Community Flow Monitoring Network

Vancouver Island

SPRING 2025 Network Meeting

April 24, 2025

10:00 AM - 12:00 PM

Via Zoom

Project funding and support provided by:

British Columbia Ministry of Environment and Parks

Pacific Salmon Foundation

Regional District of Nanaimo

BC Conservation & Biodiversity Awards

The McLean Foundation

British Columbia Community Gaming Grants

the partnership for water sustainability in bc

Meeting Agenda

- **Spring 2025**
  - New Equipment
  - Monitoring Schedule
  - Site visits & Rating shifts

- **Participant survey - recap & results**

- **Data to Action Spotlight**

- **Discussion**

- **Sarah Hardy, BC Ministry of Environment and Parks**
  - Aquarius WebPortal and Expanded Rating Tables

5-10 minute break (~ 11:10)

- **Guest Presentation:**

Colin Middleton, Environmental Flows Biologist, BC Ministry of Water, Land and Resource Stewardship

- Critical Environmental Flow Threshold methodology.

Spring 2025…

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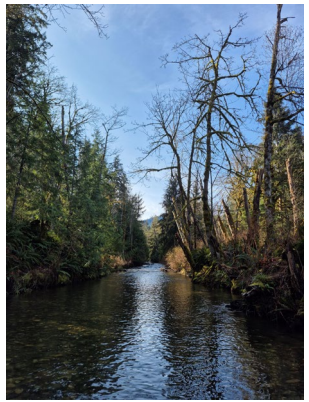

Spring 2025…

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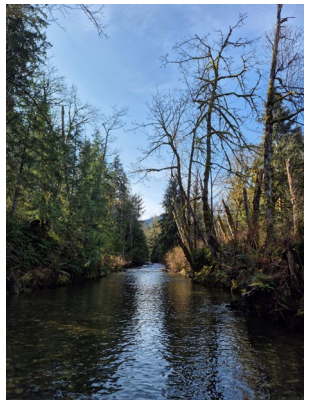
New Equipment





New Equipment

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FlowTracker2

Direct Read Cables

With funding provided by:

the partnership for water sustainability in bc

New Equipment

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FlowTracker2

Direct Read Cables

Vancouver Island
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Annual Field Work Schedule
(General)

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Winter

January – early March:

- Winter *high* flow measurement – FT2*
  stage + discharge
- Logger downloads

**only if safe to enter stream; ADCP measurements can be conducted with assistance from Province for larger streams and rivers*

Spring

Late March – June:

- Spring *moderate* flow measurement – FT2
  stage + discharge
- Station maintenance
  - clean debris inside logger pipe
  - note any other maintenance to be done during low flow
- Logger downloads
- Level Survey

+ extra measurements

Summer

Late June/July:

- *Low* flow measurement – FT2 or bucketfill
  stage + discharge
- Station maintenance
  - clean logger pipe
  - re-secure logger housing, staff gauge
  - replace equipment where necessary

July/August:

- *Low* flow measurement – FT2 or bucketfill
  stage + discharge
- Logger downloads

Fall

September/October:

- Fall *moderate* flow measurement - FT
  stage + discharge
- Level Survey

November/December:

- Fall *high* flow measurement – FT2*
  stage + discharge
- Logger downloads

**only if safe to enter stream*

Site Visits

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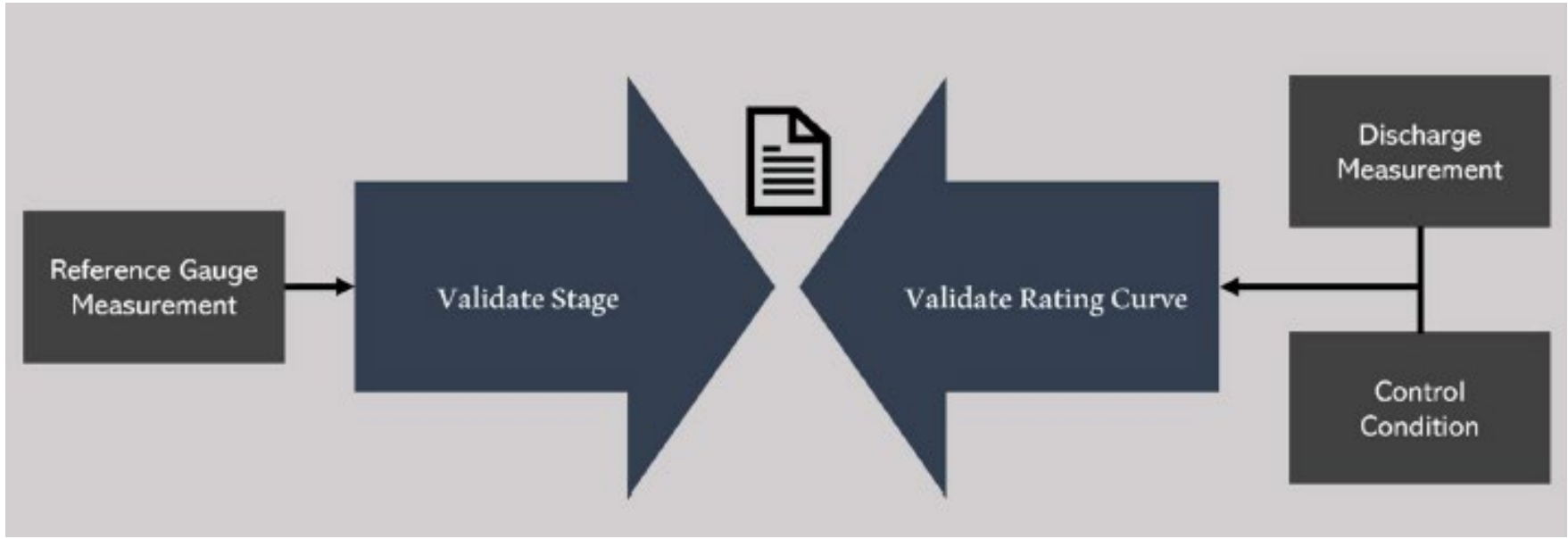

Figure from Introduction to Data Review presentation *by Jon Jeffery*

Order of Operations

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1. Arrive on site, take a picture of the control.

2. Obtain a reference staff gauge reading

3. Conduct a discharge measurement – **check against rating curve**

4. Clear control, if obviously backwatered.
   - *Field notes should clearly indicate when the control was cleaned and when activity stopped. Alternatively, leave it as is.*

5. Once the control has been cleared, download the data

6. Take a second control picture

7. Obtain a final reference staff gauge reading

Rating Shift

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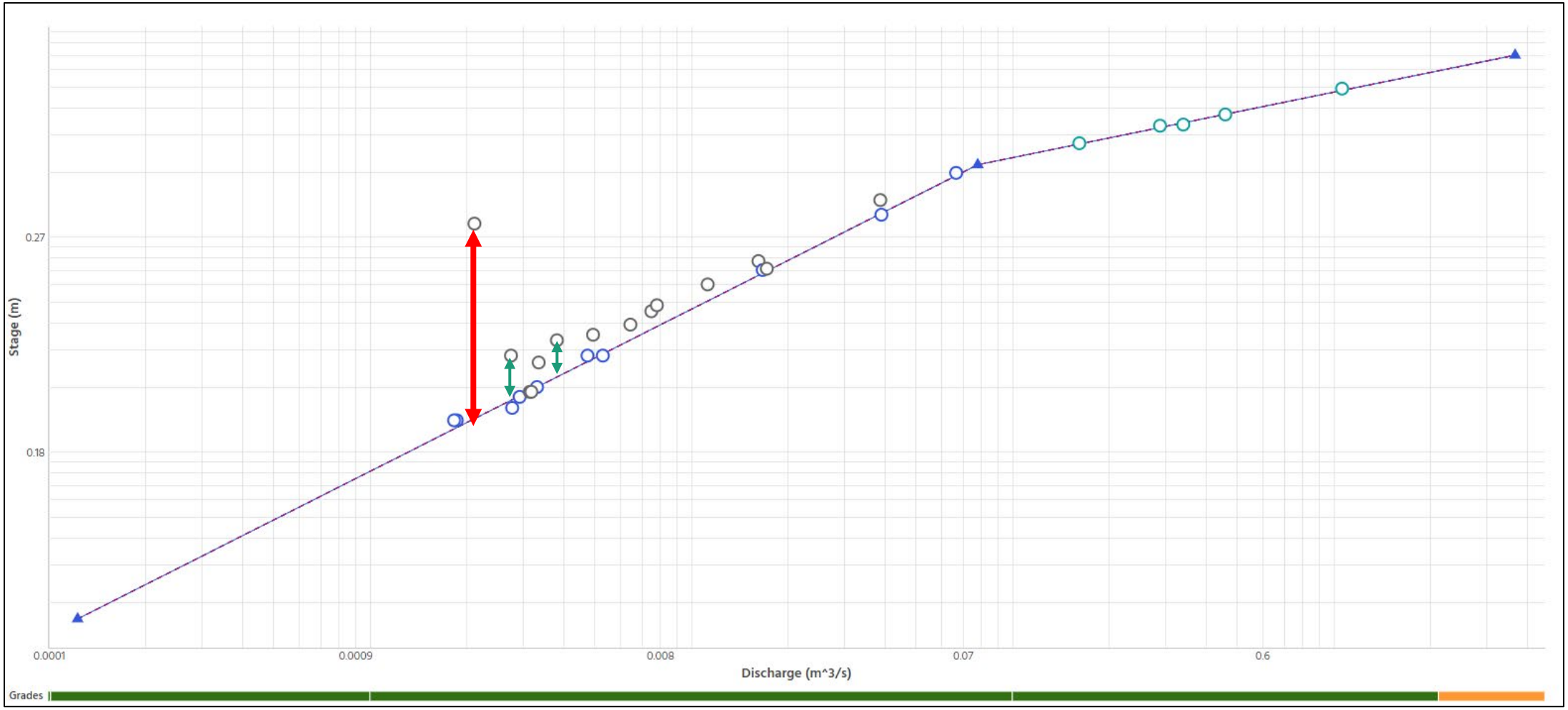

Rating Shift

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Table 1-1: Standards requirement criteria (Contd.)

Data Quality Indicator	Standard Grade for Discharge Data					
	Grade A/RS	**Grade A**	**Grade B**	**Grade C**	**Grade E** (Estimated)	**Grade U** (Unknown data quality)
Number of benchmark elevation and ref. gauge elevation level checks per year	2 or more, or at least once when ref. gauge and the benchmarks have been documented to be stable	2 or more, or at least once when ref. gauge and the benchmarks have been documented to be stable	2 or more, or at least once when ref. gauge and the benchmarks have been documented to be stable	1 or more	See Notes below	Undefined
Data Calculation and Assessment						
Discharge rating accuracy /Rating curve shift deviation threshold	<5%	<7%	<15%	<25%	See Notes below	Undefined
Data and calculation reviewed for anomalies	Yes	Yes	Yes	Yes	See Notes below	Undefined

- RISC C = 15-25% rating shift
- If greater than 25% - **need to redo ASAP**
  - Can determine if rating curve still valid

Handouts

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- **Station info**
  - ➢ **Map, BMs, Transect spots, etc.**
- **Rating tables**
- **Order of operations checklist**
- **Station summary documents**

reated: 2024-10-23 09:22:03 UTC-08:00
reated by: SHARDY
pdated: 2024-11-26 13:34:57 UTC-08:00
pdated by: SHARDY
emarks: Rating curve from July 2022 onwards after integration into FLOMO network and datum establishment.

