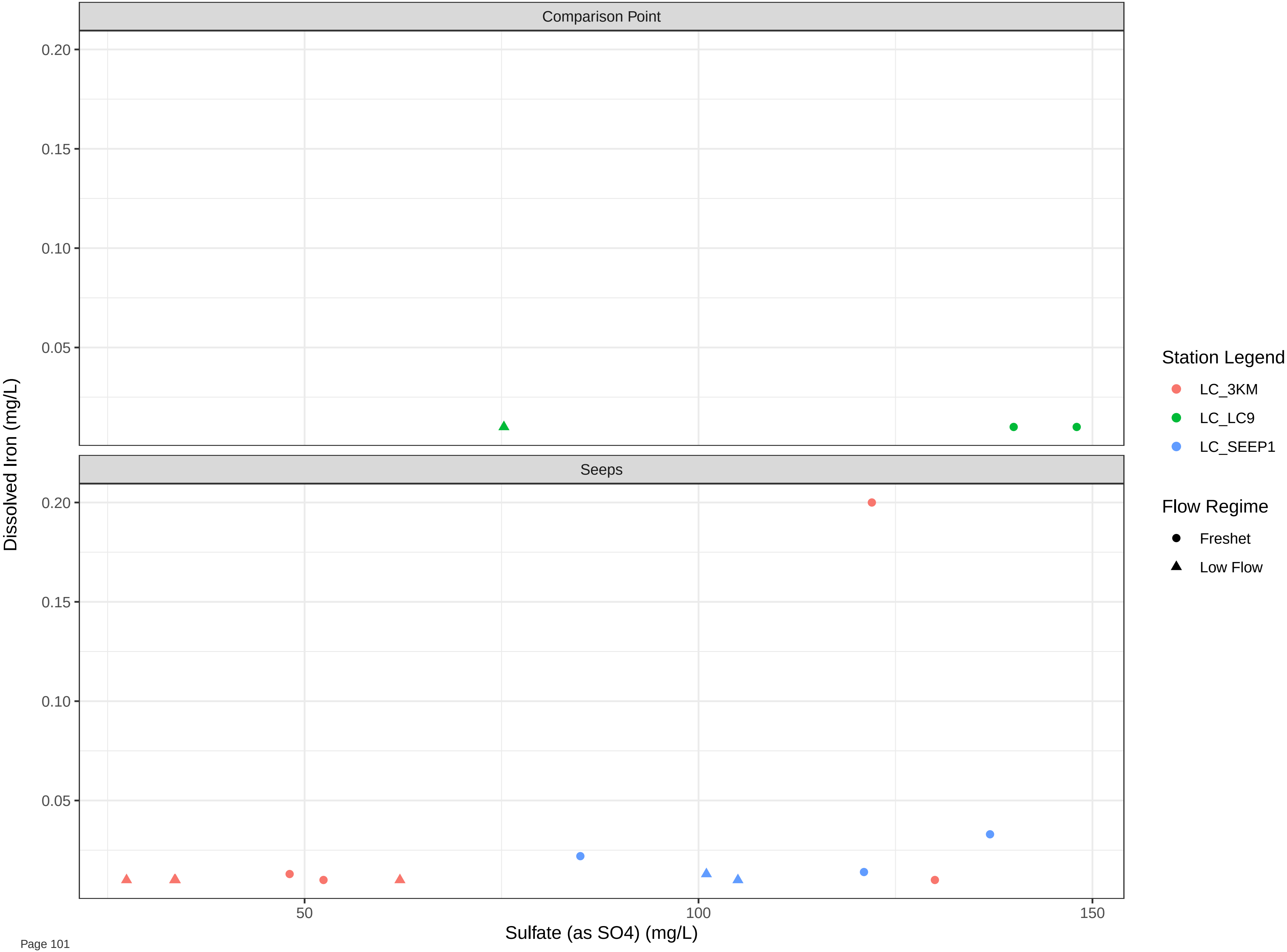

Comparison Point
Seeps
Dissolved Copper (mg/L)
0.002
0.001
0.002
0.001
100
200
300
400
500
600
Sulfate (as SO4) (mg/L)
Station Legend
● LC_LC3
● LC_WLC_LOT2
Flow Regime
● Freshet
▲ Low Flow

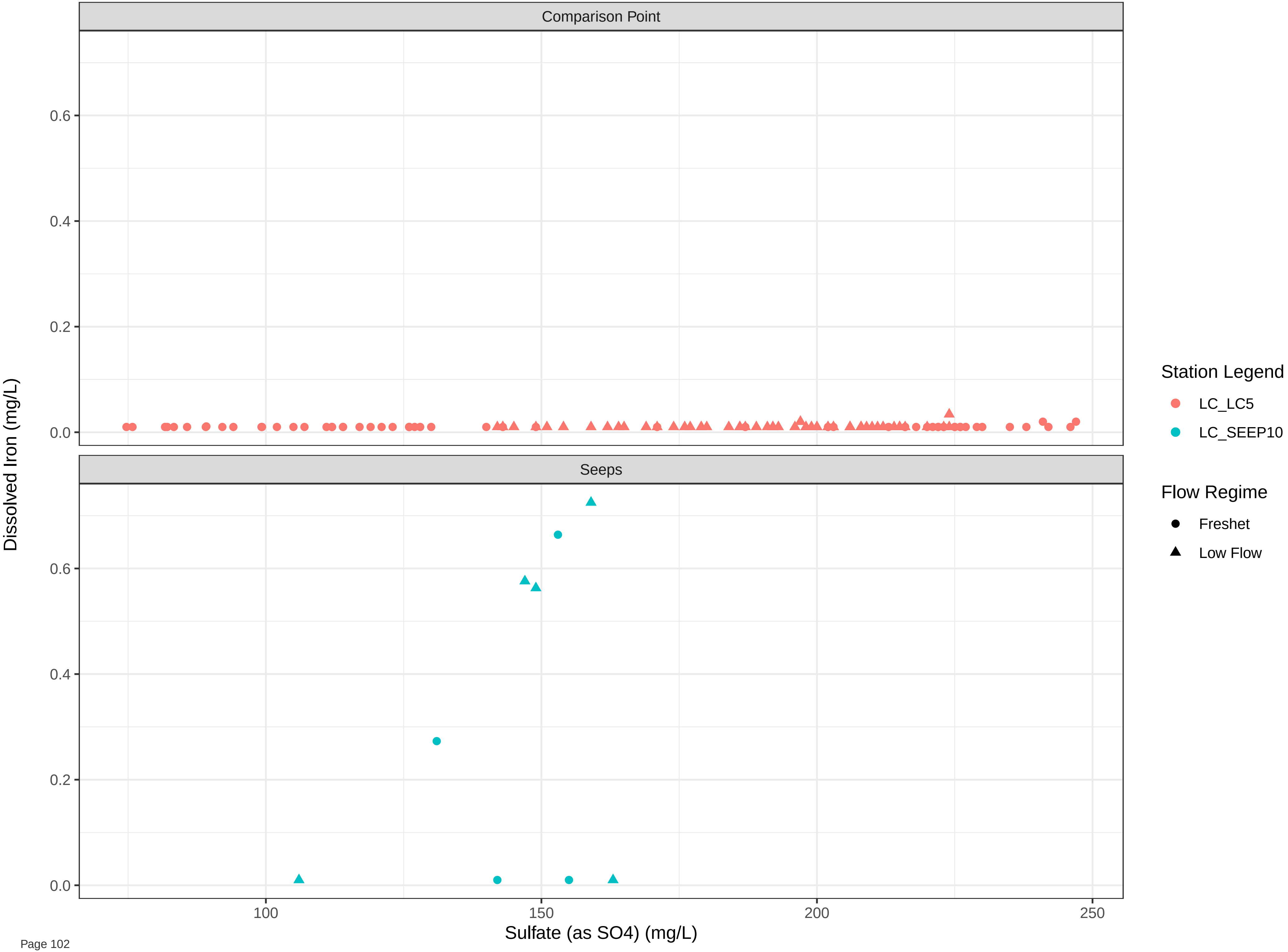

Seeps
Dissolved Iron (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP14
LC_SEEP15
Flow Regime
Freshet
Low Flow

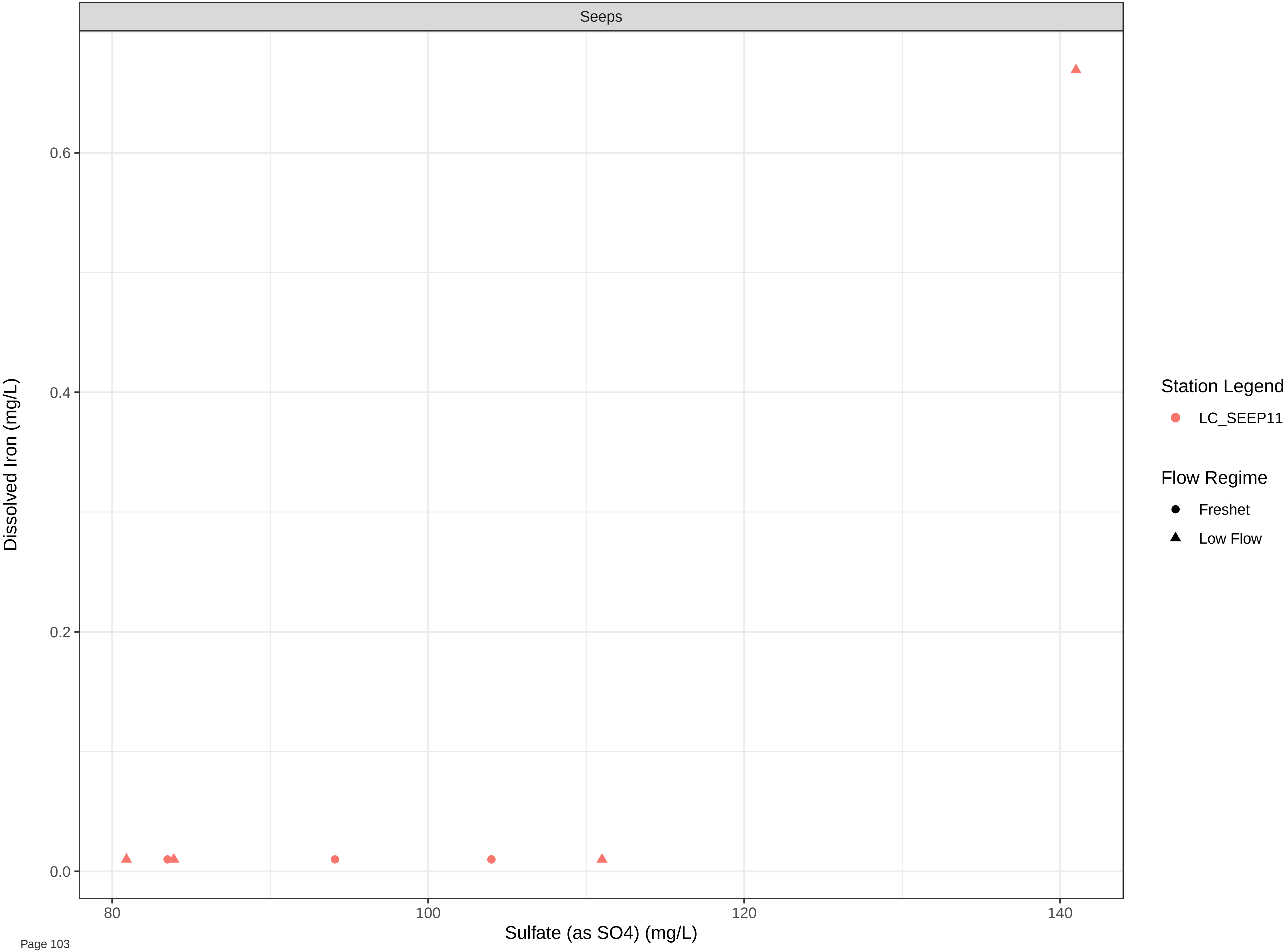

Comparison Point
Seeps
0.20
0.15
0.10
0.05
0
50
100
150
200
Dissolved Iron (mg/L)
Sulfate (as SO4) (mg/L)
Station Legend
LC_DCDS
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

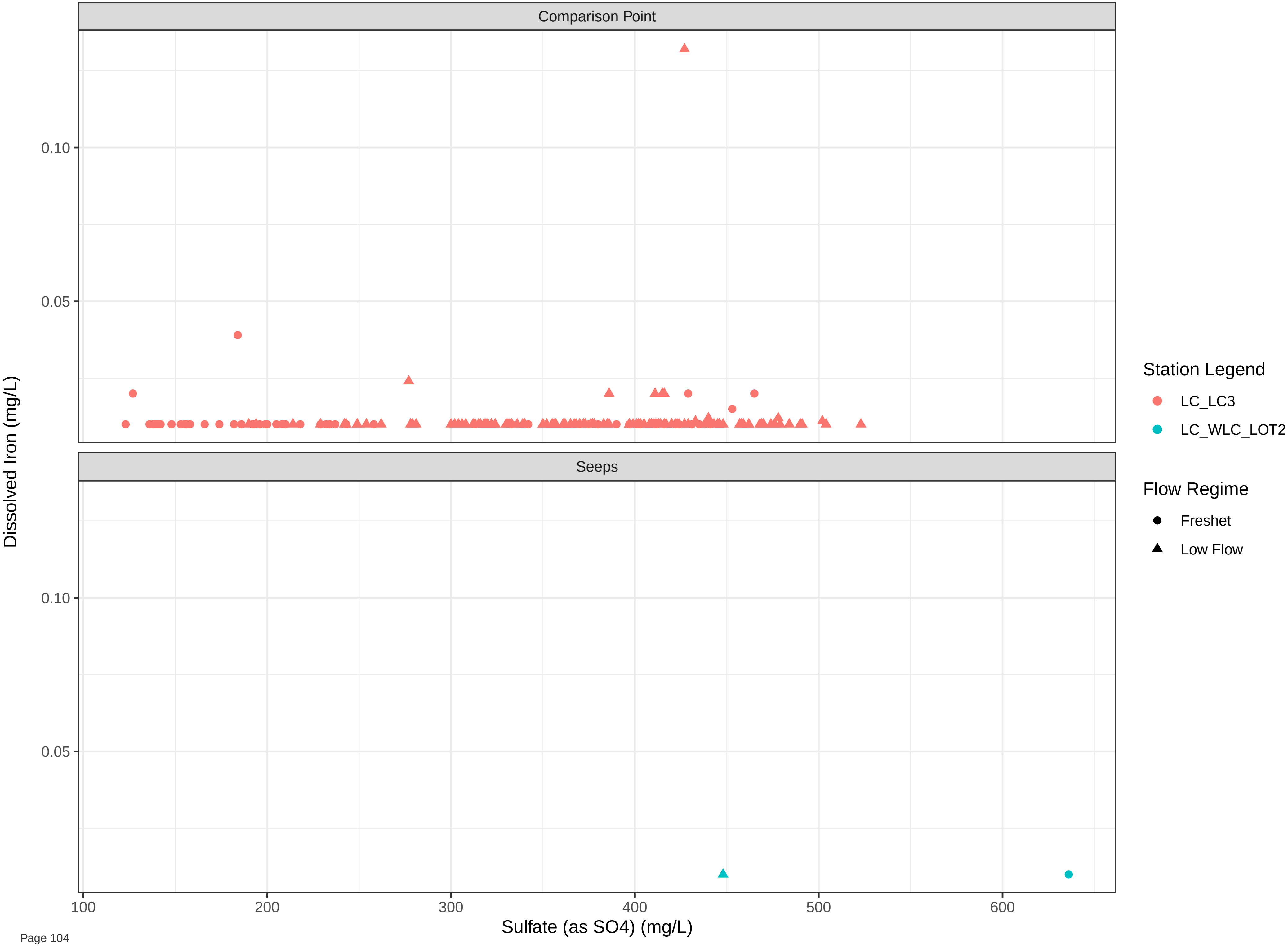

Comparison Point
Seeps
0.06
0.04
0.02
Dissolved Iron (mg/L)
100
200
300
400
500
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC7
LC_SEEP19
Flow Regime
Freshet
Low Flow

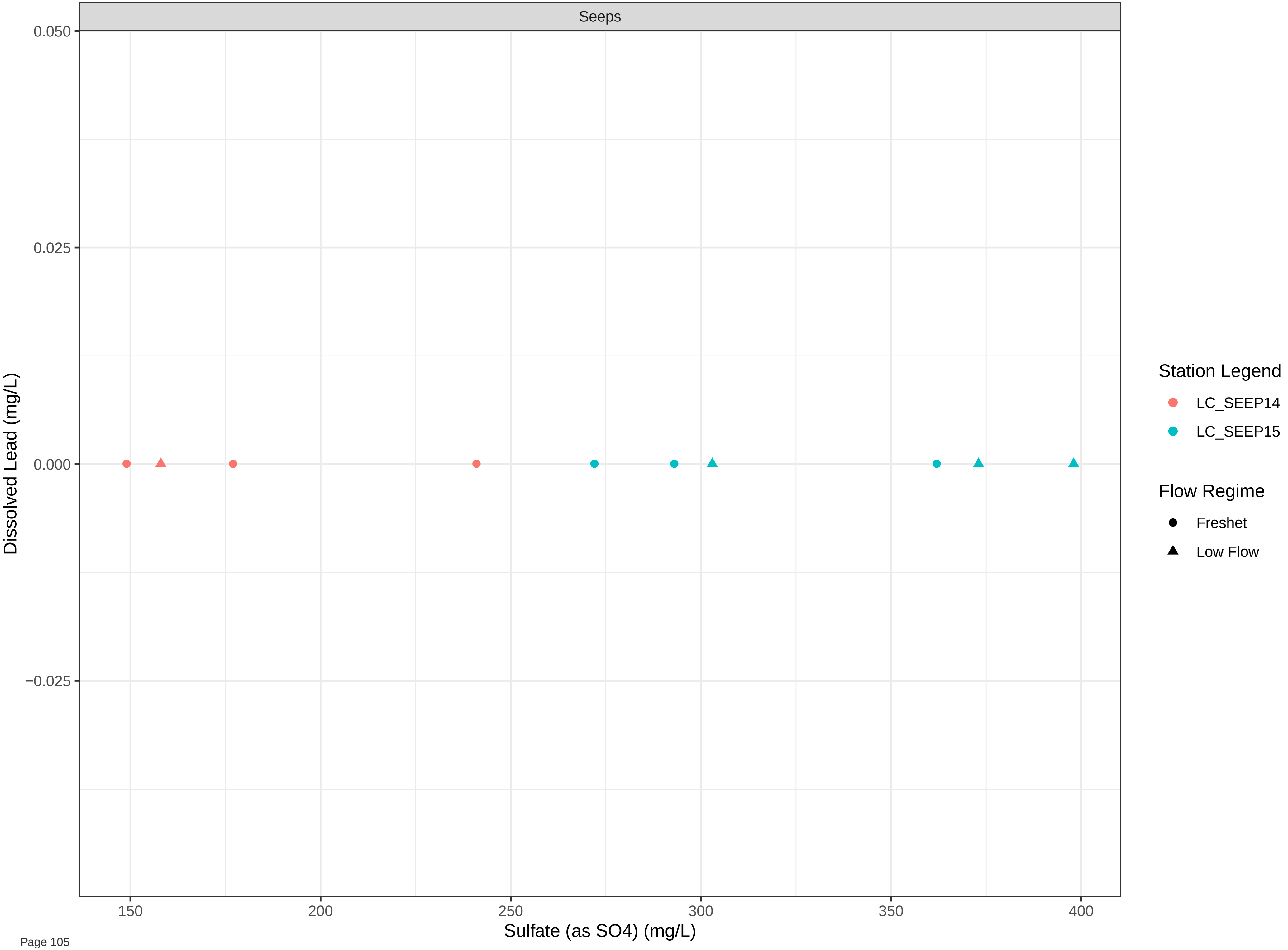

Comparison Point
Seeps
Dissolved Iron (mg/L)
0.0200
0.0175
0.0150
0.0125
0.0100
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
Freshet
Low Flow

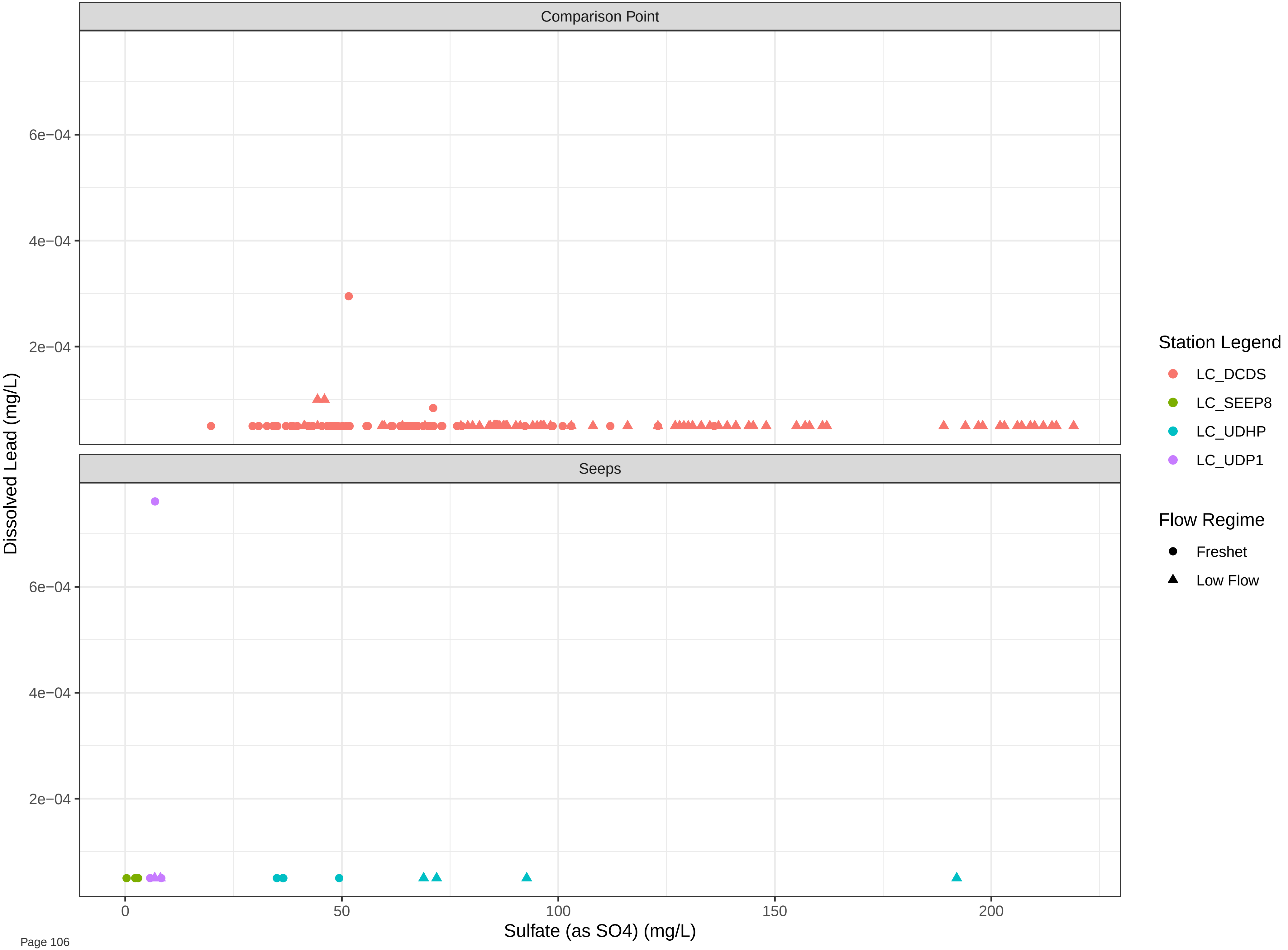

Comparison Point
Seeps
Dissolved Iron (mg/L)
0.20
0.15
0.10
0.05
Sulfate (as SO4) (mg/L)
50
100
150
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

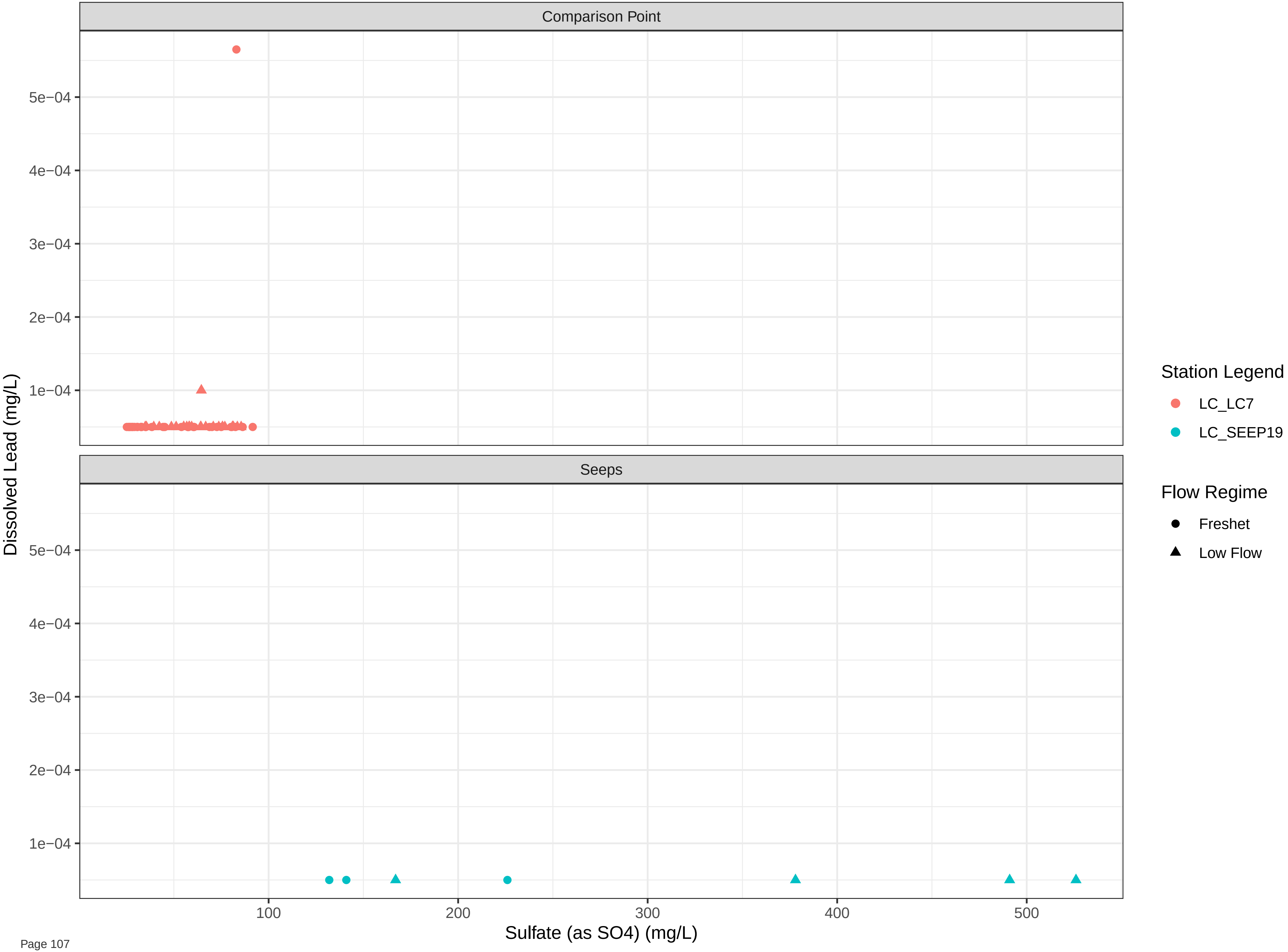

Comparison Point
Seeps
Dissolved Iron (mg/L)
0.0
0.2
0.4
0.6
100
150
200
250
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC5
LC_SEEP10
Flow Regime
Freshet
Low Flow

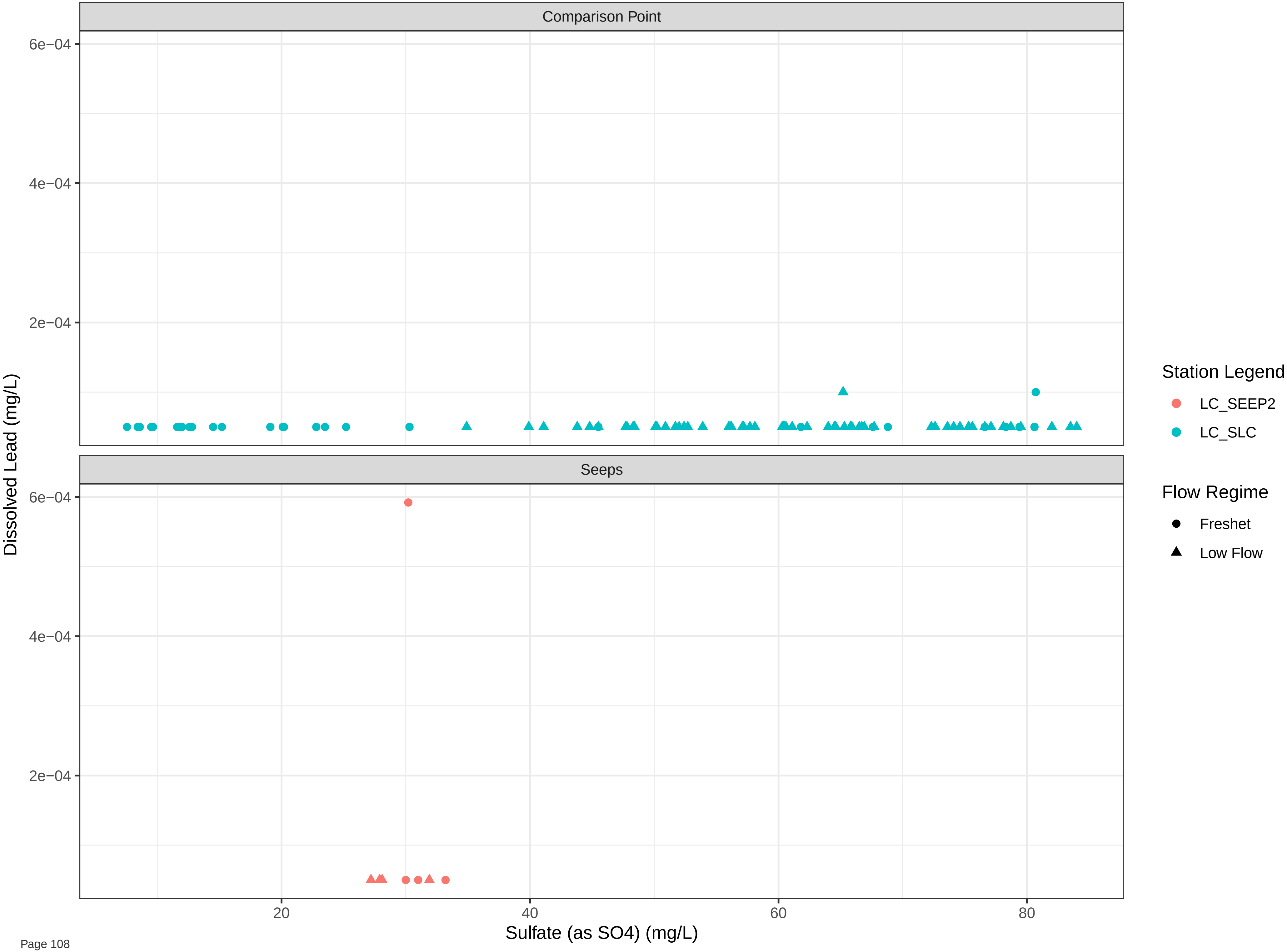

Seeps
Dissolved Iron (mg/L)
0.6
0.4
0.2
0.0
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP11
Flow Regime
Freshet
Low Flow

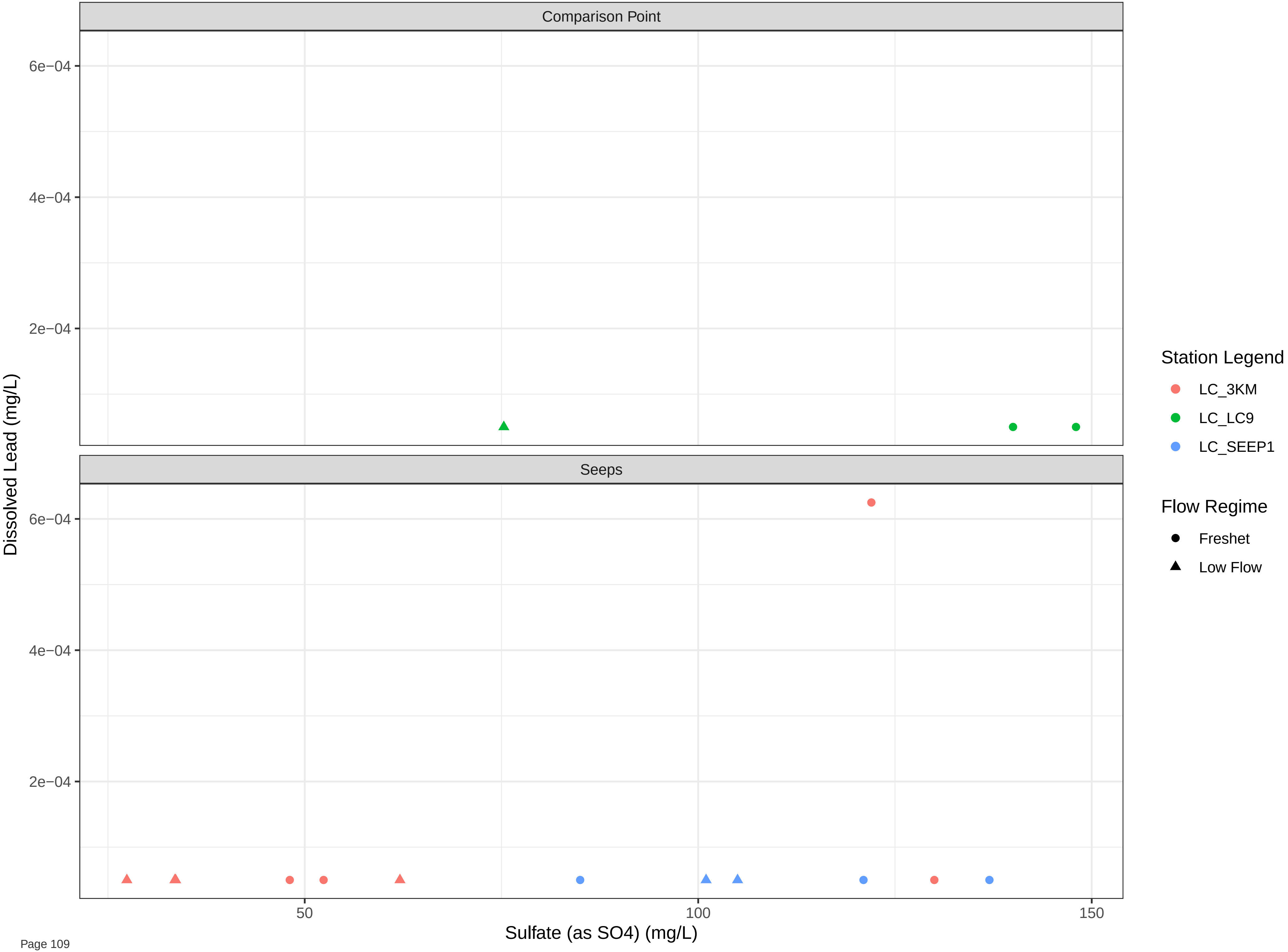

Comparison Point
Seeps
0.10
0.05
0.10
0.05
Dissolved Iron (mg/L)
100
200
300
400
500
600
Sulfate (as SO4) (mg/L)
Station Legend
● LC_LC3
● LC_WLC_LOT2
Flow Regime
● Freshet
▲ Low Flow

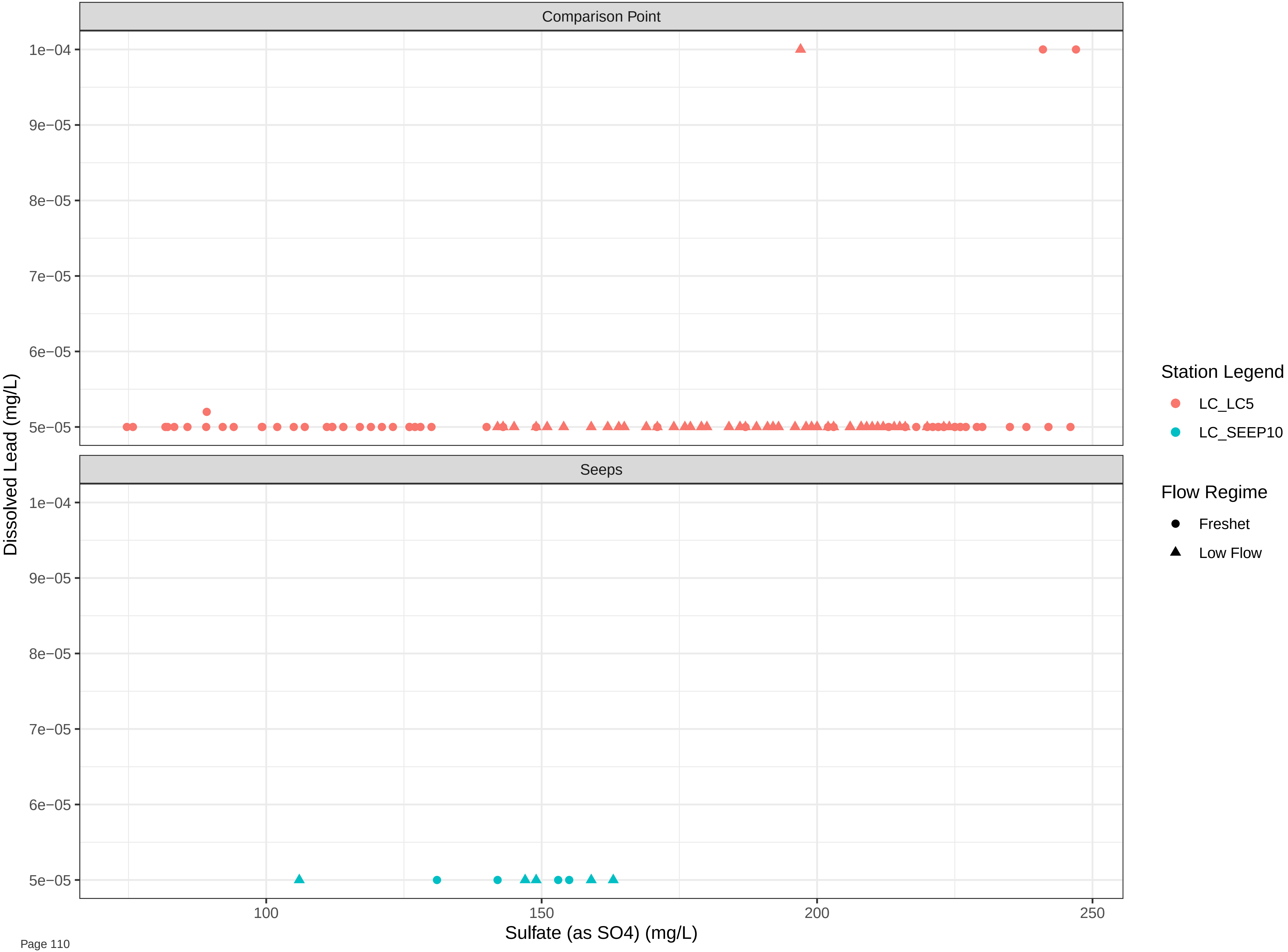

Seeps
Dissolved Lead (mg/L)
0.050
0.025
0.000
−0.025
Sulfate (as SO4) (mg/L)
150
200
250
300
350
400
Station Legend
● LC_SEEP14
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow

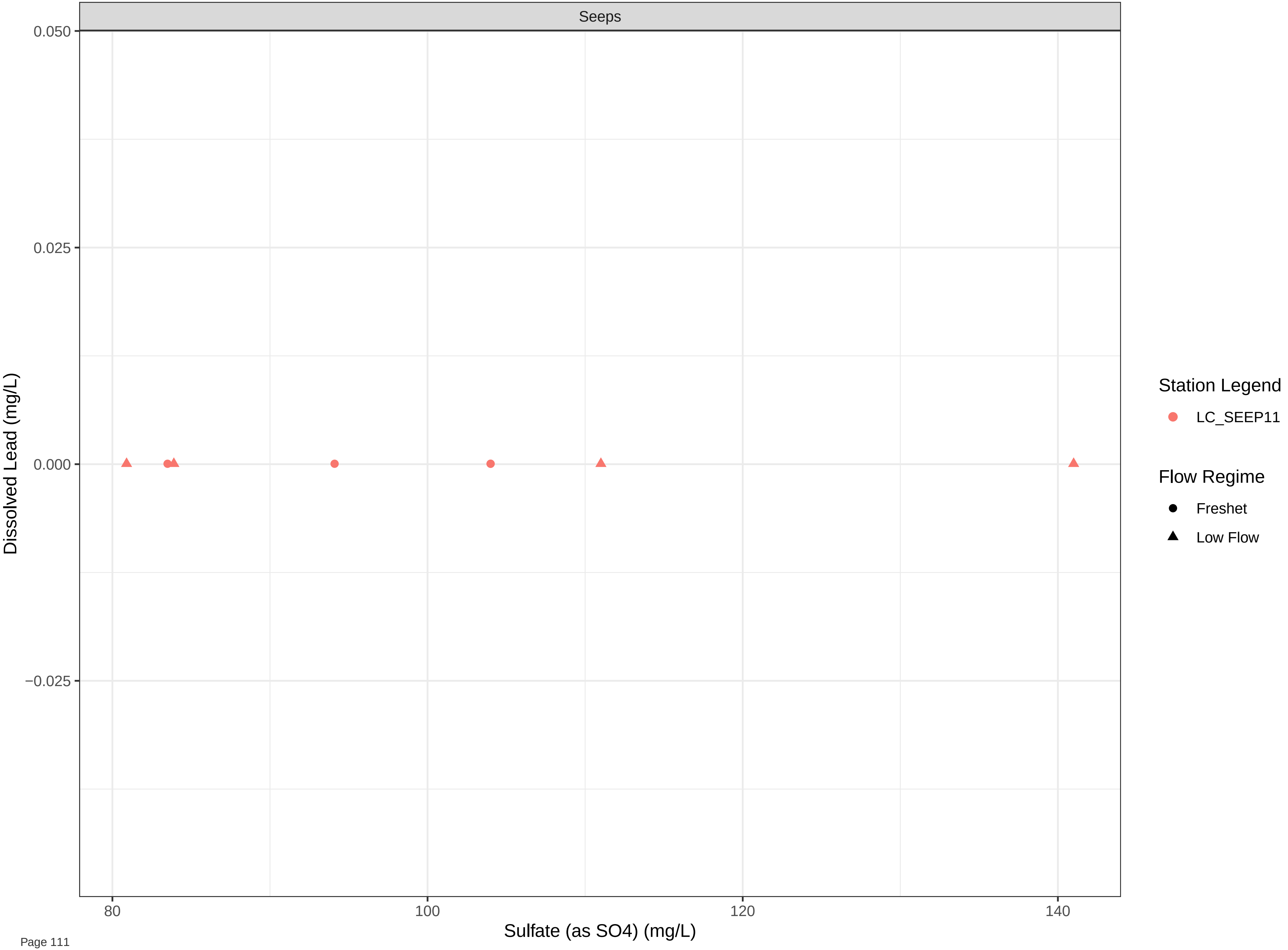

Comparison Point
Seeps
6e−04
4e−04
2e−04
Dissolved Lead (mg/L)
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
LC_DCDS
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

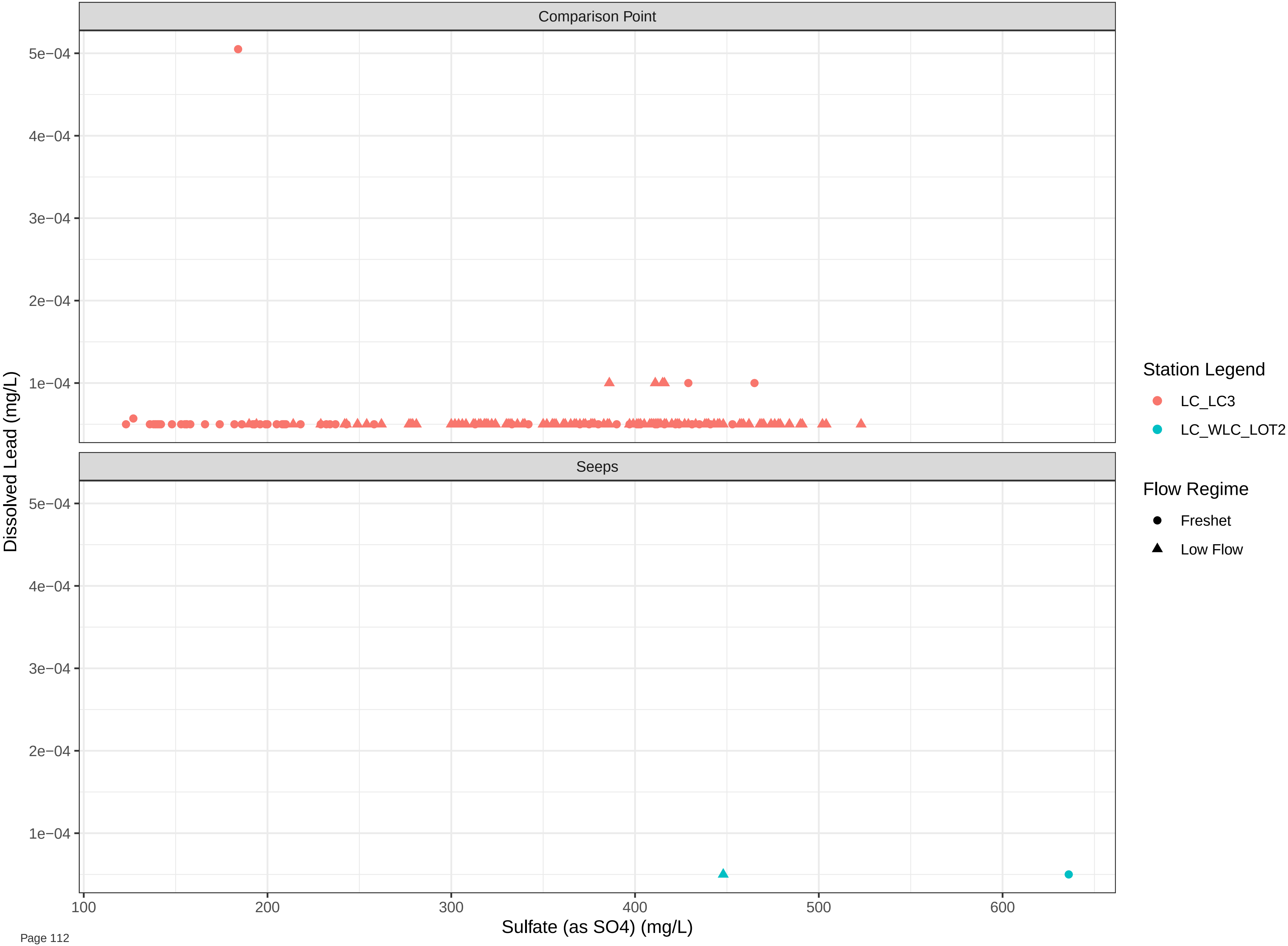

Comparison Point
Seeps
Dissolved Lead (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
100
200
300
400
500
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC7
LC_SEEP19
Flow Regime
Freshet
Low Flow

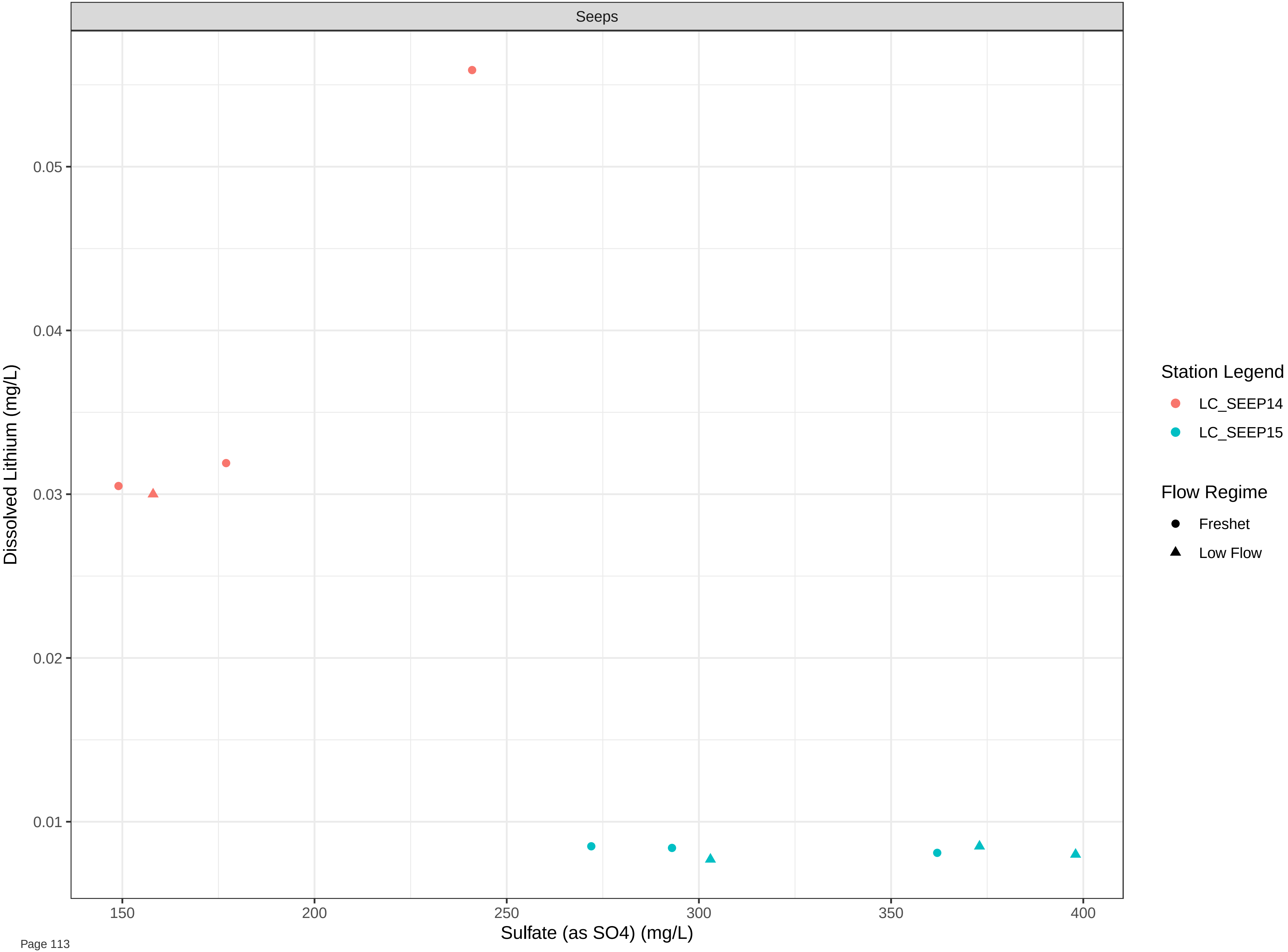

Comparison Point
Seeps
Dissolved Lead (mg/L)
6e−04
4e−04
2e−04
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
Freshet
Low Flow

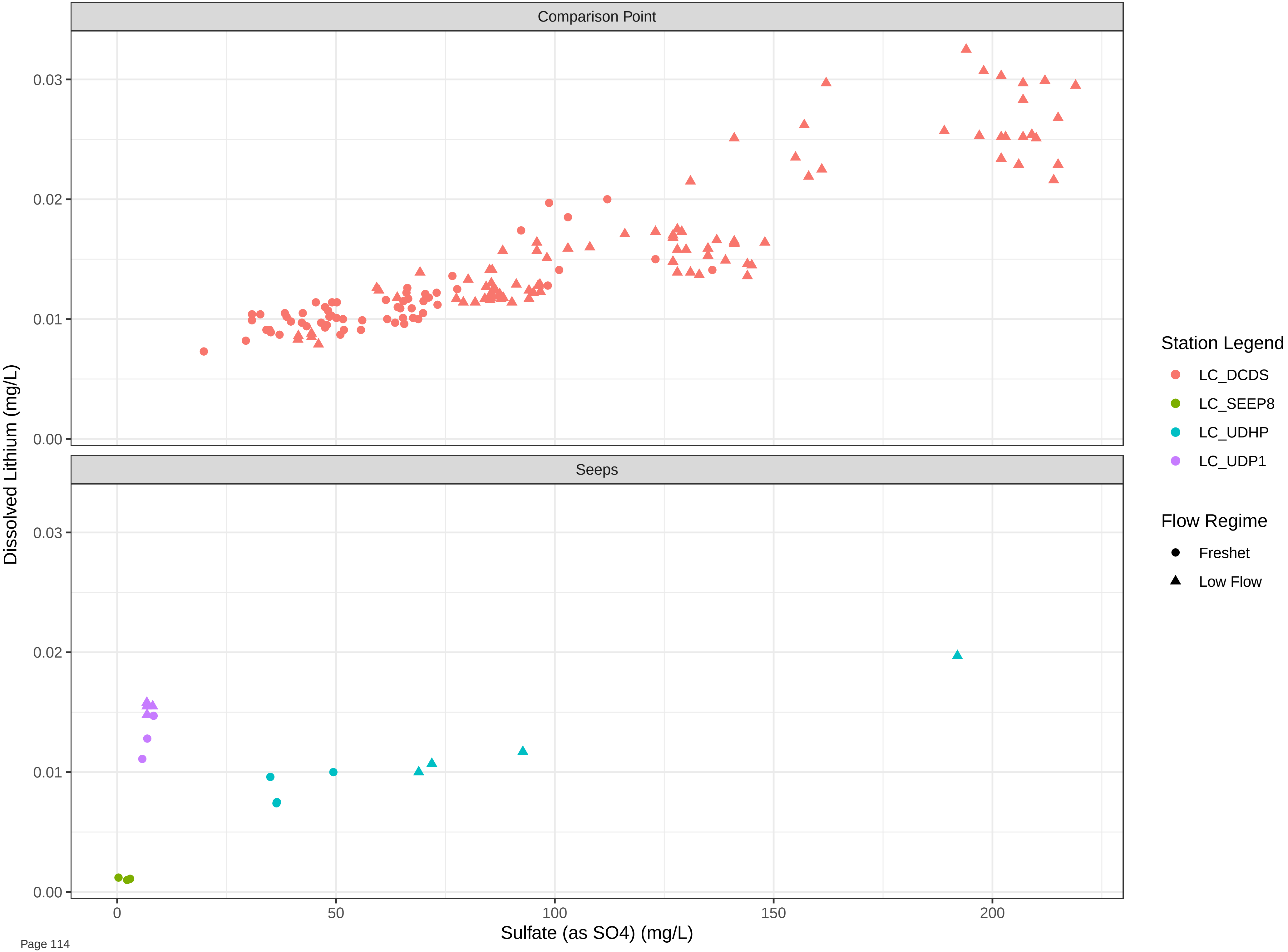

Comparison Point
Seeps
6e−04
4e−04
2e−04
Dissolved Lead (mg/L)
50
100
150
Sulfate (as SO4) (mg/L)
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

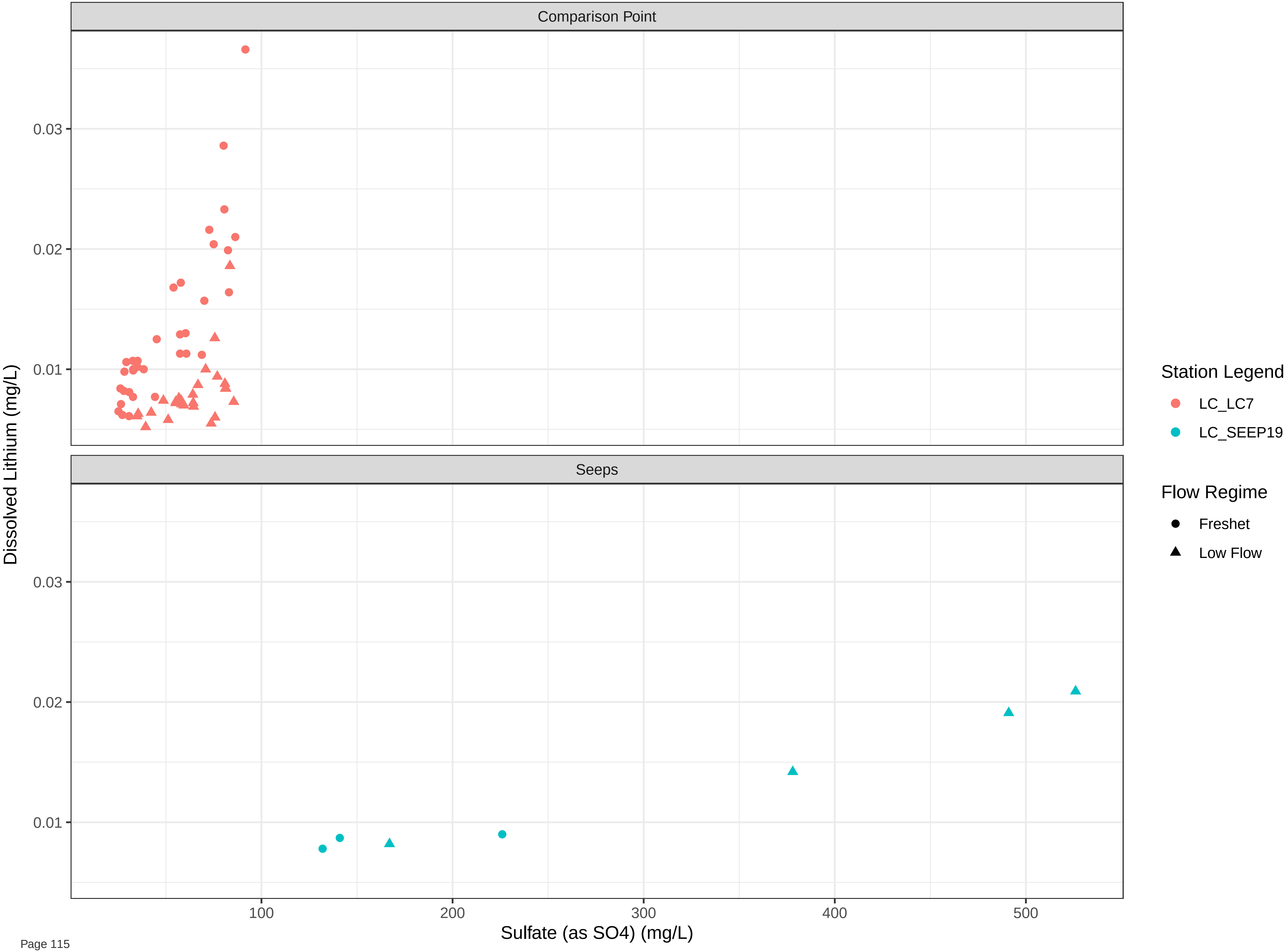

Comparison Point
Seeps
Dissolved Lead (mg/L)
1e−04
9e−05
8e−05
7e−05
6e−05
5e−05
100
150
200
250
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC5
LC_SEEP10
Flow Regime
Freshet
Low Flow

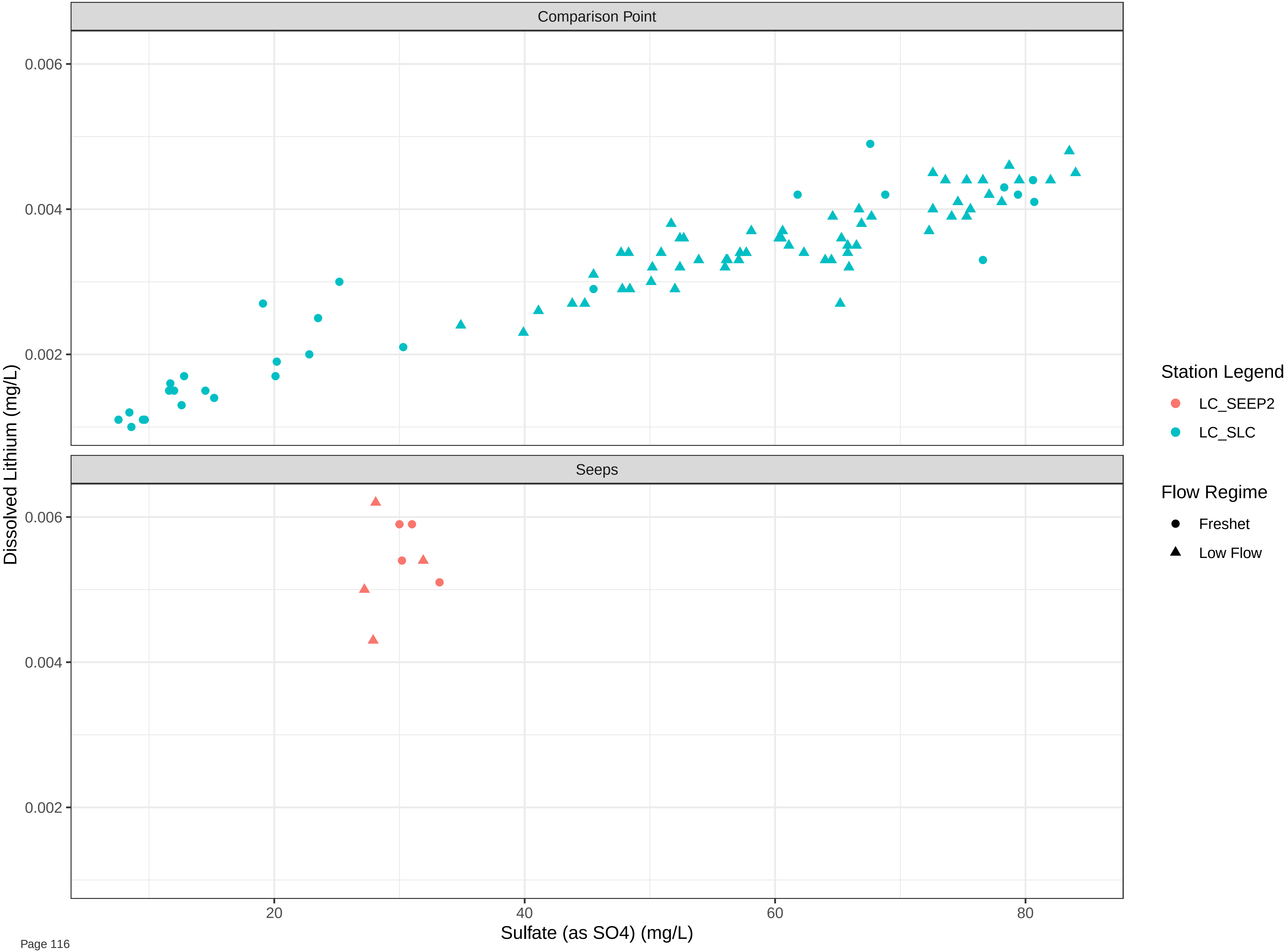

Seeps
0.050
0.025
0.000
−0.025
Dissolved Lead (mg/L)
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP11
Flow Regime
Freshet
Low Flow

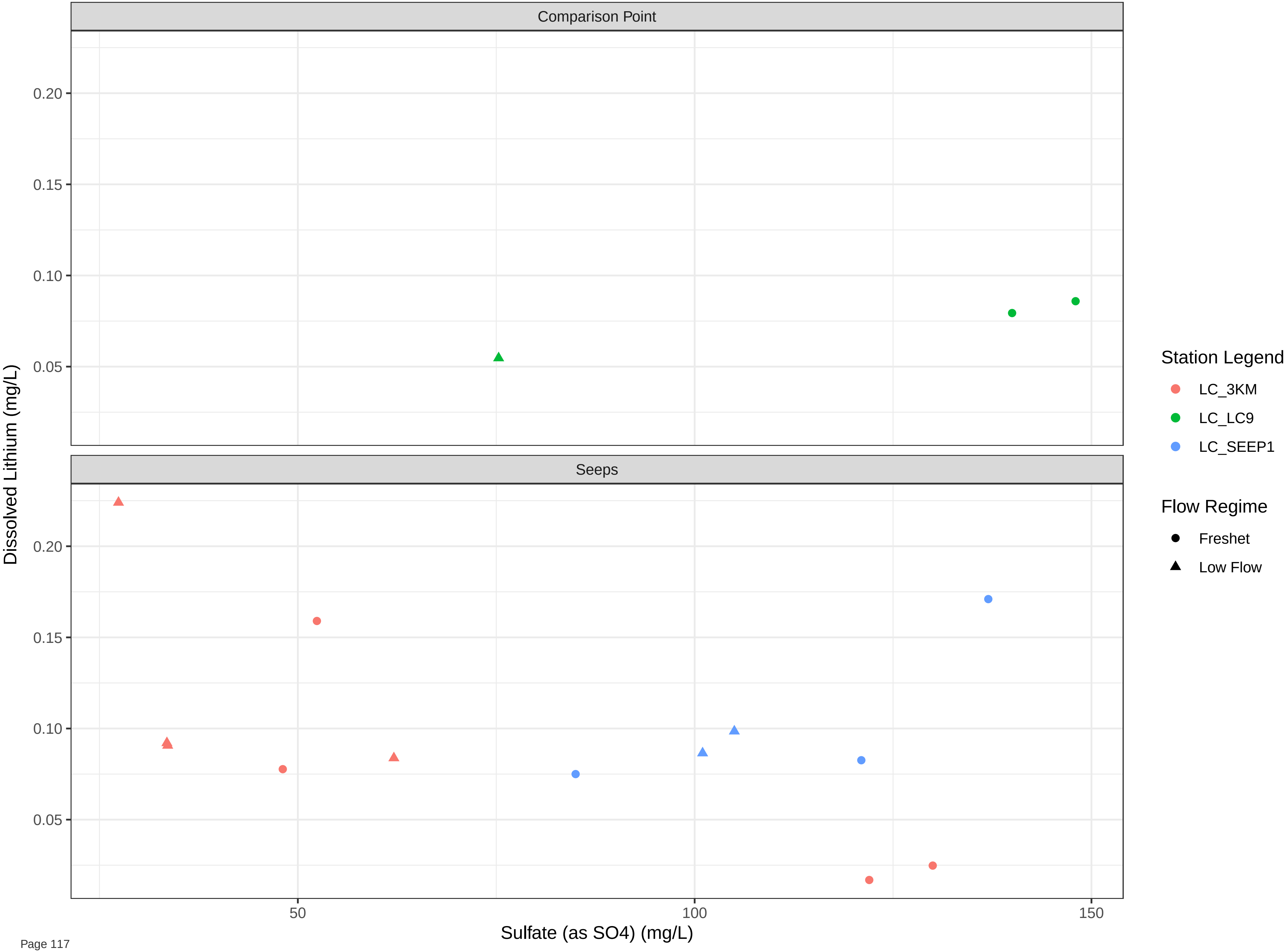

Comparison Point
Seeps
Dissolved Lead (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
100
200
300
400
500
600
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC3
LC_WLC_LOT2
Flow Regime
Freshet
Low Flow

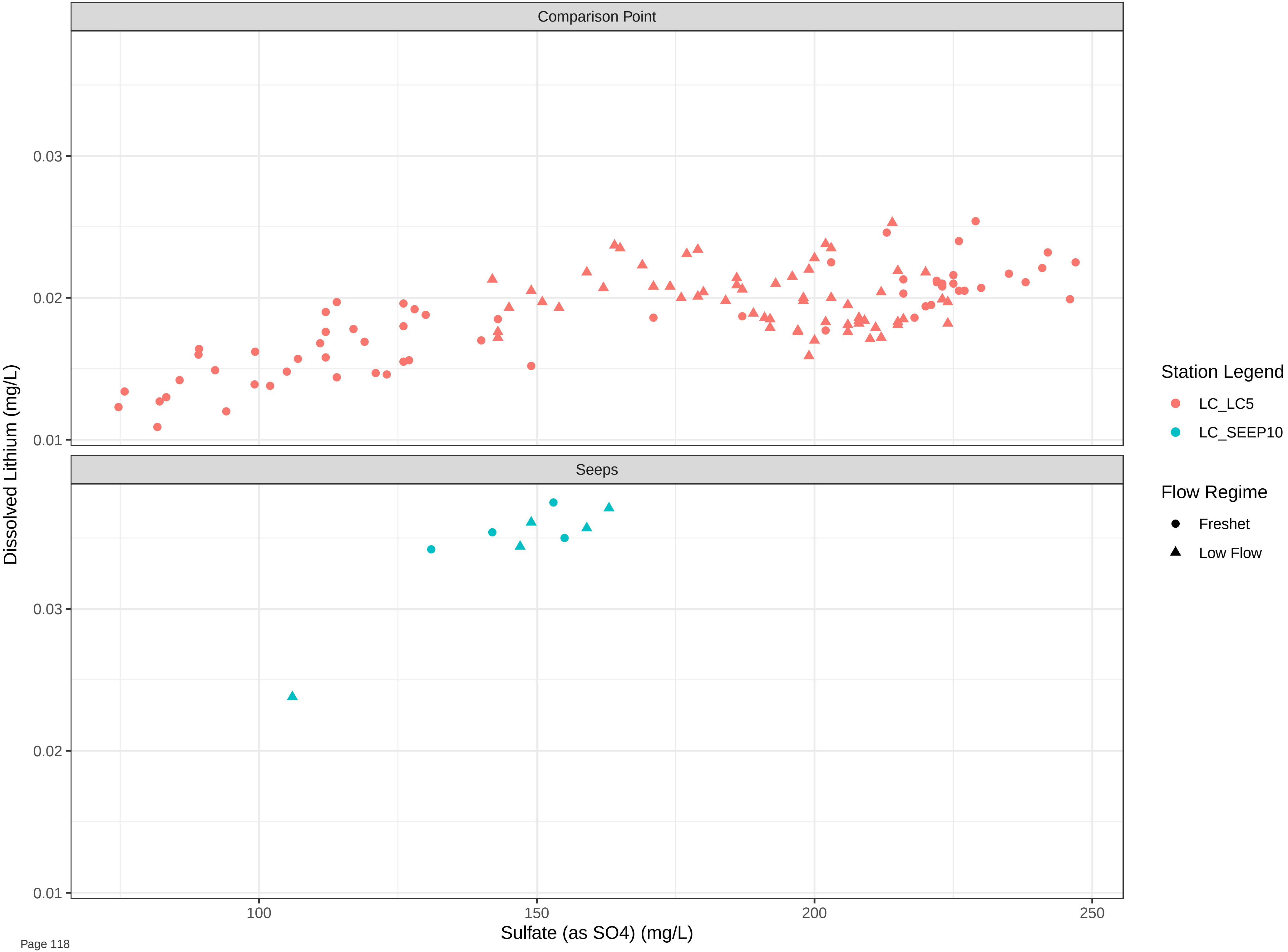

Seeps
Dissolved Lithium (mg/L)
0.05
0.04
0.03
0.02
0.01
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP14
LC_SEEP15
Flow Regime
Freshet
Low Flow

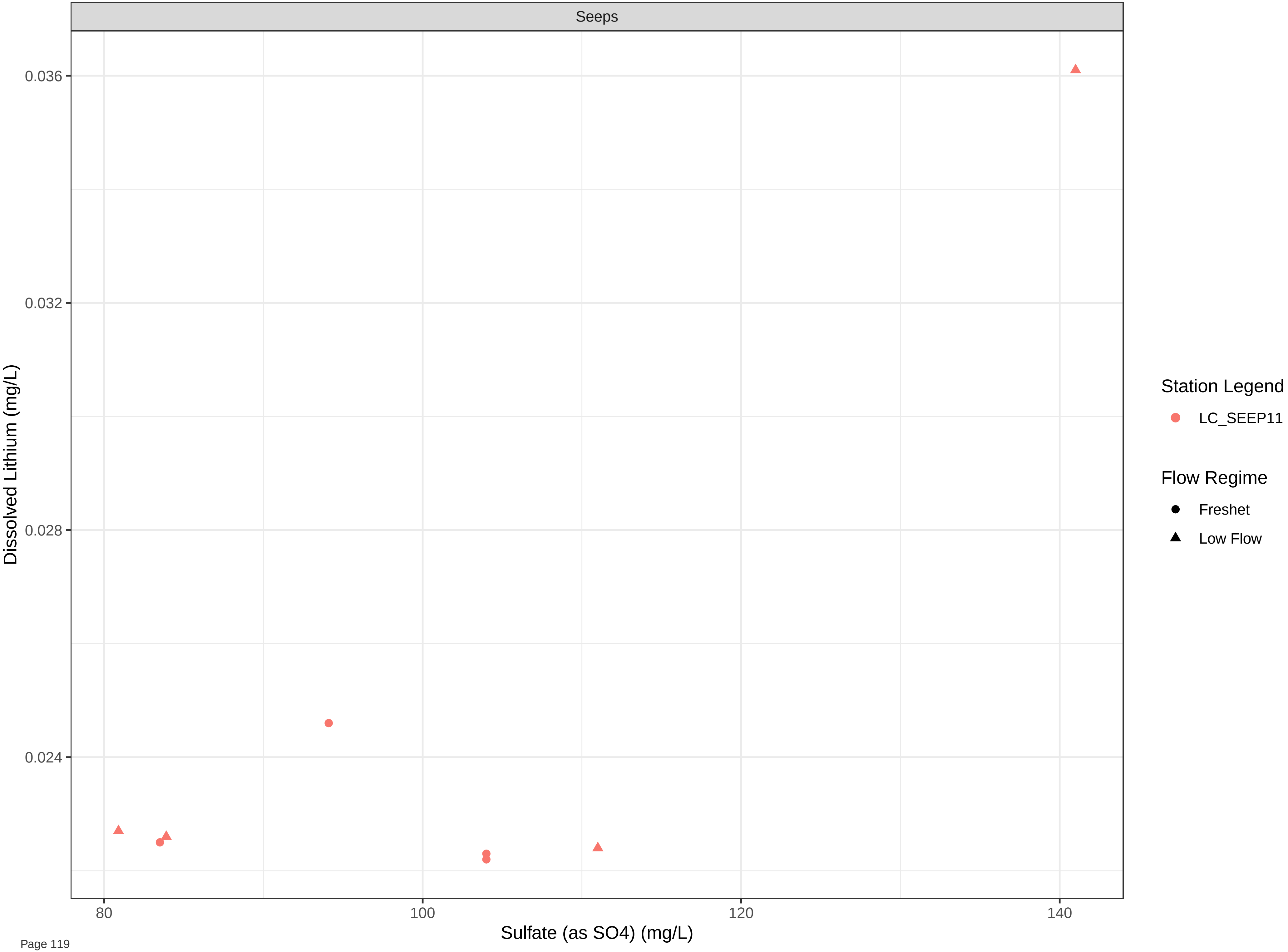

Comparison Point
Seeps
Dissolved Lithium (mg/L)
0.00
0.01
0.02
0.03
Sulfate (as SO4) (mg/L)
0
50
100
150
200
Station Legend
LC_DCDS
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

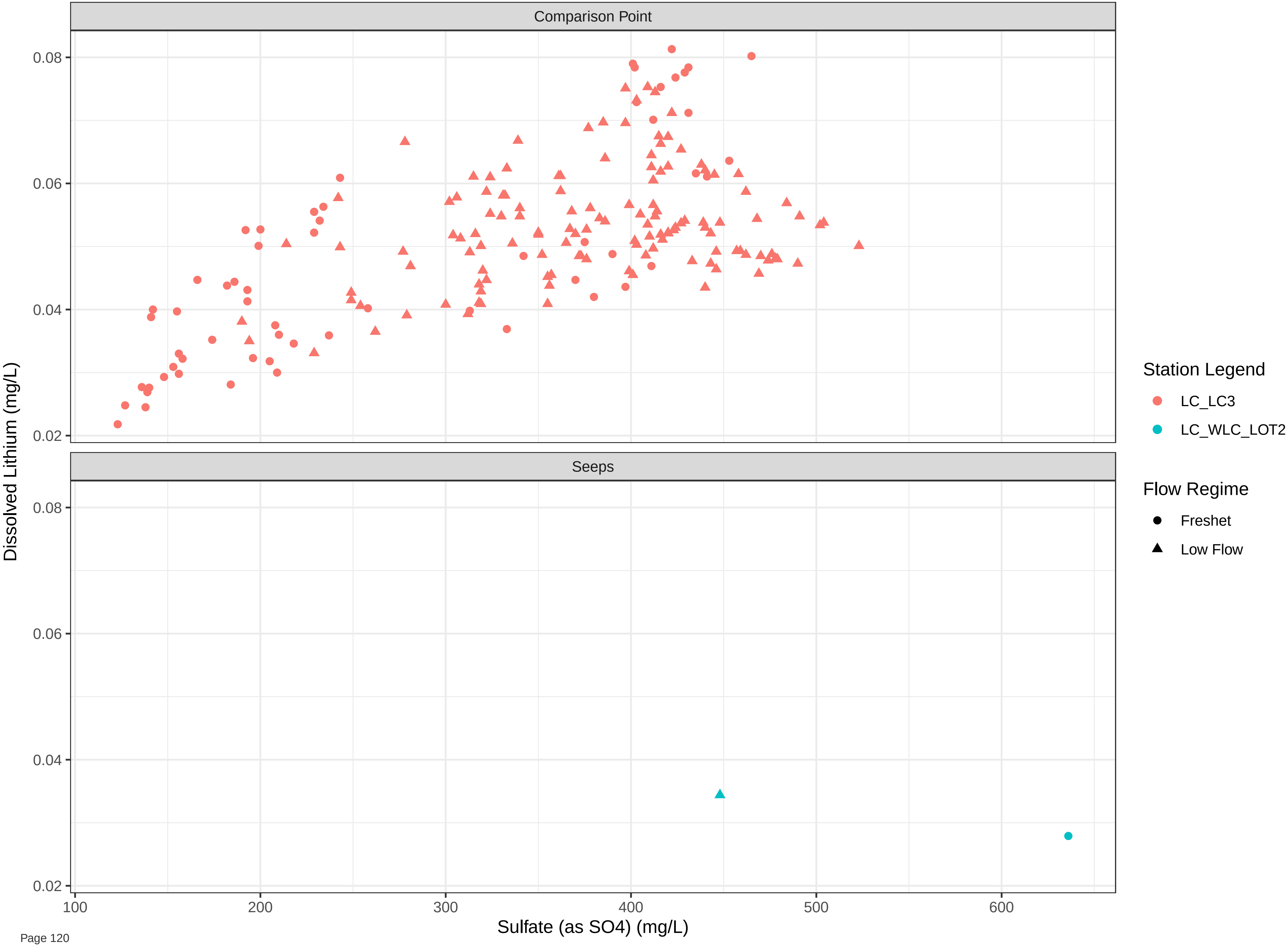

Comparison Point
Seeps
0.03
0.02
0.01
0.03
0.02
0.01
Dissolved Lithium (mg/L)
100
200
300
400
500
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC7
LC_SEEP19
Flow Regime
Freshet
Low Flow

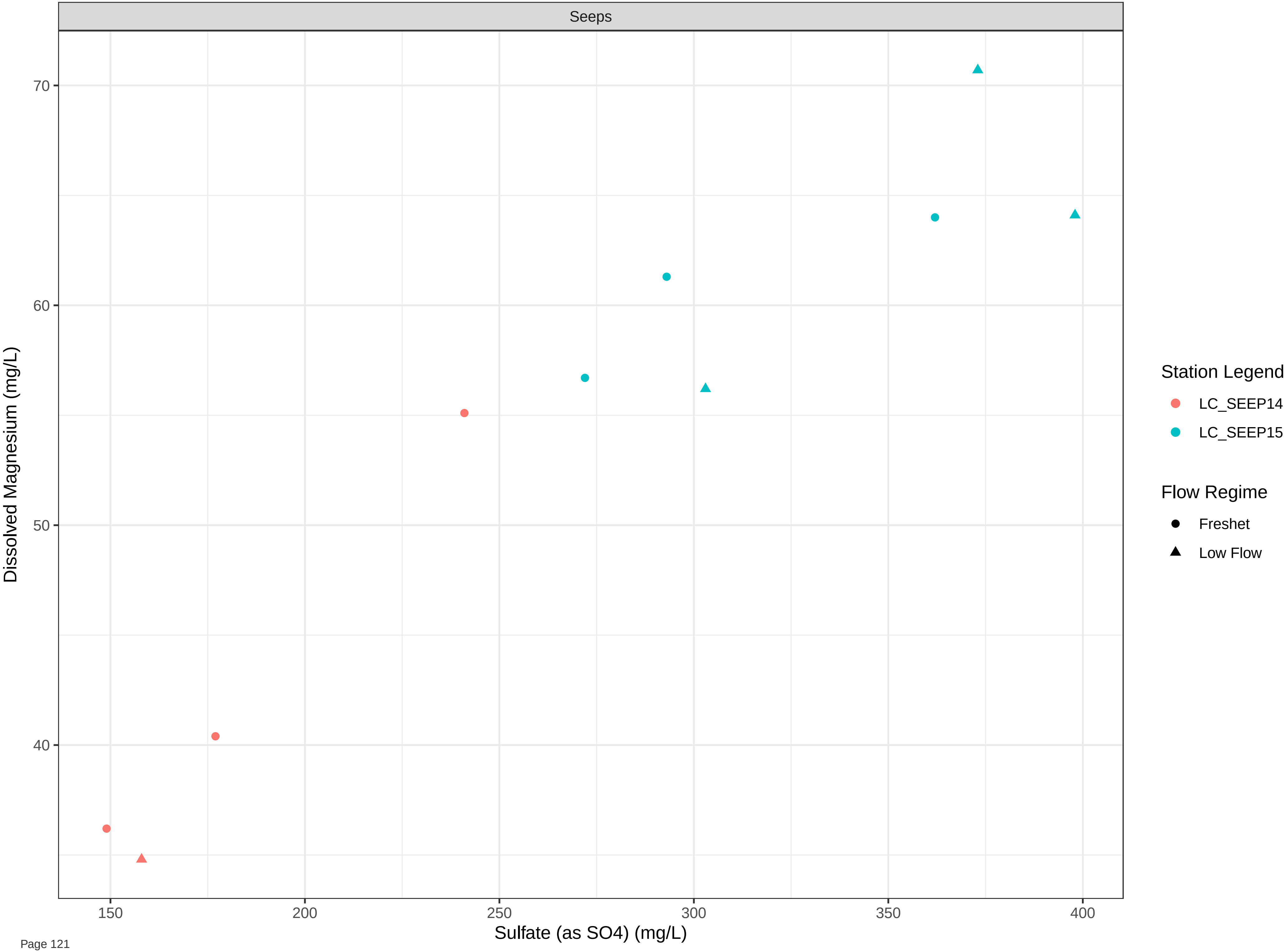

Comparison Point
Seeps
0.006
0.004
0.002
0.006
0.004
0.002
Dissolved Lithium (mg/L)
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
Freshet
Low Flow

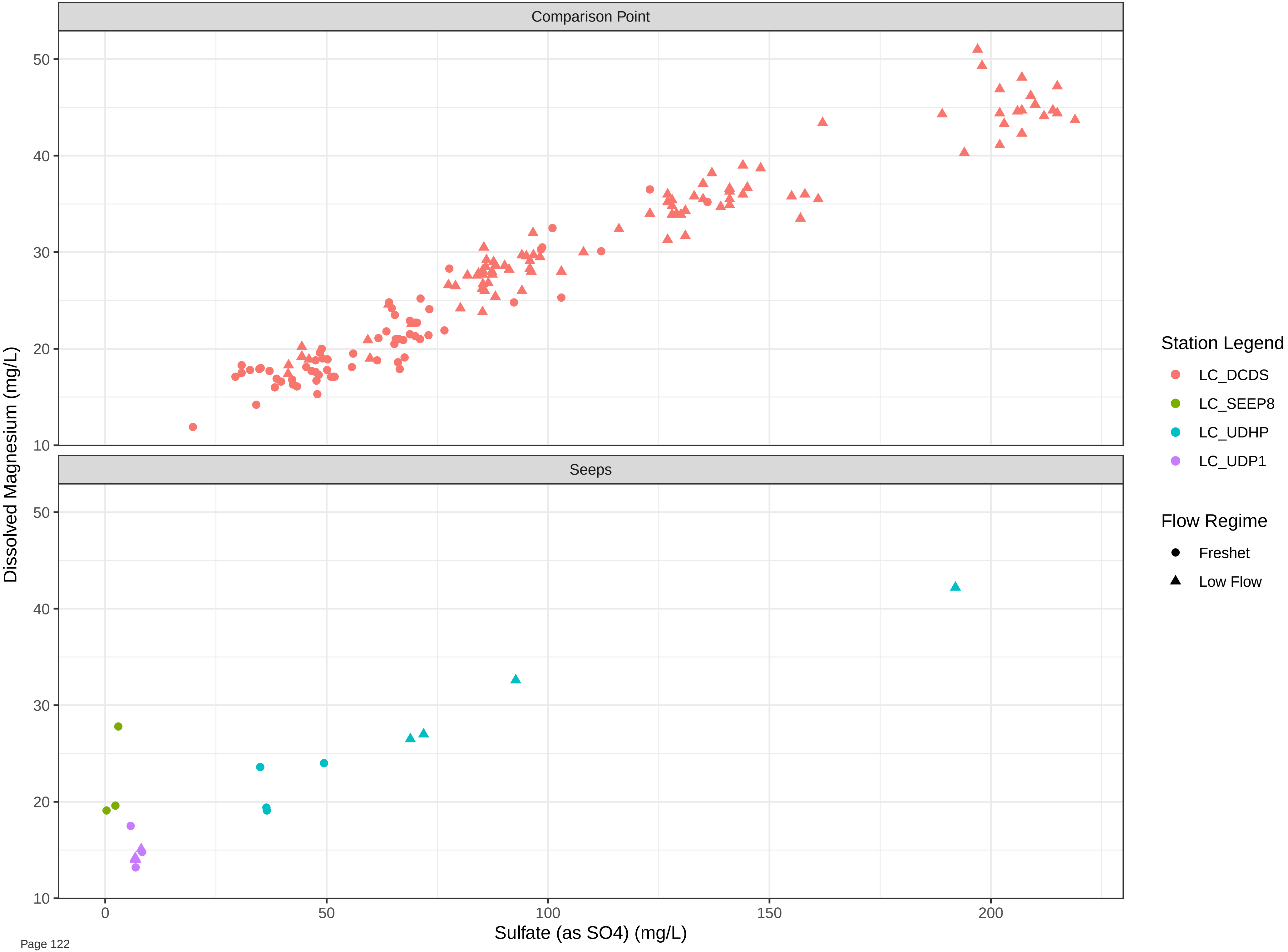

Comparison Point
Seeps
Dissolved Lithium (mg/L)
0.20
0.15
0.10
0.05
0.20
0.15
0.10
0.05
50
100
150
Sulfate (as SO4) (mg/L)
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

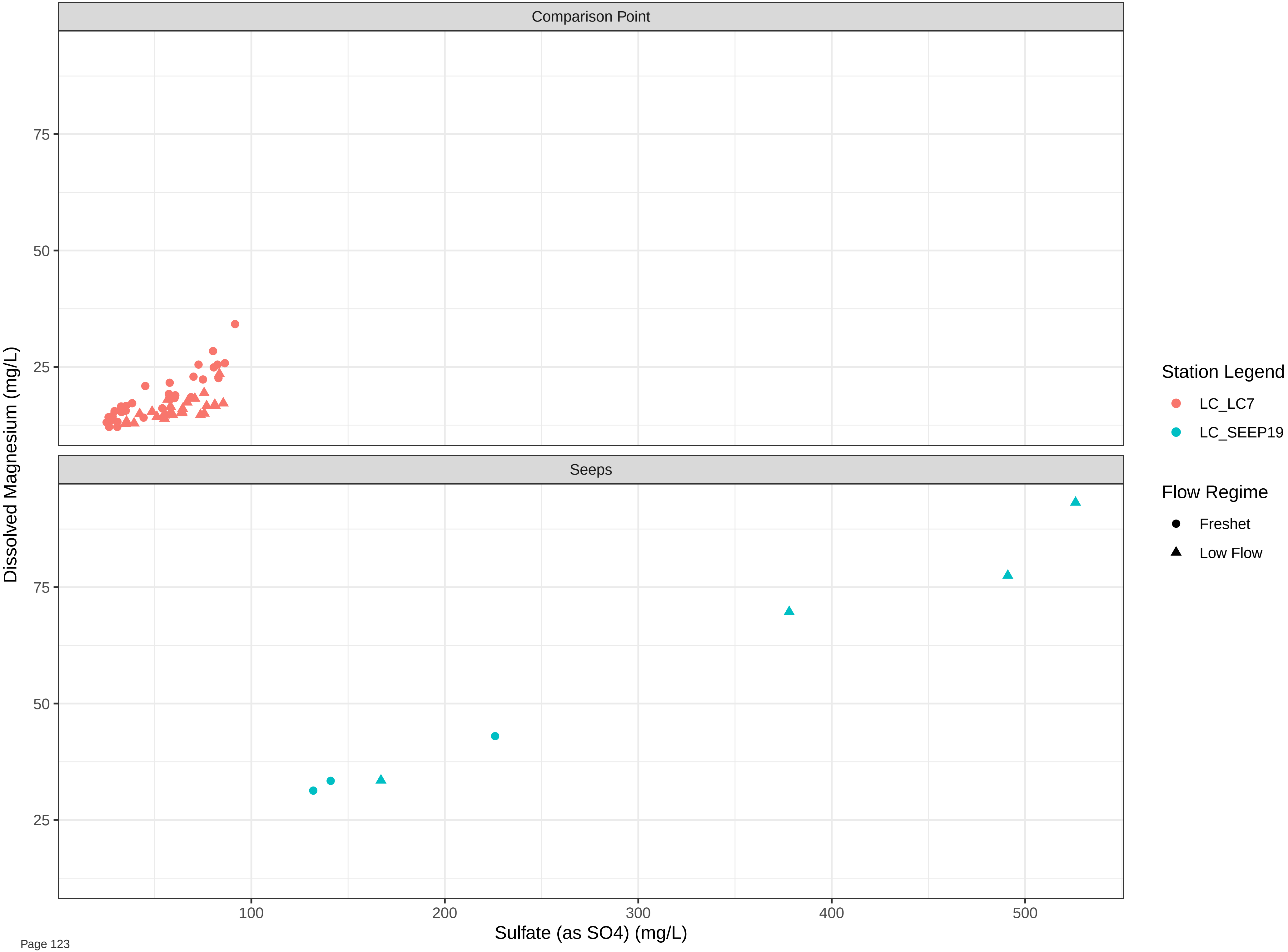

Comparison Point
Seeps
0.03
0.02
0.01
0.03
0.02
0.01
Dissolved Lithium (mg/L)
100
150
200
250
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC5
LC_SEEP10
Flow Regime
Freshet
Low Flow

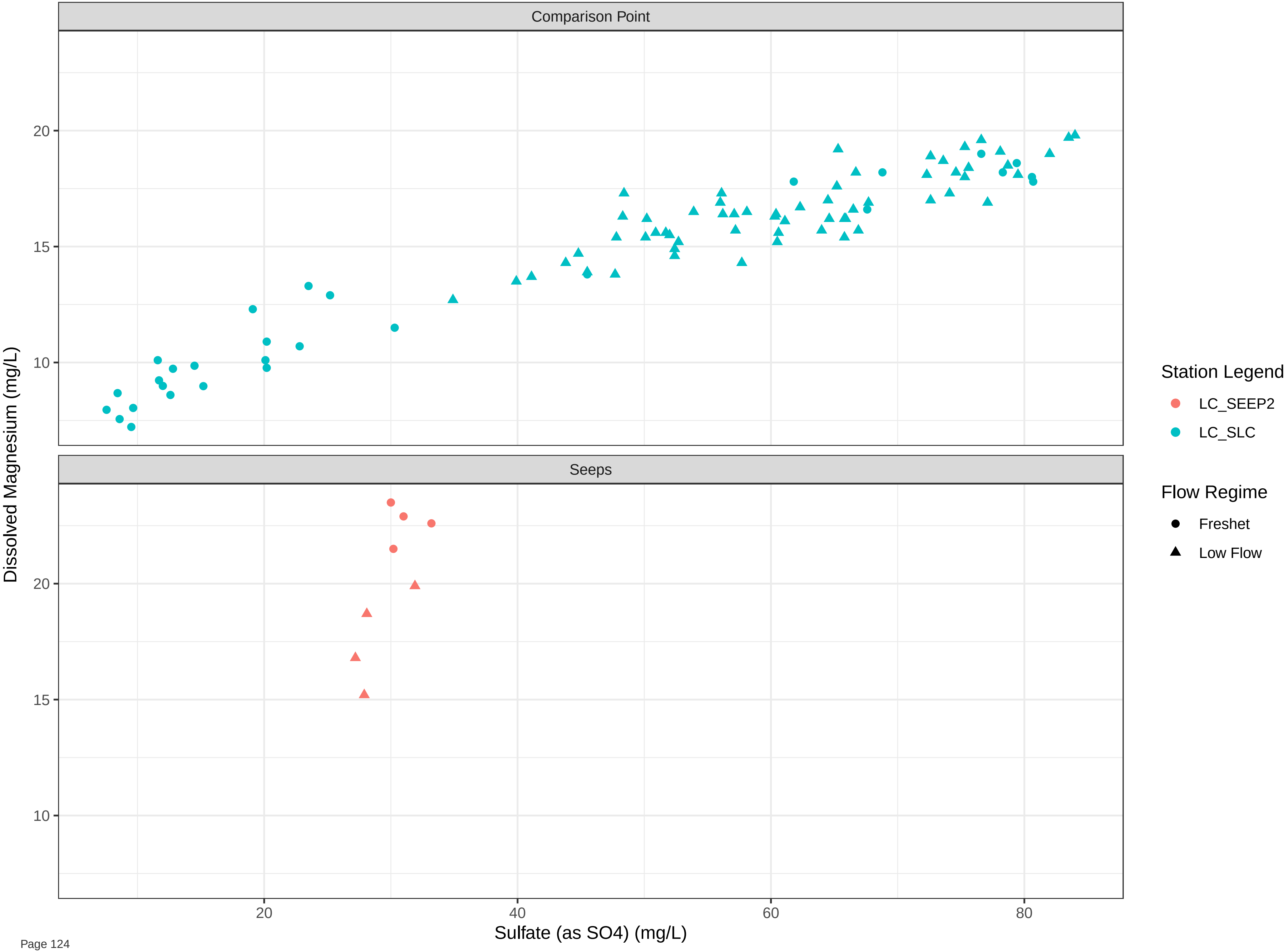

Seeps
Dissolved Lithium (mg/L)
0.036
0.032
0.028
0.024
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP11
Flow Regime
Freshet
Low Flow

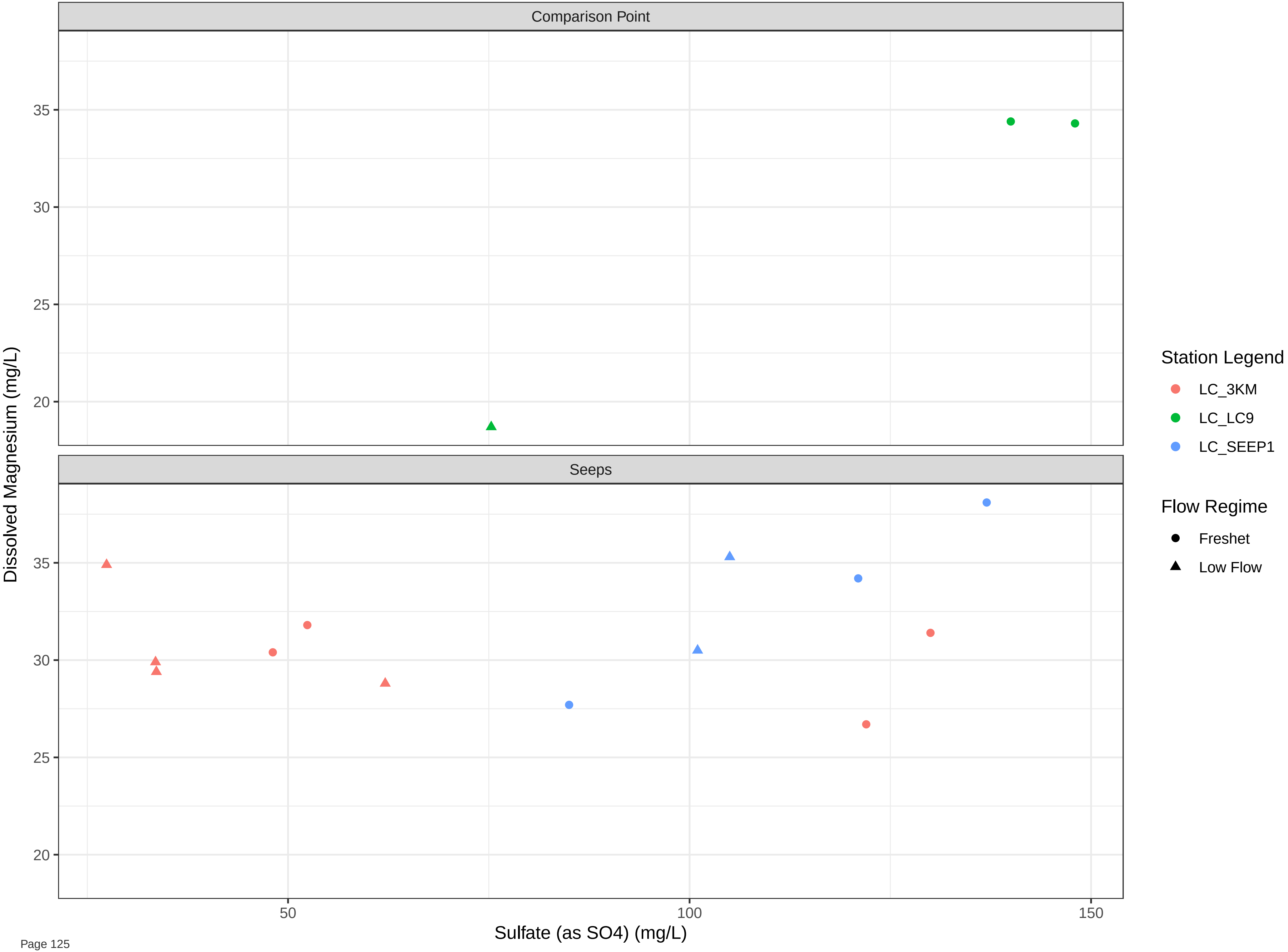

Comparison Point
Seeps
Dissolved Lithium (mg/L)
0.08
0.06
0.04
0.02
Sulfate (as SO4) (mg/L)
100
200
300
400
500
600
Station Legend
● LC_LC3
● LC_WLC_LOT2
Flow Regime
● Freshet
▲ Low Flow

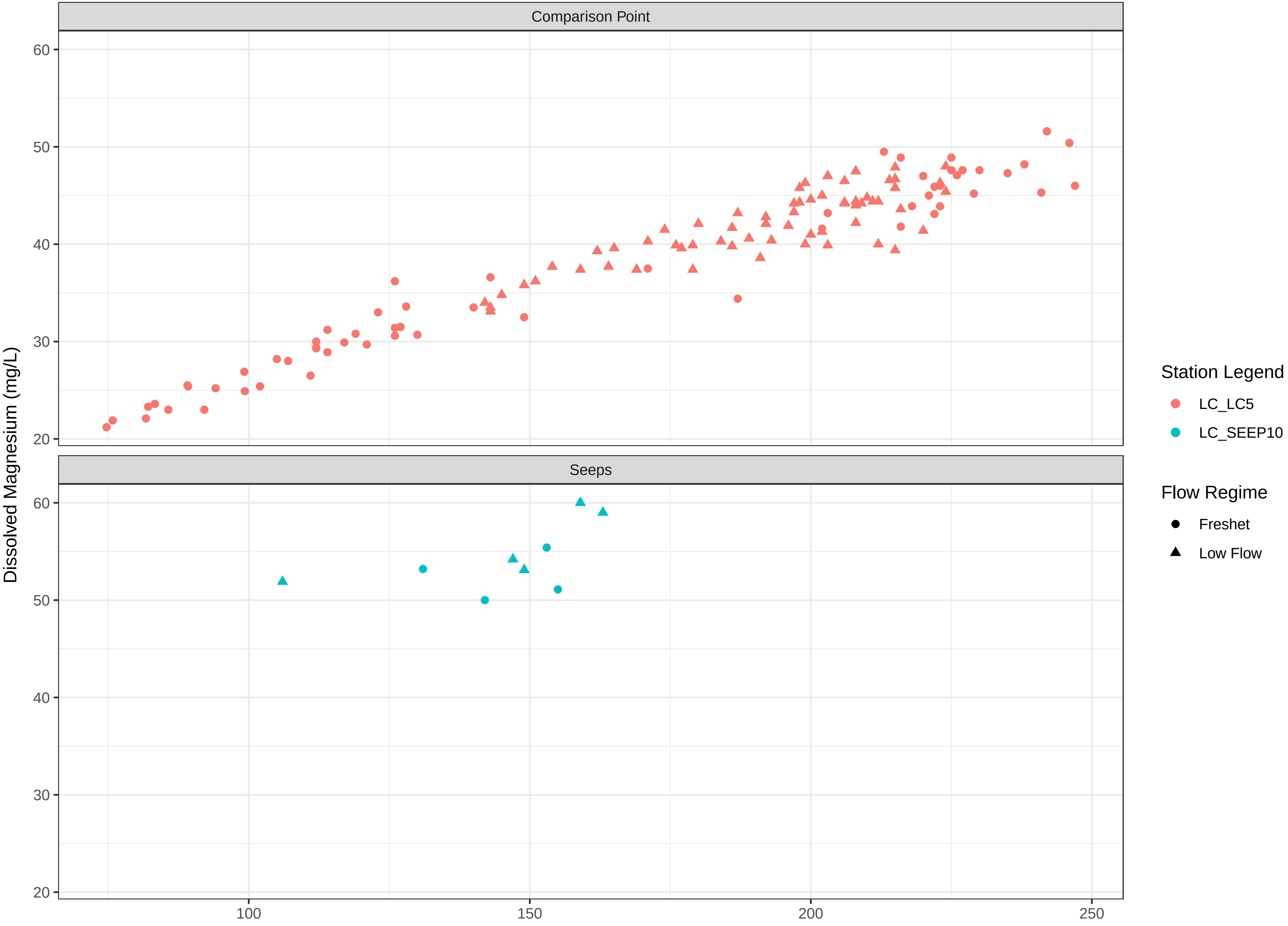

Seeps
Dissolved Magnesium (mg/L)
70
60
50
40
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP14
LC_SEEP15
Flow Regime
Freshet
Low Flow

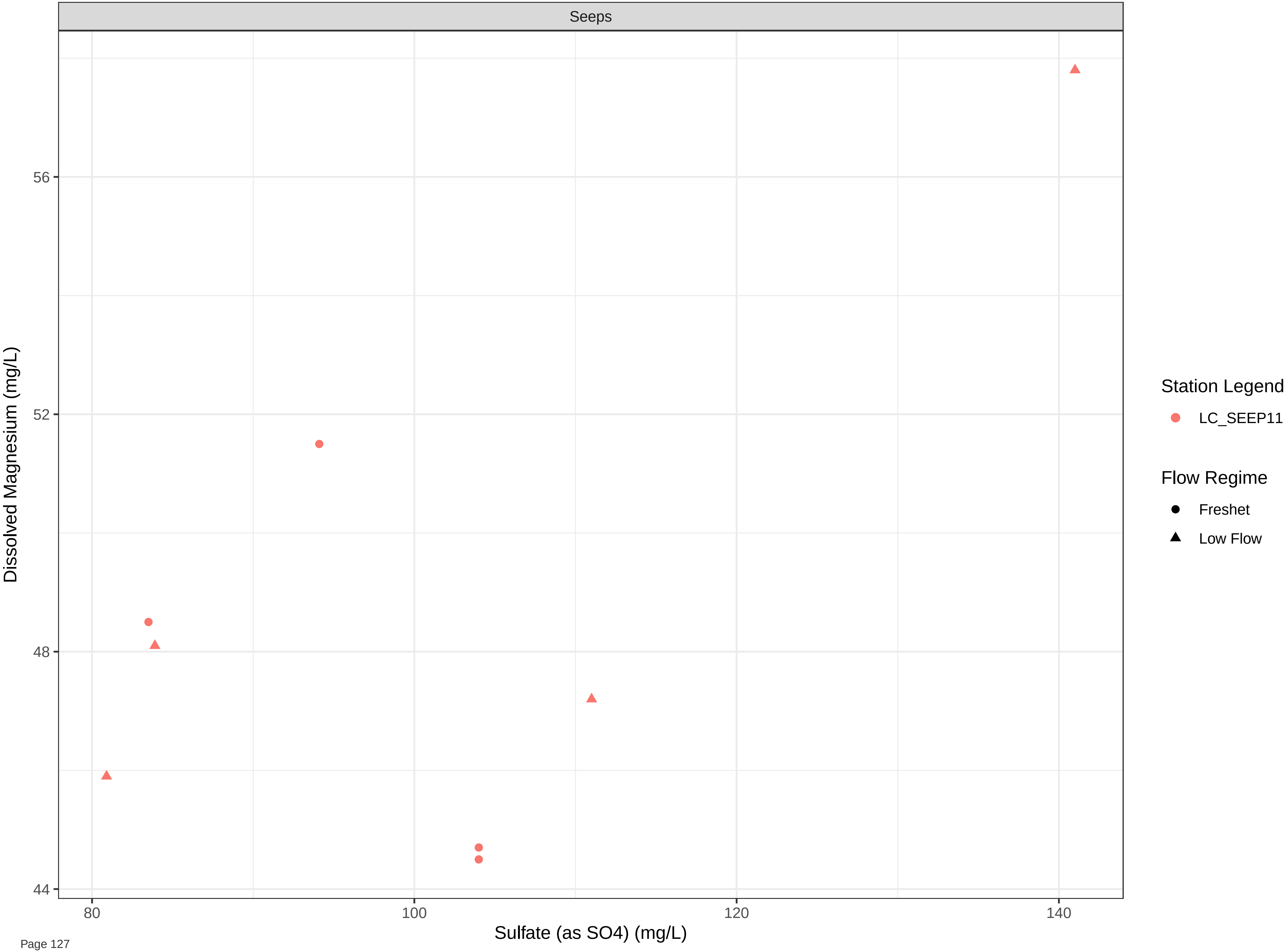

Comparison Point
Seeps
Dissolved Magnesium (mg/L)
10
20
30
40
50
Sulfate (as SO4) (mg/L)
0
50
100
150
200
Station Legend
LC_DCDS
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

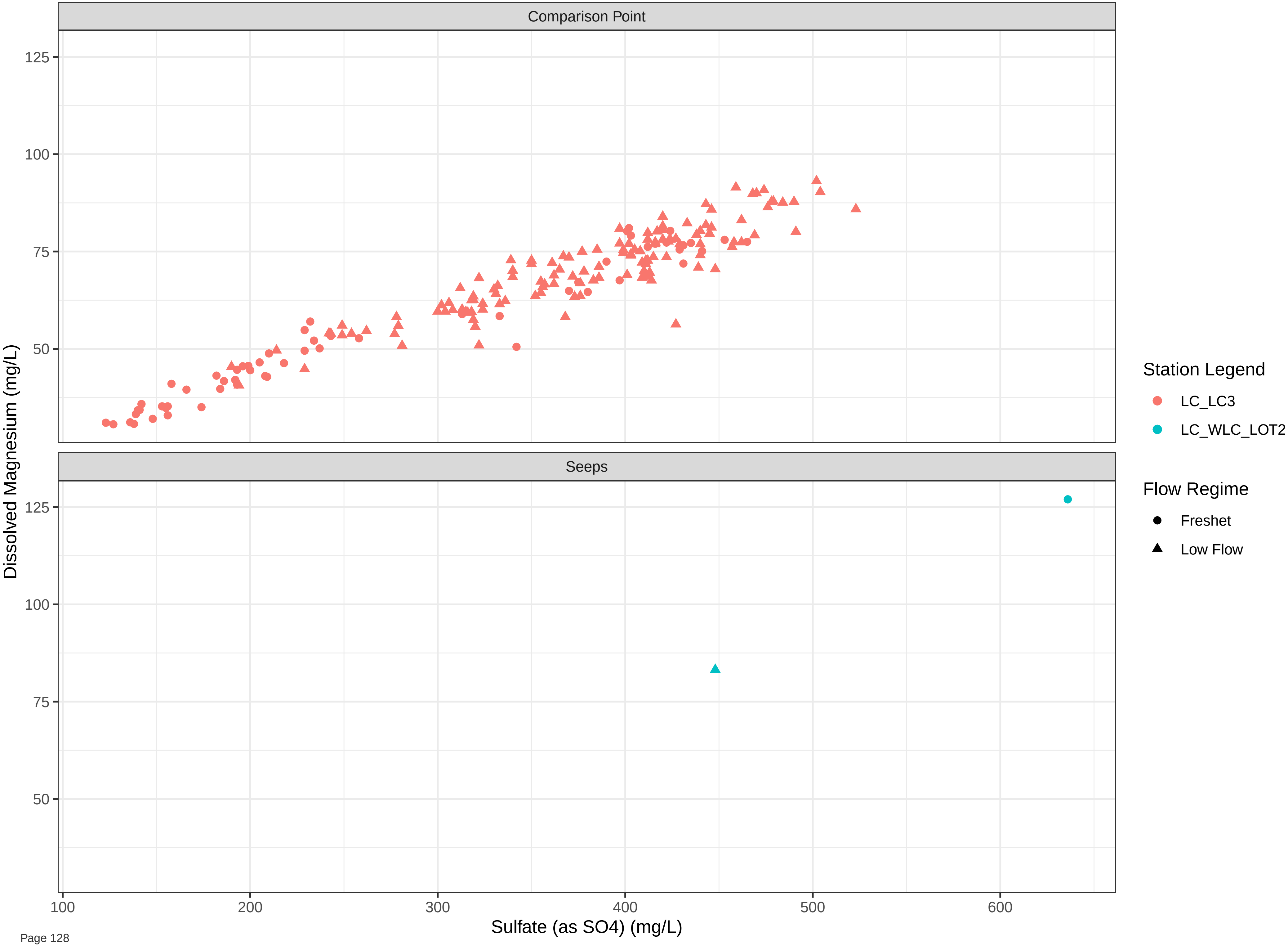

Comparison Point
Seeps
Dissolved Magnesium (mg/L)
75
50
25
75
50
25
100
200
300
400
500
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC7
LC_SEEP19
Flow Regime
Freshet
Low Flow

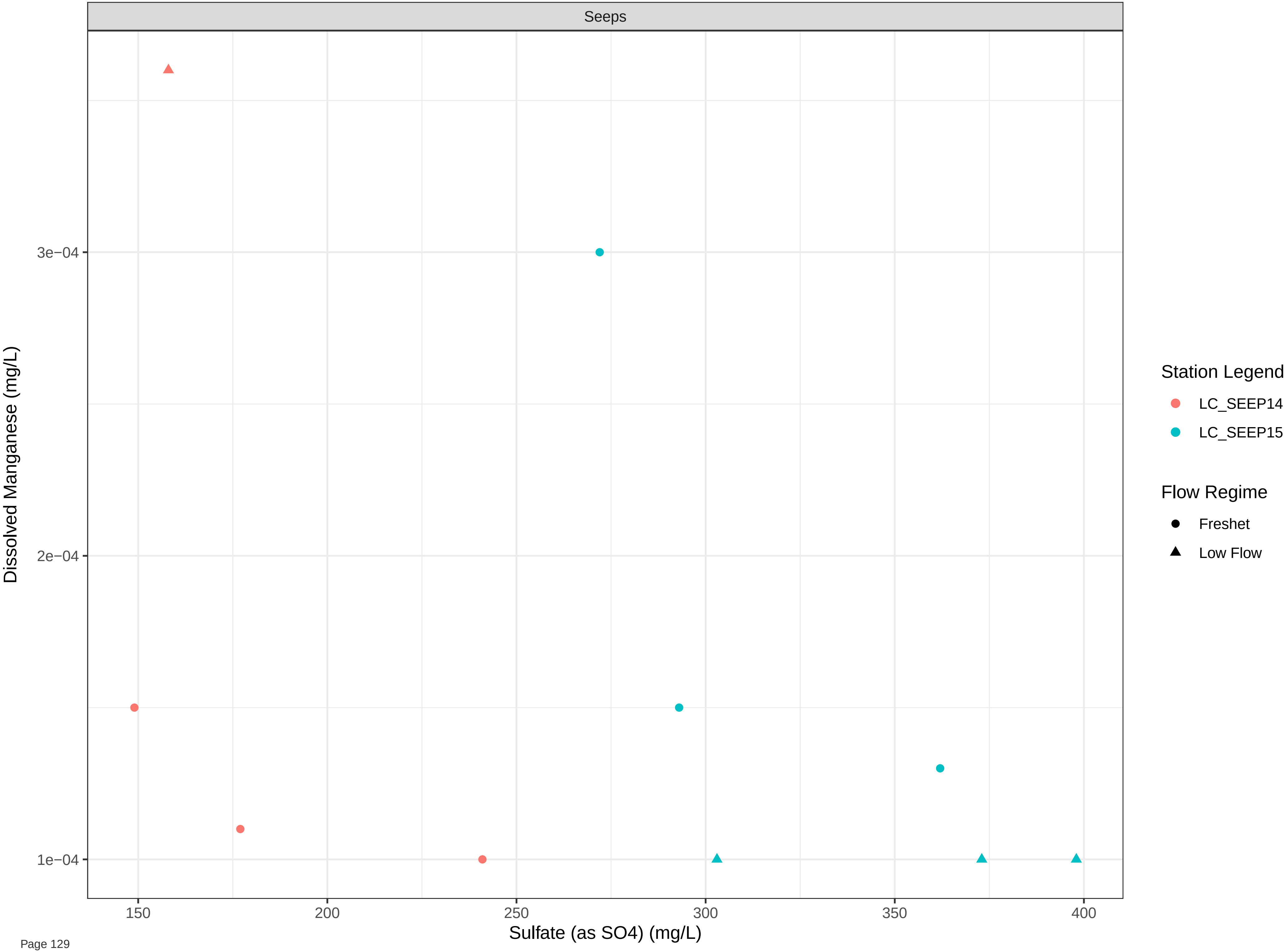

Comparison Point
Seeps
Dissolved Magnesium (mg/L)
Sulfate (as SO4) (mg/L)
20
15
10
20
15
10
20
40
60
80
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
Freshet
Low Flow

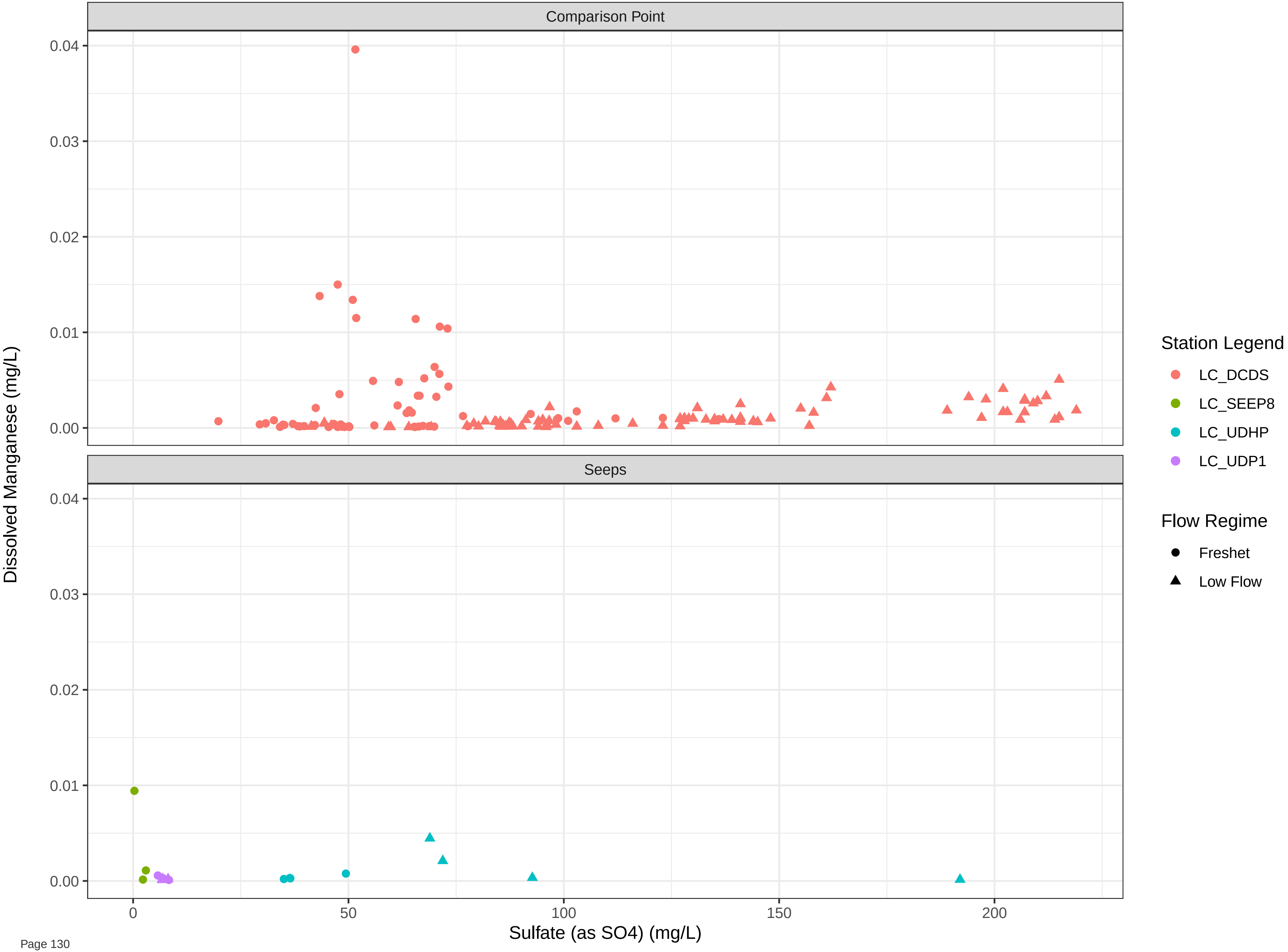

Comparison Point
Seeps
Dissolved Magnesium (mg/L)
Sulfate (as SO4) (mg/L)
35
30
25
20
35
30
25
20
50
100
150
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

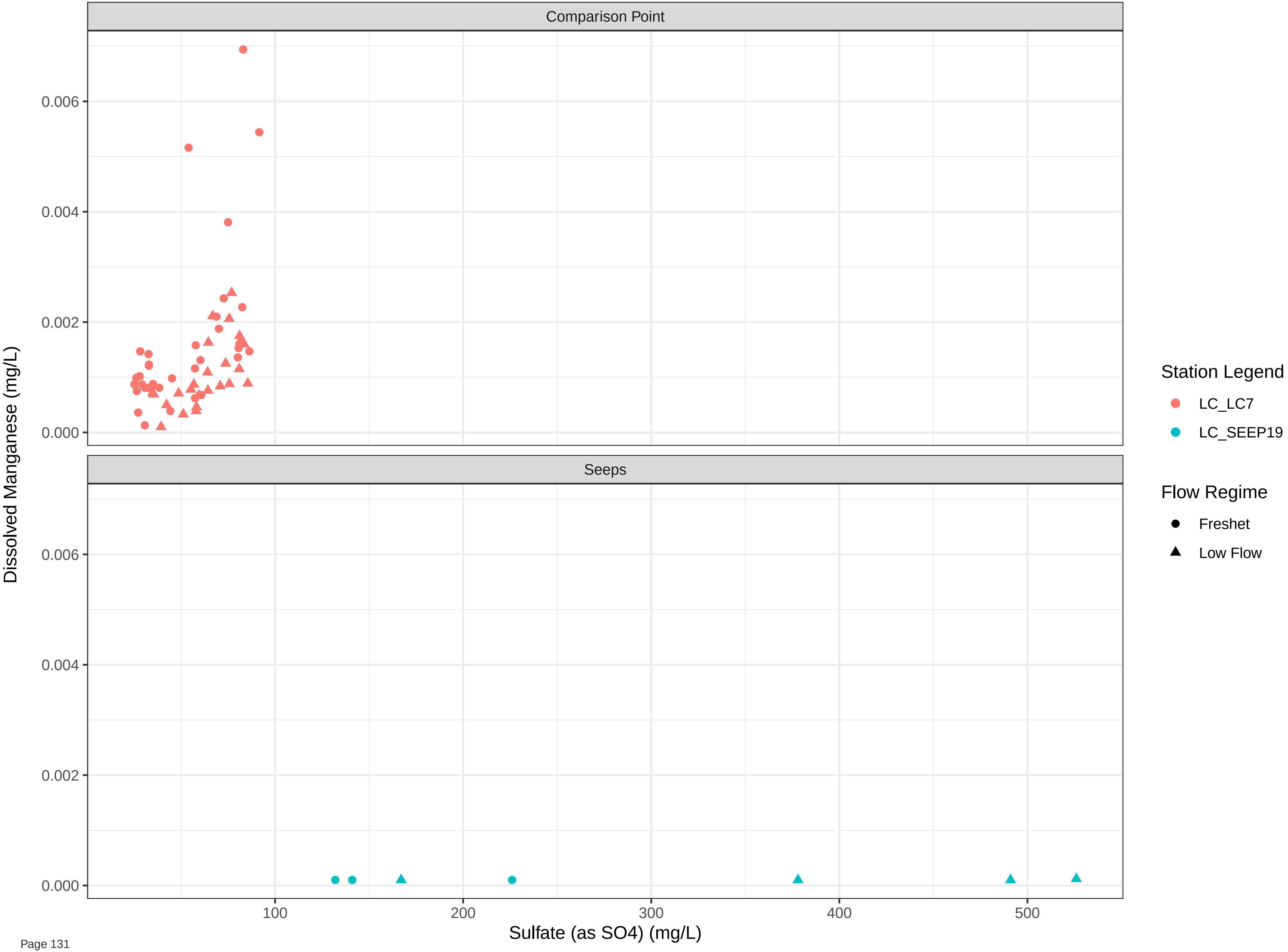

Comparison Point
Seeps
Dissolved Magnesium (mg/L)
Sulfate (as SO4) (mg/L)
60
50
40
30
20
100
150
200
250
Station Legend
LC_LC5
LC_SEEP10
Flow Regime
Freshet
Low Flow

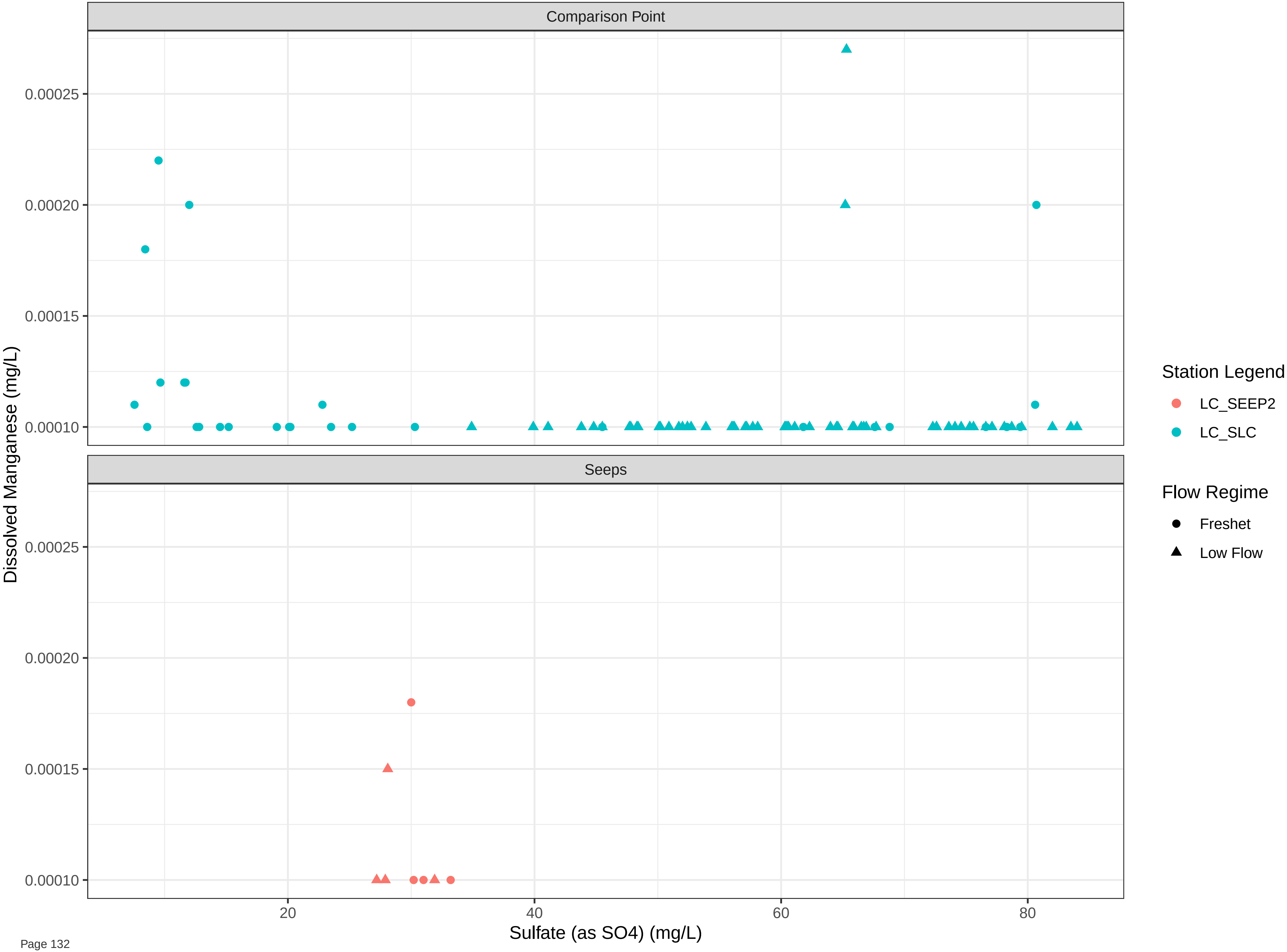

Seeps
Dissolved Magnesium (mg/L)
56
52
48
44
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow


Comparison Point
Seeps
Dissolved Magnesium (mg/L)
125
100
75
50
Sulfate (as SO4) (mg/L)
100
200
300
400
500
600
Station Legend
● LC_LC3
● LC_WLC_LOT2
Flow Regime
● Freshet
▲ Low Flow

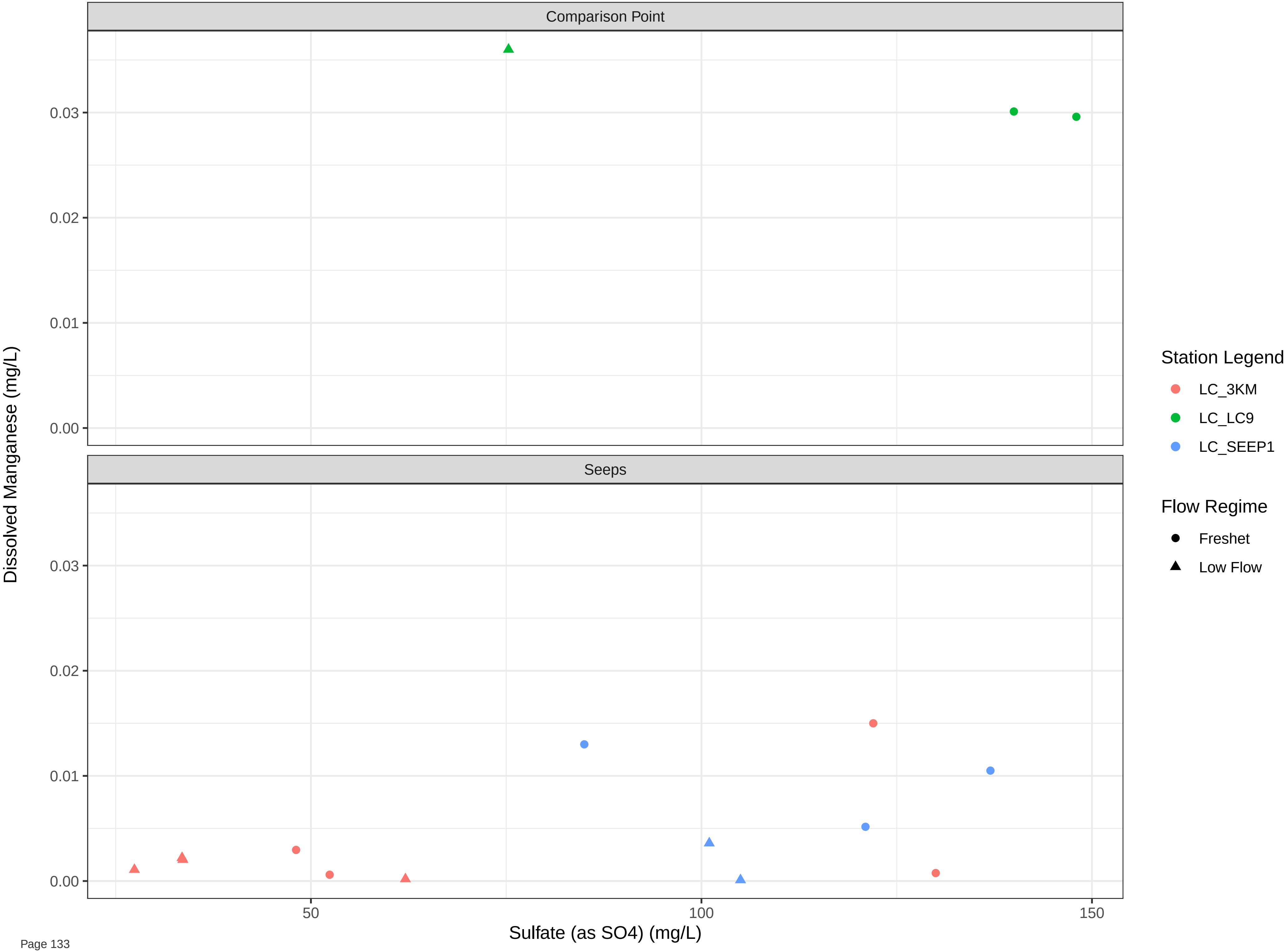

Seeps
Dissolved Manganese (mg/L)
3e−04
2e−04
1e−04
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
● LC_SEEP14
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow

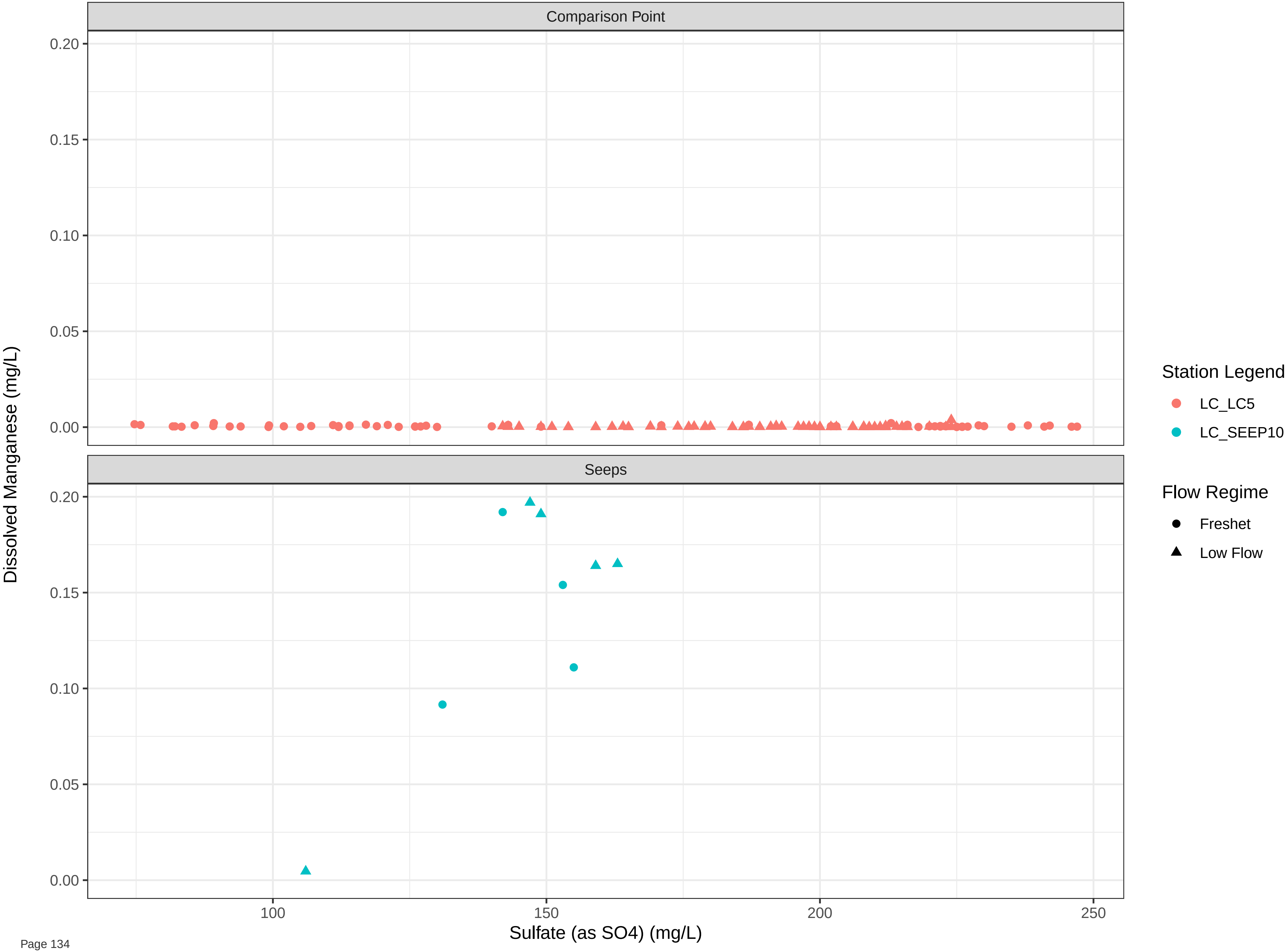

Comparison Point
Seeps
Dissolved Manganese (mg/L)
0.04
0.03
0.02
0.01
0.00
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
● LC_DCDS
● LC_SEEP8
● LC_UDHP
● LC_UDP1
Flow Regime
● Freshet
▲ Low Flow


Comparison Point
Seeps
Dissolved Manganese (mg/L)
0.000
0.002
0.004
0.006
Sulfate (as SO4) (mg/L)
100
200
300
400
500
Station Legend
LC_LC7
LC_SEEP19
Flow Regime
Freshet
Low Flow

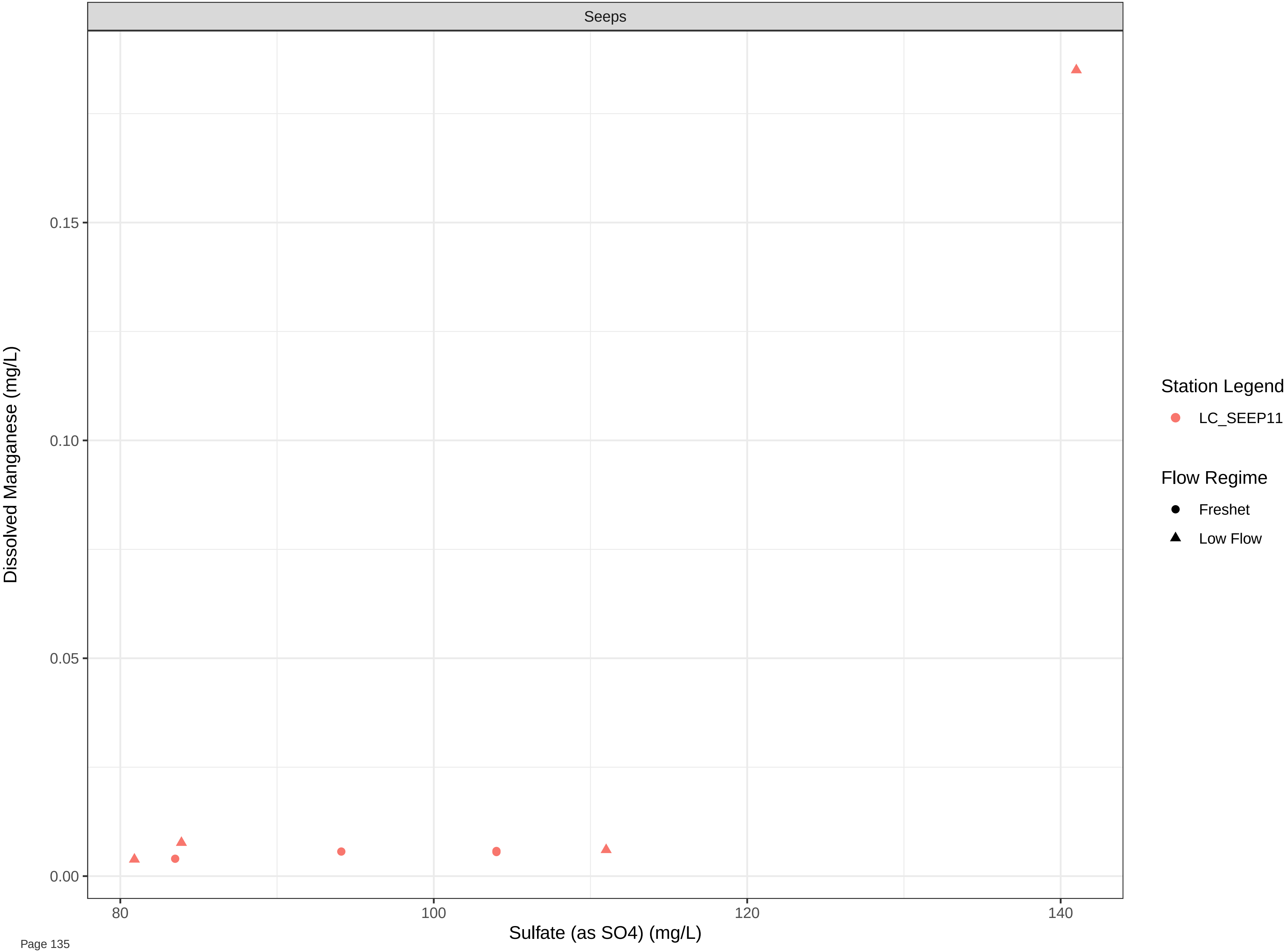


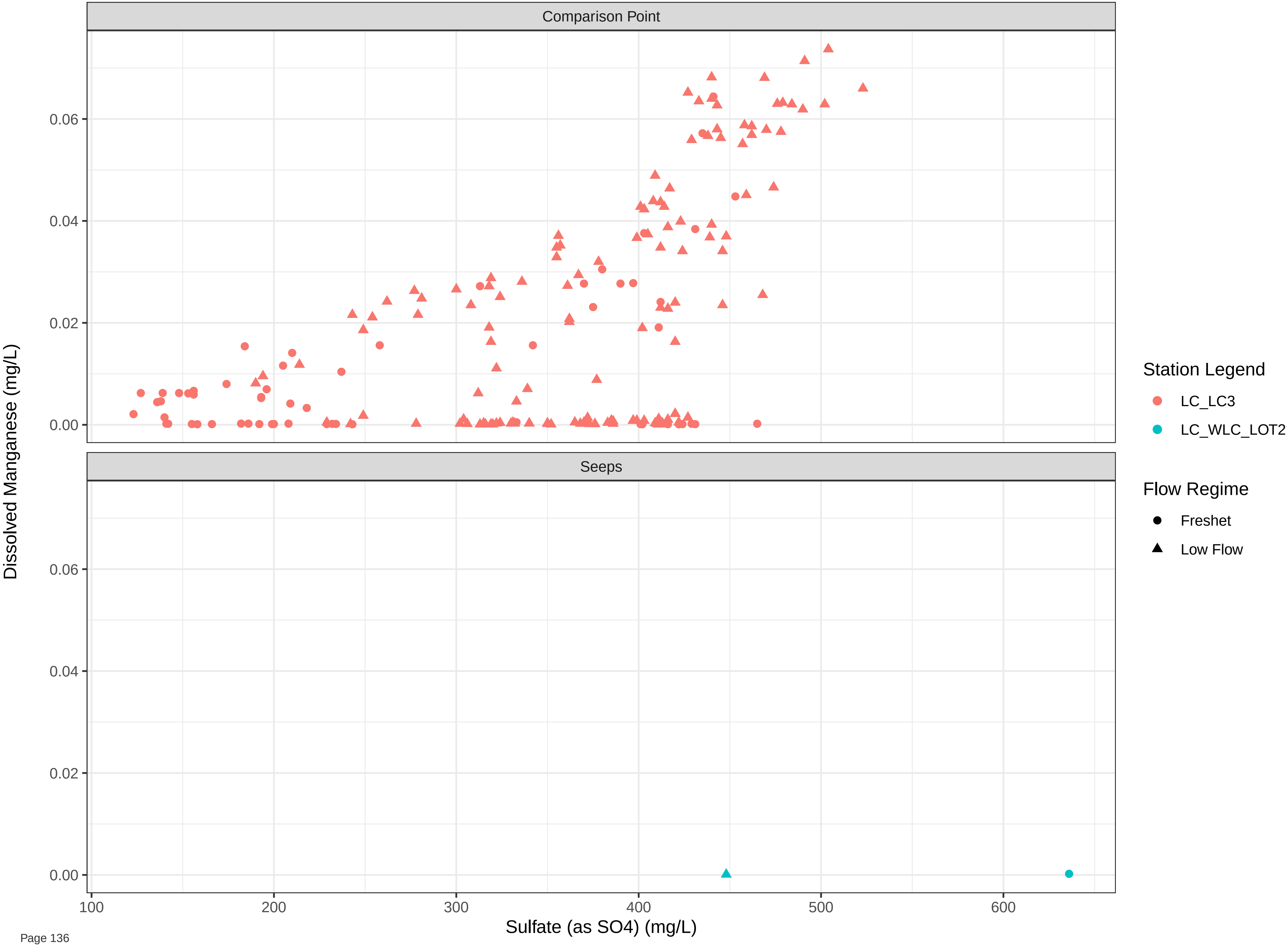
Comparison Point
Seeps
Dissolved Manganese (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00025
0.00020
0.00015
0.00010
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
Freshet
Low Flow

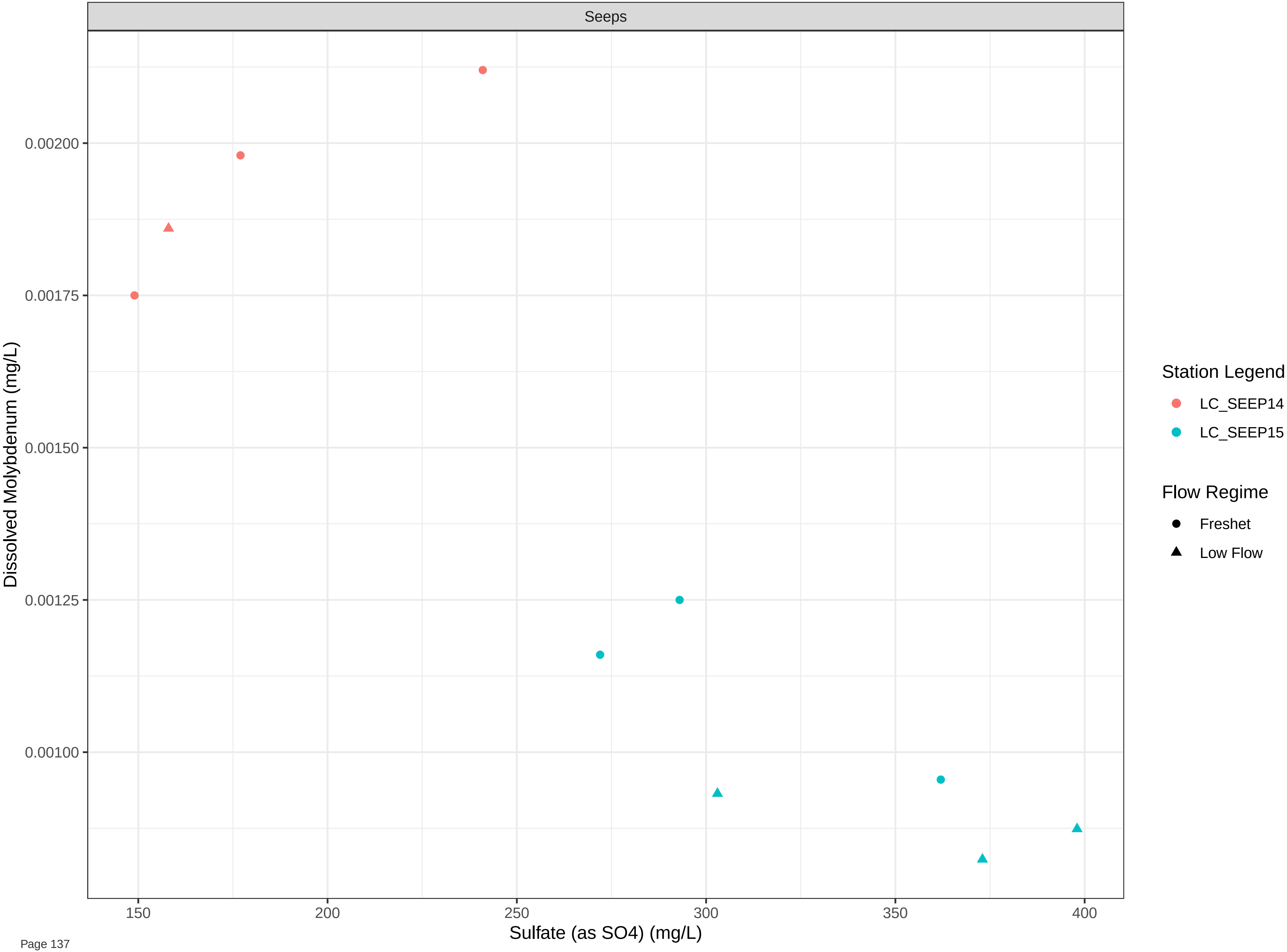

Comparison Point
Seeps
Dissolved Manganese (mg/L)
0.03
0.02
0.01
0.00
0.03
0.02
0.01
0.00
50
100
150
Sulfate (as SO4) (mg/L)
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

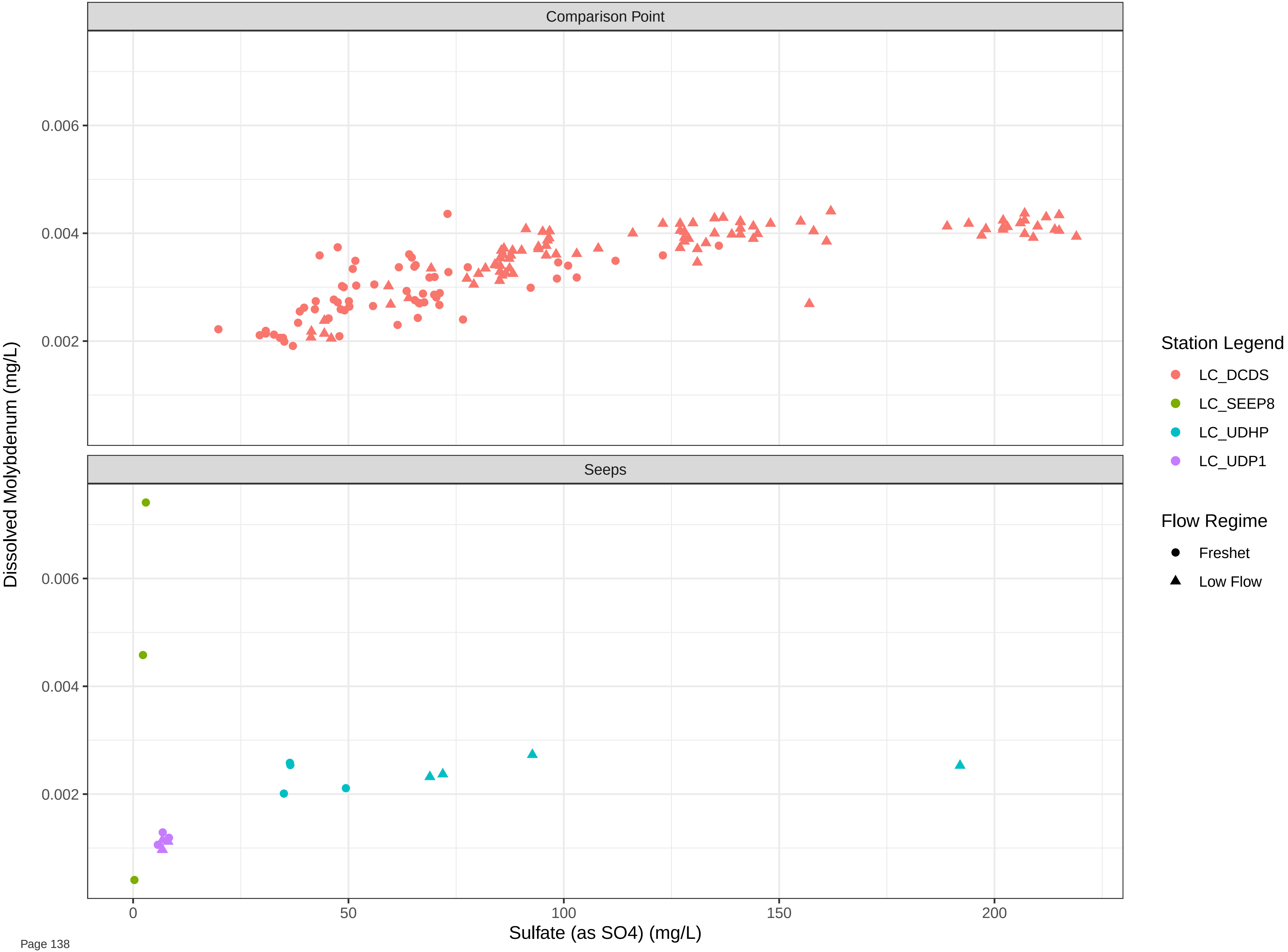


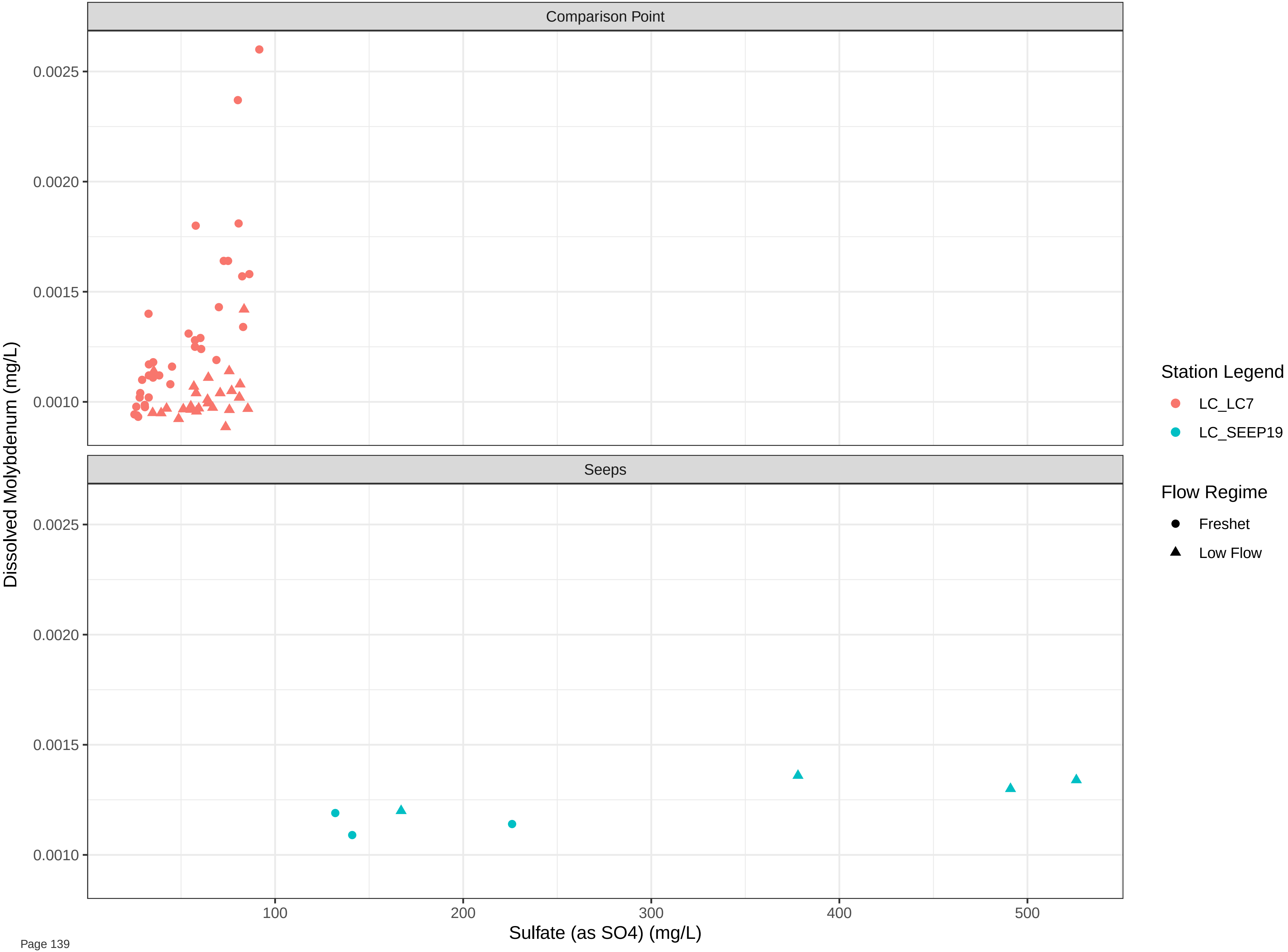
Comparison Point
Seeps
0.20
0.15
0.10
0.05
0.00
Dissolved Manganese (mg/L)
100
150
200
250
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC5
LC_SEEP10
Flow Regime
Freshet
Low Flow

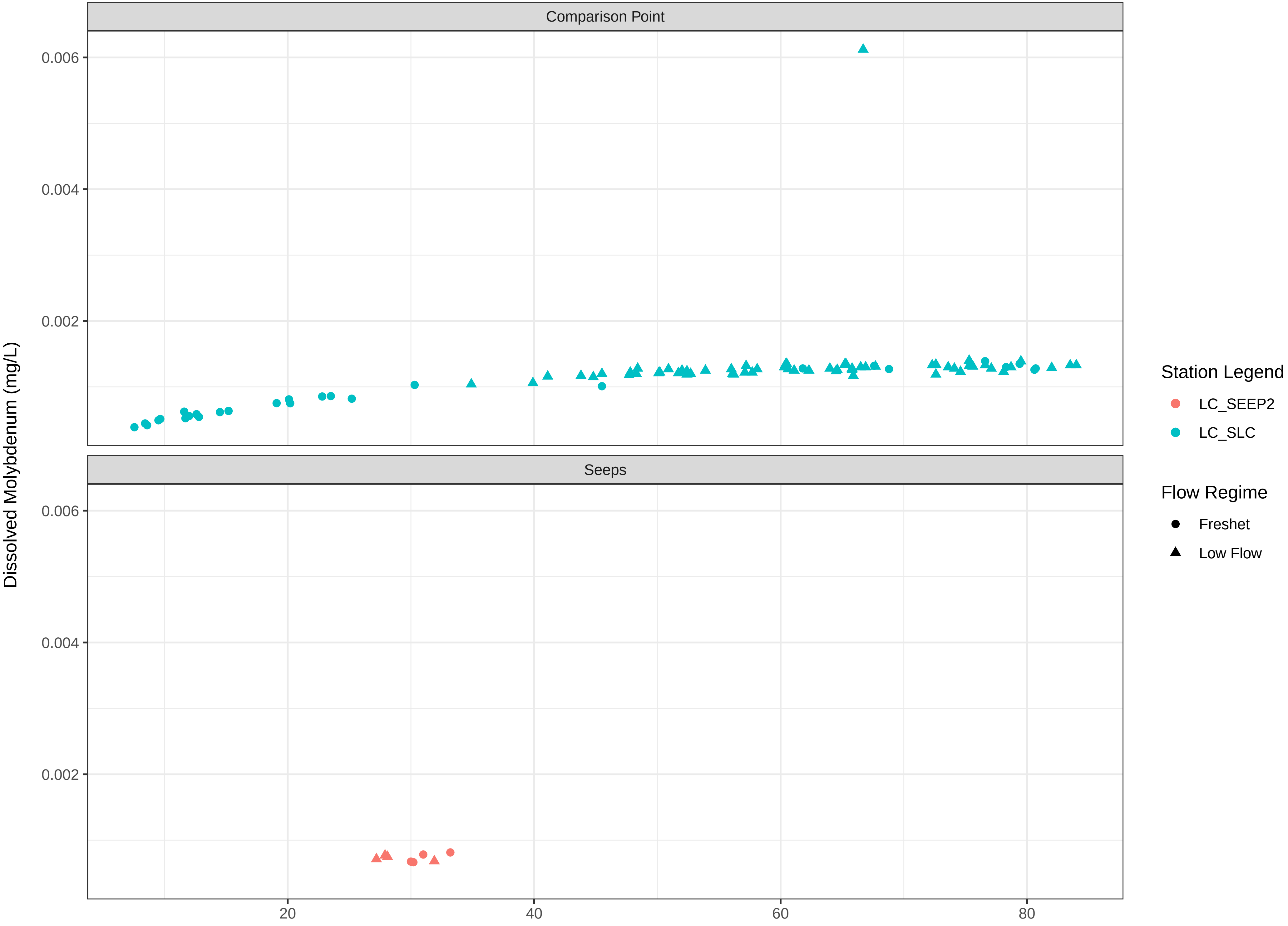

Seeps
Dissolved Manganese (mg/L)
0.00
0.05
0.10
0.15
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

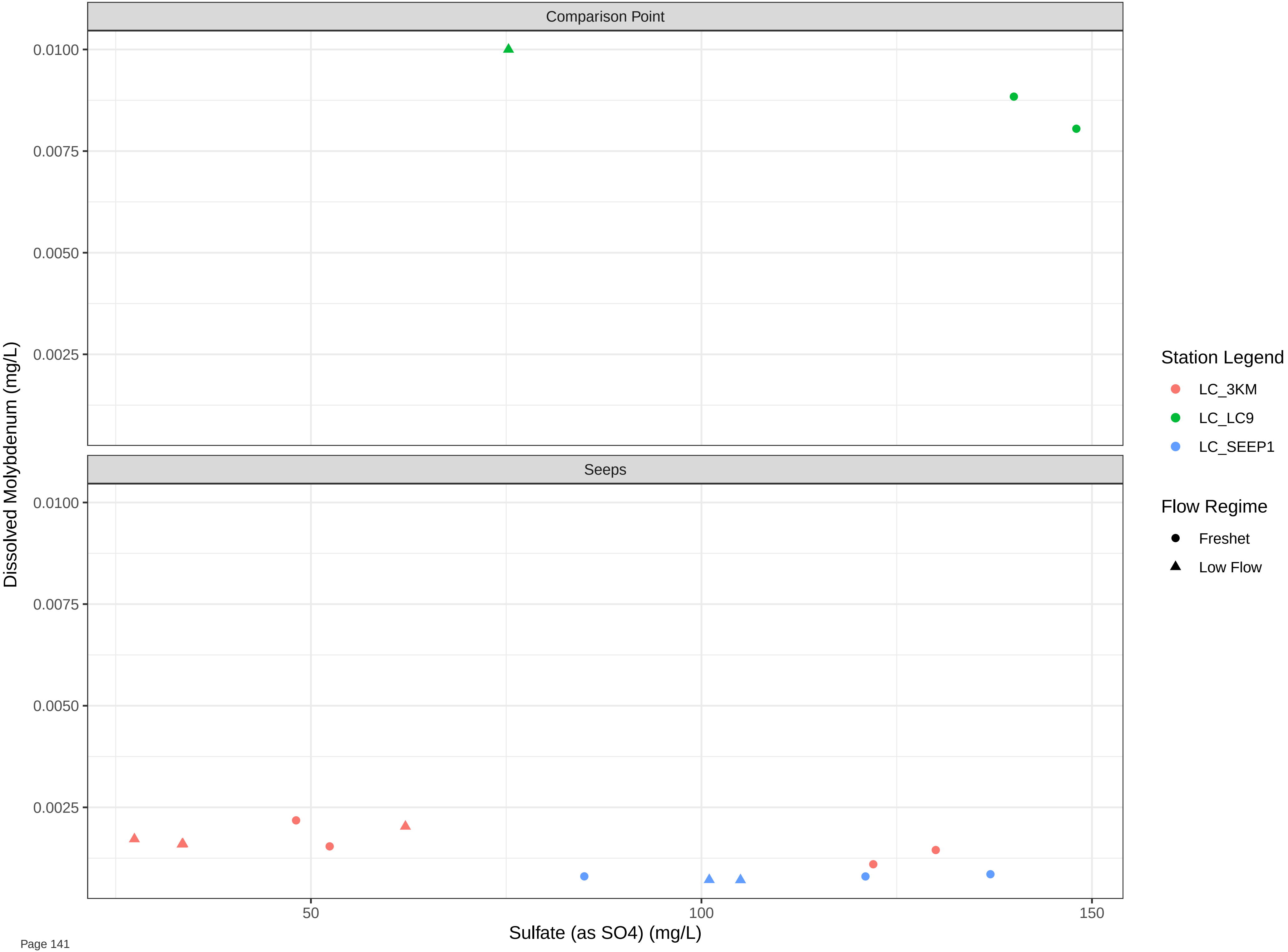

Comparison Point
Seeps
Dissolved Manganese (mg/L)
0.00
0.02
0.04
0.06
Sulfate (as SO4) (mg/L)
100
200
300
400
500
600
Station Legend
LC_LC3
LC_WLC_LOT2
Flow Regime
Freshet
Low Flow

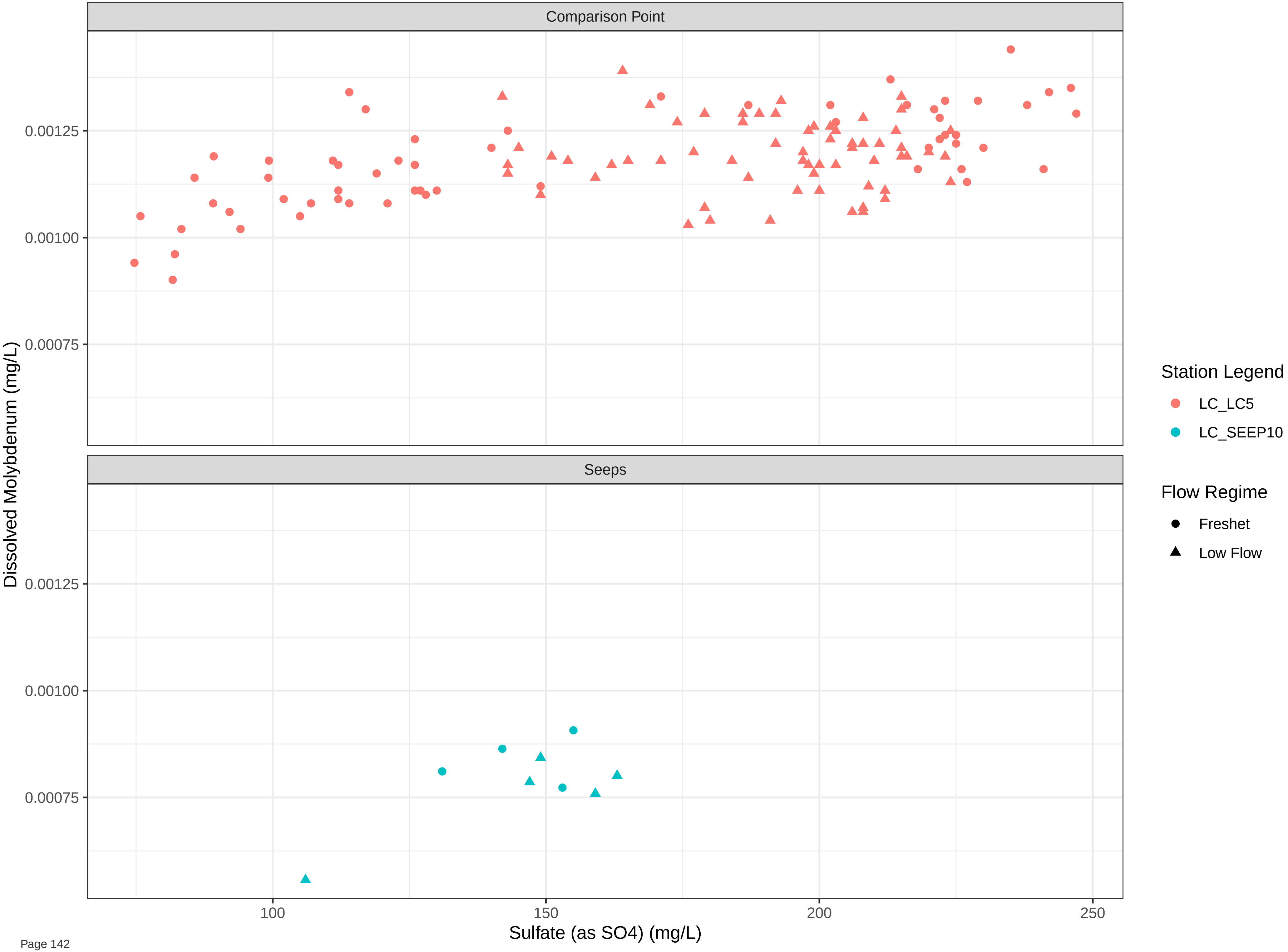

Seeps
Dissolved Molybdenum (mg/L)
0.00200
0.00175
0.00150
0.00125
0.00100
Sulfate (as SO4) (mg/L)
150
200
250
300
350
400
Station Legend
LC_SEEP14
LC_SEEP15
Flow Regime
Freshet
Low Flow

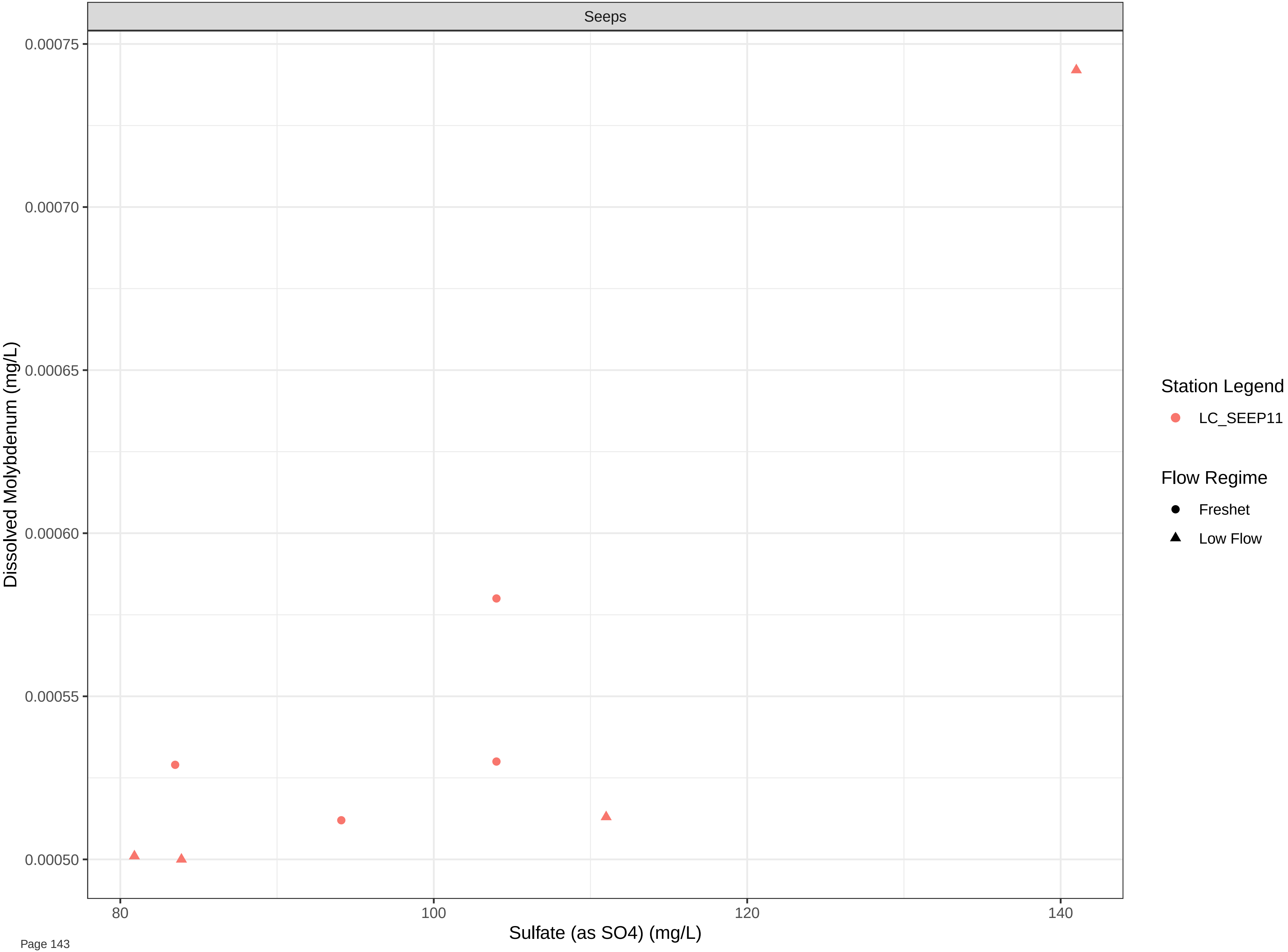

Comparison Point
Seeps
Dissolved Molybdenum (mg/L)
0.002
0.004
0.006
0.002
0.004
0.006
Sulfate (as SO4) (mg/L)
0
50
100
150
200
Station Legend
LC_DCDS
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

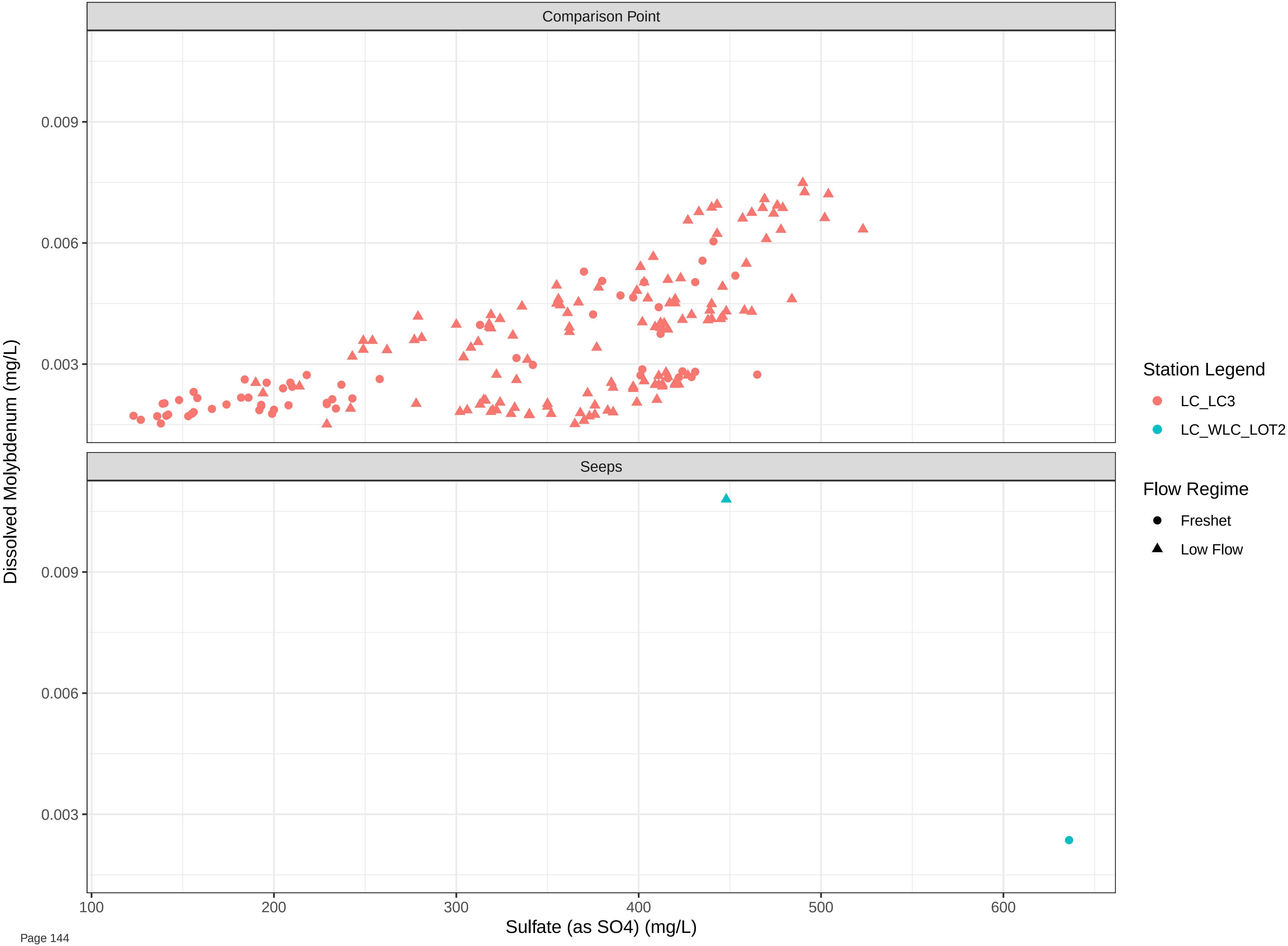

Comparison Point
Seeps
Dissolved Molybdenum (mg/L)
0.0025
0.0020
0.0015
0.0010
Sulfate (as SO4) (mg/L)
100
200
300
400
500
Station Legend
LC_LC7
LC_SEEP19
Flow Regime
Freshet
Low Flow

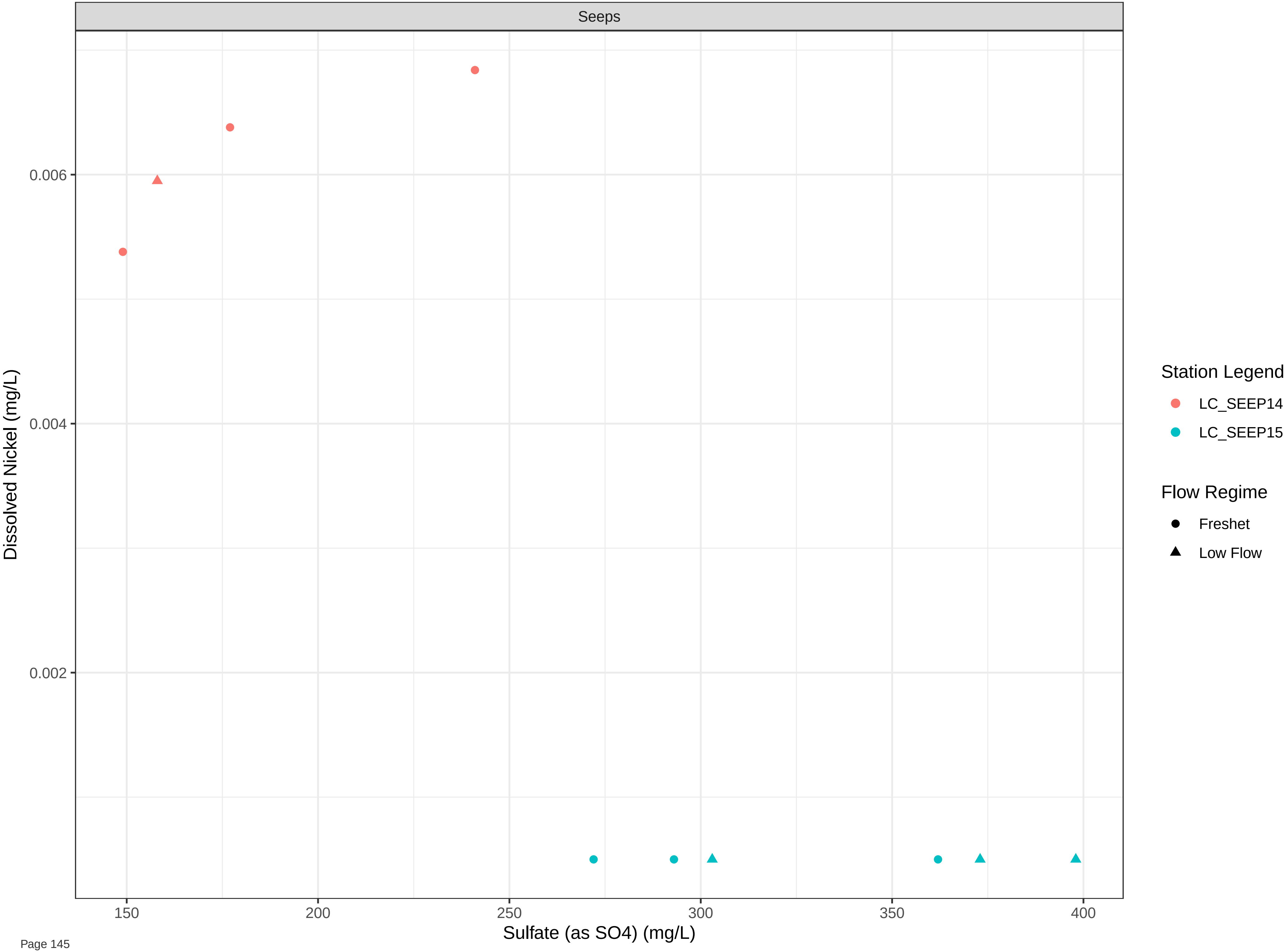

Comparison Point
Seeps
Dissolved Molybdenum (mg/L)
0.006
0.004
0.002
0.006
0.004
0.002
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
Freshet
Low Flow

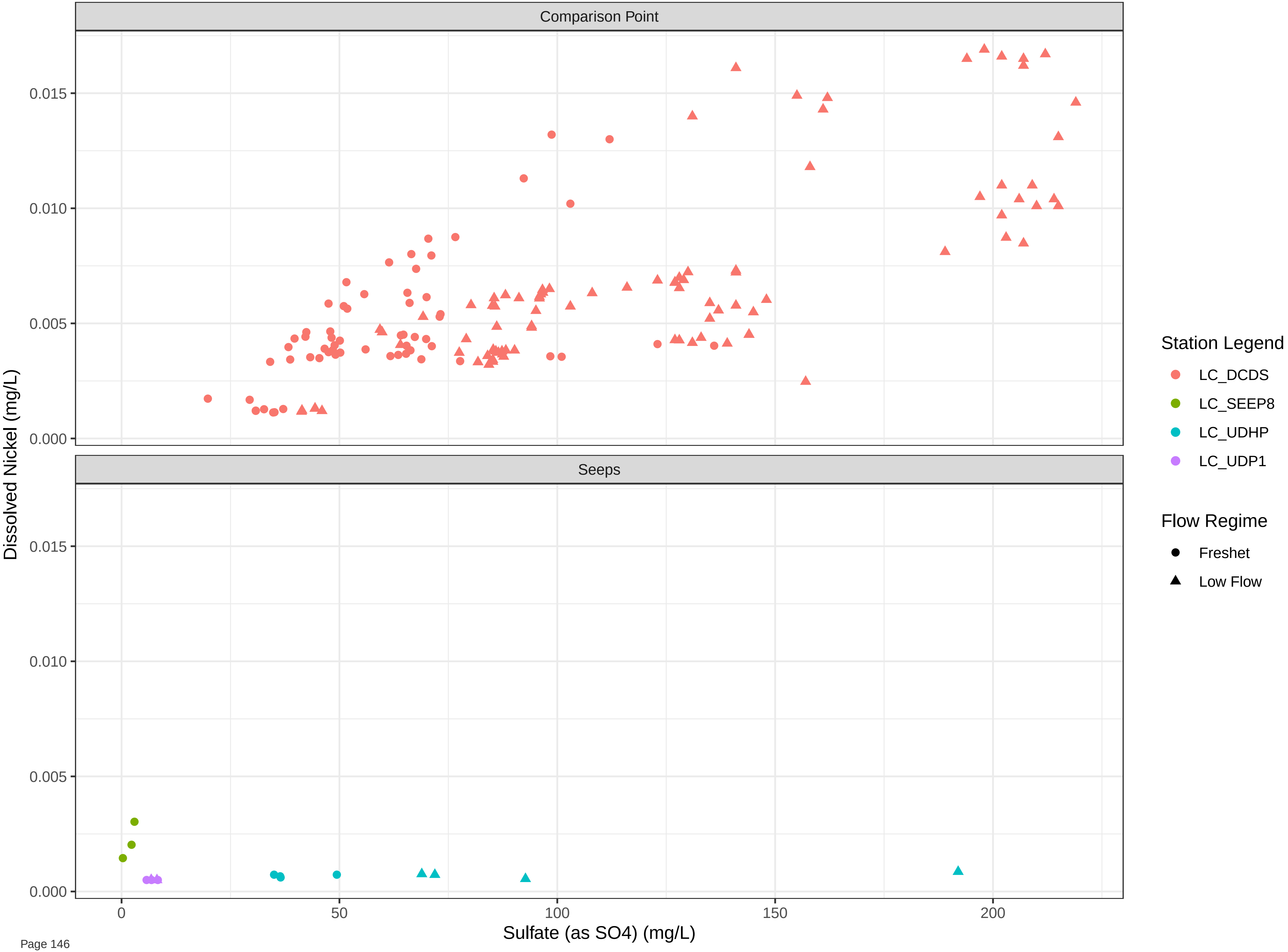

Comparison Point
Seeps
Dissolved Molybdenum (mg/L)
0.0100
0.0075
0.0050
0.0025
Sulfate (as SO4) (mg/L)
50
100
150
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

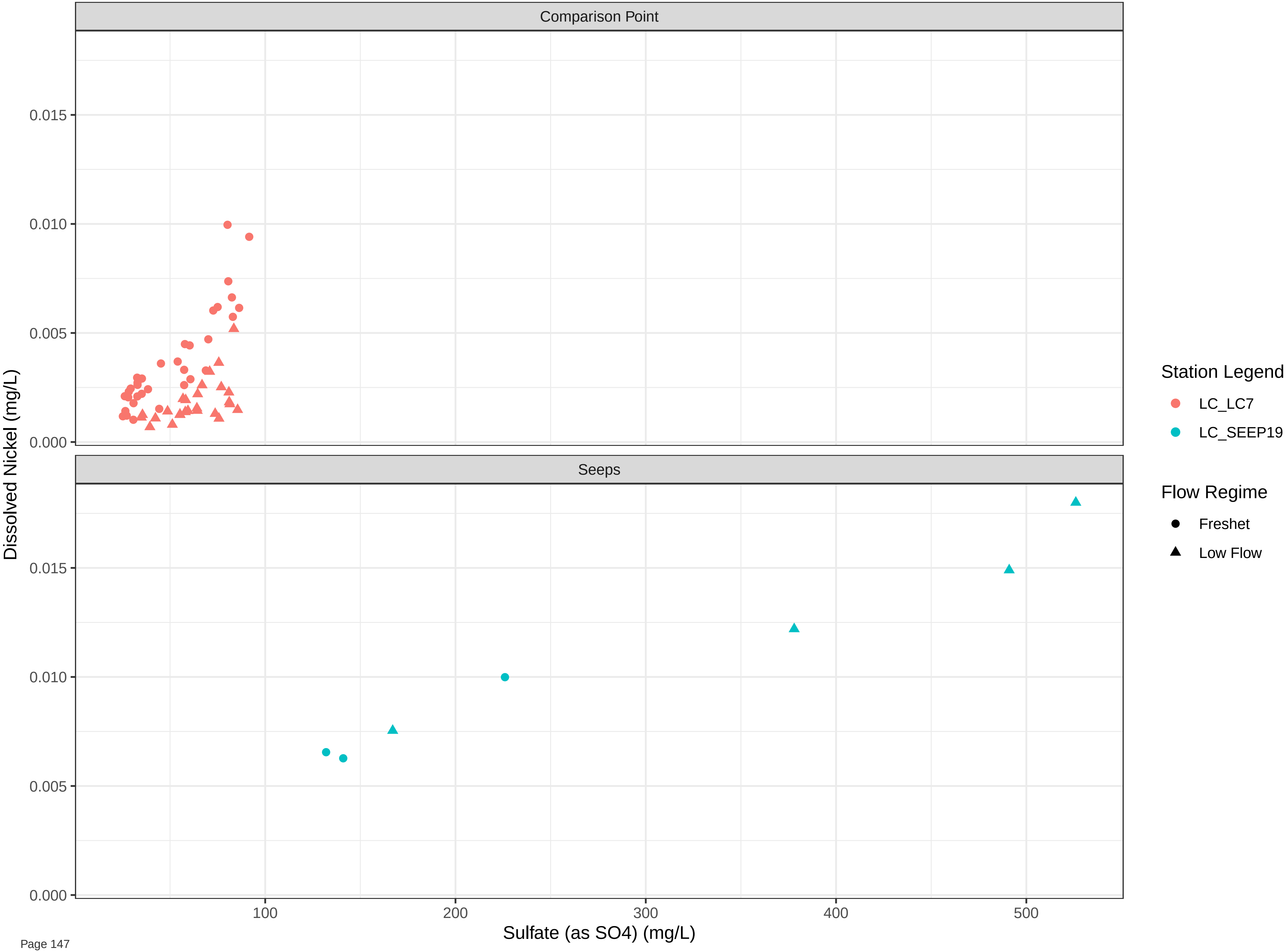

Comparison Point
Seeps
Dissolved Molybdenum (mg/L)
0.00125
0.00100
0.00075
0.00125
0.00100
0.00075
100
150
200
250
Sulfate (as SO4) (mg/L)
Station Legend
● LC_LC5
● LC_SEEP10
Flow Regime
● Freshet
▲ Low Flow

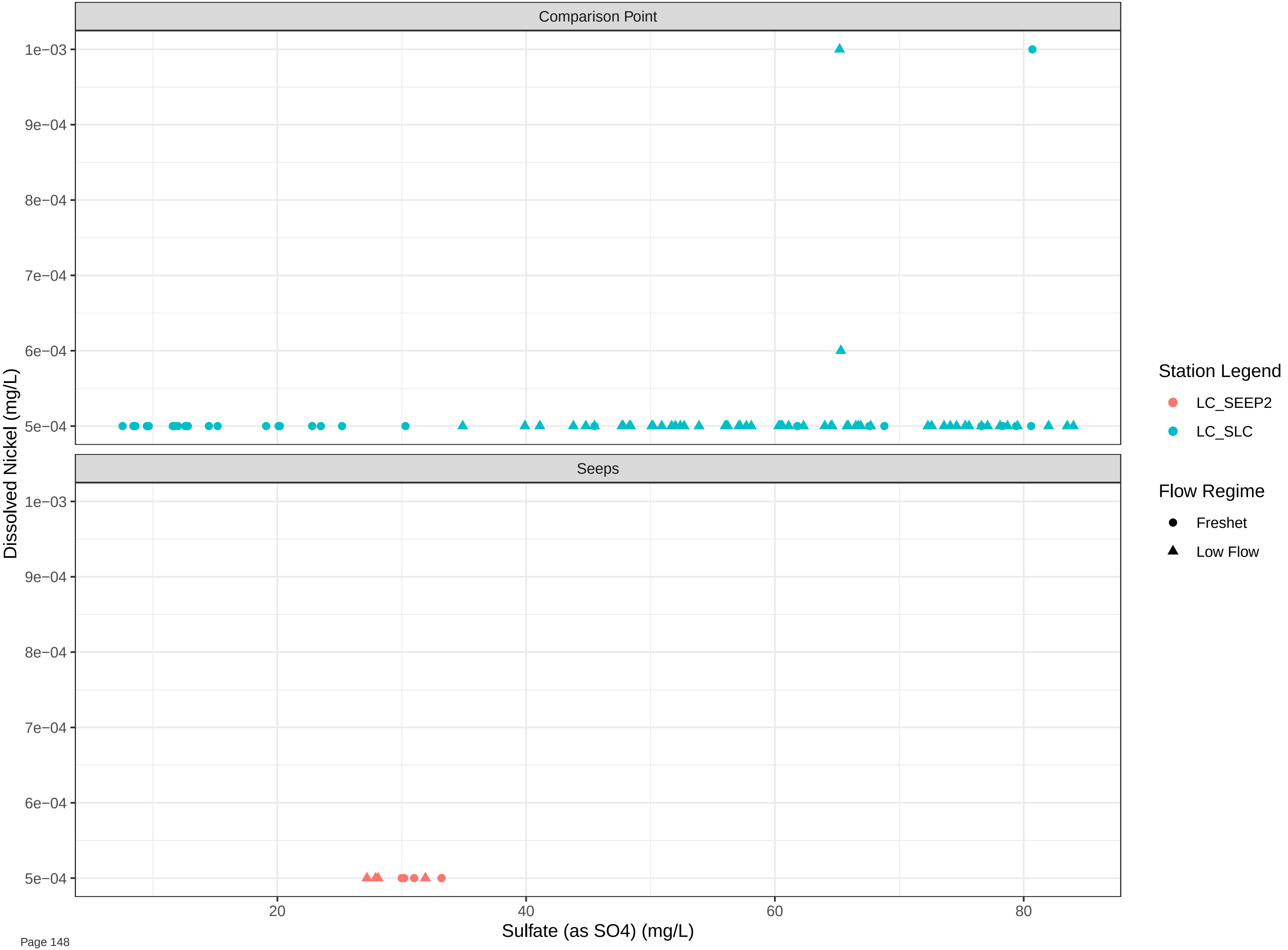

Seeps
Dissolved Molybdenum (mg/L)
0.00075
0.00070
0.00065
0.00060
0.00055
0.00050
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP11
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
0.009
0.006
0.003
Dissolved Molybdenum (mg/L)
100
200
300
400
500
600
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC3
LC_WLC_LOT2
Flow Regime
Freshet
Low Flow

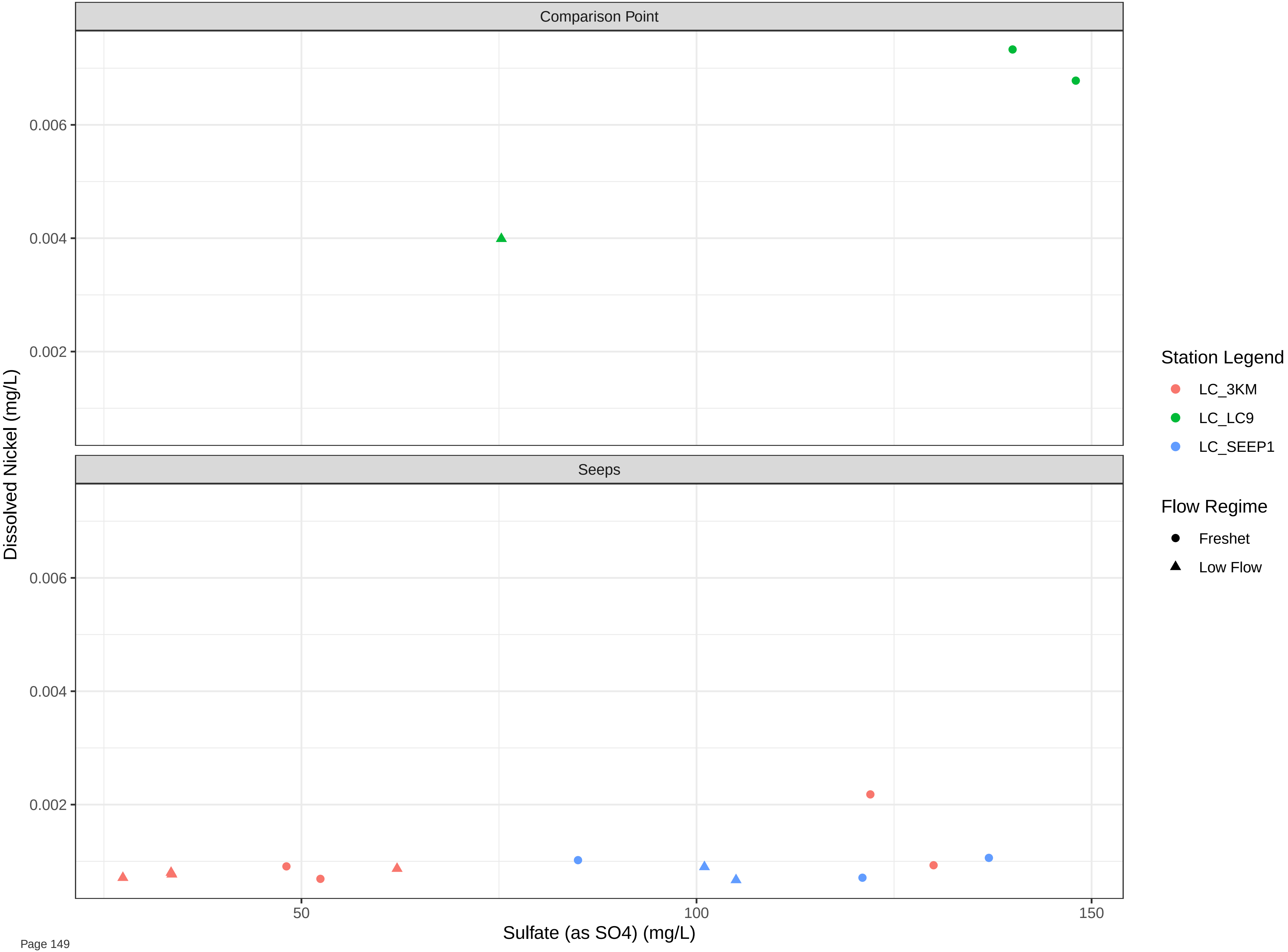

Seeps
Dissolved Nickel (mg/L)
0.006
0.004
0.002
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP14
LC_SEEP15
Flow Regime
Freshet
Low Flow

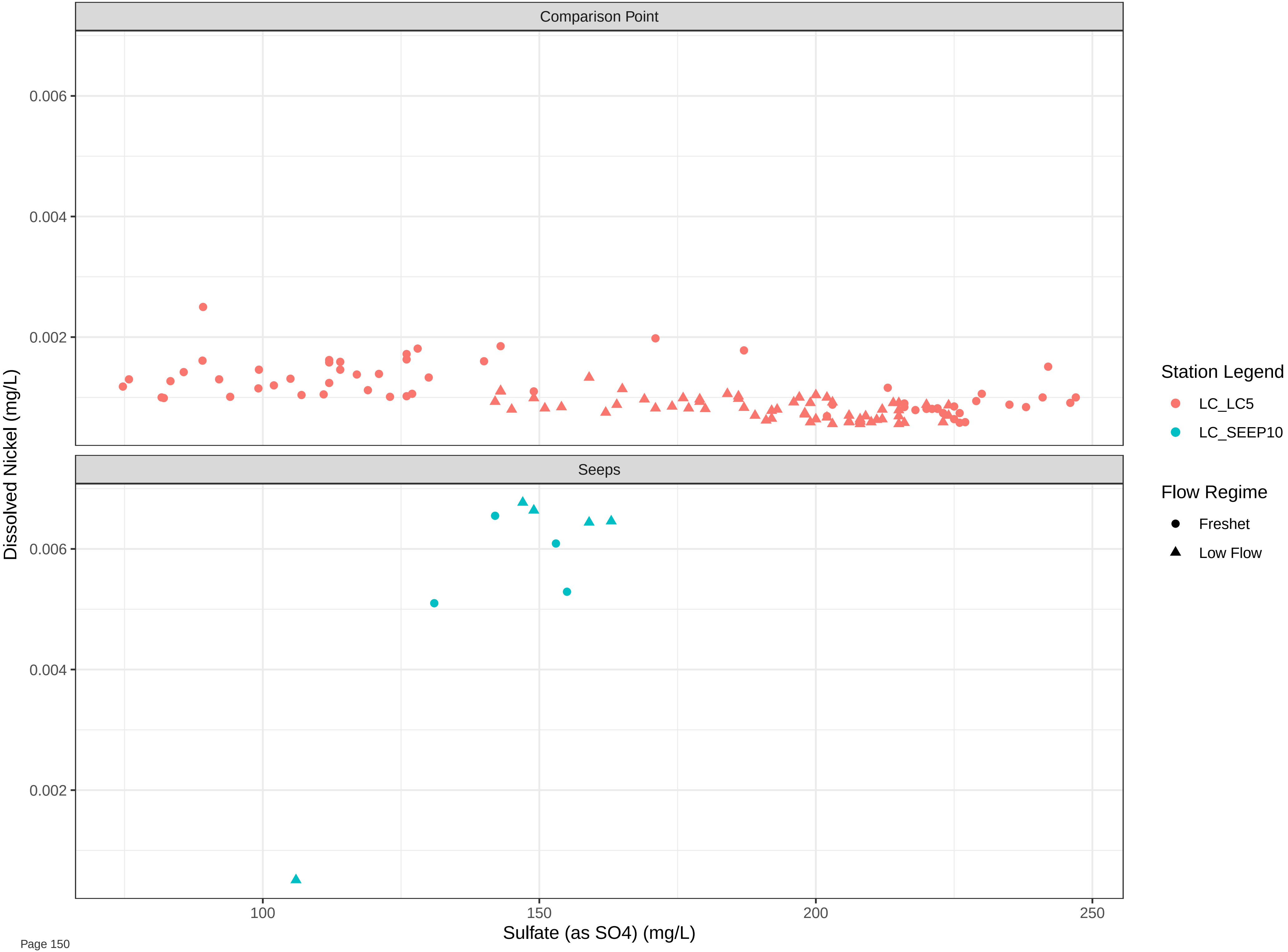

Comparison Point
Seeps
Dissolved Nickel (mg/L)
0.000
0.005
0.010
0.015
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
LC_DCDS
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

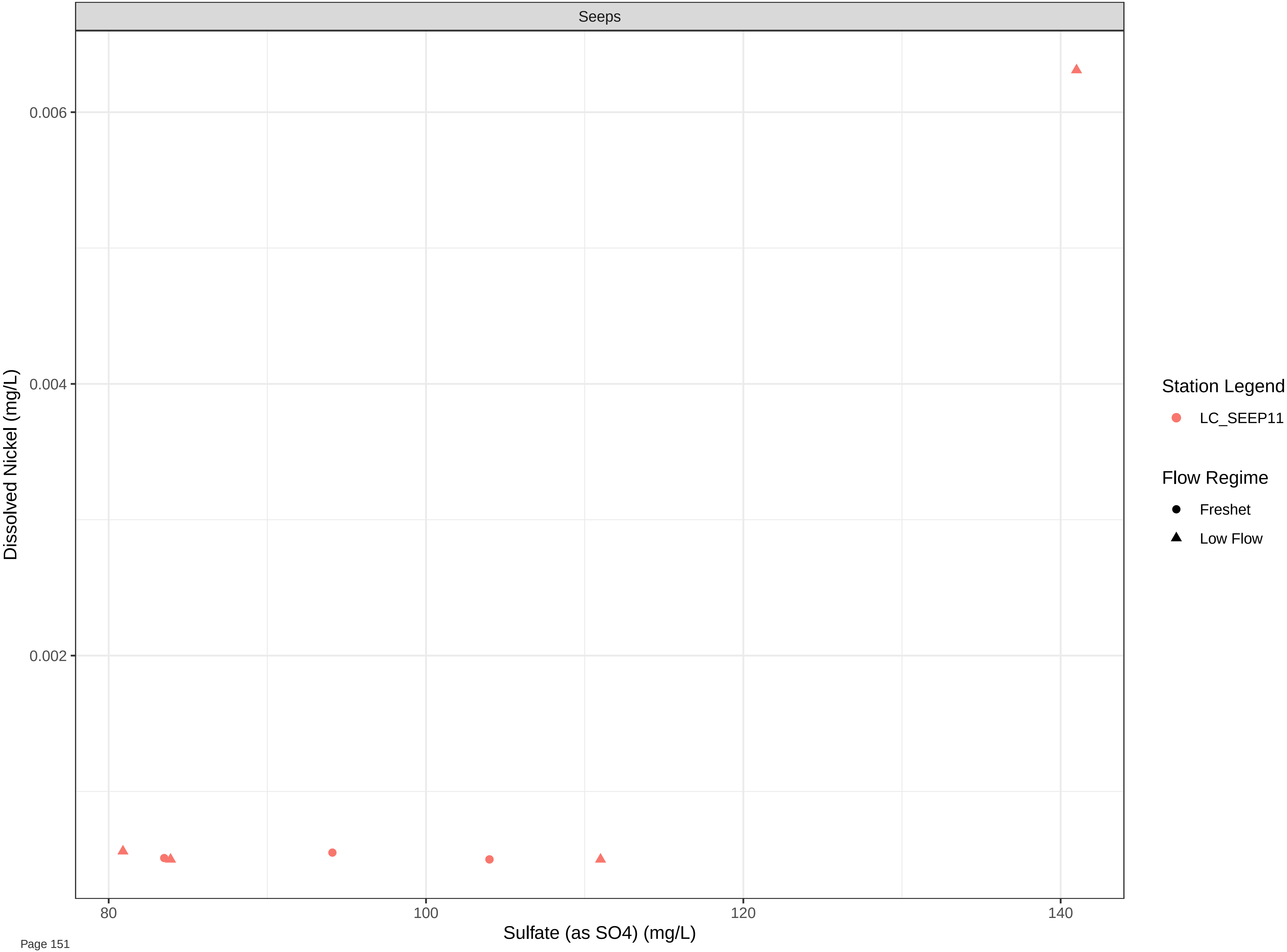

Comparison Point
Seeps
Dissolved Nickel (mg/L)
0.000
0.005
0.010
0.015
0.000
0.005
0.010
0.015
100
200
300
400
500
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC7
LC_SEEP19
Flow Regime
Freshet
Low Flow

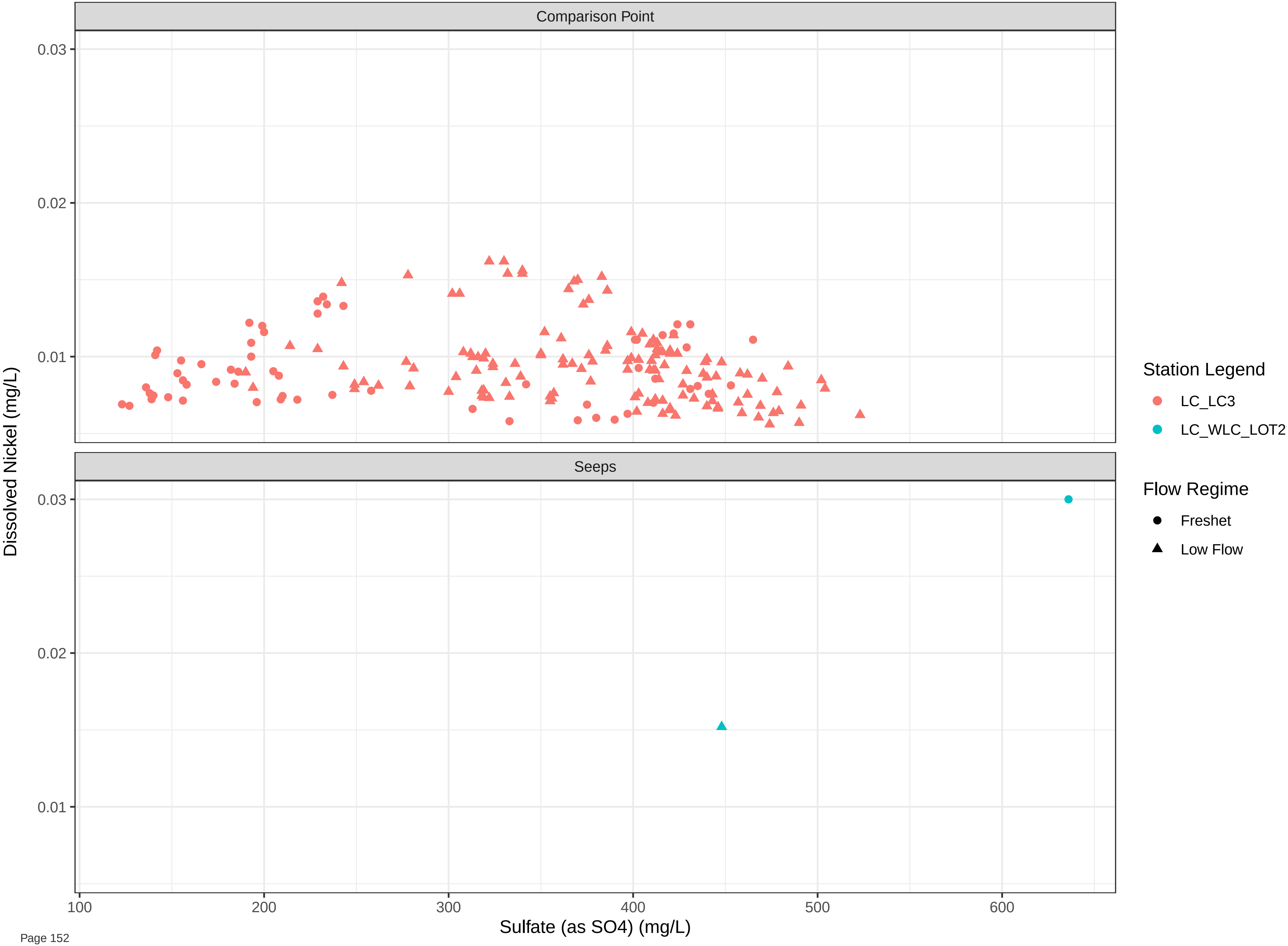


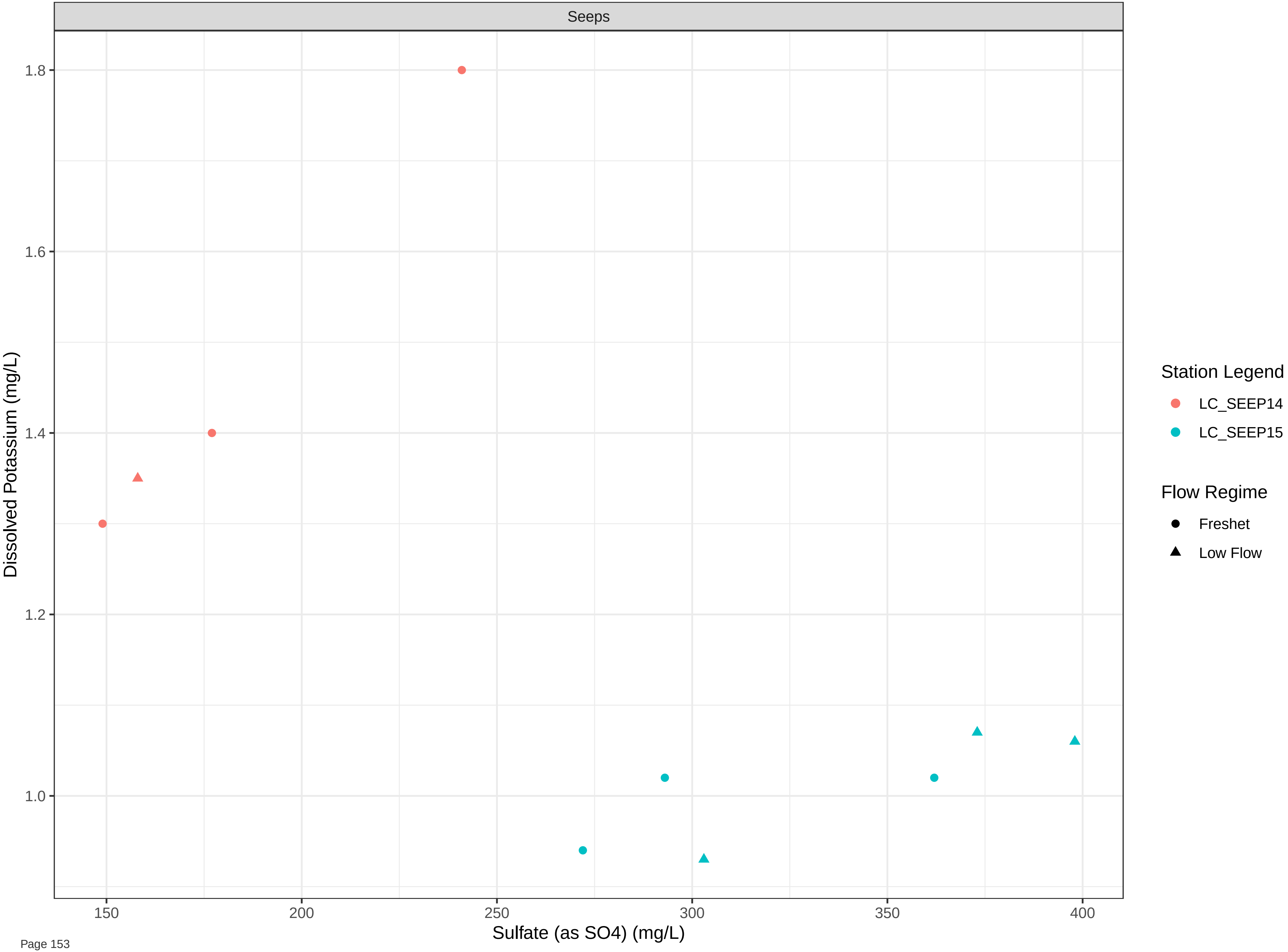
Comparison Point
Seeps
Dissolved Nickel (mg/L)
1e−03
9e−04
8e−04
7e−04
6e−04
5e−04
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
Freshet
Low Flow

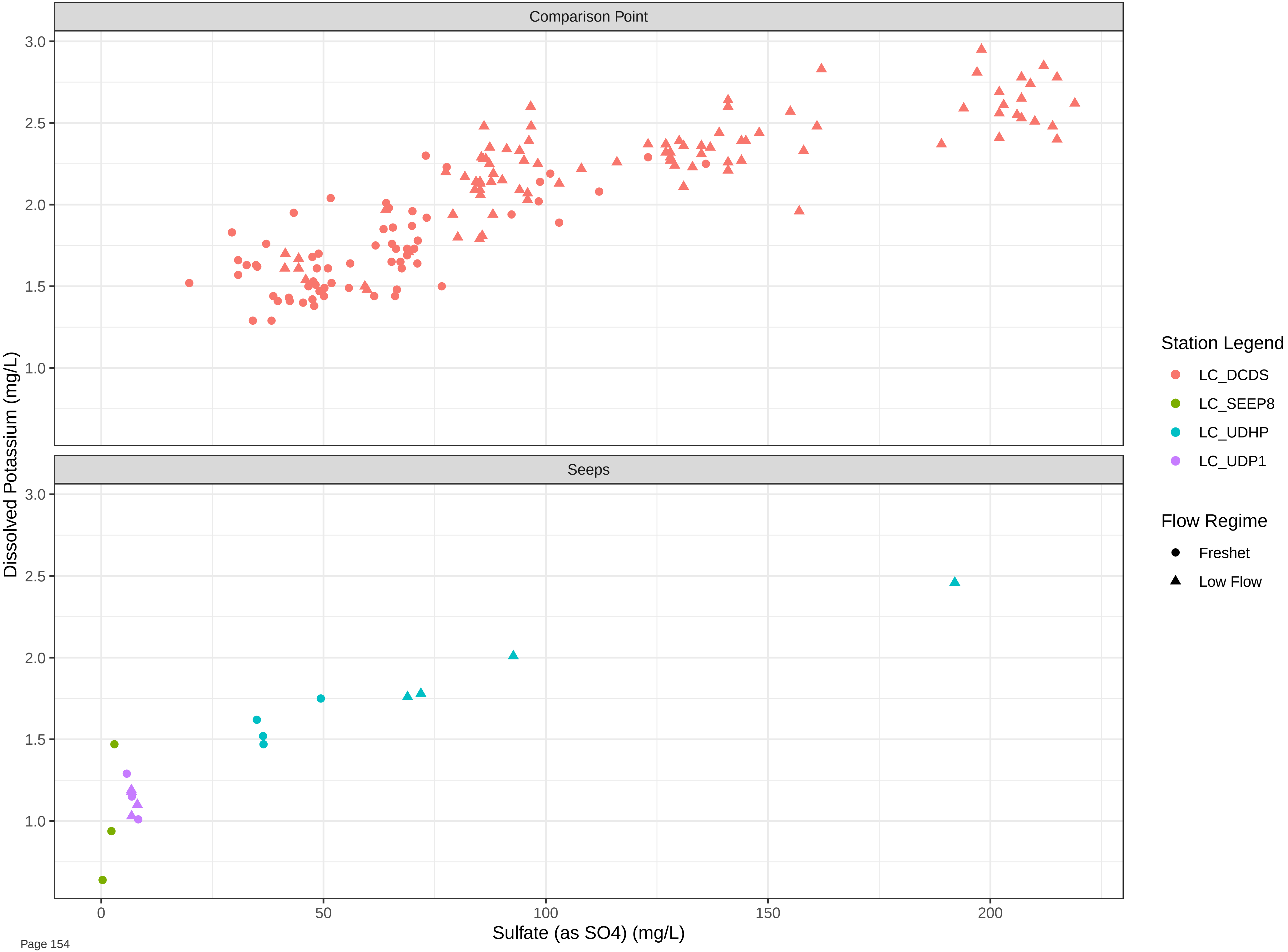

Comparison Point
Seeps
Dissolved Nickel (mg/L)
0.006
0.004
0.002
0.006
0.004
0.002
50
100
150
Sulfate (as SO4) (mg/L)
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

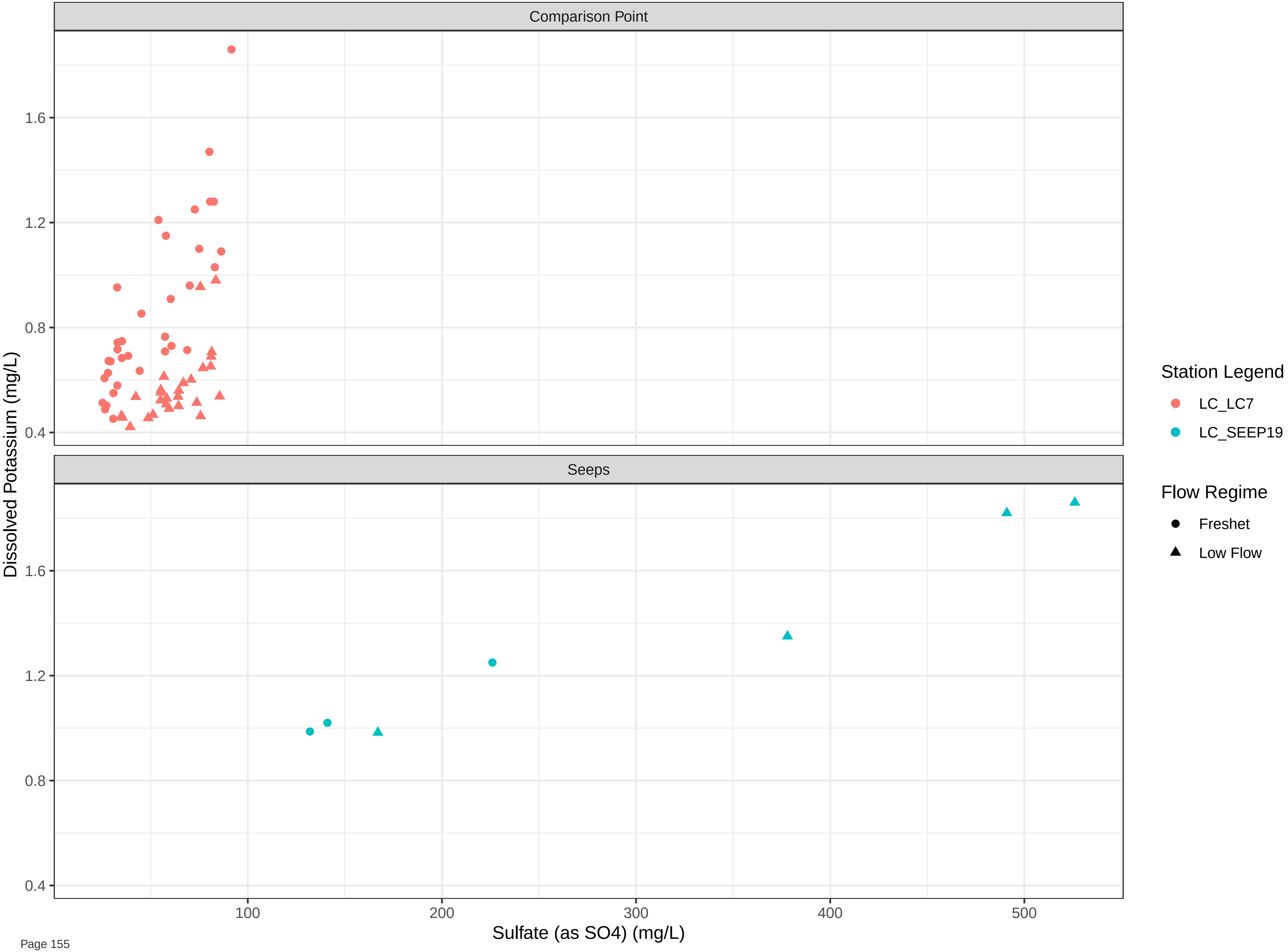

Comparison Point
Seeps
Dissolved Nickel (mg/L)
0.006
0.004
0.002
0.006
0.004
0.002
100
150
200
250
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC5
LC_SEEP10
Flow Regime
Freshet
Low Flow

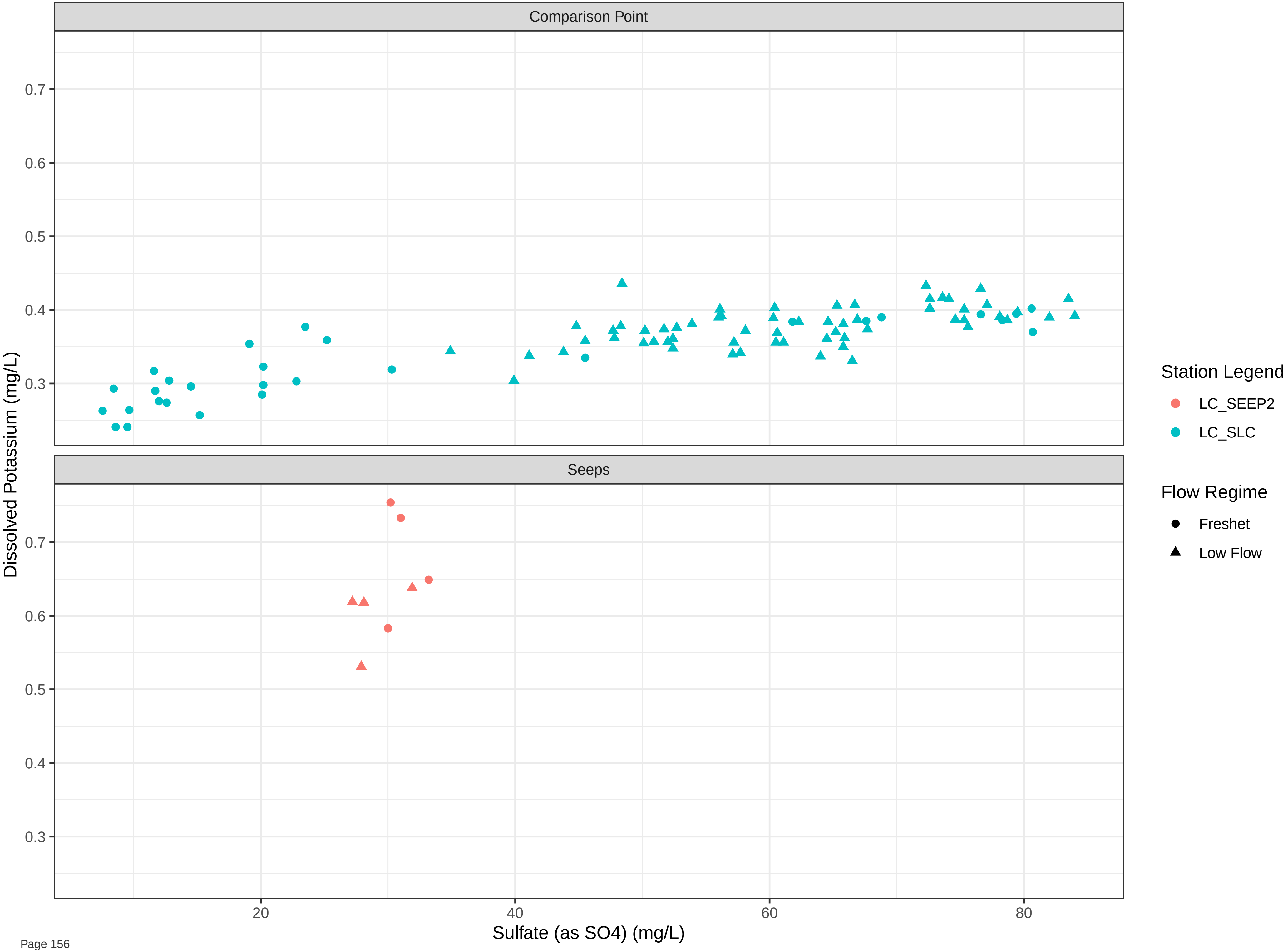

Seeps
Dissolved Nickel (mg/L)
0.006
0.004
0.002
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP11
Flow Regime
Freshet
Low Flow

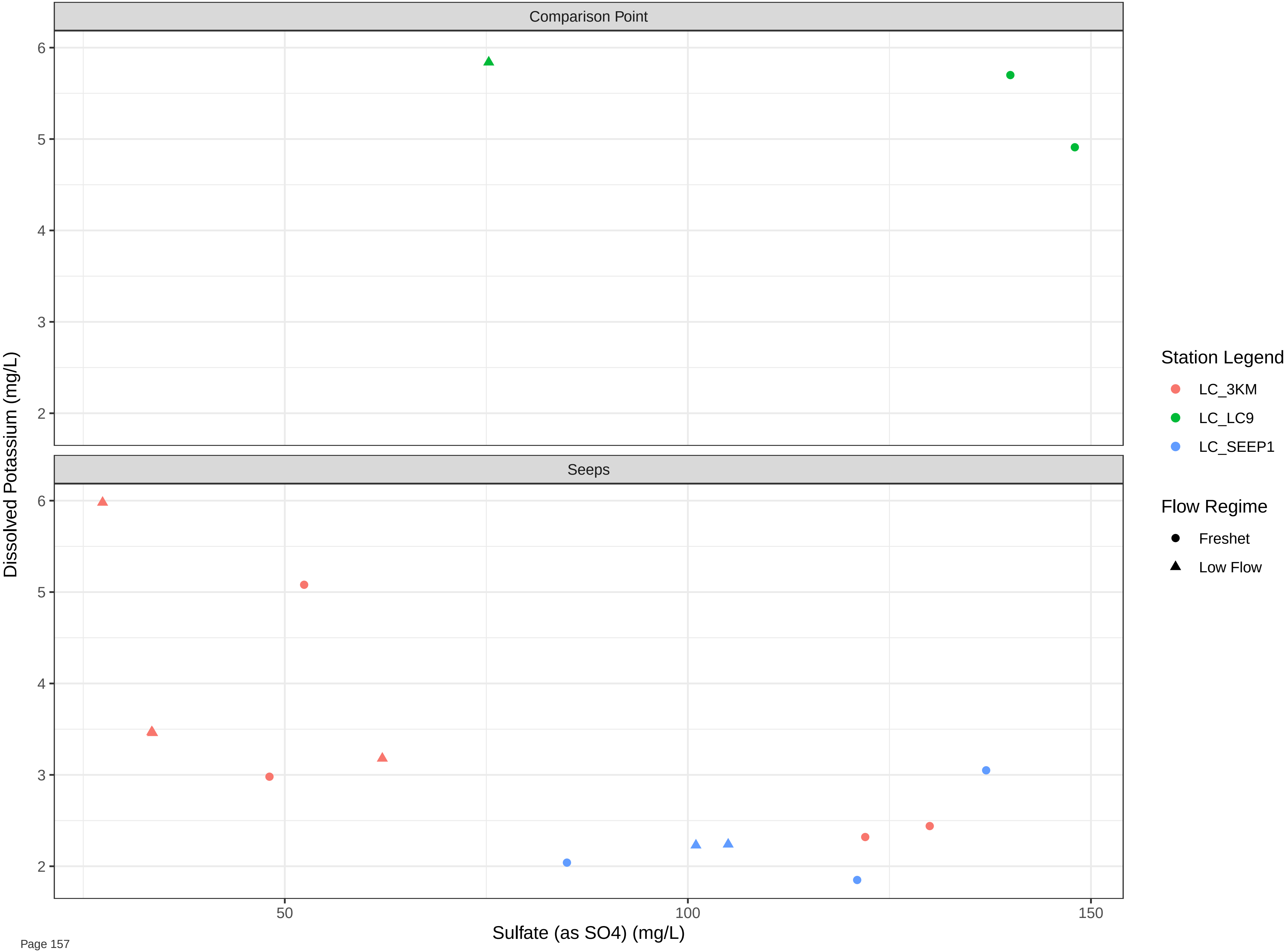

Comparison Point
Seeps
Dissolved Nickel (mg/L)
0.03
0.02
0.01
0.03
0.02
0.01
100
200
300
400
500
600
Sulfate (as SO4) (mg/L)
Station Legend
● LC_LC3
● LC_WLC_LOT2
Flow Regime
● Freshet
▲ Low Flow

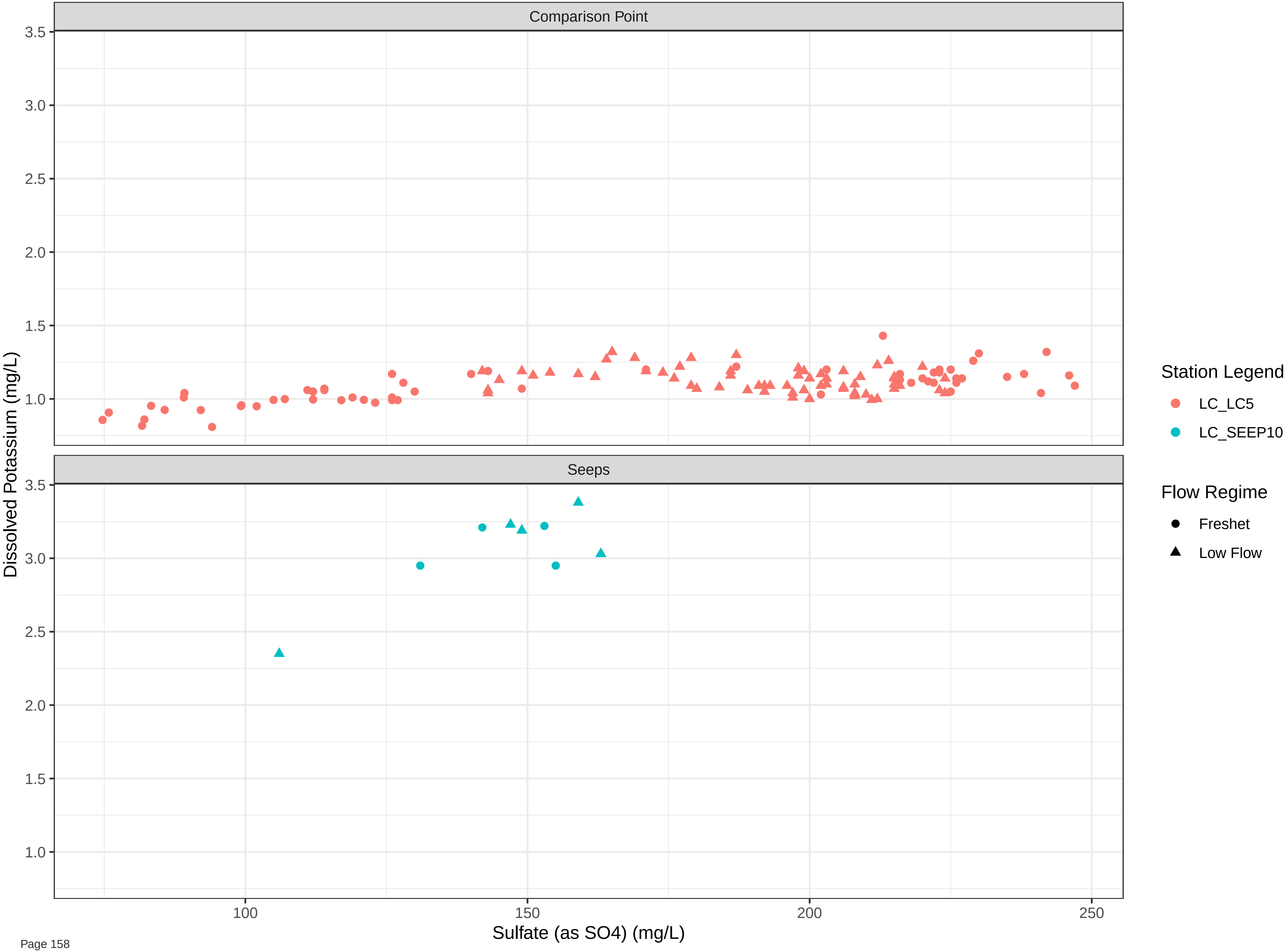

Seeps
Dissolved Potassium (mg/L)
1.8
1.6
1.4
1.2
1.0
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP14
LC_SEEP15
Flow Regime
Freshet
Low Flow

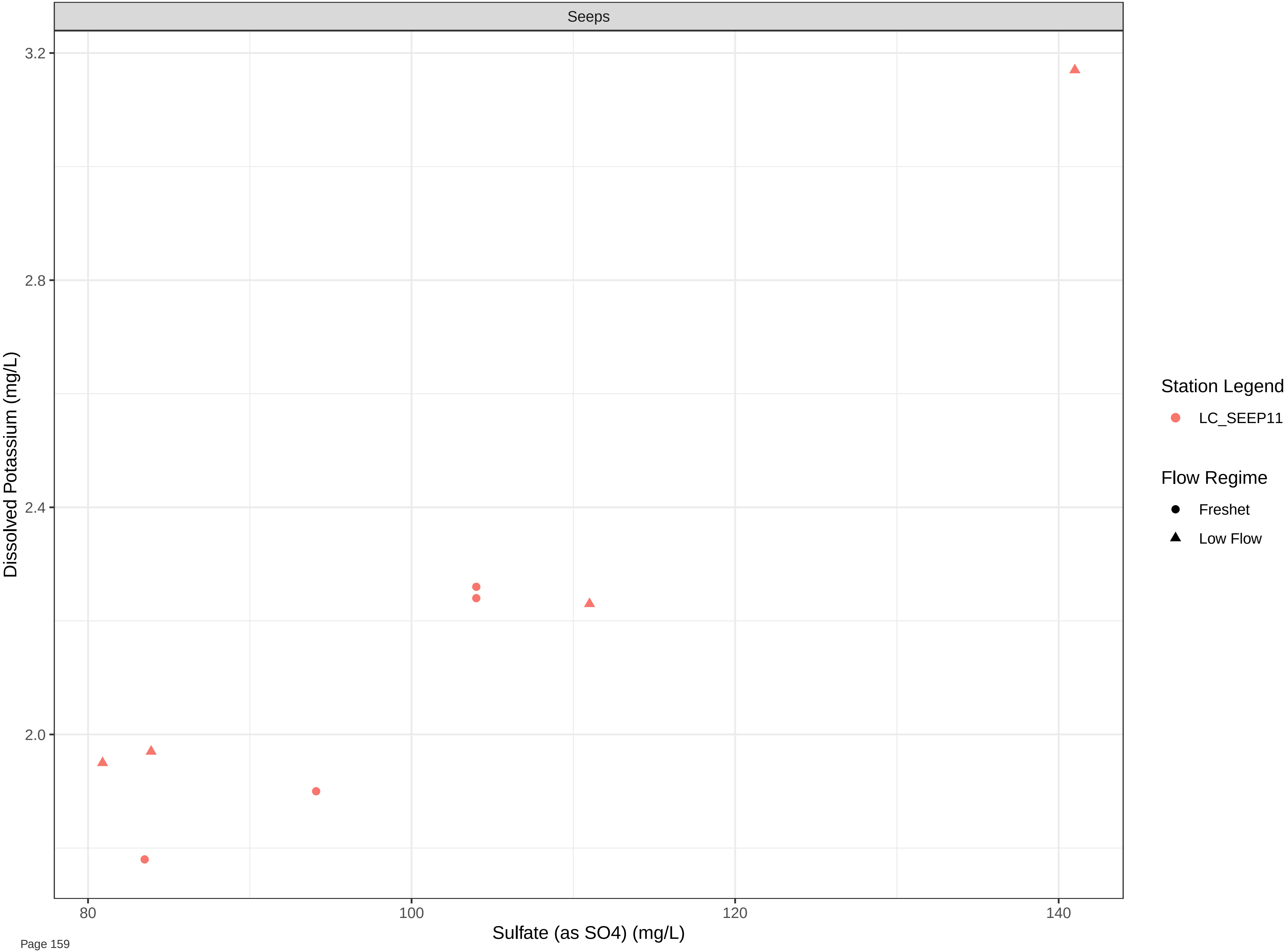

Comparison Point
Seeps
Dissolved Potassium (mg/L)
Sulfate (as SO4) (mg/L)
3.0
2.5
2.0
1.5
1.0
0
50
100
150
200
Station Legend
LC_DCDS
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

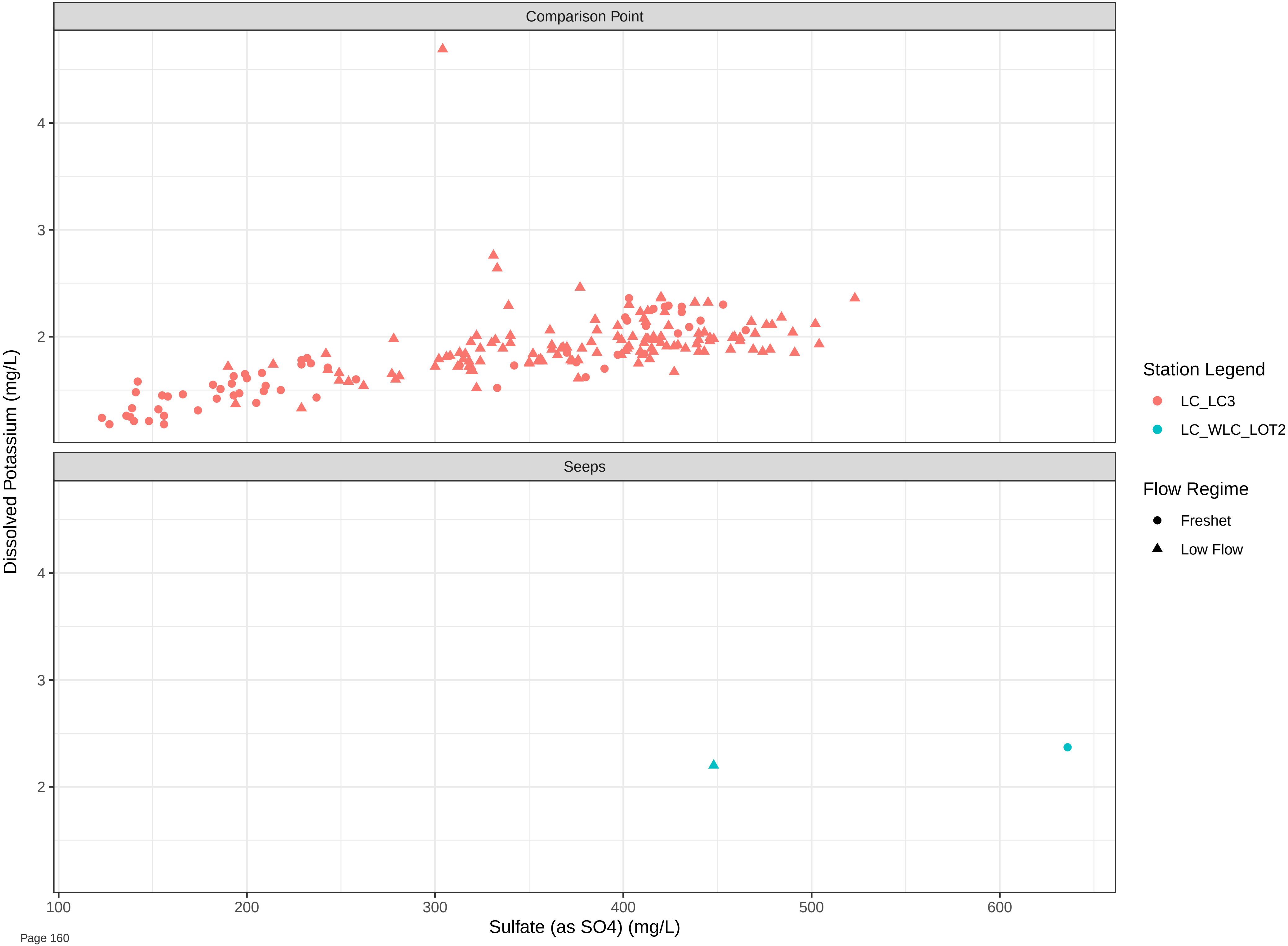

Comparison Point
Seeps
Dissolved Potassium (mg/L)
1.6
1.2
0.8
0.4
100
200
300
400
500
Sulfate (as SO4) (mg/L)
Station Legend
● LC_LC7
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

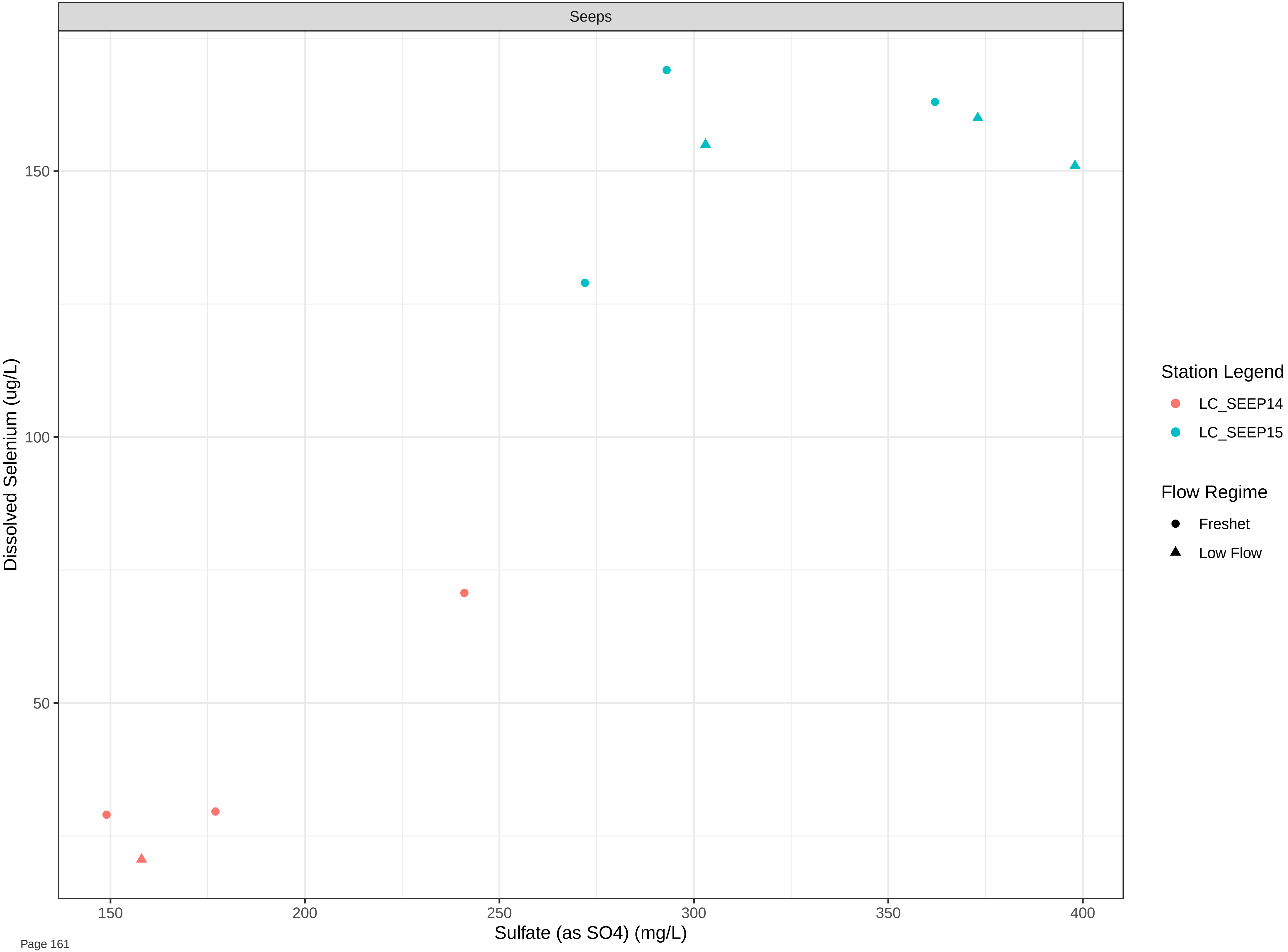

Comparison Point
Seeps
Dissolved Potassium (mg/L)
0.3
0.4
0.5
0.6
0.7
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
Freshet
Low Flow

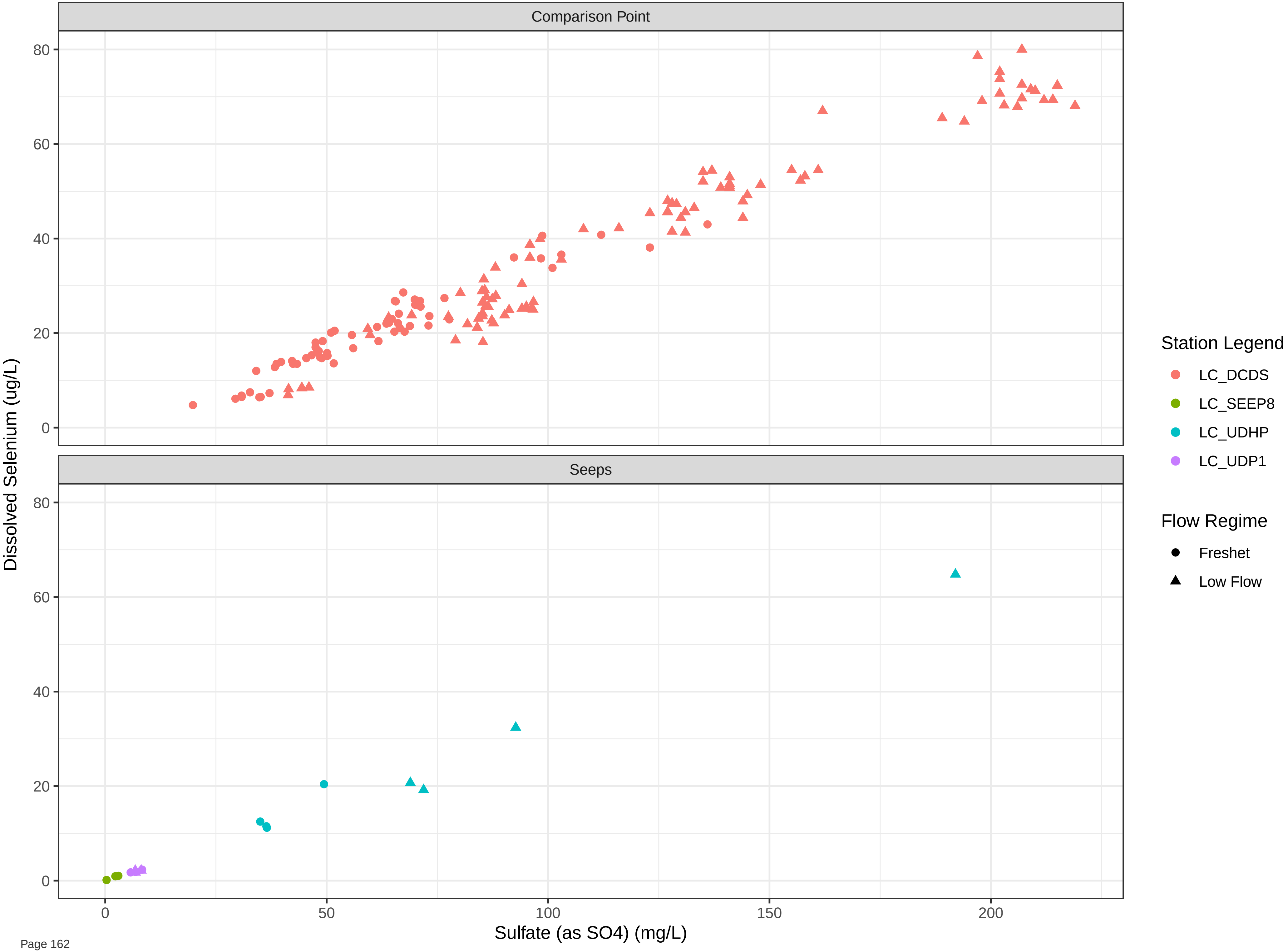

Comparison Point
Seeps
Dissolved Potassium (mg/L)
Sulfate (as SO4) (mg/L)
6
5
4
3
2
50
100
150
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

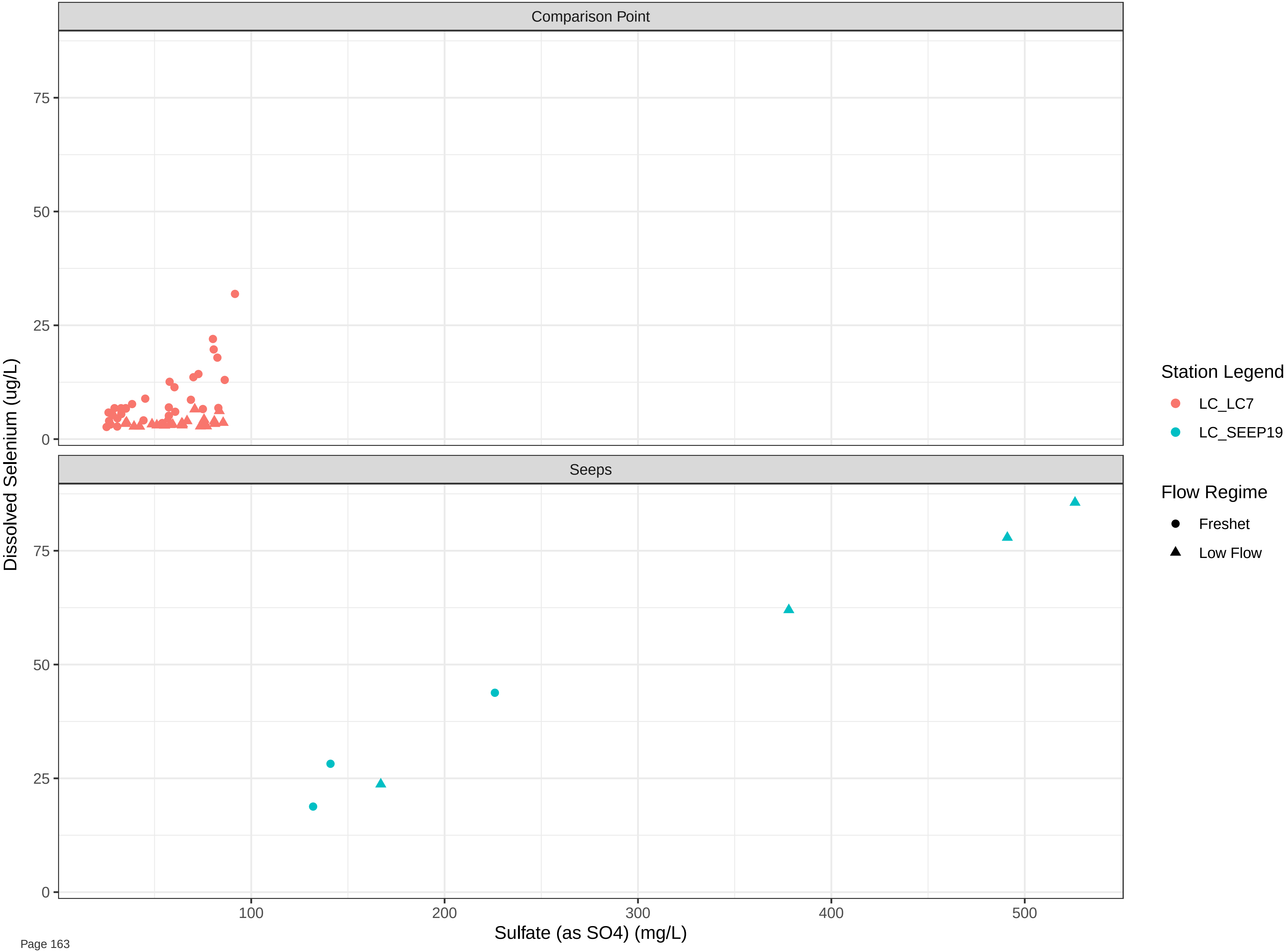

Comparison Point
Seeps
Dissolved Potassium (mg/L)
3.5
3.0
2.5
2.0
1.5
1.0
100
150
200
250
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC5
LC_SEEP10
Flow Regime
Freshet
Low Flow

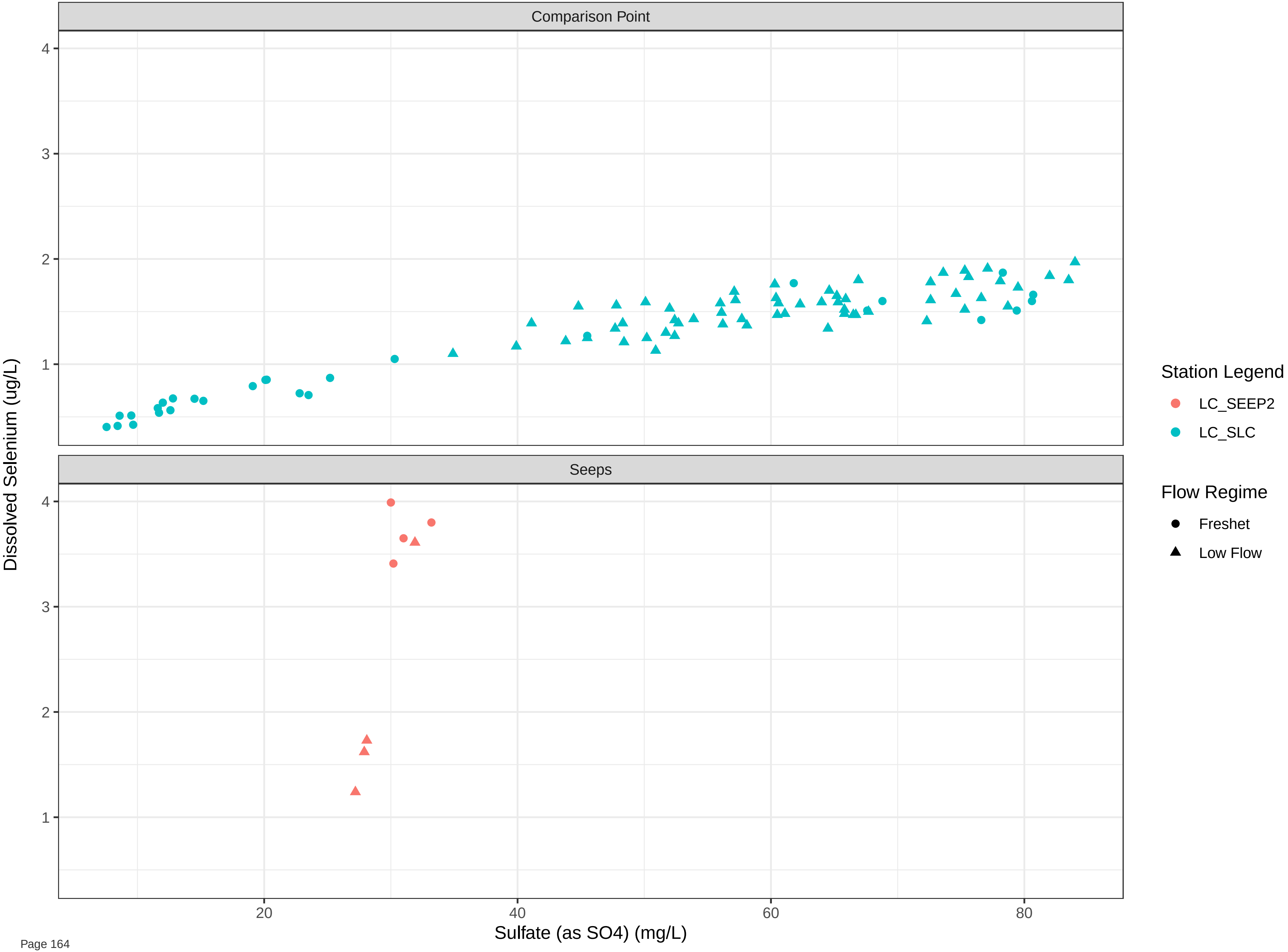

Seeps
3.2
2.8
2.4
2.0
Dissolved Potassium (mg/L)
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

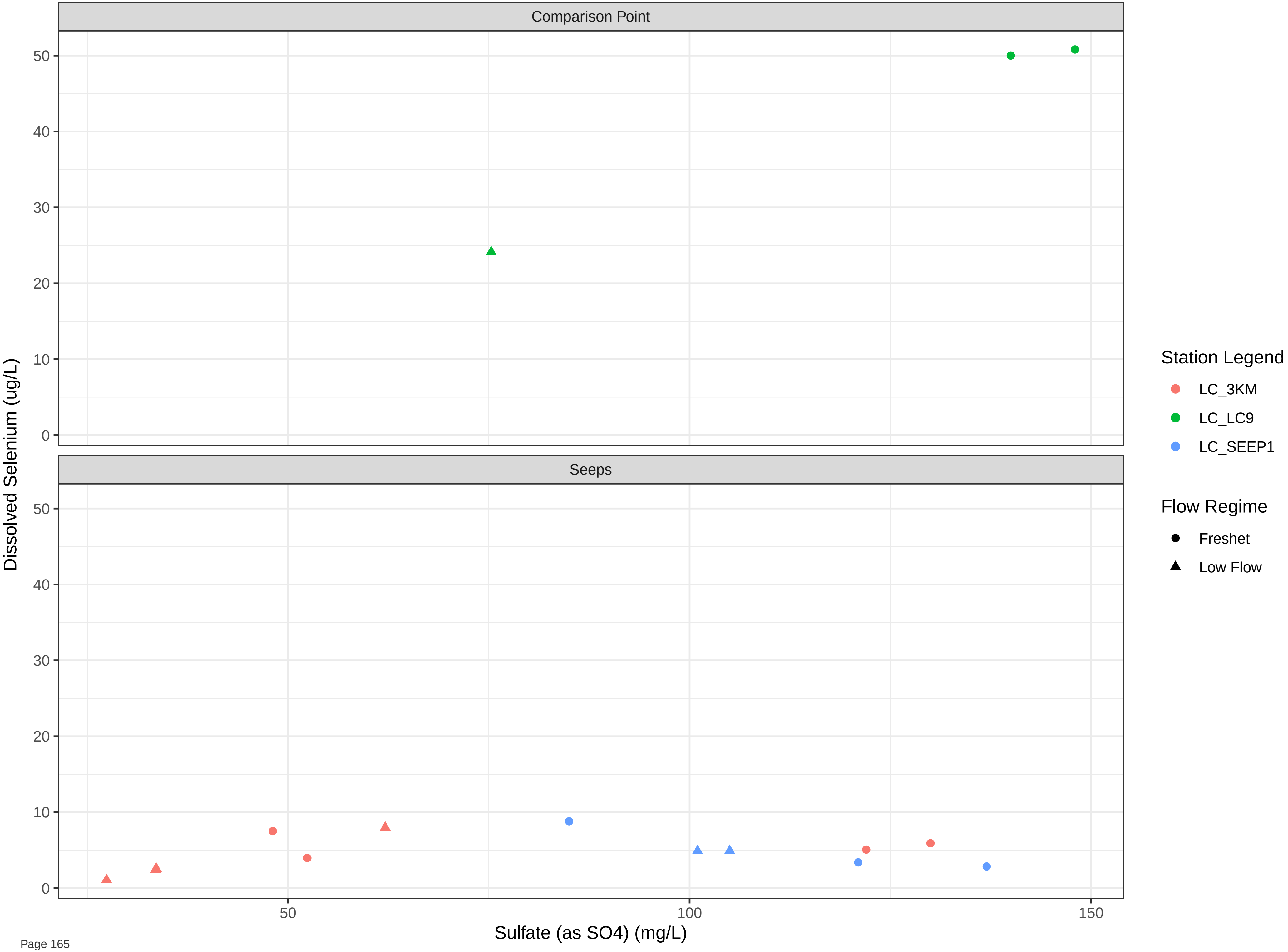

Comparison Point
Seeps
Dissolved Potassium (mg/L)
4
3
2
4
3
2
Sulfate (as SO4) (mg/L)
100
200
300
400
500
600
Station Legend
● LC_LC3
● LC_WLC_LOT2
Flow Regime
● Freshet
▲ Low Flow

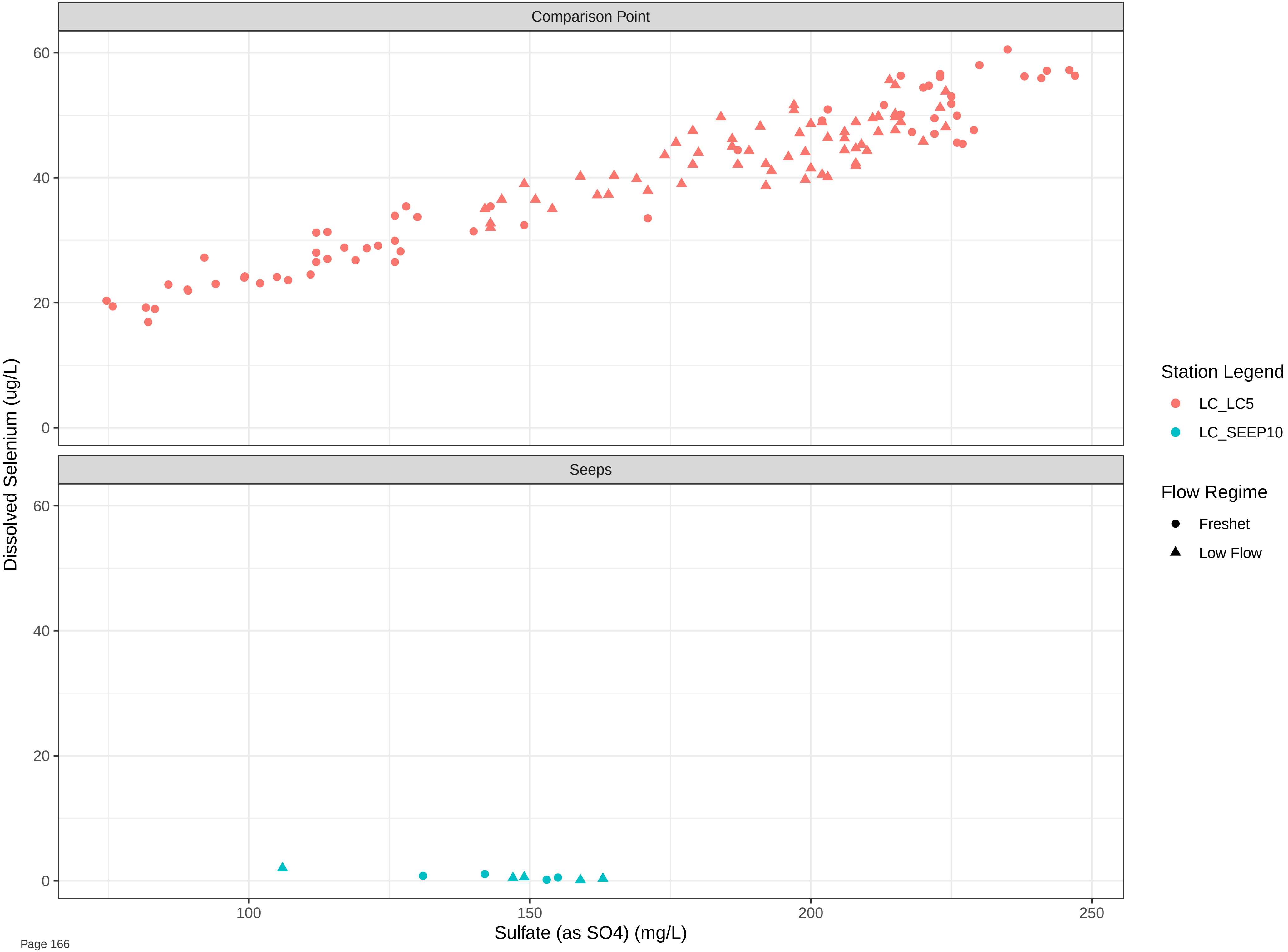

Seeps
Dissolved Selenium (ug/L)
150
100
50
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP14
LC_SEEP15
Flow Regime
Freshet
Low Flow

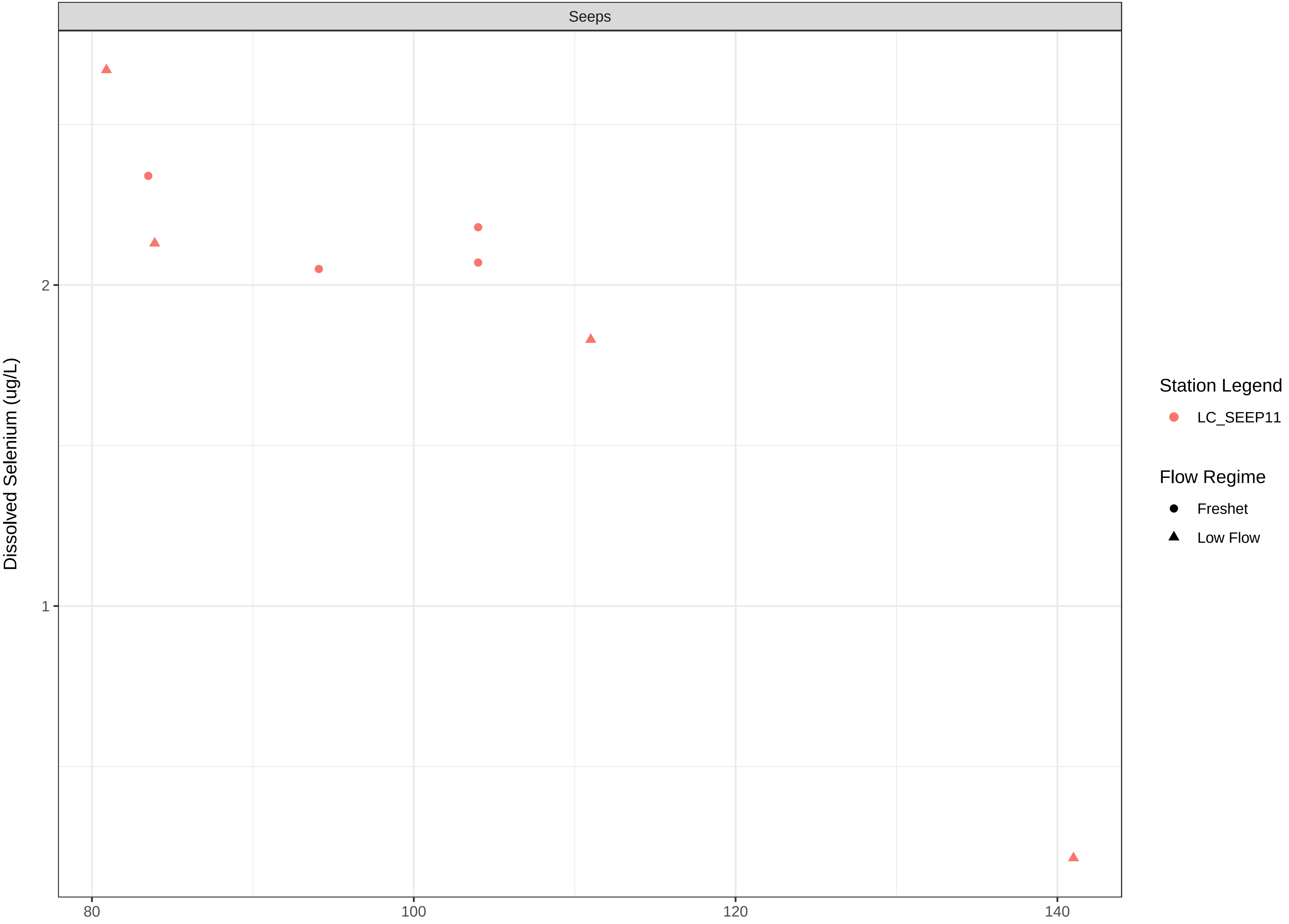

Comparison Point
Seeps
Dissolved Selenium (ug/L)
Sulfate (as SO4) (mg/L)
0
20
40
60
80
0
50
100
150
200
Station Legend
LC_DCDS
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

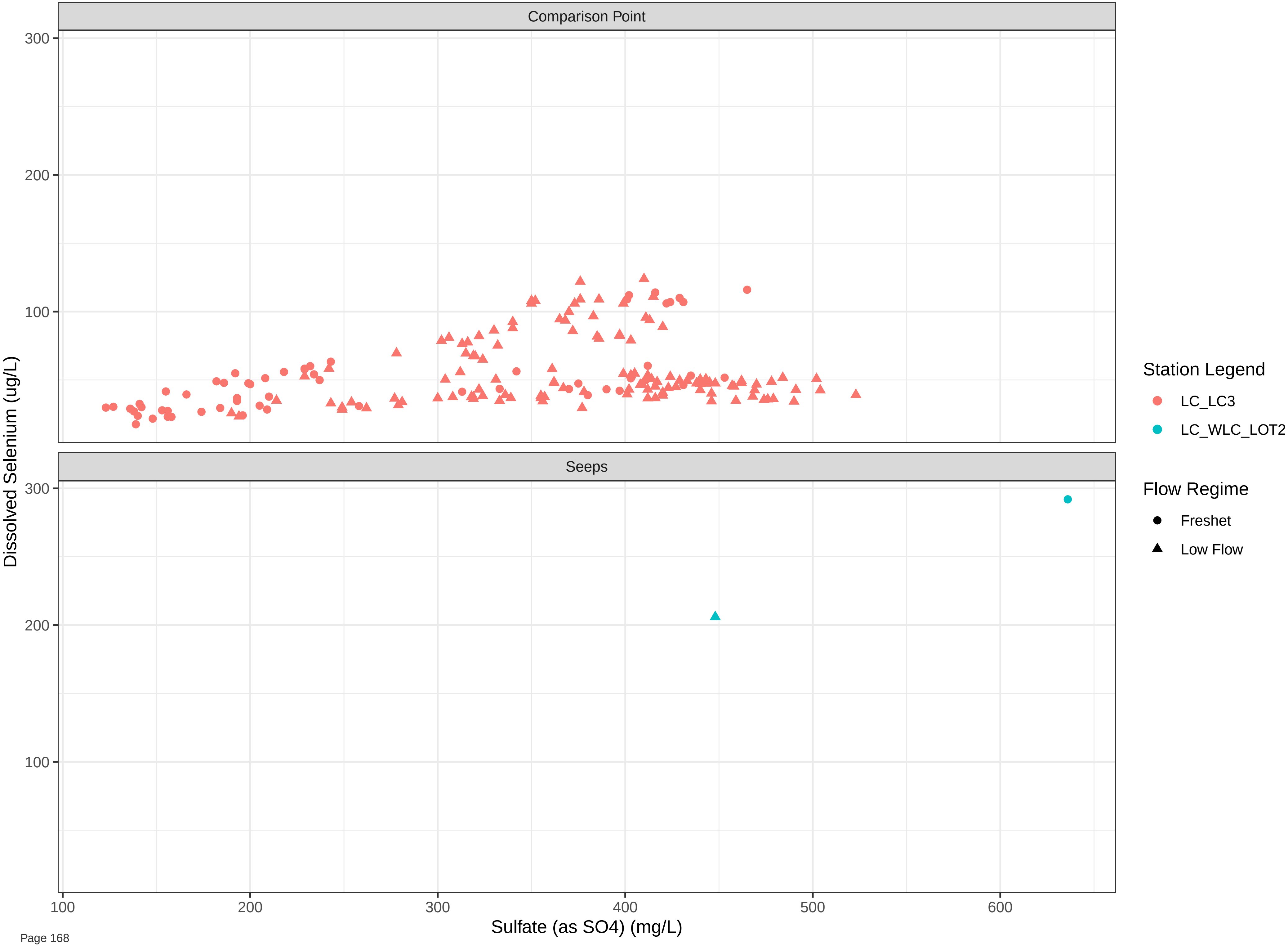

Comparison Point
Seeps
Dissolved Selenium (ug/L)
Sulfate (as SO4) (mg/L)
0
25
50
75
100
200
300
400
500
Station Legend
LC_LC7
LC_SEEP19
Flow Regime
Freshet
Low Flow

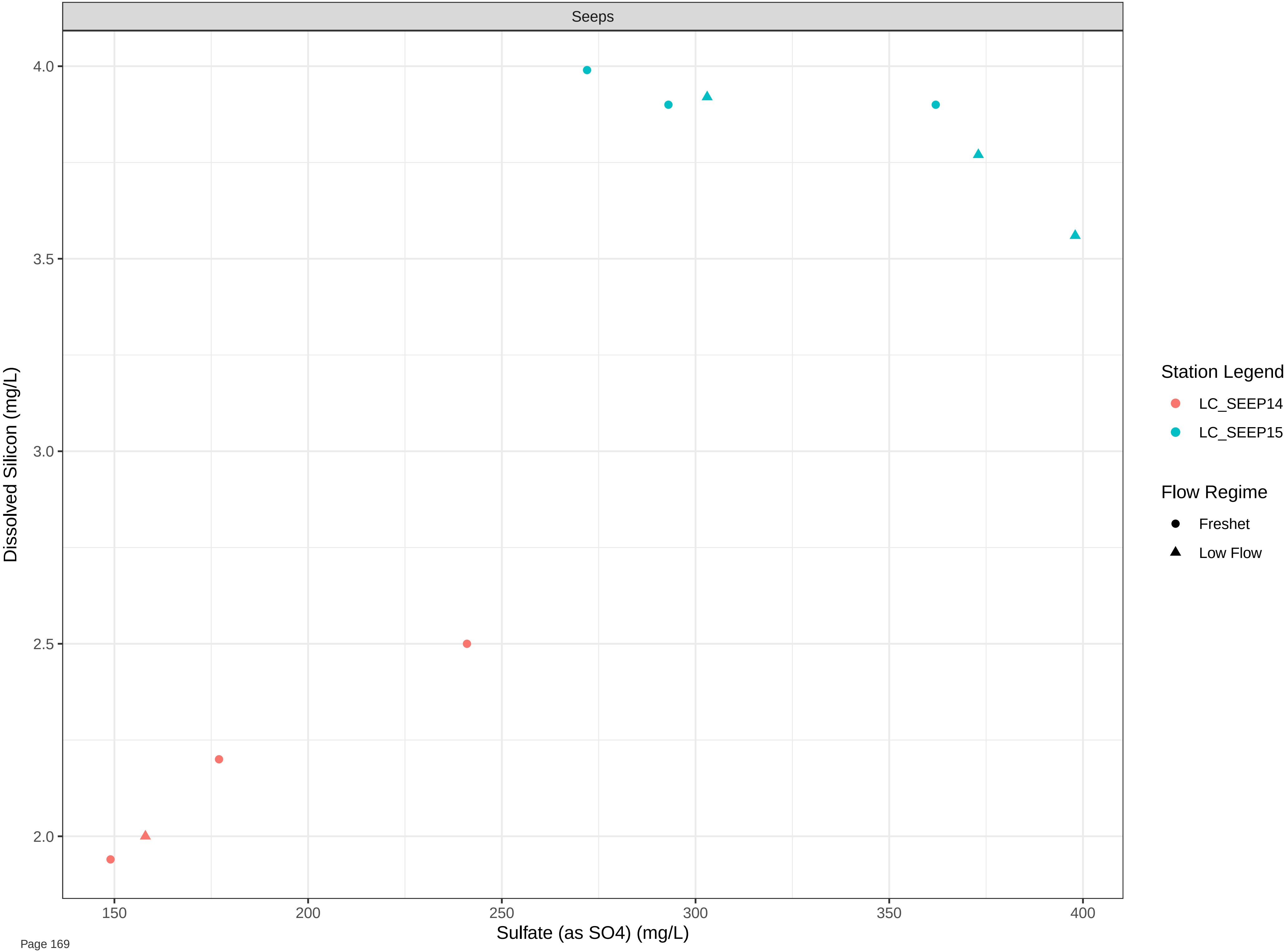

Comparison Point
Seeps
Dissolved Selenium (ug/L)
4
3
2
1
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
Freshet
Low Flow

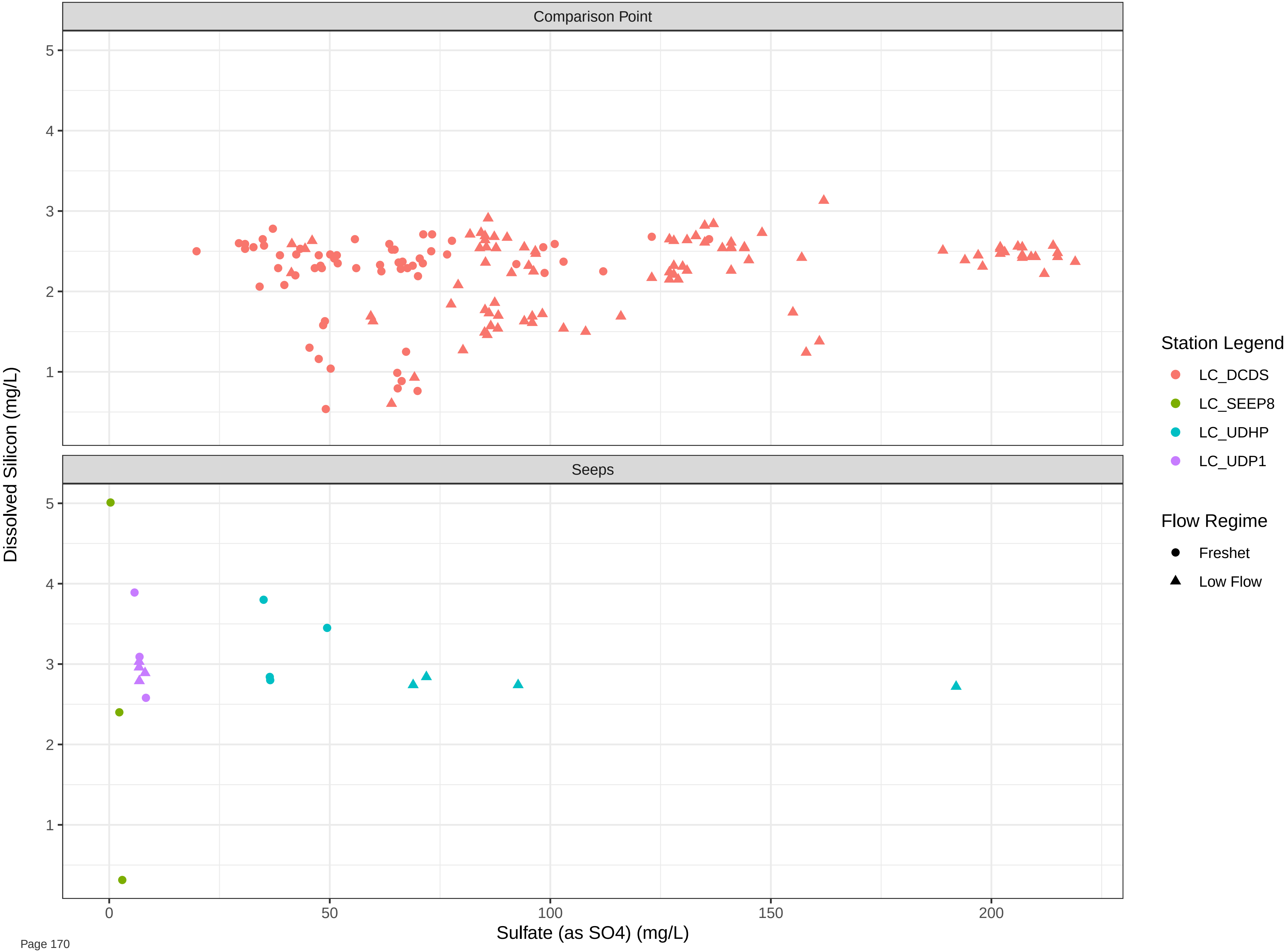

Comparison Point
Seeps
Dissolved Selenium (ug/L)
0
10
20
30
40
50
50
100
150
Sulfate (as SO4) (mg/L)
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

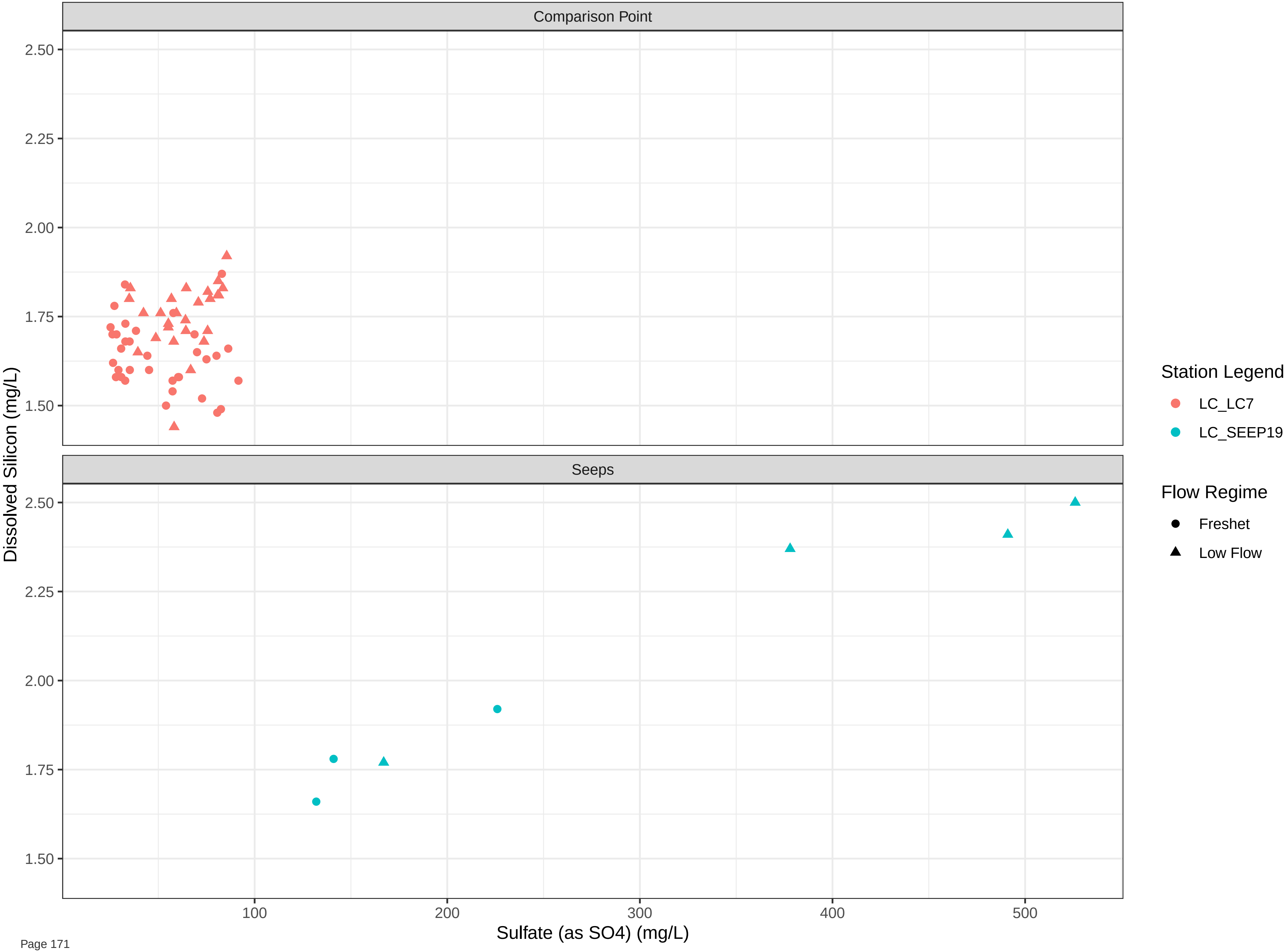

Comparison Point
Seeps
Dissolved Selenium (ug/L)
60
40
20
0
100
150
200
250
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC5
LC_SEEP10
Flow Regime
Freshet
Low Flow

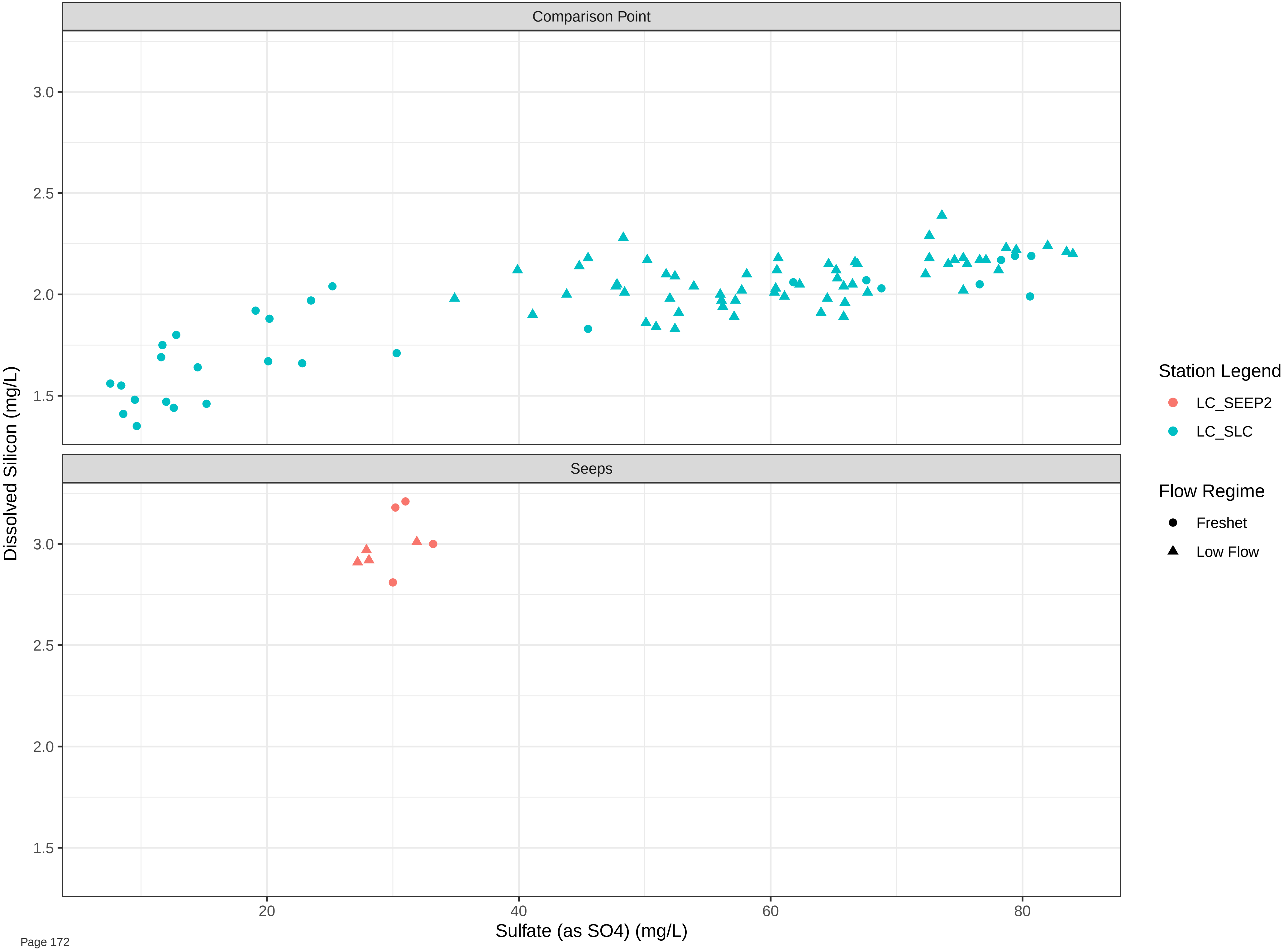

Seeps
Dissolved Selenium (ug/L)
2
1
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP11
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
Dissolved Selenium (ug/L)
300
200
100
300
200
100
100
200
300
400
500
600
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC3
LC_WLC_LOT2
Flow Regime
Freshet
Low Flow

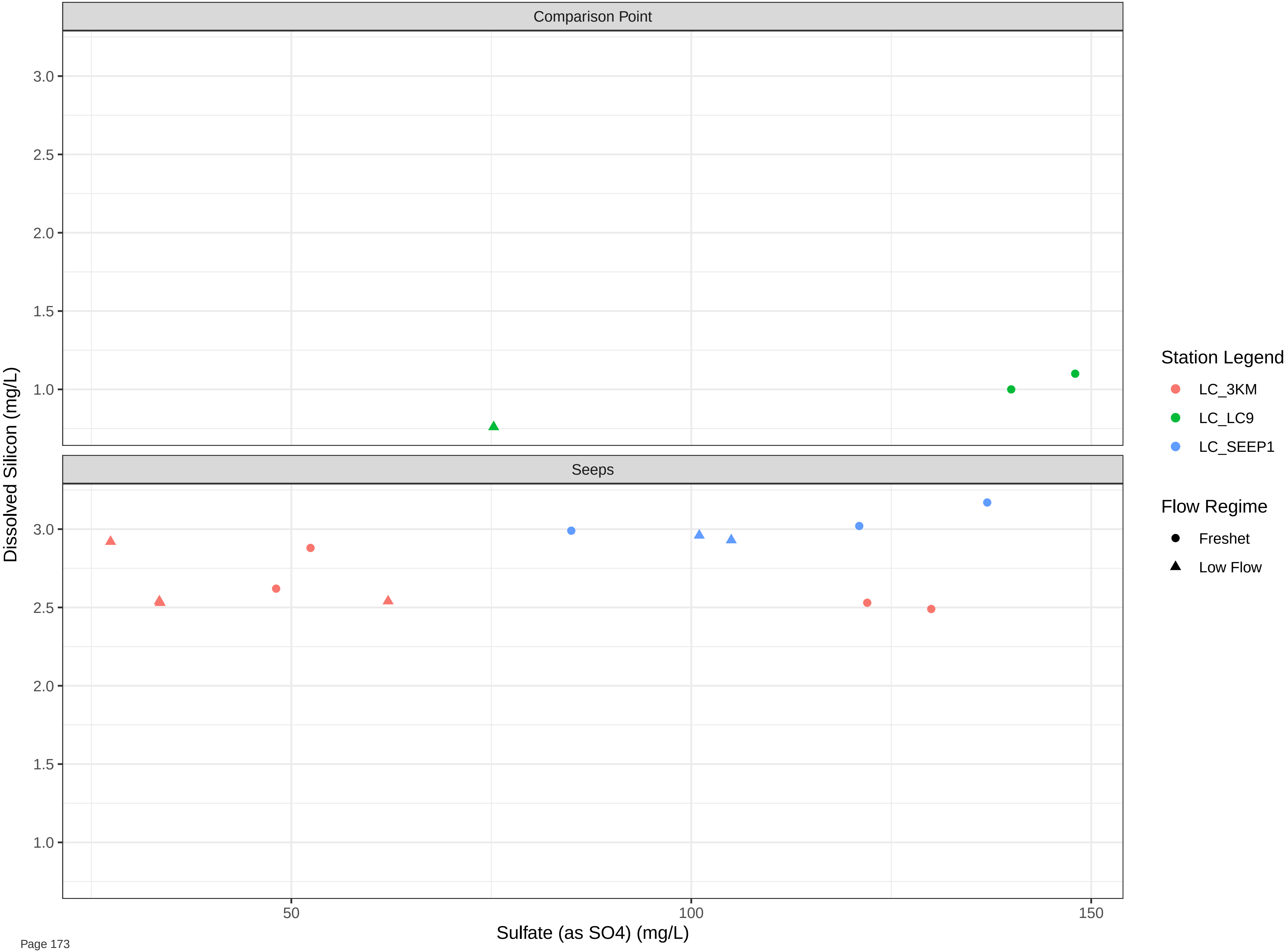

Seeps
Dissolved Silicon (mg/L)
4.0
3.5
3.0
2.5
2.0
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP14
LC_SEEP15
Flow Regime
Freshet
Low Flow

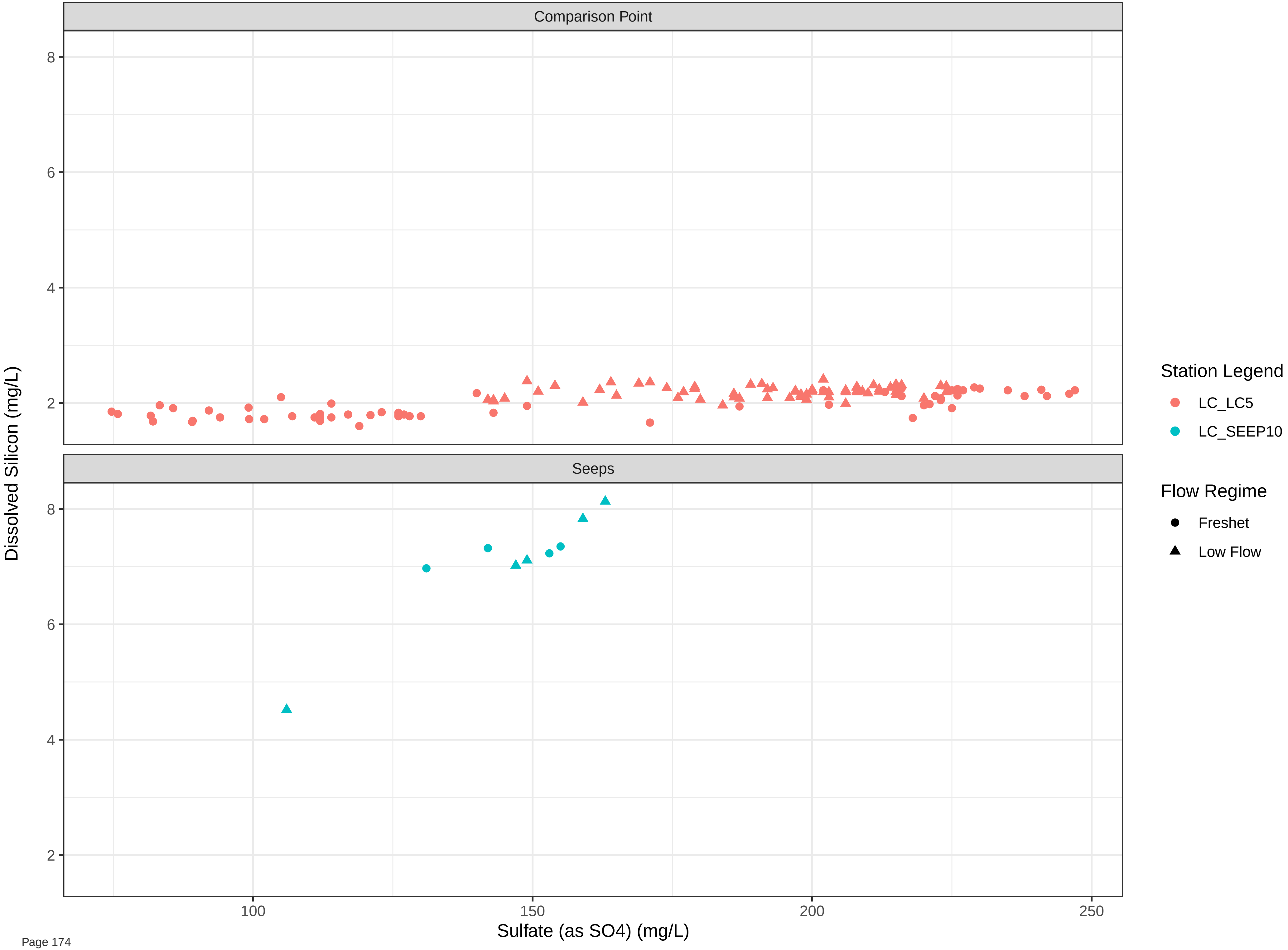

Comparison Point
Seeps
Dissolved Silicon (mg/L)
5
4
3
2
1
Sulfate (as SO4) (mg/L)
0
50
100
150
200
Station Legend
LC_DCDS
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

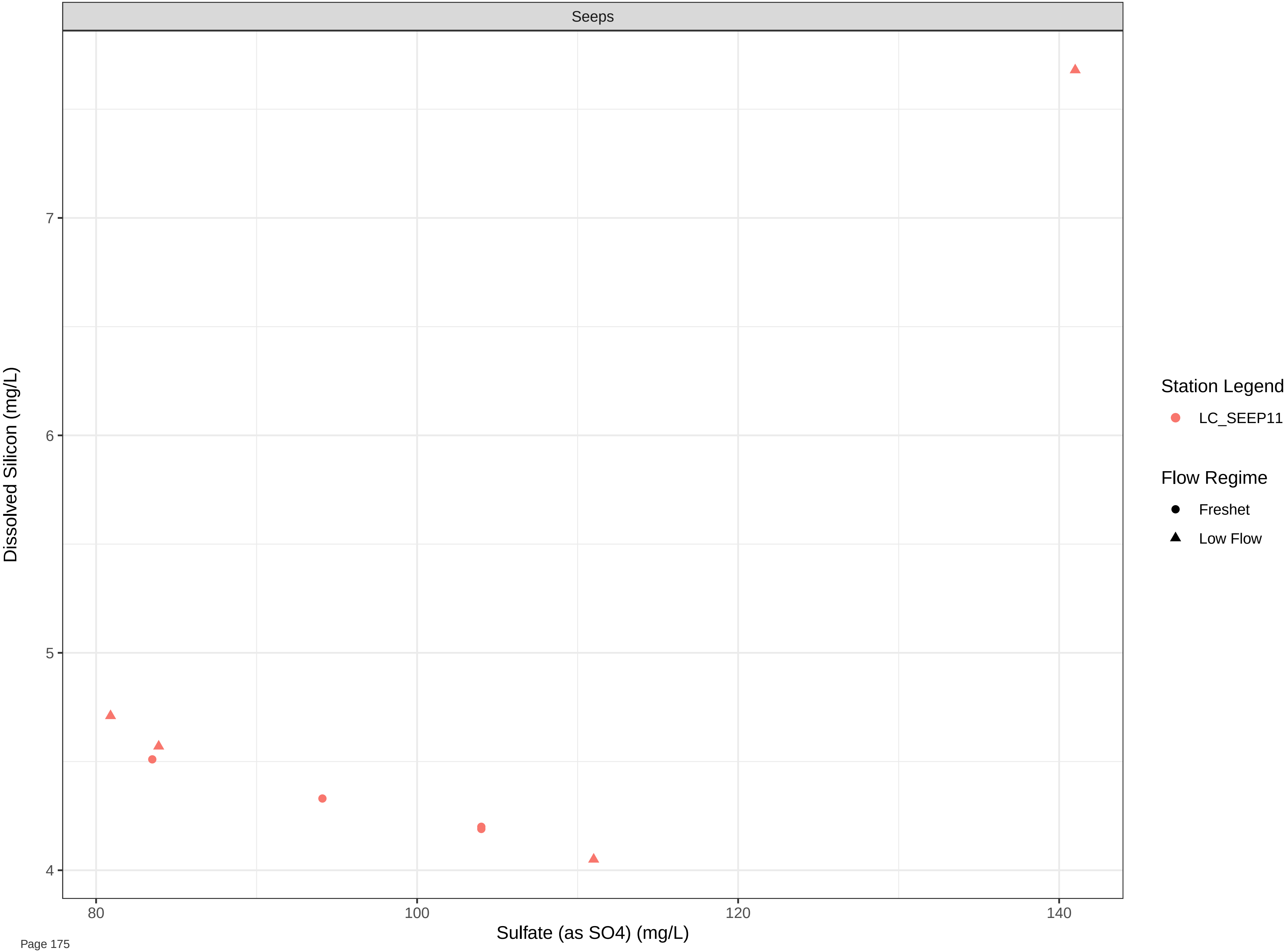

Comparison Point
Seeps
Dissolved Silicon (mg/L)
2.50
2.25
2.00
1.75
1.50
Sulfate (as SO4) (mg/L)
100
200
300
400
500
Station Legend
LC_LC7
LC_SEEP19
Flow Regime
Freshet
Low Flow

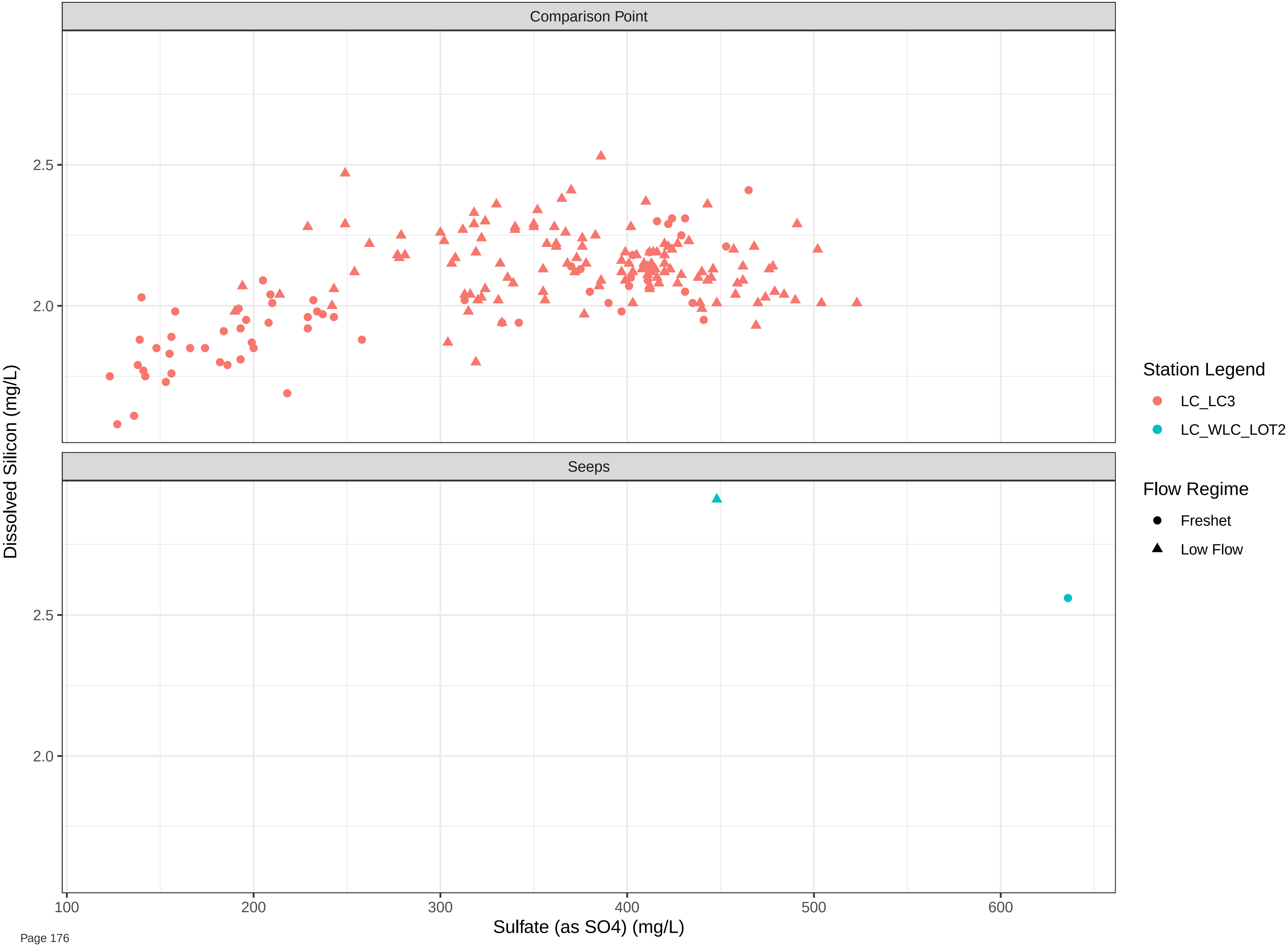


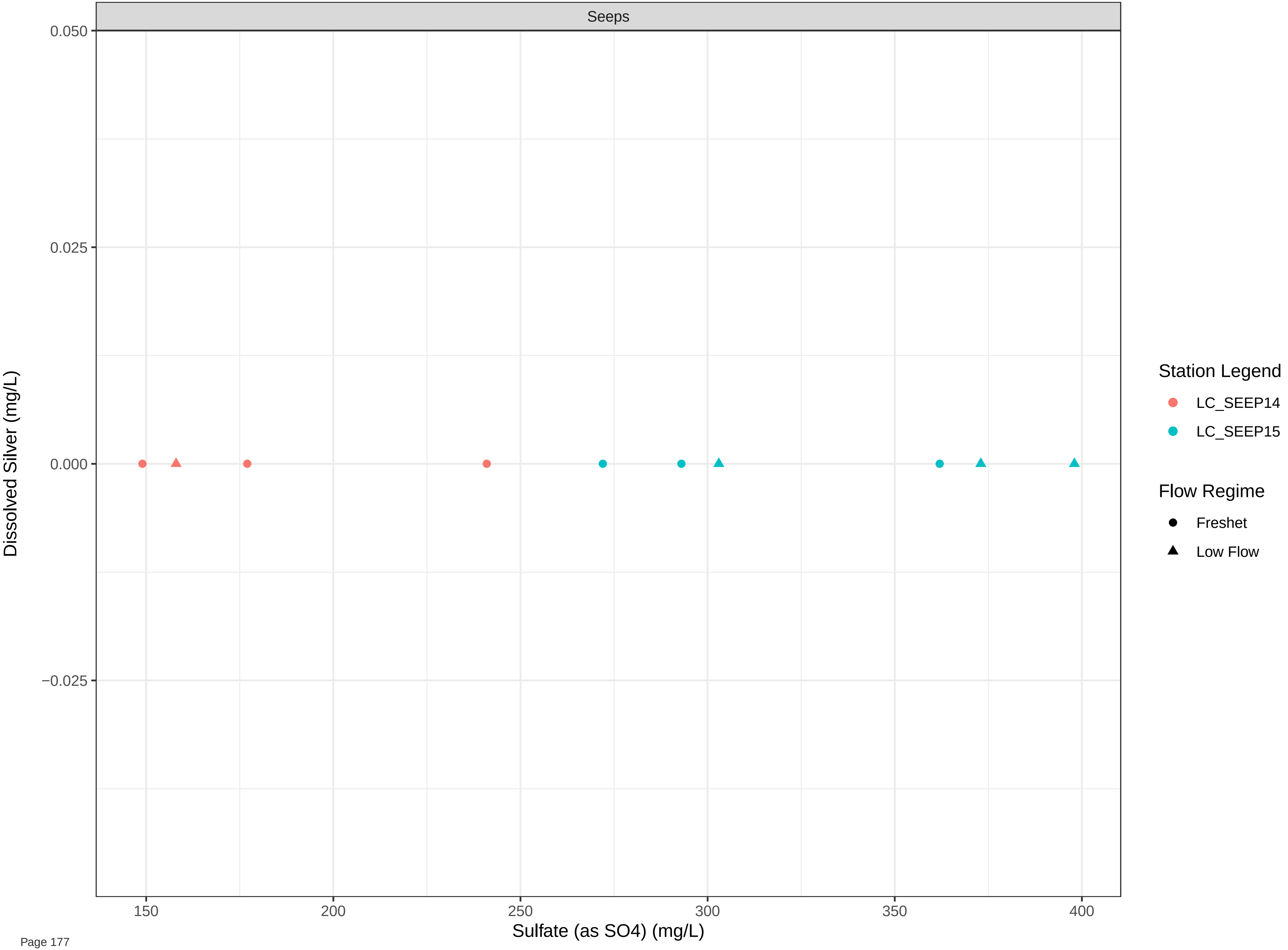
Comparison Point
Seeps
Dissolved Silicon (mg/L)
3.0
2.5
2.0
1.5
Sulfate (as SO4) (mg/L)
20
40
60
80
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
Freshet
Low Flow

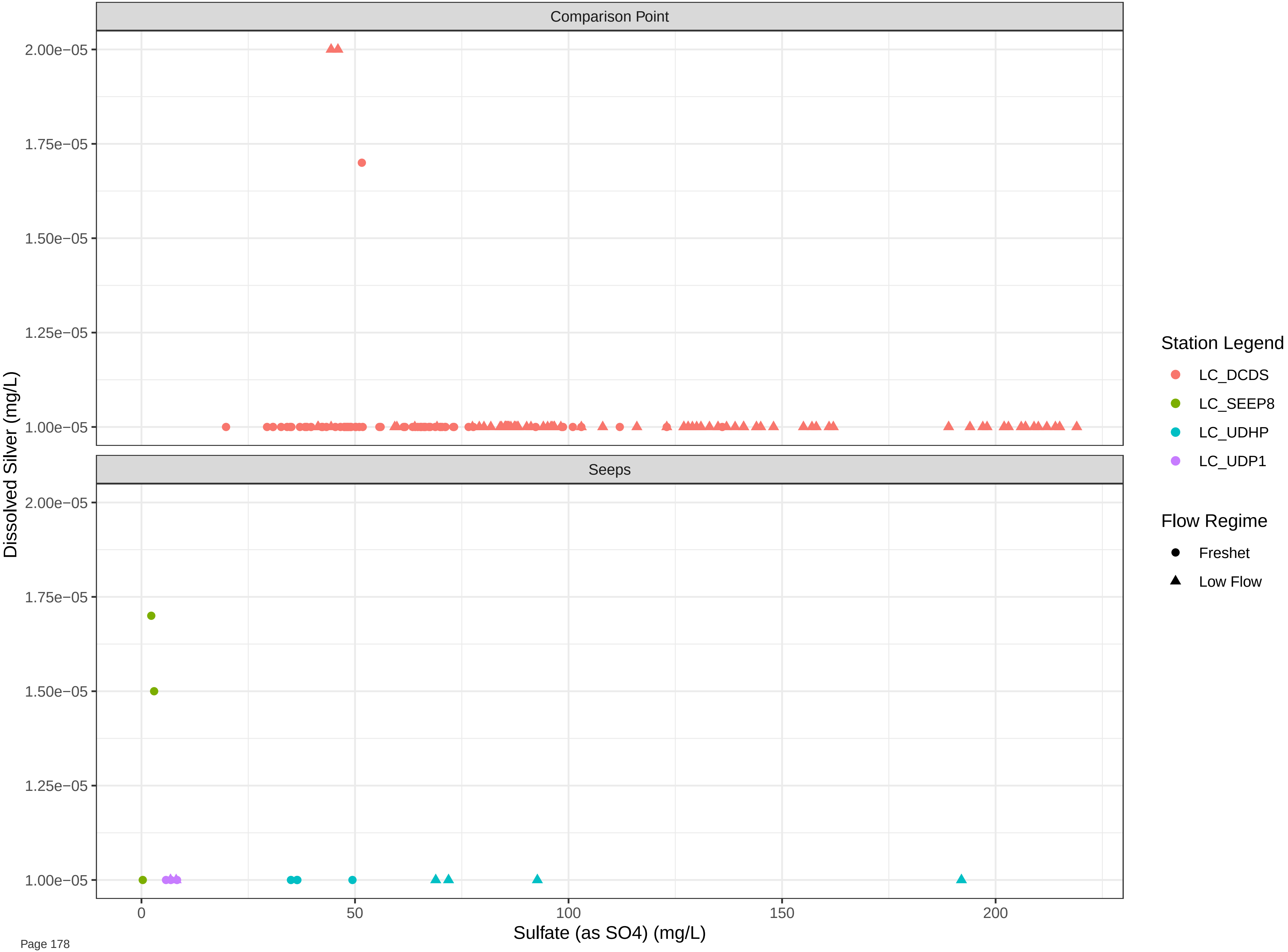

Comparison Point
Seeps
Dissolved Silicon (mg/L)
3.0
2.5
2.0
1.5
1.0
Sulfate (as SO4) (mg/L)
50
100
150
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

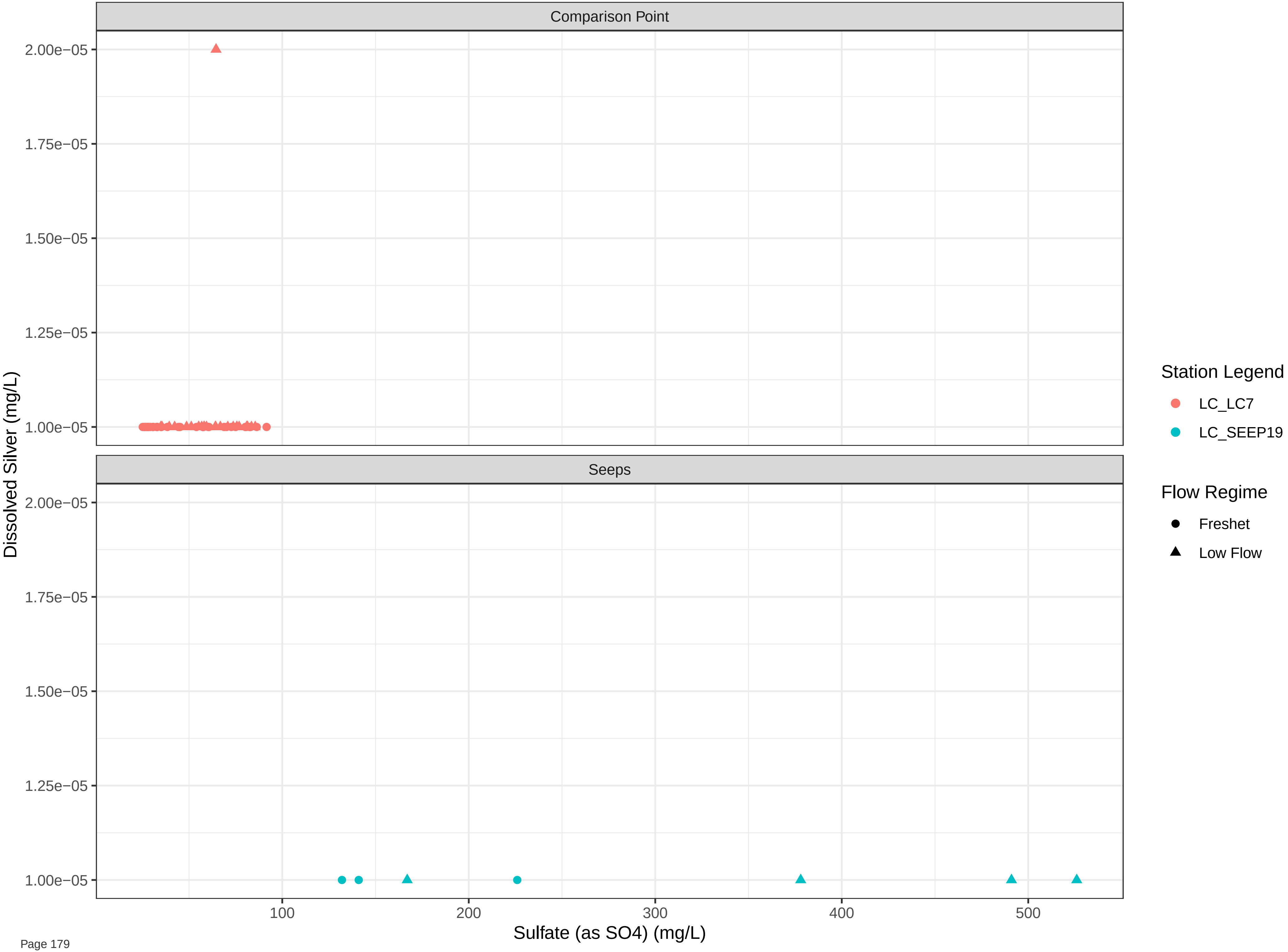

Comparison Point
Seeps
Dissolved Silicon (mg/L)
Sulfate (as SO4) (mg/L)
8
6
4
2
8
6
4
2
100
150
200
250
Station Legend
LC_LC5
LC_SEEP10
Flow Regime
Freshet
Low Flow

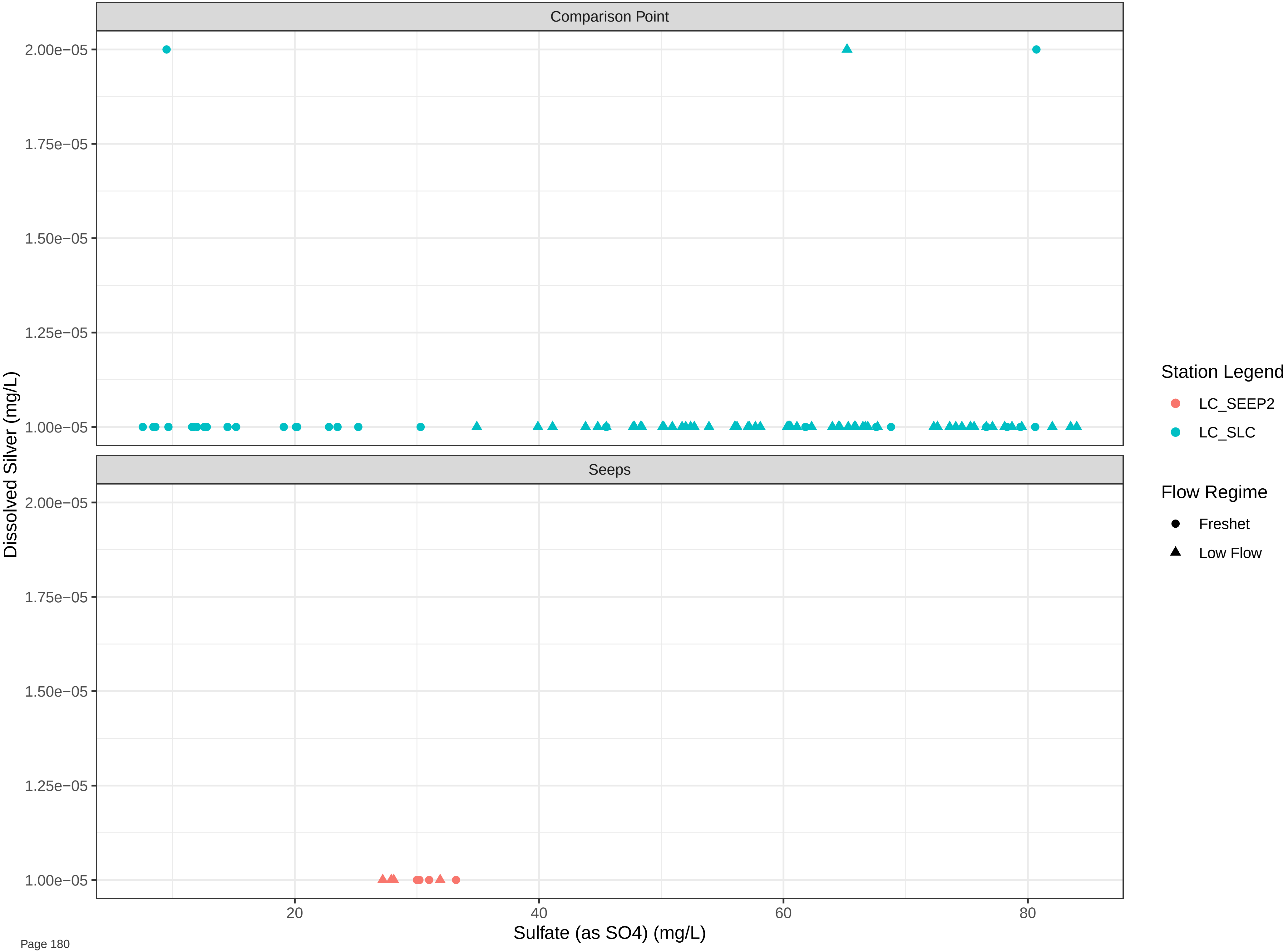

Seeps
Dissolved Silicon (mg/L)
7
6
5
4
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP11
Flow Regime
Freshet
Low Flow

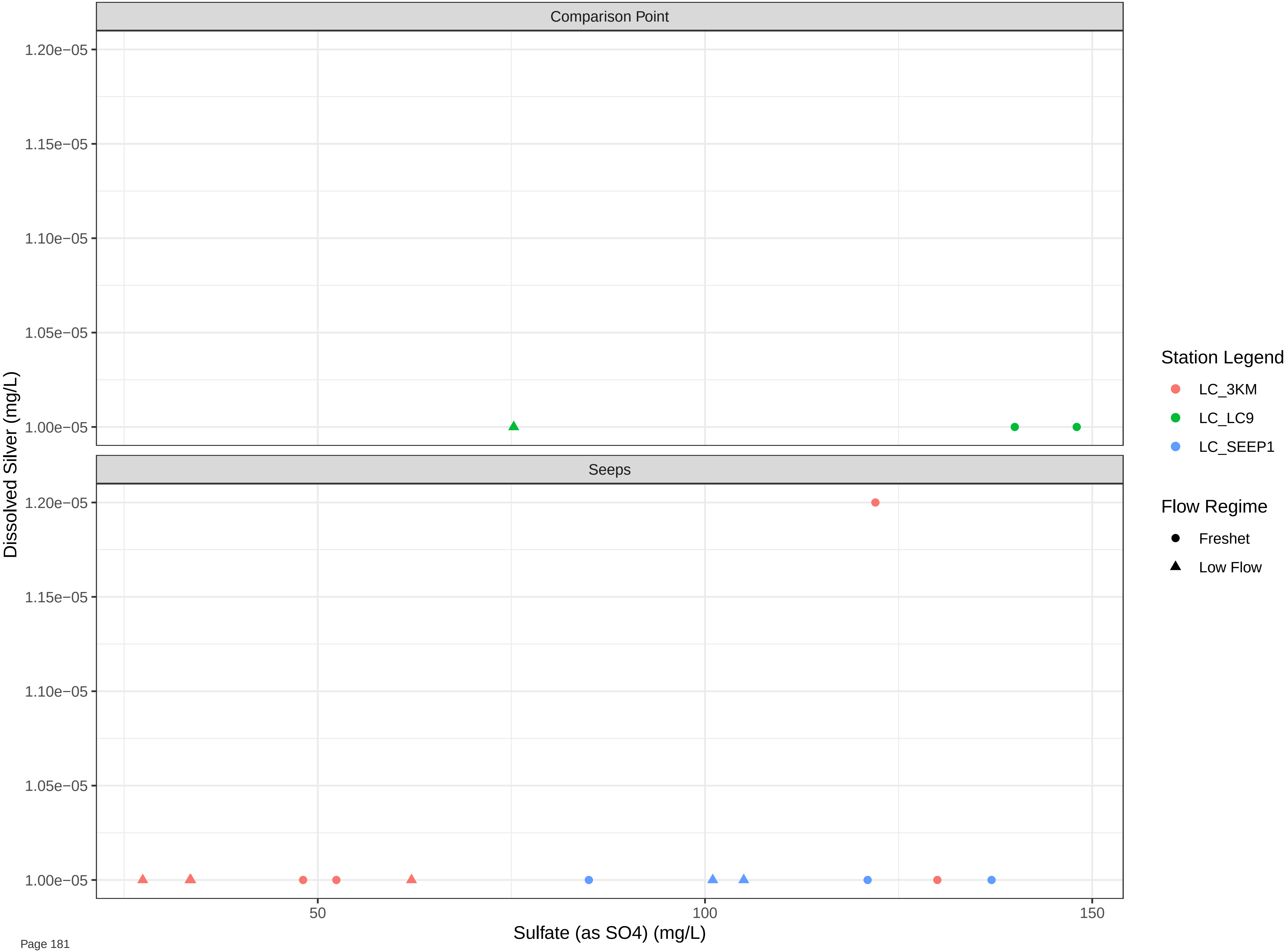

Comparison Point
Seeps
Dissolved Silicon (mg/L)
2.5
2.0
2.5
2.0
100
200
300
400
500
600
Sulfate (as SO4) (mg/L)
Station Legend
● LC_LC3
● LC_WLC_LOT2
Flow Regime
● Freshet
▲ Low Flow

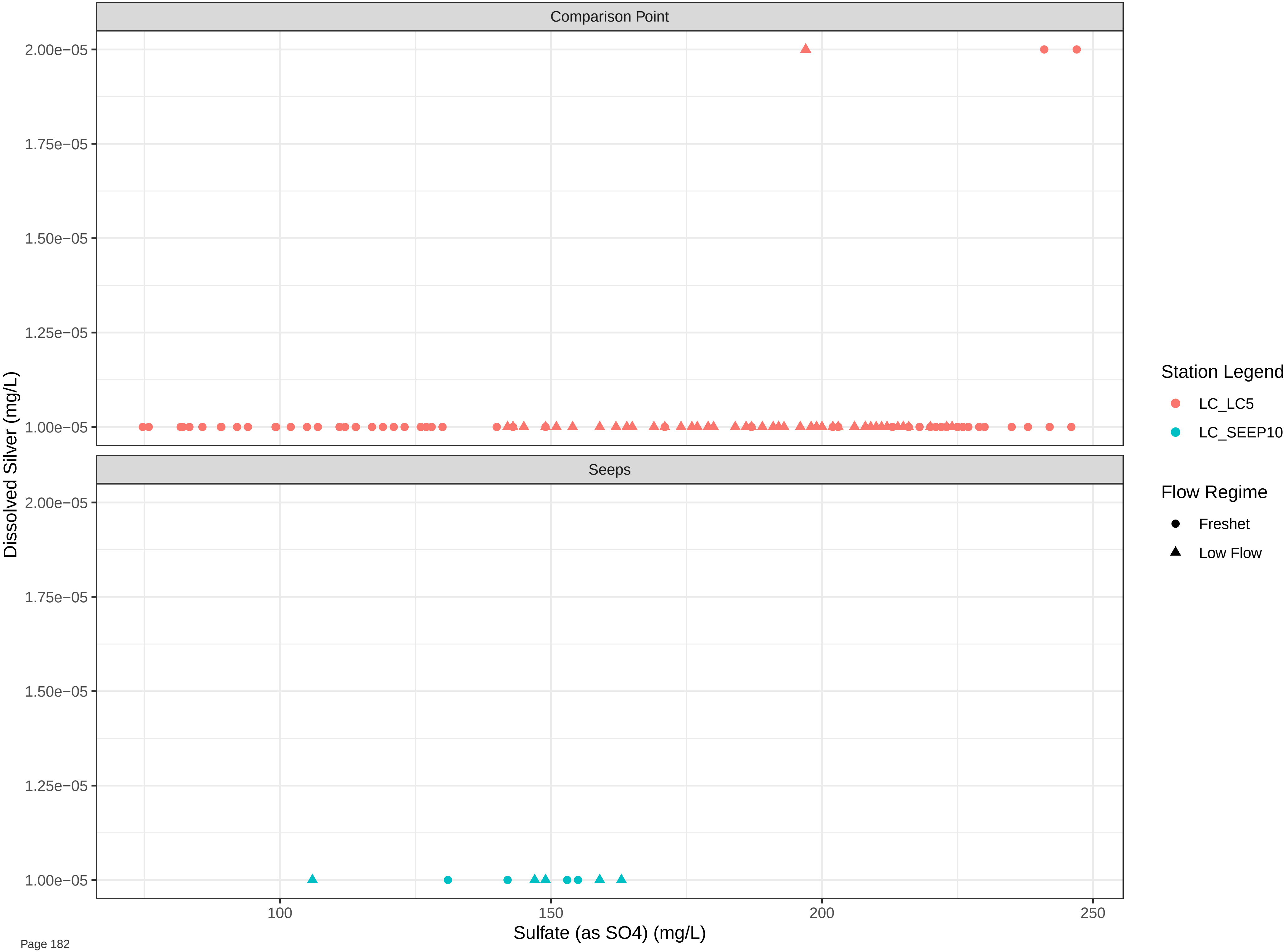

Seeps
0.050
0.025
0.000
−0.025
Dissolved Silver (mg/L)
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP14
LC_SEEP15
Flow Regime
Freshet
Low Flow

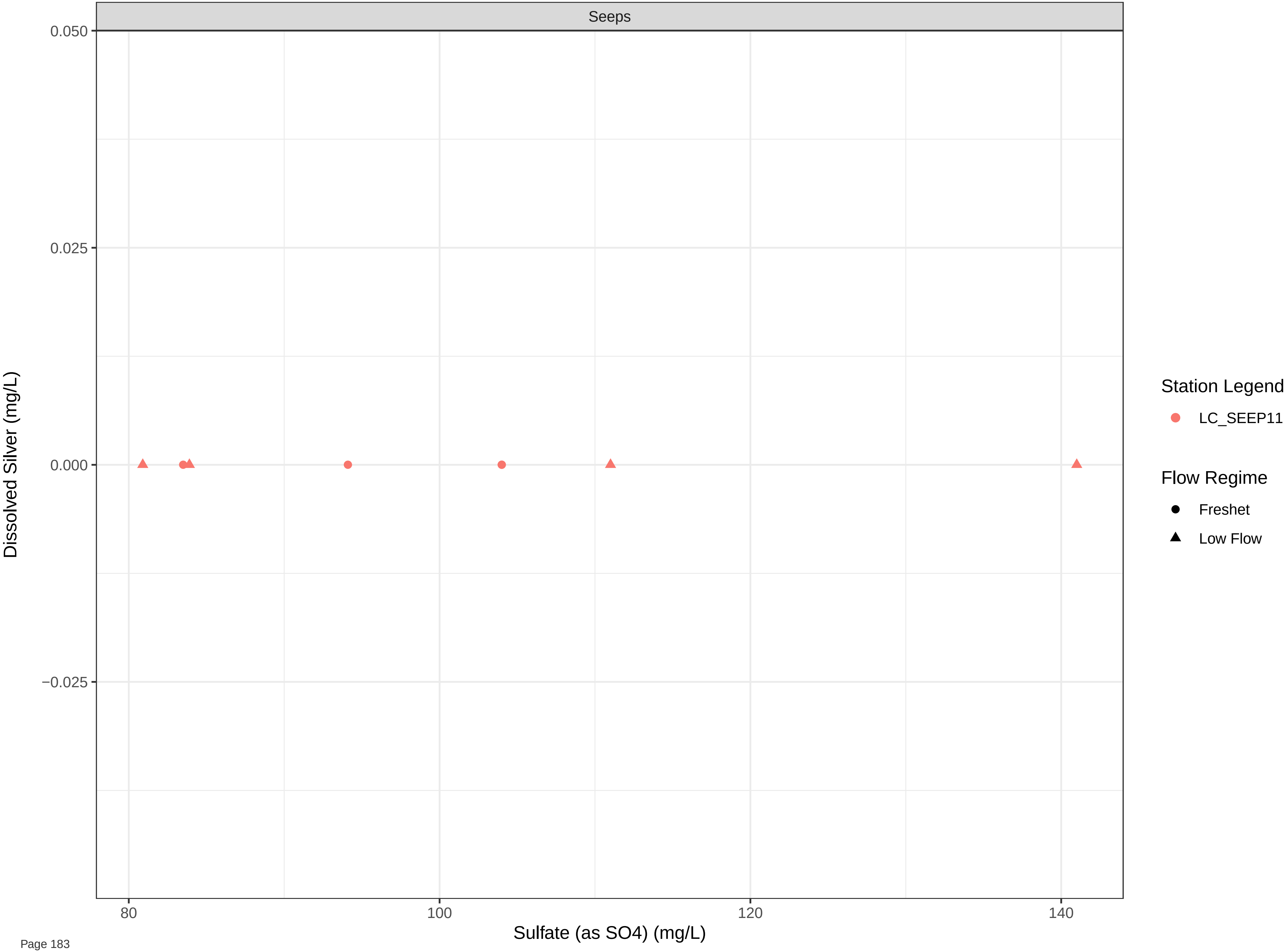

Comparison Point
Seeps
2.00e−05
1.75e−05
1.50e−05
1.25e−05
1.00e−05
Dissolved Silver (mg/L)
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
LC_DCDS
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

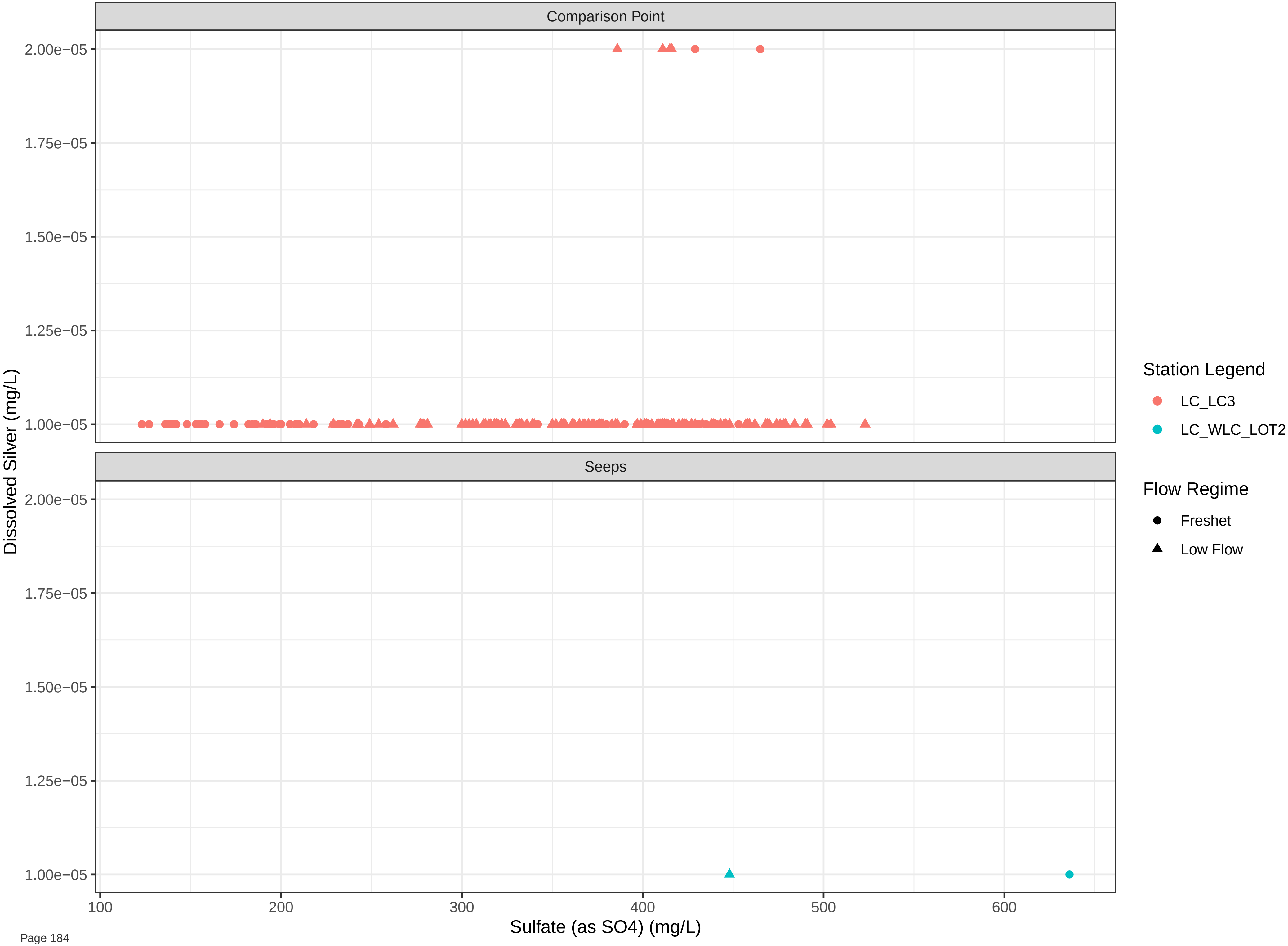

Comparison Point
Seeps
Dissolved Silver (mg/L)
2.00e−05
1.75e−05
1.50e−05
1.25e−05
1.00e−05
Sulfate (as SO4) (mg/L)
100
200
300
400
500
Station Legend
LC_LC7
LC_SEEP19
Flow Regime
Freshet
Low Flow

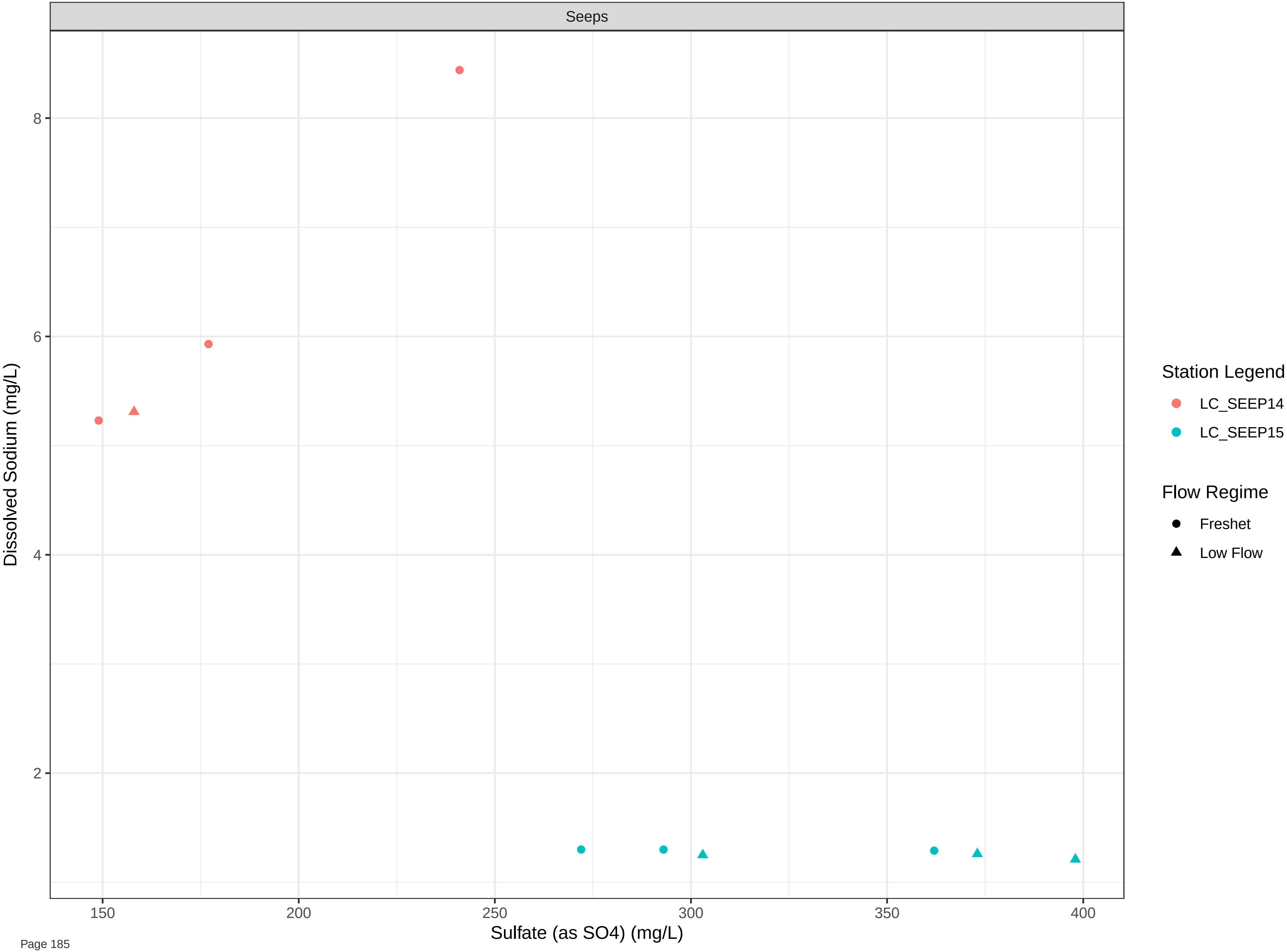

Comparison Point
Seeps
2.00e−05
1.75e−05
1.50e−05
1.25e−05
1.00e−05
Dissolved Silver (mg/L)
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
Freshet
Low Flow

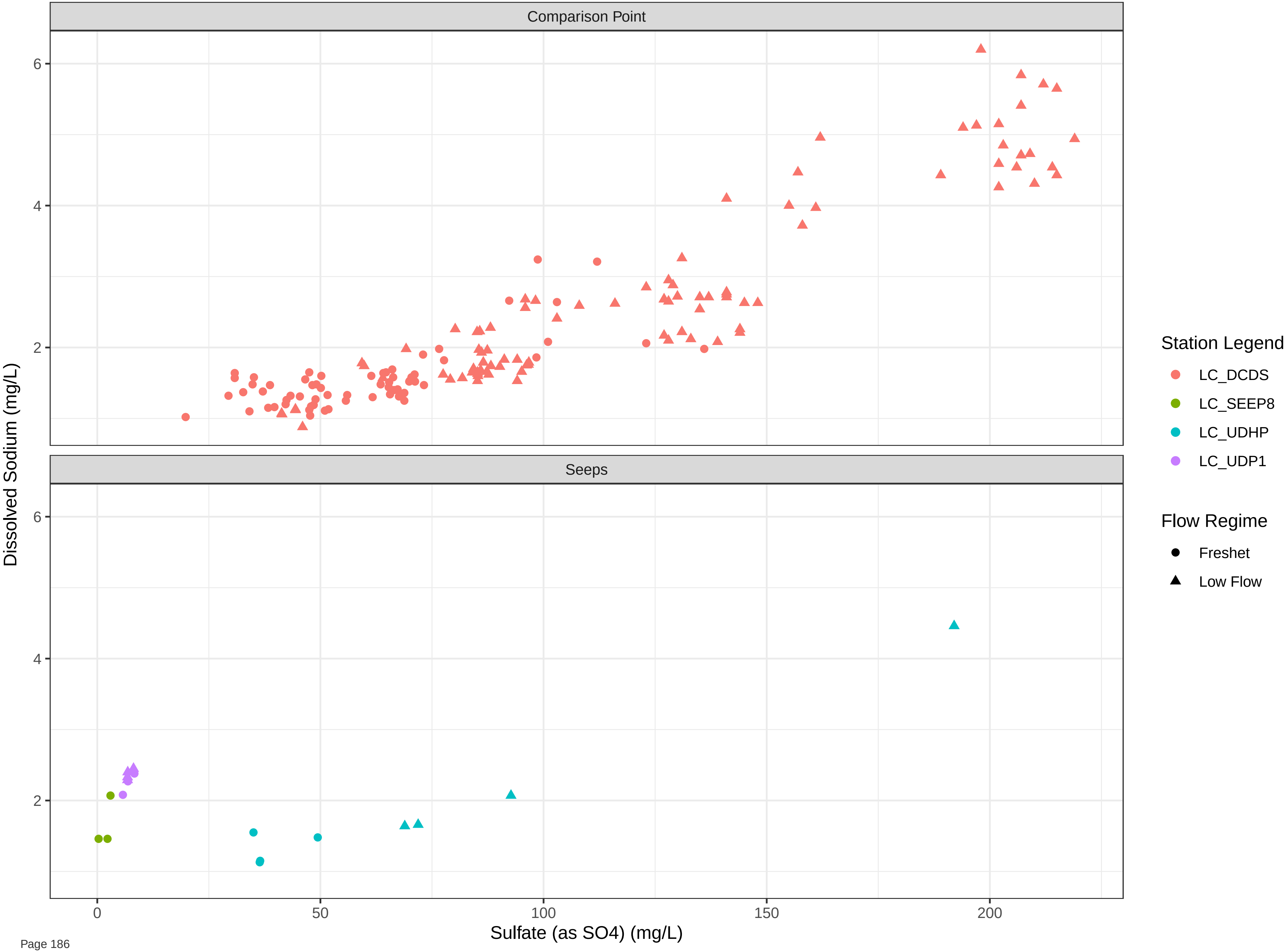

Comparison Point
Seeps
Dissolved Silver (mg/L)
1.20e−05
1.15e−05
1.10e−05
1.05e−05
1.00e−05
50
100
150
Sulfate (as SO4) (mg/L)
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

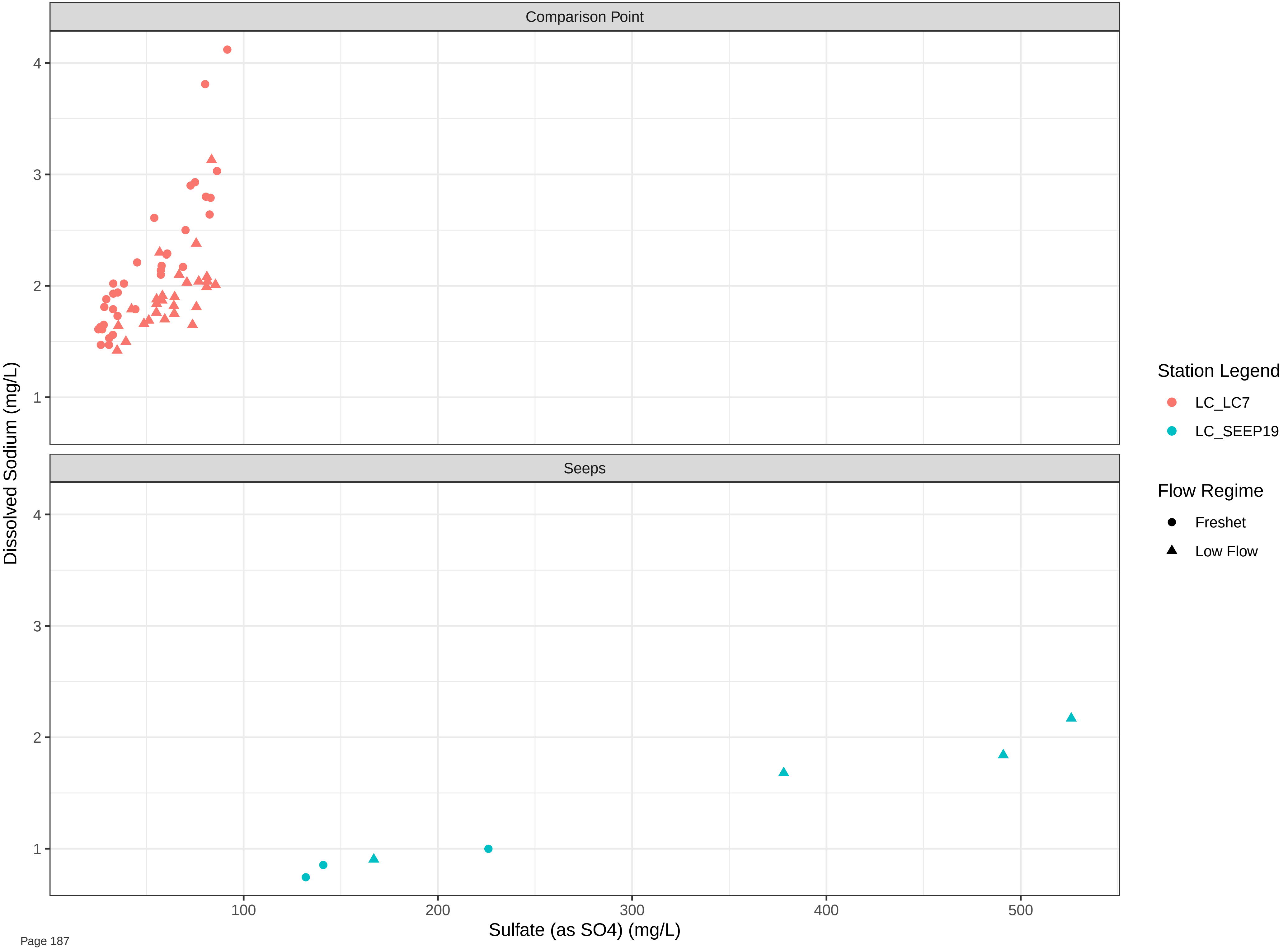

Comparison Point
Seeps
Dissolved Silver (mg/L)
2.00e−05
1.75e−05
1.50e−05
1.25e−05
1.00e−05
100
150
200
250
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC5
LC_SEEP10
Flow Regime
Freshet
Low Flow

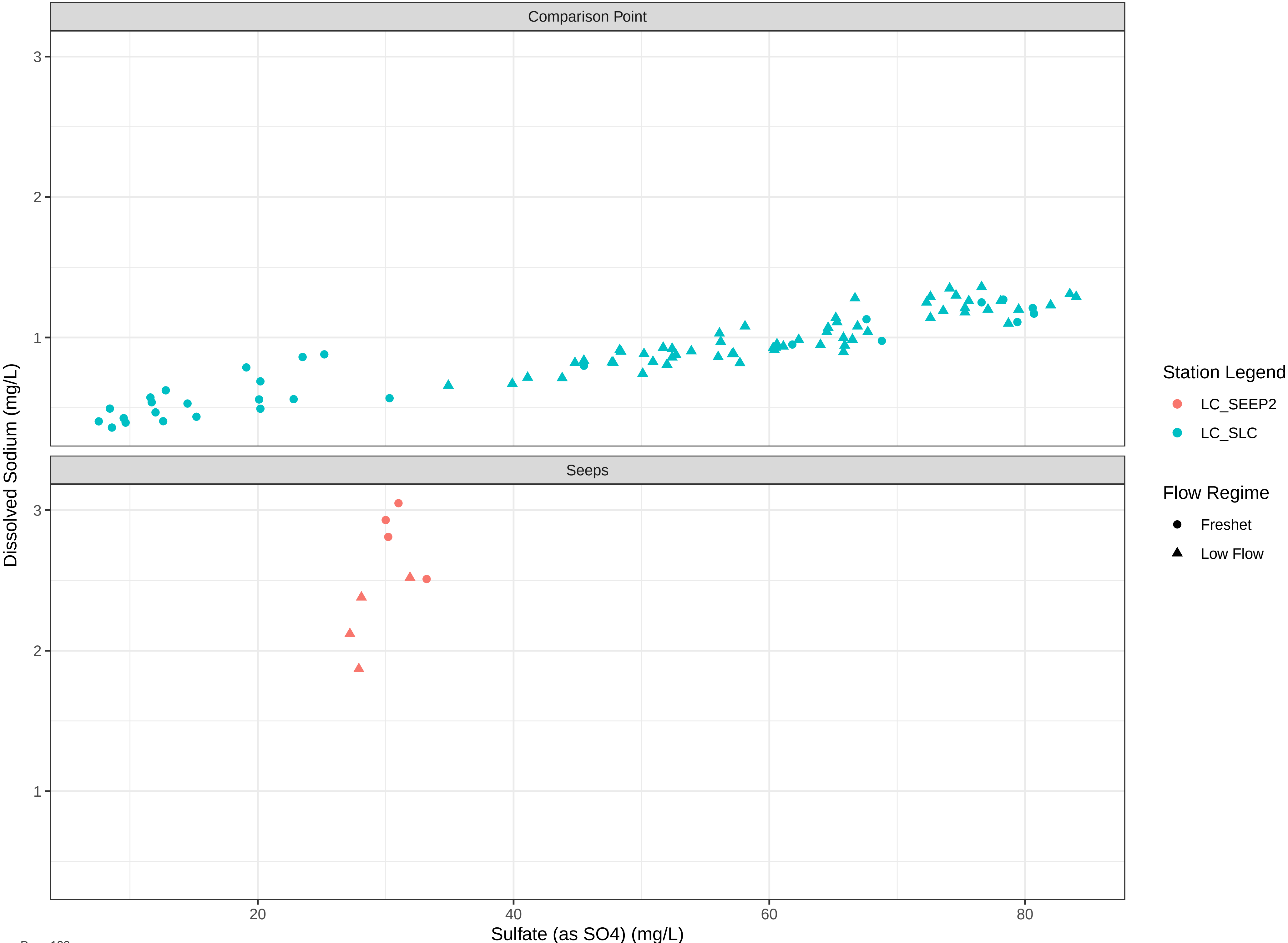

Seeps
0.050
0.025
0.000
−0.025
Dissolved Silver (mg/L)
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP11
Flow Regime
Freshet
Low Flow

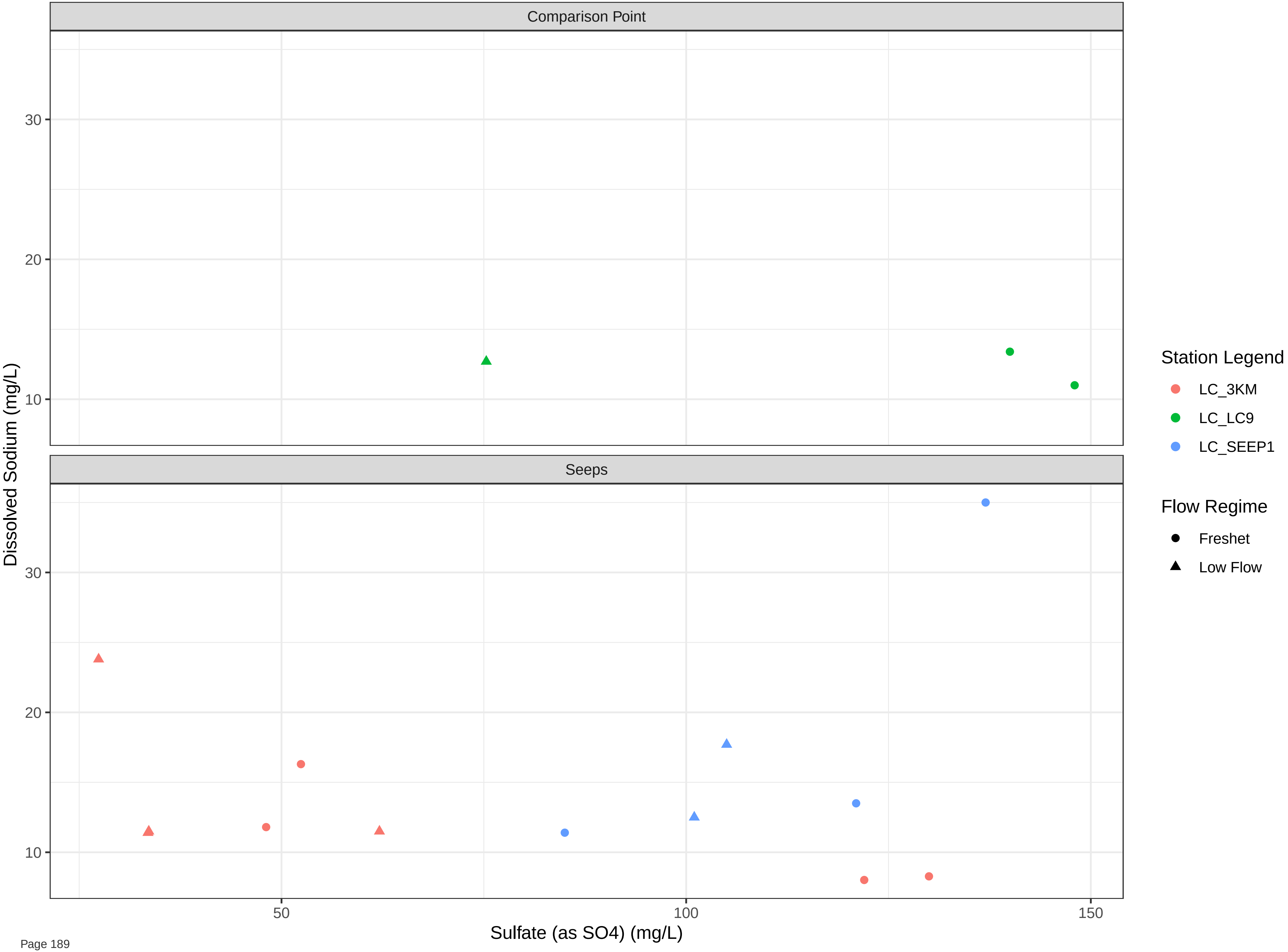

Comparison Point
Seeps
Dissolved Silver (mg/L)
2.00e−05
1.75e−05
1.50e−05
1.25e−05
1.00e−05
100
200
300
400
500
600
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC3
LC_WLC_LOT2
Flow Regime
Freshet
Low Flow

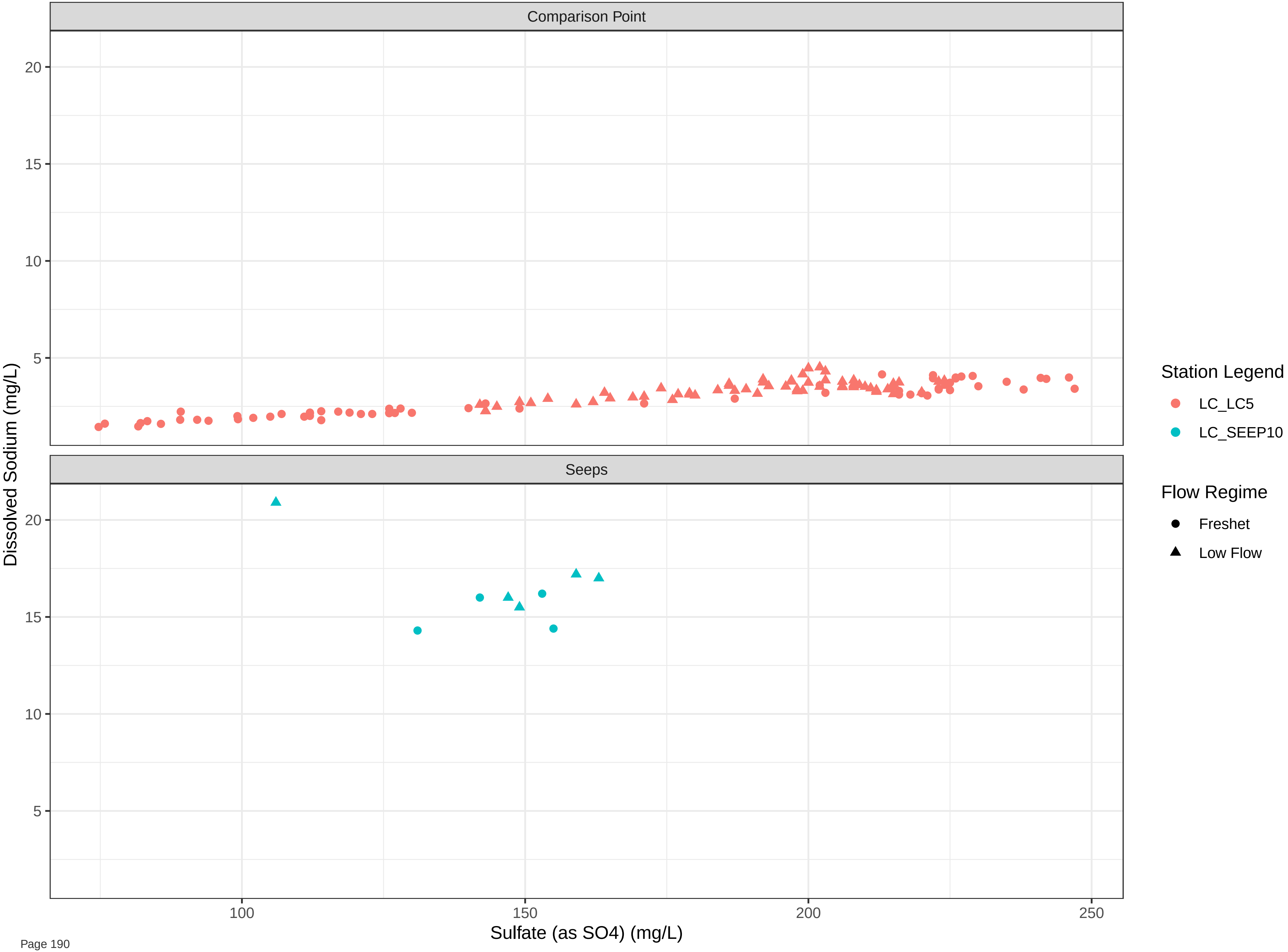

Seeps
Dissolved Sodium (mg/L)
8
6
4
2
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP14
LC_SEEP15
Flow Regime
Freshet
Low Flow

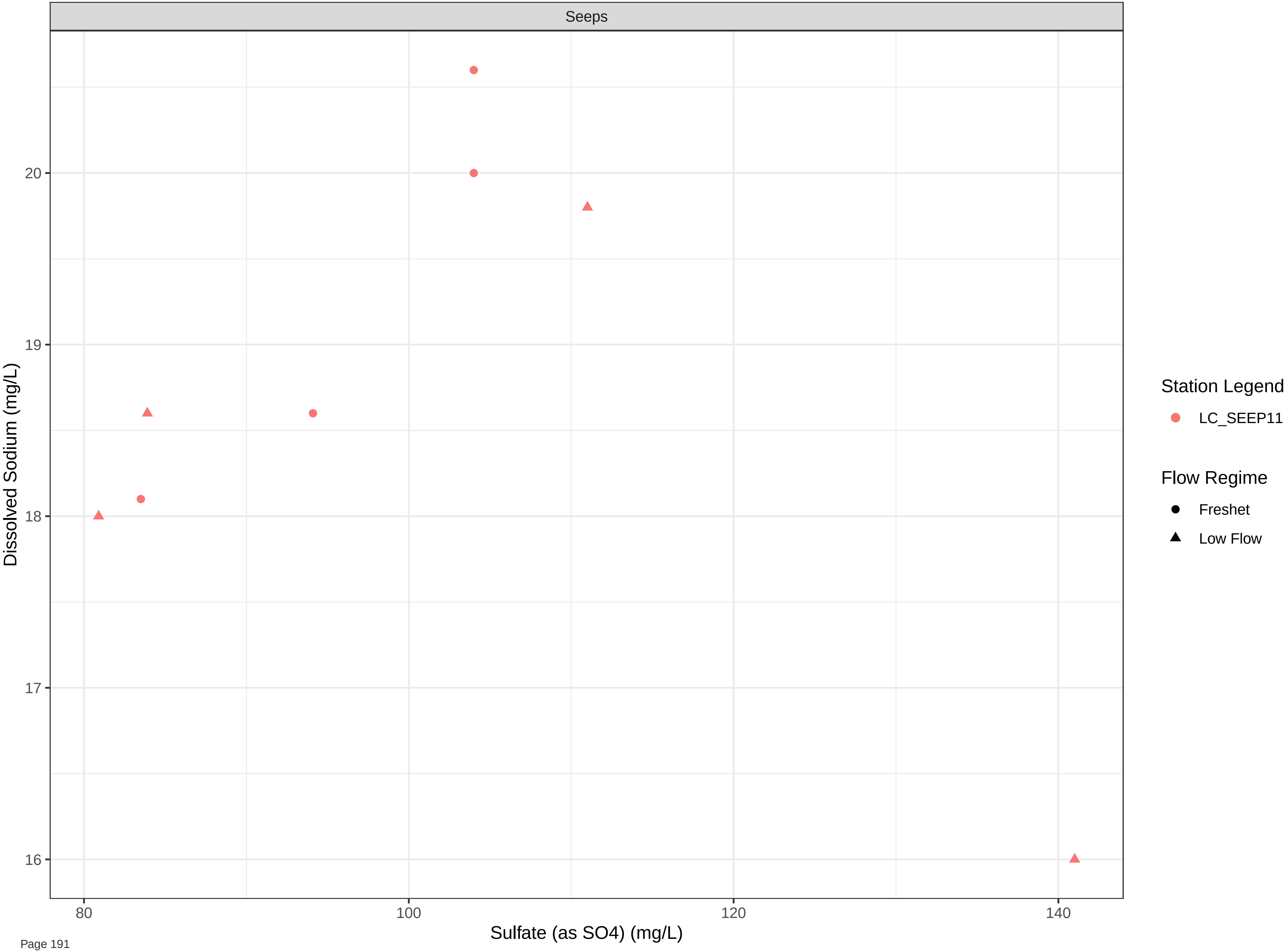

Comparison Point
Seeps
Dissolved Sodium (mg/L)
6
4
2
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
● LC_DCDS
● LC_SEEP8
● LC_UDHP
● LC_UDP1
Flow Regime
● Freshet
▲ Low Flow

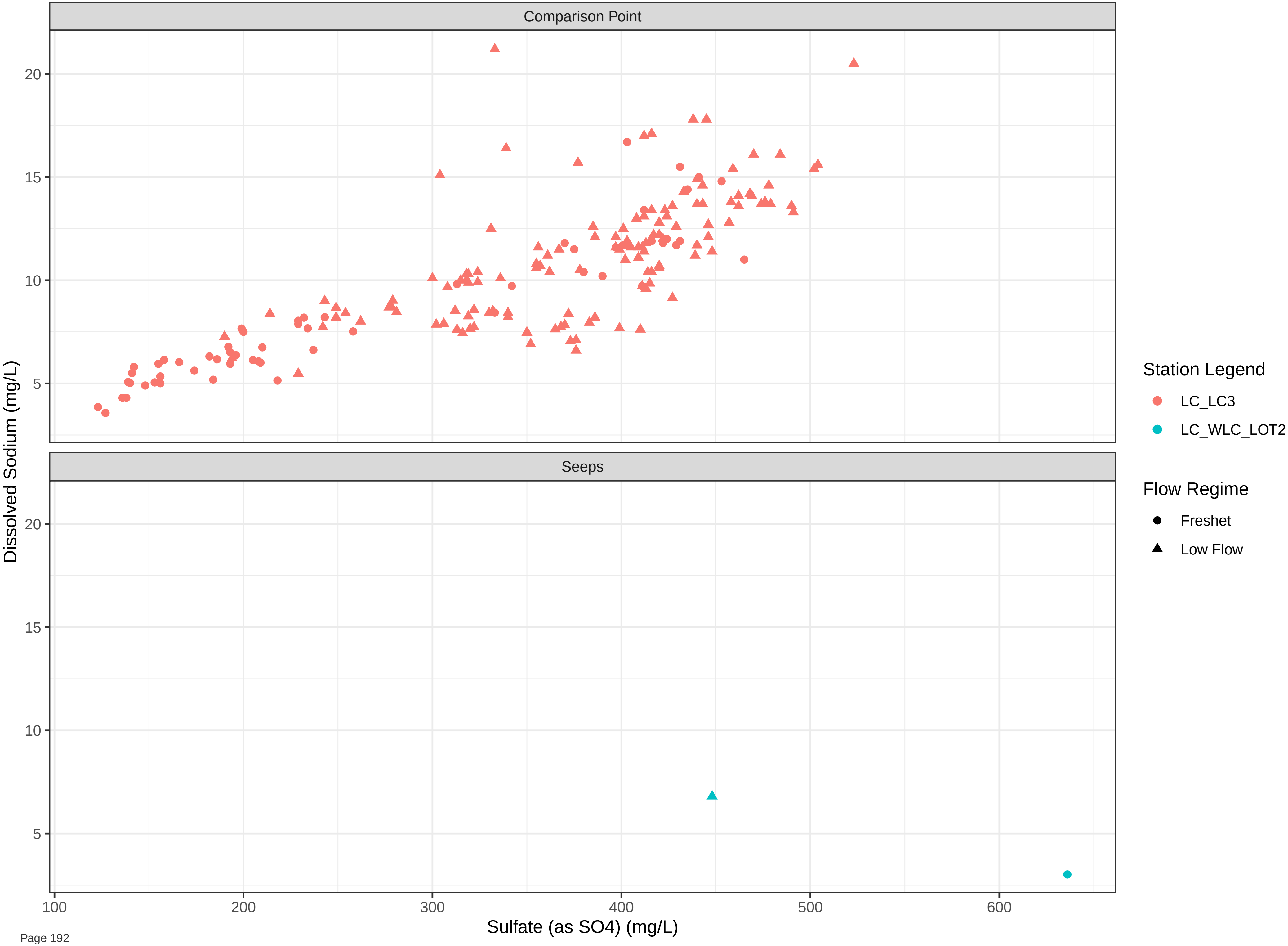

Comparison Point
Seeps
Dissolved Sodium (mg/L)
Sulfate (as SO4) (mg/L)
1
2
3
4
100
200
300
400
500
Station Legend
LC_LC7
LC_SEEP19
Flow Regime
Freshet
Low Flow

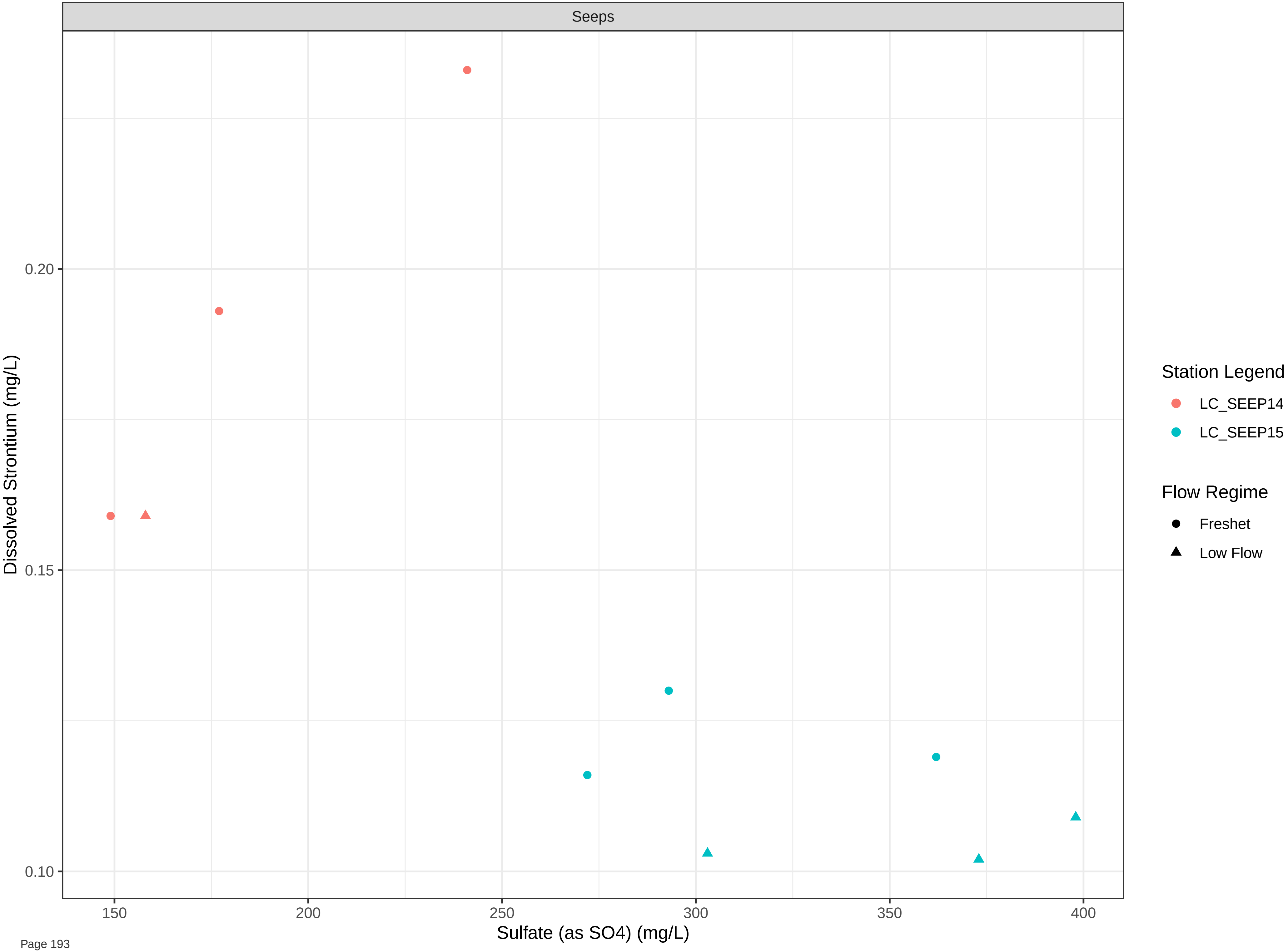

Comparison Point
Seeps
Dissolved Sodium (mg/L)
3
2
1
3
2
1
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
Freshet
Low Flow

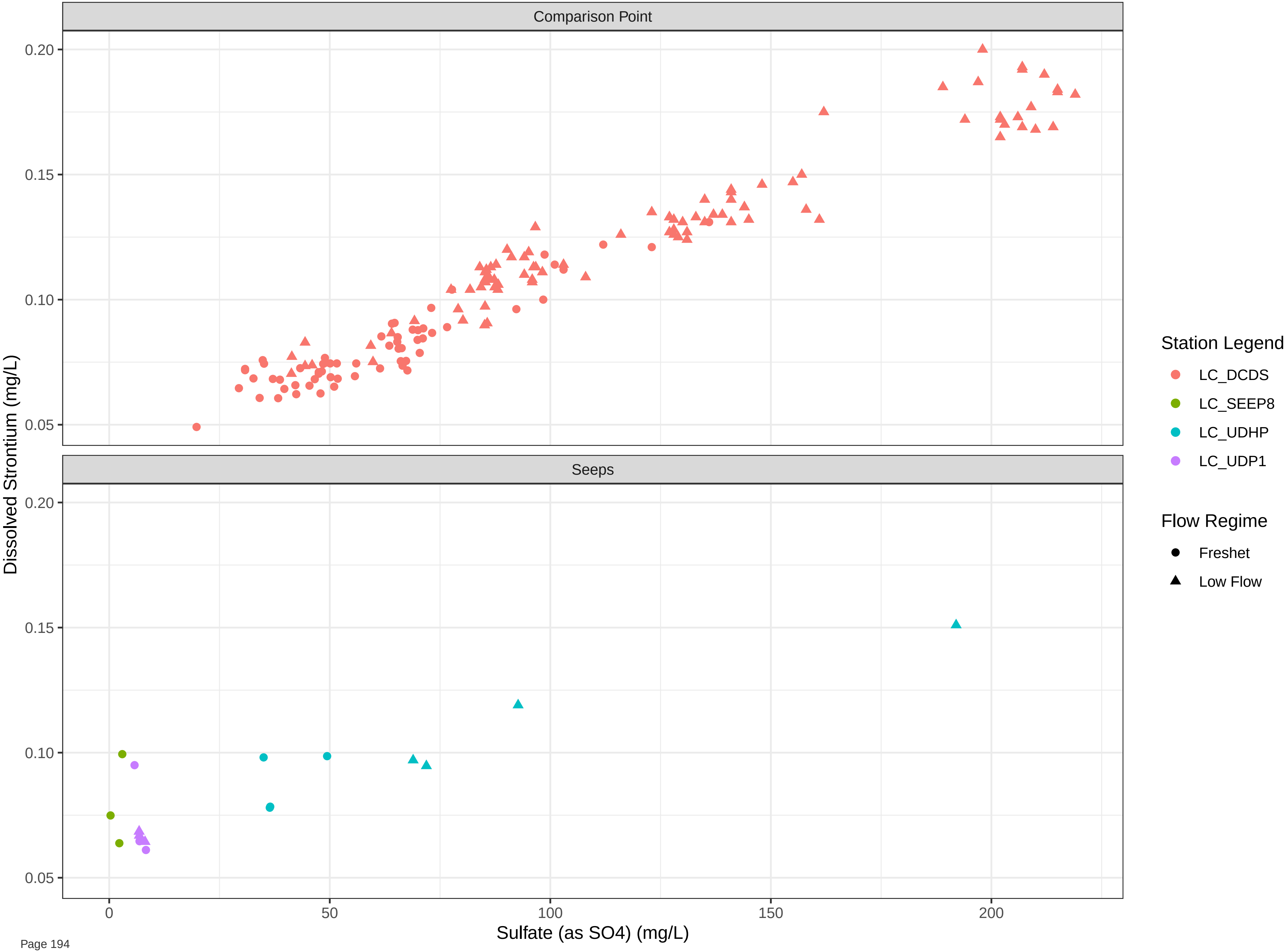

Comparison Point
Seeps
Dissolved Sodium (mg/L)
Sulfate (as SO4) (mg/L)
30
20
10
30
20
10
50
100
150
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

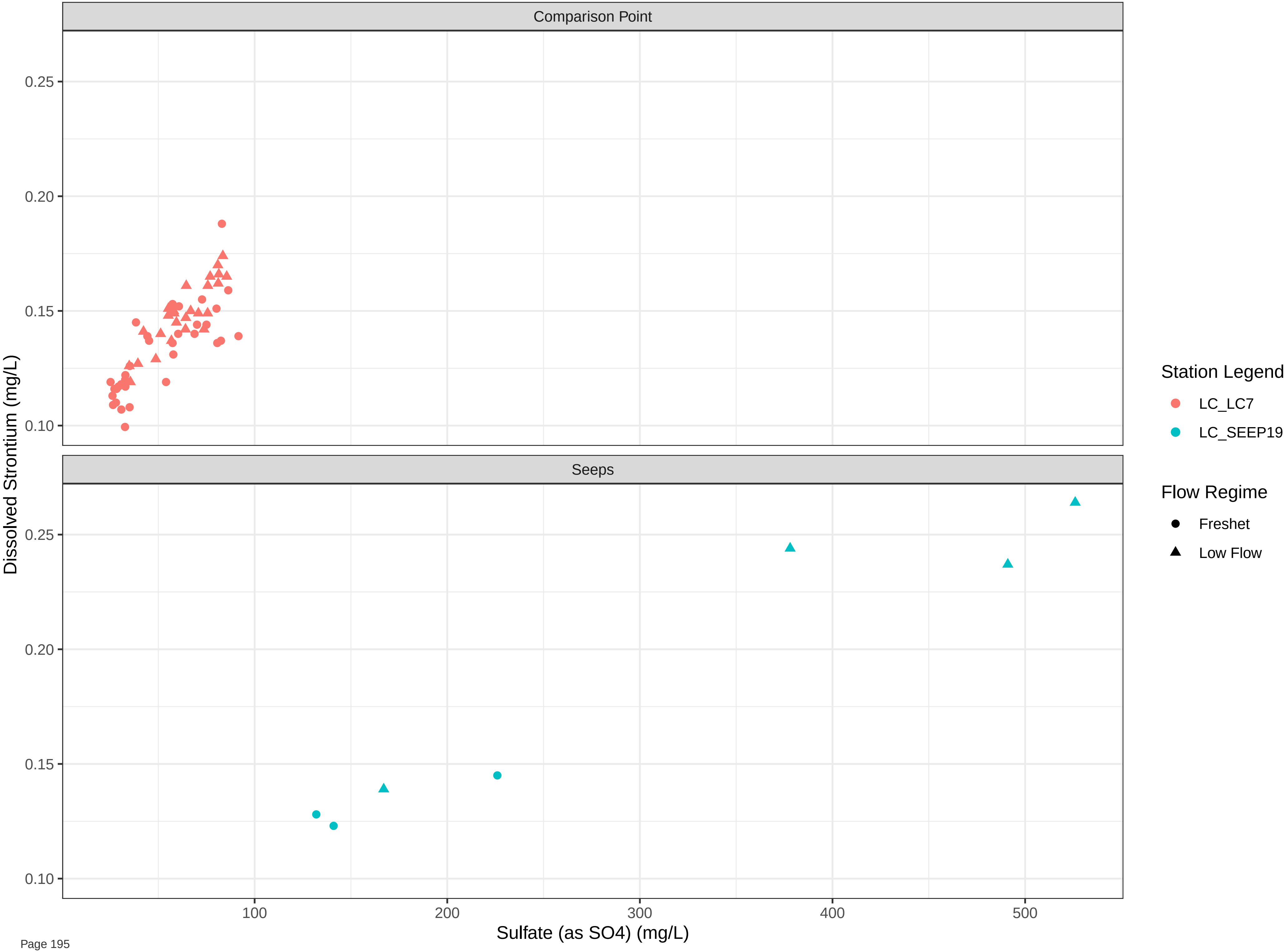

Comparison Point
Seeps
Dissolved Sodium (mg/L)
20
15
10
5
Sulfate (as SO4) (mg/L)
100
150
200
250
Station Legend
● LC_LC5
● LC_SEEP10
Flow Regime
● Freshet
▲ Low Flow

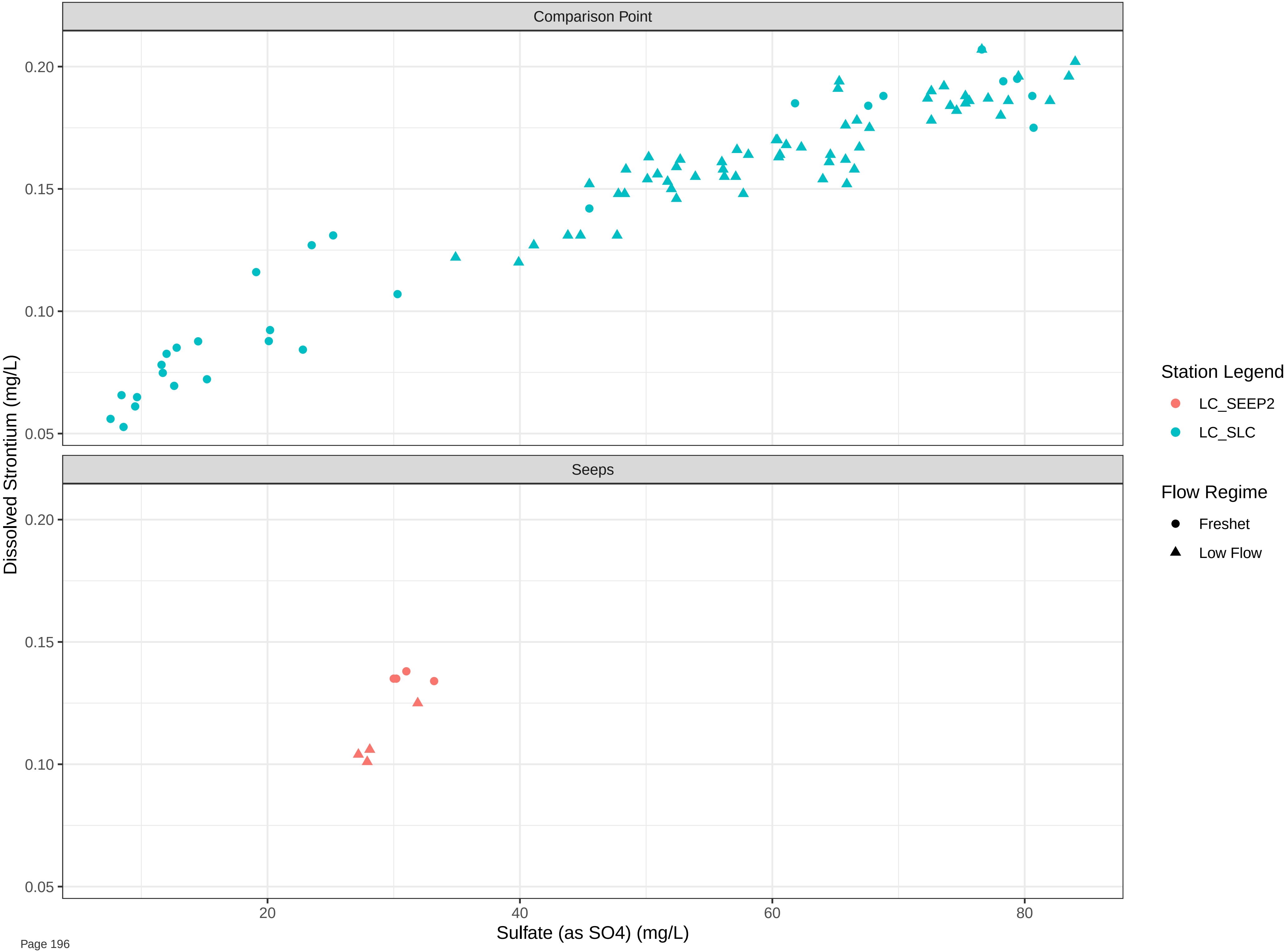

Seeps
Dissolved Sodium (mg/L)
20
19
18
17
16
Sulfate (as SO4) (mg/L)
80
100
120
140
Station Legend
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

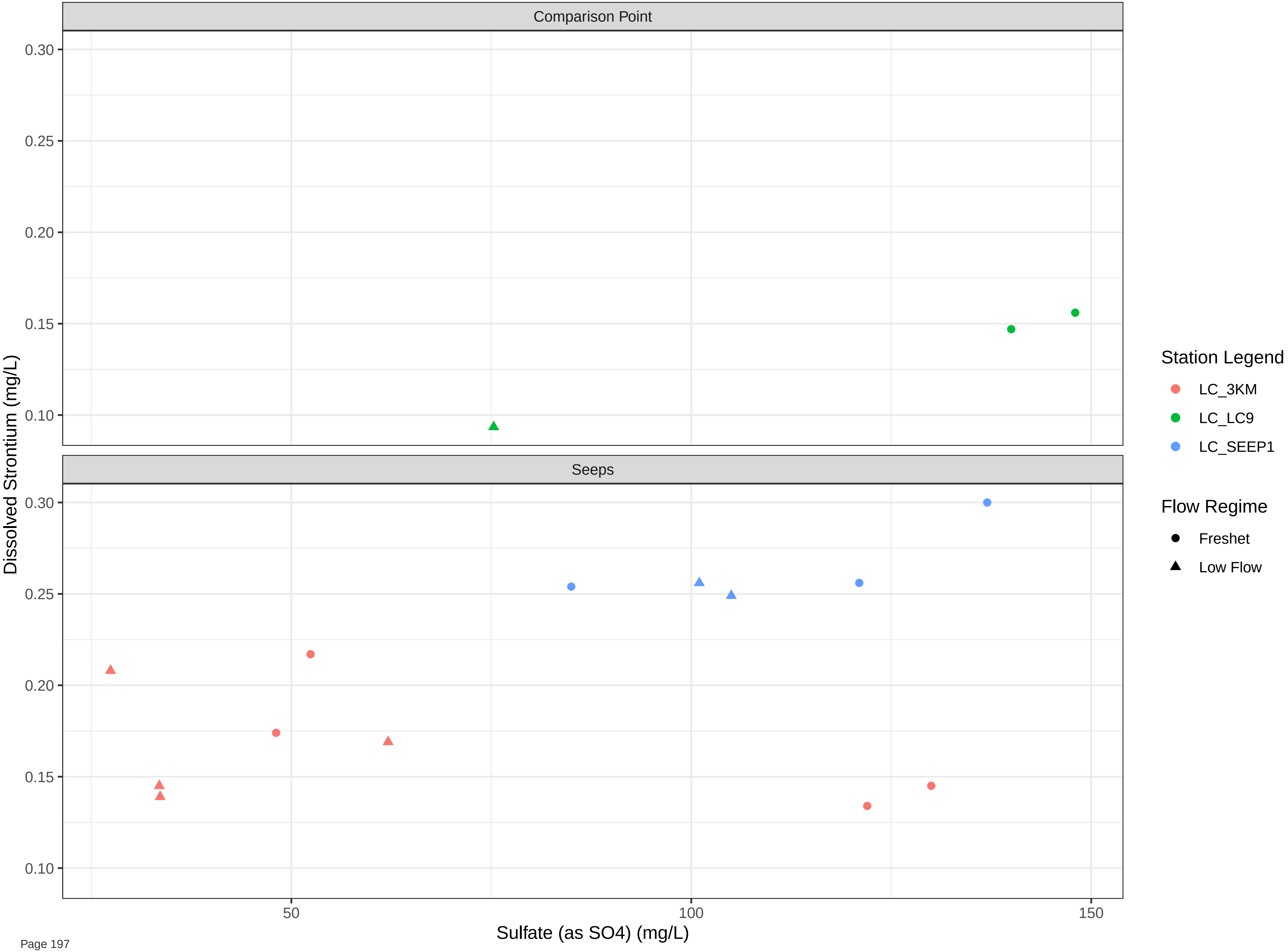

Comparison Point
Seeps
20
15
10
5
Dissolved Sodium (mg/L)
100
200
300
400
500
600
Sulfate (as SO4) (mg/L)
Station Legend
● LC_LC3
● LC_WLC_LOT2
Flow Regime
● Freshet
▲ Low Flow

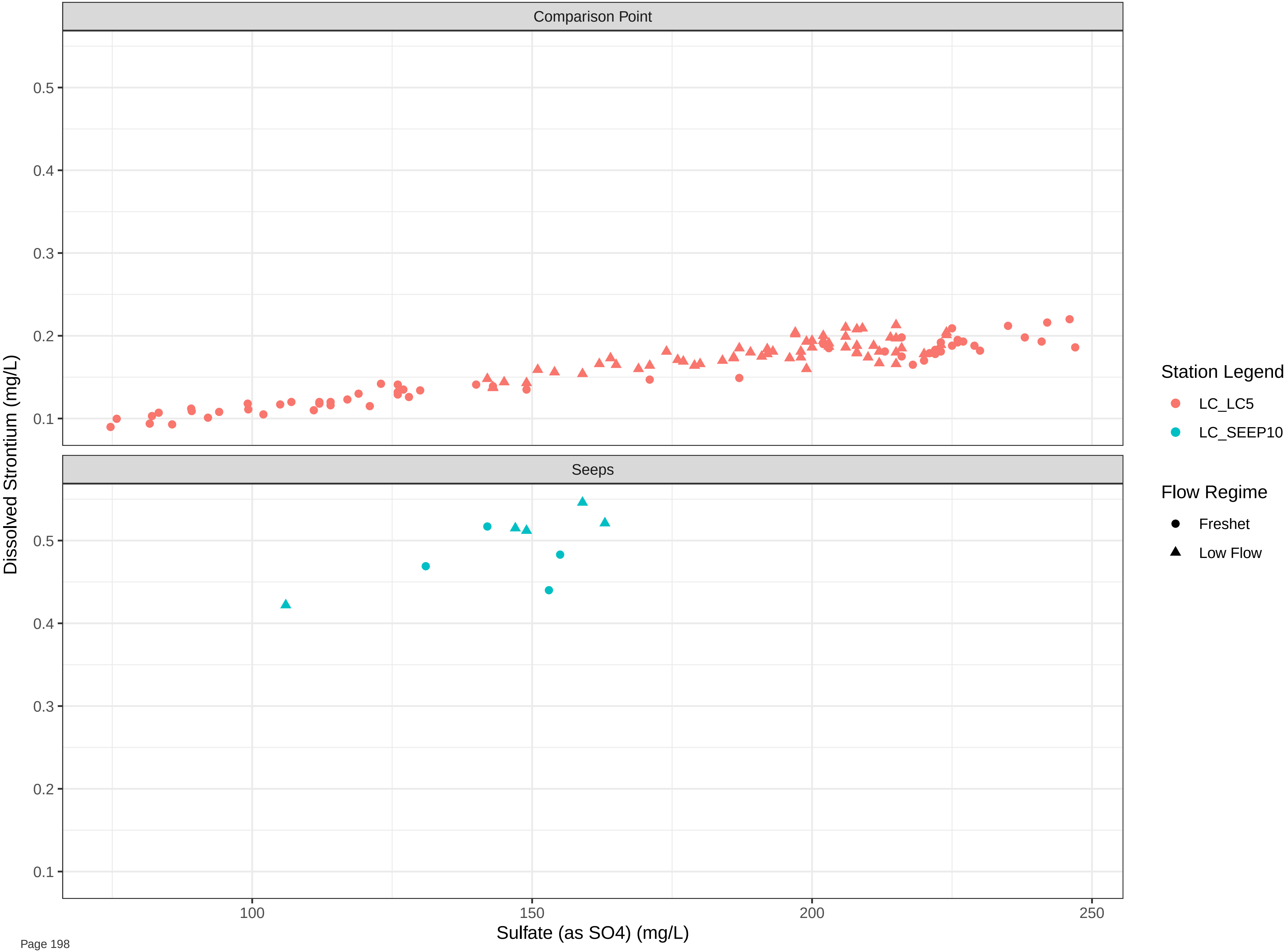

Seeps
Dissolved Strontium (mg/L)
0.20
0.15
0.10
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
● LC_SEEP14
● LC_SEEP15
Flow Regime
● Freshet
▲ Low Flow

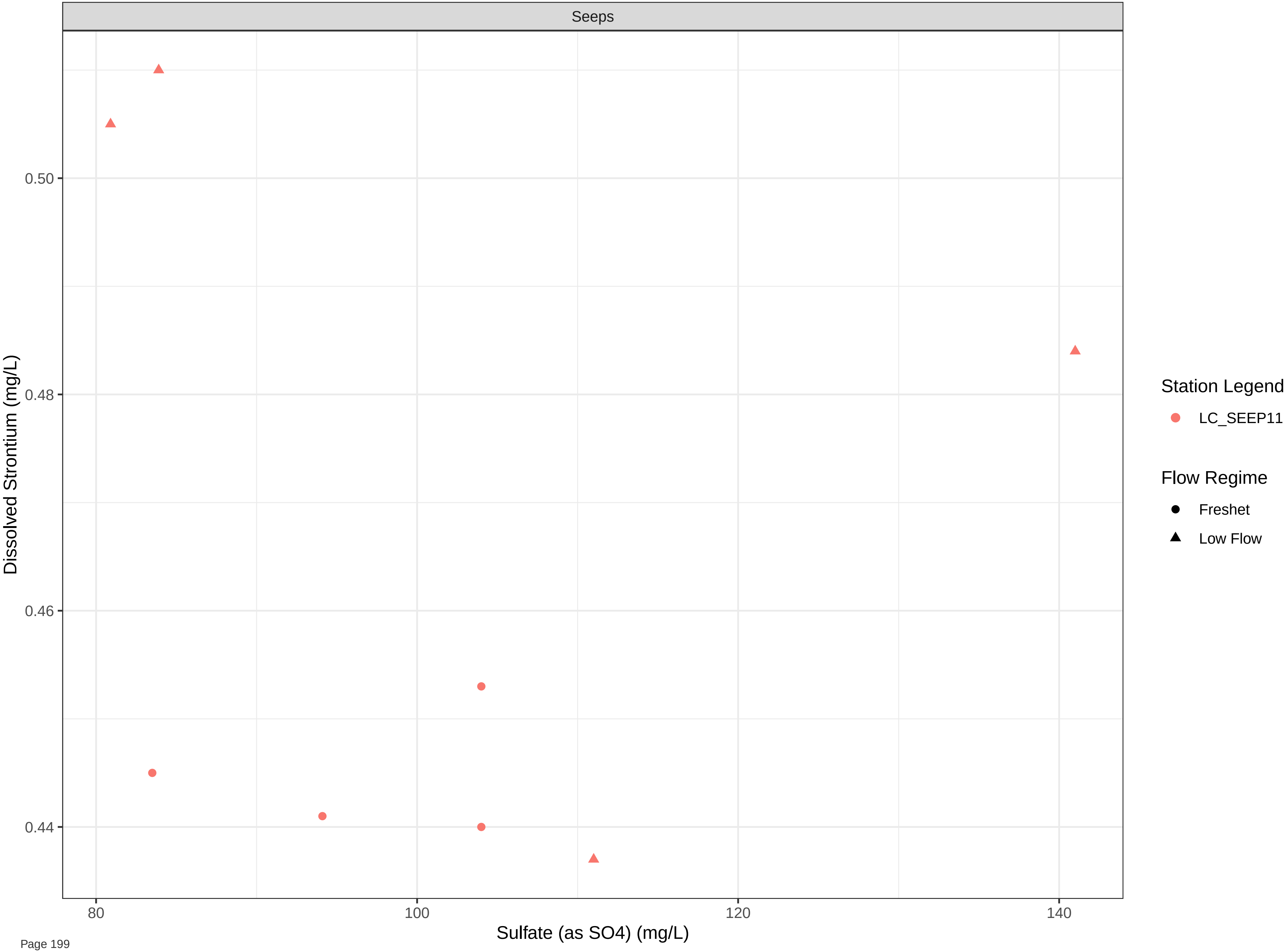

Comparison Point
Seeps
Dissolved Strontium (mg/L)
0.20
0.15
0.10
0.05
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
LC_DCDS
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

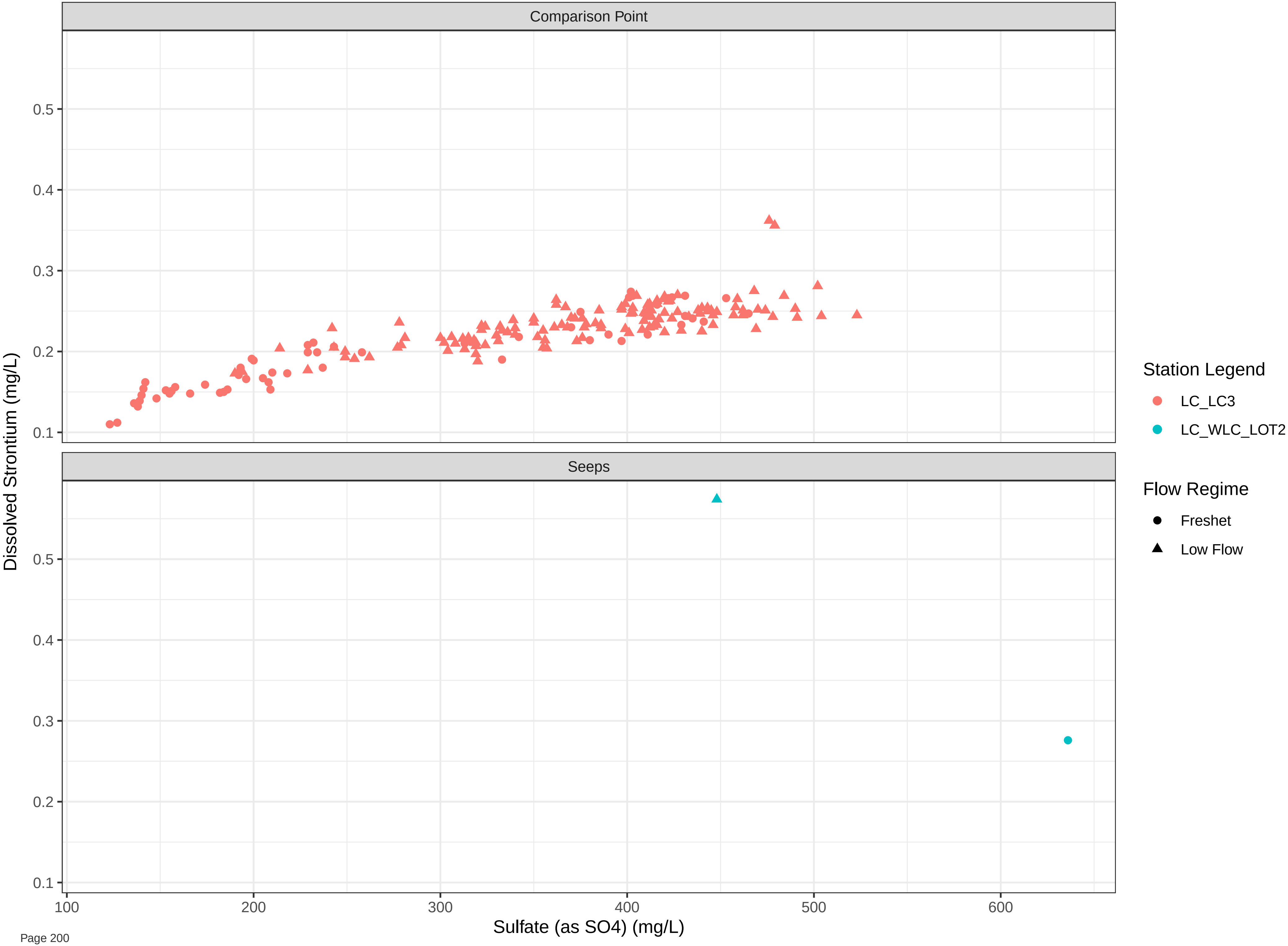

Comparison Point
Seeps
Dissolved Strontium (mg/L)
0.25
0.20
0.15
0.10
0.25
0.20
0.15
0.10
100
200
300
400
500
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC7
LC_SEEP19
Flow Regime
Freshet
Low Flow

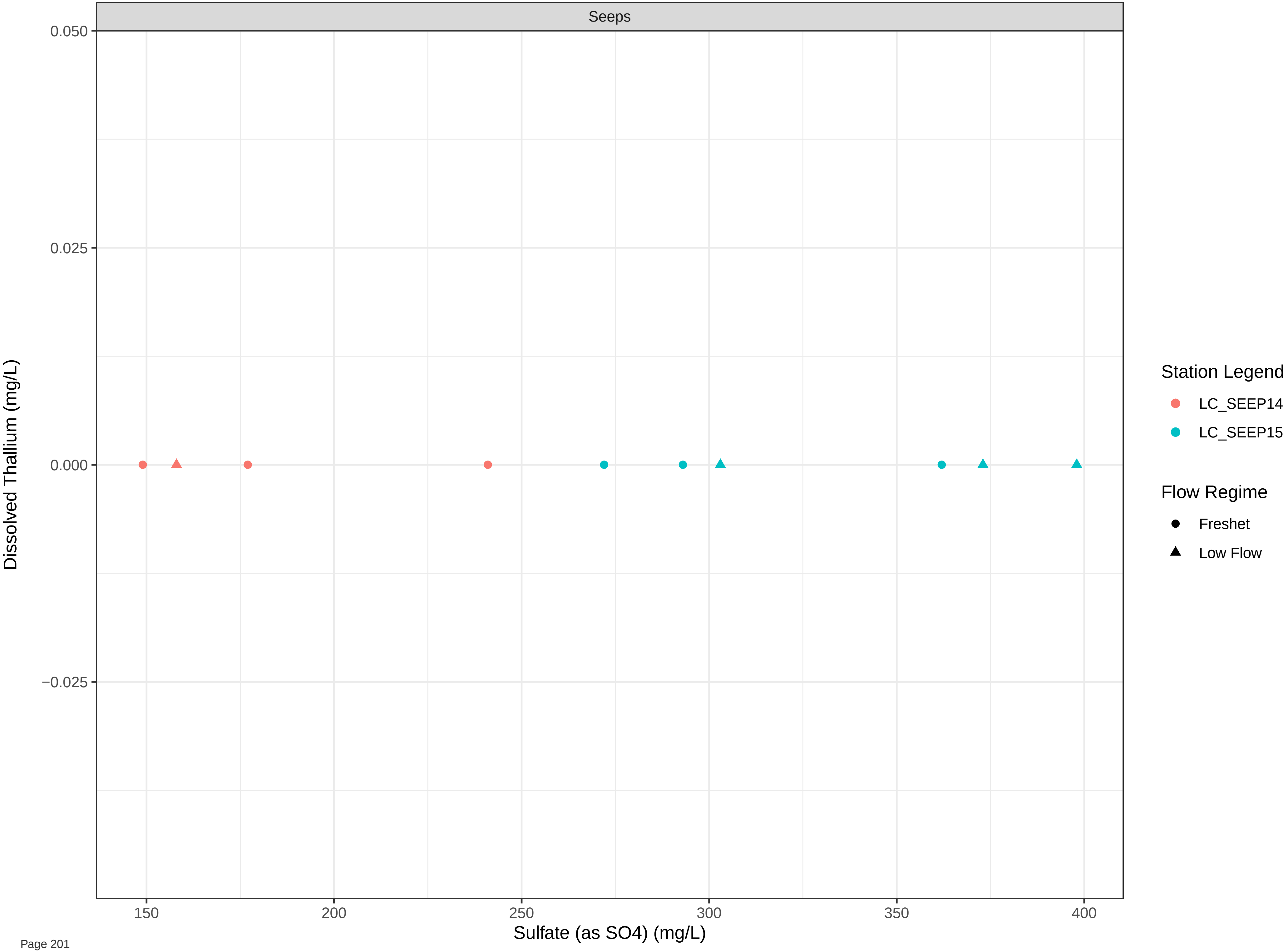

Comparison Point
Seeps
Dissolved Strontium (mg/L)
0.05
0.10
0.15
0.20
Sulfate (as SO4) (mg/L)
20
40
60
80
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
● Freshet
▲ Low Flow

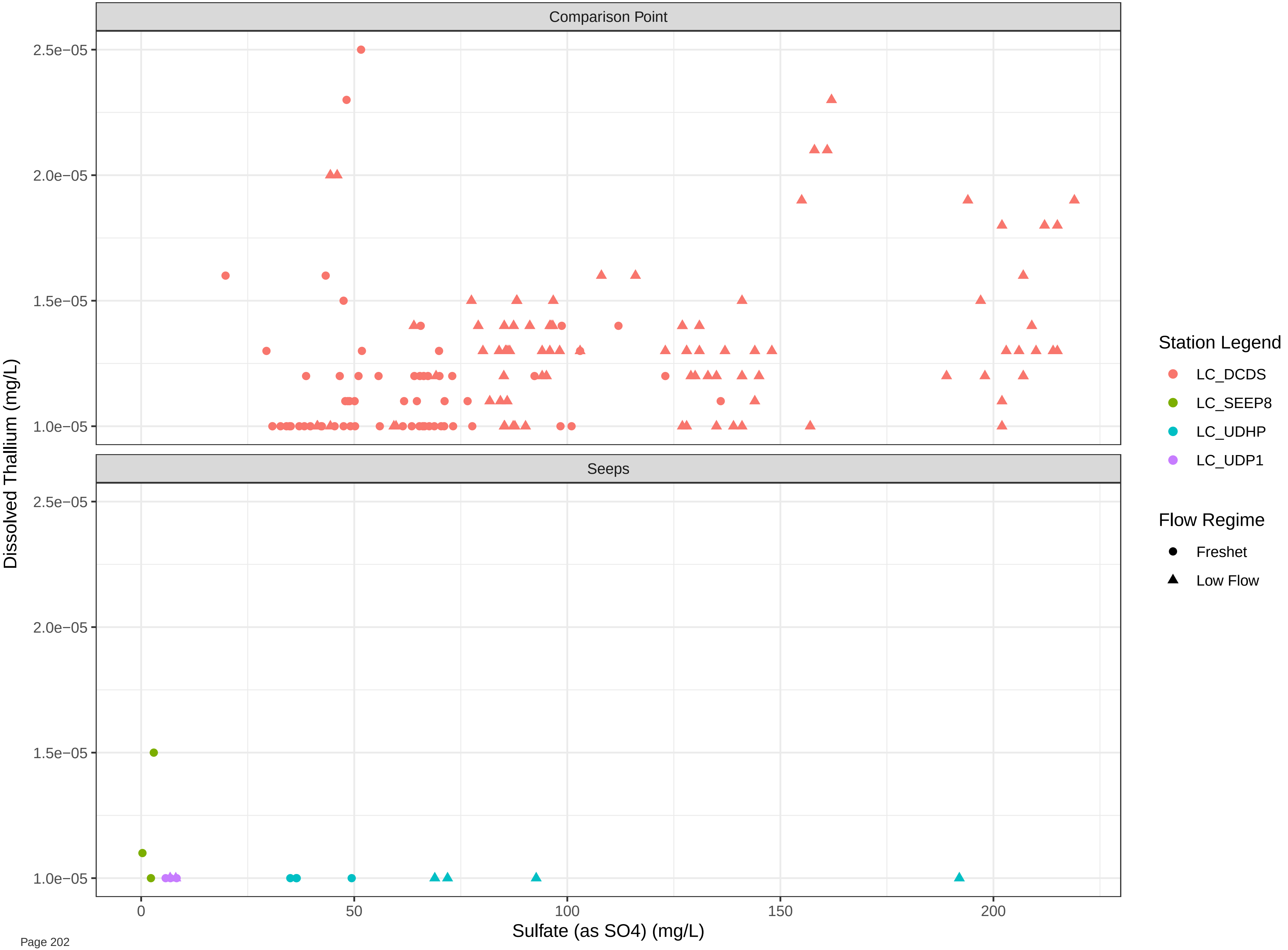

Comparison Point
Seeps
Dissolved Strontium (mg/L)
0.30
0.25
0.20
0.15
0.10
50
100
150
Sulfate (as SO4) (mg/L)
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

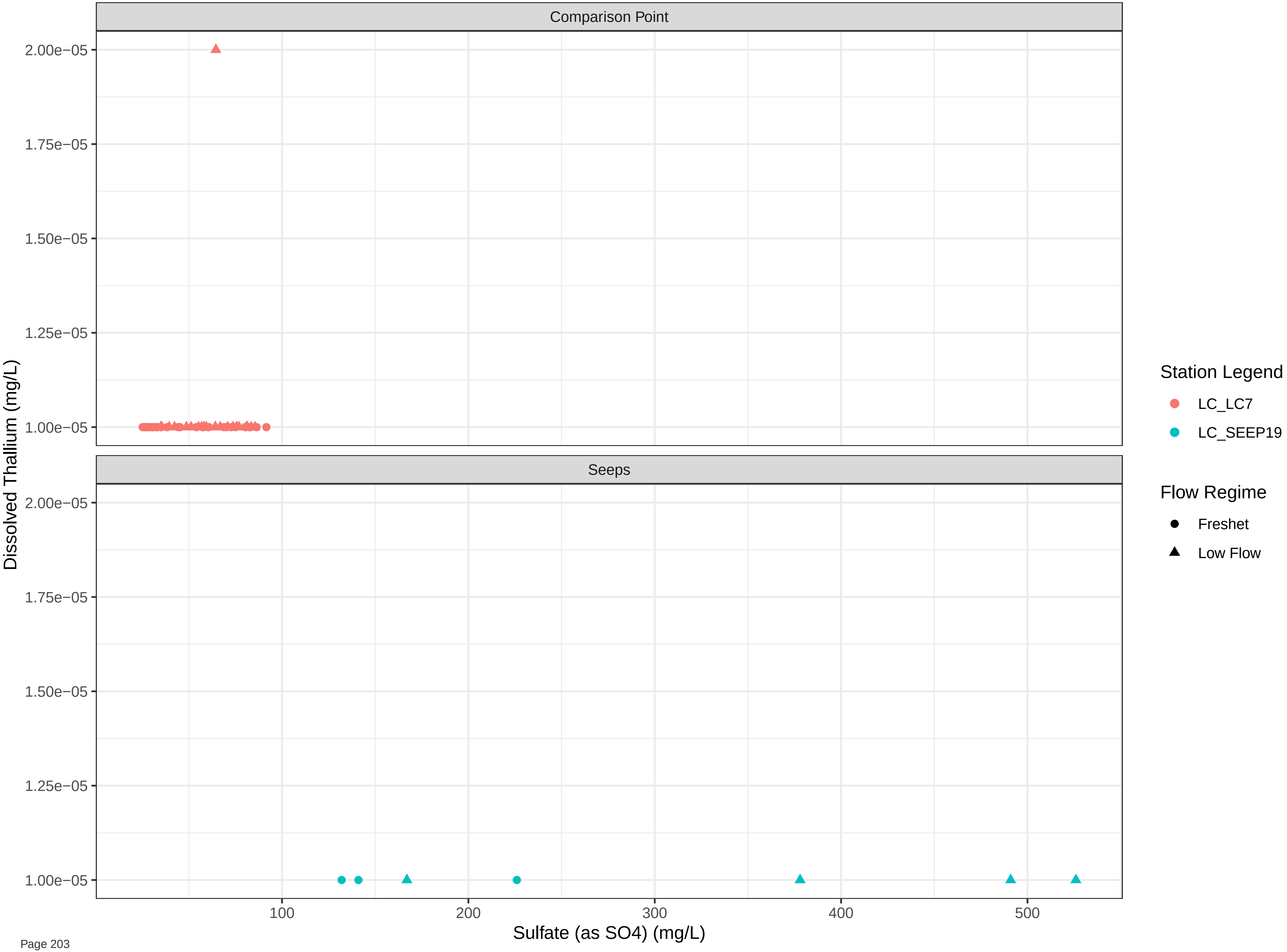

Comparison Point
Seeps
Dissolved Strontium (mg/L)
0.1
0.2
0.3
0.4
0.5
Sulfate (as SO4) (mg/L)
100
150
200
250
Station Legend
● LC_LC5
● LC_SEEP10
Flow Regime
● Freshet
▲ Low Flow

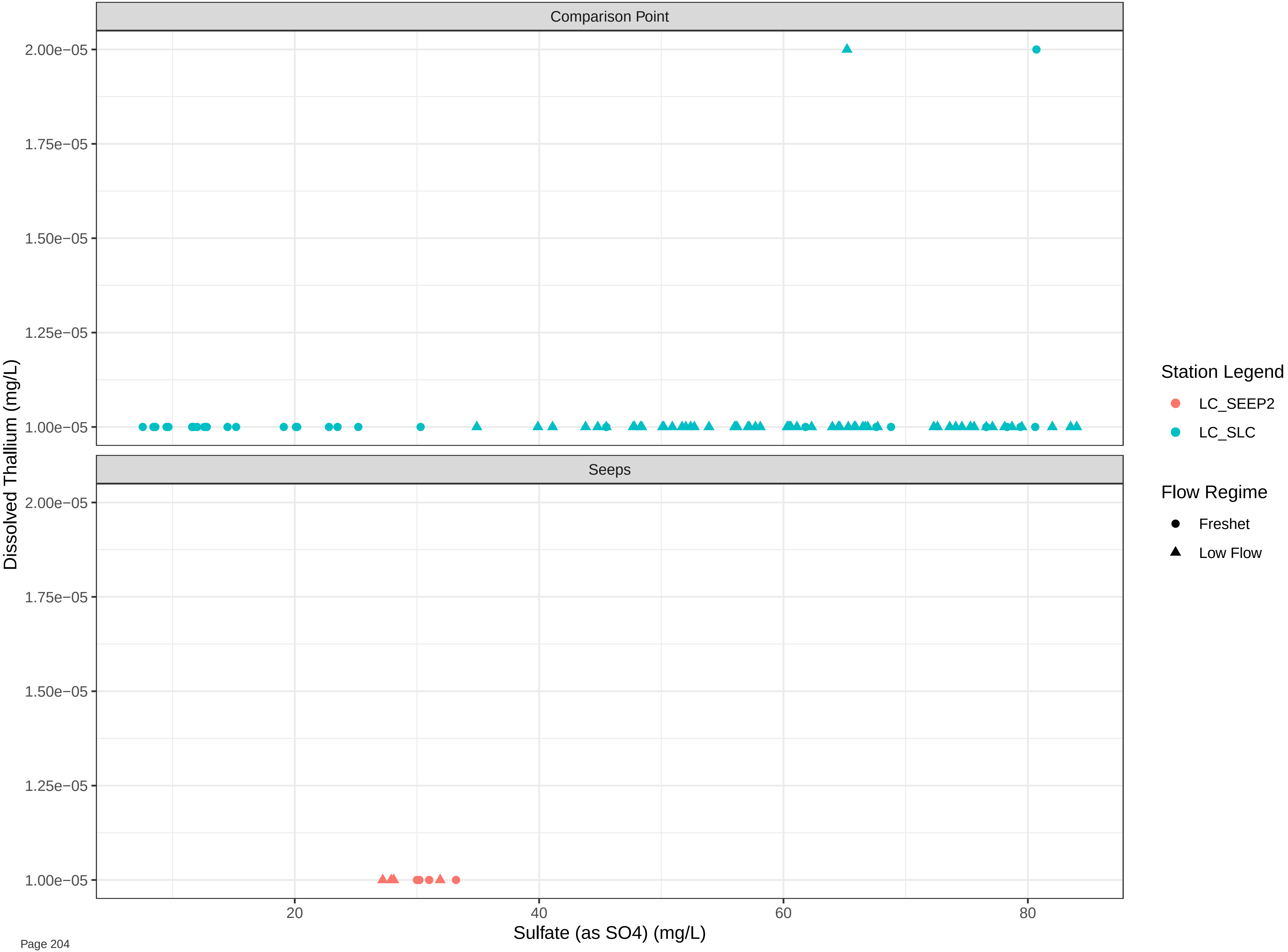

Seeps
Dissolved Strontium (mg/L)
0.50
0.48
0.46
0.44
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP11
Flow Regime
Freshet
Low Flow

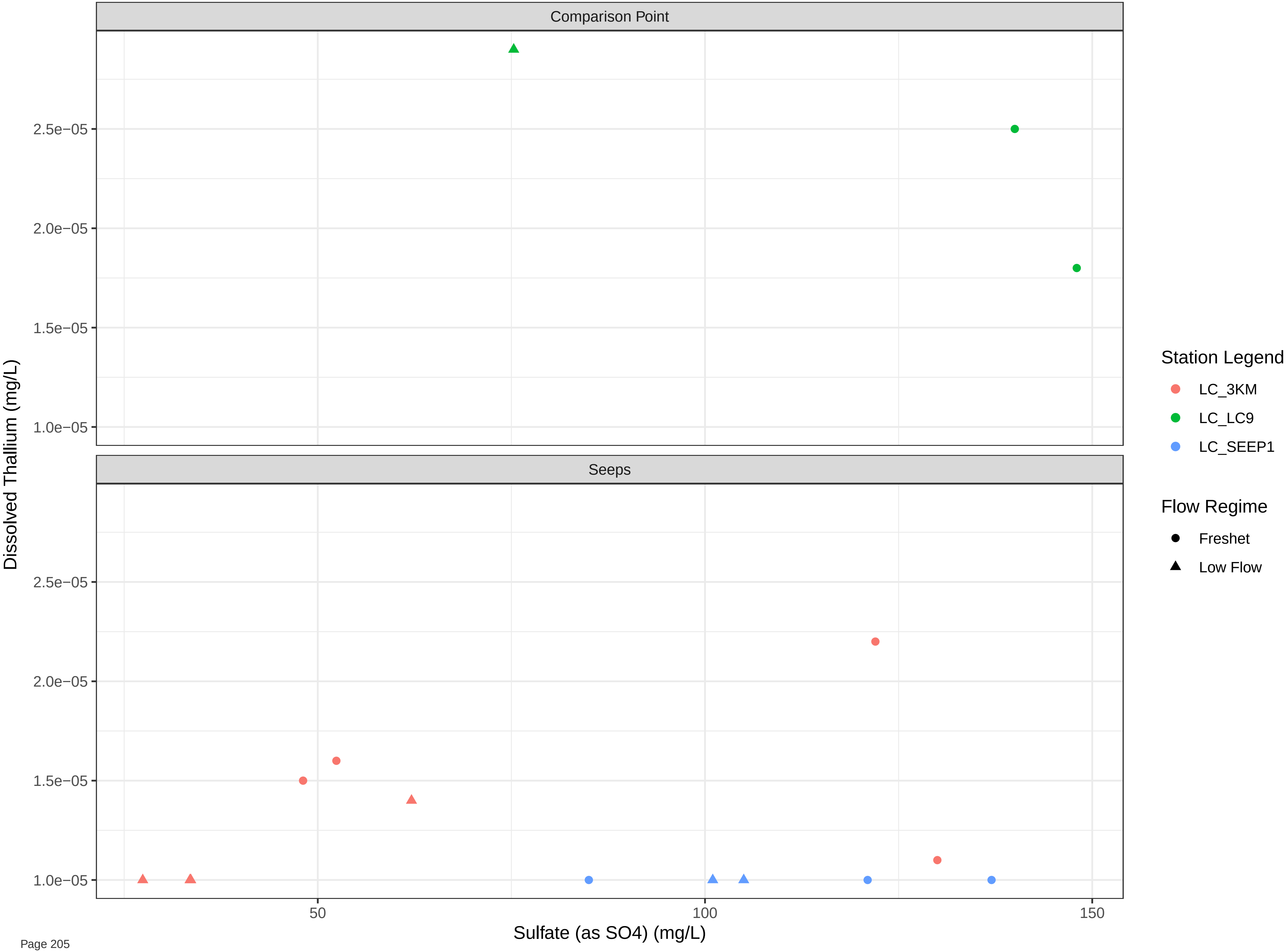

Comparison Point
Seeps
Dissolved Strontium (mg/L)
0.5
0.4
0.3
0.2
0.1
0.5
0.4
0.3
0.2
0.1
100
200
300
400
500
600
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC3
LC_WLC_LOT2
Flow Regime
Freshet
Low Flow


Seeps
Dissolved Thallium (mg/L)
0.050
0.025
0.000
−0.025
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP14
LC_SEEP15
Flow Regime
Freshet
Low Flow

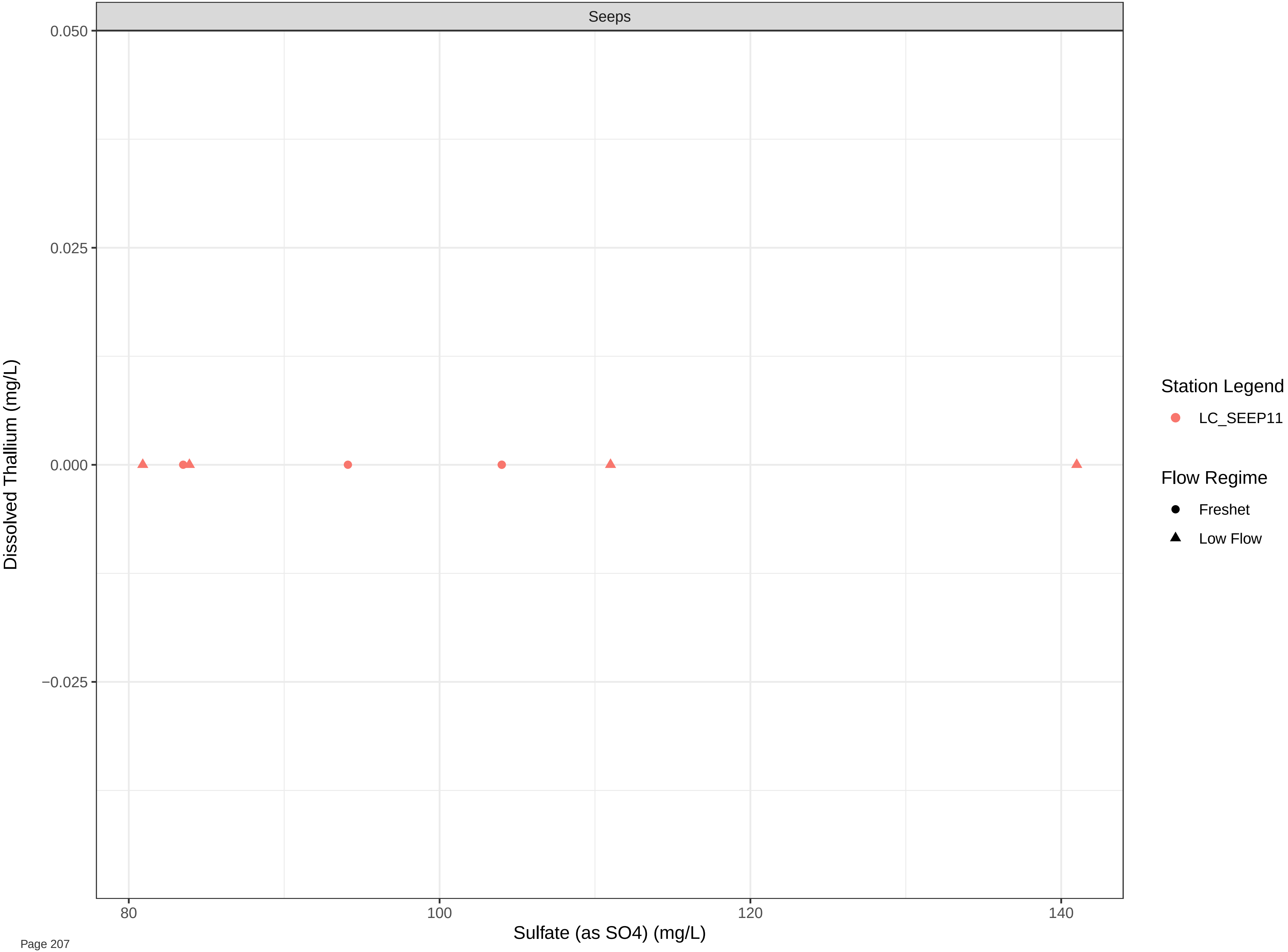

Comparison Point
Seeps
Dissolved Thallium (mg/L)
2.5e−05
2.0e−05
1.5e−05
1.0e−05
Sulfate (as SO4) (mg/L)
0
50
100
150
200
Station Legend
LC_DCDS
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

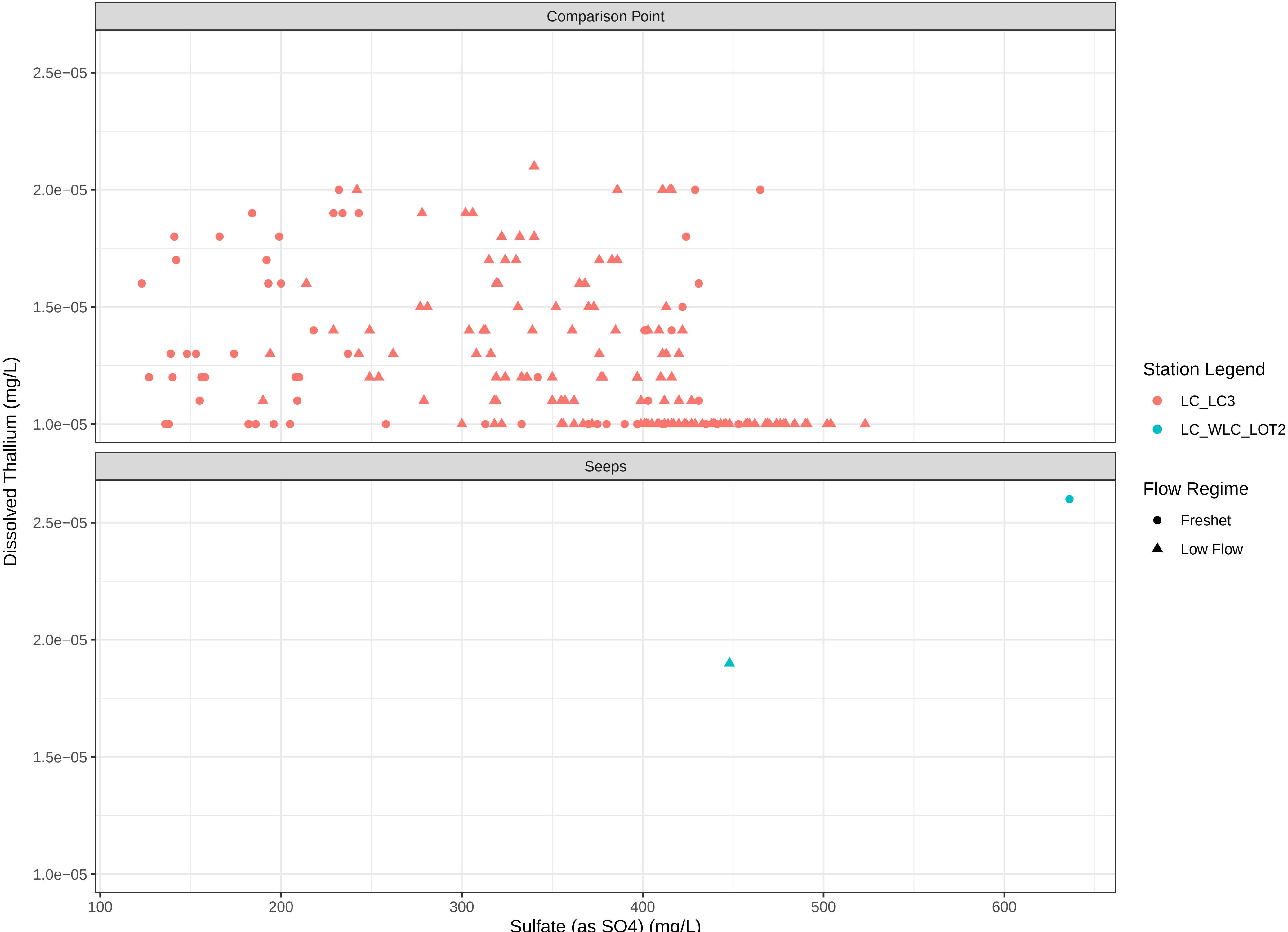

Comparison Point
Seeps
Dissolved Thallium (mg/L)
2.00e−05
1.75e−05
1.50e−05
1.25e−05
1.00e−05
100
200
300
400
500
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC7
LC_SEEP19
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
Dissolved Thallium (mg/L)
2.00e−05
1.75e−05
1.50e−05
1.25e−05
1.00e−05
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
Freshet
Low Flow

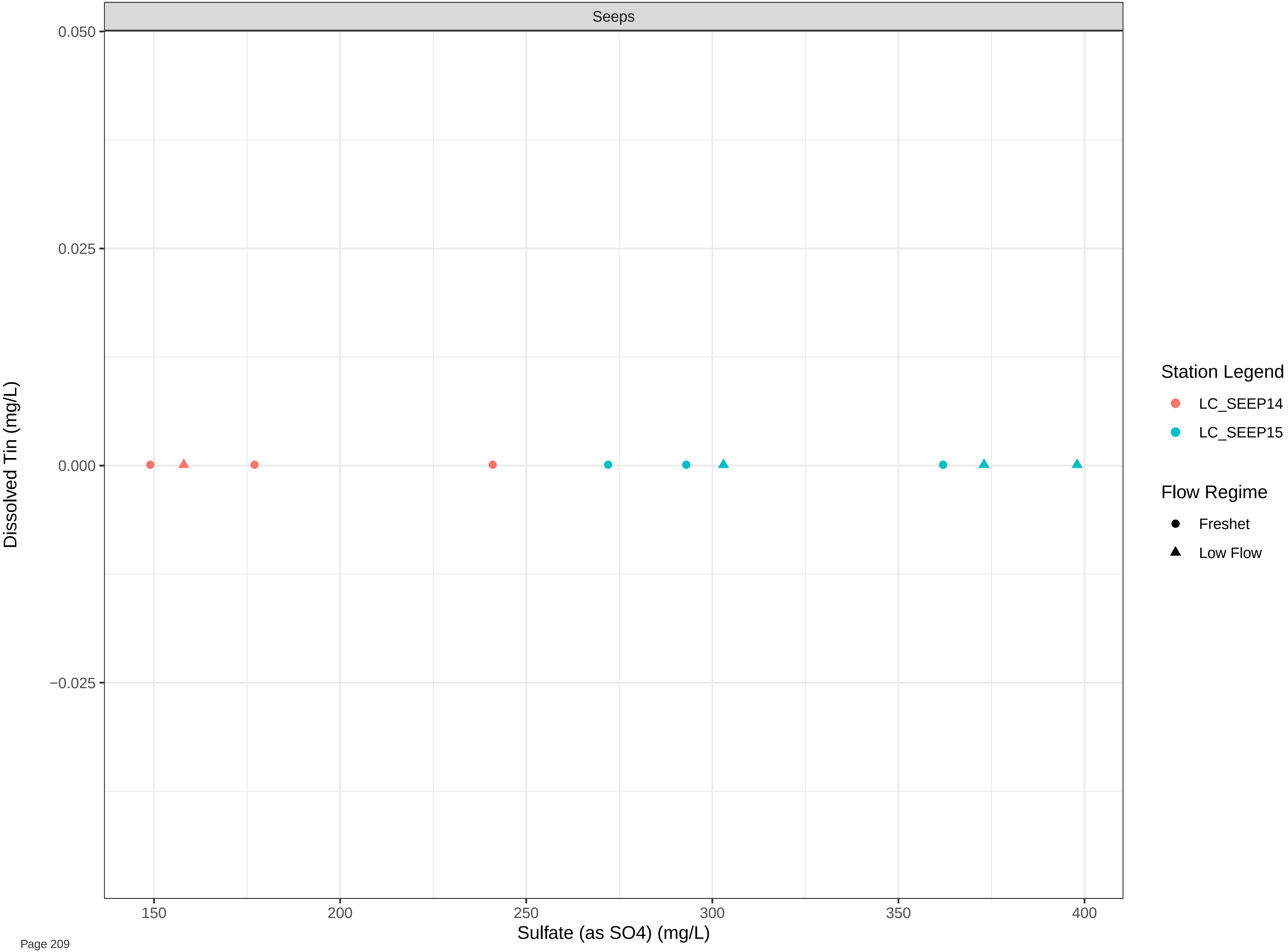

Comparison Point
Seeps
Dissolved Thallium (mg/L)
2.5e−05
2.0e−05
1.5e−05
1.0e−05
50
100
150
Sulfate (as SO4) (mg/L)
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

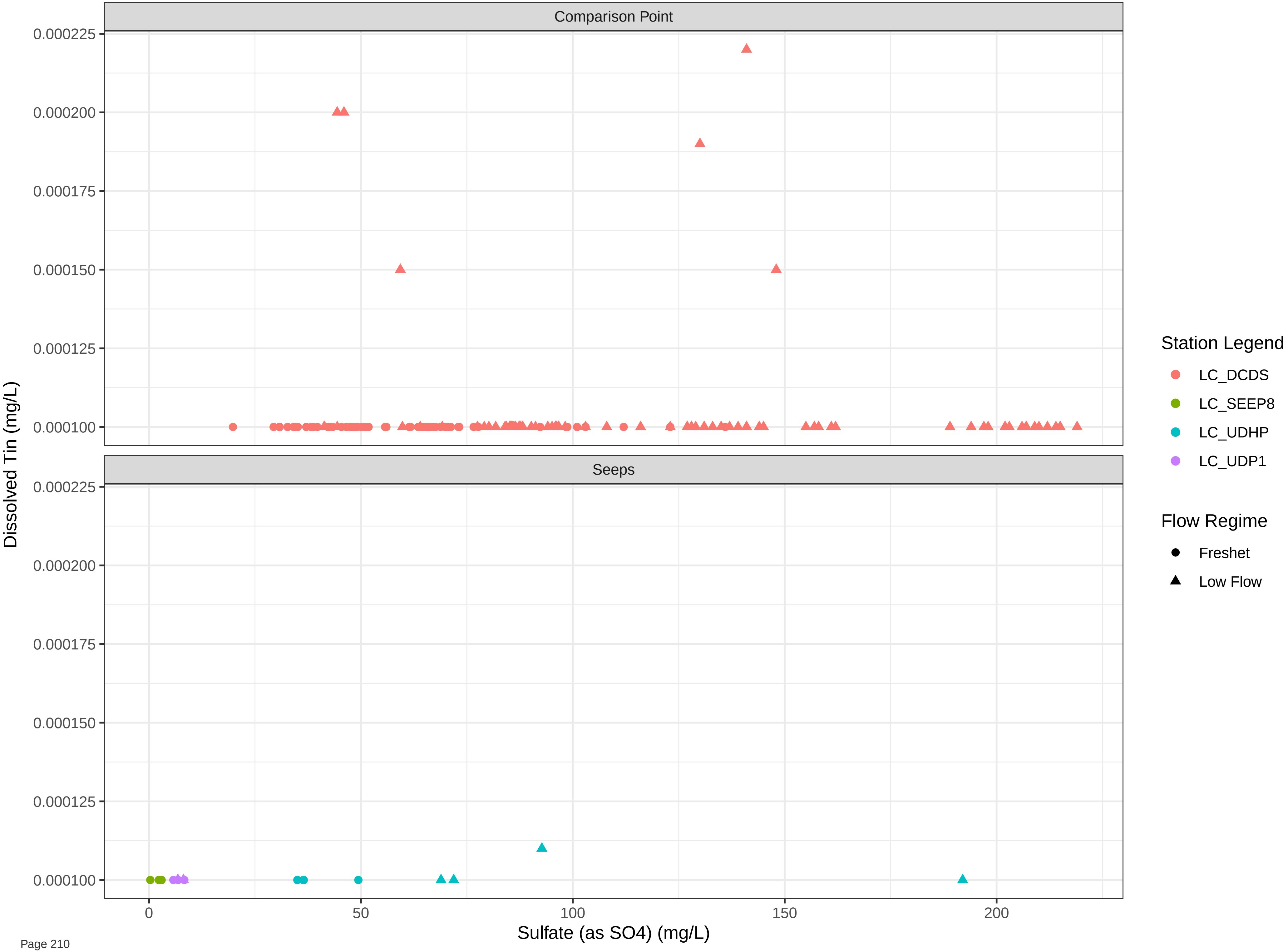

Comparison Point
Seeps
2.00e−05
1.75e−05
1.50e−05
1.25e−05
1.00e−05
Dissolved Thallium (mg/L)
100
150
200
250
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC5
LC_SEEP10
Flow Regime
Freshet
Low Flow

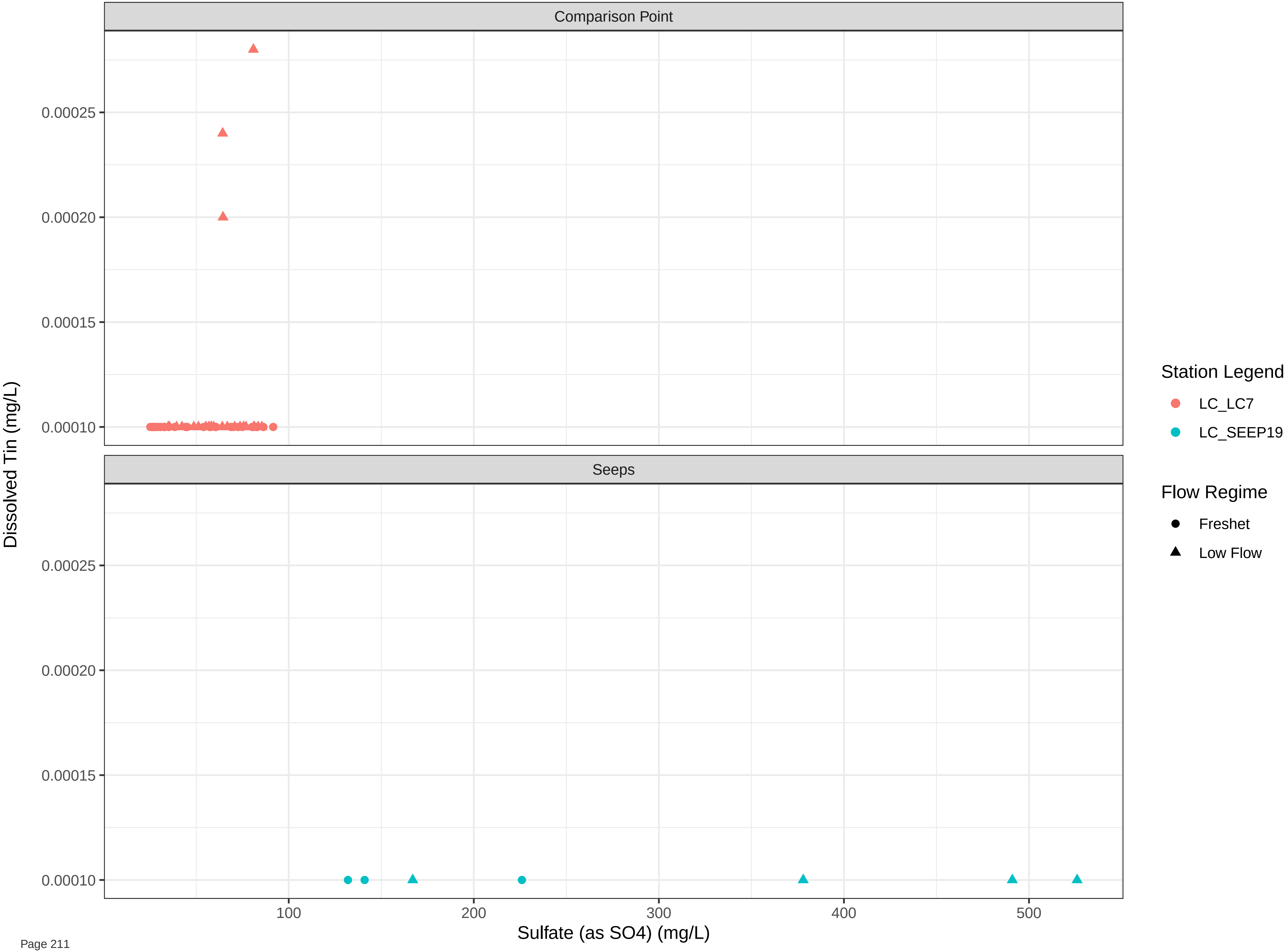

Seeps
0.050
0.025
0.000
−0.025
Dissolved Thallium (mg/L)
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP11
Flow Regime
Freshet
Low Flow

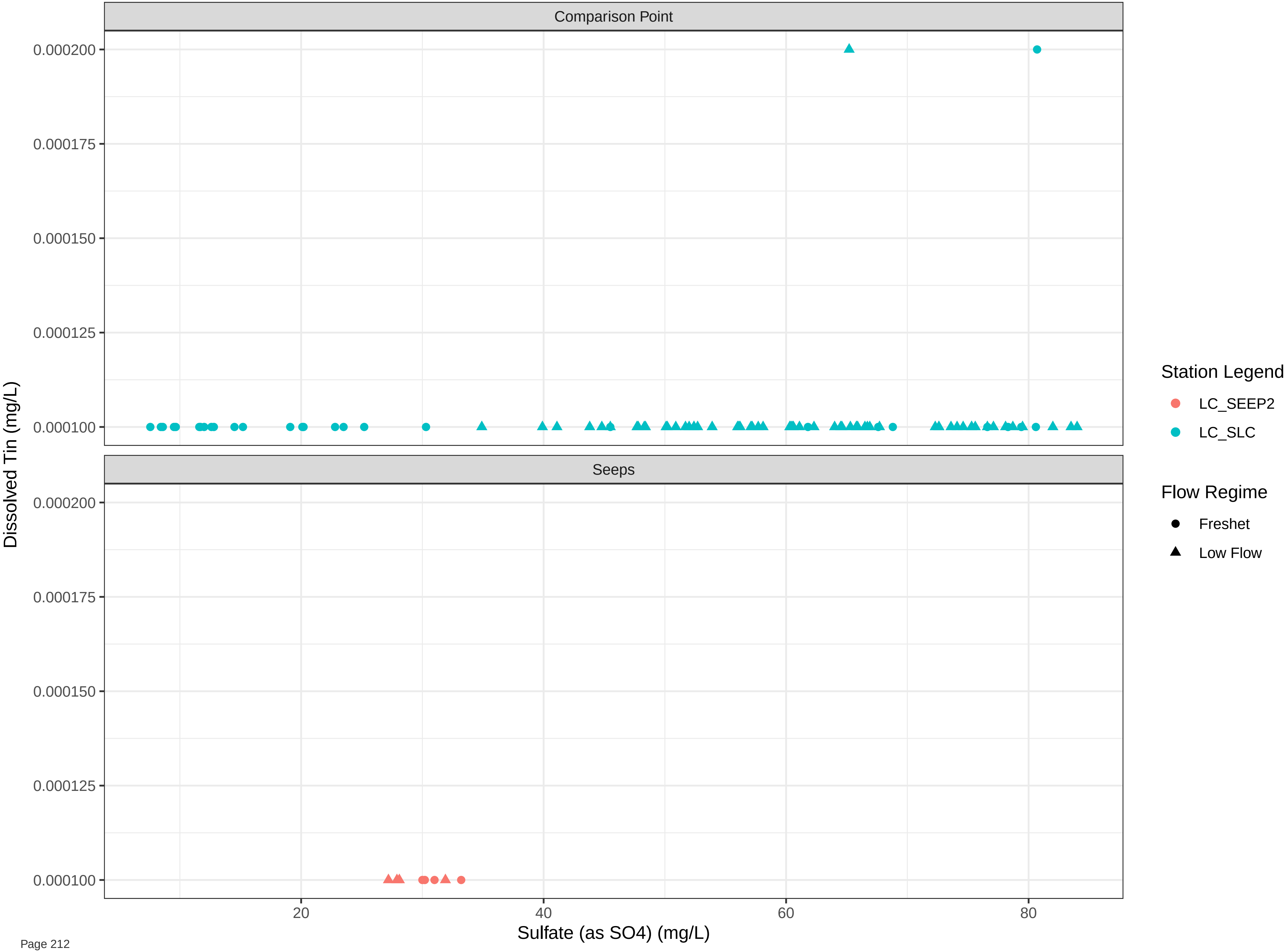


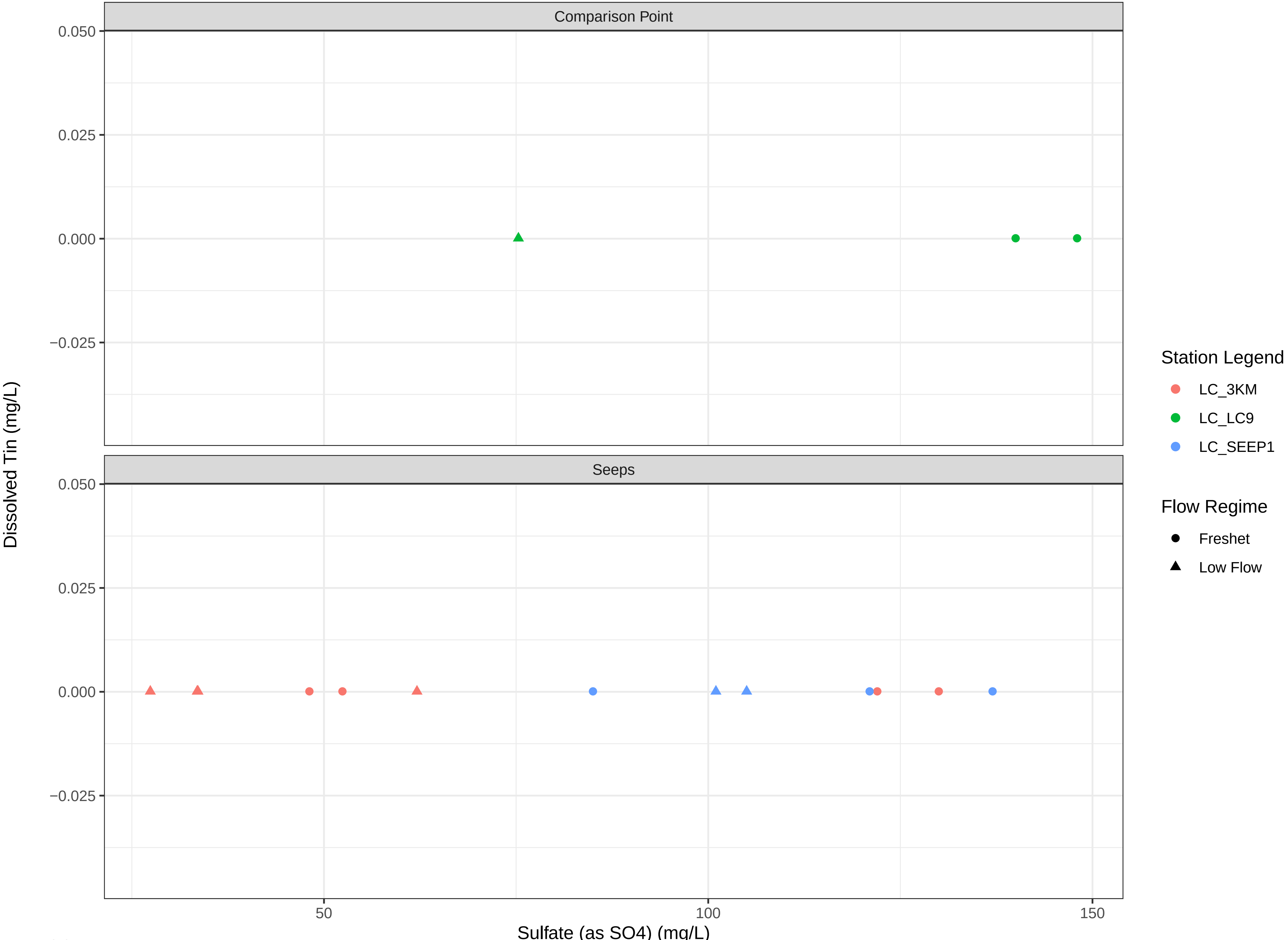
Comparison Point
Seeps
Dissolved Thallium (mg/L)
2.5e−05
2.0e−05
1.5e−05
1.0e−05
Sulfate (as SO4) (mg/L)
100
200
300
400
500
600
Station Legend
● LC_LC3
● LC_WLC_LOT2
Flow Regime
● Freshet
▲ Low Flow

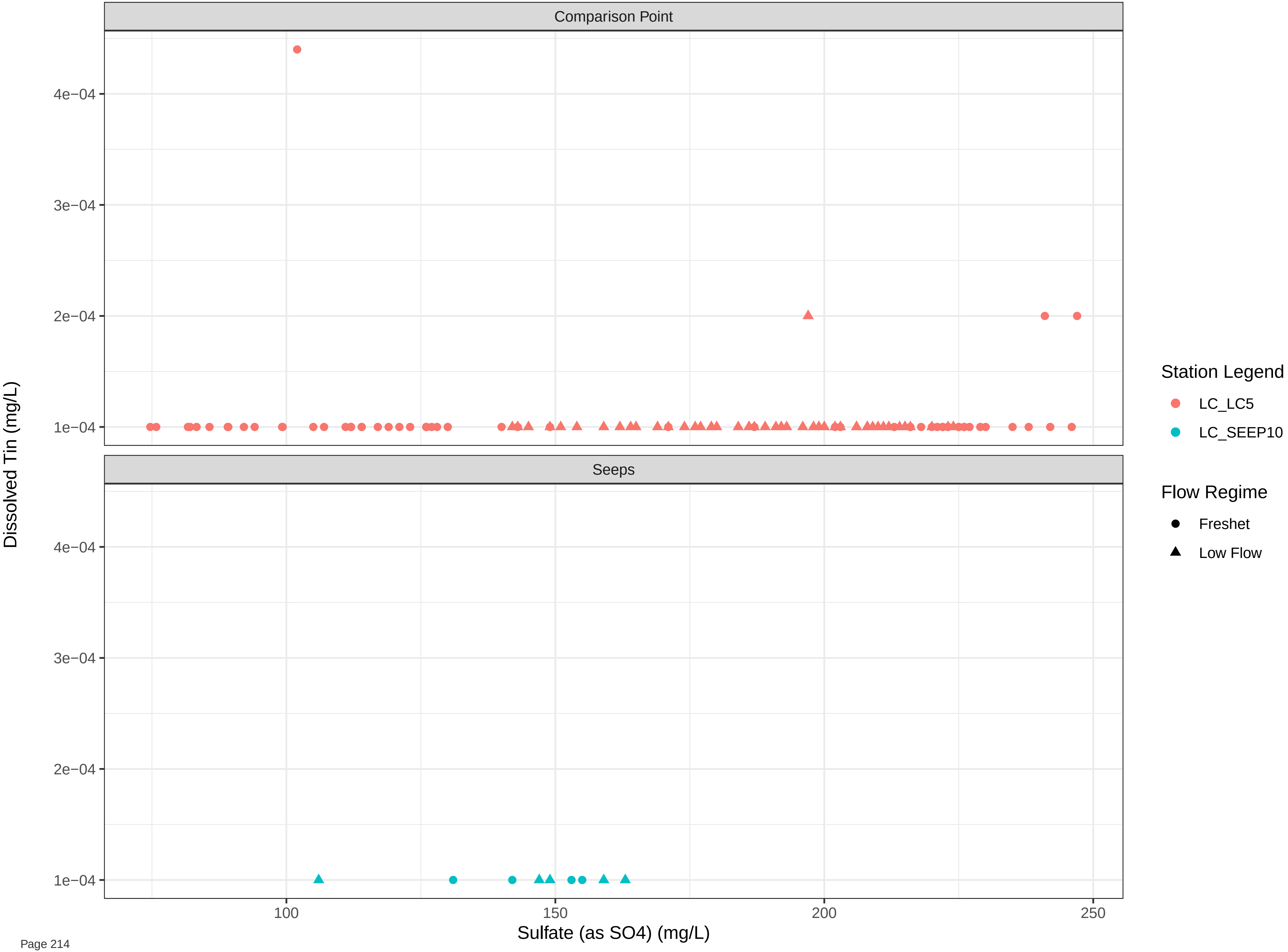

Seeps
Dissolved Tin (mg/L)
0.050
0.025
0.000
−0.025
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP14
LC_SEEP15
Flow Regime
Freshet
Low Flow

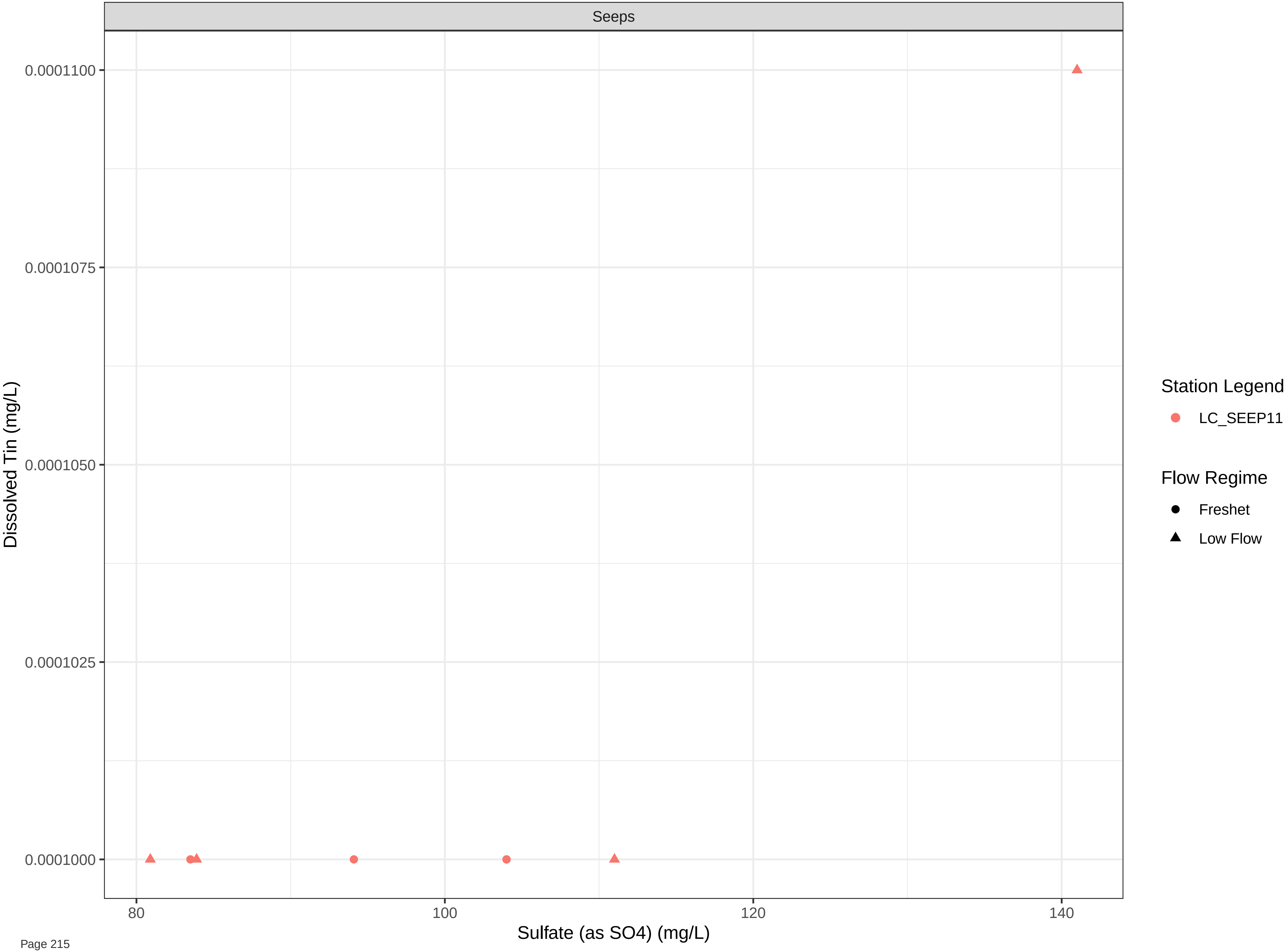

Comparison Point
Seeps
Dissolved Tin (mg/L)
0.000225
0.000200
0.000175
0.000150
0.000125
0.000100
Sulfate (as SO4) (mg/L)
0
50
100
150
200
Station Legend
LC_DCDS
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

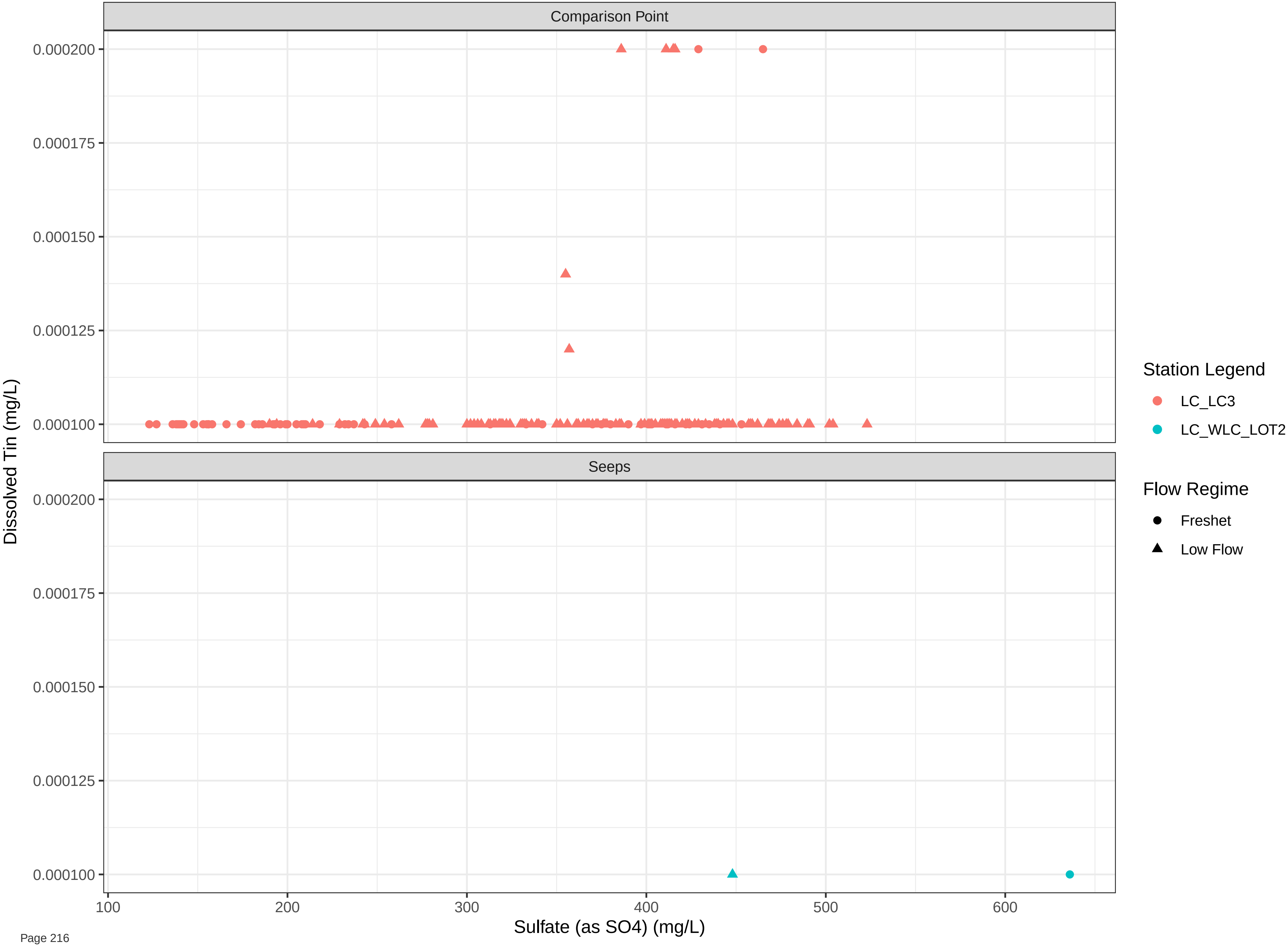

Comparison Point
Seeps
Dissolved Tin (mg/L)
0.00010
0.00015
0.00020
0.00025
0.00010
0.00015
0.00020
0.00025
100
200
300
400
500
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC7
LC_SEEP19
Flow Regime
Freshet
Low Flow

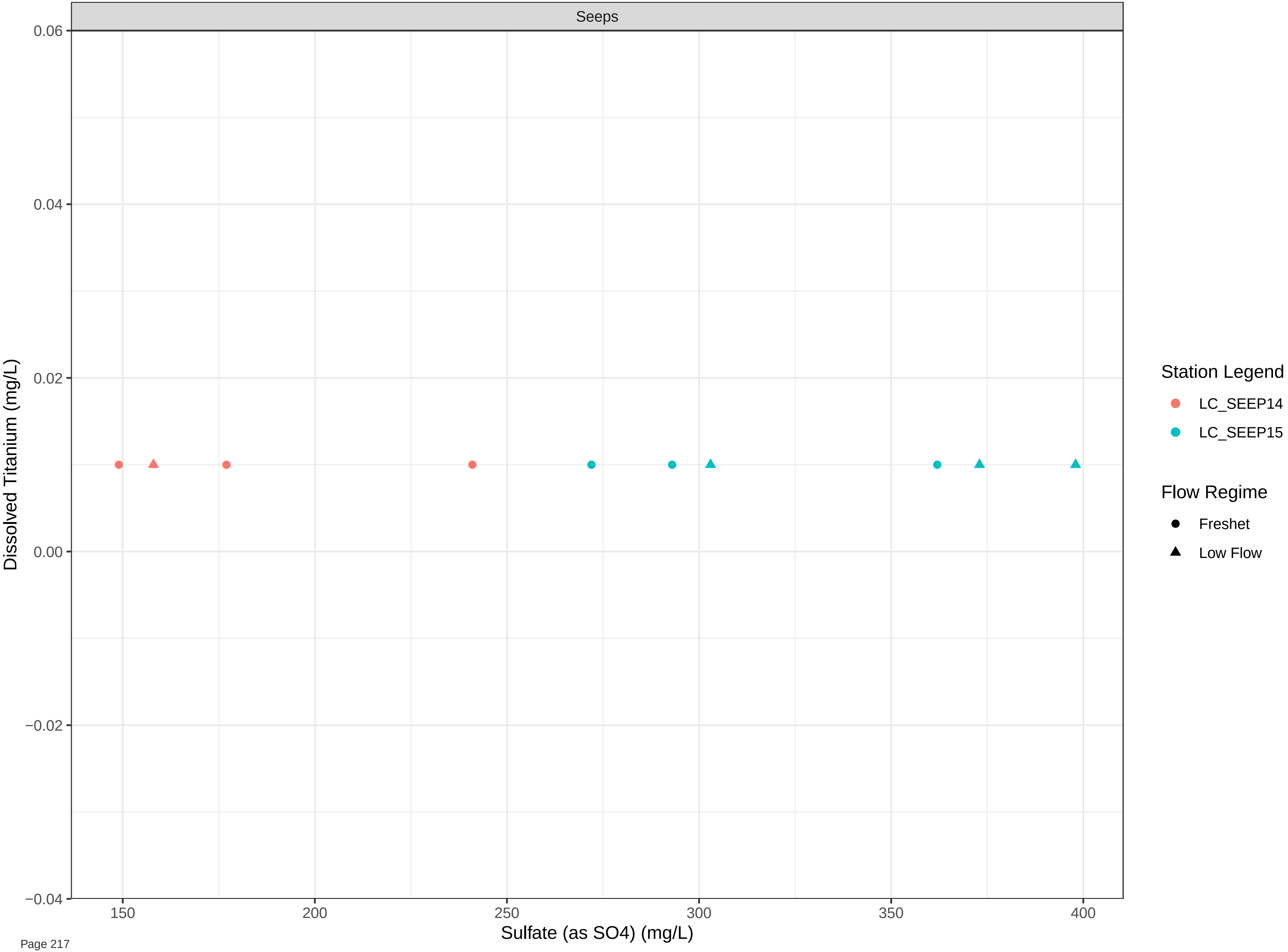

Comparison Point
Seeps
0.000200
0.000175
0.000150
0.000125
0.000100
Dissolved Tin (mg/L)
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
Freshet
Low Flow