Offsets and Breakpoints

set1: 8.5700

Expanded Rating Table: 3.00

Stage (m)	Discharge (m^3/s)										Difference in Discharge per 0.01 m
	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009	
8.63			0.0194	0.0202	0.0211	0.0219	0.0228	0.0236	0.0246	0.0255	
8.64	0.0264	0.0274	0.0284	0.0294	0.0304	0.0315	0.0326	0.0336	0.0348	0.0359	0.0106
8.65	0.0371	0.0383	0.0395	0.0407	0.042	0.0432	0.0445	0.0459	0.0472	0.0486	0.0129
8.66	0.05	0.0514	0.0528	0.0543	0.0558	0.0573	0.0589	0.0604	0.062	0.0636	0.0153
								0.0775	0.0793	0.0812	0.0178
								0.0972	0.0993	0.101	0.0205
								0.12	0.122	0.124	0.0233
								0.145	0.148	0.15	0.0262
								0.173	0.176	0.179	0.0293
								0.205	0.208	0.211	0.0324
								0.239	0.243	0.247	0.0357
								0.278	0.282	0.286	0.0391
								0.319	0.323	0.328	0.0425

Page 1/2

HYDROMETRIC STATION DESCRIPTION

Station #:	08HB0012	**Operating Period:**	low-flow
Station Name:	Tsolum River @ McNaughton		
Date Established:	2012-09-13		
Operating Agency:	TRRS	**Contact:**	TRRS
Technician:	H. Murray, N. Weins, K. Gair	**Region:**	Courtenay
Latitude (dec.):		**Longitude (dec.):**	
Telemetry (Y/N):	N	**Telemetry Type:**	
Window	**Channel**	**NESDIS ID:**	
Period	**First**	**Rate**	

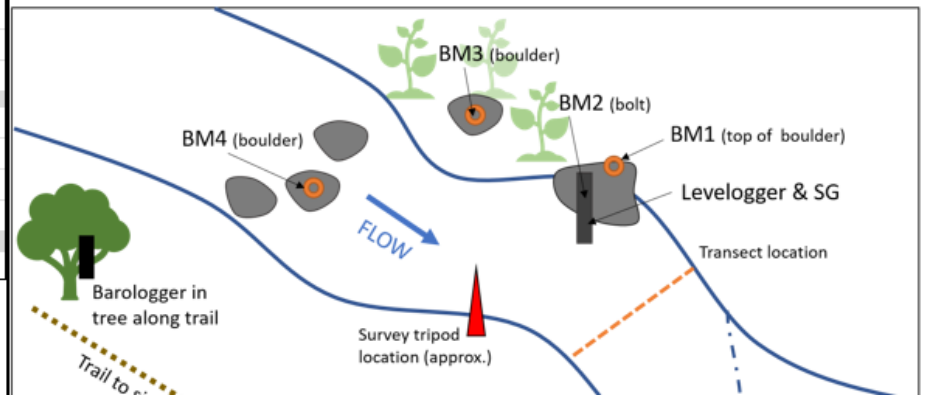
Station Description and Purpose:

Monitoring stage-discharge for Tsolum River which supports a diversity of fish species while also providing critical water for agricultural irrigation. TRRS has specific conservation goals related to the long-term monitoring at this site, including comparison with the Water Survey of Canada gauge (Tsolum River near Courtenay) and releases from Wolf Lake.

Page 2/2

HYDROMETRIC SITE SKETCHES

Site Map of benchmarks and surrounding features:



Surveys

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Surveys

Community Flow Monitoring Network

Vancouver Island

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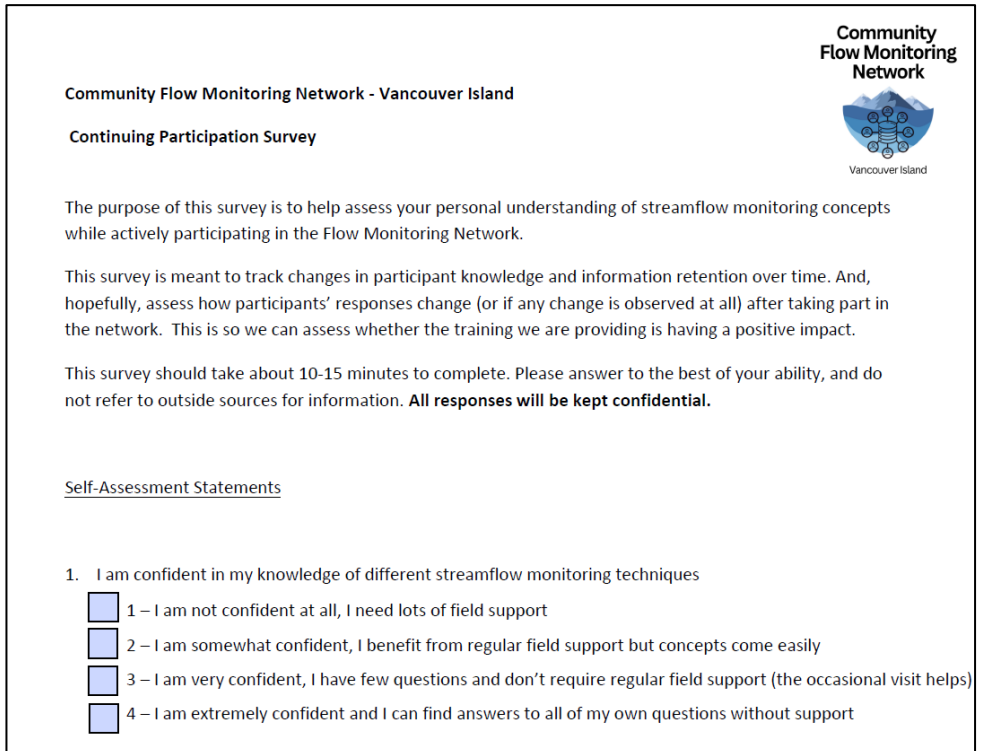
Two surveys distributed to volunteers each year of project (2023, 2024, 2025)

Technical Knowledge Tracking



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Community Flow Monitoring Network - Vancouver Island

Continuing Participation Survey

The purpose of this survey is to help assess your personal understanding of streamflow monitoring concepts while actively participating in the Flow Monitoring Network.

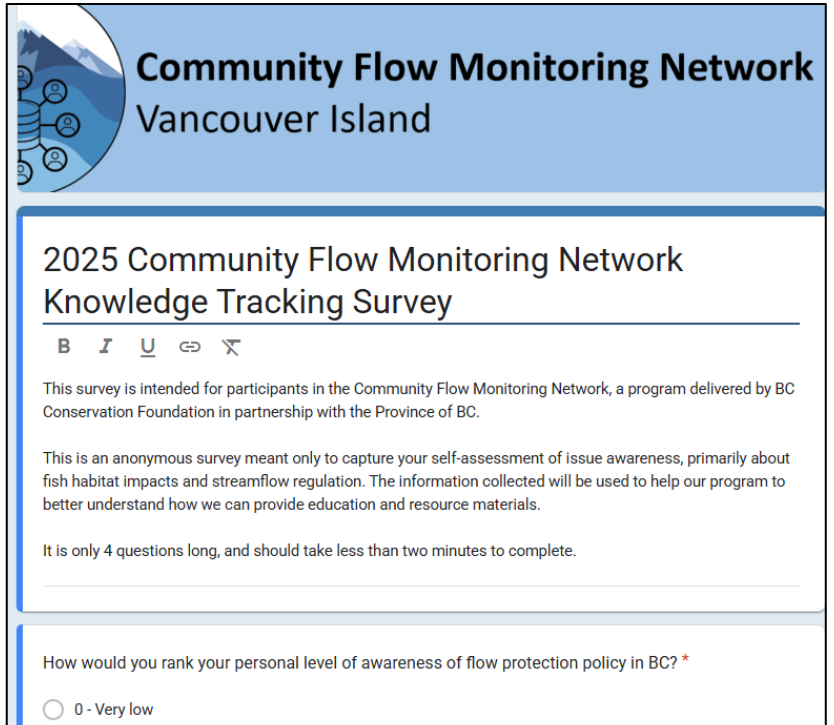
This survey is meant to track changes in participant knowledge and information retention over time. And, hopefully, assess how participants' responses change (or if any change is observed at all) after taking part in the network. This is so we can assess whether the training we are providing is having a positive impact.

This survey should take about 10-15 minutes to complete. Please answer to the best of your ability, and do not refer to outside sources for information. **All responses will be kept confidential.**

Self-Assessment Statements

1. I am confident in my knowledge of different streamflow monitoring techniques
   - ☐ 1 – I am not confident at all, I need lots of field support
   - ☐ 2 – I am somewhat confident, I benefit from regular field support but concepts come easily
   - ☐ 3 – I am very confident, I have few questions and don't require regular field support (the occasional visit helps)
   - ☐ 4 – I am extremely confident and I can find answers to all of my own questions without support

Flow Protection Policy Self-Assessment



Community Flow Monitoring Network

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2025 Community Flow Monitoring Network Knowledge Tracking Survey

B I U

This survey is intended for participants in the Community Flow Monitoring Network, a program delivered by BC Conservation Foundation in partnership with the Province of BC.

This is an anonymous survey meant only to capture your self-assessment of issue awareness, primarily about fish habitat impacts and streamflow regulation. The information collected will be used to help our program to better understand how we can provide education and resource materials.

It is only 4 questions long, and should take less than two minutes to complete.

How would you rank your personal level of awareness of flow protection policy in BC? *

- ○ 0 - Very low

Surveys

Community Flow Monitoring Network

Vancouver Island

BRITISH COLUMBIA CONSERVATION FOUNDATION

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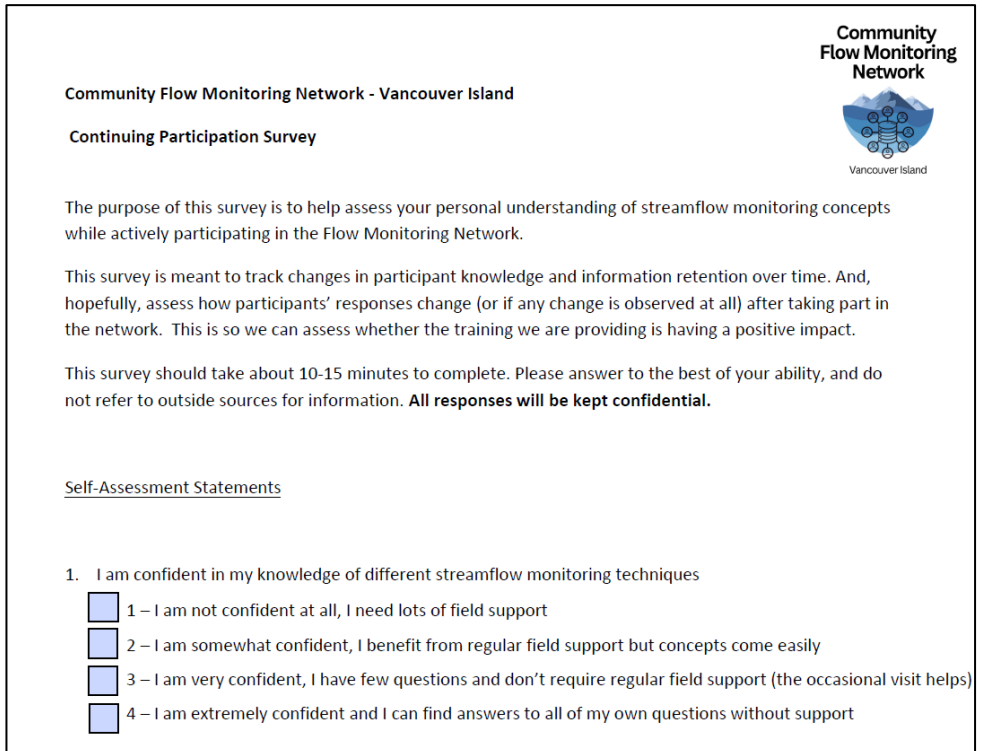

Community Flow Monitoring Network

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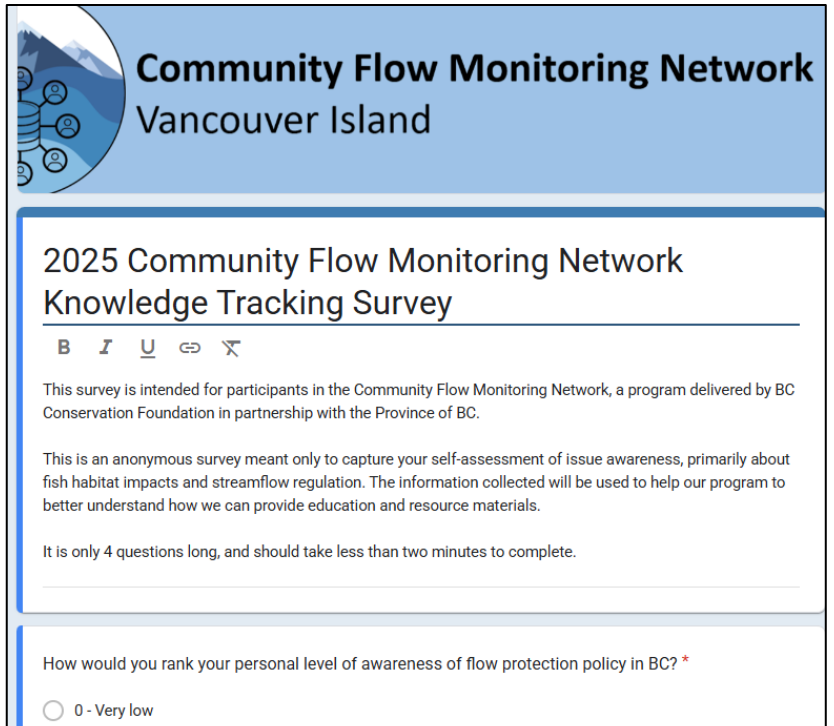
Flow Protection Policy Self-Assessment



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Technical Knowledge Tracking Survey