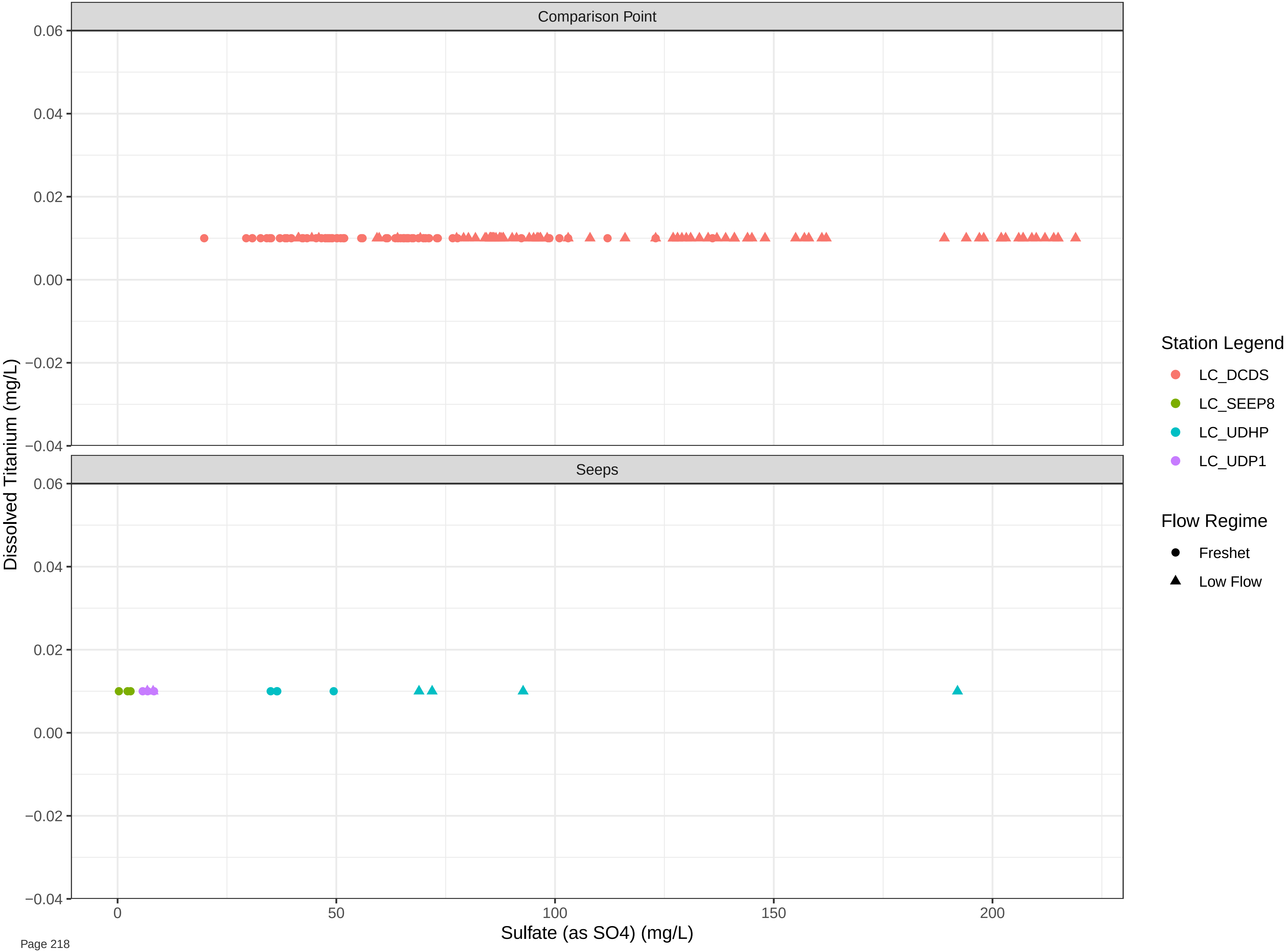

Comparison Point
Seeps
0.050
0.025
0.000
−0.025
0.050
0.025
0.000
−0.025
Dissolved Tin (mg/L)
50
100
150
Sulfate (as SO4) (mg/L)
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

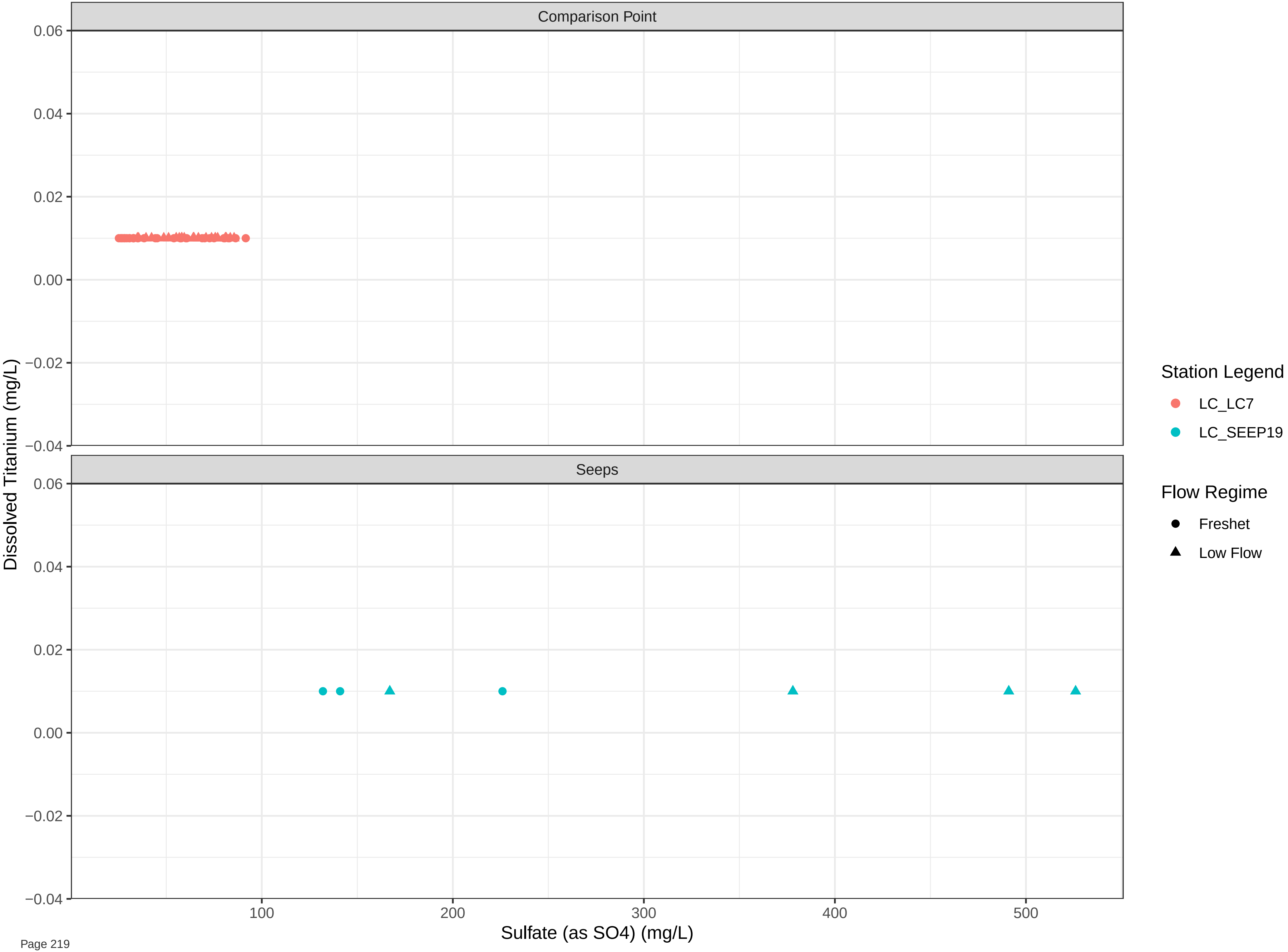

Comparison Point
Seeps
Dissolved Tin (mg/L)
4e−04
3e−04
2e−04
1e−04
100
150
200
250
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC5
LC_SEEP10
Flow Regime
Freshet
Low Flow

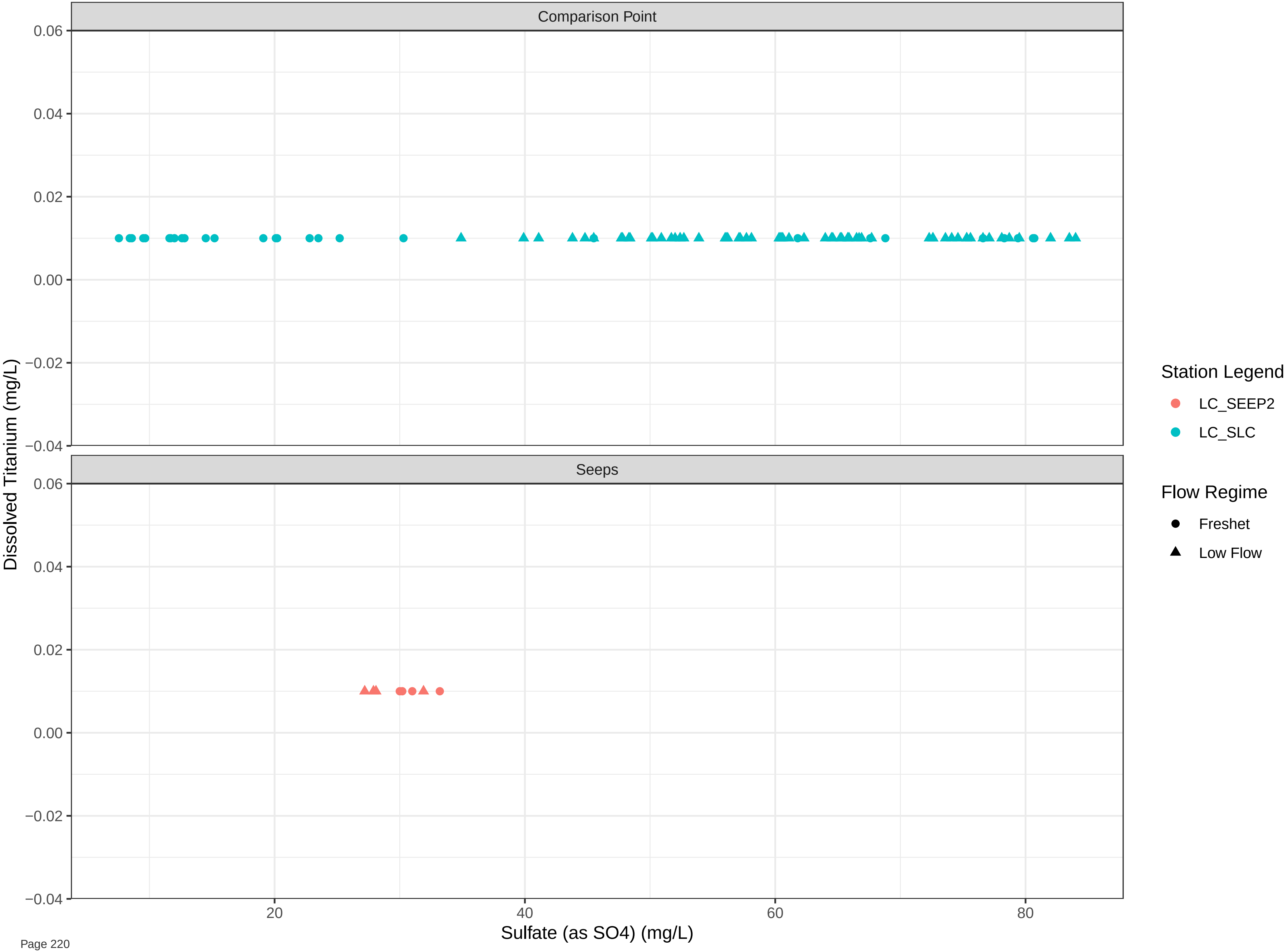

Seeps
Dissolved Tin (mg/L)
0.0001100
0.0001075
0.0001050
0.0001025
0.0001000
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP11
Flow Regime
Freshet
Low Flow

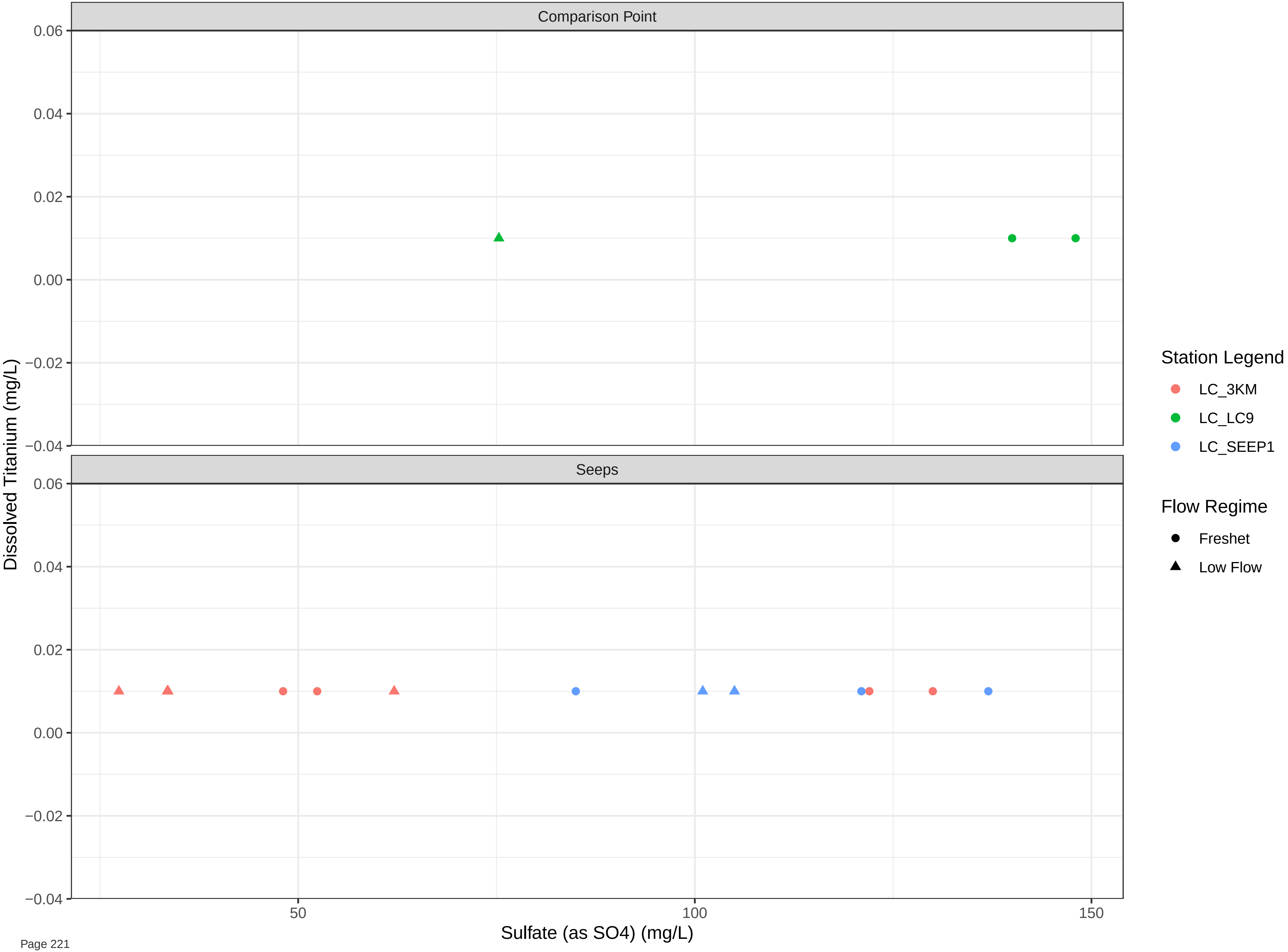

Comparison Point
Seeps
Dissolved Tin (mg/L)
0.000200
0.000175
0.000150
0.000125
0.000100
Sulfate (as SO4) (mg/L)
100
200
300
400
500
600
Station Legend
LC_LC3
LC_WLC_LOT2
Flow Regime
Freshet
Low Flow

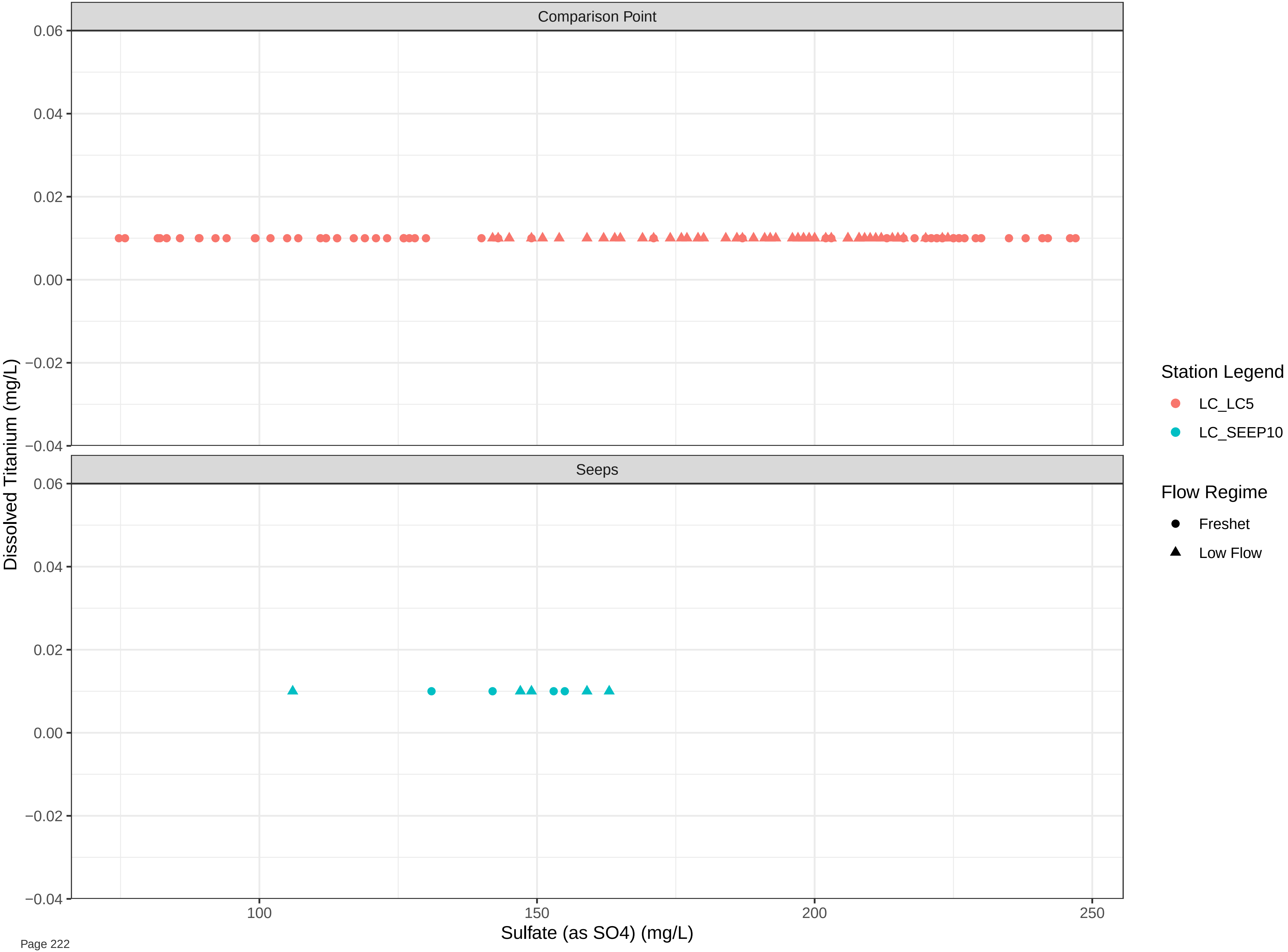

Seeps
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP14
LC_SEEP15
Flow Regime
Freshet
Low Flow

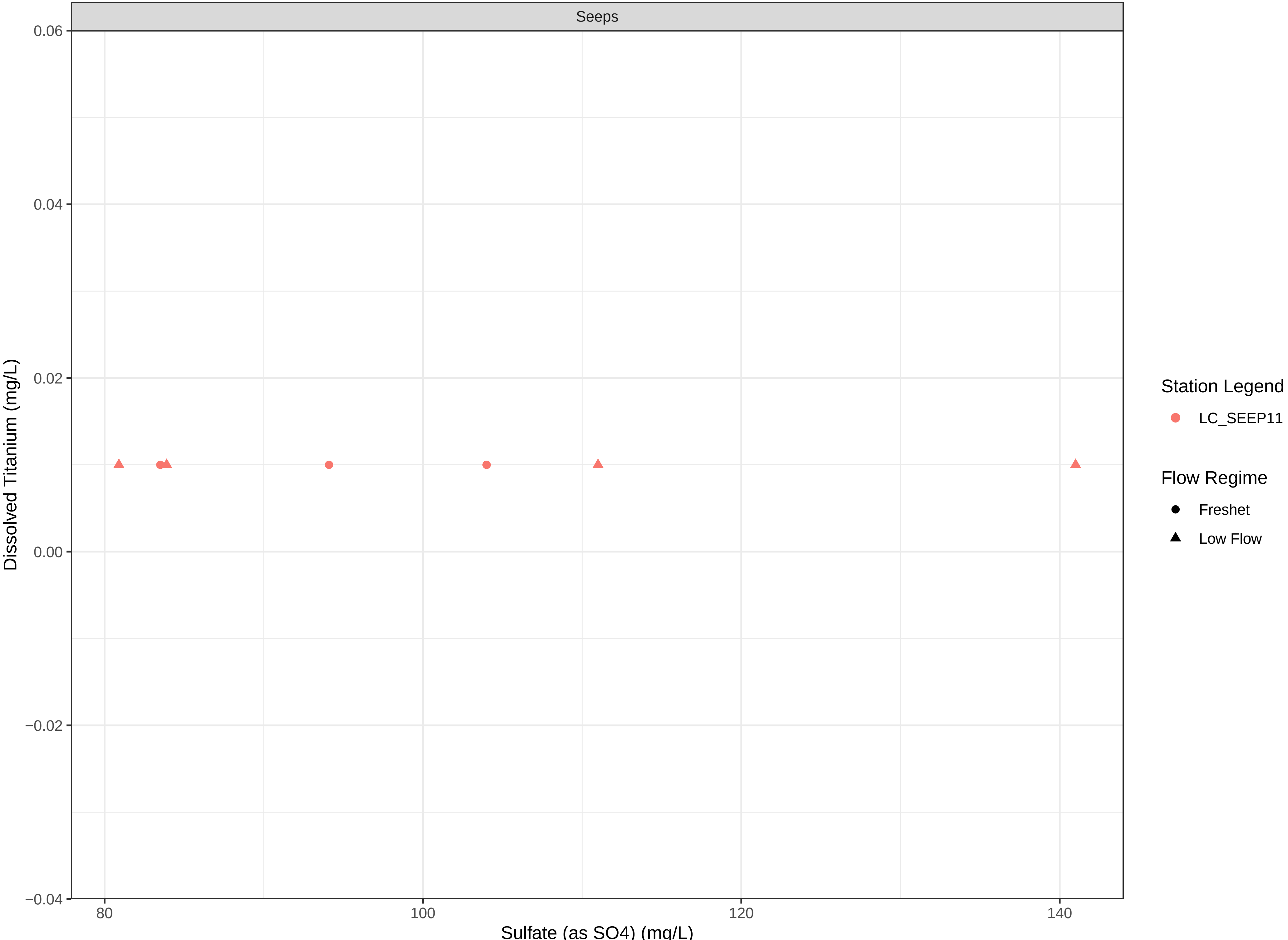

Comparison Point
Seeps
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Sulfate (as SO4) (mg/L)
0
50
100
150
200
Station Legend
LC_DCDS
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

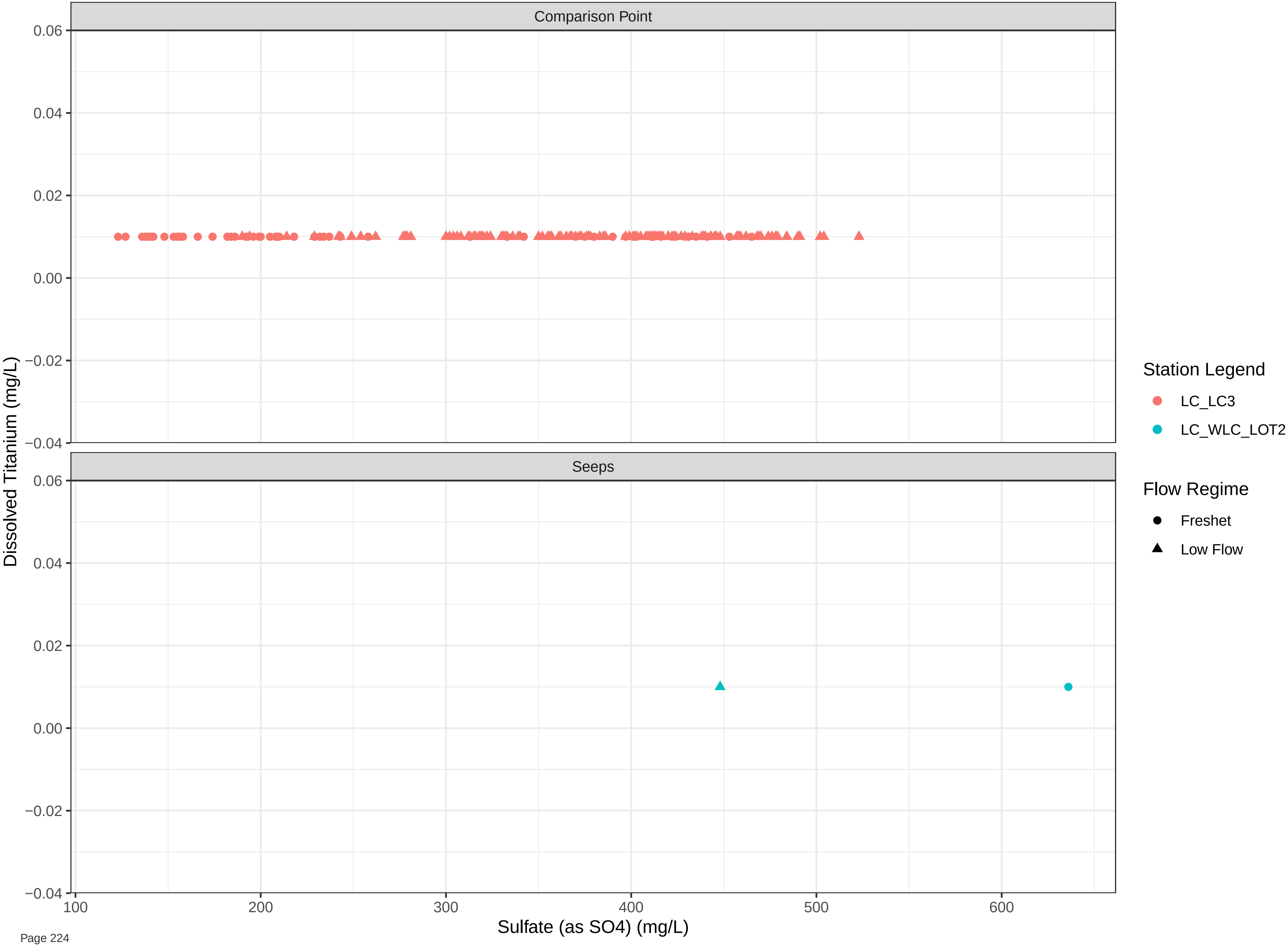

Comparison Point
Seeps
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
100
200
300
400
500
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC7
LC_SEEP19
Flow Regime
Freshet
Low Flow

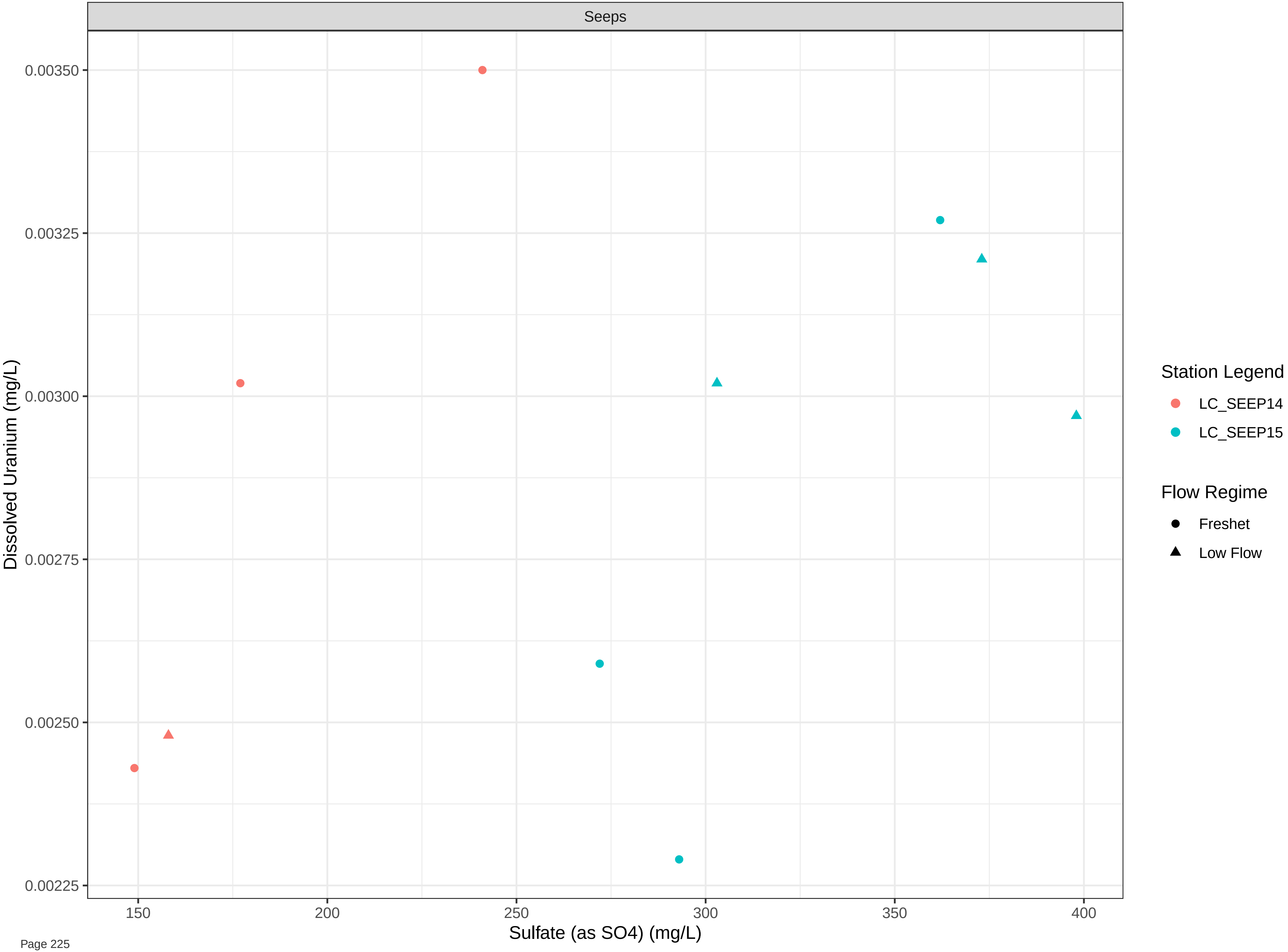

Comparison Point
Seeps
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
● LC_SEEP2
● LC_SLC
Flow Regime
● Freshet
▲ Low Flow

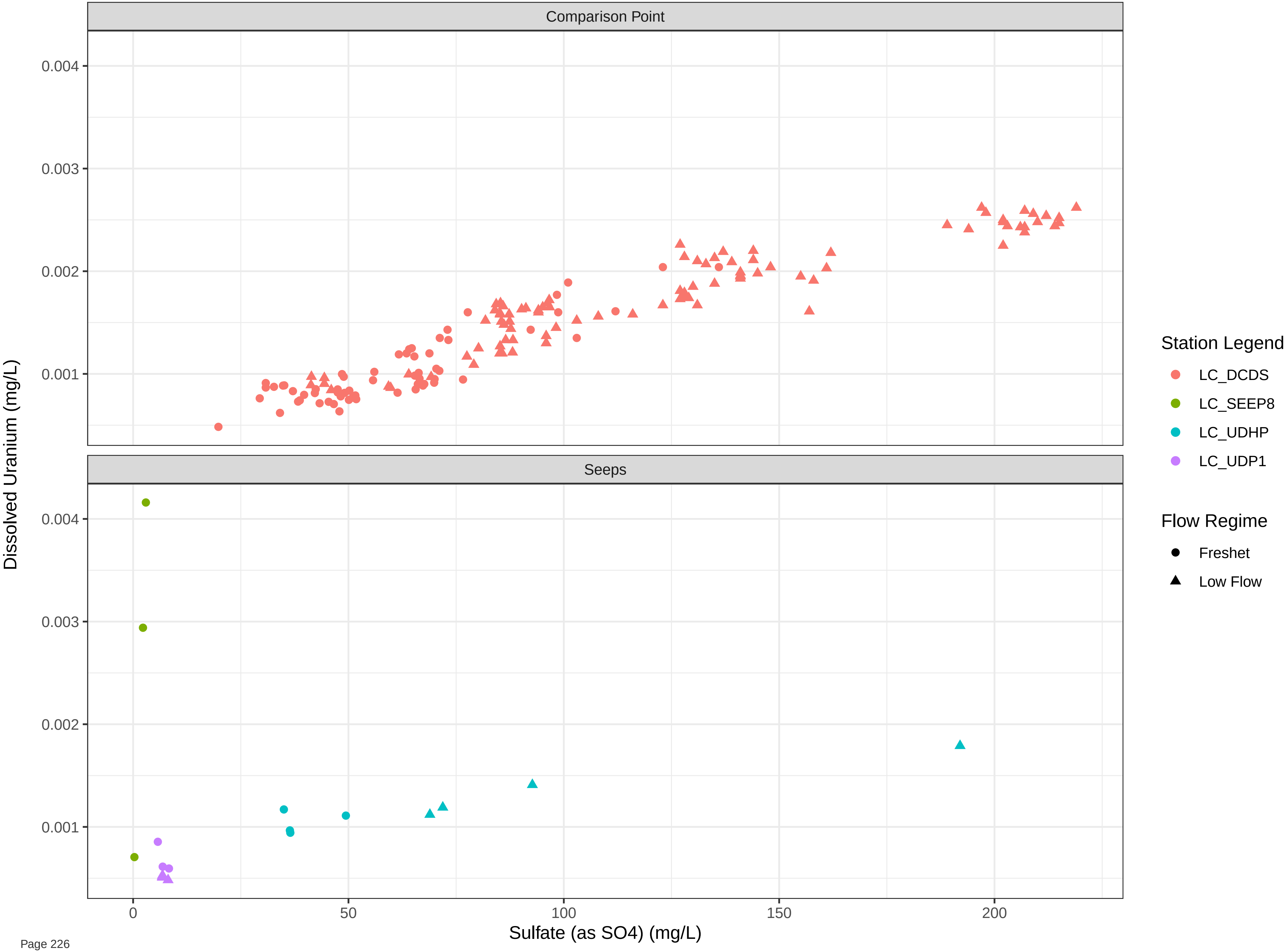

Comparison Point
Seeps
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Sulfate (as SO4) (mg/L)
50
100
150
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

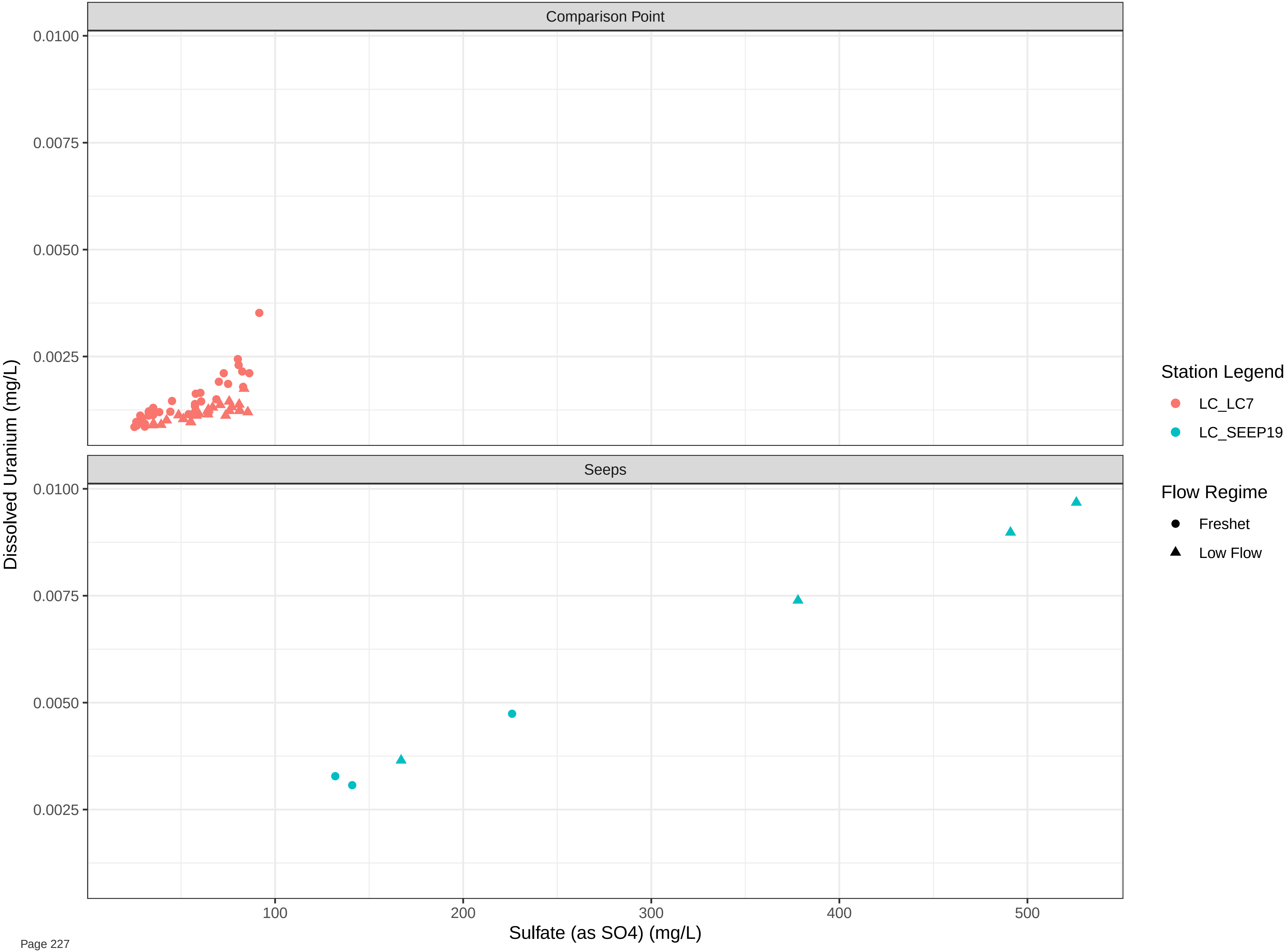

Comparison Point
Seeps
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Sulfate (as SO4) (mg/L)
100
150
200
250
Station Legend
LC_LC5
LC_SEEP10
Flow Regime
Freshet
Low Flow

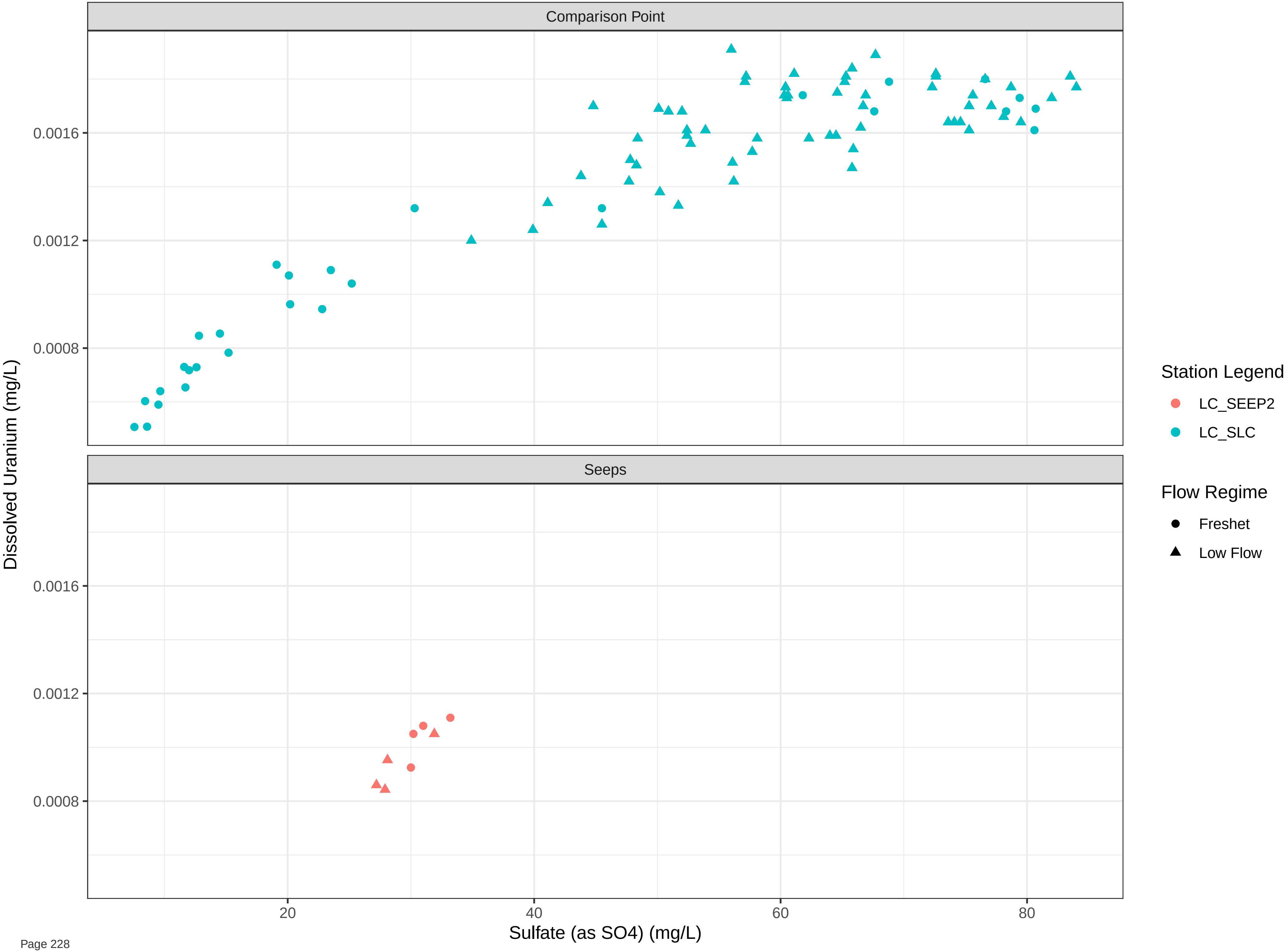

Seeps
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP11
Flow Regime
Freshet
Low Flow

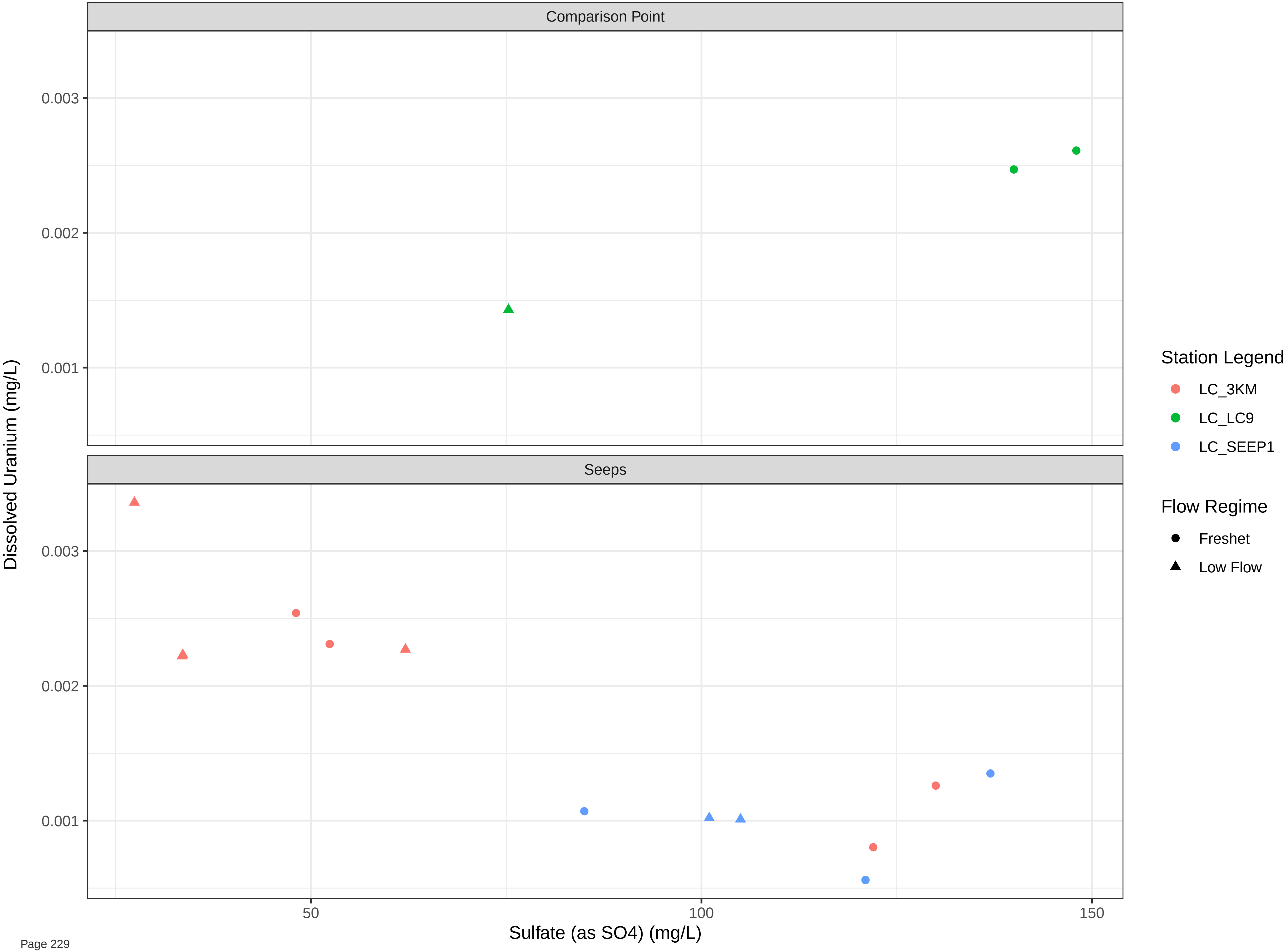

Comparison Point
Seeps
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Sulfate (as SO4) (mg/L)
100
200
300
400
500
600
Station Legend
LC_LC3
LC_WLC_LOT2
Flow Regime
Freshet
Low Flow

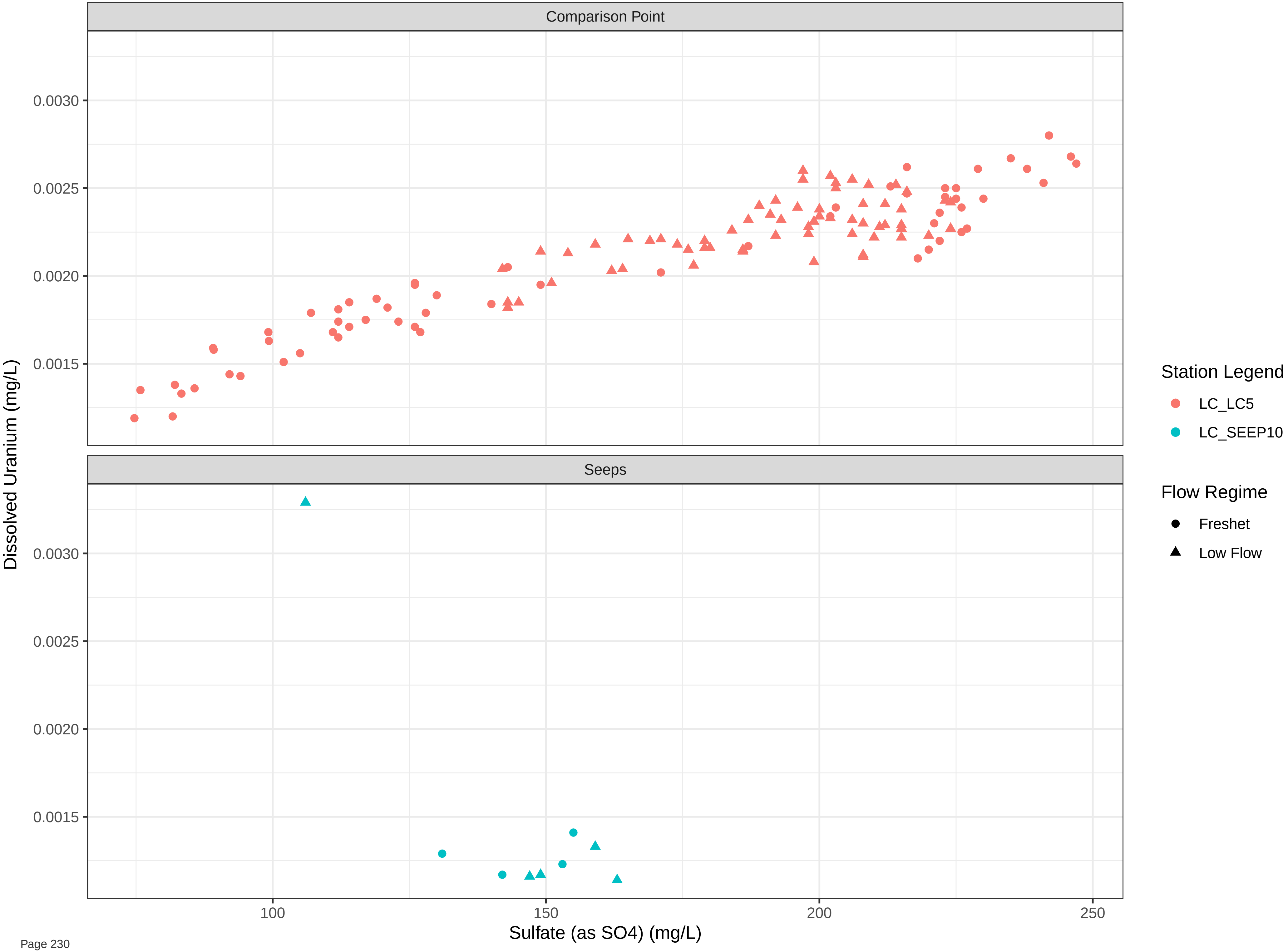

Seeps
Dissolved Uranium (mg/L)
0.00350
0.00325
0.00300
0.00275
0.00250
0.00225
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP14
LC_SEEP15
Flow Regime
Freshet
Low Flow

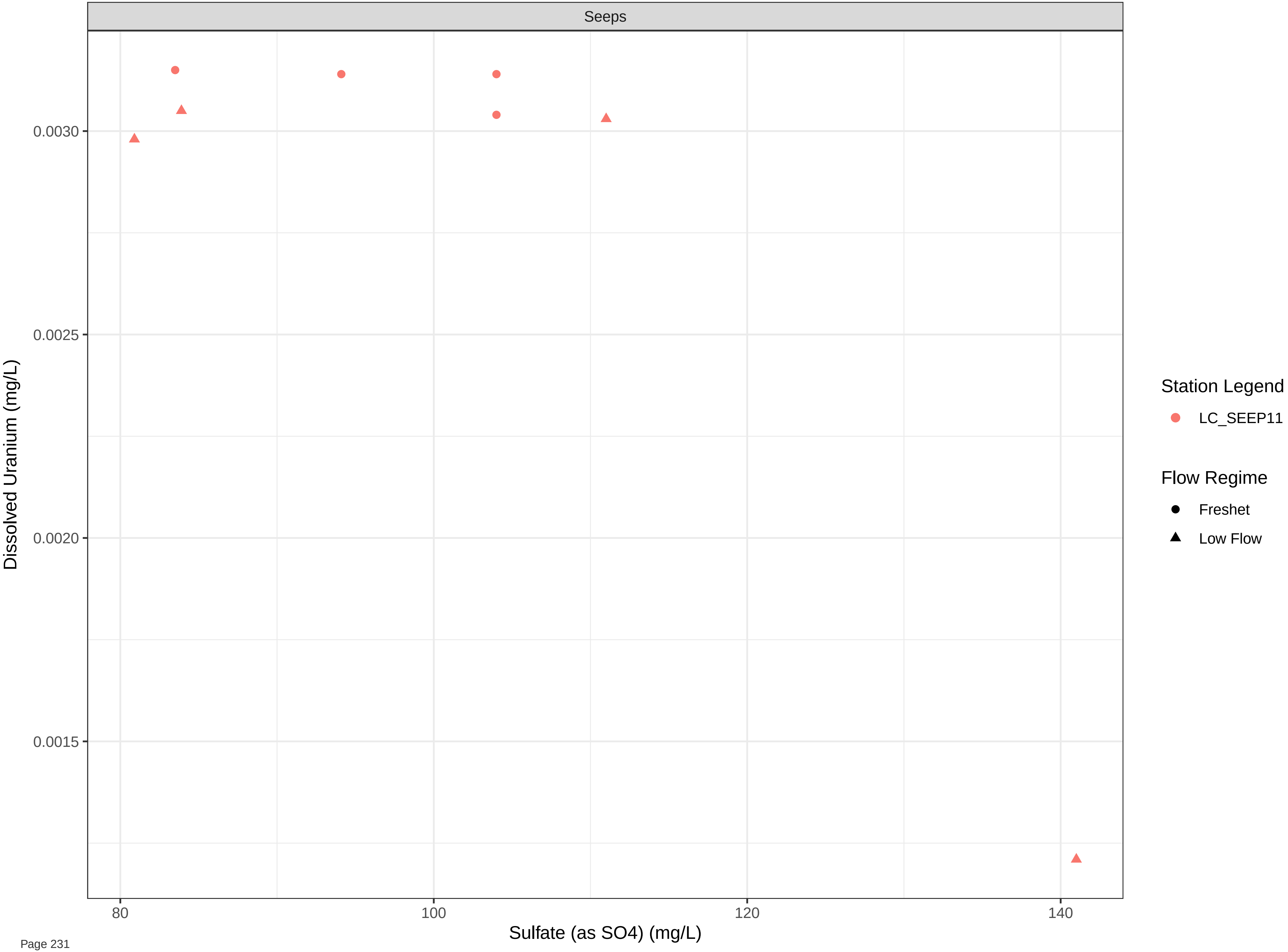

Comparison Point
Seeps
0.004
0.003
0.002
0.001
0.004
0.003
0.002
0.001
0
50
100
150
200
Dissolved Uranium (mg/L)
Sulfate (as SO4) (mg/L)
Station Legend
LC_DCDS
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

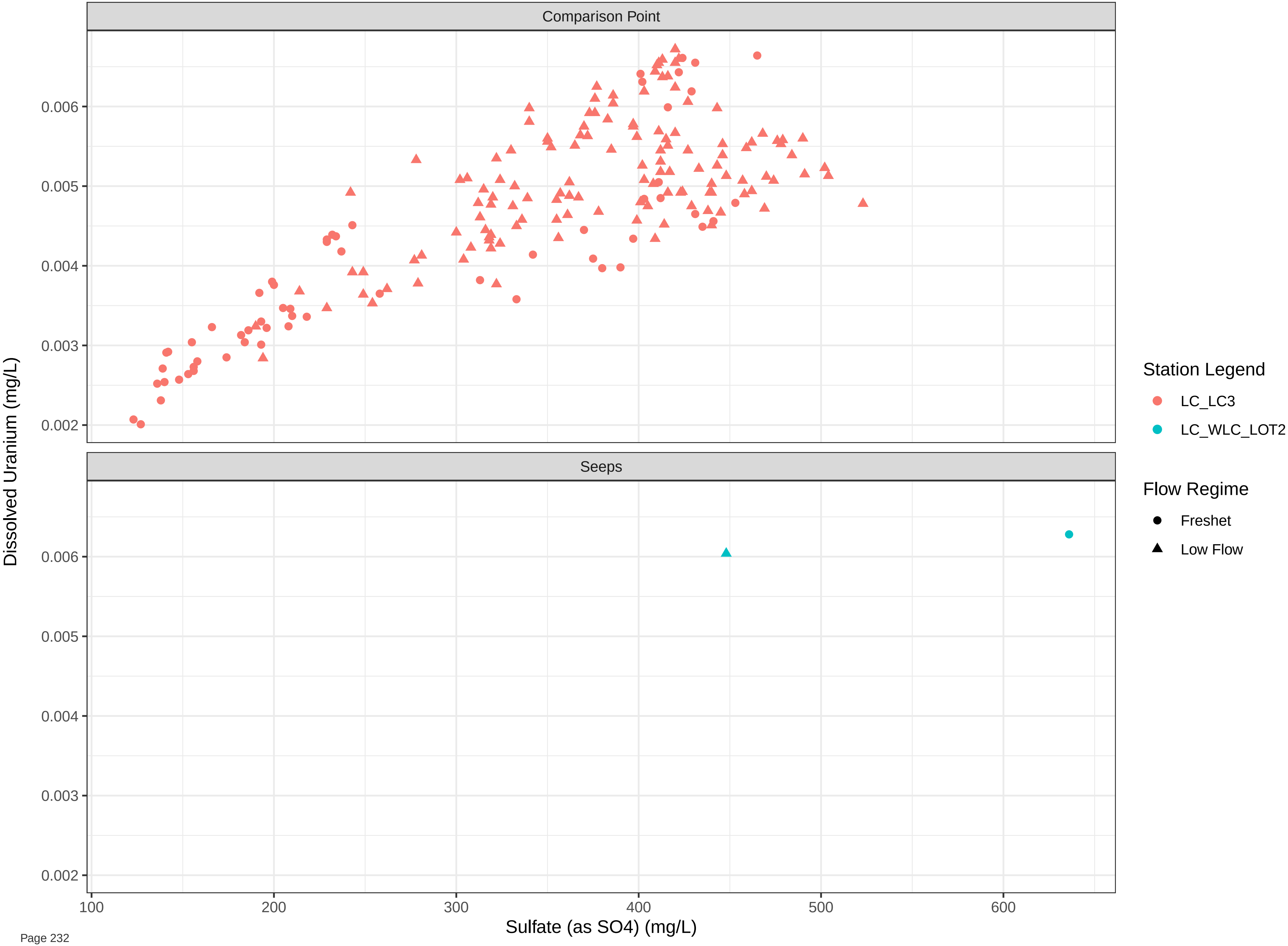

Comparison Point
Seeps
Dissolved Uranium (mg/L)
0.0100
0.0075
0.0050
0.0025
Sulfate (as SO4) (mg/L)
100
200
300
400
500
Station Legend
● LC_LC7
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

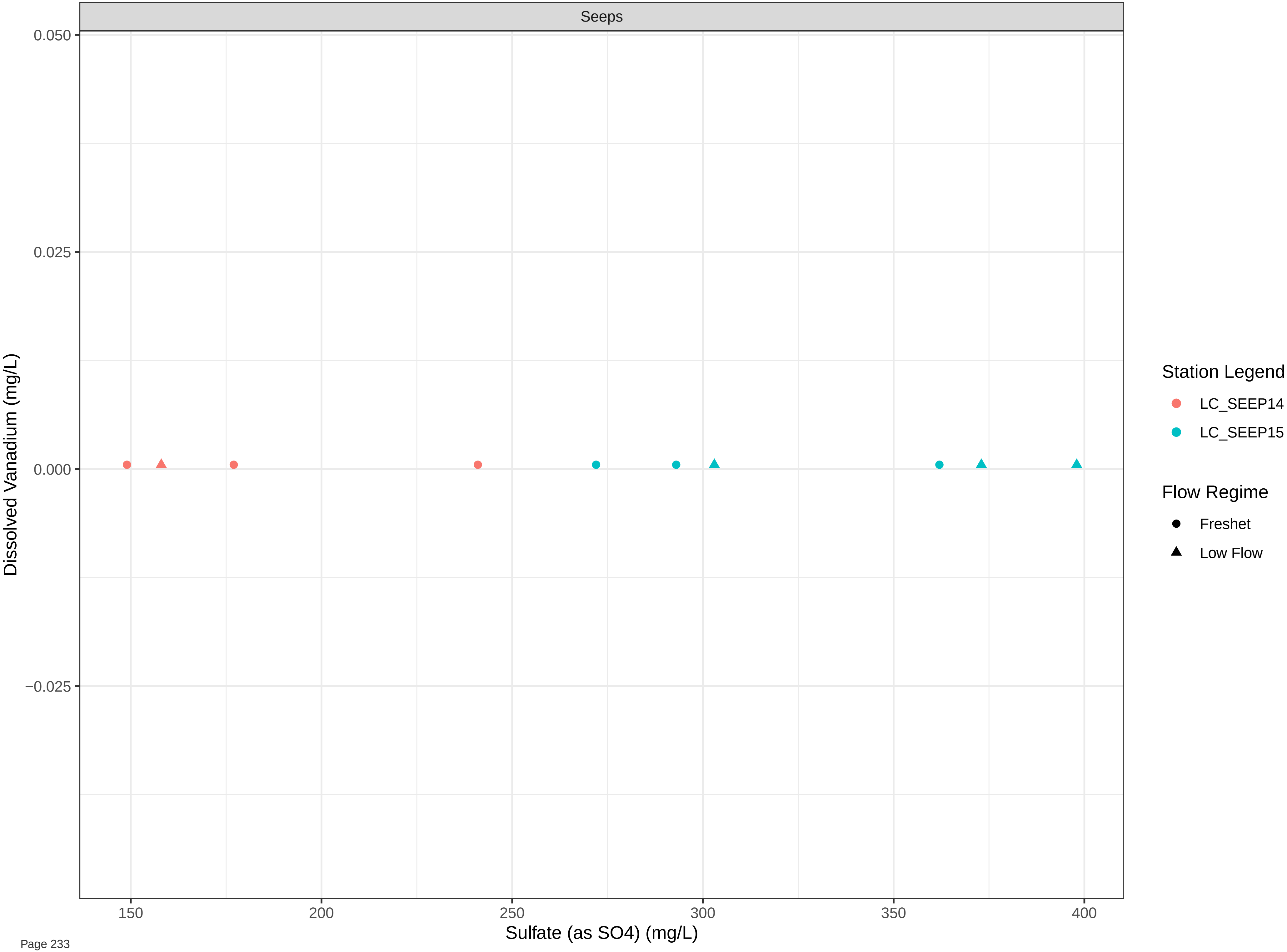

Comparison Point
Seeps
0.0016
0.0012
0.0008
Dissolved Uranium (mg/L)
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
Freshet
Low Flow

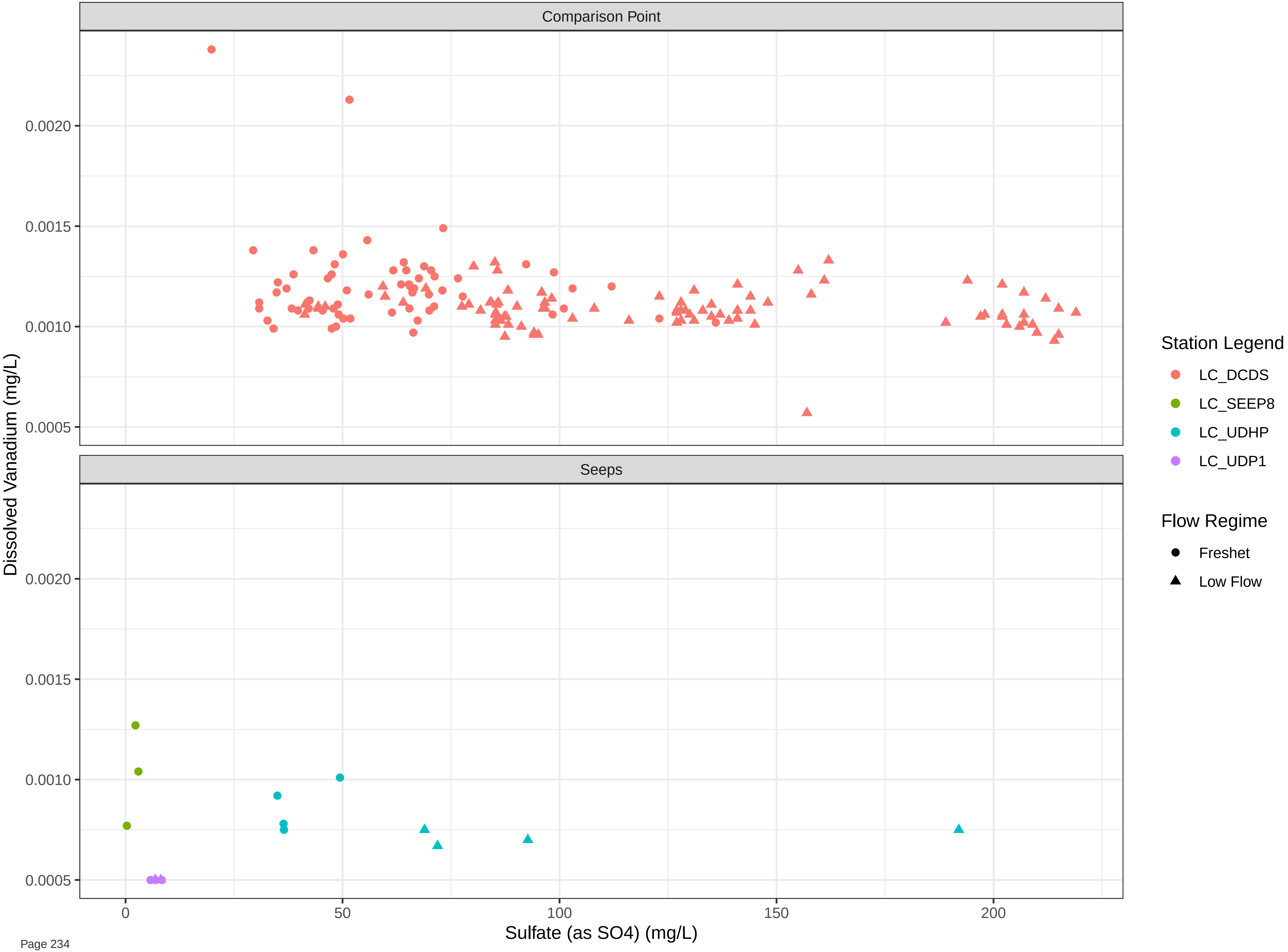

Comparison Point
Seeps
Dissolved Uranium (mg/L)
0.003
0.002
0.001
0.003
0.002
0.001
50
100
150
Sulfate (as SO4) (mg/L)
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

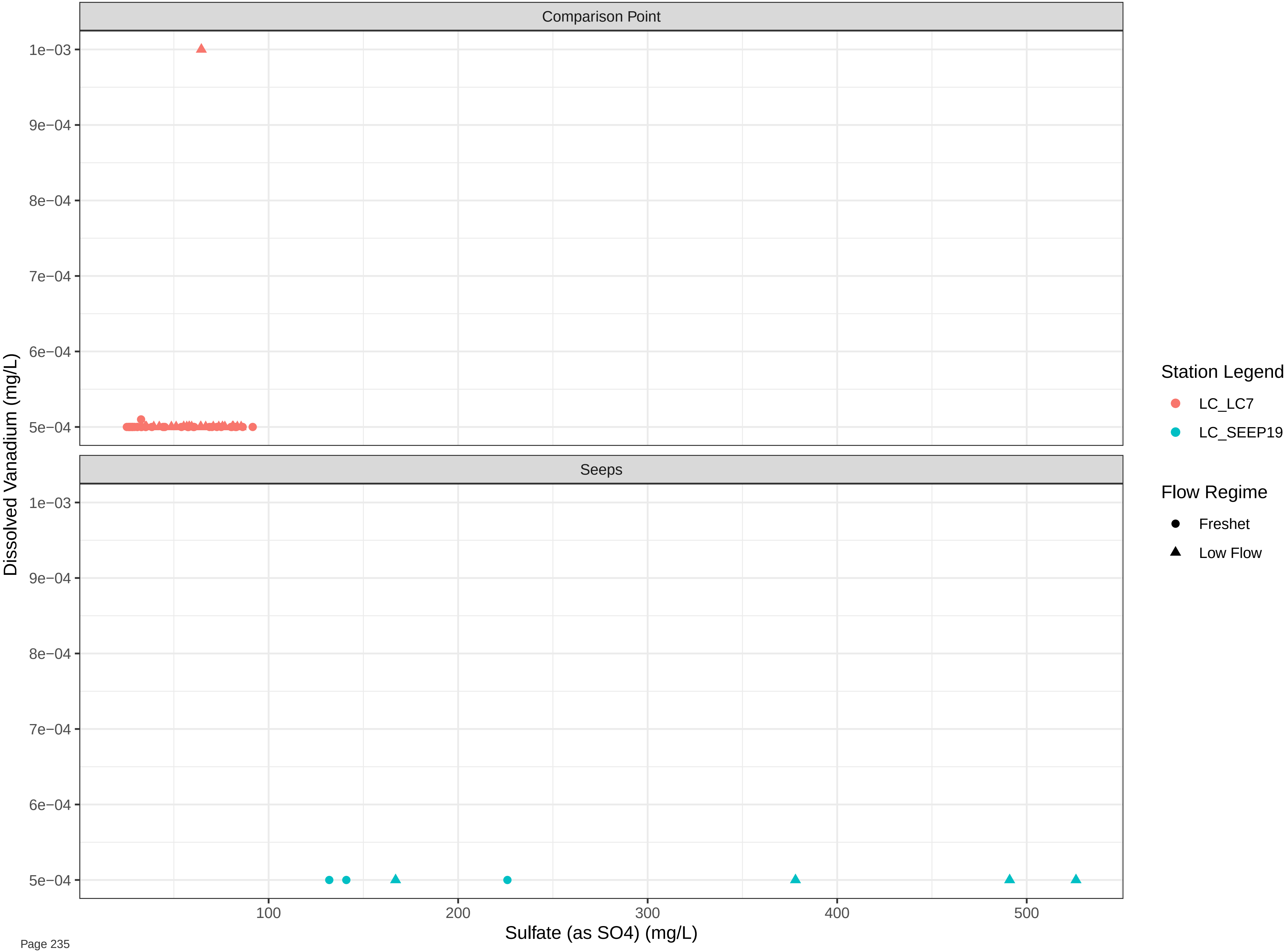

Comparison Point
Seeps
0.0030
0.0025
0.0020
0.0015
Dissolved Uranium (mg/L)
100
150
200
250
Sulfate (as SO4) (mg/L)
Station Legend
● LC_LC5
● LC_SEEP10
Flow Regime
● Freshet
▲ Low Flow

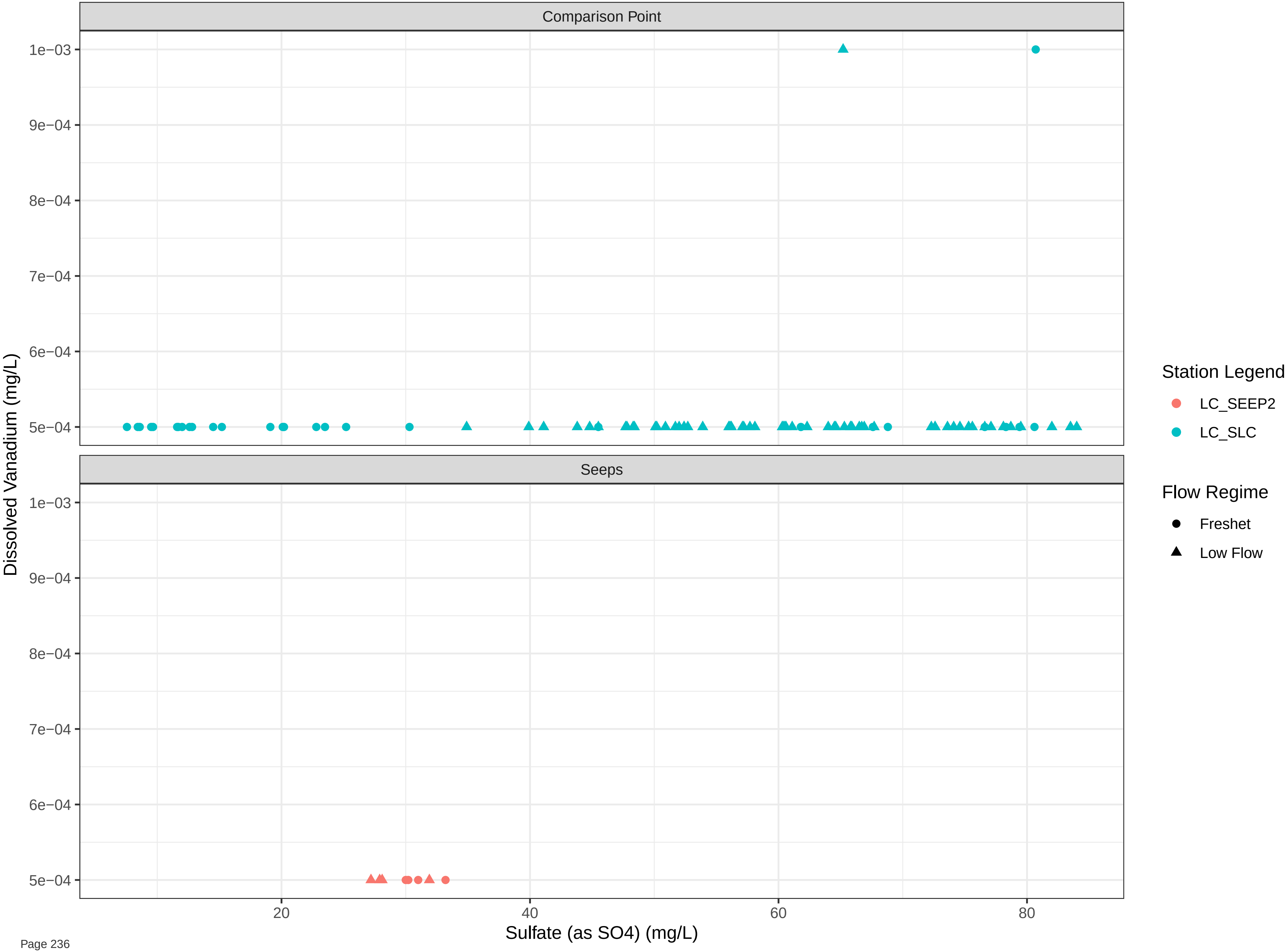

Seeps
Dissolved Uranium (mg/L)
0.0030
0.0025
0.0020
0.0015
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
● LC_SEEP11
Flow Regime
● Freshet
▲ Low Flow

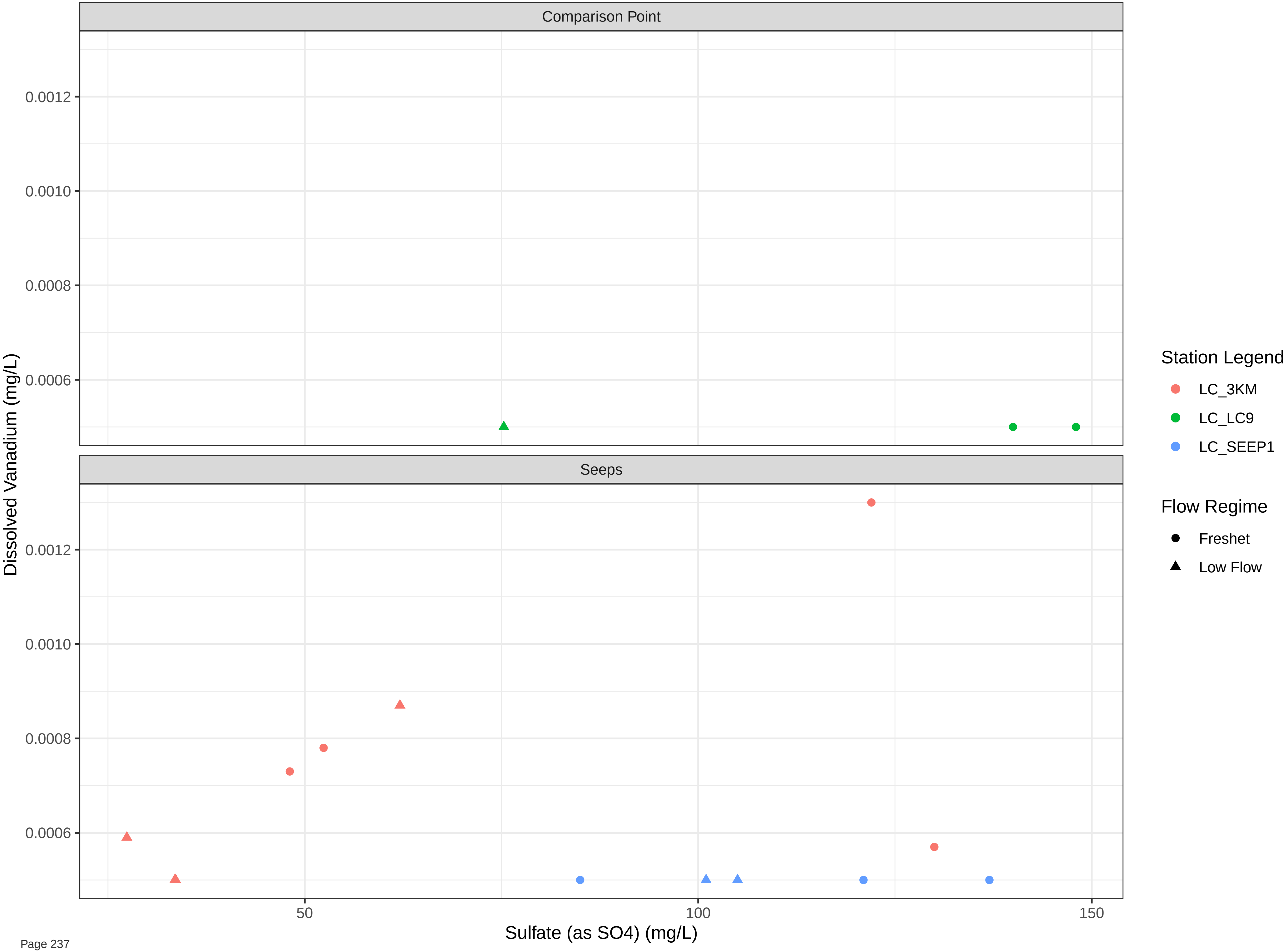

Comparison Point
Seeps
Dissolved Uranium (mg/L)
0.002
0.003
0.004
0.005
0.006
Sulfate (as SO4) (mg/L)
100
200
300
400
500
600
Station Legend
● LC_LC3
● LC_WLC_LOT2
Flow Regime
● Freshet
▲ Low Flow

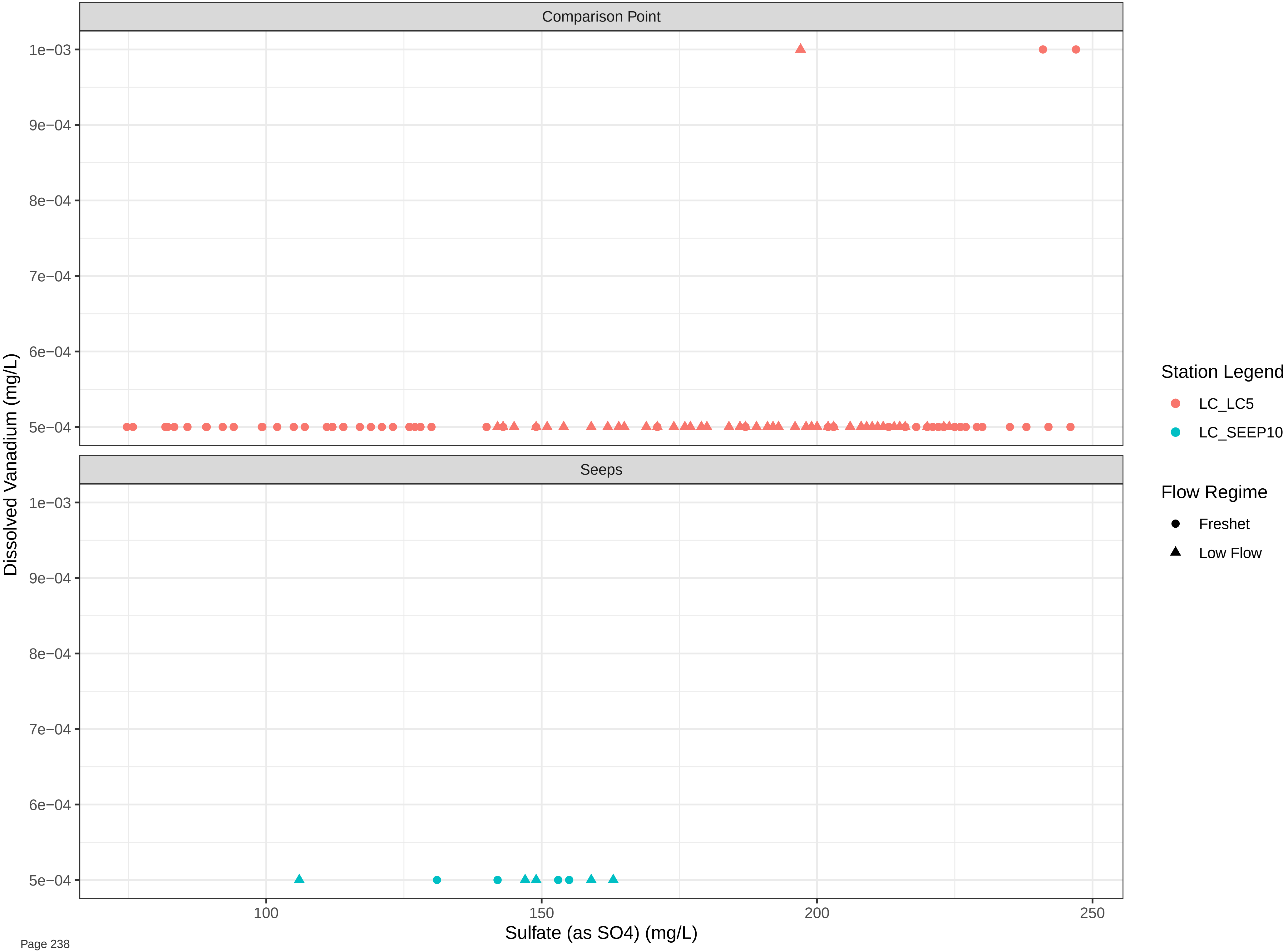

Seeps
0.050
0.025
0.000
−0.025
Dissolved Vanadium (mg/L)
150
200
250
300
350
400
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP14
LC_SEEP15
Flow Regime
Freshet
Low Flow

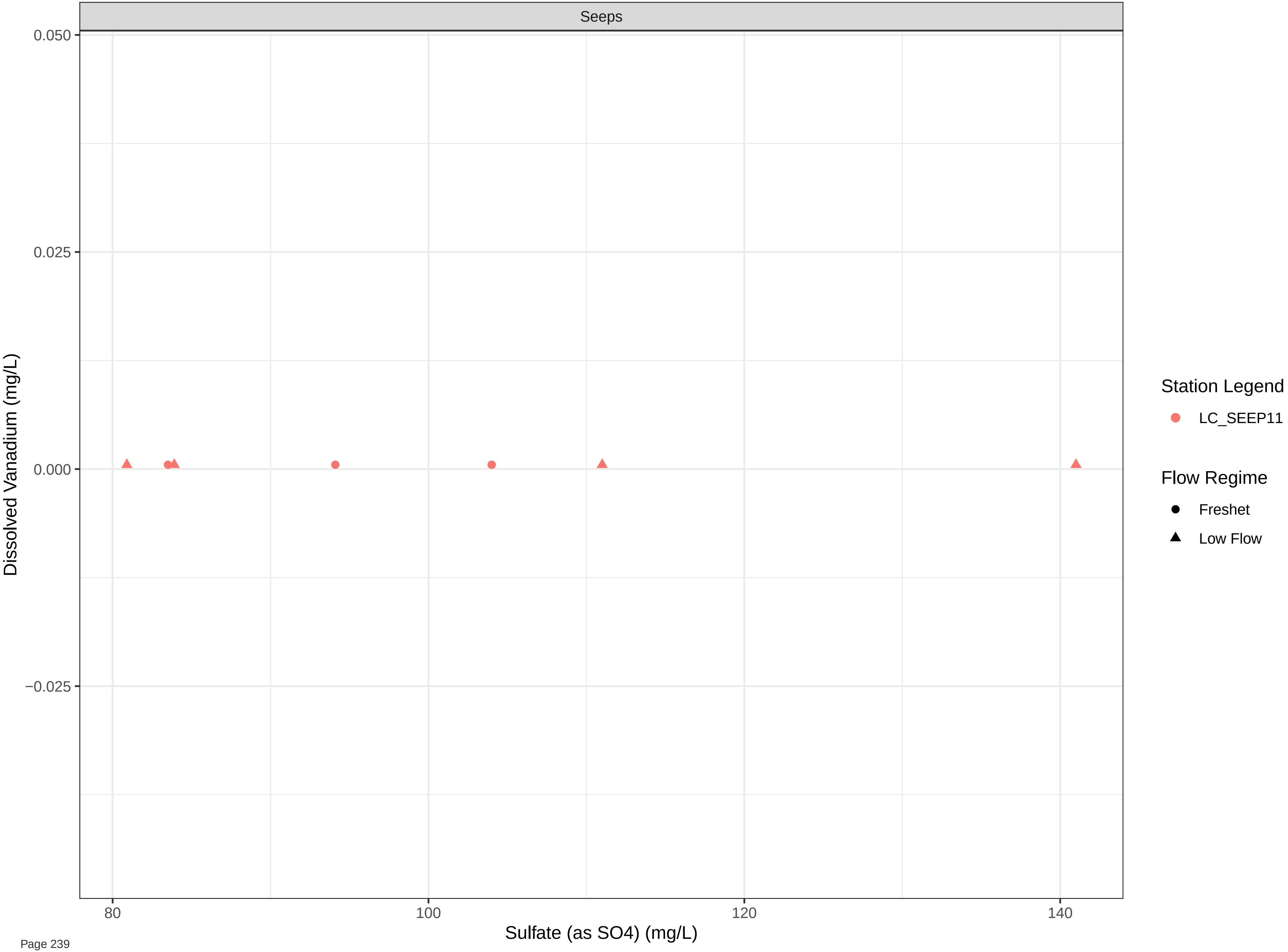

Comparison Point
Seeps
Dissolved Vanadium (mg/L)
0.0020
0.0015
0.0010
0.0005
0.0020
0.0015
0.0010
0.0005
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
LC_DCDS
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

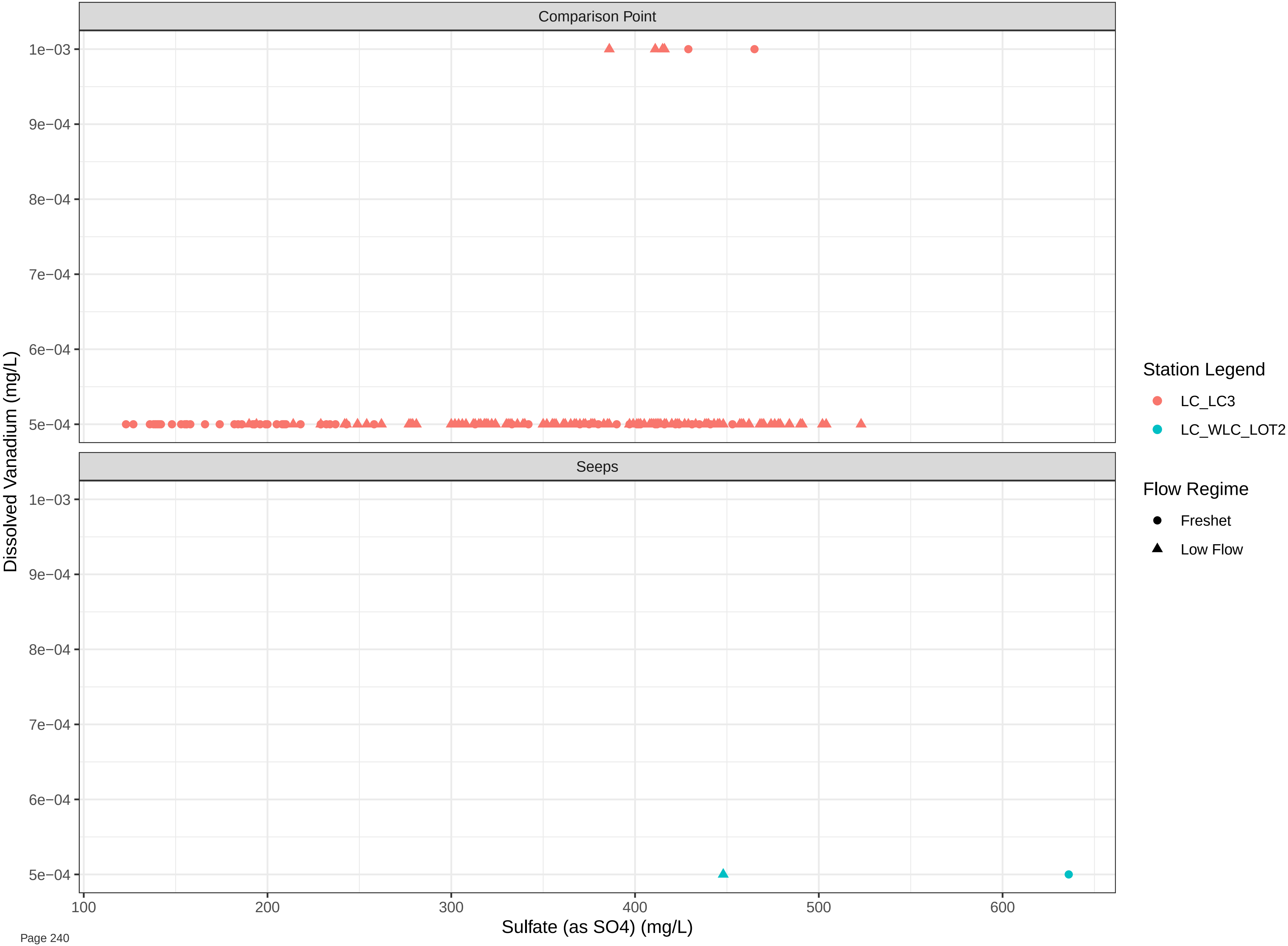

Comparison Point
Seeps
Dissolved Vanadium (mg/L)
1e−03
9e−04
8e−04
7e−04
6e−04
5e−04
100
200
300
400
500
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC7
LC_SEEP19
Flow Regime
Freshet
Low Flow

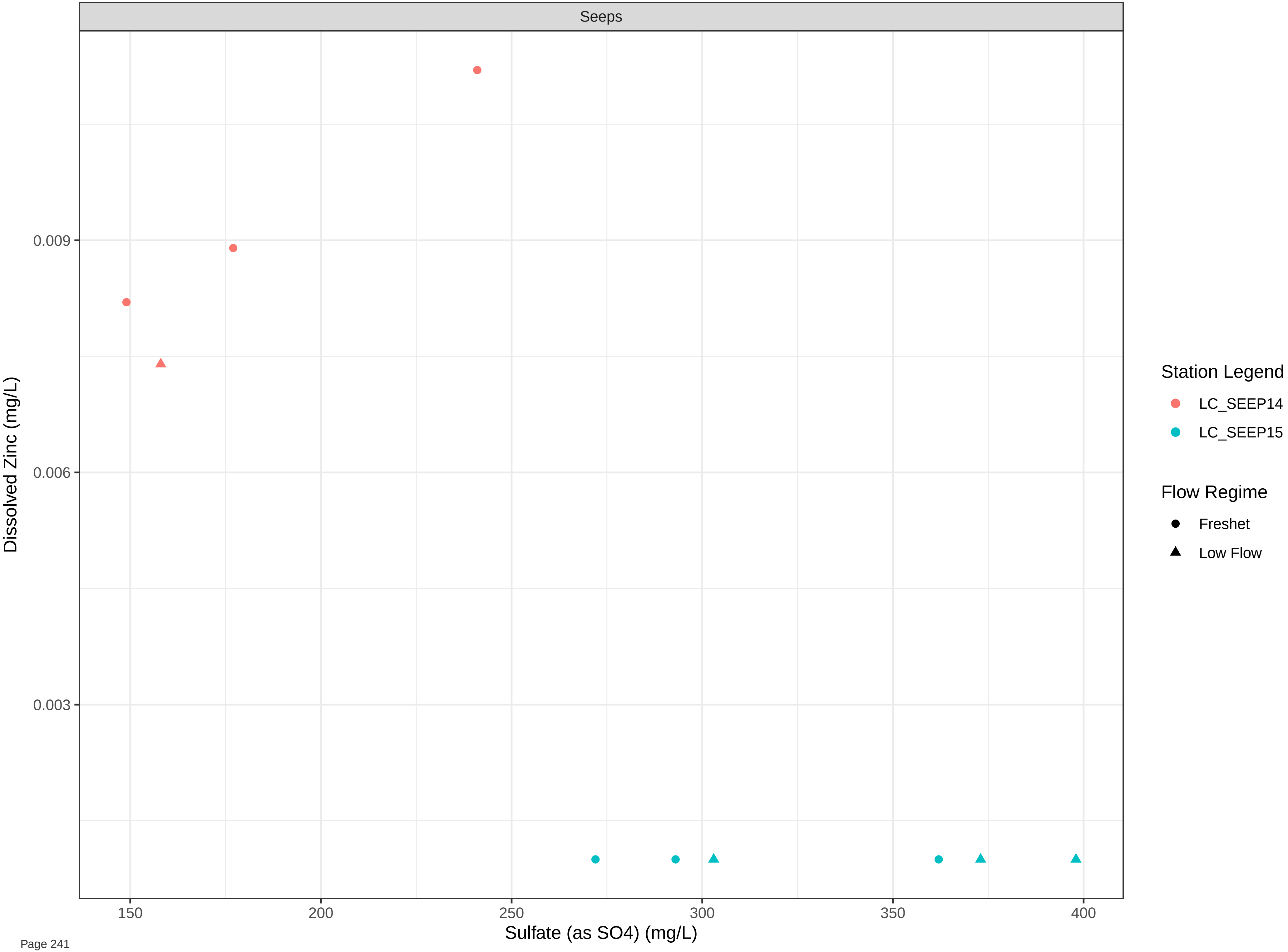

Comparison Point
Seeps
Dissolved Vanadium (mg/L)
1e−03
9e−04
8e−04
7e−04
6e−04
5e−04
Sulfate (as SO4) (mg/L)
20
40
60
80
Station Legend
● LC_SEEP2
● LC_SLC
Flow Regime
● Freshet
▲ Low Flow

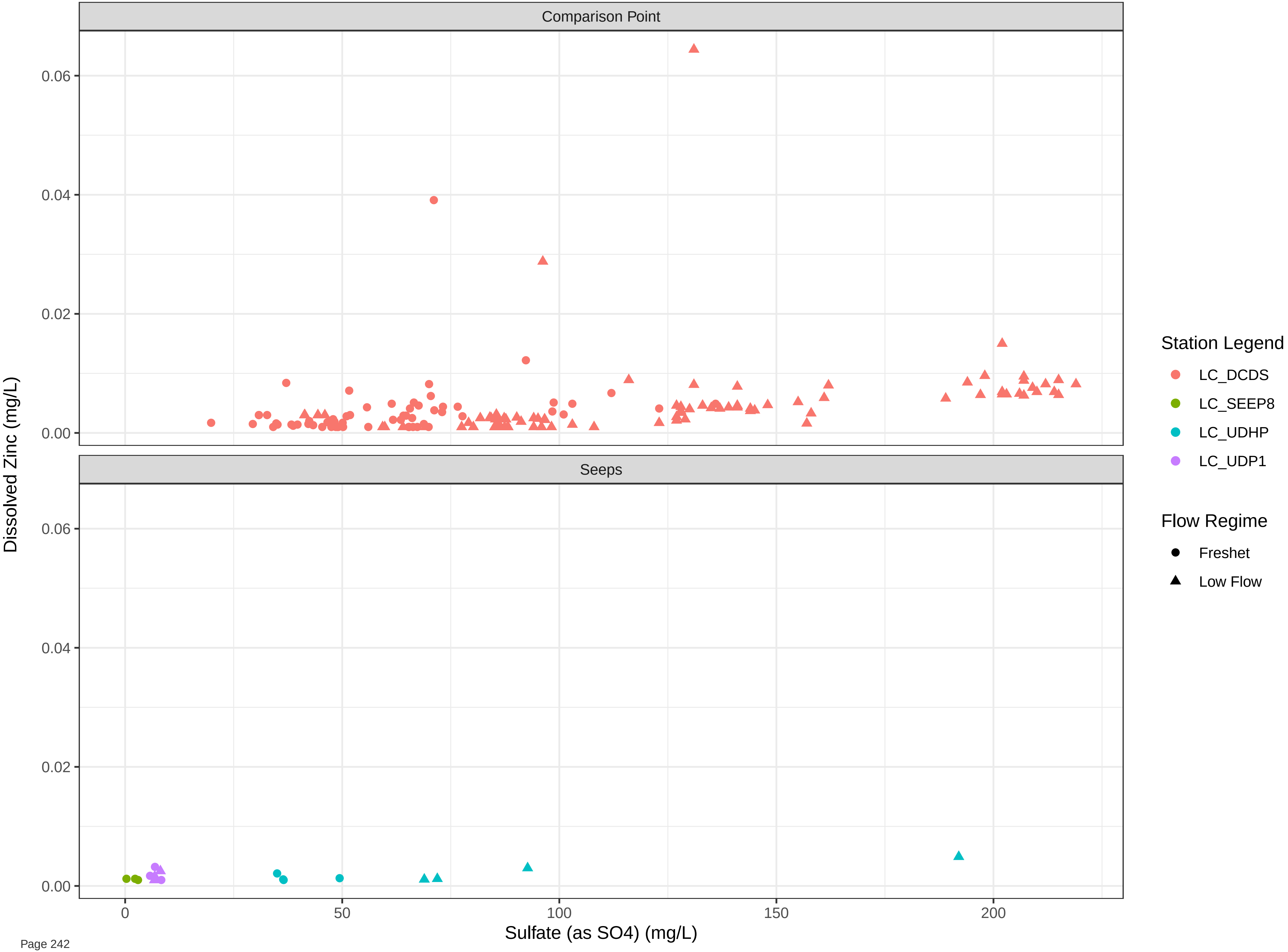

Comparison Point
Seeps
Dissolved Vanadium (mg/L)
0.0012
0.0010
0.0008
0.0006
50
100
150
Sulfate (as SO4) (mg/L)
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

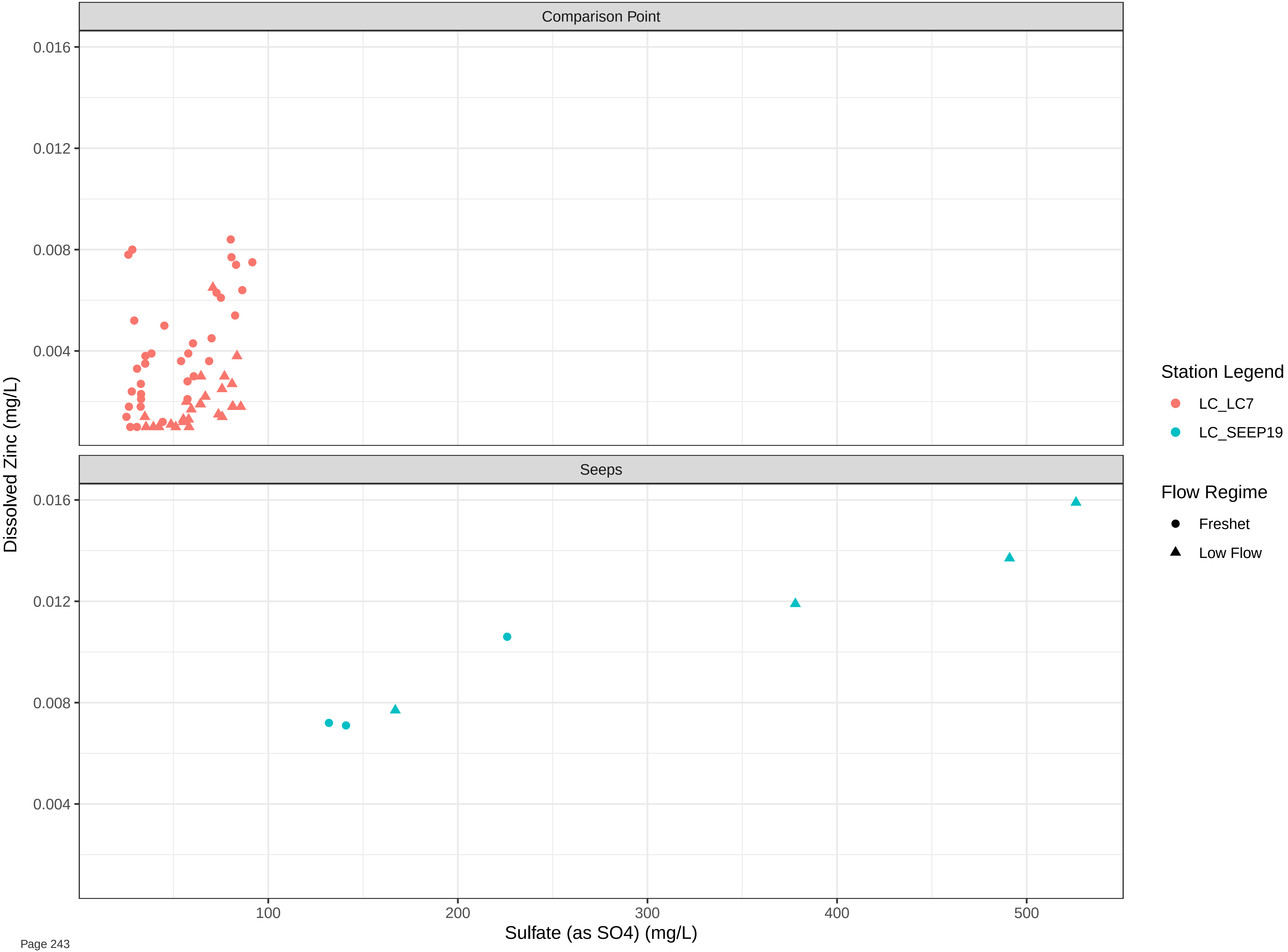

Comparison Point
Seeps
Dissolved Vanadium (mg/L)
1e−03
9e−04
8e−04
7e−04
6e−04
5e−04
100
150
200
250
Sulfate (as SO4) (mg/L)
Station Legend
LC_LC5
LC_SEEP10
Flow Regime
Freshet
Low Flow

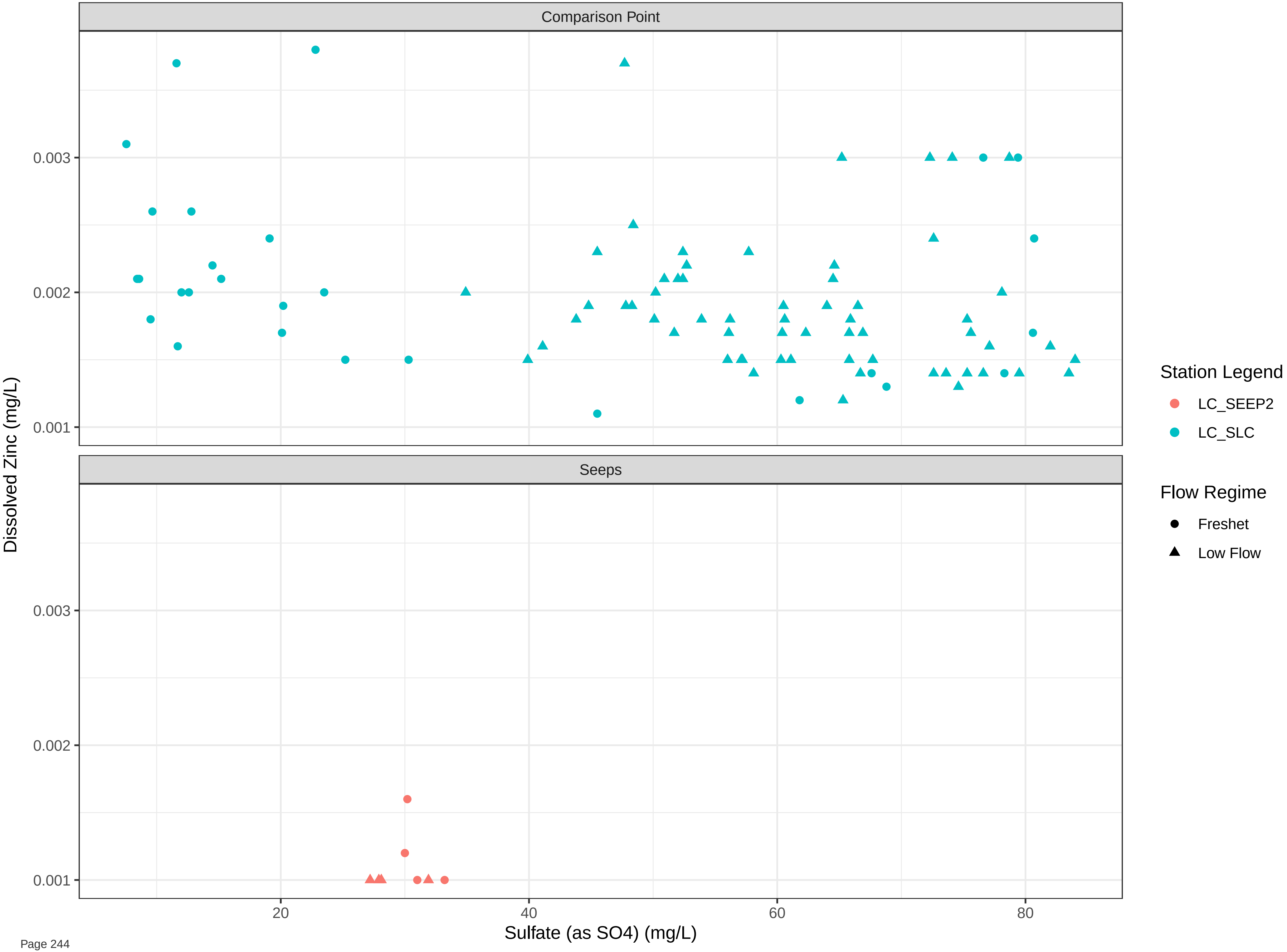

Seeps
0.050
0.025
0.000
−0.025
Dissolved Vanadium (mg/L)
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP11
Flow Regime
Freshet
Low Flow

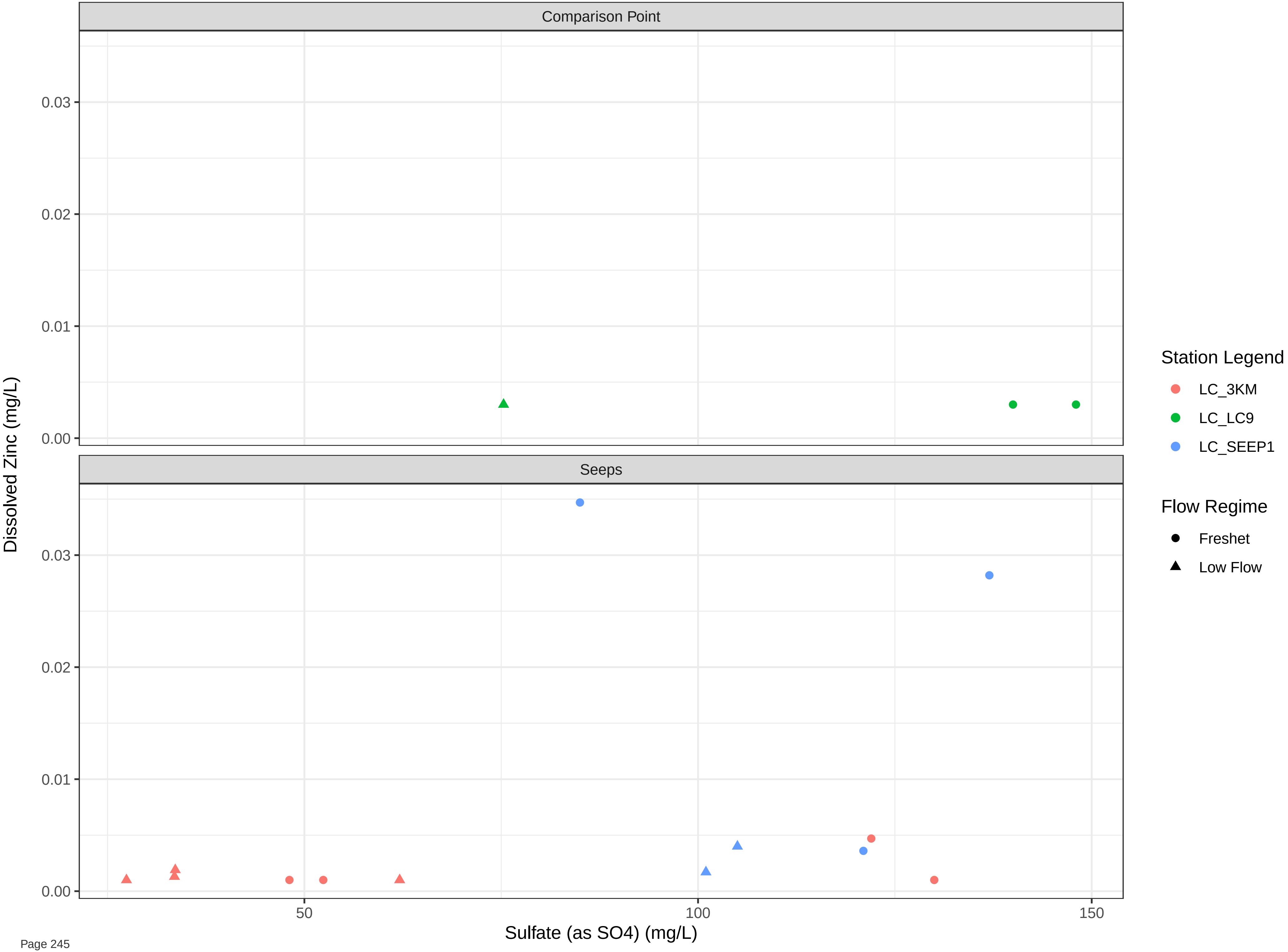

Comparison Point
Seeps
Dissolved Vanadium (mg/L)
1e−03
9e−04
8e−04
7e−04
6e−04
5e−04
Sulfate (as SO4) (mg/L)
100
200
300
400
500
600
Station Legend
LC_LC3
LC_WLC_LOT2
Flow Regime
Freshet
Low Flow

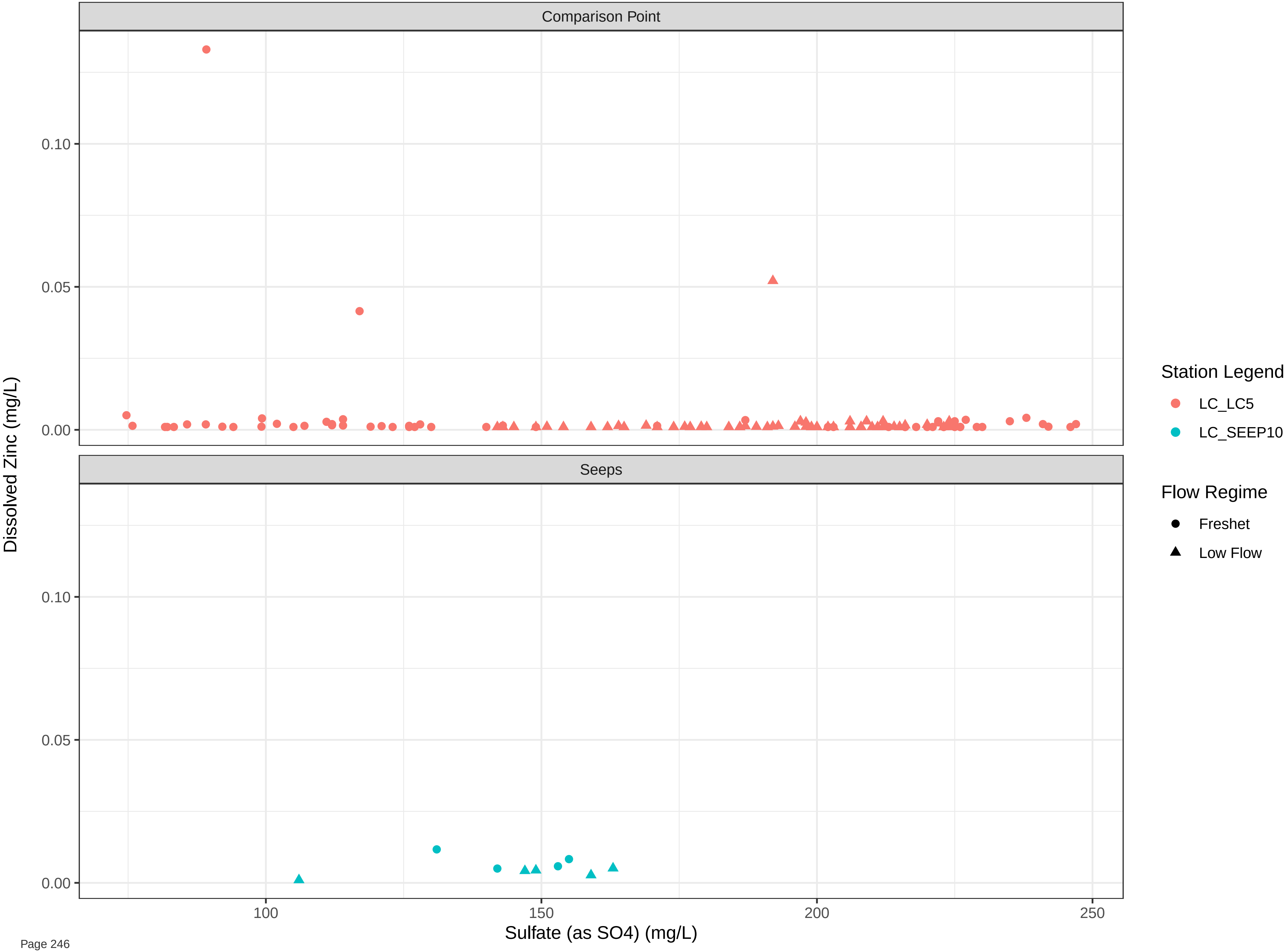

Seeps
0.009
0.006
0.003
150
200
250
300
350
400
Dissolved Zinc (mg/L)
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP14
LC_SEEP15
Flow Regime
Freshet
Low Flow

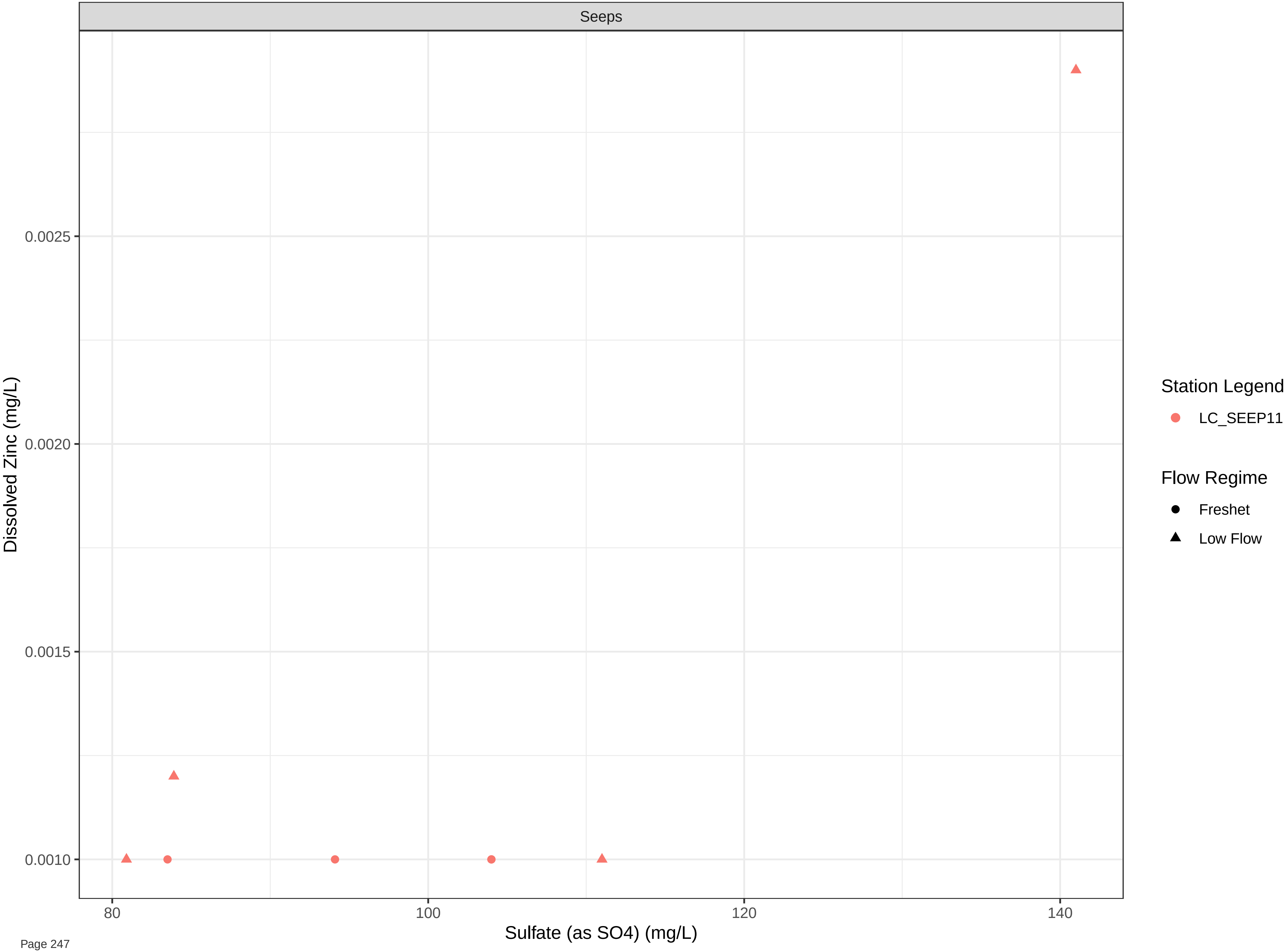

Comparison Point
Seeps
0.06
0.04
0.02
0.00
Dissolved Zinc (mg/L)
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
LC_DCDS
LC_SEEP8
LC_UDHP
LC_UDP1
Flow Regime
Freshet
Low Flow

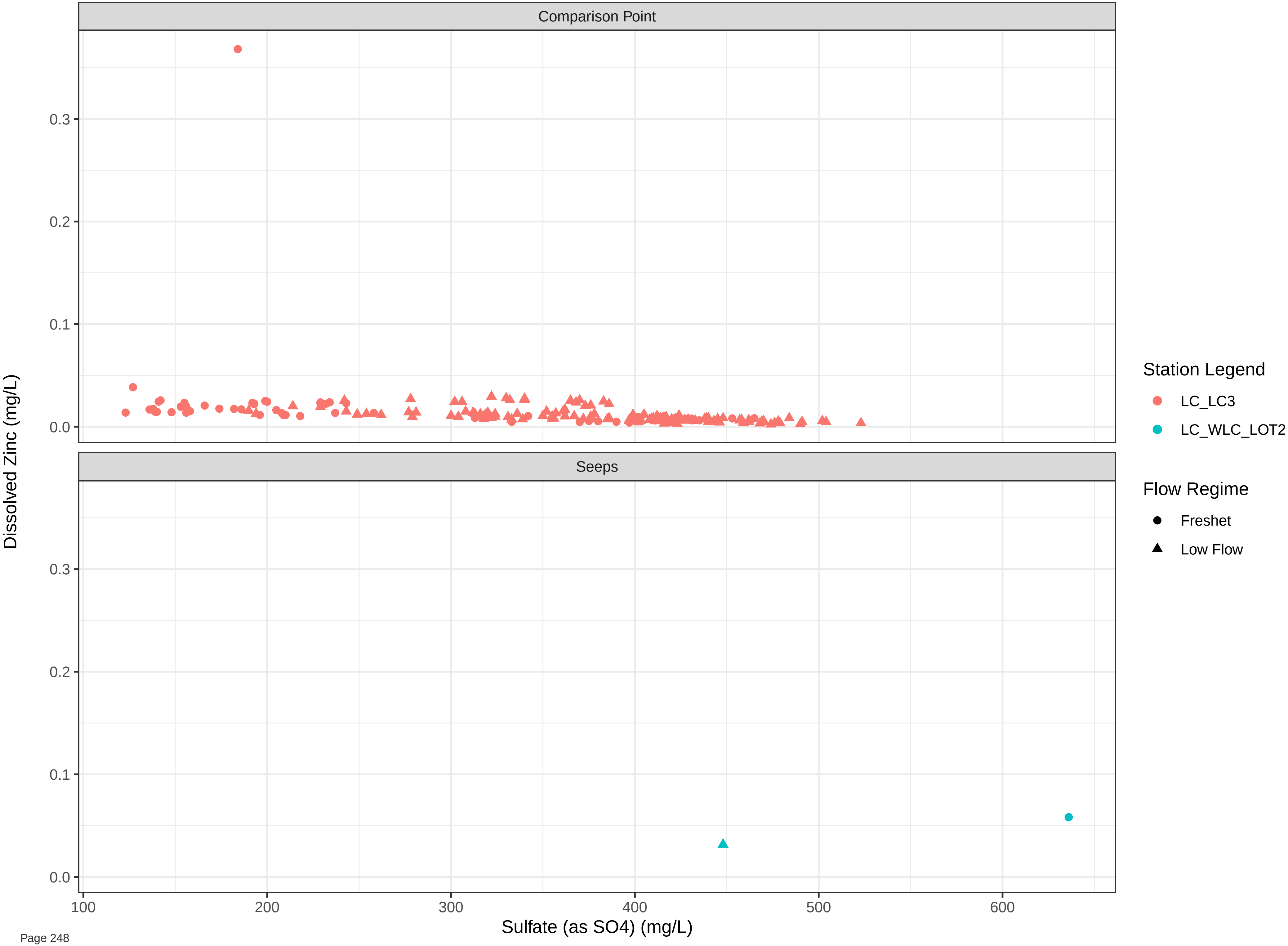

Comparison Point
Seeps
Dissolved Zinc (mg/L)
0.016
0.012
0.008
0.004
Sulfate (as SO4) (mg/L)
100
200
300
400
500
Station Legend
● LC_LC7
● LC_SEEP19
Flow Regime
● Freshet
▲ Low Flow

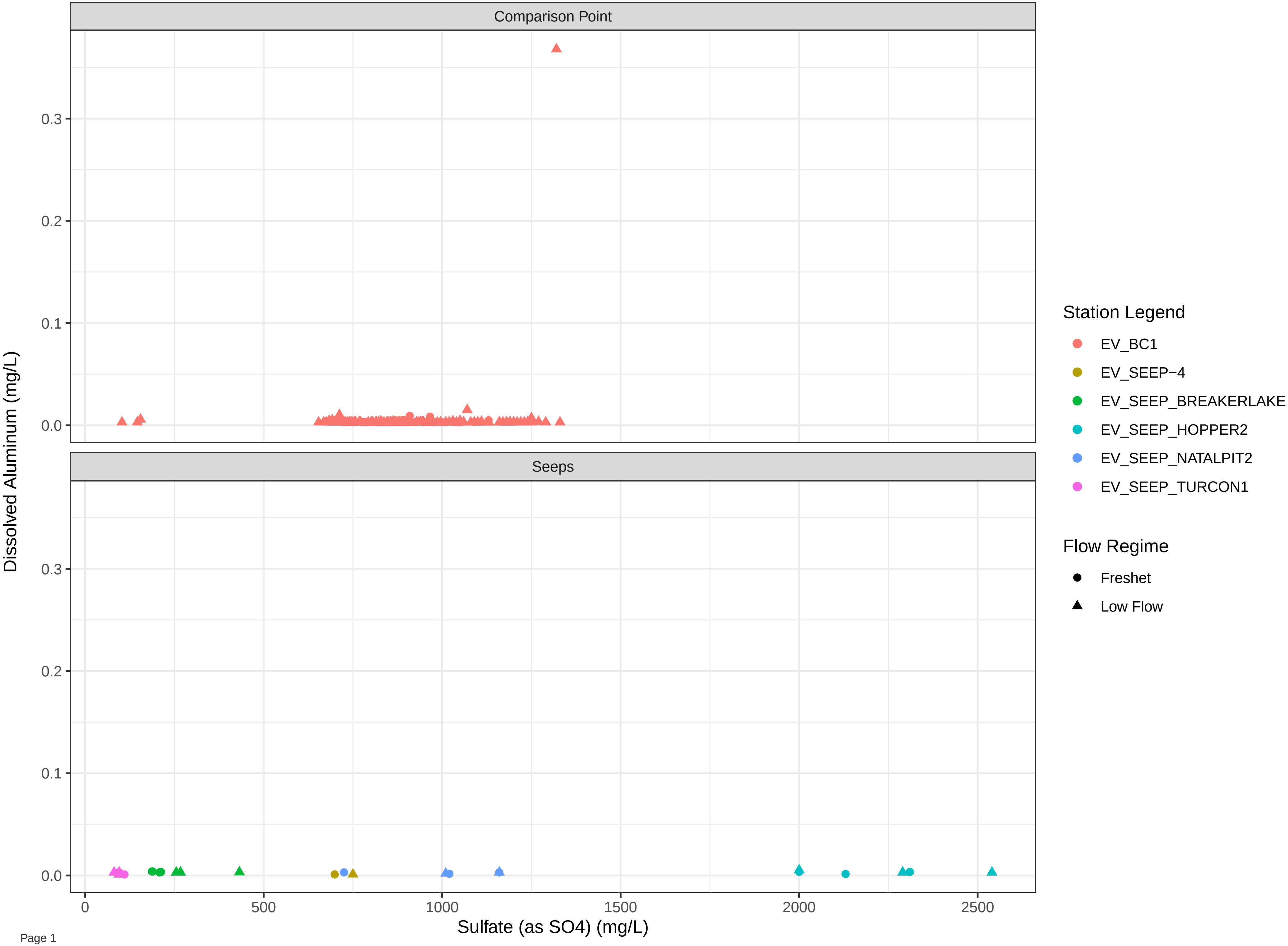

Comparison Point
Seeps
Dissolved Zinc (mg/L)
0.003
0.002
0.001
0.003
0.002
0.001
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP2
LC_SLC
Flow Regime
Freshet
Low Flow

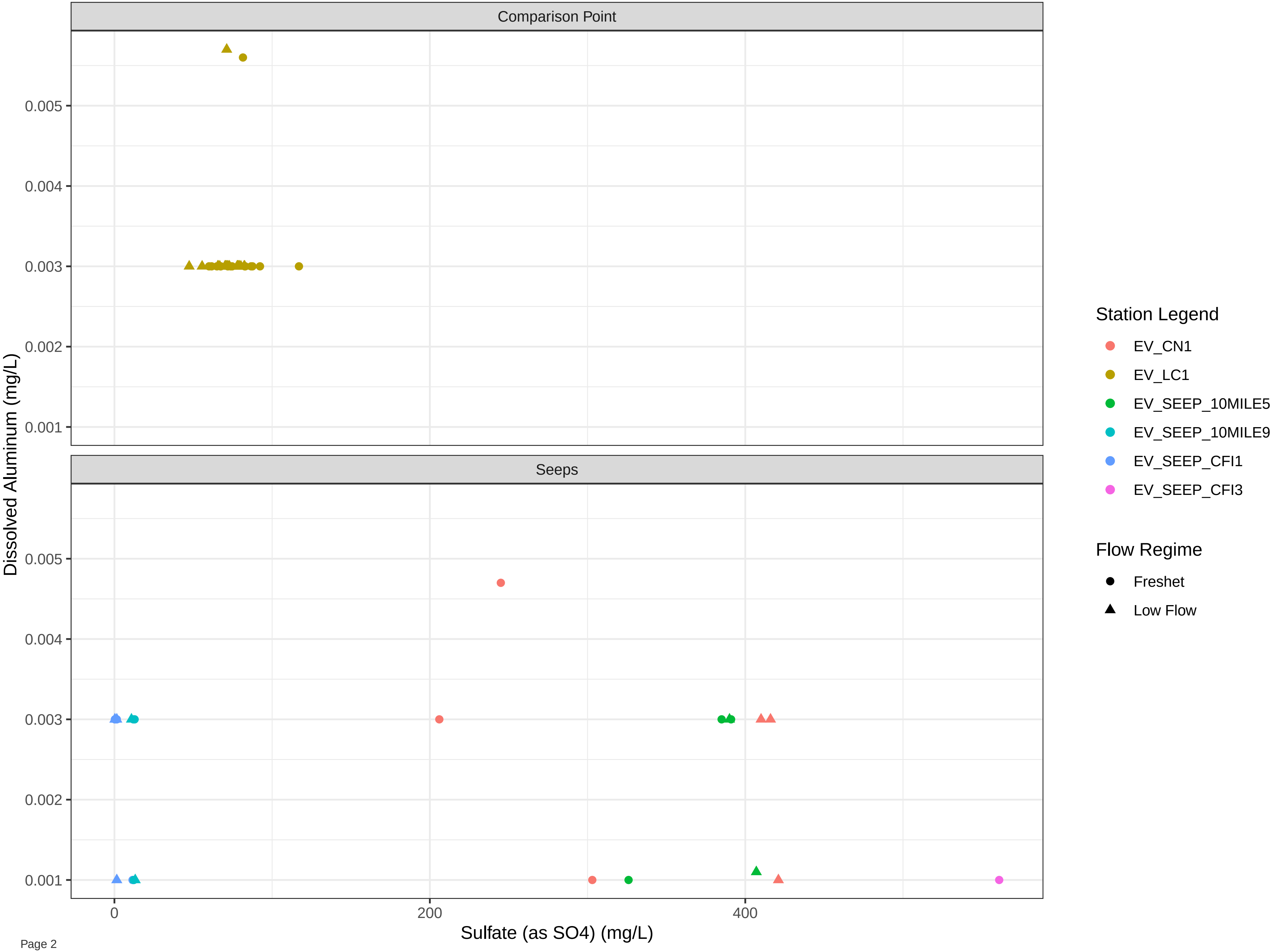

Comparison Point
Seeps
Dissolved Zinc (mg/L)
0.03
0.02
0.01
0.00
0.03
0.02
0.01
0.00
50
100
150
Sulfate (as SO4) (mg/L)
Station Legend
LC_3KM
LC_LC9
LC_SEEP1
Flow Regime
Freshet
Low Flow

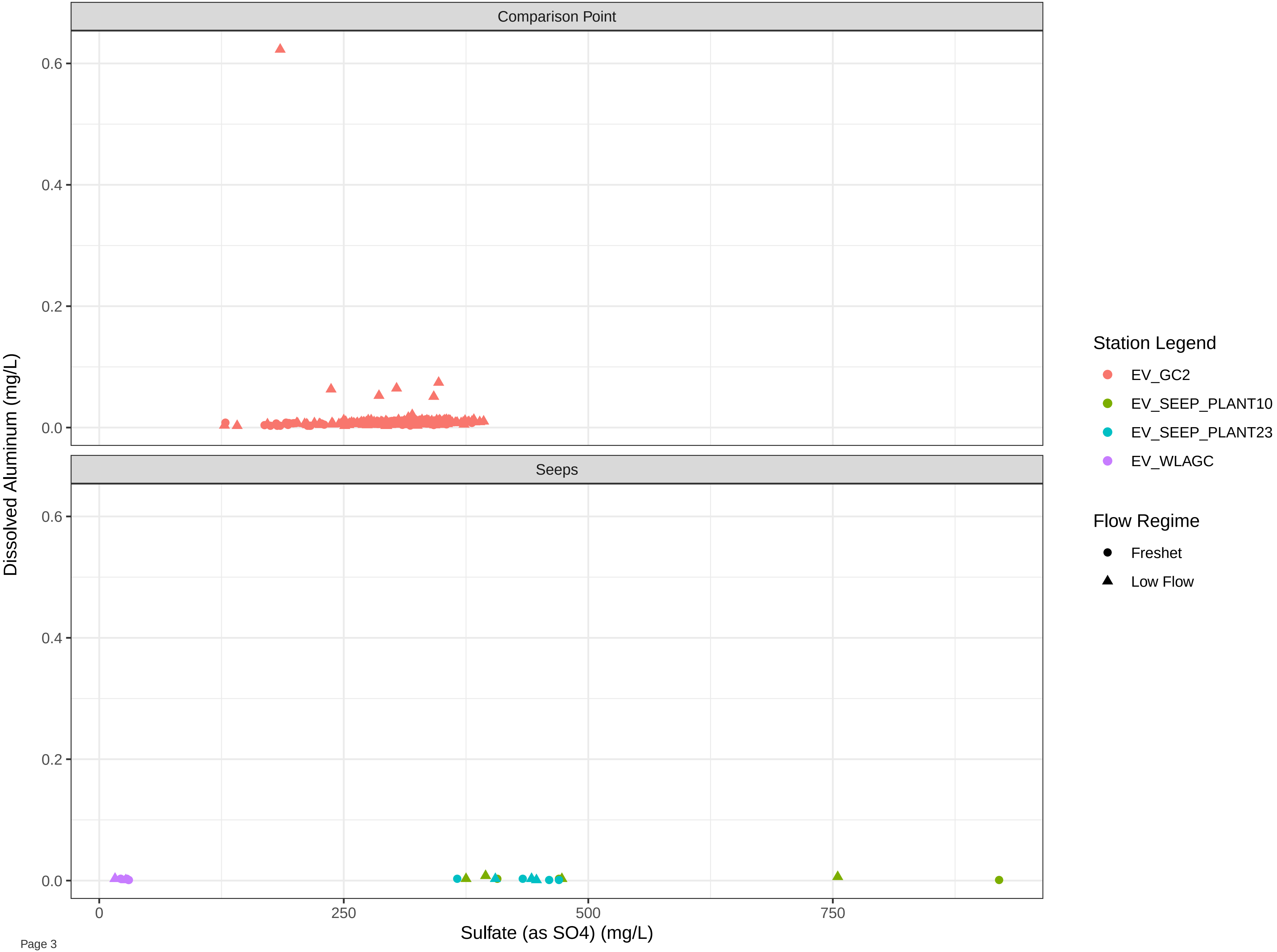

Comparison Point
Seeps
Dissolved Zinc (mg/L)
0.10
0.05
0.00
0.10
0.05
0.00
100
150
200
250
Sulfate (as SO4) (mg/L)
Station Legend
● LC_LC5
● LC_SEEP10
Flow Regime
● Freshet
▲ Low Flow

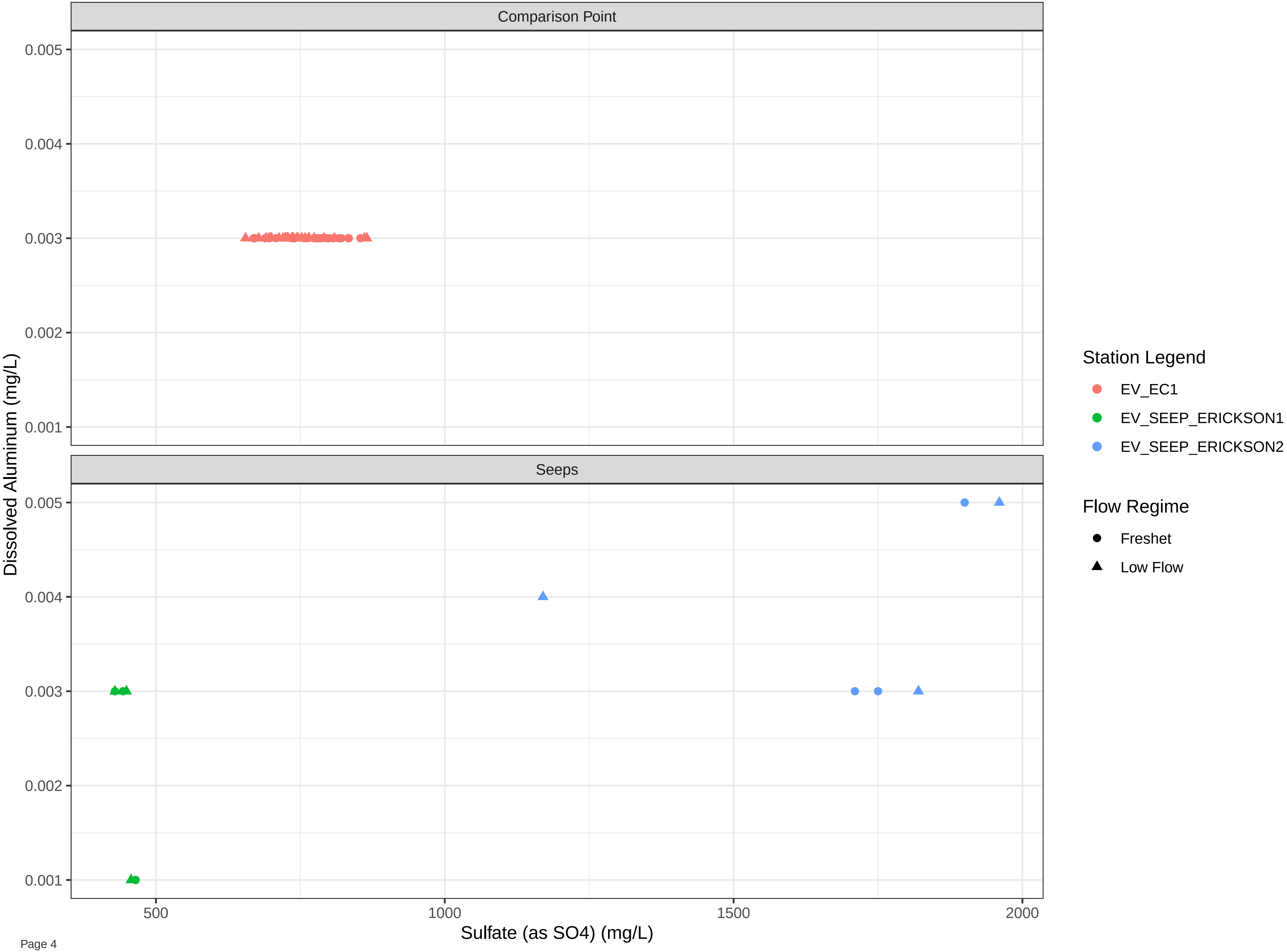

Seeps
Dissolved Zinc (mg/L)
0.0025
0.0020
0.0015
0.0010
80
100
120
140
Sulfate (as SO4) (mg/L)
Station Legend
LC_SEEP11
Flow Regime
Freshet
Low Flow

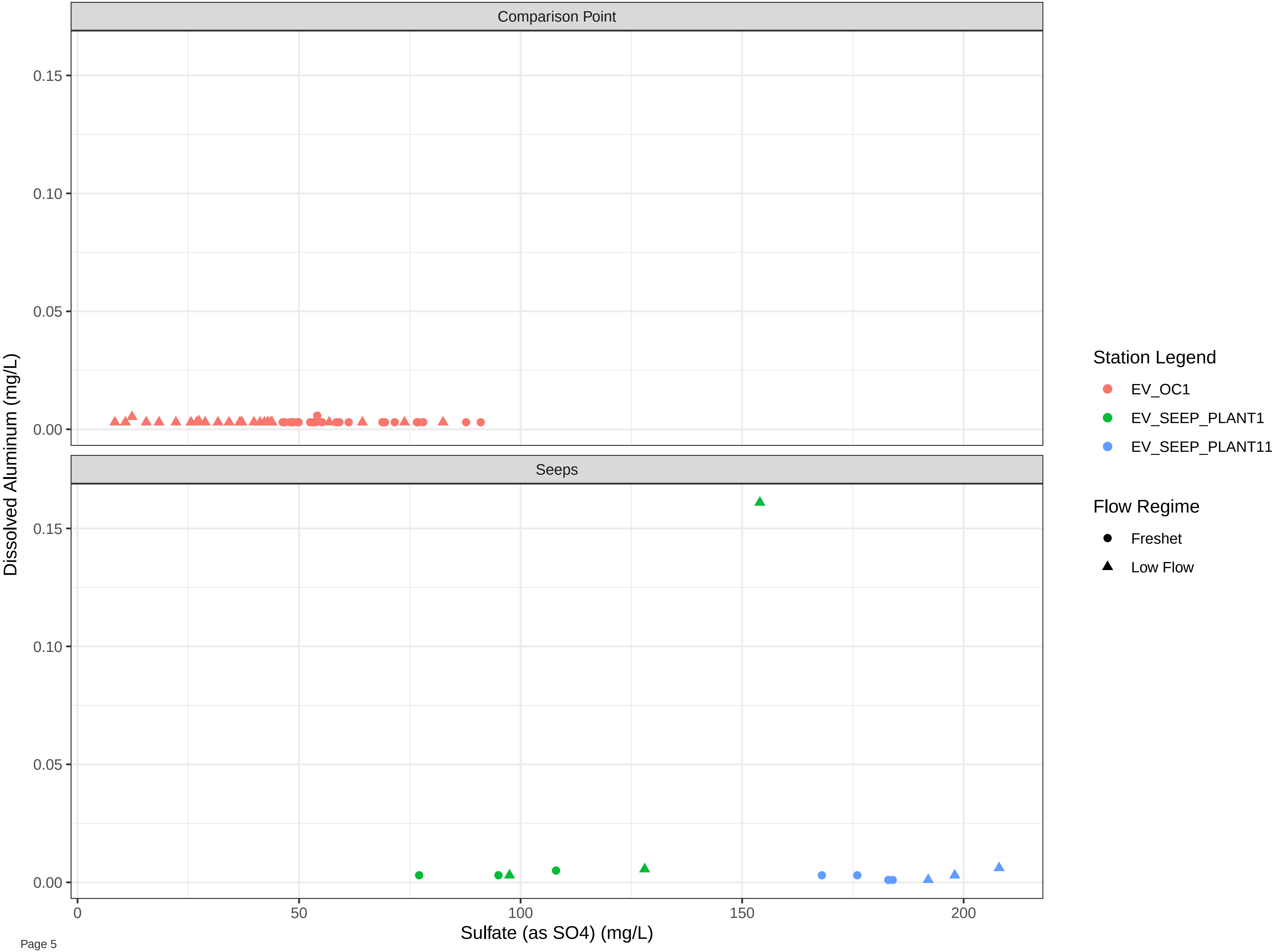

Comparison Point
Seeps
Dissolved Zinc (mg/L)
0.0
0.1
0.2
0.3
0.0
0.1
0.2
0.3
100
200
300
400
500
600
Sulfate (as SO4) (mg/L)
Station Legend
● LC_LC3
● LC_WLC_LOT2
Flow Regime
● Freshet
▲ Low Flow

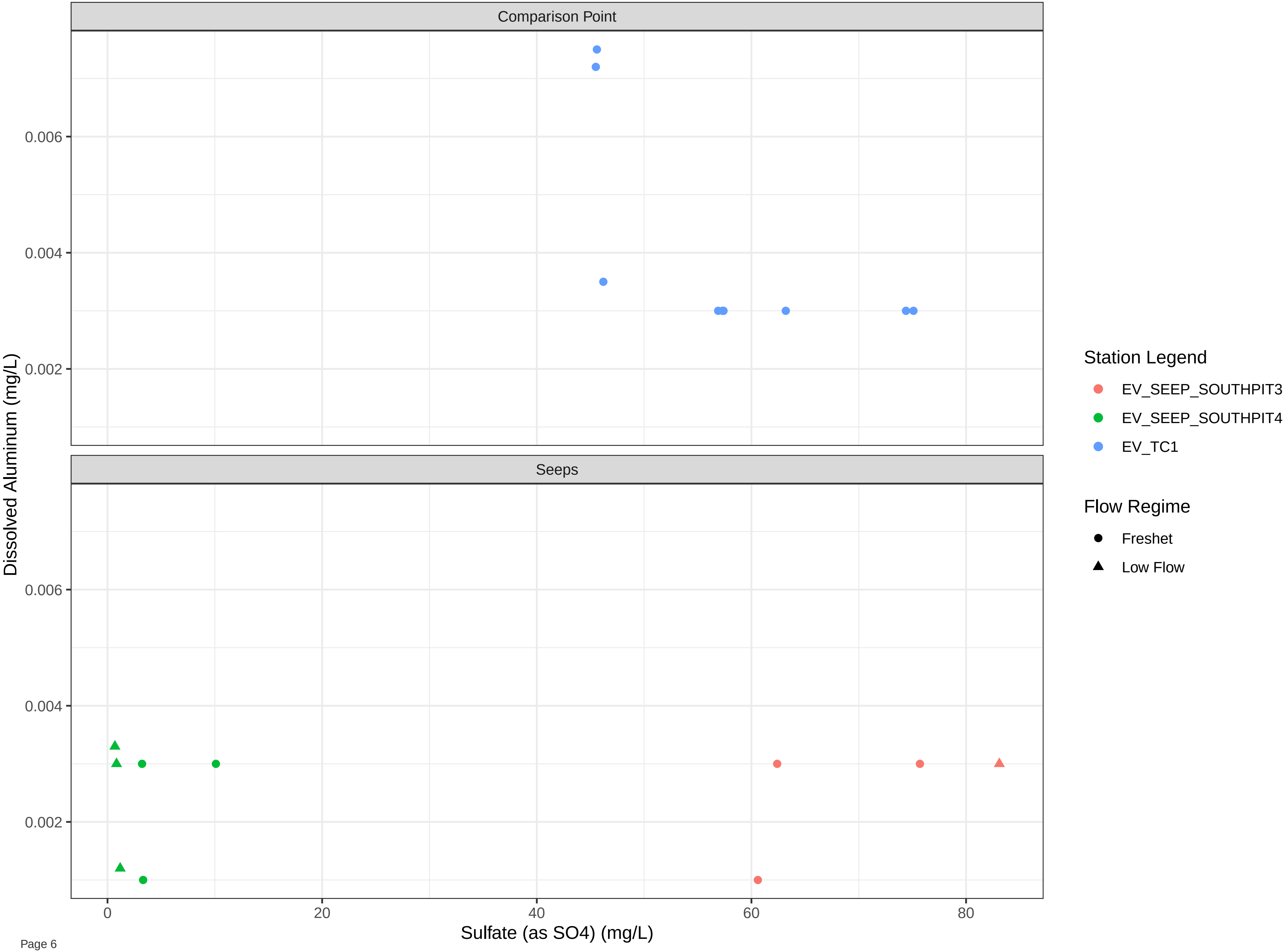

Comparison Point
Seeps
Dissolved Aluminum (mg/L)
0.0
0.1
0.2
0.3
Sulfate (as SO4) (mg/L)
0
500
1000
1500
2000
2500
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

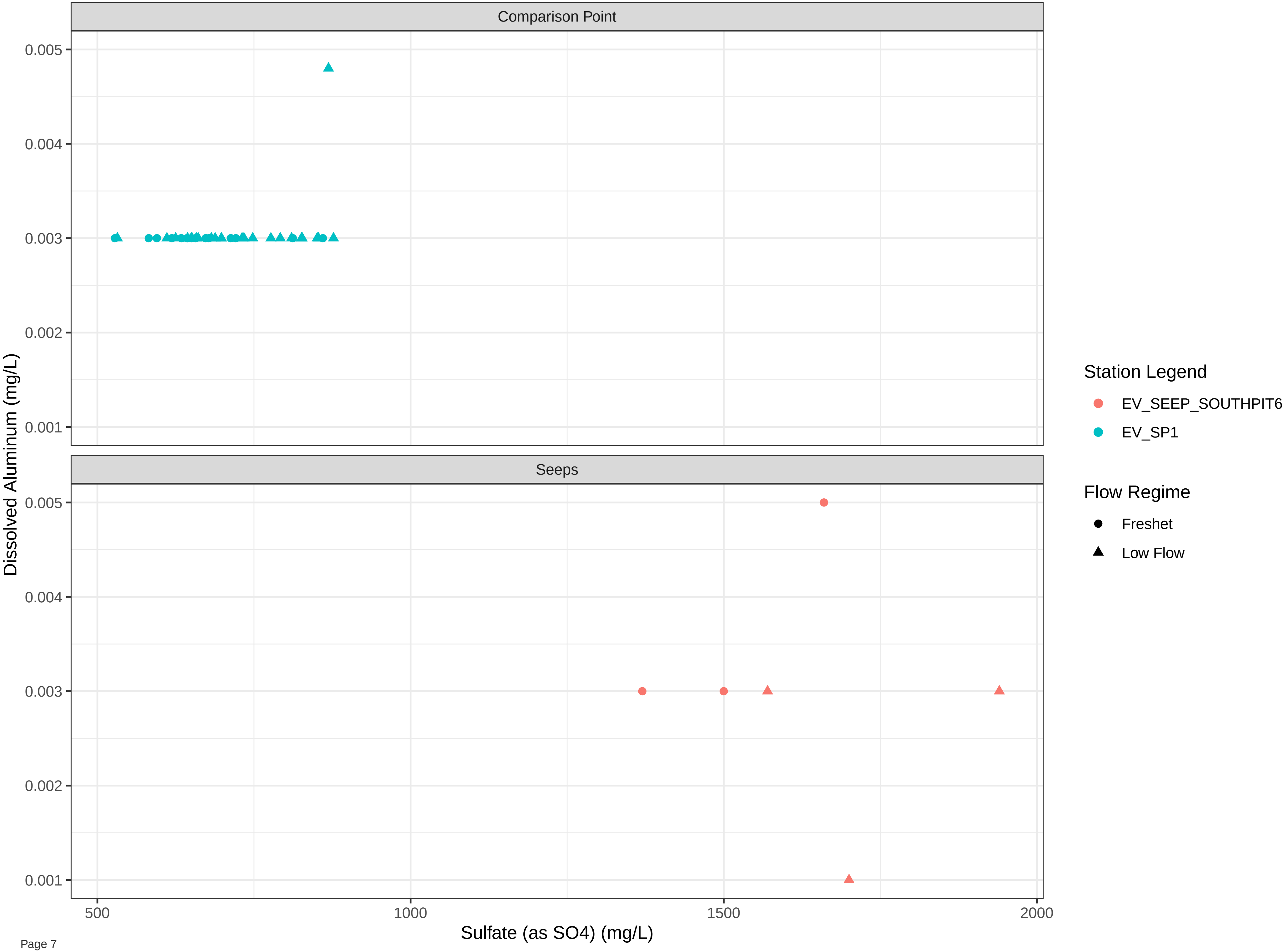

Comparison Point
Seeps
Dissolved Aluminum (mg/L)
0.005
0.004
0.003
0.002
0.001
0
200
400
Sulfate (as SO4) (mg/L)
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

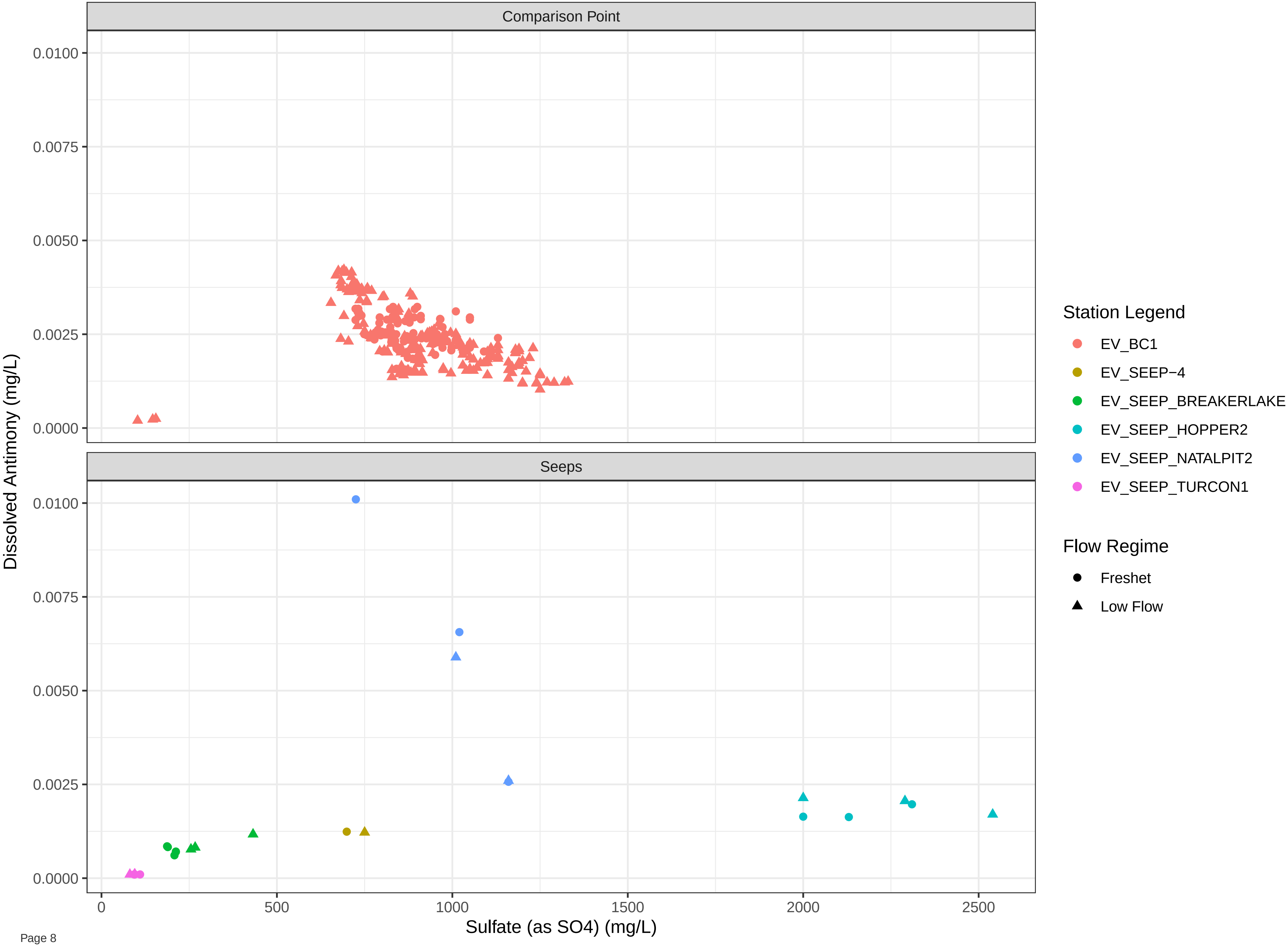

Comparison Point
Seeps
Dissolved Aluminum (mg/L)
0.0
0.2
0.4
0.6
Sulfate (as SO4) (mg/L)
0
250
500
750
Station Legend
● EV_GC2
● EV_SEEP_PLANT10
● EV_SEEP_PLANT23
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

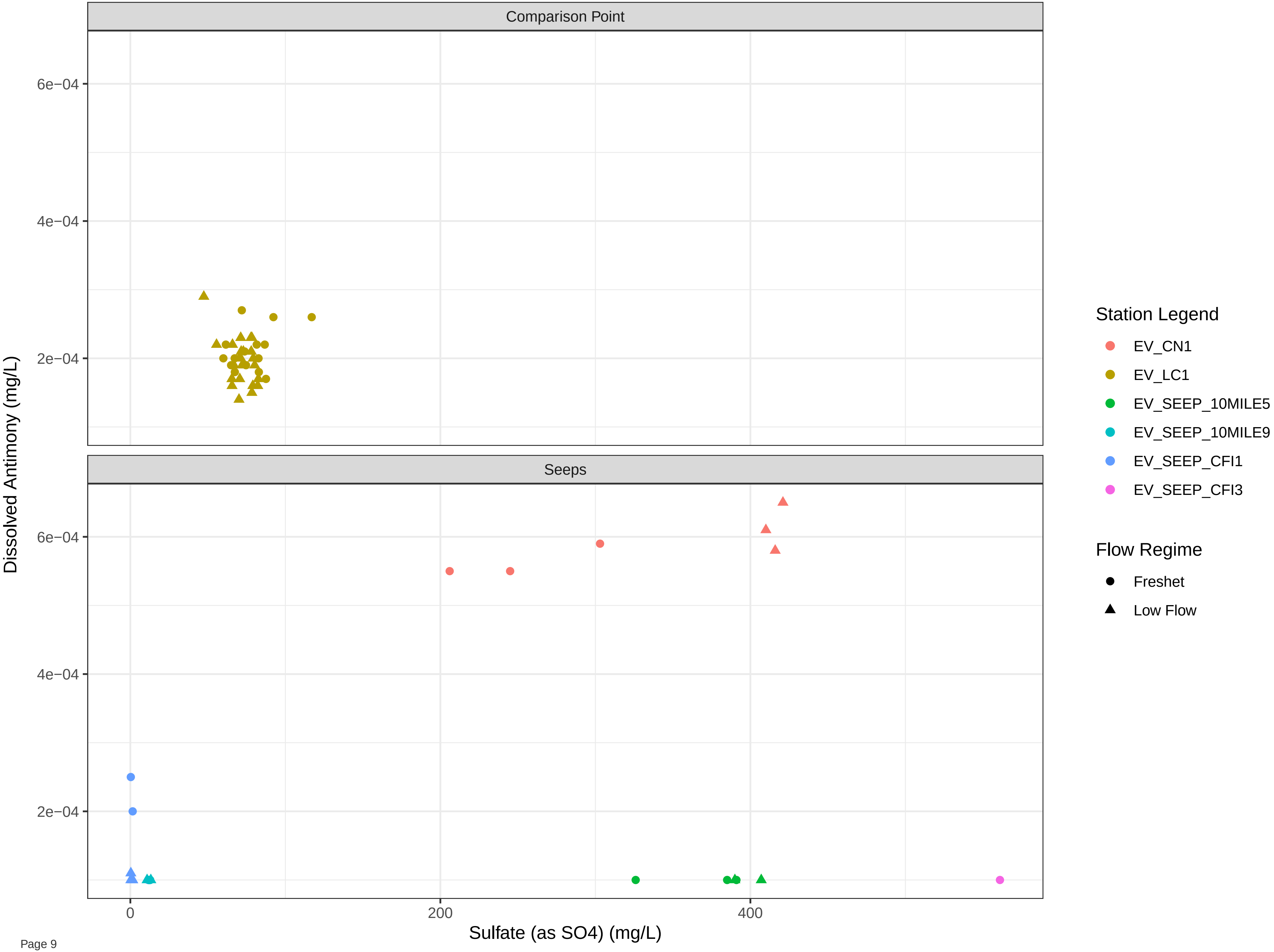

Comparison Point
Seeps
0.005
0.004
0.003
0.002
0.001
Dissolved Aluminum (mg/L)
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
0.15
0.10
0.05
0.00
Dissolved Aluminum (mg/L)
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

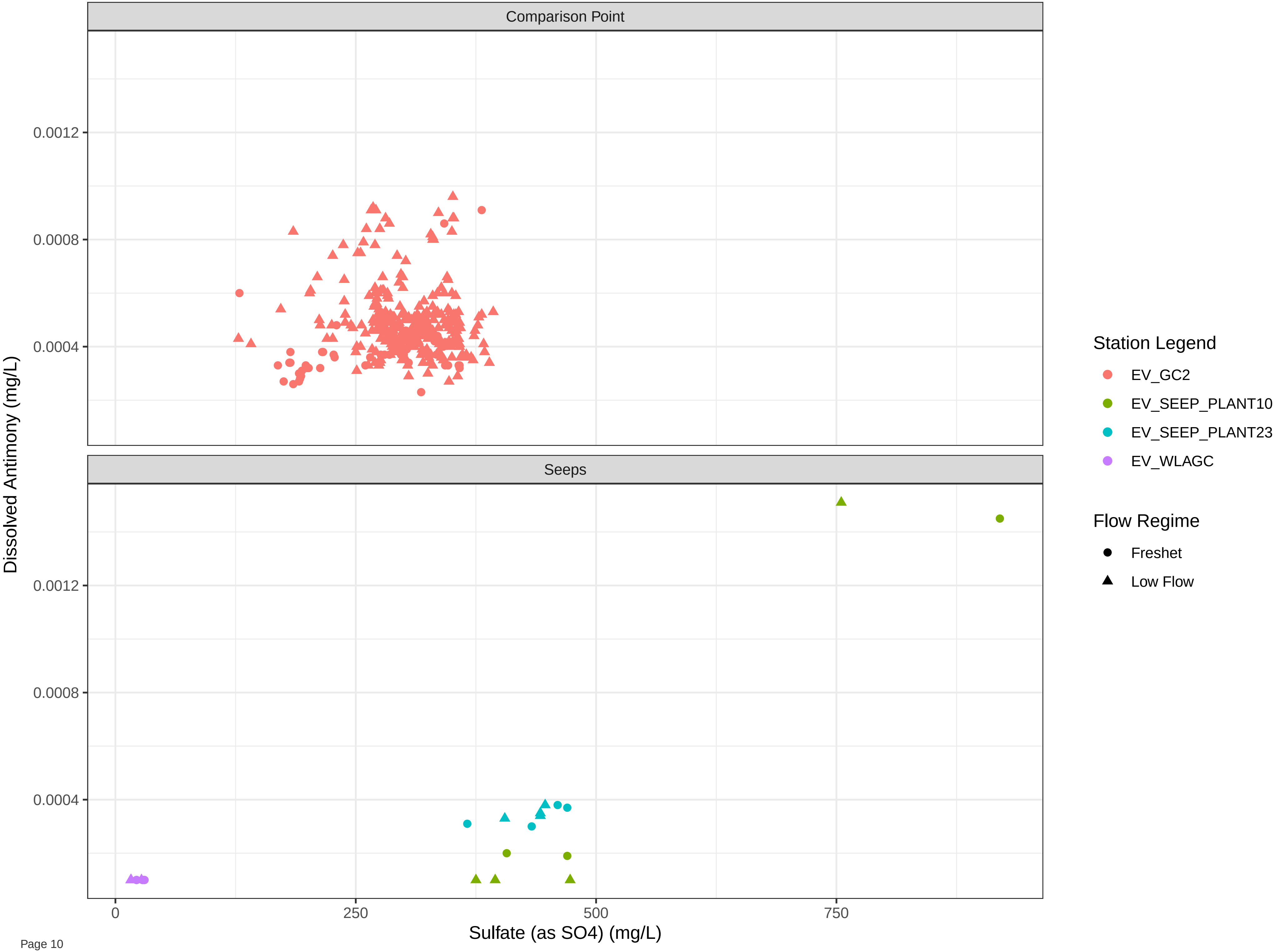

Comparison Point
Seeps
Dissolved Aluminum (mg/L)
0.006
0.004
0.002
0.006
0.004
0.002
0
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

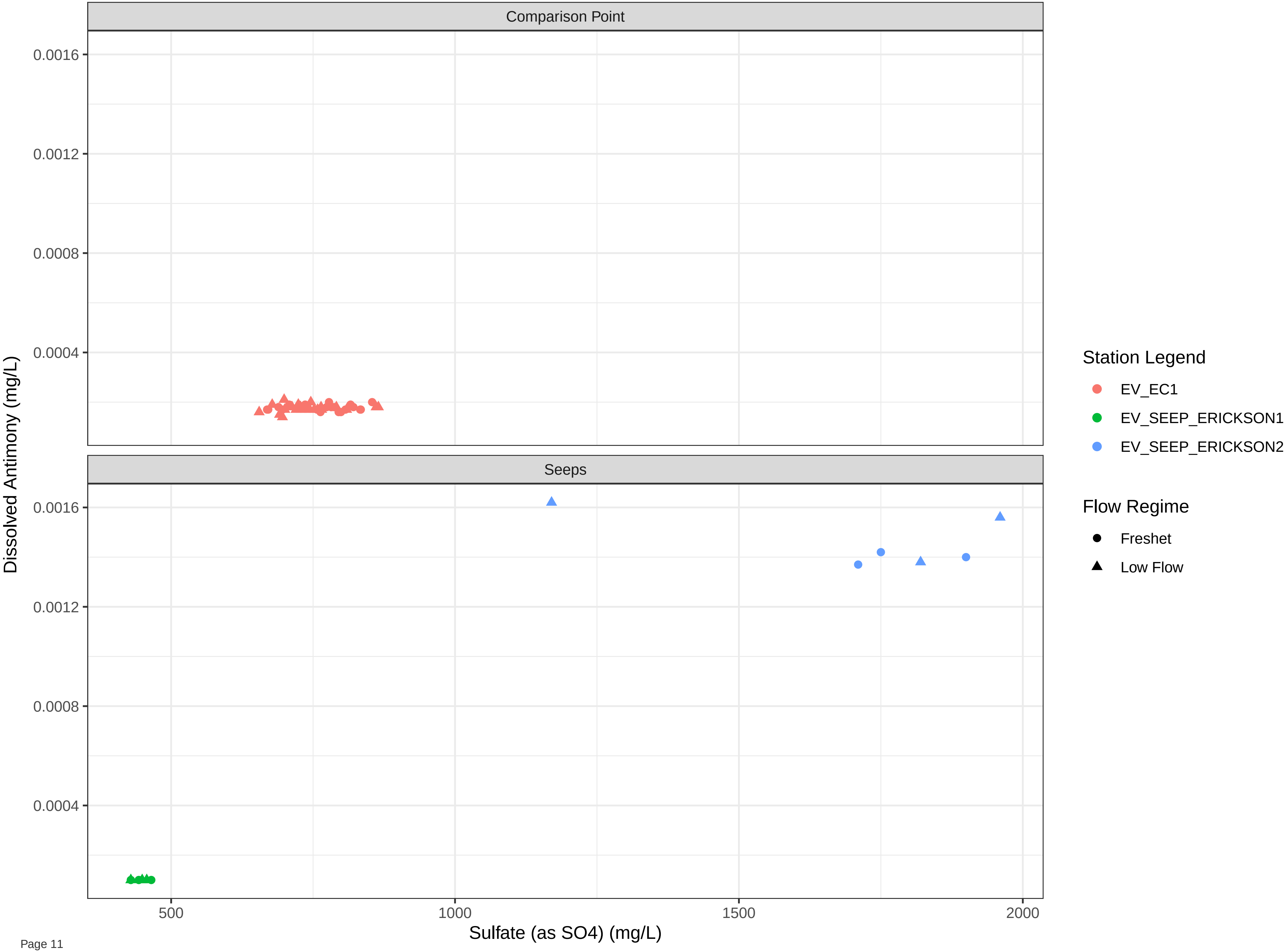

Comparison Point
Seeps
Dissolved Aluminum (mg/L)
0.005
0.004
0.003
0.002
0.001
Sulfate (as SO4) (mg/L)
500
1000
1500
2000
Station Legend
EV_SEEP_SOUTHPIT6
EV_SP1
Flow Regime
Freshet
Low Flow

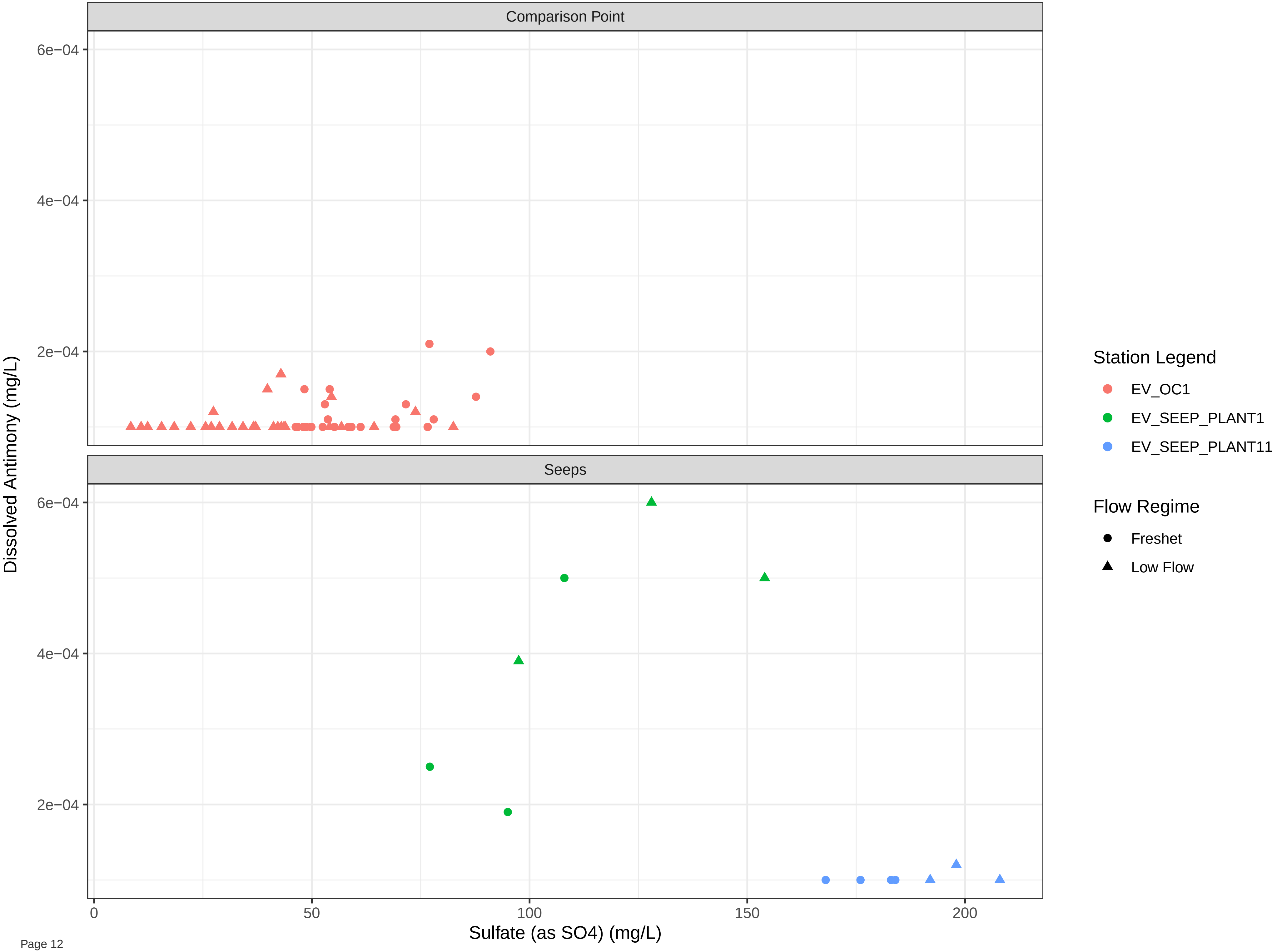

Comparison Point
Seeps
Dissolved Antimony (mg/L)
0.0000
0.0025
0.0050
0.0075
0.0100
Sulfate (as SO4) (mg/L)
0
500
1000
1500
2000
2500
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

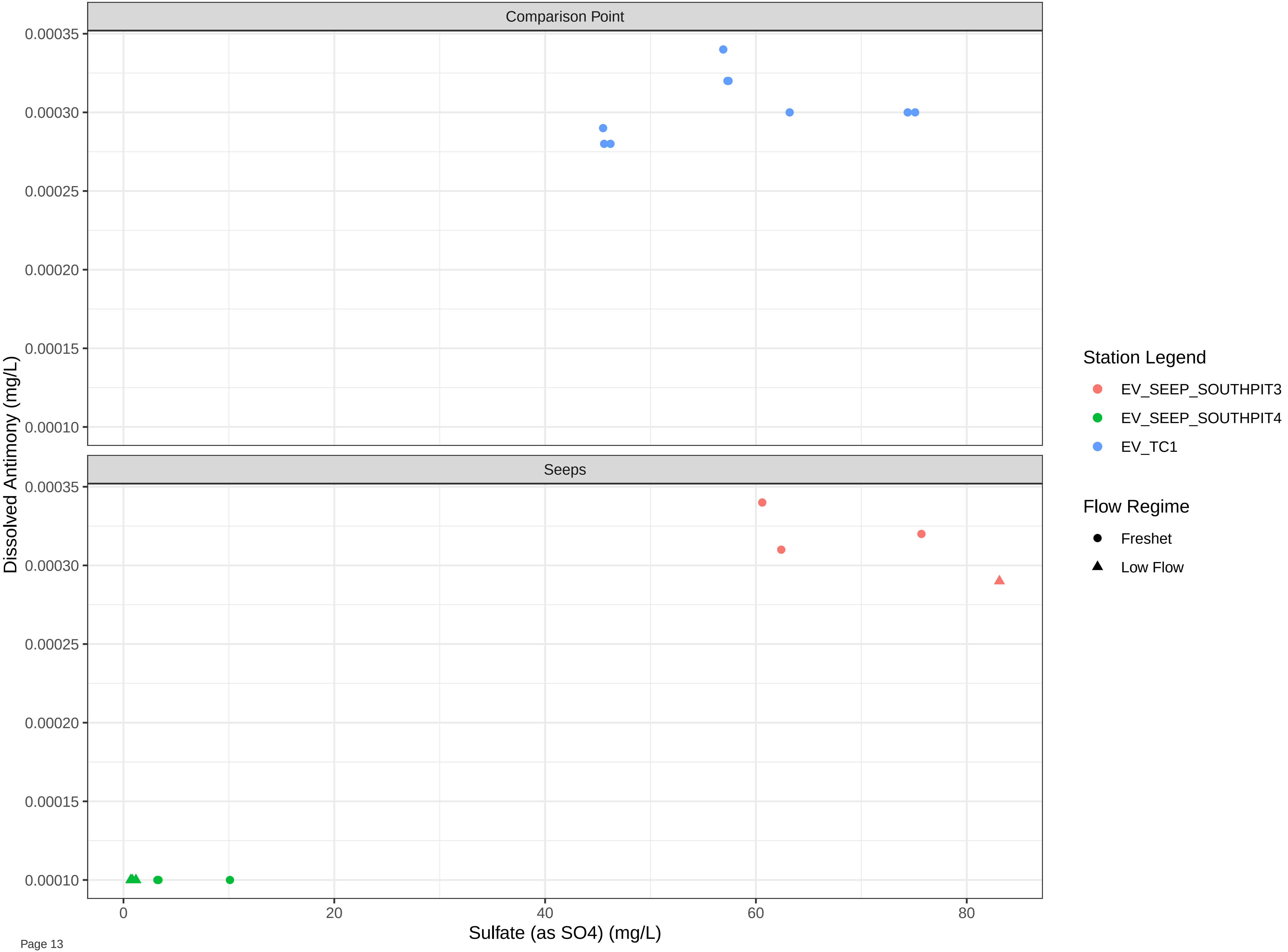


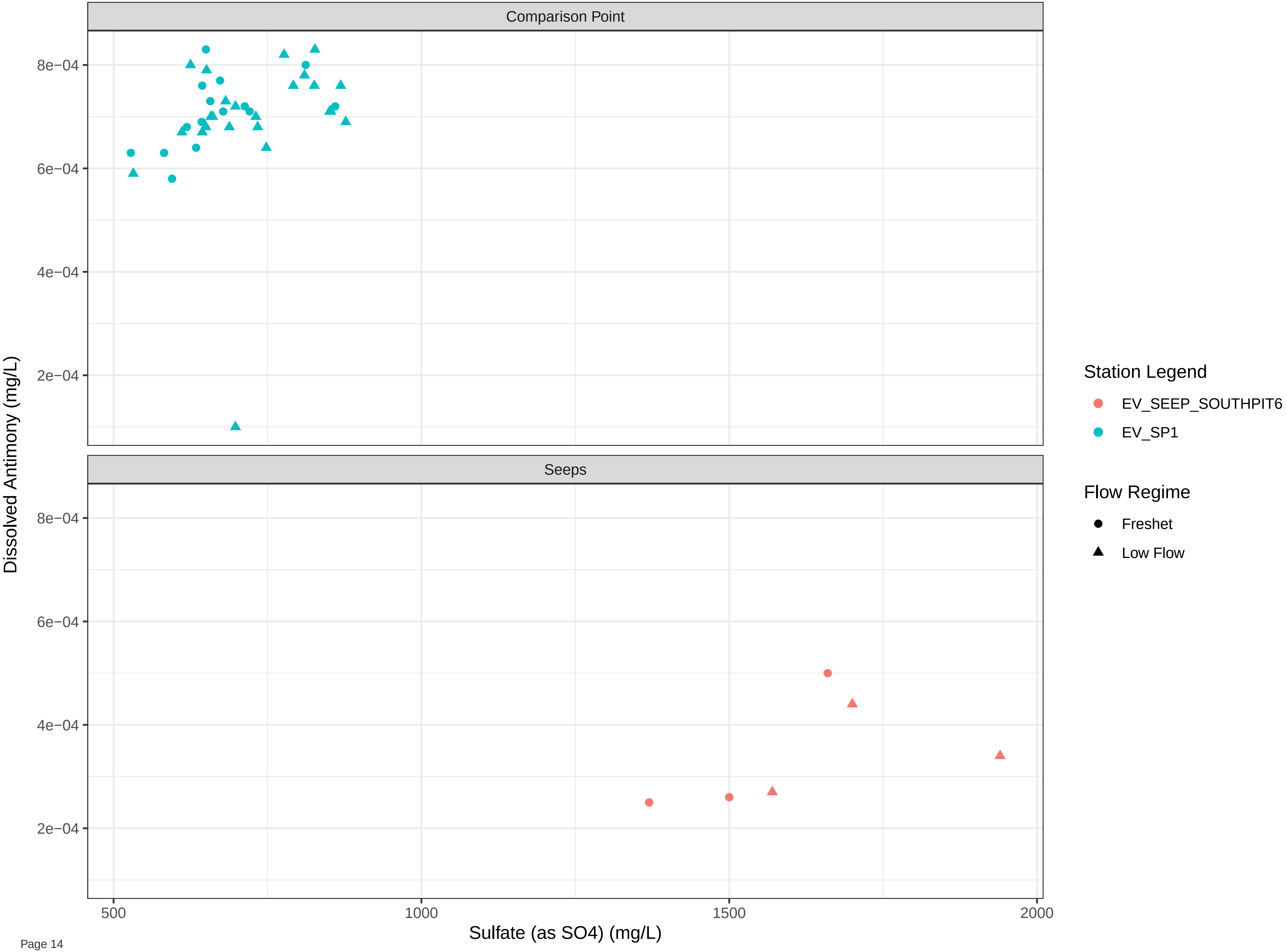
Comparison Point
Seeps
6e−04
4e−04
2e−04
Dissolved Antimony (mg/L)
0
200
400
Sulfate (as SO4) (mg/L)
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

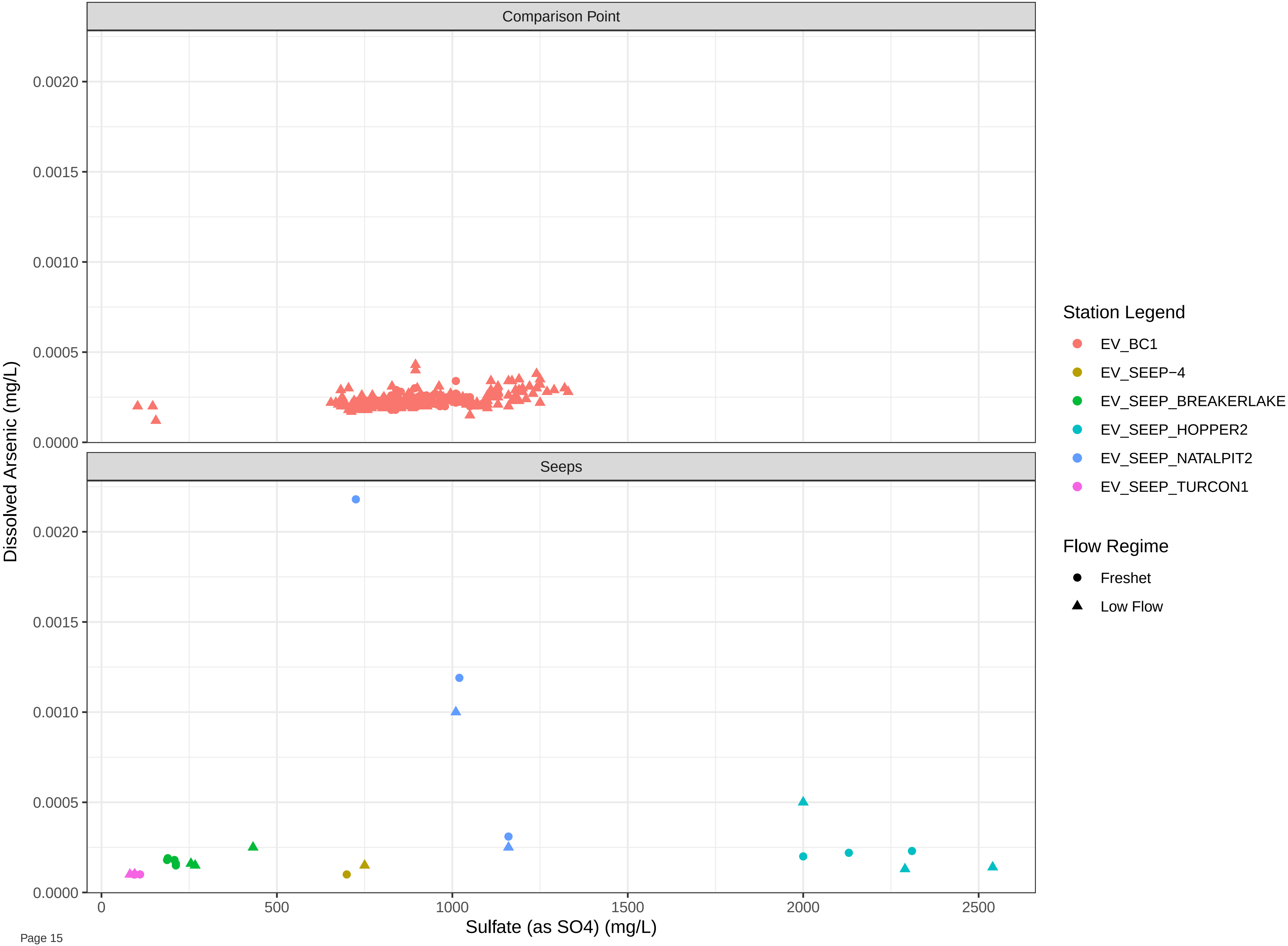

Comparison Point
Seeps
0.0012
0.0008
0.0004
0.0012
0.0008
0.0004
0
250
500
750
Sulfate (as SO4) (mg/L)
Dissolved Antimony (mg/L)
Station Legend
EV_GC2
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_WLAGC
Flow Regime
Freshet
Low Flow

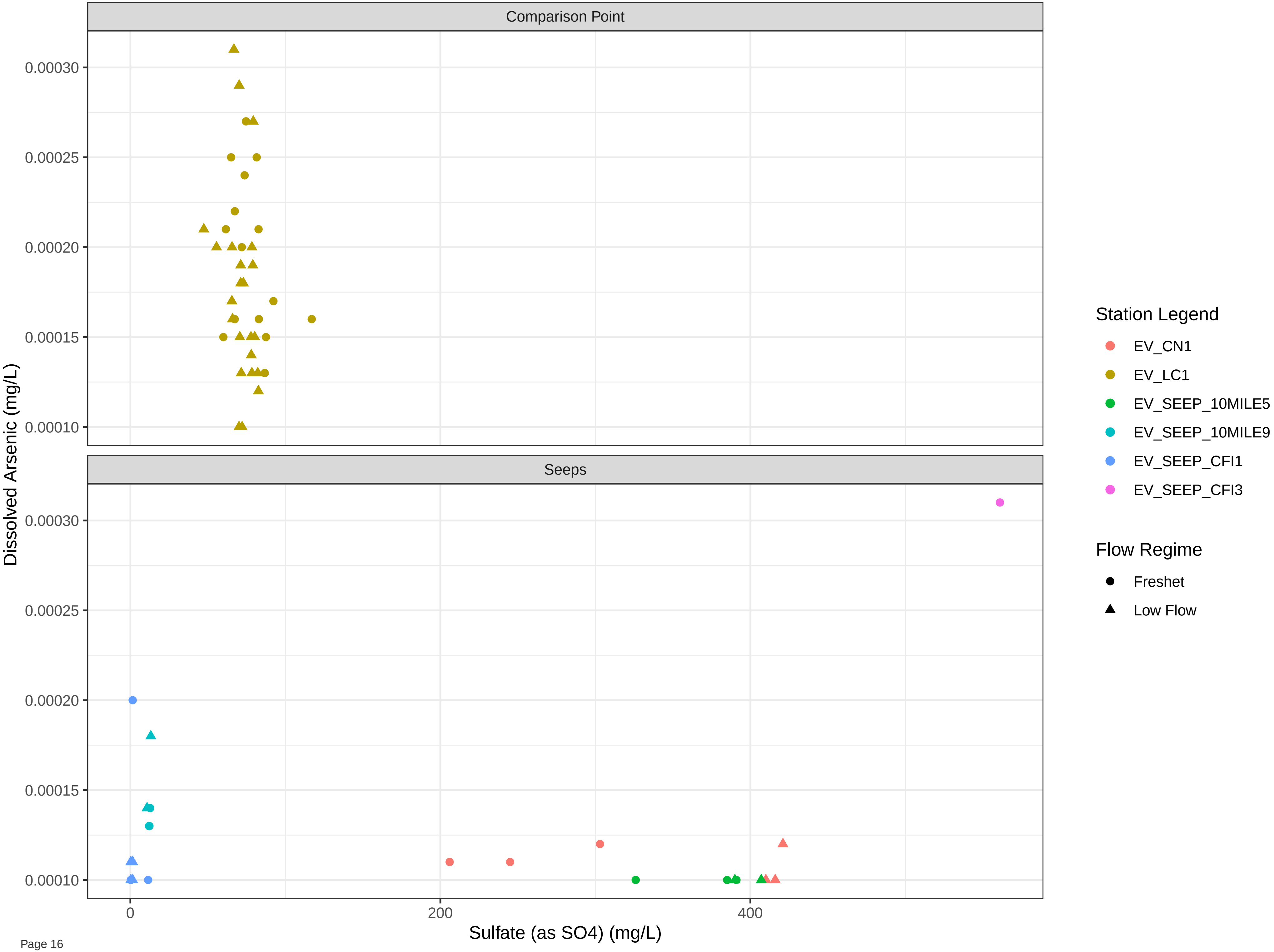

Comparison Point
Seeps
Dissolved Antimony (mg/L)
0.0016
0.0012
0.0008
0.0004
0.0016
0.0012
0.0008
0.0004
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

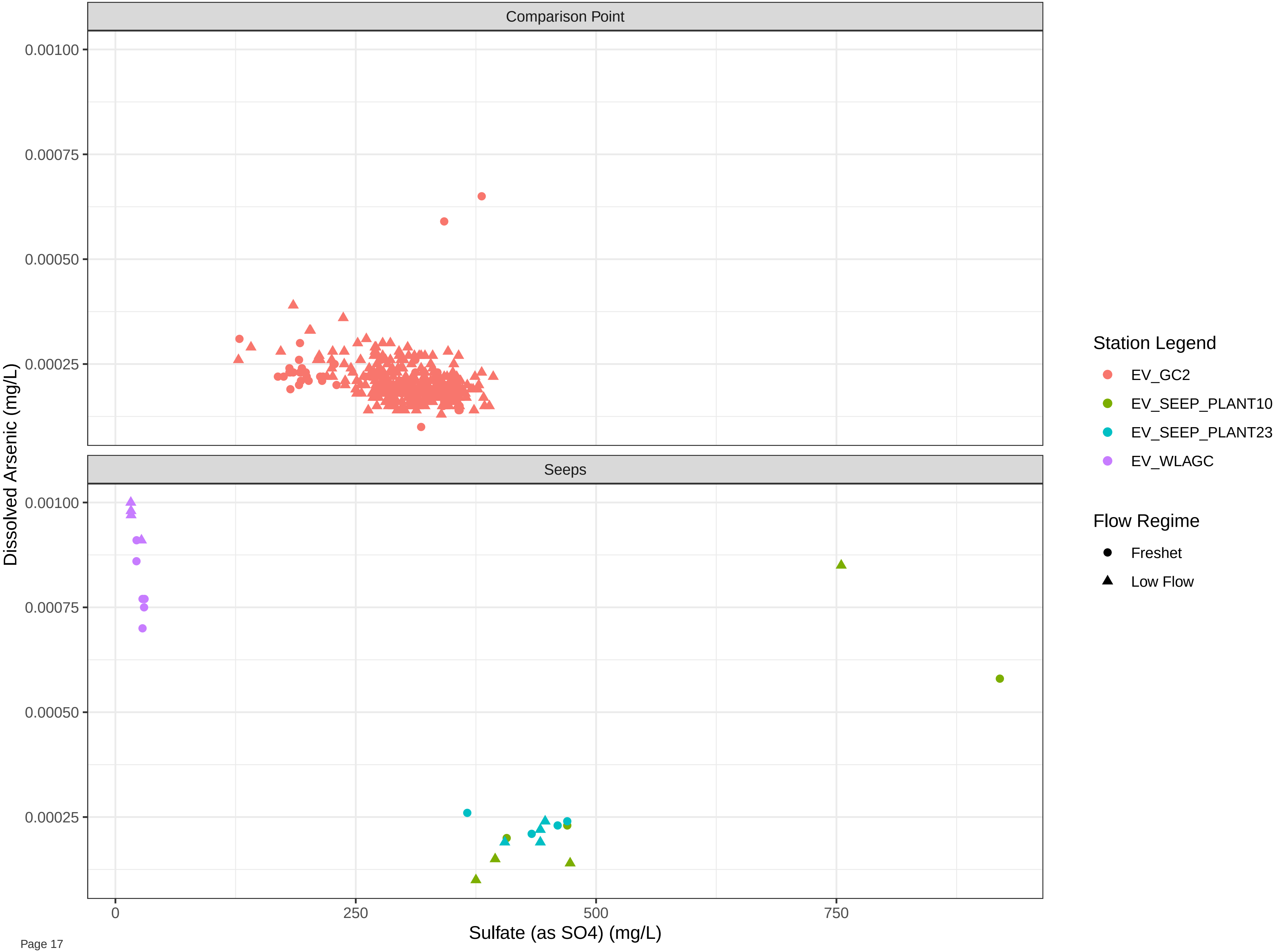

Comparison Point
Seeps
Dissolved Antimony (mg/L)
6e−04
4e−04
2e−04
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

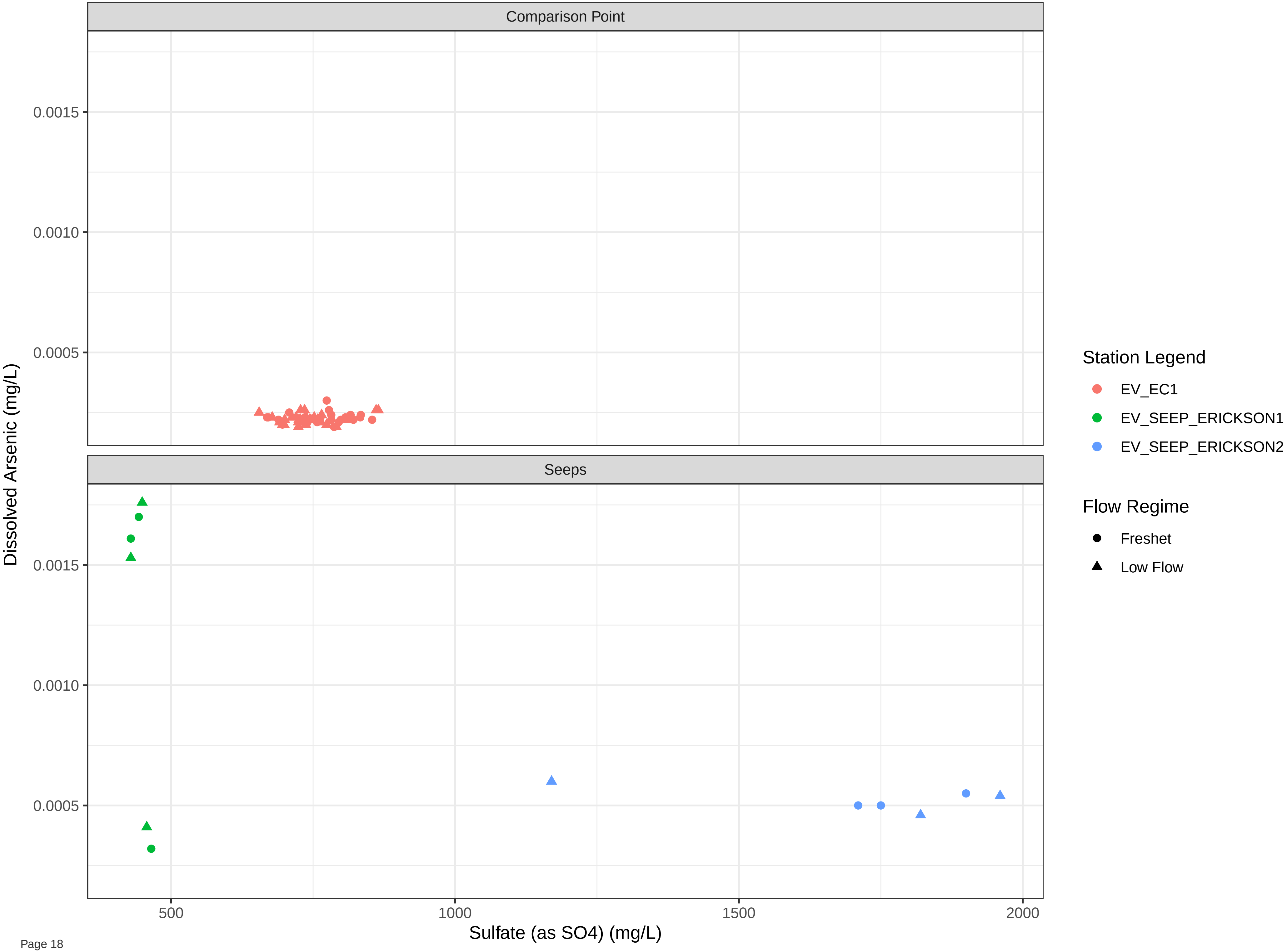

Comparison Point
Seeps
Dissolved Antimony (mg/L)
0.00035
0.00030
0.00025
0.00020
0.00015
0.00010
0
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

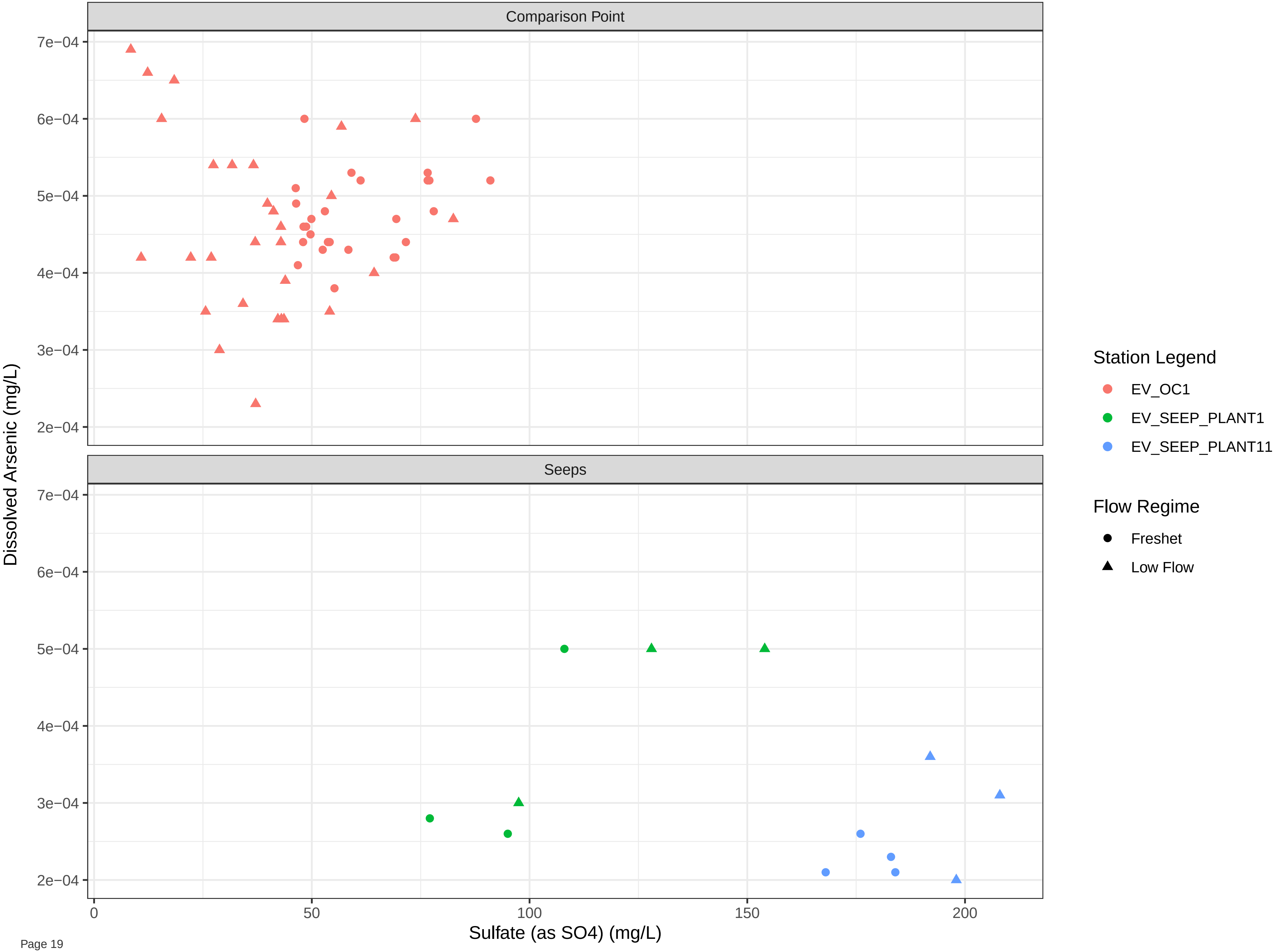

Comparison Point
Seeps
Dissolved Antimony (mg/L)
8e−04
6e−04
4e−04
2e−04
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
EV_SP1
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
Dissolved Arsenic (mg/L)
0.0000
0.0005
0.0010
0.0015
0.0020
Sulfate (as SO4) (mg/L)
0
500
1000
1500
2000
2500
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

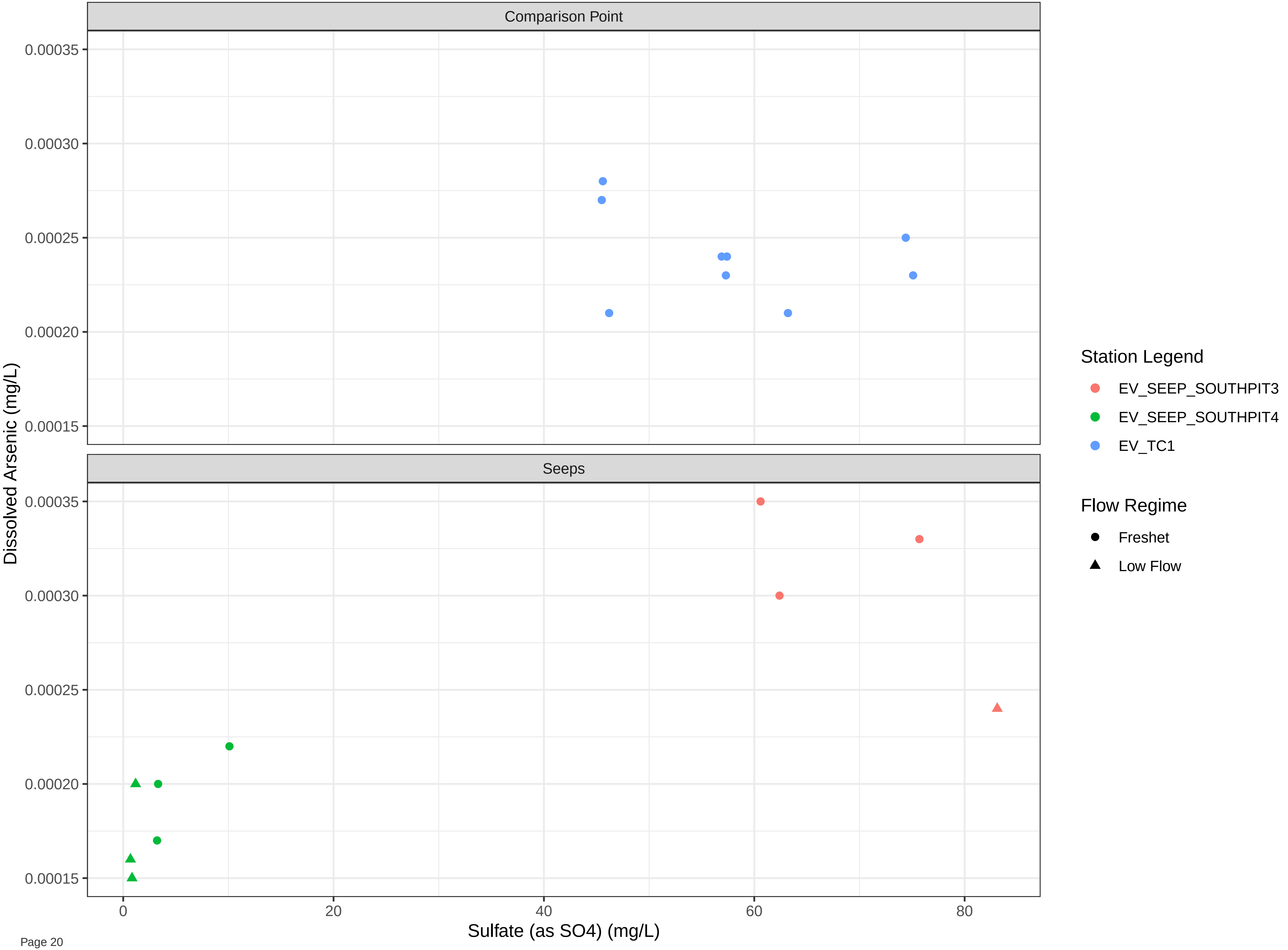

Comparison Point
Seeps
Dissolved Arsenic (mg/L)
0.00030
0.00025
0.00020
0.00015
0.00010
0
200
400
Sulfate (as SO4) (mg/L)
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

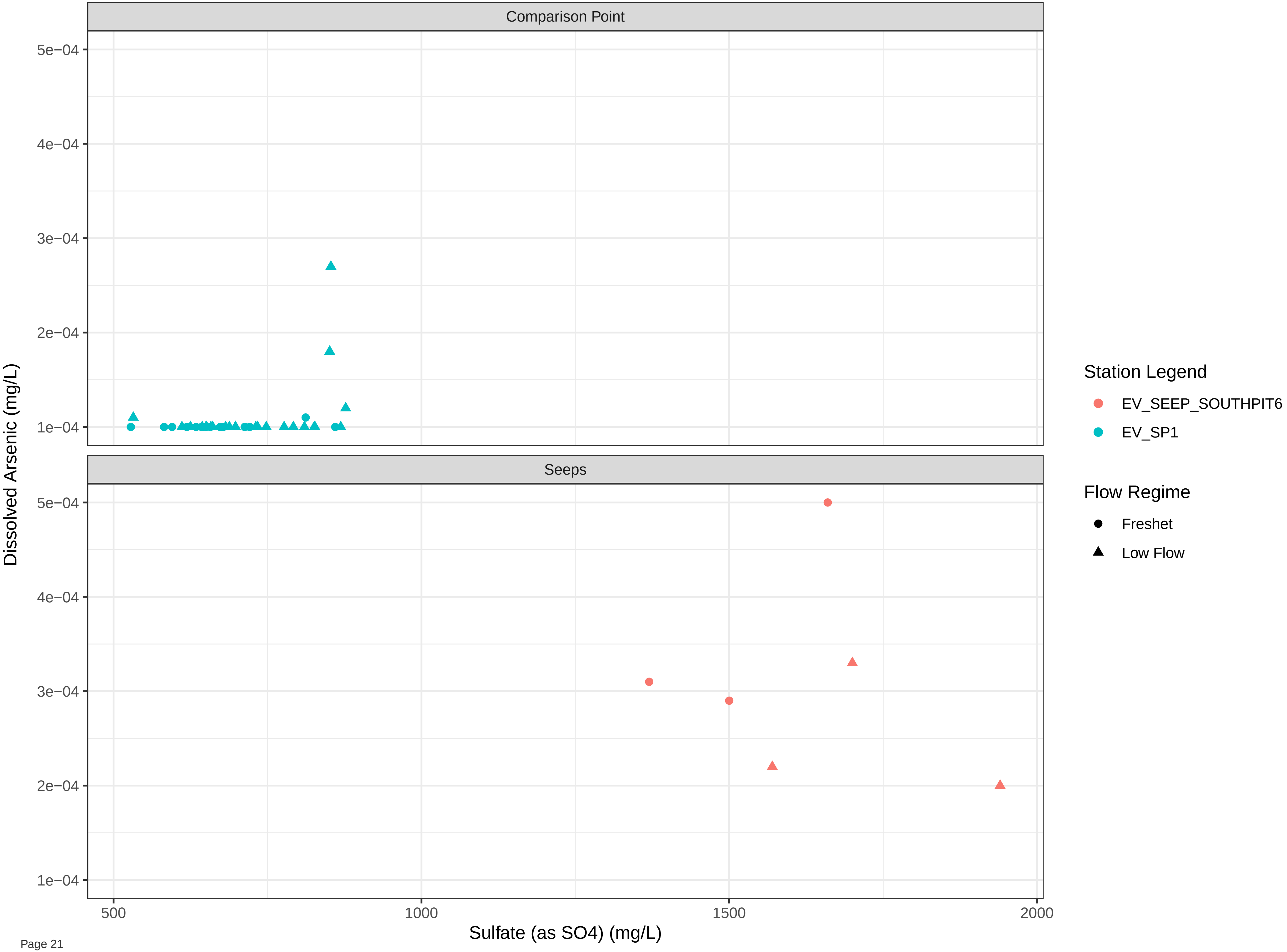

Comparison Point
Seeps
Dissolved Arsenic (mg/L)
0.00100
0.00075
0.00050
0.00025
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
● EV_GC2
● EV_SEEP_PLANT10
● EV_SEEP_PLANT23
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

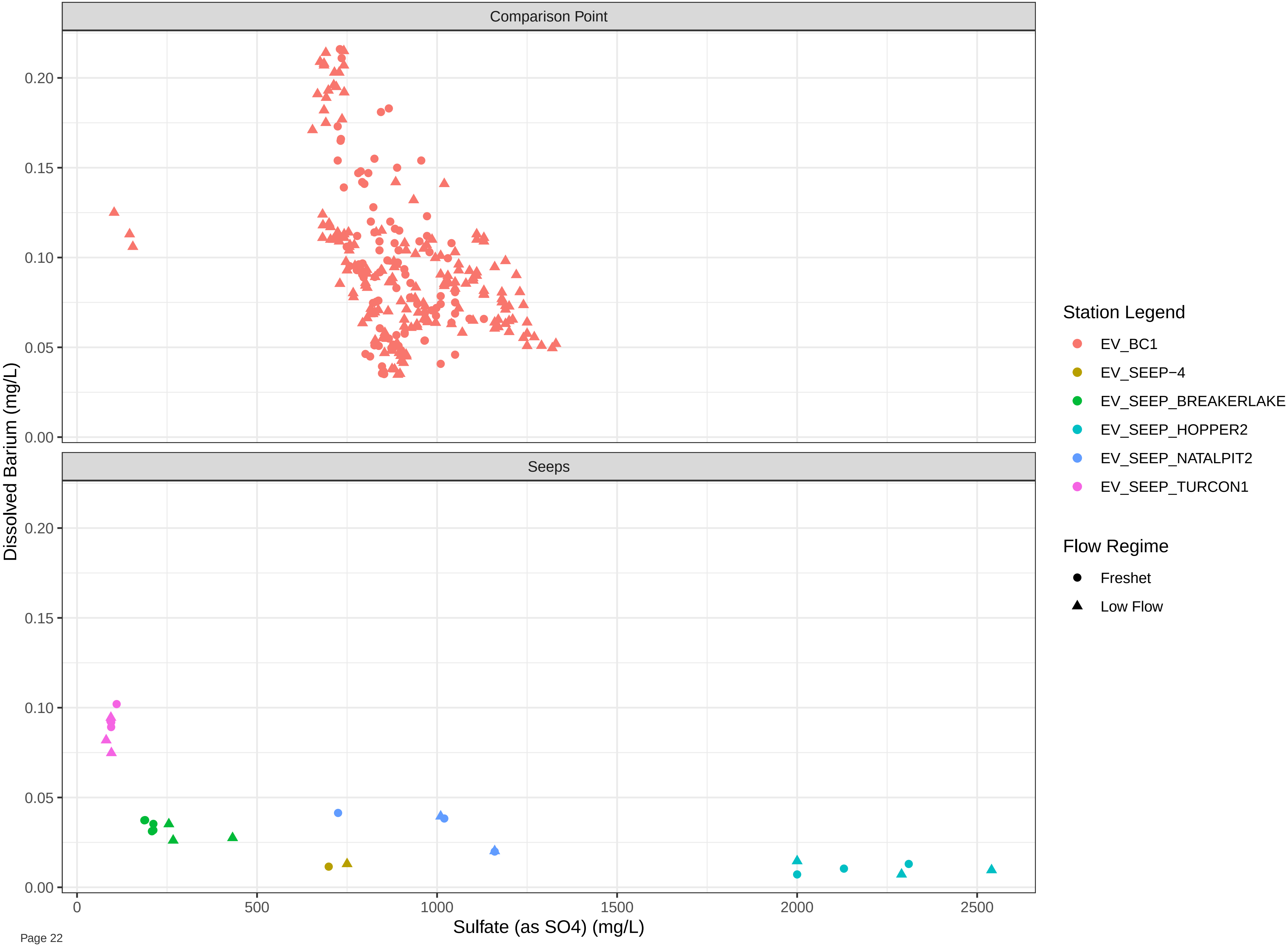

Comparison Point
Seeps
0.0015
0.0010
0.0005
Dissolved Arsenic (mg/L)
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow



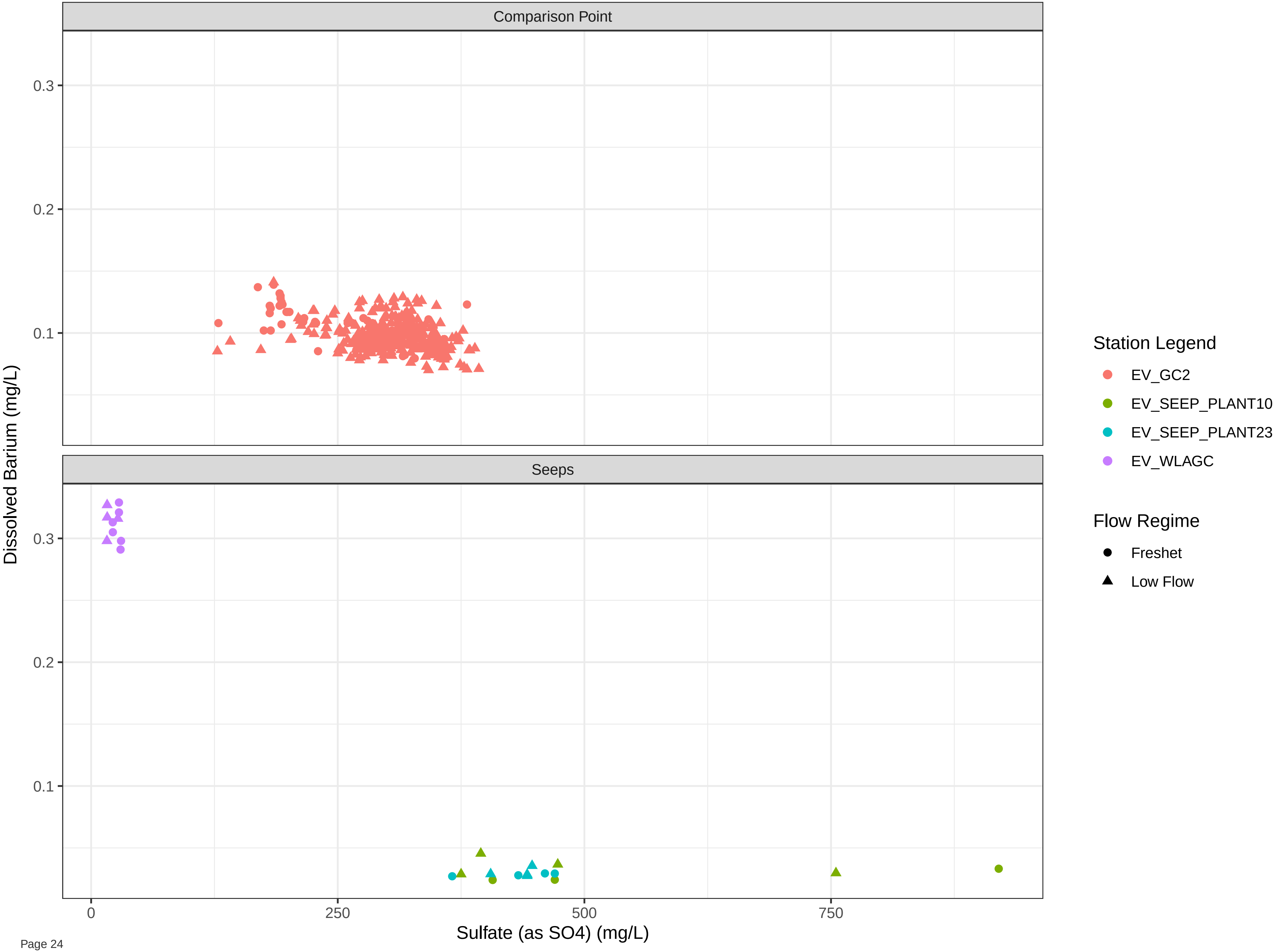
Comparison Point
Seeps
7e−04
6e−04
5e−04
4e−04
3e−04
2e−04
Dissolved Arsenic (mg/L)
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

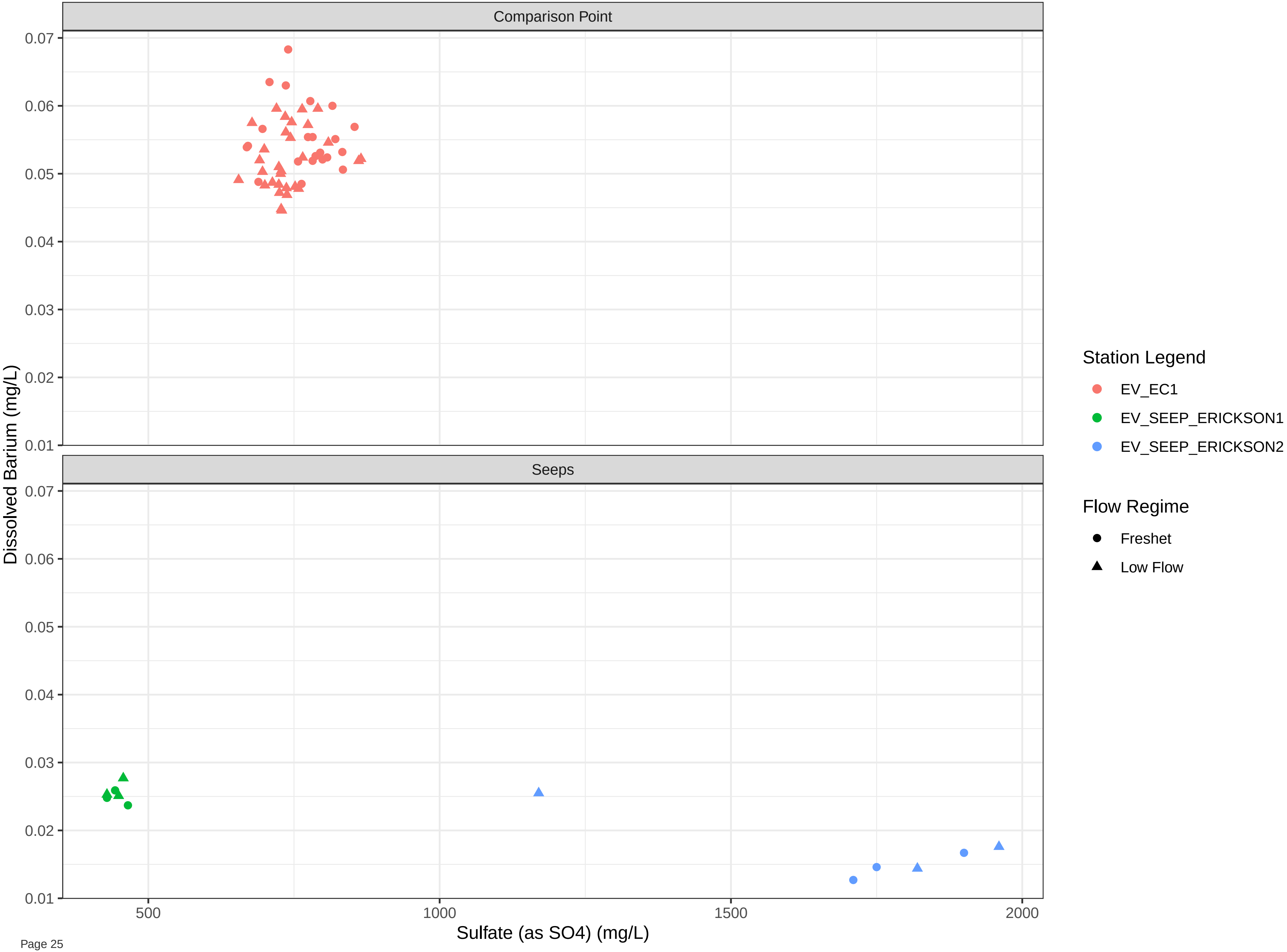

Comparison Point
Seeps
Dissolved Arsenic (mg/L)
0.00035
0.00030
0.00025
0.00020
0.00015
Sulfate (as SO4) (mg/L)
0
20
40
60
80
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

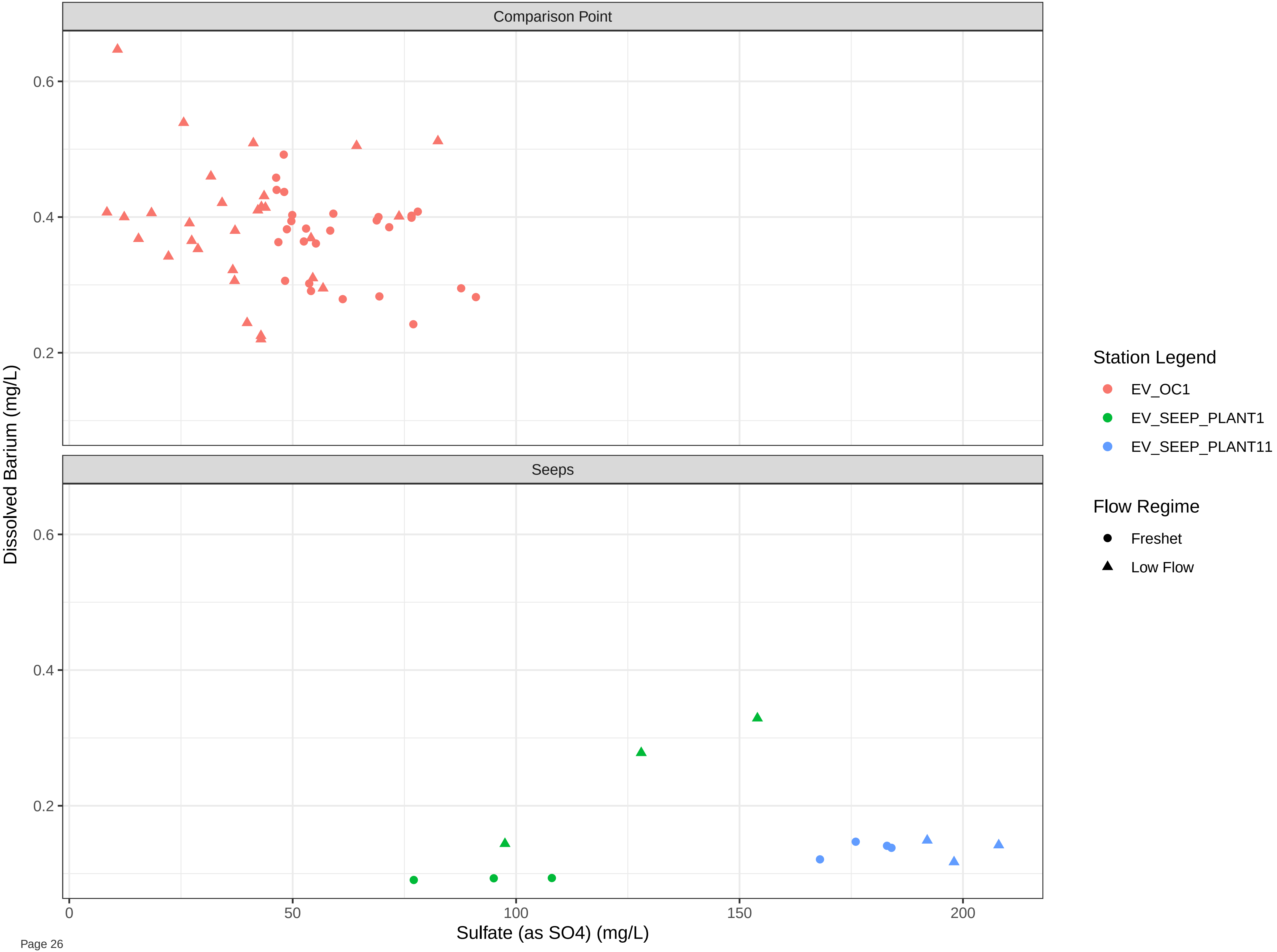

Comparison Point
Seeps
5e−04
4e−04
3e−04
2e−04
1e−04
Dissolved Arsenic (mg/L)
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT6
● EV_SP1
Flow Regime
● Freshet
▲ Low Flow

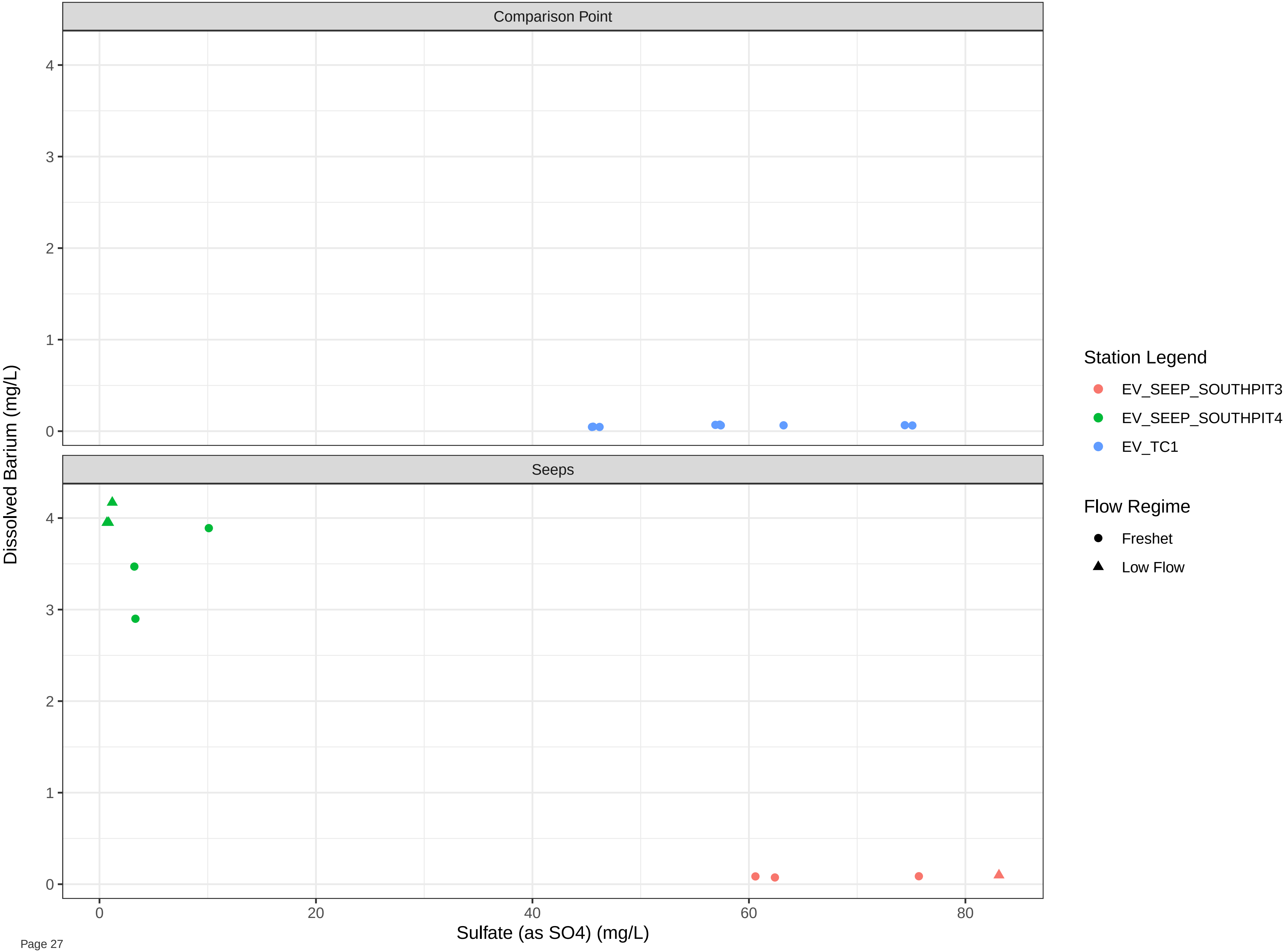

Comparison Point
Seeps
Dissolved Barium (mg/L)
0.00
0.05
0.10
0.15
0.20
Sulfate (as SO4) (mg/L)
0
500
1000
1500
2000
2500
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

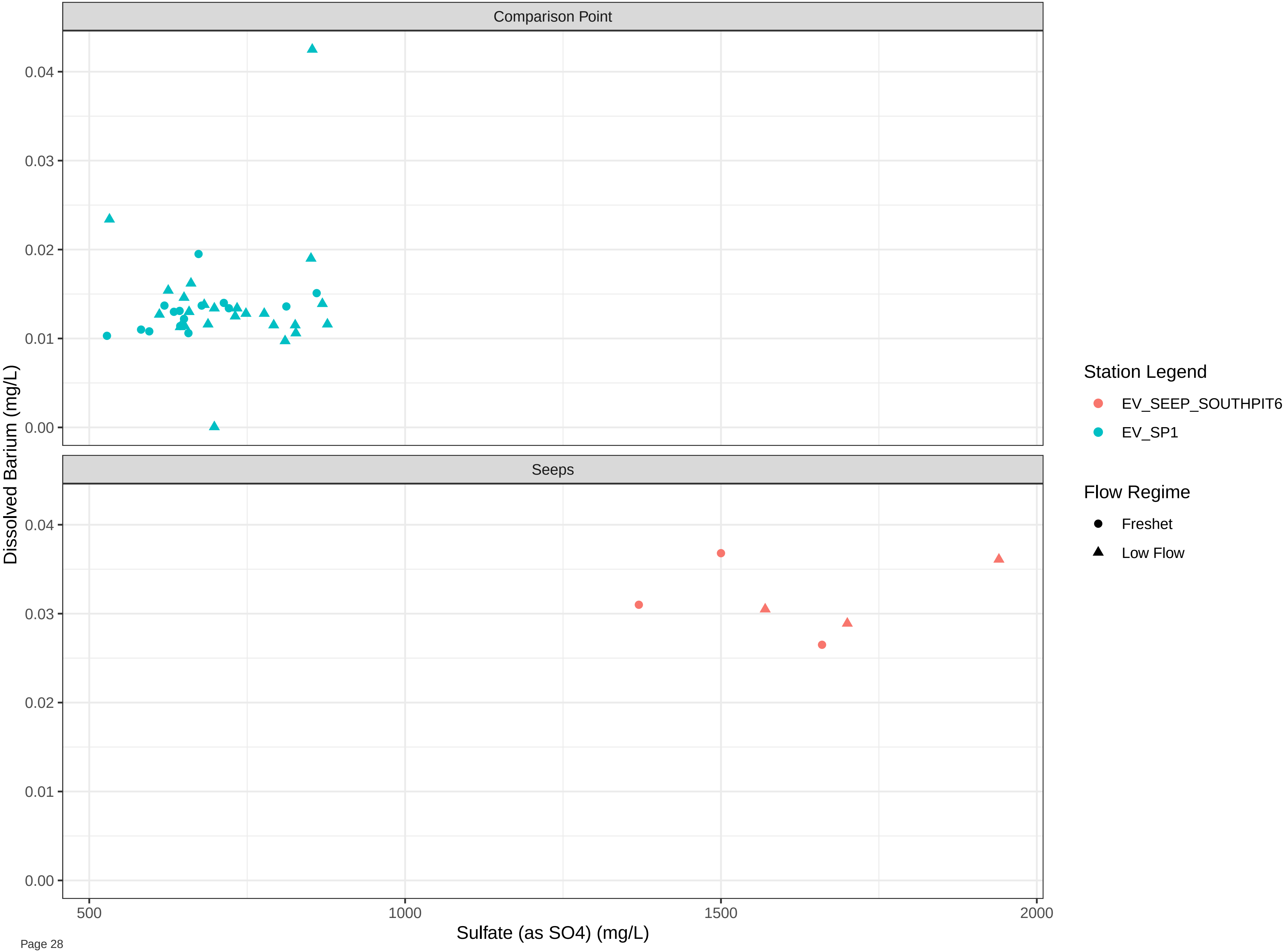

Comparison Point
Seeps
Dissolved Barium (mg/L)
Sulfate (as SO4) (mg/L)
0
1
2
3
0
200
400
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
Dissolved Barium (mg/L)
0.3
0.2
0.1
0.3
0.2
0.1
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
EV_GC2
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_WLAGC
Flow Regime
Freshet
Low Flow

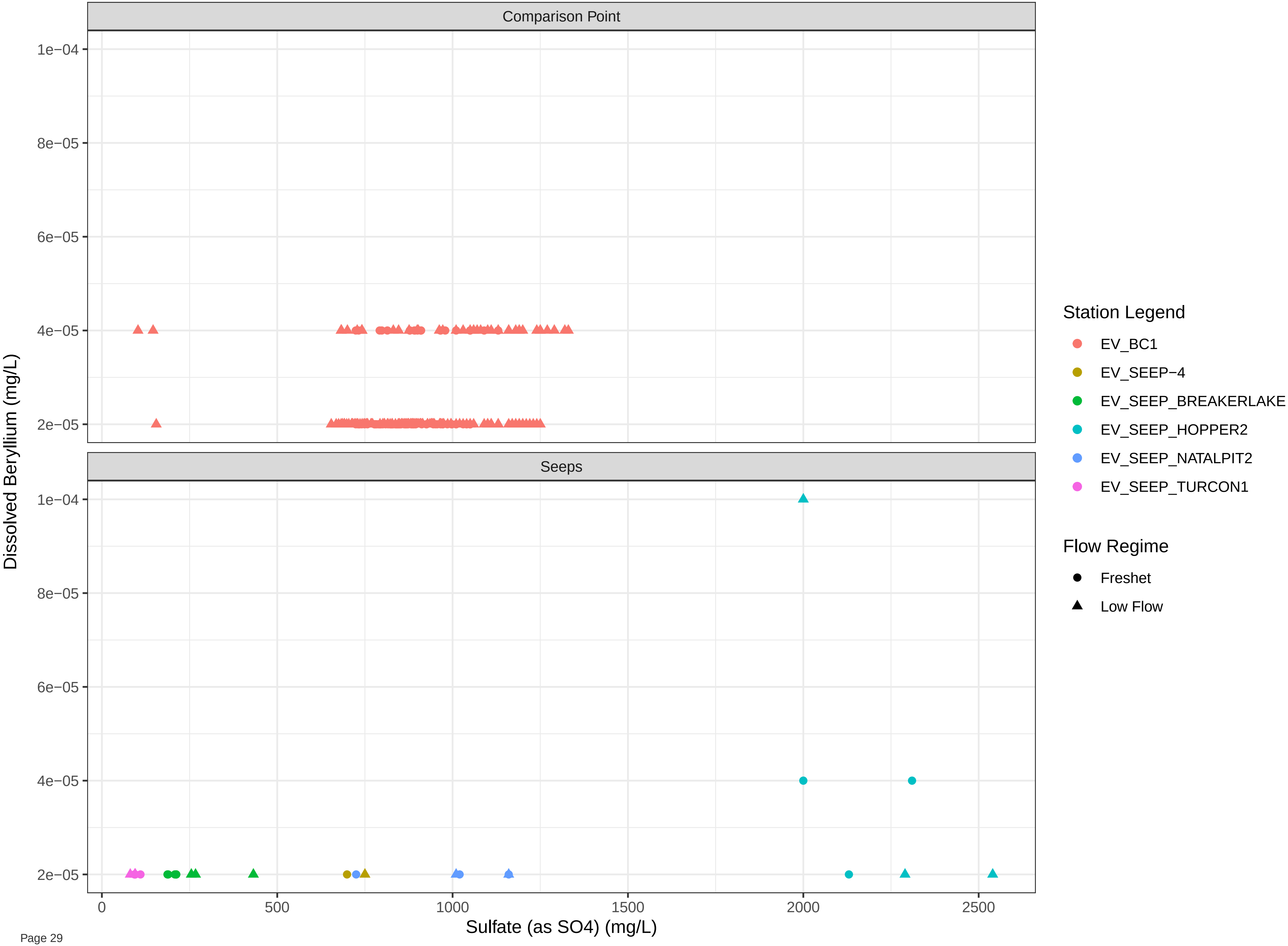

Comparison Point
Seeps
Dissolved Barium (mg/L)
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.07
0.06
0.05
0.04
0.03
0.02
0.01
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
Dissolved Barium (mg/L)
0.6
0.4
0.2
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

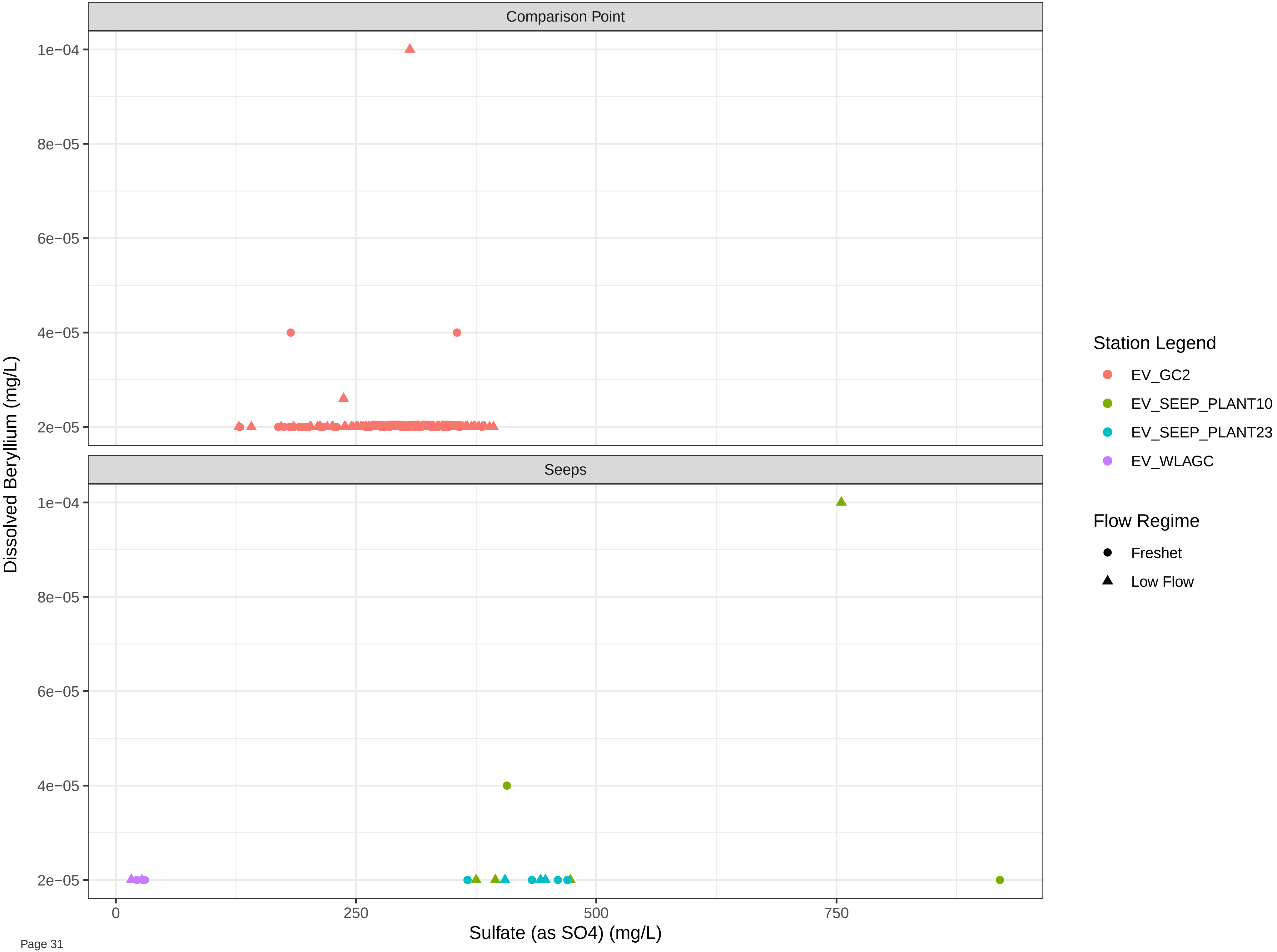

Comparison Point
Seeps
Dissolved Barium (mg/L)
Sulfate (as SO4) (mg/L)
0
1
2
3
4
0
20
40
60
80
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow



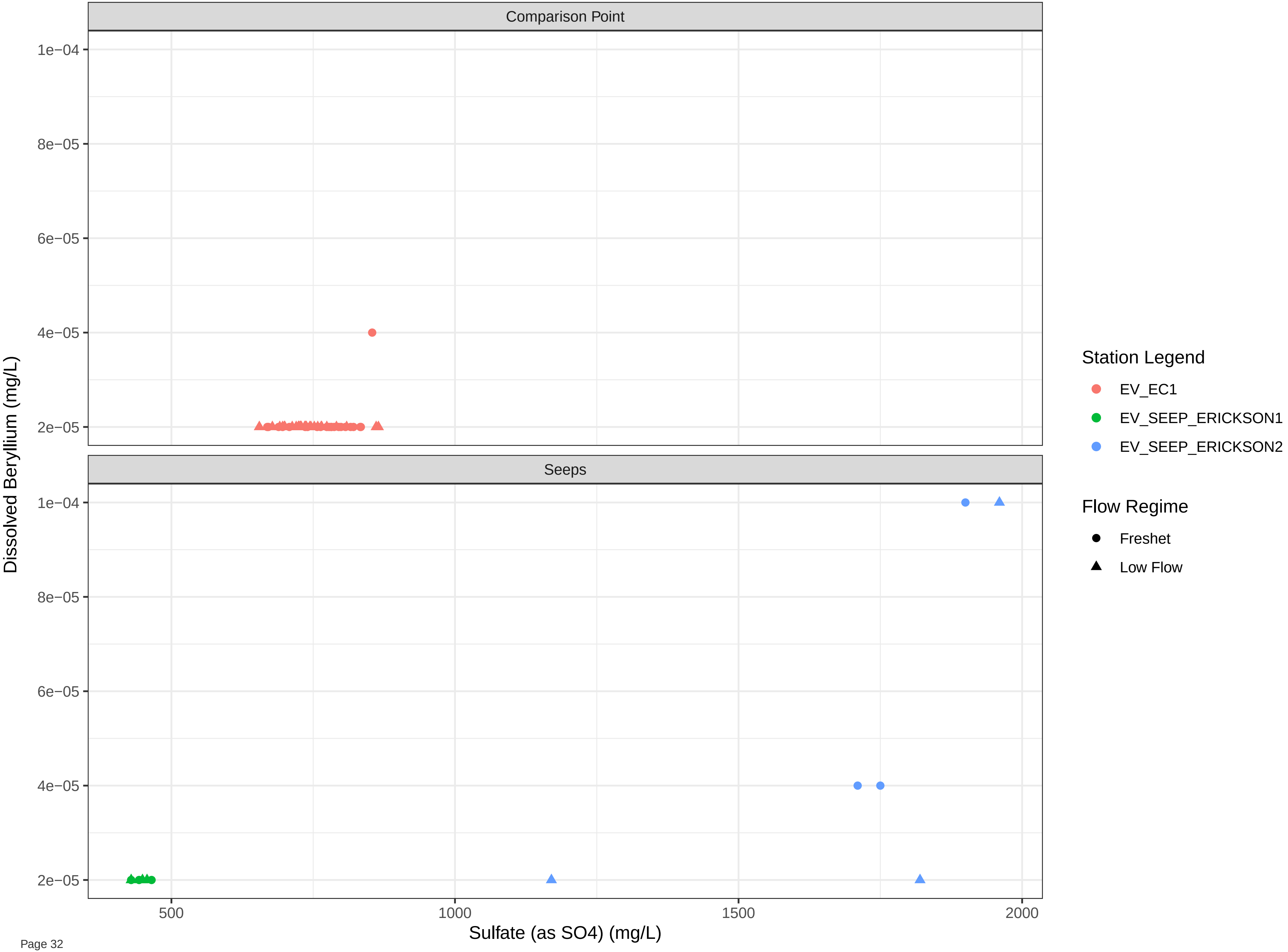
Comparison Point
Seeps
Dissolved Barium (mg/L)
0.00
0.01
0.02
0.03
0.04
Sulfate (as SO4) (mg/L)
500
1000
1500
2000
Station Legend
EV_SEEP_SOUTHPIT6
EV_SP1
Flow Regime
Freshet
Low Flow

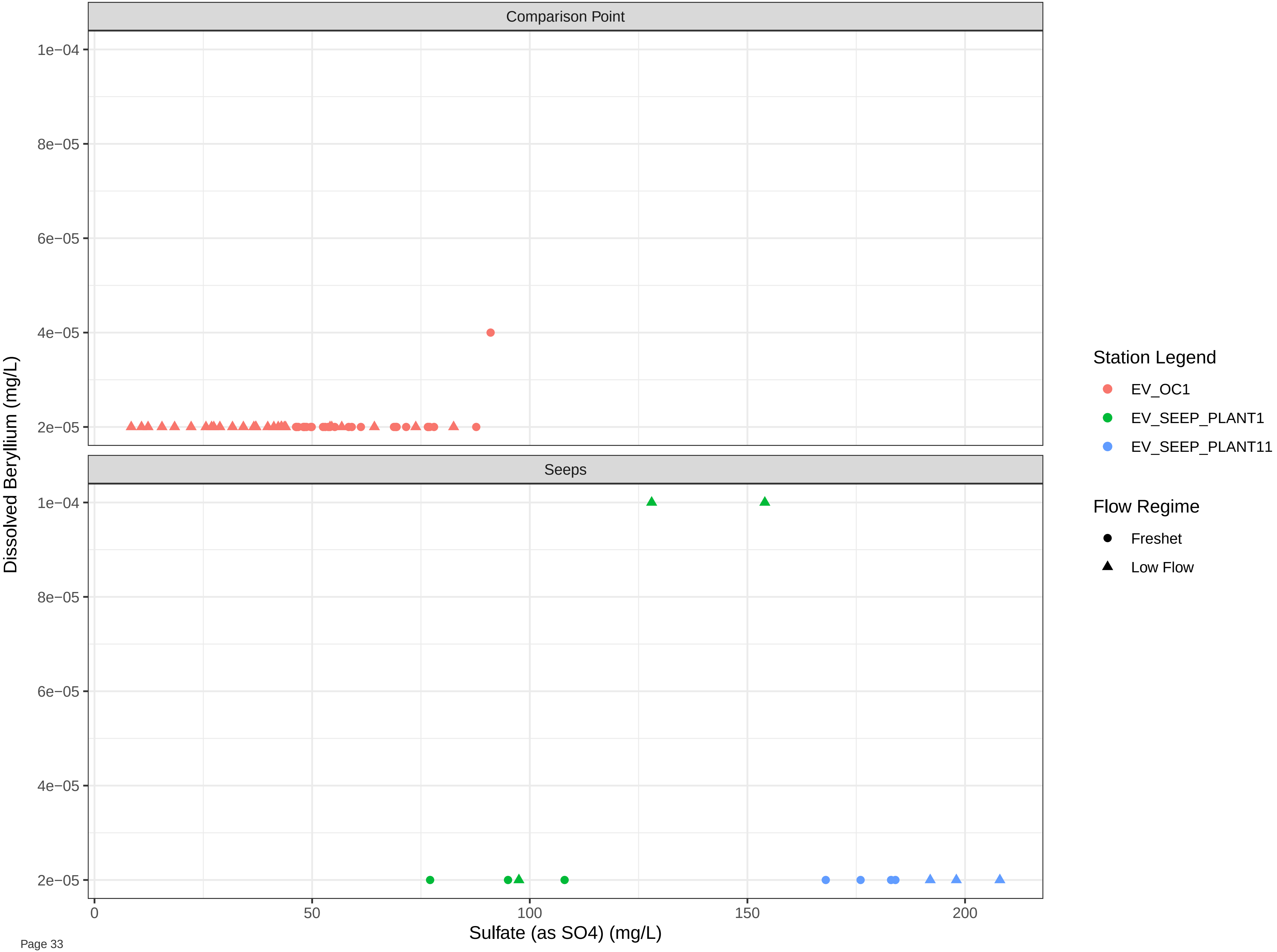

Comparison Point
Seeps
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
Sulfate (as SO4) (mg/L)
0
500
1000
1500
2000
2500
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

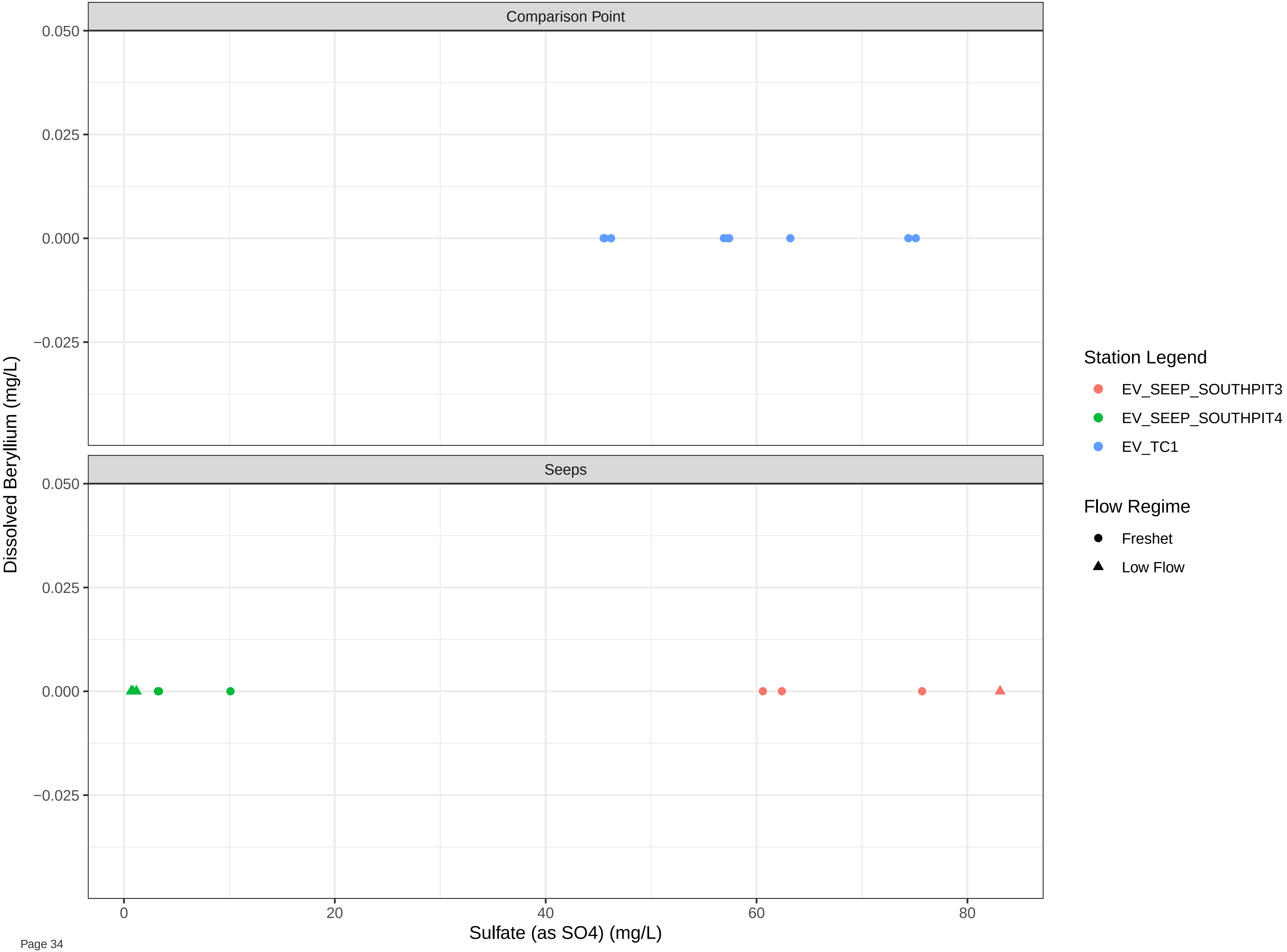

Comparison Point
Seeps
Dissolved Beryllium (mg/L)
4.0e−05
3.5e−05
3.0e−05
2.5e−05
2.0e−05
0
200
400
Sulfate (as SO4) (mg/L)
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

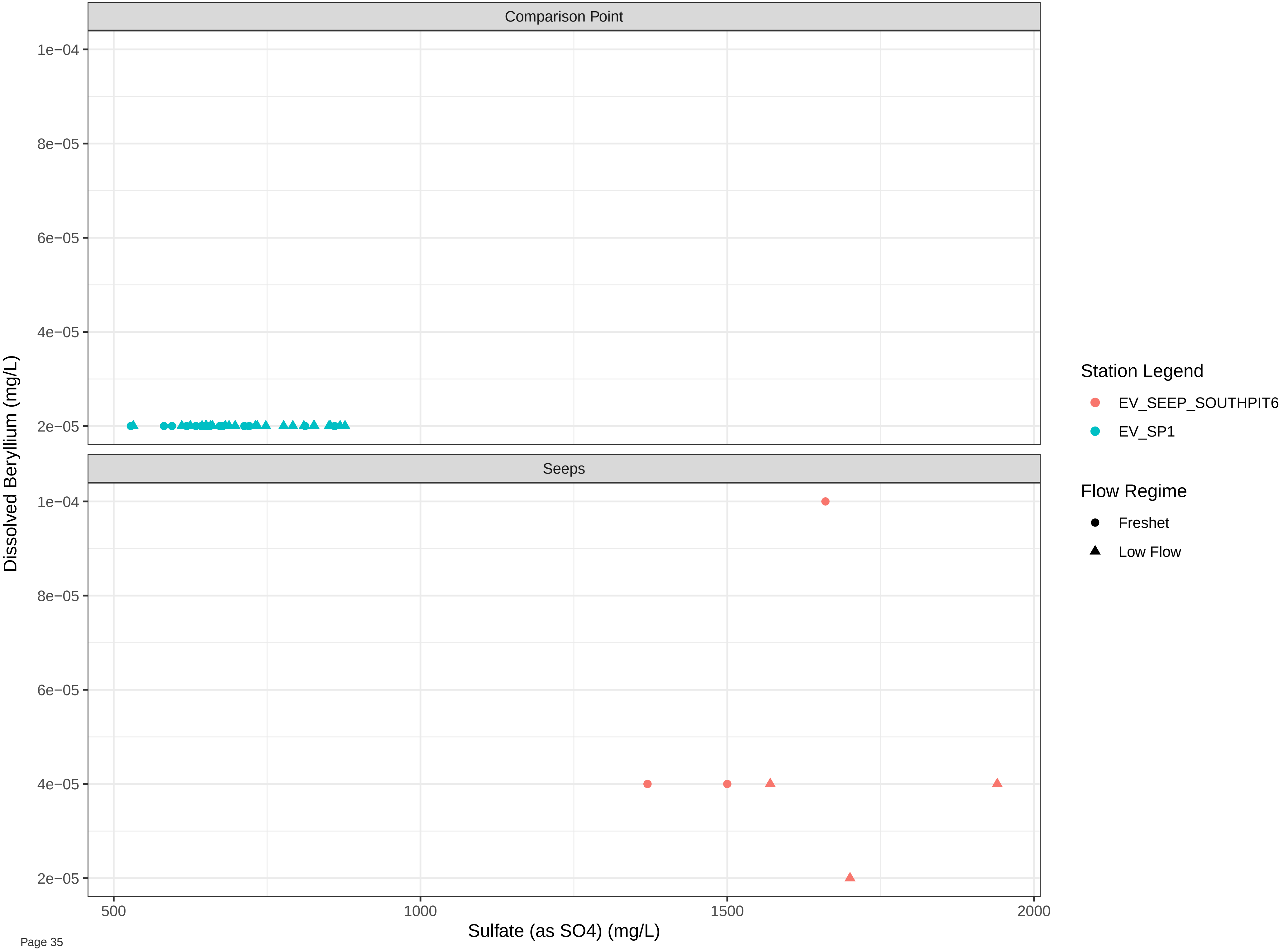


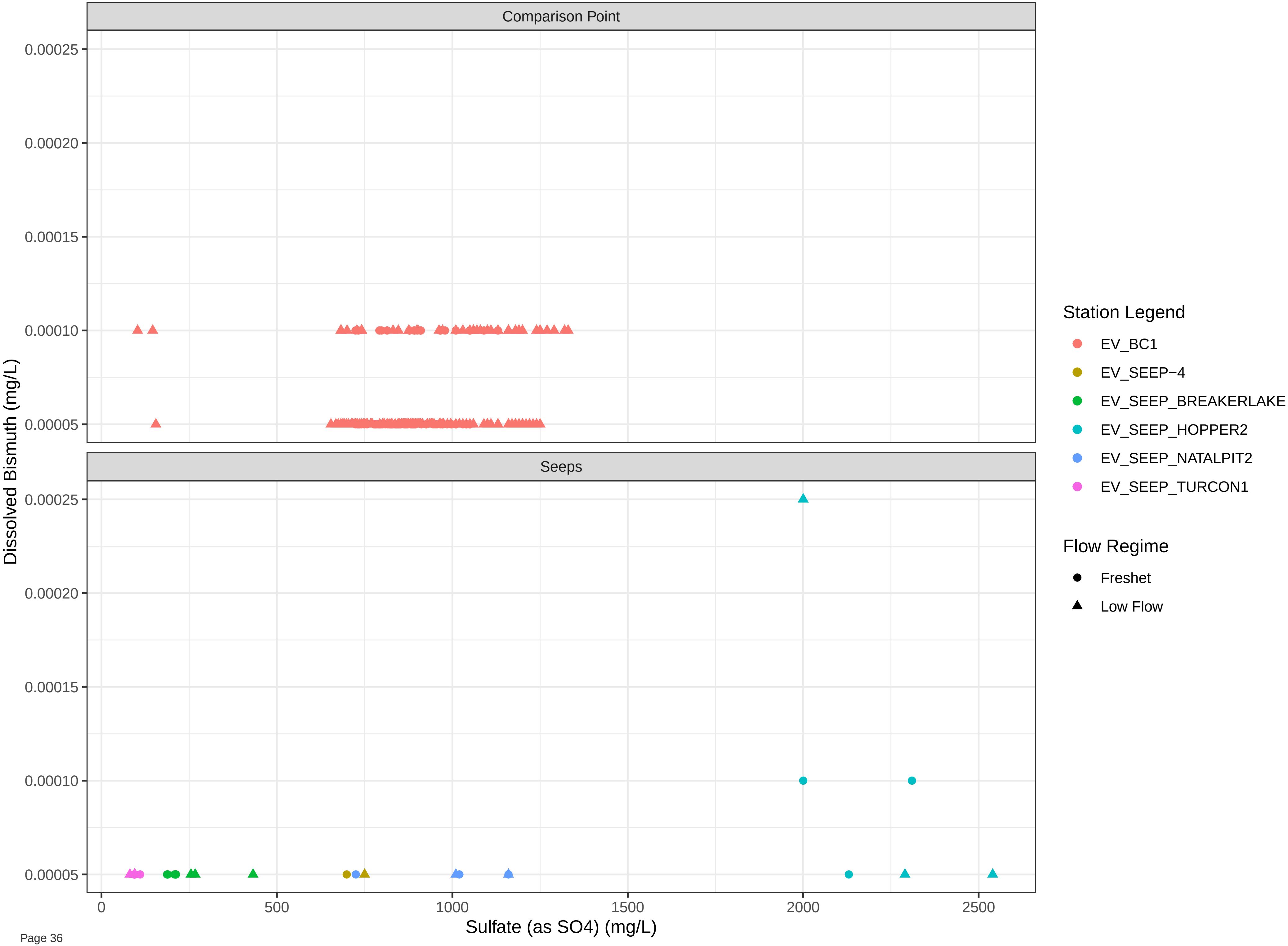
Comparison Point
Seeps
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
EV_GC2
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_WLAGC
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
1e−04
8e−05
6e−05
4e−05
2e−05
Dissolved Beryllium (mg/L)
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

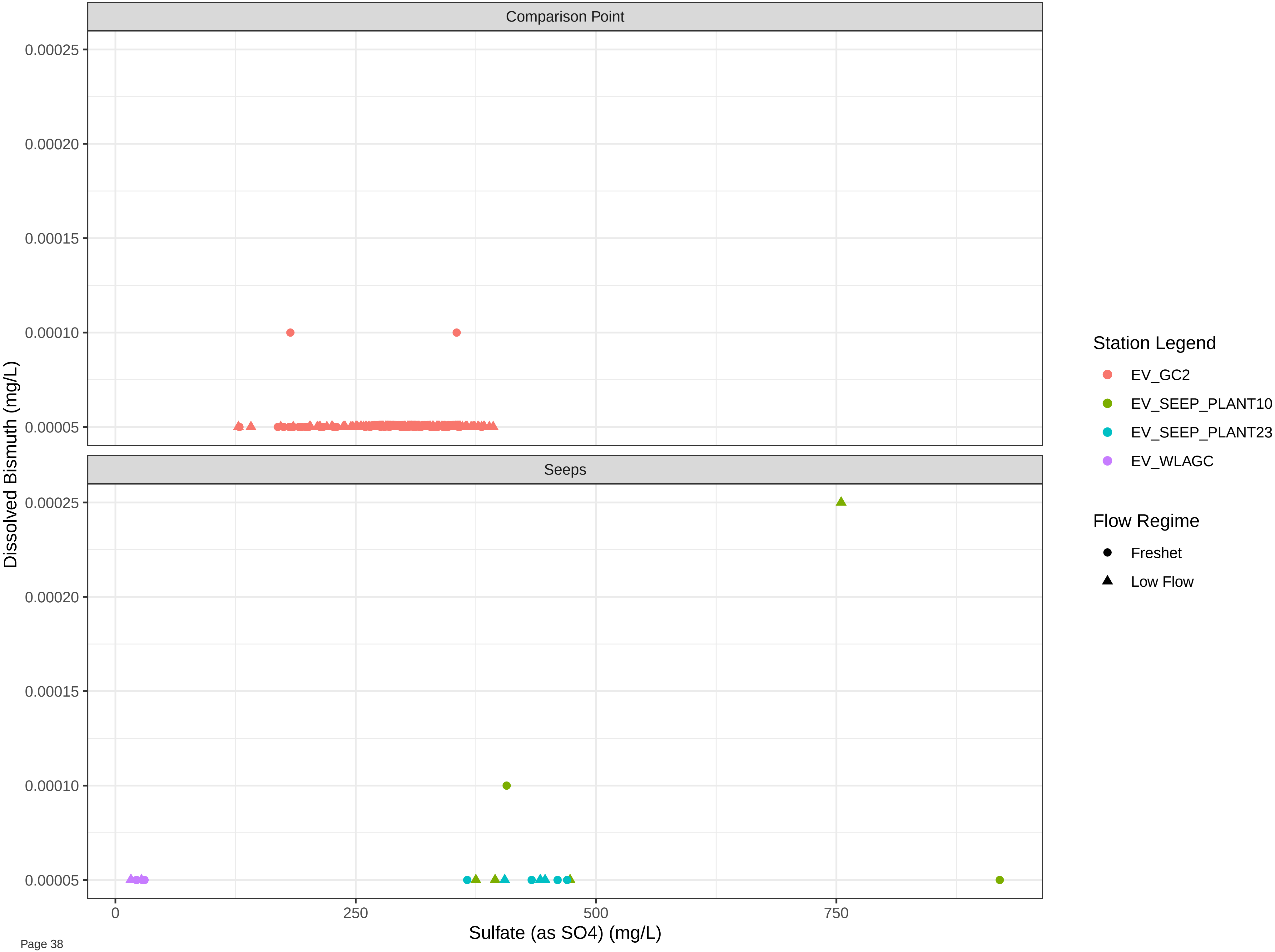

Comparison Point
Seeps
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

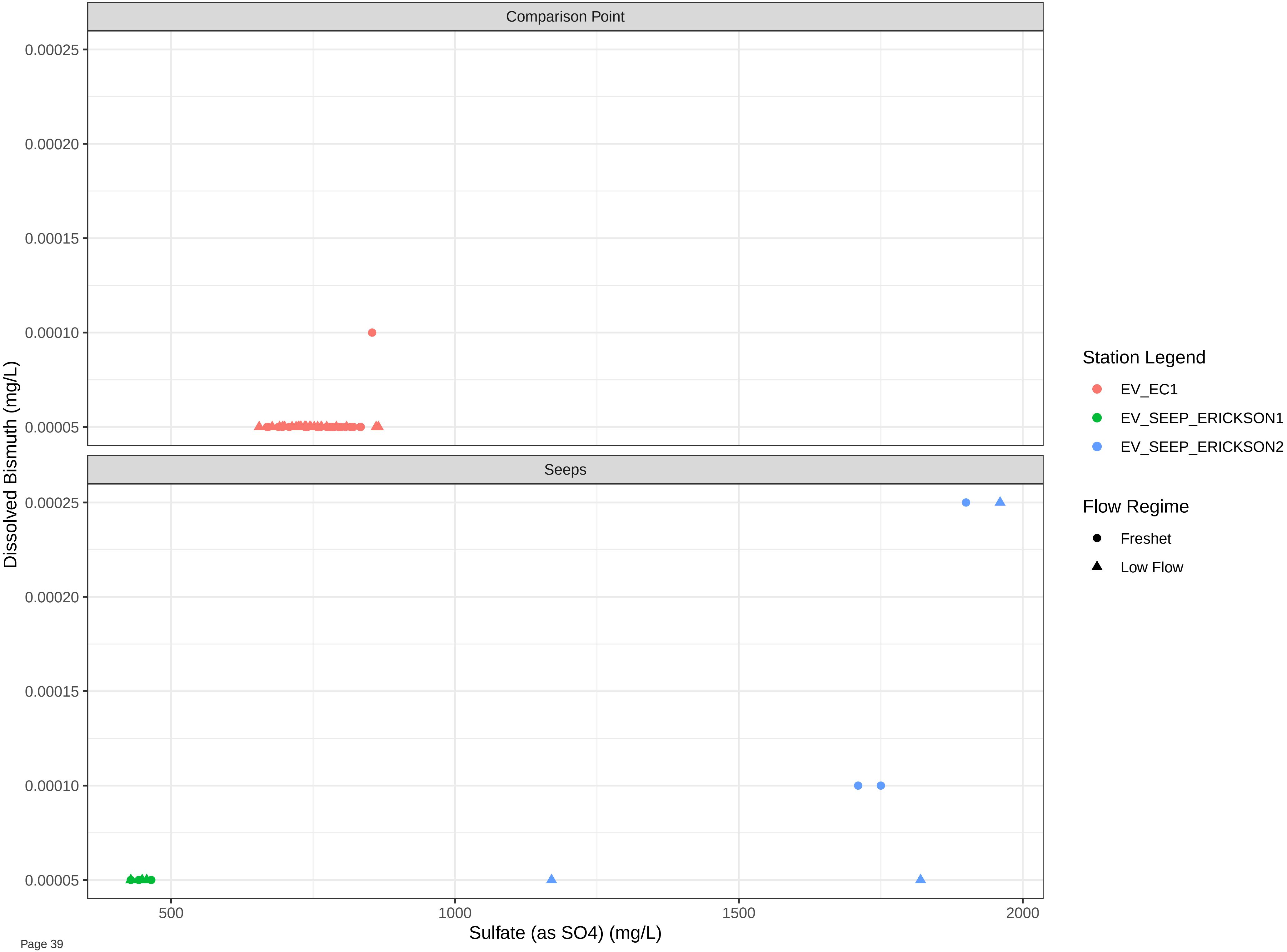

Comparison Point
Seeps
Dissolved Beryllium (mg/L)
0.050
0.025
0.000
−0.025
0.050
0.025
0.000
−0.025
0
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

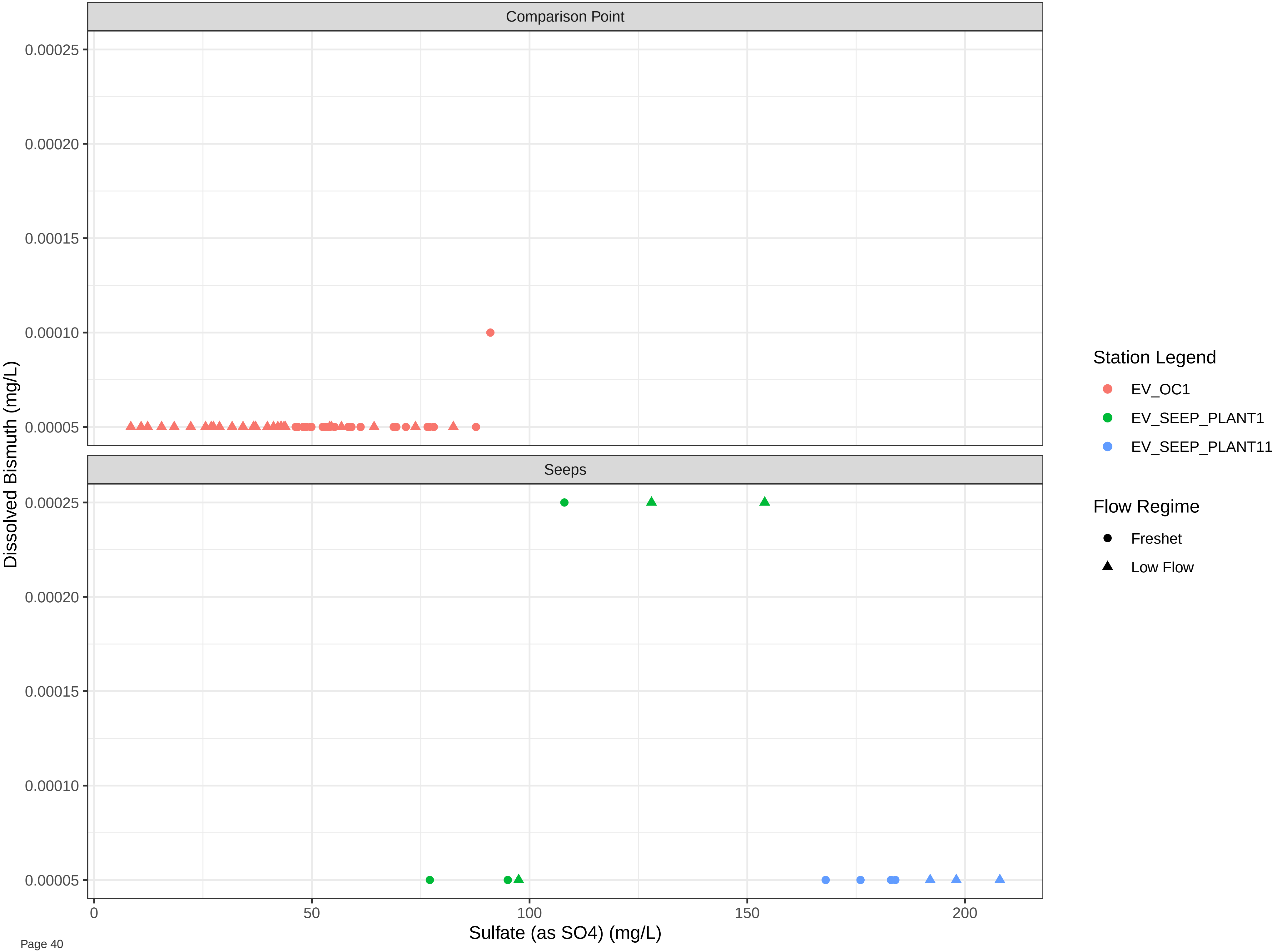

Comparison Point
Seeps
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
EV_SP1
Flow Regime
Freshet
Low Flow

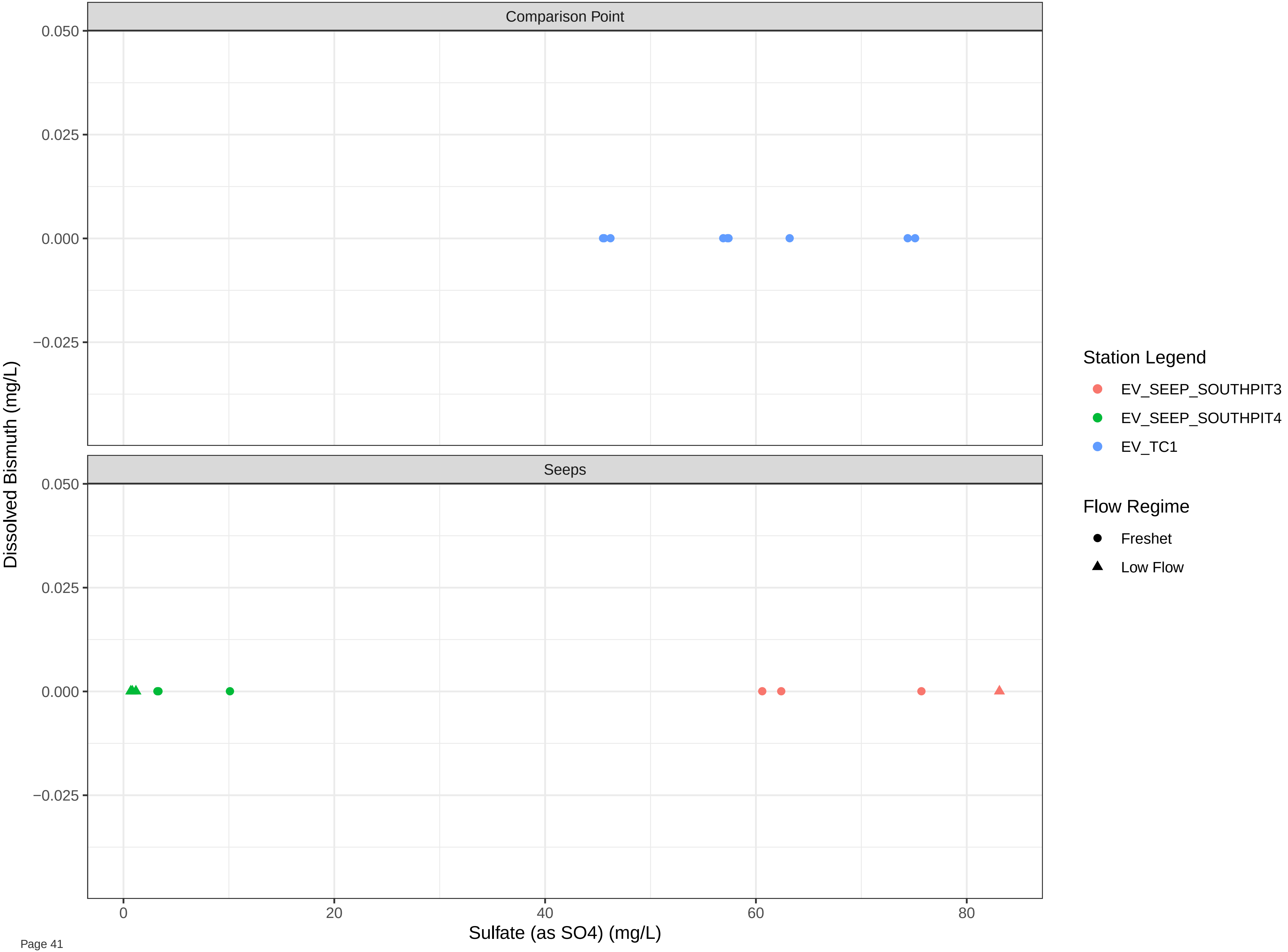

Comparison Point
Seeps
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
Sulfate (as SO4) (mg/L)
0
500
1000
1500
2000
2500
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

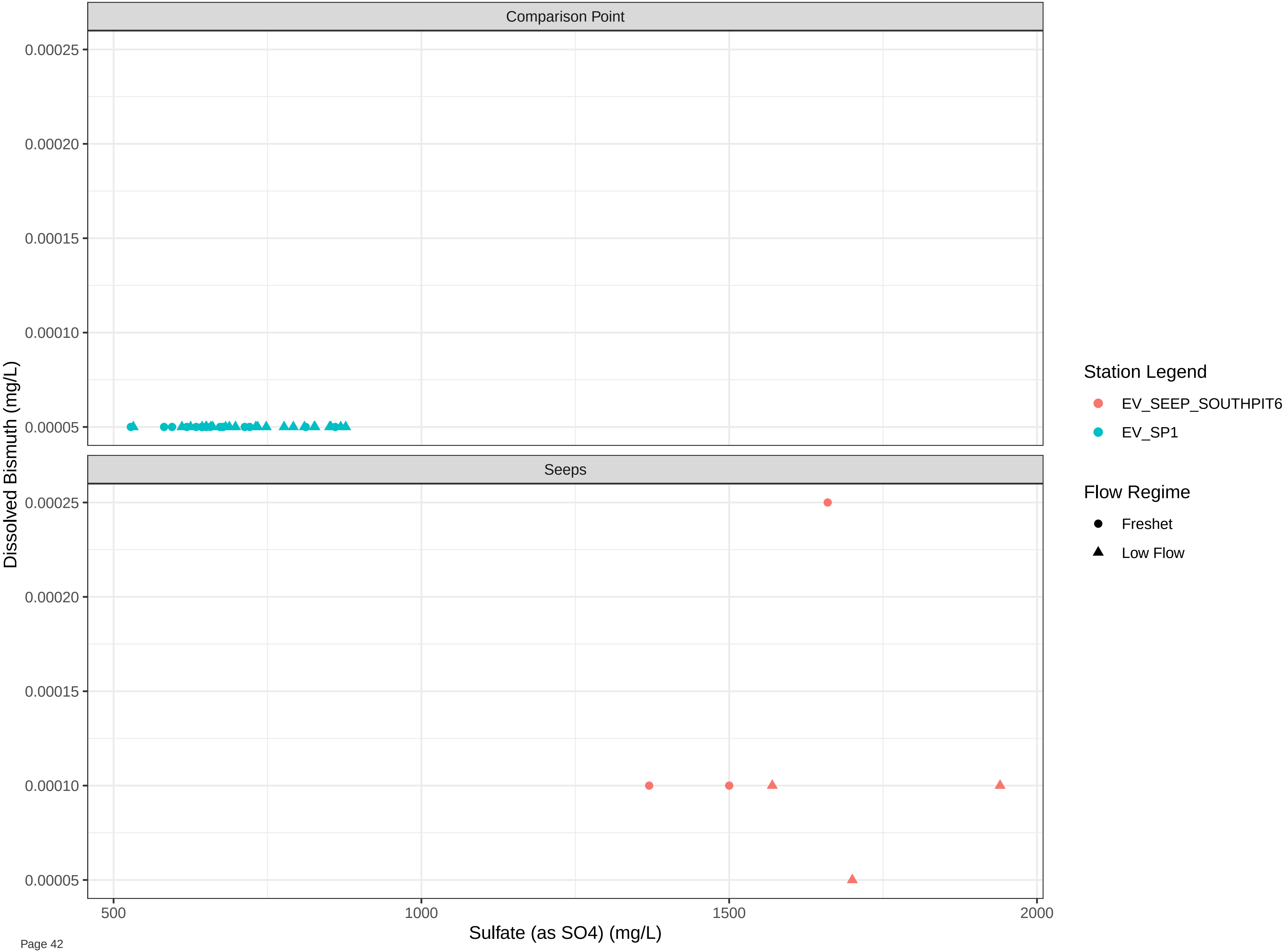

Comparison Point
Seeps
Dissolved Bismuth (mg/L)
1e−04
9e−05
8e−05
7e−05
6e−05
5e−05
0
200
400
Sulfate (as SO4) (mg/L)
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
Dissolved Bismuth (mg/L)
0.00005
0.00010
0.00015
0.00020
0.00025
Sulfate (as SO4) (mg/L)
0
250
500
750
Station Legend
EV_GC2
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_WLAGC
Flow Regime
Freshet
Low Flow

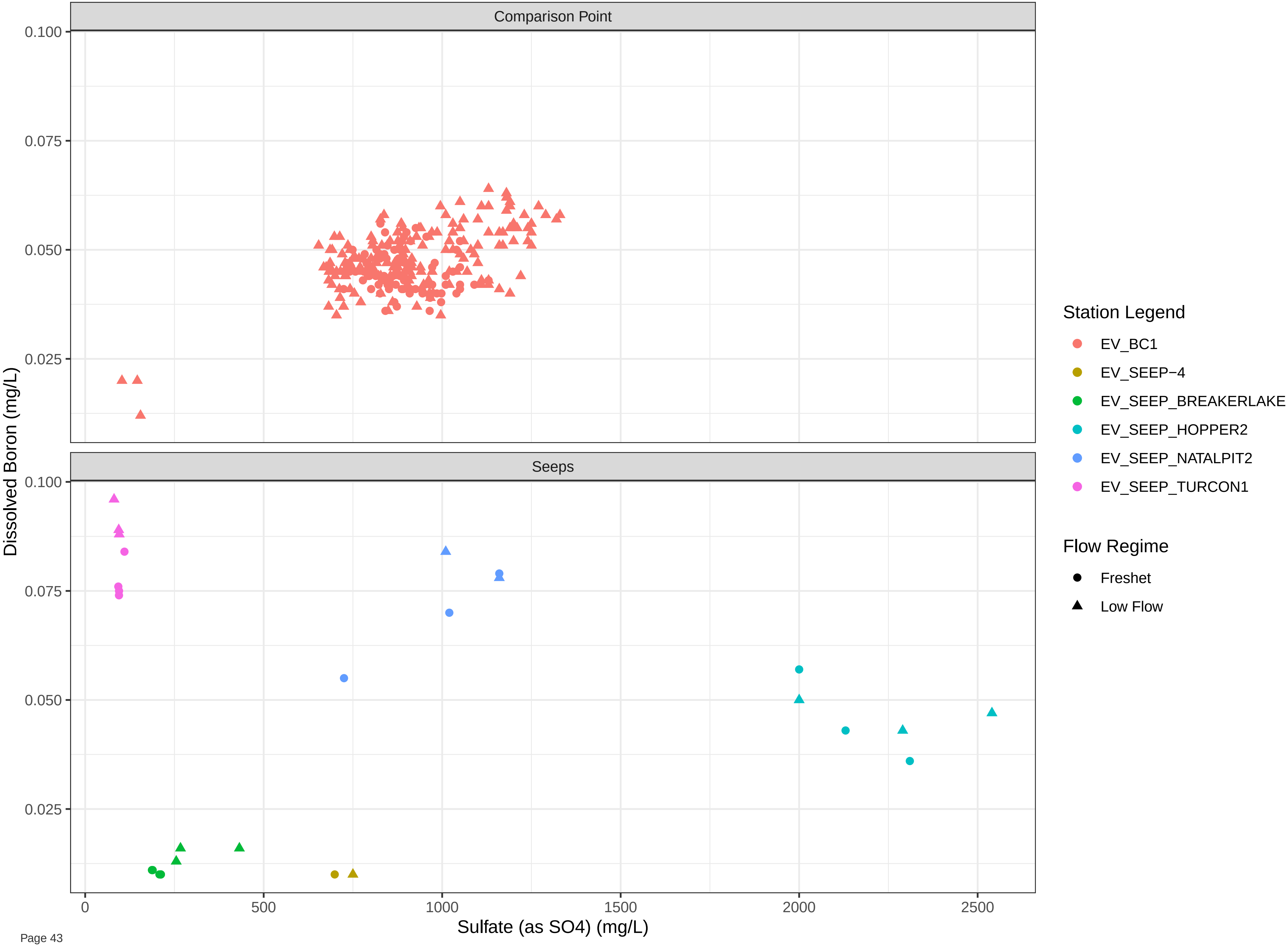

Comparison Point
Seeps
Dissolved Bismuth (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
Sulfate (as SO4) (mg/L)
500
1000
1500
2000
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

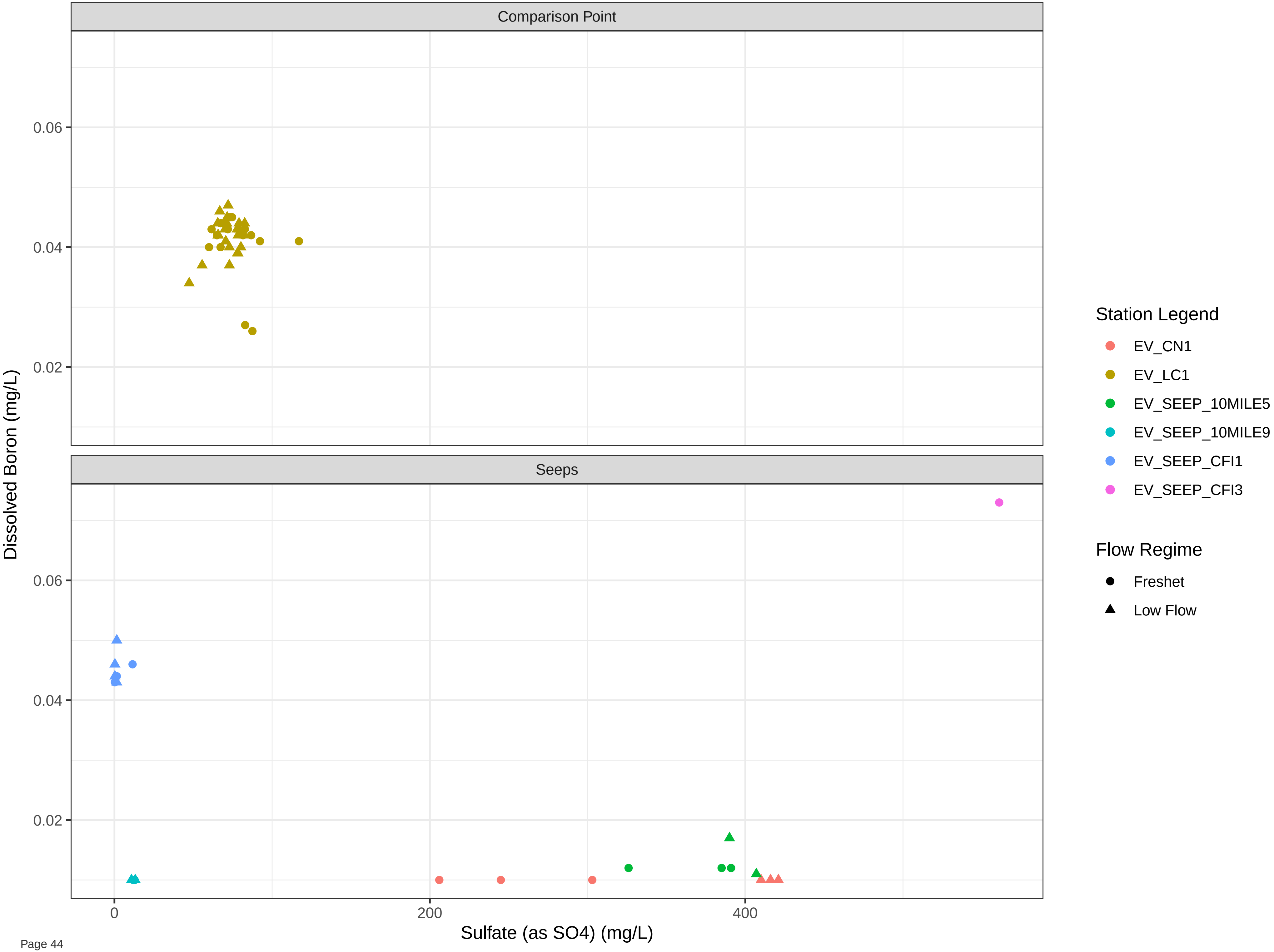

Comparison Point
Seeps
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Bismuth (mg/L)
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

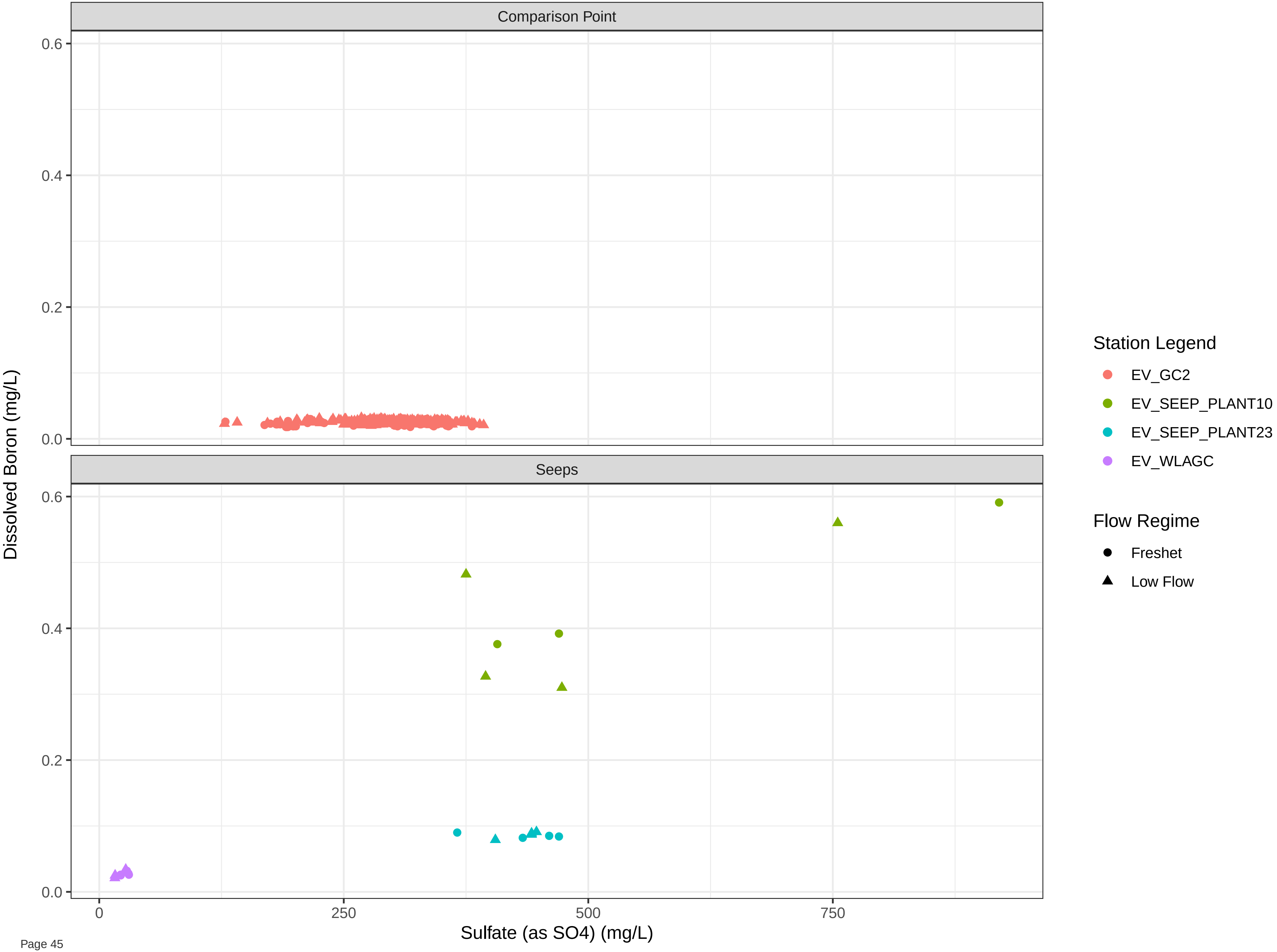

Comparison Point
Seeps
0.050
0.025
0.000
−0.025
Dissolved Bismuth (mg/L)
0
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

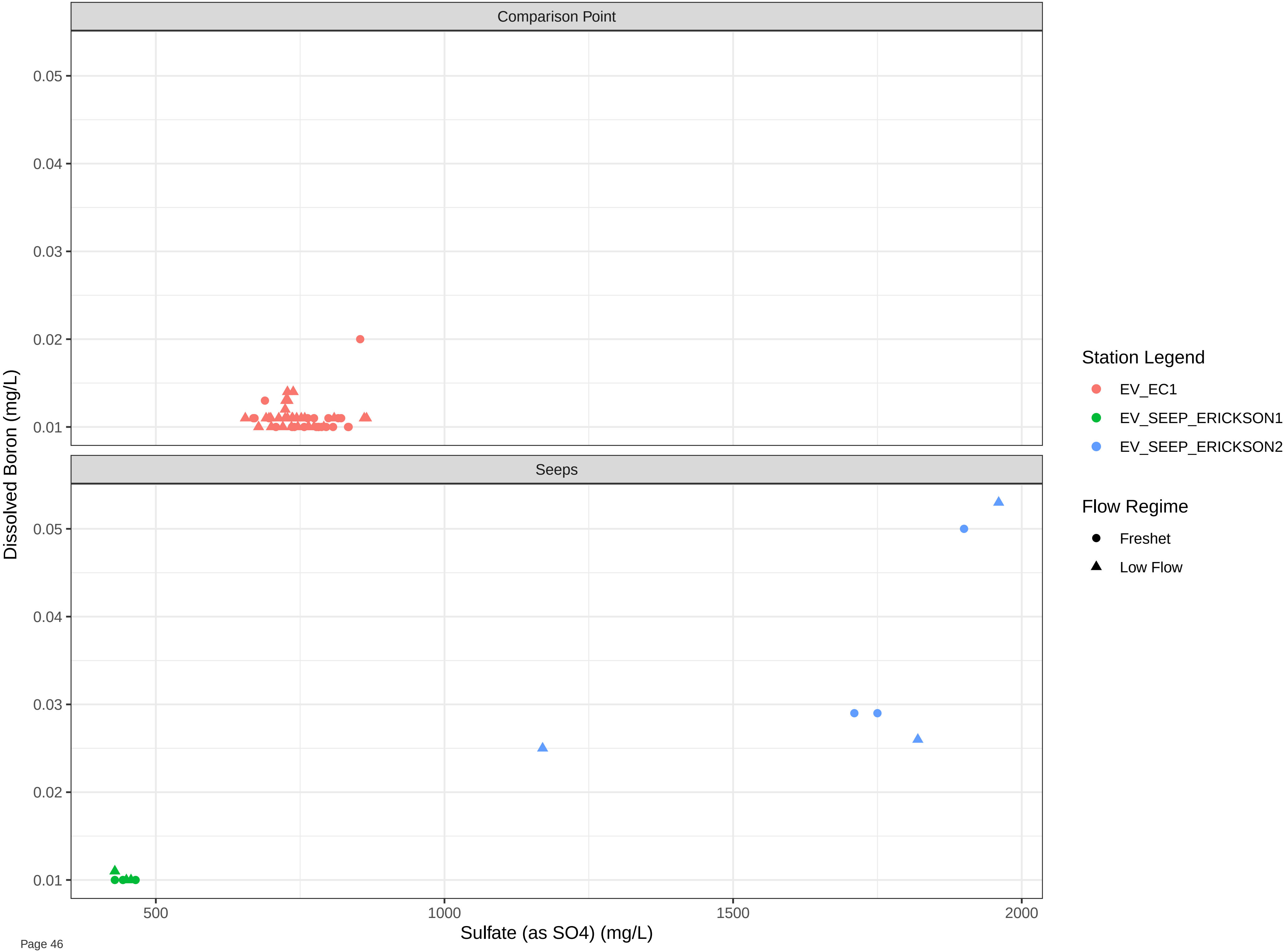


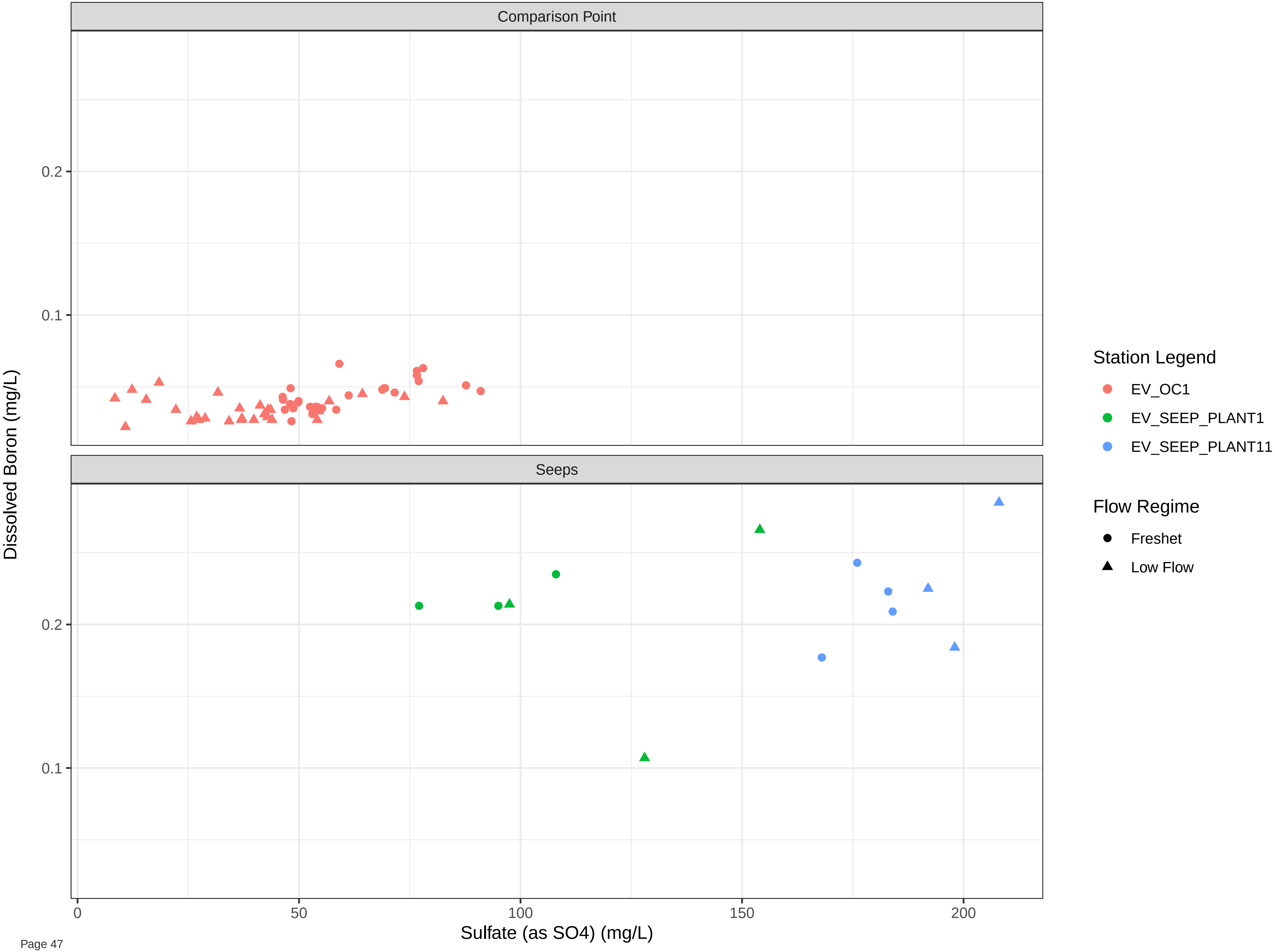
Comparison Point
Seeps
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Bismuth (mg/L)
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
EV_SP1
Flow Regime
Freshet
Low Flow

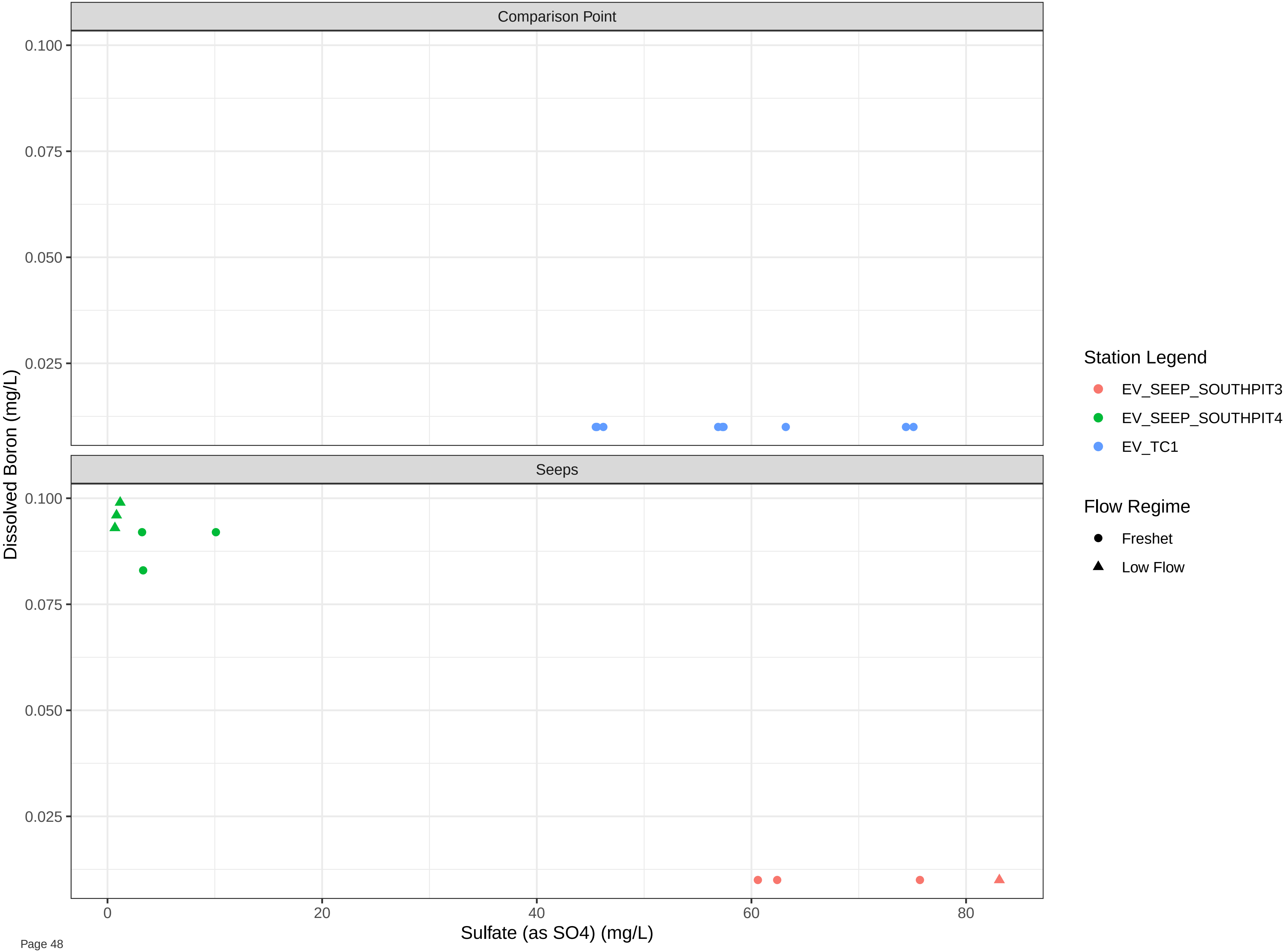

Comparison Point
Seeps
Dissolved Boron (mg/L)
0.100
0.075
0.050
0.025
0
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

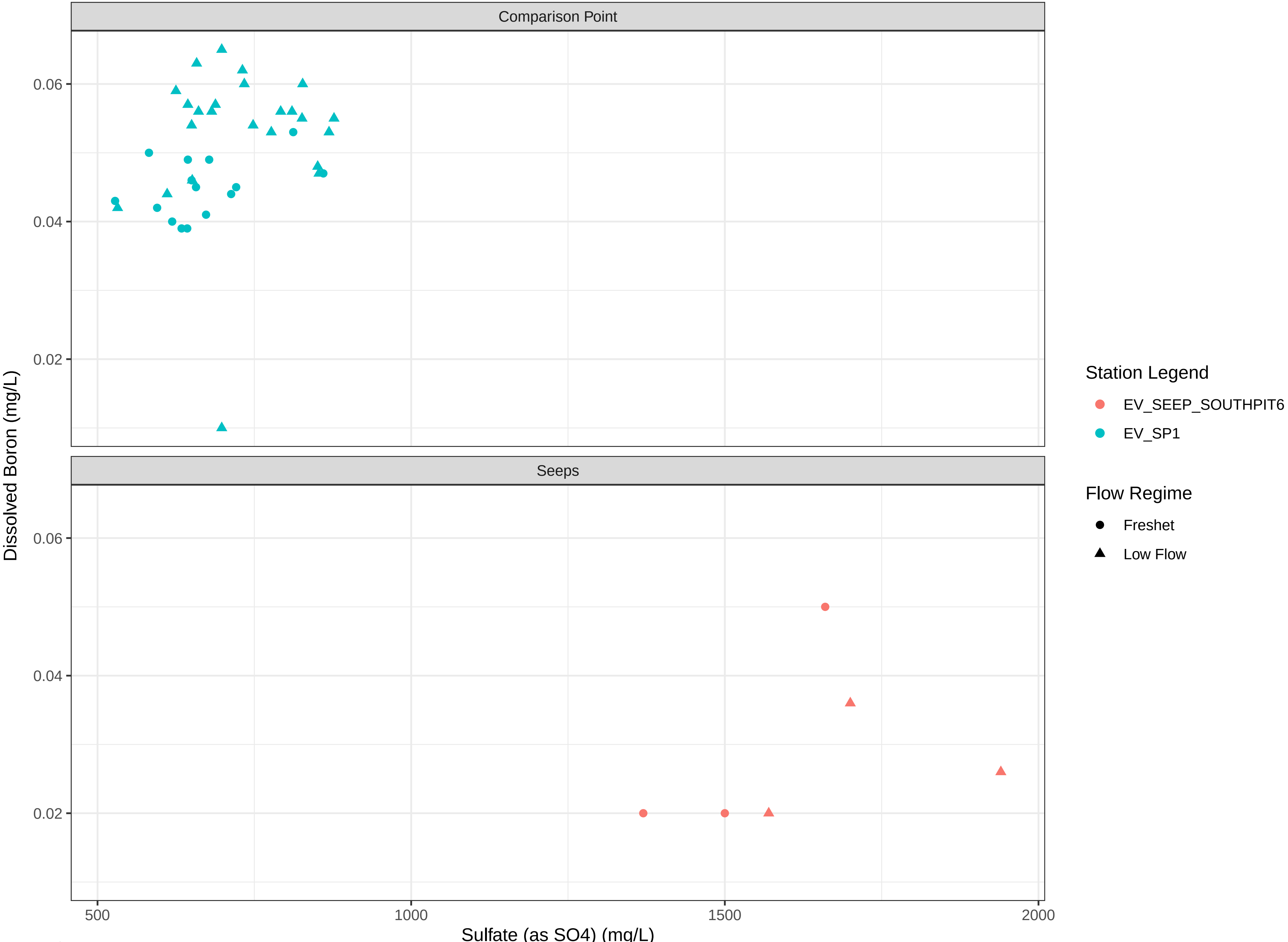

Comparison Point
Seeps
Dissolved Boron (mg/L)
0.06
0.04
0.02
0.06
0.04
0.02
0
200
400
Sulfate (as SO4) (mg/L)
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

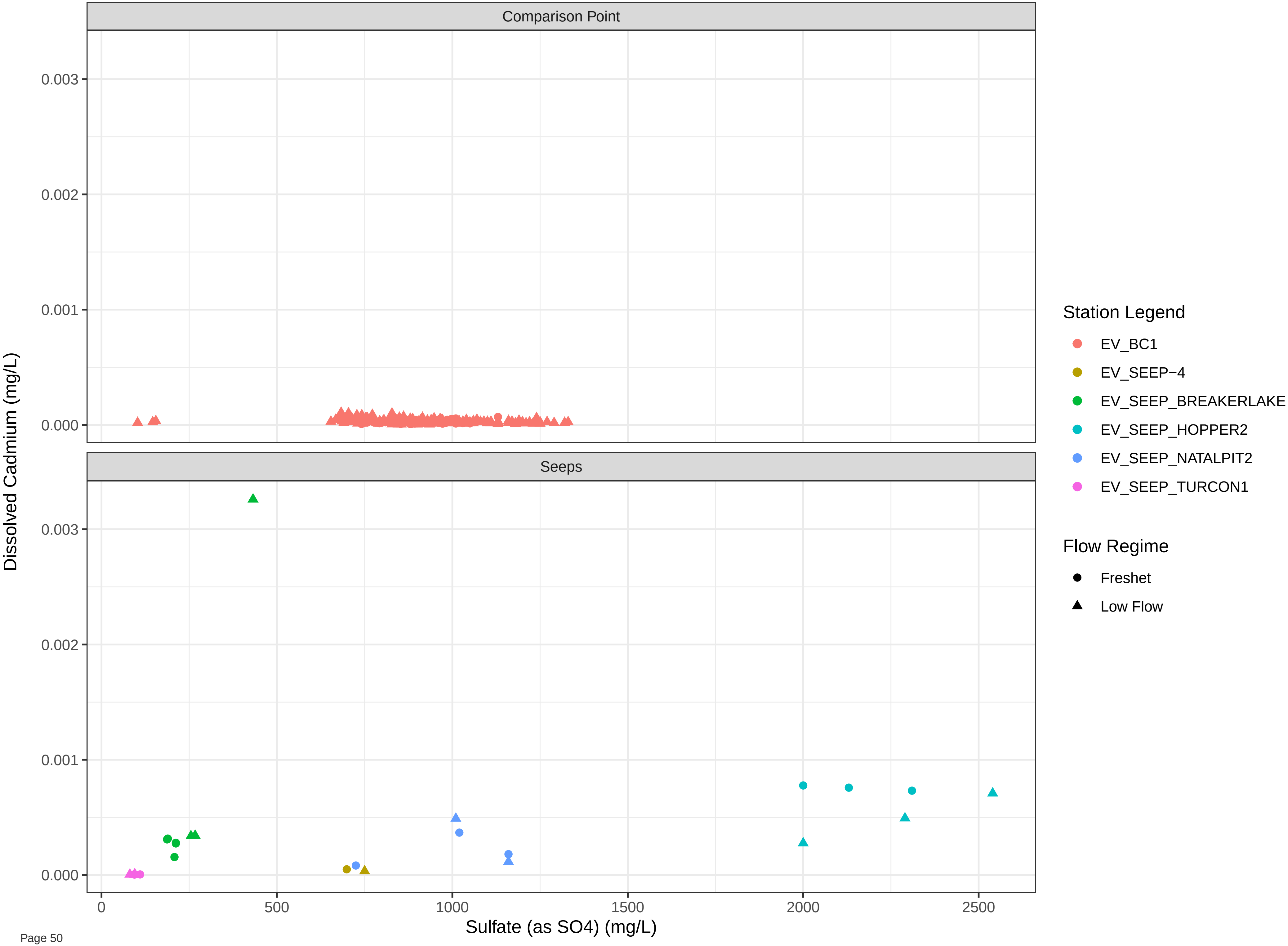

Comparison Point
Seeps
Dissolved Boron (mg/L)
0.0
0.2
0.4
0.6
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
● EV_GC2
● EV_SEEP_PLANT10
● EV_SEEP_PLANT23
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

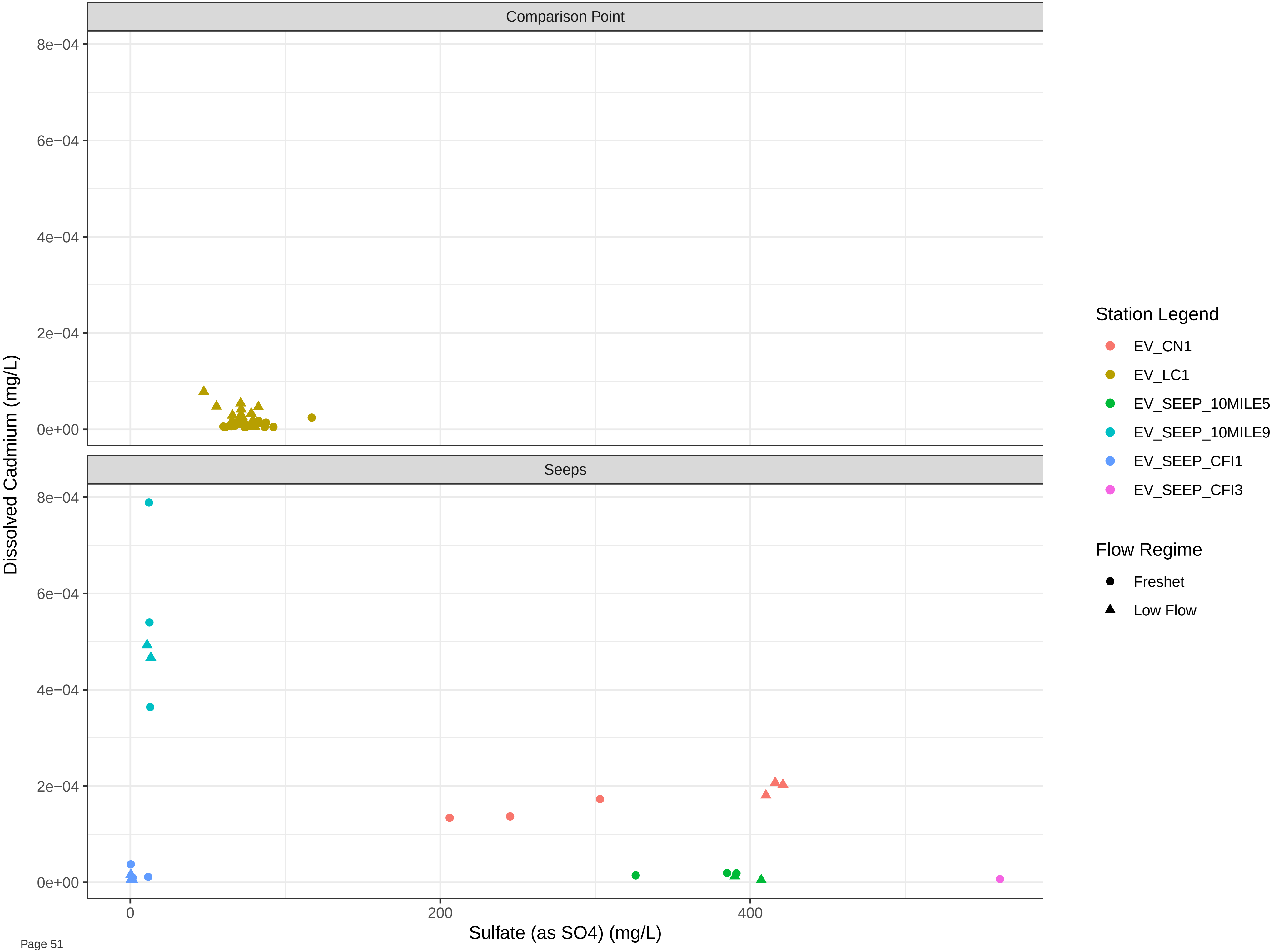

Comparison Point
Seeps
Dissolved Boron (mg/L)
0.05
0.04
0.03
0.02
0.01
0.05
0.04
0.03
0.02
0.01
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

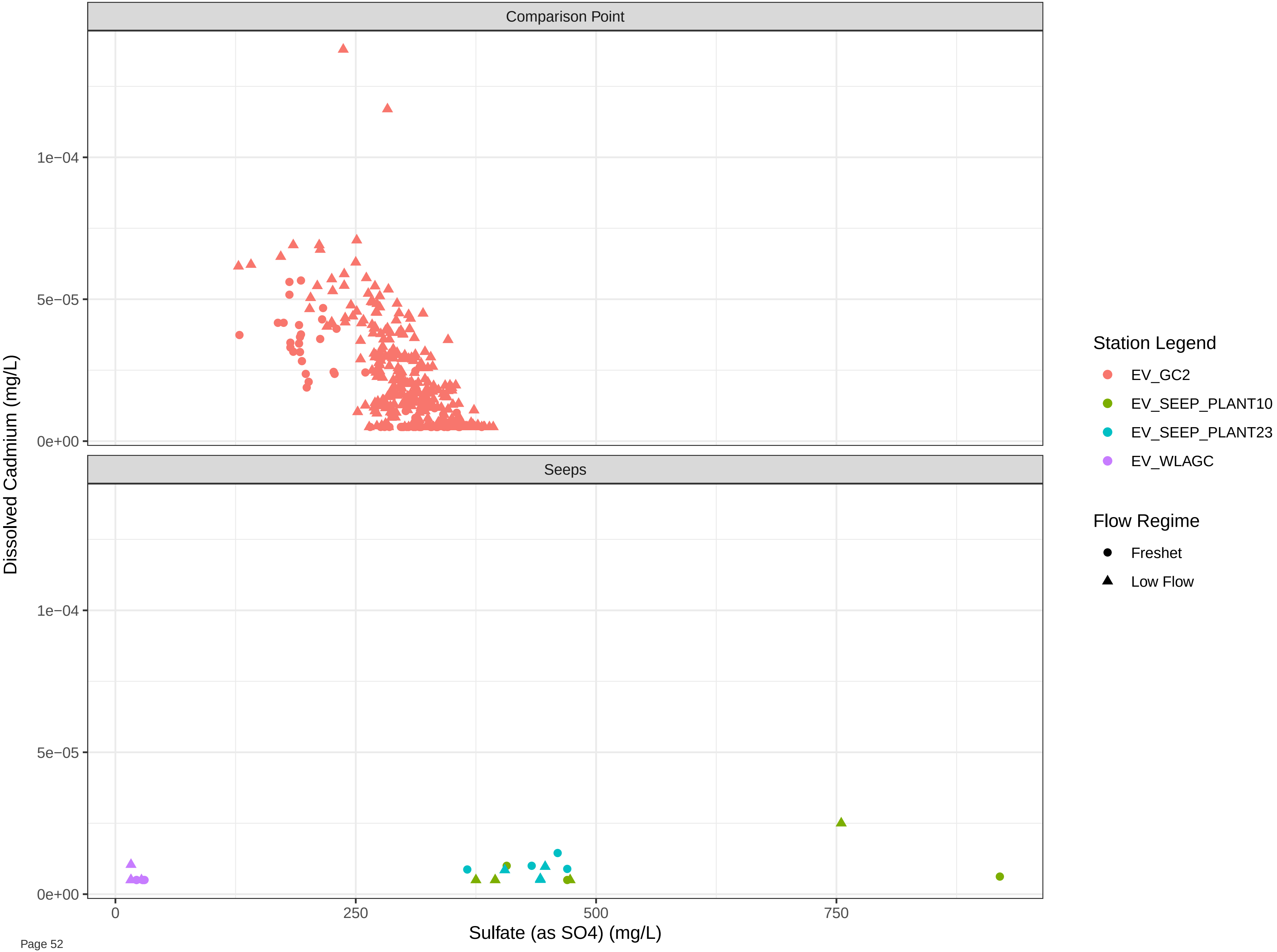

Comparison Point
Seeps
Dissolved Boron (mg/L)
0.2
0.1
0.2
0.1
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

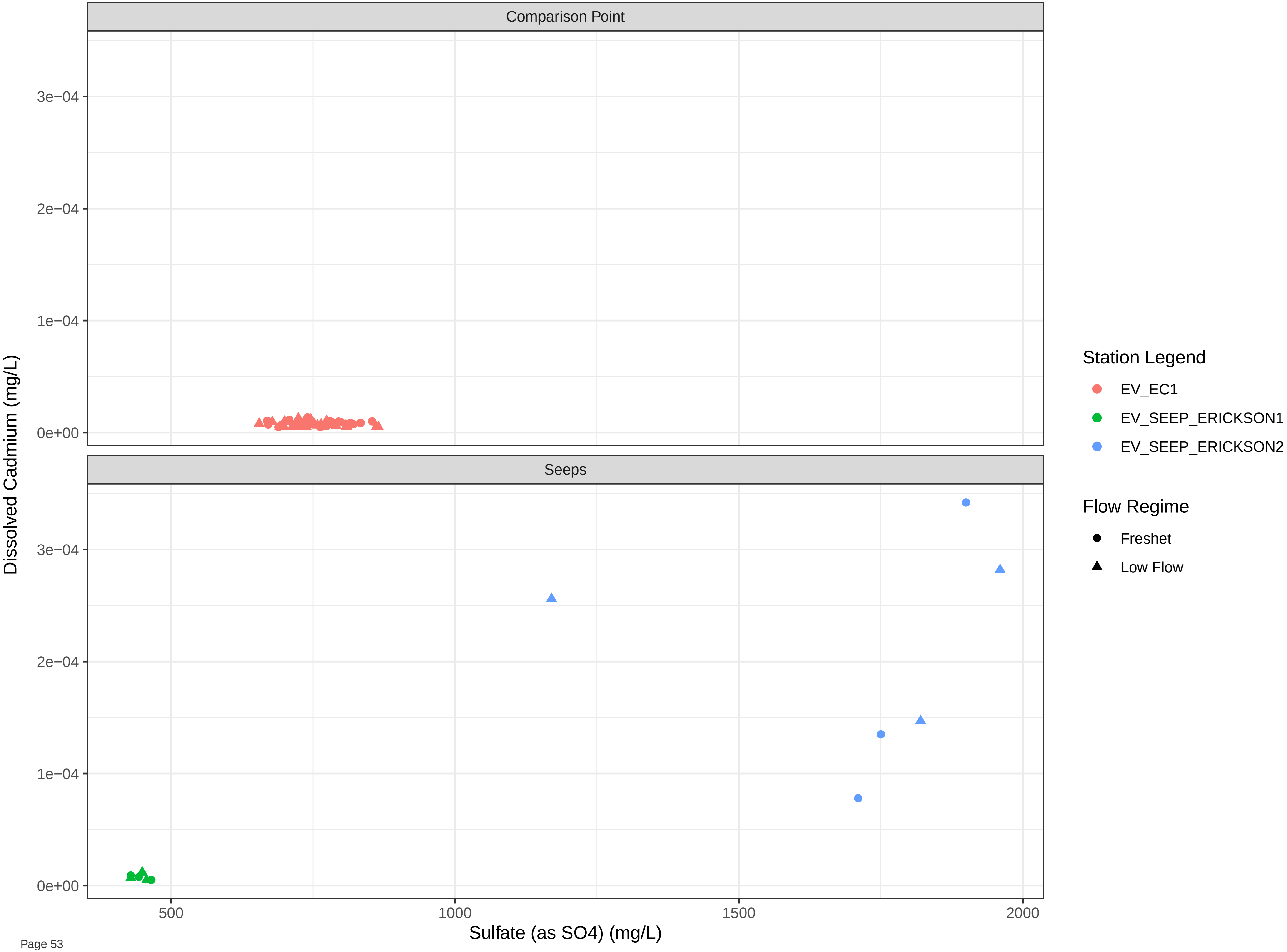

Comparison Point
Seeps
Dissolved Boron (mg/L)
0.100
0.075
0.050
0.025
0
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

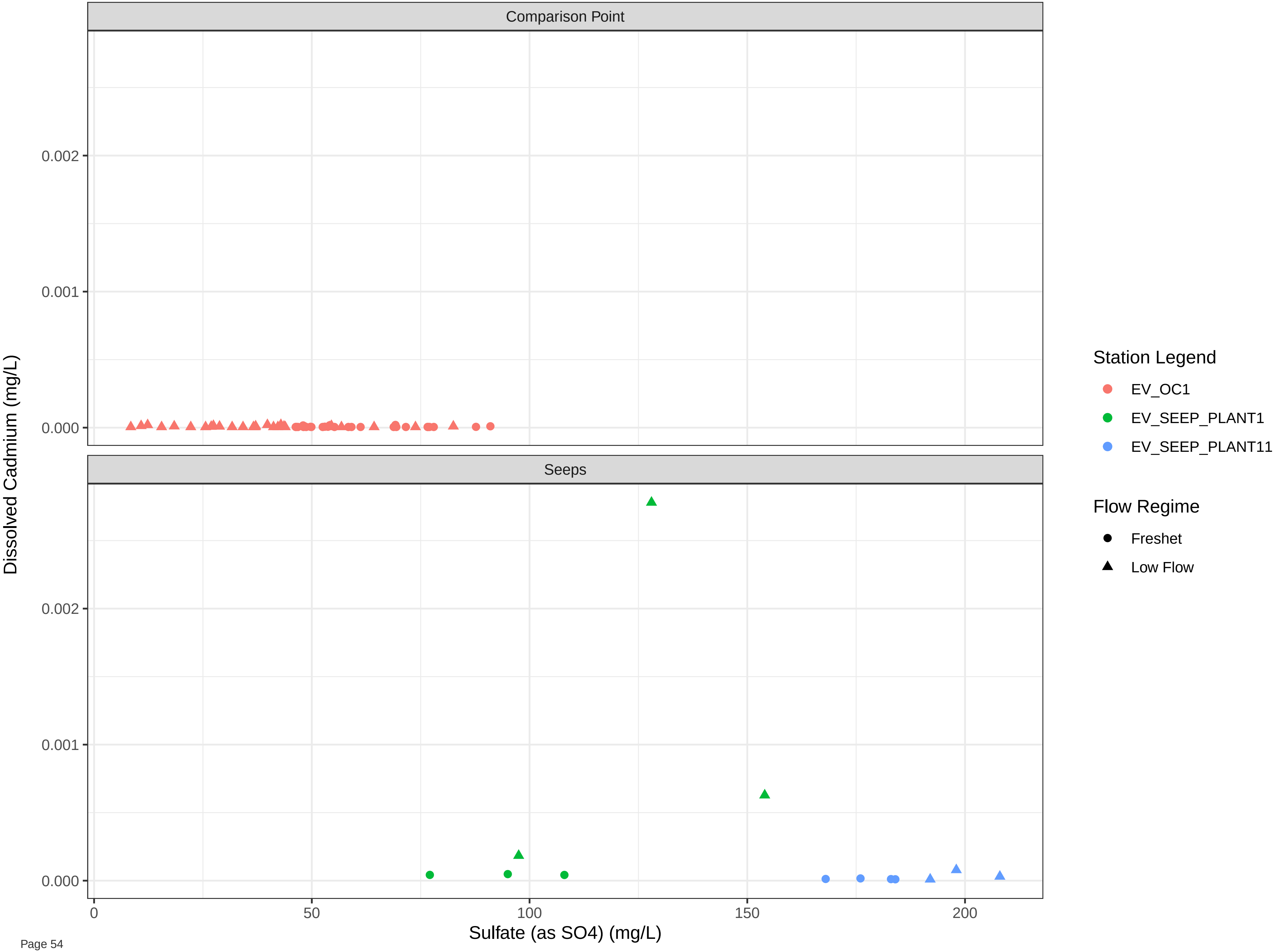

Comparison Point
Seeps
Dissolved Boron (mg/L)
0.06
0.04
0.02
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT6
● EV_SP1
Flow Regime
● Freshet
▲ Low Flow

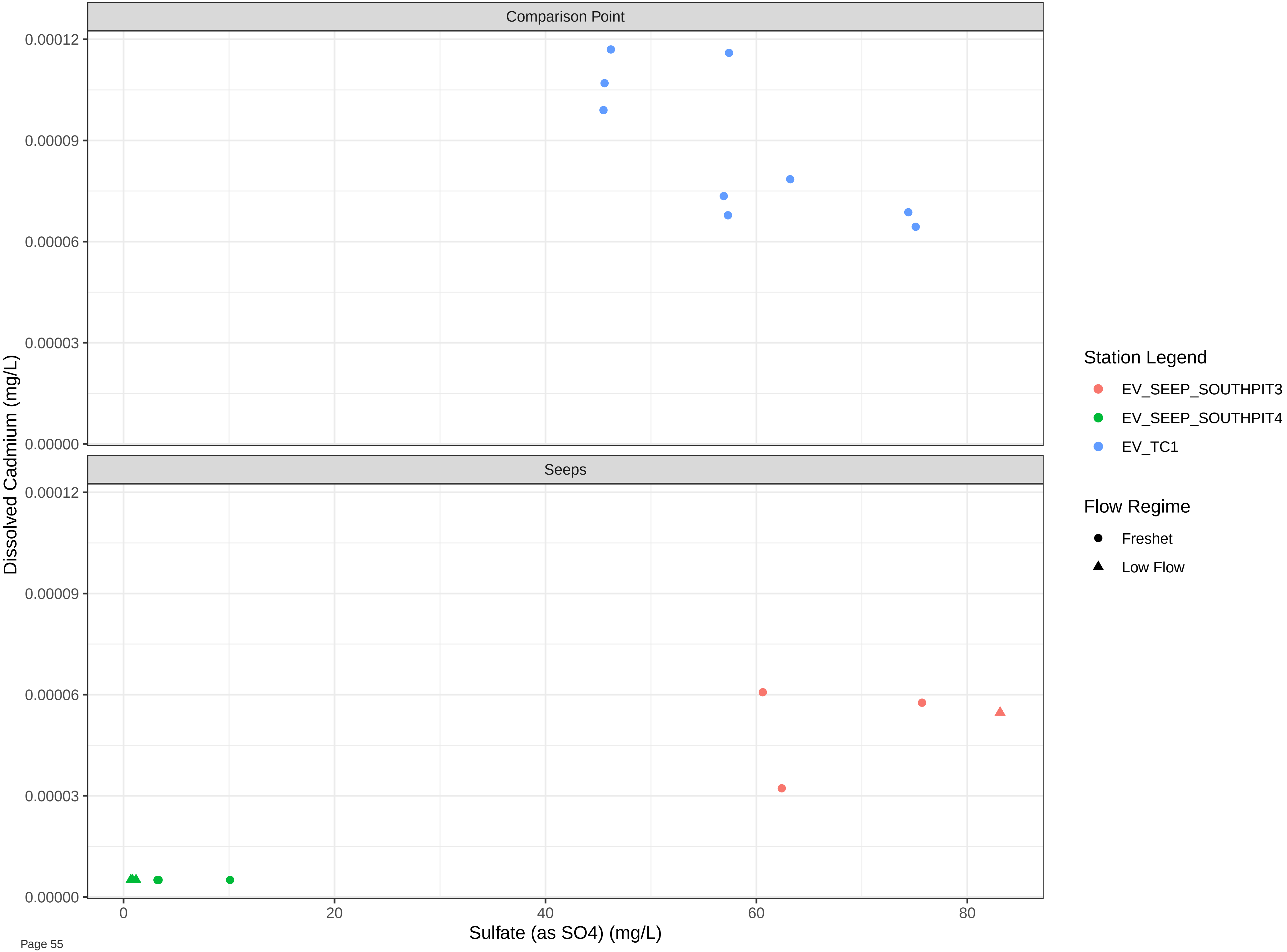

Comparison Point
Seeps
Dissolved Cadmium (mg/L)
0.003
0.002
0.001
0.000
0.003
0.002
0.001
0.000
0
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

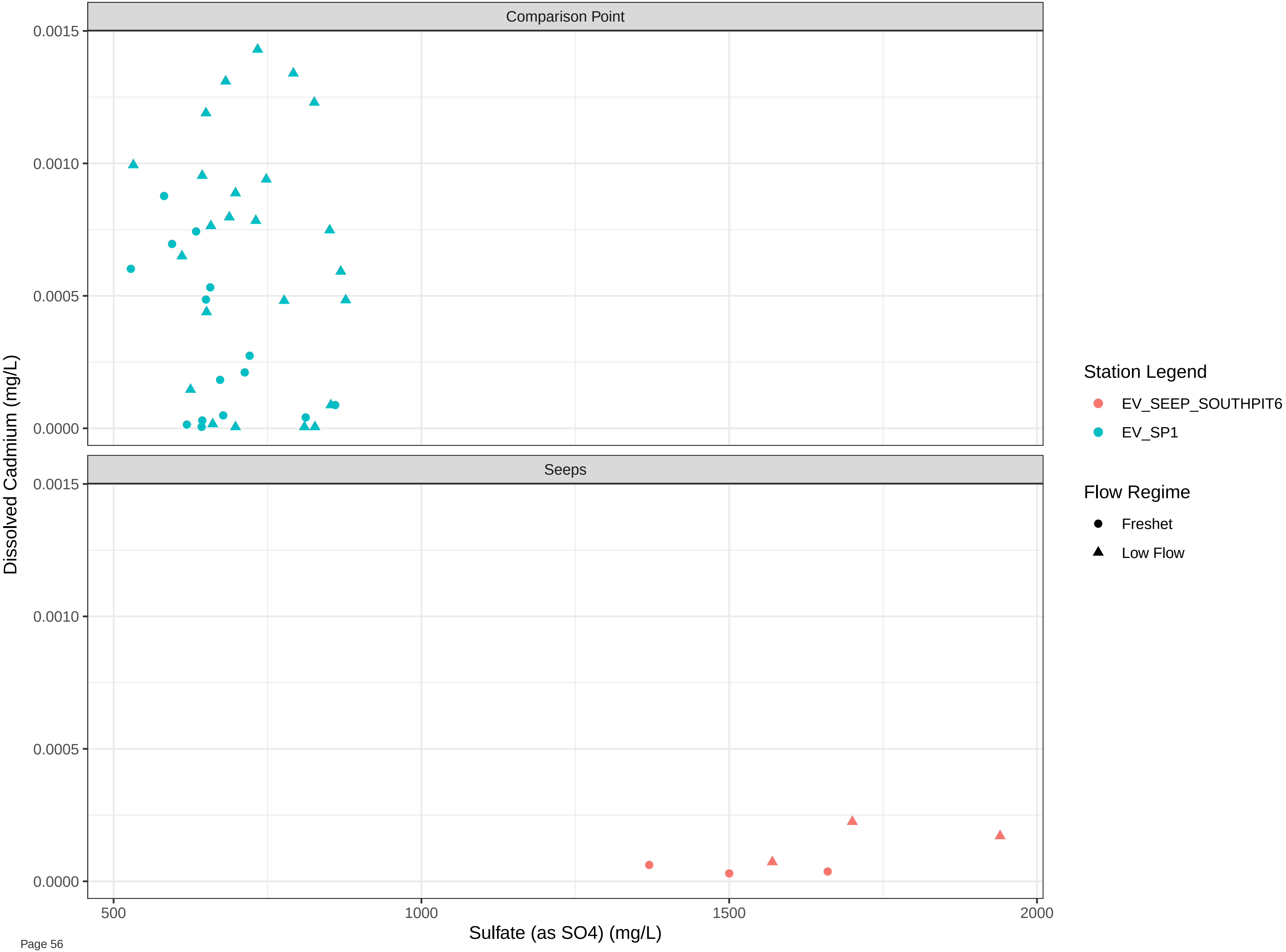

Comparison Point
Seeps
Dissolved Cadmium (mg/L)
8e−04
6e−04
4e−04
2e−04
0e+00
0
200
400
Sulfate (as SO4) (mg/L)
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

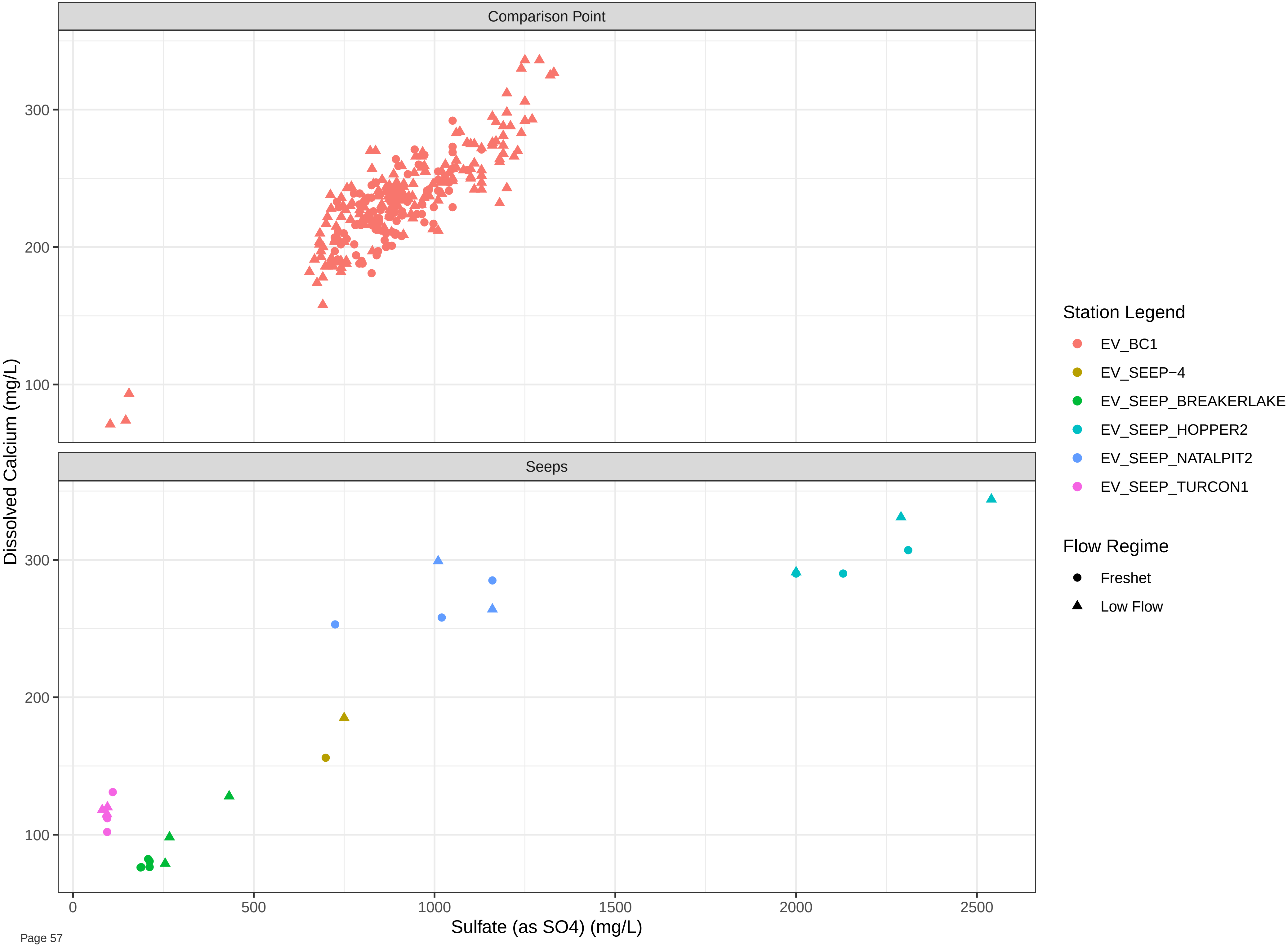

Comparison Point
Seeps
Dissolved Cadmium (mg/L)
1e−04
5e−05
0e+00
1e−04
5e−05
0e+00
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
EV_GC2
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_WLAGC
Flow Regime
Freshet
Low Flow

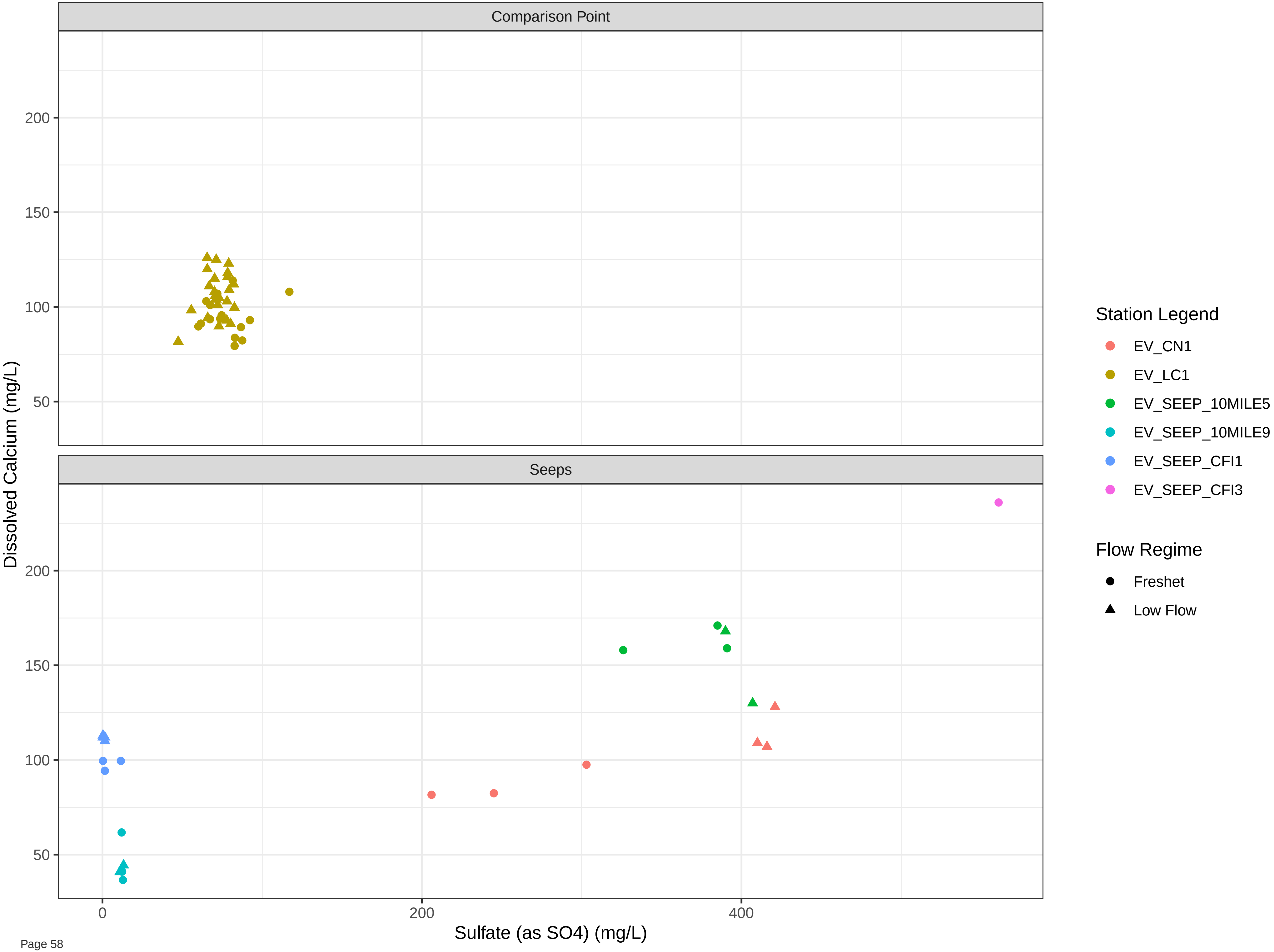

Comparison Point
Seeps
Dissolved Cadmium (mg/L)
3e−04
2e−04
1e−04
0e+00
3e−04
2e−04
1e−04
0e+00
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

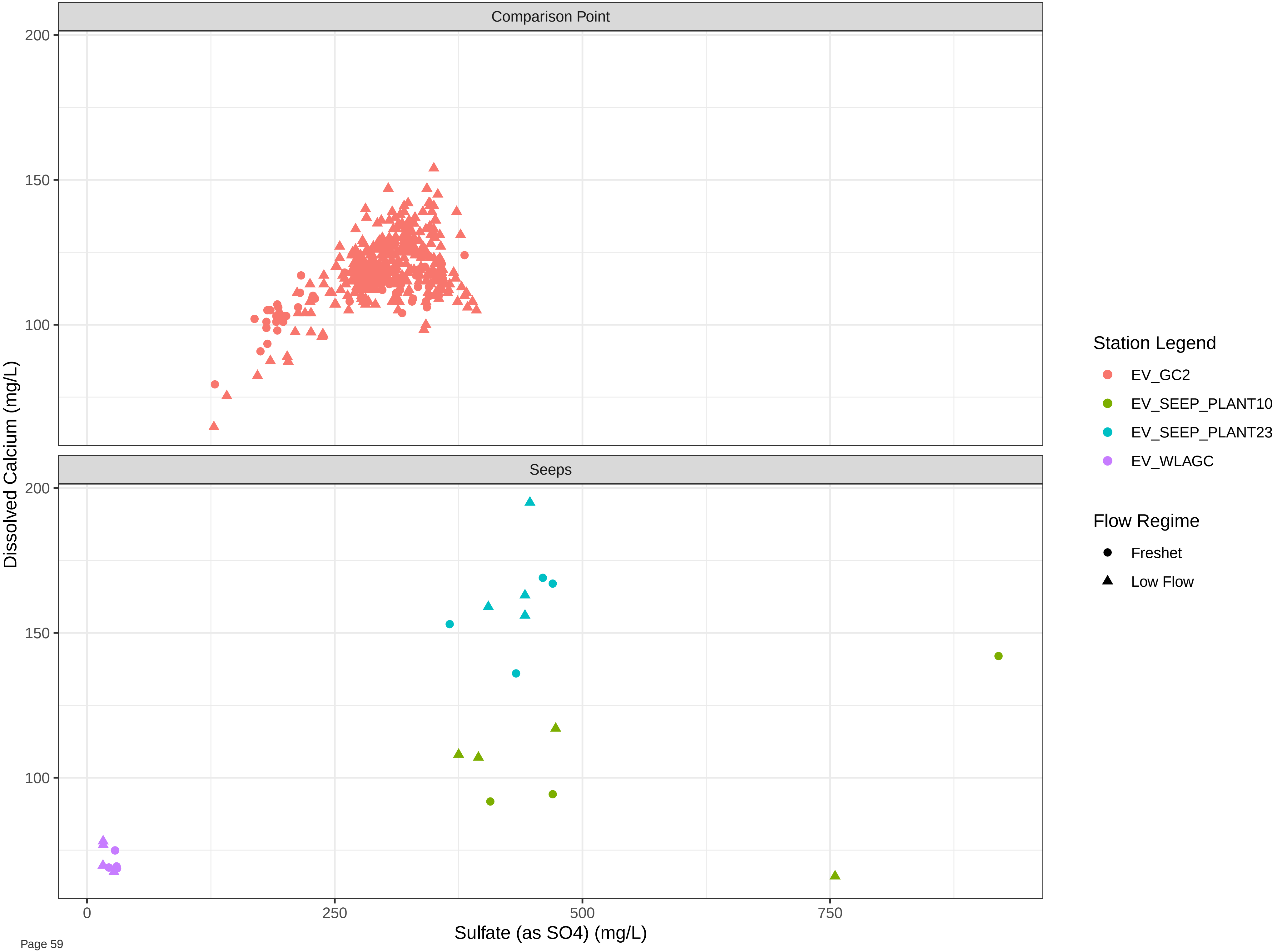

Comparison Point
Seeps
Dissolved Cadmium (mg/L)
0.000
0.001
0.002
0.000
0.001
0.002
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

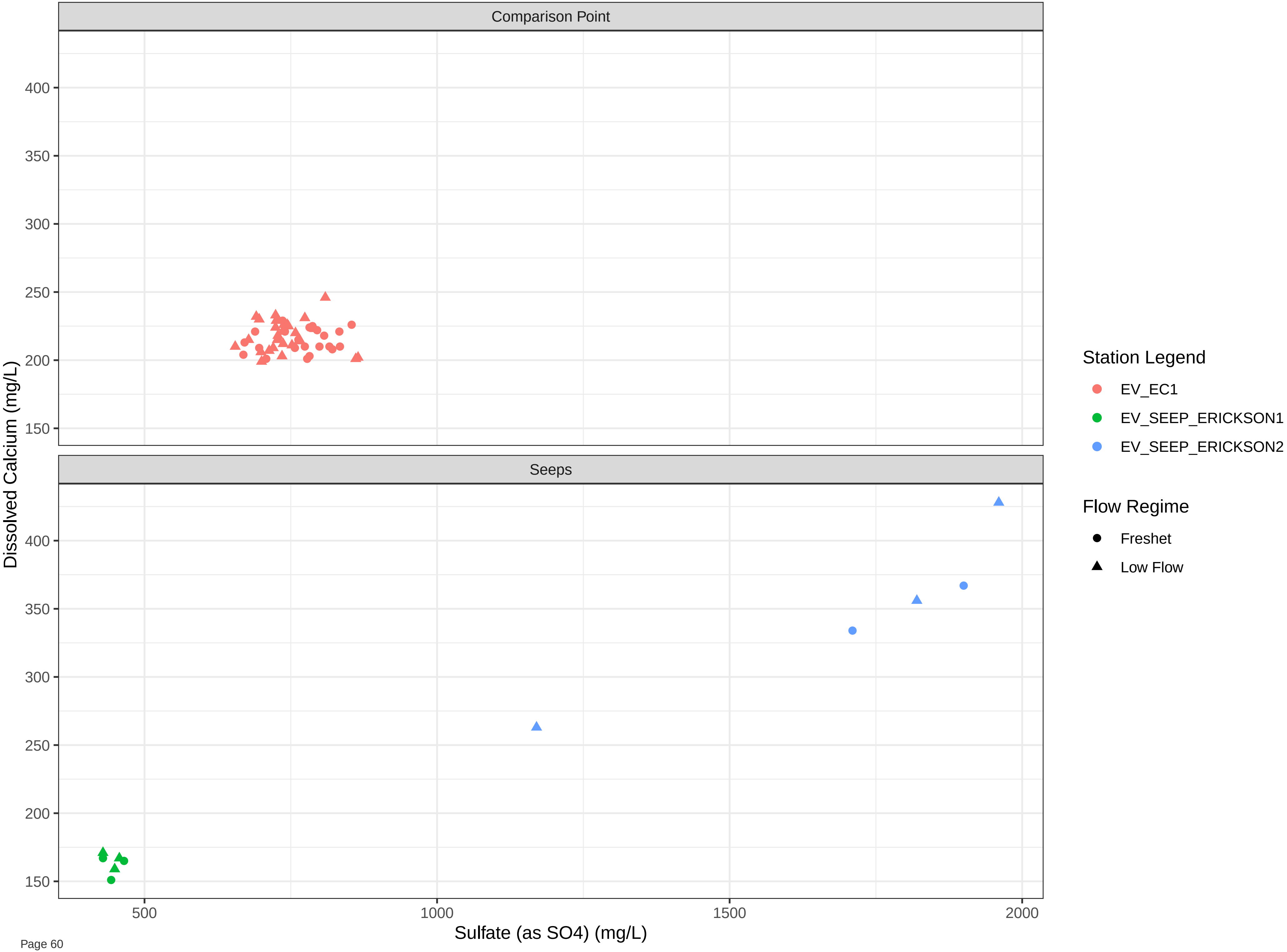

Comparison Point
Seeps
Dissolved Cadmium (mg/L)
0.00012
0.00009
0.00006
0.00003
0.00000
Sulfate (as SO4) (mg/L)
0
20
40
60
80
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

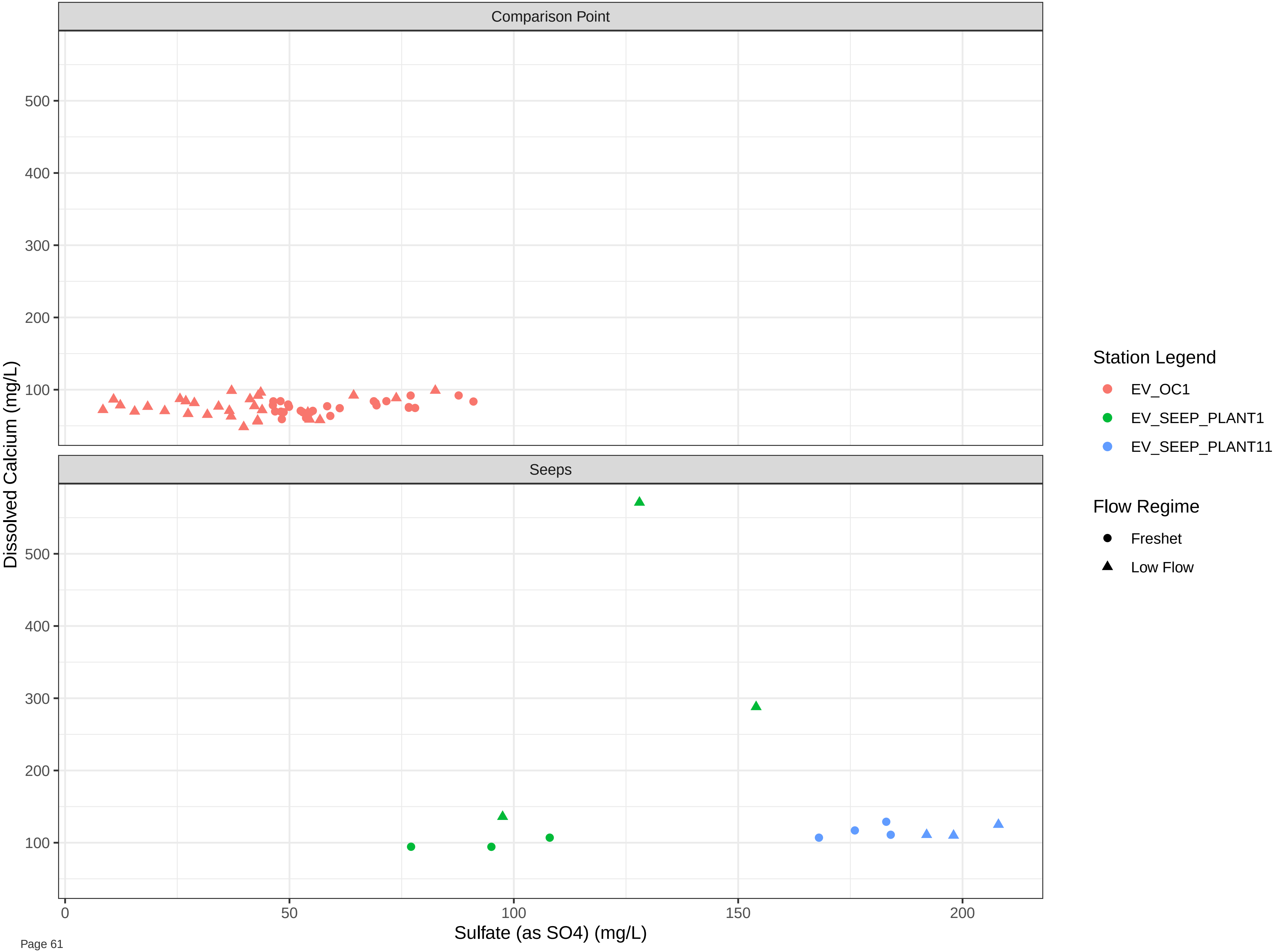

Comparison Point
Seeps
Dissolved Cadmium (mg/L)
0.0000
0.0005
0.0010
0.0015
Sulfate (as SO4) (mg/L)
500
1000
1500
2000
Station Legend
EV_SEEP_SOUTHPIT6
EV_SP1
Flow Regime
Freshet
Low Flow

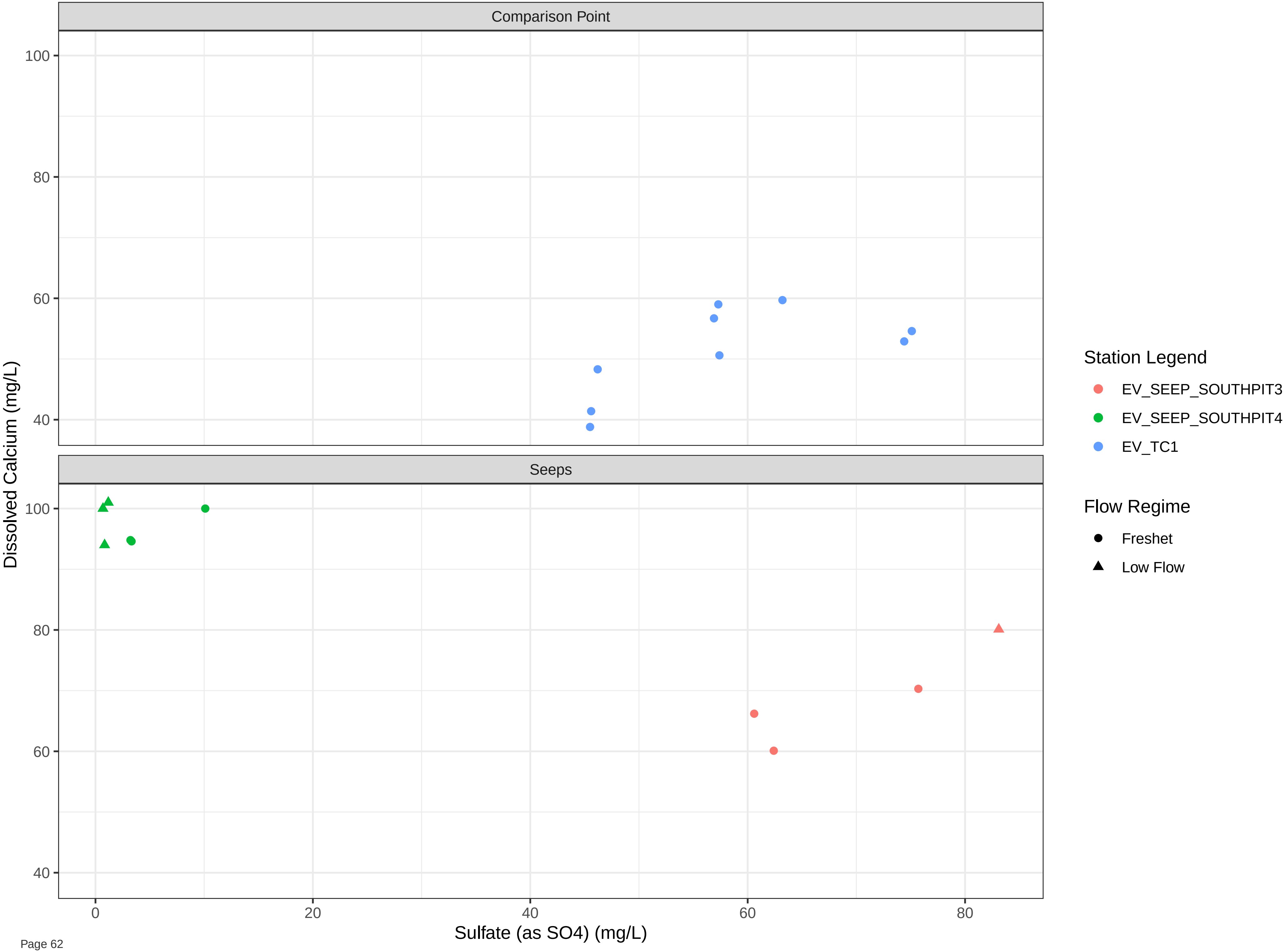

Comparison Point
Seeps
Dissolved Calcium (mg/L)
100
200
300
0
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

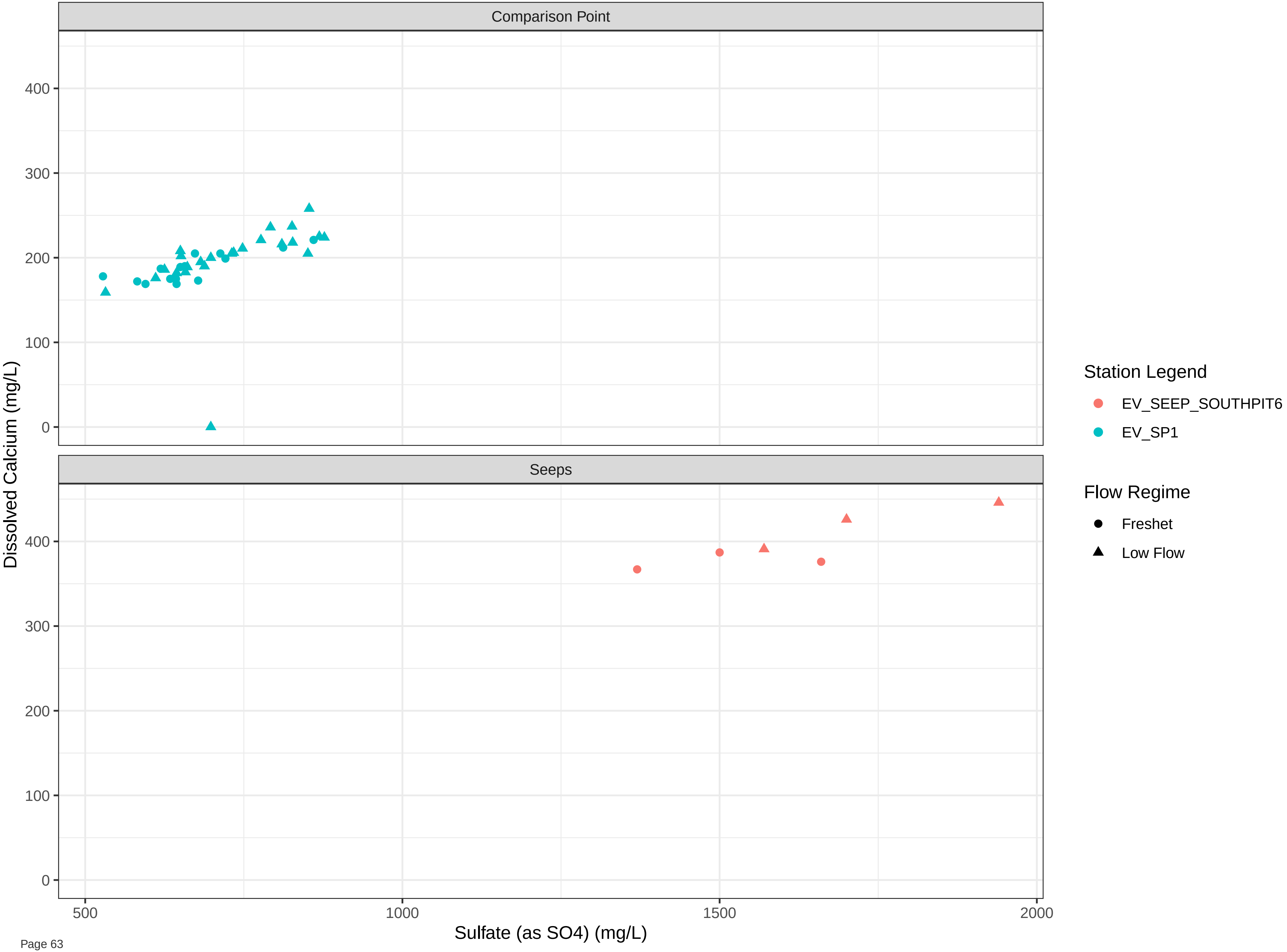

Comparison Point
Seeps
Dissolved Calcium (mg/L)
200
150
100
50
200
150
100
50
0
200
400
Sulfate (as SO4) (mg/L)
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

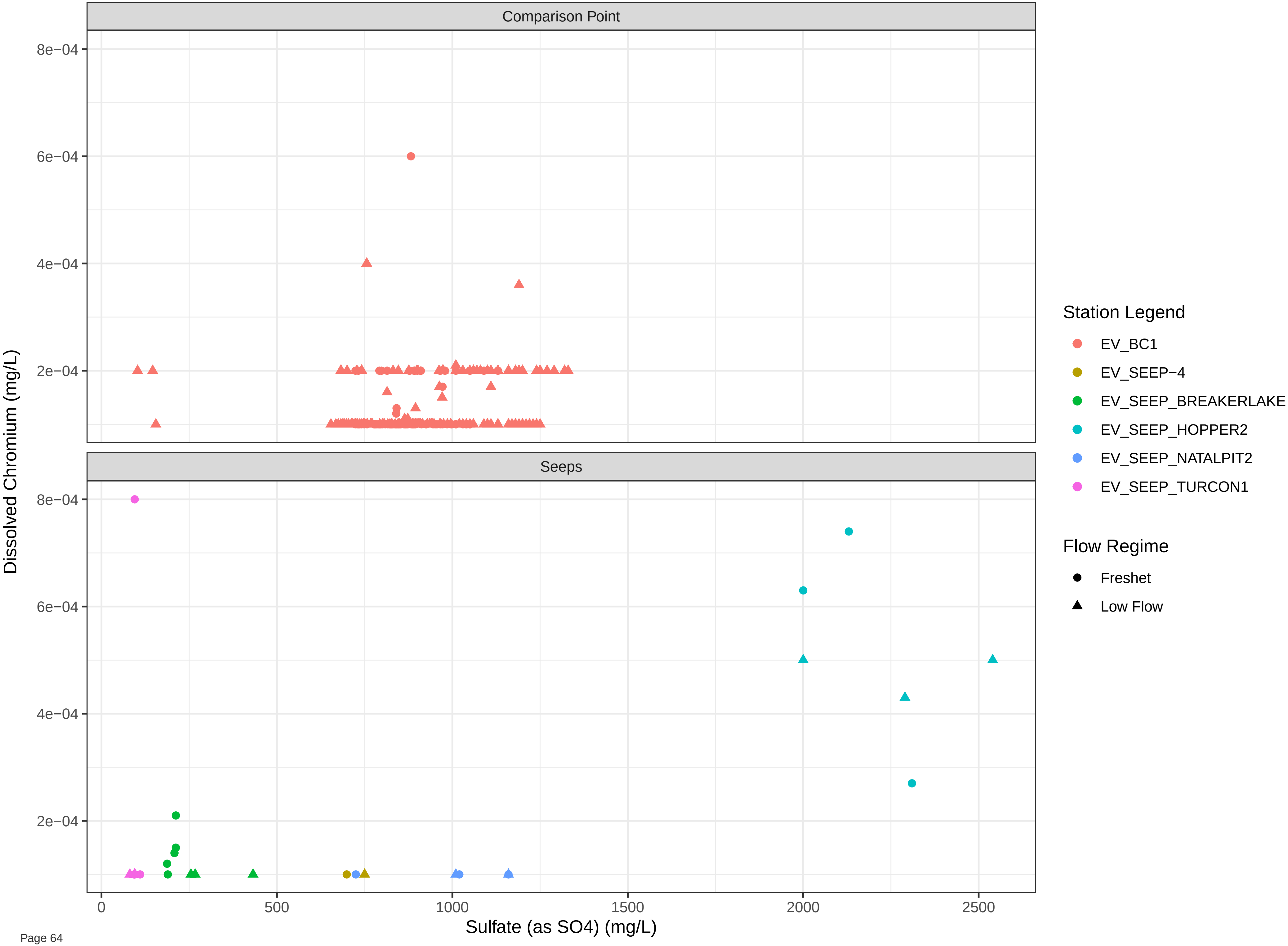

Comparison Point
Seeps
Dissolved Calcium (mg/L)
200
150
100
200
150
100
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
EV_GC2
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_WLAGC
Flow Regime
Freshet
Low Flow

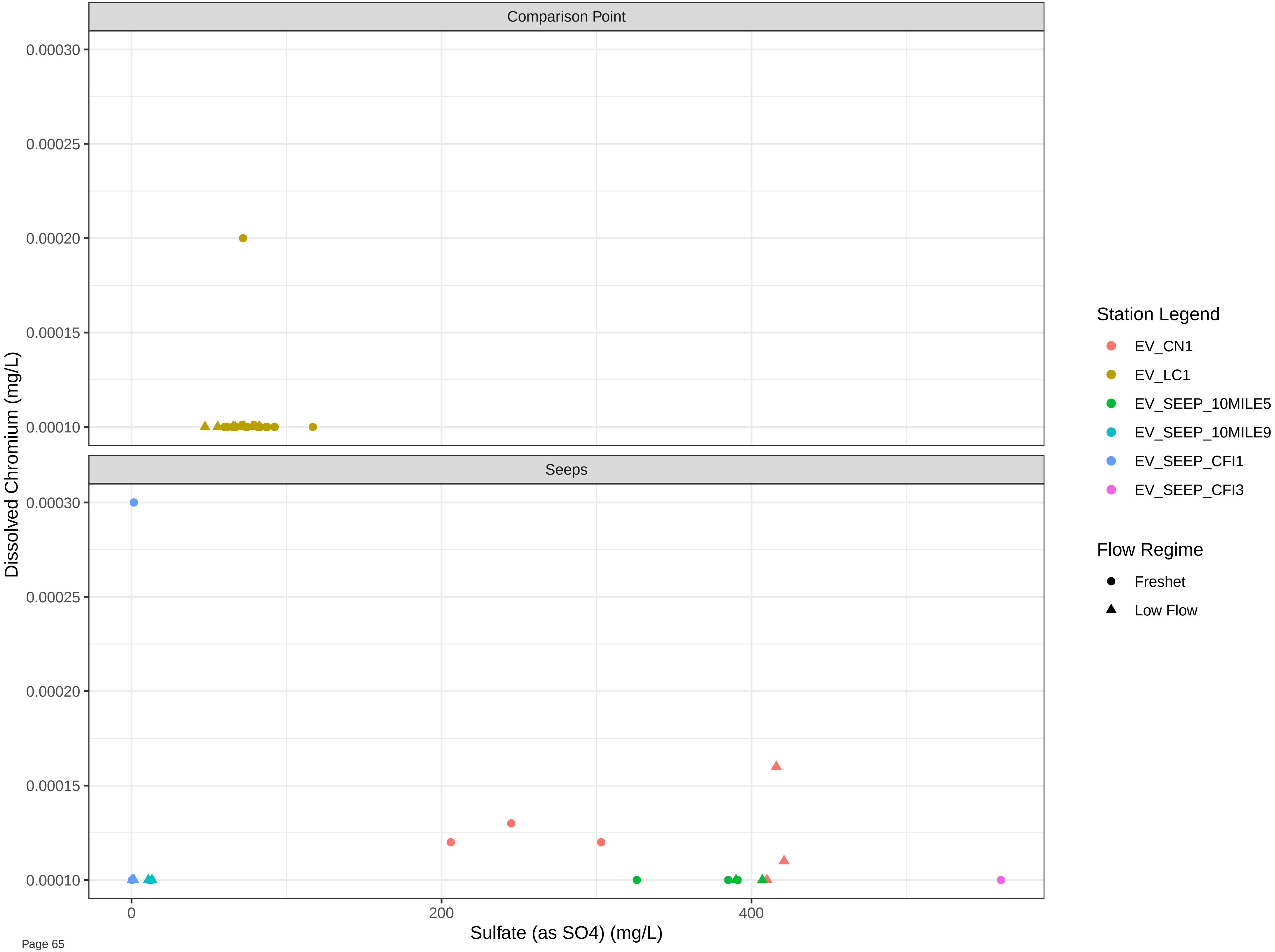

Comparison Point
Seeps
400
350
300
250
200
150
Dissolved Calcium (mg/L)
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
● EV_EC1
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

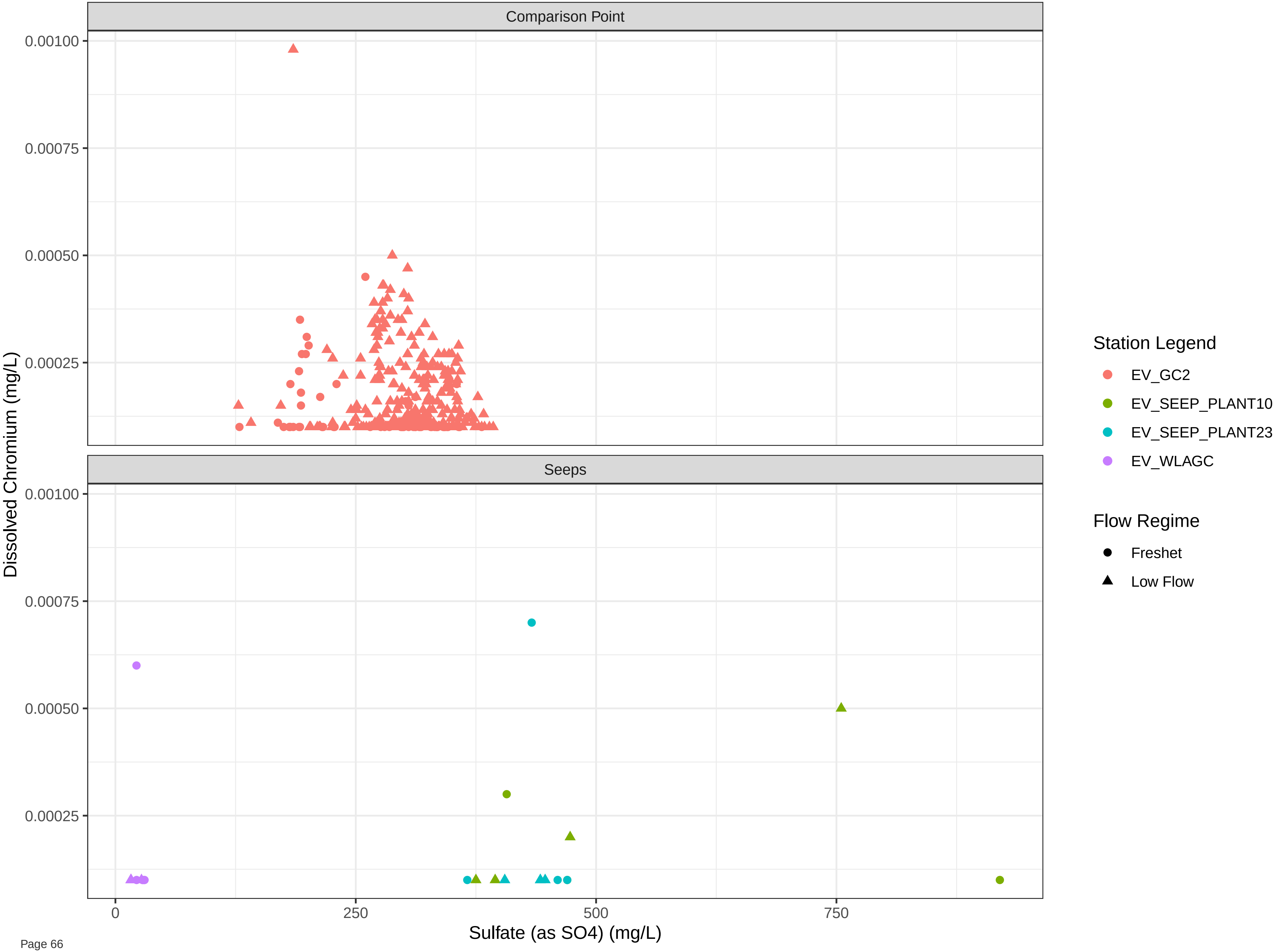

Comparison Point
Seeps
Dissolved Calcium (mg/L)
500
400
300
200
100
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

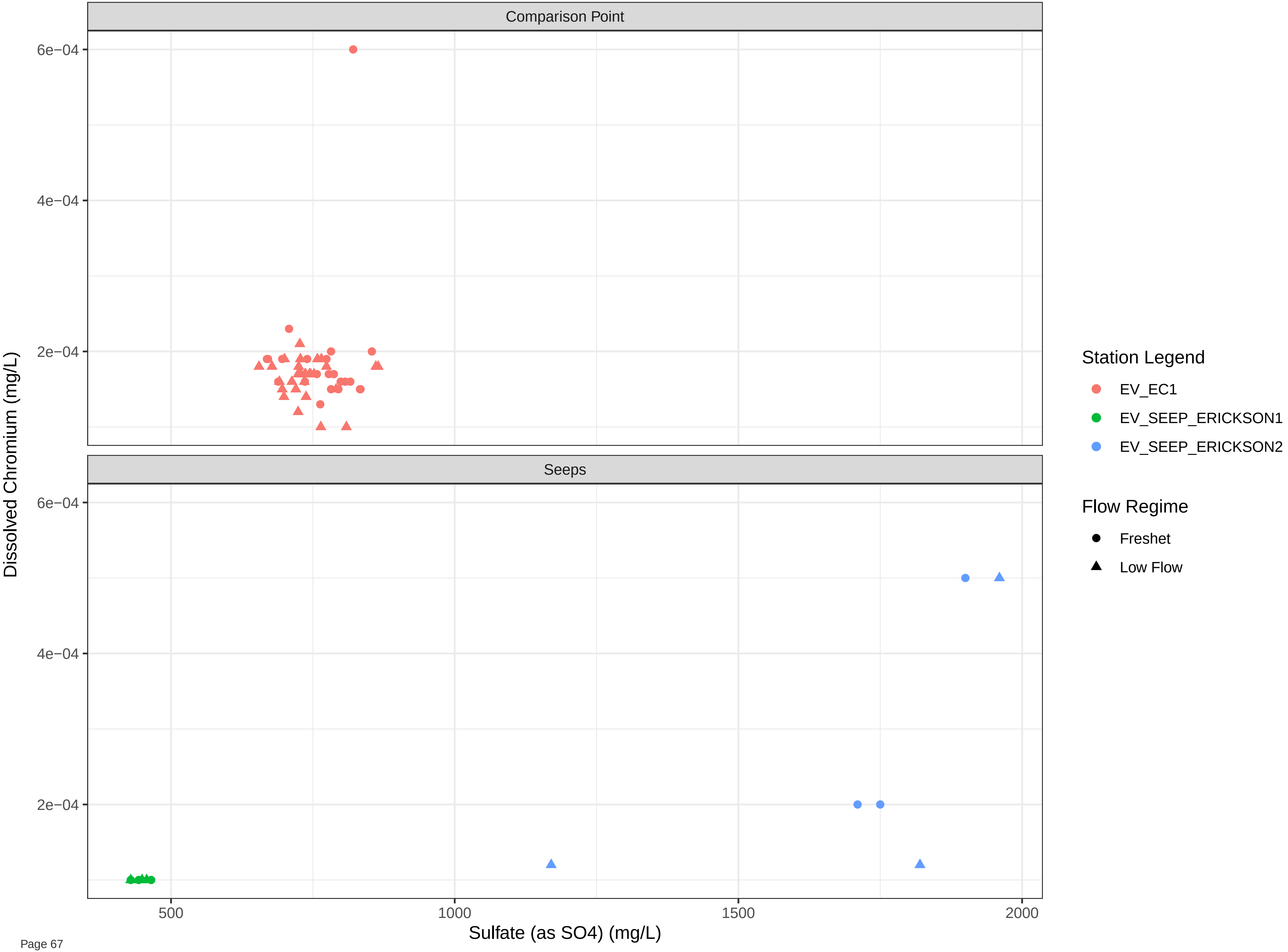

Comparison Point
Seeps
Dissolved Calcium (mg/L)
Sulfate (as SO4) (mg/L)
100
80
60
40
0
20
40
60
80
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

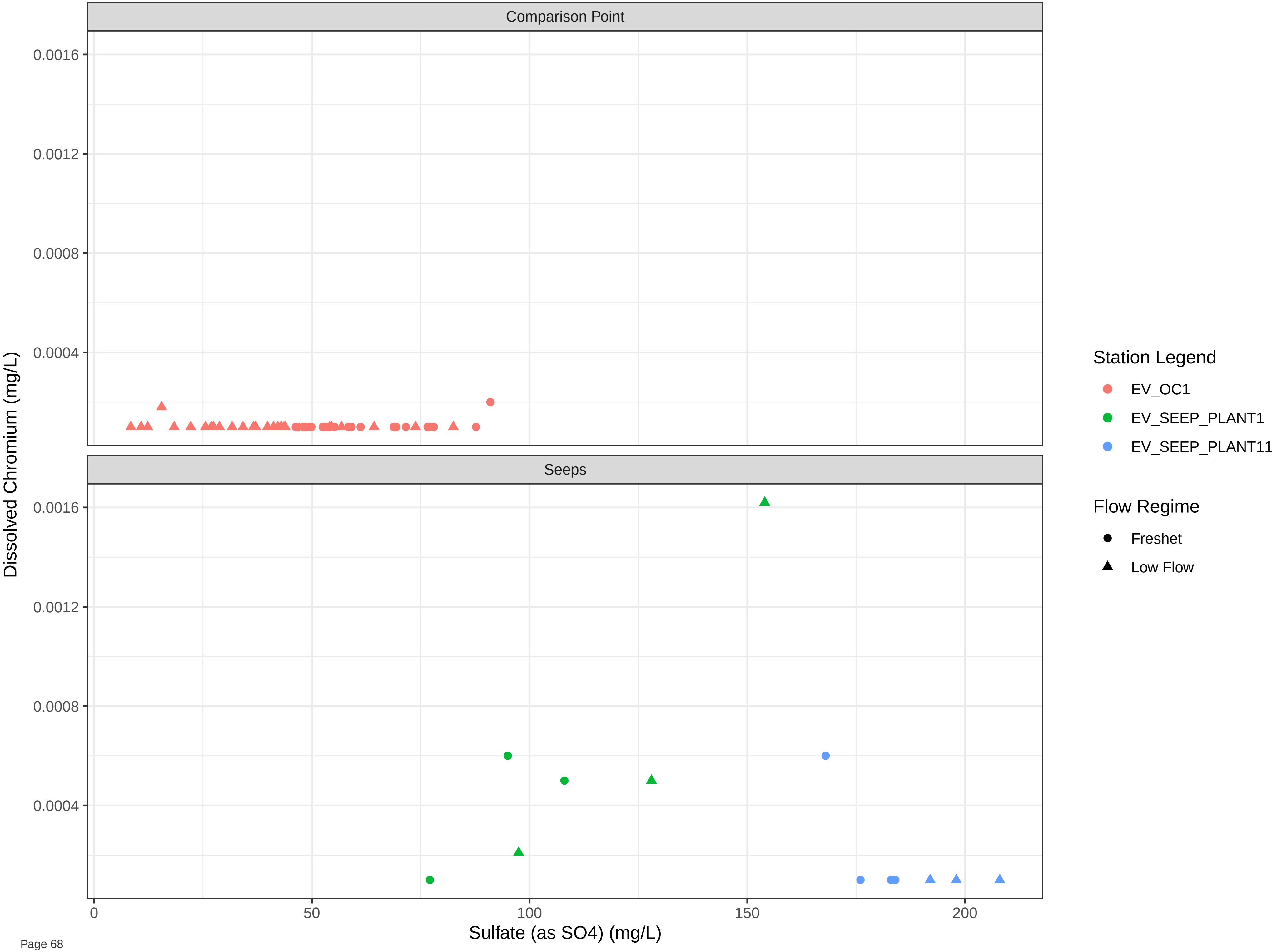

Comparison Point
Seeps
Dissolved Calcium (mg/L)
0
100
200
300
400
0
100
200
300
400
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
EV_SP1
Flow Regime
Freshet
Low Flow

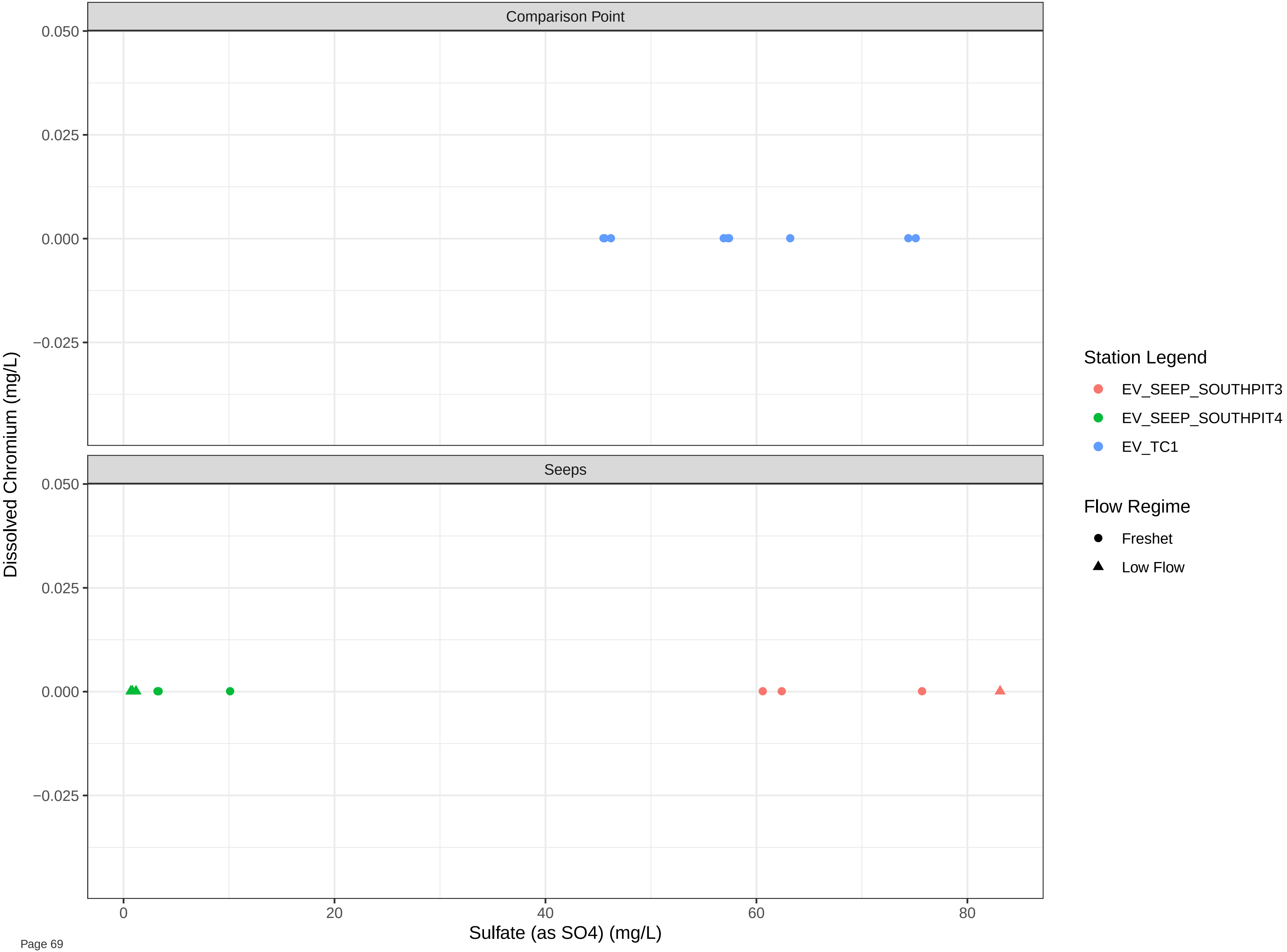

Comparison Point
Seeps
8e−04
6e−04
4e−04
2e−04
Dissolved Chromium (mg/L)
0
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

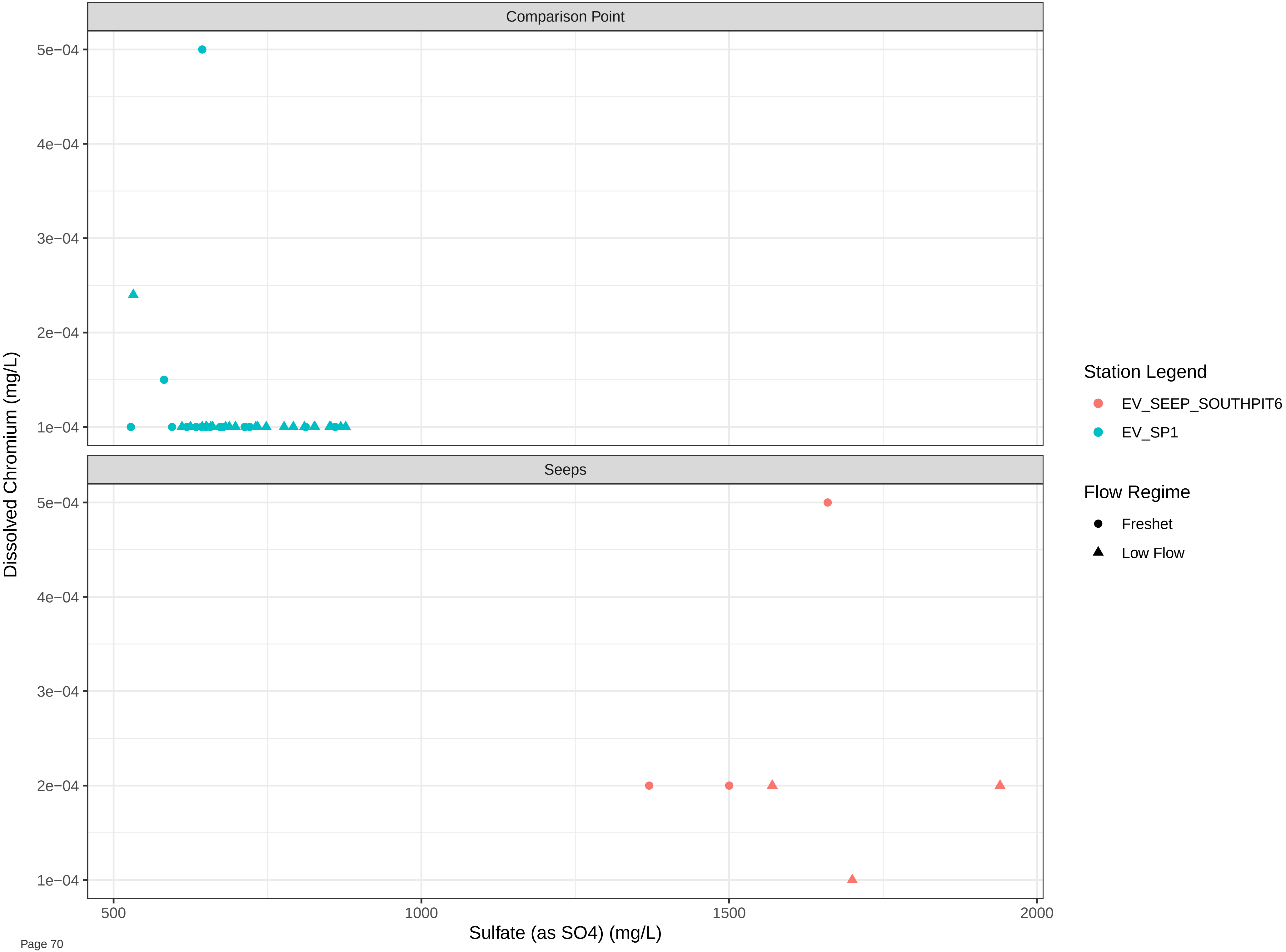

Comparison Point
Seeps
Dissolved Chromium (mg/L)
0.00030
0.00025
0.00020
0.00015
0.00010
0
200
400
Sulfate (as SO4) (mg/L)
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

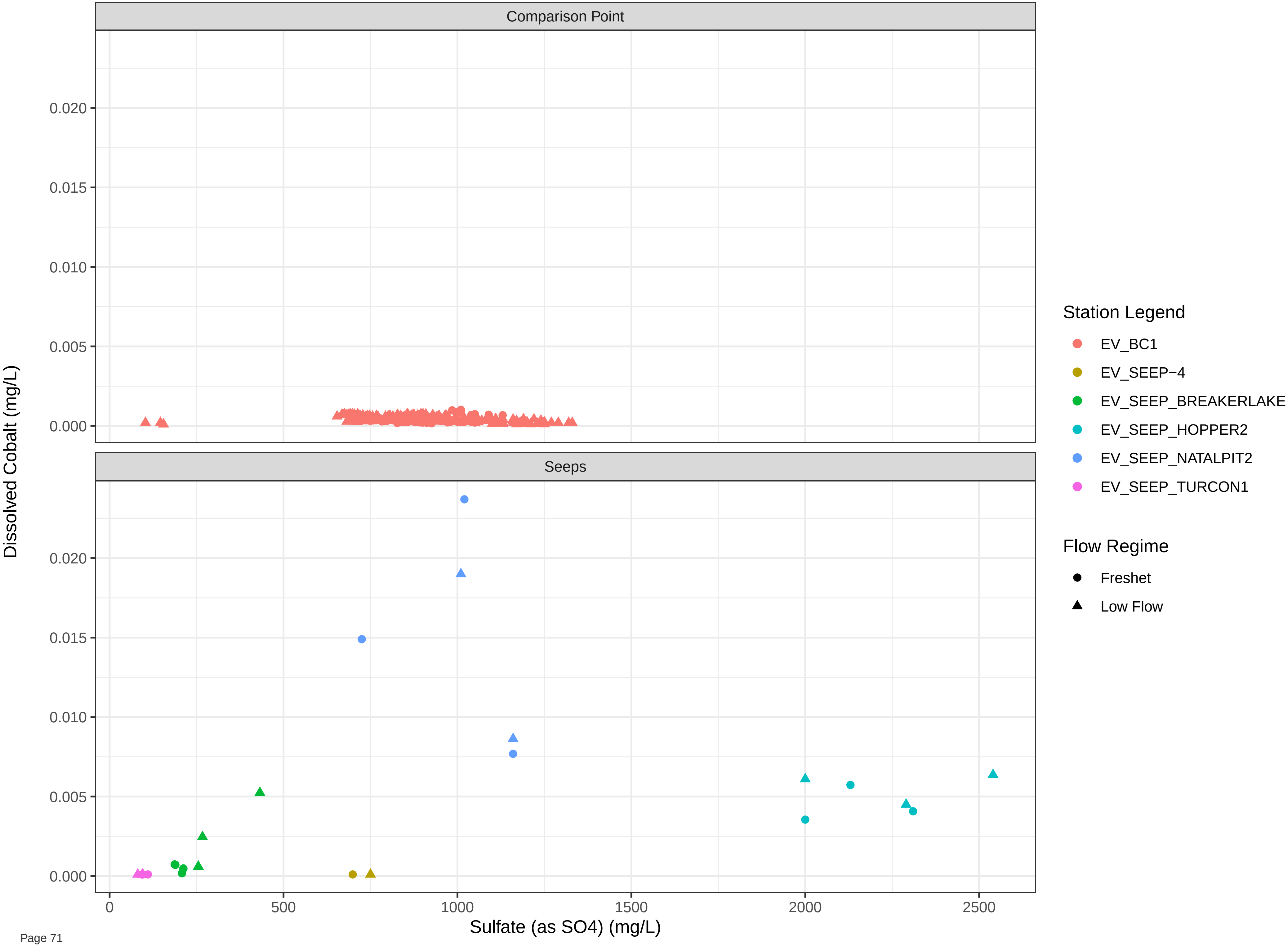

Comparison Point
Seeps
Dissolved Chromium (mg/L)
0.00100
0.00075
0.00050
0.00025
Sulfate (as SO4) (mg/L)
0
250
500
750
Station Legend
EV_GC2
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_WLAGC
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
Dissolved Chromium (mg/L)
6e−04
4e−04
2e−04
6e−04
4e−04
2e−04
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

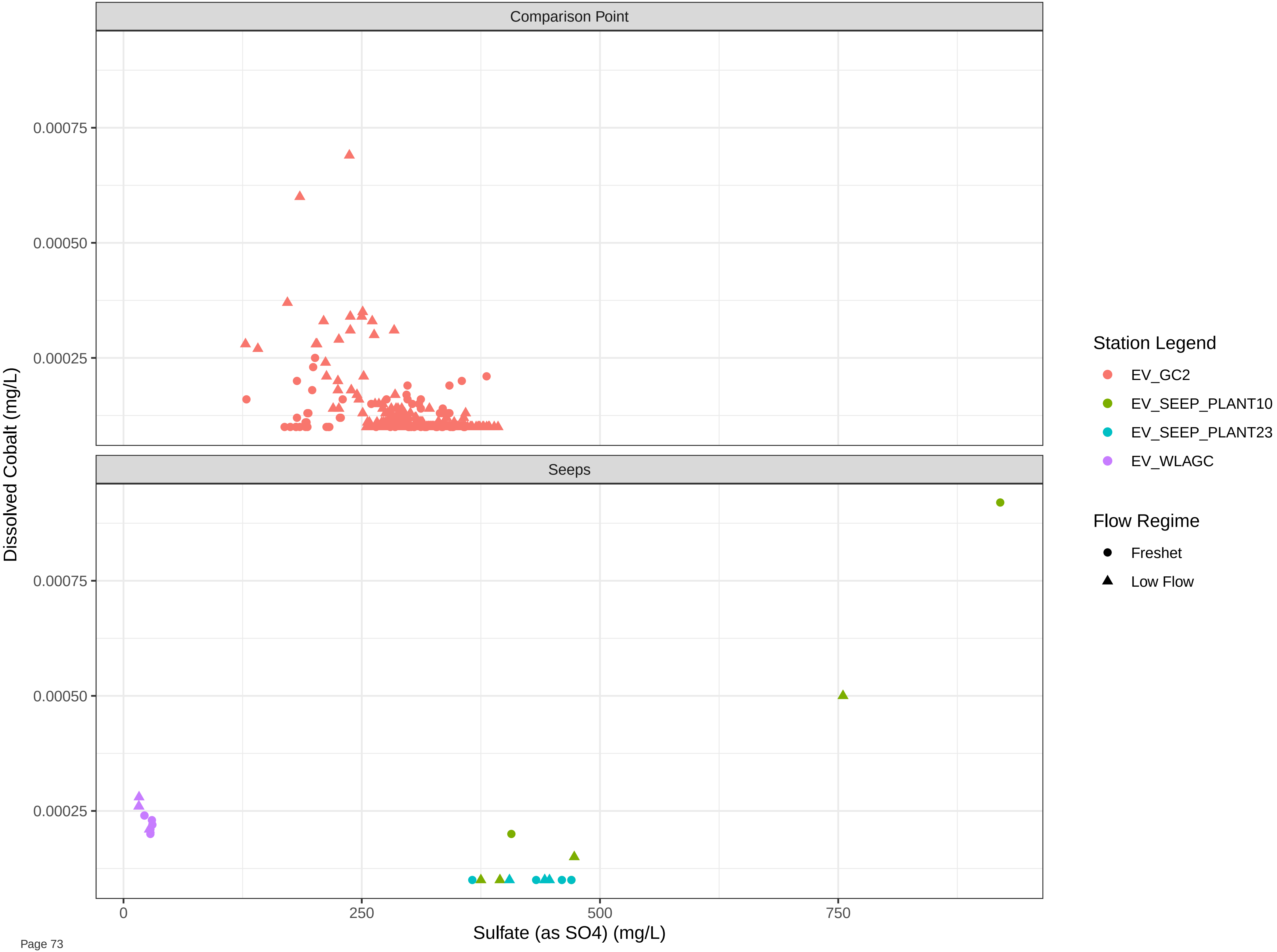

Comparison Point
Seeps
Dissolved Chromium (mg/L)
0.0016
0.0012
0.0008
0.0004
0.0016
0.0012
0.0008
0.0004
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

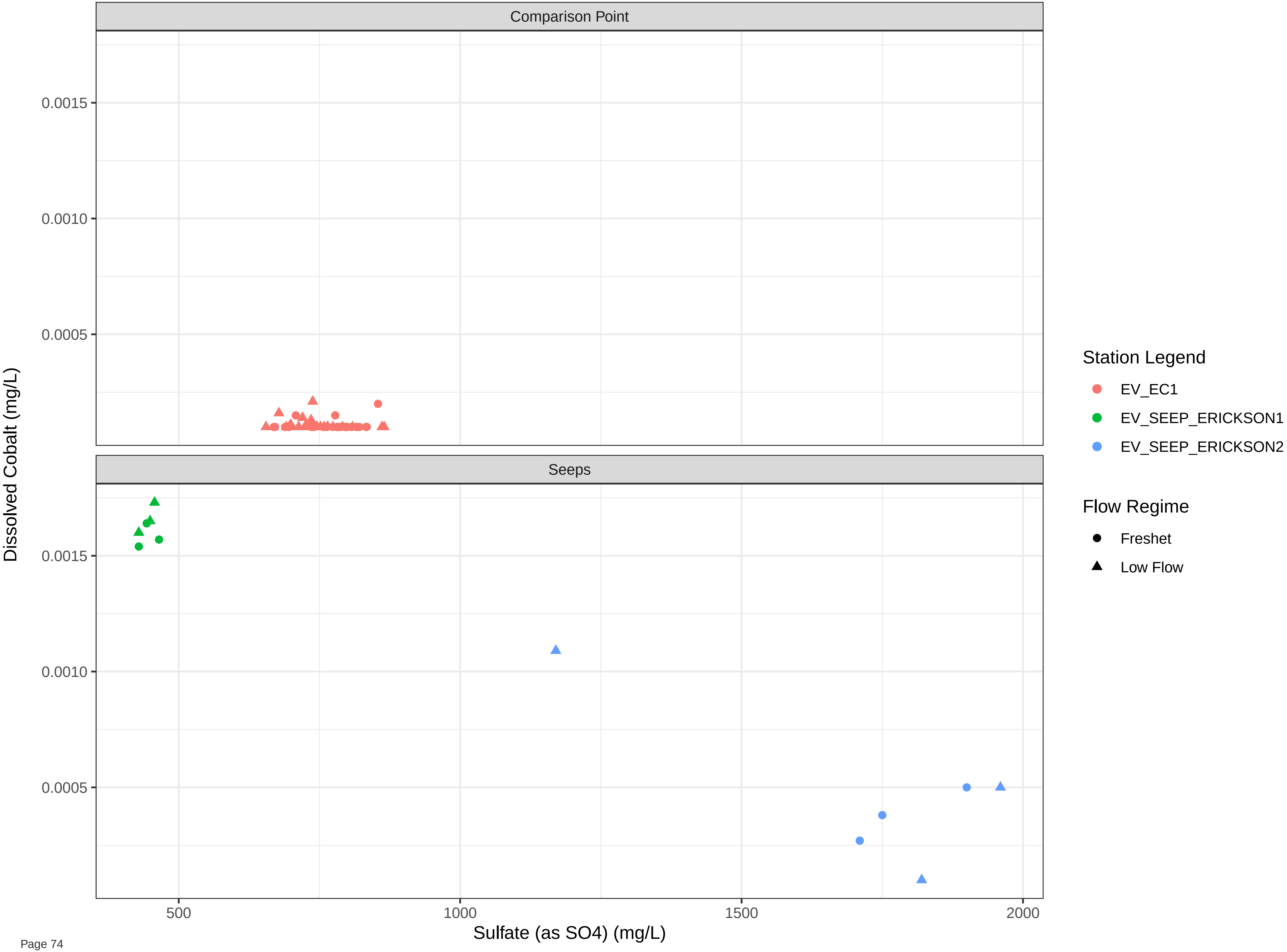

Comparison Point
Seeps
Dissolved Chromium (mg/L)
0.050
0.025
0.000
−0.025
0.050
0.025
0.000
−0.025
0
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

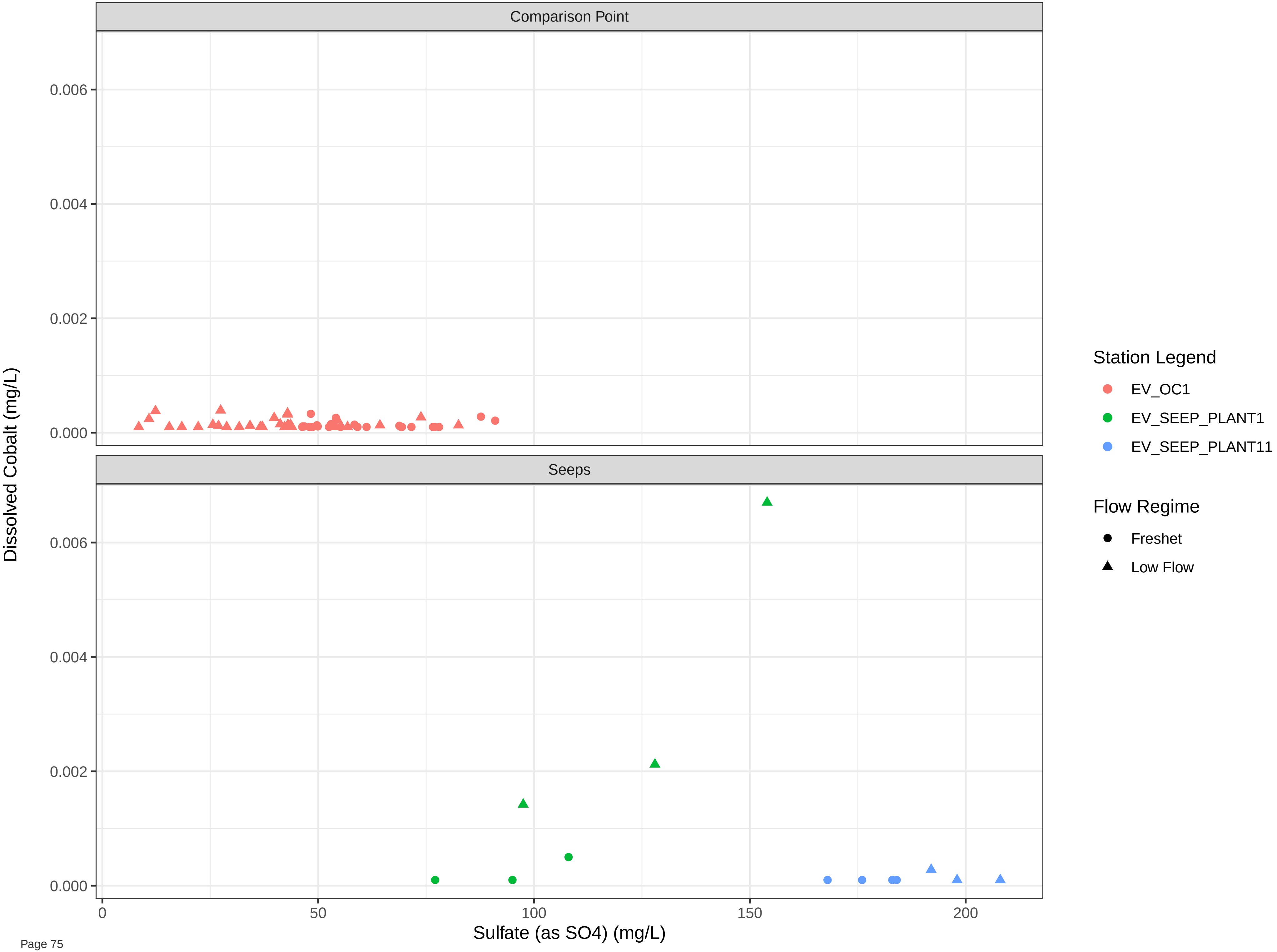

Comparison Point
Seeps
Dissolved Chromium (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
EV_SP1
Flow Regime
Freshet
Low Flow

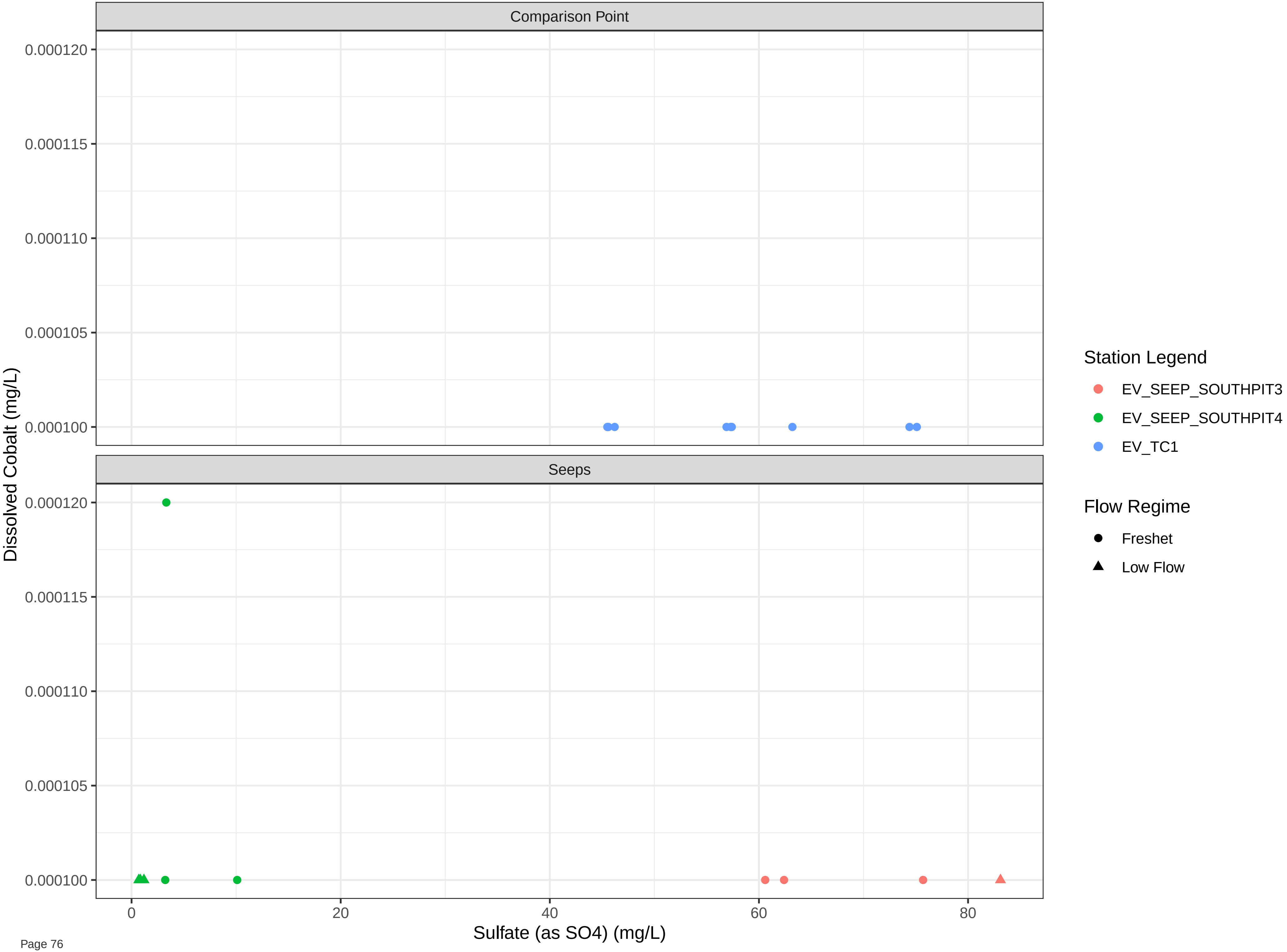

Comparison Point
Seeps
Dissolved Cobalt (mg/L)
0.000
0.005
0.010
0.015
0.020
0
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

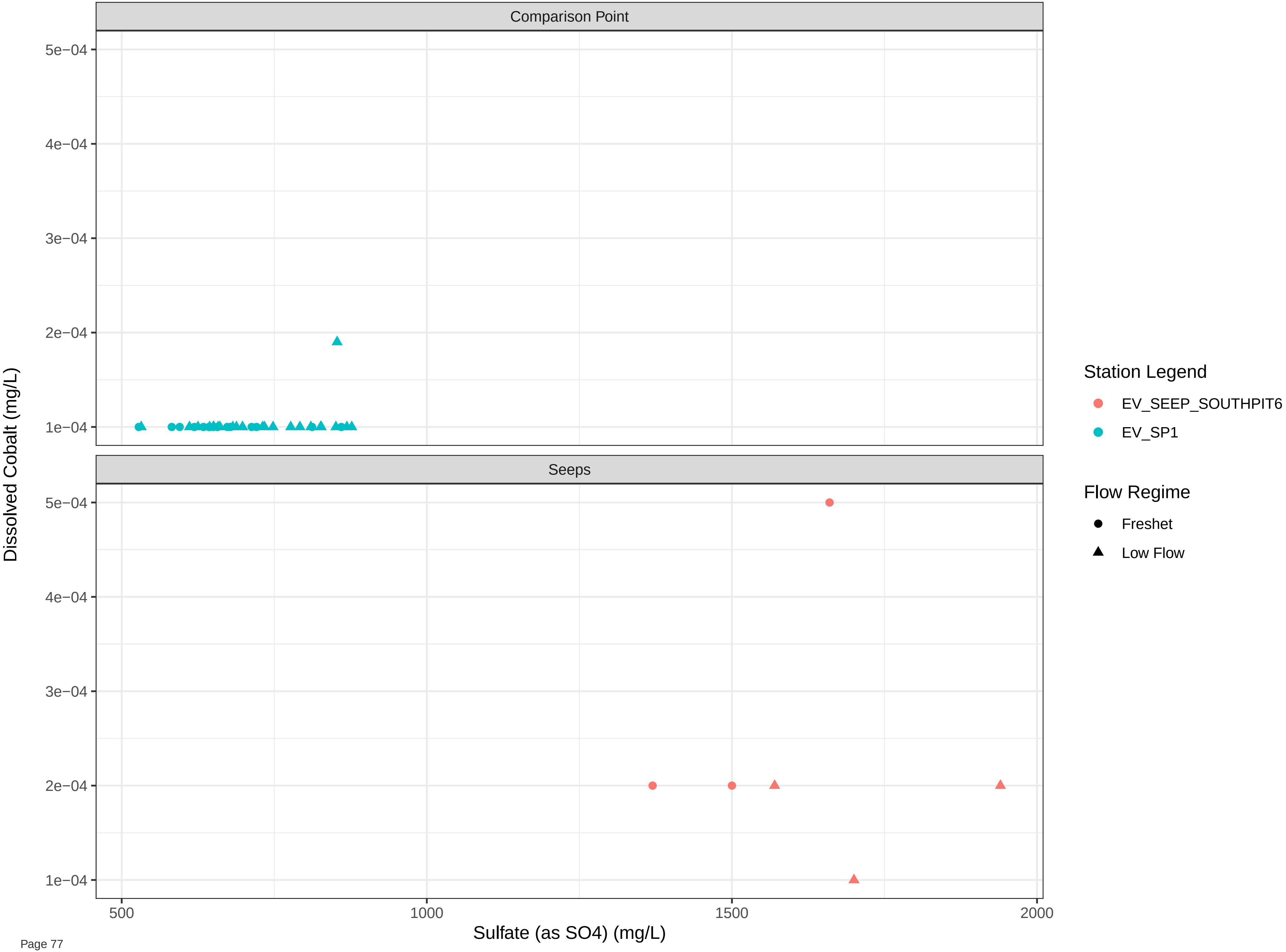

Comparison Point
Seeps
Dissolved Cobalt (mg/L)
0.0020
0.0015
0.0010
0.0005
0
200
400
Sulfate (as SO4) (mg/L)
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

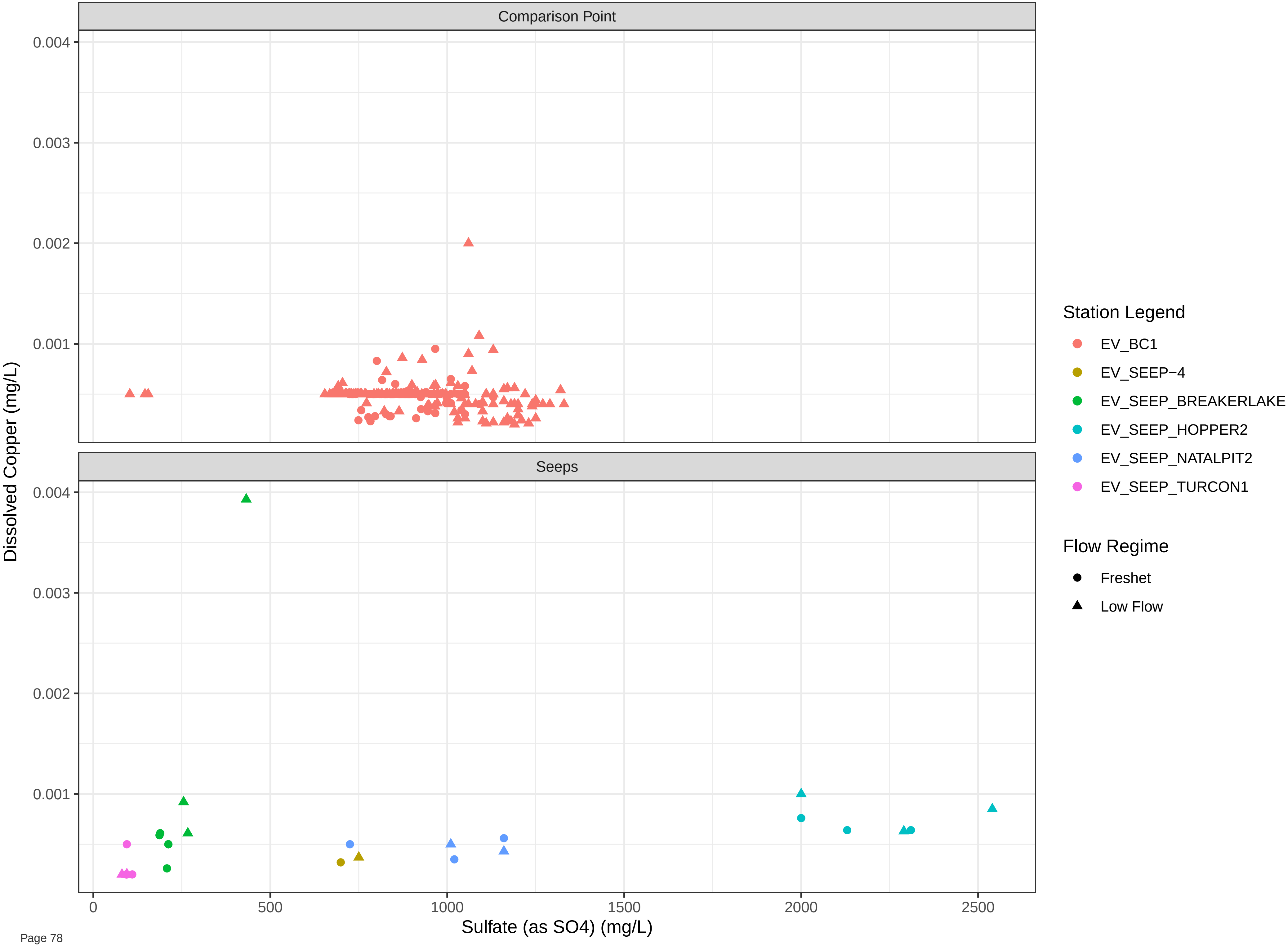

Comparison Point
Seeps
Dissolved Cobalt (mg/L)
0.00075
0.00050
0.00025
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
EV_GC2
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_WLAGC
Flow Regime
Freshet
Low Flow

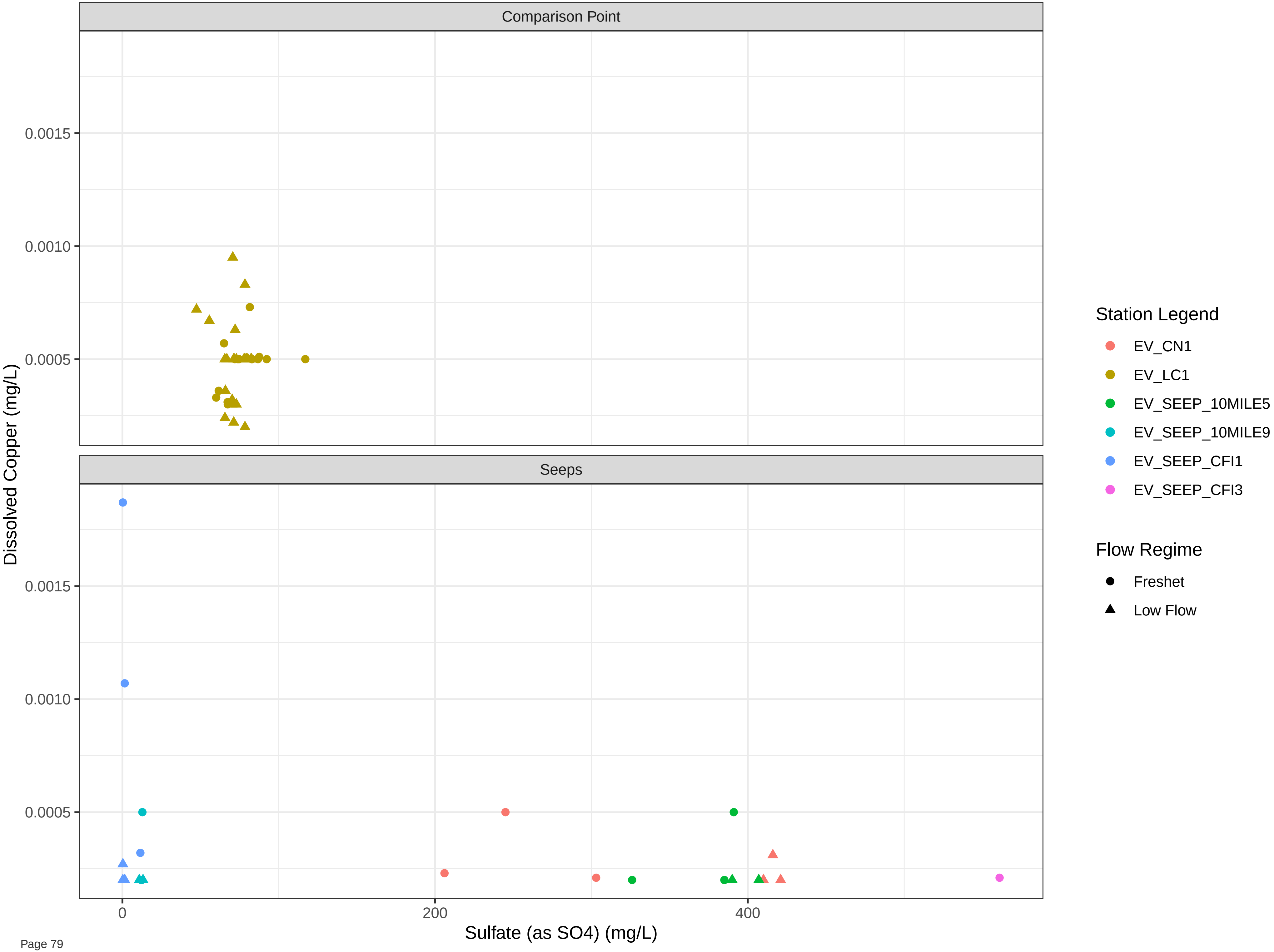

Comparison Point
Seeps
Dissolved Cobalt (mg/L)
0.0015
0.0010
0.0005
0.0015
0.0010
0.0005
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

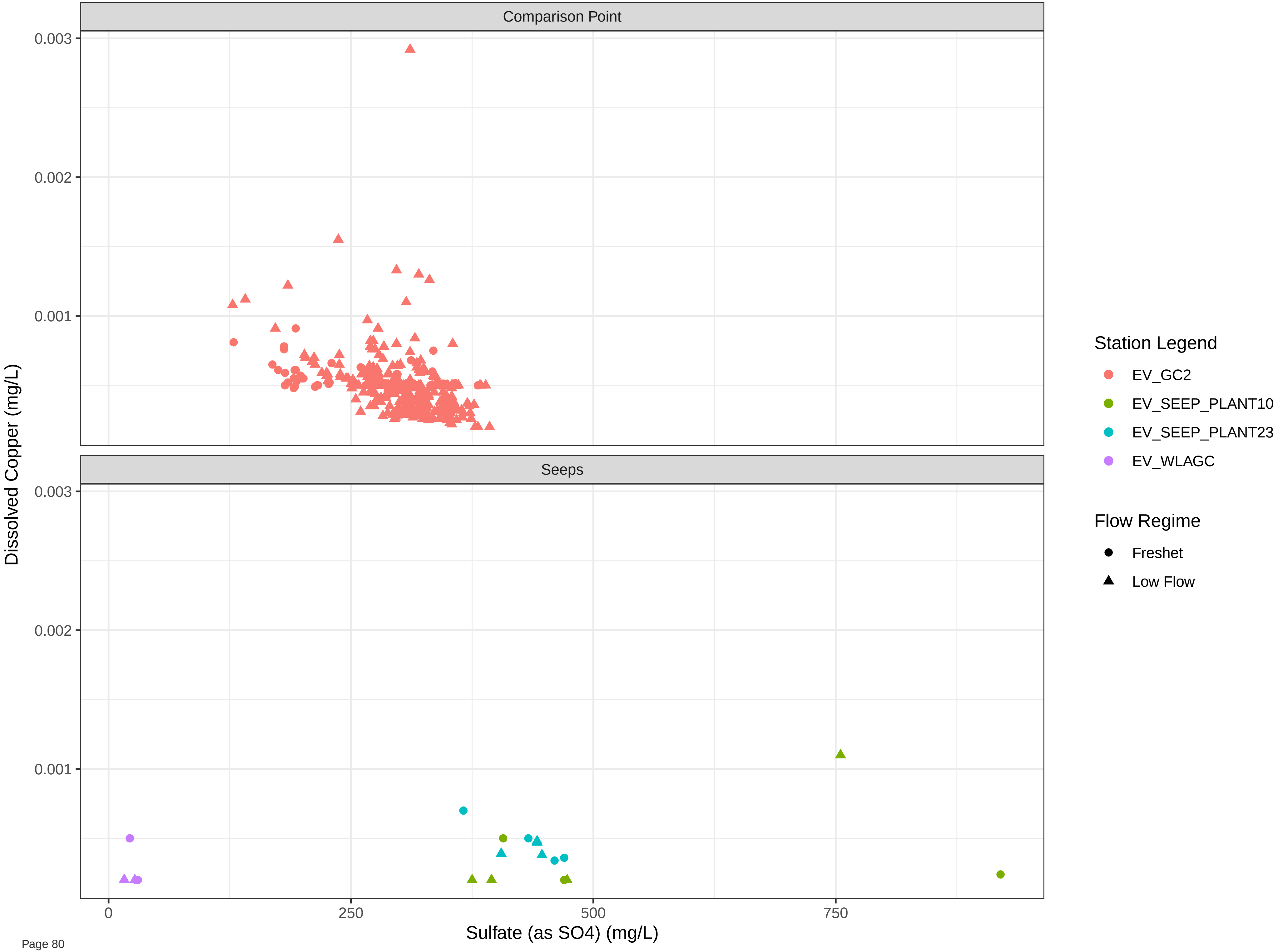

Comparison Point
Seeps
0.006
0.004
0.002
0.000
Dissolved Cobalt (mg/L)
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

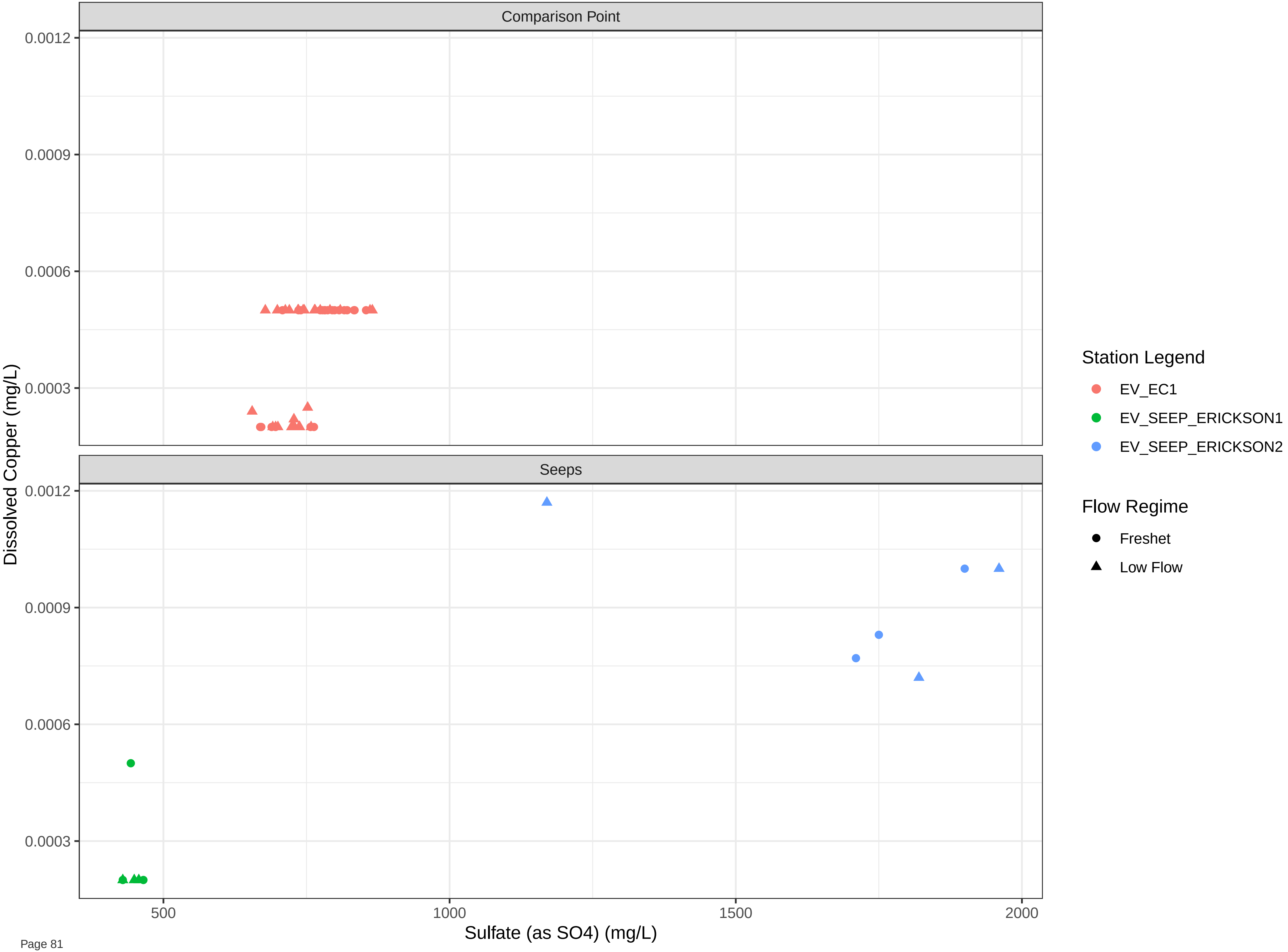

Comparison Point
Seeps
0.000120
0.000115
0.000110
0.000105
0.000100
Dissolved Cobalt (mg/L)
0
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

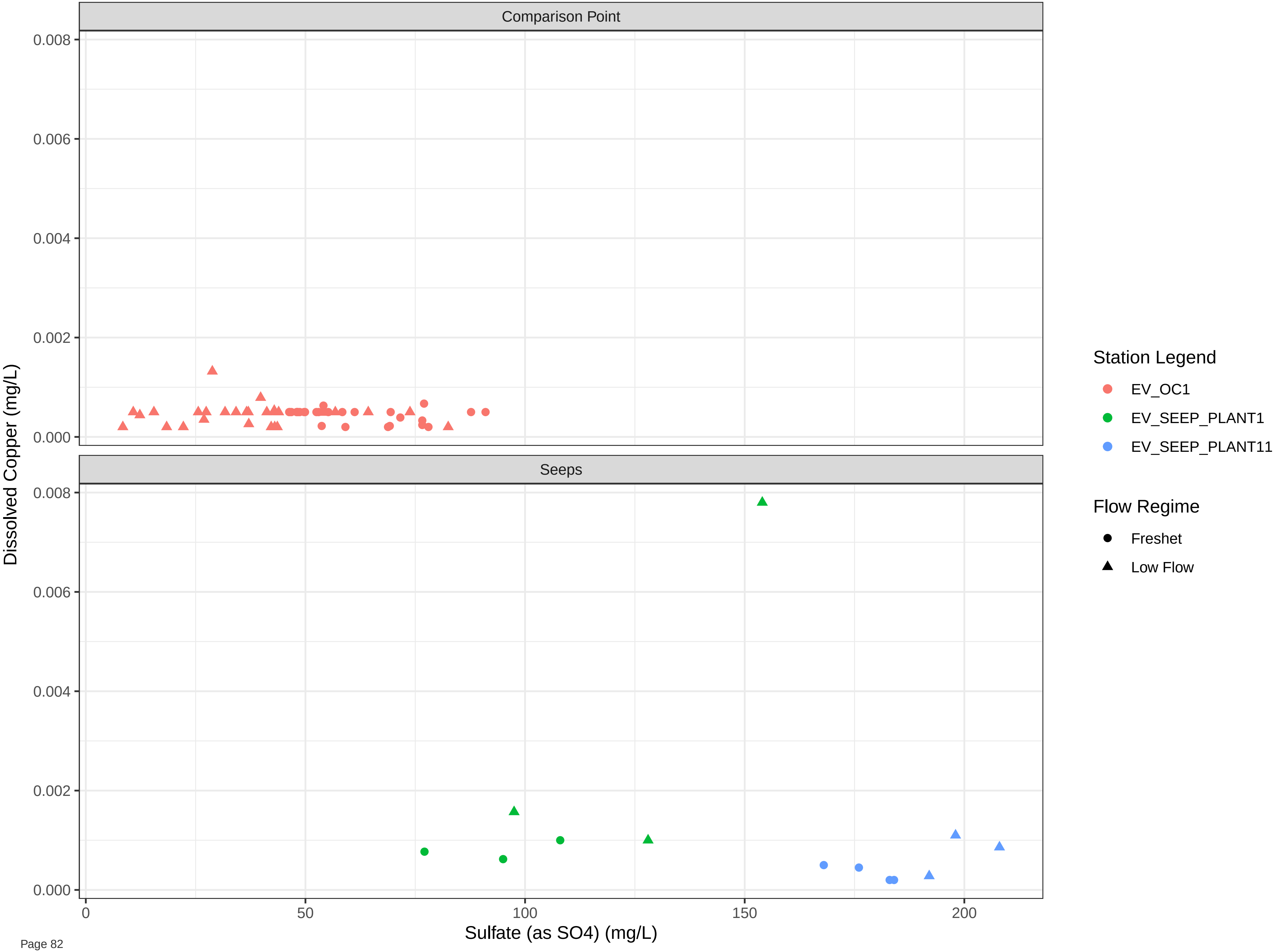

Comparison Point
Seeps
Dissolved Cobalt (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT6
● EV_SP1
Flow Regime
● Freshet
▲ Low Flow

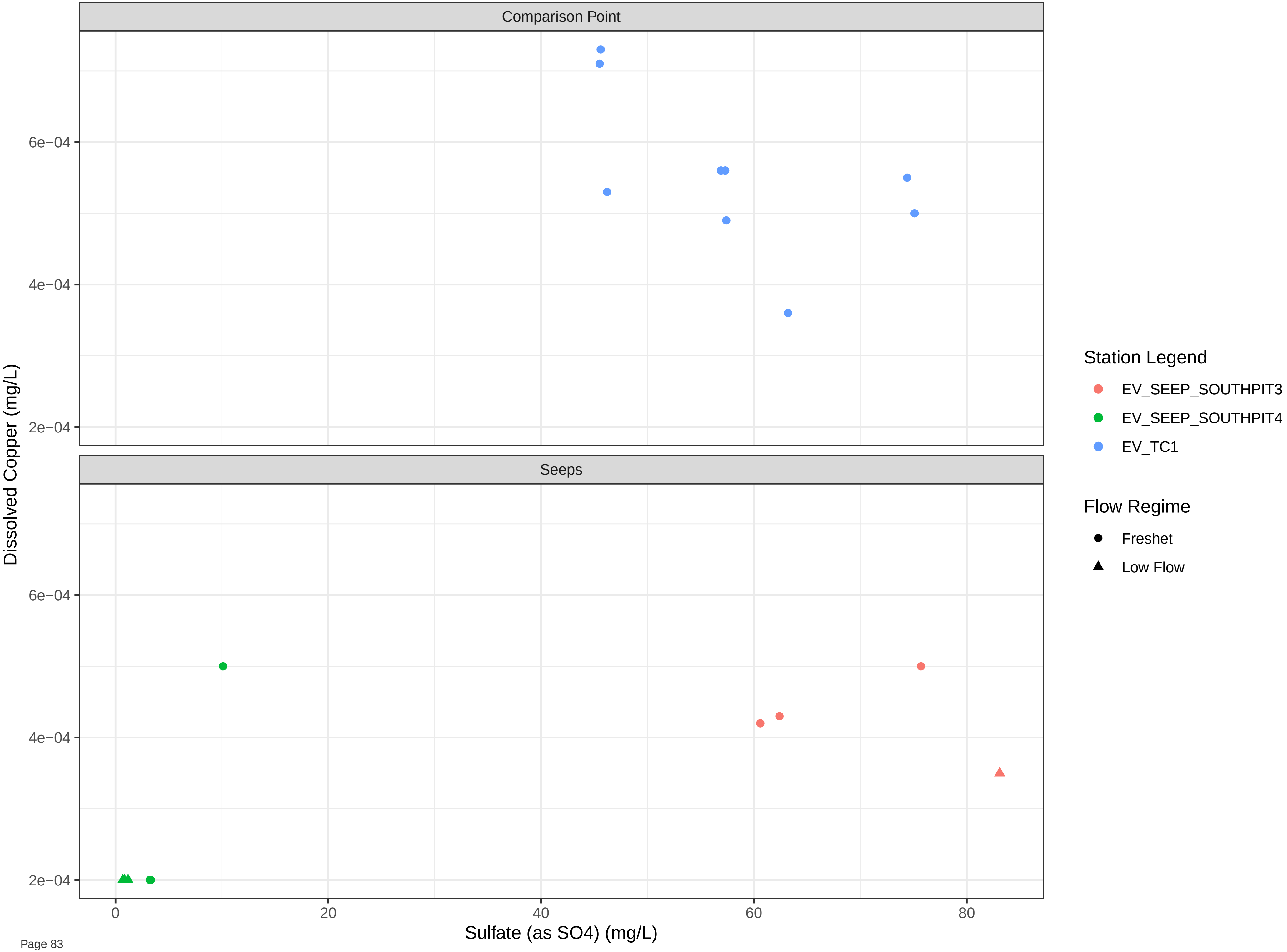

Comparison Point
Seeps
0.004
0.003
0.002
0.001
Dissolved Copper (mg/L)
0
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

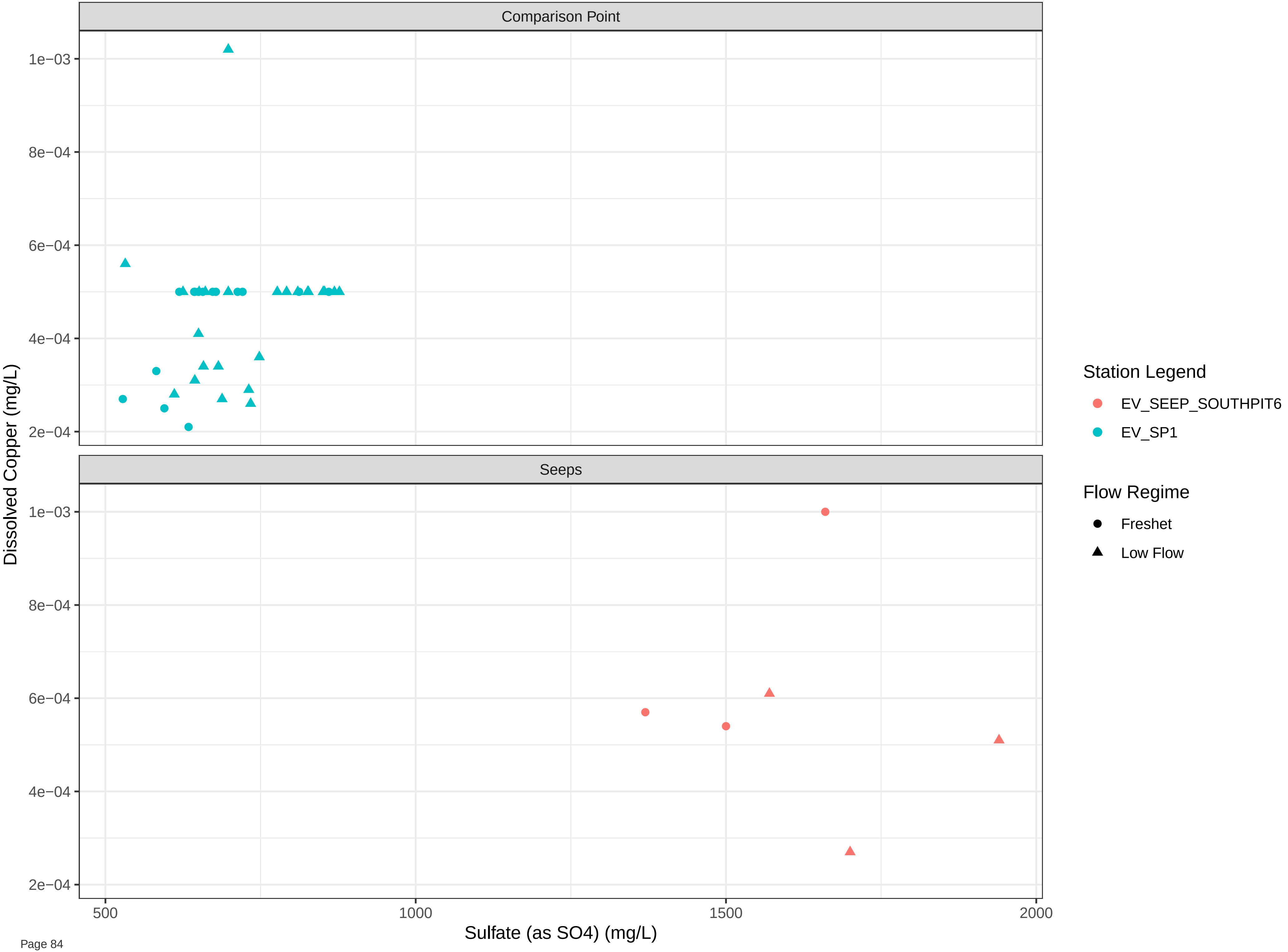

Comparison Point
Seeps
Dissolved Copper (mg/L)
0.0015
0.0010
0.0005
0
200
400
Sulfate (as SO4) (mg/L)
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

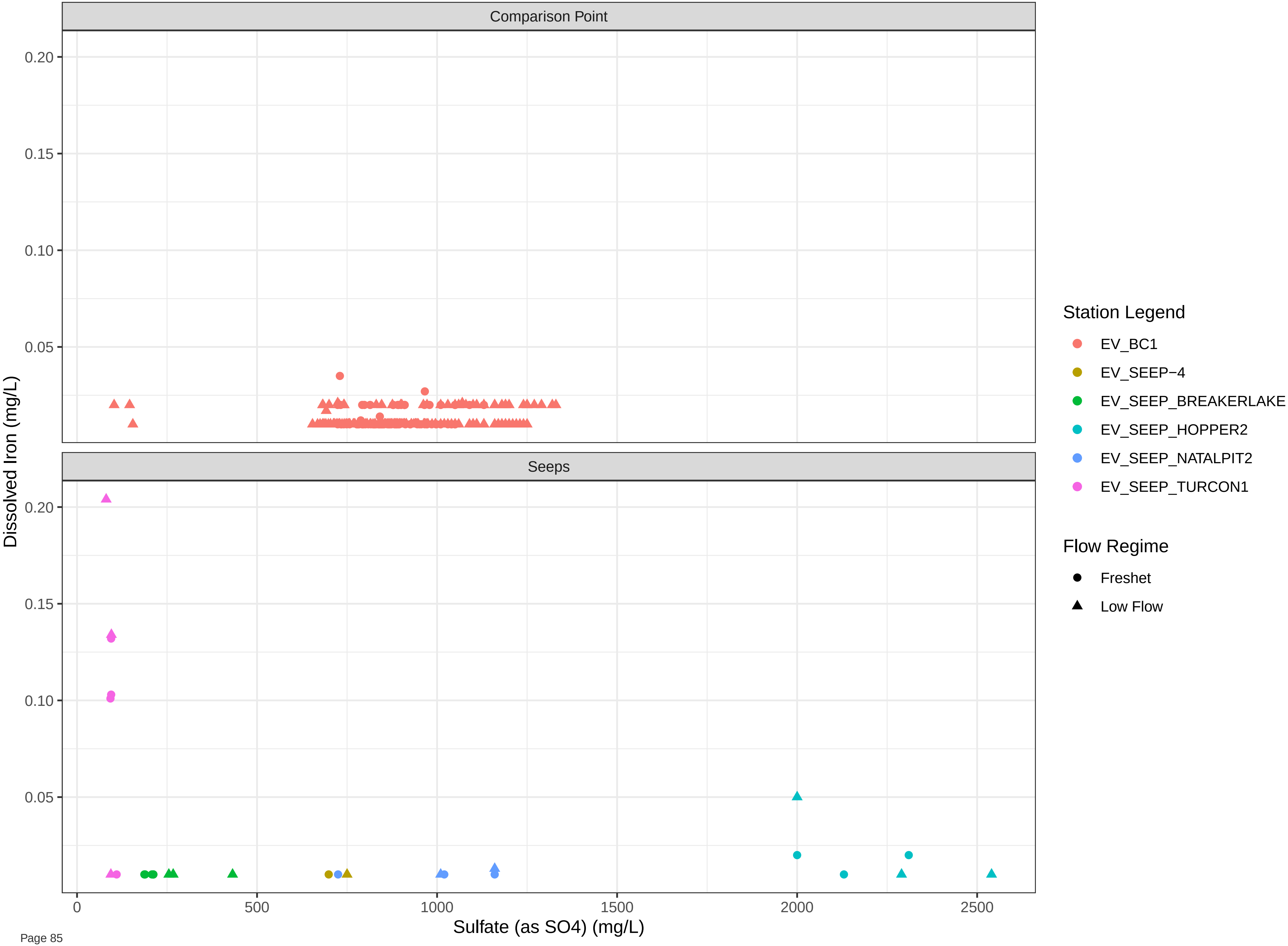

Comparison Point
Seeps
0.003
0.002
0.001
0
250
500
750
Dissolved Copper (mg/L)
Sulfate (as SO4) (mg/L)
Station Legend
EV_GC2
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_WLAGC
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
Dissolved Copper (mg/L)
0.0012
0.0009
0.0006
0.0003
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

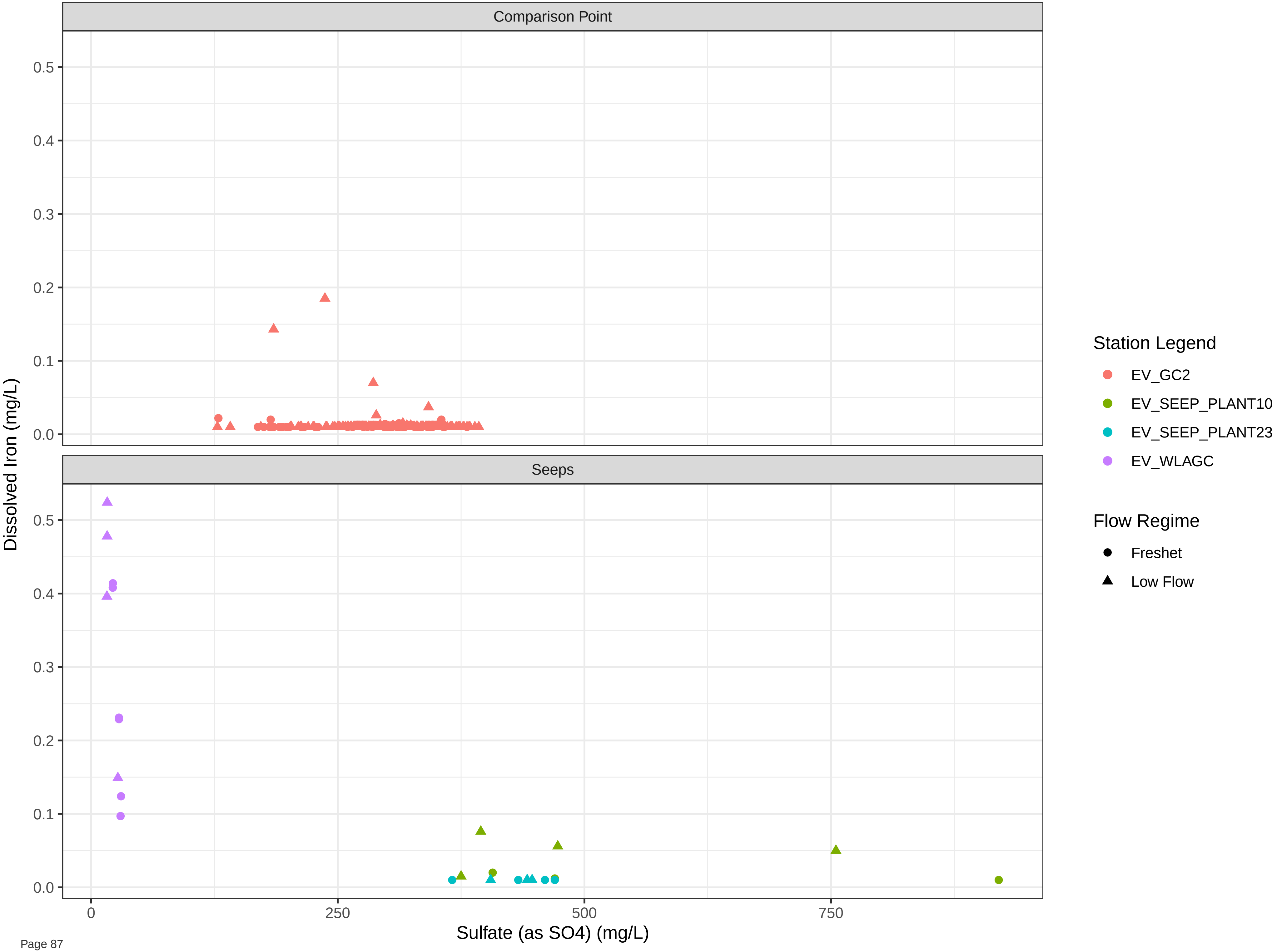

Comparison Point
Seeps
Dissolved Copper (mg/L)
0.008
0.006
0.004
0.002
0.000
0.008
0.006
0.004
0.002
0.000
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

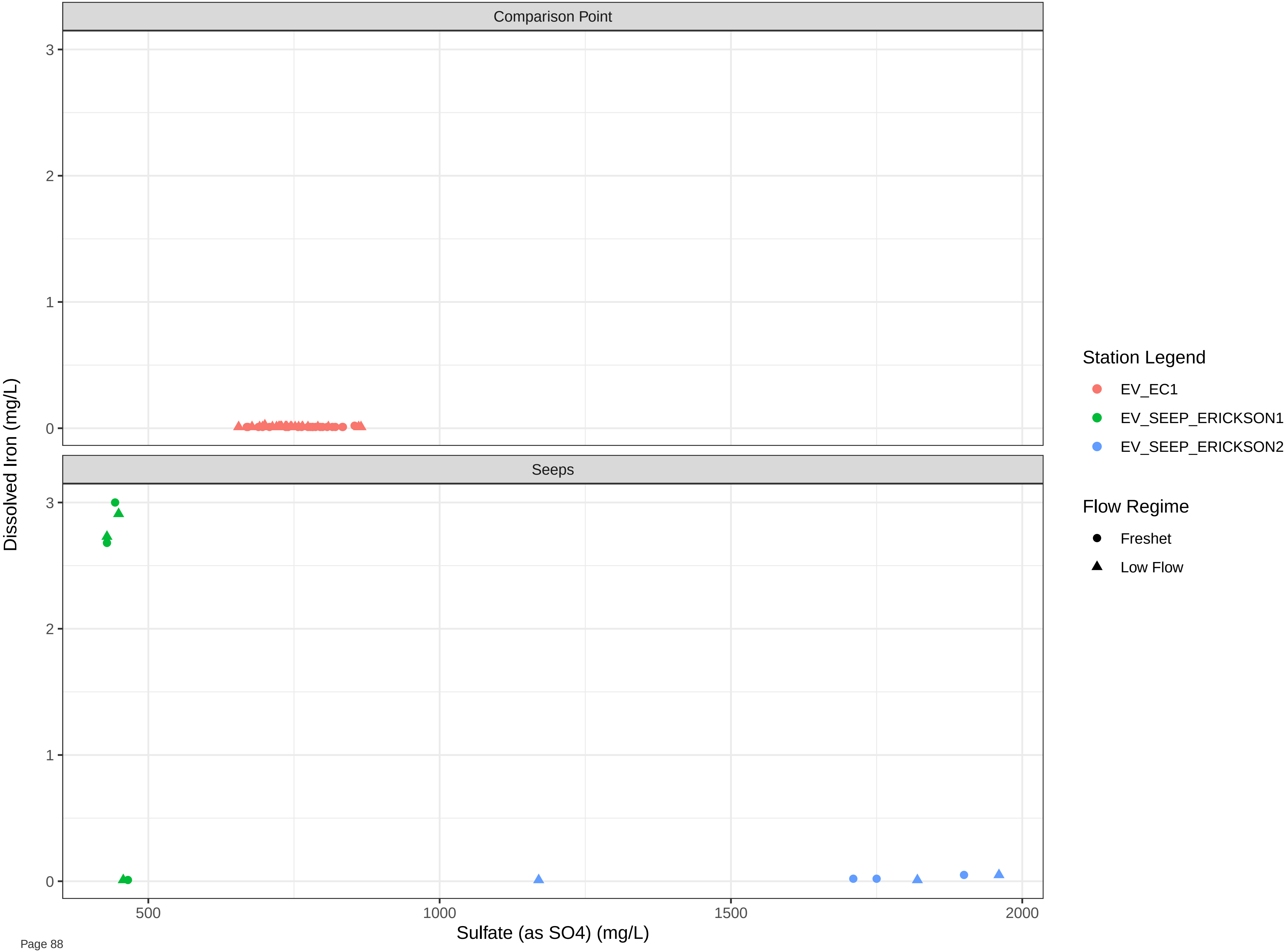

Comparison Point
Seeps
Dissolved Copper (mg/L)
6e−04
4e−04
2e−04
6e−04
4e−04
2e−04
0
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

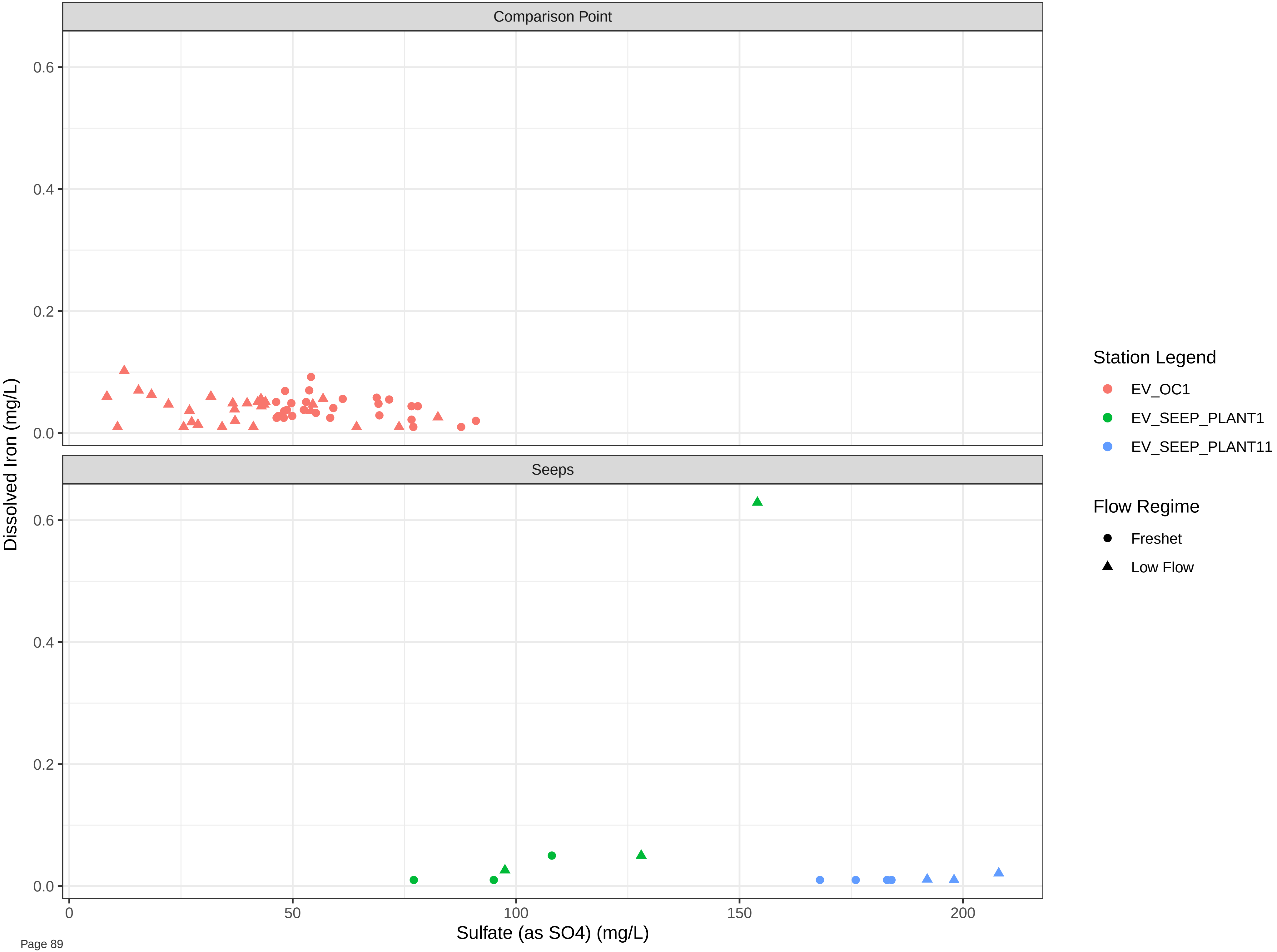

Comparison Point
Seeps
Dissolved Copper (mg/L)
1e−03
8e−04
6e−04
4e−04
2e−04
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
EV_SP1
Flow Regime
Freshet
Low Flow

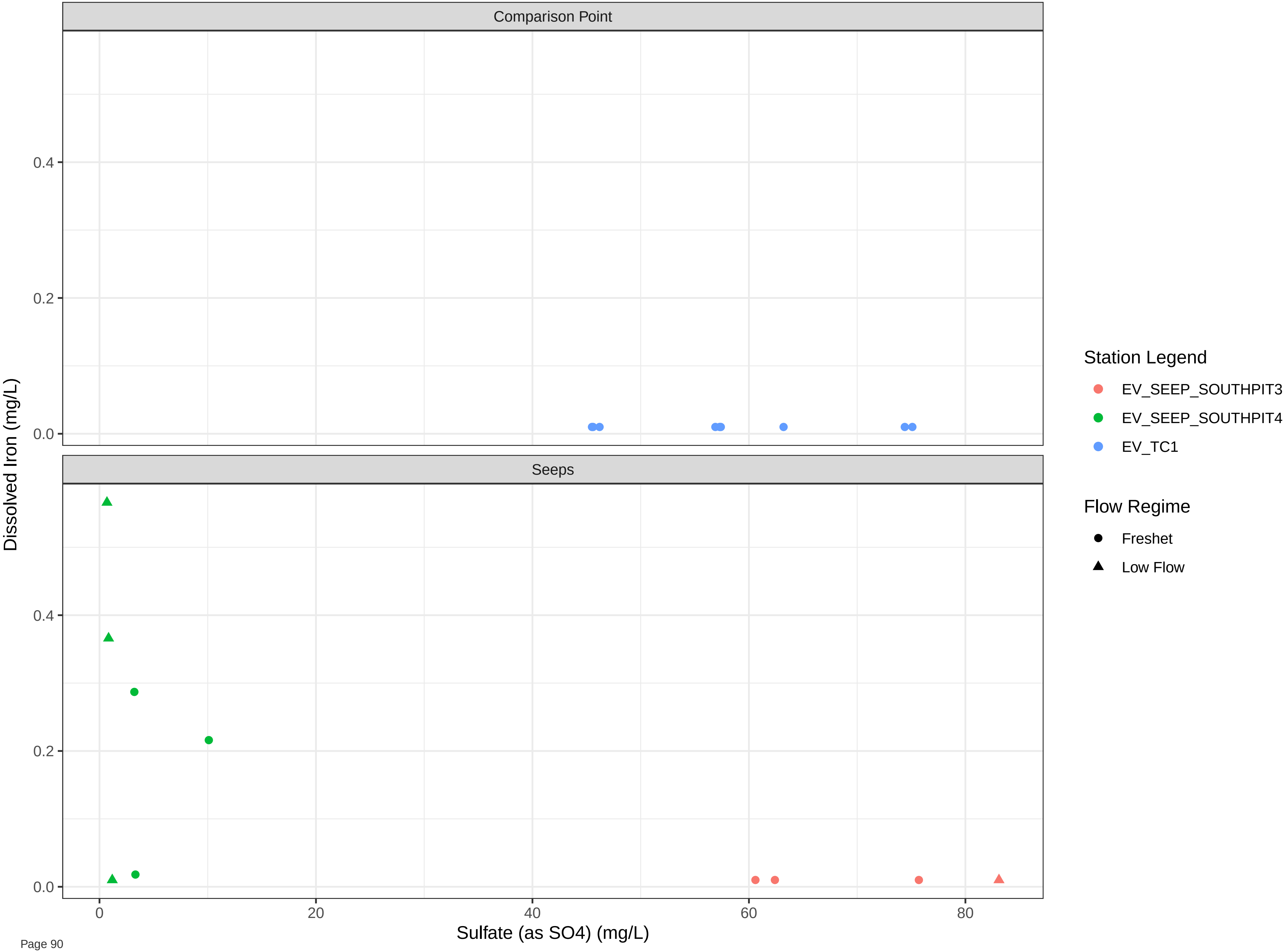

Comparison Point
Seeps
Dissolved Iron (mg/L)
Sulfate (as SO4) (mg/L)
0.20
0.15
0.10
0.05
0
500
1000
1500
2000
2500
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

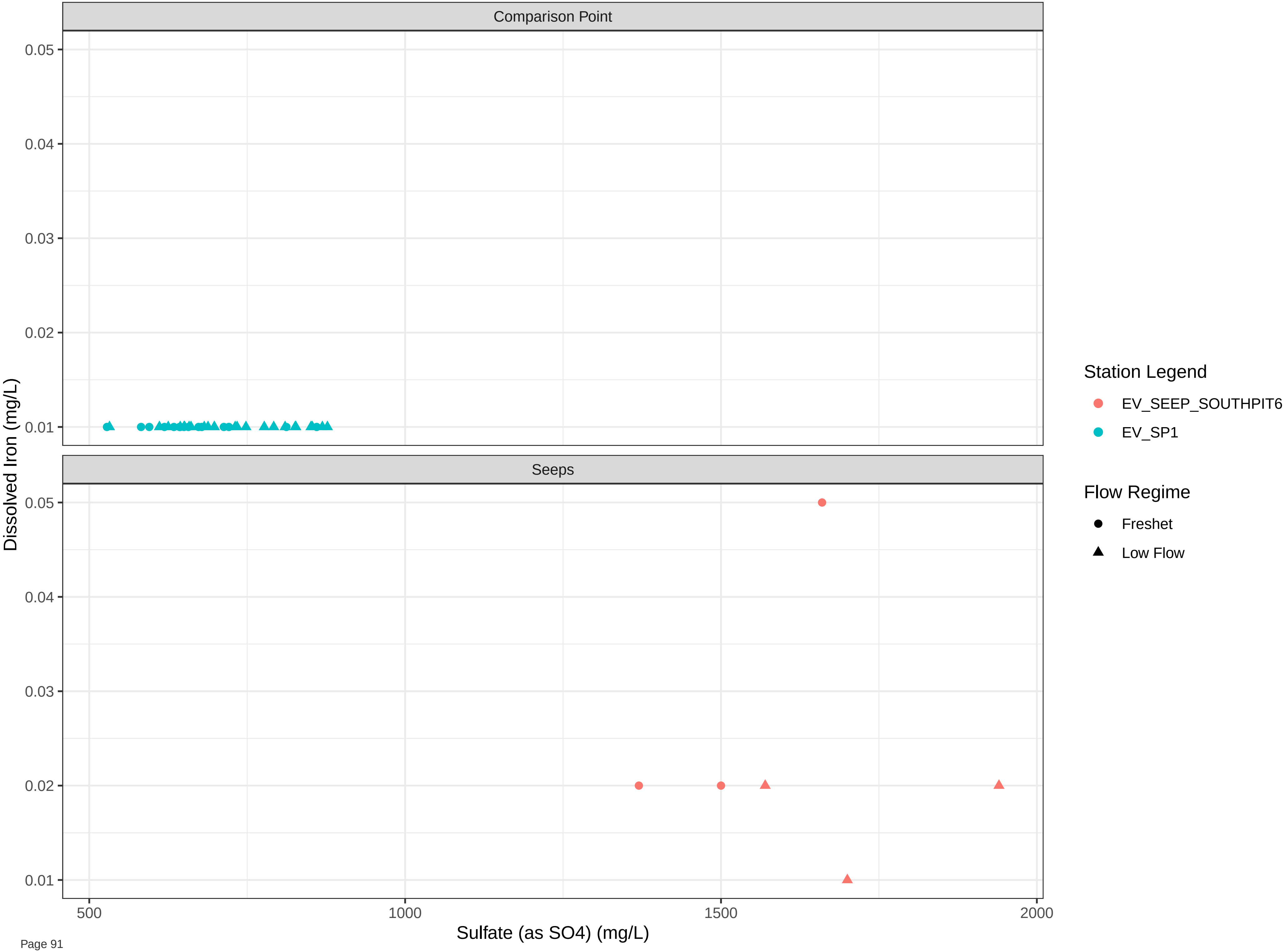

Comparison Point
Seeps
Dissolved Iron (mg/L)
0.0
0.5
1.0
1.5
Sulfate (as SO4) (mg/L)
0
200
400
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

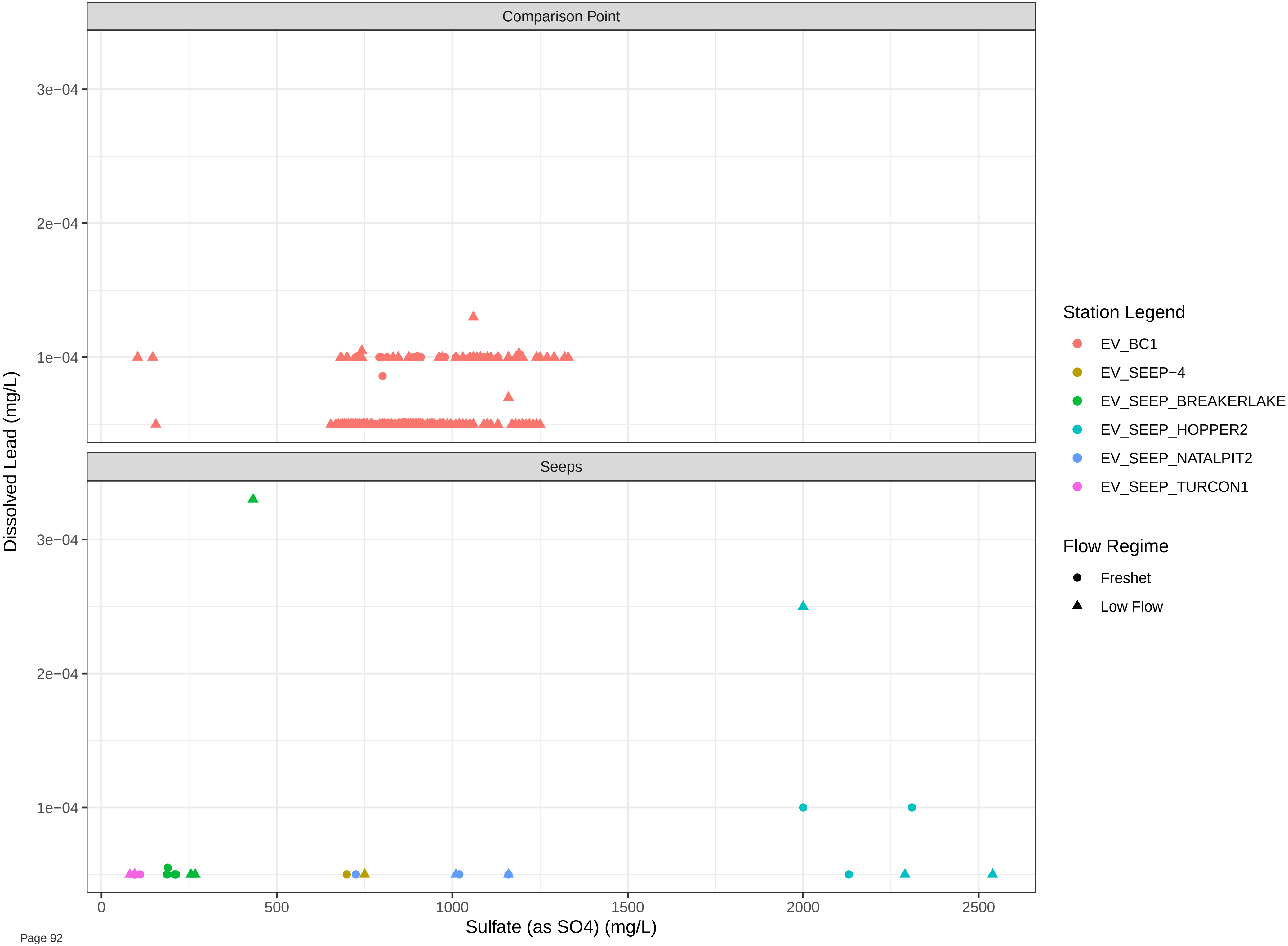

Comparison Point
Seeps
Dissolved Iron (mg/L)
0.0
0.1
0.2
0.3
0.4
0.5
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
EV_GC2
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_WLAGC
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
Dissolved Iron (mg/L)
0
1
2
3
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

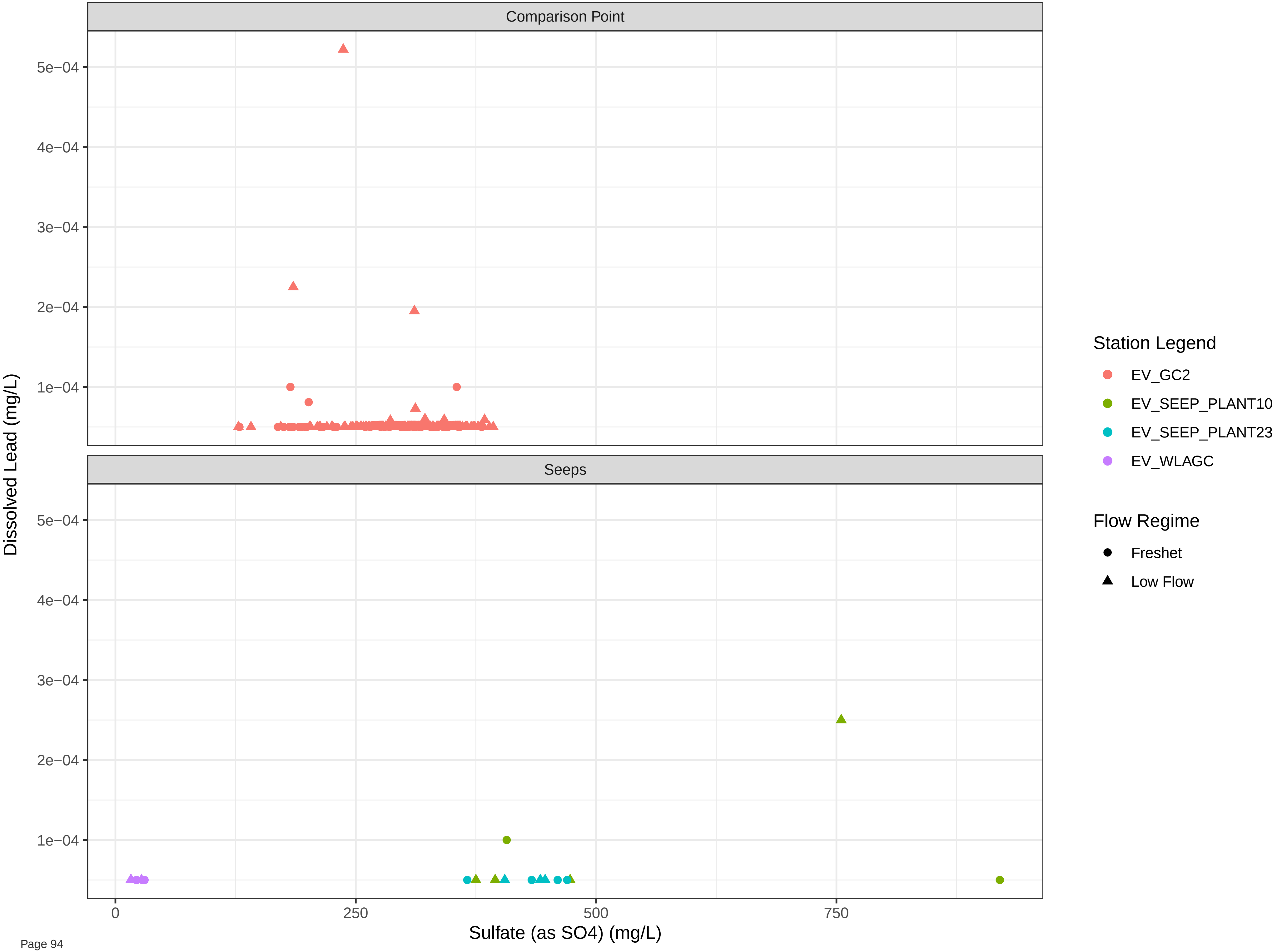

Comparison Point
Seeps
Dissolved Iron (mg/L)
0.0
0.2
0.4
0.6
Sulfate (as SO4) (mg/L)
0
50
100
150
200
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

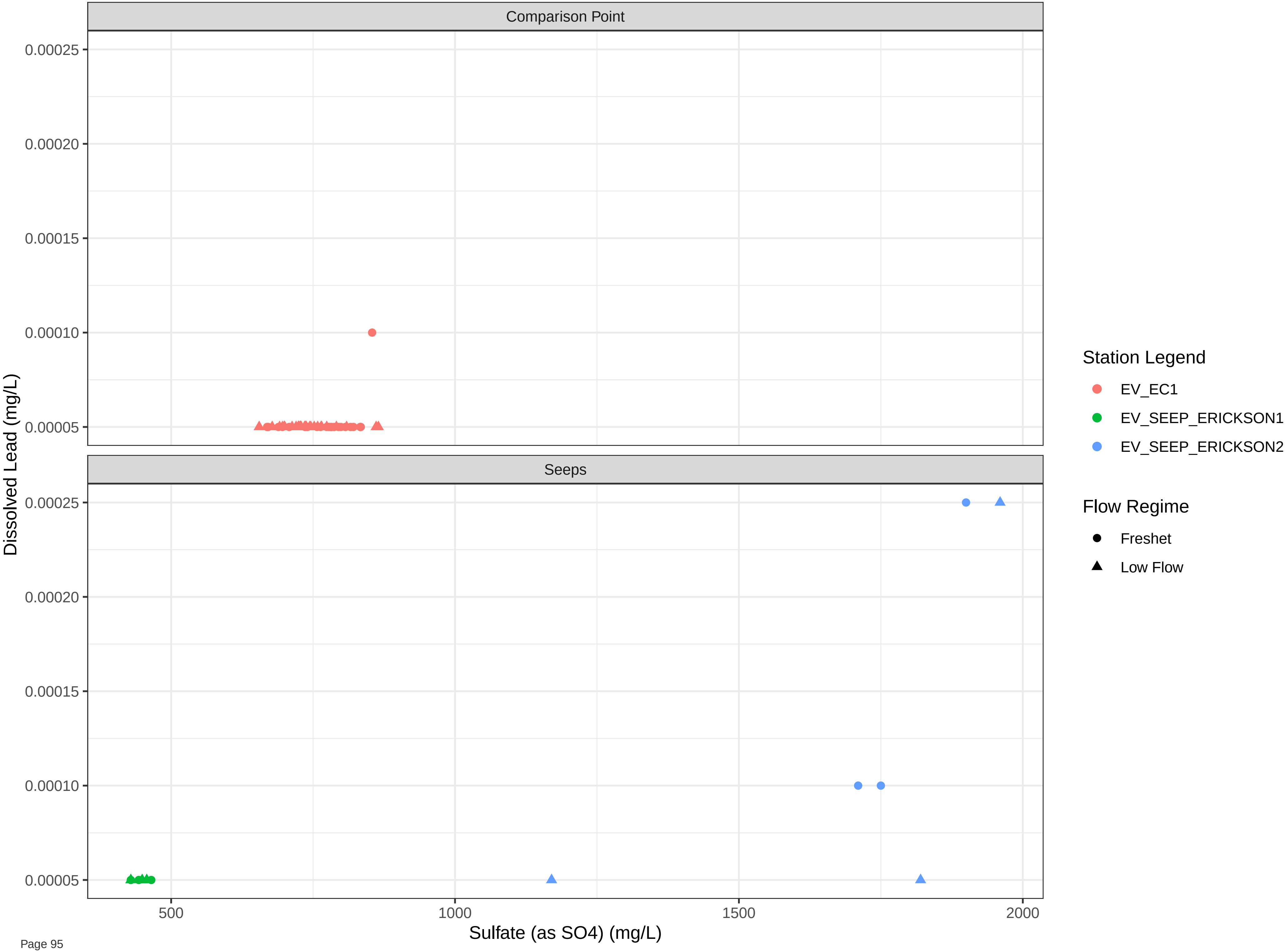
Comparison Point
Seeps
Dissolved Iron (mg/L)
0.0
0.2
0.4
Sulfate (as SO4) (mg/L)
0
20
40
60
80
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

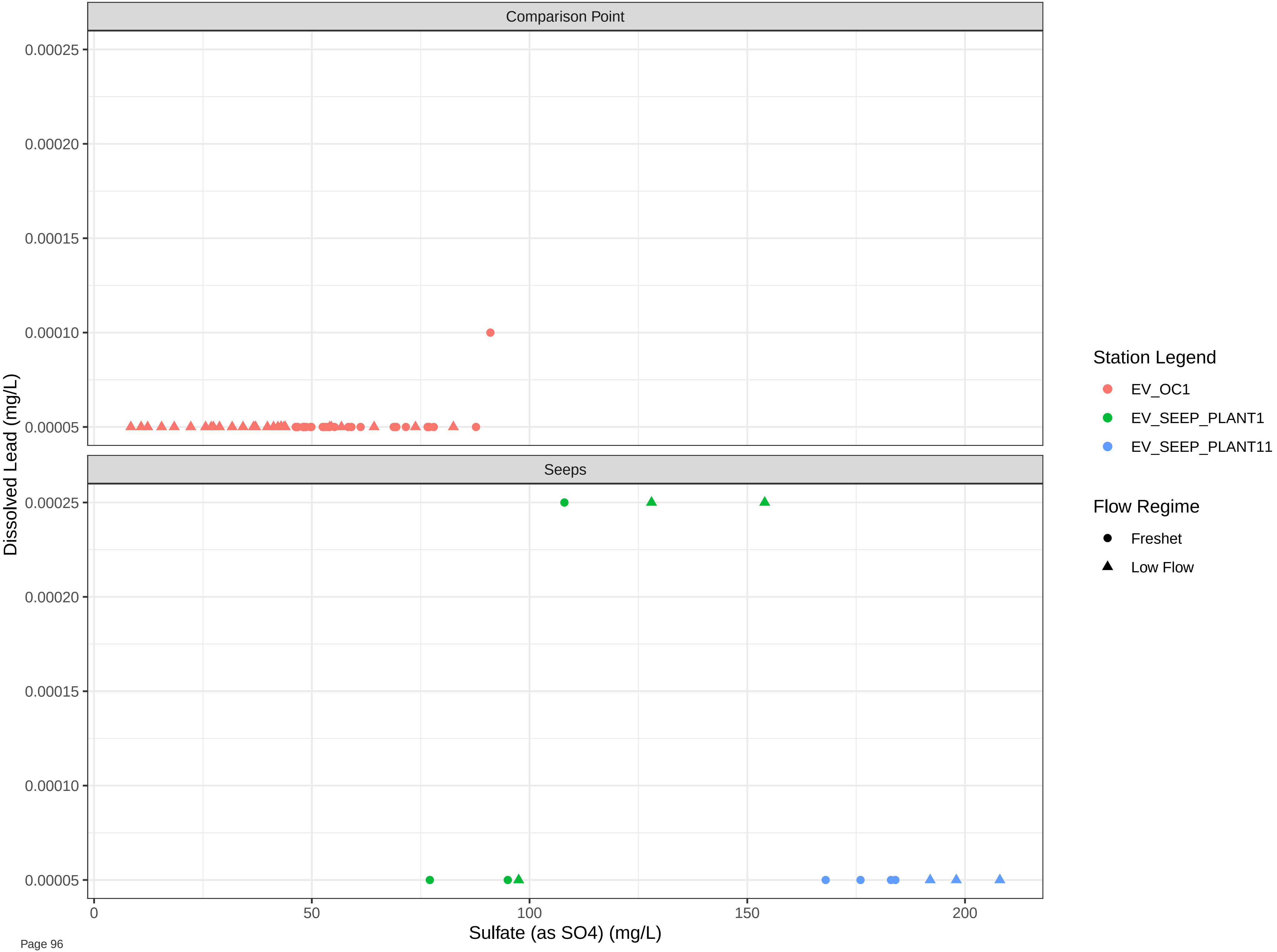

Comparison Point
Seeps
Dissolved Iron (mg/L)
0.05
0.04
0.03
0.02
0.01
Sulfate (as SO4) (mg/L)
500
1000
1500
2000
Station Legend
● EV_SEEP_SOUTHPIT6
● EV_SP1
Flow Regime
● Freshet
▲ Low Flow

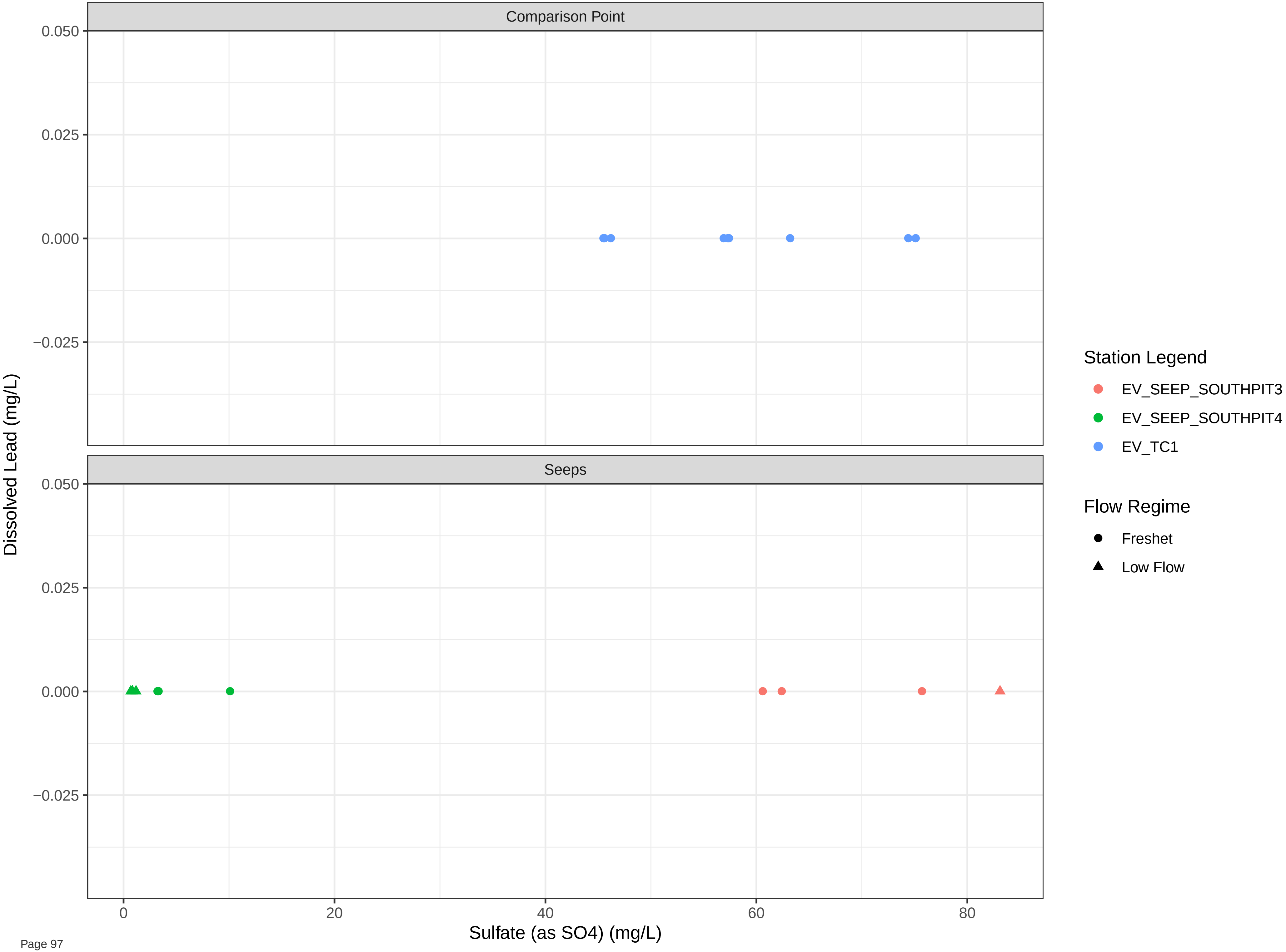

Comparison Point
Seeps
3e−04
2e−04
1e−04
Dissolved Lead (mg/L)
0
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
● EV_BC1
● EV_SEEP−4
● EV_SEEP_BREAKERLAKE
● EV_SEEP_HOPPER2
● EV_SEEP_NATALPIT2
● EV_SEEP_TURCON1
Flow Regime
● Freshet
▲ Low Flow

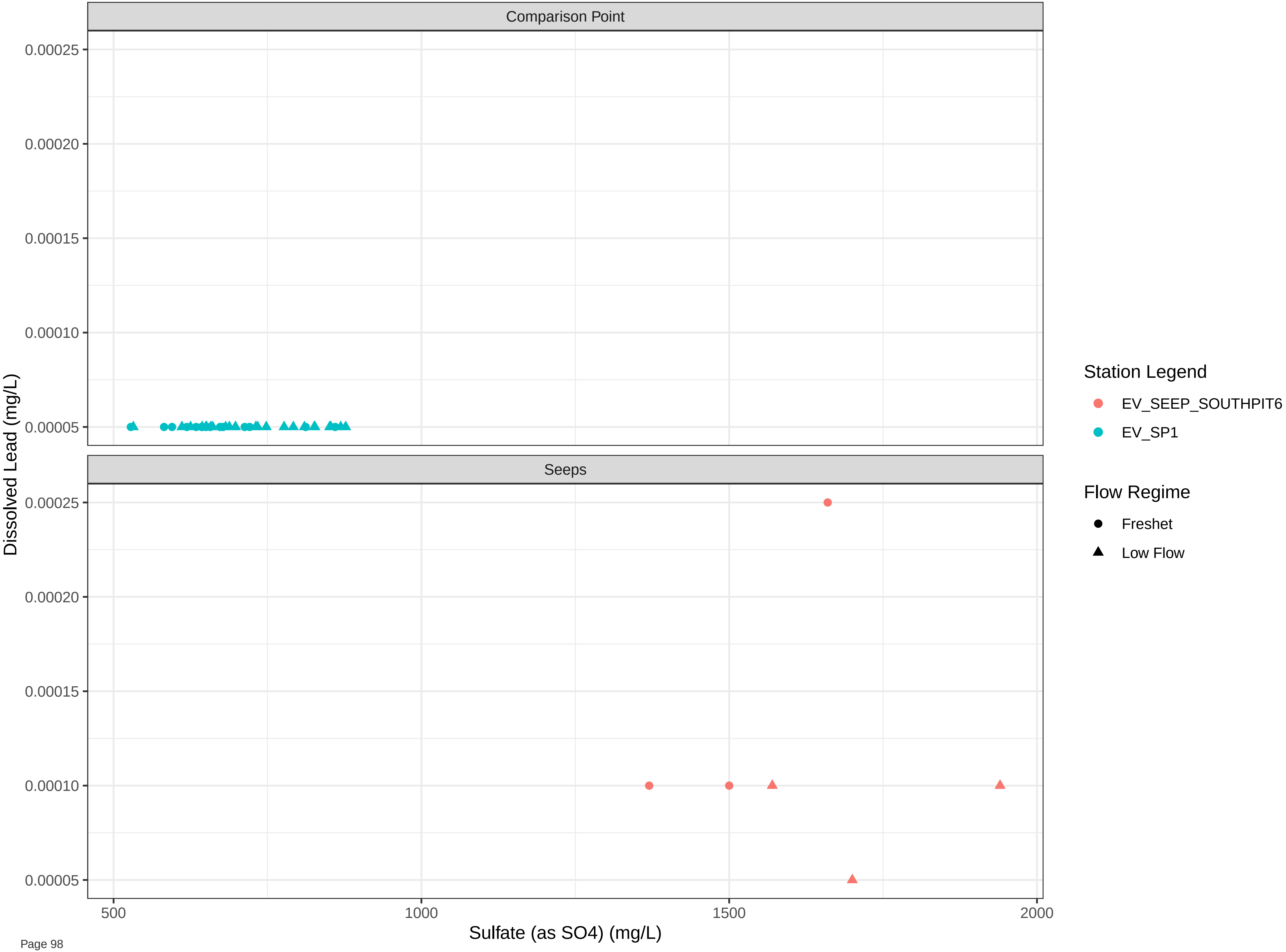

Comparison Point
Seeps
Dissolved Lead (mg/L)
1e−04
9e−05
8e−05
7e−05
6e−05
5e−05
0
200
400
Sulfate (as SO4) (mg/L)
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

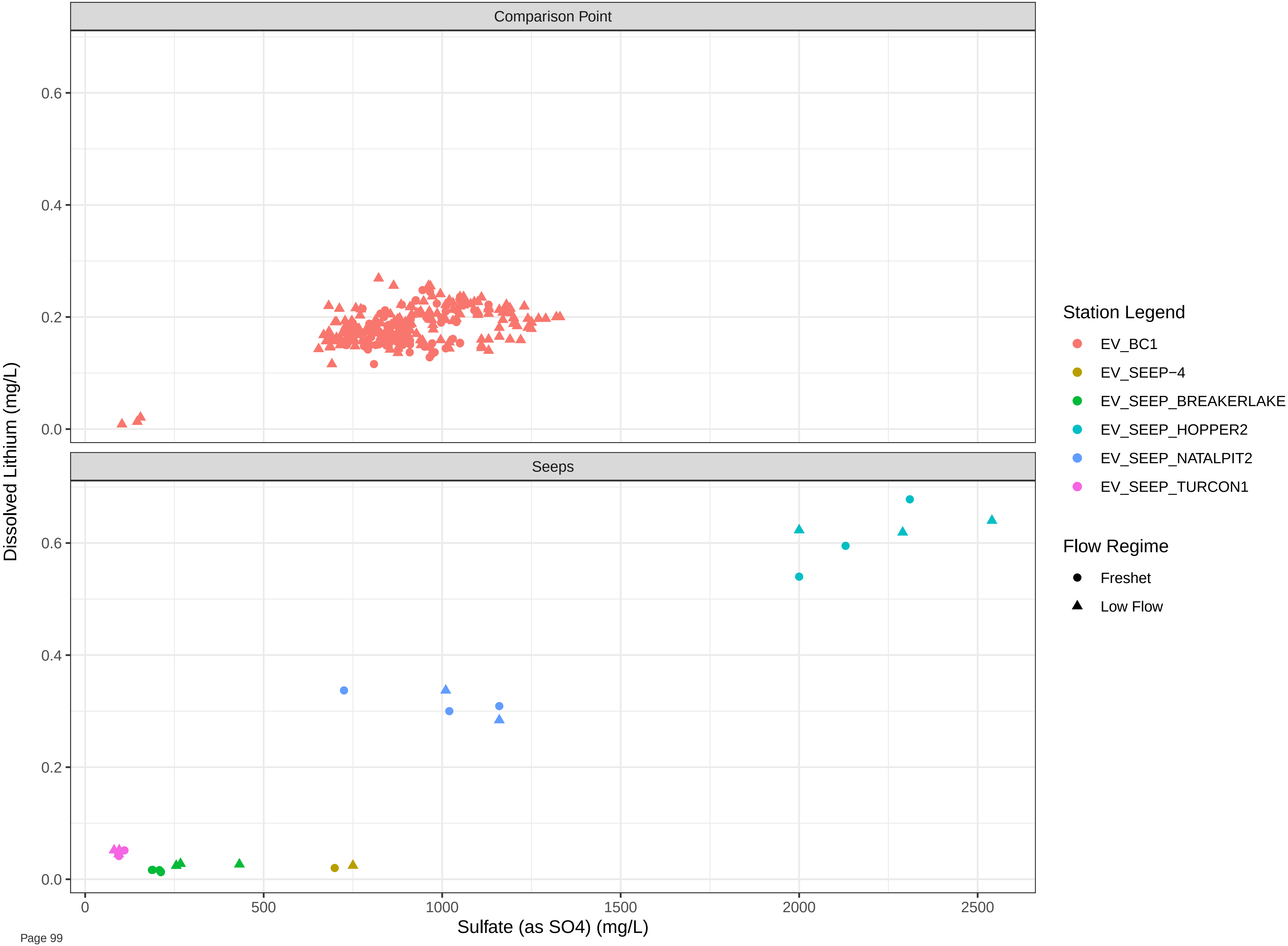

Comparison Point
Seeps
Dissolved Lead (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
● EV_GC2
● EV_SEEP_PLANT10
● EV_SEEP_PLANT23
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

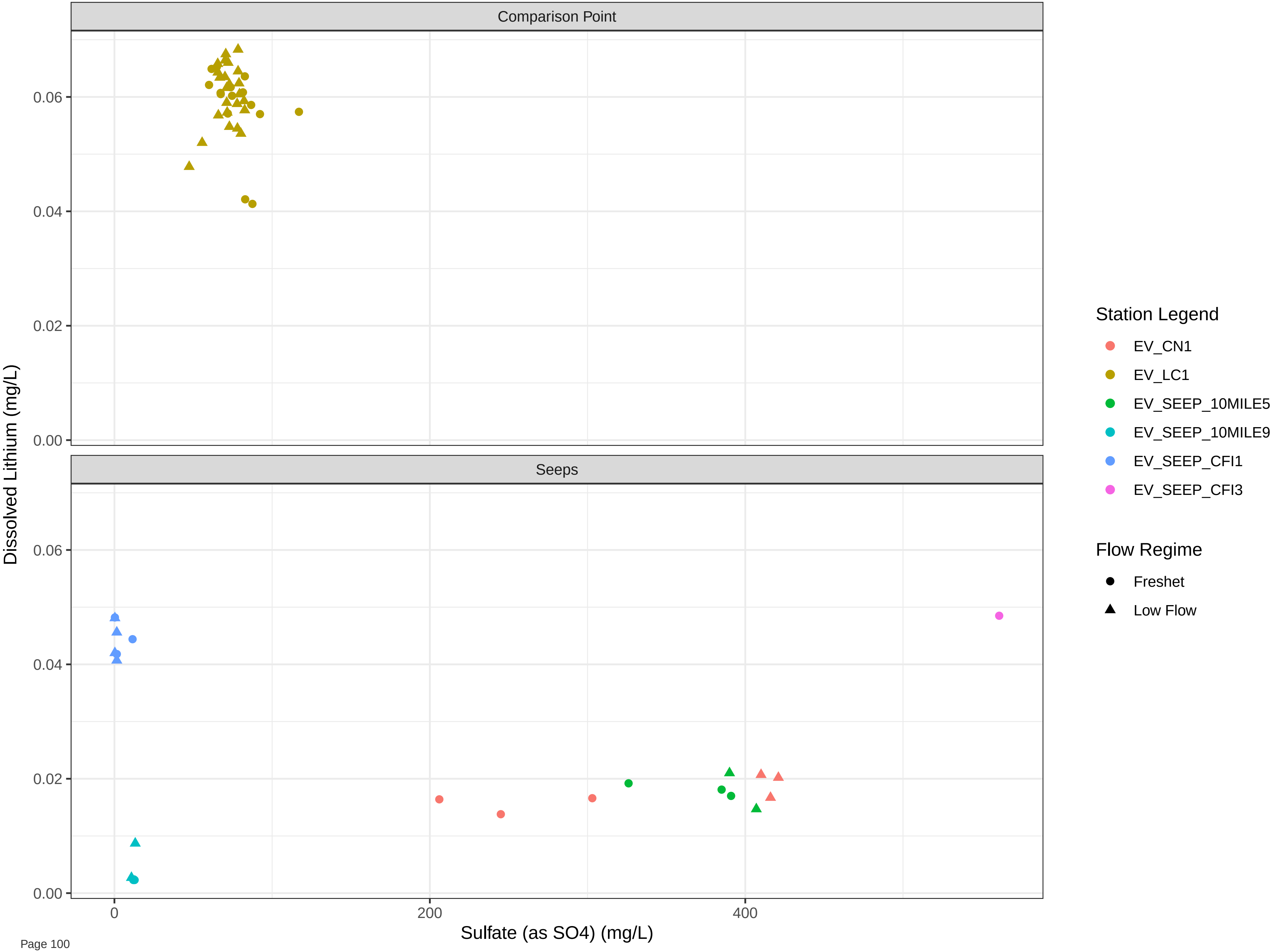

Comparison Point
Seeps
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

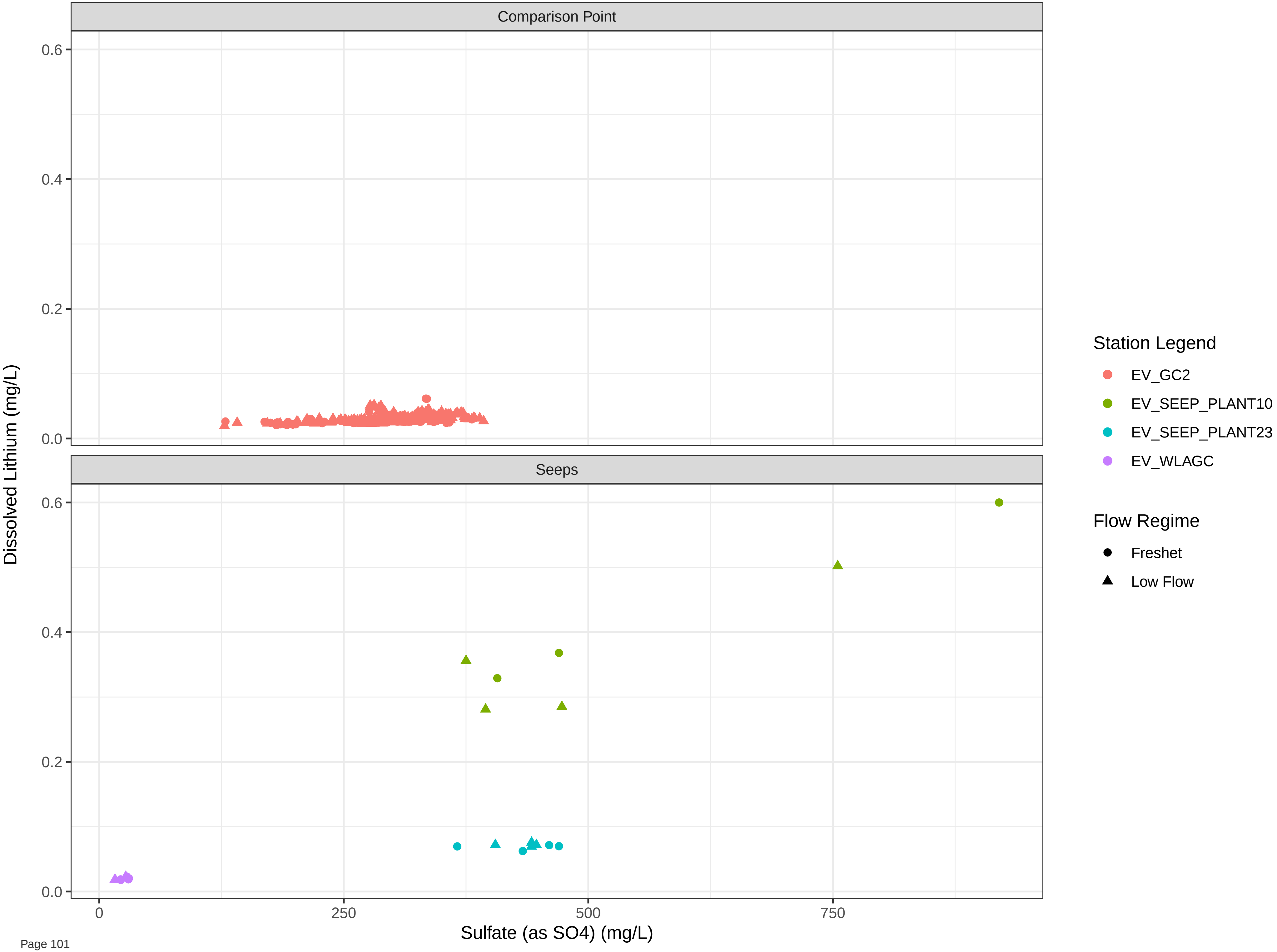

Comparison Point
Seeps
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

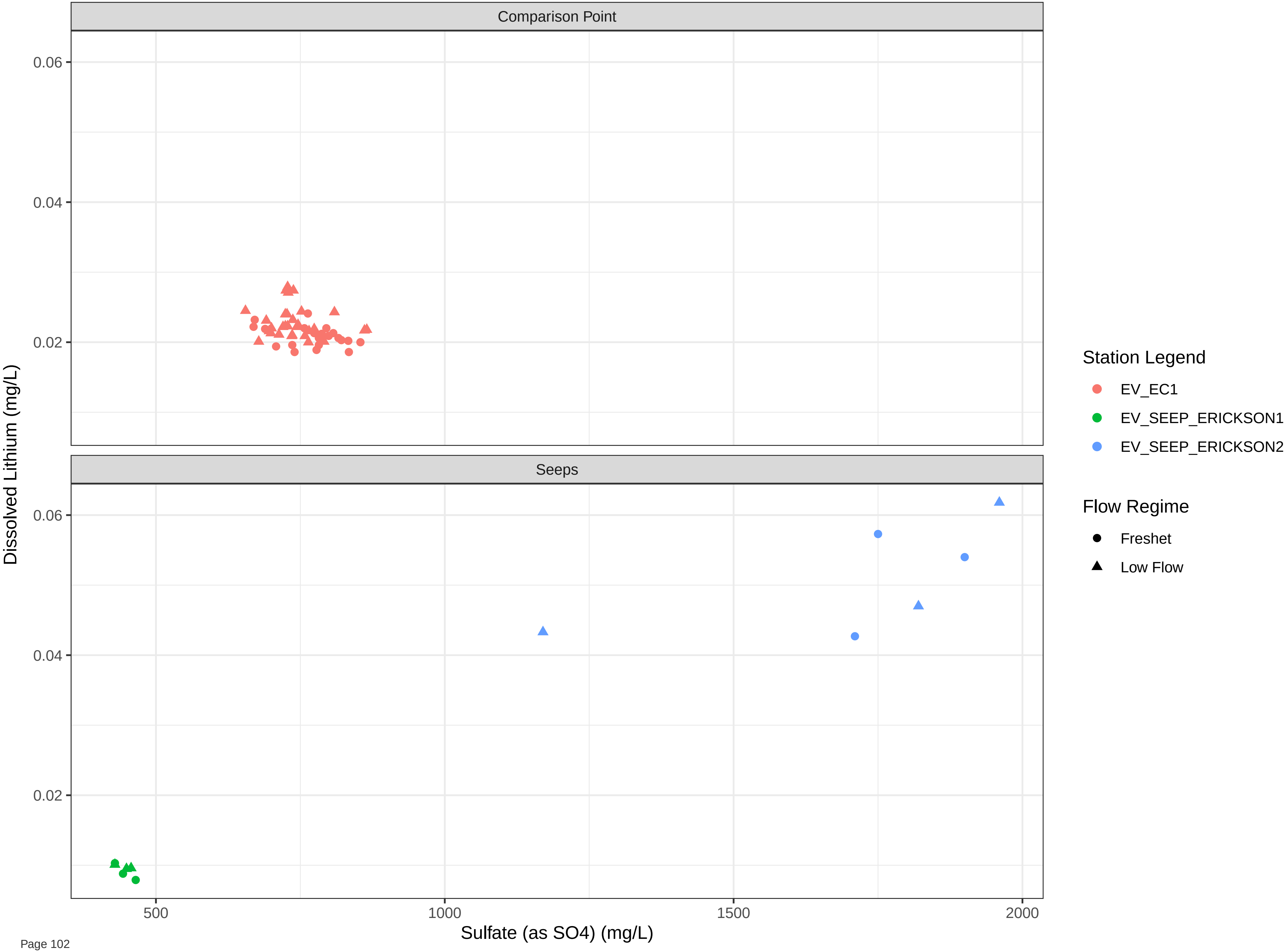

Comparison Point
Seeps
0.050
0.025
0.000
−0.025
Dissolved Lead (mg/L)
0
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

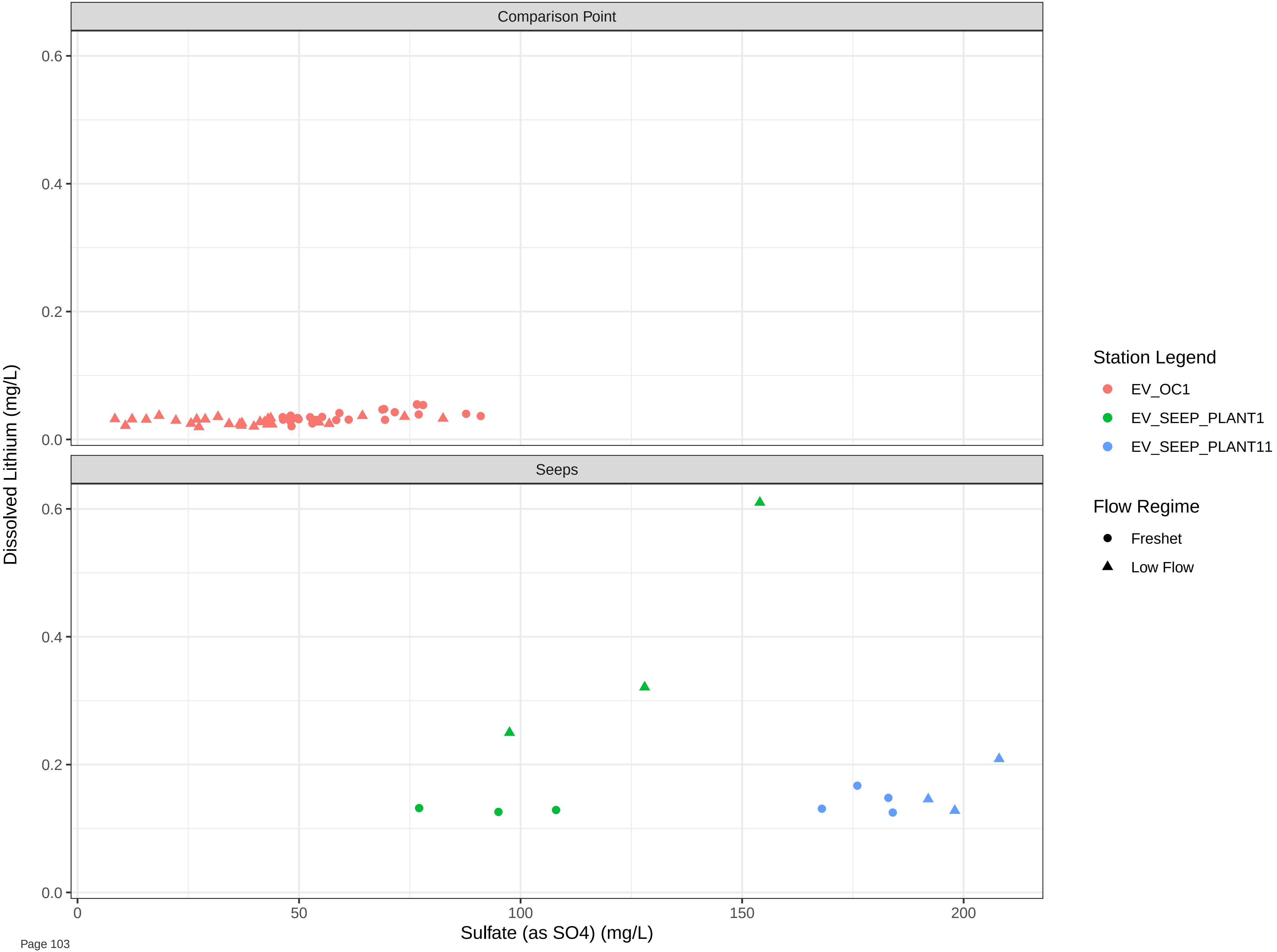

Comparison Point
Seeps
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Lead (mg/L)
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
EV_SP1
Flow Regime
Freshet
Low Flow

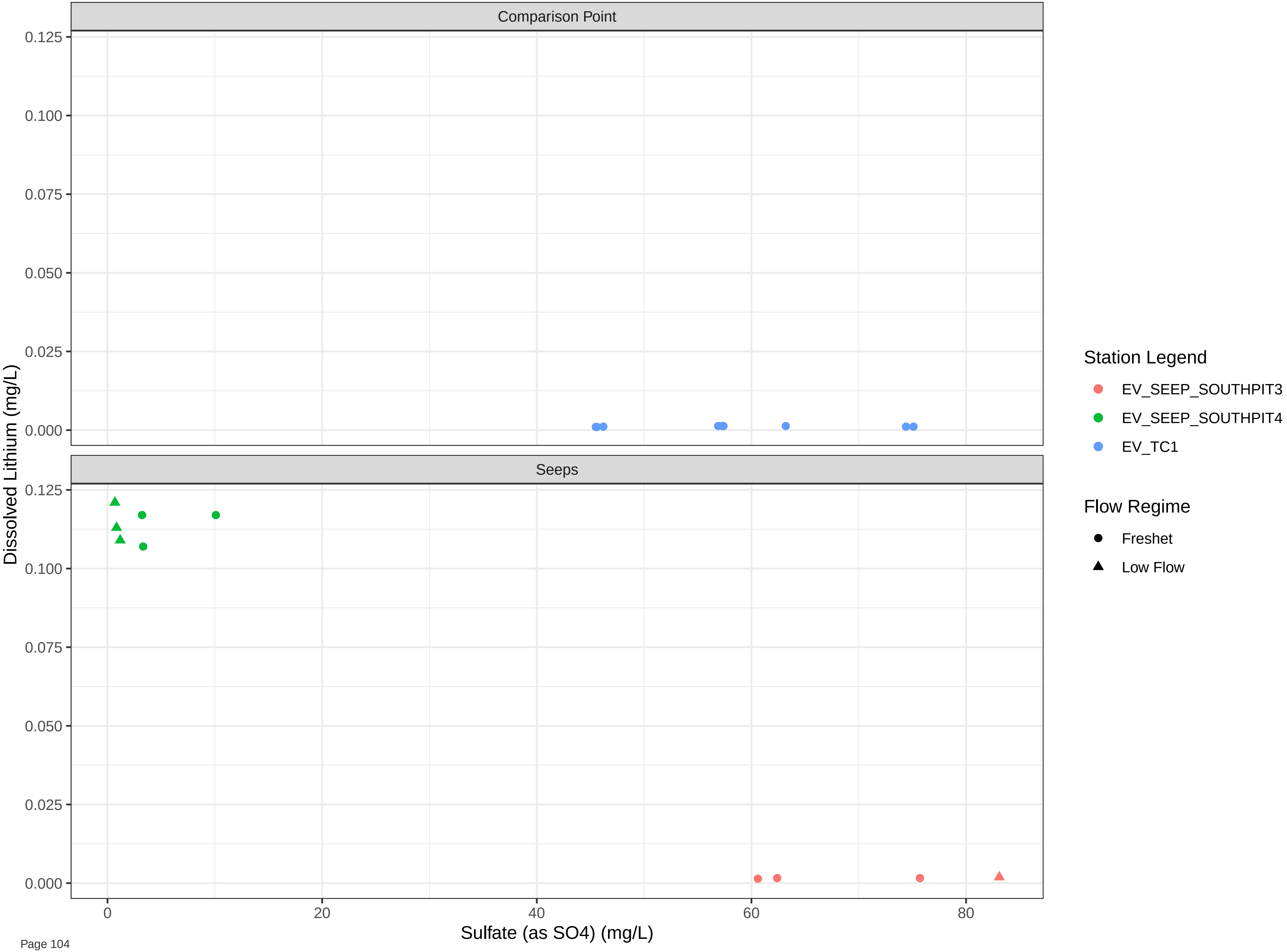

Comparison Point
Seeps
Dissolved Lithium (mg/L)
0.0
0.2
0.4
0.6
Sulfate (as SO4) (mg/L)
0
500
1000
1500
2000
2500
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

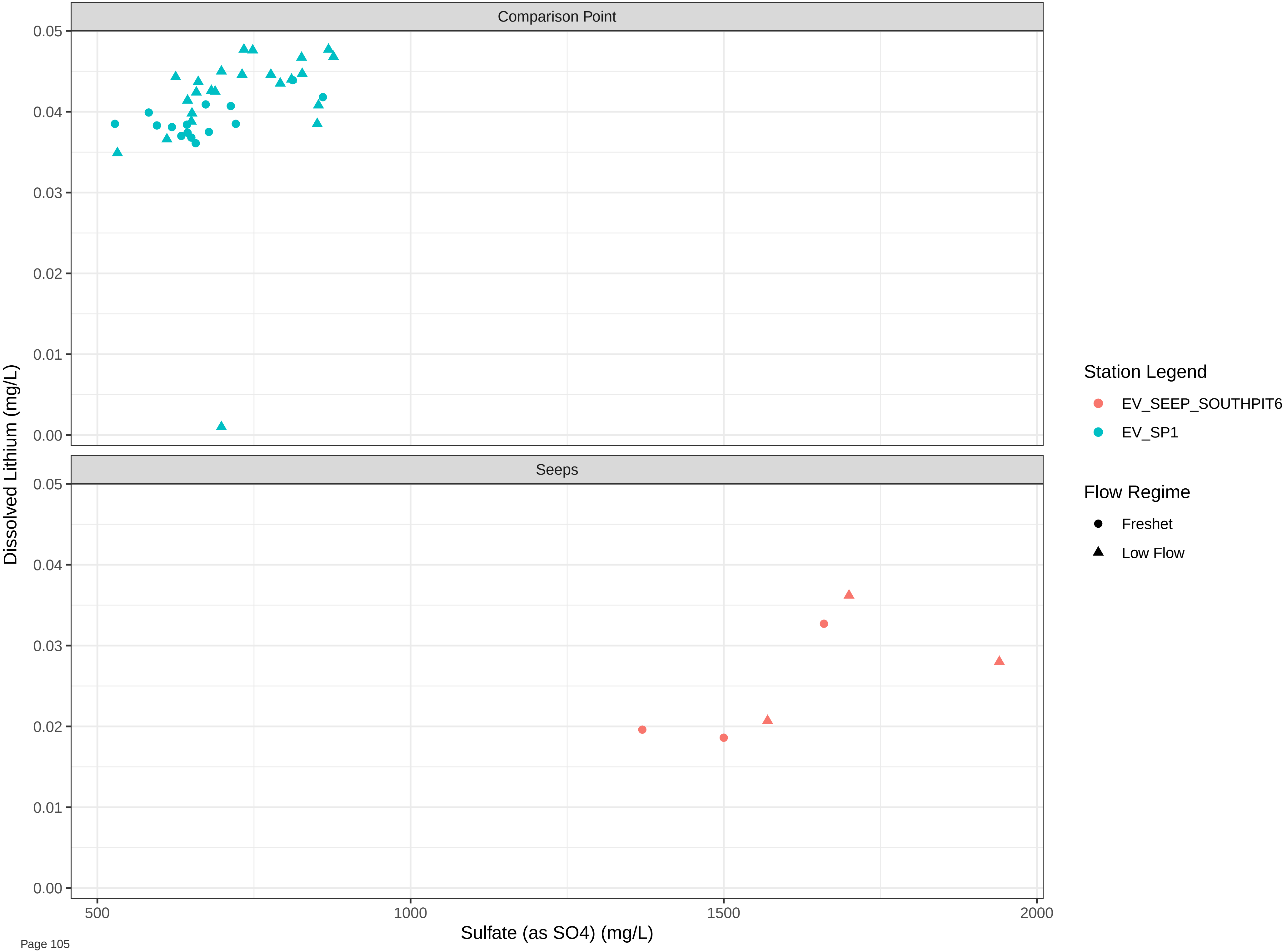

Comparison Point
Seeps
0.06
0.04
0.02
0.00
0.06
0.04
0.02
0.00
0
200
400
Dissolved Lithium (mg/L)
Sulfate (as SO4) (mg/L)
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

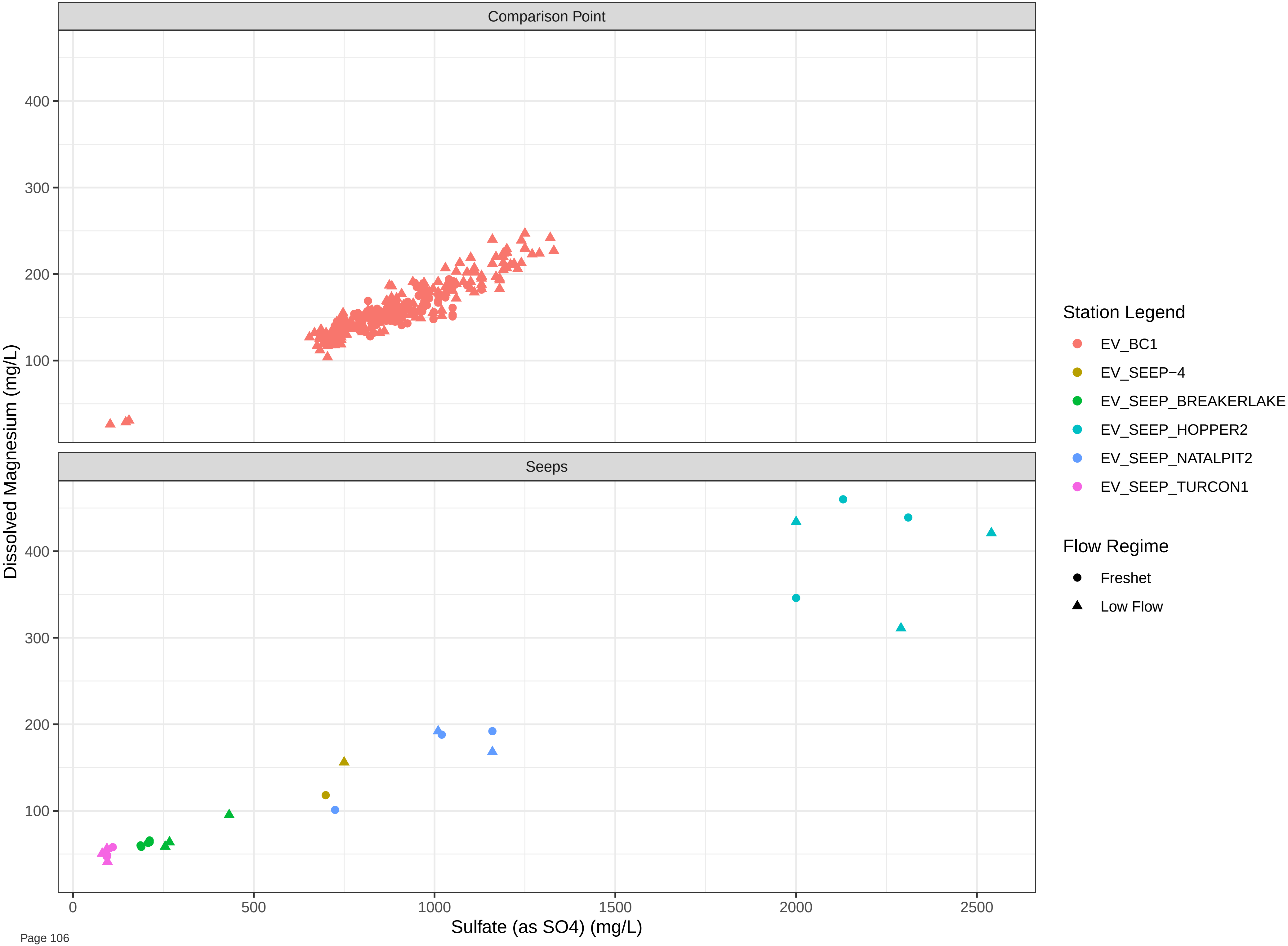

Comparison Point
Seeps
Dissolved Lithium (mg/L)
0.0
0.2
0.4
0.6
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
EV_GC2
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_WLAGC
Flow Regime
Freshet
Low Flow

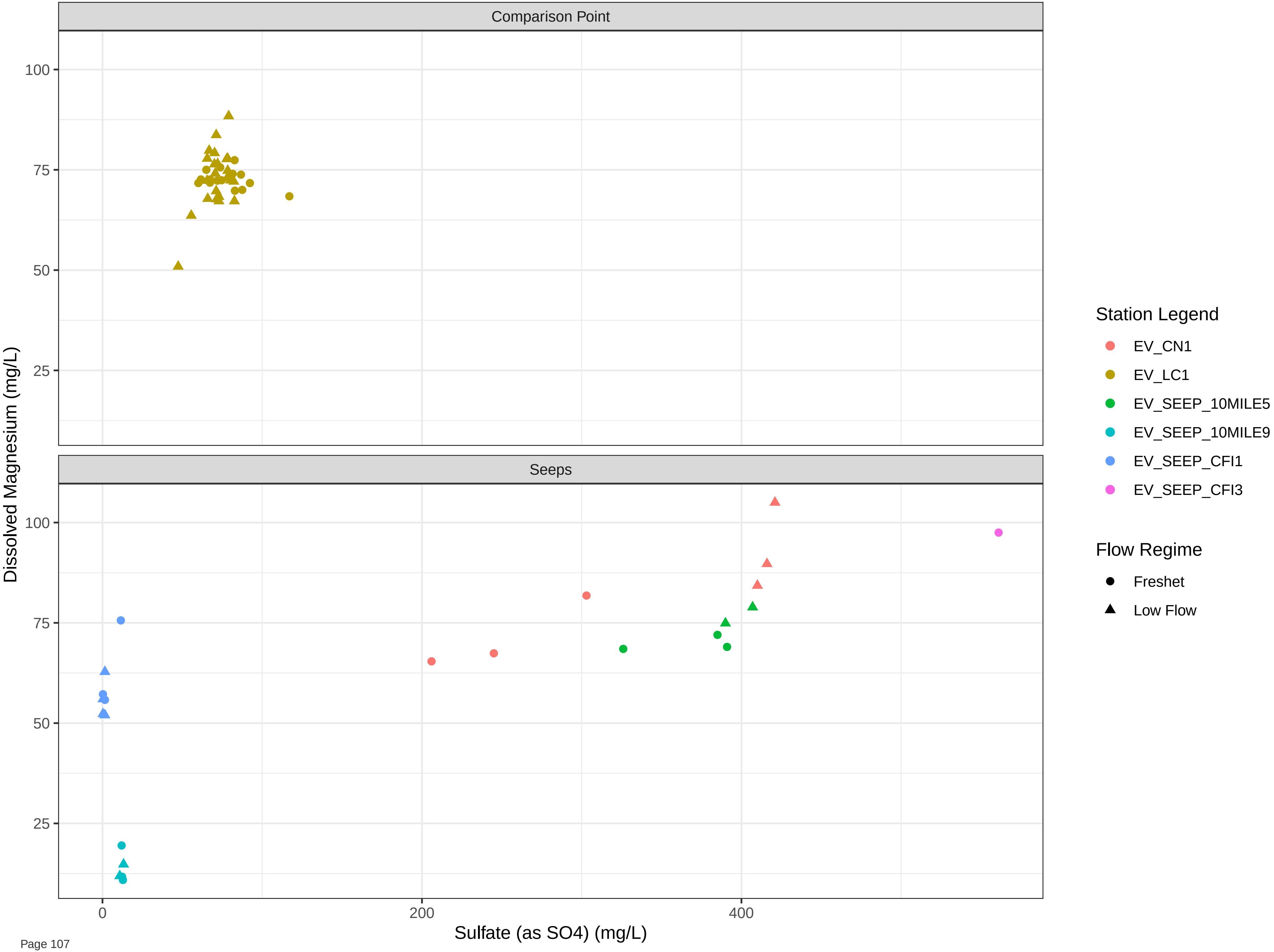

Comparison Point
Seeps
Dissolved Lithium (mg/L)
0.06
0.04
0.02
0.06
0.04
0.02
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

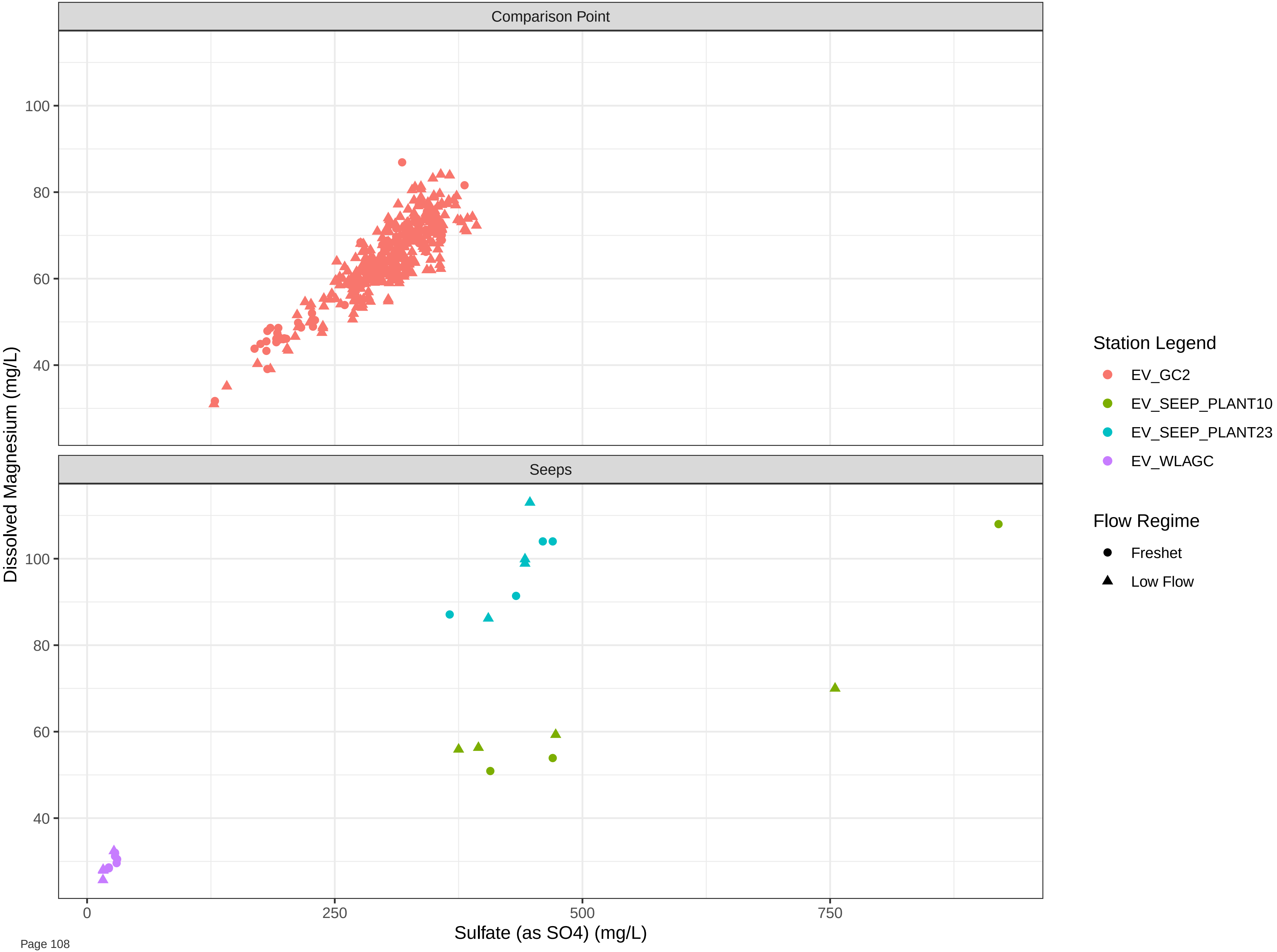

Comparison Point
Seeps
Dissolved Lithium (mg/L)
0.0
0.2
0.4
0.6
0.0
0.2
0.4
0.6
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

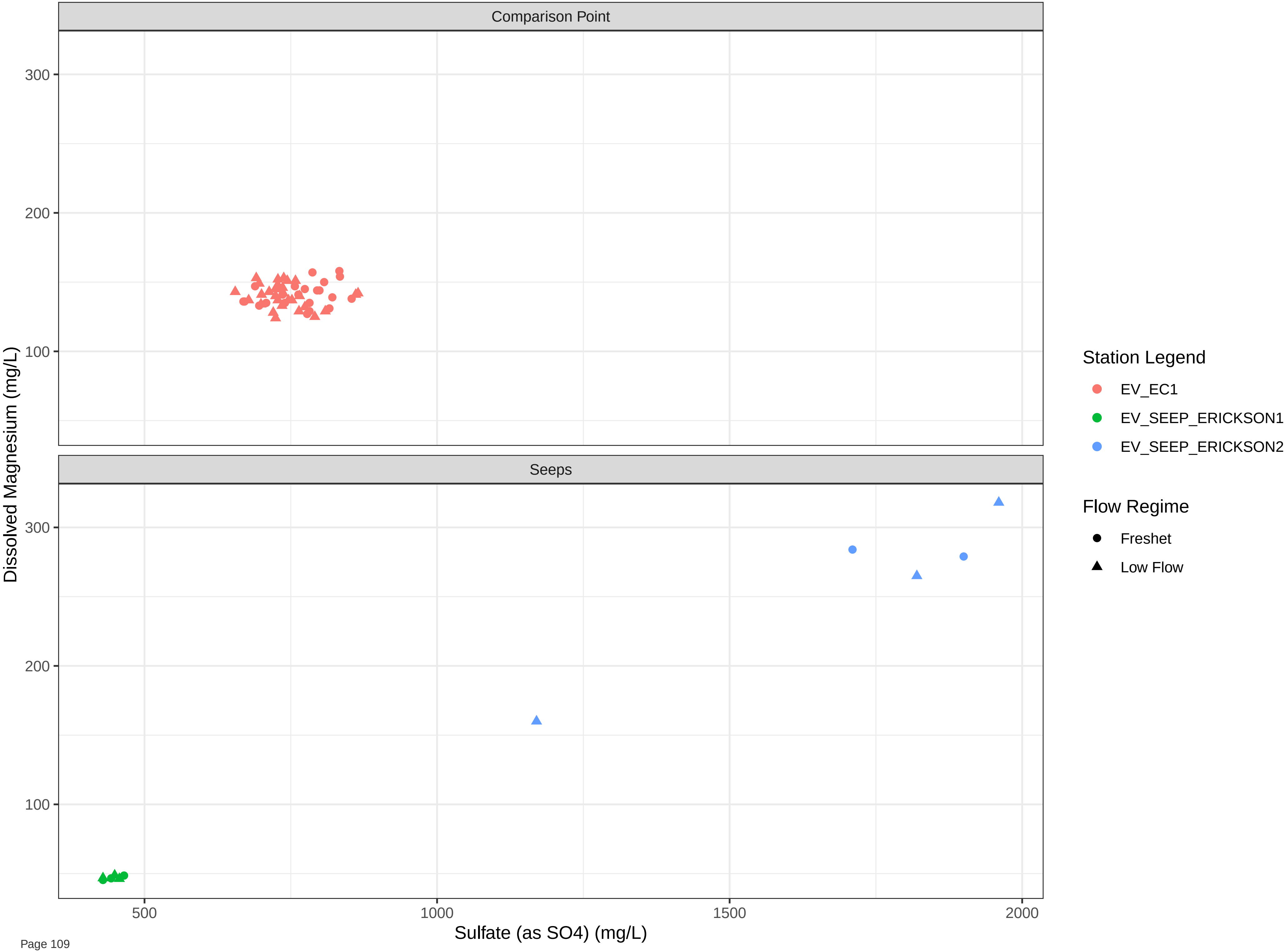

Comparison Point
Seeps
0.125
0.100
0.075
0.050
0.025
0.000
0
20
40
60
80
Dissolved Lithium (mg/L)
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

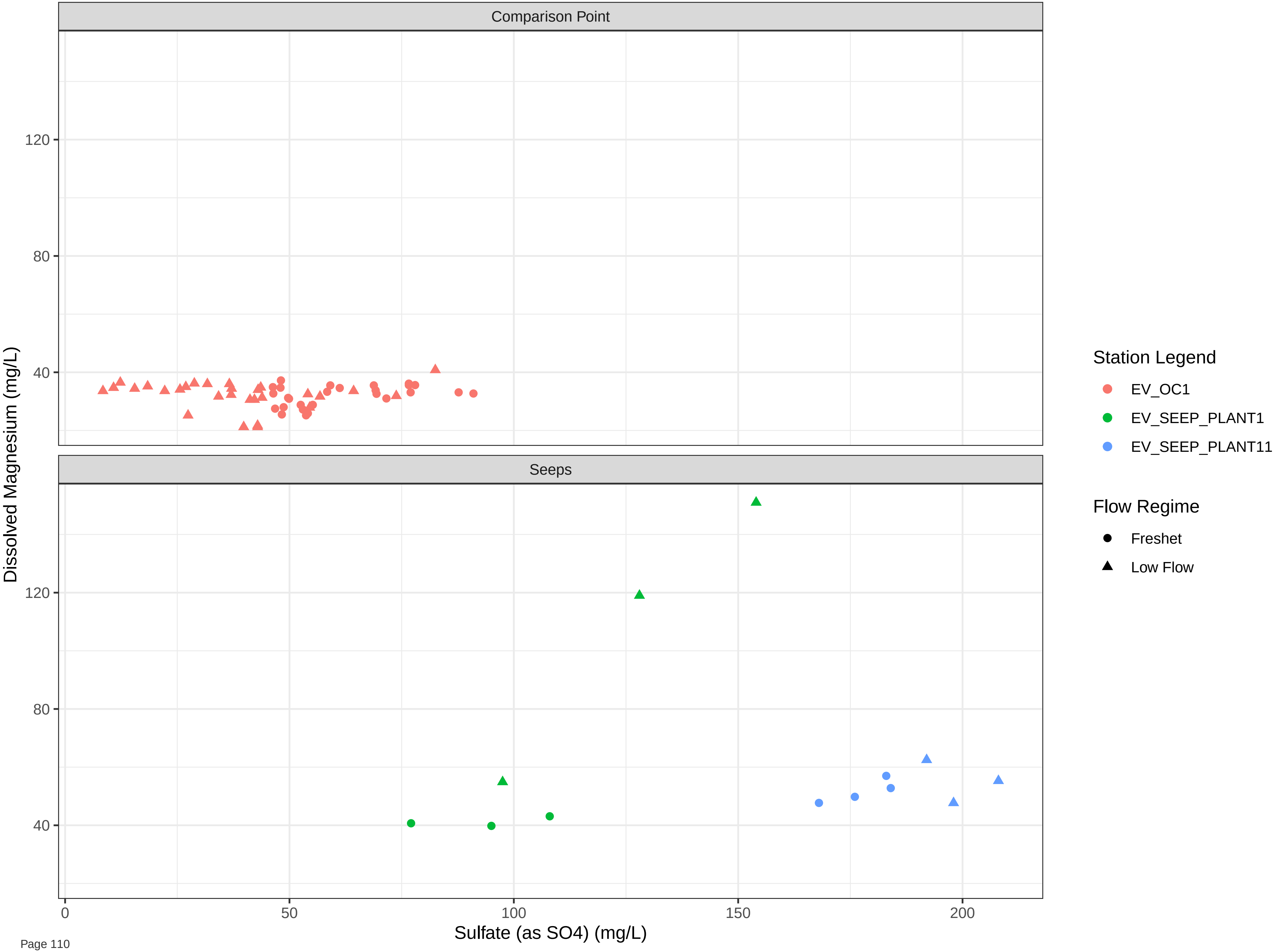

Comparison Point
Seeps
Dissolved Lithium (mg/L)
0.05
0.04
0.03
0.02
0.01
0.00
Sulfate (as SO4) (mg/L)
500
1000
1500
2000
Station Legend
EV_SEEP_SOUTHPIT6
EV_SP1
Flow Regime
Freshet
Low Flow

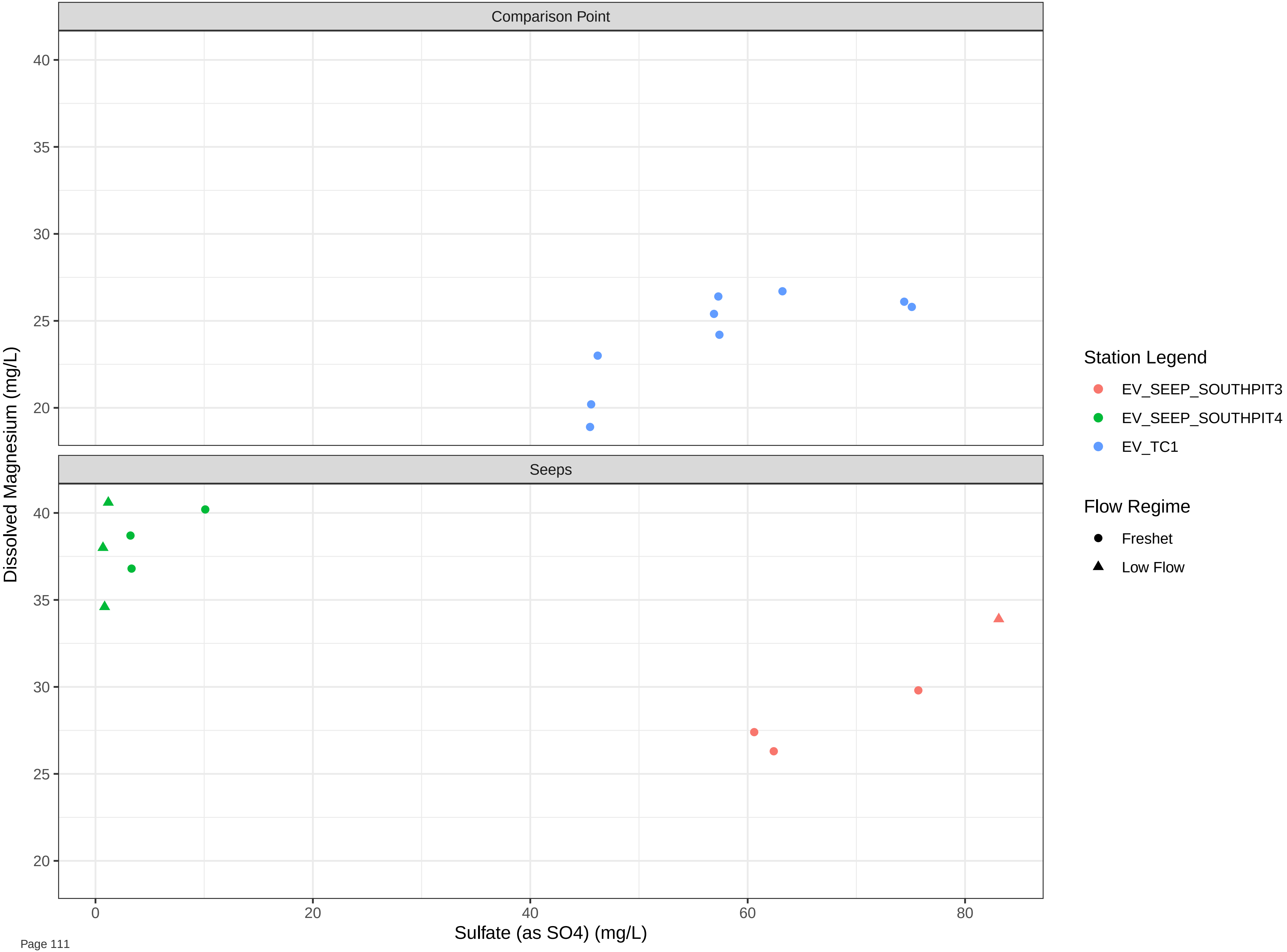

Comparison Point
Seeps
Dissolved Magnesium (mg/L)
100
200
300
400
Sulfate (as SO4) (mg/L)
0
500
1000
1500
2000
2500
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

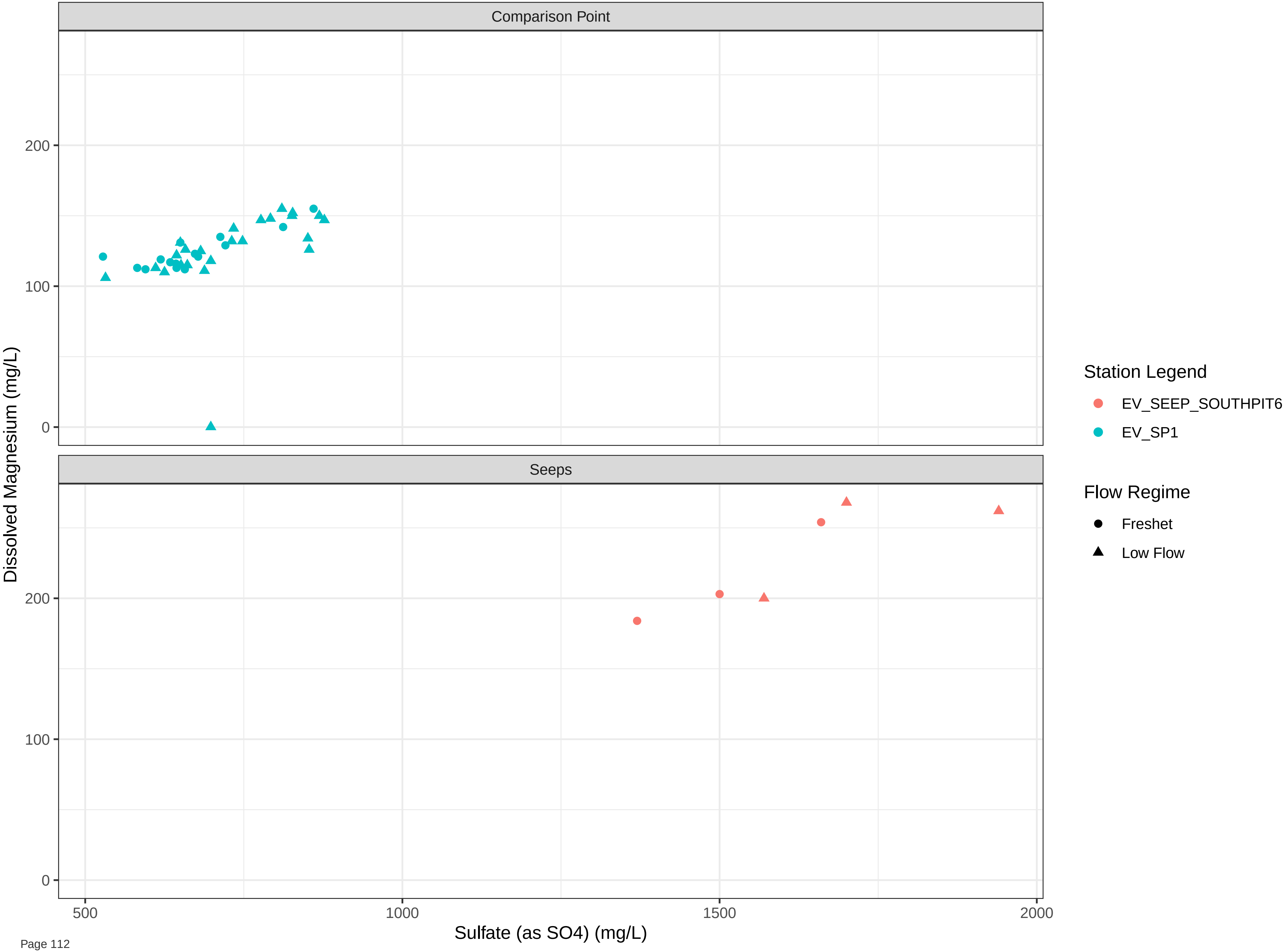

Comparison Point
Seeps
Dissolved Magnesium (mg/L)
100
75
50
25
0
200
400
Sulfate (as SO4) (mg/L)
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

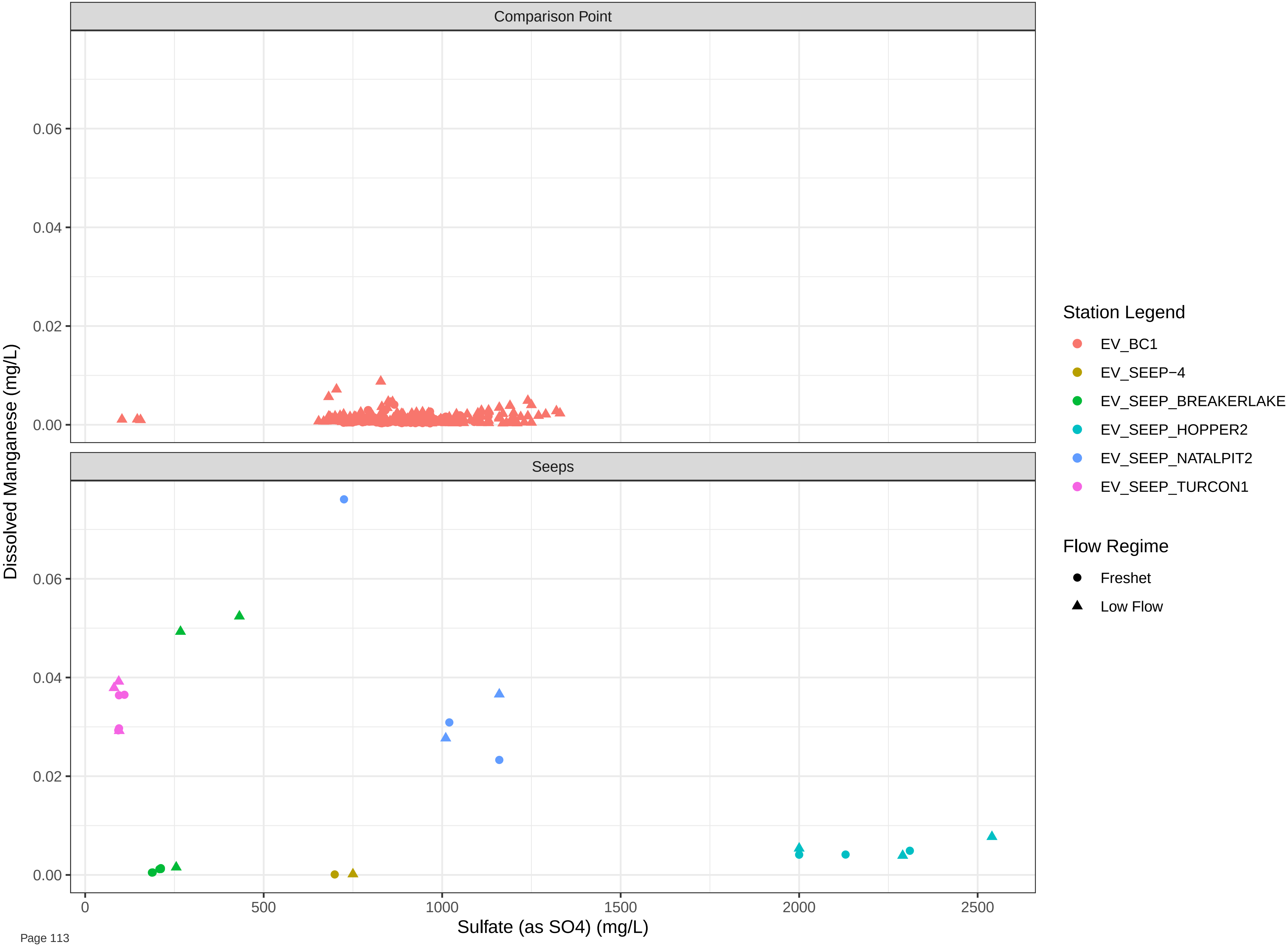

Comparison Point
Seeps
Dissolved Magnesium (mg/L)
100
80
60
40
100
80
60
40
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
EV_GC2
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_WLAGC
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
300
200
100
300
200
100
500
1000
1500
2000
Dissolved Magnesium (mg/L)
Sulfate (as SO4) (mg/L)
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

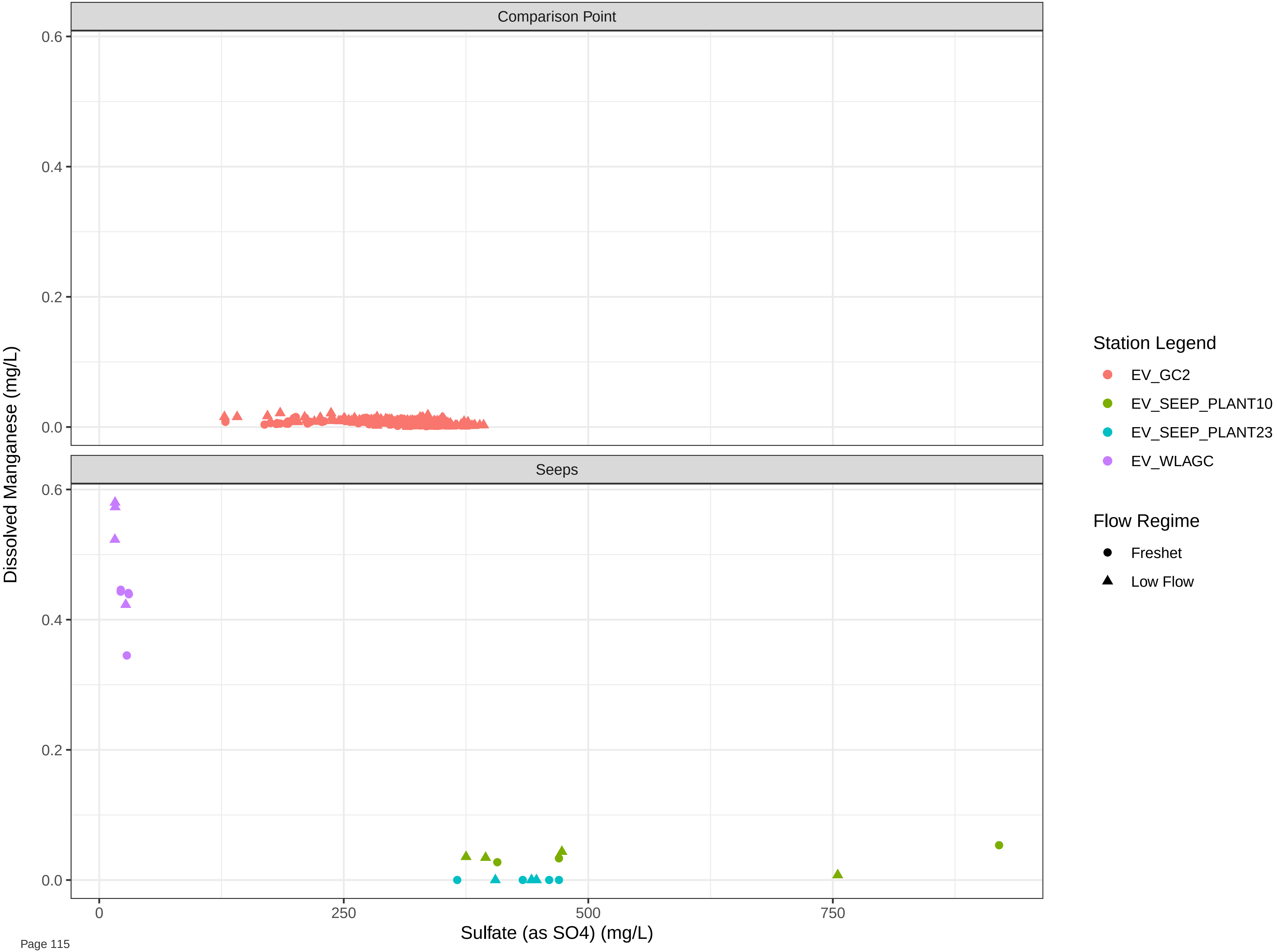

Comparison Point
Seeps
Dissolved Magnesium (mg/L)
120
80
40
120
80
40
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

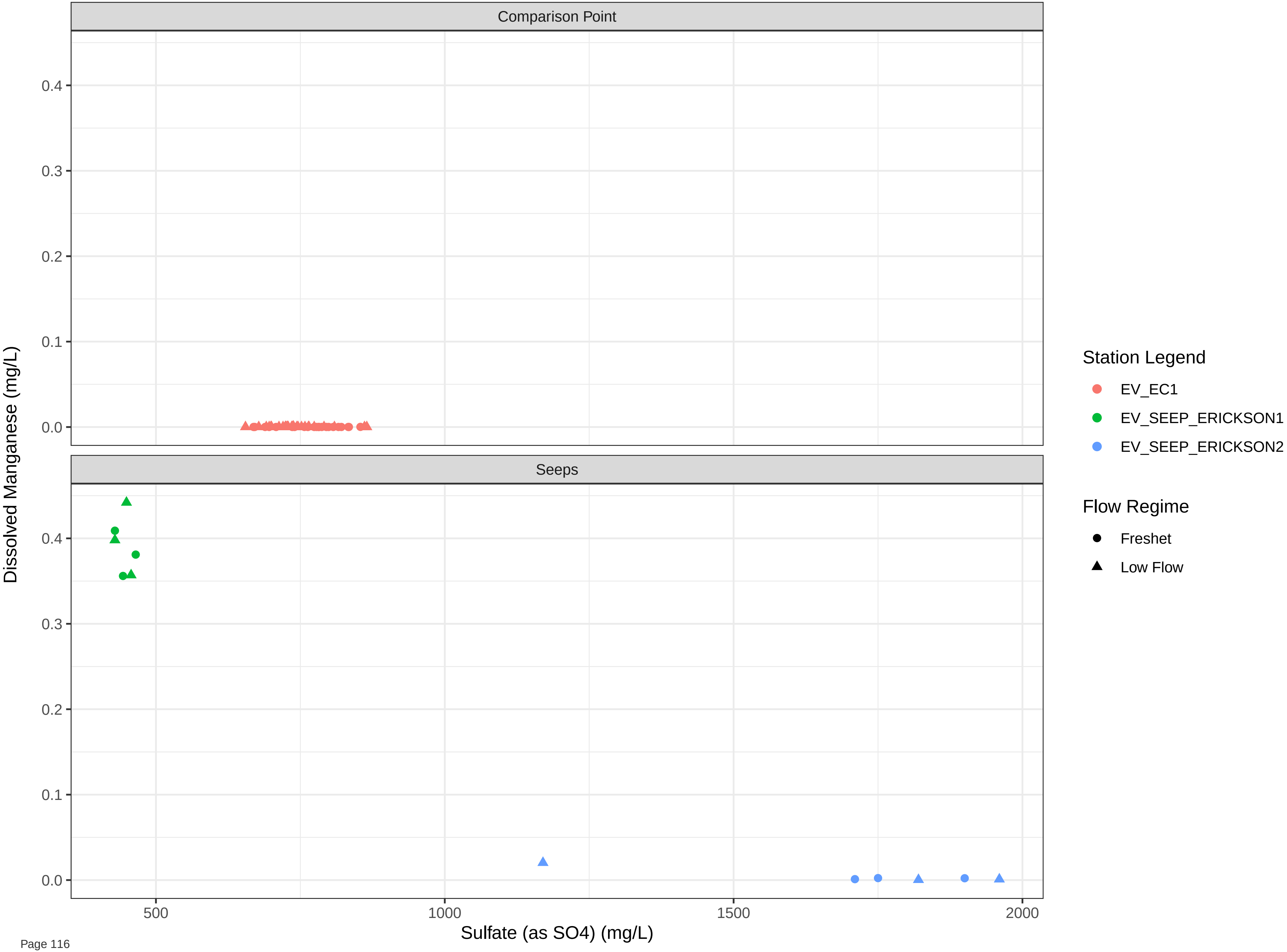

Comparison Point
Seeps
Dissolved Magnesium (mg/L)
Sulfate (as SO4) (mg/L)
20
25
30
35
40
0
20
40
60
80
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

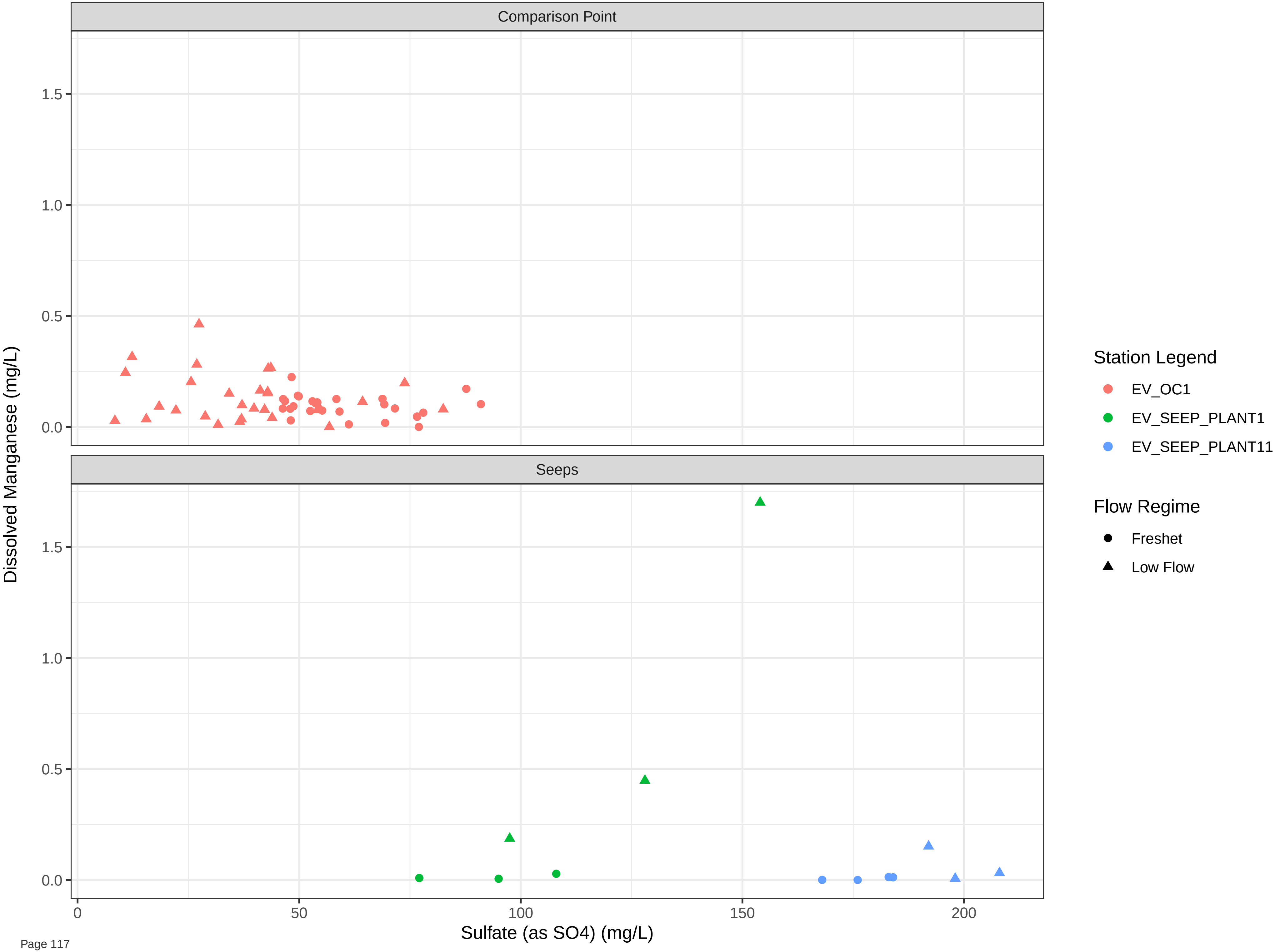

Comparison Point
Seeps
Dissolved Magnesium (mg/L)
Sulfate (as SO4) (mg/L)
200
100
0
200
100
0
500
1000
1500
2000
Station Legend
EV_SEEP_SOUTHPIT6
EV_SP1
Flow Regime
Freshet
Low Flow

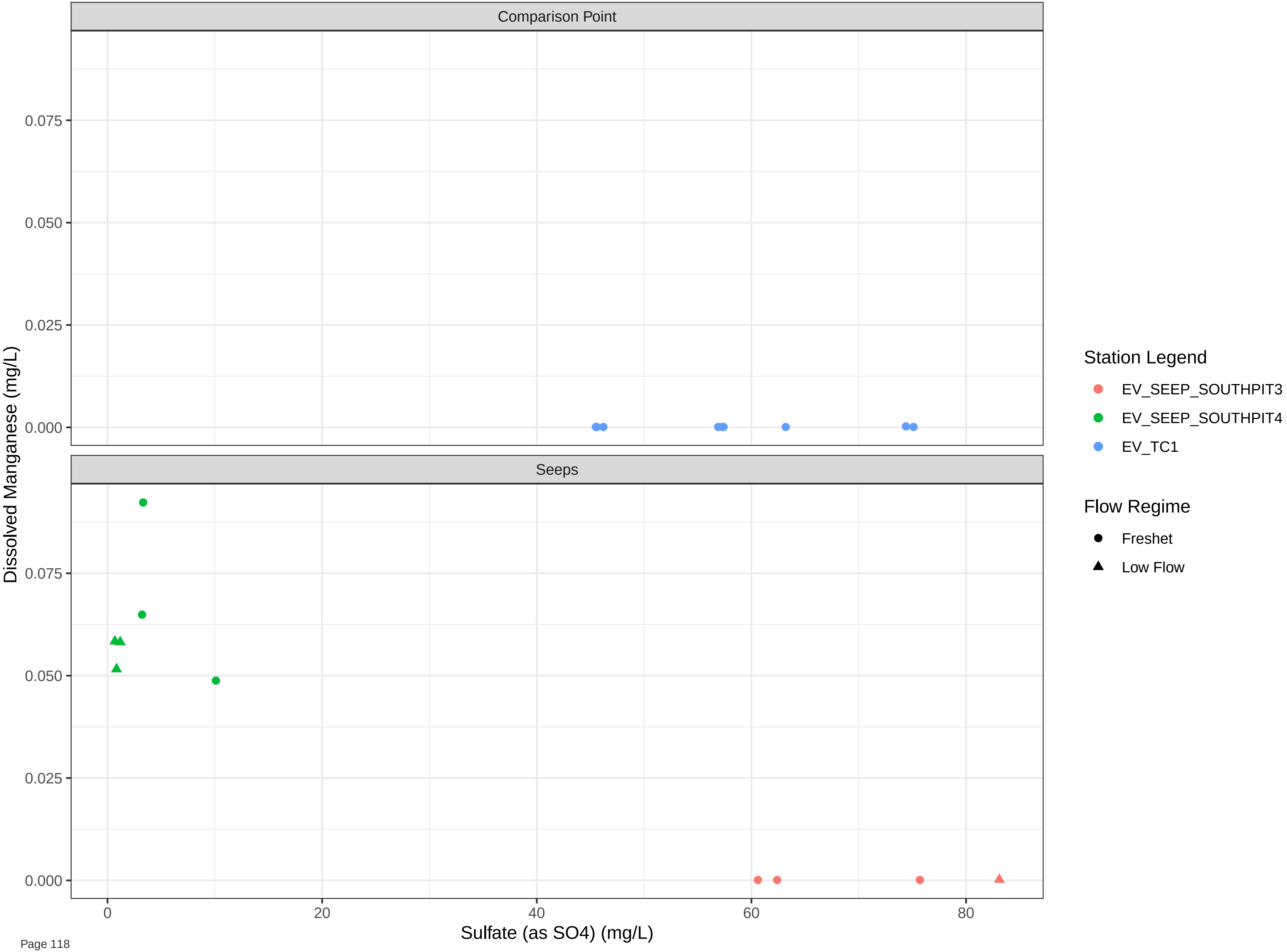

Comparison Point
Seeps
Dissolved Manganese (mg/L)
0.00
0.02
0.04
0.06
0
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

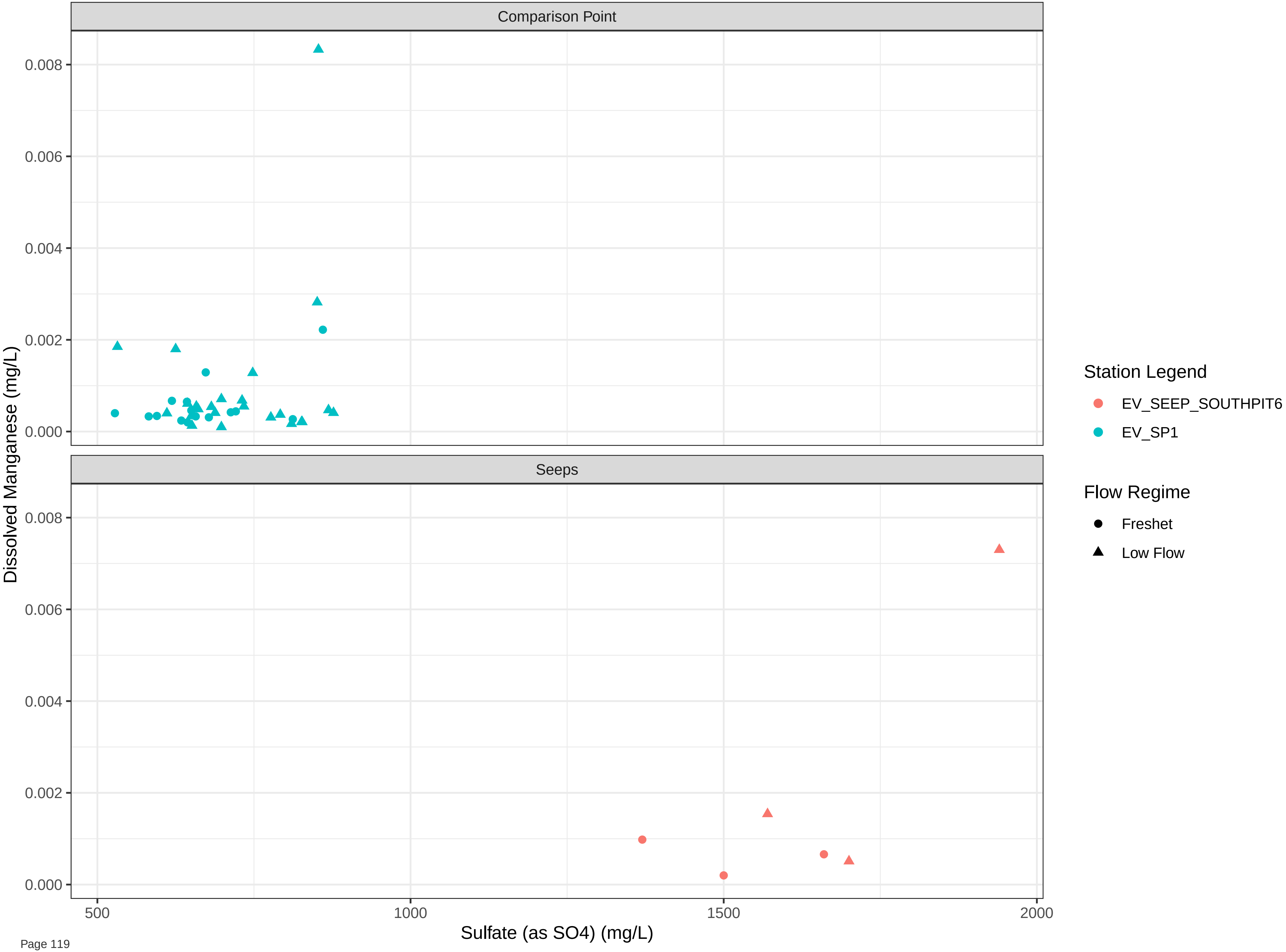

Comparison Point
Seeps
Dissolved Manganese (mg/L)
0.0
0.2
0.4
0.6
0.8
0
200
400
Sulfate (as SO4) (mg/L)
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

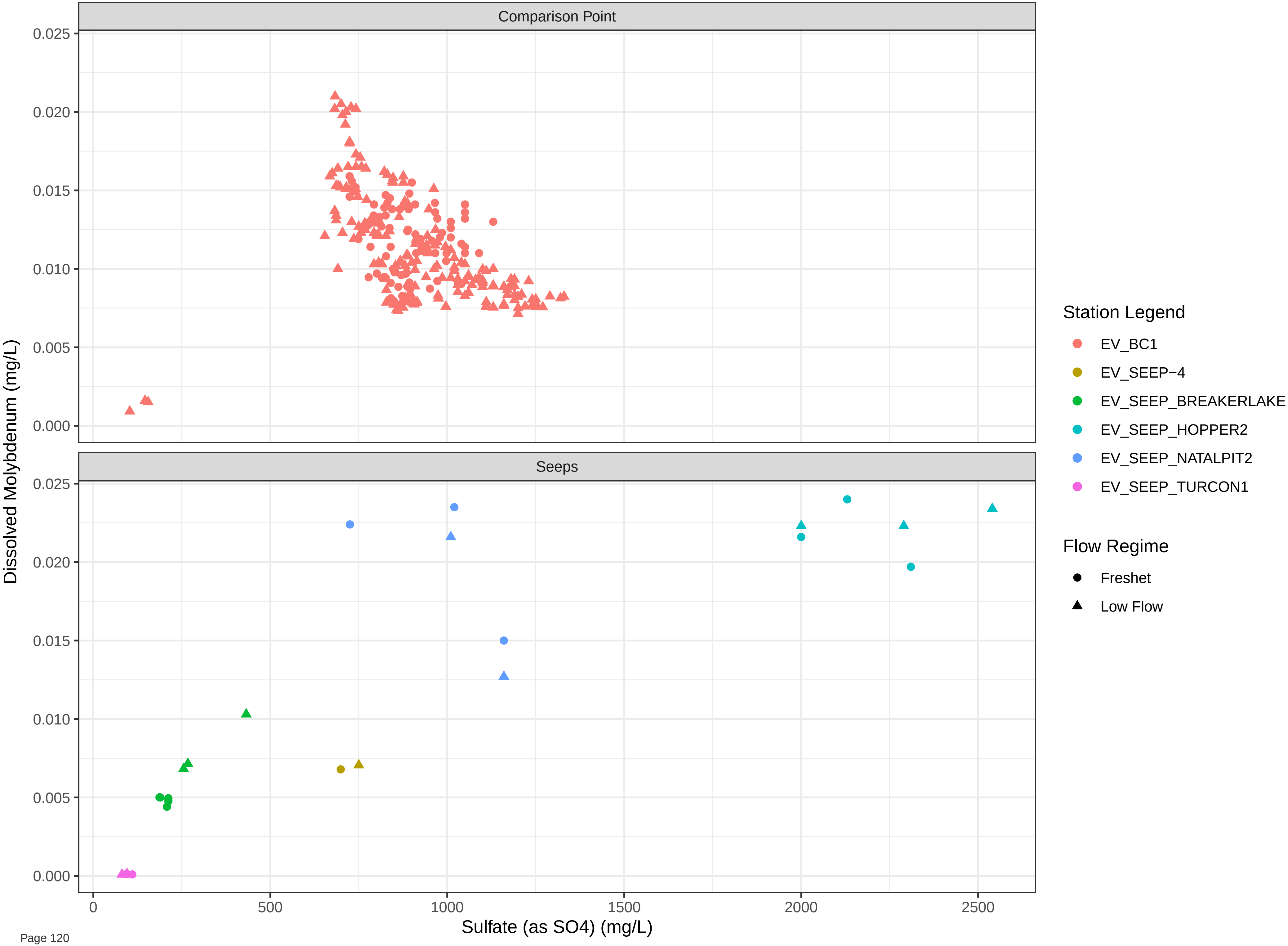

Comparison Point
Seeps
Dissolved Manganese (mg/L)
0.6
0.4
0.2
0.0
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
EV_GC2
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_WLAGC
Flow Regime
Freshet
Low Flow

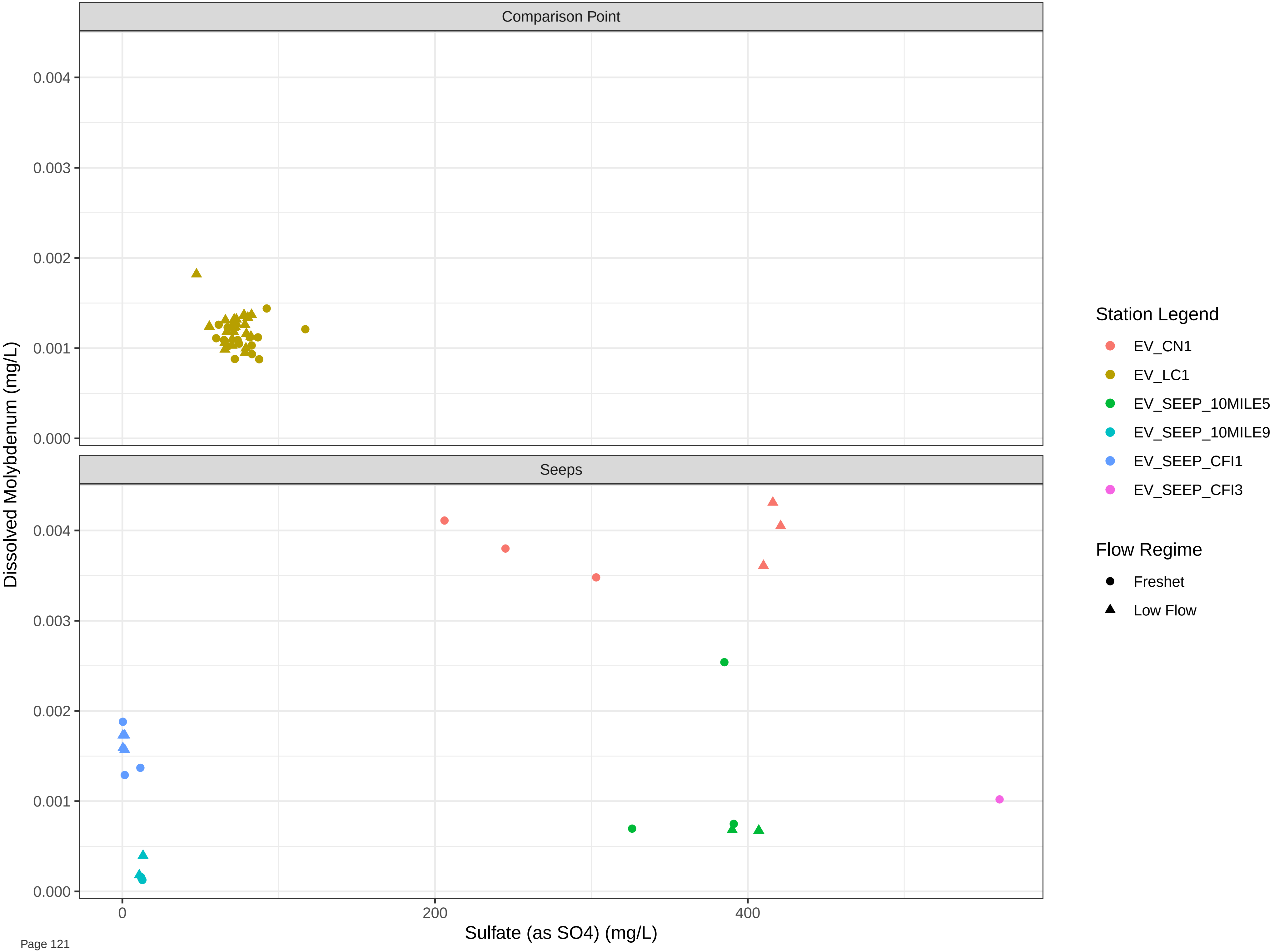

Comparison Point
Seeps
0.4
0.3
0.2
0.1
0.0
Dissolved Manganese (mg/L)
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

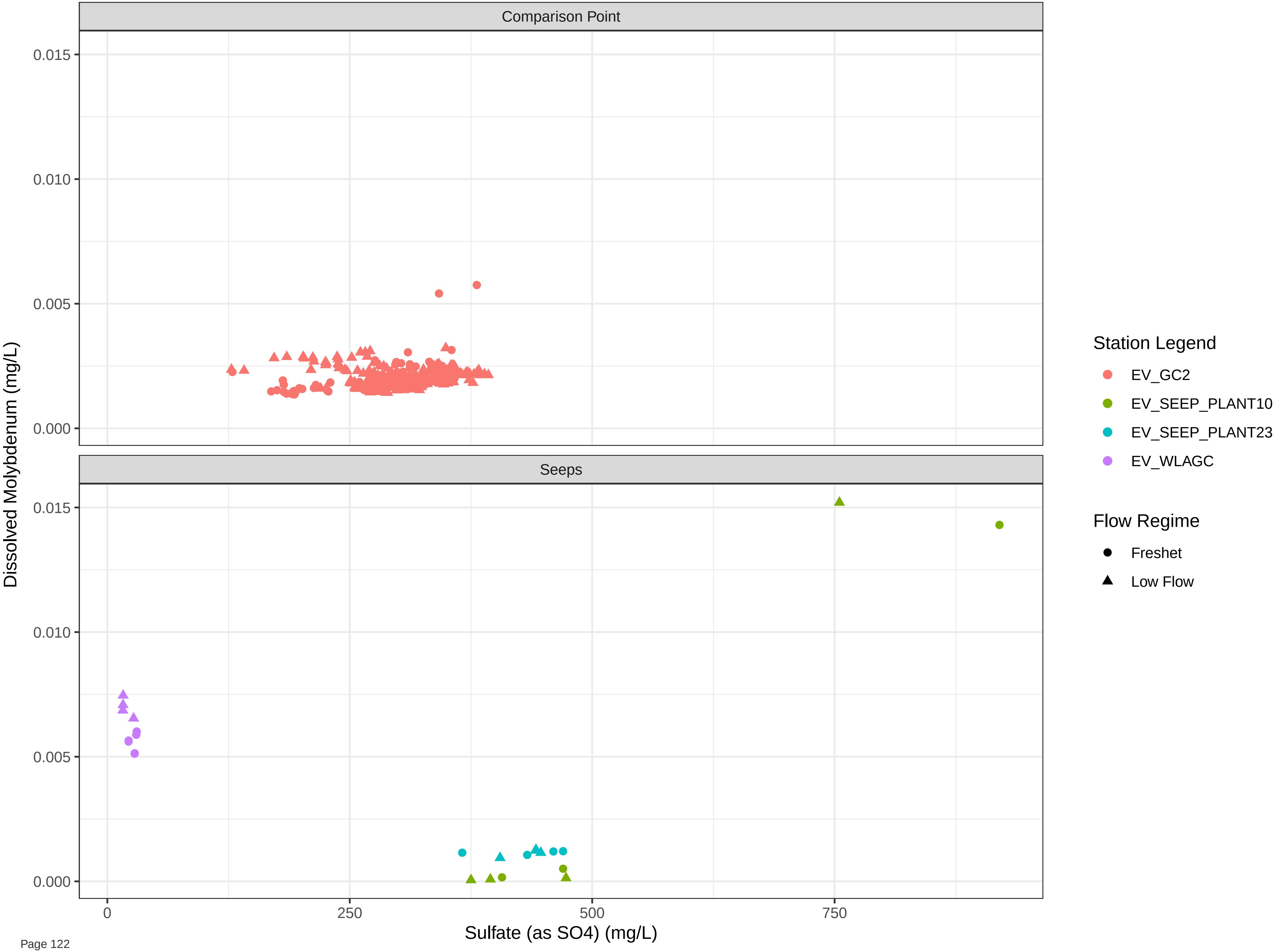

Comparison Point
Seeps
Dissolved Manganese (mg/L)
0.0
0.5
1.0
1.5
Sulfate (as SO4) (mg/L)
0
50
100
150
200
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

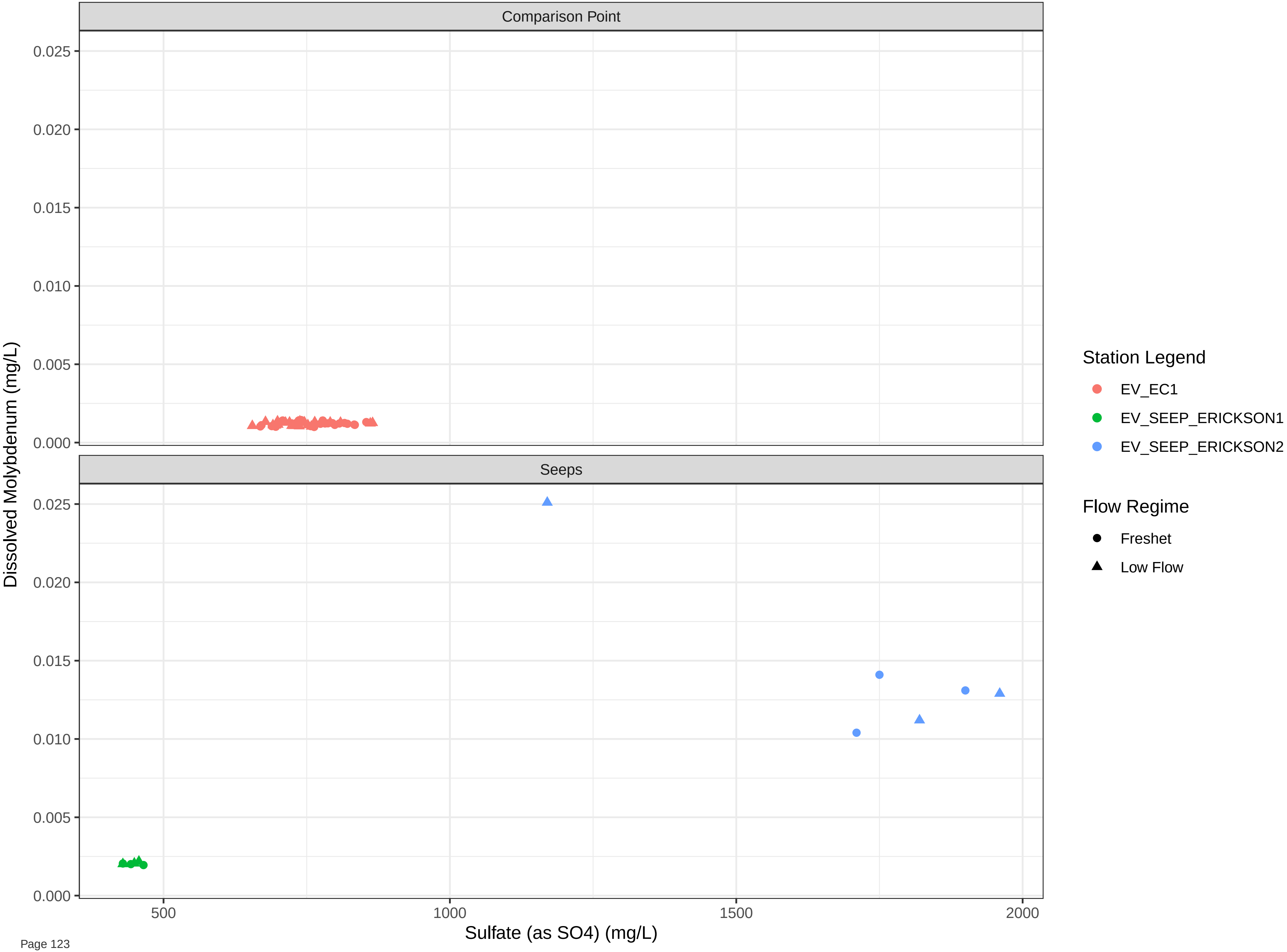

Comparison Point
Seeps
Dissolved Manganese (mg/L)
0.000
0.025
0.050
0.075
0
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

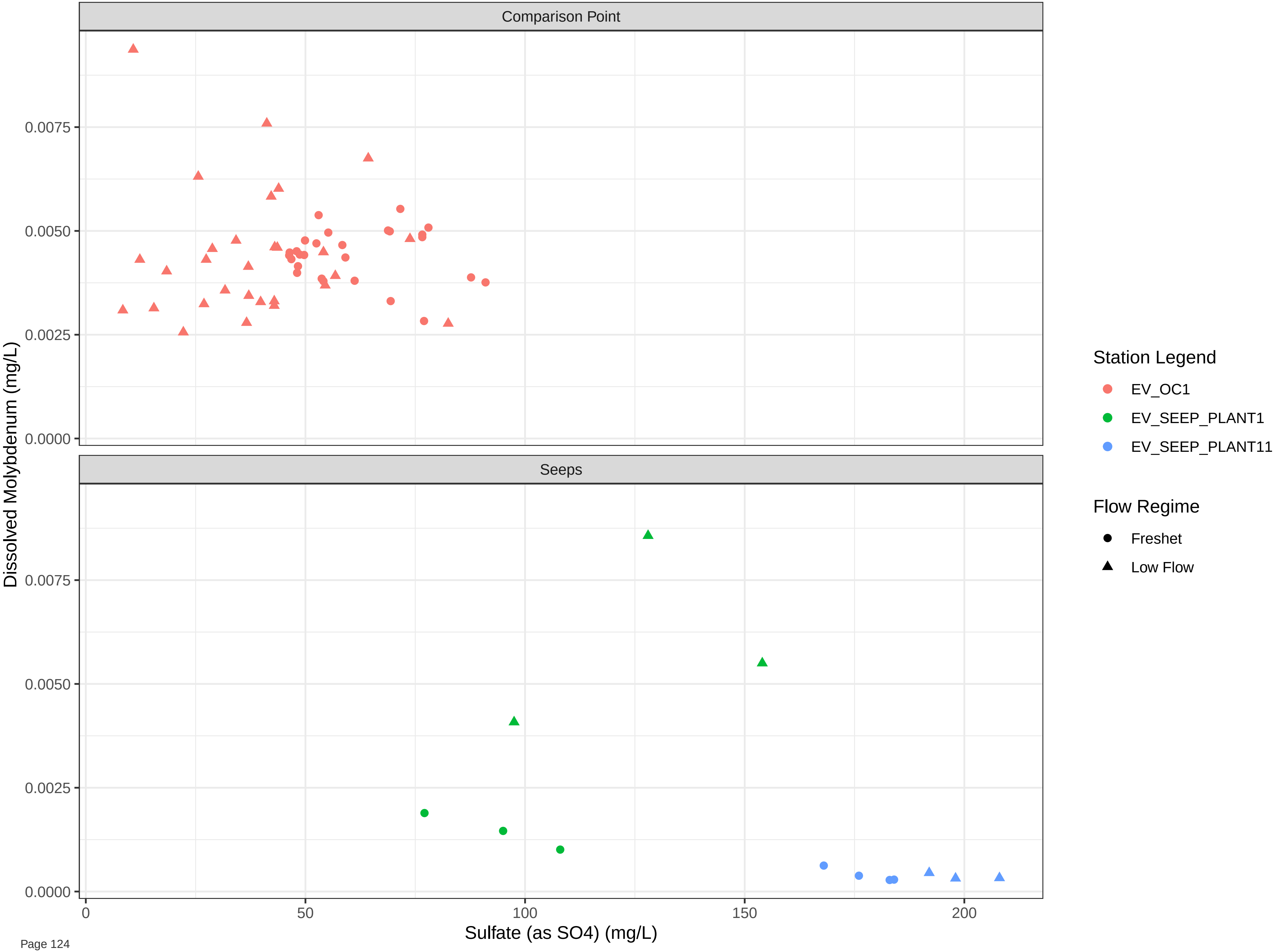

Comparison Point
Seeps
0.008
0.006
0.004
0.002
0.000
Dissolved Manganese (mg/L)
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
EV_SP1
Flow Regime
Freshet
Low Flow

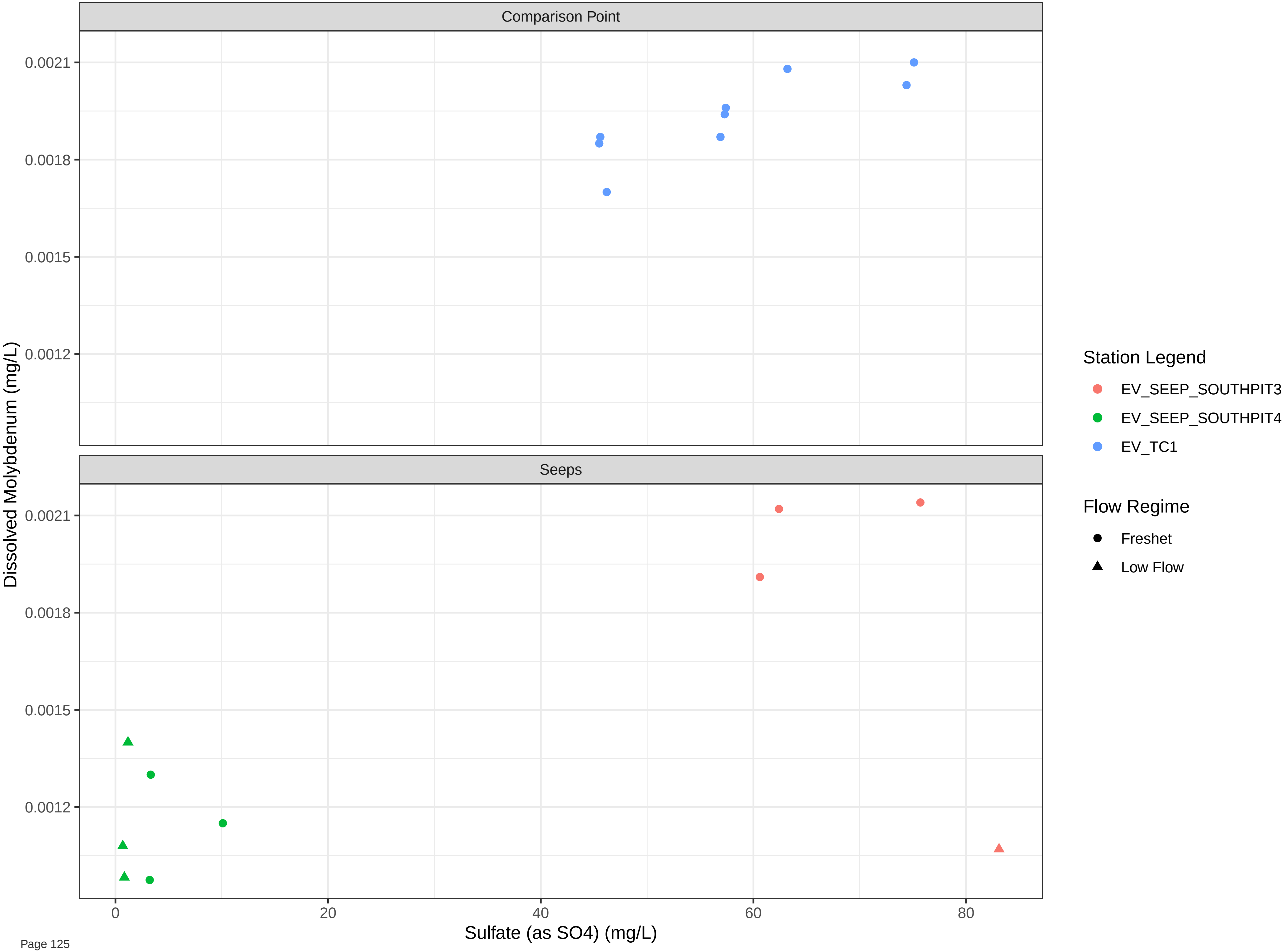

Comparison Point
Seeps
Dissolved Molybdenum (mg/L)
0.025
0.020
0.015
0.010
0.005
0.000
Sulfate (as SO4) (mg/L)
0
500
1000
1500
2000
2500
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

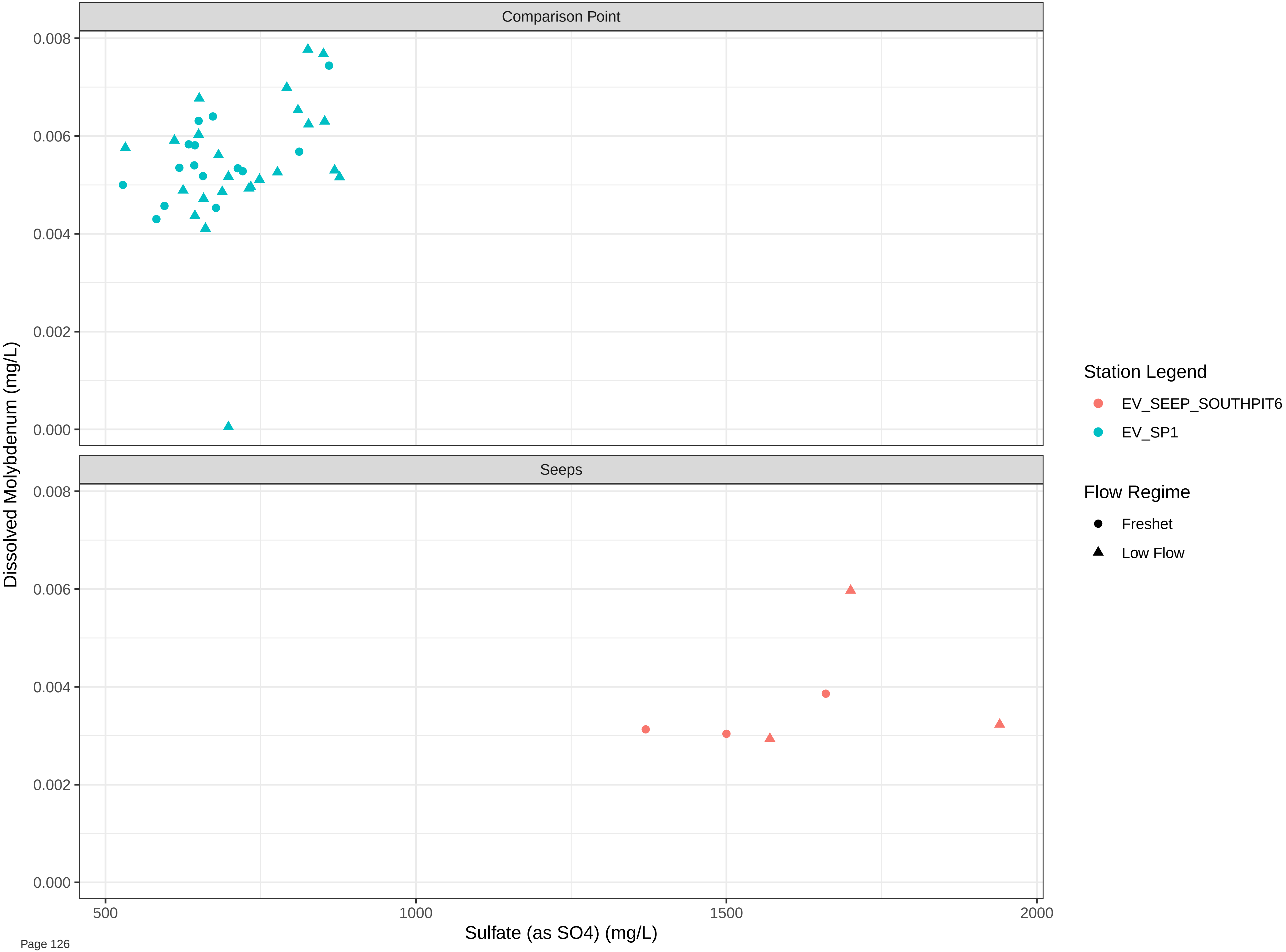

Comparison Point
Seeps
Dissolved Molybdenum (mg/L)
0.000
0.001
0.002
0.003
0.004
0
200
400
Sulfate (as SO4) (mg/L)
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

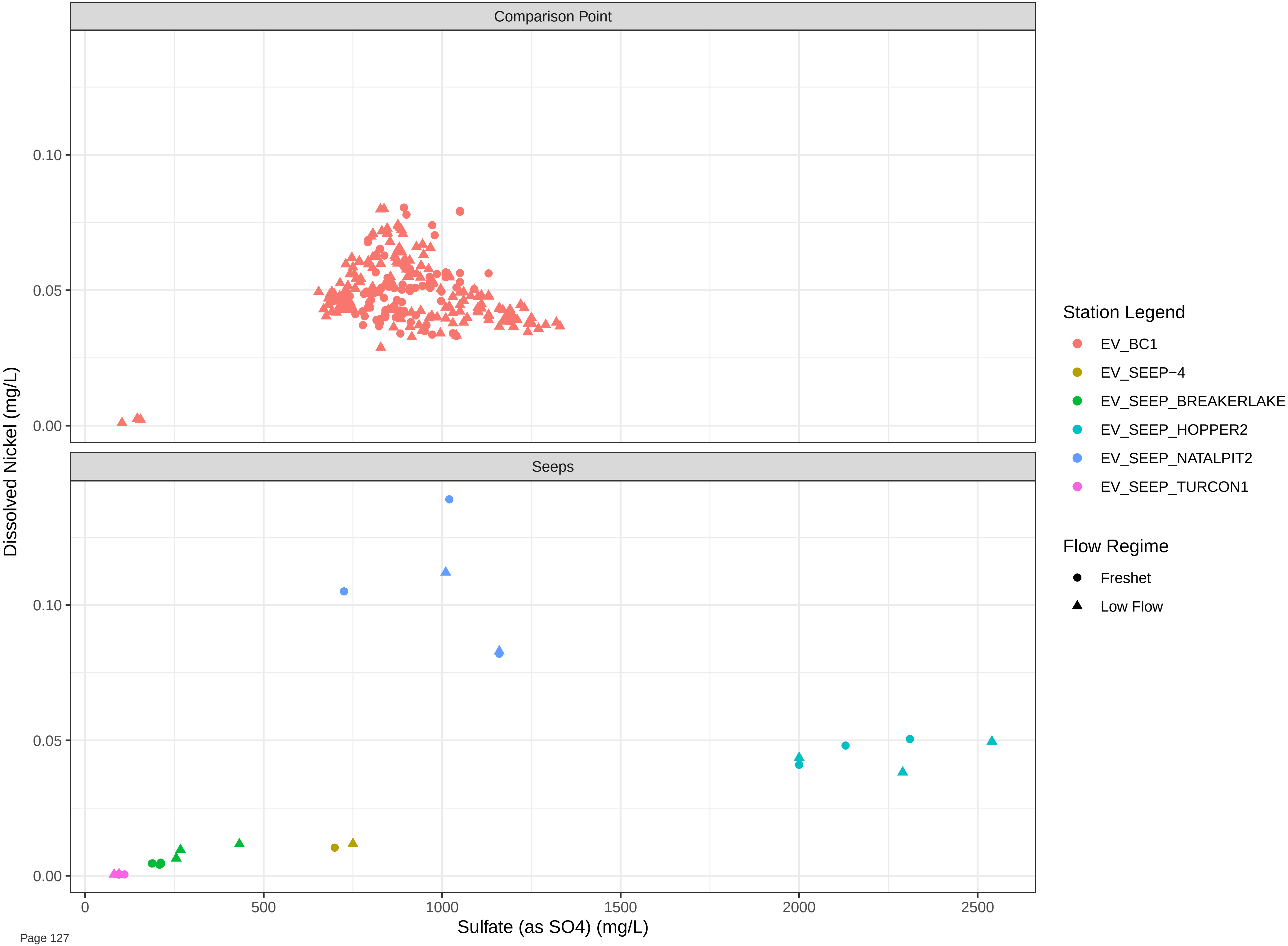

Comparison Point
Seeps
Dissolved Molybdenum (mg/L)
0.015
0.010
0.005
0.000
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
EV_GC2
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_WLAGC
Flow Regime
Freshet
Low Flow

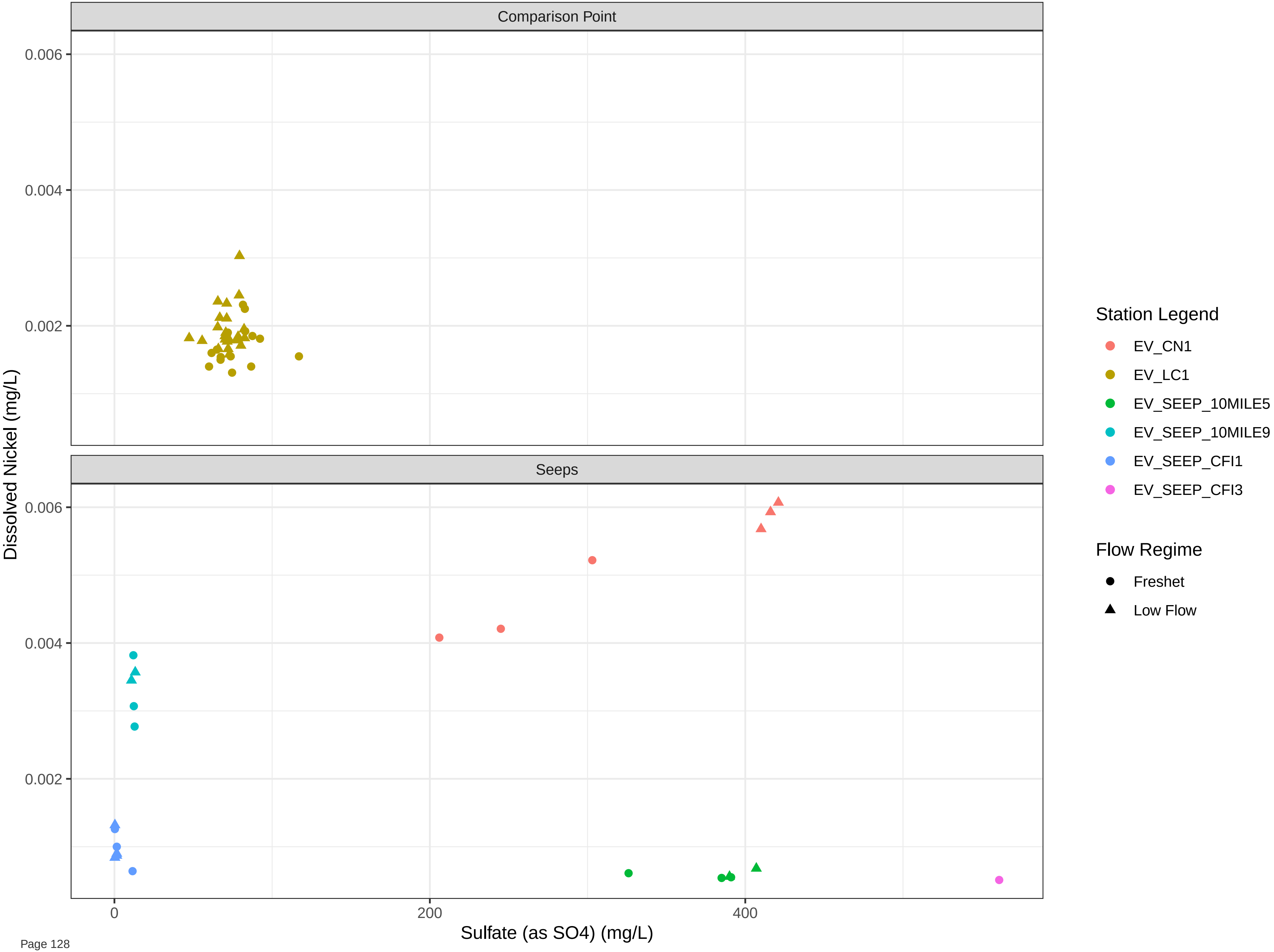

Comparison Point
Seeps
Dissolved Molybdenum (mg/L)
0.025
0.020
0.015
0.010
0.005
0.000
Sulfate (as SO4) (mg/L)
500
1000
1500
2000
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

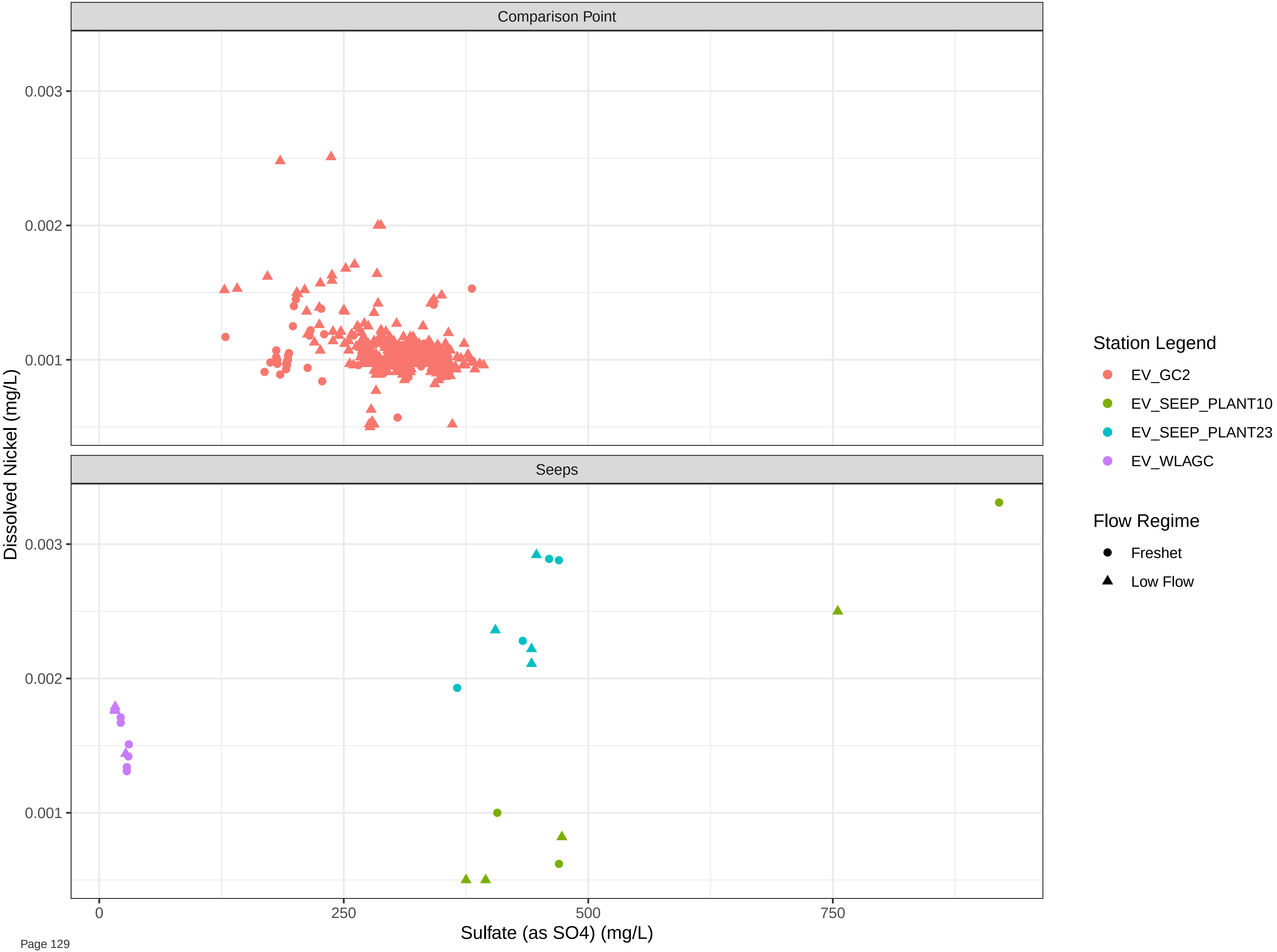

Comparison Point
Seeps
Dissolved Molybdenum (mg/L)
0.0075
0.0050
0.0025
0.0000
0.0075
0.0050
0.0025
0.0000
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

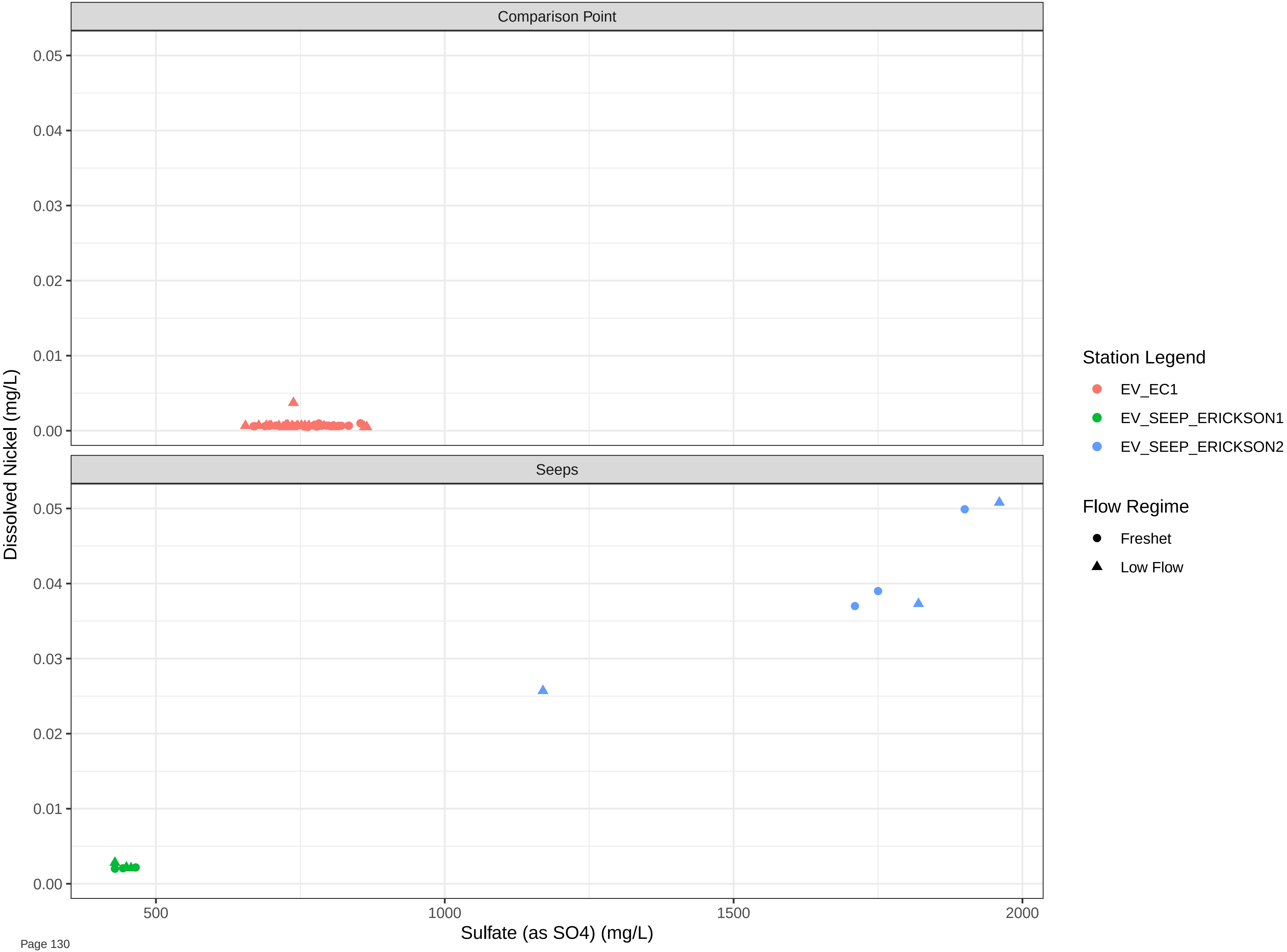

Comparison Point
Seeps
0.0021
0.0018
0.0015
0.0012
0
20
40
60
80
Dissolved Molybdenum (mg/L)
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

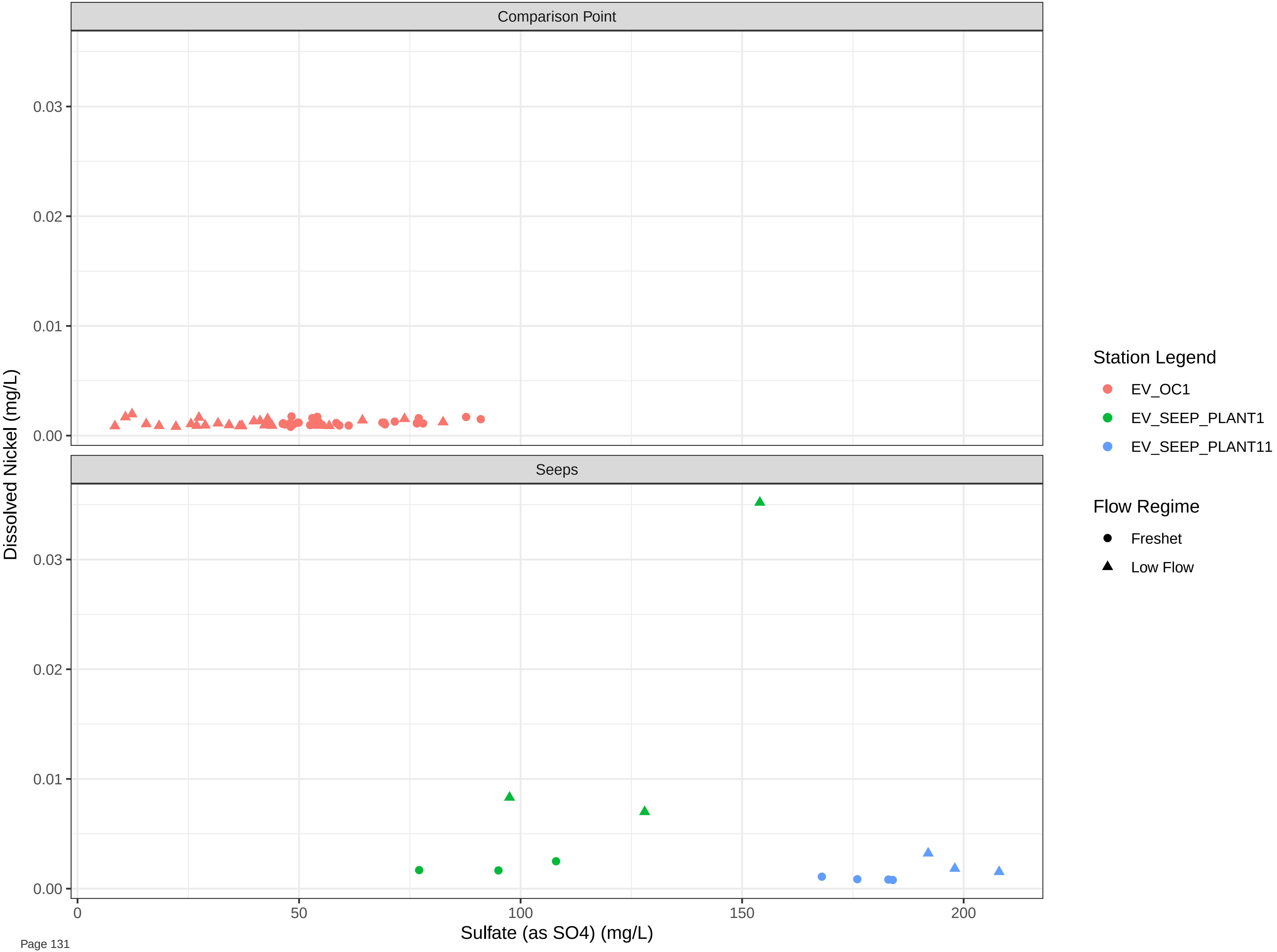

Comparison Point
Seeps
Dissolved Molybdenum (mg/L)
0.008
0.006
0.004
0.002
0.000
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
EV_SP1
Flow Regime
Freshet
Low Flow

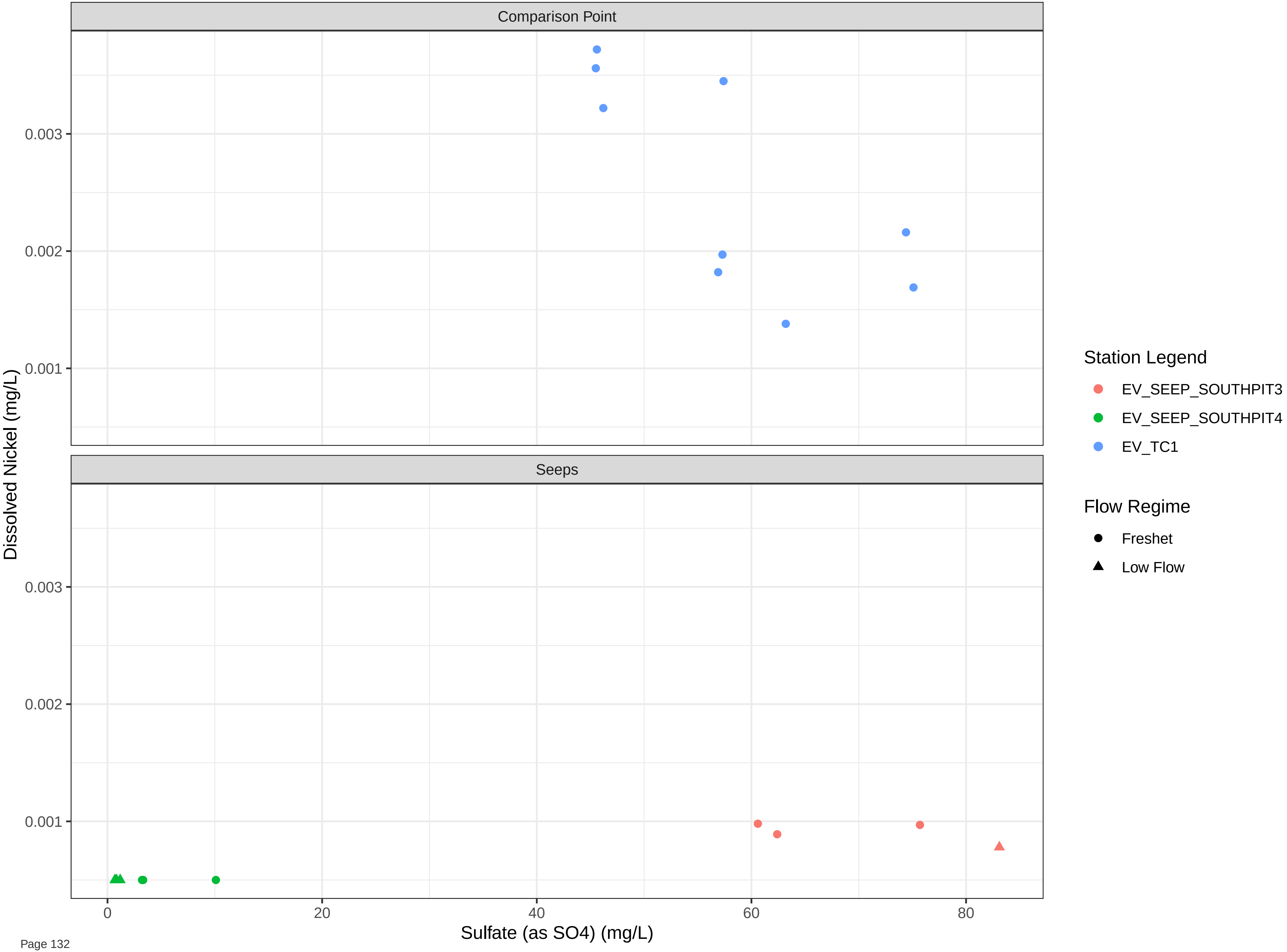

Comparison Point
Seeps
Dissolved Nickel (mg/L)
0.00
0.05
0.10
Sulfate (as SO4) (mg/L)
0
500
1000
1500
2000
2500
Station Legend
● EV_BC1
● EV_SEEP−4
● EV_SEEP_BREAKERLAKE
● EV_SEEP_HOPPER2
● EV_SEEP_NATALPIT2
● EV_SEEP_TURCON1
Flow Regime
● Freshet
▲ Low Flow

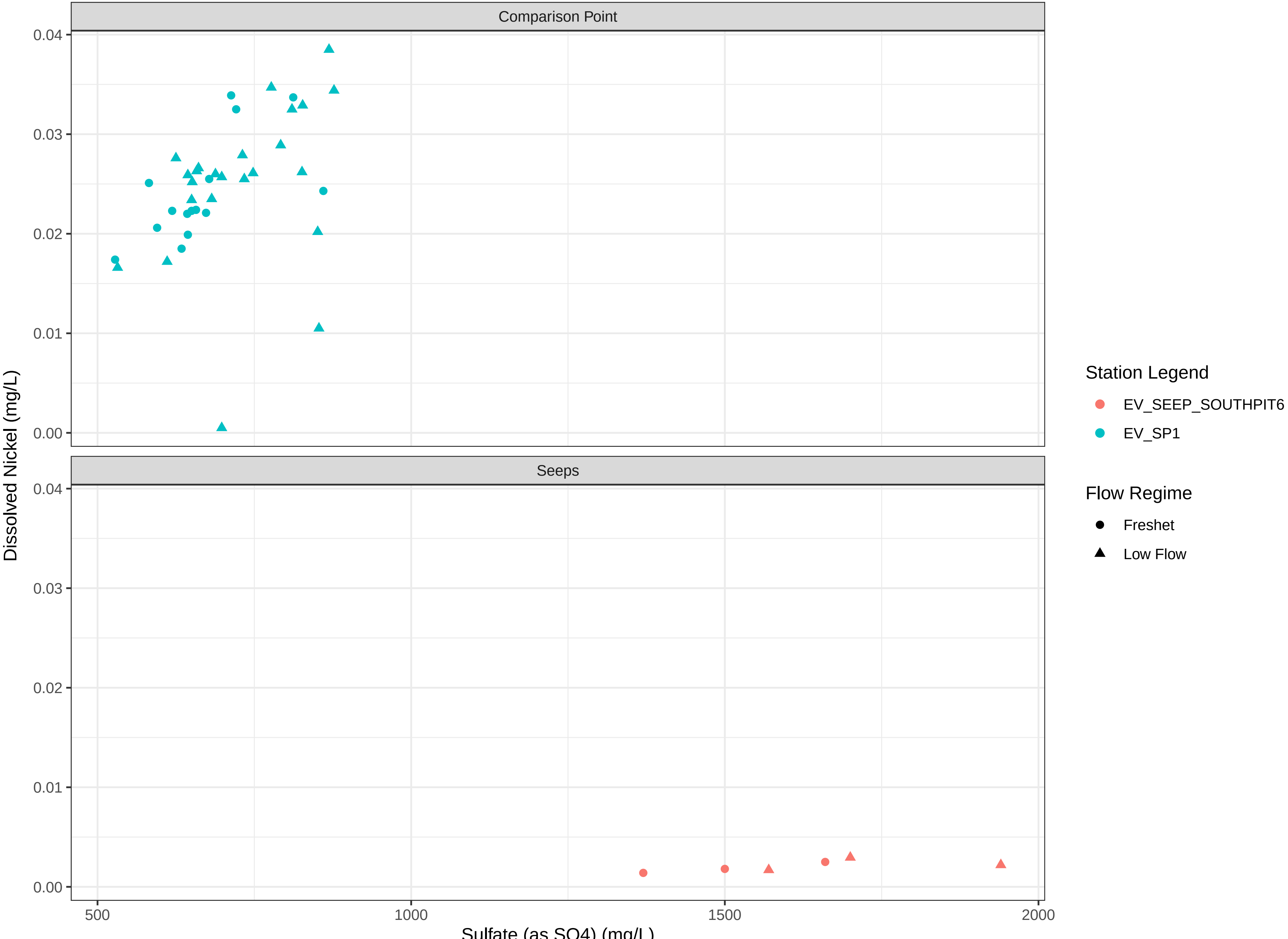

Comparison Point
Seeps
Dissolved Nickel (mg/L)
0.006
0.004
0.002
0.006
0.004
0.002
0
200
400
Sulfate (as SO4) (mg/L)
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

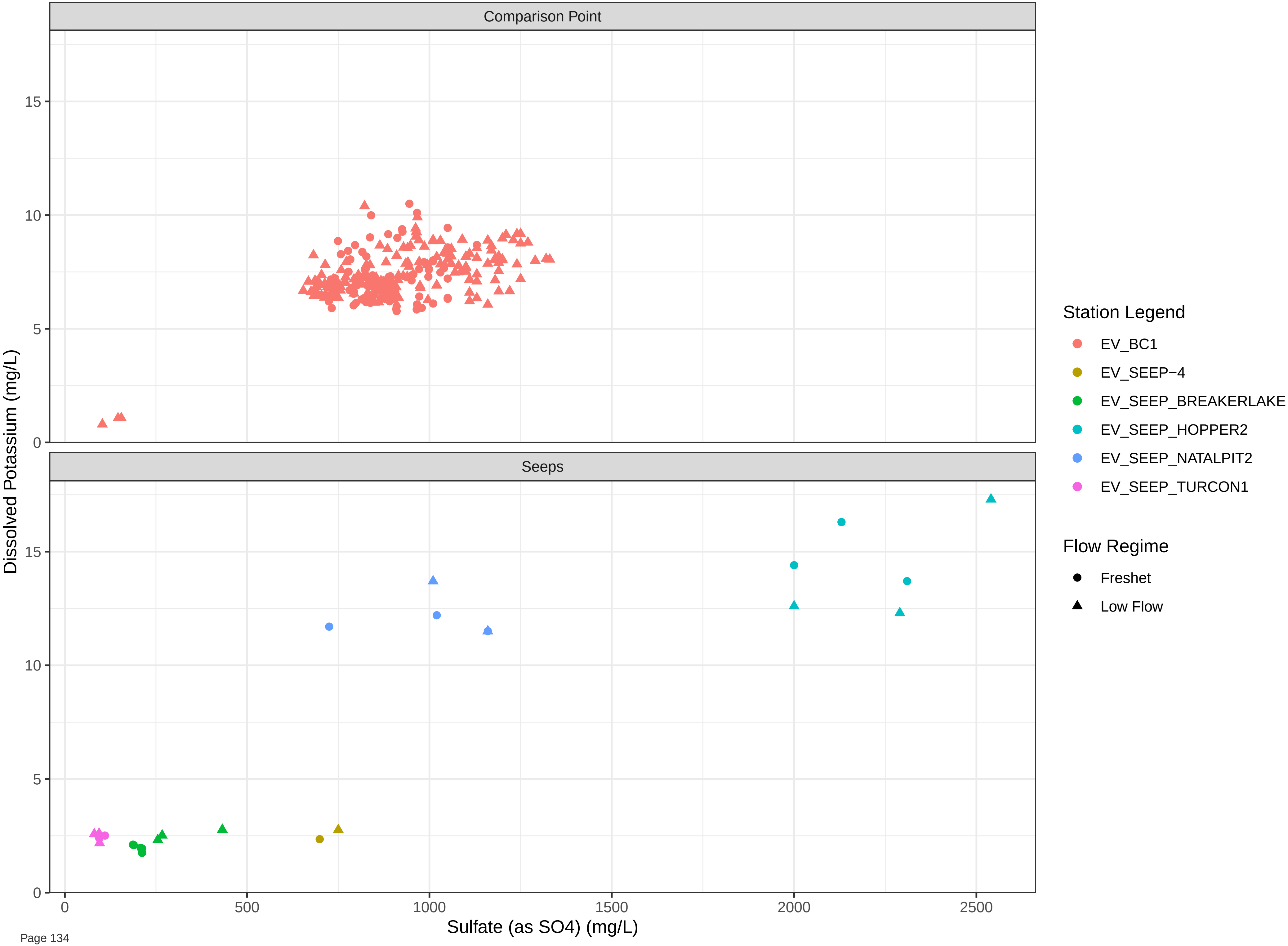

Comparison Point
Seeps
0.003
0.002
0.001
Dissolved Nickel (mg/L)
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
EV_GC2
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_WLAGC
Flow Regime
Freshet
Low Flow

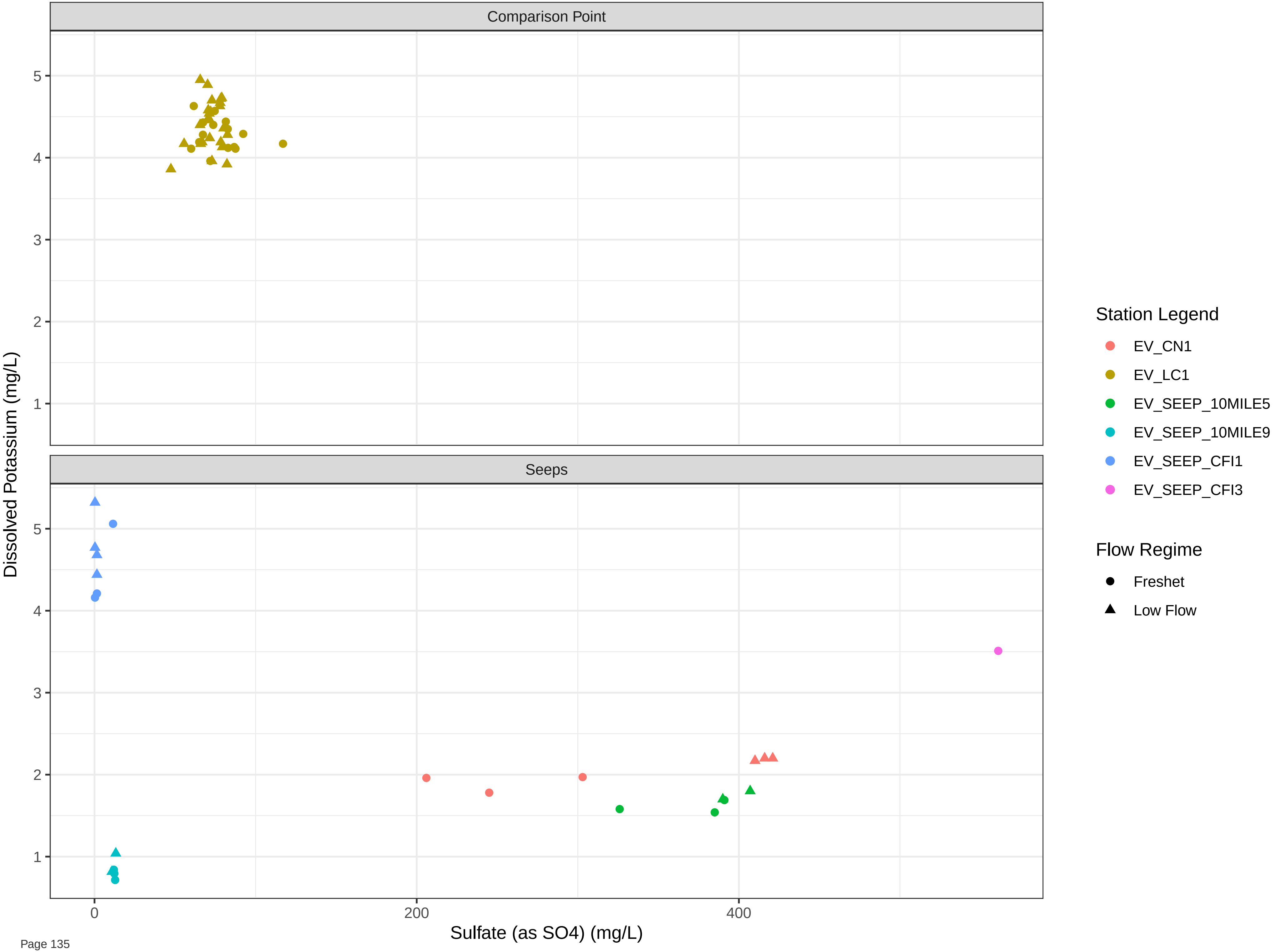

Comparison Point
Seeps
Dissolved Nickel (mg/L)
0.05
0.04
0.03
0.02
0.01
0.00
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

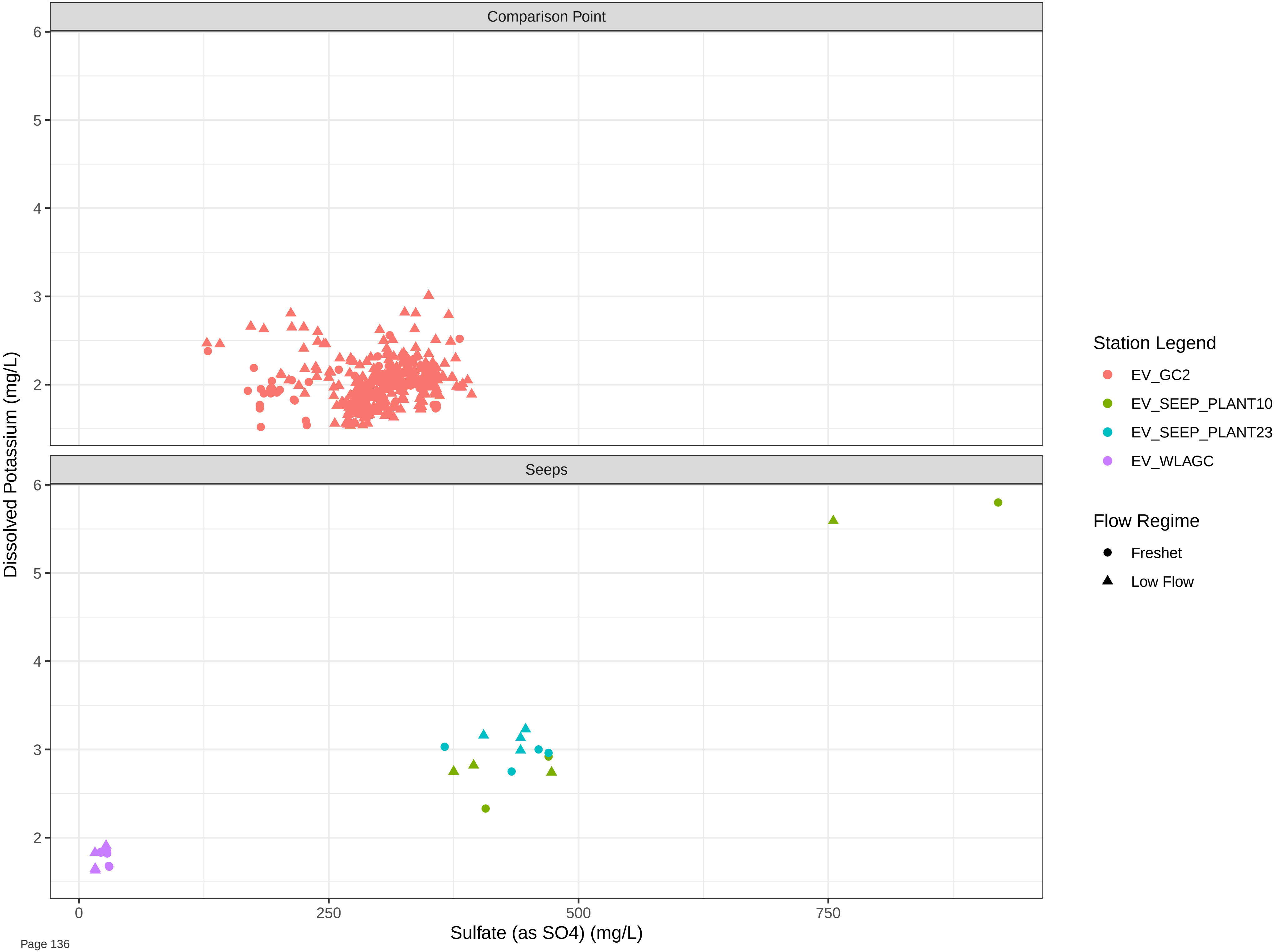

Comparison Point
Seeps
Dissolved Nickel (mg/L)
0.00
0.01
0.02
0.03
Sulfate (as SO4) (mg/L)
0
50
100
150
200
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

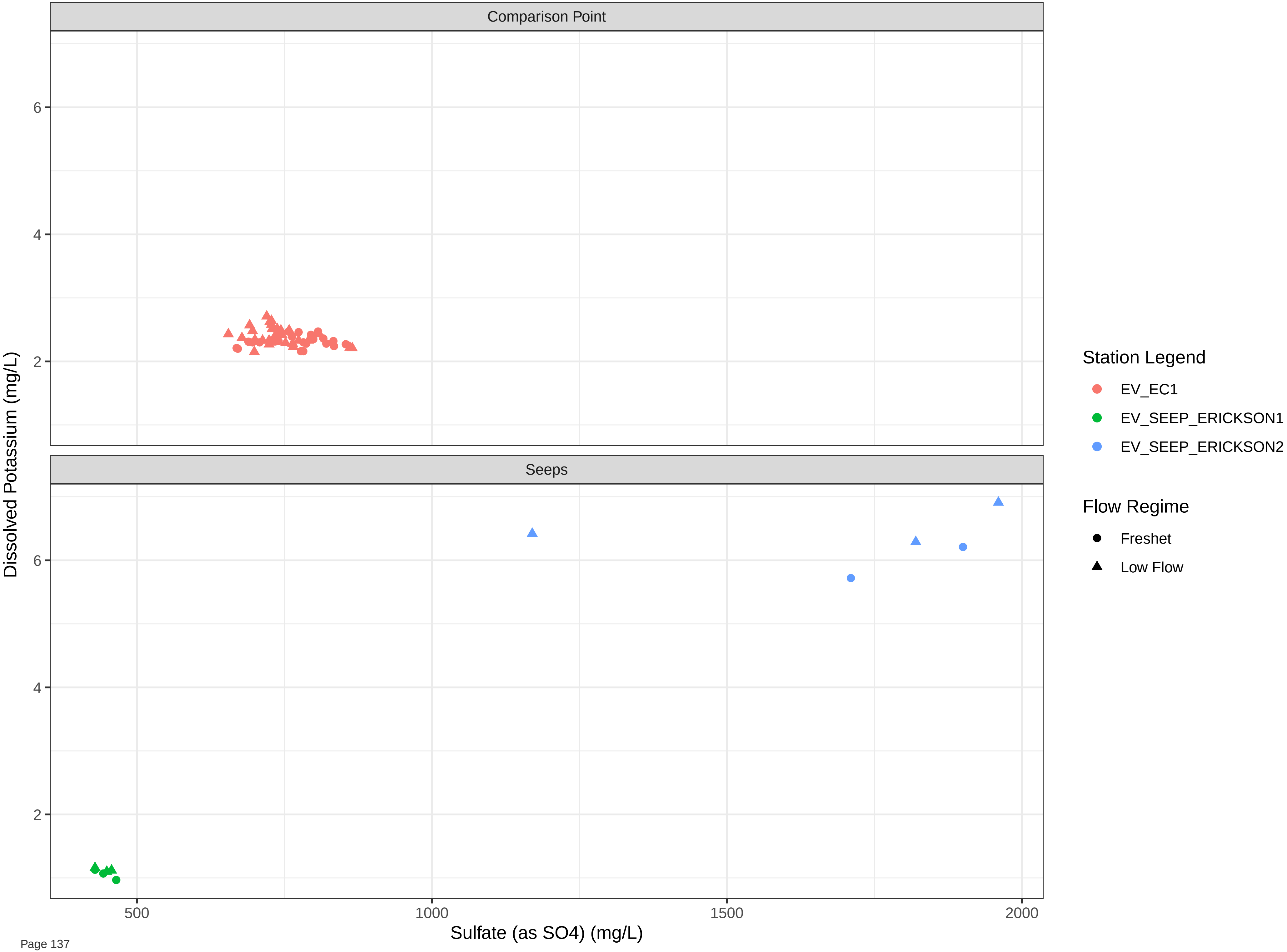

Comparison Point
Seeps
Dissolved Nickel (mg/L)
0.003
0.002
0.001
0
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

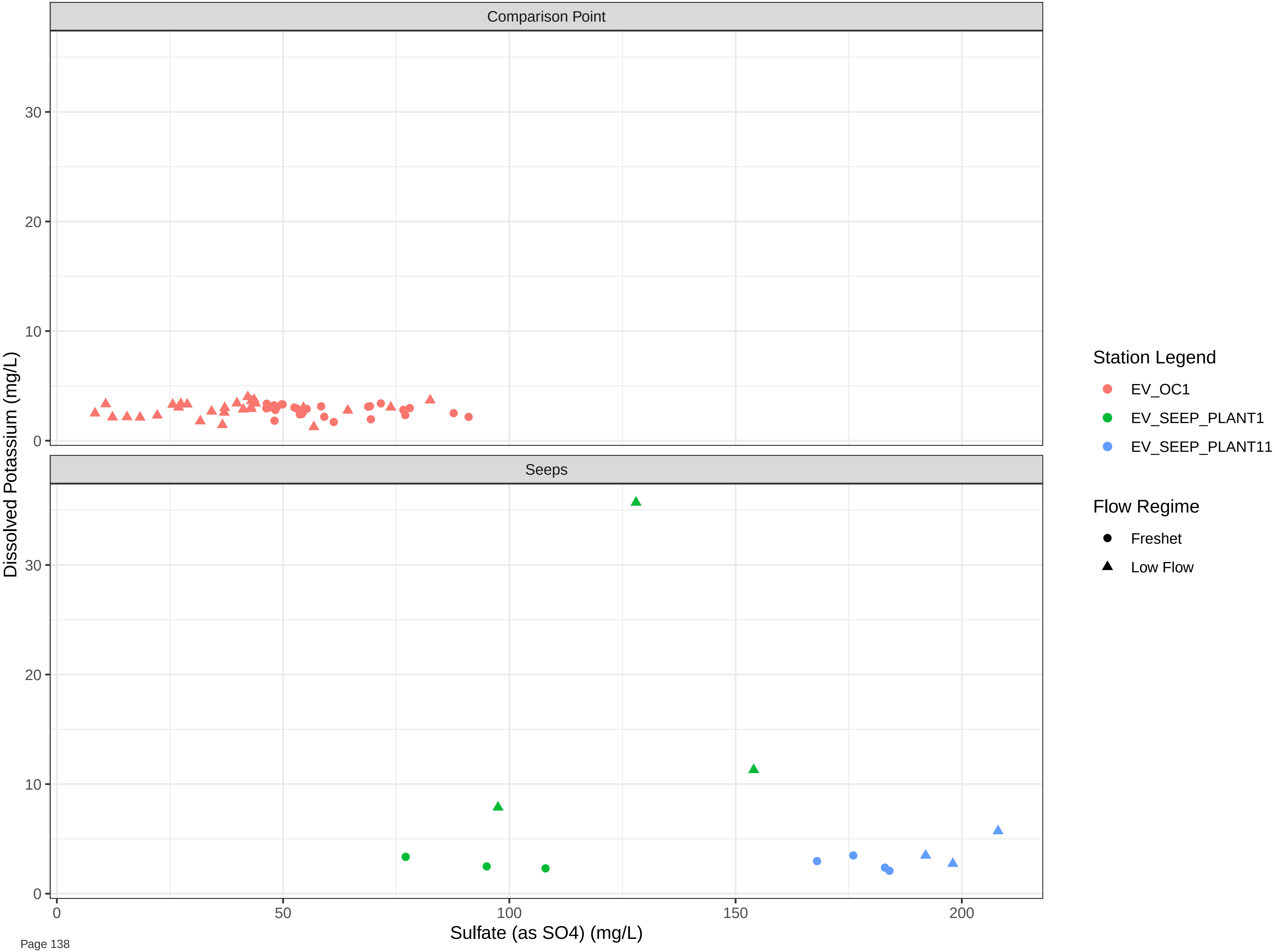

Comparison Point
Seeps
Dissolved Nickel (mg/L)
0.04
0.03
0.02
0.01
0.00
Sulfate (as SO4) (mg/L)
500
1000
1500
2000
Station Legend
EV_SEEP_SOUTHPIT6
EV_SP1
Flow Regime
Freshet
Low Flow

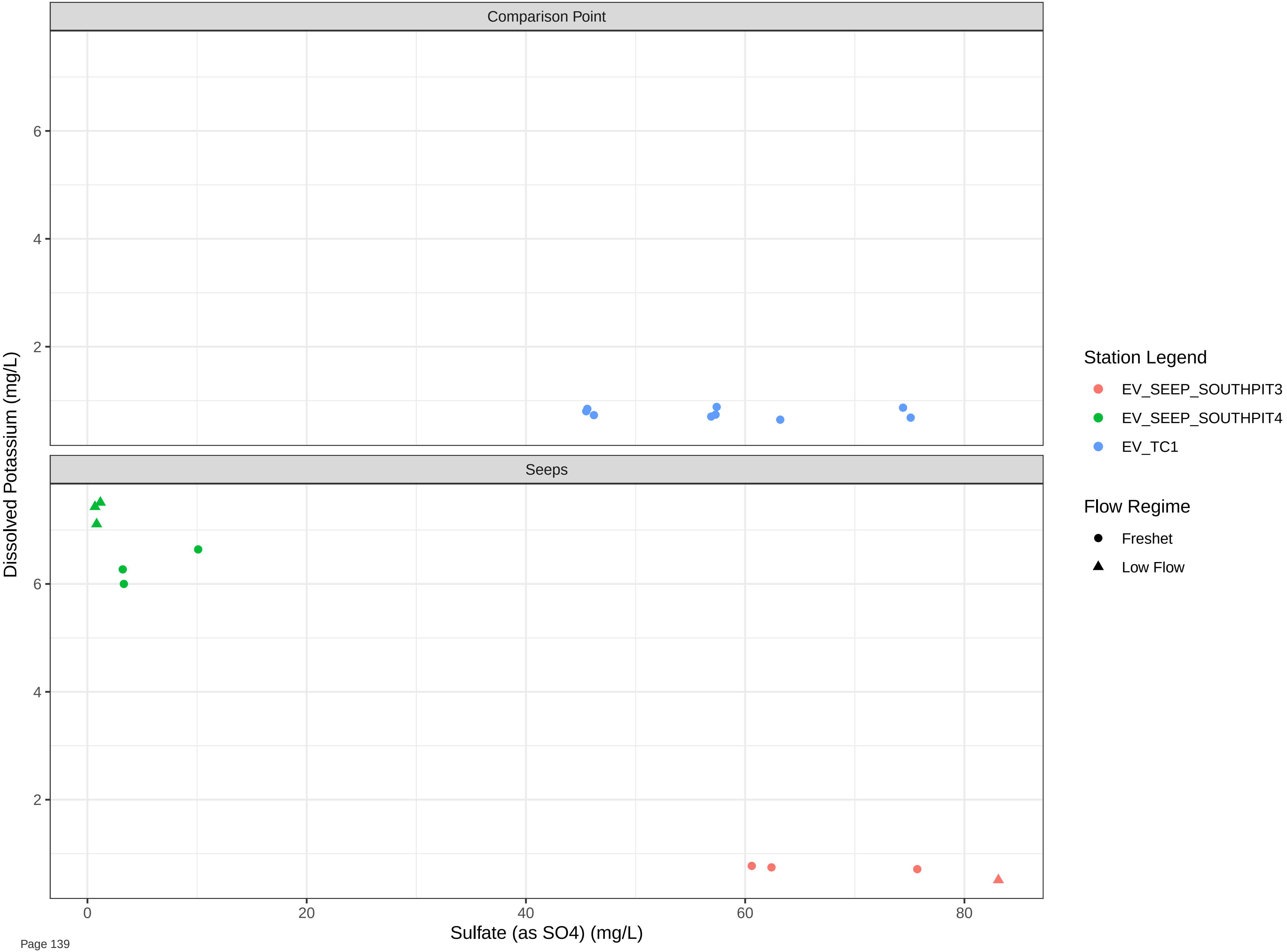

Comparison Point
Seeps
Dissolved Potassium (mg/L)
Sulfate (as SO4) (mg/L)
0
5
10
15
0
500
1000
1500
2000
2500
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

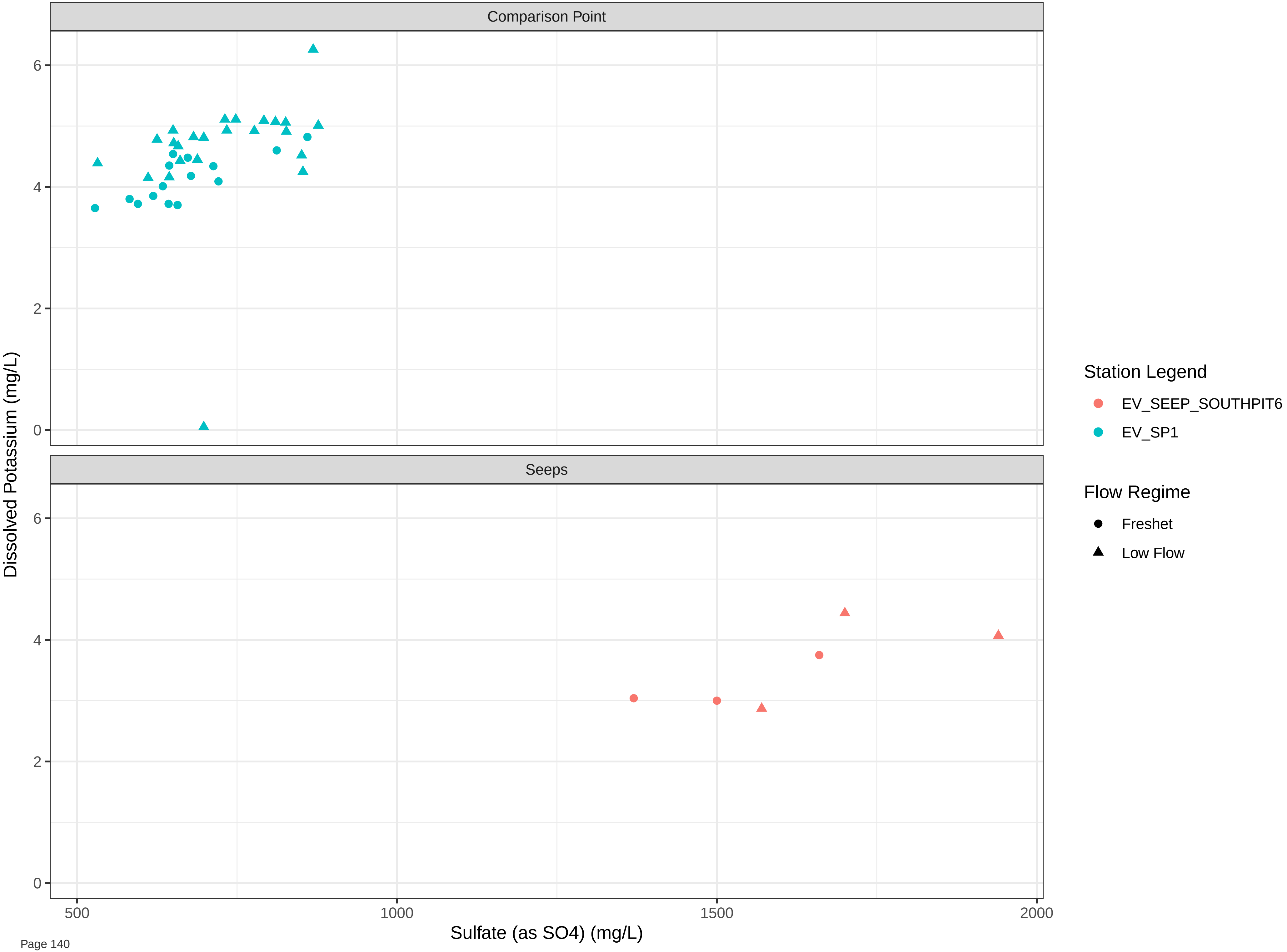

Comparison Point
Seeps
Dissolved Potassium (mg/L)
Sulfate (as SO4) (mg/L)
5
4
3
2
1
0
200
400
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

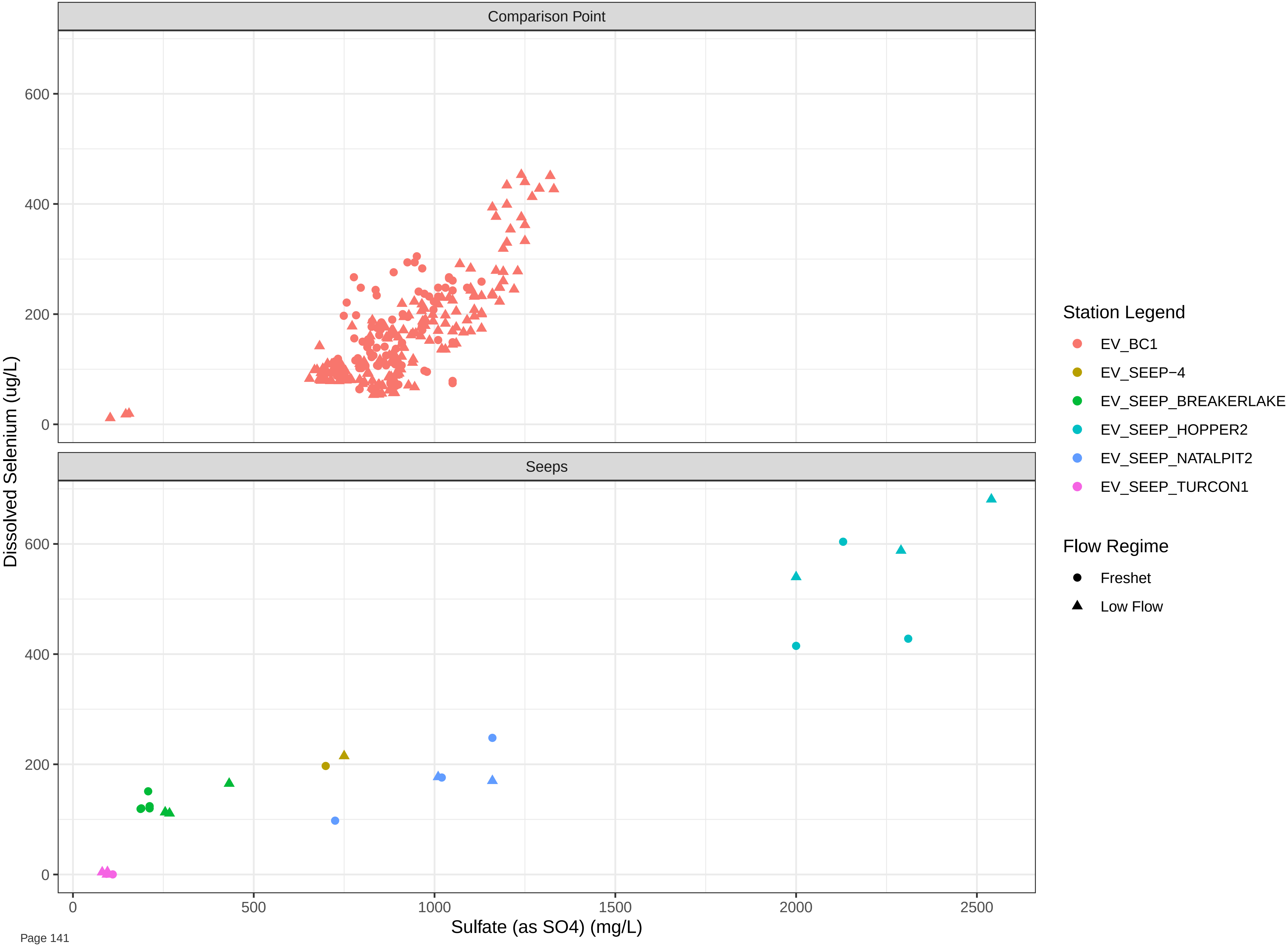

Comparison Point
Seeps
Dissolved Potassium (mg/L)
Sulfate (as SO4) (mg/L)
6
5
4
3
2
0
250
500
750
Station Legend
EV_GC2
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_WLAGC
Flow Regime
Freshet
Low Flow

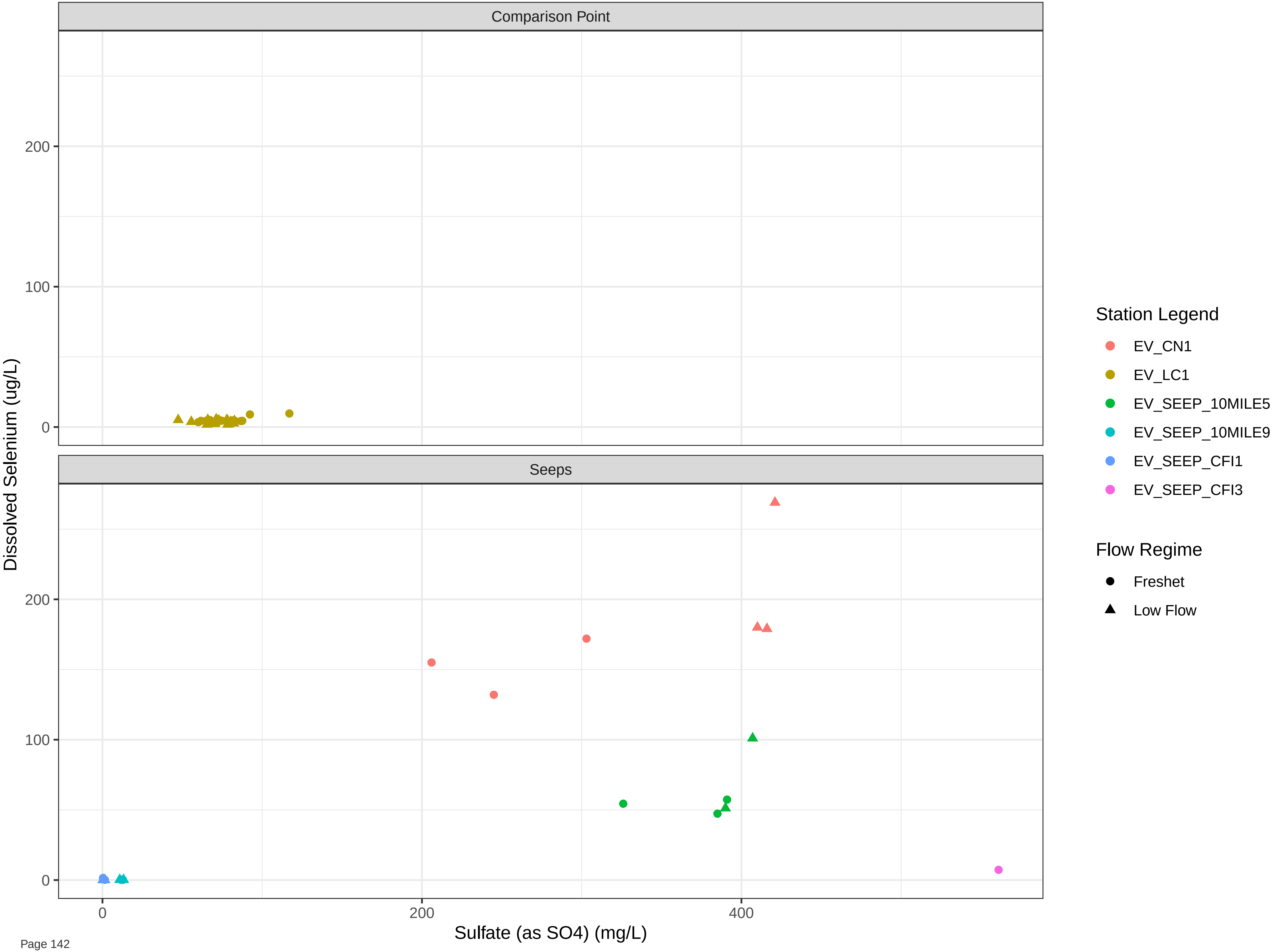

Comparison Point
Seeps
Dissolved Potassium (mg/L)
6
4
2
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
Dissolved Potassium (mg/L)
0
10
20
30
0
10
20
30
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

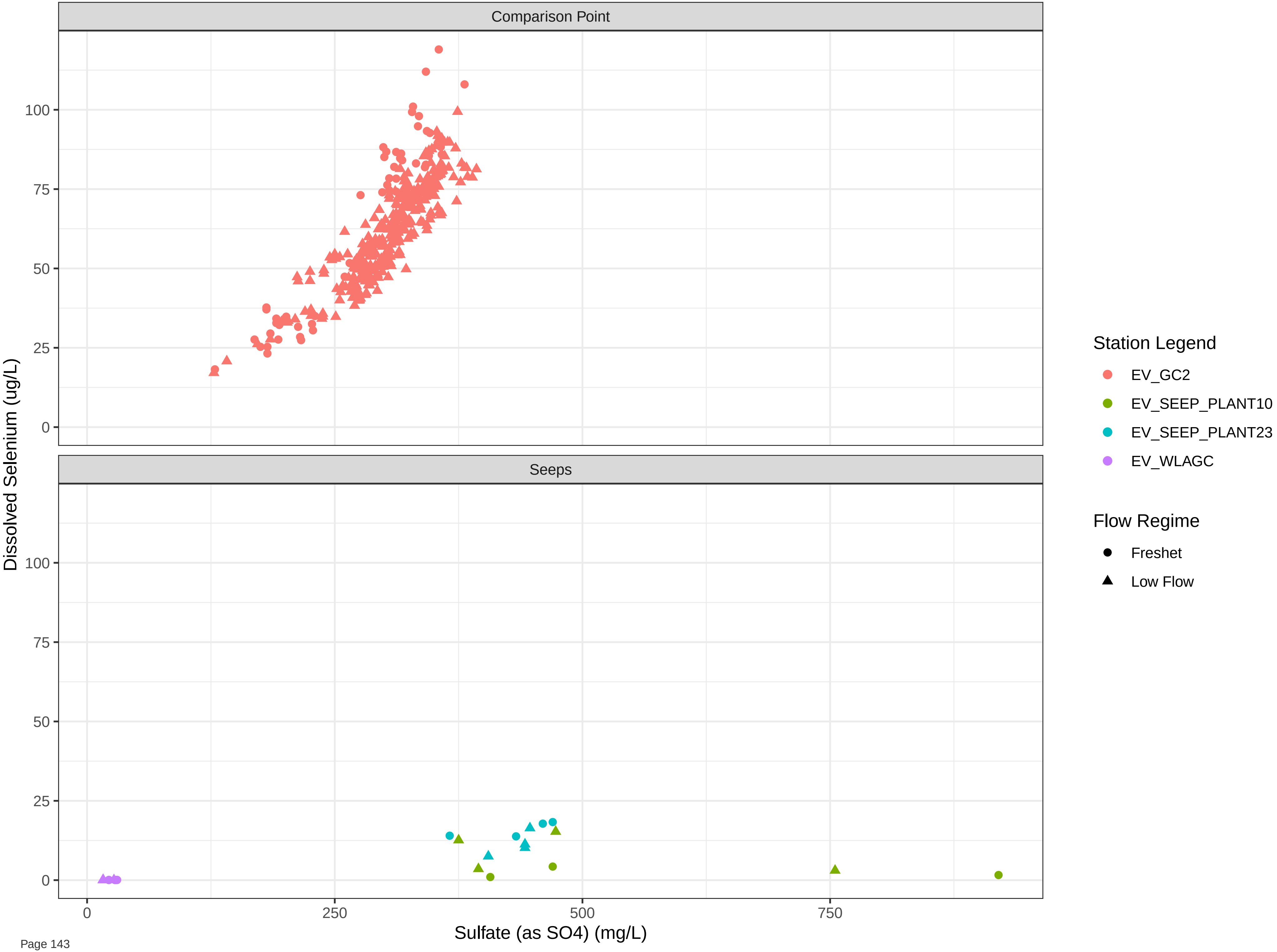
Comparison Point
Seeps
6
4
2
6
4
2
0
20
40
60
80
Dissolved Potassium (mg/L)
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

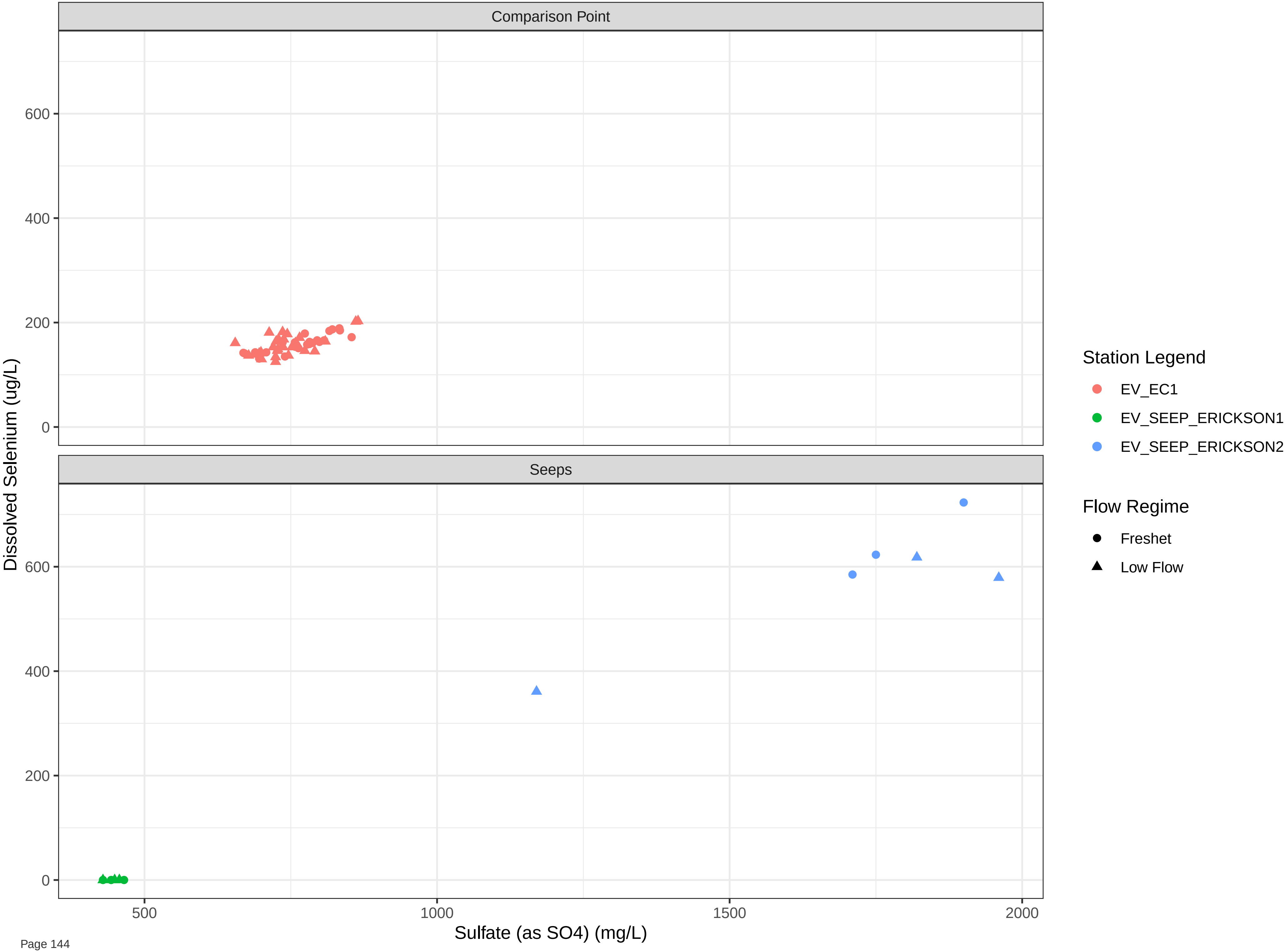

Comparison Point
Seeps
Dissolved Potassium (mg/L)
0
2
4
6
Sulfate (as SO4) (mg/L)
500
1000
1500
2000
Station Legend
EV_SEEP_SOUTHPIT6
EV_SP1
Flow Regime
Freshet
Low Flow

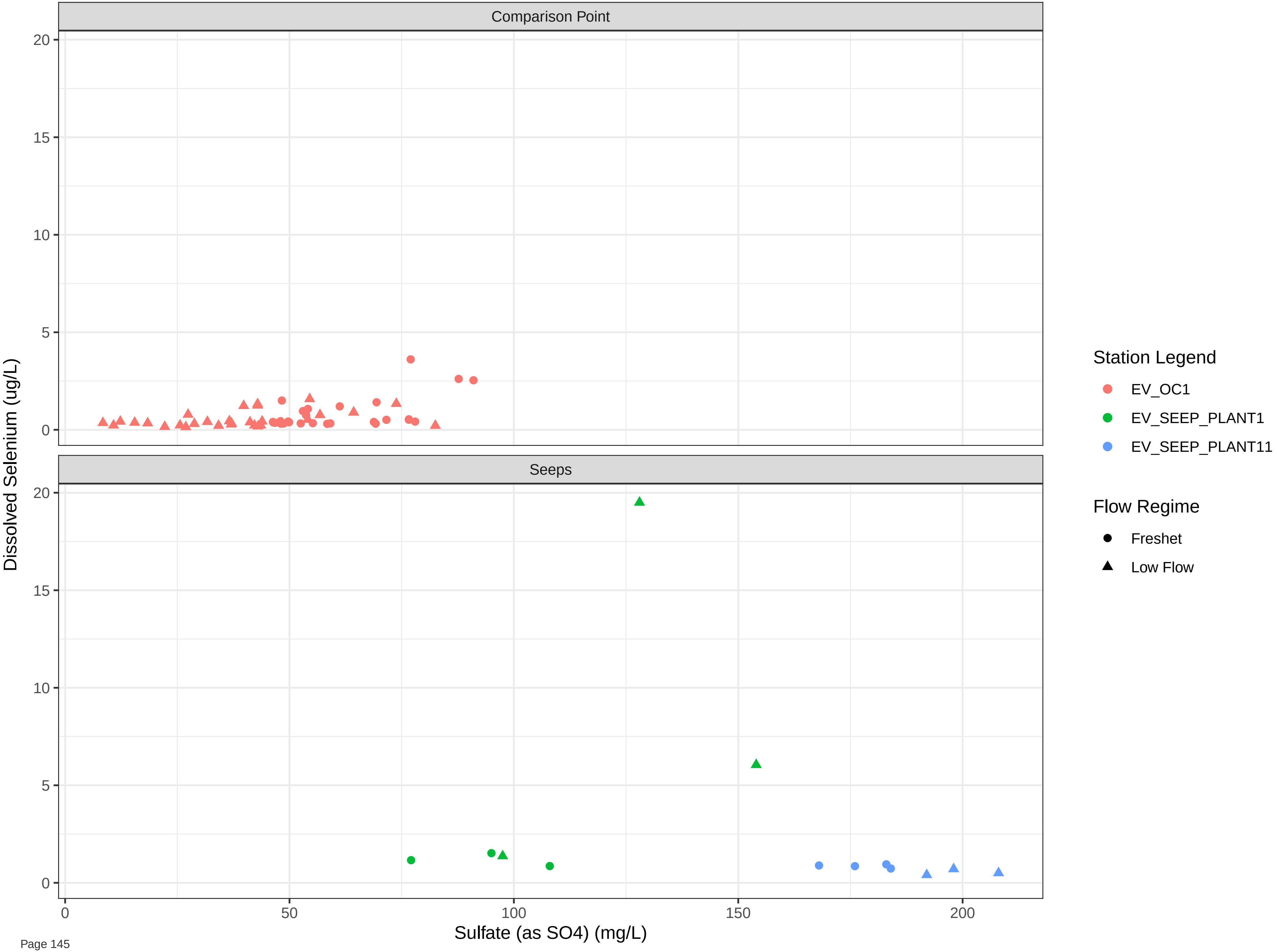

Comparison Point
Seeps
Dissolved Selenium (ug/L)
0
200
400
600
0
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

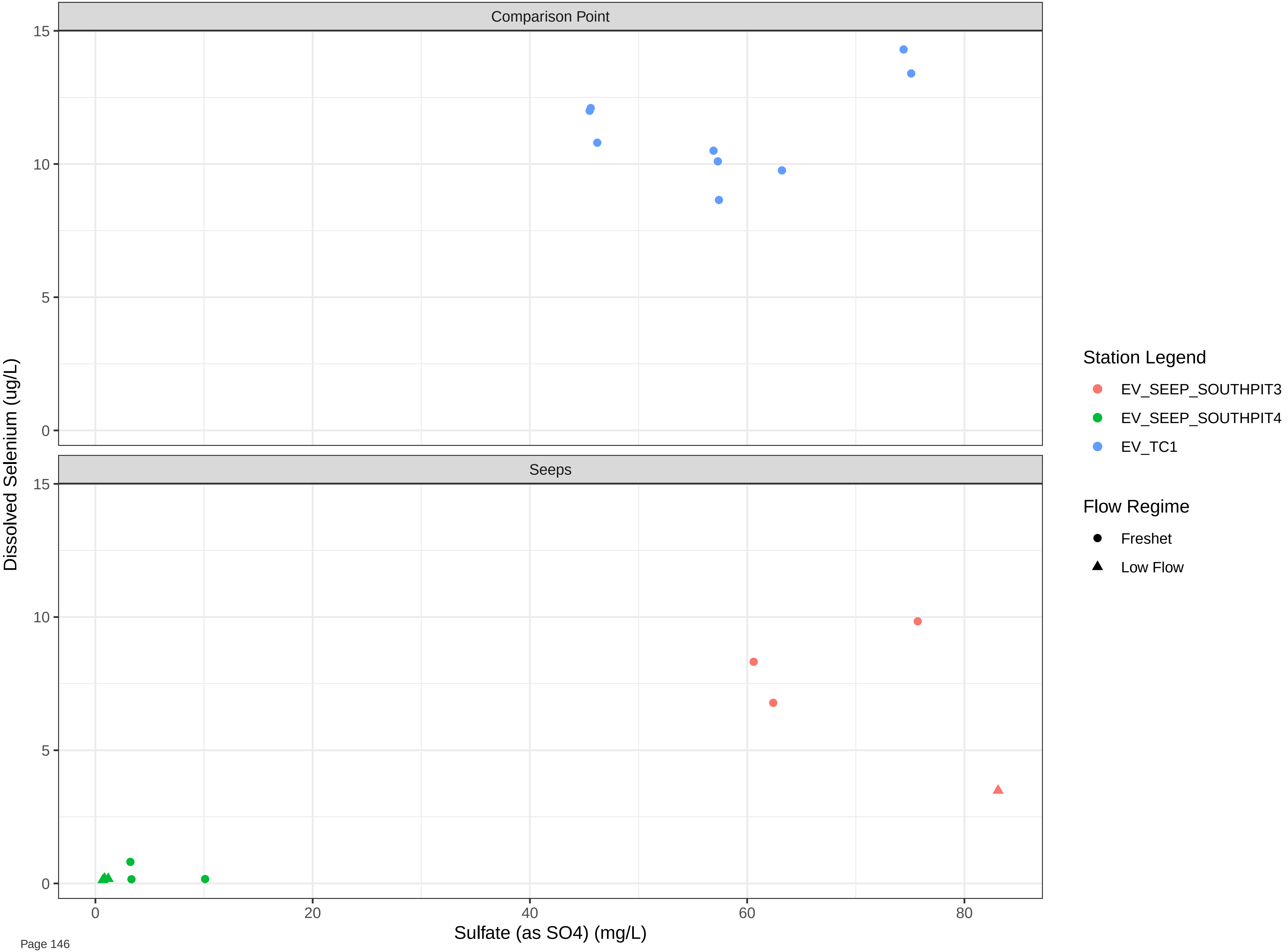


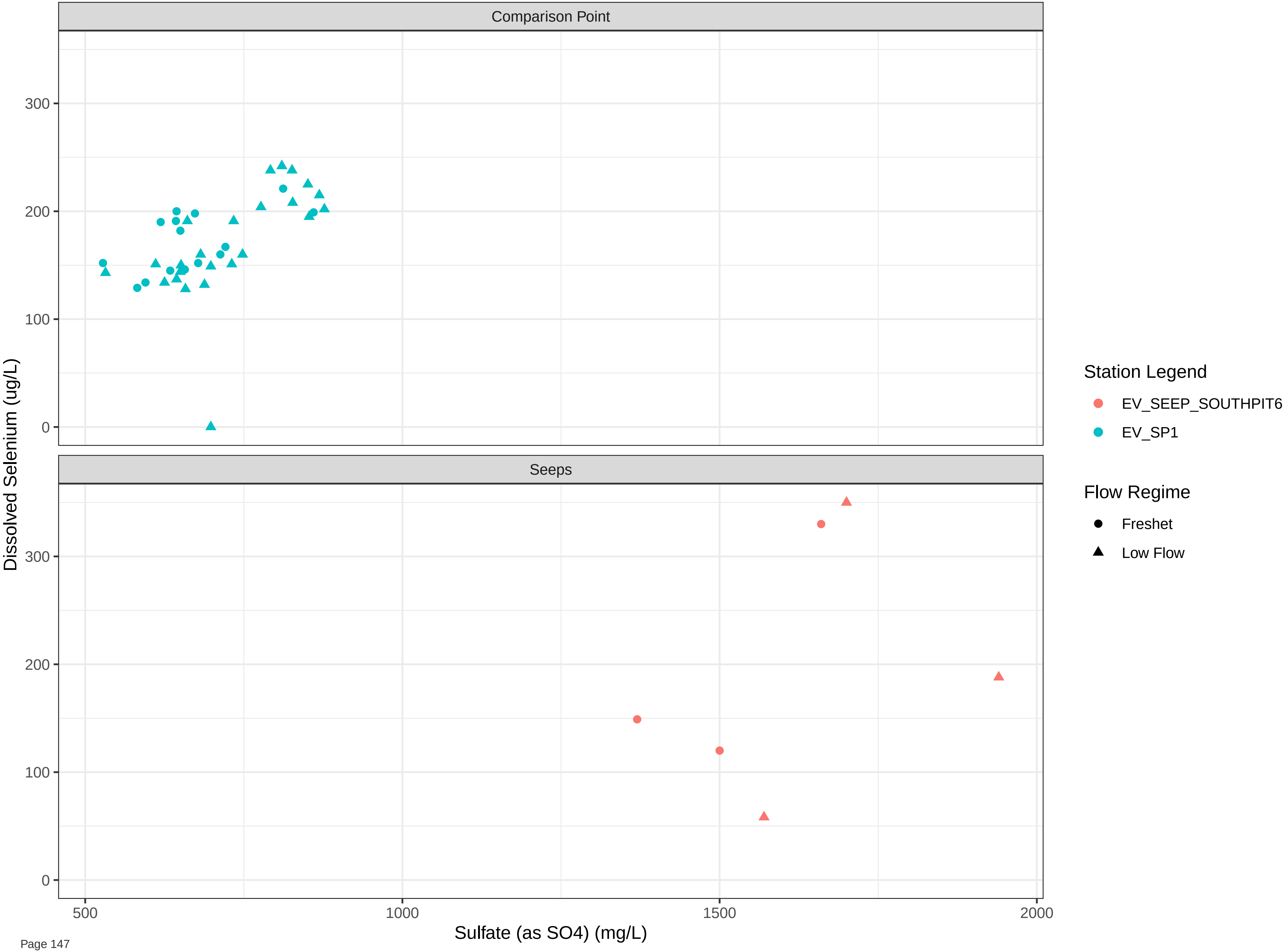
Comparison Point
Seeps
Dissolved Selenium (ug/L)
200
100
0
200
100
0
0
200
400
Sulfate (as SO4) (mg/L)
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

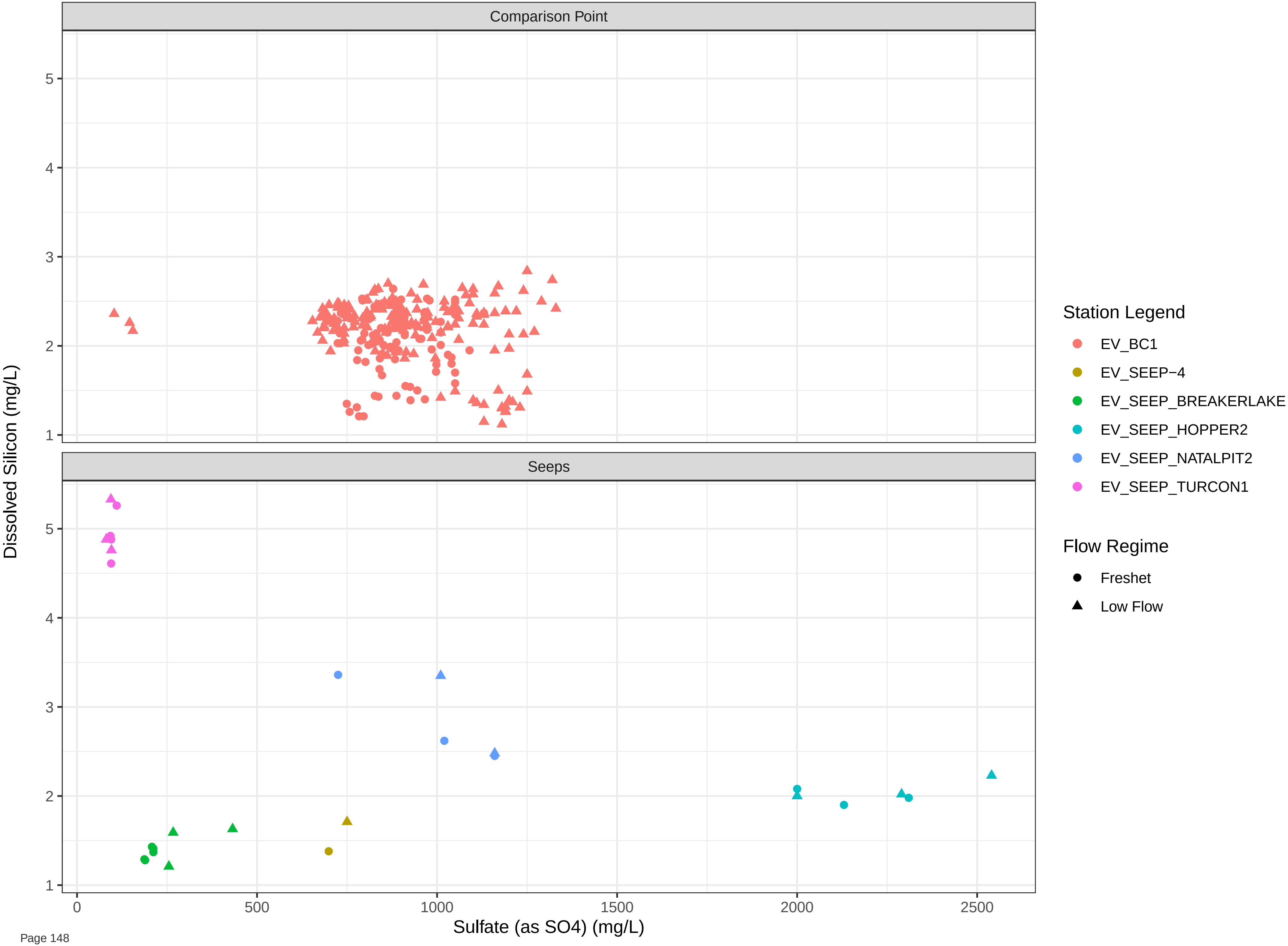

Comparison Point
Seeps
Dissolved Selenium (ug/L)
0
25
50
75
100
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
EV_GC2
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_WLAGC
Flow Regime
Freshet
Low Flow

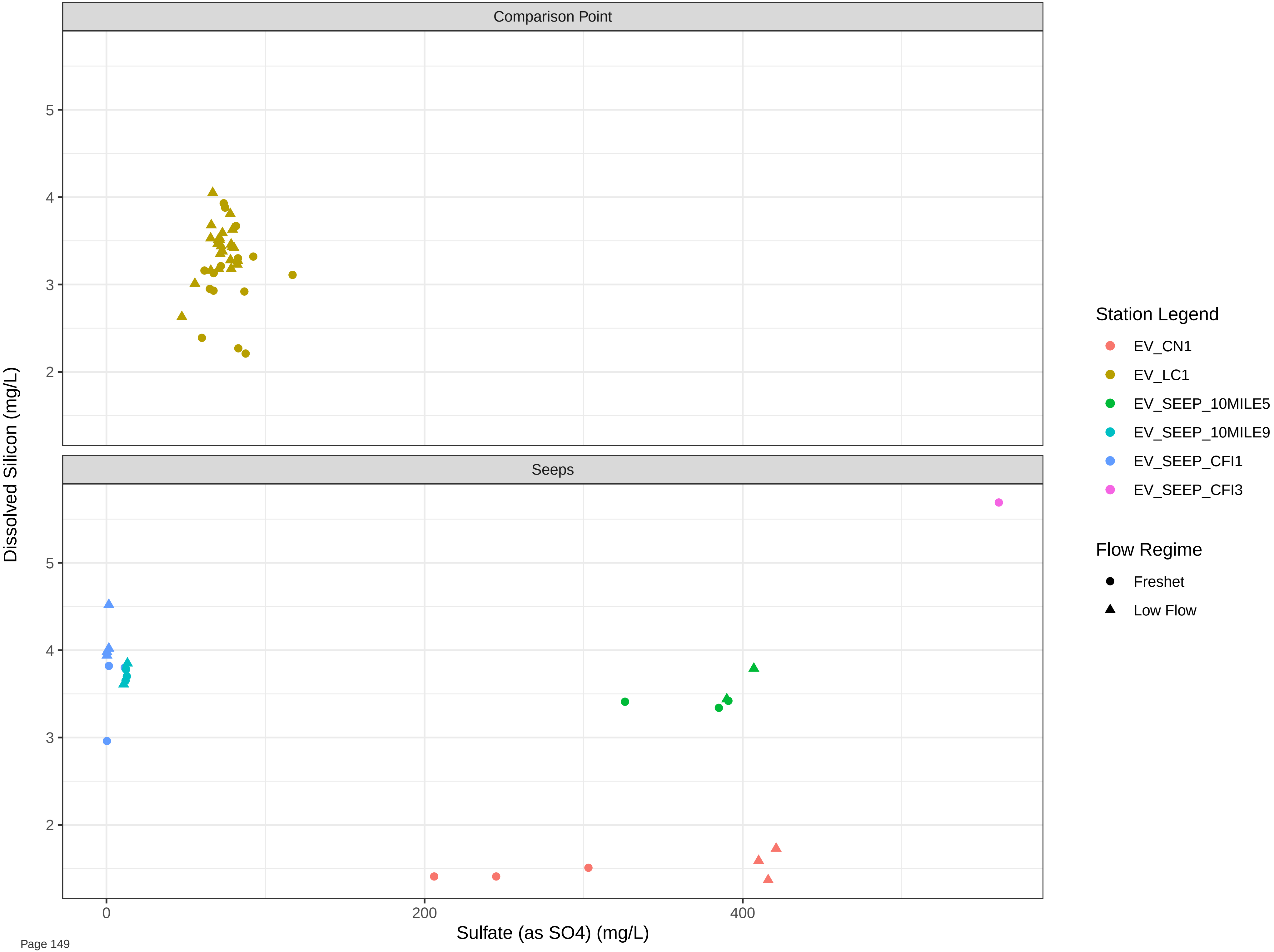

Comparison Point
Seeps
Dissolved Selenium (ug/L)
0
200
400
600
0
200
400
600
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

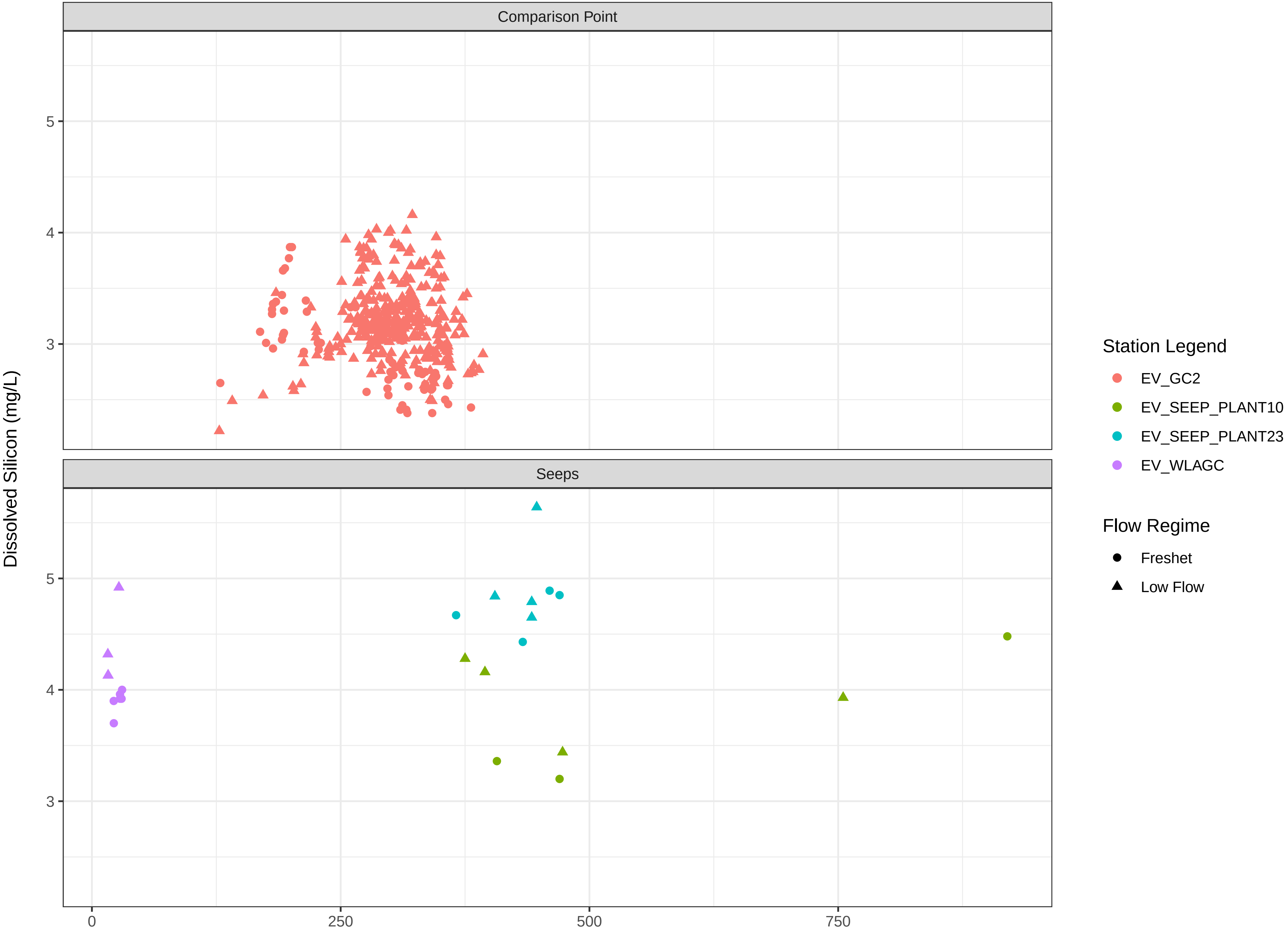

Comparison Point
Seeps
Dissolved Selenium (ug/L)
Sulfate (as SO4) (mg/L)
0
5
10
15
20
0
50
100
150
200
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

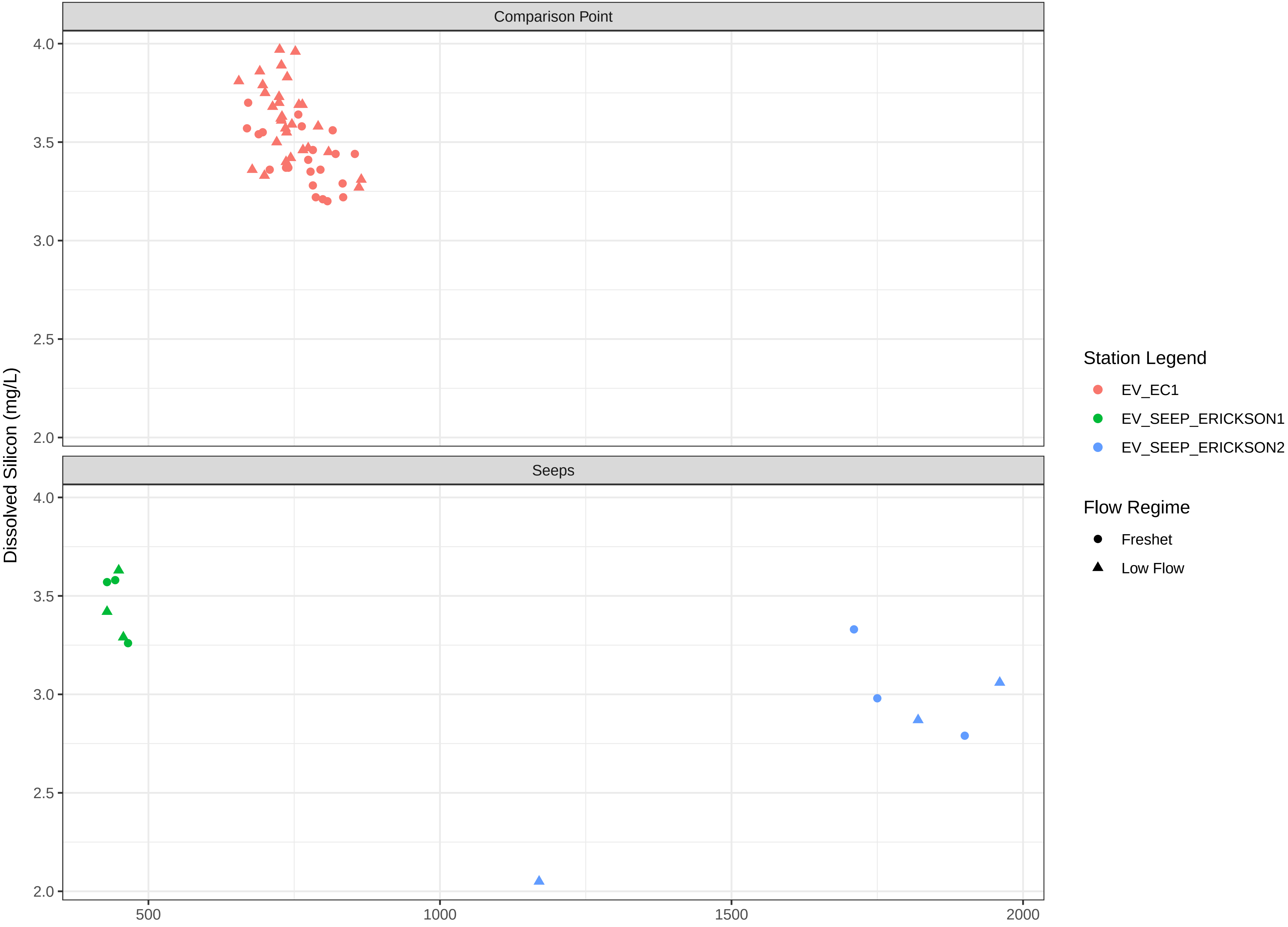

Comparison Point
Seeps
Dissolved Selenium (ug/L)
0
5
10
15
0
5
10
15
0
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

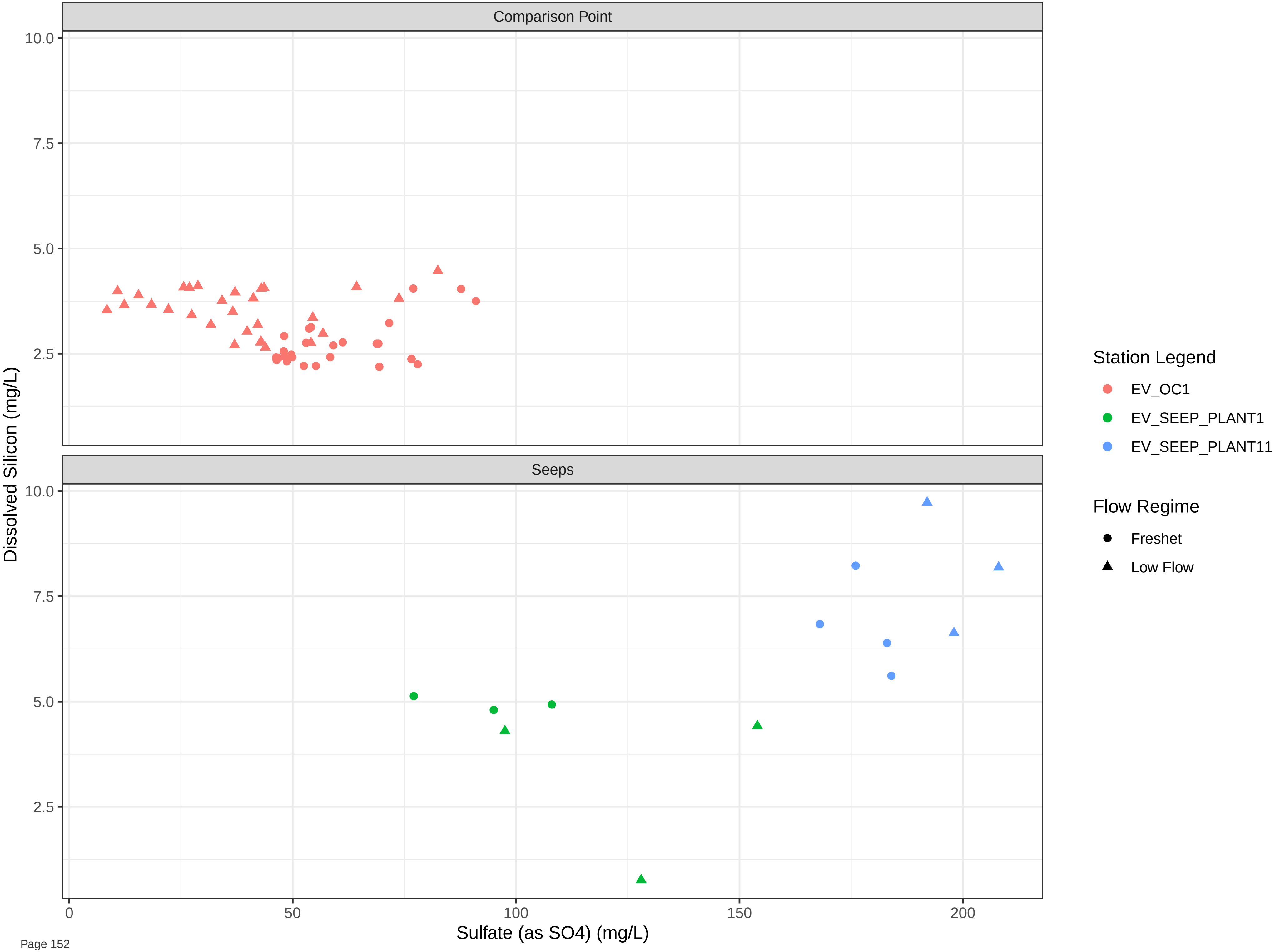

Comparison Point
Seeps
Dissolved Selenium (ug/L)
0
100
200
300
Sulfate (as SO4) (mg/L)
500
1000
1500
2000
Station Legend
● EV_SEEP_SOUTHPIT6
● EV_SP1
Flow Regime
● Freshet
▲ Low Flow

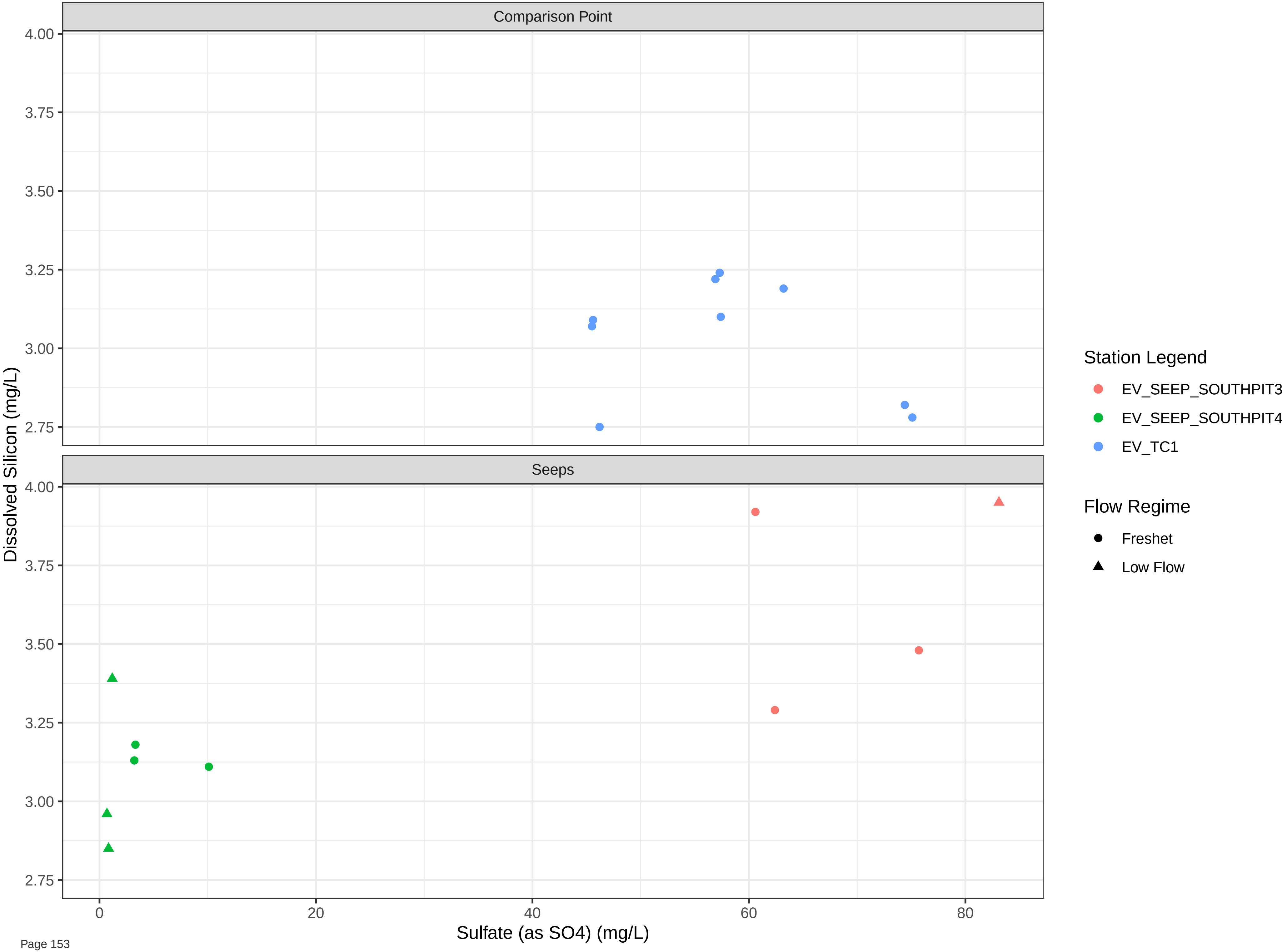

Comparison Point
Seeps
Dissolved Silicon (mg/L)
1
2
3
4
5
0
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

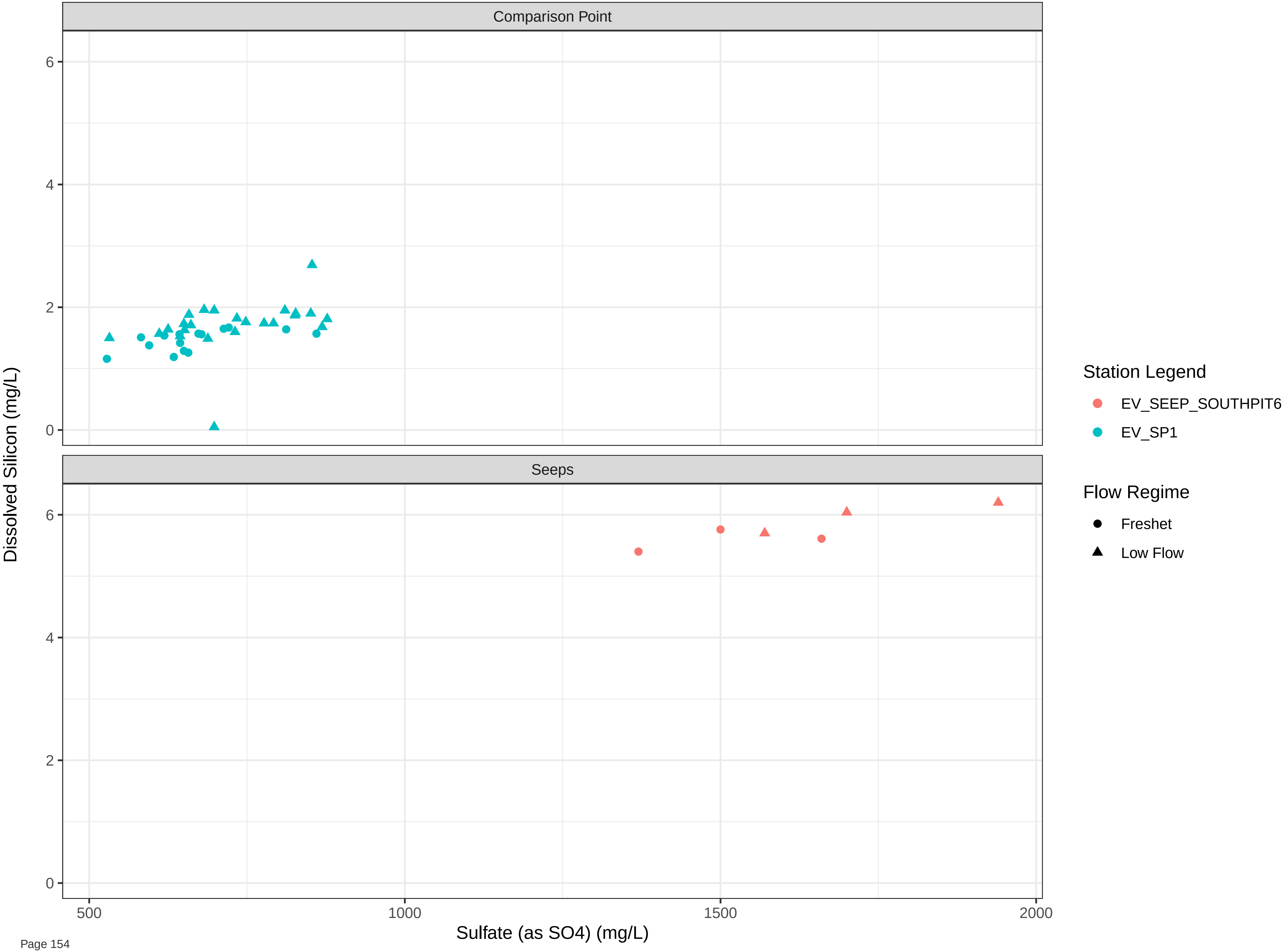

Comparison Point
Seeps
Dissolved Silicon (mg/L)
Sulfate (as SO4) (mg/L)
2
3
4
5
0
200
400
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

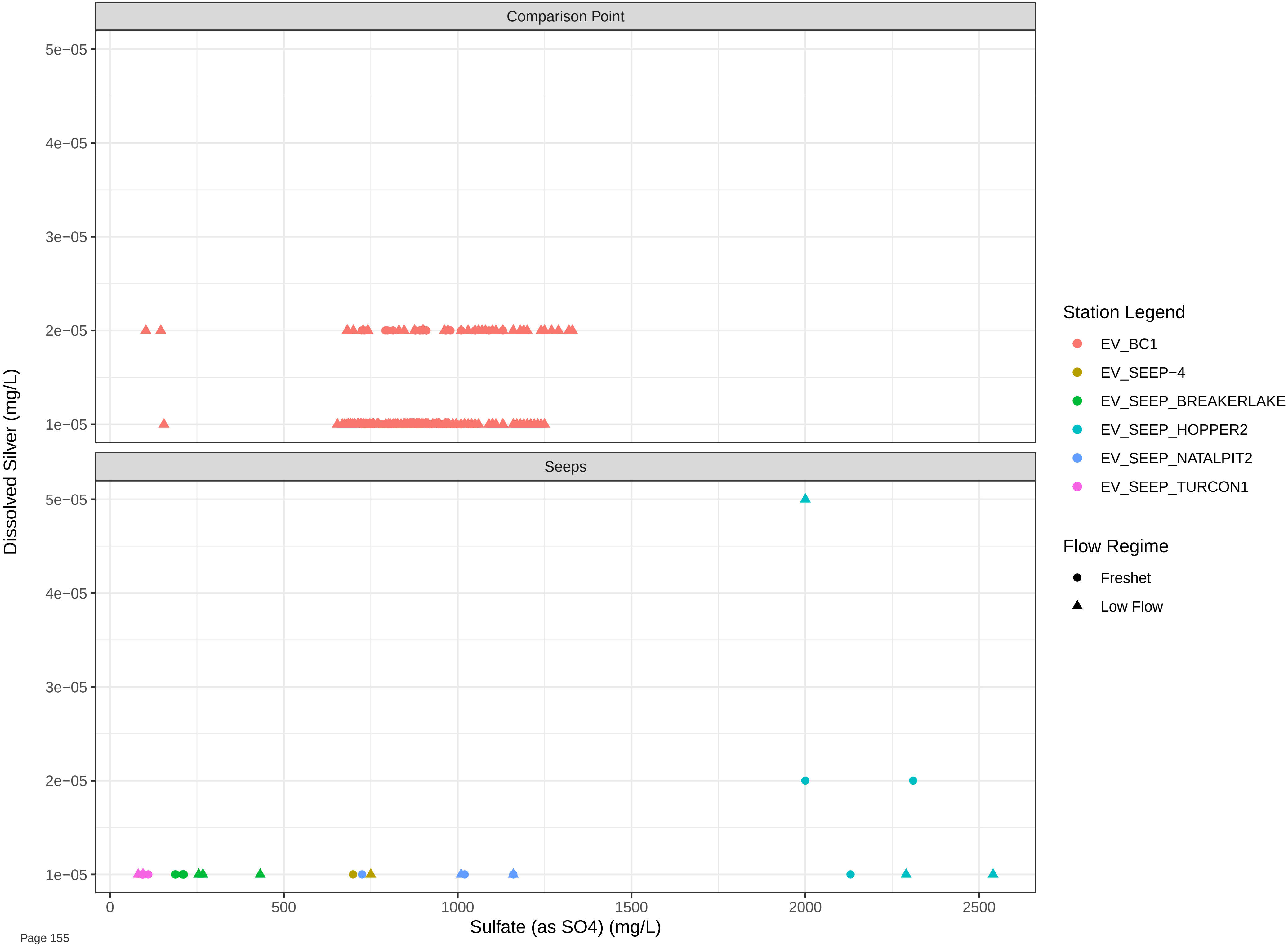

Comparison Point
Seeps
Dissolved Silicon (mg/L)
5
4
3
5
4
3
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
EV_GC2
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_WLAGC
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
Dissolved Silicon (mg/L)
4.0
3.5
3.0
2.5
2.0
Sulfate (as SO4) (mg/L)
500
1000
1500
2000
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

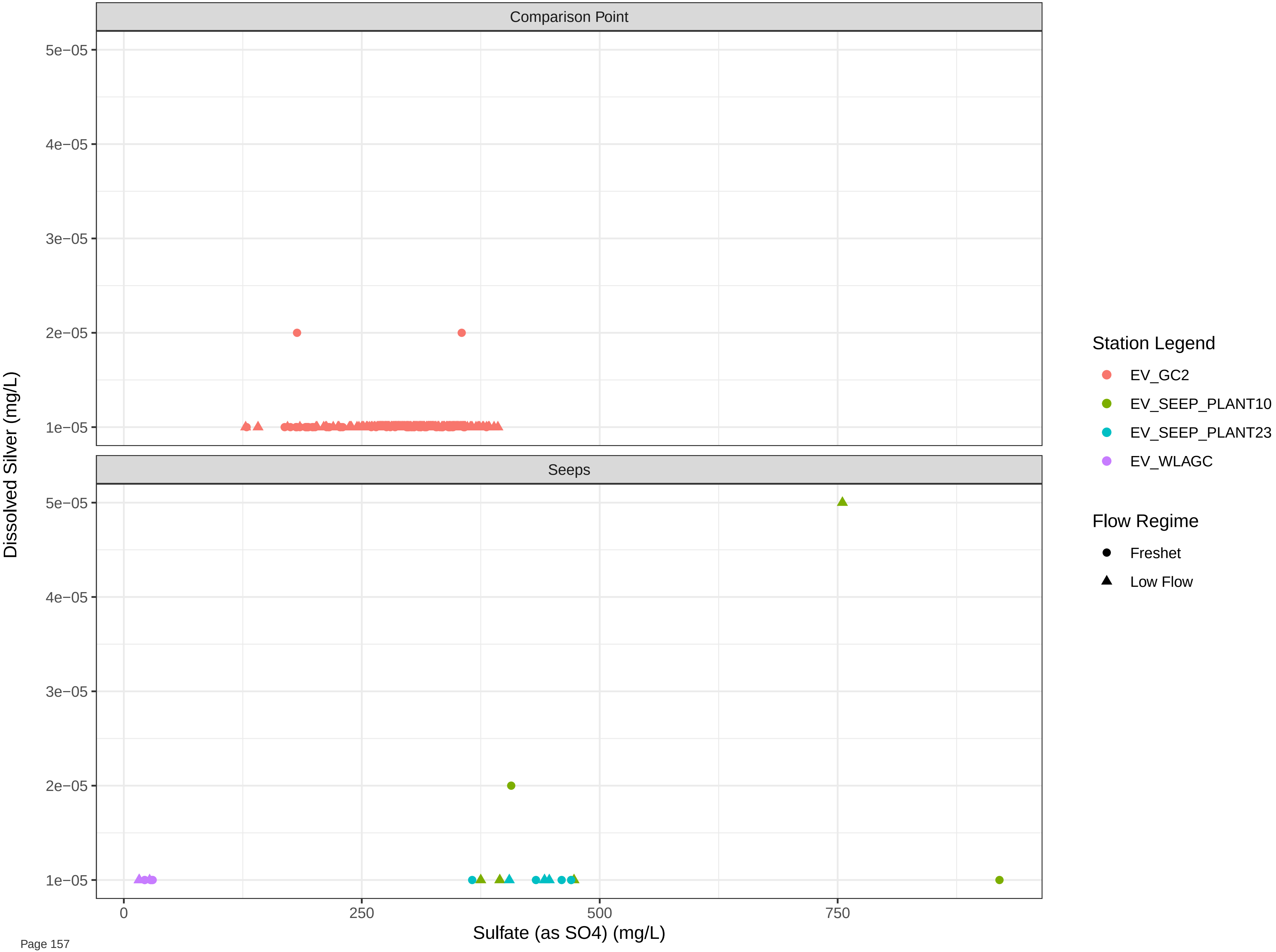

Comparison Point
Seeps
Dissolved Silicon (mg/L)
10.0
7.5
5.0
2.5
Sulfate (as SO4) (mg/L)
0
50
100
150
200
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

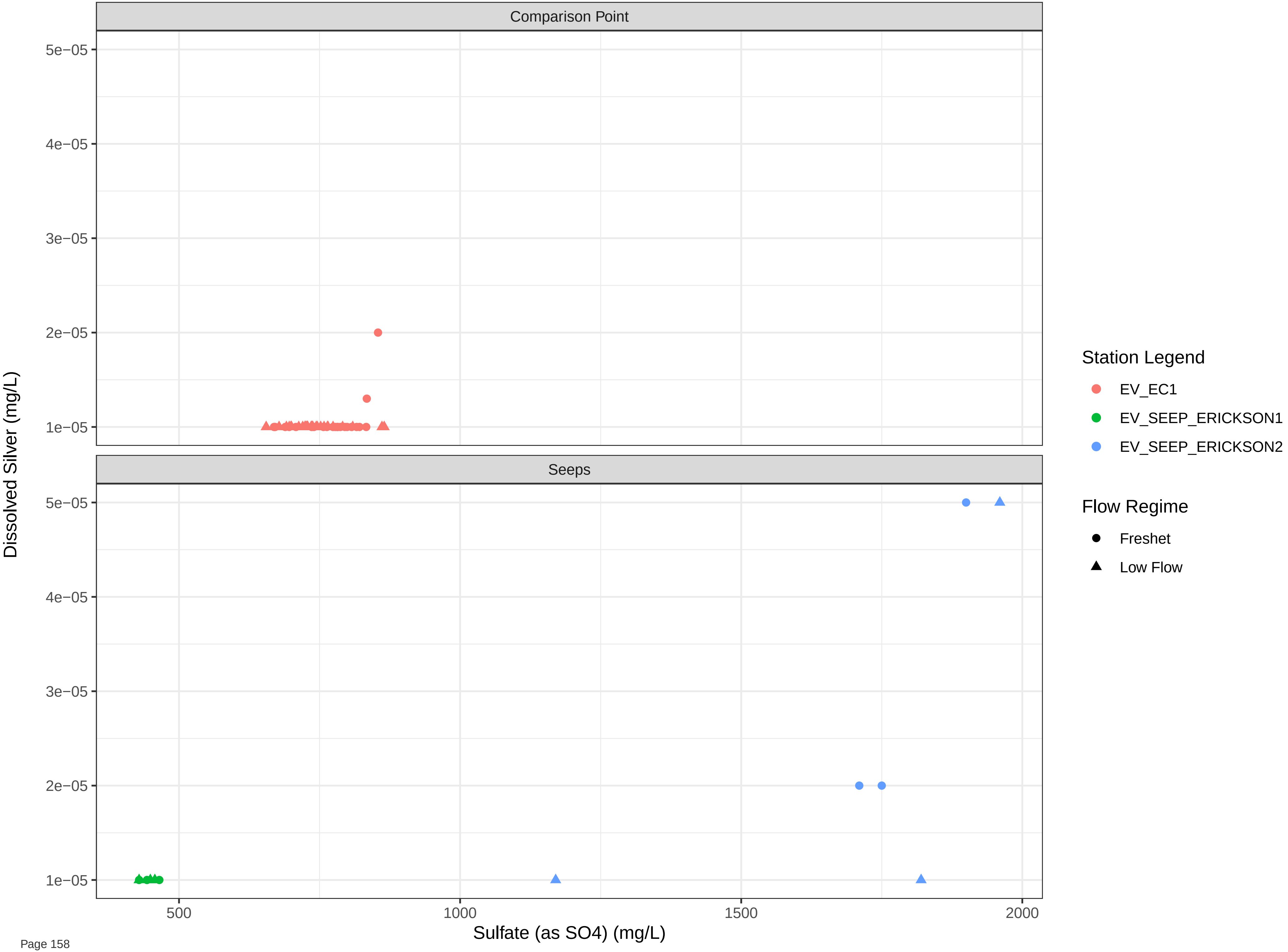

Comparison Point
Seeps
Dissolved Silicon (mg/L)
4.00
3.75
3.50
3.25
3.00
2.75
Sulfate (as SO4) (mg/L)
0
20
40
60
80
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

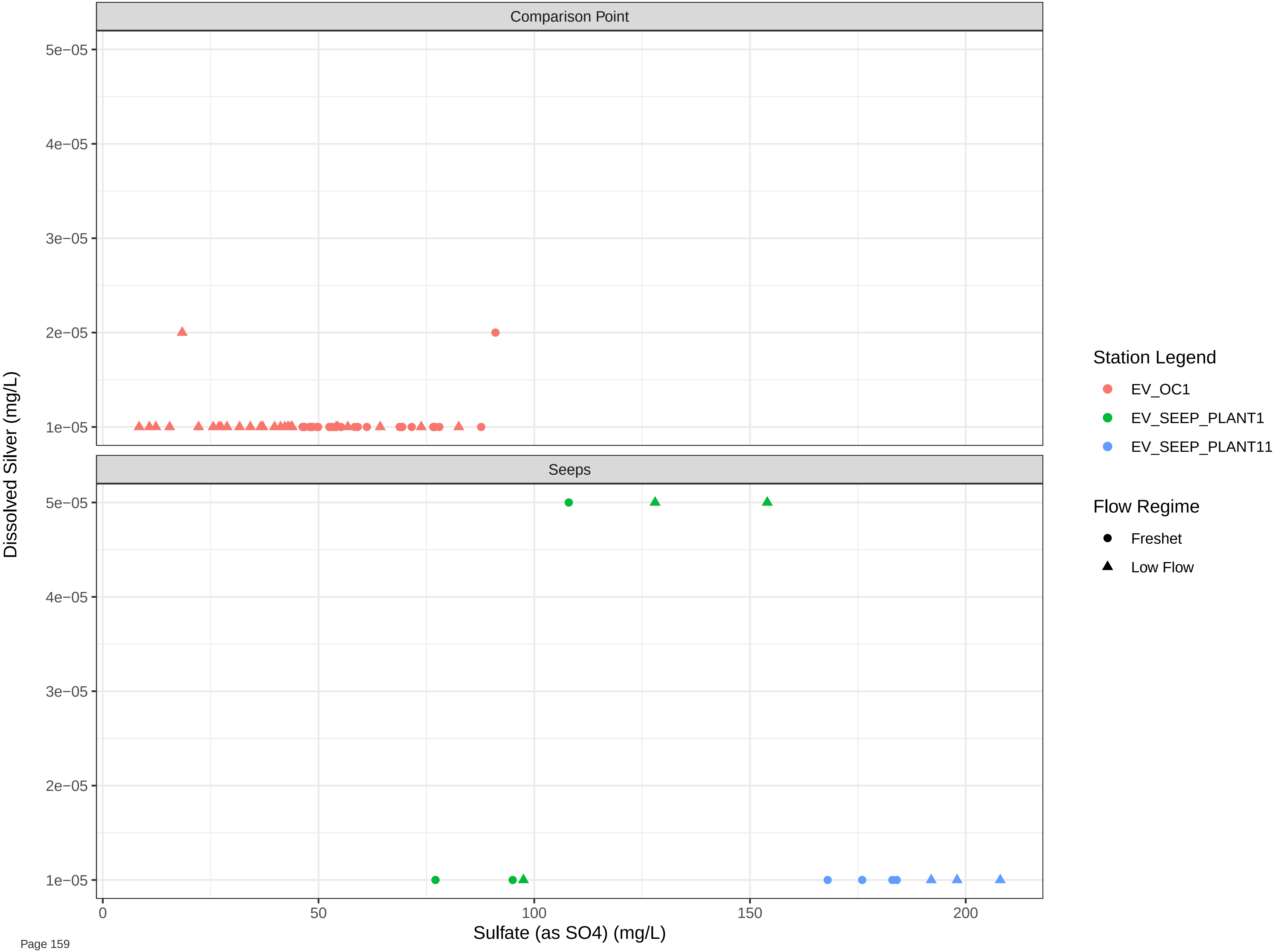

Comparison Point
Seeps
Dissolved Silicon (mg/L)
0
2
4
6
0
2
4
6
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
EV_SP1
Flow Regime
Freshet
Low Flow

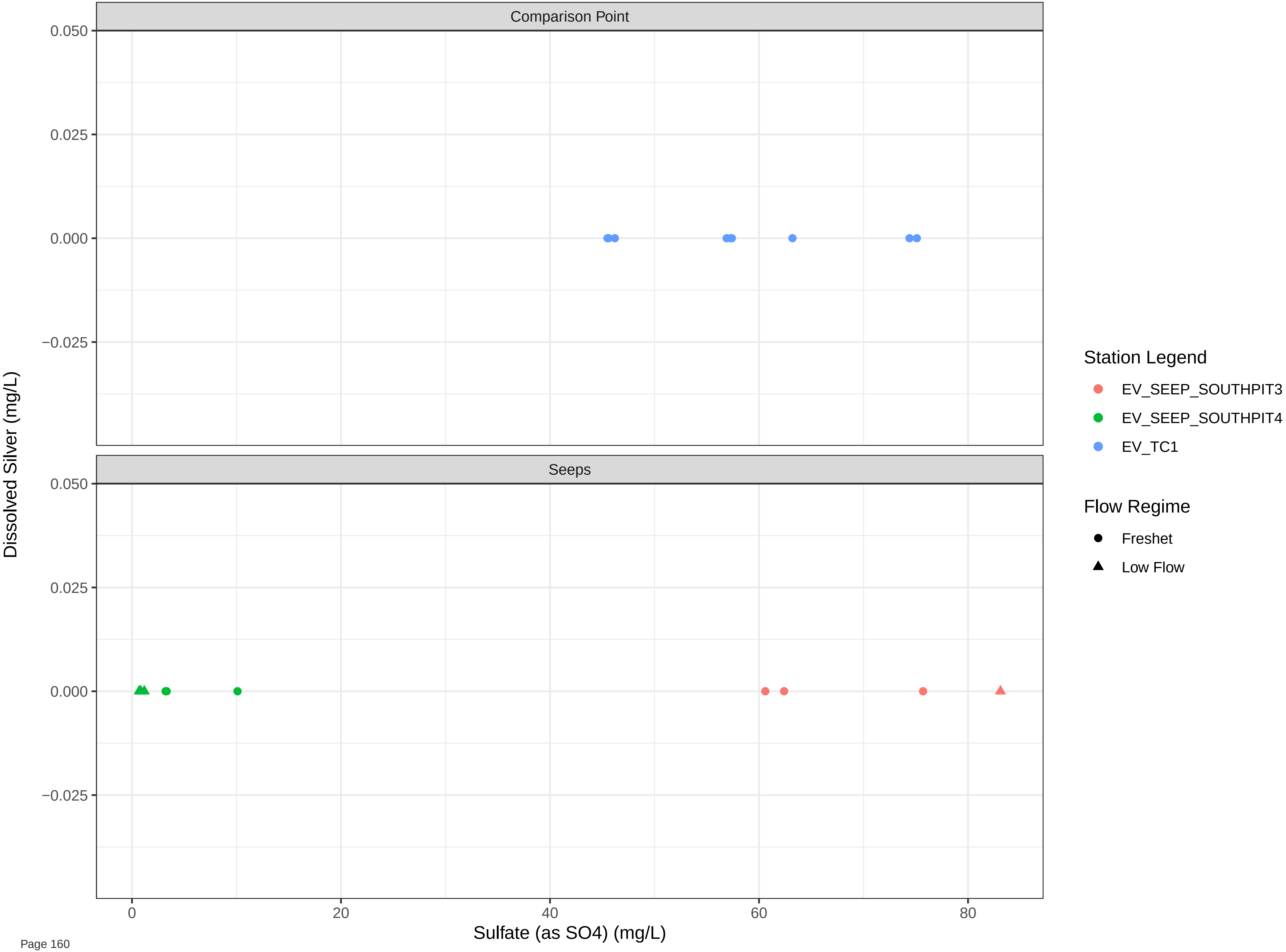

Comparison Point
Seeps
5e−05
4e−05
3e−05
2e−05
1e−05
Dissolved Silver (mg/L)
0
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
● EV_BC1
● EV_SEEP−4
● EV_SEEP_BREAKERLAKE
● EV_SEEP_HOPPER2
● EV_SEEP_NATALPIT2
● EV_SEEP_TURCON1
Flow Regime
● Freshet
▲ Low Flow

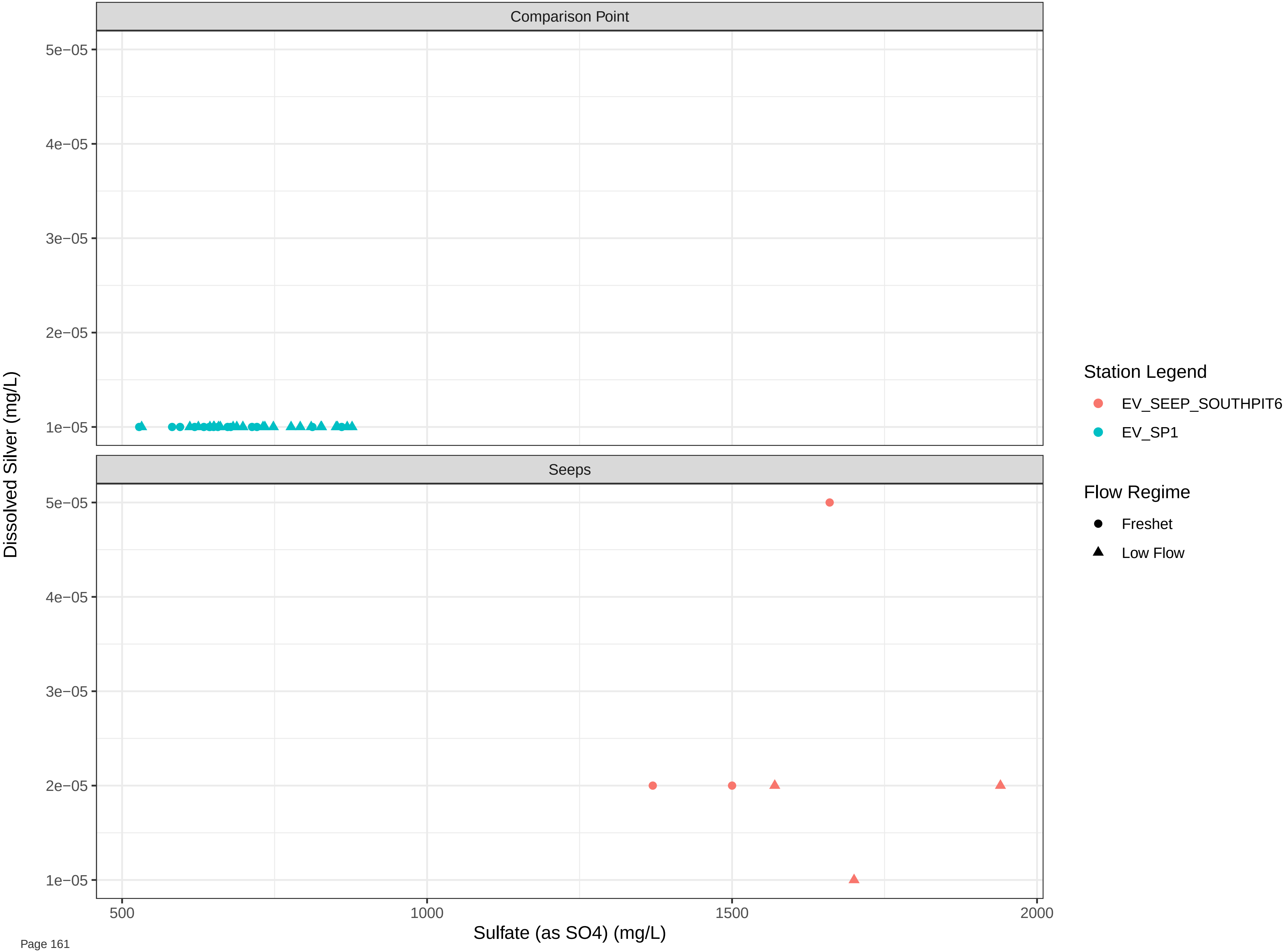

Comparison Point
Seeps
Dissolved Silver (mg/L)
2.00e−05
1.75e−05
1.50e−05
1.25e−05
1.00e−05
0
200
400
Sulfate (as SO4) (mg/L)
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

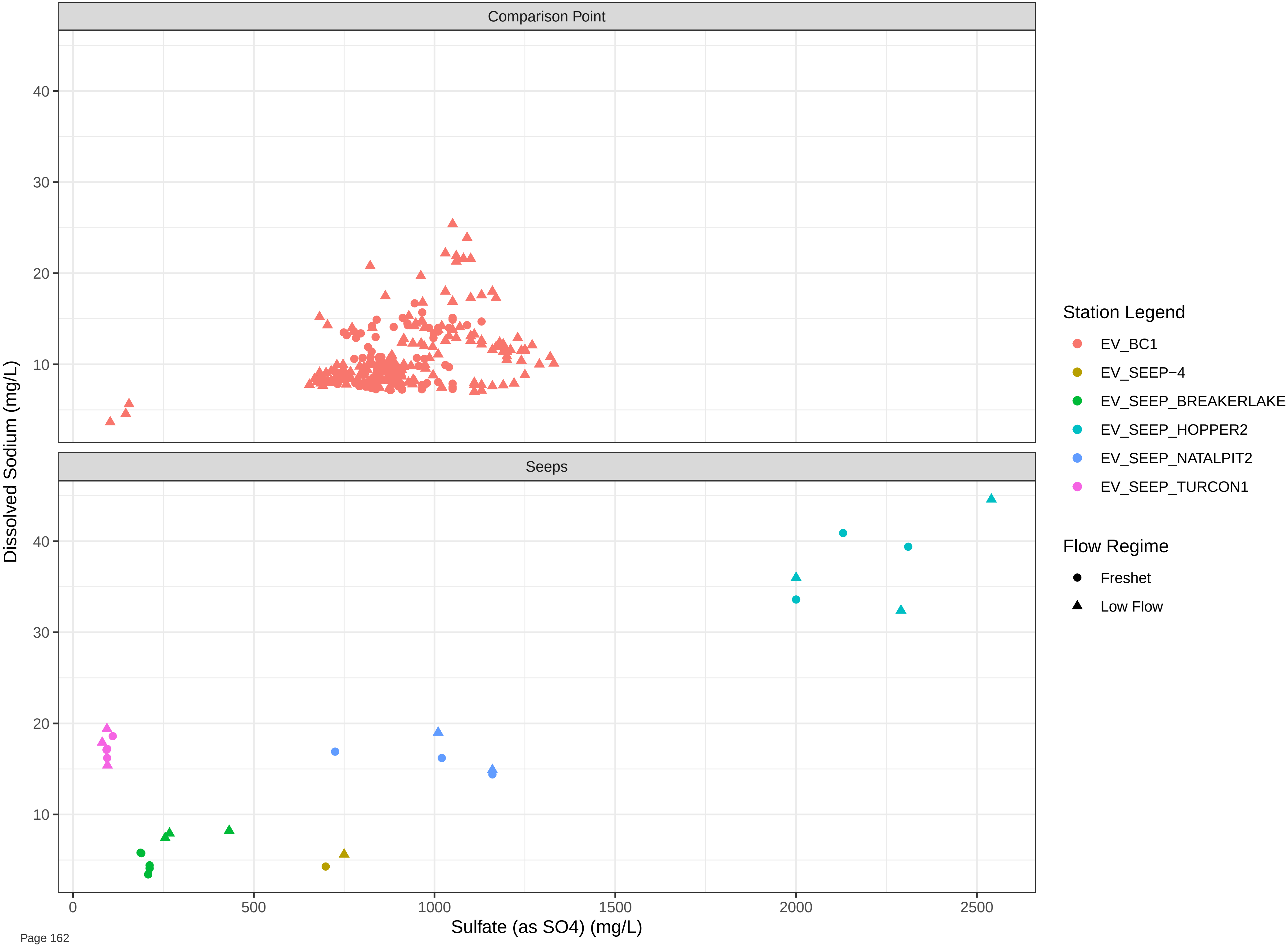

Comparison Point
Seeps
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
● EV_GC2
● EV_SEEP_PLANT10
● EV_SEEP_PLANT23
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow

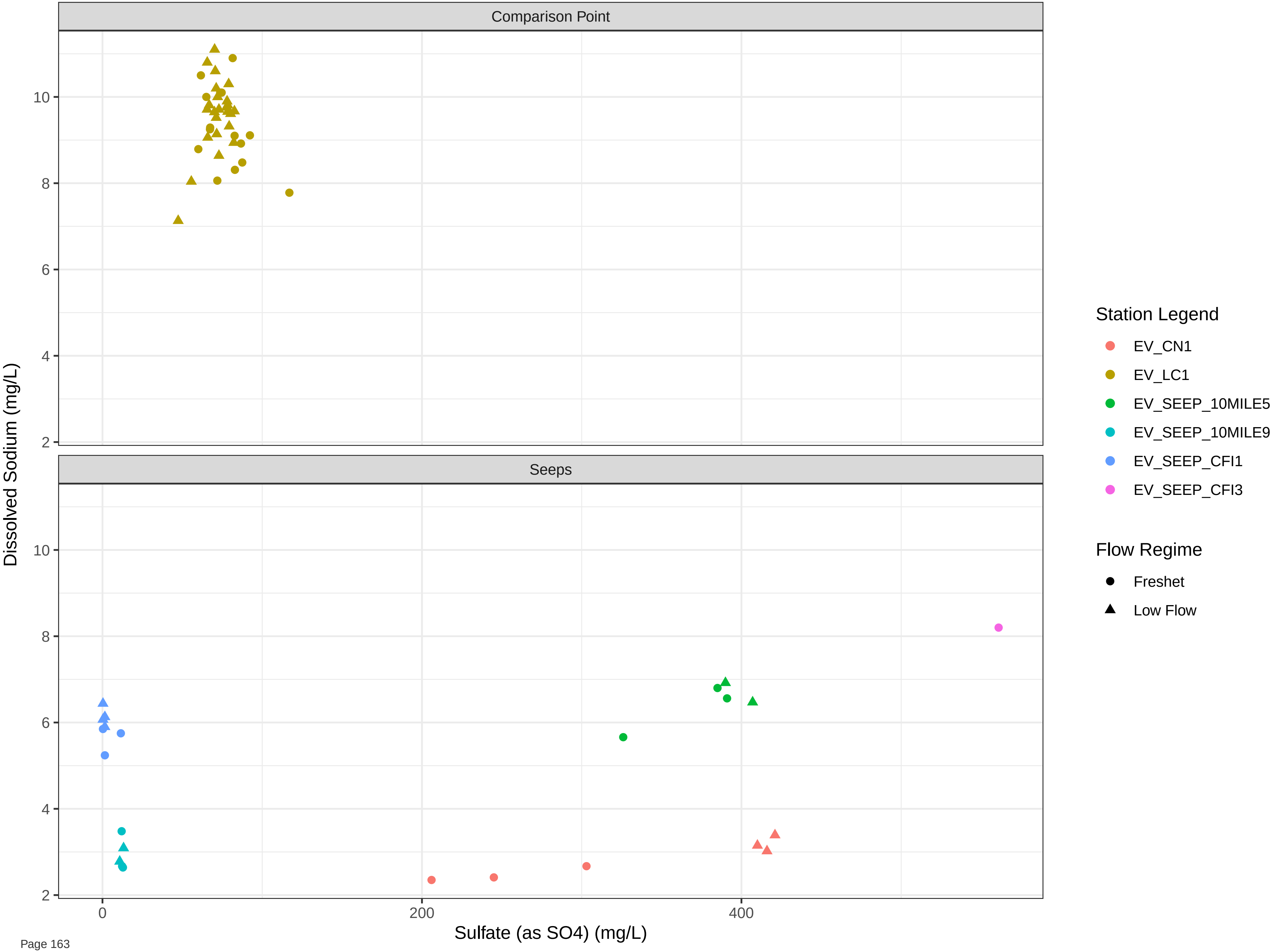

Comparison Point
Seeps
5e−05
4e−05
3e−05
2e−05
1e−05
500
1000
1500
2000
Dissolved Silver (mg/L)
Sulfate (as SO4) (mg/L)
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

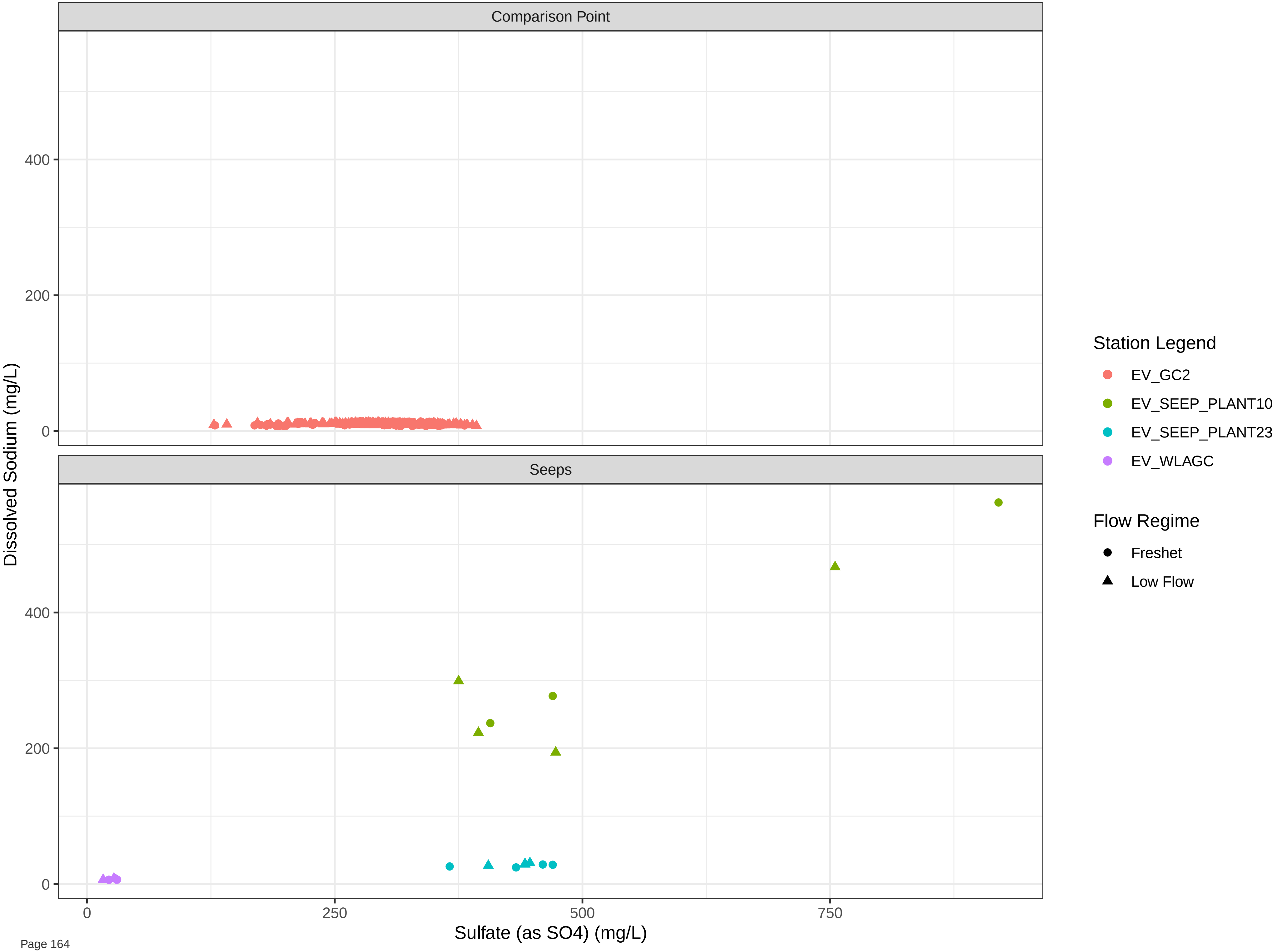

Comparison Point
Seeps
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
Sulfate (as SO4) (mg/L)
0
50
100
150
200
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

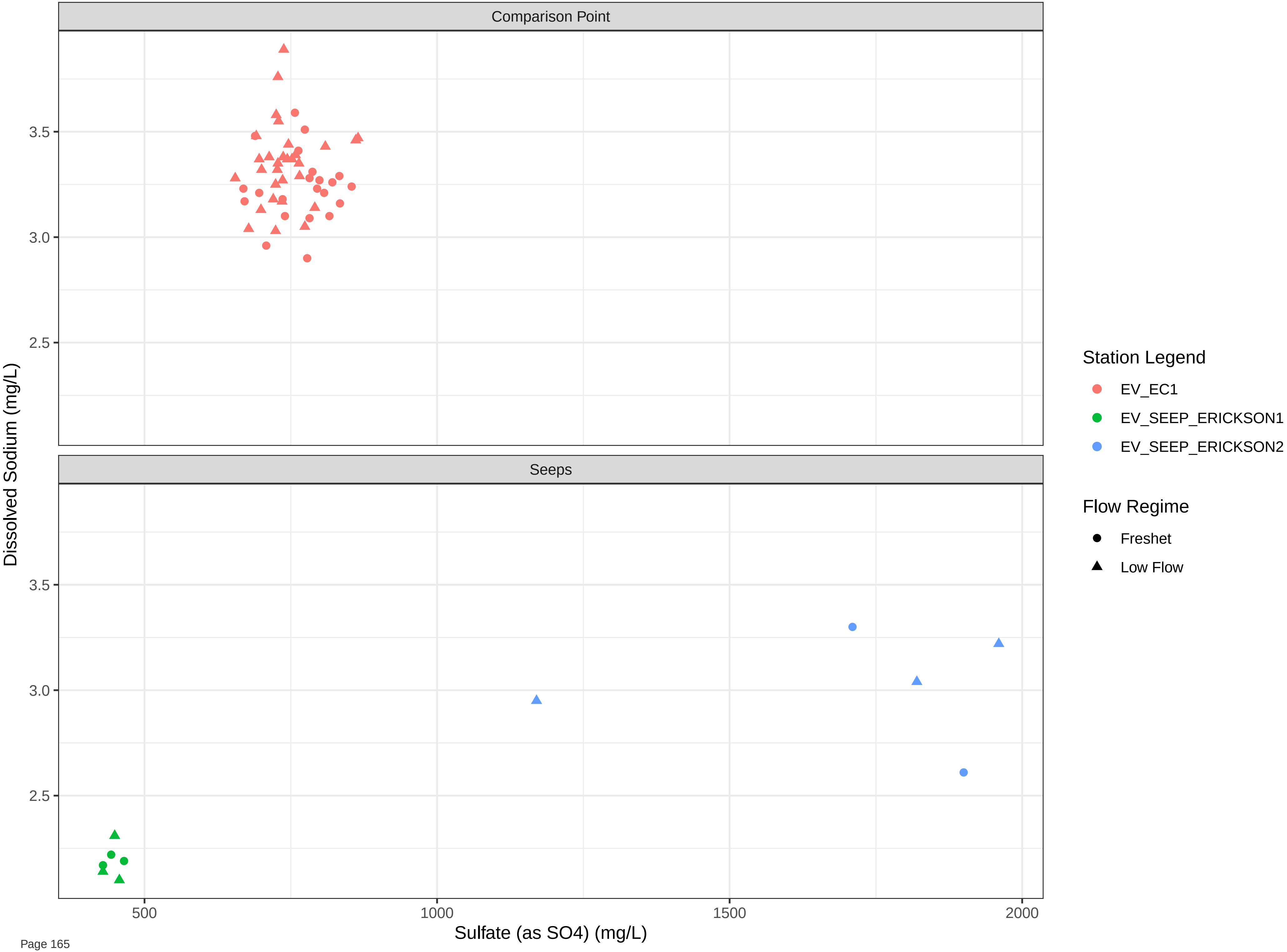

Comparison Point
Seeps
0.050
0.025
0.000
−0.025
Dissolved Silver (mg/L)
0
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

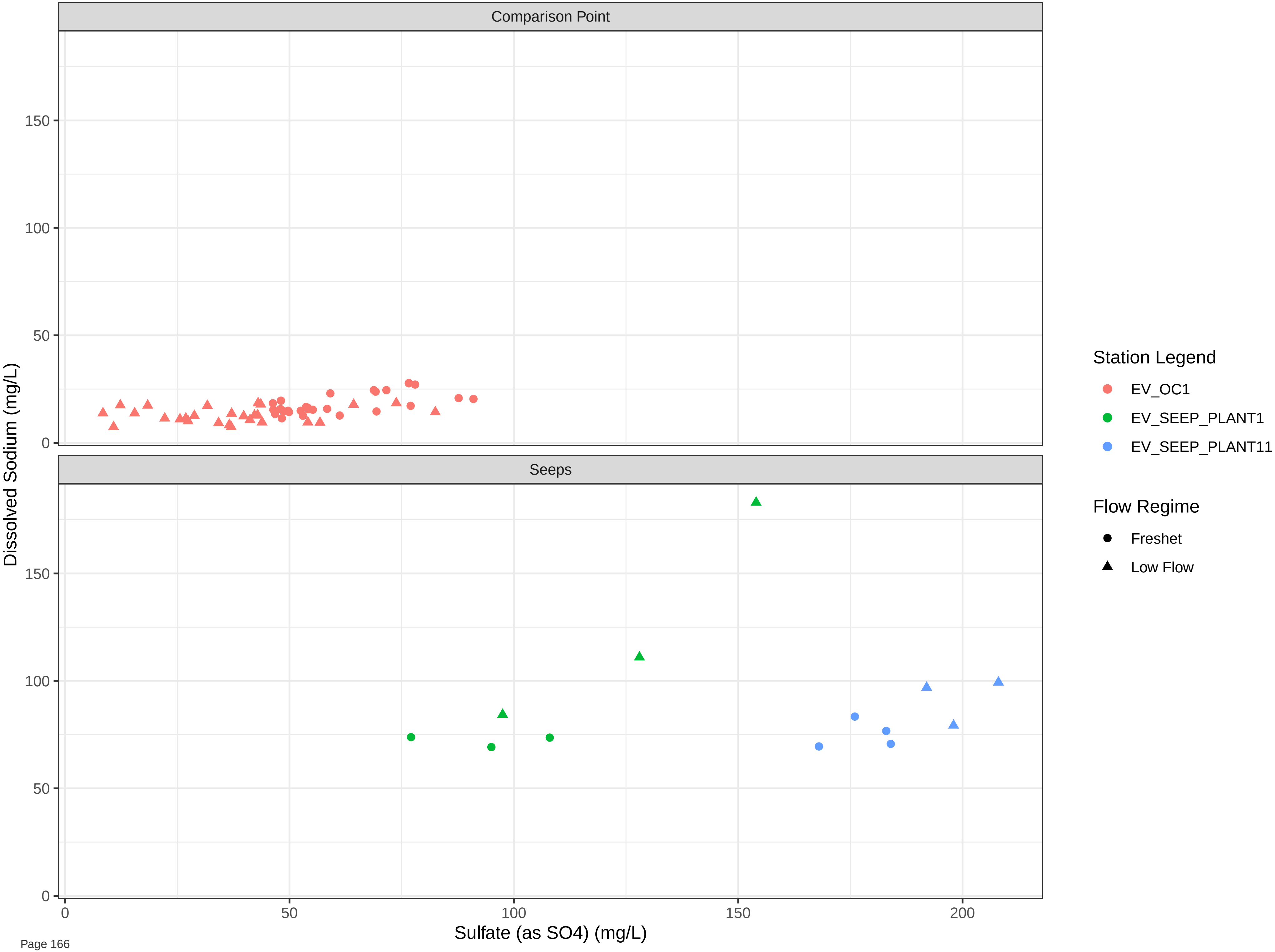

Comparison Point
Seeps
5e−05
4e−05
3e−05
2e−05
1e−05
500
1000
1500
2000
Dissolved Silver (mg/L)
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
EV_SP1
Flow Regime
Freshet
Low Flow

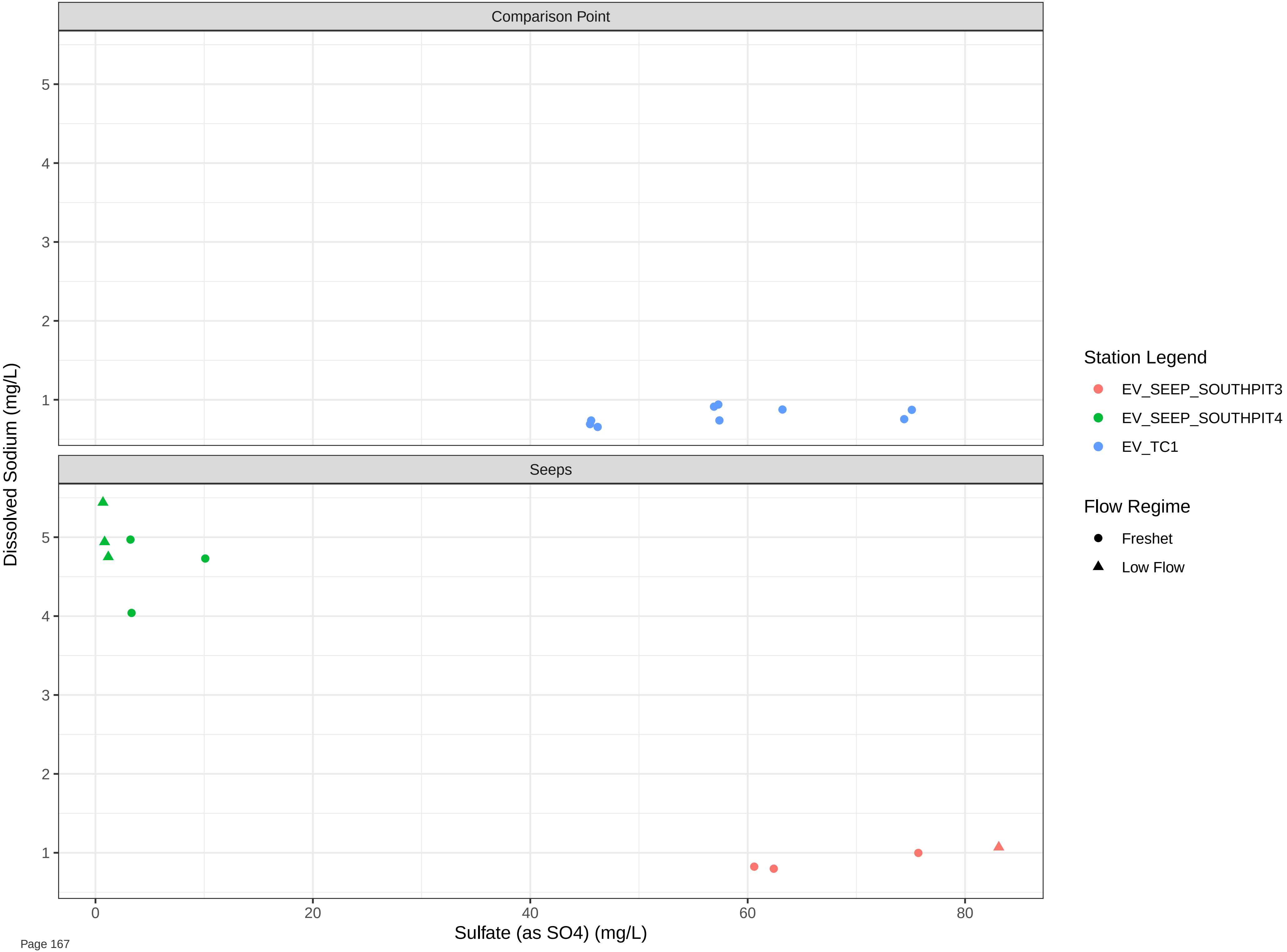

Comparison Point
Seeps
Dissolved Sodium (mg/L)
40
30
20
10
40
30
20
10
0
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

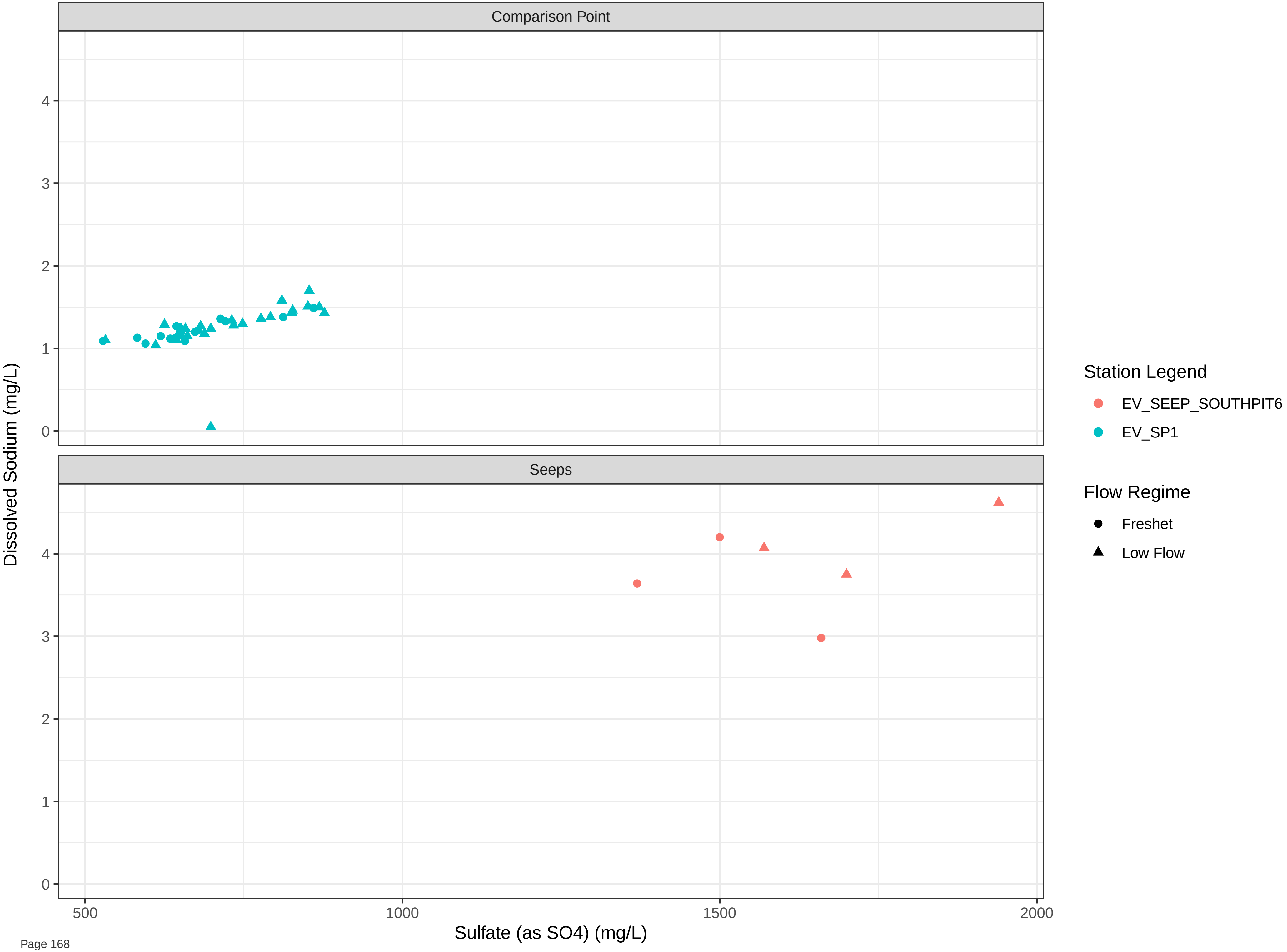

Comparison Point
Seeps
Dissolved Sodium (mg/L)
10
8
6
4
2
0
200
400
Sulfate (as SO4) (mg/L)
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

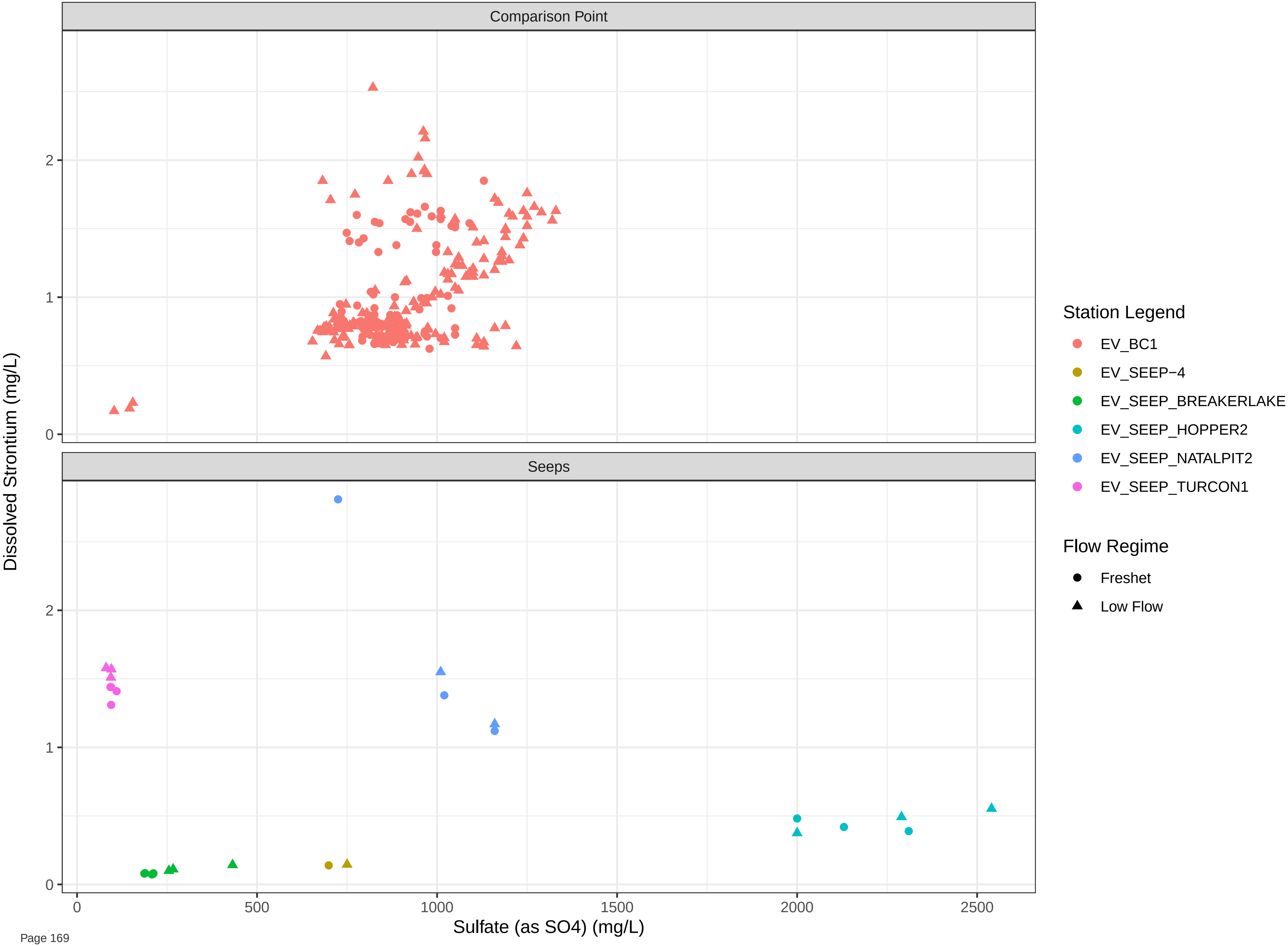

Comparison Point
Seeps
Dissolved Sodium (mg/L)
400
200
0
400
200
0
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
EV_GC2
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_WLAGC
Flow Regime
Freshet
Low Flow

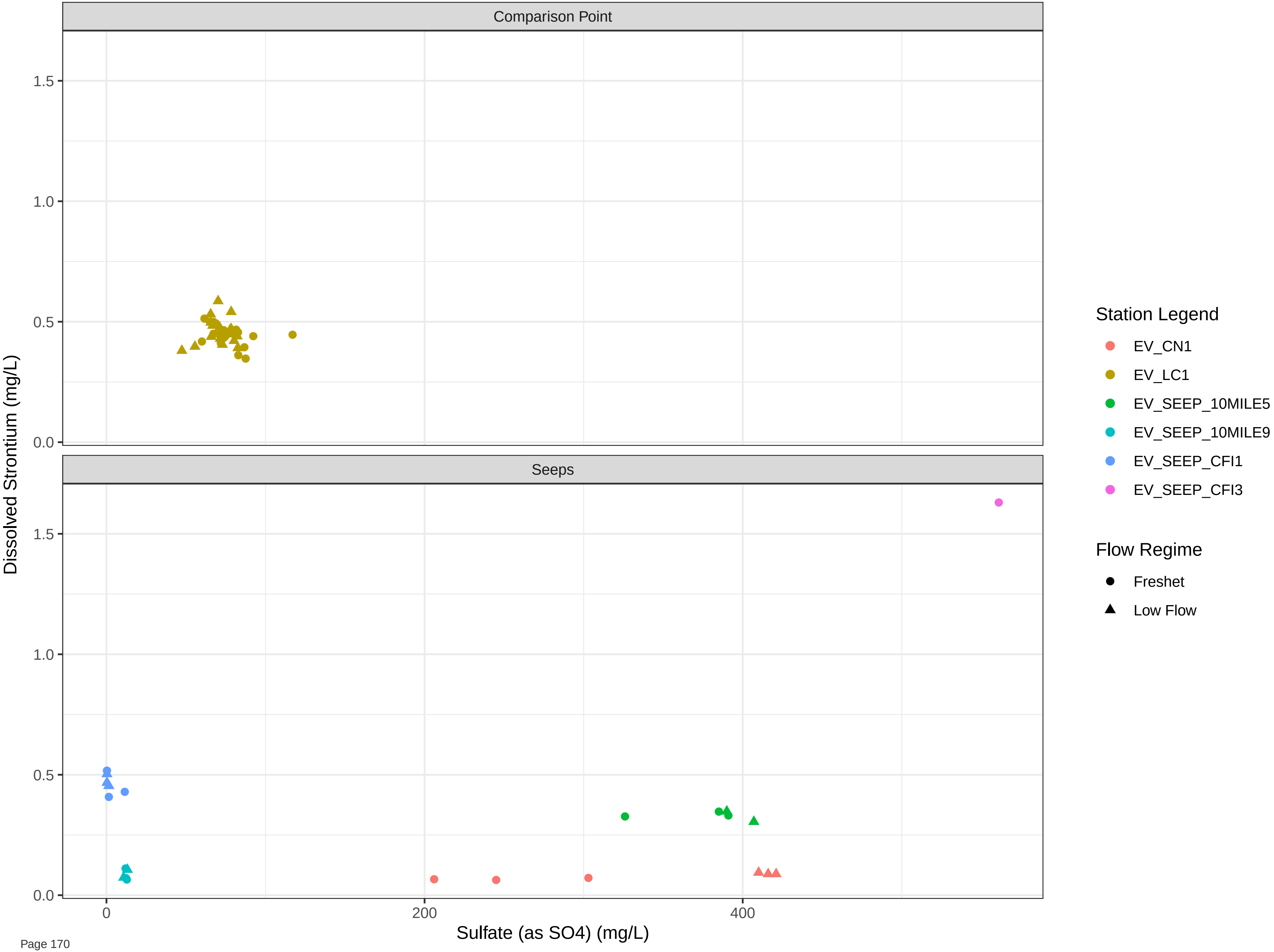

Comparison Point
Seeps
Dissolved Sodium (mg/L)
3.5
3.0
2.5
3.5
3.0
2.5
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

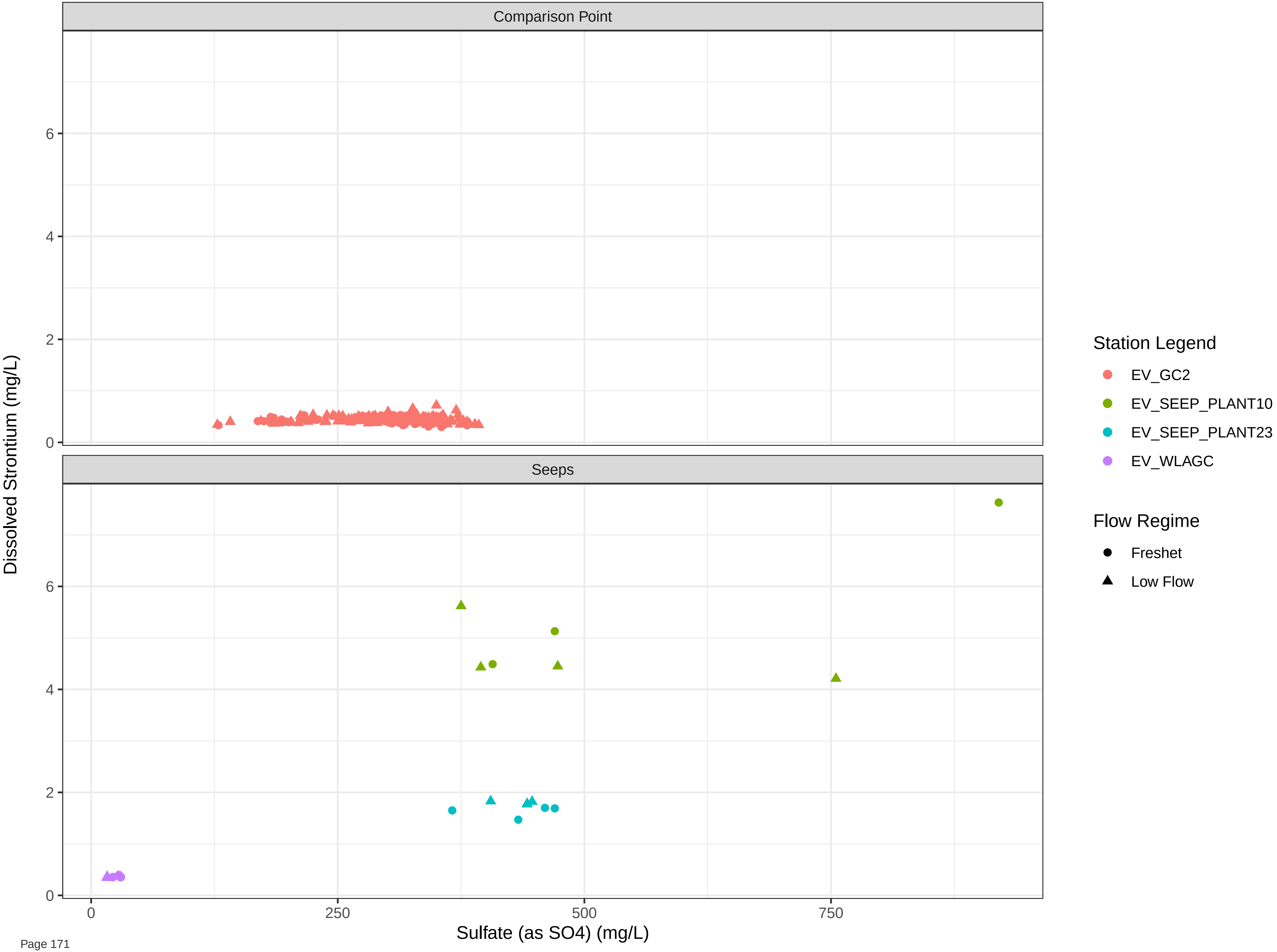

Comparison Point
Seeps
Dissolved Sodium (mg/L)
Sulfate (as SO4) (mg/L)
0
50
100
150
0
50
100
150
200
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

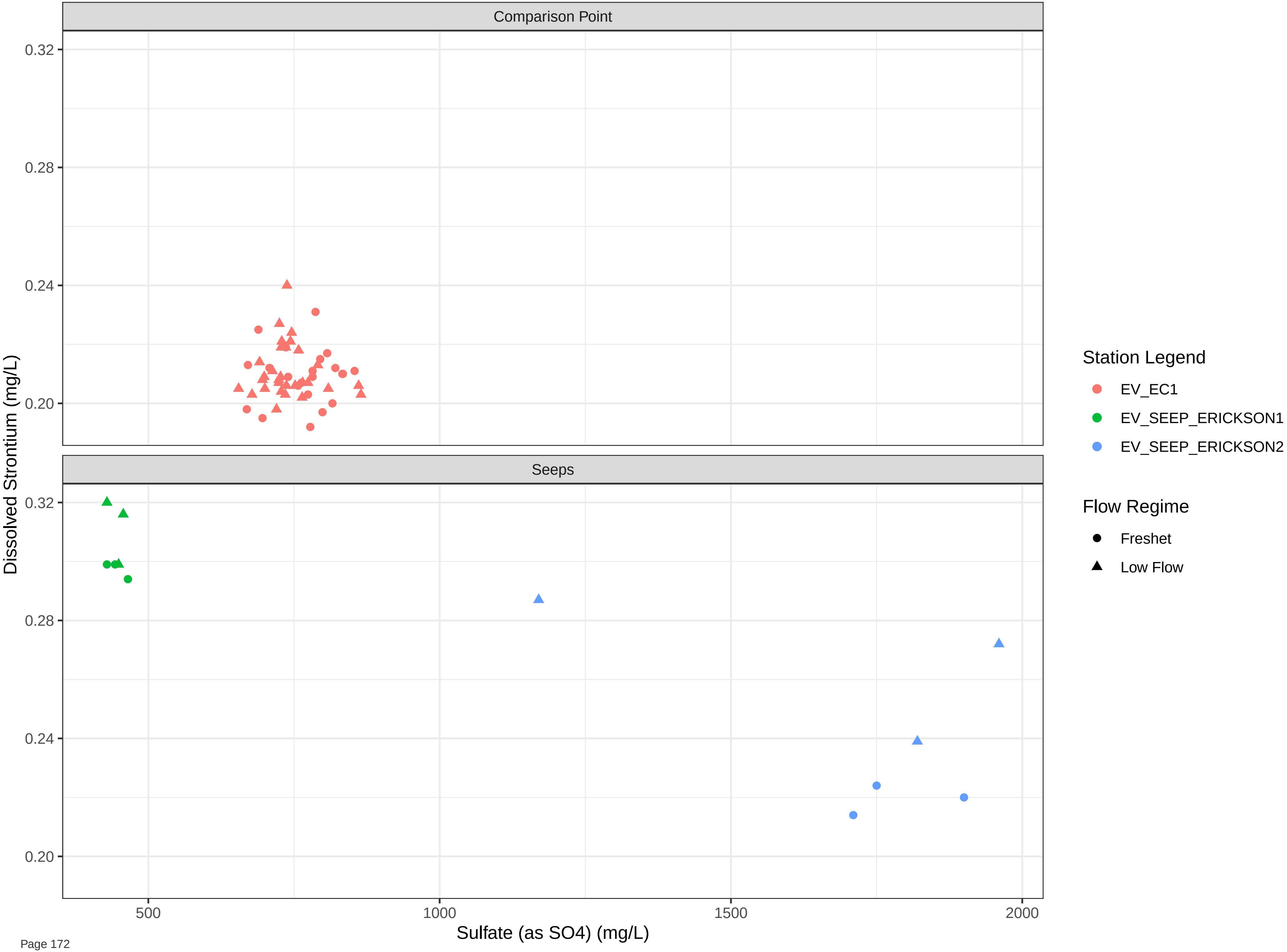

Comparison Point
Seeps
Dissolved Sodium (mg/L)
Sulfate (as SO4) (mg/L)
1
2
3
4
5
0
20
40
60
80
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

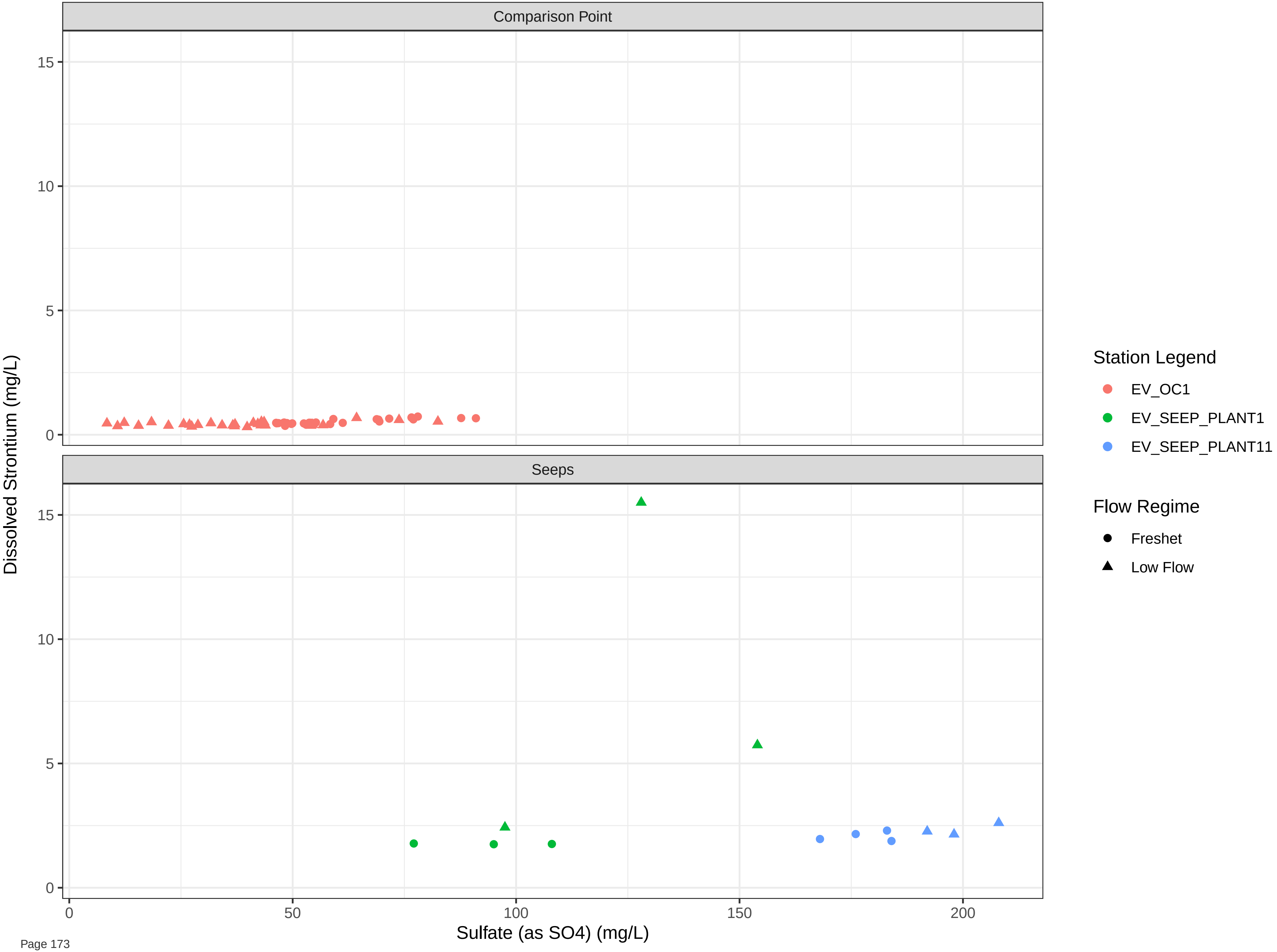

Comparison Point
Seeps
Dissolved Sodium (mg/L)
Sulfate (as SO4) (mg/L)
0
1
2
3
4
500
1000
1500
2000
Station Legend
EV_SEEP_SOUTHPIT6
EV_SP1
Flow Regime
Freshet
Low Flow

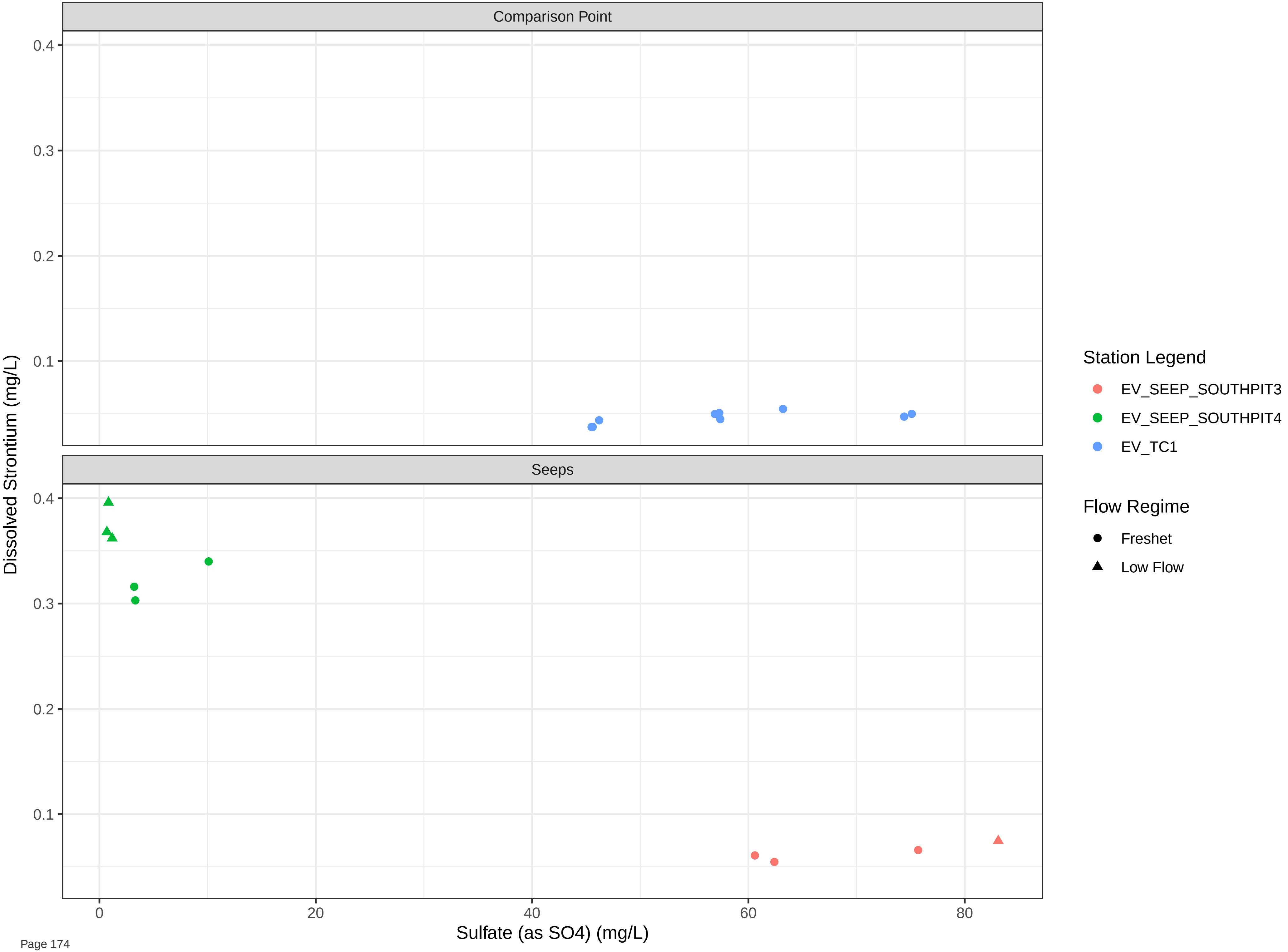

Comparison Point
Seeps
Dissolved Strontium (mg/L)
Sulfate (as SO4) (mg/L)
0
1
2
0
500
1000
1500
2000
2500
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

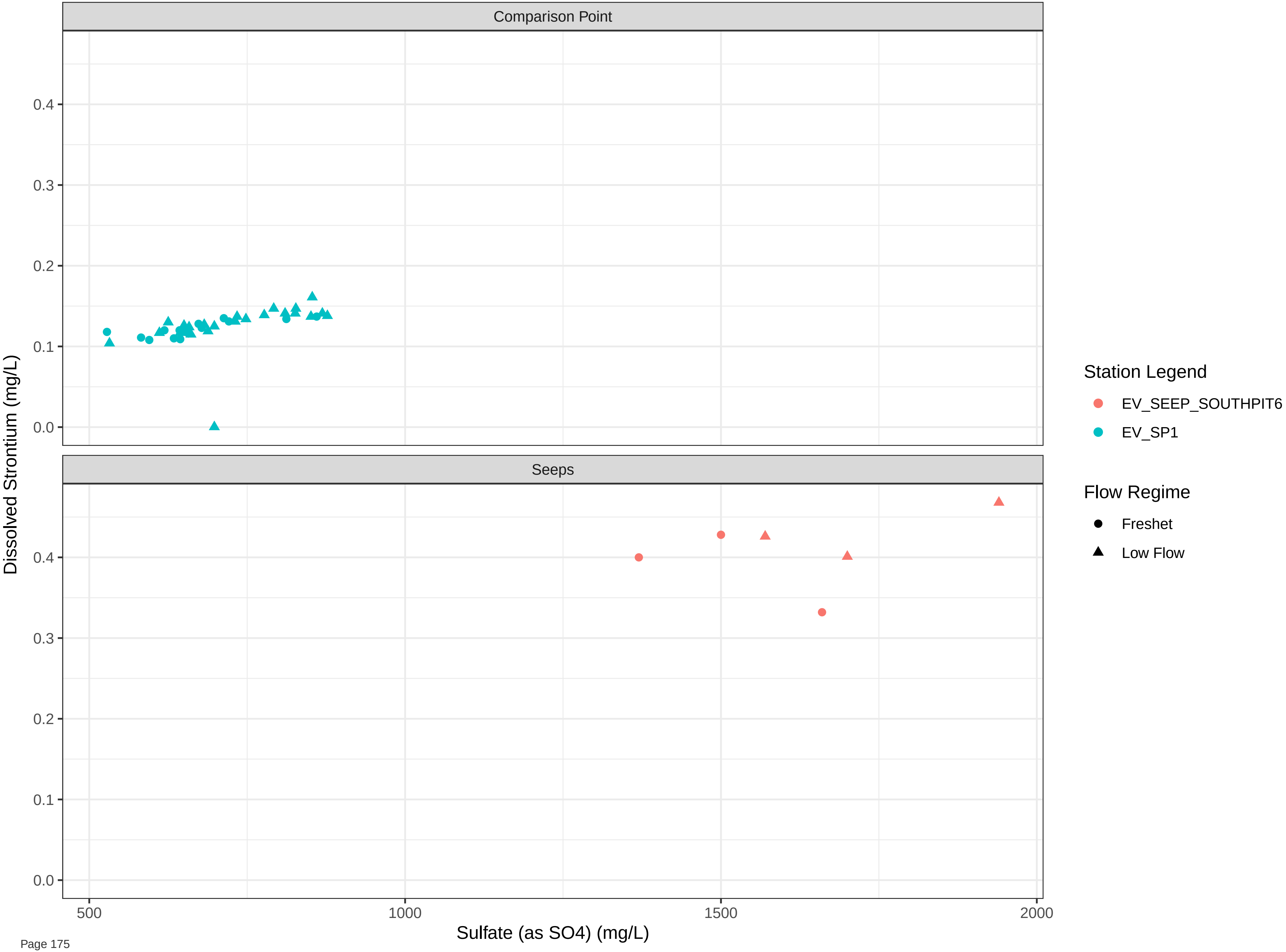

Comparison Point
Seeps
Dissolved Strontium (mg/L)
Sulfate (as SO4) (mg/L)
1.5
1.0
0.5
0.0
1.5
1.0
0.5
0.0
0
200
400
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

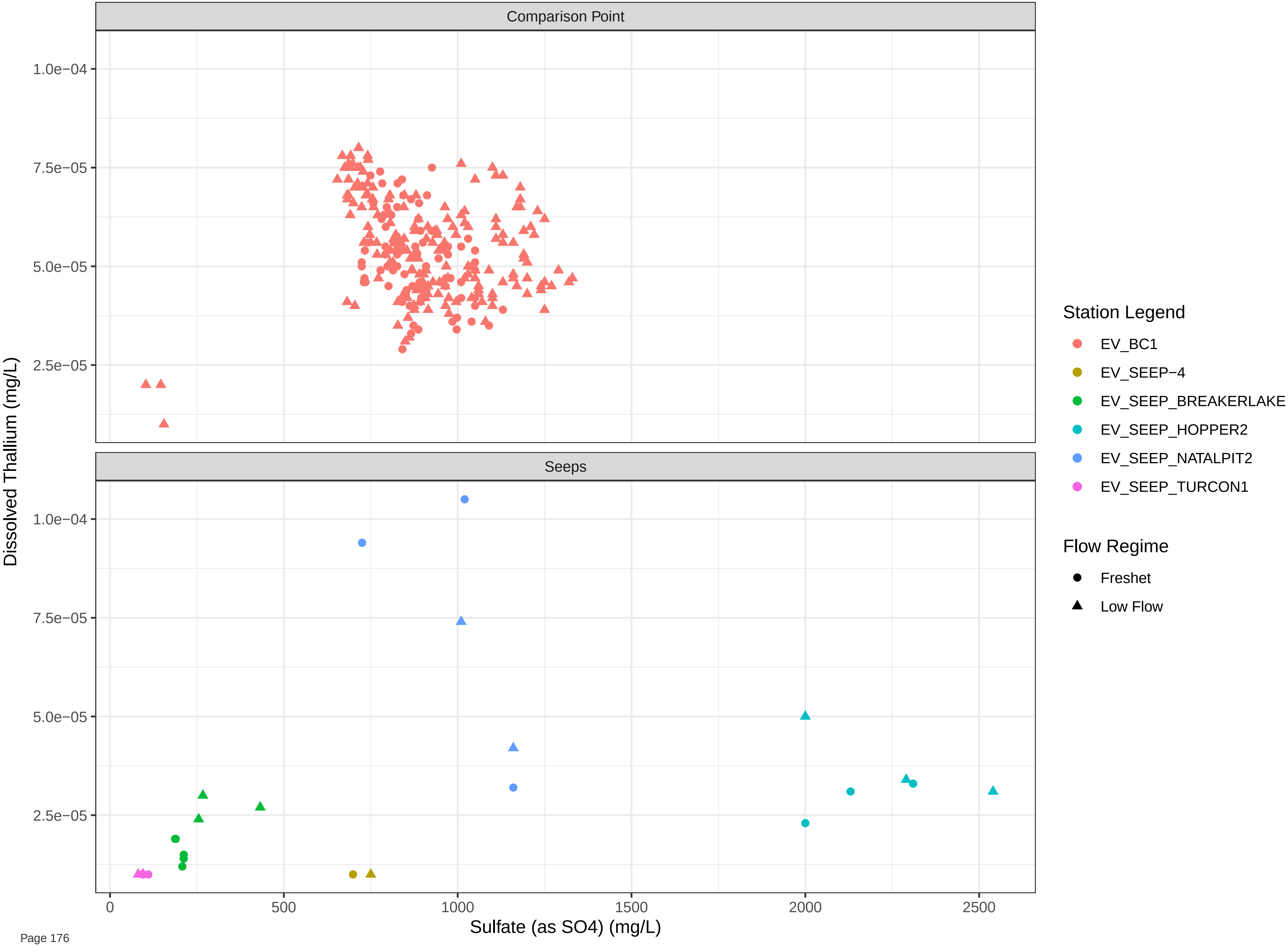

Comparison Point
Seeps
Dissolved Strontium (mg/L)
0
2
4
6
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
EV_GC2
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_WLAGC
Flow Regime
Freshet
Low Flow

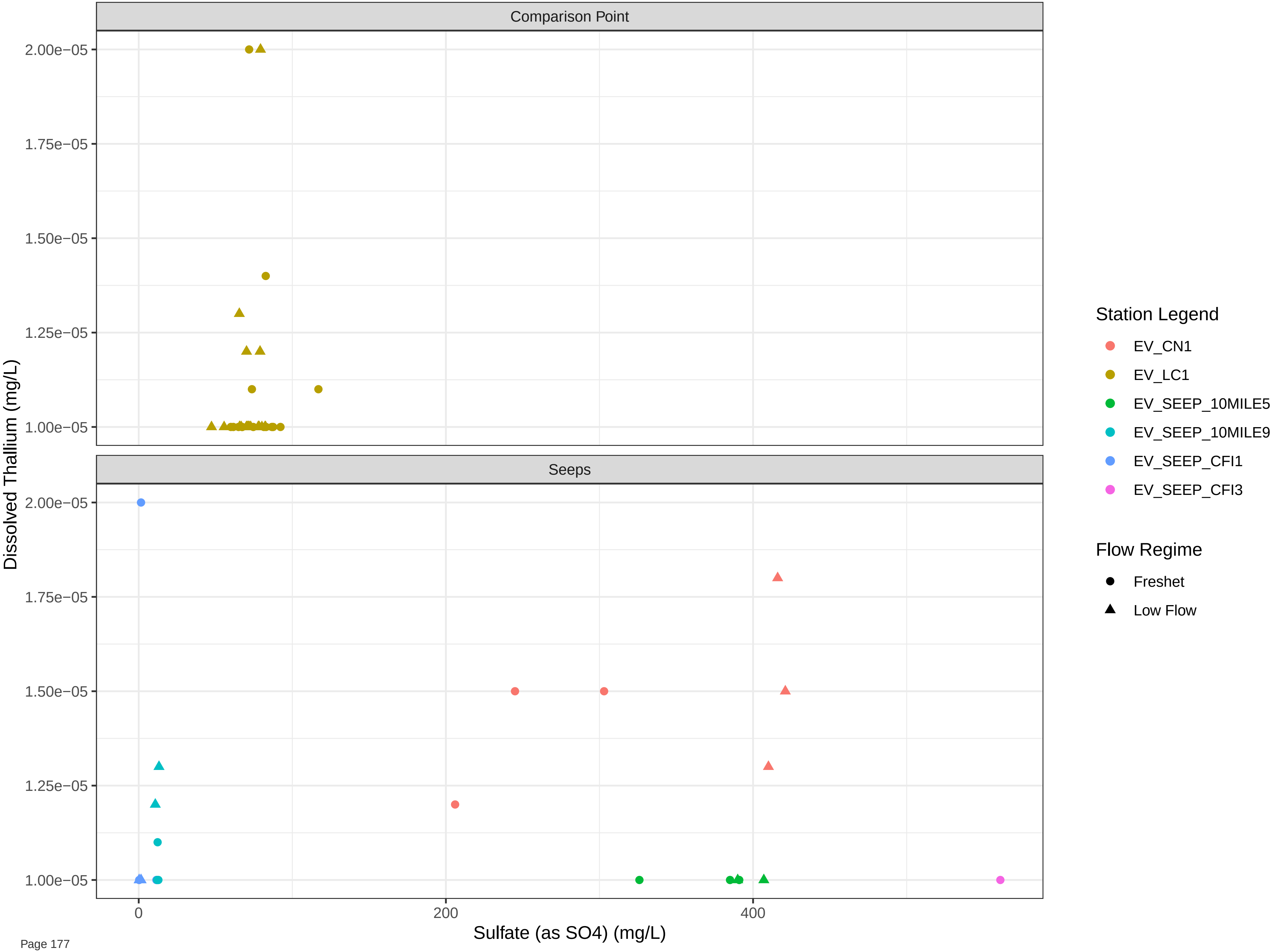

Comparison Point
Seeps
Dissolved Strontium (mg/L)
0.32
0.28
0.24
0.20
0.32
0.28
0.24
0.20
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
● EV_EC1
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow

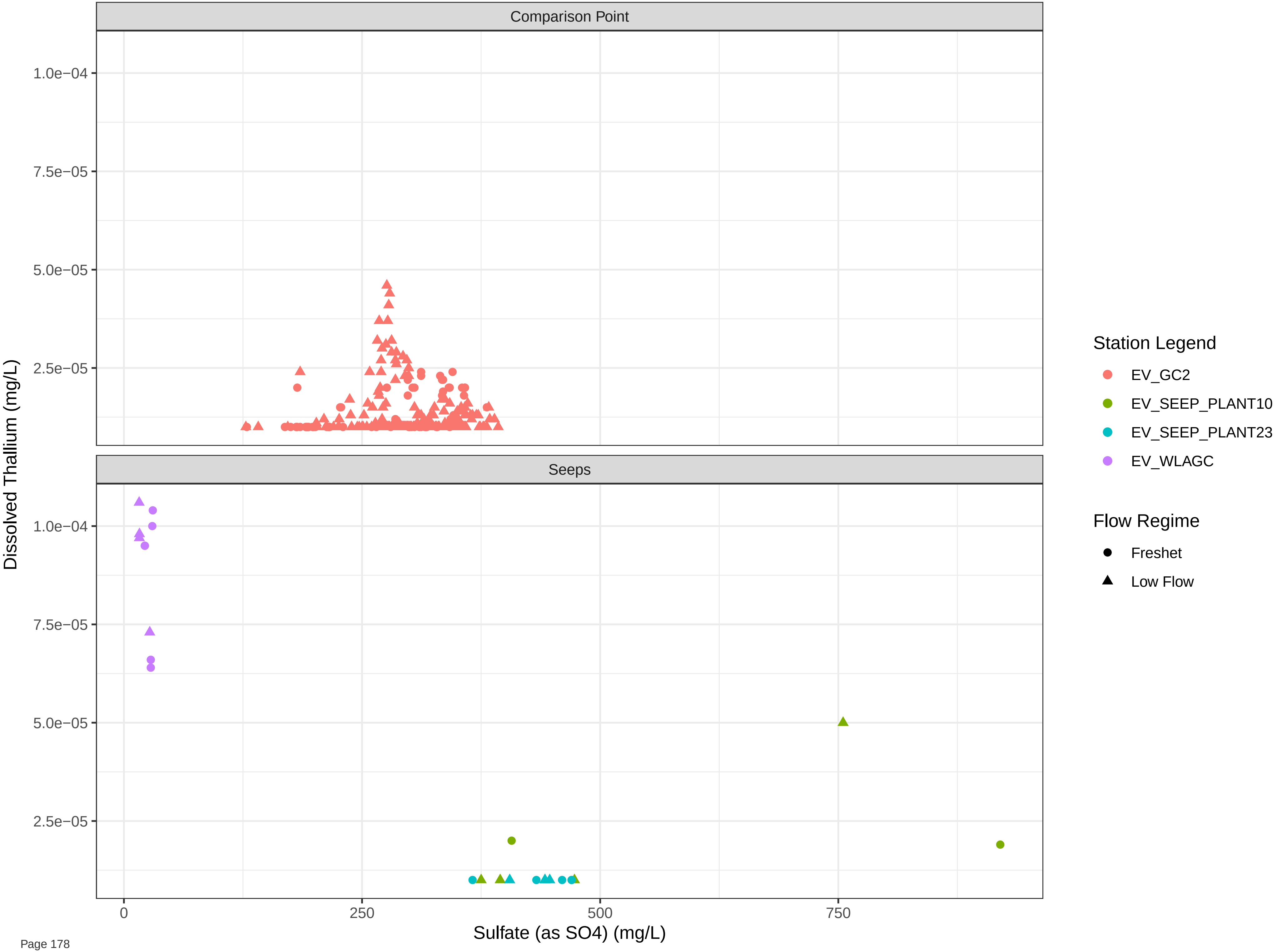

Comparison Point
Seeps
Dissolved Strontium (mg/L)
Sulfate (as SO4) (mg/L)
0
5
10
15
0
50
100
150
200
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

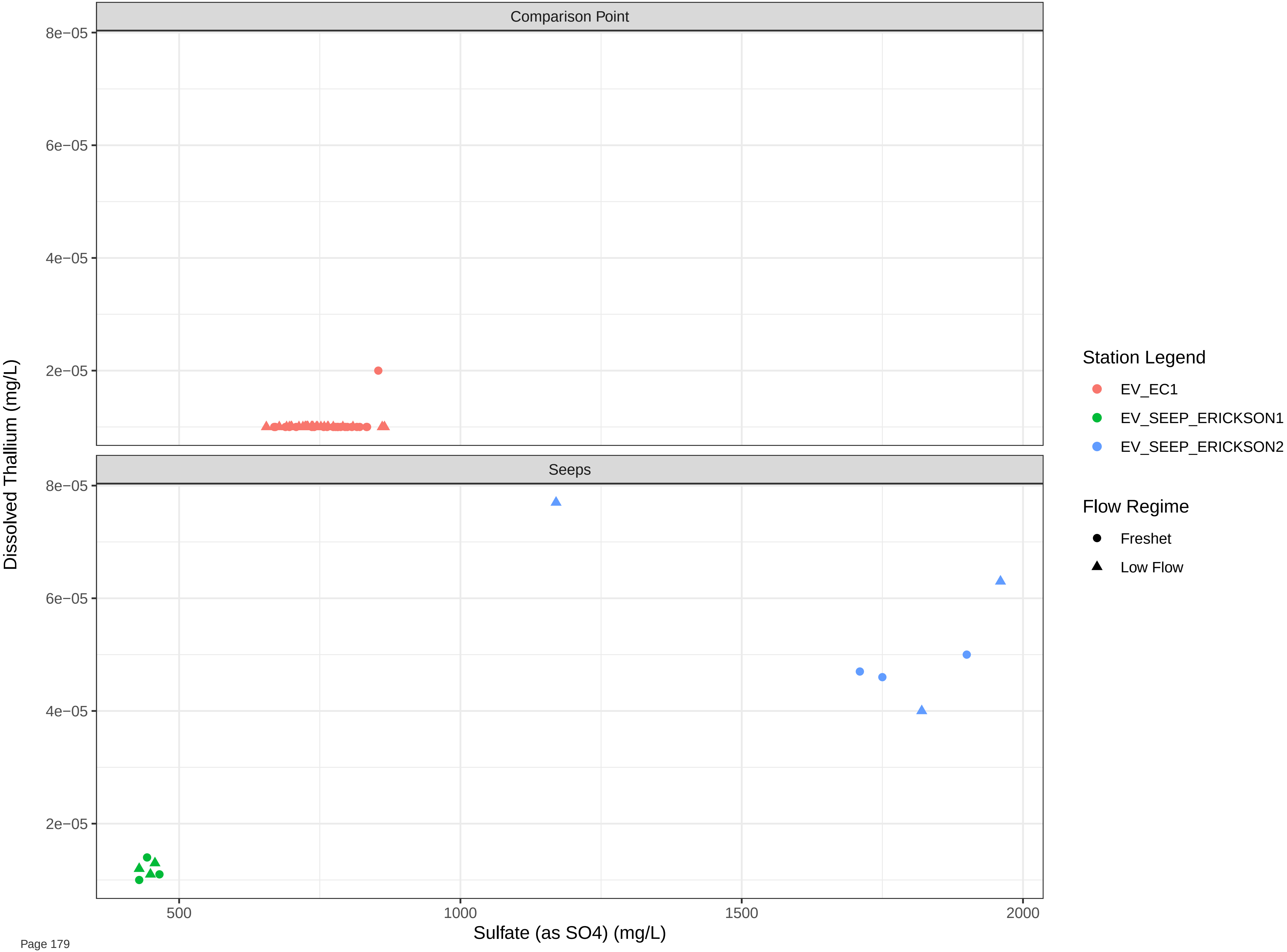

Comparison Point
Seeps
Dissolved Strontium (mg/L)
0.4
0.3
0.2
0.1
0
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

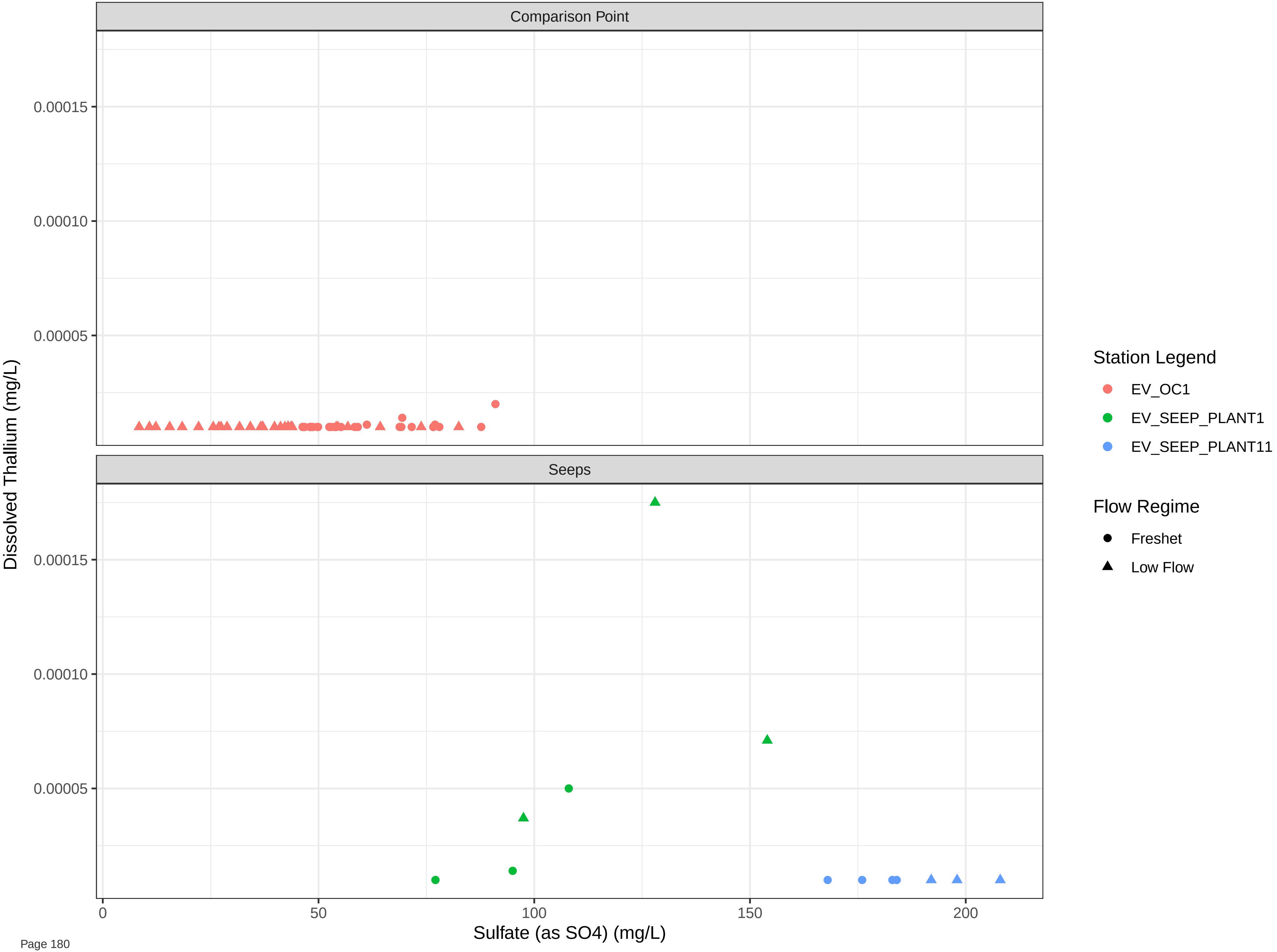

Comparison Point
Seeps
Dissolved Strontium (mg/L)
Sulfate (as SO4) (mg/L)
0.0
0.1
0.2
0.3
0.4
500
1000
1500
2000
Station Legend
● EV_SEEP_SOUTHPIT6
● EV_SP1
Flow Regime
● Freshet
▲ Low Flow

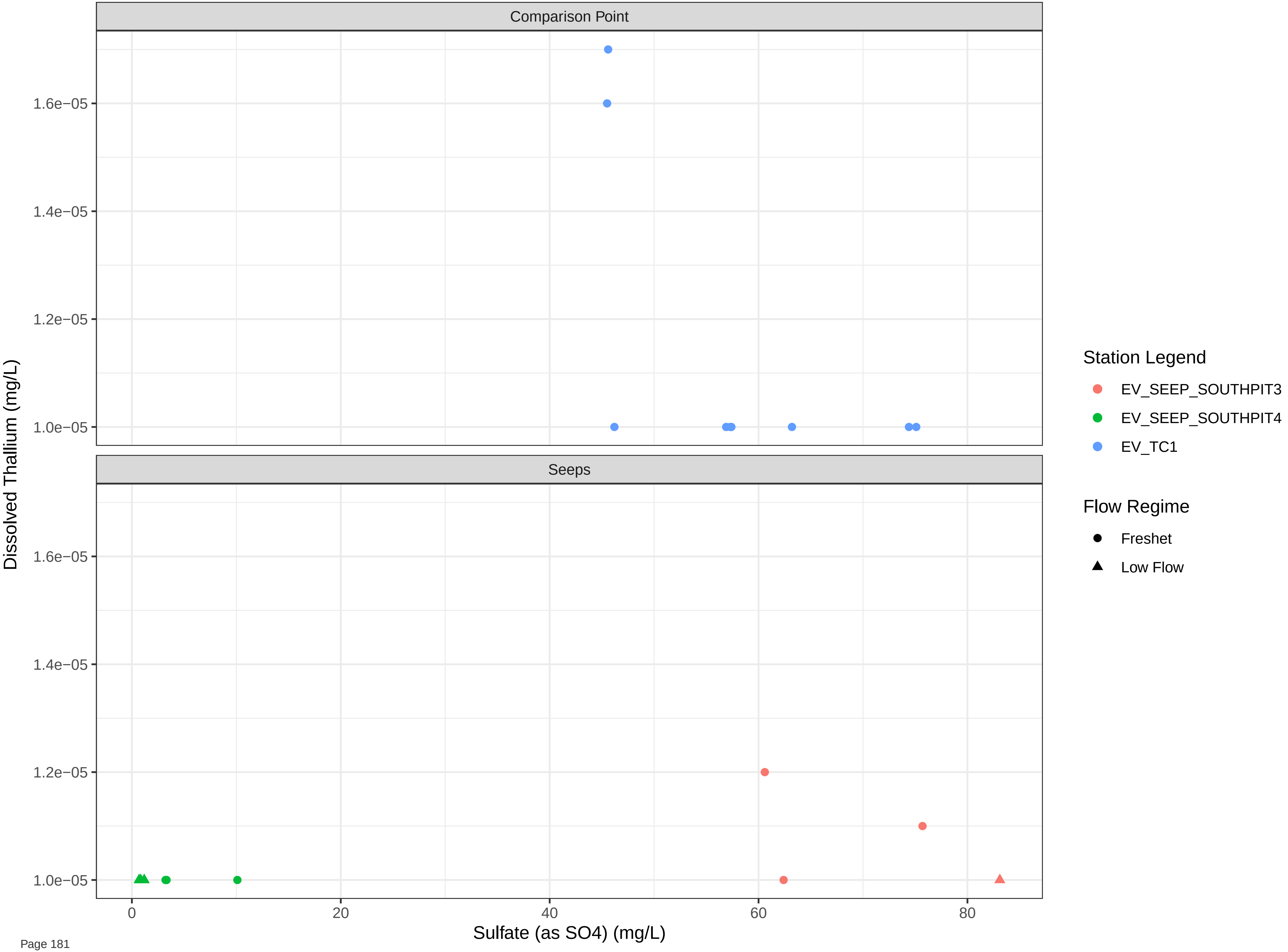

Comparison Point
Seeps
Dissolved Thallium (mg/L)
1.0e−04
7.5e−05
5.0e−05
2.5e−05
Sulfate (as SO4) (mg/L)
0
500
1000
1500
2000
2500
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

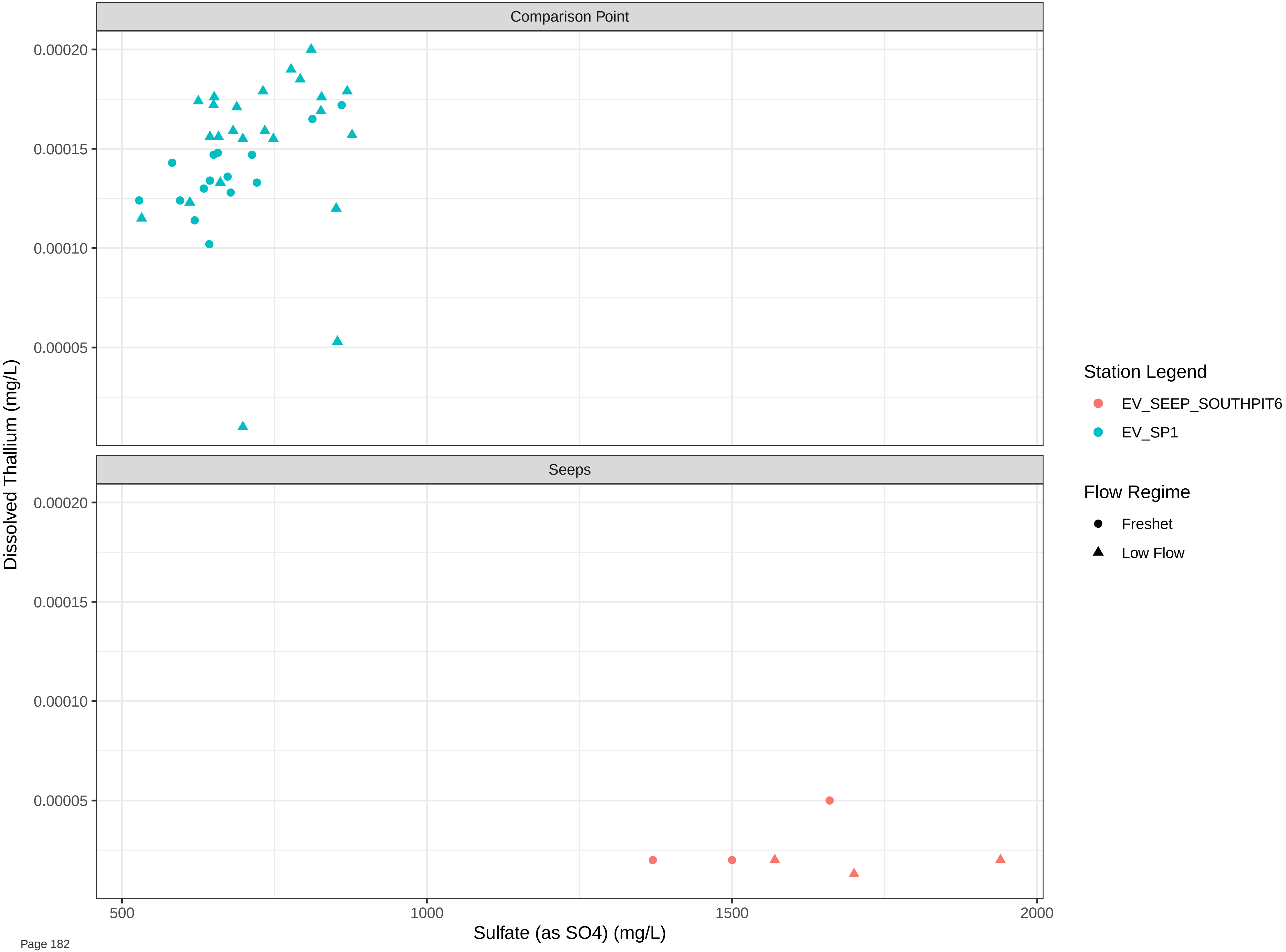

Comparison Point
Seeps
Dissolved Thallium (mg/L)
2.00e−05
1.75e−05
1.50e−05
1.25e−05
1.00e−05
Sulfate (as SO4) (mg/L)
0
200
400
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

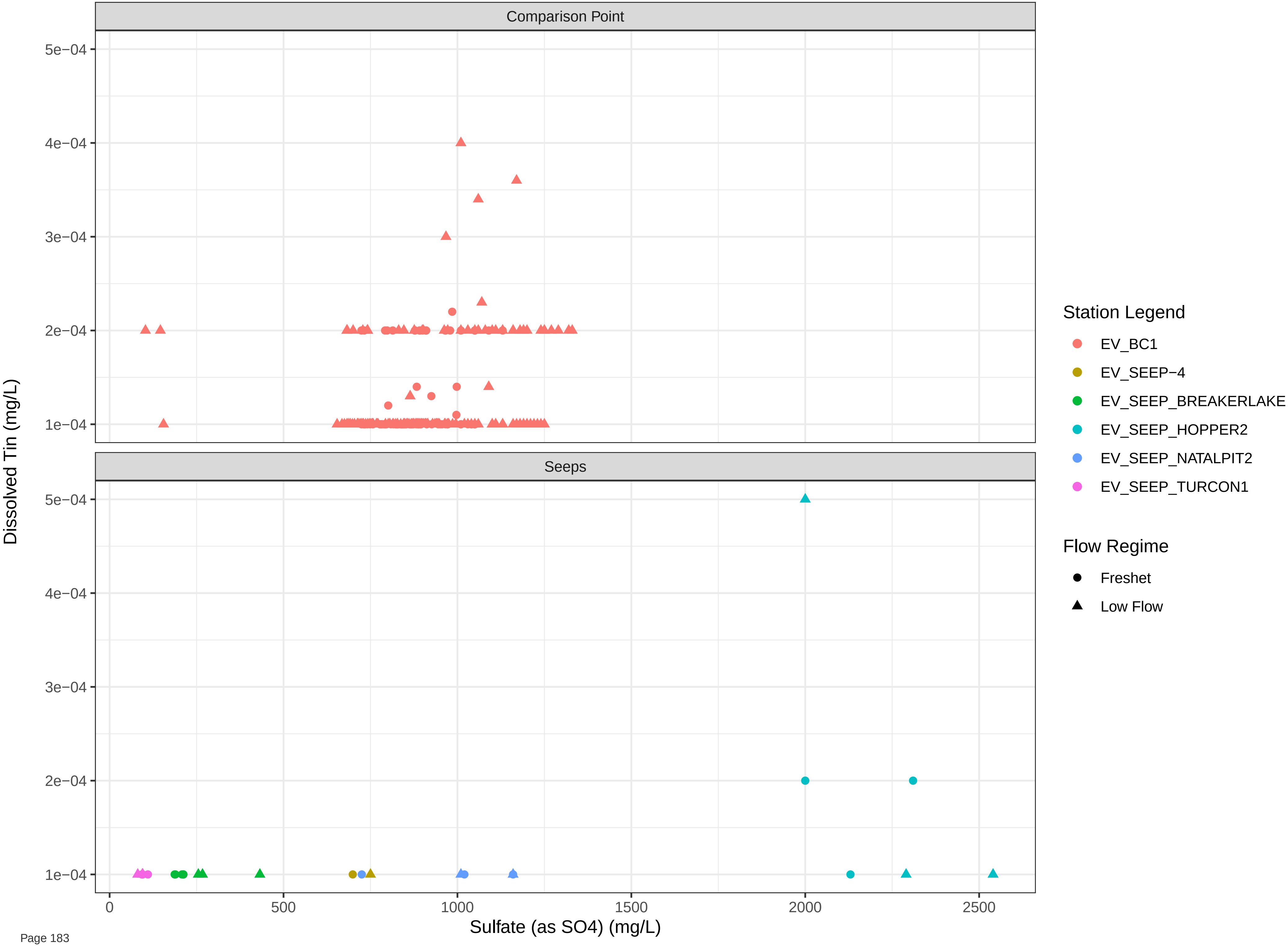

Comparison Point
Seeps
Dissolved Thallium (mg/L)
1.0e−04
7.5e−05
5.0e−05
2.5e−05
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
EV_GC2
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_WLAGC
Flow Regime
Freshet
Low Flow

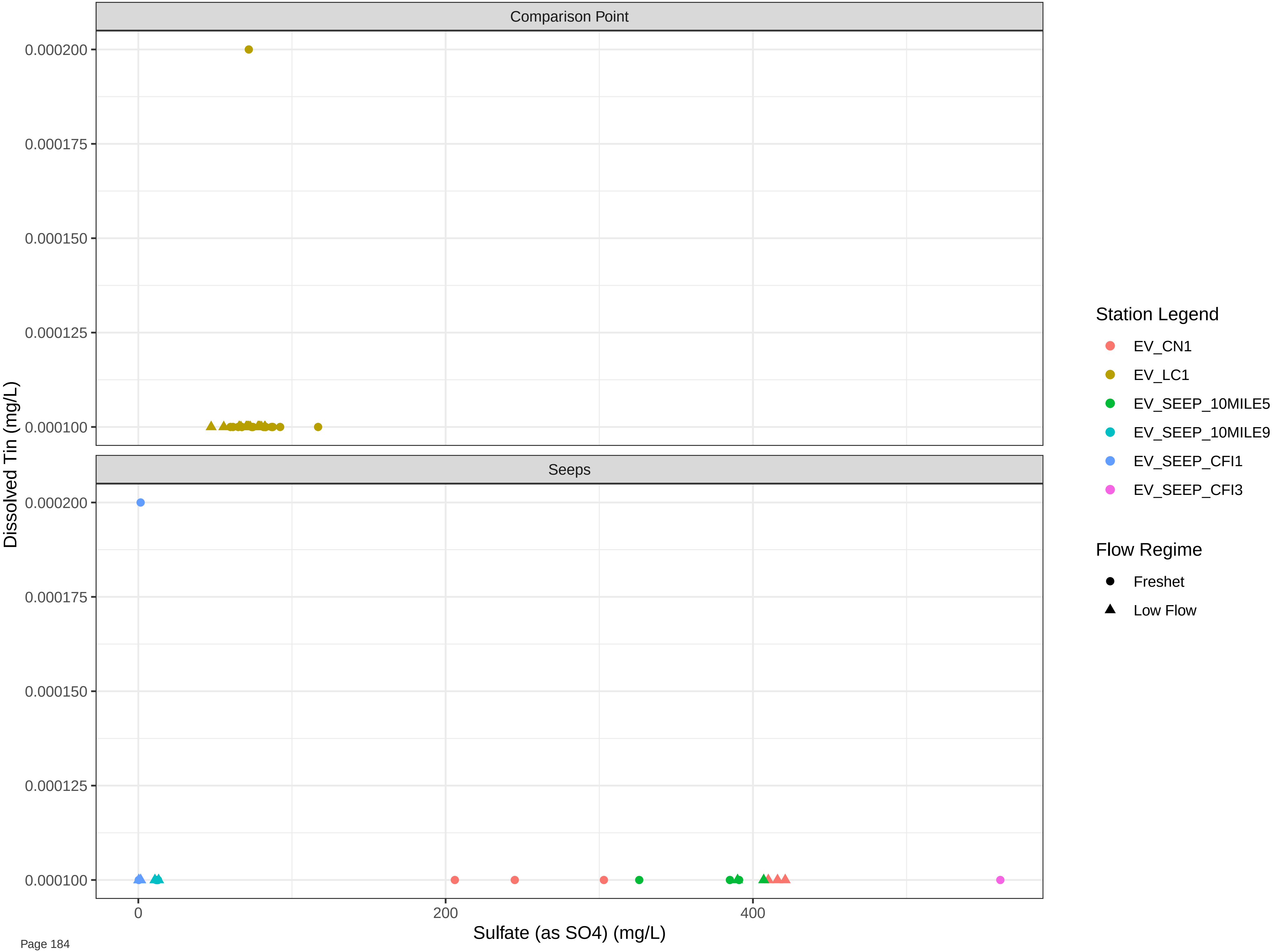

Comparison Point
Seeps
8e−05
6e−05
4e−05
2e−05
Dissolved Thallium (mg/L)
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

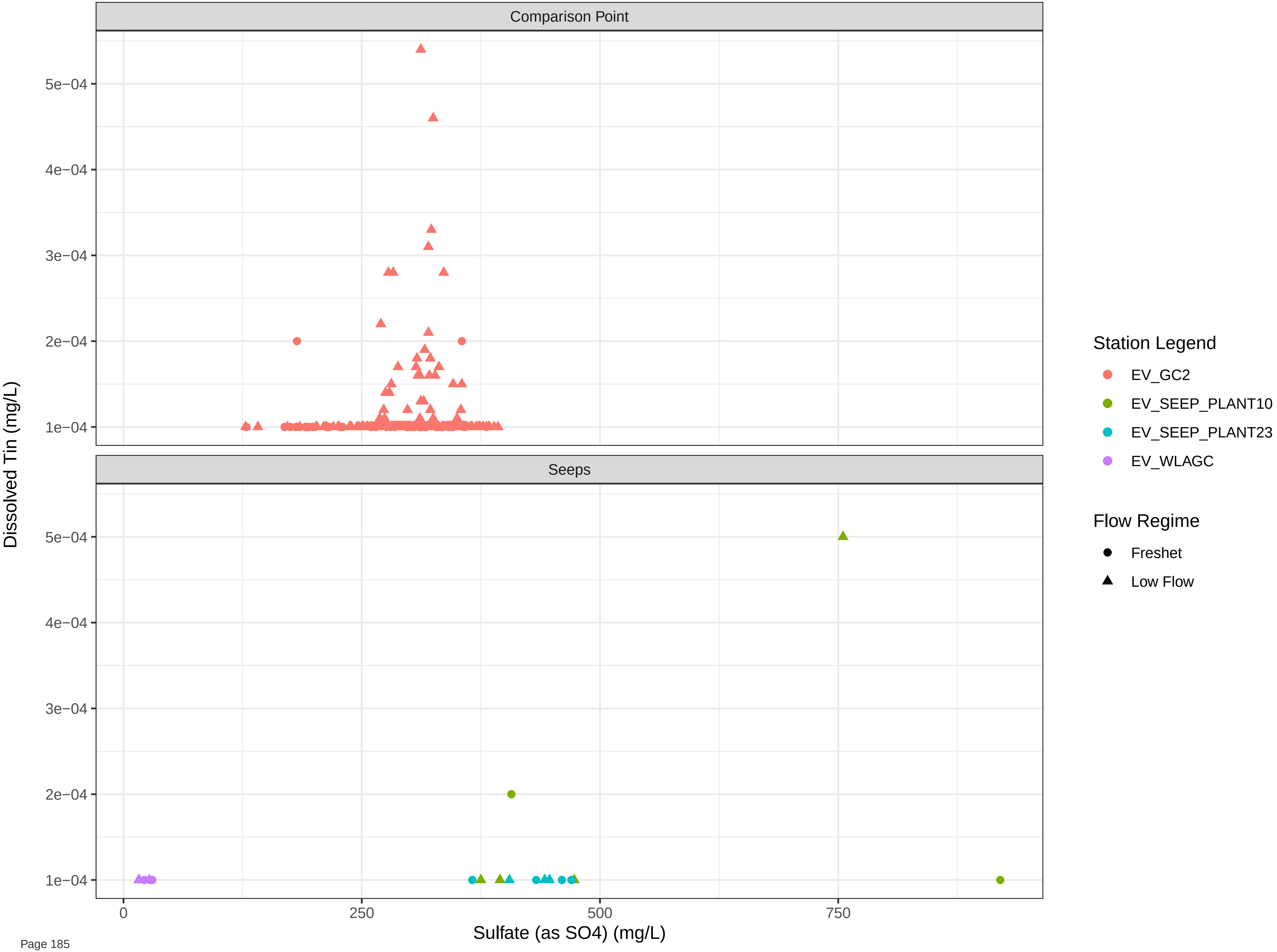

Comparison Point
Seeps
Dissolved Thallium (mg/L)
0.00015
0.00010
0.00005
0.00015
0.00010
0.00005
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

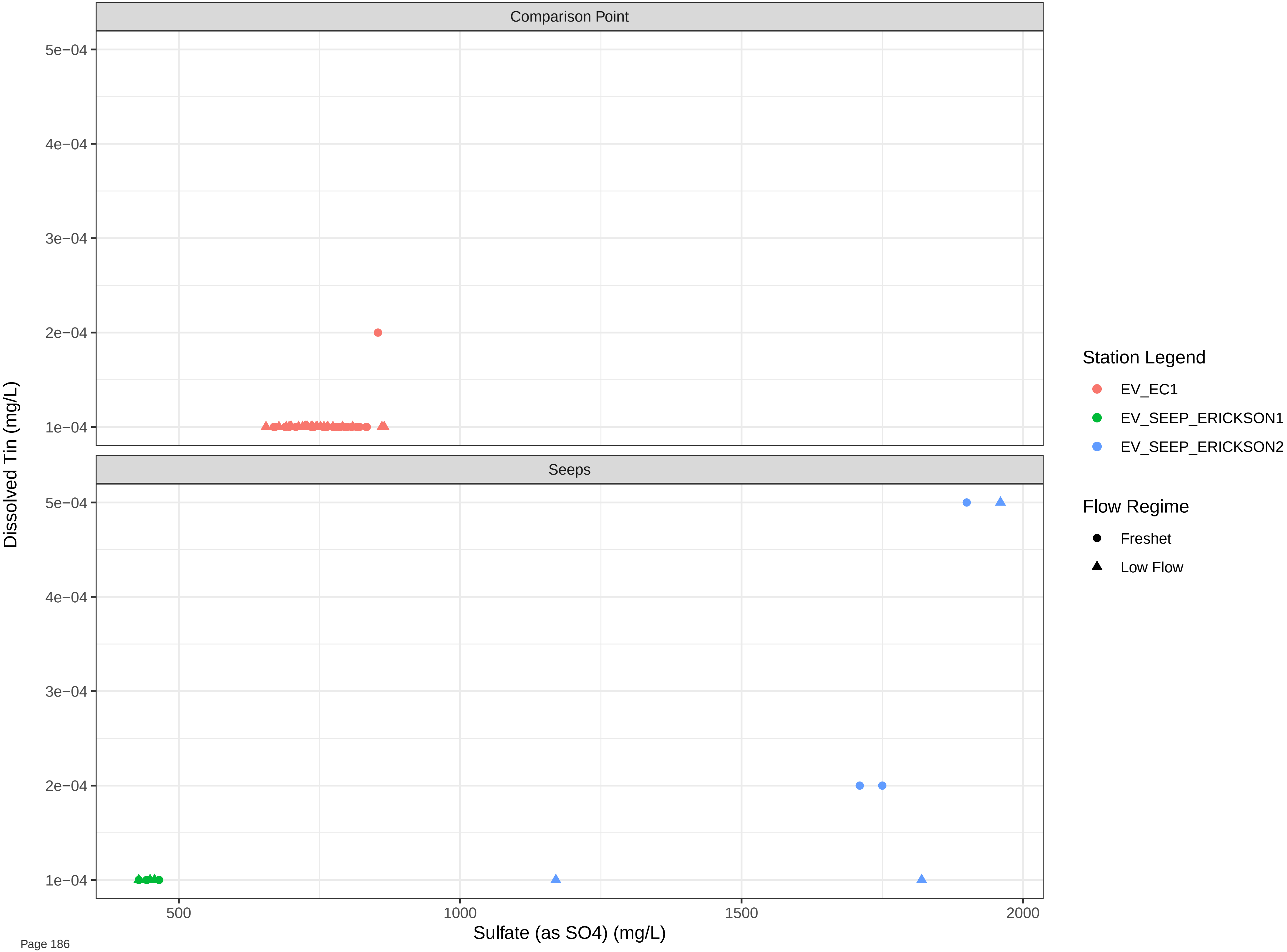

Comparison Point
Seeps
Dissolved Thallium (mg/L)
1.6e−05
1.4e−05
1.2e−05
1.0e−05
0
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

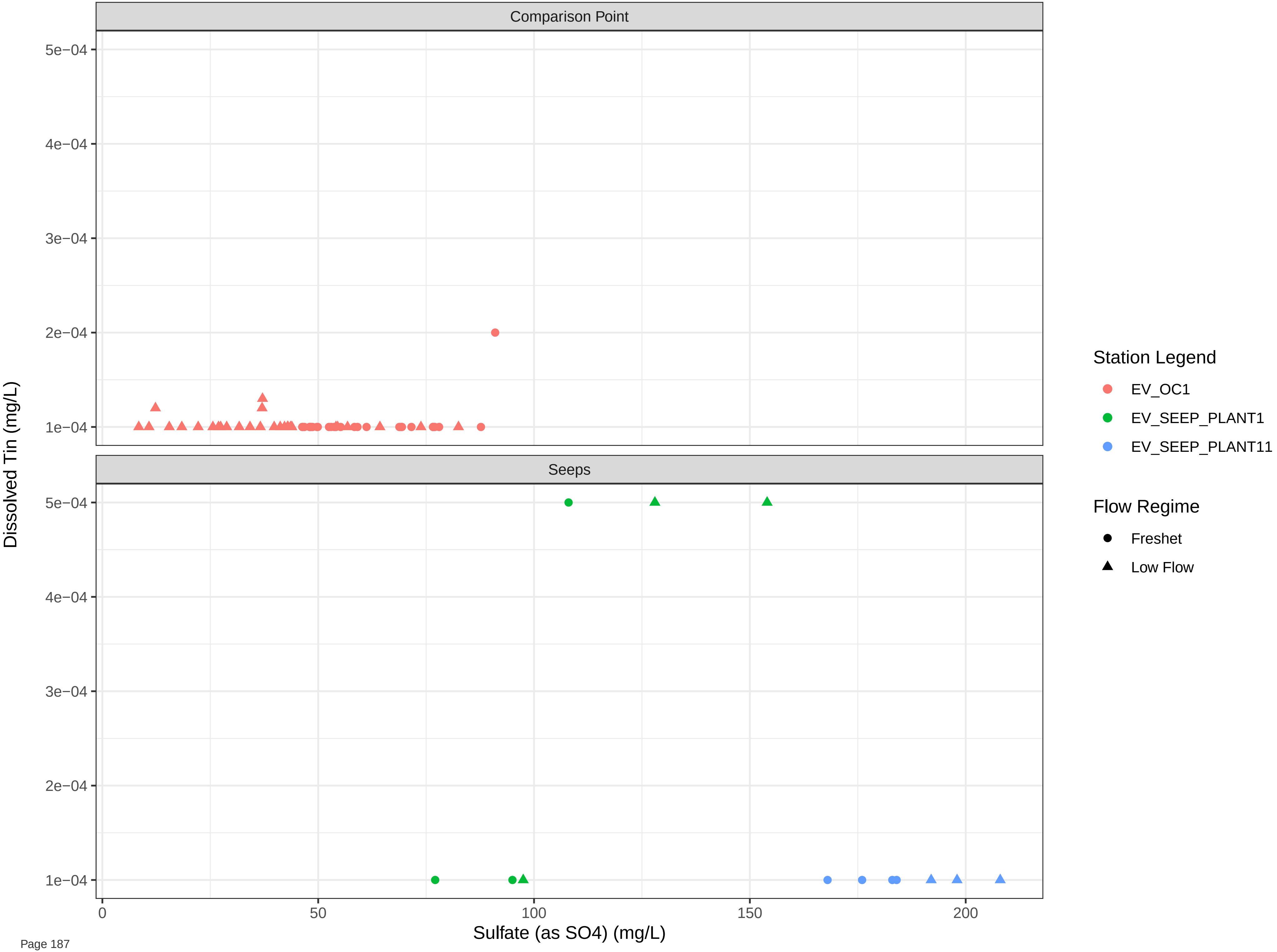

Comparison Point
Seeps
Dissolved Thallium (mg/L)
0.00020
0.00015
0.00010
0.00005
Sulfate (as SO4) (mg/L)
500
1000
1500
2000
Station Legend
EV_SEEP_SOUTHPIT6
EV_SP1
Flow Regime
Freshet
Low Flow

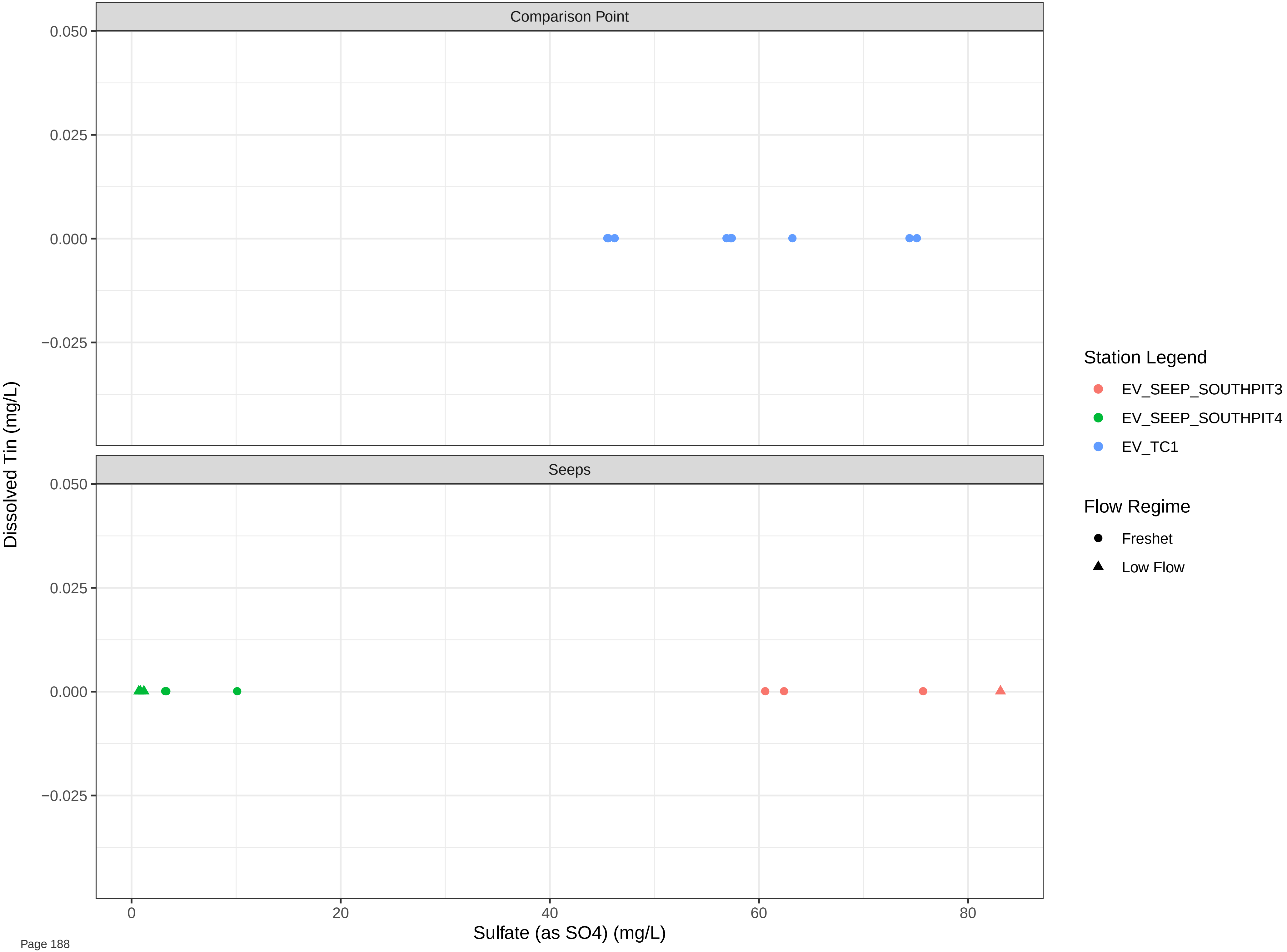

Comparison Point
Seeps
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
0
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

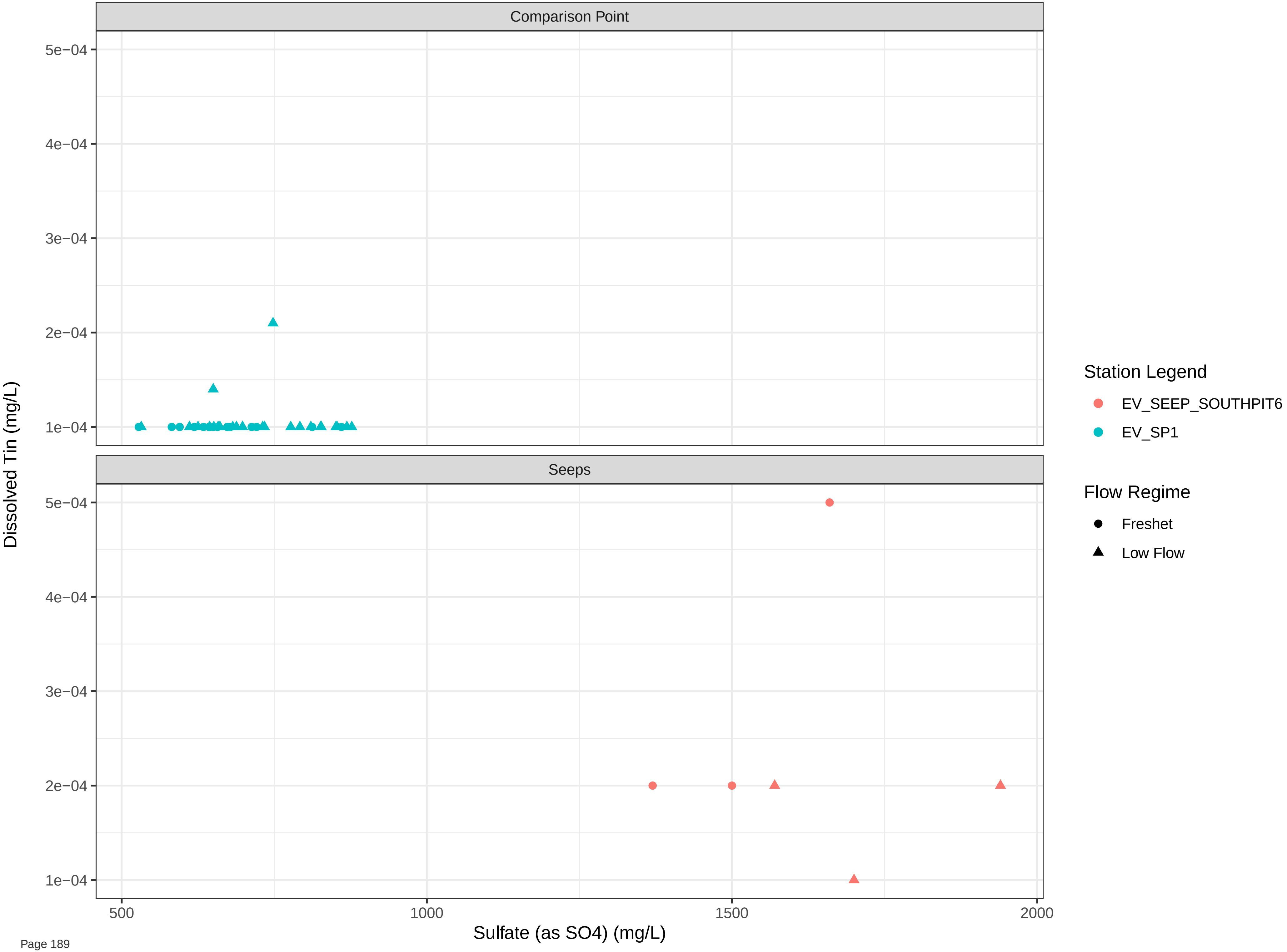

Comparison Point
Seeps
Dissolved Tin (mg/L)
0.000200
0.000175
0.000150
0.000125
0.000100
0
200
400
Sulfate (as SO4) (mg/L)
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
EV_GC2
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_WLAGC
Flow Regime
Freshet
Low Flow

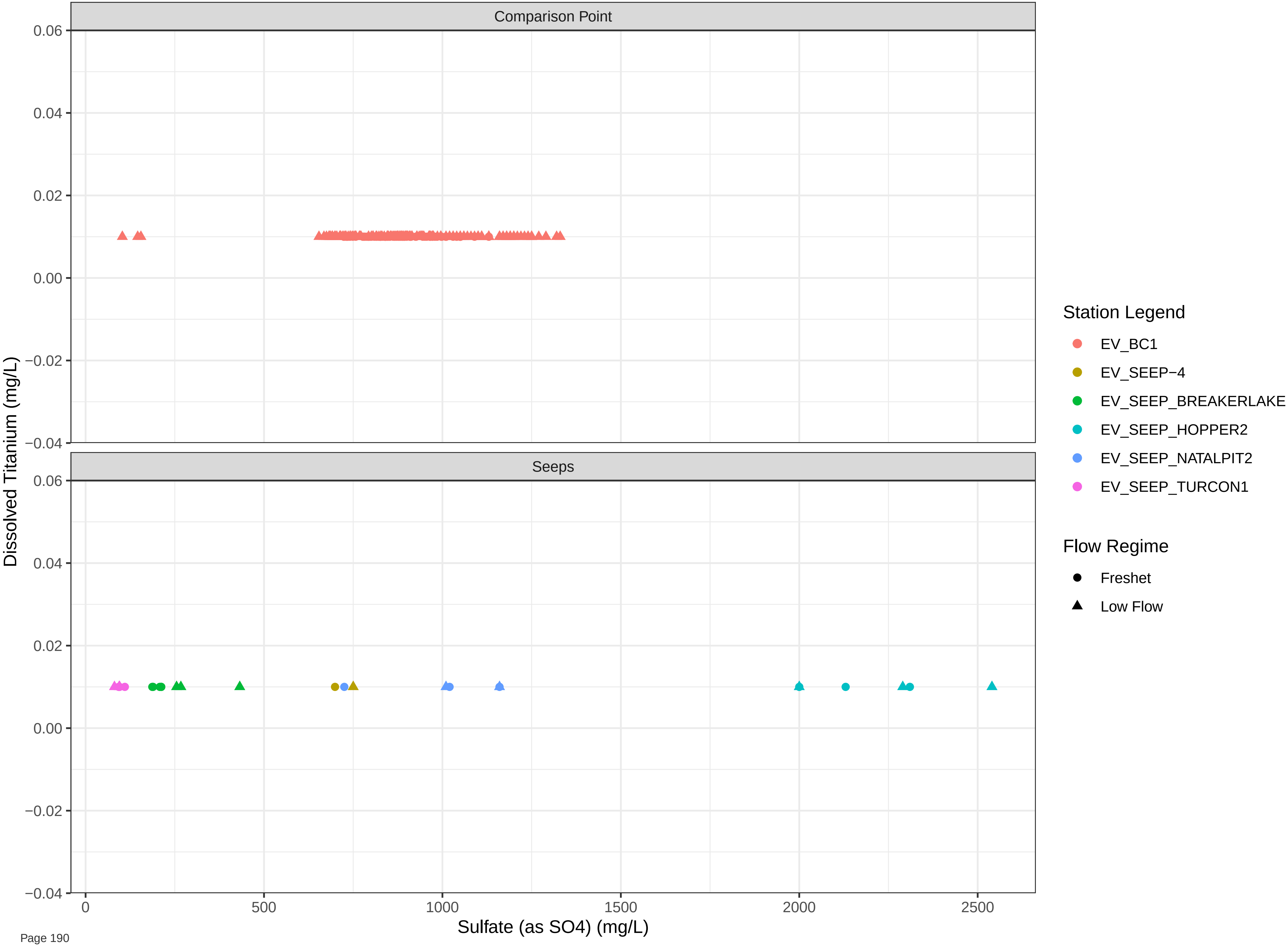

Comparison Point
Seeps
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

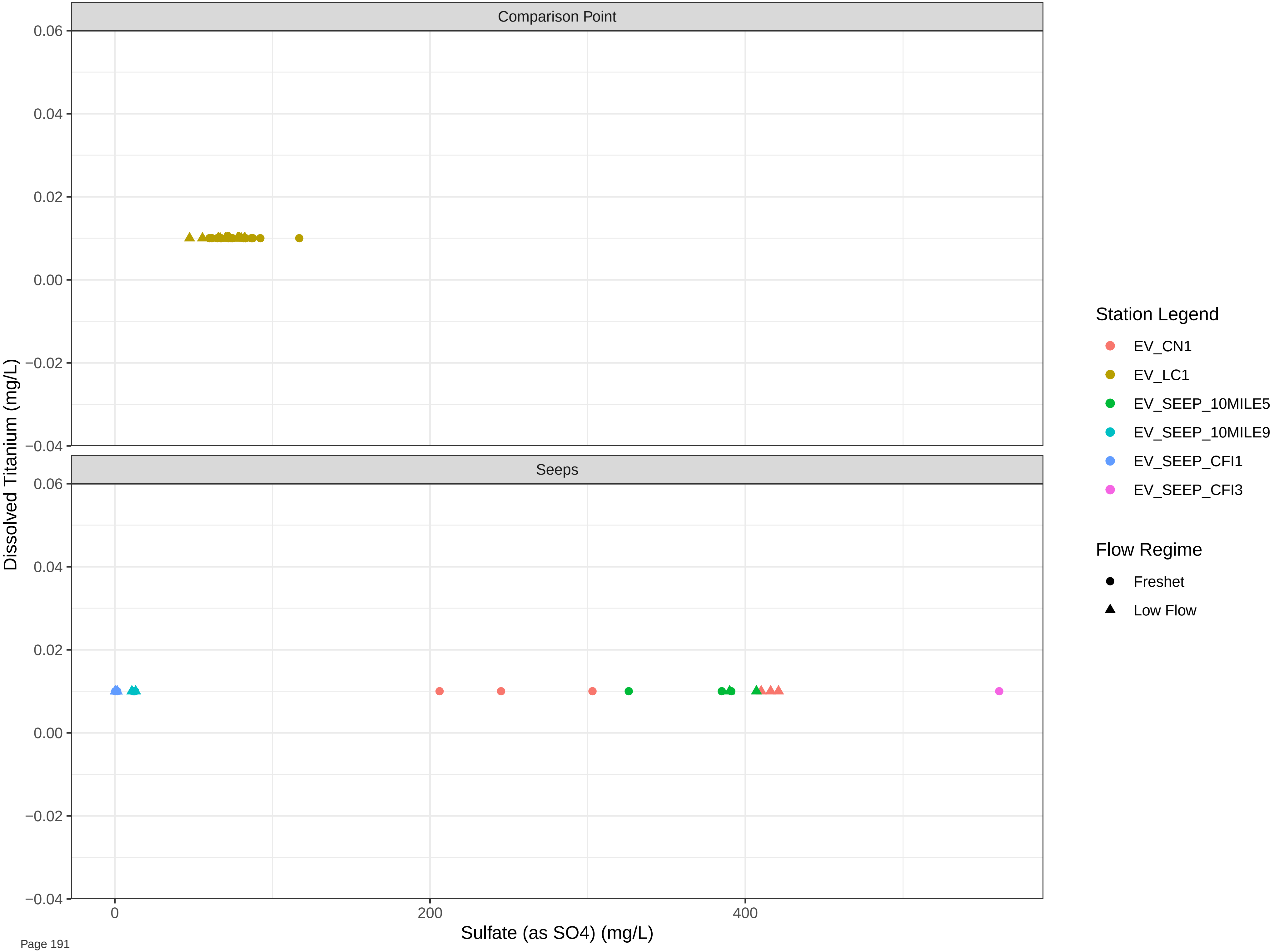

Comparison Point
Seeps
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

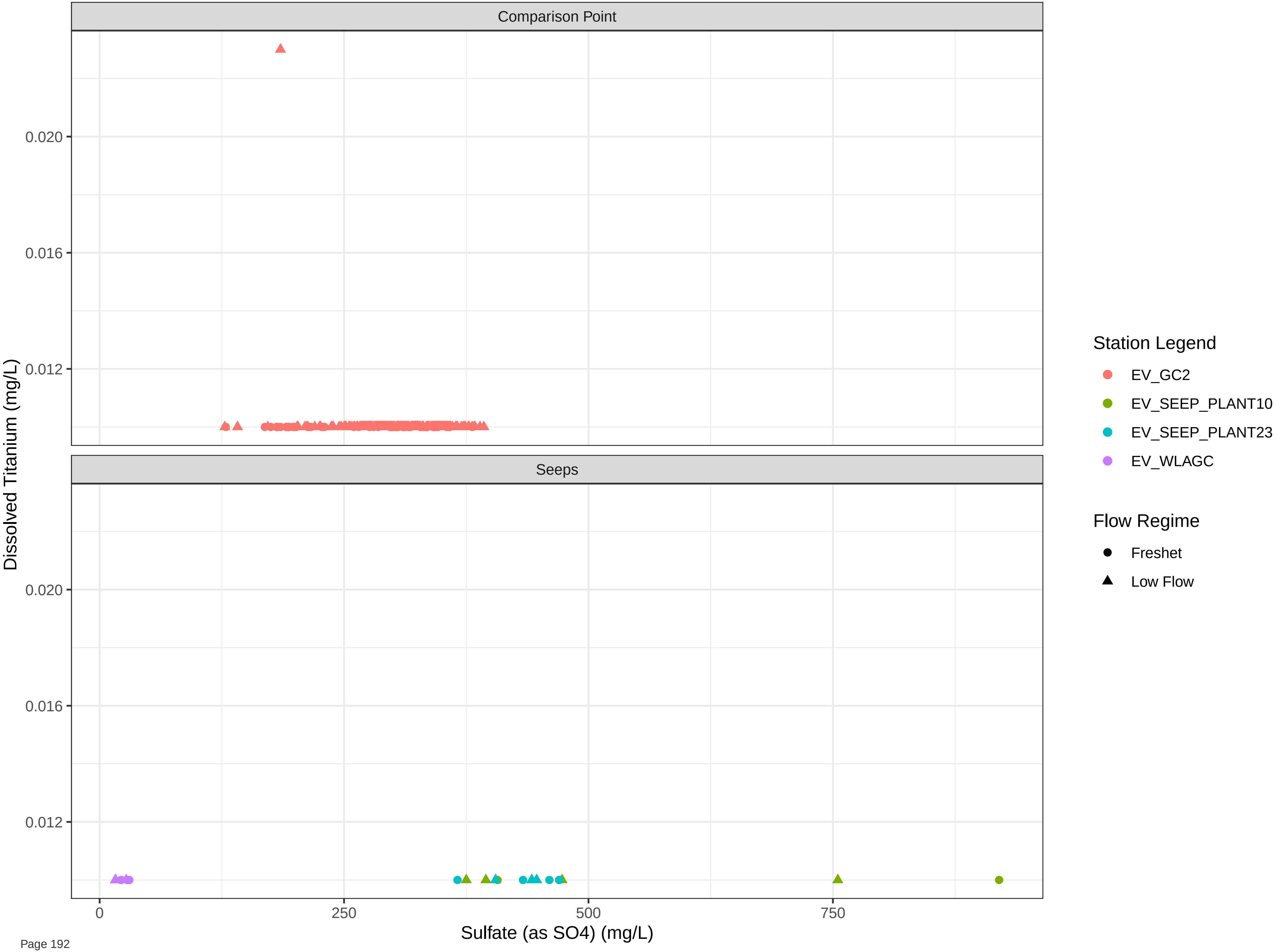

Comparison Point
Seeps
Dissolved Tin (mg/L)
0.050
0.025
0.000
−0.025
0.050
0.025
0.000
−0.025
0
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

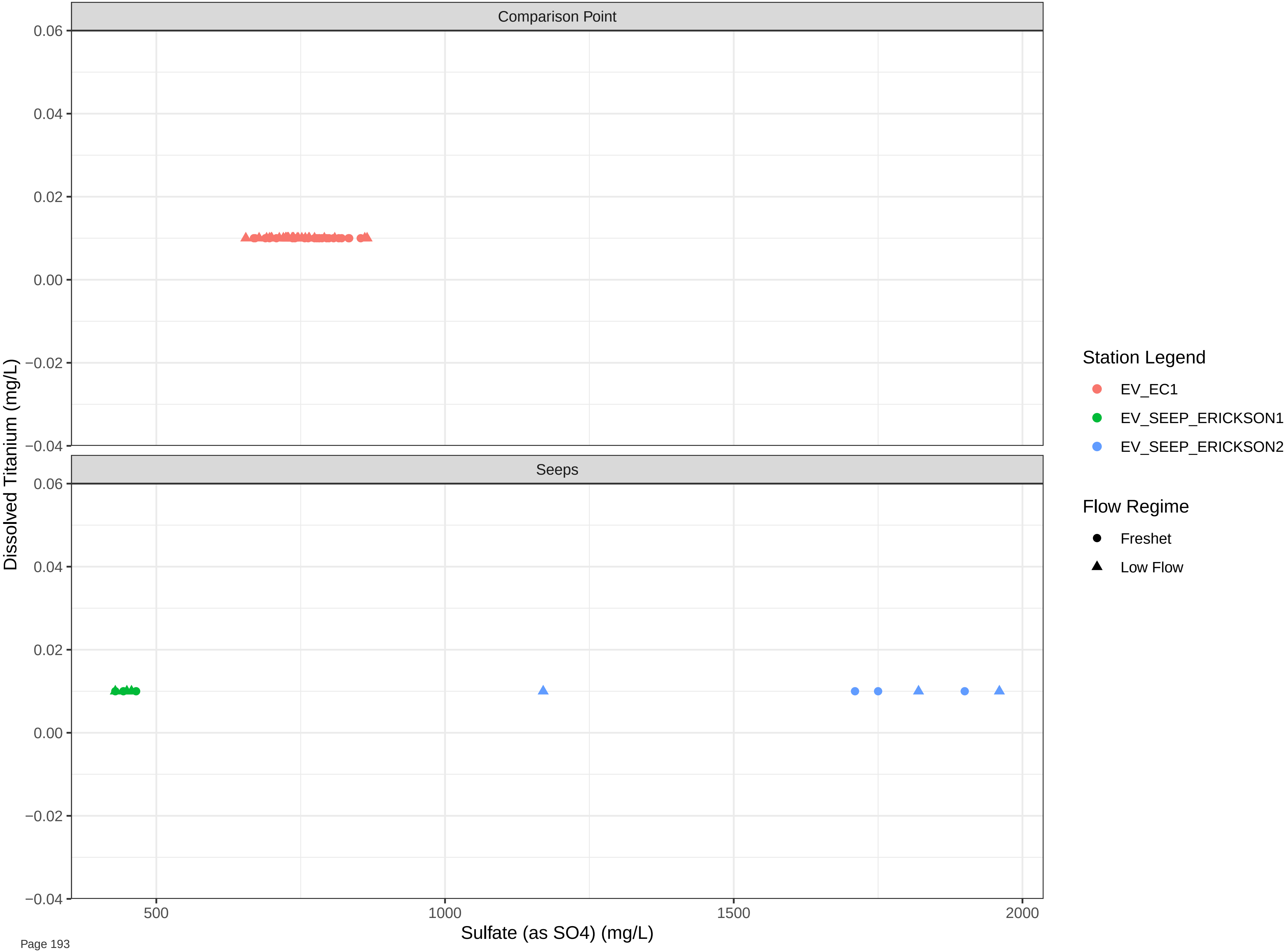


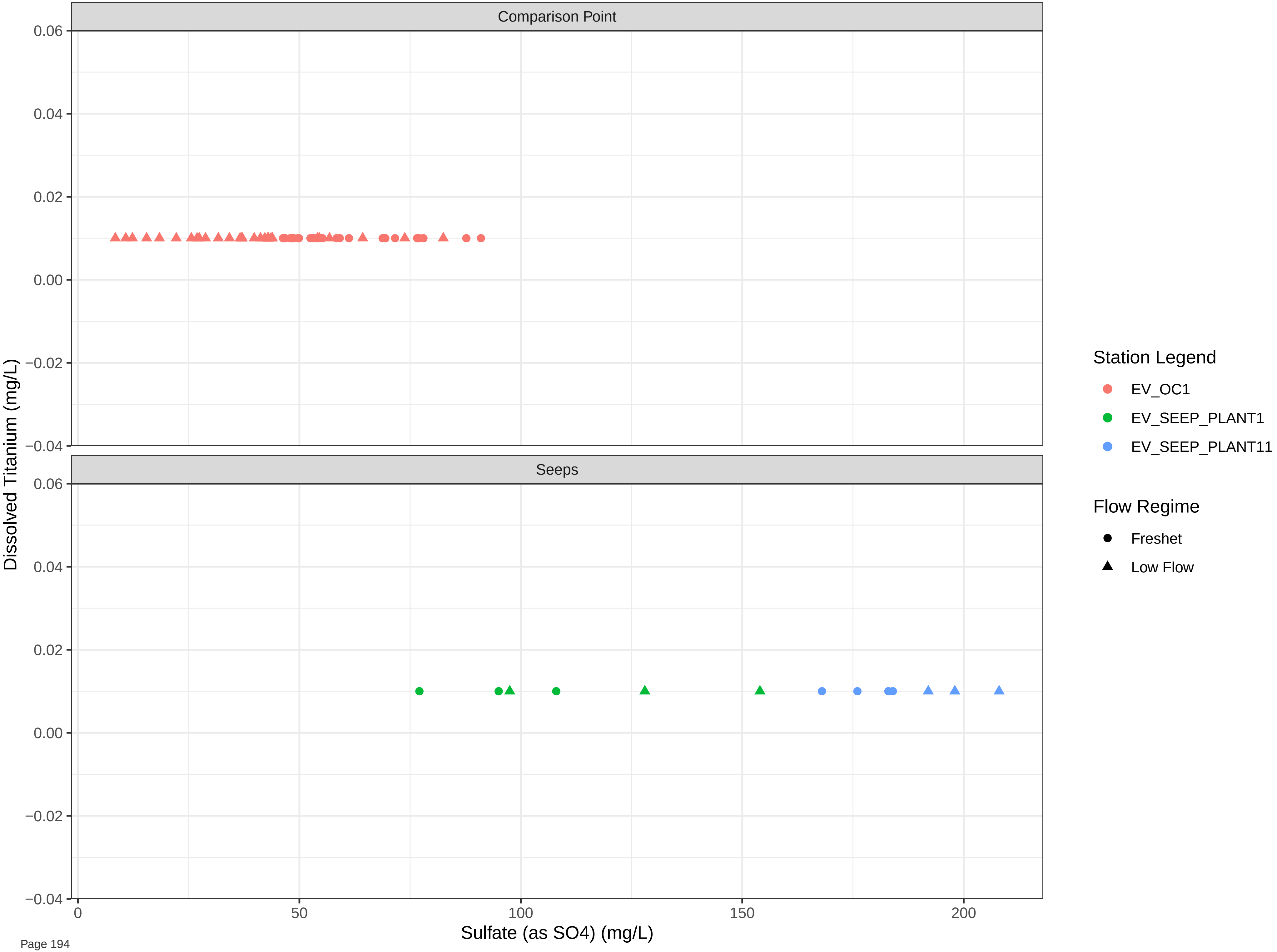
Comparison Point
Seeps
Dissolved Tin (mg/L)
5e−04
4e−04
3e−04
2e−04
1e−04
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
EV_SP1
Flow Regime
Freshet
Low Flow

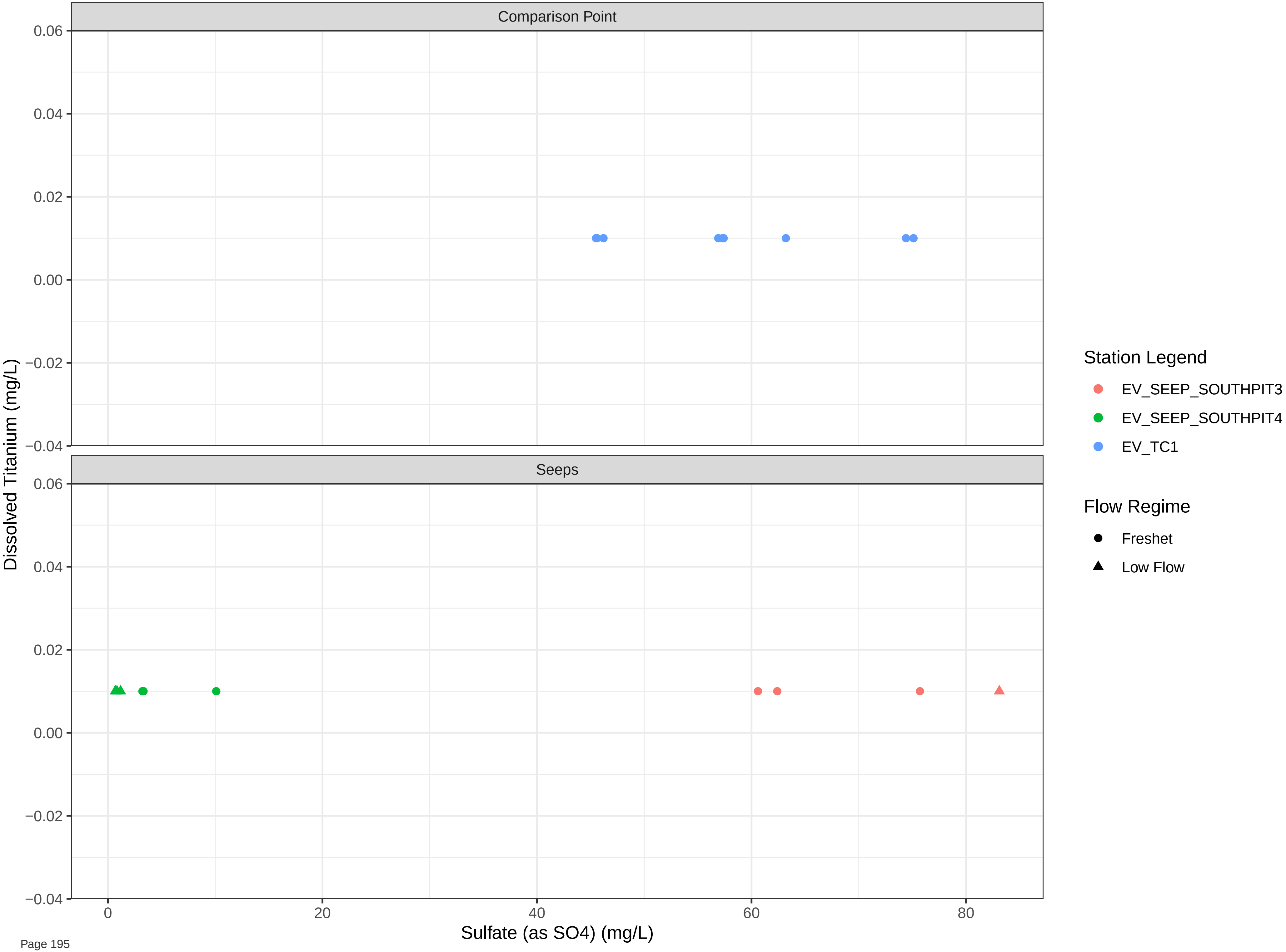

Comparison Point
Seeps
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
0
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

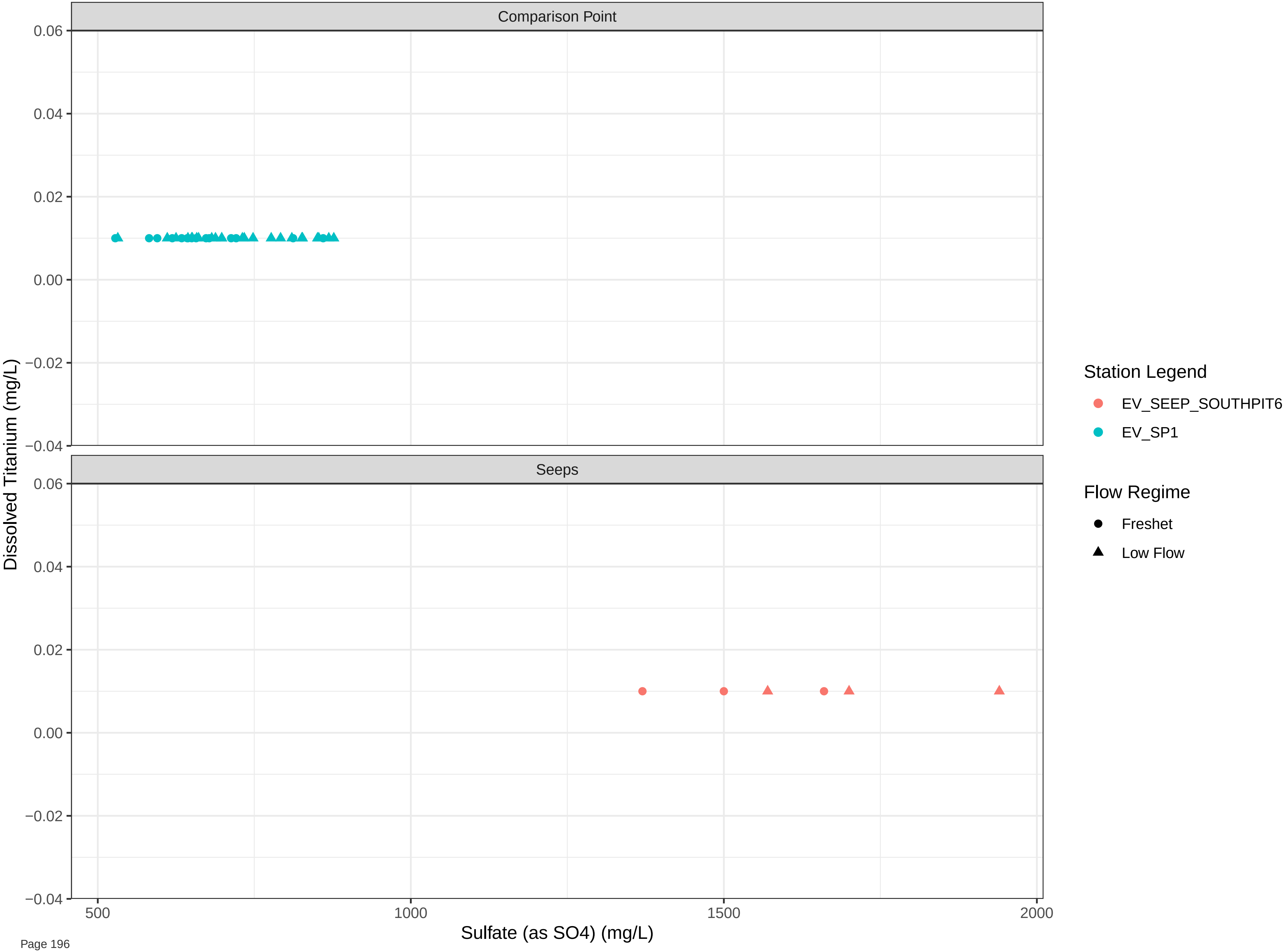

Comparison Point
Seeps
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
0
200
400
Sulfate (as SO4) (mg/L)
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

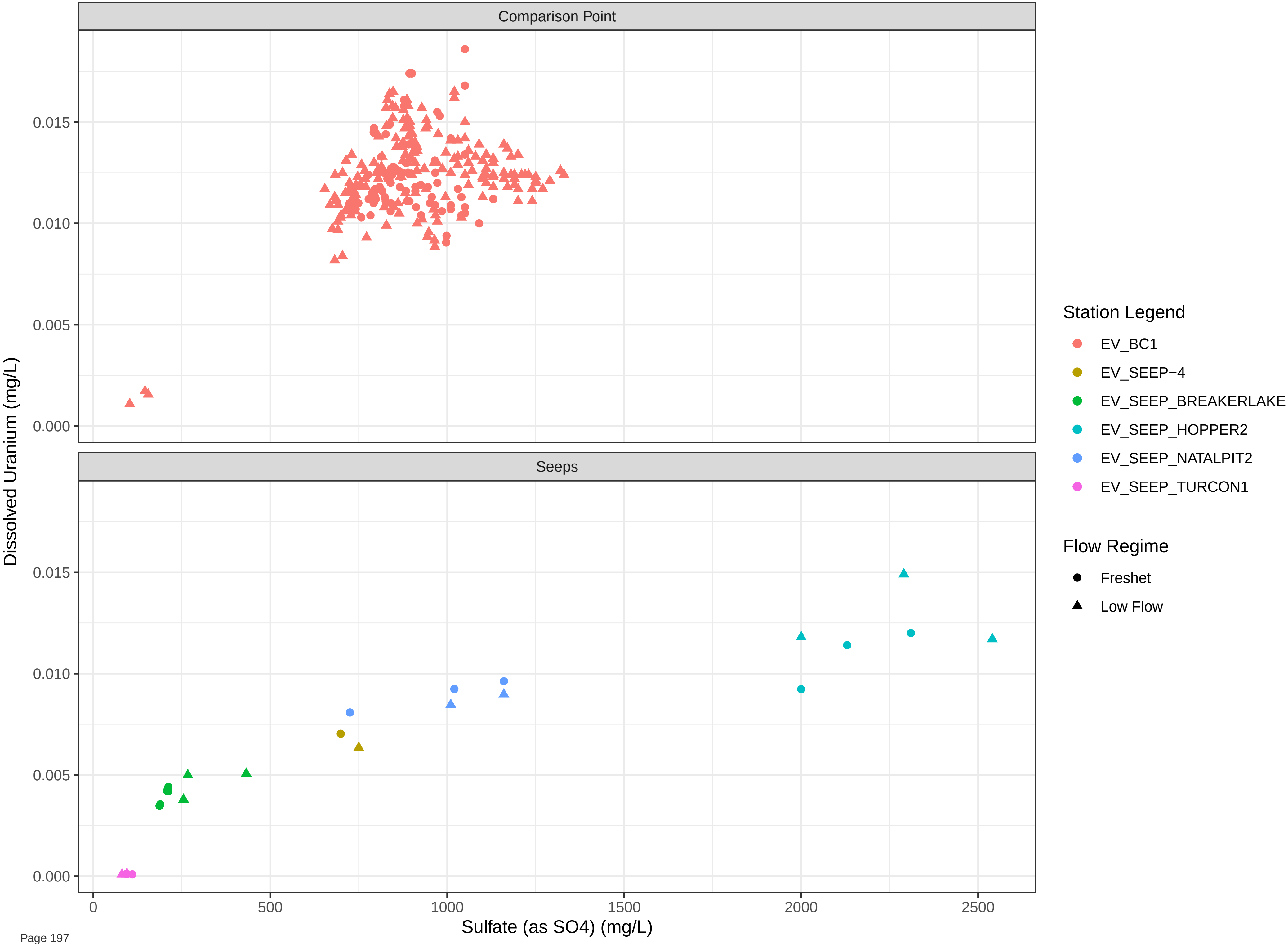

Comparison Point
Seeps
Dissolved Titanium (mg/L)
0.020
0.016
0.012
0.020
0.016
0.012
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
EV_GC2
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_WLAGC
Flow Regime
Freshet
Low Flow

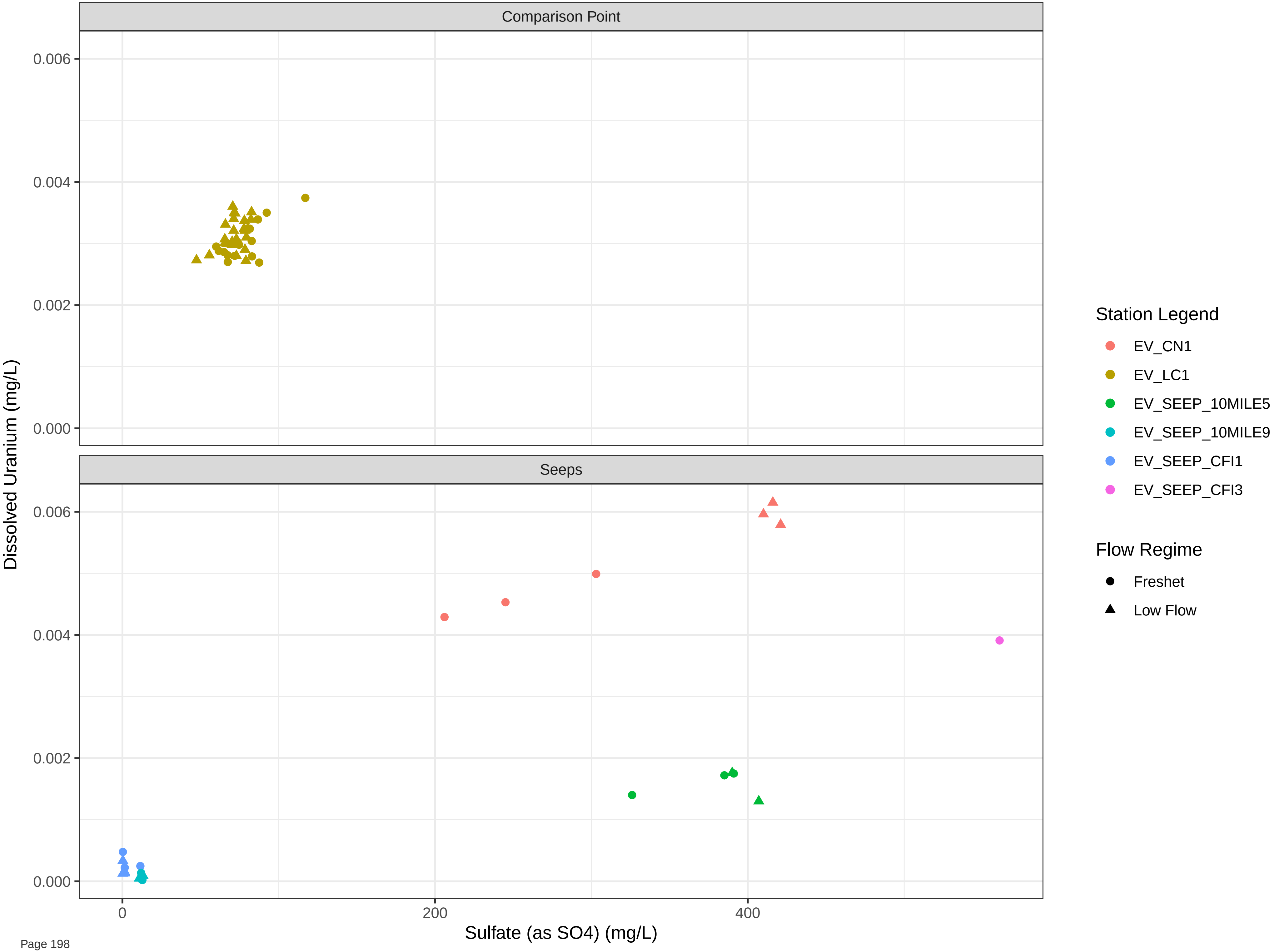

Comparison Point
Seeps
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

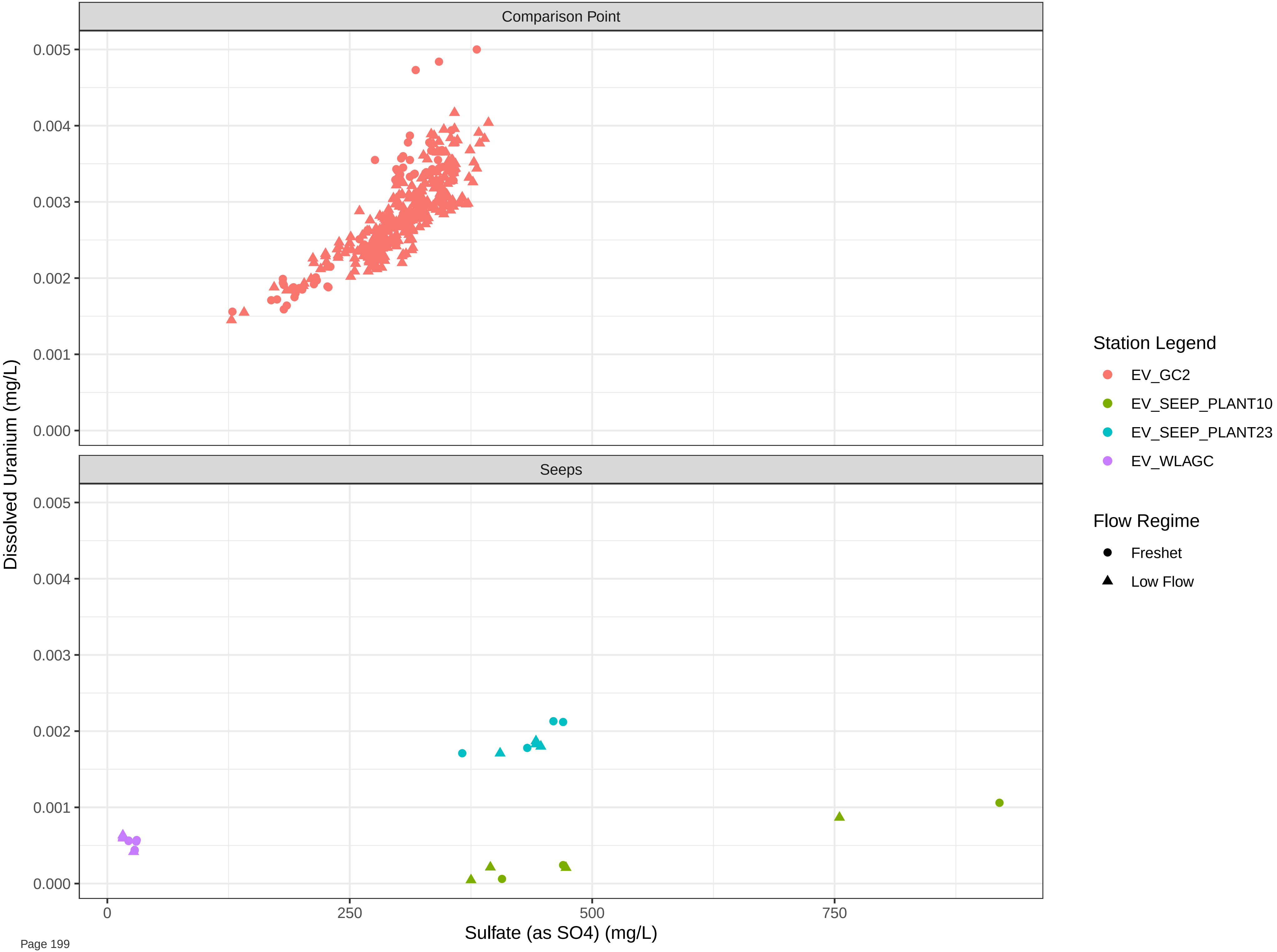

Comparison Point
Seeps
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Sulfate (as SO4) (mg/L)
0
50
100
150
200
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

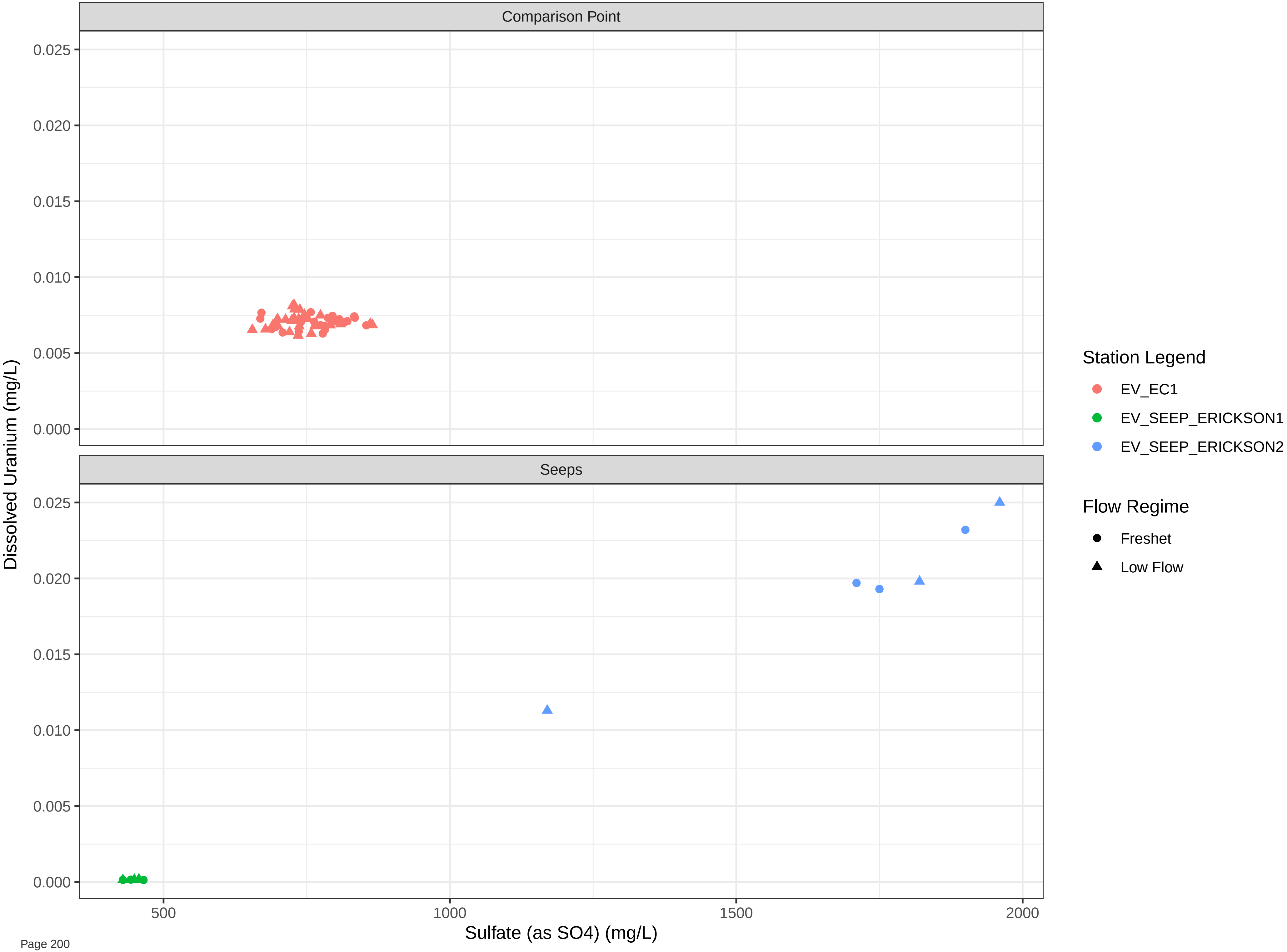

Comparison Point
Seeps
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
0
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

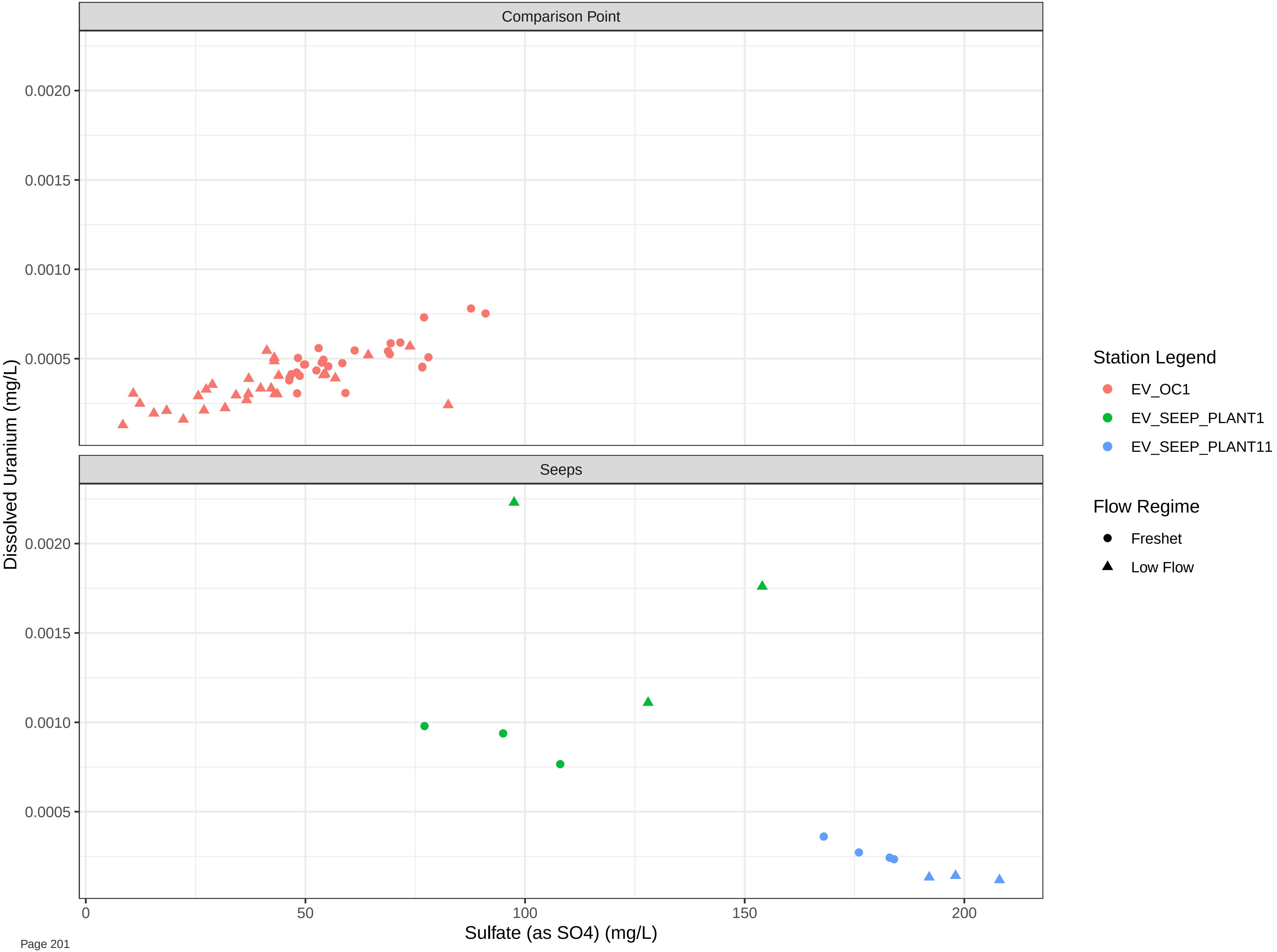

Comparison Point
Seeps
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
EV_SP1
Flow Regime
Freshet
Low Flow

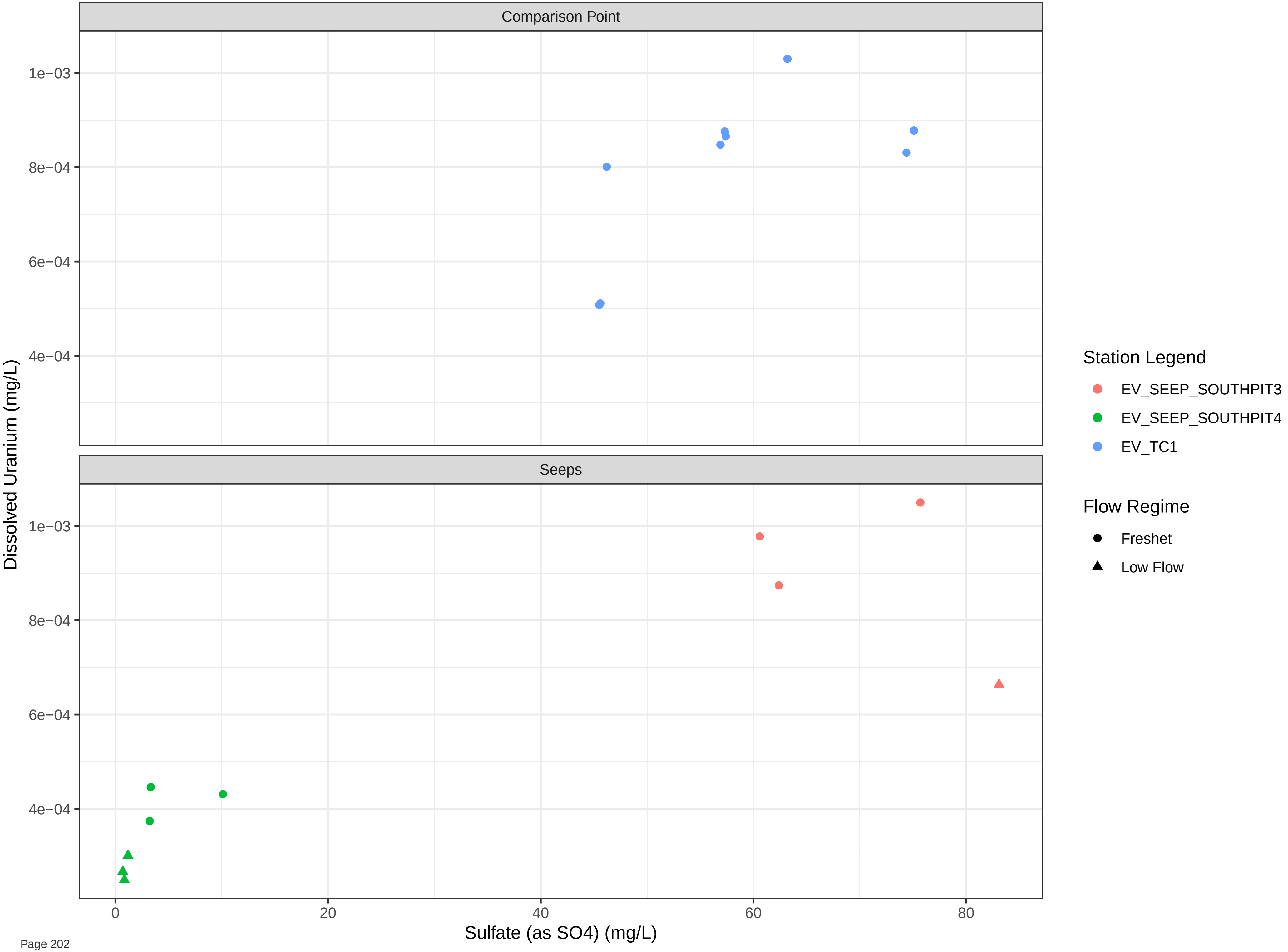

Comparison Point
Seeps
Dissolved Uranium (mg/L)
0.000
0.005
0.010
0.015
0
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

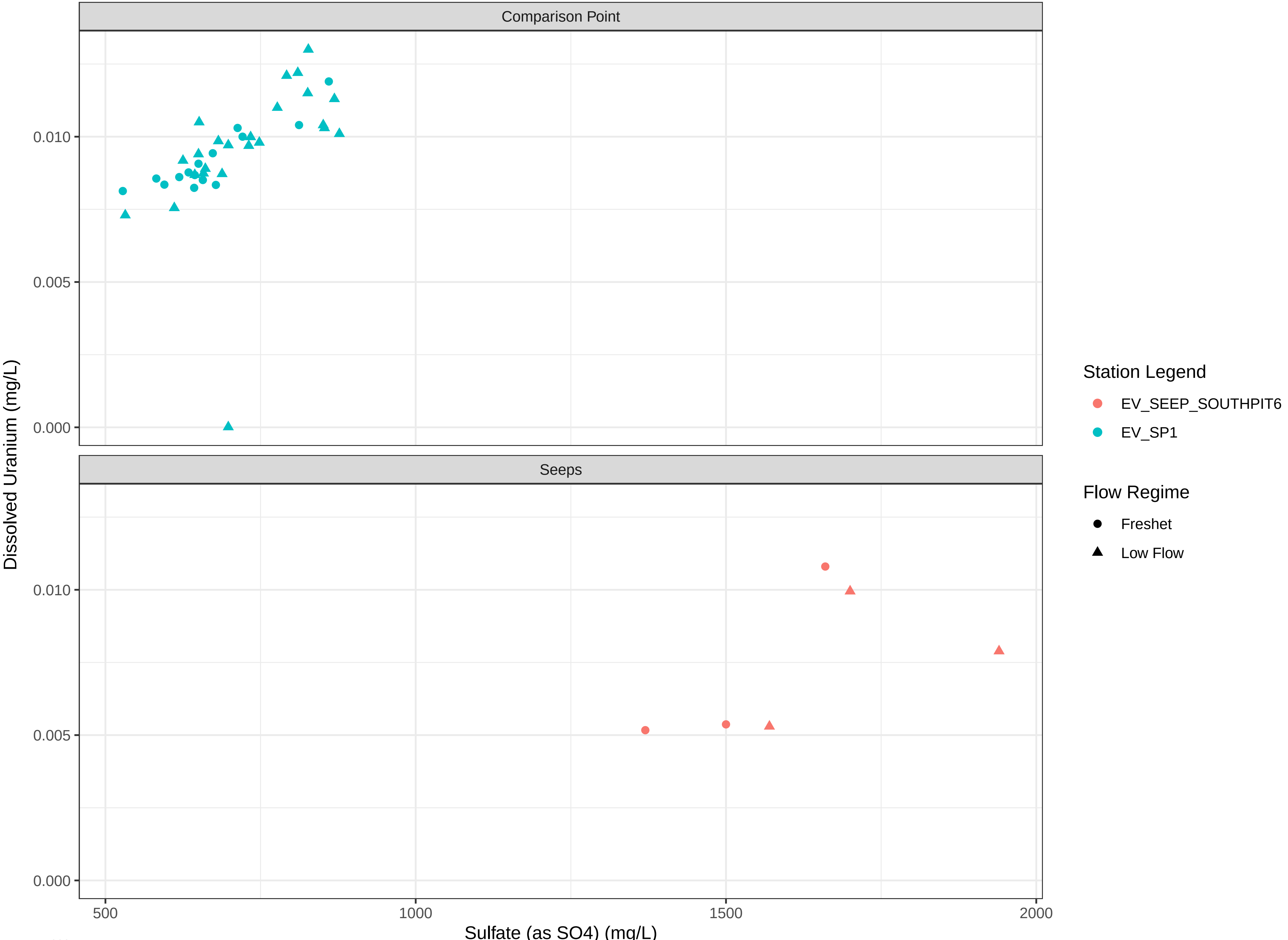

Comparison Point
Seeps
Dissolved Uranium (mg/L)
0.000
0.002
0.004
0.006
0
200
400
Sulfate (as SO4) (mg/L)
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

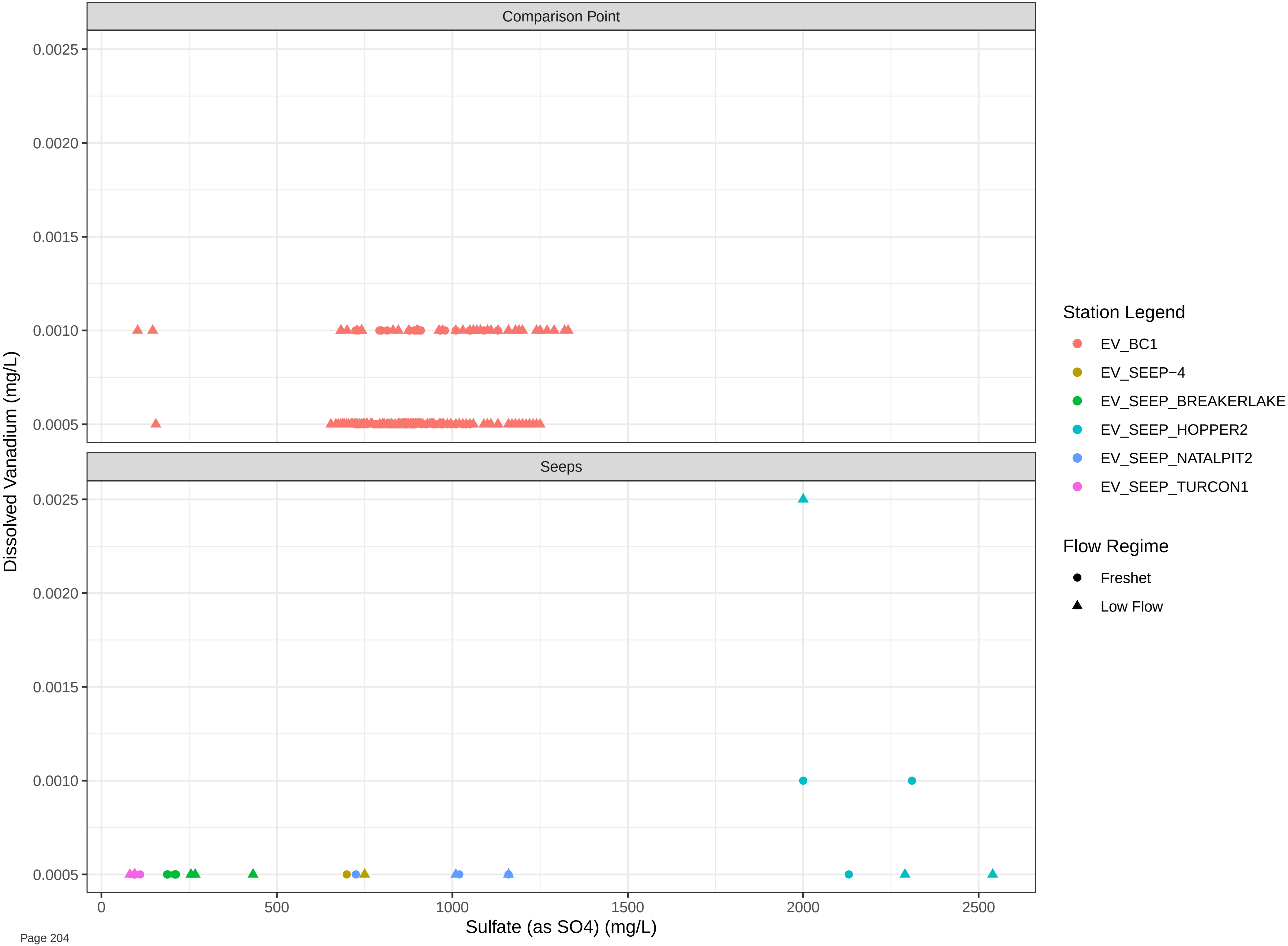

Comparison Point
Seeps
Dissolved Uranium (mg/L)
0.000
0.001
0.002
0.003
0.004
0.005
Sulfate (as SO4) (mg/L)
0
250
500
750
Station Legend
● EV_GC2
● EV_SEEP_PLANT10
● EV_SEEP_PLANT23
● EV_WLAGC
Flow Regime
● Freshet
▲ Low Flow


Comparison Point
Seeps
Dissolved Uranium (mg/L)
0.025
0.020
0.015
0.010
0.005
0.000
0.025
0.020
0.015
0.010
0.005
0.000
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
● EV_EC1
● EV_SEEP_ERICKSON1
● EV_SEEP_ERICKSON2
Flow Regime
● Freshet
▲ Low Flow


Comparison Point
Seeps
0.0020
0.0015
0.0010
0.0005
Dissolved Uranium (mg/L)
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

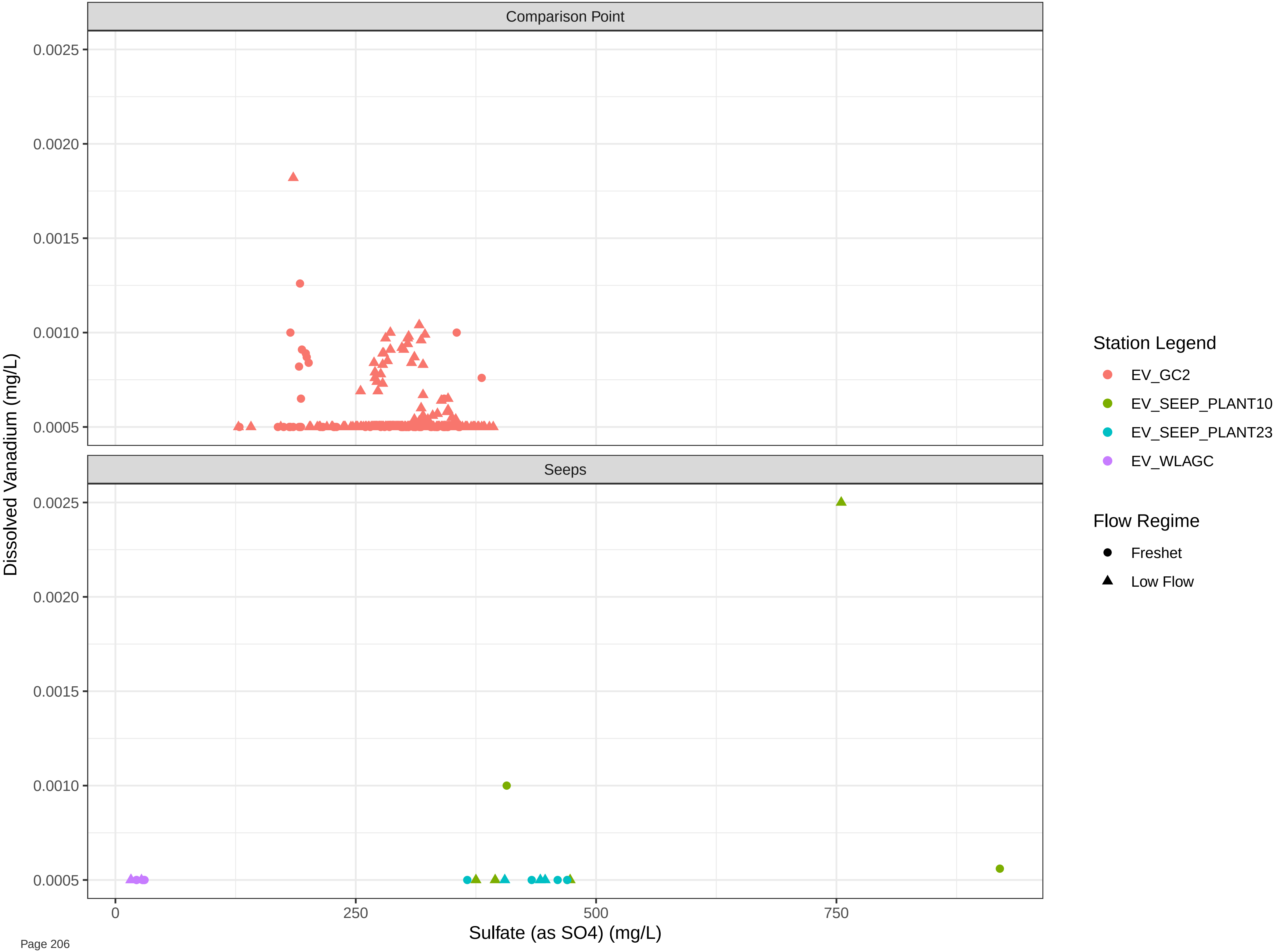

Comparison Point
Seeps
1e−03
8e−04
6e−04
4e−04
0
20
40
60
80
Dissolved Uranium (mg/L)
Sulfate (as SO4) (mg/L)
Station Legend
● EV_SEEP_SOUTHPIT3
● EV_SEEP_SOUTHPIT4
● EV_TC1
Flow Regime
● Freshet
▲ Low Flow

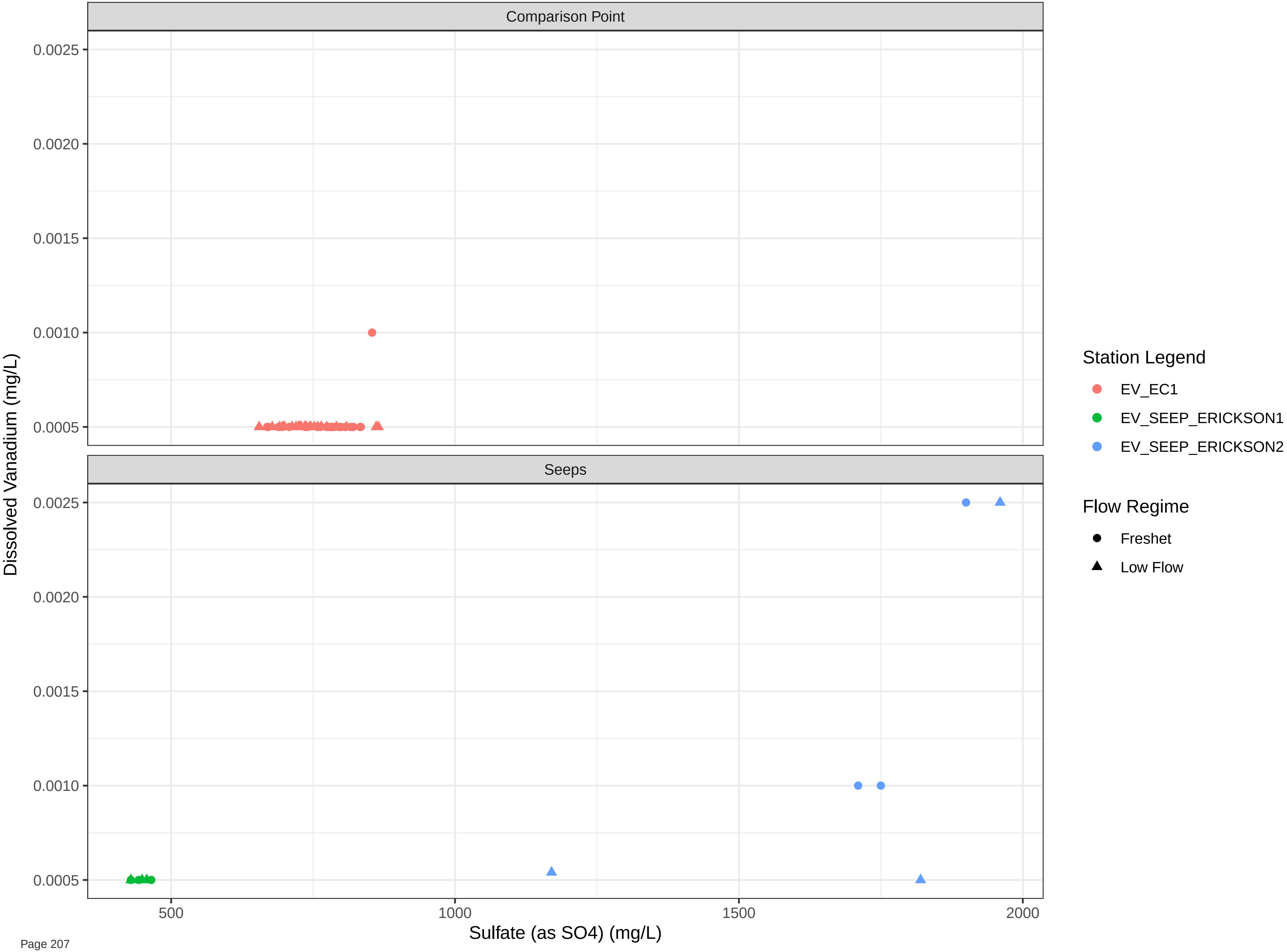

Comparison Point
Seeps
Dissolved Uranium (mg/L)
0.010
0.005
0.000
0.010
0.005
0.000
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
EV_SP1
Flow Regime
Freshet
Low Flow

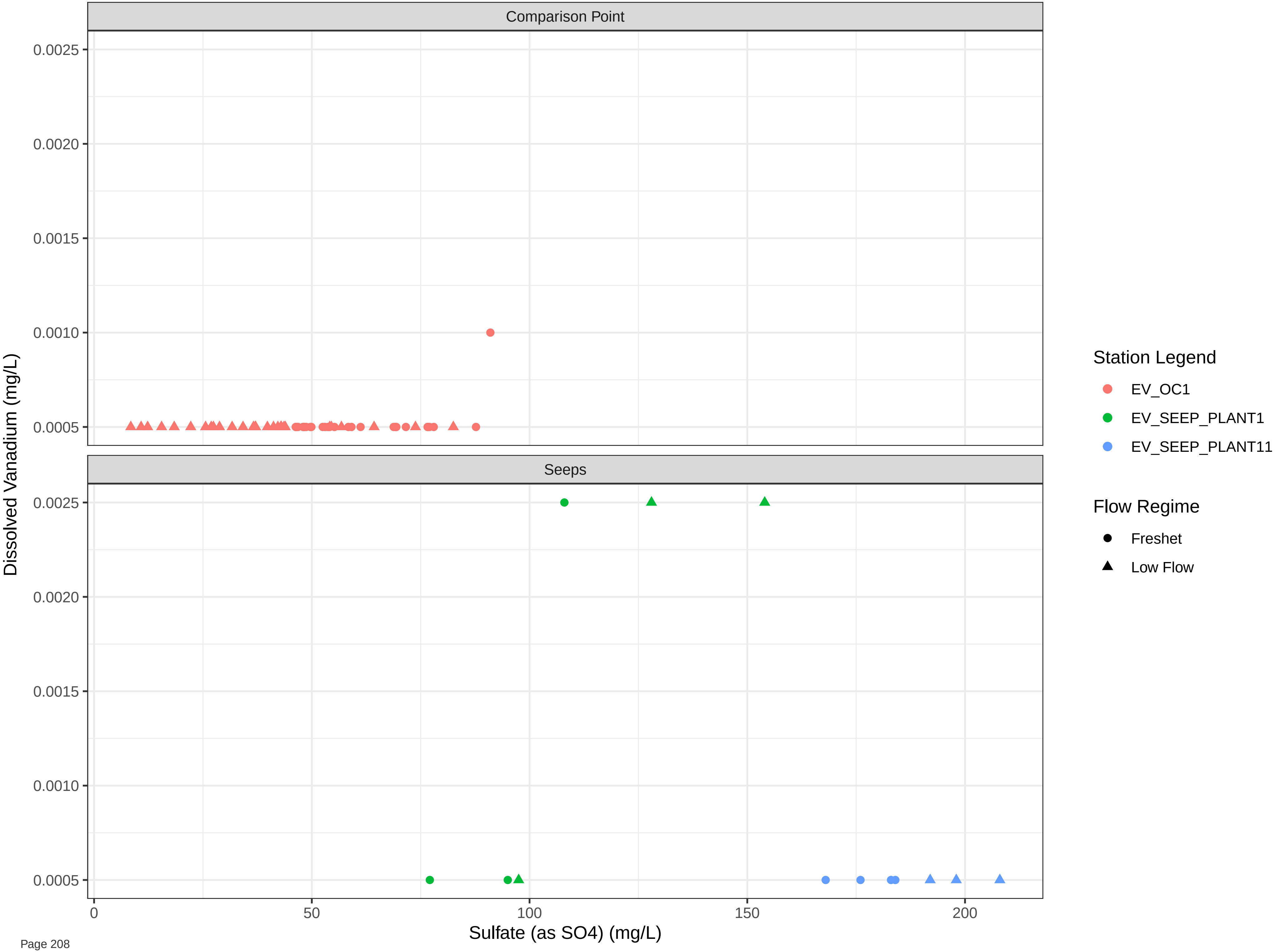


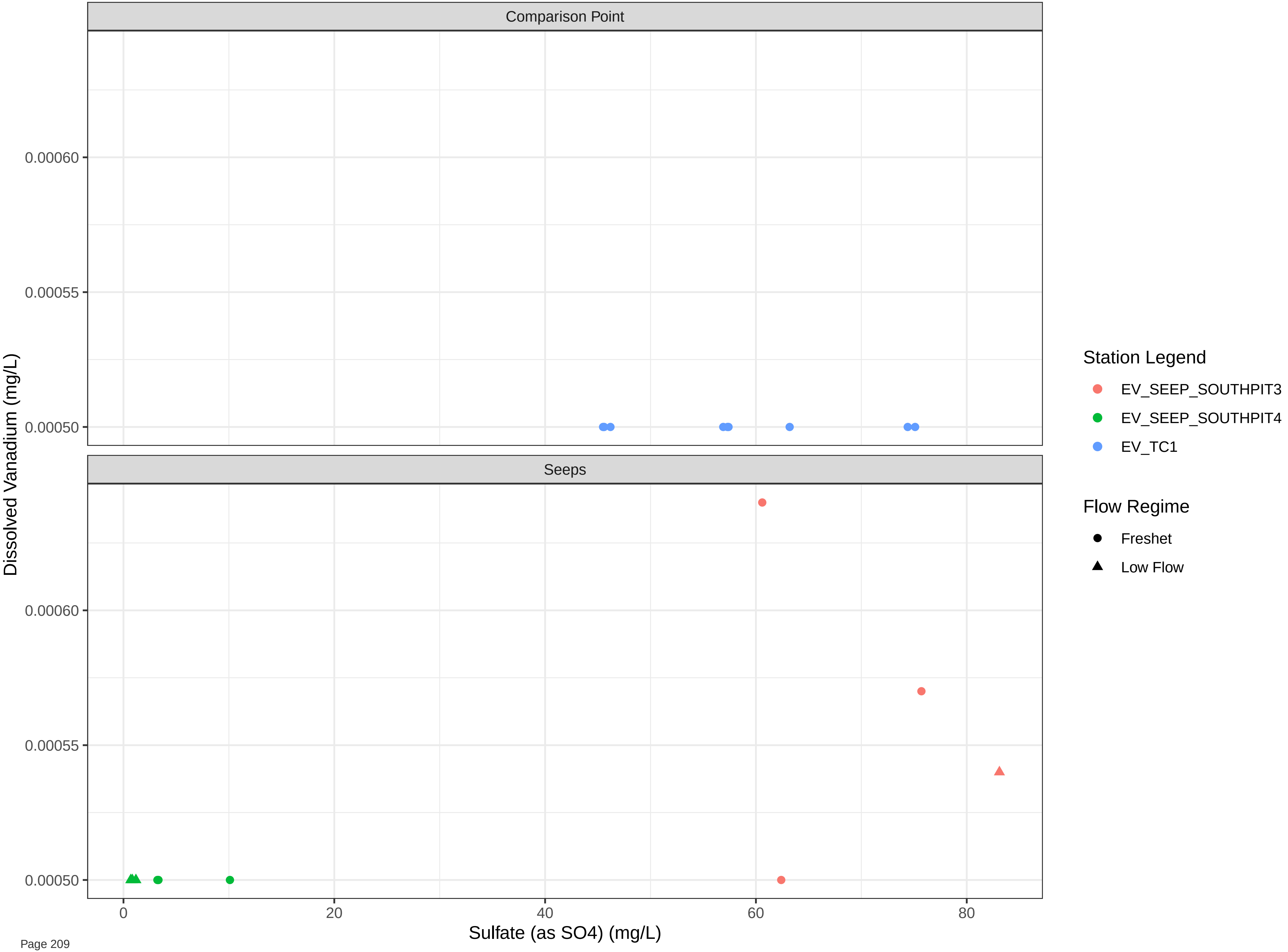
Comparison Point
Seeps
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
0
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

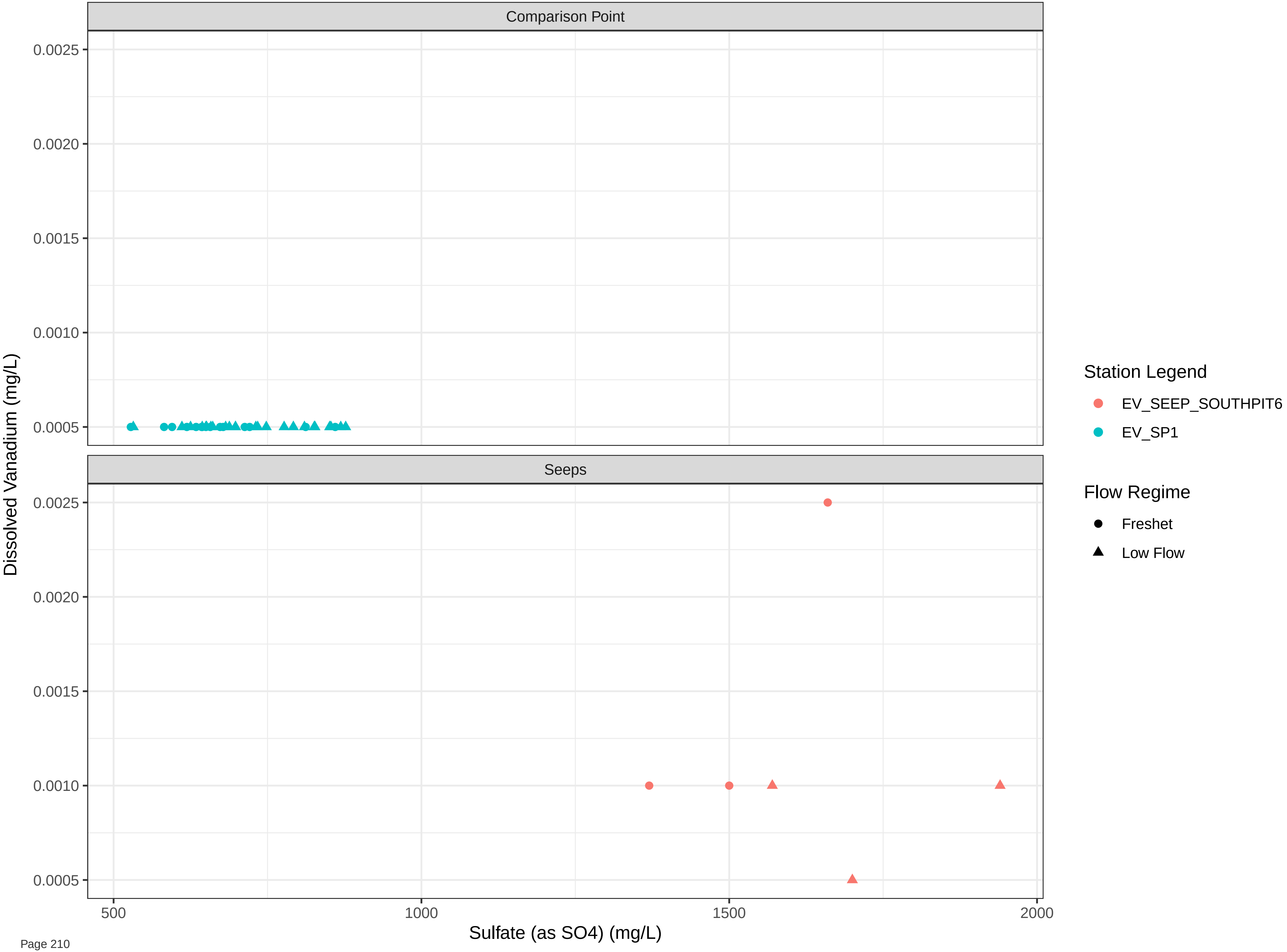

Comparison Point
Seeps
Dissolved Vanadium (mg/L)
1e−03
9e−04
8e−04
7e−04
6e−04
5e−04
0
200
400
Sulfate (as SO4) (mg/L)
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

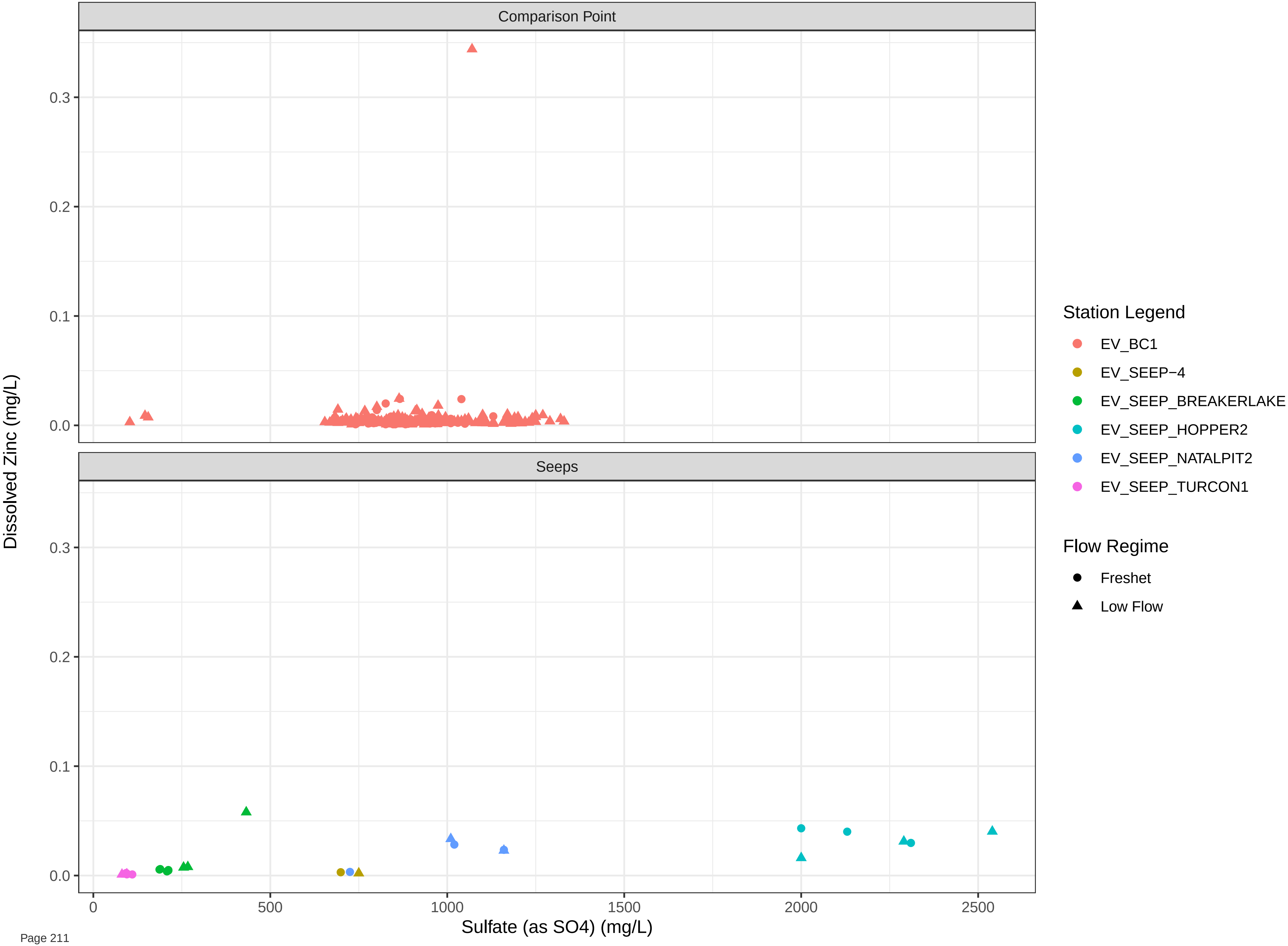

Comparison Point
Seeps
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
EV_GC2
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_WLAGC
Flow Regime
Freshet
Low Flow