Community Flow Monitoring Network

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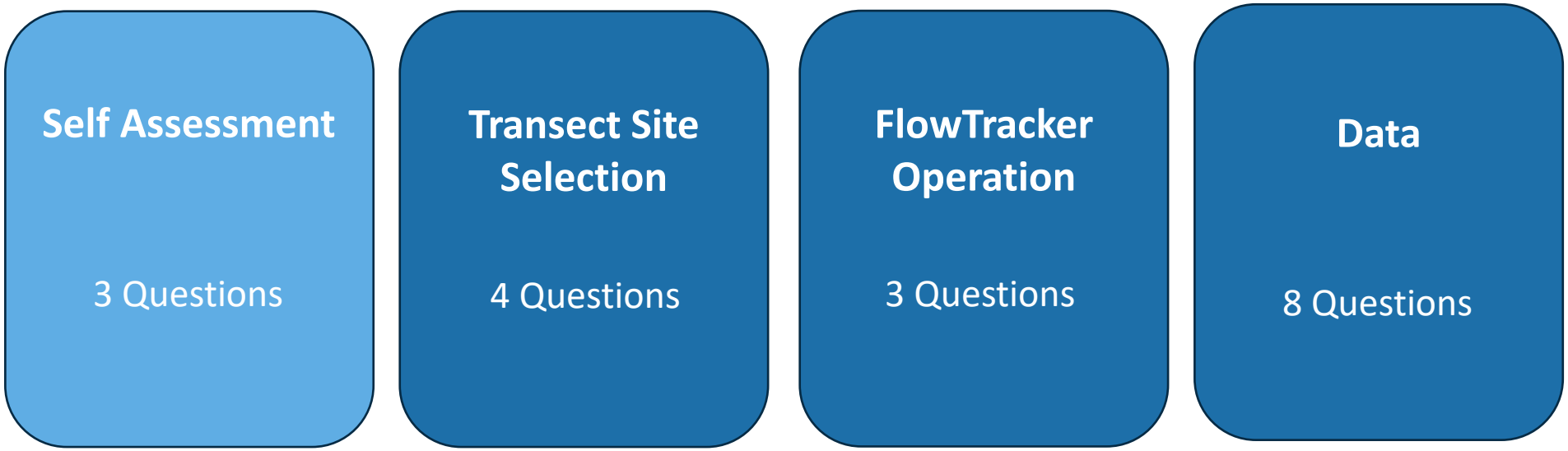
Arranged into 4 parts:



Technical Knowledge Tracking Survey

Community Flow Monitoring Network

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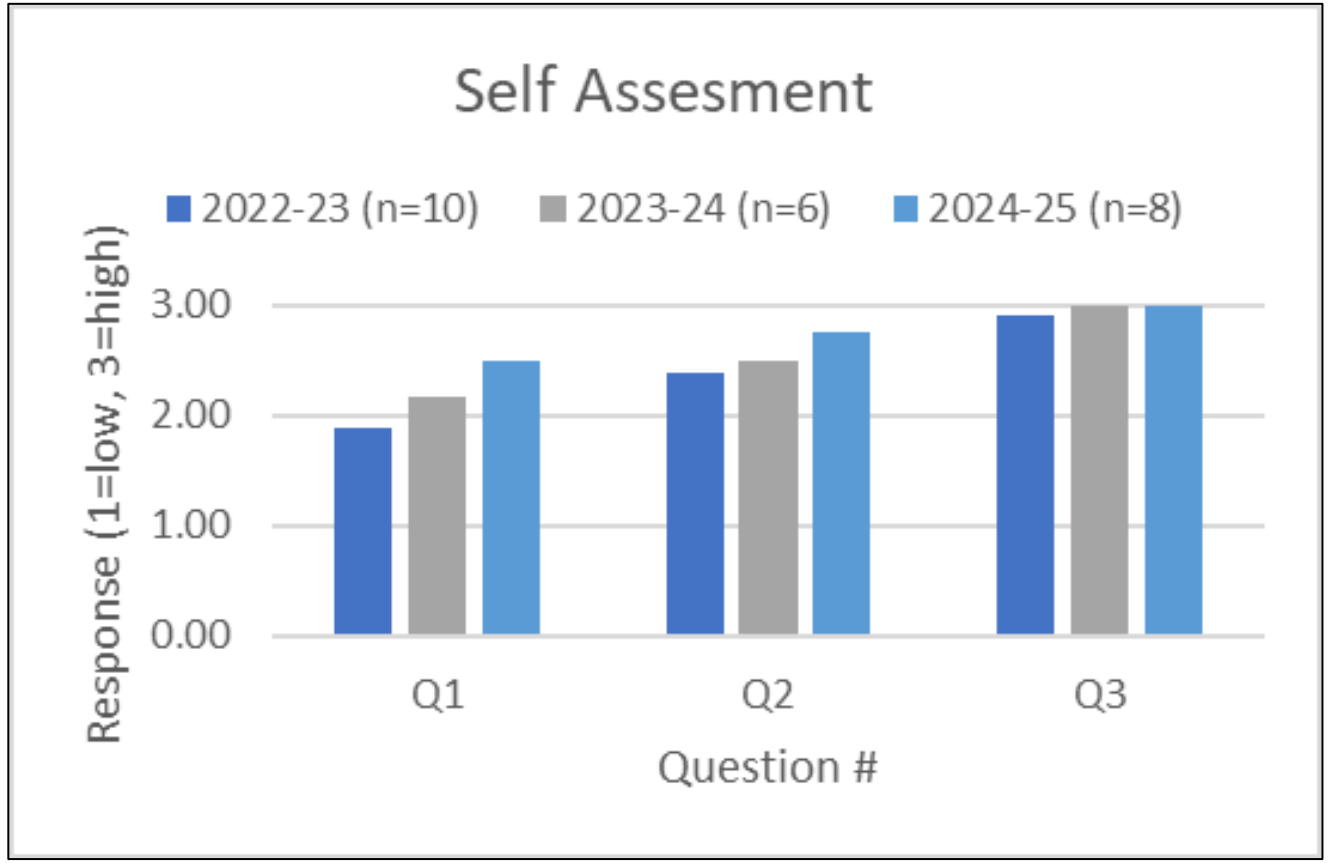
Results:

Self Assessment Questions:

1. I am confident in my knowledge of different streamflow monitoring techniques

2. I feel a sense of community around the act of streamflow monitoring

3. I enjoy monitoring streamflow in my community



Technical Knowledge Tracking Survey

Community Flow Monitoring Network

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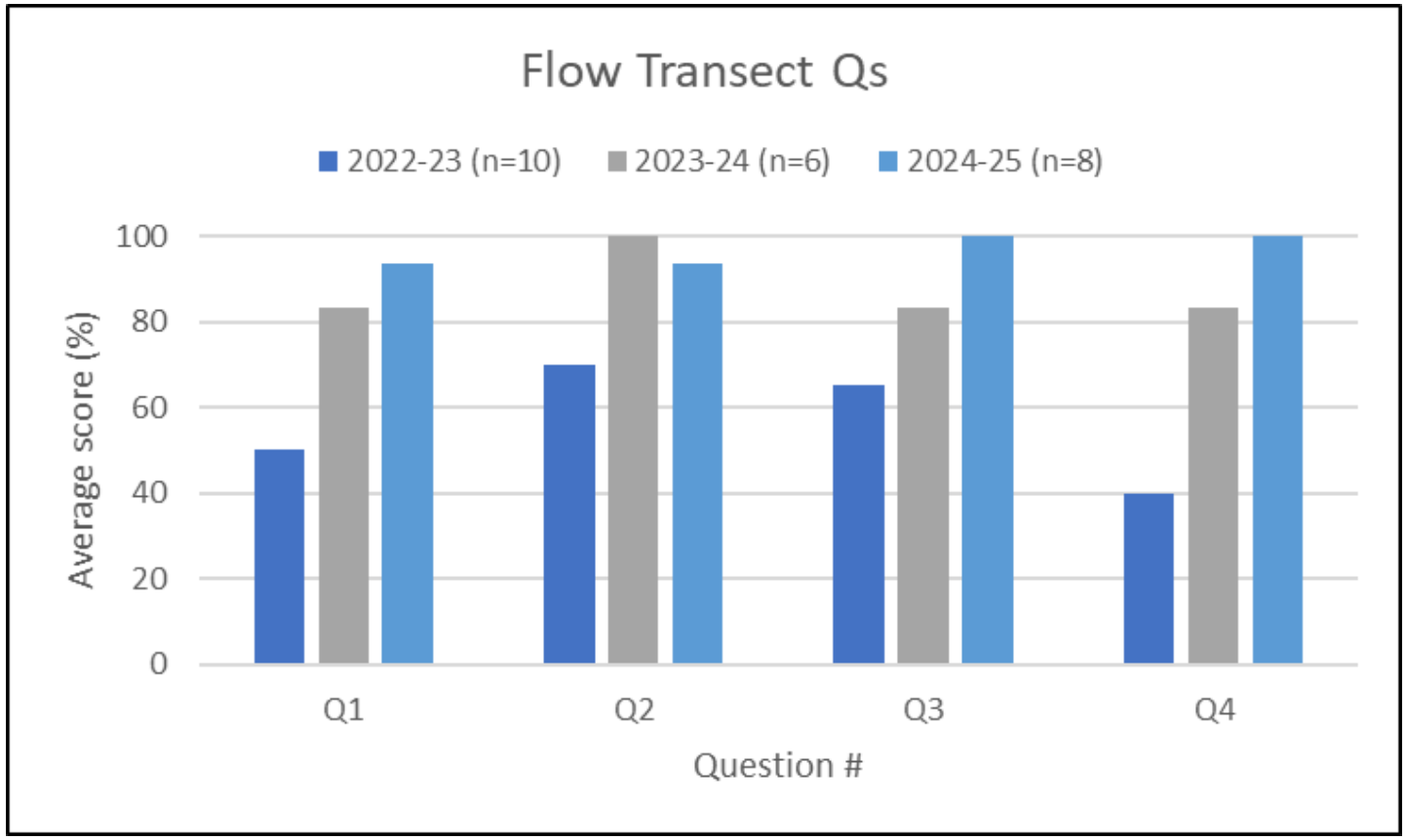
Results:



Technical Knowledge Tracking Survey

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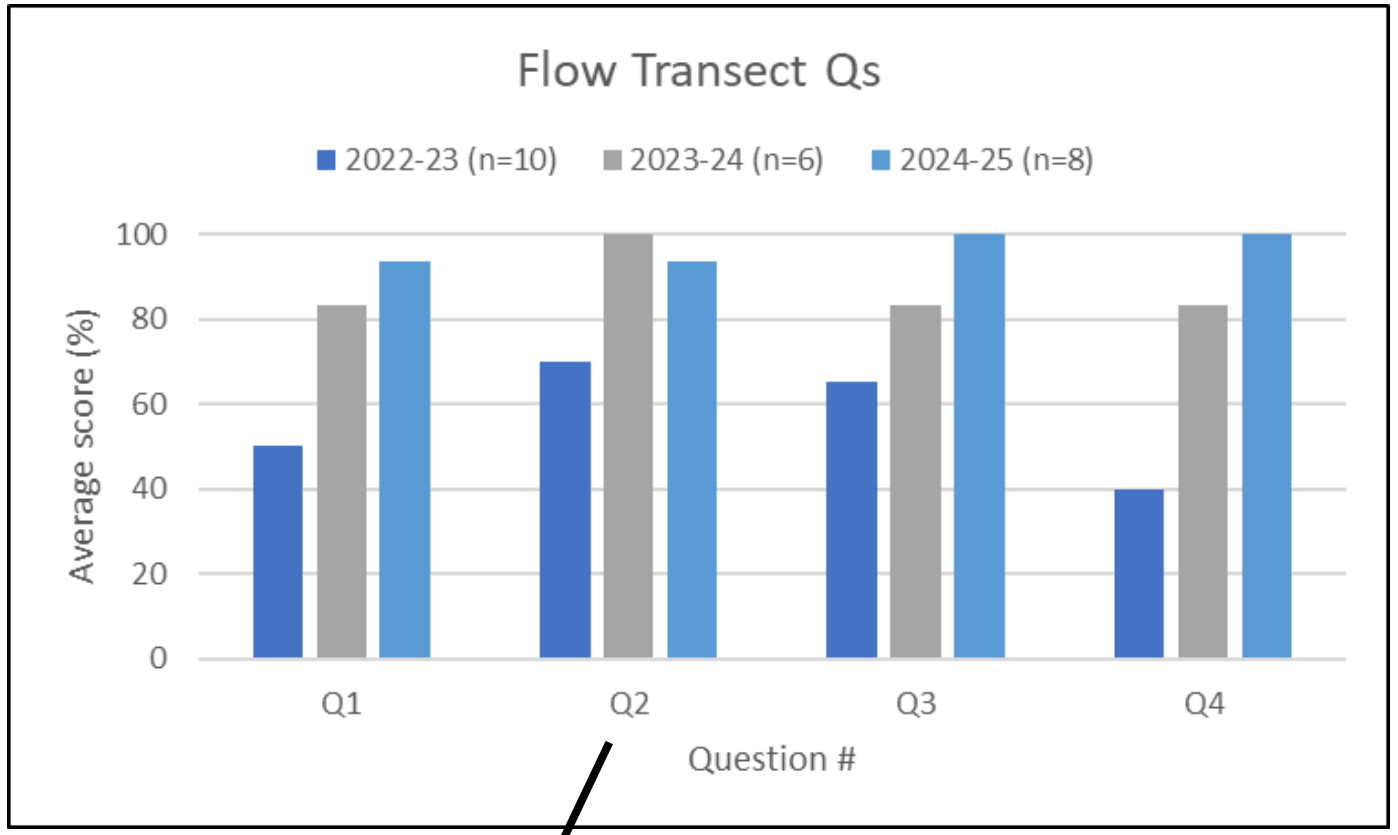
Results:



Q2. "What is one issue that is commonly encountered when selecting a **transect site"**

Technical Knowledge Tracking Survey

Community Flow Monitoring Network

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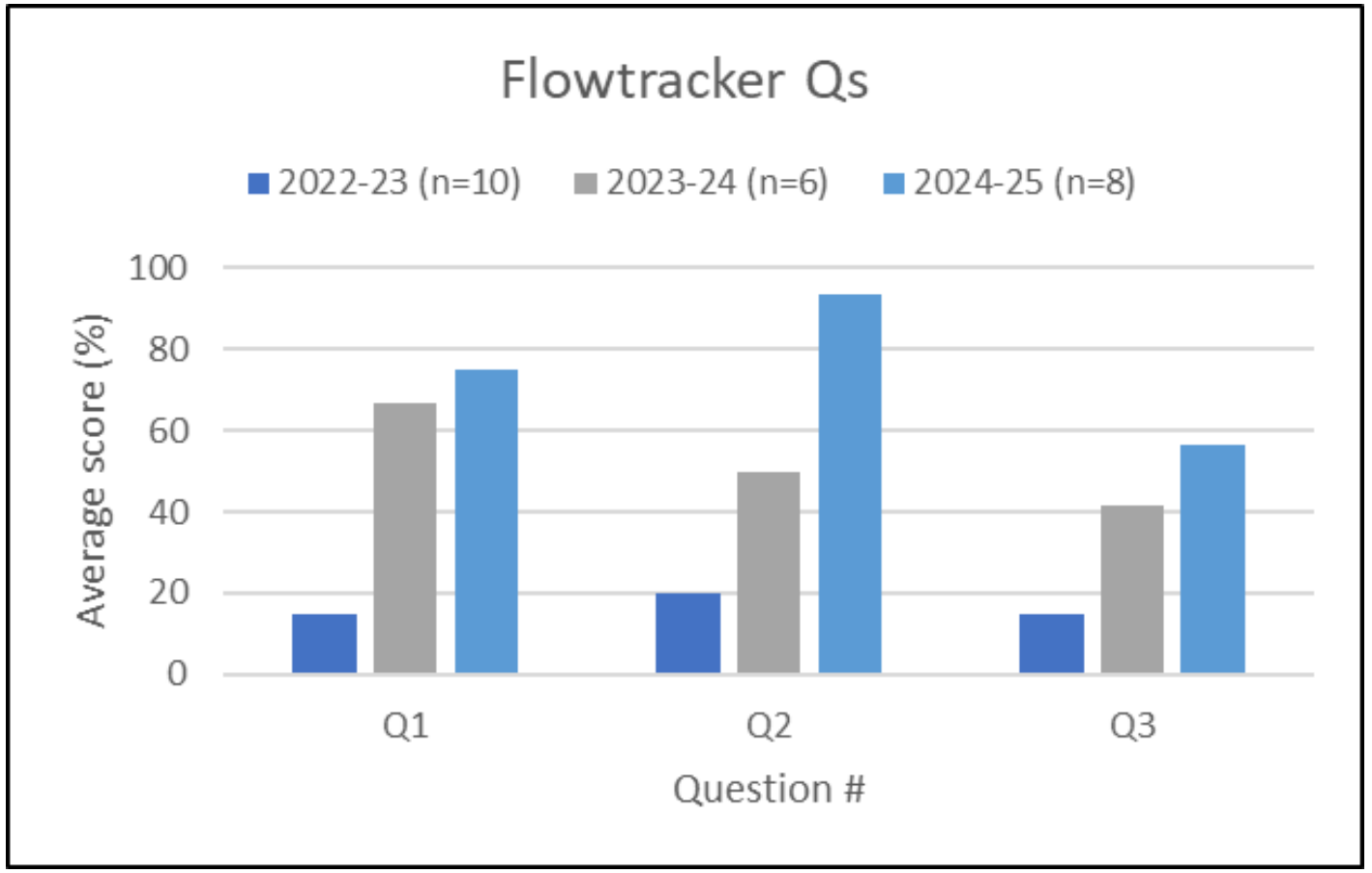
Results:



Technical Knowledge Tracking Survey

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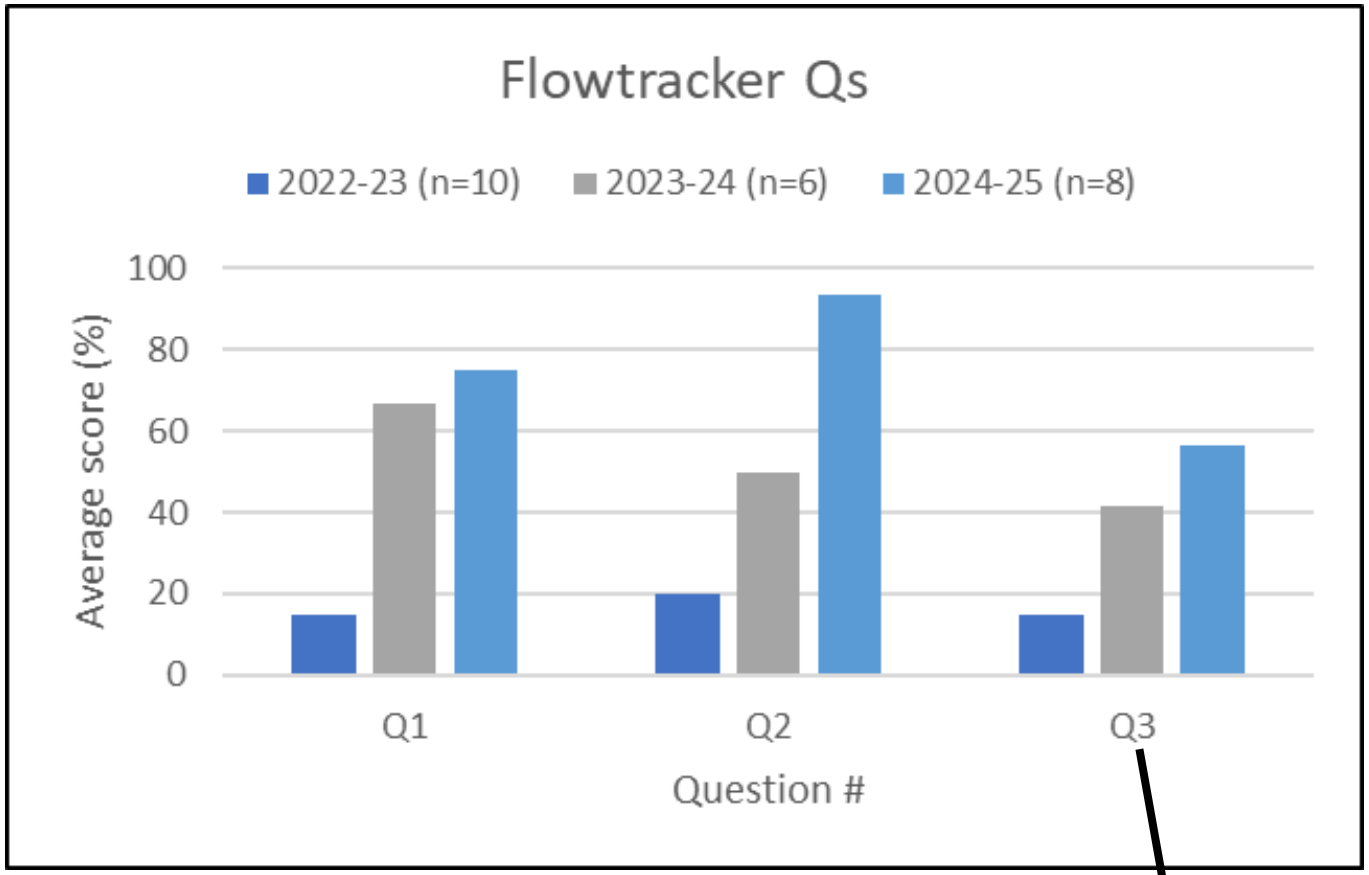
Results:



Q3. “What can you do in the event of a **low SNR** warning?”

Technical Knowledge Tracking Survey

Community Flow Monitoring Network

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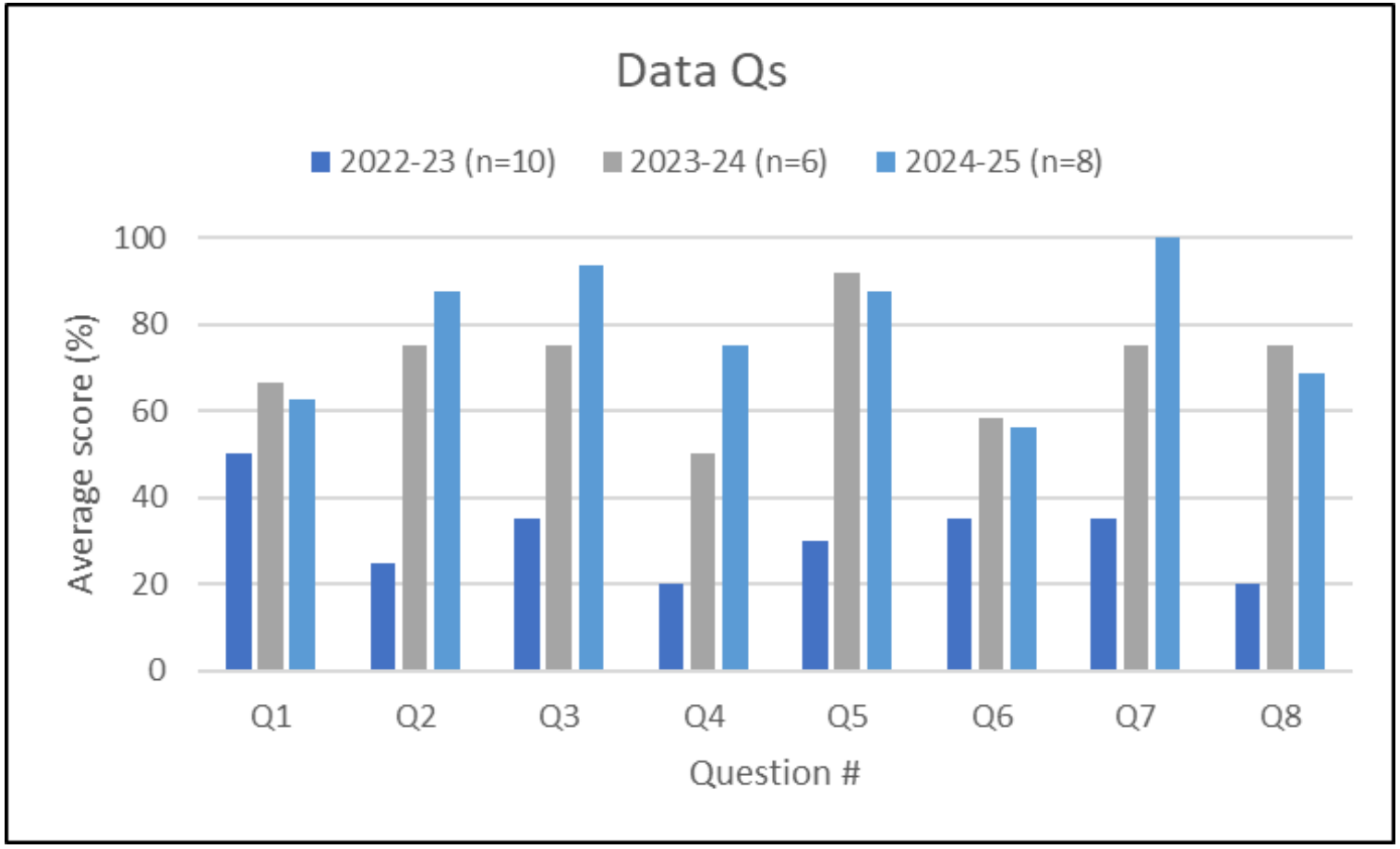
BRITISH COLUMBIA CONSERVATION FOUNDATION