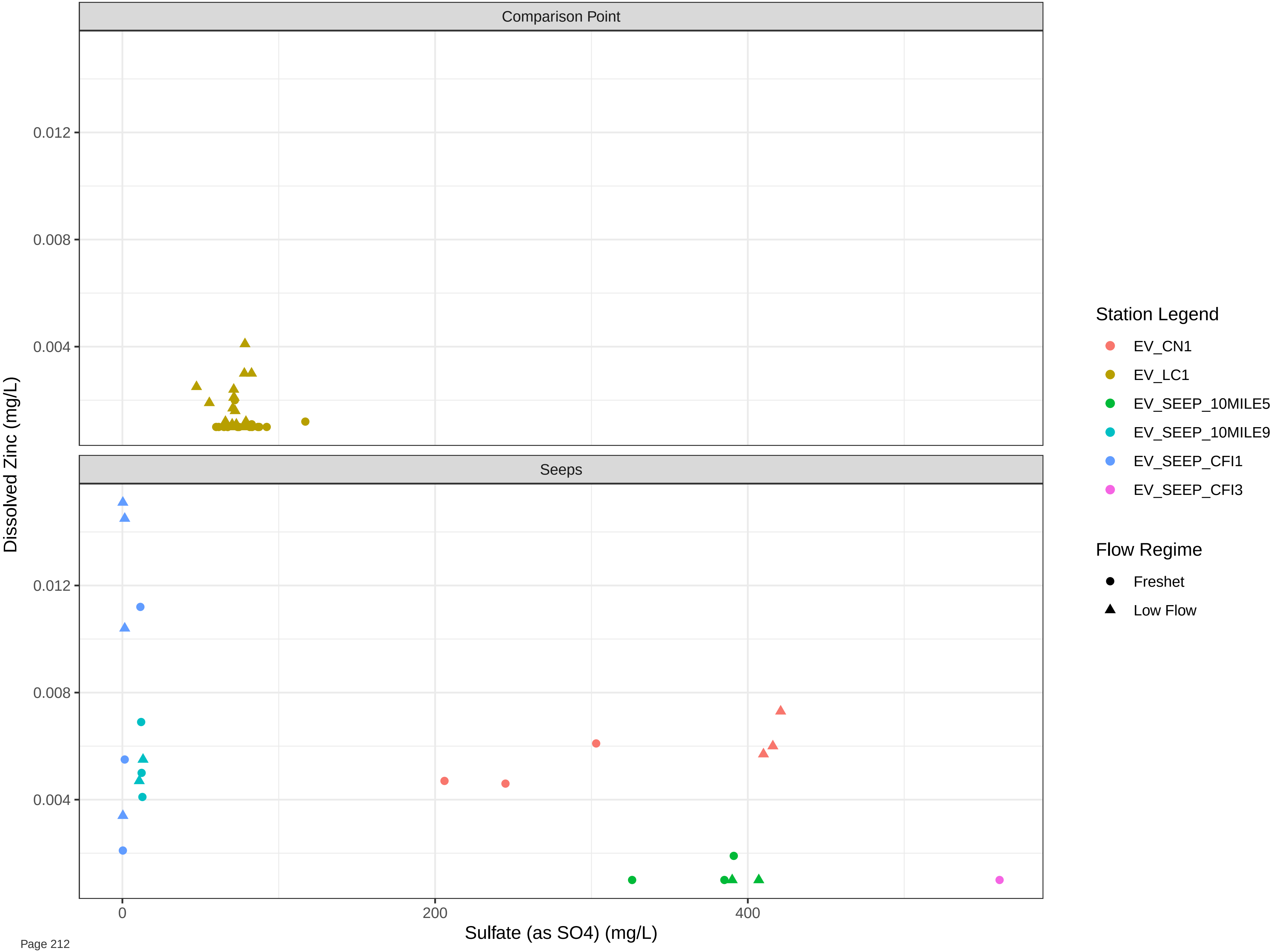

Comparison Point
Seeps
Dissolved Vanadium (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0005
0.0025
0.0020
0.0015
0.0010
0.0005
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

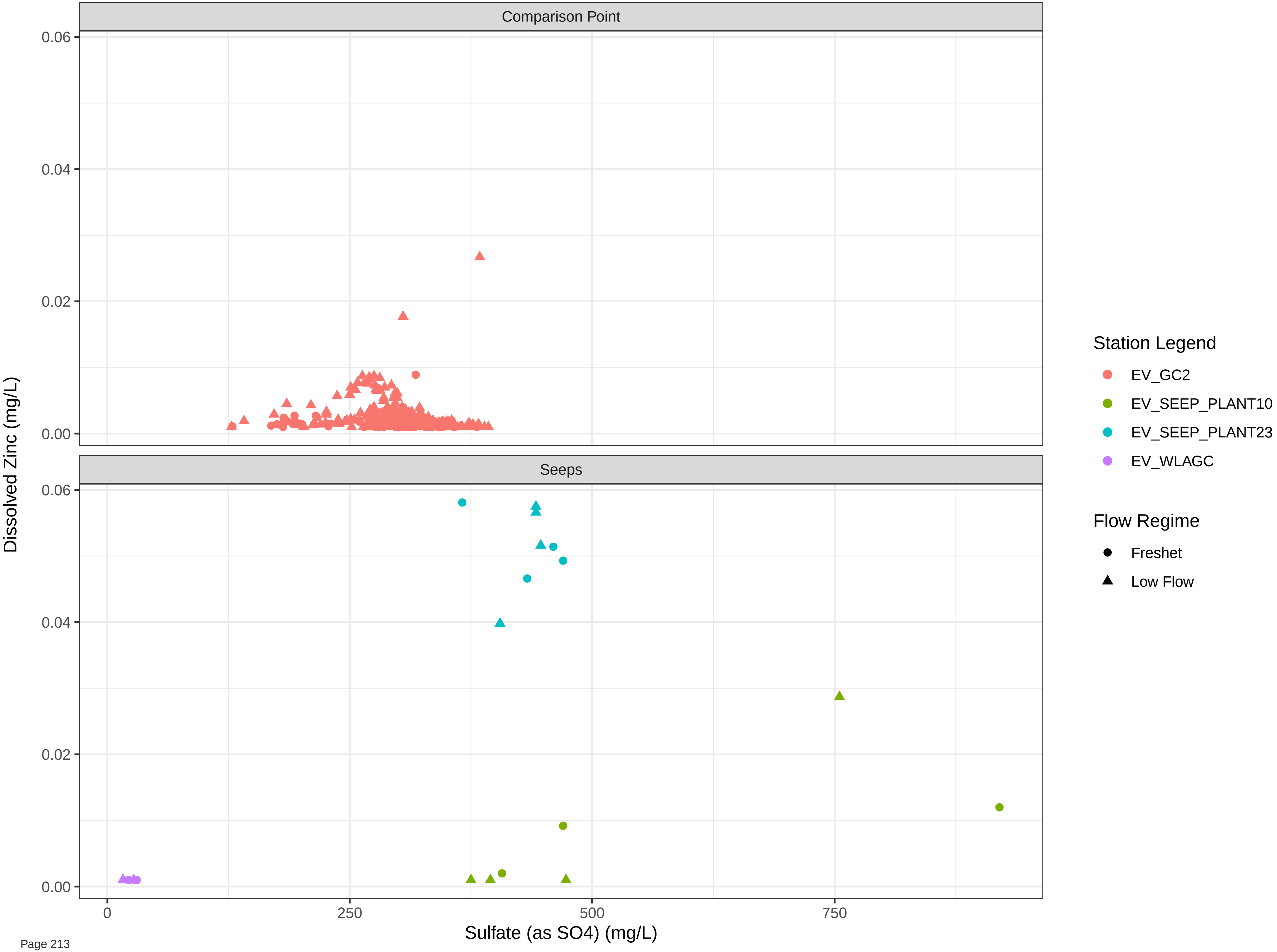

Comparison Point
Seeps
0.0025
0.0020
0.0015
0.0010
0.0005
Dissolved Vanadium (mg/L)
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
Dissolved Vanadium (mg/L)
0.00060
0.00055
0.00050
0.00060
0.00055
0.00050
0
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

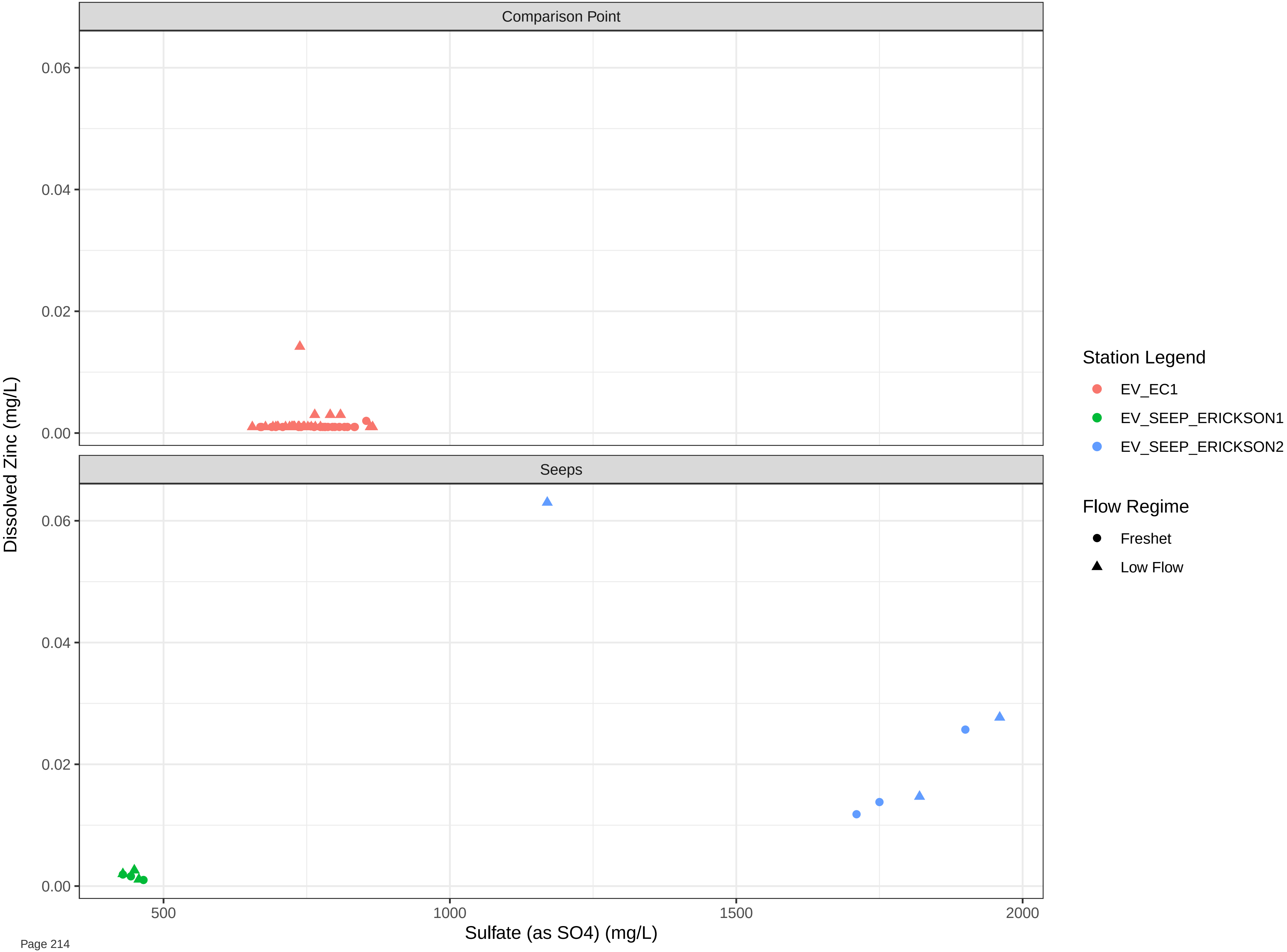

Comparison Point
Seeps
0.0025
0.0020
0.0015
0.0010
0.0005
Dissolved Vanadium (mg/L)
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT6
EV_SP1
Flow Regime
Freshet
Low Flow

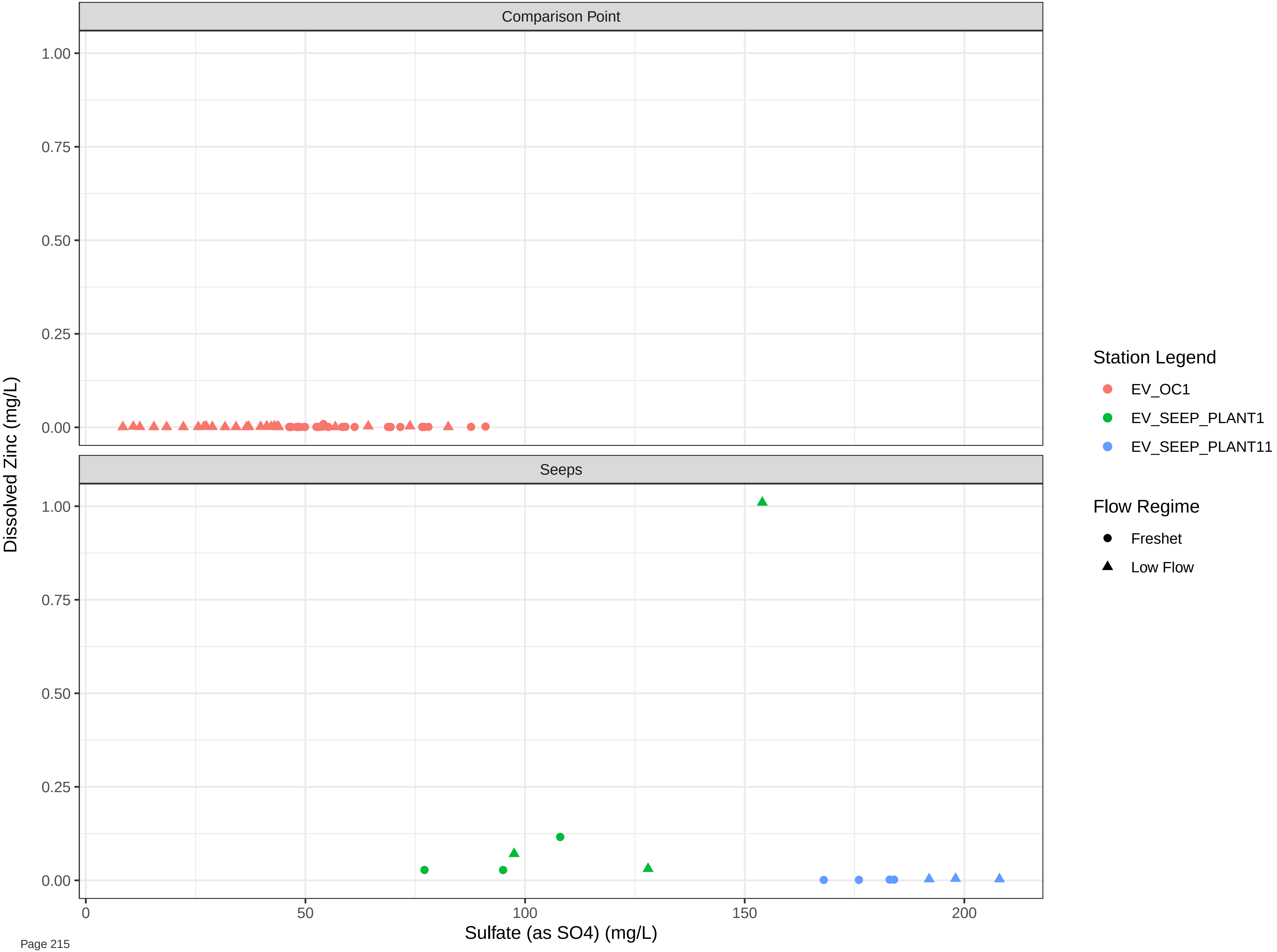

Comparison Point
Seeps
Dissolved Zinc (mg/L)
0.0
0.1
0.2
0.3
0
500
1000
1500
2000
2500
Sulfate (as SO4) (mg/L)
Station Legend
EV_BC1
EV_SEEP−4
EV_SEEP_BREAKERLAKE
EV_SEEP_HOPPER2
EV_SEEP_NATALPIT2
EV_SEEP_TURCON1
Flow Regime
Freshet
Low Flow

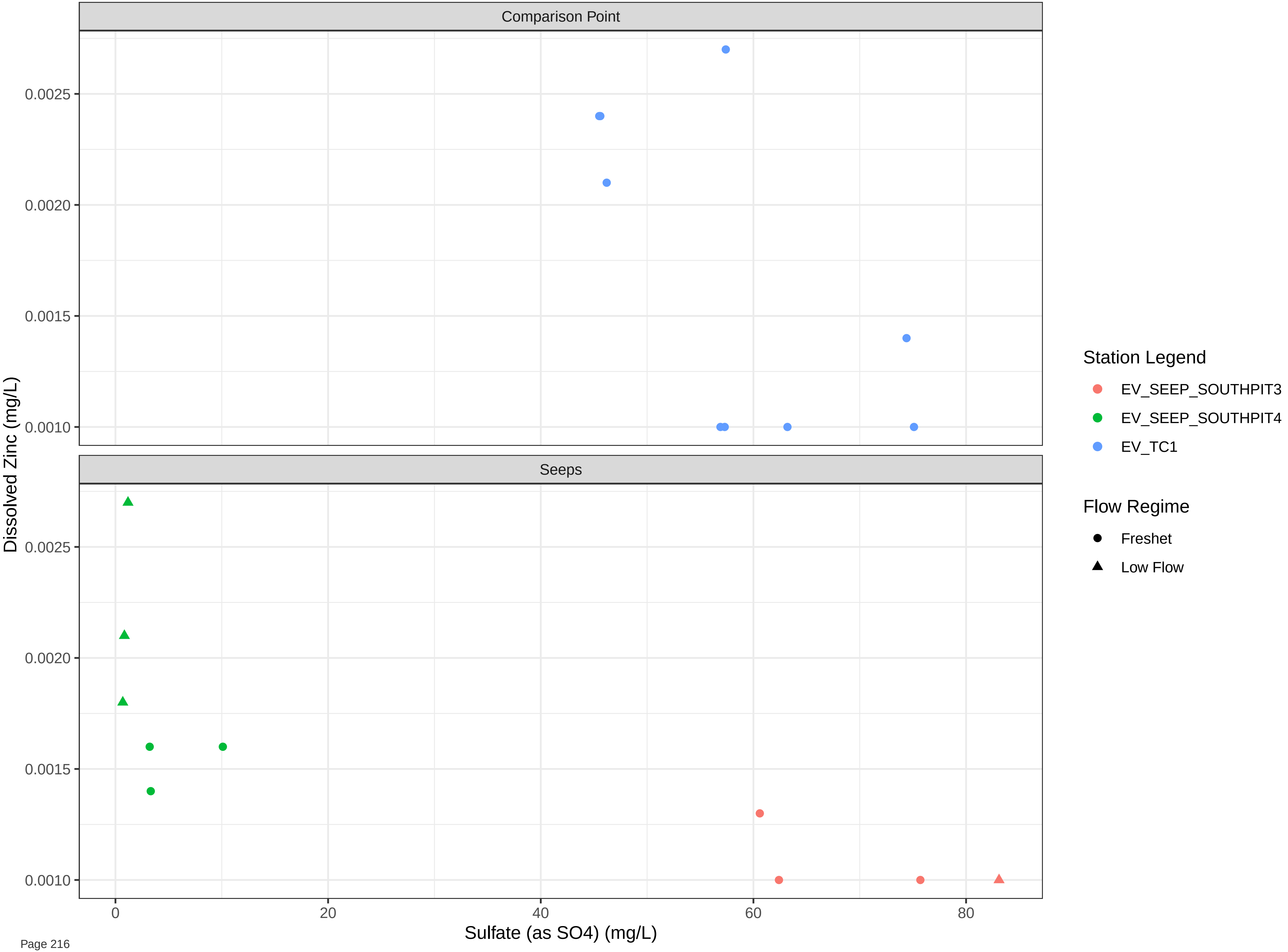

Comparison Point
Seeps
Dissolved Zinc (mg/L)
0.012
0.008
0.004
0.012
0.008
0.004
0
200
400
Sulfate (as SO4) (mg/L)
Station Legend
EV_CN1
EV_LC1
EV_SEEP_10MILE5
EV_SEEP_10MILE9
EV_SEEP_CFI1
EV_SEEP_CFI3
Flow Regime
Freshet
Low Flow

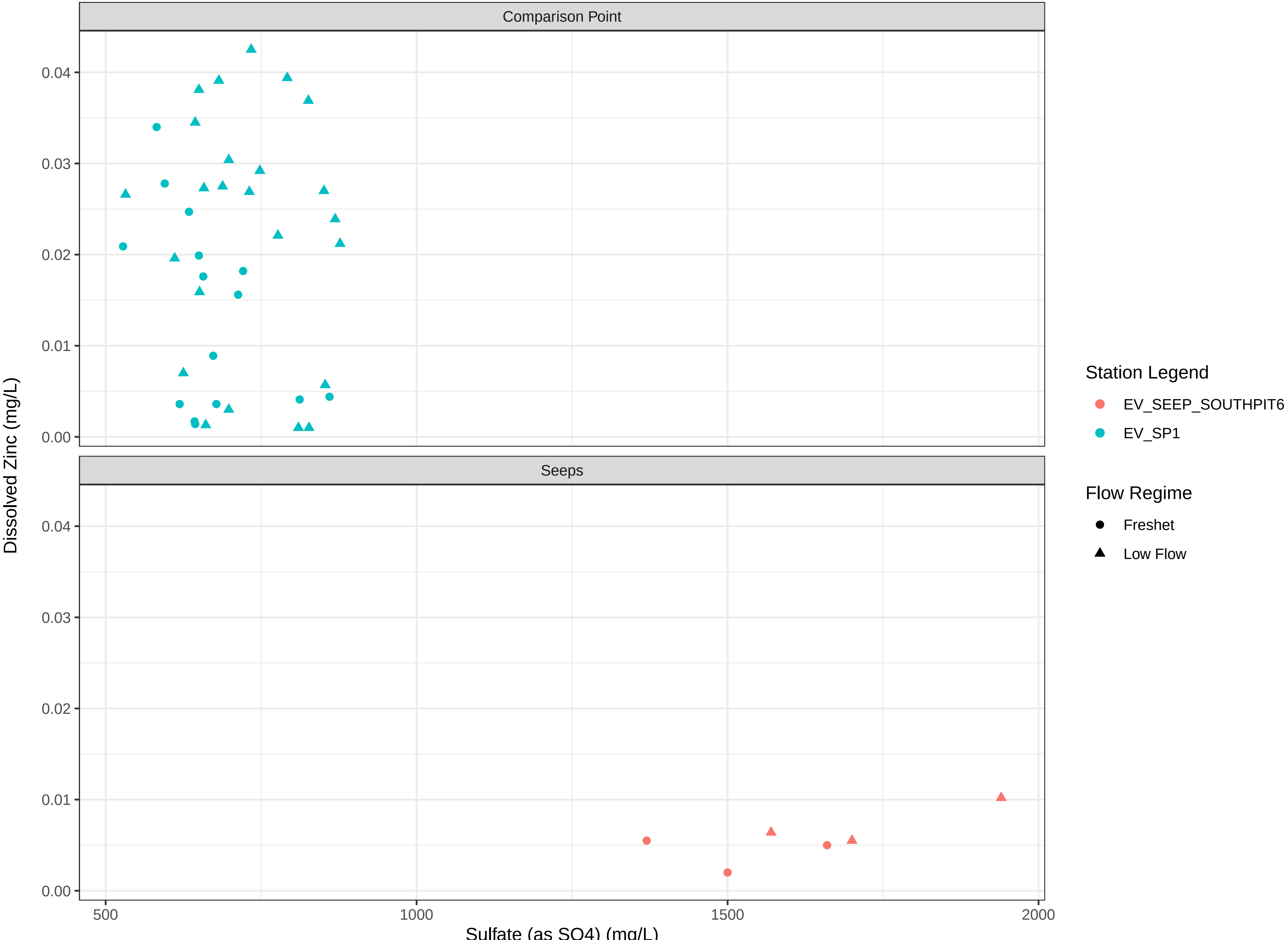


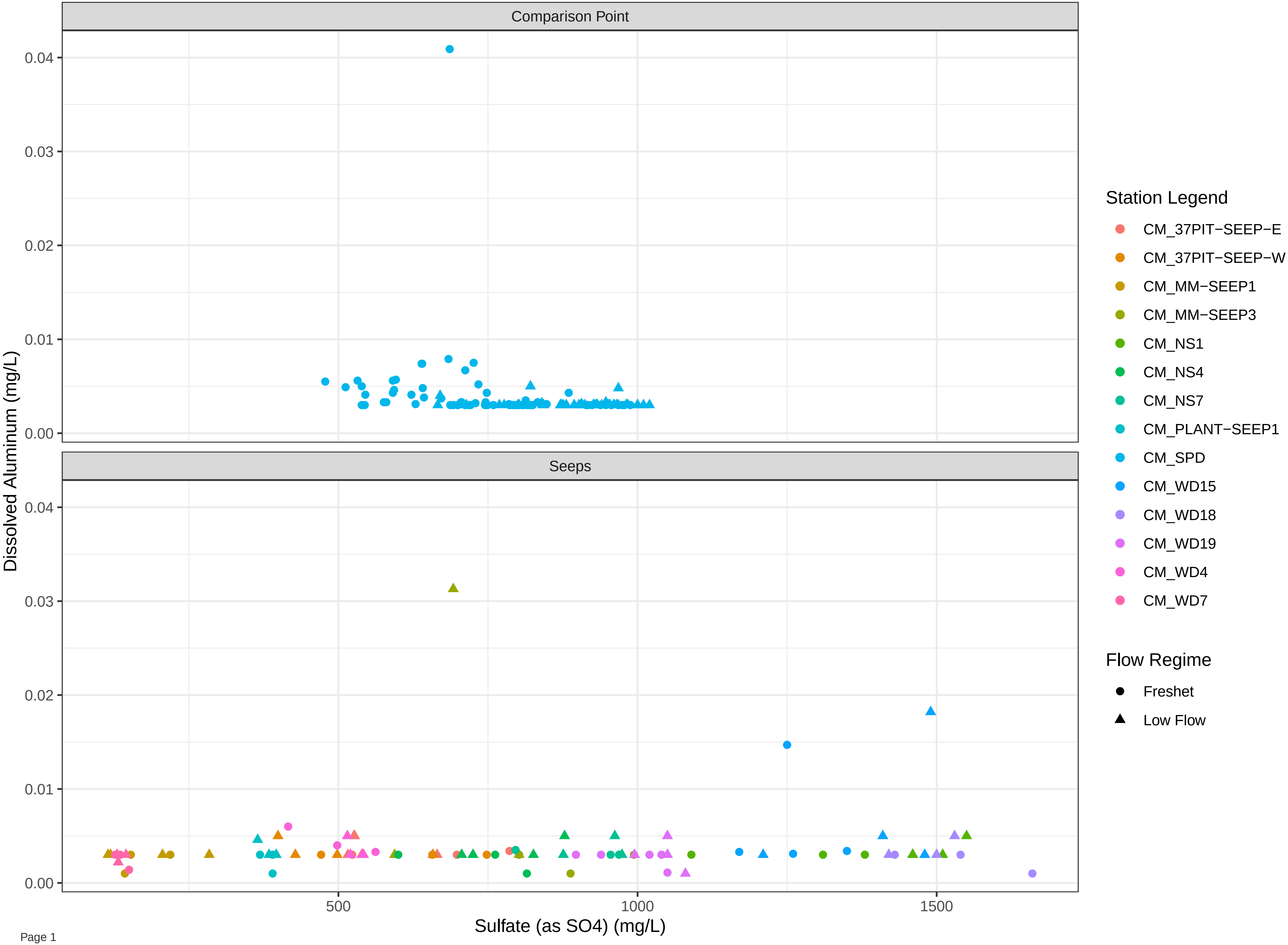
Comparison Point
Seeps
0.06
0.04
0.02
0.00
Dissolved Zinc (mg/L)
0
250
500
750
Sulfate (as SO4) (mg/L)
Station Legend
EV_GC2
EV_SEEP_PLANT10
EV_SEEP_PLANT23
EV_WLAGC
Flow Regime
Freshet
Low Flow

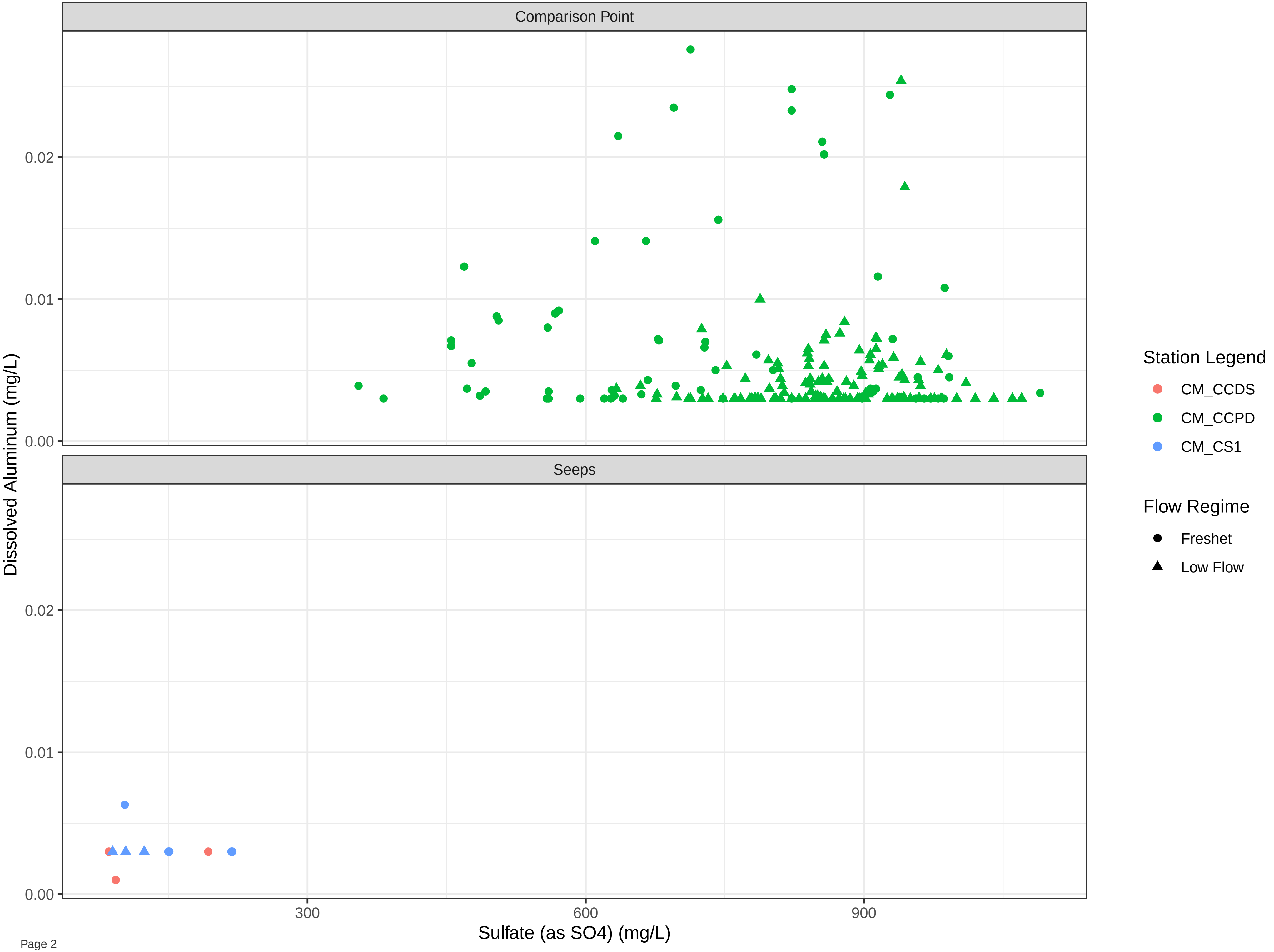

Comparison Point
Seeps
Dissolved Zinc (mg/L)
0.06
0.04
0.02
0.00
0.06
0.04
0.02
0.00
500
1000
1500
2000
Sulfate (as SO4) (mg/L)
Station Legend
EV_EC1
EV_SEEP_ERICKSON1
EV_SEEP_ERICKSON2
Flow Regime
Freshet
Low Flow

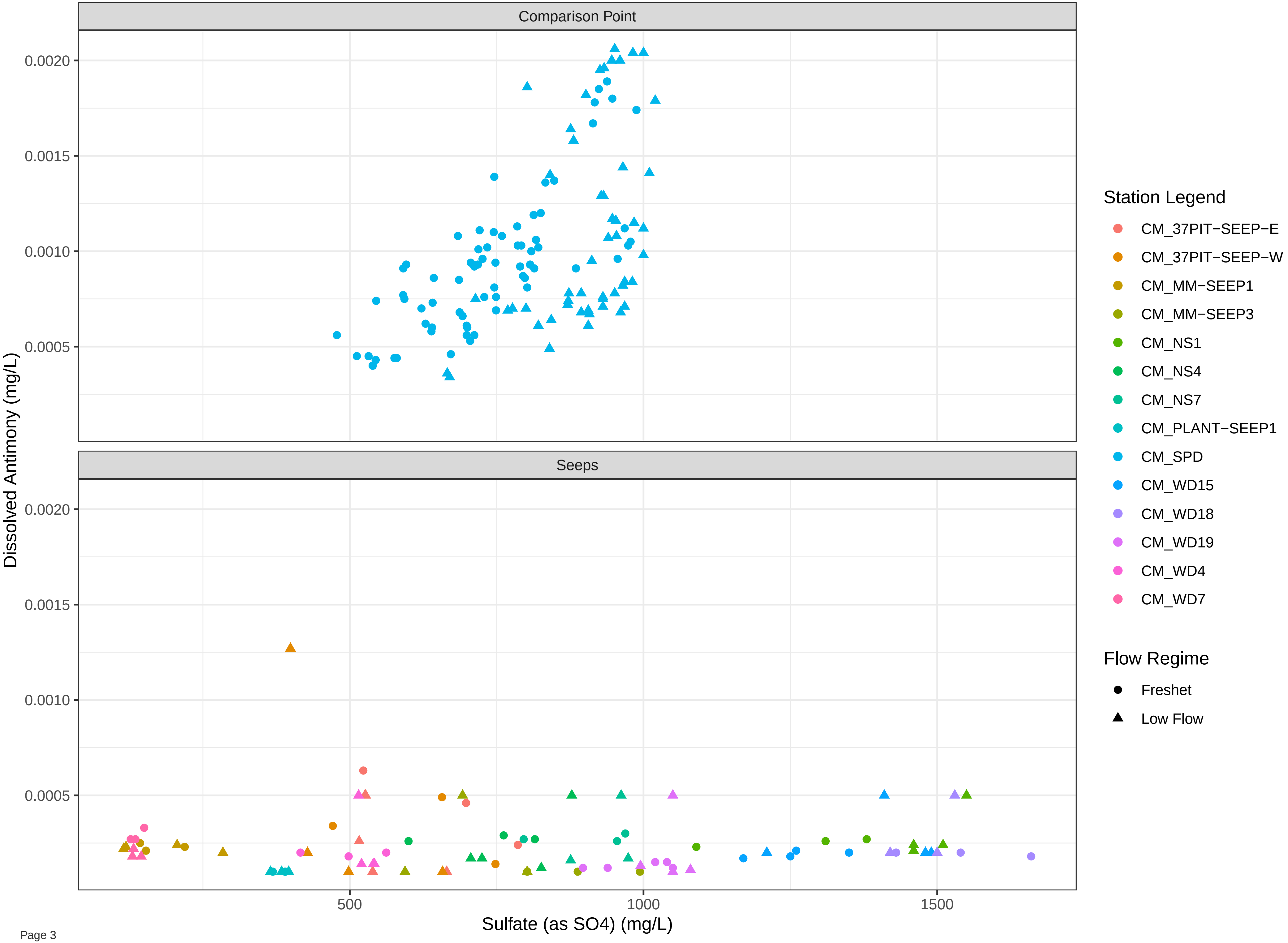

Comparison Point
Seeps
Dissolved Zinc (mg/L)
1.00
0.75
0.50
0.25
0.00
0
50
100
150
200
Sulfate (as SO4) (mg/L)
Station Legend
EV_OC1
EV_SEEP_PLANT1
EV_SEEP_PLANT11
Flow Regime
Freshet
Low Flow

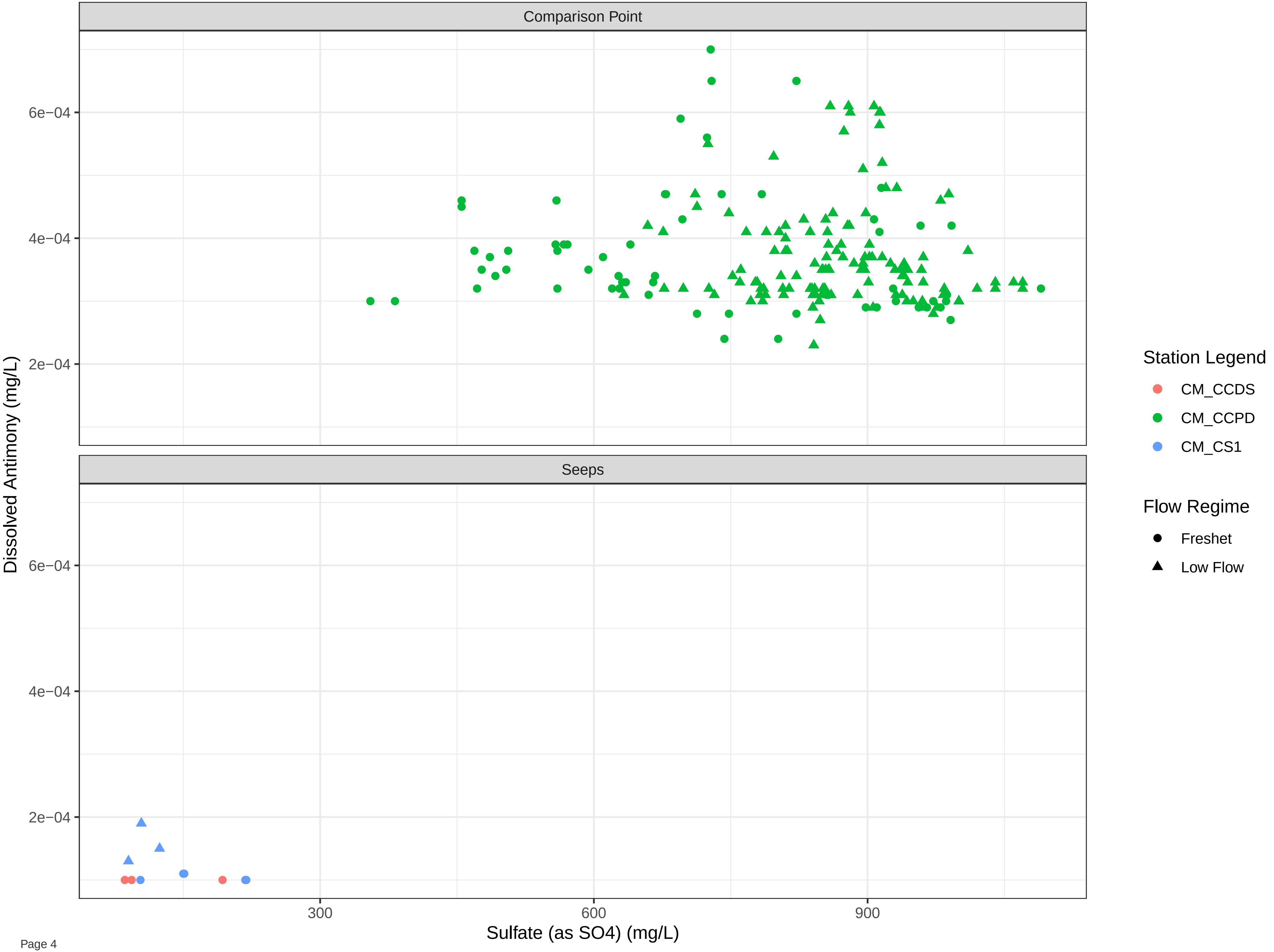

Comparison Point
Seeps
Dissolved Zinc (mg/L)
0.0025
0.0020
0.0015
0.0010
0.0025
0.0020
0.0015
0.0010
0
20
40
60
80
Sulfate (as SO4) (mg/L)
Station Legend
EV_SEEP_SOUTHPIT3
EV_SEEP_SOUTHPIT4
EV_TC1
Flow Regime
Freshet
Low Flow

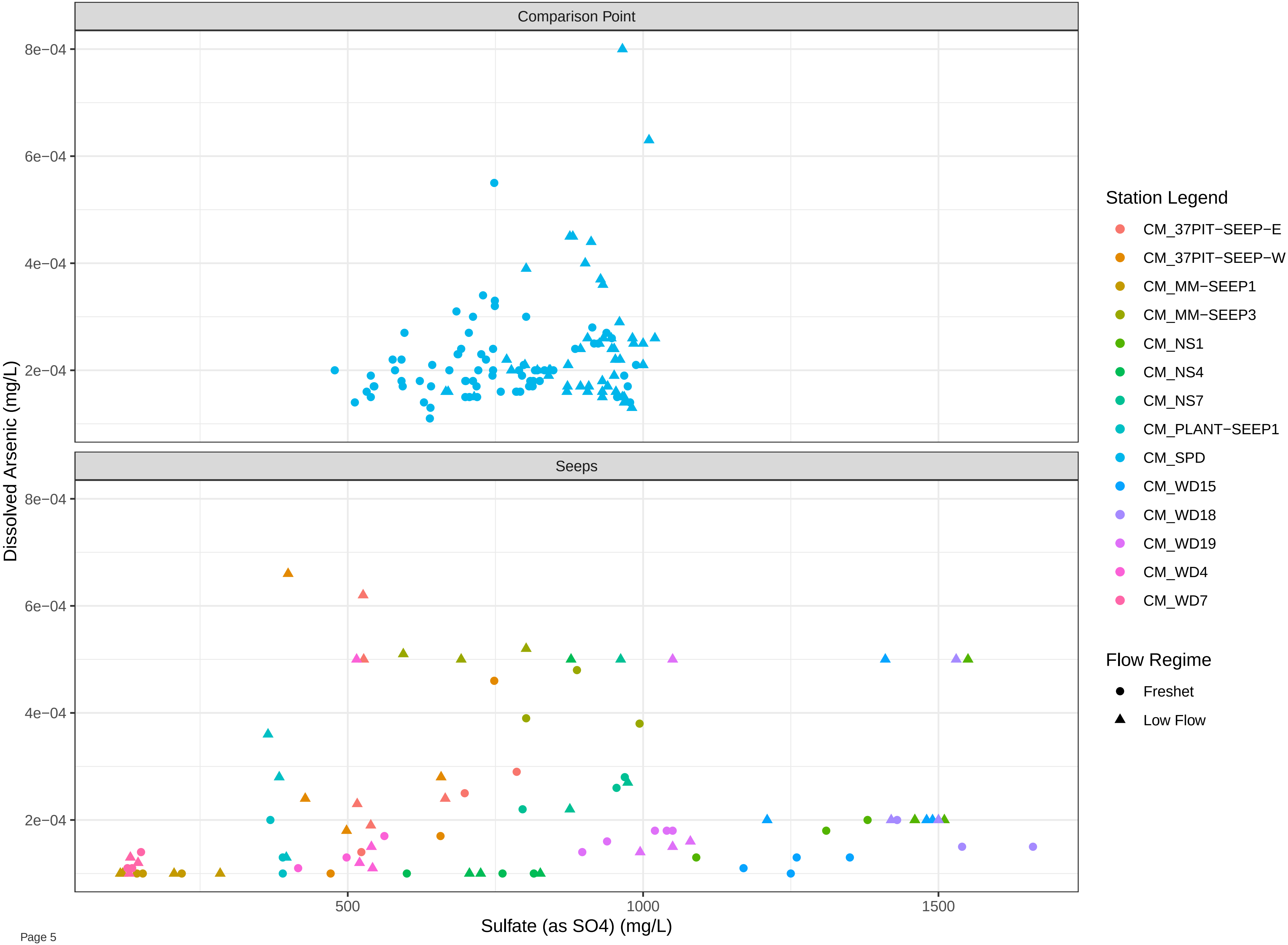

Comparison Point
Seeps
Dissolved Zinc (mg/L)
0.00
0.01
0.02
0.03
0.04
Sulfate (as SO4) (mg/L)
500
1000
1500
2000
Station Legend
EV_SEEP_SOUTHPIT6
EV_SP1
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
Dissolved Aluminum (mg/L)
0.00
0.01
0.02
0.03
0.04
Sulfate (as SO4) (mg/L)
500
1000
1500
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

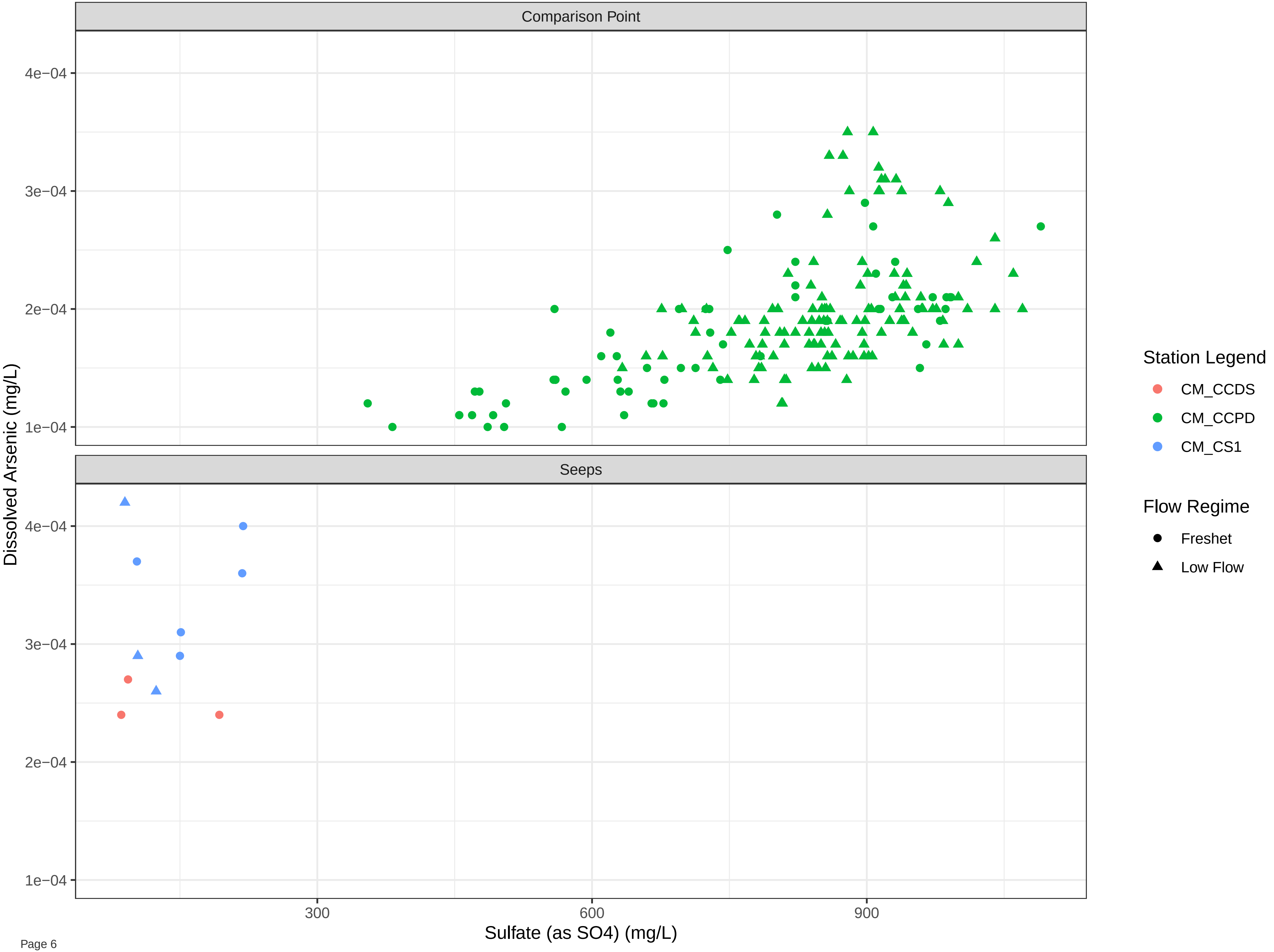

Comparison Point
Seeps
Dissolved Aluminum (mg/L)
0.00
0.01
0.02
0.00
0.01
0.02
300
600
900
Sulfate (as SO4) (mg/L)
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow

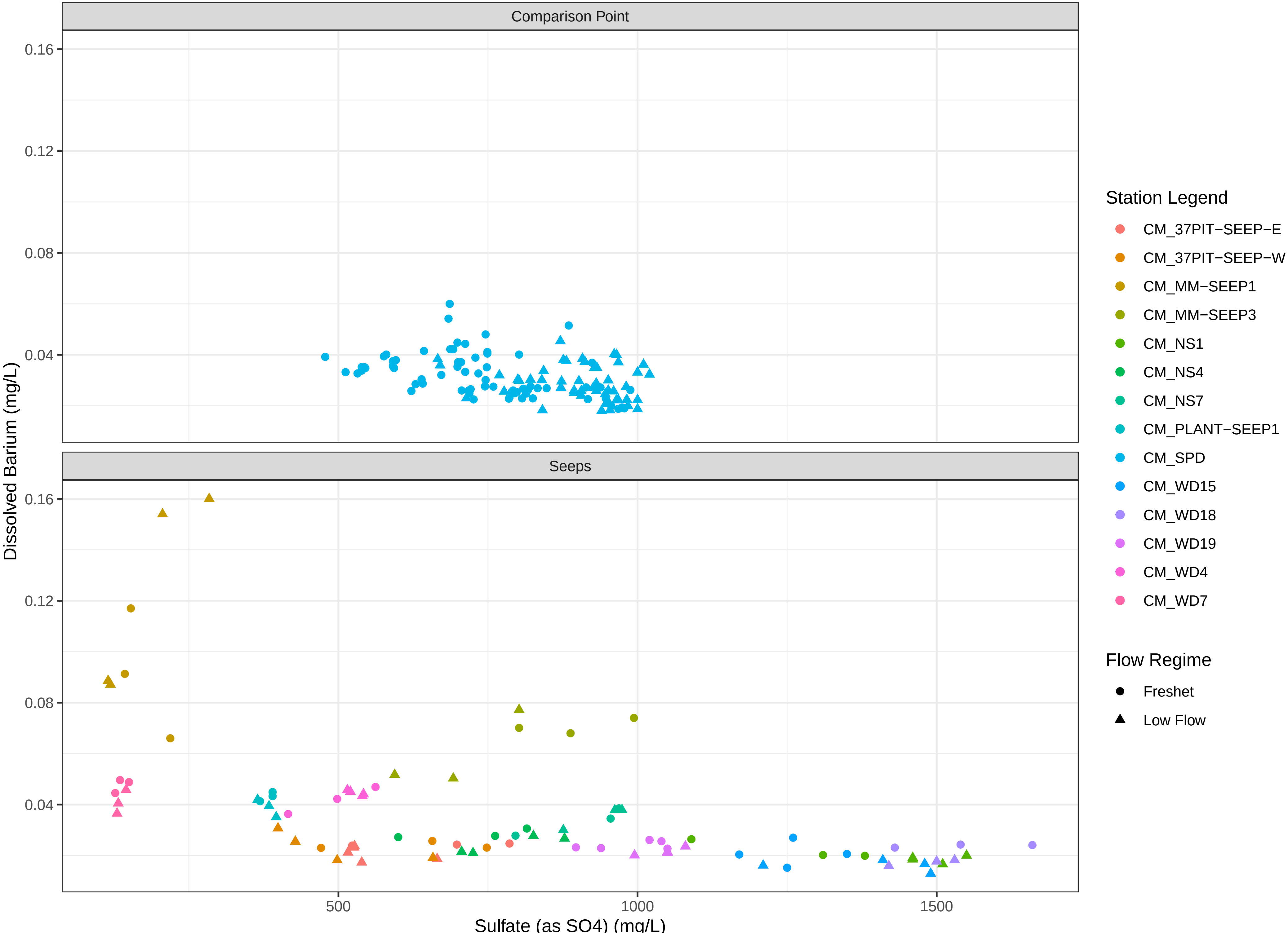

Comparison Point
Seeps
Dissolved Antimony (mg/L)
0.0020
0.0015
0.0010
0.0005
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

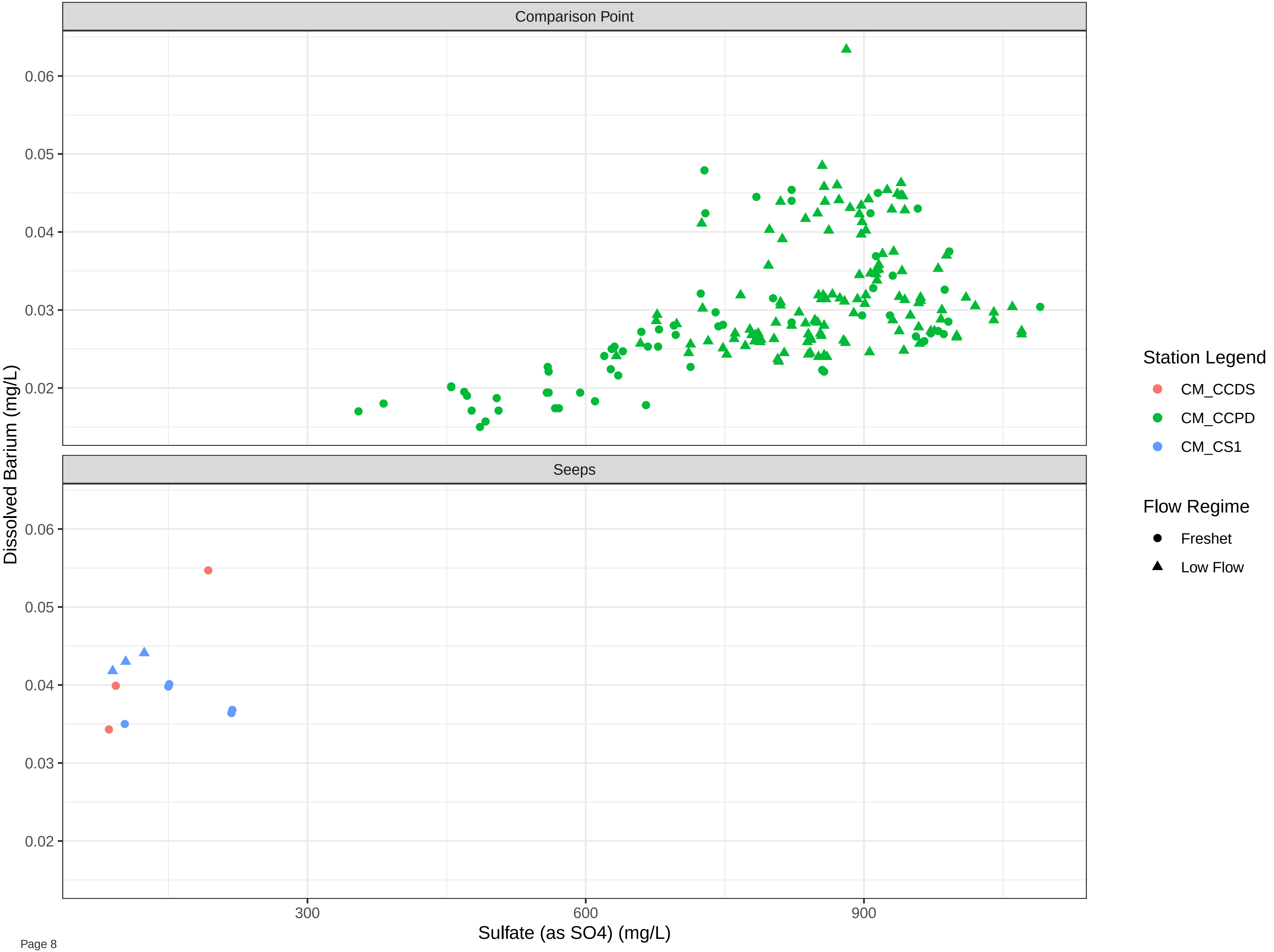

Comparison Point
Seeps
Dissolved Antimony (mg/L)
6e−04
4e−04
2e−04
6e−04
4e−04
2e−04
300
600
900
Sulfate (as SO4) (mg/L)
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow



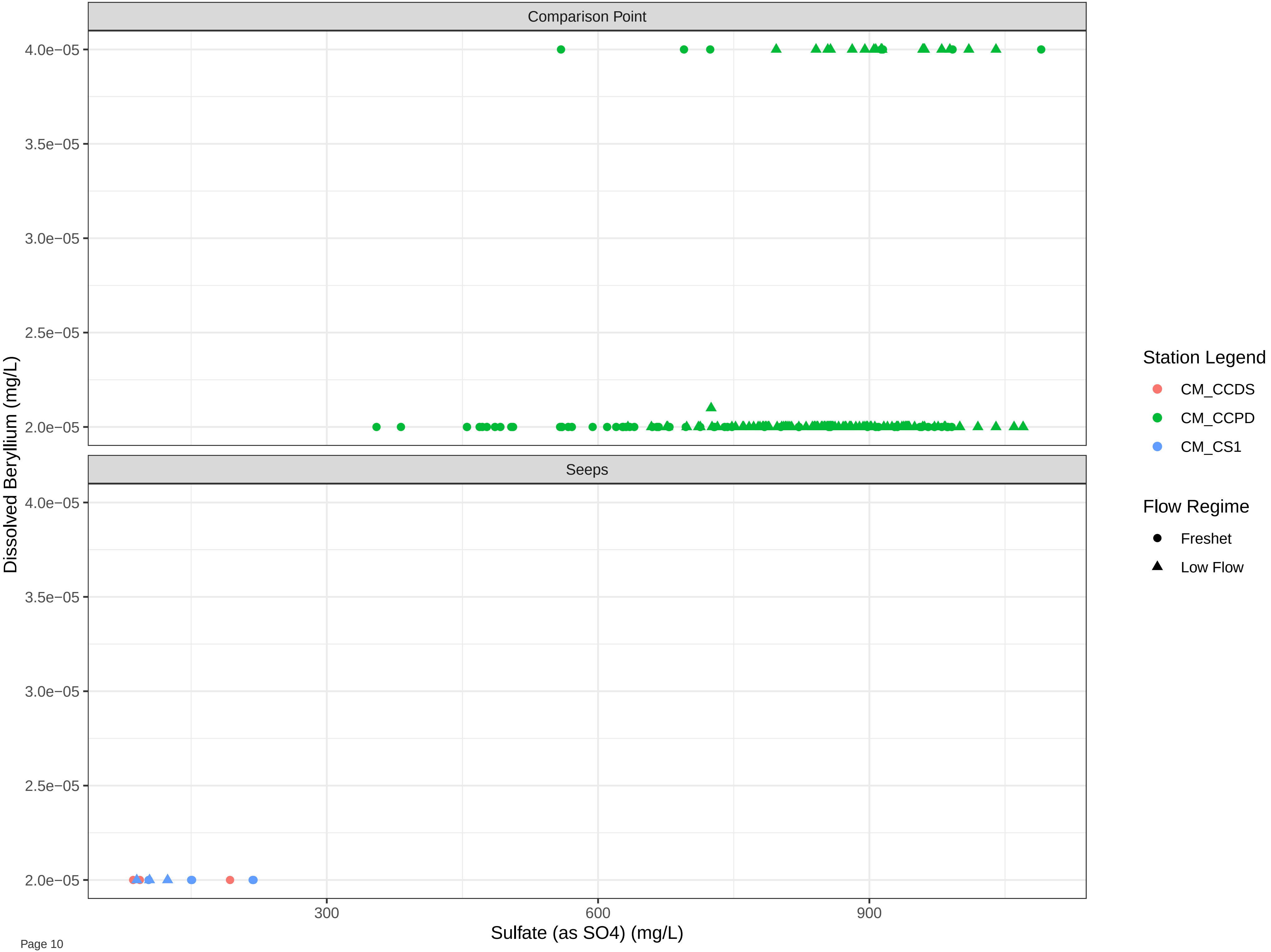
Comparison Point
Seeps
Dissolved Arsenic (mg/L)
8e−04
6e−04
4e−04
2e−04
Sulfate (as SO4) (mg/L)
500
1000
1500
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
4e−04
3e−04
2e−04
1e−04
300
600
900
Dissolved Arsenic (mg/L)
Sulfate (as SO4) (mg/L)
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow

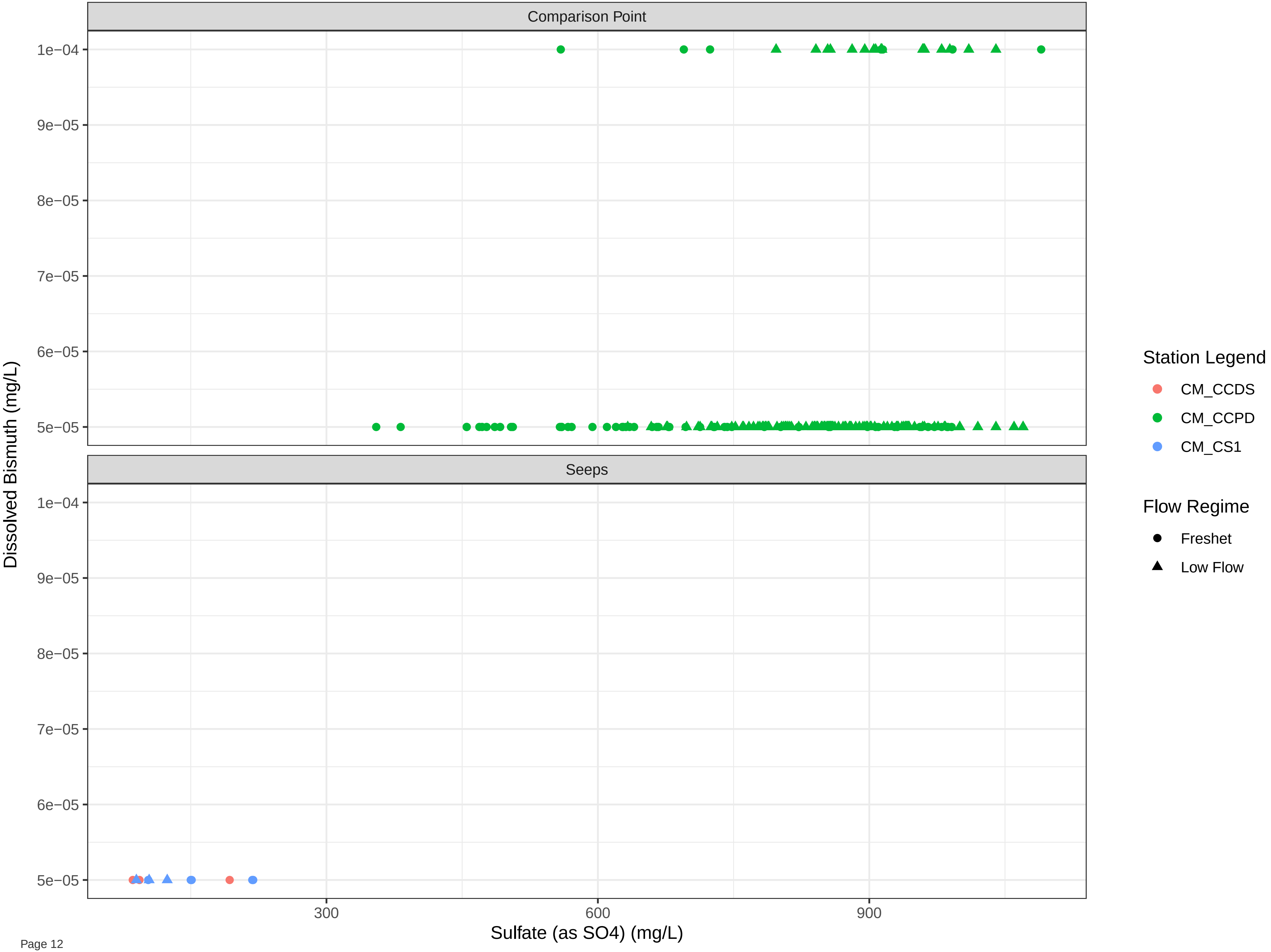

Comparison Point
Seeps
Dissolved Barium (mg/L)
0.16
0.12
0.08
0.04
Sulfate (as SO4) (mg/L)
500
1000
1500
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

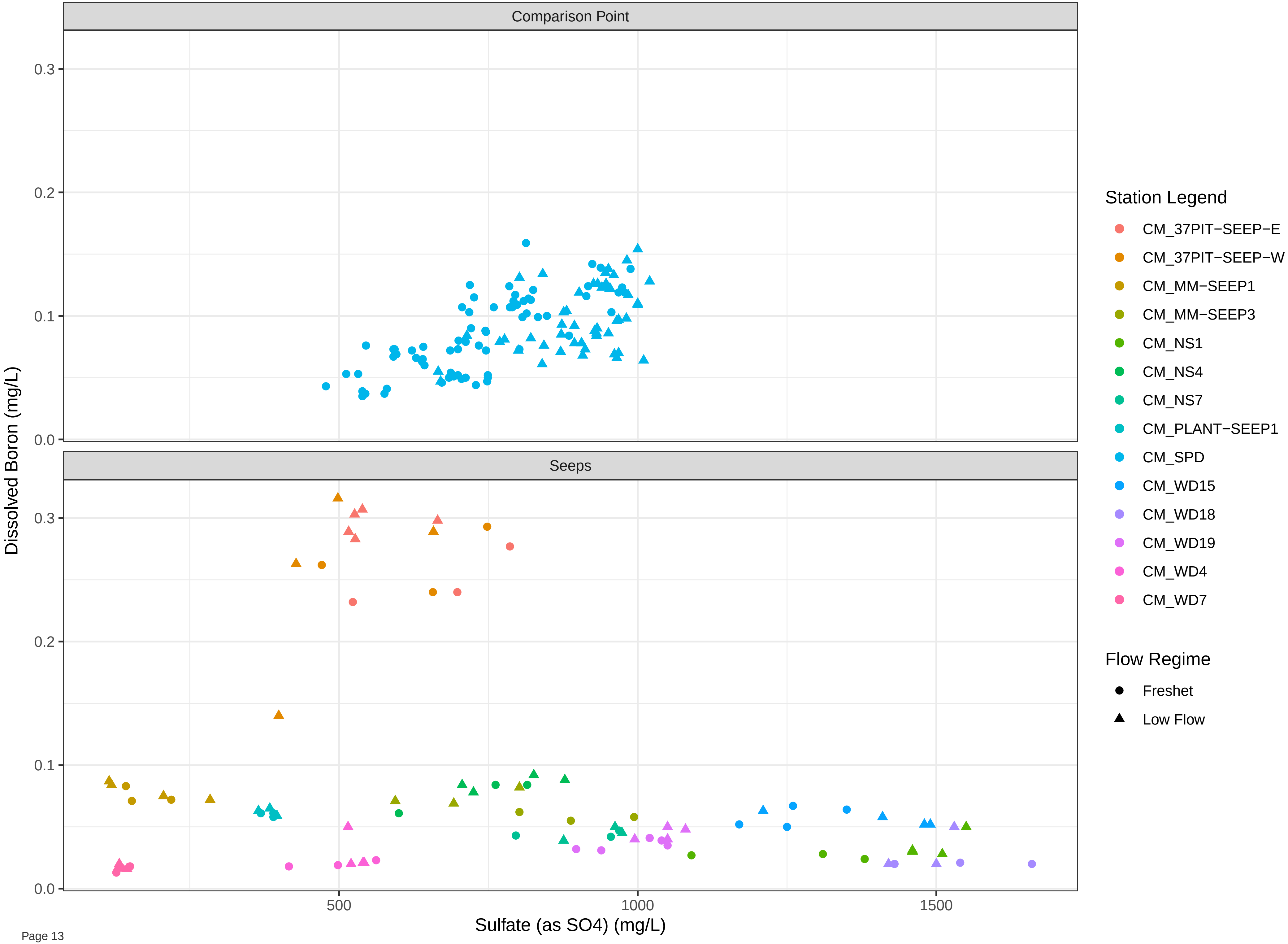

Comparison Point
Seeps
Dissolved Barium (mg/L)
0.06
0.05
0.04
0.03
0.02
Sulfate (as SO4) (mg/L)
300
600
900
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow

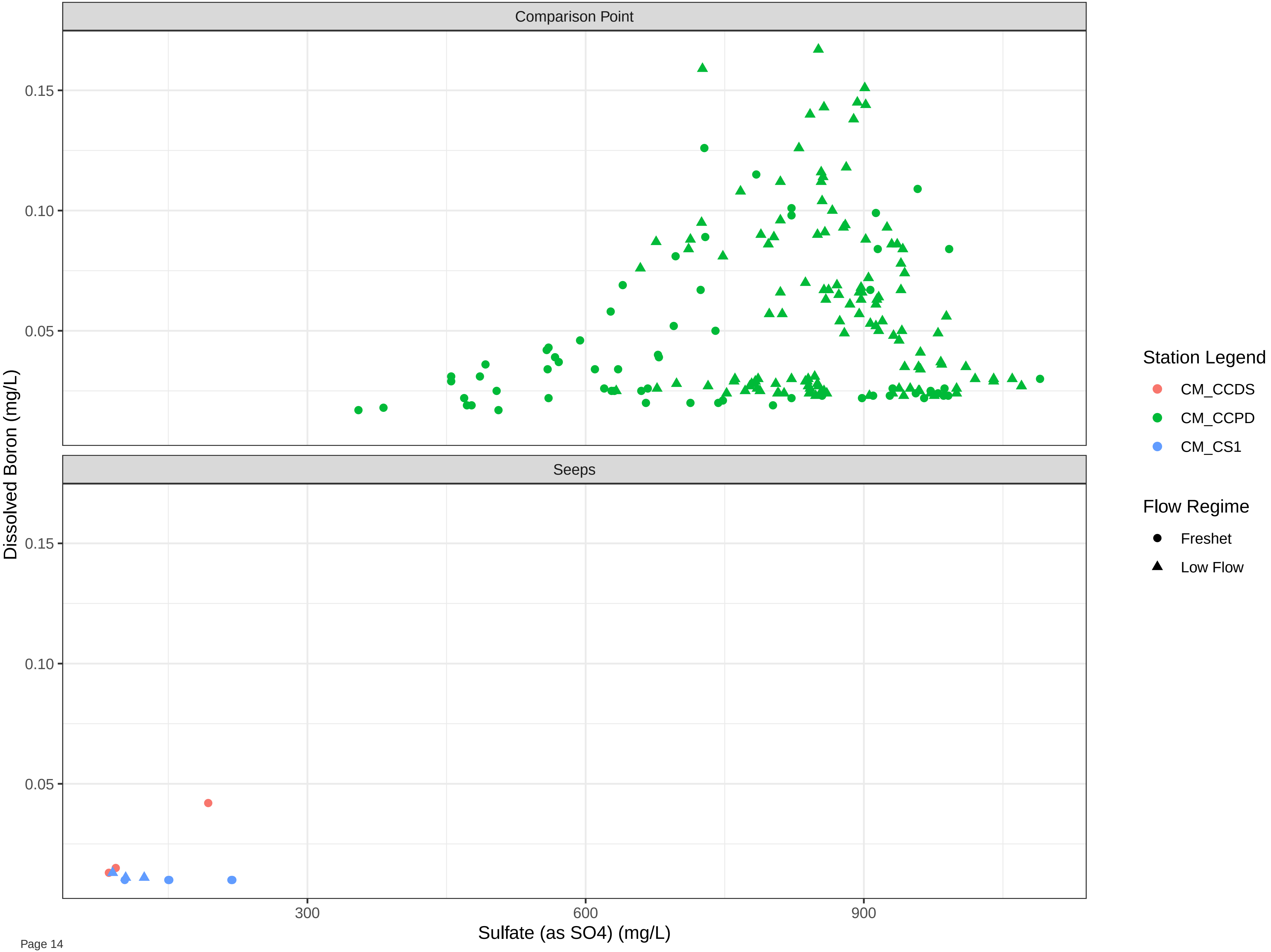

Comparison Point
Seeps
Dissolved Beryllium (mg/L)
1e−04
8e−05
6e−05
4e−05
2e−05
Sulfate (as SO4) (mg/L)
500
1000
1500
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

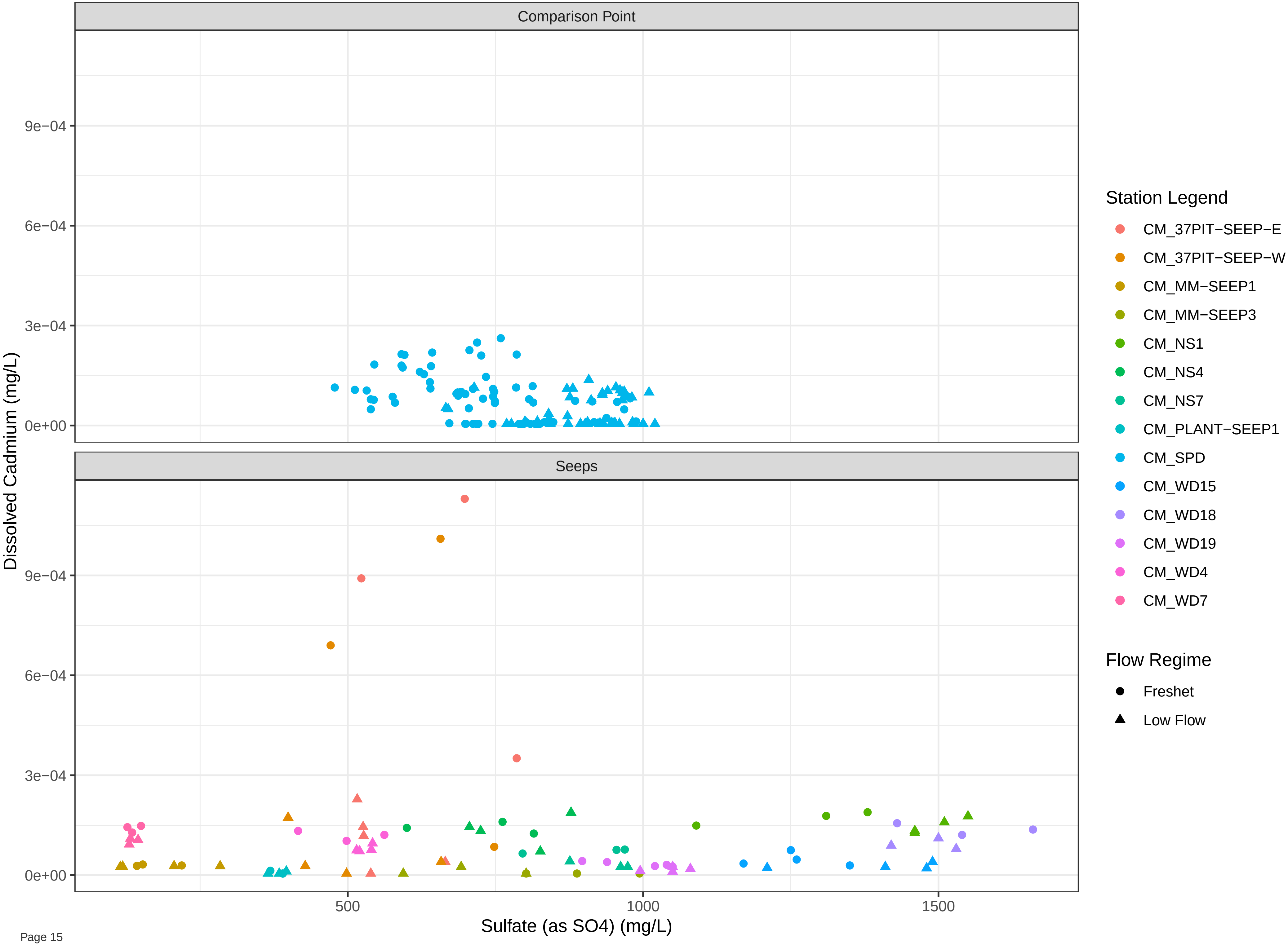

Comparison Point
Seeps
4.0e−05
3.5e−05
3.0e−05
2.5e−05
2.0e−05
Dissolved Beryllium (mg/L)
300
600
900
Sulfate (as SO4) (mg/L)
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow

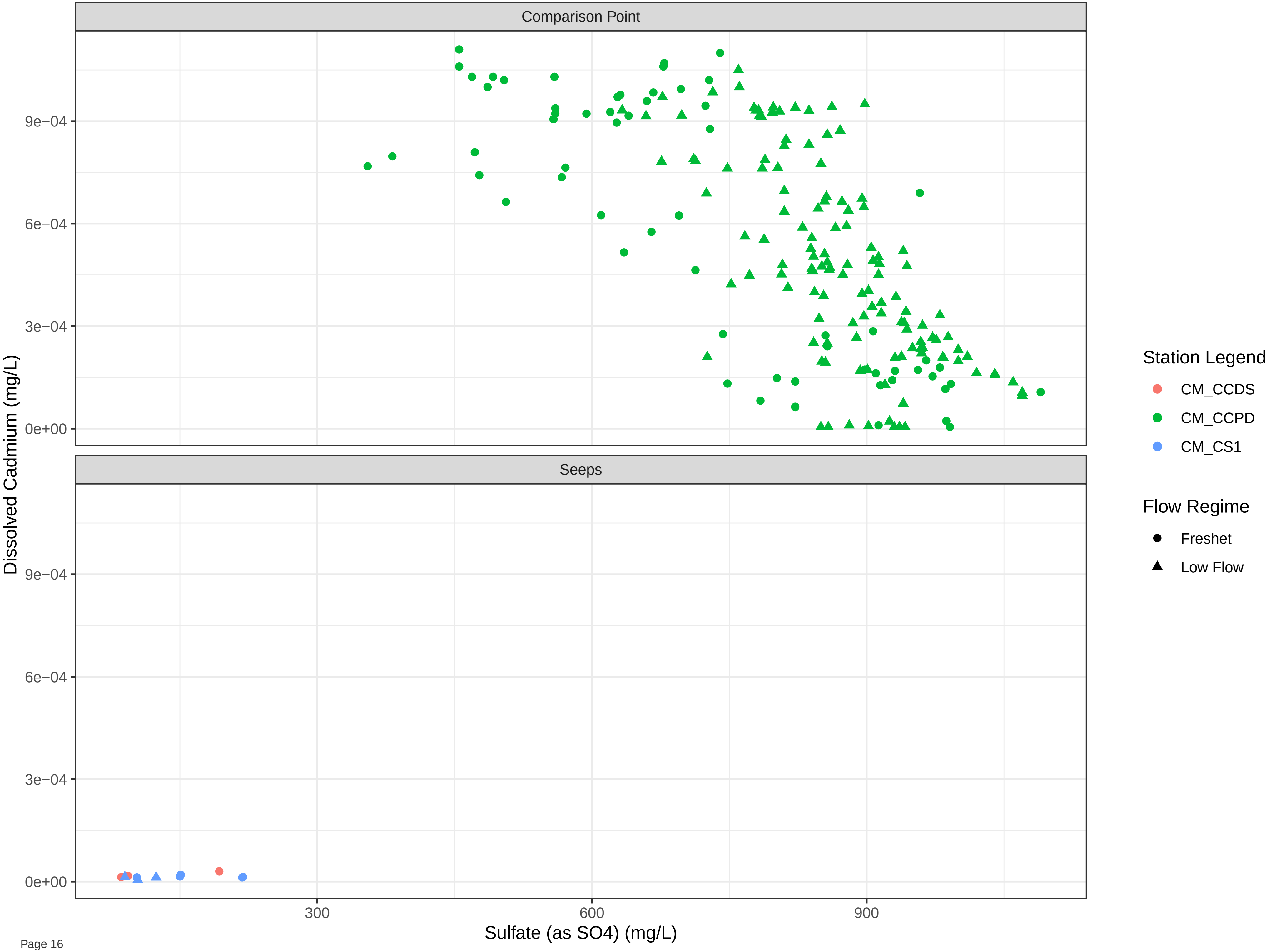

Comparison Point
Seeps
0.00025
0.00020
0.00015
0.00010
0.00005
Dissolved Bismuth (mg/L)
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

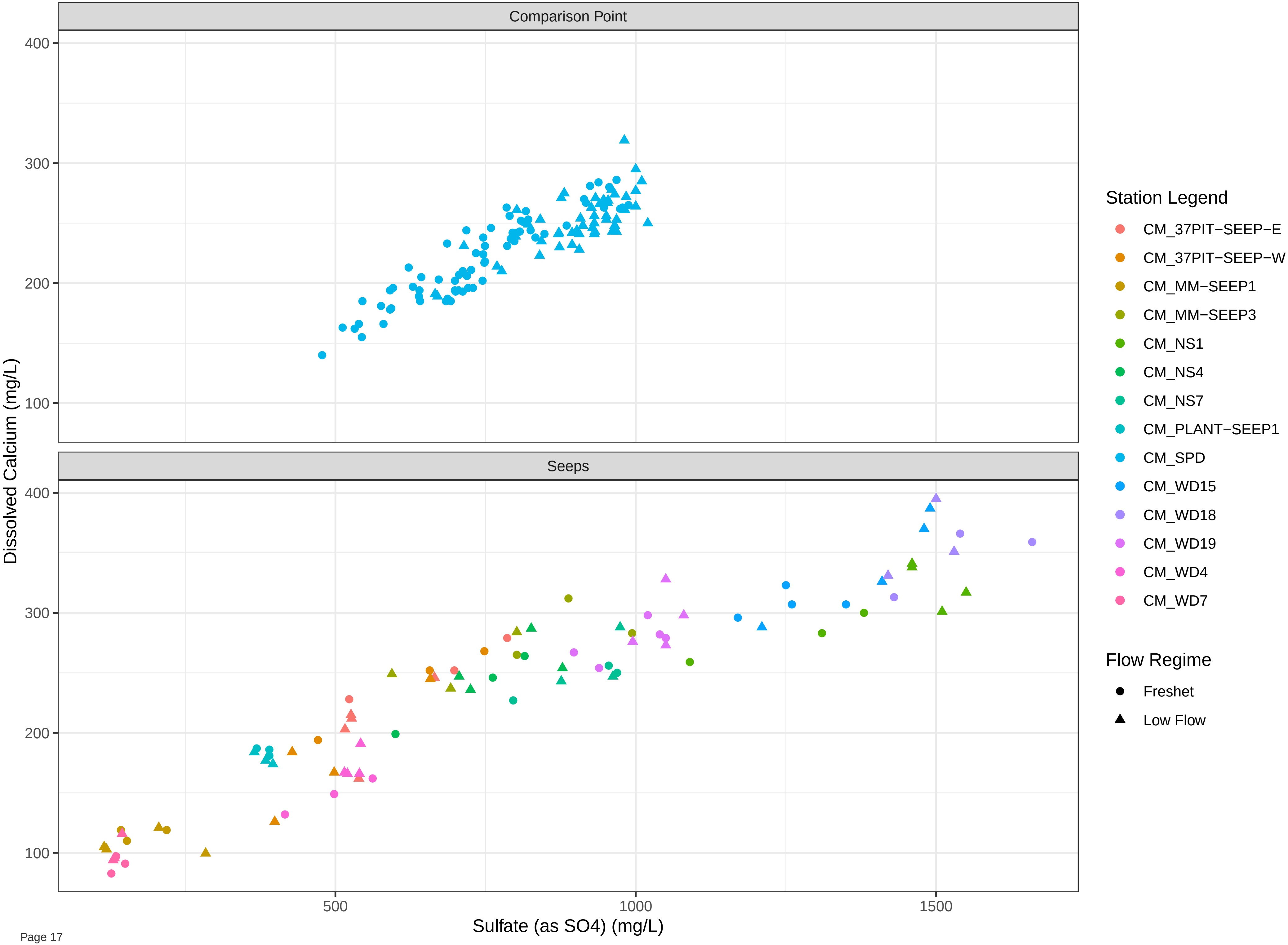

Comparison Point
Seeps
Dissolved Bismuth (mg/L)
1e−04
9e−05
8e−05
7e−05
6e−05
5e−05
300
600
900
Sulfate (as SO4) (mg/L)
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow

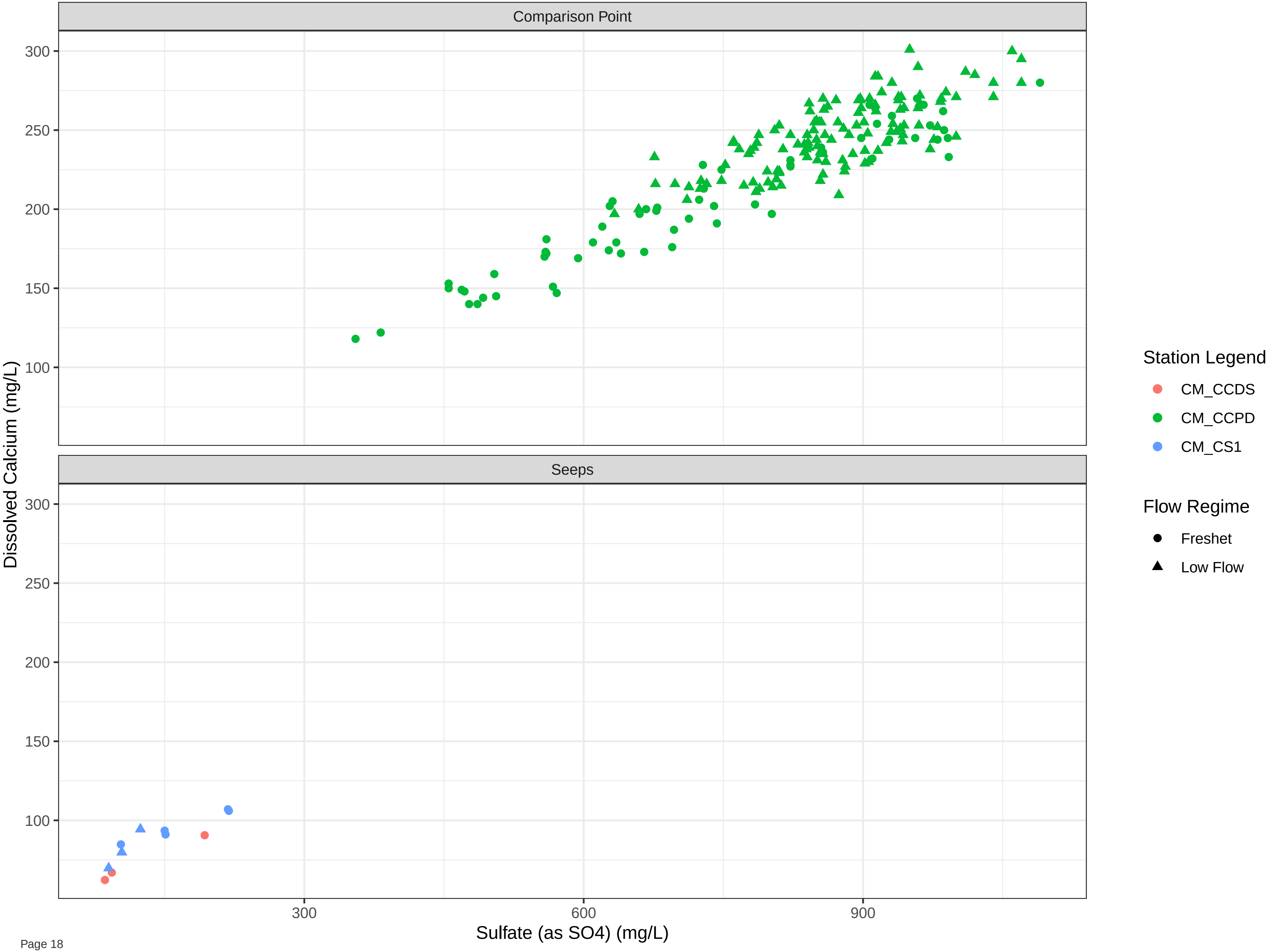

Comparison Point
Seeps
Dissolved Boron (mg/L)
0.0
0.1
0.2
0.3
Sulfate (as SO4) (mg/L)
500
1000
1500
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

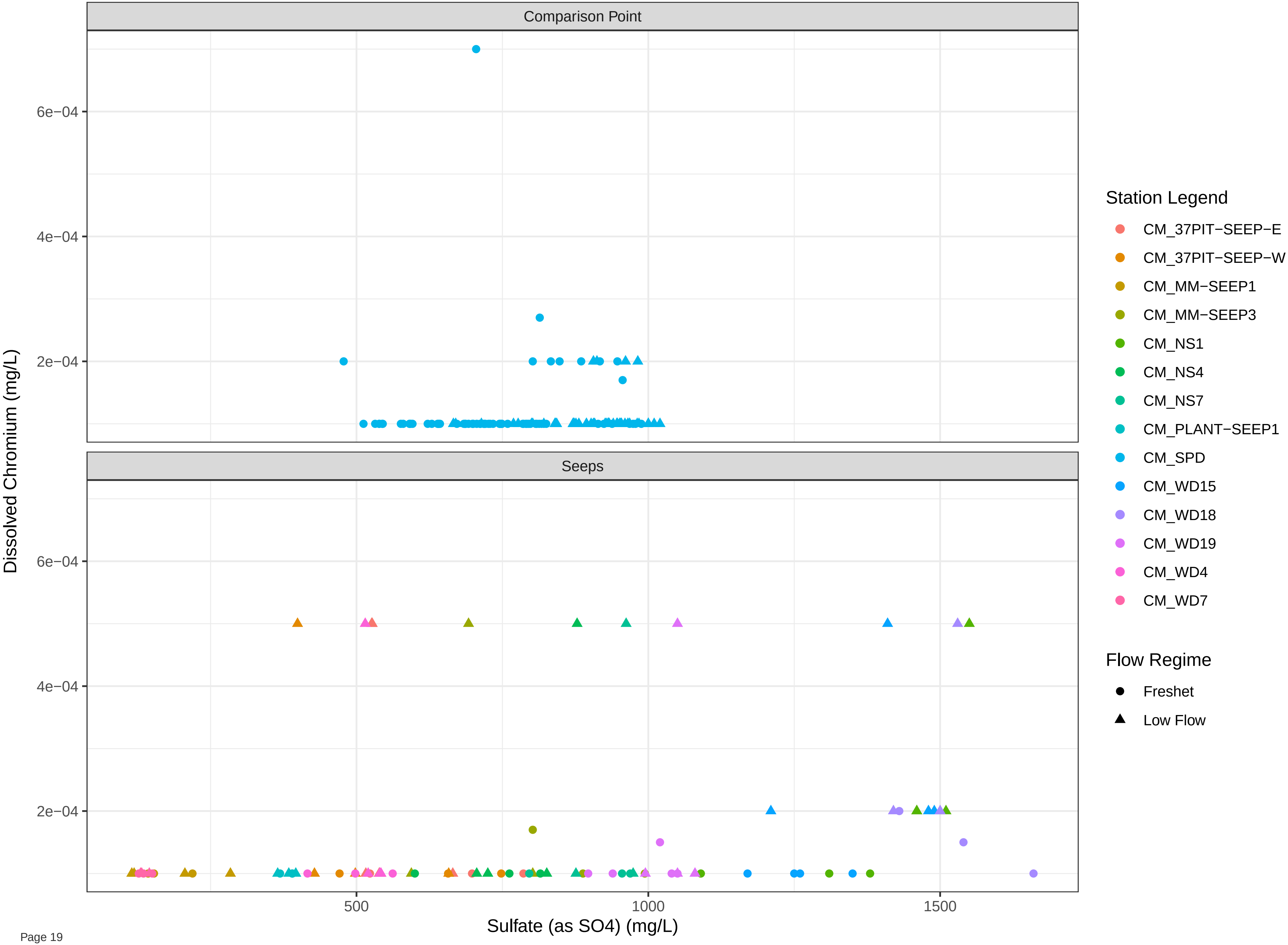

Comparison Point
Seeps
0.15
0.10
0.05
0.15
0.10
0.05
Dissolved Boron (mg/L)
300
600
900
Sulfate (as SO4) (mg/L)
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow

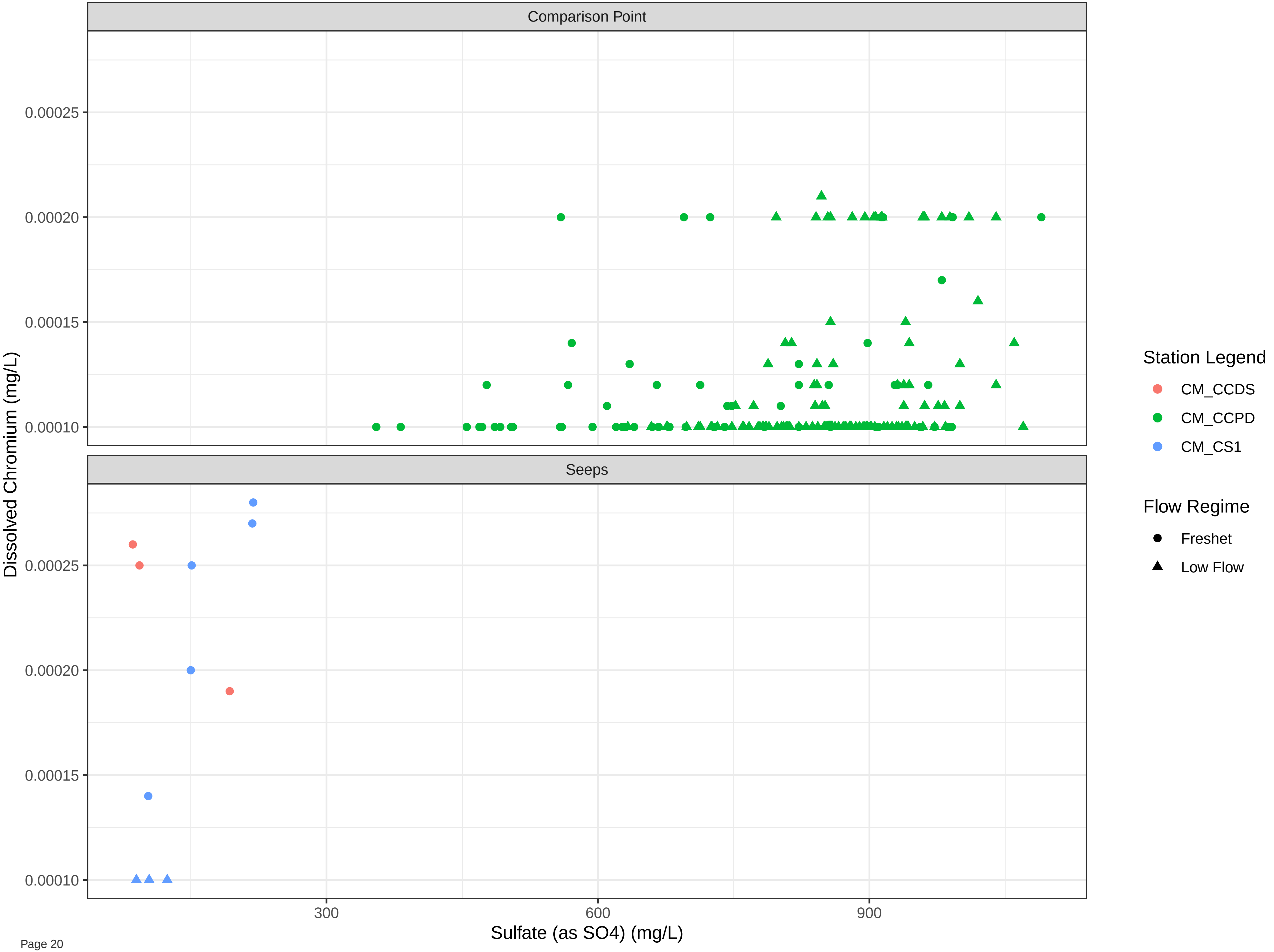

Comparison Point
Seeps
Dissolved Cadmium (mg/L)
Sulfate (as SO4) (mg/L)
9e−04
6e−04
3e−04
0e+00
500
1000
1500
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
Dissolved Cadmium (mg/L)
9e−04
6e−04
3e−04
0e+00
9e−04
6e−04
3e−04
0e+00
300
600
900
Sulfate (as SO4) (mg/L)
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow

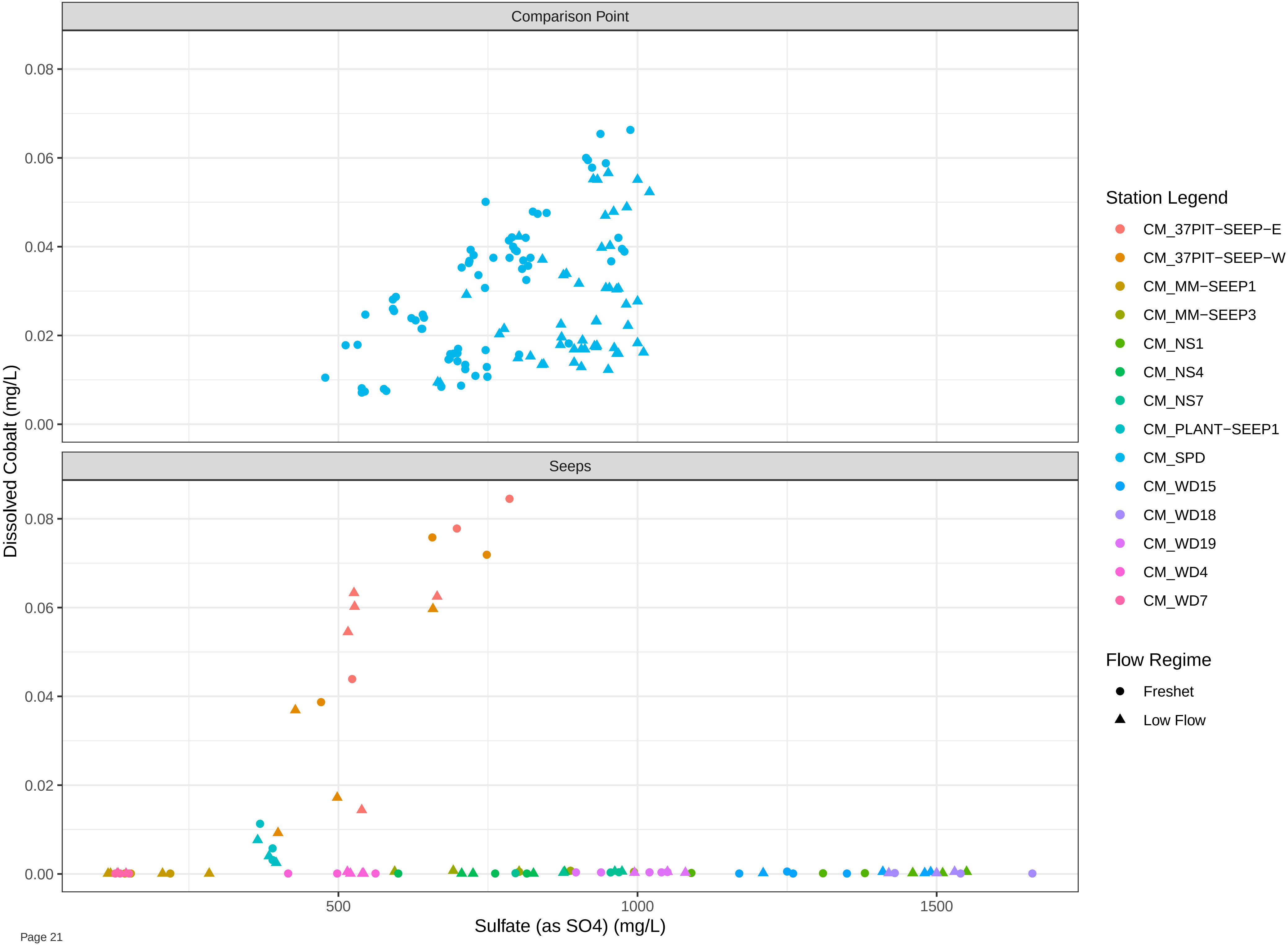

Comparison Point
Seeps
Dissolved Calcium (mg/L)
400
300
200
100
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

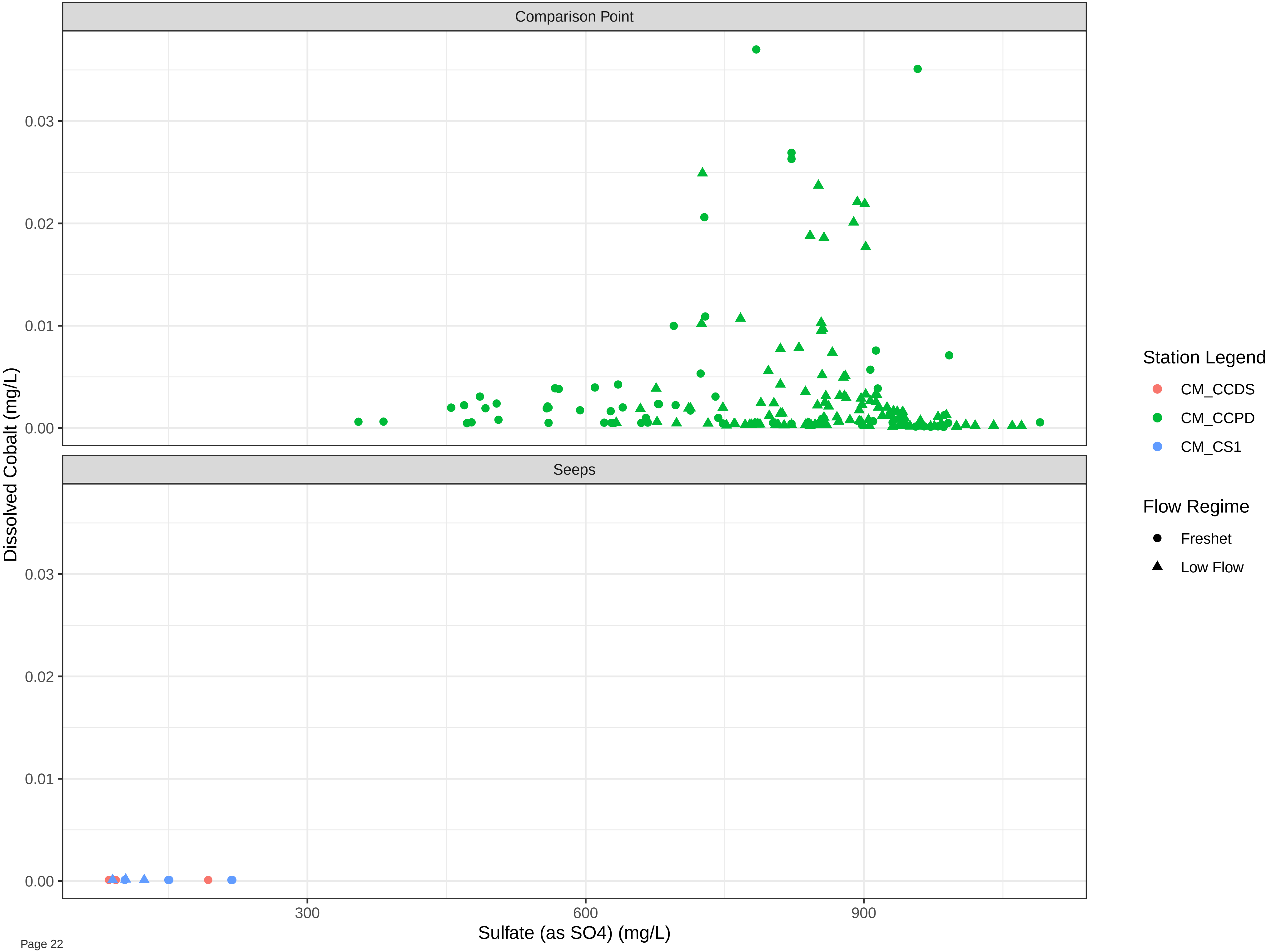

Comparison Point
Seeps
Dissolved Calcium (mg/L)
300
250
200
150
100
300
250
200
150
100
300
600
900
Sulfate (as SO4) (mg/L)
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow

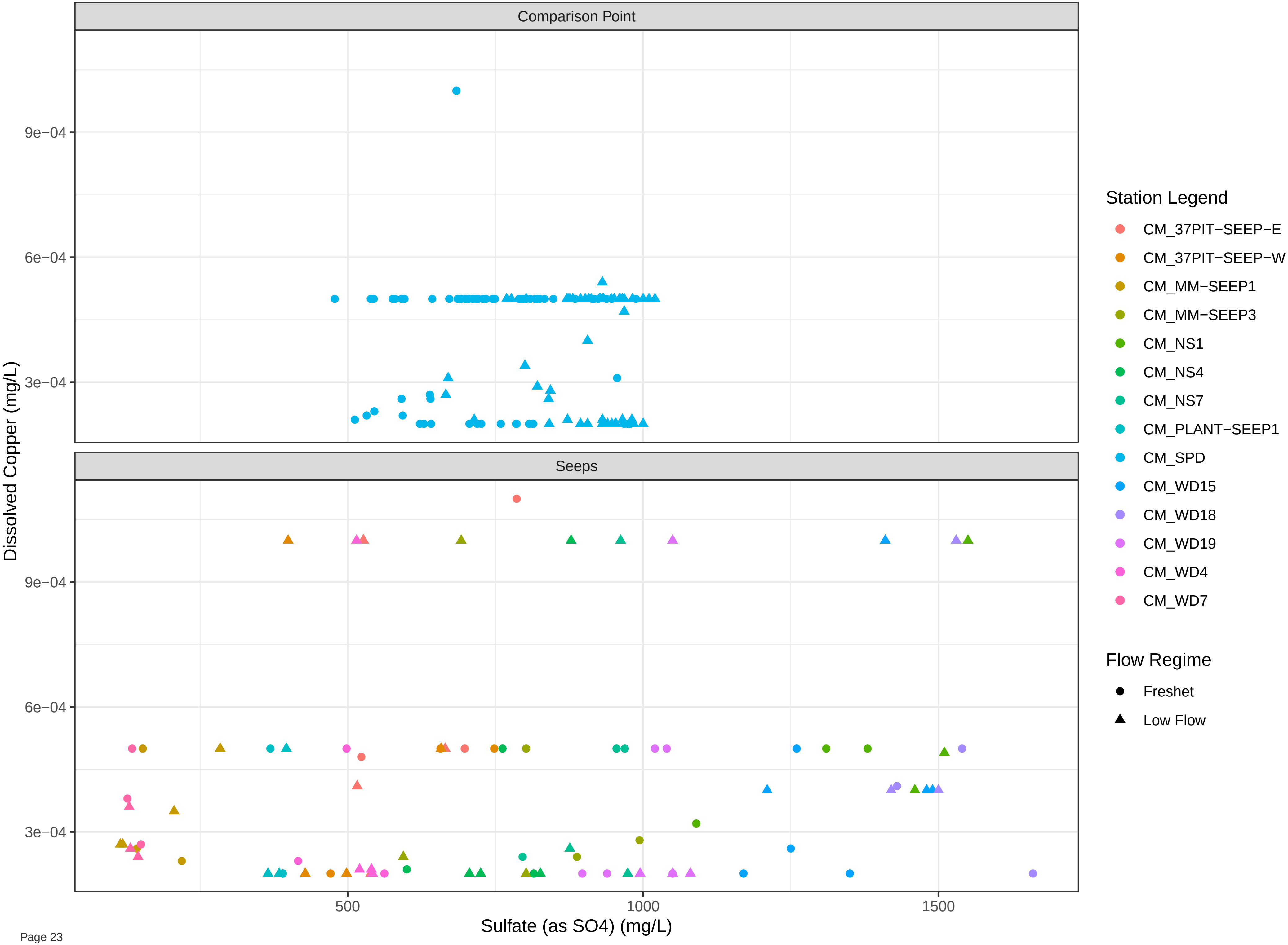

Comparison Point
Seeps
Dissolved Chromium (mg/L)
6e−04
4e−04
2e−04
6e−04
4e−04
2e−04
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

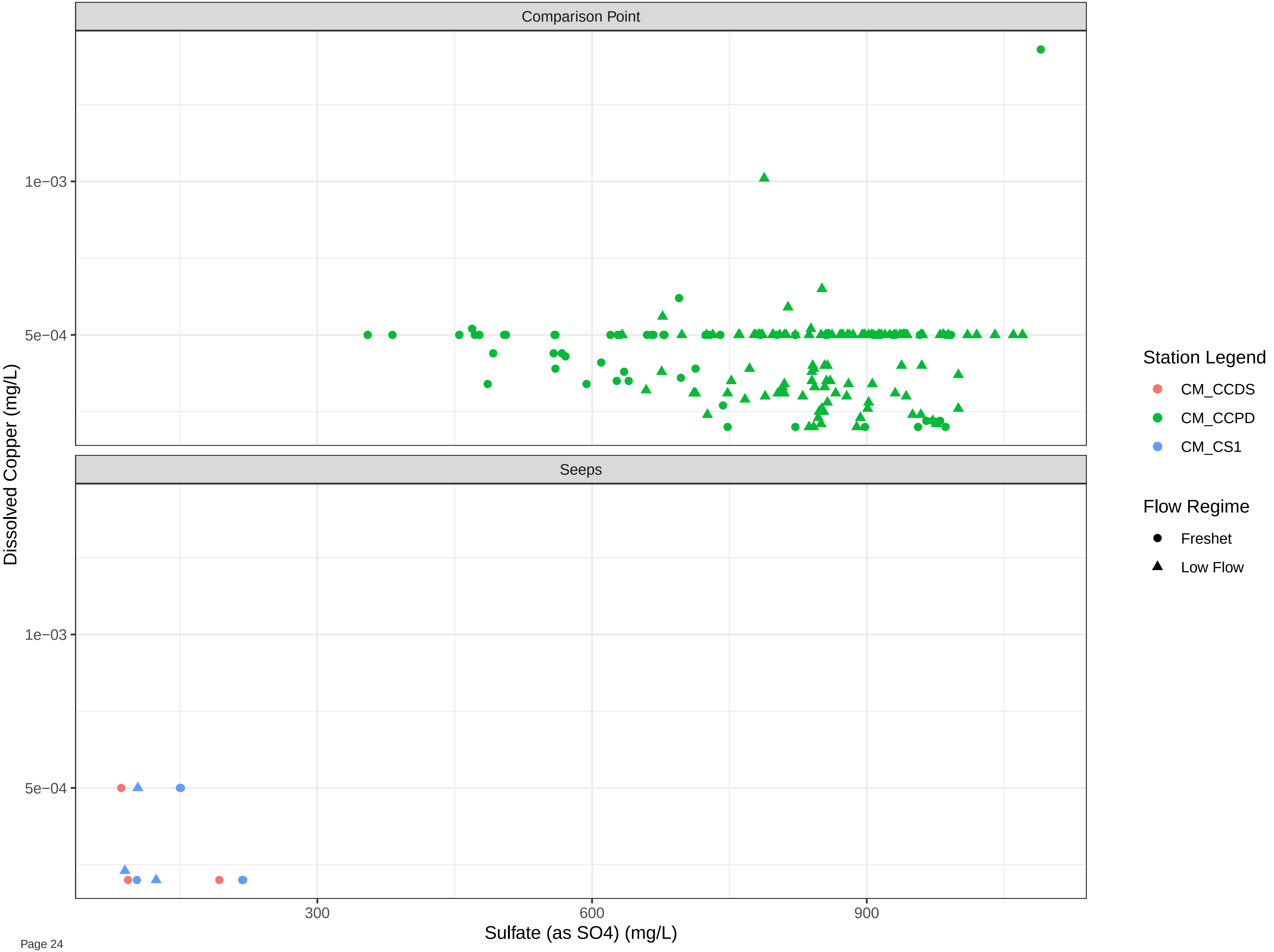


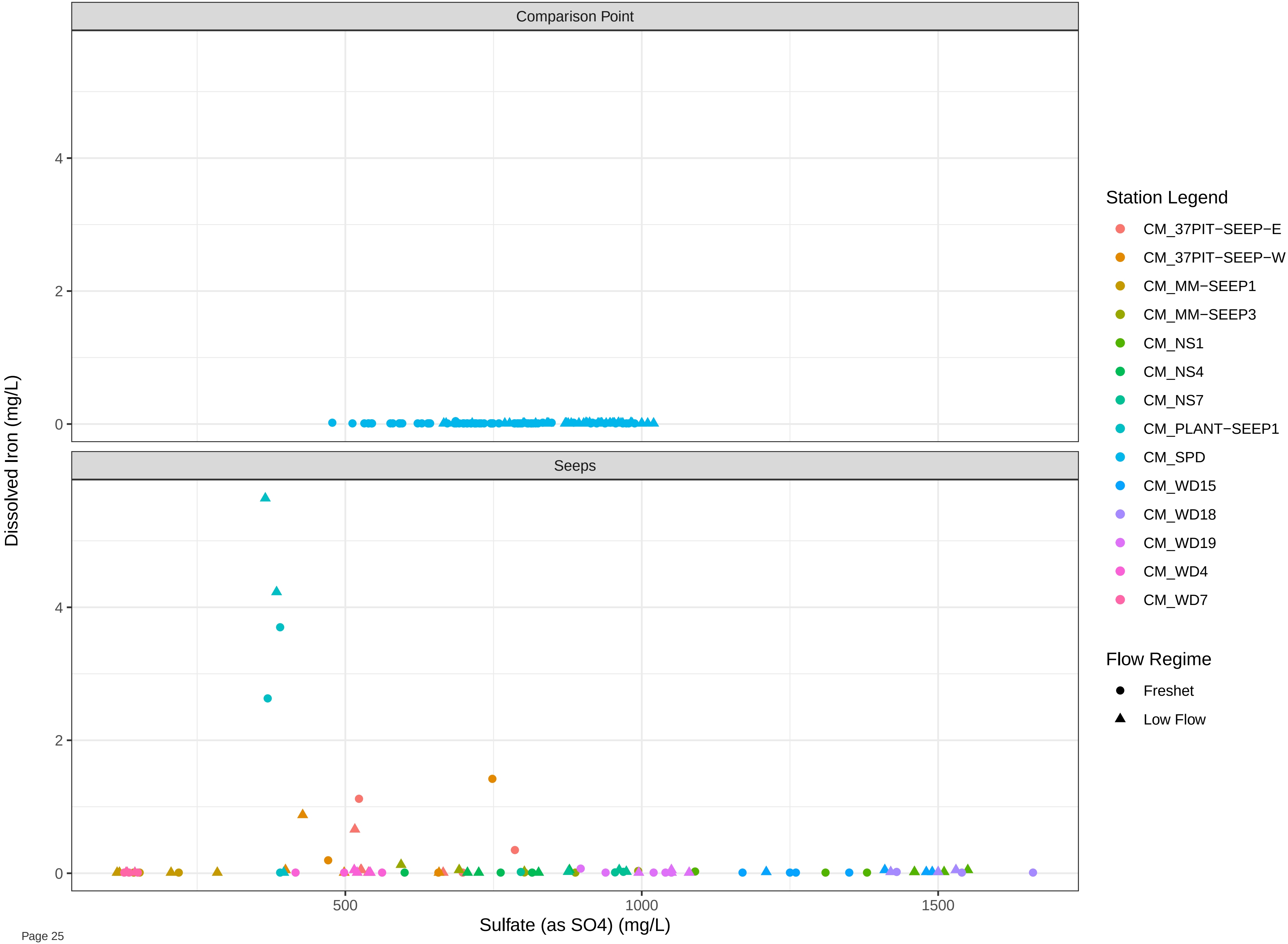
Comparison Point
Seeps
Dissolved Chromium (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00025
0.00020
0.00015
0.00010
300
600
900
Sulfate (as SO4) (mg/L)
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow

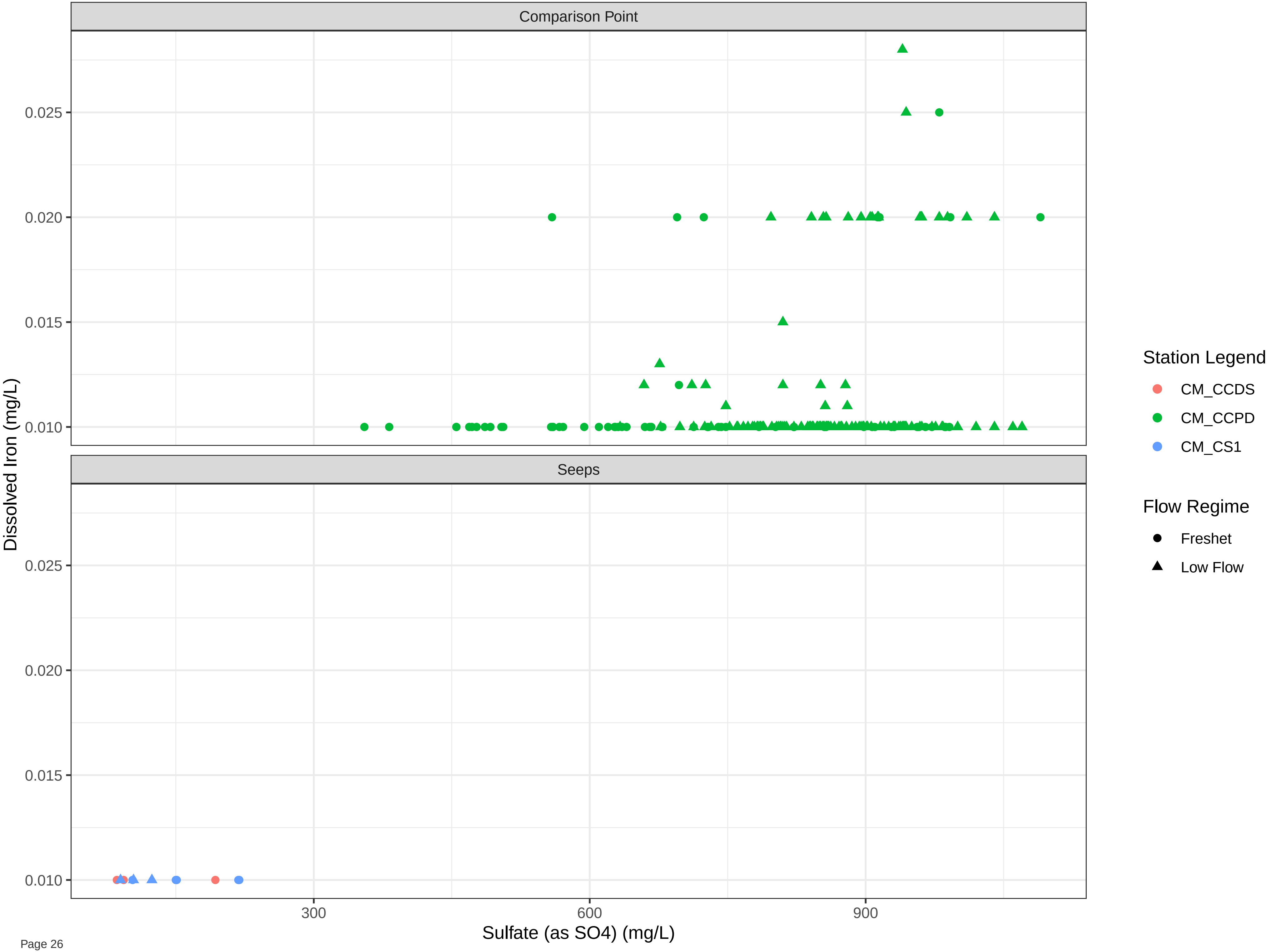

Comparison Point
Seeps
Dissolved Cobalt (mg/L)
0.00
0.02
0.04
0.06
0.08
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

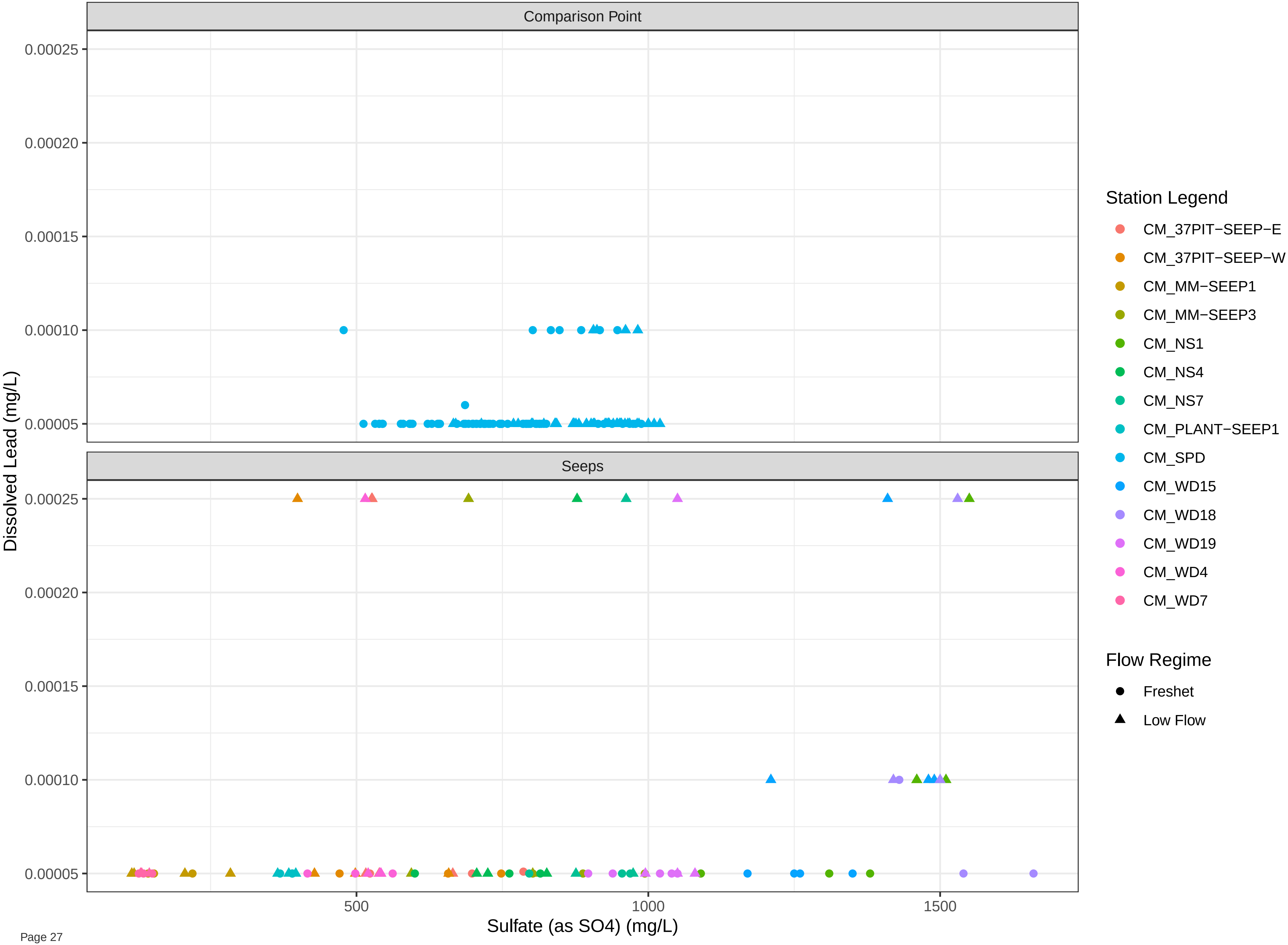

Comparison Point
Seeps
0.03
0.02
0.01
0.00
0.03
0.02
0.01
0.00
Dissolved Cobalt (mg/L)
300
600
900
Sulfate (as SO4) (mg/L)
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow

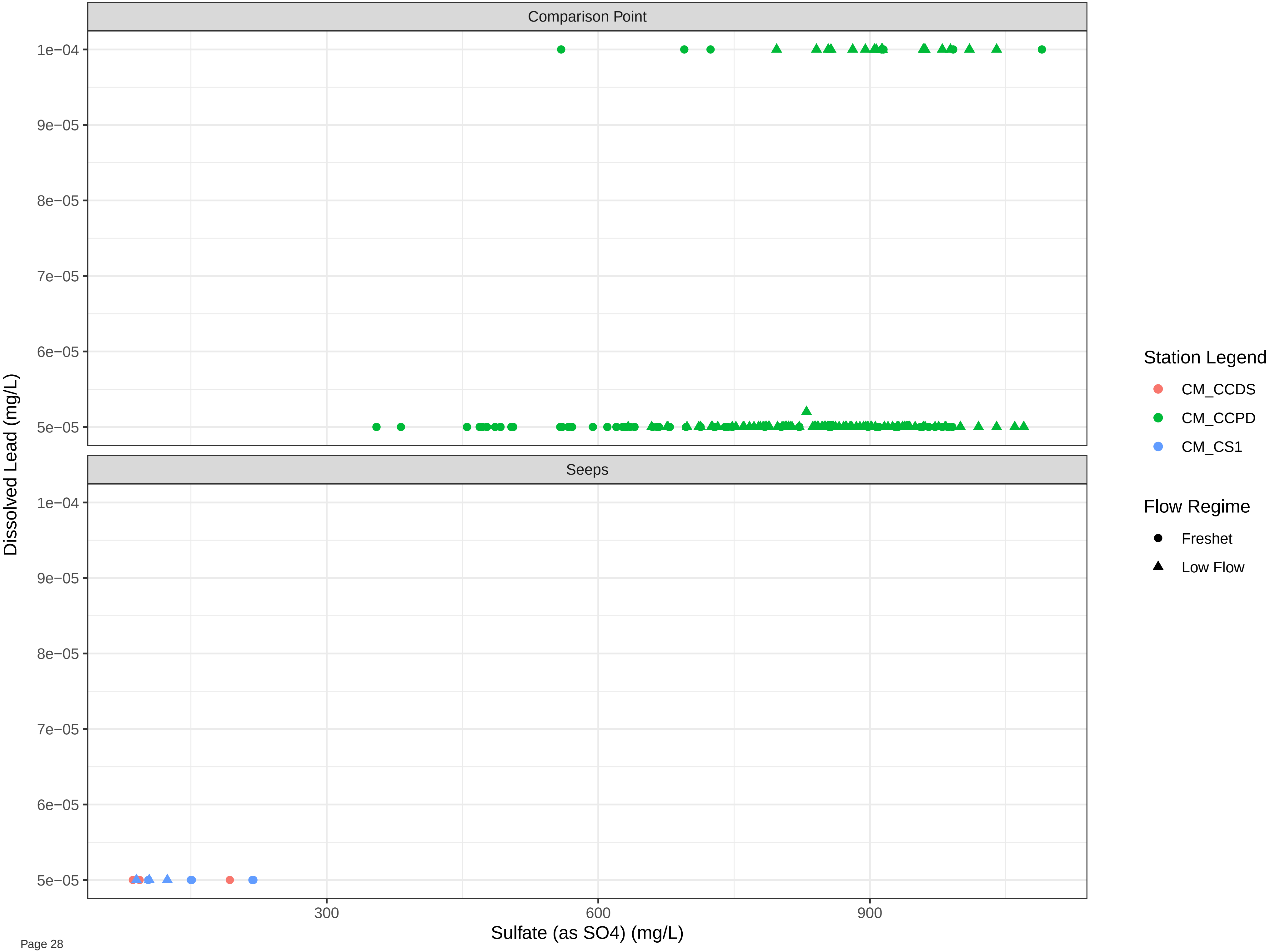

Comparison Point
Seeps
Dissolved Copper (mg/L)
9e−04
6e−04
3e−04
Sulfate (as SO4) (mg/L)
500
1000
1500
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

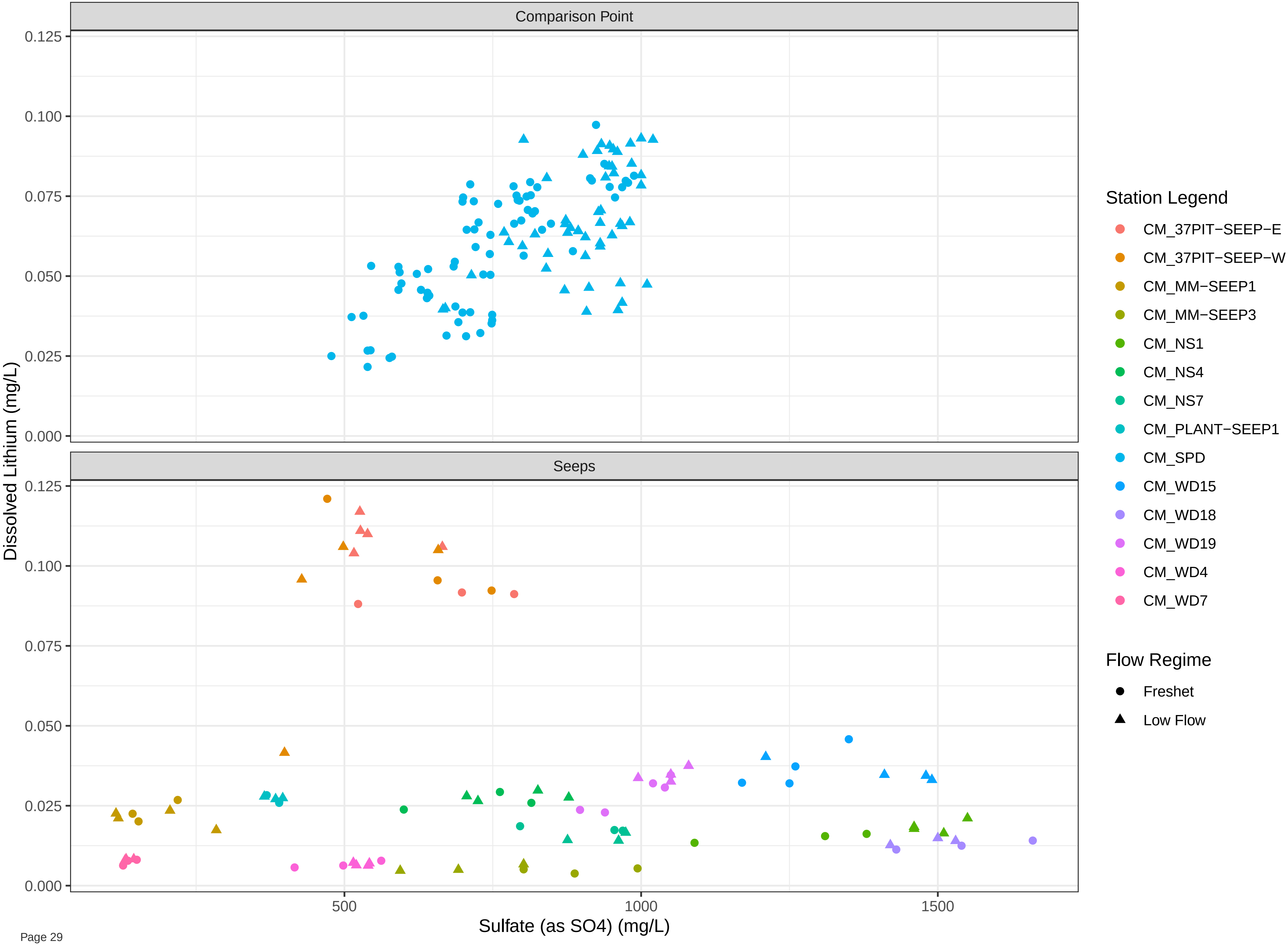

Comparison Point
Seeps
Dissolved Copper (mg/L)
1e−03
5e−04
1e−03
5e−04
300
600
900
Sulfate (as SO4) (mg/L)
Station Legend
● CM_CCDS
● CM_CCPD
● CM_CS1
Flow Regime
● Freshet
▲ Low Flow

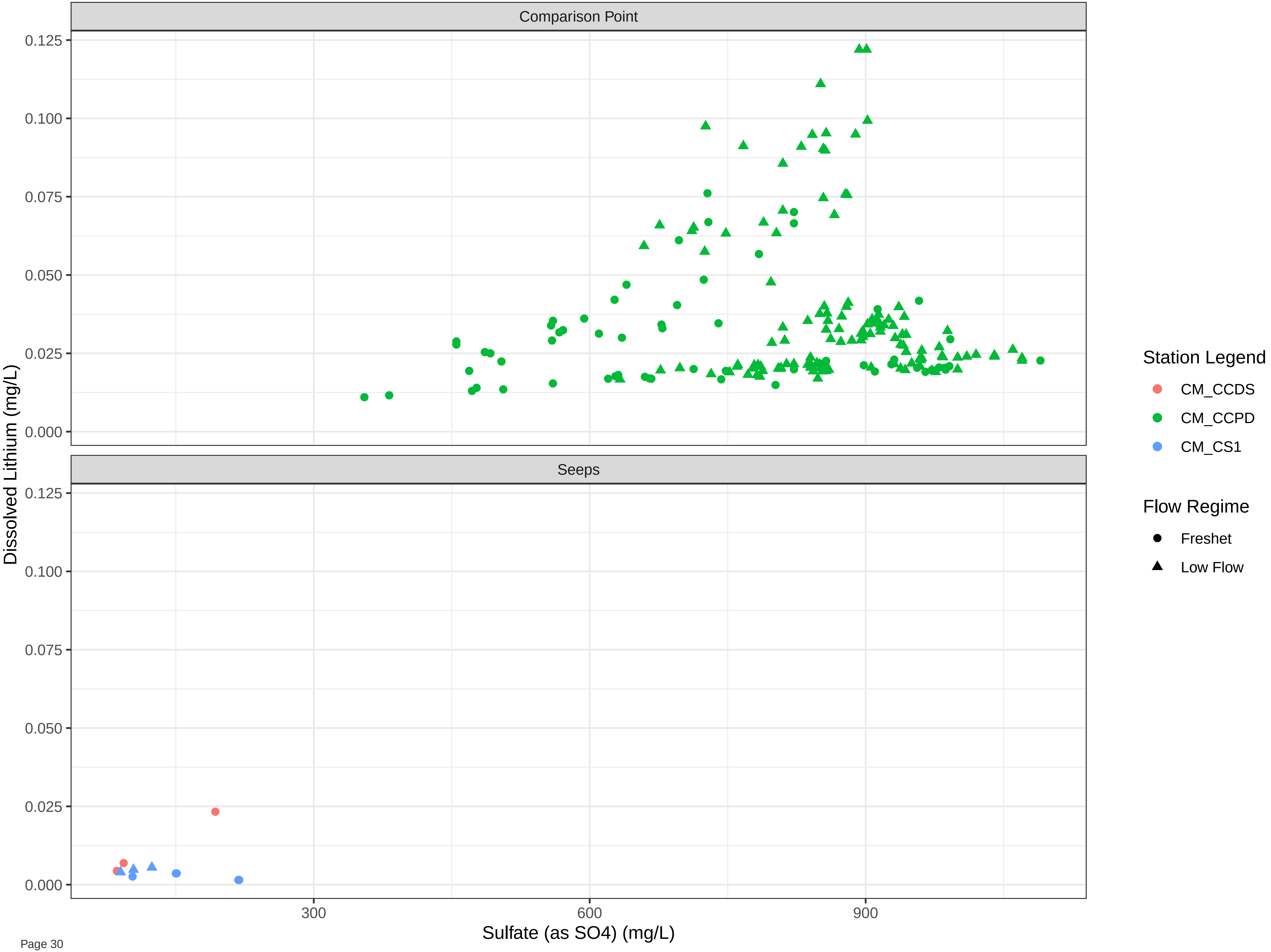

Comparison Point
Seeps
Dissolved Iron (mg/L)
0
2
4
Sulfate (as SO4) (mg/L)
500
1000
1500
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

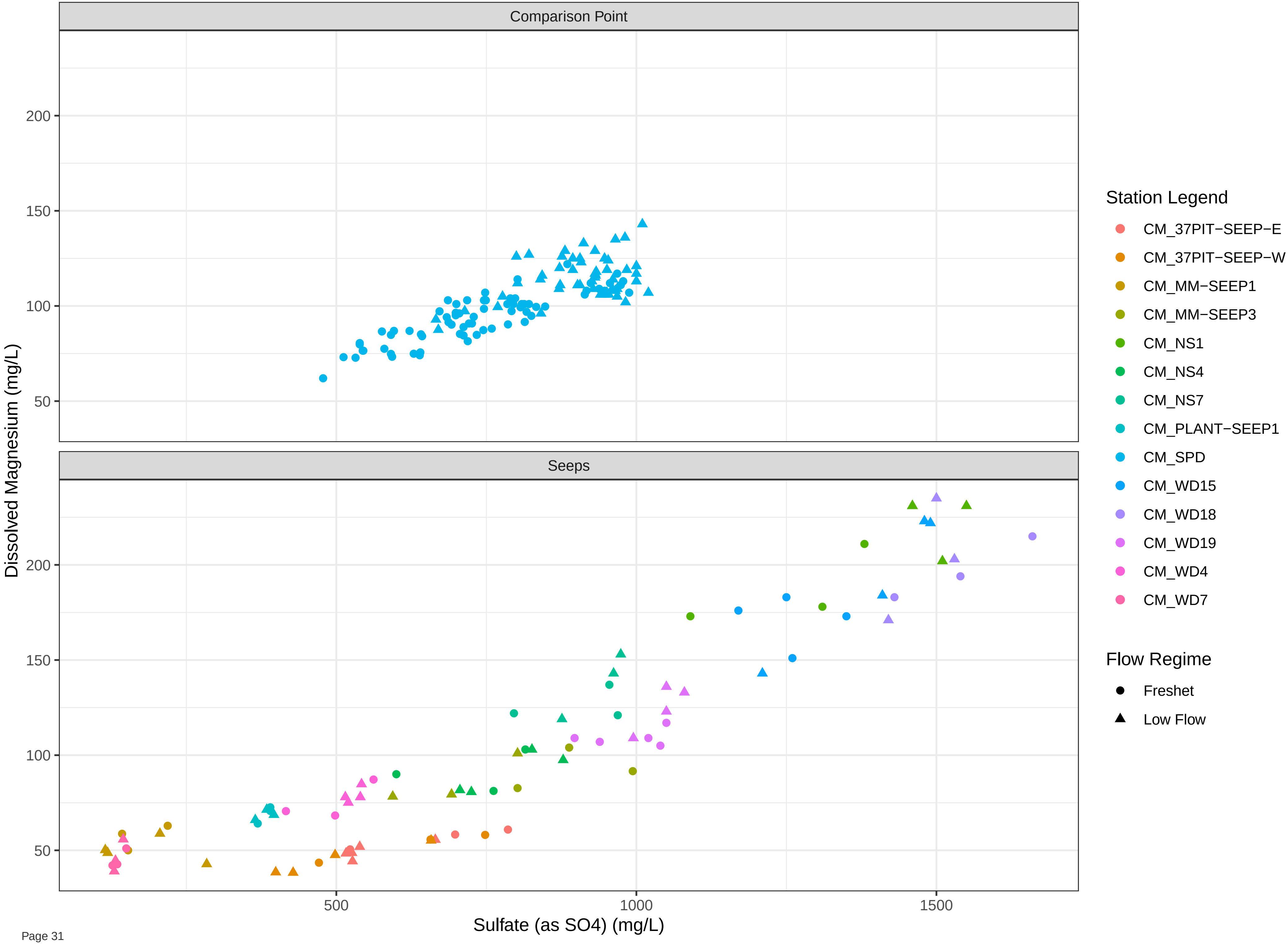

Comparison Point
Seeps
Dissolved Iron (mg/L)
0.025
0.020
0.015
0.010
300
600
900
Sulfate (as SO4) (mg/L)
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow

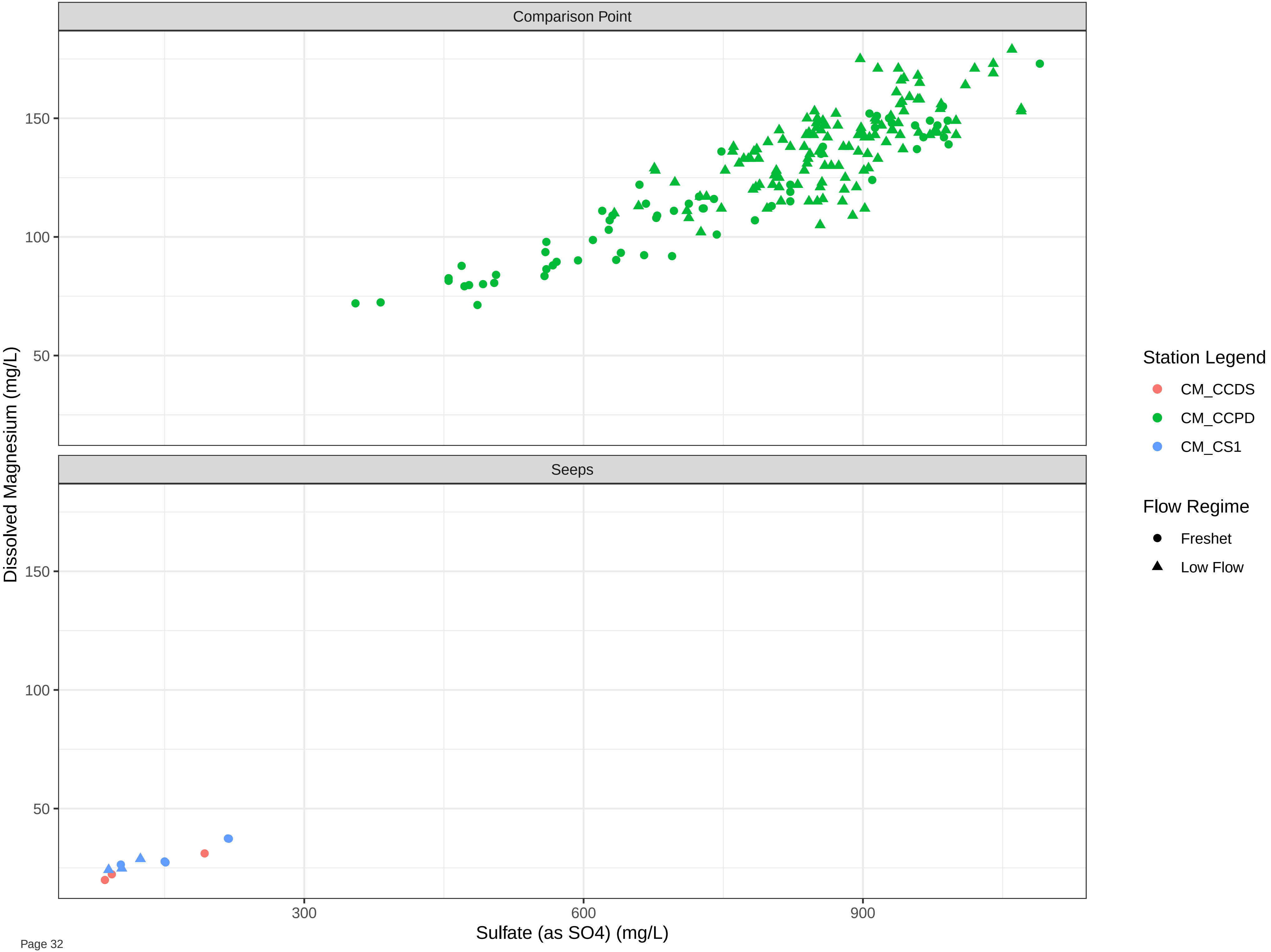

Comparison Point
Seeps
Dissolved Lead (mg/L)
0.00025
0.00020
0.00015
0.00010
0.00005
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

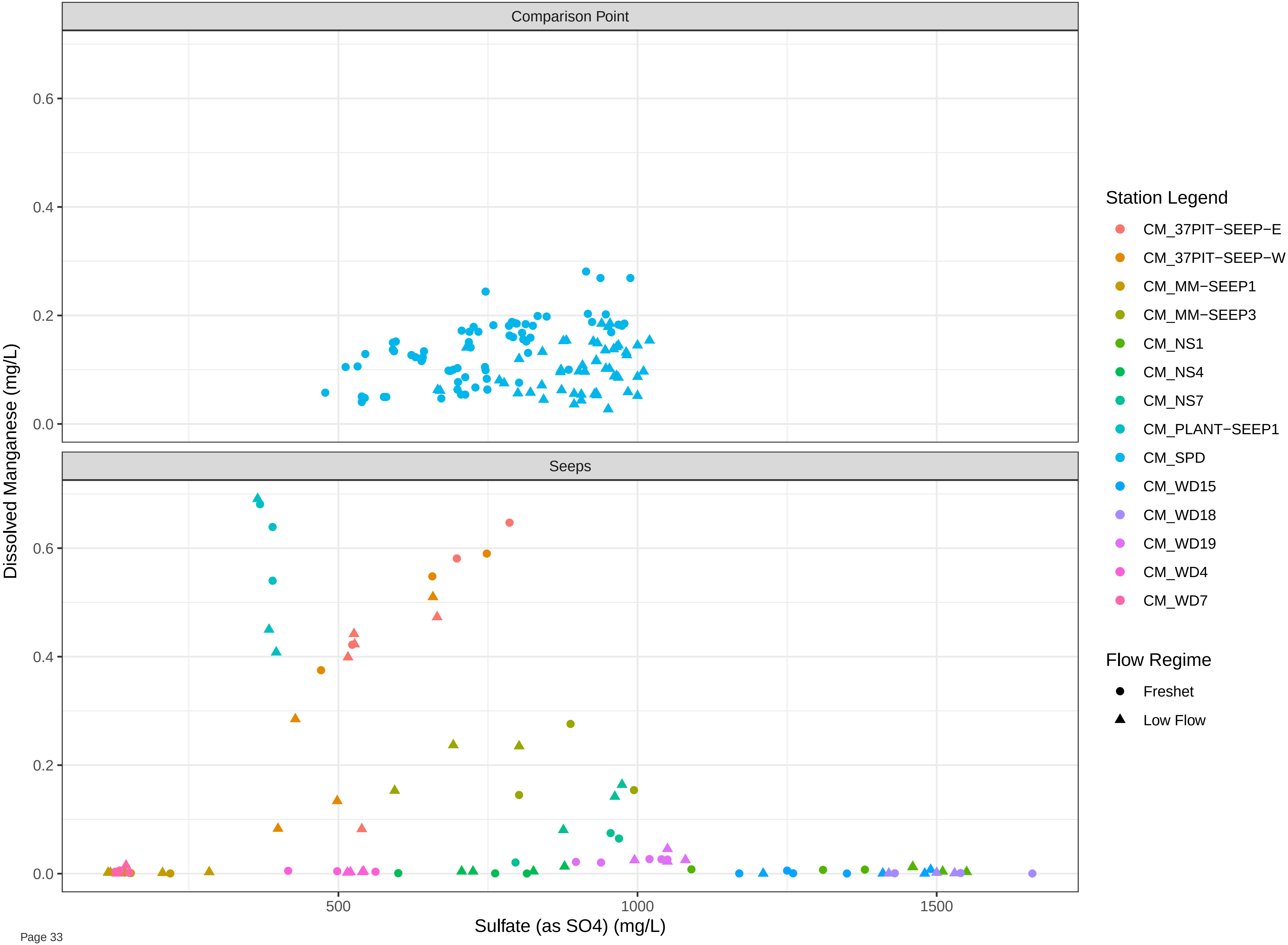

Comparison Point
Seeps
Dissolved Lead (mg/L)
1e−04
9e−05
8e−05
7e−05
6e−05
5e−05
300
600
900
Sulfate (as SO4) (mg/L)
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow

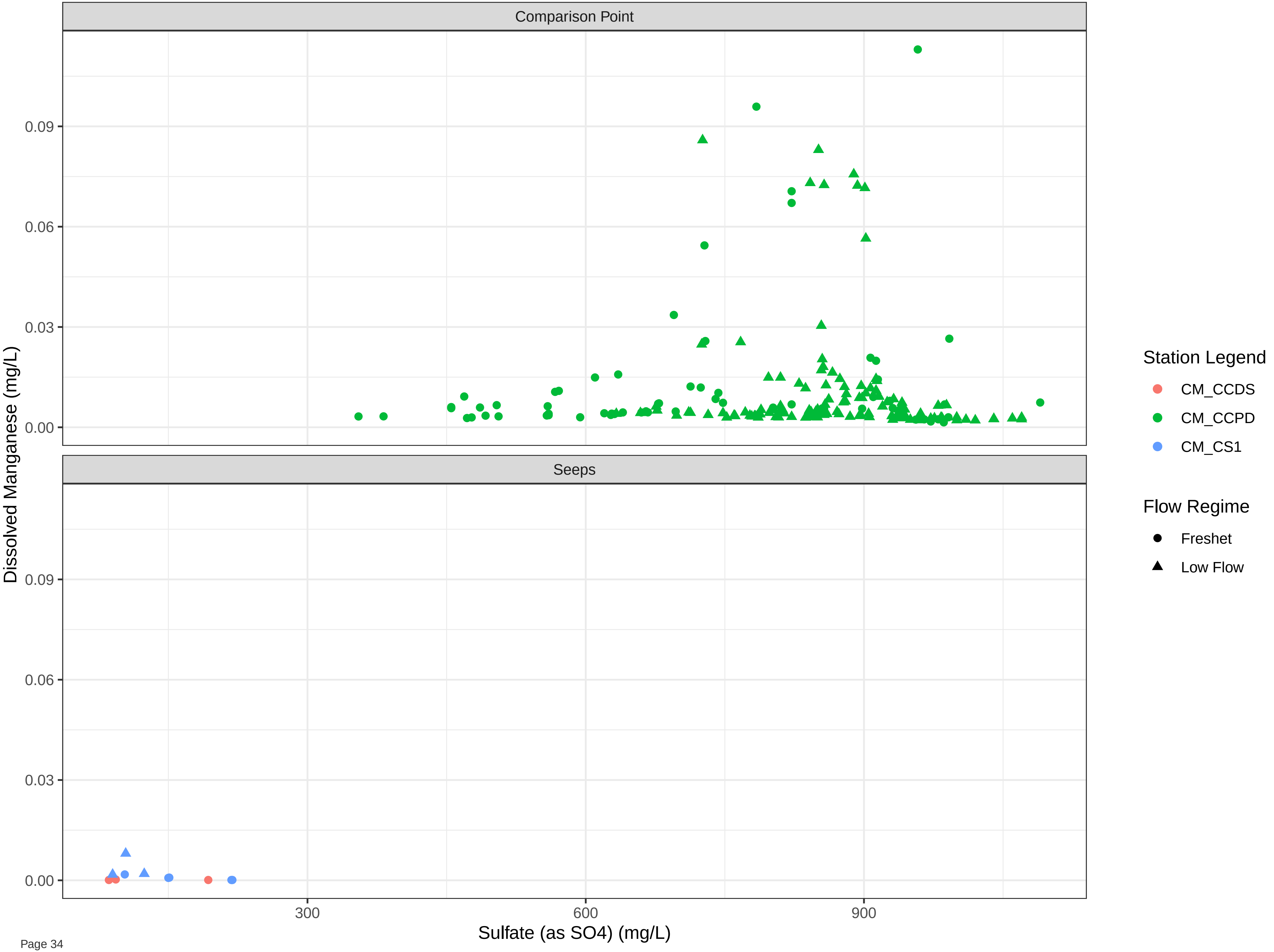

Comparison Point
Seeps
Dissolved Lithium (mg/L)
Sulfate (as SO4) (mg/L)
0.125
0.100
0.075
0.050
0.025
0.000
500
1000
1500
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

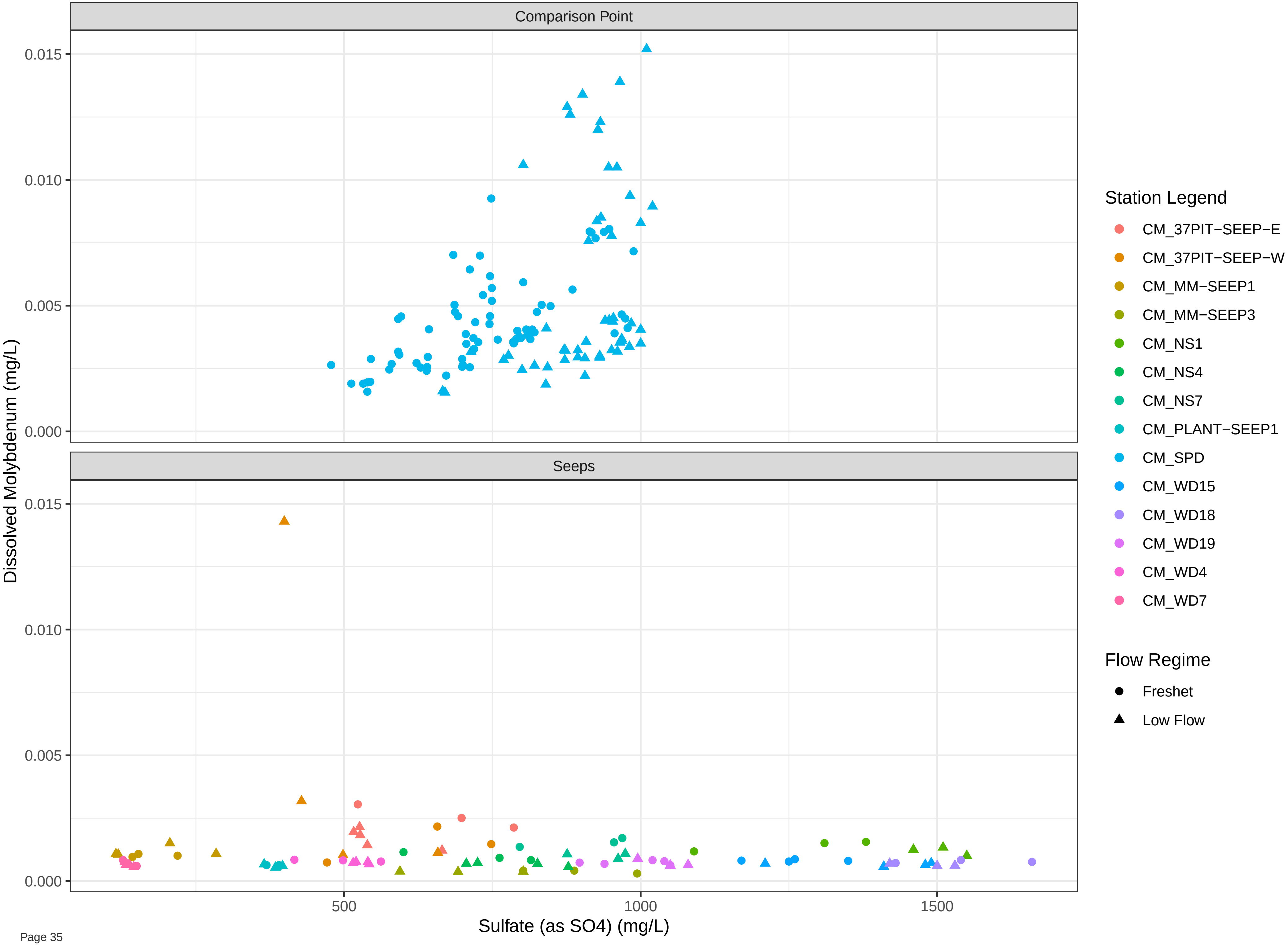

Comparison Point
Seeps
Dissolved Lithium (mg/L)
0.125
0.100
0.075
0.050
0.025
0.000
300
600
900
Sulfate (as SO4) (mg/L)
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
Dissolved Magnesium (mg/L)
200
150
100
50
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

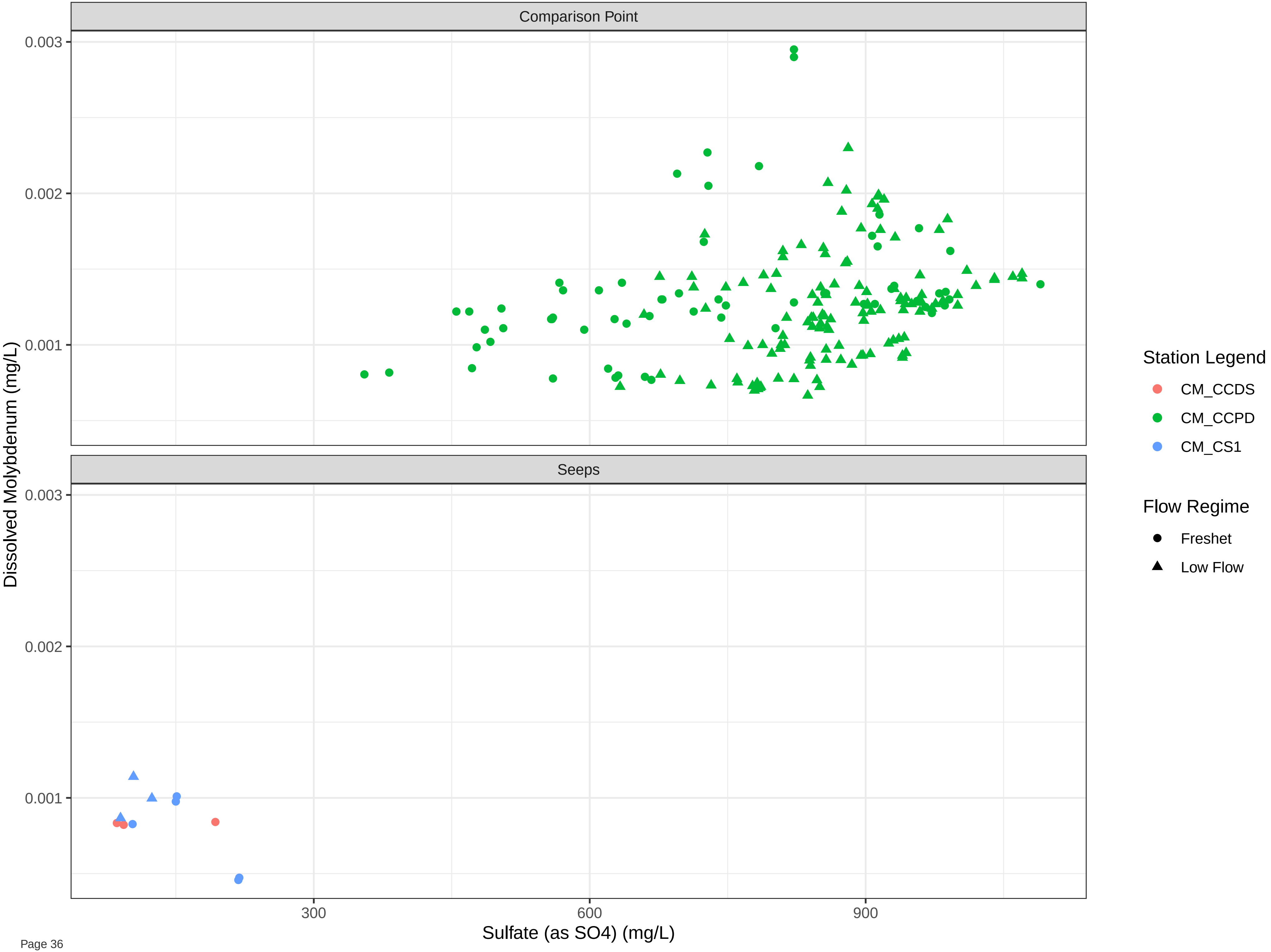

Comparison Point
Seeps
Dissolved Magnesium (mg/L)
150
100
50
150
100
50
300
600
900
Sulfate (as SO4) (mg/L)
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
Dissolved Manganese (mg/L)
0.0
0.2
0.4
0.6
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

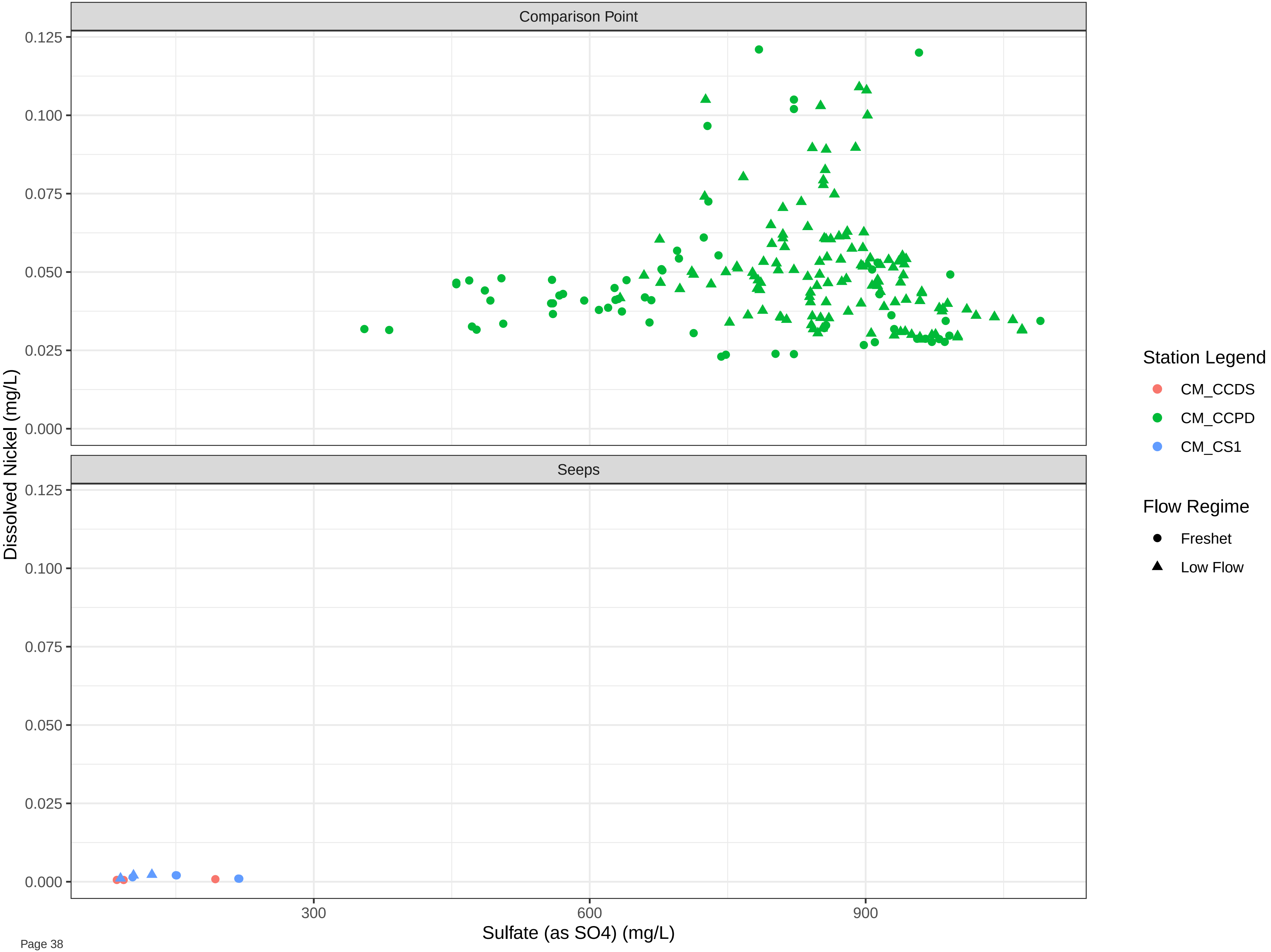

Comparison Point
Seeps
Dissolved Manganese (mg/L)
Sulfate (as SO4) (mg/L)
0.00
0.03
0.06
0.09
0.00
0.03
0.06
0.09
300
600
900
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow

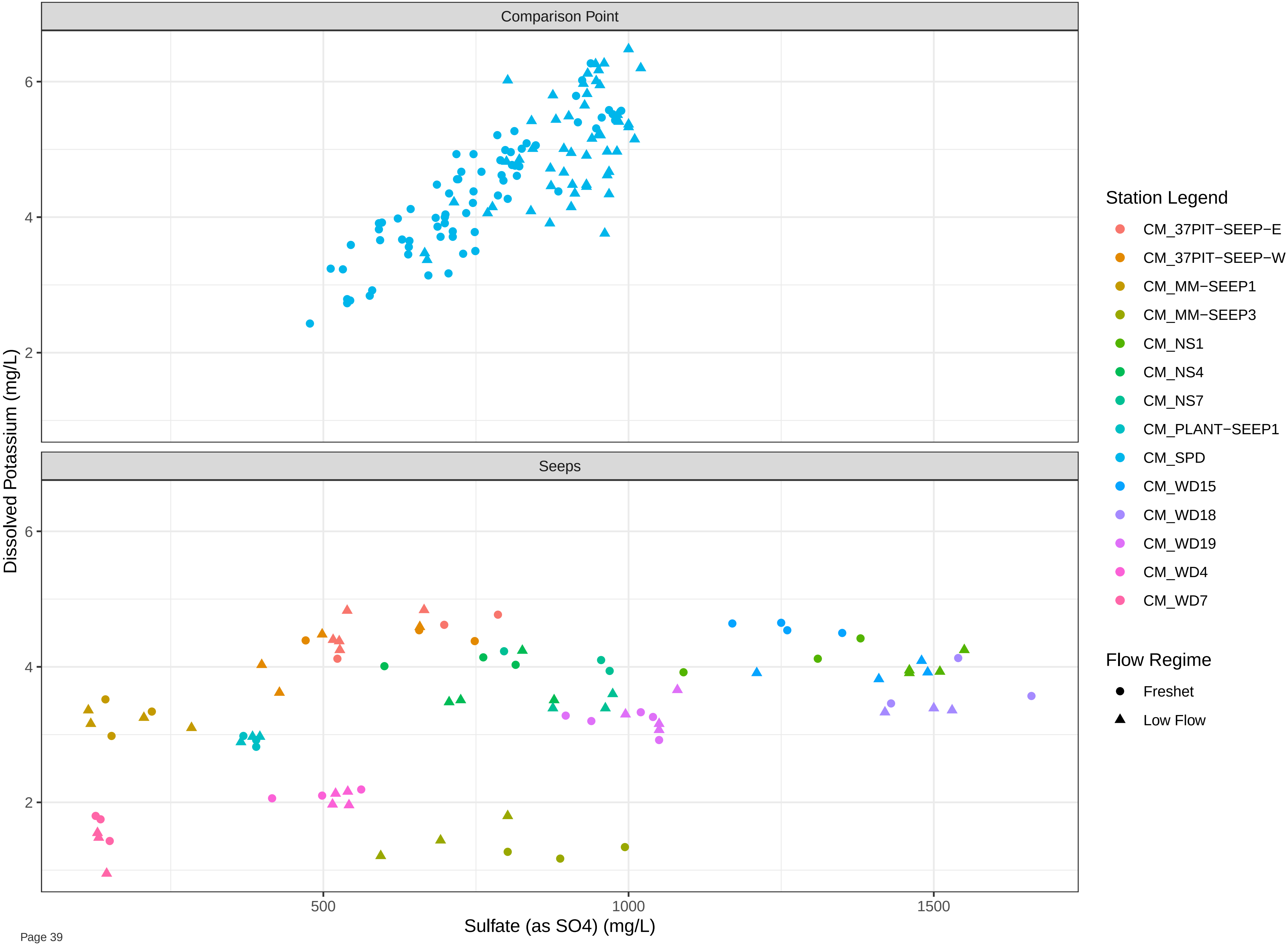


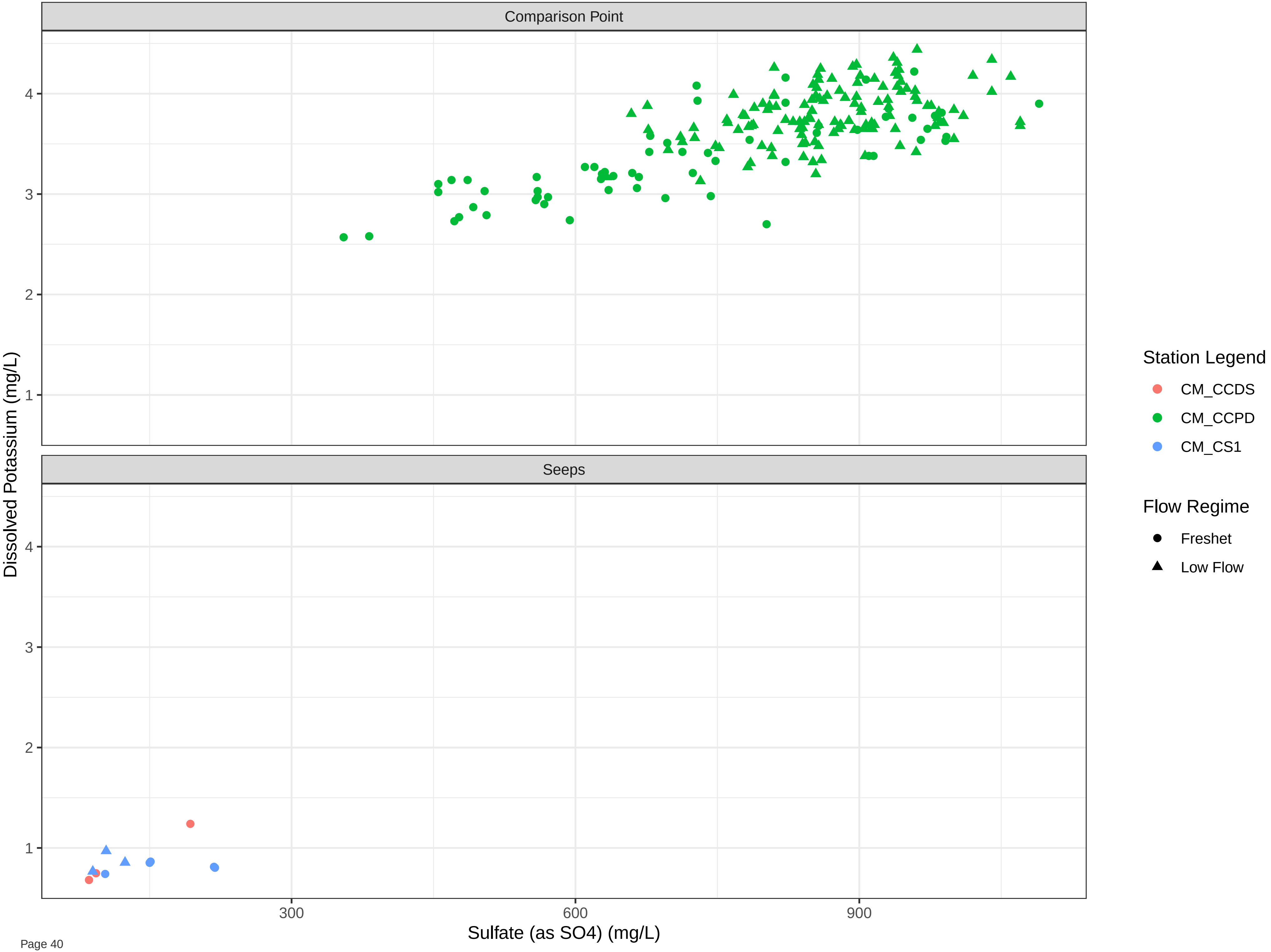
Comparison Point
Seeps
Dissolved Molybdenum (mg/L)
0.015
0.010
0.005
0.000
Sulfate (as SO4) (mg/L)
500
1000
1500
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

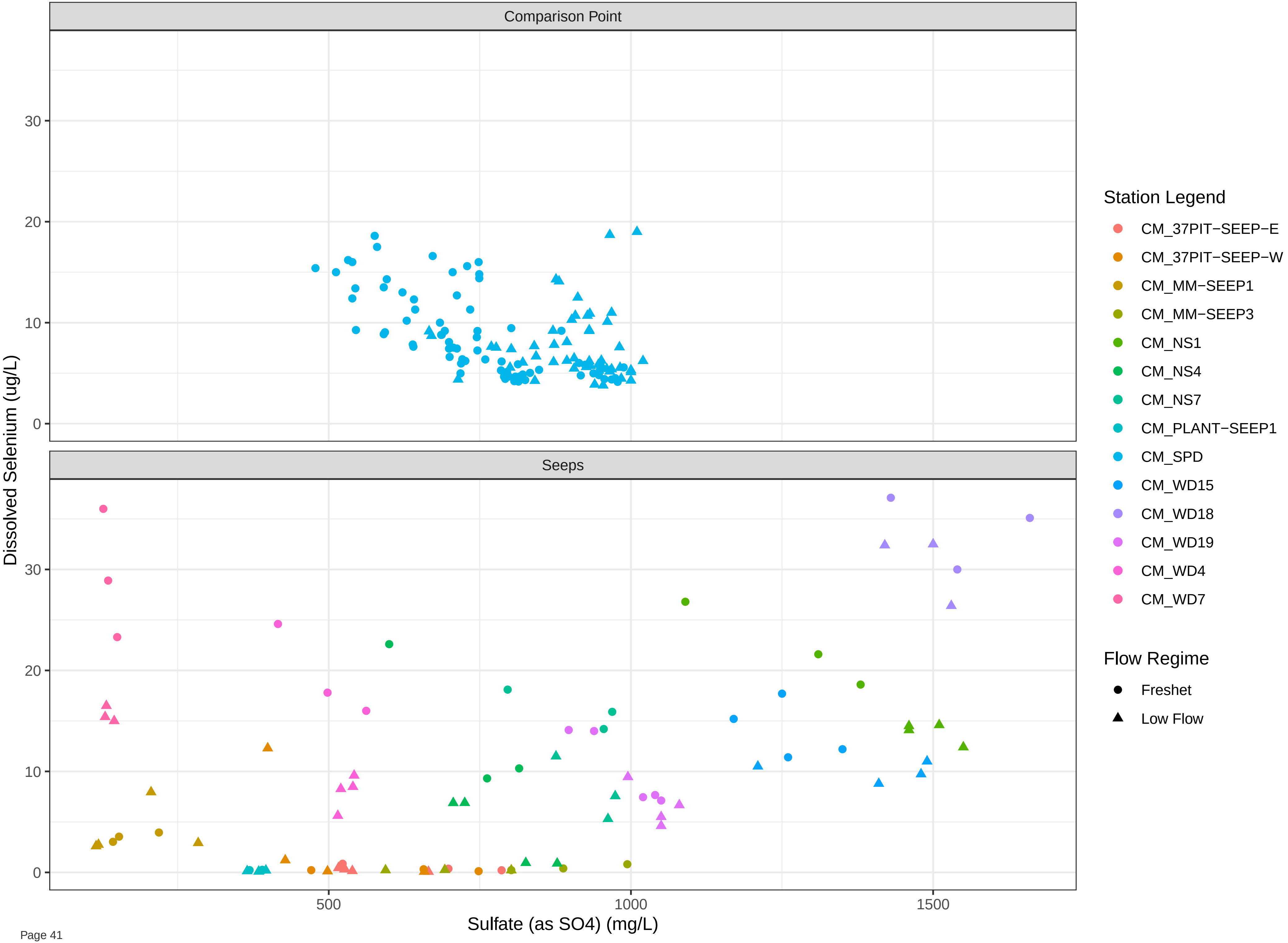

Comparison Point
Seeps
0.003
0.002
0.001
Dissolved Molybdenum (mg/L)
300
600
900
Sulfate (as SO4) (mg/L)
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow

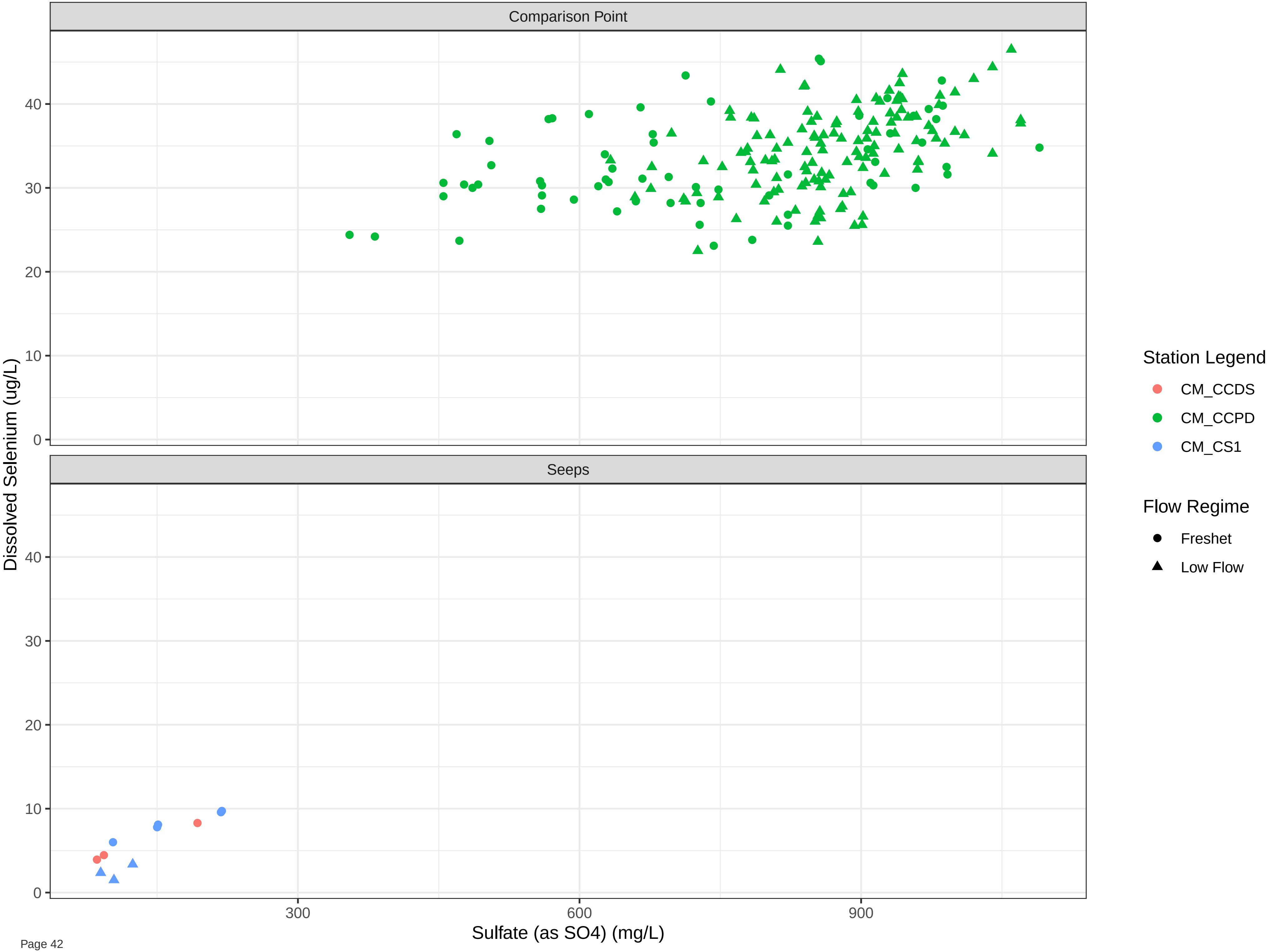

Comparison Point
Seeps
Dissolved Nickel (mg/L)
0.0
0.1
0.2
0.3
Sulfate (as SO4) (mg/L)
500
1000
1500
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

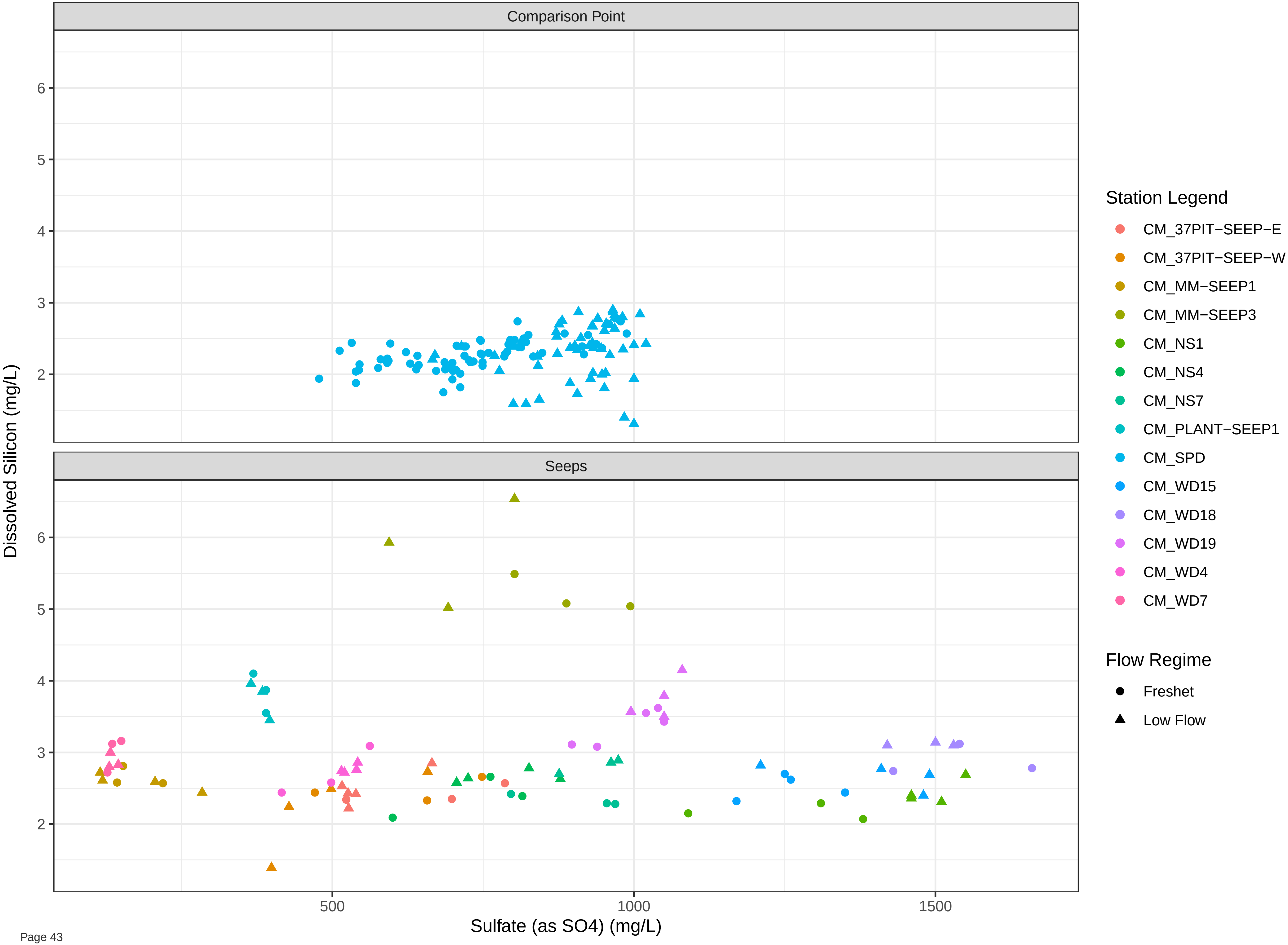

Comparison Point
Seeps
Dissolved Nickel (mg/L)
0.125
0.100
0.075
0.050
0.025
0.000
300
600
900
Sulfate (as SO4) (mg/L)
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow

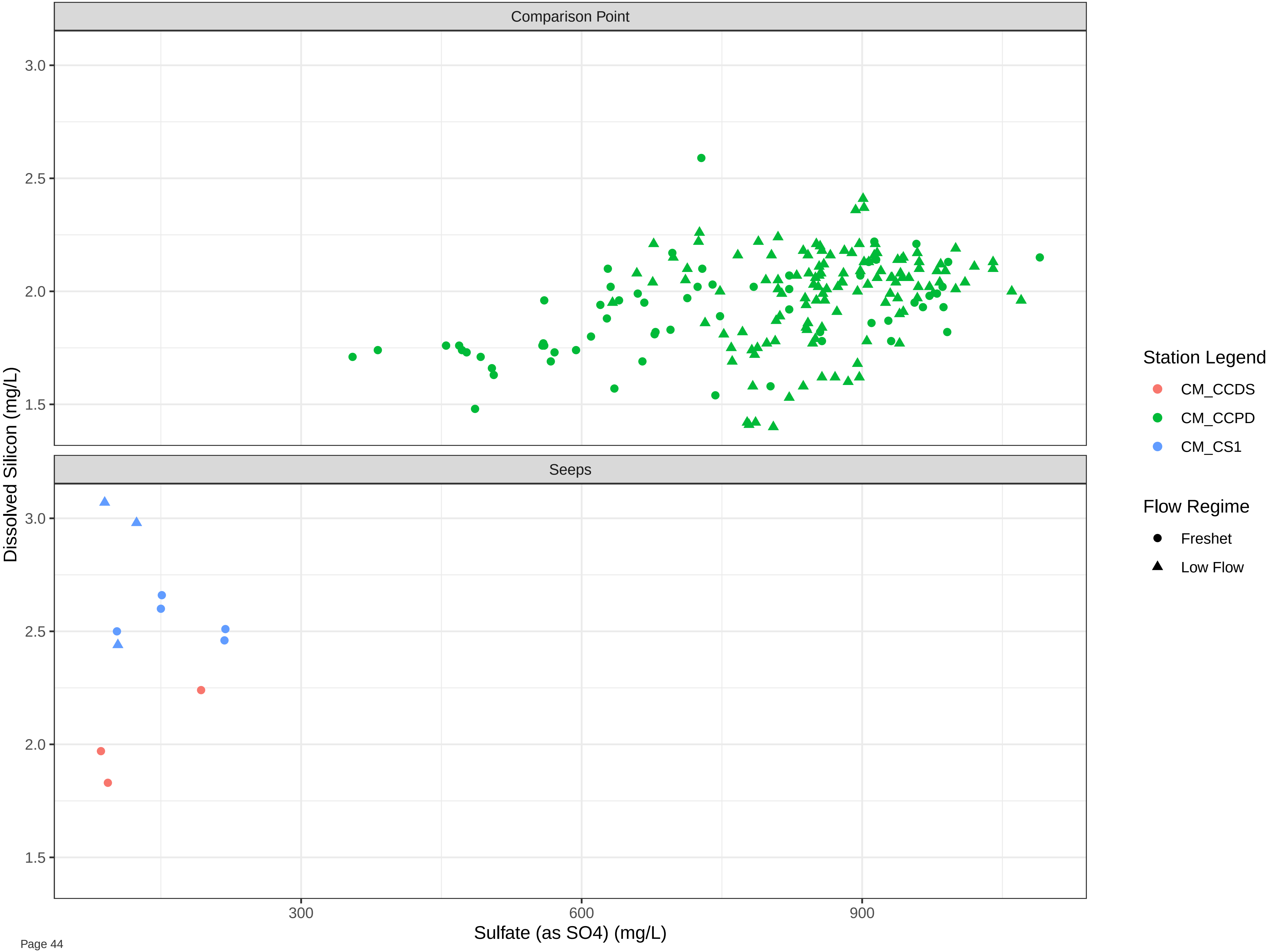

Comparison Point
Seeps
Dissolved Potassium (mg/L)
2
4
6
Sulfate (as SO4) (mg/L)
500
1000
1500
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

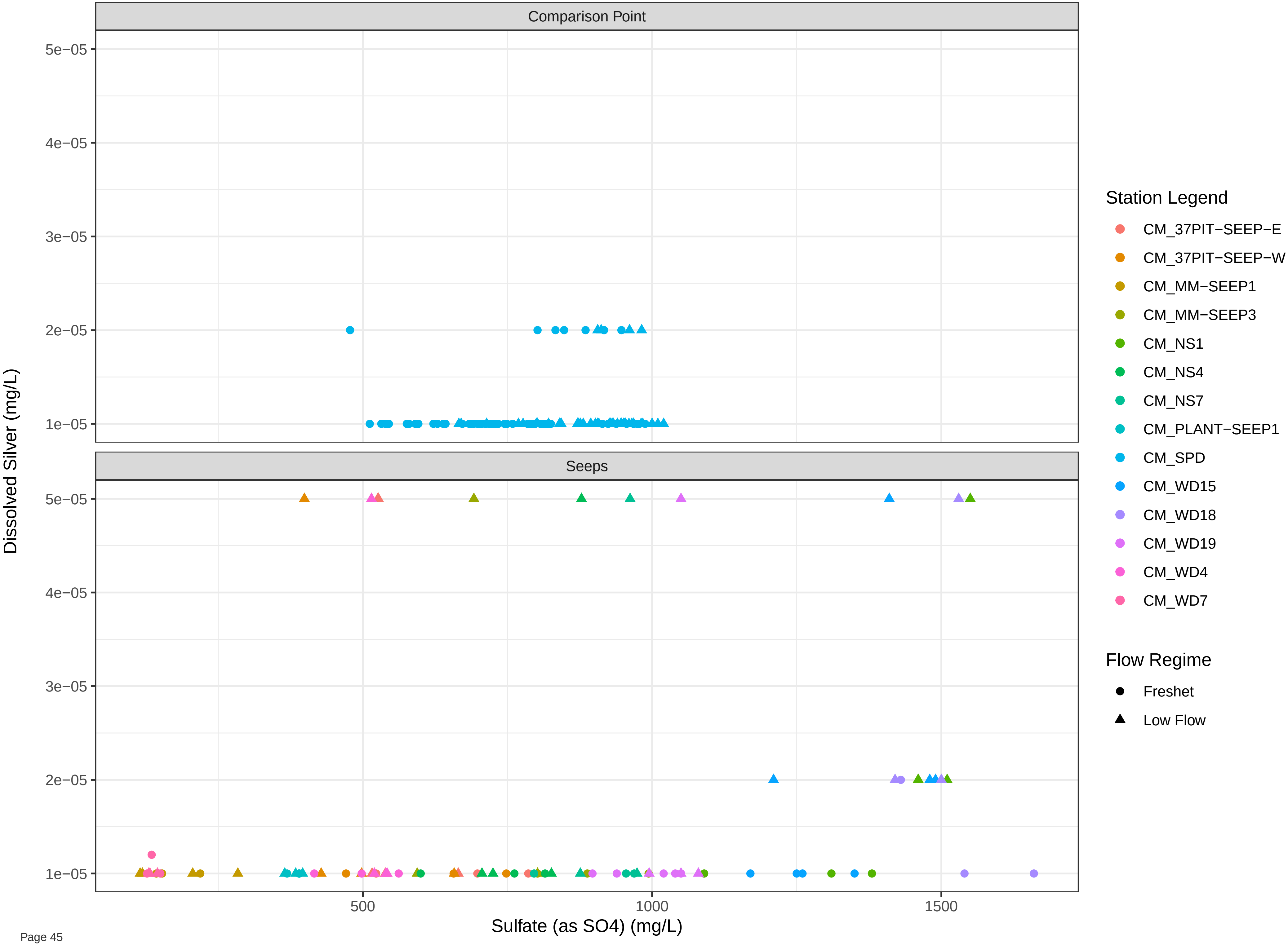

Comparison Point
Seeps
Dissolved Potassium (mg/L)
1
2
3
4
300
600
900
Sulfate (as SO4) (mg/L)
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow

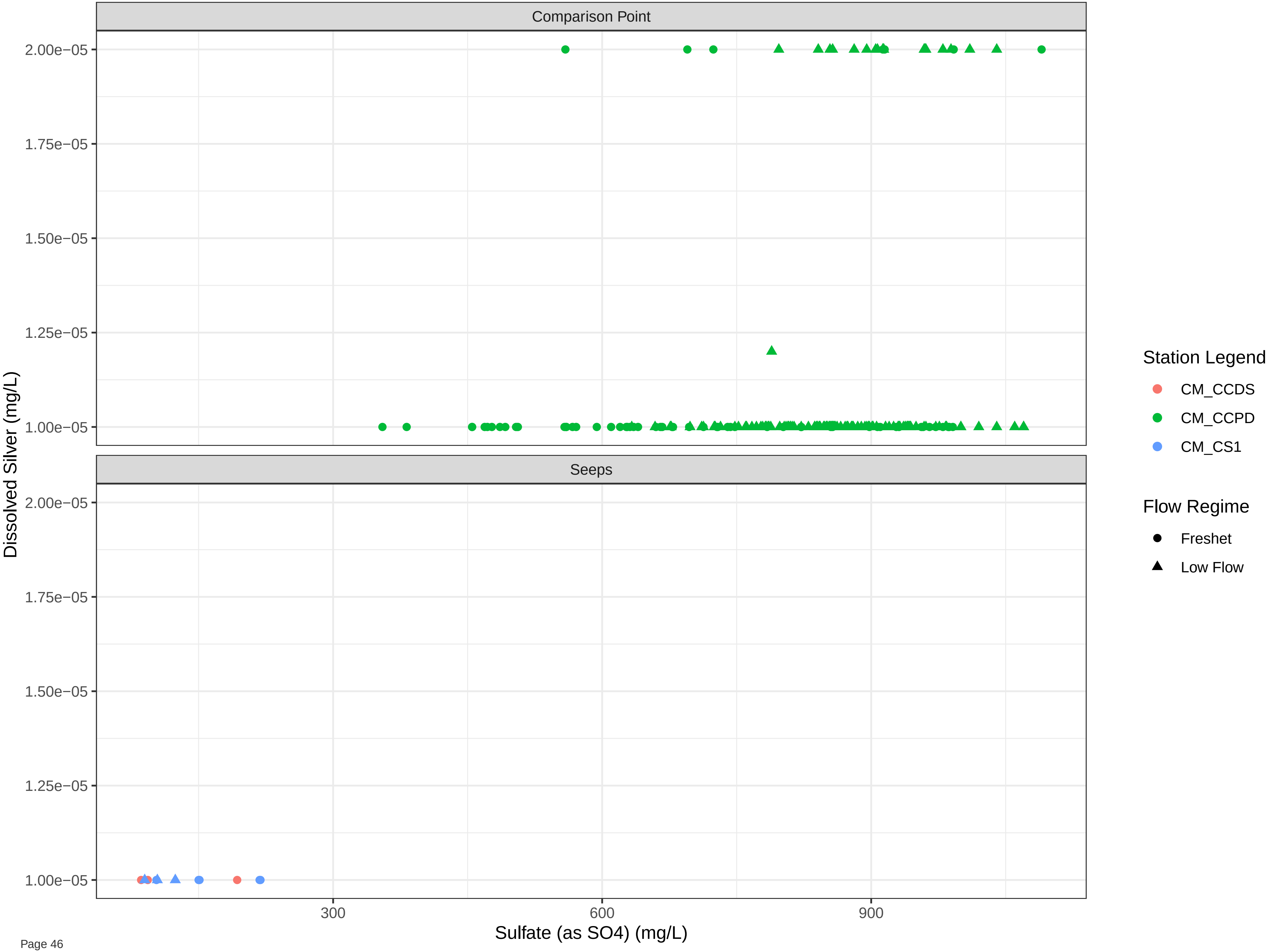

Comparison Point
Seeps
Dissolved Selenium (ug/L)
Sulfate (as SO4) (mg/L)
0
10
20
30
500
1000
1500
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

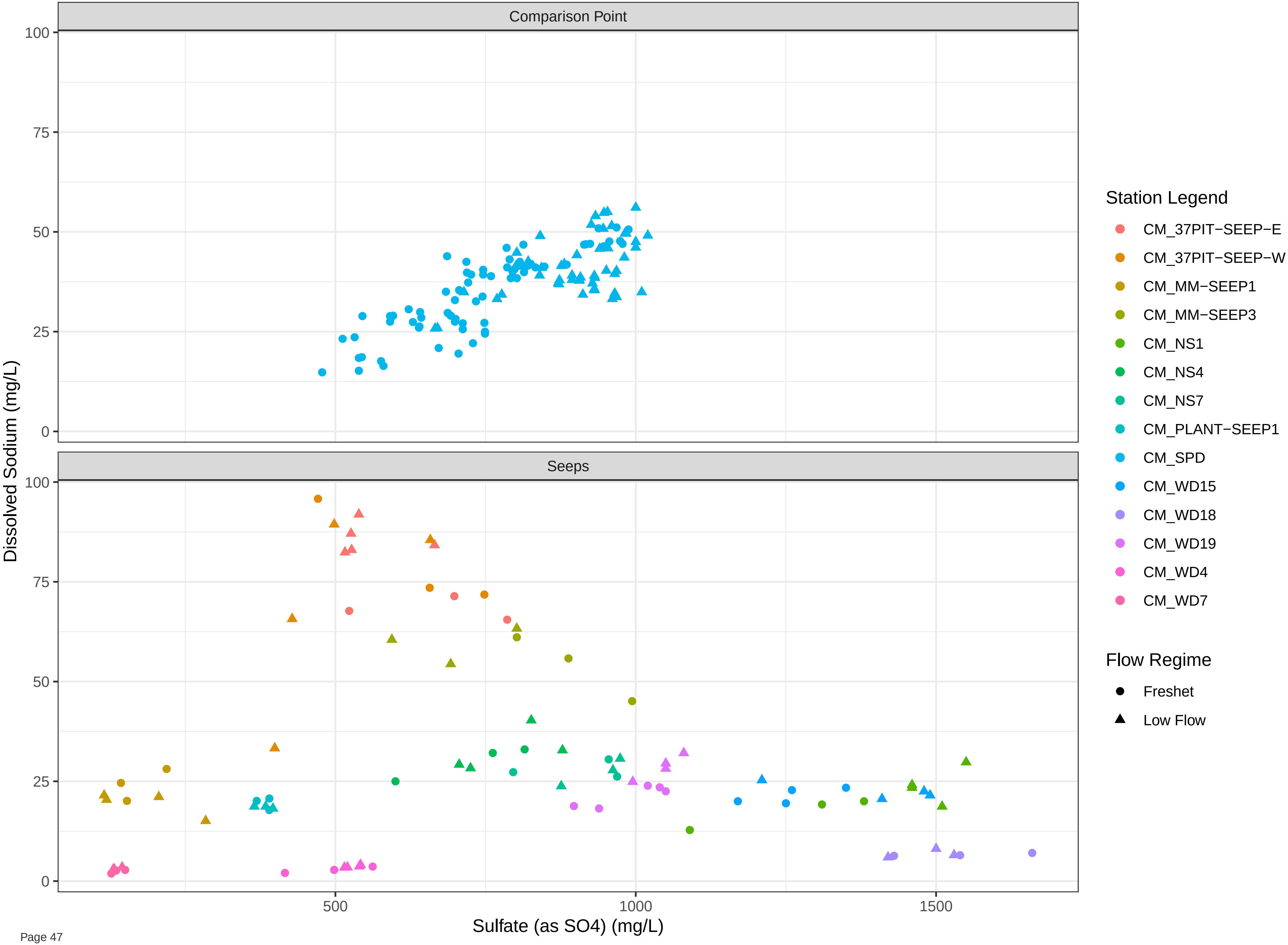

Comparison Point
Seeps
Dissolved Selenium (ug/L)
Sulfate (as SO4) (mg/L)
0
10
20
30
40
300
600
900
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow

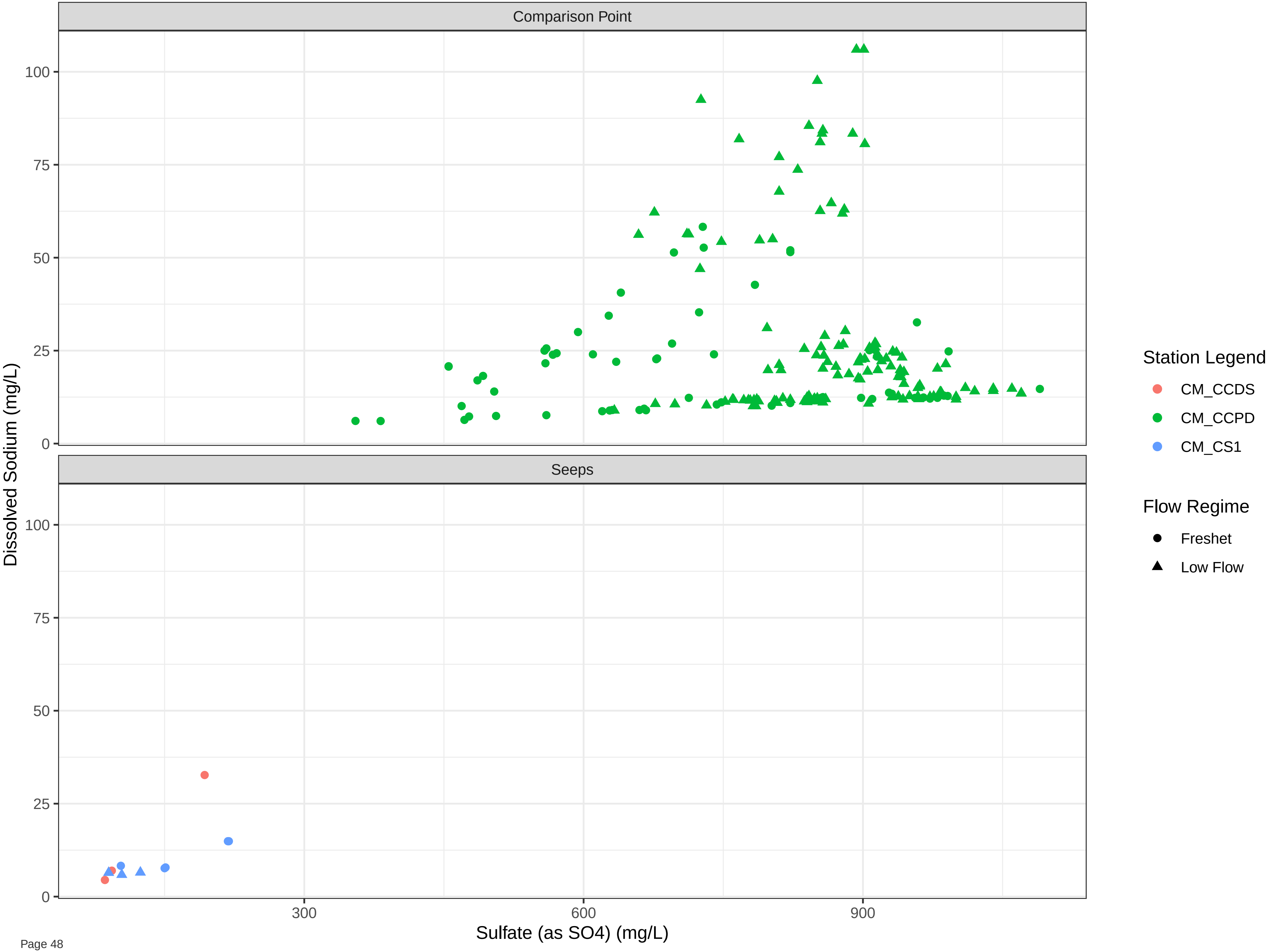

Comparison Point
Seeps
Dissolved Silicon (mg/L)
6
5
4
3
2
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

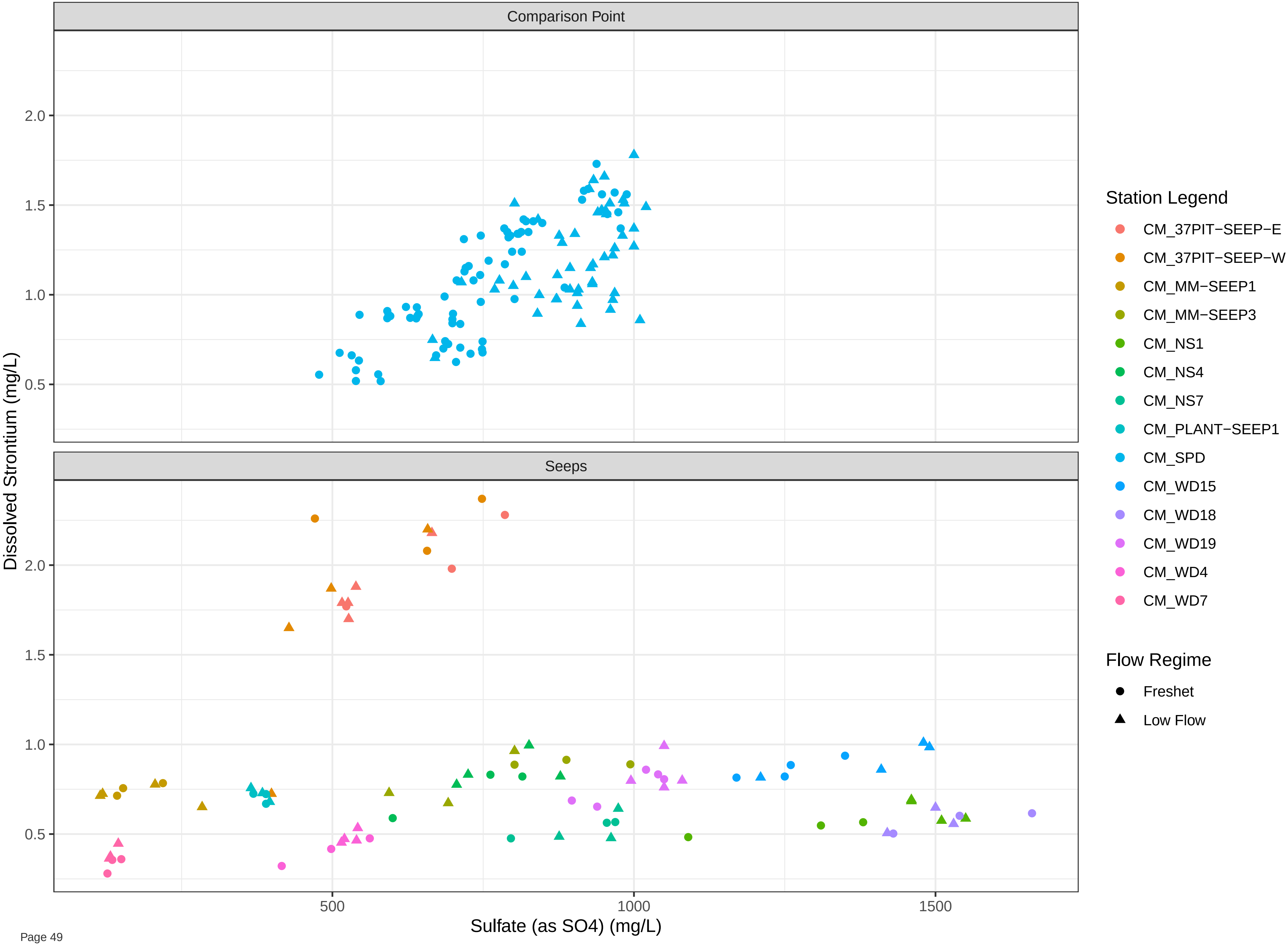

Comparison Point
Seeps
Dissolved Silicon (mg/L)
3.0
2.5
2.0
1.5
300
600
900
Sulfate (as SO4) (mg/L)
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow

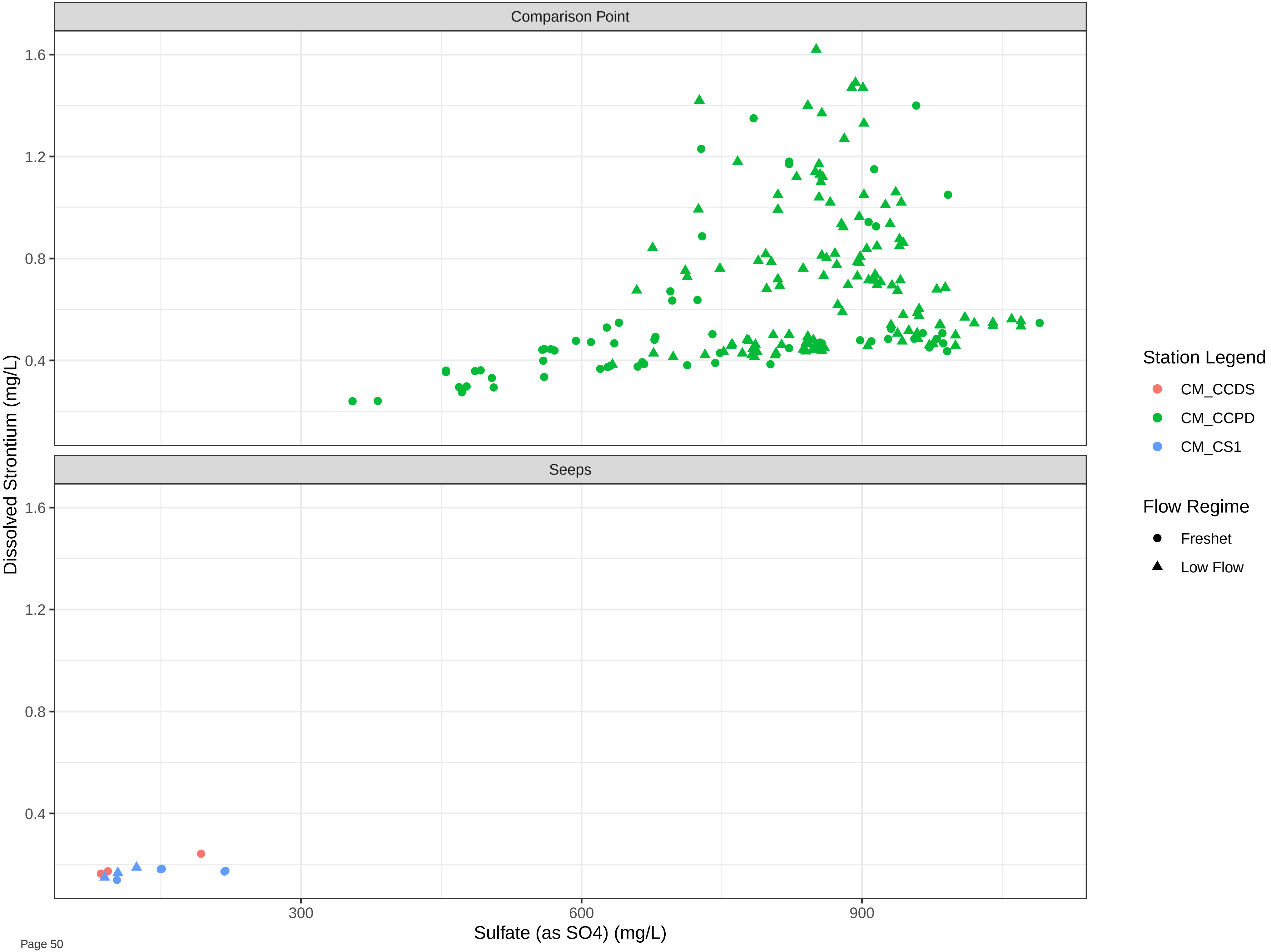

Comparison Point
Seeps
Dissolved Silver (mg/L)
5e−05
4e−05
3e−05
2e−05
1e−05
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

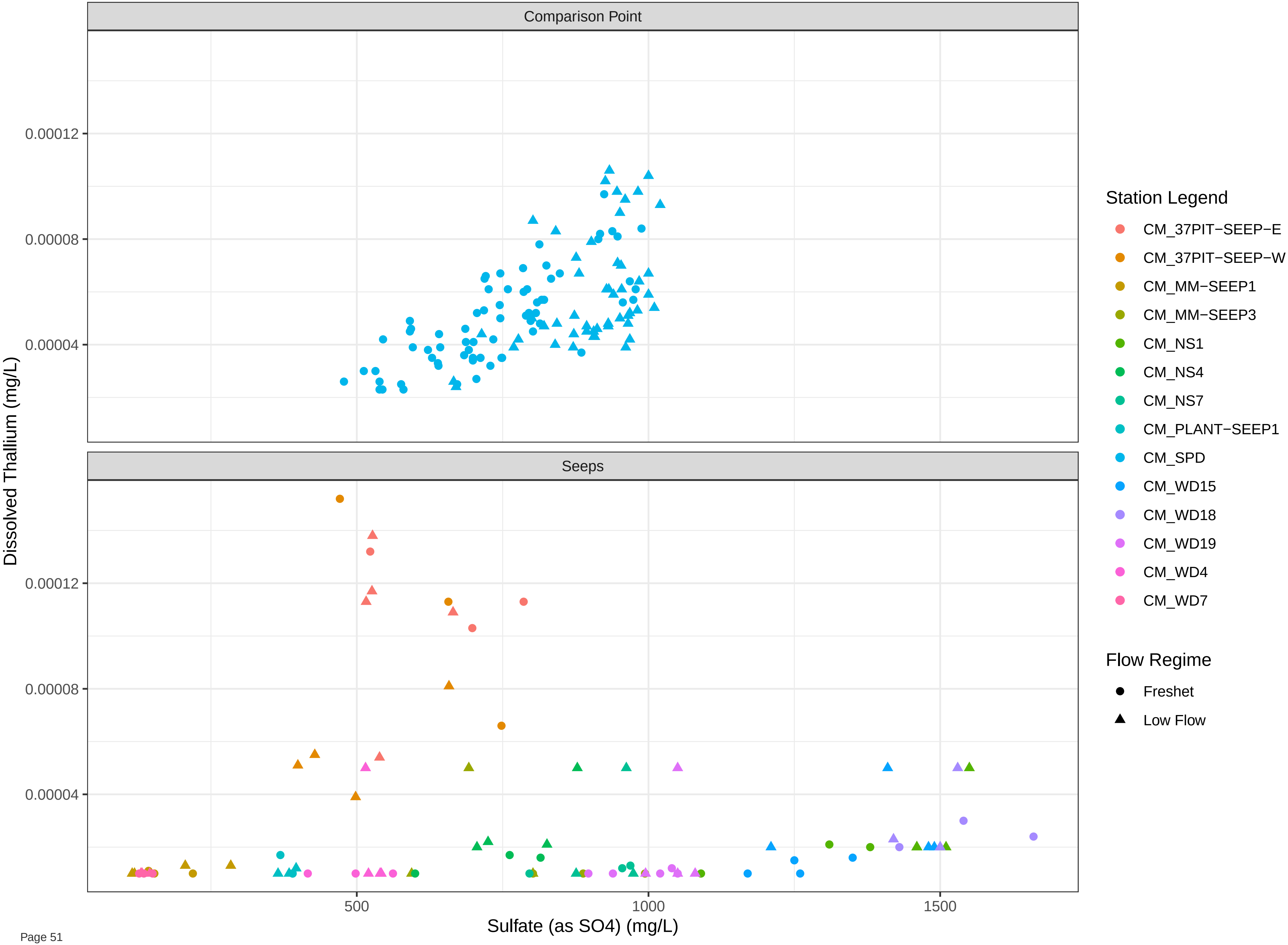

Comparison Point
Seeps
Dissolved Silver (mg/L)
2.00e−05
1.75e−05
1.50e−05
1.25e−05
1.00e−05
300
600
900
Sulfate (as SO4) (mg/L)
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow

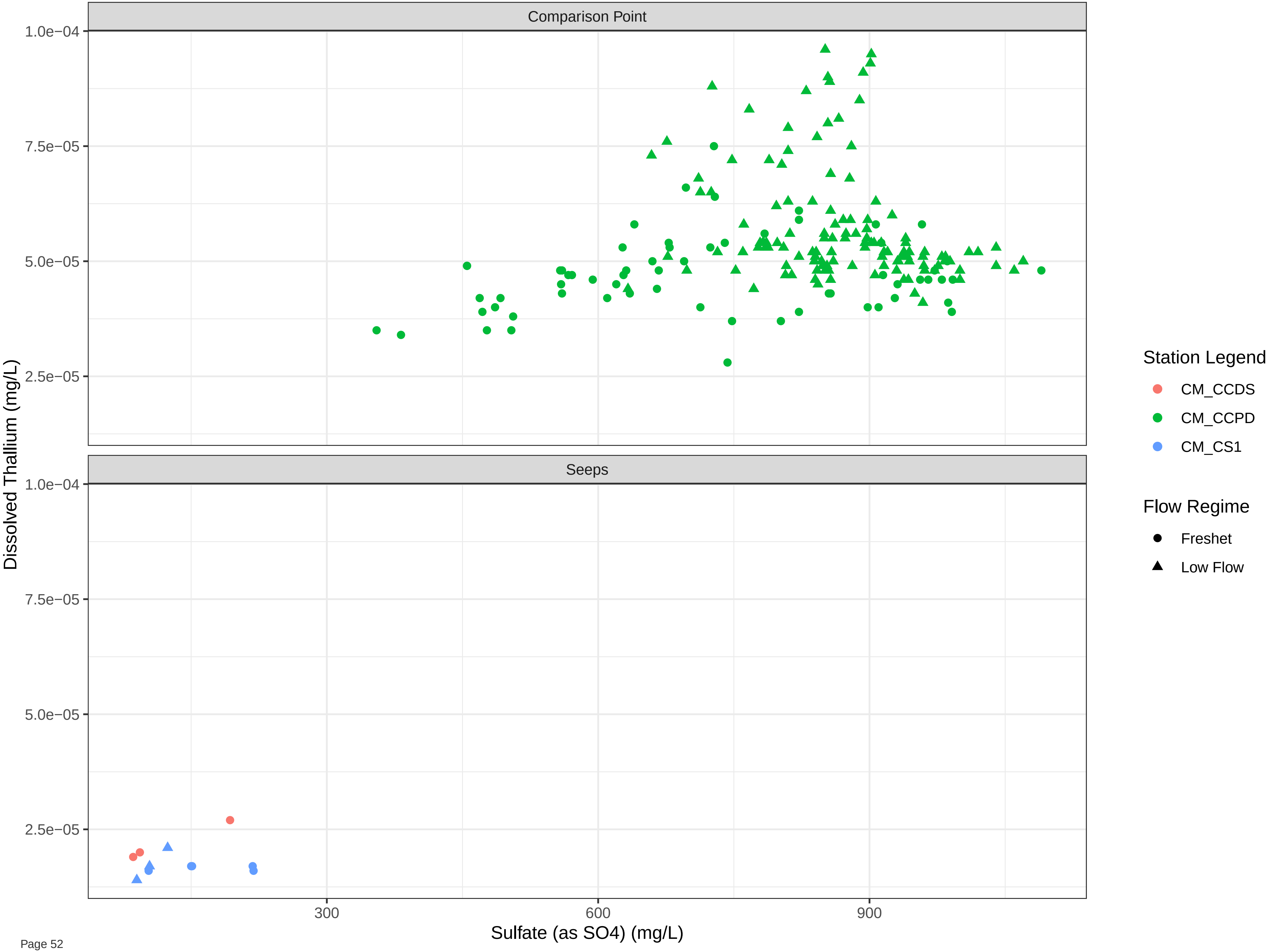

Comparison Point
Seeps
Dissolved Sodium (mg/L)
0
25
50
75
100
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

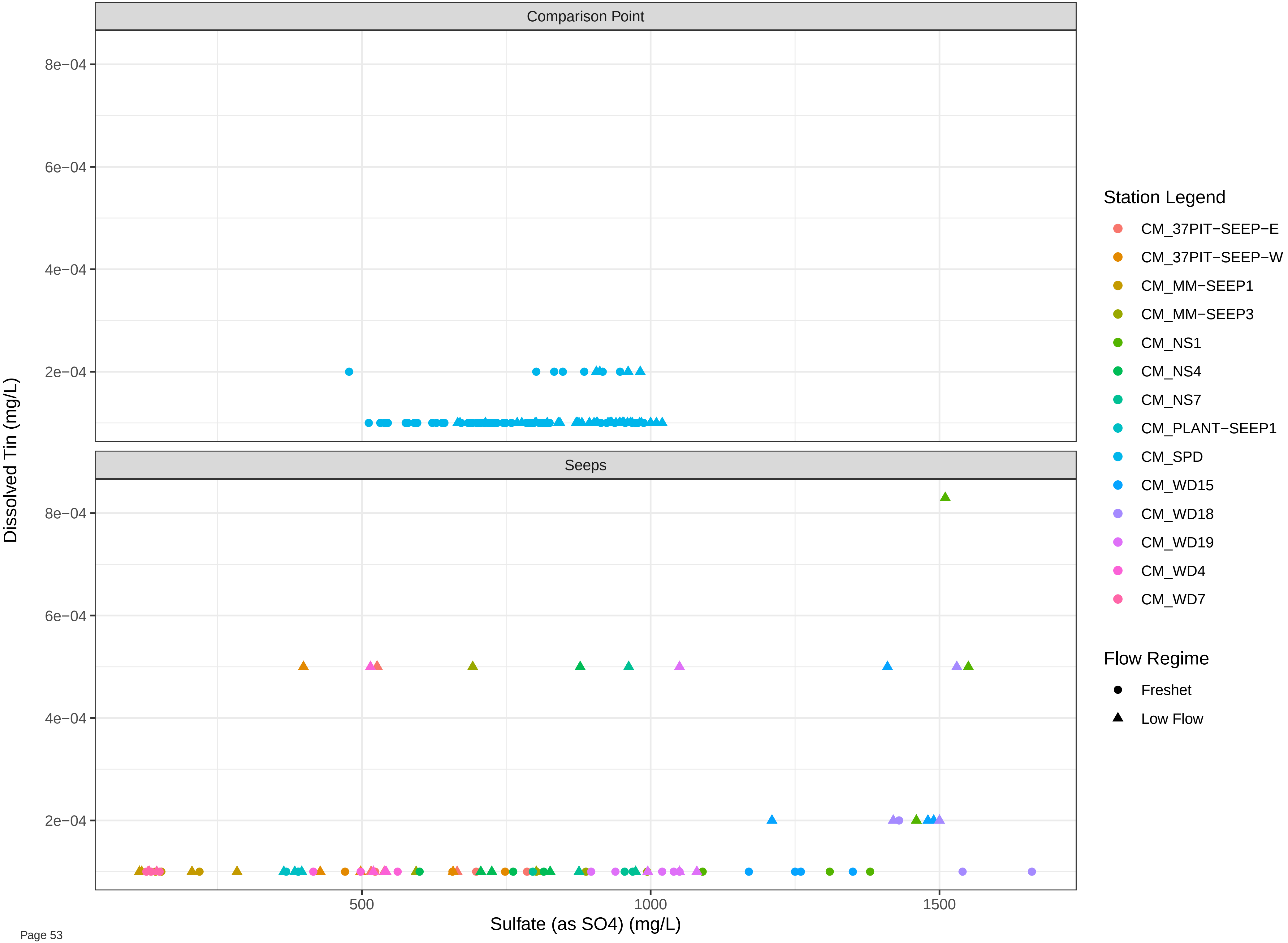

Comparison Point
Seeps
Dissolved Sodium (mg/L)
0
25
50
75
100
0
25
50
75
100
300
600
900
Sulfate (as SO4) (mg/L)
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow

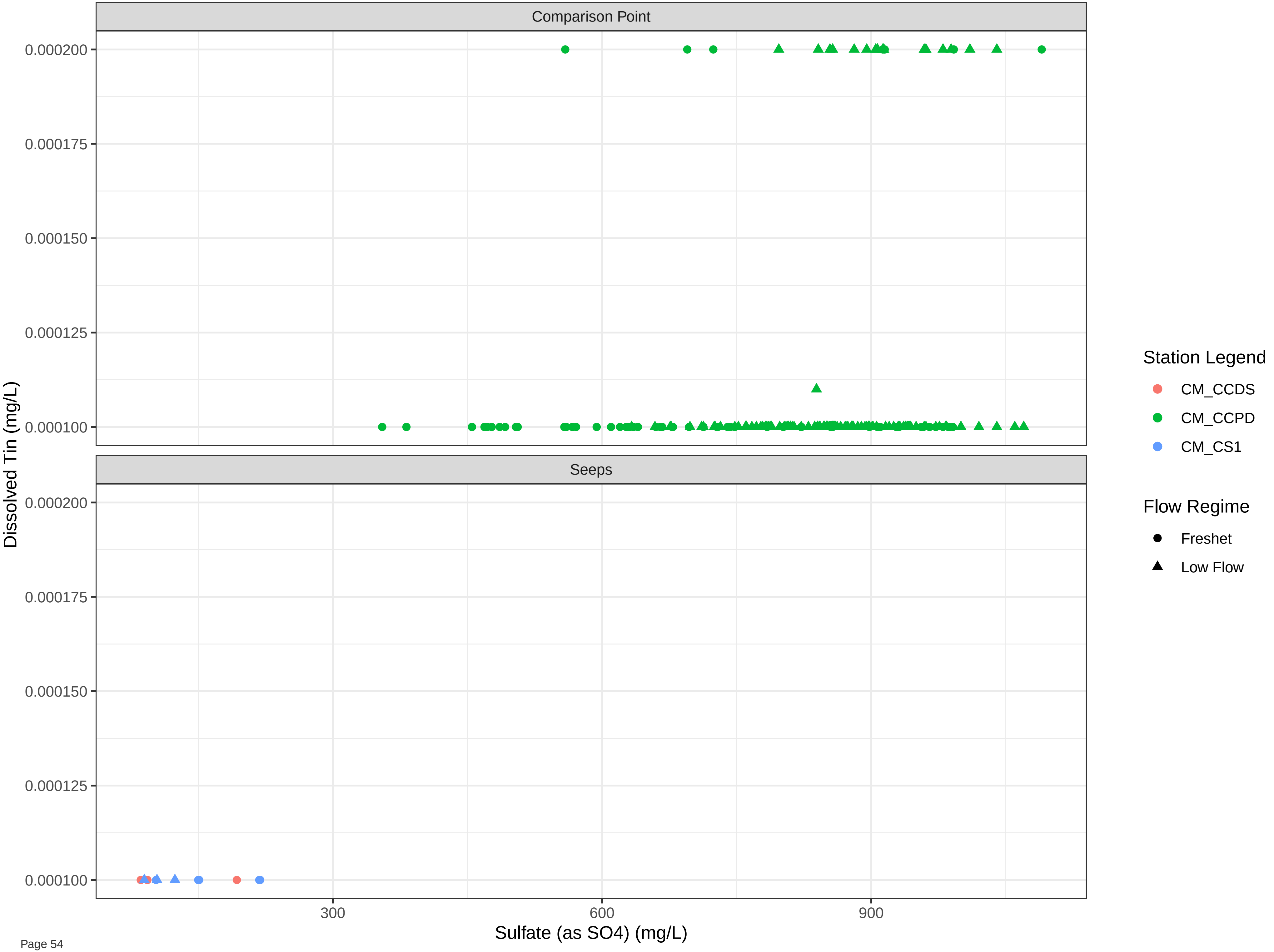

Comparison Point
Seeps
Dissolved Strontium (mg/L)
0.5
1.0
1.5
2.0
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

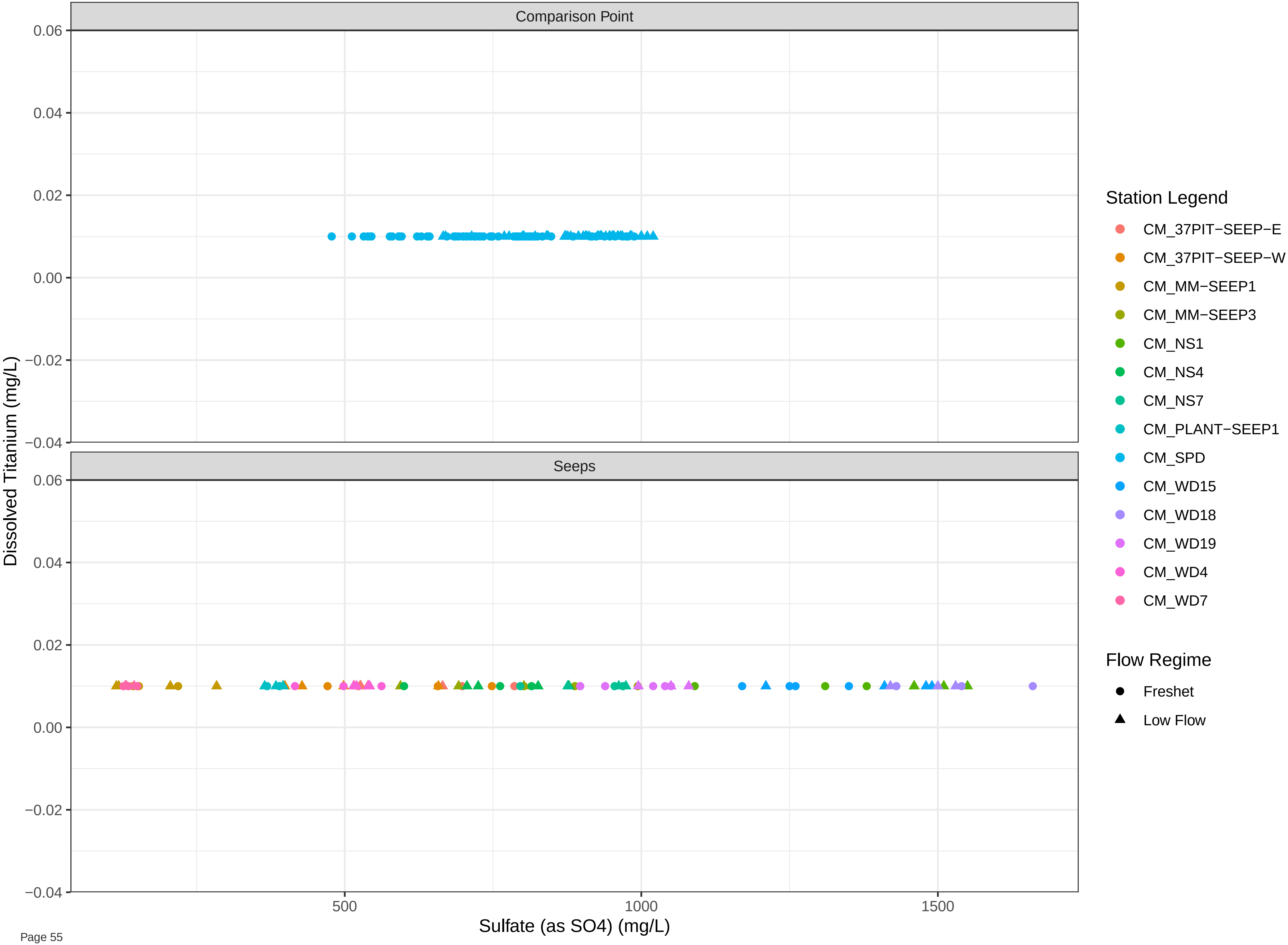

Comparison Point
Seeps
Dissolved Strontium (mg/L)
1.6
1.2
0.8
0.4
1.6
1.2
0.8
0.4
300
600
900
Sulfate (as SO4) (mg/L)
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow

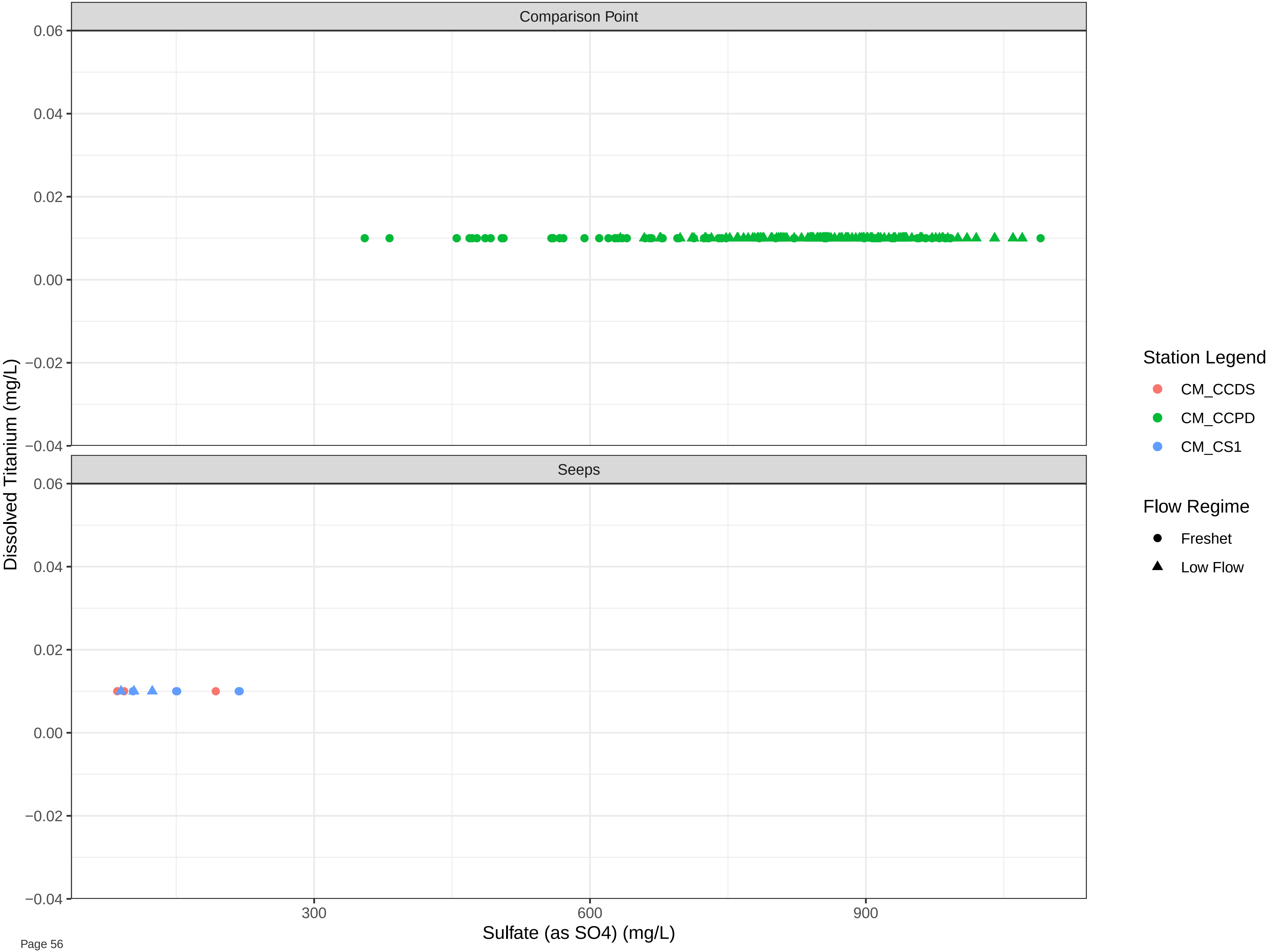

Comparison Point
Seeps
0.00012
0.00008
0.00004
Dissolved Thallium (mg/L)
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

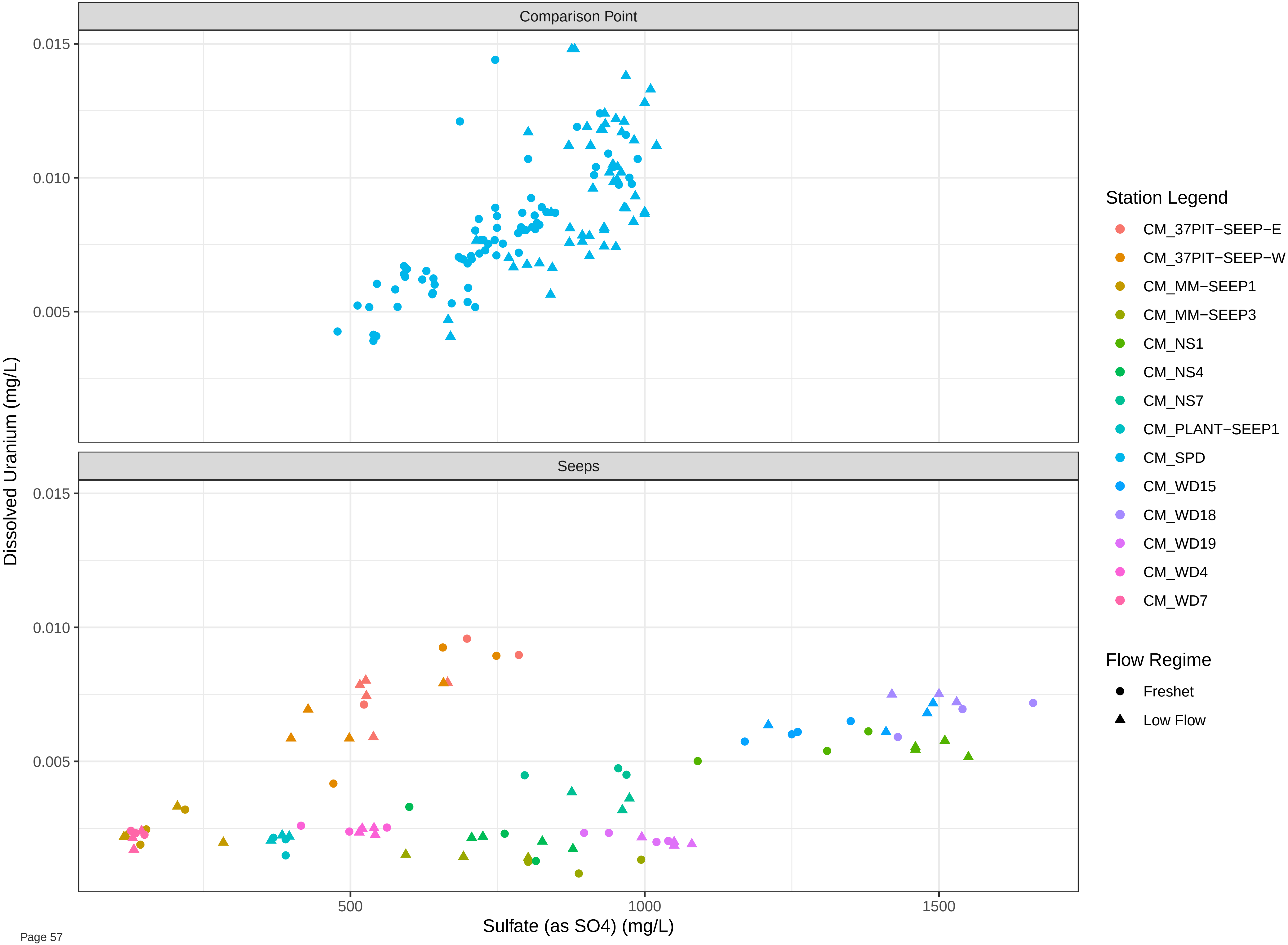

Comparison Point
Seeps
1.0e−04
7.5e−05
5.0e−05
2.5e−05
1.0e−04
7.5e−05
5.0e−05
2.5e−05
Dissolved Thallium (mg/L)
300
600
900
Sulfate (as SO4) (mg/L)
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow

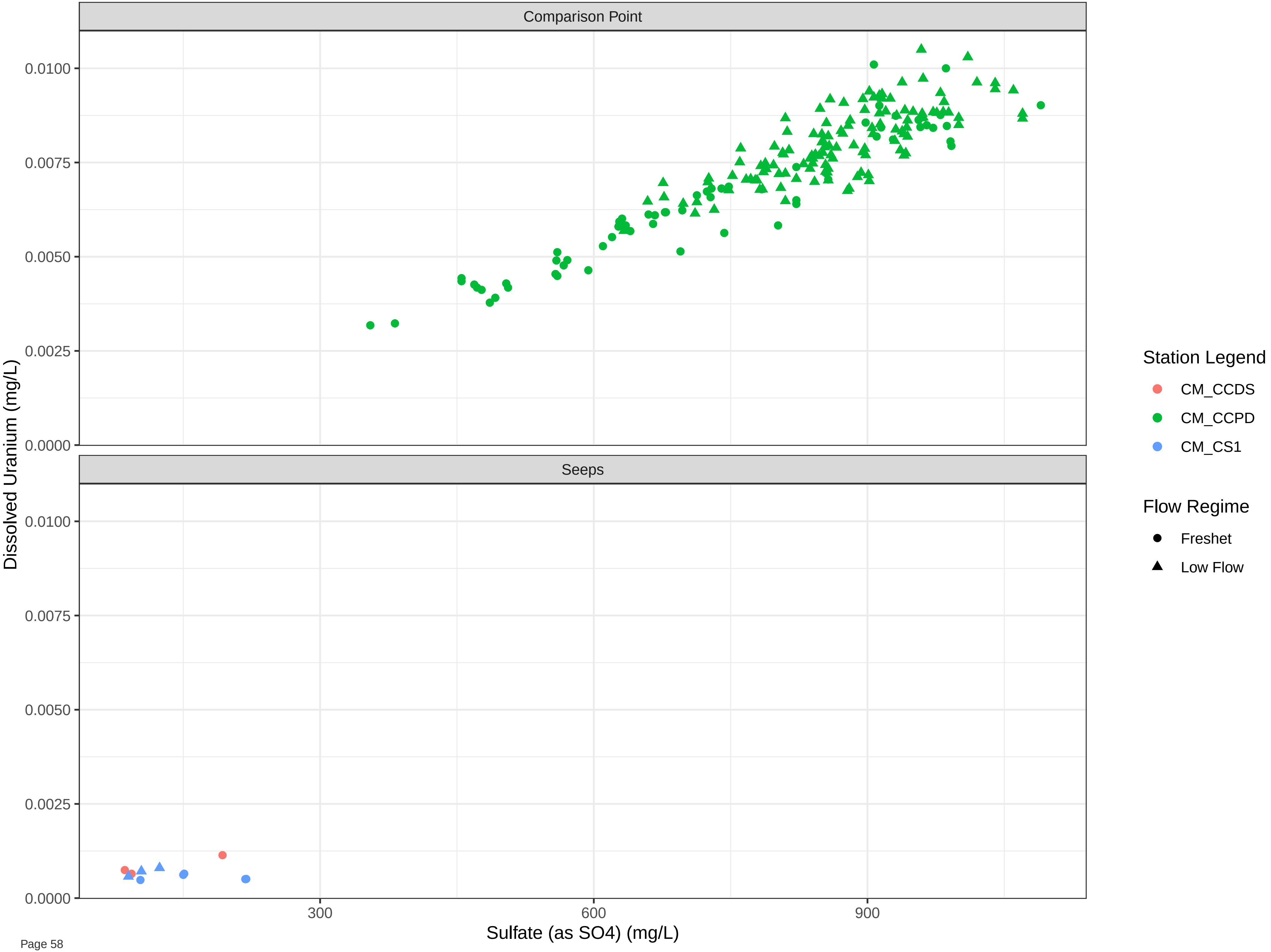

Comparison Point
Seeps
8e−04
6e−04
4e−04
2e−04
500
1000
1500
Dissolved Tin (mg/L)
Sulfate (as SO4) (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow


Comparison Point
Seeps
Dissolved Tin (mg/L)
0.000200
0.000175
0.000150
0.000125
0.000100
Sulfate (as SO4) (mg/L)
300
600
900
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow

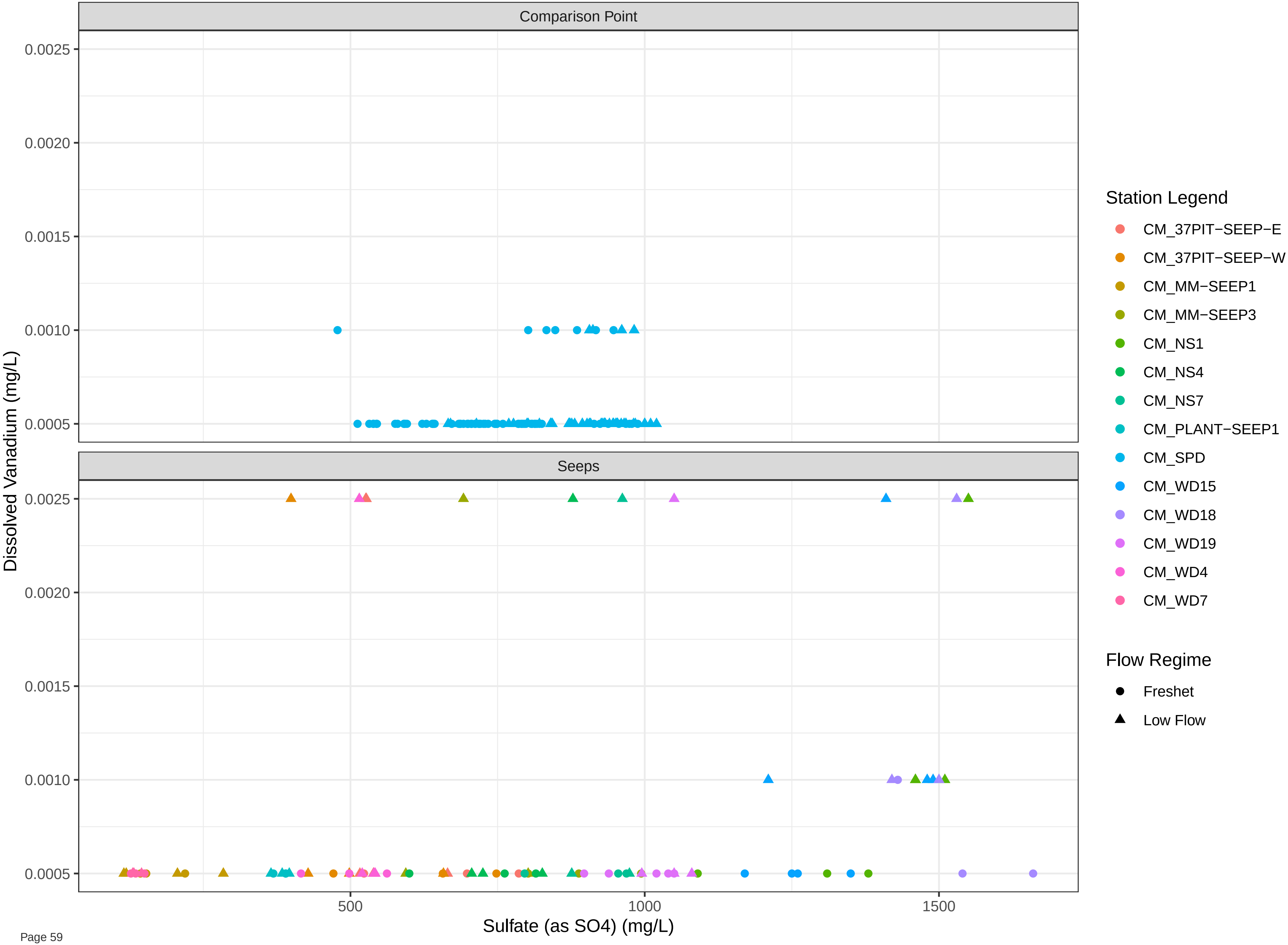

Comparison Point
Seeps
0.06
0.04
0.02
0.00
−0.02
−0.04
Dissolved Titanium (mg/L)
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

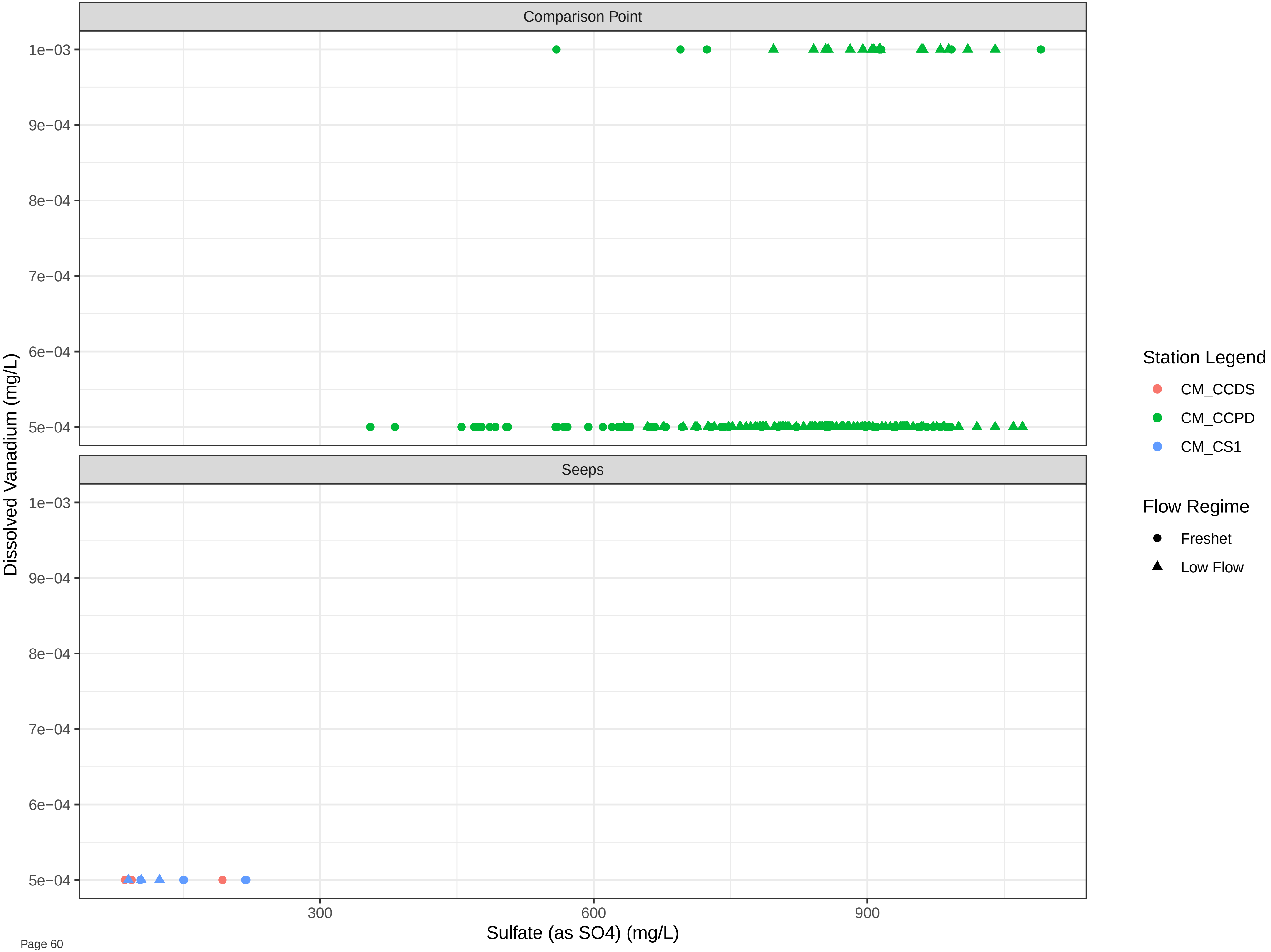

Comparison Point
Seeps
Dissolved Titanium (mg/L)
0.06
0.04
0.02
0.00
−0.02
−0.04
Sulfate (as SO4) (mg/L)
300
600
900
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow

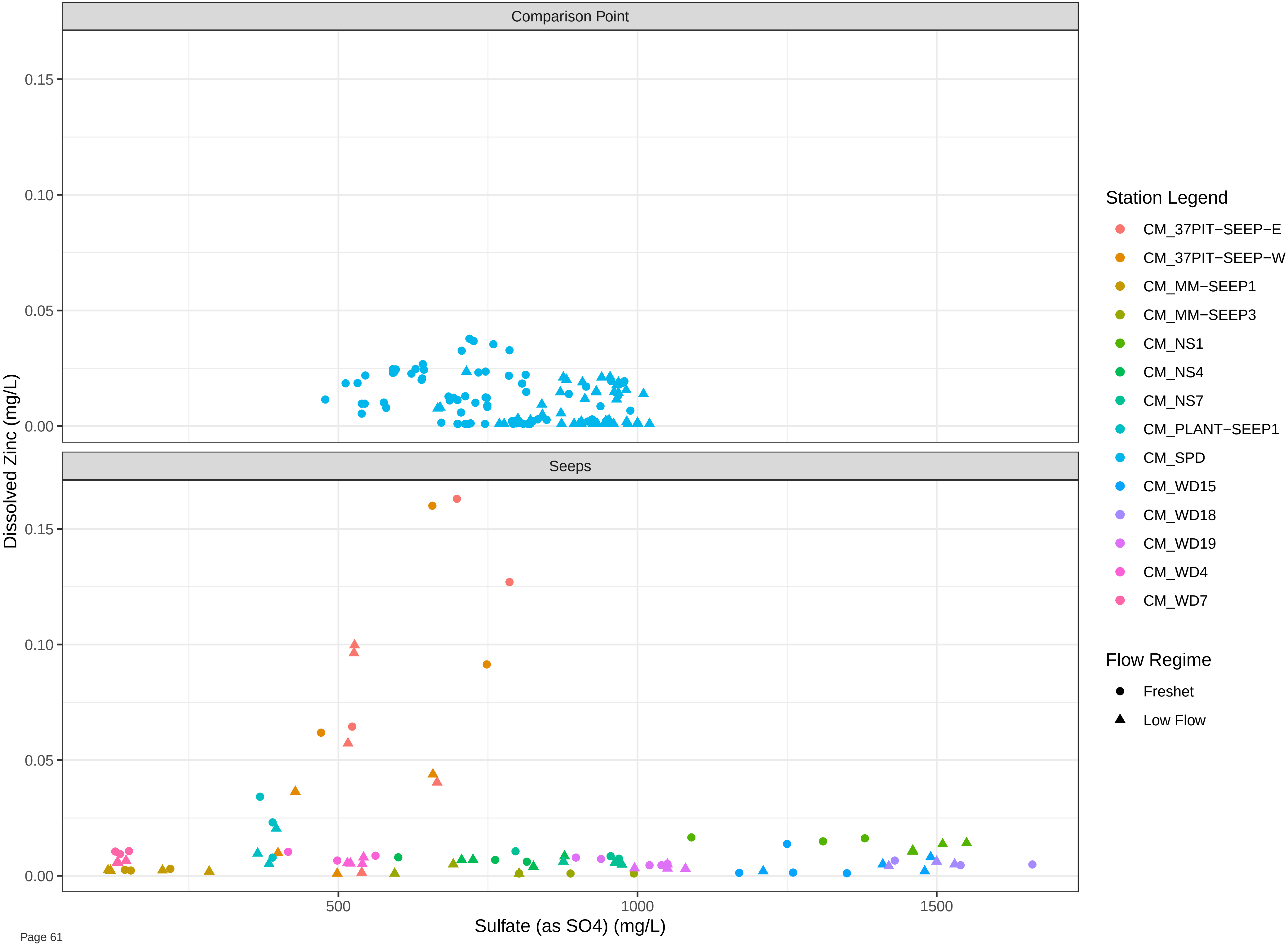

Comparison Point
Seeps
Dissolved Uranium (mg/L)
0.015
0.010
0.005
0.015
0.010
0.005
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
● Freshet
▲ Low Flow

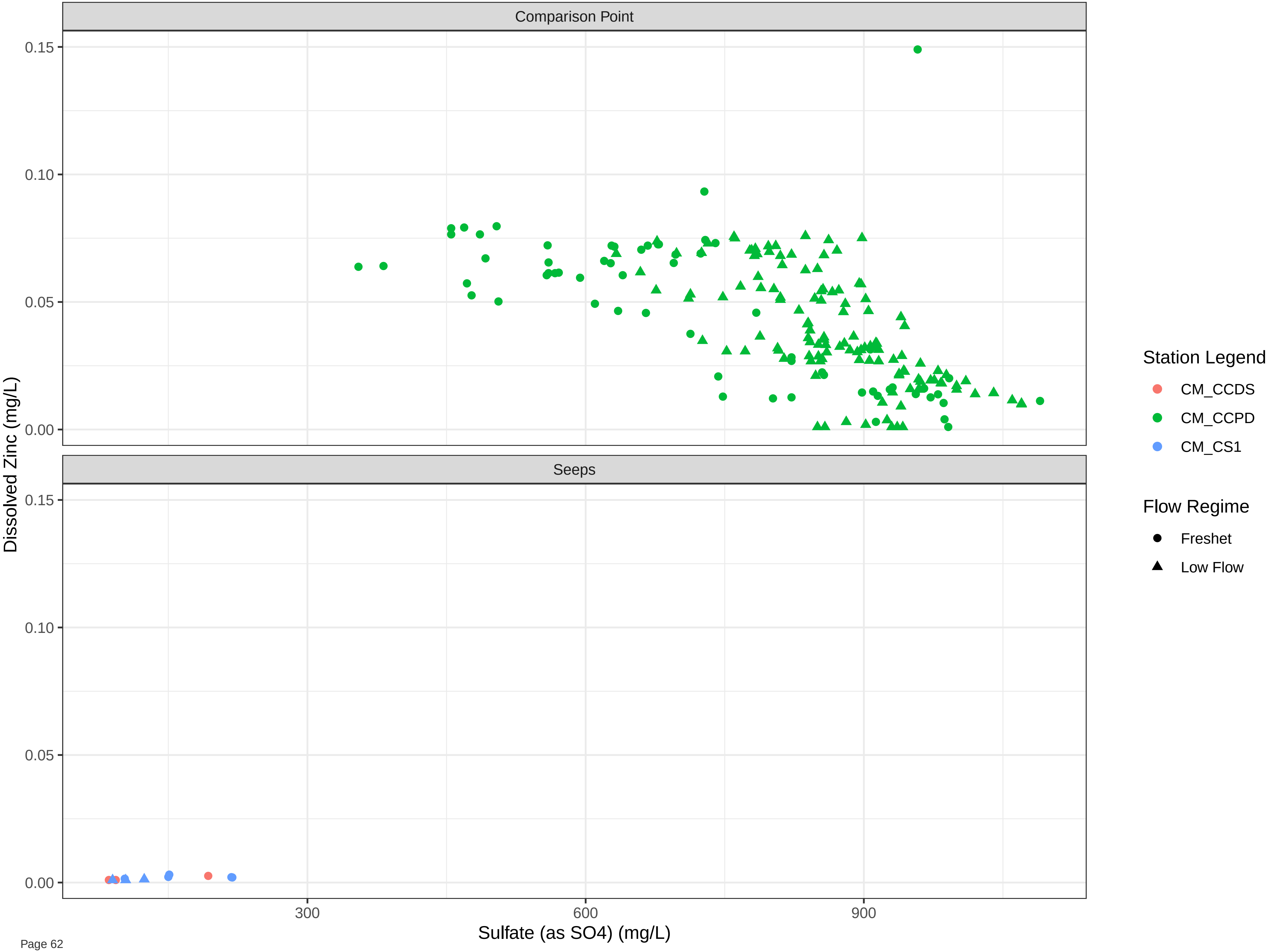


Comparison Point
Seeps
Dissolved Uranium (mg/L)
0.0100
0.0075
0.0050
0.0025
0.0000
300
600
900
Sulfate (as SO4) (mg/L)
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow

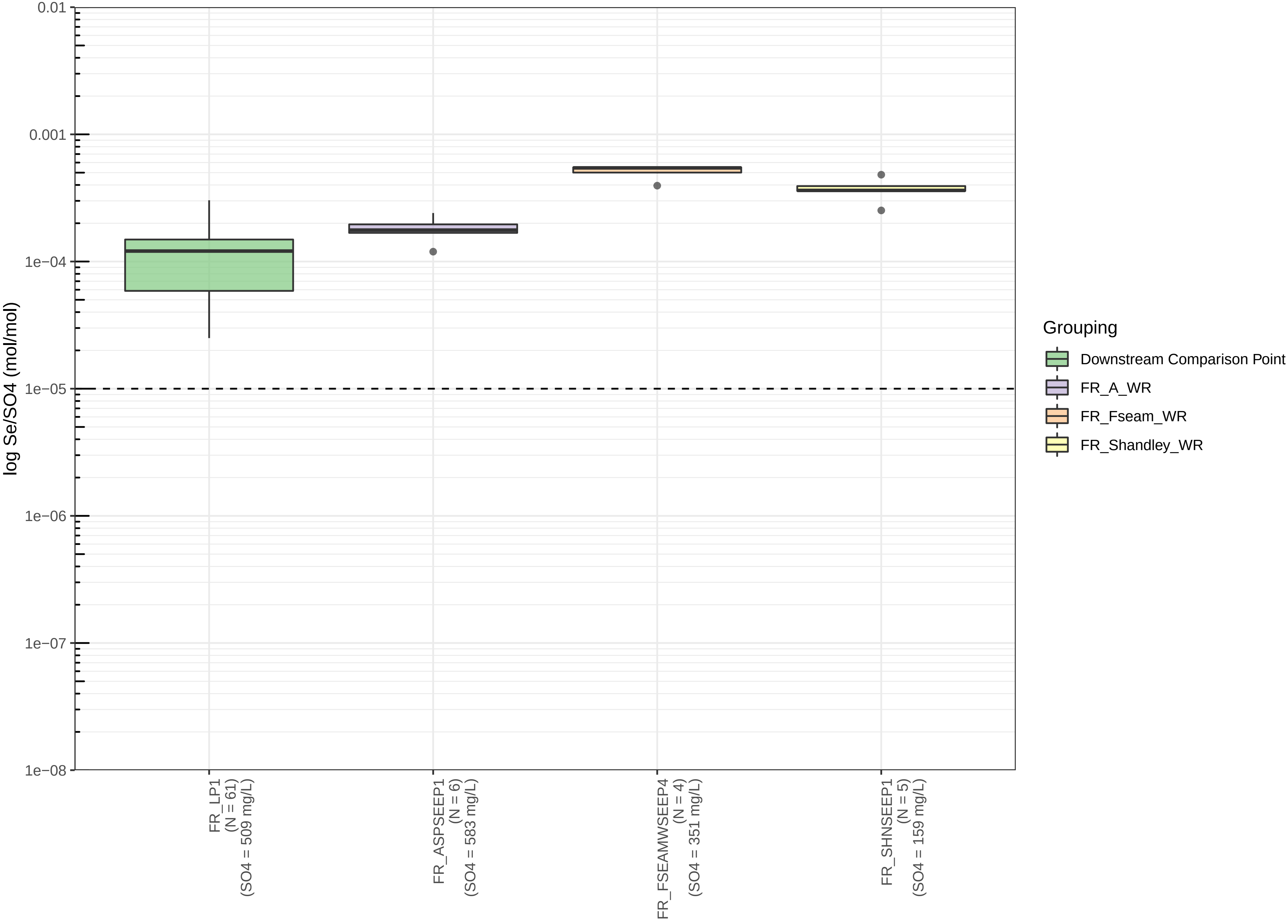

Comparison Point
Seeps
0.0025
0.0020
0.0015
0.0010
0.0005
Dissolved Vanadium (mg/L)
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

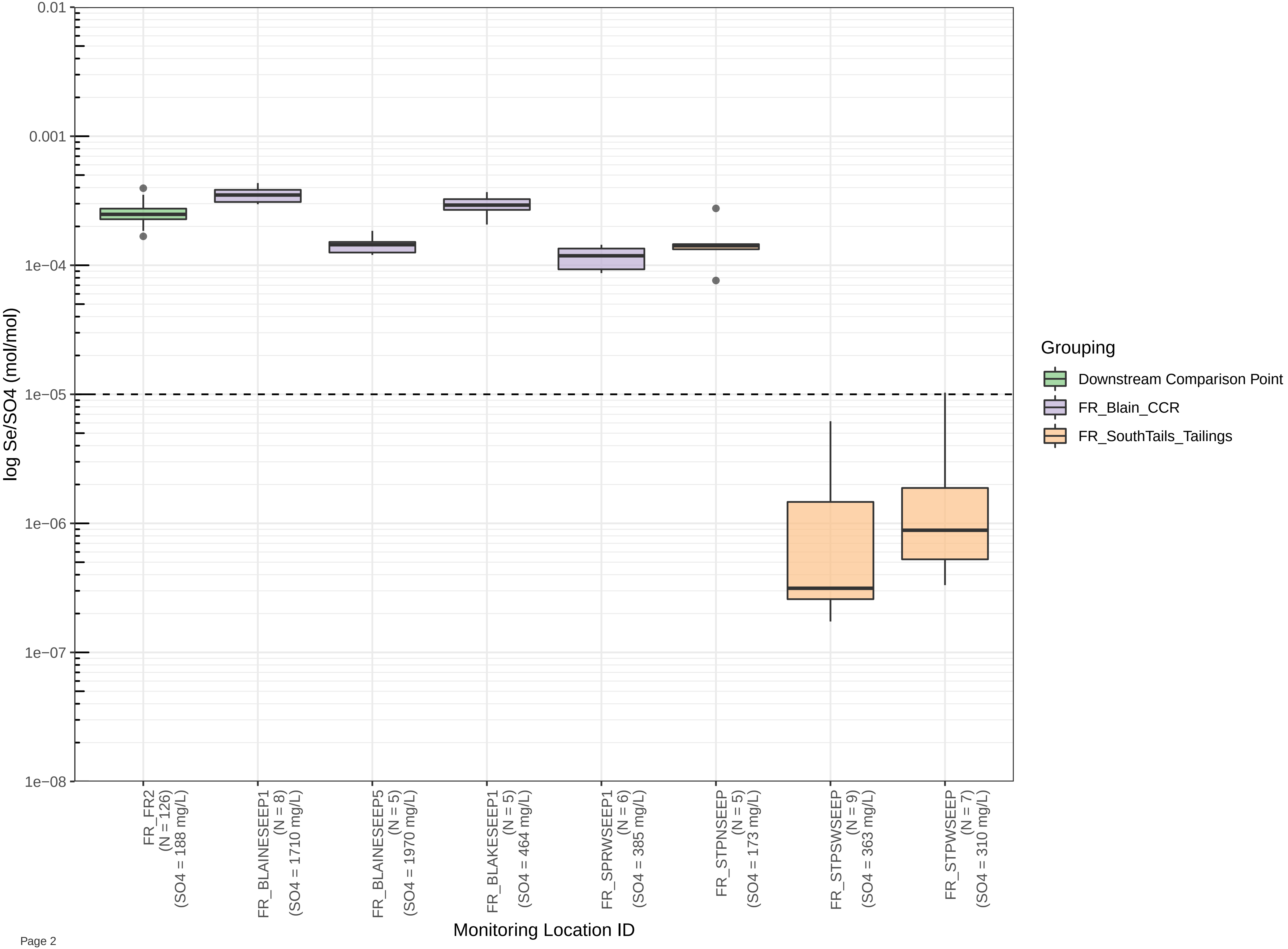

Comparison Point
Seeps
1e−03
9e−04
8e−04
7e−04
6e−04
5e−04
300
600
900
Dissolved Vanadium (mg/L)
Sulfate (as SO4) (mg/L)
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow

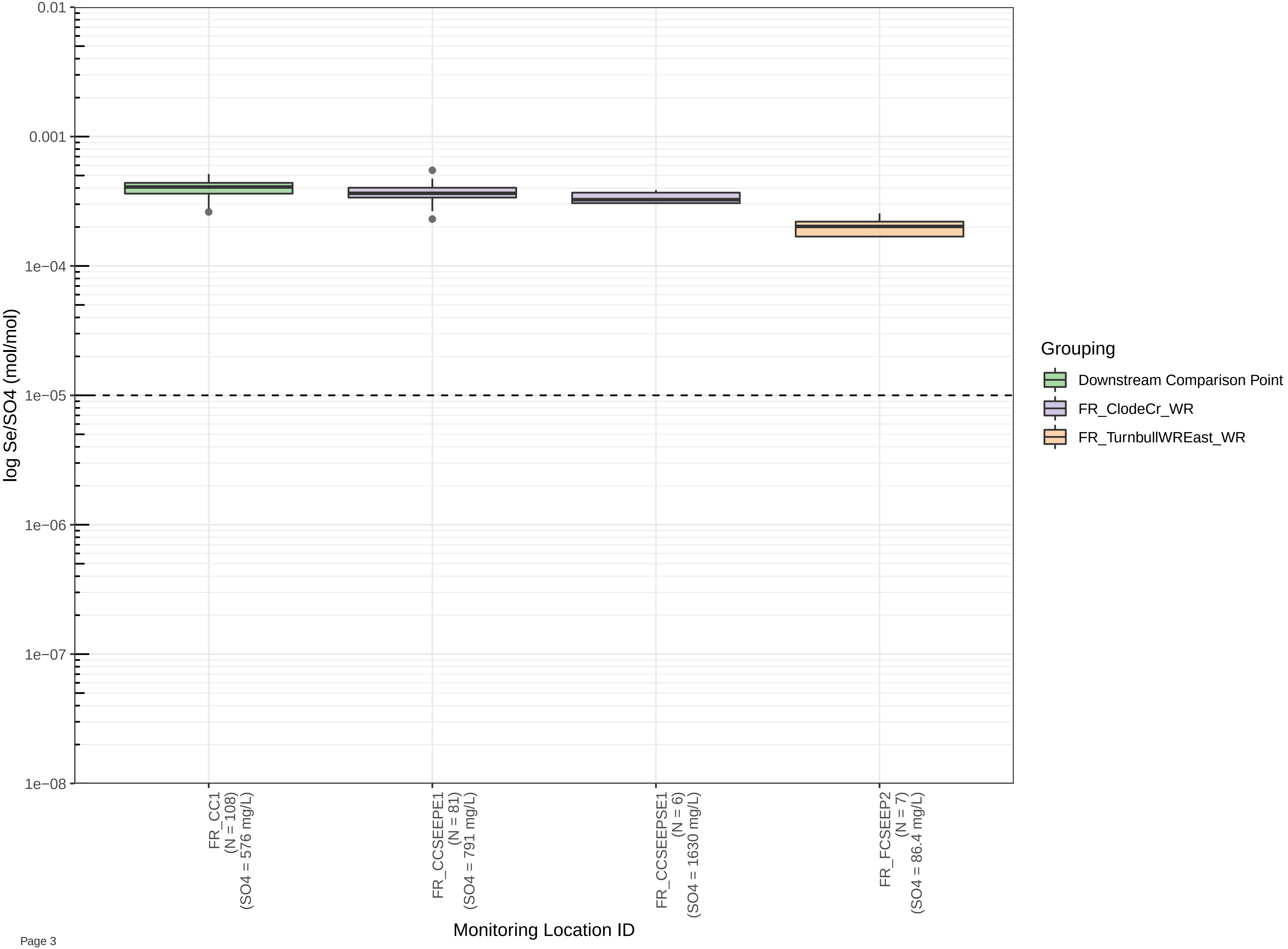

Comparison Point
Seeps
0.15
0.10
0.05
0.00
Dissolved Zinc (mg/L)
500
1000
1500
Sulfate (as SO4) (mg/L)
Station Legend
CM_37PIT−SEEP−E
CM_37PIT−SEEP−W
CM_MM−SEEP1
CM_MM−SEEP3
CM_NS1
CM_NS4
CM_NS7
CM_PLANT−SEEP1
CM_SPD
CM_WD15
CM_WD18
CM_WD19
CM_WD4
CM_WD7
Flow Regime
Freshet
Low Flow

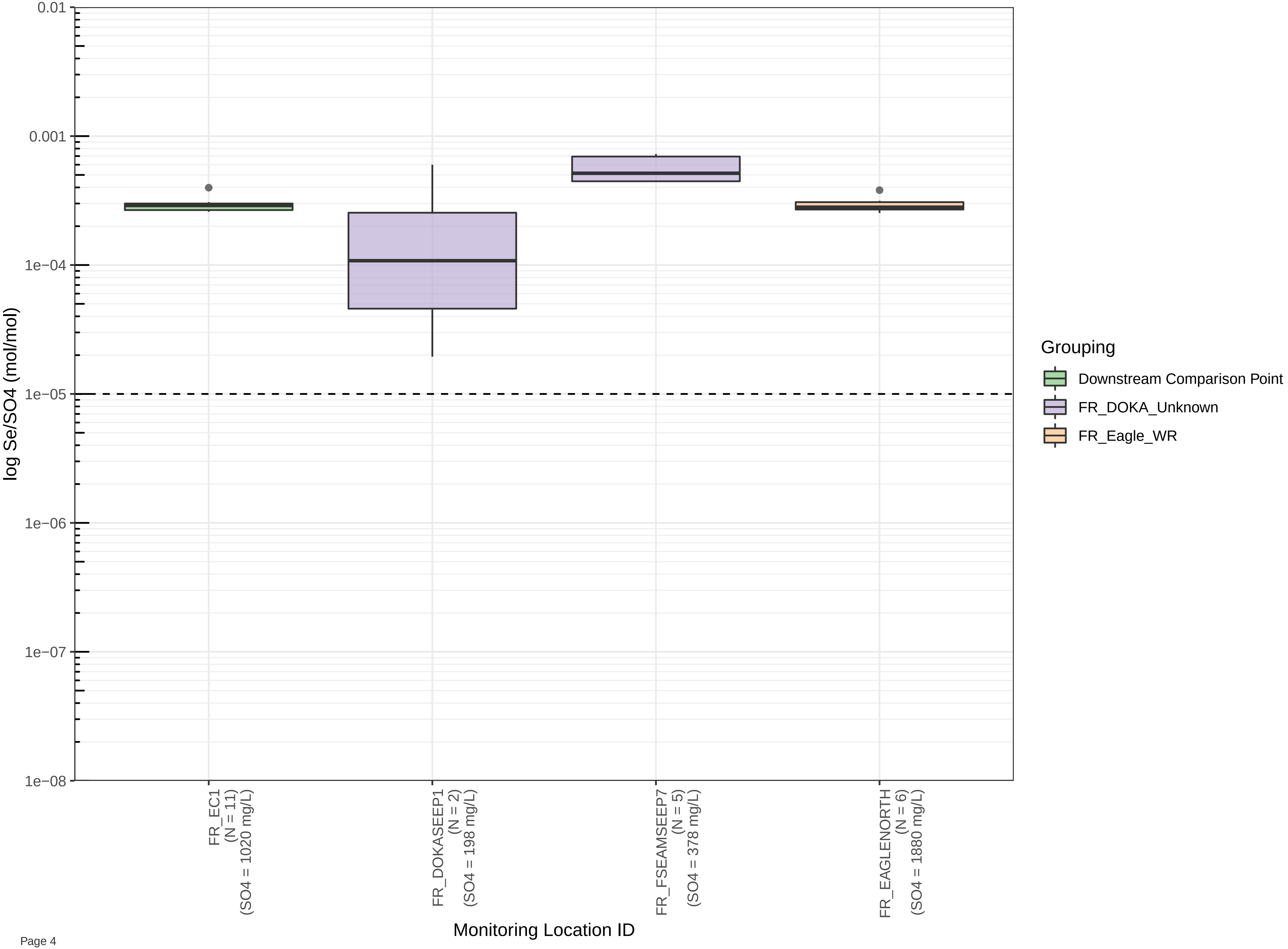

Comparison Point
Seeps
0.15
0.10
0.05
0.00
Dissolved Zinc (mg/L)
300
600
900
Sulfate (as SO4) (mg/L)
Station Legend
CM_CCDS
CM_CCPD
CM_CS1
Flow Regime
Freshet
Low Flow

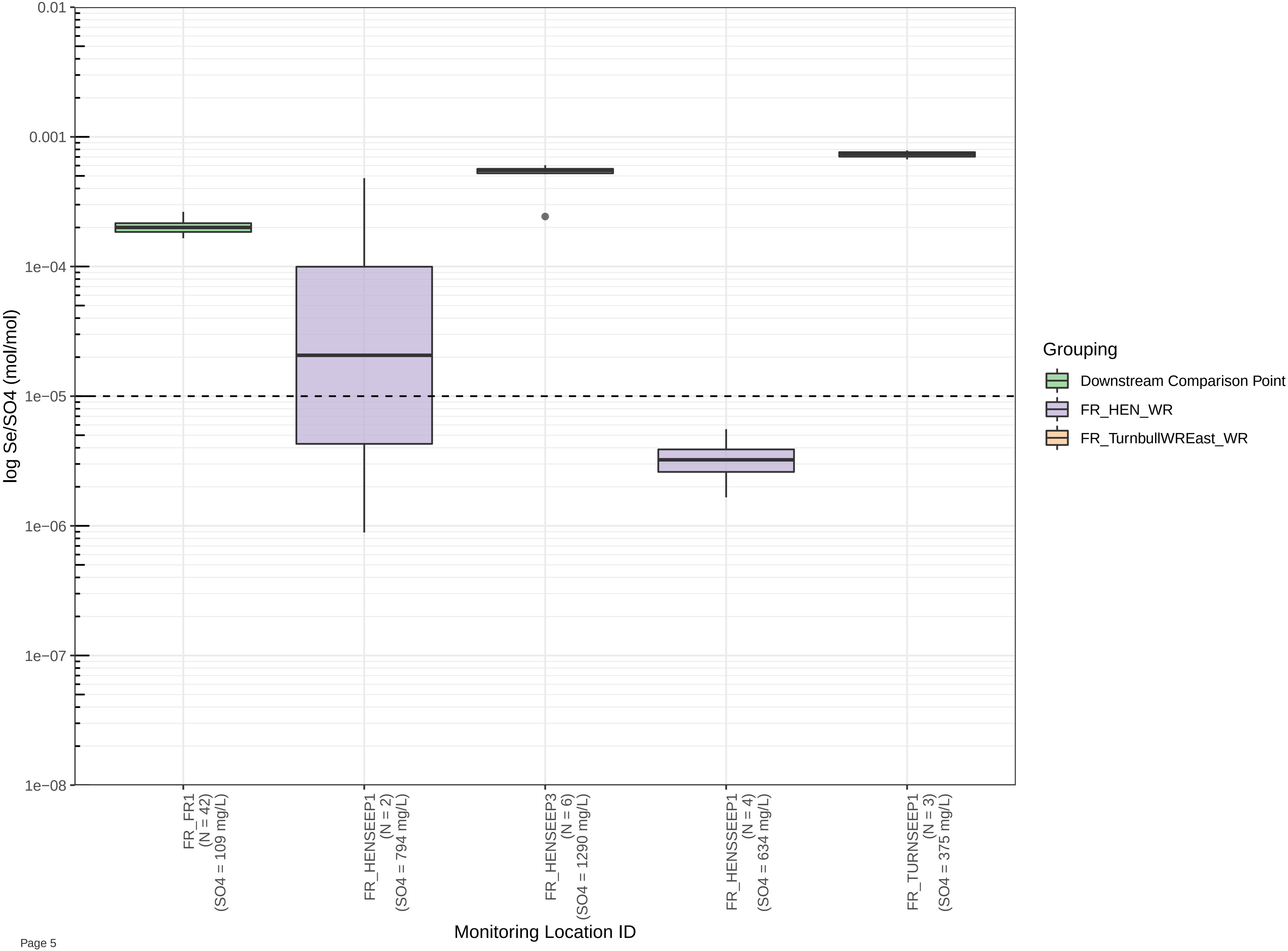
Appendix K Comparison to Permitted Surface Water Monitoring Locations for Se/SO_4

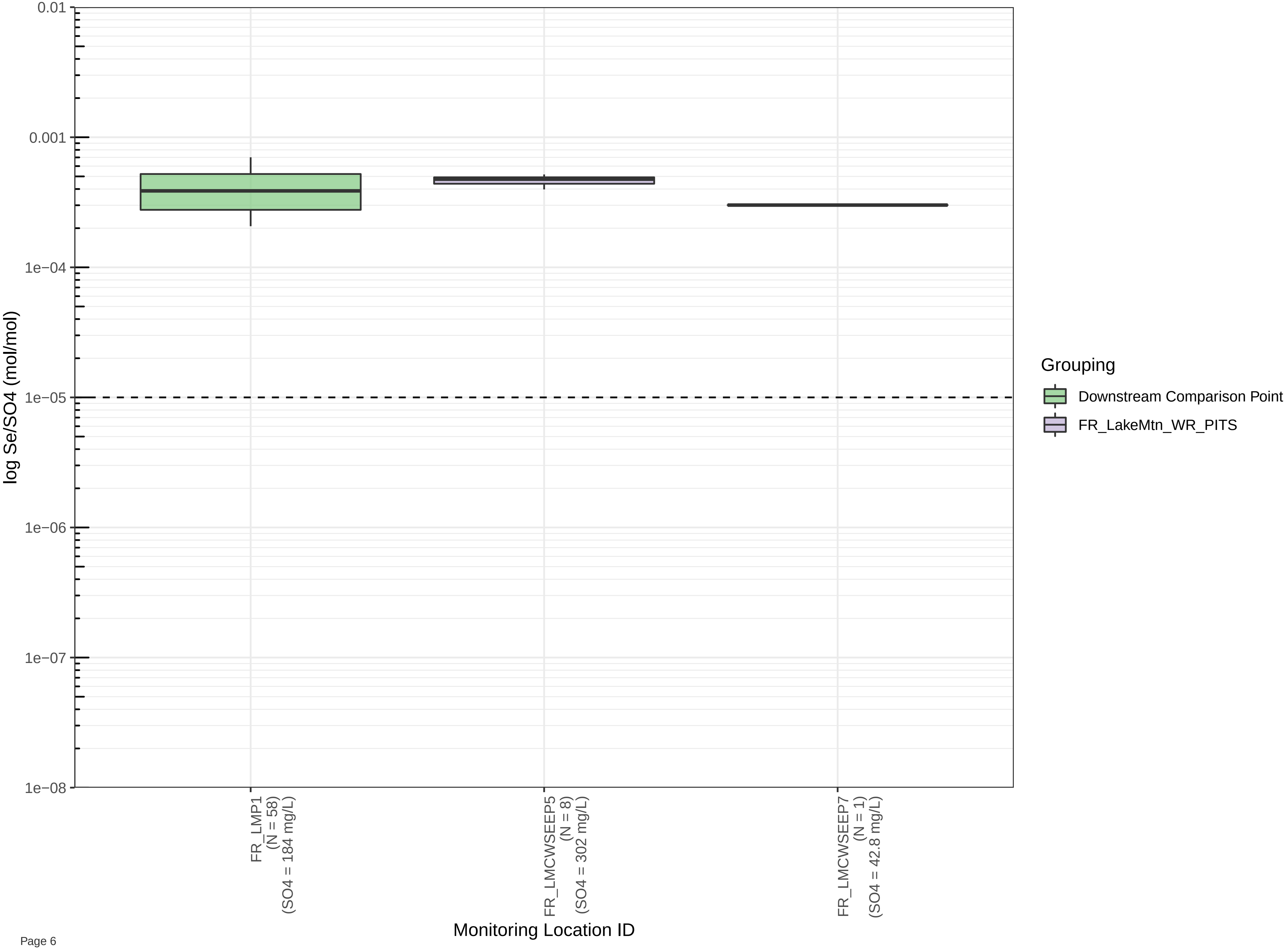

0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
FR_LP1 (N = 61) (SO4 = 509 mg/L)
FR_ASPSEEP1 (N = 6) (SO4 = 583 mg/L)
FR_FSEAMWSEEP4 (N = 4) (SO4 = 351 mg/L)
FR_SHNSEEP1 (N = 5) (SO4 = 159 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
FR_A_WR
FR_Fseam_WR
FR_Shandley_WR

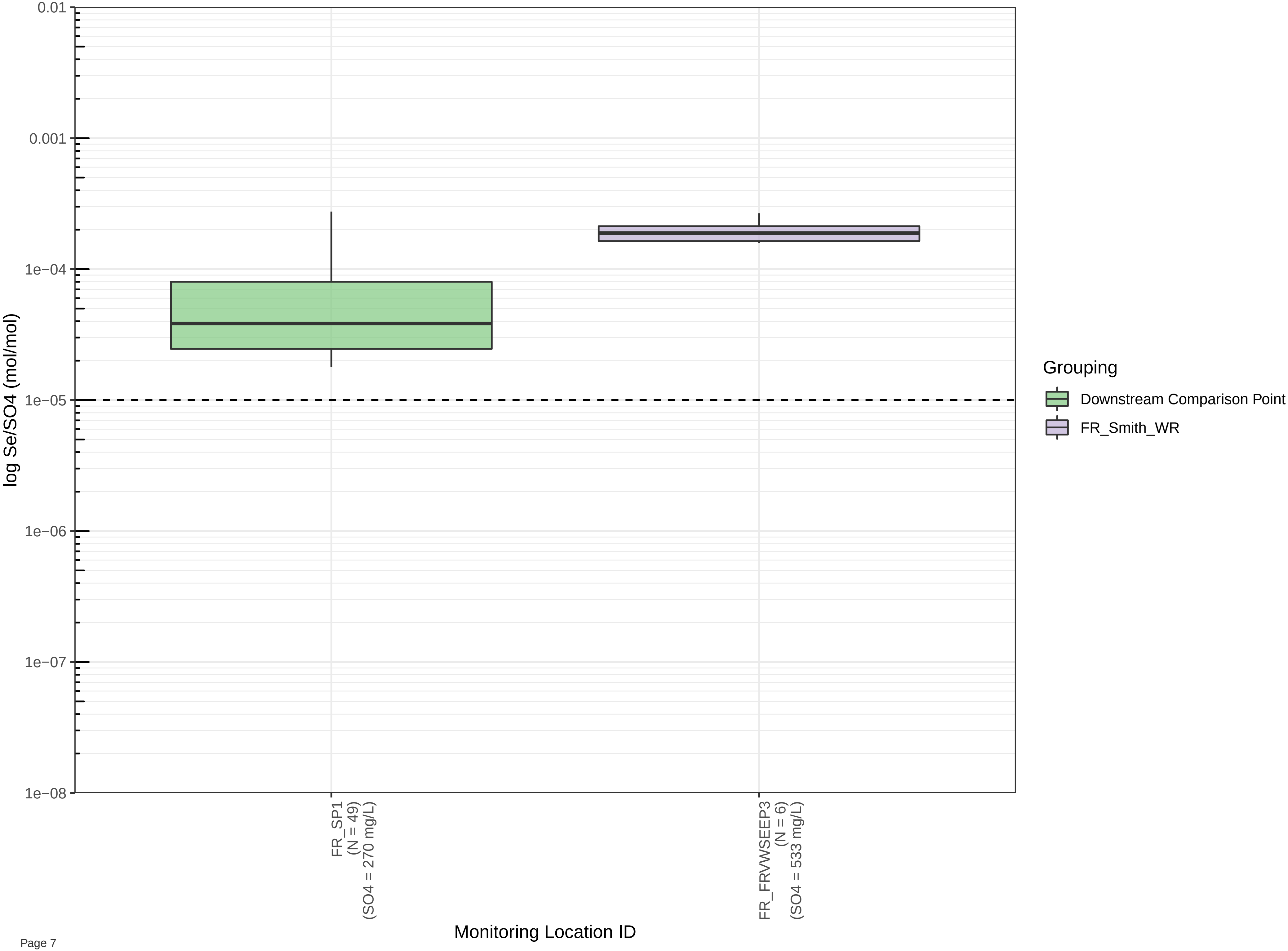

0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
FR_FR2 (N = 126) (SO4 = 188 mg/L)
FR_BLAINESEEP1 (N = 8) (SO4 = 1710 mg/L)
FR_BLAINESEEP5 (N = 5) (SO4 = 1970 mg/L)
FR_BLAKESEEP1 (N = 5) (SO4 = 464 mg/L)
FR_SPRWSEEP1 (N = 6) (SO4 = 385 mg/L)
FR_STPNSEEP (N = 5) (SO4 = 173 mg/L)
FR_STPSWSEEP (N = 9) (SO4 = 363 mg/L)
FR_STPWSEEP (N = 7) (SO4 = 310 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
FR_Blain_CCR
FR_SouthTails_Tailings

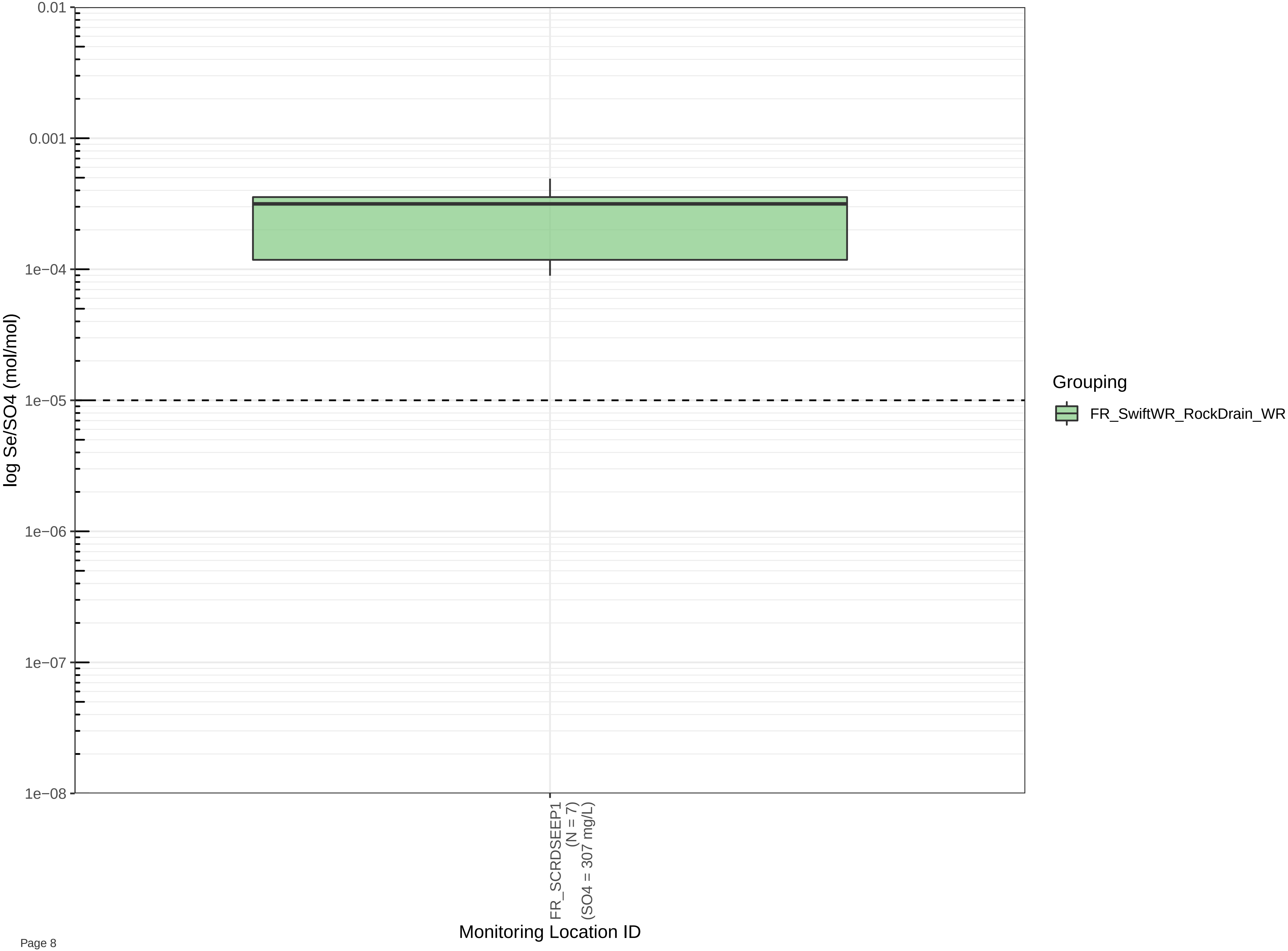

log Se/SO4 (mol/mol)
0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
FR_CC1 (N = 108) (SO4 = 576 mg/L)
FR_CCSEEPE1 (N = 81) (SO4 = 791 mg/L)
FR_CCSEEPSE1 (N = 6) (SO4 = 1630 mg/L)
FR_FCSEEP2 (N = 7) (SO4 = 86.4 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
FR_ClodeCr_WR
FR_TurnbullWREast_WR

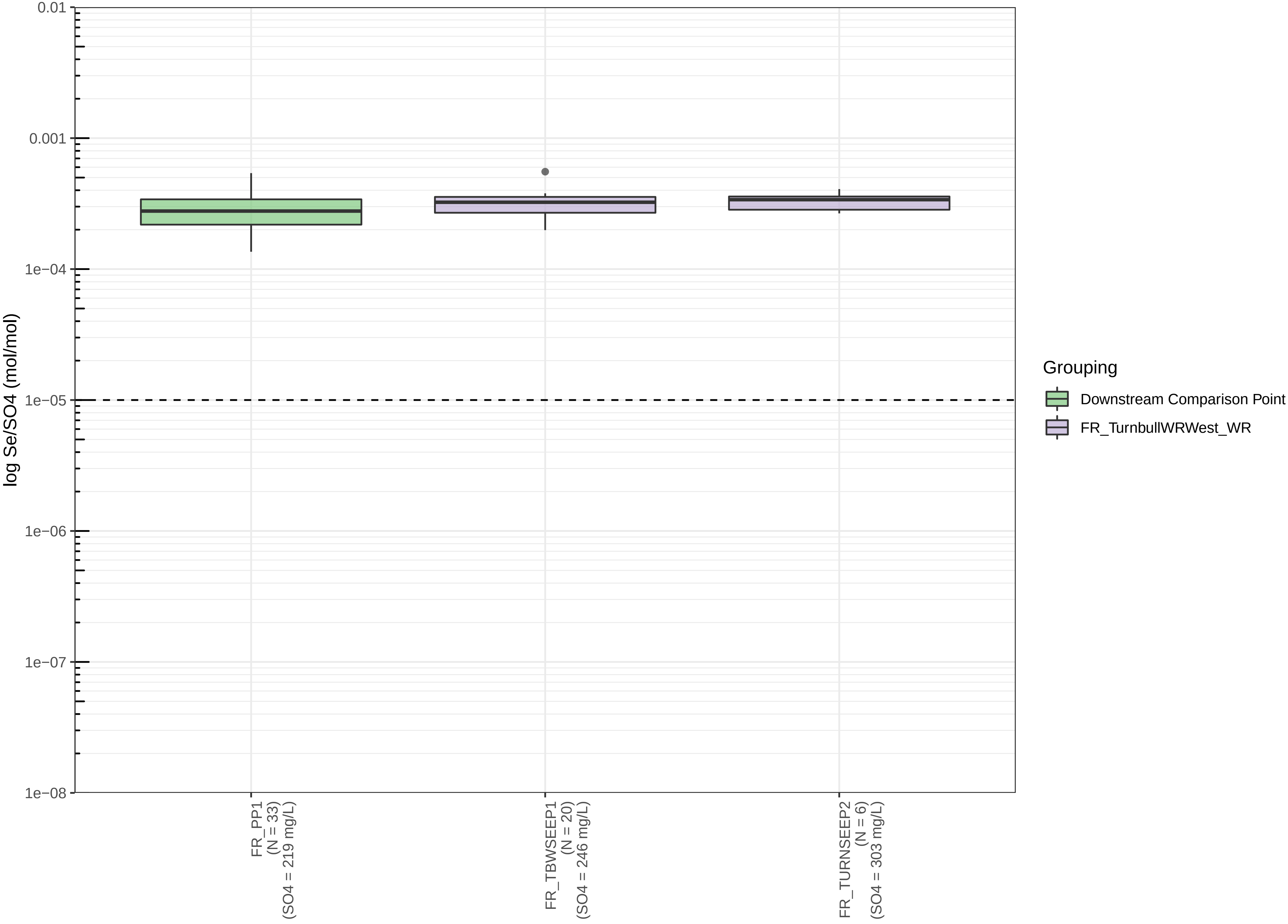

0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
FR_EC1
(N = 11)
(SO4 = 1020 mg/L)
FR_DOKASEEP1
(N = 2)
(SO4 = 198 mg/L)
FR_FSEAMSEEP7
(N = 5)
(SO4 = 378 mg/L)
FR_EAGLENORTH
(N = 6)
(SO4 = 1880 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
FR_DOKA_Unknown
FR_Eagle_WR

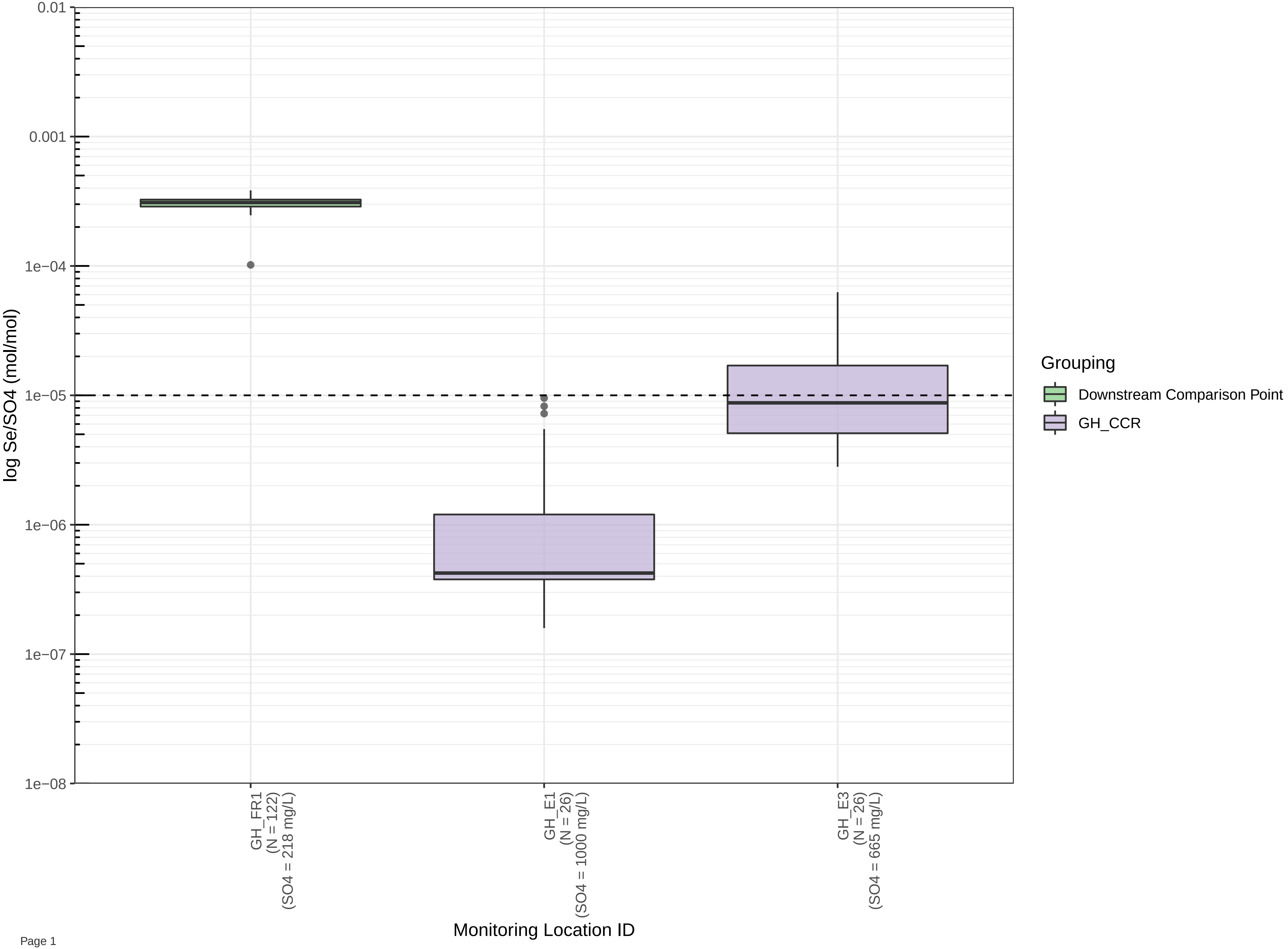

0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
FR_FR1 (N = 42) (SO4 = 109 mg/L)
FR_HENSEEP1 (N = 2) (SO4 = 794 mg/L)
FR_HENSEEP3 (N = 6) (SO4 = 1290 mg/L)
FR_HENSSEEP1 (N = 4) (SO4 = 634 mg/L)
FR_TURNSEEP1 (N = 3) (SO4 = 375 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
FR_HEN_WR
FR_TurnbullWREast_WR

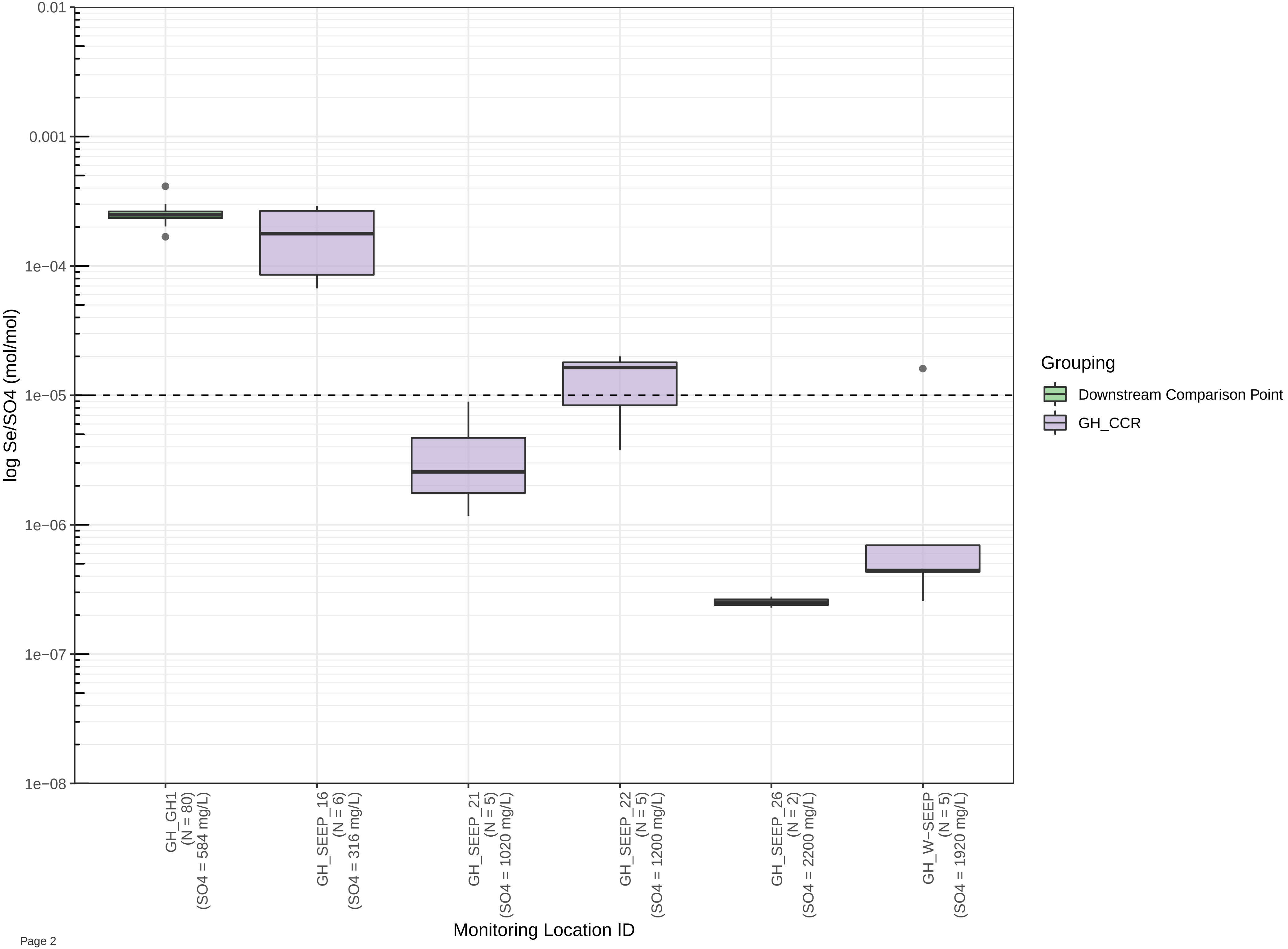

0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
FR_LMP1
(N = 58)
(SO4 = 184 mg/L)
FR_LMCWSEEP5
(N = 8)
(SO4 = 302 mg/L)
FR_LMCWSEEP7
(N = 1)
(SO4 = 42.8 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
FR_LakeMtn_WR_PITS

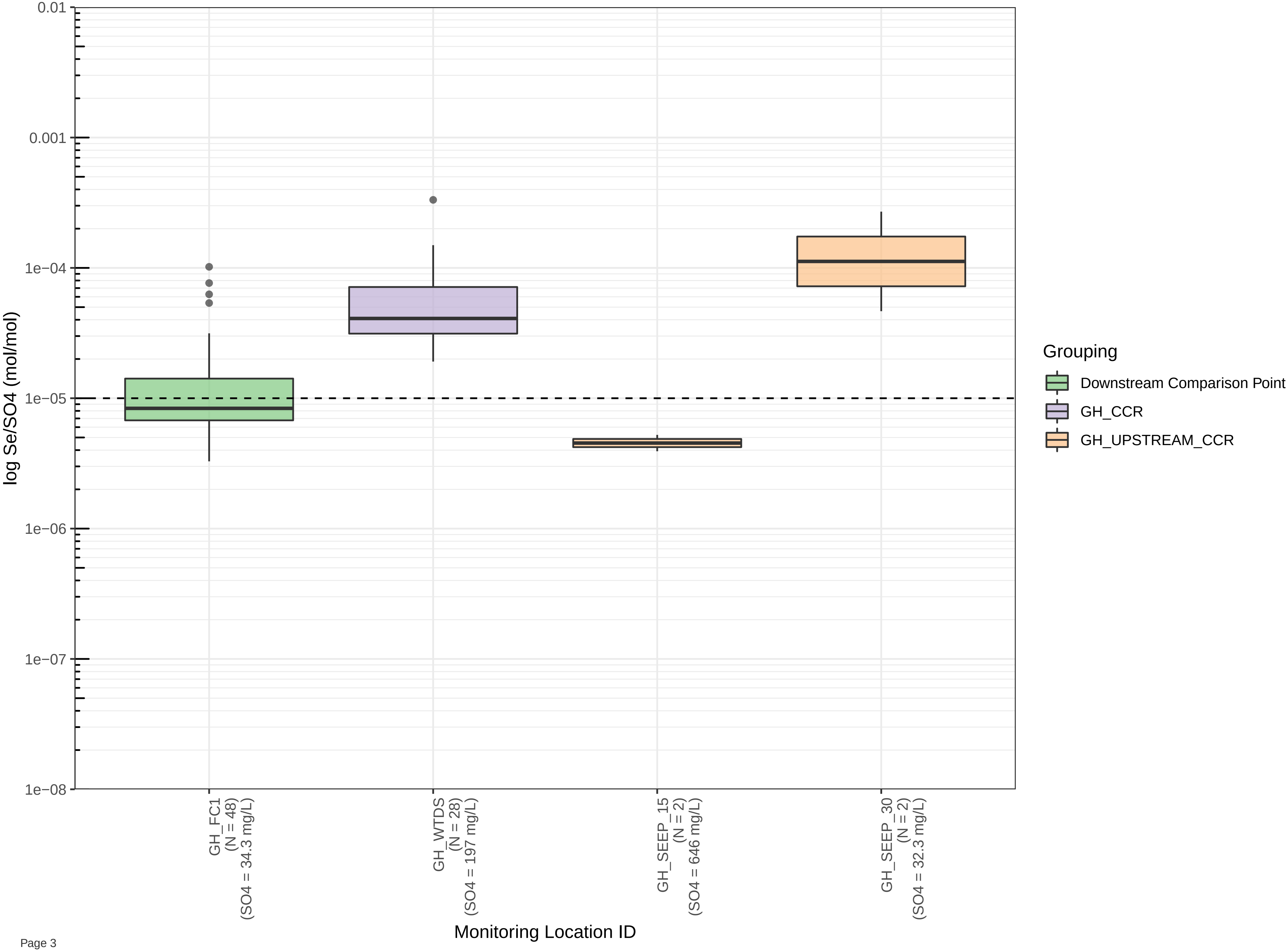

0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
FR_SP1
(N = 49)
(SO4 = 270 mg/L)
FR_FRVWSEEP3
(N = 6)
(SO4 = 533 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
FR_Smith_WR

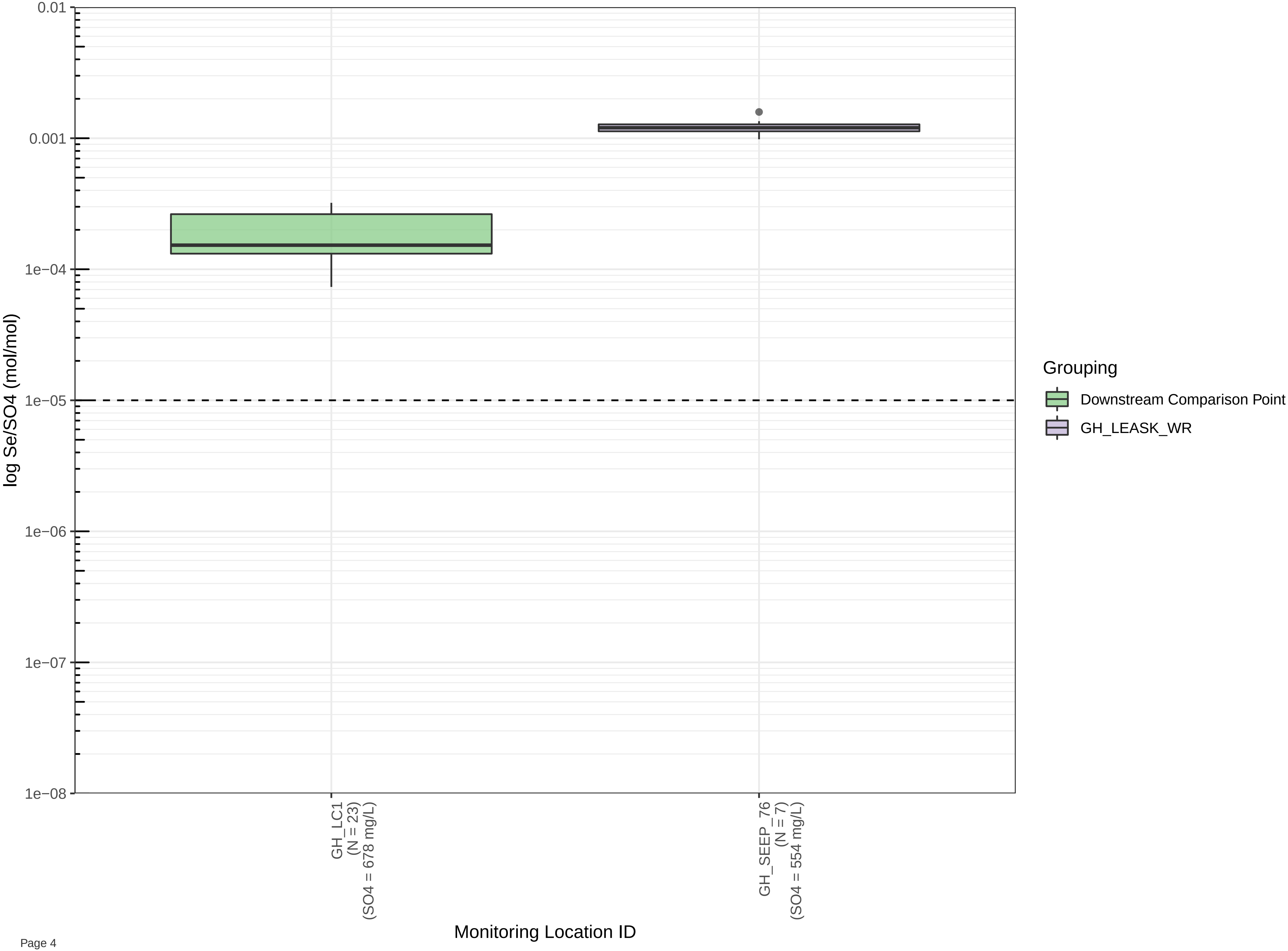

0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
FR_SCRDSEEP1
(N = 7)
(SO4 = 307 mg/L)
Monitoring Location ID
Grouping
FR_SwiftWR_RockDrain_WR

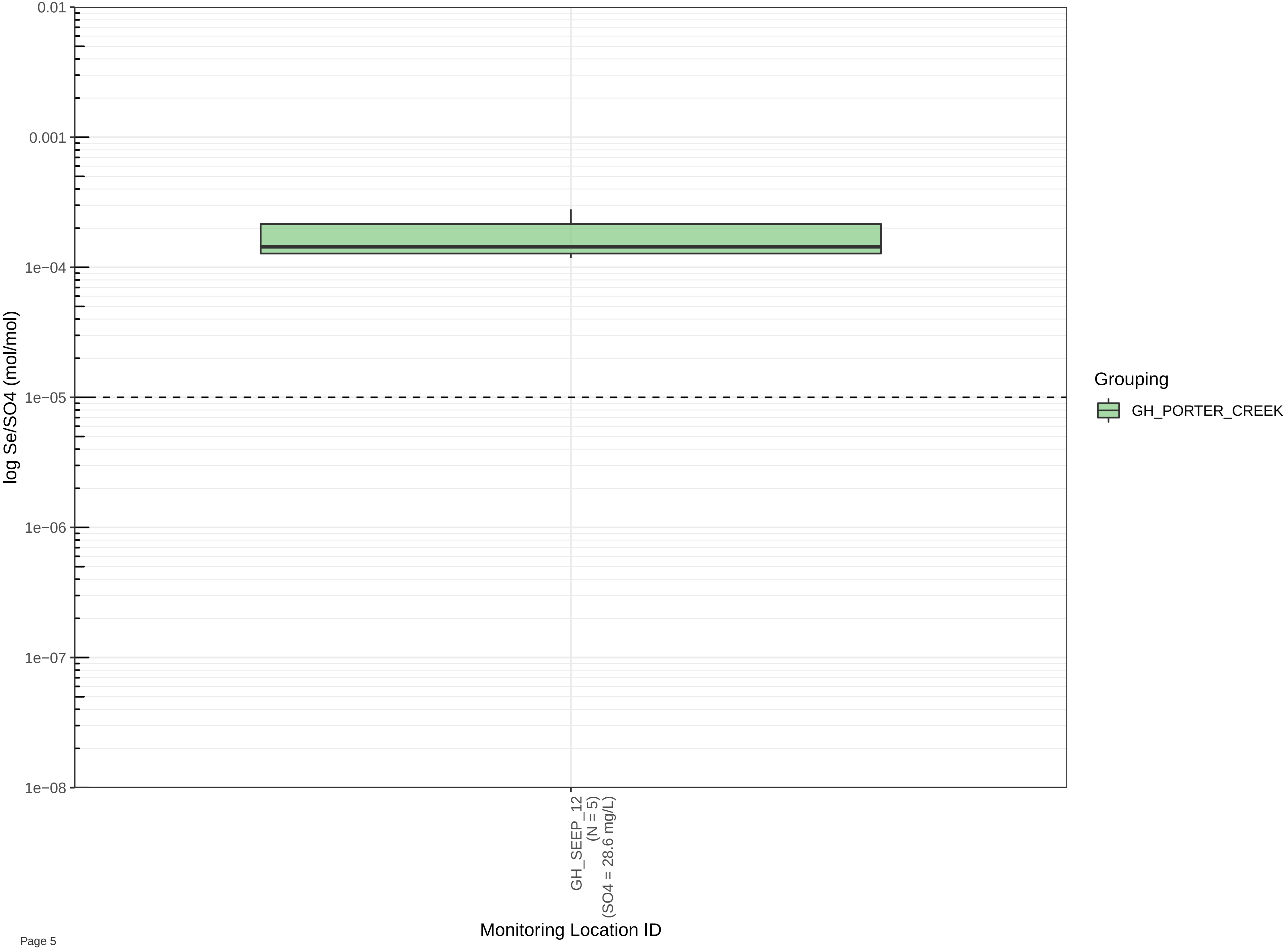

0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
FR_PP1
(N = 33)
(SO4 = 219 mg/L)
FR_TBWSEEP1
(N = 20)
(SO4 = 246 mg/L)
FR_TURNSEEP2
(N = 6)
(SO4 = 303 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
FR_TurnbullWRWest_WR

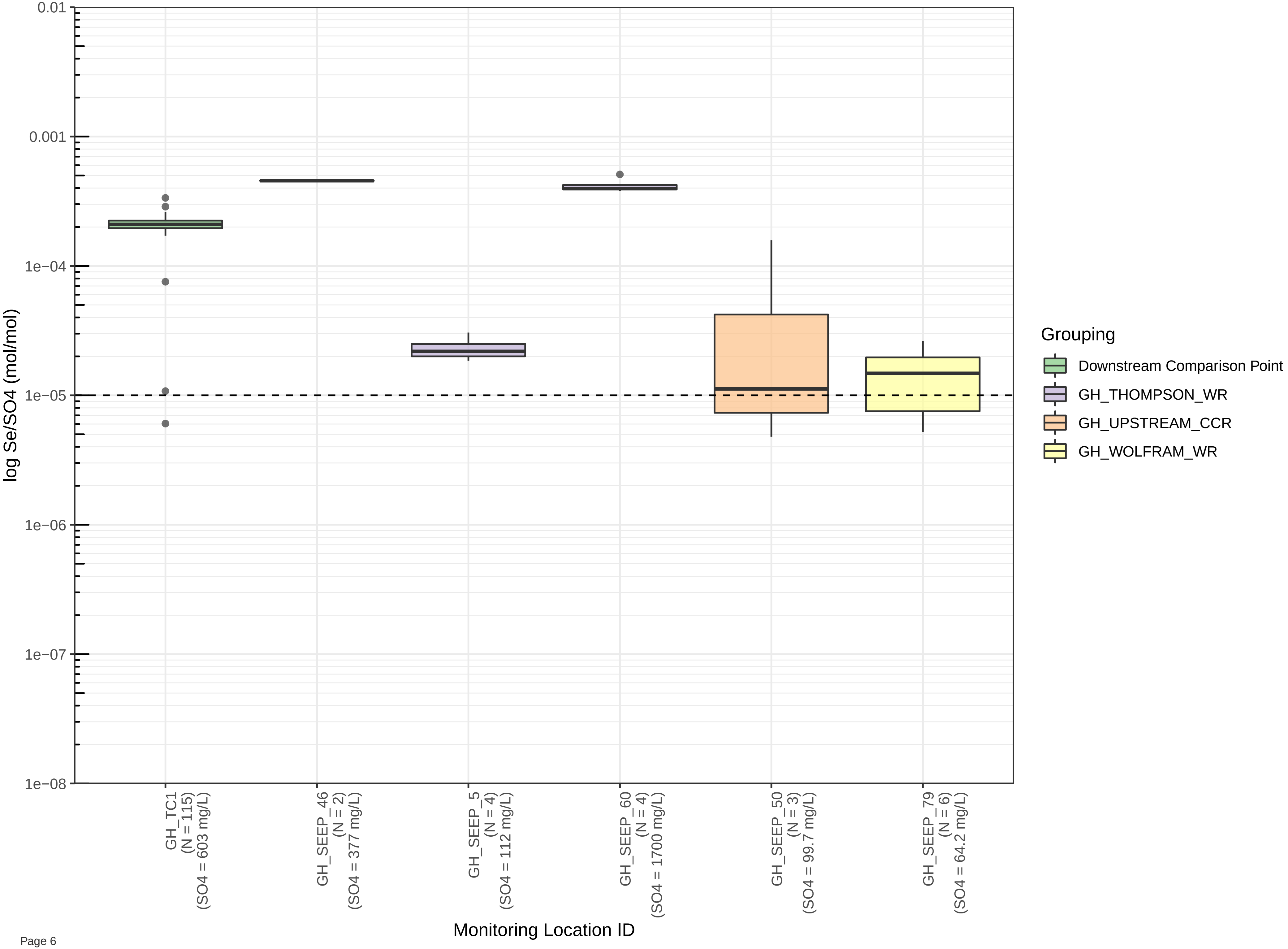

0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
GH_FR1 (N = 122) (SO4 = 218 mg/L)
GH_E1 (N = 26) (SO4 = 1000 mg/L)
GH_E3 (N = 26) (SO4 = 665 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
GH_CCR

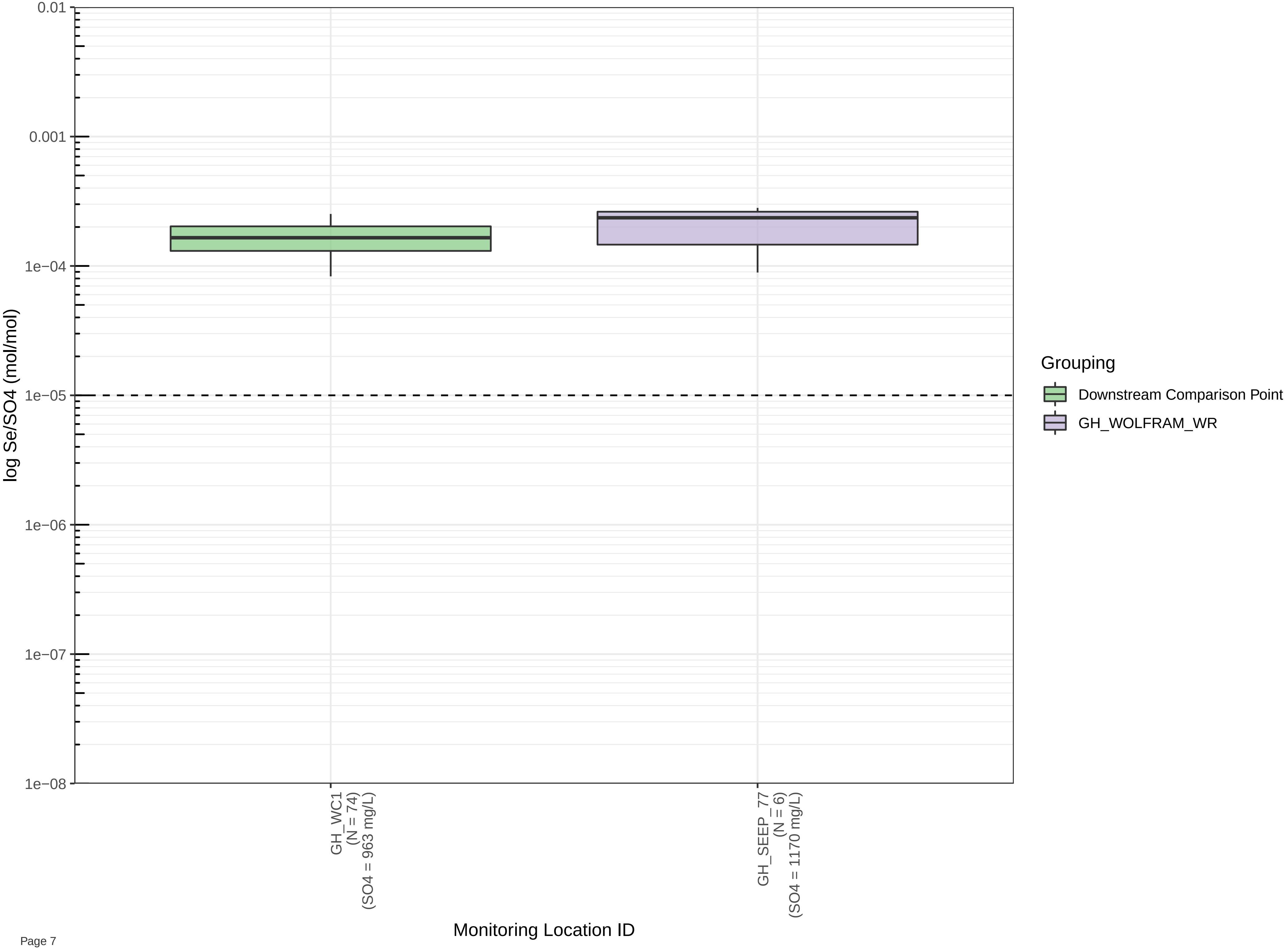

0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
GH_GH1 (N = 80) (SO4 = 584 mg/L)
GH_SEEP_16 (N = 6) (SO4 = 316 mg/L)
GH_SEEP_21 (N = 5) (SO4 = 1020 mg/L)
GH_SEEP_22 (N = 5) (SO4 = 1200 mg/L)
GH_SEEP_26 (N = 2) (SO4 = 2200 mg/L)
GH_W−SEEP (N = 5) (SO4 = 1920 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
GH_CCR

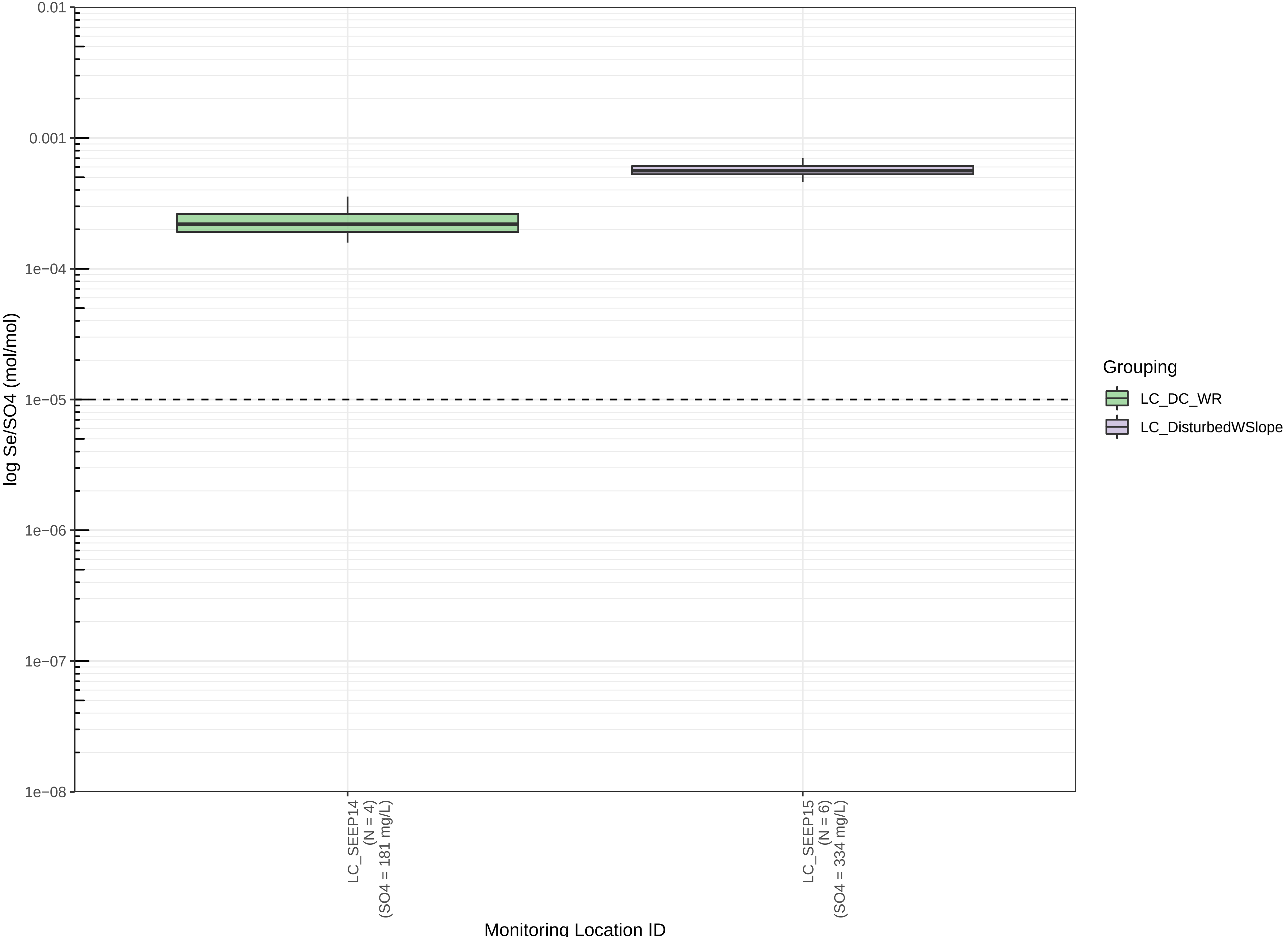

0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
GH_FC1
(N = 48)
(SO4 = 34.3 mg/L)
GH_WTDS
(N = 28)
(SO4 = 197 mg/L)
GH_SEEP_15
(N = 2)
(SO4 = 646 mg/L)
GH_SEEP_30
(N = 2)
(SO4 = 32.3 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
GH_CCR
GH_UPSTREAM_CCR

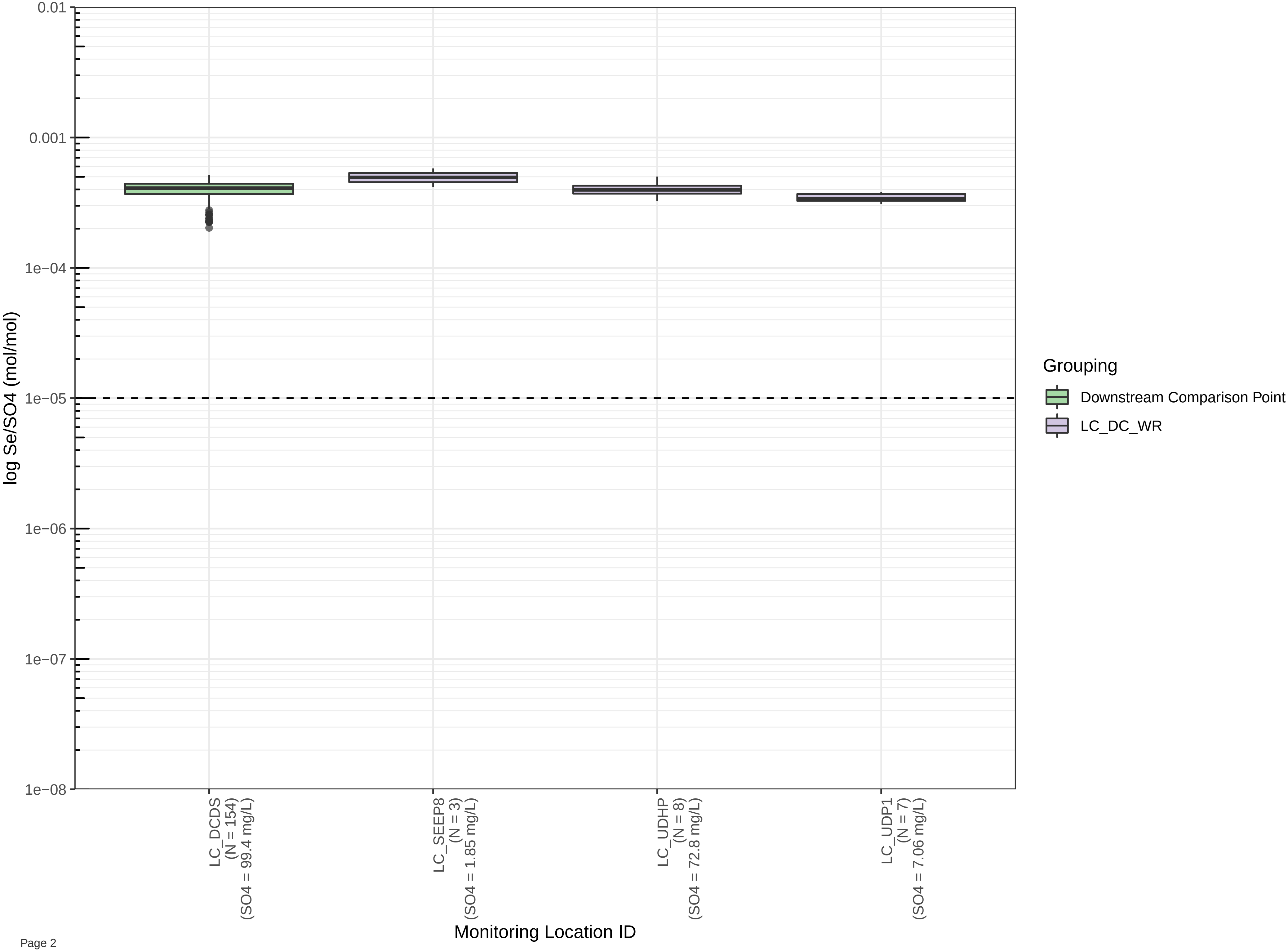

0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
GH_LC1
(N = 23)
(SO4 = 678 mg/L)
GH_SEEP_76
(N = 7)
(SO4 = 554 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
GH_LEASK_WR

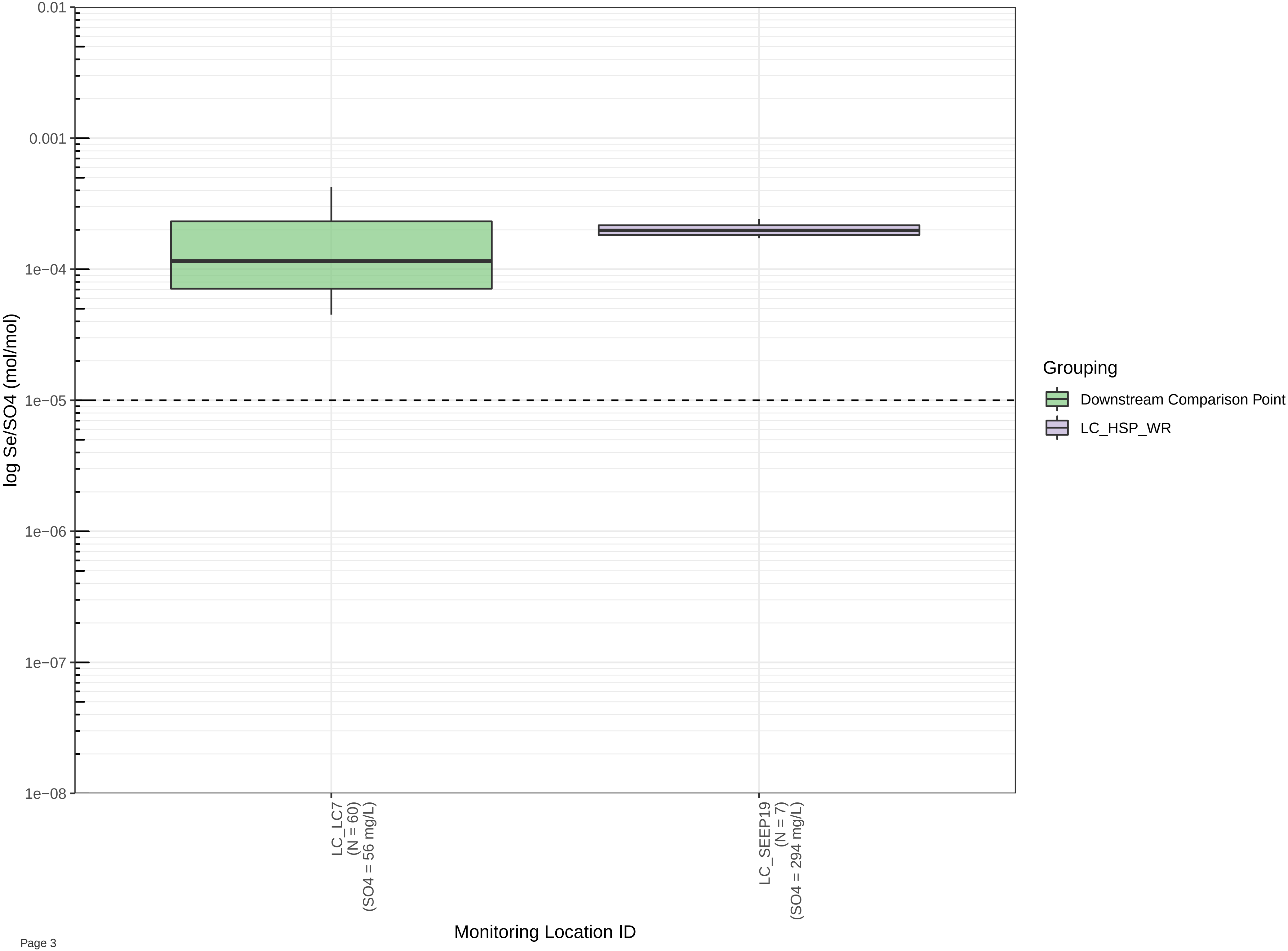

0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
GH_SEEP_12
(N = 5)
(SO4 = 28.6 mg/L)
Monitoring Location ID
Grouping
GH_PORTER_CREEK

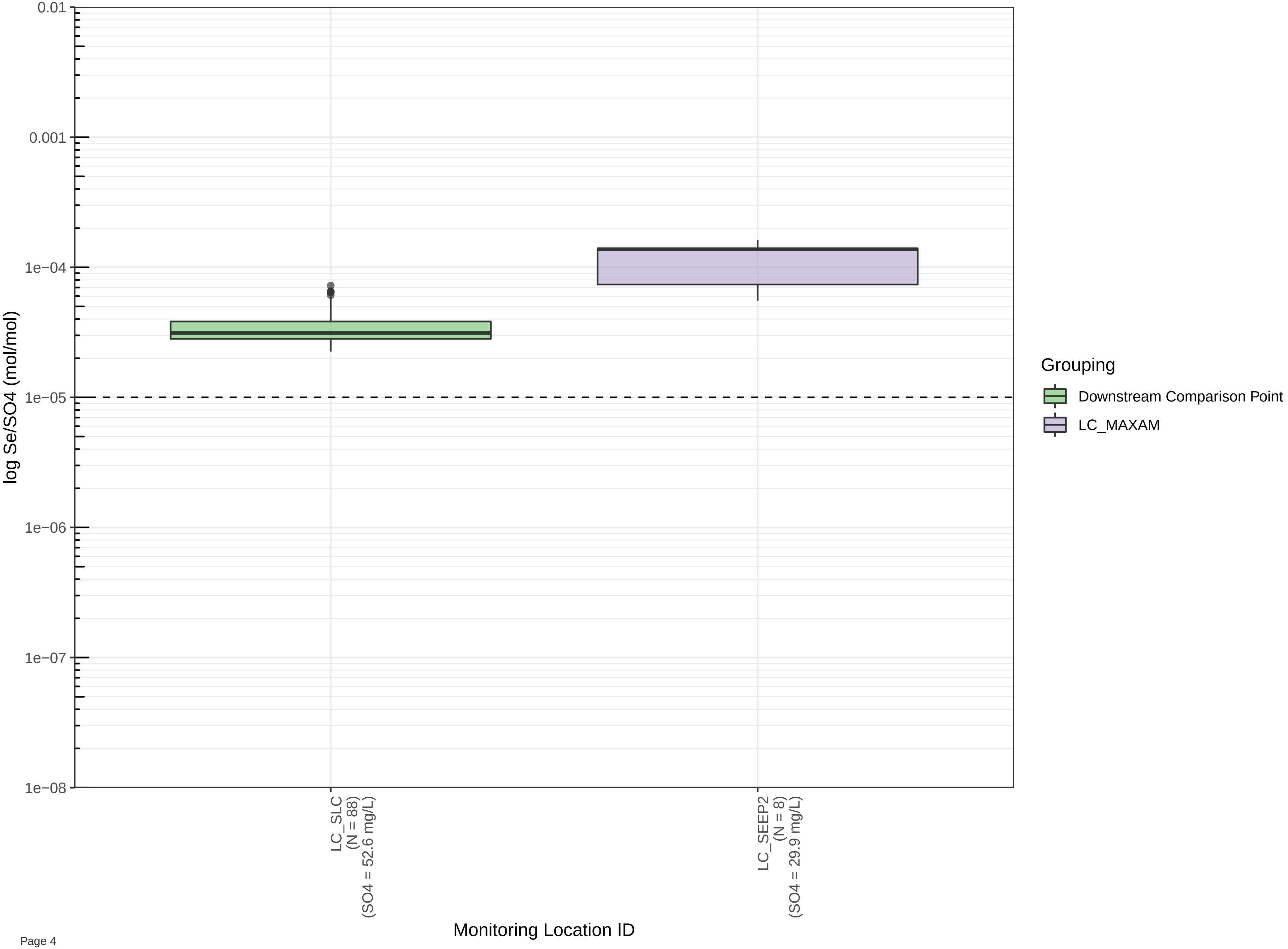

0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
GH_TC1
(N = 115)
(SO4 = 603 mg/L)
GH_SEEP_46
(N = 2)
(SO4 = 377 mg/L)
GH_SEEP_5
(N = 4)
(SO4 = 112 mg/L)
GH_SEEP_60
(N = 4)
(SO4 = 1700 mg/L)
GH_SEEP_50
(N = 3)
(SO4 = 99.7 mg/L)
GH_SEEP_79
(N = 6)
(SO4 = 64.2 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
GH_THOMPSON_WR
GH_UPSTREAM_CCR
GH_WOLFRAM_WR


0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
GH_WC1 (N = 74) (SO4 = 963 mg/L)
GH_SEEP_77 (N = 6) (SO4 = 1170 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
GH_WOLFRAM_WR

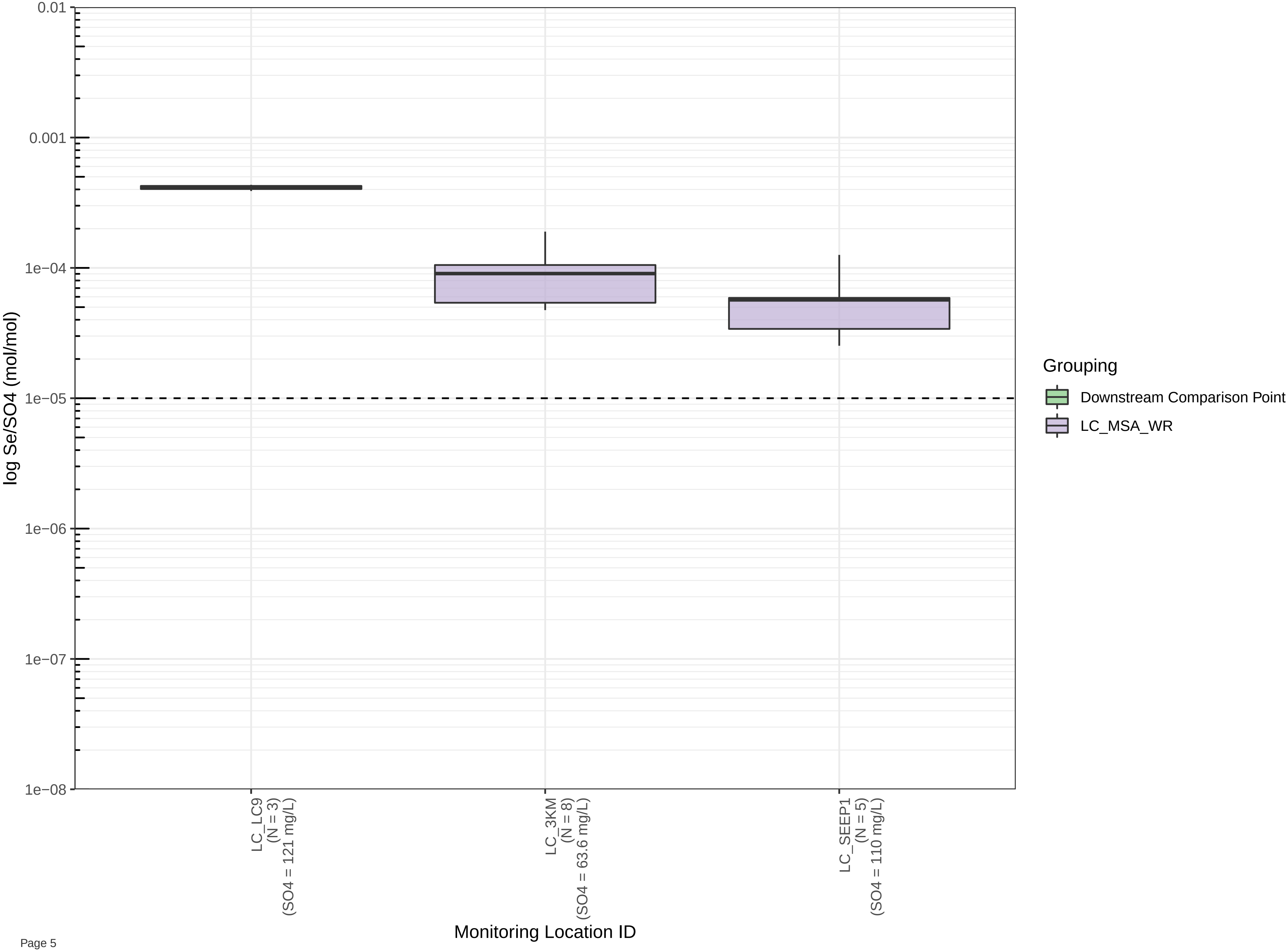

0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
LC_SEEP14
(N = 4)
(SO4 = 181 mg/L)
LC_SEEP15
(N = 6)
(SO4 = 334 mg/L)
Monitoring Location ID
Grouping
LC_DC_WR
LC_DisturbedWSlope

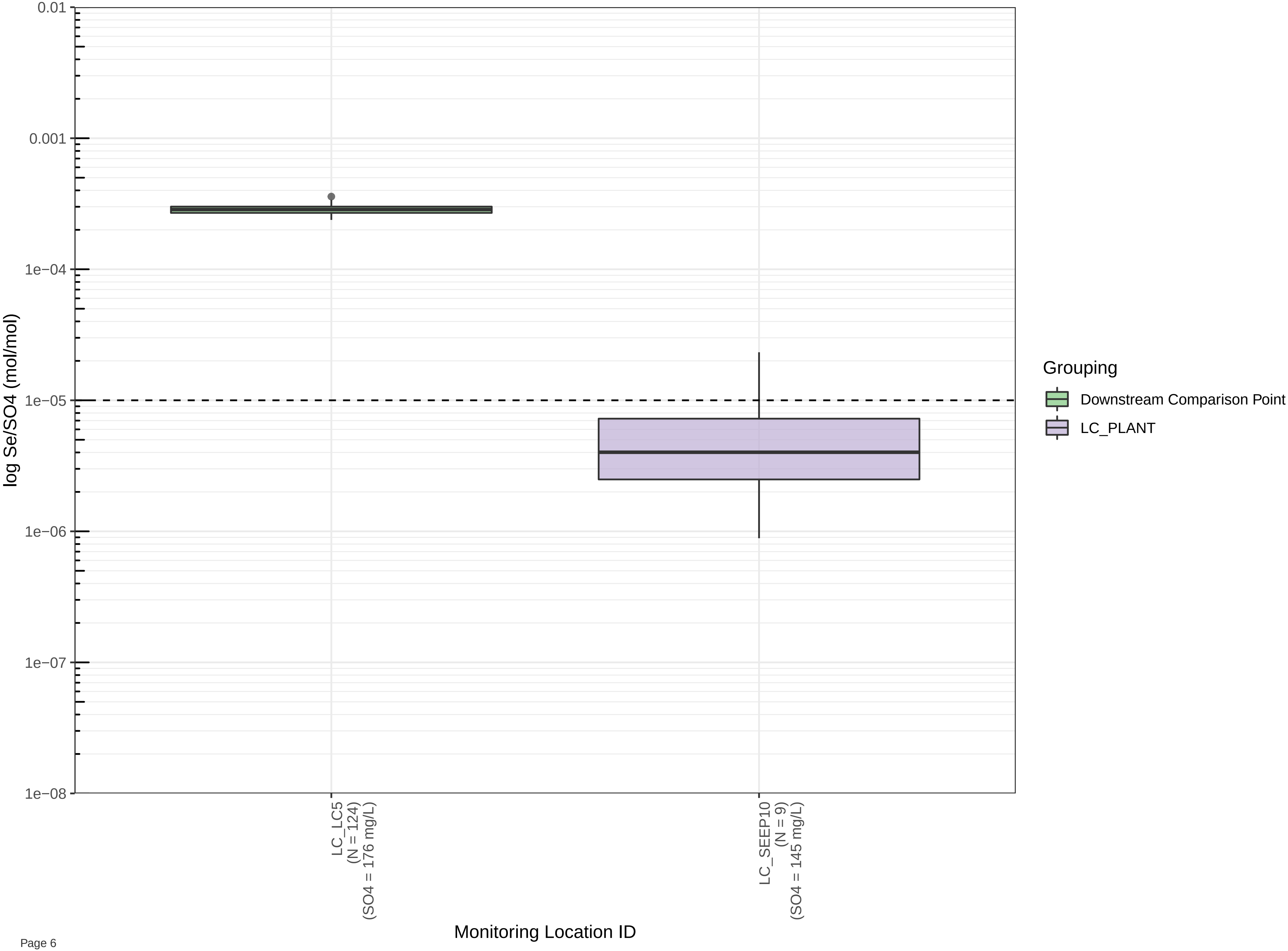

0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
LC_DCDS (N = 154) (SO4 = 99.4 mg/L)
LC_SEEP8 (N = 3) (SO4 = 1.85 mg/L)
LC_UDHP (N = 8) (SO4 = 72.8 mg/L)
LC_UDP1 (N = 7) (SO4 = 7.06 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
LC_DC_WR

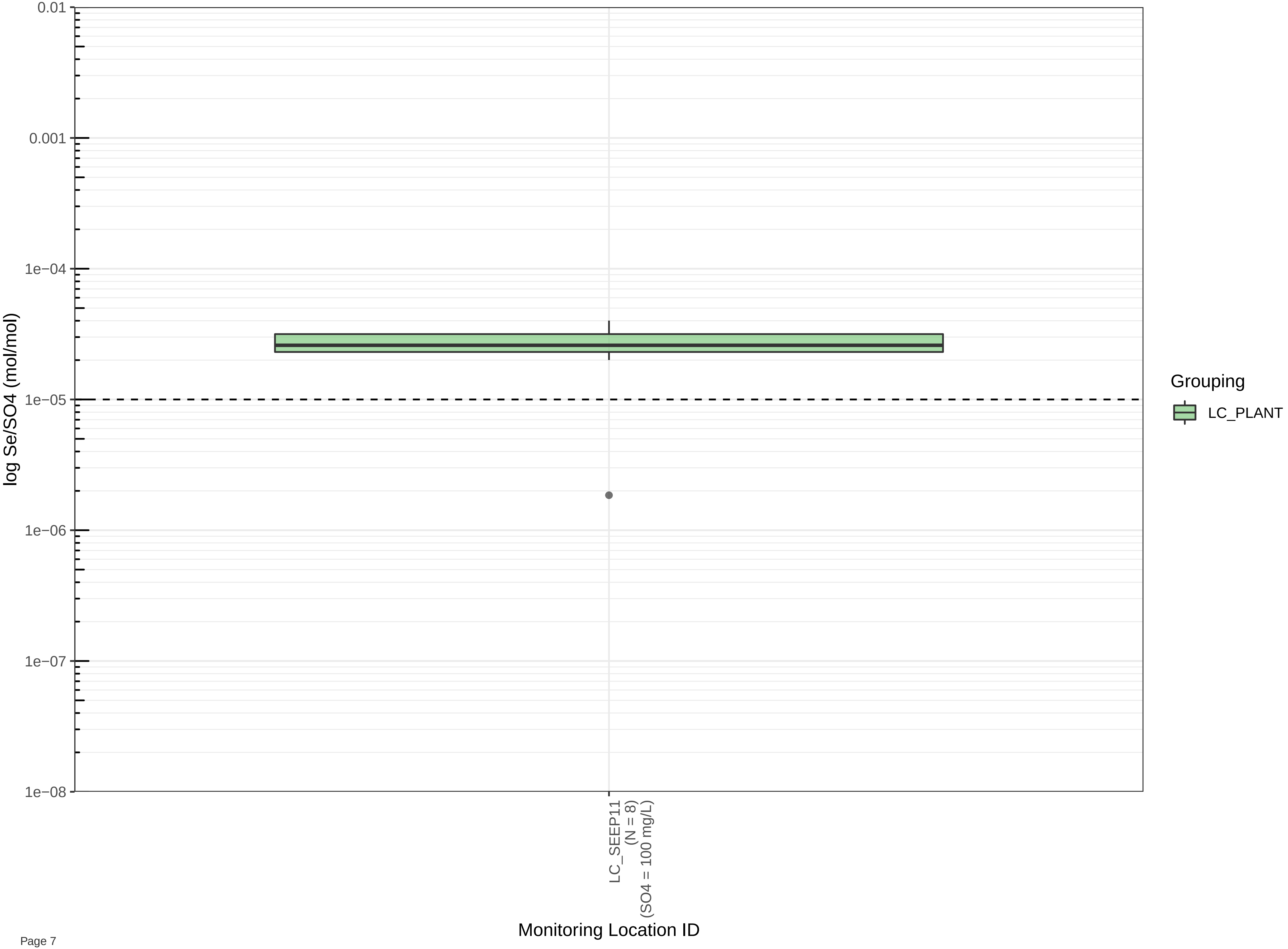

0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
LC_LC7
(N = 60)
(SO4 = 56 mg/L)
LC_SEEP19
(N = 7)
(SO4 = 294 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
LC_HSP_WR

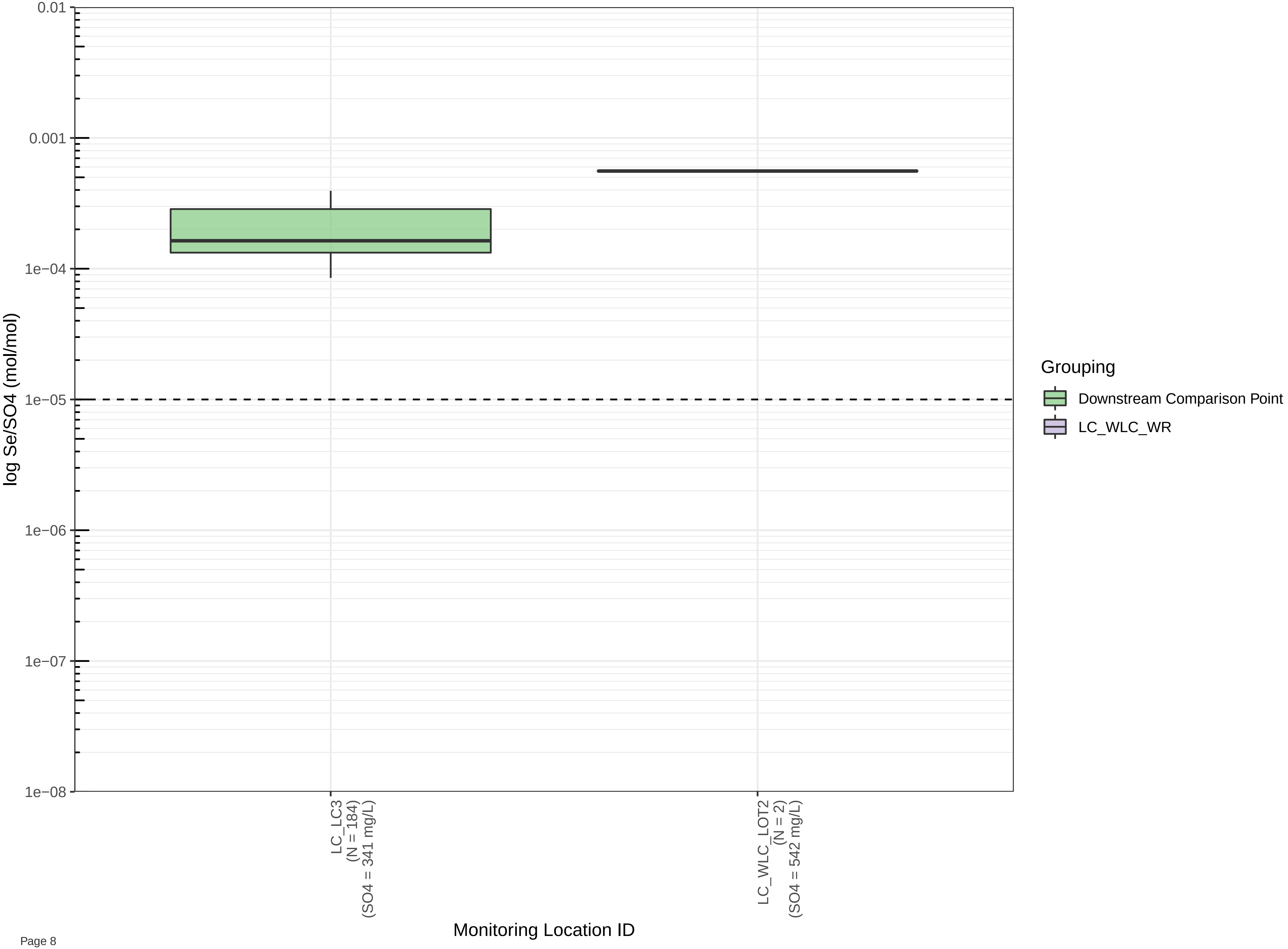


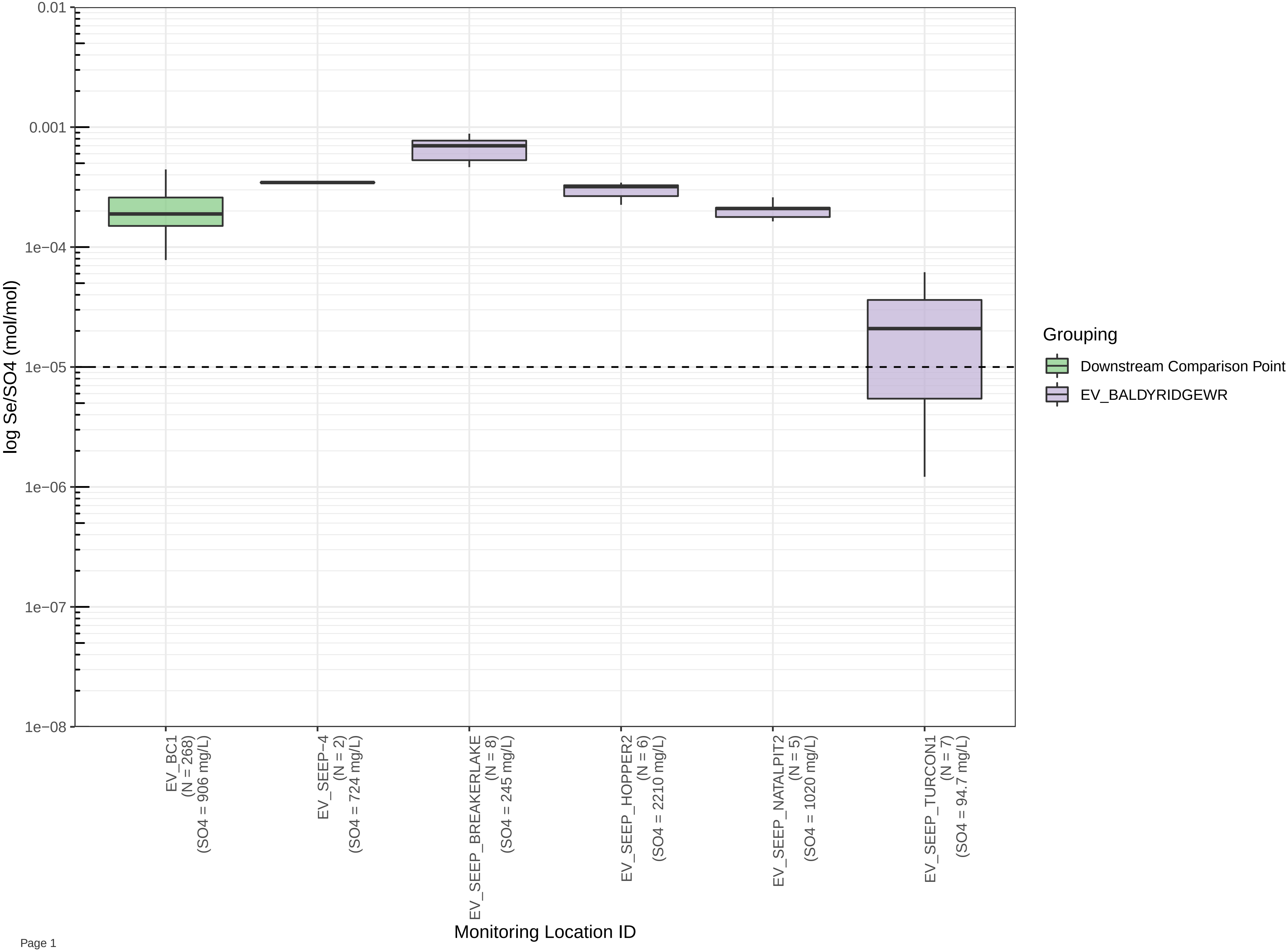
0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
LC_SLC (N = 88) (SO4 = 52.6 mg/L)
LC_SEEP2 (N = 8) (SO4 = 29.9 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
LC_MAXAM

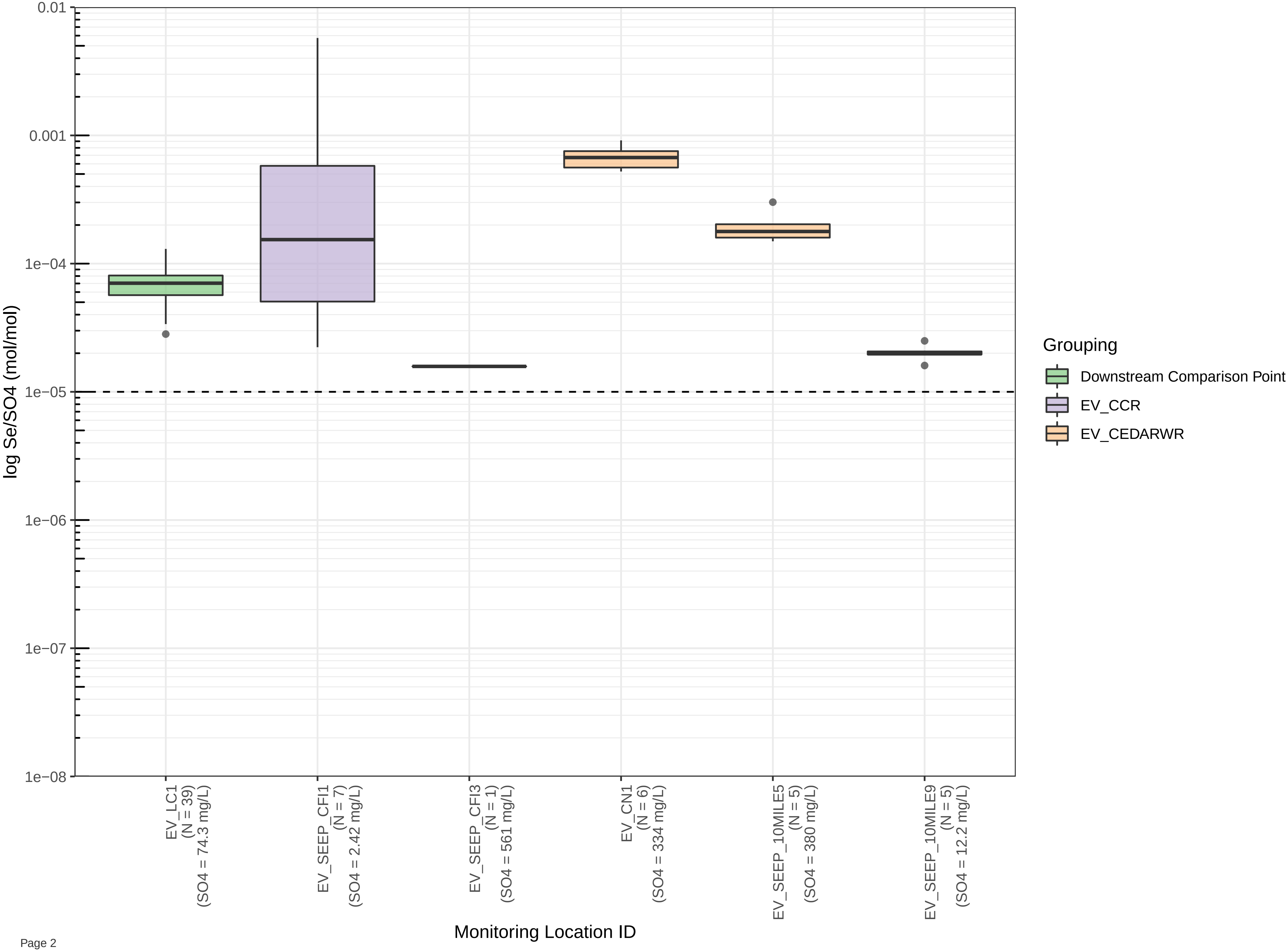

0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
LC_LC9
(N = 3)
(SO4 = 121 mg/L)
LC_3KM
(N = 8)
(SO4 = 63.6 mg/L)
LC_SEEP1
(N = 5)
(SO4 = 110 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
LC_MSA_WR

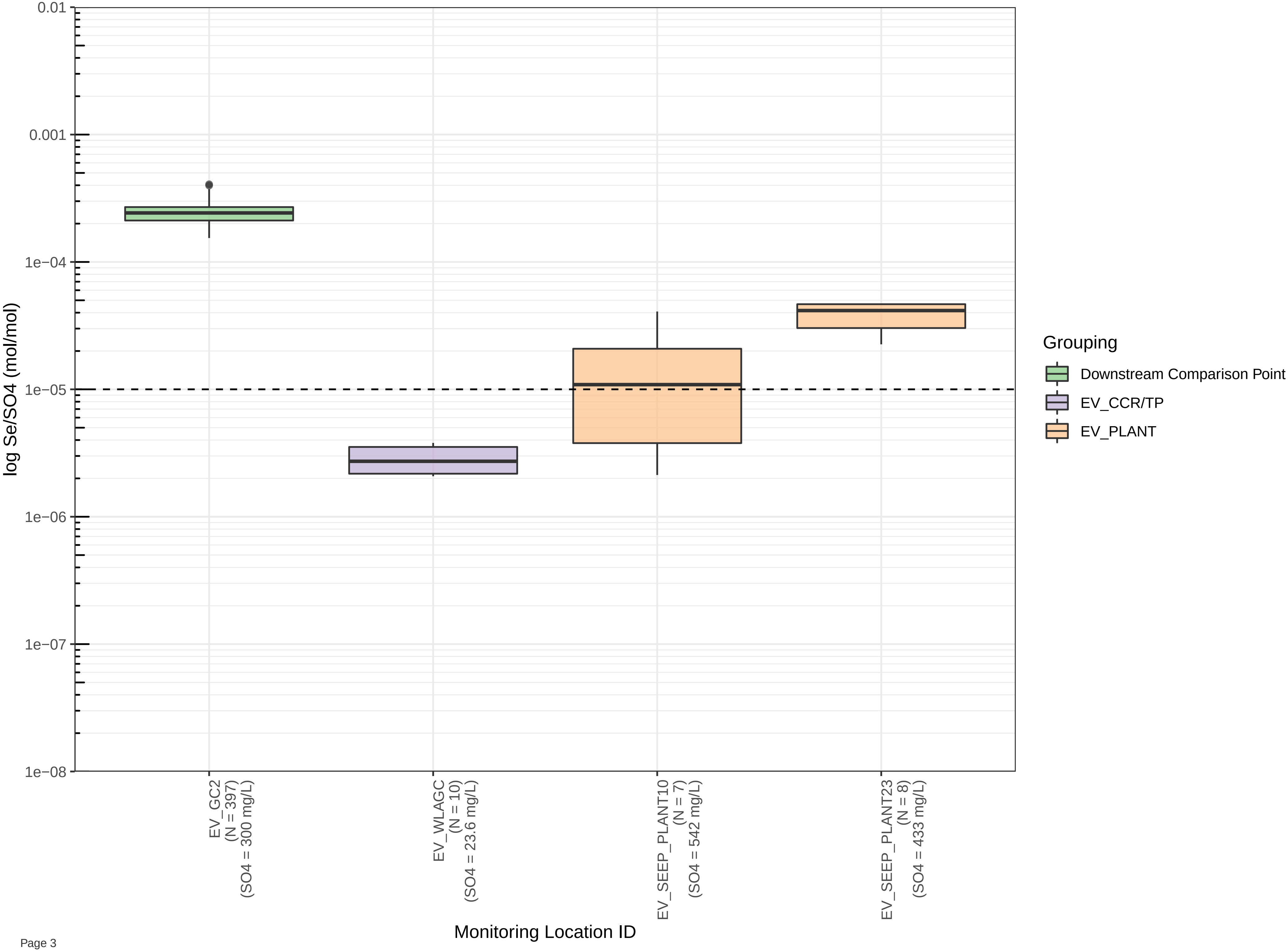

0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
LC_LC5
(N = 124)
(SO4 = 176 mg/L)
LC_SEEP10
(N = 9)
(SO4 = 145 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
LC_PLANT


0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
LC_SEEP11
(N = 8)
(SO4 = 100 mg/L)
Monitoring Location ID
Grouping
LC_PLANT

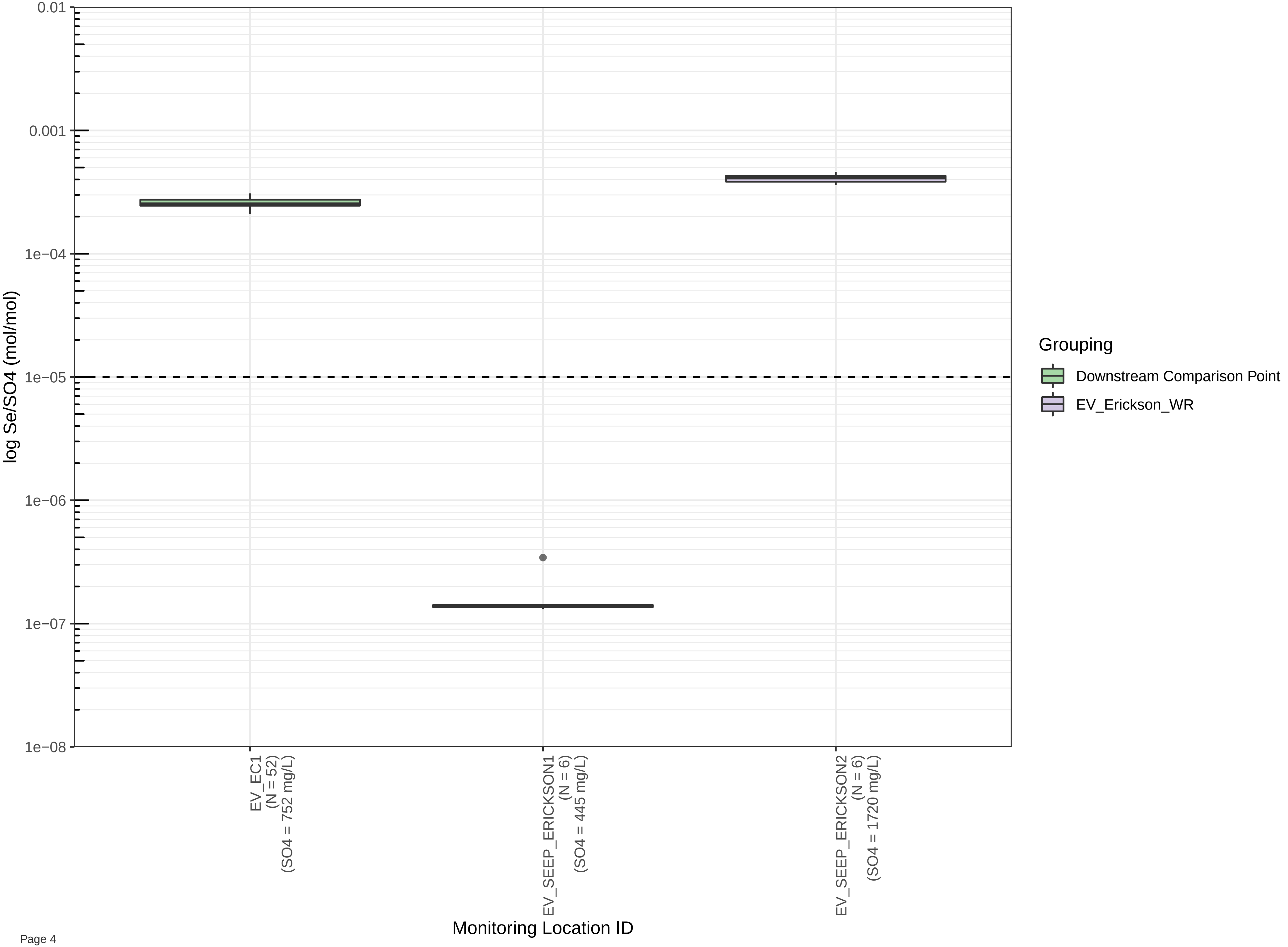

0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
LC_LC3
(N = 184)
(SO4 = 341 mg/L)
LC_WLC_LOT2
(N = 2)
(SO4 = 542 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
LC_WLC_WR


0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
EV_BC1 (N = 268) (SO4 = 906 mg/L)
EV_SEEP−4 (N = 2) (SO4 = 724 mg/L)
EV_SEEP_BREAKERLAKE (N = 8) (SO4 = 245 mg/L)
EV_SEEP_HOPPER2 (N = 6) (SO4 = 2210 mg/L)
EV_SEEP_NATALPIT2 (N = 5) (SO4 = 1020 mg/L)
EV_SEEP_TURCON1 (N = 7) (SO4 = 94.7 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
EV_BALDYRIDGEWR

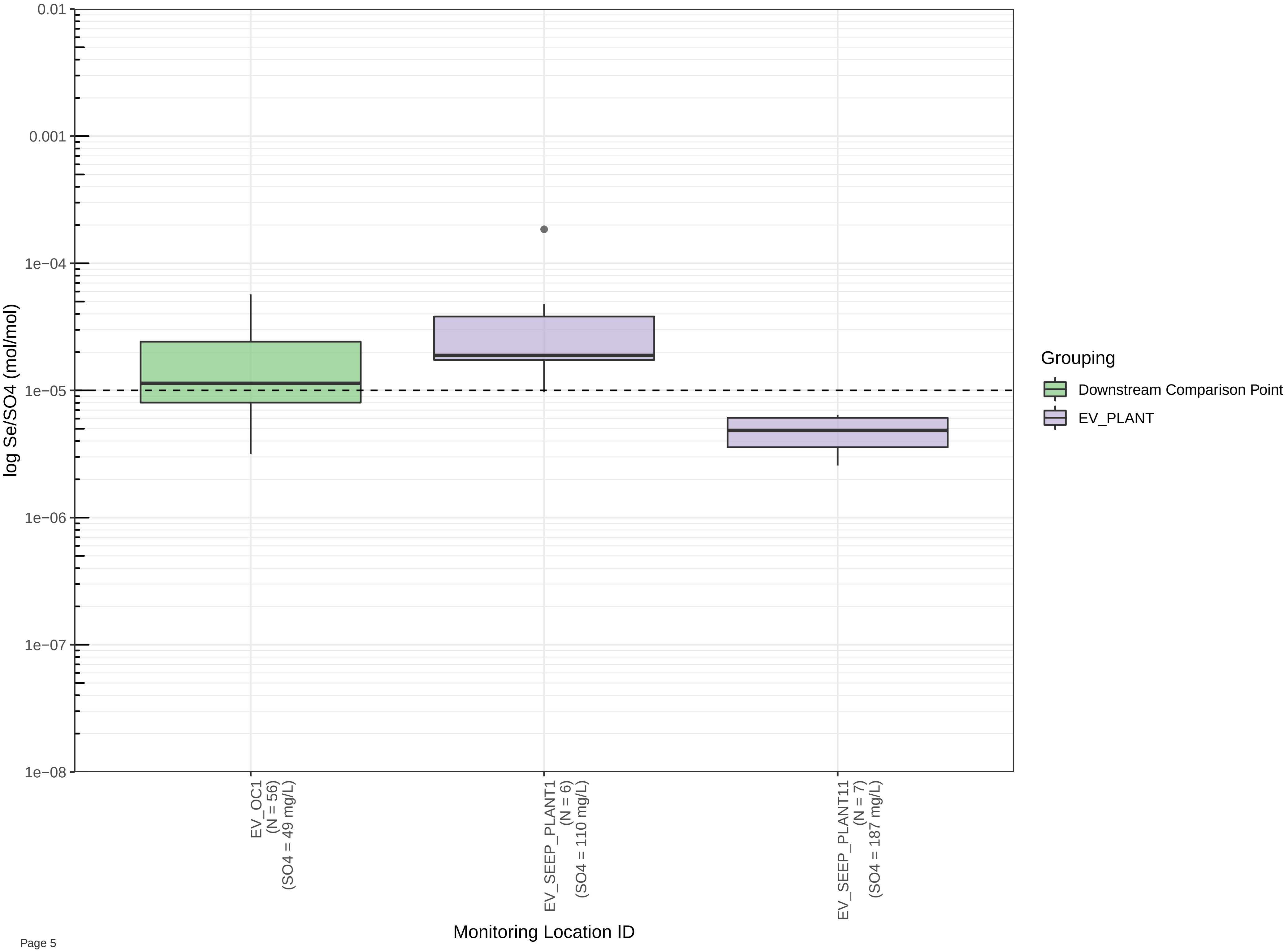

log Se/SO4 (mol/mol)
0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
EV_LC1 (N = 39) (SO4 = 74.3 mg/L)
EV_SEEP_CFI1 (N = 7) (SO4 = 2.42 mg/L)
EV_SEEP_CFI3 (N = 1) (SO4 = 561 mg/L)
EV_CN1 (N = 6) (SO4 = 334 mg/L)
EV_SEEP_10MILE5 (N = 5) (SO4 = 380 mg/L)
EV_SEEP_10MILE9 (N = 5) (SO4 = 12.2 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
EV_CCR
EV_CEDARWR

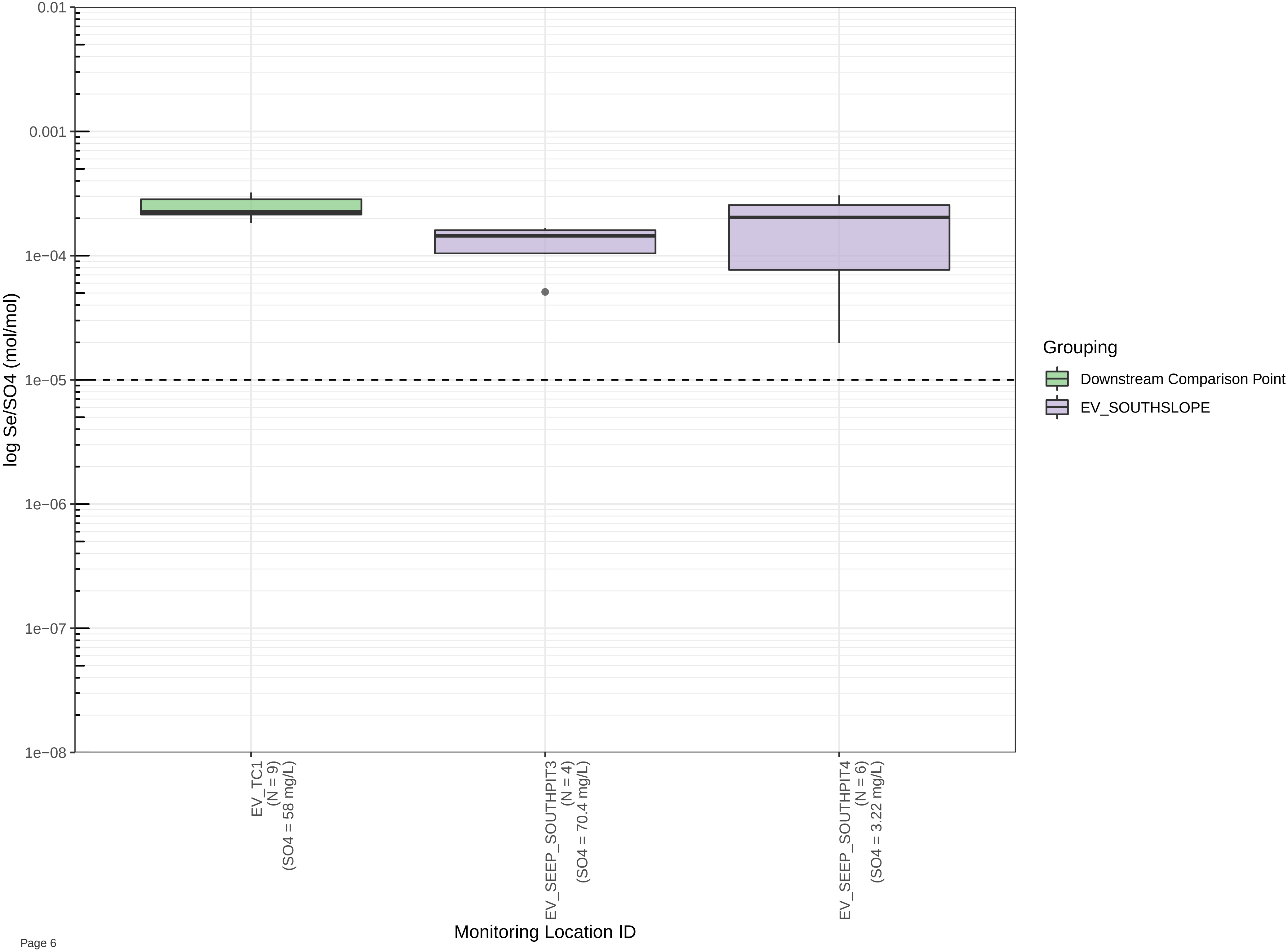


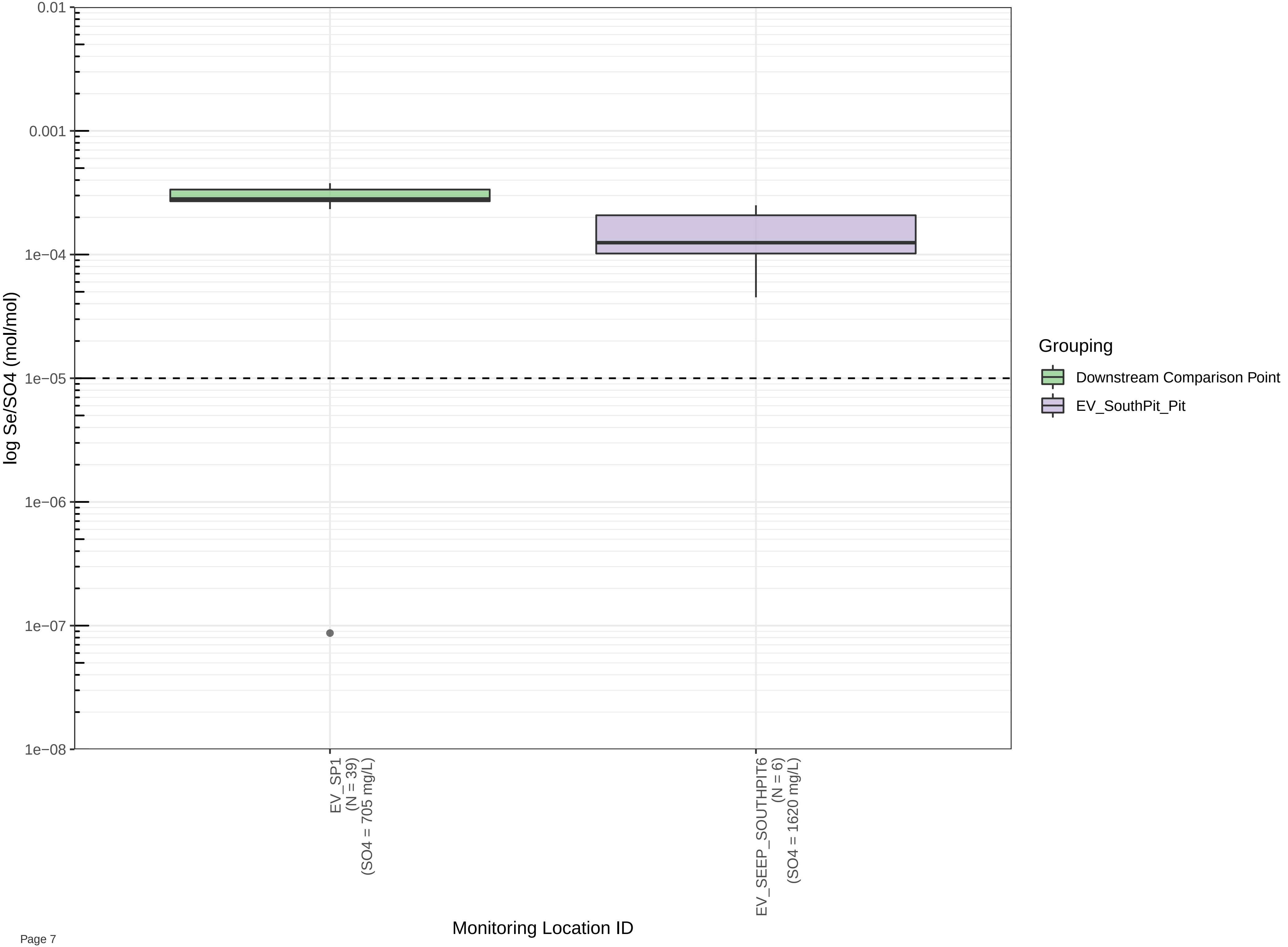
0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
EV_GC2 (N = 397) (SO4 = 300 mg/L)
EV_WLAGC (N = 10) (SO4 = 23.6 mg/L)
EV_SEEP_PLANT10 (N = 7) (SO4 = 542 mg/L)
EV_SEEP_PLANT23 (N = 8) (SO4 = 433 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
EV_CCR/TP
EV_PLANT

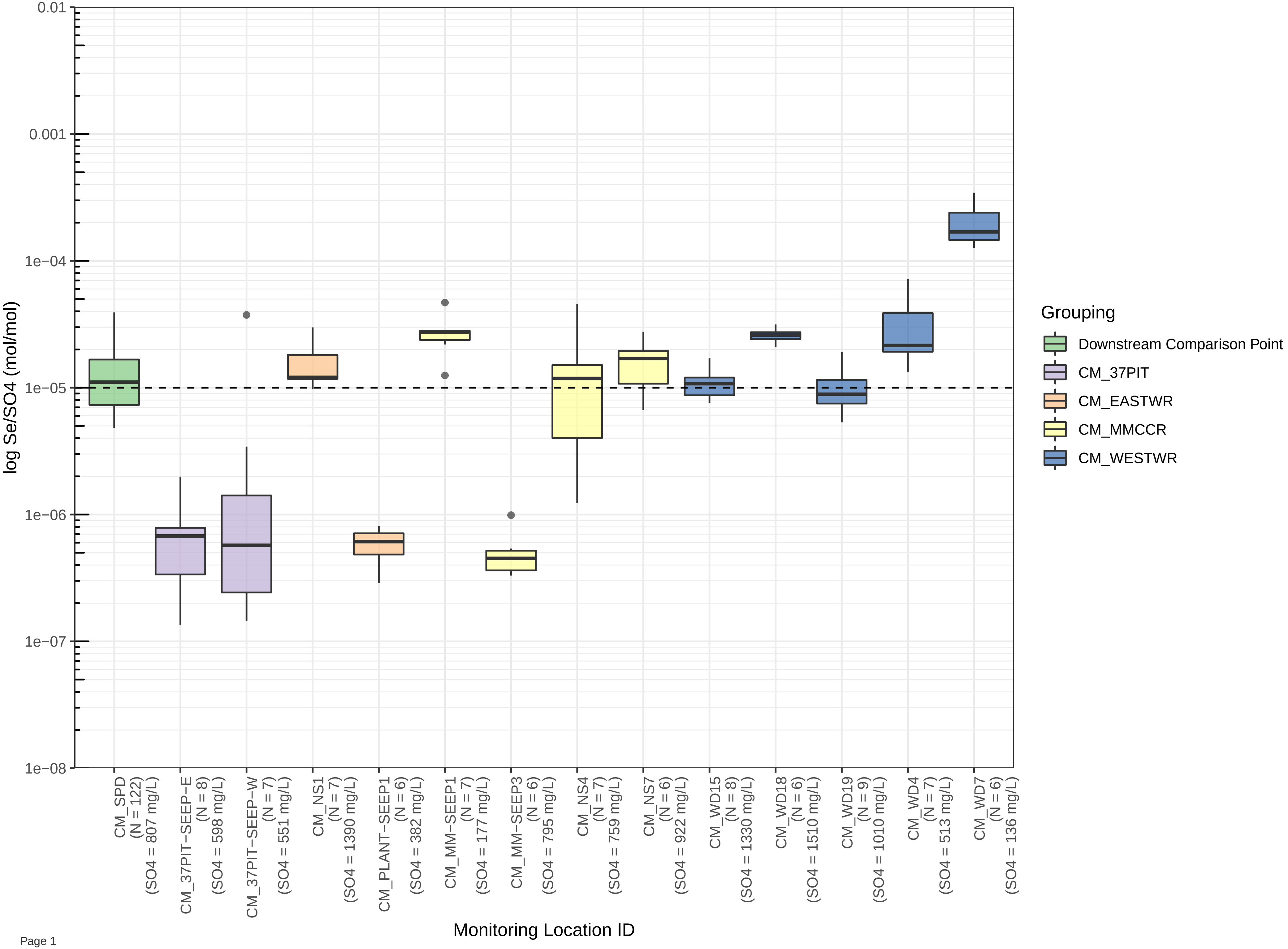


log Se/SO4 (mol/mol)
0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
EV_EC1
(N = 52)
(SO4 = 752 mg/L)
EV_SEEP_ERICKSON1
(N = 6)
(SO4 = 445 mg/L)
EV_SEEP_ERICKSON2
(N = 6)
(SO4 = 1720 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
EV_Erickson_WR


0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
EV_OC1 (N = 56) (SO4 = 49 mg/L)
EV_SEEP_PLANT1 (N = 6) (SO4 = 110 mg/L)
EV_SEEP_PLANT11 (N = 7) (SO4 = 187 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
EV_PLANT


0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
EV_TC1 (N = 9) (SO4 = 58 mg/L)
EV_SEEP_SOUTHPIT3 (N = 4) (SO4 = 70.4 mg/L)
EV_SEEP_SOUTHPIT4 (N = 6) (SO4 = 3.22 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
EV_SOUTHSLOPE


0.01
0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
EV_SP1
(N = 39)
(SO4 = 705 mg/L)
EV_SEEP_SOUTHPIT6
(N = 6)
(SO4 = 1620 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
EV_SouthPit_Pit


log Se/SO4 (mol/mol)
0.01
0.001
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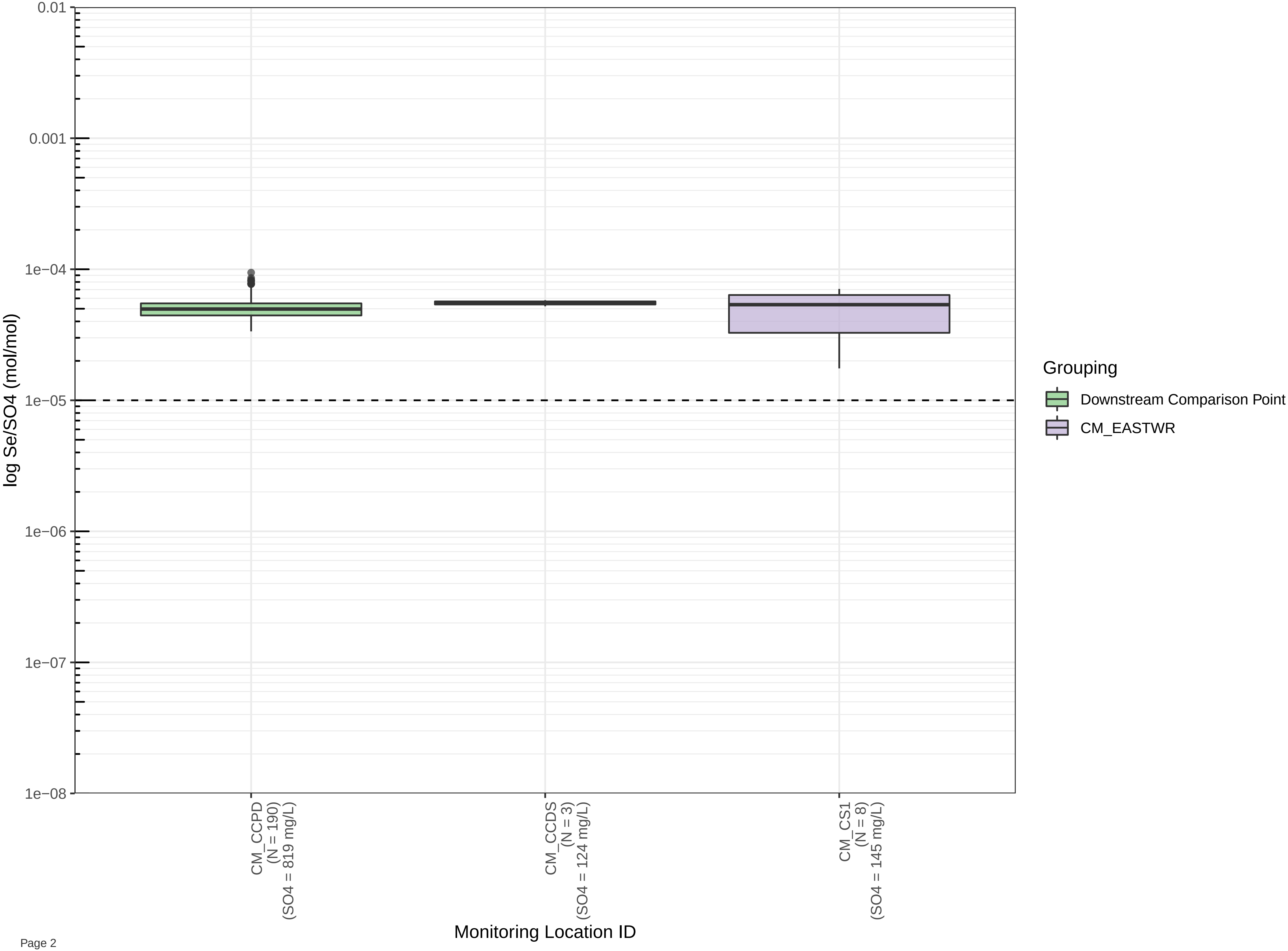
1e−05
1e−06
1e−07
1e−08
Grouping
Downstream Comparison Point
CM_37PIT
CM_EASTWR
CM_MMCCR
CM_WESTWR
CM_SPD (N = 122) (SO4 = 807 mg/L)
CM_37PIT−SEEP−E (N = 8) (SO4 = 598 mg/L)
CM_37PIT−SEEP−W (N = 7) (SO4 = 551 mg/L)
CM_NS1 (N = 7) (SO4 = 1390 mg/L)
CM_PLANT−SEEP1 (N = 6) (SO4 = 382 mg/L)
CM_MM−SEEP1 (N = 7) (SO4 = 177 mg/L)
CM_MM−SEEP3 (N = 6) (SO4 = 795 mg/L)
CM_NS4 (N = 7) (SO4 = 759 mg/L)
CM_NS7 (N = 6) (SO4 = 922 mg/L)
CM_WD15 (N = 8) (SO4 = 1330 mg/L)
CM_WD18 (N = 6) (SO4 = 1510 mg/L)
CM_WD19 (N = 9) (SO4 = 1010 mg/L)
CM_WD4 (N = 7) (SO4 = 513 mg/L)
CM_WD7 (N = 6) (SO4 = 136 mg/L)
Monitoring Location ID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0.001
1e−04
1e−05
1e−06
1e−07
1e−08
log Se/SO4 (mol/mol)
CM_CCPD (N = 190) (SO4 = 819 mg/L)
CM_CCDS (N = 3) (SO4 = 124 mg/L)
CM_CS1 (N = 8) (SO4 = 145 mg/L)
Monitoring Location ID
Grouping
Downstream Comparison Point
CM_EASTWR

Appendix L Permitted Surface Water Monitoring Locations Oxidation and Morrissey Formation Categorization

Tables

1 Fording River Operation (FRO)

Table 1: FRO – Downstream Permitted Monitoring Location Oxidation and MF Influence Category Summary

Seep ID	**Year**	**Flow Regime**	**Cadmium** (mg/L)	**Selenium** (µg/L)	**Sulfate** (mg/L)	**Zinc** (mg/L)	**Zn/Cd** (mg/mg)	**Se/SO4** (mol/mol)	**Oxidation**	**MF Influence**
FR_CC1	2018	Freshet	0.000475	217	615	0.0235	49	0.00043	Suboxic	Not MF Influenced
FR_CC1	2018	Low Flow	0.000167	183	516	0.00808	48	0.00043	Suboxic	Not MF Influenced
FR_CC1	2019	Freshet	0.000108	180	576	0.0062	58	0.00038	Suboxic	Not MF Influenced
FR_CC1	2019	Low Flow	0.000251	189	554	0.012	48	0.00041	Suboxic	Not MF Influenced
FR_CC1	2020	Freshet	0.000392	172	610	0.0205	52	0.00034	Suboxic	Not MF Influenced
FR_CC1	2020	Low Flow	0.000328	184	575	0.0165	50	0.00039	Suboxic	Not MF Influenced
FR_EC1	2018	Freshet	0.000064	220	947	0.00527	82	0.00028	Suboxic	Not MF Influenced
FR_EC1	2018	Low Flow	0.0000815	368	1570	0.0062	76	0.00028	Suboxic	Not MF Influenced
FR_EC1	2019	Freshet	0.0000072	286	1200	0.001	140	0.00029	Suboxic	Not MF Influenced
FR_EC1	2019	Low Flow	-	-	-	-	-	-	-	-
FR_EC1	2020	Freshet	0.000109	99.9	309	0.0158	140	0.00039	Oxic	Not MF Influenced
FR_EC1	2020	Low Flow	-	-	-	-	-	-	-	-
FR_FR2	2018	Freshet	0.0000579	32.3	146	0.00193	33	0.00027	Oxic	Not MF Influenced
FR_FR2	2018	Low Flow	0.0000515	46.4	242	0.00173	34	0.00023	Oxic	Not MF Influenced
FR_FR2	2019	Freshet	0.0000419	29.3	140	0.00114	27	0.00025	Oxic	Not MF Influenced
FR_FR2	2019	Low Flow	0.0000626	42	212	0.00173	28	0.00024	Oxic	Not MF Influenced
FR_FR2	2020	Freshet	0.0000627	35.2	159	0.00339	54	0.00027	Oxic	Not MF Influenced
FR_FR2	2020	Low Flow	0.000055	51	262	0.00154	28	0.00024	Oxic	Not MF Influenced
FR_LMP1	2018	Freshet	0.000129	21.7	78.5	0.00316	24	0.00034	Oxic	Not MF Influenced
FR_LMP1	2018	Low Flow	0.0000621	25.7	125	0.00322	52	0.00025	Oxic	Not MF Influenced
FR_LMP1	2019	Freshet	0.00015	42	114	0.00737	49	0.00045	Oxic	Not MF Influenced
FR_LMP1	2019	Low Flow	0.00015	69.7	225	0.00612	41	0.00038	Oxic	Not MF Influenced
FR_LMP1	2020	Freshet	0.000213	67.9	210	0.00975	46	0.00039	Oxic	Not MF Influenced
FR_LMP1	2020	Low Flow	0.000218	160	385	0.00969	44	0.00051	Oxic	Not MF Influenced
FR_LP1	2018	Freshet	0.0000593	54.9	440	0.00896	150	0.00015	Oxic	Not MF Influenced
FR_LP1	2018	Low Flow	0.0000187	52.1	584	0.00414	220	0.00011	Suboxic	Possibly MF Influenced
FR_LP1	2019	Freshet	0.0000439	55.9	513	0.00344	78	0.00013	Suboxic	Not MF Influenced
FR_LP1	2019	Low Flow	0.0000177	60.8	516	0.0021	120	0.00014	Suboxic	Not MF Influenced
FR_LP1	2020	Freshet	0.0000665	68.9	480	0.00528	79	0.00017	Oxic	Not MF Influenced
FR_LP1	2020	Low Flow	0.0000187	32.9	493	0.00253	140	0.000081	Oxic	Not MF Influenced
FR_NL1	2018	Freshet	-	-	-	-	-	-	Oxic	Not MF Influenced
FR_NL1	2018	Low Flow	-	-	-	-	-	-	Oxic	Not MF Influenced
FR_NL1	2019	Freshet	-	-	-	-	-	-	Oxic	Not MF Influenced
FR_NL1	2019	Low Flow	-	-	-	-	-	-	-	-
FR_NL1	2020	Freshet	-	-	-	-	-	-	-	-

Seep ID	**Year**	**Flow Regime**	**Cadmium** (mg/L)	**Selenium** (µg/L)	**Sulfate** (mg/L)	**Zinc** (mg/L)	**Zn/Cd** (mg/mg)	**Se/SO4** (mol/mol)	**Oxidation**	**MF Influence**
FR_NL1	2020	Low Flow	-	-	-	-	-	-	Oxic	Not MF Influenced
FR_PP1	2018	Freshet	-	-	-	-	-	-	-	-
FR_PP1	2018	Low Flow	0.000105	8.64	42.9	0.0103	98	0.00024	Oxic	Not MF Influenced
FR_PP1	2019	Freshet	0.000141	23.1	96.6	0.00401	29	0.00029	Oxic	Not MF Influenced
FR_PP1	2019	Low Flow	0.000156	43.8	280	0.00904	58	0.00019	Oxic	Not MF Influenced
FR_PP1	2020	Freshet	0.000352	40.1	145	0.0191	54	0.00034	Oxic	Not MF Influenced
FR_PP1	2020	Low Flow	0.000416	105	447	0.0238	57	0.00029	Oxic	Not MF Influenced
FR_SP1	2018	Freshet	0.0000819	14.4	285	0.0025	31	0.000061	Oxic	Not MF Influenced
FR_SP1	2018	Low Flow	0.0000794	5.76	302	0.00219	28	0.000023	Oxic	Not MF Influenced
FR_SP1	2019	Freshet	0.0000719	8.97	259	0.00162	23	0.000042	Oxic	Not MF Influenced
FR_SP1	2019	Low Flow	0.0000655	13.3	264	0.0013	20	0.000062	Oxic	Not MF Influenced
FR_SP1	2020	Freshet	0.0000801	32.1	268	0.00244	30	0.00015	Oxic	Not MF Influenced
FR_SP1	2020	Low Flow	0.0000952	13.4	243	0.0018	19	0.000067	Oxic	Not MF Influenced

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\ComparisonPt_CriteriaSelection_rev0_AD.xlsx

2 Greenhills Operation (GHO)

Table 2: GHO – Downstream Permitted Monitoring Location Oxidation and MF Influence Category Summary

Seep ID	Year	Flow Regime	Cadmium (mg/L)	Selenium (µg/L)	Sulfate (mg/L)	Zinc (mg/L)	Zn/Cd (mg/mg)	Se/SO4 (mol/mol)	Oxidation	MF Influence
GH_ERSC2	2018	Freshet	0.000015	37.3	299	0.0012	80	0.00015	Oxic	Not MF Influenced
GH_ERSC2	2018	Low Flow	0.00000873	16.1	110	0.001	110	0.00018	Oxic	Not MF Influenced
GH_ERSC2	2019	Freshet	0.0000112	3.65	33.3	0.001	89	0.00013	Oxic	Not MF Influenced
GH_ERSC2	2019	Low Flow	0.00000827	6.43	55.9	0.001	120	0.00014	Oxic	Not MF Influenced
GH_ERSC2	2020	Freshet	0.00000987	10.4	71.8	0.00129	130	0.00018	Oxic	Not MF Influenced
GH_ERSC2	2020	Low Flow	0.0000111	10.2	78.4	0.001	90	0.00016	Oxic	Not MF Influenced
GH_GH1	2018	Freshet	0.0000552	87.9	484	0.00437	79	0.00022	Oxic	Not MF Influenced
GH_GH1	2018	Low Flow	0.00000833	166	812	0.00191	230	0.00025	Suboxic	Possibly MF Influenced
GH_GH1	2019	Freshet	0.0000195	86.4	408	0.00112	58	0.00026	Oxic	Not MF Influenced
GH_GH1	2019	Low Flow	0.0000085	132	654	0.001	120	0.00025	Suboxic	Not MF Influenced
GH_GH1	2020	Freshet	0.0000451	86.9	414	0.00331	73	0.00025	Oxic	Not MF Influenced
GH_GH1	2020	Low Flow	0.00000961	151	785	0.00145	150	0.00023	Suboxic	Not MF Influenced
GH_LC1	2018	Freshet	0.0000813	89.9	611	0.00436	54	0.00018	Suboxic	Not MF Influenced
GH_LC1	2018	Low Flow	0.00000885	160	814	0.001	110	0.00024	Suboxic	Not MF Influenced
GH_LC1	2019	Freshet	0.000005	217	845	0.001	200	0.00031	Suboxic	Not MF Influenced
GH_LC1	2019	Low Flow	0.0000355	72.1	703	0.00266	75	0.00012	Suboxic	Not MF Influenced
GH_LC1	2020	Freshet	0.0000151	10.7	42.3	0.001	66	0.00031	Oxic	Not MF Influenced
GH_LC1	2020	Low Flow	-	-	-	-	-	-	-	-
GH_PC1	2018	Freshet	-	-	-	-	-	-	-	-
GH_PC1	2018	Low Flow	-	-	-	-	-	-	-	-
GH_PC1	2019	Freshet	-	-	-	-	-	-	-	-
GH_PC1	2019	Low Flow	-	-	-	-	-	-	-	-
GH_PC1	2020	Freshet	-	-	-	-	-	-	Oxic	Possibly MF Influenced
GH_PC1	2020	Low Flow	-	-	-	-	-	-	-	-
GH_TC2	2018	Freshet	-	-	-	-	-	-	Oxic	Not MF Influenced
GH_TC2	2018	Low Flow	-	-	-	-	-	-	Suboxic	Not MF Influenced
GH_TC2	2019	Freshet	-	-	-	-	-	-	Oxic	Not MF Influenced
GH_TC2	2019	Low Flow	-	-	-	-	-	-	Suboxic	Not MF Influenced
GH_TC2	2020	Freshet	-	-	-	-	-	-	Suboxic	Not MF Influenced
GH_TC2	2020	Low Flow	-	-	-	-	-	-	Suboxic	Not MF Influenced
GH_WC1	2018	Freshet	0.0000833	98.9	774	0.00718	86	0.00016	Suboxic	Not MF Influenced
GH_WC1	2018	Low Flow	0.00000609	119	930	0.00111	180	0.00016	Suboxic	Not MF Influenced
GH_WC1	2019	Freshet	0.0000191	142	874	0.00103	54	0.0002	Suboxic	Not MF Influenced
GH_WC1	2019	Low Flow	0.0000288	167	1080	0.00322	110	0.00019	Suboxic	Not MF Influenced
GH_WC1	2020	Freshet	0.000022	111	891	0.00334	150	0.00015	Suboxic	Not MF Influenced
GH_WC1	2020	Low Flow	0.0000189	104	1160	0.00171	90	0.00011	Suboxic	Not MF Influenced

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\ComparisonPt_CriteriaSelection_rev0_AD.xlsx

3 Line Creek Operation (LCO)

Table 3: LCO – Downstream Permitted Monitoring Location Oxidation and MF Influence Category Summary

Seep ID	Year	Flow Regime	Cadmium (mg/L)	Selenium (µg/L)	Sulfate (mg/L)	Zinc (mg/L)	Zn/Cd (mg/mg)	Se/SO4 (mol/mol)	Oxidation	MF Influence
LC_DCDS	2018	Freshet	0.0000715	15.6	48.4	0.00296	41	0.00039	Oxic	Not MF Influenced
LC_DCDS	2018	Low Flow	0.000052	22.2	77.2	0.00323	62	0.00035	Oxic	Not MF Influenced
LC_DCDS	2019	Freshet	0.0000547	16.2	52.7	0.00166	30	0.00037	Oxic	Not MF Influenced
LC_DCDS	2019	Low Flow	0.0000745	34.6	106	0.00265	36	0.0004	Oxic	Not MF Influenced
LC_DCDS	2020	Freshet	0.000101	28.3	83.8	0.00664	66	0.00041	Oxic	Not MF Influenced
LC_DCDS	2020	Low Flow	0.000162	60.1	179	0.00847	52	0.00041	Oxic	Not MF Influenced
LC_LC3	2018	Freshet	0.000425	69.2	275	0.0174	41	0.00031	Oxic	Not MF Influenced
LC_LC3	2018	Low Flow	0.000346	72.4	365	0.0134	39	0.00024	Oxic	Not MF Influenced
LC_LC3	2019	Freshet	0.000258	30.9	253	0.00997	39	0.00015	Oxic	Not MF Influenced
LC_LC3	2019	Low Flow	0.00022	41.9	369	0.00824	38	0.00014	Oxic	Not MF Influenced
LC_LC3	2020	Freshet	0.00033	38	267	0.0332	100	0.00017	Oxic	Not MF Influenced
LC_LC3	2020	Low Flow	0.000248	46.3	406	0.0101	41	0.00014	Oxic	Not MF Influenced
LC_LC5	2018	Freshet	0.0000266	38.3	159	0.00155	58	0.00029	Oxic	Not MF Influenced
LC_LC5	2018	Low Flow	0.0000162	44.4	193	0.00168	100	0.00028	Oxic	Not MF Influenced
LC_LC5	2019	Freshet	0.0000217	37.5	162	0.00126	58	0.00028	Oxic	Not MF Influenced
LC_LC5	2019	Low Flow	0.0000143	42.5	187	0.00103	72	0.00028	Oxic	Not MF Influenced
LC_LC5	2020	Freshet	0.0000284	35.2	155	0.0113	400	0.00027	Oxic	Possibly MF Influenced
LC_LC5	2020	Low Flow	0.000018	44	195	0.00365	200	0.00027	Oxic	Possibly MF Influenced
LC_LC7	2018	Freshet	0.0000709	8.91	50.3	0.00377	53	0.00022	Oxic	Not MF Influenced
LC_LC7	2018	Low Flow	0.0000261	3.03	58.6	0.00171	66	0.000063	Oxic	Not MF Influenced
LC_LC7	2019	Freshet	0.0000404	6.38	50.6	0.00262	65	0.00015	Oxic	Not MF Influenced
LC_LC7	2019	Low Flow	0.0000227	3.4	63.3	0.00154	68	0.000065	Oxic	Not MF Influenced
LC_LC7	2020	Freshet	0.0000621	10.1	50.7	0.00513	83	0.00024	Oxic	Not MF Influenced
LC_LC7	2020	Low Flow	0.0000287	4.09	65.9	0.00252	88	0.000075	Oxic	Not MF Influenced
LC_LC9	2018	Freshet	0.000124	50.4	144	0.003	24	0.00043	Oxic	Not MF Influenced
LC_LC9	2018	Low Flow	0.000112	24.1	75.3	0.003	27	0.00039	Oxic	Not MF Influenced
LC_LC9	2019	Freshet	-	-	-	-	-	-	-	-
LC_LC9	2019	Low Flow	-	-	-	-	-	-	-	-
LC_LC9	2020	Freshet	-	-	-	-	-	-	-	-
LC_LC9	2020	Low Flow	-	-	-	-	-	-	-	-
LC_SLC	2018	Freshet	0.00000958	0.932	34.7	0.00216	230	0.000033	Oxic	Not MF Influenced
LC_SLC	2018	Low Flow	0.0000135	1.48	60.7	0.00199	150	0.00003	Oxic	Not MF Influenced
LC_SLC	2019	Freshet	0.0000101	1.1	37.3	0.00166	170	0.000036	Oxic	Not MF Influenced
LC_SLC	2019	Low Flow	0.0000116	1.63	63.9	0.00169	150	0.000031	Oxic	Not MF Influenced
LC_SLC	2020	Freshet	0.0000124	0.876	24.8	0.00276	220	0.000043	Oxic	Not MF Influenced
LC_SLC	2020	Low Flow	0.0000148	1.48	60.7	0.00194	130	0.00003	Oxic	Not MF Influenced

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\ComparisonPt_CriteriaSelection_rev0_AD.xlsx

4 Elkview Operation (EVO)

Table 4: EVO – Downstream Permitted Monitoring Location Oxidation and MF Influence Category Summary

Seep ID	Year	Flow Regime	Cadmium (mg/L)	Selenium (µg/L)	Sulfate (mg/L)	Zinc (mg/L)	Zn/Cd (mg/mg)	Se/SO4 (mol/mol)	Oxidation	MF Influence
EV_BC1	2018	Freshet	0.0000237	100	857	0.00333	140	0.00014	Suboxic	Not MF Influenced
EV_BC1	2018	Low Flow	0.0000356	96.6	795	0.00412	120	0.00015	Suboxic	Not MF Influenced
EV_BC1	2019	Freshet	0.0000266	159	878	0.00548	210	0.00022	Suboxic	Possibly MF Influenced
EV_BC1	2019	Low Flow	0.0000265	154	964	0.0104	390	0.00019	Suboxic	Possibly MF Influenced
EV_BC1	2020	Freshet	0.0000298	227	929	0.00389	130	0.0003	Suboxic	Not MF Influenced
EV_BC1	2020	Low Flow	0.0000319	251	1090	0.00495	160	0.00028	Suboxic	Not MF Influenced
EV_EC1	2018	Freshet	0.0000111	154	763	0.0012	110	0.00025	Suboxic	Not MF Influenced
EV_EC1	2018	Low Flow	0.00000728	146	745	0.00178	240	0.00024	Suboxic	Possibly MF Influenced
EV_EC1	2019	Freshet	0.00000823	173	803	0.001	120	0.00026	Suboxic	Not MF Influenced
EV_EC1	2019	Low Flow	0.00000856	152	767	0.00188	220	0.00024	Suboxic	Possibly MF Influenced
EV_EC1	2020	Freshet	0.00000756	137	708	0.00111	150	0.00024	Suboxic	Not MF Influenced
EV_EC1	2020	Low Flow	0.00000645	148	720	0.00186	290	0.00025	Suboxic	Possibly MF Influenced
EV_GC2	2018	Freshet	0.0000261	65.9	268	0.00233	89	0.0003	Oxic	Not MF Influenced
EV_GC2	2018	Low Flow	0.0000113	56.1	299	0.00177	160	0.00023	Oxic	Not MF Influenced
EV_GC2	2019	Freshet	0.00000953	71.7	306	0.00107	110	0.00028	Oxic	Not MF Influenced
EV_GC2	2019	Low Flow	0.0000231	60.7	308	0.00334	140	0.00024	Oxic	Not MF Influenced
EV_GC2	2020	Freshet	0.0000243	51.7	240	0.00145	59	0.00026	Oxic	Not MF Influenced
EV_GC2	2020	Low Flow	0.0000214	62.9	306	0.00181	85	0.00025	Oxic	Not MF Influenced
EV_LC1	2018	Freshet	0.000014	4.92	83.5	0.00122	87	0.000072	Oxic	Not MF Influenced
EV_LC1	2018	Low Flow	0.0000193	3.59	79.1	0.00191	99	0.000055	Oxic	Not MF Influenced
EV_LC1	2019	Freshet	0.000011	5.58	86.7	0.00104	94	0.000078	Oxic	Not MF Influenced
EV_LC1	2019	Low Flow	0.0000239	3.93	70.7	0.00144	60	0.000067	Oxic	Not MF Influenced
EV_LC1	2020	Freshet	0.00000766	4.39	64.3	0.001	130	0.000083	Oxic	Not MF Influenced
EV_LC1	2020	Low Flow	0.000029	3.75	65.9	0.00153	53	0.000069	Oxic	Not MF Influenced
EV_OC1	2018	Freshet	0.00000616	2.27	77.3	0.00124	200	0.000036	Oxic	Not MF Influenced
EV_OC1	2018	Low Flow	0.000005	0.588	49.1	0.00167	330	0.000015	Oxic	Not MF Influenced
EV_OC1	2019	Freshet	0.00000657	0.497	50.1	0.00102	160	0.000012	Oxic	Not MF Influenced
EV_OC1	2019	Low Flow	0.00000803	0.33	23.6	0.00151	190	0.000017	Oxic	Not MF Influenced
EV_OC1	2020	Freshet	0.00000823	0.539	67.5	0.00198	240	0.0000097	Oxic	Not MF Influenced
EV_OC1	2020	Low Flow	0.0000128	0.64	39	0.00163	130	0.00002	Oxic	Not MF Influenced
EV_SP1	2018	Freshet	0.000121	188	697	0.00868	71	0.00033	Suboxic	Not MF Influenced
EV_SP1	2018	Low Flow	0.000262	177	795	0.0117	45	0.00027	Suboxic	Not MF Influenced
EV_SP1	2019	Freshet	0.000237	176	698	0.00938	40	0.00031	Suboxic	Not MF Influenced
EV_SP1	2019	Low Flow	0.000844	161	724	0.0277	33	0.00027	Suboxic	Not MF Influenced
EV_SP1	2020	Freshet	0.000736	136	585	0.0294	40	0.00028	Suboxic	Not MF Influenced
EV_SP1	2020	Low Flow	0.000951	139	667	0.0305	32	0.00025	Suboxic	Not MF Influenced

Seep ID	**Year**	**Flow Regime**	**Cadmium** (mg/L)	**Selenium** (µg/L)	**Sulfate** (mg/L)	**Zinc** (mg/L)	**Zn/Cd** (mg/mg)	**Se/SO4** (mol/mol)	**Oxidation**	**MF Influence**
EV_TC1	2018	Freshet	0.0000868	11.2	51.3	0.0017	20	0.00026	Oxic	Not MF Influenced
EV_TC1	2018	Low Flow	-	-	-	-	-	-	-	-
EV_TC1	2019	Freshet	0.0000666	13.9	74.8	0.0012	18	0.00023	Oxic	Not MF Influenced
EV_TC1	2019	Low Flow	-	-	-	-	-	-	-	-
EV_TC1	2020	Freshet	0.000104	9.74	55.6	0.00193	19	0.00021	Oxic	Not MF Influenced
EV_TC1	2020	Low Flow	-	-	-	-	-	-	-	-

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\ComparisonPt_CriteriaSelection_rev0_AD.xlsx

5 Coal Mountain Operation (CMO)

Table 5: **CMO – Downstream Permitted Monitoring Location Oxidation and MF Influence Category Summary**

Seep ID	**Year**	**Flow Regime**	**Cadmium** (mg/L)	**Selenium** (µg/L)	**Sulfate** (mg/L)	**Zinc** (mg/L)	**Zn/Cd** (mg/mg)	**Se/SO4** (mol/mol)	**Oxidation**	**MF Influence**
CM_CCPD	2018	Freshet	0.00067	31.1	726	0.0612	91	0.000052	Suboxic	Not MF Influenced
CM_CCPD	2018	Low Flow	0.000436	35.3	893	0.0355	81	0.000048	Suboxic	Not MF Influenced
CM_CCPD	2019	Freshet	0.000542	32.9	713	0.0415	77	0.000056	Suboxic	Not MF Influenced
CM_CCPD	2019	Low Flow	0.000558	36.5	855	0.0417	75	0.000052	Suboxic	Not MF Influenced
CM_CCPD	2020	Freshet	0.000556	34	719	0.041	74	0.000057	Suboxic	Not MF Influenced
CM_CCPD	2020	Low Flow	0.00045	31.7	858	0.0379	84	0.000045	Suboxic	Not MF Influenced
CM_SPD	2018	Freshet	0.0000821	8.48	776	0.012	150	0.000013	Suboxic	Not MF Influenced
CM_SPD	2018	Low Flow	0.0000401	8.55	930	0.00661	160	0.000011	Suboxic	Not MF Influenced
CM_SPD	2019	Freshet	0.0000376	10.1	714	0.00494	130	0.000017	Suboxic	Not MF Influenced
CM_SPD	2019	Low Flow	0.0000448	8.98	906	0.00736	160	0.000012	Suboxic	Not MF Influenced
CM_SPD	2020	Freshet	0.000147	7.4	728	0.0242	160	0.000012	Suboxic	Not MF Influenced
CM_SPD	2020	Low Flow	0.0000492	5.57	878	0.0102	210	0.0000077	Suboxic	Possibly MF Influenced

Sources: \\srk.ad\dfs\na\van\Projects\02_MULTI_SITES\Elk_Valley_Coal_Corp\1CT017.312_2020_Annual_Seep_Monitoring_Report\Task200 Data Interpretation\Data Analysis\ComparisonPt_CriteriaSelection_rev0_AD.xlsx

Volume II – Appendix IV

Groundwater Screening Criteria for Cobalt and Lithium
(Ramboll, 2021)

Intended for

Teck Coal, Ltd.

Date

February 2021

GROUNDWATER SCREENING CRITERIA FOR COBALT AND LITHIUM

RAMBOLL Bright ideas. Sustainable change.

GROUNDWATER SCREENING CRITERIA FOR COBALT AND LITHIUM

Date	**February 03, 2021**
Prepared by	**Amanda Bailey, MS**
Checked by	**Rosalind Schoof, PhD, DABT, Fellow ATS**
Approved by	**Alma Feldpausch, MS, DABT**

Ramboll
901 Fifth Avenue
Suite 2820
Seattle, WA 98164
USA

T +1 206 336 1650
F +1 206 336 1651
https://ramboll.com

CONTENTS

TABLES

ATTACHMENTS

ACRONYMS

AF	allocation factor
AMP	Adaptive Management Plan
BC	British Columbia
BC ENV	British Columbia Ministry of Environment & Climate Change Strategy
BW	body weight
Cl	plasma clearance
Cp	plasma concentration
CSR	Contaminated Sites Regulation
DNEL	derived no effects level
DW AF	drinking water allocation factor
EFSA	European Food Safety Authority
EVM	Expert Group on Vitamins and Minerals
f	fraction of dose absorbed
FPTC	Federal-Provincial-Territorial Committee on Drinking Water
HBV	health-based value
IOM	Institute of Medicine
IRIS	Integrated Risk Information System
IR_w	drinking water ingestion rate
kg	kilogram
KU	Key Uncertainty
L/day	liters per day
LOAEL	lowest observable adverse effect level
mg/day	milligrams per day
mg/kg	milligrams per kilogram
mg/kg-day	milligrams per kilogram body weight per day
mg/L	milligrams per liter
mmol/L	millimoles per liter
MQ	Management Question
ng/m^3	nanograms per cubic meter
NOAEL	no observable adverse effect level
POD	point of departure
PPRTV	provisional peer-reviewed toxicity values
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RfD	reference dose

RSL	Regional Screening Level
TDI	tolerable daily intake
TRV	toxicity reference value
UF	uncertainty factor
µg/day	micrograms per day
UK	United Kingdom
US	United States
USEPA	United States Environmental Protection Agency
WHO	World Health Organization

Executive Summary

The Water Quality Adaptive Management Plan (AMP; Teck 2018) for Teck Coal Operations addresses many questions related to water quality management in the Elk Valley. Among these is Management Question 6 (MQ6) which asks, “Is water quality being managed to be protective of human health?” An area of focus within MQ6 is Key Uncertainty (KU) 6.1 which asks, “Is our understanding of local groundwater conditions for current and future drinking water use sufficient to minimize human exposure to constituents?” Teck utilizes monitoring data and drinking water screening levels to address this KU and inform the AMP. The drinking water screening values, herein referred to as health-based values (HBVs), are expected to guide AMP decisions related to identifying potential health risks and protecting human health.

National guidelines are not available for cobalt or lithium. The only available regulatory criteria for these two metals are drinking water standards provided under British Columbia’s (BC’s) Contaminated Sites Regulation (CSR), which are intended for use in groundwater quality management (Schedule 3.2 Generic Numerical Drinking Water Standards, BC ENV 2019). Recently, the CSR value for cobalt was adopted as a drinking water quality guideline (BC ENV 2020). Both CSR values originate from the United States Environmental Protection Agency (USEPA) Regional Screening Level (RSL) database, and were developed using provisional toxicity values that are not well-supported and incorporate very large uncertainty adjustments. As a result, the daily doses of cobalt and lithium that are considered safe based on these toxicity values are artificially low and often exceeded by background exposures from diet or other environmental sources. Thus, exceedance of these values is not a meaningful indicator of the potential for health risks due to exposure to cobalt or lithium in drinking water.

To support HBV development, toxicity values (tolerable daily intakes, or TDIs) and drinking water allocation factors (DW AFs) were established using methodology from Health Canada and the Federal-Provincial-Territorial Committee on Drinking Water, the USEPA, and other global agencies. A thorough review of the toxicological and exposure literature was conducted, and health-protective assumptions were applied in the derivation of the HBVs for drinking water.

The TDIs and DW AFs used in calculating the HBVs for cobalt and lithium are presented in Table ES-1. The cobalt and lithium HBVs developed in this report can be used, as appropriate, to replace current CSR lithium and cobalt screening values in the groundwater monitoring programs and/or provide thresholds that can be used to determine whether there is a need for additional action under the AMP.

Table ES-1. Cobalt and Lithium Health-based Values

Constituent	TDI (mg/kg-day)	DW AF (unitless)	Health-based Value (mg/L)
Cobalt	0.03	0.8	1.2
Lithium	0.07	0.7	2.4

1 Introduction

The Water Quality Adaptive Management Plan (AMP; Teck 2018) for Teck Coal Operations addresses many questions related to water quality management in the Elk Valley. Among these is Management Question 6 (MQ6) which asks, “Is water quality being managed to be protective of human health?” An area of focus within MQ6 is Key Uncertainty (KU) 6.1 which asks, “Is our understanding of local groundwater conditions for current and future drinking water use sufficient to minimize human exposure to constituents?” Teck utilizes monitoring data and drinking water screening levels to address this KU and inform the AMP. The drinking water screening values developed from a combination of intake assumptions and toxicity information, herein referred to as health-based values (HBVs), are expected to guide AMP decisions related to identifying potential health risks and protecting human health.

Health Canada and the Federal-Provincial-Territorial Committee on Drinking Water (FPTC) have developed Canadian drinking water quality guidelines for many constituents (Health Canada 2020a), but such national guidelines are not available for cobalt or lithium. The only available Canadian regulatory criteria for these two metals are drinking water standards provided under British Columbia’s (BC’s) Contaminated Sites Regulation (CSR), which are intended for use in groundwater quality management (Schedule 3.2 generic numerical drinking water standards, BC ENV 2019). Both values originate from the United States Environmental Protection Agency (USEPA) Regional Screening Level (RSL) database and are described further below. The CSR value for cobalt has been formally adopted as a drinking water guideline in BC (BC ENV 2020); no formal drinking water guideline is available for lithium.

The USEPA RSLs for cobalt and lithium are health-based screening levels based on drinking water ingestion and, to a lesser extent, dermal exposure. These RSLs were developed using provisional toxicity values that are not well-supported and incorporate very large uncertainty adjustments. As a result, the daily doses of cobalt and lithium that are considered safe based on these toxicity values are artificially low and often exceeded by background exposures from diet or other environmental sources. Thus, RSL exceedance is not a meaningful indicator of the potential for health risks due to exposure to cobalt or lithium in drinking water. Using these values as groundwater management criteria could lead to unnecessary adaptive management response actions being taken where adverse health effects are not anticipated.

Background groundwater levels are another important component to be considered as part of the process for determining if human health is being protected. Assessment of potential background concentrations is warranted prior to investing resources in developing HBVs, to determine if naturally occurring concentrations of a substance are greater than a substance’s HBV. In this case, if cobalt and lithium concentrations in groundwater were found to exceed available HBVs due to background sources, then monitoring for increases above background is a more informative tool for decision-making than monitoring for HBV exceedances.

Furthermore, drinking water standards are not applicable when naturally occurring concentrations of a particular substance are greater than its respective standard (BC ENV 2016). However, preliminary data gathered early in this project suggested that background cobalt and lithium concentrations in Elk Valley groundwater are low relative to the range of HBVs. Therefore, HBVs were considered likely to be informative for identifying when further assessment of groundwater conditions may be needed to support the reduction of uncertainty related to MQ6 and KU 6.1. Research and data analysis were therefore completed to develop more reliable HBVs.

This report presents the methods and data used to develop HBVs for cobalt and lithium as well as the resulting values. To support HBV development, toxicity values and drinking water allocation factors (DW AFs) were first established, then combined with intake assumptions. Toxicity values represent daily intake levels in the form of a dose at or below which adverse health effects are not anticipated and are called different names in various regulatory programs, though they generally represent the same concept. In this report we call them tolerable daily intakes (TDIs), the term used by Health Canada and FPTC in their drinking water quality guideline technical documents. In other documents, Health Canada uses the term toxicity reference values (TRVs). USEPA refers to these values as reference doses (RfDs). Drinking water AFs represent the fraction of total daily intake that can be allocated to drinking water to ensure that safe levels are not exceeded when additional exposure sources are considered. The TDI and DW AF for each constituent are combined with drinking water intake and body weight assumptions to establish HBVs as health-protective constituent concentrations in drinking water. As areas of potential concerns are identified through groundwater monitoring, these HBVs can be used as a decision-making tool within the AMP response framework to reduce uncertainty related to KU 6.1 and inform the need for management actions.

2 HBV Calculation Methods

The method used by Health Canada in collaboration with the FPTC to develop drinking water quality guidelines was used to develop the cobalt and lithium HBVs presented in this report. The drinking water quality guidelines are identified as maximum allowable concentrations in drinking water, which are based on a calculated HBV for each constituent. The Health Canada and FPTC equation for calculating the HBV is shown in Equation 1.

Equation 1

$$\text{HBV} = \frac{\text{TDI} \times \text{BW} \times \text{DW AF}}{\text{IR}_\text{W}}$$

Where:

TDI = tolerable daily intake (milligrams per kilogram body weight per day; mg/kg-day)
BW = body weight (kg)
DW AF = drinking water allocation factor (unitless, the fraction of total intake allocated to drinking water)
IR_W = drinking water ingestion rate (liters per day; L/day)

Default parameters for body weight (BW; 74 kg) and drinking water ingestion rate (IR_w; 1.53 L/day) used by Health Canada and FPTC in recent development of HBVs (Health Canada 2020b) were used for this study. These parameters are based on an adult. Drinking water AFs and TDIs are constituent-specific. The methods used to develop DW AFs and TDIs are described in the following sections.

3 Tolerable Daily Intakes

As previously mentioned, the BC numerical drinking water standards for cobalt and lithium criteria are based on USEPA RSLs that were developed using provisional peer-reviewed toxicity values (PPRTVs) that are not well-supported, as discussed in Section 3.1.1 and Section 3.2.1. The USEPA Integrated Risk Information System (IRIS) program has not developed toxicity values for cobalt and lithium; instead, the USEPA developed ‘provisional RfDs’ with low confidence in the toxicity assessments. Provisional RfDs are typically developed for screening of constituents not associated with widespread health concerns, while the more rigorous IRIS process is reserved for constituents that may be associated with greater potential human health risks. The RSLs for cobalt and lithium are based on these provisional RfDs, which are not fully supported by the USEPA.

In this study, alternative TDIs were developed or selected based on toxicity data and values published in peer-reviewed scientific literature and from international governing agencies. The research findings and TDI development for cobalt and lithium are presented in Sections 3.1 and 3.2 of this report.

3.1 Cobalt

Cobalt is an essential nutrient that is present in many foods and is a component of vitamin B12. Cobalt has been used historically to treat anemia and is taken by some athletes to increase the oxygen-loading capacity of the blood (Finley et al. 2012). At very high doses, adverse health effects have been observed. The available human and animal data demonstrate that cobalt produces adverse effects in multiple organs and systems. Cardiovascular, hematological, and endocrine effects have been consistently observed in humans and animals, while animal dosing studies have also shown neurological, reproductive, and developmental responses at much higher doses.

3.1.1 Review of Provisional Cobalt RfD

The USEPA (2008a) provisional RfD for cobalt of 3E-04 mg/kg-day was derived based on thyroid toxicity (decreased iodine uptake) in twelve adults with normal thyroid function exposed in a two-week study (Roche and Layrisse 1956). The Roche and Layrisse study only assessed effects at one dose, 1 mg/kg-day. Consequently, this became the lowest observable adverse effect level (LOAEL). It is not clear if this study was peer-reviewed; it was published as a two-page letter to the editor of The Journal of Clinical Endocrinology & Metabolism. The USEPA PPRTV document also notes that long-term cobalt exposure (up to 7 months) at 2-4 mg/kg-day in anemic children has been reported to cause enlargement of the thyroid gland. These clinical reports as well as available animal toxicity data suggest potentially more severe thyroid lesions may occur as a function of increased duration or dose. For example, Shrivastava et al. (1996) reported necrosis and inflammation of the thyroid in mice exposed to approximately 48 mg/kg-day cobalt with an increase in severity over a period of 15-45 days.

The USEPA applied a total uncertainty factor of 3,000 to the LOAEL of 1 mg/kg-day in its derivation of the provisional chronic cobalt RfD. The following uncertainty factors (UFs) were applied:

- UF of 10 for extrapolation of a LOAEL to a no observable adverse effect level (NOAEL). Normally the point of departure is based on a NOAEL, but no NOAEL was reported in the critical study (Roche and Layrisse 1956).
- UF of 10 for extrapolation from sub-chronic to chronic exposure duration. The critical study used a two-week exposure period.
- UF of 3 for database uncertainty, specifically lack of a multi-generation toxicity study. This was applied because several animal studies indicate effects on sperm function and testicular degeneration, which raises concerns that cobalt may affect reproductive capability.
- UF of 10 for lack of data regarding inter-individual human variability or information on sensitive populations. This was applied because the critical study population consisted of healthy adults.

The resulting 3,000-fold UF is very high and reflects considerable uncertainty and low confidence in the chronic RfD. In the PPRTV document, the USEPA states the confidence in the principal study is low-to-medium, confidence in the toxicology study database is low-to-medium, and the confidence in the RfD is low. The reason for the low confidence rating is that a temporal relationship between prolonged oral cobalt exposure and increased severity of thyroid effects in humans or experimental animals is not clear based on the available data (USEPA 2008a).

Though intended to be protective of human health, the USEPA's provisional RfD is well within the range of normal daily intakes estimated for cobalt, as discussed in detail in Section 4.1.1. Taking the daily intake data into account, about half the studied population (which includes Canada, the United States [US], Australia, the United Kingdom [UK], and the Netherlands) is exposed to levels of cobalt above the provisional RfD from diet alone. This suggests the RfD is not representative of a dose that may cause adverse effects.

3.1.2 Review of Additional Data and Cobalt TDI Development

Toxicity values other than the USEPA's PPRTV have been developed for cobalt. The most recent was published by Finley et al. (2012), who proposed an RfD for cobalt of 3E-02 mg/kg-day, 100 times higher than the PPRTV (3E-04 mg/kg-day). Development of a value higher than the PPRTV is consistent with the recommendations of several international government agencies, including the Dutch National Institute of Public Health and Environment, which has a tolerable daily intake about five times higher than the PPRTV (1.4E-03 mg/kg-day; RIVM 2001). The UK Food Standards Agency commissioned the Expert Group on Vitamins and Minerals (EVM), which suggested a vitamin/mineral supplement guidance level for cobalt equivalent to 2E-02 mg/kg-day for a 70 kg adult (EVM 2003), which is about 65 times higher than the PPRTV value. Because Finley et al.'s RfD was derived following applicable USEPA guidance, is based on a more robust toxicology database than the USEPA PPRTV, and has lower uncertainty and higher confidence, it was selected as the TDI in the development of an HBV for cobalt. This value is described in more detail below.

Finley et al. (2012) proposed a new RfD for cobalt of 3E-02 mg/kg-day based on a review of multiple human exposure and animal toxicity studies. The authors identified 14 animal studies and 12 human exposure studies that presented LOAELs and/or NOAELs for cobalt. Jaimet and Thode (1955) was selected as the critical study used to calculate a new RfD because it was the only study from which a NOAEL and LOAEL could be identified in a multiple dose study in humans. Additional strengths of the study included the evaluation of multiple clinical endpoints, reversibility of clinical responses, and that the study involved children, a potentially sensitive subpopulation. It is unknown why this study was not included in the USEPA's PPRTV development for cobalt. Jaimet and Thode's study reported endocrine and hematological outcomes in 18 children given cobalt at doses of 0.45, 0.9, 1.8, and 2.7 mg/kg-day for 10 weeks.

Finley et al. (2012) determined a NOAEL of 1.8 mg/kg-day and a LOAEL of 2.7 mg/kg-day from this study (Jaimet and Thode did not report NOAEL/LOAEL values). However, Finley et al. (2012) ultimately used the next lowest dose, 0.9 mg/kg-day, as the NOAEL in their derivation of the RfD because other human exposure studies reported LOAEL values below 1.8 mg/kg-day. Specifically, Roche and Layrisse (1956) and Paley et al. (1958) reported endocrine LOAEL values of 0.97 and 0.54 mg/kg-day, respectively. Roche and Layrisse (1956), the study relied upon by the USEPA for the PPRTV, is a letter to the editor and it is unclear if the report is peer-reviewed. Paley et al. (1958) included a very small sample size (four people) and reported significant effects in two out of four patients orally dosed at 0.54 mg/kg-day. However, one of the two patients was also given intravenous cobalt while being given the oral dose. In both studies only one dose was assessed. Due to these uncertainties, Finley et al. (2012) concluded the findings from Jaimet and Thode (1955) were more reliable but nonetheless selected a lower dose as the NOAEL to be protective based on the findings of the other two studies. The 0.9 mg/kg-day NOAEL was used as the point of departure (POD) for the RfD calculation.

Finley et al. (2012) applied a total UF of 30 in their derivation of the cobalt RfD. The methodology used by the USEPA in their derivation of the perchlorate RfD (USEPA 2005) was used as a guide for the uncertainty assessment due to its similarities with the current study. The following UFs were applied:

- UF of 1 for subchronic to chronic exposures. This was selected based on the USEPA's decision to apply a UF of 1 in the derivation of the perchlorate RfD, which was based a two week-long study. This was because a longer study duration would not make any difference in occurrence of the required precursor effect without which the toxic effect will not occur. Because Jaimet and Thode's study was much longer (10 weeks), the UF of 1 was determined to be appropriate.
- UF of 3 to account for database adequacy. This was applied to be consistent with the USEPA's UF of 3 applied in the cobalt PPRTV derivation due to "lack of a multi-generation toxicity study" (USEPA 2008a). Although Finley et al. (2012) commented that the multi-generational effects are not applicable if the mode of action is prevented, such as in the current study, they applied a value of 3 to be conservative.
- UF of 10 to account for sensitivity and variability in the population. Although the key study included the sensitive subpopulation of children, due to the relatively small sample size per dose Finley et al. (2012) concluded that a UF of 3 to 10 was appropriate to account for individuals who may be more susceptible to the adverse effects of a chemical (sensitivity) and potential differences in toxicokinetics (variability). A value of 10 was selected to be conservative.

Based on the POD of 0.9 mg/kg-day and the total UF of 30, Finley et al. (2012) proposed a chronic oral RfD of 3E-02 mg/kg-day.

3.2 Lithium

Lithium, in the forms of lithium carbonate and lithium citrate, is often used for therapeutic treatment of bipolar disorder and other mood disorders (Moore 1995). Because lithium is used therapeutically for the treatment of psychiatric conditions, there are clinical reports of adverse effects in human populations. The available human and animal data demonstrate that lithium produces adverse effects in multiple organs and systems. Adverse renal effects associated with lithium therapy have received extensive focus due to their serious nature and frequency of occurrence. The most common renal effect reported is impaired renal concentrating ability, resulting in the production of excessively dilute urine. Adverse neurological, endocrine, cardiovascular, gastrointestinal, hematological, and developmental effects have also been reported. The animal data have demonstrated adverse effects at exposure levels in the same range as that targeted for therapeutic treatment in humans.

3.2.1 Review of Provisional Lithium RfD

In 2008 the USEPA derived a provisional RfD for lithium by applying uncertainty factors to the dose equivalent of the lower bound of the therapeutic serum lithium concentration range. The daily serum concentration levels measured in patients receiving lithium for medical treatment have been reported to range from 0.5 to 1.5 millimoles per liter (mmol Li/L; Moore 1995, ECHA 2020). The USEPA (2008b) lithium PPRTV document cites a slightly narrower range (0.6 to 1.4 mmol/L) and notes that concentrations of 0.8-1.0 mmol Li/L are generally accepted as the optimal therapeutic range. The entire target range for therapeutic serum lithium concentrations has been associated with adverse effects, which has caused treatment strategies to be based on a risk-benefit assessment for individual patients.

Data reported in human studies are not sufficient to define the relationship between serum lithium concentrations and the development or severity of adverse effects, although it is generally accepted that the severity of adverse effects is related to serum lithium levels. The USEPA reviewed clinical reports along with studies in experimental animals, but no data were adequate for use in determining a NOAEL.

Ultimately, the USEPA selected the lower bound of the therapeutic serum lithium concentration range of 0.6 mmol/L as the basis for derivation for the provisional RfD. Assuming a steady state plasma concentration equal to the serum concentration of 0.6 mmol/L and multiplying this concentration by the molar weight of lithium (6.941 grams/mol) to yield a plasma concentration in milligrams per liter (mg/L), the USEPA (2008b) used Equation 2 to calculate the corresponding lithium dose.

Equation 2

$$\text{Dose} = \frac{Cp \times Cl}{f}$$

Where:

Dose = dose (mg/kg-day)
Cp = plasma concentration (mg/L)
Cl = plasma clearance (liters per kg body weight per day; L/kg-day)
f = fraction of the dose absorbed (unitless)

Assuming values of 0.5 L/kg-day for Cl and 1 for f, the USEPA (2008b) estimated that a steady-state plasma concentration of 0.6 mmol/L (4.2 mg/L) corresponds to a daily dose of 2.1 mg Li/kg-day.

The provisional RfD of 2E-03 mg/kg-day was then calculated through application of a 1,000-fold uncertainty factor. The following UFs were applied:

- UF of 10 for extrapolation of a LOAEL to a NOAEL. The lower bound of the therapeutic serum lithium range is associated with the development of adverse effects in several organs and systems; a NOAEL for adverse effects of therapeutic lithium has not been established in the clinical or animal literature.
- UF of 10 to account for database uncertainties. The renal effects of lithium have been extensively studied in humans and animals. However, much less information is available on the effects of lithium in other systems. Additionally, subchronic and chronic exposure studies in animals assessing comprehensive endpoints are not available, and the database lacks well-controlled epidemiology studies and multi-generation reproduction studies in animals although there is evidence of developmental effects in lithium patients.
- UF of 10 to account for sensitivity and variability in the population. Since lithium adversely affects several organs and systems, numerous pre-existing disease states (e.g., renal disease, cardiovascular disease, endocrine disease) may increase susceptibility to lithium.

The USEPA identified a low-to-medium confidence in the LOAEL, toxicology database, and resulting provisional RfD. Primary limitations include the lack of information regarding dose-response, the inability to determine the relative sensitivity of different organ systems and establish a NOAEL, and the lack of well-controlled epidemiology studies and multi-generation reproduction studies in animals.

Although adverse effects have been reported for the entire target therapeutic serum lithium concentration range and there are numerous database uncertainties, the provisional RfD (2E-03 mg/kg-day) is roughly an order of magnitude below typical intakes in the Canadian diet (averaging around 2.6E-02 mg/kg-day). Also, the provisional RfD is around the middle of the range of worldwide dietary intakes (2.3E-04 to 4.2E-02 mg/kg-day). This RfD is also below provisional dietary recommendations (see Section 4.1.2 for a discussion of dietary lithium intake and recommendations). The application of the 1,000-fold UF to the low end of the therapeutic dose range results in the RfD being 1,000 times lower than the minimum treatment dose. Therapeutic doses may be associated with toxic effects, which may be considered acceptable for patients relative to the benefits of treatment; however, a 1,000-fold difference between the therapeutic dose and a “safe” dose is extremely conservative.

3.2.2 Review of Additional Data and Lithium TDI Development

While lithium in not generally recognized as a required nutrient, lithium deficiency has resulted in behavioral abnormalities and reduced conception rates in animals. These effects have not been shown in humans, although some data suggest that behavioral defects may be associated with reduced lithium intake (Schrauzer 2002). Schrauzer (2002) and Broberg et al. (2011) note in their reviews that rates of suicide and other violent behaviors have also been inversely correlated with environmental lithium exposure levels. A daily allowance of 1 mg/day has been recommended by Schrauzer (2002) for lithium as a micronutrient (equivalent to a dose of 1.3E-02 mg/kg-day based on an adult body weight of 74 kg). Marshall (2015) concluded that 1 mg/day is likely at the low end of a relevant nutrient intake level for optimal health based on individual differences, stating that up to 20 mg/day “is very safe with a very low incidence of side effects.” An intake of 20 mg/day for a 74 kg person is equivalent to a daily dose of 2.7E-01 mg/kg-day. Dolara (2014) also notes that naturally high exposure levels (equivalent to a dose up to 1.4E-01 mg/kg-day) have been observed in some geographic locations where salted lakes are present, without documented adverse effects. While these recommendations and intake levels have not been used to establish toxicity values, and NOAELs have not been established in the clinical or animal literature (see exceptions below), these daily dose levels give some indication of the dose range at or above which potential NOAELs may be identified and are much greater than the PPRTV of 2E-03 mg/kg-day.

The only RfDs proposed for lithium by international governing agencies or in the literature, aside from the USEPA’s PPRTV, are values developed in support of lithium registration under Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), a regulation of the European Union that took effect in June 2007 to identify and manage the risks linked to chemical substances manufactured and marketed in the European Union. Derived no effects levels (DNELs), which are equivalent to a TDI or RfD, were derived for lithium for various exposure routes and receptors in preparation for REACH implementation. Based on therapeutic dose ranges and associated serum levels, a DNEL of 1.2 mg/kg-day was developed for oral exposure to lithium by the general population (ECHA 2020). A combination of methods was used to develop this DNEL. An estimate of the bioavailable dose in humans after absorption (based on a serum concentration range of 0.5 to 1 mmol Li/L) and conservative assumptions regarding intra- and extracellular fluid distribution volume resulted in an estimated POD, which the authors identified as a NOAEL, of 1.5 mg/kg-day. An alternative method estimated an oral administration range of 84 to 169 mg Li/day based on the desired serum concentration range of 0.5 to 1 mmol Li/L. Dividing by a body weight of 70 kg resulted in an estimated NOAEL range of 1.2 to 2.4 mg/kg-day. The lower bound of calculated NOAEL values was combined with a UF of 1, resulting in a DNEL of 1.2 mg/kg-day (ECHA 2020). The authors also derived a higher NOAEL based on animal data. A NOAEL of 13.9 mg/kg-day (corresponding to a NOAEL of 84.8 mg/kg-day lithium chloride) was calculated based on a two-year study in which rats were administered lithium chloride in their drinking water (Trautner 1958). However, they selected the lower value based on human exposure as the recommended DNEL.

The REACH DNEL of 1.2 mg/kg-day is slightly less than the lower bound of the therapeutic dose range (2.1 mg/kg-day) used by USEPA (2008b) as the POD for deriving the provisional RfD. The value is also above the range of provisional dietary intake recommendations and the naturally high exposure levels discussed above. While this DNEL value is supported under the European regulatory framework, complete documentation of its development, particularly the uncertainty assessment, is not available. Because the DNEL falls within the range associated with therapeutic treatment, and toxic effects have been documented in humans within the treatment range, the basis for identifying doses within this range as NOAELs is unclear. The REACH DNEL was therefore not selected for HBV development. Instead, a modified RfD was developed based on the same underlying toxicity data used to develop the PPRTV with a modified uncertainty assessment.

As described in Section 3.2.1, the USEPA (2008b) calculated the provisional RfD for lithium using a LOAEL of 2.1 mg/kg-day as the POD and dividing by a UF of 1,000 to account for extrapolation from a LOAEL to a NOAEL (10), database uncertainties (10), and sensitivity and variability in the population (10). These individual components of the total UF represent the highest among the range of values considered to account for uncertainty; values of 1, 3, and 10 are most typically used. The UF of 10 applied by the USEPA (2008b) for extrapolation from a LOAEL to a NOAEL was also selected for this study, based on the lack of established NOAELs in the clinical and animal literature. Additional UFs of 1 and 3 were applied to account for sensitivity and variability in the population and database uncertainties, respectively, for the reasons discussed below.

The POD is based on side effects observed among patients undergoing therapeutic treatment for medical conditions. The clinical literature covers a broad range of patients undergoing lithium treatment and includes the sensitive subpopulations of children and adolescents (Masi et al. 2018). Given that population sensitivity and variability are accounted for in the clinical literature, a value of 1 is considered a more applicable UF to account for this uncertainty.

Database uncertainties also warrant a UF less than 10. The available database documenting adverse effects associated with lithium therapy is robust, with the primary remaining uncertainty being limited to the lack of data for concentrations below the therapeutic range. This is partly accounted for already in the maximum UF of 10 that was applied based on extrapolation from a LOAEL to a NOAEL. A robust database documenting typical exposures from diet, water, and other sources (see Section 4.1.2) further supplements this data gap. Considering the magnitude relative to the LOAEL of levels documented to occur in populations without observed toxicity, and those recommended to achieve optimal health, a UF of 3 better represents the remaining database uncertainty.

Combining the UFs for extrapolation from a LOAEL to a NOAEL (10), database uncertainties (3), and sensitivity and variability in the population (1) results in a total UF of 30. The LOAEL of 2.1 mg/kg-day used to derive the PPRTV was divided by the total UF of 30 to calculate a TDI of 7E-02 mg/kg-day for HBV development. This TDI value of 0.07 mg/kg-day is roughly midway between the DNEL of 1.2 mg/kg-day and the provisional RfD of 0.002 mg/kg-day.

4 Drinking Water Allocation Factors

The DW AF represents the fraction of total constituent intake allowed from drinking water. Because exposure may come from sources other than drinking water, it is important to factor in additional exposures so that drinking water criteria are protective in the context of total intake. The primary sources of most metals are food and drinking water. Other sources may include air, soil, vitamin supplements, medications, and consumer products. A default assumption of 20% is typically used by Health Canada for the AF, and 20% was used in deriving the BC numerical drinking water standards for cobalt and lithium from the USEPA RSLs. The actual contribution of other sources to intake varies by individual constituent, and constituent-specific AFs may be used to refine health-protective drinking water standards.

To develop appropriate DW AFs for cobalt and lithium, exposure information was compiled from the scientific literature, health-based and environmental organizations/agencies including Health Canada (2016[1]) Canadian Total Diet Study, the USEPA, the World Health Organization (WHO), and the European Food Safety Authority (EFSA). Human exposure data for lithium and cobalt are highly variable in how they are reported. For example, some studies report a concentration in food (mg/kg), while others report a daily intake (mg/day). Some studies report doses (in mg/kg-day) based on dietary intake and variable intake rate and body weight assumptions. Where relevant, literature review results were therefore standardized to doses in mg/kg-day, the same units used to quantify the TDI, using the same default parameters for body weight (74 kg) and drinking water ingestion rate (1.53 L/day) used to calculated HBVs (see Section 2). Where doses were reported based on specified assumptions that differed from the defaults used for HBV development, the reported doses were also standardized using the default assumptions to provide equivalent doses across all reviewed studies to estimate relative intakes for DW AF development. Additionally, exposure information varied by geographic location, sometimes substantially. Data from Canada and, where Canadian data were unavailable, the US (as nearest neighbor and with food sources and dietary patterns most similar to Canada) were prioritized to develop DW AFs that are most reflective of likely exposures in Canada and the Elk Valley. The cobalt and lithium intake data are summarized in Section 4.1.

Intake data from different sources, normalized to doses as described above, were considered relative to TDI to develop DW AFs for cobalt and lithium. The details of DW AF development and resulting values for each metal are presented in Section 4.2.

4.1 Review of Exposure Data

Data were reviewed to estimate typical daily intakes of cobalt and lithium from various sources of exposure including food, water, air, and other sources. These data are summarized below and presented in Attachment A of this report.

4.1.1 Cobalt

Diet is the primary source of cobalt exposure for most people, with an additional, lower contribution from drinking water. People can also be exposed to cobalt present in air due to combustion of coal, crude oil, fuel oil, and gasoline, as well as tobacco, but ambient air is a negligible source of exposure for most people (WHO 2006).

The recommended daily allowance in the US for vitamin B12, of which cobalt is an integral component, is 2.4 micrograms per day (µg/day, IOM 1998) and the vitamin B12 recommended nutrient intake in the UK is 1.5 µg/day (EVM 2003). Nutritional requirements for cobalt have been inferred from the recommended intake values set for vitamin B12 (EVM 2003, Finley et al. 2012). Actual total cobalt dietary intake levels from both vitamin B12 and other sources are much higher than the intake levels inferred from the recommended daily vitamin B12 intake levels. The EVM, commissioned by the UK Food

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[1] Includes data from the following cities and years: Vancouver (2012, 2007, 2002), Ottawa (2011, 2000), St. Johns (2010, 2001), Calgary (2009), Quebec (2016, 2008), Halifax (2006), Toronto (2005), Winnipeg (2004), and Montreal (2003).

Standards Agency to assess supplement safety, conducted a risk assessment for cobalt and determined there were insufficient data to set a 'safe upper level'. Nevertheless, they established a guidance level of 1.4 mg/day for a 60 kg adult (equivalent to a dose of 1.9E-02 mg/kg-day for a 74 kg adult), indicating that this intake level is unlikely to be associated with adverse effects (EVM 2003). This value is well above typical dietary exposure, but below levels shown to cause adverse health effects in humans (see Section 3.1.2).

Typical dietary exposure reported for various countries (Canada, the US, Australia, the UK, and the Netherlands) ranges from 1.5E-05 to 5.4E-04 mg/kg-day (WHO 2006, Hokin et al. 2004, EFSA 2009, ATSDR 2004), though dietary intake as high as 1.1E-03 mg/kg-day has been reported (Hokin et al. 2004). Some studies have reported that the richest sources of cobalt in the diet are green vegetables and fresh cereals, whereas dairy products, refined cereals, and sugar contain the least cobalt. However, other studies have reported that leafy vegetables, along with fruit and fish, contain very low levels of cobalt (WHO 2006). Hokin et al. (2004) reported that meat and potatoes were major sources of cobalt in the Australian diet. In Canada, bakery goods/cereals and vegetables were found to be the largest contributors to daily dietary cobalt intake (WHO 2006). It is unknown why some foods contain more cobalt than others, or why there is such variation in primary dietary sources of cobalt reported. Daily dietary cobalt intakes reported for various countries were generally consistent. Canadian daily dietary intakes calculated using data from the Canadian Total Diet Study (Health Canada 2016) were found to range from 1.4E-04 to 2.6E-04 mg/kg-day.

Cobalt concentrations reported in drinking water among various countries are generally consistent, with daily intakes ranging from 4.1E-05 to 2.7E-04 mg/kg-day. Tap water data from the Canadian Total Diet Study (Health Canada 2016) suggest a lower intake, averaging around 5.4E-06 mg/kg-day based on kitchen tap water data from Vancouver and Calgary. Intakes calculated using Elk Valley groundwater data are consistent with the intakes reported for Canada, ranging from 2.1E-06 to 1.7E-05 mg/kg-day and averaging about 5.5E-06 mg/kg-day[2].

Atmospheric cobalt concentrations are typically 1 nanogram per cubic meter (ng/m^3) in non-source areas but can increase to 10 ng/m^3 in areas where major sources are present (WHO 2006). The Elk Valley is a rural area with low population density and vehicle traffic compared to large urban centers, such as Calgary and Vancouver, and atmospheric sources are not a substantial source of exposure.

Cobalt exposure data are summarized in Table A-1 of Attachment A.

4.1.2 Lithium

For most people, the primary sources of lithium exposure are food and drinking water. Although exposure from other sources including medical treatments, pool and spa sanitizers, and bottled water can be quite high, these sources are less relevant for the majority of the general population.

As discussed in Section 3.2.2, formal dietary recommendations are not available for lithium as it is not identified as an essential nutrient; however, provisional recommendations for daily intake to support optimal health have been derived (Schrauzer 2002, Marshall 2015) and range from 1 to 20 mg/day (equivalent to doses of 1.4E-02 to 2.7E-01 mg/kg-day).

Lithium is not included in the Canadian Total Diet Study and dietary lithium intake data are limited for Canada. For lithium, the dietary intake assessment therefore focused primarily on data collected from

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[2] Based on data from the Elk Valley Drinking Water Sampling Program and default drinking water ingestion rate (1.53 L/day) and body weight (74 kg) assumptions.

the US. The highest concentrations of lithium are found in grains and vegetables, followed by dairy products, and the lowest concentrations are found in meats (Dolara 2014). A broad range of dietary exposure estimates has been reported in the US. Dietary intakes ranging from 7.8E-03 to 4.2E-02 mg/kg-day have been reported in a limited number of studies (Schrauzer 2002, Moore 1995, Dolara 2014). The USEPA (2008b) cited these estimates, as well as a lower range (2.3E-04 to 1.4E-03) based on older studies, noting that the reason for the discrepancy could not be determined. Ranges reported for China (4.7E-03 to 2.1E-02 mg/kg-day; Dolara 2014) are similar to the higher range of intakes reported in the US. One study looking at 1-day diet composites collected by 22 Canadian premenopausal women estimated a daily lithium intake of 0.02 mg (equivalent to a dose of 3E-04 mg/kg-day). This study (Clarke and Gibson 1988) was among those included in the lower range reported by the USEPA (2008b).

Although dietary intake estimates are limited for Canada, concentrations reported in various food types can be combined with food type intake rates from the Canadian Total Diet Study to estimate potential Canadian dietary intake levels. Szklarska and Rzymski (2019) reported lithium concentrations measured in seven foodstuffs (cereals, fish, mushrooms, vegetables, meat, dairy products, and nuts). Dietary intake estimates are available for five of these food types (all except mushrooms and nuts) in the Canadian Total Diet Study (Health Canada 2016). Combining these data and a body weight of 74 kg yields an average dietary intake around 2E-02 mg/kg-day. Combining the food concentrations reported by Szklarska and Rzymski (2019) with food intake estimates reported by Moore (1995) yields similar estimates, and dietary intake levels reported by Moore (1995) based on US food concentrations are also similar.

Lithium concentrations measured in drinking water around the world are highly variable. Concentrations as high as 1 to 3 mg/L have been reported in Argentina and Chile, likely related to thermal water influences (Broberg et al. 2011). Within the US, Schrauzer (2002) noted concentrations as high as 0.17 mg/L in Texas, and Moore (1995) cites 0.7 mg/L as the highest measured concentration, while concentrations were not detectable in other locations. Glassmeyer (2017) reported a median lithium concentration in US drinking water of 0.011 mg/L. Based on these concentrations a median daily intake from drinking water in the US would be around 2.3E-03 mg/kg-day, with a maximum of 1.4E-02 mg/kg-day, and could be as high as 6.2E-02 mg/kg-day in parts of South America. Lithium concentrations in Elk Valley drinking water are typically lower, with corresponding dose levels ranging from 2.5E-05 to 2.4E-03 mg/kg-day and averaging around 1.9E-04 mg/kg-day[2]. Bottled water is also a highly variable source of lithium with a range in concentrations of 6E-05 to 5.5 mg/L and a median of 0.0048 mg/L reported across 28 countries (Broberg et al. 2011).

Additional sources of lithium include therapeutic treatments, pool and spa sanitizer, and ambient air. Mineral supplements used to treat psychiatric conditions such as bipolar disorder can contain up to 6 mg of lithium ion (Moore 1995). Exposure to lithium through medical treatment is limited to those individuals who have been diagnosed with specific conditions and was therefore not considered when estimating typical lithium intake for the general population. Lithium hypochlorite, which is used as a pool and spa sanitizer, has been estimated to have a lithium ion concentration resulting in 20 mg Li/L pool water at the recommended sanitation level (Moore 1995). This is equivalent to a dose of 4.2E-02 mg/kg-day for an active adult swimmer weighing 74 kg[3]. While this dose is relatively high, pool/spa exposure is not expected to result in frequent or regular exposure for most people, and many people

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[3] Based on a “worst-case” scenario assuming ingestion of 158 mL pool water (1% of 15.8 L taken into the mouth and spit out) over a 3-hr period.

may never be exposed to lithium from this source. Ambient air is generally a negligible source of lithium. In the US, the estimated ambient air concentration (4 ng/m^3), is equivalent to an estimated daily dose of 1E-06 mg/kg-day for a 60 kg person (Moore 1995).

Lithium exposure data are summarized in Table A-2 of Attachment A.

4.2 Proposed Drinking Water Allocation Factors

The available exposure data summarized in Section 4.1.1 indicate that food is the main source of exposure to cobalt for most Canadians, with drinking water contributing additional but lower exposure and negligible exposure from other sources. The typical daily intake from diet is about 2E-04 mg/kg-day. This dose represents less than one percent of the TDI of 3E-02 mg/kg-day, suggesting that almost all exposure could be safely allocated to drinking water. To account for variability in dietary exposure and the potential for some individuals to experience higher intake of cobalt from sources other than drinking water, a DW AF of 0.8 is assumed for cobalt HBV development.

Food was also identified as the main source of lithium exposure for most Canadians not undergoing psychiatric treatment. Dietary intake levels reported in the literature are highly variable, with estimated daily doses ranging from 2.3E-04 to 4.2E-02 mg/kg-day. Based on the review of available data presented in Section 4.1.2, the higher end of this range (7.8E-03 to 4.2E-02 mg/kg-day) is likely a more representative estimate for most people. Based on Canadian diet intake levels and lithium concentrations reported for various food types, a daily intake within the higher end of reported ranges, 2E-02 mg/kg-day, was estimated. The daily intake of 2E-02 mg/kg-day accounts for roughly 30% of the TDI of 7E-02 mg/kg-day (see Section 3.2.2). Given that dietary intake may be well below this level, a DW AF of 0.7 is considered protective and is assumed for lithium HBV development.

5 Proposed Health-based Values and Recommendations

Equation 1 presented in Section 2 was used to calculate HBVs for cobalt and lithium in drinking water based on the TDI and DW AF values developed in Sections 3 and 4 and the default body weight and drinking water ingestion rate assumptions (74 kg and 1.53 L/day, respectively). The TDI and DW AF values and resulting HBVs are presented in Table 1. The cobalt and lithium HBVs developed in this report can be used, as appropriate, to replace current CSR lithium and cobalt screening values in the groundwater monitoring programs and/or provide thresholds that can be used to determine whether there is a need for additional action under the AMP.

Table 1. Cobalt and Lithium Health-based Values

Constituent	TDI (mg/kg-day)	DW AF (unitless)	Health-based Value (mg/L)
Cobalt	0.03	0.8	1.2
Lithium	0.07	0.7	2.4

Current cobalt and lithium background concentration estimates for Elk Valley groundwater are lower than the HBVs (SNC-Lavalin 2020). Estimates of cobalt background concentrations in Elk Valley groundwater are roughly 100 to 1,000 times lower than the cobalt HBV, while current lithium background concentrations are about 1.7 times lower than the lithium HBV. An assessment of background lithium concentrations was performed as part of the 2020 Regional Groundwater Monitoring Program Update (SNC-Lavalin 2020). Further refinement of background concentrations in Elk Valley groundwater will continue to inform this comparison. If additional background data are collected with concentrations above the HBVs then background concentrations may replace the HBVs as the most relevant value to support water quality management. As stated in provincial water quality monitoring guidance (BC ENV 2016), drinking water standards do not apply in cases where background concentrations are greater than applicable standards. Finally, any adaptive management decisions would consider whether the source of the constituent(s) are mining-related or natural.

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ATTACHMENT A
EXPOSURE DATA TABLES

Table A-1. Cobalt Exposure Data

Study	Location	Medium	Concentration (mg/kg or mg/L)		Intake (mg/day)		Reported Dose (mg/kg-day)		Standardized Dose [b] (mg/kg-day)		Notes
			Minimum [a]	Maximum [a]	Minimum [a]	Maximum [a]	Minimum [a]	Maximum [a]	Minimum [a]	Maximum [a]	
HC 2016	Canadian Cities	Food			0.010	0.019	1.7E-04	3.2E-04	1.4E-04	2.6E-04	Range of dietary intake in Canadian cities: intake for all ages; reported doses based on 60 kg body weight
	Canadian Cities	Food			0.007	0.012	4.6E-04	8.0E-04			Range of dietary intake in Canadian cities: intake for children ages 1-4; reported doses based on 14.4 kg body weight
	Vancouver	Tapwater (kitchen)	0.00033						6.8E-06		Average concentration 2012
	Calgary	Tapwater (kitchen)	0.00019						3.9E-06		Average concentration 2009
WHO 2006	US	Food			0.005	0.04			6.8E-05	5.4E-04	
		Food	0.2	0.6							Green Vegetables/fresh cereals
		Food	0.01	0.03							Dairy products, refined cereals, sugar
		Tobacco	<0.3	2.3							0.5% of this concentration range is present in mainstream smoke
		Coal, crude/fuel oil, gas	0.001	10							
		Air	<1-2 ng/m^3	10 ng/m^3							<1-2 m^3 typical for non-source areas; can be as high as 10 ng/m^3 in source areas
EVM 2003	UK	Guidance level			1.4		2.3E-02		1.9E-02		Supplement guidance level of 1.4 mg/d for 60 kg adult
Hokin et al. 2004	Australia	Food			0.0818				1.1E-03		
	Canada	Daily Intake			0.0011				1.5E-05		
	US	Daily Intake			0.0034	0.0116			4.6E-05	1.6E-04	
EFSA 2009	UK	Daily Intake			0.012				1.6E-04		
RIVM 2001	Netherlands	Food					7.0E-04				
		Daily Intake			0.02		3.0E-04		2.7E-04		Estimated based on information from countries with similar dietary intake and low drinking water concentrations
ATSDR 2004	Canada	Drinking Water	<0.002						4.1E-05		Raw, treated, and distributed
	Canada	Food	0.07	0.6	0.011				1.5E-04		Baked goods and cereals (29.8%), vegetables (21.9%)
	US	Food			0.011		1.6E-04		1.5E-04		Notes a recommended daily intake of vitamin B12 of 6 ug
Dolara 2014	Canada	Daily Intake					1.7E-04	2.1E-04	1.6E-04	2.0E-04	Notes main source is diet with the highest concentrations in fish, green leafy vegetables, and cereals
	Worldwide	Daily Intake			0.012	0.033			1.6E-04	4.5E-04	

Footnotes:

[a] If a single value is reported, it represents an average or median, or the only reported value.

[b] Based on default body weight (74 kg) and drinking water ingestion rate (1.53 L/day) assumptions.

Table A-2. Lithium Exposure Data

Study	Location	Medium	Concentration (mg/kg or mg/L)		Intake (mg/day)		Reported Dose (mg/kg-day)		Standardized Dose[b] (mg/kg-day)		Notes
			Minimum[a]	Maximum[a]	Minimum[a]	Maximum[a]	Minimum[a]	Maximum[a]	Minimum[a]	Maximum[a]	
Szklarska and Rzymski (2019)	Not specific	Cereals	4.4		1.1						Dry weight average; consumption estimated using HC (2016) intake rate
		Fish	3.1		0.010						Dry weight average; consumption estimated using HC (2016) intake rate, 70% water content
		Mushrooms	0.19								Dry weight average
		Vegetables	2.3		0.1						Dry weight average; consumption estimated using HC (2016) intake rate, 85% water content
		Meat	0.012		0.00020						Dry weight average; consumption estimated using HC (2016) intake rate, 85% water content
		Dairy	0.5		0.022						Dry weight average; consumption estimated using HC (2016) intake rate, 90% water content
		Nuts	8.8								Dry weight average
		Total			1.3				1.7E-02		Sum of estimated intakes based on food concentrations and intake rates
		Treatment			113	226	1.6E+00	3.2E+00	1.5E+00	3.1E+00	Therapeutic dose range for psychiatric disorders of 600–1200 mg/day Li_2CO_3 containing 113–226 mg of elemental lithium
Marshall 2015		Nutrient			1	20			1.4E-02	2.7E-01	Low-dose beneficial range with low side effect potential
Clarke and Gibson 1988		Food			0.0216				2.9E-04	3.6E-04	Based on 1-day dietary composites from 22 premenopausal Canadian women
USEPA 2008b	US	Food					3.3E-02	8.0E-02			High range reported in PPRTV document; 70 kg person assumed
USEPA 2008b	US	Food					2.4E-04	1.5E-03	2.3E-04	1.4E-03	Low range reported in PPRTV document; 70 kg person assumed
Broberg et al. 2011	Northern Chile	Municipal Drinking Water	1	3					2.1E-02	6.2E-02	
	Argentina	Municipal Drinking Water	0.008	1.005					1.7E-04	2.1E-02	
	Worldwide	Bottled Water	0.00006	0.11					1.2E-06	2.3E-03	Based on 132 brands of bottled water from 28 countries; median = 0.0048 mg/L
Dolara 2014	US	Grains and Vegetables	0.5	3.4							
	US	Dairy Products	0.5								
	US	Meat	0.012								
	Israel/Chile	Salted Lakes	20	1500		10				1.4E-01	Notes that human intake may reach 10 mg/d without documented adverse effects
Moore 1995	US	Ambient Air	4 ng/m3				1.1E-06				Reported dose based on light activity inhalation rate of 0.72 m^3/hr for a 60 kg person
		Municipal Drinking Water	ND	0.7				2.3E-02		1.4E-02	Reported dose based on a 60 kg individual and drinking water ingestion rate of 2 L/day
		Pool/Spa	0.2	40	3.1		5.2E-02		4.2E-02		Concentration range reported for untreated (background) and lithium chloride-treated spa water. Reported dose based on recommended 20 mg/L treatment level and a 60 kg person ingesting 0.158 L pool water over a 3-hr period.
		Meat	0.023								Typical 70 kg adult consumes 0.34 kg/day meat
		Dairy Products	0.5								Typical 70 kg adult consumes 0.39 kg/day dairy products
		Vegetables and Grains	0.5	3.4							Typical 70 kg adult consumes 0.76 kg/day vegetable and grains
		Food (Total)			0.58	2.8	1.0E-02	4.7E-02	7.8E-03	3.8E-02	Reported dose based on 60 kg person (assuming same consumption as a 70 kg person) and 100% absorption
		Mineral Supplements			5	6	1.0E-01		8.1E-02		Based on 60 kg person that consumes one vitamin tablet daily containing 5-6 mg lithium ion
		Bottled Water	0.002	5.24			5.3E-03	4.4E-02	4.1E-05	1.1E-01	Mean concentration of 0.63 mg/L water. Reported dose range based on average and maximum bottled water concentrations and ingestion of 500 mL/day by a 60 kg person. Standardized dose range assumes ingestion of 1.53 L/day by a 74 kg person.
Schrauzer 2002	US	Municipal Drinking Water		0.17		0.34				3.5E-03	Notes that tap water levels may reach up to 0.17 mg/L in parts of Texas
		Vegetables and Grains	0.5	3.4	0.43	2.9					
		Dairy Products	0.5		0.222						
		Meat	0.012		0.0025						
		Food (Total)			0.65	3.1			8.8E-03	4.2E-02	Daily intake reported based on USEPA (1985) estimate for a 70 kg person

Footnotes:

[a] If a single value is reported, it represents an average or median, or the only reported value.

[b] Based on default body weight (74 kg) and drinking water ingestion rate (1.53 L/day) assumptions.

Volume II – Appendix V

Proposed Surface Water to Groundwater Triggers
(Azimuth, 2020)

Azimuth Consulting Group Inc
218-2902 West Broadway
Vancouver, BC
Canada V6K 2G8

Phone: 604-730-1220
Fax: 604-739-8511
www.azimuthgroup.ca

Technical Memorandum

Date:	**November 4, 2020**
To:	**Cam Jaeger, Dorian Turner, Nathaniel Barnes (Teck Coal)**
Cc:	**Stefan Humphries (SNC), Nick Manklow (SRK)**
From:	**Ryan Hill and Brian Pyper (Azimuth)**
Our File:	**Teck Coal-20-03**
RE:	**Proposed surface water to groundwater triggers for the protection of drinking water users for Order and non-Order constituents using select surface water stations in the Elk Valley**

1. INTRODUCTION

Management Question 6 in the 2018 Elk Valley Adaptive Management Plan (AMP; Teck Coal 2018) relates to management of water quality to be protective of human health, that is, *"Is water quality being managed to be protective of human health?"* Key uncertainty 6.3 asks, *"What are appropriate groundwater-related triggers and how can they be used?"*

This memorandum describes proposed groundwater triggers associated with the surface water to groundwater pathway. These triggers were developed for the protection of drinking water users in populated areas of the Elk Valley, downstream of Teck's operations. These triggers build upon previously developed early warning triggers for surface water (Management Question 1) and existing drinking water triggers applied in drinking water wells (Management Question 6) as defined in the AMP. The rationale for development of surface water to groundwater triggers is based on the regional hydrogeological conceptual model (SNC Lavalin 2020), which indicates a hydraulic connection between main stem surface water quality and aquifers used for drinking water. Triggers in surface water should enable proactive identification of potential changes in constituent concentrations that may affect hydraulically-connected downstream drinking water wells. In addition, the use of surface water is advantageous due to the availability of frequent, long-term data.

Additional background and supporting information for development of groundwater triggers is provided in the Regional Groundwater Monitoring Program (RGMP) 2020 update (SNC Lavalin 2020). Consequently, this memorandum should be read in the context of the RGMP.

2. SELECTION OF LOCATIONS AND CONSTITUENTS

2.1. Locations

Two criteria were used to identify candidate surface water locations for development of surface water to groundwater triggers. First, the locations should be representative of the upstream surface water quality that could influence groundwater in areas of known or anticipated drinking water use. For example, where multiple options were available, surface water locations that were closest to drinking water users were preferred. Second, the locations should have as much baseline data as possible, including data representing recent conditions.

Using these two criteria, the following locations were selected (see **Figure 1**):

Monitoring Point	Rationale
GH_ERC (Compliance Point)	Upstream of Elkford municipal supply well
GH_ER1 (Order Station)	Upstream of Elkford municipal supply well
EV_ER4 (Order Station)	Upstream of DW wells, Whispering Winds TP, Airport, Downstream of LCO
EV_ER1 (Order Station)	Downstream of all mining activity
CM_CC1 (Surface Water Monitoring Location)	Upstream of Corbin DW users, DS of Coal Mountain
EV_MC2 (Compliance Point)	Downstream of CMO, some of EVO but upstream of Sparwood Municipal wells

Several other locations were considered that are closer to areas of drinking water use, but these were eliminated due to data availability[1].

2.2. Constituents

This section describes the process used to identify constituents for which surface water to groundwater triggers were developed. The starting point was the list of constituents for which surface water early warning triggers were developed under AMP Management Question 1 (Azimuth 2018), which included the four Order constituents and 12 non-Order constituents. Upon further evaluation of multiple lines of evidence[2], six of these constituents were subsequently identified as non-mining-related in groundwater (barium, boron, cobalt, lithium, manganese and zinc) and were excluded from the trigger development process after consultation with the GWG. The remaining constituents identified as mining-related or potentially mining-related in groundwater were:

- Order constituents: cadmium, nitrate, selenium, sulphate
- Non-Order constituents: antimony, molybdenum, nickel, nitrite, TDS, uranium.

All metals and metalloids were evaluated as dissolved fraction.

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[1] The following locations were considered but were not retained because recent monitoring data were not available or were too limited. EV_GV1: data limited to 2013-2016; EV_ER3: data limited to 1983-2004; EV_ER3A: data limited to 1998-2004; EV_ER3A1: data limited to 2017-early 2019; EV_ER3B: data limited to 2004-2017; EV_ERUSSM1: data limited to three samples from 2017.

[2] Two additional lines of evidence were useful in narrowing the list of constituents. First, CSR Protocol 4 was applied to determine if measured concentrations were representative of background. Second, constituents associated with bedrock were identified (SNC-Lavalin 2020).

3. METHODS

Consistent with the approach for surface water under Management Question 1, the surface water to groundwater trigger values were established at half-way from the baseline median to the screening value. The specific steps are described below and were consistent with those used for surface water EWT development (Azimuth 2018), and were applied to each constituent at each location:

1. Select screening values. Screening values for drinking water are listed in Table 1**.**
2. Characterize baseline data as the median of monthly means for the 2010 to 2016 period[3] [4].
3. Set trigger value half-way from baseline median to the screening value.
4. Establish 'trigger test criteria' for comparing monitoring data to trigger values[5]:
    - 3 of last 12 monthly means exceed trigger value, or
    - same calendar month (e.g., June) exceeds in 2 consecutive years.

Once developed, the criteria can be applied to any 12 month period of data. Here, the data set that is evaluated is the calendar year 2019.

The intent of these triggers is not to detect single high values that may exceed screening values, because Teck is already obligated to report any single high values in surface water that exceed relevant water quality guidelines, compliance limits or site performance objectives (SPOs). Rather, the intent of these triggers is to detect more subtle, long-term trends that may result in exceedance of screening values in drinking water in the future.

The triggers are expected to be conservative in most cases, for three reasons. First, baseline concentrations are generally far below the screening values, therefore trigger values may be exceeded even when concentrations remain well below screening values. However, there will be exceptions for cases where current concentrations are similar to or above the screening values. Second, water quality in drinking water wells is unlikely to be 100% representative of mining-influenced surface water quality, because there are other natural influences on groundwater quality. Thirdly, to the extent that surface

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[3] The period 2012 to 2016 was used for nitrate, selenium and sulphate because temporal trends for these three constituents meant that the earlier data were less representative of recent baseline conditions. See Azimuth 2018 for details.

[4] For a given station and constituent, data points below MDL where the MDL exceeded the maximum observation were removed before computing triggers and plots. This included all samples for Zinc at GH_ERC from 2014 through 2016.

[5] These criteria, by requiring more than a single value to exceed a trigger value, reduce sensitivity to outliers. This is reasonable because if large outliers were present and exceeded water quality guidelines (or other screening values), they would already have been detected by routine monitoring and the AMP response framework would be initiated.

water monitoring locations are upstream of drinking water wells, it is expected that there may be some reduction in concentrations moving downstream (i.e., mining-related sources are most concentrated in headwaters, while there are increasing inputs of non-mining influenced water further downstream in the valley).

4. RESULTS

Screening values are summarized in Table 1, while sample sizes, baseline medians and trigger values are summarized in Table 2. There were a few cases where trigger values could not be computed:

- Selenium at EV_ER4, CM_CC1 and EV_MC2 (these are locations where the baseline median already exceeds the screening value of 10 ug/l).
- Sulphate and TDS at CM_CC1 (in addition to selenium mentioned above). The baseline median for these constituents are higher than the screening values at CM_CC1.

Time-series plots of monthly means for all constituents, in relation to trigger values and screening values, are provided in **Figure 2**. Formal comparison of 2019 data to the trigger test criteria are provided in Table 3. In general, 2019 data are well below trigger values derived for most constituents. Of the 55 cases (10 constituents at 6 locations, minus the 5 cases above where trigger values could not be computed), there were 3 cases where data exceeded one or both of the trigger test criteria:

- Selenium at EV_ER1. Both trigger test criteria were exceeded.
- Nickel at CM_CC1. The screening value was exceeded in consecutive years (2018 and 2019) for the months June and December.
- TDS at EV_MC2. The screening value was exceeded in consecutive years (2018 and 2019) for the months January and February.

5. REFERENCES

Azimuth Consulting Group. 2018. Proposed water quality early warning triggers for the Elk Valley Adaptive Management Plan. AMP Technical Memo MQ1-KU1.1-2018. Reported prepared December 2018.

SNC Lavalin. 2020. Permit 107517 Regional Groundwater Monitoring Program: 2020 Update. Report prepared by SNC Lavalin Inc for Teck Coal Ltd.

Teck Coal Ltd. 2018. Water Quality Adaptive Management Plan for Teck Coal Operations in the Elk Valley. Report prepared December 2018, by the Adaptive Management Consulting Team, Technical Consultants, and Teck Staff.

Tables

Table 1. Screening values

Note: Screening values selected in order of following preference: (1) BC Water Quality Guidelines (BCWQG) where available, taking into account specific considerations for the Elk Valley for some constituents; (2) Government of Canada Drinking Water Guidelines (GCDWG); (3) BC CSR DW standards if neither of the former were available.

	Screening Value	Units	Basis for Screening Value
Cadmium	5	ug/l	BCWQG, GCDWQ, CSR DW
Nitrate	10	mg/l	BCWQG, GCDWQ, CSR DW
Selenium	10	ug/l	BCWQG, CSR DW
Sulphate	500	mg/l	BCWQG, GCDWQ, CSR DW (Aesthetic Objective)
Antimony	6	ug/l	GCDWQ, CSR DW
Molybdenum	88	ug/l	BCWQG
Nickel	80	ug/l	CSR DW
Nitrite-N	1	mg/l	BCWQG, GCDWQ, CSR DW
TDS	500	mg/l	GCDWQ (Aesthetic Objective)
Uranium	20	ug/l	GCDWQ, CSR DW

Table 2. Sample sizes, baseline medians and drinking water trigger values for selected surface water locations

Notes: See text for discussion. For zinc at GH_ERC, baseline sample size is zero because all data were affected by elevated method detection limits (MDLs) and were discarded; therefore baseline median assumed close to zero, and trigger set half way from zero to screening value. 'EXC' indicates trigger value could not be computed because baseline median exceeded screening values.

Sample Size for Calculation of Baseline Medians (number of monthly means)

Station	Cadmium	Nitrate	Selenium	Sulphate	Antimony	Molybdenum	Nickel	Nitrite	TDS	Uranium
GH_ERC	25	25	25	25	25	25	25	25	24	25
GH_ER1	77	60	60	60	81	82	81	84	79	82
EV_ER4	77	58	58	58	77	77	77	82	77	77
EV_ER1	78	60	60	60	79	79	79	84	79	79
CM_CC1	80	59	59	59	81	81	83	83	78	81
EV_MC2	25	25	25	25	25	25	25	25	25	25

Baseline Median (of monthly means) as Screening Ratio (Median / Screening Value)

Station	Cadmium	Nitrate	Selenium	Sulphate	Antimony	Molybdenum	Nickel	Nitrite	TDS	Uranium
GH_ERC	0.006	0.32	1.41	28.4	0.10	0.97	0.50	0.0010	201.1	0.81
GH_ER1	0.010	0.26	1.40	24.6	0.10	0.99	0.50	0.0010	184.0	0.76
EV_ER4	0.011	2.77	11.73	71.9	0.10	1.12	0.50	0.0010	279.0	1.10
EV_ER1	0.013	1.87	9.44	70.7	0.10	1.11	0.60	0.0011	274.6	1.08
CM_CC1	0.048	6.01	15.00	595.0	0.47	1.78	35.10	0.0320	1140.0	5.22
EV_MC2	0.031	3.02	13.02	127.8	0.21	1.28	2.18	0.0021	376.3	1.25

Trigger Values as Screening Ratio (Trigger Value / Screening Value)

Station	Cadmium	Nitrate	Selenium	Sulphate	Antimony	Molybdenum	Nickel	Nitrite	TDS	Uranium
GH_ERC	2.503	5.16	5.70	264.2	3.05	44.5	40.25	0.5005	350.5	10.40
GH_ER1	2.505	5.13	5.70	262.3	3.05	44.5	40.25	0.5005	342.0	10.38
EV_ER4	2.506	6.39	EXC	286.0	3.05	44.6	40.25	0.5005	389.5	10.55
EV_ER1	2.507	5.94	9.72	285.4	3.05	44.6	40.30	0.5006	387.3	10.54
CM_CC1	2.524	8.01	EXC	EXC	3.23	44.9	57.55	0.5160	EXC	12.61
EV_MC2	2.515	6.51	EXC	313.9	3.11	44.6	41.09	0.5010	438.1	10.63

Table 3. Summary of cases where the trigger-test criteria were exceeded across monthly means for 2018

Notes: 'EXC' indicates that trigger value could not be computed because baseline median exceed screening values. Shaded cells denote cases where one or both trigger-test criteria were exceeded (i.e., if three or more monthly means in 2019 were greater than the trigger, or if a given monthly mean was greater than the trigger in both 2018 and 2019). The first of the two entries (e.g., "5, 4") in a given cell corresponds to the number of 2019 monthly means greater than the trigger (i.e., "5"), while the second corresponds to the number of months for which the mean was greater than the trigger in both 2018 and 2019 (i.e., "4").

Station	Cadmium	Nitrate	Selenium	Sulphate	Antimony	Molybdenum	Nickel	Nitrite	TDS	Uranium
GH_ERC	0, 0	0, 0	0, 0	0, 0	0, 0	0, 0	0, 0	0, 0	0, 0	0, 0
GH_ER1	0, 0	0, 0	0, 0	0, 0	0, 0	0, 0	0, 0	0, 0	0, 0	0, 0
EV_ER4	0, 0	0, 0	EXC	0, 0	0, 0	0, 0	0, 0	0, 0	0, 0	0, 0
EV_ER1	0, 0	0, 0	7, 7	0, 0	0, 0	0, 0	0, 0	0, 0	0, 0	0, 0
CM_CC1	0, 0	0, 0	EXC	EXC	0, 0	0, 0	2, 2	0, 0	EXC	0, 0
EV_MC2	0, 0	0, 0	EXC	0, 0	0, 0	0, 0	0, 0	0, 0	2, 2	0, 0

Figures

Figure 1. Surface water monitoring locations selected for development of surface water to groundwater triggers.

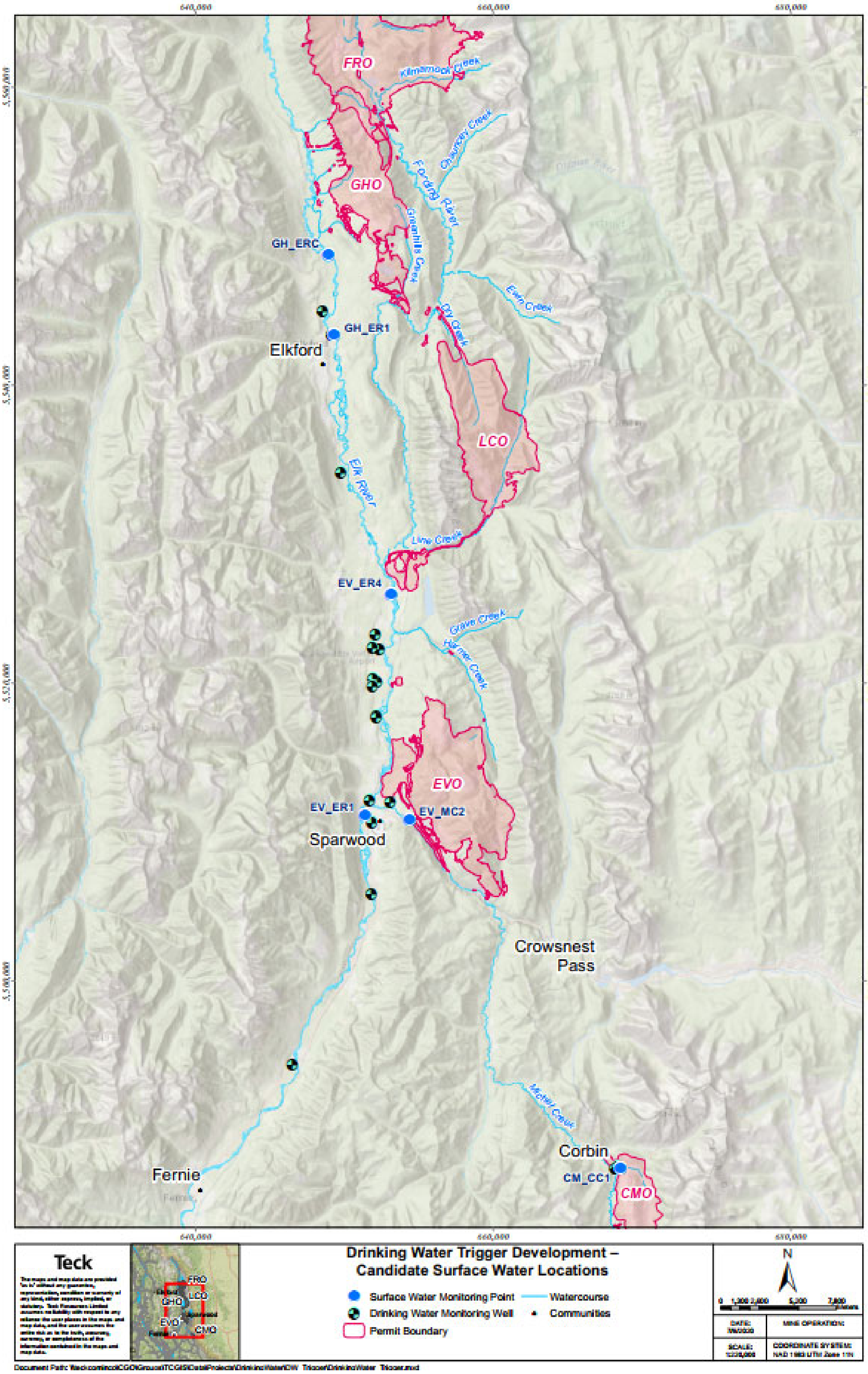


Figure 2. Comparison of 2019 Data for Order and non-Order Constituents to Drinking Water Triggers in Surface Water

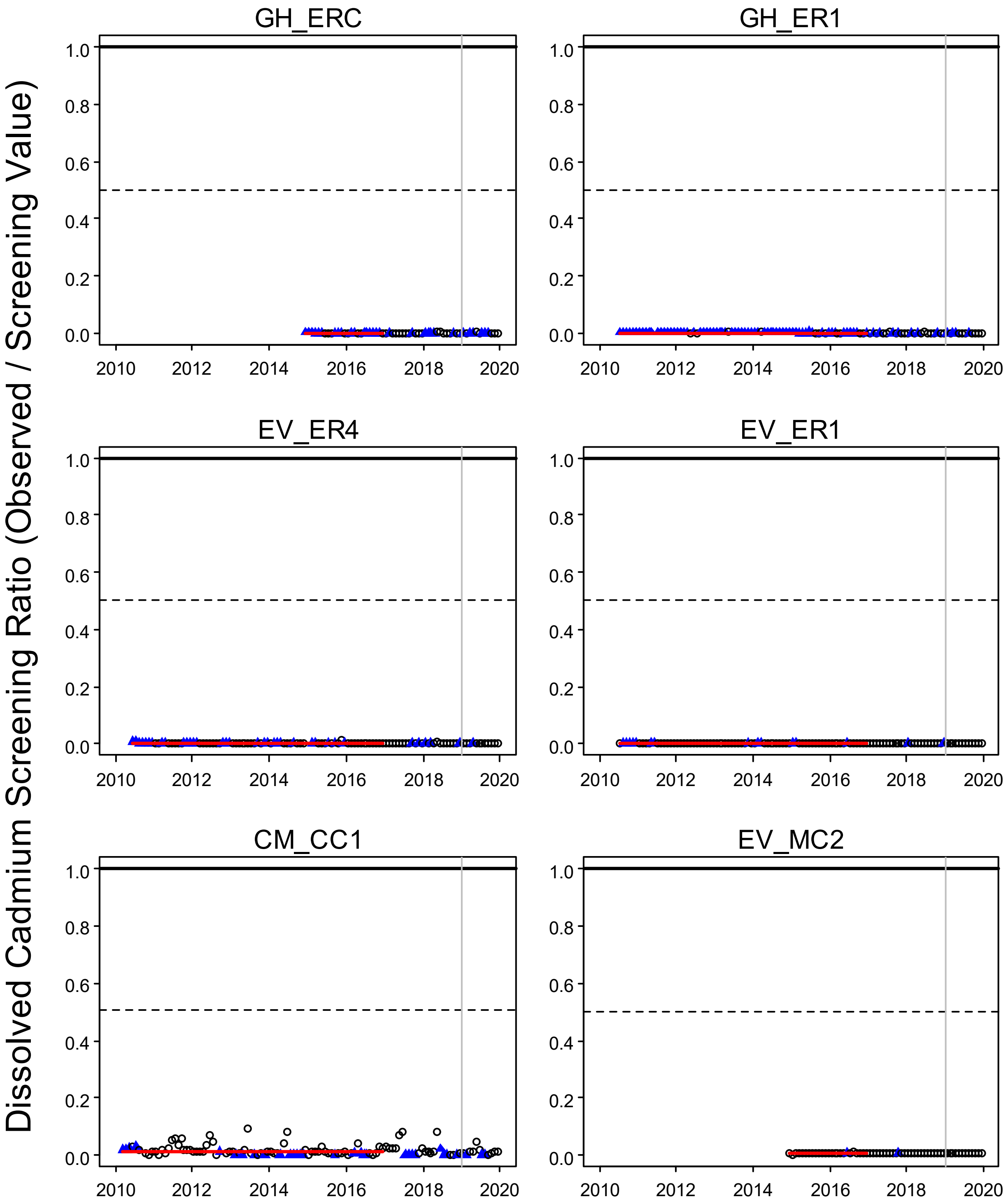
Constituents plotted in the following order:

Order constituents:

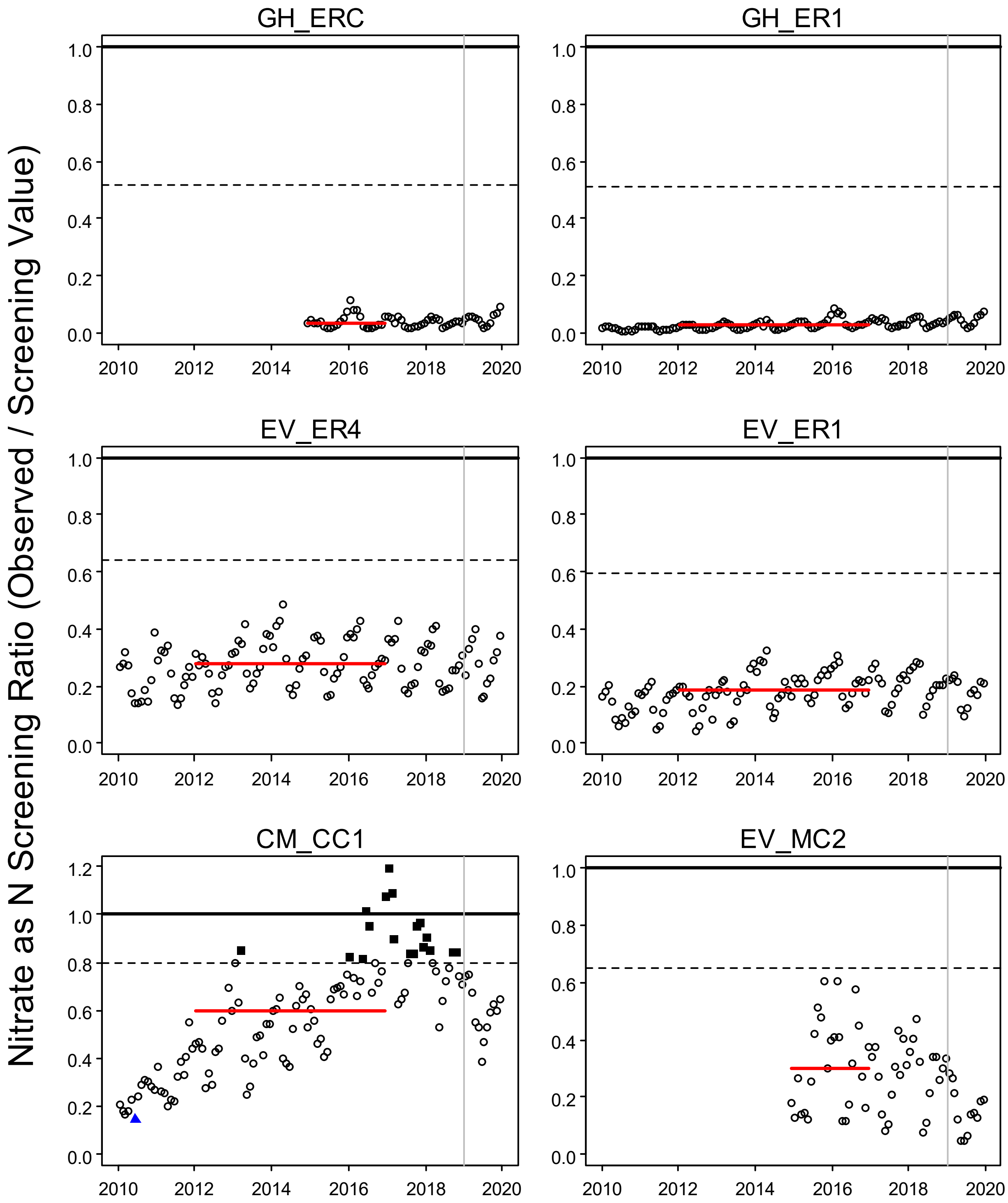
- Cadmium
- Nitrate as N
- Selenium
- Sulphate

Non-Order constituents:

- Antimony
- Molybdenum
- Nickel
- Nitrite as N
- TDS
- Uranium



Notes: All data expressed as a screening ratio of concentration / screening value (i.e., a value of 1 on the y-axis is equal to the screening value). Bold lines denote the screening value. Red lines indicate baseline median to end of 2016. Dashed horizontal lines denote trigger values. Vertical lines mark the start of 2019 data. Solid squares indicate monthly means that exceed the trigger value. Blue triangles indicate monthly means that include 1 or more samples below MDLs. For cases plotted where triggers were not computed (see text) all data symbols are unformatted.



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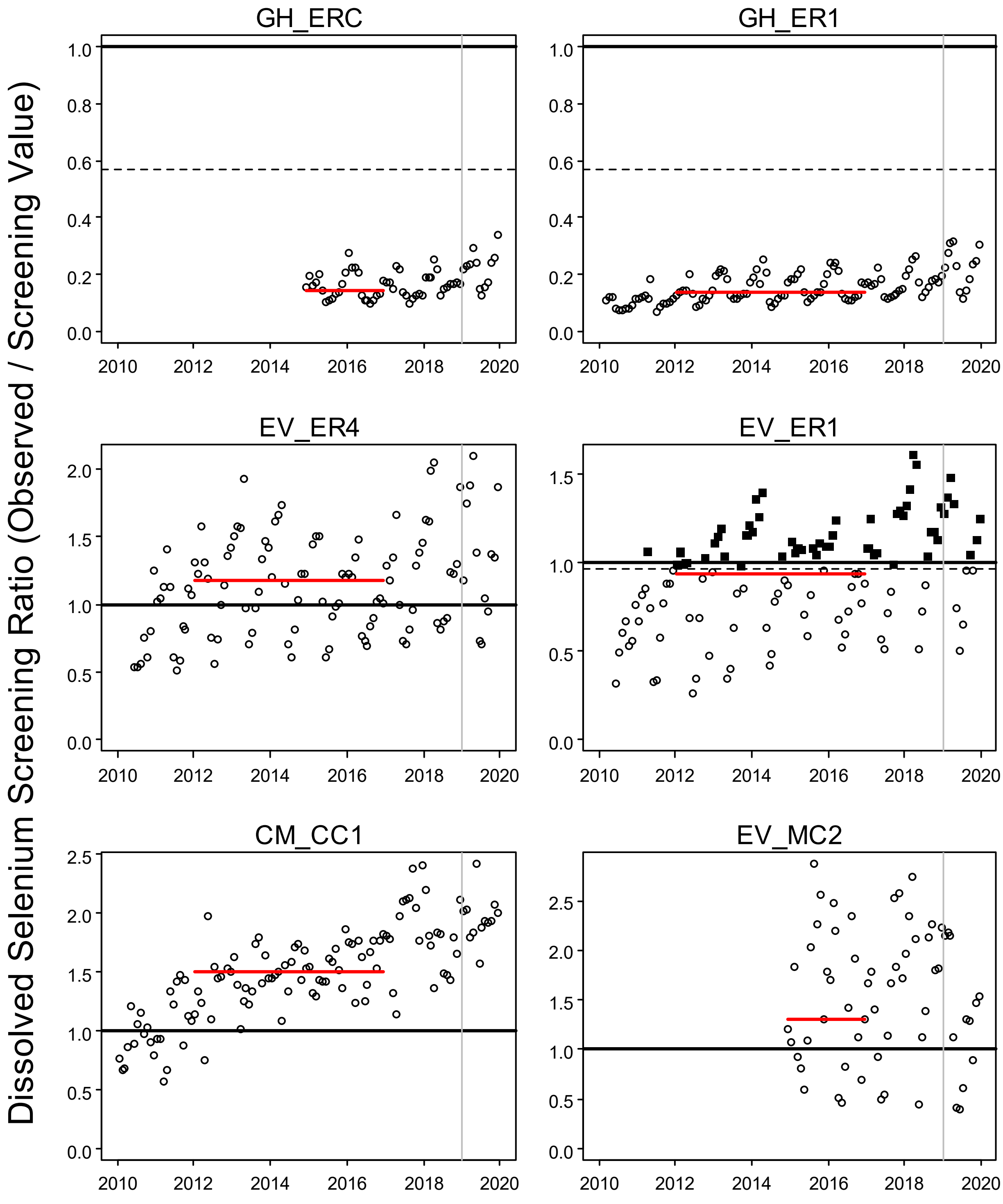

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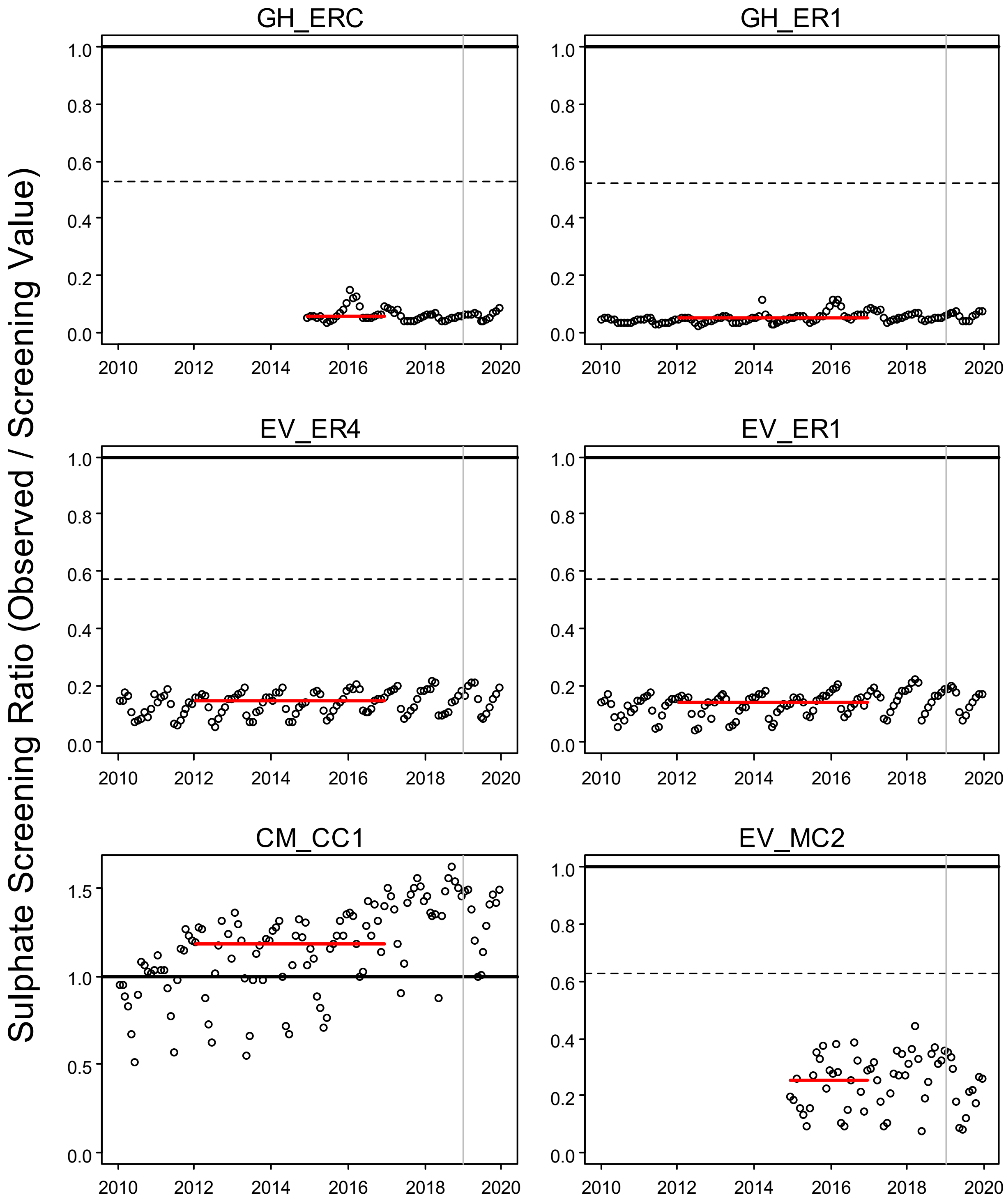

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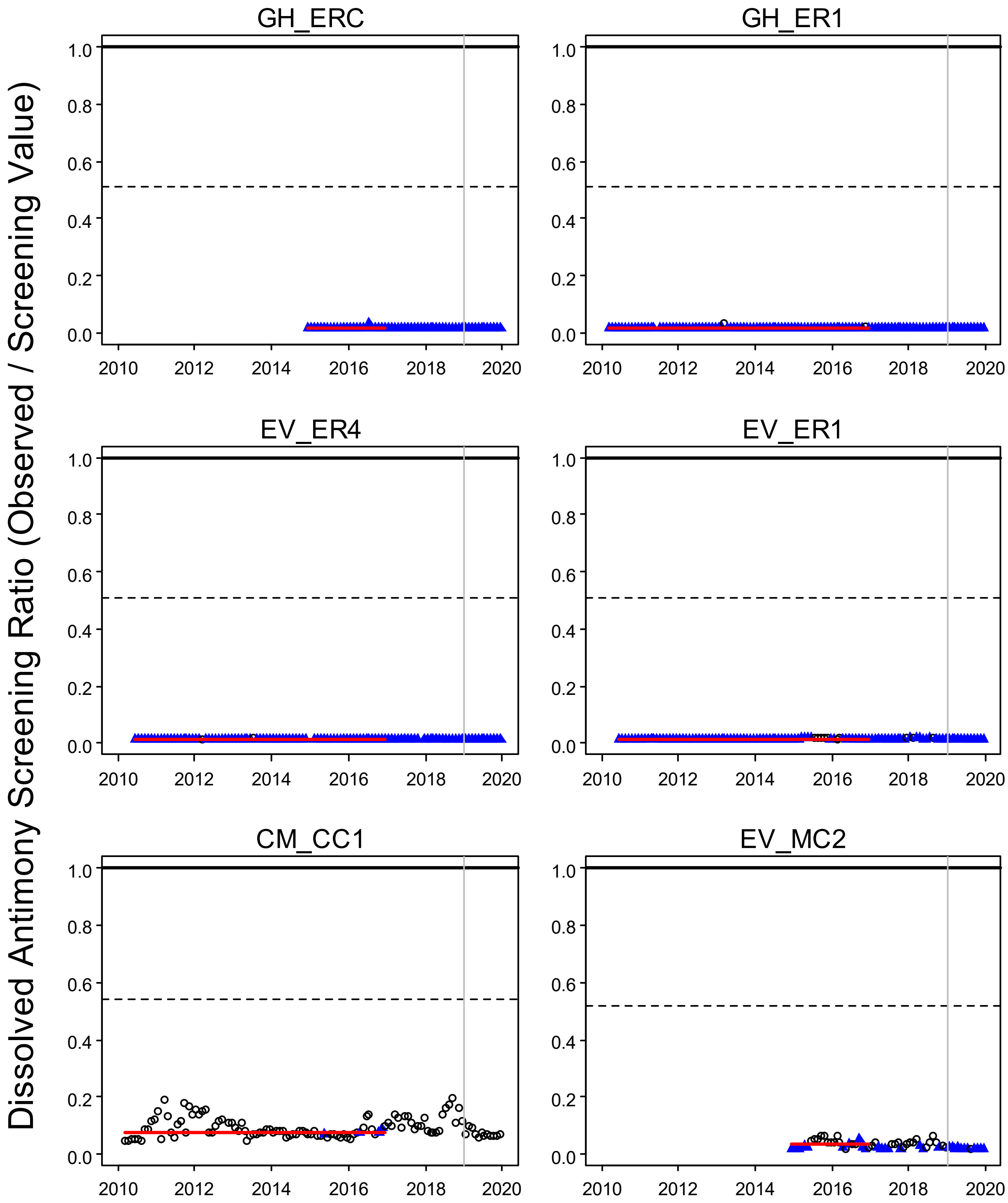

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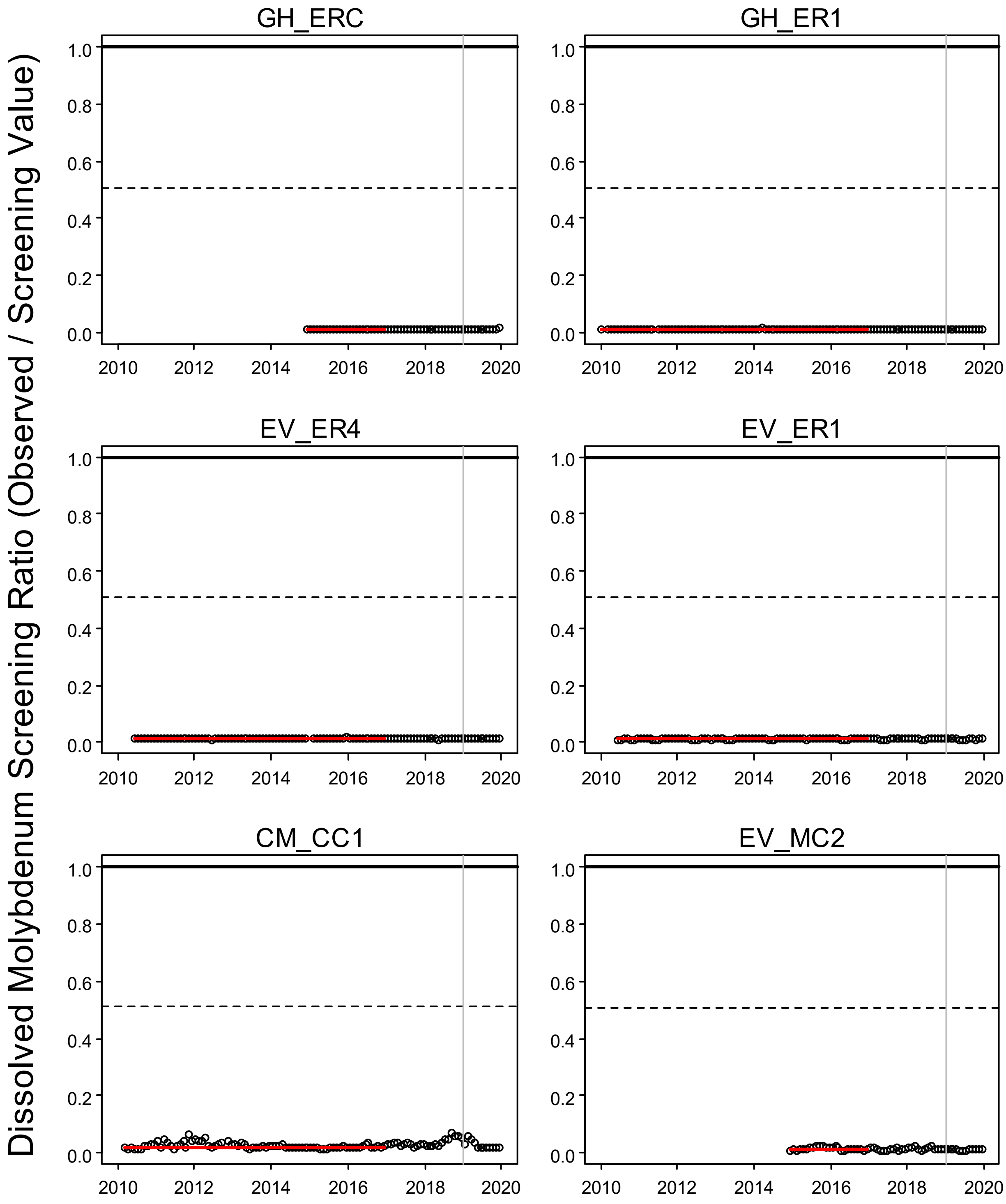

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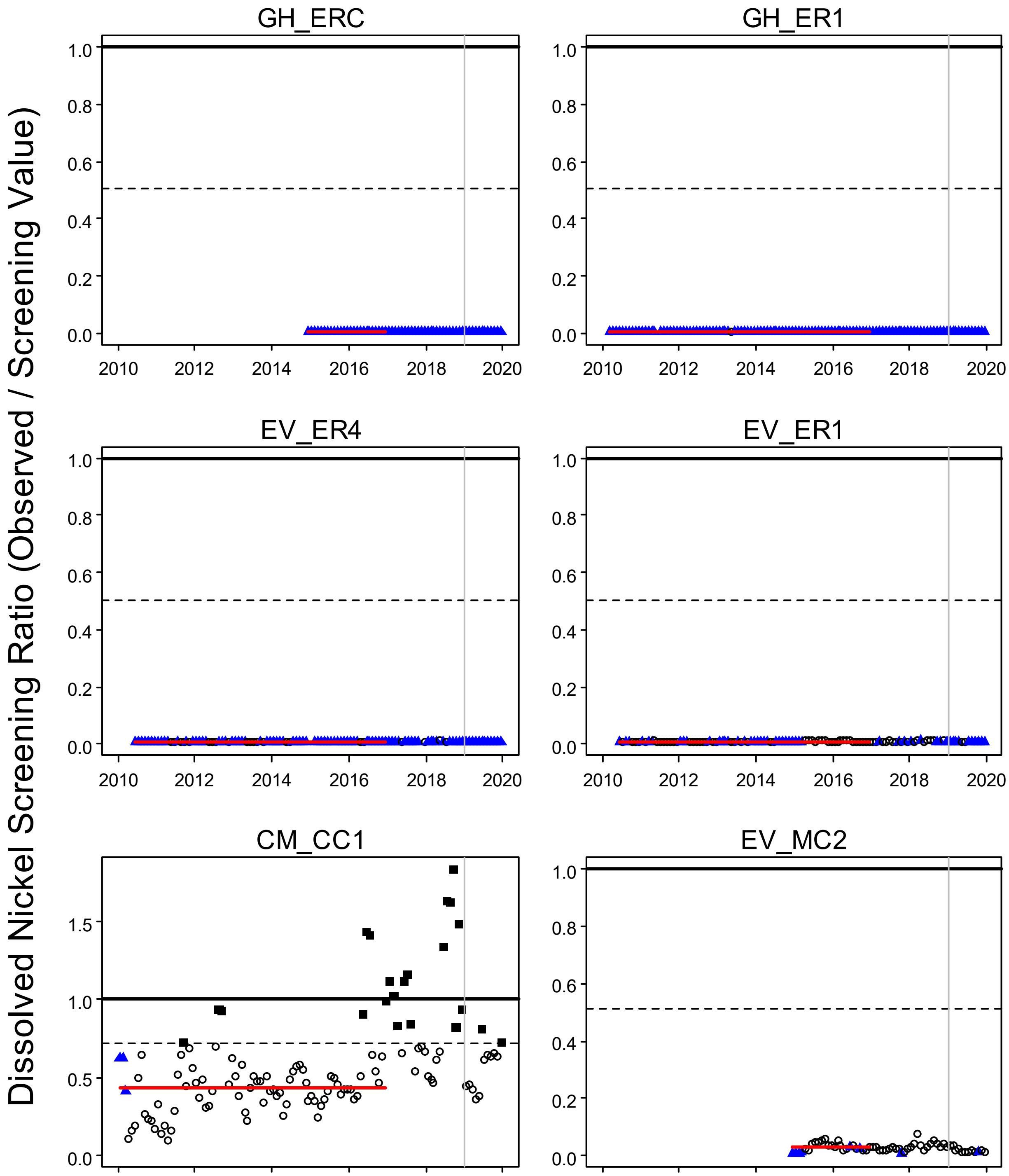

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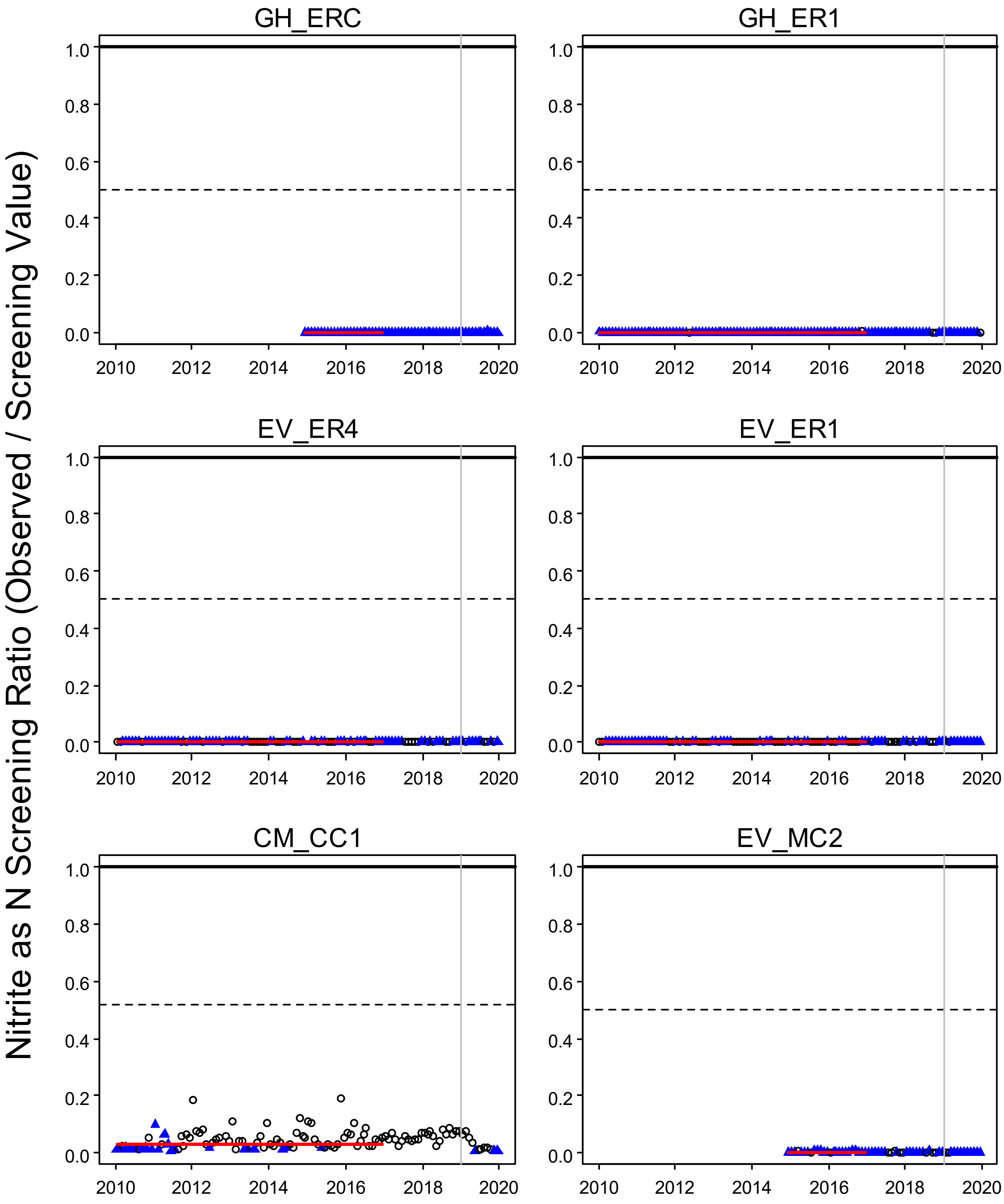

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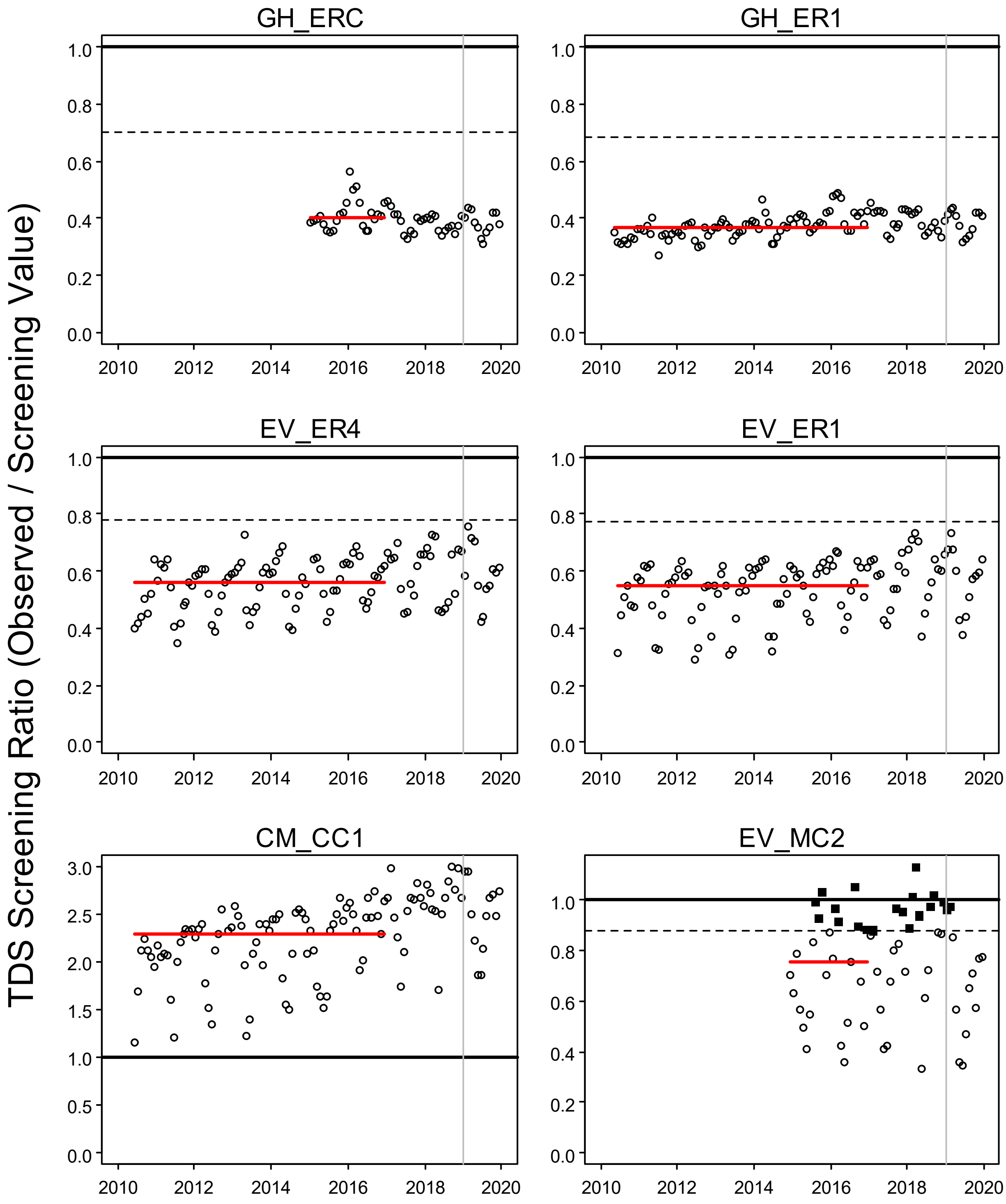
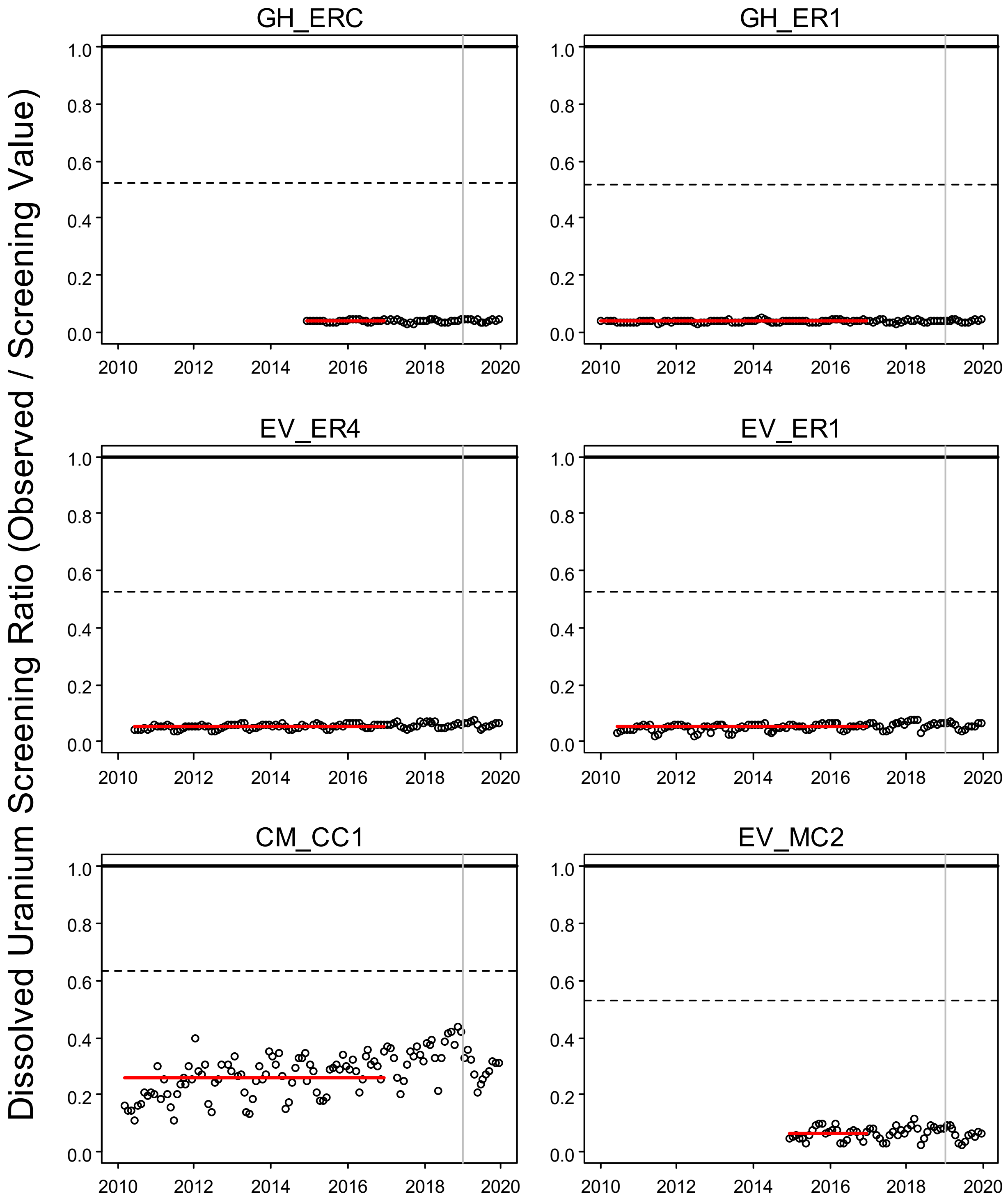


Notes: All data expressed as a screening ratio of concentration / screening value (i.e., a value of 1 on the y-axis is equal to the screening value). Bold lines denote the screening value. Red lines indicate baseline median to end of 2016. Dashed horizontal lines denote trigger values. Vertical lines mark the start of 2019 data. Solid squares indicate monthly means that exceed the trigger value. Blue triangles indicate monthly means that include 1 or more samples below MDLs. For cases plotted where triggers were not computed (see text) all data symbols are unformatted.



Notes: All data expressed as a screening ratio of concentration / screening value (i.e., a value of 1 on the y-axis is equal to the screening value). Bold lines denote the screening value. Red lines indicate baseline median to end of 2016. Dashed horizontal lines denote trigger values. Vertical lines mark the start of 2019 data. Solid squares indicate monthly means that exceed the trigger value. Blue triangles indicate monthly means that include 1 or more samples below MDLs. For cases plotted where triggers were not computed (see text) all data symbols are unformatted.

Volume II – Appendix VI

Quality Assurance/Quality Control (QA/QC)

Data Quality Assurance / Quality Control (QA/QC)

Teck provided field and laboratory data relevant to the Site-Specific Groundwater Monitoring Programs (SSGMPs) and Regional Groundwater Monitoring Program (RGMP) to SNC-Lavalin Inc. (SNC-Lavalin). In addition, several wells were sampled by SNC-Lavalin in 2020. Analysis of the Quality Assurance / Quality Control (QA/QC) data was completed by SNC-Lavalin. For wells sampled by Teck, SNC-Lavalin has relied on data and information provided by Teck and has therefore assumed that the information provided is both complete and accurate. Interpretations and conclusions within this report are made with the assumption that data collection was completed in accordance with Permit 107517, the British Columbia Field Sampling Manual (Clark, 2013), and Teck's Standard Practice and Procedures (SP&P) or SNC-Lavalin's Preferred Operating Procedures.

The QA/QC assessment completed for the SSGMPs and RGMP reviewed shipping and handling issues, summarized results of relative percent differences (RPDs) from duplicate samples, summarized detections of analytes in field blanks, and reviewed laboratory quality control reports. QA/QC results for RGMP wells within mine boundaries are presented within the discussion of their respective operations, while background wells outside of mine boundaries are presented in their own section. In addition, regional drinking water program wells are presented with the nearest operation. A summary of QA/QC methods and results for each Operation/Program are present below.

Summary of QA/QC Methods

Shipping and Handling

Shipping and handling QA/QC includes assessment of sample integrity upon arrival at the laboratory and analysis hold time exceedances. Sample integrity observations are documented by the laboratory upon receipt of the sample and may include elevated sample temperature, bottle damage, or labelling errors. The British Columbia Laboratory Analysis Manual (BCLAM) specifies a maximum sample temperature of 10^{o}C during transport (Austin, 2016). Bottle damage and labelling errors may result in analysis with preservation that deviates from the specifications of the BCLAM or analyzes not conducted.

Maximum hold times between sample collection and analysis are specified in BCLAM. Hold time exceedances may be from samples arriving past their specified hold time, or from analysis after the maximum hold time. Hold time exceedances are identified on the Certificates of Analyzes (COAs) in Appendix XII.

Duplicate Samples

Duplicate samples were collected at a frequency of at least one per ten samples during each sampling event to assess the precision of the field sampling methodology and consistency of laboratory analysis. Duplicate samples were evaluated by calculation of the RPD of the concentration between the sample and duplicate, as follows:

$$RPD = \frac{|sample\ 1 - sample\ 2|}{\frac{1}{2}(sample\ 1 + sample\ 2)} \times 100\%$$

RPDs are calculated for parameters where at least one of the samples was greater than five times the laboratory detection limit; an RPD of less than 20% for metals and inorganics is considered as an acceptable level of precision per the BC Field Sampling Manual (Clark, 2013). Teck has a QA/QC program based on this manual; where the result is less than five times the detection limit, the acceptable RPD will be modified as follows:

- RPD < 20%: Acceptable.
- RPD > 20% with value > 5 times the Detection Limit (DL): Possible problem.
- RPD > 50% with results > 5 times the DL: Definite problem, most likely sample contamination or lack of sample representativeness.

Blanks

Field and trip blanks were processed and submitted for analysis as part of each sampling event under each SSGMP and the RGMP. Teck's standard practice for collecting field blank samples is to open a designated field blank sample bottle pre-filled with ultra-pure de-ionized (DI) water and preservative (where applicable) at the sampling site during regular sample collection. For dissolved parameters (i.e., dissolved metals and dissolved organic carbon), blanks are collected by passing laboratory supplied DI water through a filter and collecting the sample. The sample is subsequently preserved in the same manner as the original samples, replicating the sampling protocol. Blanks from the dissolved parameters provide information on contamination results from potential residue remaining on the filter, which may result in sample bias. Overall, field blanks provide information on potential contamination resulting from field handling techniques and atmospheric contamination.

Standard practice for trip blanks includes delivery of a sample set from the laboratory pre-filled with ultra-pure DI water and preservative (where applicable), which are kept in a cooler (with the other samples) and are unopened throughout the sampling trip. Trip blanks are meant to detect widespread contamination from the container and preservative during transport and storage. Field and trip blanks were shipped to the laboratory with routine samples and screened for analyte detections.

Laboratory QA/QC

ALS Laboratory (ALS) conducted routine internal QA/QC in accordance with BCLAM and reported these results as analyte qualifiers alongside the sample analysis results. SNC-Lavalin reviewed the qualifiers and considered them in the context of the other QA/QC analyzes in evaluating their potential effects on the groundwater quality data.

Field QA/QC

SNC-Lavalin reviewed field parameters, manual water level measurements, and field notes recorded by Teck during sampling. Field parameters in the Teck database were compared to those in the field notes and corrections made to the database when notation errors were found. Manual water level measurements were compared to historical manual levels and to continuous water levels from data loggers. Select manual measurement were flagged as suspect notation errors.

Background Monitoring Locations

The background program consistent of monitoring and sampling 21 wells, however QA/QC results for nine of the wells are included in their respective operation sections. As such, the following QA/QC assessment for the background program will focus on the remaining 12 wells.

Shipping and Handling

A summary of shipping and handling issues from the 2020 sampling program is provided in Table VI-D.

Table VI-A: Summary of Shipping and Handling Issues

Quarter	Qualifier	Well ID	Possibly Affected Analytes	Comment
1-4	Hold Time Exceedance	All wells blanks and duplicates	pH, Oxidation Reduction Potential (ORP)	Exceeded ALS recommended hold time of 15 minutes prior to sample receipt. Field measurement recommended.
2	Incorrect Sample Bottle	FR_MW_MC11B (Field Blank)	Dissolved mercury	Mercury vial broken; analysis conducted from dissolved metals bottle. Results may be biased low.

Except for pH and ORP for each sample, hold times were not exceeded for parameters analyzed in 2020. Parameters pH and ORP have a hold time of 15 minutes and measurements are taken in the field. These hold time exceedances are not considered to be an issue as field measurement for pH and ORP are used for data analysis.

Duplicate Samples

A total of 33 samples and five field duplicates were collected from the 12 wells within the background QA/QC assessment. A summary of samples with RPD values above 20% and concentrations of parameters greater than five times the DL are provided in Table VI-B, below.

Table VI-B: Summary of Relative Percent Difference Values for Duplicate Samples

Quarter	Number of Duplicate Samples Collected	Well ID	Possibly Affected Analytes	RPD Value
1	1	-	-	-
2	2	-	-	-
3	1	FR_MW-FRRD1	Total phosphorous	30%
4	1	FR_MW-FRRD1	Nitrate as Nitrogen (Nitrate-N)	152%
			Sulphate	27%

Review of the duplicate sample results indicates that calculated RPDs for nitrate-N (Q4 FR_MW-FRRD1) was 152%, above the acceptable level of 50%. The concentration of nitrate-N was 0.198 mg/L and 1.45 mg/L in the sample and duplicate, respectively. The laboratory was contacted to confirm the high concentration, as nitrate-N concentrations at FR_MW-FRRD1 have been measured between 0.166 mg/L and 0.716 mg/L since 2019. The laboratory re-checked the lab report confirming that all standards and QCs associated with the batch were considered acceptable. The absence of unacceptable RPD values for other parameters (including mining related CI) suggests the higher result is likely to be an outlier. Nonetheless, because insufficient data exist for this well (nine data points) and to be conservative, the higher concentration result has been considered acceptable to be used in the report. Future analysis of nitrate-N in groundwater from this well will confirm or refute whether the value is an outlier.

Calculated RPDs for the numerous organic, inorganic, and physical parameters analyzed, were otherwise less than 50%. These results indicate low variability in constituent concentrations from sampling and handling.

Field and Trip Blanks

Detections were reported in four of the seven blanks submitted for laboratory analysis in 2020. Concentrations of detectable parameters and laboratory detections limits are provided in Table VI-F, below.

Table VI-C: Summary of Blank Samples with Parameters above Detection Limit

Quarter	Location or Date	Parameter	Value	Detection Limit
Field Blanks				
2	FR_MW-FRRD1	Ammonia as Nitrogen (Ammonia-N)	0.0051 mg/L	0.0050 mg/L
3	FR_MW-FRRD1	Ammonia-N	0.0191 mg/L	0.0050 mg/L
Trip Blanks				
2	May 22	Ammonia-N	0.0086 mg/L	0.0050 mg/L
4	November 03	Dissolved iron	37 µg/L	10 µg/L
		Dissolved manganese	0.31 µg/L	0.10 µg/L

Overall detectable concentrations in the field and trip blanks were within five times the DL. All detections in blanks were confirmed by repeat analysis at the time of laboratory reporting.

The laboratory conducted an investigation into the source(s) of parameters above the DLs (such as ammonia-N) following completion of the 2018 SSGMP and RGMP monitoring programs (SNC-Lavalin, 2019). The investigation included examination of the laboratory QC method blank data and reverse-osmosis water monitoring data (source of deionized water used for lab, field and trip blanks). The laboratory provided results of ultra-pure DI water for select months in 2018; however, their results did not provide any clear resolution to detections in blanks as they did not identify any potential sources of sample cross-contamination. There is a possibility that the detectable concentrations of select parameters in field blanks is from contamination in the field or that the bottles and lids or that preservatives may be contributing to the detectable parameters. The parameters above the DLs did not affect the reliability of the data due to their low concentrations. In addition, similar detectable parameters in field and trip blanks from groundwater monitoring at Teck mines (EVO, FRO, CMm, LCO, and GHO) were also reported since 2017 and are also being investigated by the laboratory.

Laboratory QA/QC

The detailed results of laboratory QA/QC are included in COAs in Appendix XII. The Quality Control Reports were reviewed and are summarized below.

Adjustments to the DLs were made to some parameters in select samples, qualifiers include the following:

- DL raised due to dilution required for high concentration of test analytes;
- DL adjusted for required dilution; and
- DL adjusted due to sample matric effects (e.g., chemical interference, colour, turbidity).

The raised DLs were consistently below the screening standards and as such these DL qualifiers did not affect data quality.

Results for laboratory QA/QC samples occasionally yielded a series of qualifiers used to flag limitations in the reportability of the QA/QC result. These qualifiers are not expected to reflect on data quality, and include the following:

- Matrix spike recovery could not be accurately calculated due to high analyte background in sample;
- Method blank exceeds ALS DQO. Associated samples results which are less than Limit of Reporting or greater than five times blank level are considered reliable;
- Reported result verified by repeat analysis;
- Duplicate results and limits are expressed in terms of absolute difference;
- Relative percent difference not available due to result(s) being less than detection limit; and
- Total Kjeldahl Nitrogen (TKN) may be biased low due to nitrate-N interference. Nitrate-N is greater than 10 times TKN.

These notes are not unusual for these analyses considering the chemistry of the samples that reflects a mine-influenced groundwater (i.e., select samples have high total dissolved solids or nitrate-N concentrations). The results of the laboratory QA/QC were acceptable for the purpose of this assessment. A review of the quality assurance portion of the laboratory analytical reports did not identify any additional QA/QC issues.

Field QA/QC

Field parameters and manual water level measurements were collected from all wells during each quarter. In addition, continuous water levels were recorded for all monitoring wells except for CM_MW3-DP/SH and CM_MW6-DP as no data loggers are currently installed in these wells. Manual water level measurement were however collected from these wells during all four quarters.

QA/QC Summary

The field QA/QC program and laboratory QA/QC results for groundwater samples indicated the data collected are acceptable for use in this report. Calculated RPDs for all parameters in the five duplicate samples were less than 50% with the exception of nitrate-N in Q4 FR-MW-FRRD1. The concentration of nitrate-N in the duplicate was greater than historical values and acceptable RPD values for other parameters suggest that the duplicate result is an outlier. However, the laboratory did not identify any issues with the analysis and insufficient data exists for the well, therefore the duplicate results is considered acceptable for use in this report.

Hold time exceedances were only identified for pH and ORP. The results reflect low variability for handling and sampling for the program.

The laboratory quality control reports were reviewed, and the data are considered reliable. Where detectable, concentrations of parameters in blanks were less than five times the DL. Field measurements and manual and/or continuous water levels were collected from all background wells in 2020 and data are considered reliable.

Fording River Operations

Shipping and Handling

A summary of shipping and handling issues from the 2020 sampling program is provided in Table VI-D.

Table VI-D: Summary of Shipping and Handling Issues

Quarter	Qualifier	Well ID	Possibly Affected Analytes	Comment
1-4	Hold Time Exceedance	All wells blanks and duplicates	pH, ORP	Exceeded ALS recommended hold time of 15 minutes prior to sample receipt. Field measurement recommended.
1	Hold Time Exceedance	FR_09-04-A	Dissolved orthophosphate	Hold time of three days exceeded for re-analysis, but initial testing was conducted within hold time. Laboratory received samples on time, but re-analysis completed two to four days after hold time.
		FR_09-04-B		
		FR_MW-1B		
		FR_GH_WELL4		
		FR_POTWELLS		
	Incorrect Sample Bottle	FR_TRP (Trip Blank)	Dissolved mercury	Sample not submitted in glass container with HCl preservative. Results may be biased low.
3	Hold Time Exceedance	FR_POTWELLS	Dissolved orthophosphate	Hold time of three days exceeded for re-analysis, but initial testing was conducted within hold time. Laboratory received samples on time, but re-analysis completed five days after hold time.
		FR_DC3 (Duplicate)		

Except for pH and ORP for each sample, initial hold times were not exceeded for parameters analyzed in 2020. Parameters pH and ORP have a hold time of 15 minutes and measurements are taken in the field. These hold time exceedances are not considered to be an issue as field measurement for pH and ORP are used for data analysis. The hold time of three days was met for the initial analysis of dissolved orthophosphate in seven samples; however, re-analysis was performed after the hold time. The sample concentrations were similar to other quarterly samples collected in 2020 and not identified as an issue.

Duplicate Samples

A total of 95 samples and 13 field duplicates collected in 2020 were included in the FRO QA/QC assessment. A summary of samples with RPD values above 20% and concentrations of parameters greater than five times the detection limit are provided in Table VI-E, below.

Table VI-E: Summary of Relative Percent Difference Values for Duplicate Samples

Quarter	Number of Duplicate Samples Collected	Well ID	Possibly Affected Analytes	RPD Value
1	3	FR_GCMW-2	Turbidity	190%
			Total phosphorous	63%
2	4	FR_GH_WELL4	Total Dissolved Solids (TDS)	42%
		FR_KB-2	Turbidity	21%
			Dissolved aluminum	44%
			Dissolved manganese	38%
3	3	FR_09-02-A	Turbidity	64%
			Dissolved cadmium	32%
		FR_HMW1S	Dissolved zinc	21%
4	3	FR_KB-2	Dissolved magnesium	24%
		FR_HMW2	Nitrite as Nitrogen (Nitrite-N)	56%
			Orthophosphate	27%

Review of the duplicate sample results indicates that calculated RPDs for turbidity (Q1 FR_GCMW-2 and Q3 FR_09-02-A), total phosphorous (Q1 FR_GCMW-2) and nitrite-N (Q4 FR_HMW2) were above acceptable levels (50%). Turbidity and total phosphorous do not have applicable primary screening criteria and therefore are not considered be a concern. In addition, turbidity was below the 50 NTU threshold from the BC Field Sampling Manual. Nitrite-N concentrations were an order of magnitude lower than the applicable chloride dependant primary screening criteria (0.2 mg/L – 10 mg/L) and therefore not considered a concern. Calculated RPDs for the numerous organic, inorganic, and physical parameters analyzed, were otherwise less than 50%. These results indicate low variability in constituent concentrations from sampling and handling.

Field and Trip Blanks

Detections were reported in eight of the 13 blanks submitted for laboratory analysis in 2020. Concentrations of detectable parameters and laboratory detections limits are provided in Table VI-F, below.

Table VI-F: Summary of Blank Samples with Parameters above Detection Limit

Quarter	Location or Date	Parameter	Value	Detection Limit
Field Blanks				
2	FR_HMW5	Ammonia-N	0.0050 mg/L	0.0050 mg/L
3	FR_HMW1S	Dissolved barium	0.66 µg/L	0.10 µg/L
		Dissolved chromium	0.13 µg/L	0.10 µg/L
		Dissolved copper	0.38 µg/L	0.20 µg/L
		Dissolved manganese	0.15 µg/L	0.10 µg/L
		Dissolved silicon	62 µg/L	50 µg/L
		Dissolved sodium	0.354 mg/L	0.050 mg/L
4	FR_HMW2	Ammonia-N	0.0501 mg/L	0.0050 mg/L

Table VI-F (Cont'd): Summary of Blank Samples with Parameters above Detection Limit

Quarter	Location or Date	Parameter	Value	Detection Limit
Trip Blanks				
1	February 13	Ammonia-N	0.0445 mg/L	0.0050 mg/L
	February 13	Ammonia-N	0.0411 mg/L	0.0050 mg/L
2	May 14	Ammonia-N	0.0176 mg/L	0.0050 mg/L
		Dissolved zinc	19.1 µg/L	1.0 µg/L
	June 15	Ammonia-N	0.0717 mg/L	0.0050 mg/L
4	November 16	Ammonia-N	0.0865 mg/L	0.0050 mg/L

Results for ammonia-N in groundwater samples collected at FRO ranged from the DL (0.05 mg/L) to 3.00 mg/L. The ammonia-N results should be regarded as provisional because the concentrations in blanks ranged from the DL (0.05 mg/L) to 17 times the DL (0.0865 mg/L) and were over the same order of magnitude as the sample results. The sample results and blank detections were lower than the pH dependant applicable primary screening criteria (3.7 mg/L – 18 mg/L). All detections in blanks were confirmed by repeat analysis at the time of laboratory reporting.

Other parameters with blank sample concentrations greater than five times the DLs include dissolved barium and dissolved sodium in a field blank (Q3 FR_HMW-1S) and dissolved zinc in a trip blank (May 14). The concentrations of dissolved barium and sodium in the field blank were approximately seven times the DL but were orders of magnitude lower than the applicable primary screening criteria (1,000 µg/L for dissolved barium and 200 mg/L for dissolved sodium) and therefore not a concern. The concentration of dissolved zinc in the trip blank was 19 times higher than the DL and lower than the hardness dependant primary screening criteria (75 µg/L – 2,400 µg/L). In addition, the trip blank dissolved zinc concentration (19.1 µg/L) was greater than samples concentrations collected from all FRO well except for FR_GH_WELL4 and therefore cross-contamination was not identified to be an issue.

Previously the laboratory conducted an investigation into the source(s) of parameters above DLs in blanks, however they did not identify any potential sources of sample cross-contamination (SNC-Lavalin, 2019). There is a possibility that the elevated concentrations of parameters were caused by contamination in the field or from sample bottles or preservatives. The parameters above the DLs did not affect the interpretation of the data due to their low concentrations below primary screening criteria.

Laboratory QA/QC

The detailed results of the laboratory QA/QC are included in the COAs in Appendix XII. The Quality Control Reports were reviewed and are summarized below.

Adjustments to the DLs were made to some parameters in select samples, qualifiers include the following:

- DL raised due to dilution required for high concentration of test analytes;
- DL raised due to dilution required for high dissolved solids and/or electrical conductivity;
- DL adjusted for required dilution; and
- DL adjusted due to sample matric effects (e.g., chemical interference, colour, turbidity).

The raised DLs were consistently below the screening standards therefore these detection limit qualifiers did not affect data quality.

Results for laboratory QA/QC samples occasionally yielded a series of qualifiers used to flag limitations in the reportability of the QA/QC result. These qualifiers are not expected to reflect on data quality, and include the following:

- Matrix spike recovery could not be accurately calculated due to high analyte background in sample;
- Method blank exceeds ALS DQO. Associated samples results which are less than Limit of Reporting or greater than five times blank level are considered reliable;
- Reported result verified by repeat analysis;
- Duplicate results and limits are expressed in terms of absolute difference;
- Relative percent difference not available due to result(s) being less than detection limit;
- Balance Review: Interference or Non-Measured Components;
- Sample was filtered and preserved by the laboratory;
- Concentrations of Dissolved Organic Carbon (DOC) were greater than Total Organic Carbon (TOC). Results were confirmed by repeat analysis; and
- TKN may be biased low due to nitrate-N interference. Nitrate-N is greater than 10 times TKN.

These notes are not unusual for these analyses considering the chemistry of the samples that reflects a mine-influenced groundwater (i.e., select samples have high TDS or nitrate-N concentrations). The results of the laboratory QA/QC were acceptable for the purpose of this assessment. A review of the quality assurance portion of the laboratory analytical reports did not identify any additional QA/QC issues.

Field QA/QC

Field parameters and manual water level measurements were collected from all wells during each quarter except for wells FR_HMW5 and FR_MW-SK1A/B in Q1 as the water was frozen. In addition, continuous water levels were recorded for all monitoring wells except for FR_POTWELLS, FR_09-04B, FR_09-02-B, and FR_GH_WELL4. Continuous water levels were also not available for FR_HMW1D (Q4) or FR_HMW2 (Q3 and Q4). Tubing was lodged in monitoring well FR_HMW2 and the datalogger could not be retried. In Q4, data from the logger at FR_HMW1D could not be downloaded due to a software communication issue. Manual water level measurement were however collected from these wells during these quarters.

QA/QC Summary

The field QA/QC program and laboratory QA/QC results for groundwater samples indicated the data collected are acceptable for use in this report. Calculated RPDs for all parameters in the 13 duplicate samples were less than 50% except for turbidity, total phosphate, and nitrite-N in three samples. Hold time exceedances were only for re-analyzed samples of orthophosphate. The results reflect low variability for handling and sampling for the program.

The laboratory quality control reports were reviewed, and the data are considered reliable. Detectable concentrations of ammonia-N, dissolved barium, dissolved sodium, and dissolved zinc in field and trip blanks were greater than five times the DL and considered in the interpretation of the result. Concentrations of detectable parameters in blanks were well below the applicable primary screening criteria and did not affect the reliability of the data.

Manual and/or continuous water levels were collected from select wells in 2020; however, the data from continuous water levels FR_HMW1D and FR_HMW2 could not be downloaded in Q3 and/or Q4. Overall, field measurements collected are considered to be reliable.

Greenhills Operations

Shipping and Handling

A summary of shipping and handling issues from the 2020 sampling program is provided in Table VI-G.

Table VI-G: GHO – Summary of Shipping and Handling

Quarter	Qualifier	Well ID	Possibly Affected Analytes	Comment
1-4	Hold Time Exceedance	All wells, duplicates and blanks	pH, ORP	Exceeded ALS recommended hold time of 15 minutes prior to sample receipt. Field measurement recommended.
1	Hold Time Exceedance	GH_MW-MC-2D	TDS	Exceeded ALS recommended hold time of seven days prior to analysis. Samples were received on time but analyzed two days after hold time.
2	Hold Time Exceedance	GH_GA-MW-4	Turbidity	Exceeded ALS recommended hold time of three days prior to analysis. Laboratory received sample on time but analyzed one day after hold time.
		GH_GWD1 (Duplicate)		
		GH_GWB1 (Field Blank)		
		GH_TRIPGW (Trip Blank)		
		GH_MW-TD	Nitrate-N and Nitrite-N	Exceeded ALS recommended hold time of three days prior to analysis. Laboratory received sample on time but analyzed one day after hold time.
3	Over Temperature	RG_DW-01-03	Dissolved inorganics, nutrients, organics	Samples received over recommended temperature of 10°C by 1°C.
		RG_DW-01-07		

Except for pH and ORP and the above listed samples, hold times were not exceeded for parameters analyzed in 2020. Parameters pH and ORP have a hold time of 15 minutes and measurements are taken in the field. These hold time exceedances are not considered to be an issue as field measurement for pH and ORP are used for data analysis. Samples that exceeded hold times for TDS, turbidity, and nitrate-N/nitrite-N arrived at the laboratory within the recommended time however, the laboratory did not complete the analysis until past the hold times due to a high workload.

One batch of samples collected in Q3 quarter arrived at the laboratory with a measured temperature of 11°C, exceeding the specification of 10°C. BCLAM specifies that refrigeration is required for storage prior to analysis for all physical properties, nitrogen, and phosphorous parameters analyzed. Refrigeration is not required for metals. The concentrations of possibility affected parameters in the samples were generally consistent with historical data and therefore not considered a concern.

Duplicate Samples

A total of 85 samples and 13 field duplicates collected in 2020 were included in the GHO QAQC assessment. A summary of samples with RPD values above 20% and concentrations of parameters greater than five times the DL are provided in Table VI-H, below.

Table VI-H: GHO – Summary of Relative Percent Difference Values for Duplicate Samples

Quarter	Number of Duplicate Samples Collected	Well ID	Possibly Affected Analytes	RPD Value
1	2	-	-	-
2	2	GH_MW-MC-2S	Dissolved selenium	34%
3	3	-	-	-
4	4	GH_GA-MW-3	Dissolved iron	40%
		GH_POTW10	Ammonia-N	39%
			Turbidity	104%

Review of the duplicate sample results indicates that calculated RPDs for turbidity (Q4 GH_POTW10) was above acceptable levels (50%) but was well below the 50 NTU threshold from the British Columbia Field Sampling Manual and therefore not considered a concern. Calculated RPDs for the numerous organic, inorganic, and physical parameters analyzed, were otherwise less than 50%. These results indicate low variability in constituent concentrations from sampling and handling.

Field and Trip Blanks

Detections were reported in eight of the 25 blanks submitted for laboratory analysis in 2020. Concentrations of detectable parameters and laboratory detections limits are provided in Table VI-I, below.

Table VI-I: Summary of Blank Samples with Parameters above Detection Limit

Quarter	Location or Date	Parameter	Value	Detection Limit
Field Blanks				
1	GH_GA-MW-4	Ammonia-N	0.0068 mg/L	0.0050 mg/L
		Dissolved calcium	0.492 µg/L	0.050 µg/L
2	GH_GA-MW-4	Dissolved manganese	0.40 µg/L	0.10 µg/L
		Dissolved barium	0.35 µg/L	0.10 µg/L
		Dissolved copper	0.26 µg/L	0.20 µg/L
		Dissolved molybdenum	0.699 µg/L	0.050 µg/L
		Dissolved strontium	0.51 µg/L	0.20 µg/L
		Dissolved zinc	22.8 µg/L	1.0 µg/L
	GH_MW-ERSC-1	Ammonia-N	0.147 mg/L	0.0050 mg/L
		TKN	0.111 mg/L	0.050 mg/L

Table VI-I (Cont'd): Summary of Blank Samples with Parameters above Detection Limit

Quarter	Location or Date	Parameter	Value	Detection Limit
Field Blanks (Cont'd)				
2	GH_MW-MC-2S	TKN	0.106 mg/L	0.050 mg/L
	GH_MW-UTC-B	Ammonia-N	0.0078 mg/L	0.0050 mg/L
		Dissolved zinc	1.7 µg/L	1.0 µg/L
	GH_POTW10	Ammonia-N	0.147 mg/L	0.0050 mg/L
		TKN	0.111 mg/L	0.050 mg/L
Trip Blanks				
1	January 21	Ammonia-N	0.0358 mg/L	0.0050 mg/L
	February 27	Ammonia-N	0.0096 mg/L	0.0050 mg/L
		Dissolved zinc	1.1 µg/L	1.0 µg/L
4	November 24	Ammonia-N	0.0069 mg/L	0.0050 mg/L
		Dissolved aluminum	7.7 µg/L	1.0 µg/L
		Dissolved calcium	0.416 µg/L	0.050 µg/L
		Dissolved silicon	62 µg/L	50 µg/L
		Dissolved strontium	0.26 µg/L	0.20 µg/L
		Dissolved tin	0.31 µg/L	0.10 µg/L
		Dissolved zinc	1.5 µg/L	1.0 µg/L
4	November 25	Ammonia-N	0.0095 mg/L	0.0050 mg/L

Concentrations of parameters in blanks greater than five times the DL include the following:

- Ammonia-N in two field blanks (Q2 GH_MW-ERSC-1 and GH_POTW10) and a trip blank (January 21);
- Dissolved aluminum in a trip blank (November 24);
- Dissolved calcium in a field blank (Q2 GH_GA-MW-4) and a trip blank (November 24);
- Dissolved molybdenum in a field blank (Q2 GH_GA-MW-4); and
- Dissolved zinc in a field blank (Q2 GH_GA-MW-4).

Results for ammonia-N in groundwater samples collected at GHO ranged from the DL (0.05 mg/L) to 0.939 mg/L. The ammonia-N results should be regarded as provisional because the concentrations in blanks ranged from the DL (0.05 mg/L) to 29 times the DL (0.147 mg/L) and were over the same order of magnitude as the sample results. Both the results and blank detections were lower than the pH dependant applicable primary screening criteria (3.7 mg/L – 18 mg/L) and therefore not a concern.

The concentrations of dissolved aluminum, dissolved calcium, dissolved molybdenum, and dissolved zinc in samples and blanks collected at GHO in 2020 were well below the applicable primary screening criteria and therefore not considered a concern.

Previously the laboratory conducted an investigation into the source(s) of parameters above DLs in blanks, however they did not identify any potential sources of sample cross-contamination (SNC-Lavalin, 2019). There is a possibility that the elevated concentrations of parameters were caused by contamination in the field or from sample bottles or preservatives. The parameters above the DLs did not affect the interpretation of the data due to their low concentrations below primary screening criteria.

Laboratory QA/QC

The detailed results of laboratory QA/QC are included in COAs in Appendix XII. The Quality Control Reports were reviewed and are summarized below.

Adjustments to the DLs were made to some parameters in select samples. The raised DLs were consistently below the screening standards and as such these DL qualifiers did not affect data quality. Qualifiers include the following:

- DL raised due dilution required due to high concentration of test analytes; and
- Detection limit adjusted due to sample matric effects (e.g., chemical interference, colour, turbidity).

Results for laboratory QA/QC samples occasionally yielded a series of qualifiers used to flag limitations in the reportability of the QA/QC result. These qualifiers are not expected to reflect on data quality, and include the following:

- Matrix spike recovery could not be accurately calculated due to high analyte background in sample;
- Data quality objective was marginally exceeded (by less than 10% absolute) for less than 10% of analyte in a multi-element scan / multi-parameter scan (considered acceptable);
- Reported result verified by repeat analysis;
- Duplicate results and limits are expressed in terms of absolute difference;
- Relative percent difference not available due to result(s) being less than detection limit;
- Balance Review: Interference Or Non-Measured Components;
- Brown Cloudy: iron reducing bacteria dominant;
- Brown Ring: iron reducing bacteria dominant; and
- TKN results may be biased low due to Nitrate-N interference. Nitrate-N is greater than 10 times TKN.

These notes are not unusual for these analyses considering the chemistry of the samples that reflects a mine-influenced groundwater (i.e., select samples have high TDS or nitrate concentrations).

Additional non-routine data qualifiers were reported for isolated analytes in isolated samples or batches. These data qualifiers include the following:

- Dissolved concentrations exceeds total for field-filtered metal sample. Metallic contaminants may have been introduced to dissolved sample during field filtration. Affects dissolved cobalt and dissolved molybdenum in Q1 sample from GH_GA-MW-1. The concentrations of dissolved cobalt and molybdenum were well below the applicable screening criteria and therefore not considered a concern.

- Dissolved concentration exceeds total for field-filtered metal samples. Results confirmed by re-analysis. Affects dissolved cadmium (Q2 GH_POTW06 and Q2 GH_POTW10), dissolved copper (Q3 GH_POTW06), dissolved lead (Q1 GH_POTW06 and Q3 GH_POTW06), dissolved nickel (Q1 GH_MW-RLP-1D), DOC (Q2 GH_POTW17) and dissolved selenium (Q1 GH_MW-RLP-1D). The concentrations of parameters were well below the applicable primary screening criteria and therefore not identified as an issue.

The results of the laboratory QA/QC were considered to be acceptable for the purpose of this assessment. A review of the quality assurance portion of the laboratory analytical reports did not identify any additional QA/QC issues.

Field QA/QC

Field parameters and manual water level measurements were collected from all wells during each quarter except for wells GH_MW_EF1A/B in Q4 and GH_MW-UTC-A in all four quarters. Wells GH_MW_EF1A/B were installed in Q3 2020 and manual water level measurements were not obtained in Q4 due to miscommunication between Teck and SNC-Lavalin regarding sampling. Manual water level measurements were not obtained from well GH_MW-UTC-A in 2020 because the well was frozen in Q1 and the pump was damaged in Q2-Q4 therefore samples were not collected. Manual water level data is also not available for the following wells and quarters due to the field notes being missing:

- GH_MW-PC in Q1;
- GH_MW-TD in Q2;
- GH_MW-GHC-1A/B in Q2;
- GH_MW-RLP-1D in Q2 and Q3;
- GH_GA-MW-3 in Q2; and
- GH_MW-ERSC-1 in Q2.

In addition, continuous water levels were recorded for the following wells:

- GH_MW-PC;
- GH_MW-GHC-1A/B;
- GH_MW-RLP-1D;
- GH_GA-MW-2;
- GH_GA-MW-3;
- GH_GA-MW-4;
- GH_MW-MC-1S/D;
- GH_MW-MC-2S/D; and
- GH_MW-ERSC-1.

Continuous water levels were not available for GH_MW-UTC-A in 2020 due to the well being frozen in Q1, the transducer being out of the water in Q2 and Q3 and the transducer being removed from the well in Q4.

QA/QC Summary

The field QA/QC program and laboratory QA/QC results for groundwater samples indicated the data collected are acceptable for use in this report. Calculated RPDs for all parameters in the 11 duplicate samples were less than 50% except for turbidity in one sample. Hold times were met by the laboratory with the exception of TDS, turbidity, and nitrate-N/nitrite-N in three batches. One batch of samples arrived at the laboratory over the temperature threshold by 1^{o}C. The concentrations of the over temperature and hold time exceeding samples were considered in the interpretation of the results.

Detectable concentrations of ammonia-N, dissolved aluminum, dissolved calcium, dissolved, dissolved molybdenum, and dissolved zinc in trip and field blanks were greater than five times the DL. The concentration of these parameters in samples and blanks collected in 2020 were well below the applicable primary screening criteria and therefore not considered to be a concern.

The laboratory quality control reports identified several field-filtered samples with concentrations of dissolved parameters greater than total. The concentrations of parameters were well below the primary screening criteria and therefore not identified as an issue. No other issues were identified in the laboratory quality control reports and the data are considered reliable.

Manual and/or continuous water levels were collected from all wells in 2020 except for GH_MW-UTC-A; however, the missing data is not expected to impact the overall interpretation of the dataset.

Line Creek Operations

Shipping and Handling

A summary of shipping and handling issues from the 2020 sampling program is provided in Table VI-G.

Table VI-J: LCO – Summary of Shipping and Handling

Quarter	Qualifier	Well ID	Possibly Affected Analytes	Comment
1-4	Hold Time Exceedance	All wells, duplicates and blanks	pH, ORP	Exceeded ALS recommended hold time of 15 minutes prior to sample receipt. Field measurement recommended.

Except for pH and ORP, hold times were not exceeded for parameters analyzed in 2020. Parameters pH and ORP have a hold time of 15 minutes and measurements are taken in the field. These hold time exceedances are not considered to be an issue as field measurement for pH and ORP are used for data analysis.

Duplicate Samples

A total of 46 samples and four field duplicates collected in 2020 were included in the LCO QA/QC assessment. A summary of samples with RPD values above 20% and concentrations of parameters greater than five times the DL are provided in Table VI-H.

Table VI-K: LCO – Summary of Relative Percent Difference Values for Duplicate Samples

Quarter	Number of Duplicate Samples Collected	Well ID	Possibly Affected Analytes	RPD Value
1	1	LC_PIZDC1404D	Dissolved chloride	37%
			Dissolved copper	30%
2	0	-	-	-
3	1	LC_PIZP1105	Turbidity	200%
			Total Suspended Solids (TSS)	113%
			TKN	160%
			Total phosphorous	152%
			Dissolved cadmium	33%
			Dissolved copper	21%
			Dissolved manganese	132%
			Dissolved zinc	21%
4	2	LC_PIZP1105	Ammonia-N	65%
			TKN	33%

Review of the duplicate sample results indicates that calculated RPDs for turbidity, suspended solids, TKN, total phosphorous, and dissolved manganese in Q3 LC_PIZP1105 were above acceptable levels (50%). Turbidity in the sample was below DL (0.10 NTU), whereas turbidity in the associated duplicate sample was 2,660 NTU. Review of the field sampling record indicate that the sample and duplicate were collected by bailer. The elevated turbidity in the duplicate relative to the sample indicate that the duplicate was likely collected after the sample and sediments in the well had been stirred up by lowering the bailer into the water column multiple times. Therefore, the duplicate sample is considered less reliable than the original sample. Parameters in the sample and duplicate were well below the applicable primary screening criteria.

In addition, the calculated RPD for ammonia-N in Q4 LC_PIZP1105 was above acceptable levels (50%). The concentration of ammonia-N in the sample was well below the applicable primary screening criteria and therefore not a concern.

Calculated RPDs for the numerous organic, inorganic, and physical parameters analyzed, were otherwise less than 50%. These results indicate a good sampling program with low variability in constituent concentrations from sampling and handling.

Field and Trip Blanks

Detections were reported in five of the six blanks submitted for laboratory analysis in 2020. Concentrations of detectable parameters and laboratory detections limits are provided in Table VI-L, below

Table VI-L: Summary of Blank Samples with Parameters above Detection Limit

Quarter	Location or Date	Parameter	Value	Detection Limit
Field Blanks				
1	LC_PIZDC1404D	Ammonia-N	0.0625 mg/L	0.0050 mg/L
		TKN	0.055 mg/L	0.050 mg/L
		Dissolved tin	0.12 µg/L	0.10 µg/L
3	LC_PIZP1105	Ammonia-N	0.0150 mg/L	0.0050 mg/L
4	LC_PIZP1105	Ammonia-N	0.0114 mg/L	0.0050 mg/L
Trip Blanks				
1	April 25	Ammonia-N	0.0434 mg/L	0.0050 mg/L
4	October 12	Ammonia-N	0.0444 mg/L	0.0050 mg/L

Dissolved metal results were missing for trip blanks (analysis for total metals was requested instead), however all concentrations for major cations were below DLs.

Overall detectable concentrations in the field and trip blanks were within five times the DL with the exception of ammonia-N. Results for ammonia-N in groundwater samples collected at LCO ranged from the DL (0.05 mg/L) to 2.91 mg/L. The ammonia-N results should be regarded as provisional because the concentrations in blanks ranged from the DL (0.05 mg/L) to 12 times the DL (0.0625 mg/L) and were over the same order of magnitude as the sample results. Both the results and blank detections were lower than the pH dependant applicable primary screening criteria (3.7 – 18 mg/L) and therefore not a concern.

Previously the laboratory conducted an investigation into the source(s) of parameters above DLs in blanks, however they did not identify any potential sources of sample cross-contamination (SNC-Lavalin, 2019). There is a possibility that the elevated concentrations of parameters were caused by contamination in the field or from sample bottles or preservatives. The parameters above the DLs did not affect the interpretation of the data due to their low concentrations below primary screening criteria.

Laboratory QA/QC

The detailed results of laboratory QA/QC are included in COAs in Appendix XII. The Quality Control Reports were reviewed and are summarized below.

Adjustments to the DLs were made to some parameters in select samples, qualifiers include the following:

- DL raised due to dilution required for high concentration of test analytes;
- DL raised due to analyte detected at comparable levels in method blank;
- DL adjusted for required dilution; and
- DL adjusted due to sample matric effects (e.g., chemical interference, colour, turbidity).

The raised detection limits were consistently below the screening standards and as such these detection limit qualifiers did not affect data quality.

Results for laboratory QA/QC samples occasionally yielded a series of qualifiers used to flag limitations in the reportability of the QA/QC result. These qualifiers are not expected to reflect on data quality, and include the following:

- Matrix spike recovery could not be accurately calculated due to high analyte background in sample;
- Reported result verified by repeat analysis;
- Duplicate results and limits are expressed in terms of absolute difference;
- Relative percent difference not available due to result(s) being less than detection limit;
- Concentrations of DOC were greater than TOC. Results were confirmed by repeat analysis; and
- TKN may be biased low due to nitrate-N interference. Nitrate-N is greater than 10 times TKN.

These notes are not unusual for these analyses considering the chemistry of the samples that reflects a mine-influenced groundwater (i.e., select samples have high TDS or nitrate concentrations).

Additional non-routine data qualifiers were reported for isolated analytes in isolated samples or batches. These data qualifiers include the following:

- Dissolved selenium concentration exceeds total. Positive bias on dissolved selenium suspected due to signal enhancement from volatile selenium species.

The potential positive bias dissolved selenium data qualifier was on samples from LC_PIZP1103 in Q1, Q3, and Q4, and from LC_MW_ER4A in Q4. A review of dissolved and total selenium concentrations was completed and RPDs were calculated and are presented in Table VI-M.

Table VI-M: LCO – Dissolved vs. Total Selenium for Select Samples

Well ID	Quarter	Dissolved Selenium (µg/L)	Total Selenium (µg/L)	RPD (%)
LC_PIZP1103	Q1	0.639	< 0.050	171
	Q3	0.487	< 0.050	163
	Q4	0.434	0.110	119
LC_MW_ER4A	Q4	0.203	< 0.050	121

RPDs ranged from 119% (Q4 LC_PIZP1103) to 171% (Q1 LC_PIZP1103). Although calculated RPDs were relatively high, the concentrations of dissolved selenium were well below the applicable primary screening criteria (10 µg/L), and therefore are considered acceptable for this assessment. These results are not expected to affect overall evaluation of trends; however, they are considered suspect. A more in-depth investigation into the significance and representativeness of higher dissolved selenium relative to total selenium concentrations is recommended.

Field QA/QC

Field parameters were collected from all wells in 2020, except for LC_PIZDC0901 in Q1. Manual water level measurements were collected from all wells in 2020, except for LC_PIZDC0901 in Q1, and LC_PIZP1001, LC_PIZP1002, and LC_PIZP1003. Additionally, some continuous water level monitoring data was missing for LC_PIZDC1307, LC_PIZDC1308, LC_PIZP1101, LC_PIZP1103, and LC_PIZP1105.

QA/QC Summary

The field QA/QC program and laboratory QA/QC results for groundwater samples indicated the data collected are acceptable for use in this report. Calculated RPDs for all parameters in the four duplicate samples were less than 50% except for turbidity, total suspended solids, TKN, total phosphate, dissolved manganese, and ammonia-N two samples. The high RPD values are suspected to be a result of a difference in turbidity between the sample and duplicate, caused by sampling methodology. Hold time exceedances were only for pH and ORP, which have hold times of 15 minutes and are measured in the field. The results reflect low variability for handling and sampling for the program.

Detectable concentrations of parameters in blanks were below five times the DLs with the exception of ammonia-N in both trip and field blanks. The ammonia-N results should be regarded as provisional, however the concentrations in samples and blanks were well below the applicable primary screening criteria and therefore not considered to be a concern.

The laboratory quality control reports indicated that dissolved selenium concentrations in Q1, Q3, Q4 LC_PIZP1103 and Q4 LC_MW_ER4A are inferred to be biased high. These dissolved selenium results are considered suspect however, they were well below the applicable primary screening criteria and do not appear to affect the overall interpretation. No other issues were identified in the laboratory quality control reports and the data are considered reliable.

In addition, some field parameters, manual water levels, and continuous water levels were not collected in 2020, however the missing data is not expected to impact the overall interpretation of the dataset.

Elkview Operations

Shipping and Handling Issues

A summary of shipping and handling issues from the 2020 sampling program is provided in Table VI-N.

Table VI-N: Summary of Shipping and Handling Issues

Quarter	Qualifier	Well ID	Possibly Affected Analytes	Comment
1-4	Hold Time Exceedance	All wells, blanks, and duplicates	pH, ORP	Exceeded ALS recommended hold time of 15 minutes prior to sample receipt. Field measurement recommended.
1	Hold Time Exceedance	EV_EC6GW (Field Blank)	TDS	Hold time of seven days exceeded for re-analysis or dilution, but initial testing was conducted within hold time. Laboratory received samples on time but re-analysis completed one day after hold time.
		EV_MC7GW (Trip Blank)		
2	Hold Time Exceedance	EV_MW_GV4A	Turbidity, Nitrate-N, Nitrite-N	Hold time of three days exceeded for analysis by one day. Laboratory received samples late, however we suspect a notation error to be responsible for the late arrival and that analysis was completed within recommended hold time.
		EV_MW_GV4B		
		EV_MW_SPR1B		
		EV_EC5GW (Duplicate)		
		EV_EC6GW (Field Blank)		
		EV_EC7GW (Trip Blank)		

With the exception of pH and ORP for each sample and the samples listed in the table above, initial hold times were not exceeded for parameters analyzed in 2020. Parameters pH and ORP have a hold time of 15 minutes and measurements are taken in the field. These hold time exceedances are not considered to be an issue as field measurements for pH and ORP are used for data analysis. The three-day hold time for TDS was met for initial analyzes; however, re-analyzes or dilution was completed past the holding time.

We suspect a notation error on the chain of custody to be responsible for the hold time exceedance of turbidity, nitrate-N, and nitrite-N. The field notes indicate that the affected samples were collected two days after the sample date written on the chain of custody and as such, were analyzed within the recommended hold time.

Duplicate Samples

A total of 166 samples and 19 field duplicates collected in 2020 were included in the EVO QA/QC assessment. A summary of samples with RPD values above 20% and concentrations of parameters greater than five times the DL are provided in Table VI-O, below.

Table VI-O: Summary of Relative Percent Difference Values for Duplicate Samples

Quarter	Number of Duplicate Samples Collected	Well ID	Possibly Affected Analytes	RPD Value
1	4	EV_ER1GWS	Dissolved fluoride	51%
			Dissolved magnesium	21%
			Dissolved sodium	72%
			Dissolved molybdenum	33%
			Dissolved strontium	23%
		EV_OCGW	Total phosphorous	48%
2	5	EV_GV3GW	Dissolved chloride	28%
			Dissolved fluoride	23%
		EV_OCGW	Turbidity	24%
		EV_SPR1A	Conductivity	23%
			Dissolved aluminum	29%
		RG_02-20	Turbidity	46%
			Dissolved manganese	25%
			Dissolved copper	81%
			Dissolved zinc	34%
3	6	EV_LSGW	TOC	48%
		EV_MCGWD	TKN	21%
			Dissolved selenium	27%
		EV_OCGW	Ammonia-N	66%
		EV_MW_GT1A	Ammonia-N	36%
			TKN	50%
4	4	EV_OCGW	Total phosphorous	22%
		RG_02-20	Turbidity	126%
			Dissolved zinc	29%

Review of the duplicate sample results indicates that calculated RPDs for ammonia-N (Q3 EV_OCGW), turbidity (Q4 RG_02-20), TKN (Q3 EV_MW_GT1A), dissolved copper (Q2 RG_02-20), dissolved fluoride (Q1 EV_ER1GWS), and dissolved sodium (Q1 EV_ER1GWS) were above acceptable levels (50%). Turbidity and TKN do not have applicable primary screening criteria and therefore are not a concern. All other parameters were well below the applicable primary screening criteria and as such not identified as an issue. Calculated RPDs for the numerous organic, inorganic, and physical parameters analyzed, were otherwise less than 50%. These results indicate low variability in constituent concentrations from sampling and handling.

Field and Trip Blanks

Detections were reported in 21 of the 42 blanks submitted for laboratory analysis in 2020. Concentrations of detectable parameters and laboratory detections limits are provided in Table VI-P, below.

Table VI-P: Summary of Blank Samples with Parameters above Detection Limit

Quarter	Location or Date	Parameter	Value	Detection Limit
Field Blank				
1	EV_ER1GWD	Ammonia-N	0.0094 mg/L	0.0050 mg/L
		Dissolved barium	0.49 µg/L	0.10 µg/L
		Dissolved cadmium	0.0235 µg/L	0.0050 µg/L
		Dissolved tin	0.24 µg/L	0.10 µg/L
2	EV_MW_SPR1A	Ammonia-N	0.0090 mg/L	0.0050 mg/L
	RG_02_20	Ammonia-N	0.0295 mg/L	0.0050 mg/L
3	EV_MW_MCGWD	Ammonia-N	0.0236 µg/L	0.0050 mg/L
	EV_MW_GT1A	Ammonia-N	0.335 µg/L	0.0050 mg/L
		TKN	0.260 mg/L	0.0050 mg/L
	EV_MW_SPR1C	Ammonia-N	0.120 mg/L	0.0050 mg/L
	RG_MW-03-04	Dissolved copper	0.43 µg/L	0.20 µg/L
4	EV_MW_MC1A	Ammonia-N	0.0074 mg/L	0.0050 mg/L
		TOC	0.72 mg/L	0.50 mg/L
		Dissolved sodium	0.141 mg/L	0.050 mg/L
		Dissolved barium	0.26 µg/L	0.10 µg/L
		Dissolved tin	3.01 µg/L	0.10 µg/L
		Dissolved silicon	104 µg/L	50 µg/L
	EV_MCGWS	Total phosphorous	0.0020 mg/L	0.0020 mg/L
		Dissolved sodium	0.190 mg/L	0.050 mg/L
		Dissolved barium	0.20 µg/L	0.10 µg/L
		Dissolved tin	1.16 µg/L	0.10 µg/L
		Dissolved silicon	63 µg/L	50 µg/L
	RG_02_20	Dissolved calcium	0.400 mg/L	0.050 mg/L
		Dissolved magnesium	0.0125 mg/L	0.0050mg/L
		Dissolved strontium	0.23 µg/L	0.20 µg/L
		Dissolved zirconium	0.55 µg/L	0.30 µg/L

Table VI-P (Cont'd): Summary of Blank Samples with Parameters above Detection Limit

Quarter	Location or Date	Parameter	Value	Detection Limit
Trip Blank				
1	February 10	Dissolved manganese	0.15 µg/L	0.10 µg/L
2	May 05	Ammonia-N	0.0086 mg/L	0.0050 mg/L
	May 11	Ammonia-N	0.0185 mg/L	0.0050 mg/L
	June 09	Ammonia-N	0.0088 mg/L	0.0050 mg/L
		Dissolved zinc	1.7 µg/L	1.0 µg/L
3	August 11	Ammonia-N	0.0875 mg/L	0.0050 mg/L
	August 27	Ammonia-N	0.0066 mg/L	0.0050 mg/L
	September 01	Ammonia-N	0.0645 mg/L	0.0050 mg/L
	September 16	Ammonia-N	0.185 mg/L	0.0050 mg/L
	September 30	DOC	1.57 mg/L	0.50 mg/L
		Dissolved calcium	0.243 mg/L	0.050 mg/L
		Dissolved magnesium	0.0761 mg/L	0.010 mg/L
		Dissolved manganese	0.37 µg/L	0.10 µg/L
		Dissolved sodium	0.071 mg/L	0.050 mg/L
		Dissolved barium	0.42 µg/L	0.10 µg/L
		Dissolved strontium	2.11 µg/L	0.20 µg/L
		Dissolved uranium	0.027 µg/L	0.010 µg/L
4	November 19	Ammonia-N	0.0171 mg/L	0.0050 mg/L
	December 15	Dissolved tin	0.12 µg/L	0.10 µg/L

Results for ammonia-N in groundwater samples collected at EVO ranged from the DL (0.05 mg/L) to 1.83 mg/L. The ammonia-N results should be regarded as provisional because the concentrations in blanks ranged from the DL (0.05 mg/L) to 67 times the DL (0.335 mg/L) and were over the same order of magnitude as the sample results. Both the results and blank detections were lower than the pH dependant applicable primary screening criteria (3.7 mg/L – 18 mg/L) and therefore not a concern.

Other parameters with blank sample concentrations greater than five times the DLs include TKN in a field blank (EV_MW_GT1A), dissolved magnesium in a trip blank (September 30), dissolved tin in two field blanks (Q4 EV_MW_MC1A and Q4 EV_MCGWS), and dissolved strontium in a trip blank (September 30). The concentrations of parameters were well below the applicable screening criteria and therefore not considered to be a concern.

Previously the laboratory conducted an investigation into the source(s) of parameters above DLs in blanks, however they did not identify any potential sources of sample cross-contamination (SNC-Lavalin, 2019). There is a possibility that the elevated concentrations of parameters were caused by contamination in the field or from sample bottles or preservatives. The parameters above the DLs did not affect the interpretation of the data due to their low concentrations below primary screening criteria.

Laboratory QA/QC

The detailed results of laboratory QA/QC are included in COAs in Appendix XII. The Quality Control Reports were reviewed and are summarized below.

Adjustments to the DLs were made to some parameters in select samples, qualifiers include the following:

- DL raised due dilution required due to high concentration of test analytes;
- DL adjusted due to sample matric effects (e.g. chemical interference, colour, turbidity); and
- DL adjusted for required dilution.

The raised detection limits were consistently below the screening standards and as such these detection limit qualifiers did not affect data quality.

Results for laboratory QA/QC samples occasionally yielded a series of qualifiers used to flag limitations in the reportability of the QA/QC result. These qualifiers are not expected to reflect on data quality, and include the following:

- Matrix spike recovery could not be accurately calculated due to high analyte background in sample;
- Method blank exceeds ALS DQO. Limits of reporting have been adjusted for samples with positive hits below five times blank level;
- Method blank exceeds ALS DQO. Associated samples results which are less than Limit of Reporting or greater than five times blank level are considered reliable;
- Data quality objective was marginally exceeded (by less than 10% absolute) for less than 10% of analyte in a multi-element scan / multi-parameter scan (considered acceptable);
- Reported result verified by repeat analysis;
- Duplicate results and limits are expressed in terms of absolute difference;
- Relative percent difference not available due to result(s) being less than detection limit;
- Balance Review: Interference Or Non-Measured Components;
- TKN results may be biased low due to Nitrate-N interference. Nitrate-N is greater than 10 times TKN; and
- Concentrations of DOC exceeds TOC. Results were confirmed by re-analysis.

These notes are not unusual for these analyses considering the chemistry of the samples that reflects a mine-influenced groundwater (i.e., select samples have high TDS or nitrate-N concentrations). The results of the laboratory QA/QC were considered to be acceptable for the purpose of this assessment. A review of the quality assurance portion of the laboratory analytical reports did not identify any additional QA/QC issues.

Field QA/QC

Continuous water level data was unavailable at wells EV_BALgw (Q2), EV_MW_GC1B (Q3 and Q4), EV_MW_GT1A (Q3 and Q4), EV_ER1gwS (Q1 and Q2), and EV_ER1gwD (Q1 and Q3) due to instrumentation errors. Transducers were installed in Q1 at EV_MW_MC2A, EV_MW_MC1A/B, EV_MW_AQ2, EV_MW_SPR1A, and EV_MW_MC4. No pressure transducer was installed in EV_MW_SP1B in 2020.

QA/QC Summary

The field QA/QC program and laboratory QA/QC results for groundwater samples indicated the data collected are acceptable for use in this report. Several parameters in five duplicate samples had calculated RPDs greater than 50%, however the parameters either do not have an applicable primary screening criteria or concentrations in samples were well below the applicable primary screening criteria. As such, the RPDs above acceptable levels are not considered to be an issue. Hold times were exceeded for re-analyzed samples of TDS and for one batch of nitrate-N/nitrite-N samples. However, it is suspect the batch of nitrate-N samples was analyzed within the recommended hold time and a notation error on the chain of custody documentation resulted in the hold time exceedance qualifier on the laboratory QC report.

Select parameters were detected in 21 of the 42 trip and field blanks collected in 2020. Of the detectable parameters, concentrations ammonia-N, TKN, dissolved magnesium, dissolved tin, and dissolved strontium were greater than five times the DL. The concentration of these parameters in samples and blanks were well below the applicable screening criteria or the parameter(s) did not have an applicable screening criteria. The detection of parameters in blanks is not considered to affect the interpretation of the data. The laboratory quality control reports were reviewed, and the data are considered reliable. Although continuous water levels could not be obtained from select monitoring wells, manual measurements were collected, and the 2020 data are considered reliable.

Coal Mountain mine

Shipping and Handling

A summary of shipping and handling issues from the 2020 sampling program is provided in Table VI-Q.

Table VI-Q: Summary of Shipping and Handling Issues

Qualifier	Quarter	Well ID	Possibly Affected Analytes	Comments
Hold Time Exceedance	1-4	All wells, duplicates and blanks	pH, ORP	Exceeded ALS recommended hold time of 15 minutes prior to sample receipt. Field measurement recommended.
Hold Time Exceedances	3	CM_MW6-DP	Nitrate-N, Nitrite-N	Hold time of three days exceeded for re-analysis or dilution, but initial testing was conducted within hold time. Laboratory received samples on time but re-analysis completed two days after hold time.
		CM_MW6-SH		
		CM_MW7-SH		

With the exception of pH and ORP, initial hold times were not exceeded for parameters analyzed in 2020. Parameters pH and ORP have a hold time of 15 minutes and measurements are taken in the field. These hold time exceedances are not considered to be an issue as field measurements for pH and ORP are used for data analysis. The three-day hold time for nitrate-N and nitrite-N were met for initial analyzes of the Q3 samples from CM_MW6-DP, CM_MW6-SH, and CM_MW7-SH; however, re-analysis was completed past the hold time. The nitrate-N and nitrite-N concentrations of the Q3 samples were similar to other quarterly samples collected in 2020 and therefore were not identified to be an issue.

Duplicate Samples

A total of 68 samples and 8 field duplicates collected in 2020 were included in the CMm QA/QC assessment. A summary of samples with RPD values above 20% and concentrations of parameters greater than five times the DL are provided in Table VI-R, below.

Table VI-R: Summary of Relative Percent Difference Values for Duplicate Samples

Quarter	Number of Duplicate Samples Collected	Well ID	Possibly Affected Analytes	RPD Value
1	2	-	-	-
2	2	CM_MW1-SH	Turbidity	30%
3	2	CM_MW3-SH	TKN	40%
4	2	CM_MW_AG1B	Turbidity	68%

Review of the duplicate sample results indicates that calculated RPD for turbidity (Q4 CM_MW_AG1B) was above the acceptable level. The sample turbidity was an order of magnitude lower than the 50 NTU threshold stated in the BC Field Sampling Manual and therefore not a concern. Calculated RPDs for the numerous organic, inorganic, and physical parameters analyzed, were otherwise less than 50%. These results indicate low variability in constituent concentrations from sampling and handling.

Field and Trip Blanks

Detections were reported in five of the eight blanks submitted for laboratory analysis in 2020. Concentrations of detectable parameters and laboratory detections limits are provided in Table VI-S, below.

Table VI-S: Summary of Blank Samples with Parameters above Detection Limit

Quarter	Location or Date	Parameter	Value	Detection Limit
Field Blanks				
1	-	-	-	-
2	CM_NNT_WS_2020-04-13_N	Ammonia-N	0.129 mg/L	0.0050 mg/L
		TKN	0.155 mg/L	0.050 mg/L
3	-	-	-	-
4	CM_NNT_WS_2020-10-12_N	Ammonia-N	0.0141 mg/L	0.0050 mg/L
Trip Blanks				
1	January 29	Ammonia-N	0.129 mg/L	0.0050 mg/L
		Dissolved iron	28 µg/L	10 µg/L
		Dissolved manganese	0.11 µg/L	0.10
		Dissolved tin	0.51 µg/L	0.50 µg/L
2	May 14	Ammonia-N	0.0642 mg/L	0.0050 mg/L
3	-	-	-	-
4	November 12	Dissolved calcium	0.111 µg/L	0.050 µg/L
		Dissolved zinc	8.5 µg/L	1.0 µg/L

Results for ammonia-N in groundwater samples collected at CMm ranged from the DL (0.05 mg/L) to 16 times the DL (0.812 mg/L). The ammonia-N results should be regarded as provisional because the concentrations in blanks range over the same order of magnitude as the sample results. Both the results and blank detections are an order of magnitude lower than the pH dependant applicable primary screening criteria (3.7 – 18 mg/L) and therefore not a concern.

Dissolved zinc in a trip blank (November 12) was the only other parameter with concentrations greater than five times the DL. The concentration of dissolved zinc was eight times the DL but was orders of magnitude less than the hardness dependant primary screening criteria (75 µg/L – 5,000 µg/L) and therefore not considered a concern.

Previously the laboratory conducted an investigation into the source(s) of parameters above DLs in blanks, however they did not identify any potential sources of sample cross-contamination (SNC-Lavalin, 2019). There is a possibility that the elevated concentrations of parameters were caused by contamination in the field or from sample bottles or preservatives. The parameters above the DLs did not affect the interpretation of the data due to their low concentrations below primary screening criteria.

Laboratory QA/QC

The detailed results of laboratory QA/QC are included in COAs in Appendix XII. The Quality Control Reports included in the laboratory COAs were reviewed and are summarized below.

Adjustments to the DLs were made to some parameters in select samples, qualifiers include the following:

- DL raised due dilution required for high concentration of test analytes;
- DL adjusted due to sample matric effects (e.g., chemical interference, colour, turbidity);
- DL adjusted for required dilution; and
- DL raised due to dilution for high dissolved solids and/or electrical conductivity.

The raised DLs were consistently below the screening standards and as such these detection limit qualifiers did not affect data quality.

Results for laboratory QA/QC samples occasionally yielded a series of qualifiers used to flag limitations in the reportability of the QA/QC result. These qualifiers are not expected to reflect on data quality, and include the following:

- Matrix spike recovery could not be accurately calculated due to high analyte background in sample;
- Reported result verified by repeat analysis;
- Duplicate results and limits are expressed in terms of absolute difference;
- Relative percent difference not available due to result(s) being less than detection limit;
- Balance Review: Interference Or Non-Measured Components;
- Sample was filtered and preserved by the laboratory;
- Concentrations of DOC were greater than TOC. Results were confirmed by re-analysis; and
- TKN may be biased low due to Nitrate-N interference. Nitrate-N is greater than 10 times TKN.

These notes are not unusual for these analyses considering the chemistry of the samples that reflects a mine-influenced groundwater (i.e., select samples have high TDS or nitrate-N concentrations). The results of the laboratory QA/QC were considered to be acceptable for the purpose of this assessment. A review of the quality assurance portion of the laboratory analytical reports did not identify any additional QA/QC issues.

Field QA/QC

Field parameters and quarterly water level measurements were collected from all wells in 2020. Monitoring wells CM_MW4-SH/DP were observed to be under flowing artesian conditions during each quarterly visit. Monitoring wells CM_MW5-SH/DP and CM_MW_AG1A/B have continuous water levels measured in 2020.

QA/QC Summary

The field QA/QC program and laboratory QA/QC results for groundwater samples indicate the data collected are acceptable for the analyses conducted in this report. Calculated RPDs for the eight duplicate samples collected were less than 50% with the exception of turbidity in one sample. Hold times were only exceeded for the re-analysis of nitrate-N/nitrite-N in one batch of samples. These results indicate a defensible sampling program with low variability in constituent concentrations from sampling and handling.

The laboratory quality control reports were reviewed and the data are considered reliable. Detectable concentrations of parameters in blanks were below five times the detection limits with the exception of ammonia-N in both trip and field blanks and zinc in a trip blank. The concentrations of ammonia-N and zinc in samples and blanks collected in 2020 were well below the applicable screening criteria and therefore, not considered to be a concern. Field measurements and manual and/or continuous water levels were collected from select CMm wells in 2020 and data are considered reliable.

Teck Audit Review

Teck Coal Limited retained Matrix Solutions Inc. to conduct a third-party audit as required by Permit 107517, Section 12.3 (amended April 4, 2019), under the British Columbia Environmental Management Act (EMA). The audit objectives, scope, components, and criteria were selected in consultation with the Elk Valley Environmental Monitoring Committee (EMC). The audit is conducted on a 3-year cycle. The 2020 audit was conducted between May and August 2020. The scope, findings, and results of the 2020 audit are described in detail in Matrix 2020.

The objective of the 2020 audit was to assess groundwater monitoring data and its analysis under EMA Permit 107517 Sections 9.2 and 10.4. The scope of the audit covered the following two areas:

- data quality and completeness
- standard operating procedures and data handling protocols

The audit findings are outlined in Table VI-T.

Table VI-T: Summary of Audit Findings

#	Topic	Requirement	Finding	Frequency Observed	Risk Ranking	Recommendation
1	Nested Well Sampling Order (Groundwater)	If more than one well is nested together, the shallower well should be sampled first to decrease the risk of contamination. *Section 4.3 and Appendix for Teck SP&P- Collecting Groundwater Samples*	Sampling first from the shallow well of the nested well pairs is inconsistent across the mine sites.	Low	Low	The shallow well in a nested pair should be sampled first to decrease the risk of contamination. Field personnel should review and comply with this procedure when collecting groundwater samples.
2	Measurement of Water Level at Nested Wells (Groundwater)	Nested monitoring wells, or those located adjacent to each other screened at different monitoring intervals, should be monitored consecutively to provide accurate results. These measurements are used to calculate vertical groundwater gradients at each nested well location. *Section 6.0 of Teck SP&P – Measurement of Water Level in Wells*	There is a lack of consistency in measuring water levels at nested well pairs collected consecutively. At some sites, the water level at the second well was obtained after the first well had been purged and sampled.	Low	Low	Measure the water levels at nested well pairs consecutively, to avoid collecting a water level that has been influenced by drawdown from the other well or waiting for the well to recover to static conditions. Field personnel should review and comply with this procedure when collecting groundwater samples.
3	Confirmation of Water Levels (Groundwater)	All water level measurements should be repeated so that the same reading is verified at least three consecutive times after the cap is removed. This will confirm that the correct reading is recorded, that pressure in the well is not affecting water levels, and that the results are representative of static conditions. *Section 4.0 of Teck SP&P – Measurement of Water Level in Wells* Record the depth to water and the measurement time in the field sheet and re-check the depth at least once within approximately 10 to 20 seconds to verify the water level is static and not moving. If successive readings are not within a centimeter, then continue measuring until successive readings do not vary. *Section 6.0 of Teck SP&P – Measurement of Water Level in Wells*	Water levels were not checked multiples times during the site visits across the mine sites to confirm static conditions prior to purging and sampling. In some instances, the pressure transducer was removed prior to taking a water level.	High	Low	Verify the water level is static to avoid reporting groundwater elevations that may be influenced by nearby pumping or depressurization of the well. Verify static conditions with multiple readings. If possible, do not remove equipment prior to collecting water level measurements. If equipment is removed, allow the water level to equalize to static conditions. Field personnel should review and comply with this procedure when collecting groundwater samples.
4	Inspection of Water Level Meters (Groundwater)	Prior to arriving at the site, verify that the water level meter is functional and is the correct length for the wells to be monitored based on previously measured historical water level data and well depths, if available. Check the tape length of the water level meter periodically for accuracy and possible stretching or warping. The water level probe tip should be inspected and measured to verify the markings on the tape are still accurate. The tape can be checked against another tape to confirm the length. The light or alarm on the unit should be checked to verify it is in good working order. Batteries should be replaced frequently as a low battery may affect the sensitivity of the probe. *Section 4.0 of Teck SP&P –Measurement of Water Level in Wells*	The water level meters are not inspected prior to arriving at site. If there are issues with the meter, it is typically discovered in the field during the monitoring event.	Moderate	Low	Water level meters should be inspected before arriving at site. Field personnel should review and comply with this procedure when collecting groundwater samples. Consider modifying field forms to include confirmation that the meter was checked prior to use.
5	Well Inspection (Groundwater)	Inspect condition of well (e.g., well locked, loose-fitting cap, measuring point well marked, surface casing disturbed, well casing straight, condition of concrete pad). Indicate condition of well on the datasheet. *Section 4.0 of Teck SP&P – Monitoring Well Purging and Groundwater Sampling*	Records of well condition were inconsistent across mine sites during site visits and through field sheet reviews. Where wells were inspected in the field and no abnormalities with the well were identified, this was not documented. Records are retained only if there are problems with the well condition.	Moderate	Low	Record the condition of the well, including both satisfactory and unsatisfactory conditions. This will help document the history of the well condition and avoid potential misses from previous field visits.
6	Well Purging Criteria (Groundwater)	Continue purging the well until field parameters have stabilized. Field parameters are stable when three successive readings are within ± 0.1 for pH, ±3 percent for conductivity, ± 0.2°C for temperature, ± 10 mV for redox potential, and ± 10% for turbidity and dissolved oxygen. *Section 4.0 of Teck SP&P – Monitoring Well Purging and Groundwater Sampling*	Set criteria for parameter stabilization were inconsistent across mine sites. Some sites used their experience to determine if parameters are stable, rather than using the documented criteria. Of note: Teck's procedures have been updated for 2020 to allow for deviation from using stabilization criteria upon consultation and direction from a qualified professional.	Low	Low	Ensure that parameters are stable by utilizing the set criteria for each parameter outlined in the Teck SP&P to establish that representative groundwater from the formation is being sampled. Field personnel should review and comply with this procedure when collecting groundwater samples.

Table VI-T (Cont'd): Summary of Audit Findings

#	Topic	Requirement	Finding	Frequency Observed	Risk Ranking	Recommendation
7	Equipment Decontamination (Groundwater)	Sampling equipment must be decontaminated between each sampling event and, where appropriate, between specific parameter groups such as organic contaminants. *Section 8 of B.C. Field Manual, Part E Water and Wastewater Sampling: Groundwater Pollution Monitoring* (B.C. WLAP 2013) Control rinse water (i.e., de-ionized [DI] or potable water of known chemical composition) and non-phosphate detergent must be used in decontamination of equipment. In site-specific cases, clean pesticide grade solvent, dilute acids, and solvents (i.e., isopropanol, acetone, or methanol) may be required for decontamination purposes if disposable equipment is not used. *Section 4.0 of Teck SP&P – Decontaminating Groundwater Sampling Equipment* To begin the decontamination process, first flush the equipment/pump with potable water. Then flush with a non-phosphate, laboratory-grade detergent (e.g., Liquinox™, Contrad®, or Extran®) solution. Next, flush with potable or distilled/deionized water to remove all of the detergent solution. *Section 4.0 of Teck SP&P – Decontaminating Groundwater Sampling Equipment* General Decontamination Procedures All equipment that may come in contact with groundwater should be decontaminated prior to sampling or monitoring the well.	All the groundwater wells have dedicated sampling systems; however, water level tapes, flow-through cells, and parameter instruments are not decontaminated between sampling events or between wells, unless noticeable changes in groundwater quality are observed in the field. Although personnel at some mine sites rinse the flow-through cell and parameter instrument between wells, the specific decontamination procedures were not consistently being followed at the mines during the site visits and as communicated through the interviews.	Moderate	Low	Water level tapes, flow-through cells, and parameter instruments should be decontaminated between sampling events to avoid potential contamination. Field equipment should be decontaminated using the appropriate detergents. The general decontamination procedures should be followed for all equipment that is in contact with groundwater. Field personnel should be reminded of these clearly documented requirements. Consider modifying field data sheets to include confirmation of compliance with decontamination procedures.
		If dedicated pumps and tubing are used, then decontamination is only done prior to the initial sampling event. Disposable equipment, like bailers, do not need to be decontaminated if they are still sealed in plastic packaging and should be disposed of after each use. For decontamination, use a non-phosphate, laboratory-grade detergent (e.g., Liquinox™, Contrad®, or Extran®) solution with a clean paper towel or brush. When cleaning between wells, use a 0.1 to 0.2 % v/v detergent solution. To limit soap residue accumulation, do not use >0.2 % v/v solution for field cleaning. Use a 0.1 to 2.0 % v/v detergent solution when cleaning between field trips. After washing, rise with distilled/DI water. *Section 6.0 of Teck SP&P – Decontaminating Groundwater Sampling Equipment* Water Level Meters Water level meters are most easily cleaned and decontaminated as the meter is being reeled out of the well. A more thorough cleaning may be done between field programs by unreeling the measuring probe and tape into a clean bucket with detergent, cleaning it with a brush or paper towel and rinsing it with DI water as it is reeled back in. The solution may be placed in a spray bottle for convenience. A second spray bottled filled with DI water should be used to rinse off the solution. Spray a clean paper towel or cloth in the detergent solution, and a second clean paper towel or cloth with the DI solution. The easiest decontamination method is to have one person slowly reel in the tape in while a second person holds a paper towel/cloth with the detergent solution in one hand, and the paper towel/cloth with the DI water in the other hand.				

Table VI-T (Cont'd): Summary of Audit Findings

#	Topic	Requirement	Finding	Frequency Observed	Risk Ranking	Recommendation
7 (Cont'd)	Equipment Decontamination (Groundwater) (Cont'd)	The tape passes first through the paper towel/cloth with the detergent solution, and then is rinsed with the paper towel/cloth with DI water. Periodically spray additional detergent and DI water onto the paper towel/cloths as needed. Use a new paper towel/cloth for each well. *Section 6.0 of Teck SP&P – Decontaminating Groundwater Sampling Equipment* Water Quality Probes/Flow-Through Cells Water quality probes, such as pH, temperature, conductivity, and turbidity meters should be cleaned between wells to guarantee accurate parameter measurement. Clean the equipment using a clean nylon brush and a non-phosphate, laboratory-grade detergent. Flush with DI water (preferred) to remove all the detergent solution. Flow-through cells used to monitor groundwater parameters should also be flushed with detergent solution and DI water before first use and after every well. If possible, clean the inside of each cell using a clean nylon brush with detergent solution. Groundwater samples should be collected before water passes through the flow-through cell to reduce potential cross-contamination of the sample. *Section 6.0 of Teck SP&P – Decontaminating Groundwater Sampling Equipment* All equipment should be decontaminated before and after introduction to each well. *Section 4.0 of Teck SP&P – Monitoring Well Purging and Groundwater Sampling*				
8	Wearing Nitrile Gloves (Groundwater)	Prior to monitoring any well, new nitrile gloves should be worn when handling the water level tape. *Section 6.0 of Teck SP&P – Measurement of Water Level in Wells* Protective latex or nitrile gloves should be worn during possible water-contact or equipment-contact activities. At a minimum, gloves should be changed between each well or when introduction of potential contaminants to the well is possible. *Section 4.0 of Teck SP&P – Monitoring Well Purging and Groundwater Sampling*	Inconsistent use of nitrile gloves while handling equipment was observed (e.g., while handling the water level meter) and during potential water-contact activities.	Low	Low	Wear nitrile gloves when handling equipment and during any potential water-contact activities. Field personnel should review and comply with this procedure when collecting groundwater samples.
9	Comparison of Water Levels with Historical Data (Groundwater)	Water levels and well depths should be compared to historical measurements/logs while in the field to identify trends, anomalies, and/or potential errors. Consult with the project manager if an anomaly cannot be resolved or an unexpected result is recorded. *Section 6.0 of Teck SP&P – Measurement of Water Level in Wells*	Historical water level elevations and depths are not consistently brought into the field.	Moderate	Low	Historical water level elevations and well depth records should be brought into the field so that field personnel can review them to identify trends, anomalies, and/or potential errors. Field personnel should review and comply with this procedure when collecting groundwater samples.
10	Sample Collection (Groundwater)	In general, groundwater samples collected for multiple compounds should be collected in the following order: › volatile organic compounds (VOCs) › dissolved gasses and total organic carbon › semi-volatile organic compounds (such as polycyclic aromatic hydrocarbons) › metals and cyanide › major water quality cations and anions › radionuclides *Section 4.0 of Teck SP&P – Monitoring Well Purging and Groundwater Sampling*	The correct order of groundwater sample collection was not consistently followed between mine sites.	Low	Low	Collect groundwater samples in the order described in the Teck SP&P. Field personnel should review and comply with this procedure when collecting groundwater samples.

Table VI-T (Cont'd): Summary of Audit Findings

#	Topic	Requirement	Finding	Frequency Observed	Risk Ranking	Recommendation
11	QA/QC – Equipment Blanks (Groundwater)	Equipment blanks are used to assess whether sampling equipment that came in contact with the sample has the potential to contaminate the sample. After thorough decontamination, laboratory-prepared DI water is passed over and through the cleaned equipment (e.g., filter peristaltic pump tubing, water level tape, and Waterra tubing) and collected directly into a sample container, which is then submitted to the laboratory for analysis for the contaminants of concern. *Section 7.0 of Teck SP&P – Field QA/QC* Equipment blank frequency- 1 per program. Equipment blanks are not generally collected in Teck field sampling programs as sampling equipment is often dedicated. *Table 1 of Section 7.0 Teck SP&P - Field QA/QC*	As confirmed through both the review of the annual groundwater monitoring reports and site visits, equipment blanks are not collected after decontaminating equipment. The procedure mentions that equipment blanks are not generally taken due to dedicated equipment; however, water level tapes, which are not dedicated to a well are mentioned within the equipment list under the Equipment blank description.	High	Low	Update the QA/QC procedure document to clarify if and when an equipment blank should be collected as the current wording is confusing.
12	QA/QC – Field Blanks (Groundwater)	Field blanks are used to determine whether the sampler or sampling environment (i.e., ambient environmental conditions) may have affected the quality of the samples. To collect a field blank, laboratory-prepared deionized or distilled water is poured into appropriate sample containers with appropriate preservative at the point of groundwater sample collection in the field. The filled containers are sealed and submitted to the laboratory. *Section 7.0 of Teck SP&P – Field QA/QC*	During the site visits, inconsistencies between mine sites were identified on the procedure to prepare field blanks. Some mine sites order prefilled field blank bottles from the laboratory and remove the sample bottle cap to expose to the atmosphere for the same amount of time it takes to fill the groundwater samples. Other sites previously ordered prefilled field blanks from the laboratory but have switched to filling the bottles with the deionized water, as prescribed in the procedure.	Low	Low	Field blanks should be collected by filling the sample bottles with deionized water on-site to reflect representative atmospheric conditions. Field personnel should review and comply with this procedure when collecting groundwater samples.
13	QA/QC – Sampler Qualifications (Groundwater)	Records of the qualifications and experience shall be kept for each sampler. These records shall include: › copy of current resumé › records of training in new sampling or assay techniques › records of attendance at technical meetings or seminars › records of completion of relevant courses (including in-house training courses, night school classes, and courses sponsored by equipment manufacturers) Proficiency must be demonstrated for each sampling procedure which a sampler is expected to perform.	There is inconsistent documentation at Teck of sampler qualifications for groundwater and flow monitoring programs. Groundwater - field personnel sign off that they have read many of the SP&Ps but otherwise no written documentation that personnel are deemed qualified. Flow - No competency documentation was identified (i.e., it is not clear how Teck personnel are deemed qualified to complete flow monitoring).	High	Low	Document competency and qualifications of personnel to complete designated tasks.
	QA/QC – Sampler Qualifications (Groundwater)	*Section 2.8 of the B.C. Field Manual, Part A Quality Control and Quality Assurance (B.C. WLAP 2013)* <u>Staff Qualifications</u> Develop list of appropriate qualifications for staff involved in different aspects of the Teck hydrometric program. Assess (and document) staff qualifications. Provide appropriate training to staff involved in hydrometric data collection. *QA/QC as per Section 8 of the Flow Monitoring Protocol (KWL 2017a)*				

Actions Taken by Teck to Address 2020 Audit Findings

Teck has quickly addressed some of the recommendations related to the 2020 findings. The steps Teck has already taken include:

- initiating a workshop for the lead auditor to discuss field-related findings with all environmental coordinators, environmental technicians, and water leads;
- updating a standardized groundwater field sheet to be used across the five mine sites;
- updating 2020 groundwater procedures to address issues identified in the audit; and
- creating of a cross-training workshop for Teck and third-party contractor personnel to improve competency of field staff.

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Volume II – Appendix VII

Analyte List

APPENDIX VII: Analyte List

	Units
Field Parameters	
Temperature	ºC
pH	pH unit
Dissolved Oxygen	mg/L
Specific Conductance	µS/cm
Oxidation-Reduction Potential (ORP)	mV
Physical Parameters (laboratory)	
pH	pH unit
Hardness (as CaCO3)	mg/L
Specific Conductance	µS/cm
Total Suspended Solids	mg/L
Total Dissolved Solids	mg/L
Turbidity	NTU
Alkalinity, total (as $CaCO_3$*)*	mg/L
Bicarbonate	mg/L
Carbonate	mg/L
Hydroxide	mg/L
Ammonia (as N)	mg/L
Bromide	mg/L
Chloride	mg/L
Fluoride	mg/L
Nitrate (as N)*	mg/L
Nitrite (as N)	mg/L
Total Kjeldhal Nitrogen	mg/L
Ortho-Phosphate	mg/L
Total Phosphorus	mg/L
Sulphate (SO_4 ***)****	mg/L
Dissolved Metals	
Aluminum	µg/L
Antimony	µg/L
Arsenic	µg/L
Barium	µg/L
Beryllium	µg/L
Bismuth	µg/L
Boron	µg/L
Cadmium*	µg/L
Calcium	µg/L
Chromium	µg/L
Cobalt	µg/L
Copper	µg/L
Iron	µg/L
Lead	µg/L
Lithium	µg/L
Magnesium	µg/L
Manganese	µg/L
Mercury	µg/L
Molybdenum	µg/L
Nickel	µg/L
Potassium	µg/L
Selenium*	µg/L
Silver	µg/L
Sodium	µg/L
Strontium	µg/L
Thallium	µg/L
Tin	µg/L
Titanium	µg/L
Uranium	µg/L
Vanadium	µg/L
Zinc	µg/L
Organics	
Total Organic Carbon	-
Dissolved Organic Carbon	-

BOLD = Included in the Elk Valley Drinking Water Sampling Plan

Underlined = Standards are available in the CSR for AW, IW, or LW; BC WQG AW; or, Guidelines for Canadian Drinking Water Quality DW

Italics = Constituents included in the TG6 "Core List of General Water Quality Analytes and Field Measurements" and above detection limits

* = Constituents of interest (CI)

TG6 = *Technical Guidance 6 Water and Air Baseline Monitoring Document for Mine Proponents and Operators* (BC MoE, 2012).

Volume II – Appendix VIII

Borehole Logs

- Background
- Fording River Operations
- Greenhills Operations
- Line Creek Operations
- Elkview Operations
- Coal Mountain Mine

Background

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : FR_BH_FRRD1**
	Location **Regional Groundwater Monitoring**	PAGE 1 OF 2

Drilling Contractor	Owen's Drilling	Date Monitored	n/a	Project Number:	657269
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1581.026	Borehole Logged By:	IPC
Borehole Dia. (m)	0.17	Top of Casing Elev. (m)	1581.955	Date Drilled:	2019 01 31
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5556128.232	Easting: 653883.845	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ▼ Air Rotary

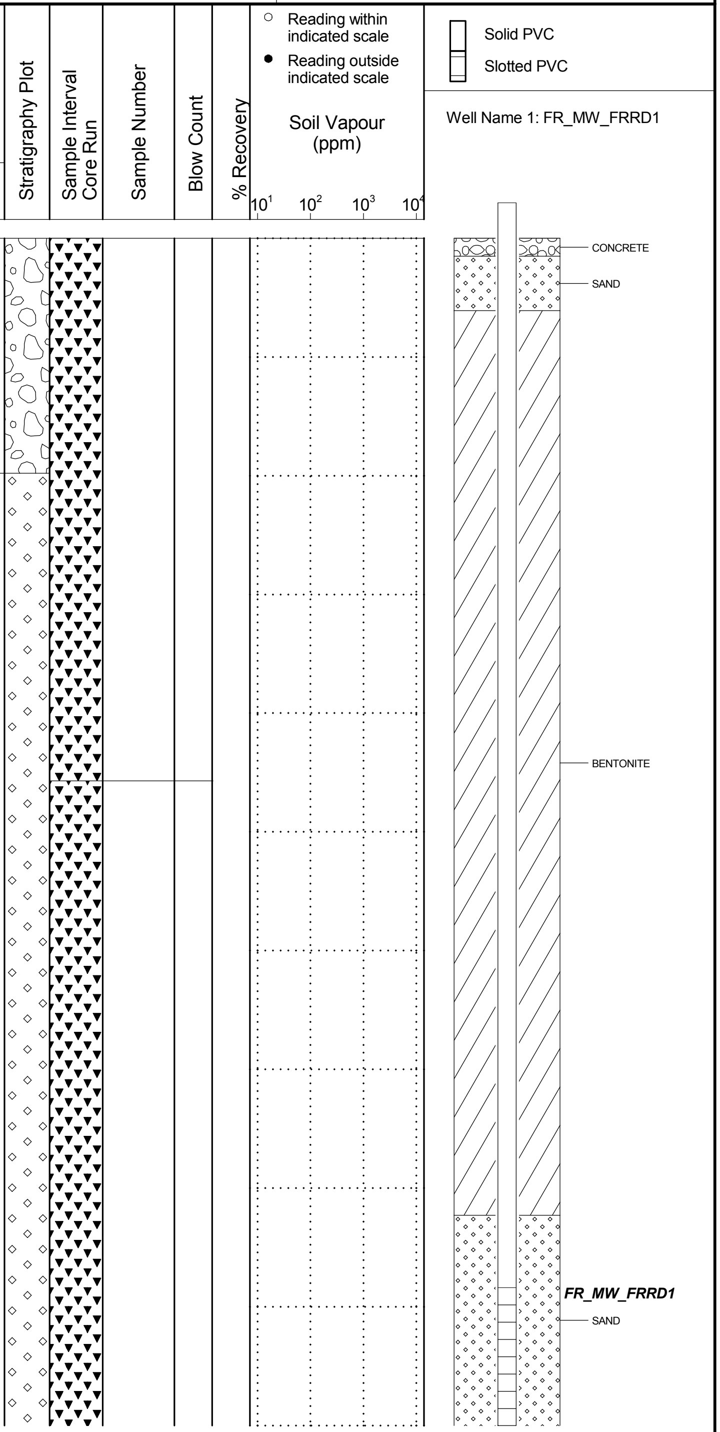
Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- Solid PVC
- Slotted PVC

Well Name 1: FR_MW_FRRD1

Depth in Metres	Soil Description
0	SAND and GRAVEL, fine- to coarse-grained sand, fine to coarse gravel, some silt, subangular, well graded, brown, dry.
1	At 0.9 m - cobbles, trace silt
2	SAND, fine- to coarse-grained, some fine to coarse gravel, some silt, subangular, well graded, brown, dry.
3	
4	Between 4.3 m and 4.9 m - boulder
5	
6	At 6.1 m - trace to some silt, cobbles, dark brown, damp
7	At 6.9 m - damp to moist At 7.3 m - some silt, moist
8	At 8.5 m - trace gravel, damp
9	At 9.1 m - some gravel
10	



NOTES

QA/QC: BH 2019 04 01 Print Date:2019-09-26

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : FR_BH_FRRD1**
	Location **Regional Groundwater Monitoring**	PAGE 2 OF 2

Drilling Contractor	Owen's Drilling	Date Monitored	n/a	Project Number:	657269
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1581.026	Borehole Logged By:	IPC
Borehole Dia. (m)	0.17	Top of Casing Elev. (m)	1581.955	Date Drilled:	2019 01 31
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5556128.232	Easting: 653883.845	Log Typed By:	VL

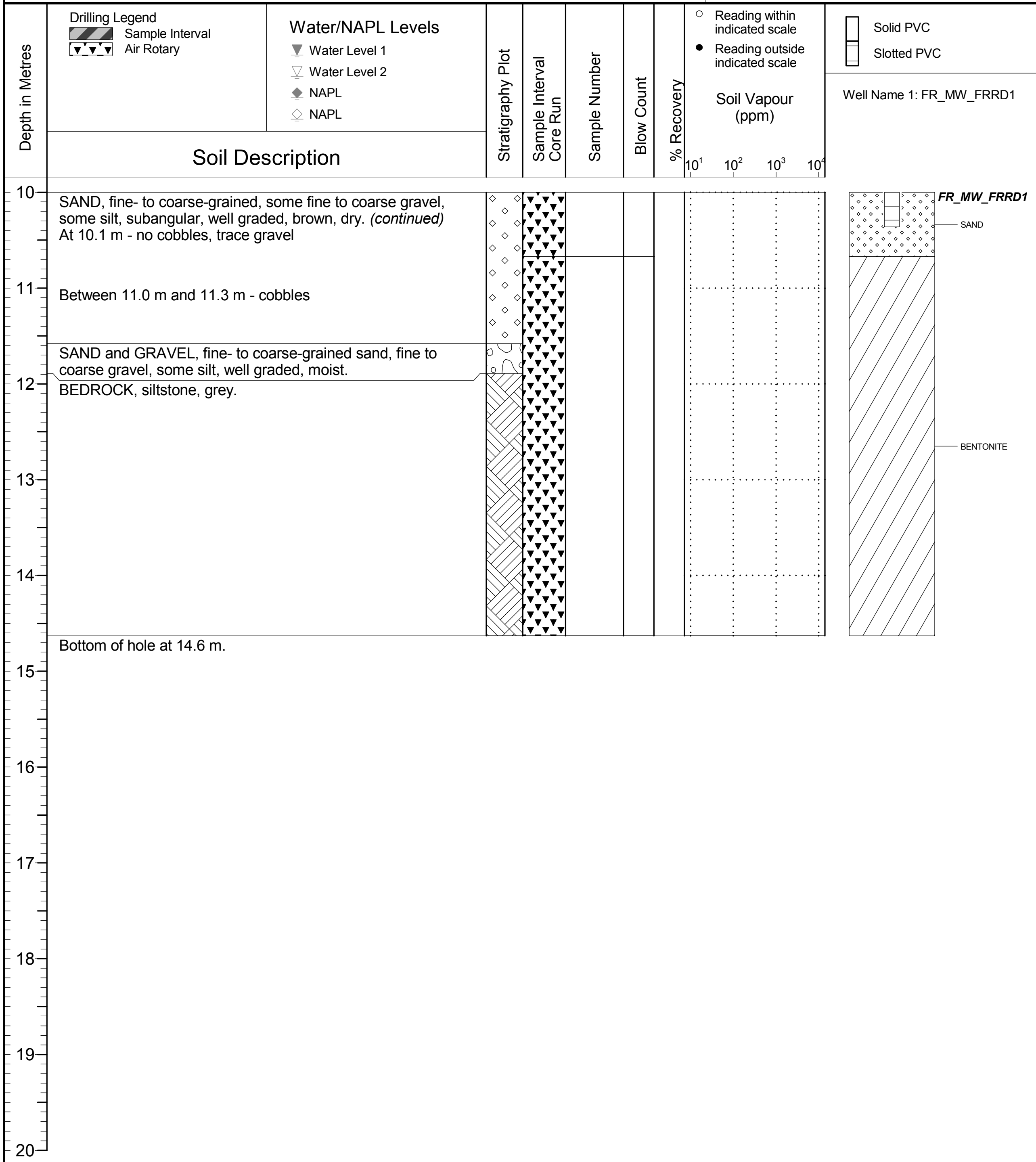
Drilling Legend
▨ Sample Interval
▼ Air Rotary

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▯ Slotted PVC

Well Name 1: FR_MW_FRRD1



SAND, fine- to coarse-grained, some fine to coarse gravel, some silt, subangular, well graded, brown, dry. *(continued)*
At 10.1 m - no cobbles, trace gravel

Between 11.0 m and 11.3 m - cobbles

SAND and GRAVEL, fine- to coarse-grained sand, fine to coarse gravel, some silt, well graded, moist.

BEDROCK, siltstone, grey.

Bottom of hole at 14.6 m.

NOTES

SNC • LAVALIN

Client	Borehole No. : FR_BH_CH1
Teck Coal Limited	
Location	PAGE 1 OF 5
Regional Groundwater Monitoring	

Drilling Contractor	Owen's Drilling	Date Monitored	n/a	Project Number:	657269
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1562.013	Borehole Logged By:	IPC
Borehole Dia. (m)	0.17	Top of Casing Elev. (m)	1562.940 1562.983	Date Drilled:	2019 01 30
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5552549.191	Easting: 655940.085	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ▼▼▼ Air Rotary

Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

Depth in Metres

Soil Description

0 SAND, fine- to coarse-grained, gravelly, fine to coarse, some silt, well graded, grey, dry.

At 1.5 m - cobbles

6.3 SAND, fine- to coarse-grained, some fine to coarse gravel, trace silt, well graded, brown, dry.

At 7.3 m - cobbles

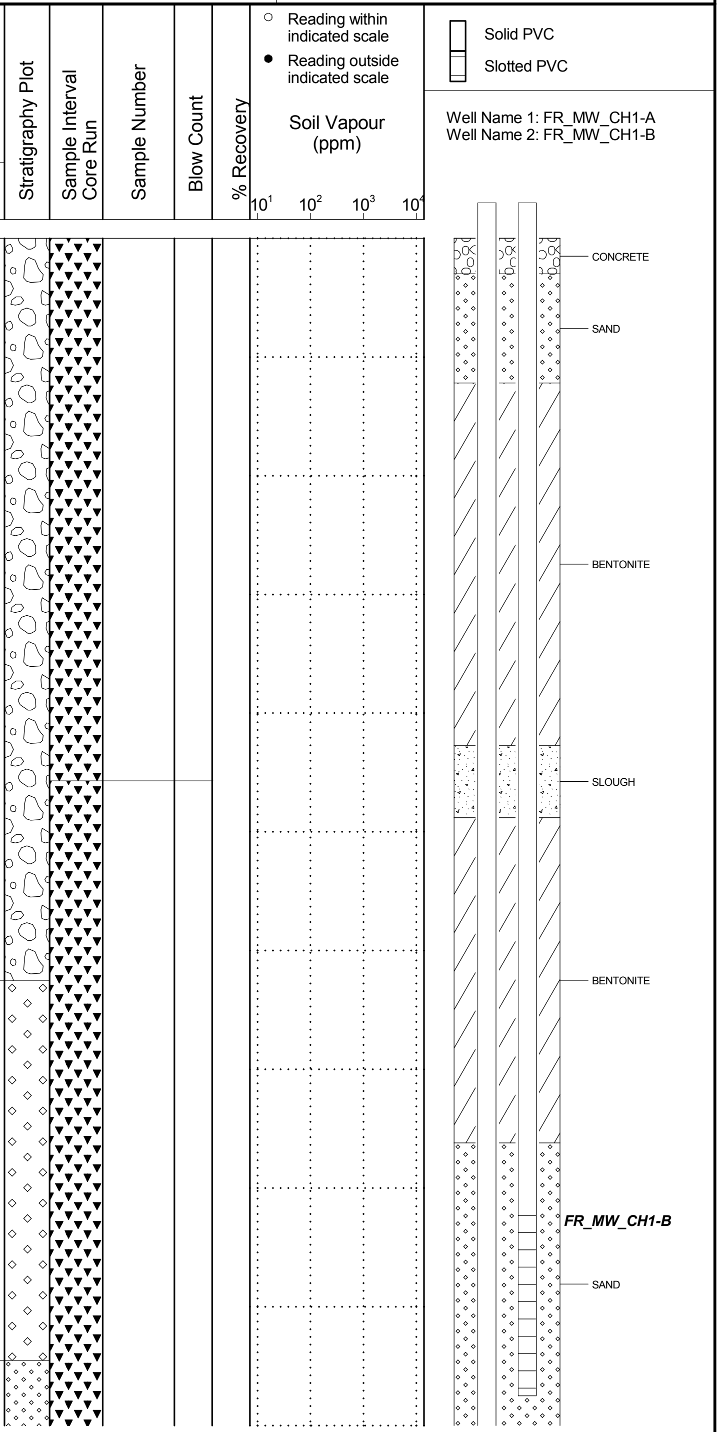
At 7.6 m - some silt, damp to moist

At 8.4 m - dark brown

At 9.1 m - moist to wet

9.4 SAND, fine- to medium-grained, some silt, some gravel, poorly graded, dark brown, moist to wet.

10



NOTES

Drilling Contractor	Owen's Drilling	Date Monitored	n/a	Project Number:	657269
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1562.013	Borehole Logged By:	IPC
Borehole Dia. (m)	0.17	Top of Casing Elev. (m)	1562.940 1562.983	Date Drilled:	2019 01 30
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5552549.191	Easting: 655940.085	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ▼▼▼ Air Rotary

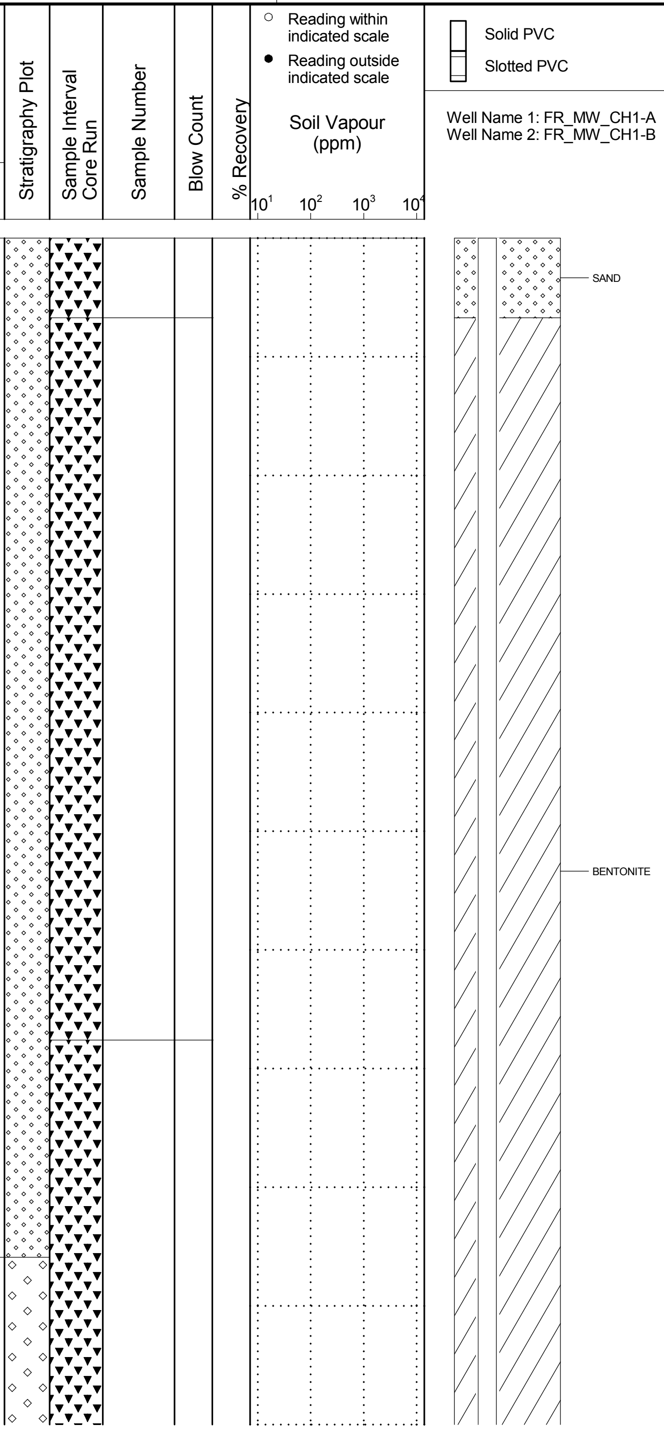
Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

☐ Solid PVC
☐ Slotted PVC

Well Name 1: FR_MW_CH1-A
Well Name 2: FR_MW_CH1-B

Depth in Metres	Soil Description
10	SAND, fine- to medium-grained, some silt, some gravel, poorly graded, dark brown, moist to wet. *(continued)* At 10.4 m - trace gravel At 10.7 m - some silt to silty, trace fine gravel, wet
11	
12	At 12.3 m - silty
13	
14	
15	
16	
17	At 17.5 m - some gravel
18	SAND, fine- to coarse-grained, some fine to coarse gravel, some silt, well graded, dark brown, wet.
19	
20	



NOTES

SNC·LAVALIN

Client **Teck Coal Limited**		**Borehole No. : FR_BH_CH1**
Location **Regional Groundwater Monitoring**		PAGE 3 OF 5

Drilling Contractor	Owen's Drilling	Date Monitored	n/a	Project Number:	657269
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1562.013	Borehole Logged By:	IPC
Borehole Dia. (m)	0.17	Top of Casing Elev. (m)	1562.940 1562.983	Date Drilled:	2019 01 30
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5552549.191	Easting: 655940.085	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼▼▼ Air Rotary

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

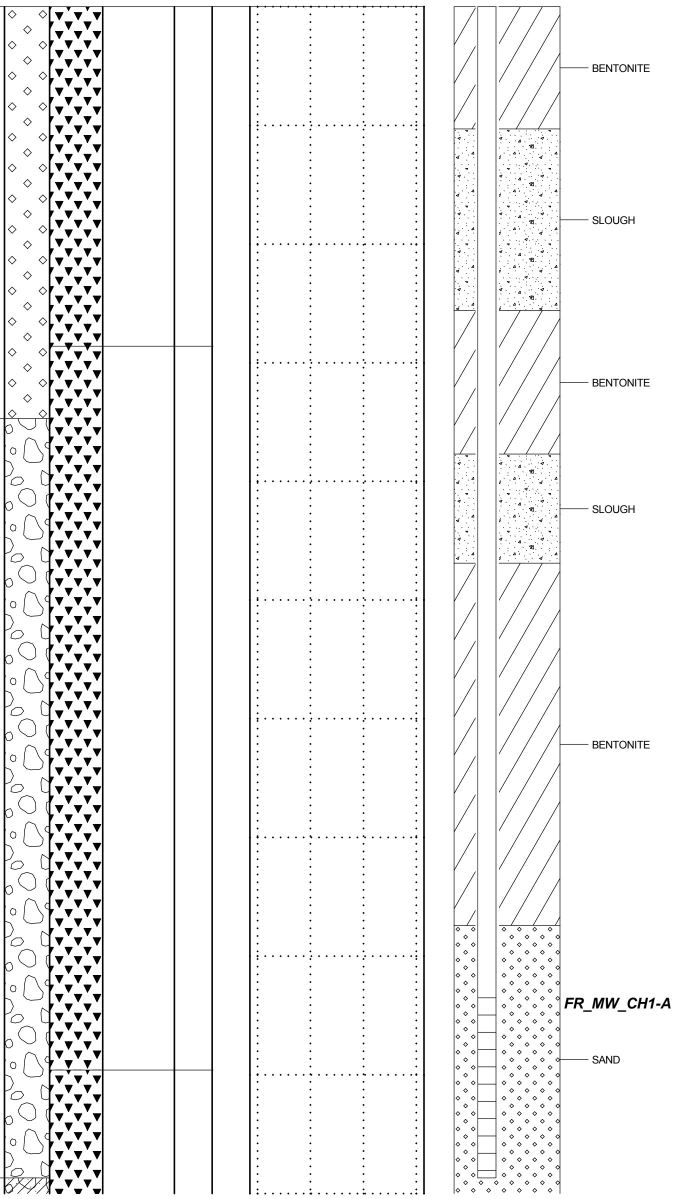
○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: FR_MW_CH1-A
Well Name 2: FR_MW_CH1-B

Depth in Metres	Soil Description
20	SAND, fine- to coarse-grained, some fine to coarse gravel, some silt, well graded, dark brown, wet. *(continued)*
20.7	At 20.7 m - trace gravel to gravelly
23.5	GRAVEL, fine to coarse, some fine- to coarse-grained sand, some silt, well graded, brown, wet.
26.2	At 26.2 m - trace sand
28.0	At 28.0 m - some sand
29.0	At 29.0 m - cobbles

Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)



NOTES

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : FR_BH_CH1**
	Location **Regional Groundwater Monitoring**	PAGE 4 OF 5

Drilling Contractor Owen's Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.17
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored n/a
Ground Surface Elev. (m) 1562.013
Top of Casing Elev. (m) 1562.940 1562.983
Northing: 5552549.191 Easting: 655940.085

Project Number: 657269
Borehole Logged By: IPC
Date Drilled: 2019 01 30
Log Typed By: VL

Drilling Legend
▨ Sample Interval
▼▼▼ Air Rotary

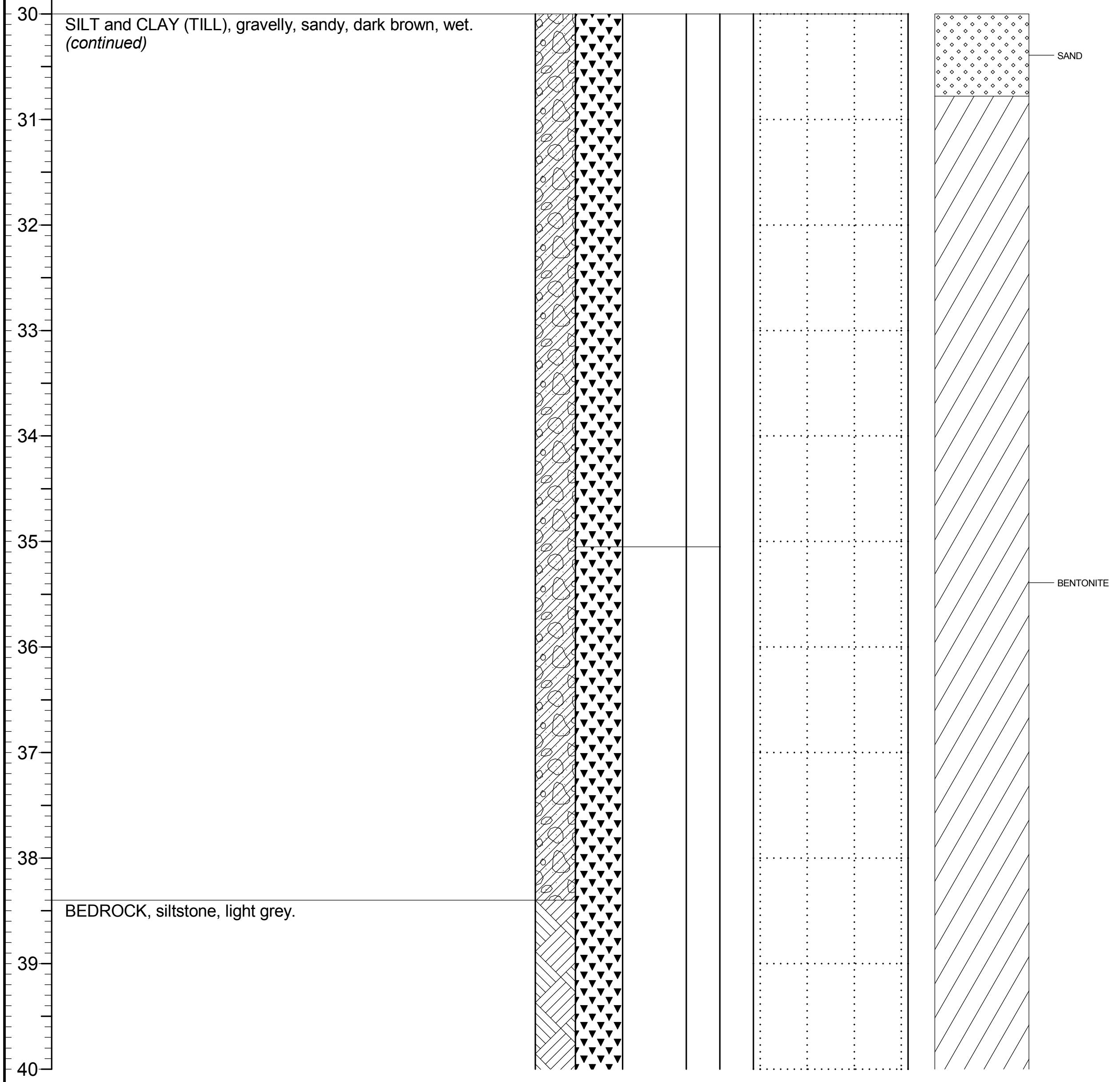
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▯ Slotted PVC

Well Name 1: FR_MW_CH1-A
Well Name 2: FR_MW_CH1-B

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4
30	SILT and CLAY (TILL), gravelly, sandy, dark brown, wet. *(continued)*						
38.4	BEDROCK, siltstone, light grey.						



NOTES

SNC•LAVALIN	Client **Teck Coal Limited**	**Borehole No. : FR_BH_CH1**
	Location **Regional Groundwater Monitoring**	PAGE 5 OF 5

Drilling Contractor	Owen's Drilling	Date Monitored	n/a	Project Number:	657269
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1562.013	Borehole Logged By:	IPC
Borehole Dia. (m)	0.17	Top of Casing Elev. (m)	1562.940 1562.983	Date Drilled:	2019 01 30
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5552549.191	Easting: 655940.085	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ▼▼▼ Air Rotary

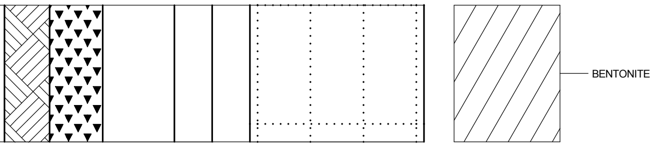
Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- ▯ Solid PVC
- ▯ Slotted PVC

Well Name 1: FR_MW_CH1-A
Well Name 2: FR_MW_CH1-B

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4
40	BEDROCK, siltstone, light grey. *(continued)*						
41.2	Bottom of hole at 41.2 m.						



40
41
42
43
44
45
46
47
48
49
50

NOTES

QA/QC: BH 2019 04 01 Print Date:2019-09-26

FINAL

SNC•LAVALIN	Client **Teck Coal Limited**	**Borehole No. : FR_BH_CH2**
	Location **Regional Groundwater Monitoring**	PAGE 1 OF 2

Drilling Contractor	Owen's Drilling	Date Monitored	2020 10 08	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1573.385	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1574.071	Date Drilled:	2020 08 17
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5552944.466	Easting: 656107.213	Log Typed By:	AS

Drilling Legend
▨ Sample Interval
☰ Odex

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: FR_MW_CH2

Depth in Metres

Soil Description

SAND, fine grained, brown, loose, damp, organics.

SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subrounded to subangular, some silt, brown, loose, wet.

At 1.2 m - wet.

GRAVEL, fine to coarse, subangular to angular, some sand, fine to coarse grained, some silt, brown, loose, wet.

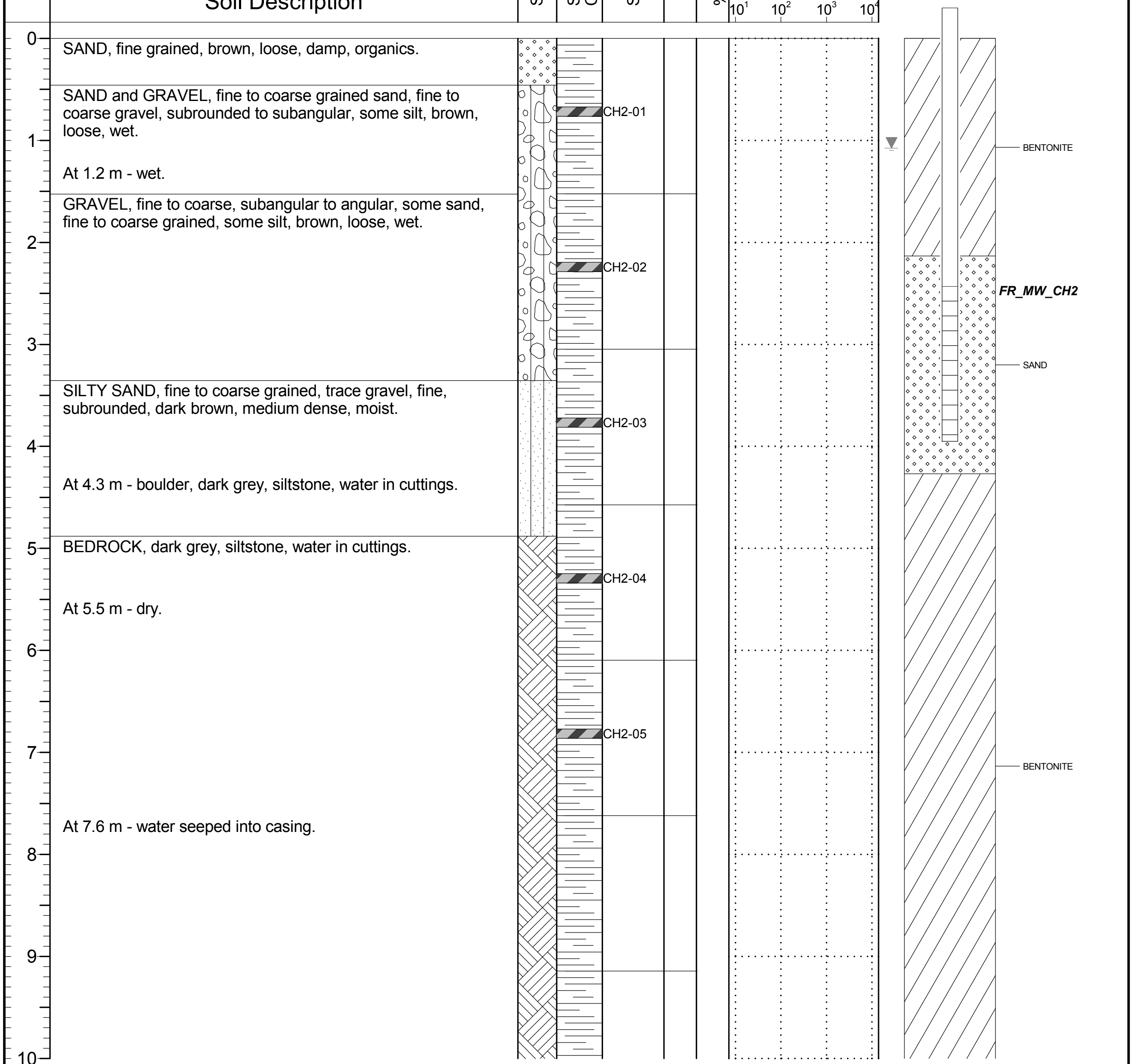
SILTY SAND, fine to coarse grained, trace gravel, fine, subrounded, dark brown, medium dense, moist.

At 4.3 m - boulder, dark grey, siltstone, water in cuttings.

BEDROCK, dark grey, siltstone, water in cuttings.

At 5.5 m - dry.

At 7.6 m - water seeped into casing.



NOTES
Bolded sample denotes sample analyzed.
*Denotes blind field duplicate.

QA/QC: LLH 2020 10 19 Print Date:2020-12-02

FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : FR_BH_CH2**
	Location **Regional Groundwater Monitoring**	PAGE 2 OF 2

Drilling Contractor	Owen's Drilling	Date Monitored	2020 10 08	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1573.385	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1574.071	Date Drilled:	2020 08 17
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5552944.466	Easting: 656107.213	Log Typed By:	AS

Drilling Legend
▨ Sample Interval
▭ Odex

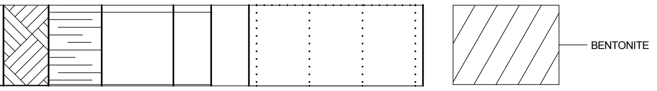
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▯ Slotted PVC

Well Name 1: FR_MW_CH2

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4
10	BEDROCK, dark grey, siltstone, water in cuttings. *(continued)*						
	Bottom of hole at 10.7 m.						
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							



NOTES
Bolded sample denotes sample analyzed.
*Denotes blind field duplicate.

QA/QC: LLH 2020 10 19 Print Date:2020-12-02

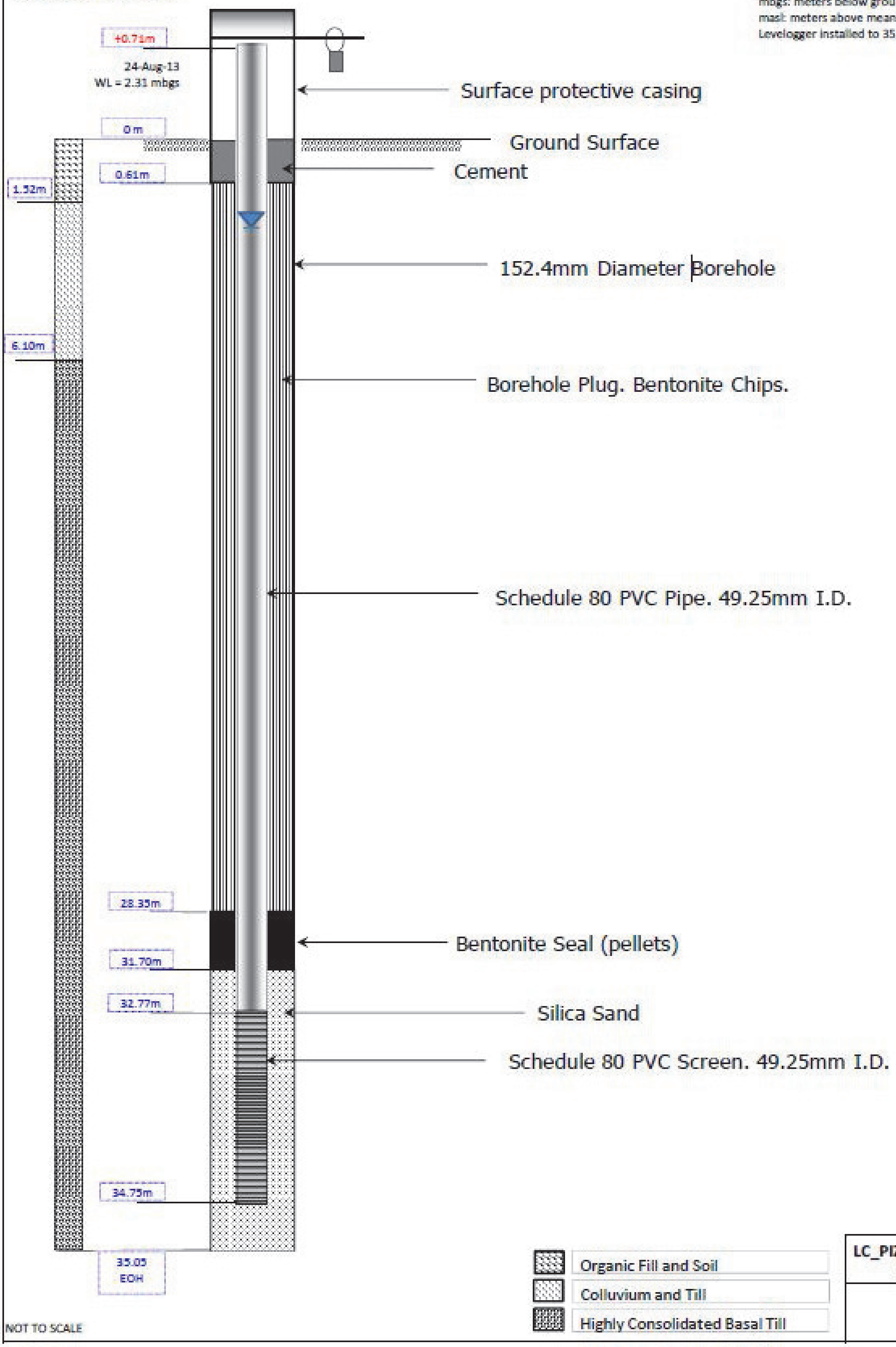
MONITORING WELL

Borehole: LC_PIZDC1307 **Location:** 5541229.683N, 658168.846E - 1690.506 masl

DRY CREEK PROJECT - 13-1345-0010

Stratigraphic Column

Installation Date: Aug 20, 2013, 2:00pm
mbgs: meters below ground surface
masl: meters above mean sea level
Levelogger installed to 35.05 mbgs



NOT TO SCALE

LC_PIZDC1307 Geology and Well Schematic Summary

FIGURE: 5-9

PROJECT No.: 13-1345-0010

RECORD OF MONITORING WELL: LC_PIZDC1307

SHEET 1 OF 4

LOCATION: See Location Plan

N: 5541229.978 E: 658168.873

BORING DATE: August 19, 2013

DATUM: UTM Zone 11
(Nad 83)
Elev = 1690.51 masl

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	ELEV. DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m 20 40 60 80; SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ 10 20 30 40	HYDRAULIC CONDUCTIVITY, k, cm/s 10^{-6} 10^{-5} 10^{-4} 10^{-3}; WATER CONTENT PERCENT Wp ⊢ ○W ⊣ Wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		Ground Surface	1690.50							Stickup= 0.71 m
0	Sonic Rig - SR152 Boart LongYear Group	FILL	0.00							Cement
		ORGANIC SOIL, black	1689.74 0.76							
1		GRAVEL and SAND, sub-angular to angular (up to 100 mm in diameter), some silt, w<PL, compact to dense	1689.13 1.37							
2										*WL=2.31 mbgs 24 Aug 2013
3		SILTY GRAVEL, sub-rounded to sub-angular (up to 50 mm in diameter), some sand, trace clay, w~PL, wet, compact	1687.15 3.35							
4										
5										Bentonite Plug
6		SILTY GRAVEL, angular to sub-angular, some sand, trace clay, local cobbles, w~PL, moist, very dense	1684.41 6.10							
7										
8		GRAVELY SILT, sub-rounded to sub-angular, trace sand, trace clay, w~PL, wet, very dense	1681.97 8.53							
9										
10										

CONTINUED NEXT PAGE

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: RT
CHECKED:

PROJECT No.: 13-1345-0010

RECORD OF MONITORING WELL: LC_PIZDC1307

SHEET 2 OF 4

LOCATION: See Location Plan

N: 5541229.978 E: 658168.873

BORING DATE: August 19, 2013

DATUM: UTM Zone 11
(Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	ELEV. DEPTH (m)	PIEZOMETER OR STANDPIPE INSTALLATION
10	Sonic Rig - SR152 Boart LongYear Group	GRAVELY SILT, sub-rounded to sub-angular, trace sand, trace clay, w~PL, wet, very dense *(continued)*		
12		--- w<PL, moist to dry below 12.2 m		
13.72		SILTY GRAVEL, sub-rounded to sub-angular, some sand, trace clay, w<PL, moist, dense	1676.79 13.72	
15				Bentonite Plug
17		--- Gravel is sub-angular to angular, w~PL, wet below 16.8 m		
18		--- Gravel is sub-rounded to sub-angular, moist to locally dry, loose below 18.3 m		
19.81			1670.69 19.81	
20		*CONTINUED NEXT PAGE*		

Column headings: SAMPLES (NUMBER, TYPE, BLOWS/0.3m); DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20, 40, 60, 80); SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ (10, 20, 30, 40); HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6}, 10^{-5}, 10^{-4}, 10^{-3}); WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl (10, 20, 30, 40); ADDITIONAL LAB. TESTING; STRATA PLOT

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: RT
CHECKED:

PROJECT No.: 13-1345-0010

RECORD OF MONITORING WELL: LC_PIZDC1307

SHEET 3 OF 4

LOCATION: See Location Plan

N: 5541229.978 E: 658168.873

BORING DATE: August 19, 2013

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m 20 40 60 80 SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ 10 20 30 40	HYDRAULIC CONDUCTIVITY, k, cm/s 10^{-6} 10^{-5} 10^{-4} 10^{-3} WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
20	Sonic Rig - SR152 Boart LongYear Group	SANDY SILT, some sub-rounded to sub-angular gravel, localized sub-rounded to sub-angular cobbles (up to 150 mm in diameter), brown to dark brown, w~PL, moist, compact to dense, stiff *(continued)*									
23		SANDY GRAVEL, sub-angular to angular (up to 100 mm in diameter), some silt, light brown to grey, w<PL, dry, very loose		1667.34 23.16							
24		SANDY SILT, some sub-rounded to sub-angular gravel, localized sub-rounded to sub-angular cobbles (up to 100 mm in diameter), brown to dark brown, w~PL, moist, very dense, stiff		1667.04 23.47							Bentonite Plug
26		SILT, some sand, some sub-rounded to sub-angular gravel (<30 mm in diameter), brown to dark brown, w~PL, wet, compact to dense, firm		1664.60 25.91							
29											Bentonite Seal
30		*CONTINUED NEXT PAGE*									

DEPTH SCALE

1 : 50

LOGGED: RT

CHECKED:

DATA ENTRY: VI

PROJECT No.: 13-1345-0010

RECORD OF MONITORING WELL: LC_PIZDC1307

SHEET 4 OF 4

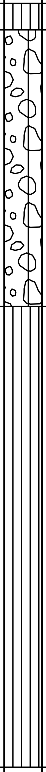
LOCATION: See Location Plan

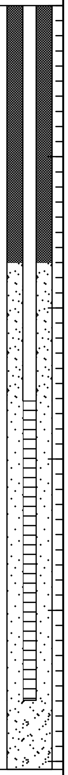
N: 5541229.978 E: 658168.873

BORING DATE: August 19, 2013

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	ELEV. DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m 20 40 60 80; SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ 10 20 30 40	HYDRAULIC CONDUCTIVITY, k, cm/s 10⁻⁶ 10⁻⁵ 10⁻⁴ 10⁻³; WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
30	Sonic Rig - SR152 Boart LongYear Group		1660.33							
		SILTY GRAVEL, sub-rounded to sub-angular (<50 mm in diameter), localized clay, w<PL, dry, very dense, hard --- Localized zones of increased clay, very dry	30.18							Bentonite Seal
31										
32		SILT, some sand, some sub-angular to angular gravel, localized boulders, dark brown, w<PL, moist, dense	1658.50 32.00							10/20 Colorado Silica Sand
33										Slotted Screen Section
34										
35		End of MONITORING WELL. Notes: WL= water level. masl = metres above sea level. * WL measured while LC_PIZDC1309 was flowing at surface. mbgs= metres below ground surface.	1655.45 35.05							
36										
37										
38										
39										
40										





DEPTH SCALE
1 : 50

LOGGED: RT
CHECKED:

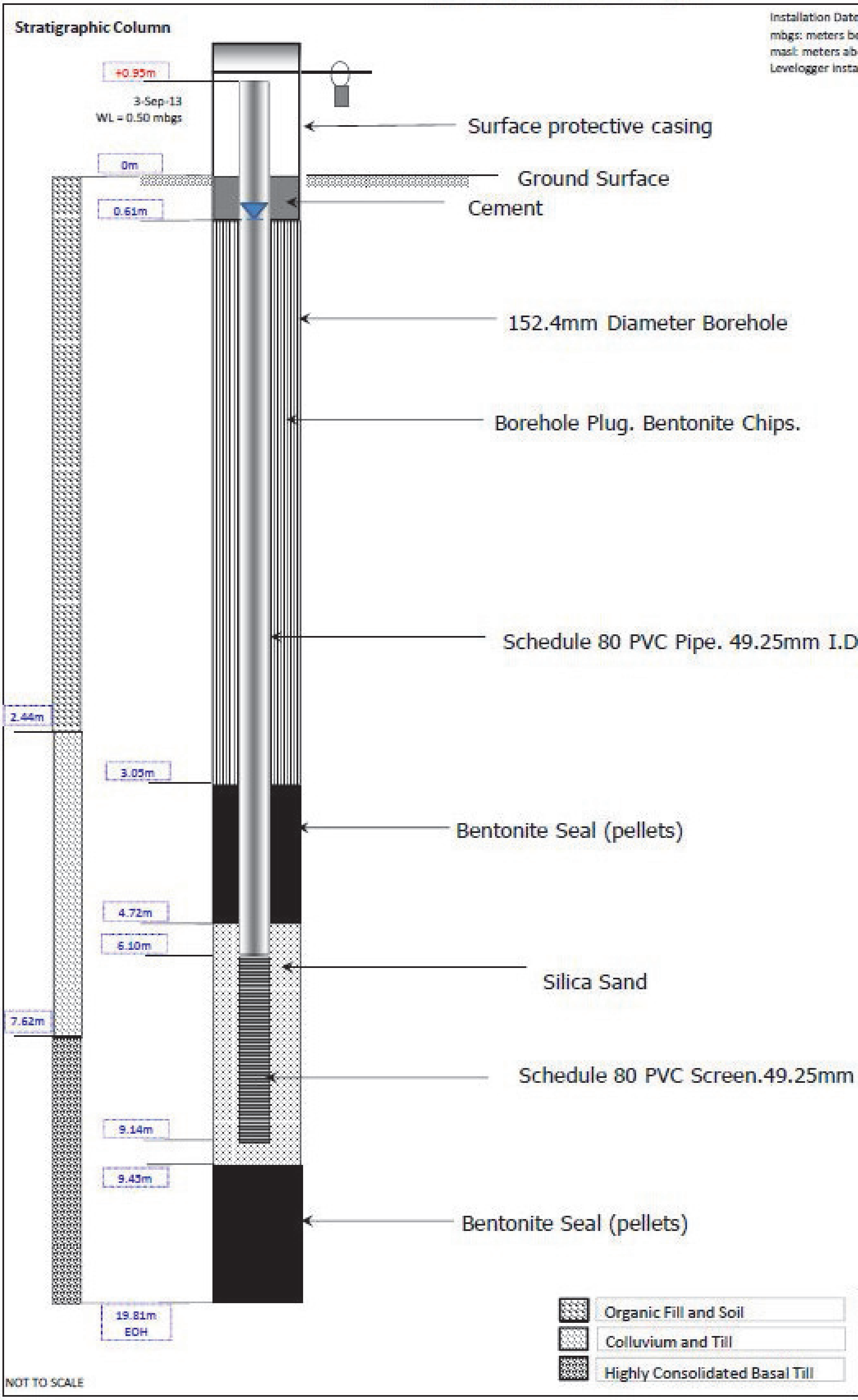
BOREHOLE - EXPANDED ADD. LAB TESTING 13.1345.0010_ BH LOGS.GPJ CALGARY.GDT 10/11/13

MONITORING WELL

Borehole: LC_PIZDC1308 **Location:** 5541232.170N, 658167.863E - 1690.424 masl

DRY CREEK PROJECT - 13-1345-0010

Installation Date: Aug 24, 2013
mbgs: meters below ground surface
masl: meters above mean sea level
Levelogger installed to 19.81 mbgs



LC_PIZDC1308 Geology and Well Schematic Summary

FIGURE: 5-10

PROJECT No.: 13-1345-0010

RECORD OF MONITORING WELL: LC_PIZDC1308

SHEET 1 OF 2

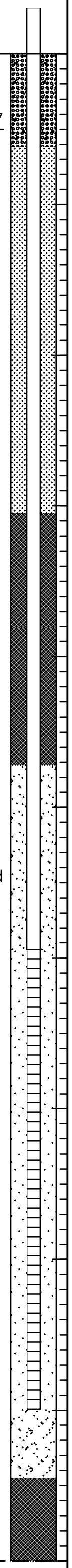
LOCATION: See Location Plan

N: 5541232.317 E: 658167.9

BORING DATE: August 21, 2013

DATUM: UTM Zone 11
(Nad 83)
Elev = 1690.42 masl

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE – DESCRIPTION	ELEV. DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20, 40, 60, 80); SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ (10, 20, 30, 40)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6}, 10^{-5}, 10^{-4}, 10^{-3}); WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl (10, 20, 30, 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		Ground Surface	1690.42							Stickup= 0.95 m
0	Sonic Rig - SR152 Boart LongYear Group	FILL	0.00							Cement ***WL=0.50 mbgs 24 Aug 2013**
1		ORGANIC SOIL, black	1689.65 0.76							
2		SANDY GRAVEL, sub-angular to angular (up to 100 mm in diameter), some silt, w<PL, dry, very loose	1688.59 1.83							Bentonite Plug
		SILTY GRAVEL, sub-rounded to sub-angular (up to 50 mm in diameter), some sand, trace clay, w~PL, wet, loose	1688.28 2.13							
3–4										Bentonite Seal
5		SILTY GRAVEL, angular to sub-angular, some sand, trace clay, local cobbles, w~PL, moist to wet, compact	1685.84 4.57							10/20 Colorado Silica Sand
		--- Localized dry loose gravel zone (looks like pad fill material, fresh, dry, powdery, likely sloughed into hole) from 5.5 to 5.8 m								
6–7		--- Localized dry loose gravel zone (looks like pad fill material, fresh, dry, powdery, likely sloughed into hole) from 6.6 to 6.7 m								Slotted Screen Section
8		GRAVELY SILT, sub-rounded to sub-angular, trace sand, trace clay, w~PL, wet, dense to very dense	1682.80 7.62							
9		--- Decrease in gravel and clay content below 8.5 m								
10										Bentonite Seal



CONTINUED NEXT PAGE

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: RT
CHECKED:

DATA ENTRY: VI

PROJECT No.: 13-1345-0010

RECORD OF MONITORING WELL: LC_PIZDC1308

SHEET 2 OF 2

LOCATION: See Location Plan

N: 5541232.317 E: 658167.9

BORING DATE: August 21, 2013

DATUM: UTM Zone 11
(Nad 83)

DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m: 20 40 60 80

SHEAR STRENGTH Cu, kPa: nat V. + Q - ● rem V. ⊕ U - ○ : 10 20 30 40

HYDRAULIC CONDUCTIVITY, k, cm/s: 10^{-6} 10^{-5} 10^{-4} 10^{-3}

WATER CONTENT PERCENT: Wp ⊢—○W—⊣ Wl : 10 20 30 40

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	ELEV. DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10	Sonic Rig - SR152 Boart LongYear Group	GRAVELY SILT, sub-rounded to sub-angular, trace sand, trace clay, w~PL, wet, dense to very dense *(continued)*						
11								
12			1678.22 12.19					
		GRAVELY SILT, sub-rounded to sub-angular, trace sand, trace clay, local cobbles, w<PL, moist, very dense						
13			1676.70 13.72					
		GRAVELY SILT, sub-rounded to sub-angular, some sand, trace clay, brown to dark brown, w<PL, moist, very dense						
14								
15								Bentonite Seal
16			1673.65 16.76					
17		SILTY GRAVEL, sub-angular to angular, some sand, trace clay, w~PL, moist, dense						
18								
19		Notes: WL= water level. masl = metres above sea level. * WL measured while LC PIZDC1309 was flowing at surface. mbgs= metres below ground surface.	1670.60 19.81					
		End of MONITORING WELL.						
20								

BOREHOLE - EXPANDED ADD. LAB TESTING 13.1345.0010_ BH LOGS.GPJ CALGARY.GDT 10/11/13

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: RT

CHECKED:

FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : GH_BH_BG1A**
	Location **Regional Groundwater Monitoring**	PAGE 1 OF 8

Drilling Contractor	Owen's Drilling	Date Monitored	n/a	Project Number:	635544
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1448.626	Borehole Logged By:	GG
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1449.508	Date Drilled:	2020 11 06
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5565171.060	Easting: 645669.946	Log Typed By:	VL

Depth in Metres

Drilling Legend
- ▨ Sample Interval
- ▼▼▼ Air Rotary

Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery

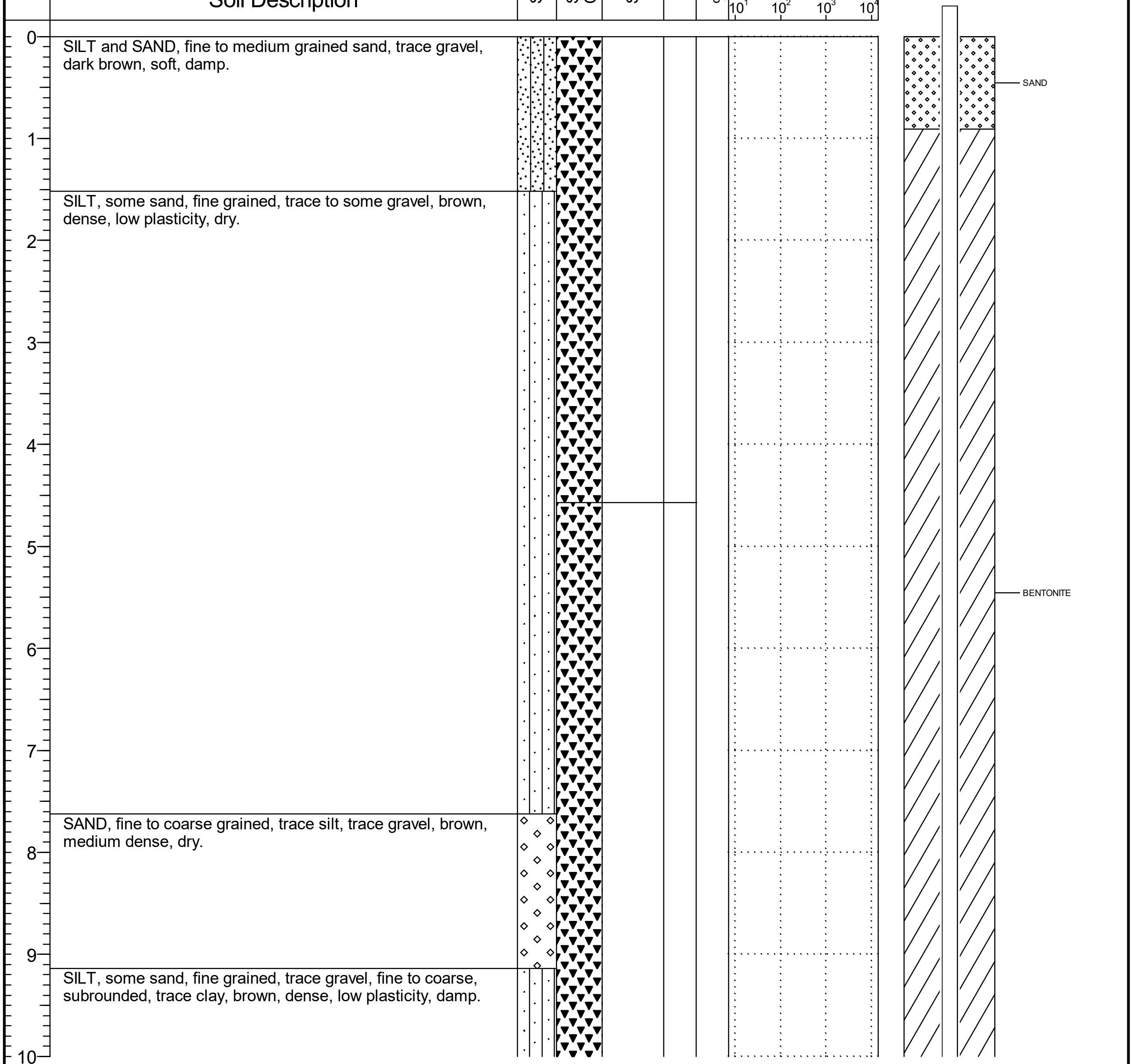
- ○ Reading within indicated scale
- ● Reading outside indicated scale

Soil Vapour (ppm)

- ▯ Solid PVC
- ▤ Slotted PVC

Well Name 1: GH_MW_BG1A

Soil Description



SILT and SAND, fine to medium grained sand, trace gravel, dark brown, soft, damp.

SILT, some sand, fine grained, trace to some gravel, brown, dense, low plasticity, dry.

SAND, fine to coarse grained, trace silt, trace gravel, brown, medium dense, dry.

SILT, some sand, fine grained, trace gravel, fine to coarse, subrounded, trace clay, brown, dense, low plasticity, damp.

NOTES

LH 2021 02 22 Print Date:2021-02-22

FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : GH_BH_BG1A**
	Location **Regional Groundwater Monitoring**	PAGE 2 OF 8

Drilling Contractor	Owen's Drilling	Date Monitored	n/a	Project Number:	635544
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1448.626	Borehole Logged By:	GG
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1449.508	Date Drilled:	2020 11 06
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5565171.060	Easting: 645669.946	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ▼▼▼ Air Rotary

Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- ☐ Solid PVC
- ☐ Slotted PVC

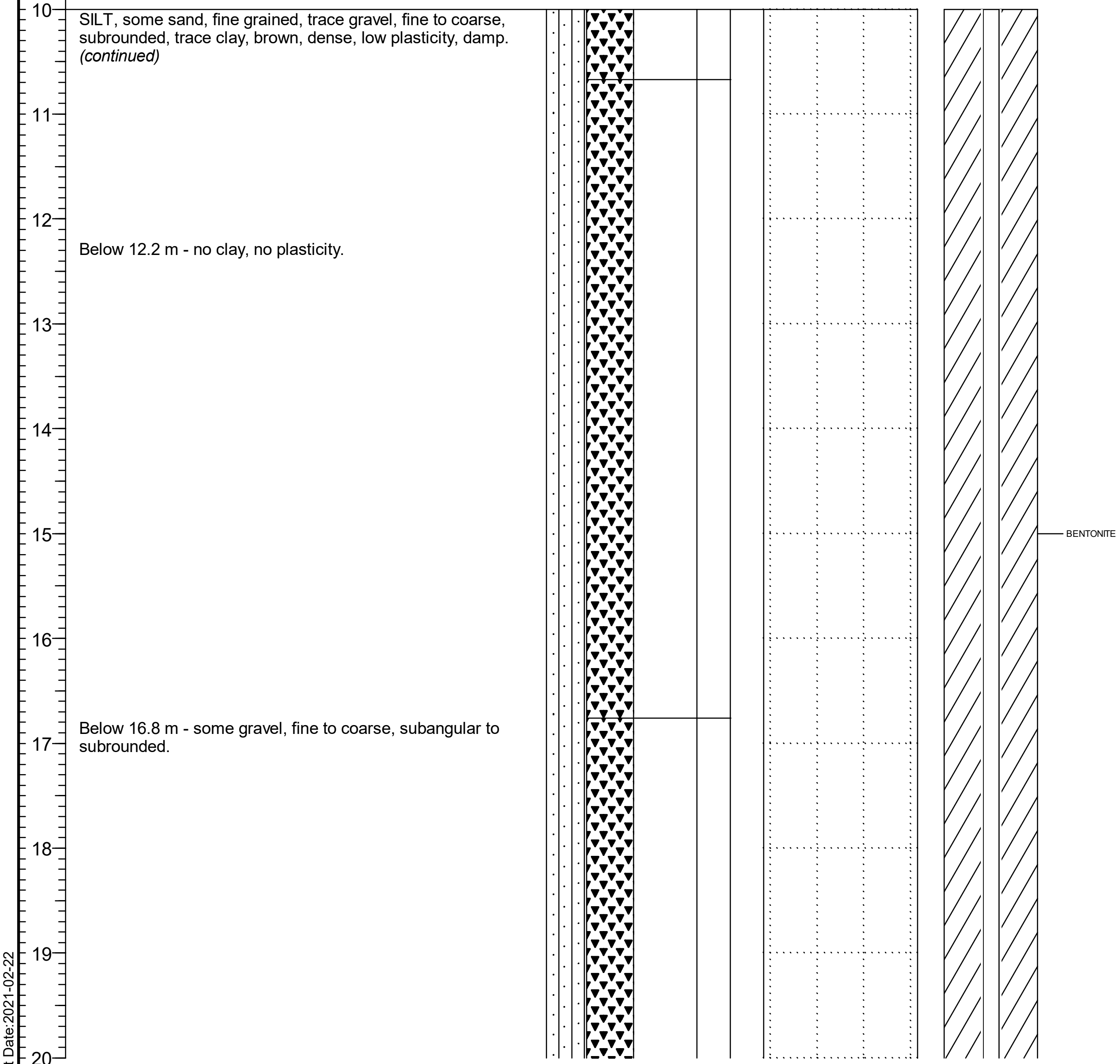
Well Name 1: GH_MW_BG1A

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm) 10^1 10^2 10^3 10^4

10 — SILT, some sand, fine grained, trace gravel, fine to coarse, subrounded, trace clay, brown, dense, low plasticity, damp. *(continued)*

Below 12.2 m - no clay, no plasticity.

Below 16.8 m - some gravel, fine to coarse, subangular to subrounded.



NOTES

FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : GH_BH_BG1A**
	Location **Regional Groundwater Monitoring**	PAGE 3 OF 8

Drilling Contractor	Owen's Drilling	Date Monitored	n/a	Project Number:	635544
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1448.626	Borehole Logged By:	GG
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1449.508	Date Drilled:	2020 11 06
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5565171.060	Easting: 645669.946	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼▼▼ Air Rotary

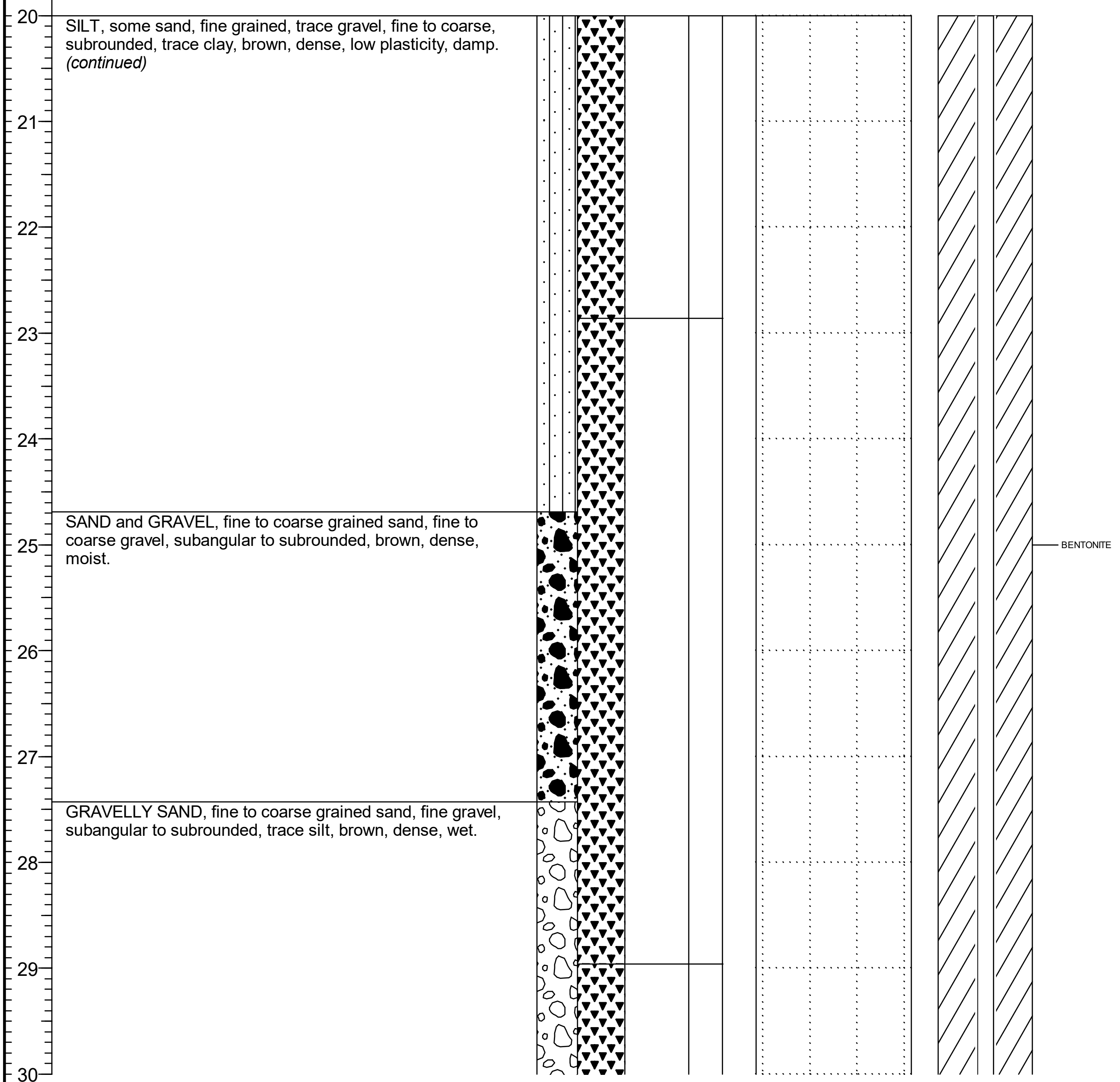
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

☐ Solid PVC
☐ Slotted PVC

Well Name 1: GH_MW_BG1A

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)
20	SILT, some sand, fine grained, trace gravel, fine to coarse, subrounded, trace clay, brown, dense, low plasticity, damp. *(continued)*						
	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subangular to subrounded, brown, dense, moist.						
	GRAVELLY SAND, fine to coarse grained sand, fine gravel, subangular to subrounded, trace silt, brown, dense, wet.						



NOTES

FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : GH_BH_BG1A**
	Location **Regional Groundwater Monitoring**	PAGE 4 OF 8

Drilling Contractor	Owen's Drilling	Date Monitored	n/a	Project Number:	635544
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1448.626	Borehole Logged By:	GG
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1449.508	Date Drilled:	2020 11 06
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5565171.060	Easting: 645669.946	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ▼▼▼ Air Rotary

Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

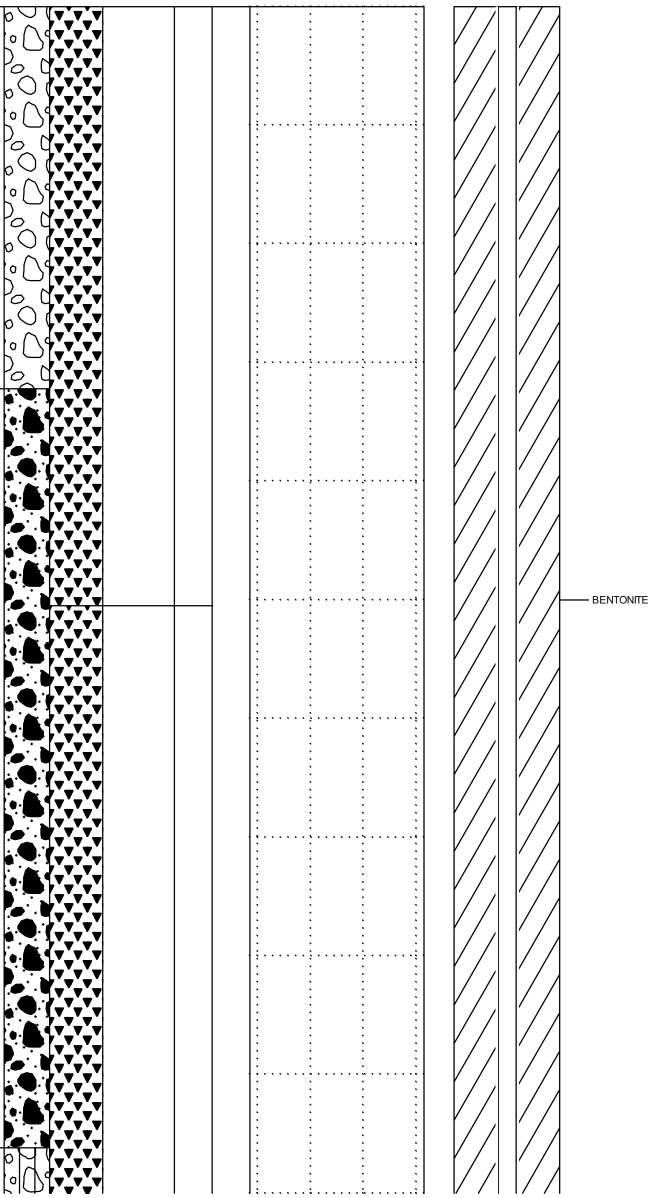
- ○ Reading within indicated scale
- ● Reading outside indicated scale

Soil Vapour (ppm)

- ▯ Solid PVC
- ▯ Slotted PVC

Well Name 1: GH_MW_BG1A

Depth in Metres	Soil Description
30	GRAVELLY SAND, fine to coarse grained sand, fine gravel, subangular to subrounded, trace silt, brown, dense, wet. *(continued)*
33.2	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subangular to rounded, brown, dense, wet. Below 33.5 m - some silt to silty. Below 36.6 m - trace silt, medium to coarse grained sand.
39.6	GRAVEL, fine to coarse, subangular to subrounded, some silt, trace sand, fine to coarse grained, brown, dense, wet.
40	



NOTES

FINAL

SNC·LAVALIN

Client
Teck Coal Limited

Location
Regional Groundwater Monitoring

Borehole No. : GH_BH_BG1A

PAGE 5 OF 8

Drilling Contractor	Owen's Drilling	Date Monitored	n/a	Project Number:	635544
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1448.626	Borehole Logged By:	GG
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1449.508	Date Drilled:	2020 11 06
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5565171.060	Easting: 645669.946	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼▼▼ Air Rotary

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

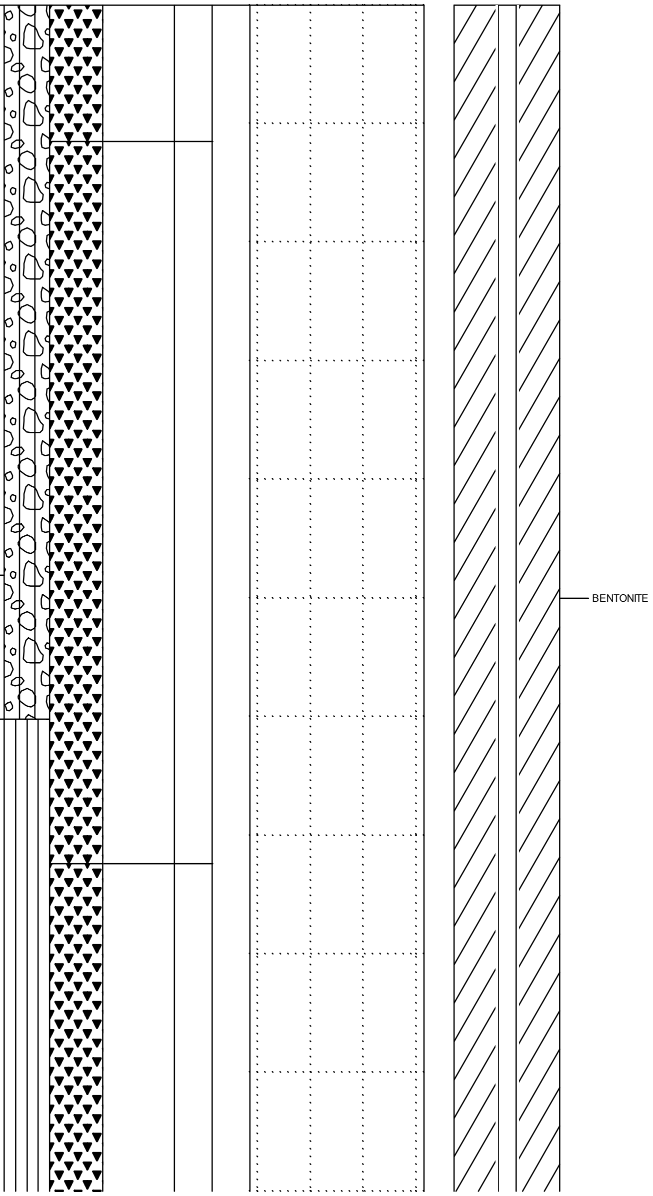
☐ Solid PVC
☐ Slotted PVC

Well Name 1: GH_MW_BG1A

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm) 10^1 10^2 10^3 10^4

Depth (m)	Soil Description
40	GRAVEL, fine to coarse, subangular to subrounded, some silt, trace sand, fine to coarse grained, brown, dense, wet. *(continued)*
~44.8	SILT and GRAVEL, fine to coarse gravel, angular to subrounded, some sand, fine to coarse grained, brown, dense, wet.
46	SILT, trace sand, fine to coarse grained, brown, dense, wet.

Depth scale: 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50



NOTES

FINAL

SNC • LAVALIN	Client **Teck Coal Limited**	**Borehole No. : GH_BH_BG1A**
	Location **Regional Groundwater Monitoring**	PAGE 6 OF 8

Drilling Contractor	Owen's Drilling	Date Monitored	n/a	Project Number:	635544
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1448.626	Borehole Logged By:	GG
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1449.508	Date Drilled:	2020 11 06
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5565171.060	Easting: 645669.946	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼▼▼ Air Rotary

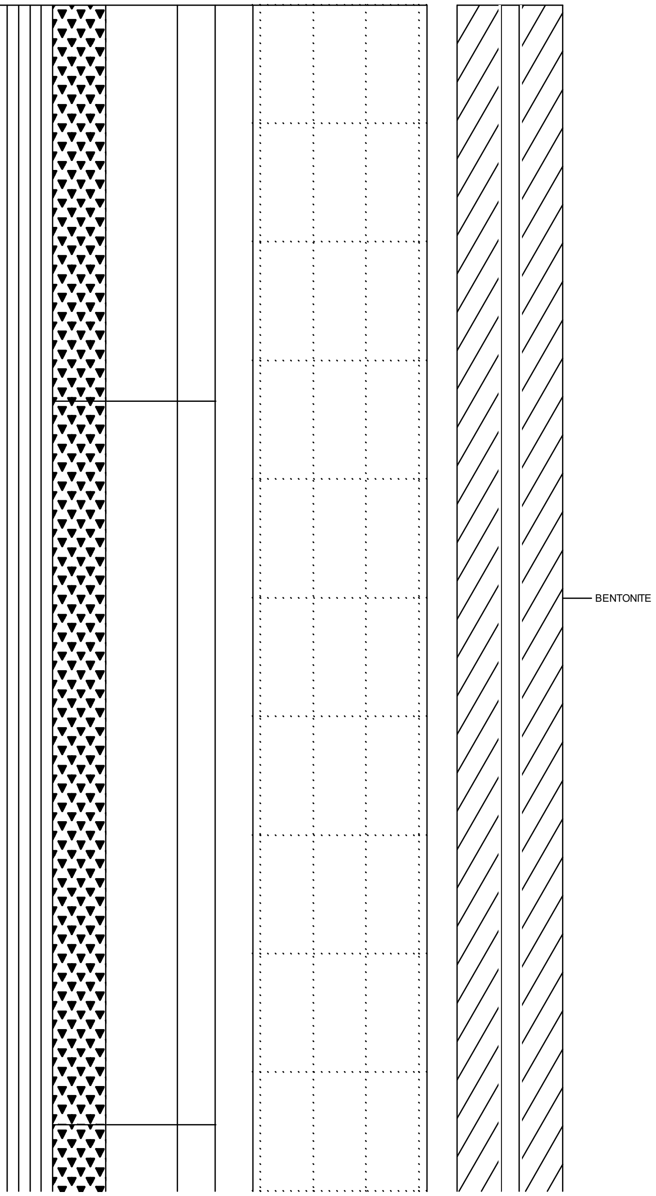
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▤ Slotted PVC

Well Name 1: GH_MW_BG1A

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4
50	SILT, trace sand, fine to coarse grained, brown, dense, wet. *(continued)*						
51.2	Below 51.2 m - trace gravel, fine, subrounded.						



NOTES

FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : GH_BH_BG1A**
	Location **Regional Groundwater Monitoring**	PAGE 7 OF 8

Drilling Contractor	Owen's Drilling	Date Monitored	n/a	Project Number:	635544
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1448.626	Borehole Logged By:	GG
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1449.508	Date Drilled:	2020 11 06
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5565171.060	Easting: 645669.946	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ▼ Air Rotary

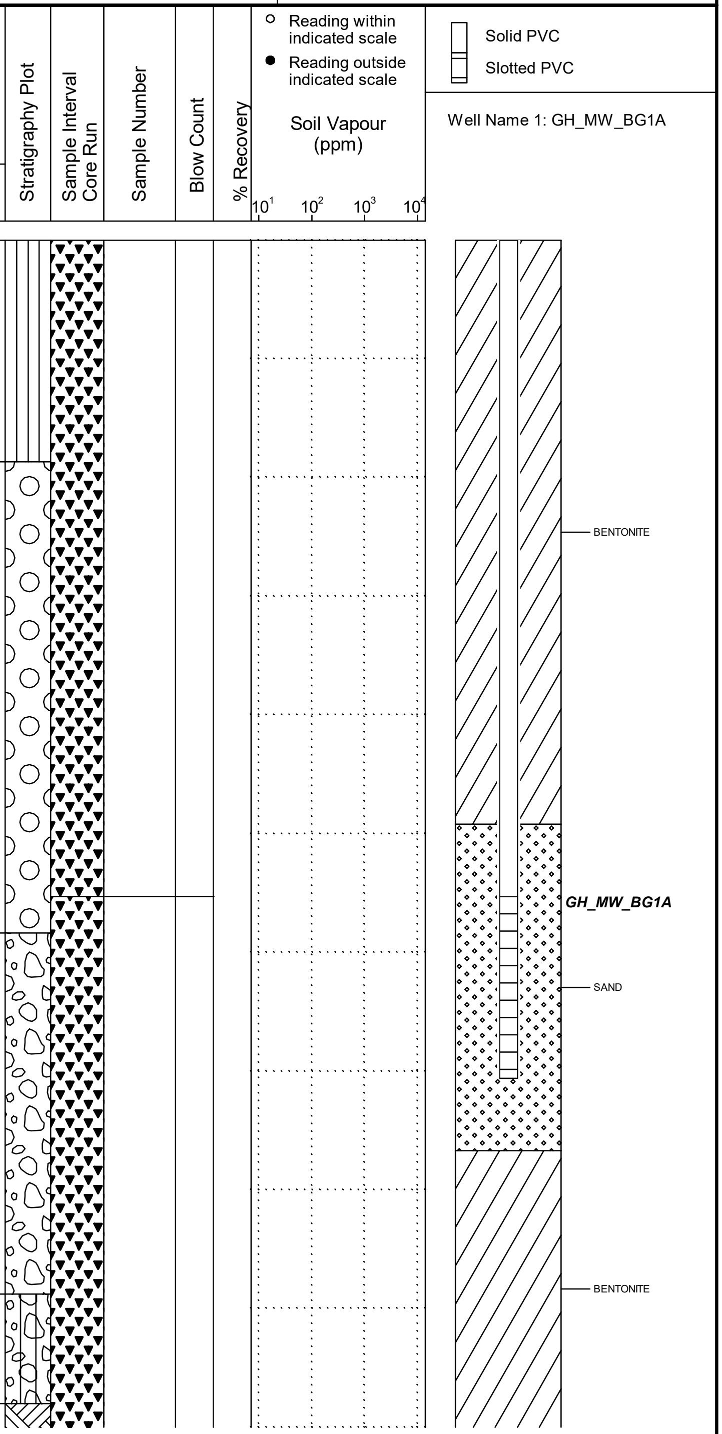
Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ● Reading within indicated scale
- ○ Reading outside indicated scale

- ☐ Solid PVC
- ☐ Slotted PVC

Well Name 1: GH_MW_BG1A

Depth in Metres	Soil Description
60	SILT, trace sand, fine to coarse grained, brown, dense, wet. *(continued)*
61.85	BOULDERS and COBBLES.
65.8	SAND and GRAVEL, medium to coarse grained sand, fine to coarse gravel, subrounded to rounded, brown, dense, wet.
68	Below 68.0 m - some silt.
68.85	SILTY GRAVEL, fine to coarse gravel, subangular to subrounded, some sand, coarse grained, brown, dense, wet.
69.8	
70	



NOTES

FINAL

SNC · LAVALIN	Client **Teck Coal Limited**	**Borehole No. : GH_BH_BG1A**
	Location **Regional Groundwater Monitoring**	PAGE 8 OF 8

Drilling Contractor	Owen's Drilling	Date Monitored	n/a	Project Number:	635544
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1448.626	Borehole Logged By:	GG
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1449.508	Date Drilled:	2020 11 06
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5565171.060	Easting: 645669.946	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼▼▼ Air Rotary

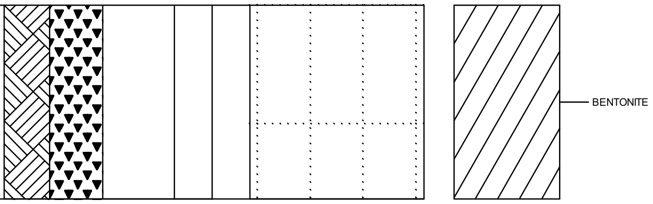
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: GH_MW_BG1A

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4
70–71.6	BEDROCK, siltstone, dark grey with beige weathering, weathered, compentent, soft, white calcite secondary minerals on fracture surfaces. *(continued)*						
71.6	Bottom of hole at 71.6 m.						



Depth scale: 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80

NOTES

FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : GH_BH_BG1B**
	Location **Regional Groundwater Monitoring**	PAGE 1 OF 5

Drilling Contractor	Owen's Drilling	Date Monitored	2020 09 29	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1448.707	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1449.693	Date Drilled:	2020 09 25
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5565168.100	Easting: 645663.688	Log Typed By:	AS

Drilling Legend
▨ Sample Interval
▭ Odex

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▤ Slotted PVC

Well Name 1: GH_MW_BG1B

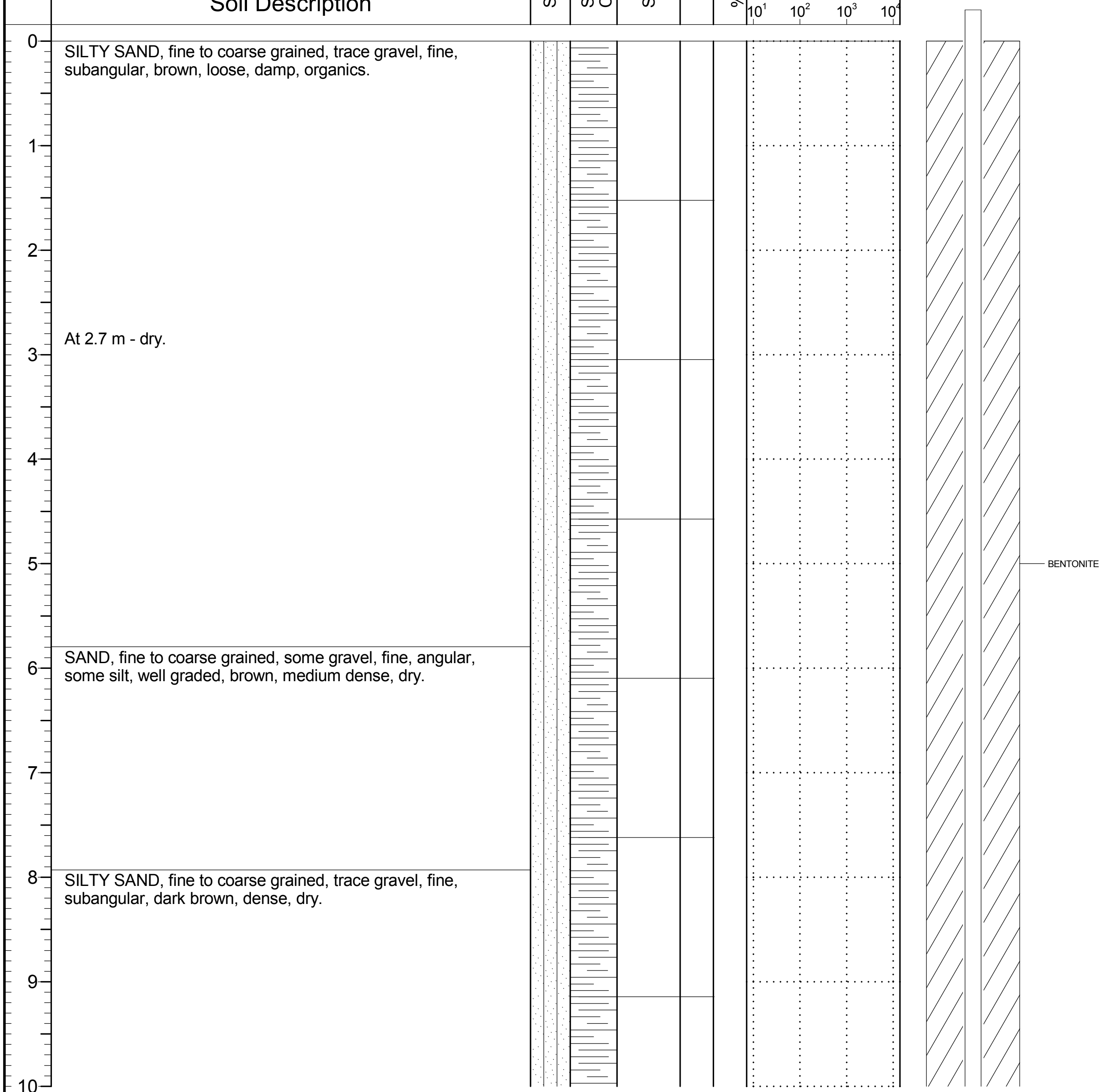
Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)

SILTY SAND, fine to coarse grained, trace gravel, fine, subangular, brown, loose, damp, organics.

At 2.7 m - dry.

SAND, fine to coarse grained, some gravel, fine, angular, some silt, well graded, brown, medium dense, dry.

SILTY SAND, fine to coarse grained, trace gravel, fine, subangular, dark brown, dense, dry.



NOTES

QA/QC: LLH 2020 10 19 Print Date:2020-12-02

FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : GH_BH_BG1B**
	Location **Regional Groundwater Monitoring**	PAGE 2 OF 5

Drilling Contractor	Owen's Drilling	Date Monitored	2020 09 29	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1448.707	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1449.693	Date Drilled:	2020 09 25
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5565168.100	Easting: 645663.688	Log Typed By:	AS

Drilling Legend
▨ Sample Interval
☰ Odex

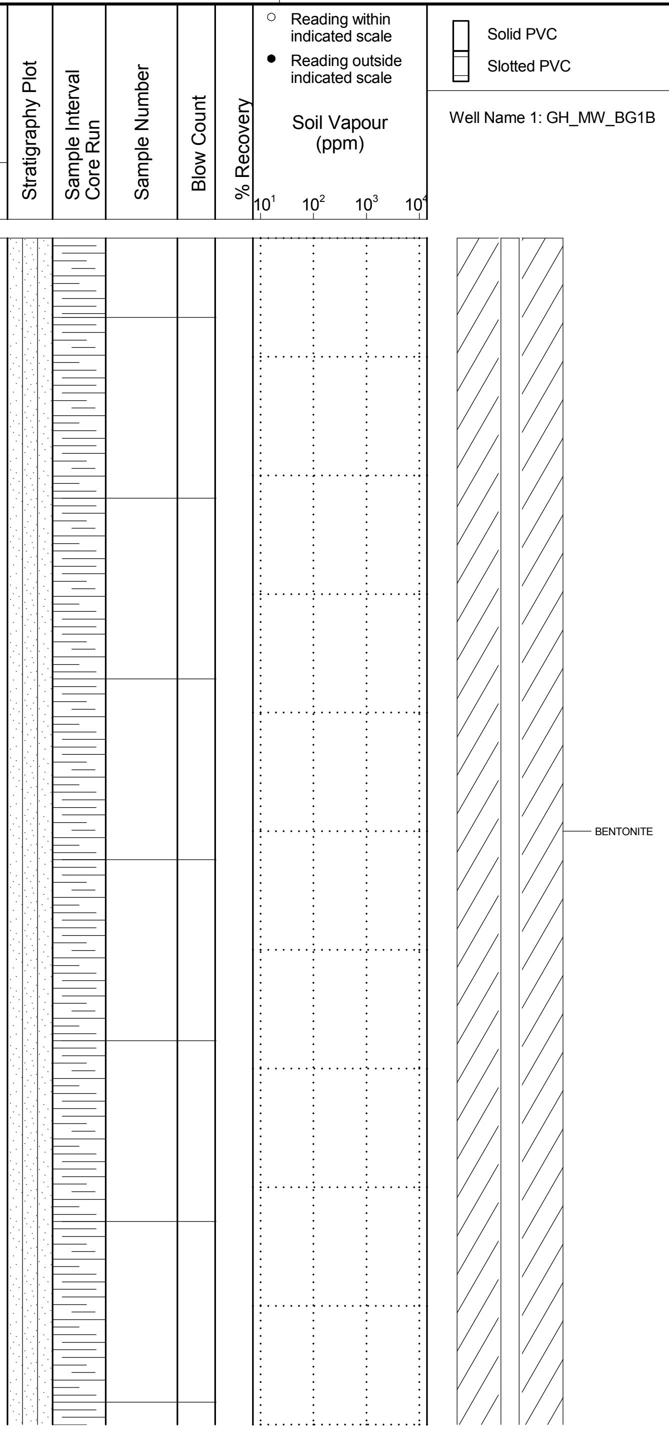
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: GH_MW_BG1B

Depth in Metres	Soil Description
10	SILTY SAND, fine to coarse grained, trace gravel, fine, subangular, dark brown, dense, dry. *(continued)*
18	At 18.0 m - some gravel.
19.5	At 19.5 m - trace gravel.



NOTES

QA/QC: LLH 2020 10 19 Print Date:2020-12-02

FINAL

SNC • LAVALIN	Client **Teck Coal Limited**	**Borehole No. : GH_BH_BG1B**
	Location **Regional Groundwater Monitoring**	PAGE 3 OF 5

Drilling Contractor	Owen's Drilling	Date Monitored	2020 09 29	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1448.707	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1449.693	Date Drilled:	2020 09 25
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5565168.100	Easting: 645663.688	Log Typed By:	AS

Drilling Legend
▨ Sample Interval
▤ Odex

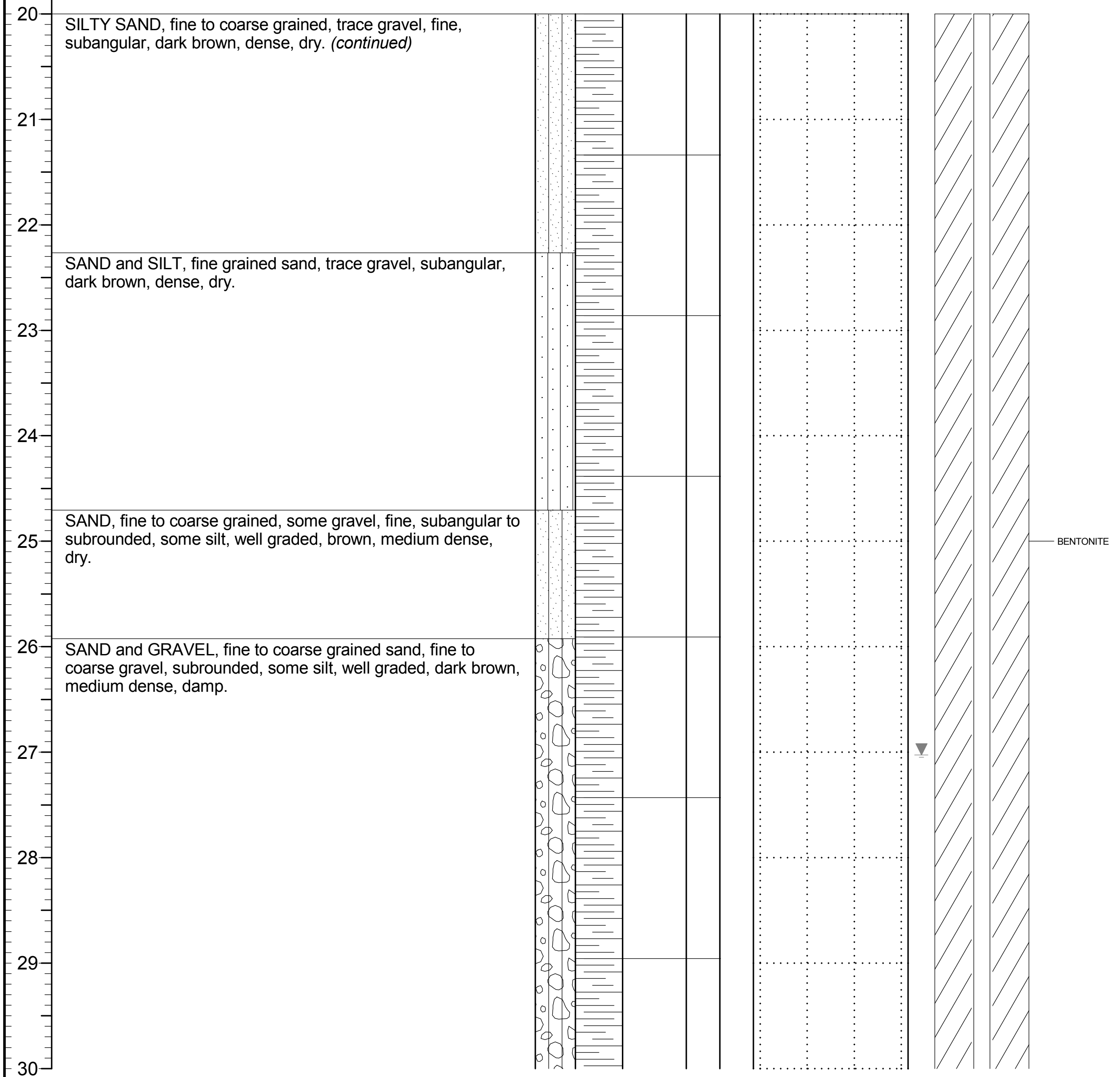
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▯ Slotted PVC

Well Name 1: GH_MW_BG1B

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm) 10^1 10^2 10^3 10^4



SILTY SAND, fine to coarse grained, trace gravel, fine, subangular, dark brown, dense, dry. *(continued)*

SAND and SILT, fine grained sand, trace gravel, subangular, dark brown, dense, dry.

SAND, fine to coarse grained, some gravel, fine, subangular to subrounded, some silt, well graded, brown, medium dense, dry.

SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subrounded, some silt, well graded, dark brown, medium dense, damp.

NOTES

QA/QC: LLH 2020 10 19 Print Date:2020-12-02

FINAL

SNC • LAVALIN	Client **Teck Coal Limited**	**Borehole No. : GH_BH_BG1B**
	Location **Regional Groundwater Monitoring**	PAGE 4 OF 5

Drilling Contractor	Owen's Drilling	Date Monitored	2020 09 29	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1448.707	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1449.693	Date Drilled:	2020 09 25
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5565168.100	Easting: 645663.688	Log Typed By:	AS

Drilling Legend
▨ Sample Interval
☰ Odex

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

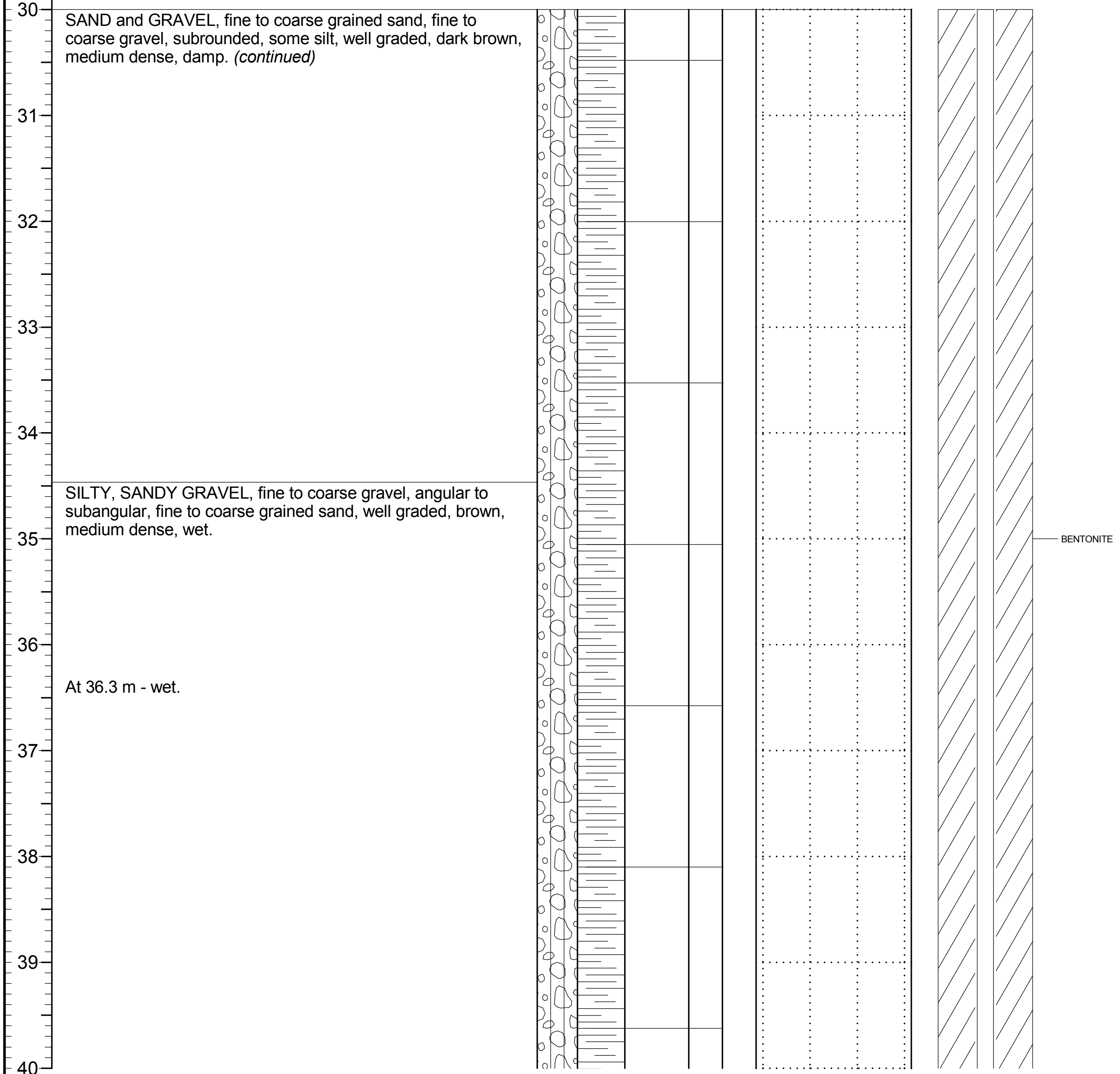
Well Name 1: GH_MW_BG1B

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm) 10^1 10^2 10^3 10^4

SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subrounded, some silt, well graded, dark brown, medium dense, damp. *(continued)*

SILTY, SANDY GRAVEL, fine to coarse gravel, angular to subangular, fine to coarse grained sand, well graded, brown, medium dense, wet.

At 36.3 m - wet.



NOTES

QA/QC: LLH 2020 10 19 Print Date:2020-12-02

FINAL

SNC-LAVALIN	Client **Teck Coal Limited**	**Borehole No. : GH_BH_BG1B**
	Location **Regional Groundwater Monitoring**	PAGE 5 OF 5

Drilling Contractor	Owen's Drilling	Date Monitored	2020 09 29	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1448.707	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1449.693	Date Drilled:	2020 09 25
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5565168.100	Easting: 645663.688	Log Typed By:	AS

Drilling Legend
- ▨ Sample Interval
- ▭ Odex

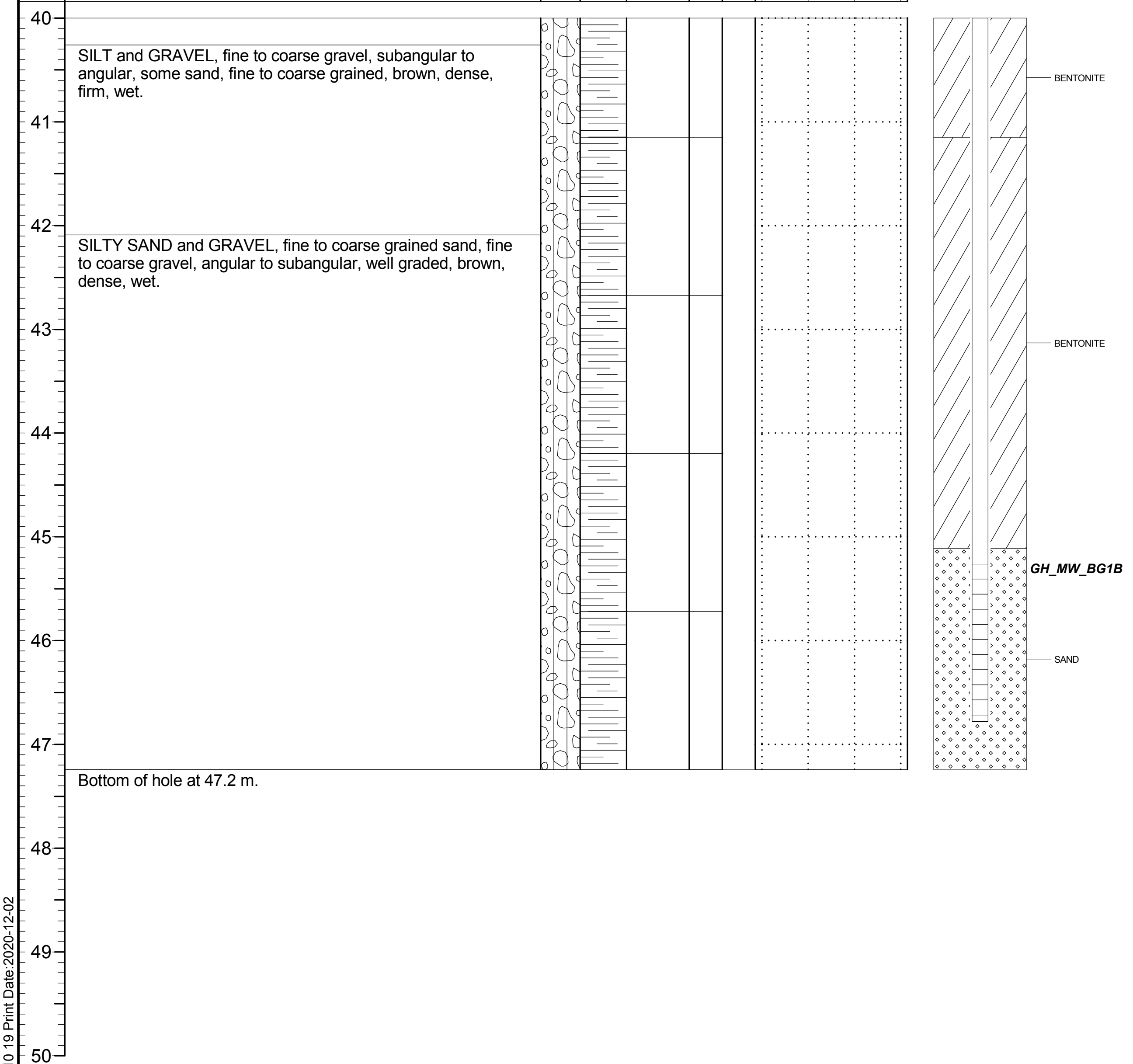
Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- ▯ Solid PVC
- ▯ Slotted PVC

Well Name 1: GH_MW_BG1B

Depth in Metres	Soil Description
40.3	SILT and GRAVEL, fine to coarse gravel, subangular to angular, some sand, fine to coarse grained, brown, dense, firm, wet.
42.1	SILTY SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, angular to subangular, well graded, brown, dense, wet.
47.2	Bottom of hole at 47.2 m.



NOTES

QA/QC: LLH 2020 10 19 Print Date:2020-12-02

FINAL

SNC·LAVALIN

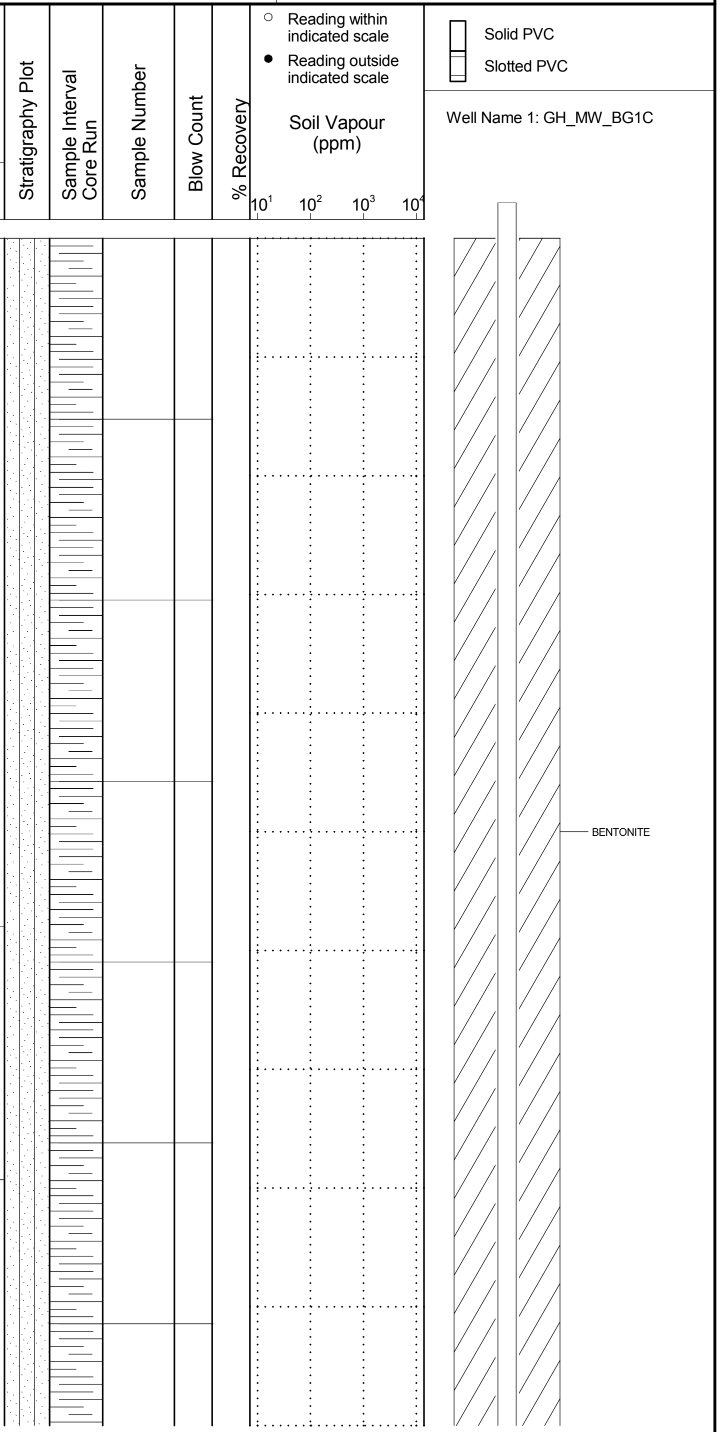
Client	Borehole No. : GH_BH_BG1C
Teck Coal Limited	
Location	PAGE 1 OF 4
Regional Groundwater Monitoring	

Drilling Contractor	Owen's Drilling	Date Monitored	2020 09 29	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1448.484	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1449.343	Date Drilled:	2020 09 24
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5565164.723	Easting: 645663.041	Log Typed By:	AS

Drilling Legend
- ▨ Sample Interval
- ☐ Odex

Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

Depth in Metres	Soil Description
0	SILTY SAND, fine to coarse grained sand, trace gravel, fine, subangular, brown, loose, damp, organics.
2.7	At 2.7 m - dry.
5.8	SAND, fine to coarse grained, some gravel, fine, angular, some silt, well graded, brown, medium dense, dry.
7.9	SILTY SAND, fine to coarse grained sand, trace gravel, fine subangular, dark brown, dense, dry.



Depth scale: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

NOTES

QA/QC: LLH 2020 10 19 Print Date:2020-12-02

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Client **Teck Coal Limited**		**Borehole No. : GH_BH_BG1C**
Location **Regional Groundwater Monitoring**		PAGE 2 OF 4

Drilling Contractor	Owen's Drilling	Date Monitored	2020 09 29	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1448.484	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1449.343	Date Drilled:	2020 09 24
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5565164.723	Easting: 645663.041	Log Typed By:	AS

Drilling Legend
- ▨ Sample Interval
- ☰ Odex

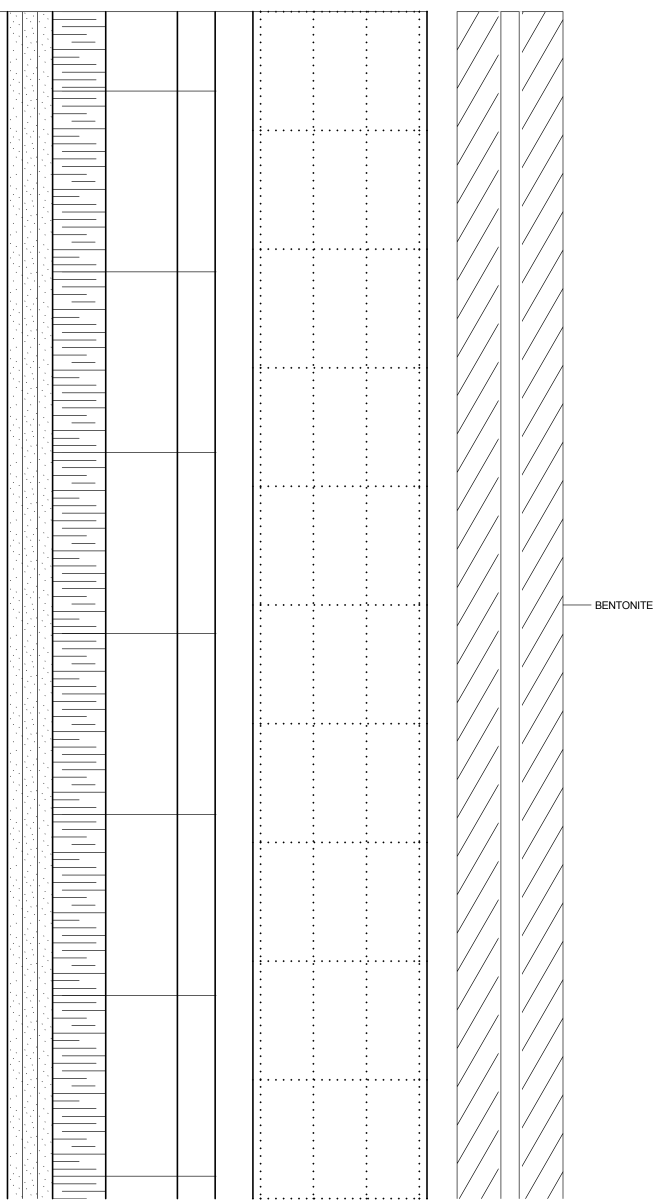
Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- ▯ Solid PVC
- ▤ Slotted PVC

Well Name 1: GH_MW_BG1C

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm) 10^1 10^2 10^3 10^4



10 SILTY SAND, fine to coarse grained sand, trace gravel, fine subangular, dark brown, dense, dry. *(continued)*

11

12

13

14

15

16

17

18 At 18.0 m - some gravel.

19

At 19.5 m - trace gravel.

20

NOTES

QA/QC: LLH 2020 10 19 Print Date:2020-12-02

FINAL

SNC • LAVALIN	Client **Teck Coal Limited**	**Borehole No. : GH_BH_BG1C**
	Location **Regional Groundwater Monitoring**	PAGE 3 OF 4

Drilling Contractor	Owen's Drilling	Date Monitored	2020 09 29	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1448.484	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1449.343	Date Drilled:	2020 09 24
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5565164.723	Easting: 645663.041	Log Typed By:	AS

Drilling Legend
- ▨ Sample Interval
- ☰ Odex

Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- ▯ Solid PVC
- ▯ Slotted PVC

Well Name 1: GH_MW_BG1C

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)

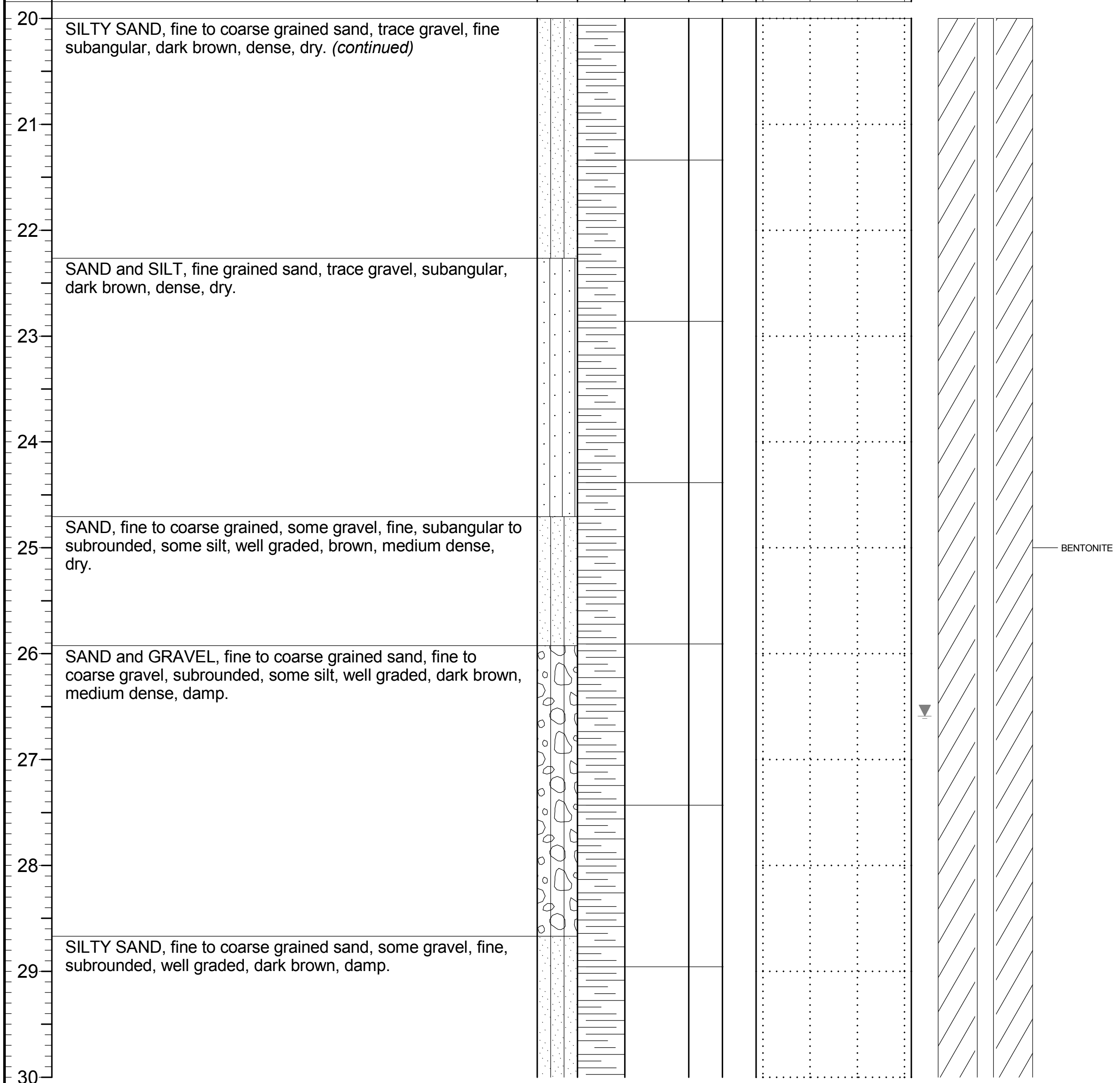
SILTY SAND, fine to coarse grained sand, trace gravel, fine subangular, dark brown, dense, dry. *(continued)*

SAND and SILT, fine grained sand, trace gravel, subangular, dark brown, dense, dry.

SAND, fine to coarse grained, some gravel, fine, subangular to subrounded, some silt, well graded, brown, medium dense, dry.

SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subrounded, some silt, well graded, dark brown, medium dense, damp.

SILTY SAND, fine to coarse grained sand, some gravel, fine, subrounded, well graded, dark brown, damp.



NOTES

FINAL

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Client
Teck Coal Limited

Location
Regional Groundwater Monitoring

Borehole No. : GH_BH_BG1C

PAGE 4 OF 4

Drilling Contractor	Owen's Drilling	Date Monitored	2020 09 29	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1448.484	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1449.343	Date Drilled:	2020 09 24
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5565164.723	Easting: 645663.041	Log Typed By:	AS

Drilling Legend
▨ Sample Interval
▤ Odex

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

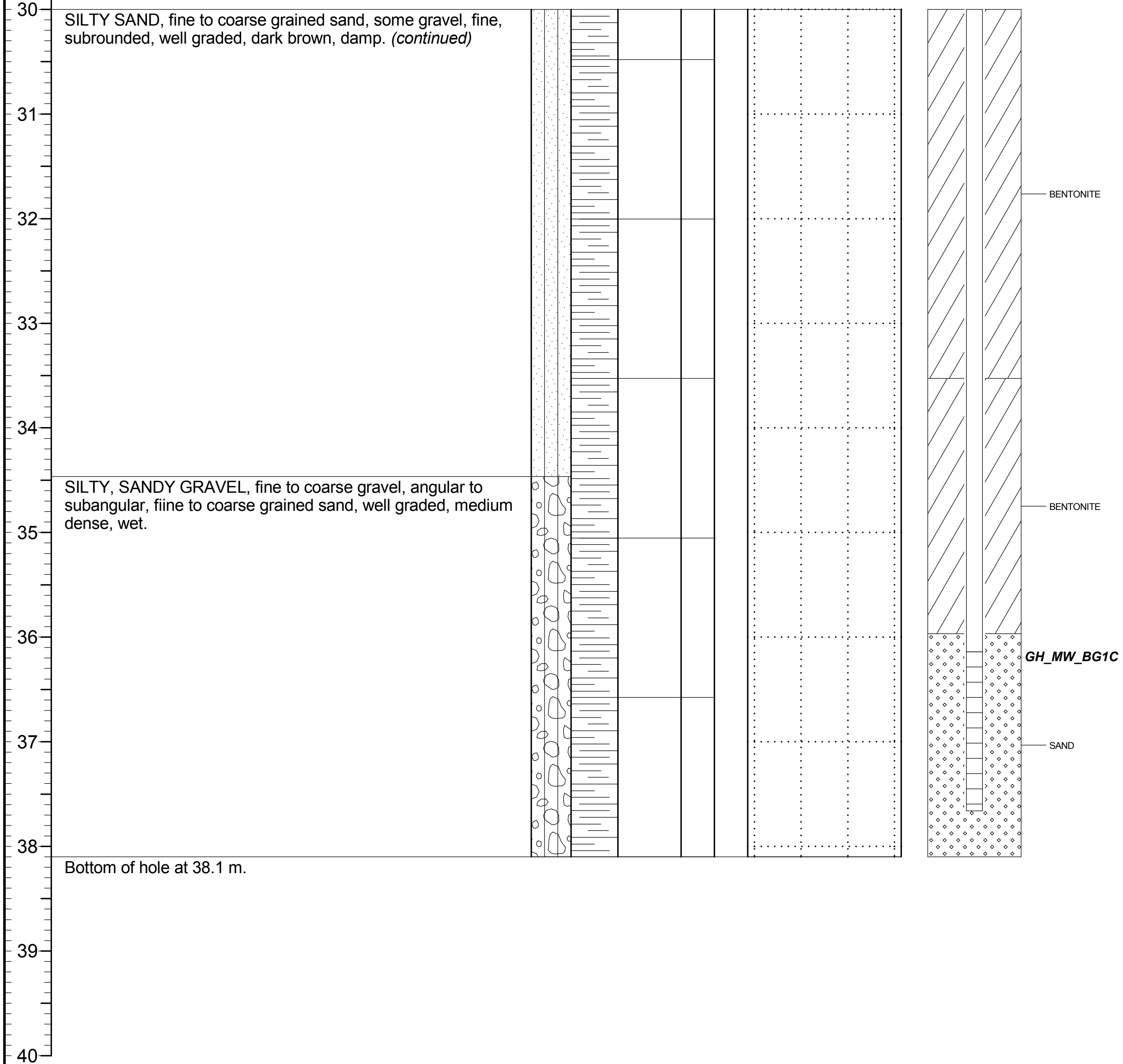
Well Name 1: GH_MW_BG1C

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm) 10^1 10^2 10^3 10^4

30 – SILTY SAND, fine to coarse grained sand, some gravel, fine, subrounded, well graded, dark brown, damp. *(continued)*

34.5 – SILTY, SANDY GRAVEL, fine to coarse gravel, angular to subangular, fiine to coarse grained sand, well graded, medium dense, wet.

38.1 – Bottom of hole at 38.1 m.



NOTES

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Client **Teck Coal Limited**	**Borehole No. : GH_BH-Willow-1**	
Location **Greenhills Operations Willow Pond**	PAGE 1 OF 4	

Drilling Contractor	Owen's Drilling	Date Monitored	2018 12 07	Project Number:	658004
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1345.524	Borehole Logged By:	MCA/AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1346.420 1346.423	Date Drilled:	2018 11 20
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5556081.040	Easting: 647474.898	Log Typed By:	VL

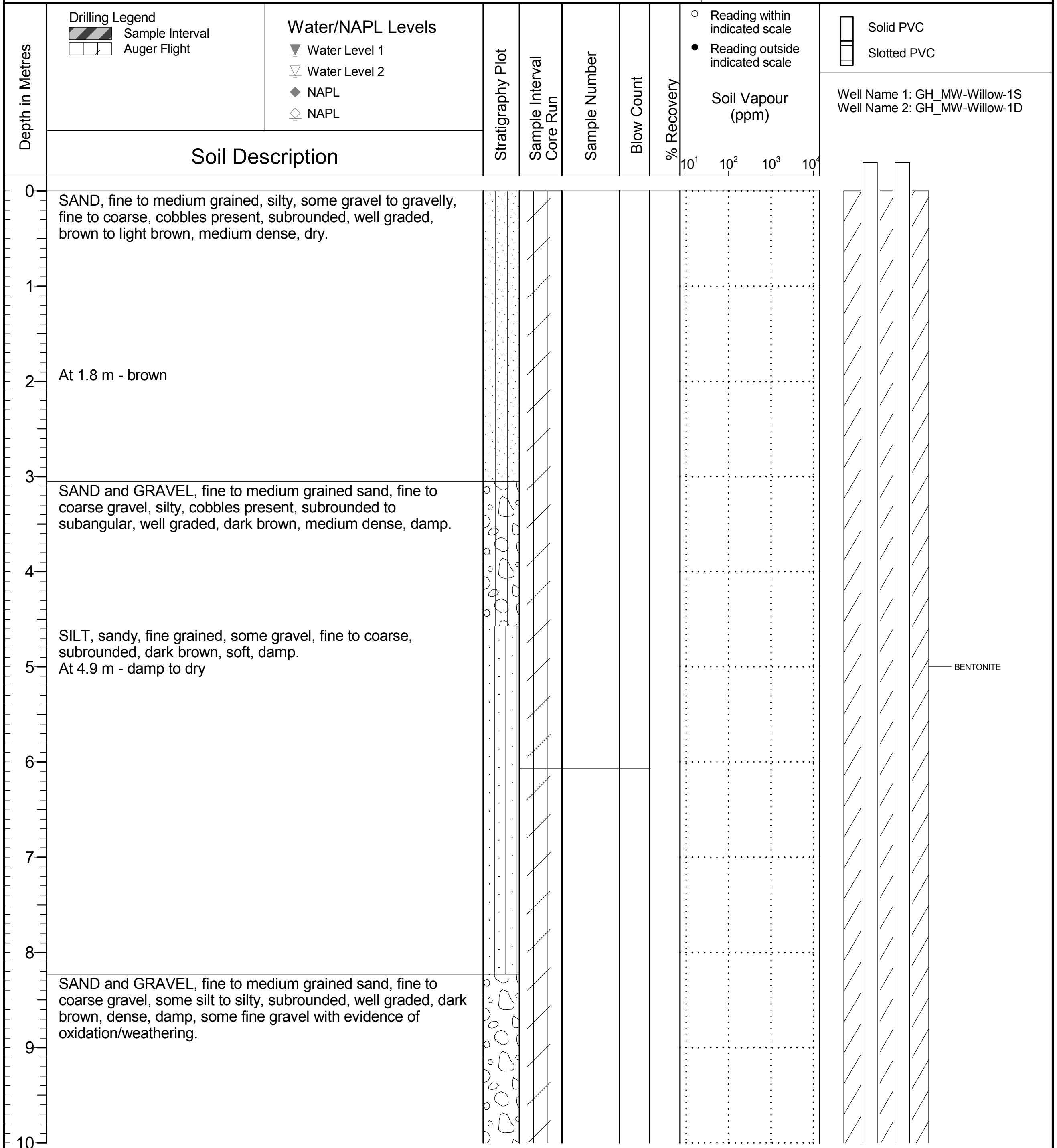
Drilling Legend
▨ Sample Interval
Auger Flight

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

● Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: GH_MW-Willow-1S
Well Name 2: GH_MW-Willow-1D



Soil Description

SAND, fine to medium grained, silty, some gravel to gravelly, fine to coarse, cobbles present, subrounded, well graded, brown to light brown, medium dense, dry.

At 1.8 m - brown

SAND and GRAVEL, fine to medium grained sand, fine to coarse gravel, silty, cobbles present, subrounded to subangular, well graded, dark brown, medium dense, damp.

SILT, sandy, fine grained, some gravel, fine to coarse, subrounded, dark brown, soft, damp.
At 4.9 m - damp to dry

SAND and GRAVEL, fine to medium grained sand, fine to coarse gravel, some silt to silty, subrounded, well graded, dark brown, dense, damp, some fine gravel with evidence of oxidation/weathering.

NOTES
Water level 1 and first top of casing elevation is for GH_MW-Willow-1S.
Water level 2 and second top of casing elevation is for GH_MW-Willow-1D.

QA: MCA 2019 01 14 Print Date:2019-12-04

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : GH_BH-Willow-1**
	Location **Greenhills Operations Willow Pond**	PAGE 2 OF 4

Drilling Contractor	Owen's Drilling	Date Monitored	2018 12 07	Project Number:	658004
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1345.524	Borehole Logged By:	MCA/AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1346.420 1346.423	Date Drilled:	2018 11 20
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5556081.040	Easting: 647474.898	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
Auger Flight

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

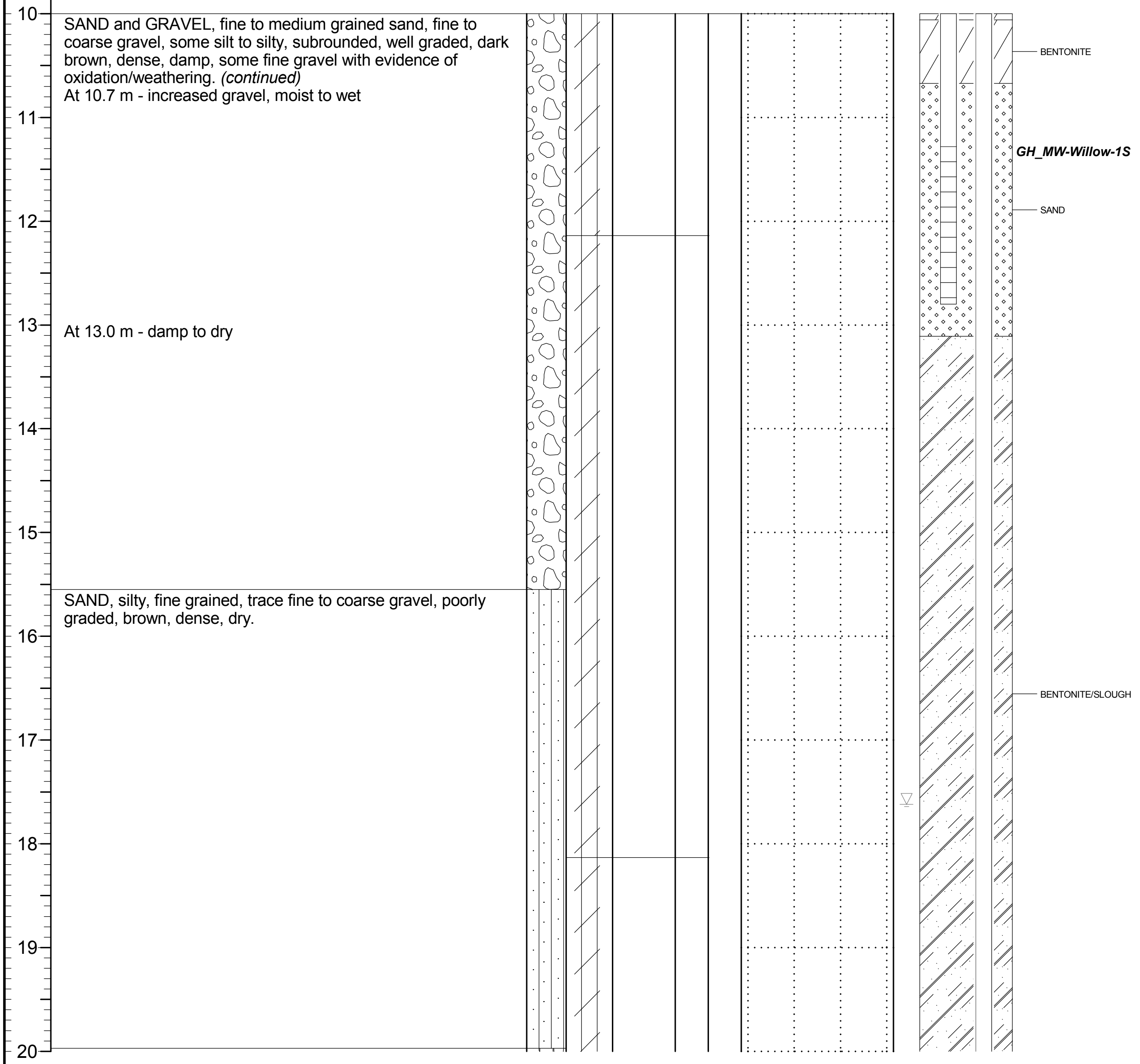
Well Name 1: GH_MW-Willow-1S
Well Name 2: GH_MW-Willow-1D

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm) 10^1 10^2 10^3 10^4

SAND and GRAVEL, fine to medium grained sand, fine to coarse gravel, some silt to silty, subrounded, well graded, dark brown, dense, damp, some fine gravel with evidence of oxidation/weathering. *(continued)*
At 10.7 m - increased gravel, moist to wet

At 13.0 m - damp to dry

SAND, silty, fine grained, trace fine to coarse gravel, poorly graded, brown, dense, dry.



NOTES
Water level 1 and first top of casing elevation is for GH_MW-Willow-1S.
Water level 2 and second top of casing elevation is for GH_MW-Willow-1D.

SNC • LAVALIN	Client **Teck Coal Limited**	**Borehole No. : GH_BH-Willow-1**
	Location **Greenhills Operations Willow Pond**	PAGE 3 OF 4

Drilling Contractor	Owen's Drilling	Date Monitored	2018 12 07	Project Number:	658004
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1345.524	Borehole Logged By:	MCA/AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1346.420 1346.423	Date Drilled:	2018 11 20
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5556081.040	Easting: 647474.898	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
Auger Flight

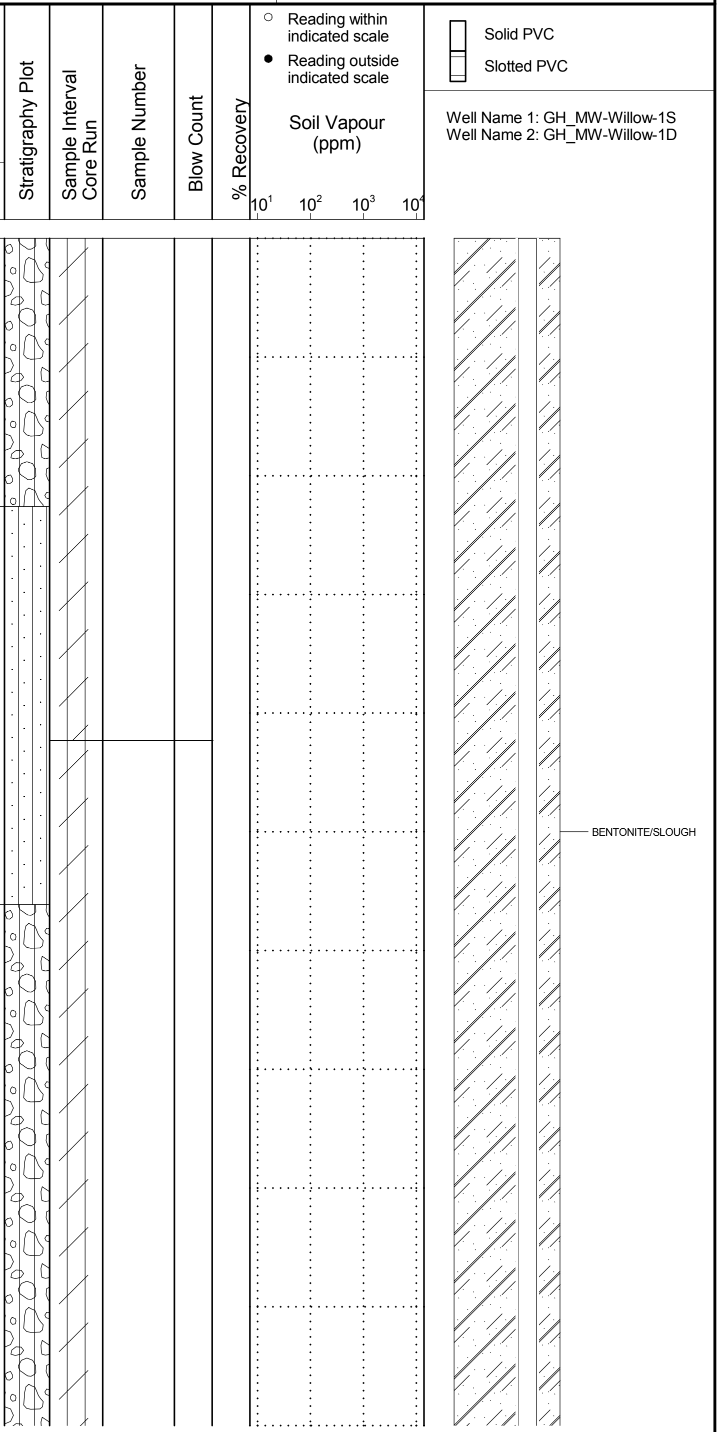
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: GH_MW-Willow-1S
Well Name 2: GH_MW-Willow-1D

Depth in Metres	Soil Description
20	SAND and GRAVEL, fine grained sand, fine to coarse gravel, silty, subrounded, poorly graded, brown, dense, dry. *(continued)*
22.3	SILT, sandy, fine grained, trace fine to coarse gravel, subrounded, poorly graded, firm, dry.
25.6	SAND and GRAVEL, fine grained sand, fine to coarse gravel, silty, subrounded, poorly graded, brown, dense, dry.
27.1	At 27.1 m - increased gravel



Depth scale: 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30

NOTES
Water level 1 and first top of casing elevation is for GH_MW-Willow-1S.
Water level 2 and second top of casing elevation is for GH_MW-Willow-1D.

QA: MCA 2019 01 14 Print Date:2019-12-04

SNC·LAVALIN

Client	Borehole No. : GH_BH-Willow-1
Teck Coal Limited	
Location **Greenhills Operations Willow Pond**	PAGE 4 OF 4

Drilling Contractor	Owen's Drilling	Date Monitored	2018 12 07	Project Number:	658004
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1345.524	Borehole Logged By:	MCA/AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1346.420 1346.423	Date Drilled:	2018 11 20
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5556081.040	Easting: 647474.898	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- Auger Flight

Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

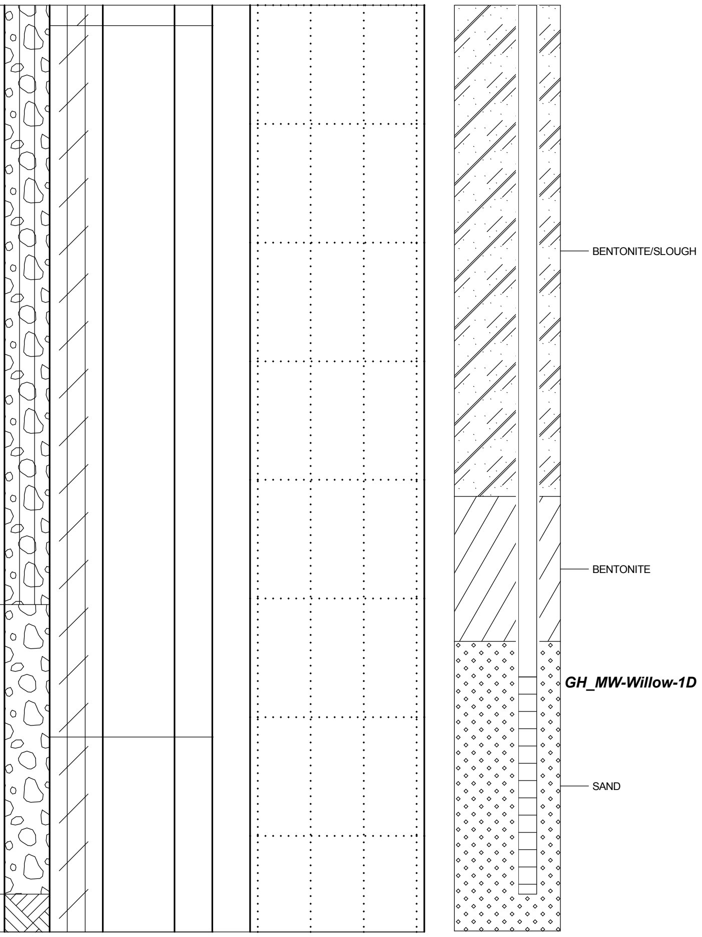
Soil Vapour (ppm): 10^1 10^2 10^3 10^4

- Solid PVC
- Slotted PVC

Well Name 1: GH_MW-Willow-1S
Well Name 2: GH_MW-Willow-1D

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery

Depth in Metres	Soil Description
30	SAND and GRAVEL, fine grained sand, fine to coarse gravel, silty, subrounded, poorly graded, brown, dense, dry. *(continued)*
35	SAND and GRAVEL, fine grained sand, fine to coarse gravel, some silt, rounded to subrounded, poorly graded, dense, moist to wet.
37.5	BEDROCK, fine grained, grey to dark grey, moderately weathered.
37.8	Bottom of hole at 37.8 m.



Depth scale: 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40

NOTES
Water level 1 and first top of casing elevation is for GH_MW-Willow-1S.
Water level 2 and second top of casing elevation is for GH_MW-Willow-1D.

QA: MCA 2019 01 14 Print Date:2019-12-04

SNC·LAVALIN

Client **Teck Coal Limited**	**Borehole No. : GH_BH-Willow-2**
Location **Greenhills Operations Willow Pond**	PAGE 1 OF 3

Drilling Contractor	Owen's Drilling	Date Monitored	2018 12 06	Project Number:	658004
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1346.840	Borehole Logged By:	MCA/AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1347.701 1347.695	Date Drilled:	2018 11 19
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5556014.905	Easting: 647553.228	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ☐ Auger Flight

Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- ▯ Solid PVC
- ▯ Slotted PVC

Well Name 1: GH_MW-Willow-2S
Well Name 2: GH_MW-Willow-2D

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)

SAND, fine to medium grained, silty, some gravel to gravelly, fine to coarse, cobbles present, subrounded, well graded, brown to light brown, medium dense, dry.

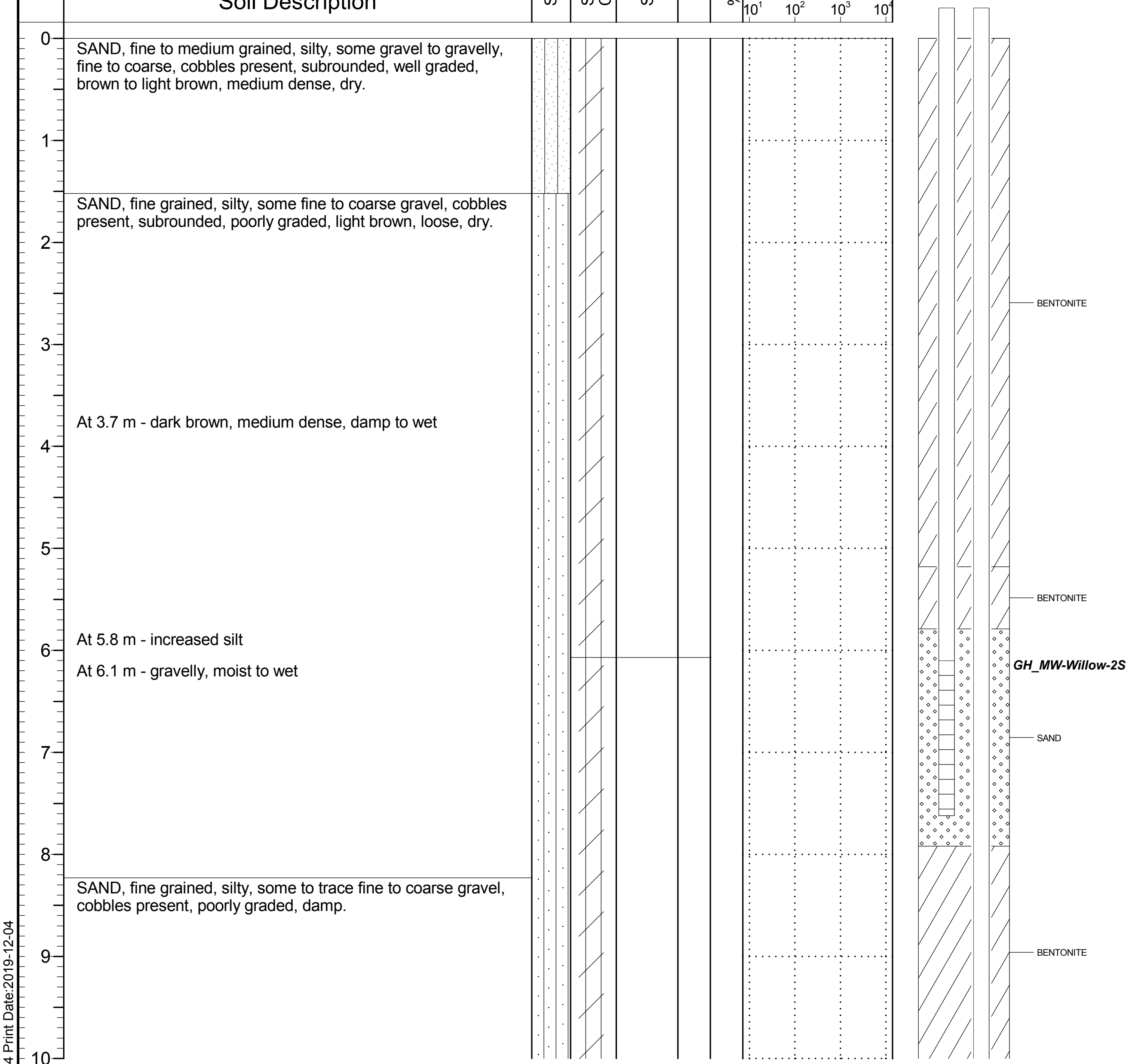
SAND, fine grained, silty, some fine to coarse gravel, cobbles present, subrounded, poorly graded, light brown, loose, dry.

At 3.7 m - dark brown, medium dense, damp to wet

At 5.8 m - increased silt

At 6.1 m - gravelly, moist to wet

SAND, fine grained, silty, some to trace fine to coarse gravel, cobbles present, poorly graded, damp.



NOTES
Water level 1 and first top of casing elevation is for GH_MW-Willow-2S.
Water level 2 and second top of casing elevation is for GH_MW-Willow-2D.

QA: MCA 2019 01 14 Print Date:2019-12-04

SNC·LAVALIN

Client	Borehole No. : GH_BH-Willow-2
Teck Coal Limited	
Location **Greenhills Operations Willow Pond**	PAGE 2 OF 3

Drilling Contractor	Owen's Drilling	Date Monitored	2018 12 06	Project Number:	658004
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1346.840	Borehole Logged By:	MCA/AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1347.701 1347.695	Date Drilled:	2018 11 19
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5556014.905	Easting: 647553.228	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- Auger Flight

Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- Solid PVC
- Slotted PVC

Well Name 1: GH_MW-Willow-2S
Well Name 2: GH_MW-Willow-2D

Depth in Metres

Soil Description

SAND, fine grained, silty, some to trace fine to coarse gravel, cobbles present, poorly graded, damp. *(continued)*

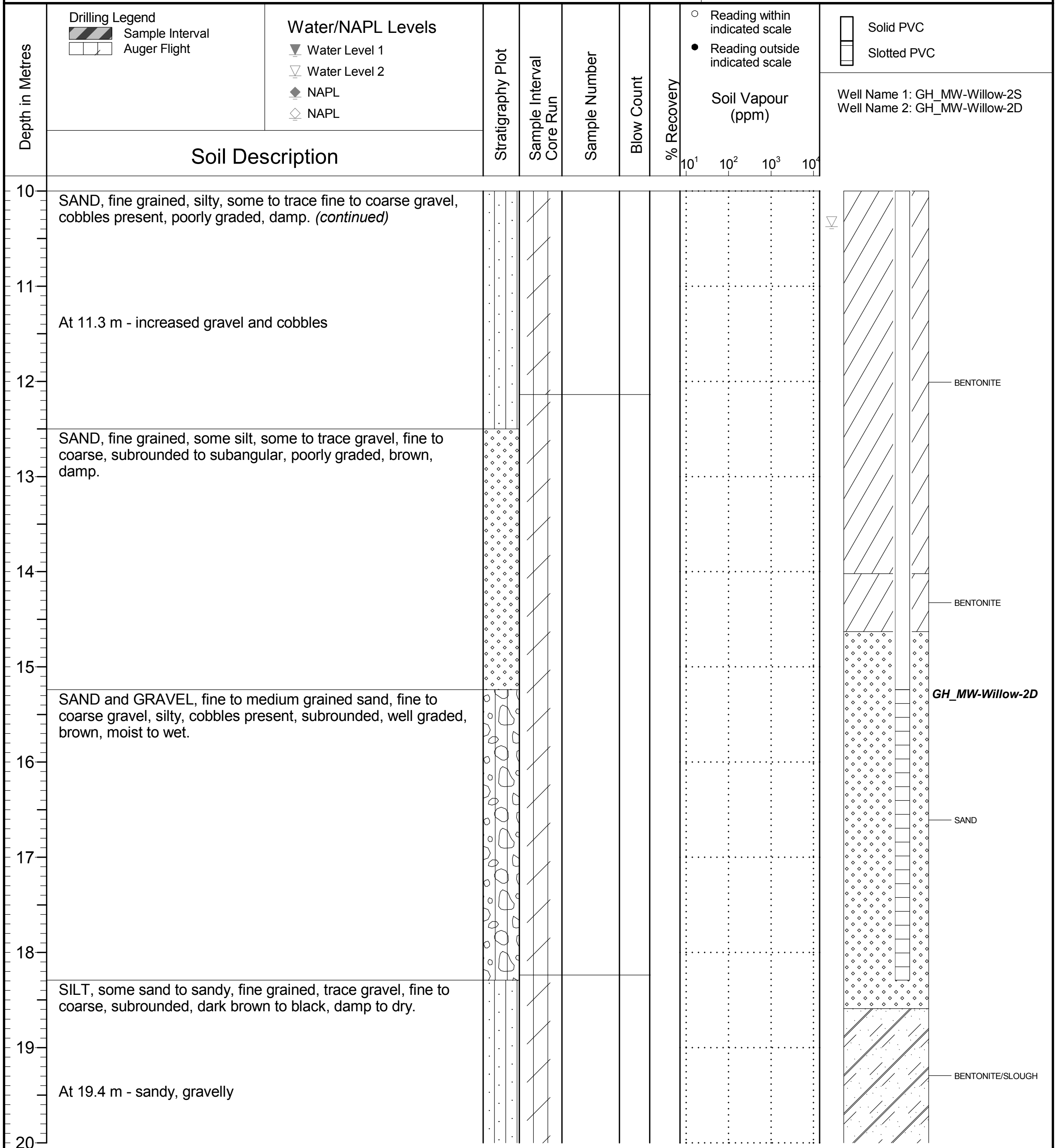
At 11.3 m - increased gravel and cobbles

SAND, fine grained, some silt, some to trace gravel, fine to coarse, subrounded to subangular, poorly graded, brown, damp.

SAND and GRAVEL, fine to medium grained sand, fine to coarse gravel, silty, cobbles present, subrounded, well graded, brown, moist to wet.

SILT, some sand to sandy, fine grained, trace gravel, fine to coarse, subrounded, dark brown to black, damp to dry.

At 19.4 m - sandy, gravelly



NOTES
Water level 1 and first top of casing elevation is for GH_MW-Willow-2S. Water level 2 and second top of casing elevation is for GH_MW-Willow-2D.

QA: MCA 2019 01 14 Print Date:2019-12-04

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : GH_BH-Willow-2**
	Location **Greenhills Operations Willow Pond**	PAGE 3 OF 3

Drilling Contractor	Owen's Drilling	Date Monitored	2018 12 06	Project Number:	658004
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1346.840	Borehole Logged By:	MCA/AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1347.701 1347.695	Date Drilled:	2018 11 19
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5556014.905	Easting: 647553.228	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
Auger Flight

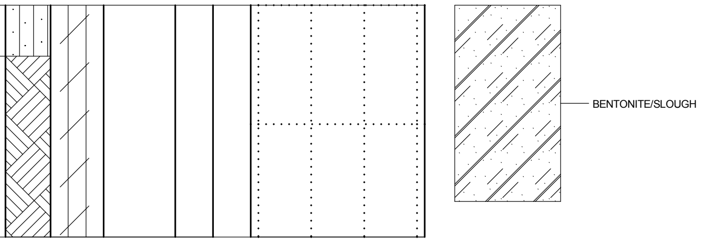
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: GH_MW-Willow-2S
Well Name 2: GH_MW-Willow-2D

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4
20	SILT, some sand to sandy, fine grained, trace gravel, fine to coarse, subrounded, dark brown to black, damp to dry. *(continued)*						
	BEDROCK, fine grained, grey to dark grey, moderately weathered.						
22	Bottom of hole at 22.0 m.						



Depth scale: 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30

NOTES
Water level 1 and first top of casing elevation is for GH_MW-Willow-2S. Water level 2 and second top of casing elevation is for GH_MW-Willow-2D.

QA: MCA 2019 01 14 Print Date:2019-12-04

SNC·LAVALIN

Client **Teck Coal Limited**		**Borehole No. : GH_BH-Wolf-1**
Location **Greenhills Operations Wolf Pond**		PAGE 1 OF 4

Drilling Contractor	Owen's Drilling	Date Monitored	2018 12 06	Project Number:	658004
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1357.176	Borehole Logged By:	MCA/AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1358.139 1358.133	Date Drilled:	2018 11 17
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5556786.610	Easting: 647377.660	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- Auger Flight

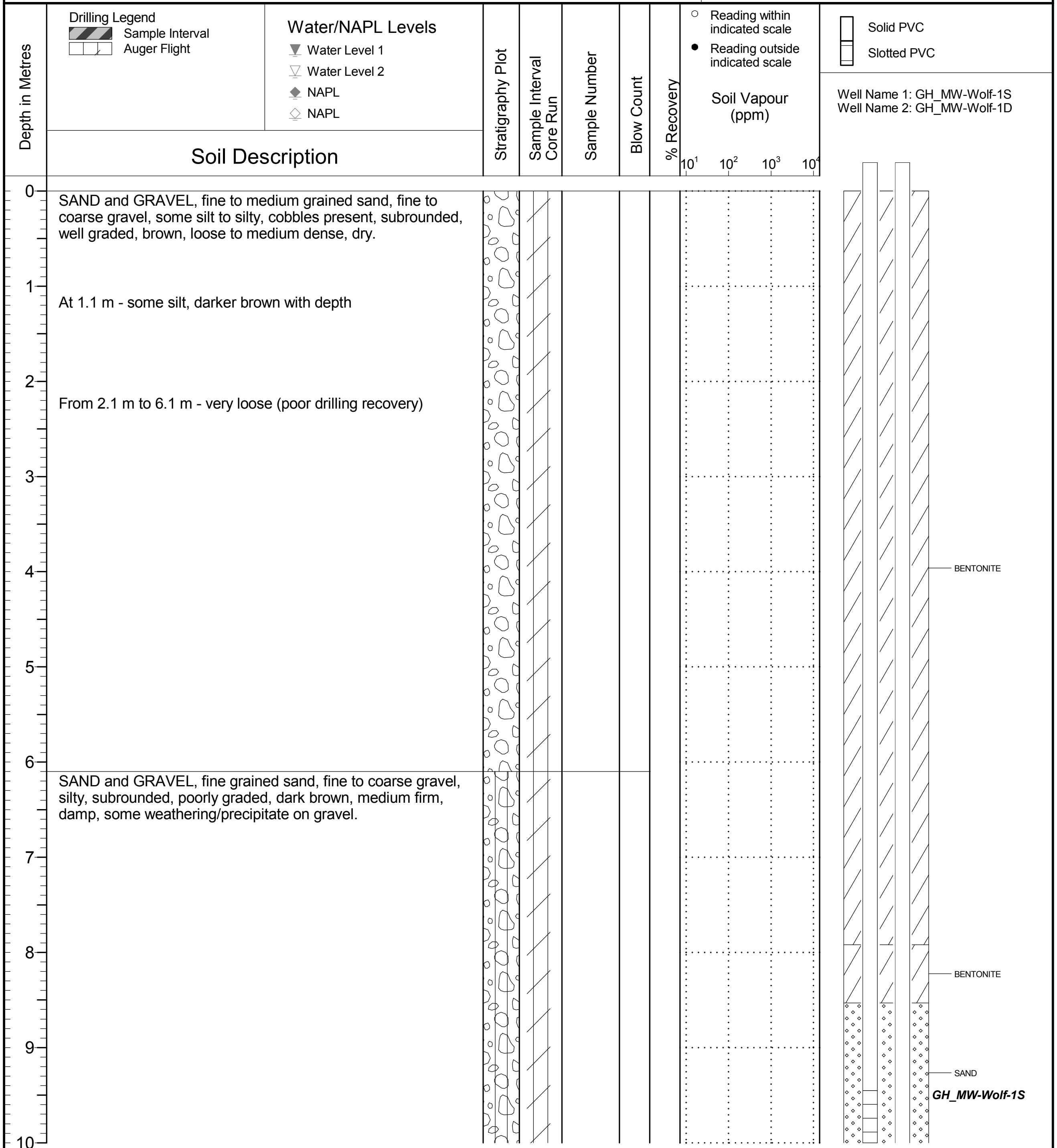
Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- Solid PVC
- Slotted PVC

Well Name 1: GH_MW-Wolf-1S
Well Name 2: GH_MW-Wolf-1D

Depth in Metres	Soil Description
0	SAND and GRAVEL, fine to medium grained sand, fine to coarse gravel, some silt to silty, cobbles present, subrounded, well graded, brown, loose to medium dense, dry.
1.1	At 1.1 m - some silt, darker brown with depth
2.1	From 2.1 m to 6.1 m - very loose (poor drilling recovery)
6.1	SAND and GRAVEL, fine grained sand, fine to coarse gravel, silty, subrounded, poorly graded, dark brown, medium firm, damp, some weathering/precipitate on gravel.



NOTES
Water level 1 and first top of casing elevation is for GH_MW-Wolf-1S.
Water level 2 and second top of casing elevation is for GH_MW-Wolf-1D.

QA: MCA 2019 01 14 Print Date:2019-12-04

SNC · LAVALIN

Client
Teck Coal Limited

Location
Greenhills Operations Wolf Pond

Borehole No. : GH_BH-Wolf-1

Drilling Contractor	Owen's Drilling	Date Monitored	2018 12 06	Project Number:	658004
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1357.176	Borehole Logged By:	MCA/AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1358.139 1358.133	Date Drilled:	2018 11 17
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5556786.610	Easting: 647377.660	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
☐ Auger Flight

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

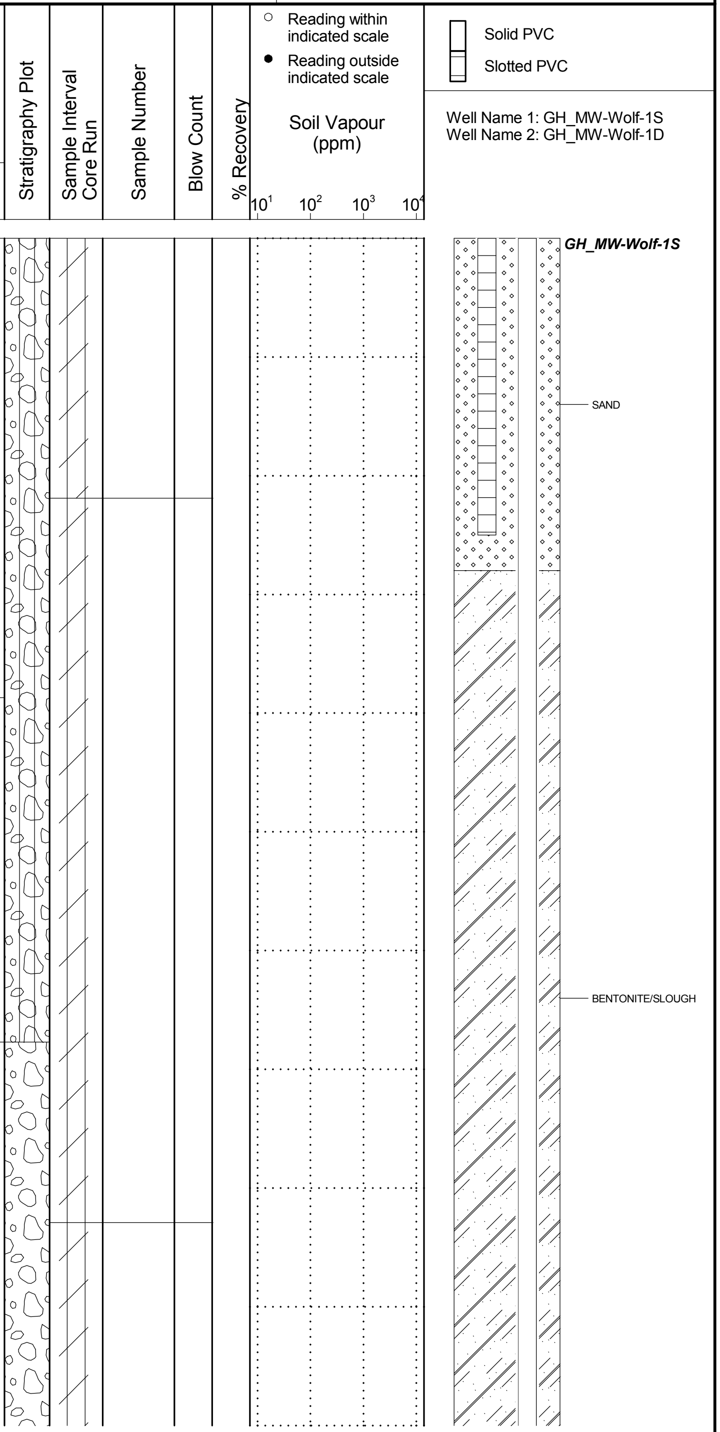
○ Reading within indicated scale
● Reading outside indicated scale

Soil Vapour (ppm)

☐ Solid PVC
☐ Slotted PVC

Well Name 1: GH_MW-Wolf-1S
Well Name 2: GH_MW-Wolf-1D

Depth in Metres	Soil Description
10	SAND and GRAVEL, fine grained sand, fine to coarse gravel, silty, subrounded, poorly graded, dark brown, medium firm, damp, some weathering/precipitate on gravel. *(continued)*
11.9	At 11.9 m - moist to wet
12.5	At 12.5 m - damp
13.7	At 13.7 m - increase in gravel content
13.9	GRAVEL and SAND, fine to coarse gravel, fine grained sand, silty, cobbles present, poorly graded, dark brown, medium dense, damp.
15.4	At 15.4 m - some silt
16.8	SAND and GRAVEL, fine to medium grained sand, fine to coarse gravel, cobbles present, subrounded, dark brown, medium dense, damp.
19.8	At 19.8 m - trace silt, dry



NOTES
Water level 1 and first top of casing elevation is for GH_MW-Wolf-1S.
Water level 2 and second top of casing elevation is for GH_MW-Wolf-1D.

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : GH_BH-Wolf-1**
	Location **Greenhills Operations Wolf Pond**	PAGE 3 OF 4

Drilling Contractor	Owen's Drilling	Date Monitored	2018 12 06	Project Number:	658004
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1357.176	Borehole Logged By:	MCA/AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1358.139 1358.133	Date Drilled:	2018 11 17
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5556786.610	Easting: 647377.660	Log Typed By:	VL

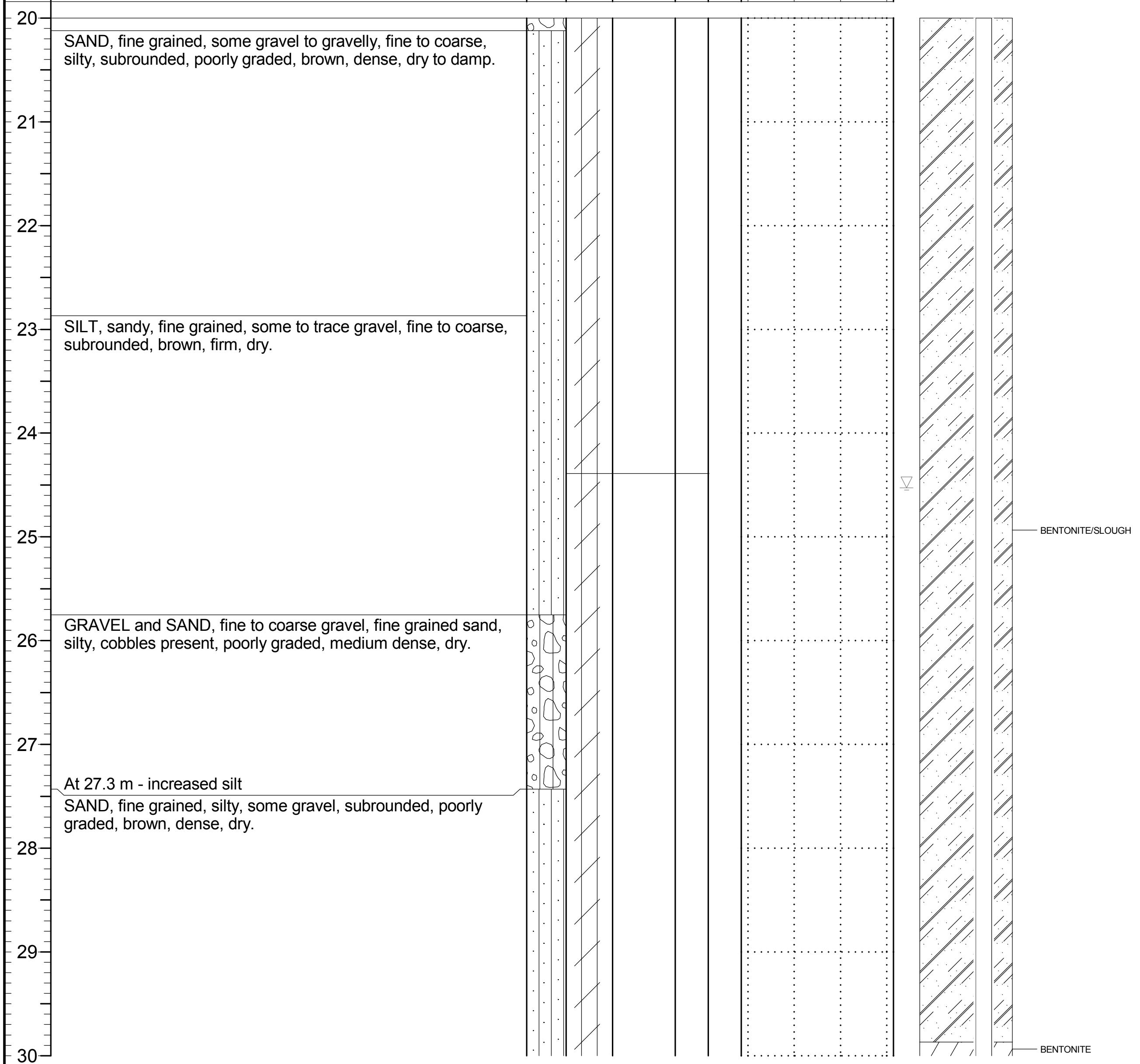
Drilling Legend
- ▨ Sample Interval
- Auger Flight

Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- Solid PVC
- Slotted PVC

Well Name 1: GH_MW-Wolf-1S
Well Name 2: GH_MW-Wolf-1D



SAND, fine grained, some gravel to gravelly, fine to coarse, silty, subrounded, poorly graded, brown, dense, dry to damp.

SILT, sandy, fine grained, some to trace gravel, fine to coarse, subrounded, brown, firm, dry.

GRAVEL and SAND, fine to coarse gravel, fine grained sand, silty, cobbles present, poorly graded, medium dense, dry.

At 27.3 m - increased silt

SAND, fine grained, silty, some gravel, subrounded, poorly graded, brown, dense, dry.

NOTES
Water level 1 and first top of casing elevation is for GH_MW-Wolf-1S.
Water level 2 and second top of casing elevation is for GH_MW-Wolf-1D.

SNC·LAVALIN

Client
Teck Coal Limited

Location
Greenhills Operations Wolf Pond

Borehole No. : GH_BH-Wolf-1

Drilling Contractor Owen's Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2018 12 06
Ground Surface Elev. (m) 1357.176
Top of Casing Elev. (m) 1358.139 1358.133
Northing: 5556786.610 Easting: 647377.660

Project Number: 658004
Borehole Logged By: MCA/AMH
Date Drilled: 2018 11 17
Log Typed By: VL

Drilling Legend
▨ Sample Interval
Auger Flight

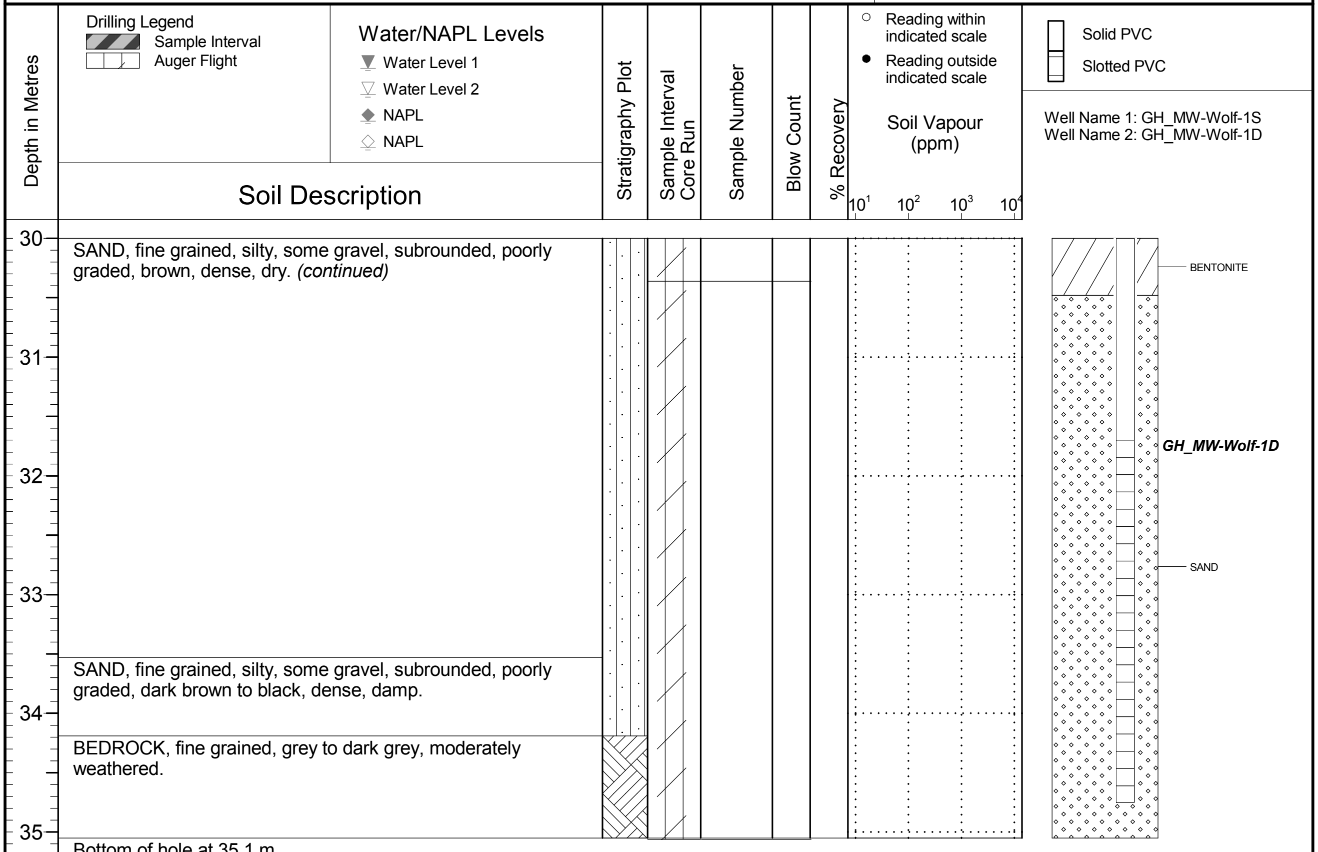
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: GH_MW-Wolf-1S
Well Name 2: GH_MW-Wolf-1D

Depth in Metres	Soil Description
30	SAND, fine grained, silty, some gravel, subrounded, poorly graded, brown, dense, dry. *(continued)*
	SAND, fine grained, silty, some gravel, subrounded, poorly graded, dark brown to black, dense, damp.
34	BEDROCK, fine grained, grey to dark grey, moderately weathered.
35	Bottom of hole at 35.1 m.



NOTES
Water level 1 and first top of casing elevation is for GH_MW-Wolf-1S.
Water level 2 and second top of casing elevation is for GH_MW-Wolf-1D.

QA: MCA 2019 01 14 Print Date:2019-12-04

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : GH_BH-Wolf-2**
	Location **Greenhills Operations Wolf Pond**	PAGE 1 OF 2

Drilling Contractor	Owen's Drilling	Date Monitored	2018 12 06	Project Number:	658004
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1376.512	Borehole Logged By:	MCA
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1377.477 1377.467	Date Drilled:	2018 11 18
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5556856.625	Easting: 647501.035	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ☐ Auger Flight

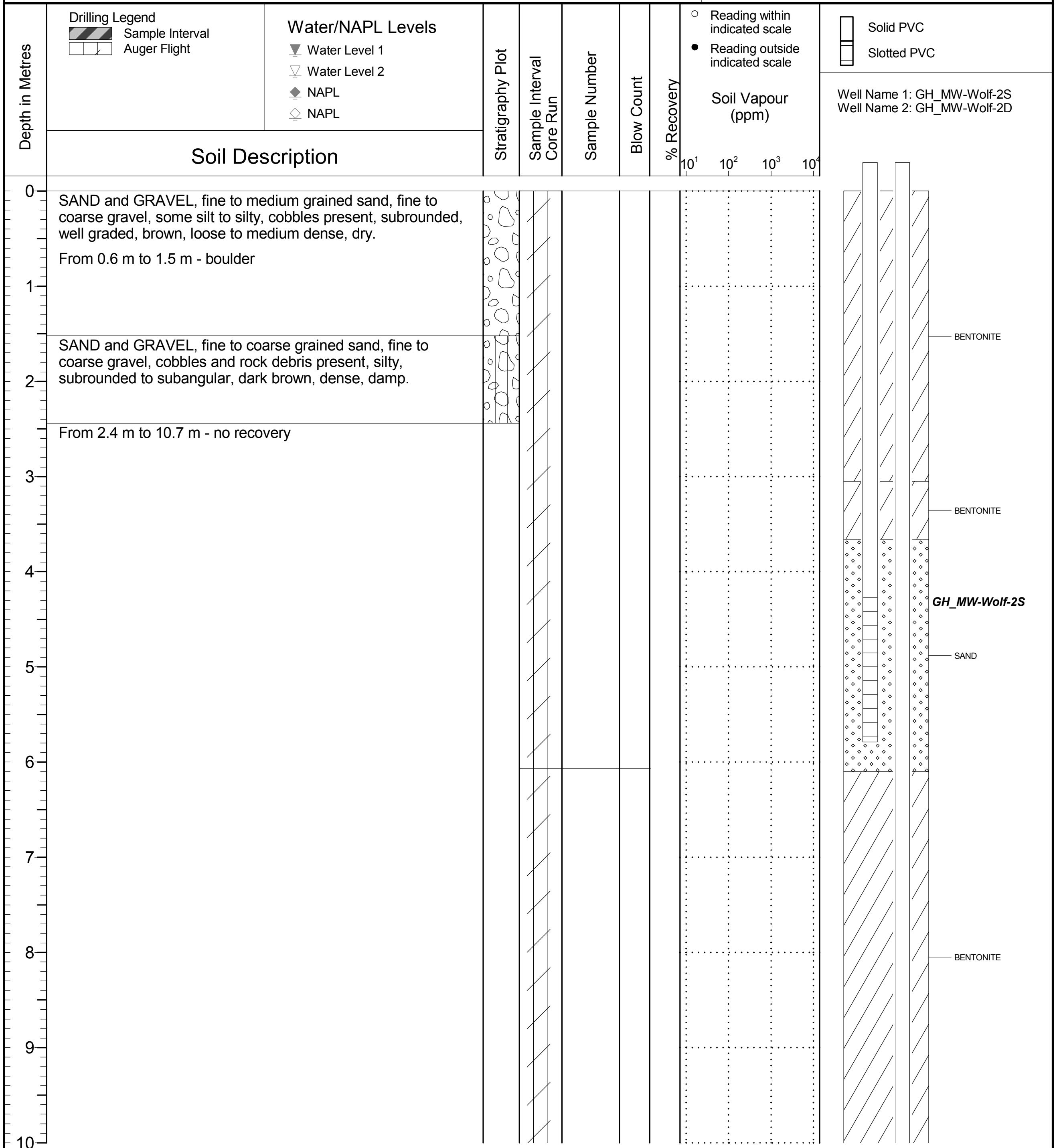
Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- ☐ Solid PVC
- ☐ Slotted PVC

Well Name 1: GH_MW-Wolf-2S
Well Name 2: GH_MW-Wolf-2D

Depth in Metres	Soil Description
0	SAND and GRAVEL, fine to medium grained sand, fine to coarse gravel, some silt to silty, cobbles present, subrounded, well graded, brown, loose to medium dense, dry. From 0.6 m to 1.5 m - boulder
1.5	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, cobbles and rock debris present, silty, subrounded to subangular, dark brown, dense, damp.
2.4	From 2.4 m to 10.7 m - no recovery



NOTES
Water level 1 and first top of casing elevation is for GH_MW-Wolf-2S.
Water level 2 and second top of casing elevation is for GH_MW-Wolf-2D.

QA: MCA 2019 01 14 Print Date:2019-12-04

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : GH_BH-Wolf-2**
	Location **Greenhills Operations Wolf Pond**	PAGE 2 OF 2

Drilling Contractor	Owen's Drilling	Date Monitored	2018 12 06	Project Number:	658004
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1376.512	Borehole Logged By:	MCA
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1377.477 1377.467	Date Drilled:	2018 11 18
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5556856.625	Easting: 647501.035	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
☐ Auger Flight

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

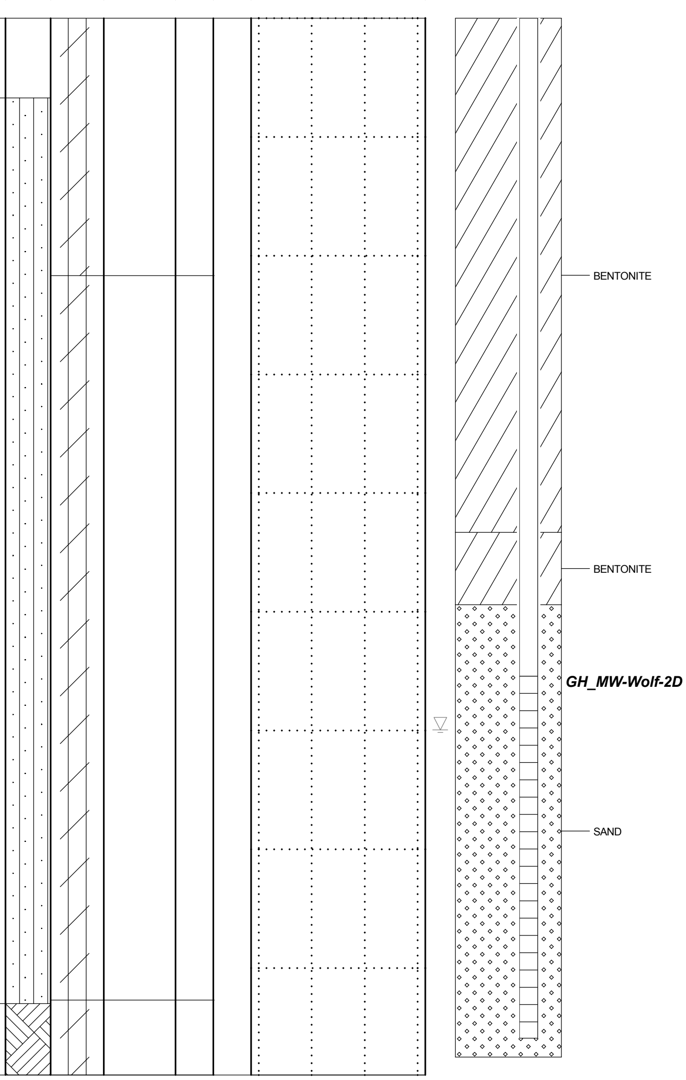
○ Reading within indicated scale
● Reading outside indicated scale

Soil Vapour (ppm)

☐ Solid PVC
☐ Slotted PVC

Well Name 1: GH_MW-Wolf-2S
Well Name 2: GH_MW-Wolf-2D

Depth in Metres	Soil Description
10	From 2.4 m to 10.7 m - no recovery *(continued)*
10.7	SAND, fine grained, silty, some fine to coarse gravel, cobbles present, subrounded, dense, damp to dry.
14.6	At 14.6 m - damp
15.6	From 15.6 m to 16.8 m - cobbles
18.3	BEDROCK, fine grained, grey to dark grey, moderately weathered.
18.9	Bottom of hole at 18.9 m.



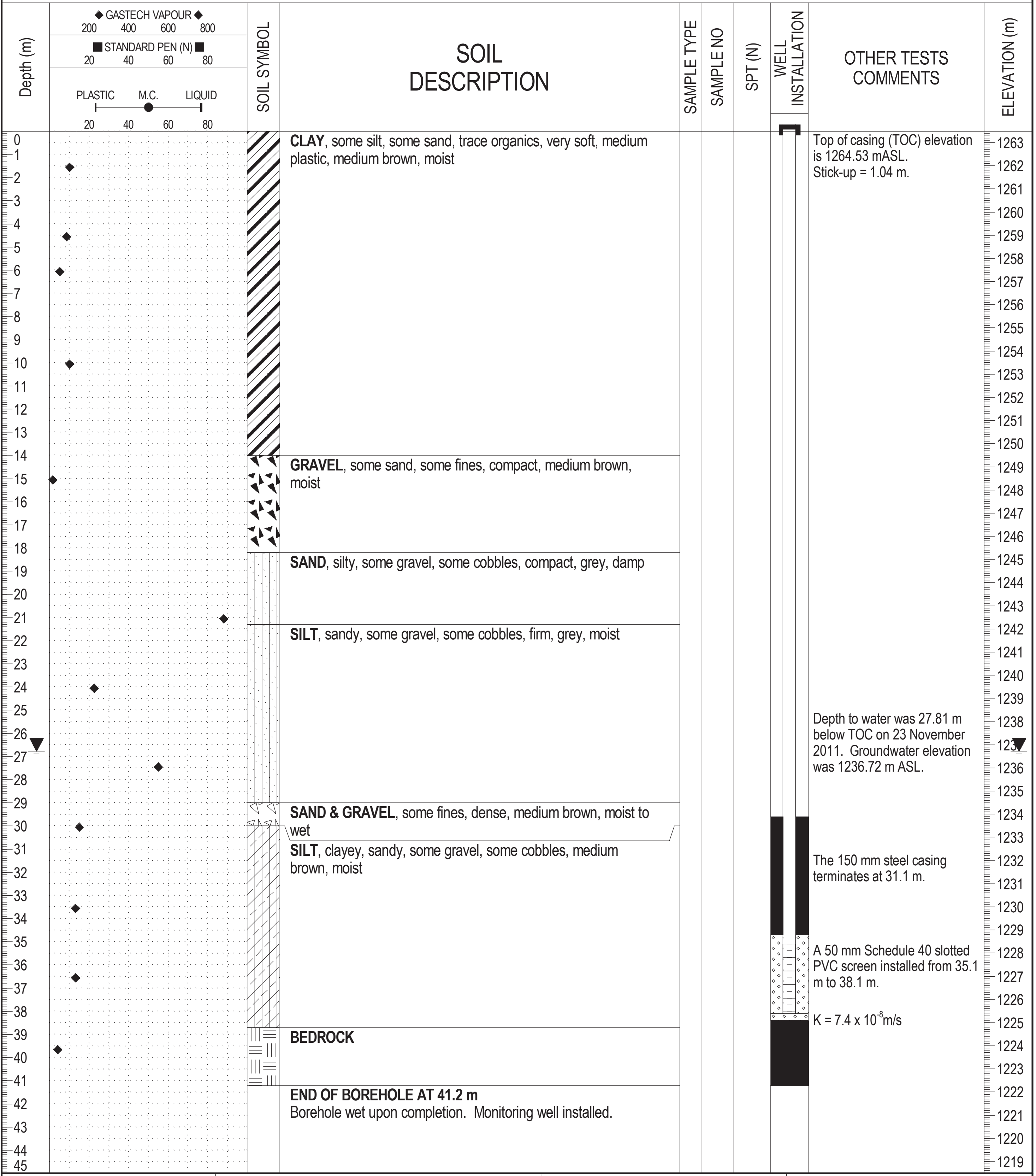
Depth scale: 10 11 12 13 14 15 16 17 18 19 20

NOTES
Water level 1 and first top of casing elevation is for GH_MW-Wolf-2S.
Water level 2 and second top of casing elevation is for GH_MW-Wolf-2D.

QA: MCA 2019 01 14 Print Date:2019-12-04

CLIENT: Teck Coal Ltd.	PROJECT: GW Assessment - Effluent Ponds	BOREHOLE NO: **MW11(P)-03**
DRILLER: JR Drilling	LOCATION: Teck - LCO	PROJECT NO: BX06169
DRILL/METHOD: DR-12/Air Rotary	BOREHOLE LOCATION: Refer to site plan	ELEVATION: 1263.49 m

SAMPLE TYPE	■ Shelby Tube	▨ No Recovery	☒ SPT Test (N)	☰ Grab Sample	▥ Split-Pen	◧
BACKFILL TYPE	■ Bentonite	⁚ Pea Gravel	▥ Slough	⁘ Grout	▨ Drill Cuttings	⁘ Sand



SOIL DESCRIPTION

CLAY, some silt, some sand, trace organics, very soft, medium plastic, medium brown, moist

GRAVEL, some sand, some fines, compact, medium brown, moist

SAND, silty, some gravel, some cobbles, compact, grey, damp

SILT, sandy, some gravel, some cobbles, firm, grey, moist

SAND & GRAVEL, some fines, dense, medium brown, moist to wet

SILT, clayey, sandy, some gravel, some cobbles, medium brown, moist

BEDROCK

END OF BOREHOLE AT 41.2 m
Borehole wet upon completion. Monitoring well installed.

OTHER TESTS COMMENTS

Top of casing (TOC) elevation is 1264.53 mASL. Stick-up = 1.04 m.

Depth to water was 27.81 m below TOC on 23 November 2011. Groundwater elevation was 1236.72 m ASL.

The 150 mm steel casing terminates at 31.1 m.

A 50 mm Schedule 40 slotted PVC screen installed from 35.1 m to 38.1 m.

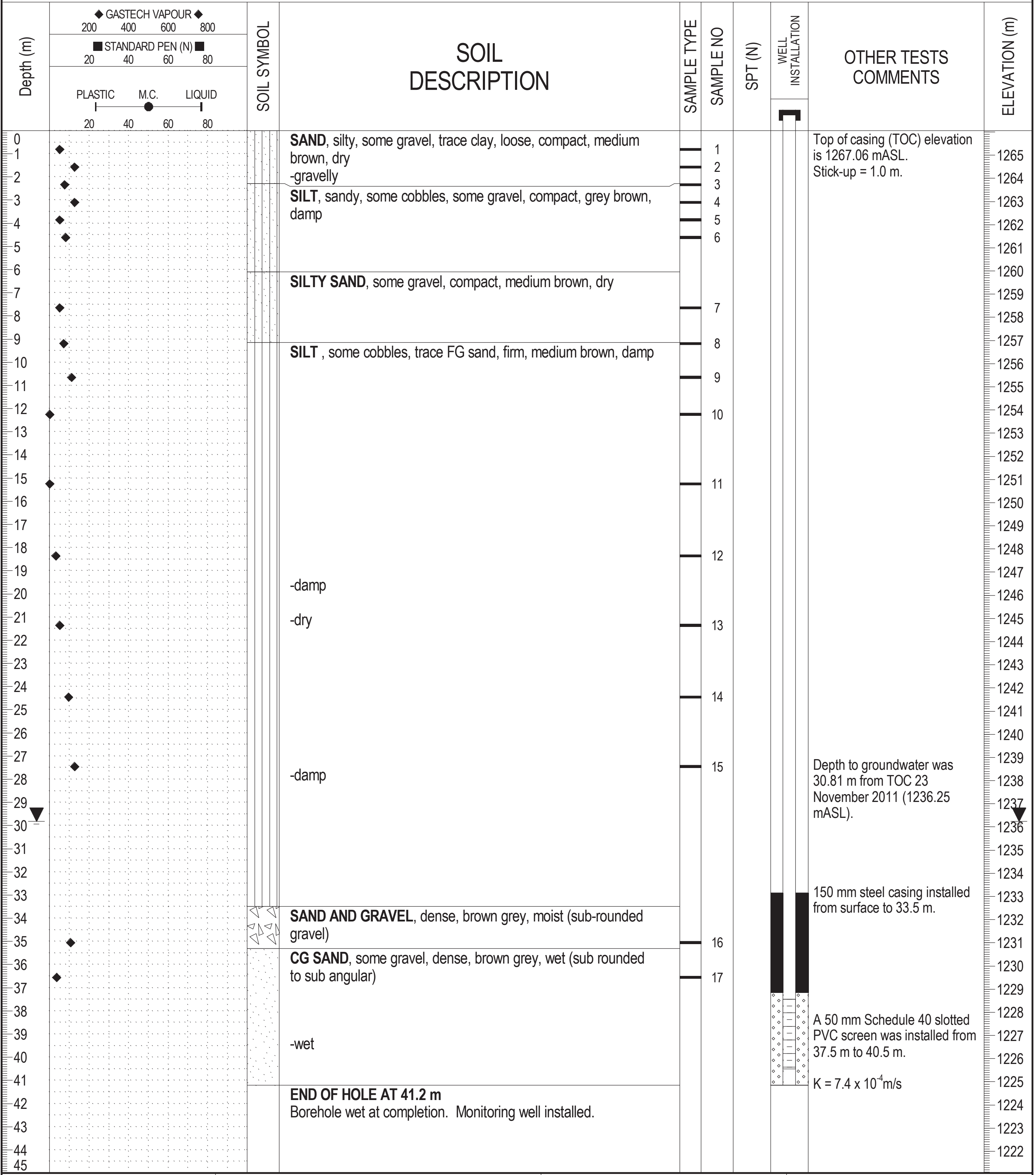
K = 7.4 x 10^{-8}m/s

AMEC Environment & Infrastructure Medicine Hat, Alberta	LOGGED BY: RH	COMPLETION DEPTH: 41.20 m
	REVIEWED BY: LH	COMPLETION DATE: 11/18/11
		Page 1 of 1

LC_PIZP1101

CLIENT: Teck Coal Ltd.	PROJECT: GW Assessment - Effluent Ponds	BOREHOLE NO: **MW11(P)-01**
DRILLER: JR Drilling	LOCATION: Teck - LCO	PROJECT NO: BX06169
DRILL/METHOD: DR-12/ Air Rotary	BOREHOLE LOCATION: Refer to site plan	ELEVATION: 1266.06 m

SAMPLE TYPE	■ Shelby Tube	▨ No Recovery	☒ SPT Test (N)	☰ Grab Sample	▥ Split-Pen	▮ Core
BACKFILL TYPE	■ Bentonite	⁚ Pea Gravel	▥ Slough	⁖ Grout	▨ Drill Cuttings	⁘ Sand



SOIL DESCRIPTION

SAND, silty, some gravel, trace clay, loose, compact, medium brown, dry
-gravelly

SILT, sandy, some cobbles, some gravel, compact, grey brown, damp

SILTY SAND, some gravel, compact, medium brown, dry

SILT , some cobbles, trace FG sand, firm, medium brown, damp

-damp

-dry

-damp

SAND AND GRAVEL, dense, brown grey, moist (sub-rounded gravel)

CG SAND, some gravel, dense, brown grey, wet (sub rounded to sub angular)

-wet

END OF HOLE AT 41.2 m
Borehole wet at completion. Monitoring well installed.

OTHER TESTS COMMENTS

Top of casing (TOC) elevation is 1267.06 mASL. Stick-up = 1.0 m.

Depth to groundwater was 30.81 m from TOC 23 November 2011 (1236.25 mASL).

150 mm steel casing installed from surface to 33.5 m.

A 50 mm Schedule 40 slotted PVC screen was installed from 37.5 m to 40.5 m.

K = 7.4 x 10^{-4}m/s

BX06169 - BOREHOLE LOGS - SEPTEMBER 30,2011.GPJ 12/01/04 03:30 PM (BOREHOLE LOG)

amec	AMEC Environment & Infrastructure Medicine Hat, Alberta	LOGGED BY: RH	COMPLETION DEPTH: 40.50 m
		REVIEWED BY: LH	COMPLETION DATE: 11/15/11
			Page 1 of 1

FINAL

SNC·LAVALIN

Client
Teck Coal Limited

Location
Regional Groundwater Monitoring

Borehole No. : EV_BH_GV4A

PAGE 1 OF 2

Drilling Contractor	Owen's Drilling	Date Monitored	2020 08 31	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1310.661	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1311.532	Date Drilled:	2020 08 09
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5522317.465	Easting: 656664.666	Log Typed By:	AS

Drilling Legend
▨ Sample Interval
☰ Odex

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: EV_MW_GV4A

Depth in Metres

Soil Description

SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subangular, some silt, well graded, brown, loose, moist, organics.

At 1.07 m - wet.

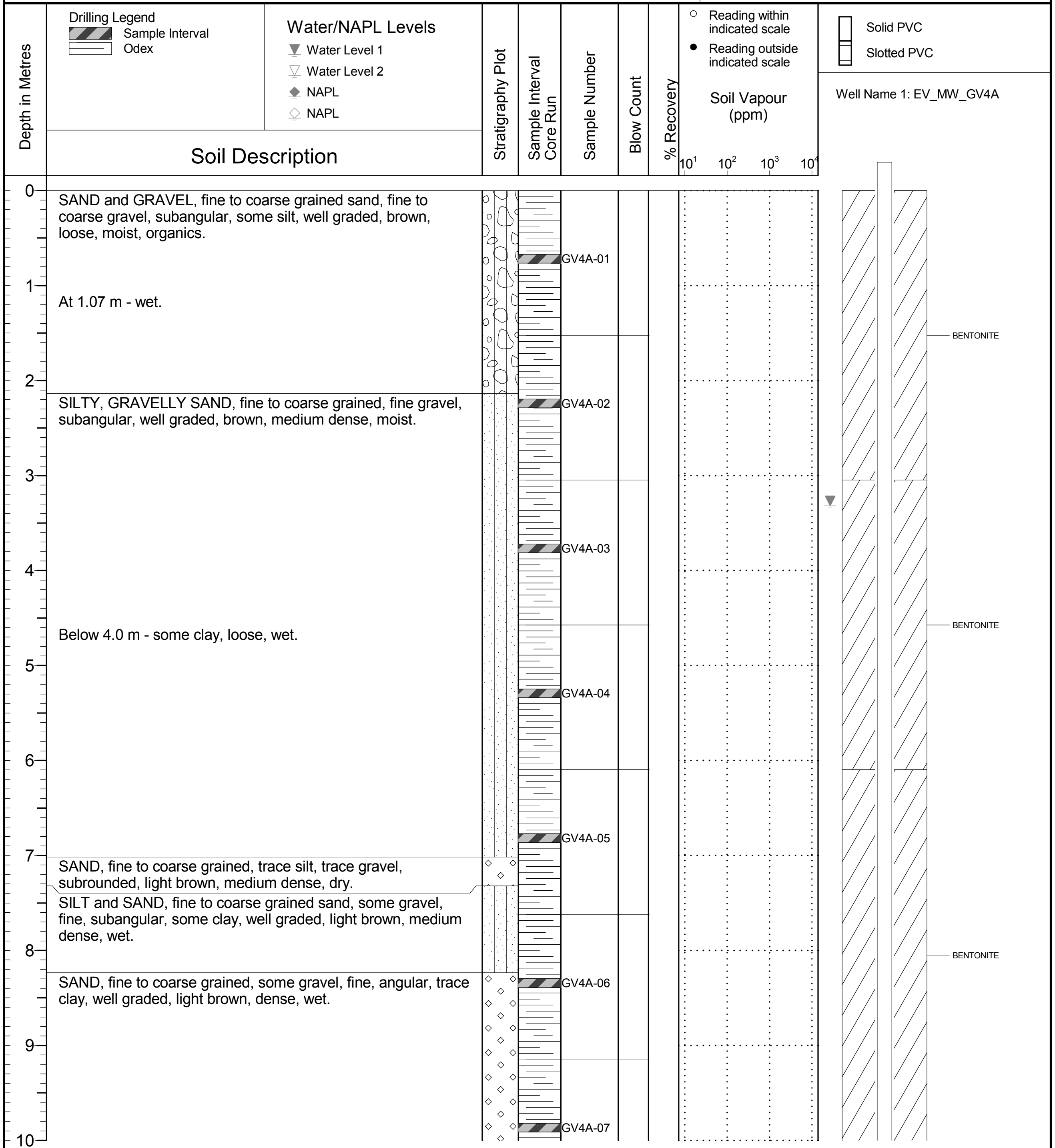
SILTY, GRAVELLY SAND, fine to coarse grained, fine gravel, subangular, well graded, brown, medium dense, moist.

Below 4.0 m - some clay, loose, wet.

SAND, fine to coarse grained, trace silt, trace gravel, subrounded, light brown, medium dense, dry.

SILT and SAND, fine to coarse grained sand, some gravel, fine, subangular, some clay, well graded, light brown, medium dense, wet.

SAND, fine to coarse grained, some gravel, fine, angular, trace clay, well graded, light brown, dense, wet.



NOTES
Bolded sample denotes sample analyzed.
* Denotes blind field duplicate.

QA/QC: LLH 2020 10 19 Print Date:2020-12-02

FINAL

SNC • LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_GV4A**
	Location **Regional Groundwater Monitoring**	PAGE 2 OF 2

Drilling Contractor	Owen's Drilling	Date Monitored	2020 08 31	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1310.661	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1311.532	Date Drilled:	2020 08 09
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5522317.465	Easting: 656664.666	Log Typed By:	AS

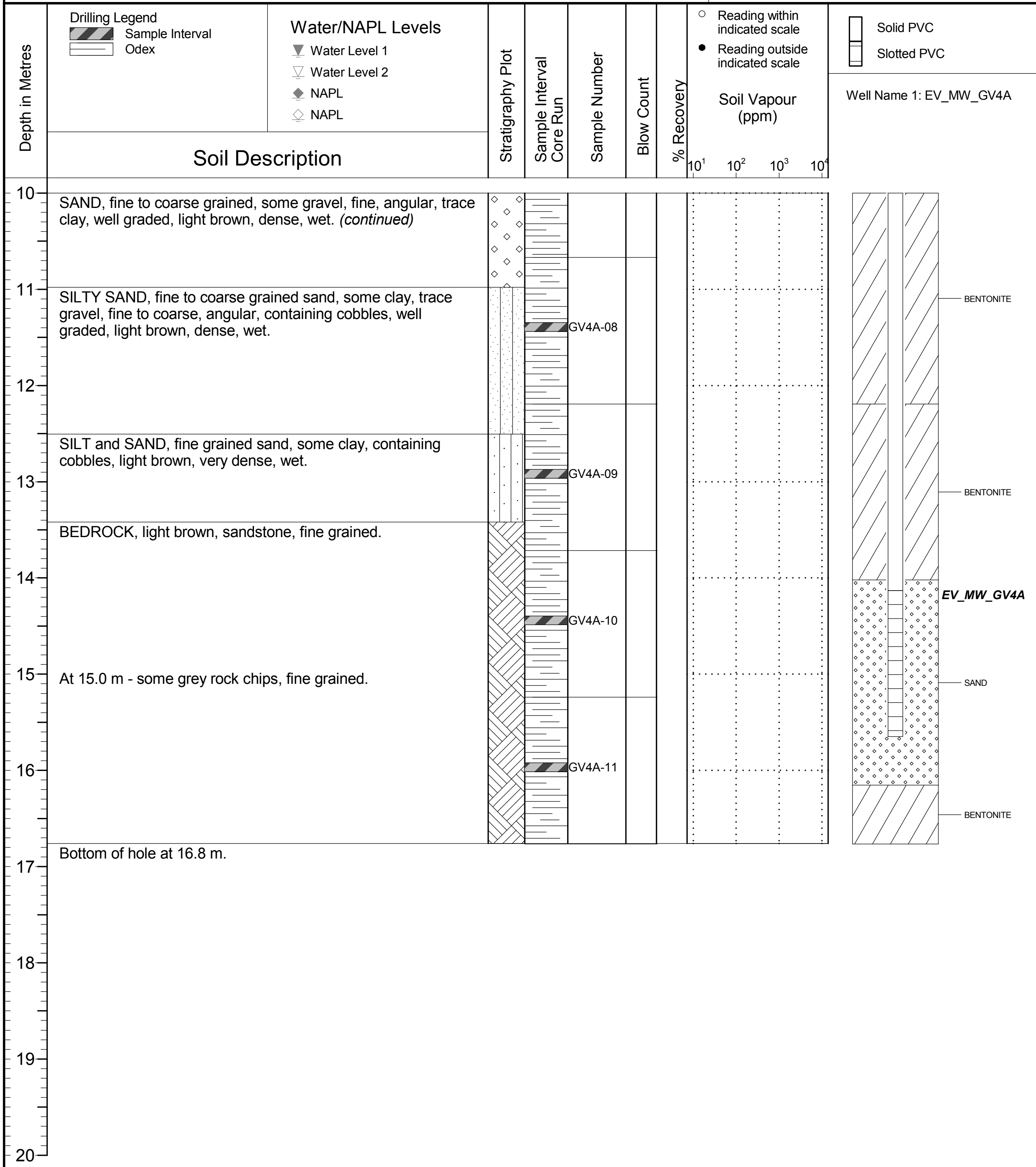
Drilling Legend
- ▨ Sample Interval
- ☰ Odex

Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- Solid PVC
- Slotted PVC

Well Name 1: EV_MW_GV4A



SAND, fine to coarse grained, some gravel, fine, angular, trace clay, well graded, light brown, dense, wet. *(continued)*

SILTY SAND, fine to coarse grained sand, some clay, trace gravel, fine to coarse, angular, containing cobbles, well graded, light brown, dense, wet.

SILT and SAND, fine grained sand, some clay, containing cobbles, light brown, very dense, wet.

BEDROCK, light brown, sandstone, fine grained.

At 15.0 m - some grey rock chips, fine grained.

Bottom of hole at 16.8 m.

NOTES
Bolded sample denotes sample analyzed.
* Denotes blind field duplicate.

FINAL

SNC • LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_GV4B**
	Location **Regional Groundwater Monitoring**	PAGE 1 OF 1

Drilling Contractor	Owen's Drilling	Date Monitored	2020 09 30	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1310.636	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1311.661	Date Drilled:	2020 08 10
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5522318.467	Easting: 656662.164	Log Typed By:	AS

Drilling Legend
▨ Sample Interval
▤ Odex

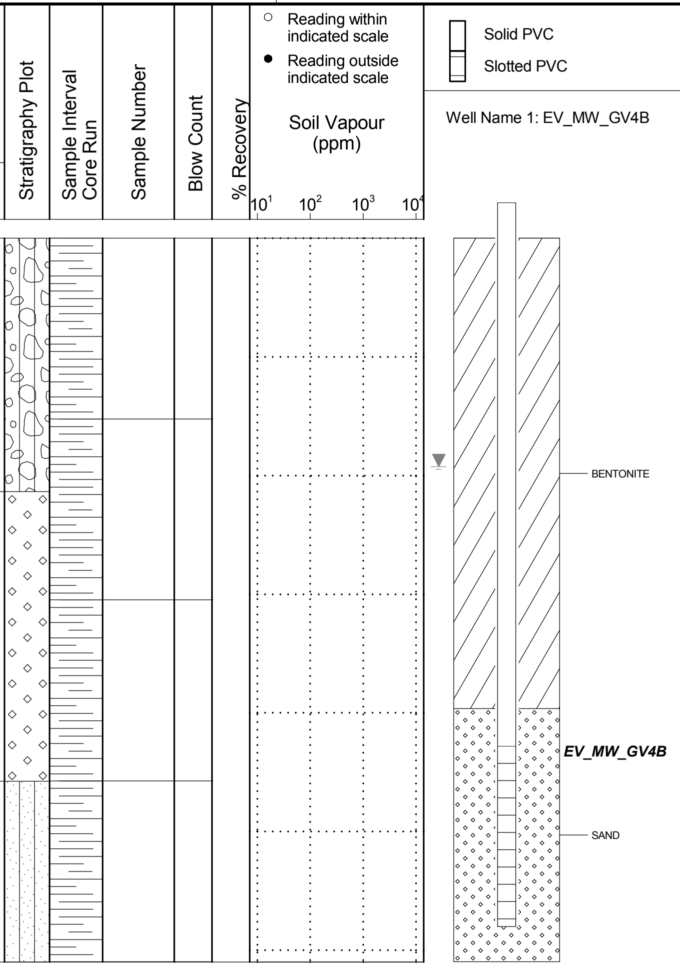
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: EV_MW_GV4B

Depth in Metres	Soil Description
0	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subangular, some silt, well graded, brown, loose. At 1.07 m - wet.
2	GRAVELLY SAND, fine to coarse grained, fine gravel, subangular, well graded, brown, medium dense, moist.
4.5	SILTY, GRAVELLY SAND, fine to coarse grained sand, fine to coarse gravel, subangular, some clay, well graded, brown, loose, wet.
6.1	Bottom of hole at 6.1 m.



NOTES

QA/QC: LLH 2020 10 19 Print Date:2020-12-02

srk consulting

Teck

HOLE ID:	**MW-3**	COORDINATES:	668230 E 5482814 N
LOCATION:	CMO	DATUM:	UTM Zone 11
PROJECT NO:	1CT017.098	GROUND ELEV (masl):	1573.4
DRILLING CONTRACTOR:	AquaPro Drilling Ltd.	COLLAR DIP:	-90
		EOH ELEV. (masl):	1545.97
DRILLING TYPE:	Air Rotary	TOTAL DEPTH (mbgs):	27.43
LOGGED BY:	LC	STICKUP HEIGHT (magl):	0.81
BORING DATE:	8/11/2015 to 8/12/2015	CASING STICKUP (magl):	0.81

Page: 1 of 2

PROJECT: Phase 1 Groundwater Monitoring

CLIENT: Teck Coal Ltd. - CMO

AREA: **Michel Creek**

Depth (m)

Lithological Symbol

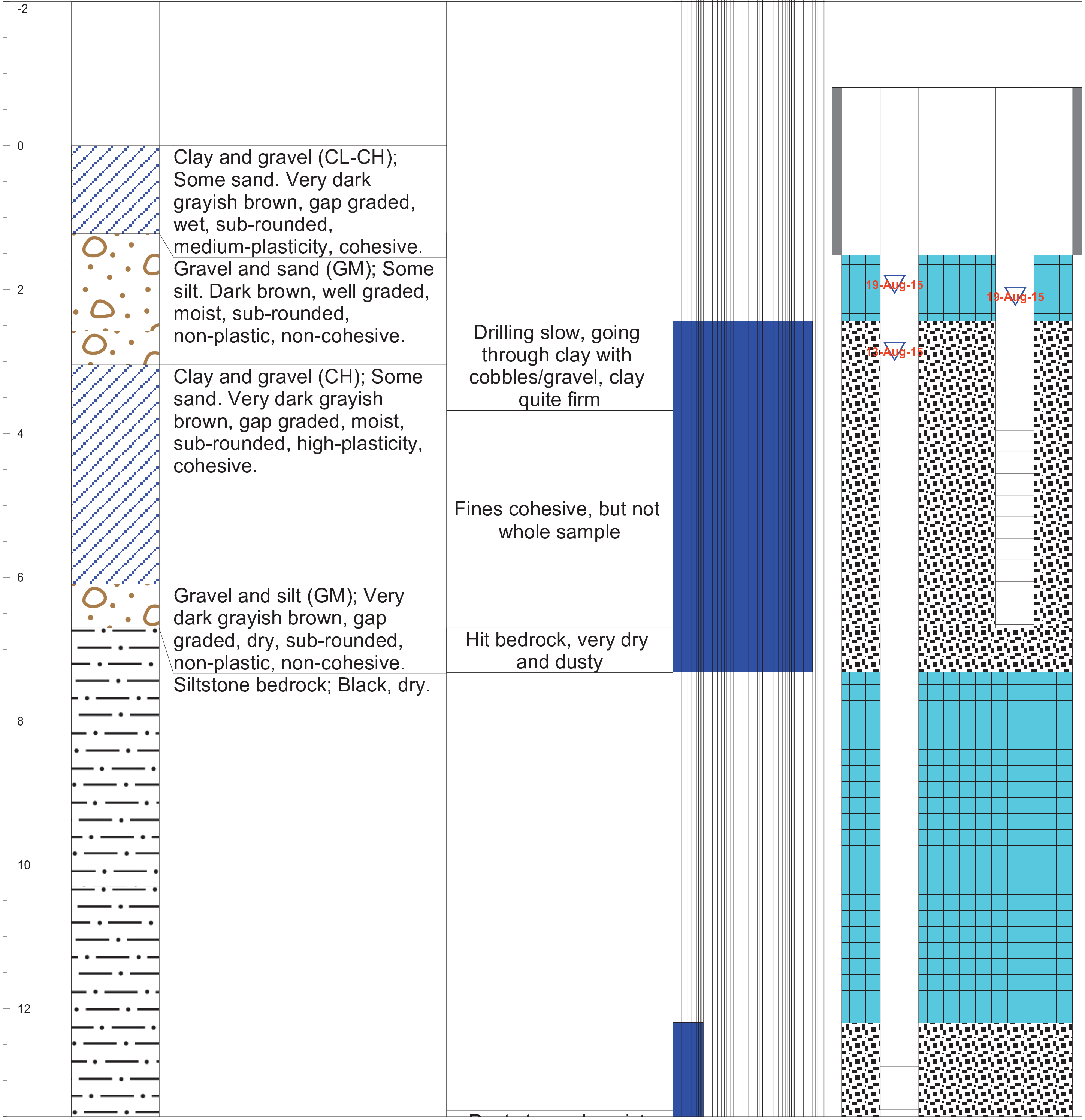
- ▨ CL-Clay
- ☐ LO-Loam
- SI-Silt
- SA-Sand
- GV-Gravel
- SS-Sandstone
- ST-Siltstone

Hydraulic Conductivity (m/s)

Well Installation

- Sand
- Screen
- PVC
- Pellets
- Cave
- Chips
- Chips/Backfill
- Backfill
- ■ Casing

Lithology Description	**Drilling Notes and Additional Comments**



Clay and gravel (CL-CH); Some sand. Very dark grayish brown, gap graded, wet, sub-rounded, medium-plasticity, cohesive.

Gravel and sand (GM); Some silt. Dark brown, well graded, moist, sub-rounded, non-plastic, non-cohesive.

Clay and gravel (CH); Some sand. Very dark grayish brown, gap graded, moist, sub-rounded, high-plasticity, cohesive.

Gravel and silt (GM); Very dark grayish brown, gap graded, dry, sub-rounded, non-plastic, non-cohesive.

Siltstone bedrock; Black, dry.

Drilling slow, going through clay with cobbles/gravel, clay quite firm

Fines cohesive, but not whole sample

Hit bedrock, very dry and dusty

srk consulting

Teck

HOLE ID:	**MW-3**	COORDINATES:	668230 E 5482814 N	*Page:* 2 of 2
LOCATION:	CMO	DATUM:	UTM Zone 11	
PROJECT NO:	1CT017.098	GROUND ELEV (masl):	1573.4	
DRILLING CONTRACTOR:	AquaPro Drilling Ltd.	COLLAR DIP:	-90	
		EOH ELEV. (masl):	1545.97	
DRILLING TYPE:	Air Rotary	TOTAL DEPTH (mbgs):	27.43	
LOGGED BY:	LC	STICKUP HEIGHT (magl):	0.81	
BORING DATE:	8/11/2015 to 8/12/2015	CASING STICKUP (magl):	0.81	AREA: **Michel Creek**

PROJECT: Phase 1 Groundwater Monitoring

CLIENT: Teck Coal Ltd. - CMO

Lithological Symbol

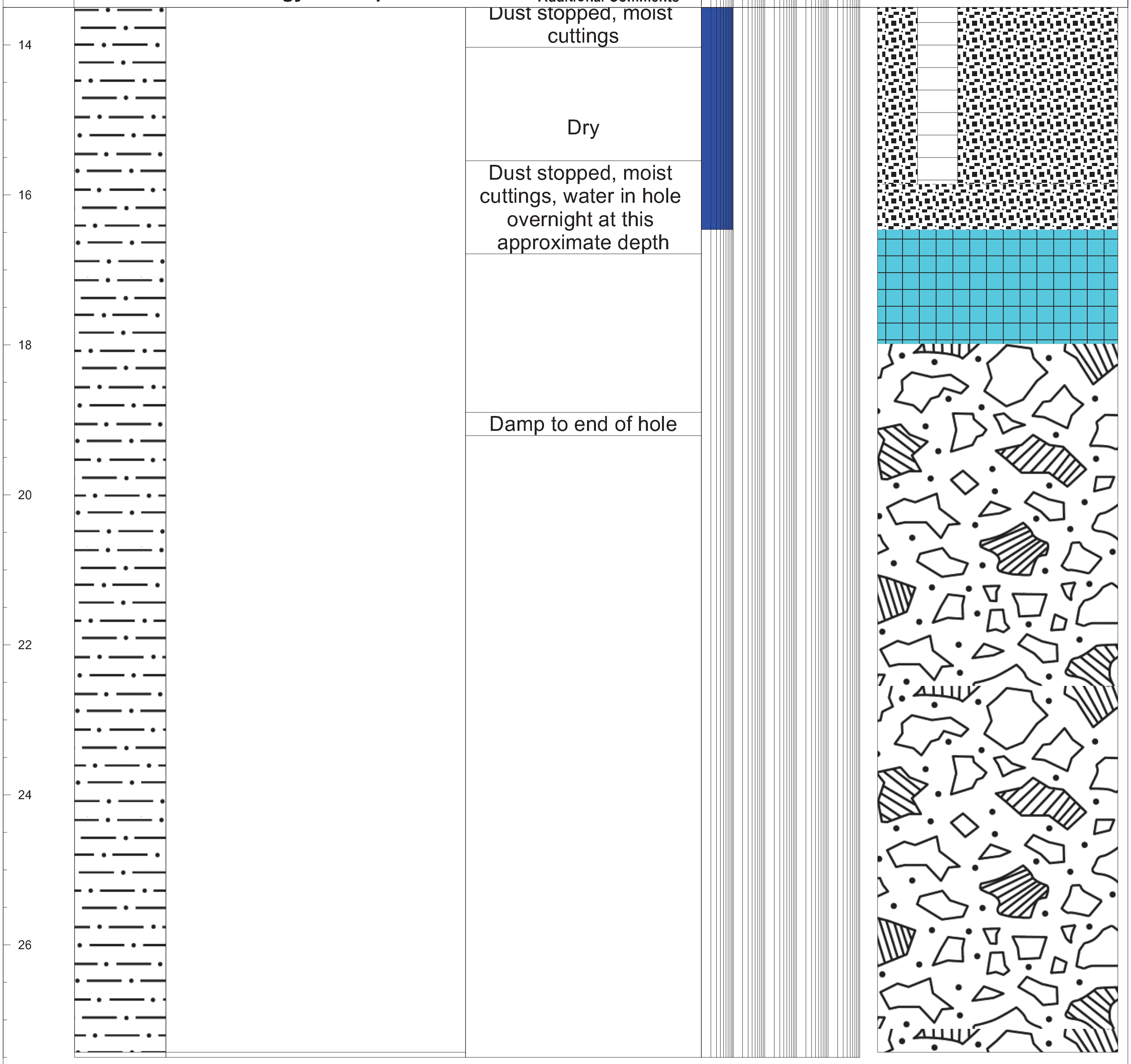
- CL-Clay
- LO-Loam
- SI-Silt
- SA-Sand
- GV-Gravel
- SS-Sandstone
- ST-Siltstone

Hydraulic Conductivity (m/s)

Well Installation

- Sand
- Screen
- PVC
- Pellets
- Cave
- Chips
- Chips/Backfill
- Backfill
- Casing

Depth (m)	**Lithology Description**	**Drilling Notes and Additional Comments**



Dust stopped, moist cuttings

Dry

Dust stopped, moist cuttings, water in hole overnight at this approximate depth

Damp to end of hole

srk consulting

Teck

HOLE ID:	**CM_MW6**	COORDINATES:	670117.9 E 5486463.5 N
LOCATION:	CMO	DATUM:	UTM Zone 11
PROJECT NO:	1CT017.114	GROUND ELEV (masl):	1579.66
DRILLING CONTRACTOR:	AquaPro Drilling Ltd.	COLLAR DIP:	-90
		EOH ELEV. (masl):	1478.30336
DRILLING TYPE:	Air Rotary	TOTAL DEPTH (mbgs):	41.69664
LOGGED BY:	EH/KK	STICKUP HEIGHT (magl):	0.83/0.83
BORING DATE:	4/26/2016 to 4/27/2016	CASING STICKUP (magl):	0.88

Page: 1 of 3

PROJECT: Phase 2 Groundwater Monitoring

CLIENT: Teck Coal Ltd. - CMO

AREA: **Corbin Dam**

Lithological Symbol

▨ CL-Clay	▨ SA-Sand	▭ ST-Siltstone
■ CO-Coal	▭ GV-Gravel	▭ BO-Boulders
▯ SI-Silt	▭ SS-Sandstone	

Well Installation

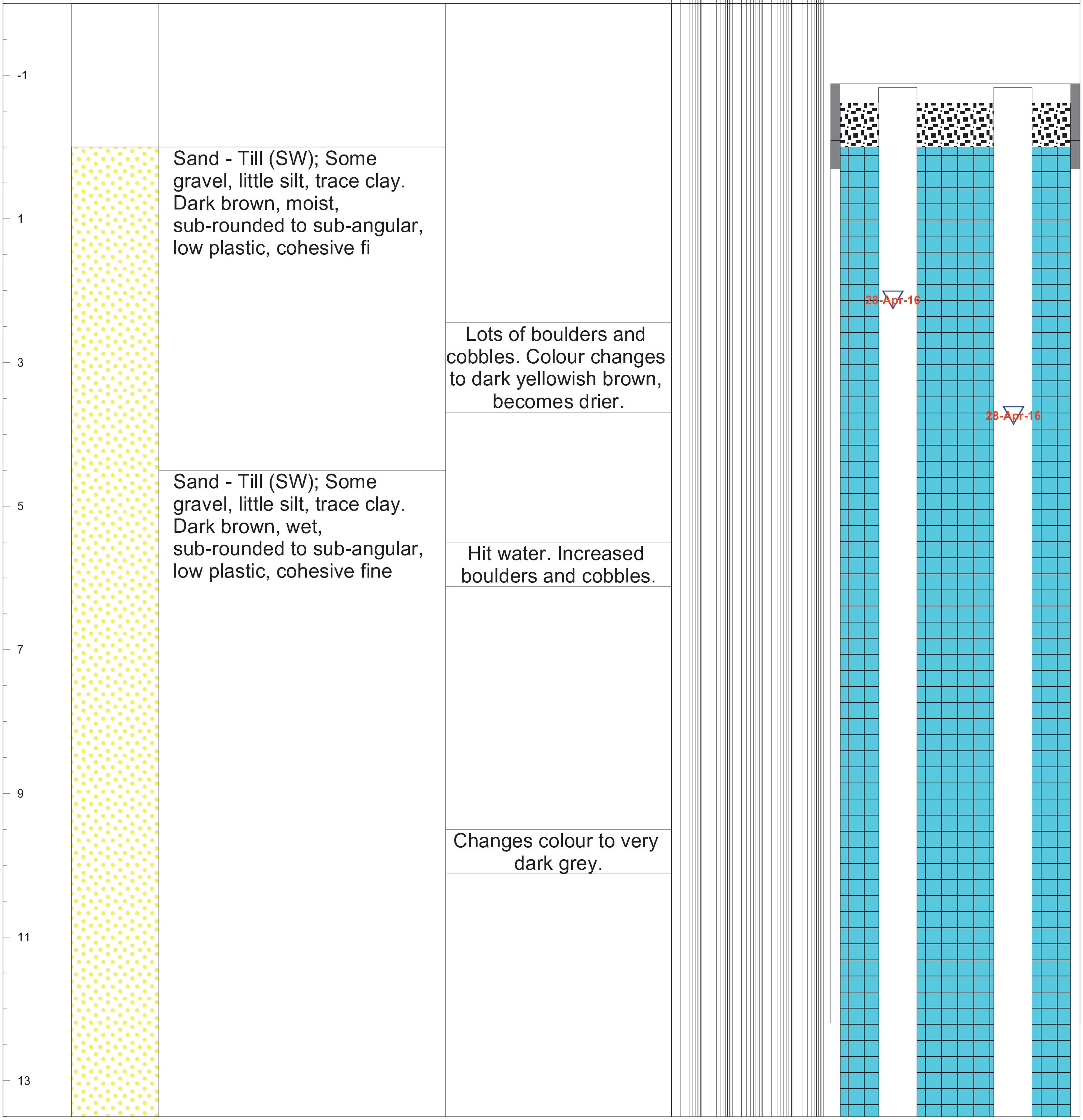
▨ Sand	🟦 Pellets
▭ Cable	▦ Chips
▭ VWP	▭ Cave
▭ Screen	■ Casing
▭ PVC	▭ Grout

Depth (m)

Lithology Description

Drilling Notes and Additional Comments

Hydraulic Conductivity (m/s)



Sand - Till (SW); Some gravel, little silt, trace clay. Dark brown, moist, sub-rounded to sub-angular, low plastic, cohesive fi

Sand - Till (SW); Some gravel, little silt, trace clay. Dark brown, wet, sub-rounded to sub-angular, low plastic, cohesive fine

Lots of boulders and cobbles. Colour changes to dark yellowish brown, becomes drier.

Hit water. Increased boulders and cobbles.

Changes colour to very dark grey.

srk consulting

Teck

HOLE ID: **CM_MW6**
LOCATION: CMO
PROJECT NO: 1CT017.114
DRILLING CONTRACTOR: AquaPro Drilling Ltd.
DRILLING TYPE: Air Rotary
LOGGED BY: EH/KK
BORING DATE: 4/26/2016 to 4/27/2016

COORDINATES: 670117.9 E5486463.5 N
DATUM: UTM Zone 11
GROUND ELEV (masl): 1579.66
COLLAR DIP: -90
EOH ELEV. (masl): 1478.30336
TOTAL DEPTH (mbgs): 41.69664
STICKUP HEIGHT (magl): 0.83/0.83
CASING STICKUP (magl): 0.88
AREA: **Corbin Dam**

PROJECT: Phase 2 Groundwater Monitoring
CLIENT: Teck Coal Ltd. - CMO

Depth (m)

Lithological Symbol

▨	CL-Clay	▨	SA-Sand	▨	ST-Siltstone
■	CO-Coal	▨	GV-Gravel	▨	BO-Boulders
▨	SI-Silt	▨	SS-Sandstone		

Hydraulic Conductivity (m/s)

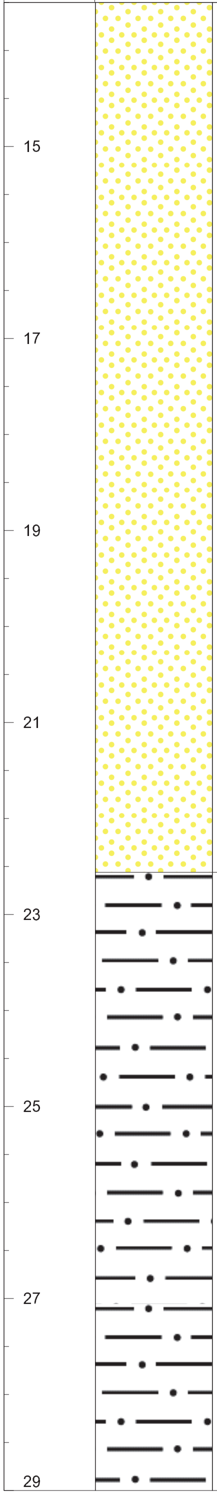
1E-8 1E-7 1E-6 1E-5 0.0001 0.001

Well Installation

▨	Sand	▨	Pellets
▨	Cable	▨	Chips
▨	VWP	▨	Cave
☐	Screen	▨	Casing
☐	PVC	▨	Grout

Lithology Description

Drilling Notes and Additional Comments

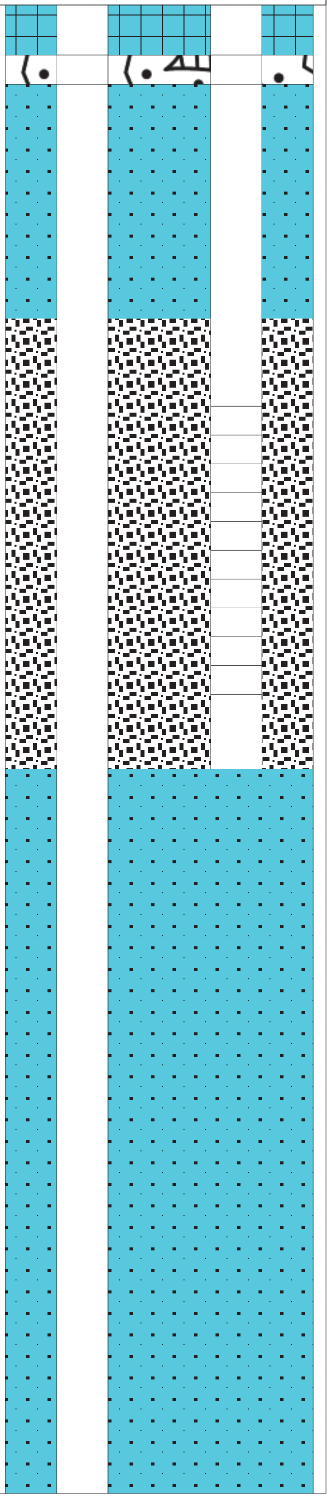


Strong sulfur smell.

Bit plugging slightly, had to start drilling with water.

Siltstone bedrock; Dark grey, dry.

Casing shoe chirping and higher pitch to bit, chips are consistent. Bedrock interpreted to be here. Chips go dry.

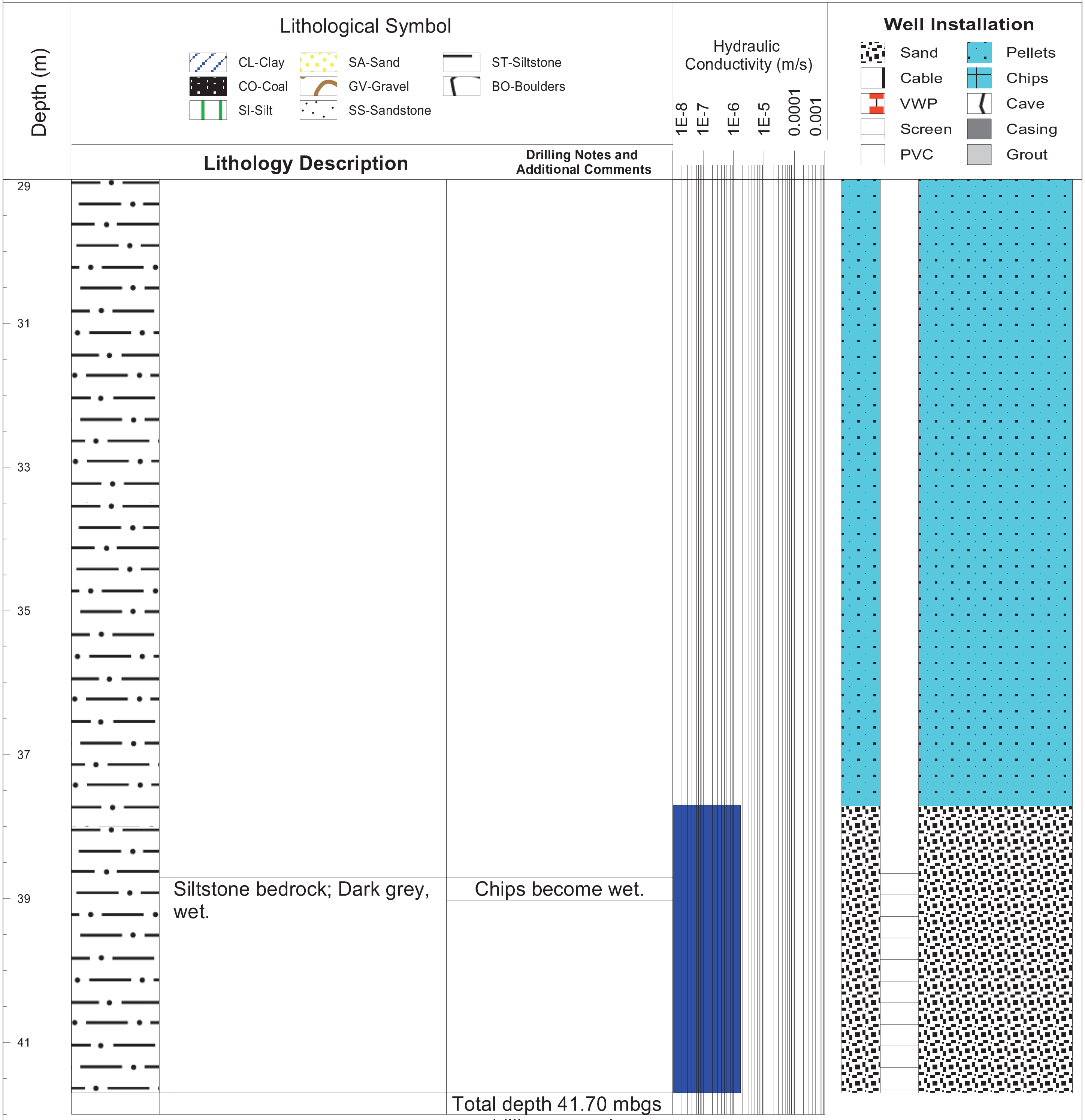


HOLE ID:	**CM_MW6**	COORDINATES:	670117.9 E 5486463.5 N
LOCATION:	CMO	DATUM:	UTM Zone 11
PROJECT NO:	1CT017.114	GROUND ELEV (masl):	1579.66
DRILLING CONTRACTOR:	AquaPro Drilling Ltd.	COLLAR DIP:	-90
		EOH ELEV. (masl):	1478.30336
DRILLING TYPE:	Air Rotary	TOTAL DEPTH (mbgs):	41.69664
LOGGED BY:	EH/KK	STICKUP HEIGHT (magl):	0.83/0.83
BORING DATE:	4/26/2016 to 4/27/2016	CASING STICKUP (magl):	0.88

PROJECT: Phase 2 Groundwater Monitoring

CLIENT: Teck Coal Ltd. - CMO

AREA: **Corbin Dam**



Siltstone bedrock; Dark grey, wet.

Chips become wet.

Total depth 41.70 mbgs - drilling ceased as depth target reached.

Fording River Operations

DATA ENTRY: VI

PROJECT No.: 11.1348.0020.2000

RECORD OF BOREHOLE: GA-HMW1D

SHEET 1 OF 4

LOCATION: See Location Plan

N: 652437 E: 5566516

BORING DATE: August 10, 2011

DATUM: Geodetic

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE – DESCRIPTION	ELEV. / DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	PIEZOMETER OR STANDPIPE INSTALLATION
0	Barber Rig H24 Air Rotary BECK Drilling & Environmental Services Ltd.	Ground Surface	1732.20				
		Very loose, non-plastic, non-cohesive, dry to slightly damp, grey to black, variable grain size, mainly coarse grain to cobbles WASTE ROCK, covered in clay and sand matrix, black to dark brown, slightly cohesive with silt.	0.00				
2.5				1	GRAB		
7.8				2	GRAB		
10.7		Very hard layer, no returns	1721.50 10.70				
11.7				3	GRAB		
12.5		COAL LENS	1719.70 12.50				
		Very hard layer, no returns	1719.40				
		Increase in matrix material, fine to coarse grained and cobble sized clay returns	13.10				
13.9				4	GRAB		
14.6			1717.60 14.60				13 Aug 2011 ∇
15		*CONTINUED NEXT PAGE*					

DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m: 20 40 60 80

SHEAR STRENGTH Cu, kPa: nat V. + Q - ● rem V. ⊕ U - ○ — 20 40 60 80

HYDRAULIC CONDUCTIVITY, k, cm/s: 10^{-6} 10^{-5} 10^{-4} 10^{-3}

WATER CONTENT PERCENT: Wp ⊢—○W—⊣ Wl — 10 20 30 40

ADDITIONAL LAB. TESTING

STRATA PLOT

DEPTH SCALE 1 : 75

Golder Associates

LOGGED: TC

CHECKED: JW

BOREHOLE - EXPANDED ADD. LAB TESTING 11.1348.0020_2000 BH LOGS.GPJ CALGARY.GDT 12/15/11

DATA ENTRY: VI

PROJECT No.: 11.1348.0020.2000

RECORD OF BOREHOLE: GA-HMW1D

SHEET 2 OF 4

LOCATION: See Location Plan
N: 652437 E: 5566516

BORING DATE: August 10, 2011

DATUM: Geodetic

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80); SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10⁻⁶ 10⁻⁵ 10⁻⁴ 10⁻³); WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
15	Barber Rig H24 Air Rotary BECK Drilling & Environmental Services Ltd.	Very loose, non-plastic, non-cohesive, dry to slightly damp, grey to black, variable grain size, mainly coarse grained to cobbles WASTE ROCK, covered in clay and sand matrix, black to dark brown, slightly cohesive with silt *(continued)*									
16											
17					5	GRAB					
18											
19		--- Moisture content increases from 19.0 to 20.1 m									
20				1712.10 20.10							
		Hard layer, no returns									
21				1710.30 21.90							
22		Very loose, non-plastic, non-cohesive, dry to slightly damp, grey to black, variable grain size, mainly coarse grained to cobbles WASTE ROCK, covered in clay and sand matrix, black to dark brown, slightly cohesive with silt			6	GRAB					
23				1709.30 22.90							
		Massive, grey, very coarse grained to cobble sized, angular to sub-rounded GRAVEL									
24				1707.80 24.40							
		Soft, plastic, cohesive, brown CLAY, little returns									
25											
26											
27					7	GRAB					
28											
29				1702.30							
30					8	GRAB					

CONTINUED NEXT PAGE

BOREHOLE - EXPANDED ADD. LAB TESTING 11.1348.0020 2000 BH LOGS.GPJ CALGARY.GDT 12/15/11

DEPTH SCALE
1 : 75

Golder Associates

LOGGED: TC
CHECKED: JW

DATA ENTRY: VI

PROJECT No.: 11.1348.0020.2000

RECORD OF BOREHOLE: GA-HMW1D

SHEET 3 OF 4

LOCATION: See Location Plan

N: 652437 E: 5566516

BORING DATE: August 10, 2011

DATUM: Geodetic

DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m: 20 40 60 80

SHEAR STRENGTH Cu, kPa: nat V. + Q - ● rem V. ⊕ U - ○ : 20 40 60 80

HYDRAULIC CONDUCTIVITY, k, cm/s: 10^{-6} 10^{-5} 10^{-4} 10^{-3}

WATER CONTENT PERCENT: Wp ⊢—○W—⊣ Wl : 10 20 30 40

ADDITIONAL LAB. TESTING

PIEZOMETER OR STANDPIPE INSTALLATION

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	ELEV. DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m
30	Barber Rig H24 Air Rotary BECK Drilling & Environmental Services Ltd.	Massive, grey, very loose grained to cobble sized GRAVEL, angular to sub-rounded *(continued)*	29.90			
33			1698.70 33.50	8	GRAB	
33.5		Hard layer, no returns				
36.6		Massive, grey, very loose grained to cobble sized GRAVEL, angular to sub-rounded	1695.60 36.60			
40.8				9	GRAB	
45						

CONTINUED NEXT PAGE

BOREHOLE - EXPANDED ADD. LAB TESTING 11.1348.0020_2000 BH LOGS.GPJ CALGARY.GDT 12/15/11

DEPTH SCALE

1 : 75

Golder Associates

LOGGED: TC

CHECKED: JW

DATA ENTRY: VI

PROJECT No.: 11.1348.0020.2000

RECORD OF BOREHOLE: GA-HMW1D

SHEET 4 OF 4

LOCATION: See Location Plan

N: 652437 E: 5566516

BORING DATE: August 10, 2011

DATUM: Geodetic

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80); SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}); WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
45	Barber Rig H24 Air Rotary BECK Drilling & Environmental Services Ltd.	Massive, grey, very loose grained to cobble sized GRAVEL, angular to sub-rounded *(continued)*									
46											
47											
48					10	GRAB					
49											
50											
51											
52				1680.10							
		Black, broken COAL		52.10	11	GRAB					
53				1679.20							
		Massive, grey, very loose grained to cobble sized GRAVEL, angular to sub-rounded		53.00	12	GRAB					
				1678.30							
54		Massive, grey BEDROCK		53.90	13	GRAB					
				1677.90							
		End of BOREHOLE.		54.30							
55											
56											
57											
58											
59											
60											

DEPTH SCALE

1 : 75

Golder Associates

LOGGED: TC

CHECKED: JW

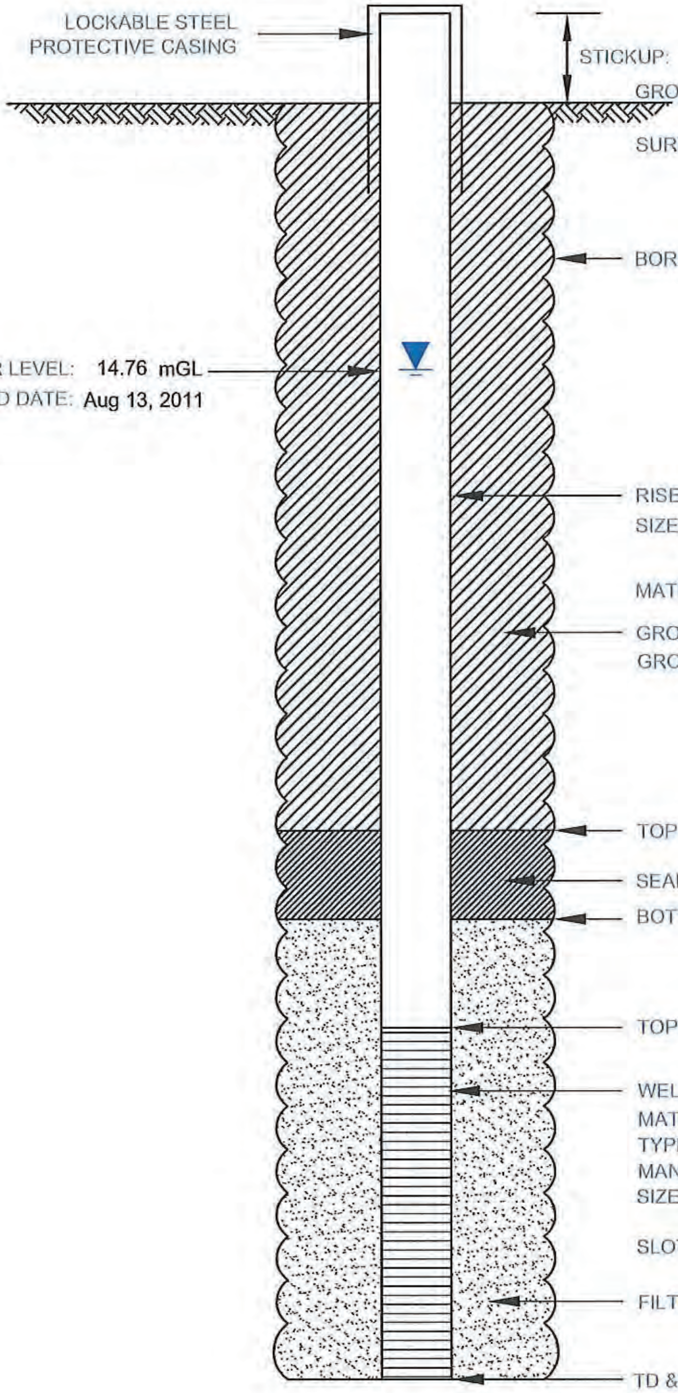
BOREHOLE - EXPANDED ADD. LAB TESTING 11.1348.0020_2000 BH LOGS.GPJ CALGARY.GDT 12/15/11

FR_HMW1D

MONITORING WELL CONSTRUCTION DETAILS

Short Well ID H1D	Well Owner: Teck Coal Fording River Operations Well Name: GA-HMW1D	Spud Date: Aug 10, 2011 Project Short Title: Teck Coal FRO - Henretta Project Number: 11.1348.0020-1000-2000 Site Geologist: T.Crowell
Drilling Method: Air Rotary	Development: Method: Air Lift	Duration: 1.25 Hours

SCHEMATIC ONLY–NOT TO SCALE



LOCKABLE STEEL PROTECTIVE CASING

STICKUP: 0.77 m

GROUND LEVEL: 1732.2 masl

SURVEY DATE: Aug 11, 2011

BOREHOLE DIAMETER: 203.2 mm

STATIC WATER LEVEL: 14.76 mGL

MEASURED DATE: Aug 13, 2011

RISER PIPE

SIZE: 60.3 mm O.D

49.3 mm I.D.

MATERIAL: SCHEDULE 80 PVC

GROUT: BENTONITE CHIPS

GROUT TOP: SURFACE

TOP OF SEAL: 47.5 mGL

SEAL: BENTONITE PELLETS

BOTTOM OF SEAL: 48.2 mGL

TOP OF SCREEN: 51.2 mGL

WELL SCREEN

MATERIAL: SCHEDULE 80 PVC

TYPE: SLOTTED

MANUFACTURE: RICE ENGINEERING

SIZE: 60.3 mm O.D

49.3 mm I.D.

SLOT SIZE: 0.3 mm (012)

FILTER PACK: 10/20 Silica Sand

TD & BOTTOM OF SCREEN: 54.3 mGL

NOTES:
1. masl – metres above sea level
2. mGL – metres below ground level
3. TD – Total Depth

Golder Associates

File Path: R:\Active_2011\1348\11-1348-0020 Teck Coal Henretta Ridge Assessment\Phase 2000 Drilling Report\Final

DATA ENTRY: VI

PROJECT No.: 11.1348.0020.2000

RECORD OF BOREHOLE: GA-HMW1S

SHEET 1 OF 3

LOCATION: See Location Plan

BORING DATE: August 11, 2011

DATUM: Geodetic

N: 652441 E: 5566518

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	SOIL PROFILE: STRATA PLOT	SOIL PROFILE: ELEV. DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m 20 40 60 80 SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ 20 40 60 80	HYDRAULIC CONDUCTIVITY, k, cm/s 10^{-6} 10^{-5} 10^{-4} 10^{-3} WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Barber Rig H24 Air Rotary BECK Drilling & Environmental Services Ltd.	Ground Surface		1732.30							
		Samples are not logged		0.00							
1											
2											
					1	GRAB					
3											
4											
5											
6											
7											
					2	GRAB					
8											
9											
10											
11											
12											
					3	GRAB					
13											
14											
15											

CONTINUED NEXT PAGE

DEPTH SCALE
1 : 75

Golder Associates

LOGGED: TC
CHECKED: JW

BOREHOLE - EXPANDED ADD. LAB TESTING 11.1348.0020_2000 BH LOGS.GPJ CALGARY.GDT 12/15/11

PROJECT No.: 11.1348.0020.2000

RECORD OF BOREHOLE: GA-HMW1S

SHEET 2 OF 3

LOCATION: See Location Plan

N: 652441 E: 5566518

BORING DATE: August 11, 2011

DATUM: Geodetic

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80); SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}); WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
15	Barber Rig H24 Air Rotary BECK Drilling & Environmental Services Ltd.	Samples are not logged *(continued)*								▽ 13 Aug 2011
18				4	GRAB					
21.30		Very loose, non-plastic, non-cohesive, dry to slightly damp, grey to black, coarse grained to cobbles sized, WASTE ROCK, covered in clay and sand matrix, matrix is black, slightly cohesive, silty	1711.00 21.30							
24				5	GRAB					
27.40		Massive, grey, very coarse grained to cobble sized GRAVEL, angular to sub-rounded	1704.90 27.40							
29				6	GRAB					
30		*CONTINUED NEXT PAGE*								

DEPTH SCALE

1 : 75

Golder Associates

LOGGED: TC

CHECKED: JW

DATA ENTRY: VI

RECORD OF BOREHOLE: GA-HMW1S

PROJECT No.: 11.1348.0020.2000

LOCATION: See Location Plan

N: 652441 E: 5566518

BORING DATE: August 11, 2011

SHEET 3 OF 3

DATUM: Geodetic

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) SHEAR STRENGTH Cu, kPa (20 40 60 80) nat V. + Q - ● rem V. ⊕ U - O	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) WATER CONTENT PERCENT Wp ⊢—O W—⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
30	Barber Rig H24 Air Rotary BECK Drilling & Environmental Services Ltd.	Massive, grey, very coarse grained to cobble sized GRAVEL, angular to sub-rounded *(continued)* --- Gravel is very large in size (inches across)									
31											
32					6	GRAB					
33				1698.80 33.50							
		BEDROCK End of BOREHOLE.									
34											
35											
36											
37											
38											
39											
40											
41											
42											
43											
44											
45											

DEPTH SCALE

1 : 75

Golder Associates

LOGGED: TC

CHECKED: JW

BOREHOLE - EXPANDED ADD. LAB TESTING 11.1348.0020_2000 BH LOGS.GPJ CALGARY.GDT 12/15/11

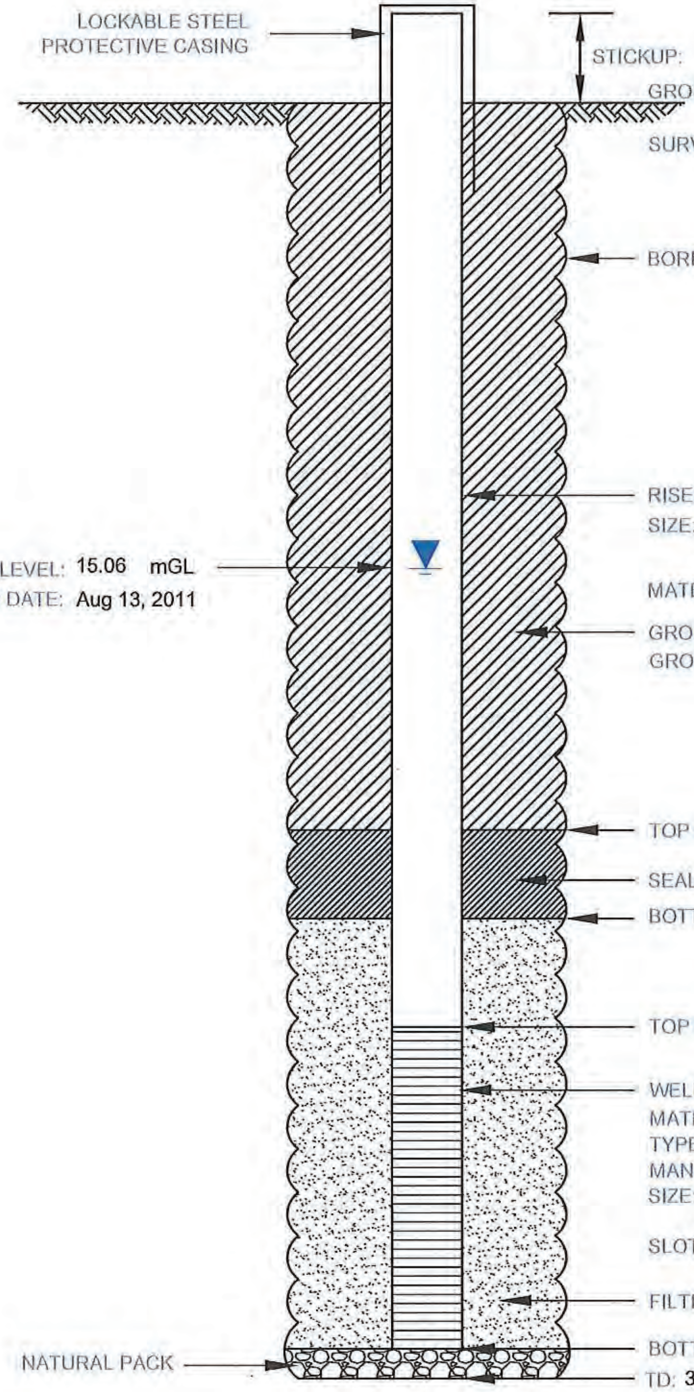
FR_HMW1S

MONITORING WELL CONSTRUCTION DETAILS

Short Well ID H1S	Well Owner: Teck Coal Fording River Operations Well Name: GA-HMW1S	Spud Date: Aug 11, 2011 Project Short Title: Teck Coal FRO - Henretta Project Number: 11.1348.0020-1000-2000 Site Geologist: T.Crowell

Drilling Method: Air Rotary	Development: Method: Air Lift Duration: 1.25 Hours

SCHEMATIC ONLY–NOT TO SCALE



LOCKABLE STEEL PROTECTIVE CASING

STICKUP: 0.72 m

GROUND LEVEL: 1732.3 masl

SURVEY DATE: Aug 12, 2011

BOREHOLE DIAMETER: 203.2 mm

RISER PIPE
SIZE: 60.3 mm O.D
49.3 mm I.D.

MATERIAL: SCHEDULE 80 PVC

STATIC WATER LEVEL: 15.06 mGL
MEASURED DATE: Aug 13, 2011

GROUT: BENTONITE CHIPS
GROUT TOP: SURFACE

TOP OF SEAL: 25.9 mGL

SEAL: BENTONITE PELLETS

BOTTOM OF SEAL: 26.5 mGL

TOP OF SCREEN: 29.9 mGL

WELL SCREEN
MATERIAL: SCHEDULE 80 PVC
TYPE: SLOTTED
MANUFACTURE: RICE ENGINEERING
SIZE: 60.3 mm O.D
49.3 mm I.D.
SLOT SIZE: 0.3 mm (012)

FILTER PACK: 10/20 Silica Sand

NATURAL PACK

BOTTOM OF SCREEN: 32.9 mGL

TD: 33.5 mGL

NOTES:
1. masl – metres above sea level
2. mGL – metres below ground level
3. TD – Total Depth

Golder Associates

File Path: R:\Active_2011\1348\11-1348-0020 Teck Coal Henretta Ridge Assessment\Phase 2000 Drilling Report\Final

FR_HMW2

DATA ENTRY: VI

PROJECT No.: 11.1348.0020.2000

RECORD OF BOREHOLE: GA-HMW2

SHEET 1 OF 4

LOCATION: See Location Plan

N: 652666 E: 5566634

BORING DATE: August 09, 2011

DATUM: Geodetic

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m 20 40 60 80 / SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ 20 40 60 80	HYDRAULIC CONDUCTIVITY, k, cm/s 10^{-6} 10^{-5} 10^{-4} 10^{-3} / WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Barber Rig H24 Air Rotary BECK Drilling & Environmental Services Ltd.	Ground Surface	1767.30							
		Compacted road materials								
		Dry, grey to black, angular, coarse grained to cobble sized SPOILS, covered in clay and sand matrix, cohesive to plastic, dark brown to black, silty	0.30							
2.5				1	GRAB					
7.5				2	GRAB					
12.5				3	GRAB					
15										

CONTINUED NEXT PAGE

DEPTH SCALE

1 : 75

Golder Associates

LOGGED: TC

CHECKED: JW

BOREHOLE - EXPANDED ADD. LAB TESTING 11.1348.0020_2000 BH LOGS.GPJ CALGARY.GDT 12/15/11

DATA ENTRY: VI

PROJECT No.: 11.1348.0020.2000

RECORD OF BOREHOLE: GA-HMW2

SHEET 2 OF 4

LOCATION: See Location Plan

N: 652666 E: 5566634

BORING DATE: August 09, 2011

DATUM: Geodetic

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	ELEV. DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80); SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}); WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
15	Barber Rig H24 Air Rotary BECK Drilling & Environmental Services Ltd.	Dry, grey to black, angular, coarse grained to cobble sized SPOILS, covered in clay and sand matrix, cohesive to plastic, dark brown to black, silty *(continued)*								
16										
17				4	GRAB					
18										
19										
20										
21										
22				5	GRAB					
23										
24										
25										
26										
27				6	GRAB					
		Black, broken COAL LENS	1739.90 27.40							
28										
29		Dry, grey to black, angular, coarse grained to cobble sized SPOILS, covered in clay and sand matrix, cohesive to plastic dark brown to black, silty	1738.40 28.90	7	GRAB					
30										

CONTINUED NEXT PAGE

DEPTH SCALE
1 : 75

Golder Associates

LOGGED: TC
CHECKED: JW

BOREHOLE - EXPANDED ADD. LAB TESTING 11.1348.0020_2000 BH LOGS.GPJ CALGARY.GDT 12/15/11

DATA ENTRY: VI

PROJECT No.: 11.1348.0020.2000

RECORD OF BOREHOLE: GA-HMW2

SHEET 3 OF 4

LOCATION: See Location Plan

N: 652666 E: 5566634

BORING DATE: August 09, 2011

DATUM: Geodetic

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	SOIL PROFILE: ELEV. DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80); SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}); WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
30	Barber Rig H24 Air Rotary BECK Drilling & Environmental Services Ltd.									
31		Dry, grey to black, angular, coarse grained to cobble sized SPOILS, covered in clay and sand matrix, cohesive to plastic dark brown to black, silty, smaller fragments	1736.62 30.48	8	GRAB					
32										
33		Dry, grey to black, angular, coarse grained to cobble sized SPOILS, covered in clay and sand matrix, cohesive to plastic dark brown to black, silty	1734.40 32.00							
35				9	GRAB					
40				10	GRAB					
43		COAL LENS	1723.80 43.50							
44				11	GRAB					13 Aug 2011 ∇
45										

CONTINUED NEXT PAGE

DEPTH SCALE

1 : 75

Golder Associates

LOGGED: TC

CHECKED: JW

BOREHOLE - EXPANDED ADD. LAB TESTING 11.1348.0020_2000 BH LOGS.GPJ CALGARY.GDT 12/15/11

DATA ENTRY: VI

PROJECT No.: 11.1348.0020.2000

RECORD OF BOREHOLE: GA-HMW2

SHEET 4 OF 4

LOCATION: See Location Plan

N: 652666 E: 5566634

BORING DATE: August 09, 2011

DATUM: Geodetic

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	SOIL PROFILE: STRATA PLOT	SOIL PROFILE: ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m 20 40 60 80 / SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ 20 40 60 80	HYDRAULIC CONDUCTIVITY, k, cm/s 10^{-6} 10^{-5} 10^{-4} 10^{-3} / WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
45 46 47	Barber Rig H24 Air Rotary BECK Drilling & Environmental Services Ltd.	COAL LENS *(continued)*	■	1719.60 47.70	11	GRAB'					
48		BEDROCK, clay fragments trending into grey massive sample	▨	1718.60 48.70	12	GRAB'					
49 50 51 52 53 54 55 56 57 58 59 60		End of BOREHOLE.									

BOREHOLE - EXPANDED ADD. LAB TESTING 11.1348.0020_2000 BH LOGS.GPJ CALGARY.GDT 12/15/11

DEPTH SCALE

1 : 75

Golder Associates

LOGGED: TC

CHECKED: JW

FR_HMW2

MONITORING WELL CONSTRUCTION DETAILS

Short Well ID
H2

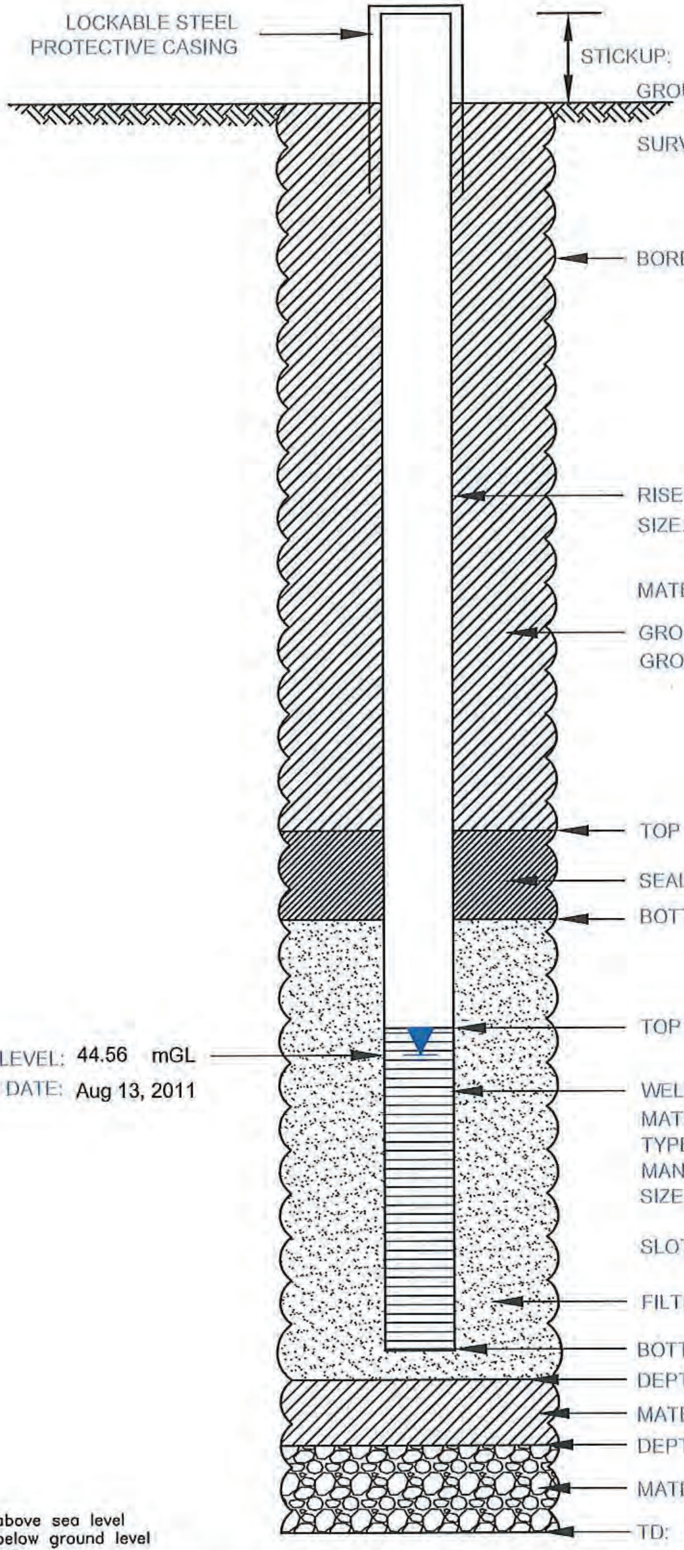
Well Owner: Teck Coal Fording River Operations
Well Name: GA-HMW2

Spud Date: Aug 9, 2011
Project Short Title: Teck Coal FRO - Henretta
Project Number: 11.1348.0020-1000-2000
Site Geologist: T.Crowell

Drilling Method: Air Rotary

Development:
Method: Waterra Tubing
Duration: 1 Hour

SCHEMATIC ONLY--NOT TO SCALE



LOCKABLE STEEL PROTECTIVE CASING

STICKUP: 0.74 m
GROUND LEVEL: 1767.3 masl
SURVEY DATE: Aug 10, 2011

BOREHOLE DIAMETER: 203.2 mm

RISER PIPE
SIZE: 60.3 mm O.D
49.3 mm I.D.
MATERIAL: SCHEDULE 80 PVC

GROUT: BENTONITE CHIPS AND GROUT
GROUT TOP: SURFACE

TOP OF SEAL: 30.2 mGL
SEAL: BENTONITE CHIPS
BOTTOM OF SEAL: 36.3 mGL

TOP OF SCREEN: 43.3 mGL

STATIC WATER LEVEL: 44.56 mGL
MEASURED DATE: Aug 13, 2011

WELL SCREEN
MATERIAL: SCHEDULE 80 PVC
TYPE: SLOTTED
MANUFACTURE: RICE ENGINEERING
SIZE: 60.3 mm O.D
49.3 mm I.D.
SLOT SIZE: 0.3 mm (012)

FILTER PACK: 10/20 Silica Sand

BOTTOM OF SCREEN: 46.3 mGL
DEPTH: 46.5 mGL
MATERIAL: BENTONITE CHIPS
DEPTH: 46.6 mGL
MATERIAL: NATURAL PACK
TD: 48.8 mGL

NOTES:
1. masl – metres above sea level
2. mGL – metres below ground level
3. TD – Total Depth

Golder Associates

File Path: R:\Active_2011\1348\11-1348-0020 Teck Coal Henretta Ridge Assessment\Phase 2000 Drilling Report\Final

DATA ENTRY: VI

PROJECT No.: 11.1348.0020.2000

LOCATION: See Location Plan

N: 652810 E: 5566540

RECORD OF BOREHOLE: GA-HMW3

BORING DATE: August 12, 2011

SHEET 1 OF 2

DATUM: Geodetic

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE – DESCRIPTION	ELEV. / DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	PIEZOMETER OR STANDPIPE INSTALLATION
0	Barber Rig H24 Air Rotary BECK Drilling & Environmental Services Ltd.	Ground Surface	1728.20				
		Compacted road materials					
		Brown and grey, cobble size WASTE ROCK with sandy clay matrix, rock is sub-rounded to subangular, matrix is soft, damp, non-plastic, cohesive, silty, with some very fine grains	0.30				
3				1	GRAB		
6		Hard layer, ROP low, no returns	1722.40 5.80				
		Brown and grey, cobble size WASTE ROCK with sandy clay matrix, rock is sub-rounded to subangular, matrix is soft, dry, non-plastic, cohesive, silty, with some very fine grains	1721.80 6.40				
7							13 Aug 2011 ▽
9				2	GRAB		
12		Wet, white to grey and brown, cobble size to very coarse grained, round to sub-angular GRAVEL, brown clay matrix, silty	1716.00 12.20				
13				3	GRAB		
15							

DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m: 20 40 60 80

SHEAR STRENGTH Cu, kPa: nat V. + Q - ● rem V. ⊕ U - ○ — 20 40 60 80

HYDRAULIC CONDUCTIVITY, k, cm/s: 10^{-6} 10^{-5} 10^{-4} 10^{-3}

WATER CONTENT PERCENT: Wp ⊢—○W—⊣ Wl — 10 20 30 40

ADDITIONAL LAB. TESTING

CONTINUED NEXT PAGE

DEPTH SCALE

1 : 75

Golder Associates

LOGGED: TC

CHECKED: JW

BOREHOLE - EXPANDED ADD. LAB TESTING 11.1348.0020_2000 BH LOGS.GPJ CALGARY.GDT 12/15/11

FR_HMW3

DATA ENTRY: VI

PROJECT No.: 11.1348.0020.2000

RECORD OF BOREHOLE: GA-HMW3

SHEET 2 OF 2

LOCATION: See Location Plan

N: 652810 E: 5566540

BORING DATE: August 12, 2011

DATUM: Geodetic

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m 20 40 60 80 SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ 20 40 60 80	HYDRAULIC CONDUCTIVITY, k, cm/s 10^{-6} 10^{-5} 10^{-4} 10^{-3} WATER CONTENT PERCENT Wp ⊢ ○W ⊣ Wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
15	Barber Rig H24 Air Rotary BECK Drilling & Environmental Services Ltd.	Wet, white to grey and brown, cobble size to very coarse grained, round to sub-angular GRAVEL, brown clay matrix, silty *(continued)*									
16					3	GRAB					
17											
18											
19					4	GRAB					
20											
21											
22					5	GRAB					
		Massive, grey BEDROCK, small drill-broken fragments		1705.60 22.60							
		End of BOREHOLE.									
23											
24											
25											
26											
27											
28											
29											
30											

BOREHOLE - EXPANDED ADD. LAB TESTING 11.1348.0020_2000 BH LOGS.GPJ CALGARY.GDT 12/15/11

DEPTH SCALE

1 : 75

Golder Associates

LOGGED: TC

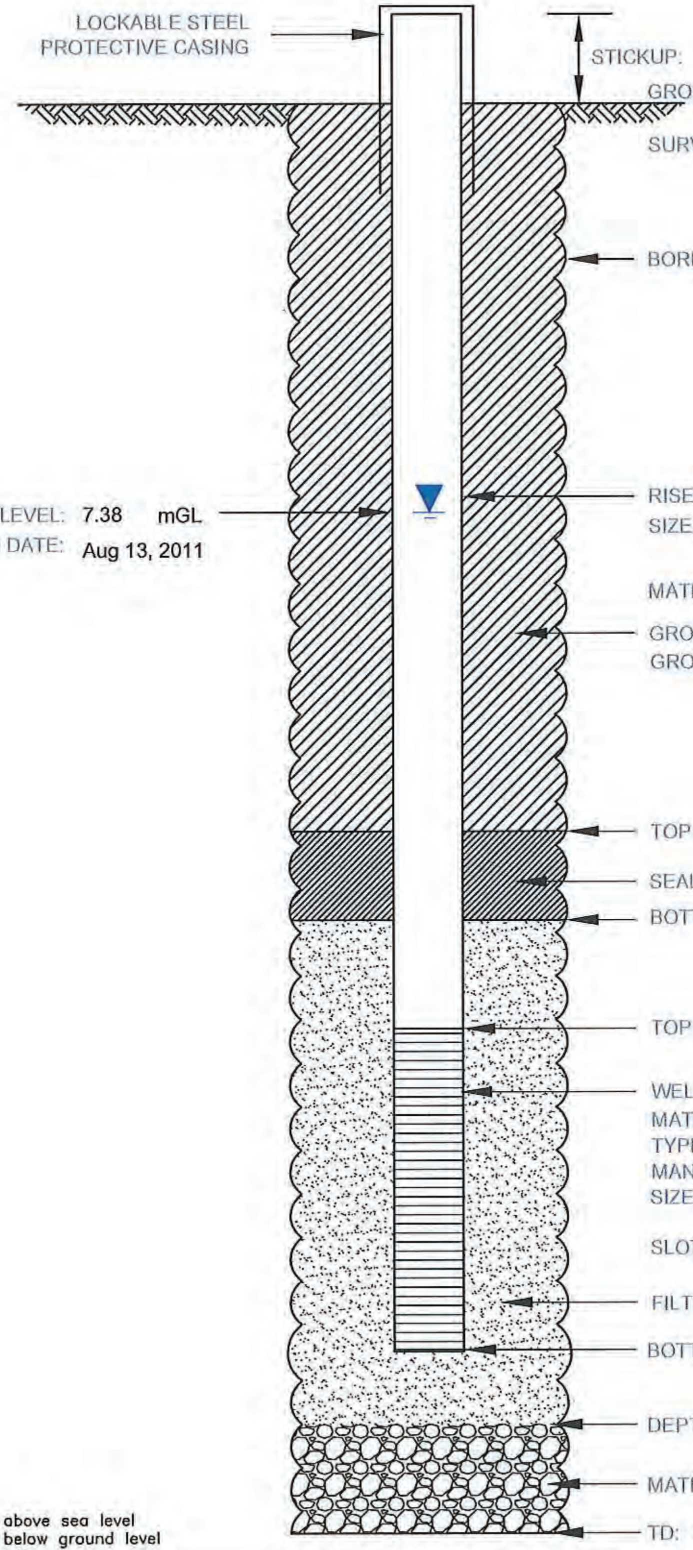
CHECKED: JW

FR_HMW3

MONITORING WELL CONSTRUCTION DETAILS

Short Well ID H3	Well Owner: Teck Coal Fording River Operations Well Name: GA-HMW3	Spud Date: Aug 12, 2011 Project Short Title: Teck Coal FRO - Henretta Project Number: 11.1348.0020-1000-2000 Site Geologist: T.Crowell
Drilling Method: Air Rotary	Development: Method: Air Lift	Duration: 1 Hour

SCHEMATIC ONLY–NOT TO SCALE



LOCKABLE STEEL PROTECTIVE CASING

STICKUP: 0.81 m

GROUND LEVEL: 1728.2 masl

SURVEY DATE: Aug 12, 2011

BOREHOLE DIAMETER: 203.2 mm

STATIC WATER LEVEL: 7.38 mGL

MEASURED DATE: Aug 13, 2011

RISER PIPE

SIZE: 60.3 mm O.D

49.3 mm I.D.

MATERIAL: SCHEDULE 80 PVC

GROUT: BENTONITE CHIPS

GROUT TOP: SURFACE

TOP OF SEAL: 10.7 mGL

SEAL: BENTONITE PELLETS

BOTTOM OF SEAL: 11.3 mGL

TOP OF SCREEN: 16.7 mGL

WELL SCREEN

MATERIAL: SCHEDULE 80 PVC

TYPE: SLOTTED

MANUFACTURE: RICE ENGINEERING

SIZE: 60.3 mm O.D

49.3 mm I.D.

SLOT SIZE: 0.3 mm (012)

FILTER PACK: 10/20 Silica Sand

BOTTOM OF SCREEN: 19.7 mGL

DEPTH: 22.3 mGL

MATERIAL: NATURAL PACK

TD: 22.6 mGL

NOTES:
1. masl – metres above sea level
2. mGL – metres below ground level
3. TD – Total Depth

Golder Associates

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DATA ENTRY: VI

PROJECT No.: 11.1348.0020.2000

RECORD OF BOREHOLE: GA-HMW5

SHEET 1 OF 1

LOCATION: See Location Plan

N: 655476 E: 5567514

BORING DATE: August 09, 2011

DATUM: Geodetic

DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m: 20 40 60 80

SHEAR STRENGTH Cu, kPa: nat V. + Q - ● rem V. ⊕ U - O: 20 40 60 80

HYDRAULIC CONDUCTIVITY, k, cm/s: 10^{-6} 10^{-5} 10^{-4} 10^{-3}

WATER CONTENT PERCENT Wp ⊢—O^W—⊣ Wl: 10 20 30 40

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	BLOWS/0.3m	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Barber Rig H24 Air Rotary BECK Drilling & Environmental Services Ltd.	Ground Surface	1785.20					
		Very loose, non-plastic, dry, grey to brown, loose grained to cobble size GRAVEL, non-cohesive with some medium grained, angular to subangular, (with little matrix) (ALLUVIUM)	0.00					
1								
				1	GRAB			13 Aug 2011 ∇
2								
3								
4		--- Soft, low plasticity, damp, non-cohesive, with more grey CLAY						
5				2	GRAB			
6								
		Hard layer, angular fragments, low returns GRAVEL	1778.50 6.90					
7		Very loose, low plasticity, damp, grey to brown, loose grained to cobble size GRAVEL, non-cohesive with some medium grained, angular to subangular (with little matrix) (ALLUVIUM)						
8				3	GRAB			
9		--- Clay becomes dark brown, damp, cohesive and very dense						
10				4	GRAB			
		Very loose fragments (drill cut-up), wet, massive, light to dark grey, angular BEDROCK	1774.50 10.70					
11								
12				5	GRAB			
		End of BOREHOLE.	1772.40 12.80					
13								
14								
15								

DEPTH SCALE

1 : 75

Golder Associates

LOGGED: TC

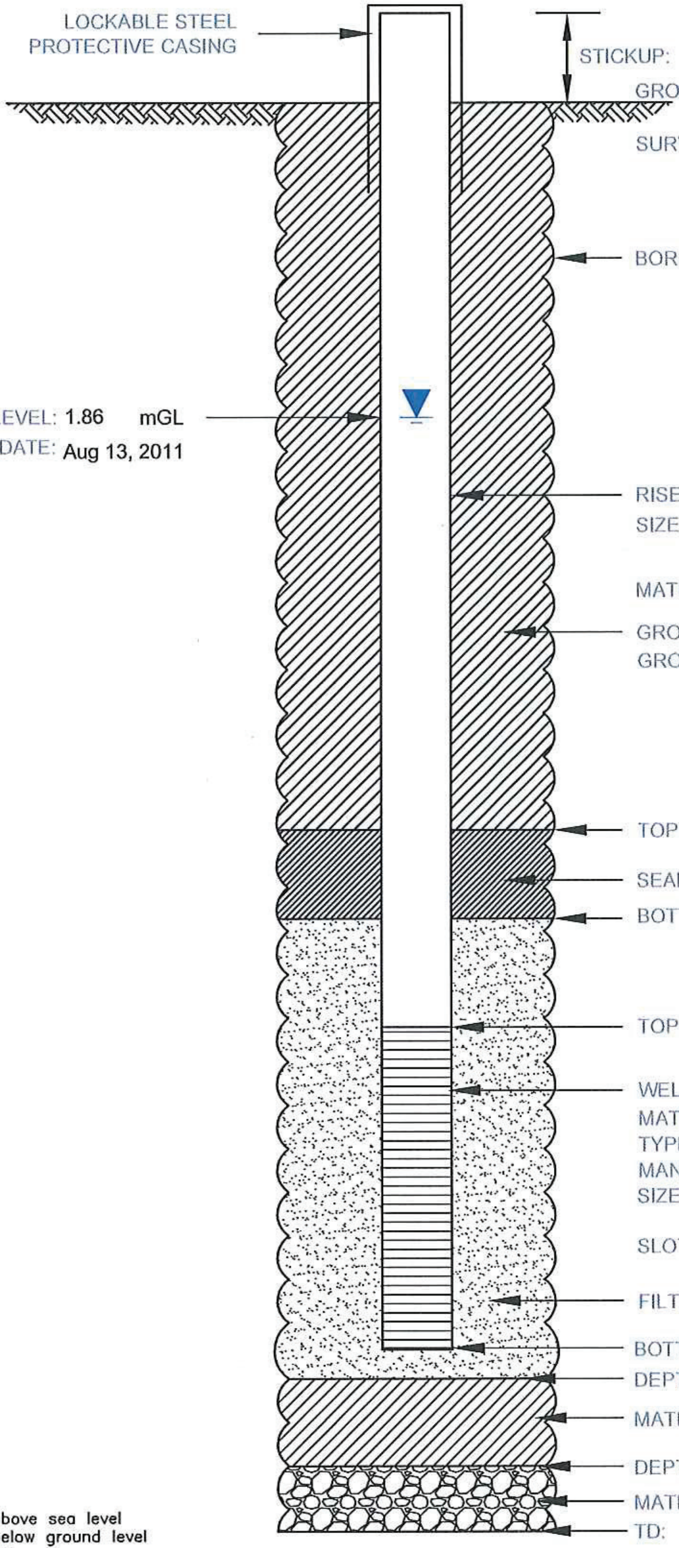
CHECKED: JW

FR_HMW5

MONITORING WELL CONSTRUCTION DETAILS

Short Well ID H5	Well Owner: Teck Coal Fording River Operations Well Name: GA-HMW5	Spud Date: Aug 9, 2011 Project Short Title: Teck Coal FRO - Henretta Project Number: 11.1348.0020-1000-2000 Site Geologist: T.Crowell
Drilling Method: Air Rotary	Development: Method: Air Lift	Duration: 1.75 Hours

SCHEMATIC ONLY–NOT TO SCALE



LOCKABLE STEEL PROTECTIVE CASING

STICKUP: 0.83 m

GROUND LEVEL: 1785.2 masl

SURVEY DATE: Aug 9, 2011

BOREHOLE DIAMETER: 203.2 mm

STATIC WATER LEVEL: 1.86 mGL

MEASURED DATE: Aug 13, 2011

RISER PIPE

SIZE: 60.3 mm O.D
49.3 mm I.D.

MATERIAL: SCHEDULE 80 PVC

GROUT: BENTONITE CHIPS

GROUT TOP: SURFACE

TOP OF SEAL: 4.3 mGL

SEAL: BENTONITE PELLETS

BOTTOM OF SEAL: 4.6 mGL

TOP OF SCREEN: 7.3 mGL

WELL SCREEN

MATERIAL: SCHEDULE 80 PVC

TYPE: SLOTTED

MANUFACTURE: RICE ENGINEERING

SIZE: 60.3 mm O.D
49.3 mm I.D.

SLOT SIZE: 0.3 mm (012)

FILTER PACK: 10/20 Silica Sand

BOTTOM OF SCREEN: 10.4 mGL

DEPTH: 10.5 mGL

MATERIAL: BENTONITE CHIPS

DEPTH: 11.0 mGL

MATERIAL: NATURAL PACK

TD: 12.8 mGL

NOTES:
1. masl – metres above sea level
2. mGL – metres below ground level
3. TD – Total Depth

Golder Associates

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FINAL

SNC·LAVALIN

	Client **Teck Coal Limited**	**Borehole No. : FR_TBSSMW-1**
	Location **Turnbull, Elkford, BC**	PAGE 1 OF 3

Drilling Contractor	Foraco International SA	Date Monitored	2017 08 08	Project Number:	648811
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1697.039	Borehole Logged By:	SC
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1697.969	Date Drilled:	2017 08 02
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5565868.179	Easting: 651603.747	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ▼ Air Rotary

Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

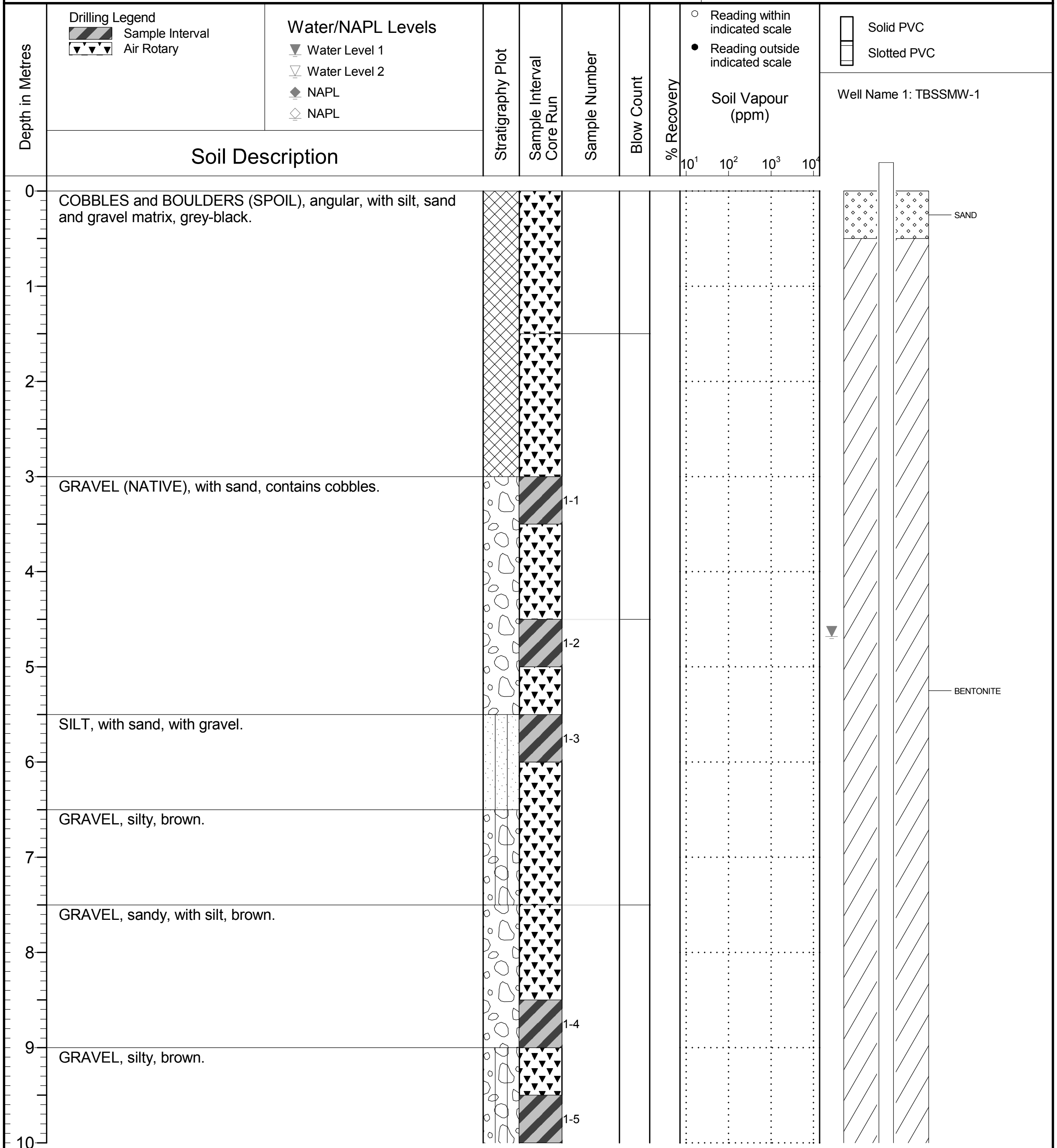
○ Reading within indicated scale
● Reading outside indicated scale

☐ Solid PVC
☐ Slotted PVC

Depth in Metres

Soil Description

Depth (m)	Soil Description
0	COBBLES and BOULDERS (SPOIL), angular, with silt, sand and gravel matrix, grey-black.
3	GRAVEL (NATIVE), with sand, contains cobbles.
5.5	SILT, with sand, with gravel.
6.5	GRAVEL, silty, brown.
7.5	GRAVEL, sandy, with silt, brown.
9	GRAVEL, silty, brown.



NOTES
150 mm steel casing to 5.0 m.
Bolded sample denotes sample analyzed.

SC 2017 09 19 Print Date:2017-12-19

FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : FR_TBSSMW-1**
	Location **Turnbull, Elkford, BC**	PAGE 2 OF 3

Drilling Contractor	Foraco International SA	Date Monitored	2017 08 08	Project Number:	648811
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1697.039	Borehole Logged By:	SC
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1697.969	Date Drilled:	2017 08 02
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5565868.179	Easting: 651603.747	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼ Air Rotary

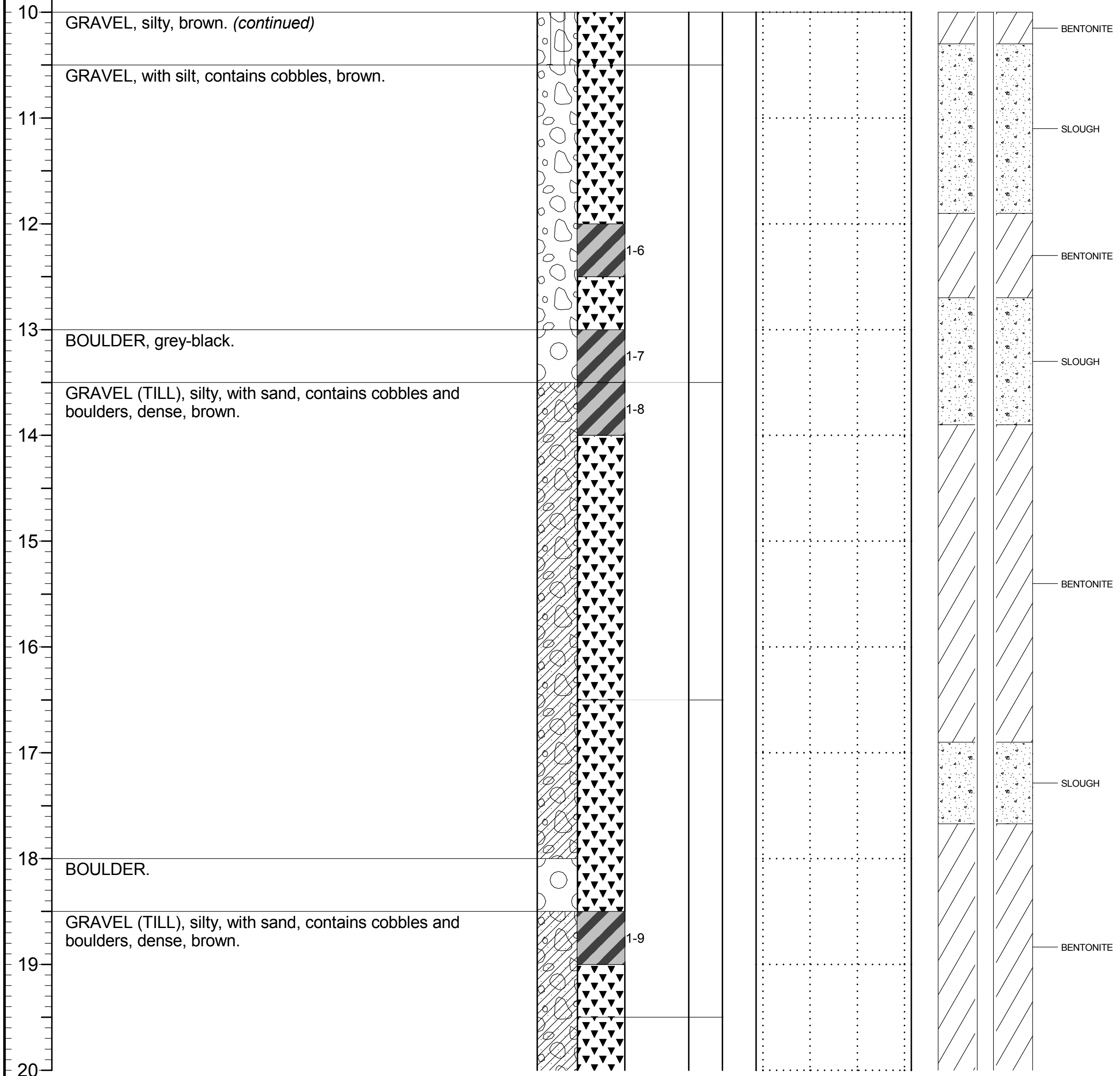
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: TBSSMW-1

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)



GRAVEL, silty, brown. *(continued)*

GRAVEL, with silt, contains cobbles, brown.

BOULDER, grey-black.

GRAVEL (TILL), silty, with sand, contains cobbles and boulders, dense, brown.

BOULDER.

GRAVEL (TILL), silty, with sand, contains cobbles and boulders, dense, brown.

NOTES
150 mm steel casing to 5.0 m.
Bolded sample denotes sample analyzed.

FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : FR_TBSSMW-1**
	Location **Turnbull, Elkford, BC**	PAGE 3 OF 3

Drilling Contractor	Foraco International SA	Date Monitored	2017 08 08	Project Number:	648811
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1697.039	Borehole Logged By:	SC
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1697.969	Date Drilled:	2017 08 02
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5565868.179	Easting: 651603.747	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ▼▼▼ Air Rotary

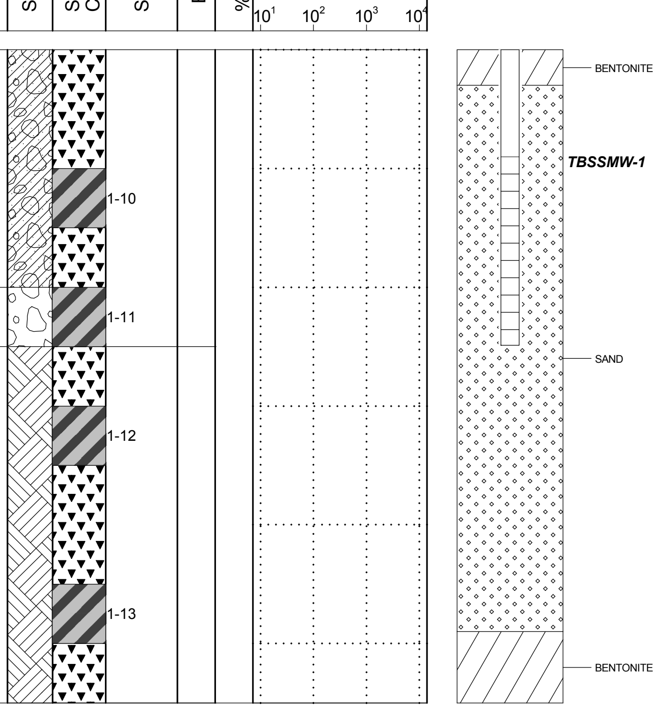
Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- Solid PVC
- Slotted PVC

Well Name 1: TBSSMW-1

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)
20	GRAVEL (TILL), silty, with sand, contains cobbles and boulders, dense, brown. *(continued)*			1-10			
22	GRAVEL, sandy.			1-11			
22.5	BEDROCK, fresh, SILT/SANDSTONE, grey to black.			1-12 1-13			
25.5	Bottom of hole at 25.5 m.						



NOTES
150 mm steel casing to 5.0 m.
Bolded sample denotes sample analyzed.

FINAL

SNC • LAVALIN

Client **Teck Coal Limited**		**Borehole No. : FR_TBSSMW-2**
Location **Turnbull, Elkford, BC**		PAGE 1 OF 1

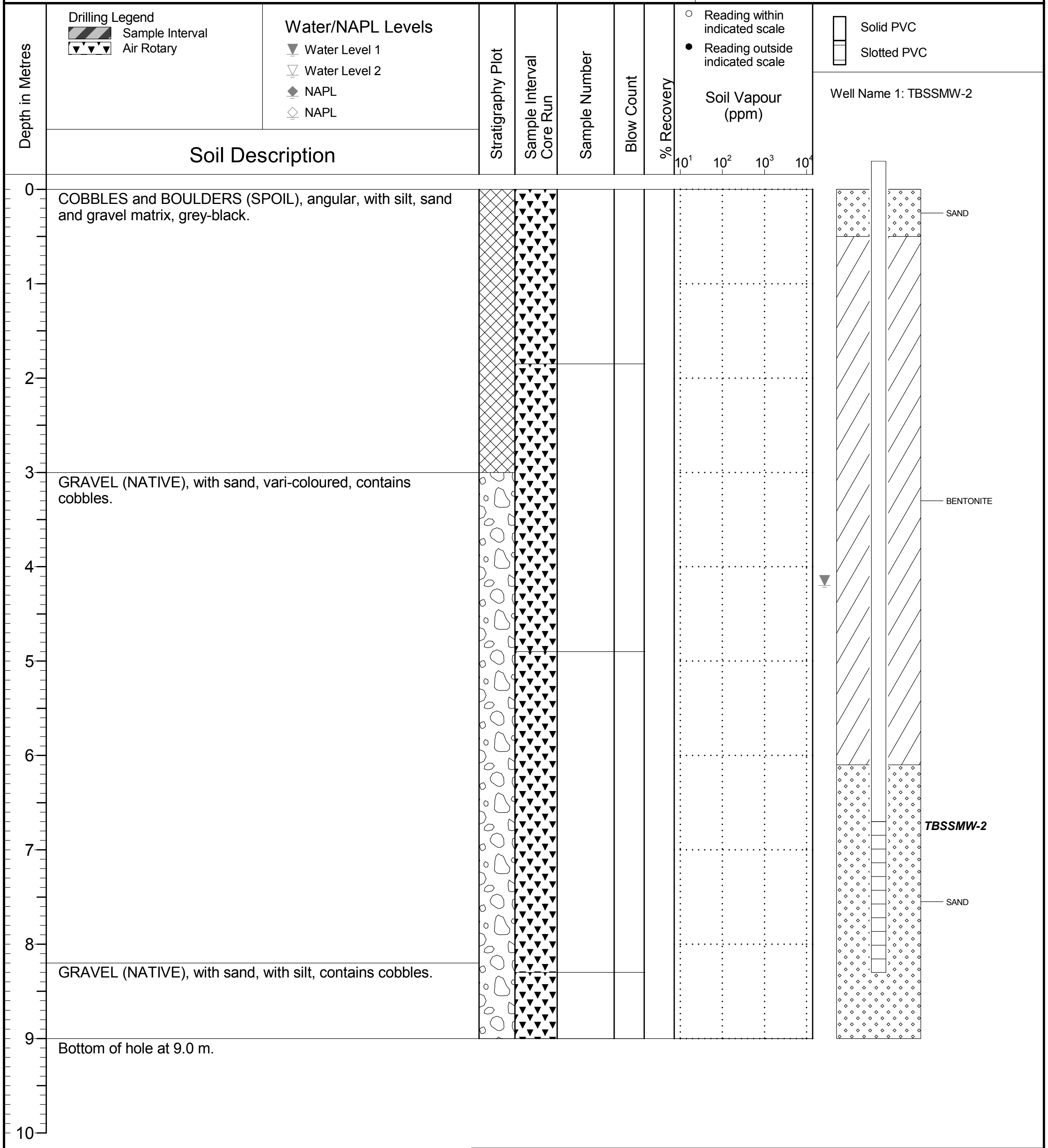
Drilling Contractor	Foraco International SA	Date Monitored	2017 08 08	Project Number:	648811
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1697.026	Borehole Logged By:	RSW
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1697.949	Date Drilled:	2017 08 03
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5565866.323	Easting: 651604.803	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ▼ Air Rotary

Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

Depth in Metres	Soil Description
0	COBBLES and BOULDERS (SPOIL), angular, with silt, sand and gravel matrix, grey-black.
3	GRAVEL (NATIVE), with sand, vari-coloured, contains cobbles.
8.2	GRAVEL (NATIVE), with sand, with silt, contains cobbles.
9	Bottom of hole at 9.0 m.



NOTES
150 mm steel casing to 4.6 m.
Bolded sample denotes sample analyzed.

SC 2017 09 19 Print Date:2017-12-19

FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : FR_GCMW-1A/B**
	Location **Turnbull, Elkford, BC**	PAGE 1 OF 3

Drilling Contractor	Foraco International SA	Date Monitored	2017 08 08	Project Number:	648811
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1670.643	Borehole Logged By:	SC
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1671.355 1671.293	Date Drilled:	2017 08 01
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5564000.572	Easting: 650964.694	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼ Air Rotary

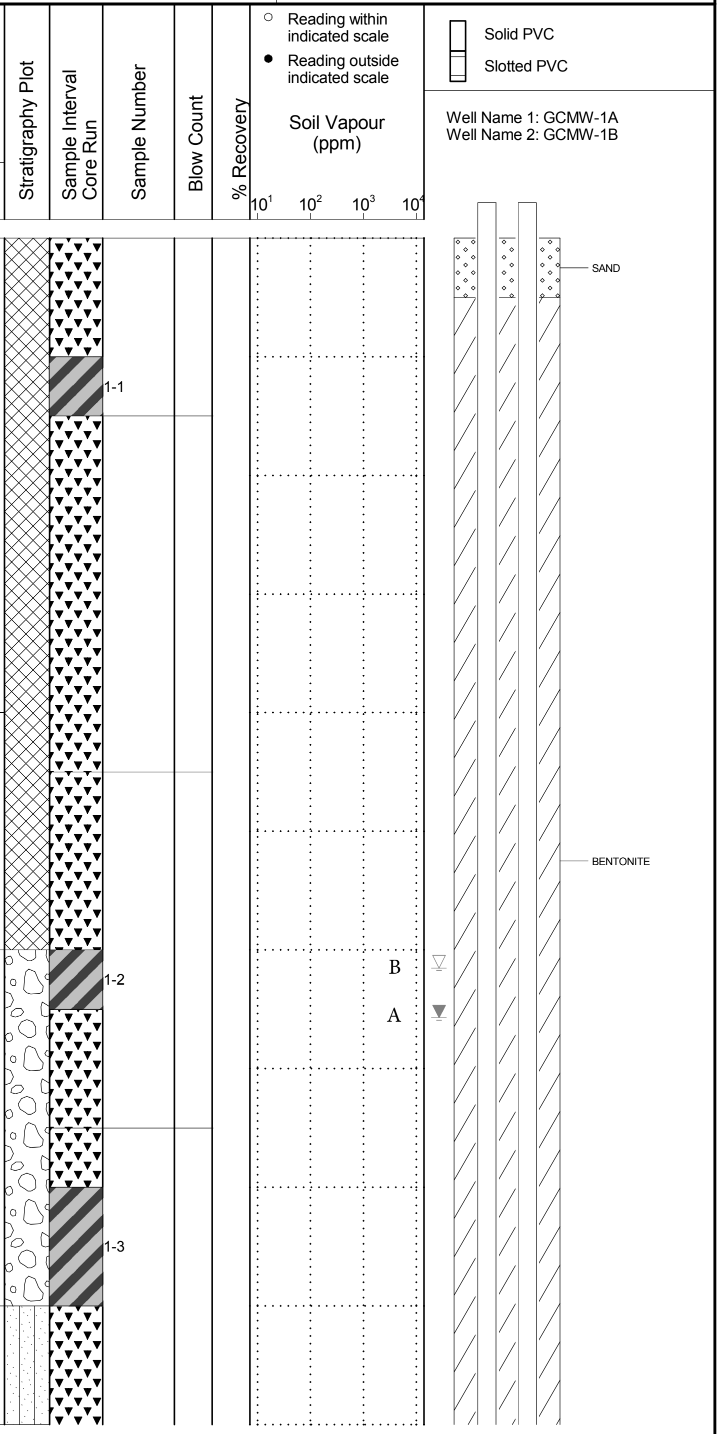
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: GCMW-1A
Well Name 2: GCMW-1B

Depth in Metres	Soil Description
0	GRAVEL (SPOIL), silty, with sand, contains cobbles and boulders, grey-black.
4	GRAVEL (FILL), silty, with sand, contains cobbles and boulders, brown.
6	GRAVEL (NATIVE), subrounded, with silt, with sand, contains cobbles, brown.
9	SAND (NATIVE), silty, brown.



NOTES
150 mm steel casing to 10.5 m.
Bolded sample denotes sample analyzed.

FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : FR_GCMW-1A/B**
	Location **Turnbull, Elkford, BC**	PAGE 2 OF 3

Drilling Contractor	Foraco International SA	Date Monitored	2017 08 08	Project Number:	648811
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1670.643	Borehole Logged By:	SC
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1671.355 1671.293	Date Drilled:	2017 08 01
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5564000.572	Easting: 650964.694	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼ Air Rotary

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

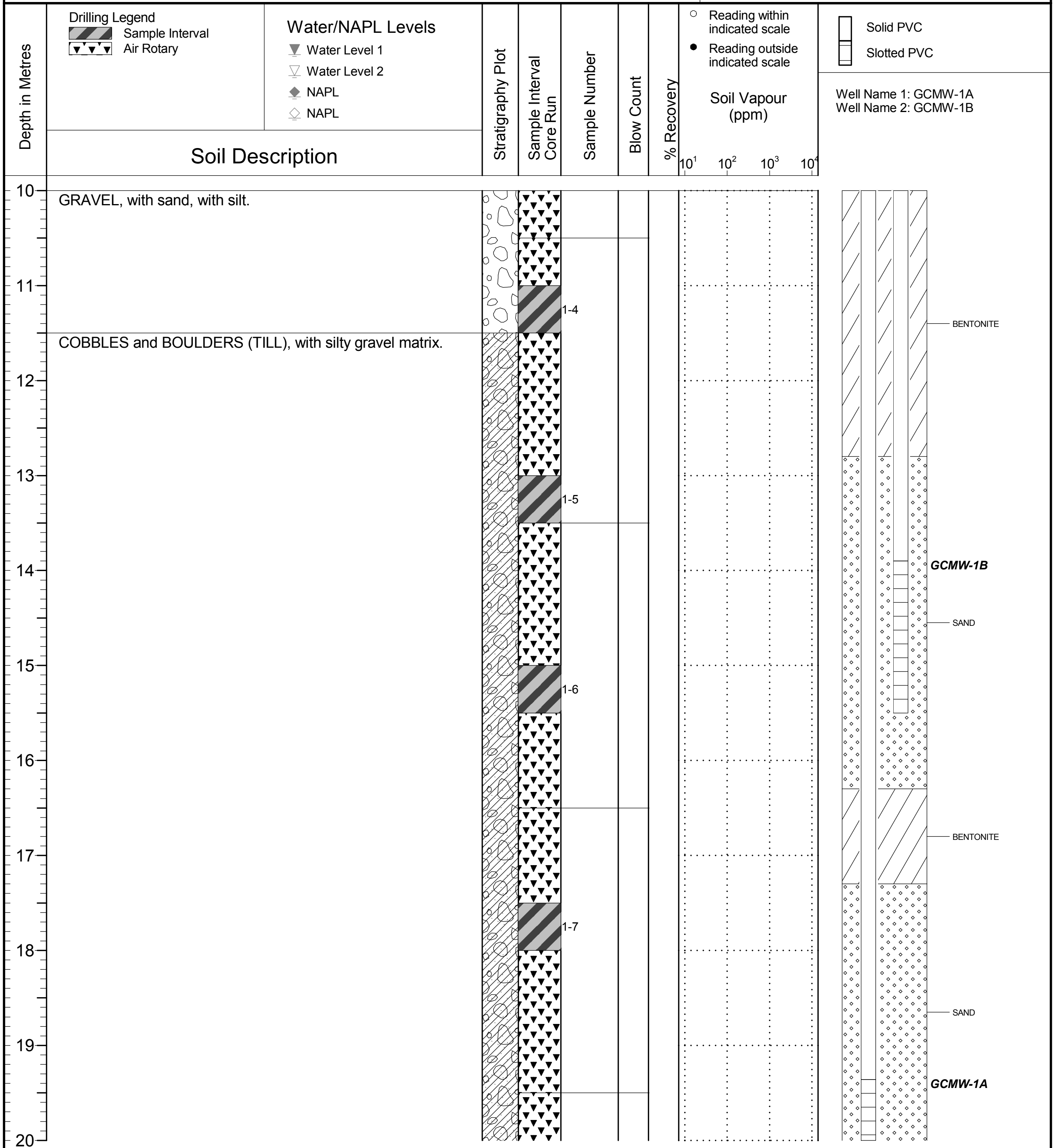
○ Reading within indicated scale
● Reading outside indicated scale

Soil Vapour (ppm)

☐ Solid PVC
☐ Slotted PVC

Well Name 1: GCMW-1A
Well Name 2: GCMW-1B

Depth in Metres	Soil Description
10	GRAVEL, with sand, with silt.
11.5	COBBLES and BOULDERS (TILL), with silty gravel matrix.



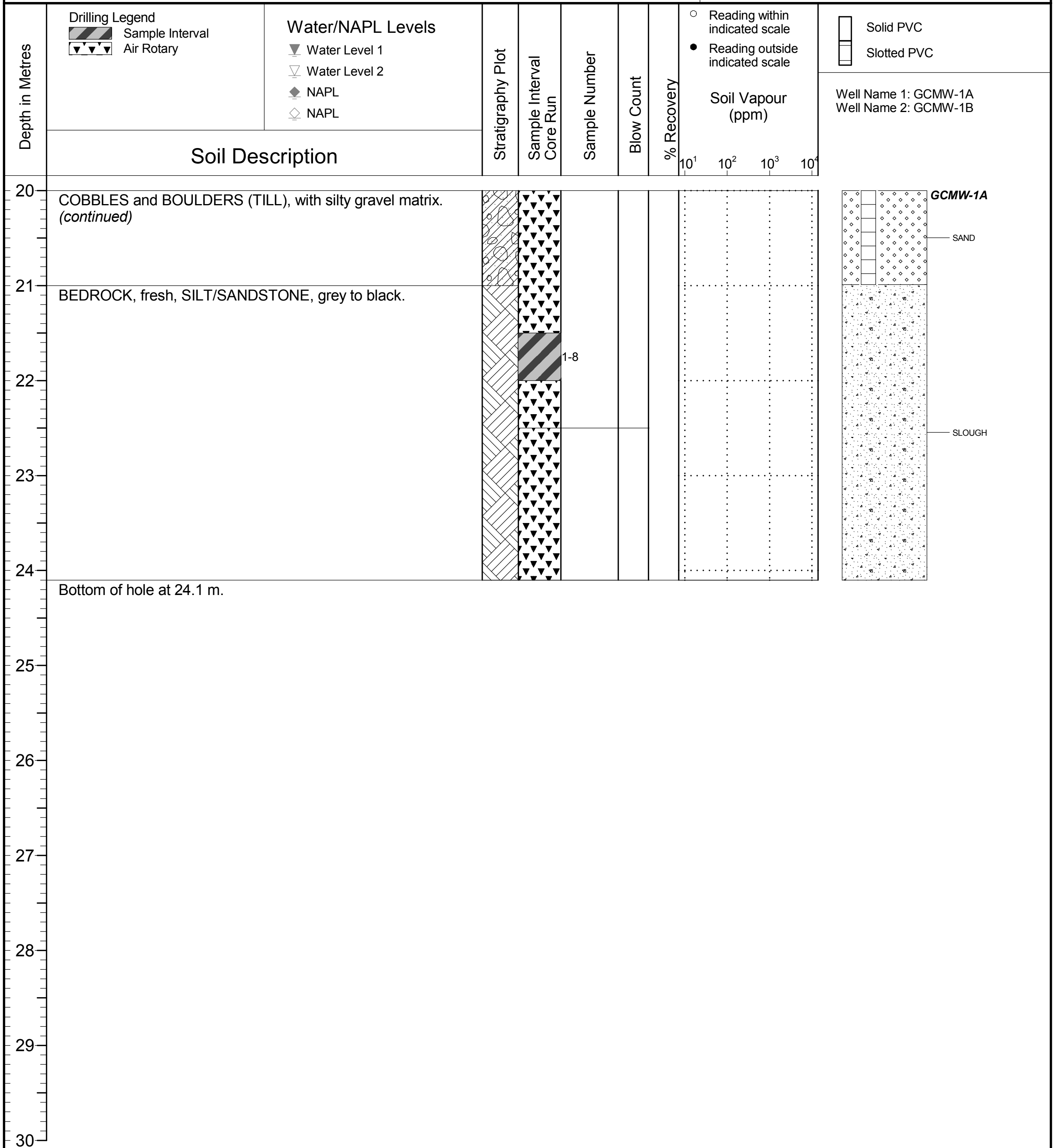
NOTES
150 mm steel casing to 10.5 m.
Bolded sample denotes sample analyzed.

FINAL

SNC • LAVALIN

Client **Teck Coal Limited**	**Borehole No. : FR_GCMW-1A/B**	
Location **Turnbull, Elkford, BC**	PAGE 3 OF 3	

Drilling Contractor	Foraco International SA	Date Monitored	2017 08 08	Project Number:	648811
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1670.643	Borehole Logged By:	SC
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1671.355 1671.293	Date Drilled:	2017 08 01
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5564000.572	Easting: 650964.694	Log Typed By:	VL



COBBLES and BOULDERS (TILL), with silty gravel matrix. *(continued)*

BEDROCK, fresh, SILT/SANDSTONE, grey to black.

Bottom of hole at 24.1 m.

NOTES
150 mm steel casing to 10.5 m.
Bolded sample denotes sample analyzed.

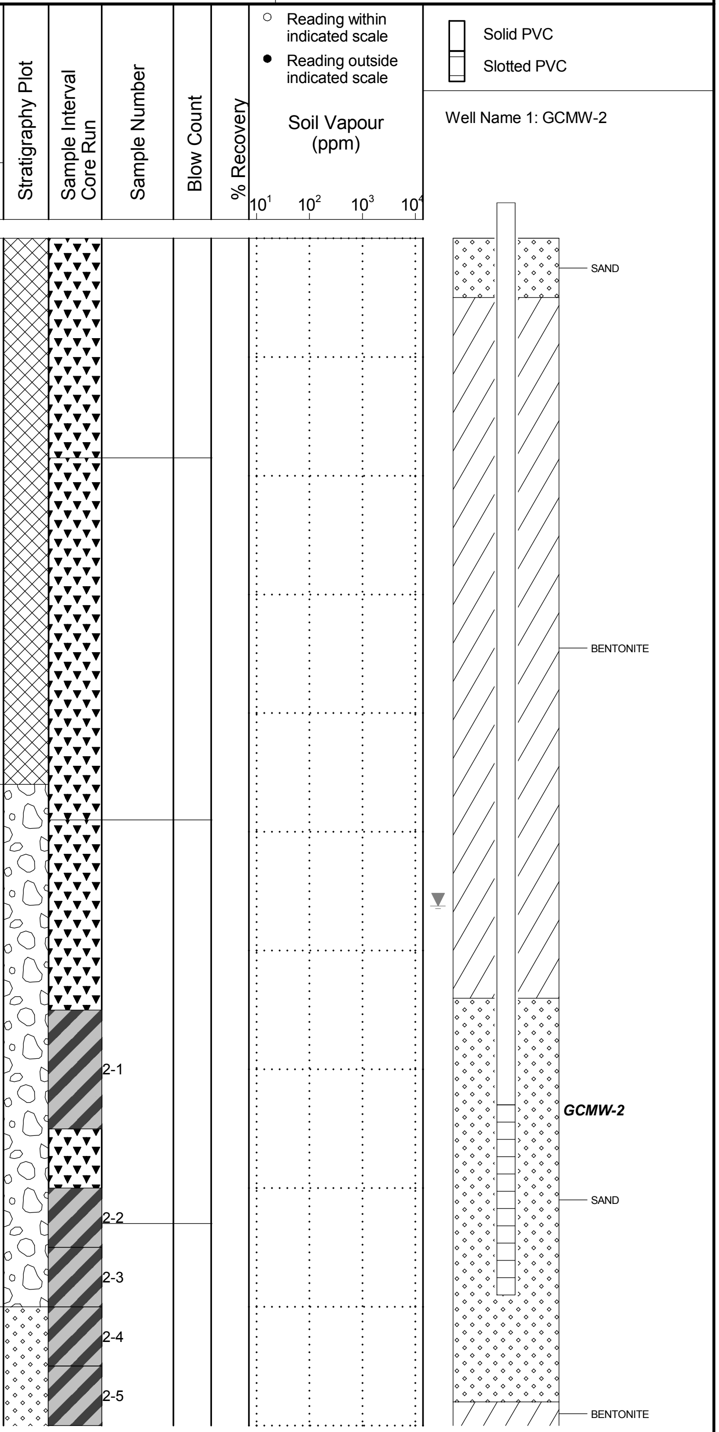
FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : FR_GCMW-2**
	Location **Turnbull, Elkford, BC**	PAGE 1 OF 2

Drilling Contractor	Foraco International SA	Date Monitored	2017 08 08	Project Number:	648811
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1670.444	Borehole Logged By:	RSW
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1671.342	Date Drilled:	2017 08 02
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5563998.165	Easting: 650966.068	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ▼ Air Rotary

Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL



Depth in Metres	Soil Description
0	GRAVEL (SPOIL), silty, with sand, contains cobbles and boulders, grey-black.
4.6	GRAVEL (NATIVE), sandy, with silt, light grey to dark grey, brown, black (vari-coloured).
9	SAND (NATIVE), gravelly, with silt, brown.

NOTES
150 mm steel casing to 4.9 m.
Bolded sample denotes sample analyzed.

SC 2017 09 19 Print Date:2017-12-19

FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : FR_GCMW-2**
	Location **Turnbull, Elkford, BC**	PAGE 2 OF 2

Drilling Contractor	Foraco International SA	Date Monitored	2017 08 08	Project Number:	648811
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1670.444	Borehole Logged By:	RSW
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1671.342	Date Drilled:	2017 08 02
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5563998.165	Easting: 650966.068	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼ Air Rotary

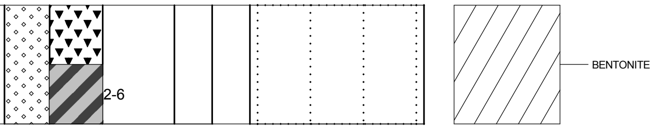
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▯ Slotted PVC

Well Name 1: GCMW-2

Depth in Metres	Soil Description
10	SAND (NATIVE), gravelly, with silt, brown. *(continued)*
11	Bottom of hole at 11.0 m.



Depth scale: 10 11 12 13 14 15 16 17 18 19 20

NOTES
150 mm steel casing to 4.9 m.
Bolded sample denotes sample analyzed.

SC 2017 09 19 Print Date:2017-12-19

DATA ENTRY: KJM

PROJECT No.: 09-1349-1007.3102

RECORD OF BOREHOLE: GA-MW-1B

SHEET 1 OF 1

LOCATION: See Location Plan

BORING DATE: September 08, 2010

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80); SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - O (10 20 30 40)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}); WATER CONTENT PERCENT Wp ⊢—O^W—⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		Ground Surface									
0	Becker Hammer Beck Drilling and Environmental Services Ltd.	Soil Materials		0.0							
1		Soil Materials with light grey gravel		0.9							
2		Loose, dry, dark brown, coarse-grained GRAVEL AND COBBLES, unconsolidated (TILL)		1.8							
3											
4											
5											
		Loose to dense, wet, dark brown, non-plastic CLAY, large gravel grain-size (TILL)		5.5							
6											
		Soft, dry, light to medium, brown, weakly plastic, MUDSTONE		6.4							
7											
		Hard, dry, black, very fine-grained SHALE, no fractures or planes		7.3							
8											
		End of BOREHOLE.		8.2							
9											
10											

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: TC
CHECKED:

MONITORING WELL CONSTRUCTION DETAILS

Short Well ID: GA-MW-1B

Well Owner: Teck Coal - Fording River Operations

Date: 08 Sept. 2010

Project Short Title: FORDING RIVER

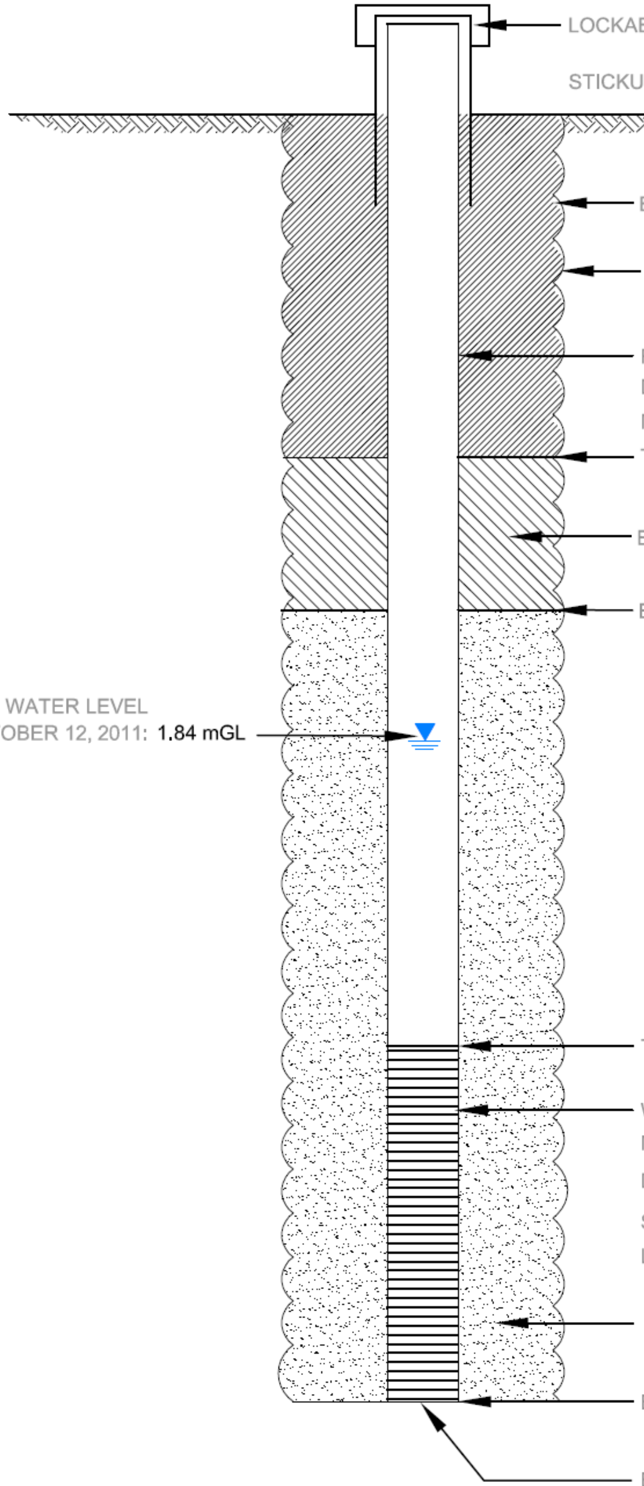
Project Number: 0913491007

Site Geologist: Tim Crowell

Drilling Method: Becker Hammer

Development: Method: Bailer

SCHEMATIC ONLY-NOT TO SCALE
ALL DEPTHS AND VALVES ARE ESTIMATE



LOCKABLE STEEL PROTECTIVE CASING

STICKUP: 0.67 m

BOREHOLE DIAMETER: 168.2 mm

MATERIAL: BENTONITE CHIPS TO SURFACE

RISER PIPE
DIAMETER: 51 mm
MATERIAL: SCHEDULE 80 PVC

TOP OF SEAL: 1.2 mGL

BENTONITE PELLETS

BOTTOM OF SEAL/TOP OF SAND: 1.5 mGL

WATER LEVEL
ON OCTOBER 12, 2011: 1.84 mGL

TOP OF SCREEN: 5.2 mGL

WELL SCREEN
MATERIAL: SCHEDULE 80 PVC
DIAMETER: 51 mm O.D.
SCREEN SIZE: 0.010 (10-SLOT)
LENGTH: 3.00 m

FILTER SAND: 10-20 SILICA SAND

BOTTOM OF PVC SCREEN AND CAP: 8.2 mGL

BOREHOLE TOTAL DEPTH: 8.2 mGL

NOTES:
1. masl - metres above sea level
2. mGL - metres below ground level

Golder Associates

L:\2009\1349\09-1349-1007\3102\Report B (3003)\ Drawing file: Fig 1 09134910073102B001 GA-MW-1B.dwg Nov 15, 2011 - 9:55am

DATA ENTRY: KJM

PROJECT No.: 09-1324-1039

RECORD OF MONITORING WELL: 09-04A

SHEET 1 OF 1

LOCATION: South Taillings Pond - West (non-channel)

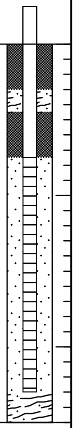
BORING DATE: October 16, 2009

DATUM: Local

BORING METHOD: Barber Rig - DR-24 - 9" Hole Diameter
Beck Drilling and Environmental Services Ltd.