Results



Technical Knowledge Tracking Survey

Community Flow Monitoring Network

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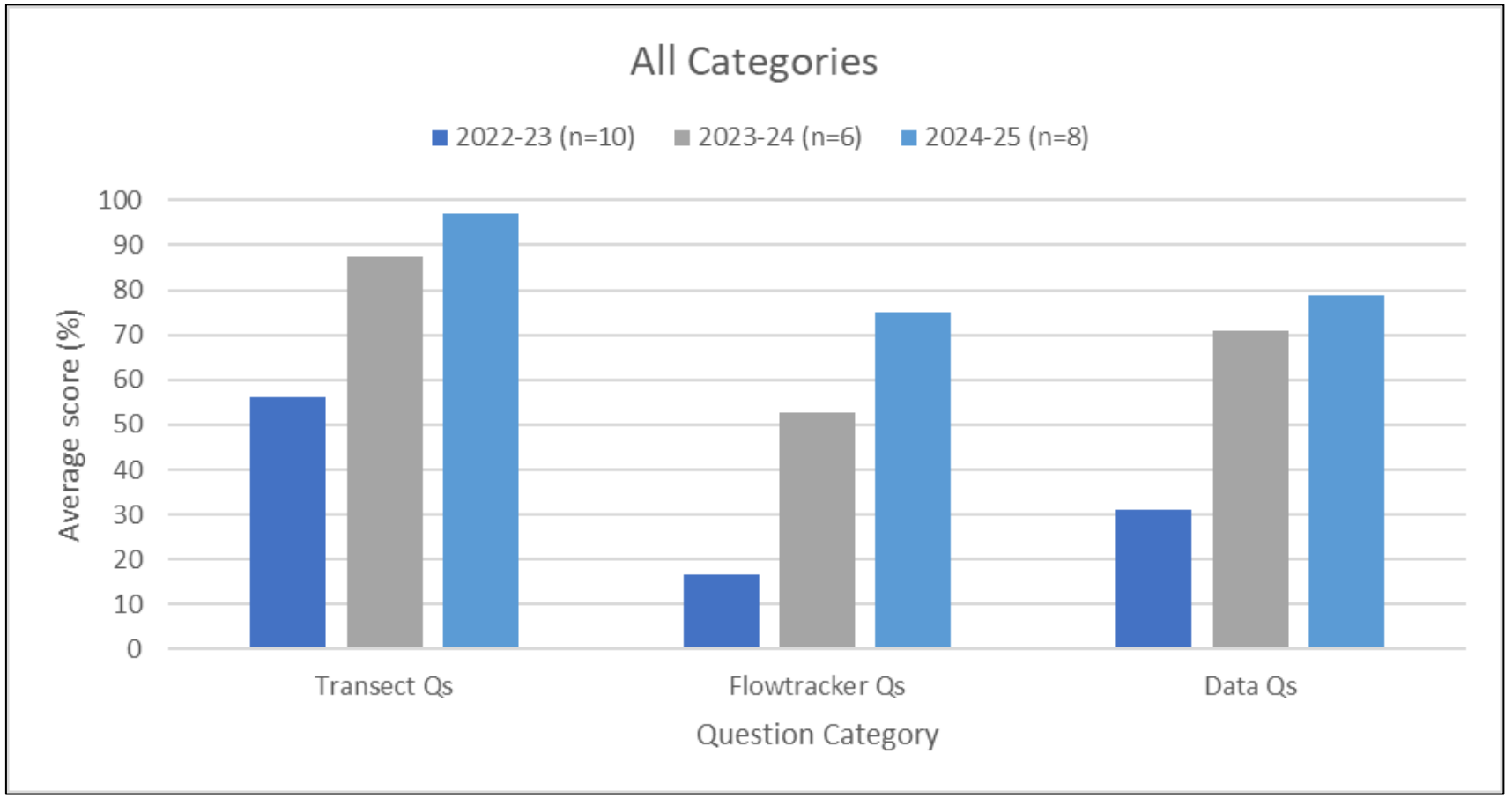
BRITISH COLUMBIA CONSERVATION FOUNDATION

Results



Data-to-Action Spotlight

Data-to-Action Spotlight

- **Beach Creek** - flow data shared with Town of Qualicum Beach for culvert replacement project
- **Departure Creek** – flow data shared with City of Nanaimo for catchment study and drainage modelling of watershed
- **Morrison Creek** – flow data shared with DFO for fish passage study through culvert

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Thoughts?

Comments?

Questions?

Other data-to-action success stories or exciting projects planned ?

Photo by Hayati Kayhan

Photo by barfblog.com

New info that has changed or reaffirmed your monitoring goals?

Community Flow Monitoring Network

Vancouver Island

5 Minute Break

Project funding and support provided by:

BRITISH COLUMBIA Ministry of Environment and Parks

PACIFIC SALMON FOUNDATION

REGIONAL DISTRICT OF NANAIMO

BC Conservation & Biodiversity Awards

The McLean Foundation

BRITISH COLUMBIA Community Gaming Grants

the partnership for water sustainability in bc

Thank you!

Contact:

abadger@bccf.com

BRITISH COLUMBIA CONSERVATION FOUNDATION

Community Flow Monitoring Network

Vancouver Island

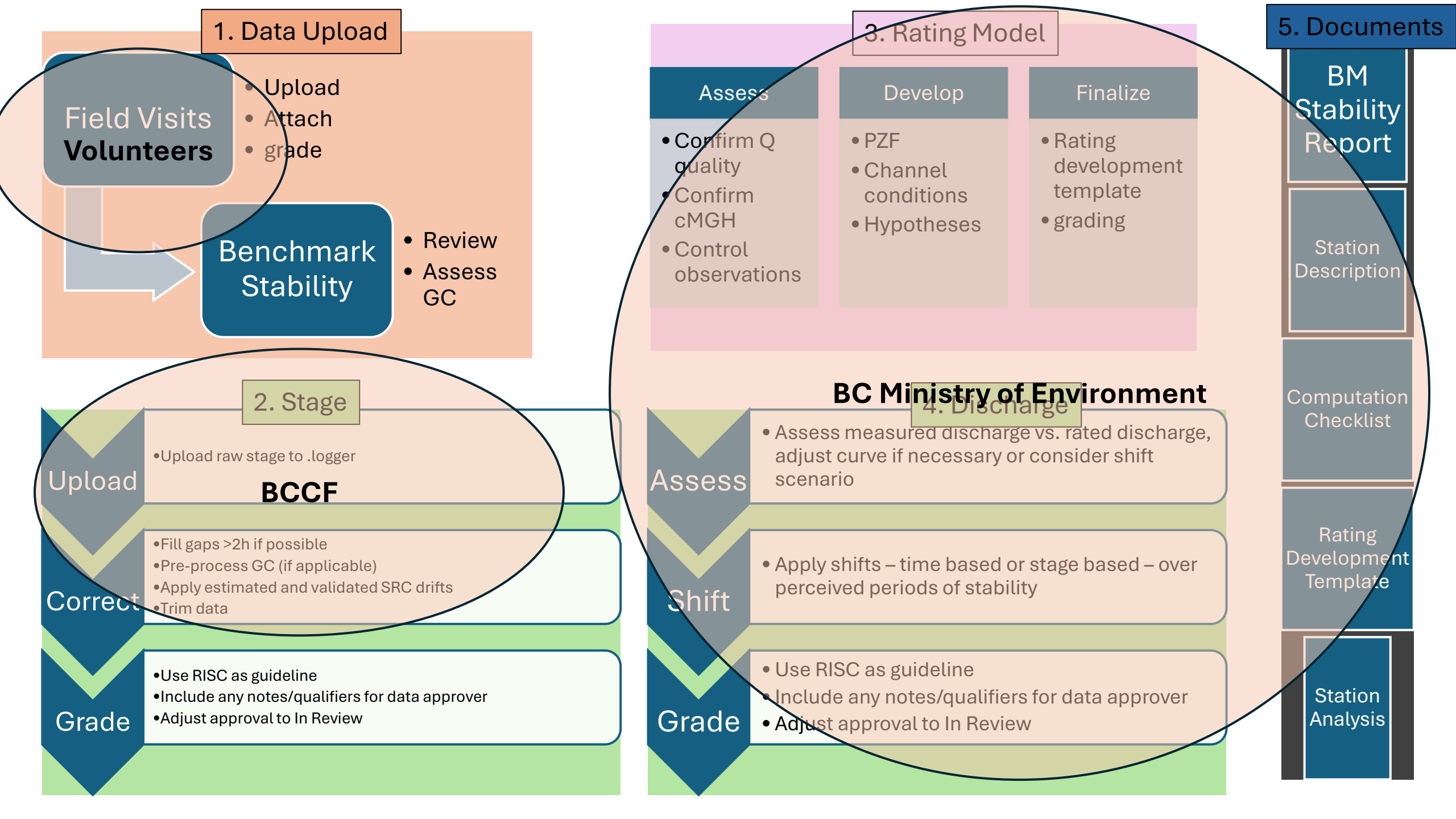
BRITISH COLUMBIA | Ministry of Environment and Parks

Flo-Mo Roundup

April 24, 2025

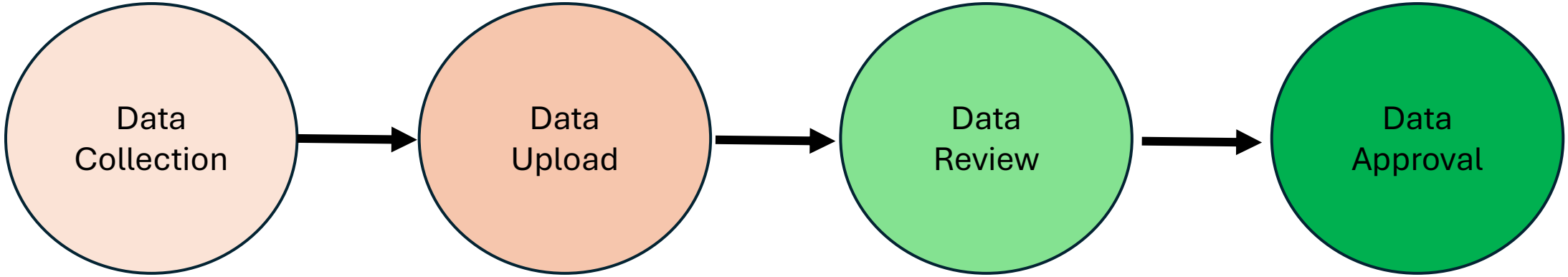
Update

- Higher water visits – BCCF/MOE collab?
- Data review
  - 2024 to be finalized after 1st visit level survey visit in 2025
  - Historical review
    - Tsolum (2012-2024 complete!)
    - Wilfred next
  - Ongoing rating curve development at new sites
    - Departure – complete!
    - Morrison – complete!
    - Next up: Cottle, Walley
  - Data review
    - Morrison 95% complete


1. Data Upload
Field Visits
Volunteers
Upload
Attach
grade
Benchmark Stability
Review
Assess GC
2. Stage
Upload
•Upload raw stage to .logger
BCCF
Correct
•Fill gaps >2h if possible
•Pre-process GC (if applicable)
•Apply estimated and validated SRC drifts
•Trim data
Grade
•Use RISC as guideline
•Include any notes/qualifiers for data approver
•Adjust approval to In Review
3. Rating Model
Assess
Confirm Q quality
Confirm cMGH
Control observations
Develop
PZF
Channel conditions
Hypotheses
Finalize
Rating development template
grading
BC Ministry of Environment
4. Discharge
Assess
Assess measured discharge vs. rated discharge, adjust curve if necessary or consider shift scenario
Shift
Apply shifts – time based or stage based – over perceived periods of stability
Grade
Use RISC as guideline
Include any notes/qualifiers for data approver
Adjust approval to In Review
5. Documents
BM Stability Report
Station Description
Computation Checklist
Rating Development Template
Station Analysis

Data Production

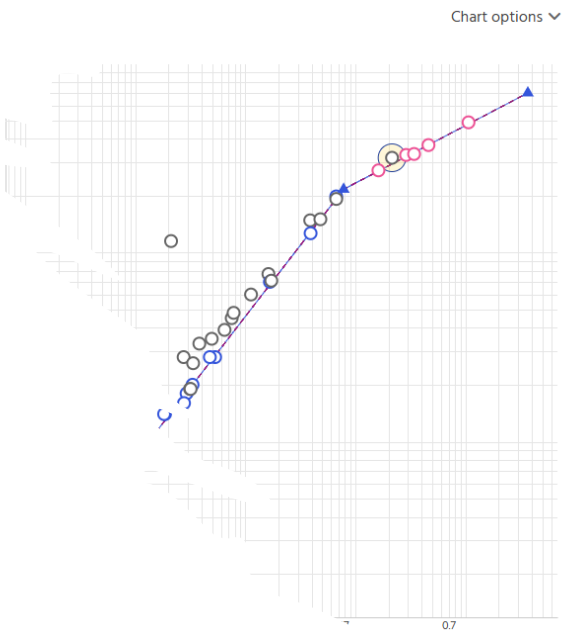
- Approval means the data is locked, it is available



WHO?	Volunteers BCCF	BCCF	BCCF ENV	ENV
WHAT?	Field visits Logger D/Ls	BC Aquarius Google drive	BC Aquarius	BC Aquarius Web Portal

Grandon Creek

- curve verification!
- Nice higher water measurements near transition zone



Field Measurements

All checked measurements will be recorded as "used" for curve development when saved. If you do not want to record any of those measurements as "used" uncheck them before saving.