DEPTH SCALE METRES	SOIL PROFILE DESCRIPTION	ELEV. / DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ (10 20 30 40)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING
	Ground Surface	1605.0						
0	Silty SAND, some gravel, medium grain sand, loose, slightly moist, dark brown	0.0						
	Sandy GRAVEL, trace silt, medium gravel, loose, moist, medium brown --- Coarse to medium gravel from 2.5 to 3.0 m --- Very moist from 3.5 to 4.0 m	1603.5 1.5						
	End of MONITORING WELL.	1600.0 5.0						

PIEZOMETER OR STANDPIPE INSTALLATION



Stickup =0.91 m

Bentonite

Slough

Bentonite

Slotted Section

Slough

DEPTH SCALE

1 : 100

LOGGED: EA

CHECKED: MB

BOREHOLE 09-1324-1039_LOGS.GPJ CALGARY.GDT 1/11/16

DATA ENTRY: KJM

PROJECT No.: 09-1324-1039

RECORD OF MONITORING WELL: 09-04B

SHEET 1 OF 1

LOCATION: South Taillings Pond - West (non-channel)

BORING DATE: October 15, 2009

DATUM: Local

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	ELEV. DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m 20 40 60 80 SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ 10 20 30 40	HYDRAULIC CONDUCTIVITY, k, cm/s 10^{-6} 10^{-5} 10^{-4} 10^{-3} WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		Ground Surface	1605.0							Stickup =0.64 m
0	Barber Rig - DR-24 - 9" Hole Diameter Beck Drilling and Environmental Services Ltd.	Silty SAND, some gravel, medium grain sand, loose, slightly moist, dark brown	0.0							Bentonite
		Sandy GRAVEL, trace silt, medium gravel, loose, moist, medium brown --- Coarse to medium gravel from 2.5 to 3.0 m --- Very moist from 3.5 to 4.0 m	1603.5 1.5							Slough Bentonite Granular Filter
		GRAVEL, medium to coarse gravel, loose, saturated, light grey to brown	1599.5 5.5							Slotted Section
		Sandy GRAVEL, loose, saturated, medium brown	1599.0 6.0							
		BEDROCK, loose, dark grey	1598.5 6.5							Slough
		End of MONITORING WELL.	1598.0 7.0							

0 2 4 6 8 10 12 14 16 18 20

DEPTH SCALE

1 : 100

Golder Associates

LOGGED: EA

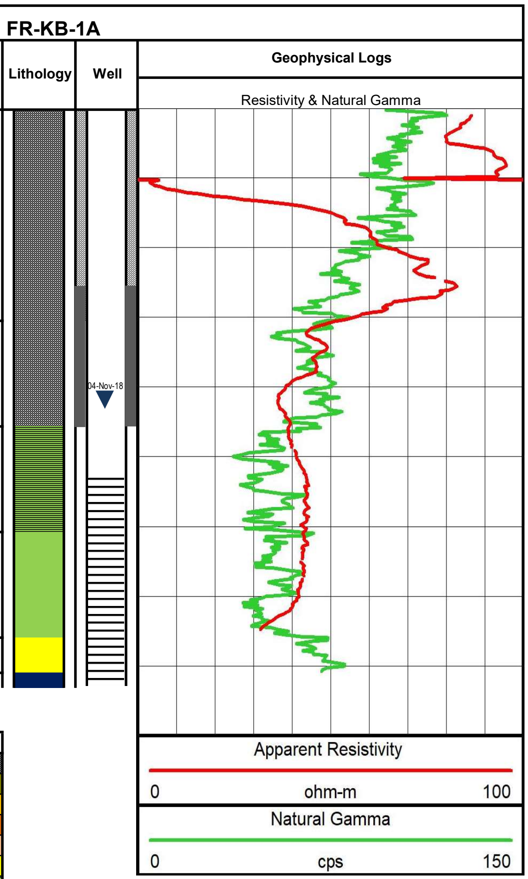
CHECKED: MB

BOREHOLE 09-1324-1039_LOGS.GPJ CALGARY.GDT 1/11/16

Teck

WELL ID: FR-KB-1A

Depth (mGL)	Lithological Description
0 1 2	0-3.0mGL: **SPOILS** (SM) SILTY SAND
3 4	3.0-4.6mGL: **SPOILS** (GM) SILTY GRAVEL
5	4.6-6.1mGL: **(GM) SILTY GRAVEL** Water from discharge hose during welding of 15-20' section
6	6.1-7.6mGL: **(GW) GRAVEL**
7	7.6-8.2mGL: **(SW) SAND**
	TD @ 8.2mGL: **BEDROCK** - grey shale (Fernie Fm)

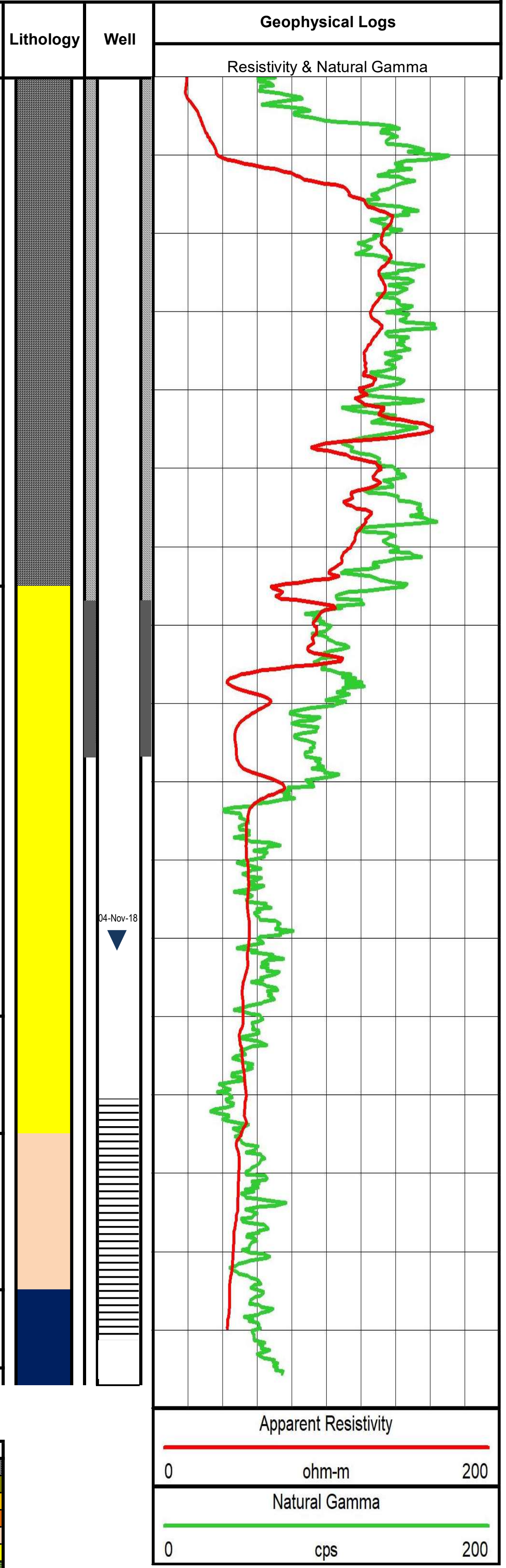


Legend	
Fill/Spoil	▨
Clay	🟫
Silty-Clay	🟧
Clayey Silt	🟧
Clayey Sand	🟧
Sand	🟨
Silty Gravel	▤
Sand & Gravel	🟩
Gravel	🟩
Bedrock	🟦

Teck

WELL ID: FR-KB-2A

Depth (mGL)	Lithological Description
0	
1	
2	
3	0-6.7mGL: **SPOILS** - Dark grey to black, angular, coaly and dry.
4	
5	
6	
7	
8	
9	6.7-12.2mGL: **(SW) SAND**, sub-angular to sub-rounded, silt - fine gravels grey-brown, dry; producing water from discharge line @8.5mGL
10	
11	
12	12.2-13.7mGL: **(SW) SAND**, sub-angular to sub-rounded, fine to coarse sand brown, moist.
13	
14	13.7-15.5mGL: **(SM) SILTY SAND**, sub-angular to sub-rounded, silt to fine gravels brown, moist.
15	15.5 -16.8mGL: **BEDROCK** - Dark grey shale (Fernie Fm)
16	TD @16.8mGL



Legend

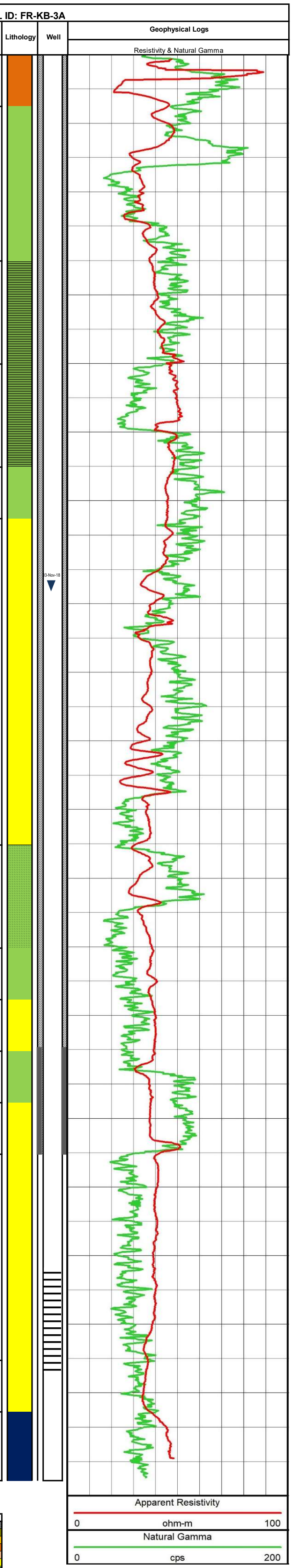
Fill/Spoil	▨
Clay	🟫
Silty-Clay	🟧
Clayey Silt	🟧
Silty Sand	🟧
Sand	🟨
Silty Gravel	▨
Sand & Gravel	🟩
Gravel	🟩
Bedrock	🟦

Teck

WELL ID: FR-KB-3A

Depth (mGL)	Lithological Description
0	0-1.5mGL: **(MH) CLAYEY SILT**, angular fine gravels, some organics, dark brown, dry
1	
2	
3	1.5-6.1mGL: **(GW) GRAVEL**, angular med sands to fine gravels, brown grey, dry
4	
5	
6	
7	6.1- 9.1mGL: **(GM) SILTY GRAVEL**, angular to sub angular, silt to fine gravels, brown grey, dry to slight moisture
8	
9	
10	9.1-12.2mGL: **(GM) SILTY GRAVEL**, angular to sub angular, silt to fine gravels, brown grey, dry to slight moisture. Less coarse gravels than above, and then at 35' material is coarser again.
11	
12	12.2-13.7mGL: **(GW) GRAVEL**, sub angular to sub rounded, med sands to fine gravels, dark brown, moist.
13	
14	
15	
16	
17	
18	13.7-22.9mGL: **(SW) SAND**, sub angular to sub rounded, fine sands to fine gravels, dark brown, moist.
19	
20	
21	
22	
23	
24	22.9-25.9mGL: **(SW) SAND AND GRAVEL** sub angular to sub rounded, med sands to fine gravels, dark brown, moist; water coming out of discarge at 24.4mGL
25	
26	25.9-27.4mGL: **(GW) GRAVEL** sub angular to sub rounded, med sands to fine gravels, dark brown, wet.
27	
28	27.4-29.0mGL: **(SW) SAND** sub angular to sub rounded, silt to coarse sands, dark brown, wet.
29	29.0-30.5mGL: (GW) **GRAVEL** sub angular to sub rounded, med sands to fine gravels, dark brown, wet.
30	
31	30.5-32mGL: **(SW) SAND** sub angular to sub rounded, fine to coarse sands, dark brown-grey, wet.
32	
33	
34	32-38.1mGL: **(SW) SAND** sub angular to sub rounded, fine sand to fine gravels, dark brown-grey, wet.
35	
36	
37	
38	38.1-39.3mGL: **(SW) SAND** sub angular to sub rounded, fine to coarse sand, dark brown-grey, multicoloured, wet. Much smaller size fractions than above
39	
40	39.3-41.5mGL: **BEDROCK** - Dark grey shale (Fernie Formation)
41	

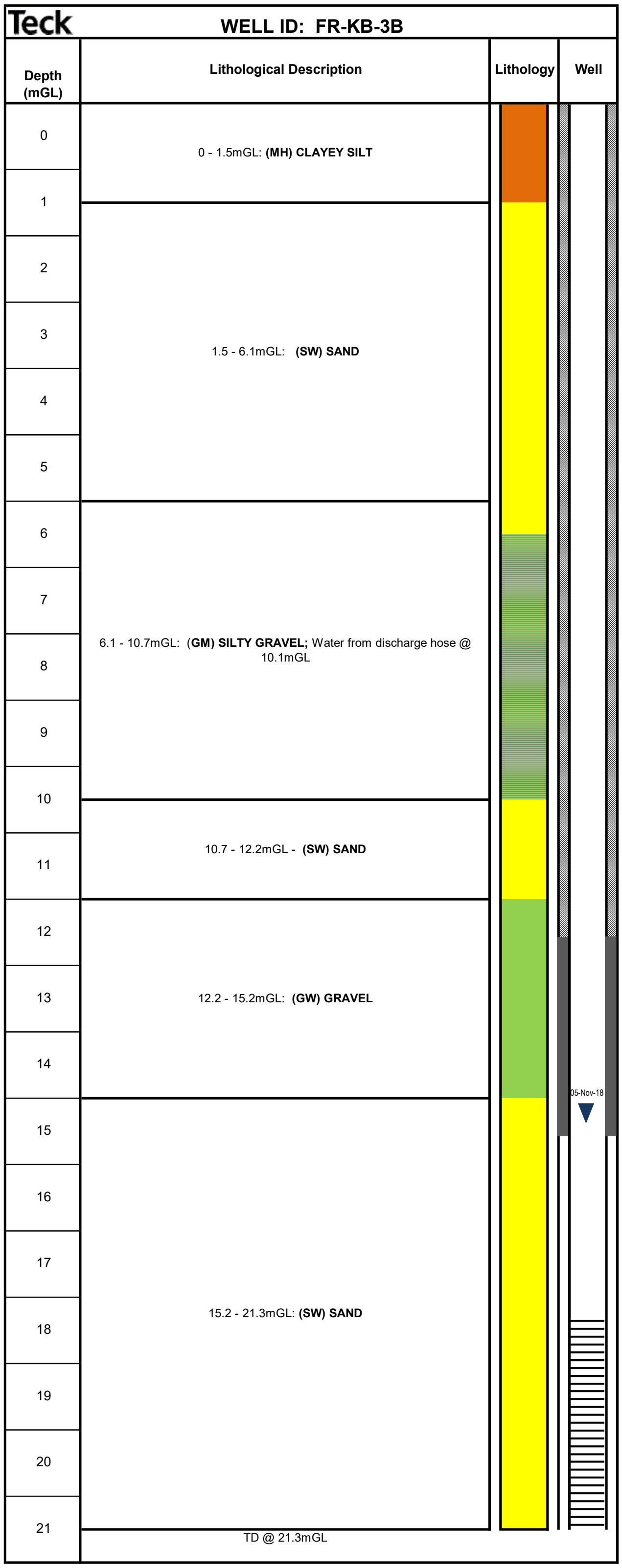
TD @41.5mGL



Legend	
Fill/Spoil	▩
Clay	🟫
Silty-Clay	🟨
Clayey Silt	🟧
Clayey Sand	🟧
Sand	🟨
Silty Gravel	▤
Sand & Gravel	▩
Gravel	🟩
Bedrock	🟦

Teck

WELL ID: FR-KB-3B



0 - 1.5mGL: **(MH) CLAYEY SILT**

1.5 - 6.1mGL: **(SW) SAND**

6.1 - 10.7mGL: **(GM) SILTY GRAVEL;** Water from discharge hose @ 10.1mGL

10.7 - 12.2mGL - **(SW) SAND**

12.2 - 15.2mGL: **(GW) GRAVEL**

15.2 - 21.3mGL: **(SW) SAND**

TD @ 21.3mGL

Legend	
Fill/Spoil	▨
Clay	🟫
Silty-Clay	🟧
Clayey Silt	🟧
Clayey Sand	🟧
Sand	🟨
Silty Gravel	▨
Sand & Gravel	🟩
Gravel	🟩
Bedrock	🟦

SNC • LAVALIN

Client **Teck Coal Limited**		**Borehole No. : FR_BH-SK1A**
Location **Regional Groundwater Monitoring**		PAGE 1 OF 2

Drilling Contractor	JR Drilling	Date Monitored	2019 03 28	Project Number:	631283
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1586.479	Borehole Logged By:	MCA
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1587.429	Date Drilled:	2018 12 21
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5558635.101	Easting: 652680.685	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ▼ Air Rotary

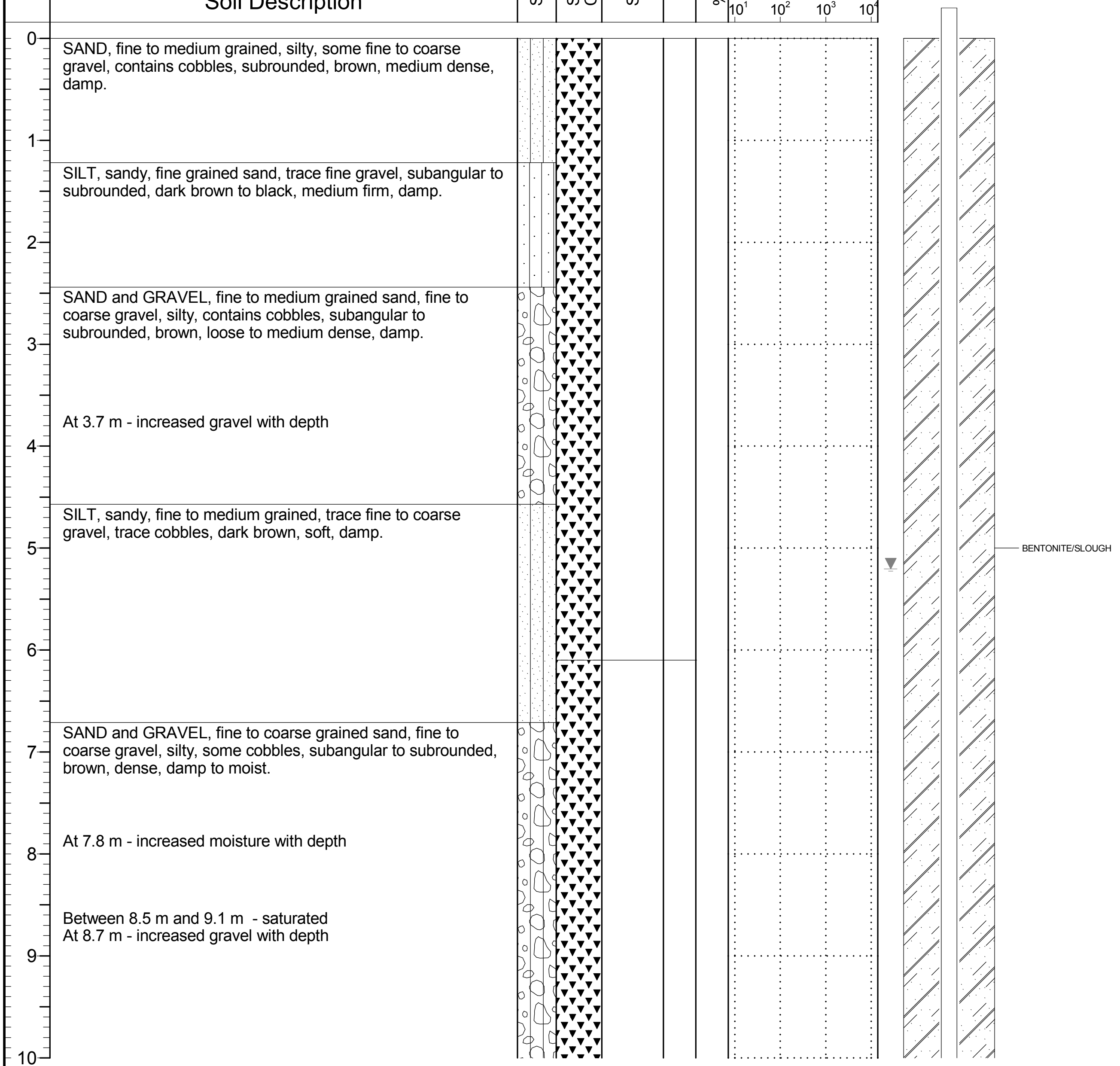
Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- ☐ Solid PVC
- ☐ Slotted PVC

Well Name 1: FR_MW-SK1A

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)



SAND, fine to medium grained, silty, some fine to coarse gravel, contains cobbles, subrounded, brown, medium dense, damp.

SILT, sandy, fine grained sand, trace fine gravel, subangular to subrounded, dark brown to black, medium firm, damp.

SAND and GRAVEL, fine to medium grained sand, fine to coarse gravel, silty, contains cobbles, subangular to subrounded, brown, loose to medium dense, damp.

At 3.7 m - increased gravel with depth

SILT, sandy, fine to medium grained, trace fine to coarse gravel, trace cobbles, dark brown, soft, damp.

SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, silty, some cobbles, subangular to subrounded, brown, dense, damp to moist.

At 7.8 m - increased moisture with depth

Between 8.5 m and 9.1 m - saturated
At 8.7 m - increased gravel with depth

NOTES

SNC • LAVALIN

SNC • LAVALIN	Client **Teck Coal Limited**	**Borehole No. : FR_BH-SK1A**
	Location **Regional Groundwater Monitoring**	PAGE 2 OF 2

Drilling Contractor	JR Drilling	Date Monitored	2019 03 28	Project Number:	631283
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1586.479	Borehole Logged By:	MCA
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1587.429	Date Drilled:	2018 12 21
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5558635.101	Easting: 652680.685	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼▼▼ Air Rotary

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▤ Slotted PVC

Well Name 1: FR_MW-SK1A

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)

SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, silty, some cobbles, subangular to subrounded, brown, dense, damp to moist. *(continued)*

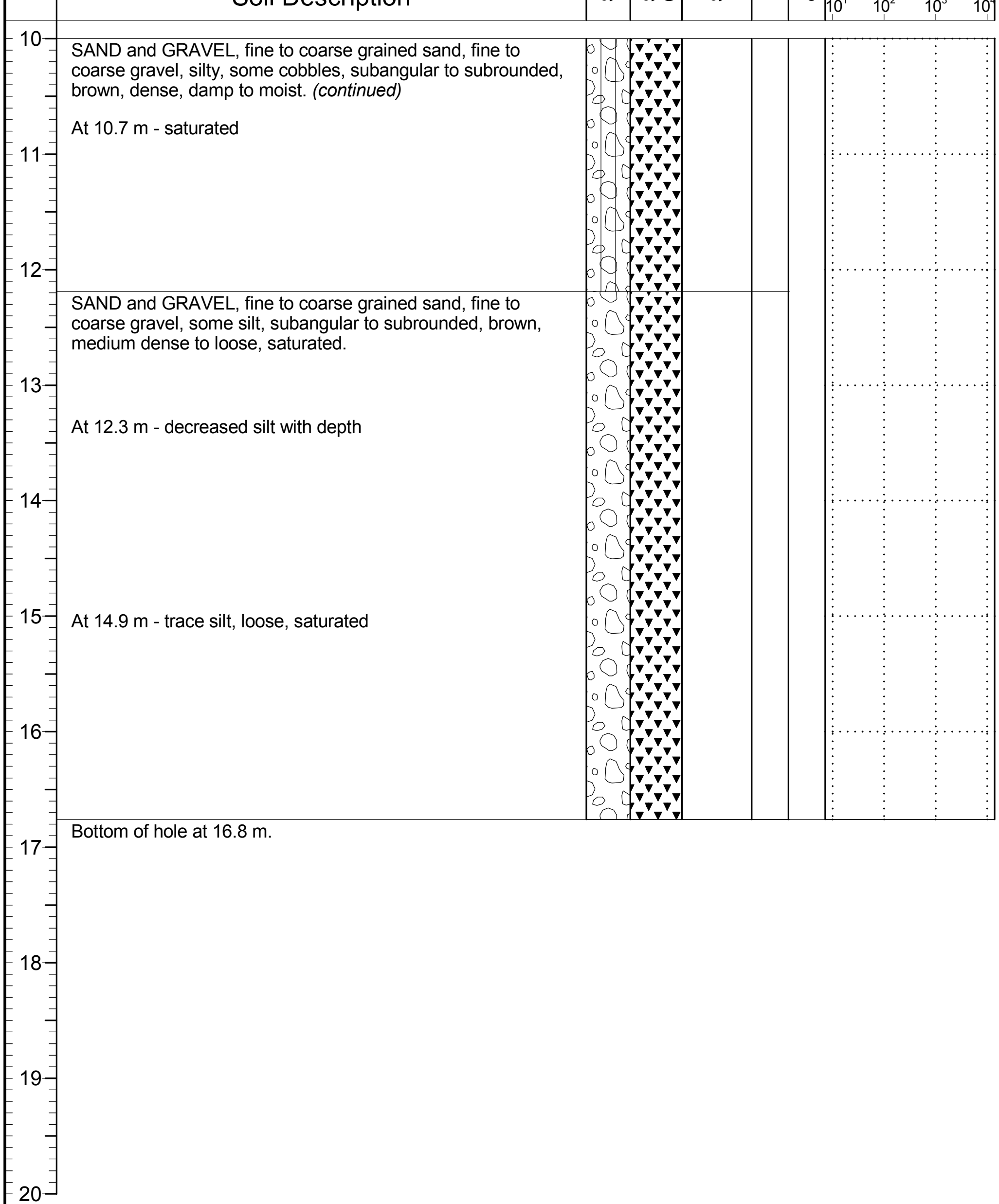
At 10.7 m - saturated

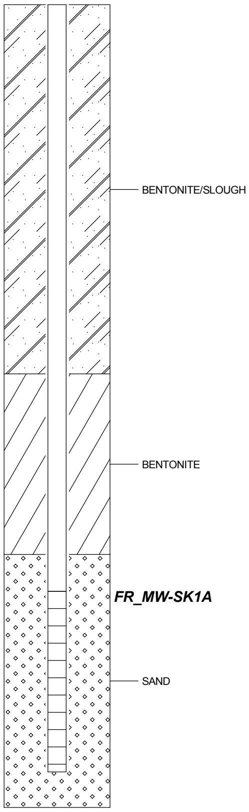
SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, some silt, subangular to subrounded, brown, medium dense to loose, saturated.

At 12.3 m - decreased silt with depth

At 14.9 m - trace silt, loose, saturated

Bottom of hole at 16.8 m.





NOTES

SNC·LAVALIN

Client
Teck Coal Limited

Location
Regional Groundwater Monitoring

Borehole No. : FR_BH-SK1B

PAGE 1 OF 7

Drilling Contractor	JR Drilling	Date Monitored	2019 03 28	Project Number:	631283
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1586.478	Borehole Logged By:	MCA
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1587.540	Date Drilled:	2018 12 18
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5558637.329	Easting: 652680.728	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼▼▼ Air Rotary

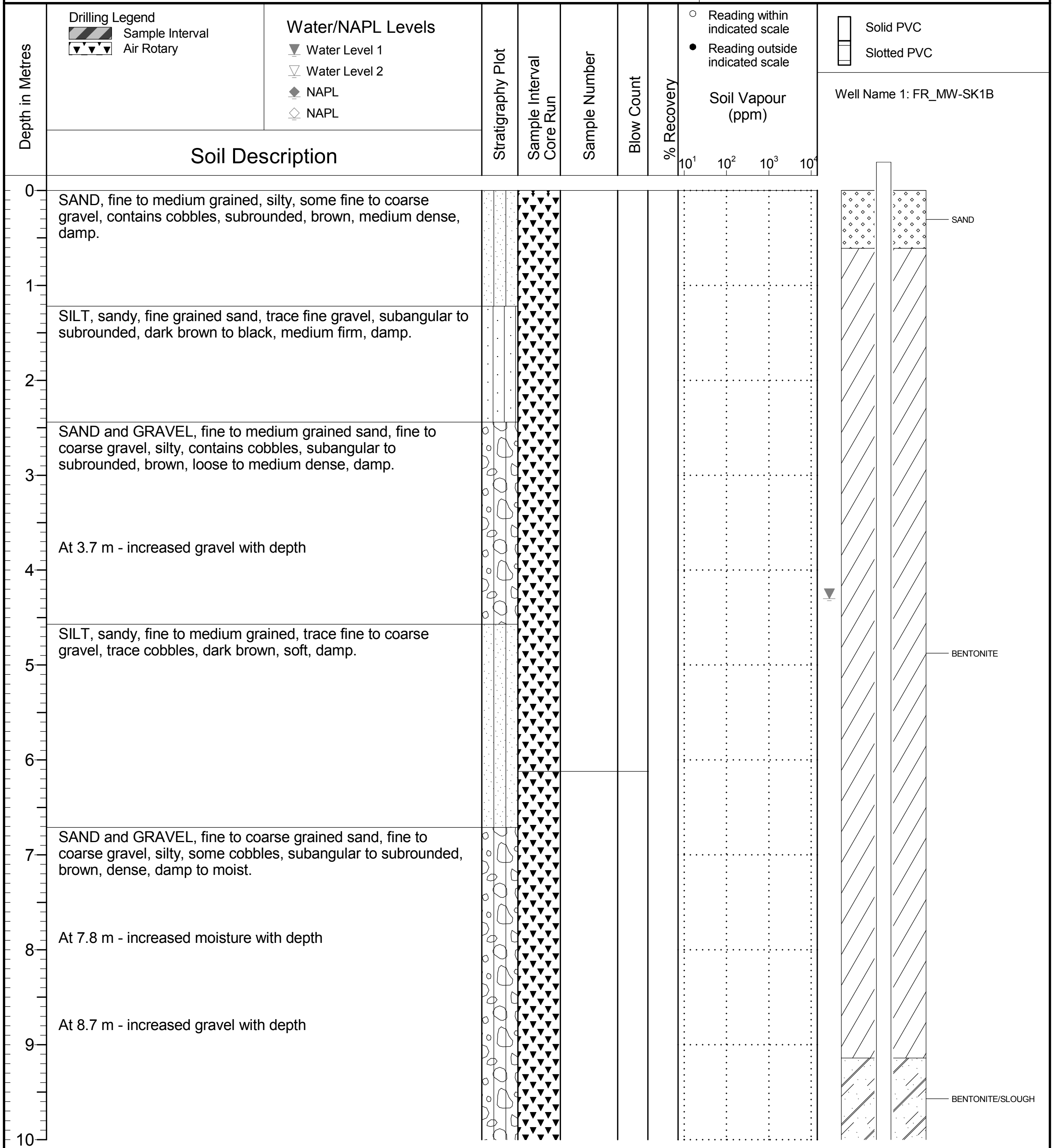
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▯ Slotted PVC

Well Name 1: FR_MW-SK1B

Depth in Metres	Soil Description
0	SAND, fine to medium grained, silty, some fine to coarse gravel, contains cobbles, subrounded, brown, medium dense, damp.
1.2	SILT, sandy, fine grained sand, trace fine gravel, subangular to subrounded, dark brown to black, medium firm, damp.
2.4	SAND and GRAVEL, fine to medium grained sand, fine to coarse gravel, silty, contains cobbles, subangular to subrounded, brown, loose to medium dense, damp. At 3.7 m - increased gravel with depth
4.5	SILT, sandy, fine to medium grained, trace fine to coarse gravel, trace cobbles, dark brown, soft, damp.
6.7	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, silty, some cobbles, subangular to subrounded, brown, dense, damp to moist. At 7.8 m - increased moisture with depth At 8.7 m - increased gravel with depth



NOTES

SNC • LAVALIN	Client **Teck Coal Limited**	**Borehole No. : FR_BH-SK1B**
	Location **Regional Groundwater Monitoring**	PAGE 2 OF 7

Drilling Contractor	JR Drilling	Date Monitored	2019 03 28	Project Number:	631283
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1586.478	Borehole Logged By:	MCA
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1587.540	Date Drilled:	2018 12 18
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5558637.329	Easting: 652680.728	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼ Air Rotary

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▯ Slotted PVC

Well Name 1: FR_MW-SK1B

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)

SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, silty, some cobbles, subangular to subrounded, brown, dense, damp to moist. *(continued)*

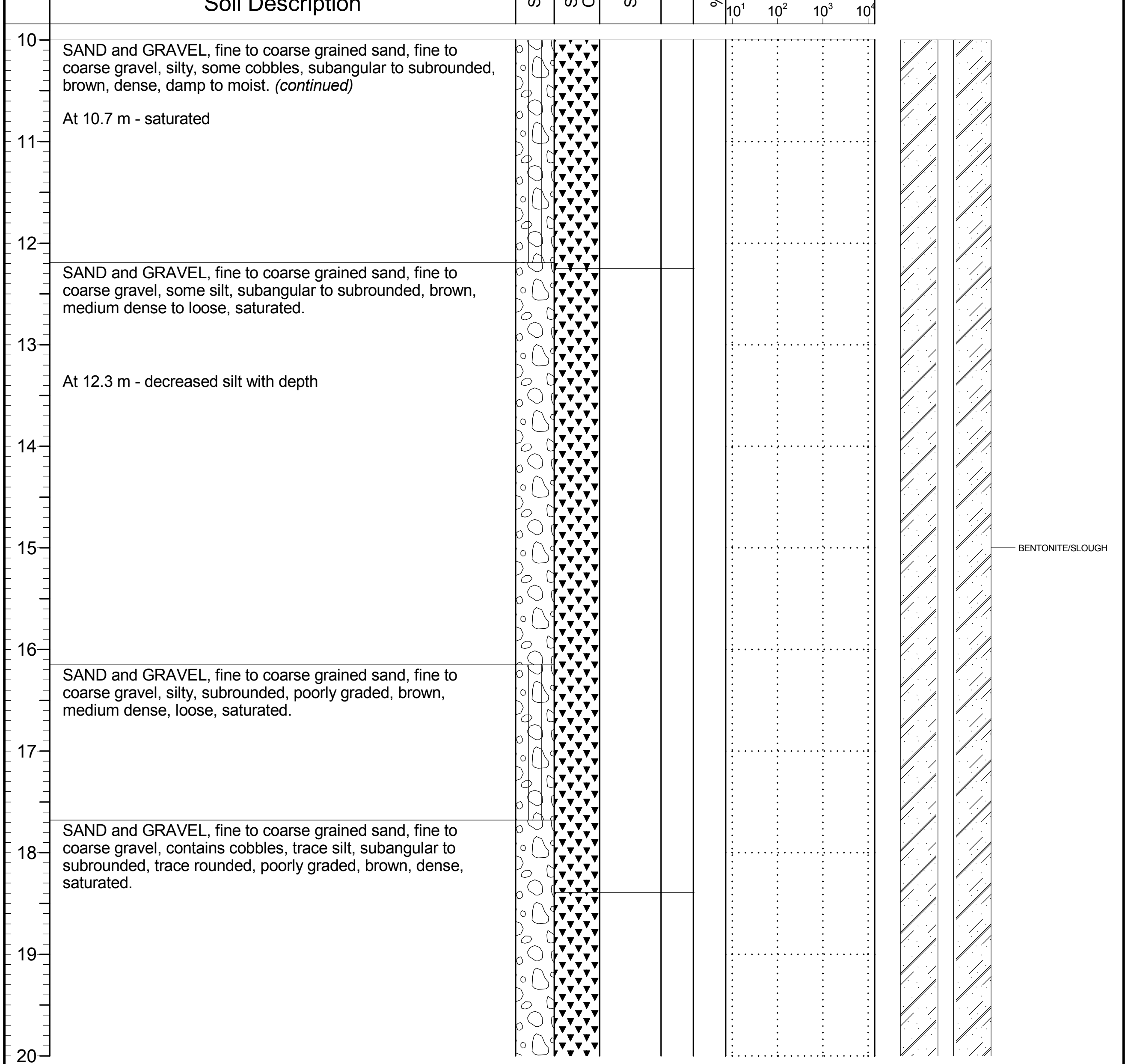
At 10.7 m - saturated

SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, some silt, subangular to subrounded, brown, medium dense to loose, saturated.

At 12.3 m - decreased silt with depth

SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, silty, subrounded, poorly graded, brown, medium dense, loose, saturated.

SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, contains cobbles, trace silt, subangular to subrounded, trace rounded, poorly graded, brown, dense, saturated.



NOTES

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : FR_BH-SK1B**
	Location **Regional Groundwater Monitoring**	PAGE 3 OF 7

Drilling Contractor	JR Drilling	Date Monitored	2019 03 28	Project Number:	631283
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1586.478	Borehole Logged By:	MCA
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1587.540	Date Drilled:	2018 12 18
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5558637.329	Easting: 652680.728	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼▼▼ Air Rotary

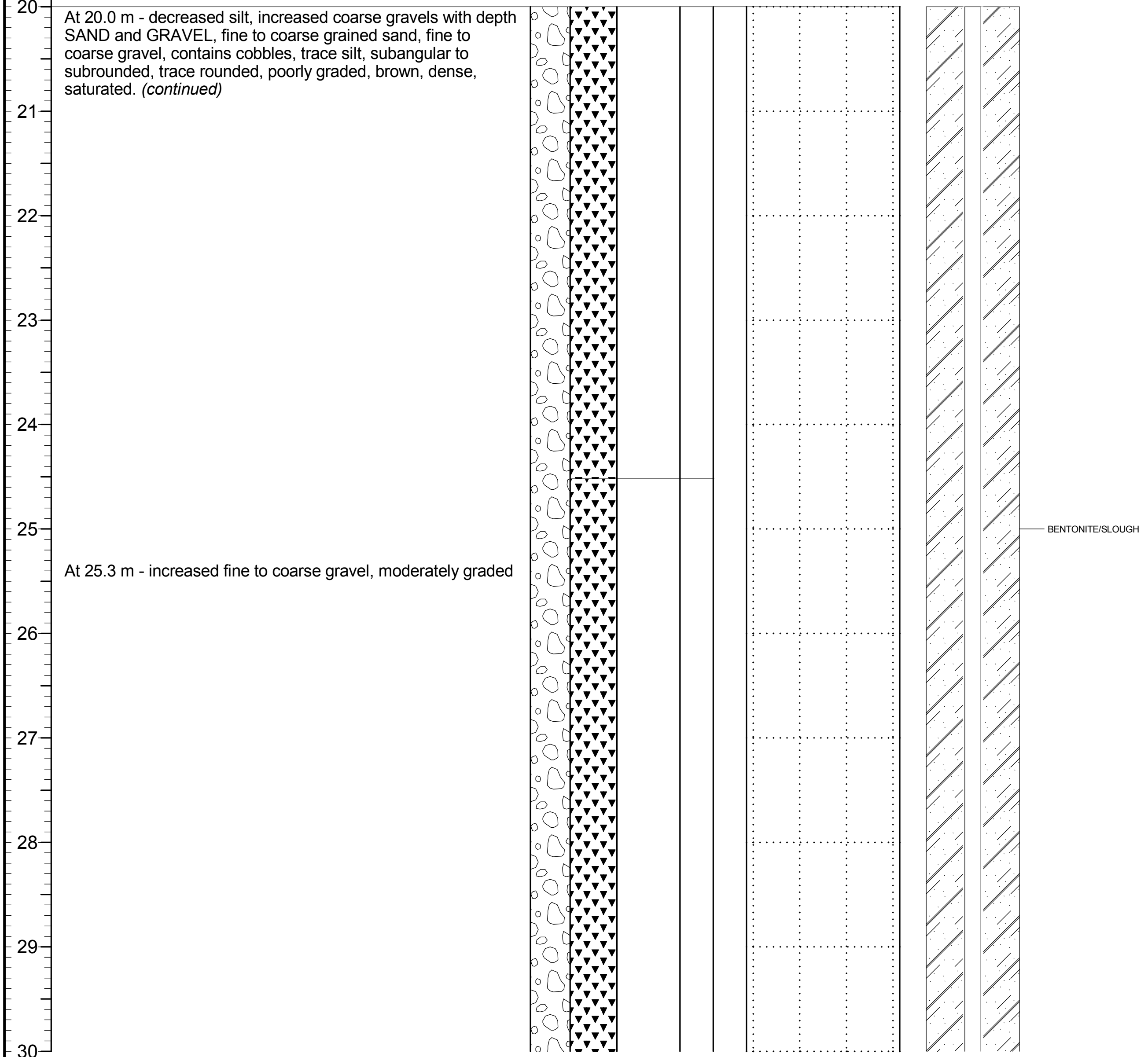
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

☐ Solid PVC
☐ Slotted PVC

Well Name 1: FR_MW-SK1B

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4
20	At 20.0 m - decreased silt, increased coarse gravels with depth SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, contains cobbles, trace silt, subangular to subrounded, trace rounded, poorly graded, brown, dense, saturated. *(continued)*						
25.3	At 25.3 m - increased fine to coarse gravel, moderately graded						



NOTES

SNC·LAVALIN

Client
Teck Coal Limited

Location
Regional Groundwater Monitoring

Borehole No. : FR_BH-SK1B

PAGE 4 OF 7

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2019 03 28
Ground Surface Elev. (m) 1586.478
Top of Casing Elev. (m) 1587.540
Northing: 5558637.329 Easting: 652680.728

Project Number: 631283
Borehole Logged By: MCA
Date Drilled: 2018 12 18
Log Typed By: VL

Drilling Legend
▨ Sample Interval
▼ Air Rotary

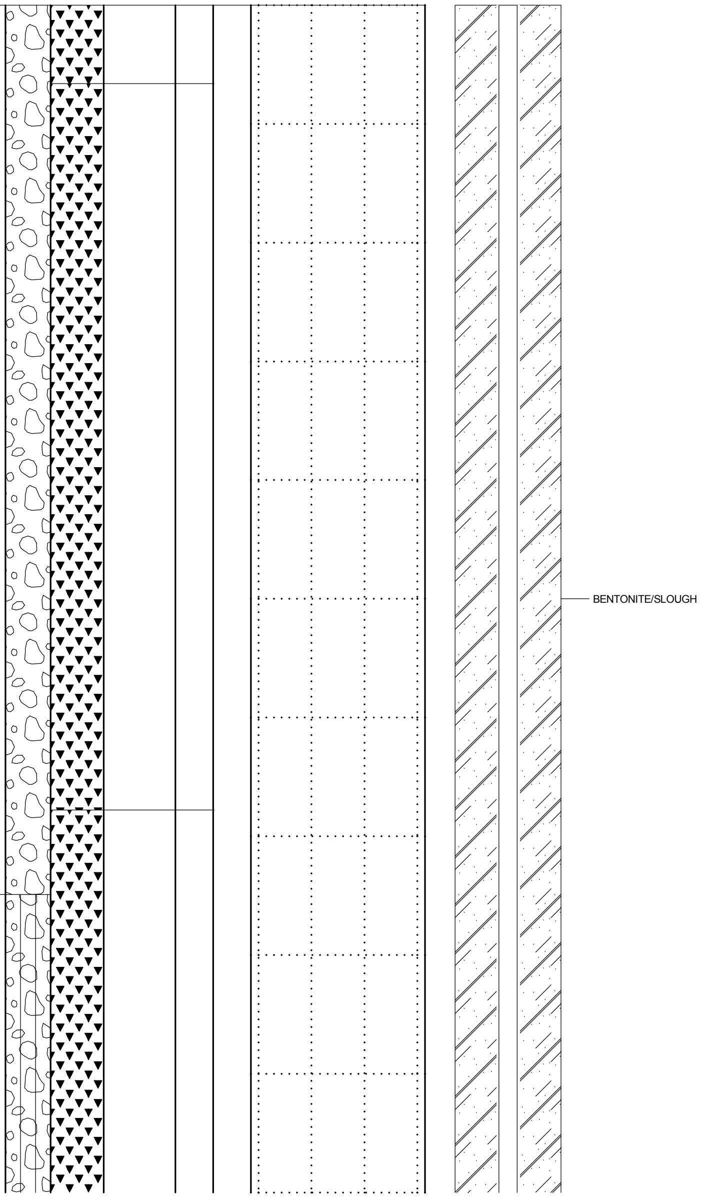
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▯ Slotted PVC

Well Name 1: FR_MW-SK1B

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4
30	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, contains cobbles, trace silt, subangular to subrounded, trace rounded, poorly graded, brown, dense, saturated. *(continued)*						
31	At 30.1 m - subrounded, medium dense						
37.5	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, silty, contains cobbles, subrounded, moderately to poorly graded, brown, medium dense, saturated.						
40							



NOTES

SNC·LAVALIN

Client	Borehole No. : FR_BH-SK1B
Teck Coal Limited	
Location	PAGE 5 OF 7
Regional Groundwater Monitoring	

Drilling Contractor	JR Drilling	Date Monitored	2019 03 28	Project Number:	631283
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1586.478	Borehole Logged By:	MCA
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1587.540	Date Drilled:	2018 12 18
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5558637.329	Easting: 652680.728	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼ Air Rotary

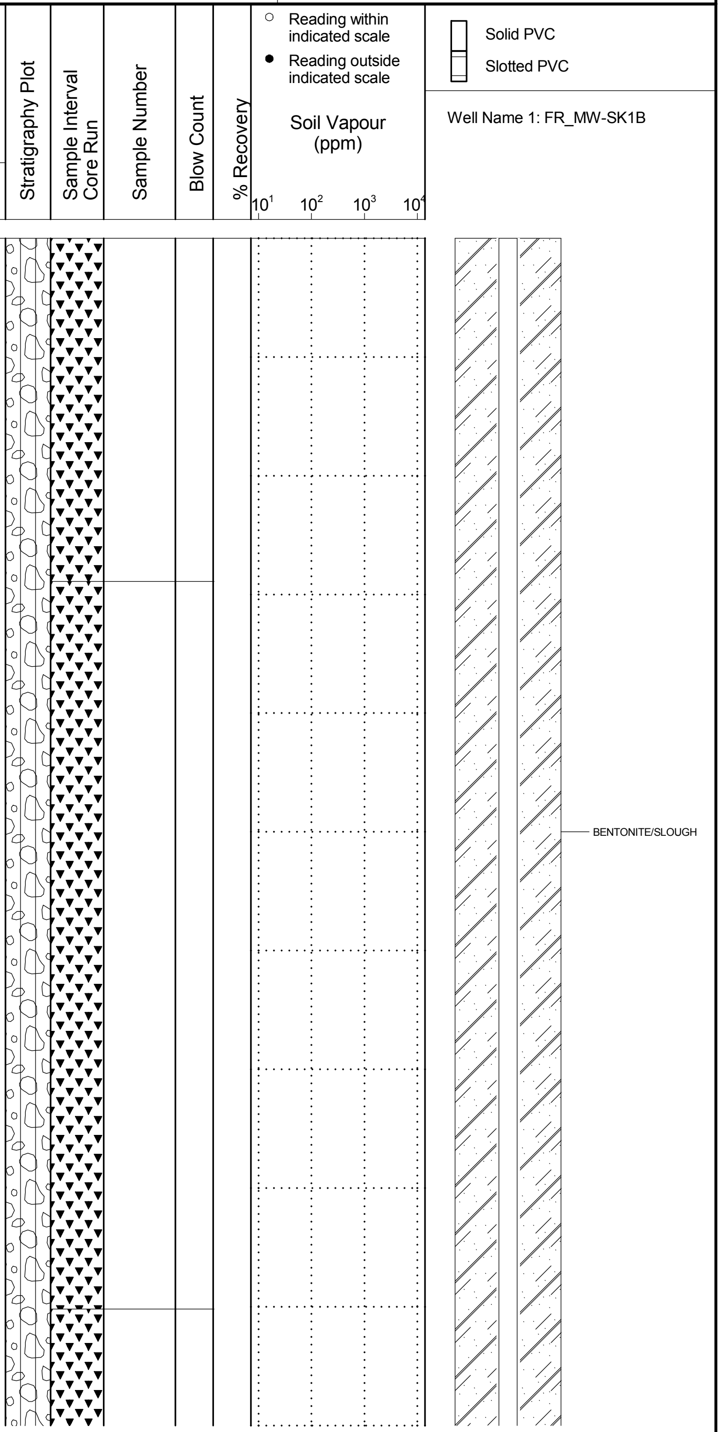
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▯ Slotted PVC

Well Name 1: FR_MW-SK1B

Depth in Metres	Soil Description
40	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, silty, contains cobbles, subrounded, moderately to poorly graded, brown, medium dense, saturated. *(continued)*
41	
42	
43	
44	
45	
46	
47	
48	
49	At 48.9 m - increased silt with depth
50	



NOTES

SNC·LAVALIN

Client
Teck Coal Limited

Location
Regional Groundwater Monitoring

Borehole No. : FR_BH-SK1B

PAGE 6 OF 7

Drilling Contractor JR Drilling
Drilling Method Dual Rotary
Borehole Dia. (m) 0.15
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2019 03 28
Ground Surface Elev. (m) 1586.478
Top of Casing Elev. (m) 1587.540
Northing: 5558637.329 Easting: 652680.728

Project Number: 631283
Borehole Logged By: MCA
Date Drilled: 2018 12 18
Log Typed By: VL

Drilling Legend
▨ Sample Interval
▼▼▼ Air Rotary

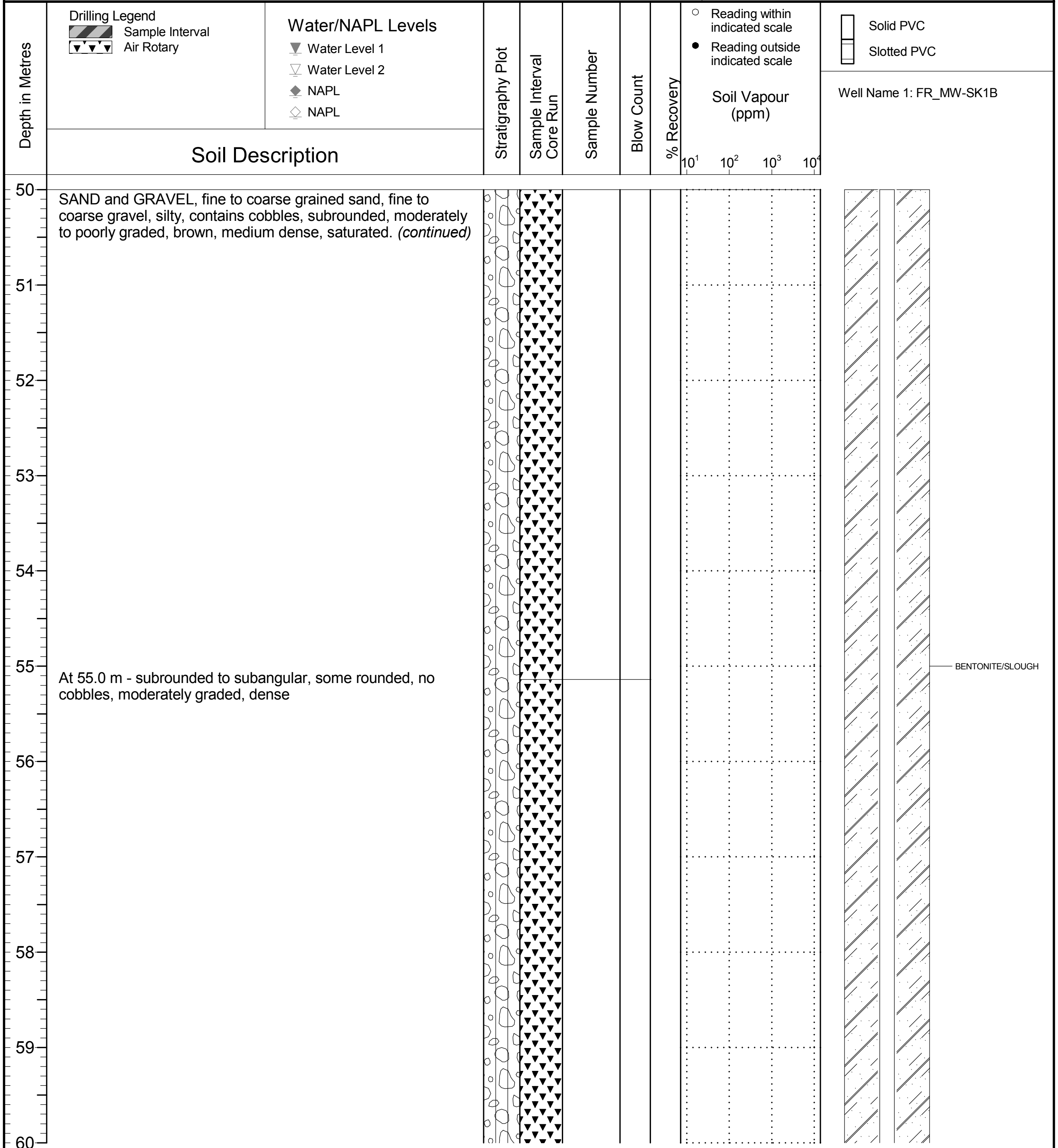
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▯ Slotted PVC

Well Name 1: FR_MW-SK1B

Depth in Metres	Soil Description
50	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, silty, contains cobbles, subrounded, moderately to poorly graded, brown, medium dense, saturated. *(continued)*
55	At 55.0 m - subrounded to subangular, some rounded, no cobbles, moderately graded, dense



NOTES

SNC • LAVALIN	Client **Teck Coal Limited**	**Borehole No. : FR_BH-SK1B**
	Location **Regional Groundwater Monitoring**	PAGE 7 OF 7

Drilling Contractor	JR Drilling	Date Monitored	2019 03 28	Project Number:	631283
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1586.478	Borehole Logged By:	MCA
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1587.540	Date Drilled:	2018 12 18
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5558637.329	Easting: 652680.728	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ▼▼▼ Air Rotary

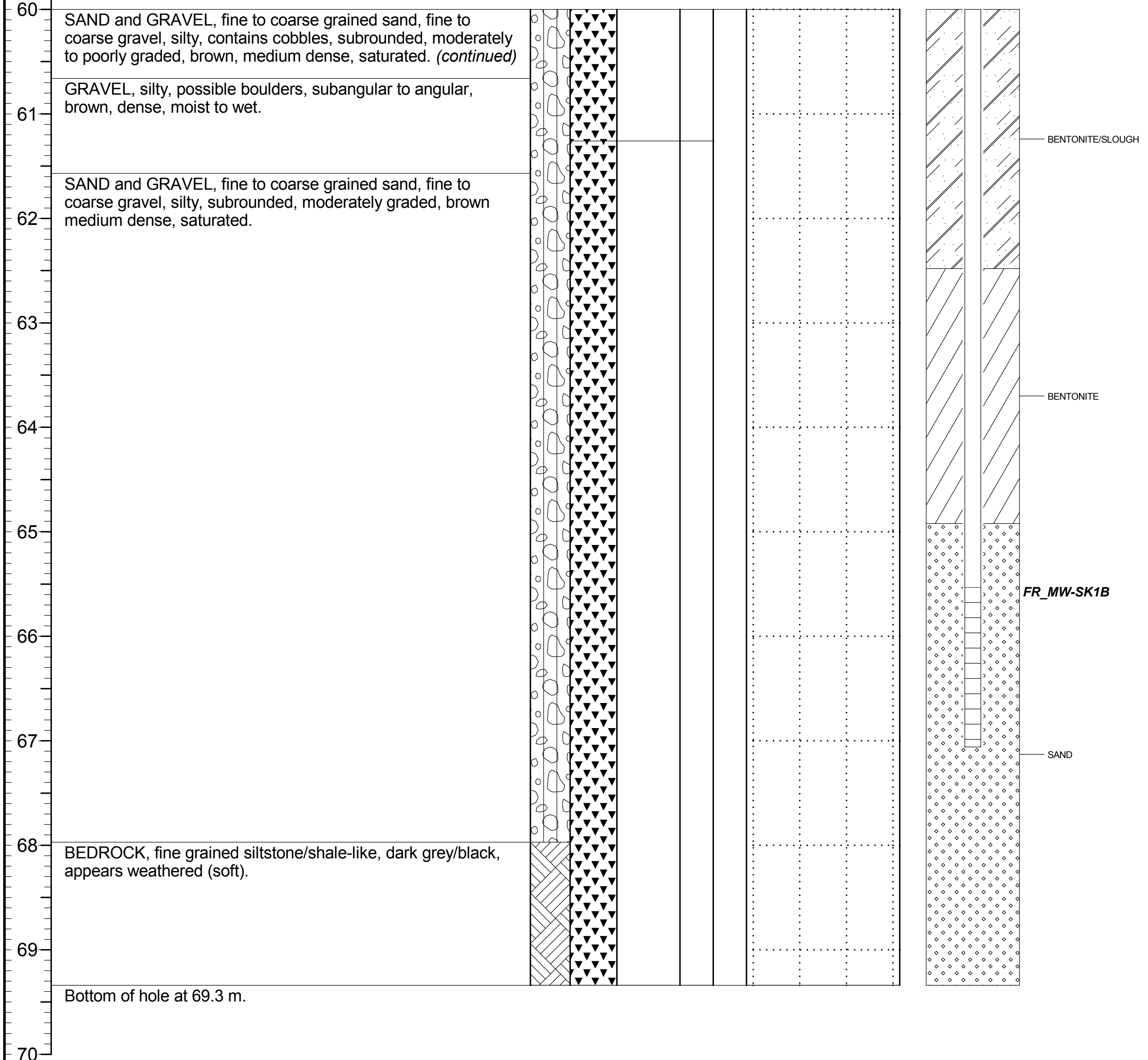
Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- ▯ Solid PVC
- ▤ Slotted PVC

Well Name 1: FR_MW-SK1B

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4
60	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, silty, contains cobbles, subrounded, moderately to poorly graded, brown, medium dense, saturated. *(continued)*						
	GRAVEL, silty, possible boulders, subangular to angular, brown, dense, moist to wet.						
	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, silty, subrounded, moderately graded, brown medium dense, saturated.						
68	BEDROCK, fine grained siltstone/shale-like, dark grey/black, appears weathered (soft).						
	Bottom of hole at 69.3 m.						



NOTES

DATA ENTRY: KJM

PROJECT No.: 09-1324-1039

RECORD OF MONITORING WELL: 09-01A

SHEET 1 OF 1

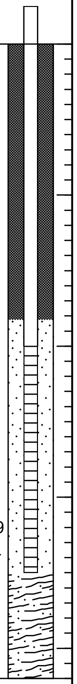
LOCATION: East of Old Stream Bed Kilmarnock Alluvium

BORING DATE: October 14, 2009

DATUM: Local

BORING METHOD: Barber Rig - DR-24 - 9" Hole Diameter; Beck Drilling and Environmental Services Ltd.

DEPTH SCALE METRES	SOIL PROFILE – DESCRIPTION	ELEV.	DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80); SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ (10 20 30 40)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}); WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
	Ground Surface	1584.1								Stickup =0.85 m
0	Silty SAND, trace gravel, loose, dry, light brown		0.0							
	Sandy GRAVEL, trace silt, loose, moist, medium brown	1583.6	0.5							Bentonite
2	Clayey SILT, some sand and gravel, soft, low to medium plasticity, moist, medium brown	1582.1	2.0							
	Sandy GRAVEL, loose, moist, medium brown	1581.6	2.5							Granular Filter Slotted Section Oct. 16, 2009 ∇ Slough
8	End of MONITORING WELL.	1575.7	8.4							



DEPTH SCALE

1 : 100

Golder Associates

LOGGED: EA

CHECKED: MB

BOREHOLE 09-1324-1039_LOGS.GPJ CALGARY.GDT 1/11/16

PROJECT No.: 09-1324-1039

RECORD OF MONITORING WELL: 09-01B

SHEET 1 OF 2

LOCATION: East of Old Stream Bed Kilmarnock Alluvium

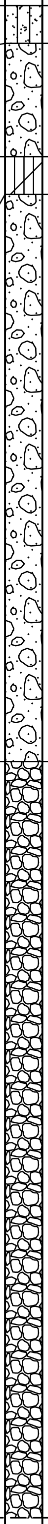
BORING DATE: October 14, 2009

DATUM: Local

BORING METHOD: Barber Rig - DR-24 - 9" Hole Diameter
Beck Drilling and Environmental Services Ltd.

DEPTH SCALE METRES	SOIL PROFILE DESCRIPTION	ELEV. DEPTH (m)
	Ground Surface	1584.1
0	Silty SAND, trace gravel, loose, dry, light brown	0.0
	Sandy GRAVEL, trace silt, loose, moist, medium brown	1583.6 0.5
2	Clayey SILT, some sand and gravel, soft, low to medium plasticity, moist, medium brown	1582.1 2.0
	Sandy GRAVEL, loose, moist, medium brown	1581.6 2.5
4		
6		
8		
10	Coarse GRAVEL, trace sand, loose, saturated, grey to medium brown	1574.1 10.0
12	--- Some silty sand from 12.5 to 13.0 m	
14		
16		
18	--- Medium to coarse gravel, light grey to brown from 18.0 to 23.0 m	
20	*CONTINUED NEXT PAGE*	

STRATA PLOT



SAMPLES: NUMBER | TYPE | BLOWS/0.3m

DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m: 20 40 60 80

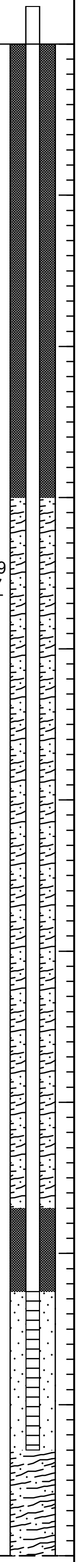
SHEAR STRENGTH Cu, kPa — nat V. + Q - ● rem V. ⊕ U - ○: 10 20 30 40

HYDRAULIC CONDUCTIVITY, k, cm/s: 10^{-6} 10^{-5} 10^{-4} 10^{-3}

WATER CONTENT PERCENT: Wp ⊢—○W—⊣ Wl: 10 20 30 40

ADDITIONAL LAB. TESTING

PIEZOMETER OR STANDPIPE INSTALLATION



Stickup =0.76 m

Bentonite

Oct 16, 2009 ▽

Slough

Bentonite

Slotted Section

Slough

DEPTH SCALE

1 : 100

Golder Associates

LOGGED: EA

CHECKED: MB

DATA ENTRY: KJM

PROJECT No.: 09-1324-1039

RECORD OF MONITORING WELL: 09-01B

SHEET 2 OF 2

LOCATION: East of Old Stream Bed Kilmarnock Alluvium

BORING DATE: October 14, 2009

DATUM: Local

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	SOIL PROFILE: STRATA PLOT	SOIL PROFILE: ELEV. DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ (10 20 30 40)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) WATER CONTENT PERCENT Wp ⊢ ○W ⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
20	Barber Rig - DR-24 - 9" Hole Diameter Beck Drilling and Environmental Services Ltd.	Coarse GRAVEL, trace sand, loose, saturated, grey to medium brown *(continued)*									
22											
24											Slough
26											
28		--- Silty sand, saturated, medium brown from 28.5 to 29.0 m		1555.1 29.0							
		End of MONITORING WELL.									
30											
32											
34											
36											
38											
40											

BOREHOLE 09-1324-1039_LOGS.GPJ CALGARY.GDT 1/11/16

DEPTH SCALE

1 : 100

Golder Associates

LOGGED: EA

CHECKED: MB

PROJECT No.: 09-1324-1039

RECORD OF MONITORING WELL: 09-02A

SHEET 1 OF 1

LOCATION: West of Old Stream Bed Kilmarnock Alluvium

BORING DATE: October 15, 2009

DATUM: Local

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	ELEV. DEPTH (m)	PIEZOMETER OR STANDPIPE INSTALLATION
		Ground Surface	1584.7	Stickup =0.82 m
0	Barber Rig - DR-24 - 9" Hole Diameter Beck Drilling and Environmental Services Ltd.	Sandy GRAVEL, coarse gravel, medium grain sand, loose, slightly moist, medium grown	0.0	
		--- Increasing sand content from 1.0 to 1.5 m		
2				Bentonite
		--- Decreasing sand content from 3.0 to 3.5 m		
4		--- Moist, some silt from 4.5 to 5.0 m		
				Slough
6		--- Trace silt from 6.5 yo 7.0 m		
				Bentonite Oct. 16, 2009 ▽
8		--- Coarse to medium gravel, increasing moisture content at 8.0 m		
				Slotted Section
10				
			1573.2	Slough
		End of MONITORING WELL.	11.5	
12				
14				
16				
18				
20				

STRATA PLOT

SAMPLES: NUMBER, TYPE, BLOWS/0.3m

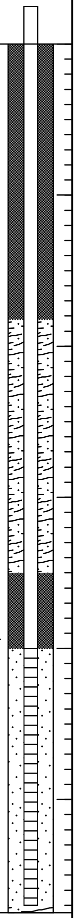
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m: 20, 40, 60, 80

SHEAR STRENGTH Cu, kPa: nat V. + Q - ● rem V. ⊕ U - ○ 10, 20, 30, 40

HYDRAULIC CONDUCTIVITY, k, cm/s: 10^{-6}, 10^{-5}, 10^{-4}, 10^{-3}

WATER CONTENT PERCENT: Wp ⊢—○W—⊣ Wl 10, 20, 30, 40

ADDITIONAL LAB. TESTING



DEPTH SCALE

1 : 100

Golder Associates

LOGGED: EA

CHECKED: MB

PROJECT No.: 09-1324-1039

RECORD OF MONITORING WELL: 09-02B

SHEET 1 OF 2

LOCATION: West of Old Stream Bed Kilmarnock Alluvium

BORING DATE: October 15, 2009

DATUM: Local

BORING METHOD: Barber Rig - DR-24 - 9" Hole Diameter
Beck Drilling and Environmental Services Ltd.

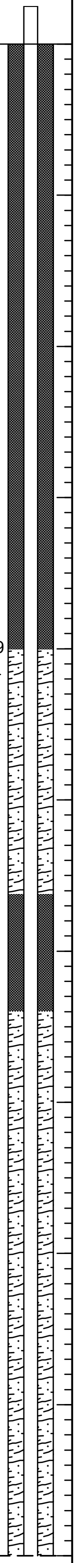
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m: 20, 40, 60, 80

SHEAR STRENGTH Cu, kPa: nat V. + Q - ● rem V. ⊕ U - ○ : 10, 20, 30, 40

HYDRAULIC CONDUCTIVITY, k, cm/s: 10^{-6}, 10^{-5}, 10^{-4}, 10^{-3}

WATER CONTENT PERCENT: Wp ⊢—○W—⊣ Wl : 10, 20, 30, 40

DEPTH SCALE METRES	SOIL PROFILE DESCRIPTION	ELEV. DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
	Ground Surface	1584.7					Stickup =0.67 m
0	Sandy GRAVEL, coarse gravel, medium grain sand, loose, slightly moist, medium brown --- Increasing sand content from 1.0 to 1.5 m --- Decreasing sand content from 3.0 to 3.5 m --- Moist, some silt from 4.5 to 5.0 m --- Trace silt from 6.5 to 7.0 m --- Coarse to medium gravel, increasing moisture content at 8.0 m	0.0					Bentonite Oct 16, 2009 ▽ Slough
11.5	GRAVEL, trace sand, coarse to medium gravel, loose, saturated, light grey to brown	1573.2 11.5					Bentonite
12.5	Sandy GRAVEL, trace silt, medium to coarse gravel, medium grain sand, loose, saturated, medium brown	1572.2 12.5					
13.0	GRAVEL, trace sand, coarse gravel, loose, saturated, light grey to brown	1571.7 13.0					
20							



CONTINUED NEXT PAGE

DEPTH SCALE
1 : 100

Golder Associates

LOGGED: EA
CHECKED: MB

DATA ENTRY: KJM

PROJECT No.: 09-1324-1039

RECORD OF MONITORING WELL: 09-02B

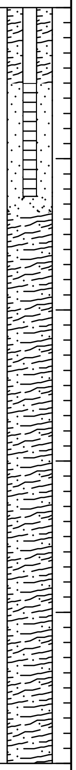
SHEET 2 OF 2

LOCATION: West of Old Stream Bed Kilmarnock Alluvium

BORING DATE: October 15, 2009

DATUM: Local

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m 20 40 60 80 / SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ 10 20 30 40	HYDRAULIC CONDUCTIVITY, k, cm/s 10^{-6} 10^{-5} 10^{-4} 10^{-3} / WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
20	Barber Rig - DR-24 - 9" Hole Diameter Beck Drilling and Environmental Services Ltd.										
		Sandy GRAVEL, some silt, coarse gravel, loose, saturated, medium brown		1564.2 20.5							
		GRAVEL, trace sand, medium to coarse gravel, loose, saturated, light grey to brown		1563.7 21.0							Slotted Section
22											Sand
24											
26											Slough
28											
30		End of MONITORING WELL.		1554.7 30.0							
32											
34											
36											
38											
40											



BOREHOLE 09-1324-1039_LOGS.GPJ CALGARY.GDT 1/11/16

DEPTH SCALE

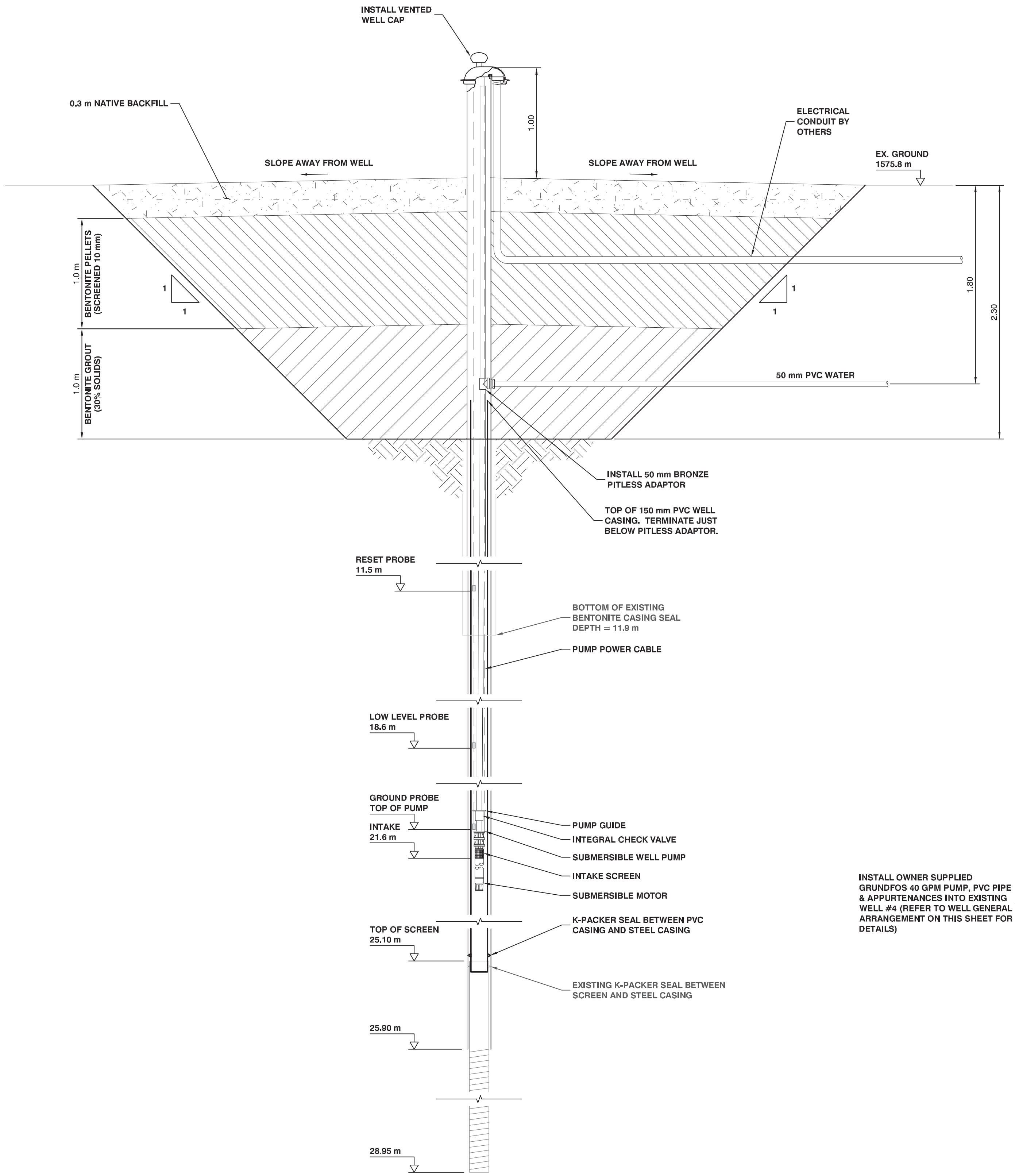
1 : 100

Golder Associates

LOGGED: EA

CHECKED: MB

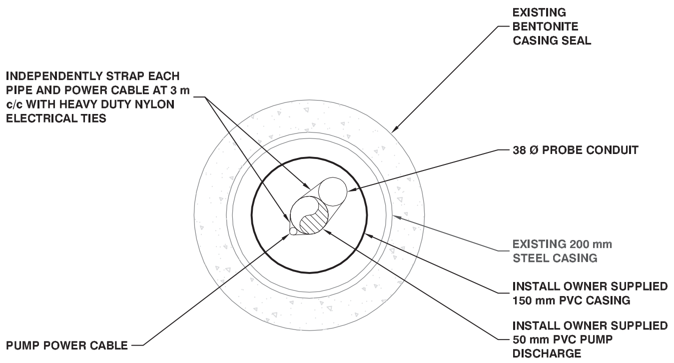
AT FULL SIZE THIS BAR MEASURES 100mm. ALL SCALES REFERENCED TO FULL SIZE.



0 0.2 (1:25) 1m

WELL GENERAL ARRANGEMENT

Scale: 1:25



TYPICAL WELL SECTION

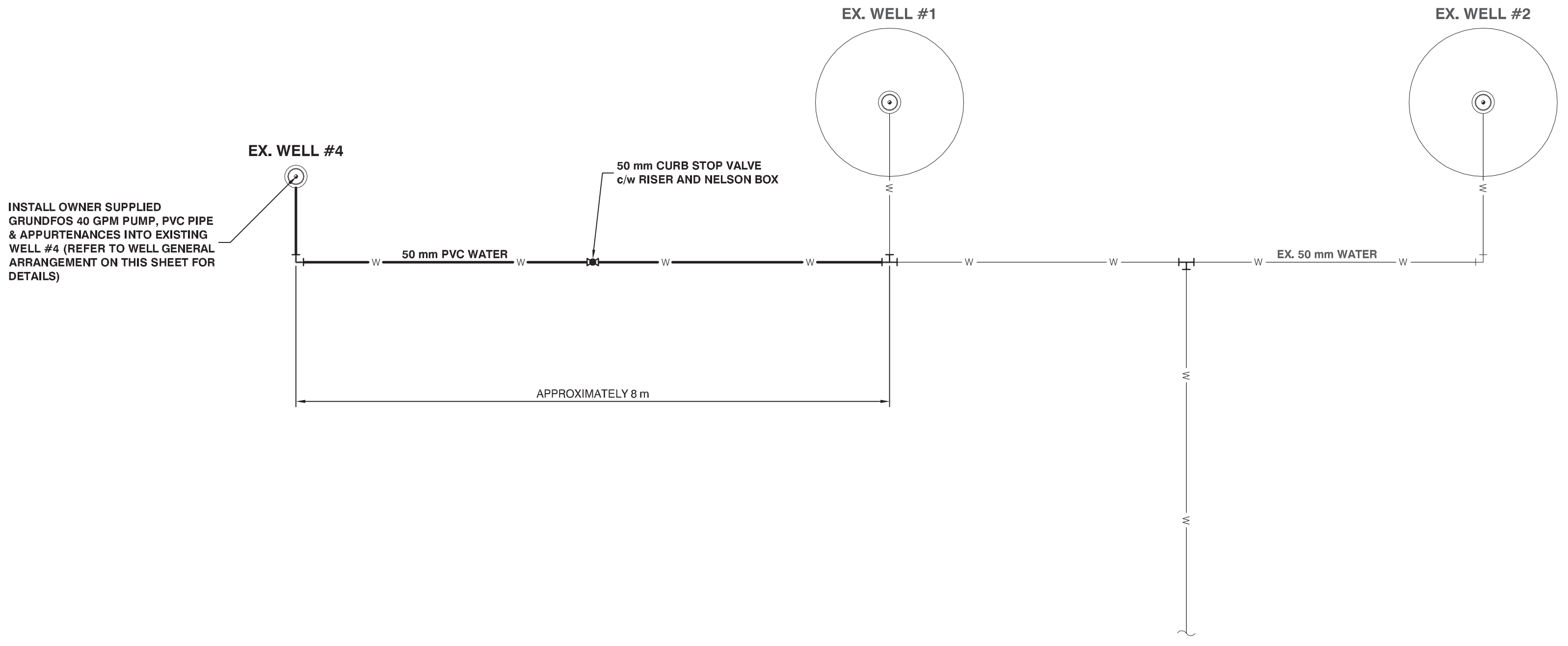
Scale: 1:5

SUMMARY OF WELL LOG

ELEVATION (m GEODETIC)		DEPTH BELOW GROUND (m)		DESCRIPTION OF MATERIAL
FROM	TO	FROM	TO	
1575.8	1572.8	0	3	BROWN ORGANIC SAND, SILT & CLAY (MOIST)
1572.8	1563.6	3	12.2	BROWN SAND w/ PLASTIC CLAY & SILT (MOIST/WET)
1563.6	1560.6	12.2	15.2	BROWN FINE TO MED. GRAIN SAND (WATER BEARING)
1560.6	1557.5	15.2	18.3	BROWN MED. TO COARSE GRAIN SAND (WATER BEARING)
1557.5	1554.5	18.3	21.3	BROWN MED. TO COARSE GRAIN SAND (MOIST, NO FLOW)
1554.5	1551.4	21.3	24.4	BROWN SAND w/ SOME GRAVEL, WATER BEARING (GOOD YIELD)
1551.4	1548.4	24.4	27.4	BROWN SAND, WATER BEARING (GOOD YIELD)
1548.4	1546.85	27.4	28.95	BROWN SAND w/ SOME GRAVEL, WATER BEARING (GOOD YIELD)

NOTES:

1. WELL DISCHARGE PIPNG TO BE FULLY RESTRAINED (EVERY JOINT) BETWEEN PITLESS ADAPTER UNIT AND SUPPLYMAIN.
2. ALL PIPING TO HAVE 1.8m COVER FOR FROST PROTECTION.



PLAN

Scale: 1:50

ISSUED INFORMATION	Issue	Date	Issued By
Issued for			
Reference			
Approvals			
Tender	T0	JAN.11/13	MHF
Permits			
Construction			
Record Drawings			

REVISION INFORMATION

Rev. No.	Date	Designed	Drawn	Checked	Description of Revision	Rev. No.	Date	Designed	Drawn	Checked	Description of Revision
0	JAN.11/13	MHF	MRM		ISSUED FOR TENDER						

Seal

KERR WOOD LEIDAL
consulting engineers

FORDING RIVER OPERATIONS
GREEN HOUSE WATER SUPPLY
WELL #4

KWL Project No.:	008-172	Scale:	AS SHOWN
Sheet:	1 of 1	Rev. No.:	0
Client:	TECH COAL LTD.		

SW1
Drawing Number

SAVED 2013-01-11 12:06:50 PM
O:\0000-0099\008-172\500-Drawings\008-172 Well Design.dwg

Greenhills Operations

Log of Monitoring Well: GH_MW-PC

HEMMERA

Project Name/No: 577-016.07

Client: Teck Coal Greenhills Operation

Date Drilled: September 2nd, 2016

Site Location: Elkford, BC

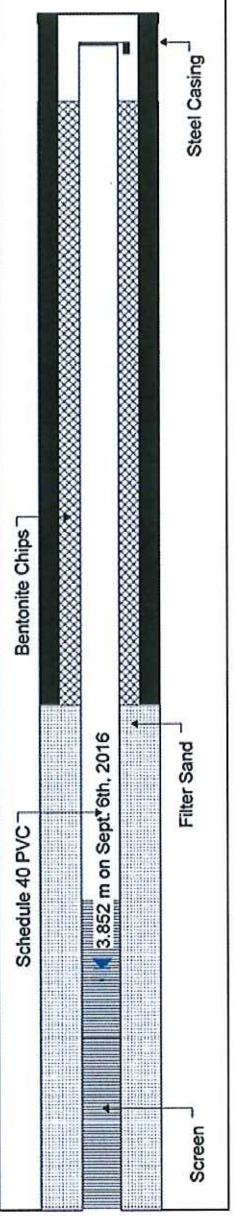
Drilling Company: JR Drilling

Drilling Method: Dual Rotary

Logged by: TK

Sheet: 1 of 8

SUBSURFACE PROFILE			SAMPLE						
Depth	Symbol	Description	Depth/Elev (m)	Sample ID	Analysed Y,N	Sample Type	Vapour ppm 0 250 500	LEL % 0 50 100	Backfill details
ft m									
-3 -2 -1									
0		Ground Surface	0.00						
0 1 2		**TOPSOIL** TOPSOIL, brown, fine to medium silty sand with fine sub-angular gravel and rootlets	0.00						
3 – 1 4 5 6 7 – 2 8 9 10 – 3 11 12		**COBBLES and GRAVEL** COBBLES and GRAVEL, with silt and sand, pulverized from drilling.	-1.00 1.00						
13 – 4 14 15 16 – 5		Groundwater encountered at approximately 4.5 mbgs							



Well location: Porter Creek

Depth to water level (TOC): 3.852

Date of water level: September 6th, 2016

Borehole diameter: 15.24

Well casing diameter: 50.8mm

Well casing material: Schedule 40 PVC

Well screen slot size: 0.25mm

Well screen interval (bgs): 3.5-6.5

Depth of well (TOC): 7.601

Well Elevation (TOC): -

Ground Elevation: -

Log of Monitoring Well: GH_MW-PC

HEMMERA

Project Name/No: 577-016.07

Client: Teck Coal Greenhills Operation

Date Drilled: September 2nd, 2016

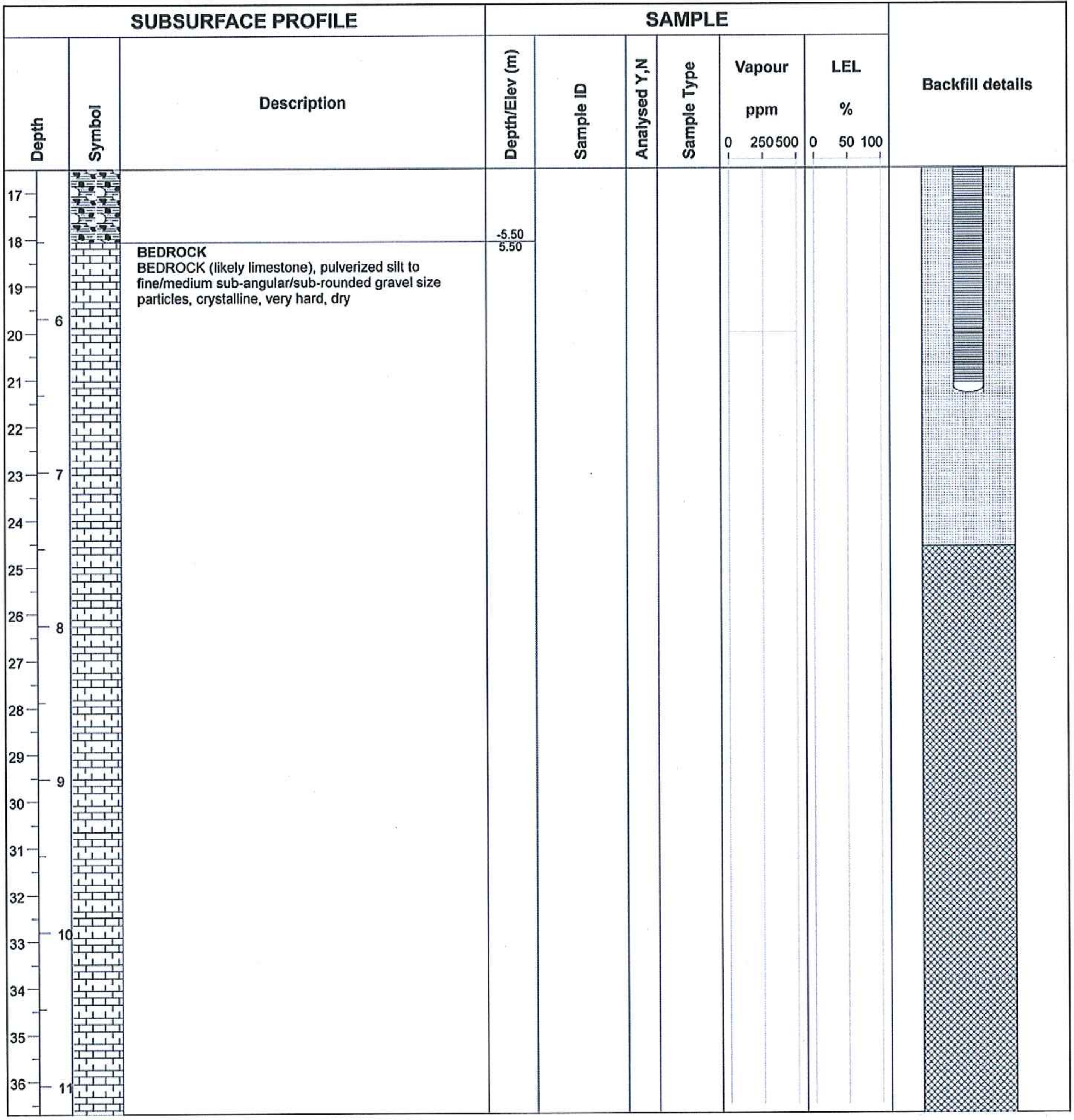
Site Location: Elkford, BC

Drilling Company: JR Drilling

Drilling Method: Dual Rotary

Logged by: TK

Sheet: 2 of 8



BEDROCK

BEDROCK (likely limestone), pulverized silt to fine/medium sub-angular/sub-rounded gravel size particles, crystalline, very hard, dry

Well location: Porter Creek

Depth to water level (TOC): 3.852

Date of water level: September 6th, 2016

Borehole diameter: 15.24

Well casing diameter: 50.8mm

Well casing material: Schedule 40 PVC

Well screen slot size: 0.25mm

Well screen interval (bgs): 3.5-6.5

Depth of well (TOC): 7.601

Well Elevation (TOC): -

Ground Elevation: -

Log of Monitoring Well: GH_MW-PC

HEMMERA

Project Name/No: 577-016.07

Client: Teck Coal Greenhills Operation

Date Drilled: September 2nd, 2016

Site Location: Elkford, BC

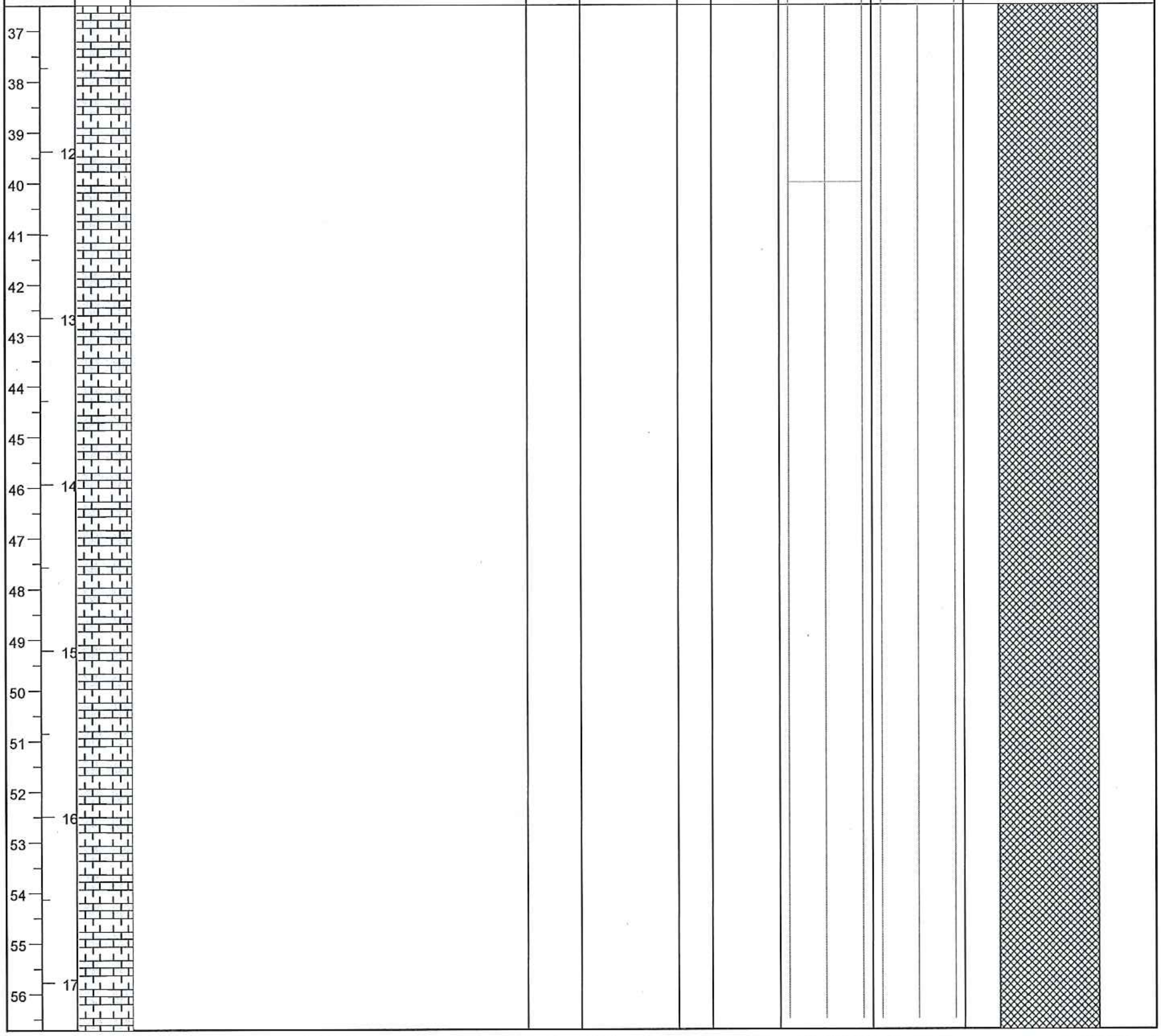
Drilling Company: JR Drilling

Drilling Method: Dual Rotary

Logged by: TK

Sheet: 3 of 8

SUBSURFACE PROFILE			SAMPLE						
Depth	Symbol	Description	Depth/Elev (m)	Sample ID	Analysed Y,N	Sample Type	Vapour ppm 0 250 500	LEL % 0 50 100	Backfill details



Well location: Porter Creek

Depth to water level (TOC): 3.852

Date of water level: September 6th, 2016

Borehole diameter: 15.24

Well casing diameter: 50.8mm

Well casing material: Schedule 40 PVC

Well screen slot size: 0.25mm

Well screen interval (bgs): 3.5-6.5

Depth of well (TOC): 7.601

Well Elevation (TOC): -

Ground Elevation: -

Log of Monitoring Well: GH_MW-PC

HEMMERA

Project Name/No: 577-016.07

Client: Teck Coal Greenhills Operation

Date Drilled: September 2nd, 2016

Site Location: Elkford, BC

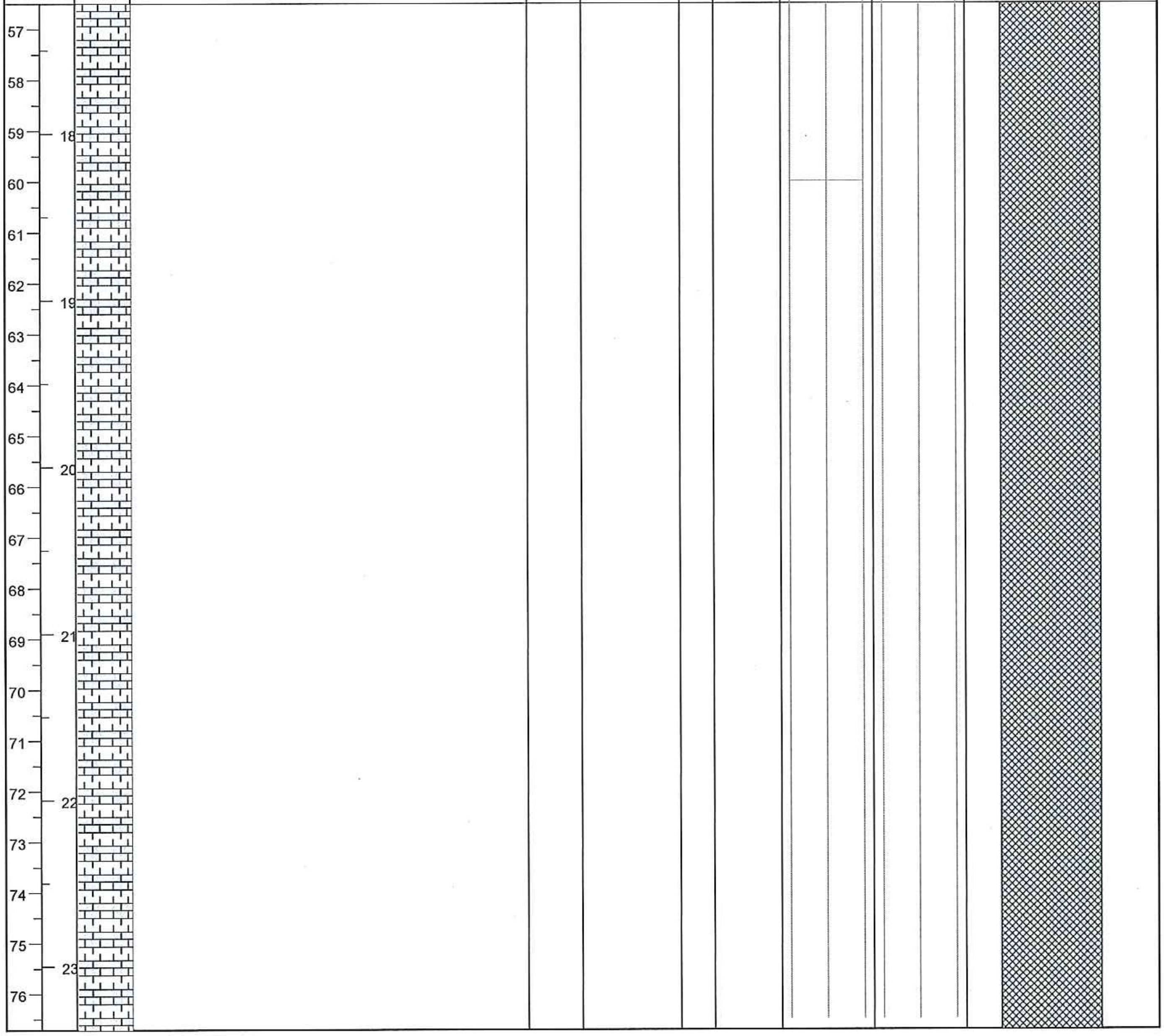
Drilling Company: JR Drilling

Drilling Method: Dual Rotary

Logged by: TK

Sheet: 4 of 8

SUBSURFACE PROFILE			SAMPLE						
Depth	**Symbol**	**Description**	**Depth/Elev (m)**	**Sample ID**	**Analysed Y,N**	**Sample Type**	**Vapour ppm** 0 250 500	**LEL %** 0 50 100	**Backfill details**



Well location: Porter Creek

Depth to water level (TOC): 3.852

Date of water level: September 6th, 2016

Borehole diameter: 15.24

Well casing diameter: 50.8mm

Well casing material: Schedule 40 PVC

Well screen slot size: 0.25mm

Well screen interval (bgs): 3.5-6.5

Depth of well (TOC): 7.601

Well Elevation (TOC): -

Ground Elevation: -

Log of Monitoring Well: GH_MW-PC

HEMMERA

Project Name/No: 577-016.07

Client: Teck Coal Greenhills Operation

Date Drilled: September 2nd, 2016

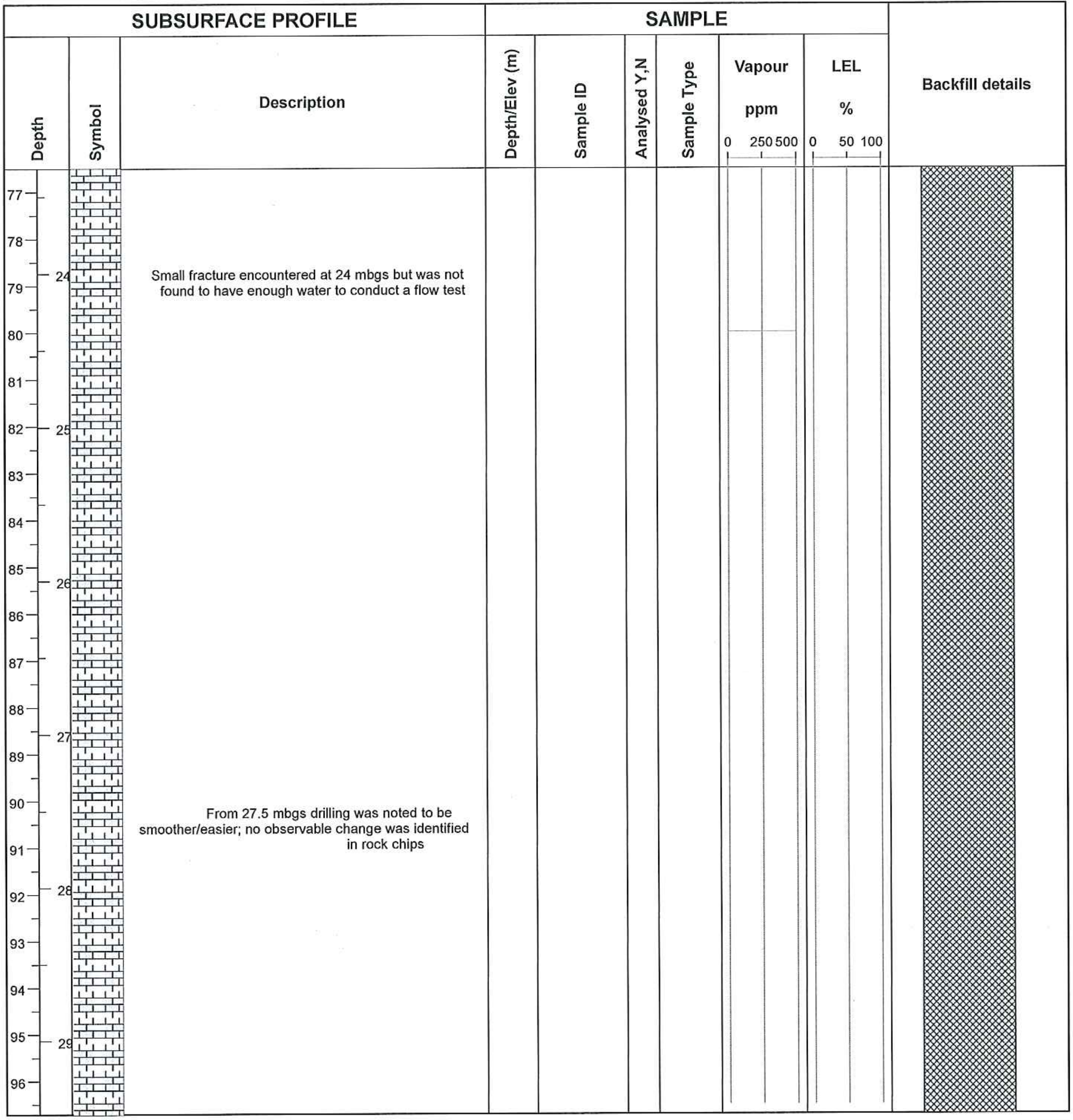
Site Location: Elkford, BC

Drilling Company: JR Drilling

Drilling Method: Dual Rotary

Logged by: TK

Sheet: 5 of 8



Small fracture encountered at 24 mbgs but was not found to have enough water to conduct a flow test

From 27.5 mbgs drilling was noted to be smoother/easier; no observable change was identified in rock chips

Well location: Porter Creek

Depth to water level (TOC): 3.852

Date of water level: September 6th, 2016

Borehole diameter: 15.24

Well casing diameter: 50.8mm

Well casing material: Schedule 40 PVC

Well screen slot size: 0.25mm

Well screen interval (bgs): 3.5-6.5

Depth of well (TOC): 7.601

Well Elevation (TOC): -

Ground Elevation: -

Log of Monitoring Well: GH_MW-PC

HEMMERA

Project Name/No: 577-016.07

Client: Teck Coal Greenhills Operation

Date Drilled: September 2nd, 2016

Site Location: Elkford, BC

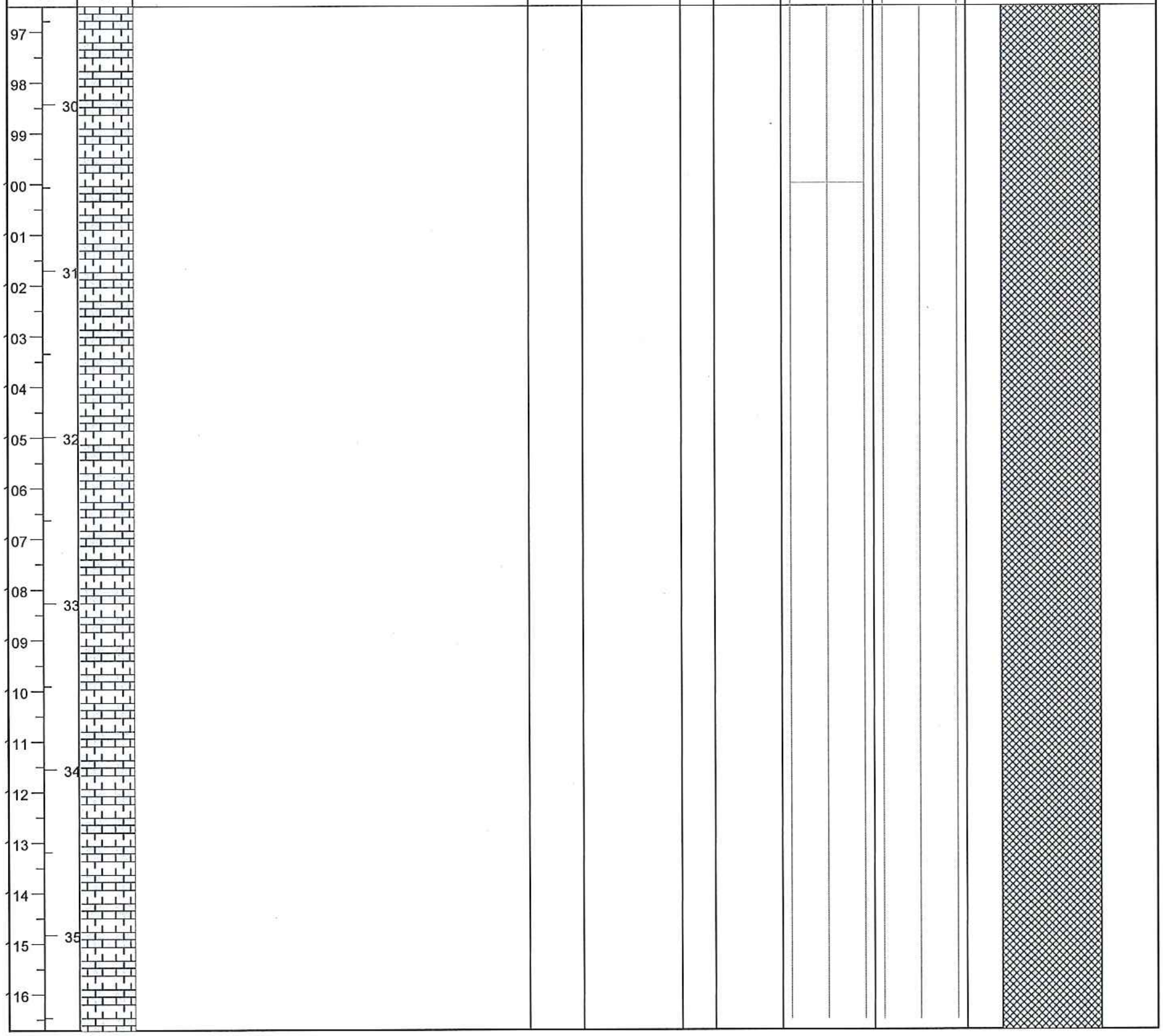
Drilling Company: JR Drilling

Drilling Method: Dual Rotary

Logged by: TK

Sheet: 6 of 8

SUBSURFACE PROFILE			SAMPLE						
Depth	Symbol	Description	Depth/Elev (m)	Sample ID	Analysed Y,N	Sample Type	Vapour ppm 0 250 500	LEL % 0 50 100	Backfill details



Well location: Porter Creek

Depth to water level (TOC): 3.852

Date of water level: September 6th, 2016

Borehole diameter: 15.24

Well casing diameter: 50.8mm

Well casing material: Schedule 40 PVC

Well screen slot size: 0.25mm

Well screen interval (bgs): 3.5-6.5

Depth of well (TOC): 7.601

Well Elevation (TOC): -

Ground Elevation: -

Log of Monitoring Well: GH_MW-PC

HEMMERA

Project Name/No: 577-016.07

Client: Teck Coal Greenhills Operation

Date Drilled: September 2nd, 2016

Site Location: Elkford, BC

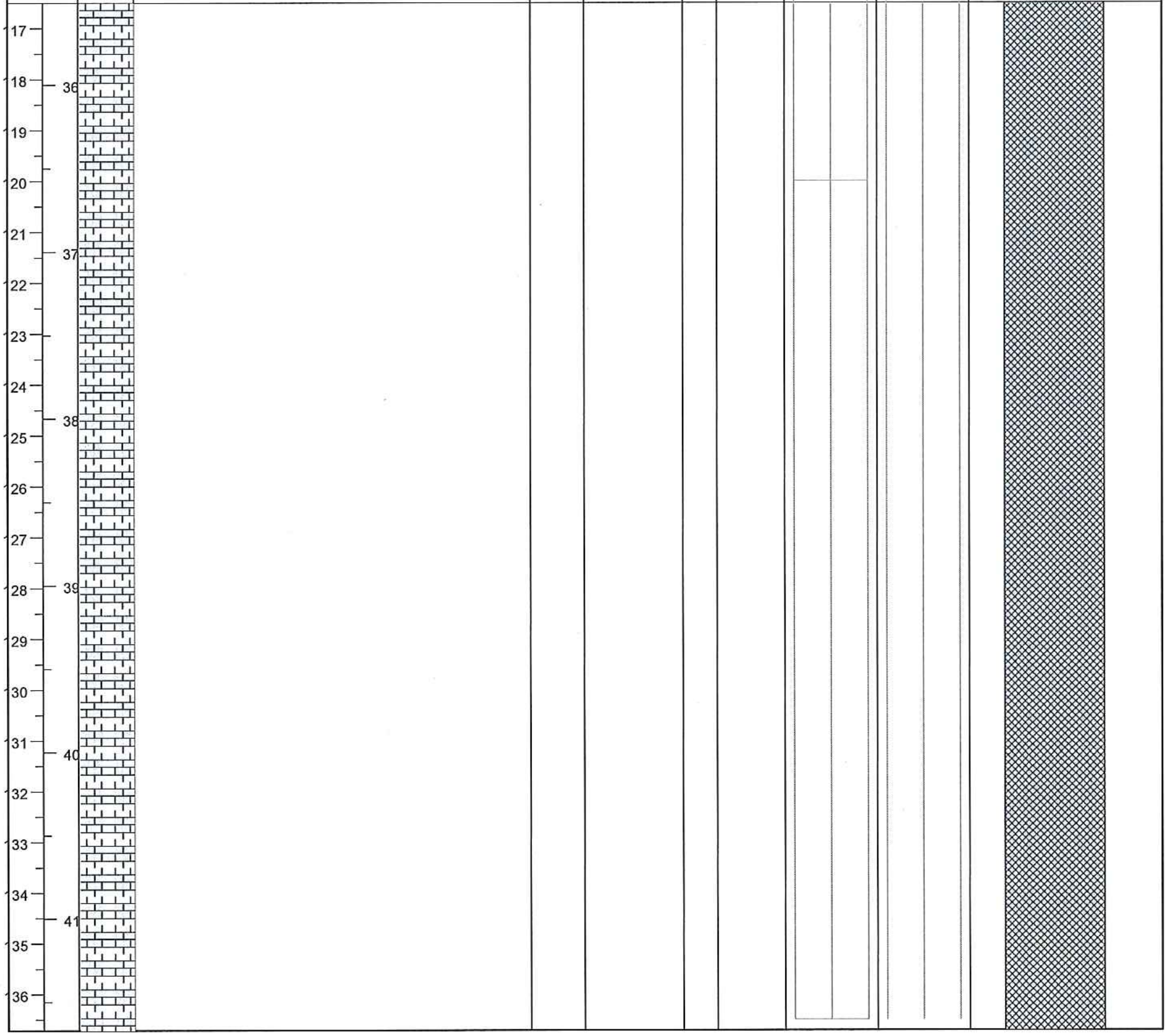
Drilling Company: JR Drilling

Drilling Method: Dual Rotary

Logged by: TK

Sheet: 7 of 8

SUBSURFACE PROFILE			SAMPLE						
Depth	Symbol	Description	Depth/Elev (m)	Sample ID	Analysed Y,N	Sample Type	Vapour ppm 0 250 500	LEL % 0 50 100	Backfill details



Well location: Porter Creek

Depth to water level (TOC): 3.852

Date of water level: September 6th, 2016

Borehole diameter: 15.24

Well casing diameter: 50.8mm

Well casing material: Schedule 40 PVC

Well screen slot size: 0.25mm

Well screen interval (bgs): 3.5-6.5

Depth of well (TOC): 7.601

Well Elevation (TOC): -

Ground Elevation: -

Log of Monitoring Well: GH_MW-PC

HEMMERA

Project Name/No: 577-016.07

Client: Teck Coal Greenhills Operation

Date Drilled: September 2nd, 2016

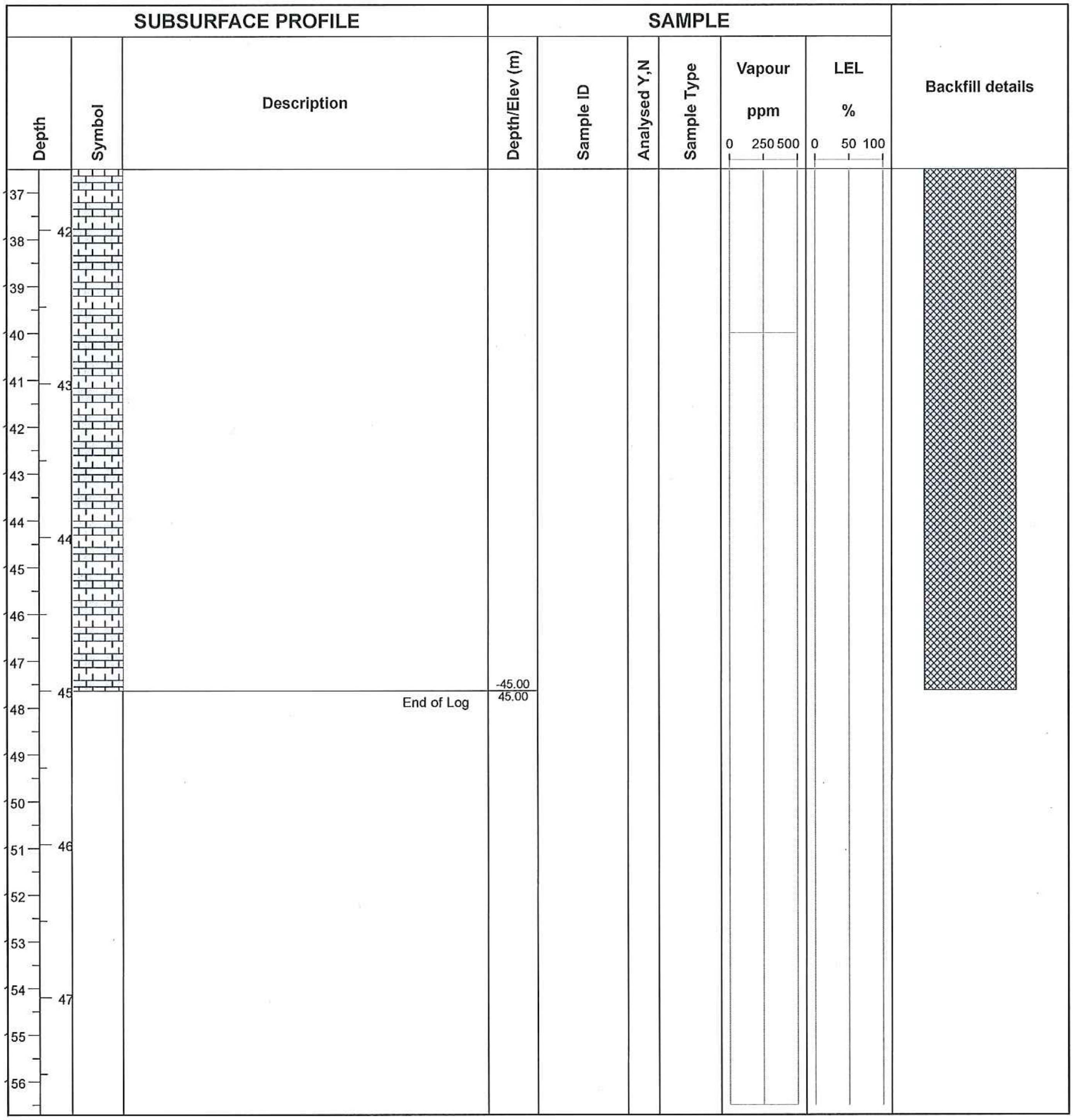
Site Location: Elkford, BC

Drilling Company: JR Drilling

Drilling Method: Dual Rotary

Logged by: TK

Sheet: 8 of 8



Well location: Porter Creek

Depth to water level (TOC): 3.852

Date of water level: September 6th, 2016

Borehole diameter: 15.24

Well casing diameter: 50.8mm

Well casing material: Schedule 40 PVC

Well screen slot size: 0.25mm

Well screen interval (bgs): 3.5-6.5

Depth of well (TOC): 7.601

Well Elevation (TOC): -

Ground Elevation: -

srk consulting
Teck

PROJECT: Teck Coal Watershed R&D
CLIENT: Teck Coal Ltd.

HOLE ID: GHO-CCR-12-01
LOCATION: Green Hills
PROJECT NO: 1CT017.020
DRILLING CONTRACTOR: Boart Longyear
DRILLING TYPE: Sonic
LOGGED BY: BS/SB
BORING DATE: 7-Sep-12 to 9-Sep-12

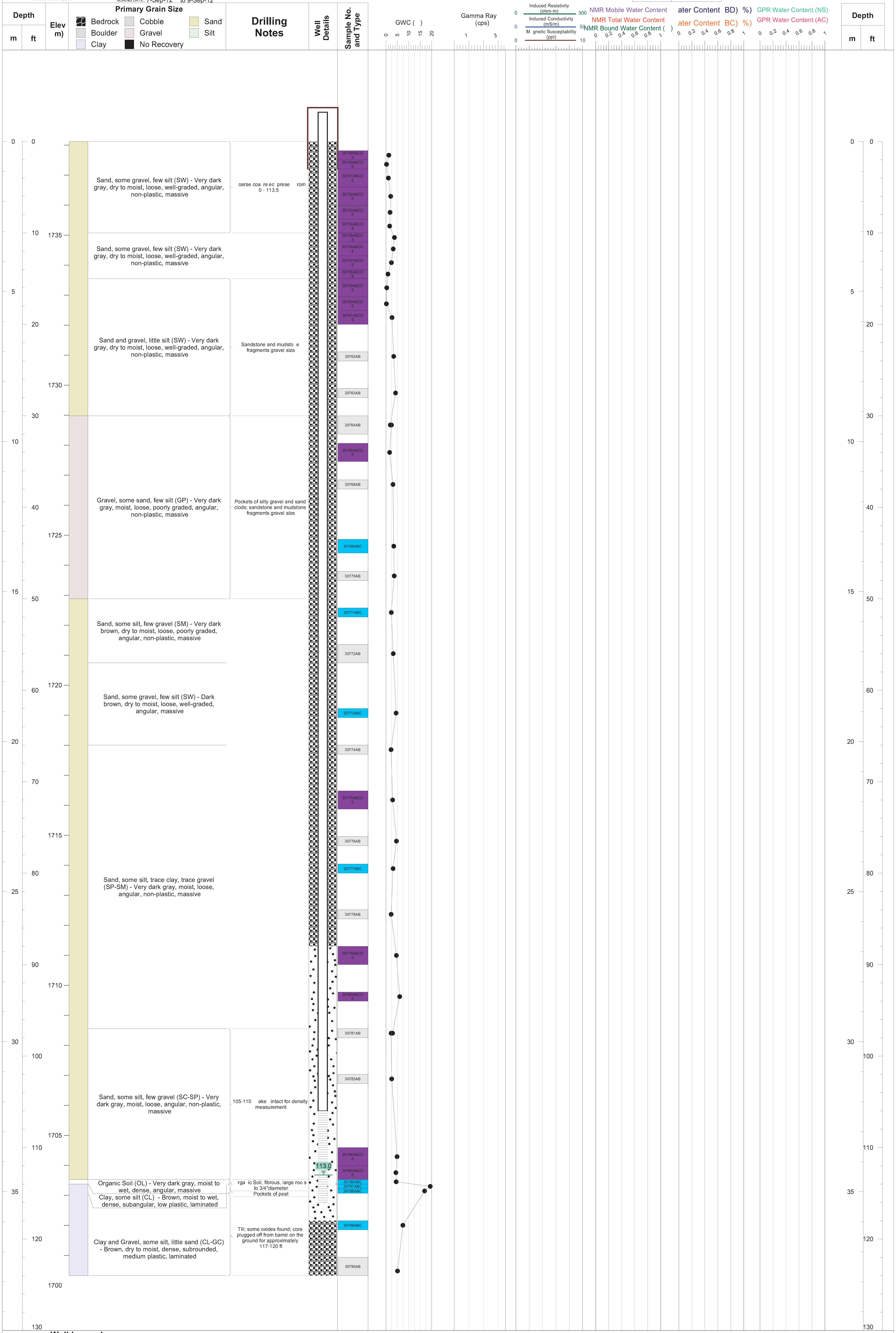
COORDINATES: E 653747 N 5547430
DATUM: NAD 83 Zone 11
GROUND ELEV (m): 1738.122
AZIMUTH: 0 DIP: 90
EOH ELEV. (m): 1700.3268
TOTAL DEPTH (m / ft): 37.8 / 124
INSTALLATION TYPE: 4" Mon. Well

P.1 of 1

General Geology: Coarse Coal Reject
Levelogger Installation: None
Top of PVC Elev (m): 1739.462
Top of PVC Elev (m): 1.34 / 4.4
Water Level (m / ft bgs): 34.44 / 113.0
Water Level Note: Water level based on 2012/09/17 measurements. Approx. at 113ft.
Well drilled to 124ft but during installation of well PVC melted/broke.

Recent Water Level Measurement

Date	Water Level (ft bgs)



Description	Drilling Notes
Sand, some gravel, few silt (SW) - Very dark gray, dry to moist, loose, well-graded, angular, non-plastic, massive	oarse coa re ec prese rom 0 - 113.5
Sand, some gravel, few silt (SW) - Very dark gray, dry to moist, loose, well-graded, angular, non-plastic, massive	
Sand and gravel, little silt (SW) - Very dark gray, dry to moist, loose, well-graded, angular, non-plastic, massive	Sandstone and mudsto e fragments gravel size
Gravel, some sand, few silt (GP) - Very dark gray, moist, loose, poorly graded, angular, non-plastic, massive	Pockets of silty gravel and sand clods; sandstone and mudstone fragments gravel size
Sand, some silt, few gravel (SM) - Very dark brown, dry to moist, loose, poorly graded, angular, non-plastic, massive	
Sand, some gravel, few silt (SW) - Dark brown, dry to moist, loose, well-graded, angular, massive	
Sand, some silt, trace clay, trace gravel (SP-SM) - Very dark gray, moist, loose, angular, non-plastic, massive	
Sand, some silt, few gravel (SC-SP) - Very dark gray, moist, loose, angular, non-plastic, massive	105-110 ake intact for density measurement
Organic Soil (OL) - Very dark gray, moist to wet, dense, angular, massive	rga ic Soil, fibrous, large roo s to 3/4"diameter
Clay, some silt (CL) - Brown, moist to wet, dense, subangular, low plastic, laminated	Pockets of peat
Clay and Gravel, some silt, little sand (CL-GC) - Brown, dry to moist, dense, subrounded, medium plastic, laminated	Till; some oxides found; core plugged off from barrel on the ground for approximately 117-120 ft

Well Legend
- ▦ Chips
- ▨ Cuttings
- ⊓ Casing
- ▦ Gas Port
- ▦ Water Port
- ▨ Slough
- ▨ Sand
- ☐ PVC
- ▤ Screen
- ▨ Sump

Sample Analysis Type
A = Geochemical
B = Isotopes
C = Microbial
D = Cultivation
E = Anaerobic Cultivation

Sample Legend

🟨	A	🟩	ABCD	🟦	ACD	🟧	CD
⬜	AB	🟪	ABCDE	🟥	B	🟪	CDE
🟦	ABC	🟩	AC	🟦	C		

Log of Monitoring Well: GH_MW-GHC-1D

HEMMERA

Project Name/No: Greenhills Ops Elkford BC/577-016.04

Drilling Company: JR Drilling

Client: Teck Coal Ltd.

Drilling Method: Dual air rotary

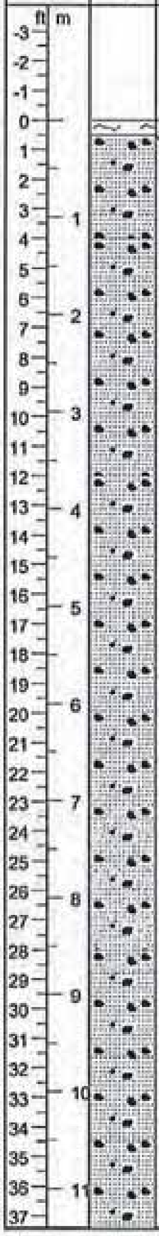
Date Drilled: November 20, 2014

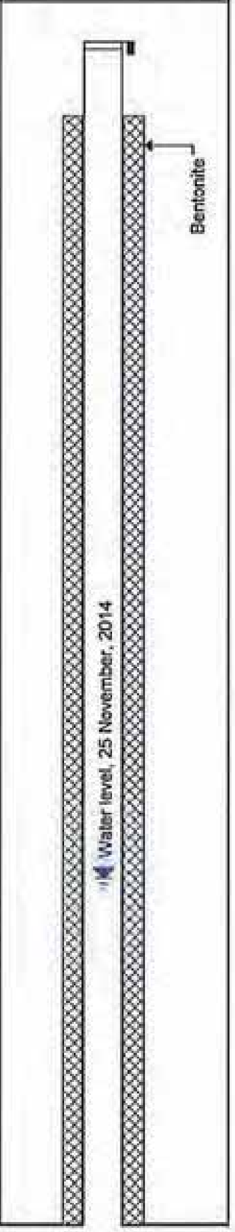
Logged by: RM

Site Location: Greenhills Operations, BC

Sheet: 1 of 2

SUBSURFACE PROFILE			SAMPLE					
Depth / Symbol	Description	Depth/Elev (m)	Sample ID	Analysed Y,N	Sample Type	Vapour ppm (0 250 500)	LEL % (0 50 100)	Backfill details
	Ground Surface	1610.00 0.00						
	TOPSOIL Black, dry, loose, organic soil							
	TILL Sandy (fine, medium and coarse grain) TILL, some gravel (fine and medium grain, sub-angular), brown, dry, loose, well graded							
	Silty TILL, dark brown, wet, dense	1608.78 1.22						
	Water table at 2.13 m	1607.87 2.13						
	Gravelly (fine to medium grain, sub-angular) TILL, dark brown, wet, loose to medium dense, well graded. Silty lenses present throughout. Between 4.57 m and 7.62 m, moderate water yield.	1606.34 3.66						
	Silty TILL, some gravels (fine to medium grain, sub-angular), dark brown, wet, dense to very dense.	1601.47 8.53						





Well location: 5,547,207 N, 654,052 E

Well casing diameter: 2"

Depth of well (TOC): 21.36 m

Depth to water level (TOC): 8.639 m

Well casing material: Sch. 80 PVC

Well Elevation (TOC): 1610.8 m

Date of water level: 25 November, 2014

Well screen slot size: 010

Ground Elevation: 1610 m

Borehole diameter: 0.15 m

Well screen interval (bgs): 18.31 m - 21.36 m

Log of Monitoring Well: GH_MW-GHC-1D

HEMMERA

Project Name/No: Greenhills Ops Elkford BC/577-016.04

Client: Teck Coal Ltd.

Date Drilled: November 20, 2014

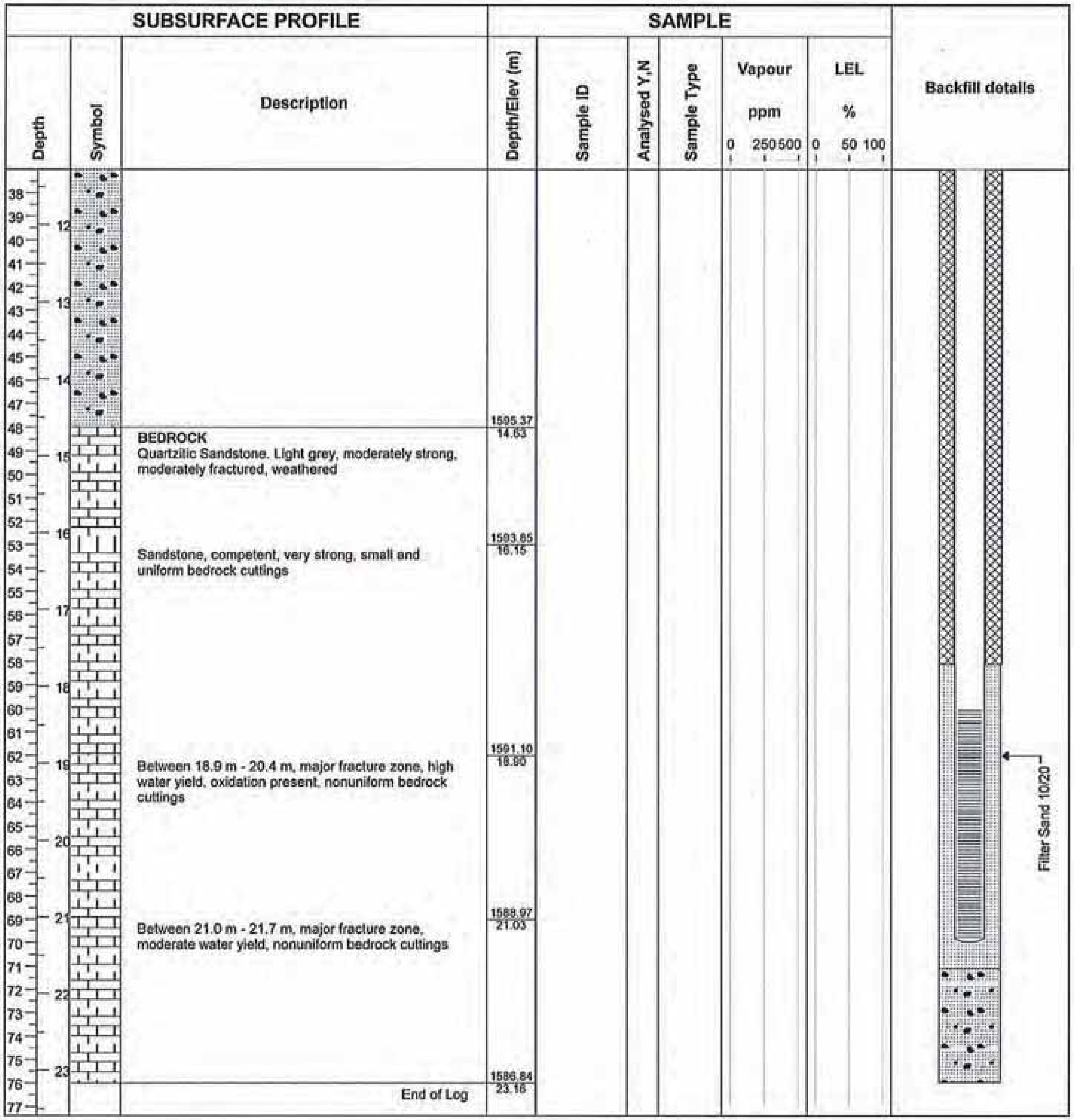
Site Location: Greenhills Operations, BC

Drilling Company: JR Drilling

Drilling Method: Dual air rotary

Logged by: RM

Sheet: 2 of 2



Description	Depth/Elev (m)
BEDROCK Quartzitic Sandstone. Light grey, moderately strong, moderately fractured, weathered	1595.37 14.63
Sandstone, competent, very strong, small and uniform bedrock cuttings	1593.85 16.15
Between 18.9 m - 20.4 m, major fracture zone, high water yield, oxidation present, nonuniform bedrock cuttings	1591.10 18.90
Between 21.0 m - 21.7 m, major fracture zone, moderate water yield, nonuniform bedrock cuttings	1588.97 21.03
End of Log	1586.84 23.16

Well location: 5,547,207 N, 654,052 E

Depth to water level (TOC): 8.639 m

Date of water level: 25 Novermber, 2014

Borehole diameter: 0.15 m

Well casing diameter: 2"

Well casing material: Sch. 80 PVC

Well screen slot size: 010

Well screen interval (bgs): 18.31 m - 21.36 m

Depth of well (TOC): 21.36 m

Well Elevation (TOC): 1610.8 m

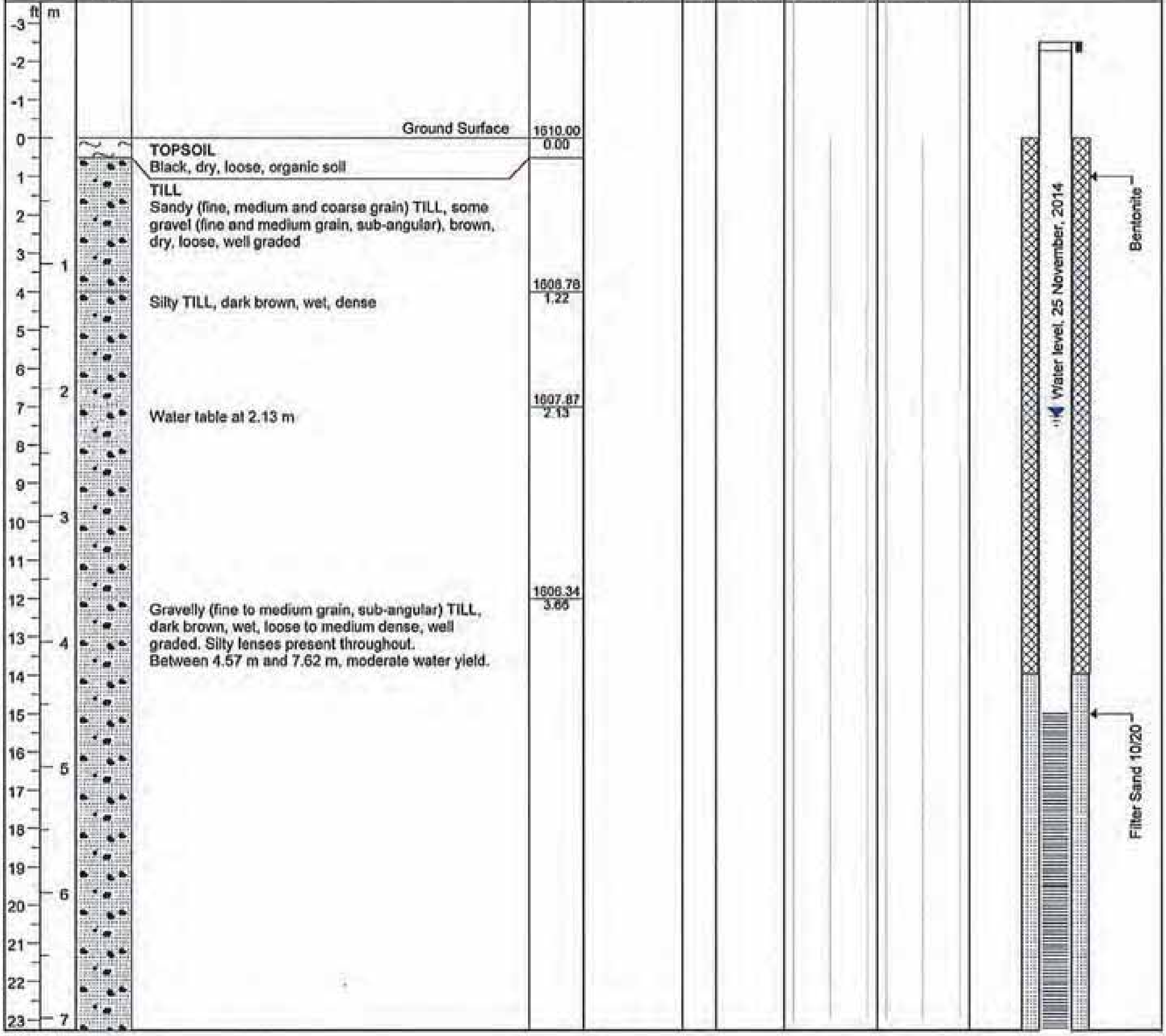
Ground Elevation: 1610 m

Log of Monitoring Well: GH_MW-GHC-1S

HEMMERA

Project Name/No: Greenhills Ops Elkford BC/577-016.04
Drilling Company: JR Drilling
Client: Teck Coal Ltd.
Drilling Method: Dual air rotary
Date Drilled: November 18, 2014
Logged by: RM
Site Location: Greenhills Operations, BC
Sheet: 1 of 2

SUBSURFACE PROFILE		SAMPLE					
Depth (ft / m)	Description	Depth/Elev (m)	Sample ID	Analysed Y,N	Sample Type	Vapour ppm (0 250 500)	LEL % (0 50 100)
0 ft / 0 m	Ground Surface	1610.00 0.00					
0	**TOPSOIL** Black, dry, loose, organic soil						
	TILL Sandy (fine, medium and coarse grain) TILL, some gravel (fine and medium grain, sub-angular), brown, dry, loose, well graded						
4 ft	Silty TILL, dark brown, wet, dense	1608.78 1.22					
7 ft	Water table at 2.13 m	1607.87 2.13					
12 ft	Gravelly (fine to medium grain, sub-angular) TILL, dark brown, wet, loose to medium dense, well graded. Silty lenses present throughout. Between 4.57 m and 7.62 m, moderate water yield.	1606.34 3.66					



Well location: 5,547,205 N, 654,050 E
Well casing diameter: 2"
Depth of well (TOC): 7.63 m
Depth to water level (TOC): 2.976 m
Well casing material: Sch. 80 PVC
Well Elevation (TOC): 1610.8 m
Date of water level: 25 Novermber, 2014
Well screen slot size: 010
Ground Elevation: 1610 m
Borehole diameter: 0.17 m
Well screen interval (bgs): 4.58 m - 7.63 m

GH_MW_GHC-1B

Log of Monitoring Well: GH_MW-GHC-1S

HEMMERA

Project Name/No: Greenhills Ops Elkford BC/577-016.04

Drilling Company: JR Drilling

Client: Teck Coal Ltd.

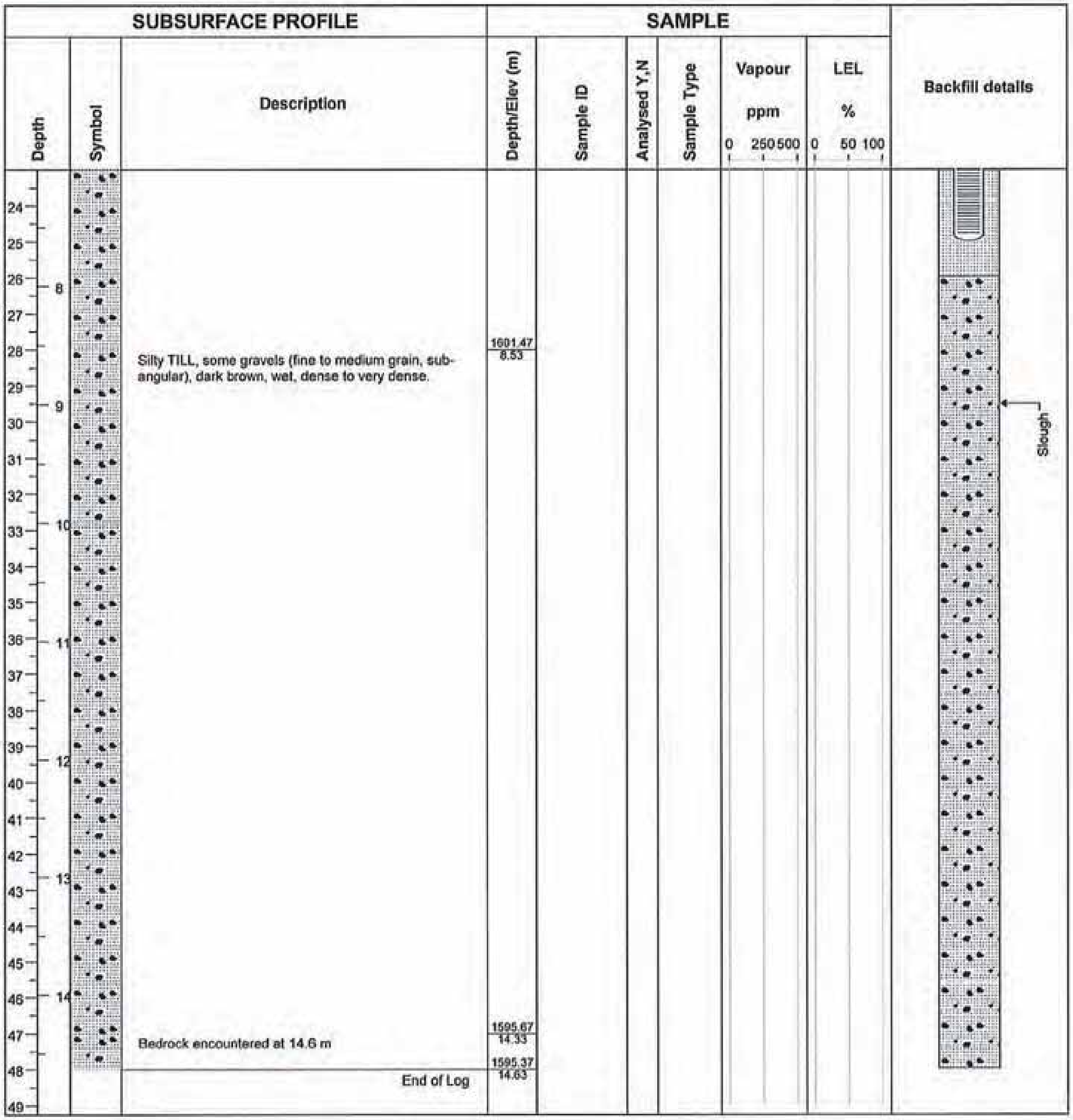
Drilling Method: Dual air rotary

Date Drilled: November 18, 2014

Logged by: RM

Site Location: Greenhills Operations, BC

Sheet: 2 of 2



Depth/Elev (m)	Description
1601.47 8.53	Silty TILL, some gravels (fine to medium grain, sub-angular), dark brown, wet, dense to very dense.
1595.67 14.33	Bedrock encountered at 14.6 m
1595.37 14.63	End of Log

Well location: 5,547,205 N, 654,050 E

Well casing diameter: 2"

Depth of well (TOC): 7.63 m

Depth to water level (TOC): 2.976 m

Well casing material: Sch. 80 PVC

Well Elevation (TOC): 1610.8 m

Date of water level: 25 Novermber, 2014

Well screen slot size: 010

Ground Elevation: 1610 m

Borehole diameter: 0.17 m

Well screen interval (bgs): 4.58 m - 7.63 m

Log of Monitoring Well: GH_MW-TD

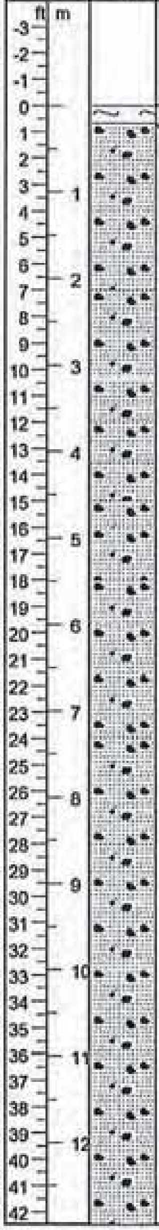
HEMMERA

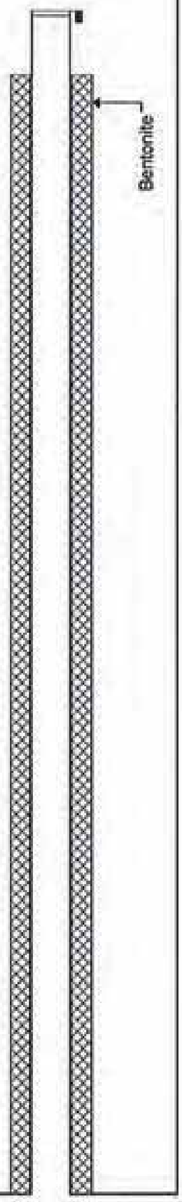
Project Name/No: Greenhills Ops Elkford BC/577-016.04
Client: Teck Coal Ltd.
Date Drilled: November 21, 2014
Site Location: Greenhills Operations, BC

Drilling Company: JR Drilling
Drilling Method: Dual air rotary
Logged by: RM

Sheet: 1 of 3

SUBSURFACE PROFILE				SAMPLE					
Depth	Symbol	Description	Depth/Elev (m)	Sample ID	Analysed Y,N	Sample Type	Vapour ppm 0 250 500	LEL % 0 50 100	Backfill details
		Ground Surface	1600.00 0.00						
		TOPSOIL Black, dry, loose, organic soil							
		TILL Sand, gravelly (medium to coarse grain, sub-rounded), some lenses of sand and silt, moist, dense, brown Lots of broken rock fragments							
		Below 2.13 m becomes dry.	1597.87 2.13						
		Below 3.66 m becomes medium dense	1596.34 3.66						
		Below 4.6 m moist and dense	1595.43 4.57						
		Below 4.9 m dry, very dense							
		Below 5.5 m, becomes more silty, more dense	1594.51 5.49						
		Below 7.3 m, siltstone clasts, very dry, very dense	1592.68 7.32						



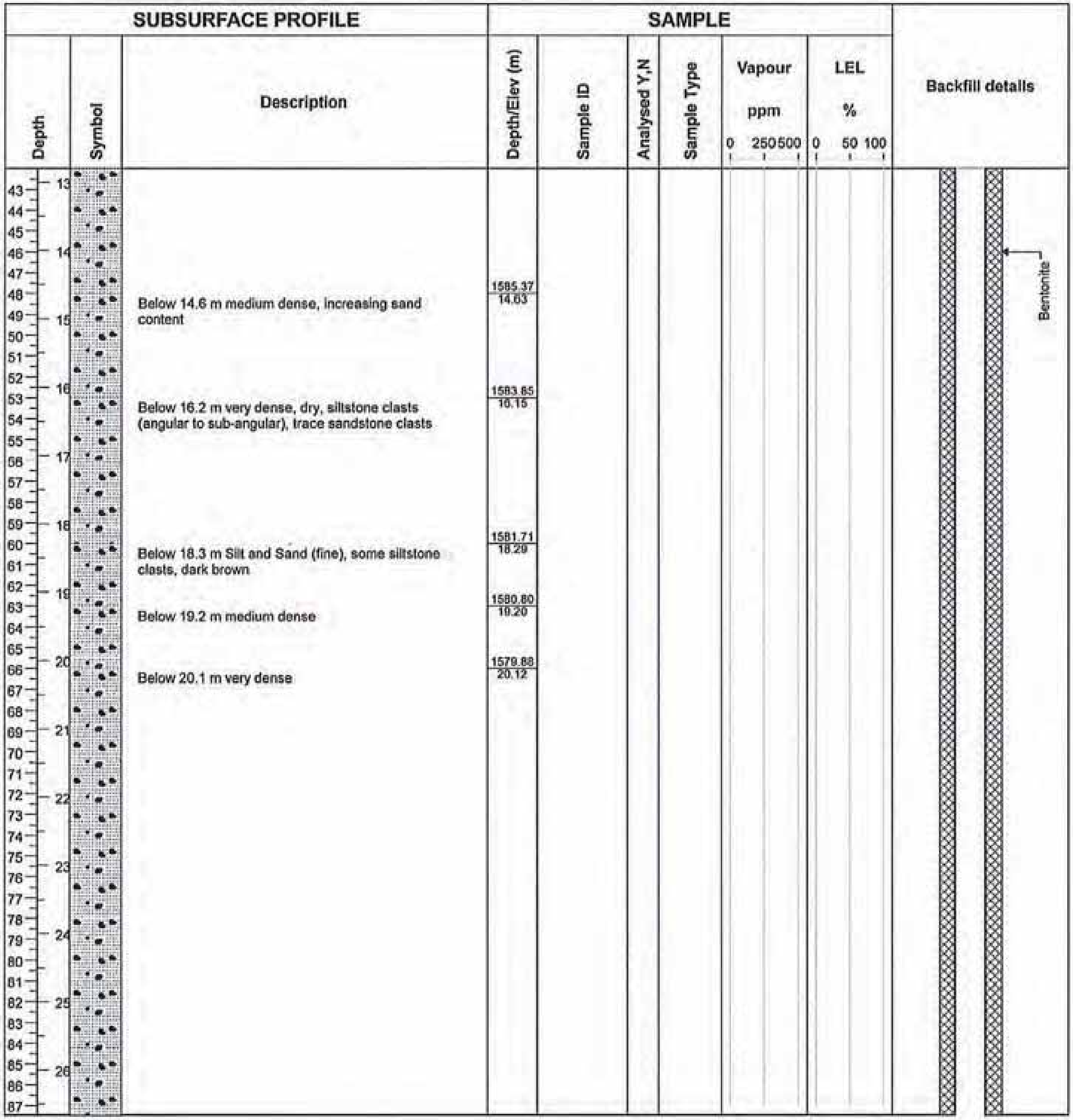


Well location: 5,546,536 N, 652,694 E
Well casing diameter: 2"
Depth of well (TOC): 34.44 m
Depth to water level (TOC): Flowing artesian well
Well casing material: Sch. 80 PVC
Well Elevation (TOC): 1600.75 m asl
Date of water level: N/A
Well screen slot size: 010
Ground Elevation: 1600 m asl
Borehole diameter: 0.17 m
Well screen interval (bgs): 31.39 - 34.44 m

Log of Monitoring Well: GH_MW-TD

HEMMERA

Project Name/No: Greenhills Ops Elkford BC/577-016.04
Drilling Company: JR Drilling
Client: Teck Coal Ltd.
Drilling Method: Dual air rotary
Date Drilled: November 21, 2014
Logged by: RM
Site Location: Greenhills Operations, BC
Sheet: 2 of 3



Description	Depth/Elev (m)
Below 14.6 m medium dense, increasing sand content	1585.37 14.63
Below 16.2 m very dense, dry, siltstone clasts (angular to sub-angular), trace sandstone clasts	1583.85 16.15
Below 18.3 m Silt and Sand (fine), some siltstone clasts, dark brown	1581.71 18.29
Below 19.2 m medium dense	1580.80 19.20
Below 20.1 m very dense	1579.88 20.12

Well location: 5,546,536 N, 652,694 E
Well casing diameter: 2"
Depth of well (TOC): 34.44 m
Depth to water level (TOC): Flowing artesian well
Well casing material: Sch. 80 PVC
Well Elevation (TOC): 1600.75 m asl
Date of water level: N/A
Well screen slot size: 010
Ground Elevation: 1600 m asl
Borehole diameter: 0.17 m
Well screen interval (bgs): 31.39 - 34.44 m

Log of Monitoring Well: GH_MW-TD

HEMMERA

Project Name/No: Greenhills Ops Elkford BC/577-016.04

Drilling Company: JR Drilling

Client: Teck Coal Ltd.

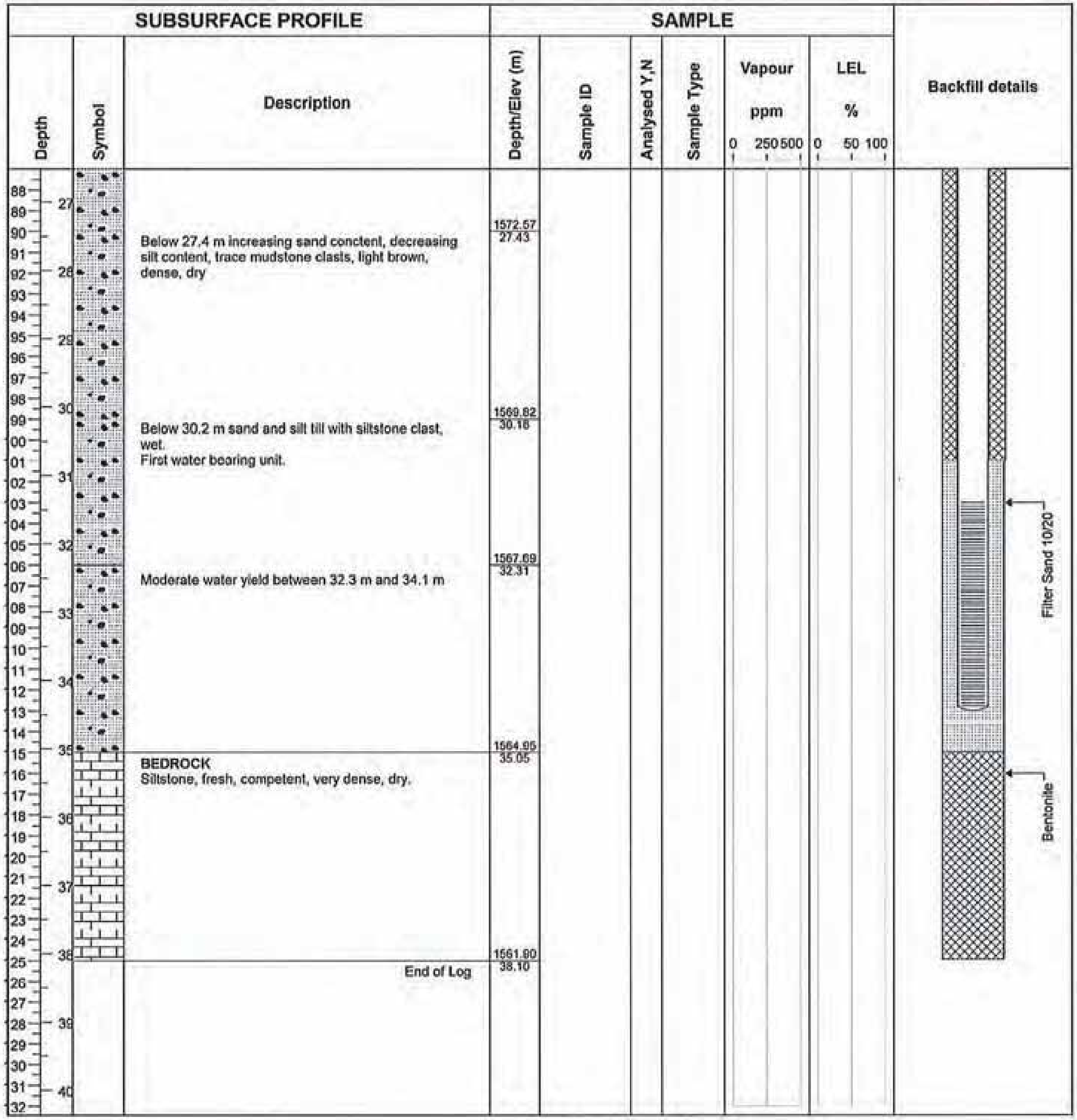
Drilling Method: Dual air rotary

Date Drilled: November 21, 2014

Logged by: RM

Site Location: Greenhills Operations, BC

Sheet: 3 of 3



Depth/Elev (m)	Description
1572.57 27.43	Below 27.4 m increasing sand conctent, decreasing silt content, trace mudstone clasts, light brown, dense, dry
1569.82 30.18	Below 30.2 m sand and silt till with siltstone clast, wet. First water bearing unit.
1567.69 32.31	Moderate water yield between 32.3 m and 34.1 m
1564.95 35.05	**BEDROCK** Siltstone, fresh, competent, very dense, dry.
1561.90 38.10	End of Log

Well location: 5,546,536 N, 652,694 E

Well casing diameter: 2"

Depth of well (TOC): 34.44 m

Depth to water level (TOC): Flowing artesian well

Well casing material: Sch. 80 PVC

Well Elevation (TOC): 1600.75 m asl

Date of water level: N/A

Well screen slot size: 010

Ground Elevation: 1600 m asl

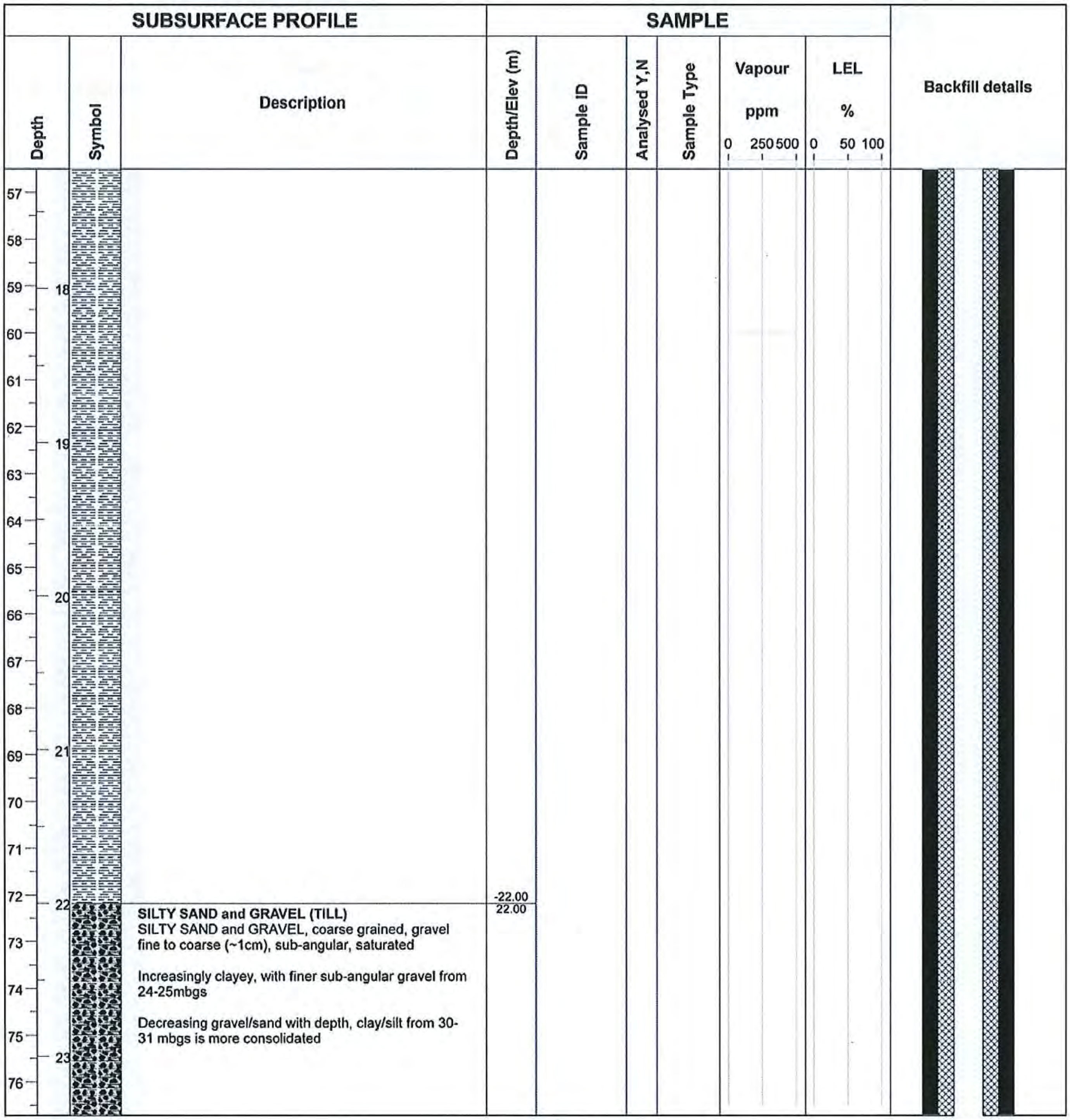
Borehole diameter: 0.17 m

Well screen interval (bgs): 31.39 - 34.44 m

Log of Monitoring Well: GH_MW-RLP-1D

HEMMERA

Project Name/No: 577-016.07	**Drilling Company:** JR Drilling
Client: Teck Coal Greenhills Operation	**Drilling Method:** Dual Rotary
Date Drilled: September 3rd-4th, 2016	**Logged by:** TK
Site Location: Elkford, BC	**Sheet:** 4 of 14



-22.00
22.00

SILTY SAND and GRAVEL (TILL)
SILTY SAND and GRAVEL, coarse grained, gravel fine to coarse (~1cm), sub-angular, saturated

Increasingly clayey, with finer sub-angular gravel from 24-25mbgs

Decreasing gravel/sand with depth, clay/silt from 30-31 mbgs is more consolidated

Well location: Rail Loop	**Well casing diameter:** 50.8mm	**Depth of well (TOC):** -
Depth to water level (TOC): -	**Well casing material:** Schedule 40 PVC	**Well Elevation (TOC):** -
Date of water level: -	**Well screen slot size:** 0.25mm	**Ground Elevation:** -
Borehole diameter: 15.24cm	**Well screen interval (bgs):** 82.5-79.5	

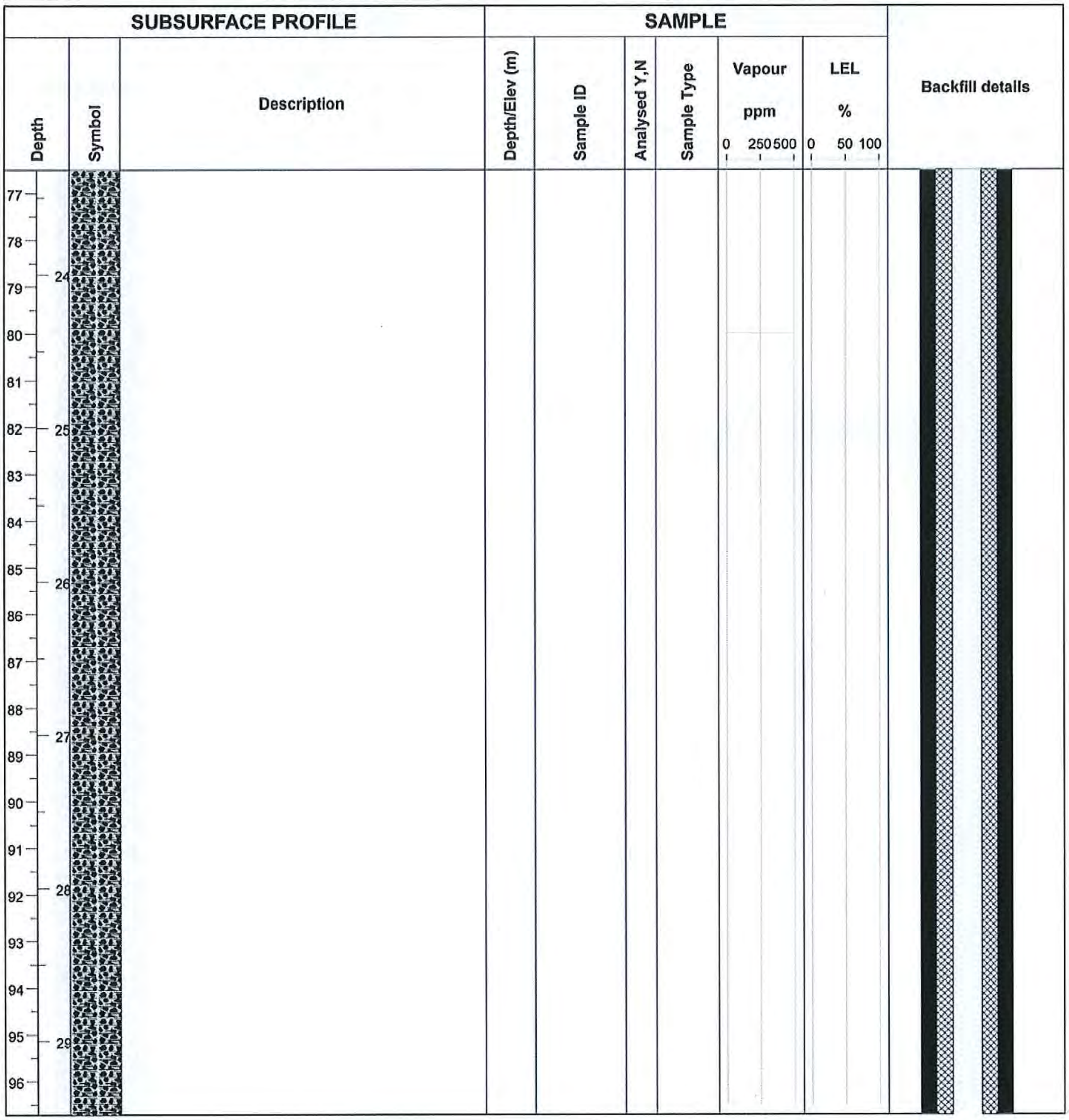
Log of Monitoring Well: GH_MW-RLP-1D

HEMMERA

Project Name/No: 577-016.07
Client: Teck Coal Greenhills Operation
Date Drilled: September 3rd-4th, 2016
Site Location: Elkford, BC

Drilling Company: JR Drilling
Drilling Method: Dual Rotary
Logged by: TK

Sheet: 5 of 14



Well location: Rail Loop
Depth to water level (TOC): -
Date of water level: -
Borehole diameter: 15.24cm

Well casing diameter: 50.8mm
Well casing material: Schedule 40 PVC
Well screen slot size: 0.25mm
Well screen interval (bgs): 82.5-79.5

Depth of well (TOC): -
Well Elevation (TOC): -
Ground Elevation: -

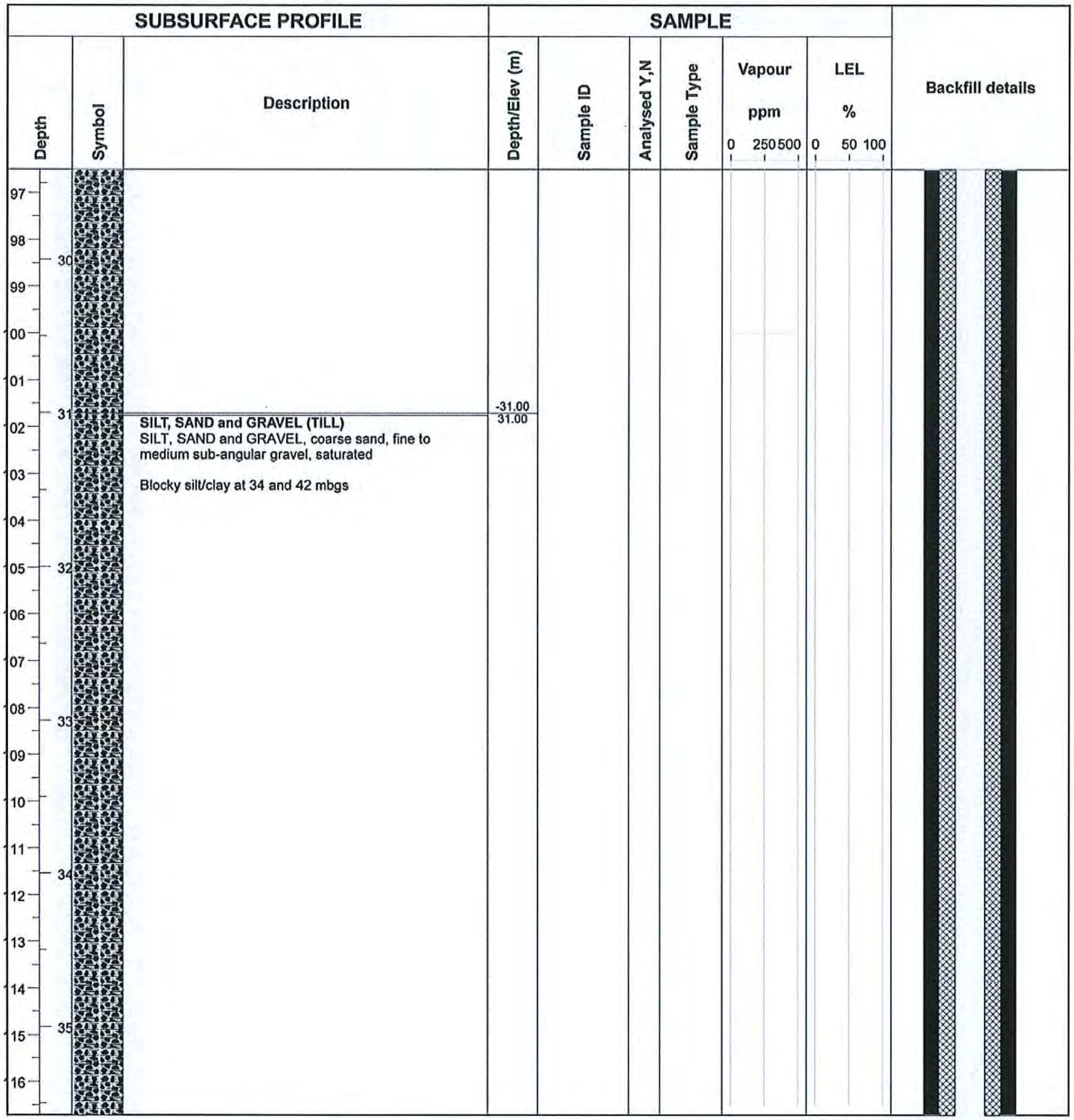
Log of Monitoring Well: GH_MW-RLP-1D

HEMMERA

Project Name/No: 577-016.07
Client: Teck Coal Greenhills Operation
Date Drilled: September 3rd-4th, 2016
Site Location: Elkford, BC

Drilling Company: JR Drilling
Drilling Method: Dual Rotary
Logged by: TK

Sheet: 6 of 14



-31.00
31.00

SILT, SAND and GRAVEL (TILL)
SILT, SAND and GRAVEL, coarse sand, fine to medium sub-angular gravel, saturated

Blocky silt/clay at 34 and 42 mbgs

Well location: Rail Loop
Depth to water level (TOC): -
Date of water level: -
Borehole diameter: 15.24cm

Well casing diameter: 50.8mm
Well casing material: Schedule 40 PVC
Well screen slot size: 0.25mm
Well screen interval (bgs): 82.5-79.5

Depth of well (TOC): -
Well Elevation (TOC): -
Ground Elevation: -

Log of Monitoring Well: GH_MW-RLP-1D

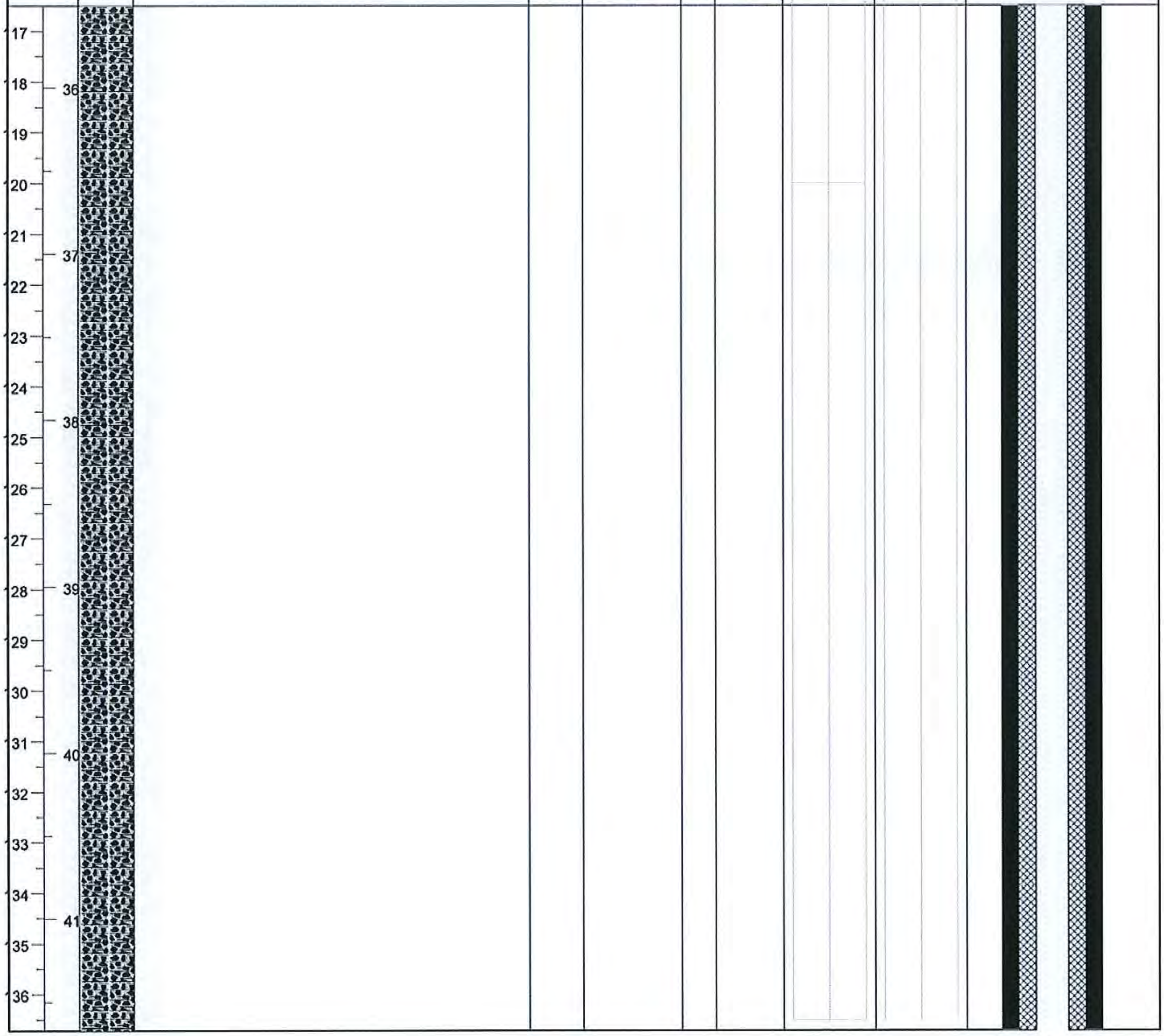
HEMMERA

Project Name/No: 577-016.07
Client: Teck Coal Greenhills Operation
Date Drilled: September 3rd-4th, 2016
Site Location: Elkford, BC

Drilling Company: JR Drilling
Drilling Method: Dual Rotary
Logged by: TK

Sheet: 7 of 14

SUBSURFACE PROFILE			SAMPLE						
Depth	Symbol	Description	Depth/Elev (m)	Sample ID	Analysed Y,N	Sample Type	Vapour ppm 0 250 500	LEL % 0 50 100	Backfill details



Well location: Rail Loop
Depth to water level (TOC): -
Date of water level: -
Borehole diameter: 15.24cm

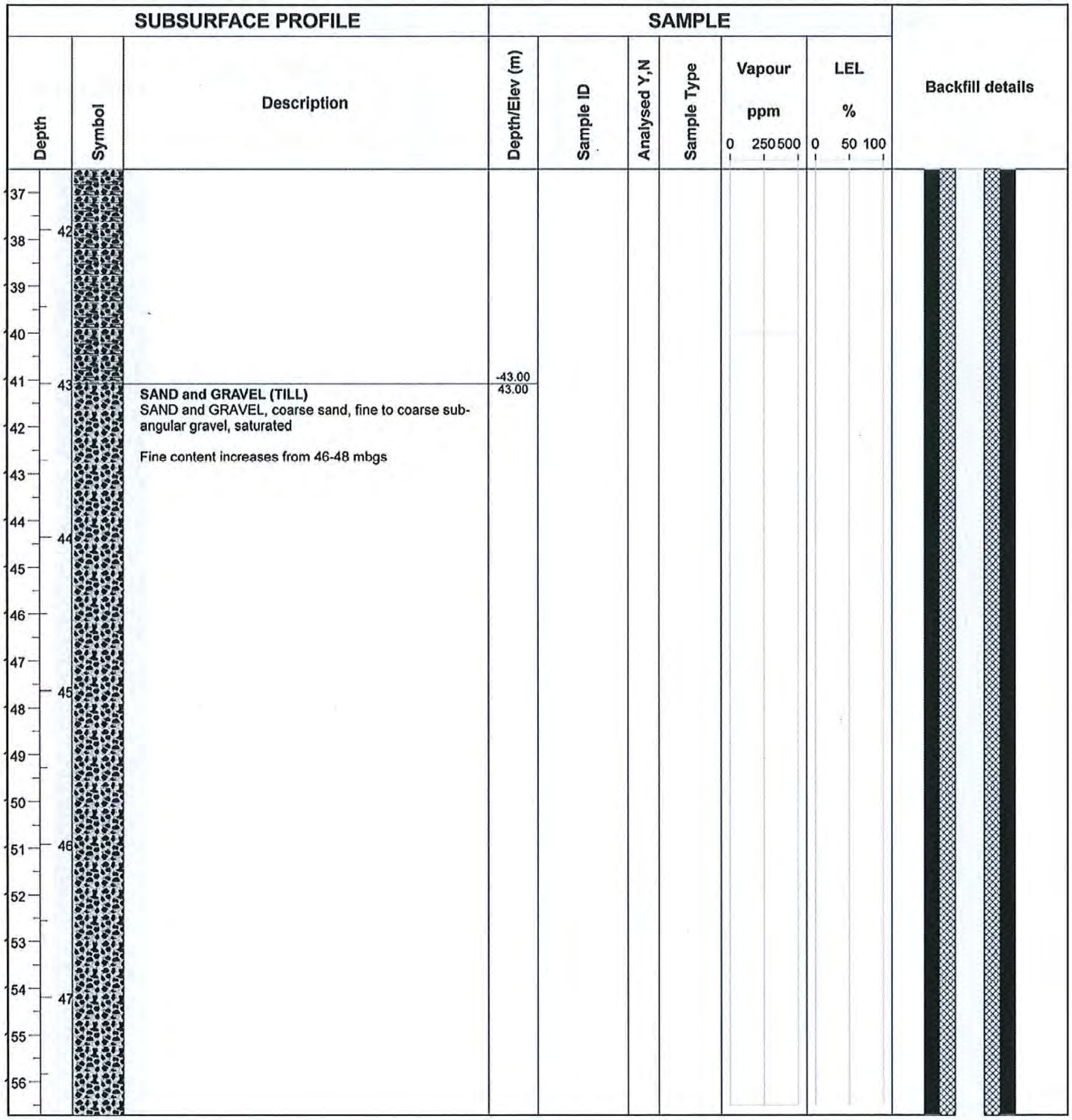
Well casing diameter: 50.8mm
Well casing material: Schedule 40 PVC
Well screen slot size: 0.25mm
Well screen interval (bgs): 82.5-79.5

Depth of well (TOC): -
Well Elevation (TOC): -
Ground Elevation: -

Log of Monitoring Well: GH_MW-RLP-1D

HEMMERA

Project Name/No: 577-016.07
Drilling Company: JR Drilling
Client: Teck Coal Greenhills Operation
Drilling Method: Dual Rotary
Date Drilled: September 3rd-4th, 2016
Logged by: TK
Site Location: Elkford, BC
Sheet: 8 of 14



SAND and GRAVEL (TILL)
SAND and GRAVEL, coarse sand, fine to coarse sub-angular gravel, saturated

Fine content increases from 46-48 mbgs

Well location: Rail Loop
Well casing diameter: 50.8mm
Depth of well (TOC): -
Depth to water level (TOC): -
Well casing material: Schedule 40 PVC
Well Elevation (TOC): -
Date of water level: -
Well screen slot size: 0.25mm
Ground Elevation: -
Borehole diameter: 15.24cm
Well screen interval (bgs): 82.5-79.5

Log of Monitoring Well: GH_MW-RLP-1D

HEMMERA

Project Name/No: 577-016.07
Client: Teck Coal Greenhills Operation
Date Drilled: September 3rd-4th, 2016
Site Location: Elkford, BC

Drilling Company: JR Drilling
Drilling Method: Dual Rotary
Logged by: TK

Sheet: 9 of 14

SUBSURFACE PROFILE			SAMPLE						Backfill details
Depth	Symbol	Description	Depth/Elev (m)	Sample ID	Analysed Y,N	Sample Type	Vapour ppm 0 250 500	LEL % 0 50 100	
57									
48		**SILTY CLAY (TILL)** SILTY CLAY with trace sub-angular medium gravel, dark brown, competent, high plasticity, saturated	-48.00 48.00						
58									
59									
60									
49									
61									
62									
63									
64									
50									
65									
66									
67									
51									
68									
69									
70									
52									
71									
72									
73									
53									
74									
75									
76									

Well location: Rail Loop
Depth to water level (TOC): -
Date of water level: -
Borehole diameter: 15.24cm

Well casing diameter: 50.8mm
Well casing material: Schedule 40 PVC
Well screen slot size: 0.25mm
Well screen interval (bgs): 82.5-79.5

Depth of well (TOC): -
Well Elevation (TOC): -
Ground Elevation: -

Log of Monitoring Well: **GH_MW-RLP-1D**

HEMMERA

Project Name/No: 577-016.07

Client: Teck Coal Greenhills Operation

Date Drilled: September 3rd-4th, 2016

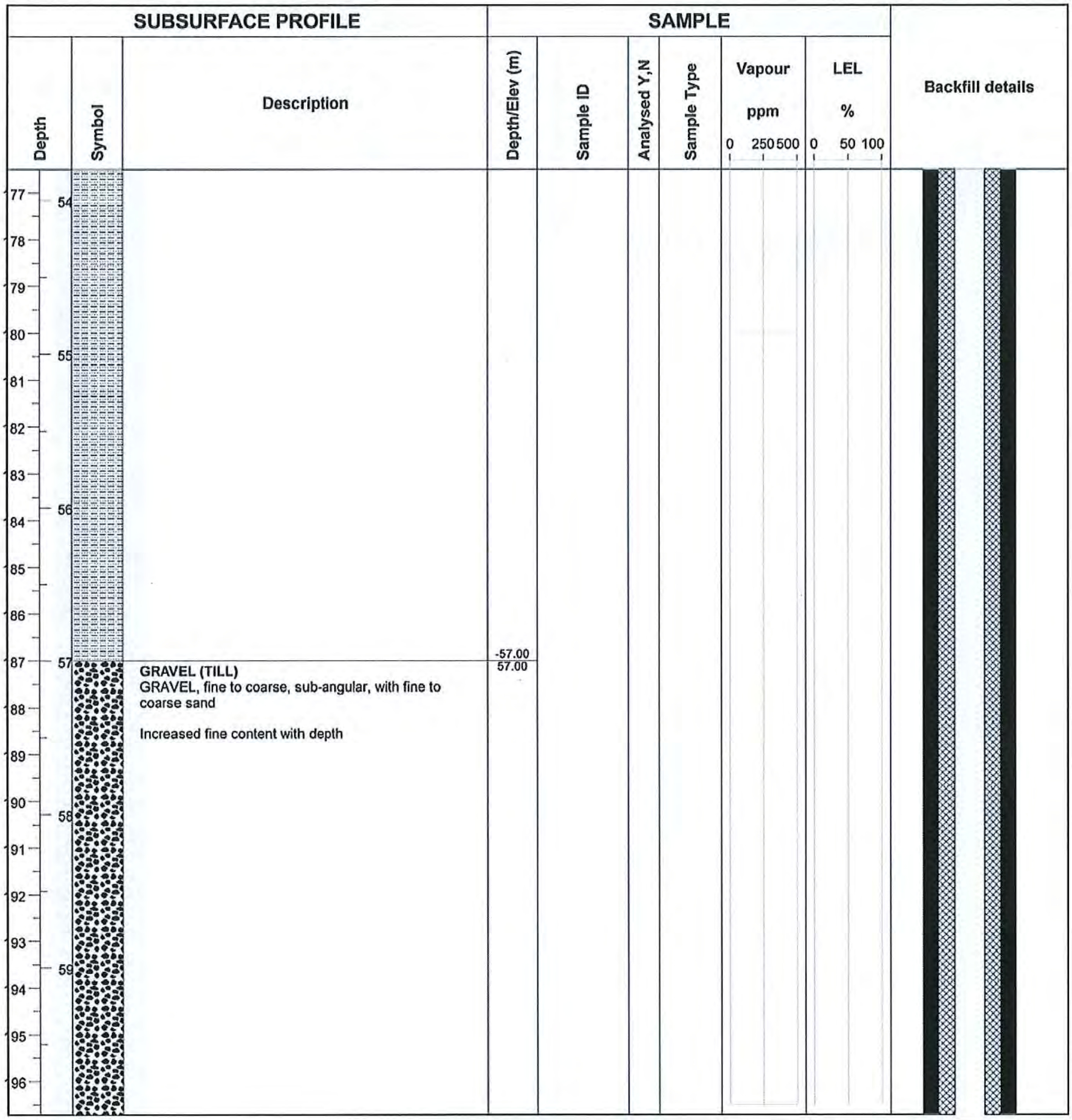
Site Location: Elkford, BC

Drilling Company: JR Drilling

Drilling Method: Dual Rotary

Logged by: TK

Sheet: 10 of 14



Depth	Symbol	Description	Depth/Elev (m)	Sample ID	Analysed Y,N	Sample Type	Vapour ppm	LEL %	Backfill details
87		**GRAVEL (TILL)** GRAVEL, fine to coarse, sub-angular, with fine to coarse sand Increased fine content with depth	-57.00 57.00						

Well location: Rail Loop

Depth to water level (TOC): -

Date of water level: -

Borehole diameter: 15.24cm

Well casing diameter: 50.8mm

Well casing material: Schedule 40 PVC

Well screen slot size: 0.25mm

Well screen interval (bgs): 82.5-79.5

Depth of well (TOC): -

Well Elevation (TOC): -

Ground Elevation: -

Log of Monitoring Well: GH_MW-RLP-1D

HEMMERA

Project Name/No: 577-016.07

Client: Teck Coal Greenhills Operation

Date Drilled: September 3rd-4th, 2016

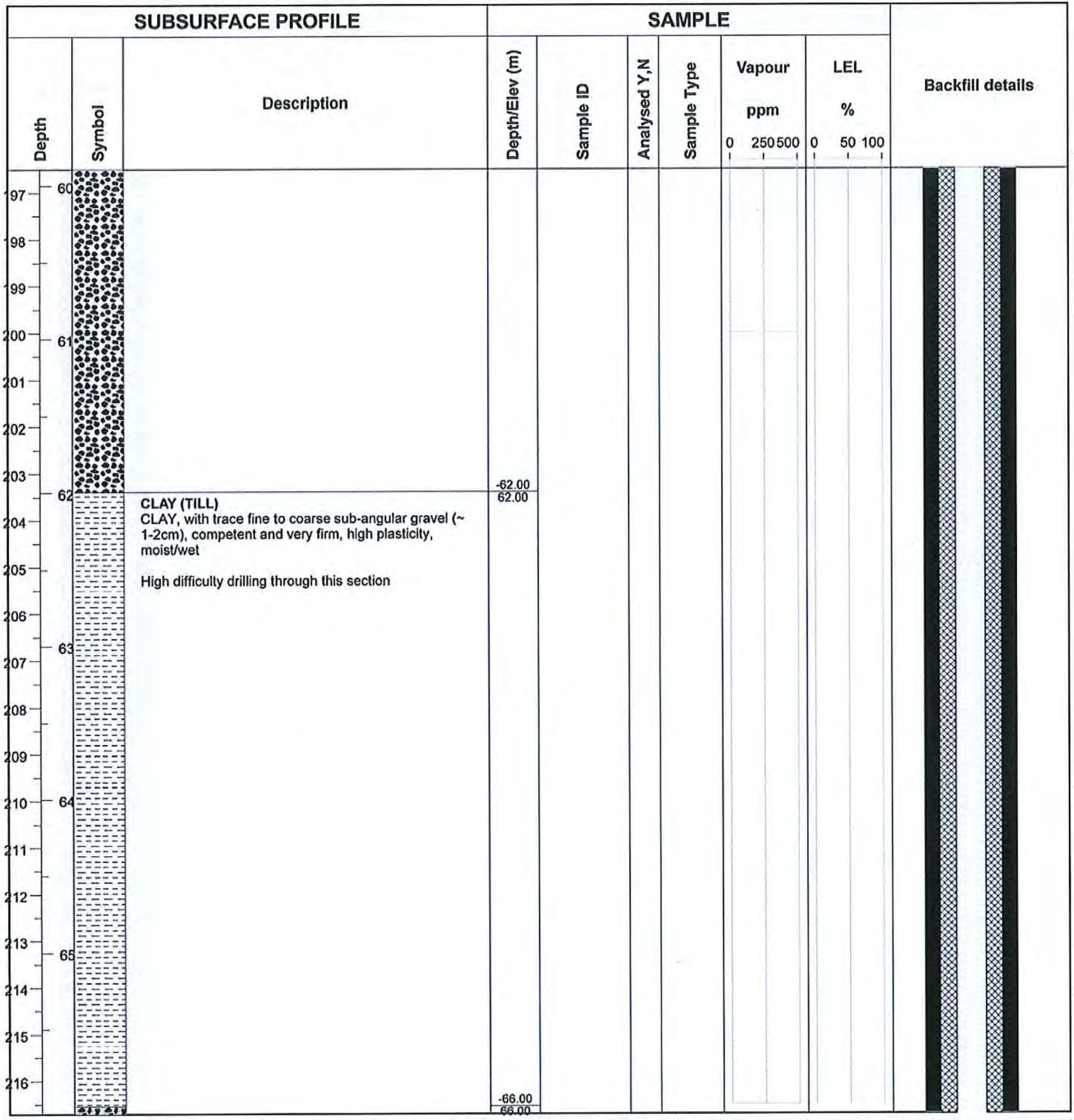
Site Location: Elkford, BC

Drilling Company: JR Drilling

Drilling Method: Dual Rotary

Logged by: TK

Sheet: 11 of 14



CLAY (TILL)
CLAY, with trace fine to coarse sub-angular gravel (~ 1-2cm), competent and very firm, high plasticity, moist/wet

High difficulty drilling through this section

Well location: Rail Loop

Depth to water level (TOC): -

Date of water level: -

Borehole diameter: 15.24cm

Well casing diameter: 50.8mm

Well casing material: Schedule 40 PVC

Well screen slot size: 0.25mm

Well screen interval (bgs): 82.5-79.5

Depth of well (TOC): -

Well Elevation (TOC): -

Ground Elevation: -

Log of Monitoring Well: GH_MW-RLP-1D

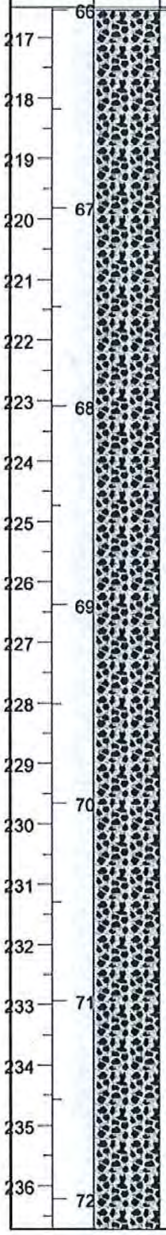
HEMMERA

Project Name/No: 577-016.07
Client: Teck Coal Greenhills Operation
Date Drilled: September 3rd-4th, 2016
Site Location: Elkford, BC

Drilling Company: JR Drilling
Drilling Method: Dual Rotary
Logged by: TK

Sheet: 12 of 14

SUBSURFACE PROFILE			SAMPLE						
Depth	Symbol	Description	Depth/Elev (m)	Sample ID	Analysed Y,N	Sample Type	Vapour ppm 0 250 500	LEL % 0 50 100	Backfill details
217–236 / 66–72		**SAND and GRAVEL (TILL)** SAND and GRAVEL, fine to coarse grained sand, fine to coarse (~1-2cm) sub-angular gravel, saturated							



Well location: Rail Loop
Depth to water level (TOC): -
Date of water level: -
Borehole diameter: 15.24cm

Well casing diameter: 50.8mm
Well casing material: Schedule 40 PVC
Well screen slot size: 0.25mm
Well screen interval (bgs): 82.5-79.5

Depth of well (TOC): -
Well Elevation (TOC): -
Ground Elevation: -

Log of Monitoring Well: GH_MW-RLP-1D

HEMMERA

Project Name/No: 577-016.07

Client: Teck Coal Greenhills Operation

Date Drilled: September 3rd-4th, 2016

Site Location: Elkford, BC

Drilling Company: JR Drilling

Drilling Method: Dual Rotary

Logged by: TK

Sheet: 13 of 14

SUBSURFACE PROFILE			SAMPLE						
Depth	Symbol	Description	Depth/Elev (m)	Sample ID	Analysed Y,N	Sample Type	Vapour ppm 0 250 500	LEL % 0 50 100	Backfill details

Well location: Rail Loop

Depth to water level (TOC): -

Date of water level: -

Borehole diameter: 15.24cm

Well casing diameter: 50.8mm

Well casing material: Schedule 40 PVC

Well screen slot size: 0.25mm

Well screen interval (bgs): 82.5-79.5

Depth of well (TOC): -

Well Elevation (TOC): -

Ground Elevation: -

Log of Monitoring Well: GH_MW-RLP-1D

HEMMERA

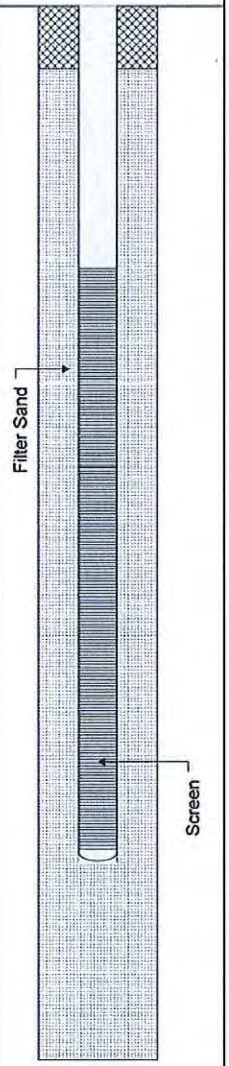
Project Name/No: 577-016.07
Client: Teck Coal Greenhills Operation
Date Drilled: September 3rd-4th, 2016
Site Location: Elkford, BC

Drilling Company: JR Drilling
Drilling Method: Dual Rotary
Logged by: TK

Sheet: 14 of 14

Depth (ft)	Depth (m)	Description	Depth/Elev (m)	Sample ID	Analysed Y,N	Sample Type	Vapour ppm (0 250 500)	LEL % (0 50 100)
257								
258								
259	79	Clayey from 79-81 mbgs						
260								
261								
262	80							
263								
264								
265								
266	81							
267								
268								
269	82	Increased sand content from 82-83.5 mbgs						
270								
271								
272								
273	83							
274		End of Log	-83.50 83.50					
275								
276	84							

Backfill details



Well location: Rail Loop
Depth to water level (TOC): -
Date of water level: -
Borehole diameter: 15.24cm

Well casing diameter: 50.8mm
Well casing material: Schedule 40 PVC
Well screen slot size: 0.25mm
Well screen interval (bgs): 82.5-79.5

Depth of well (TOC): -
Well Elevation (TOC): -
Ground Elevation: -

GH_POTW09

BRITISH COLUMBIA

Greenhills Well 9

Report 1 - Detailed Well Record

Well Tag Number: 85223

Owner: ELK VALLEY COAL - GREENHILLS OPERATION

Address:

Area: GREENHILLS

WELL LOCATION:
Land District
District Lot: 4588 Plan: 11279 Lot: 1
Township: Section: Range:
Indian Reserve: Meridian: Block:
Quarter:
Island:
BCGS Number (NAD 83): Well: 5

Class of Well:
Subclass of Well:
Orientation of Well:
Status of Well:
Well Use:
Observation Well Number:
Observation Well Status:
Construction Method:
Diameter: 10.75 inches
Casing drive shoe:
Well Depth: 117 feet
Elevation: feet (ASL)
Final Casing Stick Up: inches
Well Cap Type:
Bedrock Depth: 117 feet
Lithology Info Flag: Y
File Info Flag: N
Sieve Info Flag: N
Screen Info Flag: Y

Site Info Details:
Other Info Flag:
Other Info Details:

Construction Date: 1992-06-29 00:00:00

Driller:
Well Identification Plate Number: 15802
Plate Attached By: KIMBERLY RASMUSSEN
Where Plate Attached: WELL CASING

PRODUCTION DATA AT TIME OF DRILLING:
Well Yield: (Driller's Estimate)
Development Method:
Pump Test Info Flag: N
Artesian Flow: UNKNOWN YIELD
Artesian Pressure (ft):
Static Level:

WATER QUALITY:
Character:
Colour:
Odour:
Well Disinfected: N
EMS ID:
Water Chemistry Info Flag: N
Field Chemistry Info Flag:
Site Info (SEAM): N

Water Utility: N
Water Supply System Name: GREENHILLS WATER SUPPLY SYSTEM
Water Supply System Well Name: WELL 9

SURFACE SEAL:
Flag: Y
Material:
Method:
Depth (ft): 88 feet
Thickness (in):

WELL CLOSURE INFORMATION:
Reason For Closure:
Method of Closure:
Closure Sealant Material:
Closure Backfill Material:
Details of Closure:

Screen from	to feet	Type	Slot Size
88	119		.25
null	null		.12

Casing from	to feet	Diameter	Material	Drive Shoe
0	88	10.75	Other	null

GENERAL REMARKS:

LITHOLOGY INFORMATION:
From 0 to 19.7 Ft. GRAVELY CLAY 0 nothing entered
From 19.7 to 21.4 Ft. GRAVELY CLAY 0 nothing entered
From 21.4 to 43 Ft. GRAVELY CLAY COLLUVIUM 0 nothing entered
From 43 to 65 Ft. SILTY CLAY - LACUSTRINE 0 nothing entered
From 65 to 70 Ft. GRAVEL- DIRTY - WATER 0 nothing entered
From 70 to 98.43 Ft. CLEANER GRAVEL 0 nothing entered
From 98.43 to 118 Ft. GRAVEL SILTY 0 nothing entered
From 118.4 to 121.4 Ft. SANDSTONE AND SHALE 0 nothing entered

- Return to Main
- Return to Search Options
- Return to Search Criteria

GH_POTW10

BRITISH COLUMBIA

Greenhills Well 10

Report 1 - Detailed Well Record

Well Tag Number: 85218

Owner: ELK VALLEY COAL - GREENHILLS OPERATION

Address:

Area: GREENHILLS

WELL LOCATION:
Land District
District Lot: 4588 Plan: 11279 Lot: 1
Township: Section: Range:
Indian Reserve: Meridian: Block:
Quarter:
Island:
BCGS Number (NAD 83): Well: 5

Class of Well:
Subclass of Well:
Orientation of Well:
Status of Well:
Well Use:
Observation Well Number:
Observation Well Status:
Construction Method:
Diameter: 8" inches
Casing drive shoe:
Well Depth: 176 feet
Elevation: feet (ASL)
Final Casing Stick Up: inches
Well Cap Type:
Bedrock Depth: feet
Lithology Info Flag: Y
File Info Flag: N
Sieve Info Flag: N
Screen Info Flag: N

Site Info Details:
Other Info Flag:
Other Info Details:

Construction Date: 2001-06-22 00:00:00

Driller:
Well Identification Plate Number: 15805
Plate Attached By:
Where Plate Attached:

PRODUCTION DATA AT TIME OF DRILLING:
Well Yield: 50 (Driller's Estimate)
Development Method:
Pump Test Info Flag: N
Artesian Flow:
Artesian Pressure (ft):
Static Level:

WATER QUALITY:
Character:
Colour:
Odour:
Well Disinfected: N
EMS ID:
Water Chemistry Info Flag: N
Field Chemistry Info Flag:
Site Info (SEAM): N

Water Utility: N
Water Supply System Name: GREENHILLS WATER SUPPLY SYSTEM
Water Supply System Well Name: WELL 10

SURFACE SEAL:
Flag: N
Material:
Method:
Depth (ft):
Thickness (in):

WELL CLOSURE INFORMATION:
Reason For Closure:
Method of Closure:
Closure Sealant Material:
Closure Backfill Material:
Details of Closure:

Screen from	to feet	Type	Slot Size

Casing from	to feet	Diameter	Material	Drive Shoe
0	176	null	Other	null

GENERAL REMARKS:
WATER QUALITY GUARANTEED BY CONTRACTOR

LITHOLOGY INFORMATION:

From	0	to	58 Ft.	CLAY	0	nothing entered
From	58	to	78 Ft.	GRAVEL AND BOULDERS	0	nothing entered
From	78	to	110 Ft.	CLAY AND GRAVEL	0	nothing entered
From	110	to	176 Ft.	COURSE GRAVEL	0	nothing entered

- Return to Main
- Return to Search Options
- Return to Search Criteria

Province of British Columbia **Environment** Water Management Division

WATER WELL RECORD

Date 011009
YR MO DY

T S MAP ____ WELL No ____ ELEV ____ Location Accuracy
U T M 2 ____ E ____ N U T M Date 19__ Well Type ____

Owners Name & Address FORDING COAL

Legal Description & Address GREEN HILLS WELL #14

Descriptive Location ____

1 TYPE OF WORK 1 ☑ New Well 2 ☐ Reconditioned 3 ☐ Deepened 4 ☐ Abandoned

2. WORK METHOD 1 ☐ Cable tool 2 ☐ Bored 3 ☐ Jetted 4 ☑ Rotary a ☐ mud b ☑ air c ☐ reverse ☐ Other ____

3. WATER WELL USE 1 ☐ Domestic 2 ☐ Municipal 3 ☐ Irrigation 4 ☑ Comm & Ind ☐ Other ____

4. DRILLING ADDITIVES ____

5. MEASUREMENTS from 1 ☐ ground level 2 ☑ top of casing
casing height above ground level ____ ft

FROM ft	TO ft	6. WELL LOG DESCRIPTION	SWL ft
0	75	SILTY CLAY	
75	88	SILTY WATER	
88	140	SILTY CLAY	
140	155	SILTY WATER	
155	171	COBBLE + GRAVEL	
171	177	BEDROCK	

7 CONSULTANT ____
Address ____

8. WELL LOCATION SKETCH

9 CASING: Materials 1 ☑ Steel 2 ☐ Galvanized 3 ☐ Wood 4 ☐ Plastic 5 ☐ Concrete ☐ Other ____

							units
Hole Diameter							ins
Diameter	8						ins
from	0						ft
to	168						ft
Thickness	.250						ins
Weight	20						lb/ft

Pitless unit ____ ft 1 ☐ above 2 ☐ below ground level
1 ☑ Welded 2 ☐ Cemented 3 ☐ Threaded | 1 ☐ New 2 ☐ Used
Perforations ____
Shoe(s) BARBER
Open hole, from ____ to ____ ft Diameter ____ ins
Grout ____

10. SCREEN: 1 ☐ Nominal (Telescope) 2 ☐ Pipe Size
Type 1 ☐ Continuous Slot 2 ☐ Perforated 3 ☐ Louvre ☐ Other ____
Material 1 ☐ Stainless Steel 2 ☐ Plastic ☐ Other ____
Set from ____ to ____ ft below ground level

RISER, SCREEN & BLANKS							units
Length							ft
Diam I D							ins
Slot Size							ins
from							ft
to							ft

Fittings, top ____ bottom ____
Gravel Pack ____

11. DEVELOPED BY: 1 ☐ Surging 2 ☐ Jetting 3 ☑ Air 4 ☐ Bailing 5 ☐ Pumping ☐ Other ____

12. TEST 1 ☐ Pump 2 ☐ Bail 3 ☑ Air Date 011009 (YR MO DY)
Rate ____ USgpm Temp ____ °C SWL before test ____ ft
Water Level ____ ft after test of ____ hrs

☐ DRAWDOWN in ft				☐ RECOVERY in ft			
mins	WL	mins	WL	mins	WL	mins	WL

13 RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
	ft	USgpm

14. WATER TYPE: 1 ☑ fresh 2 ☐ salty 3 ☑ clear 4 ☐ cloudy
colour ____ smell ____ ; gas 1 ☐ yes 2 ☐ no

15. WATER ANALYSIS: 1 Hardness ____ mg/L 2 Iron ____ mg/L 3 Chloride ____ mg/L 4 pH ____
Field Date ____
Lab Date ____ YR MO DY

SITE I D No ____

16. FINAL WELL COMPLETION DATA

GH_POTW15

BRITISH COLUMBIA

Greenhills Well 15

Report 1 - Detailed Well Record

Well Tag Number: 85221

Owner: ELK VALLEY COAL - GREENHILLS OPERATION

Address:

Area:

WELL LOCATION:
Land District
District Lot: 4588 Plan: 11279 Lot: 1
Township: Section: Range:
Indian Reserve: Meridian: Block:
Quarter:
Island:
BCGS Number (NAD 83): Well: 7

Class of Well:
Subclass of Well:
Orientation of Well:
Status of Well:
Well Use:
Observation Well Number:
Observation Well Status:
Construction Method:
Diameter: inches
Casing drive shoe:
Well Depth: 144 feet
Elevation: feet (ASL)
Final Casing Stick Up: inches
Well Cap Type:
Bedrock Depth: feet
Lithology Info Flag: Y
File Info Flag: N
Sieve Info Flag: N
Screen Info Flag: N

Site Info Details:
Other Info Flag:
Other Info Details:

Construction Date: 2001-11-01 00:00:00

Driller:
Well Identification Plate Number: 15803
Plate Attached By: KIMBERLY RASMUSSEN
Where Plate Attached: WELL CASING

PRODUCTION DATA AT TIME OF DRILLING:
Well Yield: 100 (Driller's Estimate)
Development Method:
Pump Test Info Flag: N
Artesian Flow:
Artesian Pressure (ft):
Static Level: 11 feet

WATER QUALITY:
Character:
Colour:
Odour:
Well Disinfected: N
EMS ID:
Water Chemistry Info Flag: N
Field Chemistry Info Flag:
Site Info (SEAM): N

Water Utility: N
Water Supply System Name: GREENHILLS WATER SUPPLY SYSTEM
Water Supply System Well Name: WELL 15

SURFACE SEAL:
Flag: N
Material:
Method:
Depth (ft):
Thickness (in):

WELL CLOSURE INFORMATION:
Reason For Closure:
Method of Closure:
Closure Sealant Material:
Closure Backfill Material:
Details of Closure:

Screen from	to feet	Type	Slot Size

Casing from	to feet	Diameter	Material	Drive Shoe
0	144	null	Other	null

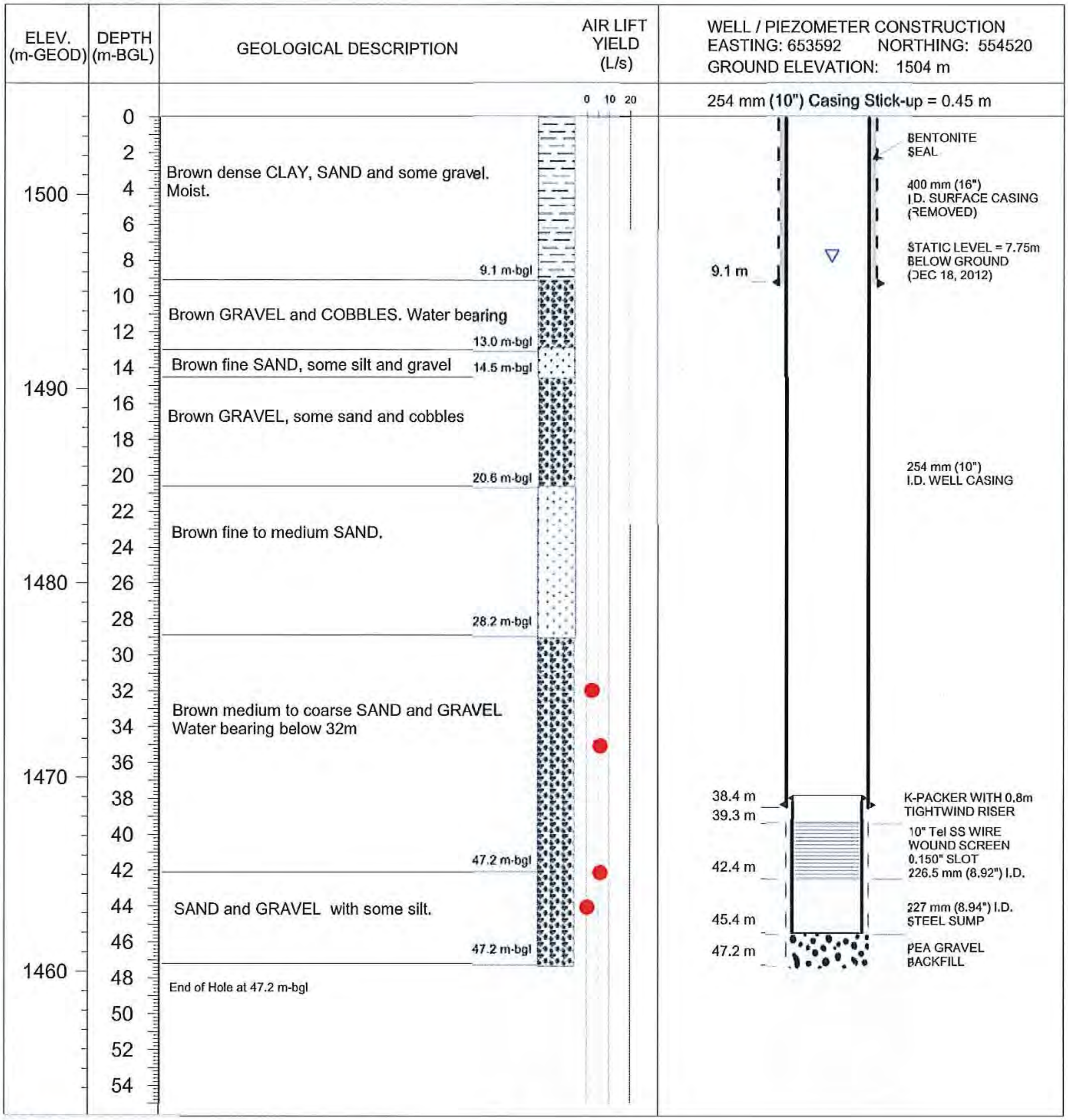
GENERAL REMARKS:
WATER QUALITY GUARANTEED BY CONTRACTOR

LITHOLOGY INFORMATION:
From 0 to 7 Ft. FILL 0 nothing entered
From 7 to 15 Ft. CLAY AND GRAVEL 0 nothing entered
From 15 to 125 Ft. SILTY CLAY 0 nothing entered
From 125 to 144 Ft. COARSE GRAVEL AND COBBLE 0 nothing entered

- Return to Main
- Return to Search Options
- Return to Search Criteria

GH_POTW17

H:\Project\3148\Well_Log\Well17_Greenhill.grf



LEGEND

▤	Clay
▩	Gravel
⁘	Sand

Note:
Coordinates and elevation not surveyed

DRILLING CONTRACTOR:	J.R. Drilling Ltd.
DRILLING METHOD:	DUAL ROTARY
START DATE:	19-Nov-12
END DATE:	21-Nov-12
HYDROGEOLOGY:	Eric Pastora

KERR WOOD LEIDAL ASSOCIATES LTD.
TECK COAL LTD. - GREENHILLS OPERATIONS
GROUNDWATER SUPPLY ASSESSMENT

PITEAU ASSOCIATES
GEOTECHNICAL AND HYDROGEOLOGICAL CONSULTANTS

WELL 17 LOG

BY	DATE
EP	JAN 13
APPROVED	FIG.
ATH	2

SNC · LAVALIN

Client
Teck Coal Limited

Location
Greenhills Operations Mickelson Pond

Borehole No. : GH_BH-MC-1

Drilling Contractor	Owen's Drilling	Date Monitored	2018 12 06	Project Number:	658004
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1313.098	Borehole Logged By:	MCA
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1314.011 1313.988	Date Drilled:	2018 11 15
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5553565.222	Easting: 647979.304	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
Auger Flight

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: GH_MW-MC-1S
Well Name 2: GH_MW-MC-1D

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)

0
SAND, fine grained, silty, trace fine gravel, subrounded, loose, moist, some to trace organics (roots/rootlets).

1
SAND and GRAVEL, fine to medium grained sand, fine to coarse gravel, cobbles present, trace silt, subrounded, well graded, brown, loose to medium dense, damp to dry.

2

3
At 3.1 m - fine to coarse grained sand, no silt

4
From 4.3 m to 4.9 m - wet

5
SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, cobbles present, trace to some silt, subrounded, well graded, medium dense, wet.

6

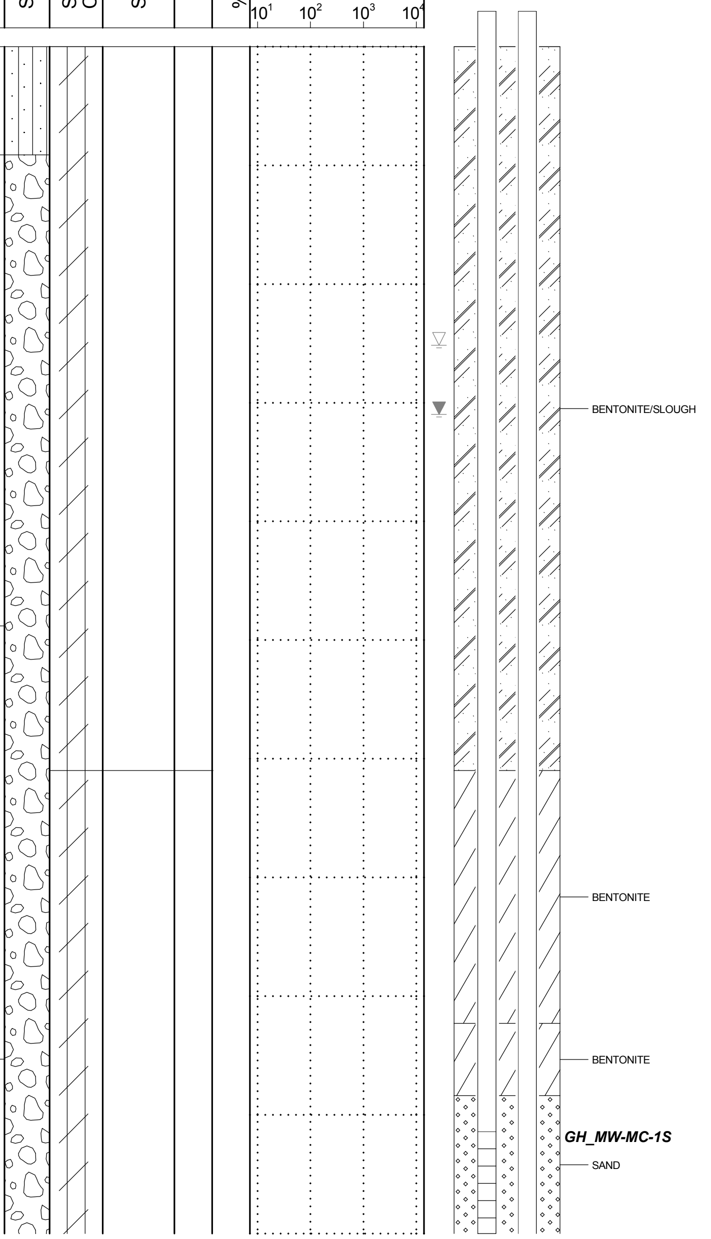
7
At 7.0 m - increase in gravel, dense, wet to moist

8

SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, trace silt, subrounded to rounded, well graded, brown, loose, wet.

9

10



NOTES
Water level 1 and first top of casing elevation is for GH_MW-MC-1S.
Water level 2 and second top of casing elevation is for GH_MW-MC-1D.

QA: MCA 2019 01 14 Print Date:2019-12-04

SNC·LAVALIN

Client
Teck Coal Limited

Location
Greenhills Operations Mickelson Pond

Borehole No. : GH_BH-MC-1

PAGE 2 OF 5

Drilling Contractor	Owen's Drilling	Date Monitored	2018 12 06	Project Number:	658004
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1313.098	Borehole Logged By:	MCA
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1314.011 1313.988	Date Drilled:	2018 11 15
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5553565.222	Easting: 647979.304	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
Auger Flight

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Soil Vapour (ppm)

Solid PVC
Slotted PVC

Well Name 1: GH_MW-MC-1S
Well Name 2: GH_MW-MC-1D

Depth in Metres

Soil Description

SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, trace silt, subrounded to rounded, well graded, brown, loose, wet. *(continued)*

SILT, some fine grained sand, trace fine to coarse gravel, subrounded, brown to dark brown, firm, damp.

At 12.2 m - damp to dry

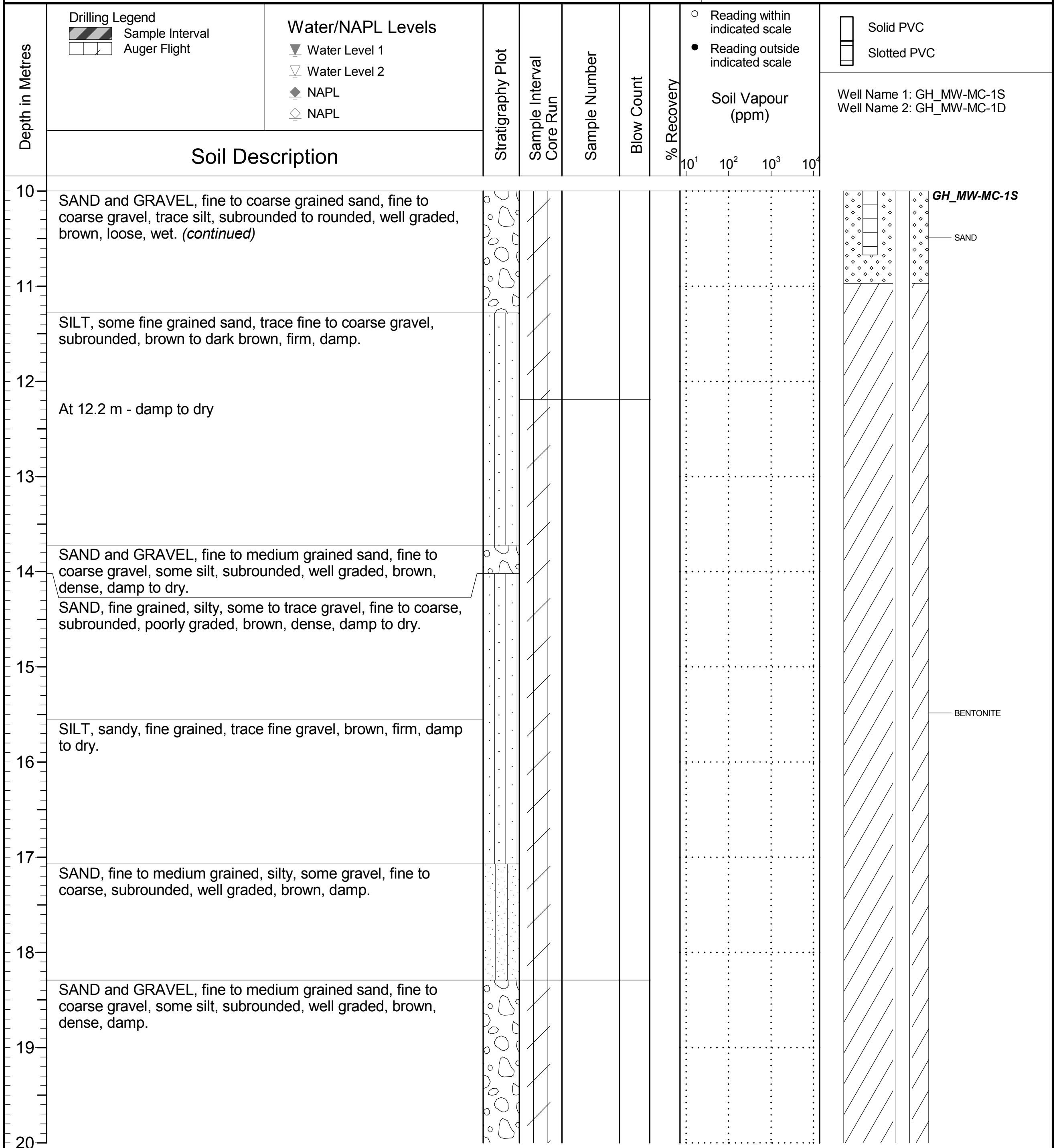
SAND and GRAVEL, fine to medium grained sand, fine to coarse gravel, some silt, subrounded, well graded, brown, dense, damp to dry.

SAND, fine grained, silty, some to trace gravel, fine to coarse, subrounded, poorly graded, brown, dense, damp to dry.

SILT, sandy, fine grained, trace fine gravel, brown, firm, damp to dry.

SAND, fine to medium grained, silty, some gravel, fine to coarse, subrounded, well graded, brown, damp.

SAND and GRAVEL, fine to medium grained sand, fine to coarse gravel, some silt, subrounded, well graded, brown, dense, damp.



NOTES
Water level 1 and first top of casing elevation is for GH_MW-MC-1S.
Water level 2 and second top of casing elevation is for GH_MW-MC-1D.

Drilling Contractor	Owen's Drilling	Date Monitored	2018 12 06	Project Number:	658004
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1313.098	Borehole Logged By:	MCA
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1314.011 1313.988	Date Drilled:	2018 11 15
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5553565.222	Easting: 647979.304	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
☐ Auger Flight

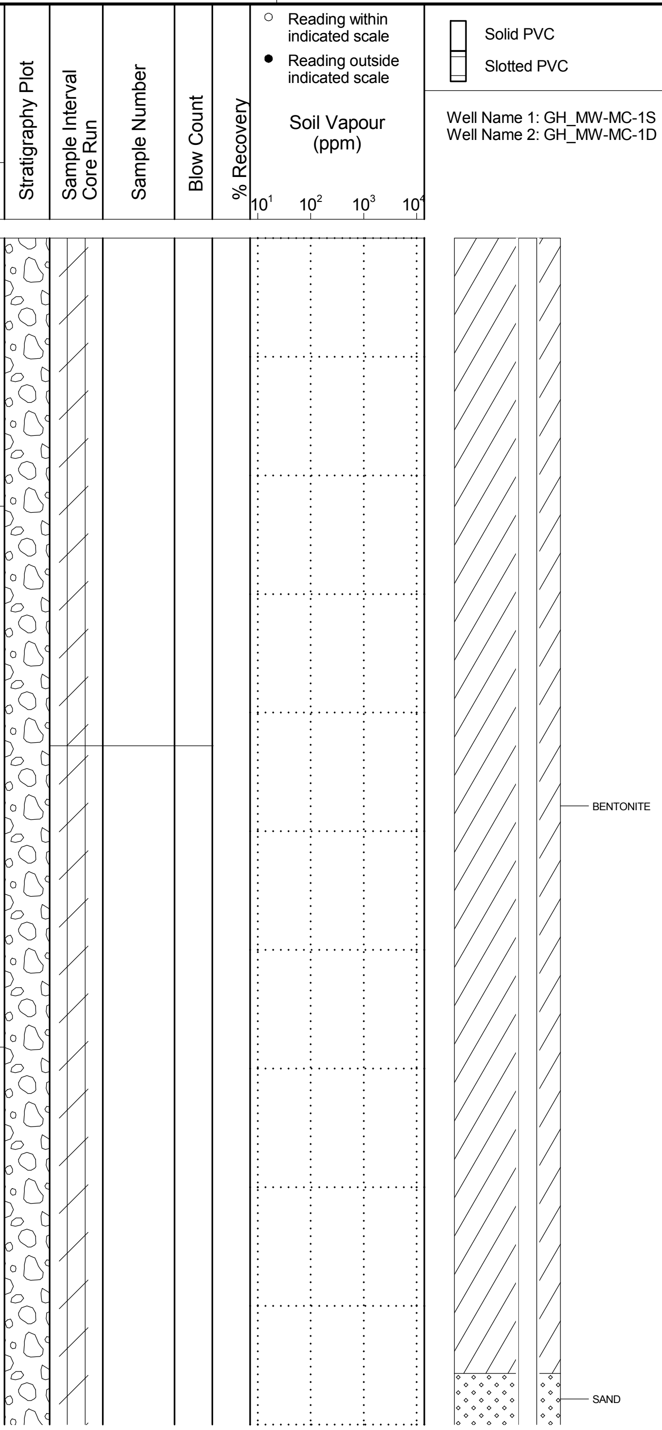
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▯ Slotted PVC

Well Name 1: GH_MW-MC-1S
Well Name 2: GH_MW-MC-1D

Depth in Metres	Soil Description
20	SAND and GRAVEL, fine to medium grained sand, fine to coarse gravel, some silt, subrounded, well graded, brown, dense, damp. *(continued)*
21	
22	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, trace silt, well graded, brown, medium dense, moist.
23	At 22.6 m - some silt to silty, loose, wet
24	
25	
26	
27	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, some to trace silt, subrounded to subangular, well graded, loose, wet.
28	At 27.7 m - some silt
29	At 29.0 m - trace silt
30	



NOTES
Water level 1 and first top of casing elevation is for GH_MW-MC-1S.
Water level 2 and second top of casing elevation is for GH_MW-MC-1D.

SNC·LAVALIN

Client
Teck Coal Limited

Location
Greenhills Operations Mickelson Pond

Borehole No. : GH_BH-MC-1

Drilling Contractor	Owen's Drilling	Date Monitored	2018 12 06	Project Number:	658004
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1313.098	Borehole Logged By:	MCA
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1314.011 1313.988	Date Drilled:	2018 11 15
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5553565.222	Easting: 647979.304	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
☐ Auger Flight

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

☐ Solid PVC
☐ Slotted PVC

Well Name 1: GH_MW-MC-1S
Well Name 2: GH_MW-MC-1D

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm) 10^1 10^2 10^3 10^4

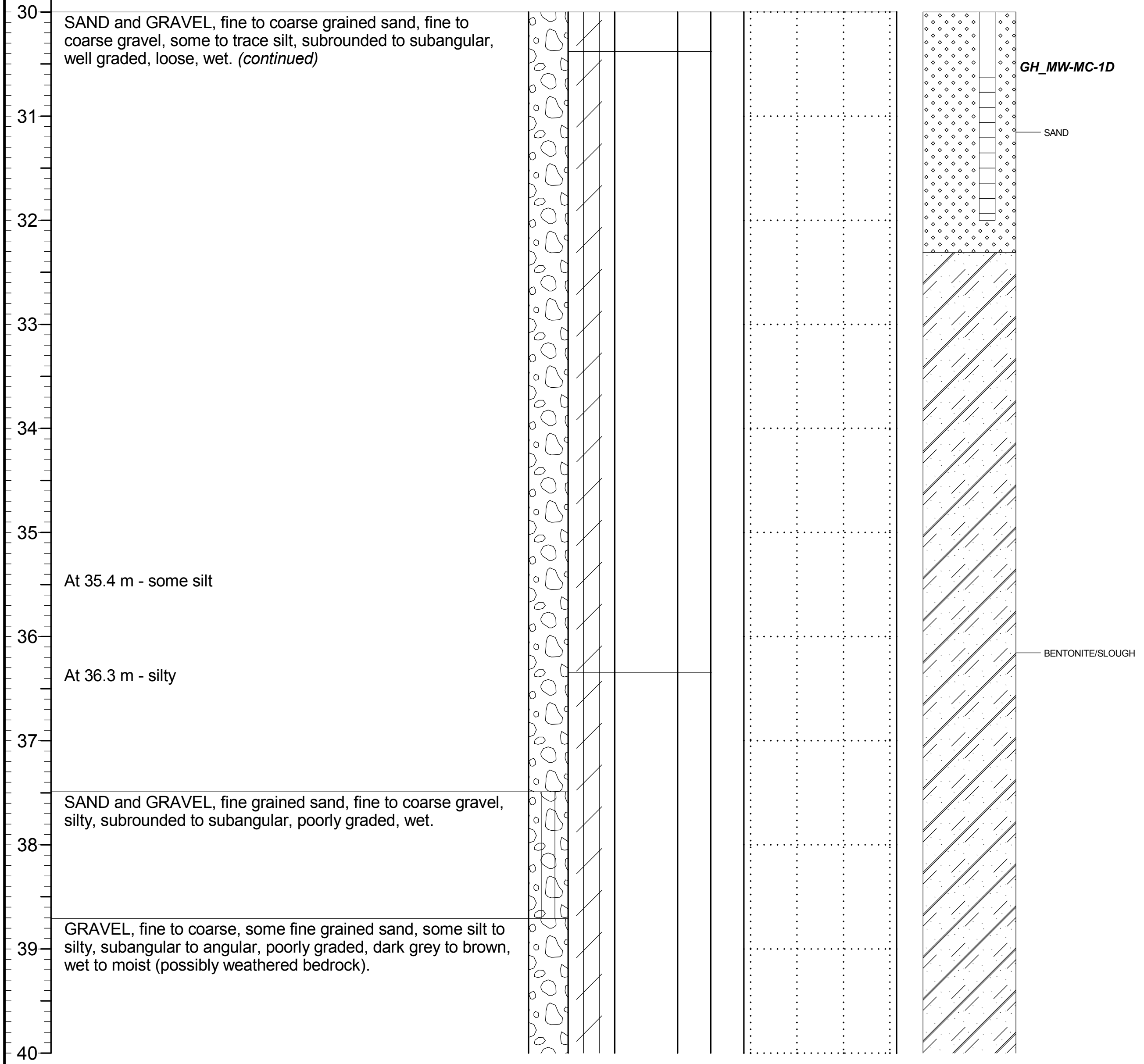
SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, some to trace silt, subrounded to subangular, well graded, loose, wet. *(continued)*

At 35.4 m - some silt

At 36.3 m - silty

SAND and GRAVEL, fine grained sand, fine to coarse gravel, silty, subrounded to subangular, poorly graded, wet.

GRAVEL, fine to coarse, some fine grained sand, some silt to silty, subangular to angular, poorly graded, dark grey to brown, wet to moist (possibly weathered bedrock).



NOTES
Water level 1 and first top of casing elevation is for GH_MW-MC-1S.
Water level 2 and second top of casing elevation is for GH_MW-MC-1D.

SNC·LAVALIN

Client
Teck Coal Limited

Location
Greenhills Operations Mickelson Pond

Borehole No. : GH_BH-MC-1

PAGE 5 OF 5

Drilling Contractor	Owen's Drilling	Date Monitored	2018 12 06	Project Number:	658004
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1313.098	Borehole Logged By:	MCA
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1314.011 1313.988	Date Drilled:	2018 11 15
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5553565.222	Easting: 647979.304	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
Auger Flight

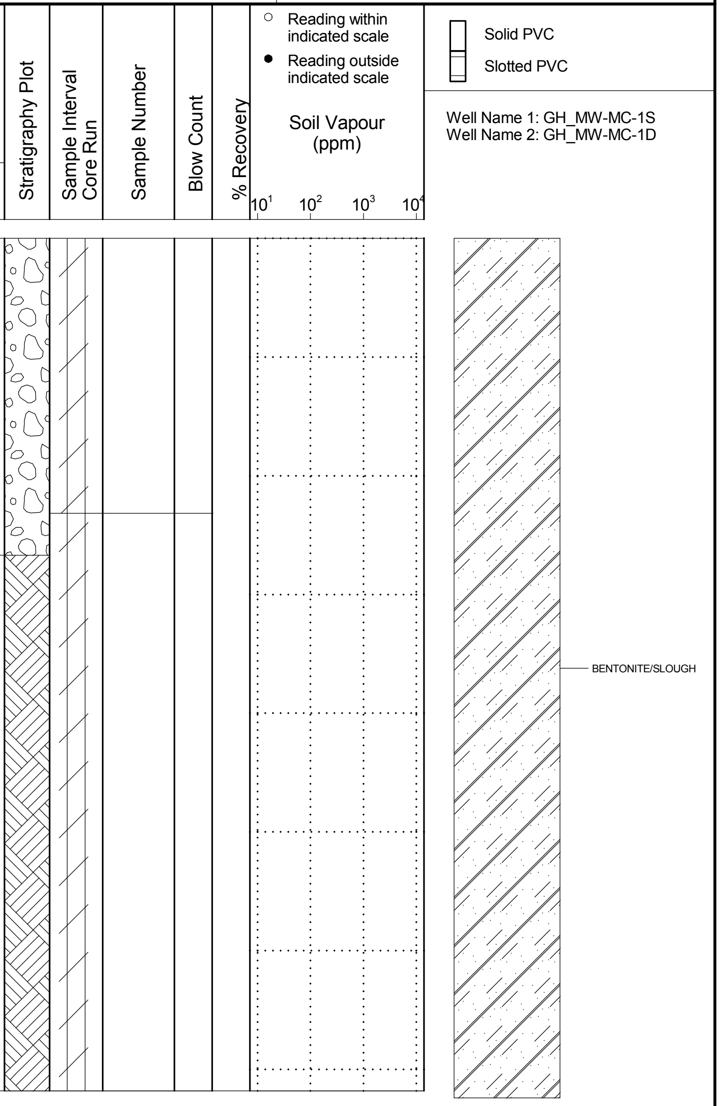
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: GH_MW-MC-1S
Well Name 2: GH_MW-MC-1D

Depth in Metres	Soil Description
40	GRAVEL, fine to coarse, some fine grained sand, some silt to silty, subangular to angular, poorly graded, dark grey to brown, wet to moist (possibly weathered bedrock). *(continued)* At 40.2 m - moist At 40.8 m - wet
42.7	BEDROCK, fine grained, grey to dark grey, moderately weathered.
47.2	Bottom of hole at 47.2 m.



NOTES
Water level 1 and first top of casing elevation is for GH_MW-MC-1S.
Water level 2 and second top of casing elevation is for GH_MW-MC-1D.

SNC • LAVALIN

SNC • LAVALIN	Client **Teck Coal Limited**	**Borehole No. : GH_BH-MC-2**
	Location **Greenhills Operations Mickelson Pond**	PAGE 1 OF 2

Drilling Contractor	Owen's Drilling	Date Monitored	2018 12 06	Project Number:	658004
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1314.150	Borehole Logged By:	MCA
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1315.115 1315.132	Date Drilled:	2018 11 14
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5553498.261	Easting: 648210.667	Log Typed By:	VL

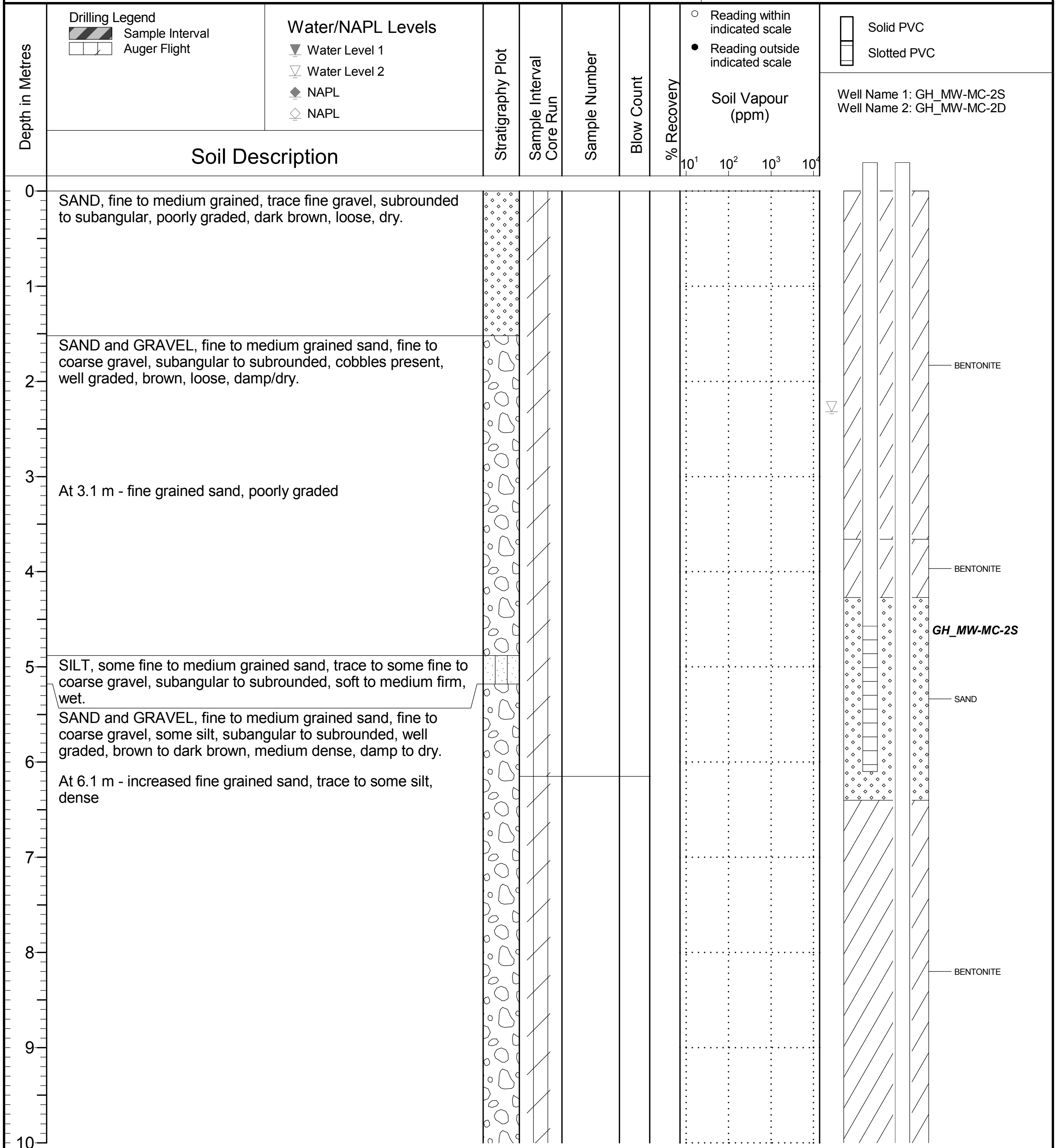
Drilling Legend
- ▨ Sample Interval
- Auger Flight

Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- Solid PVC
- Slotted PVC

Well Name 1: GH_MW-MC-2S
Well Name 2: GH_MW-MC-2D



SAND, fine to medium grained, trace fine gravel, subrounded to subangular, poorly graded, dark brown, loose, dry.

SAND and GRAVEL, fine to medium grained sand, fine to coarse gravel, subangular to subrounded, cobbles present, well graded, brown, loose, damp/dry.

At 3.1 m - fine grained sand, poorly graded

SILT, some fine to medium grained sand, trace to some fine to coarse gravel, subangular to subrounded, soft to medium firm, wet.

SAND and GRAVEL, fine to medium grained sand, fine to coarse gravel, some silt, subangular to subrounded, well graded, brown to dark brown, medium dense, damp to dry.

At 6.1 m - increased fine grained sand, trace to some silt, dense

NOTES
Water level 1 and first top of casing elevation is for GH_MW-MC-2S.
Water level 2 and second top of casing elevation is for GH_MW-MC-2D.
GH_MW-MC-2S monitored 2018 11 18.

SNC·LAVALIN

Client **Teck Coal Limited**	**Borehole No. : GH_BH-MC-2**	
Location **Greenhills Operations Mickelson Pond**	PAGE 2 OF 2	

Drilling Contractor	Owen's Drilling	Date Monitored	2018 12 06	Project Number:	658004
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1314.150	Borehole Logged By:	MCA
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1315.115 1315.132	Date Drilled:	2018 11 14
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5553498.261	Easting: 648210.667	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
Auger Flight

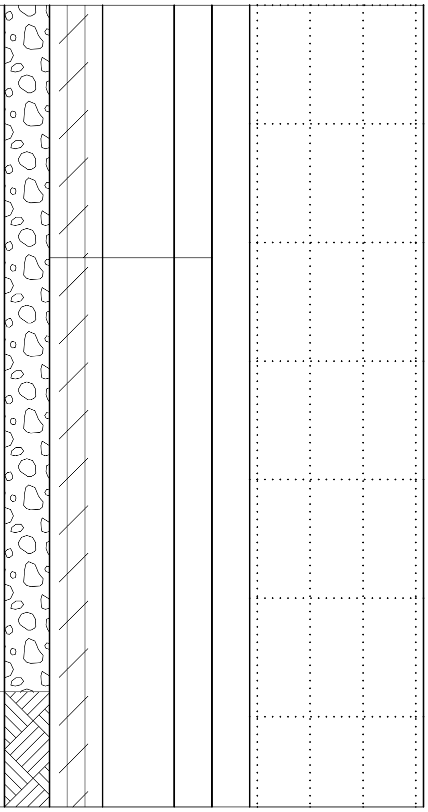
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

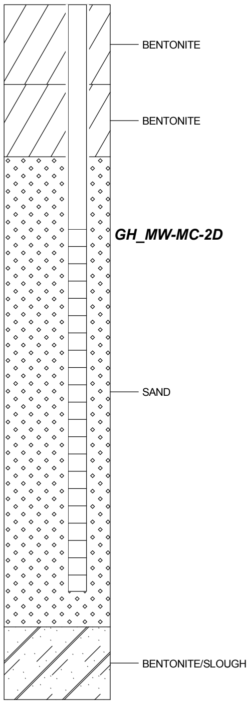
○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: GH_MW-MC-2S
Well Name 2: GH_MW-MC-2D

Depth in Metres	Soil Description
10	SAND and GRAVEL, fine to medium grained sand, fine to coarse gravel, some silt, subangular to subrounded, well graded, brown to dark brown, medium dense, damp to dry. *(continued)*
11.6	At 11.6 m - moist
12.2	At 12.2 m - damp to dry
15.8	BEDROCK, fine grained, grey to dark grey, moderately weathered.
16.8	Bottom of hole at 16.8 m.





NOTES
Water level 1 and first top of casing elevation is for GH_MW-MC-2S.
Water level 2 and second top of casing elevation is for GH_MW-MC-2D.
GH_MW-MC-2S monitored 2018 11 18.

DATA ENTRY: IPG

PROJECT No.: 11.1422.0052

RECORD OF MONITORING WELL: GA-MW-04

SHEET 1 OF 2

LOCATION: See Location Plan
N: 5552963 E: 648217

BORING DATE: September 20, 2012

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80); SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - O (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}); WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
										Stick-up = 0.9 m
0	Barber Rig – Air Rotary Tervita	Ground Surface	1304.00							
		(SP) GRAVELLY SAND, coarse-grained, fine gravel, sub-angular, poorly-graded, dark grey	0.00							
4.5				1	GRAB					
5										Bentonite Pellets
6										24 Sep 2012 ∇
9		(SM) SILTY SAND, medium to fine-grained, sub-rounded, poorly-graded, brown and dark grey	1295.00 9.00							
9.5				2	GRAB					
10			1294.00							

CONTINUED NEXT PAGE

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: TG
CHECKED: JW

BOREHOLE - EXPANDED ADD. LAB TESTING 11.1422.0052_BH LOGS.GPJ CALGARY.GDT 7/30/15

DATA ENTRY: IPG

PROJECT No.: 11.1422.0052

RECORD OF MONITORING WELL: GA-MW-04

SHEET 2 OF 2

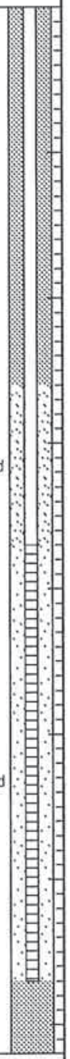
LOCATION: See Location Plan

N: 5552963 E: 648217

BORING DATE: September 20, 2012

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	ELEV. DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80); SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - O (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}); WATER CONTENT PERCENT Wp ⊢ ○W ⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10	Barber Rig – Air Rotary Tervita	(SP) GRAVELLY SAND, coarse-grained, fine gravel, sub-angular, poorly-graded, dark grey	10.00							
11										Bentonite Pellets
12				3	GRAB					
13										10/20 Sand
14		(SM) SILTY SAND, medium to fine-grained, sub-rounded, poorly-graded, brown and dark grey	1290.00 14.00	4	GRAB					
		(GW) GRAVEL, fine with coarse, sub-angular to sub-rounded, well graded, grey	1289.50 14.50							
15										Slotted Section 10/20 Sand
16				5	GRAB					
17		(SP) GRAVELLY SAND, coarse-grained, fine gravel, poorly-graded, sub-angular, dark grey	1287.00 17.00	6	GRAB					Bentonite Pellets
		End of MONITORING WELL.	17.20							
18										
19										
20										



NOTES:
Standpipe installed to 16.7 m.
Groundwater present at 6.0 m on September 24, 2012.

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: TG
CHECKED: JW

BOREHOLE - EXPANDED ADD. LAB TESTING 11.1422.0052_BH LOGS.GPJ CALGARY.GDT 7/30/15

PROJECT No.: 11.1422.0052

RECORD OF MONITORING WELL: GA-MW-02

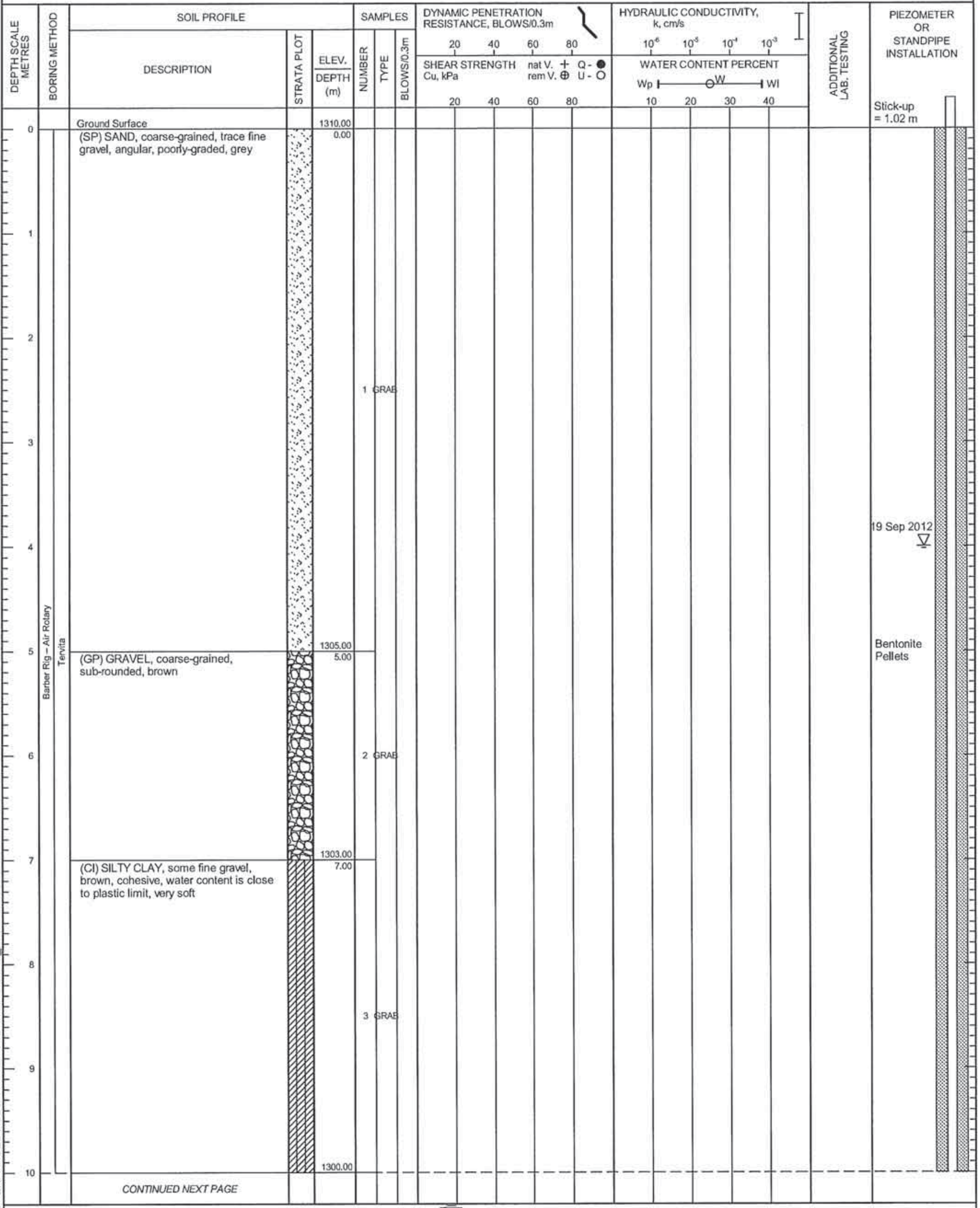
SHEET 1 OF 3

LOCATION: See Location Plan

N: 5552115 E: 648291

BORING DATE: September 19, 2012

DATUM: UTM Zone 11 (Nad 83)



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	ELEV. DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	PIEZOMETER OR STANDPIPE INSTALLATION
							Stick-up = 1.02 m
0	Barber Rig – Air Rotary Tervita	Ground Surface	1310.00				
		(SP) SAND, coarse-grained, trace fine gravel, angular, poorly-graded, grey	0.00				
1							
2				1	GRAB		
3							
4							19 Sep 2012 ∇
5		(GP) GRAVEL, coarse-grained, sub-rounded, brown	1305.00 5.00				Bentonite Pellets
6				2	GRAB		
7		(CI) SILTY CLAY, some fine gravel, brown, cohesive, water content is close to plastic limit, very soft	1303.00 7.00				
8				3	GRAB		
9							
10			1300.00				

CONTINUED NEXT PAGE

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: TG
CHECKED: JW

PROJECT No.: 11.1422.0052

RECORD OF MONITORING WELL: GA-MW-02

SHEET 2 OF 3

LOCATION: See Location Plan
N: 5552115 E: 648291

BORING DATE: September 19, 2012

DATUM: UTM Zone 11 (Nad 83)

DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m: 20 40 60 80
SHEAR STRENGTH Cu, kPa: nat V. + Q - ● rem V. ⊕ U - O; 20 40 60 80
HYDRAULIC CONDUCTIVITY, k, cm/s: 10^{-6} 10^{-5} 10^{-4} 10^{-3}
WATER CONTENT PERCENT: Wp ├──── ⊖W ────┤ Wl; 10 20 30 40

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	ELEV. DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10	Barber Rig – Air Rotary Tervita	(GW) GRAVEL, coarse-grained, sub-angular, well graded, grey	10.00	4	GRAB			
11.5		(CI) SILTY CLAY, with some fine gravel, brown, cohesive, very soft, w~PL	1298.50 11.50	5	GRAB			Bentonite Pellets
17.2		(SP) SAND, coarse-grained, some fine gravel, angular, poorly-graded, dark grey	1292.80 17.20	6	GRAB			
19.5		(GW) GRAVEL, coarse-grained, sub-angular, well graded, grey	1290.50 19.50	7	GRAB			
20								

CONTINUED NEXT PAGE

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: TG
CHECKED: JW

DATA ENTRY: IPG

PROJECT No.: 11.1422.0052

RECORD OF MONITORING WELL: GA-MW-02

SHEET 3 OF 3

LOCATION: See Location Plan

N: 5552115 E: 648291

BORING DATE: September 19, 2012

DATUM: UTM Zone 11 (Nad 83)

DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m: 20 40 60 80

SHEAR STRENGTH Cu, kPa: nat V. + Q - ● rem V. ⊕ U - O; 20 40 60 80

HYDRAULIC CONDUCTIVITY, k, cm/s: 10^{-6} 10^{-5} 10^{-4} 10^{-3}

WATER CONTENT PERCENT: Wp ⊢ —O^W— ⊣ Wl; 10 20 30 40

ADDITIONAL LAB. TESTING

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	ELEV. DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	PIEZOMETER OR STANDPIPE INSTALLATION
20	Barber Rig – Air Rotary Tervita	(GW) GRAVEL, coarse-grained, sub-angular, well graded, grey *(continued)*					Bentonite Pellets
21				7	GRAB		10/20 Sand
22							
23		(ML) SILT, some fine gravel, trace coarse gravel, dark grey, non-cohesive, dry	1287.00 23.00	8	GRAB		
24		(SP) SAND, coarse-grained, some fine gravel, angular, poorly-graded, dark grey	1286.00 24.00				
25							
26				9	GRAB		Slotted Section 10/20 Sand
27							
28		— Bedrock at 28.5 m					
29		NOTES: Encountered BEDROCK at 28.5 m. Standpipe installed to 29.0 m. Groundwater level measured at 11.0 mGL on September 19, 2012.					Bentonite Pellets
		(SP) SAND, coarse-grained, coarse gravel, bits of bedrock, sub-angular, poorly-graded, light grey	1280.50 29.60	10	GRAB		
30		End of MONITORING WELL.					

BOREHOLE - EXPANDED ADD. LAB TESTING 11.1422.0052_BH LOGS.GPJ CALGARY.GDT 7/30/15

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: TG

CHECKED: JW

PROJECT No.: 11.1422.0052

RECORD OF MONITORING WELL: GA-MW-3S

SHEET 1 OF 2

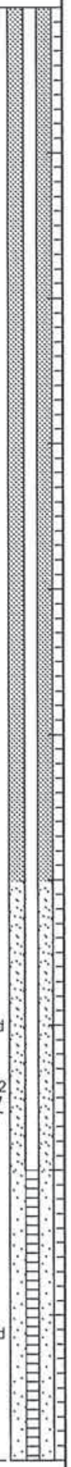
LOCATION: See Location Plan

N: 5550296 E: 648578

BORING DATE: September 23, 2012

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80); SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - O (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}); WATER CONTENT PERCENT Wp ⊢ ○W ⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		Ground Surface		1294.00							
0	Barber Rig – Air Rotary Tervita	(SP) SAND, coarse-grained, sub-angular, poorly-graded, dark grey, homogenous, moist		0.00							
2					1	GRAB					
3											Bentonite Pellets
4.5		(SP) GRAVELY SAND, coarse-grained, fine gravel, poorly-graded, sub-angular, grey		1289.50 4.50							
7					2	GRAB					10/20 Sand
7.5											23 Sep 2012 ∇
9											Slotted Section 10/20 Sand
10											



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DEPTH SCALE
1 : 50

Golder Associates

LOGGED: TG
CHECKED: JW

DATA ENTRY: IPG

PROJECT No.: 11.1422.0052

RECORD OF MONITORING WELL: GA-MW-3S

SHEET 2 OF 2

LOCATION: See Location Plan

N: 5550296 E: 648578

BORING DATE: September 23, 2012

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	SOIL PROFILE: STRATA PLOT	SOIL PROFILE: ELEV. DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) WATER CONTENT PERCENT Wp ⊢ ⊖W ⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10	Barber Rig – Air Rotary Tervita	(SP) GRAVELLY SAND, coarse-grained, fine gravel, poorly-graded, sub-angular, grey *(continued)*									
11											
					3	GRAB					
12											Slotted Section 10/20 Sand
13											
					4	GRAB					
14											Bentonite Pellets
		End of MONITORING WELL. NOTES: Encountered BEDROCK at 14.4 m		1279.60 14.40							
15											
16											
17											
18											
19											
20											

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: TG
CHECKED: JW

BOREHOLE - EXPANDED ADD. LAB TESTING 11.1422.0052_BH LOGS.GPJ CALGARY.GDT 7/30/15

Log of Monitoring Well: GH_MW-UTC-1D

HEMMERA

Project Name/No: 577-016.07

Client: Teck Coal Greenhills Operation

Date Drilled: August 29th-September 1st 2016

Site Location: Elkford, BC

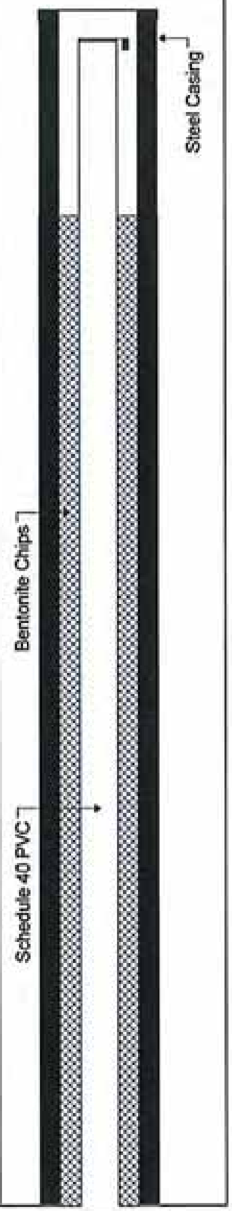
Drilling Company: JR Drilling

Drilling Method: Dual Rotary

Logged by: TK

Sheet: 1 of 9

SUBSURFACE PROFILE		SAMPLE					
Description	**Depth/Elev (m)**	**Sample ID**	**Analysed Y,N**	**Sample Type**	**Vapour ppm** (0 250 500)	**LEL %** (0 50 100)	**Backfill details**
Ground Surface	0.00 0.00						
TOPSOIL Silt and Clay TOPSOIL, dark brown, loose, dry, well sorted							
SILT and SAND SILT and SAND, fine grained, some small blocky clay, dry, poorly sorted	-1.00 1.00						
CLAY CLAY, with silt and sand, some medium sub-rounded/sub-angular gravel, moderate plasticity, dry	-2.00 2.00						
SILTY SAND SILTY SAND, fine grained, with some small blocky clay and fine to medium sub-rounded/sub-angular gravel, dry, poorly sorted	-3.00 3.00						
CLAY CLAY with some silty sand, some fine to medium sub-rounded/sub-angular gravel, high plasticity, moist to wet Groundwater encountered at approximately 4.5m	-4.00 4.00						



Well location: Thompson Creek

Depth to water level (TOC): 32.422m

Date of water level: September 6th, 2016

Borehole diameter: 15.24cm

Well casing diameter: 50.8mm

Well casing material: Schedule 40 PVC

Well screen slot size: 0.25mm

Well screen interval (bgs): 40-43 mbgs

Depth of well (TOC): 44.846m

Well Elevation (TOC): -

Ground Elevation: -

GH_MW_UTC-A

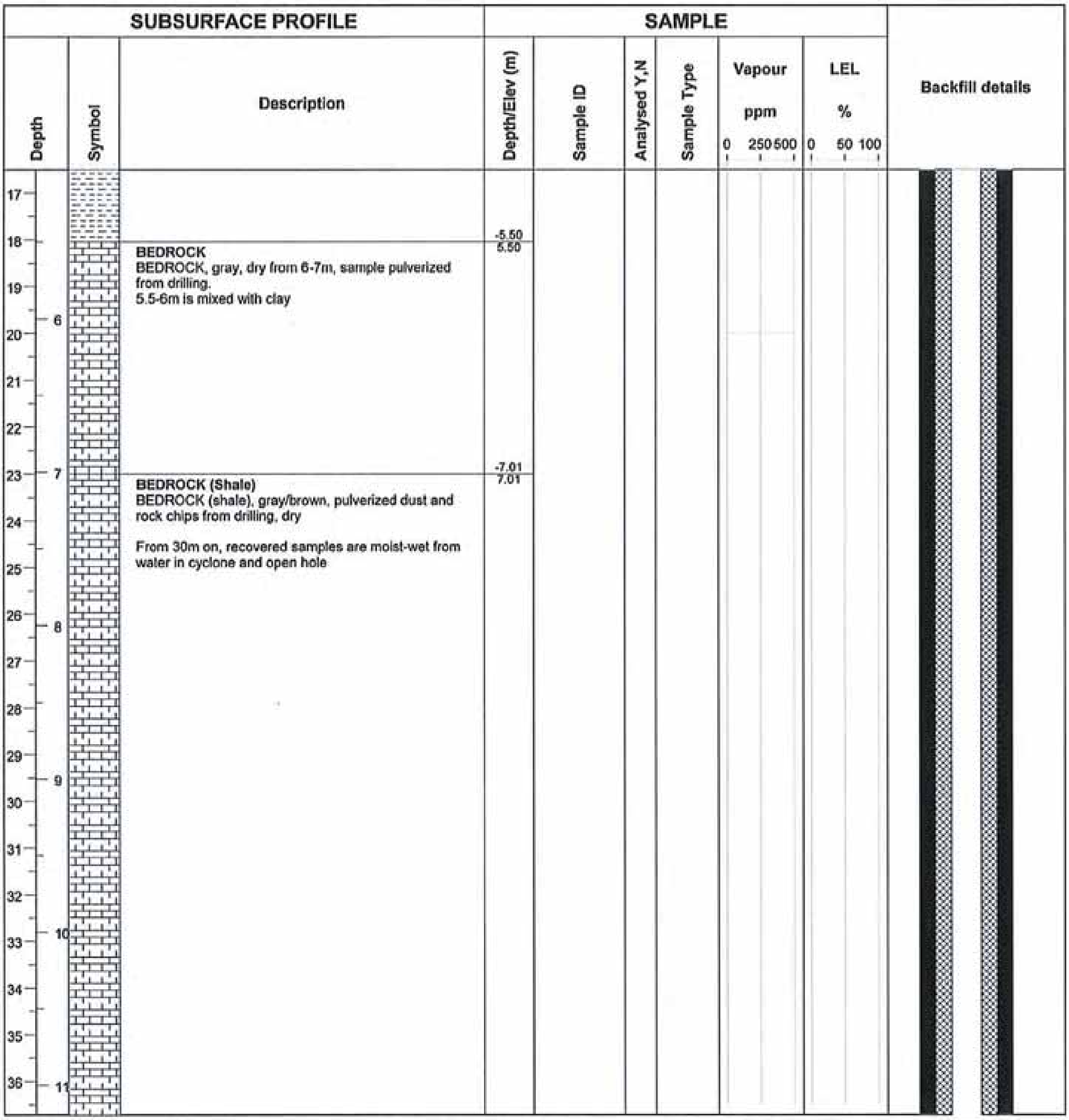
Log of Monitoring Well: GH_MW-UTC-1D

HEMMERA

Project Name/No: 577-016.07
Client: Teck Coal Greenhills Operation
Date Drilled: August 29th-September 1st 2016
Site Location: Elkford, BC

Drilling Company: JR Drilling
Drilling Method: Dual Rotary
Logged by: TK

Sheet: 2 of 9



SUBSURFACE PROFILE			SAMPLE						
Depth	Symbol	Description	Depth/Elev (m)	Sample ID	Analysed Y,N	Sample Type	Vapour ppm	LEL %	Backfill details
		BEDROCK BEDROCK, gray, dry from 6-7m, sample pulverized from drilling. 5.5-6m is mixed with clay	-5.50 5.50						
		BEDROCK (Shale) BEDROCK (shale), gray/brown, pulverized dust and rock chips from drilling, dry From 30m on, recovered samples are moist-wet from water in cyclone and open hole	-7.01 7.01						

Well location: Thompson Creek
Depth to water level (TOC): 32.422m
Date of water level: September 6th, 2016
Borehole diameter: 15.24cm

Well casing diameter: 50.8mm
Well casing material: Schedule 40 PVC
Well screen slot size: 0.25mm
Well screen interval (bgs): 40-43 mbgs

Depth of well (TOC): 44.846m
Well Elevation (TOC): -
Ground Elevation: -

Log of Monitoring Well: GH_MW-UTC-1D

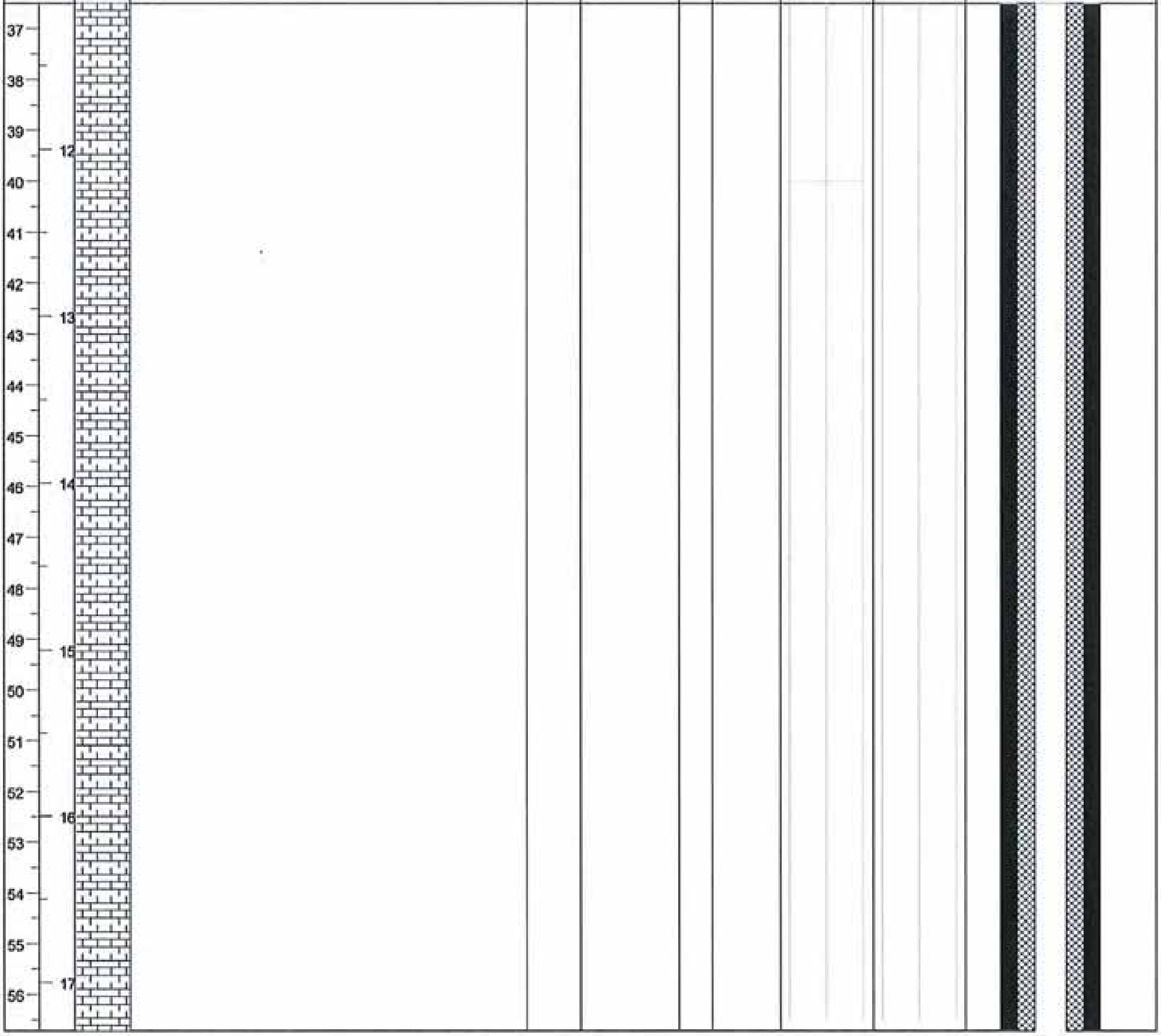
HEMMERA

Project Name/No: 577-016.07
Client: Teck Coal Greenhills Operation
Date Drilled: August 29th-September 1st 2016
Site Location: Elkford, BC

Drilling Company: JR Drilling
Drilling Method: Dual Rotary
Logged by: TK

Sheet: 3 of 9

SUBSURFACE PROFILE			SAMPLE						
Depth	Symbol	Description	Depth/Elev (m)	Sample ID	Analysed Y,N	Sample Type	Vapour ppm 0 250 500	LEL % 0 50 100	Backfill details



Well location: Thompson Creek
Depth to water level (TOC): 32.422m
Date of water level: September 6th, 2016
Borehole diameter: 15.24cm

Well casing diameter: 50.8mm
Well casing material: Schedule 40 PVC
Well screen slot size: 0.25mm
Well screen interval (bgs): 40-43 mbgs

Depth of well (TOC): 44.846m
Well Elevation (TOC): -
Ground Elevation: -

Log of Monitoring Well: GH_MW-UTC-1D

HEMMERA

Project Name/No: 577-016.07

Client: Teck Coal Greenhills Operation

Date Drilled: August 29th-September 1st 2016

Site Location: Elkford, BC

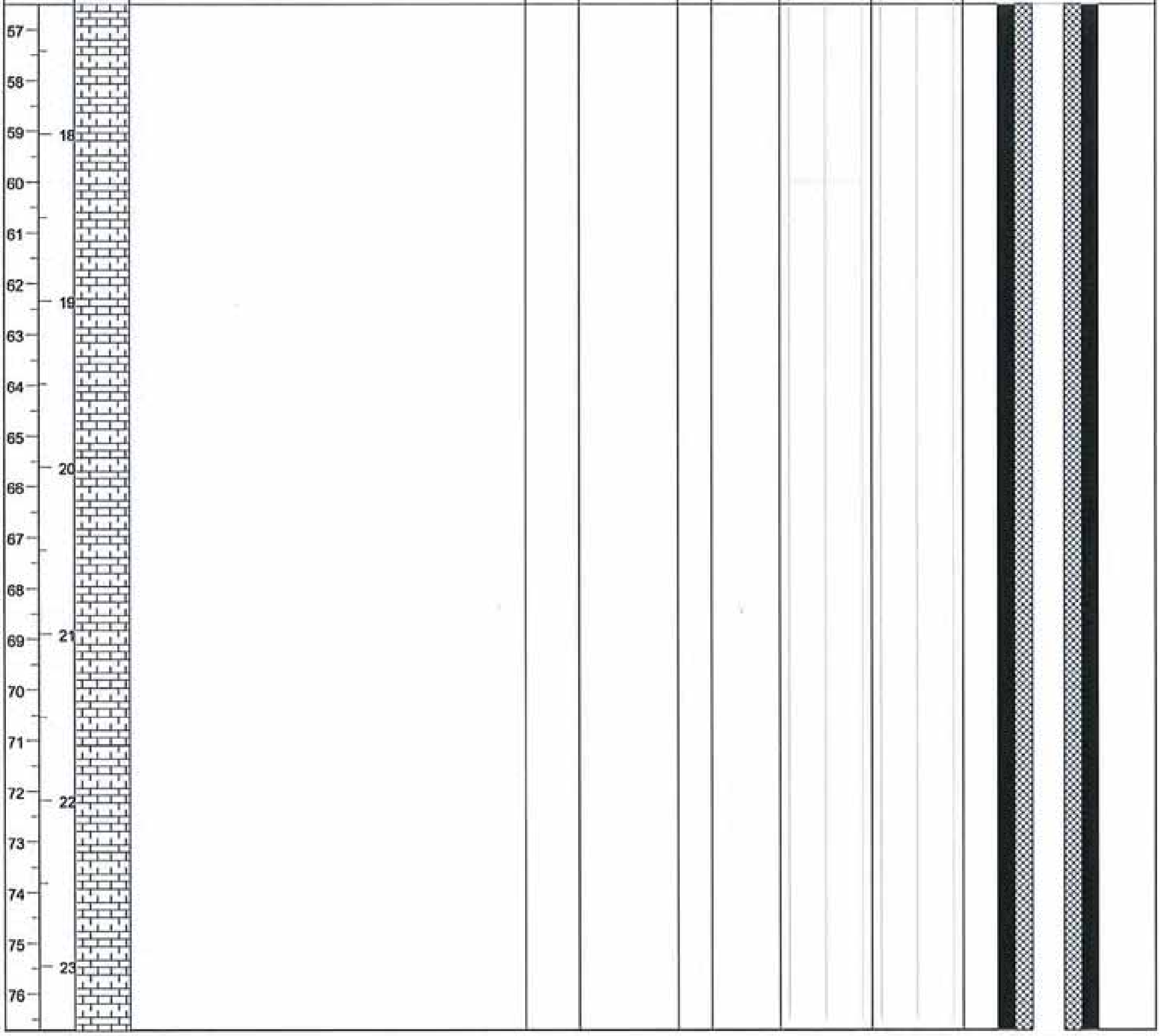
Drilling Company: JR Drilling

Drilling Method: Dual Rotary

Logged by: TK

Sheet: 4 of 9

SUBSURFACE PROFILE			SAMPLE						
Depth	Symbol	Description	Depth/Elev (m)	Sample ID	Analysed Y,N	Sample Type	Vapour ppm 0 250 500	LEL % 0 50 100	Backfill details



Well location: Thompson Creek

Depth to water level (TOC): 32.422m

Date of water level: September 6th, 2016

Borehole diameter: 15.24cm

Well casing diameter: 50.8mm

Well casing material: Schedule 40 PVC

Well screen slot size: 0.25mm

Well screen interval (bgs): 40-43 mbgs

Depth of well (TOC): 44.846m

Well Elevation (TOC): -

Ground Elevation: -

Log of Monitoring Well: GH_MW-UTC-1D

HEMMERA

Project Name/No: 577-016.07

Drilling Company: JR Drilling

Client: Teck Coal Greenhills Operation

Drilling Method: Dual Rotary

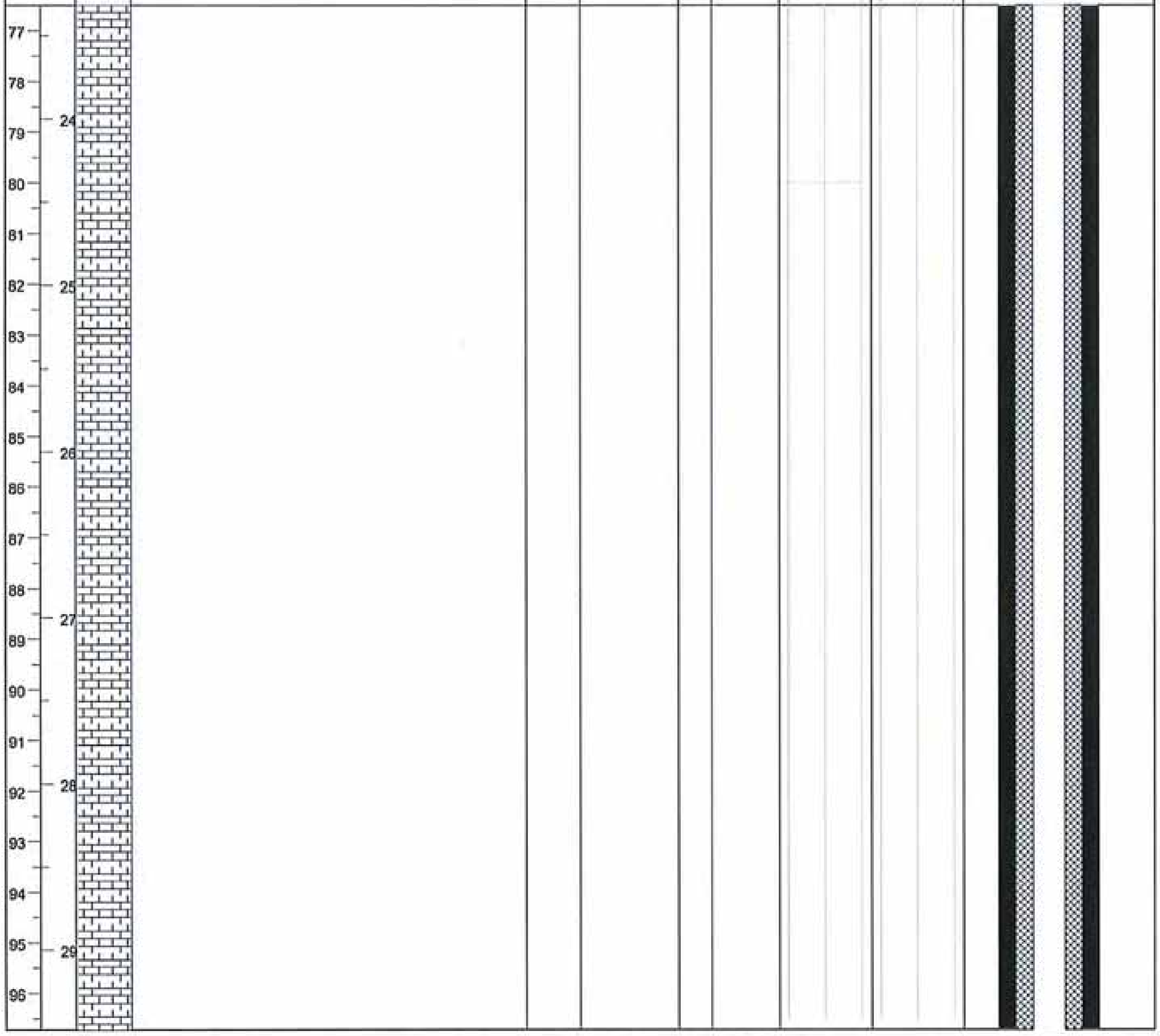
Date Drilled: August 29th-September 1st 2016

Logged by: TK

Site Location: Elkford, BC

Sheet: 5 of 9

SUBSURFACE PROFILE			SAMPLE						
Depth	Symbol	Description	Depth/Elev (m)	Sample ID	Analysed Y,N	Sample Type	Vapour ppm 0 250 500	LEL % 0 50 100	Backfill details



Well location: Thompson Creek

Well casing diameter: 50.8mm

Depth of well (TOC): 44.846m

Depth to water level (TOC): 32.422m

Well casing material: Schedule 40 PVC

Well Elevation (TOC): -

Date of water level: September 6th, 2016

Well screen slot size: 0.25mm

Ground Elevation: -

Borehole diameter: 15.24cm

Well screen interval (bgs): 40-43 mbgs

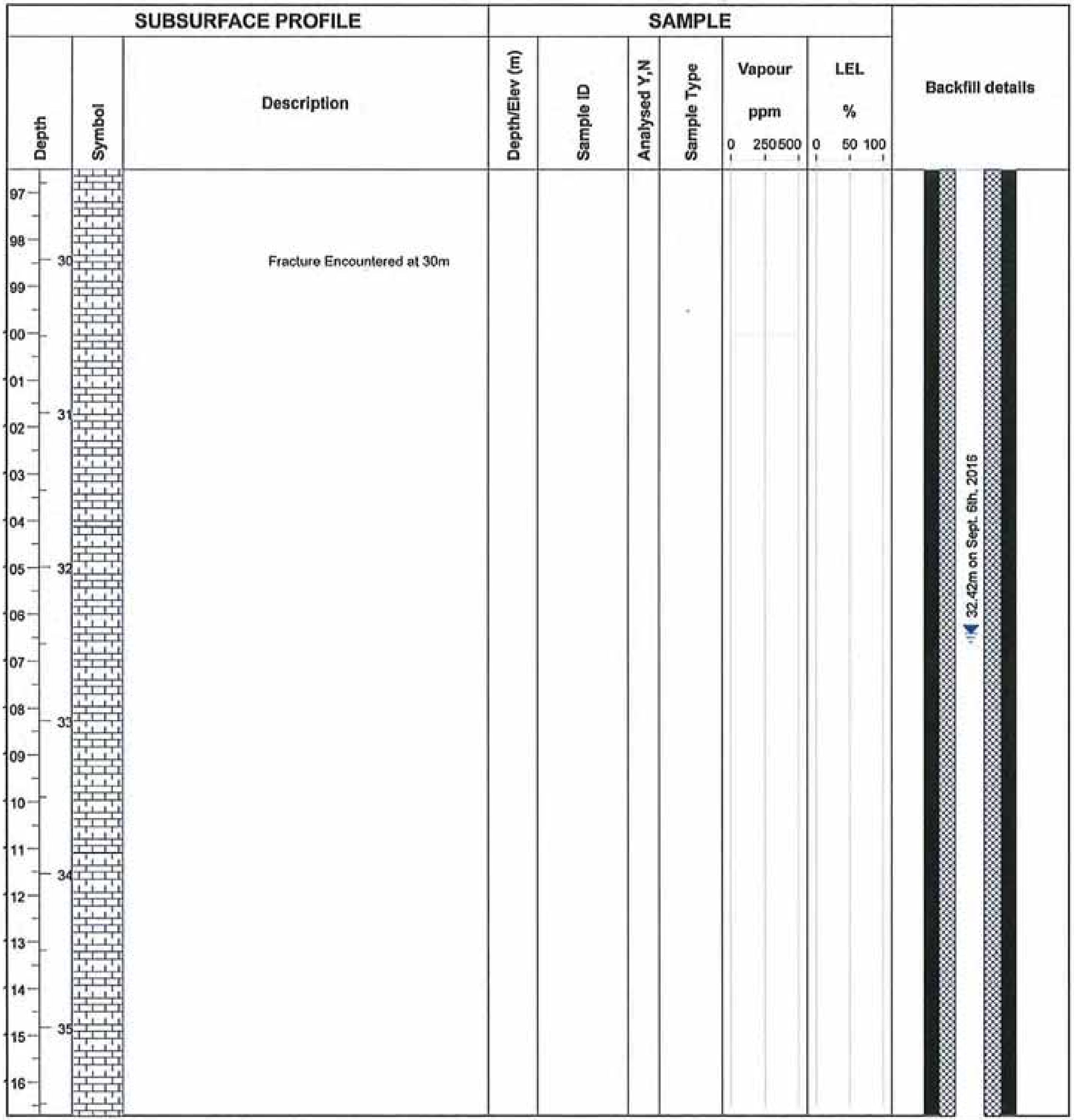
Log of Monitoring Well: GH_MW-UTC-1D

HEMMERA

Project Name/No: 577-016.07
Client: Teck Coal Greenhills Operation
Date Drilled: August 29th-September 1st 2016
Site Location: Elkford, BC

Drilling Company: JR Drilling
Drilling Method: Dual Rotary
Logged by: TK

Sheet: 6 of 9



Fracture Encountered at 30m

Well location: Thompson Creek
Depth to water level (TOC): 32.422m
Date of water level: September 6th, 2016
Borehole diameter: 15.24cm

Well casing diameter: 50.8mm
Well casing material: Schedule 40 PVC
Well screen slot size: 0.25mm
Well screen interval (bgs): 40-43 mbgs

Depth of well (TOC): 44.846m
Well Elevation (TOC): -
Ground Elevation: -

Log of Monitoring Well: GH_MW-UTC-1D

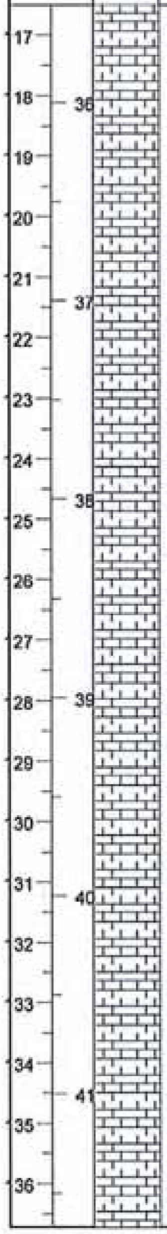
HEMMERA

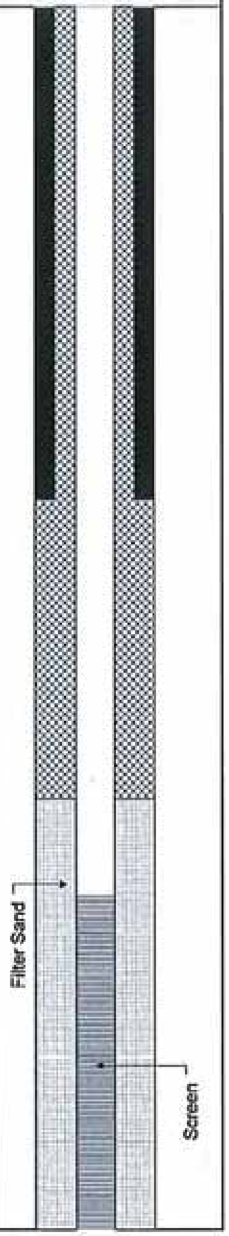
Project Name/No: 577-016.07
Client: Teck Coal Greenhills Operation
Date Drilled: August 29th-September 1st 2016
Site Location: Elkford, BC

Drilling Company: JR Drilling
Drilling Method: Dual Rotary
Logged by: TK

Sheet: 7 of 9

SUBSURFACE PROFILE			SAMPLE						Backfill details
Depth	Symbol	Description	Depth/Elev (m)	Sample ID	Analysed Y,N	Sample Type	Vapour ppm 0 250 500	LEL % 0 50 100	
		Fracture Encountered at 41m							





Well location: Thompson Creek
Depth to water level (TOC): 32.422m
Date of water level: September 6th, 2016
Borehole diameter: 15.24cm

Well casing diameter: 50.8mm
Well casing material: Schedule 40 PVC
Well screen slot size: 0.25mm
Well screen interval (bgs): 40-43 mbgs

Depth of well (TOC): 44.846m
Well Elevation (TOC): -
Ground Elevation: -

GH_MW_UTC-A

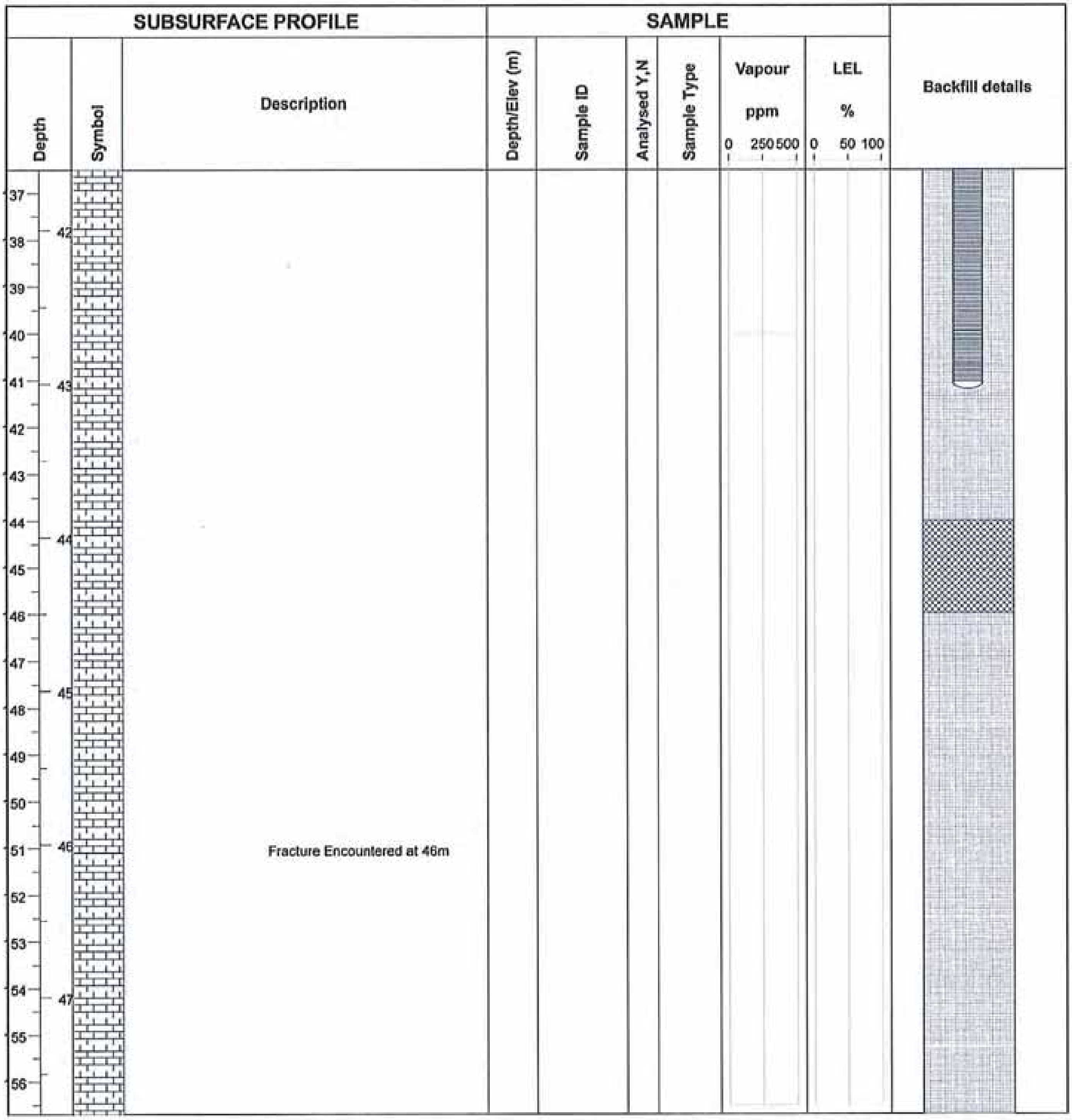
Log of Monitoring Well: GH_MW-UTC-1D

HEMMERA

Project Name/No: 577-016.07
Client: Teck Coal Greenhills Operation
Date Drilled: August 29th-September 1st 2016
Site Location: Elkford, BC

Drilling Company: JR Drilling
Drilling Method: Dual Rotary
Logged by: TK

Sheet: 8 of 9



Well location: Thompson Creek
Depth to water level (TOC): 32.422m
Date of water level: September 6th, 2016
Borehole diameter: 15.24cm

Well casing diameter: 50.8mm
Well casing material: Schedule 40 PVC
Well screen slot size: 0.25mm
Well screen interval (bgs): 40-43 mbgs

Depth of well (TOC): 44.846m
Well Elevation (TOC): -
Ground Elevation: -

Log of Monitoring Well: GH_MW-UTC-1D

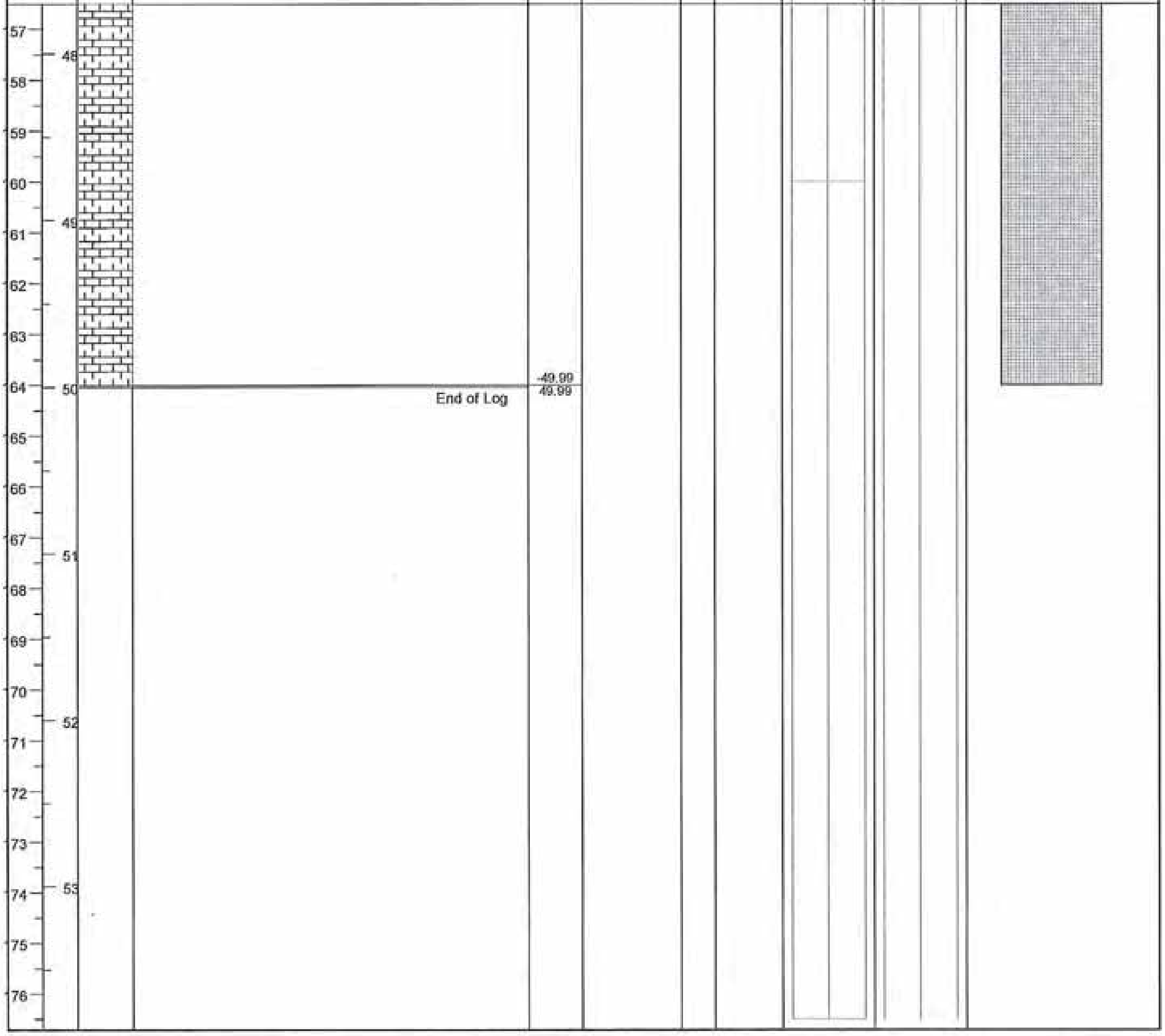
HEMMERA

Project Name/No: 577-016.07
Client: Teck Coal Greenhills Operation
Date Drilled: August 29th-September 1st 2016
Site Location: Elkford, BC

Drilling Company: JR Drilling
Drilling Method: Dual Rotary
Logged by: TK

Sheet: 9 of 9

SUBSURFACE PROFILE			SAMPLE						
Depth	Symbol	Description	Depth/Elev (m)	Sample ID	Analysed Y,N	Sample Type	Vapour ppm 0 250 500	LEL % 0 50 100	Backfill details
		End of Log	-49.99 49.99						



Well location: Thompson Creek
Depth to water level (TOC): 32.422m
Date of water level: September 6th, 2016
Borehole diameter: 15.24cm

Well casing diameter: 50.8mm
Well casing material: Schedule 40 PVC
Well screen slot size: 0.25mm
Well screen interval (bgs): 40-43 mbgs

Depth of well (TOC): 44.846m
Well Elevation (TOC): -
Ground Elevation: -

Log of Monitoring Well: GH_MW-UTC-1S

HEMMERA

Project Name/No: 577-016.07
Client: Teck Coal Greenhills Operation
Date Drilled: September 1st 2016
Site Location: Elkford, BC

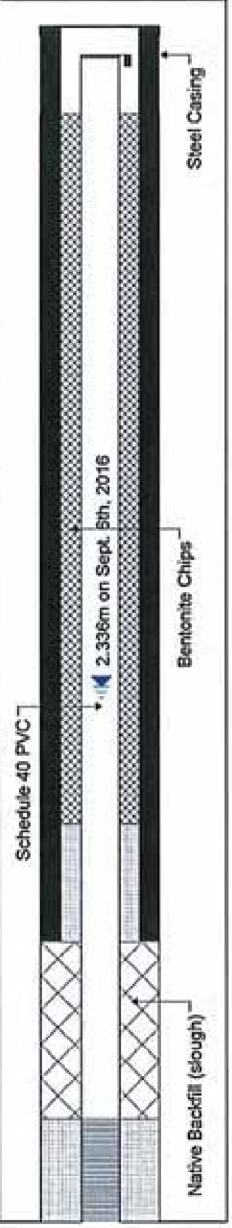
Drilling Company: JR Drilling
Drilling Method: Dual Rotary
Logged by: TK

Sheet: 1 of 2

SUBSURFACE PROFILE / SAMPLE

Depth (m)	Description	Depth/Elev (m)	Sample ID	Analysed Y,N	Sample Type	Vapour ppm (0 250 500)	LEL % (0 50 100)
0	Ground Surface **TOPSOIL** Silt and Clay TOPSOIL, dark brown, loose, dry, well sorted	0.00 0.00					
1	**SILT and SAND** SILT and SAND, fine grained, some small blocky clay, dry, poorly sorted	-1.00 1.00					
2	**CLAY** CLAY, with silt and sand, some medium sub-rounded/sub-angular gravel, moderate plasticity, dry	-2.00 2.00					
3	**SILTY SAND** SILTY SAND, fine grained, with some small blocky clay and fine to medium sub-rounded/sub-angular gravel, dry, poorly sorted	-3.00 3.00					
4	**CLAY** CLAY with some silty sand, some fine to medium sub-rounded/sub-angular gravel, high plasticity, moist to wet Groundwater encountered at approximately 4.5m	-4.00 4.00					

Backfill details



Well location: Thompson Creek
Depth to water level (TOC): 2.336 m
Date of water level: September 6th, 2016
Borehole diameter: 15.24cm

Well casing diameter: 50.8mm
Well casing material: Schedule 40 PVC
Well screen slot size: 0.25mm
Well screen interval (bgs): 4.5-7.5 m

Depth of well (TOC): 8.690 m
Well Elevation (TOC): -
Ground Elevation: -

Log of Monitoring Well: GH_MW-UTC-1S

HEMMERA

Project Name/No: 577-016.07

Client: Teck Coal Greenhills Operation

Date Drilled: September 1st 2016

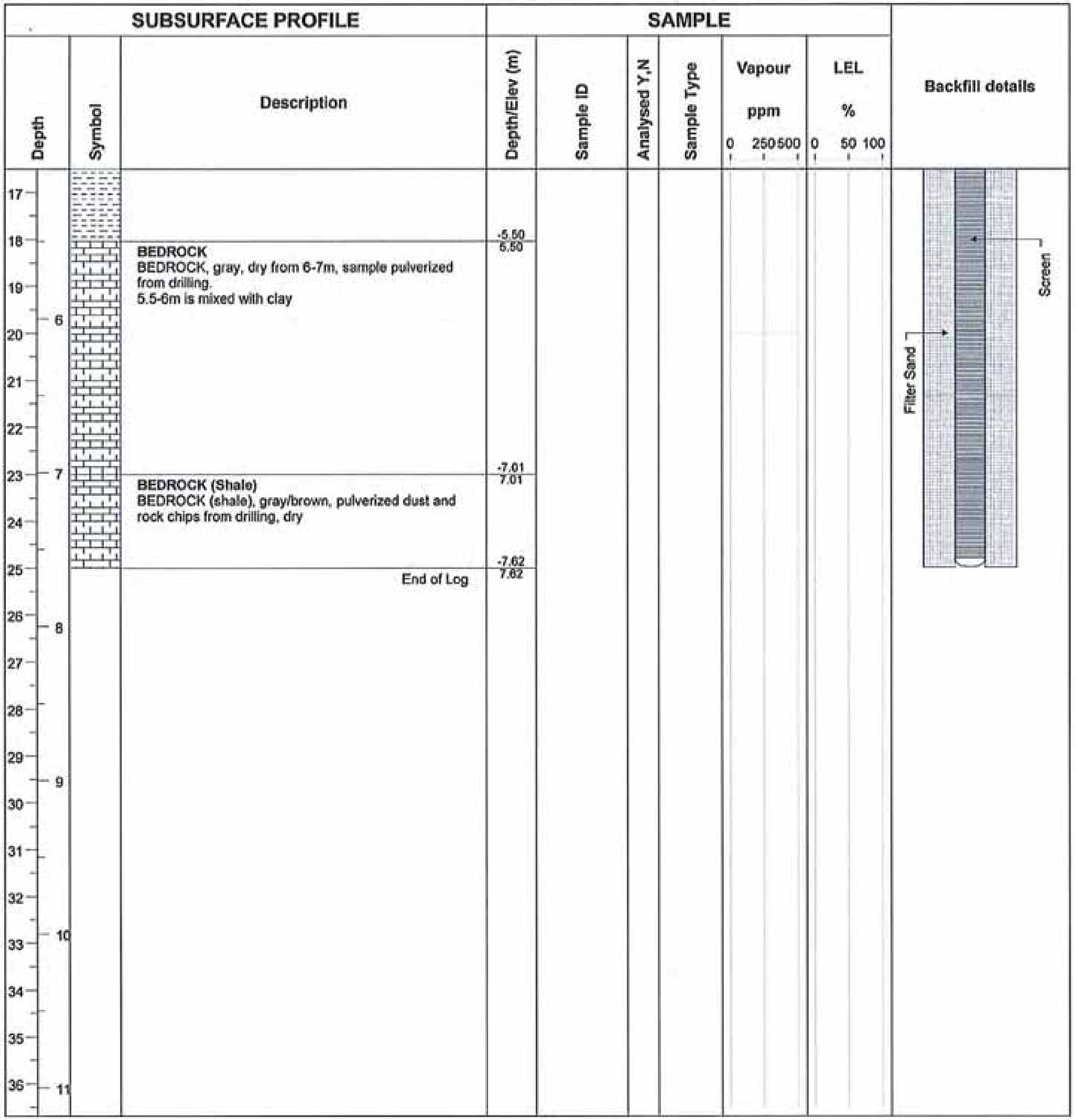
Site Location: Elkford, BC

Drilling Company: JR Drilling

Drilling Method: Dual Rotary

Logged by: TK

Sheet: 2 of 2



BEDROCK
BEDROCK, gray, dry from 6-7m, sample pulverized from drilling.
5.5-6m is mixed with clay

BEDROCK (Shale)
BEDROCK (shale), gray/brown, pulverized dust and rock chips from drilling, dry

End of Log

Well location: Thompson Creek

Depth to water level (TOC): 2.336 m

Date of water level: September 6th, 2016

Borehole diameter: 15.24cm

Well casing diameter: 50.8mm

Well casing material: Schedule 40 PVC

Well screen slot size: 0.25mm

Well screen interval (bgs): 4.5-7.5 m

Depth of well (TOC): 8.690 m

Well Elevation (TOC): -

Ground Elevation: -

Log of Monitoring Well: GH_MW-ERSC-1

HEMMERA

Project Name/No: Greenhills Ops Elkford BC/577-016.04

Client: Teck Coal Ltd.

Date Drilled: November 24, 2014

Site Location: Greenhills Operations, BC

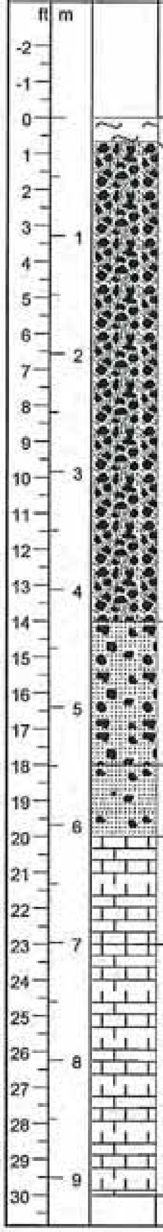
Drilling Company: JR Drilling

Drilling Method: Dual air rotary

Logged by: RM

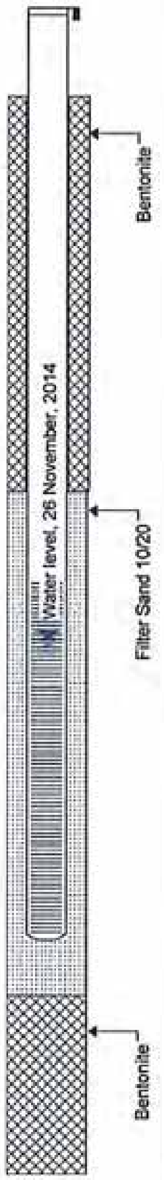
Sheet: 1 of 1

SUBSURFACE PROFILE



Description	Depth/Elev (m)	Sample ID	Analysed Y,N	Sample Type	Vapour ppm (0 250 500)	LEL % (0 50 100)
Ground Surface	1293.00 0.00					
TOPSOIL Black, dry, loose, organic soil						
TILL Gravelly Till (rounded to subrounded, medium to coarse grain), brown, dry, dense, well graded, lots of rock cuttings.	1288.73 4.27					
Sandy Till (medium grain) and Gravel (rounded to subrounded, medium to coarse grain), brown, moist, dense, well graded, lots of rock cuttings.	1287.82 5.18					
Below 5.2 m, a water bearing seam <0.31 m width.	1287.51 5.49					
Sandy Till (medium grain) and Gravel (rounded to subrounded, medium to coarse grain), brown, moist, dense, well graded, lots of rock cuttings.	1286.90 6.10					
BEDROCK Siltstone, grey, dry, competent, very hard	1286.29 6.71					
Between 6.7 m and 7.0 m, fracture zone, moist	1285.99 7.01					
Below 7.2 m material is dry, very hard, uniform size cuttings, dusty drilling conditions	1283.86 9.14					
End of Log						

Backfill details



Well location: 5,548,704 N, 649,081 E

Depth to water level (TOC): 5.349 m

Date of water level: 26 November, 2014

Borehole diameter: 0.17 m

Well casing diameter: 2"

Well casing material: Sch. 80 PVC

Well screen slot size: 010

Well screen interval (bgs): 4.12 m - 7.17 m

Depth of well (TOC): 7.924 m

Well Elevation (TOC): 1293.75 m

Ground Elevation: 1293 m

FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : GH_BH_EF1A**
	Location **Regional Groundwater Monitoring**	PAGE 1 OF 3

Drilling Contractor	Owen's Drilling	Date Monitored	2020 09 02	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1264.288	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1265.209	Date Drilled:	2020 08 08
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5544459.208	Easting: 649058.221	Log Typed By:	AS

Drilling Legend
- ▨ Sample Interval
- ☰ Odex

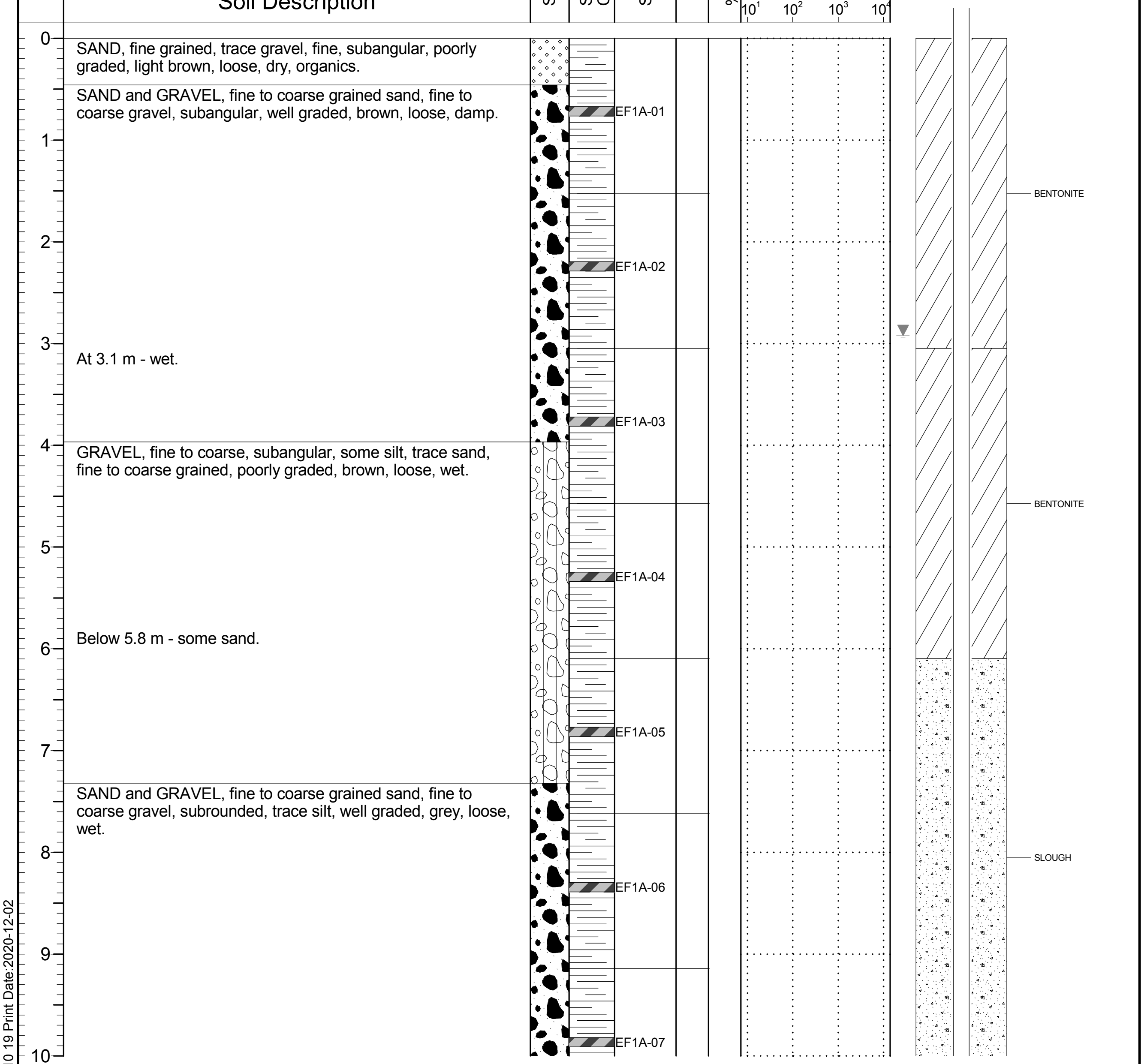
Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- ☐ Solid PVC
- ☐ Slotted PVC

Well Name 1: GH_MW_EF1A

Depth in Metres	Soil Description	Sample Number
0	SAND, fine grained, trace gravel, fine, subangular, poorly graded, light brown, loose, dry, organics.	
	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subangular, well graded, brown, loose, damp.	EF1A-01
		EF1A-02
3	At 3.1 m - wet.	EF1A-03
4	GRAVEL, fine to coarse, subangular, some silt, trace sand, fine to coarse grained, poorly graded, brown, loose, wet.	EF1A-04
6	Below 5.8 m - some sand.	EF1A-05
	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subrounded, trace silt, well graded, grey, loose, wet.	EF1A-06 EF1A-07



NOTES
Bolded sample denotes sample analyzed.
* Denotes blind field duplicate.

QA/QC: LLH 2020 10 19 Print Date:2020-12-02

FINAL

SNC·LAVALIN

Client
Teck Coal Limited

Location
Regional Groundwater Monitoring

Borehole No. : GH_BH_EF1A

PAGE 2 OF 3

Drilling Contractor	Owen's Drilling	Date Monitored	2020 09 02	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1264.288	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1265.209	Date Drilled:	2020 08 08
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5544459.208	Easting: 649058.221	Log Typed By:	AS

Drilling Legend
▨ Sample Interval
☰ Odex

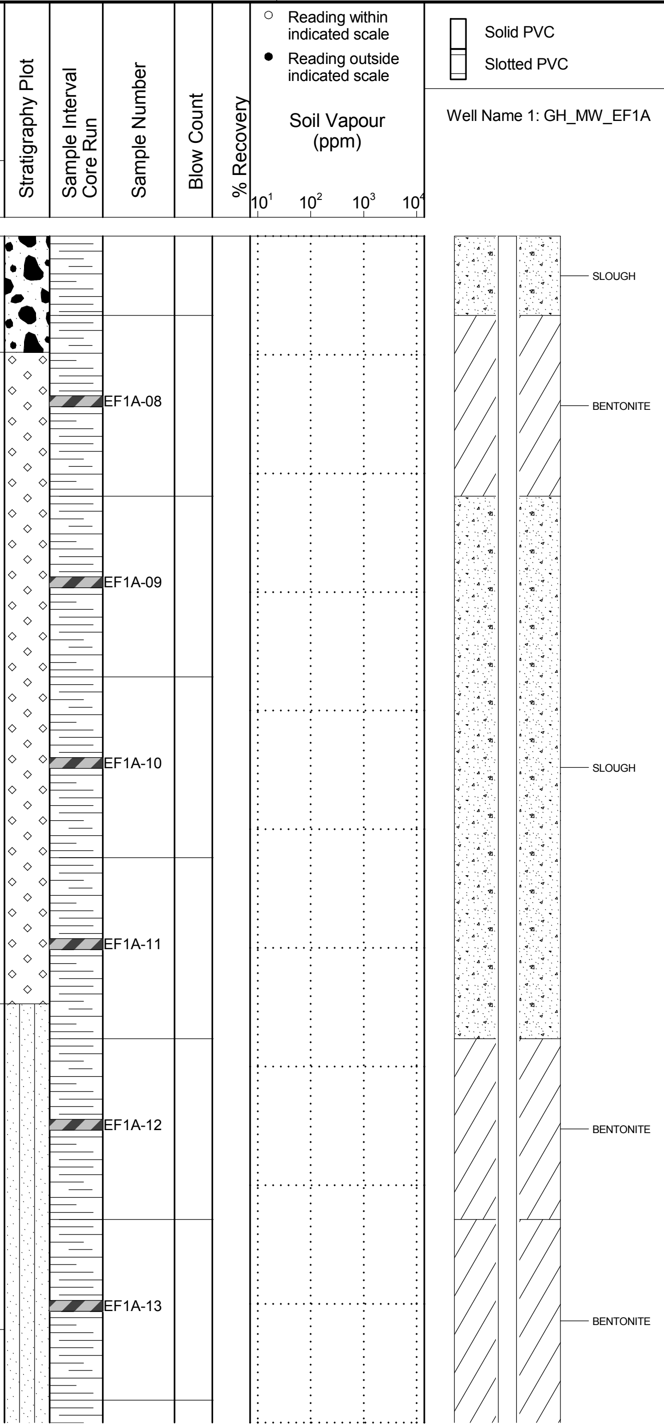
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▯ Slotted PVC

Well Name 1: GH_MW_EF1A

Depth in Metres	Soil Description
10	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subrounded, trace silt, well graded, grey, loose, wet. *(continued)*
11	GRAVELLY SAND, fine to coarse grained sand, fine to coarse gravel, subrounded, trace silt, well graded, grey, loose, wet.
16.5	SAND, fine to coarse grained, some silt, trace gravel, fine to coarse, subrounded, grey, medium dense, wet.
19.2	GRAVELLY SAND, fine to coarse grained sand, subrounded gravel, some silt, well graded, grey, medium dense, wet.



NOTES
Bolded sample denotes sample analyzed.
* Denotes blind field duplicate.

FINAL

SNC-LAVALIN

Client **Teck Coal Limited**		**Borehole No. : GH_BH_EF1A**
Location **Regional Groundwater Monitoring**		PAGE 3 OF 3

Drilling Contractor	Owen's Drilling	Date Monitored	2020 09 02	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1264.288	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1265.209	Date Drilled:	2020 08 08
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5544459.208	Easting: 649058.221	Log Typed By:	AS

Drilling Legend
- ▨ Sample Interval
- ☰ Odex

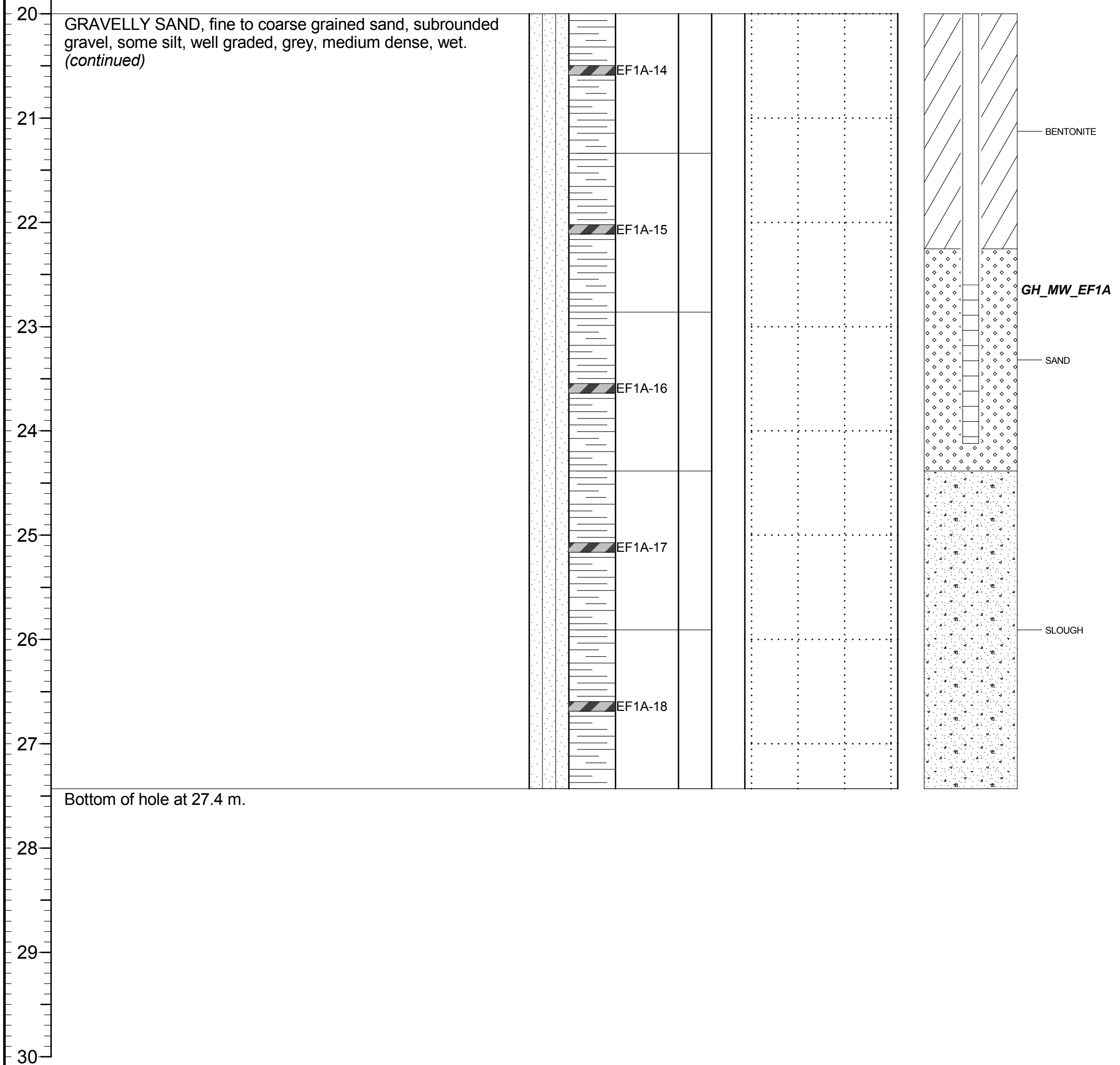
Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- ▯ Solid PVC
- ▯ Slotted PVC

Well Name 1: GH_MW_EF1A

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4



GRAVELLY SAND, fine to coarse grained sand, subrounded gravel, some silt, well graded, grey, medium dense, wet. *(continued)*

Bottom of hole at 27.4 m.

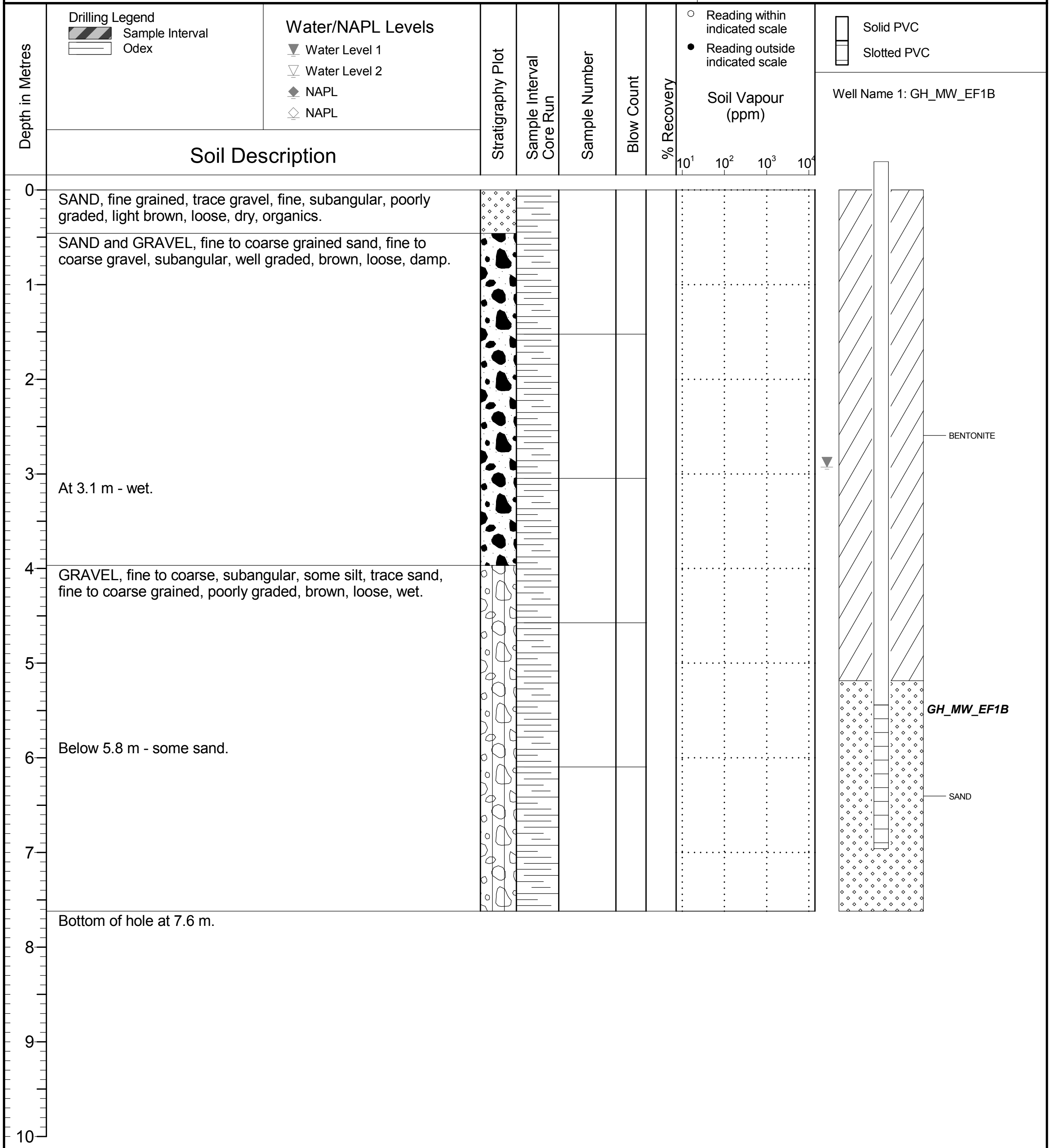
NOTES
Bolded sample denotes sample analyzed.
* Denotes blind field duplicate.

QA/QC: LLH 2020 10 19 Print Date:2020-12-02

FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : GH_BH_EF1B**
	Location **Regional Groundwater Monitoring**	PAGE 1 OF 1

Drilling Contractor	Owen's Drilling	Date Monitored	2020 09 02	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1264.341	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1265.127	Date Drilled:	2020 08 08
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5544457.462	Easting: 649056.933	Log Typed By:	AS



SAND, fine grained, trace gravel, fine, subangular, poorly graded, light brown, loose, dry, organics.

SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subangular, well graded, brown, loose, damp.

At 3.1 m - wet.

GRAVEL, fine to coarse, subangular, some silt, trace sand, fine to coarse grained, poorly graded, brown, loose, wet.

Below 5.8 m - some sand.

Bottom of hole at 7.6 m.

NOTES

BRITISH COLUMBIA

Report 1 - Detailed Well Record

RG_01-03 (Elkford Supply Well)

Well Tag Number: 42698

Owner: VILLAGE OF ELKFORD

Address: BOIVIN CK & ELK RIVER

Area:

WELL LOCATION:
Land District
District Lot: 12378 Plan: Lot:
Township: Section: Range:
Indian Reserve: Meridian: Block:
Quarter:
Island:
BCGS Number (NAD 83): Well: 5

Class of Well:
Subclass of Well:
Orientation of Well:
Status of Well: New
Well Use:
Observation Well Number:
Observation Well Status:
Construction Method:
Diameter: 0.0 inches
Casing drive shoe:
Well Depth: 0 feet
Elevation: 0 feet (ASL)
Final Casing Stick Up: inches
Well Cap Type:
Bedrock Depth: feet
Lithology Info Flag:
File Info Flag:
Sieve Info Flag:
Screen Info Flag:

Site Info Details:
Other Info Flag:
Other Info Details:

Construction Date: 1979-07-01 00:00:00

Driller:
Well Identification Plate Number:
Plate Attached By:
Where Plate Attached:

PRODUCTION DATA AT TIME OF DRILLING:
Well Yield: 0 (Driller's Estimate)
Development Method:
Pump Test Info Flag: Y
Artesian Flow:
Artesian Pressure (ft):
Static Level:

WATER QUALITY:
Character:
Colour:
Odour:
Well Disinfected: N
EMS ID:
Water Chemistry Info Flag: Y
Field Chemistry Info Flag:
Site Info (SEAM):

Water Utility:
Water Supply System Name:
Water Supply System Well Name:

SURFACE SEAL:
Flag:
Material:
Method:
Depth (ft):
Thickness (in):

WELL CLOSURE INFORMATION:
Reason For Closure:
Method of Closure:
Closure Sealant Material:
Closure Backfill Material:
Details of Closure:

Screen from	to feet	Type	Slot Size

Casing from	to feet	Diameter	Material	Drive Shoe

GENERAL REMARKS:
YIELD:NO DATA EXPLORATORY & WATER WELL

LITHOLOGY INFORMATION:
From 0 to 0 Ft. MEASURED IN METERS
From 0 to 12.2 Ft. DRY MED. FINE SAND SOME SILT TRACE OF
From 0 to 0 Ft. GRAVEL.

Line Creek Operations

LC_PIZDC0901

WELL LITHOLOGY & CONSTRUCTION FORM

Well Number:
GA-DC1-A

Project Number:	0913490005-1109-1002
Project Name:	Teck Coal Line Creek Operations
Location:	Elk Valley, British Columbia, Canada
Site Area:	Dry Creek

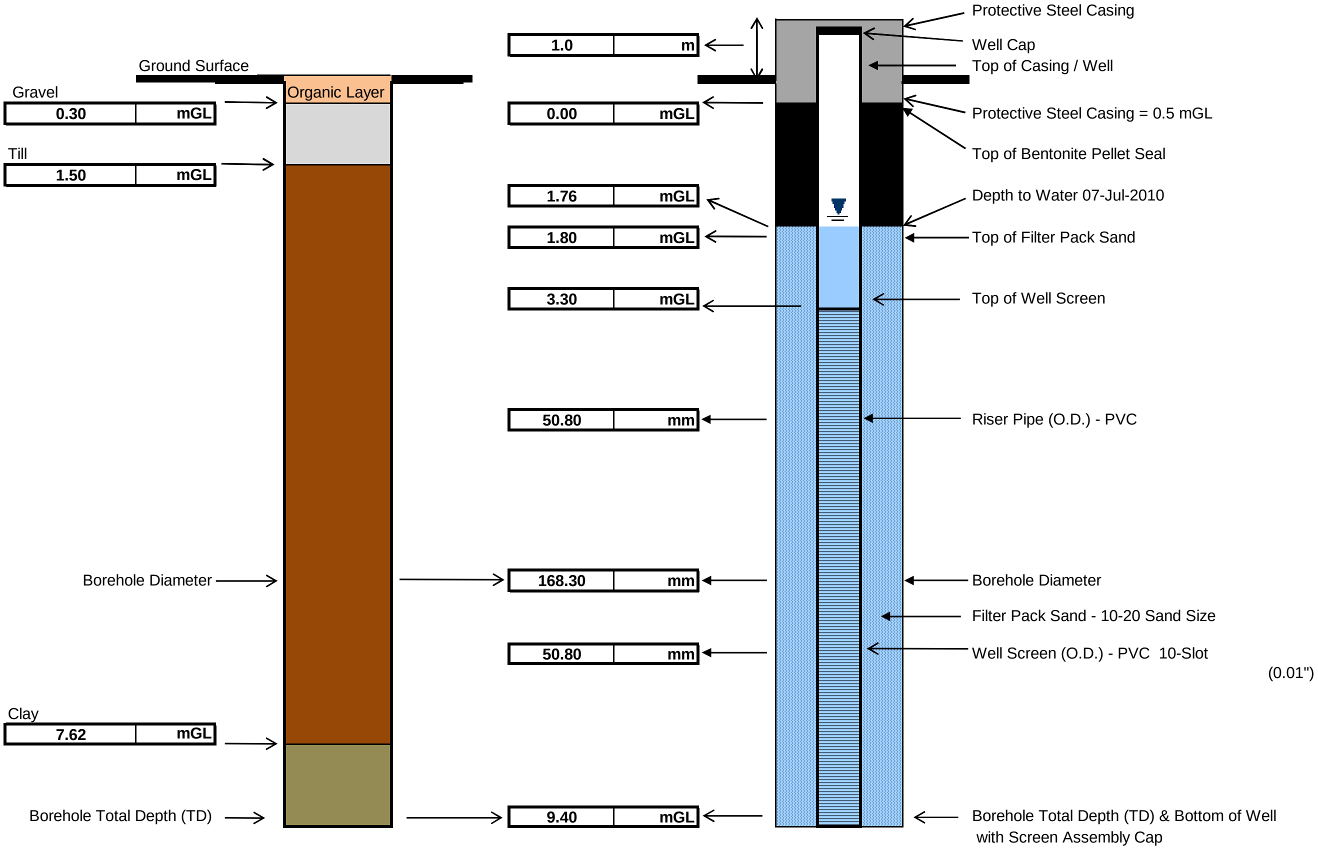
Completion Date:	31-Oct-09
Drill Contractor:	Beck Drilling
Drilling Method:	ODEX
Personnel:	Tim Crowell

Well Summary Table		
Northing	658048	NAD83
Easting	5541500	NAD83
Ground Elevation	1692	masl
Top of Casing Elevation	1693	masl
Water Level Elevation	1690	masl

Input Parameters
Datum Reference:
mGL
Diameter Units:
mm

Borehole Lithology

Water Monitoring Well



Note:
mGL = metres below ground level
mm = millimetres
masl = metres above sea level

DATA ENTRY: VI

PROJECT No.: 13-1345-0010

RECORD OF MONITORING WELL: LC_PIZDC1306

SHEET 1 OF 2

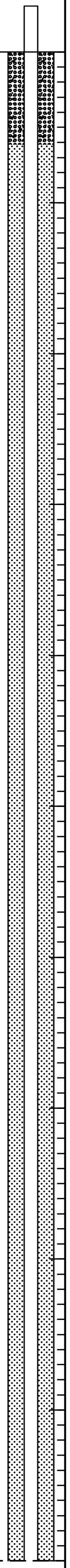
LOCATION: See Location Plan

N: 5541058.793 E: 658278.011

BORING DATE: August 18, 2013

DATUM: UTM Zone 11
(Nad 83)
Elev = 1708.15 masl

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80); SHEAR STRENGTH Cu, kPa (nat V. + Q - ● rem V. ⊕ U - ○) (10 20 30 40)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}); WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		Ground Surface		1708.14							Stickup =0.9 m
0	Sonic Rig - SR152 Boart LongYear Group	SILTY GRAVEL, angular to sub-angular, poorly-graded, some sand, trace clay, low plasticity, w~PL, moist, loose to compact		0.00							Cement **WL= 0.21 meters above ground surface on 21 Aug 2013**
1											
2											
3											
4											
5											Bentonite Plug
6											
		Gravelly CLAYEY SILT, some angular to sub-angular, poorly-graded gravel, some sand, low to medium plasticity, dark brown to black, w~PL, moist, compact to dense --- Compact below 7.6 m		1701.29 6.86							
7											
8											
9											
10											



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DEPTH SCALE
1 : 50

Golder Associates

LOGGED: RQ
CHECKED:

BOREHOLE - EXPANDED ADD. LAB TESTING 13.1345.0010_ BH LOGS.GPJ CALGARY.GDT 10/11/13

PROJECT No.: 13-1345-0010

RECORD OF MONITORING WELL: LC_PIZDC1306

SHEET 2 OF 2

LOCATION: See Location Plan

N: 5541058.793 E: 658278.011

BORING DATE: August 18, 2013

DATUM: UTM Zone 11 (Nad 83)

SAMPLES: NUMBER / TYPE / BLOWS/0.3m

DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m: 20 40 60 80

SHEAR STRENGTH Cu, kPa: nat V. + Q - ● rem V. ⊕ U - ○ 10 20 30 40

HYDRAULIC CONDUCTIVITY, k, cm/s: 10^{-6} 10^{-5} 10^{-4} 10^{-3}

WATER CONTENT PERCENT: Wp ⊢—○W—⊣ Wl 10 20 30 40

ADDITIONAL LAB. TESTING

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	ELEV. DEPTH (m)	PIEZOMETER OR STANDPIPE INSTALLATION
10	Sonic Rig - SR152 Boart LongYear Group	Gravelly CLAYEY SILT, some angular to sub-angular, poorly-graded gravel, some sand, low to medium plasticity, dark brown to black, w~PL, moist, compact to dense *(continued)* --- Boulder (>300 mm in diameter) at 10.4 m	1697.48 10.67	Bentonite Plug
11–16		Silty SANDY GRAVEL, angular to sub-angular,trace clay, occasional cobbles, dark brown to black, w~PL, moist, dence to very dence --- Boulder at 16.8 m	1691.38 16.76	Bentonite Seal 10/20 Colorado Silica Sand Slotted Screen Section
17–20		End of MONITORING WELL. Notes: WL= water level. masl = metres above sea level.		

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: RQ
CHECKED:

PROJECT No.: 13-1345-0010

RECORD OF MONITORING WELL: LC_PIZDC1307

SHEET 1 OF 4

LOCATION: See Location Plan

N: 5541229.978 E: 658168.873

BORING DATE: August 19, 2013

DATUM: UTM Zone 11
(Nad 83)
Elev = 1690.51 masl

BORING METHOD: Sonic Rig - SR152
Boart LongYear Group

DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m: 20 40 60 80

SHEAR STRENGTH Cu, kPa: nat V. + Q - ● rem V. ⊕ U - ○ — 10 20 30 40

HYDRAULIC CONDUCTIVITY, k, cm/s: 10^{-6} 10^{-5} 10^{-4} 10^{-3}

WATER CONTENT PERCENT: Wp ⊢—○W—⊣ Wl — 10 20 30 40

DEPTH SCALE METRES	SOIL PROFILE DESCRIPTION	ELEV. DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
	Ground Surface	1690.50					Stickup= 0.71 m
0	FILL	0.00					Cement
	ORGANIC SOIL, black	1689.74 0.76					
1	GRAVEL and SAND, sub-angular to angular (up to 100 mm in diameter), some silt, w<PL, compact to dense	1689.13 1.37					*WL=2.31 mbgs 24 Aug 2013
3	SILTY GRAVEL, sub-rounded to sub-angular (up to 50 mm in diameter), some sand, trace clay, w~PL, wet, compact	1687.15 3.35					Bentonite Plug
6	SILTY GRAVEL, angular to sub-angular, some sand, trace clay, local cobbles, w~PL, moist, very dense	1684.41 6.10					
8	GRAVELY SILT, sub-rounded to sub-angular, trace sand, trace clay, w~PL, wet, very dense	1681.97 8.53					
10							

CONTINUED NEXT PAGE

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: RT
CHECKED:

PROJECT No.: 13-1345-0010

RECORD OF MONITORING WELL: LC_PIZDC1307

SHEET 2 OF 4

LOCATION: See Location Plan

N: 5541229.978 E: 658168.873

BORING DATE: August 19, 2013

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	ELEV. DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80); SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ (10 20 30 40)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}); WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10	Sonic Rig - SR152 Boart LongYear Group	GRAVELY SILT, sub-rounded to sub-angular, trace sand, trace clay, w~PL, wet, very dense *(continued)*								
11										
12		--- w<PL, moist to dry below 12.2 m								
13										
		SILTY GRAVEL, sub-rounded to sub-angular, some sand, trace clay, w<PL, moist, dense	1676.79 13.72							
14										
15										Bentonite Plug
16										
17		--- Gravel is sub-angular to angular, w~PL, wet below 16.8 m								
18		--- Gravel is sub-rounded to sub-angular, moist to locally dry, loose below 18.3 m								
19										
			1670.69 19.81							
20										

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DEPTH SCALE

1 : 50

Golder Associates

LOGGED: RT

CHECKED:

PROJECT No.: 13-1345-0010

RECORD OF MONITORING WELL: LC_PIZDC1307

SHEET 3 OF 4

LOCATION: See Location Plan

N: 5541229.978 E: 658168.873

BORING DATE: August 19, 2013

DATUM: UTM Zone 11
(Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	ELEV. DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m 20 40 60 80; SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ 10 20 30 40	HYDRAULIC CONDUCTIVITY, k, cm/s 10^{-6} 10^{-5} 10^{-4} 10^{-3}; WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
20	Sonic Rig - SR152 Boart LongYear Group	SANDY SILT, some sub-rounded to sub-angular gravel, localized sub-rounded to sub-angular cobbles (up to 150 mm in diameter), brown to dark brown, w~PL, moist, compact to dense, stiff *(continued)*								
23		SANDY GRAVEL, sub-angular to angular (up to 100 mm in diameter), some silt, light brown to grey, w<PL, dry, very loose	1667.34 23.16							
		SANDY SILT, some sub-rounded to sub-angular gravel, localized sub-rounded to sub-angular cobbles (up to 100 mm in diameter), brown to dark brown, w~PL, moist, very dense, stiff	1667.04 23.47							Bentonite Plug
26		SILT, some sand, some sub-rounded to sub-angular gravel (<30 mm in diameter), brown to dark brown, w~PL, wet, compact to dense, firm	1664.60 25.91							
29										Bentonite Seal
30										

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DEPTH SCALE
1 : 50

Golder Associates

LOGGED: RT
CHECKED:

PROJECT No.: 13-1345-0010

RECORD OF MONITORING WELL: LC_PIZDC1307

SHEET 4 OF 4

LOCATION: See Location Plan

N: 5541229.978 E: 658168.873

BORING DATE: August 19, 2013

DATUM: UTM Zone 11
(Nad 83)

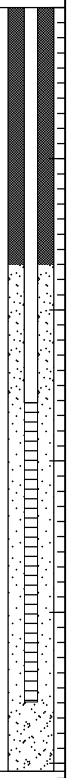
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m: 20 40 60 80

SHEAR STRENGTH Cu, kPa: 10 20 30 40 — nat V. + Q - ● rem V. ⊕ U - ○

HYDRAULIC CONDUCTIVITY, k, cm/s: 10^{-6} 10^{-5} 10^{-4} 10^{-3}

WATER CONTENT PERCENT: Wp ⊢—○W—⊣ Wl: 10 20 30 40

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
30	Sonic Rig - SR152 Boart LongYear Group			1660.33					
		SILTY GRAVEL, sub-rounded to sub-angular (<50 mm in diameter), localized clay, w<PL, dry, very dense, hard --- Localized zones of increased clay, very dry		30.18					Bentonite Seal
31									
32				1658.50					
		SILT, some sand, some sub-angular to angular gravel, localized boulders, dark brown, w<PL, moist, dense		32.00					10/20 Colorado Silica Sand
33									Slotted Screen Section
34									
35				1655.45					
		End of MONITORING WELL. Notes: WL= water level. masl = metres above sea level. * WL measured while LC_PIZDC1309 was flowing at surface. mbgs= metres below ground surface.		35.05					
36									
37									
38									
39									
40									



DEPTH SCALE
1 : 50

Golder Associates

LOGGED: RT

CHECKED:

PROJECT No.: 13-1345-0010

RECORD OF MONITORING WELL: LC_PIZDC1308

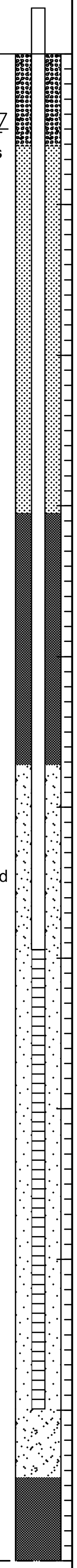
SHEET 1 OF 2

LOCATION: See Location Plan
N: 5541232.317 E: 658167.9

BORING DATE: August 21, 2013

DATUM: UTM Zone 11
(Nad 83)
Elev = 1690.42 masl

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	ELEV.	DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80); SHEAR STRENGTH Cu, kPa (10 20 30 40) nat V. + Q - ● rem V. ⊕ U - ○	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}); WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0		Ground Surface	1690.42								Stickup= 0.95 m
		FILL		0.00							Cement
											*WL=0.50 mbgs 24 Aug 2013
1		ORGANIC SOIL, black	1689.65	0.76							
2		SANDY GRAVEL, sub-angular to angular (up to 100 mm in diameter), some silt, w<PL, dry, very loose	1688.59	1.83							Bentonite Plug
		SILTY GRAVEL, sub-rounded to sub-angular (up to 50 mm in diameter), some sand, trace clay, w~PL, wet, loose	1688.28	2.13							
3											
4											Bentonite Seal
5	Sonic Rig - SR152 Boart LongYear Group	SILTY GRAVEL, angular to sub-angular, some sand, trace clay, local cobbles, w~PL, moist to wet, compact	1685.84	4.57							10/20 Colorado Silica Sand
		--- Localized dry loose gravel zone (looks like pad fill material, fresh, dry, powdery, likely sloughed into hole) from 5.5 to 5.8 m									
6											
		--- Localized dry loose gravel zone (looks like pad fill material, fresh, dry, powdery, likely sloughed into hole) from 6.6 to 6.7 m									
7											Slotted Screen Section
8		GRAVELY SILT, sub-rounded to sub-angular, trace sand, trace clay, w~PL, wet, dense to very dense	1682.80	7.62							
		--- Decrease in gravel and clay content below 8.5 m									
9											
											Bentonite Seal
10											



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DEPTH SCALE
1 : 50

Golder Associates

LOGGED: RT
CHECKED:

DATA ENTRY: IPG

PROJECT No.: 13-1345-0010

RECORD OF MONITORING WELL: LC-PIZDC1402

SHEET 1 OF 2

LOCATION: See Location Plan, West side of Dry Creek

BORING DATE: April 25, 2014

DATUM: Local

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m 20 40 60 80 / SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ 10 20 30 40	HYDRAULIC CONDUCTIVITY, k, cm/s 10^{-6} 10^{-5} 10^{-4} 10^{-3} / WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		Ground Surface									Stickup = 1.14 m
0	DR-24 – Air Rotary 150 mm Casing Sierra Drilling & Blasting Ltd.	TOPSOIL – (OL) Gravelly ORGANIC SILT, angular, some sand, roots and rootlets, black, moist, loose		0.00							
		(ML) SANDY SILT, light brown, moist, compact		0.30							Bentonite Grout
1		TILL – (MH) Sandy gravelly CLAYEY SILT, sub-rounded, contains cobbles, dark brown, cohesive, w<PL, very soft to soft		0.91							
4		--- Becoming grey, firm at 4.0 m									Bentonite Pellet Plug
		TILL – (MH) Sandy gravelly CLAYEY SILT, sub-rounded, contains cobbles, grey-brown, cohesive, w<PL, soft to firm		5.64							
8											Colorado Silica Sand
10											Slotted Section

CONTINUED NEXT PAGE

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: DE

CHECKED: JT

PROJECT No.: 13-1345-0010

RECORD OF MONITORING WELL: LC-PIZDC1402

SHEET 2 OF 2

LOCATION: See Location Plan, West side of Dry Creek

BORING DATE: April 25, 2014

DATUM: Local

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	SOIL PROFILE: STRATA PLOT	SOIL PROFILE: ELEV. DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20, 40, 60, 80) SHEAR STRENGTH Cu, kPa (10, 20, 30, 40) nat V. + Q - ● rem V. ⊕ U - ○	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6}, 10^{-5}, 10^{-4}, 10^{-3}) WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl (10, 20, 30, 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10	DR-24 – Air Rotary 150 mm Casing Sierra Drilling & Blasting Ltd.	TILL – (MH) Sandy gravelly CLAYEY SILT, sub-rounded, contains cobbles, grey-brown, cohesive, w<PL, soft to firm *(continued)* --- Becoming firm to stiff at 10.2 m									
11											Slotted Section
12		(GP-GM) GRAVEL, sub-angular, trace sub-rounded, fine-grained, some silt to silty, dark grey, wet, compact		11.89							Colorado Silica Sand
		End of MONITORING WELL. NOTES: Standpipe installed to 12.6 m.		12.75							
13											
14											
15											
16											
17											
18											
19											
20											

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: DE

CHECKED: JT

PROJECT No.: 13-1345-0010

RECORD OF MONITORING WELL: LC-PIZDC1401

SHEET 1 OF 4

LOCATION: See Location Plan, West side of Dry Creek

BORING DATE: April 26, 2014

DATUM: Local

BORING METHOD: DR-24 – Air Rotary 219 mm Casing from 0.0 m to 9.8 m; 305 mm Casing from 9.8 m to 10.1 m

Sierra Drilling & Blasting Ltd.

DEPTH SCALE METRES	SOIL PROFILE – DESCRIPTION	ELEV. DEPTH (m)	PIEZOMETER OR STANDPIPE INSTALLATION
	Ground Surface		Stickup = 1.57 m
0	TOPSOIL – (OL) Gravelly ORGANIC SILT, angular, some sand, roots and rootlets, black, moist, loose	0.00	
	(ML) SANDY SILT, light brown, moist, compact	0.30	
1	TILL – (ML) Sandy gravelly CLAYEY SILT, sub-rounded, contains cobbles, dark brown, cohesive, w<PL, very soft to soft	0.91	
4	--- Becoming grey, firm at 4.0 m		
5			Bentonite Grout
	--- Water in cutting starting at 5.5 m		
6	(GP) GRAVEL, fine to coarse-grained, dark grey, wet, dense	6.10	
	TILL – (ML) Sandy gravelly CLAYEY SILT, sub-rounded, contains cobbles, grey-brown, w>PL, soft	6.71	
7	--- w<PL, very stiff from 7.3 to 8.8 m		
9	--- w>PL, soft at 8.8 m		
10			

SAMPLES: NUMBER | TYPE | BLOWS/0.3m

DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m: 20 40 60 80

SHEAR STRENGTH Cu, kPa: nat V. + Q - ● rem V. ⊕ U - ○ 10 20 30 40

HYDRAULIC CONDUCTIVITY, k, cm/s: 10^{-6} 10^{-5} 10^{-4} 10^{-3}

WATER CONTENT PERCENT: Wp ⊢—○W—⊣ Wl 10 20 30 40

ADDITIONAL LAB. TESTING

CONTINUED NEXT PAGE

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: DE
CHECKED: JT

PROJECT No.: 13-1345-0010

RECORD OF MONITORING WELL: LC-PIZDC1401

SHEET 2 OF 4

LOCATION: See Location Plan, West side of Dry Creek

BORING DATE: April 26, 2014

DATUM: Local

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80); SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ (10 20 30 40)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}); WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10	DR-24 – Air Rotary Sierra Drilling & Blasting Ltd.	TILL – (ML) Sandy gravelly CLAYEY SILT, sub-rounded, contains cobbles, grey-brown, w>PL, soft *(continued)*								Bentonite Grout
11										
12										
13		(GM) Sandy SILTY GRAVEL, angular, grey, moist, dense	12.80							
14										
15										
16		TILL – (ML) Sandy gravelly CLAYEY SILT, sub-rounded, contains cobbles, grey-brown, w<PL, soft	15.24							
17										
18		--- Boulder at 17.7 m								
19										
20										

CONTINUED NEXT PAGE

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: DE
CHECKED: JT

LC_PIZDC1404D

DATA ENTRY: IPG

PROJECT No.: 13-1345-0010

RECORD OF MONITORING WELL: LC-PIZDC1401

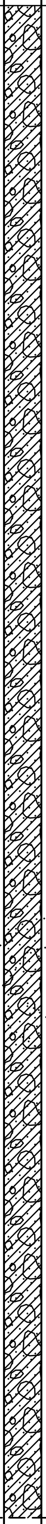
SHEET 3 OF 4

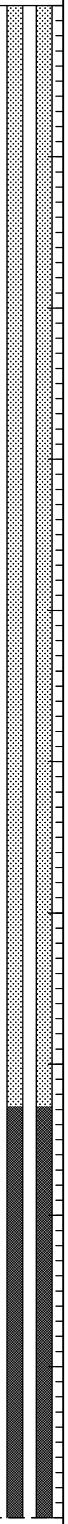
LOCATION: See Location Plan, West side of Dry Creek

BORING DATE: April 26, 2014

DATUM: Local

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	ELEV. DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20, 40, 60, 80) SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ (10, 20, 30, 40)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6}, 10^{-5}, 10^{-4}, 10^{-3}) WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl (10, 20, 30, 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
20		TILL – (ML) Sandy gravelly CLAYEY SILT, sub-rounded, contains cobbles, grey-brown, w<PL, soft *(continued)*								
21										
22										
23										Bentonite Grout
24		--- Cobble / boulder content increasing (possible silty gravel layers) at 24.1 m								
25	DR-24 – Air Rotary Sierra Drilling & Blasting Ltd.									
26		--- Cobbles decreasing at 25.9 m								
27										
28										Bentonite Pellet Plug
29										
30		*CONTINUED NEXT PAGE*								





DEPTH SCALE

1 : 50

Golder Associates

LOGGED: DE

CHECKED: JT

BOREHOLE - EXPANDED ADD. LAB TESTING 13.1345.0010_ BH LOGS_APPENDIX.GPJ CALGARY.GDT 10/30/14

LC_PIZDC1404D

PROJECT No.: 13-1345-0010

RECORD OF MONITORING WELL: LC-PIZDC1401

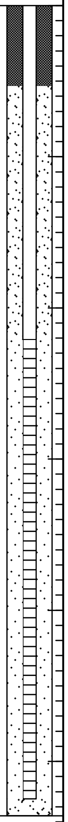
SHEET 4 OF 4

LOCATION: See Location Plan, West side of Dry Creek

BORING DATE: April 26, 2014

DATUM: Local

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ (10 20 30 40)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
30	DR-24 – Air Rotary Sierra Drilling & Blasting Ltd.	TILL – (ML) Sandy gravelly CLAYEY SILT, sub-rounded, contains cobbles, grey-brown, w<PL, soft *(continued)*									Bentonite Pellet Plug
31											Colorado Silica Sand
32											
		(GP) SANDY GRAVEL, fine to medium-grained, sub-angular with trace sub-rounded, some silt, dark grey, wet, dense		32.31							
33											
34											Slotted Section
35											Colorado Silica Sand
		End of MONITORING WELL. NOTES: Standpipe installed to 35.3 m.		35.36							
36											
37											
38											
39											
40											



DEPTH SCALE

1 : 50

Golder Associates

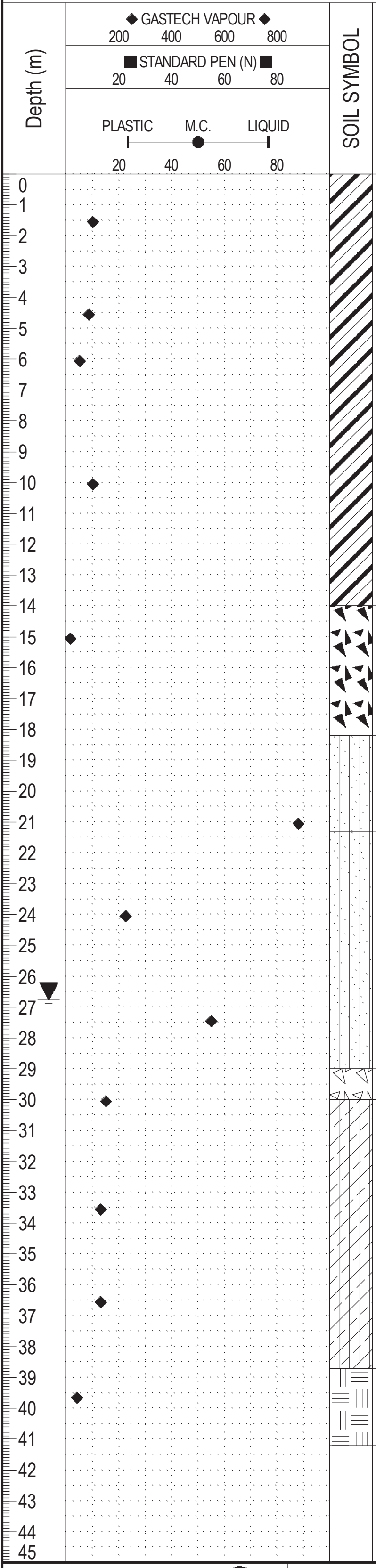
LOGGED: DE

CHECKED: JT

LC_PIZP1103

CLIENT: Teck Coal Ltd.	PROJECT: GW Assessment - Effluent Ponds	BOREHOLE NO: **MW11(P)-03**
DRILLER: JR Drilling	LOCATION: Teck - LCO	PROJECT NO: BX06169
DRILL/METHOD: DR-12/Air Rotary	BOREHOLE LOCATION: Refer to site plan	ELEVATION: 1263.49 m

SAMPLE TYPE	■ Shelby Tube	◿ No Recovery	☒ SPT Test (N)	☰ Grab Sample	▥ Split-Pen	◧
BACKFILL TYPE	■ Bentonite	⁘ Pea Gravel	▥ Slough	⁘ Grout	▨ Drill Cuttings	⁘ Sand



SOIL DESCRIPTION

CLAY, some silt, some sand, trace organics, very soft, medium plastic, medium brown, moist

GRAVEL, some sand, some fines, compact, medium brown, moist

SAND, silty, some gravel, some cobbles, compact, grey, damp

SILT, sandy, some gravel, some cobbles, firm, grey, moist

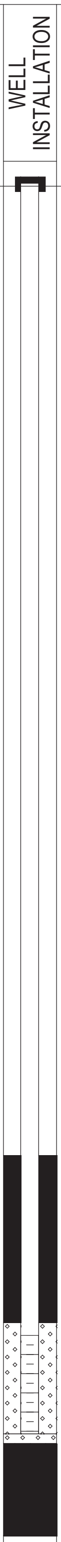
SAND & GRAVEL, some fines, dense, medium brown, moist to wet

SILT, clayey, sandy, some gravel, some cobbles, medium brown, moist

BEDROCK

END OF BOREHOLE AT 41.2 m
Borehole wet upon completion. Monitoring well installed.

SAMPLE TYPE | SAMPLE NO | SPT (N)



OTHER TESTS COMMENTS

Top of casing (TOC) elevation is 1264.53 mASL. Stick-up = 1.04 m.

Depth to water was 27.81 m below TOC on 23 November 2011. Groundwater elevation was 1236.72 m ASL.

The 150 mm steel casing terminates at 31.1 m.

A 50 mm Schedule 40 slotted PVC screen installed from 35.1 m to 38.1 m.

K = 7.4 x 10^{-8}m/s

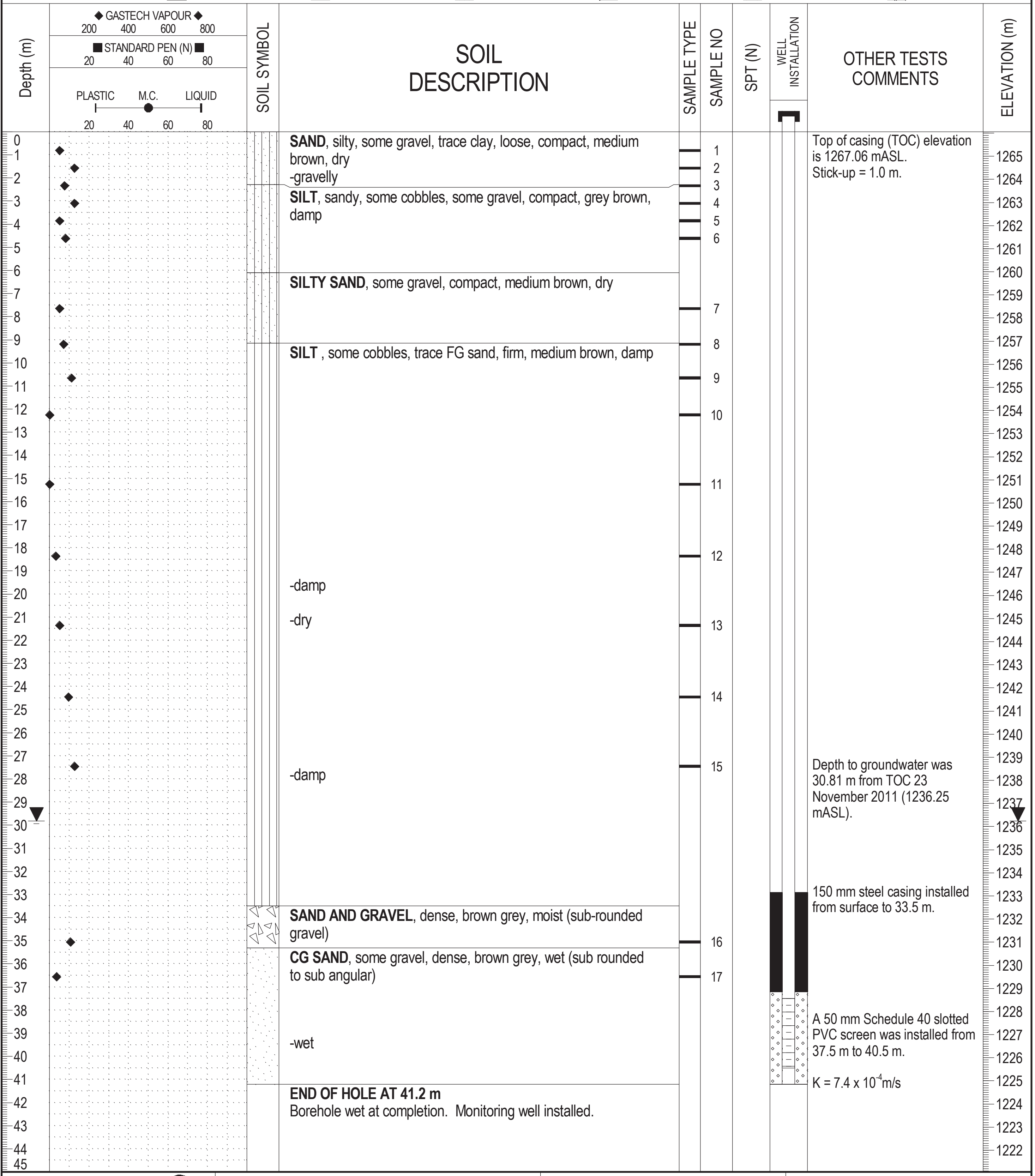
ELEVATION (m)
1263 1262 1261 1260 1259 1258 1257 1256 1255 1254 1253 1252 1251 1250 1249 1248 1247 1246 1245 1244 1243 1242 1241 1240 1239 1238 123▼ 1236 1235 1234 1233 1232 1231 1230 1229 1228 1227 1226 1225 1224 1223 1222 1221 1220 1219

AMEC Environment & Infrastructure Medicine Hat, Alberta	LOGGED BY: RH	COMPLETION DEPTH: 41.20 m
	REVIEWED BY: LH	COMPLETION DATE: 11/18/11
		Page 1 of 1

CLIENT: Teck Coal Ltd.	PROJECT: GW Assessment - Effluent Ponds	BOREHOLE NO: **MW11(P)-01**
DRILLER: JR Drilling	LOCATION: Teck - LCO	PROJECT NO: BX06169
DRILL/METHOD: DR-12/ Air Rotary	BOREHOLE LOCATION: Refer to site plan	ELEVATION: 1266.06 m

SAMPLE TYPE ■ Shelby Tube ▨ No Recovery ☒ SPT Test (N) ☰ Grab Sample ▥ Split-Pen ▮ Core

BACKFILL TYPE ■ Bentonite ⁘ Pea Gravel ▥ Slough ⁘ Grout ▨ Drill Cuttings ⁘ Sand



SAND, silty, some gravel, trace clay, loose, compact, medium brown, dry
-gravelly

SILT, sandy, some cobbles, some gravel, compact, grey brown, damp

SILTY SAND, some gravel, compact, medium brown, dry

SILT , some cobbles, trace FG sand, firm, medium brown, damp

-damp

-dry

-damp

SAND AND GRAVEL, dense, brown grey, moist (sub-rounded gravel)

CG SAND, some gravel, dense, brown grey, wet (sub rounded to sub angular)

-wet

END OF HOLE AT 41.2 m
Borehole wet at completion. Monitoring well installed.

Top of casing (TOC) elevation is 1267.06 mASL.
Stick-up = 1.0 m.

Depth to groundwater was 30.81 m from TOC 23 November 2011 (1236.25 mASL).

150 mm steel casing installed from surface to 33.5 m.

A 50 mm Schedule 40 slotted PVC screen was installed from 37.5 m to 40.5 m.

$K = 7.4 \times 10^{-4}$ m/s

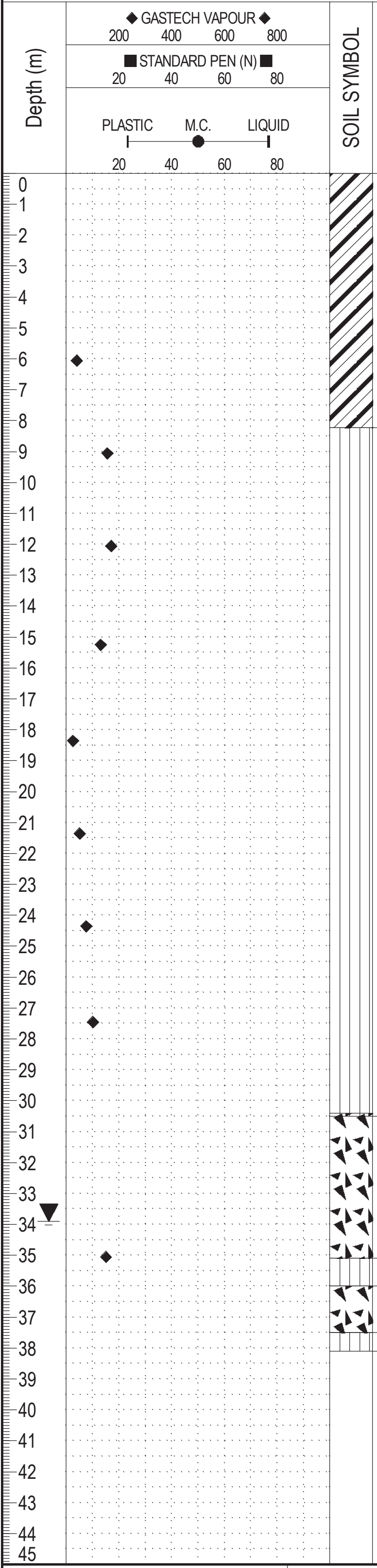
amec

AMEC Environment & Infrastructure
Medicine Hat, Alberta

LOGGED BY: RH	COMPLETION DEPTH: 40.50 m
REVIEWED BY: LH	COMPLETION DATE: 11/15/11

CLIENT: Teck Coal Ltd.	PROJECT: GW Assessment - Effluent Ponds	BOREHOLE NO: **MW11(P)-04**
DRILLER: JR Drilling	LOCATION: Teck - LCO	PROJECT NO: BX06169
DRILL/METHOD: DR-12/Air Rotary	BOREHOLE LOCATION: Refer to site plan	ELEVATION: 1271.15 m

SAMPLE TYPE	■ Shelby Tube	▨ No Recovery	☒ SPT Test (N)	☰ Grab Sample	▥ Split-Pen	◨
BACKFILL TYPE	■ Bentonite	⁚ Pea Gravel	▥ Slough	⁖ Grout	▨ Drill Cuttings	⁘ Sand



SOIL DESCRIPTION

CLAY, trace silt, trace sand, some cobbles, firm, medium plastic, medium brown, moist

-some reddish-pink fragments (fractured cobbles)
-cobbley (6.7 to 7.3 m)

SILT, some cobbles, some sand, tracy clay, firm, light brown, damp

-moist
-sandy
-some sand

-sandy
-cobbley

-some cobbles

-some sand
-30 cm seam of silty sand, moist

SAND & GRAVEL, silty, some cobbles, dense, medium brown, moist

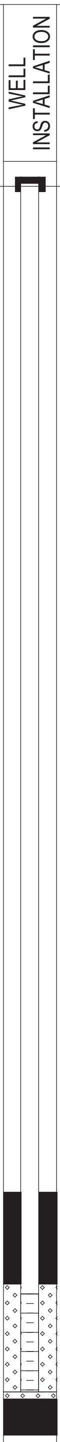
SILT, some cobbles, some sand, trace clay, firm, dark brown, wet

SAND & GRAVEL, silty, some cobbles, dense, medium brown, wet

SILT, some cobbles, some sand, trace clay, firm, dark brown, wet

END OF BOREHOLE AT 38.1 m
Borehole wet upon completion. Monitoring well installed.

SAMPLE TYPE | SAMPLE NO | SPT (N)



OTHER TESTS COMMENTS

Top of casing (TOC) elevation is 1272.10 mASL.
Stick-up = 0.95 m.

Steel casing terminates at 30.8 m.

Depth to groundwater 34.86 m from TOC on 23 November 2011 (1237.25 mASL).
A 50 mm Schedule 40 slotted PVC screen installed from 33.8 m to 36.8 m.
K = 3.4 x 10^{-4}m/s

ELEVATION (m)
1270 1269 1268 1267 1266 1265 1264 1263 1262 1261 1260 1259 1258 1257 1256 1255 1254 1253 1252 1251 1250 1249 1248 1247 1246 1245 1244 1243 1242 1241 1240 1239 1238 1237 1236 1235 1234 1233 1232 1231 1230 1229 1228 1227

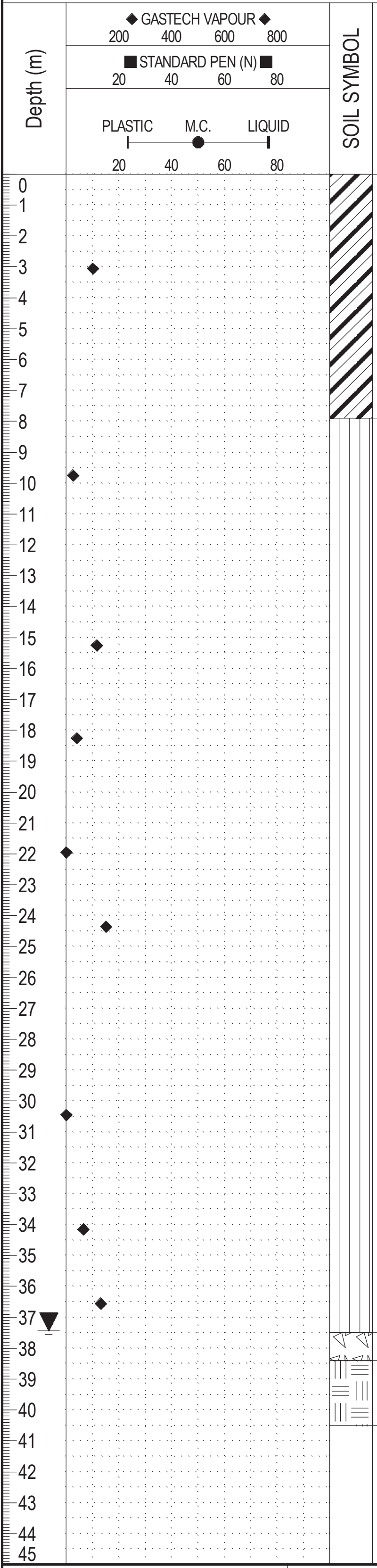
amec	AMEC Environment & Infrastructure Medicine Hat, Alberta	LOGGED BY: RH
		REVIEWED BY: LH

COMPLETION DEPTH: 38.10 m
COMPLETION DATE: 11/21/11

CLIENT: Teck Coal Ltd.	PROJECT: GW Assessment - Effluent Ponds	BOREHOLE NO: **MW11(P)-05**
DRILLER: JR Drilling	LOCATION: Teck - LCO	PROJECT NO: BX06169
DRILL/METHOD: DR-12/Air Rotary	BOREHOLE LOCATION: Refer to site plan	ELEVATION: 1272.94 m

SAMPLE TYPE ■ Shelby Tube ▨ No Recovery ☒ SPT Test (N) ☰ Grab Sample ▥ Split-Pen ▮

BACKFILL TYPE ■ Bentonite ⁚ Pea Gravel ▥ Slough ⁘ Grout ▨ Drill Cuttings ⁘ Sand



SOIL DESCRIPTION

CLAY, trace silt, trace sand, some cobbles, firm, medium plastic, medium brown, moist

-cobbley

SILT, some cobbles, some sand, tracy clay, firm, orange brown, damp
-30 cm seam of silty sand, moist
-cobbley, medium brown

-boulder

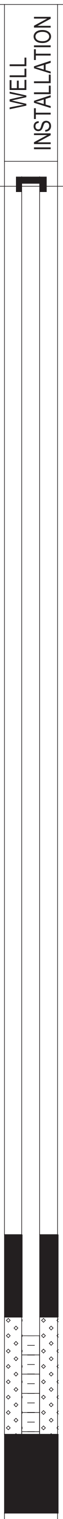
-sandy, light brown

SAND & GRAVEL, some fines, some cobbles, dense, medium brown, damp

BEDROCK

END OF BOREHOLE AT 40.5 m
Borehole wet upon completion. Monitoring well installed.

SAMPLE TYPE | SAMPLE NO | SPT (N)



OTHER TESTS COMMENTS

Top of casing (TOC) elevation is 1273.86 mASL.
Stick-up = 0.92 m.

150 mm steel casing terminates at 32.0 m.

A 50 mm Schedule 40 slotted PVC screen was installed from 35.1 m to 38.1 m.
Depth to groundwater is 38.35 m from TOC on 23 November 2011 (1235.51 mASL).
K - n/a

ELEVATION (m)
1272 1271 1270 1269 1268 1267 1266 1265 1264 1263 1262 1261 1260 1259 1258 1257 1256 1255 1254 1253 1252 1251 1250 1249 1248 1247 1246 1245 1244 1243 1242 1241 1240 1239 1238 1237 1236 1235 1234 1233 1232 1231 1230 1229

amec

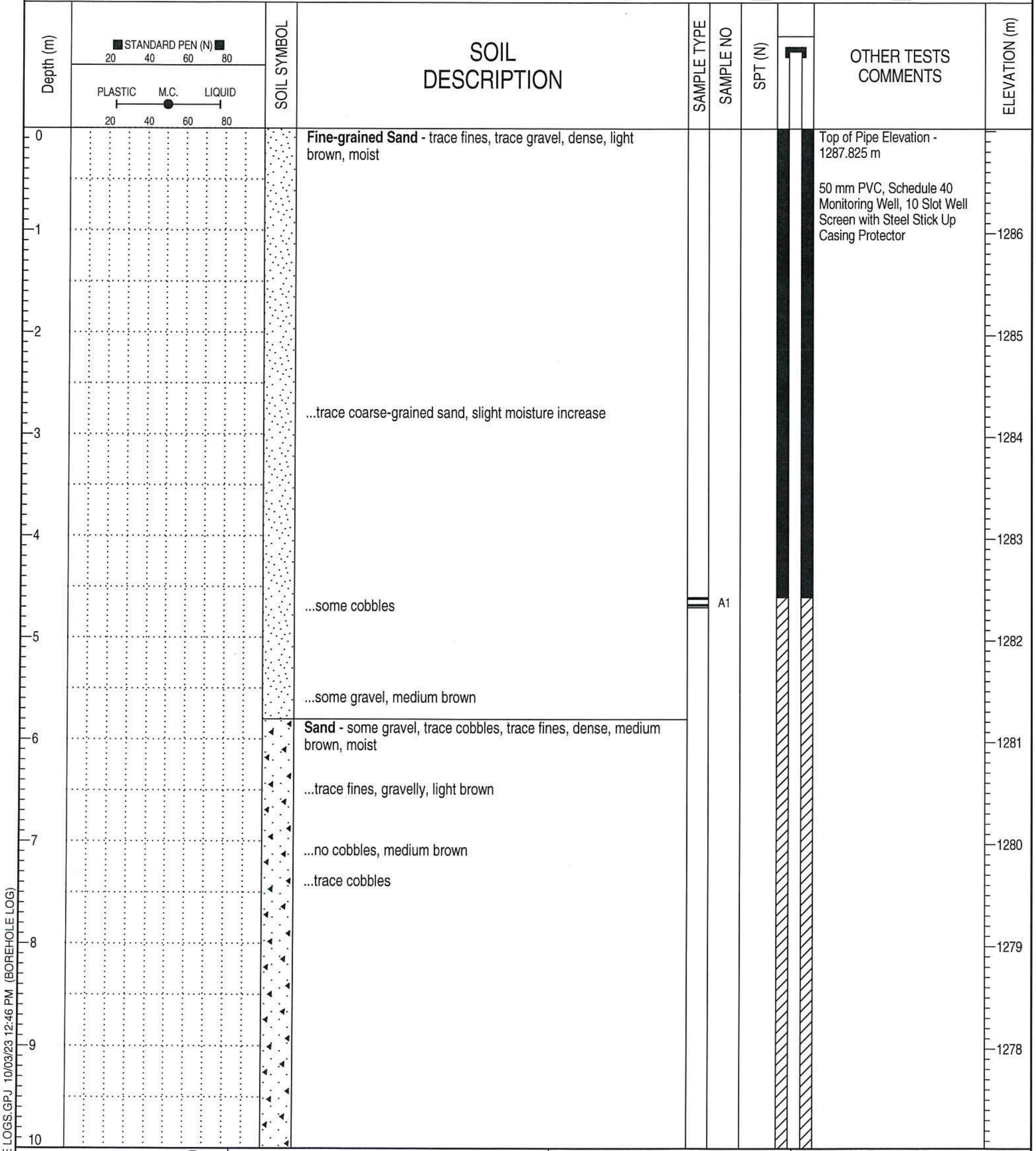
AMEC Environment & Infrastructure
Medicine Hat, Alberta

LOGGED BY: RH	COMPLETION DEPTH: 40.50 m
REVIEWED BY: LH	COMPLETION DATE: 11/22/11
	Page 1 of 1

CLIENT: Teck Coal Ltd.	PROJECT: Soil and Groundwater Assessment	BOREHOLE NO: **MW10-01**
DRILLER: J.R. Drilling	LOCATION: Line Creek Mine, Sparwood, B.C.	PROJECT NO: BX05973
DRILL/METHOD: Air Rotary	BOREHOLE LOCATION:X - 54656.9090,Y - 27929.7910	ELEVATION: 1287.025 m

SAMPLE TYPE ■ Shelby Tube ☐ No Recovery ☒ SPT Test (N) ☰ Grab Sample ▥ Split-Pen ▮ Core

BACKFILL TYPE ■ Bentonite ⁘ Pea Gravel ▥ Slough ⁘ Grout ▨ Drill Cuttings ⁘ Sand



Fine-grained Sand - trace fines, trace gravel, dense, light brown, moist

...trace coarse-grained sand, slight moisture increase

...some cobbles

...some gravel, medium brown

Sand - some gravel, trace cobbles, trace fines, dense, medium brown, moist

...trace fines, gravelly, light brown

...no cobbles, medium brown

...trace cobbles

Top of Pipe Elevation - 1287.825 m

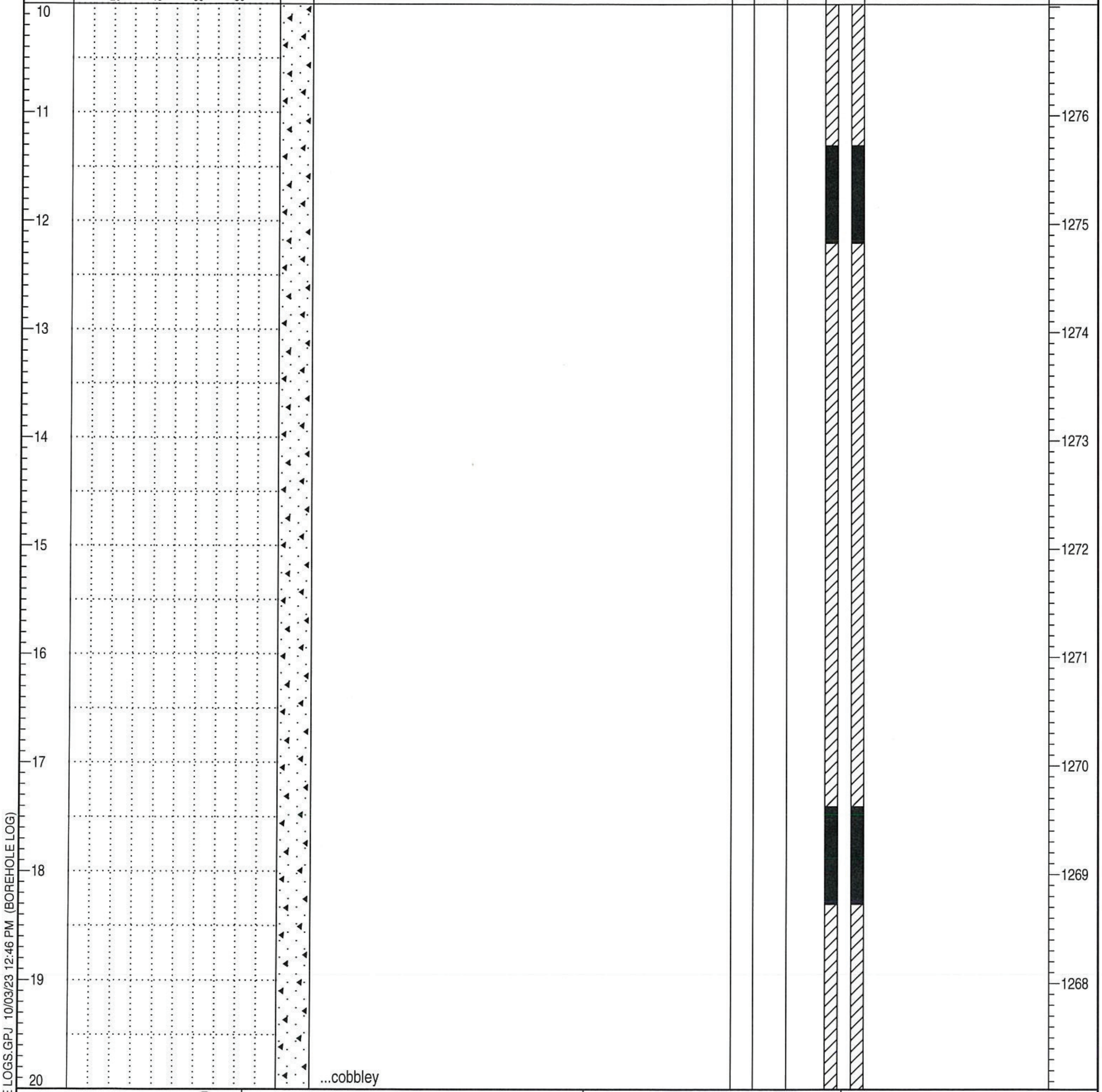
50 mm PVC, Schedule 40 Monitoring Well, 10 Slot Well Screen with Steel Stick Up Casing Protector

amec	AMEC Earth & Environmental Medicine Hat, Alberta T1A 8G3	LOGGED BY: RH REVIEWED BY: RH Fig. No: 1
		COMPLETION DEPTH: 56.40 m COMPLETION DATE: 1/20/10 Page 1 of 6

CLIENT: Teck Coal Ltd.	PROJECT: Soil and Groundwater Assessment	BOREHOLE NO: **MW10-01**
DRILLER: J.R. Drilling	LOCATION: Line Creek Mine, Sparwood, B.C.	PROJECT NO: BX05973
DRILL/METHOD: Air Rotary	BOREHOLE LOCATION:X - 54656.9090,Y - 27929.7910	ELEVATION: 1287.025 m

SAMPLE TYPE	■ Shelby Tube	◺ No Recovery	☒ SPT Test (N)	☰ Grab Sample	▥ Split-Pen	◨ Core
BACKFILL TYPE	■ Bentonite	⁚ Pea Gravel	▥ Slough	⁖ Grout	▨ Drill Cuttings	⁘ Sand

Depth (m)	■ STANDARD PEN (N) ■ 20 40 60 80 PLASTIC M.C. LIQUID 20 40 60 80	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	SPT (N)	WELL INSTALLATION	OTHER TESTS COMMENTS	ELEVATION (m)



...cobbley

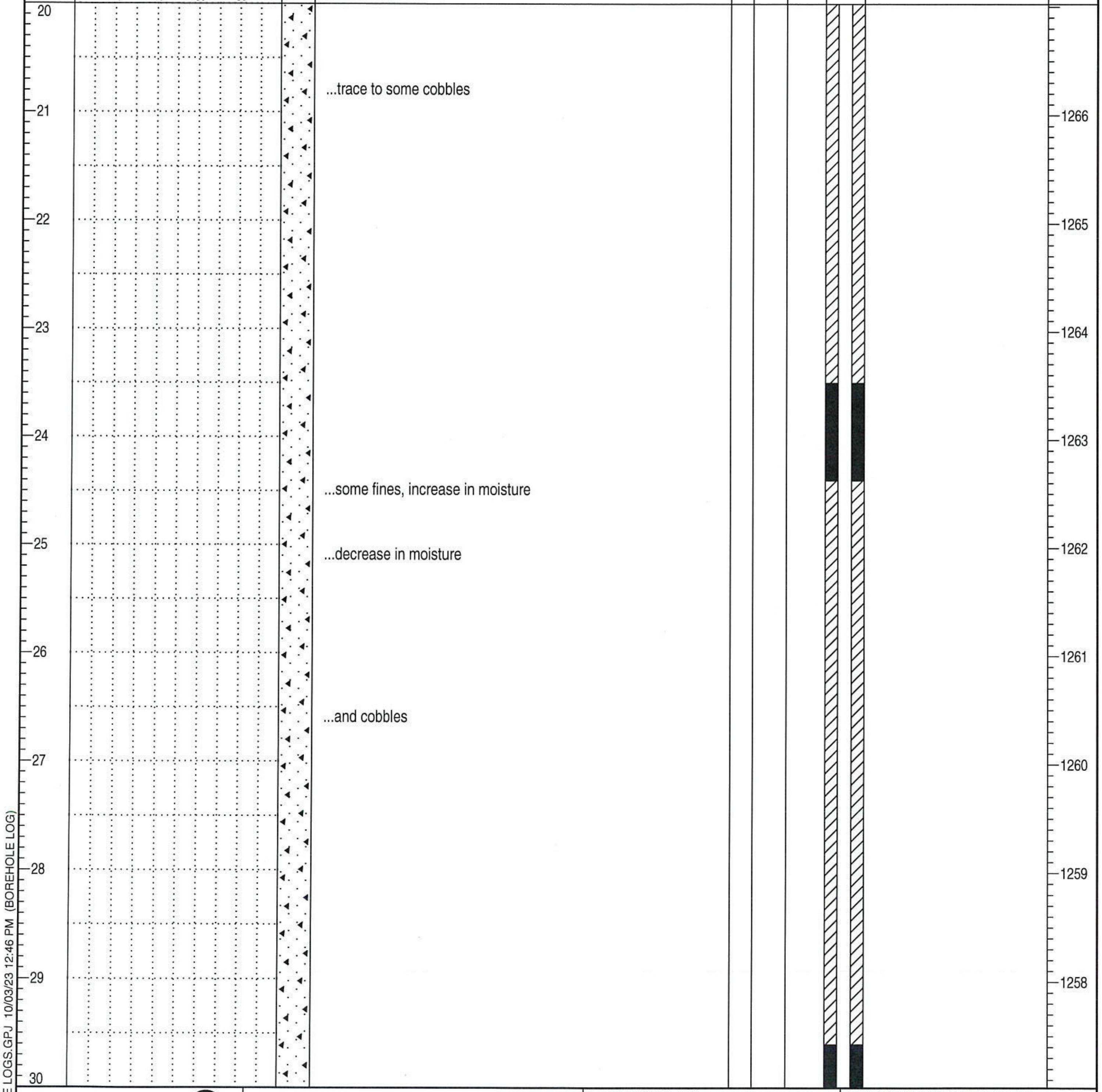
AMEC Earth & Environmental Medicine Hat, Alberta T1A 8G3	LOGGED BY: RH	COMPLETION DEPTH: 56.40 m
	REVIEWED BY: RH	COMPLETION DATE: 1/20/10
	Fig. No: 1	

CLIENT: Teck Coal Ltd.	PROJECT: Soil and Groundwater Assessment	BOREHOLE NO: **MW10-01**
DRILLER: J.R. Drilling	LOCATION: Line Creek Mine, Sparwood, B.C.	PROJECT NO: BX05973
DRILL/METHOD: Air Rotary	BOREHOLE LOCATION:X - 54656.9090,Y - 27929.7910	ELEVATION: 1287.025 m

SAMPLE TYPE ■ Shelby Tube ▨ No Recovery ☒ SPT Test (N) ☰ Grab Sample ▥ Split-Pen ▮ Core

BACKFILL TYPE ■ Bentonite ⁙ Pea Gravel ▥ Slough ⁙ Grout ▨ Drill Cuttings ⁙ Sand

Depth (m)	■ STANDARD PEN (N) ■ 20 40 60 80 PLASTIC M.C. LIQUID 20 40 60 80	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	SPT (N)	WELL INSTALLATION	OTHER TESTS COMMENTS	ELEVATION (m)



...trace to some cobbles

...some fines, increase in moisture

...decrease in moisture

...and cobbles

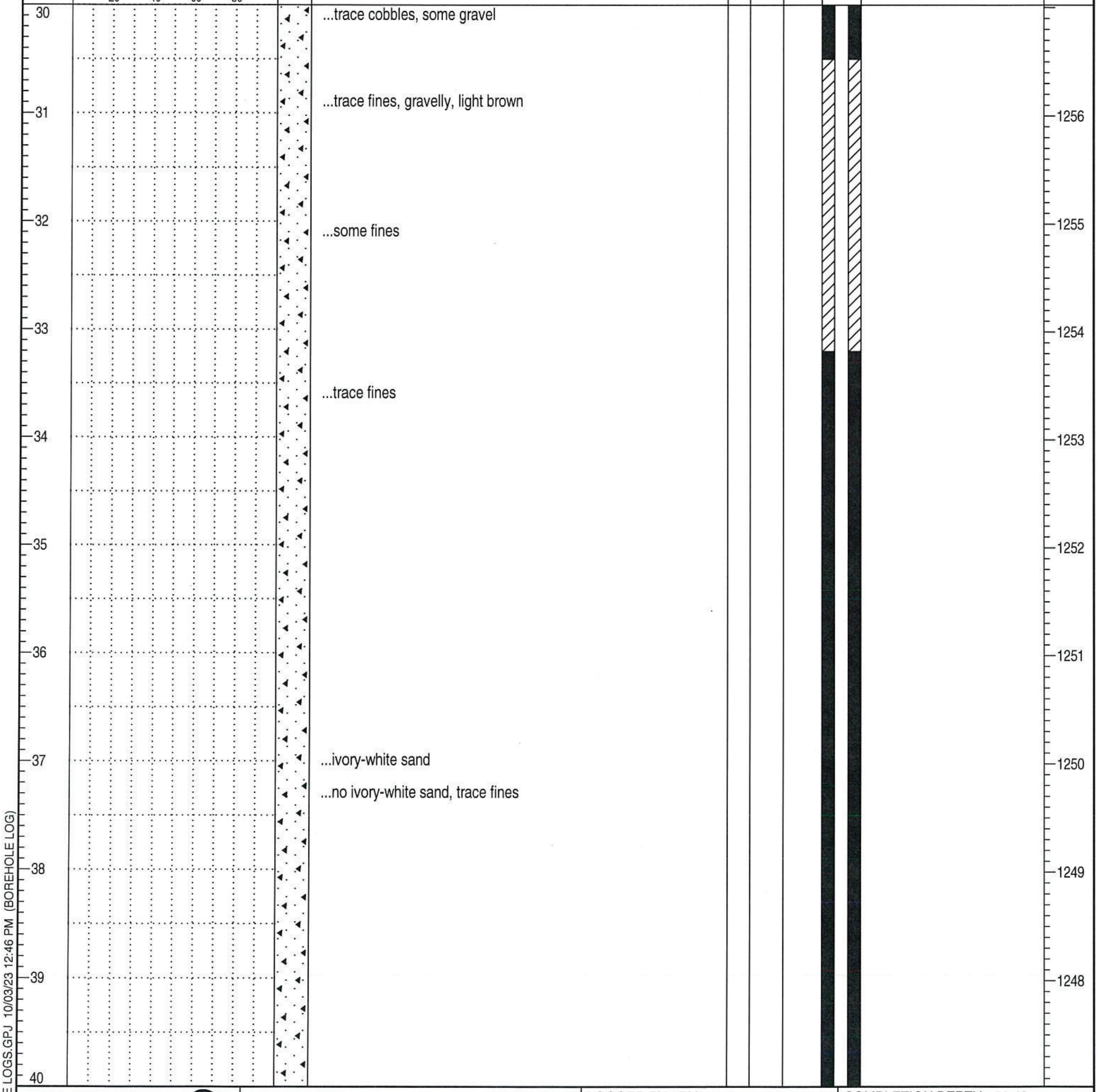
amec	AMEC Earth & Environmental Medicine Hat, Alberta T1A 8G3	LOGGED BY: RH	COMPLETION DEPTH: 56.40 m
		REVIEWED BY: RH	COMPLETION DATE: 1/20/10
		Fig. No: 1	Page 3 of 6

CLIENT: Teck Coal Ltd.	PROJECT: Soil and Groundwater Assessment	BOREHOLE NO: **MW10-01**
DRILLER: J.R. Drilling	LOCATION: Line Creek Mine, Sparwood, B.C.	PROJECT NO: BX05973
DRILL/METHOD: Air Rotary	BOREHOLE LOCATION:X - 54656.9090,Y - 27929.7910	ELEVATION: 1287.025 m

SAMPLE TYPE ■ Shelby Tube ▨ No Recovery ☒ SPT Test (N) ☰ Grab Sample ▥ Split-Pen ▮ Core

BACKFILL TYPE ■ Bentonite ⁚ Pea Gravel ▥ Slough ⁘ Grout ▨ Drill Cuttings ⁘ Sand

Depth (m)	■ STANDARD PEN (N) ■ 20 40 60 80 / PLASTIC M.C. LIQUID 20 40 60 80	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	SPT (N)	WELL INSTALLATION	OTHER TESTS COMMENTS	ELEVATION (m)



...trace cobbles, some gravel

...trace fines, gravelly, light brown

...some fines

...trace fines

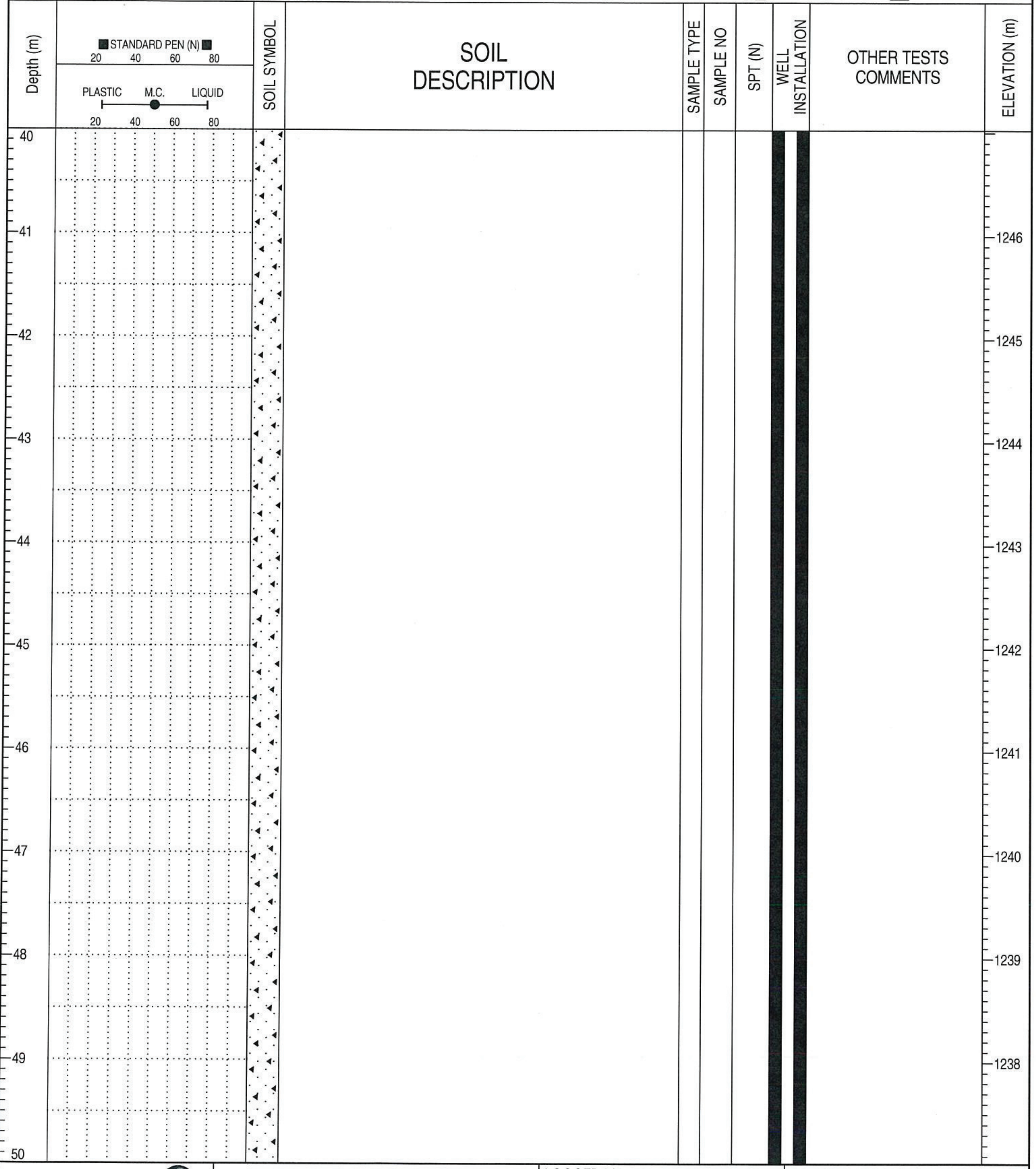
...ivory-white sand

...no ivory-white sand, trace fines

amec	AMEC Earth & Environmental Medicine Hat, Alberta T1A 8G3	LOGGED BY: RH	COMPLETION DEPTH: 56.40 m
		REVIEWED BY: RH	COMPLETION DATE: 1/20/10
		Fig. No: 1	Page 4 of 6

CLIENT: Teck Coal Ltd.	PROJECT: Soil and Groundwater Assessment	BOREHOLE NO: **MW10-01**
DRILLER: J.R. Drilling	LOCATION: Line Creek Mine, Sparwood, B.C.	PROJECT NO: BX05973
DRILL/METHOD: Air Rotary	BOREHOLE LOCATION:X - 54656.9090,Y - 27929.7910	ELEVATION: 1287.025 m

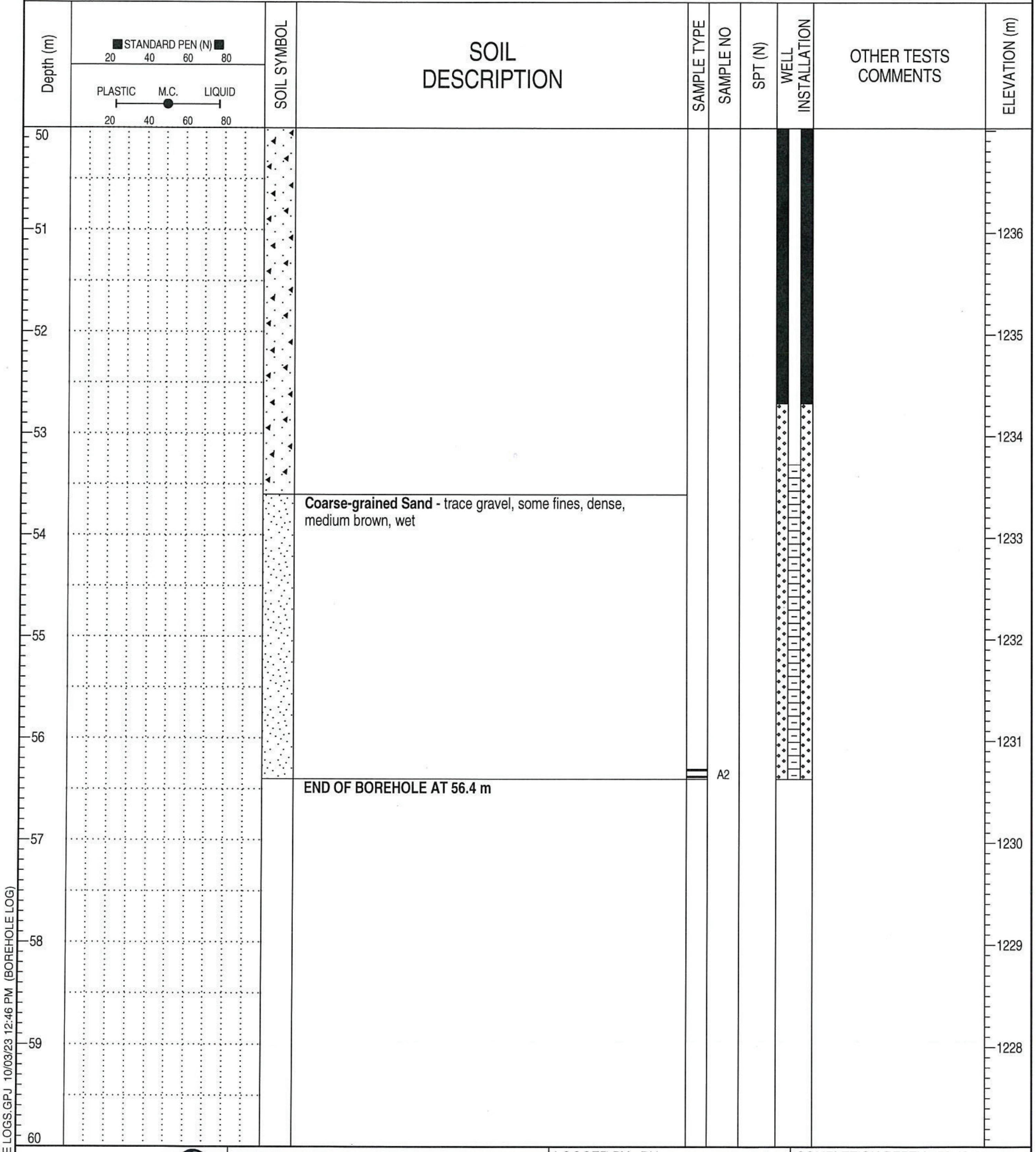
SAMPLE TYPE	■ Shelby Tube	▨ No Recovery	☒ SPT Test (N)	☰ Grab Sample	▥ Split-Pen	◧ Core
BACKFILL TYPE	■ Bentonite	⁘ Pea Gravel	▥ Slough	⁘ Grout	▨ Drill Cuttings	⁘ Sand



AMEC Earth & Environmental Medicine Hat, Alberta T1A 8G3	LOGGED BY: RH	COMPLETION DEPTH: 56.40 m
	REVIEWED BY: RH	COMPLETION DATE: 1/20/10
	Fig. No: 1	Page 5 of 6

CLIENT: Teck Coal Ltd.	PROJECT: Soil and Groundwater Assessment	BOREHOLE NO: **MW10-01**
DRILLER: J.R. Drilling	LOCATION: Line Creek Mine, Sparwood, B.C.	PROJECT NO: BX05973
DRILL/METHOD: Air Rotary	BOREHOLE LOCATION:X - 54656.9090,Y - 27929.7910	ELEVATION: 1287.025 m

SAMPLE TYPE	■ Shelby Tube	▨ No Recovery	☒ SPT Test (N)	☰ Grab Sample	▥ Split-Pen	◧ Core
BACKFILL TYPE	■ Bentonite	⁙ Pea Gravel	▥ Slough	⁘ Grout	▨ Drill Cuttings	⁙ Sand



Coarse-grained Sand - trace gravel, some fines, dense, medium brown, wet

END OF BOREHOLE AT 56.4 m

AMEC Earth & Environmental Medicine Hat, Alberta T1A 8G3	LOGGED BY: RH	COMPLETION DEPTH: 56.40 m
	REVIEWED BY: RH	COMPLETION DATE: 1/20/10
	Fig. No: 1	

CLIENT: Teck Coal Ltd.	PROJECT: Soil and Groundwater Assessment	BOREHOLE NO: **MW10-03**
DRILLER: J.R. Drilling	LOCATION: Line Creek Mine, Sparwood, B.C.	PROJECT NO: BX05973
DRILL/METHOD: Air Rotary	BOREHOLE LOCATION:X - 54627.1430, Y - 27968.0540	ELEVATION: 1283.388 m

SAMPLE TYPE: ■ Shelby Tube ◪ No Recovery ☒ SPT Test (N) ☰ Grab Sample ▥ Split-Pen ◨ Core

BACKFILL TYPE: ■ Bentonite ⁘ Pea Gravel ▥ Slough ⁙ Grout ▨ Drill Cuttings ⁘ Sand

Depth (m) | STANDARD PEN (N) 20 40 60 80 | PLASTIC M.C. LIQUID 20 40 60 80 | SOIL SYMBOL | SOIL DESCRIPTION | SAMPLE TYPE | SAMPLE NO | SPT (N) | OTHER TESTS COMMENTS | ELEVATION (m)

Depth (m): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Elevation (m): 1283, 1282, 1281, 1280, 1279, 1278, 1277, 1276, 1275, 1274

SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO
Silt - trace clay, trace gravel, very firm, low plasticity, medium brown, damp		
Fine-grained Sand - trace gravel, dense, medium brown, moist		
...some gravel		
...some coarse-grained sand, light brown		
Sand - some gravel, trace fines, dense, medium brown, moist		
...gravelly		
...some cobbles		
...faint solvent odour	☰	A1

OTHER TESTS COMMENTS:

Top of Pipe Elevation - 1284.188 m

50 mm PVC, Schedule 40 Monitoring Well, 10 Slot Well Screen with Steel Stick Up Casing Protector
200 mm steel casing pulled out to expose 1.32 m of 50 mm PVC screen. Addition extraction of steel casing was not possible after the pipe broke, leaving 200 mm of casing between 27.0 m and 54.4 m

amec	LOGGED BY: RH	COMPLETION DEPTH: 55.80 m
AMEC Earth & Environmental Medicine Hat, Alberta T1A 8G3	REVIEWED BY: RH	COMPLETION DATE: 1/22/10
	Fig. No: 3	Page 1 of 6

CLIENT: Teck Coal Ltd.	PROJECT: Soil and Groundwater Assessment	BOREHOLE NO: **MW10-03**
DRILLER: J.R. Drilling	LOCATION: Line Creek Mine, Sparwood, B.C.	PROJECT NO: BX05973
DRILL/METHOD: Air Rotary	BOREHOLE LOCATION:X - 54627.1430, Y - 27968.0540	ELEVATION: 1283.388 m

SAMPLE TYPE: ■ Shelby Tube ▨ No Recovery ☒ SPT Test (N) ☰ Grab Sample ▥ Split-Pen ◨ Core

BACKFILL TYPE: ■ Bentonite ⁛ Pea Gravel ▥ Slough ⁛ Grout ▨ Drill Cuttings ⁛ Sand

Depth (m)	■ STANDARD PEN (N) ■ 20 40 60 80 / PLASTIC M.C. LIQUID 20 40 60 80	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	SPT (N)	WELL INSTALLATION	OTHER TESTS COMMENTS	ELEVATION (m)
10									
			...and gravel						
									1273
11									
			...gravelly						
									1272
12									
									1271
13									
									1270
			...some gravel, damp						
14									
									1269
15									
									1268
16									
									1267
			...trace gravel						
17									
									1266
18									
			...some gravel, moist						1265
19									
									1264
20									

BOREHOLE LOGS.GPJ 10/03/23 12:47 PM (BOREHOLE LOG)

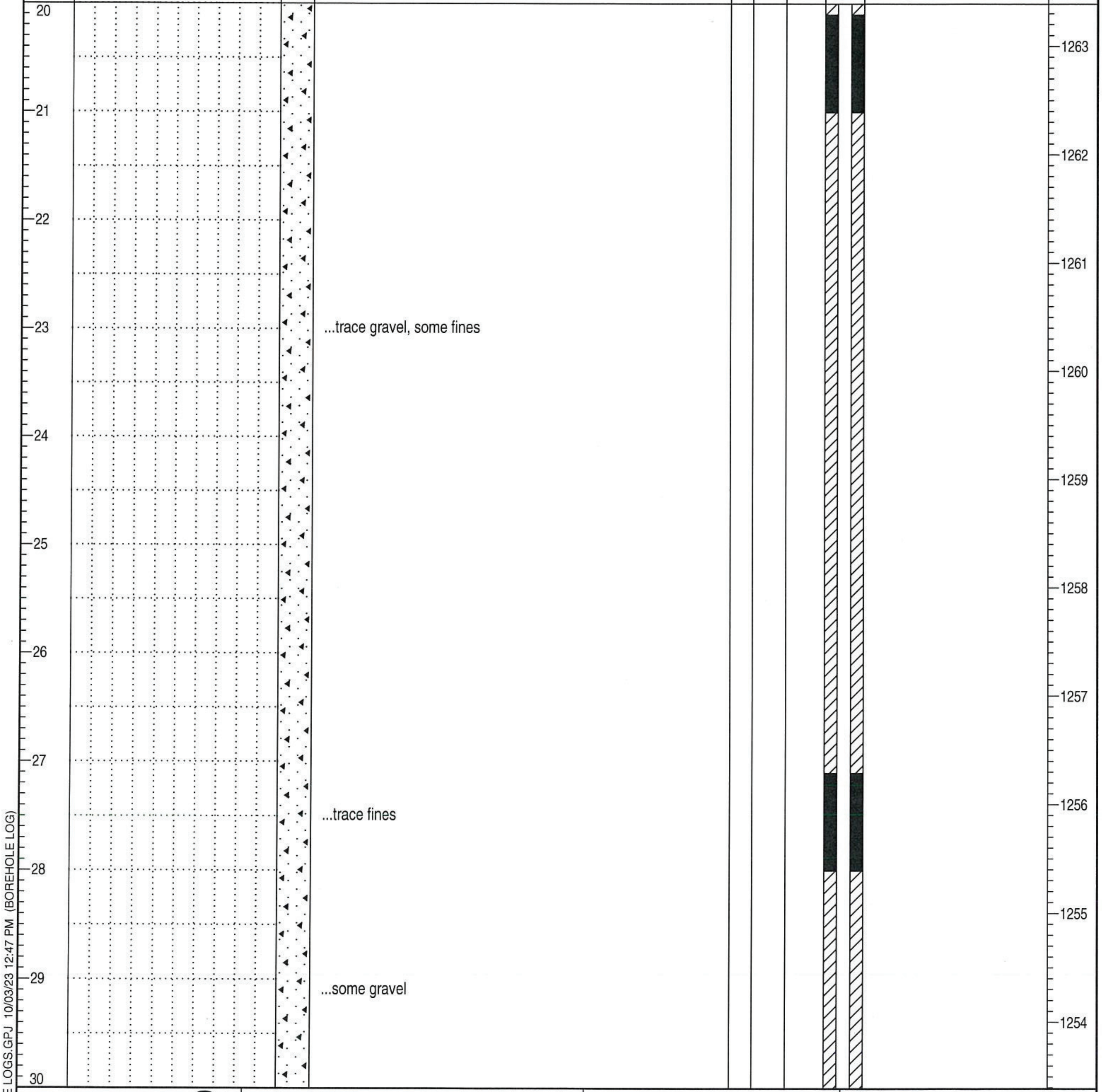
amec	AMEC Earth & Environmental Medicine Hat, Alberta T1A 8G3	LOGGED BY: RH	COMPLETION DEPTH: 55.80 m
		REVIEWED BY: RH	COMPLETION DATE: 1/22/10
		Fig. No: 3	Page 2 of 6

LC_PIZP1003

CLIENT: Teck Coal Ltd.	PROJECT: Soil and Groundwater Assessment	BOREHOLE NO: **MW10-03**
DRILLER: J.R. Drilling	LOCATION: Line Creek Mine, Sparwood, B.C.	PROJECT NO: BX05973
DRILL/METHOD: Air Rotary	BOREHOLE LOCATION:X - 54627.1430, Y - 27968.0540	ELEVATION: 1283.388 m

SAMPLE TYPE	■ Shelby Tube	▨ No Recovery	☒ SPT Test (N)	☰ Grab Sample	▥ Split-Pen	▮ Core
BACKFILL TYPE	■ Bentonite	⁘ Pea Gravel	▥ Slough	⁘ Grout	▨ Drill Cuttings	⁘ Sand

Depth (m)	■ STANDARD PEN (N) ■ 20 40 60 80 PLASTIC M.C. LIQUID 20 40 60 80	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	SPT (N)	WELL INSTALLATION	OTHER TESTS COMMENTS	ELEVATION (m)



...trace gravel, some fines

...trace fines

...some gravel

AMEC Earth & Environmental
Medicine Hat, Alberta T1A 8G3

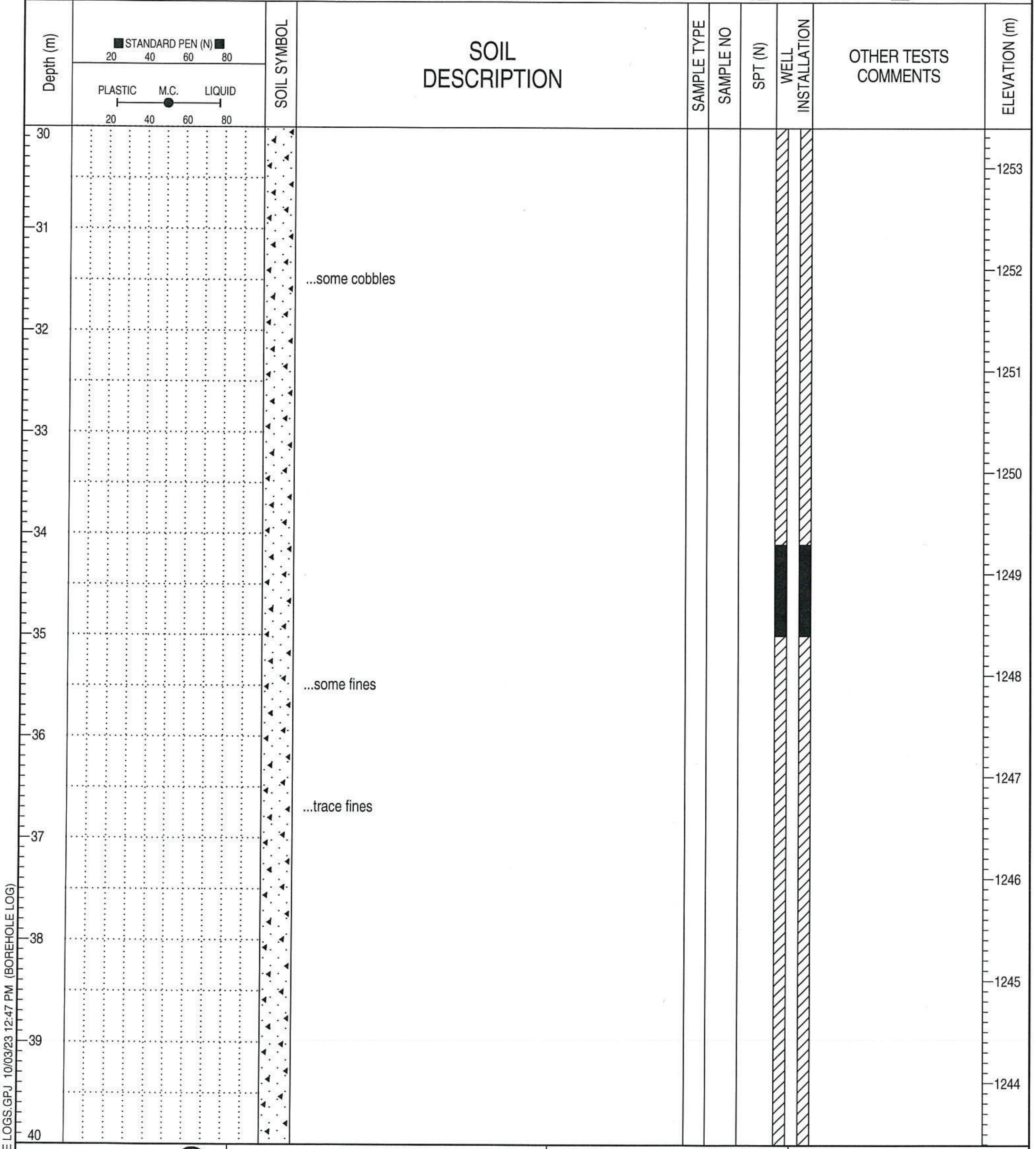
LOGGED BY: RH	COMPLETION DEPTH: 55.80 m
REVIEWED BY: RH	COMPLETION DATE: 1/22/10
Fig. No: 3	Page 3 of 6

BOREHOLE LOGS.GPJ 10/03/23 12:47 PM (BOREHOLE LOG)

LC_PIZP1003

CLIENT: Teck Coal Ltd.	PROJECT: Soil and Groundwater Assessment	BOREHOLE NO: **MW10-03**
DRILLER: J.R. Drilling	LOCATION: Line Creek Mine, Sparwood, B.C.	PROJECT NO: BX05973
DRILL/METHOD: Air Rotary	BOREHOLE LOCATION:X - 54627.1430, Y - 27968.0540	ELEVATION: 1283.388 m

SAMPLE TYPE	■ Shelby Tube	◿ No Recovery	☒ SPT Test (N)	☰ Grab Sample	▥ Split-Pen	◨ Core
BACKFILL TYPE	■ Bentonite	⁙ Pea Gravel	▥ Slough	⁘ Grout	▨ Drill Cuttings	⁙ Sand



...some cobbles

...some fines

...trace fines

BOREHOLE LOGS.GPJ 10/03/23 12:47 PM (BOREHOLE LOG)

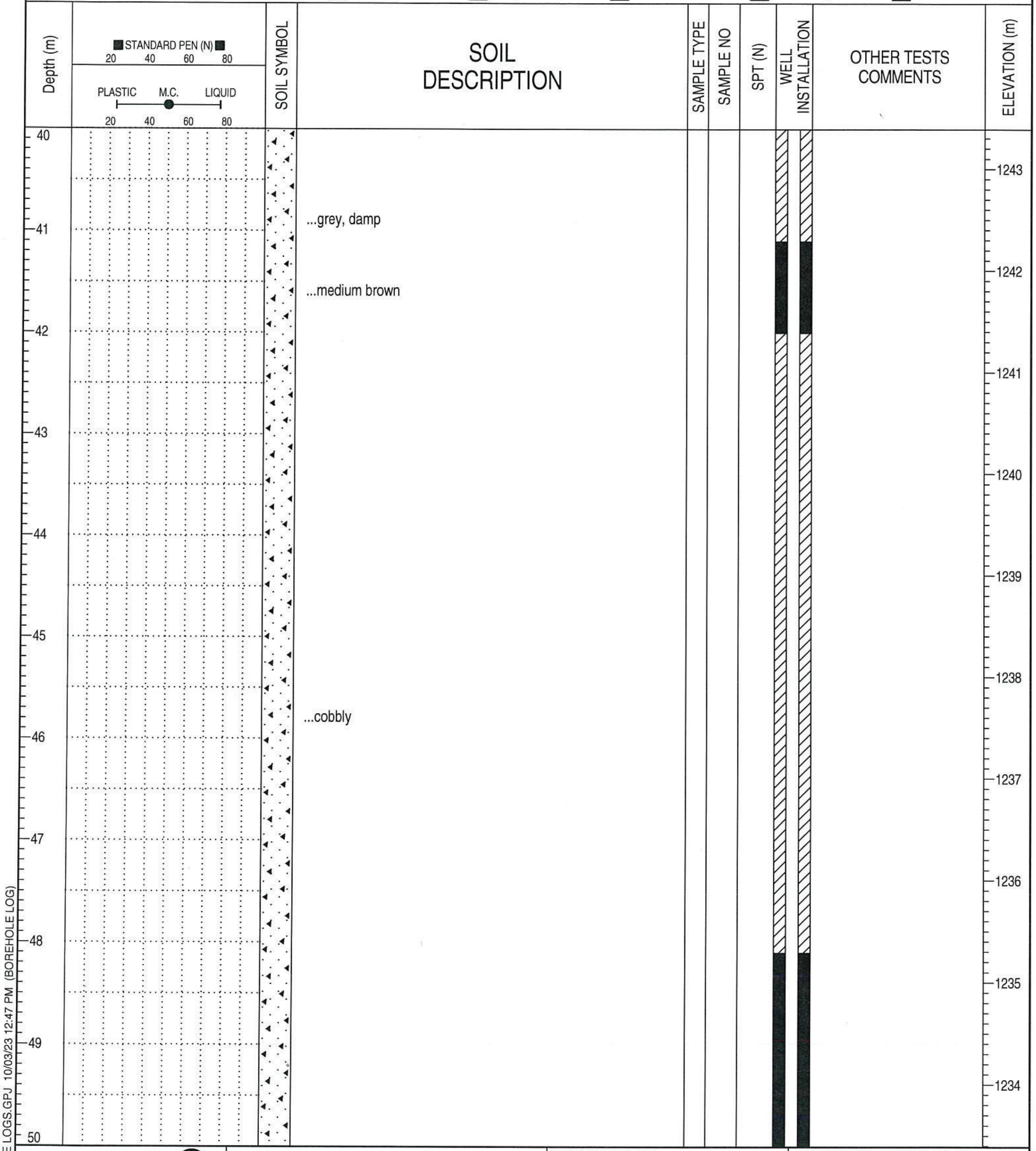
amec

AMEC Earth & Environmental
Medicine Hat, Alberta T1A 8G3

LOGGED BY: RH	COMPLETION DEPTH: 55.80 m
REVIEWED BY: RH	COMPLETION DATE: 1/22/10
Fig. No: 3	Page 4 of 6

CLIENT: Teck Coal Ltd.	PROJECT: Soil and Groundwater Assessment	BOREHOLE NO: **MW10-03**
DRILLER: J.R. Drilling	LOCATION: Line Creek Mine, Sparwood, B.C.	PROJECT NO: BX05973
DRILL/METHOD: Air Rotary	BOREHOLE LOCATION:X - 54627.1430, Y - 27968.0540	ELEVATION: 1283.388 m

SAMPLE TYPE	■ Shelby Tube	◪ No Recovery	☒ SPT Test (N)	☰ Grab Sample	▥ Split-Pen	▐ Core
BACKFILL TYPE	■ Bentonite	⁚ Pea Gravel	▥ Slough	⁘ Grout	▨ Drill Cuttings	⁘ Sand



...grey, damp

...medium brown

...cobbly

amec

AMEC Earth & Environmental
Medicine Hat, Alberta T1A 8G3

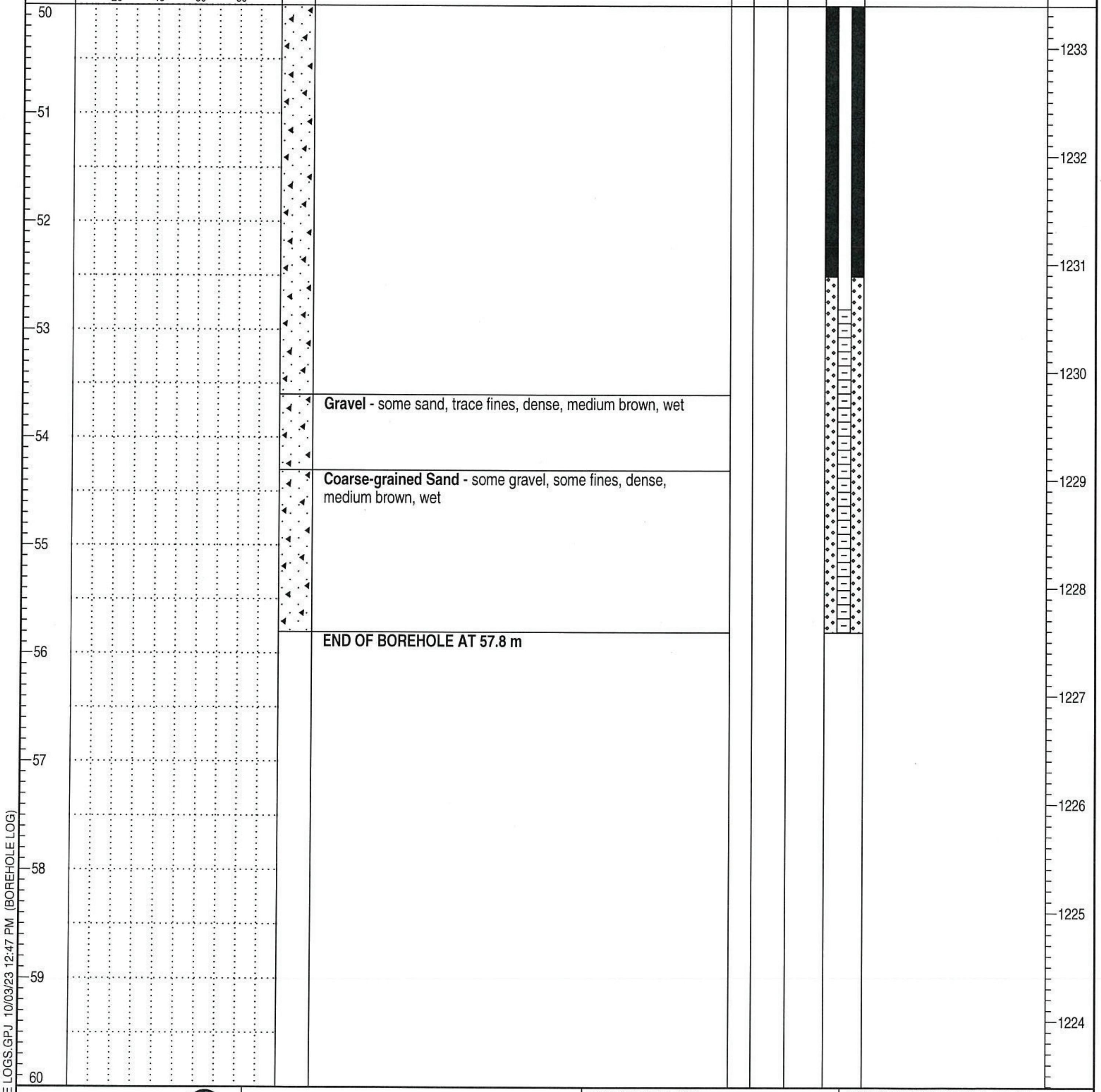
LOGGED BY: RH	COMPLETION DEPTH: 55.80 m
REVIEWED BY: RH	COMPLETION DATE: 1/22/10
Fig. No: 3	Page 5 of 6

CLIENT: Teck Coal Ltd.	PROJECT: Soil and Groundwater Assessment	BOREHOLE NO: **MW10-03**
DRILLER: J.R. Drilling	LOCATION: Line Creek Mine, Sparwood, B.C.	PROJECT NO: BX05973
DRILL/METHOD: Air Rotary	BOREHOLE LOCATION:X - 54627.1430, Y - 27968.0540	ELEVATION: 1283.388 m

SAMPLE TYPE ■ Shelby Tube ▨ No Recovery ☒ SPT Test (N) ☰ Grab Sample ▥ Split-Pen ▮ Core

BACKFILL TYPE ■ Bentonite ⁘ Pea Gravel ▥ Slough ⁘ Grout ▨ Drill Cuttings ⁘ Sand

Depth (m)	STANDARD PEN (N) 20 40 60 80 PLASTIC M.C. LIQUID 20 40 60 80	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	SPT (N)	WELL INSTALLATION	OTHER TESTS COMMENTS	ELEVATION (m)



Gravel - some sand, trace fines, dense, medium brown, wet

Coarse-grained Sand - some gravel, some fines, dense, medium brown, wet

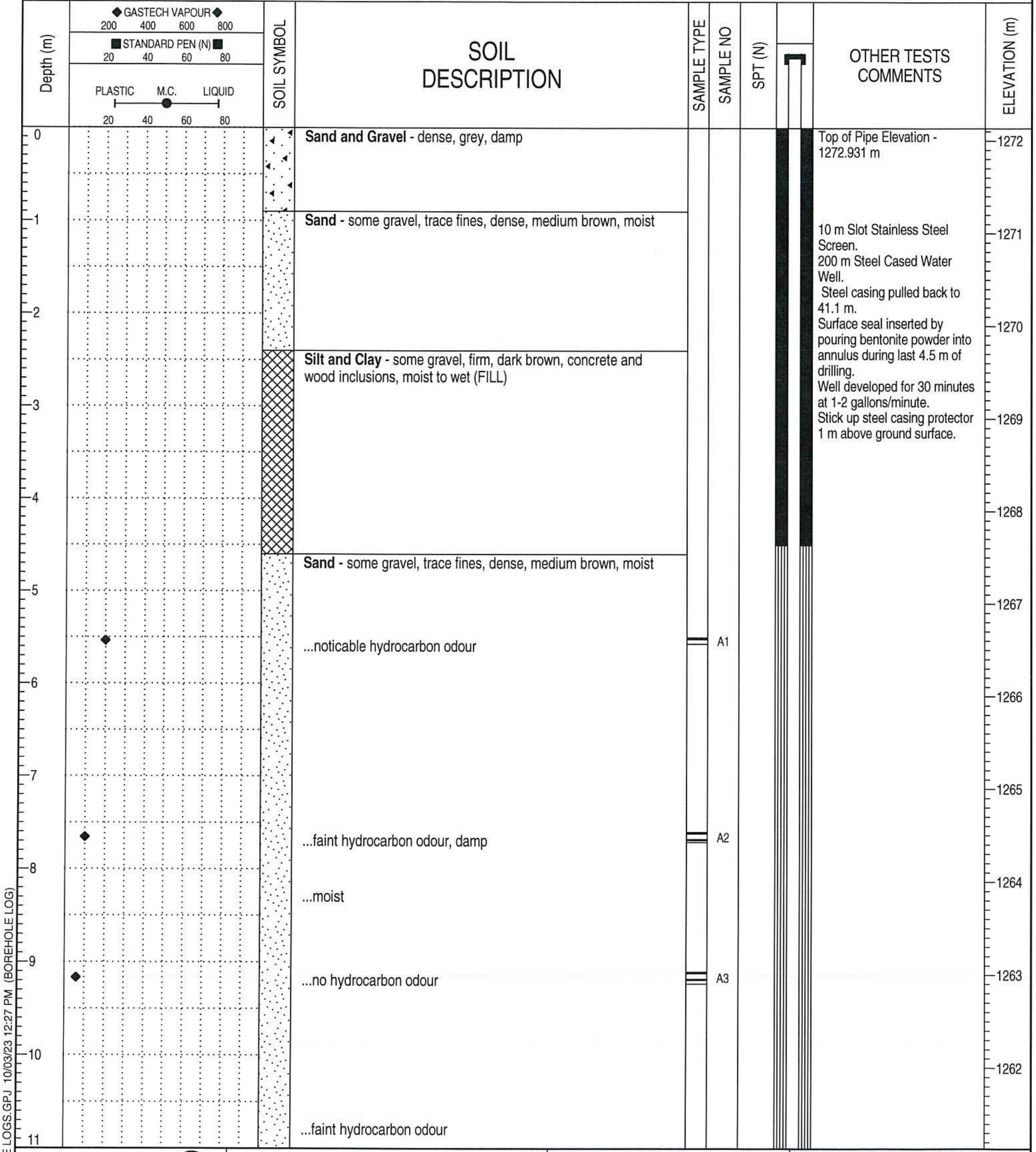
END OF BOREHOLE AT 57.8 m

AMEC Earth & Environmental Medicine Hat, Alberta T1A 8G3	LOGGED BY: RH	COMPLETION DEPTH: 55.80 m
	REVIEWED BY: RH	COMPLETION DATE: 1/22/10
	Fig. No: 3	Page 6 of 6

LC_PIZP1002

CLIENT: Teck Coal Ltd.	PROJECT: Soil and Groundwater Assessment	BOREHOLE NO: **MW10-02**
DRILLER: J.R. Drilling	LOCATION: Line Creek Mine, Sparwood, B.C.	PROJECT NO: BX05973
DRILL/METHOD: Air Rotary	BOREHOLE LOCATION: X-54273.7949,Y- 27669.2550	ELEVATION: 1272.131 m

SAMPLE TYPE	■ Shelby Tube	◿ No Recovery	☒ SPT Test (N)	☰ Grab Sample	▥ Split-Pen	▮ Core
BACKFILL TYPE	■ Bentonite	⁘ Pea Gravel	▥ Slough	⁘ Grout	▨ Drill Cuttings	⁘ Sand



SOIL DESCRIPTION	SAMPLE NO
Sand and Gravel - dense, grey, damp	
Sand - some gravel, trace fines, dense, medium brown, moist	
Silt and Clay - some gravel, firm, dark brown, concrete and wood inclusions, moist to wet (FILL)	
Sand - some gravel, trace fines, dense, medium brown, moist	
...noticable hydrocarbon odour	A1
...faint hydrocarbon odour, damp	A2
...moist	
...no hydrocarbon odour	A3
...faint hydrocarbon odour	

OTHER TESTS COMMENTS

Top of Pipe Elevation - 1272.931 m

10 m Slot Stainless Steel Screen.
200 m Steel Cased Water Well.
Steel casing pulled back to 41.1 m.
Surface seal inserted by pouring bentonite powder into annulus during last 4.5 m of drilling.
Well developed for 30 minutes at 1-2 gallons/minute.
Stick up steel casing protector 1 m above ground surface.

BOREHOLE LOGS.GPJ 10/03/23 12:27 PM (BOREHOLE LOG)

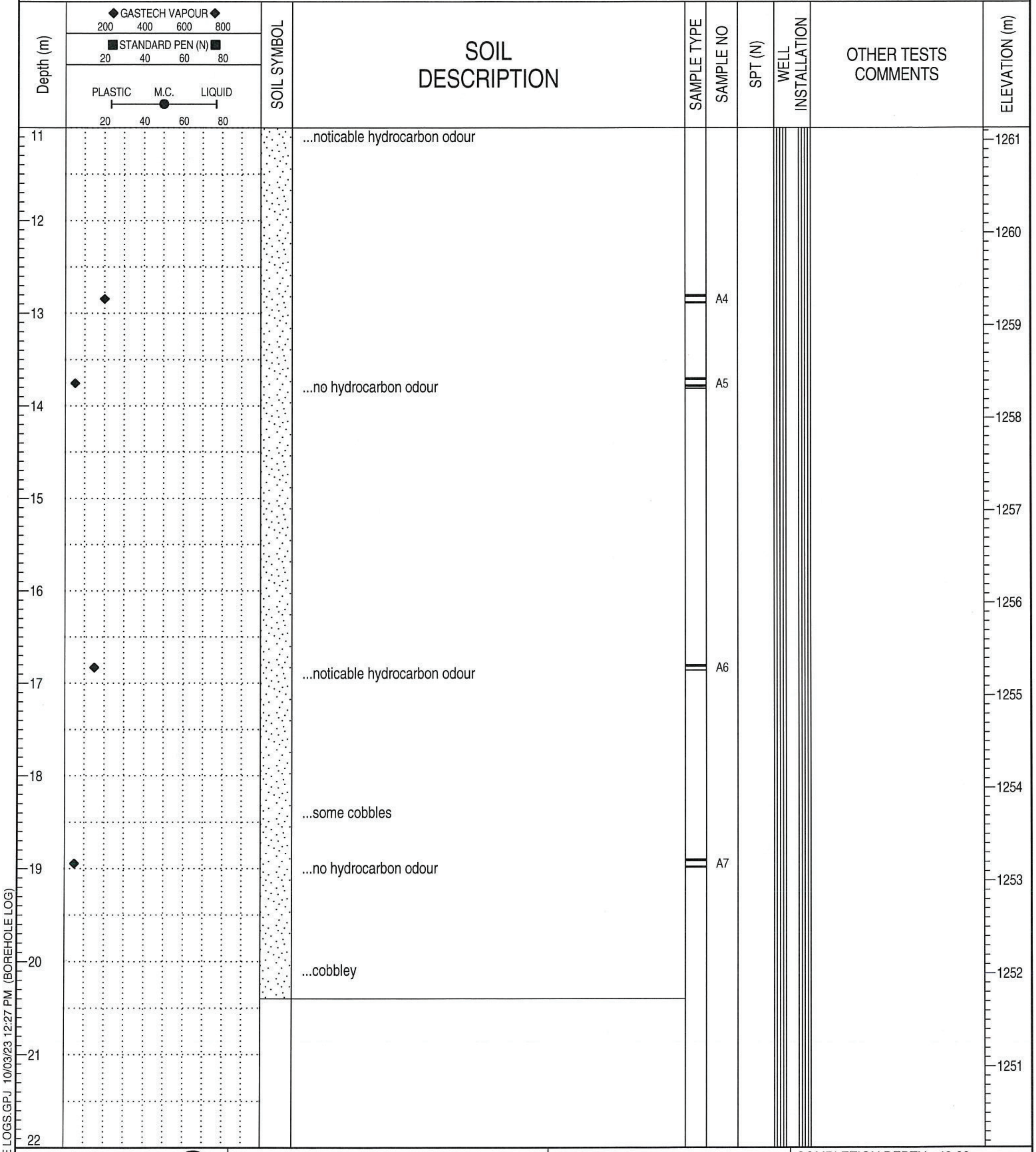
amec	AMEC Earth & Environmental Medicine Hat, Alberta T1A 8G3	LOGGED BY: RH	COMPLETION DEPTH: 43.60 m
		REVIEWED BY: RH	COMPLETION DATE: 1/21/10
		Fig. No: 2	Page 1 of 4

LC_PIZP1002

CLIENT: Teck Coal Ltd.	PROJECT: Soil and Groundwater Assessment	BOREHOLE NO: **MW10-02**
DRILLER: J.R. Drilling	LOCATION: Line Creek Mine, Sparwood, B.C.	PROJECT NO: BX05973
DRILL/METHOD: Air Rotary	BOREHOLE LOCATION: X-54273.7949,Y- 27669.2550	ELEVATION: 1272.131 m

SAMPLE TYPE ■ Shelby Tube ▨ No Recovery ☒ SPT Test (N) ☰ Grab Sample ▥ Split-Pen ▮ Core

BACKFILL TYPE ■ Bentonite ⬚ Pea Gravel ▥ Slough ⁙ Grout ▨ Drill Cuttings ⁙ Sand



...noticable hydrocarbon odour

...no hydrocarbon odour

...noticable hydrocarbon odour

...some cobbles

...no hydrocarbon odour

...cobbley

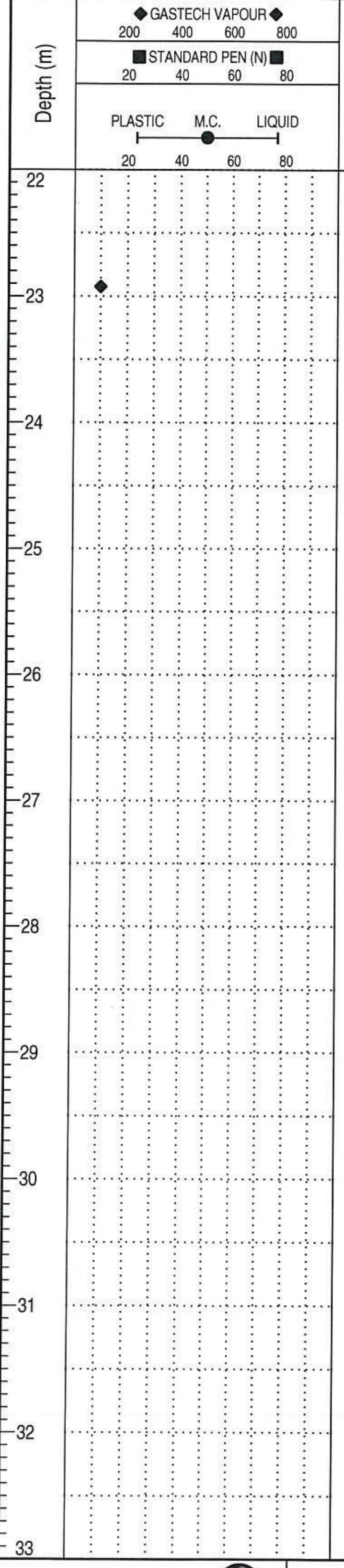
AMEC Earth & Environmental Medicine Hat, Alberta T1A 8G3	LOGGED BY: RH	COMPLETION DEPTH: 43.60 m
	REVIEWED BY: RH	COMPLETION DATE: 1/21/10
	Fig. No: 2	

CLIENT: Teck Coal Ltd.	PROJECT: Soil and Groundwater Assessment	BOREHOLE NO: **MW10-02**
DRILLER: J.R. Drilling	LOCATION: Line Creek Mine, Sparwood, B.C.	PROJECT NO: BX05973
DRILL/METHOD: Air Rotary	BOREHOLE LOCATION: X-54273.7949,Y- 27669.2550	ELEVATION: 1272.131 m

SAMPLE TYPE ■ Shelby Tube ▨ No Recovery ☒ SPT Test (N) ☰ Grab Sample ▥ Split-Pen ▮ Core

BACKFILL TYPE ■ Bentonite ⁚ Pea Gravel ▥ Slough ⁘ Grout ▨ Drill Cuttings ⁘ Sand

Depth (m)	◆ GASTECH VAPOUR ◆ 200 400 600 800 ■ STANDARD PEN (N) ■ 20 40 60 80 PLASTIC M.C. LIQUID 20 40 60 80	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	SPT (N)	WELL INSTALLATION	OTHER TESTS COMMENTS	ELEVATION (m)
22									1250
23	◆			☰	A8				1249
24									1248
25			...fine-grained sand, some gravel						1247
26			...no hydrocarbon odour ...noticable hydrocarbon odour						1246
27									1245
28									1244
29									1243
30									1242
31									1241
32									1240
33									



BOREHOLE LOGS.GPJ 10/03/23 12:27 PM (BOREHOLE LOG)

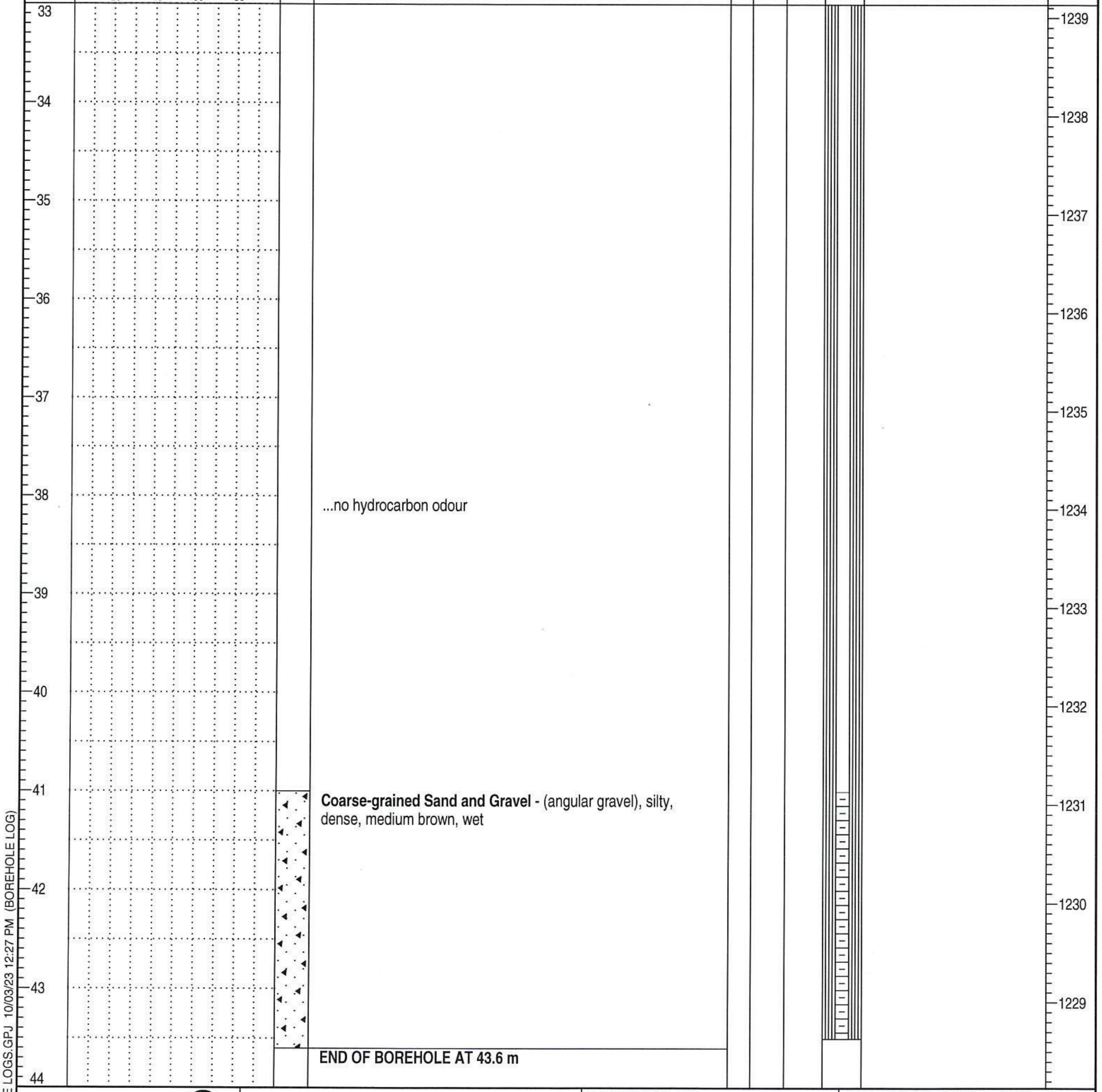
amec	LOGGED BY: RH	COMPLETION DEPTH: 43.60 m
AMEC Earth & Environmental Medicine Hat, Alberta T1A 8G3	REVIEWED BY: RH	COMPLETION DATE: 1/21/10
	Fig. No: 2	Page 3 of 4

LC_PIZP1002

CLIENT: Teck Coal Ltd.	PROJECT: Soil and Groundwater Assessment	BOREHOLE NO: **MW10-02**
DRILLER: J.R. Drilling	LOCATION: Line Creek Mine, Sparwood, B.C.	PROJECT NO: BX05973
DRILL/METHOD: Air Rotary	BOREHOLE LOCATION: X-54273.7949,Y- 27669.2550	ELEVATION: 1272.131 m

SAMPLE TYPE	■ Shelby Tube	▨ No Recovery	☒ SPT Test (N)	☰ Grab Sample	▥ Split-Pen	▮ Core
BACKFILL TYPE	■ Bentonite	⁘ Pea Gravel	▥ Slough	⁘ Grout	▨ Drill Cuttings	⁘ Sand

Depth (m)	◆ GASTECH VAPOUR ◆ 200 400 600 800 ■ STANDARD PEN (N) ■ 20 40 60 80 PLASTIC M.C. LIQUID 20 40 60 80	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	SPT (N)	WELL INSTALLATION	OTHER TESTS COMMENTS	ELEVATION (m)



...no hydrocarbon odour

Coarse-grained Sand and Gravel - (angular gravel), silty, dense, medium brown, wet

END OF BOREHOLE AT 43.6 m

amec	LOGGED BY: RH	COMPLETION DEPTH: 43.60 m
AMEC Earth & Environmental Medicine Hat, Alberta T1A 8G3	REVIEWED BY: RH	COMPLETION DATE: 1/21/10
	Fig. No: 2	Page 4 of 4

FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : LC_BH_ER4A**
	Location **Regional Groundwater Monitoring**	PAGE 1 OF 3

Drilling Contractor	Owen's Drilling	Date Monitored	2020 05 20	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1192.955	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1193.924	Date Drilled:	2020 05 08
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5525918.369	Easting: 653205.305	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
☐ Odex

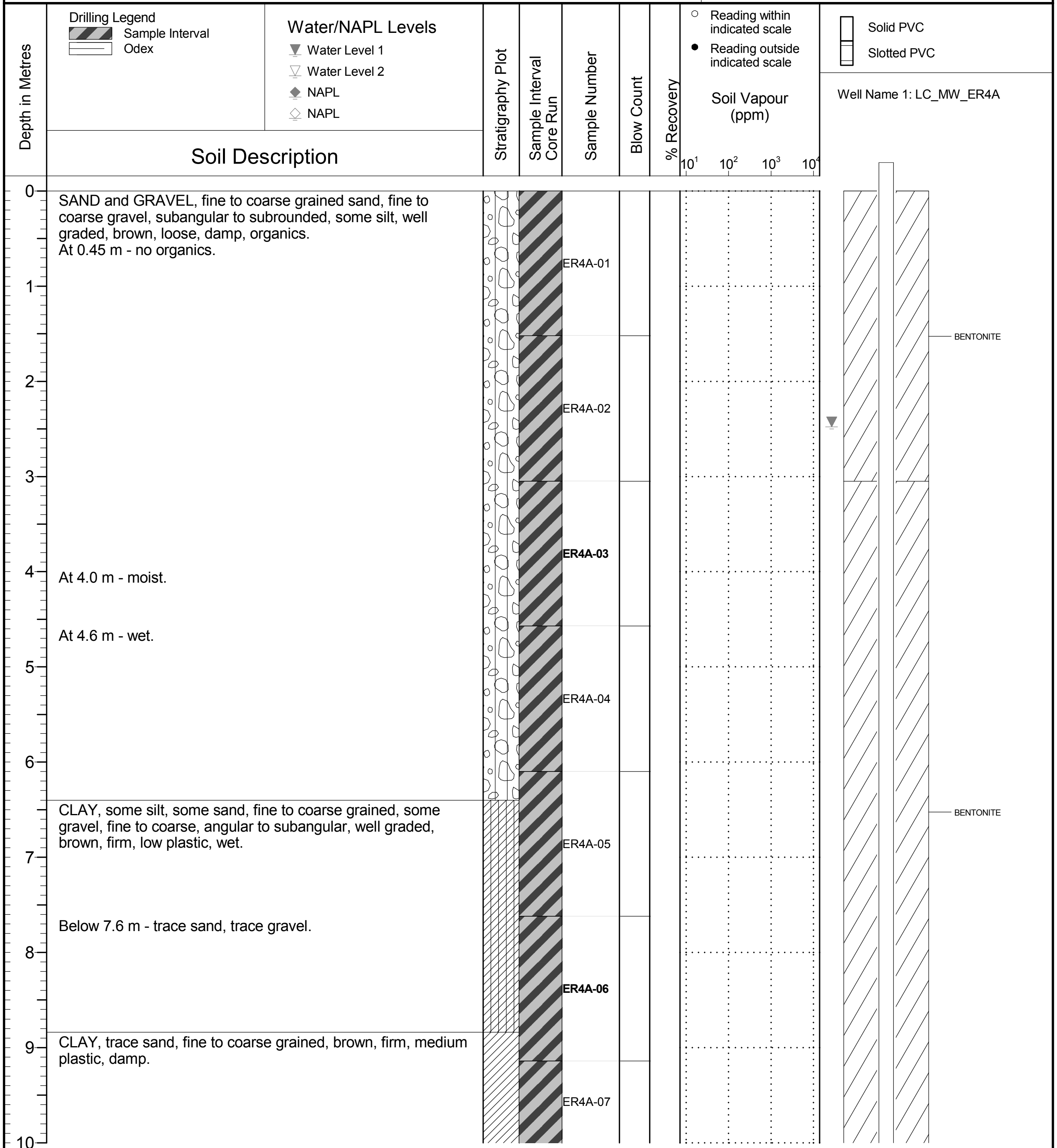
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

☐ Solid PVC
☐ Slotted PVC

Well Name 1: LC_MW_ER4A

Depth in Metres	Soil Description
0	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subangular to subrounded, some silt, well graded, brown, loose, damp, organics. At 0.45 m - no organics.
4.0	At 4.0 m - moist.
4.6	At 4.6 m - wet.
6.4	CLAY, some silt, some sand, fine to coarse grained, some gravel, fine to coarse, angular to subangular, well graded, brown, firm, low plastic, wet.
7.6	Below 7.6 m - trace sand, trace gravel.
8.8	CLAY, trace sand, fine to coarse grained, brown, firm, medium plastic, damp.



NOTES
Bolded sample denotes sample analyzed.

QA/QC: MB 2020 06 22 Print Date:2020-12-02

FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : LC_BH_ER4A**
	Location **Regional Groundwater Monitoring**	PAGE 2 OF 3

Drilling Contractor	Owen's Drilling	Date Monitored	2020 05 20	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1192.955	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1193.924	Date Drilled:	2020 05 08
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5525918.369	Easting: 653205.305	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ☰ Odex

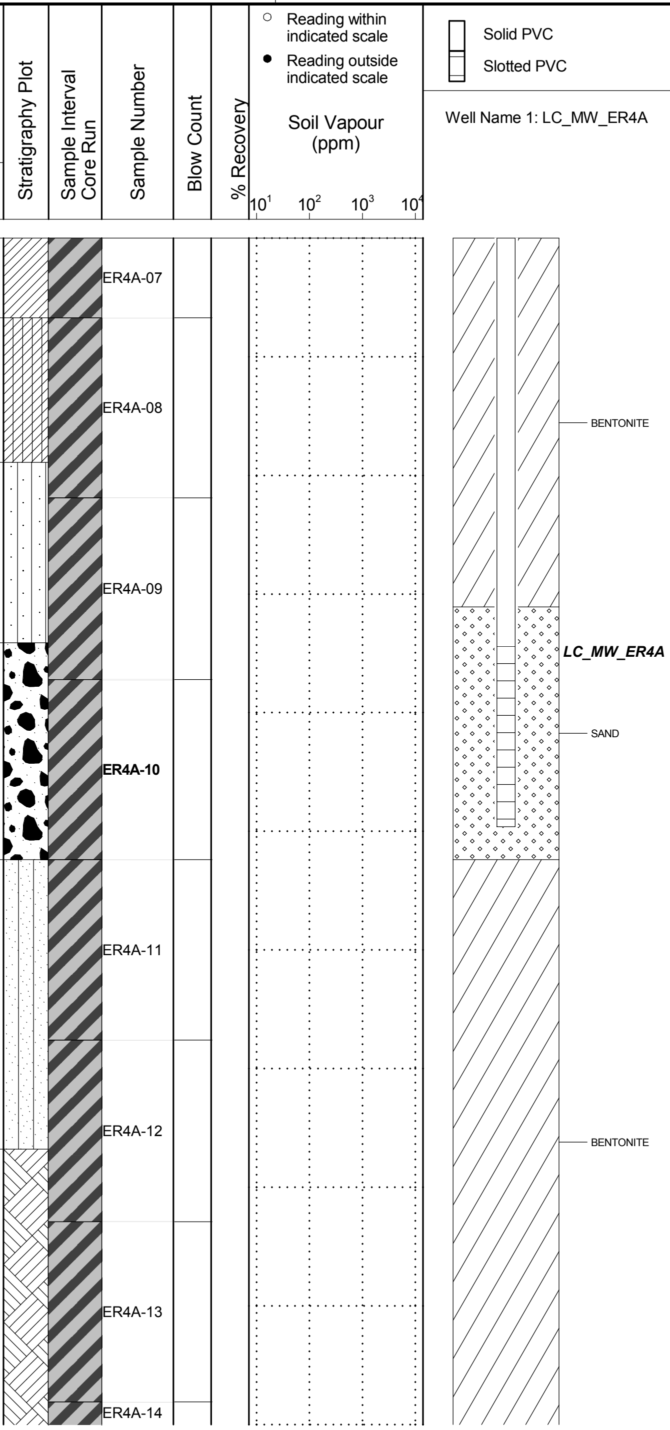
Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- Solid PVC
- Slotted PVC

Well Name 1: LC_MW_ER4A

Depth in Metres	Soil Description
10	CLAY, trace sand, fine to coarse grained, brown, firm, medium plastic, damp. *(continued)*
	SILT, some clay, brown, soft, wet.
12	SAND and SILT, fine grained sand, poorly graded, brown, very soft, wet.
	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subrounded to subangular, trace silt, well graded, grey, medium dense, wet.
	SAND, fine to coarse grained, some gravel, fine to coarse, subrounded to subangular, some silt, well graded, brown, medium dense, wet. At 16.8 m - possible weathered bedrock.
	BEDROCK, siltstone, dark grey, weathered, mixed with some sand, fine to coarse grained, trace gravel, subrounded to rounded. At 19.2 m - bedrock competent, soft.
20	



NOTES
Bolded sample denotes sample analyzed.

FINAL

SNC•LAVALIN	Client **Teck Coal Limited**	**Borehole No. : LC_BH_ER4A**
	Location **Regional Groundwater Monitoring**	PAGE 3 OF 3

Drilling Contractor	Owen's Drilling	Date Monitored	2020 05 20	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1192.955	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1193.924	Date Drilled:	2020 05 08
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5525918.369	Easting: 653205.305	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
☐ Odex

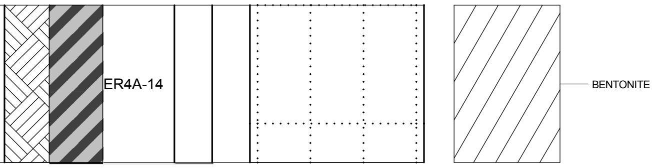
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: LC_MW_ER4A

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4
20–21.3	BEDROCK, siltstone, dark grey, weathered, mixed with some sand, fine to coarse grained, trace gravel, subrounded to rounded. *(continued)*			ER4A-14			
21.3	Bottom of hole at 21.3 m.						



Depth scale: 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30

NOTES
Bolded sample denotes sample analyzed.

QA/QC: MB 2020 06 22 Print Date:2020-12-02

FINAL

SNC·LAVALIN

Client **Teck Coal Limited**		**Borehole No. : LC_BH_ER4B**
Location **Regional Groundwater Monitoring**		PAGE 1 OF 1

Drilling Contractor	Owen's Drilling	Date Monitored	2020 05 20	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1192.892	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1193.852	Date Drilled:	2020 05 09
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5525917.200	Easting: 653205.946	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ☰ Odex

Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- ▯ Solid PVC
- ▤ Slotted PVC

Well Name 1: LC_MW_ER4B

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)

Depth in Metres: 0 1 2 3 4 5 6 7 8 9 10

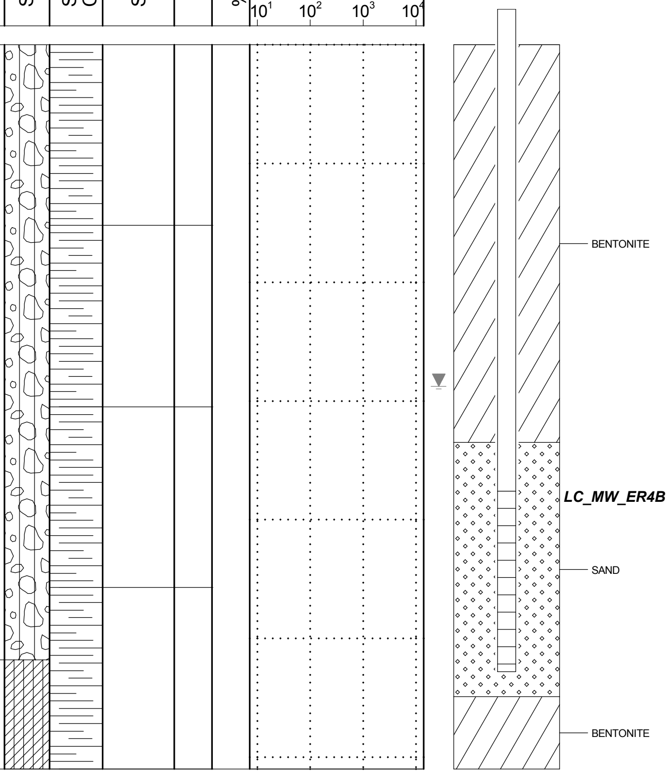
SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subangular to subrounded, some silt, well graded, brown, loose, damp, organics.
At 0.45 m - no organics.

At 4.0 m - moist.

At 4.6 m - wet.

CLAY, some silt, some sand, fine to coarse grained, some gravel, fine to coarse, angular to subangular, well graded, brown, firm, low plastic, wet.

Bottom of hole at 6.1 m.



NOTES

QA/QC: MB 2020 06 22 Print Date:2020-12-02

Elkview Operations

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_GV3gw

SHEET 1 OF 3

LOCATION: See Location Plan

N: 5522255 E: 656580

BORING DATE: October 23, 2013

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	ELEV. / DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa nat V. + Q- ● rem V. ⊕ U- O (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
	Sonic 127 mm (ID) Casing 152.4 mm (OD) JR Drilling	Ground Surface	400.51							Stick-up =0.91 m
0		SANDY GRAVEL, fine-grained, sub-angular to angular, moderately graded, dry, very loose	0.00							
1										
		SAND, some gravel, fine to coarse-grained, sub-rounded to sub-angular, moderately graded, dry, very loose	398.98 1.52							
2										
		SANDY GRAVEL, fine-grained, sub-angular to angular, moderately graded, dry, very loose	397.61 2.90							
3										
4										
		SAND, some gravel, localized thin zones of gravel, fine to coarse-grained, sub-rounded to sub-angular, moderately graded, moist, very loose	395.94 4.57							
5										Bentonite Chips
6										
7										
8										
9										
10										15 Nov 2013 ⊽

CONTINUED NEXT PAGE

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: RT

CHECKED: CD

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_GV3gw

SHEET 2 OF 3

LOCATION: See Location Plan

N: 5522255 E: 656580

BORING DATE: October 23, 2013

DATUM: UTM Zone 11 (Nad 83)

DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m: 20 40 60 80

SHEAR STRENGTH Cu, kPa: nat V. + Q- ● rem V. ⊕ U- ○ — 20 40 60 80

HYDRAULIC CONDUCTIVITY, k, cm/s: 10^{-6} 10^{-5} 10^{-4} 10^{-3}

WATER CONTENT PERCENT: Wp ⊢ —○W— ⊣ Wl — 10 20 30 40

BORING METHOD: Sonic 127 mm (ID) Casing 152.4 mm (OD)
 JR Drilling

DEPTH SCALE METRES	SOIL PROFILE DESCRIPTION	ELEV. / DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10	SAND, some gravel, localized thin zones of gravel, fine to coarse-grained, sub-rounded to sub-angular, moderately graded, moist, very loose *(continued)*						
11							
12							
13	SILTY GRAVEL, fine-grained, sub-rounded to sub-angular, poorly graded, wet, very loose	387.55 12.95					
14							
15	GRAVEL, fine-grained, sub-rounded to sub-angular, well graded, moist, very loose	385.88 14.63					Bentonite Chips
16	SAND, some gravel, fine to coarse-grained, sub-rounded to sub-angular, moderately graded, moist, very loose	384.35 16.15					
17	GRAVEL, some silt, fine-grained, sub-rounded to sub-angular, poorly graded, moist, very loose	382.98 17.53					
18							
19	SILTY GRAVEL, fine-grained, sub-rounded to sub-angular, poorly graded, wet, very loose	381.46 19.05					
20							

CONTINUED NEXT PAGE

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: RT
CHECKED: CD

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_GV3gw

SHEET 3 OF 3

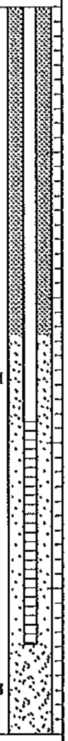
LOCATION: See Location Plan

N: 5522255 E: 656580

BORING DATE: October 23, 2013

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80); SHEAR STRENGTH Cu, kPa nat V. + Q- ● rem V. ⊕ U- O (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}); WATER CONTENT PERCENT Wp ⊢—O W—⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
20	Sonic 127 mm (ID) Casing 152.4 mm (OD) JR Drilling	SILTY GRAVEL, fine-grained, sub-rounded to sub-angular, poorly graded, wet, very loose *(continued)*									
21		SILTY GRAVEL, fine and coarse-grained, sub-angular to angular, poorly graded, wet, very loose		379.63 20.88							Bentonite Chips
22											Silica Sand
23											Slotted Section
24											Silica Sand
25		End of BOREHOLE. NOTES: Standpipe installed to 24.4 m upon well completion. Groundwater level measured at 9.9 mbgs on November 15, 2013.		375.51 25.00							
26											
27											
28											
29											
30											



DEPTH SCALE
1 : 50

Golder Associates

LOGGED: RT
CHECKED: CD

FINAL

SNC • LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_GV3gwS**
	Location **Regional Groundwater Monitoring**	PAGE 1 OF 2

Drilling Contractor Owen's Drilling
Drilling Method Odex
Borehole Dia. (m) 0.13
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2020 08 31
Ground Surface Elev. (m) 1307.011
Top of Casing Elev. (m) 1307.883
Northing: 5522259.297 Easting: 656580.106

Project Number: 631283
Borehole Logged By: MTB
Date Drilled: 2020 08 10
Log Typed By: AS

Drilling Legend
▨ Sample Interval
☰ Odex

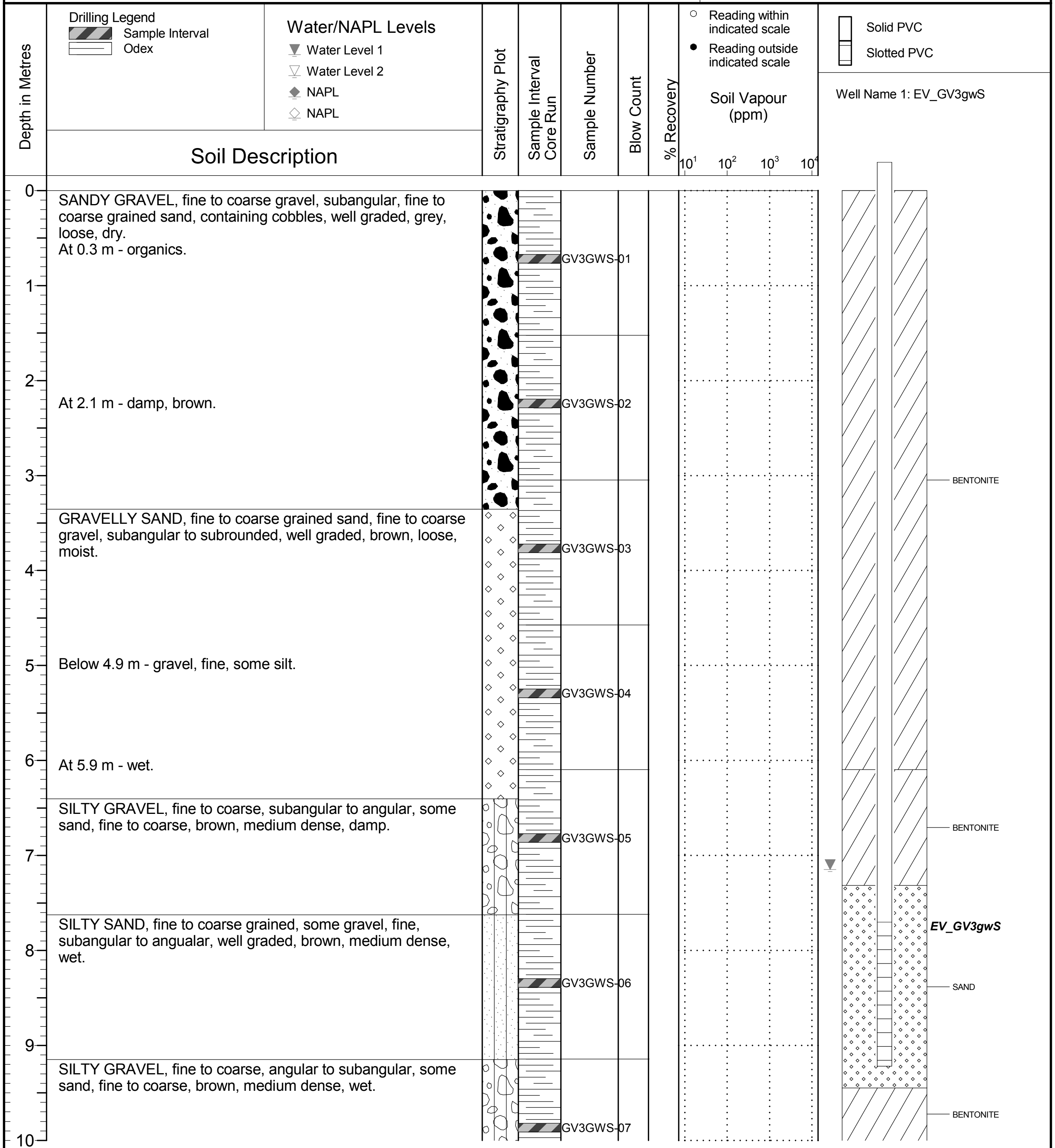
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▤ Slotted PVC

Well Name 1: EV_GV3gwS

Depth in Metres	Soil Description
0	SANDY GRAVEL, fine to coarse gravel, subangular, fine to coarse grained sand, containing cobbles, well graded, grey, loose, dry. At 0.3 m - organics.
2	At 2.1 m - damp, brown.
3	GRAVELLY SAND, fine to coarse grained sand, fine to coarse gravel, subangular to subrounded, well graded, brown, loose, moist.
5	Below 4.9 m - gravel, fine, some silt.
6	At 5.9 m - wet.
6	SILTY GRAVEL, fine to coarse, subangular to angular, some sand, fine to coarse, brown, medium dense, damp.
7	SILTY SAND, fine to coarse grained, some gravel, fine, subangular to angualar, well graded, brown, medium dense, wet.
9	SILTY GRAVEL, fine to coarse, angular to subangular, some sand, fine to coarse, brown, medium dense, wet.