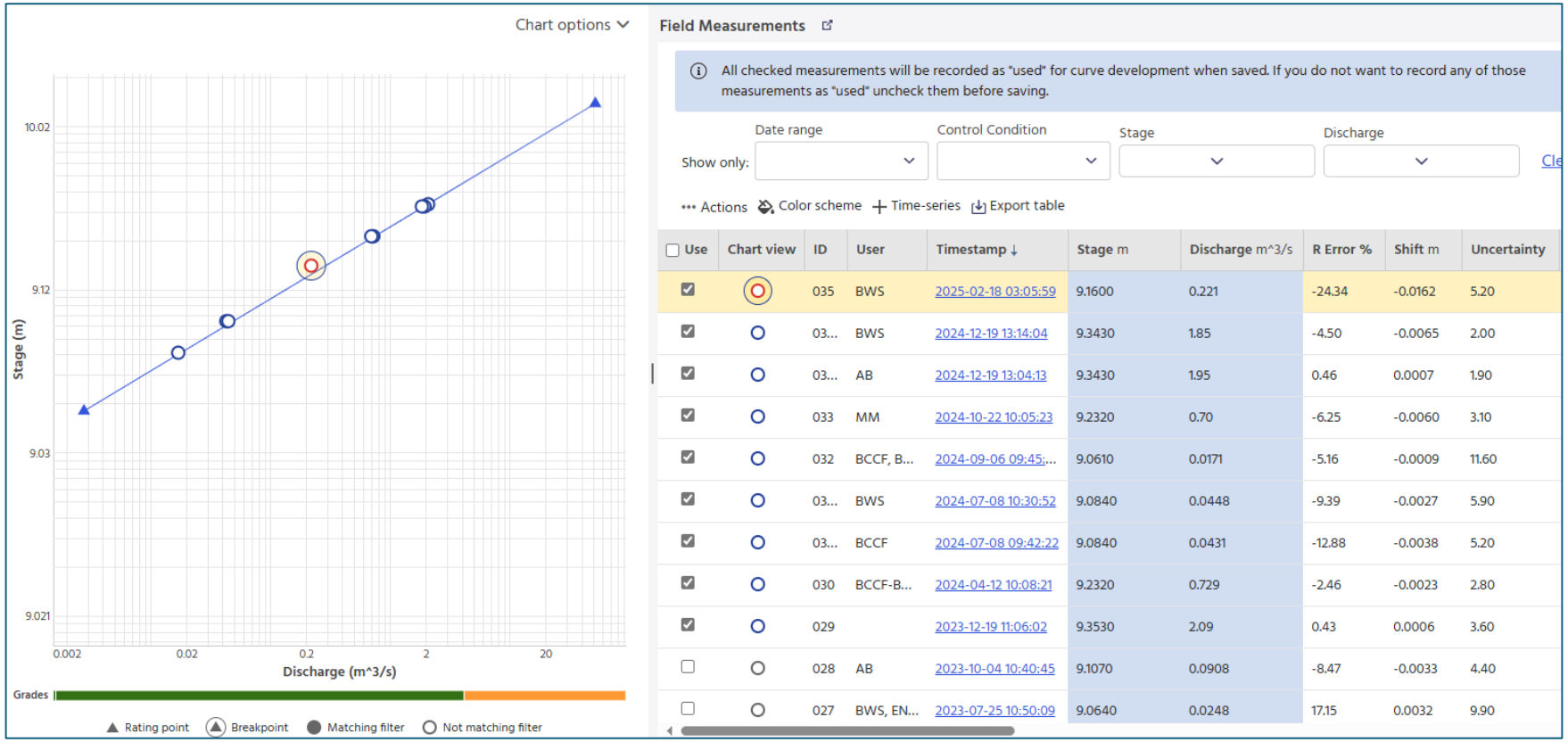
Show only: Date range | Control Condition | Stage | Discharge | Clear all

Actions | Color scheme | Time-series | Export table

Use	Chart view	ID	User	Timestamp ↓	Grade	Stage m	Discharge m^3/s	Method	R Error
☐	○	036	QBS	2025-02-27 11:15:00	31 - Good	0.4870	0.215	Mid-section	-21.95
☐	○	035	QBS	2024-12-05 13:33:11	41 - Very Good	0.3620	0.0669	Mid-section	0.22
☐	○	034	EWMH	2024-10-31 12:09:34	31 - Good	0.3200	0.048	Mid-section	-0.21
☐	○	033	JP EW MH	2024-09-05 09:30:...	31 - Good	0.1890	0.00318	Volumetric	2.65
☐	○	032	AB JP E...	2024-07-10 10:00:00	31 - Good	0.1890	0.00315	Volumetric	1.52
☐	○	031	QBSK	2024-04-19 11:06:29	31 - Good	0.2410	0.0172	Mid-section	-3.50
☑	○	030	QBSS	2024-01-26 11:16:54	51 - Excellent	0.5020	0.341	Mid-section	6.35
☑	○	029	EW KW ...	2023-10-13 11:30:00	25 - Best Practice	0.1980	0.00476	Volumetric	-8.23
☑	○	02...	AB	2023-08-14 14:07:05	25 - Best Practice	0.1840	0.00183	Mid-section	-11.49
☑	○	02...	AB, MB	2023-08-14 13:18:22	25 - Best Practice	0.1840	0.00186	Volumetric	-9.78

Cook Creek

- Watch for possible shift – last measurement in February, due for another one



Beach Creek

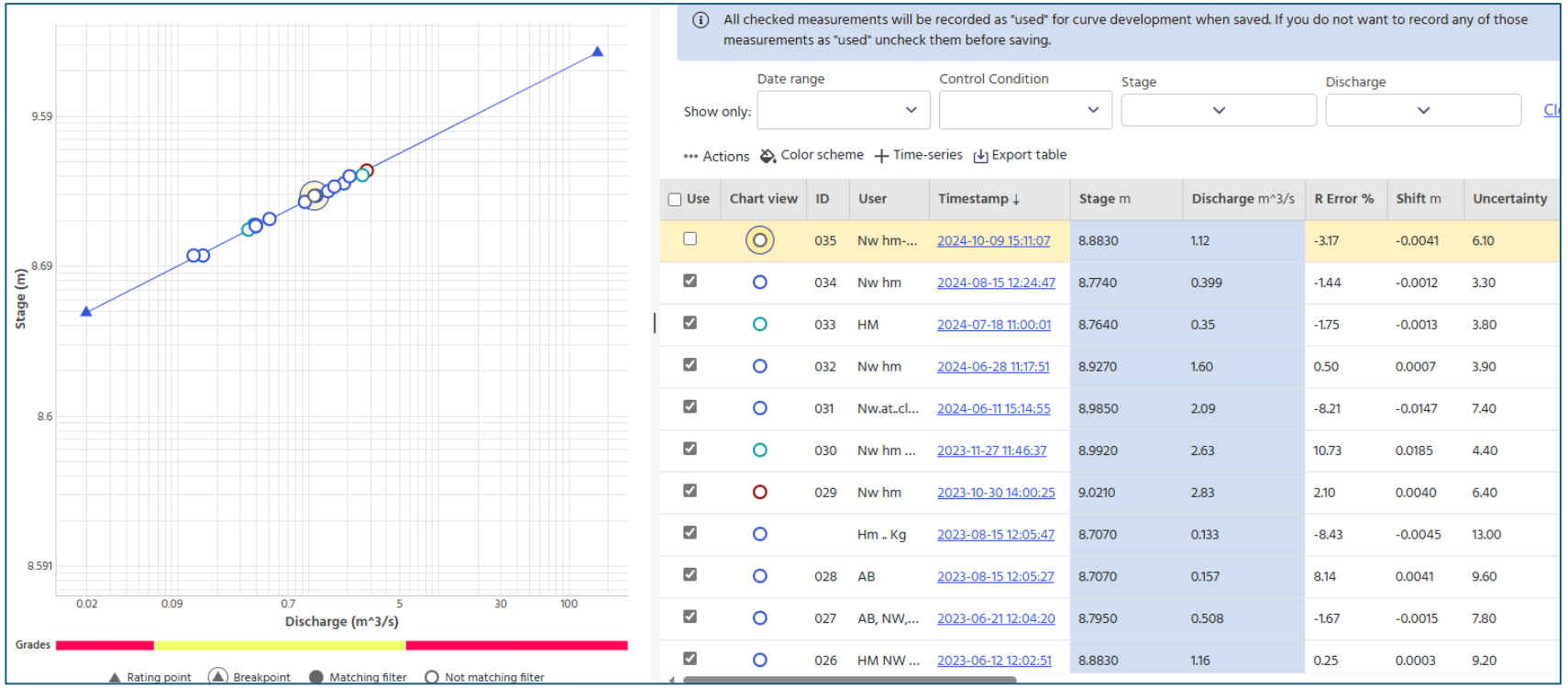
- Vegetation still tricky, but manageable if you measure discharge
- Frequent visits in spring and as vegetation grows in summer is great

2023

2025

Tsolum River

- Great work on frequent and targeted site visits!
- Makes curve verification MUCH easier!



Use	Chart view	ID	User	Timestamp ↓	Stage m	Discharge m^3/s	R Error %	Shift m	Uncertainty
☐		035	Nw hm-...	2024-10-09 15:11:07	8.8830	1.12	-3.17	-0.0041	6.10
☑		034	Nw hm	2024-08-15 12:24:47	8.7740	0.399	-1.44	-0.0012	3.30
☑		033	HM	2024-07-18 11:00:01	8.7640	0.35	-1.75	-0.0013	3.80
☑		032	Nw hm	2024-06-28 11:17:51	8.9270	1.60	0.50	0.0007	3.90
☑		031	Nw.at..cl...	2024-06-11 15:14:55	8.9850	2.09	-8.21	-0.0147	7.40
☑		030	Nw hm ...	2023-11-27 11:46:37	8.9920	2.63	10.73	0.0185	4.40
☑		029	Nw hm	2023-10-30 14:00:25	9.0210	2.83	2.10	0.0040	6.40
☑			Hm .. Kg	2023-08-15 12:05:47	8.7070	0.133	-8.43	-0.0045	13.00
☑		028	AB	2023-08-15 12:05:27	8.7070	0.157	8.14	0.0041	9.60
☑		027	AB, NW,...	2023-06-21 12:04:20	8.7950	0.508	-1.67	-0.0015	7.80
☑		026	HM NW ...	2023-06-12 12:02:51	8.8830	1.16	0.25	0.0003	9.20

Departure Creek

- Possible changes to control…
  - maybe scour?
  - Maybe discharge measurement issue?

2025-03-11 (0.128 m3/s +33% +0.017m)

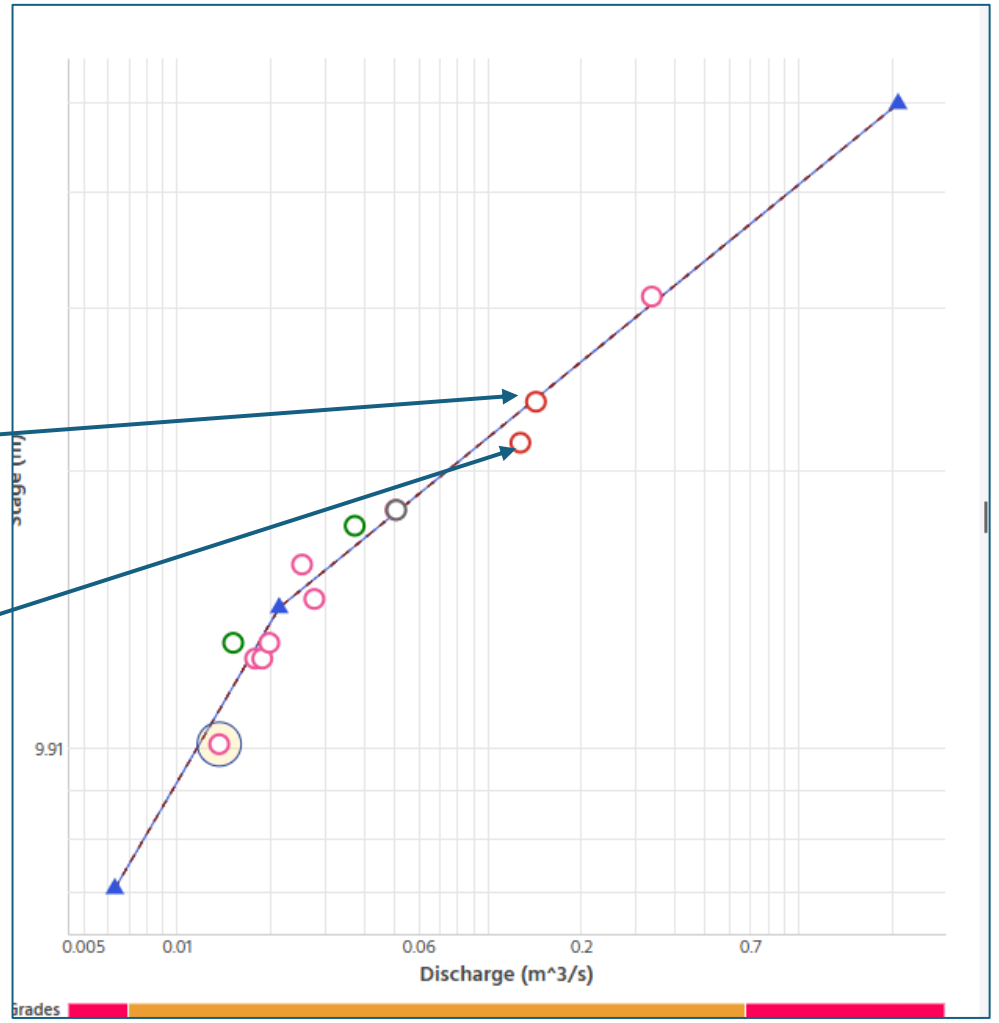
2023-12-15 (0.144 m3/s +2.8% +0.002m)

Departure Creek

- Possible changes to control…
  - maybe scour?
  - Maybe discharge measurement issue?