NOTES
Bolded sample denotes sample analyzed.
* Denotes blind field duplicate.

QA/QC: LLH 2020 10 19 Print Date:2020-12-02

FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_GV3gwS**
	Location **Regional Groundwater Monitoring**	PAGE 2 OF 2

Drilling Contractor	Owen's Drilling	Date Monitored	2020 08 31	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1307.011	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1307.883	Date Drilled:	2020 08 10
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5522259.297	Easting: 656580.106	Log Typed By:	AS

Drilling Legend
- ▨ Sample Interval
- ☰ Odex

Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

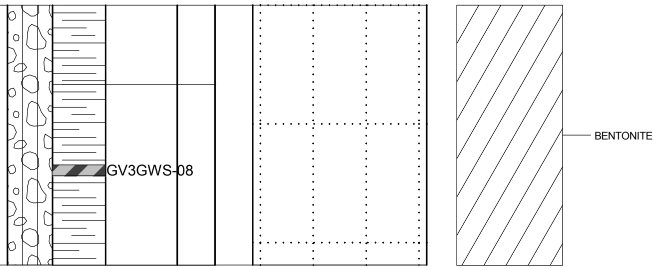
- ○ Reading within indicated scale
- ● Reading outside indicated scale

- ☐ Solid PVC
- ☐ Slotted PVC

Well Name 1: EV_GV3gwS

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)

10 — SILTY GRAVEL, fine to coarse, angular to subangular, some sand, fine to coarse, brown, medium dense, wet. *(continued)*



11

12

Bottom of hole at 12.2 m.

13

14

15

16

17

18

19

20

NOTES
Bolded sample denotes sample analyzed.
* Denotes blind field duplicate.

QA/QC: LLH 2020 10 19 Print Date:2020-12-02

FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_GV4A**
	Location **Regional Groundwater Monitoring**	PAGE 1 OF 2

Drilling Contractor	Owen's Drilling	Date Monitored	2020 08 31	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1310.661	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1311.532	Date Drilled:	2020 08 09
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5522317.465	Easting: 656664.666	Log Typed By:	AS

Drilling Legend
- ▨ Sample Interval
- ☰ Odex

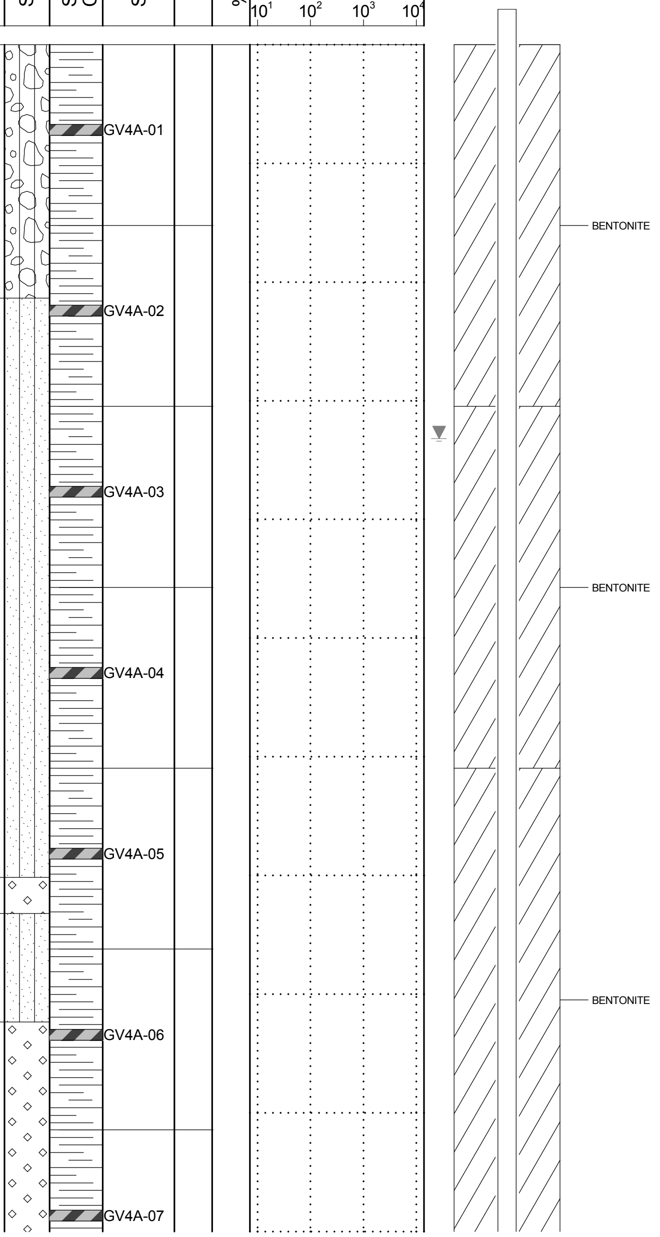
Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- ▯ Solid PVC
- ▯ Slotted PVC

Well Name 1: EV_MW_GV4A

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4
0	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subangular, some silt, well graded, brown, loose, moist, organics. At 1.07 m - wet.			GV4A-01			
2.1	SILTY, GRAVELLY SAND, fine to coarse grained, fine gravel, subangular, well graded, brown, medium dense, moist. Below 4.0 m - some clay, loose, wet.			GV4A-02 GV4A-03 GV4A-04 GV4A-05			
7.0	SAND, fine to coarse grained, trace silt, trace gravel, subrounded, light brown, medium dense, dry.						
7.3	SILT and SAND, fine to coarse grained sand, some gravel, fine, subangular, some clay, well graded, light brown, medium dense, wet.						
8.2	SAND, fine to coarse grained, some gravel, fine, angular, trace clay, well graded, light brown, dense, wet.			GV4A-06 GV4A-07			



NOTES
Bolded sample denotes sample analyzed.
* Denotes blind field duplicate.

QA/QC: LLH 2020 10 19 Print Date:2020-12-02

FINAL

SNC • LAVALIN

Client **Teck Coal Limited**		**Borehole No. : EV_BH_GV4A**
Location **Regional Groundwater Monitoring**		PAGE 2 OF 2

Drilling Contractor	Owen's Drilling	Date Monitored	2020 08 31	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1310.661	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1311.532	Date Drilled:	2020 08 09
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5522317.465	Easting: 656664.666	Log Typed By:	AS

Drilling Legend
- ▨ Sample Interval
- ☰ Odex

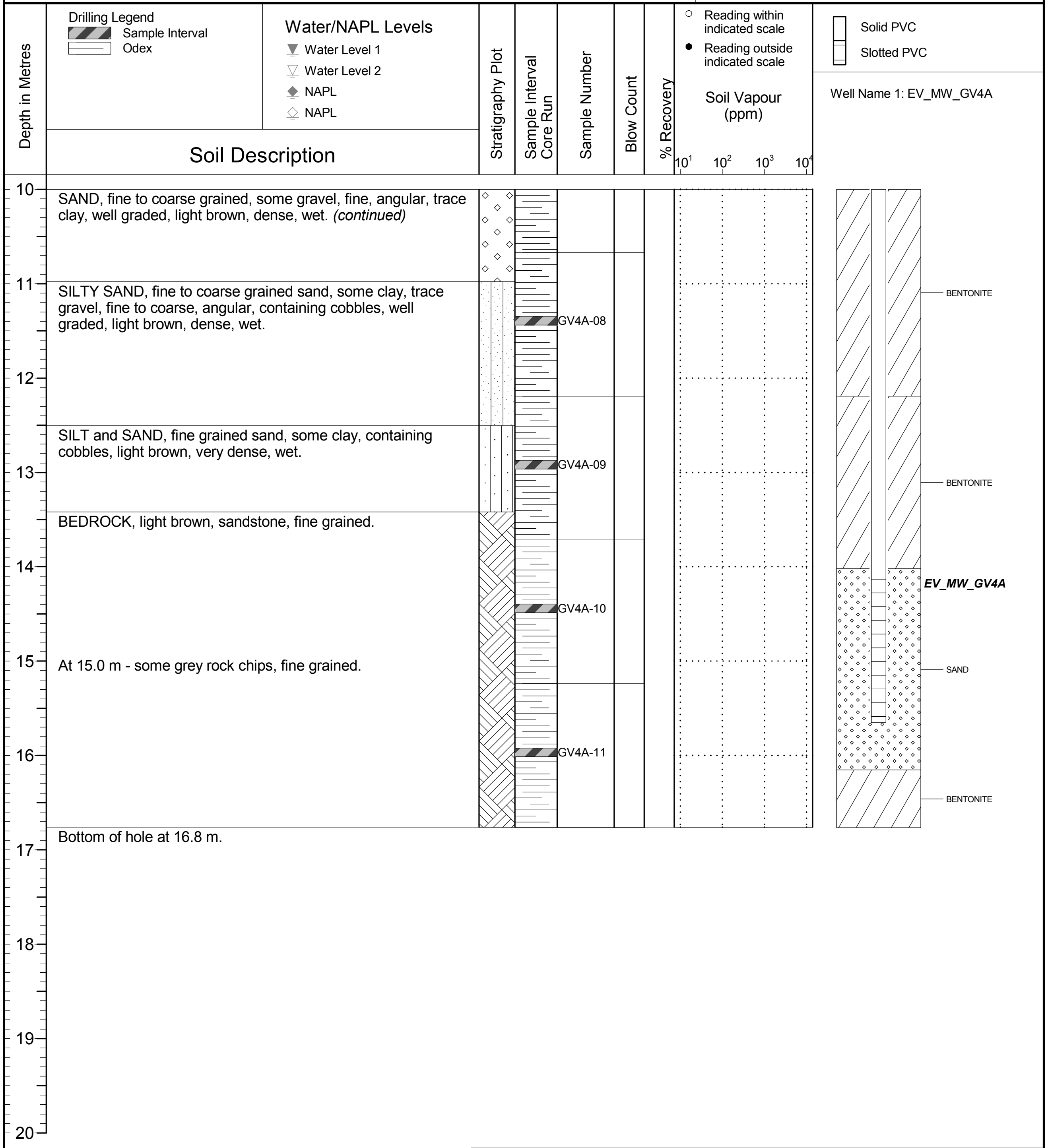
Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- Solid PVC
- Slotted PVC

Well Name 1: EV_MW_GV4A

Depth in Metres	Soil Description	Sample Number
10	SAND, fine to coarse grained, some gravel, fine, angular, trace clay, well graded, light brown, dense, wet. *(continued)*	
11	SILTY SAND, fine to coarse grained sand, some clay, trace gravel, fine to coarse, angular, containing cobbles, well graded, light brown, dense, wet.	GV4A-08
12.5	SILT and SAND, fine grained sand, some clay, containing cobbles, light brown, very dense, wet.	GV4A-09
13.4	BEDROCK, light brown, sandstone, fine grained.	GV4A-10
15	At 15.0 m - some grey rock chips, fine grained.	GV4A-11
16.8	Bottom of hole at 16.8 m.	



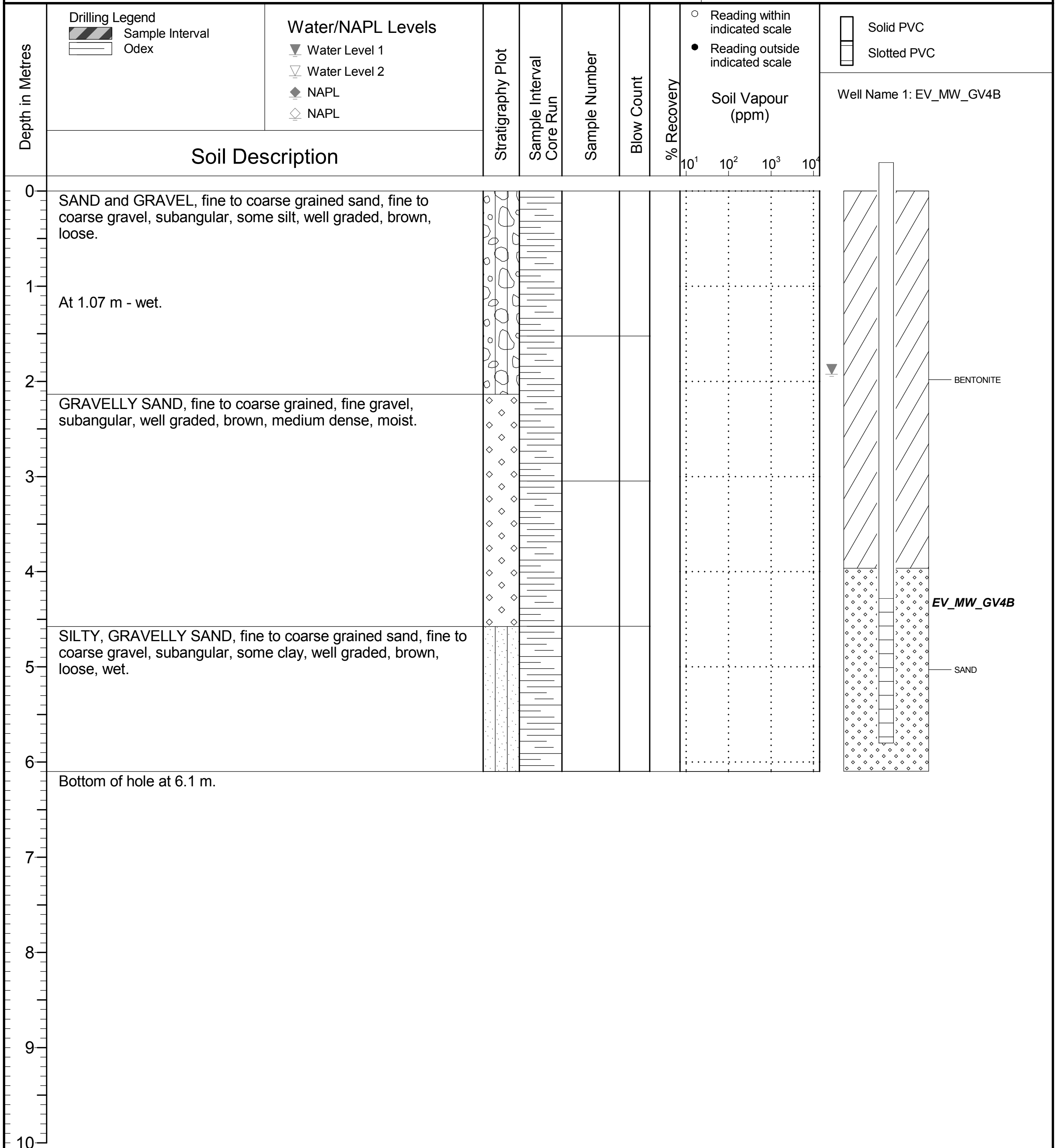
NOTES
Bolded sample denotes sample analyzed.
* Denotes blind field duplicate.

FINAL

SNC • LAVALIN

Client **Teck Coal Limited**		**Borehole No. : EV_BH_GV4B**
Location **Regional Groundwater Monitoring**		PAGE 1 OF 1

Drilling Contractor	Owen's Drilling	Date Monitored	2020 09 30	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1310.636	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1311.661	Date Drilled:	2020 08 10
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5522318.467	Easting: 656662.164	Log Typed By:	AS



SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subangular, some silt, well graded, brown, loose.

At 1.07 m - wet.

GRAVELLY SAND, fine to coarse grained, fine gravel, subangular, well graded, brown, medium dense, moist.

SILTY, GRAVELLY SAND, fine to coarse grained sand, fine to coarse gravel, subangular, some clay, well graded, brown, loose, wet.

Bottom of hole at 6.1 m.

NOTES

QA/QC: LLH 2020 10 19 Print Date:2020-12-02

BRITISH COLUMBIA

Report 1 - Detailed Well Record

RG_DW-02-20

Well Tag Number: 101942

Owner: ELK VALLEY FLYING CLUB

Address:

Area:

WELL LOCATION:
KOOTENAY Land District
District Lot: 4144 Plan: Lot:
Township: Section: Range:
Indian Reserve: Meridian: Block:
Quarter:
Island:
BCGS Number (NAD 27): 082G086231 Well: 4

Class of Well: Water supply
Subclass of Well: Domestic
Orientation of Well: Vertical
Status of Well: New
Well Use: Private Domestic
Observation Well Number:
Observation Well Status:
Construction Method:
Diameter: inches
Casing drive shoe: Y
Well Depth: 60 feet
Elevation: feet (ASL)
Final Casing Stick Up: inches
Well Cap Type:
Bedrock Depth: feet
Lithology Info Flag: N
File Info Flag: N
Sieve Info Flag: N
Screen Info Flag: N

Site Info Details:
Other Info Flag:
Other Info Details:

Construction Date: 2002-04-02 00:00:00

Driller: J. R. Drilling
Well Identification Plate Number:
Plate Attached By:
Where Plate Attached:

PRODUCTION DATA AT TIME OF DRILLING:
Well Yield: 60 (Driller's Estimate) U.S. Gallons per Minute
Development Method: Air lifting
Pump Test Info Flag: N
Artesian Flow:
Artesian Pressure (ft):
Static Level: 7 feet

WATER QUALITY:
Character:
Colour:
Odour:
Well Disinfected: N
EMS ID:
Water Chemistry Info Flag: N
Field Chemistry Info Flag:
Site Info (SEAM):

Water Utility:
Water Supply System Name:
Water Supply System Well Name:

SURFACE SEAL:
Flag: N
Material:
Method:
Depth (ft):
Thickness (in):
Liner from To: feet

WELL CLOSURE INFORMATION:
Reason For Closure:
Method of Closure:
Closure Sealant Material:
Closure Backfill Material:
Details of Closure:

Screen from	to feet	Type	Slot Size

Casing from	to feet	Diameter	Material	Drive Shoe
0	60	6	Steel	Y

GENERAL REMARKS:
MEASUREMENTS: TOP OF CASING. PITLESS UNIT: WELDED. SHOE: BARBER. WATER QUALITY AND QUANTITY NOT GUARANTEED BY CONTRACTOR.

LITHOLOGY INFORMATION:
From 0 to 47 Ft. gravel
From 47 to 52 Ft. clay
From 52 to 60 Ft. gravel

- Return to Main
- Return to Search Options
- Return to Search Criteria

Information Disclaimer

SNC • LAVALIN

Client	Borehole No. : RG_BH_WW
Teck Coal Limited	
Location	PAGE 1 OF 3
Regional Groundwater Monitoring	

Drilling Contractor SNC-Lavalin
Drilling Method Hydrovac/Odex
Borehole Dia. (m) 0.13
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored n/a
Ground Surface Elev. (m) n/a
Top of Casing Elev. (m) n/a
Northing: n/a Easting: n/a

Project Number: 631283
Borehole Logged By: MTB
Date Drilled: 2020 09 19
Log Typed By: AS

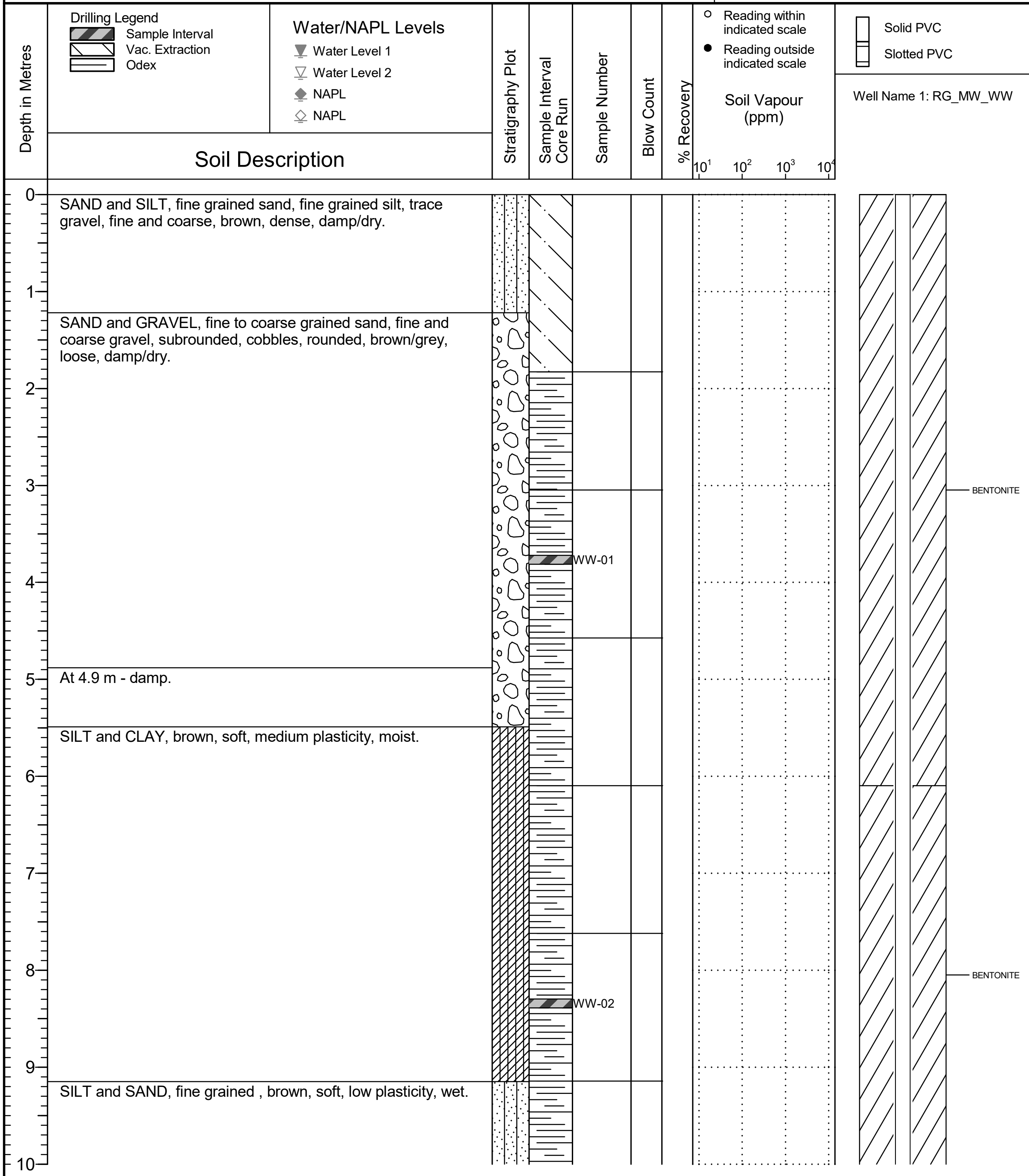
Drilling Legend
- ▨ Sample Interval
- ⧅ Vac. Extraction
- ☰ Odex

Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- ▯ Solid PVC
- ⊟ Slotted PVC

Well Name 1: RG_MW_WW



Soil Description

SAND and SILT, fine grained sand, fine grained silt, trace gravel, fine and coarse, brown, dense, damp/dry.

SAND and GRAVEL, fine to coarse grained sand, fine and coarse gravel, subrounded, cobbles, rounded, brown/grey, loose, damp/dry.

At 4.9 m - damp.

SILT and CLAY, brown, soft, medium plasticity, moist.

SILT and SAND, fine grained , brown, soft, low plasticity, wet.

NOTES
Bolded sample denotes sample analyzed. * Denotes blind field duplicate.

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : RG_BH_WW**
	Location **Regional Groundwater Monitoring**	PAGE 2 OF 3

Drilling Contractor	SNC-Lavalin	Date Monitored	n/a	Project Number:	631283
Drilling Method	Hydrovac/Odex	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	n/a	Date Drilled:	2020 09 19
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: n/a	Easting: n/a	Log Typed By:	AS

Drilling Legend
- ▨ Sample Interval
- ⧅ Vac. Extraction
- ☰ Odex

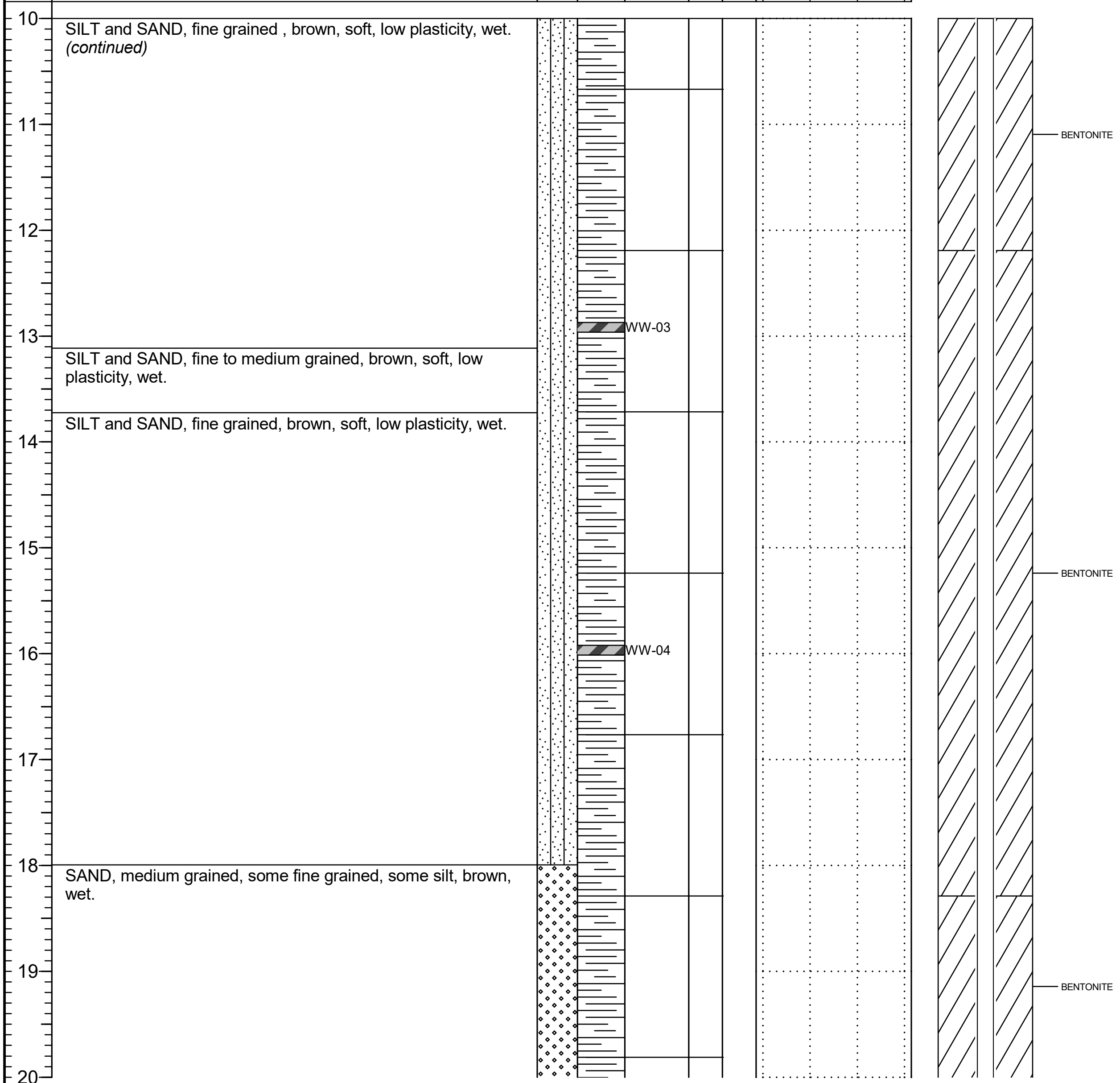
Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- ▯ Solid PVC
- ▤ Slotted PVC

Well Name 1: RG_MW_WW

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)



SILT and SAND, fine grained , brown, soft, low plasticity, wet. *(continued)*

SILT and SAND, fine to medium grained, brown, soft, low plasticity, wet.

SILT and SAND, fine grained, brown, soft, low plasticity, wet.

SAND, medium grained, some fine grained, some silt, brown, wet.

NOTES
Bolded sample denotes sample analyzed. * Denotes blind field duplicate.

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : RG_BH_WW**
	Location **Regional Groundwater Monitoring**	PAGE 3 OF 3

Drilling Contractor SNC-Lavalin
Drilling Method Hydrovac/Odex
Borehole Dia. (m) 0.13
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored n/a
Ground Surface Elev. (m) n/a
Top of Casing Elev. (m) n/a
Northing: n/a Easting: n/a

Project Number: 631283
Borehole Logged By: MTB
Date Drilled: 2020 09 19
Log Typed By: AS

Drilling Legend
▨ Sample Interval
⧅ Vac. Extraction
☰ Odex

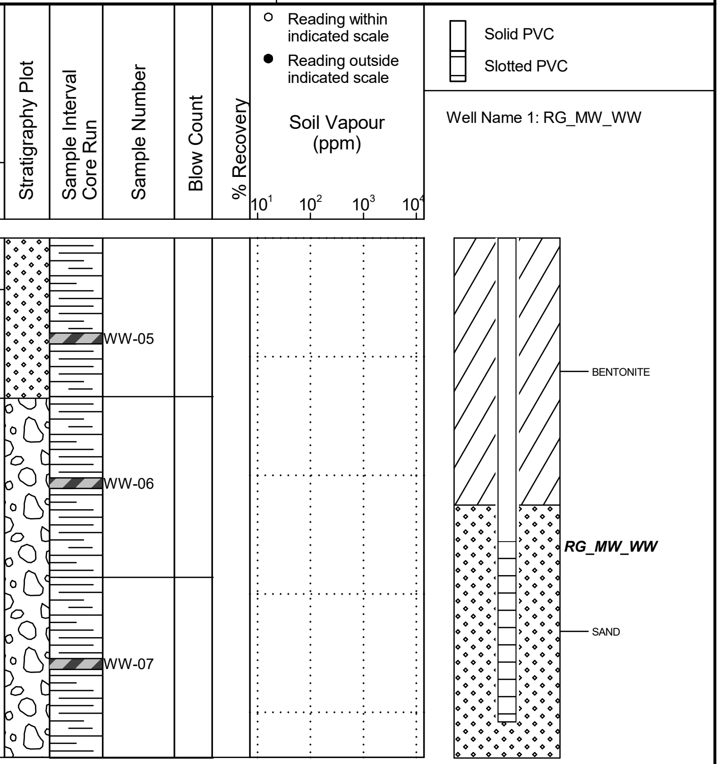
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▯ Slotted PVC

Well Name 1: RG_MW_WW

Depth in Metres	Soil Description
20	SAND, medium grained, some fine grained, some silt, brown, wet. *(continued)*
	At 20.4 m - some coarse grained sand, trace gravel.
21	
	SAND and GRAVEL, fine to coarse grained sand, fine and coarse gravel, subrounded to subangular, some silt, well graded, brown, medium dense, wet.
22	
23	
24	
	Bottom of hole at 24.4 m.
25	
26	
27	
28	
29	
30	



NOTES
Bolded sample denotes sample analyzed. * Denotes blind field duplicate.

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_BALgw

SHEET 1 OF 2

LOCATION: See Location Plan

BORING DATE: October 27, 2014

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	ELEV. DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80); SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}); WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl (10 20 30 40)	FIELD EC AND ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		Ground Surface								Stick-up =1.0 m
0	Sonic 127 mm (ID) Casing 152.4 mm (OD) JR Drilling	SAND, medium to coarse-grained, some gravel, bolders and cobbles, sub-angular to sub-rounded, well graded, brown / grey, dry	0.00							
4.30		SAND and GRAVEL, sub-rounded to rounded, well graded, brown, dry	4.30							Bentonite Chips
10		*CONTINUED NEXT PAGE*								

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: RT

CHECKED:

DATA ENTRY: AM

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_BALgw

SHEET 2 OF 2

LOCATION: See Location Plan

BORING DATE: October 27, 2014

DATUM: UTM Zone 11
(Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLES			DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m 20 40 60 80 SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ 20 40 60 80	HYDRAULIC CONDUCTIVITY, k, cm/s 10^{-6} 10^{-5} 10^{-4} 10^{-3} WATER CONTENT PERCENT Wp ⊢ ○W ⊣ Wl 10 20 30 40	FIELD EC AND ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m				
10	Sonic 127 mm (ID) Casing 152.4 mm (OD) JR Drilling	CLAY, some sand and fine gravel, sub-angular to sub-rounded, poorly graded, dark grey, moist SILTSTONE, fine-grained, grey / brown --- Fractured with water from 10.7 to 11.3 m		10.10 10.40							Bentonite Chips
11		--- Competent from 11.3 m									28 Oct 2014 ∇ Slotted Section
12		End of BOREHOLE.		12.74							
13		NOTES: Standpipe installed to 12.7 m upon well completion. Groundwater level measured at 11.1 mbgs on October 28, 2014.									
14											
15											
16											
17											
18											
19											
20											

BOREHOLE - EXPANDED ADD. LAB TESTING 12.1349.0013 BH LOGS.GPJ CALGARY.GDT 12/30/14

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: RT
CHECKED:

DATA ENTRY: IPG

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_GCgw

SHEET 1 OF 2

LOCATION: See Location Plan

N: 5513879 E: 653059

BORING DATE: October 25, 2013

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m 20 40 60 80 / SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ 20 40 60 80	HYDRAULIC CONDUCTIVITY, k, cm/s 10^{-6} 10^{-5} 10^{-4} 10^{-3} / WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0		Ground Surface		344.42							Stick-up ≈0.72 m
0	Sonic 127 mm (ID) Casing 152.4 mm (OD) JR Drilling	SAND, fine to medium-grained, sub-rounded to sub-angular, well graded, dark black carbonaceous, dry, very loose		0.00							
1.52		SANDY GRAVEL, trace silt, fine-grained, sub-rounded to sub-angular, poorly graded, moist, very loose		342.90 1.52							14 Nov 2013 ▽
3.81		CLAY, some gravel, fine-grained, sub-rounded to sub-angular, poorly graded, moist, firm		340.61 3.81							Bentonite Chips
8.23		SILTY CLAY, well graded, wet, very soft		336.19 8.23							
10		*CONTINUED NEXT PAGE*									

BOREHOLE - EXPANDED ADD. LAB TESTING 12.1349.0013 BH LOGS.GPJ CALGARY.GDT 4/8/14

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: RT

CHECKED: CD

DATA ENTRY: IPG

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_GCgw

SHEET 2 OF 2

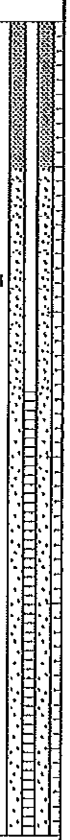
LOCATION: See Location Plan

N: 5513879 E: 653059

BORING DATE: October 25, 2013

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80); SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}); WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10	Sonic 127 mm (ID) Casing 152.4 mm (OD) JR Drilling	SILTY CLAY, well graded, wet, very soft *(continued)*	▨								Bentonite Chips
11			▨								
12			▨								Silica Sand
13			▨								
14			▨								Slotted Section
15			▨	328.02							
		End of BOREHOLE. NOTES: Standpipe installed to 15.6 m upon well completion. Groundwater level measured at 2.0 mbgs on November 14, 2013.		15.60							
16											
17											
18											
19											
20											



BOREHOLE - EXPANDED ADD. LAB TESTING 12.1349.0013 BH LOGS.GPJ CALGARY.GDT 4/8/14

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: RT

CHECKED: CD

DATA ENTRY: IPG

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_LSgw

SHEET 1 OF 2

LOCATION: See Location Plan

N: 5514731 E: 653274

BORING DATE: October 24, 2013

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	ELEV. / DEPTH (m)
		Ground Surface	345.03
0	Sonic 127 mm (ID) Casing 152.4 mm (OD) JR Drilling	FILL - Sand sized particles, medium to coarse-grained, sub-rounded to sub-angular, well graded, dark black carbonaceous, moist, very loose	0.00
1.52		SANDY GRAVEL, some silt, fine-grained, sub-rounded to sub-angular, poorly graded, moist, very loose	343.51 1.52
3.81		GRAVELY SAND, coarse-grained with fine-grained gravel, sub-rounded to sub-angular, poorly graded, moist, very loose	341.22 3.81
6.86		SANDY SILT, fine to medium-grained, wet, mud	338.16 6.86
10		*CONTINUED NEXT PAGE*	

SAMPLES: NUMBER | TYPE | BLOWS/0.3m

DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m: 20 40 60 80

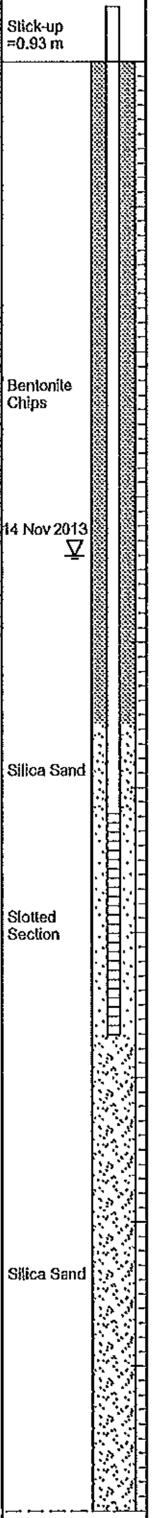
SHEAR STRENGTH Cu, kPa: nat V. + Q- ● rem V. ⊕ U- O: 20 40 60 80

HYDRAULIC CONDUCTIVITY, k, cm/s: 10^{-6} 10^{-5} 10^{-4} 10^{-3}

WATER CONTENT PERCENT: Wp ⊢—O W—⊣ Wl: 10 20 30 40

ADDITIONAL LAB. TESTING

PIEZOMETER OR STANDPIPE INSTALLATION



BOREHOLE - EXPANDED ADD. LAB TESTING 12.1349.0013 BH LOGS.GPJ CALGARY.GDT 4/8/14

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: RT
CHECKED: CD

DATA ENTRY: IPG

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_LSgw

SHEET 2 OF 2

LOCATION: See Location Plan

N: 5514731 E: 653274

BORING DATE: October 24, 2013

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - O (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10	JR Drilling	SANDY SILT, fine to medium-grained, wet, mud *(continued)*		334.36 10.67							Silica Sand
		End of BOREHOLE.									
11		NOTES: Standpipe installed to 6.7 m upon well completion. Groundwater level measured at 3.4 mbgs on November 14, 2013.									
12											
13											
14											
15											
16											
17											
18											
19											
20											

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: RT
CHECKED: CD

BOREHOLE - EXPANDED ADD. LAB TESTING 12.1349.0013 BH LOGS.GPJ CALGARY.GDT 4/8/14

DATA ENTRY: IPG

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_OCgw

SHEET 1 OF 2

LOCATION: See Location Plan

N: 5512671 E: 652460

BORING DATE: November 7, 2013

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLES			DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) SHEAR STRENGTH Cu, kPa nat V. + Q- ● rem V. ⊕ U- ○ (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m				
		Ground Surface		342.60							Stick-up =0.89 m
0	Sonic 127 mm (ID) Casing 152.4 mm (OD) JR Drilling	SANDY GRAVEL, fine-grained with occasional coarse grains, rounded to sub-rounded, moderately graded, dry, very loose		0.00							
1				341.07							
		SAND and GRAVEL, coarse sand and fine gravel, rounded to sub-rounded, angular, poorly graded, moist, very loose — Hole is being drilled on the edge of a waste rock pile — Moisture at 2.1 m		1.52							15 Nov 2013 ▽
2											
3				338.94							
		GRAVEL, trace sand, fine to coarse-grained, sub-rounded to rounded, poorly graded, moist, loose		3.66							
4											
5											Bentonite Chips
6				335.89							
		SAND, fine to medium-grained with occasional coarse grains, some gravel, fine to coarse-grained, sub-angular to sub-rounded, dry to moist, loose,		6.71							
7											
8											
9											
10											

CONTINUED NEXT PAGE

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: RT

CHECKED: CD

BOREHOLE - EXPANDED ADD. LAB TESTING 12.1349.0013 BH LOGS.GPJ CALGARY.GDT 4/8/14

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_OCgw

SHEET 2 OF 2

LOCATION: See Location Plan
N: 5512671 E: 652480

BORING DATE: November 7, 2013

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) WATER CONTENT PERCENT Wp ├──○W──┤ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10 11 12	Sonic 127 mm (ID) Casing 152.4 mm (OD) JR Drilling	SAND, fine to medium-grained with occasional coarse grains, some gravel, fine to coarse-grained, sub-angular to sub-rounded, dry to moist, loose, *(continued)*									Bentonite Chips Silica Sand
13 14		SAND, fine to medium-grained with occasional coarse grains, some fine-grained gravel, sub-angular to sub-rounded, moist, loose to compact		329.79 12.80							Slotted Section
15		BEDROCK		328.12 14.46							Silica Sand Tail Pipe
16 17 18 19 20		End of BOREHOLE. NOTES: Standpipe installed to 14.6 m upon well completion. Groundwater level measured at 2.1 mbgs on November 15, 2013.		327.06 15.54							

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: RT
CHECKED: CD

FINAL

SNC·LAVALIN

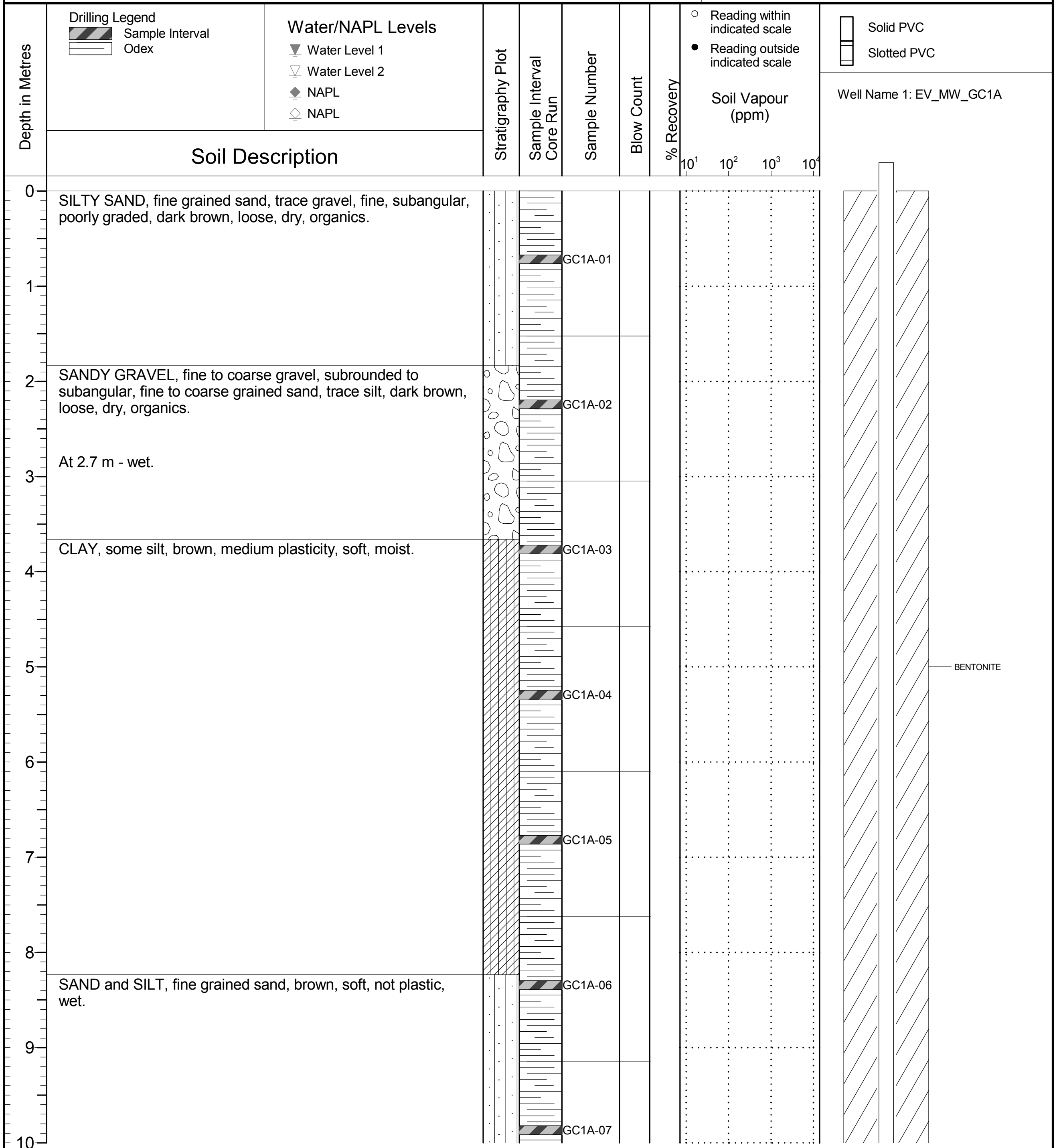
Client
Teck Coal Limited

Location
Regional Groundwater Monitoring

Borehole No. : EV_BH_GC1A

PAGE 1 OF 4

Drilling Contractor	Owen's Drilling	Date Monitored	2020 09 01	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1128.928	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1129.821	Date Drilled:	2020 08 13
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5514181.079	Easting: 653146.647	Log Typed By:	AS



SILTY SAND, fine grained sand, trace gravel, fine, subangular, poorly graded, dark brown, loose, dry, organics.

SANDY GRAVEL, fine to coarse gravel, subrounded to subangular, fine to coarse grained sand, trace silt, dark brown, loose, dry, organics.

At 2.7 m - wet.

CLAY, some silt, brown, medium plasticity, soft, moist.

SAND and SILT, fine grained sand, brown, soft, not plastic, wet.

NOTES
Bolded sample denotes sample analyzed.
*Denotes blind field duplicate.

FINAL

SNC·LAVALIN

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_GC1A**
	Location **Regional Groundwater Monitoring**	PAGE 2 OF 4

Drilling Contractor	Owen's Drilling	Date Monitored	2020 09 01	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1128.928	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1129.821	Date Drilled:	2020 08 13
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5514181.079	Easting: 653146.647	Log Typed By:	AS

Drilling Legend
▨ Sample Interval
☰ Odex

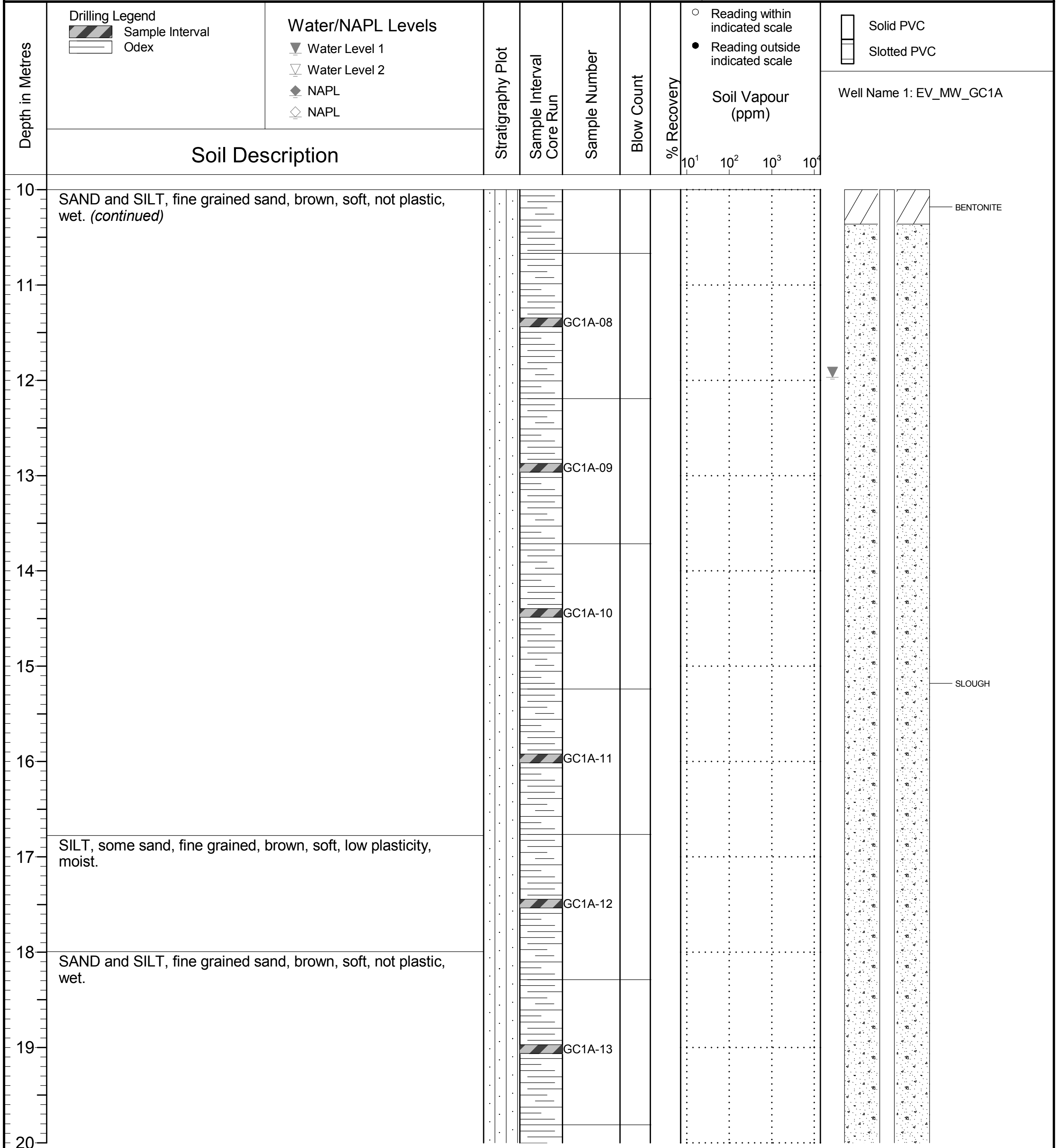
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▯ Slotted PVC

Well Name 1: EV_MW_GC1A

Depth in Metres	Soil Description
10	SAND and SILT, fine grained sand, brown, soft, not plastic, wet. *(continued)*
16.8	SILT, some sand, fine grained, brown, soft, low plasticity, moist.
18	SAND and SILT, fine grained sand, brown, soft, not plastic, wet.



NOTES
Bolded sample denotes sample analyzed.
*Denotes blind field duplicate.

FINAL

SNC·LAVALIN

Client
Teck Coal Limited

Location
Regional Groundwater Monitoring

Borehole No. : EV_BH_GC1A

PAGE 3 OF 4

Drilling Contractor	Owen's Drilling	Date Monitored	2020 09 01	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1128.928	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1129.821	Date Drilled:	2020 08 13
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5514181.079	Easting: 653146.647	Log Typed By:	AS

Drilling Legend
▨ Sample Interval
☰ Odex

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▯ Slotted PVC

Well Name 1: EV_MW_GC1A

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)

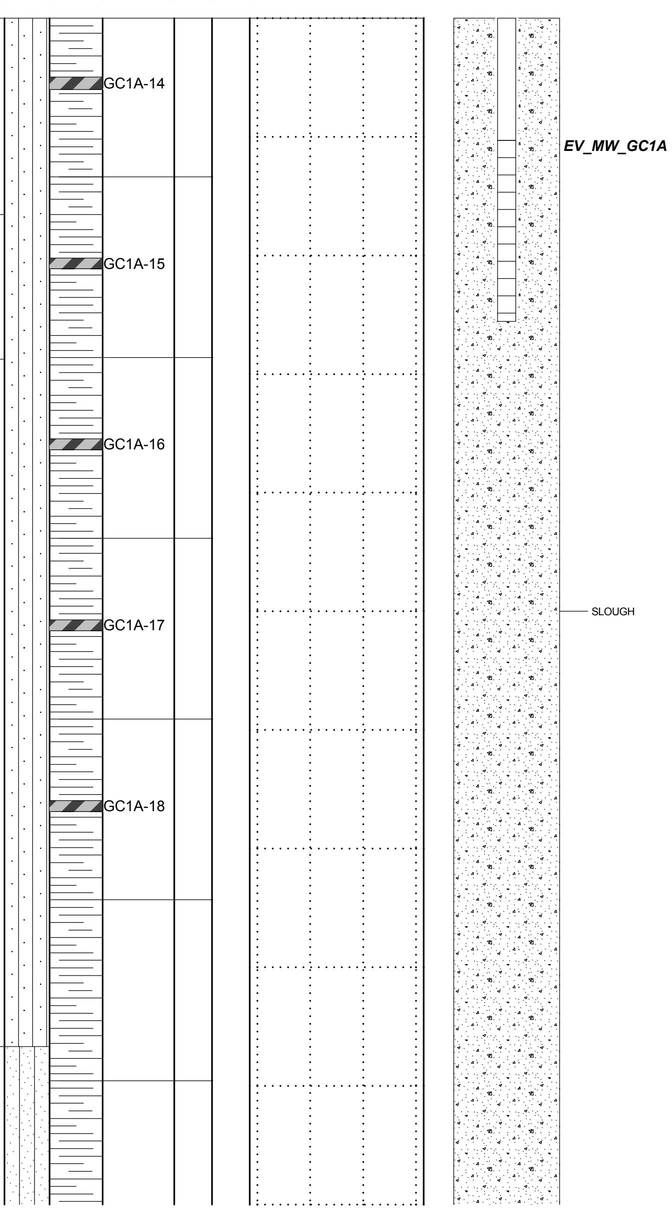
SAND and SILT, fine grained sand, brown, soft, not plastic, wet. *(continued)*

SILTY SAND, fine grained, brown, soft, wet.

SAND and SILT, fine grained sand, brown, soft, not plastic, wet.

At 24.4 m - starting to heave.

SAND, fine to medium grained, some silt, brown, soft, wet, heaving.



NOTES
Bolded sample denotes sample analyzed.
*Denotes blind field duplicate.

FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_GC1A**
	Location **Regional Groundwater Monitoring**	PAGE 4 OF 4

Drilling Contractor	Owen's Drilling	Date Monitored	2020 09 01	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1128.928	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1129.821	Date Drilled:	2020 08 13
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5514181.079	Easting: 653146.647	Log Typed By:	AS

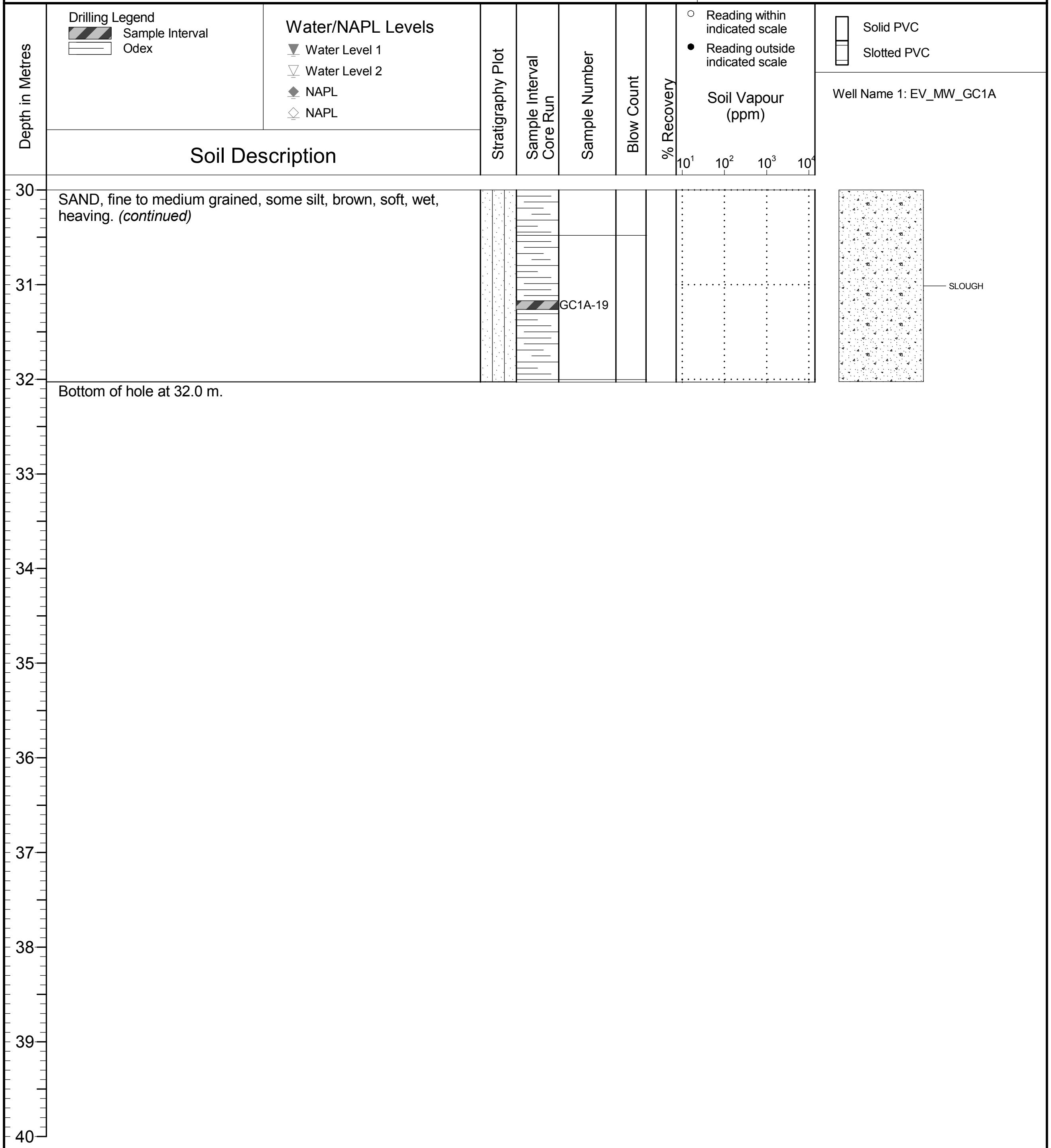
Drilling Legend
▨ Sample Interval
▤ Odex

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▯ Slotted PVC

Well Name 1: EV_MW_GC1A



SAND, fine to medium grained, some silt, brown, soft, wet, heaving. *(continued)*

Bottom of hole at 32.0 m.

NOTES
Bolded sample denotes sample analyzed.
*Denotes blind field duplicate.

QA/QC: LLH 2020 10 19 Print Date:2020-12-02

FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_GC1B**
	Location **Regional Groundwater Monitoring**	PAGE 1 OF 1

Drilling Contractor	Owen's Drilling	Date Monitored	2020 09 01	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1128.870	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1129.706	Date Drilled:	2020 08 13
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5514183.858	Easting: 653147.008	Log Typed By:	AS

Drilling Legend
▨ Sample Interval
☰ Odex

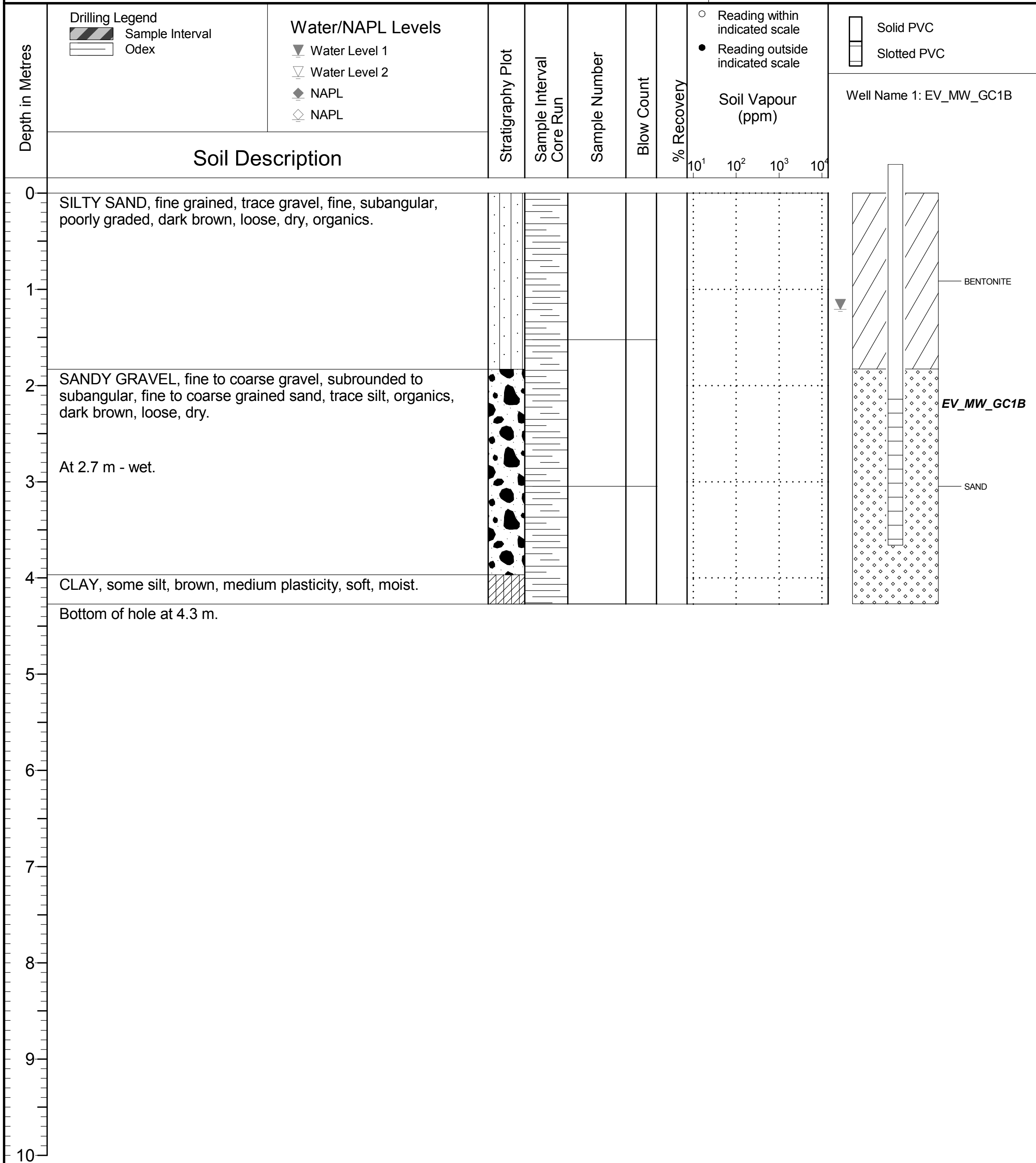
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: EV_MW_GC1B

Depth in Metres	Soil Description
0	SILTY SAND, fine grained, trace gravel, fine, subangular, poorly graded, dark brown, loose, dry, organics.
1.8	SANDY GRAVEL, fine to coarse gravel, subrounded to subangular, fine to coarse grained sand, trace silt, organics, dark brown, loose, dry. At 2.7 m - wet.
3.9	CLAY, some silt, brown, medium plasticity, soft, moist.
4.3	Bottom of hole at 4.3 m.



NOTES

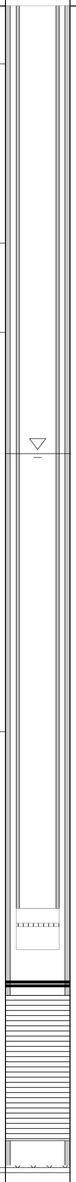
McElhanney Consulting	District of Sparwood	BOREHOLE: Well 4
INSTALLED BY: Waterline Resources Inc.	Sparwood Water Supply Well	PROJECT #: 2283-17-002
DRILL TYPE: Dual Rotary	EAST: 652027 NORTH: 5514569	ELEVATION: 1152.72 (masl)

FILL TYPE: ▦ Backfill ■ Bentonite ▧ Grout ☐ Open Hole ▨ Cement ▒ Sand ☒ Slough ☐ Unknown

SAMPLE TYPE: ■ Shelby Tube ▨ No Recovery ☒ Split Spoon ☐ Disturbed ☐ Dynamic Cone ▧ Core ☐ Grab Sample

Depth (m)	SOIL DESCRIPTION	WELL INSTALLATION
0	Fill, sand and gravel some silt,, dry	Stickup = 1.28 m
3.66 mbgl	Clay, med to dk brown, plastic, soft, moist	Bentonite surface seal from 0 to 6 m
14.94 mbgl	Silty Sand, some gravel	
20.57 mbgl	Silty Gravelly Sand, moist, well graded, stiff	NPGWL= 27.94 mbgl Pump discharge (203 mm ID) Production casing (304.8mm ID) from 0 to 62.3m
45.72 mbgl	Sand and Gravel, wet 45% gravel, 55% sand, trace fines 65% gravel, 35% sand no fines 45% gravel, 55% sand	Intake Pump K-Packer at 61.4 mbgl Riser pipe (ID=254 mm) from 61.4 to 62.3 mbgl K-Packer 100 slot stainless steel screen from 62.3 to 71.5 mbgl (diameter: 254 mm Sump from 71.5 to 73.0 mbgl

Depth scale: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90



END OF HOLE AT 73.15 m
Water Level Date 2018-09-09

TYPE: Water Supply Well	COMPLETION DEPTH: 73.0 (m)
LOGGED BY: DvE	COMPLETION DATE: Sept 7, 2018
CHECKED BY: SN	Date printed: 27-Nov-2018

Waterline

SNC·LAVALIN

Client	**Teck Coal Limited**
Location	**Regional Groundwater Monitoring**

Borehole No. : EV_BH_GT1

PAGE 1 OF 7

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 07	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1156.515	Borehole Logged By:	AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1157.442 1157.457	Date Drilled:	2019 01 17
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5509290.376	Easting: 655651.100	Log Typed By:	VL

Drilling Legend

- ▨ Sample Interval
- ▼▼▼ Air Rotary

Water/NAPL Levels

- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

Depth in Metres

Soil Description

0 – FILL, coal and shale boulders, angular, black, dry.

GRAVEL, coarse, some fine to medium grained sand, subrounded to rounded, poorly graded, brown, dry, hydrocarbon-like odour.

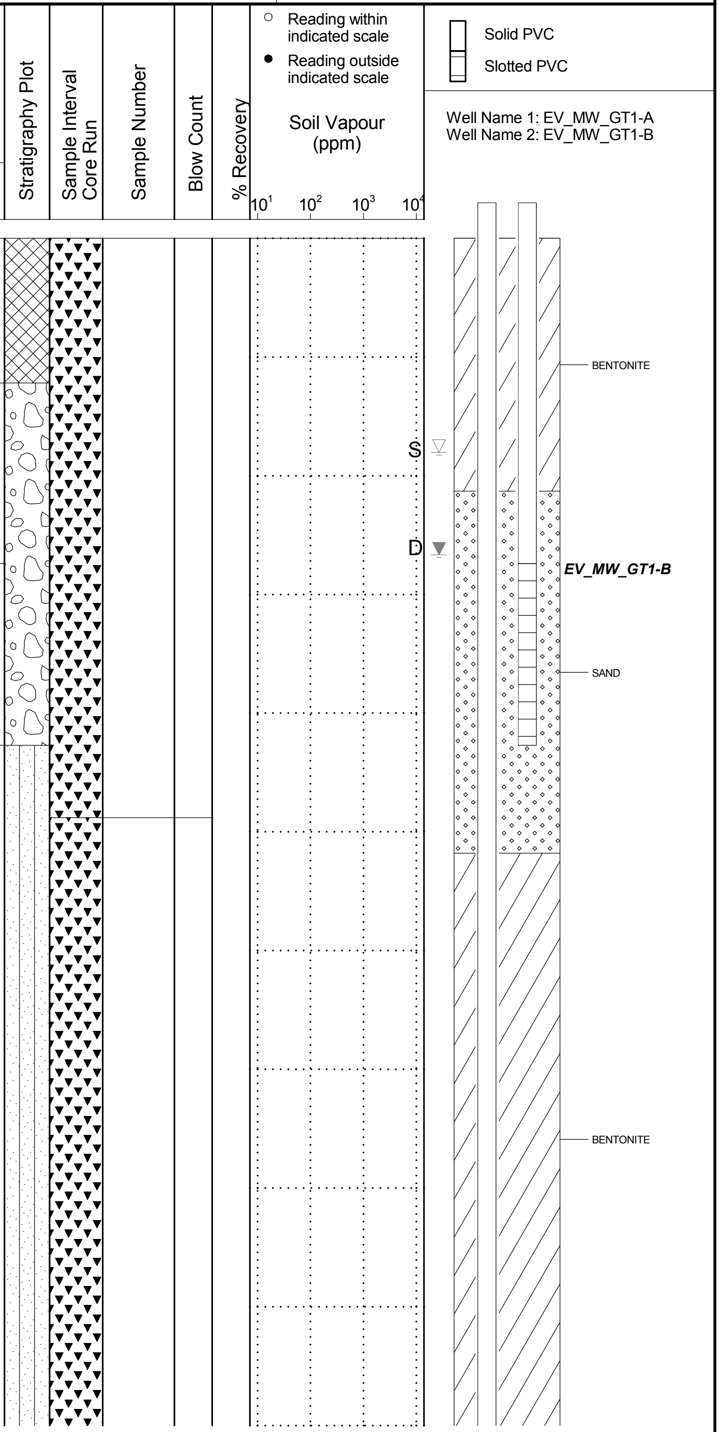
SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, trace silt, subrounded, well graded, dark brown, damp to moist.

SAND, fine to coarse grained, trace fine to coarse gravel, silty, subrounded, well graded, dark brown, moist to wet.

At 7.6 m - fine grained sand, no gravel

At 9.8 m - fine to coarse grained sand, trace gravel

10



Well Name 1: EV_MW_GT1-A
Well Name 2: EV_MW_GT1-B

NOTES
Tar was being stored in area at time of drilling.

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_GT1**
	Location **Regional Groundwater Monitoring**	PAGE 2 OF 7

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 07	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1156.515	Borehole Logged By:	AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1157.442 1157.457	Date Drilled:	2019 01 17
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5509290.376	Easting: 655651.100	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼ Air Rotary

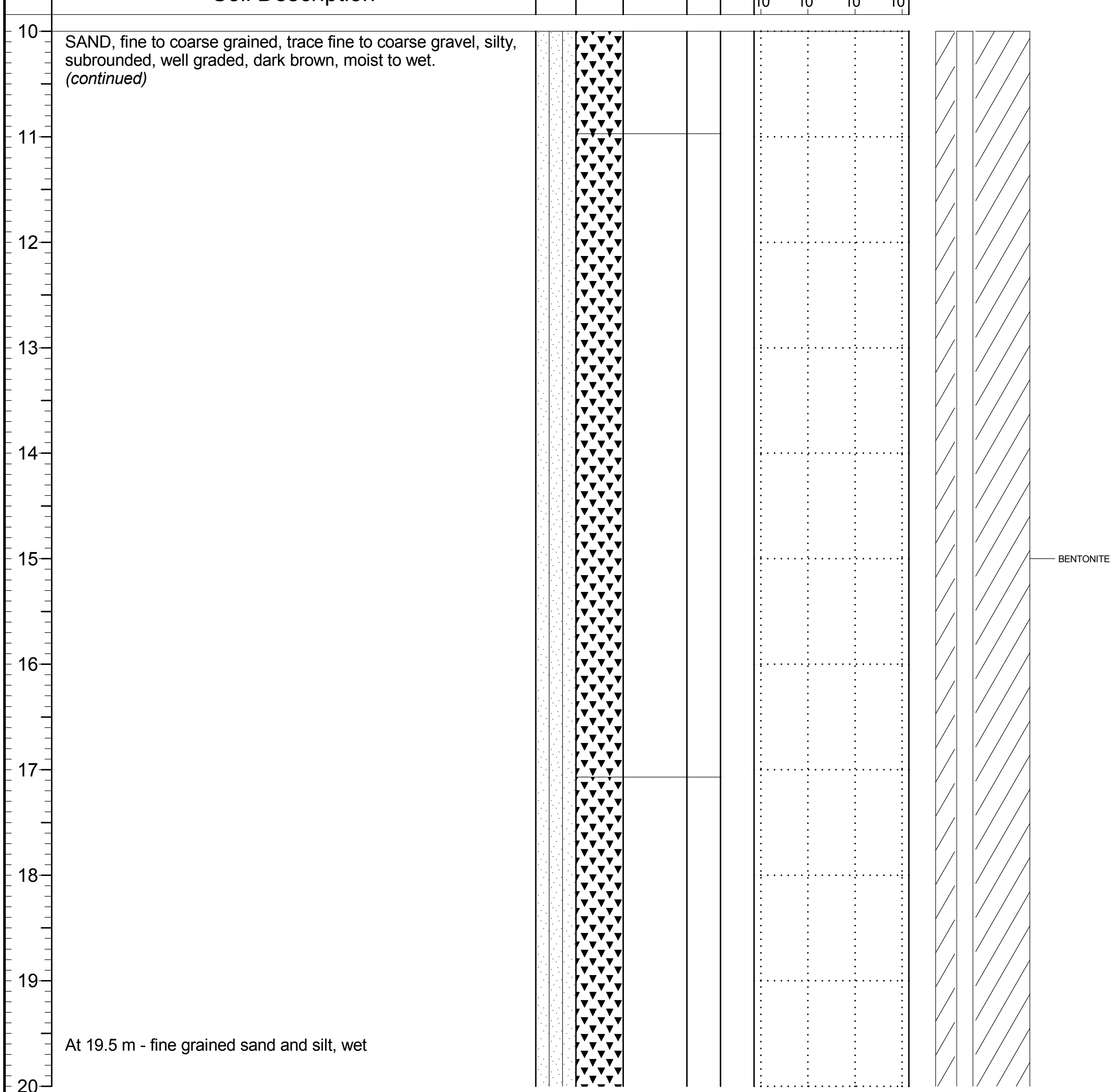
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: EV_MW_GT1-A
Well Name 2: EV_MW_GT1-B

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)



SAND, fine to coarse grained, trace fine to coarse gravel, silty, subrounded, well graded, dark brown, moist to wet. *(continued)*

At 19.5 m - fine grained sand and silt, wet

NOTES
Tar was being stored in area at time of drilling.

QA/QC: BH 2019 04 10 Print Date:2019-09-26

SNC·LAVALIN

Client
Teck Coal Limited

Location
Regional Groundwater Monitoring

Borehole No. : EV_BH_GT1

PAGE 3 OF 7

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 07	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1156.515	Borehole Logged By:	AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1157.442 1157.457	Date Drilled:	2019 01 17
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5509290.376	Easting: 655651.100	Log Typed By:	VL

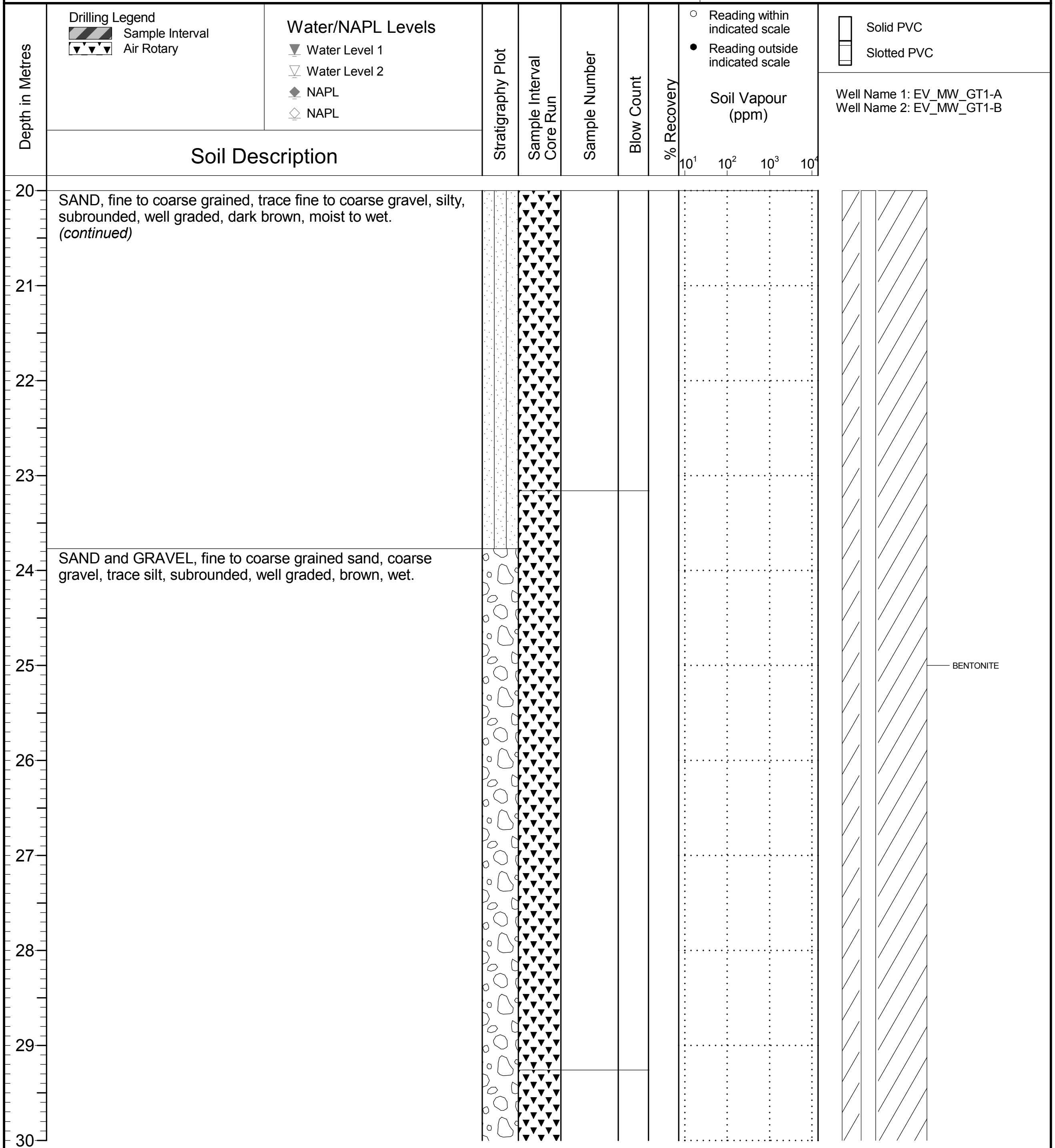
Drilling Legend
▨ Sample Interval
▼ Air Rotary

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: EV_MW_GT1-A
Well Name 2: EV_MW_GT1-B



SAND, fine to coarse grained, trace fine to coarse gravel, silty, subrounded, well graded, dark brown, moist to wet. *(continued)*

SAND and GRAVEL, fine to coarse grained sand, coarse gravel, trace silt, subrounded, well graded, brown, wet.

NOTES
Tar was being stored in area at time of drilling.

QA/QC: BH 2019 04 10 Print Date:2019-09-26

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_GT1**
	Location **Regional Groundwater Monitoring**	PAGE 4 OF 7

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 07	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1156.515	Borehole Logged By:	AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1157.442 1157.457	Date Drilled:	2019 01 17
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5509290.376	Easting: 655651.100	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼ Air Rotary

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

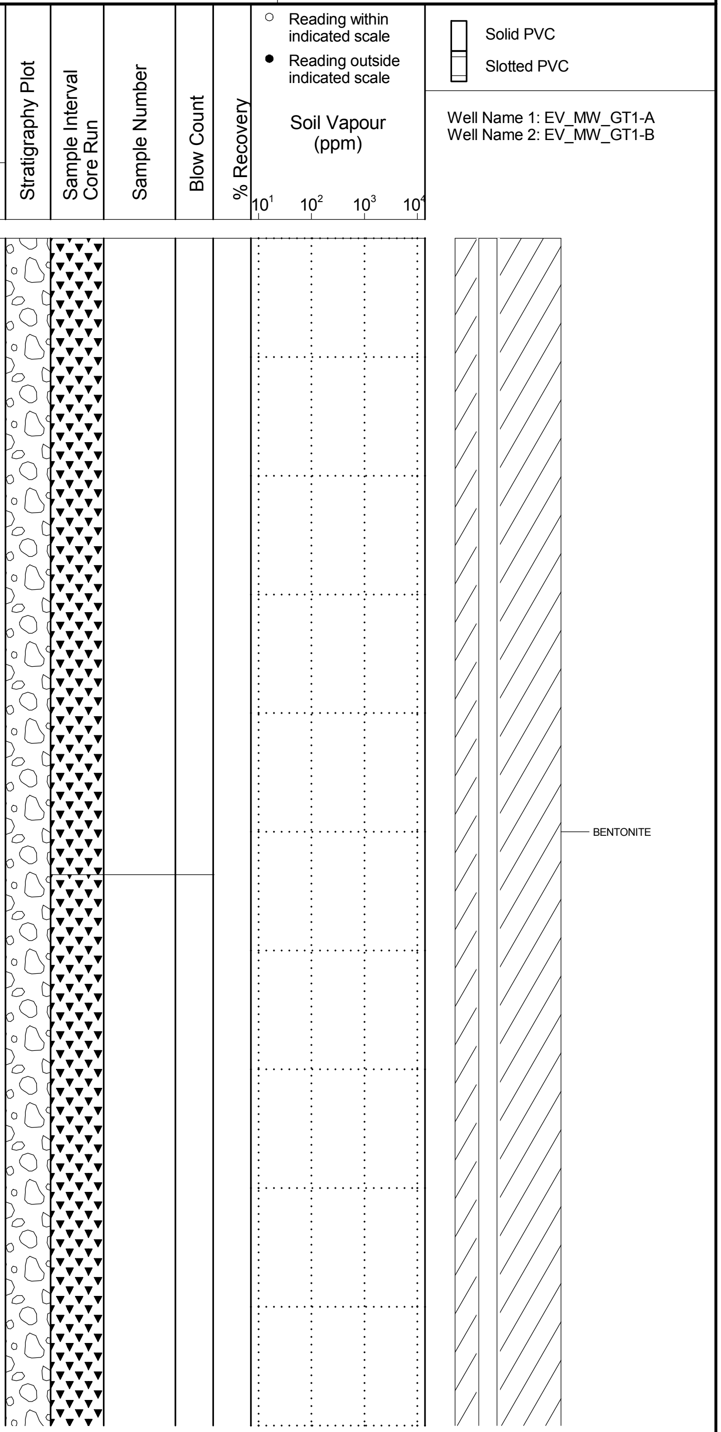
○ Reading within indicated scale
● Reading outside indicated scale

Depth in Metres

Soil Description

30 SAND and GRAVEL, fine to coarse grained sand, coarse gravel, trace silt, subrounded, well graded, brown, wet. *(continued)*
At 30.5 m - medium to coarse grained sand, no silt, subrounded to rounded

At 37.2 m - fine grained sand, some silt



NOTES
Tar was being stored in area at time of drilling.

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 07	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1156.515	Borehole Logged By:	AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1157.442 1157.457	Date Drilled:	2019 01 17
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5509290.376	Easting: 655651.100	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼▼▼ Air Rotary

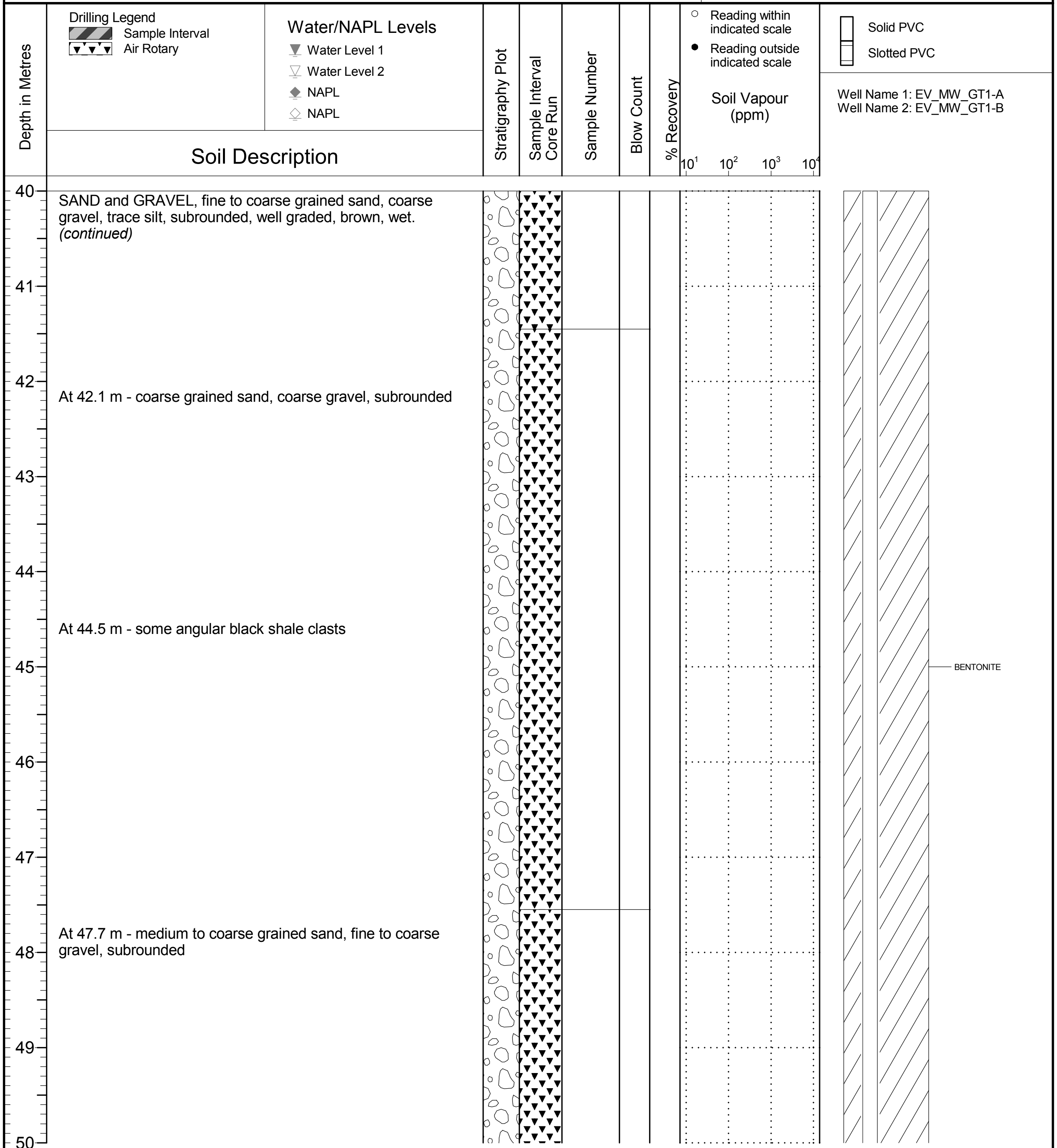
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: EV_MW_GT1-A
Well Name 2: EV_MW_GT1-B

Depth in Metres	Soil Description
40	SAND and GRAVEL, fine to coarse grained sand, coarse gravel, trace silt, subrounded, well graded, brown, wet. *(continued)*
42.1	At 42.1 m - coarse grained sand, coarse gravel, subrounded
44.5	At 44.5 m - some angular black shale clasts
47.7	At 47.7 m - medium to coarse grained sand, fine to coarse gravel, subrounded



NOTES
Tar was being stored in area at time of drilling.

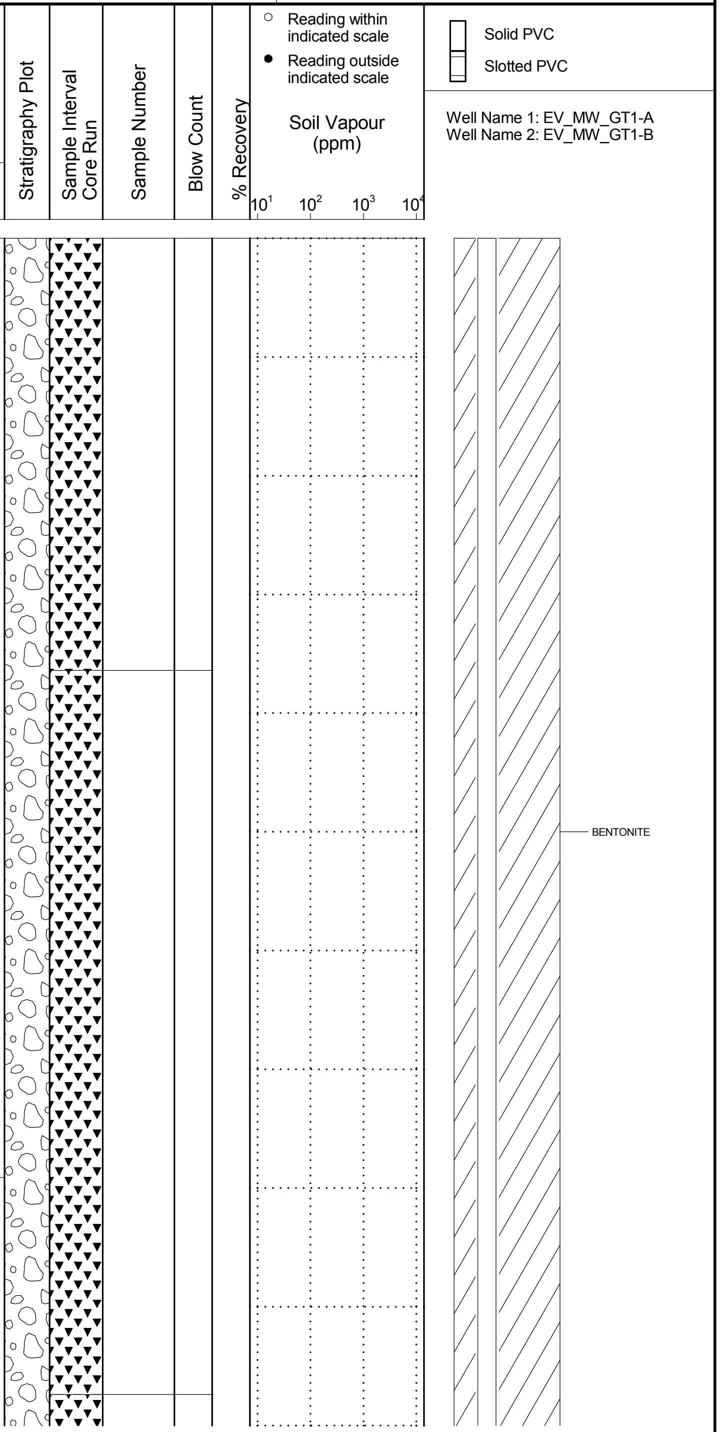
SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_GT1**
	Location **Regional Groundwater Monitoring**	PAGE 6 OF 7

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 07	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1156.515	Borehole Logged By:	AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1157.442 1157.457	Date Drilled:	2019 01 17
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5509290.376	Easting: 655651.100	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼▼▼ Air Rotary

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

Depth in Metres	Soil Description
50	SAND and GRAVEL, fine to coarse grained sand, coarse gravel, trace silt, subrounded, well graded, brown, wet. *(continued)*
58	GRAVEL, coarse, some coarse grained sand, poorly graded, grey.



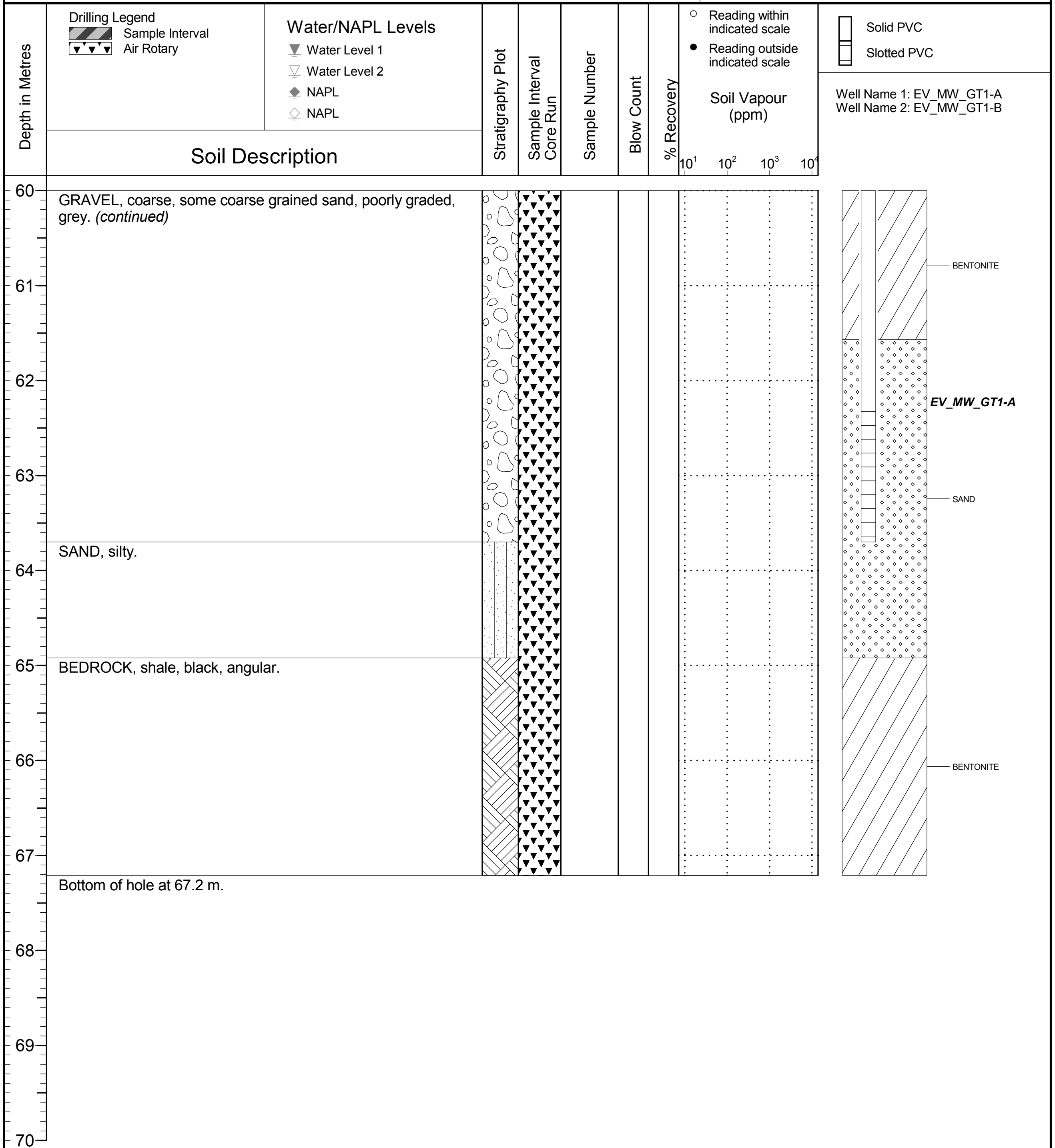
Depth scale: 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60

NOTES
Tar was being stored in area at time of drilling.

QA/QC: BH 2019 04 10 Print Date:2019-09-26

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_GT1**
	Location **Regional Groundwater Monitoring**	PAGE 7 OF 7

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 07	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1156.515	Borehole Logged By:	AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1157.442 1157.457	Date Drilled:	2019 01 17
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5509290.376	Easting: 655651.100	Log Typed By:	VL



60.0 – GRAVEL, coarse, some coarse grained sand, poorly graded, grey. *(continued)*

63.7 – SAND, silty.

64.9 – BEDROCK, shale, black, angular.

Bottom of hole at 67.2 m.

NOTES
Tar was being stored in area at time of drilling.

QA/QC: BH 2019 04 10 Print Date:2019-09-26

SNC · LAVALIN

	Client **Teck Coal Limited**	**Borehole No. : EV_BH_BC1**
	Location **Regional Groundwater Monitoring**	PAGE 1 OF 3

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 07	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1156.271	Borehole Logged By:	AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1157.085 1157.090	Date Drilled:	2019 01 15
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5509503.141	Easting: 655664.927	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼ Air Rotary

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▯ Slotted PVC

Well Name 1: EV_MW_BC1-A
Well Name 2: EV_MW_BC1-B

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)

0 SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, some silt, subangular, well graded, black, loose, dry, wood debris present.

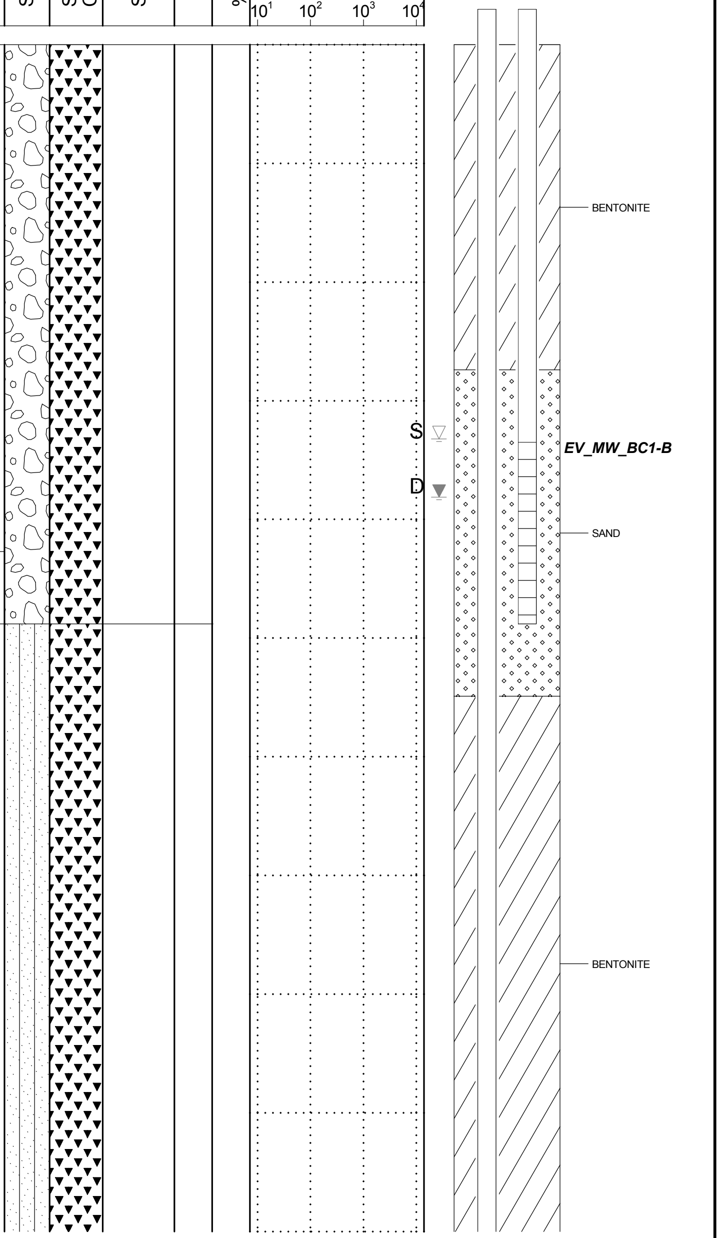
At 3.5 m - damp

At 4.1 m - wet

SAND and GRAVEL, coarse grained sand, fine to coarse gravel, some silt, subrounded, well graded, wet.

5 SAND, fine to medium grained, silty, trace gravel, poorly graded, wet.

At 6.1 m - damp



0 1 2 3 4 5 6 7 8 9 10

NOTES

QA/QC: BH 2019 04 10 Print Date:2019-09-26

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 07	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1156.271	Borehole Logged By:	AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1157.085 1157.090	Date Drilled:	2019 01 15
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5509503.141	Easting: 655664.927	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼ Air Rotary

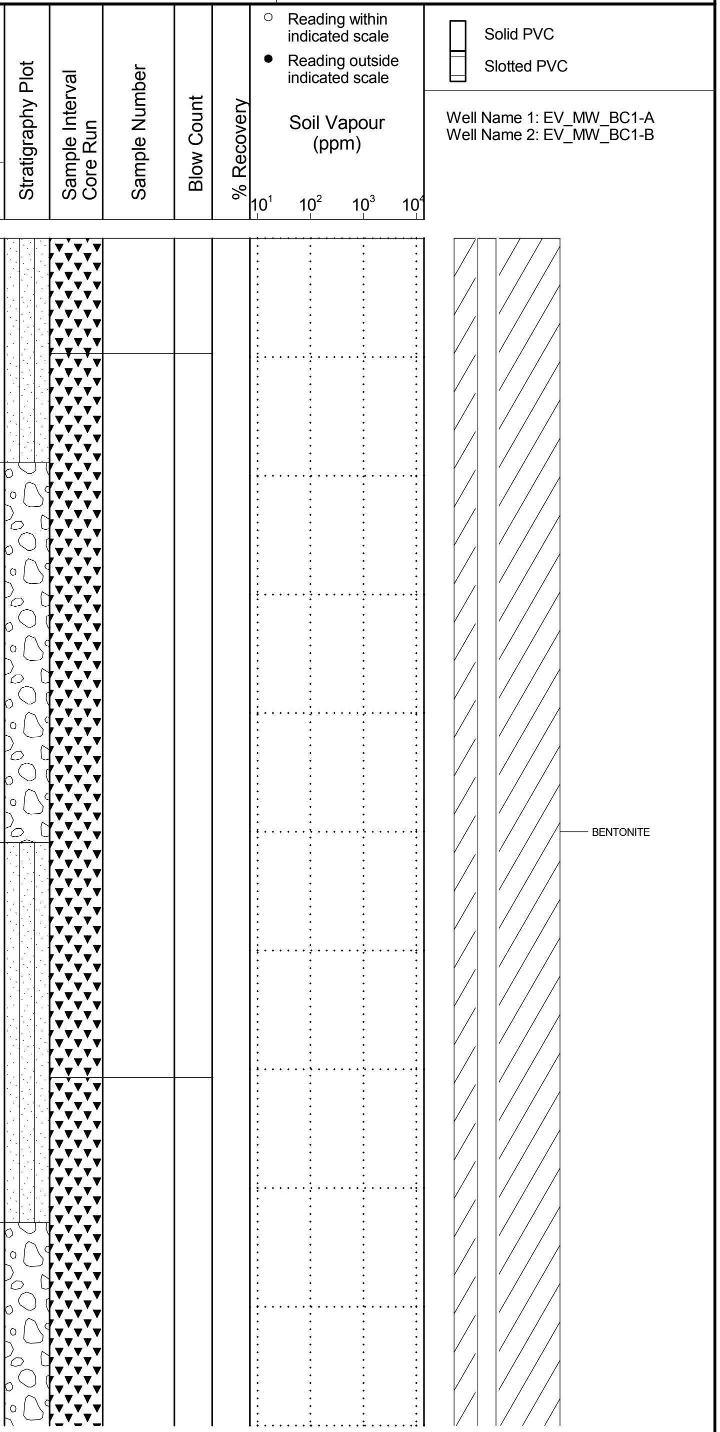
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: EV_MW_BC1-A
Well Name 2: EV_MW_BC1-B

Depth in Metres	Soil Description
10	SAND, fine to medium grained, silty, trace gravel, poorly graded, wet. *(continued)*
	GRAVEL, fine to coarse, subangular, some silt, well graded, loose, wet.
	SAND, fine to medium grained, silty, trace gravel, poorly graded, damp.
	SAND and GRAVEL, fine to medium grained sand, fine to coarse gravel, some silt, subrounded to rounded, well graded, orange-brown, wet.
20	



NOTES

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_BC1**
	Location **Regional Groundwater Monitoring**	PAGE 3 OF 3

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 07	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1156.271	Borehole Logged By:	AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1157.085 1157.090	Date Drilled:	2019 01 15
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5509503.141	Easting: 655664.927	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ▼ Air Rotary

Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

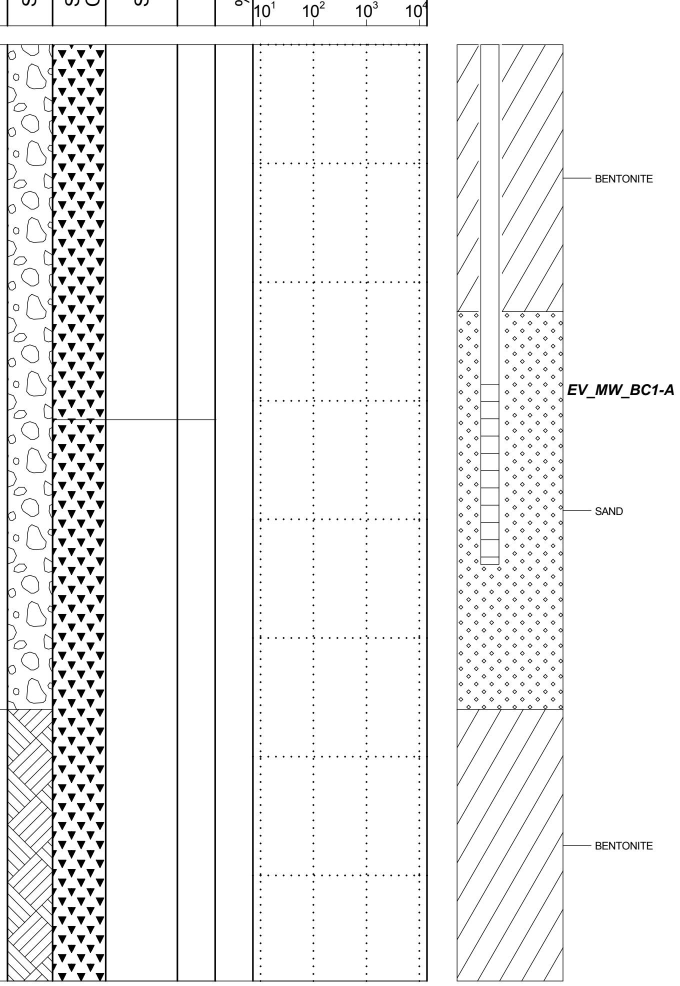
- ○ Reading within indicated scale
- ● Reading outside indicated scale

- ▯ Solid PVC
- ▤ Slotted PVC

Well Name 1: EV_MW_BC1-A
Well Name 2: EV_MW_BC1-B

Depth in Metres	Soil Description
20	SAND and GRAVEL, fine to medium grained sand, fine to coarse gravel, some silt, subrounded to rounded, well graded, orange-brown, wet. *(continued)*
	At 21.8 m - dark brown
	BEDROCK.
28	Bottom of hole at 27.9 m.

Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)



NOTES

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_BCgw

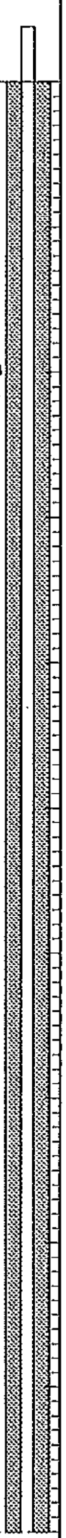
SHEET 1 OF 3

LOCATION: See Location Plan

N: 6509659 E: 655381

BORING DATE: October 22, 2013

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20, 40, 60, 80) / SHEAR STRENGTH Cu, kPa (20, 40, 60, 80) nat V. + Q - ● rem V. ⊕ U - ○	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6}, 10^{-5}, 10^{-4}, 10^{-3}) / WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl (10, 20, 30, 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		Ground Surface		353.26							Stick-up =0.86 m 
0	Sonic 127 mm (ID) Casing 152.4 mm (OD) JR Drilling	SANDY GRAVEL, fine-grained with occasional coarse grains, rounded to sub-rounded, moderately graded, dry, very loose		0.00							
1.52		GRAVEL, trace sand, fine-grained with occasional coarse grains, rounded to sub-rounded, poorly graded, very loose — Moist at 2.1 m		351.74 1.52							12 Nov 2013 ∇ Bentonite Chips
6.10		Silty SANDY GRAVEL, fine-grained with occasional coarse grains, sub-rounded to sub-angular, poorly graded, wet, very loose		347.17 6.10							
9.75				343.51 9.75							
10		*CONTINUED NEXT PAGE*									

CONTINUED NEXT PAGE

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: RT

CHECKED: CD

DATA ENTRY: IPG

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_BCgw

SHEET 2 OF 3

LOCATION: See Location Plan

N: 5509659 E: 655381

BORING DATE: October 22, 2013

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10	Sonic 127 mm (ID) Casing 152.4 mm (OD) JR Drilling	GRAVEL, some sand, trace silt, fine-grained, sub-angular to angular, poorly graded, wet, very loose *(continued)*									
11											
12											
13											Bentonite Chips
14											
15		— Occasional coarse grains from 15.2 m									
16											
17											Silica Sand
18											
19											Slotted Section
20		*CONTINUED NEXT PAGE*									

BOREHOLE - EXPANDED ADD. LAB TESTING 12.1349.0013 BH LOGS.GPJ CALGARY.GDT 4/8/14

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: RT
CHECKED: CD

DATA ENTRY: IPG

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_BCgw

SHEET 3 OF 3

LOCATION: See Location Plan

N: 5509659 E: 655381

BORING DATE: October 22, 2013

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80); SHEAR STRENGTH Cu, kPa nat V. + Q- ● rem V. ⊕ U- O (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}); WATER CONTENT PERCENT Wp ⊢—OW—⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
20	Sonic 127 mm (ID) Casing 152.4 mm (OD) JR Drilling	GRAVEL, some sand, trace silt, fine-grained, sub-angular to angular, poorly graded, wet, very loose *(continued)*									Slotted Section
21											
22				331.17 22.10							Silica Sand
		Sandy SILTY GRAVEL, fine-grained, sub-angular to angular, poorly graded, wet, very loose									
23				330.10 23.17							
		End of BOREHOLE. NOTES: Standpipe installed to 20.7 m upon well completion. Groundwater level measured at 2.4 mbgs on October 23, 2013. Groundwater level measured at 2.2 mbgs on November 12, 2013.									
24											
25											
26											
27											
28											
29											
30											

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: RT

CHECKED: CD

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_MC1**
	Location **Regional Groundwater Monitoring**	PAGE 1 OF 4

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 07	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1147.631	Borehole Logged By:	AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1148.587 1148.585	Date Drilled:	2019 01 20
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5510593.103	Easting: 654902.674	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼▼▼ Air Rotary

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▤ Slotted PVC

Well Name 1: EV_MW_MC1-A
Well Name 2: EV_MW_MC1-B

Depth in Metres

Soil Description

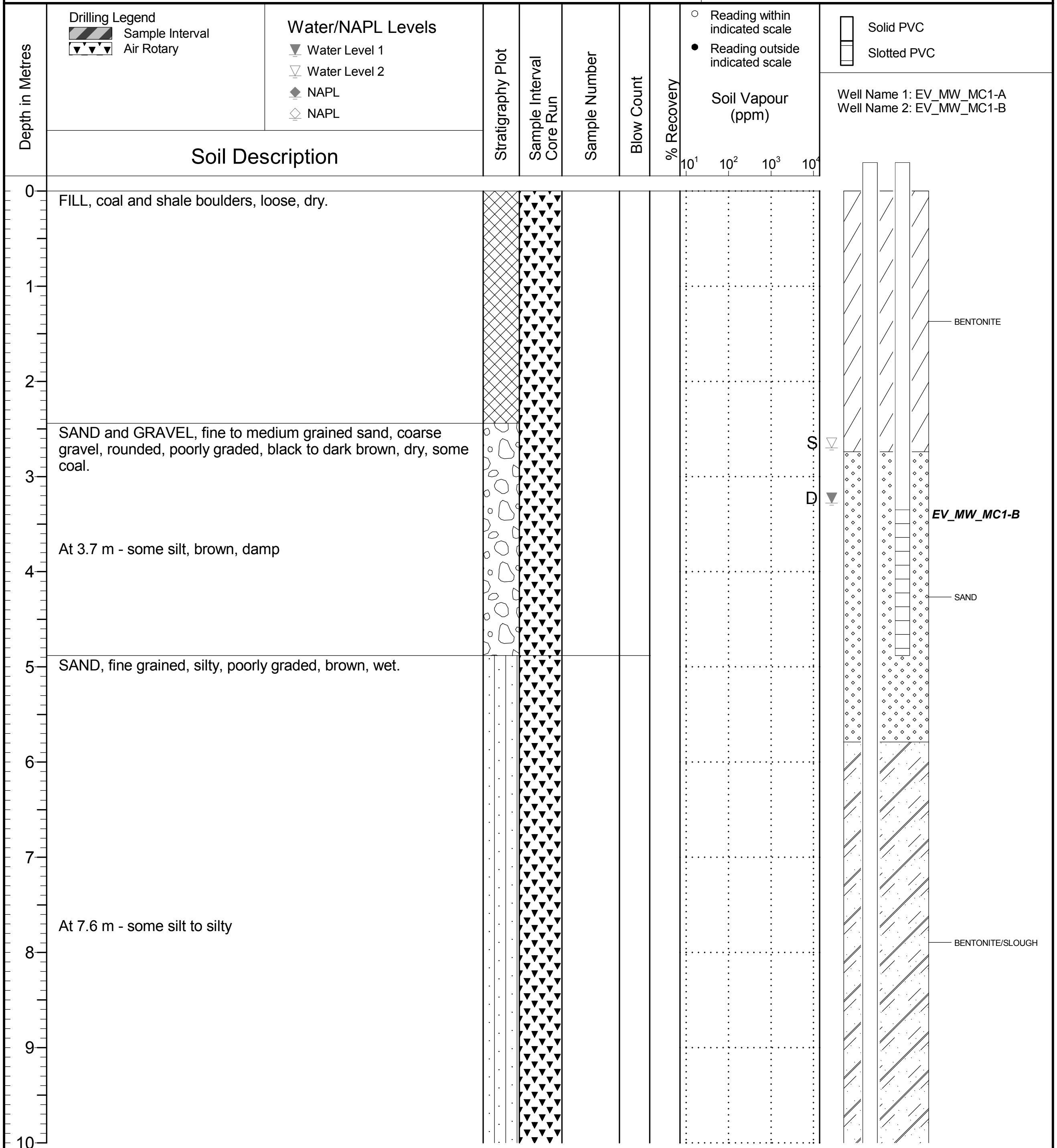
FILL, coal and shale boulders, loose, dry.

SAND and GRAVEL, fine to medium grained sand, coarse gravel, rounded, poorly graded, black to dark brown, dry, some coal.

At 3.7 m - some silt, brown, damp

SAND, fine grained, silty, poorly graded, brown, wet.

At 7.6 m - some silt to silty



NOTES

SNC·LAVALIN

Client
Teck Coal Limited

Location
Regional Groundwater Monitoring

Borehole No. : EV_BH_MC1

PAGE 2 OF 4

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 07	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1147.631	Borehole Logged By:	AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1148.587 1148.585	Date Drilled:	2019 01 20
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5510593.103	Easting: 654902.674	Log Typed By:	VL

Depth in Metres

Drilling Legend
▨ Sample Interval
▼ Air Rotary

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

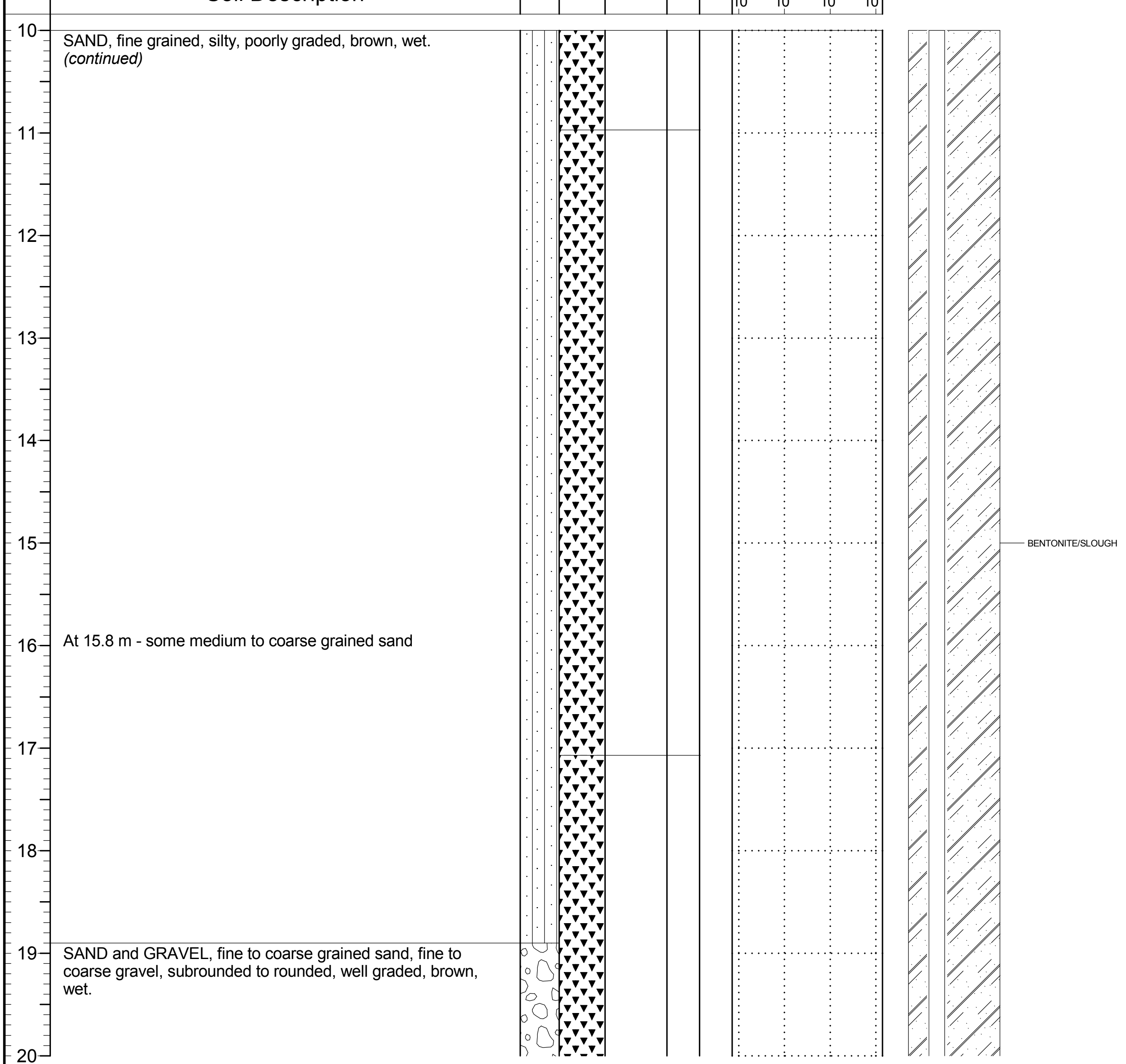
▯ Solid PVC
▯ Slotted PVC

Well Name 1: EV_MW_MC1-A
Well Name 2: EV_MW_MC1-B

Soil Description

Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)

Depth in Metres	Soil Description
10	SAND, fine grained, silty, poorly graded, brown, wet. *(continued)*
16	At 15.8 m - some medium to coarse grained sand
19	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subrounded to rounded, well graded, brown, wet.



NOTES

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 07	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1147.631	Borehole Logged By:	AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1148.587 1148.585	Date Drilled:	2019 01 20
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5510593.103	Easting: 654902.674	Log Typed By:	VL

Depth in Metres

Drilling Legend
▨ Sample Interval
▼ Air Rotary

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

Soil Description

20

SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subrounded to rounded, well graded, brown, wet. *(continued)*

21

From 21.4 m to 22.6 m - gravelly

22

At 22.6 m - subangular to subrounded

23

24

25

26

SAND, fine grained, poorly graded, silty.

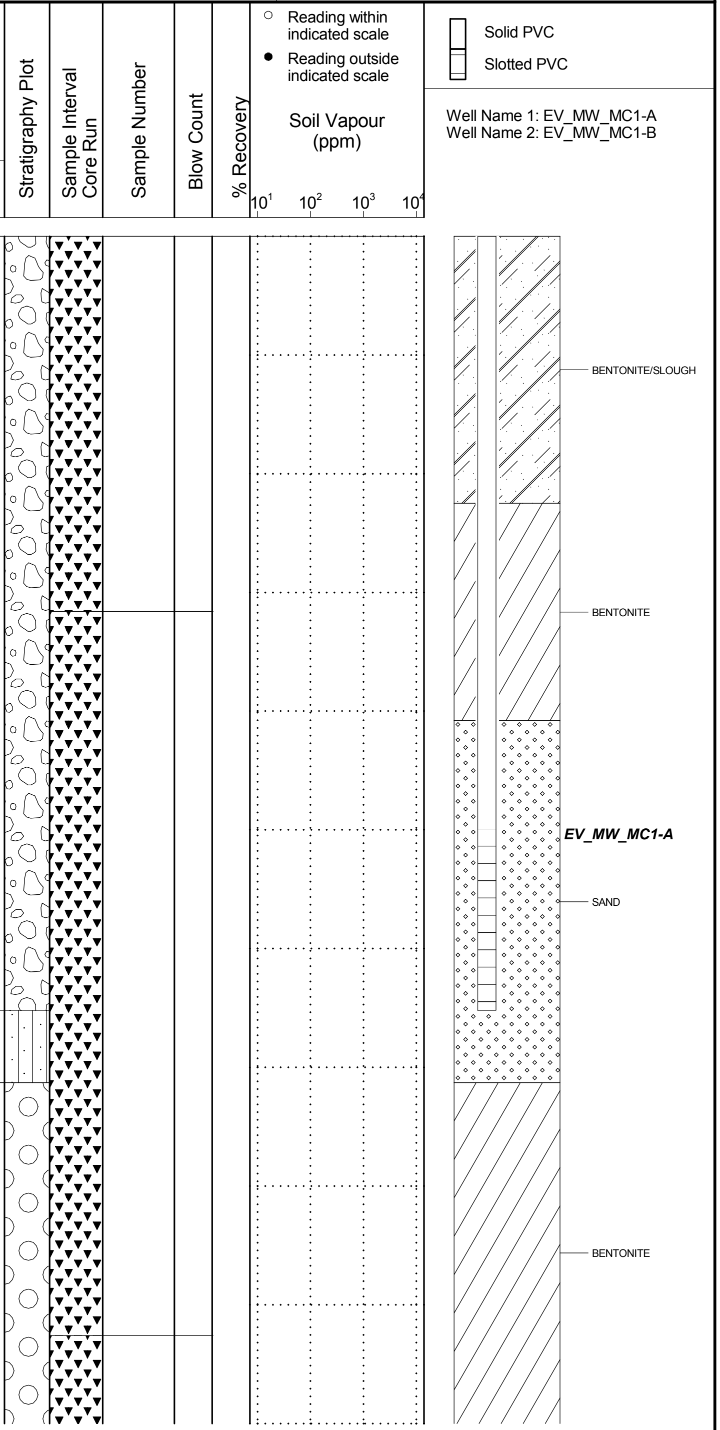
27

BOULDERS, shale, angular, some gravel, rounded to subrounded.

28

29

30



NOTES

SNC-LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_MC1**
	Location **Regional Groundwater Monitoring**	PAGE 4 OF 4

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 07	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1147.631	Borehole Logged By:	AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1148.587 1148.585	Date Drilled:	2019 01 20
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5510593.103	Easting: 654902.674	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼▼▼ Air Rotary

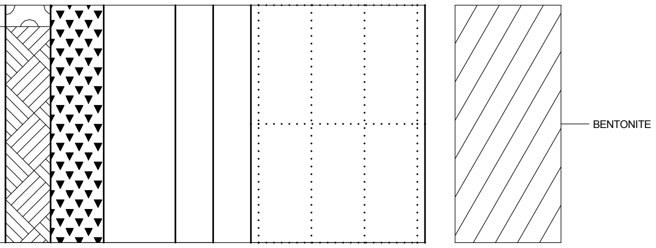
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: EV_MW_MC1-A
Well Name 2: EV_MW_MC1-B

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4
30	BEDROCK, shale, angular, black.						
32	Bottom of hole at 32.0 m.						



Depth scale: 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40

NOTES

QA/QC: BH 2019 04 10 Print Date:2019-09-26

SNC·LAVALIN

Client
Teck Coal Limited

Location
Regional Groundwater Monitoring

Borehole No. : EV_BH_MC2

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 07
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1146.989
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1147.950 1147.969
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5510529.408	Easting: 654758.366

Project Number:	660613
Borehole Logged By:	RAS
Date Drilled:	2019 01 14
Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ▼▼▼ Air Rotary

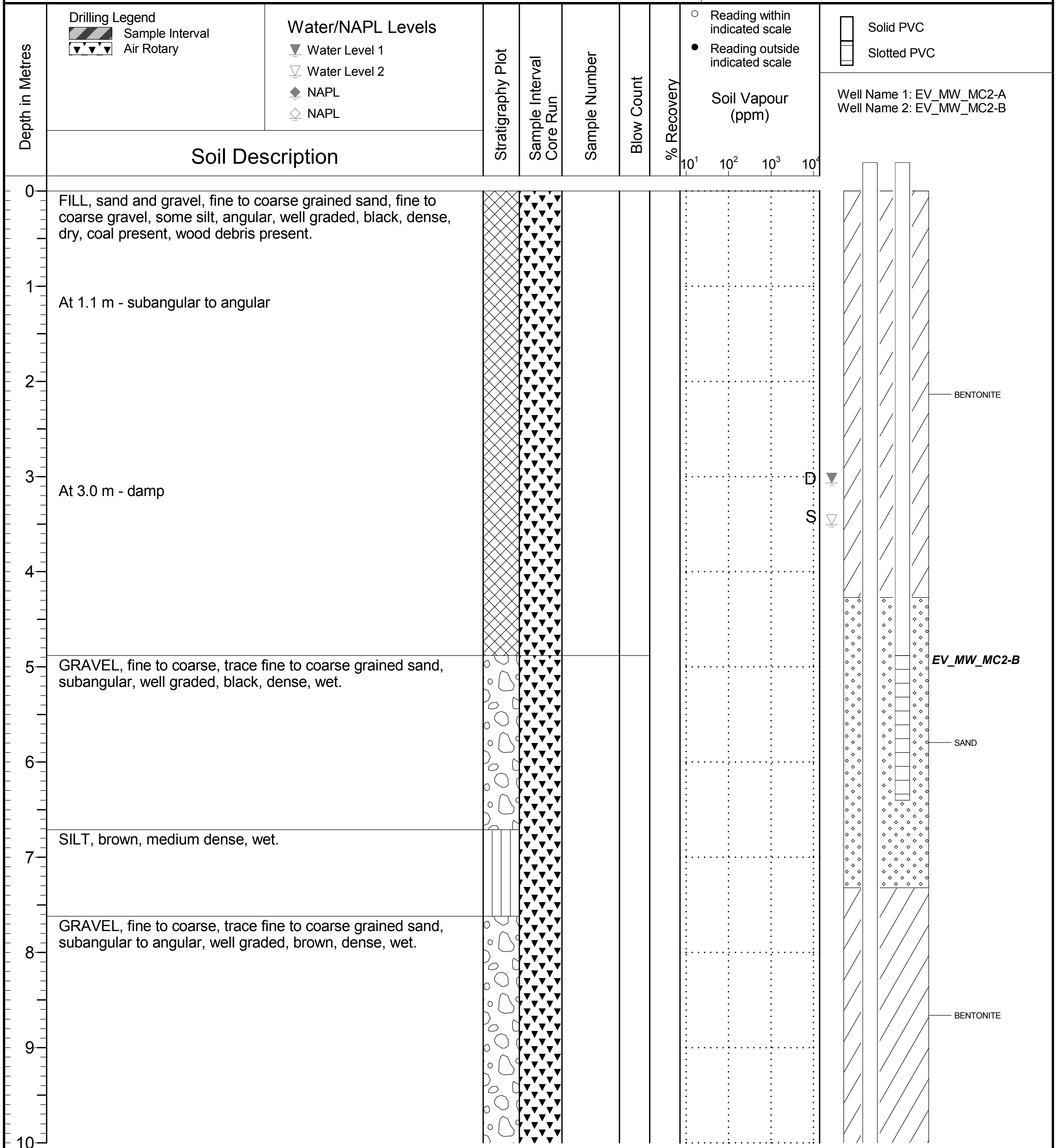
Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: EV_MW_MC2-A
Well Name 2: EV_MW_MC2-B

Depth in Metres	Soil Description
0	FILL, sand and gravel, fine to coarse grained sand, fine to coarse gravel, some silt, angular, well graded, black, dense, dry, coal present, wood debris present.
1	At 1.1 m - subangular to angular
3	At 3.0 m - damp
5	GRAVEL, fine to coarse, trace fine to coarse grained sand, subangular, well graded, black, dense, wet.
7	SILT, brown, medium dense, wet.
8	GRAVEL, fine to coarse, trace fine to coarse grained sand, subangular to angular, well graded, brown, dense, wet.



NOTES

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_MC2**
	Location **Regional Groundwater Monitoring**	PAGE 2 OF 6

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 07	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1146.989	Borehole Logged By:	RAS
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1147.950 1147.969	Date Drilled:	2019 01 14
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5510529.408	Easting: 654758.366	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼ Air Rotary

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

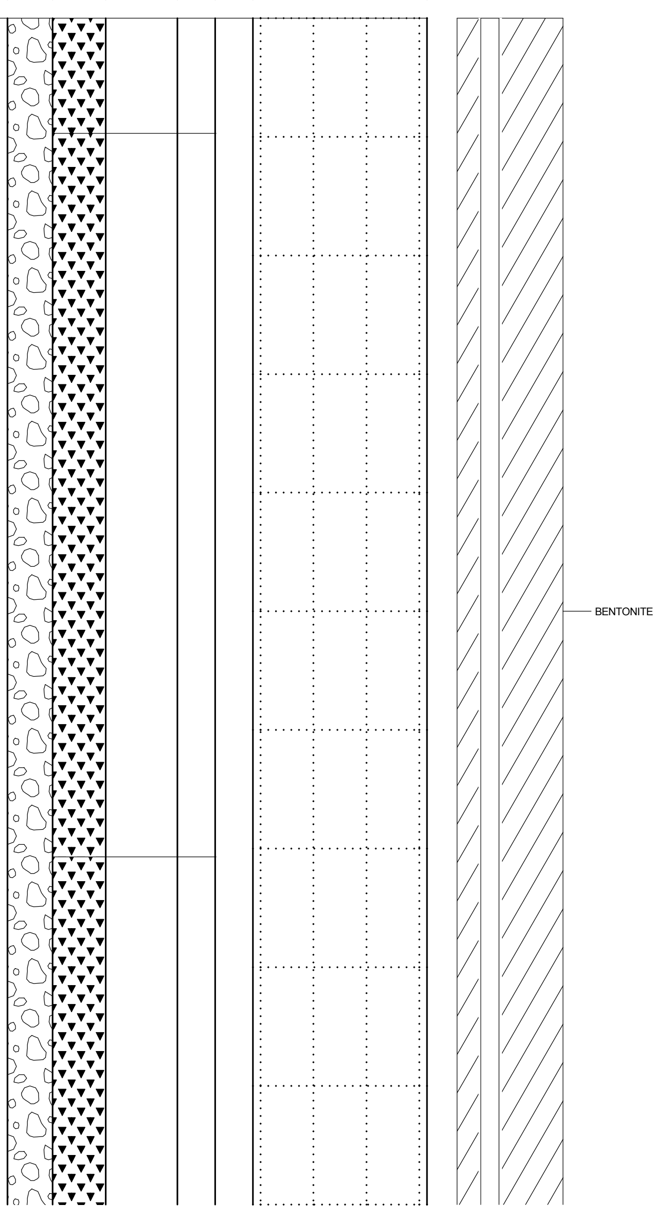
○ Reading within indicated scale
● Reading outside indicated scale

Soil Vapour (ppm)

☐ Solid PVC
☐ Slotted PVC

Well Name 1: EV_MW_MC2-A
Well Name 2: EV_MW_MC2-B

Depth in Metres	Soil Description
10	GRAVEL, fine to coarse, trace fine to coarse grained sand, subangular to angular, well graded, brown, dense, wet. *(continued)*
11	
12	
13	From 12.8 m to 14.9 m - some silt
14	
15	
16	
17	At 17.1 m - trace silt, some sand
18	
19	
20	At 19.8 m - orange/brown



NOTES

QA/QC: BH 2019 04 10 Print Date:2019-09-26

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_MC2**
	Location **Regional Groundwater Monitoring**	PAGE 3 OF 6

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 07	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1146.989	Borehole Logged By:	RAS
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1147.950 1147.969	Date Drilled:	2019 01 14
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5510529.408	Easting: 654758.366	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ▼ Air Rotary

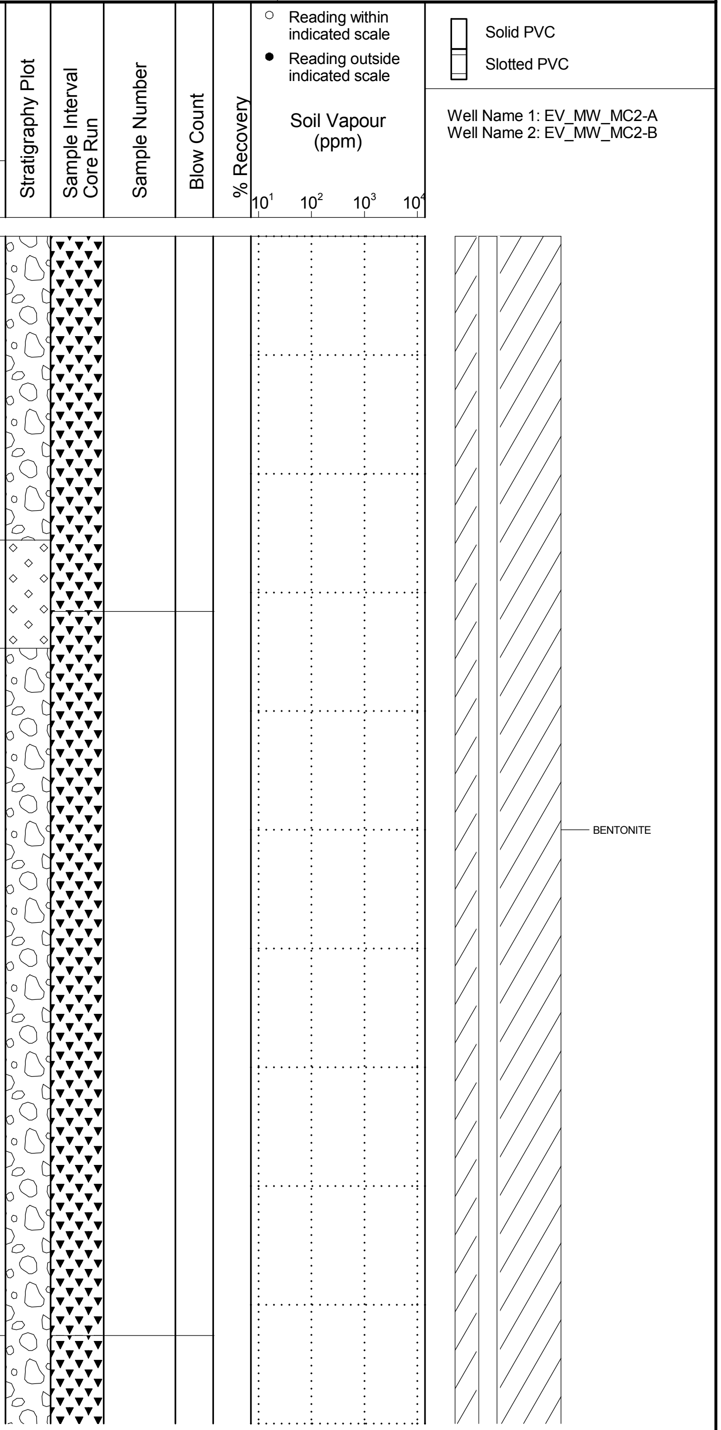
Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- ▯ Solid PVC
- ▯ Slotted PVC

Well Name 1: EV_MW_MC2-A
Well Name 2: EV_MW_MC2-B

Depth in Metres	Soil Description
20	GRAVEL, fine to coarse, trace fine to coarse grained sand, subangular to angular, well graded, brown, dense, wet. *(continued)*
	At 21.6 m - very dense
	At 22.3 m - dense
	SAND, fine to coarse grained, some fine to coarse gravel, trace silt, subrounded to angular, well graded, orange/brown, dense, wet.
	GRAVEL, fine to coarse, some fine to coarse grained sand, trace silt, subrounded to angular, well graded, light brown, dense, wet.
	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, trace silt, subrounded to angular, well graded, brown, loose.
30	



NOTES

SNC·LAVALIN

Client
Teck Coal Limited

Location
Regional Groundwater Monitoring

Borehole No. : EV_BH_MC2

PAGE 4 OF 6

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 07	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1146.989	Borehole Logged By:	RAS
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1147.950 1147.969	Date Drilled:	2019 01 14
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5510529.408	Easting: 654758.366	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼ Air Rotary

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

☐ Solid PVC
☐ Slotted PVC

Well Name 1: EV_MW_MC2-A
Well Name 2: EV_MW_MC2-B

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4
30	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, trace silt, subrounded to angular, well graded, brown, loose. *(continued)*						
31							
32							
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36							
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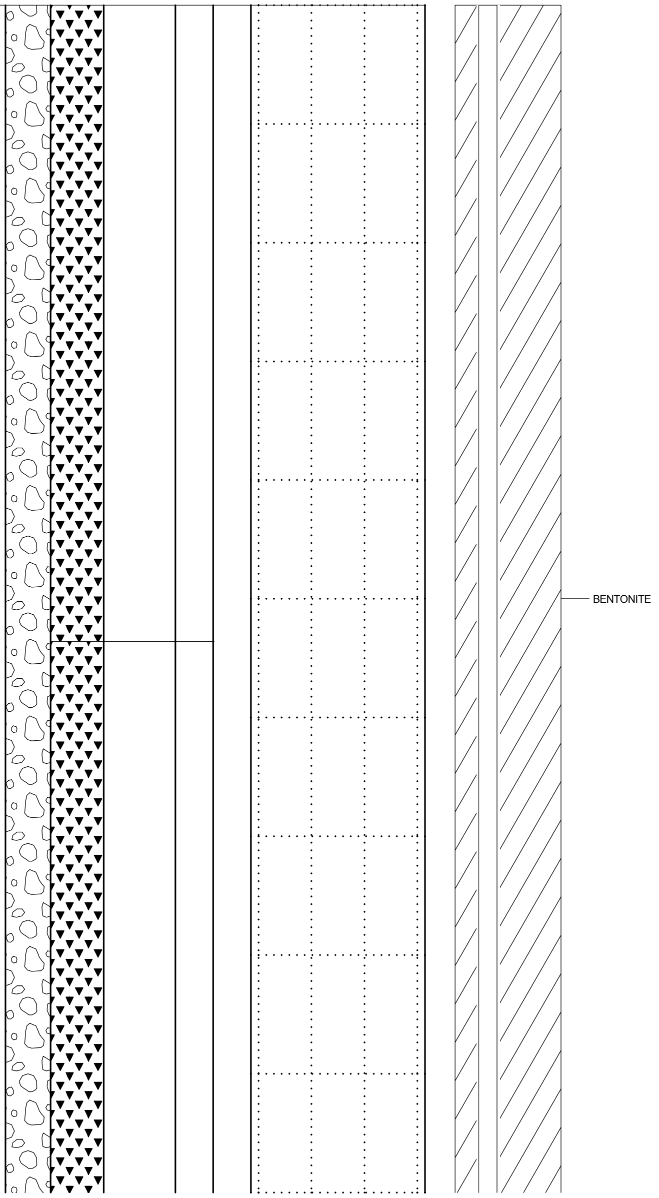
39							
40	From 39.8 m to 41.1 m - angular gravel						



NOTES

SNC • LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_MC2**
	Location **Regional Groundwater Monitoring**	PAGE 5 OF 6

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 07	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1146.989	Borehole Logged By:	RAS
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1147.950 1147.969	Date Drilled:	2019 01 14
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5510529.408	Easting: 654758.366	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ▼ Air Rotary

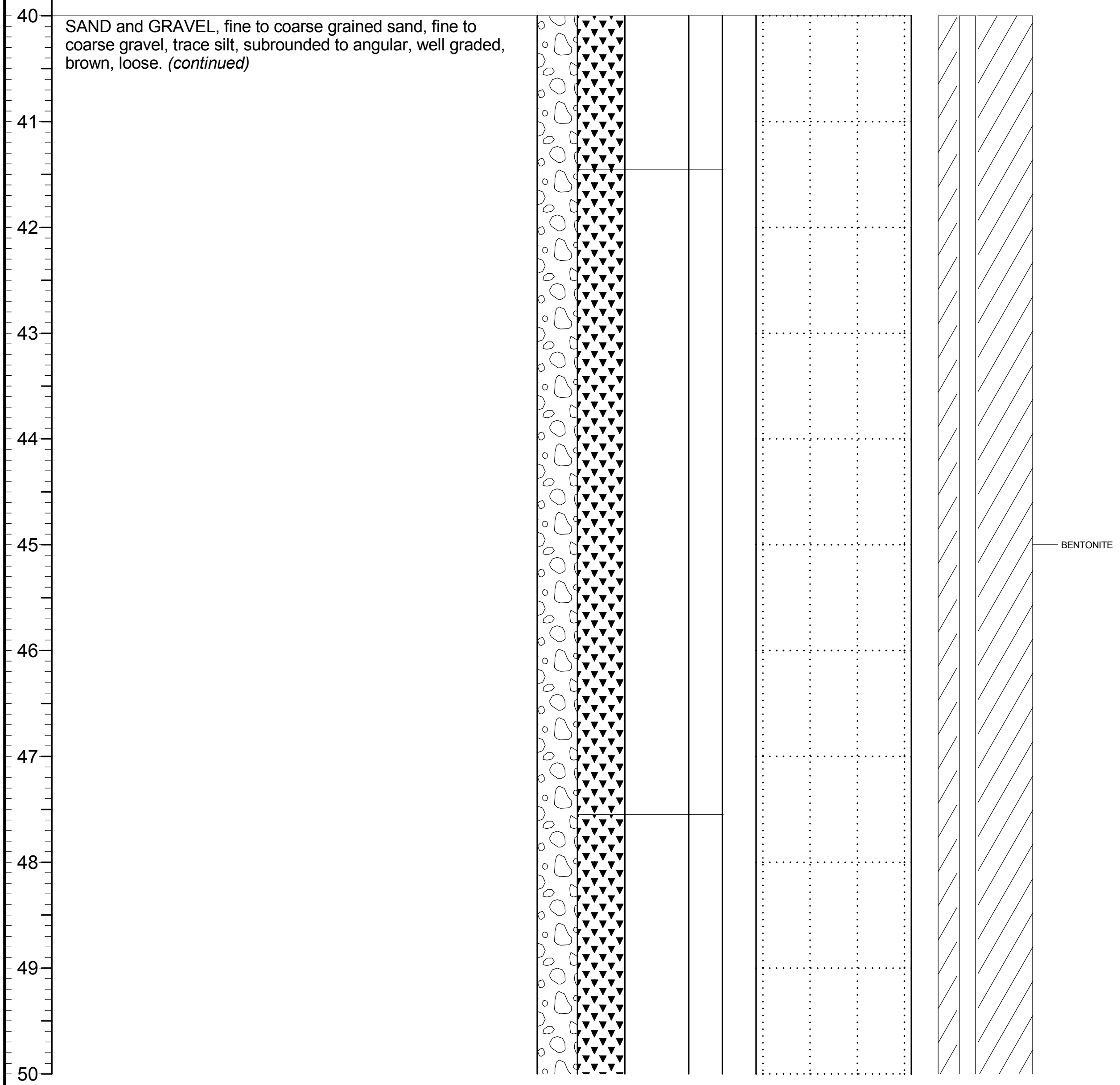
Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- ☐ Solid PVC
- ☐ Slotted PVC

Well Name 1: EV_MW_MC2-A
Well Name 2: EV_MW_MC2-B

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)



SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, trace silt, subrounded to angular, well graded, brown, loose. *(continued)*

NOTES

QA/QC: BH 2019 04 10 Print Date:2019-09-26

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_MC2**
	Location **Regional Groundwater Monitoring**	PAGE 6 OF 6

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 07	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1146.989	Borehole Logged By:	RAS
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1147.950 1147.969	Date Drilled:	2019 01 14
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5510529.408	Easting: 654758.366	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼▼▼ Air Rotary

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▤ Slotted PVC

Well Name 1: EV_MW_MC2-A
Well Name 2: EV_MW_MC2-B

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4
50	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, trace silt, subrounded to angular, well graded, brown, loose. *(continued)*						
52	At 52.1 m - increased sand						
54	BEDROCK.						
56	Bottom of hole at 55.8 m.						

50
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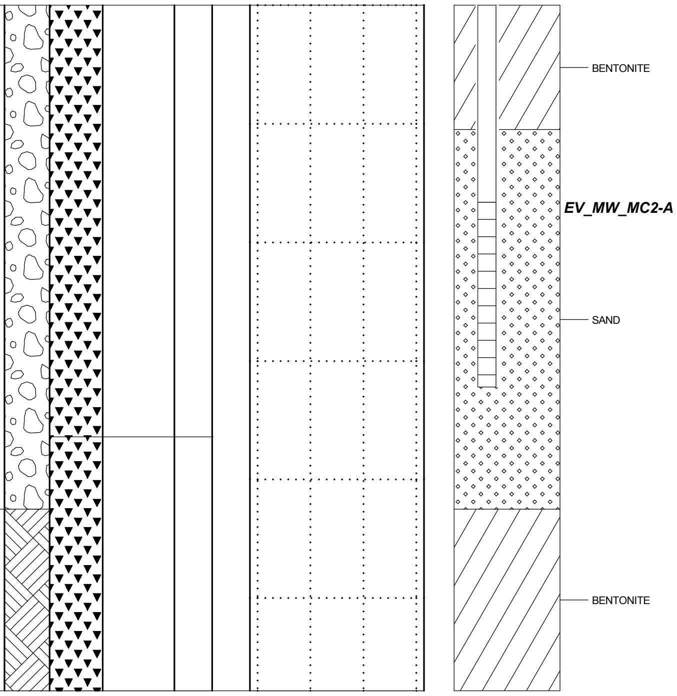
60



NOTES

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_AQ1**
	Location **Regional Groundwater Monitoring**	PAGE 1 OF 3

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 07	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1173.956	Borehole Logged By:	RAS
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1174.862	Date Drilled:	2019 01 11
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5511292.053	Easting: 654572.618	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼ Air Rotary

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

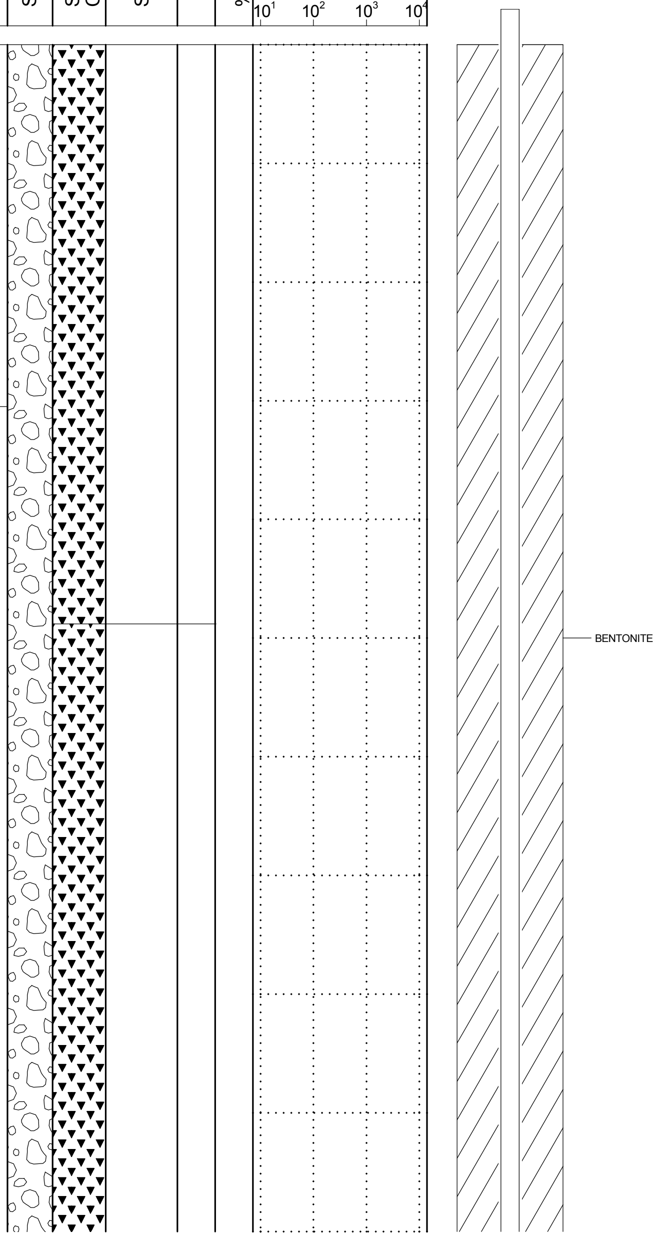
○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▯ Slotted PVC

Well Name 1: EV_MW_AQ1

Depth in Metres	Soil Description
0	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, trace silt, subangular, well graded, dark brown, dense, damp.
3	GRAVEL, fine to coarse, some fine to coarse grained sand, trace silt, subangular to angular, well graded, dark brown, dense, damp.
8	From 7.9 m to 12.5 m - brown

Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)



NOTES

SNC • LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_AQ1**
	Location **Regional Groundwater Monitoring**	PAGE 2 OF 3

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 07	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1173.956	Borehole Logged By:	RAS
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1174.862	Date Drilled:	2019 01 11
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5511292.053	Easting: 654572.618	Log Typed By:	VL

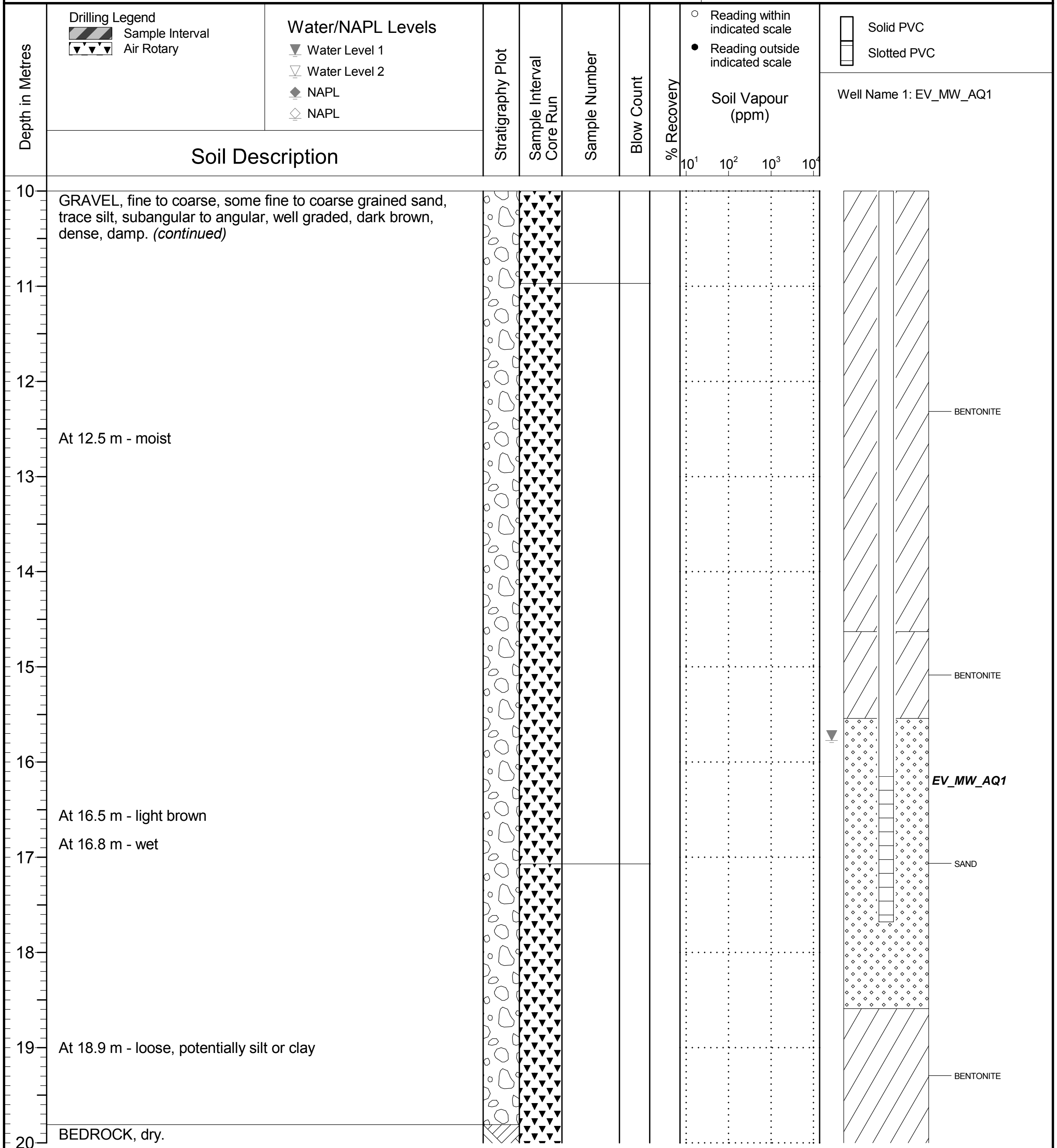
Drilling Legend
▨ Sample Interval
▼ Air Rotary

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: EV_MW_AQ1



GRAVEL, fine to coarse, some fine to coarse grained sand, trace silt, subangular to angular, well graded, dark brown, dense, damp. *(continued)*

At 12.5 m - moist

At 16.5 m - light brown

At 16.8 m - wet

At 18.9 m - loose, potentially silt or clay

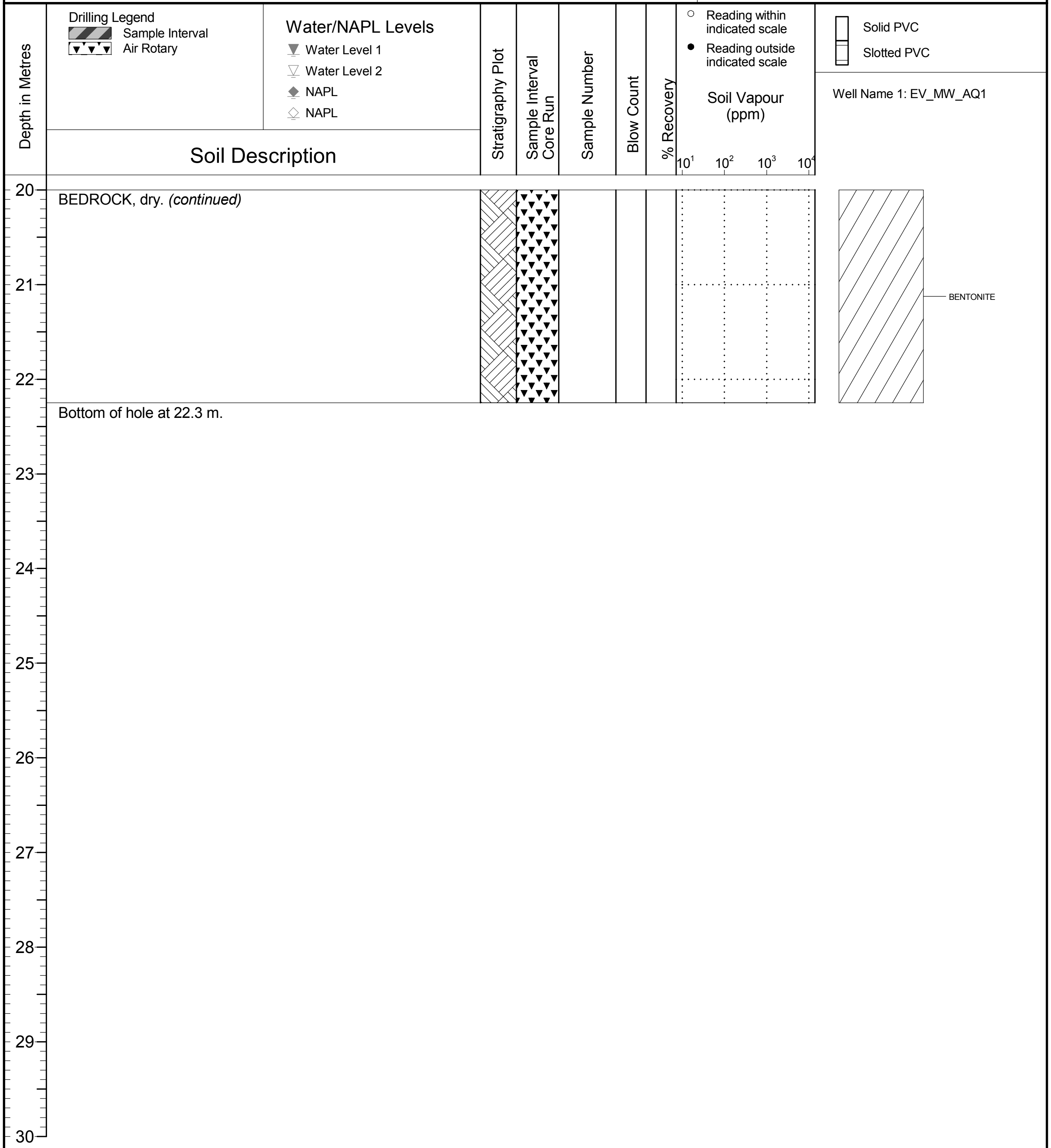
BEDROCK, dry.

NOTES

SNC·LAVALIN

Client **Teck Coal Limited**	**Borehole No. : EV_BH_AQ1**	
Location **Regional Groundwater Monitoring**	PAGE 3 OF 3	

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 07	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1173.956	Borehole Logged By:	RAS
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1174.862	Date Drilled:	2019 01 11
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5511292.053	Easting: 654572.618	Log Typed By:	VL



BEDROCK, dry. *(continued)*

Bottom of hole at 22.3 m.

NOTES

SNC • LAVALIN

Client	Borehole No. : EV_BH_AQ2
Teck Coal Limited	
Location	PAGE 1 OF 2
Regional Groundwater Monitoring	

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 08	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1150.689	Borehole Logged By:	RG/AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1151.673	Date Drilled:	2019 01 23
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5511871.860	Easting: 653854.171	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ▼ Air Rotary

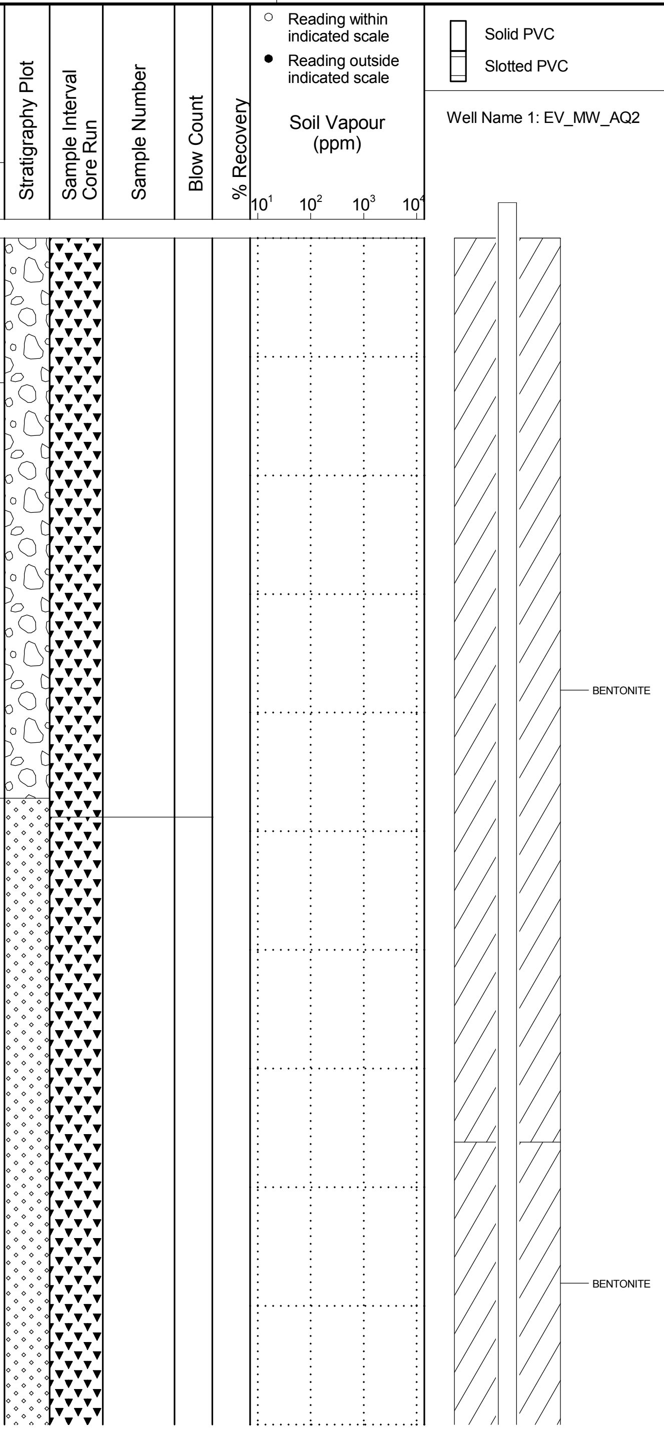
Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- ▯ Solid PVC
- ▤ Slotted PVC

Well Name 1: EV_MW_AQ2

Depth in Metres	Soil Description
0	SAND and GRAVEL, coarse grained sand, coarse gravel, subangular, poorly graded, loose, dry.
1.2	GRAVEL, coarse, subangular, poorly graded, dry.
4.3	At 4.3 m - damp
4.7	SAND, fine to medium grained, subangular to subrounded, poorly graded, brown, damp.
7.5	At 7.5 m - trace fine to coarse gravel, subangular



NOTES

SNC·LAVALIN

Client
Teck Coal Limited

Location
Regional Groundwater Monitoring

Borehole No. : EV_BH_AQ2

PAGE 2 OF 2

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 08	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1150.689	Borehole Logged By:	RG/AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1151.673	Date Drilled:	2019 01 23
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5511871.860	Easting: 653854.171	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼ Air Rotary

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

Depth in Metres

Soil Description

SAND, fine to medium grained, subangular to subrounded, poorly graded, brown, damp. *(continued)*

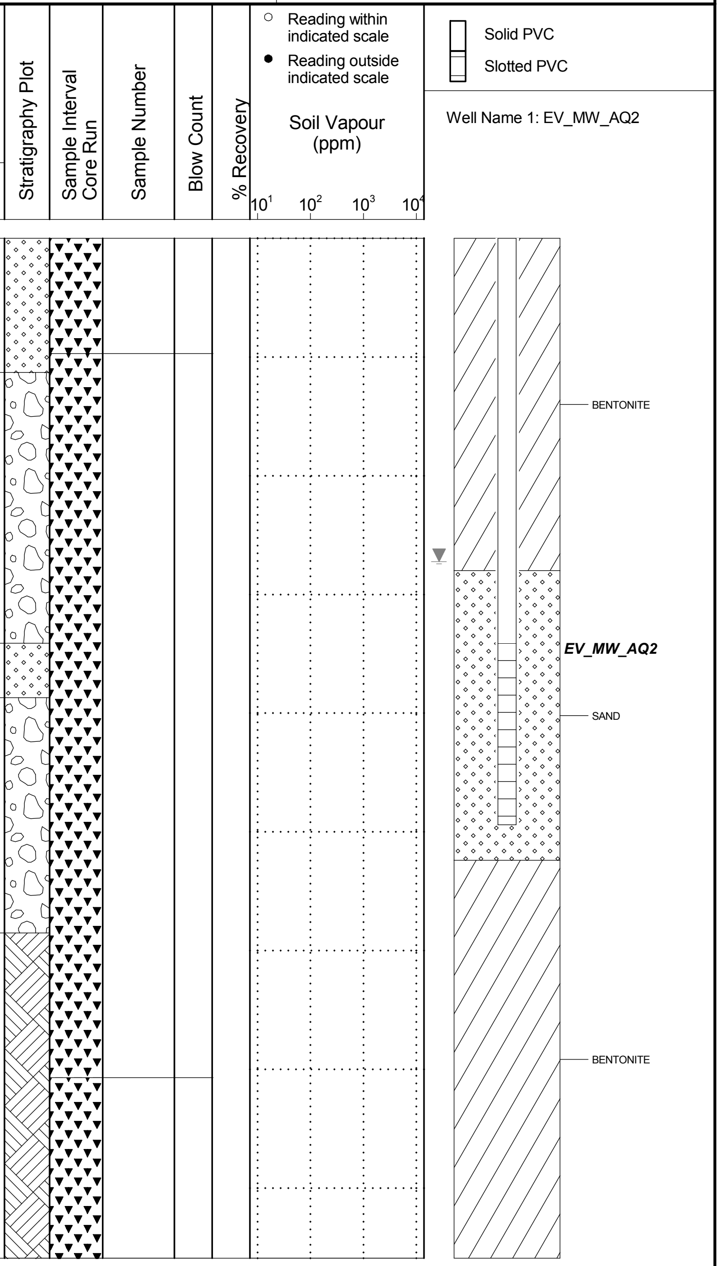
SAND and GRAVEL, fine to medium grained sand, fine to coarse gravel, subangular to subrounded, poorly graded, dark grey-black, damp, interbedded.

SAND, fine to medium grained, subangular to subrounded, poorly graded, dark grey-black, damp.

GRAVEL, fine to coarse, subangular, well graded, dark grey-black.

BEDROCK, shale, grey, very hard, damp.

Bottom of hole at 18.6 m.



NOTES

SNC·LAVALIN

Client **Teck Coal Limited**	**Borehole No. : EV_BH_MC4**
Location **Regional Groundwater Monitoring**	PAGE 1 OF 3

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 07	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1144.345	Borehole Logged By:	RAS
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1145.308	Date Drilled:	2019 01 09
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5512279.753	Easting: 653309.224	Log Typed By:	VL

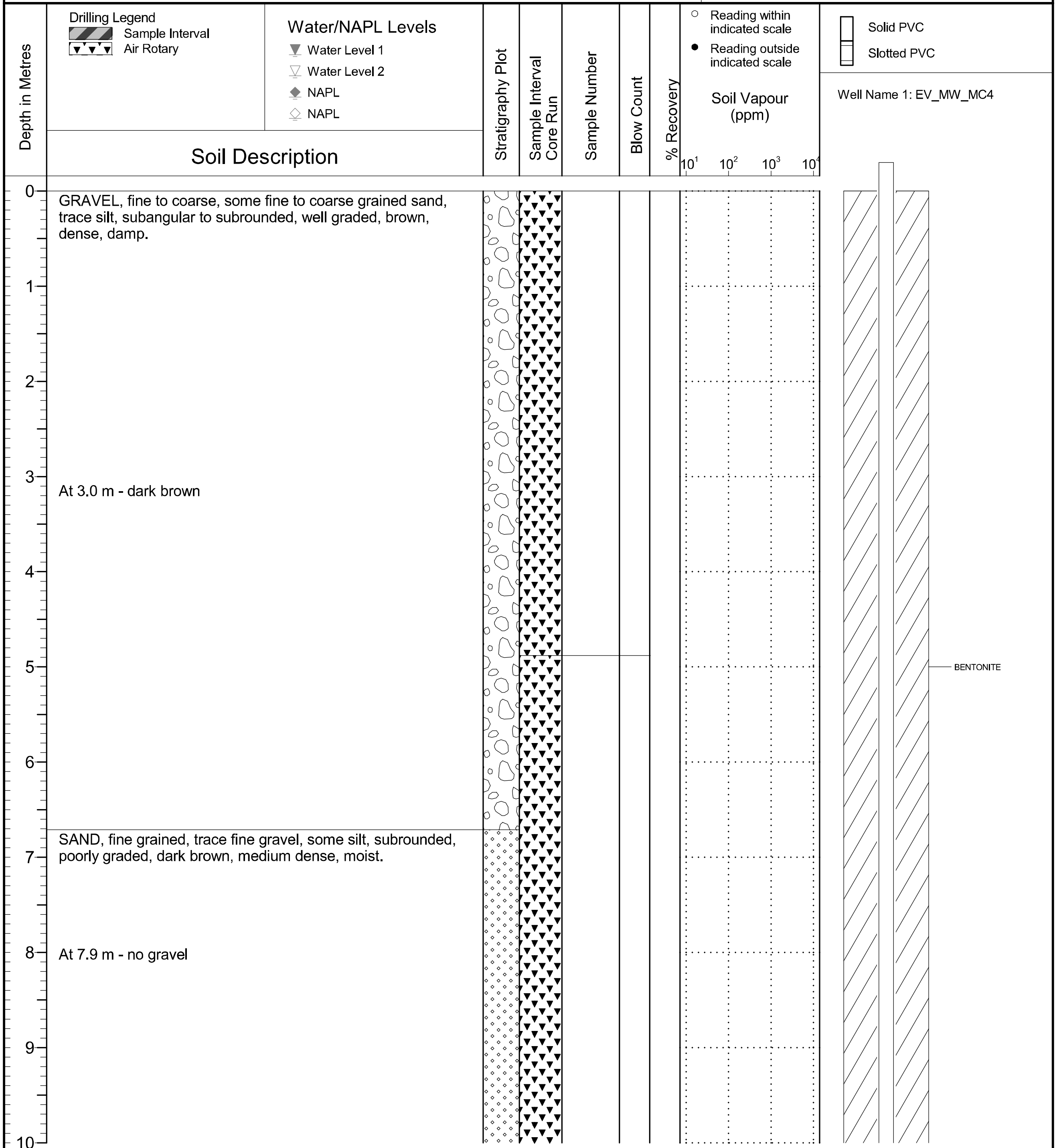
Drilling Legend
▨ Sample Interval
▼ Air Rotary

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

☐ Solid PVC
☐ Slotted PVC

Well Name 1: EV_MW_MC4



Depth in Metres	Soil Description
0	GRAVEL, fine to coarse, some fine to coarse grained sand, trace silt, subangular to subrounded, well graded, brown, dense, damp.
3.0	At 3.0 m - dark brown
6.7	SAND, fine grained, trace fine gravel, some silt, subrounded, poorly graded, dark brown, medium dense, moist.
7.9	At 7.9 m - no gravel

NOTES

SNC · LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_MC4**
	Location **Regional Groundwater Monitoring**	PAGE 2 OF 3

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 07	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1144.345	Borehole Logged By:	RAS
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1145.308	Date Drilled:	2019 01 09
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5512279.753	Easting: 653309.224	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼ Air Rotary

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▤ Slotted PVC

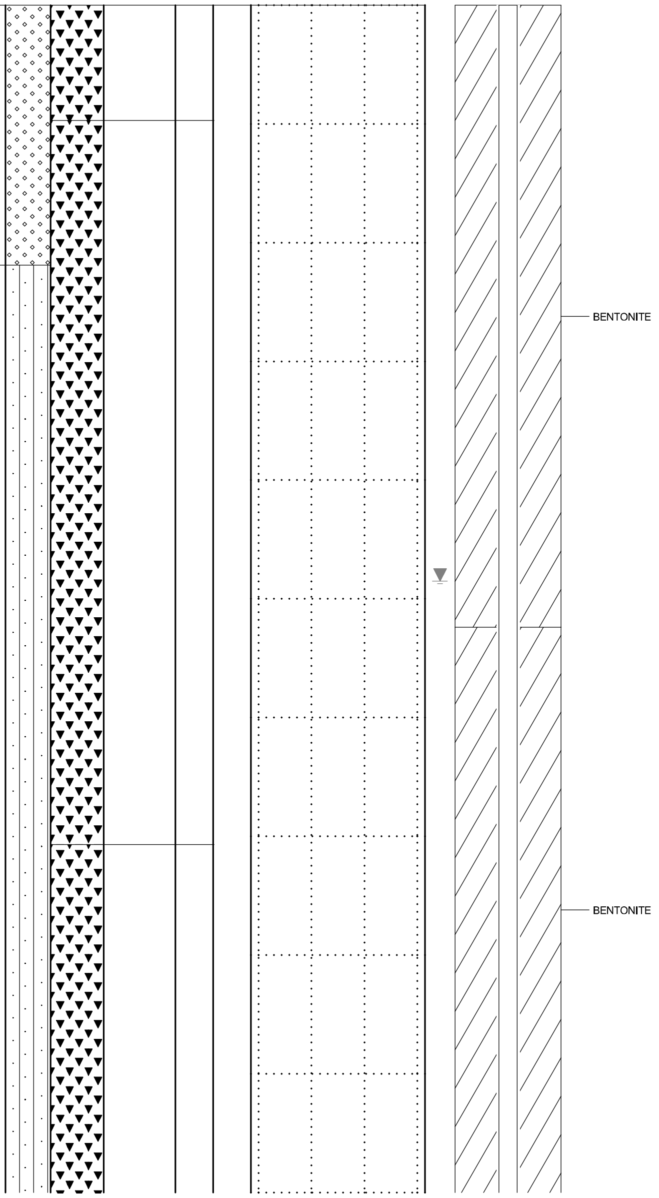
Well Name 1: EV_MW_MC4

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)

10 SAND, fine grained, trace fine gravel, some silt, subrounded, poorly graded, dark brown, medium dense, moist. *(continued)*

12.2 SAND, fine grained, silty, dark brown, poorly graded, medium dense, moist.

At 17.1 m - wet



Depth: 10 11 12 13 14 15 16 17 18 19 20

NOTES

SNC·LAVALIN

Client
Teck Coal Limited

Location
Regional Groundwater Monitoring

Borehole No. : EV_BH_MC4

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 07	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1144.345	Borehole Logged By:	RAS
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1145.308	Date Drilled:	2019 01 09
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5512279.753	Easting: 653309.224	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼ Air Rotary

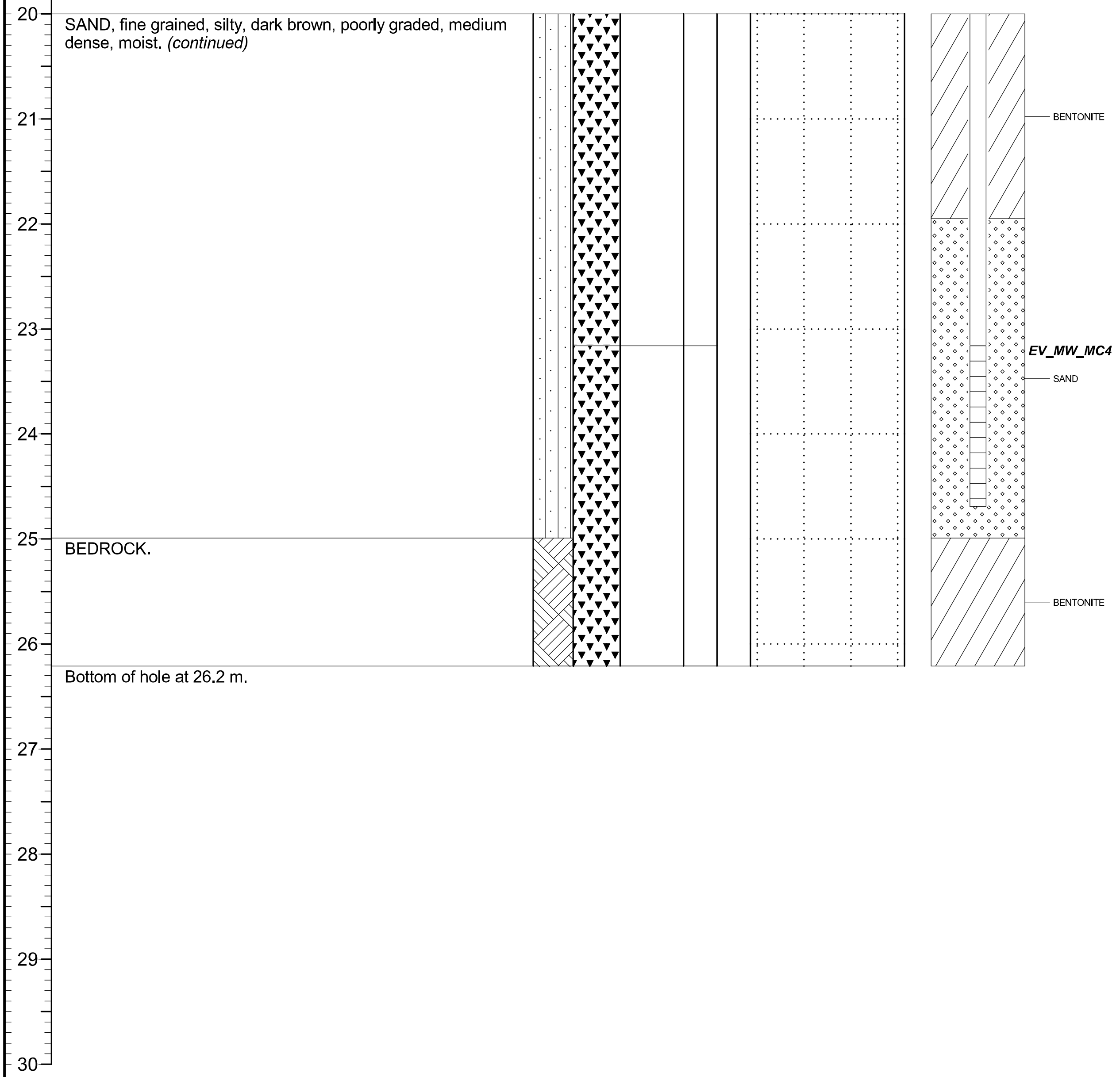
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▯ Slotted PVC

Well Name 1: EV_MW_MC4

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4
20	SAND, fine grained, silty, dark brown, poorly graded, medium dense, moist. *(continued)*						
25	BEDROCK.						
26.2	Bottom of hole at 26.2 m.						



NOTES

SNC·LAVALIN

Client
Teck Coal Limited

Location
Regional Groundwater Monitoring

Borehole No. : EV_BH_MC3

PAGE 1 OF 3

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 08	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1137.925	Borehole Logged By:	RAS
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1138.815	Date Drilled:	2019 01 23
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5510983.197	Easting: 653666.891	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼ Air Rotary

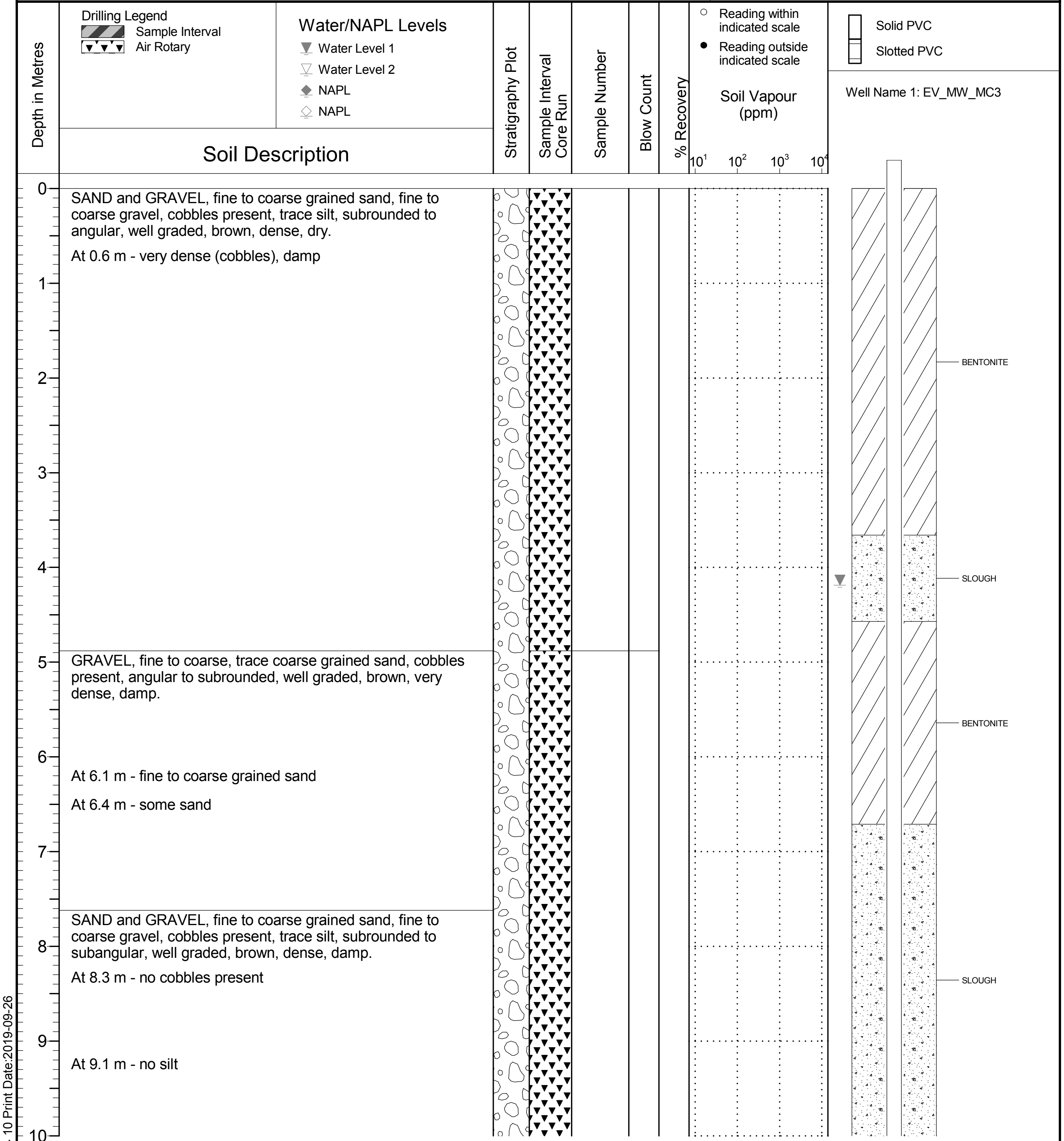
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: EV_MW_MC3

Depth in Metres	Soil Description
0	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, cobbles present, trace silt, subrounded to angular, well graded, brown, dense, dry. At 0.6 m - very dense (cobbles), damp
4.9	GRAVEL, fine to coarse, trace coarse grained sand, cobbles present, angular to subrounded, well graded, brown, very dense, damp. At 6.1 m - fine to coarse grained sand At 6.4 m - some sand
7.6	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, cobbles present, trace silt, subrounded to subangular, well graded, brown, dense, damp. At 8.3 m - no cobbles present At 9.1 m - no silt



NOTES

SNC·LAVALIN

Client **Teck Coal Limited**		**Borehole No. : EV_BH_MC3**
Location **Regional Groundwater Monitoring**		PAGE 2 OF 3

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 08	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1137.925	Borehole Logged By:	RAS
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1138.815	Date Drilled:	2019 01 23
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5510983.197	Easting: 653666.891	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ▼▼▼ Air Rotary

Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

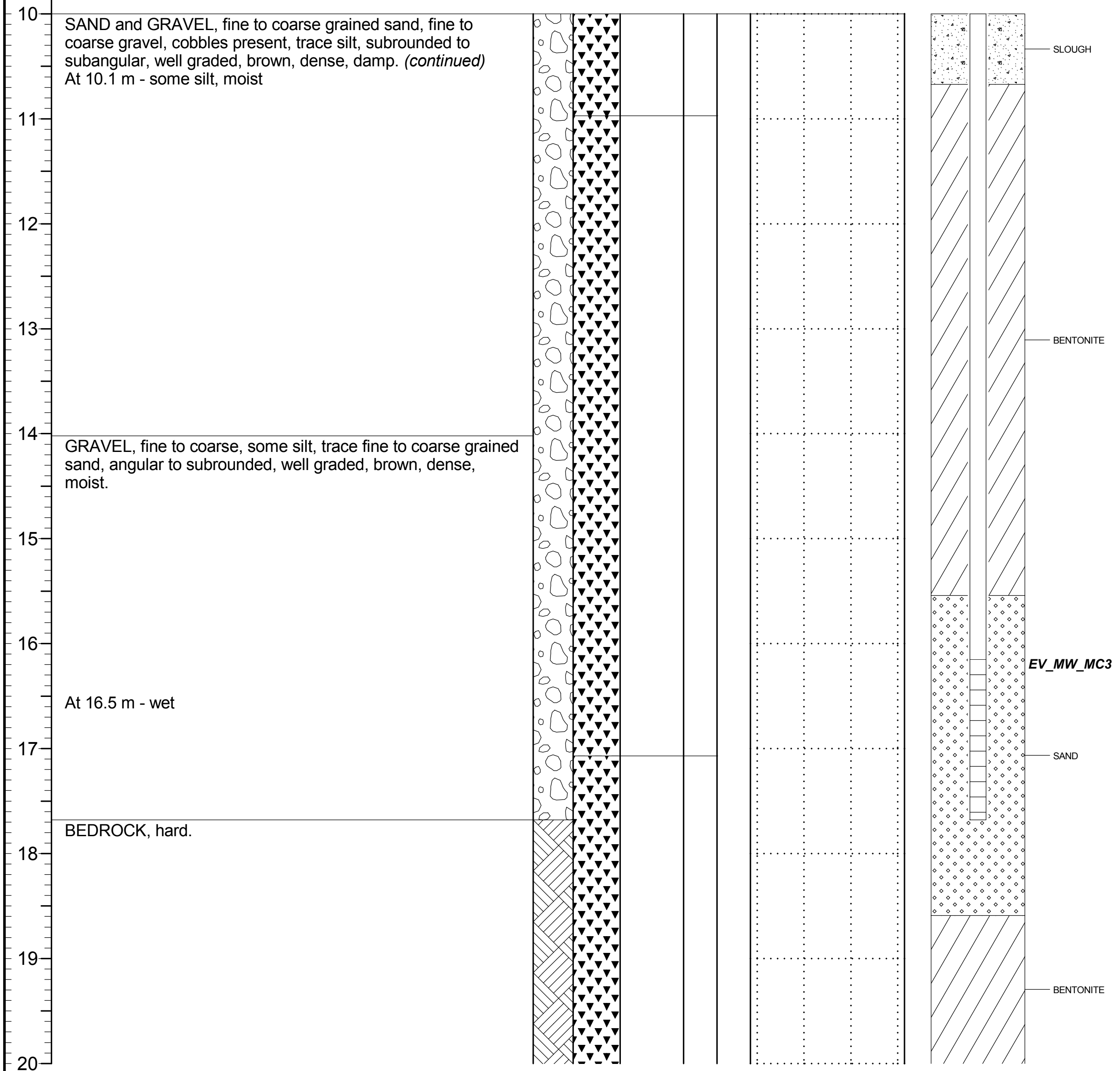
- ○ Reading within indicated scale
- ● Reading outside indicated scale

Soil Vapour (ppm)

- Solid PVC
- Slotted PVC

Well Name 1: EV_MW_MC3

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4



SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, cobbles present, trace silt, subrounded to subangular, well graded, brown, dense, damp. *(continued)*
At 10.1 m - some silt, moist

GRAVEL, fine to coarse, some silt, trace fine to coarse grained sand, angular to subrounded, well graded, brown, dense, moist.

At 16.5 m - wet

BEDROCK, hard.

NOTES

SNC·LAVALIN

Client
Teck Coal Limited

Location
Regional Groundwater Monitoring

Borehole No. : EV_BH_MC3

PAGE 3 OF 3

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 08	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1137.925	Borehole Logged By:	RAS
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1138.815	Date Drilled:	2019 01 23
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5510983.197	Easting: 653666.891	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼ Air Rotary

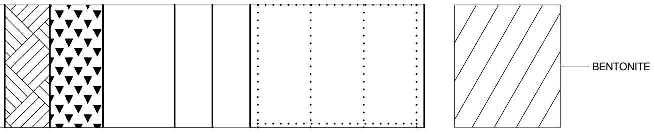
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▯ Slotted PVC

Well Name 1: EV_MW_MC3

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4
20	BEDROCK, hard. *(continued)*						
21	Bottom of hole at 21.0 m.						
22							
23							
24							
25							
26							
27							
28							
29							
30							



NOTES

QA/QC: BH 2019 04 10 Print Date:2019-09-26

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_SPR1**
	Location **Regional Groundwater Monitoring**	PAGE 1 OF 6

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 08	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1137.376	Borehole Logged By:	AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1138.248 1138.247	Date Drilled:	2019 01 21
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5511277.374	Easting: 653946.968	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ▼ Air Rotary

Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)

○ Reading within indicated scale

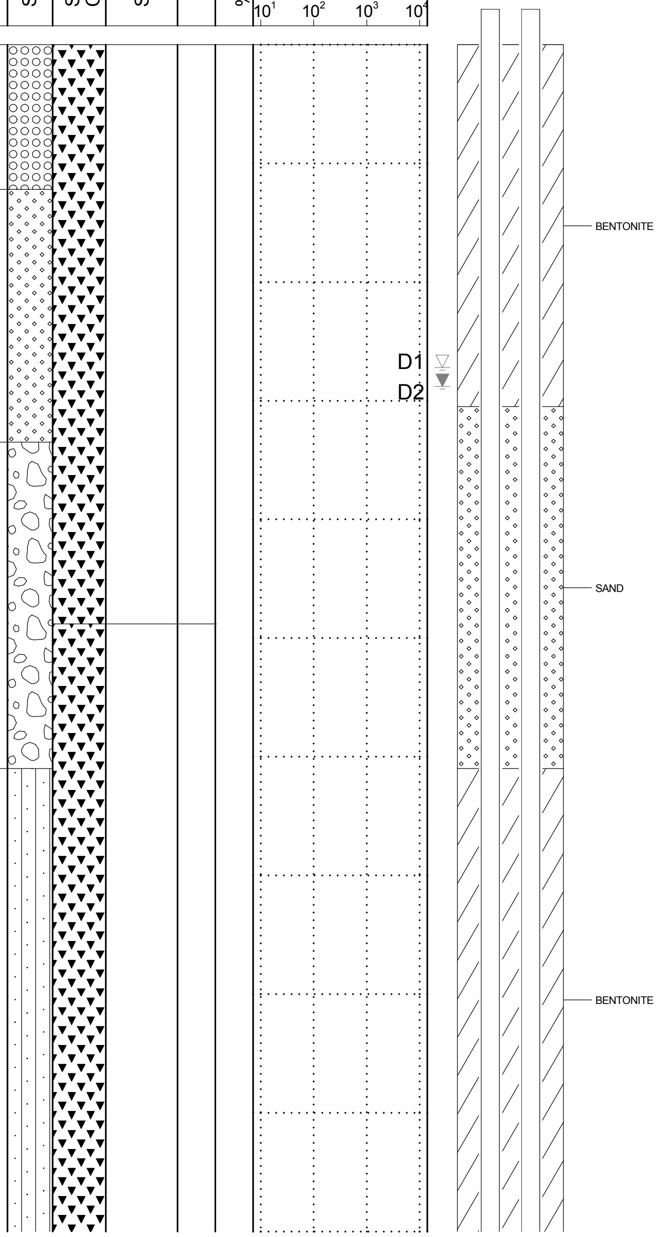
● Reading outside indicated scale

Solid PVC

Slotted PVC

Well Name 1: EV_MW_SPR1-A
Well Name 2: EV_MW_SPR1-B

Depth in Metres	Soil Description
0	COBBLES, rounded, up to 20 cm, grey.
1	
	SAND, fine grained, some fine to coarse gravel, rounded to subrounded, poorly graded, brown, loose, dry.
2	
3	
	SAND and GRAVEL, fine to coarse grained sand, coarse gravel, subrounded, well graded, brown, damp.
4	At 4.0 m - moist
5	At 4.9 m - wet
	At 5.5 m - fine grained sand, trace silt
6	
	SAND, fine grained, silty, soft, loose, damp.
7	
8	
9	
10	



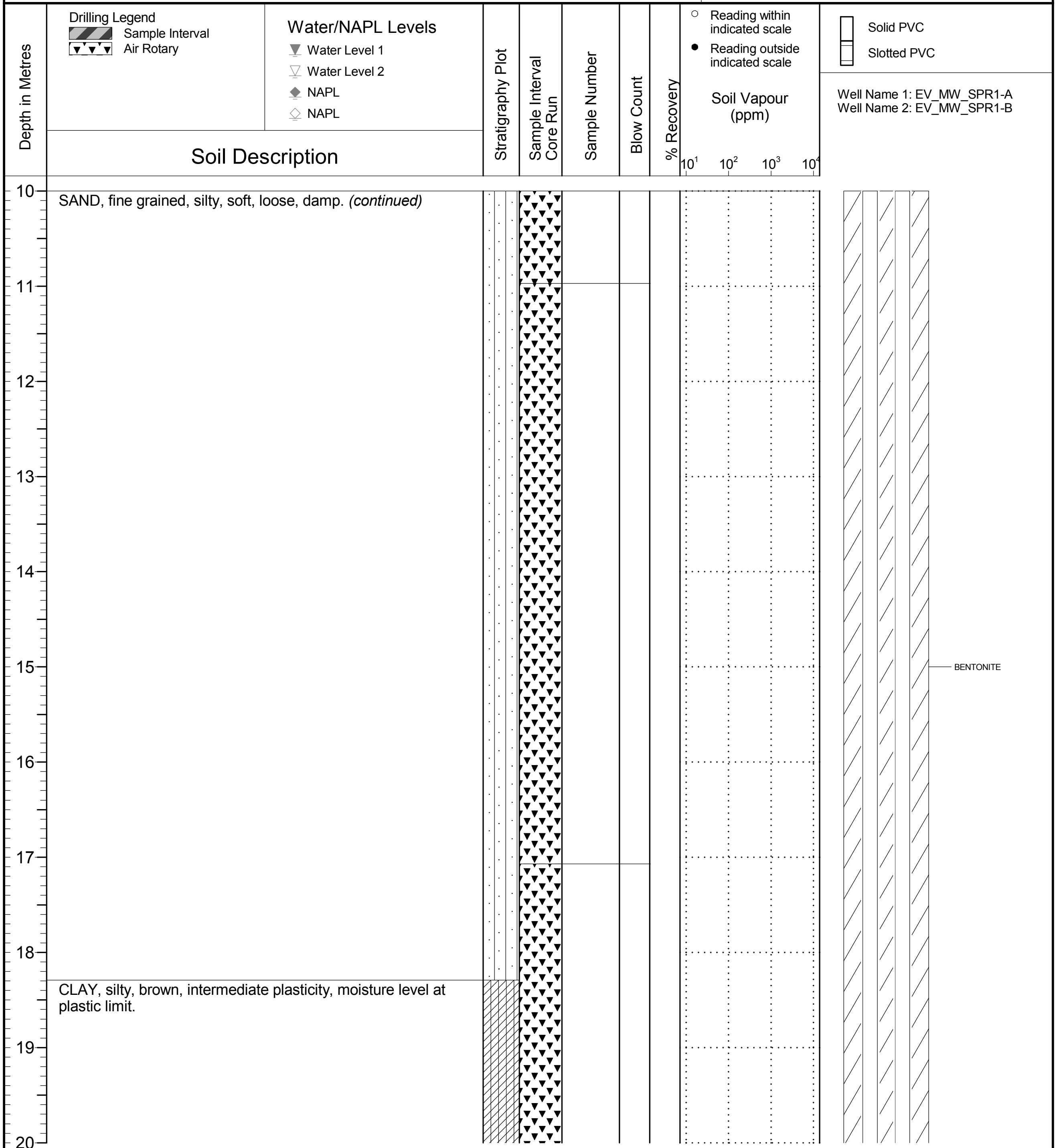
NOTES

QA/QC: BH 2019 04 10 Print Date:2019-09-26

SNC·LAVALIN

	Client **Teck Coal Limited**	**Borehole No. : EV_BH_SPR1**
	Location **Regional Groundwater Monitoring**	PAGE 2 OF 6

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 08	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1137.376	Borehole Logged By:	AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1138.248 1138.247	Date Drilled:	2019 01 21
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5511277.374	Easting: 653946.968	Log Typed By:	VL



SAND, fine grained, silty, soft, loose, damp. *(continued)*

CLAY, silty, brown, intermediate plasticity, moisture level at plastic limit.

NOTES

QA/QC: BH 2019 04 10 Print Date:2019-09-26

SNC·LAVALIN

Client
Teck Coal Limited

Location
Regional Groundwater Monitoring

Borehole No. : EV_BH_SPR1

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 08	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1137.376	Borehole Logged By:	AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1138.248 1138.247	Date Drilled:	2019 01 21
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5511277.374	Easting: 653946.968	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼▼▼ Air Rotary

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▯ Slotted PVC

Well Name 1: EV_MW_SPR1-A
Well Name 2: EV_MW_SPR1-B

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)

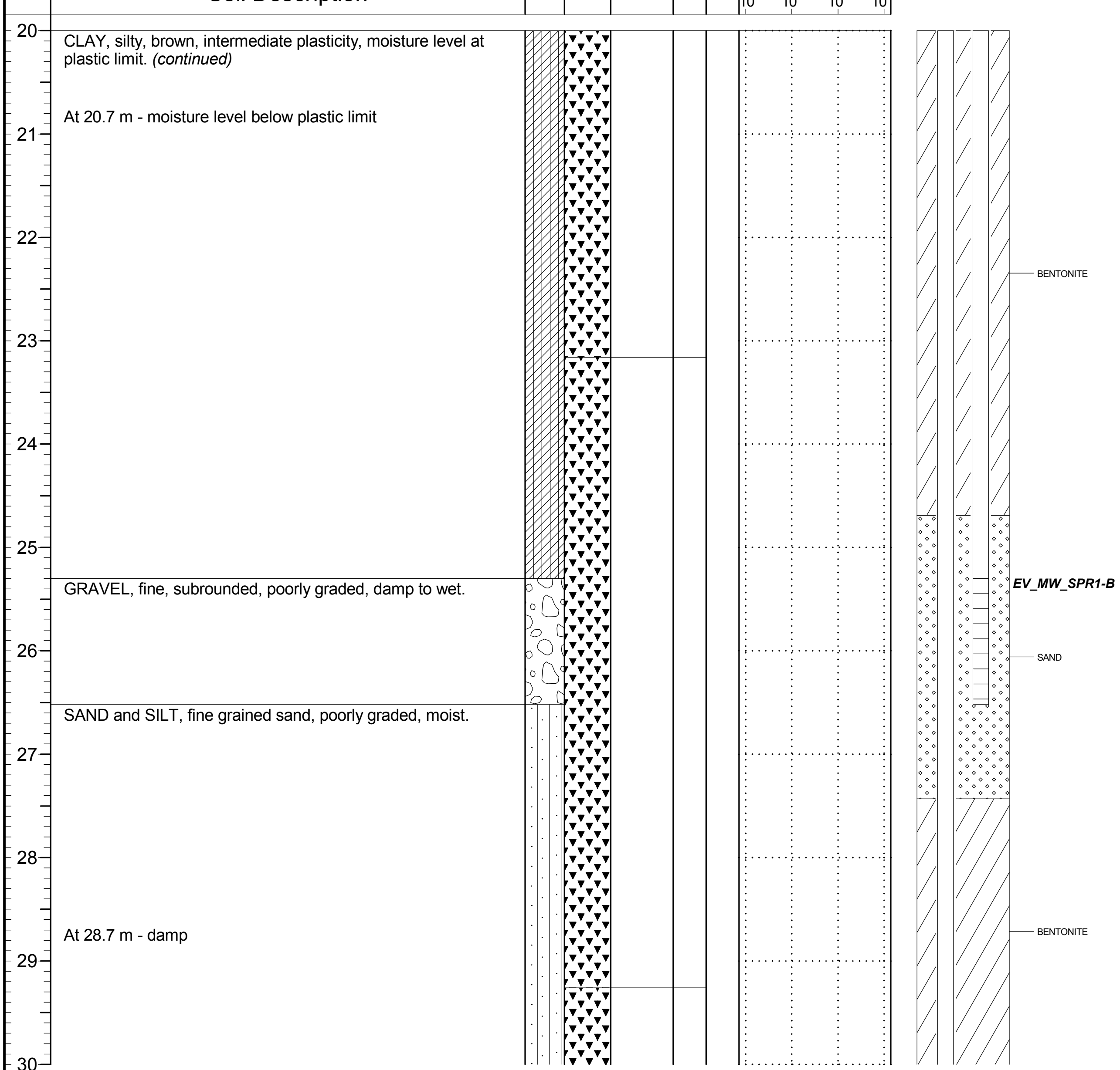
20 — CLAY, silty, brown, intermediate plasticity, moisture level at plastic limit. *(continued)*

At 20.7 m - moisture level below plastic limit

GRAVEL, fine, subrounded, poorly graded, damp to wet.

SAND and SILT, fine grained sand, poorly graded, moist.

At 28.7 m - damp



NOTES

QA/QC: BH 2019 04 10 Print Date:2019-09-26

SNC·LAVALIN

Client
Teck Coal Limited

Location
Regional Groundwater Monitoring

Borehole No. : EV_BH_SPR1

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 08	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1137.376	Borehole Logged By:	AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1138.248 1138.247	Date Drilled:	2019 01 21
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5511277.374	Easting: 653946.968	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼ Air Rotary

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

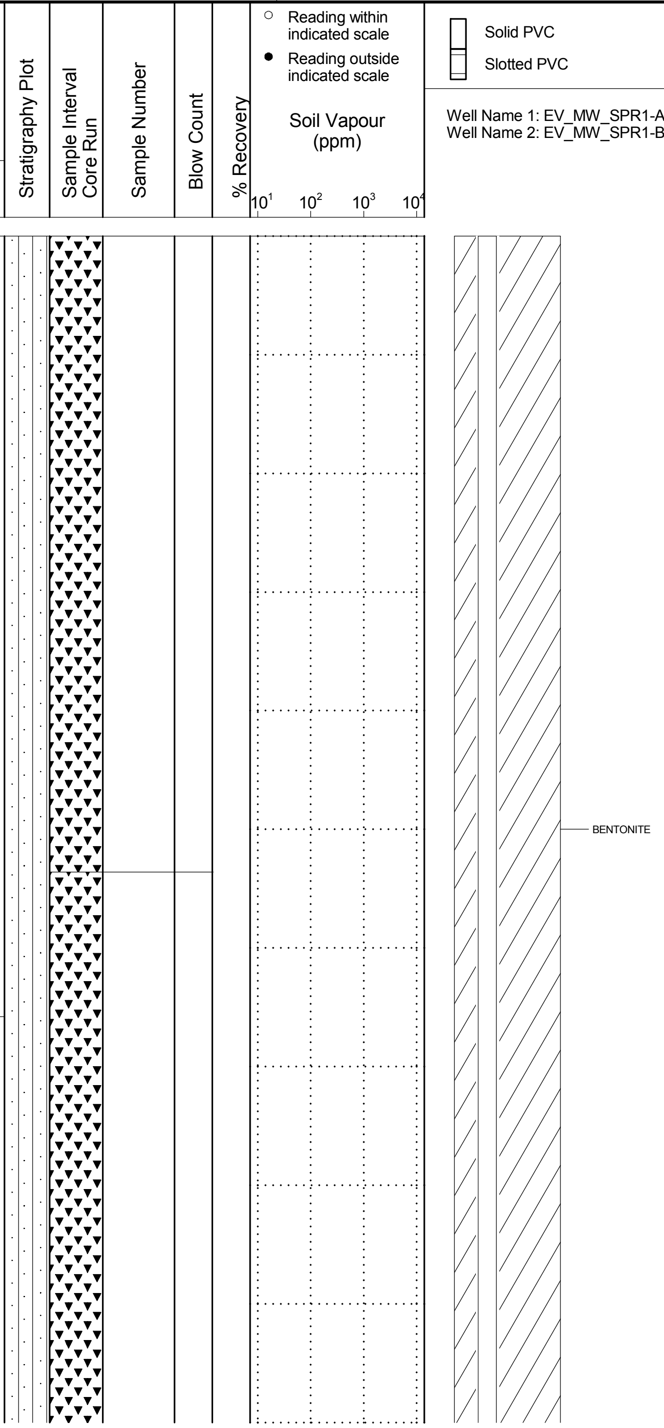
○ Reading within indicated scale
● Reading outside indicated scale

Soil Vapour (ppm)

▯ Solid PVC
▯ Slotted PVC

Well Name 1: EV_MW_SPR1-A
Well Name 2: EV_MW_SPR1-B

Depth in Metres	Soil Description
30	SAND and SILT, fine grained sand, poorly graded, moist. *(continued)*
34.7	At 34.7 m - dense
36.6	SAND, fine grained, silty, poorly graded, loose, wet.
39.0	At 39.0 m - some silt to silty



NOTES

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_SPR1**
	Location **Regional Groundwater Monitoring**	PAGE 5 OF 6

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 08	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1137.376	Borehole Logged By:	AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1138.248 1138.247	Date Drilled:	2019 01 21
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5511277.374	Easting: 653946.968	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▼ Air Rotary

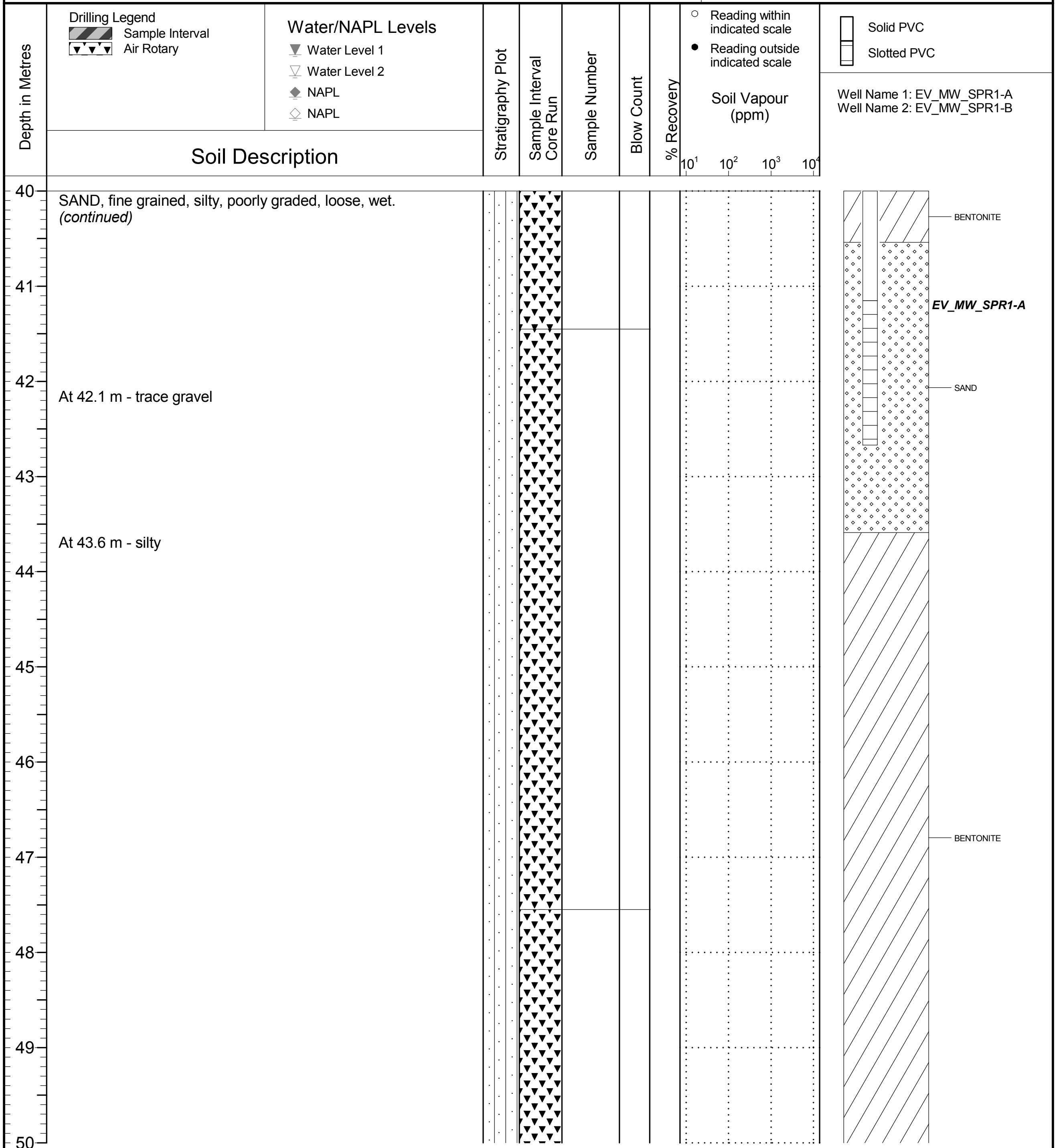
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: EV_MW_SPR1-A
Well Name 2: EV_MW_SPR1-B

Depth in Metres	Soil Description
40	SAND, fine grained, silty, poorly graded, loose, wet. *(continued)*
42.1	At 42.1 m - trace gravel
43.6	At 43.6 m - silty



NOTES

SNC • LAVALIN

Client **Teck Coal Limited**		**Borehole No. : EV_BH_SPR1**
Location **Regional Groundwater Monitoring**		PAGE 6 OF 6

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 08	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1137.376	Borehole Logged By:	AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1138.248 1138.247	Date Drilled:	2019 01 21
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5511277.374	Easting: 653946.968	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ▼ Air Rotary

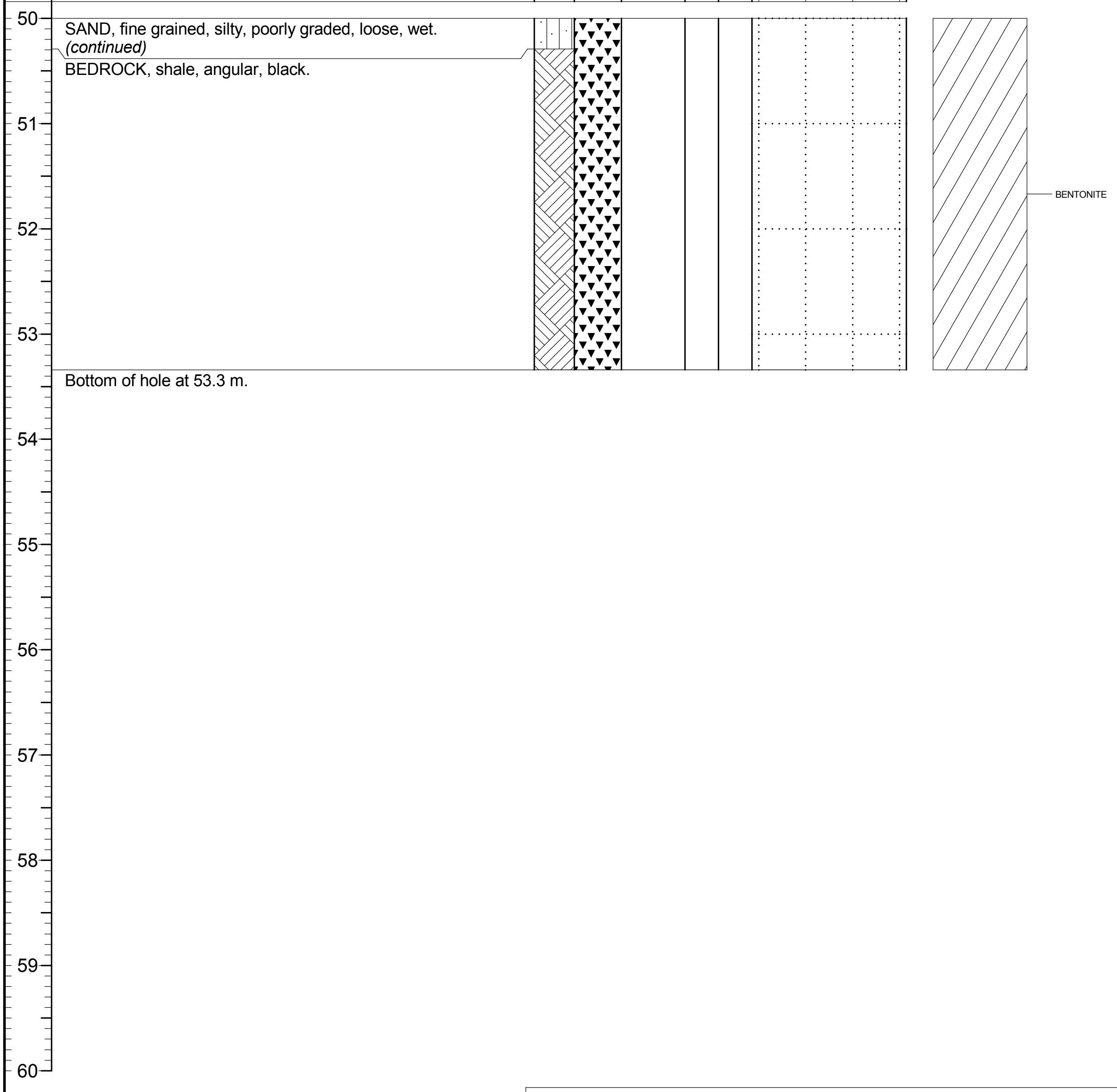
Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- ▯ Solid PVC
- ▯ Slotted PVC

Well Name 1: EV_MW_SPR1-A
Well Name 2: EV_MW_SPR1-B

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4
50	SAND, fine grained, silty, poorly graded, loose, wet. *(continued)*						
	BEDROCK, shale, angular, black.						
53.3	Bottom of hole at 53.3 m.						



NOTES

SNC·LAVALIN

Client	Borehole No. : EV_BH_SPR-C
Teck Coal Limited	
Location **Regional Groundwater Monitoring**	PAGE 1 OF 1

Drilling Contractor	Owen's Drilling	Date Monitored	2019 03 06	Project Number:	660613
Drilling Method	Dual Rotary	Ground Surface Elev. (m)	1137.270	Borehole Logged By:	AMH
Borehole Dia. (m)	0.15	Top of Casing Elev. (m)	1138.188	Date Drilled:	2019 01 21
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5511278.052	Easting: 653945.619	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ▼▼▼ Air Rotary

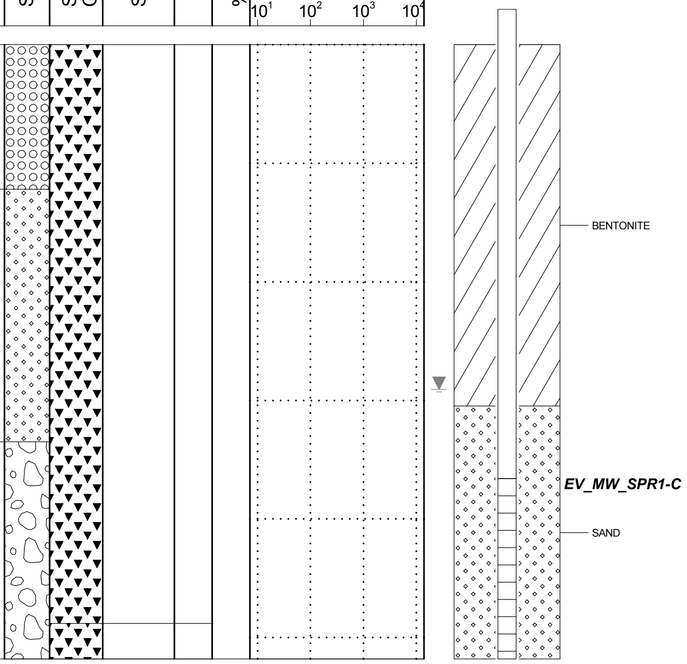
Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- Solid PVC
- Slotted PVC

Well Name 1: EV_MW_SPR1-C

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)



0 – COBBLES, rounded, up to 20 cm, grey.

SAND, fine grained, some fine to coarse gravel, rounded to subrounded, poorly graded, brown, loose, dry.

SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subrounded, well graded, brown, damp.

At 4.0 m - moist

At 4.9 m - wet

Bottom of hole at 5.2 m.

Depth scale: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

NOTES

QA/QC: BH 2019 04 10 Print Date:2019-09-26

DATA ENTRY: IPG

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_MCgwS

SHEET 1 OF 2

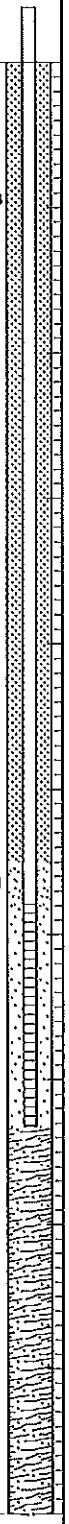
LOCATION: See Location Plan

N: 5511624 E: 653476

BORING DATE: November 6, 2013

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80); SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}); WATER CONTENT PERCENT Wp ├──○W──┤ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		Ground Surface		344.73							Stick-up =0.96 m
0	Sonic 127 mm (ID) Casing 152.4 mm (OD) JR Drilling	SAND, coarse and medium-grained, and fine-grained GRAVEL, rounded to sub-rounded, moderately graded, dark brown, damp, very loose		0.00							
1		SAND, fine and medium-grained, sub-rounded to sub-angular, poorly graded, brown, dry, very loose		343.61 0.91							15 Nov 2013 ∇
2–4											Bentonite Pellets
5		CLAYEY SILT, some fine-grained sand, dark brown to grey, moist, soft to very loose		340.16 4.57							
6–8		CLAYEY SILT, some fine-grained sand, dark brown to grey, wet, very soft, very loose (runny)		339.24 5.49							Silica Sand Slotted Section Slough
9–10		CLAY, some fine-grained sand, well-sorted, moist, compact		335.58 9.14							



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DEPTH SCALE

1 : 50

Golder Associates

LOGGED: RT

CHECKED: CD

BOREHOLE - EXPANDED ADD. LAB TESTING 12.1349.0013 BH LOGS.GPJ CALGARY.GDT 4/8/14

DATA ENTRY: IPG

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_MCgwS

SHEET 2 OF 2

LOCATION: See Location Plan

N: 5511624 E: 653476

BORING DATE: November 6, 2013

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m 20 40 60 80 SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - O 20 40 60 80	HYDRAULIC CONDUCTIVITY, k, cm/s 10^{-6} 10^{-5} 10^{-4} 10^{-3} WATER CONTENT PERCENT Wp ⊢—O W—⊣ Wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10	JR Drilling	CLAY, some fine-grained sand, well-sorted, moist, compact *(continued)*	▨	334.06							Slough
		End of BOREHOLE.		10.67							
11		NOTES: Standpipe installed to 7.32 m upon well completion. Groundwater level measured at 3.8 mbgs on November 7, 2013. Groundwater level measured at 1.1 mbgs on November 15, 2013.									
12											
13											
14											
15											
16											
17											
18											
19											
20											

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: RT

CHECKED: CD

BOREHOLE - EXPANDED ADD. LAB TESTING 12.1349.0013 BH LOGS.GPJ CALGARY.GDT 4/8/14

DATA ENTRY: IPG

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_MCgwD

SHEET 1 OF 5

LOCATION: See Location Plan

N: 5511616 E: 653475

BORING DATE: November 3, 2013

DATUM: UTM Zone 11 (Nad 83)

DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m: 20 40 60 80

SHEAR STRENGTH Cu, kPa: nat V. + Q - ● rem V. ⊕ U - ○ ; 20 40 60 80

HYDRAULIC CONDUCTIVITY, k, cm/s: 10^{-6} 10^{-5} 10^{-4} 10^{-3}

WATER CONTENT PERCENT: Wp ⊢—○W—⊣ Wl ; 10 20 30 40

BORING METHOD: Sonic 127 mm (ID) Casing 152.4 mm (OD) / JR Drilling

DEPTH SCALE METRES	DESCRIPTION	ELEV. DEPTH (m)	PIEZOMETER OR STANDPIPE INSTALLATION
0	Ground Surface	344.73	Stick-up =0.84 m
	SAND, coarse and medium-grained, and fine-grained GRAVEL, rounded to sub-rounded, moderately graded, wet, very loose	0.00	
3			15 Nov 2013 ∇
	SAND, fine and medium-grained, sub-rounded to sub-angular, well graded, dry, very loose	341.07 3.66	
5			Bentonite Pellets
	SILT, some fine-grained sand, well graded, very loose — Wet at 5.8 m	339.09 5.64	
	CLAY, some fine-grained sand, well-sorted, moist, compact	336.65 8.08	
10			

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DEPTH SCALE

1 : 50

Golder Associates

LOGGED: RT

CHECKED: CD

BOREHOLE - EXPANDED ADD. LAB TESTING 12.1349.0013 BH LOGS.GPJ CALGARY.GDT 4/8/14

DATA ENTRY: IPG

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_MCgwD

SHEET 2 OF 5

LOCATION: See Location Plan

N: 5511616 E: 653475

BORING DATE: November 3, 2013

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10	Sonic 127 mm (ID) Casing 152.4 mm (OD) JR Drilling	CLAY, some fine-grained sand, well-sorted, moist, compact *(continued)*									
11		SILT, some fine-grained sand, well graded, wet, very loose		333.30 11.43							
14		CLAY, some fine-grained sand, well-sorted, wet, soft		330.40 14.33							
15											Bentonite Pellets
16		CLAY, some fine-grained sand, well-sorted, moist, compact		328.88 15.85							
17		CLAY, some fine-grained sand, well-sorted, moist, loose		327.36 17.37							
20											

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DEPTH SCALE

1 : 50

Golder Associates

LOGGED: RT

CHECKED: CD

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_MCgwD

SHEET 3 OF 5

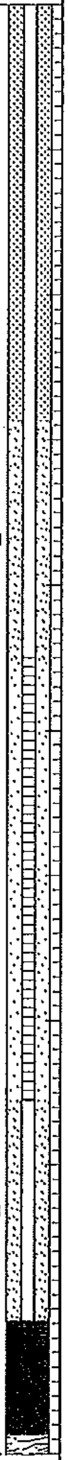
LOCATION: See Location Plan

N: 5511616 E: 653475

BORING DATE: November 3, 2013

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m 20 40 60 80 SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ 20 40 60 80	HYDRAULIC CONDUCTIVITY, k, cm/s 10^{-6} 10^{-5} 10^{-4} 10^{-3} WATER CONTENT PERCENT Wp ⊢ ○W ⊣ Wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
20	Sonic 127 mm (ID) Casing 152.4 mm (OD) JR Drilling	CLAY, some fine-grained sand, well-sorted, moist, loose *(continued)*	▨								
21											Bentonite Pellets
22											
23											Silica Sand
24											
25											
26											Slotted Section
27											
28											Silica Sand
29											Bentonite Pellets
30											Slough



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DEPTH SCALE

1 : 50

Golder Associates

LOGGED: RT

CHECKED: CD

DATA ENTRY: IPG

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_MCgwD

SHEET 4 OF 5

LOCATION: See Location Plan

N: 5511616 E: 653475

BORING DATE: November 3, 2013

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m 20 40 60 80 / SHEAR STRENGTH Cu, kPa nat V. + Q- ● rem V. ⊕ U- O 20 40 60 80	HYDRAULIC CONDUCTIVITY, k, cm/s 10^{-6} 10^{-5} 10^{-4} 10^{-3} / WATER CONTENT PERCENT Wp ⊢—OW—⊣ Wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
30	Sonic 127 mm (ID) Casing 152.4 mm (OD) JR Drilling	CLAY, some fine-grained sand, well-sorted, moist, loose *(continued)*	▨								
		CLAY, some fine-grained sand, well-sorted, wet, soft	▨	314.28 30.45							
31											
32											
33											
34											
35											Slough
36											
37		SAND, coarse-grained, sub-angular to angular, well graded, wet, very loose		307.54 37.19							
38											
		SILT and SAND, coarse-grained, sub-angular, moderately-sorted, wet, very loose		305.87 38.86							
39											
40											

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DEPTH SCALE

1 : 50

Golder Associates

LOGGED: RT

CHECKED: CD

BOREHOLE - EXPANDED ADD. LAB TESTING 12.1349.0013 BH LOGS.GPJ CALGARY.GDT 4/8/14

DATA ENTRY: IPG

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_MCgwD

SHEET 5 OF 5

LOCATION: See Location Plan

N: 5511616 E: 653475

BORING DATE: November 3, 2013

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	ELEV. DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m 20 40 60 80; SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - O 20 40 60 80	HYDRAULIC CONDUCTIVITY, k, cm/s 10^{-6} 10^{-5} 10^{-4} 10^{-3}; WATER CONTENT PERCENT Wp ├──O W──┤ Wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
40	Sonic 127 mm (ID) Casing 152.4 mm (OD) JR Drilling	SILT and SAND, coarse-grained, sub-angular, moderately-sorted, wet, very loose *(continued)*	304.34 40.39							
41–42		SANDY SILT, fine-grained, moderately-sorted, wet, very loose	302.06 42.67							
43		CLAYEY SAND, fine-grained, some coarse-grained gravel, angular, moderately-sorted, brown, wet, very loose	300.69 44.04							Slough
44		GRAVEL, fine-grained, sub-rounded, moderately-sorted, grey to brown, very loose, wet	299.92 44.81							
45–47		SAND, medium-grained with some fine grains, sub-rounded, poorly graded, mainly black to grey and brown, wet	297.10 47.55							
48–50		End of BOREHOLE. NOTES: Sloughing present to 29.9 m. Standpipe installed to 27.6 m upon well completion. Groundwater level measured at 2.5 mbgs on November 7, 2013. Groundwater level measured at 3.4 mbgs on November 15, 2013.								

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: RT
CHECKED: CD

FINAL

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Client **Teck Coal Limited**		**Borehole No. : EV_BH_MCgwA**
Location **Regional Groundwater Monitoring**		PAGE 1 OF 3

Drilling Contractor Owen's Drilling
Drilling Method Odex
Borehole Dia. (m) 0.13
Pipe/Slotted Pipe Dia. (m) 0.05/0.05

Date Monitored 2020 05 19
Ground Surface Elev. (m) 1126.629
Top of Casing Elev. (m) 1127.623
Northing: 5511969.374 Easting: 652962.530

Project Number: 631283
Borehole Logged By: MTB
Date Drilled: 2020 05 07
Log Typed By: VL

Drilling Legend
▨ Sample Interval
▭ Odex

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▯ Slotted PVC

Well Name 1: EV_MW_MCgwA

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)

SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subangular, some silt, well graded, grey, loose, moist, organics.
At 0.45 m - no organics.

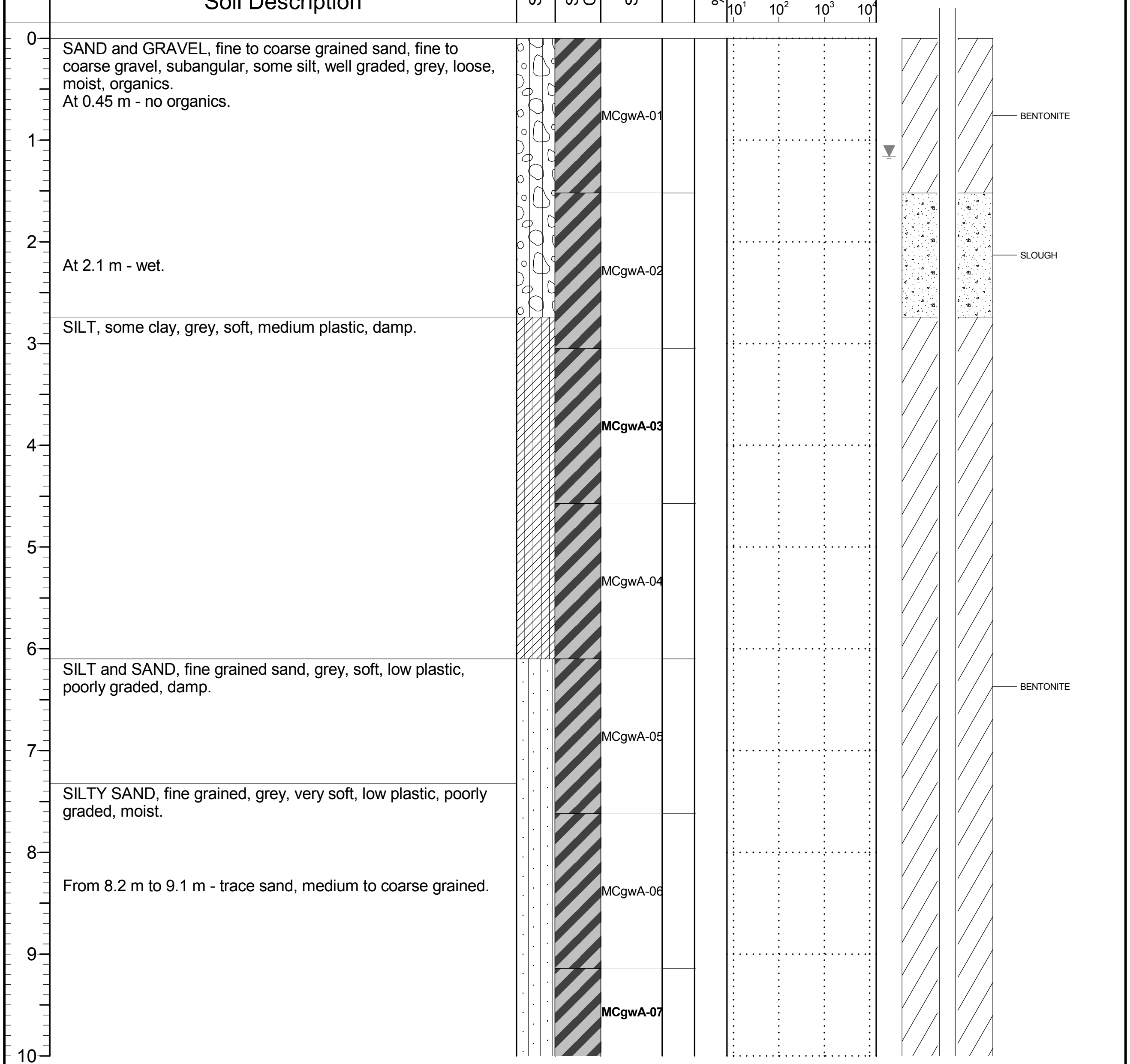
At 2.1 m - wet.

SILT, some clay, grey, soft, medium plastic, damp.

SILT and SAND, fine grained sand, grey, soft, low plastic, poorly graded, damp.

SILTY SAND, fine grained, grey, very soft, low plastic, poorly graded, moist.

From 8.2 m to 9.1 m - trace sand, medium to coarse grained.



NOTES
Bolded sample denotes sample analyzed.

QA/QC: MB 2020 06 22 Print Date:2020-12-02

FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_MCgwA**
	Location **Regional Groundwater Monitoring**	PAGE 2 OF 3

Drilling Contractor	Owen's Drilling	Date Monitored	2020 05 19	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1126.629	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1127.623	Date Drilled:	2020 05 07
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5511969.374	Easting: 652962.530	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
☐ Odex

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

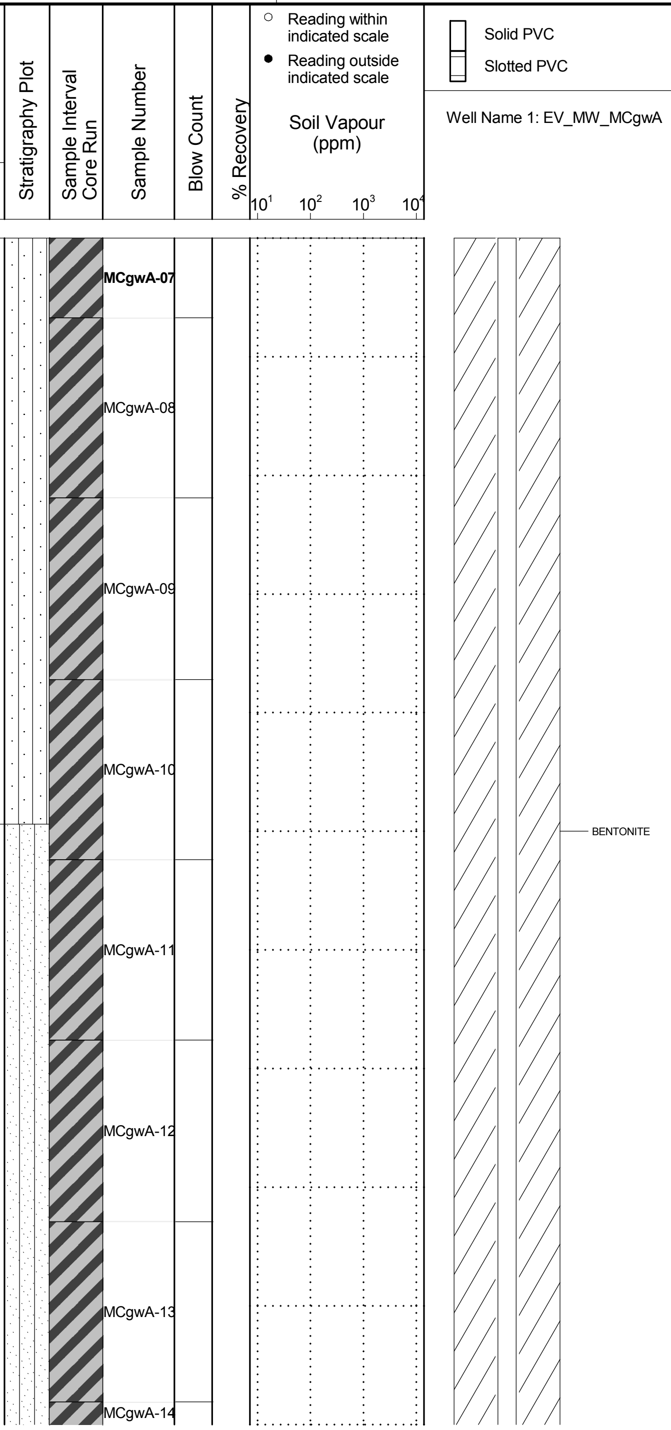
○ Reading within indicated scale
● Reading outside indicated scale

Soil Vapour (ppm)

☐ Solid PVC
☐ Slotted PVC

Well Name 1: EV_MW_MCgwA

Depth in Metres	Soil Description
10	SILTY SAND, fine grained, grey, very soft, low plastic, poorly graded, moist. *(continued)*
11	At 11.0 m - increase in moisture.
15	SAND, fine to medium grained, some silt, grey, poorly graded, loose, wet, heaving.
20	



NOTES
Bolded sample denotes sample analyzed.

FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_MCgwA**
	Location **Regional Groundwater Monitoring**	PAGE 3 OF 3

Drilling Contractor	Owen's Drilling	Date Monitored	2020 05 19	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1126.629	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1127.623	Date Drilled:	2020 05 07
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5511969.374	Easting: 652962.530	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ☰ Odex

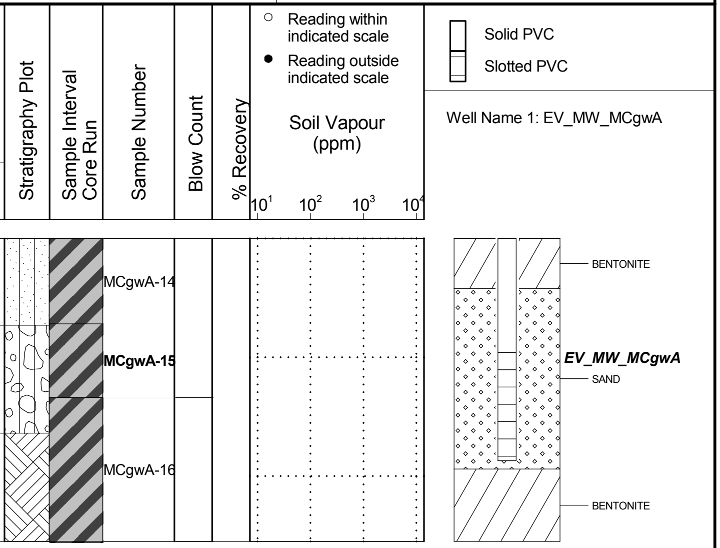
Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- ▯ Solid PVC
- ▯ Slotted PVC

Well Name 1: EV_MW_MCgwA

Depth in Metres	Soil Description
20	SAND, fine to medium grained, some silt, grey, poorly graded, loose, wet, heaving. *(continued)*
21	SANDY GRAVEL, fine to coarse gravel, subrounded to subangular, fine to coarse grained sand, some silt, well graded, grey, medium dense, wet.
22	BEDROCK, dark grey, siltstone, dry, very soft.
	Bottom of hole at 22.6 m.



Depth scale: 20 21 22 23 24 25 26 27 28 29 30

NOTES
Bolded sample denotes sample analyzed.

FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_MCgwB**
	Location **Regional Groundwater Monitoring**	PAGE 1 OF 1

Drilling Contractor	Owen's Drilling	Date Monitored	2020 05 19	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1126.643	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1127.601	Date Drilled:	2020 05 07
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5511969.539	Easting: 652963.190	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
☰ Odex

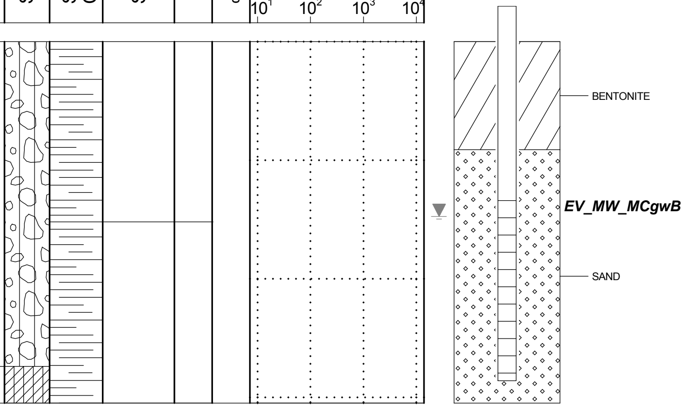
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: EV_MW_MCgwB

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)
0	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subangular, some silt, well graded, grey, loose, moist, organics. At 0.45 m - no organics. At 2.1 m - wet.						
2.75	SILT, some clay, grey, soft, medium plastic, damp.						
3.1	Bottom of hole at 3.1 m.						



NOTES

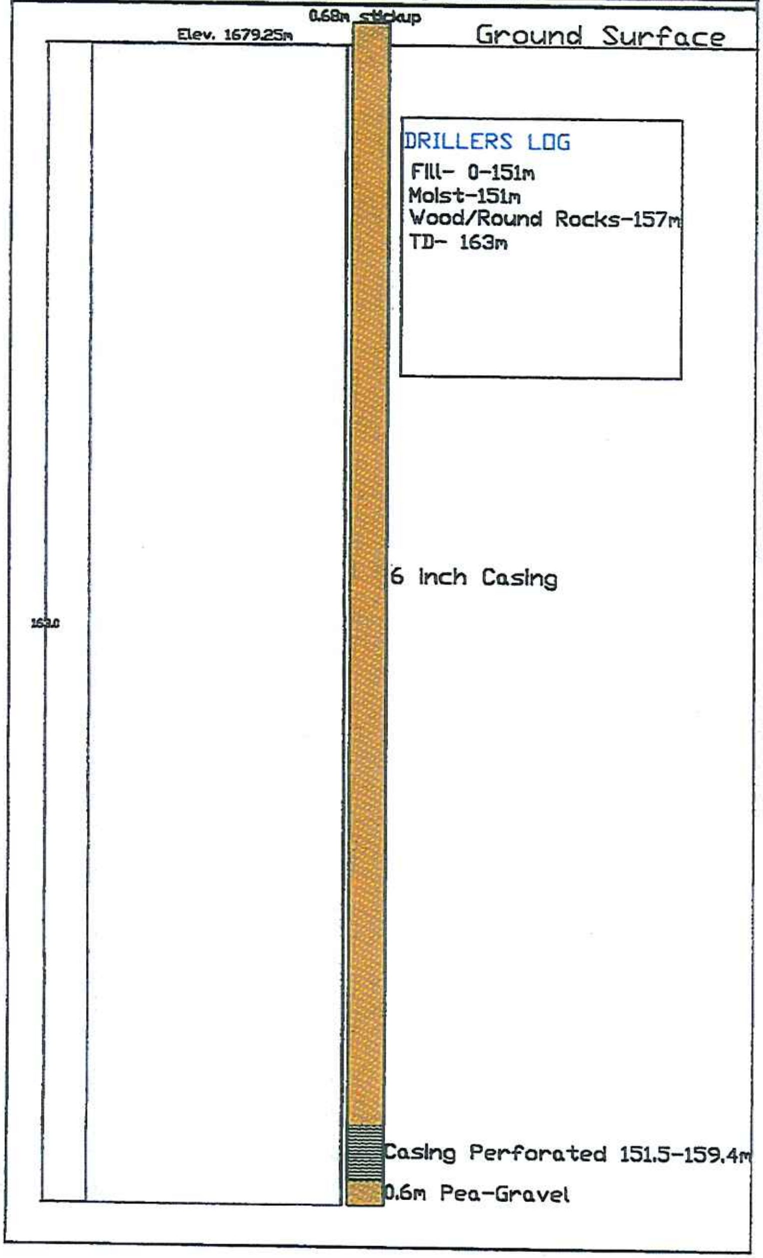
QA/QC: MB 2020 06 22 Print Date:2020-12-02

EV_WF_SW

WF Tailings Migration Well (South WF-2)AS-BUILT

Northing: 49869
Easting: 20380
Elev.: 1679.25
Total Depth: Drilling 163.0m or 535ft

Piezo Depths: N/A
Contractor: J.R. Drillinf Ltd. (Cranbrook)
E.V.C.C. Tech: D. Gfrerer
Start/Finish: April 11-16, 2005- 6" casing installed



DRILLERS LOG
Fill- 0-151m
Moist-151m
Wood/Round Rocks-157m
TD- 163m

DATA ENTRY: IPG

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_ECgw

SHEET 1 OF 2

LOCATION: See Location Plan

N: 5506384 E: 660795

BORING DATE: October 27, 2013

DATUM: UTM Zone 11
(Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE – DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES – NUMBER	SAMPLES – TYPE	SAMPLES – BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) SHEAR STRENGTH Cu, kPa (nat V. + Q - ● rem V. ⊕ U - O) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10⁻⁶ 10⁻⁵ 10⁻⁴ 10⁻³) WATER CONTENT PERCENT Wp ⊢—O W—⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		Ground Surface		406.30							Stick-up =0.74 m
0 1	Sonic 127 mm (ID) Casing 152.4 mm (OD) JR Drilling	GRAVELLY SAND, medium and coarse-grained sand with occasional fine gravel grains, rounded to sub-rounded, moderately graded, dry, very loose		0.00							16 Nov 2014 ▽ Bentonite Chips
2 3		SAND, trace gravel, medium-grained, rounded to sub-rounded, moderately graded, dry, very loose		404.77 1.52							Silica Sand Slotted Section
4 5		CLAY and SAND, medium-grained with occasional coarse grains, rounded to sub-rounded, moderately graded, moist, firm		402.49 3.81							Silica Sand
6		SANDY CLAY, medium-grained with occasional coarse grains, rounded to sub-rounded, moderately graded, moist, firm		401.12 5.18							
7 8 9 10		CLAY, some sand, medium-grained, rounded to sub-rounded, moderately graded, moist, semi-firm		399.44 6.86							Bentonite Pellets

CONTINUED NEXT PAGE

BOREHOLE - EXPANDED ADD. LAB TESTING 12.1349.0013 BH LOGS.GPJ CALGARY.GDT 4/8/14

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: RT
CHECKED: CD

DATA ENTRY: IPG

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_ECgw

SHEET 2 OF 2

LOCATION: See Location Plan

N: 5506384 E: 660795

BORING DATE: October 27, 2013

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) WATER CONTENT PERCENT Wp ⊢—○W—⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10	JR Drilling	CLAY, some sand, medium-grained, rounded to sub-rounded, moderately graded, moist, semi-firm *(continued)*									Bentonite Pellets
11		End of BOREHOLE. NOTES: Standpipe installed to 4.1 m upon well completion. Groundwater level measured at 1.8 mbgs on November 12, 2013.		395.33 10.97							
12											
13											
14											
15											
16											
17											
18											
19											
20											

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: RT

CHECKED: CD

BOREHOLE - EXPANDED ADD. LAB TESTING 12.1349.0013 BH LOGS.GPJ CALGARY.GDT 4/8/14

FINAL

SNC·LAVALIN

Client
Teck Coal Limited

Location
Regional Groundwater Monitoring

Borehole No. : EV_BH_SP1A

PAGE 1 OF 4

Drilling Contractor	Owen's Drilling	Date Monitored	2020 05 19	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1207.382	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1208.323	Date Drilled:	2020 05 05
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5505643.910	Easting: 659314.782	Log Typed By:	VL

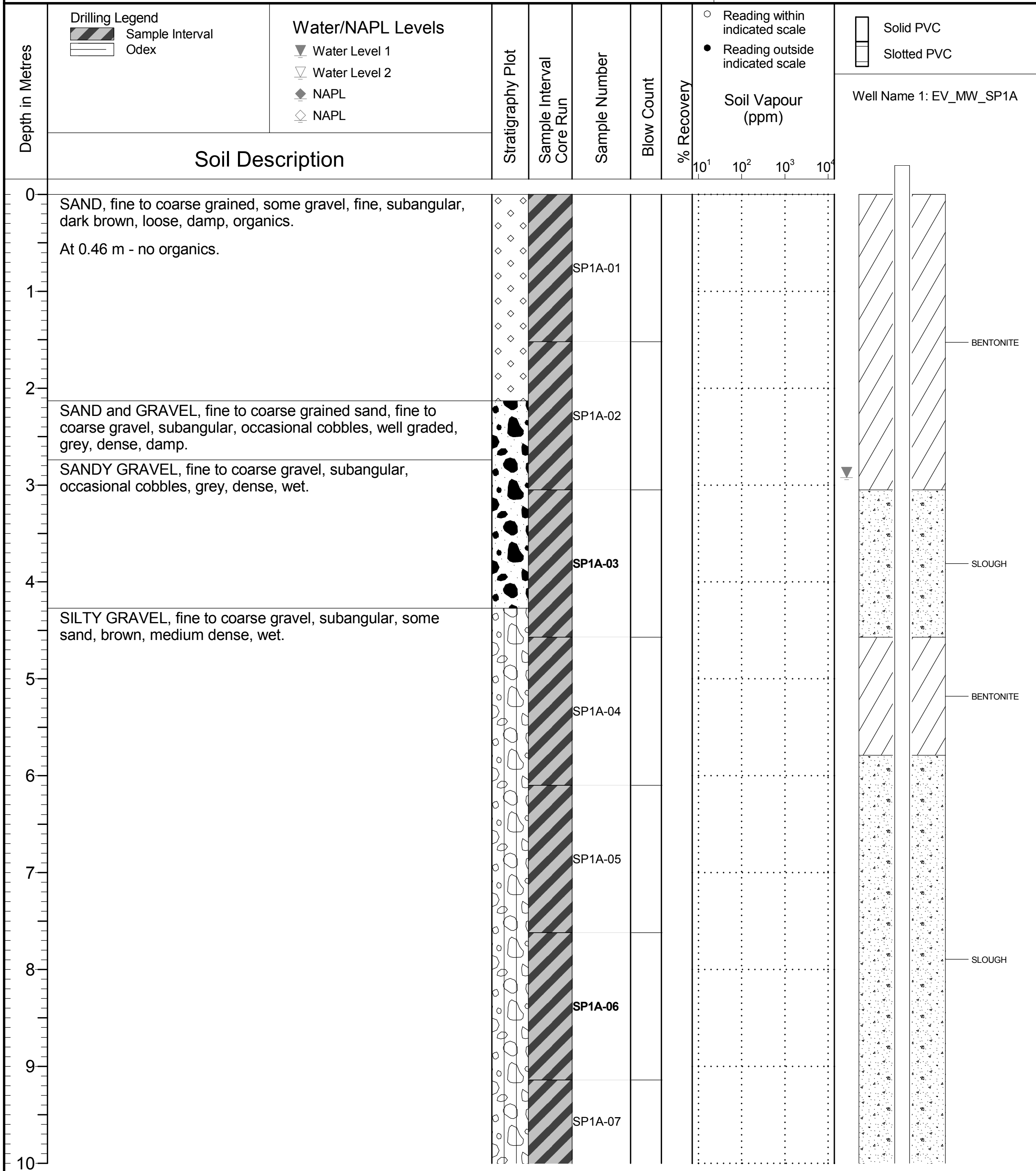
Drilling Legend
▨ Sample Interval
▭ Odex

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

Depth in Metres

Soil Description

Depth in Metres	Soil Description
0	SAND, fine to coarse grained, some gravel, fine, subangular, dark brown, loose, damp, organics. At 0.46 m - no organics.
2.1	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subangular, occasional cobbles, well graded, grey, dense, damp.
2.7	SANDY GRAVEL, fine to coarse gravel, subangular, occasional cobbles, grey, dense, wet.
4.3	SILTY GRAVEL, fine to coarse gravel, subangular, some sand, brown, medium dense, wet.



NOTES
Bolded sample denotes sample analyzed.

QA/QC: MB 2020 06 22 Print Date:2020-12-02

FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_SP1A**
	Location **Regional Groundwater Monitoring**	PAGE 2 OF 4

Drilling Contractor	Owen's Drilling	Date Monitored	2020 05 19	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1207.382	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1208.323	Date Drilled:	2020 05 05
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5505643.910	Easting: 659314.782	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▭ Odex

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

● Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▯ Slotted PVC

Well Name 1: EV_MW_SP1A

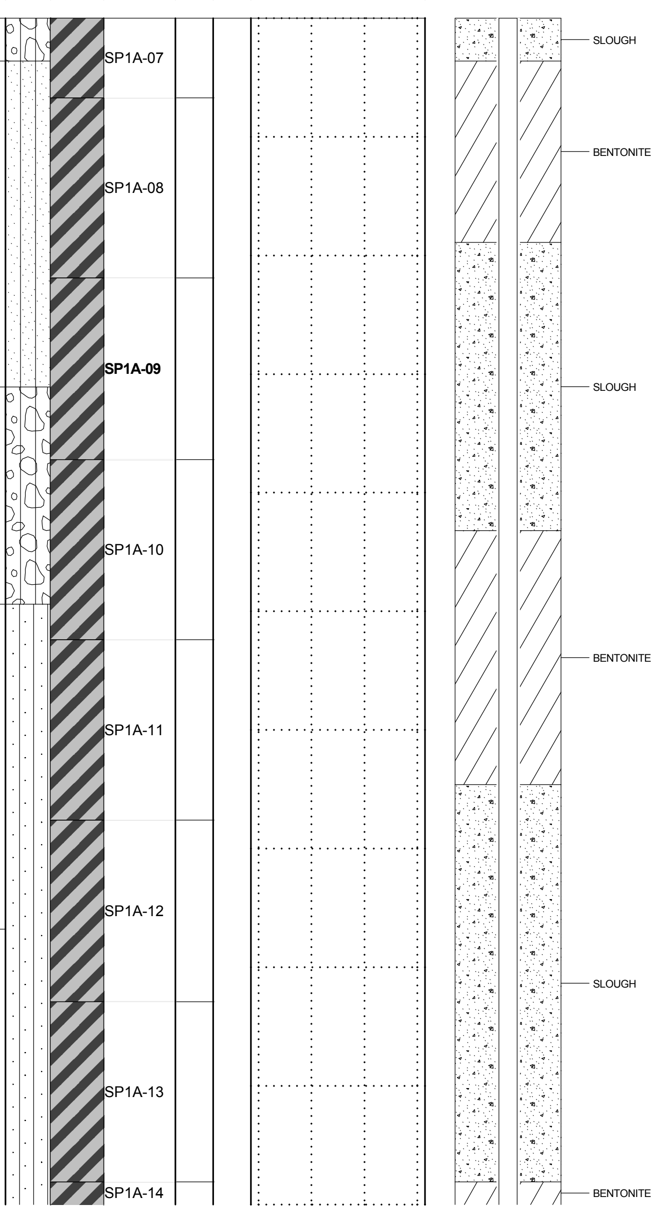
Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)

SAND, fine to coarse grained, some silt, some gravel, fine, subangular, brown, medium dense, wet.

SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subrounded to subangular, some silt, well graded, brownish yellow, medium dense, wet.

SAND, fine grained, some silt, trace gravel, fine, subrounded to subangular, poorly graded, brown, loose, wet.

SILTY SAND, fine grained sand, poorly graded, brown, loose, wet, encountered heaving.



NOTES
Bolded sample denotes sample analyzed.

QA/QC: MB 2020 06 22 Print Date:2020-12-02

FINAL

SNC·LAVALIN

Client **Teck Coal Limited**		**Borehole No. : EV_BH_SP1A**
Location **Regional Groundwater Monitoring**		PAGE 3 OF 4

Drilling Contractor	Owen's Drilling	Date Monitored	2020 05 19	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1207.382	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1208.323	Date Drilled:	2020 05 05
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5505643.910	Easting: 659314.782	Log Typed By:	VL

Drilling Legend
- ▨ Sample Interval
- ☰ Odex

Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

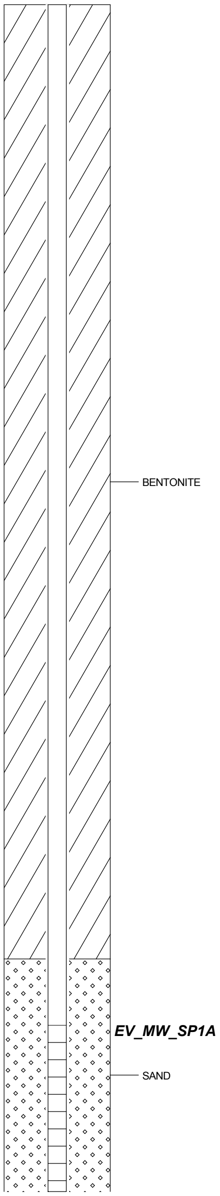
- ○ Reading within indicated scale
- ● Reading outside indicated scale

- ▯ Solid PVC
- ☰ Slotted PVC

Well Name 1: EV_MW_SP1A

Soil Vapour (ppm): 10^1 10^2 10^3 10^4

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery
20	SILTY SAND, fine grained sand, poorly graded, brown, loose, wet, encountered heaving. *(continued)*			SP1A-14		
	SAND, fine to coarse grained, some silt, trace gravel, fine subrounded to subangular, grey, loose, wet.			SP1A-15 SP1A-16 SP1A-17		
26	SAND, fine to medium grained, trace silt, grey, medium dense, wet.			SP1A-18		
28	At 28.0 m - coarse grained sand.			SP1A-19		
29	At 29.0 m - trace gravel, fine, subrounded to subangular.			**SP1A-20**		
30						



NOTES
Bolded sample denotes sample analyzed.

QA/QC: MB 2020 06 22 Print Date:2020-12-02

FINAL

SNC · LAVALIN

Client
Teck Coal Limited

Location
Regional Groundwater Monitoring

Borehole No. : EV_BH_SP1A

Drilling Contractor	Owen's Drilling	Date Monitored	2020 05 19	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1207.382	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1208.323	Date Drilled:	2020 05 05
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5505643.910	Easting: 659314.782	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
▭ Odex

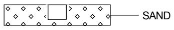
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▯ Slotted PVC

Well Name 1: EV_MW_SP1A

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4
30		⁘	▨	**SP1A-20**			
	Bottom of hole at 30.2 m.						
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							



NOTES
Bolded sample denotes sample analyzed.

QA/QC: MB 2020 06 22 Print Date:2020-12-02

FINAL

SNC • LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_SP1B**
	Location **Regional Groundwater Monitoring**	PAGE 1 OF 2

Drilling Contractor	Owen's Drilling	Date Monitored	2020 05 19	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1207.358	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1208.347	Date Drilled:	2020 05 06
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5505643.717	Easting: 659316.582	Log Typed By:	VL

Depth in Metres

Drilling Legend
- ▨ Sample Interval
- ☰ Odex

Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

Soil Description

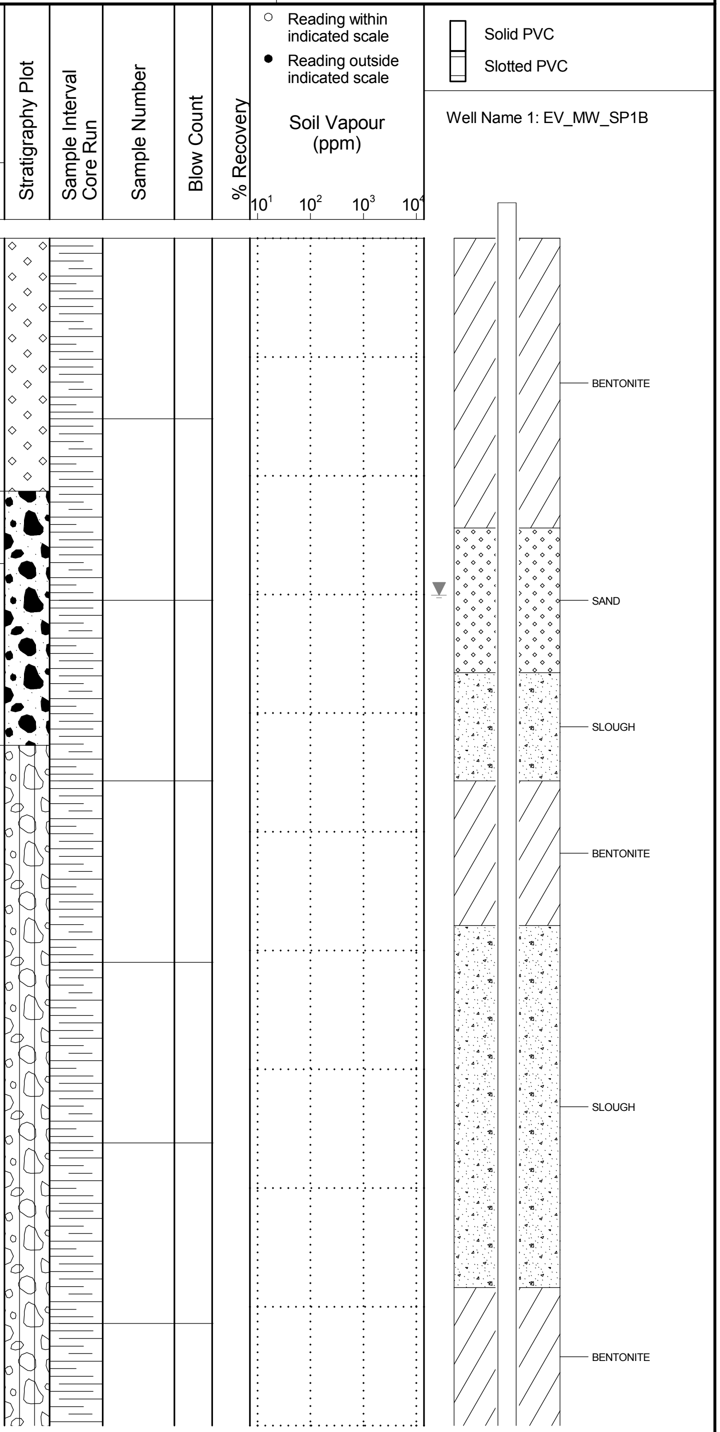
0 – SAND, fine to coarse grained, some gravel, fine, subangular, dark brown, loose, damp, organics.

At 0.46 m - no organics.

SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subangular, occasional cobbles, well graded, grey, dense, damp.

SANDY GRAVEL, fine to coarse gravel, subangular, occasional cobbles, grey, dense, wet.

SILTY GRAVEL, fine to coarse, subangular, some sand, brown, medium dense, wet.



0
1
2
3
4
5
6
7
8
9
10

NOTES

FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : EV_BH_SP1B**
	Location **Regional Groundwater Monitoring**	PAGE 2 OF 2

Drilling Contractor	Owen's Drilling	Date Monitored	2020 05 19	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1207.358	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1208.347	Date Drilled:	2020 05 06
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5505643.717	Easting: 659316.582	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
☐ Odex

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Soil Vapour (ppm): 10^1 10^2 10^3 10^4

☐ Solid PVC
☐ Slotted PVC

Well Name 1: EV_MW_SP1B

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery

10

SAND, fine to coarse grained, some silt, some gravel, fine, subangular to subrounded, brown, medium dense, wet.

11

12

13

SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subrounded to subangular, some silt, well graded, brownish yellow, medium dense, wet.

14

SAND, fine to coarse grained, some silt, trace gravel, fine, subrounded to subangular, poorly graded, brown, medium dense, wet.

15

Bottom of hole at 14.9 m.

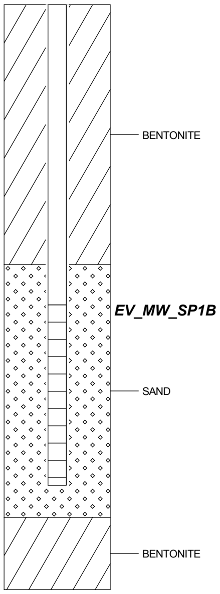
16

17

18

19

20



NOTES

QA/QC: MB 2020 06 22 Print Date:2020-12-02

FINAL

SNC • LAVALIN

Client
Teck Coal Limited

Location
Regional Groundwater Monitoring

Borehole No. : EV_BH_SP1C

PAGE 1 OF 1

Drilling Contractor	Owen's Drilling	Date Monitored	2020 05 19	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1207.366	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1208.391	Date Drilled:	2020 05 05
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5505642.125	Easting: 659315.597	Log Typed By:	VL

Drilling Legend
▨ Sample Interval
☰ Odex

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

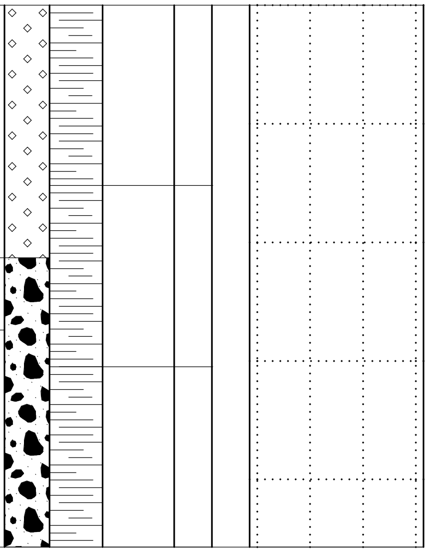
Solid PVC
Slotted PVC

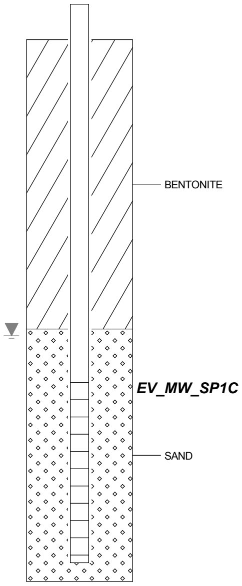
Well Name 1: EV_MW_SP1C

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)

Soil Vapour scale: 10^1 10^2 10^3 10^4

Depth in Metres	Soil Description
0	SAND, fine to coarse grained, some gravel, fine, subangular, dark brown, loose, damp, organics. At 0.46 m - no organics.
2	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subangular, occasional cobbles, well graded, grey, dense, damp.
3	SANDY GRAVEL, fine to coarse gravel, subangular, occasional cobbles, grey, dense, wet.
	Bottom of hole at 4.6 m.





Depth scale: 0 1 2 3 4 5 6 7 8 9 10

NOTES

QA/QC: MB 2020 06 22 Print Date:2020-12-02

DATA ENTRY: IPG

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_ER1gwS

SHEET 1 OF 2

LOCATION: See Location Plan

N: 5510955 E: 651374

BORING DATE: October 30, 2013

DATUM: UTM Zone 11
(Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80); SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}); WATER CONTENT PERCENT Wp ⊢—⊖W—⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		Ground Surface		339.85							Stick-up =0.96 m
0	Sonic 127 mm (ID) Casing 152.4 mm (OD) JR Drilling	SAND, medium and coarse-grained with some fine grains, rounded to sub-rounded, moderately graded, dry, very loose		0.00							
1											
2											
3											
4											16 Nov 2013 ▽
5											Bentonite Chips
6											
		SAND, medium to coarse-grained, some fine-grained gravel, sub-rounded, sub-angular, moderately sorted, dry, very loose		333.15 6.71							
7											
8											
		SAND, medium to coarse-grained, some fine-grained gravel, sub-rounded, sub-angular and angular, moderately sorted, wet, very loose		331.32 8.53							
9											
10		*CONTINUED NEXT PAGE*									

BOREHOLE - EXPANDED ADD. LAB TESTING 12.1349.0013 BH LOGS.GPJ CALGARY.GDT 4/8/14

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: RT
CHECKED: CD

DATA ENTRY: IPG

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_ER1gwS

SHEET 2 OF 2

LOCATION: See Location Plan

N: 5510955 E: 651374

BORING DATE: October 30, 2013

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m 20 40 60 80 / SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - O 20 40 60 80	HYDRAULIC CONDUCTIVITY, k, cm/s 10^{-6} 10^{-5} 10^{-4} 10^{-3} / WATER CONTENT PERCENT Wp ├──○W──┤ Wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10	Sonic 127 mm (ID) Casing 152.4 mm (OD) JR Drilling	SAND, medium to coarse-grained, some fine-grained gravel, sub-rounded, sub-angular and angular, moderately sorted, wet, very loose *(continued)*									
11											
12											Bentonite Chips
13											
14											Silica Sand
15											
16											Slotted Section
17				322.24 17.61							
18		End of BOREHOLE. NOTES: Standpipe installed to 17.6 m upon well completion. Groundwater level measured at 8.2 mbgs on October 30, 2013. Groundwater level measured at 4.7 mbgs on November 16, 2013.									
19											
20											

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: RT

CHECKED: CD

BOREHOLE - EXPANDED ADD. LAB TESTING 12.1349.0013 BH LOGS.GPJ CALGARY.GDT 4/8/14

DATA ENTRY: IPG

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_ER1gwD

SHEET 1 OF 4

LOCATION: See Location Plan

N: 5510952 E: 651379

BORING DATE: 29 and 31 October, 2013

DATUM: UTM Zone 11
(Nad 83)

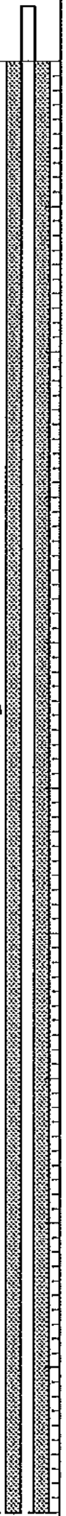
DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m: 20 40 60 80

SHEAR STRENGTH Cu, kPa: nat V. + Q - ● rem V. ⊕ U - ○ : 20 40 60 80

HYDRAULIC CONDUCTIVITY, k, cm/s: 10^{-6} 10^{-5} 10^{-4} 10^{-3}

WATER CONTENT PERCENT: Wp ⊢—○W—⊣ Wl : 10 20 30 40

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOWS/0.3m	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		Ground Surface		339.85					Stick-up =0.71 m
0	Sonic 127 mm (ID) Casing 152.4 mm (OD) JR Drilling	SILTY SAND, fine-grained with occasional medium grains, rounded to sub-rounded, moderately graded, minor organics (roots), dry, very loose		0.00					
1									
		SAND, medium and coarse-grained, and fine-grained with some coarse-grained GRAVEL, poorly sorted, sub-rounded, sub-angular and angular clasts, dry, very loose		338.33 1.52					
2									
3									
4									16 Nov 2013 ▽
5									Bentonite Chips
6									
7									
8									
9									
10				329.95 9.91					



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DEPTH SCALE
1 : 50

Golder Associates

LOGGED: RT
CHECKED: CD

BOREHOLE - EXPANDED ADD. LAB TESTING 12.1349.0013 BH LOGS.GPJ CALGARY.GDT 4/8/14

DATA ENTRY: IPG

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_ER1gwD

SHEET 2 OF 4

LOCATION: See Location Plan

N: 5510952 E: 651379

BORING DATE: 29 and 31 October, 2013

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80); SHEAR STRENGTH Cu, kPa nat V. + Q- ● rem V. ⊕ U- O (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}); WATER CONTENT PERCENT Wp ├──O^W──┤ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10	Sonic 127 mm (ID) Casing 152.4 mm (OD) JR Drilling	SANDY GRAVEL, fine-grained with some coarse grains, sub-rounded to sub-angular, poorly sorted, wet, very loose *(continued)*									
11											
12											
13											
14											
15											Bentonite Chips
16											
17		SAND, medium to coarse-grained, some fine-grained gravel, angular to sub-angular, moderately sorted, wet, very loose		322.94 16.92							
18											
19											
20											

CONTINUED NEXT PAGE

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: RT
CHECKED: CD

BOREHOLE - EXPANDED ADD. LAB TESTING 12.1349.0013 BH LOGS.GPJ CALGARY.GDT 4/8/14

DATA ENTRY: IPG

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_ER1gwD

SHEET 3 OF 4

LOCATION: See Location Plan

N: 5510952 E: 651379

BORING DATE: 29 and 31 October, 2013

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80); SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}); WATER CONTENT PERCENT Wp ⊢ ○W ⊣ Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
20	Sonic 127 mm (ID) Casing 152.4 mm (OD) JR Drilling	SAND, medium to coarse-grained, some fine-grained gravel, angular to sub-angular, moderately sorted, wet, very loose *(continued)*									Bentonite Chips Silica Sand Slotted Section
27.89		SILTY SAND, fine to medium-grained, occasional angular gravel, rounded to sub-rounded, moderately graded, dry, very loose (BEDROCK)		311.96 27.89							Silica Sand Bentonite Pellets Slough
30											

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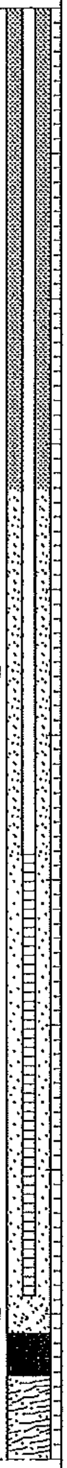


DEPTH SCALE

1 : 50

Golder Associates

LOGGED: RT

CHECKED: CO

BOREHOLE - EXPANDED ADD. LAB TESTING 12.1349.0013 BH LOGS.GPJ CALGARY.GDT 4/8/14

DATA ENTRY: IPG

PROJECT No.: 12.1349.0013

RECORD OF BOREHOLE: EV_ER1gwD

SHEET 4 OF 4

LOCATION: See Location Plan

N: 5510952 E: 651379

BORING DATE: 29 and 31 October, 2013

DATUM: UTM Zone 11 (Nad 83)

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m 20 40 60 80 SHEAR STRENGTH Cu, kPa nat V. + Q - ● rem V. ⊕ U - ○ 20 40 60 80	HYDRAULIC CONDUCTIVITY, k, cm/s 10^{-6} 10^{-5} 10^{-4} 10^{-3} WATER CONTENT PERCENT Wp ⊢—O W—⊣ Wl 10 20 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
30	JR Drilling	SILTY SAND, fine to medium-grained, occasional angular gravel, rounded to sub-rounded, moderately graded, dry, very loose (BEDROCK) *(continued)*	▨	309.07 30.78							Slough
		End of BOREHOLE.									
31											
		NOTES: Standpipe installed to 28.9 m upon well completion. Groundwater level measured at 4.6 mbgs on November 16, 2013.									
32											
33											
34											
35											
36											
37											
38											
39											
40											

DEPTH SCALE
1 : 50

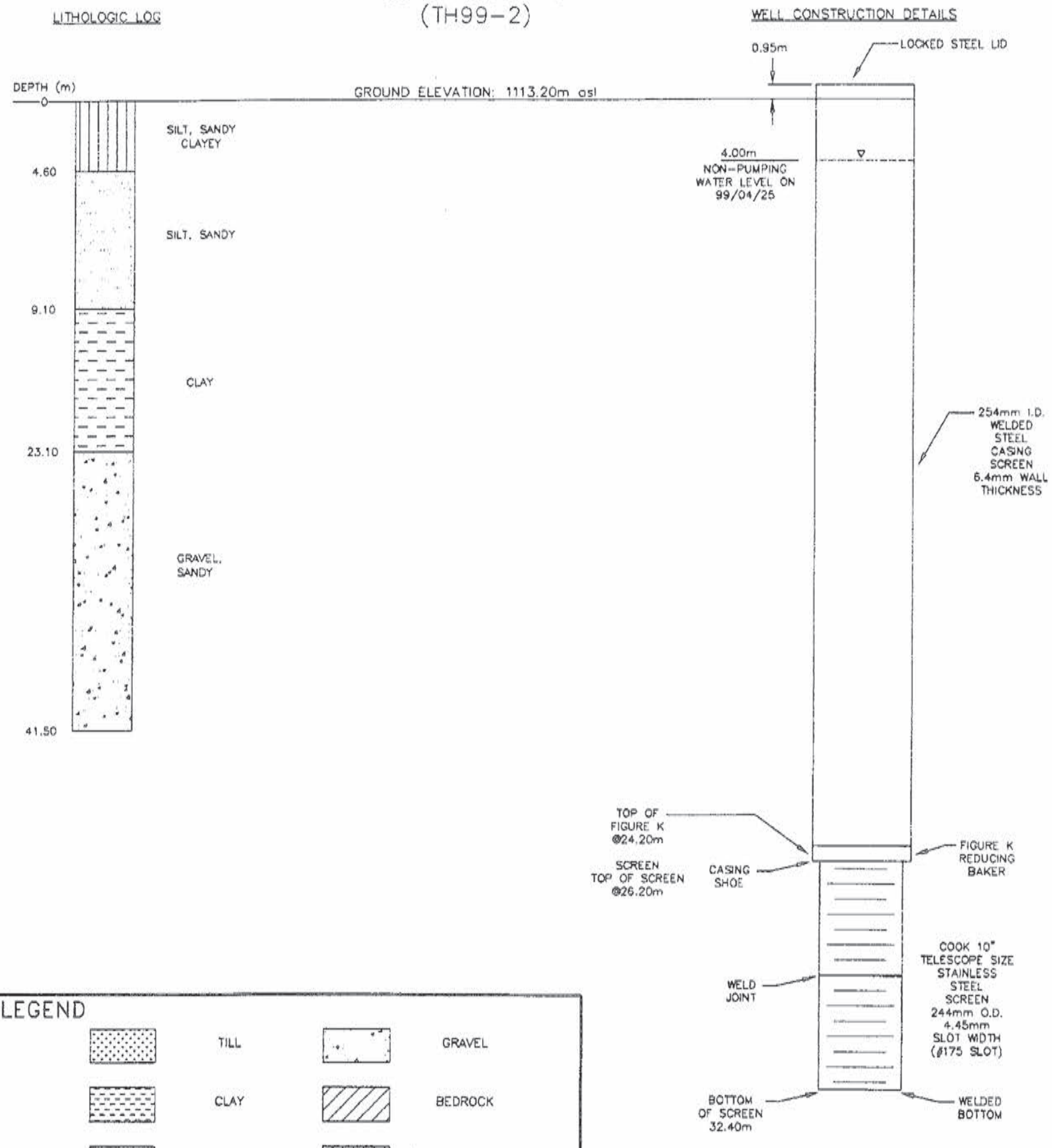
Golder Associates

LOGGED: RT
CHECKED: CD

BOREHOLE - EXPANDED ADD. LAB TESTING 12.1349.0013 BH LOGS.GPJ CALGARY.GDT 4/8/14

RG_DW-03-04 (Sparwood Well 3; TH99-2; WTN 77913)

TEST PRODUCTION
(TH99-2)



LEGEND

░	TILL	⁘	GRAVEL
▤	CLAY	▨	BEDROCK
□	SAND	▥	SILT

RIG TYPE: BARBER AIR ROTARY
DRILLING CONTRACTOR: JR DRILLING, CRANBROOK, BC
PUMPING TEST CONTRACTOR: MOORE'S WELL & PUMP SERVICE, VERNON, BC
DATE OF COMPLETION: 22 APRIL 1999

NOT TO SCALE

uma

HYDROGEOLOGICAL EVALUATION OF A NEW TEST WELL
DISTRICT OF SPARWOOD, BC

FIG. 3

JOB# 0764-206-00-02

RG_DW-03-04 (Sparwood Well 3;
TH99-2, WTN 77913)

Report 1 - Detailed Well Record

Well Tag Number: 77913

Owner: DISTRICT OF SPARWOOD

Address: 425 PINE AVENUE

Area: SPARWOOD

WELL LOCATION:
KOOTENAY Land District
District Lot: Plan: 14652 Lot: 3
Township: Section: Range:
Indian Reserve: Meridian: Block:
Quarter:
Island:
BCGS Number (NAD 83): 082G076231 Well: 4

Class of Well: Water supply
Subclass of Well: Domestic
Orientation of Well:
Status of Well: New
Licence General Status: UNLICENSED
Well Use: Water Supply System
Observation Well Number:
Observation Well Status:
Construction Method:
Diameter: 10 inches
Casing drive shoe:
Well Depth: 106 feet
Elevation: 0 feet (ASL)
Final Casing Stick Up: inches
Well Cap Type:
Bedrock Depth: feet
Lithology Info Flag: N
File Info Flag: N
Sieve Info Flag: N
Screen Info Flag: Y

Site Info Details:
Other Info Flag:
Other Info Details:

Construction Date: 1999-03-23 00:00:00

Driller: J. R. Drilling
Well Identification Plate Number: 16686
Plate Attached By: SONNY SAAD
Where Plate Attached: SOUTH WALL OF PUMP BUILDING

PRODUCTION DATA AT TIME OF DRILLING:
Well Yield: 666 (Driller's Estimate) U.S. Gallons per Minute
Development Method:
Pump Test Info Flag: N
Artesian Flow:
Artesian Pressure (ft):
Static Level: 11 feet

WATER QUALITY:
Character:
Colour:
Odour:
Well Disinfected: N
EMS ID:
Water Chemistry Info Flag:
Field Chemistry Info Flag:
Site Info (SEAM):

Water Utility:
Water Supply System Name: DISTRICT OF SPARWOOD WATER SYSTEM
Water Supply System Well Name: DISTRICT OF SPARWOOD WELL #3

SURFACE SEAL:
Flag: N
Material:
Method:
Depth (ft):
Thickness (in):

WELL CLOSURE INFORMATION:
Reason For Closure:
Method of Closure:
Closure Sealant Material:
Closure Backfill Material:

	Details of Closure:

Screen from	to feet	Type	Slot Size
86	106		17
0	0		0
0	0		0

Casing from	to feet	Diameter	Material	Drive Shoe
null	null	0	null	null

GENERAL REMARKS:
10" WELL TH99-2

LITHOLOGY INFORMATION:

From	0	to	13	Ft.	GRAVEL
From	13	to	15	Ft.	GRAVEL & SAND
From	15	to	30	Ft.	SILT & CLAY
From	30	to	76	Ft.	CLAY
From	76	to	78	Ft.	GRAVEL & CLAY
From	78	to	136	Ft.	GRAVEL

- Return to Main
- Return to Search Options
- Return to Search Criteria

Information Disclaimer

FINAL

SNC·LAVALIN	Client **Teck Coal Limited**	**Borehole No. : RG_BH-03-04**
	Location **Regional Groundwater Monitoring**	PAGE 1 OF 3

Drilling Contractor	Owen's Drilling	Date Monitored	2020 10 01	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1115.992	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1115.863	Date Drilled:	2020 09 21
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5511207.762	Easting: 651852.976	Log Typed By:	AS

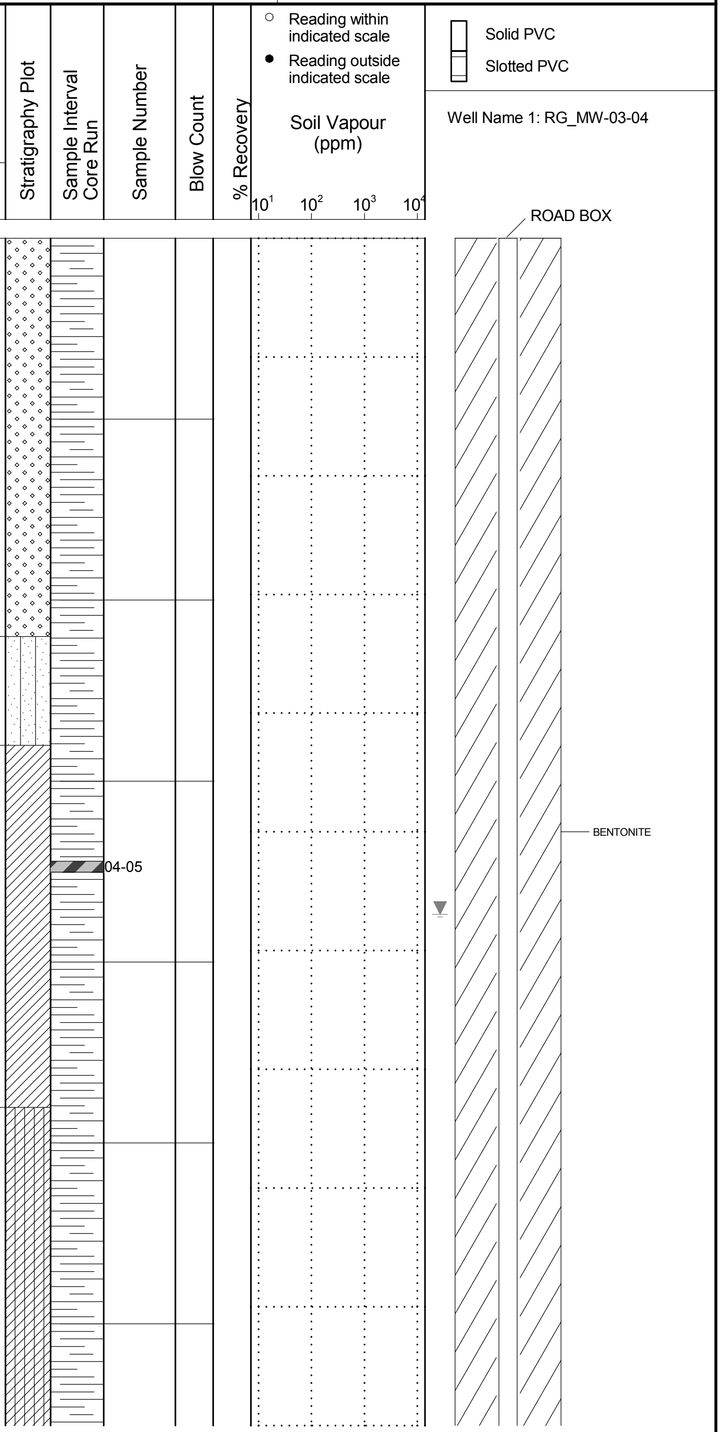
Depth in Metres

Drilling Legend
▨ Sample Interval
☰ Odex

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

Soil Description

Depth (m)	Soil Description
0	SAND, medium to coarse grained, trace gravel, fine, subrounded, grey, loose, dry.
3.35	SAND and SILT, fine to coarse grained sand, trace clay, brown, loose, moist.
4.27	CLAY, trace silt, brown, firm, high plasticity, damp.
7.32	SILT and CLAY, dark brown, firm, high plasticity, damp.



NOTES
Bolded sample denotes sample analyzed.

QA/QC: LLH 2020 10 19 Print Date:2020-12-02

FINAL

SNC · LAVALIN	Client **Teck Coal Limited**	**Borehole No. : RG_BH-03-04**
	Location **Regional Groundwater Monitoring**	PAGE 2 OF 3

Drilling Contractor	Owen's Drilling	Date Monitored	2020 10 01	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1115.992	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1115.863	Date Drilled:	2020 09 21
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5511207.762	Easting: 651852.976	Log Typed By:	AS

Drilling Legend
▨ Sample Interval
☰ Odex

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: RG_MW-03-04

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4

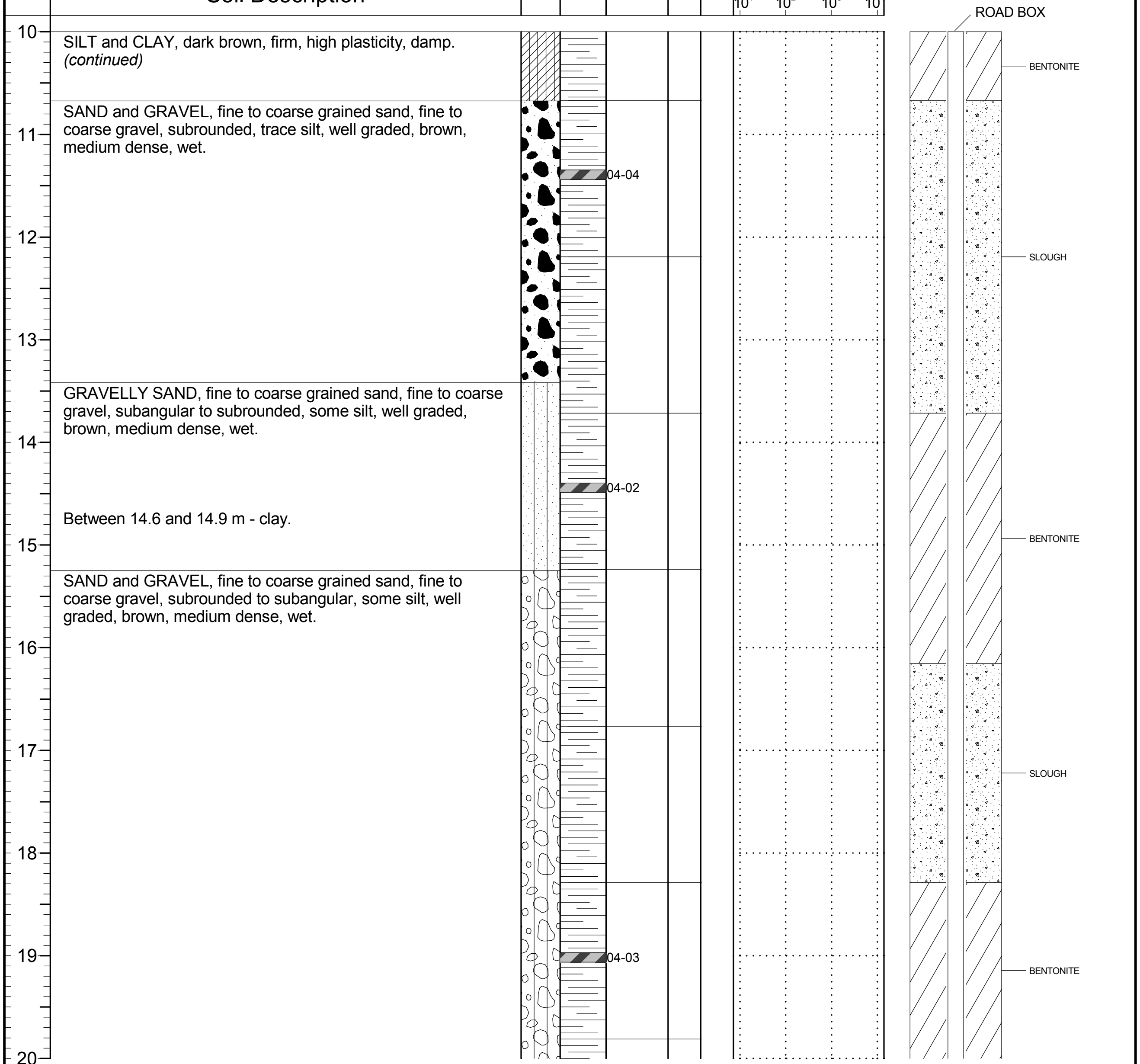
SILT and CLAY, dark brown, firm, high plasticity, damp. *(continued)*

SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subrounded, trace silt, well graded, brown, medium dense, wet.

GRAVELLY SAND, fine to coarse grained sand, fine to coarse gravel, subangular to subrounded, some silt, well graded, brown, medium dense, wet.

Between 14.6 and 14.9 m - clay.

SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subrounded to subangular, some silt, well graded, brown, medium dense, wet.



NOTES
Bolded sample denotes sample analyzed.

QA/QC: LLH 2020 10 19 Print Date:2020-12-02

FINAL

SNC-LAVALIN	Client **Teck Coal Limited**	**Borehole No. : RG_BH-03-04**
	Location **Regional Groundwater Monitoring**	PAGE 3 OF 3

Drilling Contractor	Owen's Drilling	Date Monitored	2020 10 01	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1115.992	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1115.863	Date Drilled:	2020 09 21
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5511207.762	Easting: 651852.976	Log Typed By:	AS

Drilling Legend
- ▨ Sample Interval
- ☰ Odex

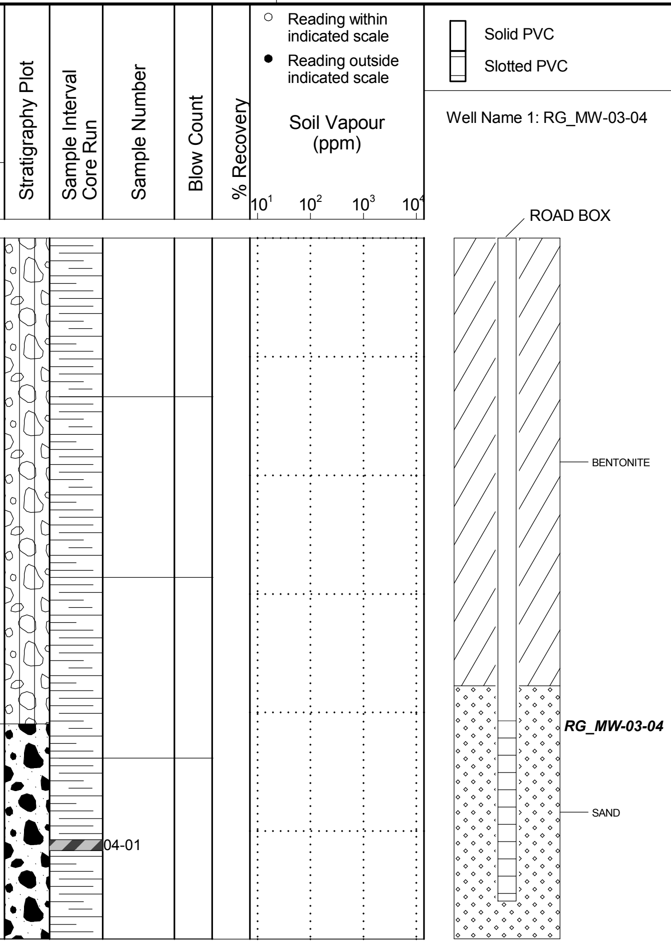
Water/NAPL Levels
- ▼ Water Level 1
- ▽ Water Level 2
- ◆ NAPL
- ◇ NAPL

- ○ Reading within indicated scale
- ● Reading outside indicated scale

- ▯ Solid PVC
- ▤ Slotted PVC

Well Name 1: RG_MW-03-04

Depth in Metres	Soil Description
20 – 24.0	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subrounded to subangular, some silt, well graded, brown, medium dense, wet. *(continued)*
24.0 – 25.9	SANDY GRAVEL, fine to coarse gravel, subrounded to subangular, medium to coarse grained sand, trace silt, well graded, containing cobbles, brown, medium dense.
25.9	Bottom of hole at 25.9 m.



Depth scale: 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30

NOTES
Bolded sample denotes sample analyzed.

QA/QC: LLH 2020 10 19 Print Date:2020-12-02

Coal Mountain Mine

srk consulting

Teck

HOLE ID:	**MW-4**	COORDINATES:	668527 E 5487347 N
LOCATION:	CMO	DATUM:	UTM Zone 11
PROJECT NO:	1CT017.098	GROUND ELEV (masl):	1512.4
DRILLING CONTRACTOR:	AquaPro Drilling Ltd.	COLLAR DIP:	-90
		EOH ELEV. (masl):	1483.9
DRILLING TYPE:	Air Rotary	TOTAL DEPTH (mbgs):	28.5
LOGGED BY:	LC	STICKUP HEIGHT (magl):	0.92
BORING DATE:	8/11/2015 to 8/11/2015	CASING STICKUP (magl):	0.92

PROJECT: Phase 1 Groundwater Monitoring

CLIENT: Teck Coal Ltd. - CMO

AREA: **Corbin Creek**

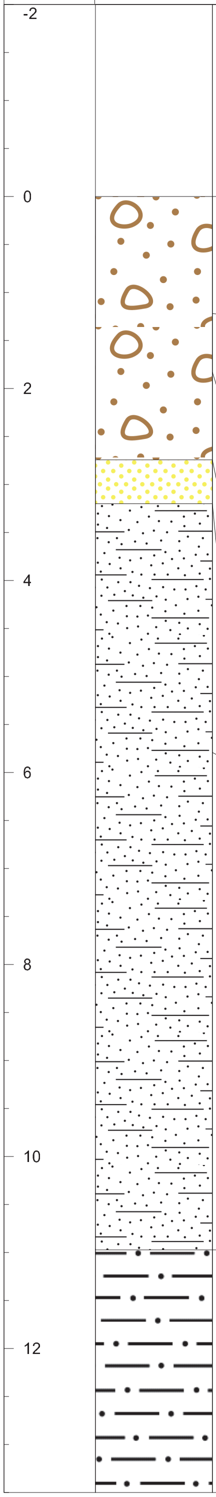
Lithological Symbol

▨ CL-Clay	▨ SA-Sand
☐ LO-Loam	GV-Gravel
SI-Silt	SS-Sandstone
	ST-Siltstone

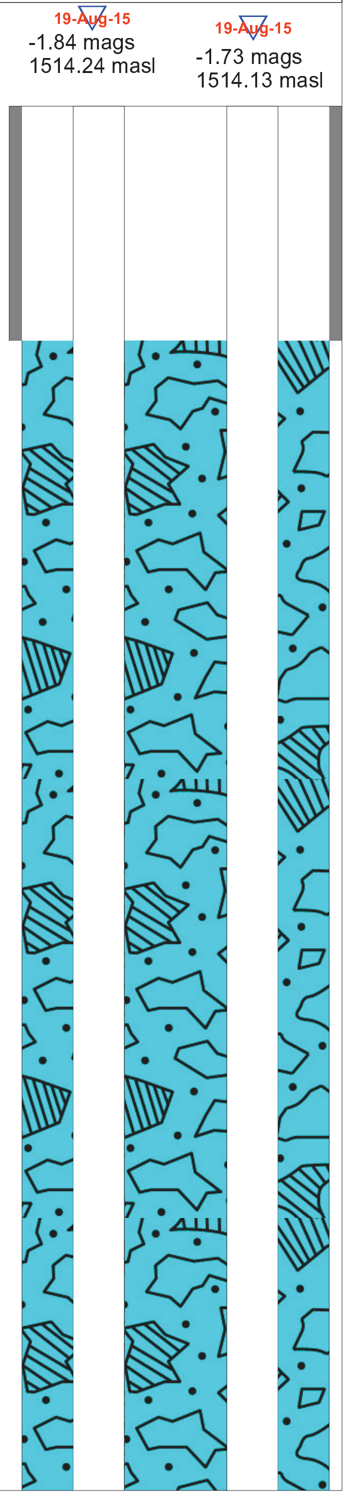
Hydraulic Conductivity (m/s): 1E-8, 1E-7, 1E-6, 1E-5, 0.0001, 0.001

Well Installation

Sand	Chips
Screen	Chips/Backfill
PVC	Backfill
Pellets	Casing
Cave	



Lithology Description	**Drilling Notes and Additional Comments**
Gravel (GW); Sandy, trace silt. Very dark brown, well graded, moist, angular, non-plastic, non-cohesive.	Road fill
Gravel and sand (GW); Very dark brown, well graded, moist, sub-angular, non-plastic, non-cohesive.	
Gravel (GW-GP); Some sand. Dark grayish brown, gap graded, moist, rounded, non-plastic, non-cohesive.	Possibly weathered
Sand (SM); Silty, some gravel. Dark grayish brown, well graded, moist, sub-rounded, non-plastic, non-cohesive.	Some siltstone present
Sandstone bedrock; Dark gray, dry.	Drilling like bedrock. Switching to open hole to confirm after first casing
Sandstone bedrock; Dark gray, moist.	Some siltstone present
Siltstone bedrock; Black, dry.	Continuing through rock, open hole. Moist but not wet. Waiting for 1 hr to check WLs. No water after 1 hr open hole. About 0.5 m collapse. Switch from grey fine



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Teck

HOLE ID:	**MW-4**	COORDINATES:	668527 E 5487347 N
LOCATION:	CMO	DATUM:	UTM Zone 11
PROJECT NO:	1CT017.098	GROUND ELEV (masl):	1512.4
DRILLING CONTRACTOR:	AquaPro Drilling Ltd.	COLLAR DIP:	-90
		EOH ELEV. (masl):	1483.9
DRILLING TYPE:	Air Rotary	TOTAL DEPTH (mbgs):	28.5
LOGGED BY:	LC	STICKUP HEIGHT (magl):	0.92
BORING DATE:	8/11/2015 to 8/11/2015	CASING STICKUP (magl):	0.92

Page: 2 of 2

PROJECT: Phase 1 Groundwater Monitoring

CLIENT: Teck Coal Ltd. - CMO

AREA: **Corbin Creek**

Lithological Symbol

- ▨ CL-Clay
- ☐ LO-Loam
- ▥ SI-Silt
- ▨ SA-Sand
- ◠ GV-Gravel
- ▨ SS-Sandstone
- ▬ ST-Siltstone

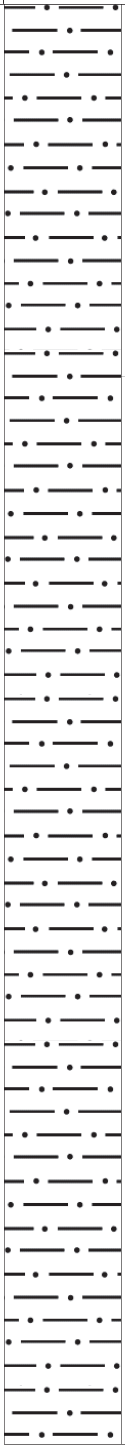
Hydraulic Conductivity (m/s)

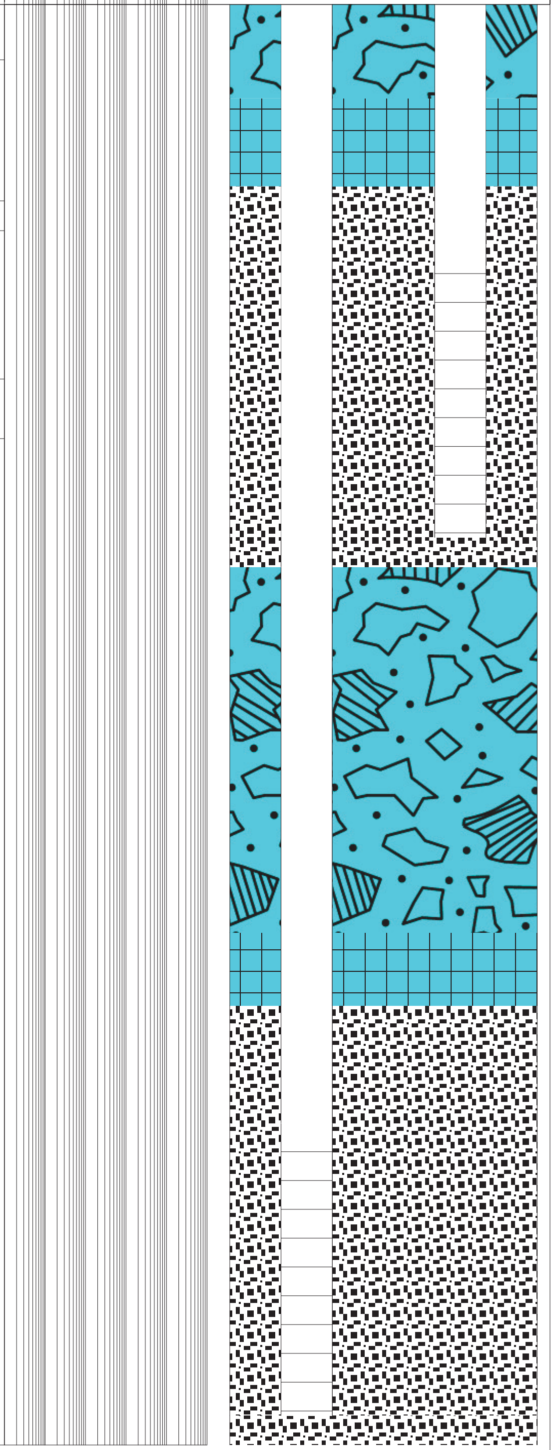
1E-8, 1E-7, 1E-6, 1E-5, 0.0001, 0.001

Well Installation

- ▨ Sand
- ☐ Screen
- ☐ PVC
- ▦ Pellets
- ▨ Cave
- ▦ Chips
- ▨ Chips/Backfill
- ▨ Backfill
- ■ Casing

Depth (m)	**Lithology Description**	**Drilling Notes and Additional Comments**
		sandstone to black siltstone
14		
15.5		Very dusty and dry
15.8		Dust diminishing
16		
17.7	Siltstone bedrock; Black, moist.	Becomes moist - hit water
18		
20		
22		
24		
26		
28		





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Teck

HOLE ID: **MW-5**
LOCATION: CMO
PROJECT NO: 1CT017.098
DRILLING CONTRACTOR: AquaPro Drilling Ltd.
DRILLING TYPE: Air Rotary
LOGGED BY: LC
BORING DATE: 8/10/2015 to 8/10/2015

COORDINATES: 669503 E 5487382 N
DATUM: UTM Zone 11
GROUND ELEV (masl): 1541
COLLAR DIP: -90
EOH ELEV. (masl): 1515.09
TOTAL DEPTH (mbgs): 25.91
STICKUP HEIGHT (magl): 1
CASING STICKUP (magl): 1

Page: 1 of 2

AREA: **Corbin Creek**

PROJECT: Phase 1 Groundwater Monitoring
CLIENT: Teck Coal Ltd. - CMO

Depth (m)

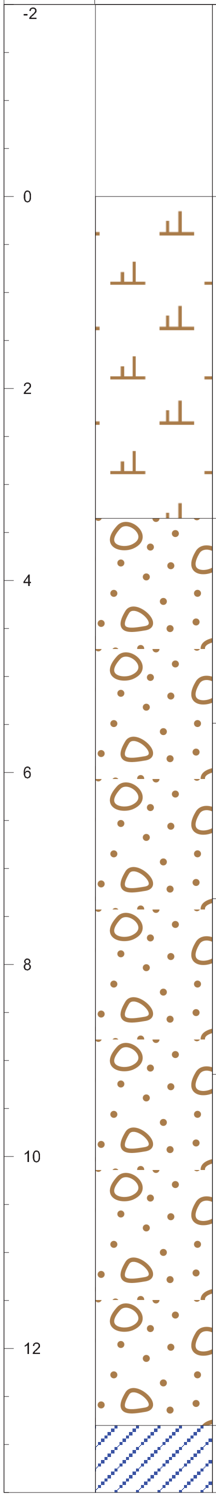
Lithological Symbol

▨ CL-Clay	SA-Sand	SS-Sandstone
LO-Loam	GV-Gravel	ST-Siltstone
SI-Silt		

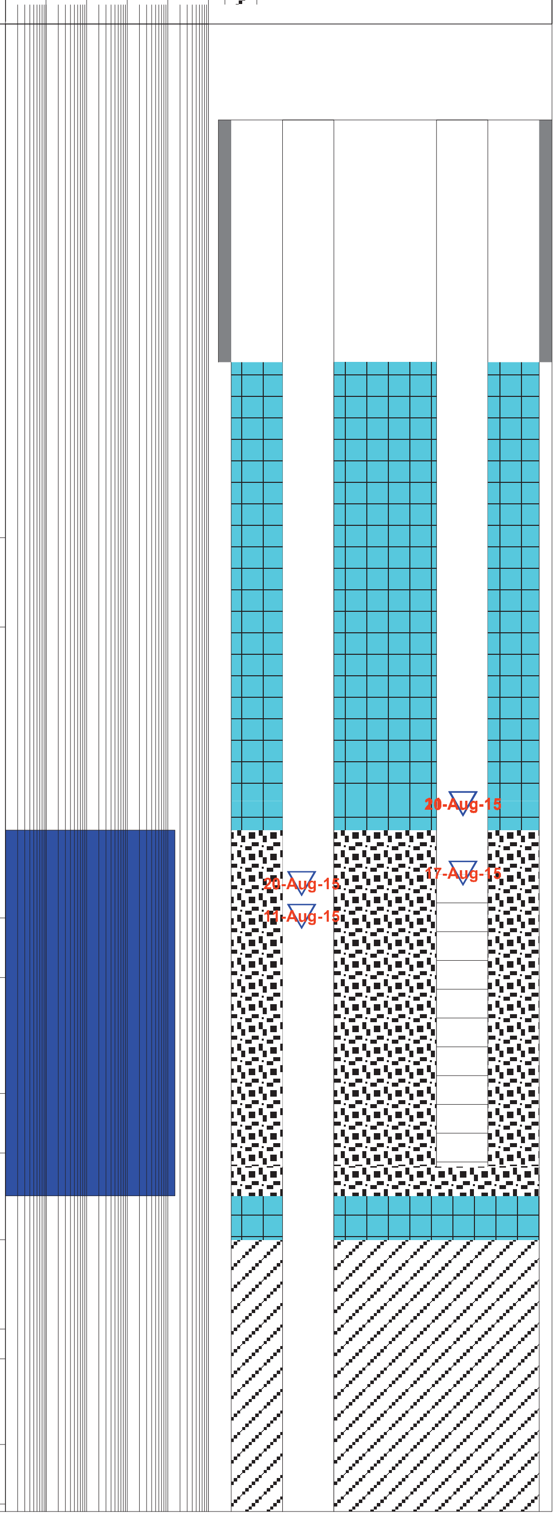
Hydraulic Conductivity (m/s)

Well Installation

Sand	Chips
Screen	Chips/Backfill
PVC	Backfill
Pellets	Casing
Cave	



Lithology Description	**Drilling Notes and Additional Comments**
Loam (OL-OH); Sandy. Black, well graded, moist, sub-rounded, non-plastic, non-cohesive. Sharp contact.	
Gravel (GW); Some sand, trace silt. Brown, well graded, dry, rounded, non-plastic, non-cohesive.	Well-graded alluvial sandy gravel under organics layer
Gravel (GW); Some sand, trace silt. Brown, well graded, moist, rounded, non-plastic, non-cohesive.	
Gravel (GW); Trace sand. Brown, well graded, moist, sub-rounded, non-plastic, non-cohesive.	Coarse gravel, 1-3 cm in diameter
Gravel (GW); Trace sand. Brown, well graded, wet, sub-angular, non-plastic, non-cohesive.	Wet coarse gravel (very wet before 10 m) When restarted after welding 3rd casing, lots of water Cave during casing pull
Clay (CL-CH); Some cobbles, some gravel. Brown, gap	Hit wet clay layer with some cobbles



srk consulting

Teck

HOLE ID: **MW-5**
LOCATION: CMO
PROJECT NO: 1CT017.098
DRILLING CONTRACTOR: AquaPro Drilling Ltd.
DRILLING TYPE: Air Rotary
LOGGED BY: LC
BORING DATE: 8/10/2015 to 8/10/2015

COORDINATES: 669503 E 5487382 N
DATUM: UTM Zone 11
GROUND ELEV (masl): 1541
COLLAR DIP: -90
EOH ELEV. (masl): 1515.09
TOTAL DEPTH (mbgs): 25.91
STICKUP HEIGHT (magl): 1
CASING STICKUP (magl): 1

PROJECT: Phase 1 Groundwater Monitoring
CLIENT: Teck Coal Ltd. - CMO
AREA: **Corbin Creek**

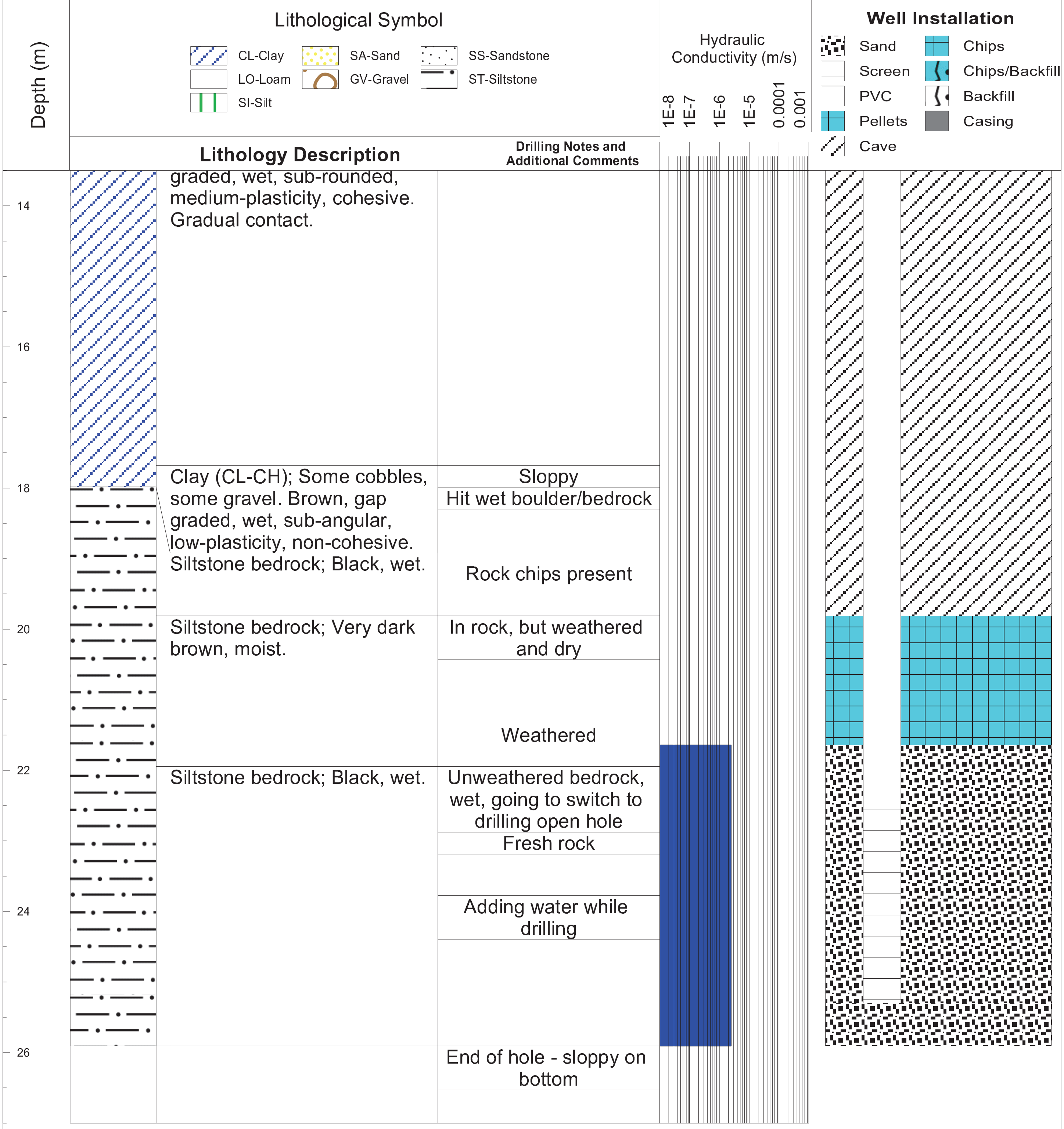
Lithological Symbol

▨ CL-Clay	▨ SA-Sand	▨ SS-Sandstone
☐ LO-Loam	▨ GV-Gravel	▨ ST-Siltstone
▨ SI-Silt		

Hydraulic Conductivity (m/s)

Well Installation

▨ Sand	▨ Chips
☐ Screen	▨ Chips/Backfill
☐ PVC	▨ Backfill
▨ Pellets	■ Casing
▨ Cave	



Lithology Description	**Drilling Notes and Additional Comments**
graded, wet, sub-rounded, medium-plasticity, cohesive. Gradual contact.	
Clay (CL-CH); Some cobbles, some gravel. Brown, gap graded, wet, sub-angular, low-plasticity, non-cohesive.	Sloppy Hit wet boulder/bedrock
Siltstone bedrock; Black, wet.	Rock chips present
Siltstone bedrock; Very dark brown, moist.	In rock, but weathered and dry Weathered
Siltstone bedrock; Black, wet.	Unweathered bedrock, wet, going to switch to drilling open hole Fresh rock Adding water while drilling
	End of hole - sloppy on bottom

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Teck

HOLE ID: **CM_MW6**
LOCATION: CMO
PROJECT NO: 1CT017.114
DRILLING CONTRACTOR: AquaPro Drilling Ltd.
DRILLING TYPE: Air Rotary
LOGGED BY: EH/KK
BORING DATE: 4/26/2016 to 4/27/2016

COORDINATES: 670117.9 E 5486463.5 N
DATUM: UTM Zone 11
GROUND ELEV (masl): 1579.66
COLLAR DIP: -90
EOH ELEV. (masl): 1478.30336
TOTAL DEPTH (mbgs): 41.69664
STICKUP HEIGHT (magl): 0.83/0.83
CASING STICKUP (magl): 0.88
AREA: **Corbin Dam**

Page: 1 of 3

PROJECT: Phase 2 Groundwater Monitoring
CLIENT: Teck Coal Ltd. - CMO

Depth (m)

Lithological Symbol

▨	CL-Clay	▨	SA-Sand	▭	ST-Siltstone
■	CO-Coal	▭	GV-Gravel	▭	BO-Boulders
▭	SI-Silt	▨	SS-Sandstone		

Hydraulic Conductivity (m/s)

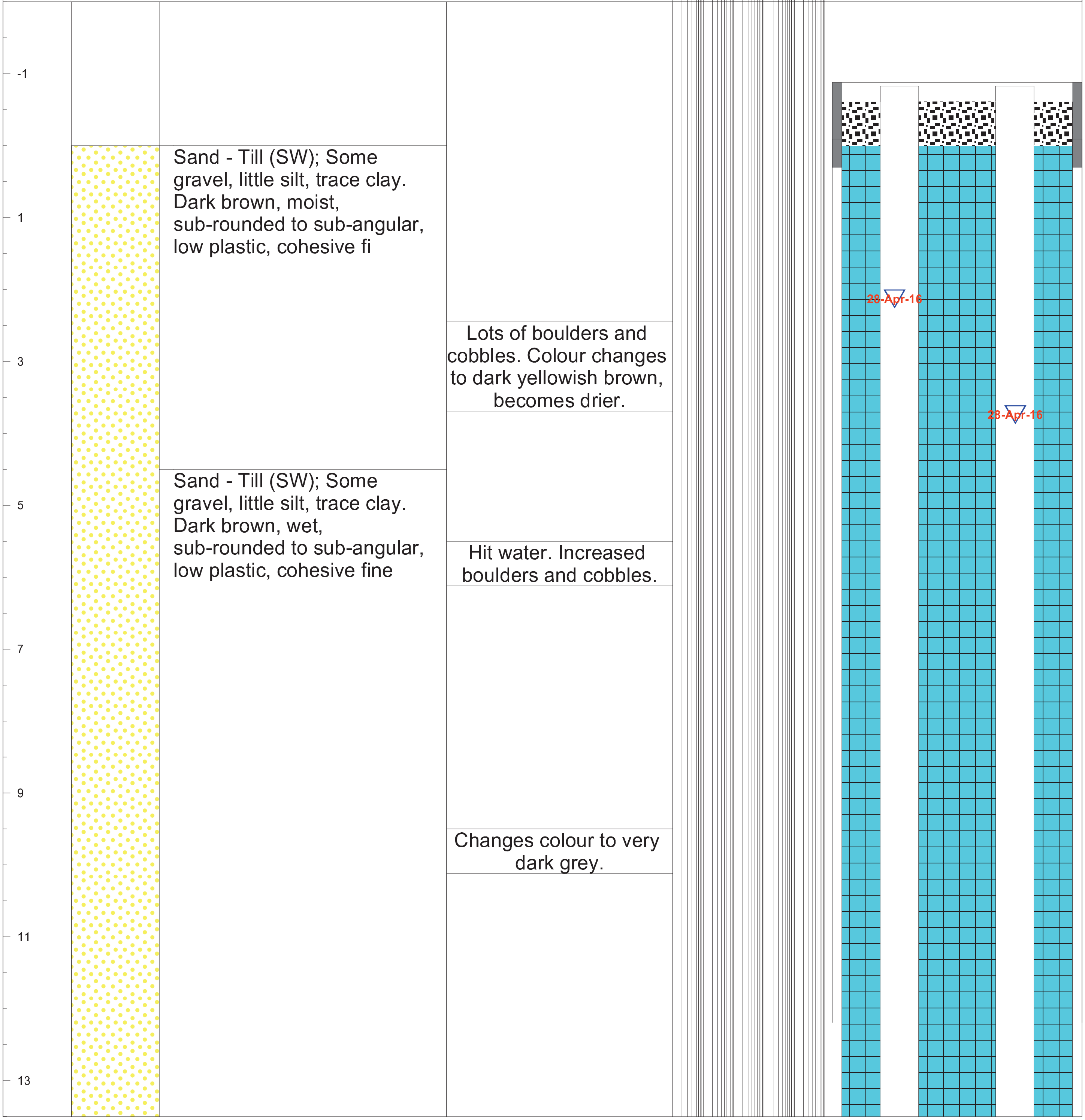
1E-8 1E-7 1E-6 1E-5 0.0001 0.001

Well Installation

▨	Sand	🟦	Pellets
▭	Cable	🟦	Chips
🟥	VWP	▭	Cave
▭	Screen	■	Casing
▭	PVC	▭	Grout

Lithology Description

Drilling Notes and Additional Comments



Sand - Till (SW); Some gravel, little silt, trace clay. Dark brown, moist, sub-rounded to sub-angular, low plastic, cohesive fi

Lots of boulders and cobbles. Colour changes to dark yellowish brown, becomes drier.

Sand - Till (SW); Some gravel, little silt, trace clay. Dark brown, wet, sub-rounded to sub-angular, low plastic, cohesive fine

Hit water. Increased boulders and cobbles.

Changes colour to very dark grey.

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Teck

HOLE ID:	**CM_MW6**	COORDINATES:	670117.9 E5486463.5 N
LOCATION:	CMO	DATUM:	UTM Zone 11
PROJECT NO:	1CT017.114	GROUND ELEV (masl):	1579.66
DRILLING CONTRACTOR:	AquaPro Drilling Ltd.	COLLAR DIP:	-90
		EOH ELEV. (masl):	1478.30336
DRILLING TYPE:	Air Rotary	TOTAL DEPTH (mbgs):	41.69664
LOGGED BY:	EH/KK	STICKUP HEIGHT (magl):	0.83/0.83
BORING DATE:	4/26/2016 to 4/27/2016	CASING STICKUP (magl):	0.88

PROJECT: Phase 2 Groundwater Monitoring

CLIENT: Teck Coal Ltd. - CMO

AREA: **Corbin Dam**

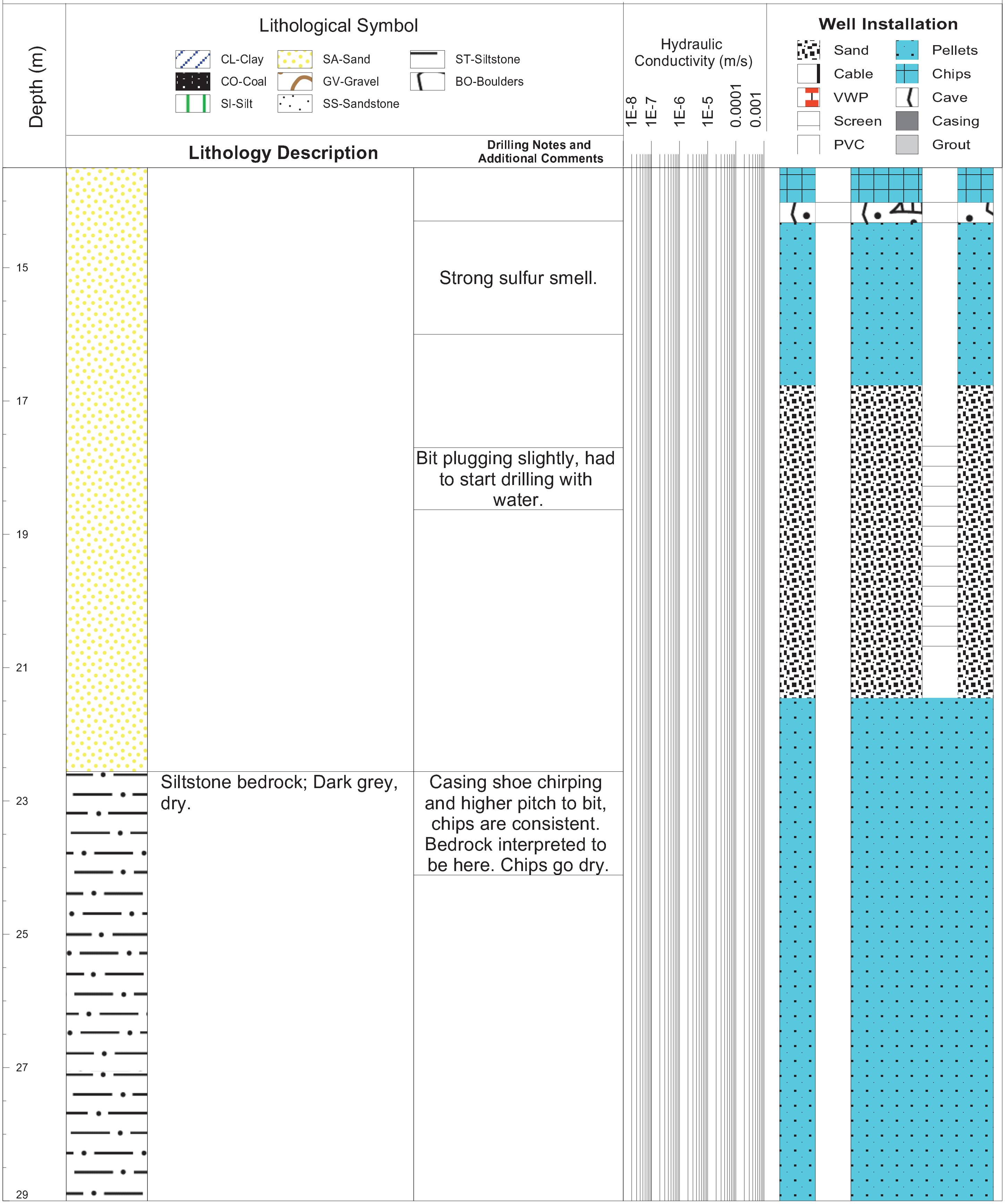
Lithological Symbol

CL-Clay
CO-Coal
SI-Silt
SA-Sand
GV-Gravel
SS-Sandstone
ST-Siltstone
BO-Boulders

Well Installation

Sand
Cable
VWP
Screen
PVC
Pellets
Chips
Cave
Casing
Grout

Depth (m)	**Lithology Description**	**Drilling Notes and Additional Comments**
		Strong sulfur smell.
		Bit plugging slightly, had to start drilling with water.
	Siltstone bedrock; Dark grey, dry.	Casing shoe chirping and higher pitch to bit, chips are consistent. Bedrock interpreted to be here. Chips go dry.



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Teck

HOLE ID:	**CM_MW6**	COORDINATES:	670117.9 E5486463.5 N
LOCATION:	CMO	DATUM:	UTM Zone 11
PROJECT NO:	1CT017.114	GROUND ELEV (masl):	1579.66
DRILLING CONTRACTOR:	AquaPro Drilling Ltd.	COLLAR DIP:	-90
		EOH ELEV. (masl):	1478.30336
DRILLING TYPE:	Air Rotary	TOTAL DEPTH (mbgs):	41.69664
LOGGED BY:	EH/KK	STICKUP HEIGHT (magl):	0.83/0.83
BORING DATE:	4/26/2016 to 4/27/2016	CASING STICKUP (magl):	0.88

PROJECT: Phase 2 Groundwater Monitoring

CLIENT: Teck Coal Ltd. - CMO

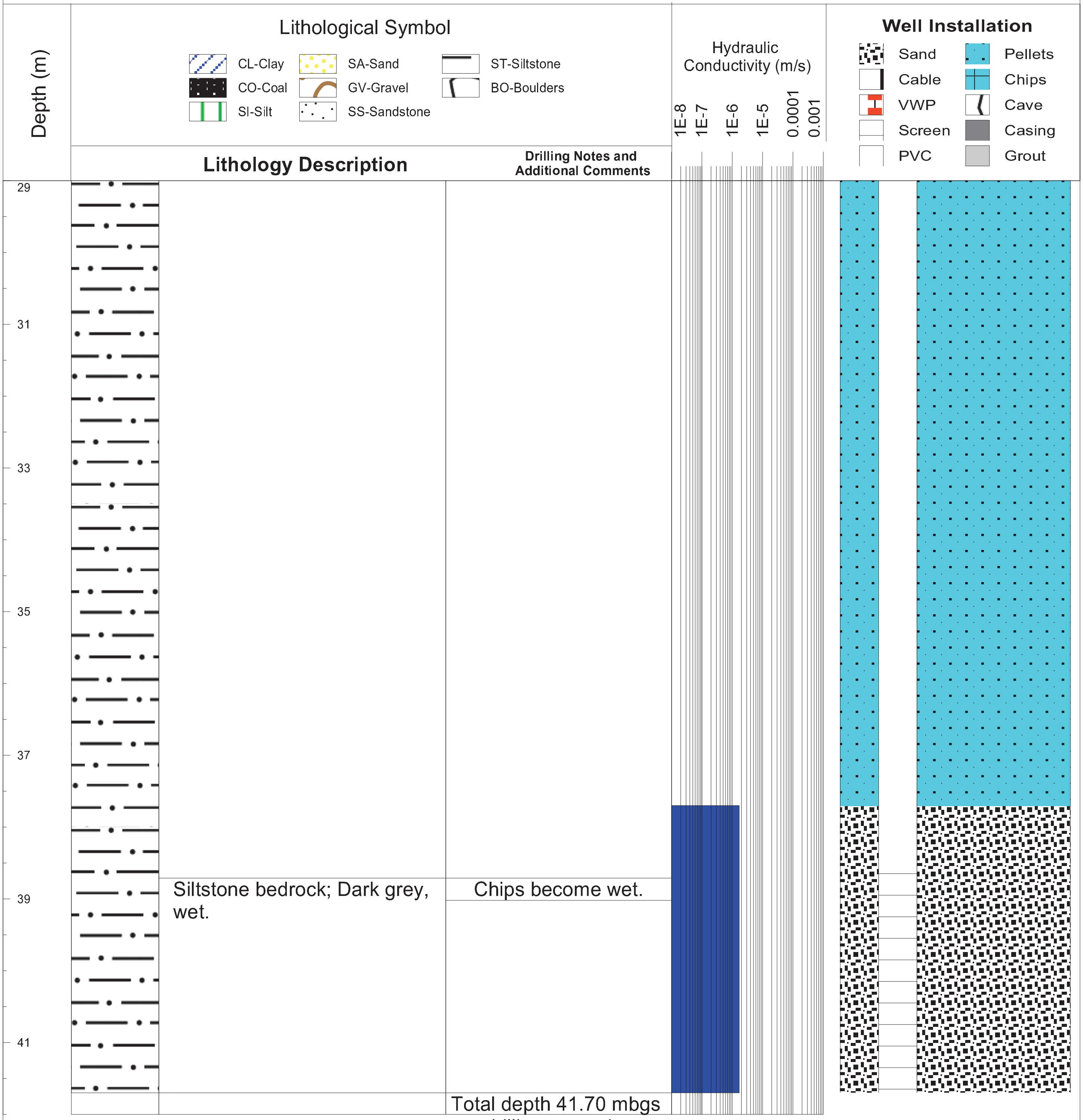
AREA: **Corbin Dam**

Lithological Symbol

- ▨ CL-Clay
- ■ CO-Coal
- ▯ SI-Silt
- ▨ SA-Sand
- ▨ GV-Gravel
- ▨ SS-Sandstone
- ▭ ST-Siltstone
- ▭ BO-Boulders

Well Installation

- ▨ Sand
- ▯ Cable
- ▨ VWP
- ▯ Screen
- ▯ PVC
- 🟦 Pellets
- 🟦 Chips
- ▯ Cave
- ■ Casing
- ■ Grout



Lithology Description

Drilling Notes and Additional Comments

Lithology Description	Drilling Notes and Additional Comments
Siltstone bedrock; Dark grey, wet.	Chips become wet.
	Total depth 41.70 mbgs - drilling ceased as depth target reached.

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PROJECT: Coal Mountain Operation
CLIENT: Coal Mountain Operation

DRILLHOLE ID: CM_MW09
LOCATION: Coal Mountain
PROJECT NO: 1CT017.239
DRILL TYPE: Sonic
HOLE SIZE: 6"
CONTRACTOR: Mud bay Drilling
LOGGED BY: RB

DRILLING DATE: 07-Nov-19 **TO:** 07-Nov-19
COORDINATES: 668562.6 E 5487345.8 N
DATUM: UTM Zone 11N; NAD 83
GROUND EL (masl): 1510.3
TOTAL DEPTH (m): 3.66 **DIP:** 90°
WATER LEVEL (mbgs): 2

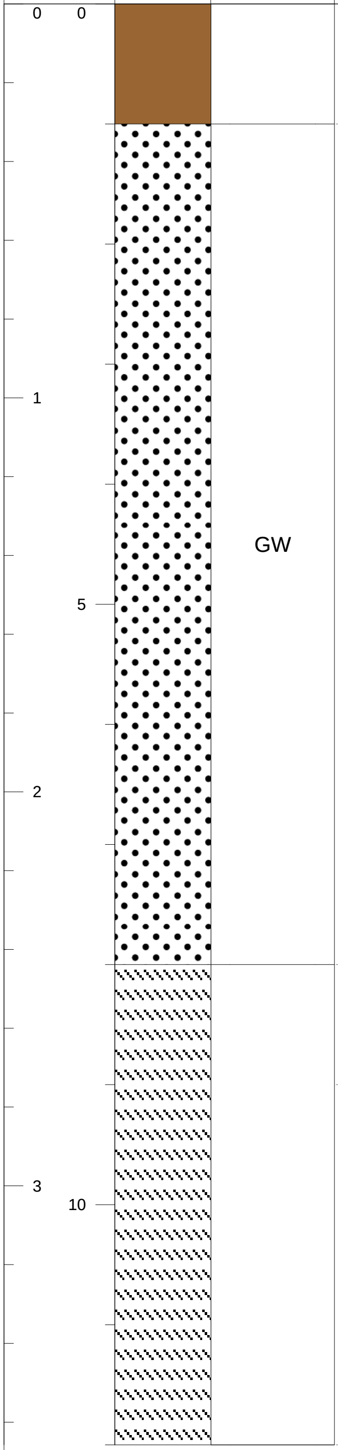
Drillhole Log

Lithologic Symbol

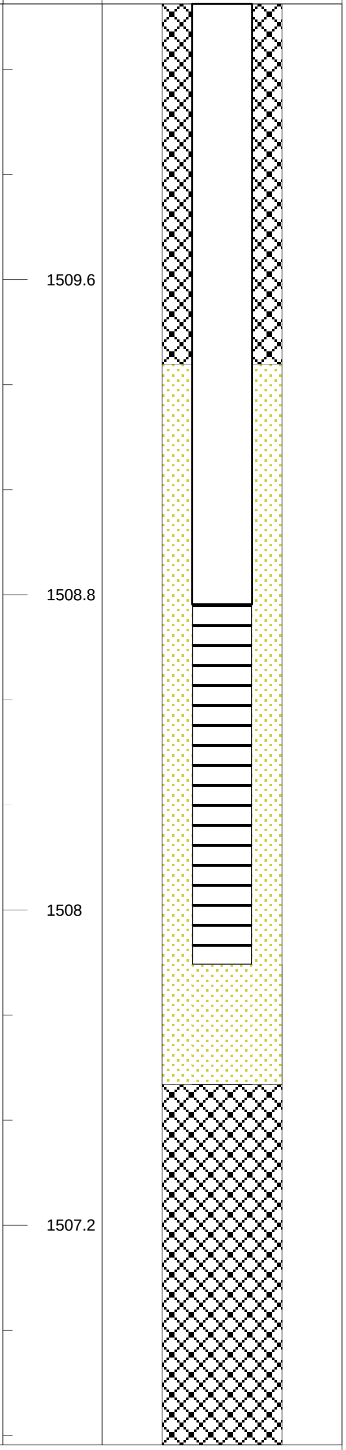
- ■ Ash
- ■ Organics
- ▨ Clay
- ▥ Silt
- ⁘ Sand
- O Gravel
- O Boulder/Cobbles
- ▧ Weathered Bedrock
- ▧ Bedrock
- ■ No Recovery

Standpipe Piezometer Installation

Stickup (m): 0.88



USCS	Soil Description	Additional Comments
	ORGANICS - black, silt w/ sand and gravel, non-plastic	
GW	SAND - olive grey, sand, some silt w/ gravel, angular to sub-rounded, particle size up to 60 mm, fines are non-plastic	Sample appears dry Driller notes water strike
	WEATHERED BEDROCK - mottled, silt with sand, friable dense silt	
	WEATHERED BEDROCK - olive grey and mottled in places, clay w/ gravel and sand, fines are non-plastic	Drilling becomes harder



Notes:
Coordinates and elevation were measured via differential GPS

Installation Legend

- ☒ Bentonite Chips
- ▨ Bentonite Pellets
- ⁘ Sand
- ⊳ Slough
- ☐ PVC
- ☐ Screen
- ☐ Sump
- ☐ Casing
- ▩ Cement

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Teck

HOLE ID:	**MW-1**	COORDINATES:	667969 E 5487521 N
LOCATION:	CMO	DATUM:	UTM Zone 11
PROJECT NO:	1CT017.098	GROUND ELEV (masl):	1500.44
DRILLING CONTRACTOR:	AquaPro Drilling Ltd.	COLLAR DIP:	-90
		EOH ELEV. (masl):	1463.25
DRILLING TYPE:	Air Rotary	TOTAL DEPTH (mbgs):	37.19
LOGGED BY:	LC	STICKUP HEIGHT (magl):	0.85
BORING DATE:	8/12/2015 to 8/13/2015	CASING STICKUP (magl):	0.85

Page: 1 of 3

PROJECT: Phase 1 Groundwater Monitoring

CLIENT: Teck Coal Ltd. - CMO

AREA: **Michel Creek**

Lithological Symbol

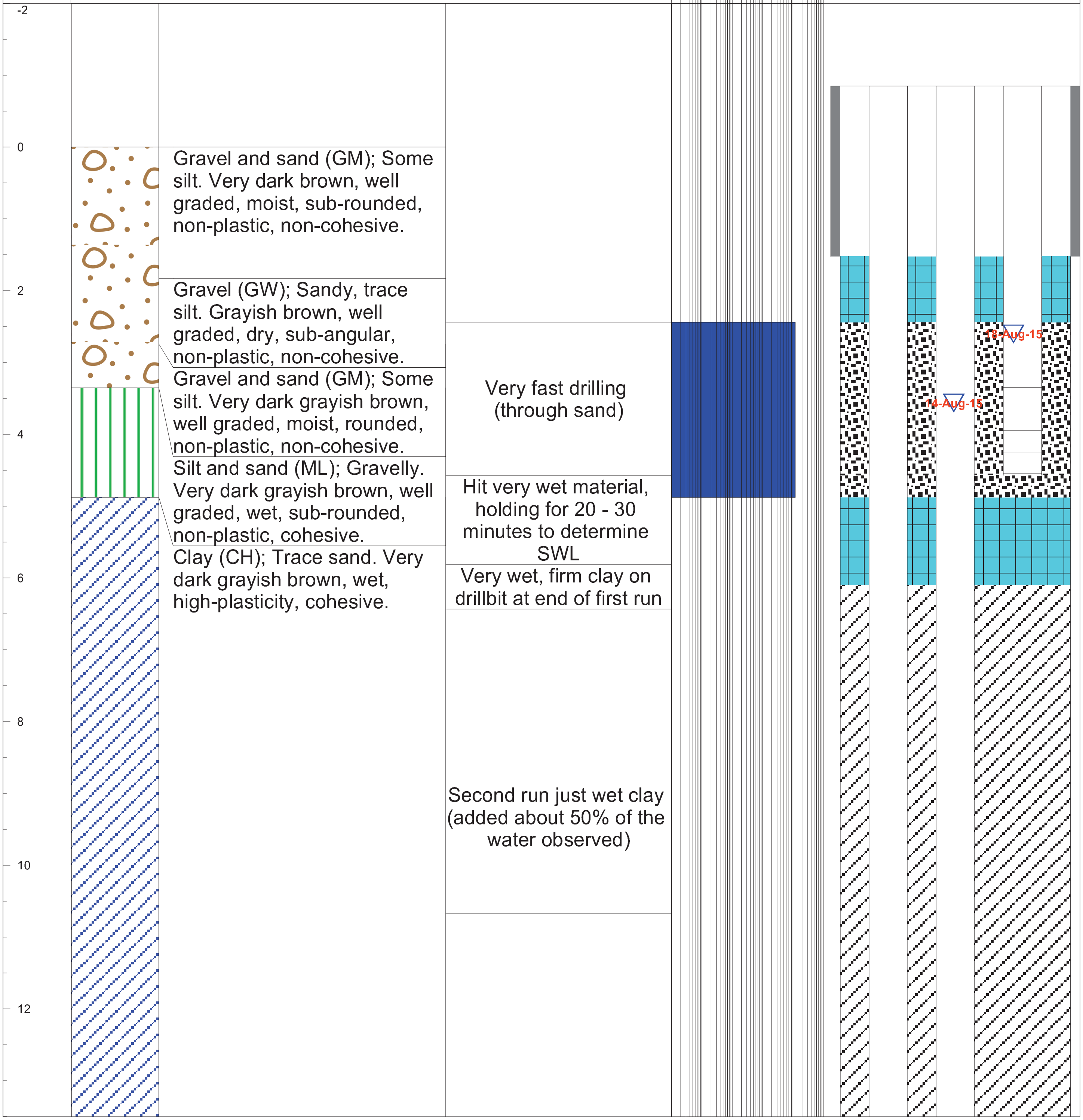
▨	CL-Clay	⁘	SA-Sand	⁘	SS-Sandstone
☐	LO-Loam	○	GV-Gravel	▭	ST-Siltstone
▥	SI-Silt				

Hydraulic Conductivity (m/s)

1E-8, 1E-7, 1E-6, 1E-5, 0.0001, 0.001

Well Installation

▩	Sand	⊞	Chips
☐	Screen	⊞	Chips/Backfill
☐	PVC	▯	Backfill
⊞	Pellets	■	Casing
▨	Cave		



Lithology Description

Gravel and sand (GM); Some silt. Very dark brown, well graded, moist, sub-rounded, non-plastic, non-cohesive.

Gravel (GW); Sandy, trace silt. Grayish brown, well graded, dry, sub-angular, non-plastic, non-cohesive.

Gravel and sand (GM); Some silt. Very dark grayish brown, well graded, moist, rounded, non-plastic, non-cohesive.

Silt and sand (ML); Gravelly. Very dark grayish brown, well graded, wet, sub-rounded, non-plastic, cohesive.

Clay (CH); Trace sand. Very dark grayish brown, wet, high-plasticity, cohesive.

Drilling Notes and Additional Comments

Very fast drilling (through sand)

Hit very wet material, holding for 20 - 30 minutes to determine SWL

Very wet, firm clay on drillbit at end of first run

Second run just wet clay (added about 50% of the water observed)

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Teck

HOLE ID: **MW-1**
LOCATION: CMO
PROJECT NO: 1CT017.098
DRILLING CONTRACTOR: AquaPro Drilling Ltd.
DRILLING TYPE: Air Rotary
LOGGED BY: LC
BORING DATE: 8/12/2015 to 8/13/2015

COORDINATES: 667969 E 5487521 N
DATUM: UTM Zone 11
GROUND ELEV (masl): 1500.44
COLLAR DIP: -90
EOH ELEV. (masl): 1463.25
TOTAL DEPTH (mbgs): 37.19
STICKUP HEIGHT (magl): 0.85
CASING STICKUP (magl): 0.85

PROJECT: Phase 1 Groundwater Monitoring
CLIENT: Teck Coal Ltd. - CMO
AREA: **Michel Creek**

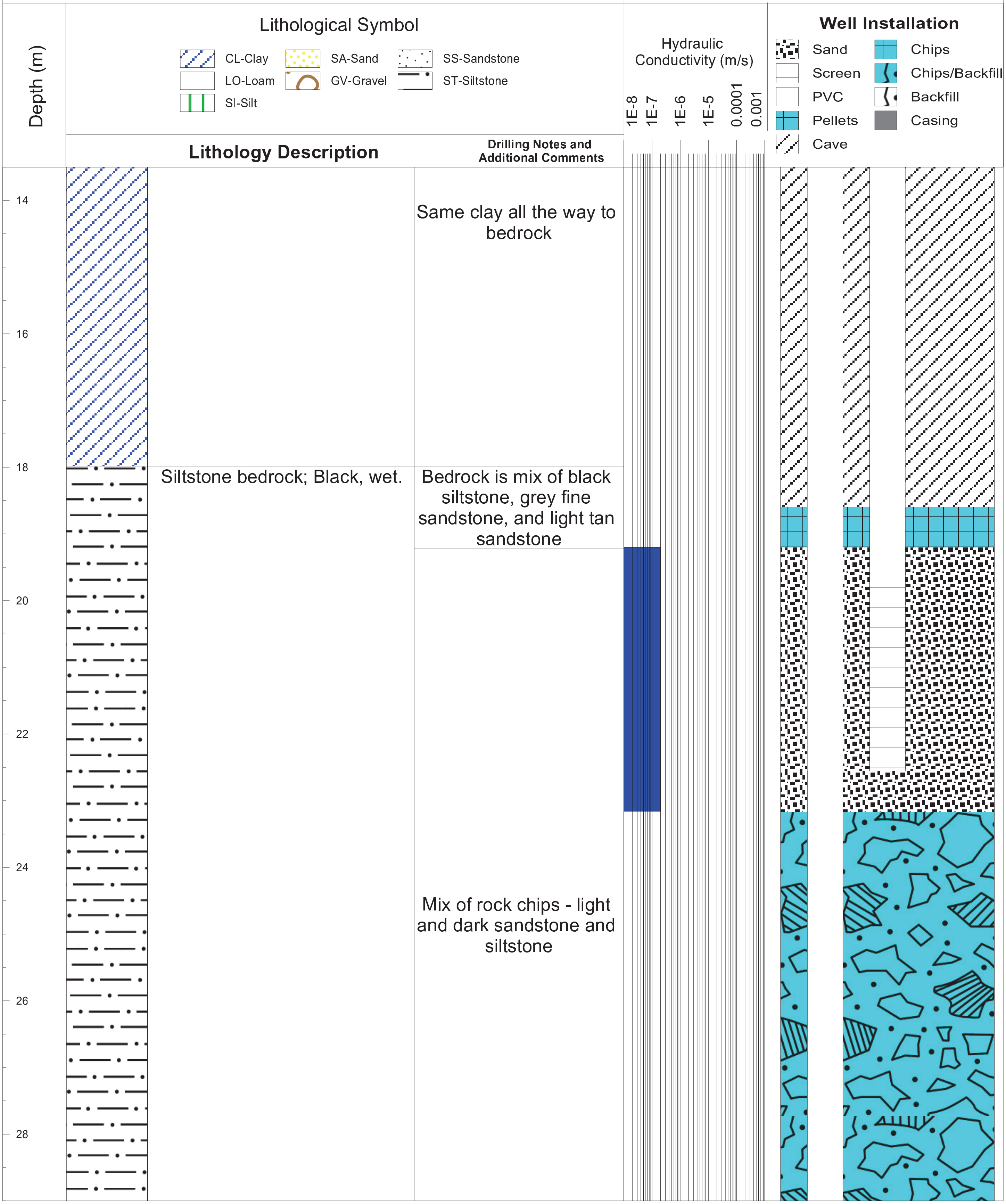
Lithological Symbol

- ▨ CL-Clay
- ☐ LO-Loam
- ▥ SI-Silt
- ⁘ SA-Sand
- ◯ GV-Gravel
- ⁘ SS-Sandstone
- ☰ ST-Siltstone

Hydraulic Conductivity (m/s)

Well Installation

- ▩ Sand
- ☐ Screen
- ☐ PVC
- ▦ Pellets
- ▨ Cave
- ▦ Chips
- ▦ Chips/Backfill
- ▩ Backfill
- ■ Casing



Lithology Description	**Drilling Notes and Additional Comments**
	Same clay all the way to bedrock
Siltstone bedrock; Black, wet.	Bedrock is mix of black siltstone, grey fine sandstone, and light tan sandstone
	Mix of rock chips - light and dark sandstone and siltstone

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Teck

HOLE ID: **MW-1**
LOCATION: CMO
PROJECT NO: 1CT017.098
DRILLING CONTRACTOR: AquaPro Drilling Ltd.
DRILLING TYPE: Air Rotary
LOGGED BY: LC
BORING DATE: 8/12/2015 to 8/13/2015

COORDINATES: 667969 E 5487521 N
DATUM: UTM Zone 11
GROUND ELEV (masl): 1500.44
COLLAR DIP: -90
EOH ELEV. (masl): 1463.25
TOTAL DEPTH (mbgs): 37.19
STICKUP HEIGHT (magl): 0.85
CASING STICKUP (magl): 0.85

Page: 3 of 3

PROJECT: Phase 1 Groundwater Monitoring
CLIENT: Teck Coal Ltd. - CMO
AREA: **Michel Creek**

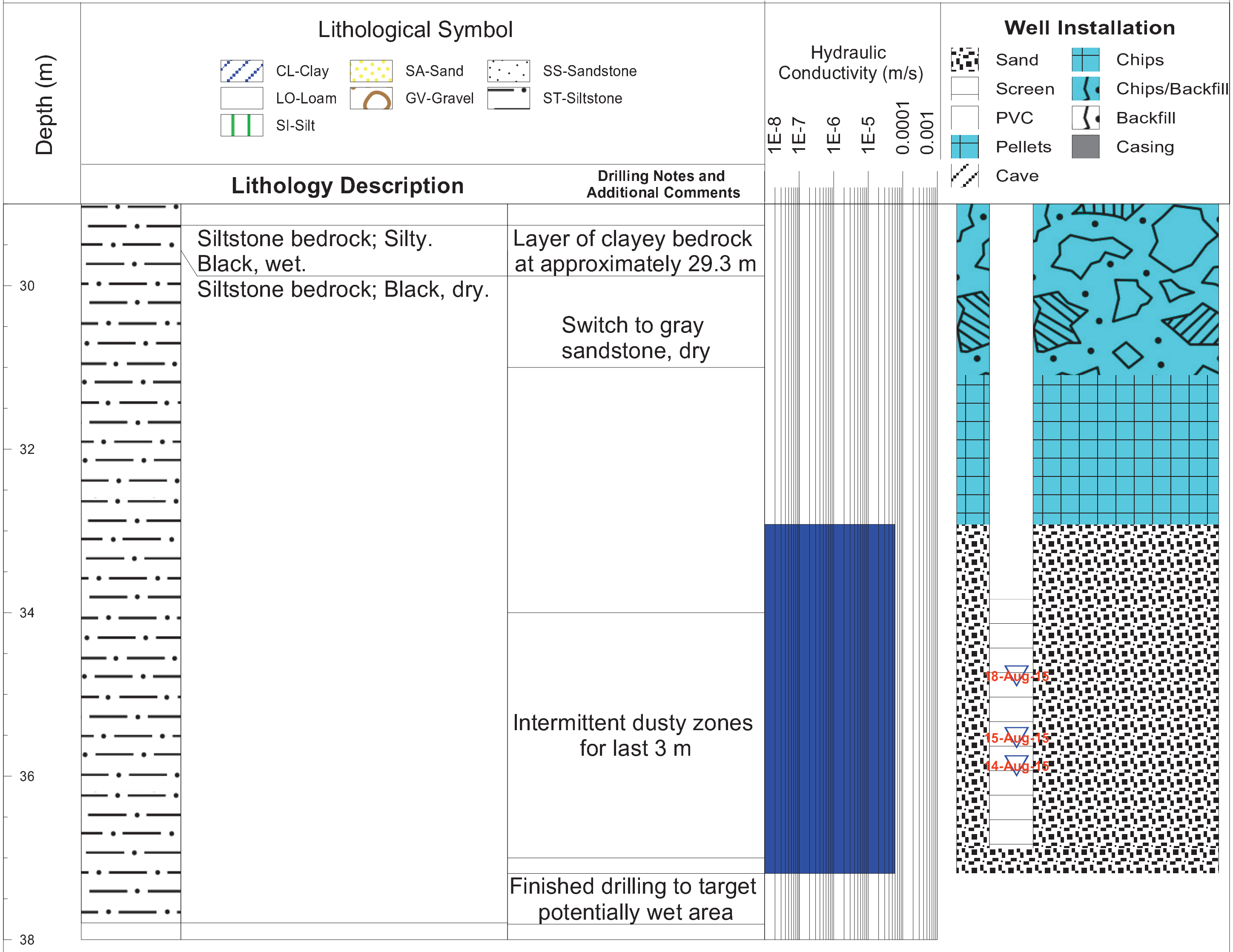
Lithological Symbol

- ▨ CL-Clay
- ☐ LO-Loam
- ▥ SI-Silt
- ▨ SA-Sand
- ○ GV-Gravel
- ⁘ SS-Sandstone
- ▭ ST-Siltstone

Hydraulic Conductivity (m/s)

Well Installation

- ▩ Sand
- ☐ Screen
- ☐ PVC
- ▦ Pellets
- ▨ Cave
- ▦ Chips
- ▨ Chips/Backfill
- ▨ Backfill
- ■ Casing



Lithology Description

Siltstone bedrock; Silty. Black, wet.

Siltstone bedrock; Black, dry.

Drilling Notes and Additional Comments

Layer of clayey bedrock at approximately 29.3 m

Switch to gray sandstone, dry

Intermittent dusty zones for last 3 m

Finished drilling to target potentially wet area

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Teck

HOLE ID: **MW-2-S**
LOCATION: CMO
PROJECT NO: 1CT017.098
DRILLING CONTRACTOR: AquaPro Drilling Ltd.
DRILLING TYPE: Air Rotary
LOGGED BY: LC
BORING DATE: 8/14/2015 to 8/14/2015

COORDINATES: 668335 E 5486754 N
DATUM: UTM Zone 11
GROUND ELEV (masl): 1515.56
COLLAR DIP: -90
EOH ELEV. (masl): 1510.68
TOTAL DEPTH (mbgs): 4.88
STICKUP HEIGHT (magl): 0.9
CASING STICKUP (magl): 0.9
AREA: **Michel Creek**

Page: 1 of 1

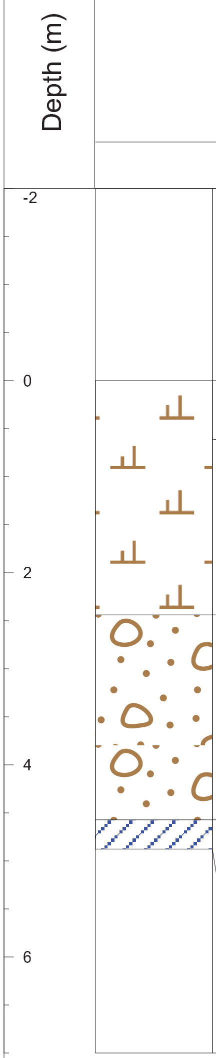
PROJECT: Phase 1 Groundwater Monitoring
CLIENT: Teck Coal Ltd. - CMO

Lithological Symbol

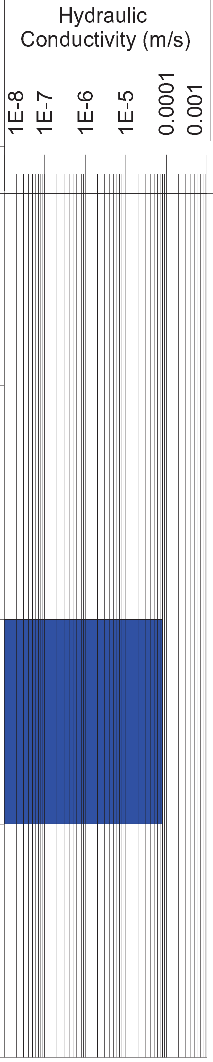
- ▨ CL-Clay
- ☐ LO-Loam
- ▥ SI-Silt
- ⁘ SA-Sand
- ○ GV-Gravel
- ⁘ SS-Sandstone
- ☐ ST-Siltstone

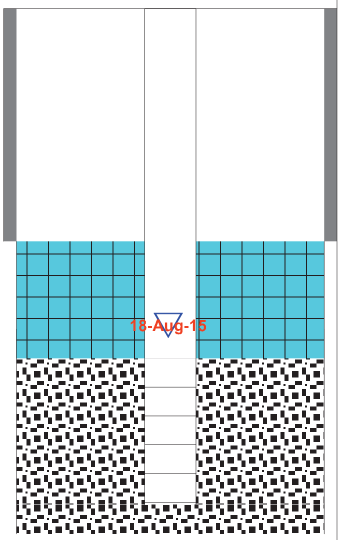
Well Installation

- ▦ Sand
- ☐ Screen
- ☐ PVC
- ▦ Pellets
- ▨ Cave
- ▦ Chips
- ▦ Chips/Backfill
- ☐ Backfill
- ■ Casing



Lithology Description	Drilling Notes and Additional Comments
Loam (OL-OH); Dark yellowish brown, dry.	Topsoil
Loam (OL-OH); Very dark brown, moist.	
Gravel and silt (GM); Some sand. Black, well graded, moist, sub-rounded, non-plastic, non-cohesive.	Silty gravel, moist
Clay and gravel (CL-CH); Some silt. Very dark brown, gap graded, wet, sub-rounded, medium-plasticity, cohesive.	





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Teck

HOLE ID:	**CM_MW7**	COORDINATES:	668833 E 5485919.6 N
LOCATION:	CMO	DATUM:	UTM Zone 11
PROJECT NO:	1CT017.114	GROUND ELEV (masl):	1755.77
DRILLING CONTRACTOR:	AquaPro Drilling Ltd.	COLLAR DIP:	-90
		EOH ELEV. (masl):	1668.72736
DRILLING TYPE:	Air Rotary	TOTAL DEPTH (mbgs):	78.27264
LOGGED BY:	DM/EH	STICKUP HEIGHT (magl):	0.81/0.81
BORING DATE:	4/20/2016 to 4/22/2016	CASING STICKUP (magl):	0.86 AREA: **34 Pit**

Page: 1 of 9

PROJECT: Phase 2 Groundwater Monitoring

CLIENT: Teck Coal Ltd. - CMO

Depth (m)

Lithological Symbol

▨	CL-Clay	▒	SA-Sand	▬	ST-Siltstone
■	CO-Coal	⌒	GV-Gravel	(	BO-Boulders
║	SI-Silt	∴	SS-Sandstone		

Lithology Description

Drilling Notes and Additional Comments

Geophysics

Gamma (API-GR)	Caliper (mm)	Resistivity (ohm-m)	Density Comp (g/cc)	Comp Density (g/cc)	BHC-DELT (usec/m)
0 50 100 150	90 140 190 240 290	0 250 500 750 1000	0 0.25 0.5 0.75 1	0 2 4	0 500 1000

Well Installation

▦	Sand	▪	Pellets
☐	Cable	▦	Chips
🟥	VWP	(	Cave
☐	Screen	■	Casing
☐	PVC	▒	Grout

-1

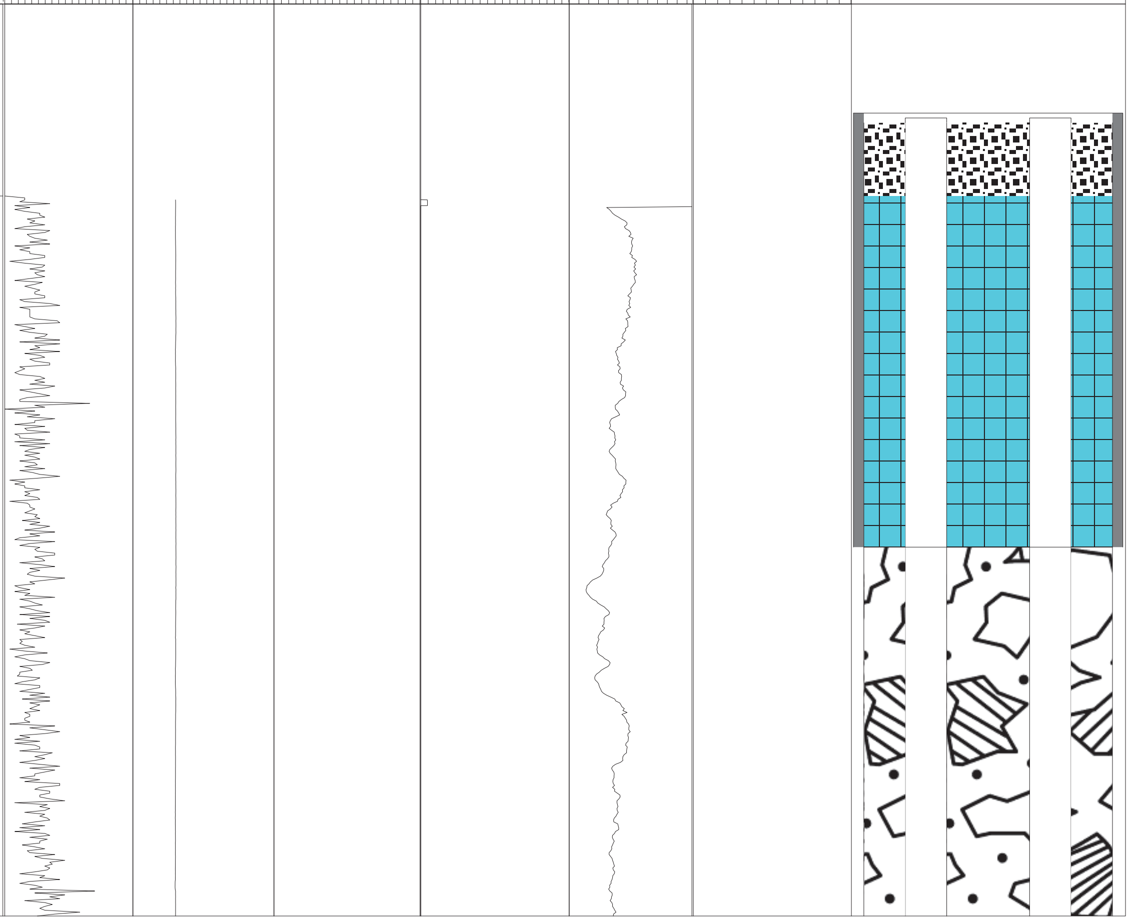
1

3

5

7

Sand and Gravel (SW/GM); Sand with gravel and silt, possible cobbles; Dark grey to brown, damp, moist, sub angular, non plastic



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Teck

HOLE ID:	**CM_MW7**	COORDINATES:	668833 E 5485919.6 N
LOCATION:	CMO	DATUM:	UTM Zone 11
PROJECT NO:	1CT017.114	GROUND ELEV (masl):	1755.77
DRILLING CONTRACTOR:	AquaPro Drilling Ltd.	COLLAR DIP:	-90
		EOH ELEV. (masl):	1668.72736
DRILLING TYPE:	Air Rotary	TOTAL DEPTH (mbgs):	78.27264
LOGGED BY:	DM/EH	STICKUP HEIGHT (magl):	0.81/0.81
BORING DATE:	4/20/2016 to 4/22/2016	CASING STICKUP (magl):	0.86 AREA: **34 Pit**

PROJECT: Phase 2 Groundwater Monitoring

CLIENT: Teck Coal Ltd. - CMO

Depth (m)

Lithological Symbol

▨	CL-Clay	▨	SA-Sand	▭	ST-Siltstone
■	CO-Coal	◠	GV-Gravel	(	BO-Boulders
▥	SI-Silt	⁘	SS-Sandstone		

Geophysics

Gamma (API-GR): 0 50 100 150

Caliper (mm): 90 140 190 240 290

Resistivity (ohm-m): 0 250 500 750 1000

Density Comp (g/cc): 0 0.25 0.5 0.75 1

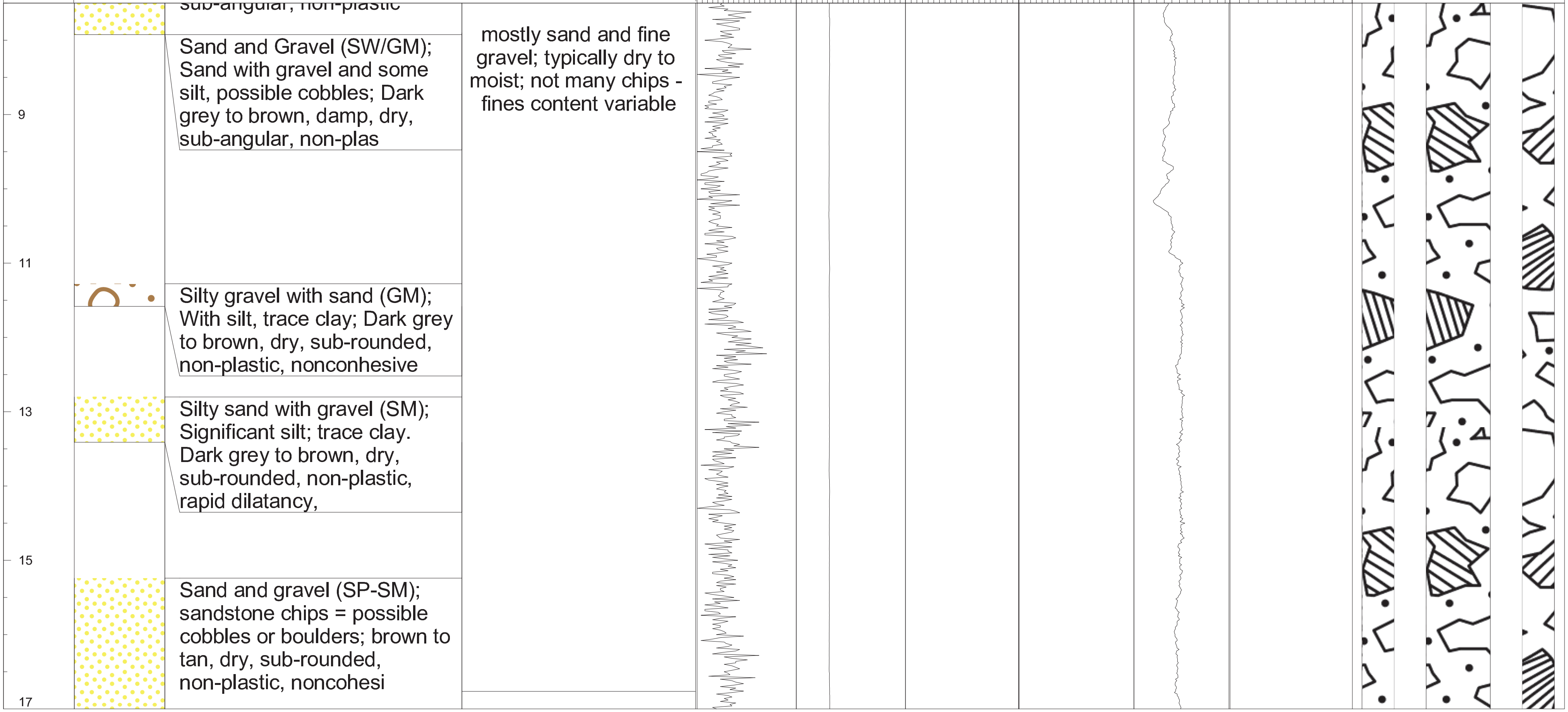
Comp Density (g/cc): 0 2 4

BHC-DELT (usec/m): 0 500 1000

Well Installation

▦	Sand	▨	Pellets
☐	Cable	▥	Chips
🟥	VWP	(	Cave
☐	Screen	■	Casing
☐	PVC	▩	Grout

Lithology Description	Drilling Notes and Additional Comments
sub-angular, non-plastic	
Sand and Gravel (SW/GM); Sand with gravel and some silt, possible cobbles; Dark grey to brown, damp, dry, sub-angular, non-plas	mostly sand and fine gravel; typically dry to moist; not many chips - fines content variable
Silty gravel with sand (GM); With silt, trace clay; Dark grey to brown, dry, sub-rounded, non-plastic, nonconhesive	
Silty sand with gravel (SM); Significant silt; trace clay. Dark grey to brown, dry, sub-rounded, non-plastic, rapid dilatancy,	
Sand and gravel (SP-SM); sandstone chips = possible cobbles or boulders; brown to tan, dry, sub-rounded, non-plastic, noncohesi	



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Teck

HOLE ID:	**CM_MW7**	COORDINATES:	668833 E 5485919.6 N
LOCATION:	CMO	DATUM:	UTM Zone 11
PROJECT NO:	1CT017.114	GROUND ELEV (masl):	1755.77
DRILLING CONTRACTOR:	AquaPro Drilling Ltd.	COLLAR DIP:	-90
		EOH ELEV. (masl):	1668.72736
DRILLING TYPE:	Air Rotary	TOTAL DEPTH (mbgs):	78.27264
LOGGED BY:	DM/EH	STICKUP HEIGHT (magl):	0.81/0.81
BORING DATE:	4/20/2016 to 4/22/2016	CASING STICKUP (magl):	0.86

Page: 3 of 9

PROJECT: Phase 2 Groundwater Monitoring

CLIENT: Teck Coal Ltd. - CMO

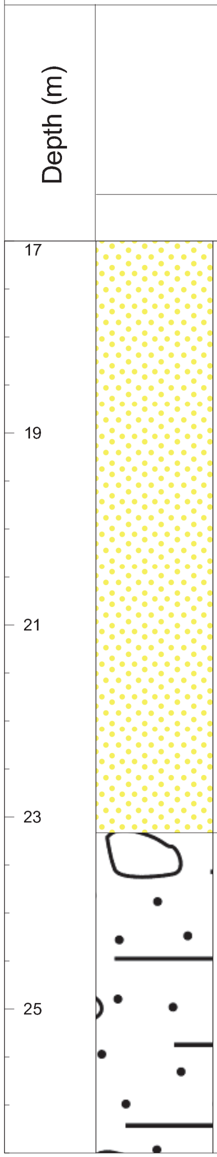
AREA: **34 Pit**

Lithological Symbol

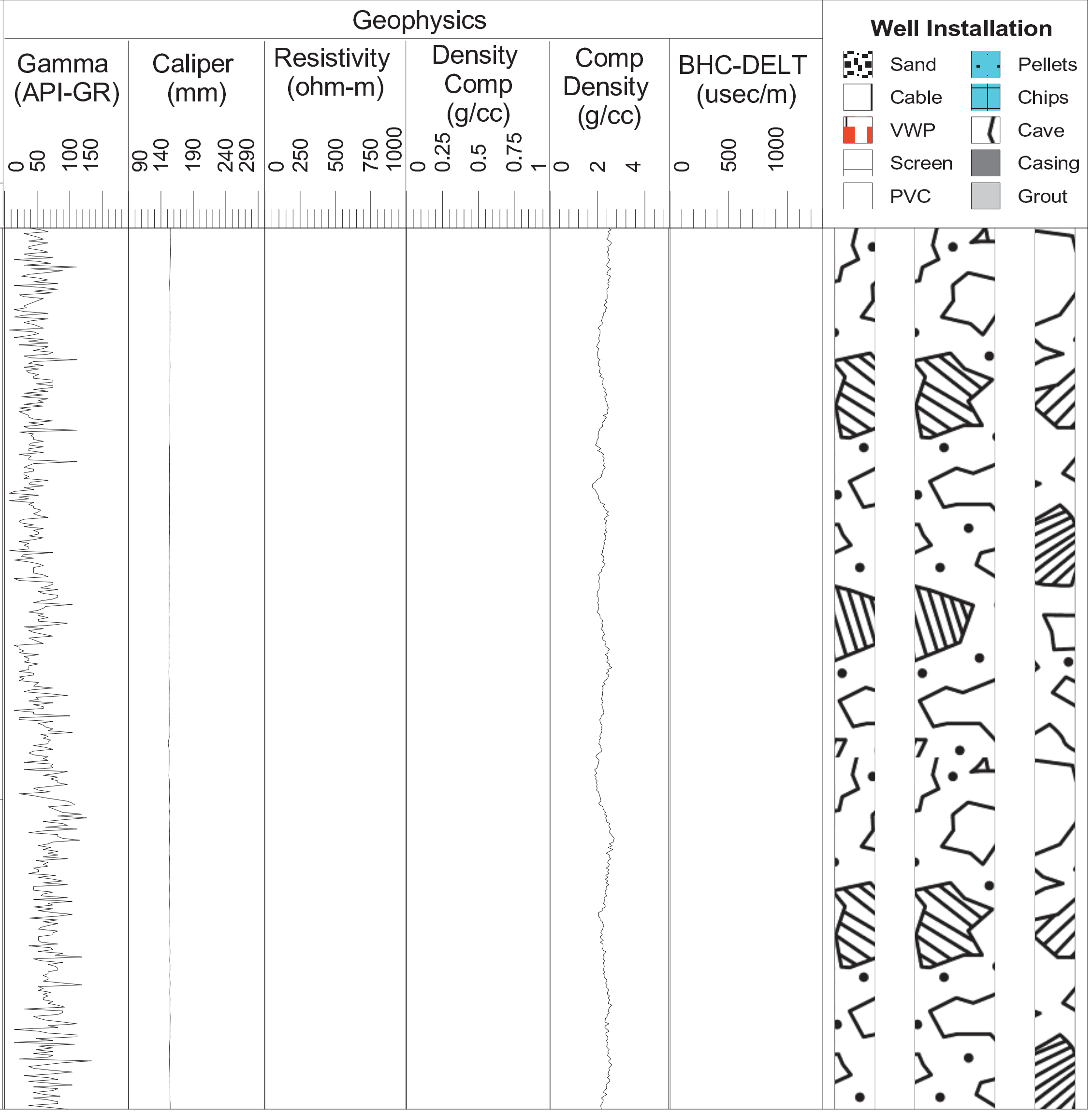
▨ CL-Clay	▨ SA-Sand	▭ ST-Siltstone
■ CO-Coal	▭ GV-Gravel	▭ BO-Boulders
▯ SI-Silt	▭ SS-Sandstone	

Well Installation

▨ Sand	🟦 Pellets
▭ Cable	🟦 Chips
🟥 VWP	▭ Cave
▭ Screen	■ Casing
▭ PVC	▭ Grout



Lithology Description	Drilling Notes and Additional Comments
	similar to above; variable moisture; suspect cobbles getting pushed to sides
Boulders or cobbles	



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Teck

HOLE ID:	**CM_MW7**	COORDINATES:	668833 E 5485919.6 N
LOCATION:	CMO	DATUM:	UTM Zone 11
PROJECT NO:	1CT017.114	GROUND ELEV (masl):	1755.77
DRILLING CONTRACTOR:	AquaPro Drilling Ltd.	COLLAR DIP:	-90
		EOH ELEV. (masl):	1668.72736
DRILLING TYPE:	Air Rotary	TOTAL DEPTH (mbgs):	78.27264
LOGGED BY:	DM/EH	STICKUP HEIGHT (magl):	0.81/0.81
BORING DATE:	4/20/2016 to 4/22/2016	CASING STICKUP (magl):	0.86

Page: 4 of 9

AREA: **34 Pit**

PROJECT: Phase 2 Groundwater Monitoring

CLIENT: Teck Coal Ltd. - CMO

Depth (m)

Lithological Symbol

▨ CL-Clay	▨ SA-Sand	▨ ST-Siltstone
■ CO-Coal	▨ GV-Gravel	▨ BO-Boulders
▨ SI-Silt	▨ SS-Sandstone	

Geophysics

Gamma (API-GR): 0 50 100 150

Caliper (mm): 90 140 190 240 290

Resistivity (ohm-m): 0 250 500 750 1000

Density Comp (g/cc): 0 0.25 0.5 0.75 1

Comp Density (g/cc): 0 2 4

BHC-DELT (usec/m): 0 500 1000

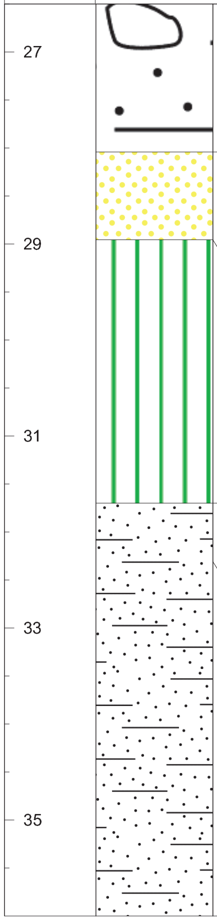
Well Installation

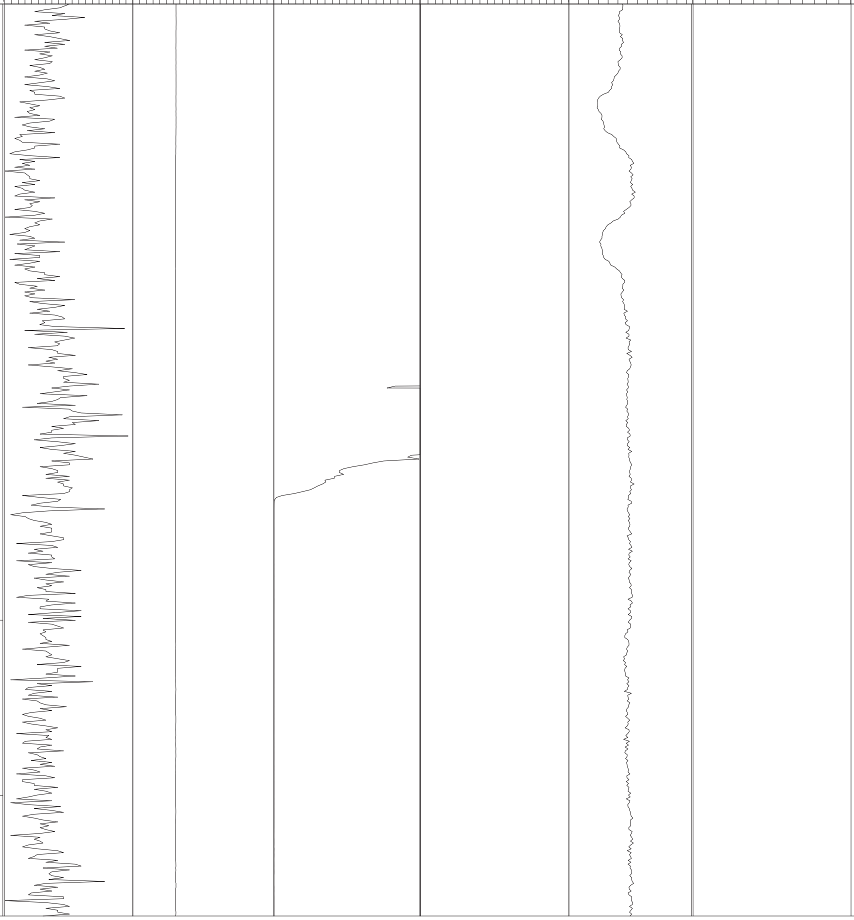
▨ Sand	▨ Pellets
☐ Cable	▨ Chips
🟥 VWP	▨ Cave
☐ Screen	■ Casing
☐ PVC	▨ Grout

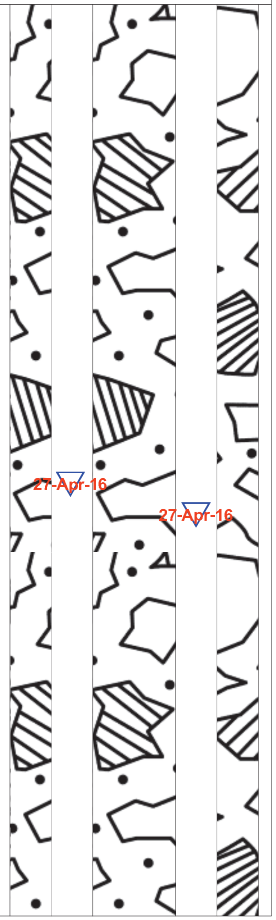
Lithology Description

Drilling Notes and Additional Comments

Depth (m)	Lithology Description	Drilling Notes and Additional Comments
27		
28–29	Sand and gravel (SP-SM); brown to tan, dry, sub-rounded, non-plastic, noncohesive	
29–31	Sandy silt (till?); some gravel, light grey, dry, sub-rounded, non-plastic, noncohesive	
31	Weathered bedrock - silt size and rock flour, orange-brown to brown, dry	
33–35	Sandstone bedrock, light grey to tan, dry	possibly rock flour and ground up bedrock - difficult to be certain







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Teck

HOLE ID:	**CM_MW7**	COORDINATES:	668833 E 5485919.6 N
LOCATION:	CMO	DATUM:	UTM Zone 11
PROJECT NO:	1CT017.114	GROUND ELEV (masl):	1755.77
DRILLING CONTRACTOR:	AquaPro Drilling Ltd.	COLLAR DIP:	-90
		EOH ELEV. (masl):	1668.72736
DRILLING TYPE:	Air Rotary	TOTAL DEPTH (mbgs):	78.27264
LOGGED BY:	DM/EH	STICKUP HEIGHT (magl):	0.81/0.81
BORING DATE:	4/20/2016 to 4/22/2016	CASING STICKUP (magl):	0.86 AREA: **34 Pit**

PROJECT: Phase 2 Groundwater Monitoring

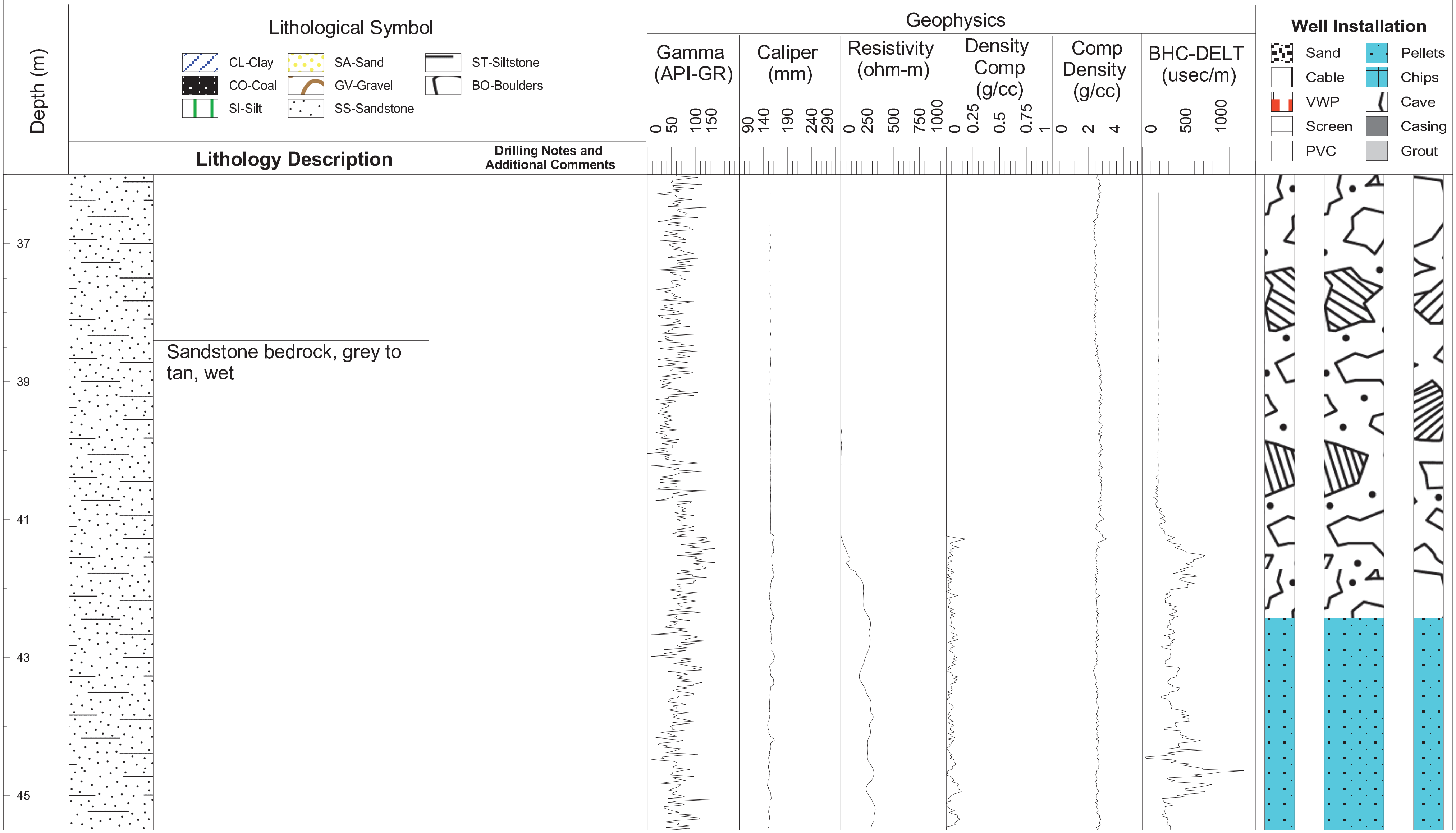
CLIENT: Teck Coal Ltd. - CMO

Lithological Symbol

▨ CL-Clay	SA-Sand	ST-Siltstone
■ CO-Coal	GV-Gravel	BO-Boulders
SI-Silt	SS-Sandstone	

Well Installation

Sand	Pellets
Cable	Chips
VWP	Cave
Screen	Casing
PVC	Grout



Lithology Description

Drilling Notes and Additional Comments

Sandstone bedrock, grey to tan, wet

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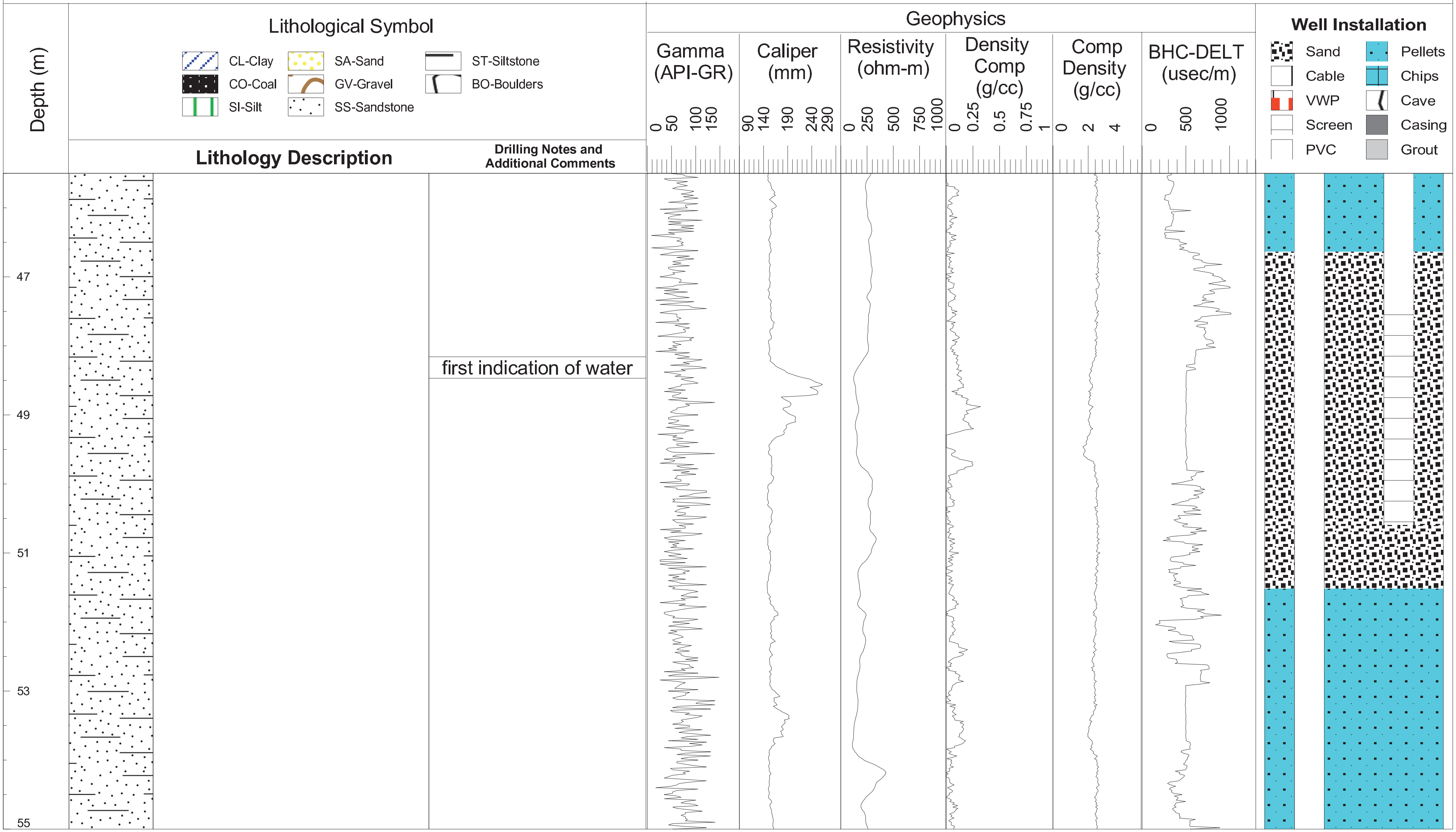
Teck

PROJECT: Phase 2 Groundwater Monitoring
CLIENT: Teck Coal Ltd. - CMO

HOLE ID: **CM_MW7**
LOCATION: CMO
PROJECT NO: 1CT017.114
DRILLING CONTRACTOR: AquaPro Drilling Ltd.
DRILLING TYPE: Air Rotary
LOGGED BY: DM/EH
BORING DATE: 4/20/2016 to 4/22/2016

COORDINATES: 668833 E 5485919.6 N
DATUM: UTM Zone 11
GROUND ELEV (masl): 1755.77
COLLAR DIP: -90
EOH ELEV. (masl): 1668.72736
TOTAL DEPTH (mbgs): 78.27264
STICKUP HEIGHT (magl): 0.81/0.81
CASING STICKUP (magl): 0.86 AREA: **34 Pit**



first indication of water

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Teck

HOLE ID:	**CM_MW7**	COORDINATES:	668833 E 5485919.6 N
LOCATION:	CMO	DATUM:	UTM Zone 11
PROJECT NO:	1CT017.114	GROUND ELEV (masl):	1755.77
DRILLING CONTRACTOR:	AquaPro Drilling Ltd.	COLLAR DIP:	-90
		EOH ELEV. (masl):	1668.72736
DRILLING TYPE:	Air Rotary	TOTAL DEPTH (mbgs):	78.27264
LOGGED BY:	DM/EH	STICKUP HEIGHT (magl):	0.81/0.81
BORING DATE:	4/20/2016 to 4/22/2016	CASING STICKUP (magl):	0.86

Page: 7 of 9

PROJECT: Phase 2 Groundwater Monitoring

CLIENT: Teck Coal Ltd. - CMO

AREA: **34 Pit**

Lithological Symbol

▨ CL-Clay	▨ SA-Sand	▭ ST-Siltstone
■ CO-Coal	▨ GV-Gravel	▭ BO-Boulders
▥ SI-Silt	▨ SS-Sandstone	

Geophysics

Gamma (API-GR)	Caliper (mm)	Resistivity (ohm-m)	Density Comp (g/cc)	Comp Density (g/cc)	BHC-DELT (usec/m)
0 50 100 150	90 140 190 240 290	0 250 500 750 1000	0 0.25 0.5 0.75 1	0 2 4	0 500 1000

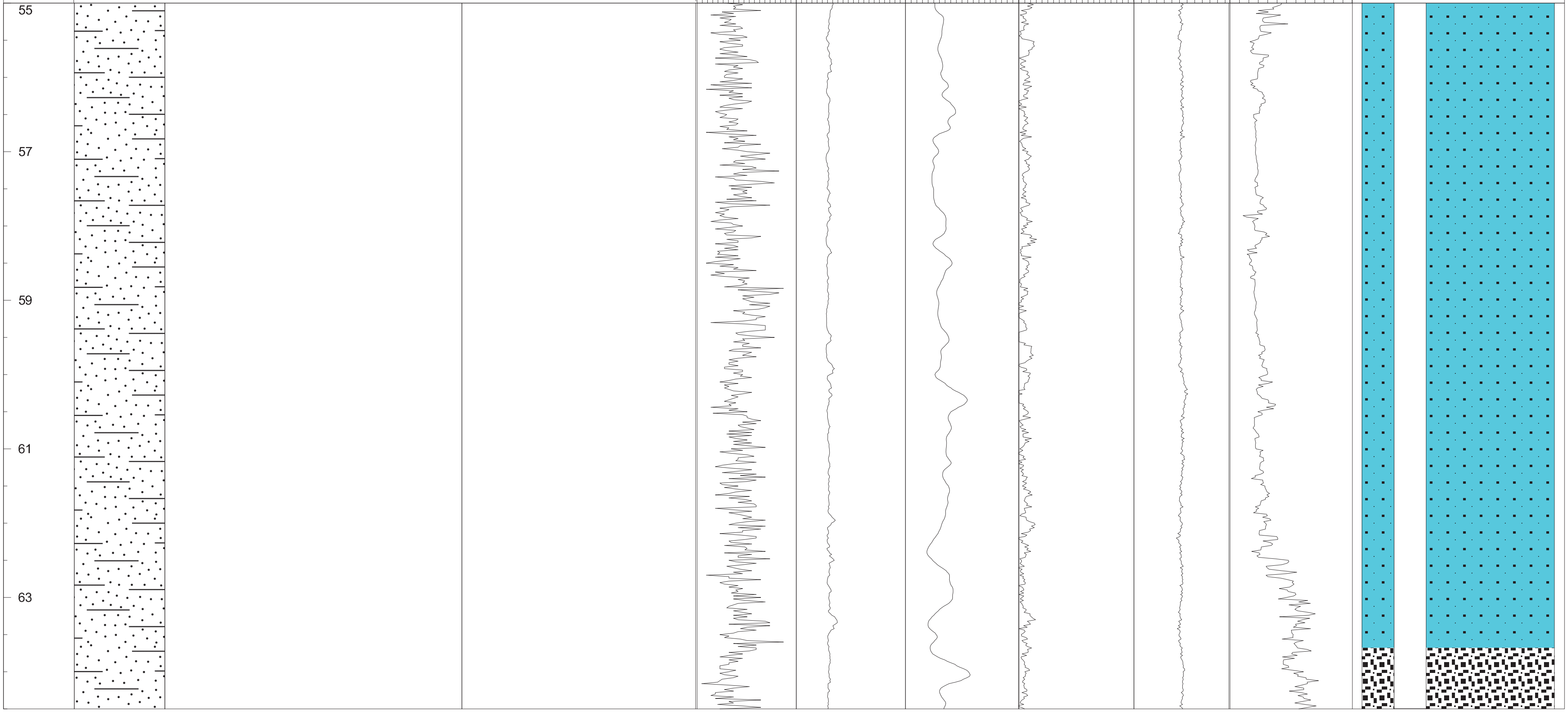
Well Installation

▨ Sand	▨ Pellets
☐ Cable	▨ Chips
▨ VWP	▭ Cave
☐ Screen	■ Casing
☐ PVC	▨ Grout

Depth (m)

Lithology Description

Drilling Notes and Additional Comments



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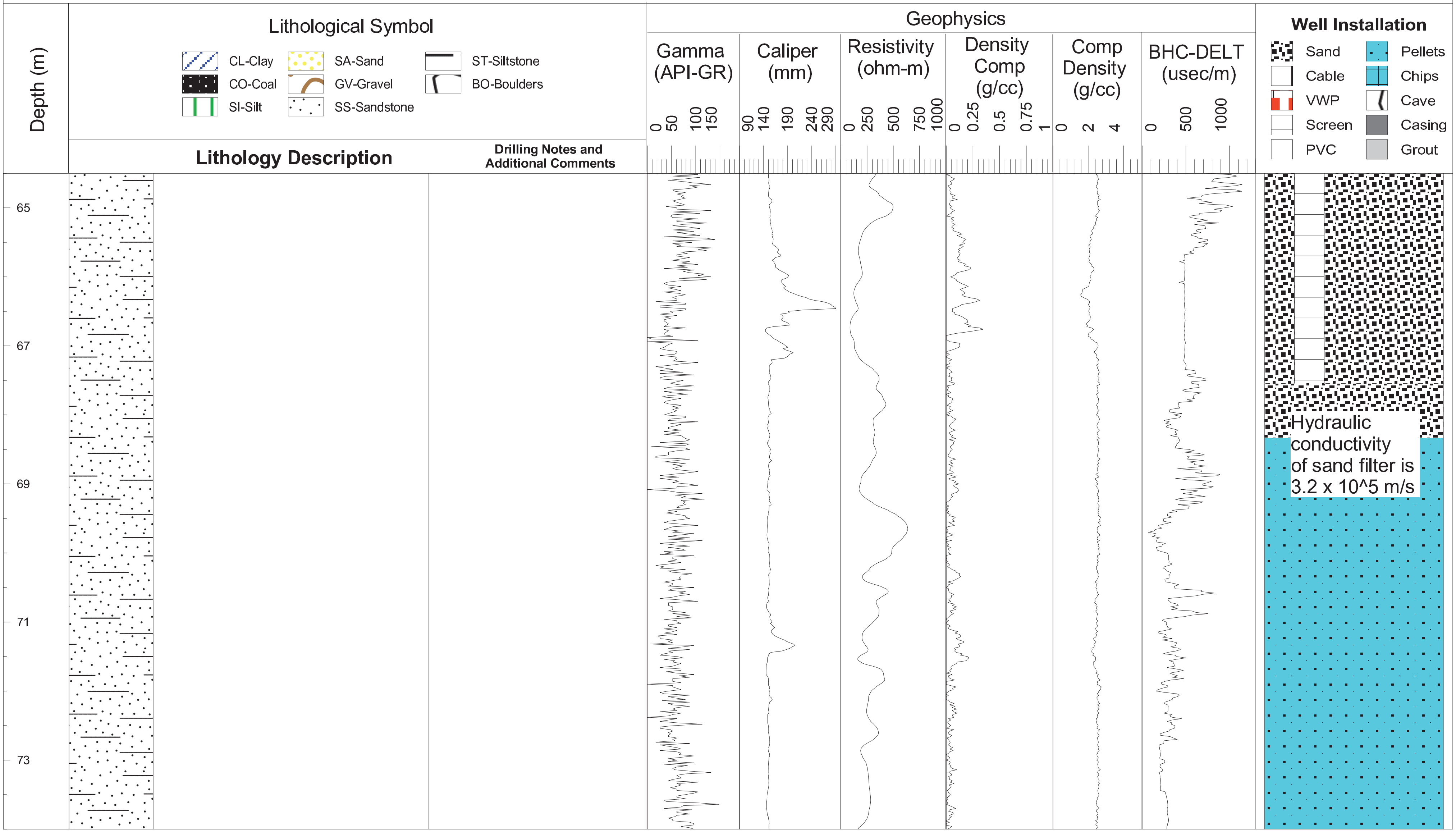
Teck

PROJECT: Phase 2 Groundwater Monitoring
CLIENT: Teck Coal Ltd. - CMO

HOLE ID:	**CM_MW7**	COORDINATES:	668833 E 5485919.6 N
LOCATION:	CMO	DATUM:	UTM Zone 11
PROJECT NO:	1CT017.114	GROUND ELEV (masl):	1755.77
DRILLING CONTRACTOR:	AquaPro Drilling Ltd.	COLLAR DIP:	-90
		EOH ELEV. (masl):	1668.72736
DRILLING TYPE:	Air Rotary	TOTAL DEPTH (mbgs):	78.27264
LOGGED BY:	DM/EH	STICKUP HEIGHT (magl):	0.81/0.81
BORING DATE:	4/20/2016 to 4/22/2016	CASING STICKUP (magl):	0.86 AREA: **34 Pit**



Lithological Symbol

- ▨ CL-Clay
- ■ CO-Coal
- ▥ SI-Silt
- ⁘ SA-Sand
- ⌒ GV-Gravel
- ⁖ SS-Sandstone
- ▬ ST-Siltstone
- (BO-Boulders

Well Installation

- ▩ Sand
- ☐ Cable
- 🟥 VWP
- ☐ Screen
- ☐ PVC
- 🟦 Pellets
- ⊞ Chips
- (Cave
- ■ Casing
- ▒ Grout

Hydraulic conductivity of sand filter is 3.2 x 10^5 m/s

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Teck

HOLE ID:	**CM_MW7**	COORDINATES:	668833 E 5485919.6 N
LOCATION:	CMO	DATUM:	UTM Zone 11
PROJECT NO:	1CT017.114	GROUND ELEV (masl):	1755.77
DRILLING CONTRACTOR:	AquaPro Drilling Ltd.	COLLAR DIP:	-90
		EOH ELEV. (masl):	1668.72736
DRILLING TYPE:	Air Rotary	TOTAL DEPTH (mbgs):	78.27264
LOGGED BY:	DM/EH	STICKUP HEIGHT (magl):	0.81/0.81
BORING DATE:	4/20/2016 to 4/22/2016	CASING STICKUP (magl):	0.86 AREA: **34 Pit**

Page: 9 of 9

PROJECT: Phase 2 Groundwater Monitoring

CLIENT: Teck Coal Ltd. - CMO

Depth (m)

Lithological Symbol

▨ CL-Clay	▨ SA-Sand	▨ ST-Siltstone
■ CO-Coal	▨ GV-Gravel	▨ BO-Boulders
▨ SI-Silt	▨ SS-Sandstone	

Lithology Description

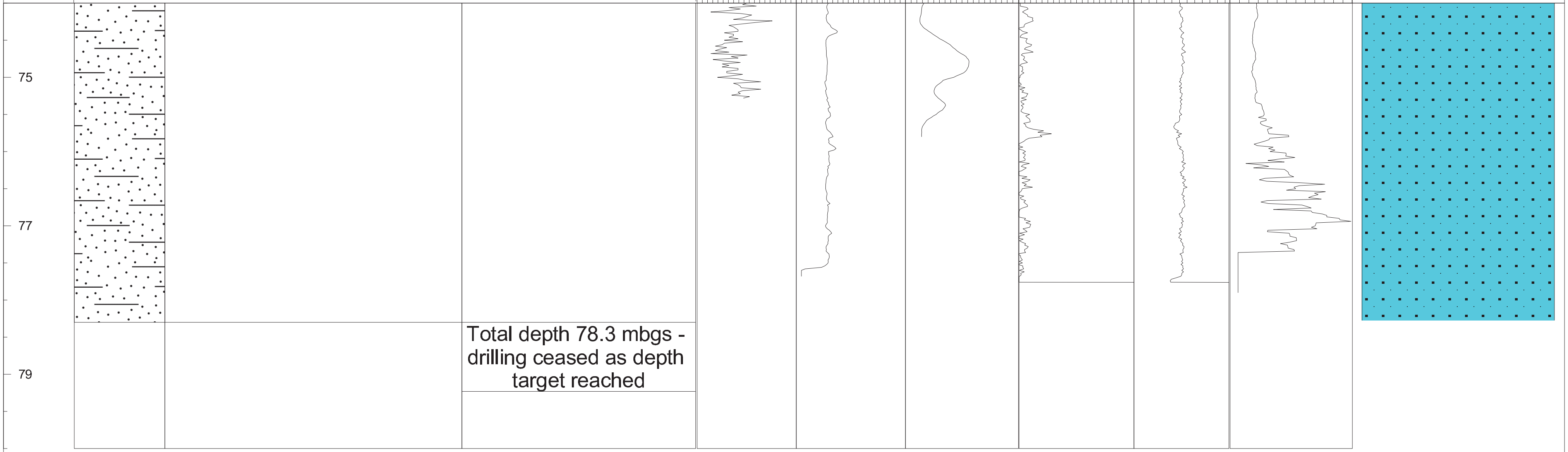
Drilling Notes and Additional Comments

Geophysics

Gamma (API-GR) | Caliper (mm) | Resistivity (ohm-m) | Density Comp (g/cc) | Comp Density (g/cc) | BHC-DELT (usec/m)

Well Installation

▨ Sand	▨ Pellets
☐ Cable	▨ Chips
🟥 VWP	▨ Cave
☐ Screen	■ Casing
☐ PVC	▨ Grout



Total depth 78.3 mbgs - drilling ceased as depth target reached

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Teck

	HOLE ID:	**CM_MW8**	COORDINATES:	668878.2 E5484957 N
	LOCATION:	CMO	DATUM:	UTM Zone 11
	PROJECT NO:	1CT017.114	GROUND ELEV (masl):	1847.31
	DRILLING CONTRACTOR:	AquaPro Drilling Ltd.	COLLAR DIP:	-90
			EOH ELEV. (masl):	1729.98
	DRILLING TYPE:	Air Rotary	TOTAL DEPTH (mbgs):	104.02
PROJECT: Phase 2 Groundwater Monitoring	LOGGED BY:	EH	STICKUP HEIGHT (magl):	0.68
CLIENT: Teck Coal Ltd. - CMO	BORING DATE:	4/23/2016 to 4/26/2016	CASING STICKUP (magl):	0.72

Page: 1 of 7

AREA: **37 Pit**

Lithological Symbol

▨	CL-Clay	▨	SA-Sand	▭	ST-Siltstone
■	CO-Coal	▨	GV-Gravel	▭	BO-Boulders
▥	SI-Silt	▨	SS-Sandstone		

Hydraulic Conductivity (m/s)

1E-8 1E-7 1E-6 1E-5 0.0001 0.001

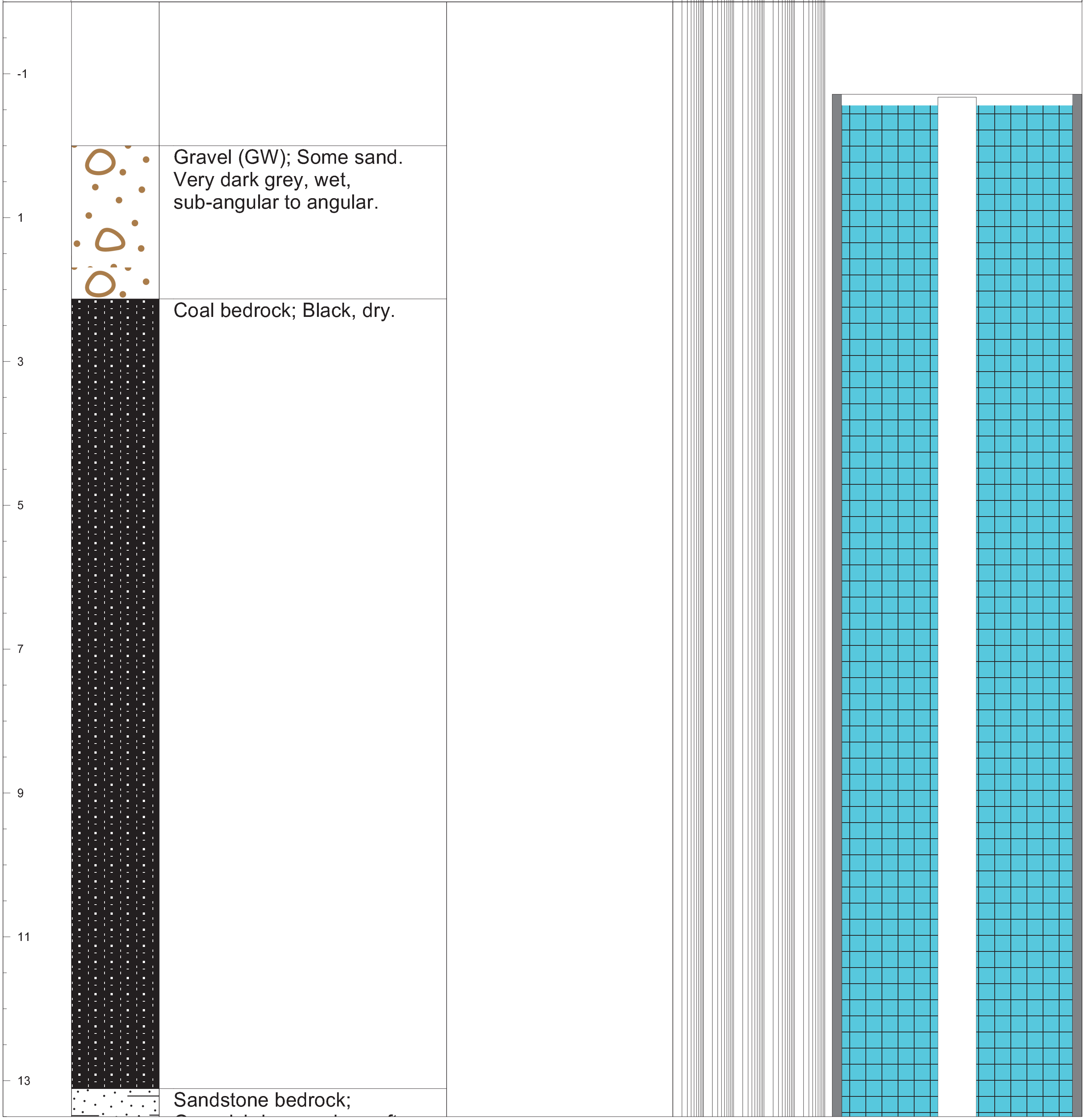
Well Installation

▨	Sand	🟦	Pellets
▯	Cable	🟦	Chips
▯	VWP	▯	Cave
▯	Screen	■	Casing
▯	PVC	▨	Grout

Depth (m)

Lithology Description

Drilling Notes and Additional Comments



Gravel (GW); Some sand. Very dark grey, wet, sub-angular to angular.

Coal bedrock; Black, dry.

Sandstone bedrock;

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Teck

HOLE ID:	**CM_MW8**	COORDINATES:	668878.2 E5484957 N
LOCATION:	CMO	DATUM:	UTM Zone 11
PROJECT NO:	1CT017.114	GROUND ELEV (masl):	1847.31
DRILLING CONTRACTOR:	AquaPro Drilling Ltd.	COLLAR DIP:	-90
		EOH ELEV. (masl):	1729.98
DRILLING TYPE:	Air Rotary	TOTAL DEPTH (mbgs):	104.02
LOGGED BY:	EH	STICKUP HEIGHT (magl):	0.68
BORING DATE:	4/23/2016 to 4/26/2016	CASING STICKUP (magl):	0.72

PROJECT: Phase 2 Groundwater Monitoring

CLIENT: Teck Coal Ltd. - CMO

AREA: **37 Pit**

Depth (m)

Lithological Symbol

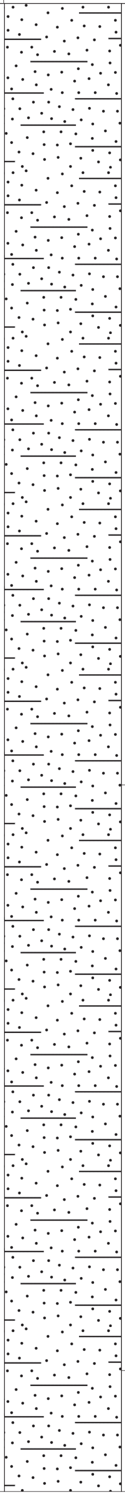
CL-Clay	SA-Sand	ST-Siltstone
CO-Coal	GV-Gravel	BO-Boulders
SI-Silt	SS-Sandstone	

Hydraulic Conductivity (m/s)

1E-8 1E-7 1E-6 1E-5 0.0001 0.001

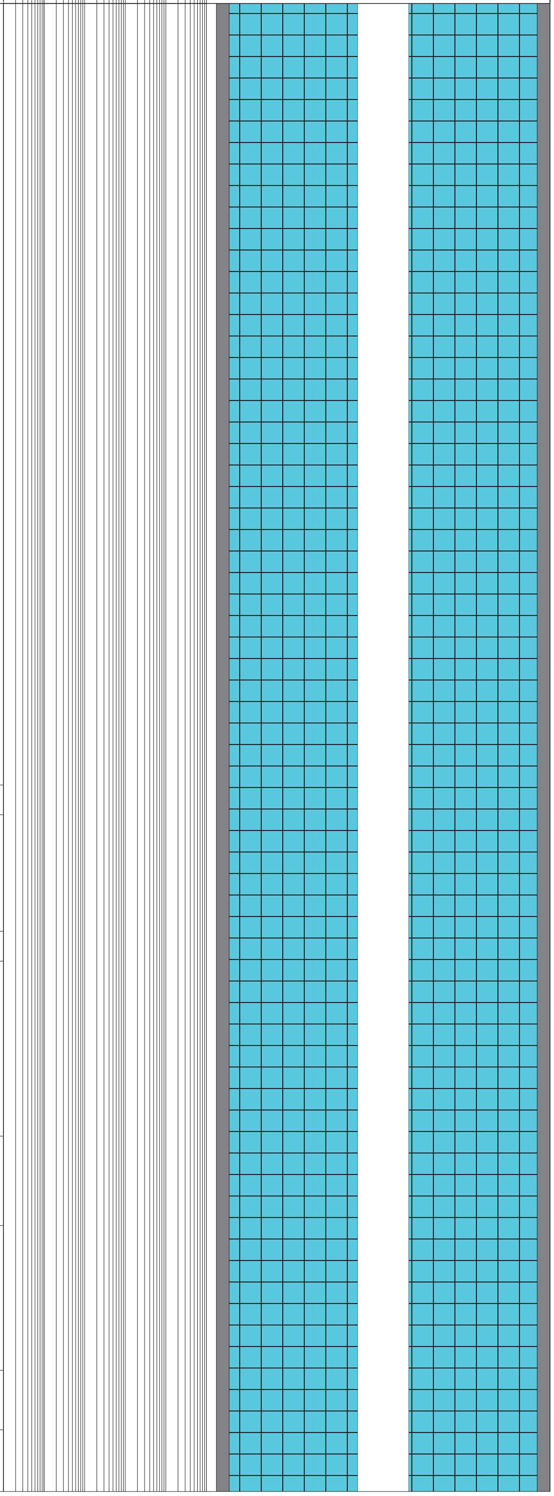
Well Installation

Sand	Pellets
Cable	Chips
VWP	Cave
Screen	Casing
PVC	Grout



Lithology Description	**Drilling Notes and Additional Comments**
Orangish-brown, dry, soft.	
Sandstone bedrock; Orangish-brown, wet, soft.	Cuttings moist.
	Cuttings wet.
	Bit plugging slightly, had to start drilling with water.
Sandstone bedrock; Orangish-brown, dry, soft.	Drilling with water ceases.

15
17
19
21
23
25
27
29



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Teck

HOLE ID: **CM_MW8**
LOCATION: CMO
PROJECT NO: 1CT017.114
DRILLING CONTRACTOR: AquaPro Drilling Ltd.
DRILLING TYPE: Air Rotary
LOGGED BY: EH
BORING DATE: 4/23/2016 to 4/26/2016

PROJECT: Phase 2 Groundwater Monitoring
CLIENT: Teck Coal Ltd. - CMO

COORDINATES: 668878.2 E 5484957 N
DATUM: UTM Zone 11
GROUND ELEV (masl): 1847.31
COLLAR DIP: -90
EOH ELEV. (masl): 1729.98
TOTAL DEPTH (mbgs): 104.02
STICKUP HEIGHT (magl): 0.68
CASING STICKUP (magl): 0.72
AREA: **37 Pit**

Depth (m)

Lithological Symbol

▨ CL-Clay	SA-Sand	ST-Siltstone
■ CO-Coal	GV-Gravel	BO-Boulders
SI-Silt	SS-Sandstone	

Hydraulic Conductivity (m/s)

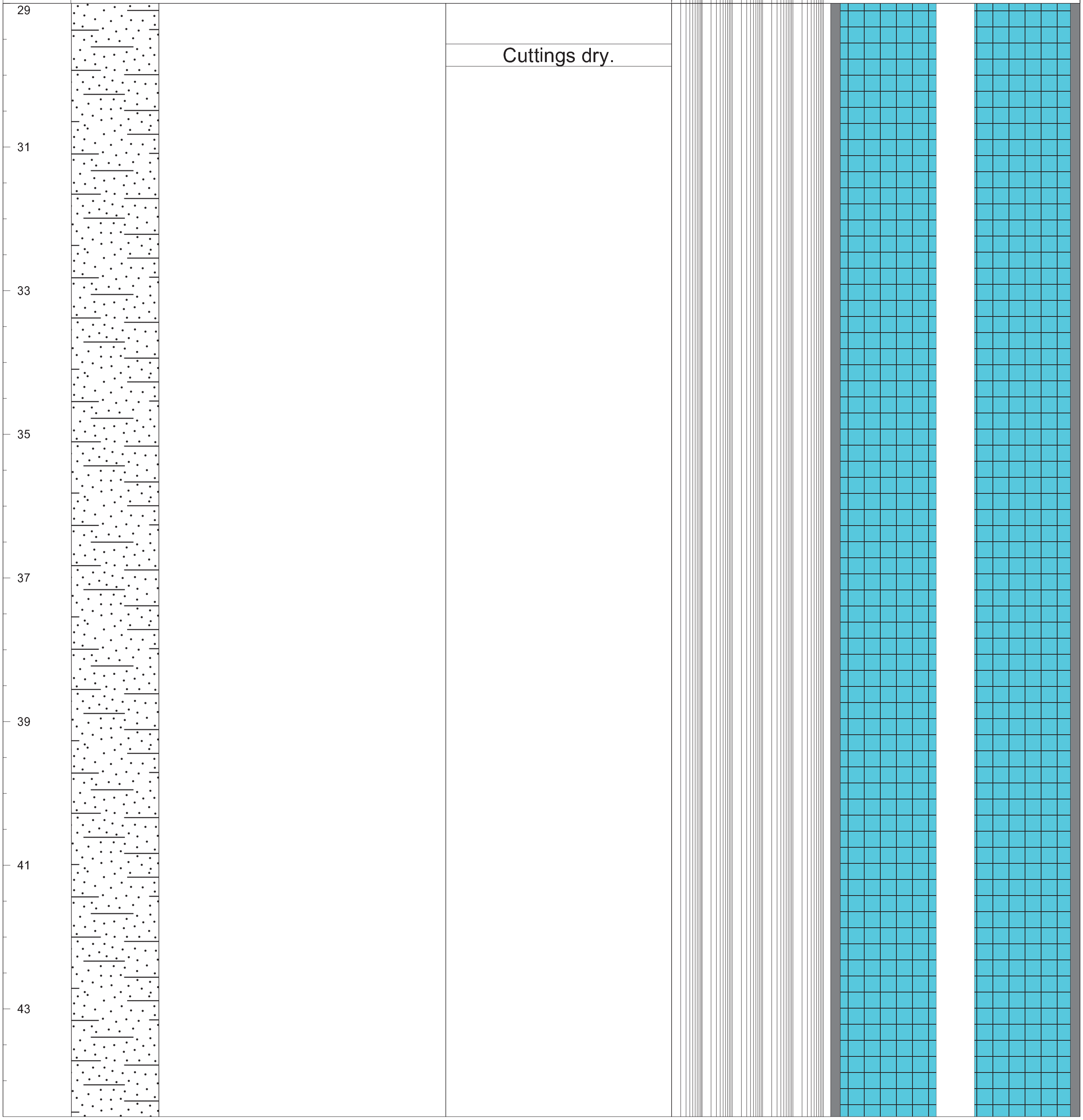
1E-8 1E-7 1E-6 1E-5 0.0001 0.001

Well Installation

Sand	Pellets
Cable	Chips
VWP	Cave
Screen	Casing
PVC	Grout

Lithology Description

Drilling Notes and Additional Comments



Cuttings dry.

HOLE ID:	**CM_MW8**	COORDINATES:	668878.2 E5484957 N
LOCATION:	CMO	DATUM:	UTM Zone 11
PROJECT NO:	1CT017.114	GROUND ELEV (masl):	1847.31
DRILLING CONTRACTOR:	AquaPro Drilling Ltd.	COLLAR DIP:	-90
		EOH ELEV. (masl):	1729.98
DRILLING TYPE:	Air Rotary	TOTAL DEPTH (mbgs):	104.02
LOGGED BY:	EH	STICKUP HEIGHT (magl):	0.68
BORING DATE:	4/23/2016 to 4/26/2016	CASING STICKUP (magl):	0.72

PROJECT: Phase 2 Groundwater Monitoring

CLIENT: Teck Coal Ltd. - CMO

AREA: **37 Pit**

Lithological Symbol

- CL-Clay
- CO-Coal
- SI-Silt
- SA-Sand
- GV-Gravel
- SS-Sandstone
- ST-Siltstone
- BO-Boulders

Hydraulic Conductivity (m/s)

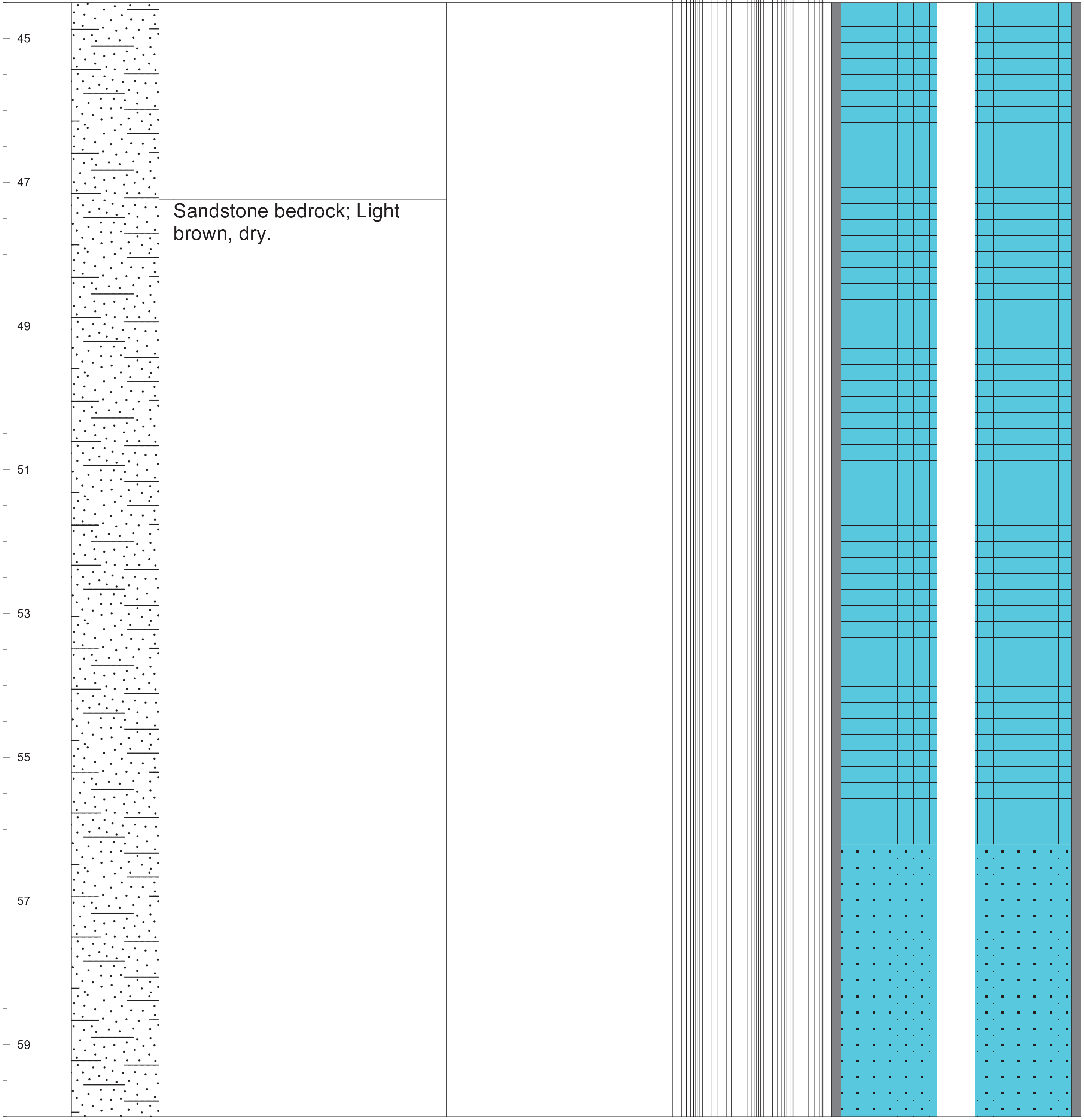
Well Installation

- Sand
- Cable
- VWP
- Screen
- PVC
- Pellets
- Chips
- Cave
- Casing
- Grout

Depth (m)

Lithology Description

Drilling Notes and Additional Comments



Sandstone bedrock; Light brown, dry.

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Teck

HOLE ID: **CM_MW8**
LOCATION: CMO
PROJECT NO: 1CT017.114
DRILLING CONTRACTOR: AquaPro Drilling Ltd.
DRILLING TYPE: Air Rotary
PROJECT: Phase 2 Groundwater Monitoring
LOGGED BY: EH
CLIENT: Teck Coal Ltd. - CMO
BORING DATE: 4/23/2016 to 4/26/2016

COORDINATES: 668878.2 E5484957 N
DATUM: UTM Zone 11
GROUND ELEV (masl): 1847.31
COLLAR DIP: -90
EOH ELEV. (masl): 1729.98
TOTAL DEPTH (mbgs): 104.02
STICKUP HEIGHT (magl): 0.68
CASING STICKUP (magl): 0.72
AREA: **37 Pit**

Depth (m)

Lithological Symbol

▨ CL-Clay	▨ SA-Sand	▭ ST-Siltstone
■ CO-Coal	▨ GV-Gravel	▭ BO-Boulders
▥ SI-Silt	▨ SS-Sandstone	

Hydraulic Conductivity (m/s)

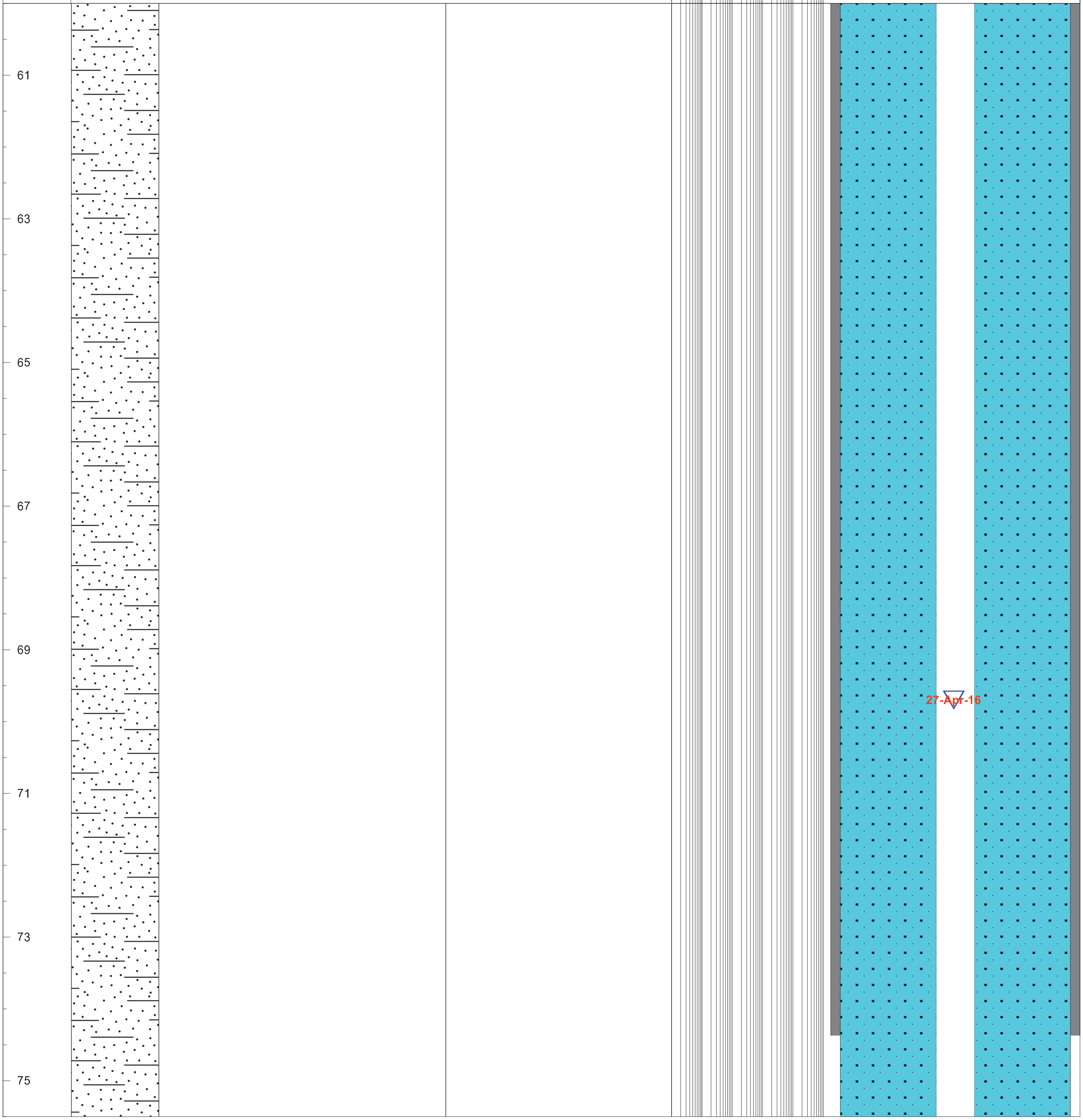
1E-8 1E-7 1E-6 1E-5 0.0001 0.001

Well Installation

▨ Sand	🟦 Pellets
▯ Cable	▦ Chips
▯ VWP	▯ Cave
▭ Screen	■ Casing
▭ PVC	▩ Grout

Lithology Description

Drilling Notes and Additional Comments



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Teck

HOLE ID:	**CM_MW8**	COORDINATES:	668878.2 E5484957 N
LOCATION:	CMO	DATUM:	UTM Zone 11
PROJECT NO:	1CT017.114	GROUND ELEV (masl):	1847.31
DRILLING CONTRACTOR:	AquaPro Drilling Ltd.	COLLAR DIP:	-90
		EOH ELEV. (masl):	1729.98
DRILLING TYPE:	Air Rotary	TOTAL DEPTH (mbgs):	104.02
LOGGED BY:	EH	STICKUP HEIGHT (magl):	0.68
BORING DATE:	4/23/2016 to 4/26/2016	CASING STICKUP (magl):	0.72

PROJECT: Phase 2 Groundwater Monitoring

CLIENT: Teck Coal Ltd. - CMO

AREA: **37 Pit**

Lithological Symbol

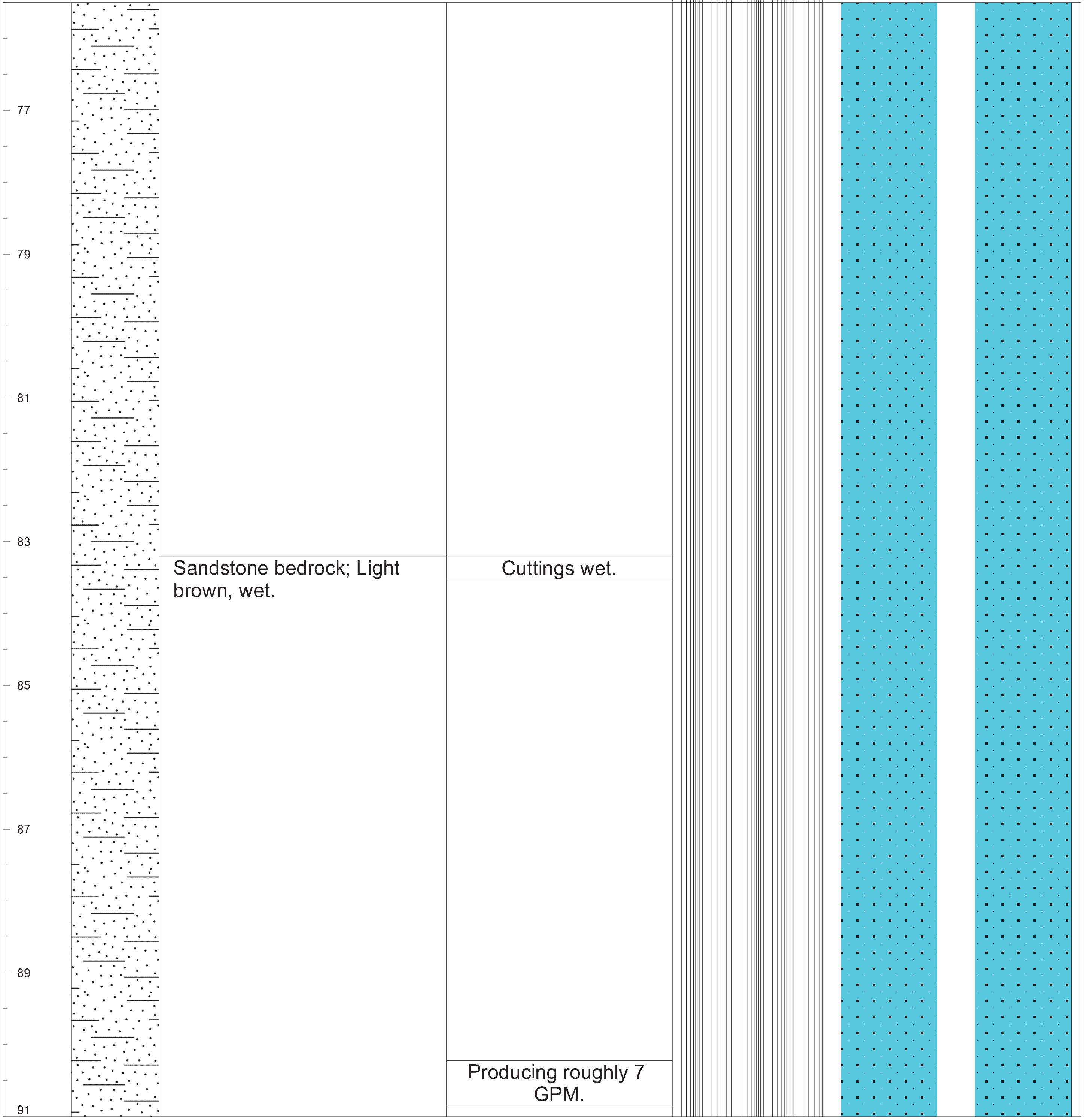
- CL-Clay
- CO-Coal
- SI-Silt
- SA-Sand
- GV-Gravel
- SS-Sandstone
- ST-Siltstone
- BO-Boulders

Hydraulic Conductivity (m/s)

Well Installation

- Sand
- Cable
- VWP
- Screen
- PVC
- Pellets
- Chips
- Cave
- Casing
- Grout

Depth (m)	**Lithology Description**	**Drilling Notes and Additional Comments**
83.2	Sandstone bedrock; Light brown, wet.	Cuttings wet.
		Producing roughly 7 GPM.



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Teck

PROJECT: Phase 2 Groundwater Monitoring
CLIENT: Teck Coal Ltd. - CMO

HOLE ID: **CM_MW8**
LOCATION: CMO
PROJECT NO: 1CT017.114
DRILLING CONTRACTOR: AquaPro Drilling Ltd.
DRILLING TYPE: Air Rotary
LOGGED BY: EH
BORING DATE: 4/23/2016 to 4/26/2016

COORDINATES: 668878.2 E5484957 N
DATUM: UTM Zone 11
GROUND ELEV (masl): 1847.31
COLLAR DIP: -90
EOH ELEV. (masl): 1729.98
TOTAL DEPTH (mbgs): 104.02
STICKUP HEIGHT (magl): 0.68
CASING STICKUP (magl): 0.72
AREA: **37 Pit**

Depth (m)

Lithological Symbol

- ▨ CL-Clay
- ■ CO-Coal
- ▥ SI-Silt
- ░ SA-Sand
- ◠ GV-Gravel
- ⁘ SS-Sandstone
- ▬ ST-Siltstone
- (BO-Boulders

Hydraulic Conductivity (m/s)

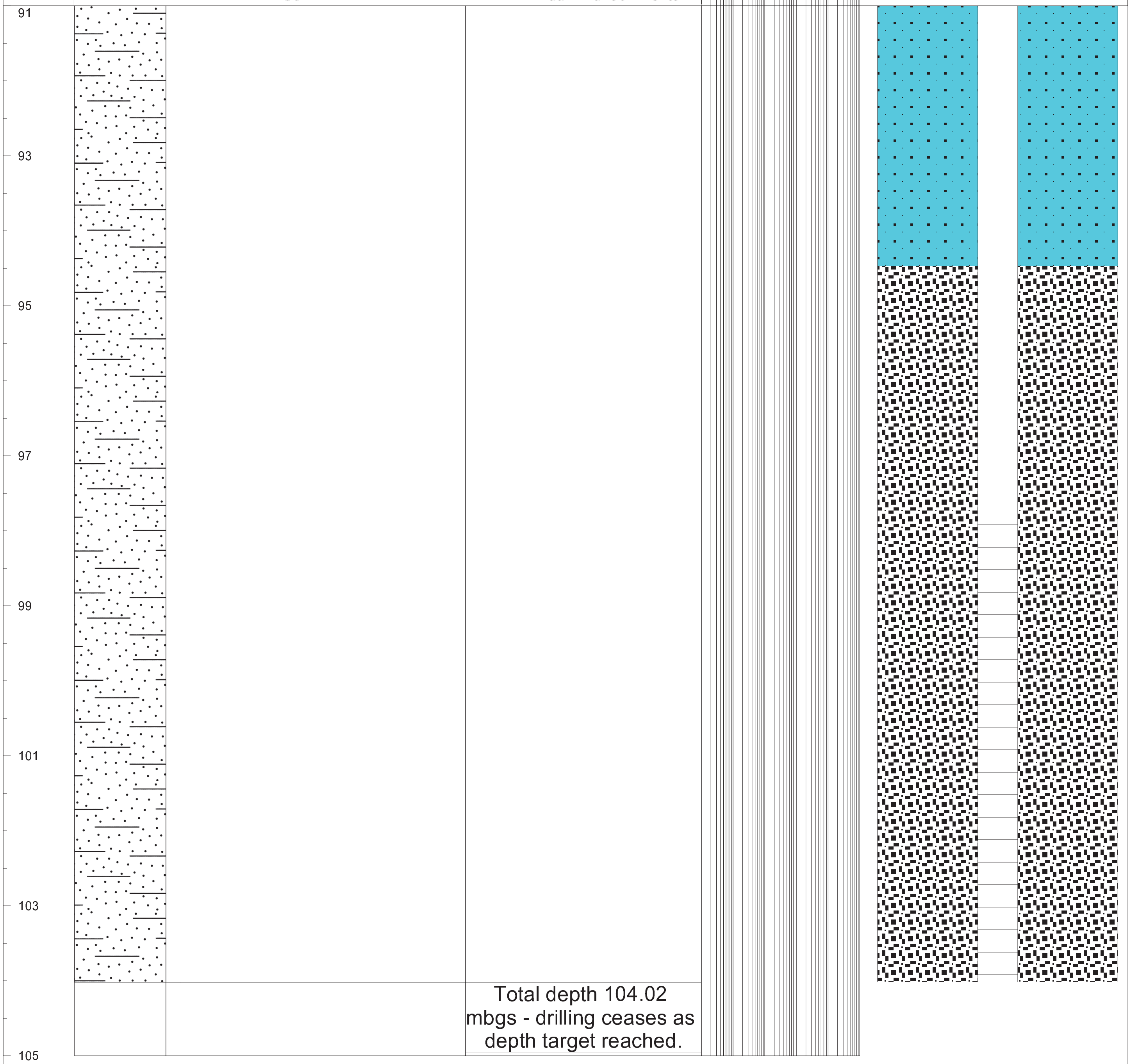
1E-8 1E-7 1E-6 1E-5 0.0001 0.001

Well Installation

- ▦ Sand
- ▯ Cable
- ▣ VWP
- ☐ Screen
- ☐ PVC
- 🟦 Pellets
- ⊞ Chips
- (Cave
- ■ Casing
- ▒ Grout

Lithology Description

Drilling Notes and Additional Comments



Total depth 104.02 mbgs - drilling ceases as depth target reached.

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Teck

HOLE ID:	**MW-3**	COORDINATES:	668230 E 5482814 N
LOCATION:	CMO	DATUM:	UTM Zone 11
PROJECT NO:	1CT017.098	GROUND ELEV (masl):	1573.4
DRILLING CONTRACTOR:	AquaPro Drilling Ltd.	COLLAR DIP:	-90
		EOH ELEV. (masl):	1545.97
DRILLING TYPE:	Air Rotary	TOTAL DEPTH (mbgs):	27.43
LOGGED BY:	LC	STICKUP HEIGHT (magl):	0.81
BORING DATE:	8/11/2015 to 8/12/2015	CASING STICKUP (magl):	0.81

PROJECT: Phase 1 Groundwater Monitoring

CLIENT: Teck Coal Ltd. - CMO

AREA: **Michel Creek**

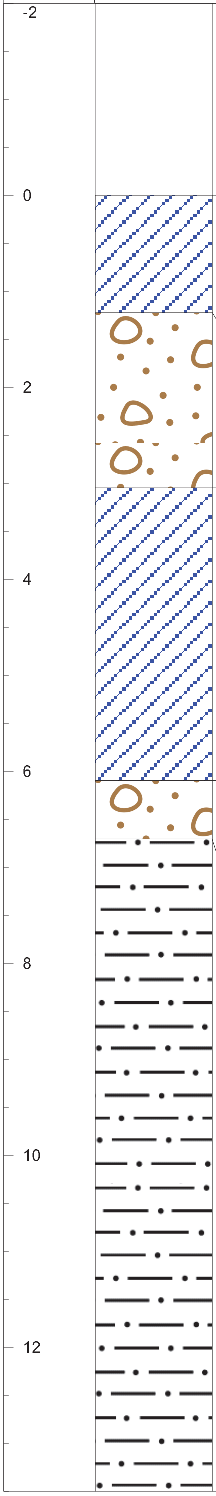
Lithological Symbol

- ▨ CL-Clay
- ☐ LO-Loam
- ║ SI-Silt
- ▨ SA-Sand
- ◯ GV-Gravel
- ⁚ SS-Sandstone
- ▭ ST-Siltstone

Well Installation

- ▩ Sand
- ☐ Screen
- ☐ PVC
- 🟦 Pellets
- ▨ Cave
- 🟦 Chips
- 🟦 Chips/Backfill
- ☐ Backfill
- ■ Casing

Depth (m)



Lithology Description

Clay and gravel (CL-CH); Some sand. Very dark grayish brown, gap graded, wet, sub-rounded, medium-plasticity, cohesive.

Gravel and sand (GM); Some silt. Dark brown, well graded, moist, sub-rounded, non-plastic, non-cohesive.

Clay and gravel (CH); Some sand. Very dark grayish brown, gap graded, moist, sub-rounded, high-plasticity, cohesive.

Gravel and silt (GM); Very dark grayish brown, gap graded, dry, sub-rounded, non-plastic, non-cohesive.

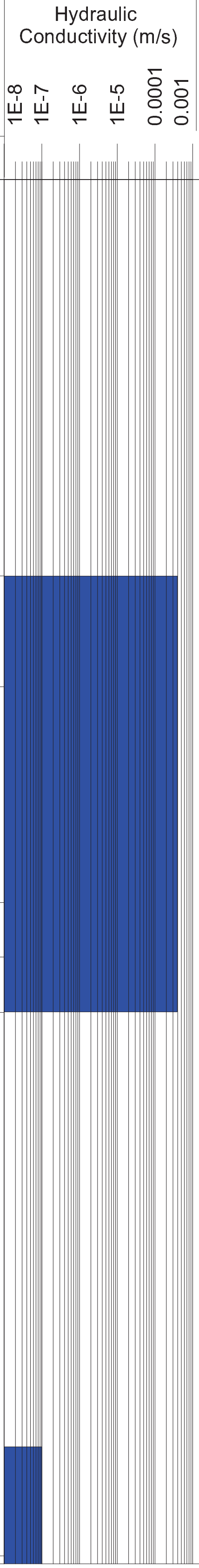
Siltstone bedrock; Black, dry.

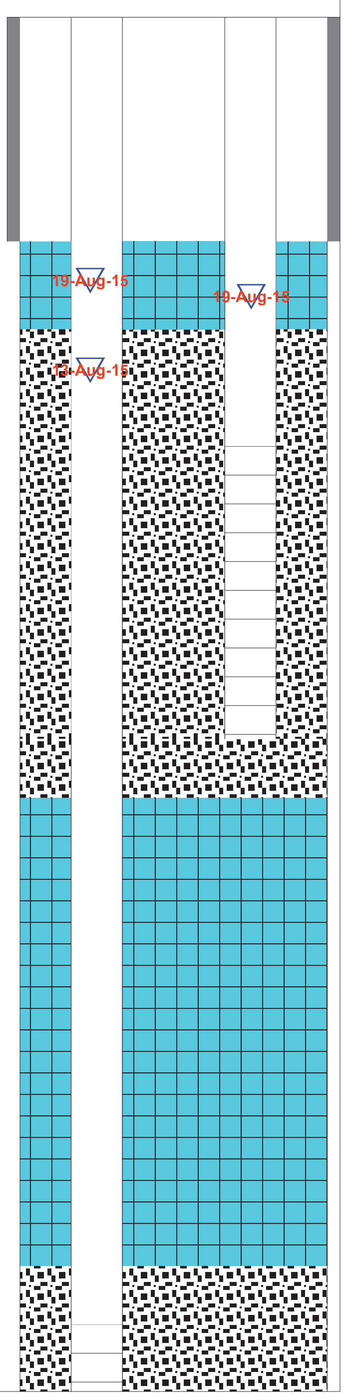
Drilling Notes and Additional Comments

Drilling slow, going through clay with cobbles/gravel, clay quite firm

Fines cohesive, but not whole sample

Hit bedrock, very dry and dusty





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Teck

HOLE ID:	**MW-3**	COORDINATES:	668230 E 5482814 N	*Page:* 2 of 2
LOCATION:	CMO	DATUM:	UTM Zone 11	
PROJECT NO:	1CT017.098	GROUND ELEV (masl):	1573.4	
DRILLING CONTRACTOR:	AquaPro Drilling Ltd.	COLLAR DIP:	-90	
		EOH ELEV. (masl):	1545.97	
DRILLING TYPE:	Air Rotary	TOTAL DEPTH (mbgs):	27.43	
LOGGED BY:	LC	STICKUP HEIGHT (magl):	0.81	
BORING DATE:	8/11/2015 to 8/12/2015	CASING STICKUP (magl):	0.81	AREA: **Michel Creek**

PROJECT: Phase 1 Groundwater Monitoring

CLIENT: Teck Coal Ltd. - CMO

Depth (m)

Lithological Symbol

▨	CL-Clay	▨	SA-Sand	▨	SS-Sandstone
☐	LO-Loam	▨	GV-Gravel	▨	ST-Siltstone
▨	SI-Silt				

Lithology Description

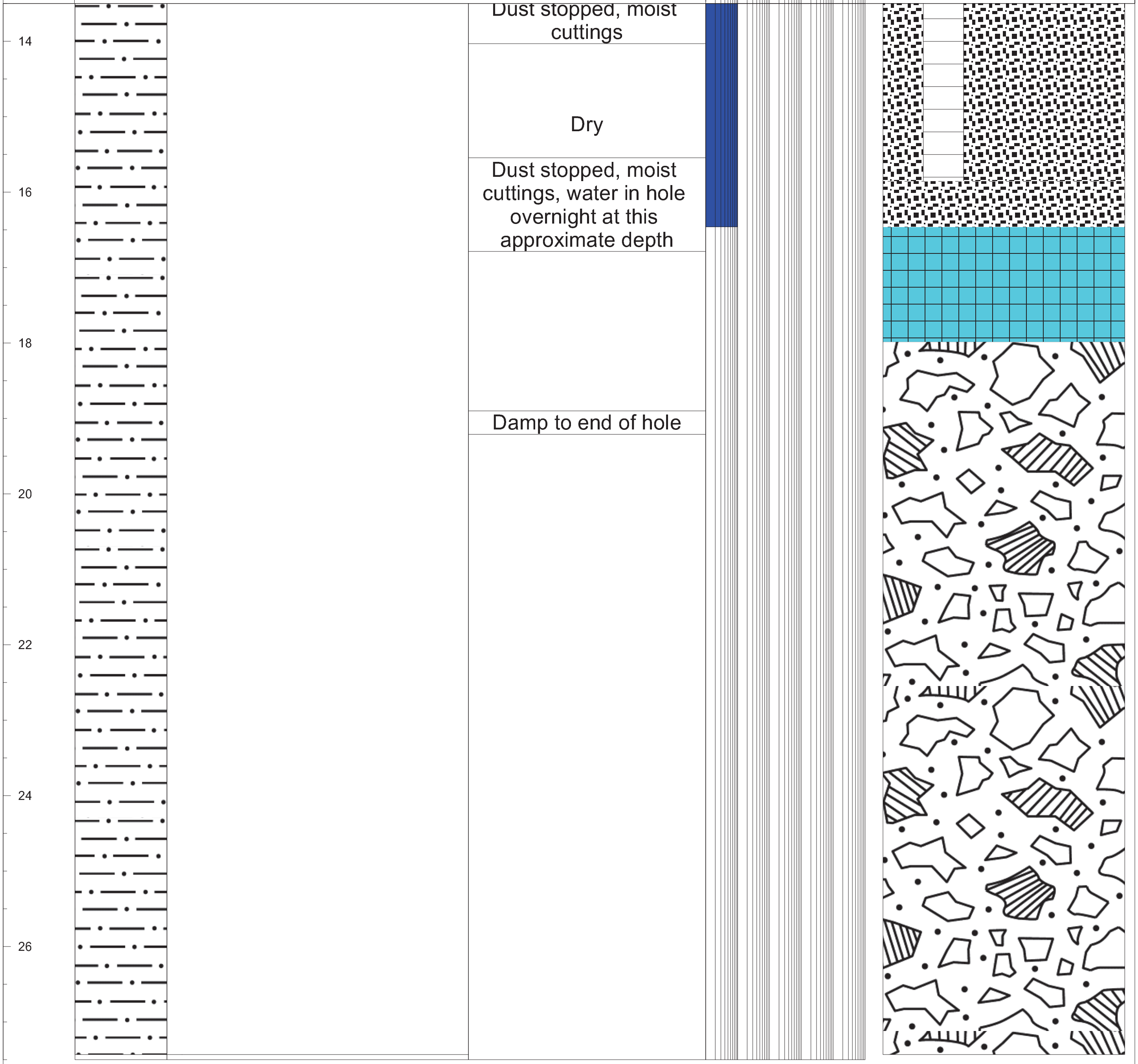
Drilling Notes and Additional Comments

Hydraulic Conductivity (m/s)

1E-8 1E-7 1E-6 1E-5 0.0001 0.001

Well Installation

▨	Sand	🟦	Chips
☐	Screen	🟦	Chips/Backfill
☐	PVC	▨	Backfill
🟦	Pellets	■	Casing
▨	Cave		



Dust stopped, moist cuttings

Dry

Dust stopped, moist cuttings, water in hole overnight at this approximate depth

Damp to end of hole

srk consulting

Teck

PROJECT: Coal Mountain Operation
CLIENT: Coal Mountain Operation

DRILLHOLE ID: CM_MW10
LOCATION: Coal Mountain
PROJECT NO: 1CT017.239
DRILL TYPE: Sonic
HOLE SIZE: 6/7"
CONTRACTOR: Mud bay Drilling
LOGGED BY: RB/NL

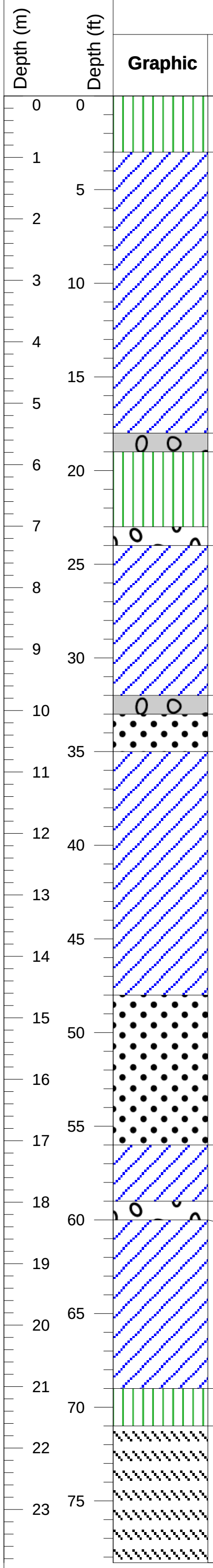
DRILLING DATE: 04-Nov-19 **TO:** 07-Nov-19
COORDINATES: 668582.2 E 5487629.7 N
DATUM: UTM Zone 11N; NAD 83
GROUND EL (masl): 1535.3
TOTAL DEPTH (m): 23.9 **DIP:** 90°
WATER LEVEL (mbgs): 13

Page 1 of 1

Drillhole Log

Lithologic Symbol

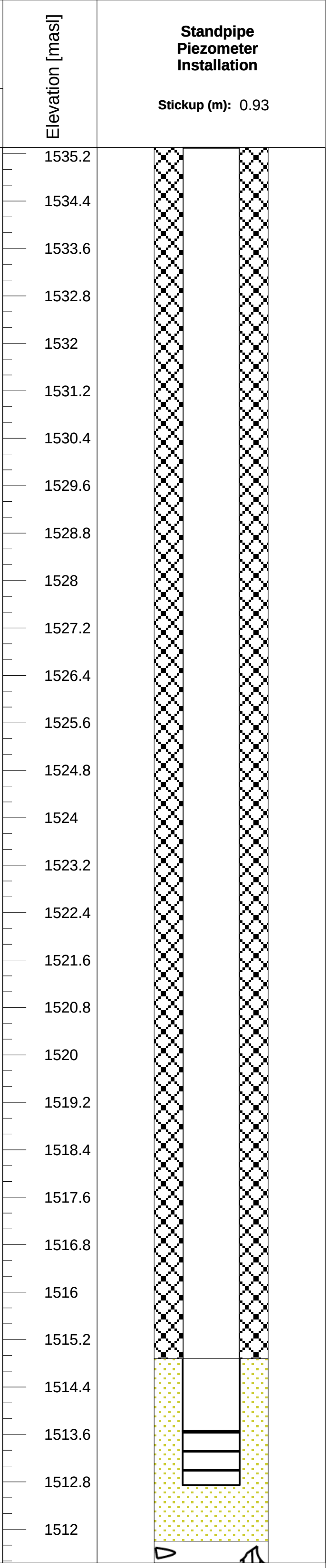
■	Ash	▨	Clay	∷	Sand	○	Boulder/Cobbles	◪	Bedrock
■	Organics	▥	Silt	○	Gravel	▧	Weathered Bedrock	■	No Recovery



USCS	Soil Description	Additional Comments
ML	SANDY SILT W/ GRAVEL - loose, dark gray, 15% cobbles, few silt, >50% sand, non-plastic (ML), moist, noncohesive	Organic matter noted beneath road fill
CL	LEAN CLAY W/ GRAVEL - dense, olive gray, fine grain ,few gravel, few sand, low plasticity (CL), moist, cohesive	
	GRAVELLY LEAN CLAY W/ SAND - dense, light brown, trace cobble, few gravel, >50% fines, medium plasticity (CL), dry, cohesive	
	LEAN CLAY W/ GRAVEL - loose to medium dense, yellowing orange, trace cobble, little gravel, >50% fines, wet to moist, low plasticity (CL), cohesive	
	BOULDER	
ML	SILT W/ GRAVEL - dense, light brown, trace cobble, little gravel, >50% fines, nonplastic (ML), moist, noncohesive	
	SILTY GRAVEL W/ SAND - loose, light gray, some sand, >50% coarse grained sediments, few cobbles, dry, nonplastic (ML), noncohesive	
CL	LEAN CLAY W/ GRAVEL - dense, light brown, few gravel, >50% fine, moist, medium plasticity (CL), cohesive	
	BOULDER	
GW	WELL GRADED SAND & GRAVEL - loose, light brown, >50% coarse-grained sediment, 15-25% gravel, moist, nonplastic, noncohesive	Sample appears dry
CL	LEAN CLAY W/ GRAVEL - dense, light brown, few gravel, >50% fine, moist, medium plasticity (CL), cohesive	
	LEAN CLAY W/ GRAVEL - dense, light brown, few gravel, >50% fine, moist, medium plasticity (CL), cohesive, observed more pebbles/boulders than 10.668m to 12.964m	
	LEAN CLAY W/ GRAVEL - dense, light brown, few gravel, >50% fine, moist, medium plasticity (CL), cohesive	
	CLAYEY SAND W/ GRAVEL - medium dense, light gray, trace cobbles, some gravel, >50% sand, moist, medium plasticity (CL), cohesive	Sample appears dry
CH	FAT CLAY W/ SAND - dense, olive gray, trace cobbles, some gravel, >50% fine, moist, high plasticity, cohesive	
GP	POORLY GRADED GRAVEL W/ SAND - loose, olive gray, >95% sand, moist, nonplastic, noncohesive	
CH	FAT CLAY W/ SAND - dense, olive gray, trace cobble, some gravel >50% fine, moist, high plasticity, cohesive	
ML	GRAVELLY SILT W/ SAND - loose, few cobble, some gravel, >50% sand, wet, nonplastic, noncohesive	7" override drilled to 21.3 m Driller notes water strike Outer casing becomes stuck; casing sheared.
	WEATHERED BEDROCK	

Standpipe Piezometer Installation

Stickup (m): 0.93



Notes:
Coordinates and elevation were measured via differential GPS

Installation Legend

☒	Bentonite Chips	∷	Sand	☐	PVC	☐	Screen	☐	Sump	☐	Casing
▨	Bentonite Pellets	▷	Slough							▩	Cement

FINAL

SNC • LAVALIN

Client **Teck Coal Limited**		**Borehole No. : CM_BH_AG1A**
Location **Regional Groundwater Monitoring**		PAGE 1 OF 2

Drilling Contractor	Owen's Drilling	Date Monitored	2020 09 01	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1477.754	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1478.653	Date Drilled:	2020 08 19
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5488250.082	Easting: 667334.031	Log Typed By:	AS

Drilling Legend
▨ Sample Interval
☰ Odex

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

● Reading within indicated scale
● Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: CM_MW_AG1A

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)

SAND, fine grained, dark brown, loose, dry.

SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subangular to angular, poorly graded, grey, loose, dry.

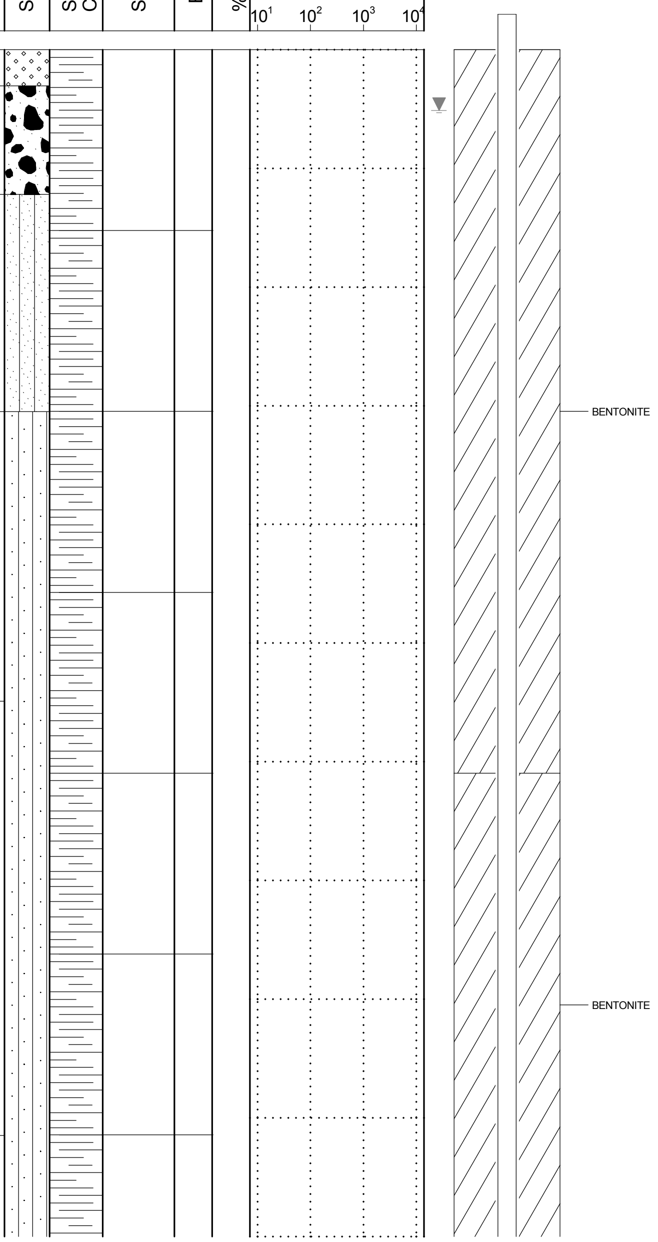
SAND, fine to medium grained, some silt, trace gravel, fine, subangular, poorly graded, brown, loose, moist.

At 2.1 m - wet.

SILT and SAND, fine grained sand, poorly graded, brown, loose, wet.