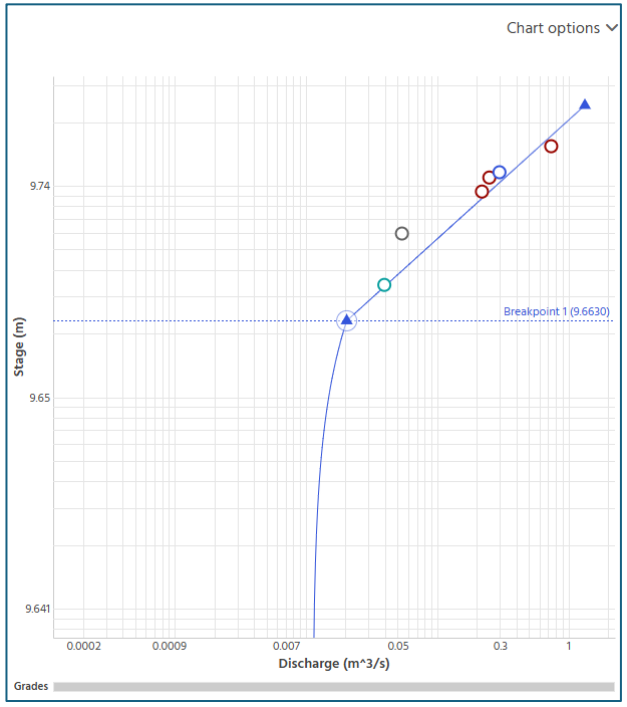
2023-12-15
(0.144 m3/s +2.8% +0.002m)

2025-03-11
(0.128 m3/s +33% +0.017m)



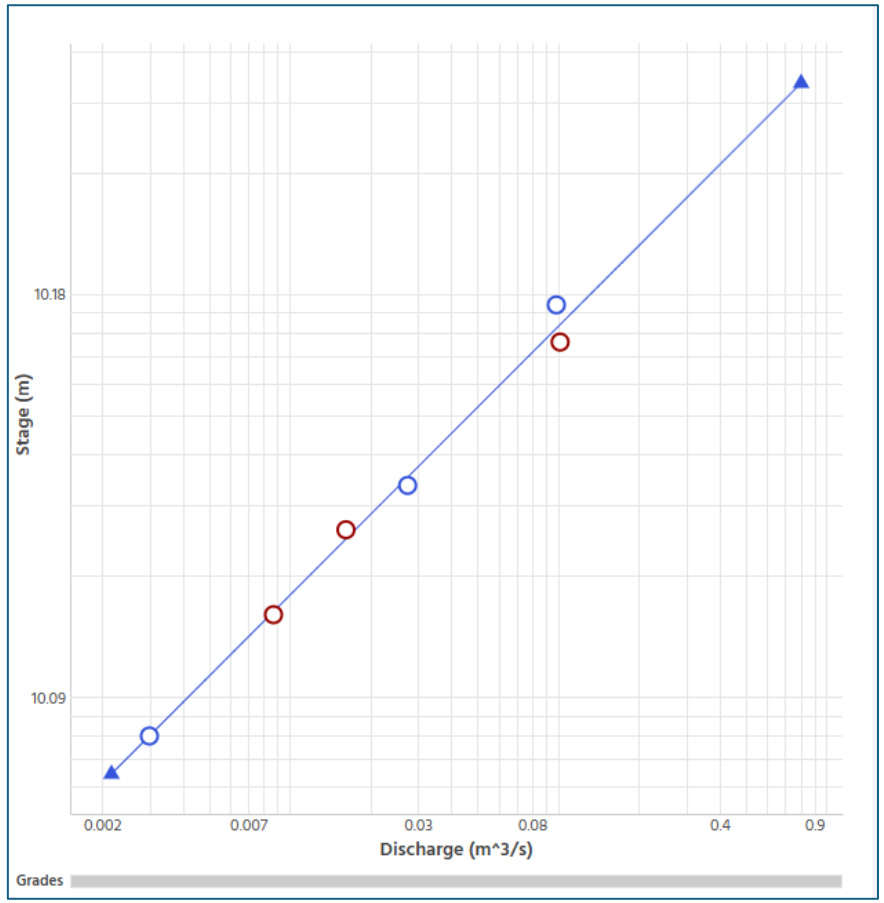
Cottle Creek

- Rating curve in development, great site notes ☺
- Clear measurements in spring are helpful



Walley Creek

- Rating curve in development, great visit frequency ☺



No place like Gnome?

Takeaways

- Visit frequency – aim for frequency and variety
  - Frequency: every 4-6 weeks
  - Variety: low, medium, high flows (ENV can help with highs)
- Transition into spring/summer – more frequent visits are nice at this time of year before vegetation and leaf litter impact controls
- Note taking – avoid clearing controls while actively measuring discharge
- Equipment sharing and use…opportunity for networking and knowledge exchange!

Next Steps

- Data review
  - 2024 to be finalized after 1st visit level survey visit in 2025
    - Grandon – need 2025 level tie to commence data review
    - Cook – data ready for review, confirm shift at next visit
    - Wilfred - data ready for review, confirm shift at next visit
    - Beach - need 2025 level tie to commence data review
    - Tsolum - need 2025 level tie to commence data review
    - Departure – approved up to Jan 31, 2025
    - Cottle – waiting for more spring measurements to finalize rating curve, then data review summer 2025
    - Walley - waiting for more spring measurements to finalize rating curve, then data review summer 2025
  - Historical review on-going
    - Wilfred – 75% complete
  - Ongoing rating curve development at new sites
    - Cottle, Walley

Questions?

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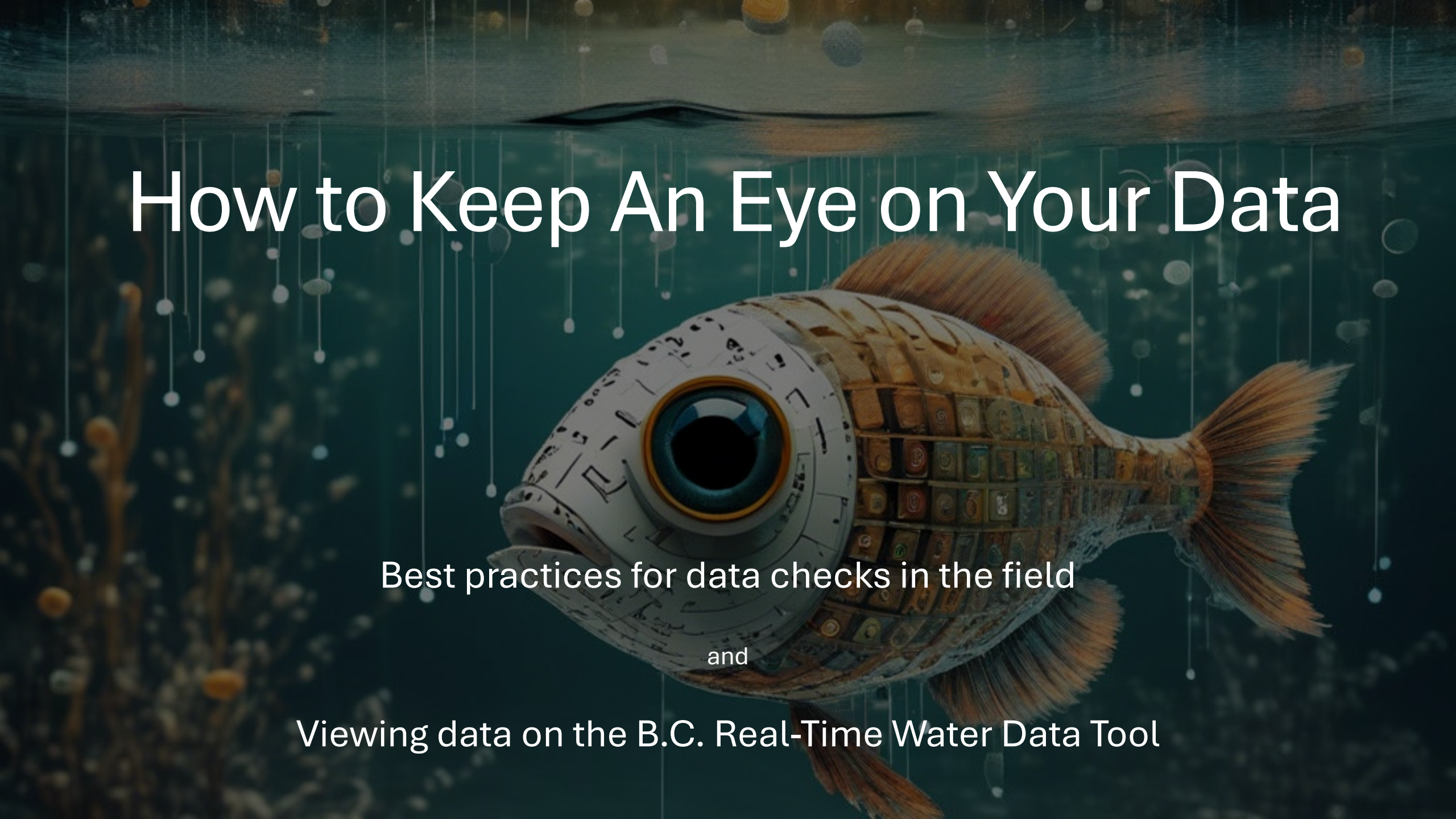
How to Keep An Eye on Your Data



Best practices for data checks in the field

and

Viewing data on the B.C. Real-Time Water Data Tool

Best Practices for Data Checks in the Field

Check your stage and discharge measurements in the field using the rating curve table (EHQ)

Expanded Rating Table: 1.00

Stage (m)	Discharge (m^3/s)										Difference in Discharge per 0.01 m
	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009	
9.19									0.0195	0.0204	
9.20	0.0213	0.0222	0.0232	0.0242	0.0252	0.0262	0.0272	0.0282	0.0293	0.0304	0.0102
9.21	0.0315	0.0327	0.0338	0.035	0.0362	0.0375	0.0387	0.04	0.0413	0.0426	0.0124
9.22	0.0439	0.0453	0.0467	0.0481	0.0495	0.0509	0.0524	0.0539	0.0554	0.0569	0.0146
9.23	0.0585	0.0601	0.0617	0.0633	0.065	0.0666	0.0683	0.07	0.0718	0.0735	0.0168
9.24	0.0753	0.0771	0.079	0.0808	0.0827	0.0846	0.0865	0.0885	0.0905	0.0924	0.0191
9.25	0.0945	0.0965	0.0986	0.101	0.103	0.105	0.107	0.109	0.111	0.114	0.0215
9.26	0.116	0.118	0.12	0.123	0.125	0.128	0.13	0.132	0.135	0.137	0.0238
9.27	0.14	0.142	0.145	0.147	0.15	0.153	0.155	0.158	0.161	0.163	0.0262
9.28	0.166	0.169	0.171	0.174	0.177	0.18	0.183	0.186	0.189	0.192	0.0286
9.29	0.195	0.198	0.201	0.204	0.207	0.21	0.213	0.216	0.219	0.222	0.0311
9.30	0.226	0.229	0.232	0.235	0.239	0.242	0.245	0.249	0.252	0.256	0.0335
9.31	0.259	0.263	0.266	0.27	0.273	0.277	0.281	0.284	0.288	0.292	0.036
9.32	0.295	0.299	0.303	0.307	0.31	0.314	0.318	0.322	0.326	0.33	0.0386
9.33	0.334	0.338	0.342	0.346	0.35	0.354	0.358	0.362	0.366	0.371	0.0411
9.34	0.375	0.379	0.383	0.388	0.392	0.396	0.401	0.405	0.41	0.414	0.0437
9.35	0.419	0.423	0.428	0.432	0.437	0.441	0.446	0.451	0.455	0.46	0.0462

Best Practices for Data Checks in the Field

Check your stage and discharge measurements in the field using the rating curve table (EHQ)

Rapidly helps determine:

Quality of discharge measurement

Potential actions:

- Re-do measurement if suspected to be inaccurate

Stability of control

- Shift (vegetation, debris)
- New rating curve

Potential actions:

- Clean control if debris observed
- Notify Ally/Jon/Sarah if measurement is off curve by >25% (RISC C), observe trend (-,+)