SAND, fine grained, some silt, poorly graded, brown, loose, wet, heaving.

SILT and SAND, fine grained sand, poorly graded, brown, very stiff, wet.



NOTES

QA/QC: LLH 2020 10 19 Print Date:2020-12-02

FINAL

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Client
Teck Coal Limited

Location
Regional Groundwater Monitoring

Borehole No. : CM_BH_AG1A

PAGE 2 OF 2

Drilling Contractor	Owen's Drilling	Date Monitored	2020 09 01	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1477.754	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1478.653	Date Drilled:	2020 08 19
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5488250.082	Easting: 667334.031	Log Typed By:	AS

Drilling Legend
▨ Sample Interval
☰ Odex

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

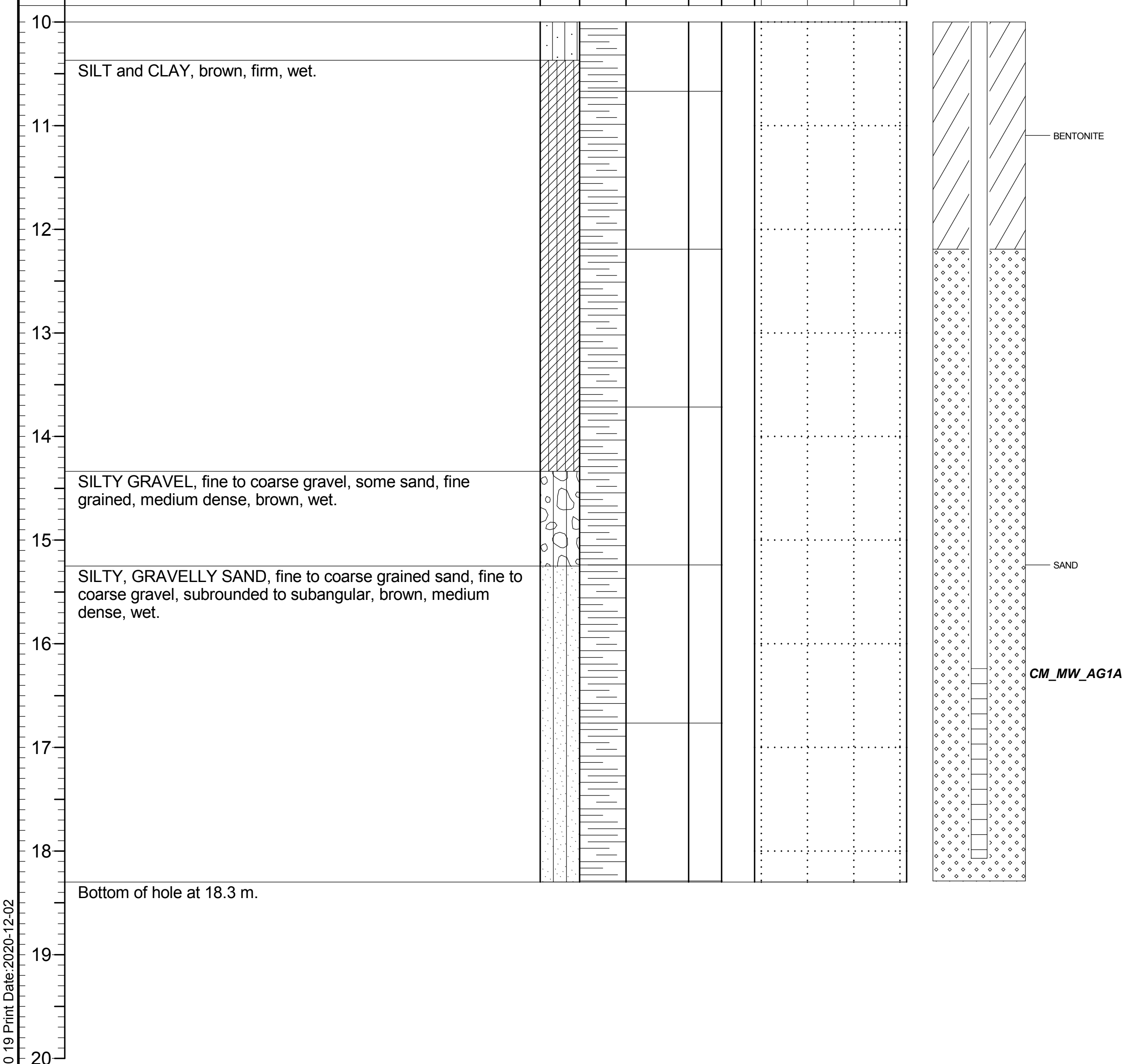
○ Reading within indicated scale
● Reading outside indicated scale

Soil Vapour (ppm)

▯ Solid PVC
▯ Slotted PVC

Well Name 1: CM_MW_AG1A

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery



SILT and CLAY, brown, firm, wet.

SILTY GRAVEL, fine to coarse gravel, some sand, fine grained, medium dense, brown, wet.

SILTY, GRAVELLY SAND, fine to coarse grained sand, fine to coarse gravel, subrounded to subangular, brown, medium dense, wet.

Bottom of hole at 18.3 m.

NOTES

QA/QC: LLH 2020 10 19 Print Date:2020-12-02

FINAL

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Client
Teck Coal Limited

Location
Regional Groundwater Monitoring

Borehole No. : CM_BH_AG1B

PAGE 1 OF 3

Drilling Contractor	Owen's Drilling	Date Monitored	2020 09 01	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1477.614	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1478.551	Date Drilled:	2020 08 14
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5488243.909	Easting: 667329.527	Log Typed By:	AS

Drilling Legend
▨ Sample Interval
☰ Odex

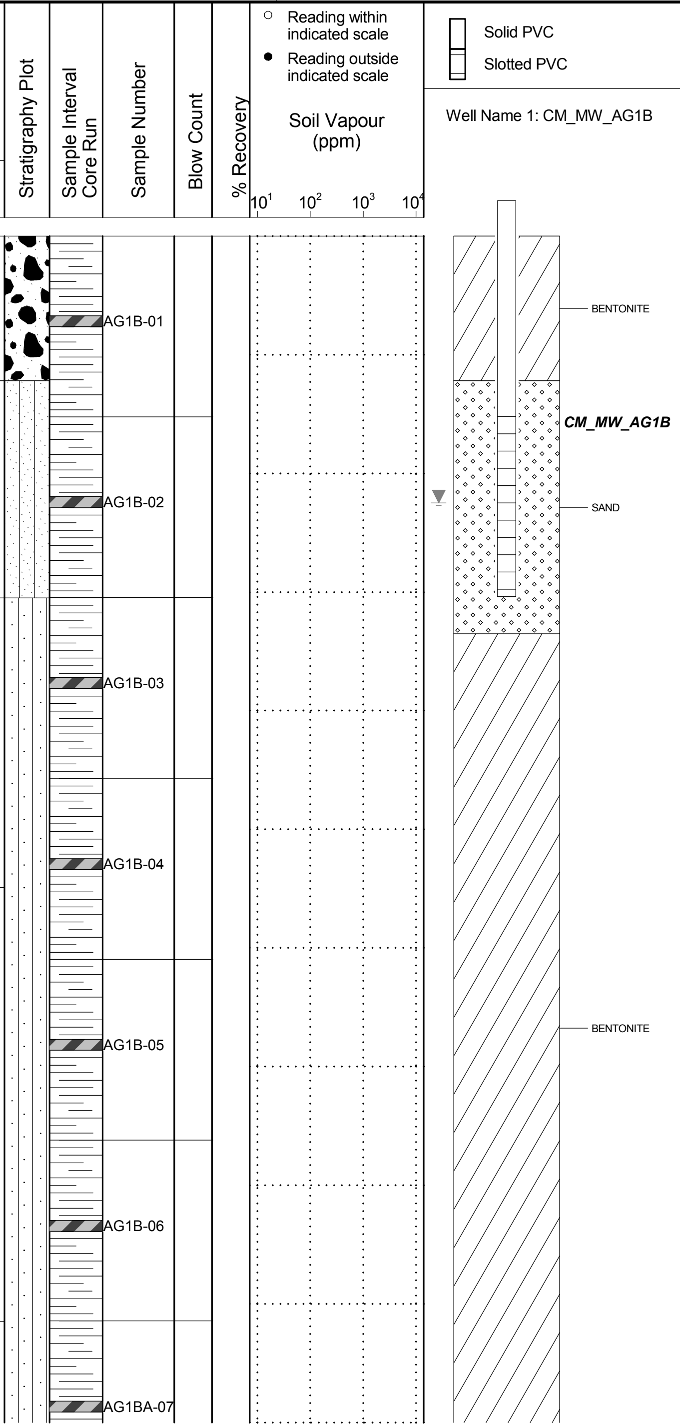
Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

▯ Solid PVC
▤ Slotted PVC

Well Name 1: CM_MW_AG1B

Depth in Metres	Soil Description
0	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subangular to angular, well graded, grey, loose, dry.
1	SAND, fine to medium grained, some silt, trace gravel, fine, subangular, poorly graded, brown, loose, moist.
2	At m 2.1 m - wet.
3	SILT and SAND, fine grained sand, poorly graded, brown, loose, wet.
5	SAND, fine grained, some silt, poorly graded, brown, loose, wet, heaving.
9	SILT and SAND, fine grained sand, poorly graded, brown, very stiff, wet.

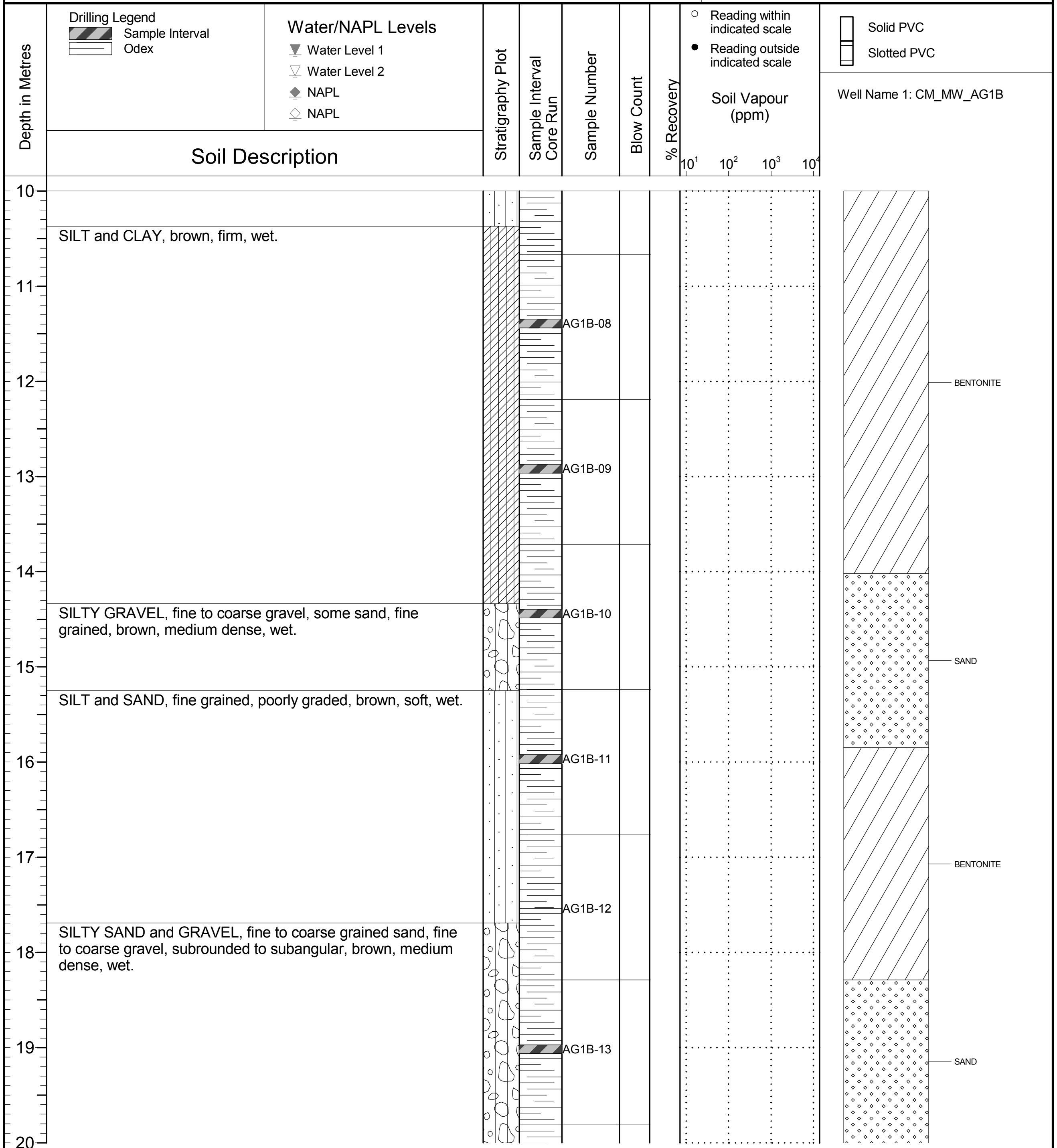


NOTES
Bolded sample denotes sample analyzed.
*Denotes blind field duplicate.

FINAL

	Client **Teck Coal Limited**	**Borehole No. : CM_BH_AG1B**
	Location **Regional Groundwater Monitoring**	PAGE 2 OF 3

Drilling Contractor	Owen's Drilling	Date Monitored	2020 09 01	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1477.614	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1478.551	Date Drilled:	2020 08 14
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5488243.909	Easting: 667329.527	Log Typed By:	AS



SILT and CLAY, brown, firm, wet.

SILTY GRAVEL, fine to coarse gravel, some sand, fine grained, brown, medium dense, wet.

SILT and SAND, fine grained, poorly graded, brown, soft, wet.

SILTY SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, subrounded to subangular, brown, medium dense, wet.

NOTES
Bolded sample denotes sample analyzed.
*Denotes blind field duplicate.

QA/QC: LLH 2020 10 19 Print Date:2020-12-02

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Client
Teck Coal Limited

Location
Regional Groundwater Monitoring

Borehole No. : CM_BH_AG1B

PAGE 3 OF 3

Drilling Contractor	Owen's Drilling	Date Monitored	2020 09 01	Project Number:	631283
Drilling Method	Odex	Ground Surface Elev. (m)	1477.614	Borehole Logged By:	MTB
Borehole Dia. (m)	0.13	Top of Casing Elev. (m)	1478.551	Date Drilled:	2020 08 14
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 5488243.909	Easting: 667329.527	Log Typed By:	AS

Drilling Legend
▨ Sample Interval
☐ Odex

Water/NAPL Levels
▼ Water Level 1
▽ Water Level 2
◆ NAPL
◇ NAPL

○ Reading within indicated scale
● Reading outside indicated scale

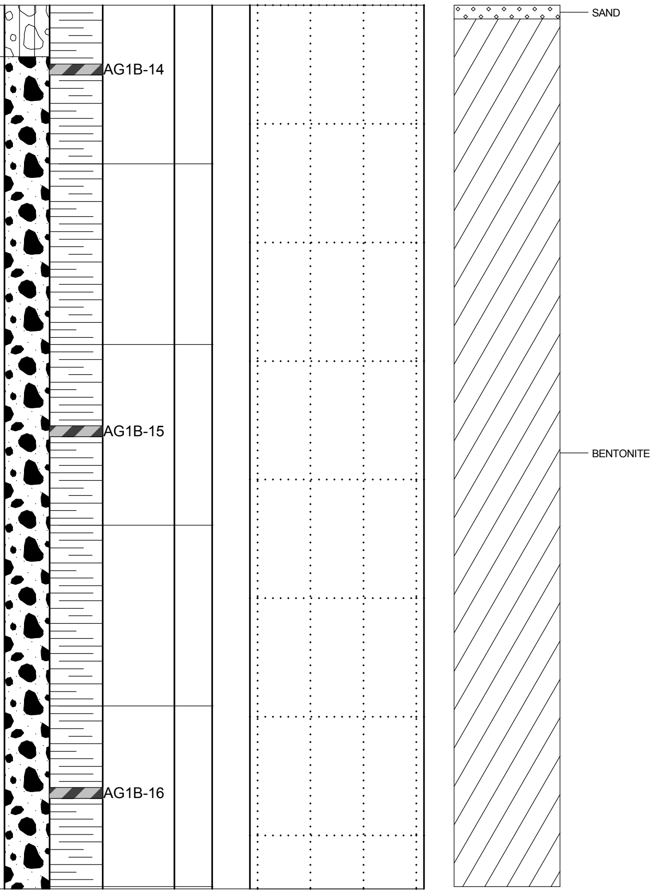
Soil Vapour (ppm)
10^1 10^2 10^3 10^4

☐ Solid PVC
☐ Slotted PVC

Well Name 1: CM_MW_AG1B

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery

Depth in Metres	Soil Description
20	At 20.1 m - boulder.
	SAND and GRAVEL, fine to coarse grained sand, fine to coarse gravel, angular to subangular, grey, very dense, dry.
21	
22	
23	
24	
25	
26	
27	
	Bottom of hole at 27.5 m.
28	
29	
30	



NOTES
Bolded sample denotes sample analyzed.
*Denotes blind field duplicate.

QA/QC: LLH 2020 10 19 Print Date:2020-12-02

Volume II – Appendix IX

Field Methodology and Teck Best Management Practices

Field Methodology

Water level measurement, sample collection and handling was completed by Teck or others in accordance with the 2013 edition of the British Columbia Field Sampling Manual (BCFSM; Clark, 2013) as required in Permit 107517. A consistent general methodology was followed for each location by adhering to Teck's updated Standard Practices and Procedures (SP&Ps) for water level measurements, well purging and groundwater sampling (TC_GW-01, TC_GW-02). Appropriate well-specific methods were required to account for specific safety concerns, well construction, well type, and variable recharge. During monitoring and sampling events, field observations were recorded, such as weather conditions and any unusual occurrences (i.e., changes in site use or site physical conditions, the condition of the monitoring well and whether repairs are needed, and ponded water in the vicinity of the monitoring well).

Sampling Frequency

Permit 107517 prescribes a minimum quarterly sampling frequency. Therefore, the monitoring schedule and rationale was as follows:

- Winter (First Quarter): Winter sampling to capture when groundwater levels are nearing their lowest and recharge to groundwater is minimized due to frozen ground.
- Spring (Second Quarter): Sampling during the freshet months to capture when groundwater levels and the extent of groundwater recharge and discharge are maximized.
- Summer (Third Quarter): Sampling during the post freshet months to capture when the groundwater levels are decreasing.
- Fall (Fourth Quarter): Sampling to capture groundwater conditions between the summer and winter sampling events.

Quarterly sampling was recommended for a minimum of one year after well installation to assess seasonal variability of groundwater conditions as per the BC Ministry of Environment & Climate Change Strategy (ENV) Water and Air Baseline Monitoring Guidance Document for Mine Proponents and Operators (ENV, 2016). Monitoring frequency is reviewed on an annual basis to assess adequacy to address the seasonal variability and to address whether the frequency should be reduced if little to no variability is observed.

Analyte List

Groundwater was analyzed for select constituents from the core list of general water quality analytes provided in Table 2 of the BC ENV's Water and Air Baseline Monitoring Guidance Document for Mine Proponents and Operators (ENV, 2016) and Permit 107517 Table 25. Minimum detection limits for each parameter are suitable for comparison to the screening criteria. The list of recommended constituents, detection limits, and rationale is presented in the Site-specific Groundwater Monitoring Program (SSGMP) Update report.

Analyses for dissolved metals is specified to prevent misrepresentation of the mobile concentrations of constituents due to increased turbidity, which may occur as the result of sampling techniques, well construction, and/or geological formation (i.e., clay or silt bearing formations). For metals, the dissolved (i.e., filtered samples) component provides the best representation of groundwater transport. Approval for removal of total metals from all of Teck's groundwater sampling programs was received via email to Teck from ENV on November 3, 2016.

The 2018 SSGMP Update recommends analyzing for bicarbonate, carbonate, and hydroxide in place of bicarbonate-, carbonate-, and hydroxide-alkalinity to assist with water-type data interpretation. These parameters are used to characterize water type and direct analysis of these parameters would eliminate the need to convert alkalinity results.

Sample Handling and Shipment

Samples were handled and shipped in a manner that is consistent with the practices and procedures prescribed in the British Columbia Field Sampling Manual (Clark, 2013) and Teck's SP&Ps TC_GW-02 and TC_GW-05. Samples were submitted to a Canadian Association for Laboratory Accreditation Inc. (CALA) accredited laboratory for analysis in accordance with the British Columbia Environmental Laboratory Manual (Austin, 2016). Teck used a more local laboratory to avoid the potential for hold time exceedances.

The following was completed as per Teck's SP&P:

- Preservatives and certified clean sample bottles were provided by an accredited laboratory.
- Samples collected for dissolved metals were field-filtered using a syringe and filter.
- Samples that required preservation were preserved in the field.
- Samples were shipped in ice-chilled coolers under chain-of-custody documentation and procedures.

Goundwater Monitoring

As per Teck's SP&P and the BCFSM, groundwater monitoring was completed at FRO, GHO, LCO, EVO, and CMm as follows:

- Prior to sample collection, manual water level measurements (i.e., with a water level tape) were measured from each location. In addition to manual water level measurements, some wells were continuously monitored with dataloggers. Monitoring details specific to each Operation are presented in the sections below.

- Data from the loggers were downloaded each quarter when possible. Prior to sampling or deployment of pressure transducers (also referred to as dataloggers) depth-to-water measurements were collected. Data logger measurements were collected hourly in order to capture daily fluctuation of the water table. Data loggers were removed and uploaded following the depth to water measurement. After samples were collected the data logger was re-deployed at the same depth. Any changes in length of cable used were noted.
- Pressure transducer data was corrected for atmospheric influences using a barometric logger which measures atmospheric pressure. Pressure transducers were deployed below groundwater level and barometric loggers were deployed above the groundwater level. Both pressure transducers and barometric loggers were deployed below the anticipated frost penetration depth to prevent the instrument from freezing.

Fording River Operations

As per Teck's SP&P and the BCFSM, groundwater monitoring, purging, and sampling at Fording River Operations (FRO) was completed as follows:

- The equipment was prepared and calibrated. If a field measurement was identified out of the expected historical ranges from previous sampling events at the monitoring well, calibration of field probes was re-confirmed.
- In addition to manual monitoring, 20 monitoring wells were continuously monitored with data loggers. Continuously monitored wells are listed in Table 3b.
- Dedicated tubing was installed in each well and a pump was used to draw water to the surface for sample collection. The specific pump type selected for each monitoring well location was determined based on well construction, type, and recharge characteristics (Table 3b). Wells with depth to water less than 7 mbgs were purged and sampled following low-flow (0.5 L/min) sampling techniques to minimize sediment entrainment. In cases where depth to water was approximately 7 mbgs or greater, wells were sampled using tubing fitted with a Waterra foot valve or a bladder pump. Wells were purged three well volumes or until field parameters [electrical conductivity (EC), dissolved oxygen (DO), pH, oxidation-reduction potential (ORP), turbidity and temperature] stabilized after three consecutive readings using a YSI flow through cell. Field parameters were recorded once stable, prior to sampling.
- Following purging, a sample was collected at a flow rate of approximately 0.1 L/min using the lowest possible setting for the particular pump. The low-flow rate is intended to minimize the disturbance of entrained sediments mixing within the well and is intended to draw water directly from the formation around the well.
- Select wells at FRO require different methods for sampling. Supply wells, (ie FR_GH_WELL4 and FR_POTWELLS), have limited access to the wellhead; therefore, samples were collected from a distribution point (i.e., faucet) within the water system or at the sample port at the well head. Samples from FR_POTWELLS are representative of one or more of a number of wells in the water supply system, while FR_GH_WELL4 is representative of a single well. FR_GH_WELL4 (not continuously running) was purged and parameters were monitored to ensure stabilization prior to sampling, while parameters were only measured a single time from FR_POTWELLS (continuously running) prior to sampling.

Greenhills Operations

As per Teck's SP&P and the BCFSM, groundwater monitoring, purging, and sampling at Greenhills Operations (GHO) was completed as follows:

- The equipment was prepared and calibrated. If a field measurement was identified out of the expected historical ranges from previous sampling events at the monitoring well, calibration of field probes was re-confirmed.
- Prior to sample collection, manual water level measurements (i.e., with a water level tape) were measured from each location, with the exception of GH_MW-UTC-A, because the well was damaged, and supply wells (GH_POTW09, GH_POTW10, GH_POTW15, GH_POTW17, RG_DW-01-03 and RG_DW-01-07) due to having limited access to the wellhead.
- In addition to manual monitoring, all wells except for GH_MW-TD, GH_MW-UTC-A, and the supply wells were continuously monitored with data loggers. Supply wells were not continuously monitored due to having limited access to the wellhead.
- Dedicated tubing was installed in each well and a pump was used to draw water to the surface for sample collection. The specific pump type selected for each monitoring well location was determined based on well construction, type, and recharge characteristics (Table 4b). GH_MW-MC-1D/S, GH_MW-MC-2D/S and GH_MW_EF1A/B were purged and sampled using a peristaltic pump and following low-flow (0.5 L/min) sampling techniques to minimize sediment entrainment. The remaining monitoring wells were sampled using a bladder pump. Wells were purged three well volumes or until field parameters (EC, DO, pH, ORP, temperature, and turbidity) stabilized after three consecutive readings using a YSI flow through cell. Field parameters were recorded once stable, prior to sampling.
- Following purging, a sample was collected at a flow rate of approximately 0.1 L/min using the lowest possible setting for the particular pump. The low-flow rate is intended to minimize the disturbance of entrained sediments mixing within the well and is intended to draw water directly from the formation around the well.
- Select wells at GHO require different methods for sampling (GH_MW-TD and supply wells). Flowing artesian conditions were encountered at GH_MW-TD during installation. Groundwater at this well is collected directly from the discharge spigot using filters and a syringe. Supply wells GH_POTW09, GH_POTW10, GH_POTW15, and GH_POTW17 were sampled from the sample port at the wellhead. Prior to collection of samples, the supply wells were purged and parameters were recorded.

Line Creek Operations

As per Teck's SP&P and the BCFSM, groundwater monitoring, purging, and sampling at Line Creek Operations (LCO) was completed as follows:

- In addition to manual monitoring, nine wells were continuously monitored with data loggers. These wells are listed in Table 5b.
- Dedicated tubing was installed in each well and a pump was used to draw water to the surface for sample collection. The specific pump type selected for each monitoring well location was determined based on well construction, type, and recharge characteristics (Table 5b).

- Prior to sampling, wells were purged, with the exception of LC_PIZP1105, which was sampled using a bailer. Prior to collection of samples from domestic and supply wells, the tap or valve at the wells was opened for a minimum of five minutes to purge water through the distribution system. The objective of purging was to obtain samples representative of the water source and not a sample influenced by the distribution system.
- Purging of monitoring wells was completed using either a peristaltic pump or bladder pump following low-flow sampling techniques (<0.5 L/min) until field parameters (pH, temperature, EC, ORP, DO, and turbidity) stabilized for three consecutive readings. Field parameters were measured using a calibrated multi-parameter probe. Groundwater parameter values were recorded periodically during purging and prior to sampling.

Elkview Operations

As per Teck's SP&P and the BCFSM, groundwater monitoring, purging, and sampling at Elkview Operations (EVO) was completed as follows:

- In addition to manual monitoring, the 37 wells were continuously monitored with data loggers (Table 6b).
- Dedicated tubing was installed in each well and a pump was used to draw water to the surface for sample collection. The specific pump type selected for each monitoring well location was determined based on well construction, type, and recharge characteristics (Table 6b).
- Prior to sampling, wells were purged with the exception of EV_WF_SW, which was sampled using a HydraSleeve™ (no purge method) due to the deep water level at this well (>130 mbgs). Supply wells were sampled from a distribution point. Prior to collection of samples, the tap or valve at the supply wells was opened for a minimum of five minutes to purge water through the distribution system. The objective of purging was to obtain samples representative of the water source and not a sample influenced by the distribution system.
- Purging of monitoring wells was completed using either a peristaltic pump, bladder pump or a submersible pump following low-flow sampling techniques (<0.5 L/min) until field parameters (pH, temperature, EC, ORP, DO) stabilized for three consecutive readings. Field parameters were measured using a calibrated multi-parameter probe. Groundwater parameter values were recorded periodically during purging and prior to sampling.

Coal Mountain Operations

As per Teck's SP&P and the BCFSM, groundwater monitoring, purging, and sampling at Coal Mountain Operations (CMO) was completed as follows:

- Pressure transducer data loggers were deployed to collect continuous groundwater levels at four wells: CM_MW_AG1A, CM_MW_AG1B, CM_MW5-SH and CM_MW5-DP.
- Monitoring wells were sampled using three methods: low-flow purging/sampling, artesian flow grab sampling, and no-purge sampling. The specific pump type selected for each monitoring well location was determined based on well construction, type, and recharge characteristics (Table 7b).

- Low-flow sampling was conducted using dedicated bladder pumps for the majority of wells (Table 7b). Low-flow sampling was conducted using a peristaltic pump at CM_MW_AG1A and CM_MW_AG1B. Flow rates were sustained below 0.5 L/min while purging, and samples were collected following stabilization of field parameters. Field parameter stabilization was confirmed by three consecutive readings of all parameters (pH, temperature, conductivity, ORP, DO, and turbidity) within stabilization criteria.
- Grab samples were collected from artesian flow at monitoring wells CM_MW4-SH and CM_MW4-DP. Water discharging from the top of the standpipe was directed into sample bottles.
- No-purge sampling was conducted at four monitoring wells (CM_MW1-DP, CM_MW7-SH, CM_MW7-DP, and CM_MW8) using the HydraSleeve™ system.. Recovering the sleeve captured a core of water from the standpipe along the well screen interval. The HydraSleeve™ was then returned to the bottom of the standpipe following sampling.
- Field parameter measurements were recorded immediately before filling sample bottles. Field parameters were measured using multi-parameter probes (pH, temperature, EC, ORP, DO, and turbidity) and a separate turbidity sensor. Sensors were calibrated on a routine basis and the calibration process was documented.

Regional Drinking Water Program

As per Teck's SP&P and the BCFSM, groundwater monitoring, purging, and sampling was completed as follows:

- The equipment was prepared and calibrated. If a field measurement was identified out of the expected historical ranges from previous sampling events at the monitoring well, calibration of field probes was re-confirmed.
- There is limited access to the wellhead at supply and domestic wells sampled as part of the RGMP (RG_DW-01-03, RG_DW-01-07, RG_DW-02-20, RG_DW-03-04); therefore, samples were collected from a distribution point (i.e., faucet) within the water system or at the sample port at the well head. Domestic wells were sampled, where possible, via the sample port used in the initial drinking water evaluation or previous sampling event.
- Prior to collection of samples, the tap or valve at the sample location was opened for a minimum of five minutes to purge water through the distribution system. The objective of purging was to obtain samples representative of the water source and not a sample influenced by the distribution system.
- Water quality parameters (pH, EC, temperature, ORP, DO, and turbidity) were monitored until stable readings were obtained. Once the stabilized water quality parameters were recorded, the flow was reduced to minimize splashing and samples were collected in laboratory supplied bottles.

References

Austin, J. (editor). 2016. British Columbia *Environmental Laboratory Manual*. Environmental Monitoring, Reporting and Economics Section, Knowledge Management Branch, B.C., Ministry of Environment, Victoria, BC.

British Columbia Ministry of Environment, 2016. *Technical Guidance 6: Water and Air Baseline Monitoring Guidance Document for Mine Proponents and Operators*. Technical Guidance for Environmental Management Act Applications, Version 2.0, June 2016.

Clark, M.J.R., 2013. *British Columbia Field Sampling Manual: 2013 – For Continuous Monitoring plus the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples*. Water, Air and Climate Change Branch, Ministry of Water, Land and Air Protection, Victoria, BC, Canada. 344 pp.

Teck Coal Limited Standard Practices & Procedures

Proc. No: TC-GW-01

New Version #: 01

MEASUREMENT OF WATER TABLE ELEVATION IN WELLS

Teck

Teck Coal Ltd. utilizes a system in which Standard Practices and Procedures are developed, implemented and maintained. This helps ensure that safety and environmental risks associated with various work tasks are identified, mitigated and managed.

1.0 PURPOSE AND SCOPE

This document outlines the procedure which will be used by personnel for measuring water depth in wells, observation wells, and piezometers.

2.0 RESPONSIBILITIES

Depending on the operation, field monitoring activities and documentation may be carried out by an Environmental Officer, Environmental Technician (not all operations have this position), or a designate, such as an Environmental Co-op Student.

The Environmental Officer, Technician, or designate is responsible for:

- Measuring the depth to groundwater in a structure (well, observation well, piezometer)

3.0 BACKGROUND

Depth to groundwater surface is measured using an electric water level meter (such as Solinst Model No. 101 or equivalent). A light on the water level meter illuminates and/or an audible alarm sounds when the weighted probe tip contacts the water surface in the well and completes an electronic circuit. The measured depth to water is determined to within 0.01 meter by noting the point on the probe cable that corresponds to the measuring point (MP) at the top of the well/piezometer casing at the initial point of contact.

4.0 PROCEDURES

The following steps are necessary to collect water level measurements:

1. Check the operation of the meter by turning on the indicator switch and pressing the test button.

2. Holding the water level indicator above the well casing, lower the cable gradually into the well or piezometer until the indicator contacts the water surface. The contact with water surface is indicated by the buzzer sounding and/or illumination of the indicator light. At this point, stop lowering the cable.
3. Note the point on the graduated cable that corresponds to the MP at the top of the casing when the electronic circuit is first completed. The MP should be the inner casing and not the outer casing that is protecting the well. If the inner casing cannot be reached and the outer casing is used as the MP, then this must be recorded in the datasheet. If necessary, grasp tape with thumb and index finger exactly at the measuring point marked at the top of the well casing. Pull tape out of well slowly and read measurement.
4. Record the depth to the water surface to the nearest 0.01 m.
5. Draw the cable about 0.25 above the surface of the water, then lower it and repeat Steps 2 through 4. If these two readings differ by more than 0.02 m, repeat until the measured readings stabilize. Measurements should always be taken as the indicator is lowered into the well, not as it is raised.

5.0 DEVIATION FROM PROCEDURE

Adherence to this procedure will help to ensure that depth to water is measured properly, can be consistently repeated, and provides accurate data for measurement of water table elevation. Deviation from this procedure may result in improper measurement of water depth and inaccurate data being recorded.

6.0 KEY DOCUMENTS/TOOLS/REFERENCES

- Teck. 2012. Environment, Health, Safety and Community Management Standards. July.
  - Standard 4 – Water, Ecosystems and Biodiversity
  - Standard 13 – Monitoring – Measurement, Inspection and Audit
  - Standard 20 – Documents and Records

MONITORING WELL PURGING AND GROUNDWATER SAMPLING

Teck Coal Ltd. utilizes a system in which Standard Practices and Procedures are developed, implemented and maintained. This helps ensure that safety and environmental risks associated with various work tasks are identified, mitigated and managed.

1.0 PURPOSE AND SCOPE

This document outlines the procedure which will be used by Teck Coal for purging, monitoring and sampling groundwater from monitoring wells. This is applicable to more routine monitoring programs such as compliance monitoring, and not necessarily to research and development programs, which may require far more detailed water chemistry.

2.0 RESPONSIBILITIES

Depending on the operation, field monitoring activities and documentation may be carried out by an Environmental Officer, Environmental Technician (not all operations have this position), or a designate, such as an Environmental Co-op Student.

The Environmental Officer, Technician, or designate is responsible for:

- Purging the well as possible prior to performing any monitoring or sampling activities.
- Collecting the water sample(s)

3.0 BACKGROUND

It is recommended that a low-flow pump is used to sample groundwater where possible. This is not always a feasible or practical methodology. Having to use a pump, power source, and associated equipment can be a major hindrance, especially for sampling locations which may be remote and/or off of roadways or good pathways.

Manual methods to purge and collect groundwater include use of bailers or plastic tubing with foot valves to allow water to be pumped one-way by hand. Dedicated plastic tubing with foot valves is inexpensive, effective, easy to use and can be set up so that each monitoring well has its own dedicated tubing. This would eliminate potential for cross-contamination between wells. Bailers can also be used for purging and sampling, and are inexpensive and very portable. If bailers are used, care must be taken to prevent contamination from one well to the next. Either bailers need to be disposable (single use), or carefully cleaned and decontaminated between sampling locations.

4.0 PROCEDURES

Actively producing well

If a dewatering well has been installed and is actively being used to lower or control the water table, then samples can likely be collected at the surface. Either sample at the discharge point of the pump (hard or soft line) or from a tap installed at the well head.

Monitoring Well or Piezometer

A monitoring well or piezometer is a passive structure (no permanent pump installed) and so water must be brought to the surface manually or by use of a low flow pump.

Water can be brought to the surface for measurement and sample collection using a low flow pump, plastic tubing and one-way foot valve, or bailer.

Preparation

Preparation includes inspecting the condition of the well, monitoring health and safety conditions, and calibrating and decontaminating equipment. General procedures are presented below:

1. Make sure area around well head is clean and free of debris. If necessary, place a plastic drop cloth around the well head to prevent sampling equipment from coming into contact with the ground surface.
2. Inspect condition of well (e.g., well locked, loose-fitting cap, measuring point well marked, surface casing disturbed, well casing straight, condition of concrete pad). Indicate condition of well on the datasheet.
3. All equipment should be decontaminated before and after introduction to each well. Protective latex or nitrile gloves should be worn during possible water-contact or

equipment-contact activities. At a minimum, gloves should be changed between each well or when introduction of potential contaminants to the well is possible.

4. Measure water level using an electronic water level meter as described in SP&P TC-GW-01. Sounding the bottom of the well using a weighted tape (i.e., for well casing volume calculations) before sampling is not recommended to avoid resuspension of settled solids. If possible, determine the elevation of the well bottom from drilling records.
5. Calculate the well casing volume as follows:

   $$\text{well casing volume (L)} = \pi\,(r^{2})(h)(1000\ \text{L/m}^{3})$$

   where h = height of water in the well casing (i.e., depth to bottom of the well minus depth to water (in m), and r = radius of well casing (in m).
6. Calibrate water quality meters for measuring field parameters as appropriate. At a minimum, temperature, pH, specific conductance, and turbidity measurements should be collected during purging and before sampling. Record equipment calibration and maintenance in the equipment log sheets. Decontaminate meters between wells by rinsing with distilled water.

Well Purging

Where reasonably practicable, it is recommended that 3-4 purge volumes of water is removed from the well. Monitoring wells are purged before groundwater samples are collected for analyses. The purpose of well purging is to remove stagnant groundwater from the well (which has interacted with air in the well casing).

The well must then be allowed to recharge prior to sampling. In some cases, such as encountering a very low production and/or essentially dry well, it is not feasible to purge 3-4 volumes of water. If this situation is encountered, be sure to keep good records of the field conditions experienced, the volume of water purged, and notes detailing why 3-4 purge volumes are not possible. Also record any visual observations of the water purged, such as color, turbidity, odor, presence of invertebrates (eg. mayfly larva) etc., which may provide useful information about the state of the well.

Field parameters (i.e., at a minimum pH, temperature and specific conductance) are measured during the purging process (See SOP TC-GW-03).
Purging is assumed to be complete when the readings of these parameters have stabilized.

It is recommended that purging takes place the day before sampling. The well needs to have the stagnant water removed and then recharge. However, recharge water should not sit for too long prior to sampling, as it can react again with air in the casing and become unrepresentative of the groundwater in the area.

1. Lower the pump intake or intake tubing (as applicable) into the water column. The pump intake should be placed at the middle or slightly above the middle of the screened interval in confined aquifers. Placement of the pump intake near the top of the water column is recommended for unconfined aquifers screened across the water table.
2. Conduct purging at a rate that is lower than used to develop the well and that will minimize drawdown in the well. Recommended purge rates for low-flow sampling are generally less than 0.5 L/min, or a rate that results in minimal (i.e., less than 0.3 m) drawdown in the well. Actual purge rates will vary on the basis of aquifer material, well construction, and purging equipment.
3. Continue purging the well until field parameters have stabilized. Field parameters are stable when three successive readings are within ± 0.1 for pH, ±3 percent for conductivity, ± 0.2 ºC for temperature, ± 10 mV for redox potential and ± 10 percent for turbidity and dissolved oxygen.
4. After the field parameters have stabilized, reduce the pump rate to approximately 0.1 L/min or the lowest possible flow setting for the particular pump. Pump should be operated at a rate less than 0.1 L/min when collecting samples for VOC analysis.
5. In the event that even very low purge rates result in emptying of the well, groundwater samples for laboratory analyses should be collected as soon as sufficient groundwater accumulates in the well, regardless of field parameters or total volume purged.

Groundwater Sampling

- Groundwater sampling is conducted after proper purging of the well.
- Where possible, groundwater samples for analyses should be collected directly from the pump discharge at the lowest rate possible to minimize cross contamination, suspension of solids, and aeration of the sample.
- Both bladder pumps and submersible pumps are suitable for purging and sampling of all groundwater parameters. A bailer may be used to collect groundwater samples for laboratory

analyses of volatile organic compounds; however, the peristaltic pump is suitable for collection of semivolatile organic compounds (SVOCs), metals, and general chemistry parameters.

- Bailers are not recommended for purging or sampling of groundwater monitoring wells because they may agitate solids in and next to the well.

1. Groundwater samples should be introduced directly from the pump discharge into the proper sample container and filled to capacity.
2. In general, groundwater samples collected for multiple compounds should be collected in the following order:
   - Volatile organic compounds (VOCs)
   - Dissolved gasses and total organic carbon (TOC)
   - SVOCs (such as polycyclic aromatic hydrocarbons)
   - Metals and cyanide
   - Major water quality cations and anions
   - Radionuclides.
3. In some cases, field filtration may be required (e.g., metals). Filtered water should be introduced directly into the appropriate sample container. If samples cannot be filtered in the field, do not preserve them. The receiving lab can filter then preserve.
4. If applicable, remove the pump or tubing from the well. Close and lock the well. Decontaminate the sampling equipment.

5.0 DEVIATION FROM PROCEDURE

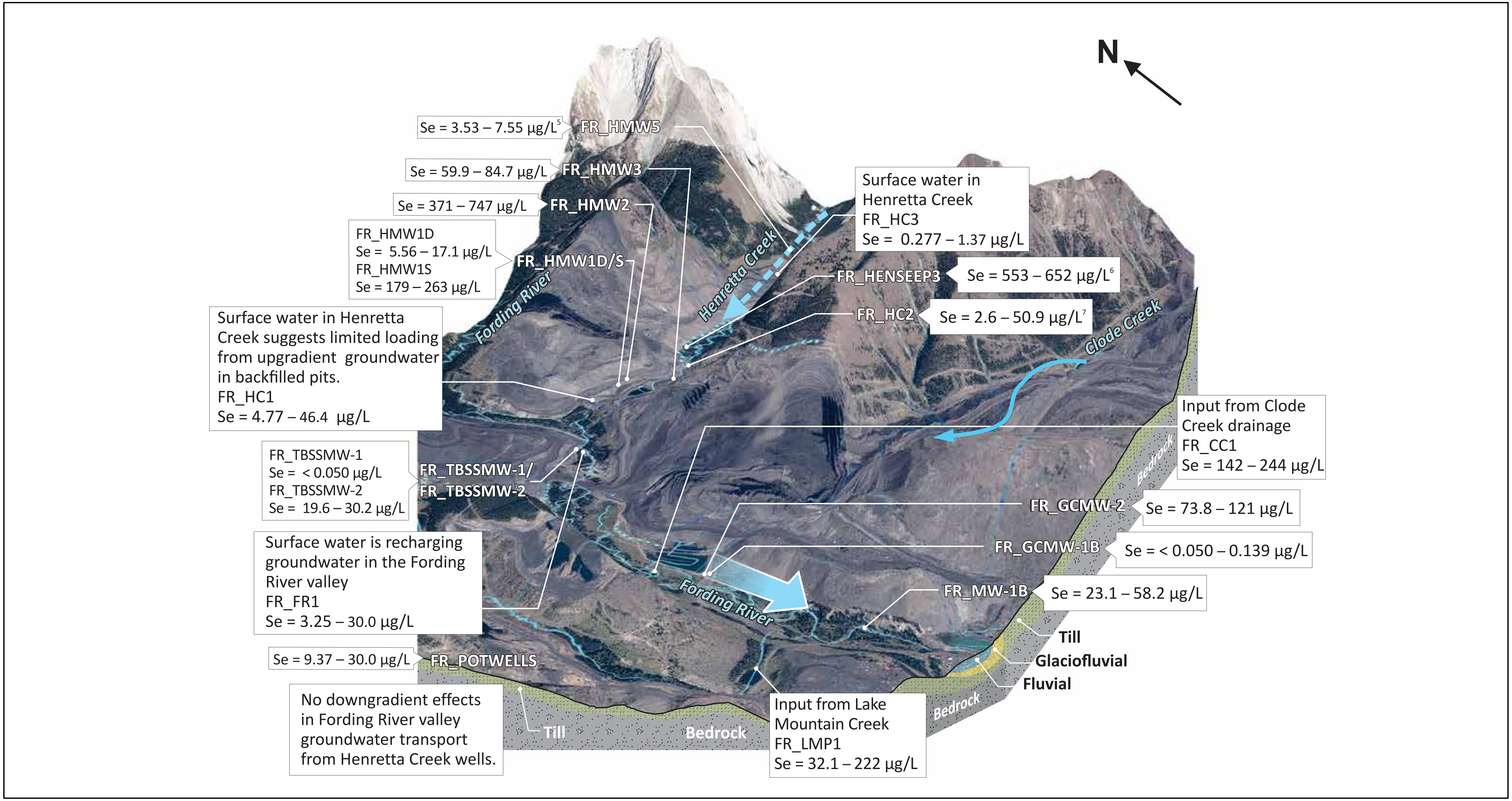
Adherence to this procedure will ensure that wells are purged and sampled correctly. Deviation from this procedure may result in improper collection of samples which yield poor or incorrect data, or to unnecessary health and safety risk to the person(s) collecting the sample(s).

6.0 KEY DOCUMENTS/TOOLS/REFERENCES

- British Columbia. 2003. British Columbia field sampling manual for continuous monitoring and the collection of air, air-emission, water, wastewater, soil, sediment and biological samples. Province of British Columbia, Ministry of Water, Land and Air Protection. January.
- Teck. 2012. Environment, Health, Safety and Community Management Standards. July.
    - Standard 4 – Water, Ecosystems and Biodiversity
    - Standard 13 – Monitoring – Measurement, Inspection and Audit
    - Standard 20 – Documents and Records
- U.S. EPA. 1993. Ground water sampling—a workshop summary. EPA/600/R-94/205. U.S. Environmental Protection Agency, Robert S. Kerr Environmental Research Laboratory, Ada, OK.

Volume II – Appendix X

Block Diagrams



Surface water in Henretta Creek
FR_HC3
Se = 0.277 – 1.37 µg/L

Surface water in Henretta Creek suggests limited loading from upgradient groundwater in backfilled pits.
FR_HC1
Se = 4.77 – 46.4 µg/L

Input from Clode Creek drainage
FR_CC1
Se = 142 – 244 µg/L

Surface water is recharging groundwater in the Fording River valley
FR_FR1
Se = 3.25 – 30.0 µg/L

No downgradient effects in Fording River valley groundwater transport from Henretta Creek wells.

Input from Lake Mountain Creek
FR_LMP1
Se = 32.1 – 222 µg/L

Flow Legend

- Main Stem Down-Valley Groundwater
- Upland or Tributary Groundwater
- Surface Water

REFERENCES:

1. Graphics from Brick Tudor Studios, LLC.

NOTES:

1. Original in colour.
2. All concentrations shown are for 2020 minimum and maximum unless otherwise stated.
3. Subsurface geology is not to scale.
4. Vertical exaggeration 2x for topographic profile.
5. Not sampled in Q1 2020.
6. Range based on two sampling events in 2020.
7. Range based on samples collected between 2011 and 2016.

CLIENT:
Teck Coal Limited

PROJECT LOCATION:
Elk Valley, BC

SNC·LAVALIN

Block Diagram Showing 3D Conceptual Hydrogeology and Transport Pathways of Order Constituents at FRO - Lower Fording River and Henretta Creek

BY:	CW	SCALE:		DATE:	2021-03-18	REF No:	FIGURE X-1
CHK'D:	KC	Proj Coord Sys:	NAD 1983 UTM Zone 10N				

MXD Path: \\Sli2606\projects\Current Projects\Teck Coal Ltd\GISCAD\GIS\Map Series\635544_2020 SSGMP RGMP Annual Report\Block Diagrams\635544-FR1-BlockDiagram.mxd

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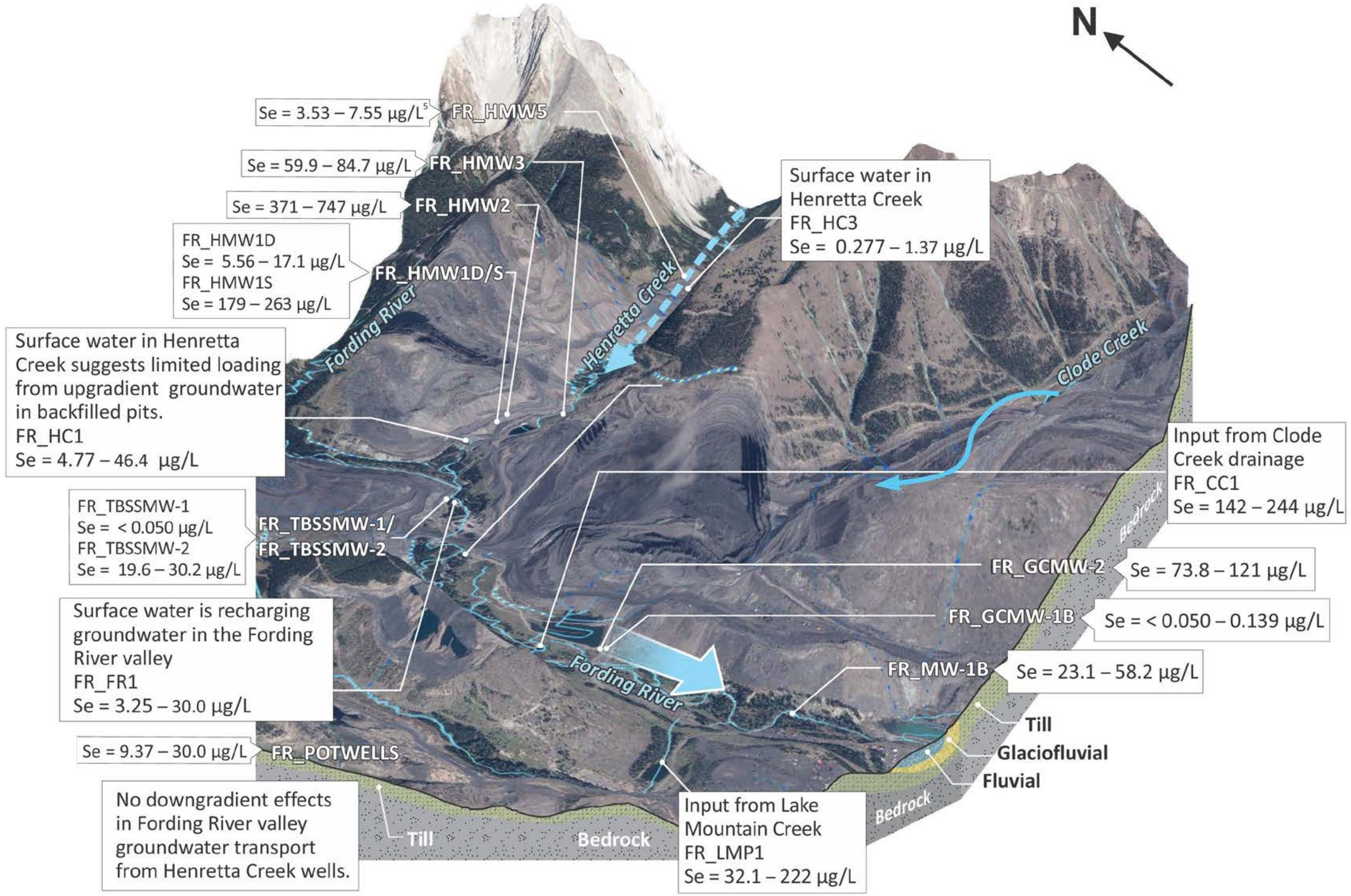

Flow Legend

Main Stem Down-Valley Groundwater

Upland or Tributary Groundwater

Surface Water

REFERENCES:

1. Graphics from Brick Tudor Studios, LLC.

NOTES:

1. Original in colour.
2. All concentrations shown are for 2020 minimum and maximum unless otherwise stated.
3. Subsurface geology is not to scale.
4. Vertical exaggeration 2x for topographic profile.
5. Not sampled in Q1 2020.

CLIENT:
Teck Coal Limited

PROJECT LOCATION:
Elk Valley, BC

SNC·LAVALIN

Block Diagram Showing 3D Conceptual Hydrogeology and Transport Pathways of Order Constituents at FRO - Lower Fording River and Henretta Creek

BY: CW	SCALE:	DATE: 2021-03-18	REF No:
CHK'D: KC	Proj Coord Sys: NAD 1983 UTM Zone 10N		FIGURE X-1

MXD Path: \\Sli2606\projects\Current Projects\Teck Coal Ltd\GISCAD\GIS\Map Series\635544_2020 SSGMP RGMP Annual Report\Block Diagrams\635544-FR1-BlockDiagram.mxd

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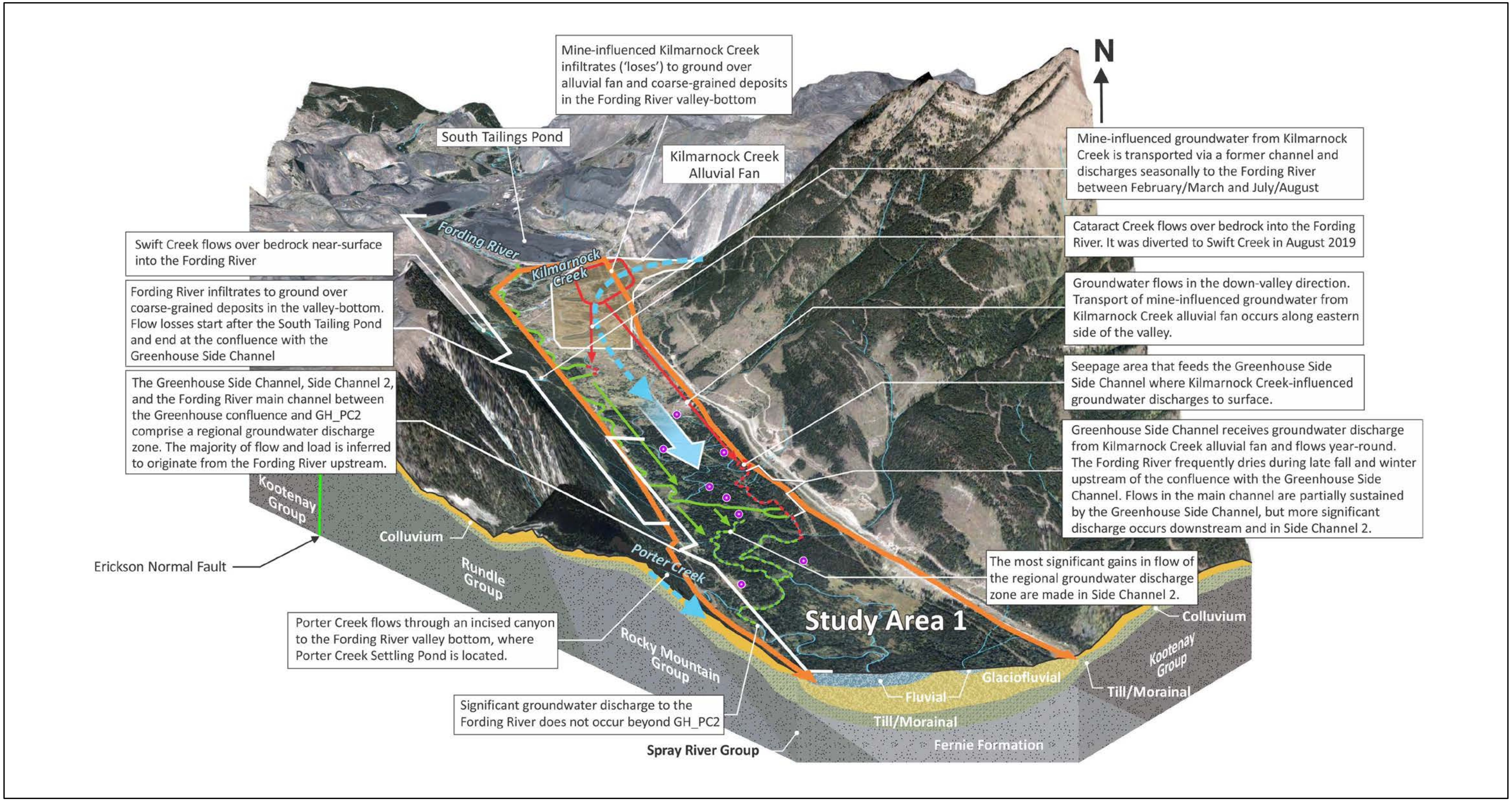

Mine-influenced Kilmarnock Creek infiltrates ('loses') to ground over alluvial fan and coarse-grained deposits in the Fording River valley-bottom

Mine-influenced groundwater from Kilmarnock Creek is transported via a former channel and discharges seasonally to the Fording River between February/March and July/August

Cataract Creek flows over bedrock into the Fording River. It was diverted to Swift Creek in August 2019

Swift Creek flows over bedrock near-surface into the Fording River

Fording River infiltrates to ground over coarse-grained deposits in the valley-bottom. Flow losses start after the South Tailing Pond and end at the confluence with the Greenhouse Side Channel

Groundwater flows in the down-valley direction. Transport of mine-influenced groundwater from Kilmarnock Creek alluvial fan occurs along eastern side of the valley.

Seepage area that feeds the Greenhouse Side Side Channel where Kilmarnock Creek-influenced groundwater discharges to surface.

The Greenhouse Side Channel, Side Channel 2, and the Fording River main channel between the Greenhouse confluence and GH_PC2 comprise a regional groundwater discharge zone. The majority of flow and load is inferred to originate from the Fording River upstream.

Greenhouse Side Channel receives groundwater discharge from Kilmarnock Creek alluvial fan and flows year-round. The Fording River frequently dries during late fall and winter upstream of the confluence with the Greenhouse Side Channel. Flows in the main channel are partially sustained by the Greenhouse Side Channel, but more significant discharge occurs downstream and in Side Channel 2.

The most significant gains in flow of the regional groundwater discharge zone are made in Side Channel 2.

Porter Creek flows through an incised canyon to the Fording River valley bottom, where Porter Creek Settling Pond is located.

Significant groundwater discharge to the Fording River does not occur beyond GH_PC2

Flow Legend

➡	Main Stem Down-Valley Groundwater
➡	Upland or Tributary Groundwater
➡	Inferred Transport Pathway of Kilmarnock-Influenced Groundwater
➡	Inferred Transport Pathway of Fording-Influenced Groundwater
—	Kilmarnock Creek Recharge Zone
- - -	Kilmarnock Creek Discharge Zone
—	Fording River Recharge Zone
- - -	Fording River Discharge Zone
○	Nested Monitoring Well (2020 MBI)

REFERENCES:

1. Graphics from Brick Tudor Studios, LLC.
2. Bedrock Geology derived from Monahan, 2000, BC Government.

NOTES:

1. Original in colour.
2. All concentrations shown are for 2020 minimum and maximum unless otherwise stated.
3. Subsurface geology is not to scale.
4. Vertical exaggeration 2x for topographic profile.
5. Groundwater transport pathways are conceptual only.

CLIENT:
Teck Coal Limited

PROJECT LOCATION:
Elk Valley, BC

SNC·LAVALIN

Block Diagram Showing 3D Conceptual Hydrogeology and Transport Pathways at FRO - Lower Fording River and Study Area 1

BY: CW	SCALE:	DATE: 2021-03-16	REF No:
CHK'D: KC	Proj Coord Sys: NAD 1983 UTM Zone 10N		FIGURE X-2

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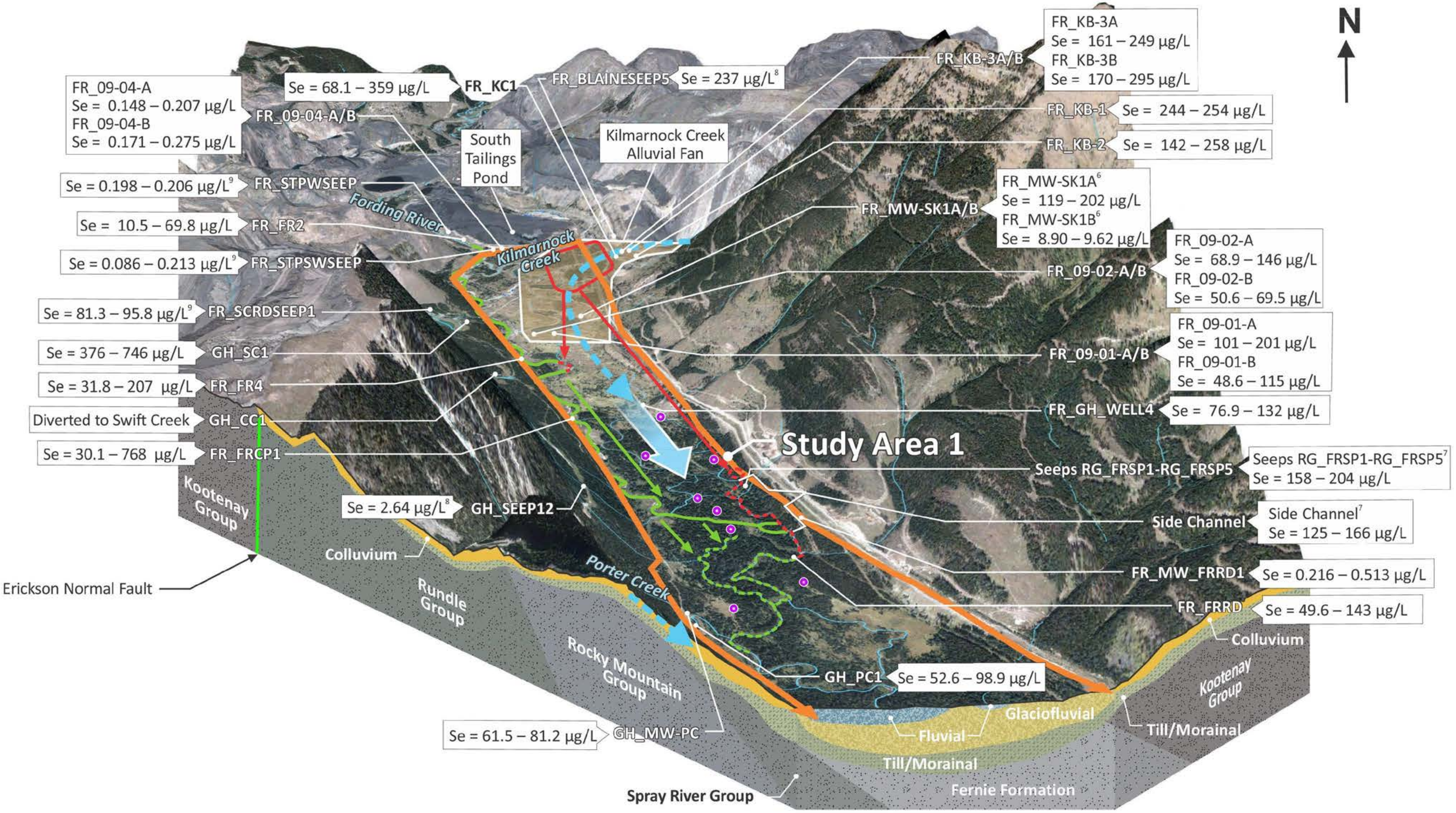


Flow Legend

- ● Nested Monitoring Well (2020 MBI)
- ➡ Main Stem Down-Valley Groundwater
- ➡ Inferred Transport Pathway of Kilmarnock-Influenced Groundwater
- ➡ Inferred Transport Pathway of Fording-Influenced Groundwater
- ➡ Upland or Tributary Groundwater
- ▬ Kilmarnock Creek Recharge Zone
- ╌ Kilmarnock Creek Discharge Zone
- ▬ Fording River Recharge Zone
- ╌ Fording River Discharge Zone

REFERENCES:

1. Graphics from Brick Tudor Studios, LLC.
2. Bedrock Geology derived from Monahan, 2000, BC Government.

NOTES:

1. Original in colour.
2. All concentrations shown are for 2020 minimum and maximum unless otherwise stated.
3. Subsurface geology is not to scale.
4. Vertical exaggeration 2x for topographic profile.
5. Groundwater transport pathways are conceptual only.
6. Sampling not completed in Q1 2020.
7. Data collected in February 2020.
8. Only one sample collected in 2020.
9. Range based on two sampling events in 2020.

CLIENT:
Teck Coal Limited

PROJECT LOCATION:
Elk Valley, BC

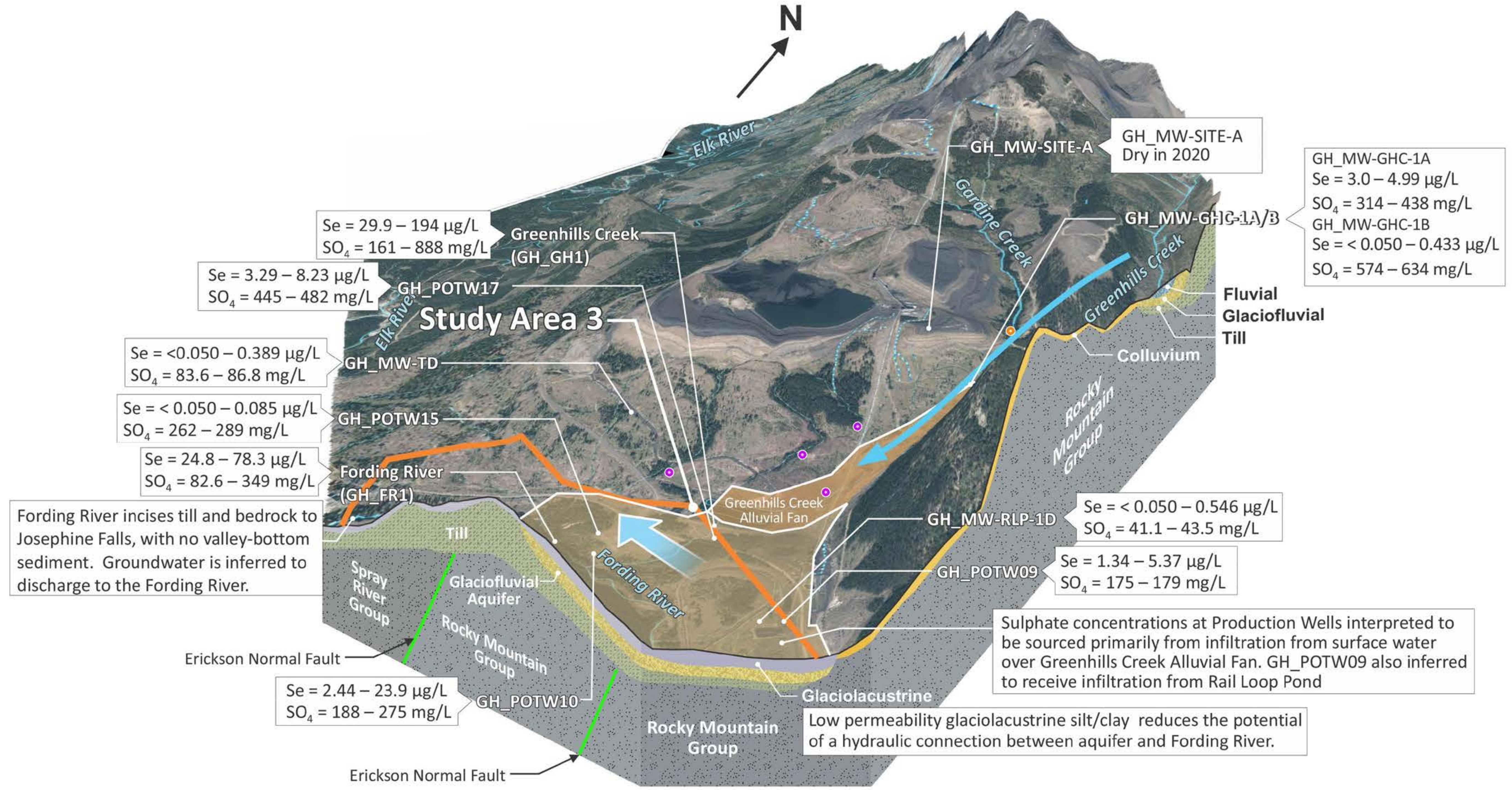
SNC·LAVALIN

Block Diagram Showing 3D Conceptual Hydrogeology Order Constituents at FRO – Lower Fording River and Study Area 1

BY:	CW	SCALE:	DATE: 2021-03-18	REF No:	
CHK'D:	KC	Proj Coord Sys: NAD 1983 UTM Zone 10N		FIGURE X-3	

MXD Path: \\Sli2606\projects\Current Projects\Teck Coal Ltd\GISCAD\GIS\Map Series\635544_2020 SSGMP RGMP Annual Report\Block Diagrams\635544-FR3-BlockDiagram.mxd

Project Path: \\Sli2606\projects\Current Projects\Teck Coal Ltd\GISCAD\Exports\635544_SSGMP_RGMP_AnnualReport_2020



GH_MW-SITE-A
Dry in 2020

GH_MW-GHC-1A
Se = 3.0 – 4.99 µg/L
SO_4 = 314 – 438 mg/L
GH_MW-GHC-1B
Se = < 0.050 – 0.433 µg/L
SO_4 = 574 – 634 mg/L

Greenhills Creek (GH_GH1)
Se = 29.9 – 194 µg/L
SO_4 = 161 – 888 mg/L

GH_POTW17
Se = 3.29 – 8.23 µg/L
SO_4 = 445 – 482 mg/L

GH_MW-TD
Se = <0.050 – 0.389 µg/L
SO_4 = 83.6 – 86.8 mg/L

GH_POTW15
Se = < 0.050 – 0.085 µg/L
SO_4 = 262 – 289 mg/L

Fording River (GH_FR1)
Se = 24.8 – 78.3 µg/L
SO_4 = 82.6 – 349 mg/L

Fording River incises till and bedrock to Josephine Falls, with no valley-bottom sediment. Groundwater is inferred to discharge to the Fording River.

GH_MW-RLP-1D
Se = < 0.050 – 0.546 µg/L
SO_4 = 41.1 – 43.5 mg/L

GH_POTW09
Se = 1.34 – 5.37 µg/L
SO_4 = 175 – 179 mg/L

Sulphate concentrations at Production Wells interpreted to be sourced primarily from infiltration from surface water over Greenhills Creek Alluvial Fan. GH_POTW09 also inferred to receive infiltration from Rail Loop Pond

GH_POTW10
Se = 2.44 – 23.9 µg/L
SO_4 = 188 – 275 mg/L

Low permeability glaciolacustrine silt/clay reduces the potential of a hydraulic connection between aquifer and Fording River.

Flow Legend

- Main Stem Down-Valley Groundwater
- Upland or Tributary Groundwater
- Surface Water
- ● New Nested Monitoring Wells
- ● New Single Monitoring Well

REFERENCES:

1. Graphics from Brick Tudor Studios, LLC.
2. Bedrock Geology derived from Monahan, 2000, BC Government..

NOTES:
1. Original in colour.
2. All concentrations shown are for 2020 minimum and maximum unless otherwise stated.
3. Subsurface geology is not to scale.
4. Vertical exaggeration 2x for topographic profile.

CLIENT:
Teck Coal Limited

PROJECT LOCATION:
Elk Valley, BC

SNC·LAVALIN

Block Diagram Showing 3D Conceptual Hydrogeology and Transport Pathways of Order Constituents at GHO – Fording River and Greenhills Creek and Study Area 3

BY: CW	SCALE:	DATE: 2021-03-18	REF No:
CHK'D: KC	Proj Coord Sys: NAD 1983 UTM Zone 10N		**FIGURE X-4**

Project Path: \\Sli2606\projects\Current Projects\Teck Coal Ltd\GISCAD\Exports\635544_SSGMP_RGMP_AnnualReport_2020

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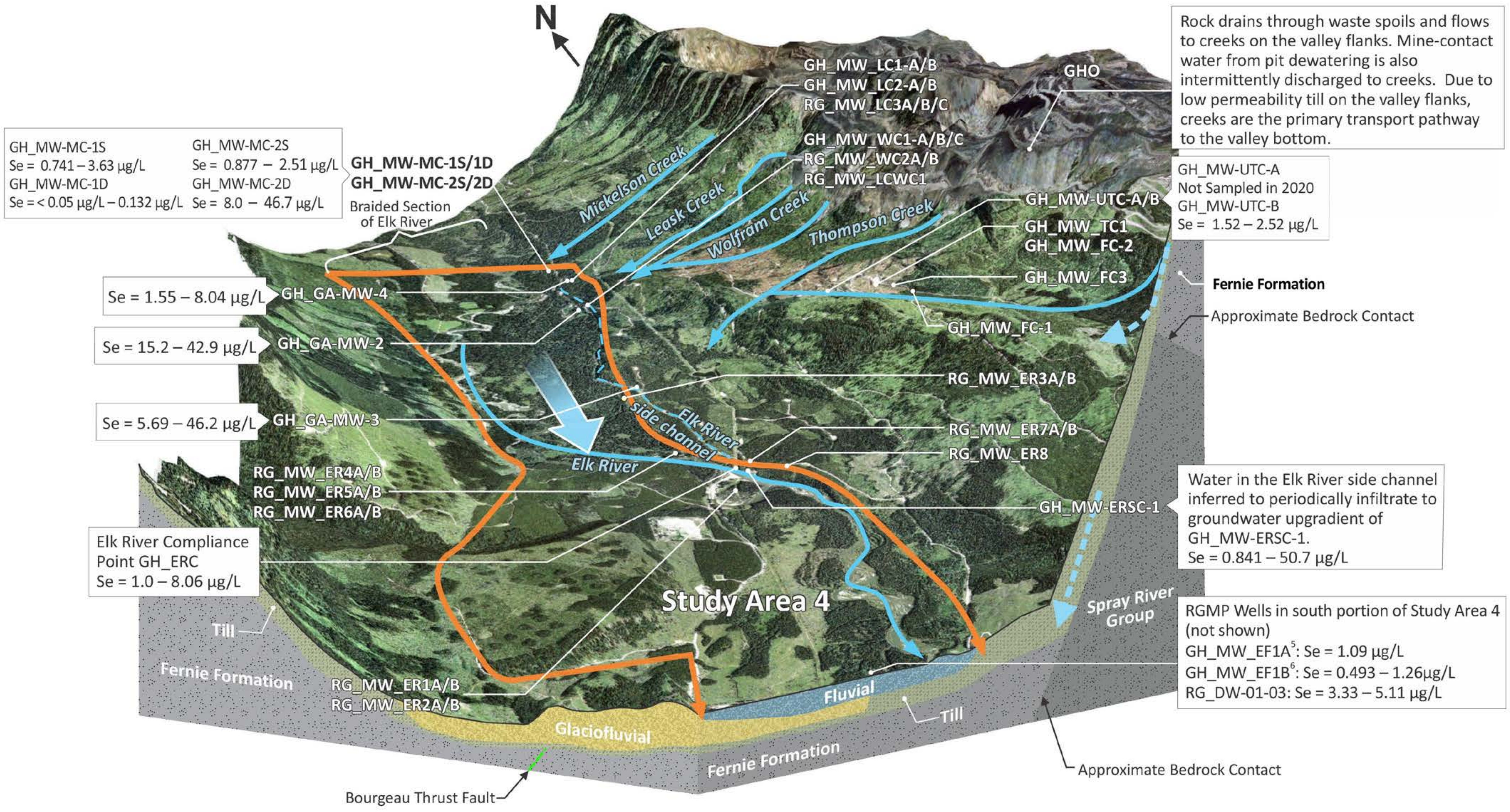


GH_MW-MC-1S
Se = 0.741 – 3.63 µg/L
GH_MW-MC-1D
Se = < 0.05 µg/L – 0.132 µg/L

GH_MW-MC-2S
Se = 0.877 – 2.51 µg/L
GH_MW-MC-2D
Se = 8.0 – 46.7 µg/L

Se = 1.55 – 8.04 µg/L

Se = 15.2 – 42.9 µg/L

Se = 5.69 – 46.2 µg/L

Elk River Compliance Point GH_ERC
Se = 1.0 – 8.06 µg/L

Rock drains through waste spoils and flows to creeks on the valley flanks. Mine-contact water from pit dewatering is also intermittently discharged to creeks. Due to low permeability till on the valley flanks, creeks are the primary transport pathway to the valley bottom.

GH_MW-UTC-A
Not Sampled in 2020
GH_MW-UTC-B
Se = 1.52 – 2.52 µg/L

Water in the Elk River side channel inferred to periodically infiltrate to groundwater upgradient of GH_MW-ERSC-1.
Se = 0.841 – 50.7 µg/L

RGMP Wells in south portion of Study Area 4 (not shown)
GH_MW_EF1A[5]: Se = 1.09 µg/L
GH_MW_EF1B[6]: Se = 0.493 – 1.26µg/L
RG_DW-01-03: Se = 3.33 – 5.11 µg/L

Flow Legend

➡ Main Stem Down-Valley Groundwater
➡ Upland or Tributary Groundwater
➡ Surface Water

REFERENCES:

1. Graphics from Brick Tudor Studios, LLC.
2. Geology derived from Monahan, 2000, BC Government.

NOTES:
1. Original in colour.
2. All concentrations shown are for 2020 minimum and maximum unless otherwise stated.
3. Subsurface geology is not to scale.
4. Vertical exaggeration 2x for topographic profile.
5. Sampled once in 2020.
6. Range based on two sampling events in 2020.

CLIENT:
Teck Coal Limited

PROJECT LOCATION:
Elk Valley, BC

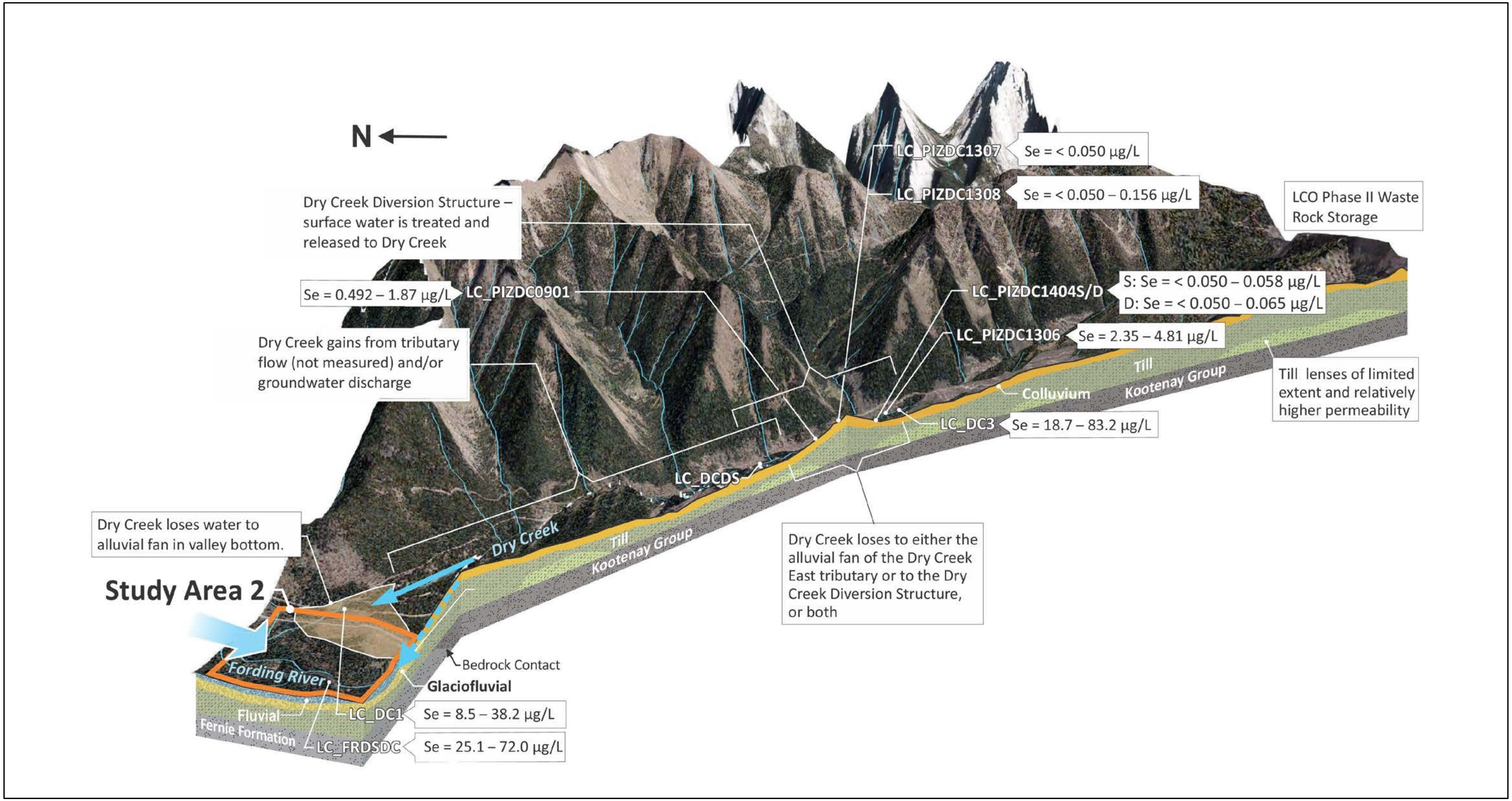
SNC·LAVALIN

Block Diagram Showing 3D Conceptual Hydrogeology and Transport Pathways of Order Constituents at GHO – Elk River and Study Area 4

BY: CW	SCALE:	DATE: 2021-03-18	REF No:
CHK'D: KC	Proj Coord Sys: NAD 1983 UTM Zone 10N		**FIGURE X-5**

MXD Path: \\Sli2606\projects\Current Projects\Teck Coal Ltd\GISCAD\GIS\Map Series\635544_2020 SSGMP RGMP Annual Report\Block Diagrams\635544-GH2-Block Diagram.mxd

Project Path: \\Sli2606\projects\Current Projects\Teck Coal Ltd\GISCAD\Exports\635544_SSGMP_RGMP_AnnualReport_2020



Flow Legend

- Main Stem Down-Valley Groundwater
- Upland or Tributary Groundwater
- Surface Water

REFERENCES:

1. Graphics from Brick Tudor Studios, LLC.
2. Bedrock Geology derived from Monahan, 2000, BC Government.

NOTES:

1. Original in colour.
2. All concentrations shown are for 2020 minimum and maximum unless otherwise stated.
3. Subsurface geology is not to scale.
4. Vertical exaggeration 2x for topographic profile.

CLIENT:
Teck Coal Limited

PROJECT LOCATION:
Elk Valley, BC

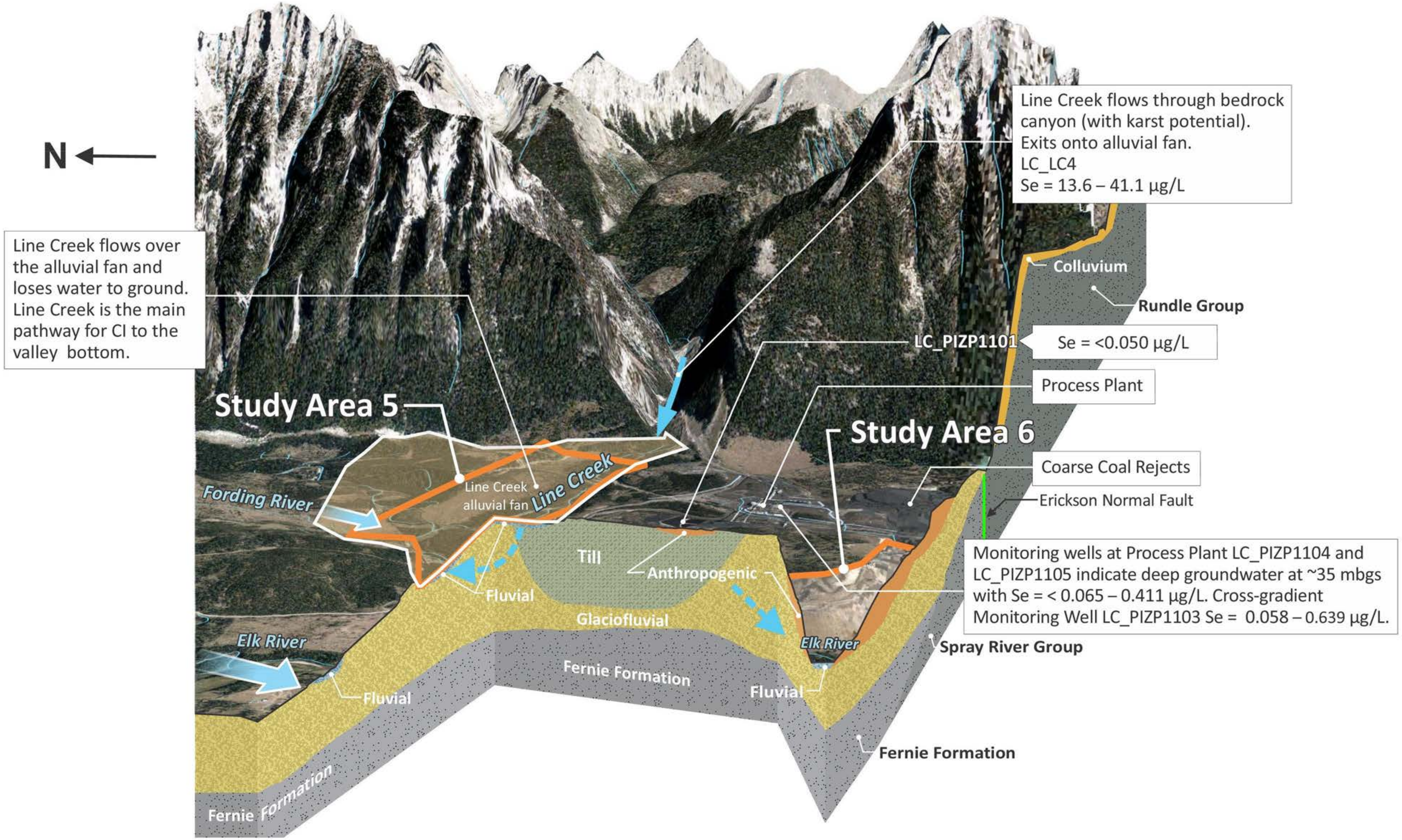
SNC·LAVALIN

Block Diagram Showing 3D Conceptual Hydrogeology and Transport Pathways of Order Constituents at LCO - Dry Creek and Study Area 2

BY: CW	SCALE:	DATE: 2021-03-18	REF No:	FIGURE X-6
CHK'D: KC	Proj Coord Sys: NAD 1983 UTM Zone 10N			

MXD Path: \\Sli2606\projects\Current Projects\Teck Coal Ltd\GISCAD\GIS\Map Series\635544_2020 SSGMP RGMP Annual Report\Block Diagrams\635544-LC1-BlockDiagram.mxd

Project Path: \\Sli2606\projects\Current Projects\Teck Coal Ltd\GISCAD\Exports\635544_SSGMP_RGMP_AnnualReport_2020



Line Creek flows over the alluvial fan and loses water to ground. Line Creek is the main pathway for CI to the valley bottom.

Line Creek flows through bedrock canyon (with karst potential). Exits onto alluvial fan.
LC_LC4
Se = 13.6 – 41.1 µg/L

Se = <0.050 µg/L

Monitoring wells at Process Plant LC_PIZP1104 and LC_PIZP1105 indicate deep groundwater at ~35 mbgs with Se = < 0.065 – 0.411 µg/L. Cross-gradient Monitoring Well LC_PIZP1103 Se = 0.058 – 0.639 µg/L.

Flow Legend

Main Stem Down-Valley Groundwater

Upland or Tributary Groundwater

Surface Water

REFERENCES:

1. Graphics from Brick Tudor Studios, LLC.
2. Bedrock Geology derived from Monahan, 2000, BC Government.

NOTES:

1. Original in colour.
2. All concentrations shown are for 2020 minimum and maximum unless otherwise stated.
3. Subsurface geology is not to scale.
4. Vertical exaggeration 2x for topographic profile.

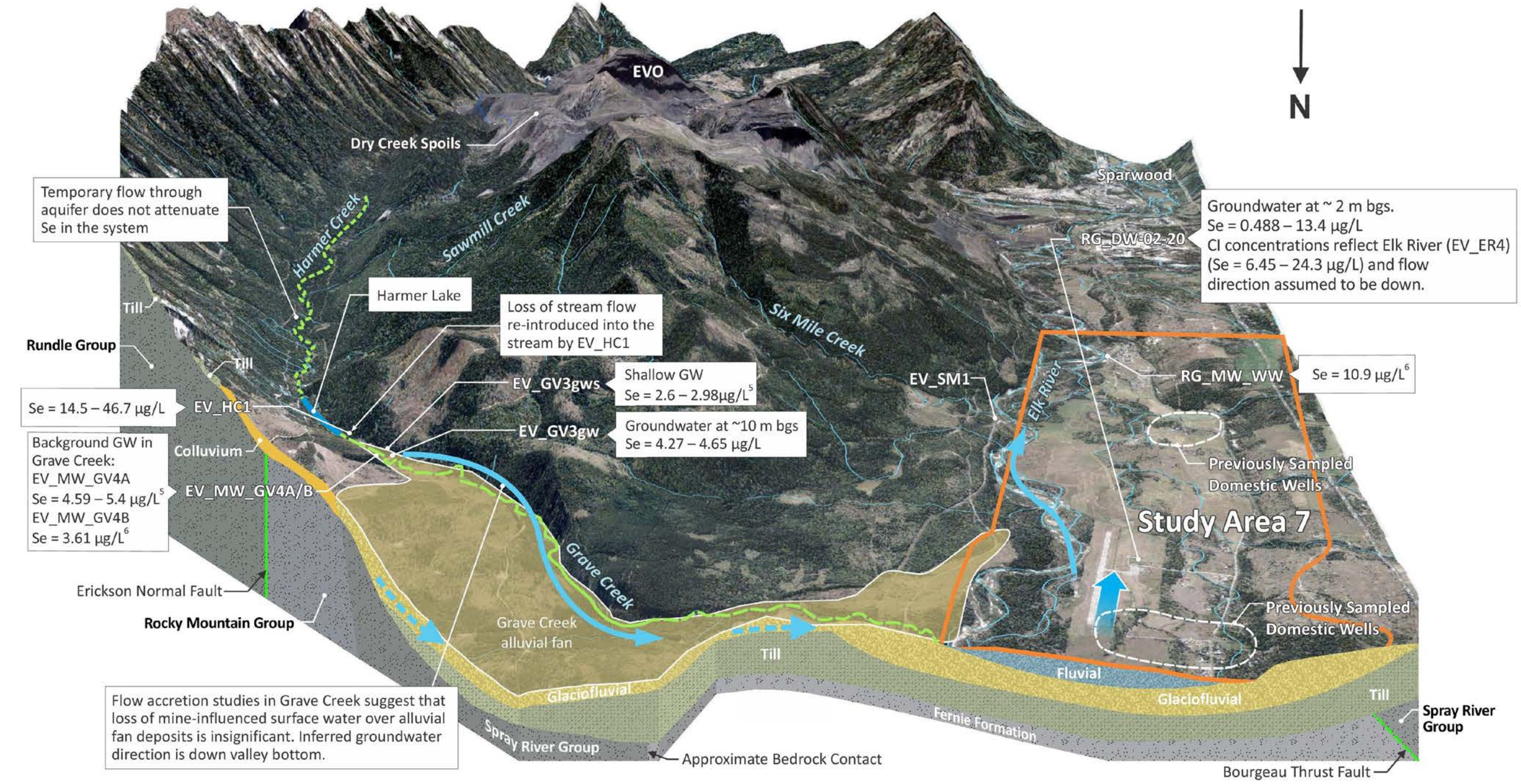
CLIENT: Teck Coal Limited	SNC·LAVALIN
PROJECT LOCATION: Elk Valley, BC	

Block Diagram Showing 3D Conceptual Hydrogeology and Transport Pathways of Order Constituents at LCO - Line Creek, Elk River, and Study Areas 5/6

BY: CW	SCALE:	DATE: 2021-03-18	REF No: FIGURE X-7
CHK'D: KC	Proj Coord Sys: NAD 1983 UTM Zone 10N		

MXD Path: \\Sli2606\projects\Current Projects\Teck Coal Ltd\GISCAD\GIS\Map Series\635544_2020 SSGMP RGMP Annual Report\Block Diagrams\635544-LC2-BlockDiagram.mxd

Project Path: \\Sli2606\projects\Current Projects\Teck Coal Ltd\GISCAD\Exports\635544_SSGMP_RGMP_AnnualReport_2020



Temporary flow through aquifer does not attenuate Se in the system

Loss of stream flow re-introduced into the stream by EV_HC1

Se = 14.5 – 46.7 µg/L

Background GW in Grave Creek:
EV_MW_GV4A
Se = 4.59 – 5.4 µg/L[5]
EV_MW_GV4B
Se = 3.61 µg/L[6]

Shallow GW
Se = 2.6 – 2.98µg/L[5]

Groundwater at ~10 m bgs
Se = 4.27 – 4.65 µg/L

Groundwater at ~ 2 m bgs.
Se = 0.488 – 13.4 µg/L
Cl concentrations reflect Elk River (EV_ER4) (Se = 6.45 – 24.3 µg/L) and flow direction assumed to be down.

Se = 10.9 µg/L[6]

Flow accretion studies in Grave Creek suggest that loss of mine-influenced surface water over alluvial fan deposits is insignificant. Inferred groundwater direction is down valley bottom.

Flow Legend

➡	Main Stem Down-Valley Groundwater
⇢	Upland or Tributary Groundwater
↝	Surface Water
━	Gaining Reach
━ ━	Stable Reach
- - -	Losing or Stable Reach

REFERENCES:

1. Graphics from Brick Tudor Studios, LLC.
2. Geology derived from Monahan, 2000, BC Government.
3. Lorax Environmental, 2019, EVO Dry Creek and Harmer Creek Local Flow and Water Quality Investigation
4. SNC-Lavalin, 2020, Grave Creek and Line Creek Flow Accretion Studies, Summer and Fall 2020

NOTES:

1. Original in colour.
2. All concentrations shown are for 2020 minimum and maximum unless otherwise stated.
3. Subsurface geology is not to scale.
4. Vertical exaggeration 2x for topographic profile.
5. Range at EV_MW-GV4A and EV_GV3gwS based on two sampling events in 2020.
6. Only one sampling event at EV_MW-GV4B in 2020.

CLIENT: Teck Coal Limited

PROJECT LOCATION: Elk Valley, BC

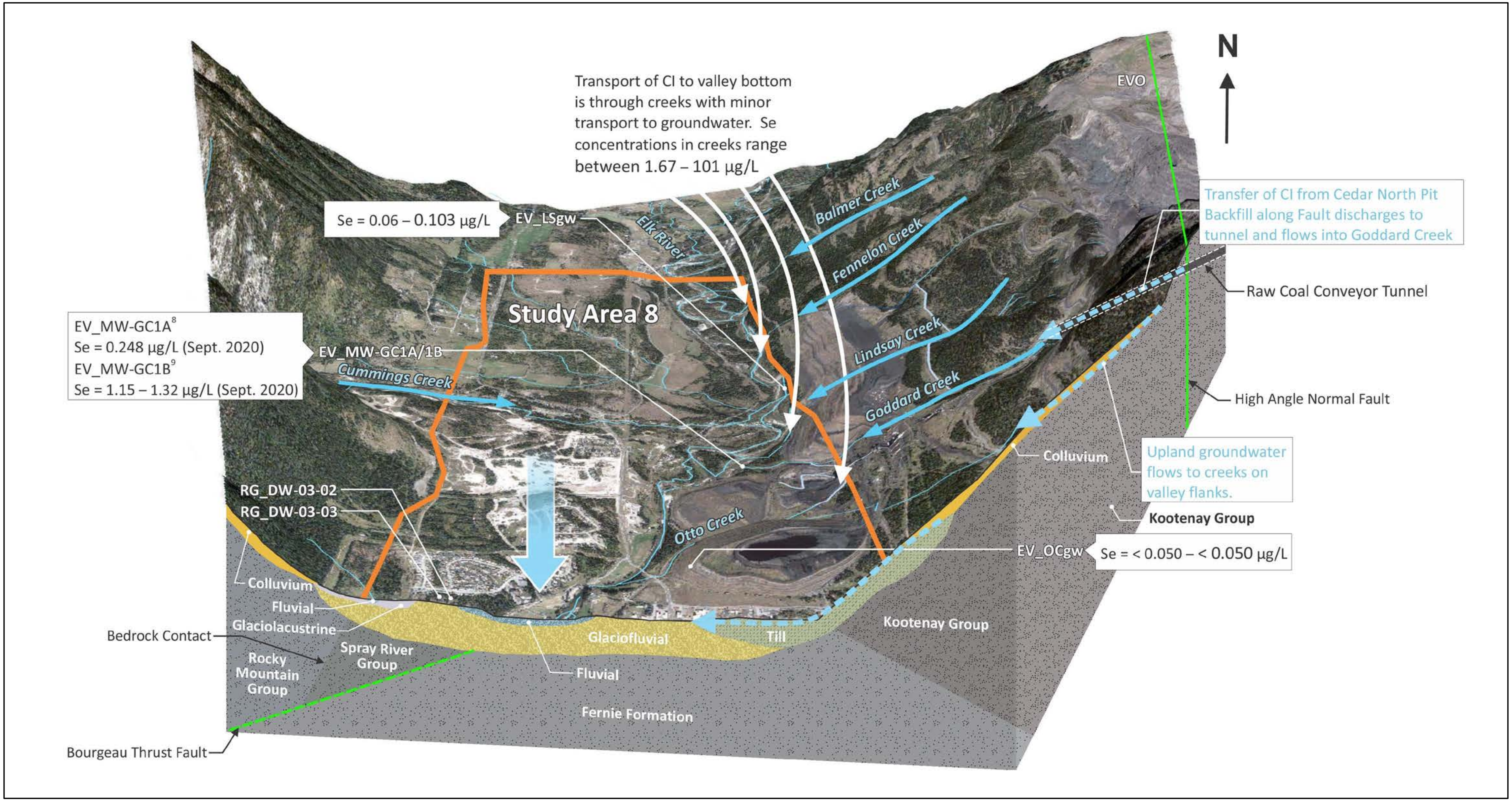
SNC·LAVALIN

Block Diagram Showing 3D Conceptual Hydrogeology and Transport Pathways of Order Constituents at EVO - Grave Creek/Harmer Creek and Study Area 7

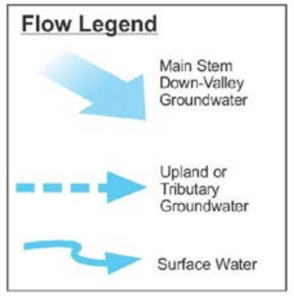
BY: CW	SCALE:	DATE: 2021-03-18	REF No: FIGURE X-8
CHK'D: KC	Proj Coord Sys: NAD 1983 UTM Zone 10N		

Project Path: \\Sli2606\projects\Current Projects\Teck Coal Ltd\GISCAD\Exports\635544_SSGMP_RGMP_AnnualReport_2020

MXD Path: \\Sli2606\projects\Current Projects\Teck Coal Ltd\GISCAD\GIS\Map Series\635544_2020 SSGMP RGMP Annual Report\Block Diagrams\635544-EV1-BlockDiagram.mxd



Flow Legend



REFERENCES:

1. Graphics from Brick Tudor Studios, LLC.
2. Geology derived from Monahan, 2000, BC Government.

NOTES:

1. Original in colour.
2. All concentrations shown are for 2020 minimum and maximum unless otherwise stated.
3. Subsurface geology is not to scale.
4. Vertical exaggeration 2x for topographic profile.
5. Bourgeau thrust fault strikes N-S and dips to the west.
6. Bedrock contact between the Rocky Mtn. Supergroup and the Spray River Group strikes N-S and dips to the west.
7. Bedrock contact between the Fernie Formation and the Kootenay Group strikes N-S and is inferred to dip to the east.
8. Only one sampling event at EV_MW-GC1A in 2020.
9. Range at EV_MW-GC1B based on two sampling events in 2020.

CLIENT: Teck Coal Limited

PROJECT LOCATION: Elk Valley, BC

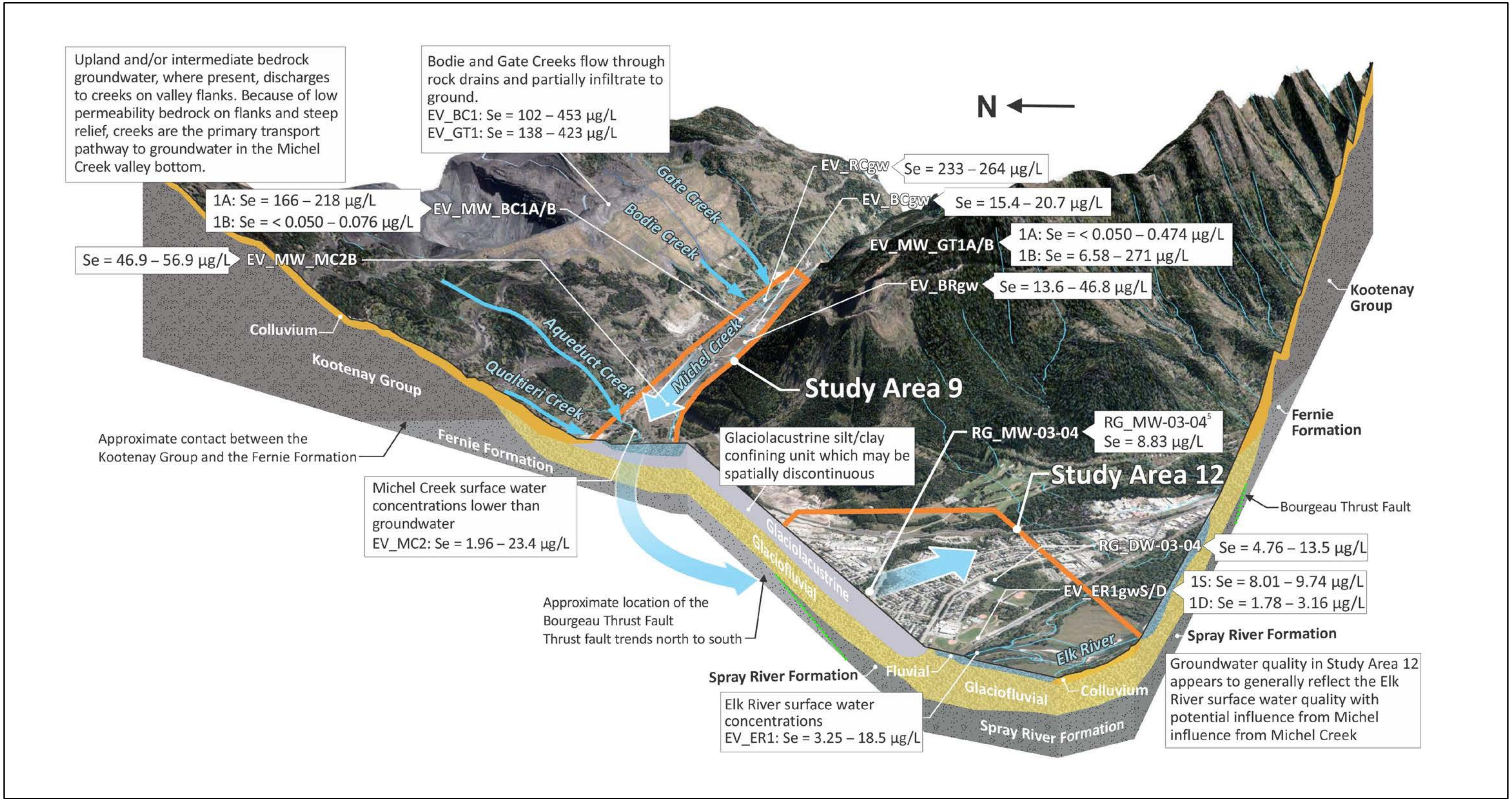
SNC·LAVALIN

Block Diagram Showing 3D Conceptual Hydrogeology and Transport Pathways of Order Constituents at EVO - Elk River Proximal to EVO and Study Area 8

BY: CW	SCALE:	DATE: 2021-03-18	REF No: FIGURE X-9
CHK'D: KC	Proj Coord Sys: NAD 1983 UTM Zone 10N		

MXD Path: \\Sli2606\projects\Current Projects\Teck Coal Ltd\GISCAD\GIS\Map Series\635544_2020 SSGMP RGMP Annual Report\Block Diagrams\635544-EV2-BlockDiagram.mxd

Project Path: \\Sli2606\projects\Current Projects\Teck Coal Ltd\GISCAD\Exports\635544_SSGMP_RGMP_AnnualReport_2020



Upland and/or intermediate bedrock groundwater, where present, discharges to creeks on valley flanks. Because of low permeability bedrock on flanks and steep relief, creeks are the primary transport pathway to groundwater in the Michel Creek valley bottom.

Bodie and Gate Creeks flow through rock drains and partially infiltrate to ground.
EV_BC1: Se = 102 – 453 µg/L
EV_GT1: Se = 138 – 423 µg/L

EV_RCgw: Se = 233 – 264 µg/L

EV_BCgw: Se = 15.4 – 20.7 µg/L

EV_MW_BC1A/B:
1A: Se = 166 – 218 µg/L
1B: Se = < 0.050 – 0.076 µg/L

EV_MW_GT1A/B:
1A: Se = < 0.050 – 0.474 µg/L
1B: Se = 6.58 – 271 µg/L

EV_MW_MC2B: Se = 46.9 – 56.9 µg/L

EV_BRgw: Se = 13.6 – 46.8 µg/L

Approximate contact between the Kootenay Group and the Fernie Formation

Glaciolacustrine silt/clay confining unit which may be spatially discontinuous

RG_MW-03-04[5]
Se = 8.83 µg/L

Michel Creek surface water concentrations lower than groundwater
EV_MC2: Se = 1.96 – 23.4 µg/L

RG_DW-03-04: Se = 4.76 – 13.5 µg/L

EV_ER1gwS/D:
1S: Se = 8.01 – 9.74 µg/L
1D: Se = 1.78 – 3.16 µg/L

Approximate location of the Bourgeau Thrust Fault
Thrust fault trends north to south

Elk River surface water concentrations
EV_ER1: Se = 3.25 – 18.5 µg/L

Groundwater quality in Study Area 12 appears to generally reflect the Elk River surface water quality with potential influence from Michel influence from Michel Creek

Flow Legend

- Main Stem Down-Valley Groundwater
- Upland or Tributary Groundwater
- Surface Water

REFERENCES:

1. Graphics from Brick Tudor Studios, LLC.
2. Geology derived from Monahan, 2000, BC Government.

NOTES:

1. Original in colour.
2. All concentrations shown are for 2020 minimum and maximum unless otherwise stated.
3. Subsurface geology is not to scale.
4. Vertical exaggeration 2x for topographic profile.
5: Only one sampling event at RG_MW-03-04 in 2020.

CLIENT:
Teck Coal Limited

PROJECT LOCATION:
Elk Valley, BC

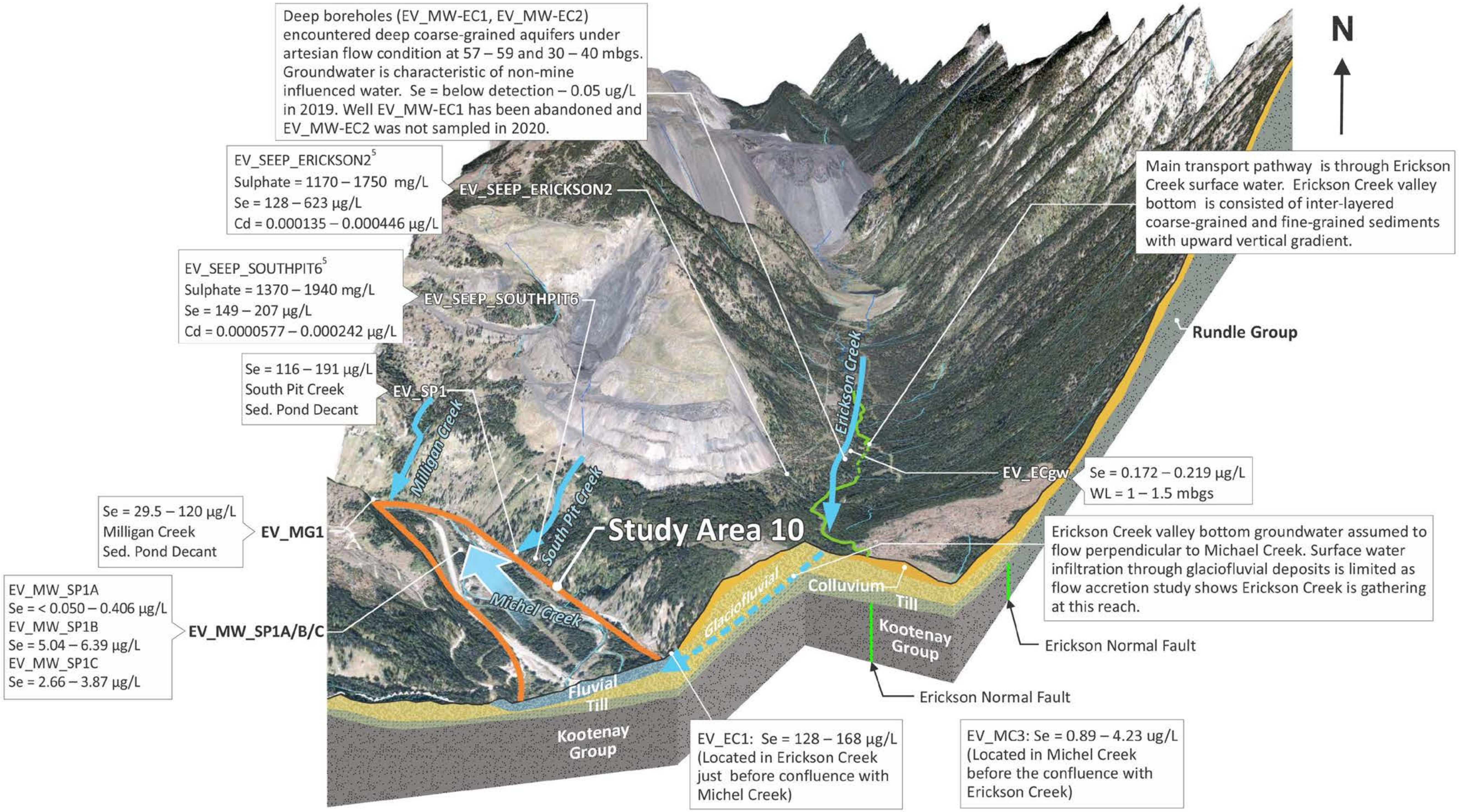
SNC·LAVALIN

Block Diagram Showing 3D Conceptual Hydrogeology and Transport Pathways of Order Constituents at EVO - Michel Creek and Elk River Distal to EVO, Study Areas 9 and 12

BY: CW	SCALE:	DATE: 2021-03-18	REF No:
CHK'D: KC	Proj Coord Sys: NAD 1983 UTM Zone 10N		FIGURE X-10

MXD Path: \\Sli2606\projects\Current Projects\Teck Coal Ltd\GISCAD\GIS\Map Series\635544_2020 SSGMP RGMP Annual Report\Block Diagrams\635544-EV4-BlockDiagram.mxd

Project Path: \\Sli2606\projects\Current Projects\Teck Coal Ltd\GISCAD\Exports\635544_SSGMP_RGMP_AnnualReport_2020



Deep boreholes (EV_MW-EC1, EV_MW-EC2) encountered deep coarse-grained aquifers under artesian flow condition at 57 – 59 and 30 – 40 mbgs. Groundwater is characteristic of non-mine influenced water. Se = below detection – 0.05 ug/L in 2019. Well EV_MW-EC1 has been abandoned and EV_MW-EC2 was not sampled in 2020.

EV_SEEP_ERICKSON2[5]
Sulphate = 1170 – 1750 mg/L
Se = 128 – 623 μg/L
Cd = 0.000135 – 0.000446 μg/L

EV_SEEP_SOUTHPIT6[5]
Sulphate = 1370 – 1940 mg/L
Se = 149 – 207 μg/L
Cd = 0.0000577 – 0.000242 μg/L

Se = 116 – 191 μg/L
South Pit Creek
Sed. Pond Decant

Se = 29.5 – 120 μg/L
Milligan Creek
Sed. Pond Decant

EV_MW_SP1A
Se = < 0.050 – 0.406 μg/L
EV_MW_SP1B
Se = 5.04 – 6.39 μg/L
EV_MW_SP1C
Se = 2.66 – 3.87 μg/L

Main transport pathway is through Erickson Creek surface water. Erickson Creek valley bottom is consisted of inter-layered coarse-grained and fine-grained sediments with upward vertical gradient.

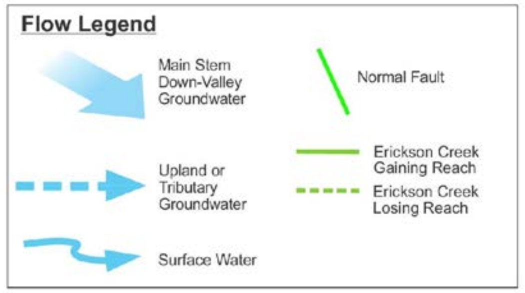
Se = 0.172 – 0.219 μg/L
WL = 1 – 1.5 mbgs

Erickson Creek valley bottom groundwater assumed to flow perpendicular to Michael Creek. Surface water infiltration through glaciofluvial deposits is limited as flow accretion study shows Erickson Creek is gathering at this reach.

EV_EC1: Se = 128 – 168 μg/L (Located in Erickson Creek just before confluence with Michel Creek)

EV_MC3: Se = 0.89 – 4.23 ug/L (Located in Michel Creek before the confluence with Erickson Creek)

Flow Legend



REFERENCES:

1. Graphics from Brick Tudor Studios, LLC.
2. Geology derived from Monahan, 2000, BC Government.

NOTES:

1. Original in colour.
2. All concentrations shown are for 2020 minimum and maximum unless otherwise stated.
3. Subsurface geology is not to scale.
4. Vertical exaggeration 2x for topographic profile.
5. Locations EV_SEEP_ERICKSON2 and EV_SEEP_SOUTHPIT6 only had two results available for cadmium and sulphate.

CLIENT: Teck Coal Limited

PROJECT LOCATION: Elk Valley, BC

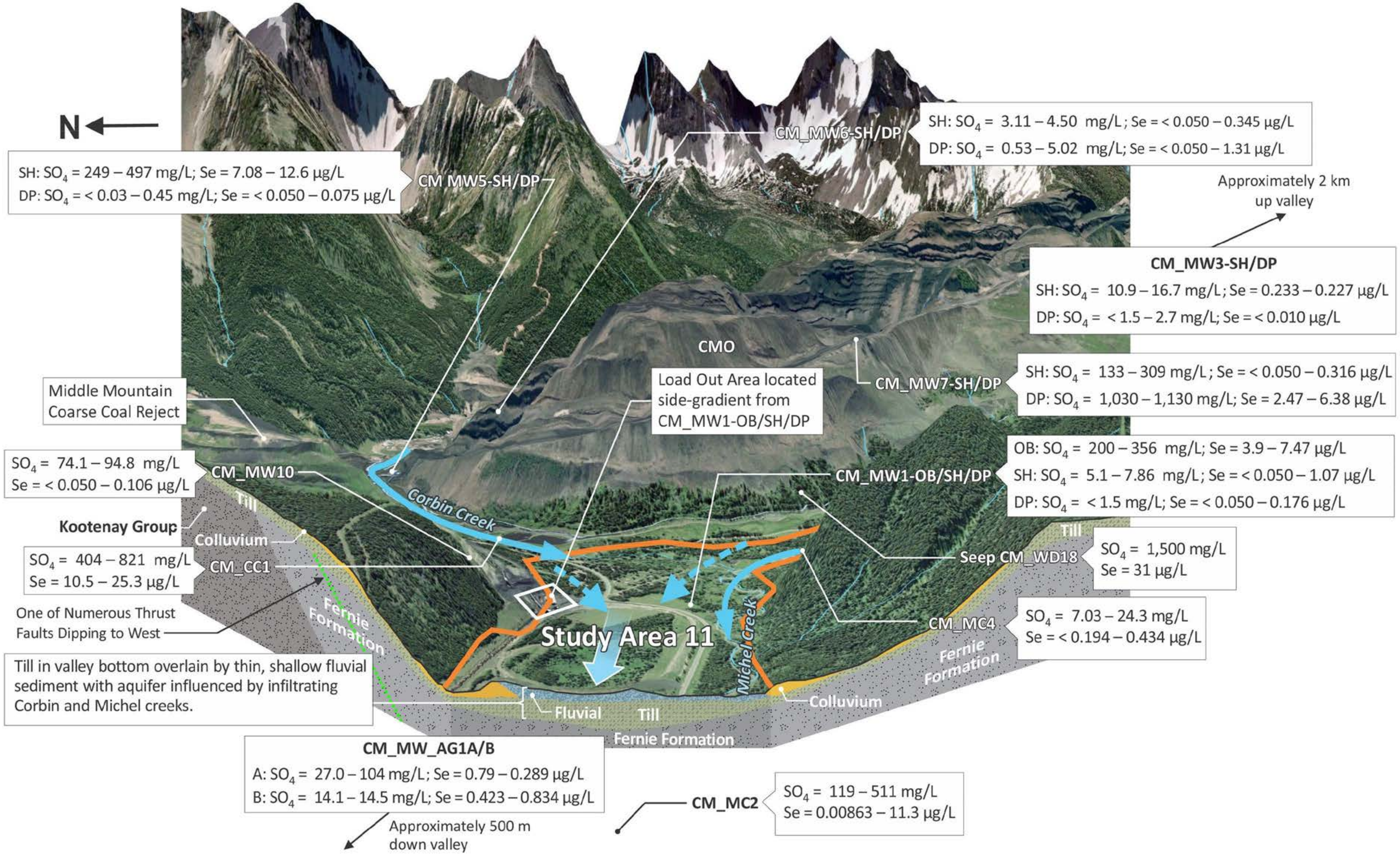
SNC·LAVALIN

Block Diagram Showing 3D Conceptual Hydrogeology and Transport Pathways of Order Constituents at EVO - Erickson Creek and Study Area 10

BY: CW	SCALE:	DATE: 2021-03-18	REF No: FIGURE X-11
CHK'D: KC	Proj Coord Sys: NAD 1983 UTM Zone 10N		

MXD Path: \\Sli2606\projects\Current Projects\Teck Coal Ltd\GISCAD\GIS\Map Series\635544_2020 SSGMP RGMP Annual Report\Block Diagrams\635544-EV3-BlockDiagram.mxd

Project Path: \\Sli2606\projects\Current Projects\Teck Coal Ltd\GISCAD\Exports\635544_SSGMP_RGMP_AnnualReport_2020



Flow Legend

Main Stem Down-Valley Groundwater

Upland or Tributary Groundwater

Surface Water

REFERENCES:

1. Graphics from Brick Tudor Studios, LLC.
2. Geology derived from Monahan, 2000, BC Government.

NOTES:
1. Original in colour.
2. All concentrations shown are for 2020 minimum and maximum unless otherwise stated.
3. Subsurface geology is not to scale.
4. Vertical exaggeration 2x for topographic profile.

CLIENT:
Teck Coal Limited

PROJECT LOCATION:
Elk Valley, BC

SNC·LAVALIN

Block Diagram Showing 3D Conceptual Hydrogeology and Transport Pathways of Order Constituents at CMm - Michel and Corbin Creeks and Study Area 11

BY:	CW	SCALE:		DATE: 2021-03-18	REF No:
CHK'D:	KC	Proj Coord Sys:	NAD 1983 UTM Zone 10N		FIGURE X-12

MXD Path: \\Sli2606\projects\Current Projects\Teck Coal Ltd\GISCAD\GIS\Map Series\635544_2020 SSGMP RGMP Annual Report\Block Diagrams\635544-CM1-BlockDiagram.mxd

Project Path: \\Sli2606\projects\Current Projects\Teck Coal Ltd\GISCAD\Exports\635544_SSGMP_RGMP_AnnualReport_2020

Volume II – Appendix XI

Mann-Kendall Analyses

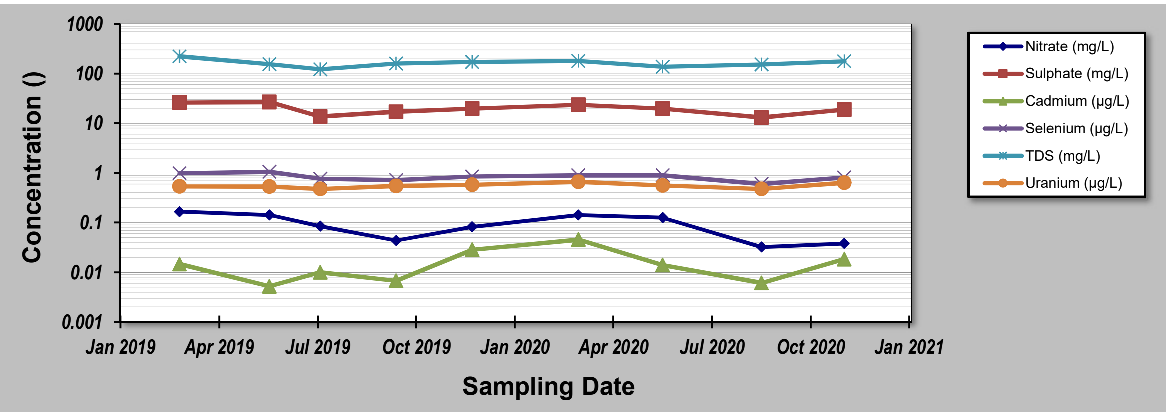
- Background
- Fording River Operations
- Greenhills Operations
- Line Creek Operations
- Elkview Operations
- Coal Mountain Mine

Background

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-Mar-21
Facility Name: Teck Coal Regional Groundwater - BG
Conducted By: KC
Job ID: 635544
Location: FR_MW_CH1A

Sampling Point ID:		Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)	TDS (mg/L)	Uranium (µg/L)	
Sampling Event	**Sampling Date**	**FR_MW_CH1A CONCENTRATION ()**						
1	28-Feb-19	0.166	26.1	0.0146	0.986	222	0.538	
2	22-May-19	0.143	26.7	0.0052	1.05	154	0.532	
3	8-Jul-19	0.0848	13.7	0.01	0.767	122	0.475	
4	16-Sep-19	0.0434	17	0.0067	0.714	159	0.548	
5	25-Nov-19	0.0821	19.7	0.0285	0.851	171	0.577	
6	2-Mar-20	0.142	23.6	0.0454	0.894	179	0.663	
7	19-May-20	0.126	19.6	0.0139	0.893	137	0.557	
8	18-Aug-20	0.0323	13.1	0.0061	0.597	153	0.475	
9	3-Nov-20	0.0381	18.9	0.0184	0.81	177	0.639	
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.53	0.25	0.79	0.16	0.17	0.12	
Mann-Kendall Statistic (S):		-20	-12	6	-12	0	11	
Confidence Factor:		97.8%	87.0%	69.4%	87.0%	46.0%	84.6%	
Concentration Trend:		Decreasing	Stable	No Trend	Stable	Stable	No Trend	



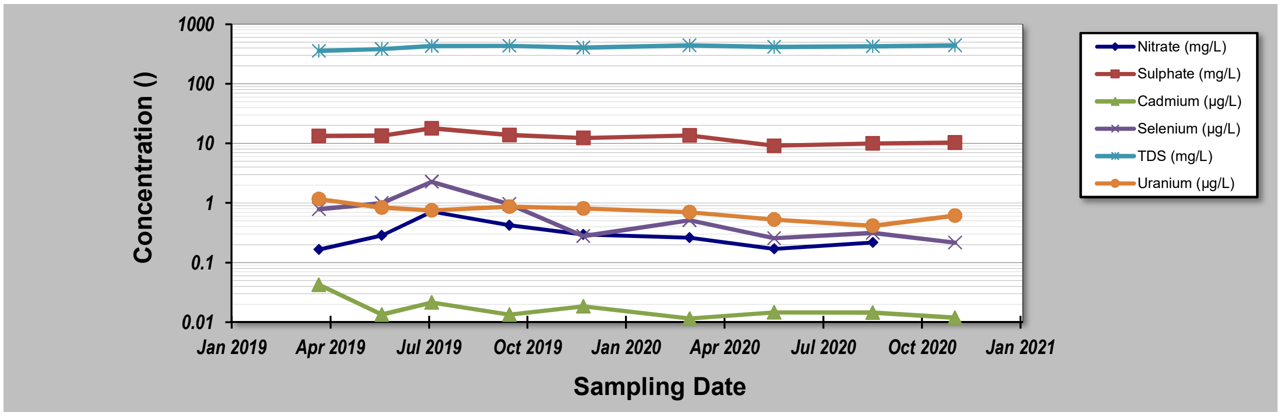
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-Mar-21
Facility Name: Teck Coal Regional Groundwater - BG
Conducted By: KC
Job ID: 635544
Location: FR_MW_FRRD1

	Sampling Point ID:	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)	TDS (mg/L)	Uranium (µg/L)	
Sampling Event	Sampling Date	FR_MW_FRRD1 CONCENTRATION ()						
1	26-Mar-19	0.166	13.3	0.0423	0.79	357	1.16	
2	23-May-19	0.286	13.5	0.0135	0.995	383	0.84	
3	8-Jul-19	0.716	17.9	0.0214	2.27	428	0.754	
4	18-Sep-19	0.423	13.8	0.0134	0.956	433	0.867	
5	25-Nov-19	0.295	12.3	0.0184	0.278	402	0.808	
6	2-Mar-20	0.262	13.6	0.0115	0.513	441	0.703	
7	19-May-20	0.17	9.13	0.0146	0.256	414	0.529	
8	18-Aug-20	0.218	9.96	0.0144	0.315	424	0.413	
9	2-Nov-20		10.3	0.0119	0.216	441	0.614	
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
	Coefficient of Variation:	0.57	0.21	0.54	0.89	0.07	0.29	
	Mann-Kendall Statistic (S):	-6	-14	-16	-22	19	-26	
	Confidence Factor:	72.6%	91.0%	94.0%	98.8%	97.0%	99.7%	
	Concentration Trend:	Stable	Prob. Decreasing	Prob. Decreasing	Decreasing	Increasing	Decreasing	



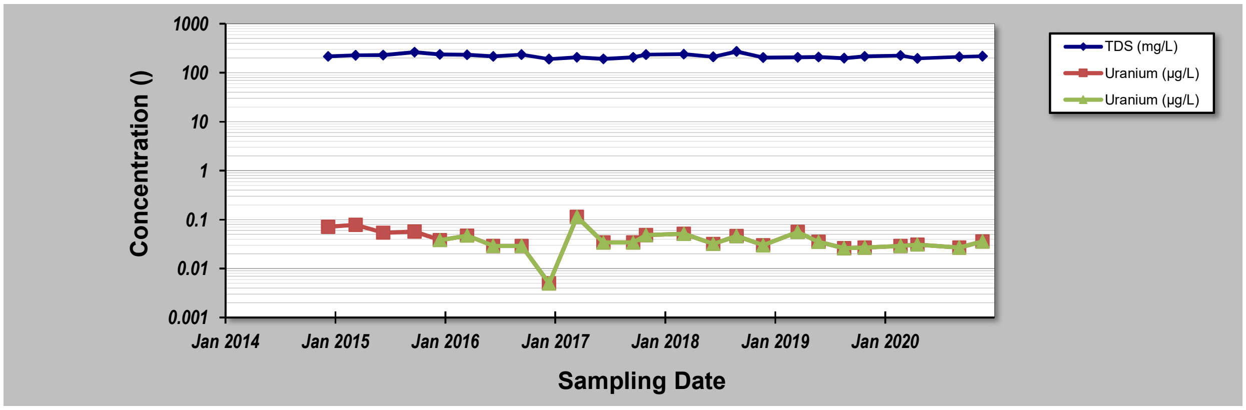
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-Mar-21
Facility Name: Teck Coal Regional Groundwater - BG
Conducted By: KC
Job ID: 635544
Location: LC_PIZDC1307

	Sampling Point ID:	TDS (mg/L)	Uranium (µg/L)	Uranium (µg/L)				
Sampling Event	Sampling Date	LC_PIZDC1307 CONCENTRATION ()						
1	9-Dec-14	215	0.071					
2	10-Mar-15	228	0.078					
3	10-Jun-15	231	0.054					
4	22-Sep-15	263	0.057					
5	16-Dec-15	237	0.038	0.038				
6	16-Mar-16	233	0.047	0.047				
7	10-Jun-16	217	0.029	0.029				
8	13-Sep-16	235	0.029	0.029				
9	13-Dec-16	190	0.005	0.005				
10	16-Mar-17	206	0.114	0.114				
11	12-Jun-17	192	0.034	0.034				
12	19-Sep-17	207	0.034	0.034				
13	1-Nov-17	235	0.048	0.048				
14	7-Mar-18	240	0.051	0.051				
15	13-Jun-18	212	0.032	0.032				
16	29-Aug-18	271	0.046	0.046				
17	26-Nov-18	205	0.03	0.03				
18	21-Mar-19	207	0.056	0.056				
19	29-May-19	209	0.035	0.035				
20	22-Aug-19	198	0.026	0.026				
21	30-Oct-19	216	0.027	0.027				
22	26-Feb-20	225	0.029	0.029				
23	22-Apr-20	197	0.031	0.031				
24	9-Sep-20	212	0.027	0.027				
25	25-Nov-20	218	0.036	0.036				
26								
27								
28								
29								
30								
	Coefficient of Variation:	0.09	0.51	0.54				
	Mann-Kendall Statistic (S):	-49	-107	-31				
	Confidence Factor:	86.7%	99.4%	81.5%				
	Concentration Trend:	Stable	Decreasing	Stable				



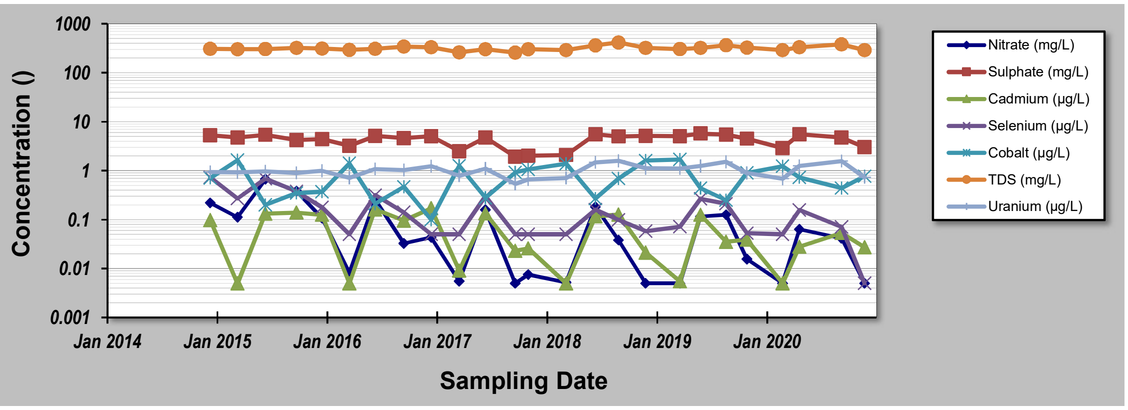
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-Mar-21
Facility Name: Teck Coal Regional Groundwater - BG
Conducted By: KC
Job ID: 635544
Location: LC_PIZDC1308

Sampling Point ID:		Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)	Cobalt (µg/L)	TDS (mg/L)	Uranium (µg/L)
Sampling Event	**Sampling Date**	**LC_PIZDC1308 CONCENTRATION ()**						
1	9-Dec-14	0.219	5.3	0.097	0.73	0.705	310	0.94
2	10-Mar-15	0.112	4.78	0.005	0.27	1.64	302	0.915
3	10-Jun-15	0.667	5.38	0.132	0.686	0.2	307	0.967
4	22-Sep-15	0.383	4.24	0.139	0.375	0.35	322	0.898
5	16-Dec-15	0.107	4.41	0.125	0.177	0.37	312	0.995
6	16-Mar-16	0.0082	3.23	0.005	0.05	1.42	293	0.715
7	10-Jun-16	0.258	5.11	0.161	0.317	0.21	308	1.08
8	13-Sep-16	0.0326	4.6	0.095	0.141	0.47	343	1.03
9	13-Dec-16	0.0432	5.09	0.17	0.05	0.1	333	1.23
10	16-Mar-17	0.0055	2.5	0.0091	0.05	1.26	261	0.789
11	12-Jun-17	0.159	4.74	0.133	0.301	0.28	301	1.1
12	19-Sep-17	0.005	1.92	0.023	0.05	0.92	258	0.537
13	1-Nov-17	0.0075	2.02	0.0259	0.05	1.07	304	0.66
14	7-Mar-18	0.0052	2.1	0.005	0.05	1.38	289	0.703
15	13-Jun-18	0.181	5.53	0.116	0.16	0.27	363	1.47
16	29-Aug-18	0.0383	5	0.127	0.098	0.69	417	1.59
17	27-Nov-18	0.005	5.1	0.0211	0.058	1.61	322	1.12
18	21-Mar-19	0.005	5.05	0.0055	0.072	1.69	305	1.11
19	29-May-19	0.115	5.74	0.126	0.266	0.44	322	1.25
20	22-Aug-19	0.126	5.47	0.0351	0.21	0.25	365	1.51
21	30-Oct-19	0.0156	4.52	0.039	0.053	0.9	324	0.887
22	26-Feb-20	0.005	2.9	0.005	0.05	1.23	289	0.688
23	22-Apr-20	0.0636	5.54	0.0279	0.156	0.73	334	1.25
24	9-Sep-20	0.0417	4.77	0.0533	0.071	0.44	382	1.58
25	25-Nov-20	0.005	3.04	0.0272	0.005	0.77	290	0.729
26								
27								
28								
29								
30								
Coefficient of Variation:		1.45	0.28	0.85	1.05	0.65	0.11	0.29
Mann-Kendall Statistic (S):		-108	6	-48	-101	31	46	61
Confidence Factor:		99.4%	54.6%	86.2%	99.1%	75.6%	85.2%	91.9%
Concentration Trend:		Decreasing	No Trend	Stable	Decreasing	No Trend	No Trend	Prob. Increasing



Notes:

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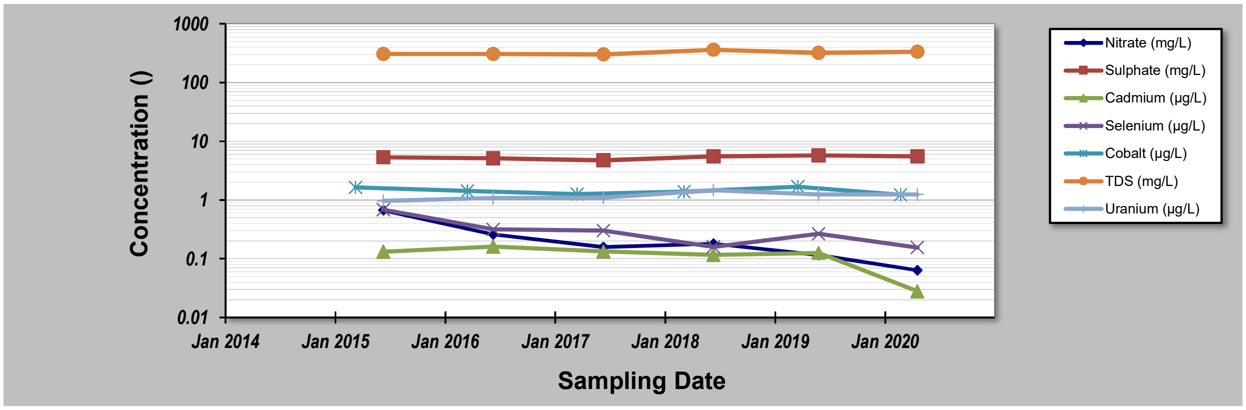
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-Mar-21
Job ID: 635544
Facility Name: Teck Coal Regional Groundwater - BG
Location: LC_PIZDC1308
Conducted By: KC

Sampling Event	Sampling Date	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)	Cobalt (µg/L)	TDS (mg/L)	Uranium (µg/L)
		LC_PIZDC1308 CONCENTRATION ()						
1	9-Dec-14							
2	10-Mar-15					1.64		
3	10-Jun-15	0.667	5.38	0.132	0.686		307	0.967
4	22-Sep-15							
5	16-Dec-15							
6	16-Mar-16					1.42		
7	10-Jun-16	0.258	5.11	0.161	0.317		308	1.08
8	13-Sep-16							
9	13-Dec-16							
10	16-Mar-17					1.26		
11	12-Jun-17	0.159	4.74	0.133	0.301		301	1.1
12	19-Sep-17							
13	1-Nov-17							
14	7-Mar-18					1.38		
15	13-Jun-18	0.181	5.53	0.116	0.16		363	1.47
16	29-Aug-18							
17	27-Nov-18							
18	21-Mar-19					1.69		
19	29-May-19	0.115	5.74	0.126	0.266		322	1.25
20	22-Aug-19							
21	30-Oct-19							
22	26-Feb-20					1.23		
23	22-Apr-20	0.0636	5.54	0.0279	0.156		334	1.25
24	9-Sep-20							
25	25-Nov-20							
26								
27								
28								
29								
30								
Coefficient of Variation:		0.91	0.07	0.39	0.62	0.13	0.07	0.15
Mann-Kendall Statistic (S):		-13	7	-9	-13	-5	7	10
Confidence Factor:		99.2%	86.4%	93.2%	99.2%	76.5%	86.4%	95.2%
Concentration Trend:		Decreasing	No Trend	Prob. Decreasing	Decreasing	Stable	No Trend	Increasing



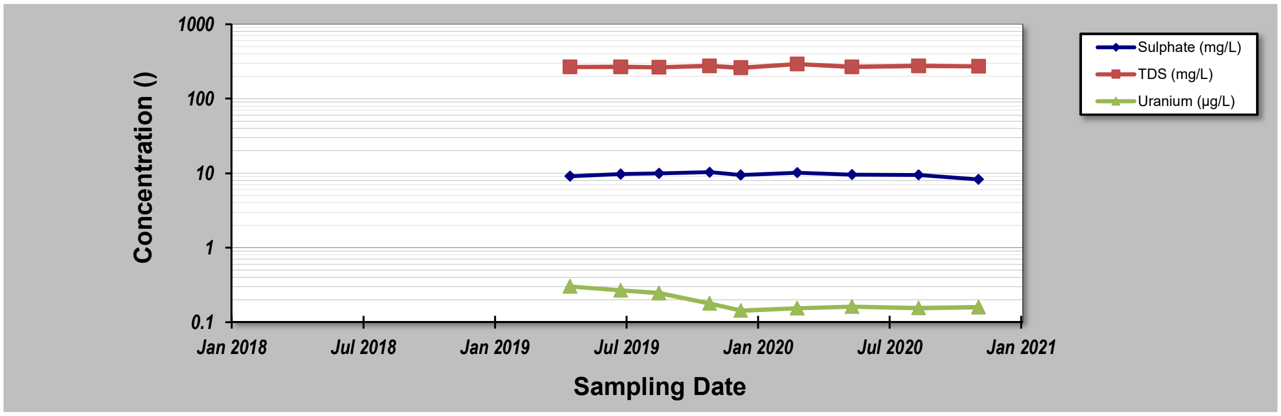
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-Mar-21
Facility Name: Teck Coal Regional Groundwater - BG
Conducted By: KC
Job ID: 635544
Location: GH_MW-Willow-1D

	Sampling Point ID:	Sulphate (mg/L)	TDS (mg/L)	Uranium (µg/L)				
Sampling Event	**Sampling Date**	**GH_MW-WILLOW-1D CONCENTRATION ()**						
1	5-Dec-18							
2	30-Jan-19							
3	19-Apr-19	9.09	265	0.302				
4	28-Jun-19	9.71	268	0.267				
5	20-Aug-19	9.89	264	0.246				
6	29-Oct-19	10.3	275	0.178				
7	11-Dec-19	9.4	260	0.143				
8	27-Feb-20	10.1	291	0.154				
9	13-May-20	9.56	268	0.162				
10	13-Aug-20	9.51	275	0.155				
11	4-Nov-20	8.25	272	0.159				
12								
13								
14								
15								
16								
17								
18								
19								
20								
	Coefficient of Variation:	0.06	0.03	0.30				
	Mann-Kendall Statistic (S):	-6	10	-20				
	Confidence Factor:	69.4%	82.1%	97.8%				
	Concentration Trend:	Stable	No Trend	Decreasing				



Notes:

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3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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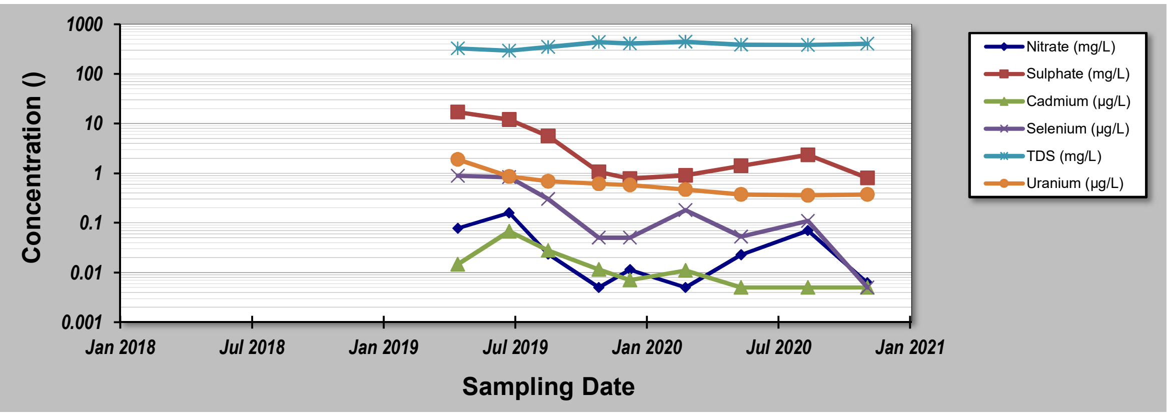
GSI Environmental Inc., www.gsi-net.com

GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date:	17-Mar-21	**Job ID:**	635544
Facility Name:	Teck Coal Regional Groundwater - BG	**Location:**	GH_MW-Willow-2D
Conducted By:	KC		

	Sampling Point ID:	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)	TDS (mg/L)	Uranium (µg/L)	
Sampling Event	**Sampling Date**	**GH_MW-WILLOW-2D CONCENTRATION ()**						
1	5-Dec-18							
2	30-Jan-19							
3	17-Apr-19	0.0778	17	0.0146	0.888	326	1.9	
4	27-Jun-19	0.159	12	0.0677	0.835	294	0.862	
5	20-Aug-19	0.0234	5.55	0.0279	0.301	347	0.686	
6	29-Oct-19	0.005	1.06	0.0115	0.05	433	0.61	
7	11-Dec-19	0.0113	0.78	0.007	0.05	407	0.575	
8	26-Feb-20	0.005	0.91	0.011	0.181	442	0.465	
9	13-May-20	0.0226	1.4	0.005	0.053	387	0.375	
10	13-Aug-20	0.0697	2.35	0.005	0.109	383	0.358	
11	4-Nov-20	0.0062	0.8	0.005	0.005	404	0.373	
12								
13								
14								
15								
16								
17								
18								
19								
20								
	Coefficient of Variation:	1.23	1.27	1.18	1.25	0.13	0.70	
	Mann-Kendall Statistic (S):	-11	-18	-27	-21	12	-34	
	Confidence Factor:	84.6%	96.2%	99.8%	98.3%	87.0%	>99.9%	
	Concentration Trend:	No Trend	Decreasing	Decreasing	Decreasing	No Trend	Decreasing	



Notes:

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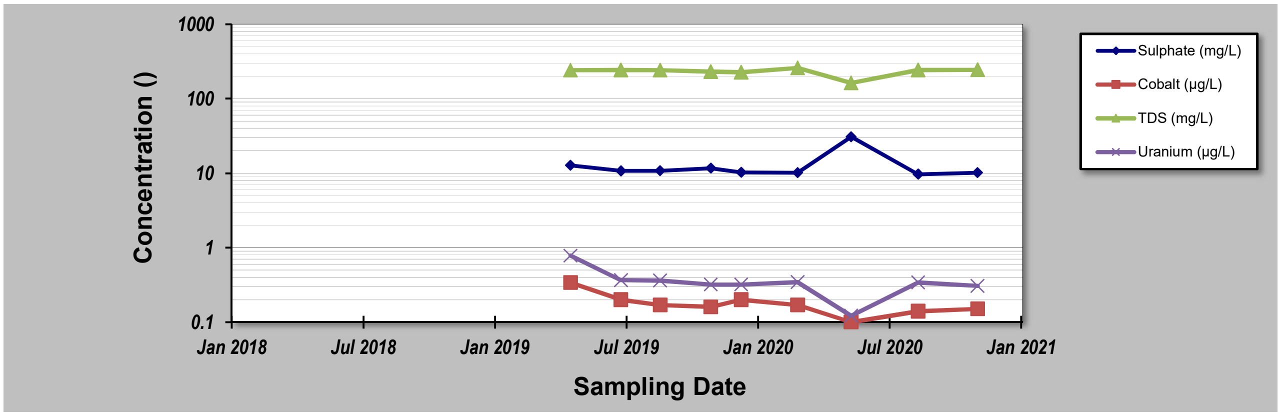
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-Mar-21
Facility Name: Teck Coal Regional Groundwater - BG
Conducted By: KC

Job ID: 635544
Location: GH_MW-Wolf-1D

Sampling Event	Sampling Date	GH_MW-WOLF-1D CONCENTRATION ()						
Sampling Point ID:		**Sulphate (mg/L)**	**Cobalt (µg/L)**	**TDS (mg/L)**	**Uranium (µg/L)**			
1	5-Dec-18							
2	30-Jan-19							
3	19-Apr-19	12.7	0.34	241	0.782			
4	28-Jun-19	10.7	0.2	242	0.367			
5	21-Aug-19	10.8	0.17	241	0.361			
6	30-Oct-19	11.7	0.16	231	0.321			
7	11-Dec-19	10.3	0.2	226	0.321			
8	27-Feb-20	10.1	0.17	259	0.343			
9	11-May-20	30.8	0.1	163	0.122			
10	12-Aug-20	9.67	0.14	242	0.342			
11	2-Nov-20	10.1	0.15	244	0.307			
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.52	0.37	0.12	0.48			
Mann-Kendall Statistic (S):		-15	-22	2	-23			
Confidence Factor:		92.5%	98.8%	54.0%	99.1%			
Concentration Trend:		Prob. Decreasing	Decreasing	No Trend	Decreasing			



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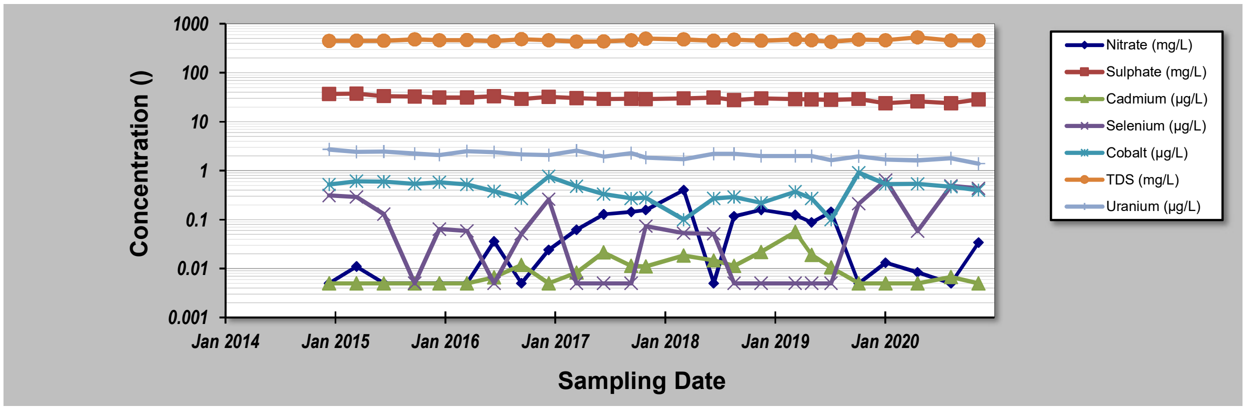
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-Mar-21
Facility Name: Teck Coal Regional Groundwater - BG
Conducted By: KC
Job ID: 635544
Location: LC_PIZP1103

	Sampling Point ID:	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)	Cobalt (µg/L)	TDS (mg/L)	Uranium (µg/L)
Sampling Event	**Sampling Date**	**LC_PIZP1103 CONCENTRATION ()**						
1	12-Dec-14	0.005	36.7	0.005	0.31	0.519	448	2.71
2	13-Mar-15	0.011	37.5	0.005	0.29	0.609	453	2.43
3	12-Jun-15	0.005	33.5	0.005	0.13	0.6	452	2.45
4	23-Sep-15	0.005	32.9	0.005	0.005	0.54	480	2.22
5	14-Dec-15	0.005	31.2	0.005	0.064	0.58	463	2.09
6	15-Mar-16	0.005	31.1	0.005	0.059	0.52	467	2.51
7	13-Jun-16	0.036	33	0.0066	0.005	0.38	442	2.39
8	12-Sep-16	0.005	29.2	0.0119	0.051	0.27	488	2.13
9	12-Dec-16	0.0239	32.2	0.005	0.26	0.76	461	2.08
10	15-Mar-17	0.062	30.5	0.0083	0.005	0.48	431	2.59
11	13-Jun-17	0.128	29.3	0.0214	0.005	0.33	438	1.94
12	13-Sep-17	0.144	29.4	0.0114	0.005	0.27	459	2.27
13	31-Oct-17	0.156	29	0.011	0.073	0.28	498	1.85
14	6-Mar-18	0.399	30.1	0.0184	0.053	0.1	481	1.71
15	14-Jun-18	0.005	31	0.0146	0.051	0.27	451	2.2
16	21-Aug-18	0.116	27.8	0.0114	0.005	0.29	478	2.21
17	19-Nov-18	0.159	30	0.0219	0.005	0.22	452	1.98
18	13-Mar-19	0.124	28.8	0.0561	0.005	0.37	480	1.98
19	6-May-19	0.0878	28.7	0.0191	0.005	0.27	460	1.99
20	10-Jul-19	0.144	27.9	0.0105	0.005	0.1	430	1.65
21	10-Oct-19	0.005	29.1	0.005	0.211	0.91	478	1.96
22	7-Jan-20	0.0131	23.9	0.005	0.639	0.53	462	1.69
23	23-Apr-20	0.0084	26.1	0.005	0.058	0.54	528	1.63
24	12-Aug-20	0.005	23.8	0.0067	0.487	0.47	456	1.78
25	12-Nov-20	0.034	28.5	0.005	0.434	0.4	455	1.39
26								
27								
28								
29								
30								
	Coefficient of Variation:	1.34	0.11	0.96	1.38	0.46	0.05	0.16
	Mann-Kendall Statistic (S):	63	-220	58	-6	-70	25	-191
	Confidence Factor:	92.6%	>99.9%	90.7%	54.6%	94.6%	71.1%	>99.9%
	Concentration Trend:	Prob. Increasing	Decreasing	Prob. Increasing	No Trend	Prob. Decreasing	No Trend	Decreasing



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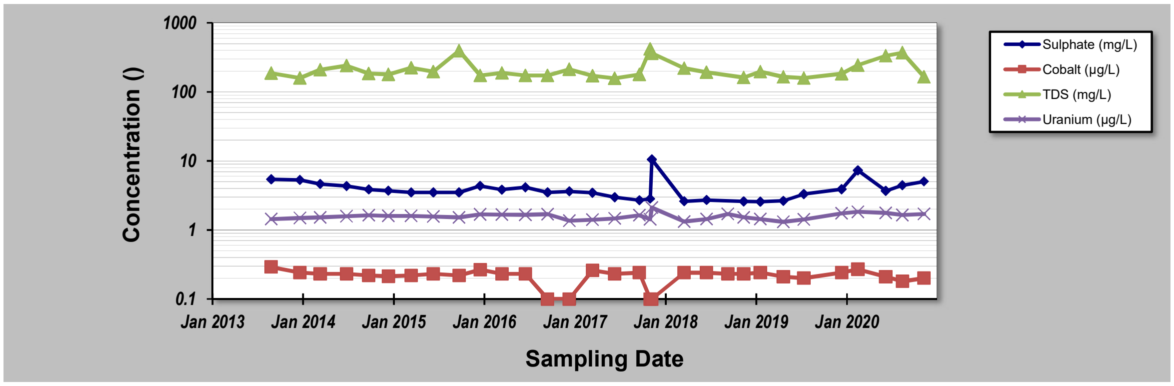
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-Mar-21
Facility Name: Teck Coal Regional Groundwater - BG
Conducted By: KC
Job ID: 635544
Location: LC_PIZP1101

	Sampling Point ID:	Sulphate (mg/L)	Cobalt (µg/L)	TDS (mg/L)	Uranium (µg/L)			
Sampling Event	Sampling Date	LC_PIZP1101 CONCENTRATION ()						
1	13-Jun-13							
2	26-Aug-13	5.41	0.29	187	1.44			
3	20-Dec-13	5.29	0.24	159	1.49			
4	12-Mar-14	4.65	0.23	209	1.52			
5	26-Jun-14	4.31	0.23	240	1.58			
6	24-Sep-14	3.86	0.22	185	1.64			
7	12-Dec-14	3.7	0.213	179	1.6			
8	14-Mar-15	3.5	0.22	224	1.6			
9	12-Jun-15	3.49	0.23	196	1.57			
10	24-Sep-15	3.49	0.22	395	1.52			
11	18-Dec-15	4.35	0.265	173	1.68			
12	15-Mar-16	3.83	0.23	189	1.67			
13	17-Jun-16	4.14	0.23	173	1.66			
14	15-Sep-16	3.5	0.1	173	1.69			
15	12-Dec-16	3.62	0.1	213	1.36			
16	15-Mar-17	3.44	0.26	171	1.41			
17	13-Jun-17	2.97	0.23	157	1.47			
18	21-Sep-17	2.7	0.24	179	1.63			
19	3-Nov-17	2.84	0.1	419	1.43			
20	10-Nov-17	10.5	0.1	363	2.11			
21	20-Mar-18	2.61	0.24	220	1.32			
22	19-Jun-18	2.71	0.24	193	1.44			
23	13-Sep-18		0.23		1.71			
24	16-Nov-18	2.58	0.23	162	1.52			
25	22-Jan-19	2.56	0.24	197	1.44			
26	25-Apr-19	2.64	0.21	165	1.31			
27	17-Jul-19	3.3	0.2	159	1.42			
28	16-Dec-19	3.88	0.24	183	1.74			
29	20-Feb-20	7.3	0.27	244	1.83			
30	11-Jun-20	3.68	0.21	334	1.77			
31	18-Aug-20	4.44	0.18	370	1.65			
32	13-Nov-20	5.05	0.2	165	1.71			
33								
34								
35								
	Coefficient of Variation:	0.40	0.23	0.35	0.11			
	Mann-Kendall Statistic (S):	-113	-57	1	61			
	Confidence Factor:	97.7%	82.8%	50.0%	84.5%			
	Concentration Trend:	Decreasing	Stable	No Trend	No Trend			



Notes:

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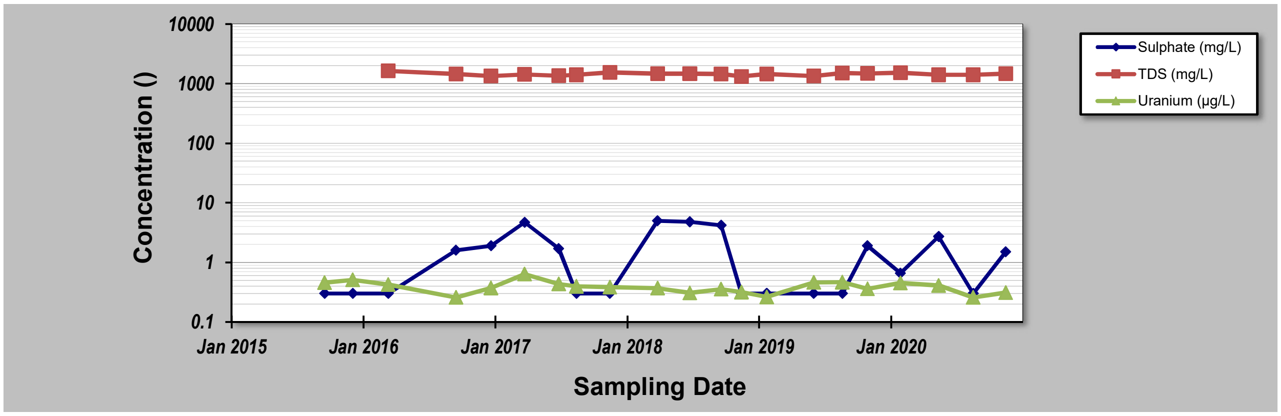
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-Mar-21
Facility Name: Teck Coal Regional Groundwater - BG
Conducted By: KC
Job ID: 635544
Location: CM_MW3-DP

Sampling Point ID:		Sulphate (mg/L)	TDS (mg/L)	Uranium (µg/L)				
Sampling Event	**Sampling Date**	**CM_MW3-DP CONCENTRATION ()**						
1	15-Sep-15	0.3		0.457				
2	3-Dec-15	0.3		0.51				
3	10-Mar-16	0.3	1630	0.426				
4	14-Sep-16	1.6	1450	0.258				
5	20-Dec-16	1.9	1340	0.372				
6	23-Mar-17	4.7	1430	0.636				
7	26-Jun-17	1.7	1350	0.431				
8	14-Aug-17	0.3	1400	0.395				
9	15-Nov-17	0.3	1540	0.385				
10	27-Mar-18	5	1470	0.37				
11	25-Jun-18	4.8	1470	0.309				
12	20-Sep-18	4.2	1450	0.356				
13	15-Nov-18	0.3	1320	0.316				
14	24-Jan-19	0.3	1450	0.264				
15	4-Jun-19	0.3	1340	0.461				
16	22-Aug-19	0.3	1500	0.463				
17	31-Oct-19	1.9	1480	0.358				
18	30-Jan-20	0.66	1520	0.454				
19	15-May-20	2.7	1400	0.411				
20	19-Aug-20	0.3	1400	0.259				
21	18-Nov-20	1.5	1460	0.312				
22								
23								
24								
25								
Coefficient of Variation:		1.06	0.05	0.24				
Mann-Kendall Statistic (S):		10	3	-54				
Confidence Factor:		60.6%	52.7%	94.5%				
Concentration Trend:		No Trend	No Trend	Prob. Decreasing				



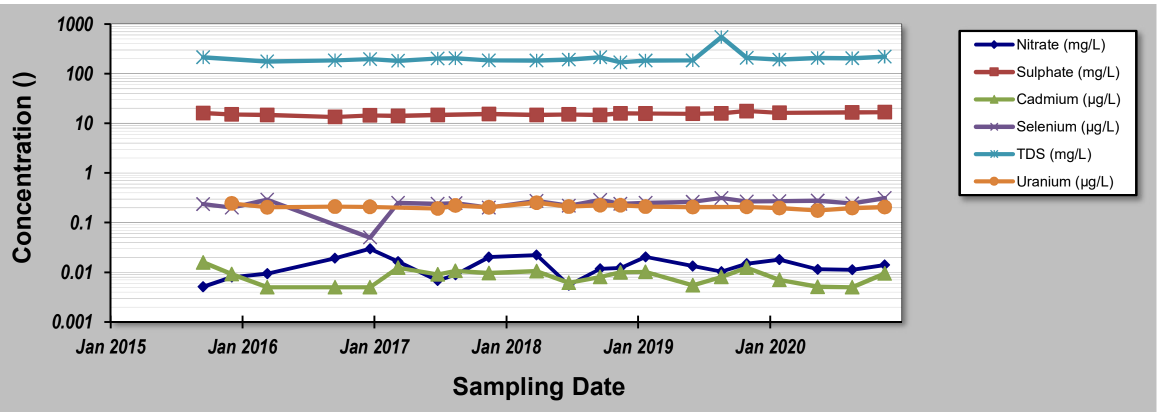
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-Mar-21
Facility Name: Teck Coal Regional Groundwater - BG
Conducted By: KC
Job ID: 635544
Location: CM_MW3-SH

	Sampling Point ID:	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)	TDS (mg/L)	Uranium (µg/L)	
Sampling Event	Sampling Date	CM_MW3-SH CONCENTRATION ()						
1	14-Sep-15	0.0051	16	0.0159	0.236	214		
2	3-Dec-15	0.008	15.1	0.0092	0.201		0.243	
3	10-Mar-16	0.0094	14.8	0.005	0.288	175	0.204	
4	14-Sep-16	0.0191	13.4	0.005		185	0.21	
5	20-Dec-16	0.0298	14.4	0.005	0.05	195	0.207	
6	8-Mar-17	0.0164	14.2	0.0124	0.249	182		
7	26-Jun-17	0.0068	14.7	0.0091	0.24	201	0.192	
8	14-Aug-17	0.0089		0.0107	0.246	203	0.222	
9	15-Nov-17	0.0203	15.4	0.0097	0.202	186	0.203	
10	27-Mar-18	0.0223	14.8	0.0106	0.275	183	0.253	
11	25-Jun-18	0.0055	15.1	0.0062	0.219	192	0.211	
12	20-Sep-18	0.0117	14.8	0.0081	0.286	212	0.225	
13	15-Nov-18	0.0122	15.9	0.01	0.239	169	0.225	
14	24-Jan-19	0.0205	15.8	0.0102	0.248	184	0.211	
15	4-Jun-19	0.0133	15.6	0.0055	0.263	185	0.205	
16	22-Aug-19	0.0103	15.9	0.0081	0.313	547		
17	31-Oct-19	0.0148	17.7	0.0124	0.266	208	0.207	
18	30-Jan-20	0.018	16.3	0.007	0.272	192	0.197	
19	15-May-20	0.0115		0.0051	0.277	206	0.176	
20	19-Aug-20	0.0113	16.5	0.005	0.244	205	0.198	
21	18-Nov-20	0.0141	16.7	0.0095	0.312	219	0.206	
22								
23								
24								
25								
	Coefficient of Variation:	0.45	0.07	0.35	0.23	0.38	0.08	
	Mann-Kendall Statistic (S):	28	94	-24	74	50	-38	
	Confidence Factor:	79.0%	>99.9%	75.4%	99.2%	94.4%	91.8%	
	Concentration Trend:	No Trend	Increasing	Stable	Increasing	Prob. Increasing	Prob. Decreasing	



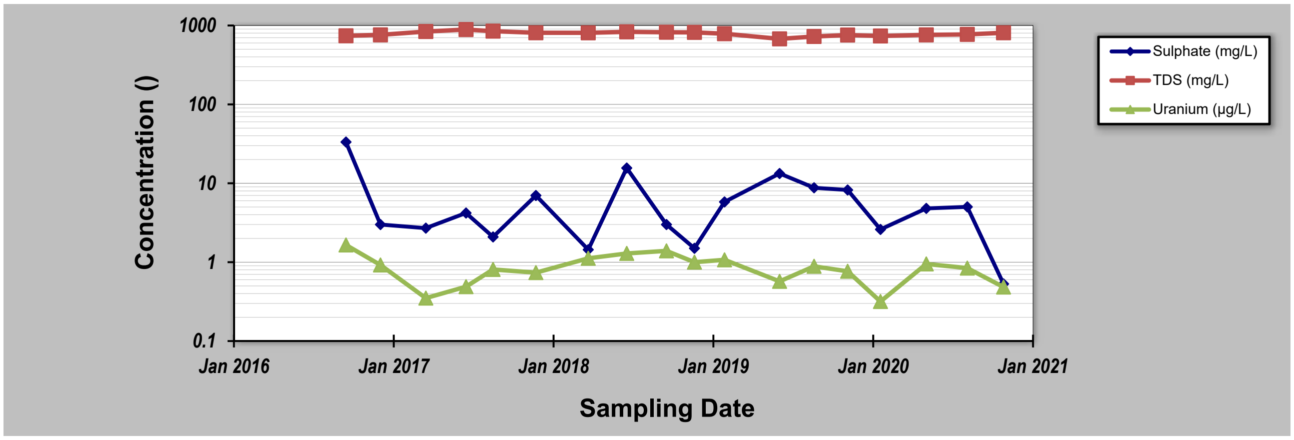
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-Mar-21
Facility Name: Teck Coal Regional Groundwater - BG
Conducted By: KC
Job ID: 635544
Location: CM_MW6-DP

	Sampling Point ID:	Sulphate (mg/L)	TDS (mg/L)	Uranium (µg/L)				
Sampling Event	Sampling Date	CM_MW6-DP CONCENTRATION ()						
1	13-Sep-16	33.3	740	1.65				
2	1-Dec-16	3	760	0.92				
3	15-Mar-17	2.7	838	0.35				
4	15-Jun-17	4.2	888	0.489				
5	16-Aug-17	2.09	847	0.808				
6	22-Nov-17	7	808	0.737				
7	22-Mar-18	1.44	807	1.12				
8	18-Jun-18	15.6	830	1.29				
9	17-Sep-18	3	820	1.39				
10	20-Nov-18	1.5	817	1				
11	28-Jan-19	5.8	786	1.07				
12	3-Jun-19	13.3	676	0.571				
13	21-Aug-19	8.77	725	0.886				
14	6-Nov-19	8.22	756	0.766				
15	20-Jan-20	2.6	736	0.317				
16	4-May-20	4.8	760	0.949				
17	6-Aug-20	5.02	770	0.841				
18	28-Oct-20	0.53	808	0.483				
19								
20								
	Coefficient of Variation:	1.14	0.07	0.41				
	Mann-Kendall Statistic (S):	-12	-41	-27				
	Confidence Factor:	66.0%	93.4%	83.5%				
	Concentration Trend:	No Trend	Prob. Decreasing	Stable				



Notes:

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2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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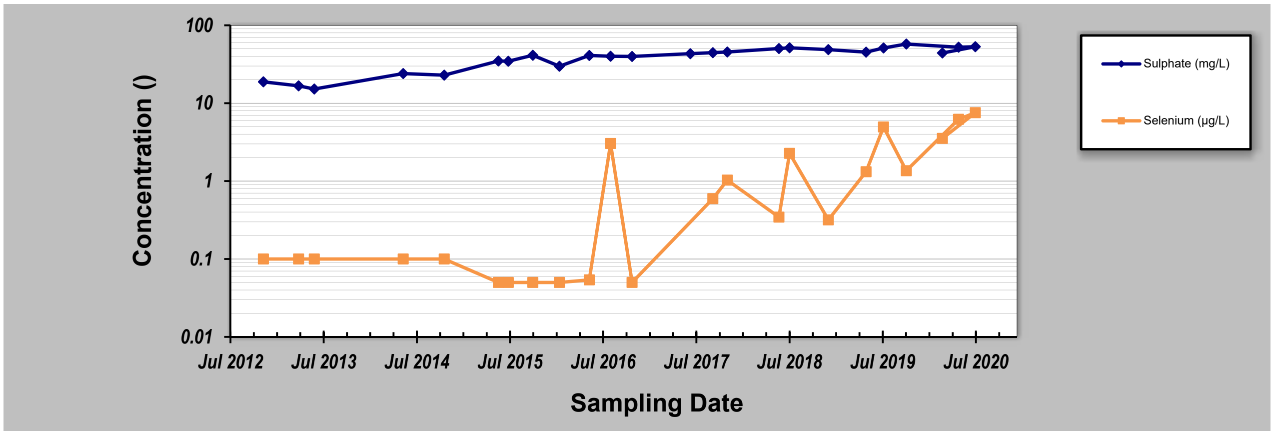
Fording River Operations

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - FRO
Conducted By: MBS
Job ID: 671557
Location FR_HMW5

Parameter (units)		Sulphate (mg/L)	Selenium (µg/L)					
Sampling Event	**Sampling Date**	**FR_HMW5 CONCENTRATION**						
1	8-Nov-12	18.8	0.1					
2	27-Mar-13	16.7	0.1					
3	28-May-13	15.2	0.1					
4	14-May-14	24	0.1					
5	23-Oct-14	22.9	0.1					
6	25-May-15	34.8	0.05					
7	3-Jul-15	34.5	0.05					
8	8-Oct-15	41.2	0.05					
9	21-Jan-16	29.8	0.05					
10	18-May-16	41	0.054					
11	10-Aug-16	40	3.04					
12	3-Nov-16	39.8	0.05					
13	21-Jun-17	43.2						
14	18-Sep-17	44.5	0.595					
15	14-Nov-17	45.4	1.03					
16	6-Jun-18	50.3	0.345					
17	18-Jul-18	51.4	2.27					
18	18-Dec-18	48.7	0.318					
19	16-May-19	45.2	1.32					
20	24-Jul-19	51.1	4.95					
21	22-Oct-19	57.4	1.36					
22	15-May-20	52.3	6.21					
23	20-Jul-20	53.1	7.55					
24	12-Mar-20	44.1	3.53					
25								
Coefficient of Variation:		0.31	1.50					
Mann-Kendall Statistic (S):		210	131					
Confidence Factor:		>99.9%	>99.9%					
Concentration Trend:		Increasing	Increasing					



Notes:

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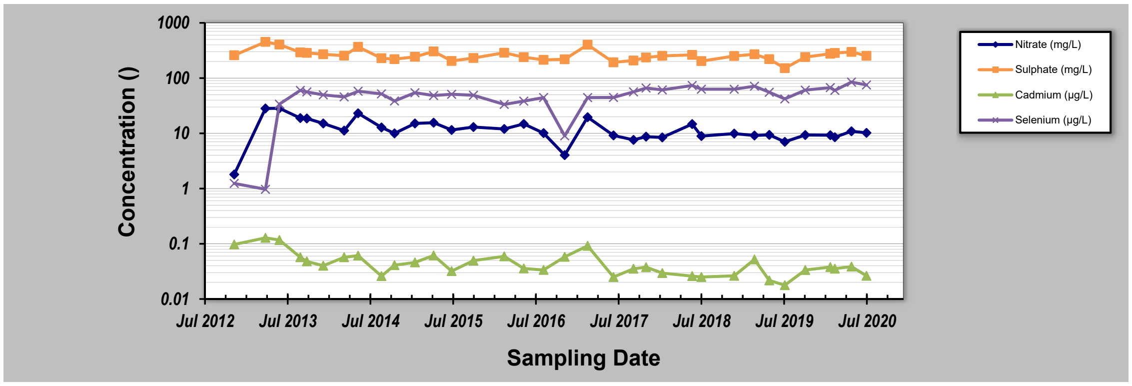
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - FRO
Conducted By: MBS
Job ID: 671557
Location: FR_HMW3

Sampling Event	Sampling Date	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
		FR_HMW3 CONCENTRATION						
1	8-Nov-12	1.8	259	0.097	1.24			
2	27-Mar-13	28.2	452	0.128	0.97			
3	28-May-13	28.4	405	0.117	33.7			
4	29-Aug-13	18.9	292	0.057	60			
5	27-Sep-13	18.6	286	0.048	56.2			
6	9-Dec-13	15.1	270	0.04	49.7			
7	12-Mar-14	11.2	255	0.057	45.7			
8	13-May-14	23.1	368	0.061	57.8			
9	25-Aug-14	12.8	229	0.026	51.8			
10	22-Oct-14	9.98	220	0.041	38.5			
11	21-Jan-15	15.1	243	0.046	54.4			
12	14-Apr-15	15.6	304	0.0615	48.3			
13	3-Jul-15	11.5	204	0.032	50.9			
14	8-Oct-15	13	231	0.0496	48.9			
15	22-Feb-16	12	288	0.0592	33.4			
16	19-May-16	14.8	239	0.0357	38.3			
17	15-Aug-16	10.1	214	0.0336	44.4			
18	17-Nov-16	4.03	219	0.058	9.01			
19	27-Feb-17	19.6	402	0.0918	44.4			
20	22-Jun-17	9.17	193	0.025	44.6			
21	19-Sep-17	7.6	208	0.0353	56.3			
22	14-Nov-17	8.7	236	0.0377	66.1			
23	25-Jan-18	8.43	253	0.0295	61.2			
24	7-Jun-18	14.7	263	0.026	73.5			
25	18-Jul-18	8.92	203	0.025	62.9			
26	11-Dec-18	9.9	251	0.0263	62.9			
27	11-Mar-19	9.13	270	0.052	71.3			
28	16-May-19	9.38	220	0.0217	55.5			
29	24-Jul-19	7.02	151	0.0178	42			
30	23-Oct-19	9.33	240	0.0335	60.6			
31	11-Feb-20	9.25	276	0.0379	67.3			
32	2-Mar-20	8.5	285	0.0354	59.9			
33	15-May-20	10.9	298	0.0386	84.7			
34	21-Jul-20	10.2	253	0.0263	75.2			
35								
Coefficient of Variation:		0.47	0.24	0.55	0.38			
Mann-Kendall Statistic (S):		-224	-104	-243	233			
Confidence Factor:		>99.9%	93.6%	>99.9%	>99.9%			
Concentration Trend:		Decreasing	Prob. Decreasing	Decreasing	Increasing			



Notes:

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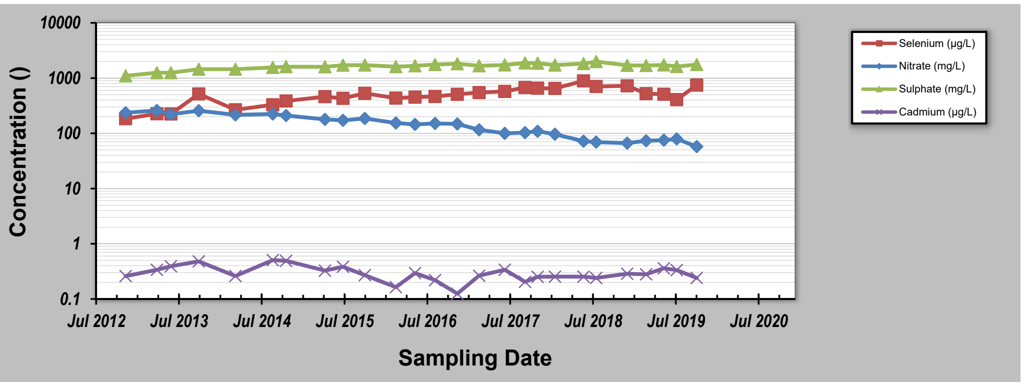
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - FRO
Conducted By: MBS
Job ID: 671557
Location: FR_HMW2

Sampling Event	Sampling Date	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
		FR_HMW2 CONCENTRATION						
1	9-Nov-12	236	1100	0.26	184			
2	28-Mar-13	259	1250	0.338	226			
3	29-May-13	221	1250	0.392	224			
4	30-Sep-13	257	1450	0.48	516			
5	12-Mar-14	216	1450	0.261	267			
6	25-Aug-14	224	1560	0.506	329			
7	23-Oct-14	210	1610	0.492	385			
8	14-Apr-15	179	1600	0.327	461			
9	3-Jul-15	172	1710	0.384	430			
10	8-Oct-15	186	1720	0.27	530			
11	23-Feb-16	154	1610	0.164	434			
12	18-May-16	145	1670	0.295	451			
13	15-Aug-16	151	1760	0.22	465			
14	22-Nov-16	148	1820	0.125	509			
15	27-Feb-17	116	1670	0.265	547			
16	21-Jun-17	100	1730	0.339	574			
17	19-Sep-17	103	1880	0.205	674			
18	14-Nov-17	109	1860	0.252	657			
19	30-Jan-18	96.5	1720	0.254	650			
20	6-Jun-18	72	1830	0.254	891			
21	1-Aug-18	69.5	1990	0.241	705			
22	17-Dec-18	66.5	1700	0.287	725			
23	11-Mar-19	73.3	1690	0.28	522			
24	29-May-19	75.2	1730	0.36	510			
25	25-Jul-19	79.3	1620	0.334	407			
26	22-Oct-19	57.5	1760	0.241	745			
27	11-Feb-20	47.9	1380	0.298	376			
28	3-Mar-20	80.5	1550	0.239	607			
29	4-Jun-20	48.9	1650	0.232	747			
30	28-Jul-20	63.2	1570	0.216	554			
31								
32								
33								
34								
35								
Coefficient of Variation:		0.45	0.12	0.31	0.35			
Mann-Kendall Statistic (S):		-171	294	29	309			
Confidence Factor:		>99.9%	>99.9%	73.0%	>99.9%			
Concentration Trend:		Decreasing	Increasing	No Trend	Increasing			



Notes:

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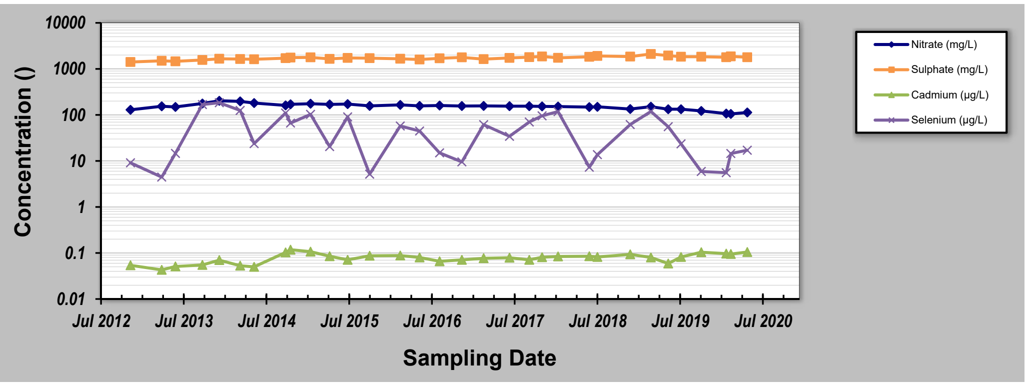
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - FRO
Conducted By: MBS
Job ID: 671557
Location FR_HMW1D

Parameter (units)		Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	**Sampling Date**	**FR_HMW1D CONCENTRATION**						
1	9-Nov-12	129	1410	0.054	9.1			
2	28-Mar-13	154	1500	0.043	4.46			
3	28-May-13	149	1460	0.051	14.6			
4	25-Sep-13	177	1560	0.055	168			
5	9-Dec-13	203	1660	0.07	184			
6	12-Mar-14	197	1640	0.053	125			
7	13-May-14	181	1620	0.05	23.8			
8	30-Sep-14	161	1710	0.103	110			
9	22-Oct-14	170	1760	0.118	66.5			
10	19-Jan-15	175	1780	0.107	103			
11	14-Apr-15	169	1650	0.085	20.5			
12	3-Jul-15	172	1730	0.071	90.7			
13	9-Oct-15	157	1710	0.087	5.17			
14	22-Feb-16	165	1660	0.088	57.5			
15	18-May-16	157	1600	0.08	44.8			
16	15-Aug-16	160	1700	0.066	15			
17	22-Nov-16	156	1780	0.071	9.55			
18	27-Feb-17	157	1630	0.0769	61.5			
19	22-Jun-17	155	1730	0.079	34.3			
20	18-Sep-17	155	1800	0.071	70.1			
21	14-Nov-17	153	1860	0.081	95.6			
22	24-Jan-18	152	1740	0.084	118			
23	12-Jun-18	148	1830	0.085	7.31			
24	18-Jul-18	150	1910	0.082	13.7			
25	11-Dec-18	134	1850	0.0934	61.7			
26	13-Mar-19	151	2110	0.08	119			
27	29-May-19	133	1950	0.059	55.4			
28	25-Jul-19	133	1840	0.082	23.5			
29	23-Oct-19	122	1840	0.104	5.91			
30	11-Feb-20	107	1790	0.097	5.56			
31	2-Mar-20	105	1870	0.095	14.5			
32	14-May-20	113	1790	0.105	17.1			
33								
34								
35								
Coefficient of Variation:		0.15	0.08	0.24	0.92			
Mann-Kendall Statistic (S):		-319	314	190	-80			
Confidence Factor:		>99.9%	>99.9%	99.9%	89.9%			
Concentration Trend:		Decreasing	Increasing	Increasing	Stable			



Notes:

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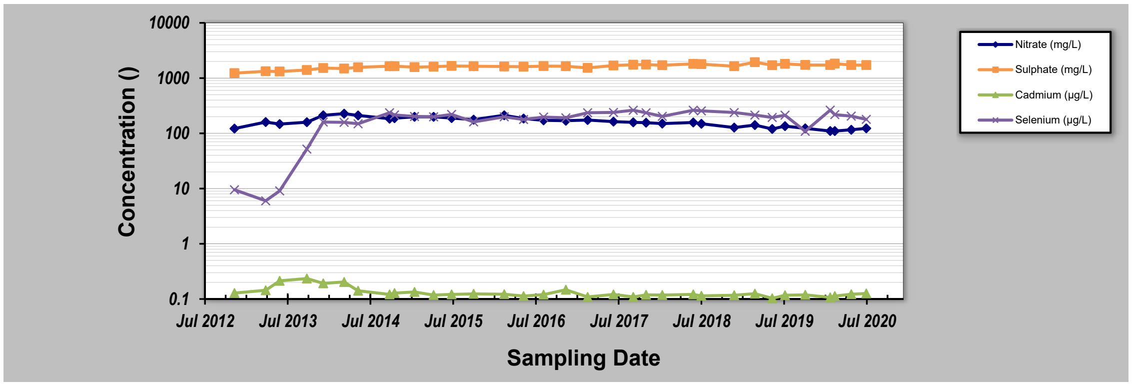
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	09-Feb-21	Job ID:	671557
Facility Name:	Teck Coal Regional Groundwater - FRO	Location	FR_HMW1S
Conducted By:	MBS		

Sampling Event	Sampling Date	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
		FR_HMW1S CONCENTRATION						
1	9-Nov-12	122	1230	0.128	9.51			
2	28-Mar-13	160	1330	0.144	6			
3	29-May-13	147	1320	0.213	9.07			
4	27-Sep-13	159	1400	0.235	51.9			
5	9-Dec-13	212	1520	0.192	160			
6	12-Mar-14	227	1490	0.203	158			
7	13-May-14	211	1570	0.141	149			
8	30-Sep-14	184	1640	0.121	236			
9	22-Oct-14	188	1640	0.128	215			
10	19-Jan-15	199	1580	0.134	202			
11	14-Apr-15	199	1610	0.118	199			
12	3-Jul-15	189	1660	0.121	220			
13	9-Oct-15	177	1640	0.124	161			
14	22-Feb-16	212	1620	0.122	199			
15	18-May-16	185	1610	0.113	178			
16	15-Aug-16	172	1650	0.12	197			
17	22-Nov-16	169	1640	0.147	191			
18	27-Feb-17	174	1530	0.109	236			
19	22-Jun-17	163	1690	0.121	239			
20	18-Sep-17	158	1750	0.109	262			
21	14-Nov-17	156	1760	0.119	236			
22	25-Jan-18	150	1710	0.118	203			
23	12-Jun-18	157	1810	0.121	262			
24	18-Jul-18	149	1790	0.114	255			
25	11-Dec-18	127	1640	0.117	238			
26	13-Mar-19	141	1940	0.125	214			
27	29-May-19	120	1710	0.103	194			
28	25-Jul-19	135	1810	0.117	213			
29	23-Oct-19	123	1730	0.119	109			
30	11-Feb-20	110	1720	0.107	263			
31	2-Mar-20	110	1830	0.113	218			
32	14-May-20	116	1720	0.122	205			
33	20-Jul-20	123	1720	0.126	179			
34								
35								
Coefficient of Variation:		0.20	0.09	0.24	0.39			
Mann-Kendall Statistic (S):		-304	358	-243	199			
Confidence Factor:		>99.9%	>99.9%	>99.9%	99.9%			
Concentration Trend:		Decreasing	Increasing	Decreasing	Increasing			



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
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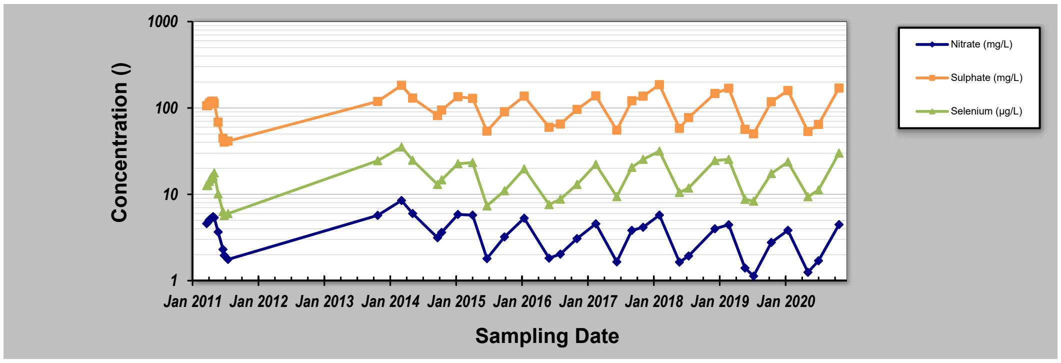
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - FRO
Conducted By: MBS

Job ID: 671557
Location: FR_POTWELLS

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Selenium (µg/L)				
Sampling Event	**Sampling Date**	**FR_POTWELLS CONCENTRATION**						
1	21-Mar-11	4.58	106	12.6				
2	28-Mar-11	4.75	107	12.7				
3	5-Apr-11	5.05	113	14.1				
4	11-Apr-11	5.18	116	15.1				
5	18-Apr-11	5.32	119	15.9				
6	26-Apr-11	5.51	120	16.2				
7	2-May-11	5.37	114	17.7				
8	24-May-11	3.66	68.4	10.1				
9	20-Jun-11	2.3	44.6	6.29				
10	27-Jun-11	1.96	40.2	5.69				
11	18-Jul-11	1.76	41.3	5.97				
12	31-Oct-13	5.7	119	24.5				
13	13-Mar-14	8.48	183	35.3				
14	14-May-14	5.99	130	24.8				
15	30-Sep-14	3.14	81.6	13				
16	23-Oct-14	3.62	94.6	14.7				
17	22-Jan-15	5.84	135	22.6				
18	14-Apr-15	5.74	129	23.3				
19	3-Jul-15	1.8	53.9	7.34				
20	9-Oct-15	3.21	90.4	11				
21	27-Jan-16	5.29	137	19.7				
22	14-Jun-16	1.82	59.7	7.6				
23	16-Aug-16	2.03	65.2	8.78				
24	17-Nov-16	3.07	96.1	13				
25	2-Mar-17	4.55	138	22.2				
26	27-Jun-17	1.65	55.3	9.4				
27	19-Sep-17	3.82	121	20.5				
28	21-Nov-17	4.15	137	25.4				
29	20-Feb-18	5.75	186	31.6				
30	12-Jun-18	1.64	58.1	10.5				
31	2-Aug-18	1.93	77.2	11.8				
32	27-Dec-18	3.99	147	24.6				
33	14-Mar-19	4.44	169	25.4				
34	13-Jun-19	1.4	56.5	8.73				
35	31-Jul-19	1.13	50.2	8.32				
36	7-Nov-19	2.77	118	17.4				
37	7-Feb-20	3.83	159	23.7				
38	29-May-20	1.25	53.4	9.37				
39	27-Jul-20	1.7	64.5	11.2				
40	19-Nov-20	4.46	170	30				
Coefficient of Variation:		0.47	0.40	0.48				
Mann-Kendall Statistic (S):		-226	66	84				
Confidence Factor:		99.6%	77.4%	83.2%				
Concentration Trend:		Decreasing	No Trend	No Trend				



Notes:

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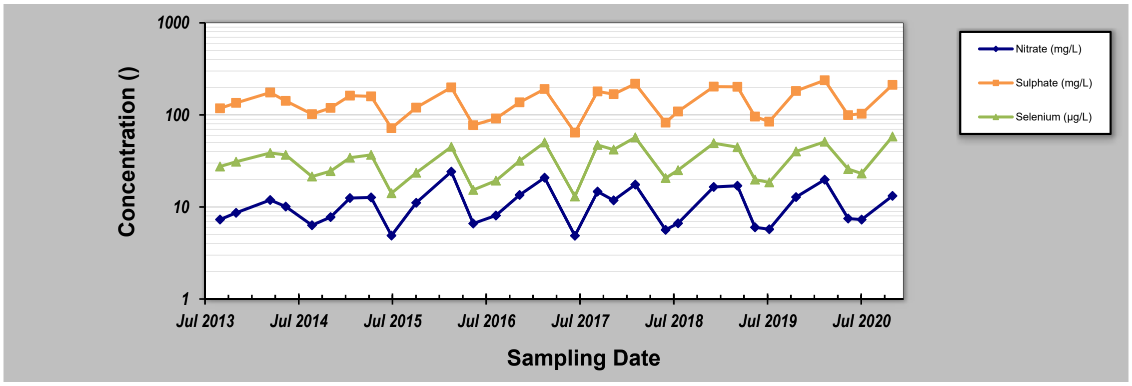
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - FRO
Conducted By: MBS
Job ID: 671557
Location: FR_MW-1B

Parameter (units)		Nitrate (mg/L)	Sulphate (mg/L)	Selenium (µg/L)				
Sampling Event	**Sampling Date**	**FR_MW-1B CONCENTRATION**						
1	29-Aug-13	7.3	118	27.5				
2	31-Oct-13	8.64	135	31				
3	14-Mar-14	11.9	175	38.6				
4	14-May-14	10.1	142	36.8				
5	25-Aug-14	6.33	102	21.4				
6	6-Nov-14	7.76	119	24.5				
7	21-Jan-15	12.5	162	34.3				
8	14-Apr-15	12.7	159	36.8				
9	3-Jul-15	4.89	71.8	14.1				
10	8-Oct-15	11.1	120	23.5				
11	23-Feb-16	24.2	199	45				
12	19-May-16	6.61	77.4	15.3				
13	16-Aug-16	8.08	91.4	19.3				
14	17-Nov-16	13.5	137	31.7				
15	23-Feb-17	20.8	191	50.2				
16	22-Jun-17	4.87	64.2	13				
17	19-Sep-17	14.7	180	47.1				
18	21-Nov-17	11.8	168	42				
19	14-Feb-18	17.5	218	57				
20	13-Jun-18	5.64	82.5	20.6				
21	1-Aug-18	6.65	109	25.1				
22	19-Dec-18	16.5	203	49.3				
23	22-Mar-19	17	202	44.6				
24	30-May-19	6.01	95.9	19.8				
25	25-Jul-19	5.73	84.5	18.5				
26	7-Nov-19	12.8	182	40.1				
27	27-Feb-20	19.8	238	51.1				
28	29-May-20	7.49	99.5	25.8				
29	21-Jul-20	7.29	103	23.1				
30	19-Nov-20	13.2	212	58.2				
31								
32								
33								
34								
35								
Coefficient of Variation:		0.46	0.35	0.40				
Mann-Kendall Statistic (S):		41	59	56				
Confidence Factor:		76.1%	84.8%	83.6%				
Concentration Trend:		No Trend	No Trend	No Trend				



Notes:

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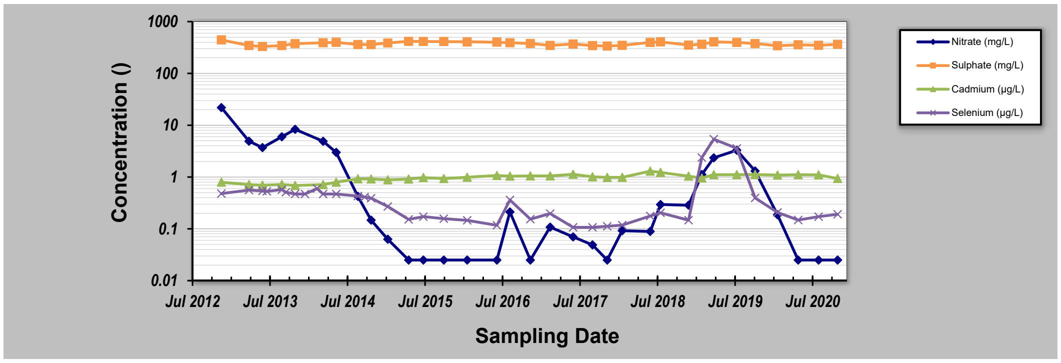
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - FRO
Conducted By: MBS
Job ID: 671557
Location: FR_09-04-A

Parameter (units)		Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	**Sampling Date**	**FR_09-04-A CONCENTRATION**						
1	15-Nov-12	21.9	444	0.795	0.48			
2	26-Mar-13	4.92	346	0.714	0.56			
3	29-May-13	3.7	331	0.695	0.54			
4	19-Jun-13				0.53			
5	29-Aug-13	5.99	345	0.719	0.57			
6	17-Sep-13				0.51			
7	31-Oct-13	8.34	375	0.686	0.47			
8	17-Dec-13				0.47			
9	12-Feb-14				0.6			
10	13-Mar-14	4.9	391	0.715	0.47			
11	14-May-14	2.99	398	0.794	0.47			
12	25-Aug-14	0.424	361	0.923	0.43			
13	26-Sep-14				0.41			
14	27-Oct-14	0.147	360	0.917	0.39			
15	14-Jan-15	0.063	387	0.884	0.27			
16	23-Apr-15	0.025	416	0.913	0.152			
17	2-Jul-15	0.025	414	0.975	0.172			
18	7-Oct-15	0.025	413	0.933	0.157			
19	26-Jan-16	0.025	405	0.991	0.146			
20	15-Jun-16	0.025	402	1.07	0.117			
21	16-Aug-16	0.212	391	1.04	0.361			
22	21-Nov-16	0.025	378	1.05	0.154			
23	23-Feb-17	0.108	347	1.05	0.197			
24	12-Jun-17	0.07	370	1.13	0.107			
25	12-Sep-17	0.049	344	1.01	0.107			
26	21-Nov-17	0.025	337	0.985	0.112			
27	31-Jan-18	0.0921	348	0.986	0.118			
28	13-Jun-18	0.089	396	1.3	0.177			
29	1-Aug-18	0.295	406	1.23	0.204			
30	12-Dec-18	0.286	352	1.04	0.147			
31	13-Feb-19	1.12	366	0.955	2.38			
32	11-Apr-19	2.35	406	1.11	5.38			
33	29-Jul-19	3.29	397	1.11	3.57			
34	24-Oct-19	1.31	377	1.12	0.395			
35	7-Feb-20	0.187	342	1.09	0.207			
36	15-May-20	0.025	357	1.11	0.148			
37	20-Aug-20	0.025	349	1.1	0.172			
38	18-Nov-20	0.025	364	0.936	0.191			
39								
40								
Coefficient of Variation:		2.18	0.08	0.16	1.77			
Mann-Kendall Statistic (S):		-135	-56	313	-251			
Confidence Factor:		98.2%	80.1%	>99.9%	99.9%			
Concentration Trend:		Decreasing	Stable	Increasing	Decreasing			



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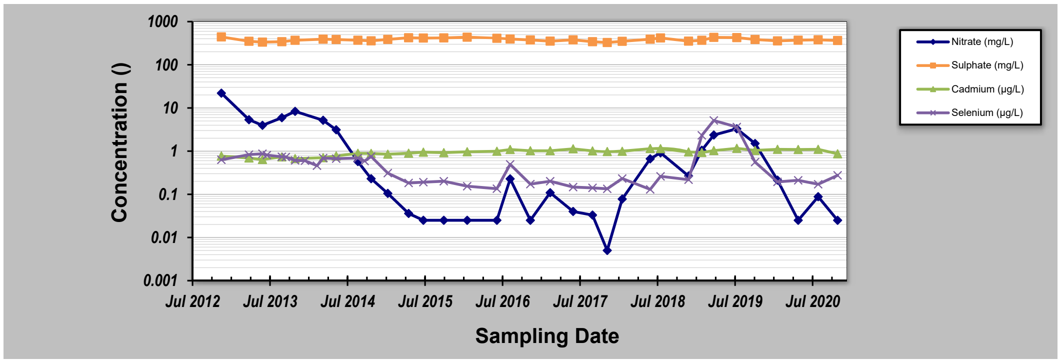
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - FRO
Conducted By: MBS
Job ID: 671557
Location: FR_09-04-B

Sampling Event	Sampling Date	FR_09-04-B CONCENTRATION						
Parameter (units)		Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
1	15-Nov-12	22	442	0.769	0.63			
2	26-Mar-13	5.35	351	0.693	0.83			
3	29-May-13	3.96	335	0.641	0.87			
4	19-Jun-13				0.81			
5	29-Aug-13	5.95	343	0.736	0.74			
6	17-Sep-13				0.73			
7	31-Oct-13	8.34	369	0.67	0.61			
8	17-Dec-13				0.6			
9	12-Feb-14				0.46			
10	13-Mar-14	5.18	392	0.704	0.69			
11	14-May-14	3.12	385	0.772	0.67			
12	25-Aug-14	0.573	370	0.888	0.69			
13	26-Sep-14				0.59			
14	27-Oct-14	0.23	359	0.884	0.75			
15	14-Jan-15	0.105	387	0.849	0.31			
16	23-Apr-15	0.036	423	0.894	0.183			
17	2-Jul-15	0.025	416	0.946	0.191			
18	7-Oct-15	0.025	419	0.922	0.201			
19	26-Jan-16	0.025	436	0.966	0.154			
20	15-Jun-16	0.025	411	0.992	0.135			
21	17-Aug-16	0.228	395	1.09	0.494			
22	21-Nov-16	0.025	376	1.02	0.172			
23	23-Feb-17	0.109	353	1.02	0.201			
24	12-Jun-17	0.04	378	1.13	0.147			
25	12-Sep-17	0.033	343	1.01	0.141			
26	21-Nov-17	0.005	328	0.977	0.134			
27	31-Jan-18	0.0776	350	0.99	0.232			
28	13-Jun-18	0.664	392	1.15	0.13			
29	1-Aug-18	0.915	418	1.14	0.261			
30	12-Dec-18	0.266	353	0.957	0.218			
31	13-Feb-19	1.05	369	0.931	2.32			
32	11-Apr-19	2.36	431	1.03	5.13			
33	29-Jul-19	3.29	426	1.16	3.62			
34	24-Oct-19	1.5	385	1.04	0.557			
35	7-Feb-20	0.213	358	1.1	0.194			
36	15-May-20	0.025	371	1.09	0.211			
37	18-Aug-20	0.088	379	1.1	0.171			
38	18-Nov-20	0.025	365	0.867	0.275			
39								
40								
Coefficient of Variation:		2.10	0.08	0.16	1.47			
Mann-Kendall Statistic (S):		-135	3	321	-231			
Confidence Factor:		98.2%	51.2%	>99.9%	99.8%			
Concentration Trend:		Decreasing	No Trend	Increasing	Decreasing			



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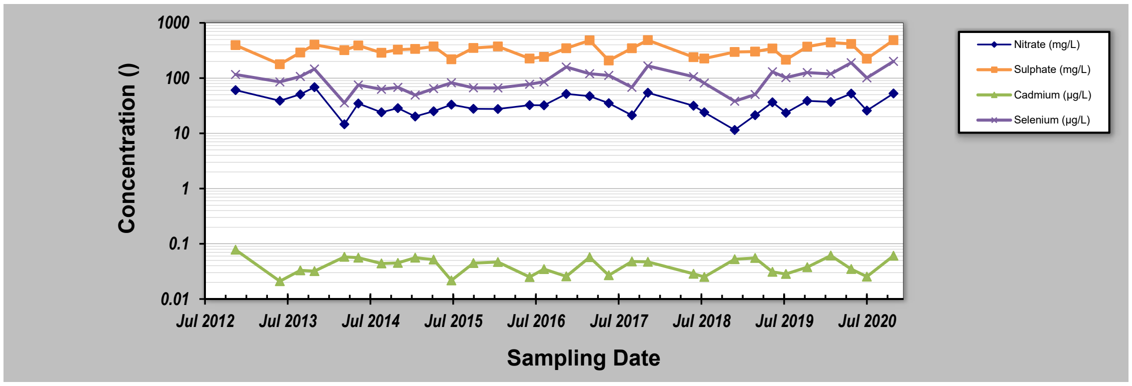
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - FRO
Conducted By: MBS
Job ID: 671557
Location: FR_09-01-A

Parameter (units)		Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	**Sampling Date**	**FR_09-01-A CONCENTRATION**						
1	14-Nov-12	60.6	395	0.078	116			
2	30-May-13	38.9	178	0.021	85.5			
3	29-Aug-13	50.8	290	0.033	107			
4	31-Oct-13	68.6	403	0.032	146			
5	13-Mar-14	14.6	320	0.058	35.6			
6	14-May-14	34.7	389	0.056	75			
7	25-Aug-14	24	287	0.044	62.7			
8	6-Nov-14	28.6	327	0.045	68			
9	22-Jan-15	20.2	337	0.056	49.3			
10	14-Apr-15	25.1	374	0.0517	64.5			
11	2-Jul-15	33.1	219	0.0217	82.2			
12	8-Oct-15	27.8	351	0.0447	66.6			
13	25-Jan-16	27.6	374	0.0468	66.3			
14	14-Jun-16	32.4	226	0.025	77.5			
15	17-Aug-16	32.2	242	0.0348	85.7			
16	24-Nov-16	51.7	347	0.0257	159			
17	8-Mar-17	47.2	481	0.0571	120			
18	1-Jun-17	35.1	208	0.0269	112			
19	12-Sep-17	21.2	347	0.0478	68.1			
20	22-Nov-17	54.3	486	0.0471	166			
21	13-Jun-18	31.6	239	0.0286	106			
22	31-Jul-18	24	226	0.0251	81.2			
23	13-Dec-18	11.5	297	0.0525	38.1			
24	14-Mar-19	21.3	302	0.0553	50.5			
25	30-May-19	36.5	343	0.031	130			
26	29-Jul-19	23.5	215	0.0284	102			
27	1-Nov-19	38.7	371	0.0377	126			
28	13-Feb-20	37	442	0.0612	119			
29	14-May-20	52.4	415	0.0349	190			
30	23-Jul-20	25.8	224	0.0254	101			
31	18-Nov-20	52.7	485	0.0607	201			
32								
33								
34								
35								
Coefficient of Variation:		0.40	0.27	0.35	0.43			
Mann-Kendall Statistic (S):		-4	28	-8	123			
Confidence Factor:		52.0%	67.6%	54.7%	98.1%			
Concentration Trend:		Stable	No Trend	Stable	Increasing			



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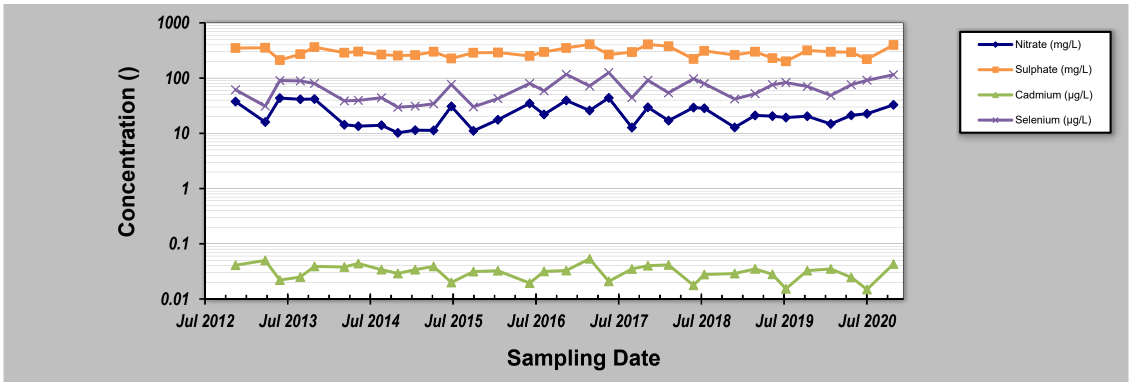
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - FRO
Conducted By: MBS
Job ID: 671557
Location FR_09-01-B

Parameter (units)		Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	**Sampling Date**	**FR_09-01-B CONCENTRATION**						
1	14-Nov-12	37.6	350	0.041	61.5			
2	26-Mar-13	16	354	0.05	31.1			
3	30-May-13	43.5	212	0.022	90.2			
4	29-Aug-13	41.3	271	0.025	89			
5	31-Oct-13	41.8	364	0.039	79.9			
6	13-Mar-14	14.3	288	0.038	38.7			
7	14-May-14	13.5	302	0.044	39.5			
8	25-Aug-14	14	267	0.034	44			
9	6-Nov-14	10.2	256	0.029	29.7			
10	22-Jan-15	11.4	261	0.034	31.1			
11	14-Apr-15	11.3	300	0.039	34.2			
12	2-Jul-15	30.8	227	0.0199	76.8			
13	8-Oct-15	11.1	288	0.0314	30.2			
14	25-Jan-16	17.6	291	0.0325	42.6			
15	14-Jun-16	34.8	252	0.0194	79.9			
16	17-Aug-16	22	297	0.0316	58.9			
17	24-Nov-16	39.4	351	0.0328	117			
18	8-Mar-17	25.9	409	0.0536	71.8			
19	1-Jun-17	43.9	267	0.0209	126			
20	12-Sep-17	12.7	296	0.035	44.2			
21	22-Nov-17	29.6	407	0.0402	91.5			
22	22-Feb-18	17	378	0.0414	54.1			
23	13-Jun-18	29.3	222	0.0177	97.1			
24	31-Jul-18	28.4	311	0.0278	79.4			
25	13-Dec-18	12.8	262	0.0289	41.8			
26	14-Mar-19	21.1	300	0.0351	52.2			
27	30-May-19	20.5	230	0.028	76			
28	29-Jul-19	19.3	201	0.0153	83.2			
29	1-Nov-19	20.4	317	0.0327	70.7			
30	13-Feb-20	14.8	299	0.035	48.6			
31	14-May-20	21.2	294	0.0247	75.7			
32	23-Jul-20	22.6	220	0.0149	91.4			
33	18-Nov-20	32.8	397	0.043	115			
34								
35								
Coefficient of Variation:		0.45	0.19	0.30	0.41			
Mann-Kendall Statistic (S):		-6	-7	-95	124			
Confidence Factor:		53.1%	53.7%	92.7%	97.2%			
Concentration Trend:		Stable	Stable	Prob. Decreasing	Increasing			



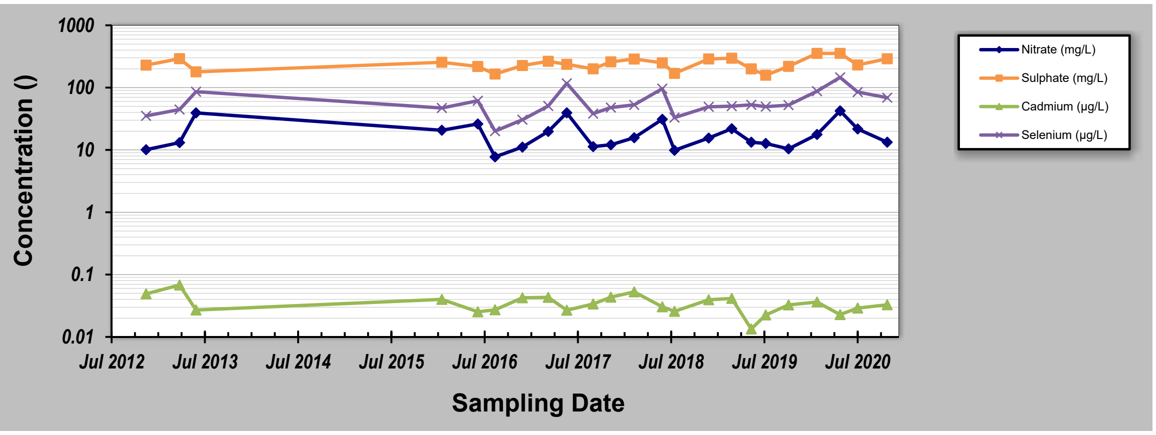
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	09-Feb-21	**Job ID:**	671557
Facility Name:	Teck Coal Regional Groundwater - FRO	**Location**	FR_09-02-A
Conducted By:	MBS		

Sampling Event	Sampling Date	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
		FR_09-02-A CONCENTRATION						
1	14-Nov-12	10.1	229	0.049	35.2			
2	26-Mar-13	13.1	291	0.068	44.5			
3	30-May-13	39.3	179	0.027	85.9			
4	25-Jan-16	20.7	255	0.04	47.1			
5	15-Jun-16	26.1	218	0.0253	61.5			
6	22-Aug-16	7.74	165	0.0272	20			
7	8-Dec-16	11.1	226	0.0424	30.5			
8	20-Mar-17	19.8	264	0.0431	50.8			
9	1-Jun-17	39.4	236	0.0268	117			
10	13-Sep-17	11.3	200	0.0337	38.2			
11	22-Nov-17	12.1	259	0.0434	47.9			
12	22-Feb-18	15.7	287	0.0528	52.8			
13	13-Jun-18	31	250	0.0304	96.3			
14	31-Jul-18	9.87	169	0.0257	33			
15	13-Dec-18	15.5	288	0.0394	49.2			
16	14-Mar-19	21.9	296	0.0414	50.4			
17	30-May-19	13.3	200	0.0134	52.9			
18	26-Jul-19	12.7	158	0.0225	49.5			
19	24-Oct-19	10.4	219	0.0326	52.4			
20	13-Feb-20	17.7	354	0.0363	87.7			
21	14-May-20	42.4	354	0.0228	146			
22	23-Jul-20	21.7	231	0.029	84.9			
23	16-Nov-20	13.3	290	0.0328	68.9			
24								
25								
Coefficient of Variation:		0.54	0.22	0.34	0.49			
Mann-Kendall Statistic (S):		20	49	-59	89			
Confidence Factor:		69.0%	89.6%	93.7%	99.1%			
Concentration Trend:		No Trend	No Trend	Prob. Decreasing	Increasing			



Notes:

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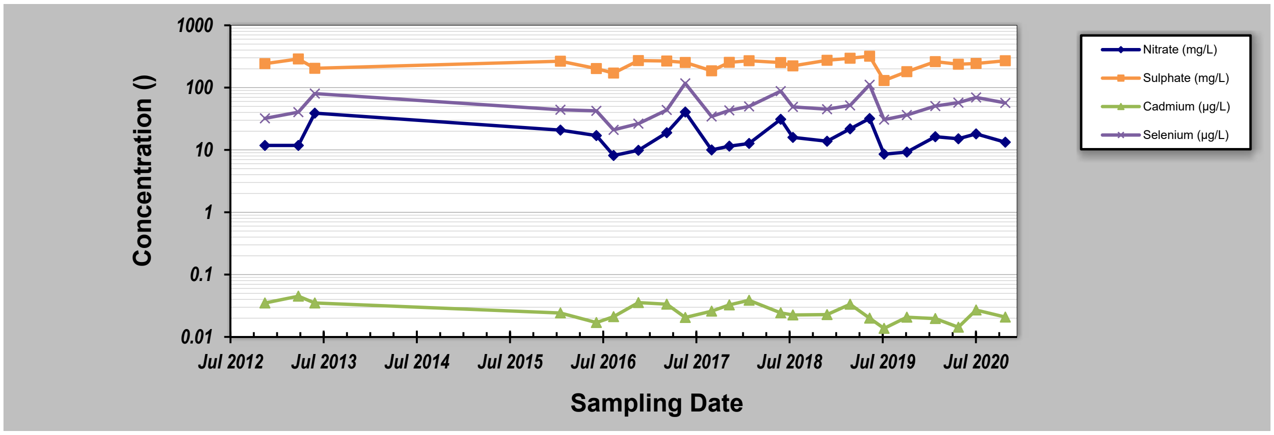
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - FRO
Conducted By: MBS
Job ID: 671557
Location FR_09-02-B

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	**Sampling Date**	**FR_09-02-B CONCENTRATION**						
1	14-Nov-12	11.8	242	0.035	32.1			
2	26-Mar-13	11.8	288	0.045	40.4			
3	30-May-13	38.9	204	0.035	80.2			
4	25-Jan-16	20.8	265	0.0242	44.1			
5	15-Jun-16	17	202	0.017	42.4			
6	22-Aug-16	8.15	171	0.0211	21			
7	28-Nov-16	9.87	271	0.0355	26.4			
8	20-Mar-17	18.9	267	0.0335	43.8			
9	1-Jun-17	40.5	253	0.0205	117			
10	13-Sep-17	10	186	0.0259	34.4			
11	22-Nov-17	11.5	254	0.0326	43.1			
12	8-Feb-18	12.7	270	0.0387	49.9			
13	13-Jun-18	31	252	0.0243	87.8			
14	31-Jul-18	15.9	223	0.0225	49			
15	13-Dec-18	13.8	274	0.0228	45			
16	14-Mar-19	21.8	296	0.0334	51.8			
17	30-May-19	31.9	319	0.02	111			
18	26-Jul-19	8.56	130	0.0137	30.6			
19	24-Oct-19	9.24	180	0.0207	36.3			
20	13-Feb-20	16.3	261	0.0197	50.6			
21	14-May-20	15.1	237	0.0143	57.3			
22	23-Jul-20	18.1	244	0.027	69.5			
23	16-Nov-20	13.3	270	0.0208	56.8			
24								
25								
Coefficient of Variation:		0.53	0.19	0.32	0.47			
Mann-Kendall Statistic (S):		4	10	-96	77			
Confidence Factor:		53.2%	59.3%	99.5%	97.8%			
Concentration Trend:		No Trend	No Trend	Decreasing	Increasing			



Notes:

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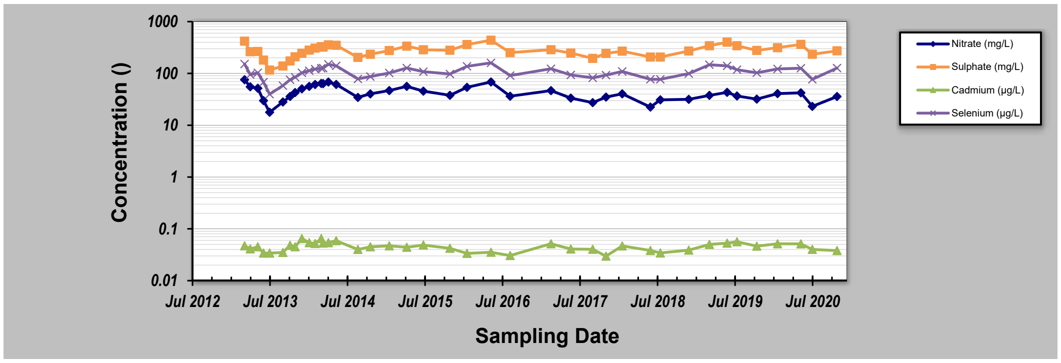
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - FRO
Conducted By: MBS
Job ID: 671557
Location: FR_GH_WELL4

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	Sampling Date	FR_GH_WELL4 CONCENTRATION						
1	5-Mar-13	75.6	419	0.047	152			
2	1-Apr-13	55.2	262	0.041	94.9			
3	7-May-13	51.7	265	0.045	103			
4	3-Jun-13	29.8	181	0.034	67.9			
5	2-Jul-13	17.8	116	0.034	39.8			
6	3-Sep-13	28.1	139	0.035	58.1			
7	7-Oct-13	35.9	174	0.048	75.5			
8	31-Oct-13	42.8	209	0.045	84.5			
9	2-Dec-13	50.4	245	0.065	103			
10	6-Jan-14	56.2	282	0.054	113			
11	3-Feb-14	61.2	308	0.052	121			
12	4-Mar-14	64	328	0.065	126			
13	13-Mar-14	63.6	322	0.053	127			
14	7-Apr-14	68.3	356	0.054	150			
15	14-May-14	61.4	349	0.059	140			
16	25-Aug-14	34.4	204	0.04	78.3			
17	23-Oct-14	40.3	234	0.045	87			
18	21-Jan-15	46.7	276	0.047	102			
19	14-Apr-15	56.2	336	0.0441	127			
20	2-Jul-15	45.5	286	0.0486	108			
21	5-Nov-15	37.8	280	0.0421	97.5			
22	25-Jan-16	53.9	360	0.0336	137			
23	18-May-16	68.4	438	0.0353	160			
24	17-Aug-16	36.3	252	0.0305	91			
25	27-Feb-17	46.6	287	0.0515	123			
26	1-Jun-17	33.4	248	0.0408	93.5			
27	13-Sep-17	27.3	195	0.0403	82.2			
28	15-Nov-17	34.9	243	0.0297	92.8			
29	31-Jan-18	40.4	269	0.0468	109			
30	14-Jun-18	22.4	207	0.0382	77			
31	31-Jul-18	30.9	207	0.0342	76.9			
32	13-Dec-18	31.6	271	0.0388	99.2			
33	21-Mar-19	37.7	342	0.05	147			
34	13-Jun-19	43.1	400	0.0529	140			
35	30-Jul-19	36.7	342	0.0562	118			
36	1-Nov-19	31.9	278	0.0463	103			
37	7-Feb-20	40.8	314	0.0514	122			
38	28-May-20	42.2	363	0.0512	126			
39	21-Jul-20	23.1	234	0.0401	76.9			
40	16-Nov-20	35.8	273	0.038	127			
	Coefficient of Variation:	0.32	0.26	0.19	0.26			
	Mann-Kendall Statistic (S):	-199	125	-53	99			
	Confidence Factor:	99.0%	92.6%	72.7%	87.3%			
	Concentration Trend:	Decreasing	Prob. Increasing	Stable	No Trend			



Notes:

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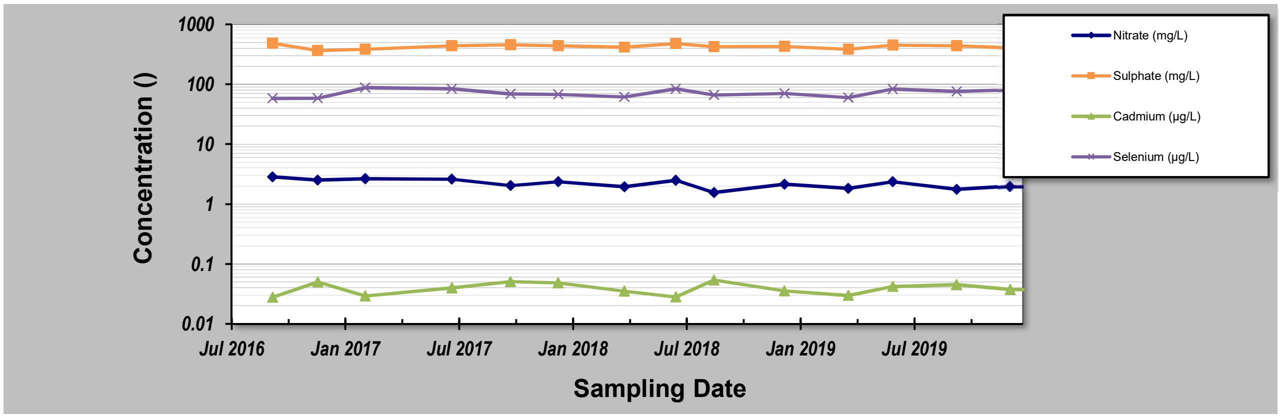
Greenhills Operations

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - GHO
Conducted By: MBS
Job ID: RGMP
Location GH_MW-PC

Sampling Event	Sampling Date	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
		GH_MW-PC CONCENTRATION						
1	5-Sep-16	2.85	485	0.0276	58.2			
2	17-Nov-16	2.52	366	0.05	58.4			
3	2-Feb-17	2.66	385	0.0292	88.1			
4	22-Jun-17	2.61	442	0.0397	83.7			
5	25-Sep-17	2.03	456	0.0503	69.3			
6	11-Dec-17	2.36	440	0.0481	68.1			
7	28-Mar-18	1.94	417	0.035	61.3			
8	19-Jun-18	2.49	481	0.028	84			
9	20-Aug-18	1.56	423	0.0536	65.9			
10	12-Dec-18	2.14	430	0.0353	70.3			
11	25-Mar-19	1.82	386	0.0296	60			
12	5-Jun-19	2.37	452	0.0417	83.3			
13	16-Sep-19	1.76	440	0.045	76.4			
14	12-Dec-19	1.99	407	0.0372	80.5			
15	3-Dec-20	1.67	416	0.036	66.1			
16	19-Mar-20	1.84	448	0.0468	61.5			
17	11-Jun-20	1.74	334	0.034	81.2			
18	24-Sep-20	1.33	375	0.048	64.2			
19								
20								
Coefficient of Variation:		0.20	0.10	0.21	0.14			
Mann-Kendall Statistic (S):		-97	-34	15	5			
Confidence Factor:		>99.9%	89.3%	70.0%	55.9%			
Concentration Trend:		Decreasing	Stable	No Trend	No Trend			



Notes:

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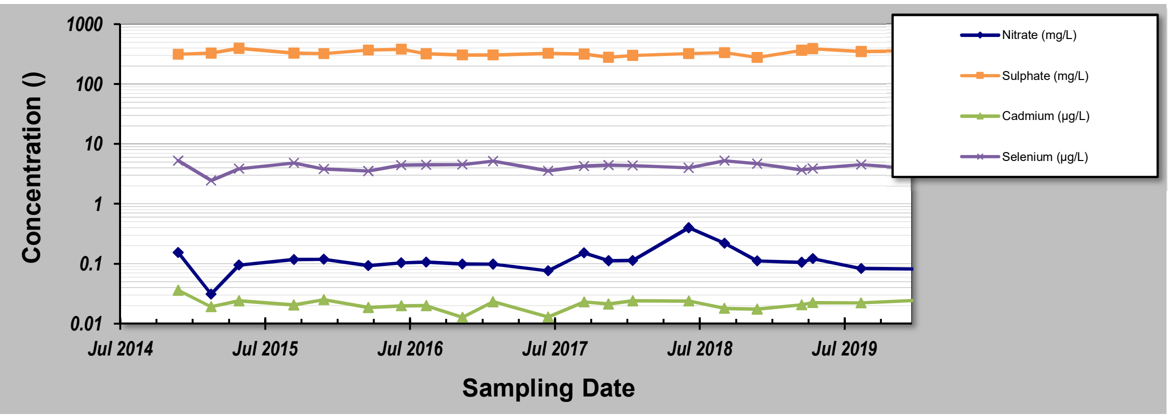
GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date:	09-Feb-21	**Job ID:**	RGMP
Facility Name:	Teck Coal Regional Groundwater - GHO	**Location**	GH_MW-GHC-1A
Conducted By:	MBS		

Sampling Event	Sampling Date	GH_MW-GHC-1A CONCENTRATION						
	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
1	25-Nov-14	0.154	316	0.036	5.26			
2	17-Feb-15	0.031	328	0.019	2.45			
3	29-Apr-15	0.095	398	0.0241	3.85			
4	15-Sep-15	0.117	329	0.0205	4.81			
5	30-Nov-15	0.118	322	0.025	3.83			
6	22-Mar-16	0.093	369	0.0186	3.51			
7	14-Jun-16	0.104	383	0.0198	4.43			
8	16-Aug-16	0.106	320	0.02	4.46			
9	16-Nov-16	0.099	306	0.0127	4.53			
10	2-Feb-17	0.098	307	0.0232	5.15			
11	22-Jun-17	0.076	326	0.0129	3.55			
12	21-Sep-17	0.151	317	0.0229	4.27			
13	22-Nov-17	0.112	280	0.0213	4.43			
14	23-Jan-18	0.113	302	0.024	4.37			
15	14-Jun-18	0.4	322	0.0239	3.98			
16	13-Sep-18	0.221	334	0.0179	5.24			
17	5-Dec-18	0.111	279	0.0175	4.68			
18	28-Mar-19	0.105	365	0.0207	3.7			
19	25-Apr-19	0.121	391	0.0224	3.89			
20	26-Aug-19	0.0829	349	0.0222	4.51			
21	18-Mar-20	0.081	360	0.0255	3.62			
22	27-May-20	0.067	438	0.0207	3			
23	11-Sep-20	0.381	354	0.0257	4.26			
24	16-Nov-20	0.233	314	0.0201	4.99			
25								
	Coefficient of Variation:	0.66	0.11	0.21	0.17			
	Mann-Kendall Statistic (S):	28	17	11	-7			
	Confidence Factor:	74.6%	65.3%	59.7%	55.9%			
	Concentration Trend:	No Trend	No Trend	No Trend	Stable			



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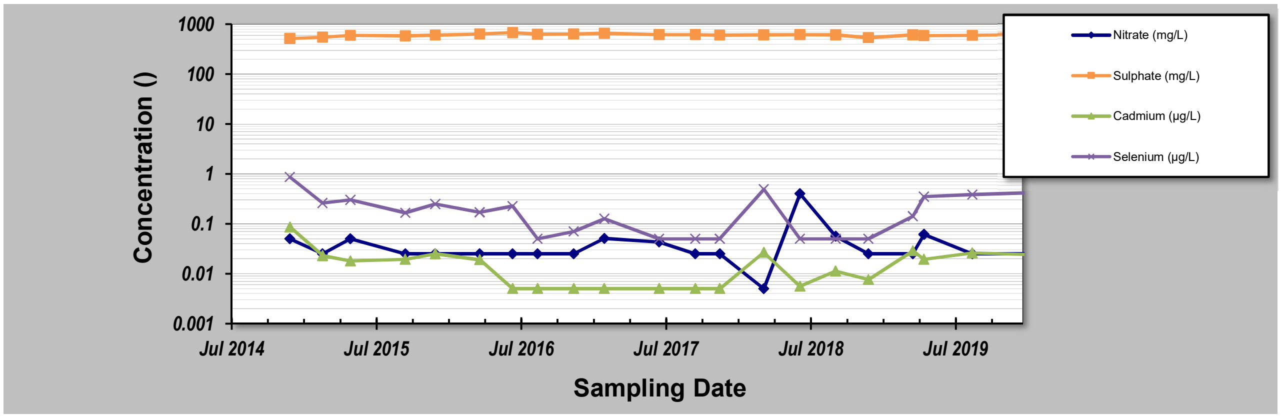
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - GHO
Conducted By: MBS
Job ID: RGMP
Location GH_MW-GHC-1B

Parameter (units)		Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	**Sampling Date**	**GH_MW-GHC-1B CONCENTRATION**						
1	26-Nov-14	0.05	518	0.086	0.86			
2	17-Feb-15	0.025	548	0.023	0.26			
3	29-Apr-15	0.05	595	0.018	0.3			
4	15-Sep-15	0.025	587	0.0195	0.167			
5	30-Nov-15	0.025	602	0.025	0.25			
6	22-Mar-16	0.025	638	0.019	0.17			
7	14-Jun-16	0.025	682	0.005	0.227			
8	16-Aug-16	0.025	629	0.005	0.05			
9	16-Nov-16	0.025	636	0.005	0.07			
10	2-Feb-17	0.051	655	0.005	0.126			
11	21-Jun-17	0.043	615	0.005	0.05			
12	21-Sep-17	0.025	619	0.005	0.05			
13	22-Nov-17	0.025	601	0.005	0.05			
14	14-Mar-18	0.005	610	0.0267	0.494			
15	14-Jun-18	0.4	615	0.0056	0.05			
16	13-Sep-18	0.056	608	0.0113	0.05			
17	5-Dec-18	0.025	537	0.0076	0.05			
18	28-Mar-19	0.025	612	0.0289	0.141			
19	25-Apr-19	0.061	593	0.0195	0.351			
20	26-Aug-19	0.025	595	0.0261	0.387			
21	18-Mar-20	0.025	634	0.0235	0.433			
22	27-May-20	0.025	574	0.0281	0.087			
23	11-Sep-20	0.025	628	0.0292	0.05			
24	16-Nov-20	0.151	598	0.0225	0.052			
25								
Coefficient of Variation:		1.53	0.06	0.90	0.99			
Mann-Kendall Statistic (S):		10	-4	52	-56			
Confidence Factor:		58.7%	52.9%	89.6%	91.3%			
Concentration Trend:		No Trend	Stable	No Trend	Prob. Decreasing			



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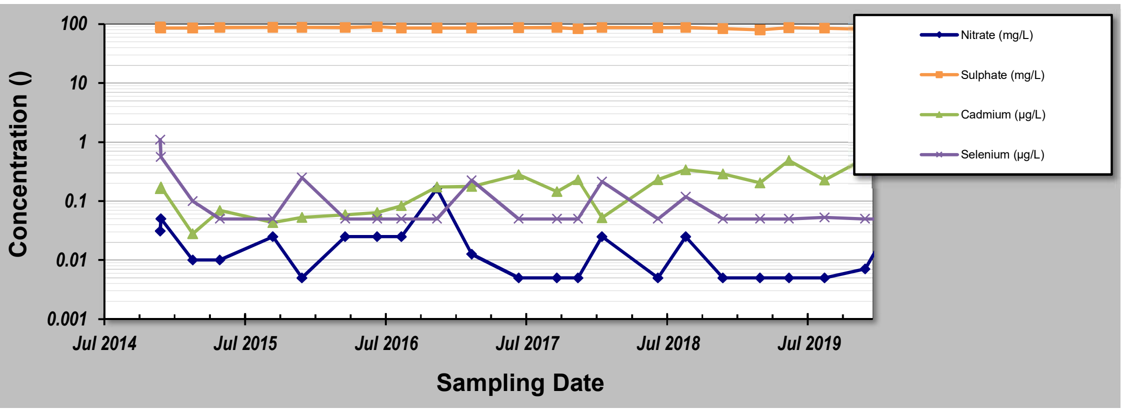
GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - GHO
Conducted By: MBS
Job ID: RGMP
Location GH_MW-TD

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	**Sampling Date**	**GH_MW-TD CONCENTRATION**						
1	24-Nov-14	0.031	89.6	0.162	1.1			
2	26-Nov-14	0.05	85.8	0.173	0.56			
3	17-Feb-15	0.01	86.1	0.028	0.1			
4	29-Apr-15	0.01	87.4	0.0691	0.05			
5	15-Sep-15	0.025	88.5	0.0434	0.05			
6	30-Nov-15	0.005	88.3	0.053	0.25			
7	22-Mar-16	0.025	87.9	0.0589	0.05			
8	14-Jun-16	0.025	90.2	0.0638	0.05			
9	16-Aug-16	0.025	85.9	0.0836	0.05			
10	17-Nov-16	0.164	86.1	0.173	0.05			
11	16-Feb-17	0.0126	86.3	0.176	0.225			
12	19-Jun-17	0.005	86.6	0.281	0.05			
13	27-Sep-17	0.005	87.3	0.144	0.05			
14	21-Nov-17	0.005	83.4	0.23	0.05			
15	23-Jan-18	0.025	87.6	0.0526	0.215			
16	18-Jun-18	0.005	86.6	0.232	0.05			
17	30-Aug-18	0.025	87.9	0.339	0.118			
18	5-Dec-18	0.005	83.6	0.288	0.05			
19	12-Mar-19	0.005	79.7	0.203	0.05			
20	27-May-19	0.005	86.7	0.488	0.05			
21	28-Aug-19	0.005	85.5	0.227	0.053			
22	12-Dec-19	0.0071	81.8	0.53	0.05			
23	12-Mar-20	0.0748	83.9	0.0917	0.05			
24	6-Apr-20	0.005	83.6	0.135	0.389			
25	13-Sep-20	0.0051	86.8	0.621	0.382			
26	26-Nov-20	0.042	86.3	0.12	0.177			
27								
28								
29								
30								
	Coefficient of Variation:	1.43	0.03	0.80	1.40			
	Mann-Kendall Statistic (S):	-62	-98	138	-12			
	Confidence Factor:	91.0%	98.4%	99.9%	59.5%			
	Concentration Trend:	Prob. Decreasing	Decreasing	Increasing	No Trend			



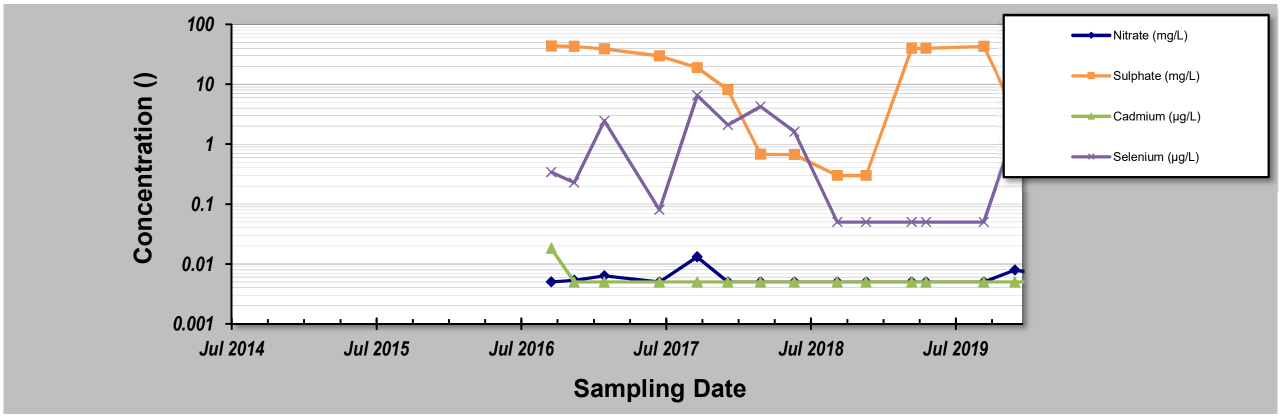
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - GHO
Conducted By: MBS
Job ID: RGMP
Location GH_MW-RLP-1D

Sampling Event	Sampling Date	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
	Parameter (units)	GH_MW-RLP-1D CONCENTRATION						
1	20-Sep-16	0.005	43.8	0.0182	0.338			
2	17-Nov-16	0.0053	42.9	0.005	0.227			
3	2-Feb-17	0.0063	39	0.005	2.45			
4	22-Jun-17	0.005	29.9	0.005	0.08			
5	26-Sep-17	0.0131	18.9	0.005	6.53			
6	13-Dec-17	0.005	8.09	0.005	2.09			
7	6-Mar-18	0.005	0.68	0.005	4.26			
8	31-May-18	0.005	0.67	0.005	1.61			
9	17-Sep-18	0.005	0.3	0.005	0.05			
10	29-Nov-18	0.005	0.3	0.005	0.05			
11	25-Mar-19	0.005	39.8	0.005	0.05			
12	30-Apr-19	0.005	40	0.005	0.05			
13	24-Sep-19	0.005	42.7	0.005	0.05			
14	12-Dec-19	0.0079	3.51	0.005	1.68			
15	4-Jun-20	0.005	41.8	0.005	0.05			
16	24-Aug-20	0.0078	43.5	0.005	0.05			
17								
18								
19								
20								
	Coefficient of Variation:	0.34	0.84	2.78	1.64			
	Mann-Kendall Statistic (S):	5	24	18	-59			
	Confidence Factor:	55.9%	80.6%	73.8%	98.7%			
	Concentration Trend:	No Trend	No Trend	No Trend	Decreasing			



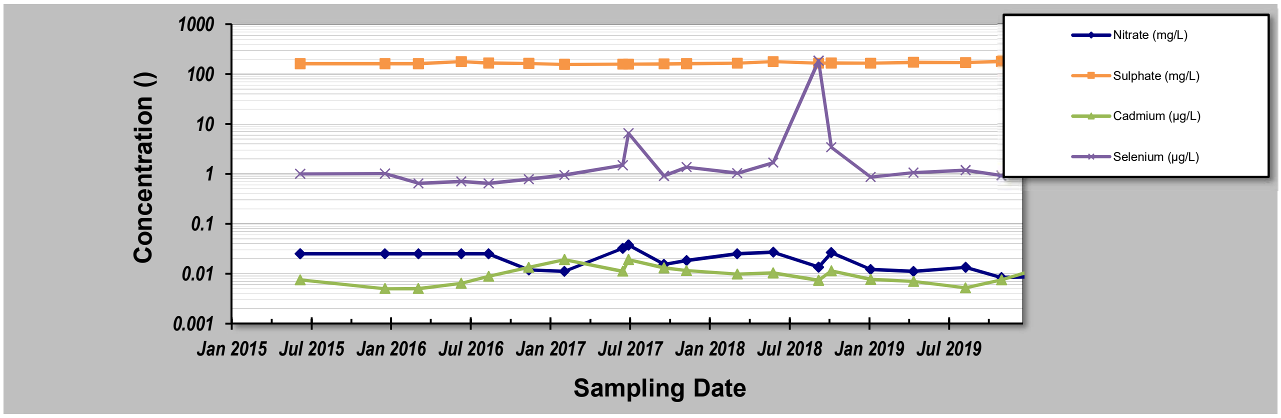
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - GHO
Conducted By: MBS
Job ID: RGMP
Location: GH_POTW09

Sampling Event	Sampling Date	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
		GH_POTW09 CONCENTRATION						
1	8-Jun-15	0.025	161	0.0075	1			
2	21-Dec-15	0.025	161	0.005	1.01			
3	7-Mar-16	0.025	161	0.005	0.647			
4	14-Jun-16	0.025	178	0.0064	0.705			
5	16-Aug-16	0.025	166	0.0088	0.645			
6	17-Nov-16	0.0119	163	0.0133	0.788			
7	7-Feb-17	0.0111	156	0.0191	0.951			
8	22-Jun-17	0.0323	158	0.0111	1.48			
9	5-Jul-17	0.0375	159	0.0191	6.49			
10	25-Sep-17	0.0154	160	0.0131	0.91			
11	16-Nov-17	0.0184	162	0.0115	1.37			
12	13-Mar-18	0.025	165	0.0098	1.04			
13	4-Jun-18	0.027	177	0.0104	1.69			
14	17-Sep-18	0.0135	165	0.0074	185			
15	16-Oct-18	0.0263	166	0.0114	3.39			
16	15-Jan-19	0.0121	165	0.0077	0.861			
17	24-Apr-19	0.0112	173	0.007	1.06			
18	22-Aug-19	0.0134	171	0.0052	1.19			
19	13-Nov-19	0.0084	180	0.0075	0.926			
20	21-Jan-20	0.0086	178	0.0114	1.55			
21	31-May-20	0.0313	175	0.0099	5.37			
22	18-Jun-20	0.0186	179	0.0089	2.86			
23	26-Aug-20	0.0148	177	0.009	1.34			
24	25-Nov-20	0.0151	179	0.008	1.92			
25								
Coefficient of Variation:		0.41	0.05	0.38	4.01			
Mann-Kendall Statistic (S):		-61	150	-4	108			
Confidence Factor:		93.1%	>99.9%	52.9%	99.7%			
Concentration Trend:		Prob. Decreasing	Increasing	Stable	Increasing			



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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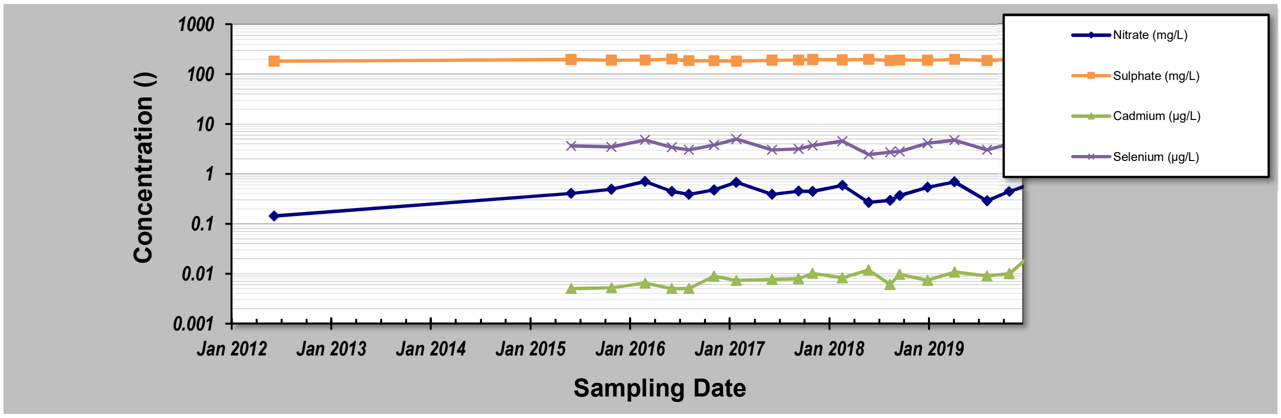
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - GHO
Conducted By: MBS

Job ID: RGMP
Location: GH_POTW10

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	**Sampling Date**	**GH_POTW10 CONCENTRATION**						
1	6-Jun-12	0.143	181					
2	8-Jun-15	0.405	196	0.005	3.62			
3	4-Nov-15	0.493	190	0.0052	3.49			
4	7-Mar-16	0.705	191	0.0065	4.8			
5	14-Jun-16	0.445	200	0.005	3.42			
6	16-Aug-16	0.391	186	0.005	3.02			
7	17-Nov-16	0.478	185	0.0089	3.8			
8	7-Feb-17	0.677	182	0.0073	4.99			
9	19-Jun-17	0.39	190	0.0077	3.03			
10	25-Sep-17	0.453	191	0.0079	3.17			
11	16-Nov-17	0.448	195	0.0101	3.71			
12	6-Mar-18	0.591	193	0.0083	4.55			
13	11-Jun-18	0.269	198	0.0119	2.45			
14	29-Aug-18	0.295	188	0.0061	2.73			
15	4-Oct-18	0.369	191	0.0097	2.82			
16	15-Jan-19	0.539	189	0.0074	4.14			
17	24-Apr-19	0.688	197	0.0108	4.72			
18	22-Aug-19	0.288	187	0.009	3.03			
19	13-Nov-19	0.445	194	0.01	4			
20	21-Jan-20	0.611	195	0.0215	4.44			
21	31-May-20	0.621	191	0.0339	23.9			
22	18-Jun-20	0.0071	275	0.0098	2.44			
23	26-Aug-20	0.453	188	0.0064	3.97			
24	25-Nov-20	0.764	195	0.0091	5			
25								
	Coefficient of Variation:	0.39	0.09	0.65	0.94			
	Mann-Kendall Statistic (S):	26	55	122	26			
	Confidence Factor:	73.0%	90.9%	>99.9%	74.4%			
	Concentration Trend:	No Trend	Prob. Increasing	Increasing	No Trend			



Notes:

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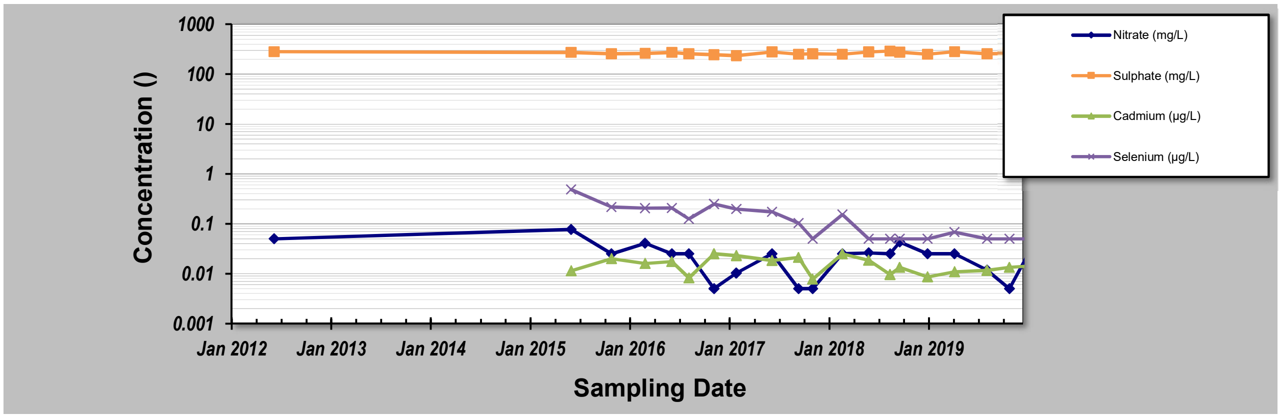
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - GHO
Conducted By: MBS
Job ID: RGMP
Location: GH_POTW15

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	Sampling Date	GH_POTW15 CONCENTRATION						
1	6-Jun-12	0.05	282					
2	8-Jun-15	0.077	272	0.0114	0.486			
3	4-Nov-15	0.025	254	0.0201	0.216			
4	7-Mar-16	0.041	261	0.0161	0.206			
5	14-Jun-16	0.025	273	0.0175	0.207			
6	16-Aug-16	0.025	254	0.0082	0.125			
7	17-Nov-16	0.005	244	0.025	0.25			
8	7-Feb-17	0.0103	234	0.0229	0.197			
9	19-Jun-17	0.025	278	0.0184	0.173			
10	25-Sep-17	0.005	250	0.0212	0.103			
11	16-Nov-17	0.005	254	0.0078	0.05			
12	6-Mar-18	0.025	251	0.0249	0.152			
13	11-Jun-18	0.026	279	0.0186	0.05			
14	29-Aug-18	0.025	291	0.0096	0.05			
15	4-Oct-18	0.043	275	0.0133	0.05			
16	15-Jan-19	0.025	250	0.0086	0.05			
17	24-Apr-19	0.025	281	0.0109	0.068			
18	22-Aug-19	0.0118	256	0.0116	0.05			
19	13-Nov-19	0.005	261	0.0134	0.05			
20	21-Jan-20	0.025	273	0.0143	0.05			
21	31-May-20	0.005	273	0.0341	0.085			
22	18-Jun-20	0.005	275	0.572	0.06			
23	26-Aug-20	0.025	289	0.0082	0.05			
24	25-Nov-20	0.025	262	0.0101	0.075			
25								
Coefficient of Variation:		0.72	0.06	2.91	0.84			
Mann-Kendall Statistic (S):		-70	47	-14	-131			
Confidence Factor:		95.6%	87.2%	63.3%	>99.9%			
Concentration Trend:		Decreasing	No Trend	No Trend	Decreasing			



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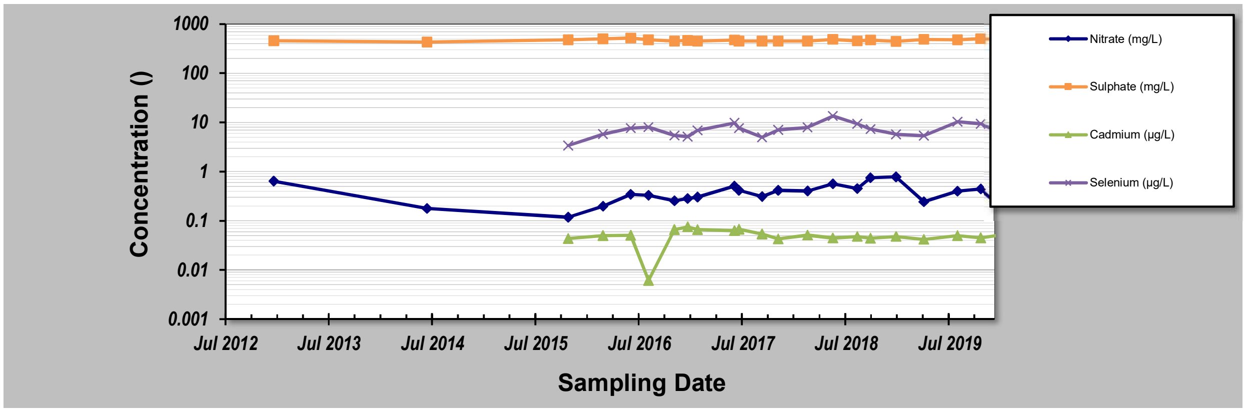
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - GHO
Conducted By: MBS
Job ID: RGMP
Location GH_POTW17

Parameter (units)		Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	**Sampling Date**	**GH_POTW17 CONCENTRATION**						
1	20-Dec-12	0.64	462					
2	19-Jun-14	0.178	432					
3	4-Nov-15	0.118	482	0.0437	3.4			
4	7-Mar-16	0.198	498	0.05	5.76			
5	14-Jun-16	0.345	522	0.0506	7.71			
6	16-Aug-16	0.33	480	0.0061	7.98			
7	17-Nov-16	0.255	448	0.066	5.41			
8	3-Jan-17	0.281	464	0.075	5.15			
9	7-Feb-17	0.302	450	0.0665	6.93			
10	19-Jun-17	0.505	475	0.063	9.83			
11	5-Jul-17	0.414	448	0.0671	7.71			
12	25-Sep-17	0.311	450	0.0539	4.98			
13	21-Nov-17	0.415	450	0.0429	7.09			
14	6-Mar-18	0.402	451	0.0509	7.96			
15	4-Jun-18	0.563	492	0.0444	13.5			
16	30-Aug-18	0.45	453	0.0477	9.42			
17	16-Oct-18	0.752	475	0.044	7.3			
18	15-Jan-19	0.782	447	0.0477	5.73			
19	24-Apr-19	0.244	489	0.042	5.39			
20	22-Aug-19	0.398	482	0.0498	10.3			
21	13-Nov-19	0.443	504	0.045	9.42			
22	21-Jan-20	0.208	481	0.0515	6.55			
23	31-May-20	0.212	482	0.0624	5.69			
24	18-Jun-20	0.09	480	0.0242	3.29			
25	26-Aug-20	0.282	453	0.0436	8.23			
26	25-Nov-20	0.185	445	0.0413	4.94			
27								
28								
29								
30								
Coefficient of Variation:		0.50	0.05	0.29	0.33			
Mann-Kendall Statistic (S):		5	13	-69	2			
Confidence Factor:		53.5%	60.3%	95.4%	51.0%			
Concentration Trend:		No Trend	No Trend	Decreasing	No Trend			



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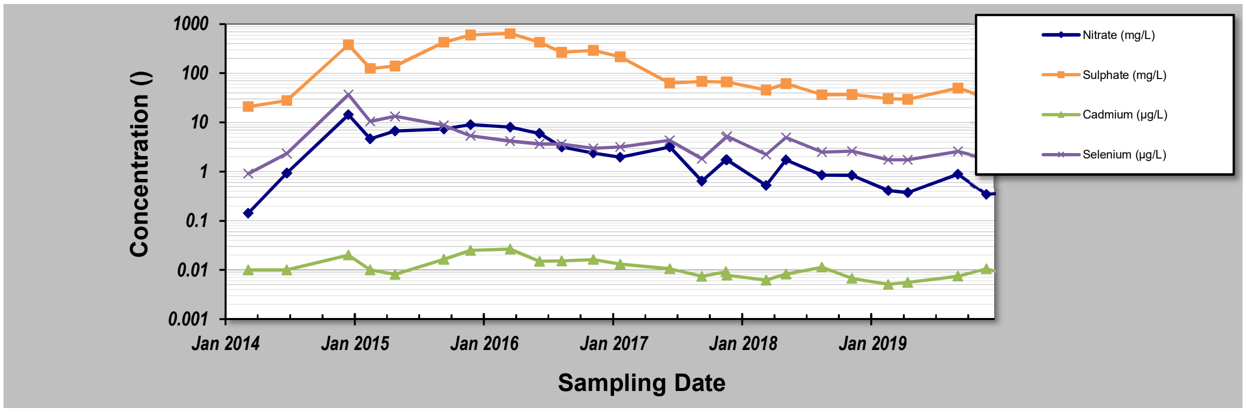
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - GHO
Conducted By: MBS
Job ID: RGMP
Location GH_GA-MW-4

Sampling Event	Sampling Date	GH_GA-MW-4 CONCENTRATION						
Parameter (units)		Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
1	7-Mar-14	0.143	21	0.01	0.91			
2	25-Jun-14	0.936	27.8	0.01	2.32			
3	17-Dec-14	14.4	381	0.02	37.1			
4	17-Feb-15	4.63	125	0.01	10.5			
5	29-Apr-15	6.68	141	0.0081	13.2			
6	15-Sep-15	7.35	425	0.0164	8.74			
7	30-Nov-15	8.98	599	0.025	5.31			
8	22-Mar-16	8.02	646	0.0266	4.19			
9	14-Jun-16	5.97	425	0.015	3.66			
10	16-Aug-16	3.16	266	0.0152	3.62			
11	14-Nov-16	2.41	294	0.0162	3			
12	30-Jan-17	1.96	215	0.0131	3.16			
13	20-Jun-17	3.18	63	0.0106	4.31			
14	19-Sep-17	0.638	68	0.0074	1.83			
15	27-Nov-17	1.73	66.4	0.0092	4.93			
16	30-Nov-17	1.74	66.7	0.0078	5.23			
17	21-Mar-18	0.523	45.7	0.0062	2.23			
18	17-May-18	1.74	61.6	0.0082	4.95			
19	27-Aug-18	0.848	36.7	0.0114	2.51			
20	21-Nov-18	0.838	37.1	0.0067	2.61			
21	4-Mar-19	0.411	30.5	0.0051	1.74			
22	29-Apr-19	0.375	29.4	0.0056	1.74			
23	19-Sep-19	0.883	49.7	0.0075	2.58			
24	9-Dec-19	0.345	33	0.0106	1.85			
25	10-Mar-20	0.388	32.8	0.007	1.64			
26	3-Jun-20	1.6	40.7	0.0071	5.14			
27	21-Aug-20	0.453	37.3	0.0079	2.63			
28	24-Nov-20	2.19	95.7	0.0064	8.04			
29								
30								
Coefficient of Variation:		1.16	1.16	0.50	1.28			
Mann-Kendall Statistic (S):		-173	-141	-174	-99			
Confidence Factor:		>99.9%	99.8%	>99.9%	97.4%			
Concentration Trend:		Decreasing	Decreasing	Decreasing	Decreasing			



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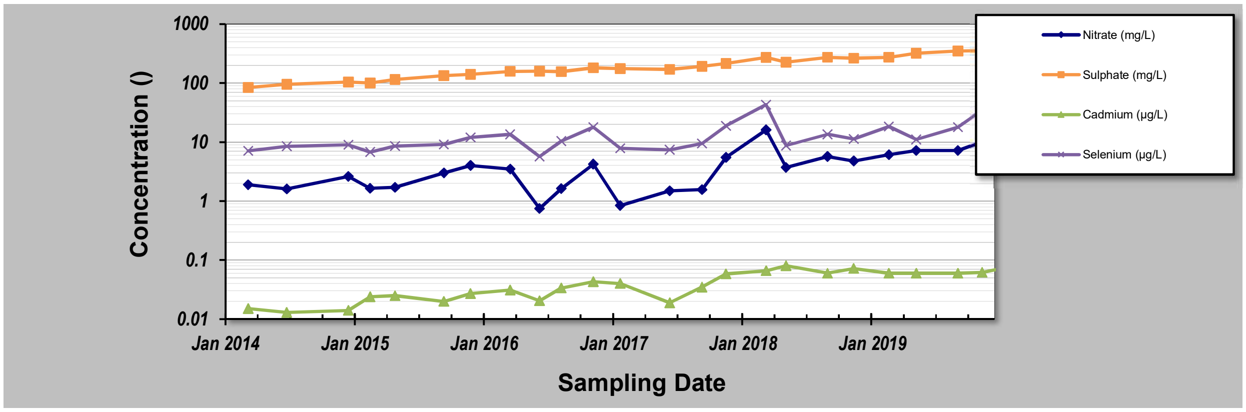
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - GHO
Conducted By: MBS
Job ID: RGMP
Location GH_GA-MW-2

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	**Sampling Date**	**GH_GA-MW-2 CONCENTRATION**						
1	7-Mar-14	1.89	84	0.015	7.09			
2	25-Jun-14	1.61	95.4	0.013	8.5			
3	17-Dec-14	2.61	104	0.014	8.99			
4	17-Feb-15	1.65	99.9	0.024	6.78			
5	29-Apr-15	1.7	115	0.0251	8.56			
6	15-Sep-15	3.01	134	0.02	9.13			
7	30-Nov-15	4	141	0.027	12			
8	22-Mar-16	3.49	158	0.0312	13.5			
9	14-Jun-16	0.751	160	0.0204	5.7			
10	15-Aug-16	1.63	157	0.0338	10.4			
11	14-Nov-16	4.22	181	0.0428	17.9			
12	30-Jan-17	0.837	176	0.0401	7.87			
13	20-Jun-17	1.5	171	0.0189	7.41			
14	20-Sep-17	1.56	192	0.035	9.49			
15	27-Nov-17	5.52	214	0.0584	18.9			
16	21-Mar-18	16.1	272	0.066	43.1			
17	17-May-18	3.7	226	0.08	8.78			
18	12-Sep-18	5.68	273	0.06	13.5			
19	26-Nov-18	4.8	265	0.072	11.3			
20	6-Mar-19	6.09	274	0.06	18.4			
21	23-May-19	7.23	320	0.06	11.1			
22	19-Sep-19	7.21	351	0.06	17.9			
23	27-Nov-19	10.1	354	0.0618	34.7			
24	16-Mar-20	15.2	427	0.0841	42.9			
25	7-Jun-20	8.9	415	0.055	15.2			
26	20-Aug-20	9.6	451	0.0663	22.6			
27	20-Nov-20	12.5	492	0.0599	34.6			
28								
29								
30								
Coefficient of Variation:		0.81	0.51	0.49	0.68			
Mann-Kendall Statistic (S):		205	331	229	187			
Confidence Factor:		>99.9%	>99.9%	>99.9%	>99.9%			
Concentration Trend:		Increasing	Increasing	Increasing	Increasing			



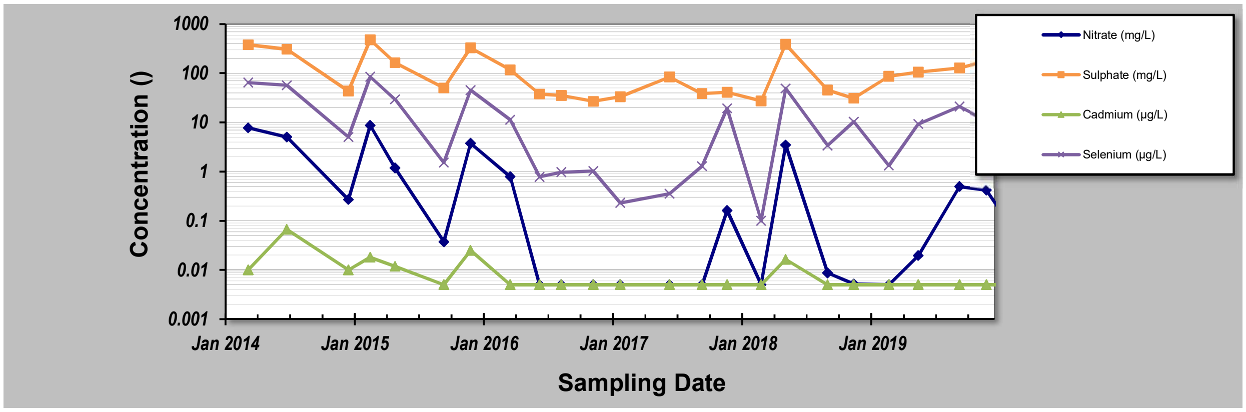
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - GHO
Conducted By: MBS
Job ID: RGMP
Location GH_GA-MW-3

Sampling Event	Sampling Date	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
		GH_GA-MW-3 CONCENTRATION						
1	7-Mar-14	7.73	382	0.01	64.6			
2	25-Jun-14	5.04	310	0.067	56.9			
3	17-Dec-14	0.271	43.5	0.01	5.03			
4	17-Feb-15	8.71	481	0.018	85.3			
5	29-Apr-15	1.19	165	0.0119	29.4			
6	15-Sep-15	0.0374	50	0.005	1.53			
7	30-Nov-15	3.77	330	0.025	45.4			
8	22-Mar-16	0.789	117	0.005	11.3			
9	14-Jun-16	0.005	37.7	0.005	0.783			
10	15-Aug-16	0.005	35.3	0.005	0.972			
11	14-Nov-16	0.005	26.9	0.005	1.03			
12	30-Jan-17	0.005	33.3	0.005	0.231			
13	19-Jun-17	0.005	84	0.005	0.354			
14	20-Sep-17	0.005	38.7	0.005	1.29			
15	30-Nov-17	0.161	41.1	0.005	19.4			
16	7-Mar-18	0.005	27.4	0.005	0.1			
17	16-May-18	3.48	387	0.0164	49.2			
18	12-Sep-18	0.0087	45.8	0.005	3.38			
19	26-Nov-18	0.0052	30.9	0.005	10.3			
20	6-Mar-19	0.005	87	0.005	1.33			
21	29-May-19	0.0196	106	0.005	9.26			
22	23-Sep-19	0.498	128	0.005	21.1			
23	9-Dec-19	0.422	177	0.005	11			
24	11-Mar-20	0.0421	56.4	0.005	6.23			
25	5-Jun-20	2.81	300	0.0081	46.2			
26	11-Aug-20	0.005	32.2	0.005	5.69			
27	20-Nov-20	1.57	236	0.005	39.1			
28								
29								
30								
Coefficient of Variation:		1.78	0.97	1.29	1.22			
Mann-Kendall Statistic (S):		-53	-25	-99	-19			
Confidence Factor:		85.9%	69.0%	98.0%	64.5%			
Concentration Trend:		No Trend	Stable	Decreasing	No Trend			



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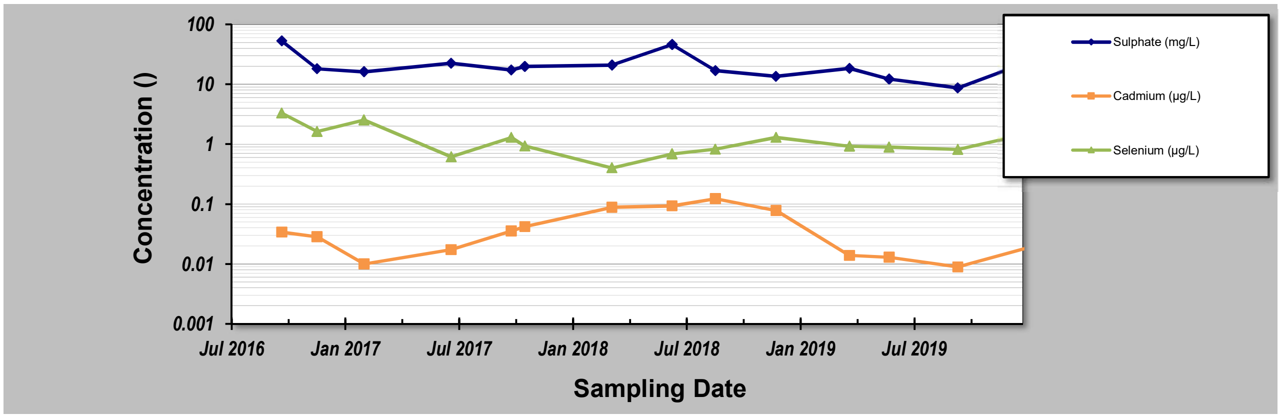
GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - GHO
Conducted By: MBS

Job ID: RGMP
Location GH_MW-UTC-A

Parameter (units)		Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)				
Sampling Event	**Sampling Date**	**GH_MW-UTC-A CONCENTRATION**						
1	20-Sep-16	53.1	0.034	3.31				
2	16-Nov-16	18.2	0.0285	1.63				
3	31-Jan-17	16.1	0.01	2.54				
4	21-Jun-17	22.4	0.0173	0.615				
5	26-Sep-17	17.4	0.0353	1.29				
6	18-Oct-17	19.8	0.042	0.933				
7	8-Mar-18	21	0.088	0.4				
8	13-Jun-18	46.1	0.093	0.69				
9	22-Aug-18	16.9	0.123	0.82				
10	28-Nov-18	13.6	0.0778	1.29				
11	27-Mar-19	18.5	0.0139	0.921				
12	30-May-19	12.2	0.0129	0.891				
13	18-Sep-19	8.7	0.0089	0.814				
14	17-Mar-20	42.9	0.0288	2.17				
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.58	0.83	0.64				
Mann-Kendall Statistic (S):		-25	-1	-20				
Confidence Factor:		90.4%	50.0%	84.8%				
Concentration Trend:		Prob. Decreasing	Stable	Stable				



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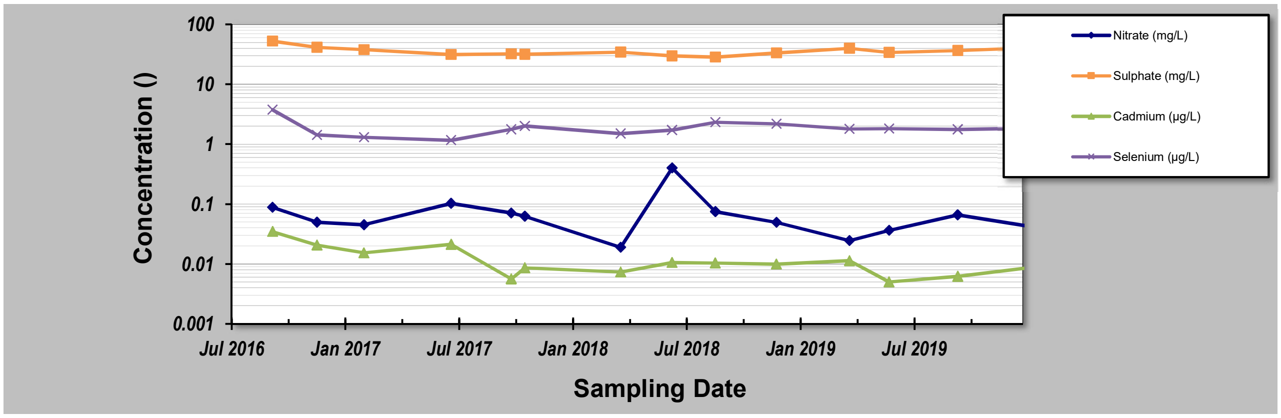
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - GHO
Conducted By: MBS
Job ID: RGMP
Location GH_MW-UTC-B

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	Sampling Date	GH_MW-UTC-B CONCENTRATION						
1	5-Sep-16	0.0883	52.7	0.0347	3.75			
2	16-Nov-16	0.0496	41.3	0.0206	1.43			
3	31-Jan-17	0.045	37.8	0.0153	1.3			
4	21-Jun-17	0.103	31.5	0.0212	1.16			
5	26-Sep-17	0.071	32.4	0.0056	1.76			
6	18-Oct-17	0.0626	31.8	0.0086	2.02			
7	22-Mar-18	0.0189	34.2	0.0073	1.51			
8	13-Jun-18	0.4	29.8	0.0105	1.72			
9	22-Aug-18	0.0746	28.5	0.0103	2.32			
10	29-Nov-18	0.0491	33.3	0.0099	2.19			
11	27-Mar-19	0.0245	40.1	0.0113	1.79			
12	30-May-19	0.0364	34.1	0.005	1.81			
13	18-Sep-19	0.066	36.4	0.0062	1.76			
14	17-Mar-20	0.033	42.9	0.0104	1.89			
15	10-Jun-20	0.0846	34.3	0.0172	1.52			
16	13-Sep-20	0.0803	37.2	0.0101	2.52			
17	16-Oct-20	0.0632	38.9	0.0086	2.2			
18								
19								
20								
	Coefficient of Variation:	1.08	0.16	0.60	0.31			
	Mann-Kendall Statistic (S):	-10	12	-37	37			
	Confidence Factor:	64.2%	67.2%	93.0%	93.0%			
	Concentration Trend:	No Trend	No Trend	Prob. Decreasing	Prob. Increasing			



Notes:

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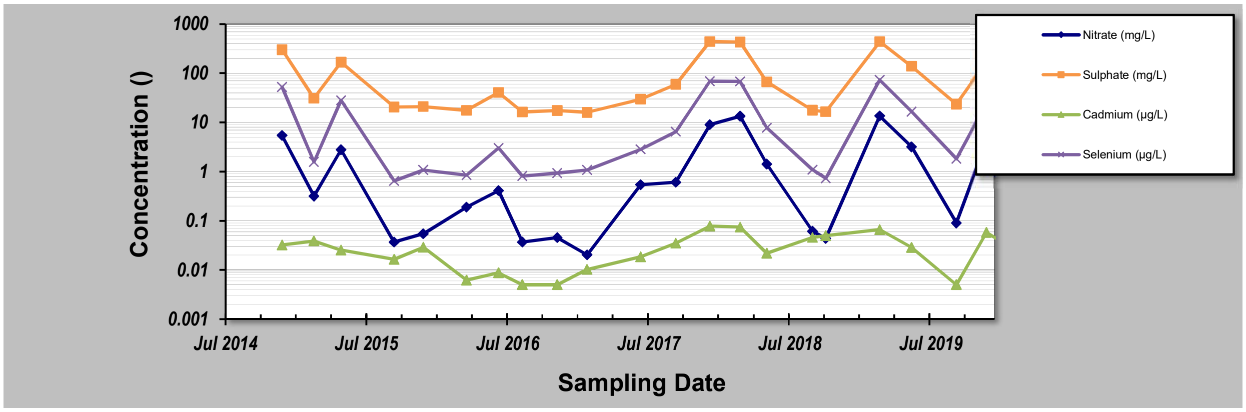
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - GHO
Conducted By: MBS
Job ID: RGMP
Location GH_MW-ERSC-1

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	Sampling Date	GH_MW-ERSC-1 CONCENTRATION						
1	26-Nov-14	5.44	301	0.032	52.6			
2	17-Feb-15	0.318	31	0.039	1.58			
3	29-Apr-15	2.79	168	0.0252	28.2			
4	15-Sep-15	0.0368	20.7	0.0164	0.646			
5	30-Nov-15	0.0543	21.1	0.029	1.08			
6	22-Mar-16	0.19	17.6	0.0062	0.847			
7	14-Jun-16	0.412	40.9	0.0088	3.01			
8	15-Aug-16	0.037	16.3	0.005	0.815			
9	14-Nov-16	0.0453	17.4	0.005	0.932			
10	31-Jan-17	0.0202	16.1	0.0103	1.08			
11	20-Jun-17	0.543	29.7	0.0185	2.85			
12	20-Sep-17	0.608	59.6	0.0349	6.53			
13	18-Dec-17	9.04	442	0.0777	68.7			
14	7-Mar-18	13.4	432	0.0747	68.1			
15	16-May-18	1.42	66.8	0.0219	7.75			
16	12-Sep-18	0.0609	17.7	0.0459	1.09			
17	17-Oct-18	0.0437	16.6	0.0497	0.73			
18	7-Mar-19	13.5	440	0.0662	73.2			
19	29-May-19	3.19	139	0.0285	16.6			
20	23-Sep-19	0.0903	23.7	0.005	1.82			
21	11-Dec-19	4.03	170	0.058	23.9			
22	16-Mar-20	0.0124	16.3	0.02	0.841			
23	6-May-20	0.8	38.4	0.0126	4.48			
24	13-Sep-20	2.29	130	0.0098	15.5			
25	25-Nov-20	7.42	372	0.0343	50.7			
26								
27								
28								
29								
30								
	Coefficient of Variation:	1.55	1.24	0.75	1.42			
	Mann-Kendall Statistic (S):	52	31	19	57			
	Confidence Factor:	88.2%	75.6%	66.2%	90.3%			
	Concentration Trend:	No Trend	No Trend	No Trend	Prob. Increasing			



Notes:

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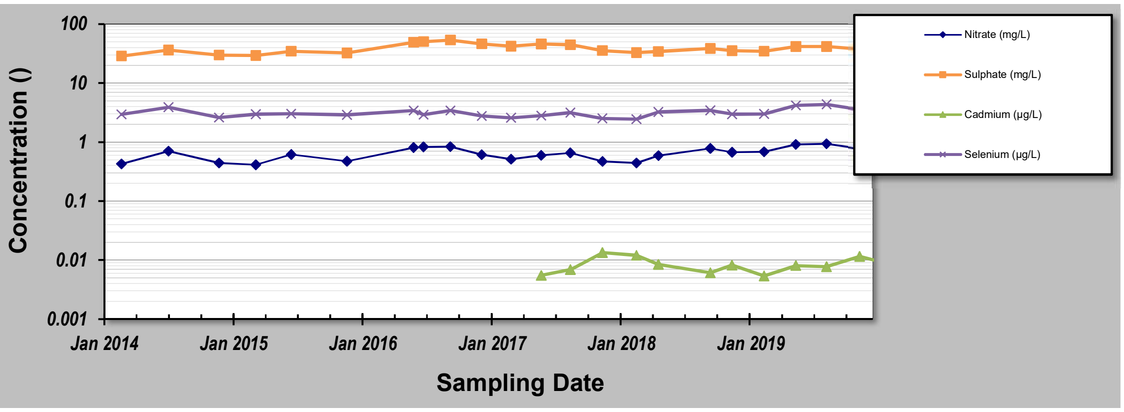
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - RG
Conducted By: MBS
Job ID: 671557
Location: RG_DW-01-03

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	Sampling Date	RG_DW-01-03 CONCENTRATION						
1	19-Feb-14	0.427	28.8		2.94			
2	3-Jul-14	0.701	36.1		3.9			
3	24-Nov-14	0.442	30		2.62			
4	9-Mar-15	0.413	29.4		2.98			
5	18-Jun-15	0.614	34.6		3.03			
6	24-Nov-15	0.473	32.4		2.91			
7	1-Jun-16	0.806	49.2		3.43			
8	29-Jun-16	0.833	50.7		2.92			
9	14-Sep-16	0.84	53.7		3.42			
10	12-Dec-16	0.61	46.5		2.77			
11	6-Mar-17	0.512	42.1		2.58			
12	31-May-17	0.596	46	0.0055	2.8			
13	22-Aug-17	0.655	44.8	0.0069	3.16			
14	21-Nov-17	0.47	35.7	0.0134	2.53			
15	26-Feb-18	0.441	33	0.0121	2.45			
16	30-Apr-18	0.591	34.4	0.0084	3.25			
17	25-Sep-18	0.782	38.5	0.0061	3.46			
18	26-Nov-18	0.67	35.4	0.0082	2.98			
19	25-Feb-19	0.683	34.8	0.0054	3.01			
20	27-May-19	0.913	41.6	0.0081	4.18			
21	22-Aug-19	0.935	41.7	0.0077	4.37			
22	25-Nov-19	0.777	37.8	0.0115	3.56			
23	10-Feb-20	0.79	38.4	0.0088	3.33			
24	11-May-20	1.21	44.7	0.0098	4.71			
25	12-Aug-20	1.3	51.5	0.0082	5.11			
26	10-Jul-20	1.17	51.9	0.005	4.67			
27								
28								
29								
30								
	Coefficient of Variation:	0.34	0.19	0.30	0.22			
	Mann-Kendall Statistic (S):	157	85	-4	120			
	Confidence Factor:	>99.9%	96.8%	55.8%	99.6%			
	Concentration Trend:	Increasing	Increasing	Stable	Increasing			



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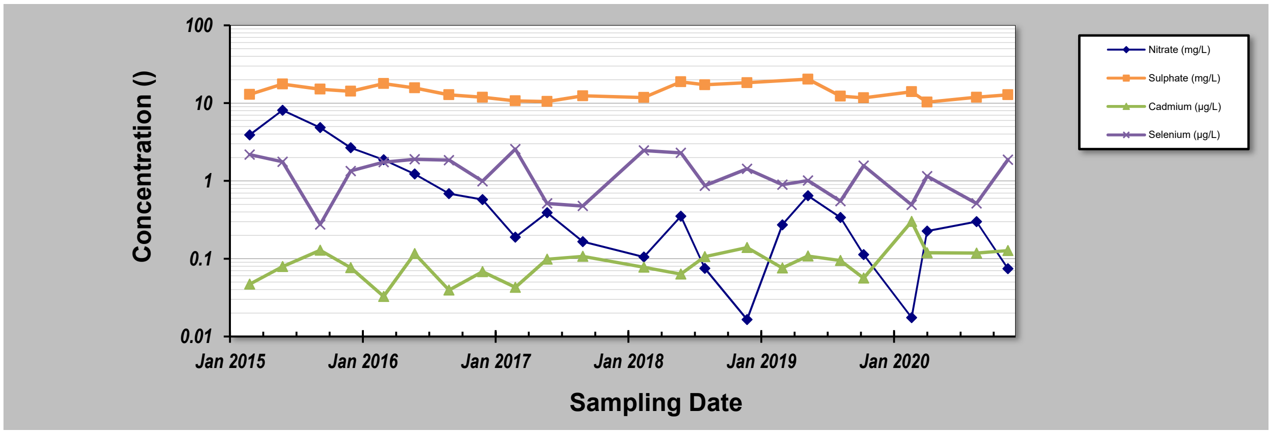
Line Creek Operations

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Feb-21
Facility Name: Teck Coal Regional Groundwater - RG
Conducted By: MBS
Job ID: 671557
Location LC_PIZDC0901

Parameter (units) Nitrate (mg/L) | Sulphate (mg/L) | Cadmium (µg/L) | Selenium (µg/L)

Sampling Event	Sampling Date	LC_PIZDC0901 CONCENTRATION						
		Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
1	11-Mar-15	3.9	12.9	0.047	2.18			
2	10-Jun-15	8.1	17.6	0.0791	1.76			
3	22-Sep-15	4.85	15.1	0.128	0.275			
4	16-Dec-15	2.67	14.2	0.0767	1.34			
5	16-Mar-16	1.87	17.8	0.0327	1.74			
6	10-Jun-16	1.23	15.7	0.116	1.9			
7	13-Sep-16	0.685	12.8	0.0395	1.85			
8	15-Dec-16	0.575	11.9	0.068	0.99			
9	16-Mar-17	0.189	10.7	0.0427	2.56			
10	12-Jun-17	0.39	10.5	0.0983	0.513			
11	19-Sep-17	0.166	12.4	0.107	0.476			
12	7-Mar-18	0.105	11.8	0.0777	2.46			
13	18-Jun-18	0.351	18.8	0.0633	2.29			
14	23-Aug-18	0.0751	17.2	0.106	0.867			
15	18-Dec-18	0.0165	18.3	0.139	1.43			
16	26-Mar-19	0.273		0.0757	0.894			
17	5-Jun-19	0.644	20.3	0.108	1.01			
18	3-Sep-19	0.339	12.3	0.0948	0.55			
19	6-Nov-19	0.113	11.7	0.0564	1.57			
20	18-Mar-20	0.0175	14	0.301	0.492			
21	30-Apr-20	0.226	10.3	0.119	1.15			
22	14-Sep-20	0.299	11.9	0.118	0.513			
23	10-Dec-20	0.0744	12.8	0.127	1.87			
24								
25								
Coefficient of Variation:		1.68	0.21	0.56	0.53			
Mann-Kendall Statistic (S):		-157	-41	83	-42			
Confidence Factor:		>99.9%	86.9%	98.5%	85.9%			
Concentration Trend:		Decreasing	Stable	Increasing	Stable			



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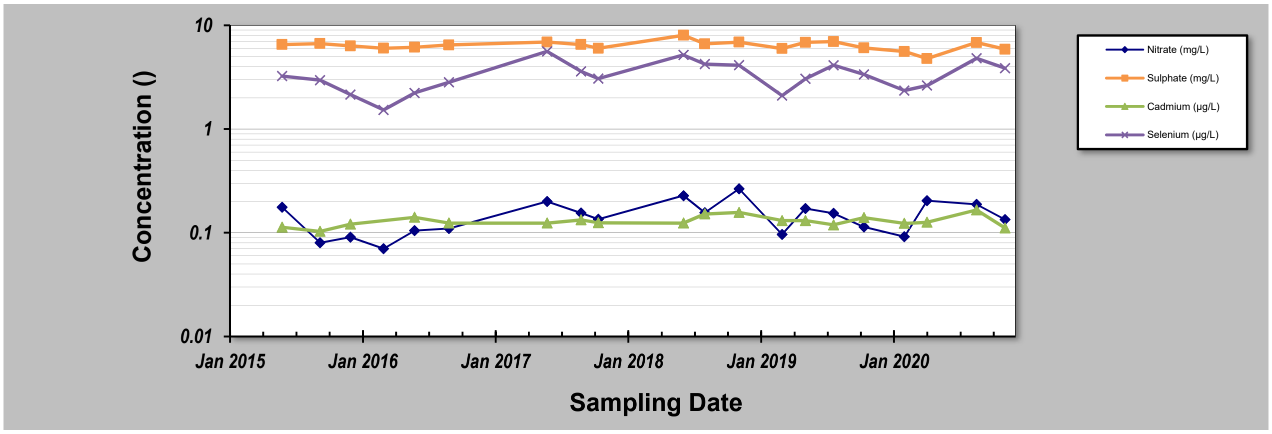
GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: 16-Feb-21
Facility Name: Teck Coal Regional Groundwater - RG
Conducted By: MBS
Job ID: 671557
Location LC_PIZDC1306

Parameter (units)		Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	**Sampling Date**	**LC_PIZDC1306 CONCENTRATION**						
1	9-Jun-15	0.176	6.53	0.113	3.24			
2	22-Sep-15	0.08	6.67	0.103	2.96			
3	15-Dec-15	0.0906	6.33	0.121	2.15			
4	16-Mar-16	0.0702	6.01		1.53			
5	10-Jun-16	0.105	6.14	0.141	2.23			
6	13-Sep-16	0.11	6.47	0.124	2.82			
7	12-Jun-17	0.2	6.89	0.124	5.6			
8	14-Sep-17	0.155	6.52	0.133	3.59			
9	1-Nov-17	0.135	6	0.125	3.06			
10	25-Jun-18	0.228	8.02	0.124	5.18			
11	23-Aug-18	0.156	6.63	0.152	4.23			
12	26-Nov-18	0.265	6.88	0.157	4.13			
13	25-Mar-19	0.0962	5.97	0.131	2.1			
14	29-May-19	0.171	6.85	0.131	3.05			
15	15-Aug-19	0.154	6.97	0.119	4.12			
16	7-Nov-19	0.114	6.06	0.14	3.36			
17	27-Feb-20	0.0917	5.59	0.123	2.35			
18	30-Apr-20	0.204	4.77	0.126	2.63			
19	14-Sep-20	0.188	6.82	0.166	4.81			
20	2-Dec-20	0.134	5.88	0.111	3.86			
21								
22								
23								
24								
25								
Coefficient of Variation:		0.36	0.10	0.12	0.33			
Mann-Kendall Statistic (S):		42	-28	35	30			
Confidence Factor:		90.7%	80.7%	88.1%	82.4%			
Concentration Trend:		Prob. Increasing	Stable	No Trend	No Trend			



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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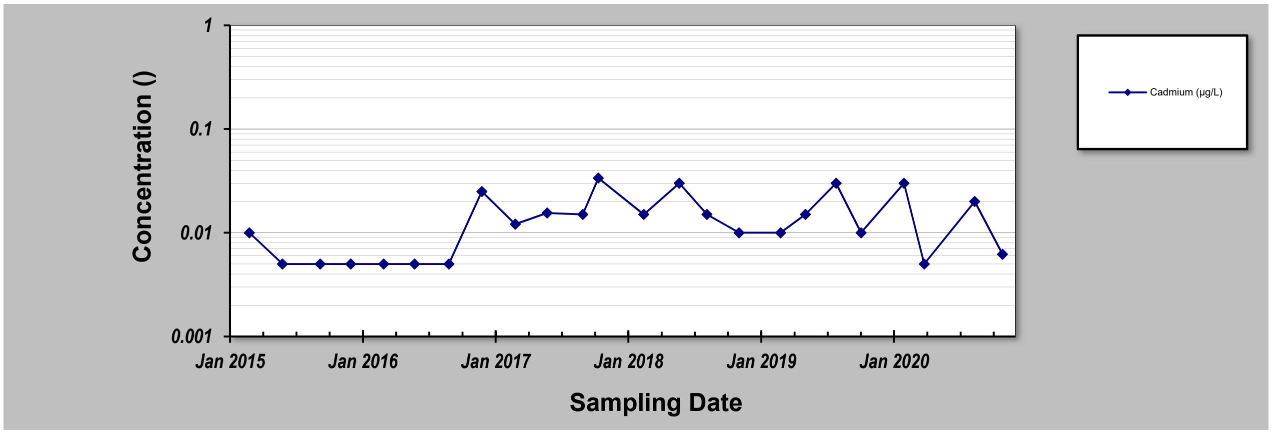
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Feb-21
Facility Name: Teck Coal Regional Groundwater - RG
Conducted By: MBS
Job ID: 671557
Location LC_PIZDC1307

Parameter (units) Cadmium (µg/L)

Sampling Event	Sampling Date	LC_PIZDC1307 CONCENTRATION						
1	10-Mar-15	0.01						
2	10-Jun-15	0.005						
3	22-Sep-15	0.005						
4	16-Dec-15	0.005						
5	16-Mar-16	0.005						
6	10-Jun-16	0.005						
7	13-Sep-16	0.005						
8	13-Dec-16	0.025						
9	16-Mar-17	0.0121						
10	12-Jun-17	0.0155						
11	19-Sep-17	0.015						
12	1-Nov-17	0.0337						
13	7-Mar-18	0.015						
14	13-Jun-18	0.03						
15	29-Aug-18	0.015						
16	26-Nov-18	0.01						
17	21-Mar-19	0.01						
18	29-May-19	0.015						
19	22-Aug-19	0.03						
20	30-Oct-19	0.01						
21	26-Feb-20	0.03						
22	22-Apr-20	0.005						
23	9-Sep-20	0.02						
24	25-Nov-20	0.0062						
25								
Coefficient of Variation:		0.67						
Mann-Kendall Statistic (S):		68						
Confidence Factor:		95.2%						
Concentration Trend:		Increasing						



Notes:
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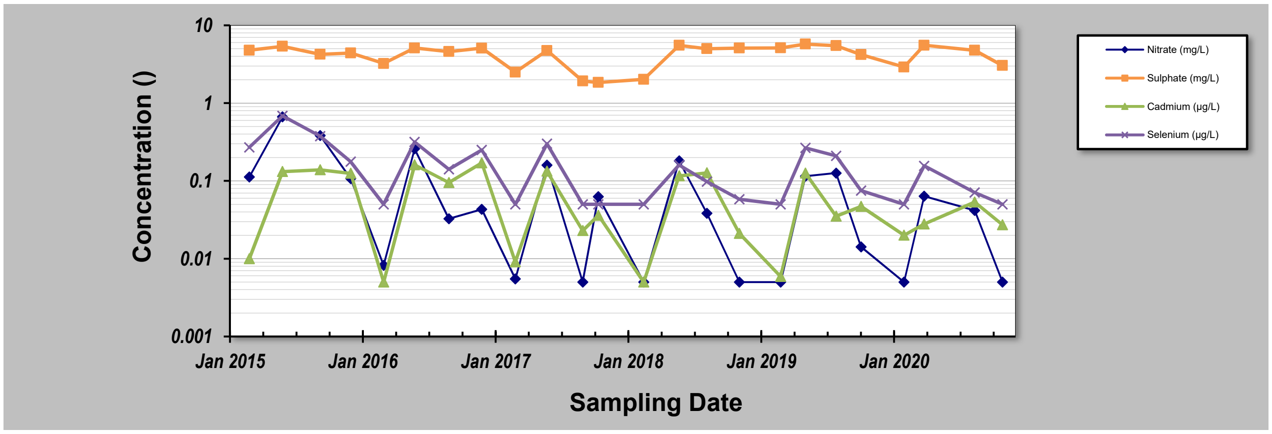
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Feb-21
Facility Name: Teck Coal Regional Groundwater - RG
Conducted By: MBS

Job ID: 671557
Location LC_PIZDC1308

Parameter (units)		Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	Sampling Date	LC_PIZDC1308 CONCENTRATION						
1	10-Mar-15	0.112	4.78	0.01	0.27			
2	10-Jun-15	0.667	5.38	0.132	0.686			
3	22-Sep-15	0.383	4.24	0.139	0.375			
4	16-Dec-15	0.107	4.41	0.125	0.177			
5	16-Mar-16	0.0082	3.23	0.005	0.05			
6	10-Jun-16	0.258	5.11	0.161	0.317			
7	13-Sep-16	0.0326	4.6	0.095	0.141			
8	13-Dec-16	0.0432	5.09	0.17	0.25			
9	16-Mar-17	0.0055	2.5	0.0091	0.05			
10	12-Jun-17	0.159	4.74	0.133	0.301			
11	19-Sep-17	0.005	1.92	0.023	0.05			
12	1-Nov-17	0.0627	1.84	0.0361	0.05			
13	7-Mar-18	0.005	2.02	0.005	0.05			
14	13-Jun-18	0.181	5.53	0.116	0.16			
15	29-Aug-18	0.0383	5	0.127	0.098			
16	27-Nov-18	0.005	5.1	0.0211	0.058			
17	21-Mar-19	0.005	5.13	0.0059	0.05			
18	29-May-19	0.115	5.74	0.126	0.266			
19	22-Aug-19	0.126	5.47	0.0351	0.21			
20	30-Oct-19	0.0142	4.2	0.0469	0.075			
21	26-Feb-20	0.005	2.9	0.02	0.05			
22	22-Apr-20	0.0636	5.54	0.0279	0.156			
23	9-Sep-20	0.0417	4.77	0.0533	0.071			
24	25-Nov-20	0.005	3.04	0.0272	0.05			
25								
Coefficient of Variation:		1.49	0.29	0.84	0.91			
Mann-Kendall Statistic (S):		-87	20	-47	-88			
Confidence Factor:		98.4%	68.0%	87.2%	98.5%			
Concentration Trend:		Decreasing	No Trend	Stable	Decreasing			



Notes:

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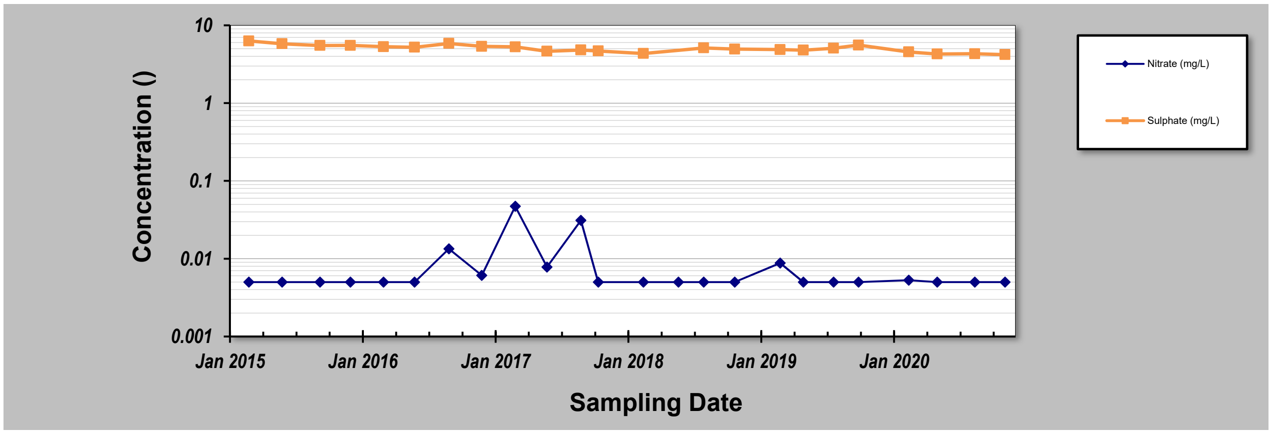
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Feb-21
Facility Name: Teck Coal Regional Groundwater - RG
Conducted By: MBS
Job ID: 671557
Location LC_PIZDC1404S

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)					
Sampling Event	Sampling Date	LC_PIZDC1404S CONCENTRATION						
1	9-Mar-15	0.005	6.3					
2	9-Jun-15	0.005	5.79					
3	22-Sep-15	0.005	5.5					
4	15-Dec-15	0.005	5.52					
5	16-Mar-16	0.005	5.31					
6	10-Jun-16	0.005	5.22					
7	13-Sep-16	0.0134	5.85					
8	13-Dec-16	0.0061	5.36					
9	16-Mar-17	0.0471	5.28					
10	12-Jun-17	0.0078	4.64					
11	14-Sep-17	0.0311	4.82					
12	1-Nov-17	0.005	4.68					
13	6-Mar-18	0.005	4.34					
14	11-Jun-18	0.005						
15	20-Aug-18	0.005	5.13					
16	14-Nov-18	0.005	4.95					
17	20-Mar-19	0.0088	4.88					
18	23-May-19	0.005	4.8					
19	15-Aug-19	0.005	5.08					
20	23-Oct-19	0.005	5.57					
21	10-Mar-20	0.0053	4.55					
22	28-May-20	0.005	4.28					
23	9-Sep-20	0.005	4.31					
24	2-Dec-20	0.005	4.2					
25								
Coefficient of Variation:		1.16	0.11					
Mann-Kendall Statistic (S):		-14	-153					
Confidence Factor:		62.5%	>99.9%					
Concentration Trend:		No Trend	Decreasing					



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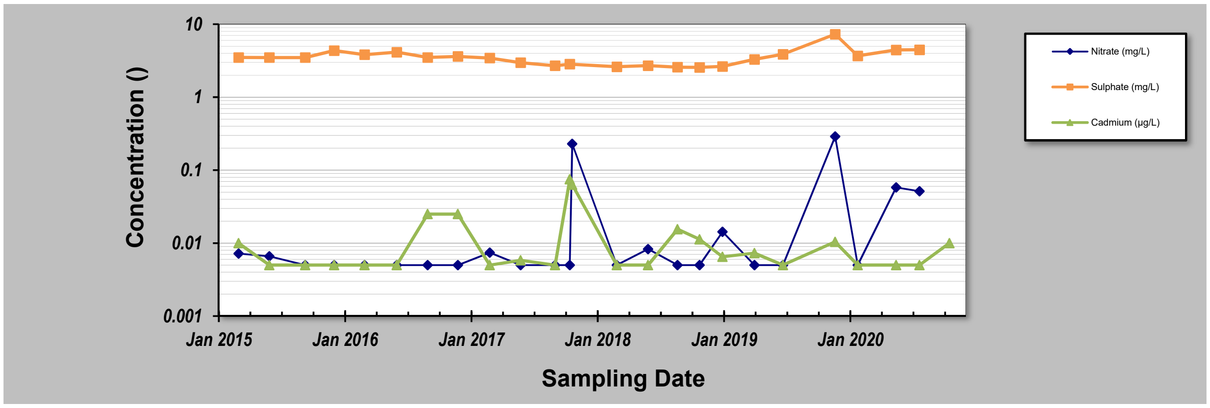
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 16-Feb-21
Facility Name: Teck Coal Regional Groundwater - RG
Conducted By: MBS
Job ID: 671557
Location LC_PIZP1101

Parameter (units)		Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)				
Sampling Event	Sampling Date	LC_PIZP1101 CONCENTRATION						
1	14-Mar-15	0.0072	3.5	0.01				
2	12-Jun-15	0.0066	3.49	0.005				
3	24-Sep-15	0.005	3.49	0.005				
4	18-Dec-15	0.005	4.35	0.005				
5	15-Mar-16	0.005	3.83	0.005				
6	17-Jun-16	0.005	4.14	0.005				
7	15-Sep-16	0.005	3.5	0.025				
8	12-Dec-16	0.005	3.62	0.025				
9	15-Mar-17	0.0074	3.44	0.005				
10	13-Jun-17	0.005	2.97	0.0058				
11	21-Sep-17	0.005	2.7	0.005				
12	3-Nov-17	0.005	2.84	0.075				
13	10-Nov-17	0.229		0.0631				
14	20-Mar-18	0.005	2.61	0.005				
15	19-Jun-18	0.0083	2.71	0.005				
16	13-Sep-18	0.005	2.58	0.0155				
17	16-Nov-18	0.005	2.56	0.0113				
18	22-Jan-19	0.0143	2.64	0.0065				
19	25-Apr-19	0.005	3.3	0.0073				
20	17-Jul-19	0.005	3.88	0.005				
21	16-Dec-19	0.289	7.3	0.0104				
22	20-Feb-20	0.005	3.68	0.005				
23	11-Jun-20	0.058	4.44	0.005				
24	18-Aug-20	0.0515	4.47	0.005				
25	13-Nov-20			0.01				
26								
27								
28								
29								
30								
Coefficient of Variation:		2.32	0.29	1.35				
Mann-Kendall Statistic (S):		47	-9	6				
Confidence Factor:		87.2%	58.3%	54.6%				
Concentration Trend:		No Trend	Stable	No Trend				



Notes:

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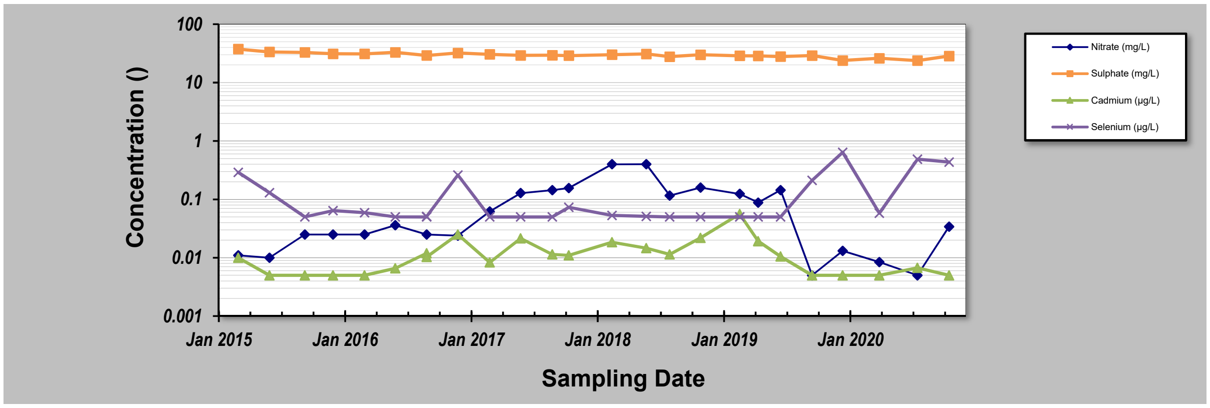
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	16-Feb-21	Job ID:	671557
Facility Name:	Teck Coal Regional Groundwater - RG	Location	LC_PIZP1103
Conducted By:	MBS		

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (μg/L)	Selenium (μg/L)			
Sampling Event	Sampling Date	LC_PIZP1103 CONCENTRATION						
1	13-Mar-15	0.011	37.5	0.01	0.29			
2	12-Jun-15	0.01	33.5	0.005	0.13			
3	23-Sep-15	0.025	32.9	0.005	0.05			
4	14-Dec-15	0.025	31.2	0.005	0.064			
5	15-Mar-16	0.025	31.1	0.005	0.059			
6	13-Jun-16	0.036	33	0.0066	0.05			
7	12-Sep-16	0.025	29.2	0.0119	0.05			
8	12-Sep-16			0.0103	0.051			
9	12-Dec-16	0.0239	32.2	0.025	0.26			
10	15-Mar-17	0.062	30.5	0.0083	0.05			
11	13-Jun-17	0.128	29.3	0.0214	0.05			
12	13-Sep-17	0.144	29.4	0.0114	0.05			
13	31-Oct-17	0.156	29	0.011	0.073			
14	6-Mar-18	0.399	30.1	0.0184	0.053			
15	14-Jun-18	0.4	31	0.0146	0.051			
16	21-Aug-18	0.116	27.8	0.0114	0.05			
17	19-Nov-18	0.159	30	0.0219	0.05			
18	13-Mar-19	0.124	28.8	0.0561	0.05			
19	6-May-19	0.0878	28.7	0.0191	0.05			
20	10-Jul-19	0.144	27.9	0.0105	0.05			
21	10-Oct-19	0.005	29.1	0.005	0.211			
22	7-Jan-20	0.0131	23.9	0.005	0.639			
23	23-Apr-20	0.0084	26.1	0.005	0.058			
24	12-Aug-20	0.005	23.8	0.0067	0.487			
25	12-Nov-20	0.034	28.5	0.005	0.434			
26								
27								
28								
29								
30								
Coefficient of Variation:		1.22	0.10	0.87	1.19			
Mann-Kendall Statistic (S):		26	-198	23	18			
Confidence Factor:		73.0%	>99.9%	69.5%	65.3%			
Concentration Trend:		No Trend	Decreasing	No Trend	No Trend			



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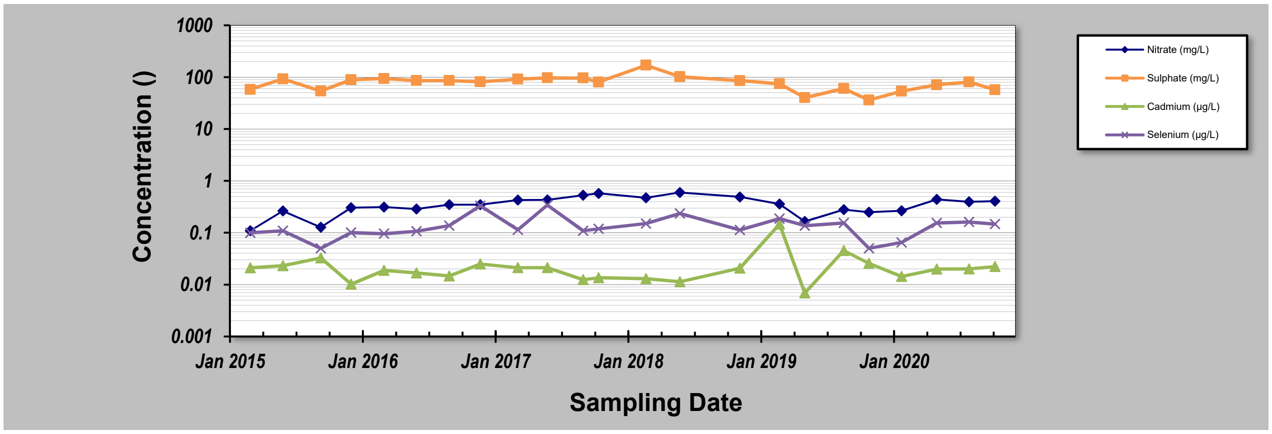
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	16-Feb-21	**Job ID:**	671557
Facility Name:	Teck Coal Regional Groundwater - RG	**Location**	LC_PIZP1104
Conducted By:	MBS		

Sampling Event	Parameter (units) / Sampling Date	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
		LC_PIZP1104 CONCENTRATION						
1	12-Mar-15							
2	13-Mar-15	0.109	58.1	0.021	0.1			
3	11-Jun-15	0.264	92.4	0.023	0.109			
4	24-Sep-15	0.128	54	0.0326	0.05			
5	17-Dec-15	0.303	89.4	0.0102	0.101			
6	17-Mar-16	0.312	94.1	0.0188	0.096			
7	15-Jun-16	0.288	86.2	0.0167	0.107			
8	14-Sep-16	0.347	86.2	0.0146	0.137			
9	9-Dec-16	0.348	81.4	0.025	0.33			
10	23-Mar-17	0.428	91.8	0.0212	0.114			
11	13-Jun-17	0.431	97.1	0.0212	0.342			
12	20-Sep-17	0.528	96.4	0.0124	0.109			
13	2-Nov-17	0.574	80.6	0.0135	0.119			
14	13-Mar-18	0.472	170	0.013	0.15			
15	15-Jun-18	0.599	102	0.0113	0.235			
16	28-Nov-18	0.491	85.8	0.0208	0.113			
17	18-Mar-19	0.357	74.7	0.146	0.188			
18	27-May-19	0.165	40.3	0.0069	0.137			
19	12-Sep-19	0.279	60.5	0.0453	0.155			
20	21-Nov-19	0.249	36.2	0.0257	0.05			
21	19-Feb-20	0.266	53.4	0.0143	0.065			
22	27-May-20	0.439	71.3	0.0199	0.155			
23	24-Aug-20	0.396	80.9	0.02	0.161			
24	4-Nov-20	0.406	57.1	0.0223	0.147			
25								
Coefficient of Variation:		0.37	0.34	1.10	0.52			
Mann-Kendall Statistic (S):		69	-66	-2	71			
Confidence Factor:		96.4%	95.7%	51.1%	96.8%			
Concentration Trend:		Increasing	Decreasing	No Trend	Increasing			



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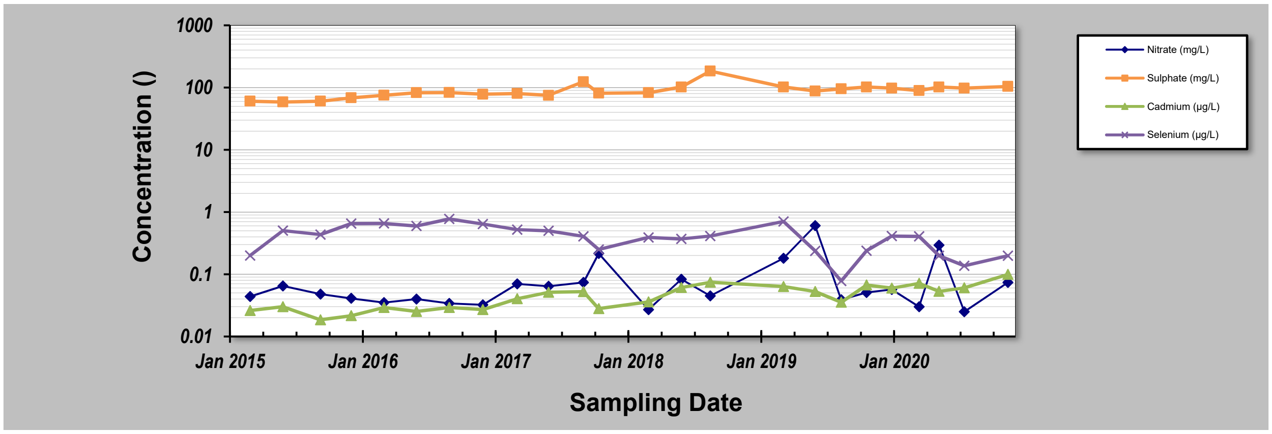
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	16-Feb-21	**Job ID:**	671557
Facility Name:	Teck Coal Regional Groundwater - RG	**Location**	LC_PIZP1105
Conducted By:	MBS		

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	**Sampling Date**	**LC_PIZP1105 CONCENTRATION**						
1	12-Mar-15	0.044	60.4	0.026	0.2			
2	11-Jun-15	0.065	58.6	0.03	0.502			
3	23-Sep-15	0.048	60.4	0.0185	0.434			
4	17-Dec-15	0.041	68.4	0.0215	0.652			
5	17-Mar-16	0.035	75.3	0.0291	0.657			
6	15-Jun-16	0.04	82.6	0.0251	0.597			
7	14-Sep-16	0.034	83.2	0.0291	0.773			
8	16-Dec-16	0.0323	78.1	0.027	0.64			
9	22-Mar-17	0.07	80.4	0.0404	0.521			
10	16-Jun-17	0.064	74.9	0.0511	0.499			
11	21-Sep-17	0.074	124	0.0523	0.406			
12	2-Nov-17	0.216	81.3	0.028	0.25			
13	20-Mar-18	0.027	82.7	0.0358	0.391			
14	19-Jun-18	0.083	102	0.061	0.37			
15	7-Sep-18	0.045	184	0.0745	0.411			
16	29-Mar-19	0.181	102	0.0633	0.704			
17	25-Jun-19	0.605	87.9	0.0528	0.237			
18	5-Sep-19	0.039	95.2	0.0355	0.078			
19	14-Nov-19	0.051	102	0.067	0.238			
20	23-Jan-20	0.057	97.9	0.0597	0.411			
21	8-Apr-20	0.03	89.2	0.0712	0.406			
22	2-Jun-20	0.293	102	0.0529	0.199			
23	11-Aug-20	0.025	97.9	0.0604	0.137			
24	10-Dec-20	0.074	104	0.0992	0.199			
25								
	Coefficient of Variation:	1.34	0.28	0.44	0.47			
	Mann-Kendall Statistic (S):	27	168	175	-123			
	Confidence Factor:	73.8%	>99.9%	>99.9%	99.9%			
	Concentration Trend:	No Trend	Increasing	Increasing	Decreasing			



Notes:

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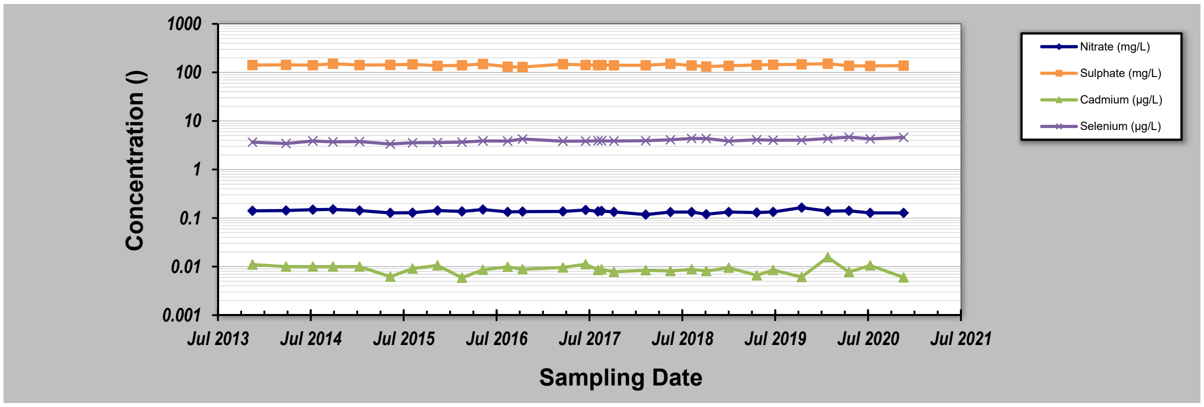
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

Elkview Operations

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - EVO
Conducted By: MBS
Job ID: 671557
Location: EV_GV3gw

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	**Sampling Date**	**EV_GV3GW CONCENTRATION**						
1	15-Nov-13	0.141	142	0.011	3.65			
2	28-Mar-14	0.143	143	0.01	3.43			
3	12-Jul-14	0.149	141	0.01	3.87			
4	30-Sep-14	0.151	151	0.01	3.71			
5	13-Jan-15	0.143	142	0.01	3.76			
6	15-May-15	0.128	143	0.0062	3.35			
7	11-Aug-15	0.129	147	0.0091	3.56			
8	18-Nov-15	0.143	137	0.0106	3.59			
9	23-Feb-16	0.137	140	0.0059	3.66			
10	16-May-16	0.15	149	0.0086	3.88			
11	22-Aug-16	0.134	131	0.0099	3.85			
12	20-Oct-16	0.136	129	0.0088	4.24			
13	29-Mar-17	0.137	148	0.0096	3.83			
14	27-Jun-17	0.147	142	0.0112	3.84			
15	15-Aug-17	0.137	141	0.0085	3.9			
16	29-Aug-17	0.14	142	0.0088	3.89			
17	17-Oct-17	0.134	140	0.0078	3.87			
18	20-Feb-18	0.118	140	0.0084	3.92			
19	29-May-18	0.133	150	0.0081	4.09			
20	21-Aug-18	0.133	139	0.0088	4.36			
21	18-Oct-18	0.12	132	0.0081	4.34			
22	15-Jan-19	0.133	137	0.0095	3.85			
23	6-May-19	0.13	142	0.0066	4.1			
24	10-Jul-19	0.134	144	0.0085	4.01			
25	31-Oct-19	0.164	147	0.0061	4.02			
26	11-Feb-20	0.139	151	0.0156	4.34			
27	5-May-20	0.141	137	0.0077	4.65			
28	28-Jul-20	0.128	136	0.0106	4.27			
29	8-Dec-20	0.128	138	0.006	4.58			
30								
Coefficient of Variation:		0.07	0.04	0.22	0.08			
Mann-Kendall Statistic (S):		-118	-60	-128	267			
Confidence Factor:		98.6%	86.4%	99.2%	>99.9%			
Concentration Trend:		Decreasing	Stable	Decreasing	Increasing			



Notes:

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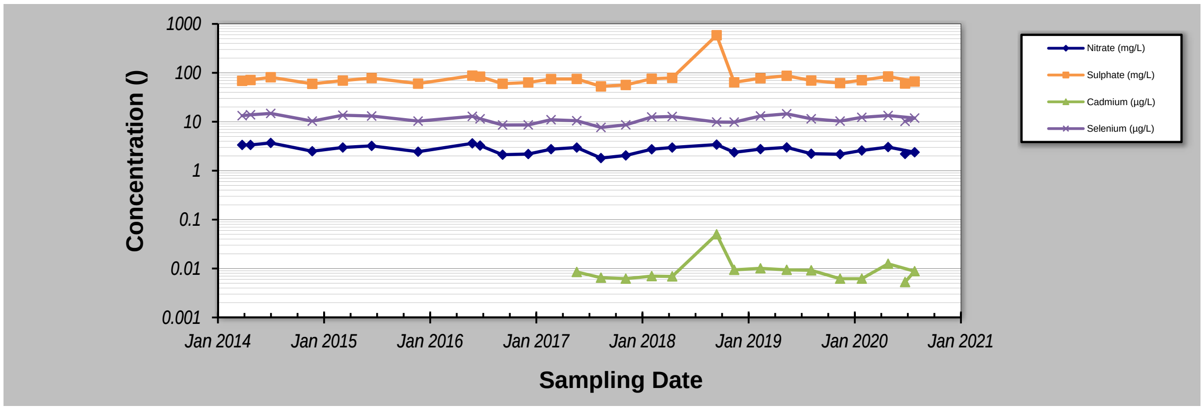
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **09-Feb-21**
Facility Name: **Teck Coal Regional Groundwater - RG**
Conducted By: **MBS**
Job ID: **671557**
Location **RG_DW-02-20**

	Parameter (units)	**Nitrate (mg/L)**	**Sulphate (mg/L)**	**Cadmium (µg/L)**	**Selenium (µg/L)**			
Sampling Event	Sampling Date	RG_DW-02-20 CONCENTRATION						
1	26-Mar-14	3.36	68.6		13.3			
2	24-Apr-14	3.36	71.3		13.9			
3	3-Jul-14	3.69	81.2		14.8			
4	24-Nov-14	2.5	59.6		10.3			
5	10-Mar-15	2.98	69.4		13.6			
6	18-Jun-15	3.21	78.2		13.1			
7	26-Nov-15	2.44	60.2		10.3			
8	1-Jun-16	3.62	87.6		12.9			
9	28-Jun-16	3.26	83.6		11.5			
10	14-Sep-16	2.12	59.9		8.58			
11	12-Dec-16	2.19	63.5		8.63			
12	1-Mar-17	2.75	74.6		11			
13	29-May-17	2.97	74.9	0.0085	10.5			
14	21-Aug-17	1.81	52.8	0.0065	7.65			
15	15-Nov-17	2.05	56.5	0.0062	8.64			
16	13-Feb-18	2.74	75.6	0.007	12.5			
17	25-Apr-18	2.97	78.9	0.0069	12.8			
18	26-Sep-18	3.41	586	0.05	9.87			
19	26-Nov-18	2.37	63.9	0.0094	9.83			
20	25-Feb-19	2.76	77.6	0.0101	13.1			
21	27-May-19	2.99	87	0.0094	14.5			
22	20-Aug-19	2.22	69.5	0.0092	11.5			
23	28-Nov-19	2.17	61.6	0.0062	10.3			
24	11-Feb-20	2.59	70.7	0.0062	12.3			
25	12-May-20	3.04	84.3	0.0125	13.4			
26	12-Aug-20	2.38	66.5	0.0088	11.9			
27	10-Jul-20	2.2	60.5	0.0053	10.2			
28								
29								
30								
	Coefficient of Variation:	**0.19**	**1.11**	**1.02**	**0.17**			
	Mann-Kendall Statistic (S):	**-97**	**11**	**-5**	**-46**			
	Confidence Factor:	**97.8%**	**58.2%**	**57.7%**	**82.5%**			
	Concentration Trend:	Decreasing	No Trend	No Trend	Stable			



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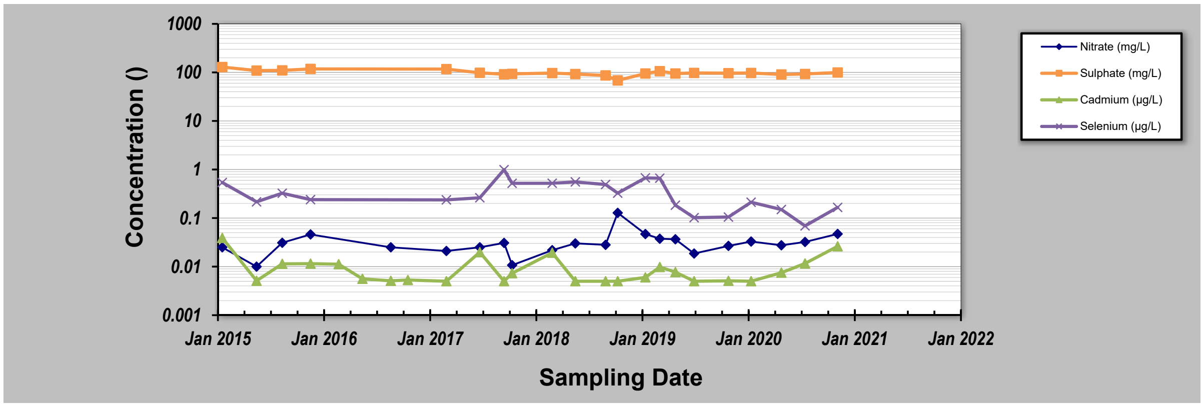
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - EVO
Conducted By: MBS
Job ID: 671557
Location: EV_BALgw

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	**Sampling Date**	**EV_BALGW CONCENTRATION**						
1	16-Jan-15	0.025	129	0.039	0.54			
2	15-May-15	0.01	109	0.0051	0.216			
3	12-Aug-15	0.031	110	0.0114	0.325			
4	18-Nov-15	0.046	118	0.0115	0.24			
5	23-Feb-16	0.073	150	0.0112	0.457			
6	16-May-16	0.035	118	0.0056	0.194			
7	22-Aug-16	0.025	115	0.0051	0.135			
8	20-Oct-16	0.0065	109	0.0053	0.241			
9	3-Mar-17	0.021	117	0.005	0.237			
10	27-Jun-17	0.025	98.1	0.0198	0.262			
11	19-Sep-17	0.0308	91.6	0.005	0.992			
12	17-Oct-17	0.0107	93.3	0.0073	0.52			
13	5-Mar-18	0.0218	96.9	0.0193	0.521			
14	24-May-18	0.0301	92.6	0.005	0.555			
15	6-Sep-18	0.0281	86.6	0.005	0.491			
16	18-Oct-18	0.128	68.4	0.005	0.326			
17	22-Jan-19	0.0469	94.8	0.006	0.672			
18	13-Mar-19	0.0375	106	0.0098	0.663			
19	6-May-19	0.0366	94.8	0.0077	0.184			
20	10-Jul-19	0.0186	97.6	0.005	0.102			
21	6-Nov-19	0.0267	96.4	0.0051	0.105			
22	23-Jan-20	0.0329	97.3	0.005	0.212			
23	7-May-20	0.0275	90.6	0.0075	0.15			
24	28-Jul-20	0.0322	92.8	0.0116	0.069			
25	18-Nov-20	0.0471	99.6	0.0262	0.166			
26								
27								
28								
29								
30								
Coefficient of Variation:		0.69	0.13	0.82	0.66			
Mann-Kendall Statistic (S):		17	-123	-26	-118			
Confidence Factor:		67.2%	>99.9%	71.8%	>99.9%			
Concentration Trend:		No Trend	Decreasing	Stable	Decreasing			



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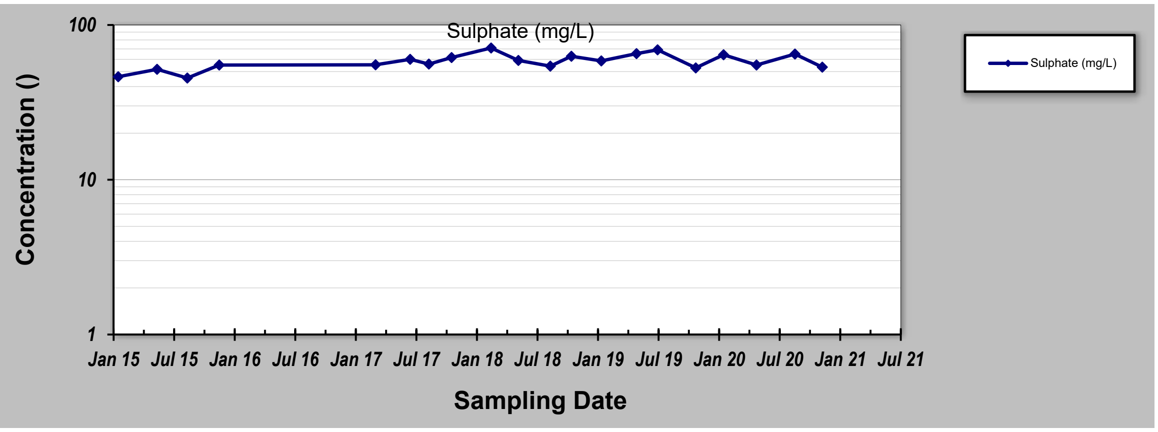
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - EVO
Conducted By: MBS
Job ID: 671557
Location EV_GCgw

Parameter (units) Sulphate (mg/L)

Sampling Event	Sampling Date	EV_GCGW CONCENTRATION						
1	15-Jan-15	46.3						
2	13-May-15	51.7						
3	13-Aug-15	45.4						
4	18-Nov-15	55.1						
5	24-Feb-16	52.0						
6	18-May-16	56.3						
7	24-Aug-16	55.1						
8	18-Oct-16	58.1						
9	7-Mar-17	55.3						
10	20-Jun-17	60						
11	16-Aug-17	55.9						
12	24-Oct-17	61.6						
13	21-Feb-18	71						
14	15-May-18	59						
15	20-Aug-18	54.2						
16	23-Oct-18	62.8						
17	22-Jan-19	58.6						
18	9-May-19	65.3						
19	12-Jul-19	69.1						
20	5-Nov-19	52.8						
21	28-Jan-20	64.2						
22	7-May-20	55.1						
23	1-Sep-20	64.9						
24	23-Nov-20	53.4						
25								
Coefficient of Variation:		0.12						
Mann-Kendall Statistic (S):		15						
Confidence Factor:		67.3%						
Concentration Trend:		No Trend						



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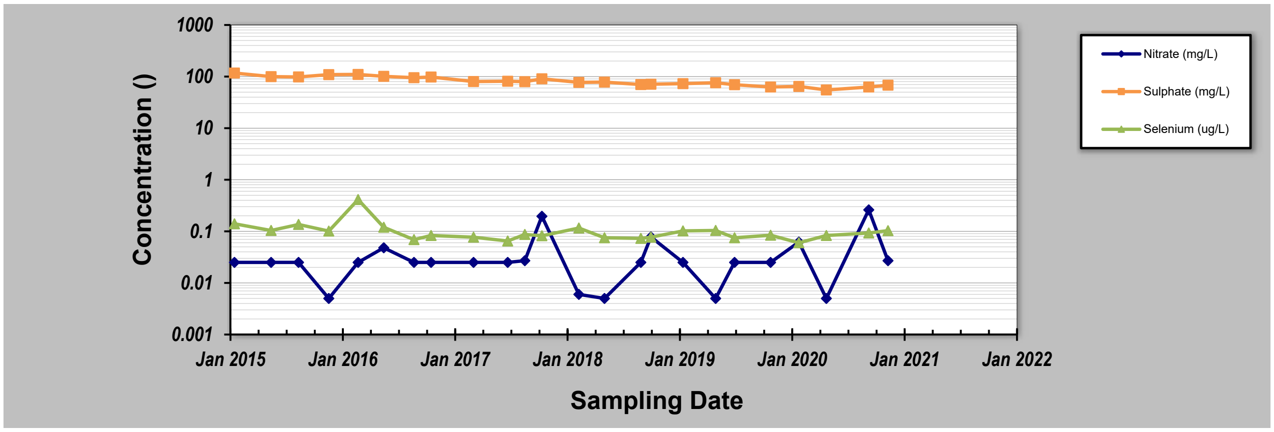
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - EVO
Conducted By: MBS
Job ID: 671557
Location: EV_LSgw

Parameter (units)		Nitrate (mg/L)	Sulphate (mg/L)	Selenium (ug/L)				
Sampling Event	**Sampling Date**	**EV_LSGW CONCENTRATION**						
1	14-Jan-15	0.025	117	0.14				
2	14-May-15	0.025	99.6	0.104				
3	12-Aug-15	0.025	98.3	0.136				
4	19-Nov-15	0.005	109	0.101				
5	23-Feb-16	0.025	110	0.413				
6	17-May-16	0.048	101	0.12				
7	24-Aug-16	0.025	95	0.069				
8	19-Oct-16	0.025	97.9	0.083				
9	7-Mar-17	0.025	80.1	0.077				
10	27-Jun-17	0.025	81.1	0.065				
11	22-Aug-17	0.027	79.5	0.087				
12	17-Oct-17	0.196	90.5	0.082				
13	15-Feb-18	0.006	77.1	0.116				
14	10-May-18	0.005	78.1	0.075				
15	6-Sep-18	0.025	70	0.073				
16	9-Oct-18	0.078	71	0.077				
17	22-Jan-19	0.025	72.8	0.102				
18	9-May-19	0.005	75.9	0.104				
19	10-Jul-19	0.025	69.5	0.075				
20	5-Nov-19	0.025	62.7	0.084				
21	5-Feb-20	0.062	64.3	0.06				
22	5-May-20	0.005	55	0.083				
23	21-Sep-20	0.261	62.7	0.093				
24	23-Nov-20	0.027	68	0.103				
25								
Coefficient of Variation:		1.42	0.21	0.66				
Mann-Kendall Statistic (S):		29	-225	-66				
Confidence Factor:		75.4%	>99.9%	94.6%				
Concentration Trend:		No Trend	Decreasing	Prob. Decreasing				



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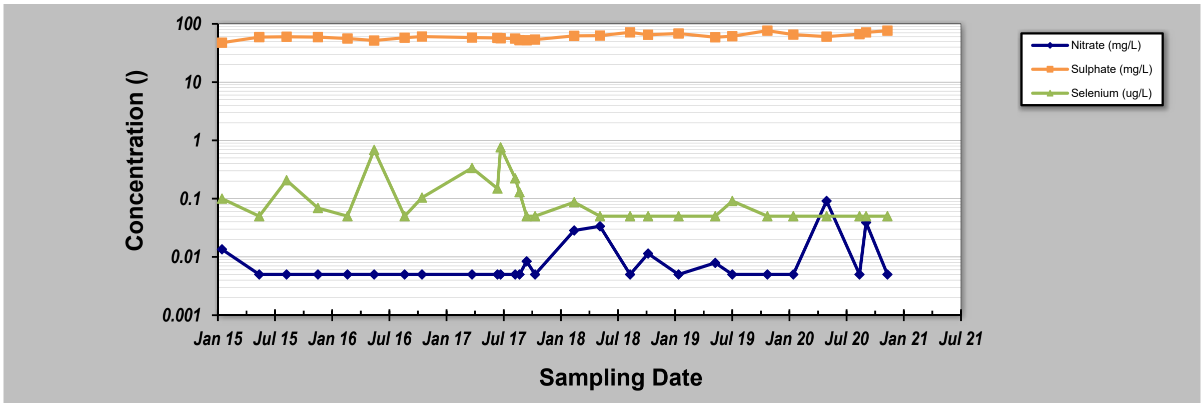
GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Job ID: 671557
Facility Name: Teck Coal Regional Groundwater - EVO
Location EV_Ocgw
Conducted By: MBS

Sampling Event	Sampling Date	EV_OCGW CONCENTRATION						
	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Selenium (ug/L)				
1	14-Jan-15	0.0135	47.5	0.1				
2	14-May-15	0.005	59.3	0.05				
3	10-Aug-15	0.005	60.1	0.207				
4	19-Nov-15	0.005	59.3	0.069				
5	22-Feb-16	0.005	56	0.05				
6	18-May-16	0.005	51.7	0.685				
7	24-Aug-16	0.005	57.9	0.05				
8	19-Oct-16	0.005	60.6	0.104				
9	29-Mar-17	0.005	58.2	0.336				
10	19-Jun-17	0.005	57.4	0.149				
11	29-Jun-17	0.005	56.7	0.76				
12	15-Aug-17	0.005	55.9	0.223				
13	29-Aug-17	0.005	52.5	0.129				
14	21-Sep-17	0.0084	52.3	0.05				
15	18-Oct-17	0.005	53.7	0.05				
16	21-Feb-18	0.0284	62.3	0.087				
17	15-May-18	0.0336	62.9	0.05				
18	20-Aug-18	0.005	71.5	0.05				
19	17-Oct-18	0.0114	65.1	0.05				
20	23-Jan-19	0.005	68.4	0.05				
21	21-May-19	0.0079	59	0.05				
22	15-Jul-19	0.005	61.3	0.091				
23	5-Nov-19	0.005	76.5	0.05				
24	27-Jan-20	0.005	65.5	0.05				
25	13-May-20	0.0913	60.3	0.05				
26	27-Aug-20	0.005	66.7	0.05				
27	17-Sep-20	0.039	71.4	0.05				
28	25-Nov-20	0.005	76.4	0.05				
29								
30								
Coefficient of Variation:		1.51	0.12	1.35				
Mann-Kendall Statistic (S):		56	173	-122				
Confidence Factor:		86.0%	>99.9%	99.2%				
Concentration Trend:		No Trend	Increasing	Decreasing				



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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - EVO
Conducted By: MBS
Job ID: 671557
Location EV_MW_GT1A

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	Sampling Date	EV_MW_GT1A CONCENTRATION						
1	5-Mar-19	0.005	107	0.005	0.418			
2	11-Jun-19	0.005	104	0.005	0.05			
3	26-Aug-19	0.005	115	0.005	0.05			
4	13-Nov-19	0.005	119	0.005	0.05			
5	13-Feb-20	0.114	114	0.005	0.05			
6	13-Feb-20	0.005	109	0.005	0.05			
7	3-Jun-20	0.0058	105	0.005	0.474			
8	1-Sep-20	0.005	109	0.005	0.106			
9	1-Sep-20	0.005	110	0.005	0.073			
10	24-Nov-20	0.005	106	0.005	0.247			
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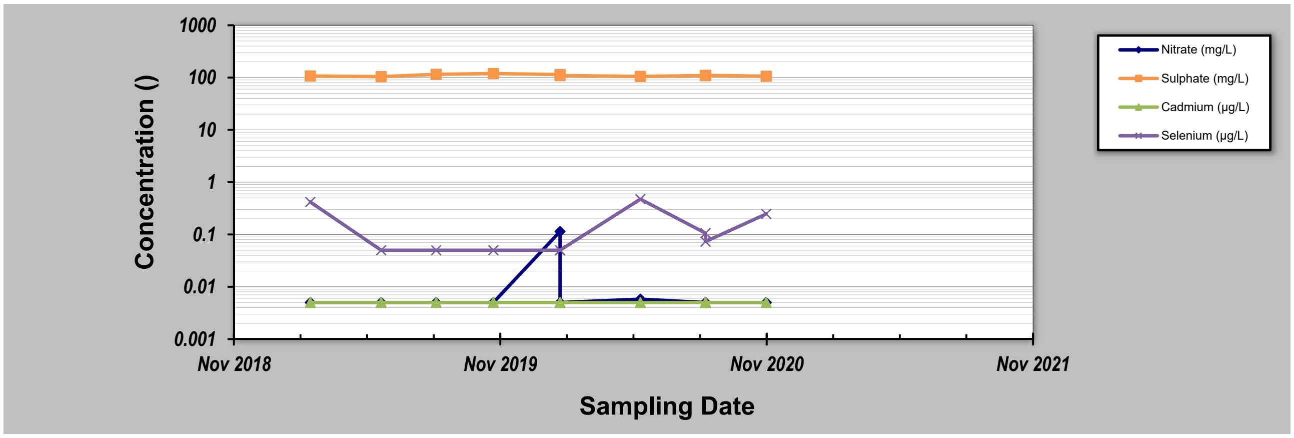
15								
16								
17								
18								
19								
20								
	Coefficient of Variation:	2.16	0.04	0.00	1.05			
	Mann-Kendall Statistic (S):	1	-4	0	11			
	Confidence Factor:	50.0%	60.3%	45.6%	81.0%			
	Concentration Trend:	No Trend	Stable	Stable	No Trend			



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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - EVO
Conducted By: MBS
Job ID: 671557
Location EV_MW_GT1B

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	**Sampling Date**	**EV_MW_GT1B CONCENTRATION**						
1	5-Mar-19	5.07	270	0.0481	39.6			
2	11-Jun-19	4.26	254	0.0709	34.3			
3	26-Aug-19	17.4	840	0.189	161			
4	26-Aug-19	17.2	829	0.212	161			
5	13-Nov-19	16.9	954	0.173	122			
6	13-Feb-20	27.2	889	0.121	201			
7	3-Jun-20	0.867	42.2	0.0226	6.58			
8	1-Sep-20	26.7	939	0.205	271			
9	24-Nov-20	22.3	698	0.118	202			
10								
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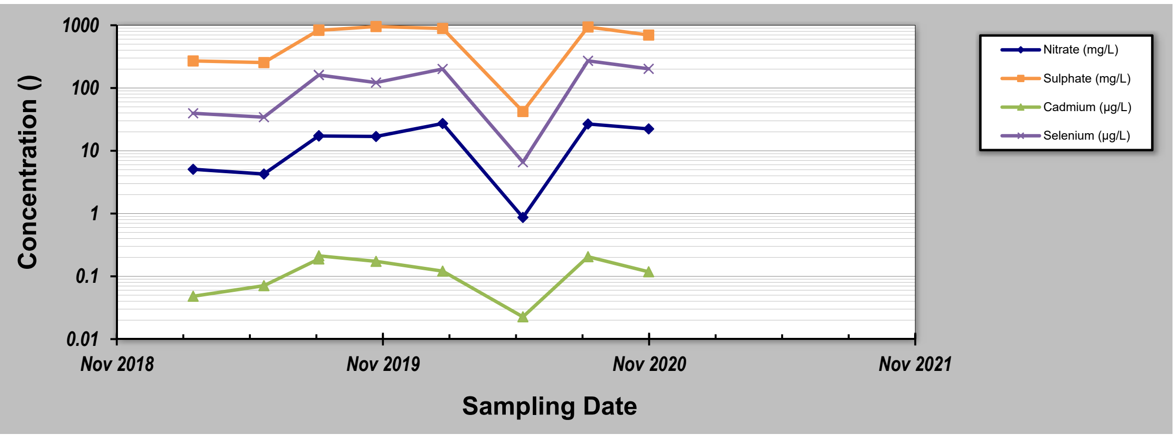
17								
18								
19								
20								
Coefficient of Variation:		0.64	0.55	0.55	0.67			
Mann-Kendall Statistic (S):		10	6	2	15			
Confidence Factor:		82.1%	69.4%	54.0%	92.5%			
Concentration Trend:		No Trend	No Trend	No Trend	Prob. Increasing			



Notes:

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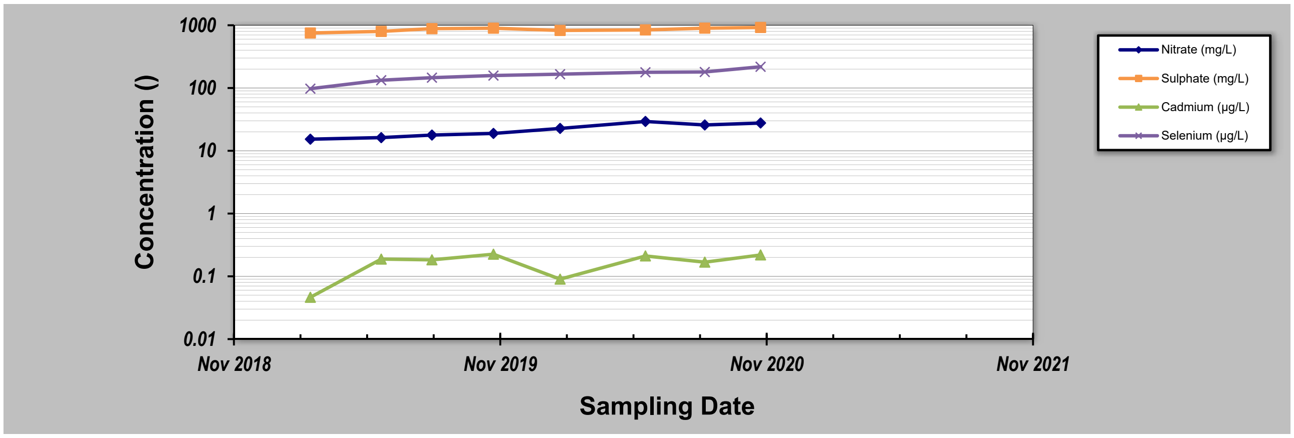
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - EVO
Conducted By: MBS
Job ID: 671557
Location EV_MW_BC1A

Sampling Event	Sampling Date	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
		EV_MW_BC1A CONCENTRATION						
1	5-Mar-19	15.3	753	0.0463	97.5			
2	11-Jun-19	16.2	798	0.188	133			
3	20-Aug-19	17.8	882	0.183	146			
4	13-Nov-19	18.9	898	0.225	158			
5	13-Feb-20	22.7	827	0.09	166			
6	10-Jun-20	29.3	843	0.211	178			
7	31-Aug-20	25.8	899	0.168	180			
8	16-Nov-20	27.7	921	0.219	218			
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.25	0.07	0.39	0.22			
Mann-Kendall Statistic (S):		24	20	8	28			
Confidence Factor:		99.9%	99.3%	80.1%	>99.9%			
Concentration Trend:		Increasing	Increasing	No Trend	Increasing			



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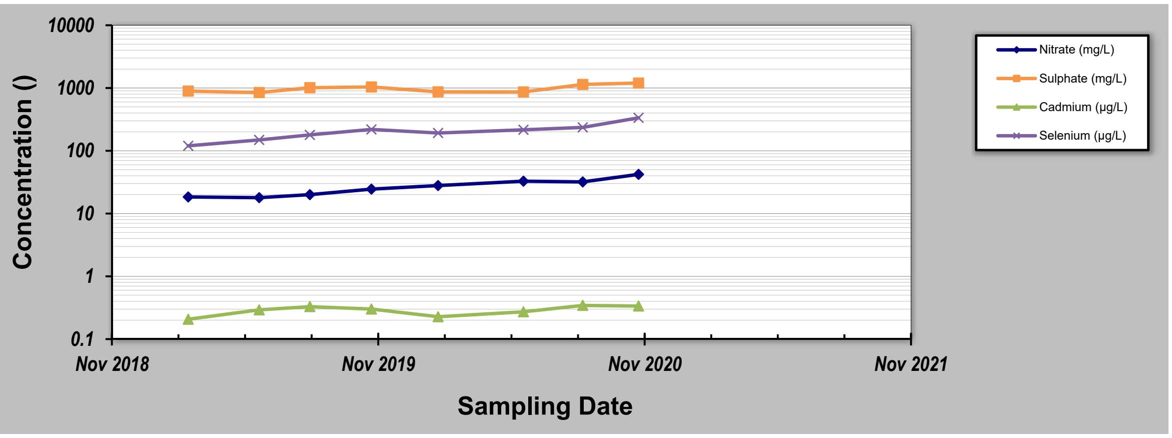
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - EVO
Conducted By: MBS
Job ID: 671557
Location EV_MW_BC1B

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	Sampling Date	EV_MW_BC1B CONCENTRATION						
1	5-Mar-19	18.4	893	0.207	120			
2	11-Jun-19	17.9	847	0.292	149			
3	20-Aug-19	20	1010	0.329	179			
4	13-Nov-19	24.5	1040	0.301	219			
5	13-Feb-20	27.9	868	0.227	192			
6	10-Jun-20	32.8	865	0.272	216			
7	31-Aug-20	31.9	1140	0.344	236			
8	16-Nov-20	42.1	1200	0.336	335			
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.31	0.14	0.17	0.31			
Mann-Kendall Statistic (S):		24	12	12	24			
Confidence Factor:		99.9%	91.1%	91.1%	99.9%			
Concentration Trend:		Increasing	Prob. Increasing	Prob. Increasing	Increasing			



Notes:

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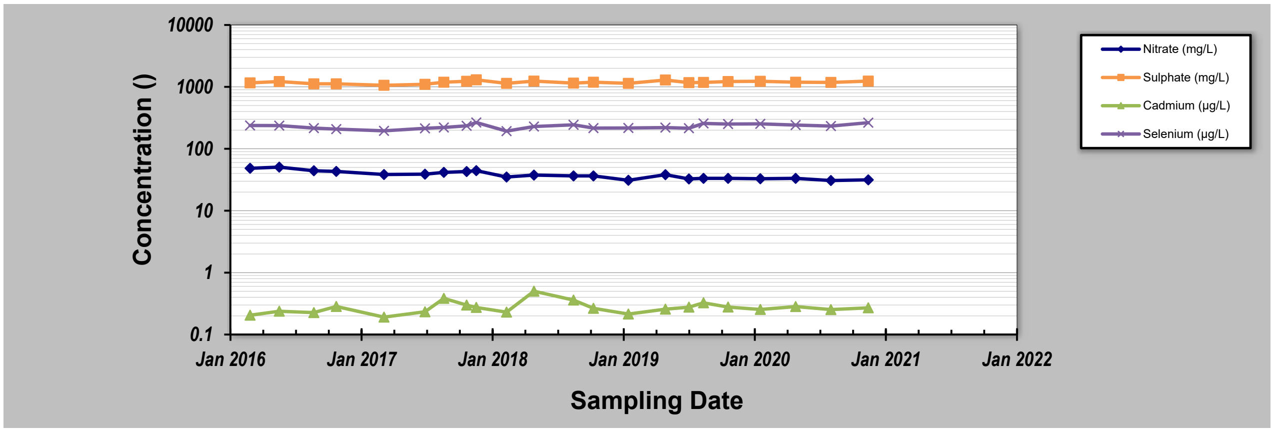
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - EVO
Conducted By: MBS
Job ID: 671557
Location EV_RCgw

Parameter (units)		Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	Sampling Date	EV_RCGW CONCENTRATION						
1	25-Feb-16	48.4	1160	0.205	238			
2	17-May-16	50.6	1220	0.238	237			
3	22-Aug-16	44.2	1120	0.226	216			
4	24-Oct-16	43.1	1120	0.284	208			
5	7-Mar-17	38.4	1060	0.191	195			
6	30-Jun-17	38.9	1100	0.233	214			
7	22-Aug-17	41.6	1190	0.384	221			
8	25-Oct-17	42.9	1230	0.299	235			
9	21-Nov-17	44.4	1300	0.274	266			
10	14-Feb-18	35	1140	0.23	193			
11	2-May-18	37.6	1240	0.501	229			
12	21-Aug-18	36.5	1150	0.36	244			
13	16-Oct-18	36.5	1190	0.265	216			
14	22-Jan-19	31	1140	0.214	217			
15	6-May-19	38.2	1290	0.257	220			
16	11-Jul-19	32.6	1170	0.277	215			
17	21-Aug-19	33.3	1180	0.325	257			
18	29-Oct-19	33.3	1220	0.278	251			
19	27-Jan-20	32.8	1230	0.254	253			
20	5-May-20	33.3	1190	0.283	242			
21	12-Aug-20	30.7	1180	0.253	233			
22	25-Nov-20	31.5	1240	0.27	264			
23								
24								
25								
Coefficient of Variation:		**0.15**	**0.05**	**0.25**	**0.09**			
Mann-Kendall Statistic (S):		**-161**	**66**	**37**	**64**			
Confidence Factor:		**>99.9%**	**96.7%**	**84.3%**	**96.3%**			
Concentration Trend:		Decreasing	Increasing	No Trend	Increasing			



Notes:

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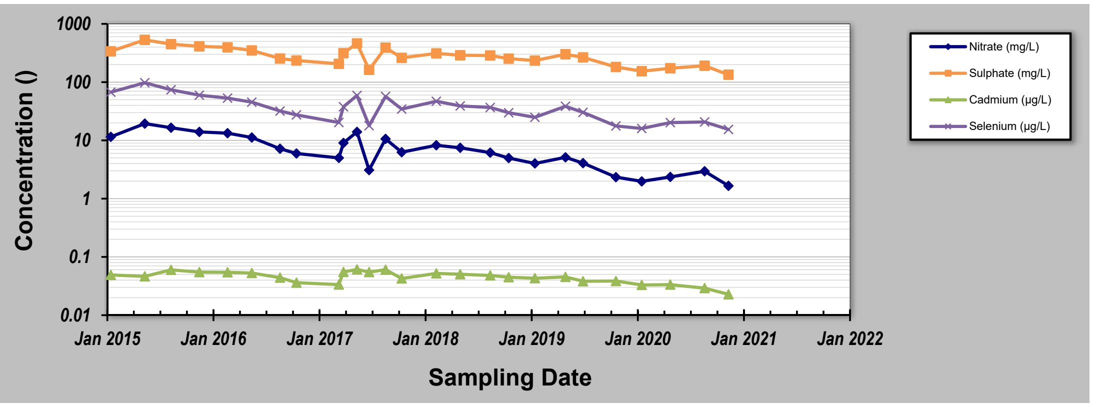
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - EVO
Conducted By: MBS
Job ID: 671557
Location EV_BCgw

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	Sampling Date	EV_BCGW CONCENTRATION						
1	13-Jan-15	11.5	338	0.049	67.3			
2	11-May-15	19.4	531	0.0463	97.6			
3	10-Aug-15	16.5	449	0.0599	73.8			
4	16-Nov-15	14	411	0.0548	59.7			
5	22-Feb-16	13.3	395	0.0544	53.2			
6	16-May-16	11.2	350	0.0529	45.3			
7	22-Aug-16	7.19	254	0.044	31.9			
8	18-Oct-16	5.96	235	0.0361	27.4			
9	14-Mar-17	5	206	0.0335	20.3			
10	30-Mar-17	9.04	314	0.0551	37.7			
11	16-May-17	14	462	0.0609	59			
12	27-Jun-17	3.09	163	0.0549	17.9			
13	23-Aug-17	10.6	391	0.0603	56.8			
14	18-Oct-17	6.27	261	0.0426	34.5			
15	15-Feb-18	8.25	311	0.0521	46.9			
16	9-May-18	7.46	289	0.0504	39			
17	21-Aug-18	6.17	287	0.048	36.7			
18	24-Oct-18	4.98	253	0.0448	29.8			
19	23-Jan-19	4.02	234	0.0431	24.9			
20	9-May-19	5.12	301	0.0453	38.5			
21	9-Jul-19	4.07	266	0.0382	30.2			
22	31-Oct-19	2.34	182	0.0385	17.7			
23	28-Jan-20	1.98	154	0.033	16			
24	6-May-20	2.36	173	0.0334	20.2			
25	2-Sep-20	2.95	191	0.0291	20.7			
26	24-Nov-20	1.66	134	0.0228	15.4			
27								
28								
29								
30								
Coefficient of Variation:		0.64	0.36	0.22	0.52			
Mann-Kendall Statistic (S):		-228	-183	-159	-191			
Confidence Factor:		>99.9%	>99.9%	>99.9%	>99.9%			
Concentration Trend:		Decreasing	Decreasing	Decreasing	Decreasing			



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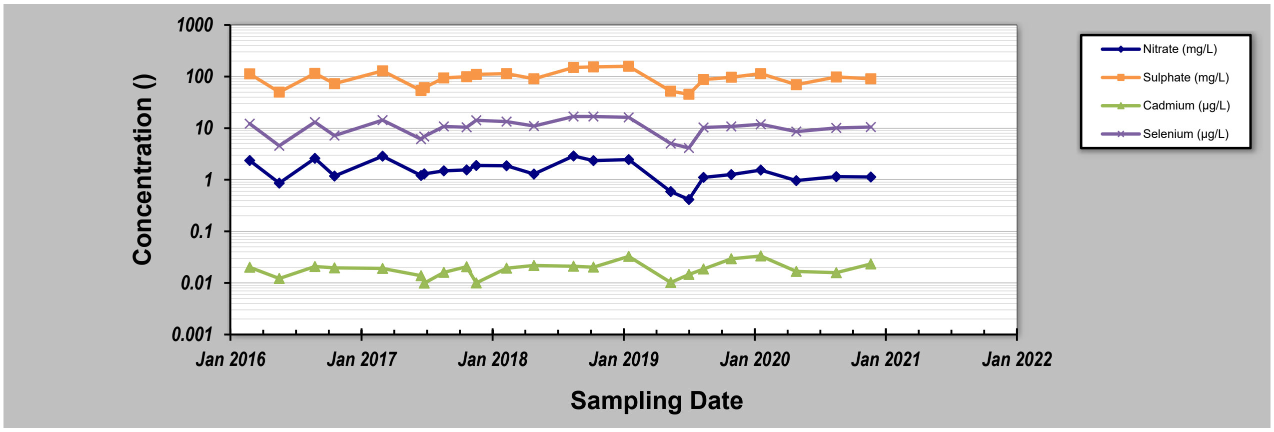
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - EVO
Conducted By: MBS
Job ID: 671557
Location: EV_WH50gw

Parameter (units)		Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	Sampling Date	EV_WH50GW CONCENTRATION						
1	24-Feb-16	2.36	113	0.0201	12.2			
2	17-May-16	0.861	49.9	0.0122	4.56			
3	25-Aug-16	2.6	115	0.0208	13.1			
4	19-Oct-16	1.18	72.8	0.0196	7.17			
5	3-Mar-17	2.86	129	0.0191	14.3			
6	19-Jun-17	1.21	53.6	0.0138	6.12			
7	28-Jun-17	1.3	61	0.0099	6.89			
8	22-Aug-17	1.49	94.1	0.016	10.8			
9	25-Oct-17	1.55	99.4	0.0206	10.4			
10	21-Nov-17	1.89	110	0.01	14.2			
11	14-Feb-18	1.87	114	0.0193	13.4			
12	2-May-18	1.29	90.6	0.0218	11			
13	21-Aug-18	2.89	150	0.021	16.8			
14	16-Oct-18	2.35	154	0.0202	16.8			
15	23-Jan-19	2.46	158	0.0327	16.2			
16	21-May-19	0.59	52.1	0.0102	5.04			
17	11-Jul-19	0.414	45.3	0.0146	4.13			
18	21-Aug-19	1.11	87.5	0.0186	10.3			
19	7-Nov-19	1.26	96.8	0.0294	10.8			
20	28-Jan-20	1.54	114	0.0333	11.9			
21	7-May-20	0.963	69.7	0.0167	8.59			
22	27-Aug-20	1.15	98.1	0.0158	10.1			
23	2-Dec-20	1.13	90.6	0.0233	10.5			
24								
25								
Coefficient of Variation:		0.45	0.34	0.33	0.35			
Mann-Kendall Statistic (S):		-53	7	45	-1			
Confidence Factor:		91.4%	56.2%	87.6%	50.0%			
Concentration Trend:		Prob. Decreasing	No Trend	No Trend	Stable			



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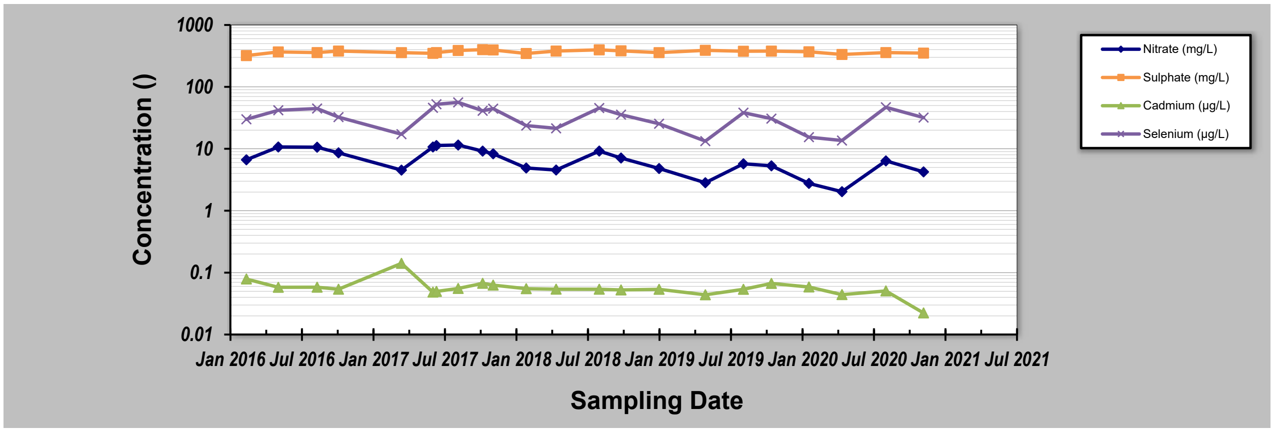
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - EVO
Conducted By: MBS
Job ID: 671557
Location: EV_BRgw

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	**Sampling Date**	**EV_BRGW CONCENTRATION**						
1	25-Feb-16	6.64	320	0.0788	30			
2	17-May-16	10.7	367	0.0579	41.9			
3	25-Aug-16	10.6	358	0.0581	44.7			
4	19-Oct-16	8.6	379	0.0539	32.5			
5	30-Mar-17	4.53	357	0.141	17.2			
6	19-Jun-17	10.7	348	0.0483	45.9			
7	28-Jun-17	11.3	358	0.0497	52.4			
8	23-Aug-17	11.5	387	0.0555	56.2			
9	25-Oct-17	9.18	399	0.0671	41.1			
10	21-Nov-17	8.31	395	0.0628	44.5			
11	14-Feb-18	4.9	346	0.055	23.7			
12	2-May-18	4.54	379	0.054	21.4			
13	21-Aug-18	9.2	396	0.0539	45.5			
14	16-Oct-18	7.1	382	0.0525	35.6			
15	22-Jan-19	4.8	357	0.0537	25.4			
16	21-May-19	2.83	389	0.0438	13.3			
17	27-Aug-19	5.72	376	0.0537	38.3			
18	7-Nov-19	5.31	378	0.0669	30.7			
19	11-Feb-20	2.76	369	0.0586	15.4			
20	6-May-20	2.03	334	0.0441	13.6			
21	27-Aug-20	6.38	358	0.0506	46.8			
22	2-Dec-20	4.24	351	0.0223	31.9			
23								
24								
25								
	Coefficient of Variation:	0.43	0.06	0.37	0.38			
	Mann-Kendall Statistic (S):	-106	-2	-89	-47			
	Confidence Factor:	99.9%	51.1%	99.4%	90.1%			
	Concentration Trend:	Decreasing	Stable	Decreasing	Prob. Decreasing			



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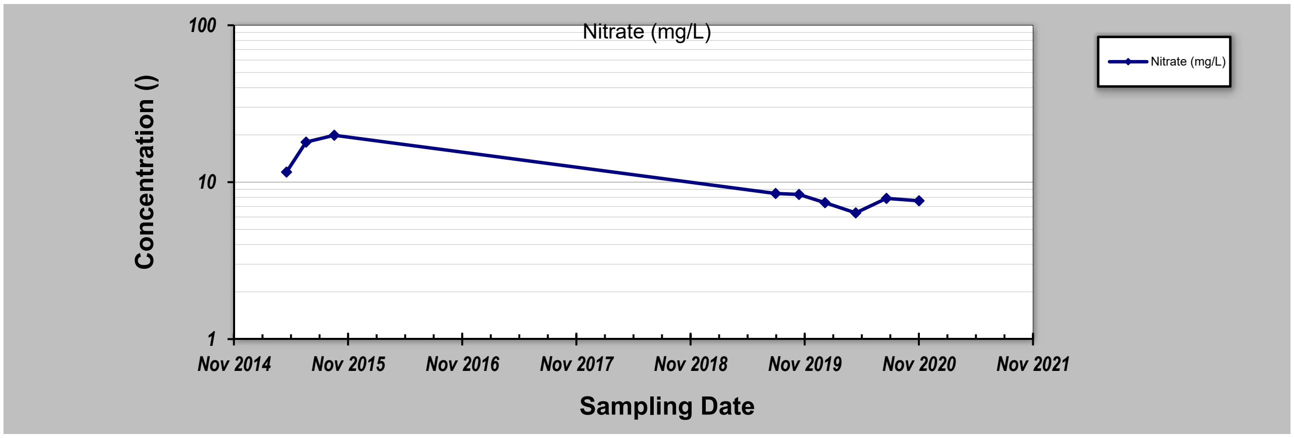
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - EVO
Conducted By: MBS
Job ID: 671557
Location EV_HW1

Sampling Event	Sampling Date	EV_HW1 CONCENTRATION						
	Parameter (units)	Nitrate (mg/L)						
1	27-Apr-15	11.6						
2	29-Jun-15	18						
3	28-Sep-15	19.9						
4	21-Aug-19	8.47						
5	4-Nov-19	8.35						
6	27-Jan-20	7.4						
7	5-May-20	6.37						
8	12-Aug-20	7.88						
9	25-Nov-20	7.61						
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.47						
Mann-Kendall Statistic (S):		-22						
Confidence Factor:		98.8%						
Concentration Trend:		Decreasing						



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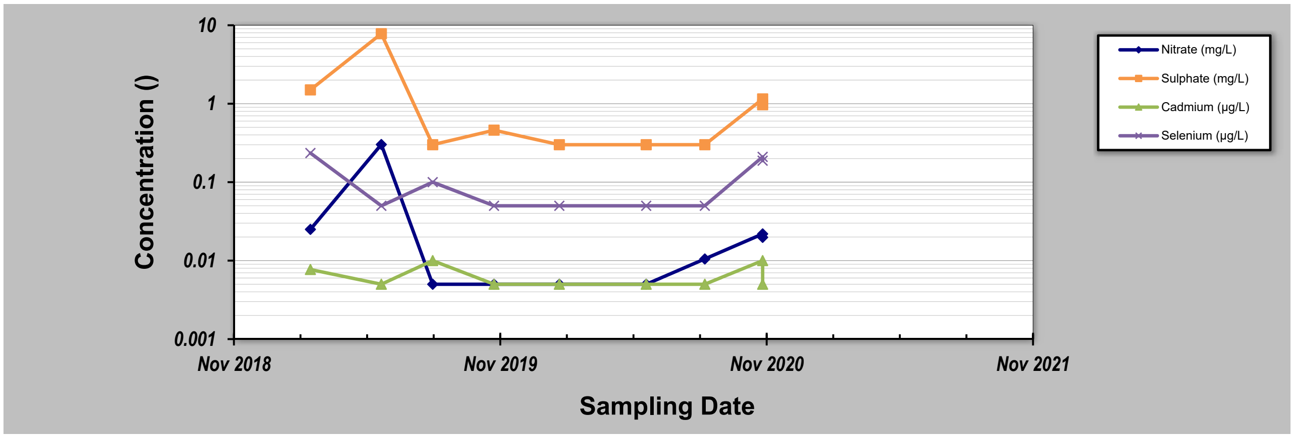
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - EVO
Conducted By: MBS
Job ID: 671557
Location EV_MW_MC1A

	Parameter (units)	**Nitrate (mg/L)**	**Sulphate (mg/L)**	**Cadmium (µg/L)**	**Selenium (µg/L)**			
Sampling Event	**Sampling Date**	**EV_MW_MC1A CONCENTRATION**						
1	5-Mar-19	0.025	1.5	0.0077	0.235			
2	11-Jun-19	0.302	7.8	0.005	0.05			
3	21-Aug-19	0.005	0.3	0.01	0.1			
4	14-Nov-19	0.005	0.46	0.005	0.05			
5	12-Feb-20	0.005	0.3	0.005	0.05			
6	11-Jun-20	0.005	0.3	0.005	0.05			
7	31-Aug-20	0.0105	0.3	0.005	0.05			
8	19-Nov-20	0.0219	1.15	0.01	0.21			
9	19-Nov-20	0.0198	0.97	0.005	0.188			
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
	Coefficient of Variation:	2.19	1.67	0.35	0.72			
	Mann-Kendall Statistic (S):	0	-6	-4	0			
	Confidence Factor:	46.0%	69.4%	61.9%	46.0%			
	Concentration Trend:	No Trend	No Trend	Stable	Stable			



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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - EVO
Conducted By: MBS
Job ID: 671557
Location EV_MW_MC1B

	Parameter (units)	**Nitrate (mg/L)**	**Sulphate (mg/L)**	**Cadmium (µg/L)**	**Selenium (µg/L)**			
Sampling Event	**Sampling Date**	**EV_MW_MC1B CONCENTRATION**						
1	5-Mar-19	0.025	19.7	0.005	0.05			
2	11-Jun-19	0.165	120	0.005	0.056			
3	21-Aug-19	0.005	60.1	0.005	0.065			
4	14-Nov-19	0.531	124	0.0062	0.05			
5	12-Feb-20	0.04	81.1	0.0138	0.076			
6	11-Jun-20	0.029	111	0.005	0.073			
7	31-Aug-20	0.059	119	0.005	0.05			
8	19-Nov-20	0.025	134	0.005	0.066			
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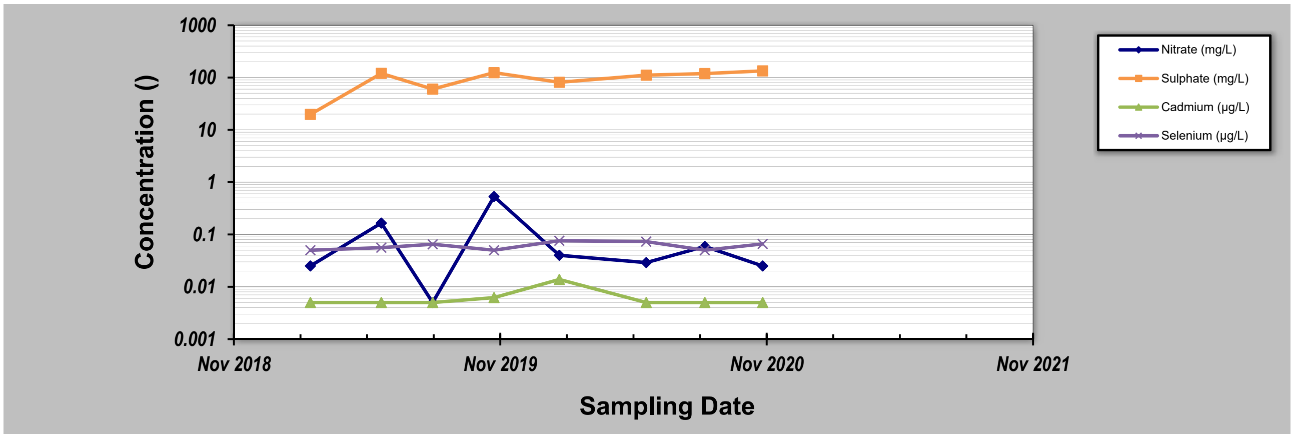
Coefficient of Variation:		1.61	0.41	0.49	0.18			
Mann-Kendall Statistic (S):		-1	14	1	7			
Confidence Factor:		50.0%	94.6%	50.0%	76.4%			
Concentration Trend:		No Trend	Prob. Increasing	No Trend	No Trend			



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - EVO
Conducted By: MBS
Job ID: 671557
Location EV_MW_MC2A

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	Sampling Date	EV_MW_MC2A CONCENTRATION						
1	4-Mar-19	0.058	5.8	0.005	0.05			
2	11-Jun-19	0.118	1.5	0.005	0.05			
3	20-Aug-19	0.005	0.3	0.005	0.05			
4	13-Nov-19	0.005	0.3	0.005	0.05			
5	12-Feb-20	0.005	0.3	0.0286	0.05			
6	10-Jun-20	0.005	0.3	0.005	0.05			
7	31-Aug-20	0.005	0.3	0.005	0.05			
8	19-Nov-20	0.025	1.5	0.005	0.05			
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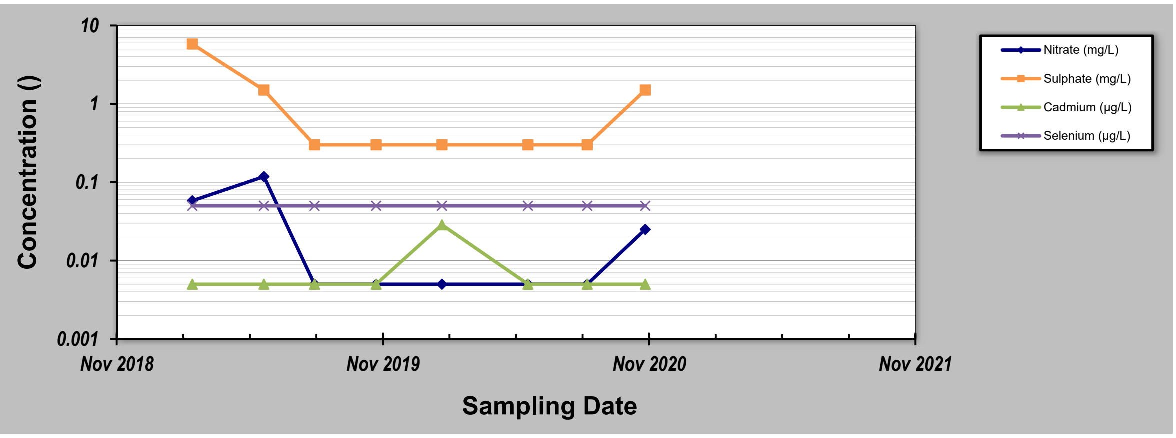
	Coefficient of Variation:	1.44	1.48	1.05	0.00			
	Mann-Kendall Statistic (S):	-6	-7	1	0			
	Confidence Factor:	72.6%	76.4%	50.0%	45.2%			
	Concentration Trend:	No Trend	No Trend	No Trend	Stable			



Notes:

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2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	09-Feb-21	Job ID:	671557
Facility Name:	Teck Coal Regional Groundwater - EVO	Location	EV_MW_MC2B
Conducted By:	MBS		

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	**Sampling Date**	**EV_MW_MC2B CONCENTRATION**						
1	4-Mar-19	9.53	408	0.11	51.9			
2	4-Mar-19	9.53	406	0.0966	50.4			
3	11-Jun-19	8.74	424	0.114	56.5			
4	20-Aug-19	8.33	419	0.114	54.4			
5	13-Nov-19	7.8	417	0.105	62			
6	12-Feb-20	6.55	336	0.103	46.9			
7	10-Jun-20	7.84	393	0.107	51.4			
8	31-Aug-20	8.58	419	0.108	56.9			
9	19-Nov-20	7.99	368	0.103	54.4			
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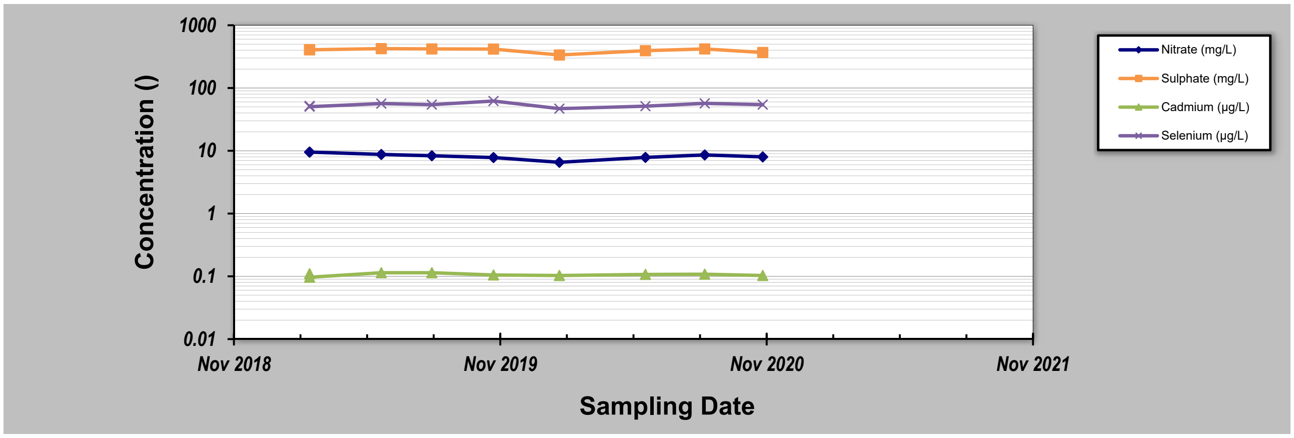
20								
	Coefficient of Variation:	0.11	0.07	0.05	0.08			
	Mann-Kendall Statistic (S):	-17	-9	-6	5			
	Confidence Factor:	95.1%	79.2%	69.4%	65.7%			
	Concentration Trend:	Decreasing	Stable	Stable	No Trend			



Notes:

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3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - EVO
Conducted By: MBS
Job ID: 671557
Location EV_MW_SPR1A

Sampling Event	Sampling Date	EV_MW_SPR1A CONCENTRATION						
Parameter (units)		Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
1	6-Mar-19	0.005						
2	12-Jun-19	0.005	37	0.005	0.077			
3	22-Aug-19	0.005	24.7	0.005	0.05			
4	14-Nov-19	0.005	25.5	0.005	0.05			
5	19-Feb-20	0.005	29	0.005	0.05			
6	9-Jun-20	0.0053	32.8	0.005	0.05			
7	9-Jun-20	0.005	32.6	0.0064	0.05			
8	3-Sep-20	0.005	32.7	0.005	0.05			
9	3-Dec-20	0.005	33.6	0.005	0.05			
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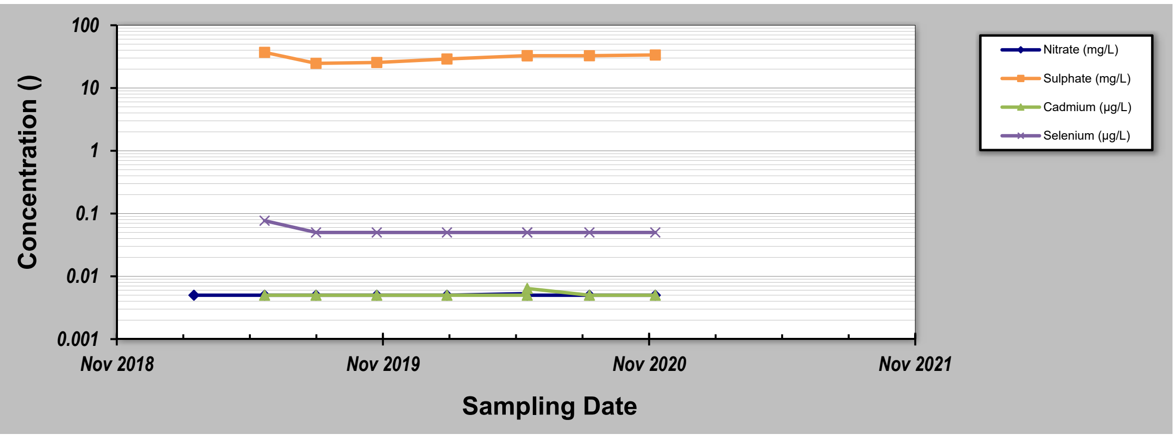
Coefficient of Variation:		0.02	0.14	0.10	0.18			
Mann-Kendall Statistic (S):		2	10	3	-7			
Confidence Factor:		54.0%	86.2%	59.4%	76.4%			
Concentration Trend:		No Trend	No Trend	No Trend	Stable			



Notes:

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3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	09-Feb-21	Job ID:	671557
Facility Name:	Teck Coal Regional Groundwater - EVO	Location	EV_MW_SPR1B
Conducted By:	MBS		

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	Sampling Date	EV_MW_SPR1B CONCENTRATION						
1	4-Mar-19	0.0151	72.1	0.0184	1.95			
2	12-Jun-19	0.0053	86.5	0.0061	0.163			
3	22-Aug-19	0.005	66.3	0.005	0.05			
4	14-Nov-19	0.005	71.1	0.02	0.145			
5	19-Feb-20	0.005	58.4	0.025	0.05			
6	9-Jun-20	0.0229	51.2	0.02	0.237			
7	3-Sep-20	0.0089	103	0.02	0.222			
8	14-Dec-20	0.005	60.9	0.01	0.05			
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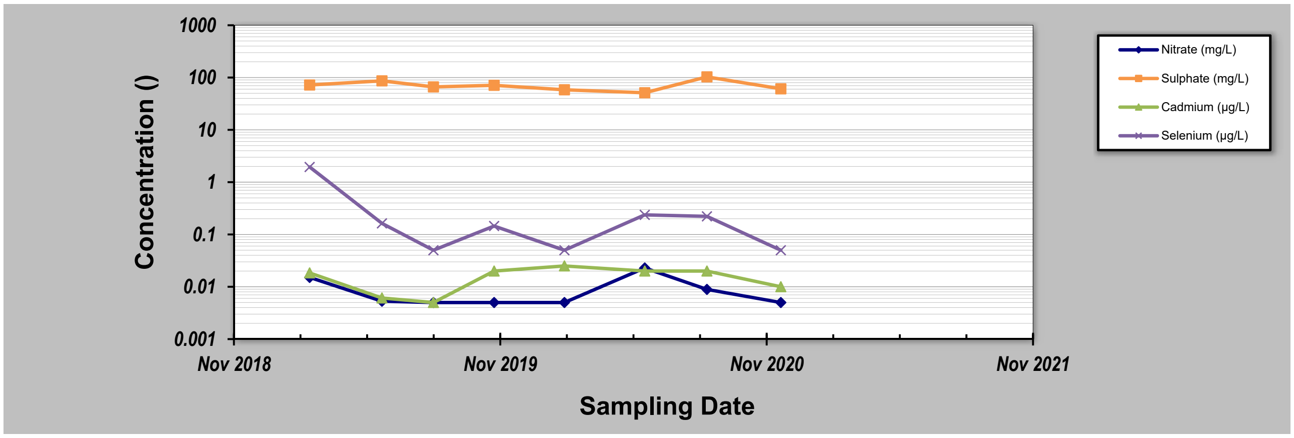
Coefficient of Variation:		0.74	0.23	0.48	1.81			
Mann-Kendall Statistic (S):		-4	-8	5	-7			
Confidence Factor:		64.0%	80.1%	68.3%	76.4%			
Concentration Trend:		Stable	Stable	No Trend	No Trend			



Notes:

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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - EVO
Conducted By: MBS
Job ID: 671557
Location EV_MW_SPR1C

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	Sampling Date	EV_MW_SPR1C CONCENTRATION						
1	4-Mar-19	1.91	154	0.0554	16.8			
2	12-Jun-19	0.247	58.3	0.0382	4.62			
3	22-Aug-19	0.412	63	0.0487	5.34			
4	14-Nov-19	0.876	102	0.0553	8.12			
5	14-Nov-19	0.876	102	0.0549	8.39			
6	19-Feb-20	1.33	127	0.0601	14.2			
7	9-Jun-20	0.225	50.1	0.0409	5.11			
8	3-Sep-20	0.591	83.8	0.0539	7.2			
9	3-Dec-20	0.907	112	0.0596	8.89			
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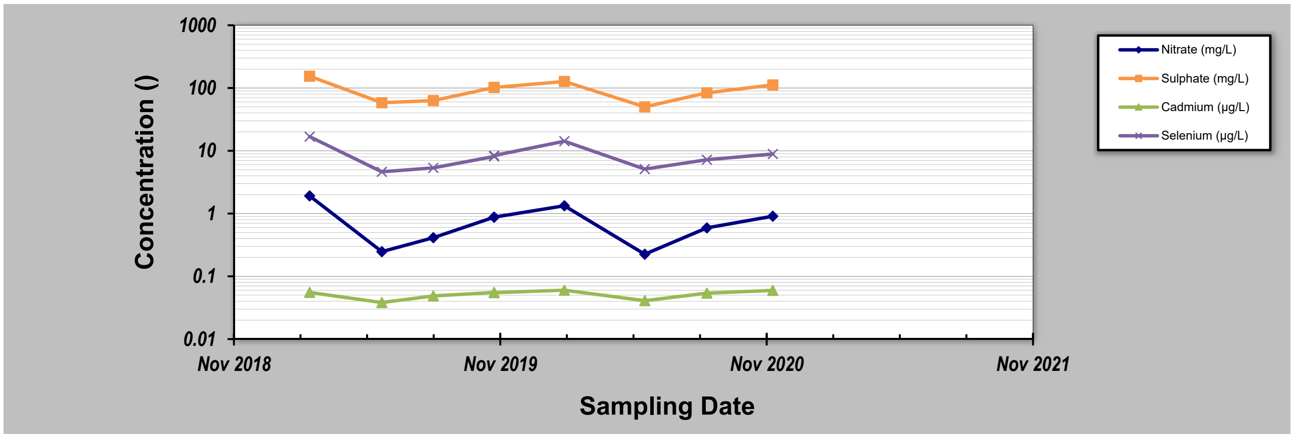
	Coefficient of Variation:	0.66	0.36	0.15	0.48			
	Mann-Kendall Statistic (S):	1	1	6	4			
	Confidence Factor:	50.0%	50.0%	69.4%	61.9%			
	Concentration Trend:	No Trend	No Trend	No Trend	No Trend			



Notes:

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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	09-Feb-21	Job ID:	671557
Facility Name:	Teck Coal Regional Groundwater - EVO	Location	EV_MCgwS
Conducted By:	MBS		

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Selenium (ug/L)				
Sampling Event	Sampling Date	EV_MCGWS CONCENTRATION						
1	12-Jan-15	0.028	111	0.1				
2	12-May-15	0.01	107	0.05				
3	11-Aug-15	0.025	93.6	0.05				
4	17-Nov-15	0.025	128	0.05				
5	24-Feb-16	0.025	107	0.155				
6	18-May-16	0.025	123	0.05				
7	23-Aug-16	0.025	92.2	0.05				
8	24-Oct-16	0.025	94.1	0.05				
9	8-Mar-17	0.025	105	0.05				
10	30-Mar-17	0.0069	124	0.05				
11	16-May-17	0.025	104	0.073				
12	28-Jun-17	0.025	94.2	0.05				
13	16-Aug-17	0.005	88.1	0.05				
14	21-Sep-17	0.005	94.4	0.05				
15	18-Oct-17	0.005	82.3	0.05				
16	8-Mar-18	0.005	109	0.05				
17	10-May-18	0.005	134	0.05				
18	20-Aug-18	0.0613	135	1.31				
19	17-Oct-18	0.104	161	0.05				
20	30-Jan-19	0.025	168	0.214				
21	8-May-19	0.0058	154	0.052				
22	9-Jul-19	0.005	132	0.056				
23	4-Nov-19	0.0115	126	0.05				
24	14-May-20	0.005	111	0.05				
25	11-Aug-20	0.005	124	0.05				
26	15-Dec-20	0.005	97	0.05				
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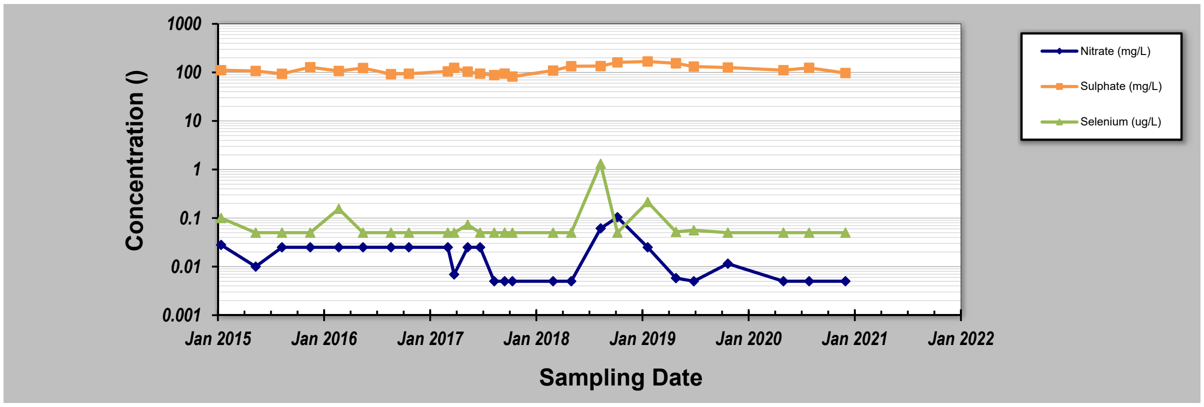
Coefficient of Variation:		1.07	0.20	2.21				
Mann-Kendall Statistic (S):		-110	70	2				
Confidence Factor:		99.3%	93.6%	50.9%				
Concentration Trend:		Decreasing	Prob. Increasing	No Trend				



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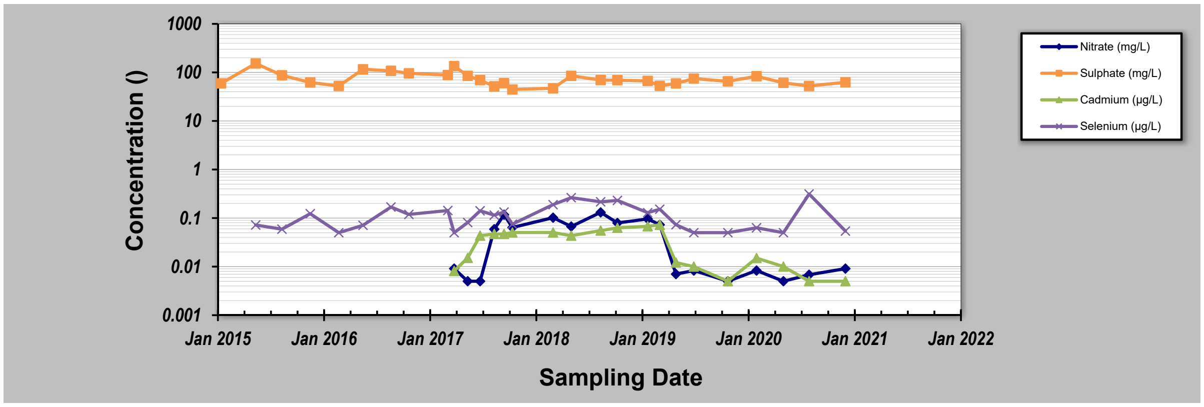
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - EVO
Conducted By: MBS
Job ID: 671557
Location EV_MCgwD

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	Sampling Date	EV_MCGWD CONCENTRATION						
1	12-Jan-15		59.5					
2	12-May-15		153		0.072			
3	11-Aug-15		87.2		0.059			
4	17-Nov-15		62.2		0.123			
5	24-Feb-16		52.5		0.05			
6	18-May-16		116		0.071			
7	23-Aug-16		108		0.169			
8	24-Oct-16		95.8		0.119			
9	8-Mar-17		88.3		0.143			
10	30-Mar-17	0.0091	135	0.0081	0.05			
11	16-May-17	0.005	85.1	0.0151	0.081			
12	28-Jun-17	0.005	69.4	0.0434	0.141			
13	16-Aug-17	0.059	51.7	0.047	0.115			
14	19-Sep-17	0.117	60.1	0.047	0.133			
15	18-Oct-17	0.0639	44.5	0.0503	0.075			
16	8-Mar-18	0.102	47.1	0.0503	0.189			
17	10-May-18	0.0671	85.1	0.0434	0.263			
18	20-Aug-18	0.131	69.6	0.0552	0.216			
19	17-Oct-18	0.0794	69.3	0.0627	0.231			
20	30-Jan-19	0.0959	66.8	0.0677	0.129			
21	13-Mar-19	0.073	52.9	0.0724	0.152			
22	8-May-19	0.007	59.2	0.0121	0.073			
23	9-Jul-19	0.0083	74.6	0.01	0.05			
24	4-Nov-19	0.005	65.6	0.005	0.05			
25	11-Feb-20	0.0083	83.5	0.015	0.063			
26	14-May-20	0.005	61	0.01	0.05			
27	11-Aug-20	0.0068	52.4	0.005	0.313			
28	15-Dec-20	0.0091	62.6	0.005	0.054			
29								
30								
	Coefficient of Variation:	0.99	0.35	0.73	0.60			
	Mann-Kendall Statistic (S):	-25	-107	-30	11			
	Confidence Factor:	79.7%	98.2%	84.3%	58.2%			
	Concentration Trend:	Stable	Decreasing	Stable	No Trend			



Notes:

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GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - EVO
Conducted By: MBS
Job ID: 671557
Location: EV_MW_AQ1

Parameter (units)		**Nitrate (mg/L)**	**Sulphate (mg/L)**	**Cadmium (µg/L)**	**Selenium (µg/L)**			
Sampling Event	**Sampling Date**	**EV_MW_AQ1 CONCENTRATION**						
1	6-Mar-19	0.213	79.1	0.058	3.17			
2	6-Mar-19	0.214	78.6	0.0596	3.29			
3	13-Jun-19	0.236	82.3	0.0404	3.49			
4	13-Jun-19	0.23	82.4	0.0478	3.52			
5	26-Aug-19	0.188	81.2	0.047	3.16			
6	19-Nov-19	0.15	77.7	0.0404	2.46			
7	11-Feb-20	0.894	92.5	0.0432	4.93			
8	27-May-20	0.606	83.6	0.0418	4.46			
9	12-Aug-20	0.158	77.3	0.0531	2.46			
10	16-Nov-20	0.466	96	0.0352	2.43			
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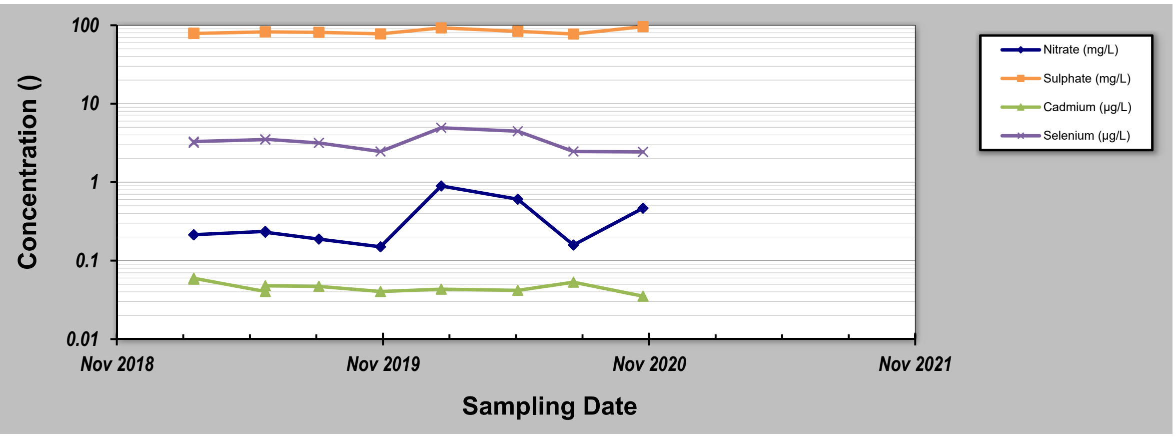
20								
Coefficient of Variation:		0.73	0.08	0.17	0.25			
Mann-Kendall Statistic (S):		5	11	-18	-8			
Confidence Factor:		63.6%	81.0%	93.4%	72.9%			
Concentration Trend:		No Trend	No Trend	Prob. Decreasing	Stable			



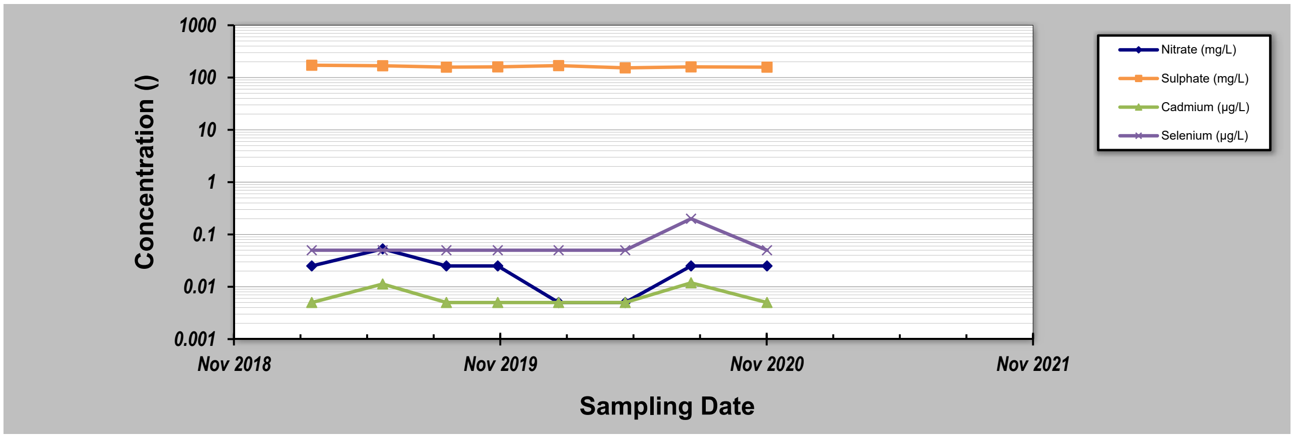
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - EVO
Conducted By: MBS
Job ID: 671557
Location EV_MW_AQ2

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	Sampling Date	EV_MW_AQ2 CONCENTRATION						
1	7-Mar-19	0.025	172	0.005	0.05			
2	13-Jun-19	0.053	168	0.0113	0.05			
3	9-Sep-19	0.025	158	0.005	0.05			
4	19-Nov-19	0.025	160	0.005	0.05			
5	11-Feb-20	0.005	169	0.005	0.05			
6	13-May-20	0.005	153	0.005	0.05			
7	12-Aug-20	0.025	160	0.0119	0.2			
8	25-Nov-20	0.025	158	0.005	0.05			
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
	Coefficient of Variation:	0.64	0.04	0.46	0.77			
	Mann-Kendall Statistic (S):	-7	-12	1	5			
	Confidence Factor:	76.4%	91.1%	50.0%	68.3%			
	Concentration Trend:	Stable	Prob. Decreasing	No Trend	No Trend			



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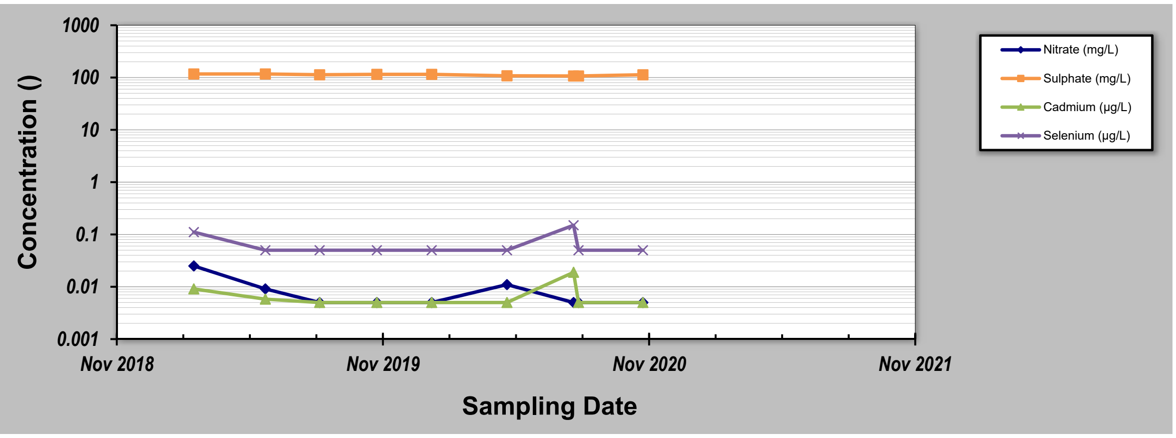
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - EVO
Conducted By: MBS
Job ID: 671557
Location EV_MW_MC4

Parameter (units)		Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	Sampling Date	EV_MW_MC4 CONCENTRATION						
1	6-Mar-19	0.025	117	0.0091	0.111			
2	13-Jun-19	0.0091	117	0.0058	0.05			
3	27-Aug-19	0.005	113	0.005	0.05			
4	14-Nov-19	0.005	115	0.005	0.05			
5	29-Jan-20	0.005	115	0.005	0.05			
6	12-May-20	0.011	108	0.005	0.05			
7	12-Aug-20	0.005	107	0.0189	0.15			
8	19-Aug-20	0.005	107	0.005	0.05			
9	16-Nov-20	0.005	113	0.005	0.05			
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.80	0.04	0.65	0.54			
Mann-Kendall Statistic (S):		-13	-22	-9	-3			
Confidence Factor:		89.0%	98.8%	79.2%	58.0%			
Concentration Trend:		Stable	Decreasing	Stable	Stable			



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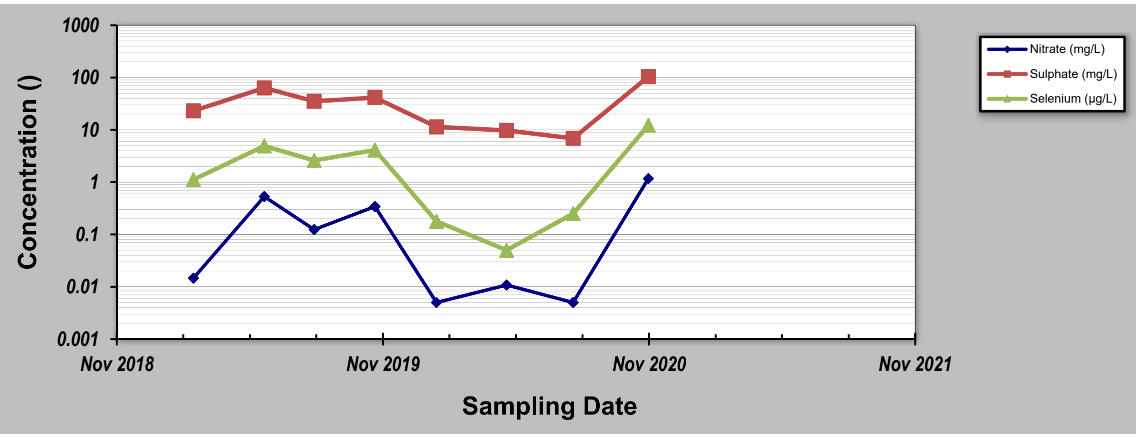
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - EVO
Conducted By: MBS
Job ID: 671557
Location: EV_MW_MC3

Sampling Event	Sampling Date	EV_MW_MC3 CONCENTRATION						
	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Selenium (µg/L)				
1	6-Mar-19	0.0146	23.1	1.12				
2	12-Jun-19	0.531	63.3	4.92				
3	20-Aug-19	0.124	35.1	2.6				
4	12-Nov-19	0.342	41.4	4.11				
5	5-Feb-20	0.005	11.4	0.179				
6	12-May-20	0.0108	9.75	0.05				
7	12-Aug-20	0.005	6.87	0.25				
8	24-Nov-20	1.17	104	12.2				
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
	Coefficient of Variation:	1.49	0.90	1.29				
	Mann-Kendall Statistic (S):	-3	-6	-2				
	Confidence Factor:	59.4%	72.6%	54.8%				
	Concentration Trend:	No Trend	Stable	No Trend				



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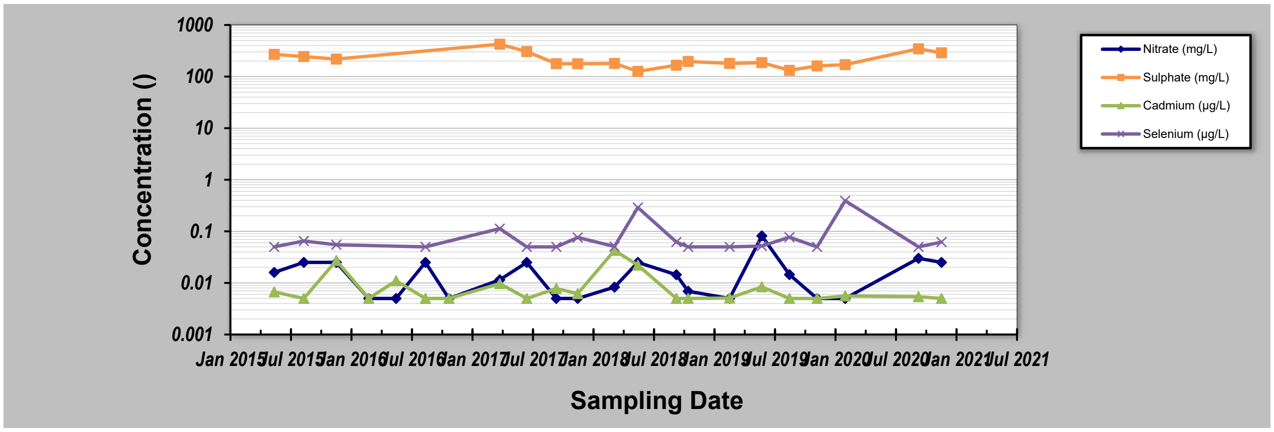
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - EVO
Conducted By: MBS
Job ID: 671557
Location: EV_WF_SW

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	Sampling Date	EV_WF_SW CONCENTRATION						
1	14-May-15	0.016	269	0.0067	0.05			
2	12-Aug-15	0.025	244	0.005	0.065			
3	19-Nov-15	0.025	218	0.0272	0.055			
4	25-Feb-16	0.005	157	0.005	0.425			
5	18-May-16	0.005	128	0.011	0.066			
6	16-Aug-16	0.025	298	0.005	0.05			
7	26-Oct-16	0.005	170	0.005	0.072			
8	30-Mar-17	0.0115	424	0.0097	0.113			
9	20-Jun-17	0.025	305	0.005	0.05			
10	18-Sep-17	0.005	178	0.0078	0.05			
11	22-Nov-17	0.005	177	0.0062	0.076			
12	14-Mar-18	0.0083	180	0.0428	0.051			
13	24-May-18	0.025	126	0.0221	0.289			
14	18-Sep-18	0.0144	166	0.005	0.062			
15	24-Oct-18	0.0069	196	0.005	0.05			
16	27-Feb-19	0.005	180	0.0051	0.05			
17	5-Jun-19	0.0817	186	0.0084	0.052			
18	28-Aug-19	0.0145	132	0.005	0.077			
19	20-Nov-19	0.005	161	0.005	0.05			
20	13-Feb-20	0.005	170	0.0056	0.391			
21	23-Sep-20	0.03	345	0.0054	0.05			
22	2-Dec-20	0.025	289	0.005	0.062			
23								
24								
25								
Coefficient of Variation:		1.01	0.36	1.00	1.03			
Mann-Kendall Statistic (S):		6	-78	-26	-26			
Confidence Factor:		55.5%	99.9%	75.7%	80.7%			
Concentration Trend:		No Trend	Decreasing	Stable	No Trend			



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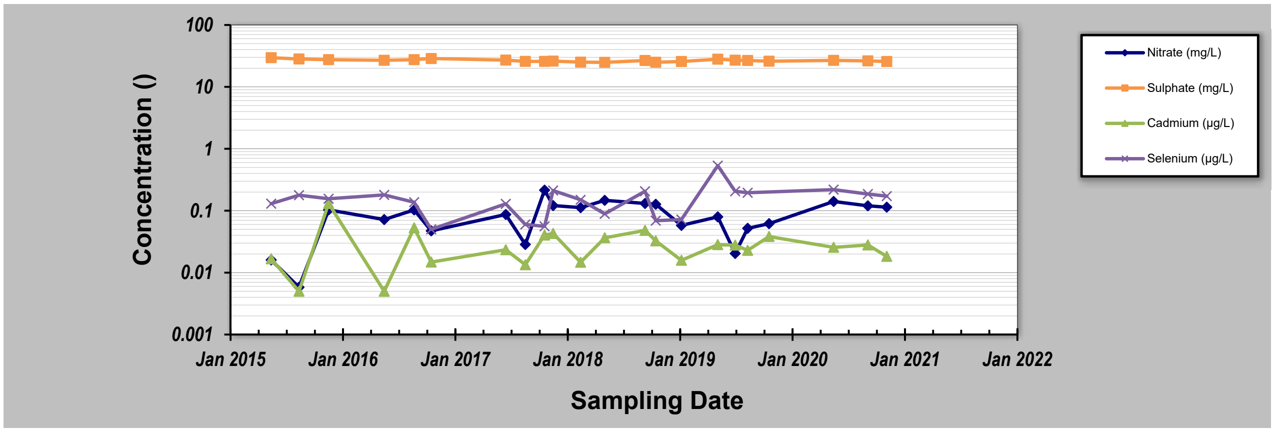
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - EVO
Conducted By: MBS
Job ID: 671557
Location EV_ECgw

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	Sampling Date	EV_ECGW CONCENTRATION						
1	14-May-15	0.016	29.6	0.0167	0.13			
2	13-Aug-15	0.0058	28.2	0.005	0.178			
3	18-Nov-15	0.103	27.5	0.131	0.156			
4	18-May-16	0.072	26.9	0.005	0.18			
5	24-Aug-16	0.103	27.5	0.0529	0.137			
6	19-Oct-16	0.0473	28.7	0.0148	0.05			
7	20-Jun-17	0.0868	27.1	0.0234	0.129			
8	23-Aug-17	0.0285	25.8	0.0134	0.06			
9	25-Oct-17	0.215	25.8	0.0404	0.056			
10	22-Nov-17	0.121	26.1	0.0429	0.212			
11	20-Feb-18	0.112	25.1	0.0147	0.15			
12	10-May-18	0.147	24.9	0.0365	0.089			
13	19-Sep-18	0.131	26.7	0.0481	0.206			
14	24-Oct-18	0.127	25	0.0326	0.069			
15	16-Jan-19	0.0579	25.7	0.0158	0.072			
16	15-May-19	0.0796	28	0.0283	0.534			
17	11-Jul-19	0.0204	27	0.0278	0.206			
18	21-Aug-19	0.0519	26.7	0.0229	0.195			
19	30-Oct-19	0.0618	26	0.0383				
20	28-May-20	0.141	26.8	0.0256	0.219			
21	17-Sep-20	0.12	26.3	0.028	0.186			
22	18-Nov-20	0.114	25.7	0.0183	0.172			
23								
24								
25								
Coefficient of Variation:		0.57	0.05	0.83	0.63			
Mann-Kendall Statistic (S):		46	-83	12	45			
Confidence Factor:		89.6%	99.0%	62.1%	90.7%			
Concentration Trend:		No Trend	Decreasing	No Trend	Prob. Increasing			



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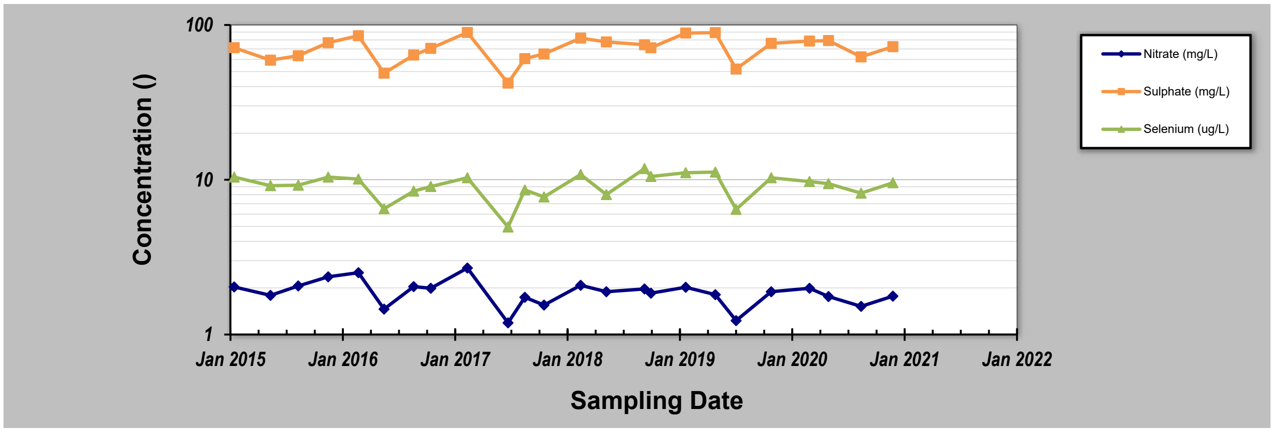
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - EVO
Conducted By: MBS
Job ID: 671557
Location EV_ER1gwS

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Selenium (ug/L)			
Sampling Event	**Sampling Date**	**EV_ER1GWS CONCENTRATION**					
1	13-Jan-15	2.03	71.3	10.4			
2	12-May-15	1.79	59.2	9.16			
3	11-Aug-15	2.06	63.3	9.22			
4	17-Nov-15	2.36	76.8	10.4			
5	24-Feb-16	2.51	85.2	10.1			
6	18-May-16	1.46	48.8	6.49			
7	23-Aug-16	2.04	63.9	8.44			
8	18-Oct-16	1.99	70.6	9.04			
9	15-Feb-17	2.69	89.5	10.3			
10	28-Jun-17	1.19	42.1	4.95			
11	22-Aug-17	1.74	60.6	8.59			
12	24-Oct-17	1.55	65	7.74			
13	21-Feb-18	2.08	82.2	10.8			
14	16-May-18	1.89	77.7	8.02			
15	18-Sep-18	1.97	74.5	11.8			
16	9-Oct-18	1.85	71.2	10.5			
17	31-Jan-19	2.02	88.7	11.1			
18	8-May-19	1.81	89.2	11.2			
19	15-Jul-19	1.23	51.9	6.43			
20	7-Nov-19	1.89	76.1	10.3			
21	11-Mar-20	1.99	78.7	9.74			
22	12-May-20	1.76	79.3	9.43			
23	27-Aug-20	1.52	62.2	8.19			
24	9-Dec-20	1.77	72.4	9.56			
25							
	Coefficient of Variation:	0.19	0.18	0.18			
	Mann-Kendall Statistic (S):	-74	48	8			
	Confidence Factor:	96.5%	87.7%	56.8%			
	Concentration Trend:	Decreasing	No Trend	No Trend			



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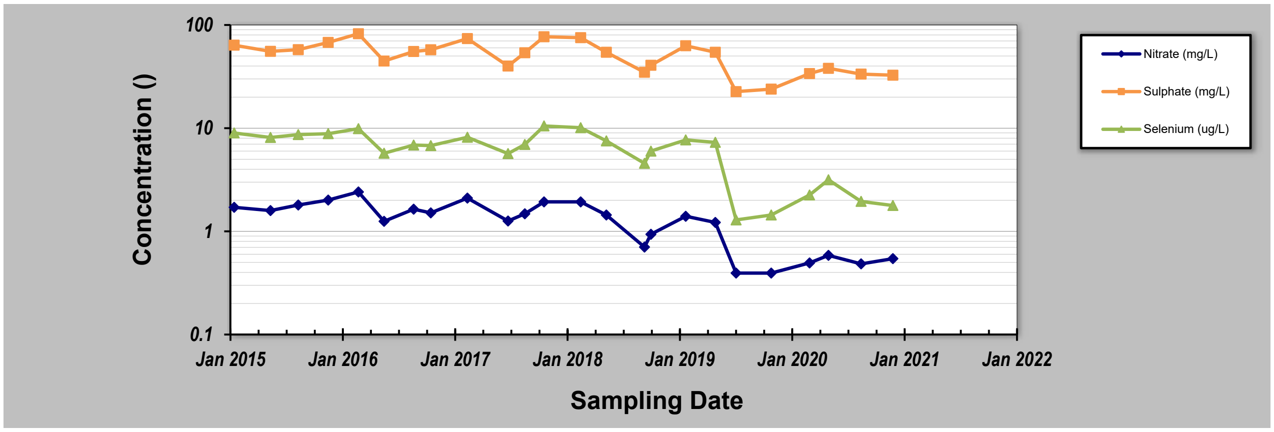
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - EVO
Conducted By: MBS
Job ID: 671557
Location EV_ER1gwD

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Selenium (ug/L)				
Sampling Event	**Sampling Date**	**EV_ER1GWD CONCENTRATION**						
1	13-Jan-15	1.71	63.7	8.98				
2	12-May-15	1.59	55.5	8.12				
3	11-Aug-15	1.8	57.6	8.66				
4	17-Nov-15	2.01	67.7	8.84				
5	24-Feb-16	2.41	82.2	9.88				
6	18-May-16	1.25	44.7	5.71				
7	23-Aug-16	1.64	55.3	6.86				
8	18-Oct-16	1.51	57.5	6.77				
9	15-Feb-17	2.1	73.8	8.16				
10	28-Jun-17	1.26	40	5.67				
11	22-Aug-17	1.48	53.8	6.95				
12	24-Oct-17	1.93	76.9	10.5				
13	21-Feb-18	1.93	75.3	10.1				
14	16-May-18	1.44	54.4	7.52				
15	18-Sep-18	0.704	34.8	4.56				
16	9-Oct-18	0.937	40.7	5.99				
17	31-Jan-19	1.4	62.9	7.69				
18	8-May-19	1.22	54.4	7.28				
19	15-Jul-19	0.394	22.6	1.29				
20	7-Nov-19	0.394	23.9	1.44				
21	11-Mar-20	0.494	33.8	2.25				
22	12-May-20	0.585	38	3.16				
23	27-Aug-20	0.484	33.4	1.95				
24	9-Dec-20	0.544	32.6	1.78				
25								
	Coefficient of Variation:	0.47	0.33	0.46				
	Mann-Kendall Statistic (S):	-158	-131	-132				
	Confidence Factor:	>99.9%	>99.9%	>99.9%				
	Concentration Trend:	Decreasing	Decreasing	Decreasing				



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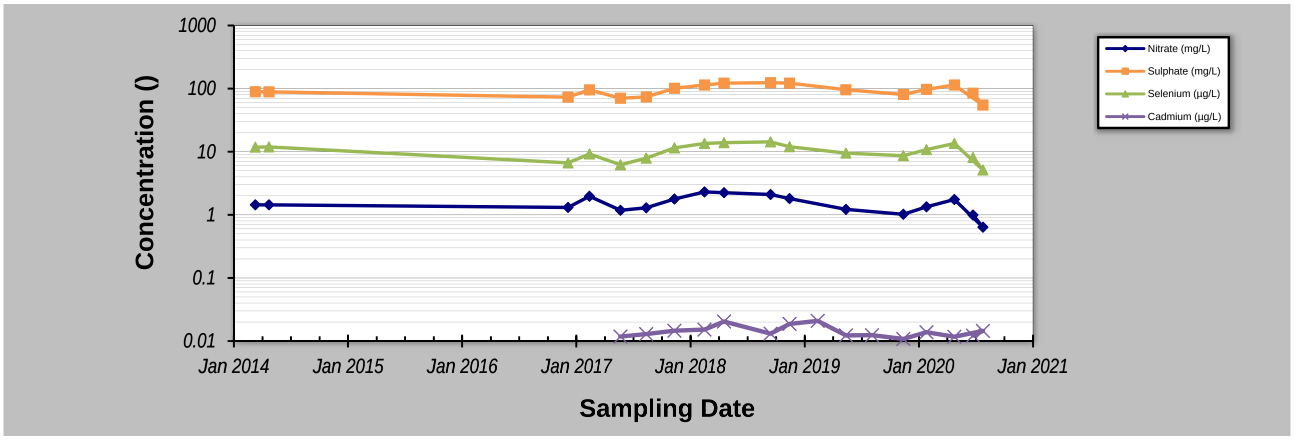
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **09-Feb-21**
Facility Name: **Teck Coal Regional Groundwater - RG**
Conducted By: **MBS**
Job ID: **671557**
Location **RG_DW-03-04**

Parameter (units)		**Nitrate (mg/L)**	**Sulphate (mg/L)**	**Selenium (µg/L)**	**Cadmium (µg/L)**			
Sampling Event	Sampling Date	RG_DW-03-04 CONCENTRATION						
1	11-Mar-14	1.44	89.2	11.8				
2	24-Apr-14	1.44	88.7	11.9				
3	13-Dec-16	1.31	73.2	6.65				
4	20-Feb-17	1.97	95.5	9.21				
5	31-May-17	1.18	70.3	6.21	0.0118			
6	22-Aug-17	1.29	73.7	7.9	0.0129			
7	21-Nov-17	1.78	101	11.5	0.0146			
8	26-Feb-18	2.31	114	13.5	0.0152			
9	30-Apr-18	2.24	122	13.9	0.0204			
10	27-Sep-18	2.1	124	14.3	0.0131			
11	27-Nov-18	1.81	122	12	0.0187			
12	26-Feb-19	1.95	129	15.8	0.0209			
13	28-May-19	1.22	95.9	9.5	0.0123			
14	20-Aug-19	0.662	57.5	5.88	0.0124			
15	29-Nov-19	1.02	80.8	8.64	0.0108			
16	11-Feb-20	1.34	97.2	10.8	0.0138			
17	11-May-20	1.75	114	13.5	0.0117			
18	11-Aug-20	0.637	54.8	5.13	0.0145			
19	10-Jul-20	0.992	84.5	8.08	0.0122			
20								
Coefficient of Variation:		**0.31**	**0.22**	**0.28**	**0.22**			
Mann-Kendall Statistic (S):		**-22**	**29**	**12**	**-15**			
Confidence Factor:		**80.4%**	**87.4%**	**67.2%**	**75.2%**			
Concentration Trend:		Stable	No Trend	No Trend	Stable			



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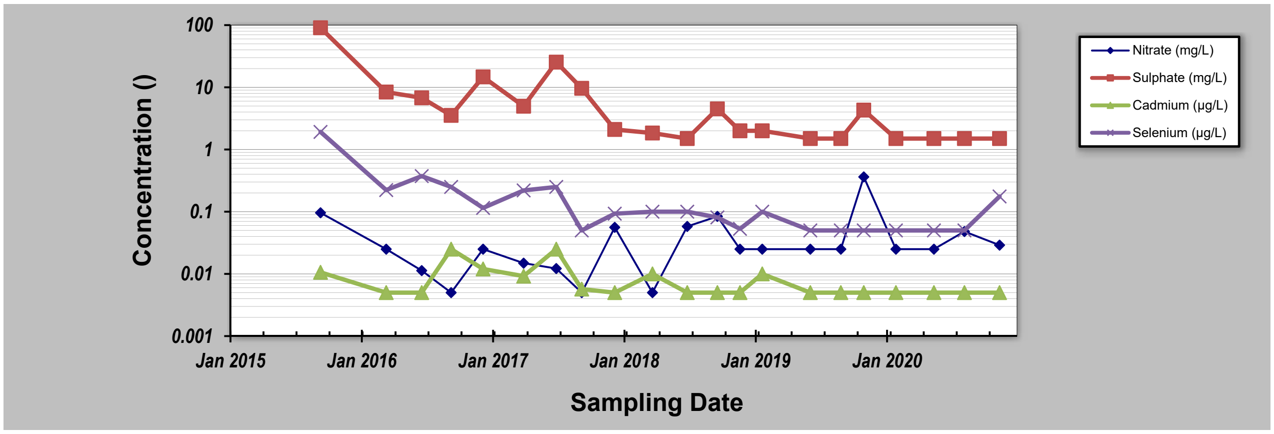
Coal Mountain Mine

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - CMm
Conducted By: MBS
Job ID: 671557
Location CM_MW1-DP

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	**Sampling Date**	**CM_MW1-DP CONCENTRATION**						
1	9-Sep-15	0.096	90.6	0.0106	1.92			
2	10-Mar-16	0.025	8.4	0.005	0.223			
3	17-Jun-16	0.0113	6.77	0.005	0.374			
4	7-Sep-16	0.005	3.54	0.025	0.25			
5	5-Dec-16	0.025	14.7	0.012	0.115			
6	28-Mar-17	0.0149	4.97	0.0092	0.22			
7	27-Jun-17	0.0122	25.4	0.025	0.25			
8	6-Sep-17	0.005	9.64	0.0057	0.05			
9	7-Dec-17	0.056	2.1	0.005	0.093			
10	22-Mar-18	0.005	1.84	0.01	0.1			
11	27-Jun-18	0.058	1.5	0.005	0.1			
12	19-Sep-18	0.084	4.5	0.005	0.081			
13	21-Nov-18	0.025	2	0.005	0.053			
14	22-Jan-19	0.025	2	0.01	0.1			
15	5-Jun-19	0.025	1.5	0.005	0.05			
16	29-Aug-19	0.025	1.5	0.005	0.05			
17	1-Nov-19	0.363	4.3	0.005	0.05			
18	29-Jan-20	0.025	1.5	0.005	0.05			
19	14-May-20	0.025	1.5	0.005	0.05			
20	7-Aug-20	0.048	1.5	0.005	0.05			
21	13-Nov-20	0.029	1.5	0.005	0.176			
22								
23								
24								
25								
Coefficient of Variation:		1.63	2.15	0.74	1.92			
Mann-Kendall Statistic (S):		45	-130	-74	-123			
Confidence Factor:		90.7%	>99.9%	98.7%	>99.9%			
Concentration Trend:		Prob. Increasing	Decreasing	Decreasing	Decreasing			



Notes:

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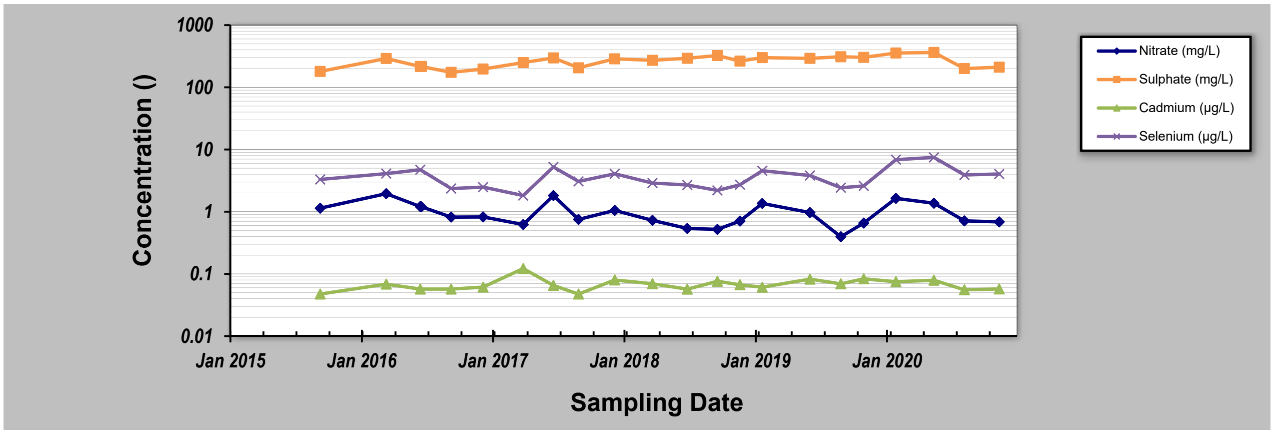
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - CMm
Conducted By: MBS

Job ID: 671557
Location: CM_MW1-OB

	Parameter (units):	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
Sampling Event	**Sampling Date**	**CM_MW1-OB CONCENTRATION**						
1	8-Sep-15	1.14	180	0.0474	3.3			
2	10-Mar-16	1.95	291	0.0685	4.1			
3	13-Jun-16	1.21	216	0.057	4.73			
4	16-Jun-16	1.2	216					
5	7-Sep-16	0.82	174	0.057	2.36			
6	5-Dec-16	0.824	197	0.0613	2.49			
7	27-Mar-17	0.622	250	0.122	1.82			
8	19-Jun-17	1.82	297	0.0653	5.24			
9	28-Aug-17	0.751	206	0.0474	3.07			
10	7-Dec-17	1.05	287	0.0799	4.07			
11	22-Mar-18	0.726	272	0.0695	2.89			
12	27-Jun-18	0.538	293	0.0569	2.69			
13	19-Sep-18	0.52	324	0.0761	2.2			
14	21-Nov-18	0.707	264	0.0668	2.71			
15	22-Jan-19	1.36	300	0.0611	4.56			
16	4-Jun-19	0.97	292	0.0824	3.82			
17	29-Aug-19	0.396	310	0.0691	2.43			
18	1-Nov-19	0.657	303	0.0833	2.6			
19	29-Jan-20	1.64	356	0.0749	6.87			
20	14-May-20	1.37	363	0.0791	7.47			
21	7-Aug-20	0.713	200	0.0555	3.9			
22	12-Nov-20	0.686	211	0.0573	4.04			
23								
24								
25								
	Coefficient of Variation:	0.44	0.21	0.24	0.40			
	Mann-Kendall Statistic (S):	-59	94	40	26			
	Confidence Factor:	94.9%	99.7%	87.9%	77.2%			
	Concentration Trend:	Prob. Decreasing	Increasing	No Trend	No Trend			



Notes:

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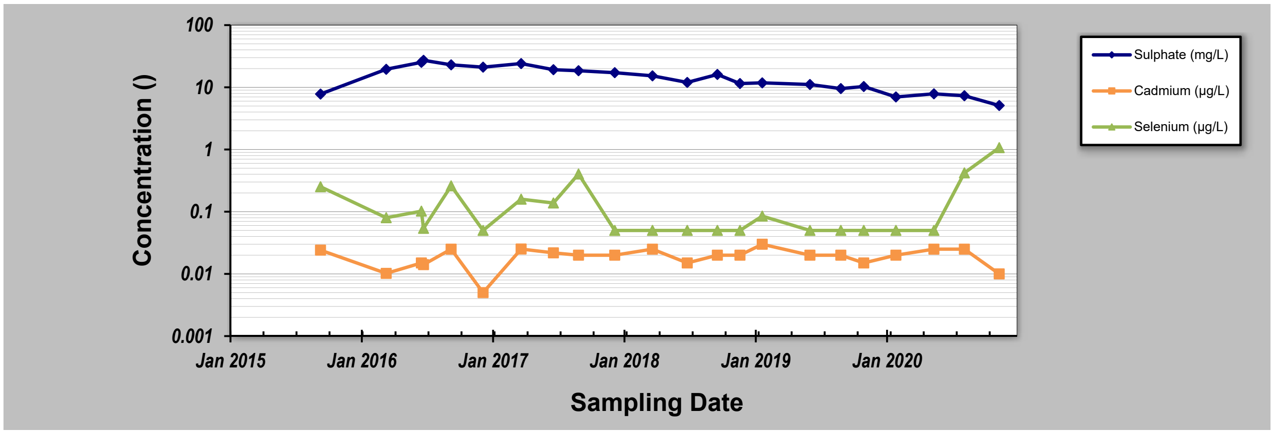
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - CMm
Conducted By: MBS
Job ID: 671557
Location CM_MW1-SH

	Parameter (units)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)				
Sampling Event	Sampling Date	CM_MW1-SH CONCENTRATION						
1	9-Sep-15	7.8	0.0241	0.252				
2	10-Mar-16	19.5	0.0102	0.08				
3	16-Jun-16	25.2	0.015	0.102				
4	22-Jun-16	27.2	0.0141	0.054				
5	7-Sep-16	23	0.025	0.26				
6	5-Dec-16	21.1	0.005	0.05				
7	21-Mar-17	24.1	0.0251	0.159				
8	19-Jun-17	19.2	0.0218	0.138				
9	28-Aug-17	18.5	0.02	0.404				
10	7-Dec-17	17.2	0.02	0.05				
11	22-Mar-18	15.3	0.025	0.05				
12	27-Jun-18	12	0.015	0.05				
13	19-Sep-18	16.1	0.02	0.05				
14	21-Nov-18	11.5	0.02	0.05				
15	22-Jan-19	11.8	0.03	0.085				
16	4-Jun-19	11.1	0.02	0.05				
17	29-Aug-19	9.54	0.02	0.05				
18	1-Nov-19	10.3	0.015	0.05				
19	29-Jan-20	7	0.02	0.05				
20	14-May-20	7.86	0.025	0.05				
21	7-Aug-20	7.32	0.025	0.421				
22	12-Nov-20	5.1	0.01	1.07				
23								
24								
25								
Coefficient of Variation:		0.44	0.31	1.43				
Mann-Kendall Statistic (S):		-167	17	-36				
Confidence Factor:		>99.9%	67.2%	83.6%				
Concentration Trend:		Decreasing	No Trend	No Trend				



Notes:

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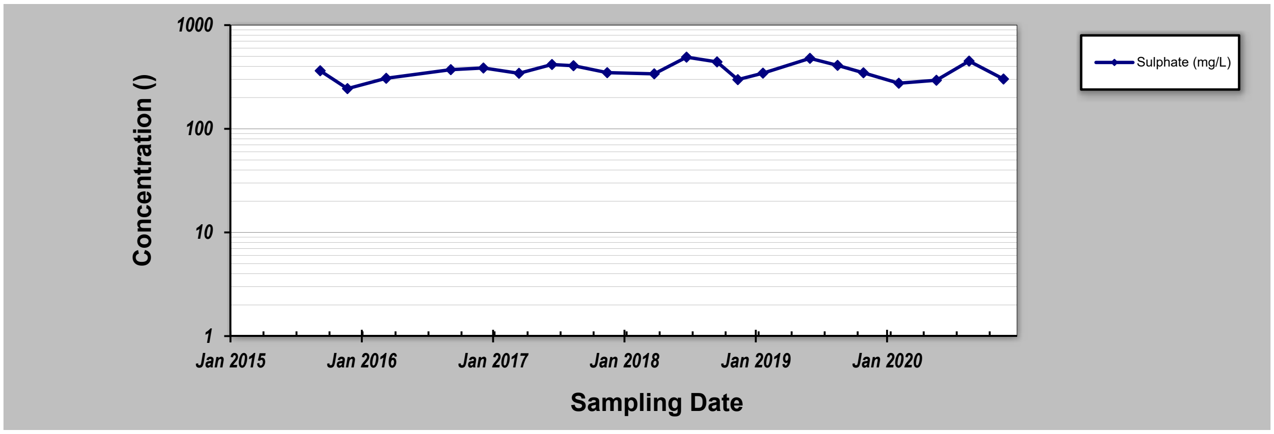
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - CMm
Conducted By: MBS
Job ID: 671557
Location CM_MW2-SH

Parameter (units) Sulphate (mg/L)

Sampling Event	Sampling Date	CM_MW2-SH CONCENTRATION						
1	8-Sep-15	363						
2	23-Nov-15	244						
3	10-Mar-16	307						
4	6-Sep-16	372						
5	6-Dec-16	386						
6	15-Mar-17	343						
7	15-Jun-17	417						
8	14-Aug-17	406						
9	16-Nov-17	348						
10	27-Mar-18	339						
11	25-Jun-18	491						
12	18-Sep-18	442						
13	15-Nov-18	298						
14	24-Jan-19	344						
15	4-Jun-19	478						
16	20-Aug-19	409						
17	31-Oct-19	347						
18	6-Feb-20	275						
19	21-May-20	294						
20	20-Aug-20	450						
21	24-Nov-20	302						
22								
23								
24								
25								
Coefficient of Variation:		0.18						
Mann-Kendall Statistic (S):		4						
Confidence Factor:		53.6%						
Concentration Trend:		No Trend						



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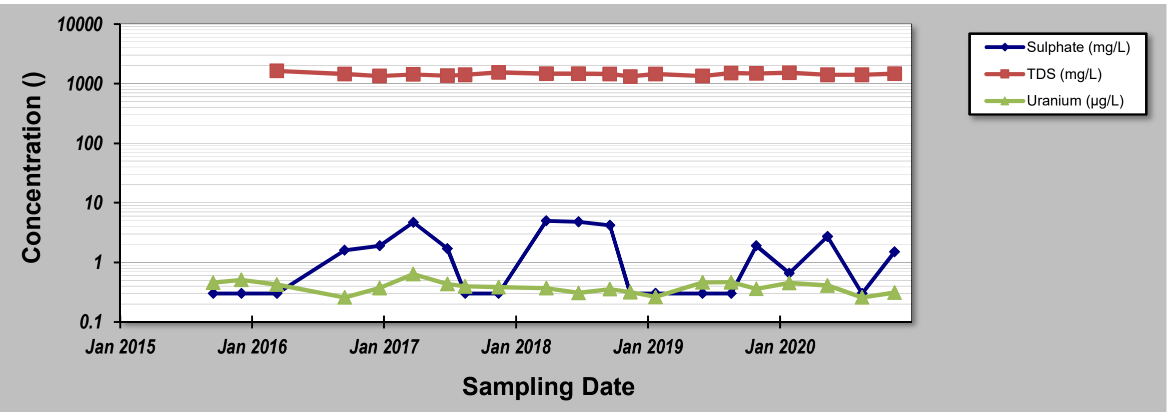
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 17-Mar-21
Facility Name: Teck Coal Regional Groundwater - BG
Conducted By: KC
Job ID: 635544
Location: CM_MW3-DP

	Sampling Point ID:	Sulphate (mg/L)	TDS (mg/L)	Uranium (µg/L)				
Sampling Event	**Sampling Date**	**CM_MW3-DP CONCENTRATION ()**						
1	15-Sep-15	0.3		0.457				
2	3-Dec-15	0.3		0.51				
3	10-Mar-16	0.3	1630	0.426				
4	14-Sep-16	1.6	1450	0.258				
5	20-Dec-16	1.9	1340	0.372				
6	23-Mar-17	4.7	1430	0.636				
7	26-Jun-17	1.7	1350	0.431				
8	14-Aug-17	0.3	1400	0.395				
9	15-Nov-17	0.3	1540	0.385				
10	27-Mar-18	5	1470	0.37				
11	25-Jun-18	4.8	1470	0.309				
12	20-Sep-18	4.2	1450	0.356				
13	15-Nov-18	0.3	1320	0.316				
14	24-Jan-19	0.3	1450	0.264				
15	4-Jun-19	0.3	1340	0.461				
16	22-Aug-19	0.3	1500	0.463				
17	31-Oct-19	1.9	1480	0.358				
18	30-Jan-20	0.66	1520	0.454				
19	15-May-20	2.7	1400	0.411				
20	19-Aug-20	0.3	1400	0.259				
21	18-Nov-20	1.5	1460	0.312				
22								
23								
24								
25								
	Coefficient of Variation:	1.06	0.05	0.24				
	Mann-Kendall Statistic (S):	10	3	-54				
	Confidence Factor:	60.6%	52.7%	94.5%				
	Concentration Trend:	No Trend	No Trend	Prob. Decreasing				



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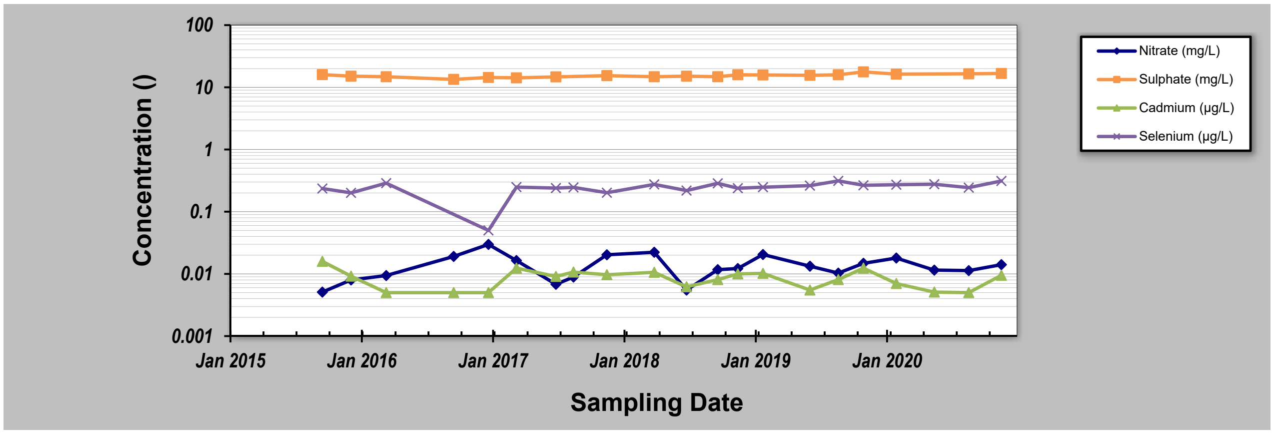
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - CMm
Conducted By: MBS
Job ID: 671557
Location CM_MW3-SH

Sampling Event	Sampling Date	Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
		CM_MW3-SH CONCENTRATION						
1	14-Sep-15	0.0051	16	0.0159	0.236			
2	3-Dec-15	0.008	15.1	0.0092	0.201			
3	10-Mar-16	0.0094	14.8	0.005	0.288			
4	14-Sep-16	0.0191	13.4	0.005				
5	20-Dec-16	0.0298	14.4	0.005	0.05			
6	8-Mar-17	0.0164	14.2	0.0124	0.249			
7	26-Jun-17	0.0068	14.7	0.0091	0.24			
8	14-Aug-17	0.0089		0.0107	0.246			
9	15-Nov-17	0.0203	15.4	0.0097	0.202			
10	27-Mar-18	0.0223	14.8	0.0106	0.275			
11	25-Jun-18	0.0055	15.1	0.0062	0.219			
12	20-Sep-18	0.0117	14.8	0.0081	0.286			
13	15-Nov-18	0.0122	15.9	0.01	0.239			
14	24-Jan-19	0.0205	15.8	0.0102	0.248			
15	4-Jun-19	0.0133	15.6	0.0055	0.263			
16	22-Aug-19	0.0103	15.9	0.0081	0.313			
17	31-Oct-19	0.0148	17.7	0.0124	0.266			
18	30-Jan-20	0.018	16.3	0.007	0.272			
19	15-May-20	0.0115		0.0051	0.277			
20	19-Aug-20	0.0113	16.5	0.005	0.244			
21	18-Nov-20	0.0141	16.7	0.0095	0.312			
22								
23								
24								
25								
Coefficient of Variation:		0.45	0.07	0.35	0.23			
Mann-Kendall Statistic (S):		28	94	-24	74			
Confidence Factor:		79.0%	>99.9%	75.4%	99.2%			
Concentration Trend:		No Trend	Increasing	Stable	Increasing			



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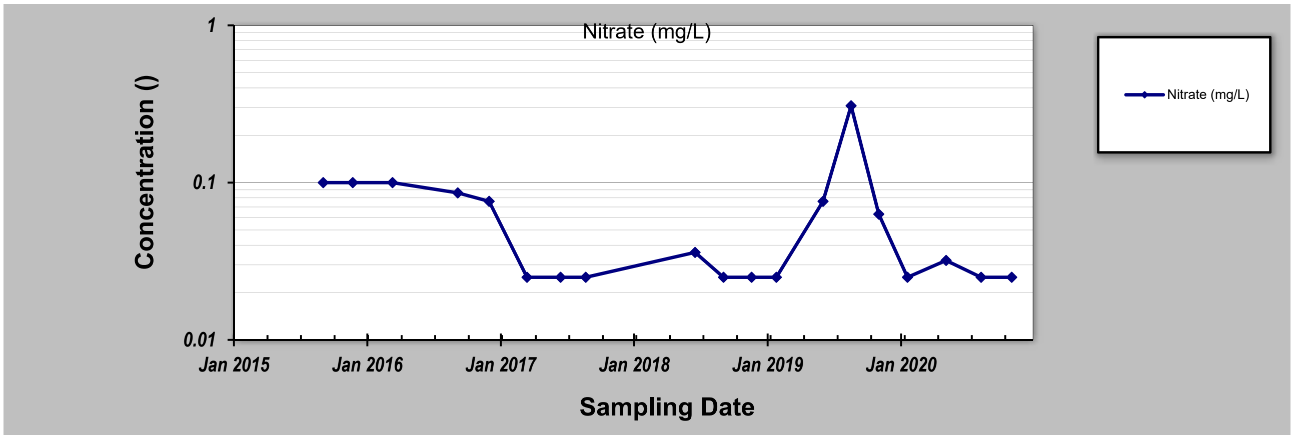
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - CMm
Conducted By: MBS
Job ID: 671557
Location CM_MW4-DP

Parameter (units) Nitrate (mg/L)

Sampling Event	Sampling Date	CM_MW4-DP CONCENTRATION						
1	3-Sep-15	0.1						
2	23-Nov-15	0.1						
3	11-Mar-16	0.1						
4	6-Sep-16	0.086						
5	1-Dec-16	0.076						
6	15-Mar-17	0.025						
7	15-Jun-17	0.025						
8	23-Aug-17	0.025						
9	19-Jun-18	0.036						
10	5-Sep-18	0.025						
11	21-Nov-18	0.025						
12	28-Jan-19	0.025						
13	5-Jun-19	0.076						
14	21-Aug-19	0.308						
15	5-Nov-19	0.063						
16	22-Jan-20	0.025						
17	7-May-20	0.032						
18	11-Aug-20	0.025						
19	3-Nov-20	0.025						
20								
Coefficient of Variation:		1.05						
Mann-Kendall Statistic (S):		-57						
Confidence Factor:		97.5%						
Concentration Trend:		Decreasing						



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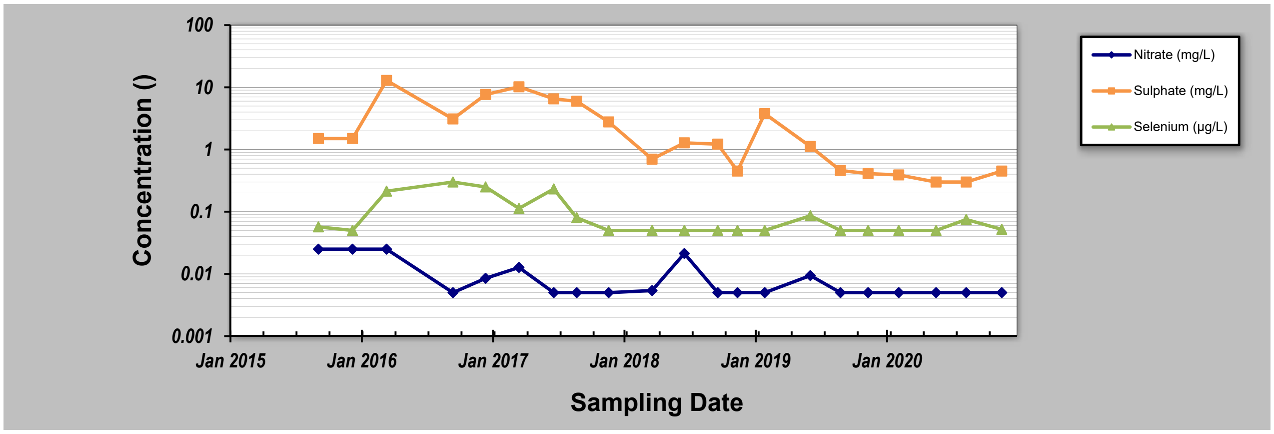
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - CMm
Conducted By: MBS
Job ID: 671557
Location: CM_MW5-DP

Sampling Event	Sampling Date	CM_MW5-DP CONCENTRATION						
Parameter (units)		Nitrate (mg/L)	Sulphate (mg/L)	Selenium (µg/L)				
1	3-Sep-15	0.025	1.5	0.057				
2	7-Dec-15	0.025	1.5	0.05				
3	11-Mar-16	0.025	12.9	0.214				
4	12-Sep-16	0.005	3.1	0.3				
5	12-Dec-16	0.0085	7.66	0.25				
6	15-Mar-17	0.0127	10.2	0.113				
7	20-Jun-17	0.005	6.53	0.232				
8	23-Aug-17	0.005	5.97	0.08				
9	20-Nov-17	0.005	2.78	0.05				
10	21-Mar-18	0.0054	0.7	0.05				
11	19-Jun-18	0.0213	1.28	0.05				
12	20-Sep-18	0.005	1.22	0.05				
13	14-Nov-18	0.005	0.45	0.05				
14	29-Jan-19	0.005	3.78	0.05				
15	5-Jun-19	0.0094	1.12	0.086				
16	28-Aug-19	0.005	0.46	0.05				
17	13-Nov-19	0.005	0.41	0.05				
18	6-Feb-20	0.005	0.39	0.05				
19	20-May-20	0.005	0.3	0.05				
20	12-Aug-20	0.005	0.3	0.075				
21	19-Nov-20	0.005	0.45	0.052				
22								
23								
24								
25								
Coefficient of Variation:		0.81	1.20	0.83				
Mann-Kendall Statistic (S):		-83	-135	-59				
Confidence Factor:		99.4%	>99.9%	96.0%				
Concentration Trend:		Decreasing	Decreasing	Decreasing				



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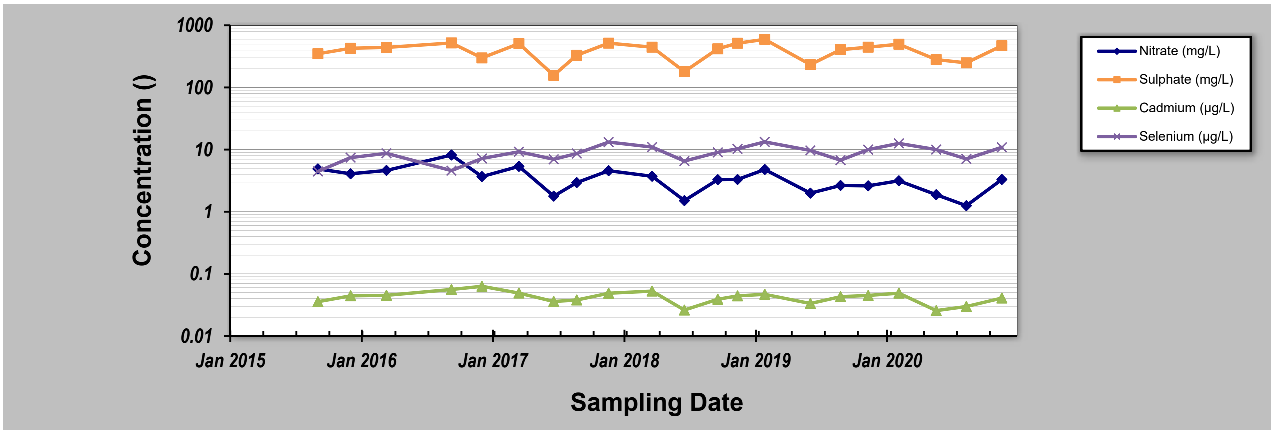
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - CMm
Conducted By: MBS
Job ID: 671557
Location CM_MW5-SH

Parameter (units) Nitrate (mg/L) | Sulphate (mg/L) | Cadmium (µg/L) | Selenium (µg/L)

Sampling Event	Sampling Date	CM_MW5-SH CONCENTRATION						
		Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)	Selenium (µg/L)			
1	2-Sep-15	4.89	349	0.0356	4.45			
2	2-Dec-15	4.08	428	0.0443	7.43			
3	11-Mar-16	4.62	441	0.0451	8.71			
4	8-Sep-16	8.18	521	0.056	4.59			
5	2-Dec-16	3.68	299	0.063	7.19			
6	15-Mar-17	5.37	508	0.049	9.22			
7	20-Jun-17	1.78	157	0.0359	6.99			
8	23-Aug-17	2.94	330	0.0379	8.65			
9	20-Nov-17	4.57	517	0.0487	13.2			
10	21-Mar-18	3.72	445	0.0527	11			
11	19-Jun-18	1.51	180	0.0261	6.55			
12	20-Sep-18	3.28	419	0.039	9.02			
13	14-Nov-18	3.3	516	0.0442	10.3			
14	29-Jan-19	4.78	595	0.0468	13.3			
15	5-Jun-19	1.99	233	0.0333	9.69			
16	28-Aug-19	2.65	406	0.0429	6.75			
17	13-Nov-19	2.61	445	0.0449	10			
18	6-Feb-20	3.15	497	0.0488	12.6			
19	20-May-20	1.88	281	0.0256	10			
20	12-Aug-20	1.25	249	0.0298	7.08			
21	19-Nov-20	3.31	470	0.0407	10.9			
22								
23								
24								
25								
Coefficient of Variation:		0.45	0.31	0.22	0.28			
Mann-Kendall Statistic (S):		-90	-1	-42	71			
Confidence Factor:		99.7%	50.0%	89.1%	98.4%			
Concentration Trend:		Decreasing	Stable	Stable	Increasing			



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
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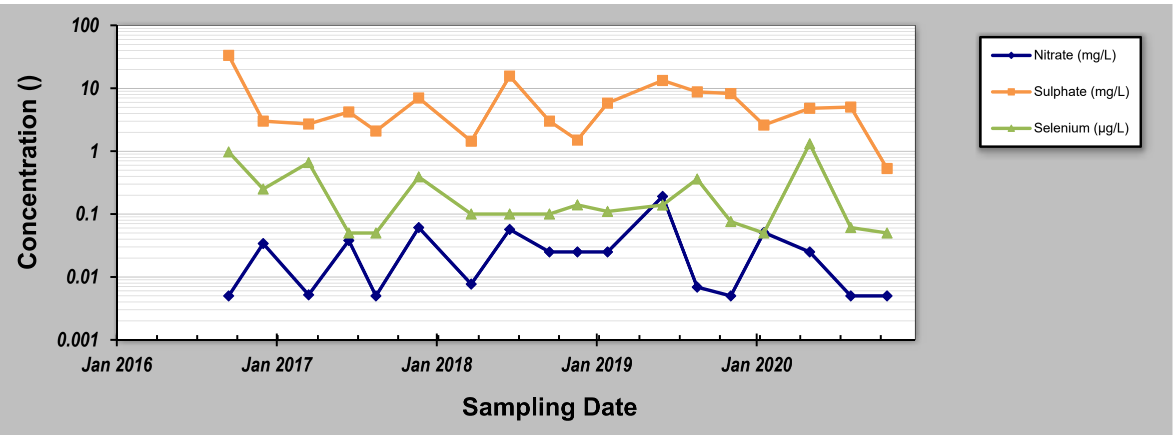
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - CMm
Conducted By: MBS
Job ID: 671557
Location CM_MW6-DP

	Parameter (units)	Nitrate (mg/L)	Sulphate (mg/L)	Selenium (µg/L)				
Sampling Event	**Sampling Date**	**CM_MW6-DP CONCENTRATION**						
1	13-Sep-16	0.005	33.3	0.97				
2	1-Dec-16	0.034	3	0.25				
3	15-Mar-17	0.0052	2.7	0.659				
4	15-Jun-17	0.038	4.2	0.05				
5	16-Aug-17	0.005	2.09	0.05				
6	22-Nov-17	0.061	7	0.39				
7	22-Mar-18	0.0077	1.44	0.1				
8	18-Jun-18	0.057	15.6	0.1				
9	17-Sep-18	0.025	3	0.1				
10	20-Nov-18	0.025	1.5	0.14				
11	28-Jan-19	0.025	5.8	0.11				
12	3-Jun-19	0.191	13.3	0.139				
13	21-Aug-19	0.0069	8.77	0.36				
14	6-Nov-19	0.005	8.22	0.076				
15	20-Jan-20	0.051	2.6	0.05				
16	4-May-20	0.025	4.8	1.31				
17	6-Aug-20	0.005	5.02	0.061				
18	28-Oct-20	0.005	0.53	0.05				
19								
20								
	Coefficient of Variation:	1.37	1.14	1.29				
	Mann-Kendall Statistic (S):	-13	-12	-34				
	Confidence Factor:	67.3%	66.0%	89.3%				
	Concentration Trend:	No Trend	No Trend	No Trend				



Notes:

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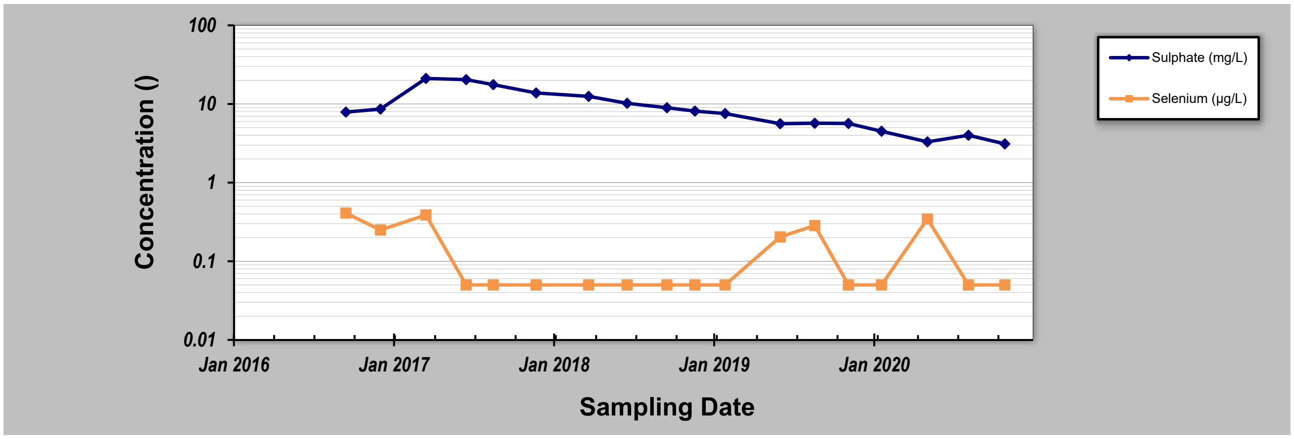
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - CMm
Conducted By: MBS
Job ID: 671557
Location CM_MW6-SH

	Parameter (units)	Sulphate (mg/L)	Selenium (µg/L)					
Sampling Event	Sampling Date	CM_MW6-SH CONCENTRATION						
1	13-Sep-16	7.89	0.41					
2	1-Dec-16	8.61	0.25					
3	15-Mar-17	21.1	0.388					
4	15-Jun-17	20.4	0.05					
5	16-Aug-17	17.6	0.05					
6	22-Nov-17	13.8	0.05					
7	22-Mar-18	12.5	0.05					
8	18-Jun-18	10.2	0.05					
9	17-Sep-18	8.96	0.05					
10	20-Nov-18	8.12	0.05					
11	28-Jan-19	7.56	0.05					
12	3-Jun-19	5.61	0.204					
13	21-Aug-19	5.69	0.284					
14	6-Nov-19	5.65	0.05					
15	20-Jan-20	4.5	0.05					
16	4-May-20	3.3	0.345					
17	6-Aug-20	4	0.05					
18	28-Oct-20	3.11	0.05					
19								
20								
Coefficient of Variation:		0.60	0.98					
Mann-Kendall Statistic (S):		-115	-23					
Confidence Factor:		>99.9%	79.5%					
Concentration Trend:		Decreasing	Stable					



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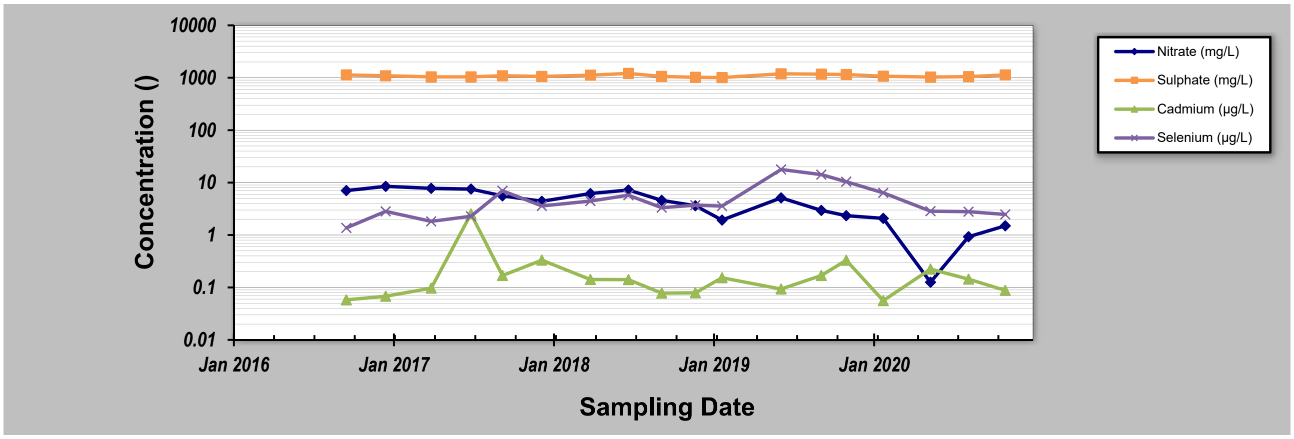
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - CMm
Conducted By: MBS
Job ID: 671557
Location CM_MW7-DP

	Parameter (units)	**Nitrate (mg/L)**	**Sulphate (mg/L)**	**Cadmium (µg/L)**	**Selenium (µg/L)**			
Sampling Event	**Sampling Date**	**CM_MW7-DP CONCENTRATION**						
1	14-Sep-16	7.05	1130	0.058	1.37			
2	13-Dec-16	8.48	1090	0.068	2.83			
3	27-Mar-17	7.77	1040	0.097	1.82			
4	26-Jun-17	7.53	1040	2.53	2.28			
5	6-Sep-17	5.59	1090	0.169	6.98			
6	5-Dec-17	4.4	1060	0.332	3.59			
7	26-Mar-18	6.18	1120	0.142	4.45			
8	21-Jun-18	7.22	1210	0.141	5.73			
9	5-Sep-18	4.58	1060	0.078	3.33			
10	21-Nov-18	3.62	1020	0.079	3.71			
11	21-Jan-19	1.93	1010	0.153	3.57			
12	5-Jun-19	5.11	1190	0.0933	17.8			
13	5-Sep-19	2.95	1170	0.169	14.2			
14	1-Nov-19	2.34	1150	0.33	10.4			
15	24-Jan-20	2.08	1070	0.056	6.38			
16	11-May-20	0.126	1030	0.224	2.85			
17	6-Aug-20	0.928	1050	0.144	2.79			
18	29-Oct-20	1.5	1130	0.088	2.47			
19								
20								
	Coefficient of Variation:	0.59	0.06	2.07	0.84			
	Mann-Kendall Statistic (S):	-113	-3	10	29			
	Confidence Factor:	>99.9%	53.0%	63.2%	85.3%			
	Concentration Trend:	Decreasing	Stable	No Trend	No Trend			



Notes:

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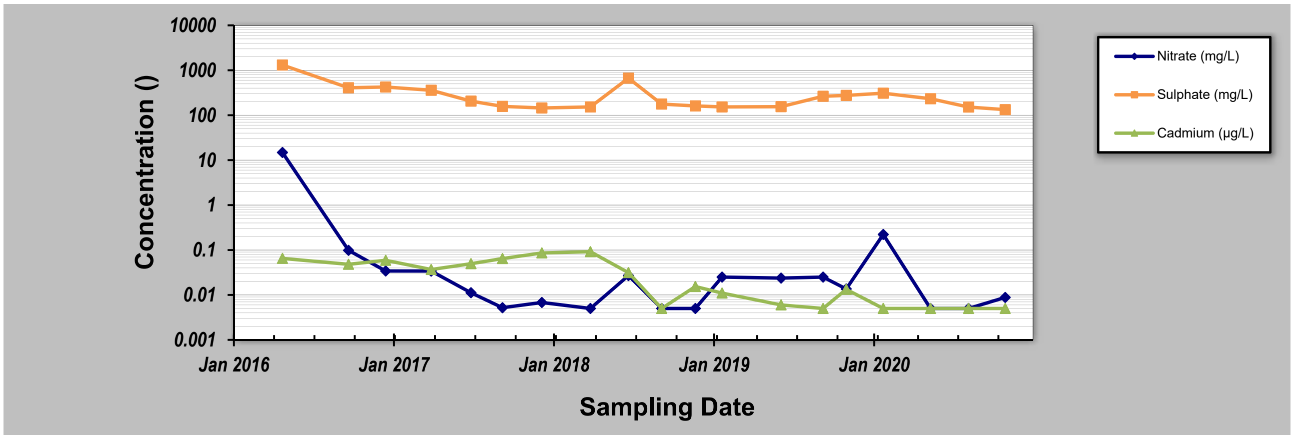
GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - CMm
Conducted By: MBS
Job ID: 671557
Location CM_MW7-SH

Parameter (units) Nitrate (mg/L) | Sulphate (mg/L) | Cadmium (µg/L)

Sampling Event	Sampling Date	CM_MW7-SH CONCENTRATION						
		Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)				
1	21-Apr-16	14.8	1310	0.065				
2	19-Sep-16	0.0984	408	0.048				
3	13-Dec-16	0.0341	424	0.059				
4	27-Mar-17	0.034	359	0.0368				
5	26-Jun-17	0.0112	206	0.0496				
6	6-Sep-17	0.0052	157	0.0645				
7	5-Dec-17	0.0068	145	0.086				
8	26-Mar-18	0.005	153	0.0917				
9	21-Jun-18	0.027	667	0.0314				
10	5-Sep-18	0.005	177	0.005				
11	21-Nov-18	0.005	161	0.0154				
12	21-Jan-19	0.025	153	0.011				
13	5-Jun-19	0.0237	155	0.006				
14	9-Sep-19	0.025	264	0.005				
15	1-Nov-19	0.0136	276	0.0133				
16	24-Jan-20	0.222	309	0.005				
17	11-May-20	0.005	233	0.005				
18	6-Aug-20	0.005	152	0.005				
19	29-Oct-20	0.0088	133	0.005				
20								
Coefficient of Variation:		4.19	0.90	0.93				
Mann-Kendall Statistic (S):		-58	-60	-102				
Confidence Factor:		97.7%	98.1%	>99.9%				
Concentration Trend:		Decreasing	Decreasing	Decreasing				



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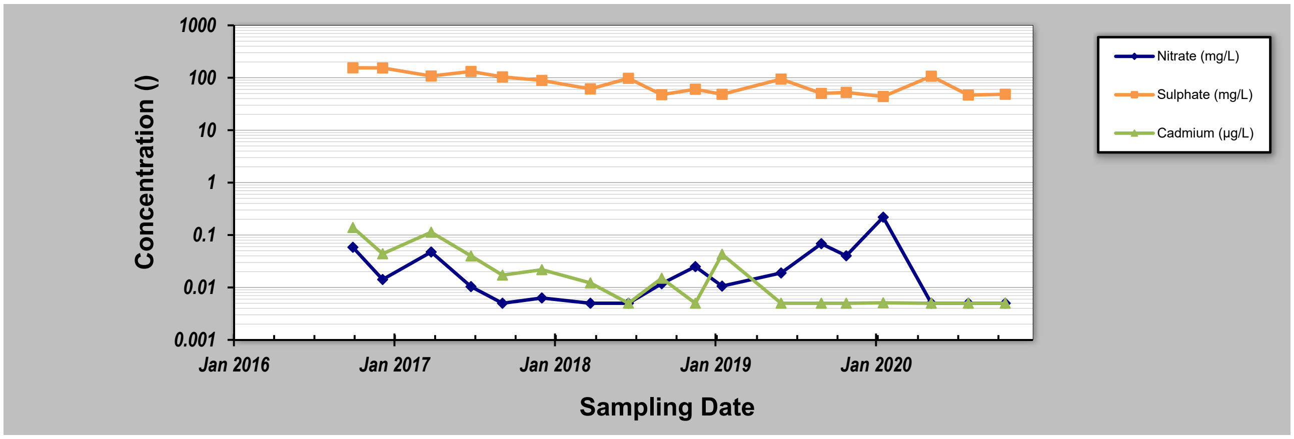
GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: 09-Feb-21
Facility Name: Teck Coal Regional Groundwater - CMm
Conducted By: MBS
Job ID: 671557
Location CM_MW8

Sampling Event	Sampling Date	CM_MW8 CONCENTRATION						
Parameter (units)		Nitrate (mg/L)	Sulphate (mg/L)	Cadmium (µg/L)				
1	29-Sep-16	0.0584	155	0.139				
2	6-Dec-16	0.0142	154	0.0439				
3	27-Mar-17	0.0475	108	0.113				
4	26-Jun-17	0.0104	132	0.04				
5	6-Sep-17	0.005	104	0.0172				
6	5-Dec-17	0.0063	89	0.0218				
7	26-Mar-18	0.005	61.2	0.0122				
8	21-Jun-18	0.005	97.6	0.005				
9	5-Sep-18	0.0118	47.6	0.015				
10	21-Nov-18	0.025	60.4	0.005				
11	21-Jan-19	0.0106	48.4	0.0428				
12	5-Jun-19	0.0189	94.3	0.005				
13	5-Sep-19	0.0684	50.2	0.005				
14	1-Nov-19	0.0402	52.5	0.005				
15	24-Jan-20	0.219	43.9	0.0051				
16	13-May-20	0.005	107	0.005				
17	6-Aug-20	0.005	46.9	0.005				
18	29-Oct-20	0.005	48.5	0.005				
19								
20								
Coefficient of Variation:		1.64	0.45	1.42				
Mann-Kendall Statistic (S):		-12	-91	-93				
Confidence Factor:		66.0%	>99.9%	>99.9%				
Concentration Trend:		No Trend	Decreasing	Decreasing				



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