How to Check Rating Curve Table

File located on Google Drive

- expanded-rating-table_SITENAME_DATE.txt

Expanded Rating Table: 1.00

Stage (m)	Discharge (m^3/s)										Difference in Discharge per 0.01 m
	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009	
9.19									0.0195	0.0204	
9.20	0.0213	0.0222	0.0232	0.0242	0.0252	0.0262	0.0272	0.0282	0.0293	0.0304	0.0102
9.21	0.0315	0.0327	0.0338	0.035	0.0362	0.0375	0.0387	0.04	0.0413	0.0426	0.0124
9.22	0.0439	0.0453	0.0467	0.0481	0.0495	0.0509	0.0524	0.0539	0.0554	0.0569	0.0146
9.23	0.0585	0.0601	0.0617	0.0633	0.065	0.0666	0.0683	0.07	0.0718	0.0735	0.0168
9.24	0.0753	0.0771	0.079	0.0808	0.0827	0.0846	0.0865	0.0885	0.0905	0.0924	0.0191
9.25	0.0945	0.0965	0.0986	0.101	0.103	0.105	0.107	0.109	0.111	0.114	0.0215
9.26	0.116	0.118	0.12	0.123	0.125	0.128	0.13	0.132	0.135	0.137	0.0238
9.27	0.14	0.142	0.145	0.147	0.15	0.153	0.155	0.158	0.161	0.163	0.0262
9.28	0.166	0.169	0.171	0.174	0.177	0.18	0.183	0.186	0.189	0.192	0.0286
9.29	0.195	0.198	0.201	0.204	0.207	0.21	0.213	0.216	0.219	0.222	0.0311
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9.32	0.295	0.299	0.303	0.307	0.31	0.314	0.318	0.322	0.326	0.33	0.0386
9.33	0.334	0.338	0.342	0.346	0.35	0.354	0.358	0.362	0.366	0.371	0.0411
9.34	0.375	0.379	0.383	0.388	0.392	0.396	0.401	0.405	0.41	0.414	0.0437
9.35	0.419	0.423	0.428	0.432	0.437	0.441	0.446	0.451	0.455	0.46	0.0462
9.36	0.465	0.47	0.474	0.479	0.484	0.489	0.494	0.499	0.504	0.509	0.0488
9.37	0.514	0.519	0.524	0.529	0.534	0.539	0.544	0.549	0.555	0.56	0.0514
9.38	0.565	0.57	0.576	0.581	0.586	0.592	0.597	0.603	0.608	0.614	0.0541
9.39	0.619	0.625	0.63	0.636	0.642	0.647	0.653	0.659	0.664	0.67	0.0567
9.40	0.676	0.682	0.688	0.693	0.699	0.705	0.711	0.717	0.723	0.729	0.0594
9.41	0.735	0.741	0.747	0.754	0.76	0.766	0.772	0.778	0.785	0.791	0.0621
9.42	0.797	0.804	0.81	0.817	0.823	0.829	0.836	0.842	0.849	0.856	0.0648
9.43	0.862	0.869	0.875	0.882	0.889	0.896	0.902	0.909	0.916	0.923	0.0675
9.44	0.93	0.937	0.943	0.95	0.957	0.964	0.971	0.978	0.986	0.993	0.0702
9.45	1.00	1.01	1.01	1.02	1.03	1.04	1.04	1.05	1.06	1.07	0.0729
9.46	1.07	1.08	1.09	1.10	1.10	1.11	1.12	1.13	1.13	1.14	0.0757
9.47	1.15	1.16	1.16	1.17	1.18	1.19	1.20	1.20	1.21	1.22	0.0785
9.48	1.23	1.23	1.24	1.25	1.26	1.27	1.28	1.28	1.29	1.30	0.0812

How to Check Rating Curve Table

Stage (H) =

elevation of bottom of staff gauge (m)

found in bold at top of rating curve table file

+

staff gauge reading (m)

average of start and end staff gauge reading during discharge measurement

Expanded Rating Table: 1.00

Stage (m)	Discharge (m^3/s)										Difference in Discharge per 0.01 m
	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009	
9.19									0.0195	0.0204	
9.20	0.0213	0.0222	0.0232	0.0242	0.0252	0.0262	0.0272	0.0282	0.0293	0.0304	0.0102
9.21	0.0315	0.0327	0.0338	0.035	0.0362	0.0375	0.0387	0.04	0.0413	0.0426	0.0124
9.22	0.0439	0.0453	0.0467	0.0481	0.0495	0.0509	0.0524	0.0539	0.0554	0.0569	0.0146
9.23	0.0585	0.0601	0.0617	0.0633	0.065	0.0666	0.0683	0.07	0.0718	0.0735	0.0168
9.24	0.0753	0.0771	0.079	0.0808	0.0827	0.0846	0.0865	0.0885	0.0905	0.0924	0.0191
9.25	0.0945	0.0965	0.0986	0.101	0.103	0.105	0.107	0.109	0.111	0.114	0.0215
9.26	0.116	0.118	0.12	0.123	0.125	0.128	0.13	0.132	0.135	0.137	0.0238
9.27	0.14	0.142	0.145	0.147	0.15	0.153	0.155	0.158	0.161	0.163	0.0262
9.28	0.166	0.169	0.171	0.174	0.177	0.18	0.183	0.186	0.189	0.192	0.0286
9.29	0.195	0.198	0.201	0.204	0.207	0.21	0.213	0.216	0.219	0.222	0.0311
9.30	0.226	0.229	0.232	0.235	0.239	0.242	0.245	0.249	0.252	0.256	0.0335
9.31	0.259	0.263	0.266	0.27	0.273	0.277	0.281	0.284	0.288	0.292	0.036
9.32	0.295	0.299	0.303	0.307	0.31	0.314	0.318	0.322	0.326	0.33	0.0386
9.33	0.334	0.338	0.342	0.346	0.35	0.354	0.358	0.362	0.366	0.371	0.0411
9.34	0.375	0.379	0.383	0.388	0.392	0.396	0.401	0.405	0.41	0.414	0.0437
9.35	0.419	0.423	0.428	0.432	0.437	0.441	0.446	0.451	0.455	0.46	0.0462
9.36	0.465	0.47	0.474	0.479	0.484	0.489	0.494	0.499	0.504	0.509	0.0488
9.37	0.514	0.519	0.524	0.529	0.534	0.539	0.544	0.549	0.555	0.56	0.0514
9.38	0.565	0.57	0.576	0.581	0.586	0.592	0.597	0.603	0.608	0.614	0.0541
9.39	0.619	0.625	0.63	0.636	0.642	0.647	0.653	0.659	0.664	0.67	0.0567
9.40	0.676	0.682	0.688	0.693	0.699	0.705	0.711	0.717	0.723	0.729	0.0594
9.41	0.735	0.741	0.747	0.754	0.76	0.766	0.772	0.778	0.785	0.791	0.0621
9.42	0.797	0.804	0.81	0.817	0.823	0.829	0.836	0.842	0.849	0.856	0.0648
9.43	0.862	0.869	0.875	0.882	0.889	0.896	0.902	0.909	0.916	0.923	0.0675
9.44	0.93	0.937	0.943	0.95	0.957	0.964	0.971	0.978	0.986	0.993	0.0702
9.45	1.00	1.01	1.01	1.02	1.03	1.04	1.04	1.05	1.06	1.07	0.0729
9.46	1.07	1.08	1.09	1.10	1.10	1.11	1.12	1.13	1.13	1.14	0.0757
9.47	1.15	1.16	1.16	1.17	1.18	1.19	1.20	1.20	1.21	1.22	0.0785
9.48	1.23	1.23	1.24	1.25	1.26	1.27	1.28	1.28	1.29	1.30	0.0812

How to Check Rating Curve Table

Discharge (Q) =
expected or rated discharge based on stage-discharge relationship

Measured discretely in field (e.g. Flowtracker, bucket fill) in m^3/s and checked against rating curve table value.

Expanded Rating Table: 1.00

Stage (m)	Discharge (m^3/s)										Difference in Discharge per 0.01 m
	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009	
9.19									0.0195	0.0204	
9.20	0.0213	0.0222	0.0232	0.0242	0.0252	0.0262	0.0272	0.0282	0.0293	0.0304	0.0102
9.21	0.0315	0.0327	0.0338	0.035	0.0362	0.0375	0.0387	0.04	0.0413	0.0426	0.0124
9.22	0.0439	0.0453	0.0467	0.0481	0.0495	0.0509	0.0524	0.0539	0.0554	0.0569	0.0146
9.23	0.0585	0.0601	0.0617	0.0633	0.065	0.0666	0.0683	0.07	0.0718	0.0735	0.0168
9.24	0.0753	0.0771	0.079	0.0808	0.0827	0.0846	0.0865	0.0885	0.0905	0.0924	0.0191
9.25	0.0945	0.0965	0.0986	0.101	0.103	0.105	0.107	0.109	0.111	0.114	0.0215
9.26	0.116	0.118	0.12	0.123	0.125	0.128	0.13	0.132	0.135	0.137	0.0238
9.27	0.14	0.142	0.145	0.147	0.15	0.153	0.155	0.158	0.161	0.163	0.0262
9.28	0.166	0.169	0.171	0.174	0.177	0.18	0.183	0.186	0.189	0.192	0.0286
9.29	0.195	0.198	0.201	0.204	0.207	0.21	0.213	0.216	0.219	0.222	0.0311
9.30	0.226	0.229	0.232	0.235	0.239	0.242	0.245	0.249	0.252	0.256	0.0335
9.31	0.259	0.263	0.266	0.27	0.273	0.277	0.281	0.284	0.288	0.292	0.036
9.32	0.295	0.299	0.303	0.307	0.31	0.314	0.318	0.322	0.326	0.33	0.0386
9.33	0.334	0.338	0.342	0.346	0.35	0.354	0.358	0.362	0.366	0.371	0.0411
9.34	0.375	0.379	0.383	0.388	0.392	0.396	0.401	0.405	0.41	0.414	0.0437
9.35	0.419	0.423	0.428	0.432	0.437	0.441	0.446	0.451	0.455	0.46	0.0462
9.36	0.465	0.47	0.474	0.479	0.484	0.489	0.494	0.499	0.504	0.509	0.0488
9.37	0.514	0.519	0.524	0.529	0.534	0.539	0.544	0.549	0.555	0.56	0.0514
9.38	0.565	0.57	0.576	0.581	0.586	0.592	0.597	0.603	0.608	0.614	0.0541
9.39	0.619	0.625	0.63	0.636	0.642	0.647	0.653	0.659	0.664	0.67	0.0567
9.40	0.676	0.682	0.688	0.693	0.699	0.705	0.711	0.717	0.723	0.729	0.0594
9.41	0.735	0.741	0.747	0.754	0.76	0.766	0.772	0.778	0.785	0.791	0.0621
9.42	0.797	0.804	0.81	0.817	0.823	0.829	0.836	0.842	0.849	0.856	0.0648
9.43	0.862	0.869	0.875	0.882	0.889	0.896	0.902	0.909	0.916	0.923	0.0675
9.44	0.93	0.937	0.943	0.95	0.957	0.964	0.971	0.978	0.986	0.993	0.0702
9.45	1.00	1.01	1.01	1.02	1.03	1.04	1.04	1.05	1.06	1.07	0.0729
9.46	1.07	1.08	1.09	1.10	1.10	1.11	1.12	1.13	1.13	1.14	0.0757
9.47	1.15	1.16	1.16	1.17	1.18	1.19	1.20	1.20	1.21	1.22	0.0785
9.48	1.23	1.23	1.24	1.25	1.26	1.27	1.28	1.28	1.29	1.30	0.0812

How to Check Rating Curve Table – Field Example

Site visit to Wilfred Creek (08HB0024) on 2025-02-18:

- Staff gauge reading (start) = 0.303m
- Staff gauge reading (end) = 0.303m
- Measured discharge by Flowtracker = 0.345 m^3/s

Calculate stage and find rated discharge in rating curve table

- Stage = 9.042 m + 0.303 m = **9.345m**
  - Elevation bottom of staff gauge = 9.042 m
- Rated discharge = **0.396 m^3/s**

Compare rated discharge to measured discharge

$$\text{Discharge deviation (\%)} = \frac{Measured\ discharge - Rated\ discharge}{Rated\ discharge} \times 100\%$$

$$\text{Discharge deviation (\%)} = \frac{0.345 m3/s - 0.396 m3/s}{0.396\ m3/s} \times 100\% = \mathbf{-12.8\%}$$

Stage (m)	Discharge (m^3/s)										Difference in Discharge per 0.01 m
	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009	
9.19									0.0195	0.0204	
9.20	0.0213	0.0222	0.0232	0.0242	0.0252	0.0262	0.0272	0.0282	0.0293	0.0304	0.0102
9.21	0.0315	0.0327	0.0338	0.035	0.0362	0.0375	0.0387	0.04	0.0413	0.0426	0.0124
9.22	0.0439	0.0453	0.0467	0.0481	0.0495	0.0509	0.0524	0.0539	0.0554	0.0569	0.0146
9.23	0.0585	0.0601	0.0617	0.0633	0.065	0.0666	0.0683	0.07	0.0718	0.0735	0.0168
9.24	0.0753	0.0771	0.079	0.0808	0.0827	0.0846	0.0865	0.0885	0.0905	0.0924	0.0191
9.25	0.0945	0.0965	0.0986	0.101	0.103	0.105	0.107	0.109	0.111	0.114	0.0215
9.26	0.116	0.118	0.12	0.123	0.125	0.128	0.13	0.132	0.135	0.137	0.0238
9.27	0.14	0.142	0.145	0.147	0.15	0.153	0.155	0.158	0.161	0.163	0.0262
9.28	0.166	0.169	0.171	0.174	0.177	0.18	0.183	0.186	0.189	0.192	0.0286
9.29	0.195	0.198	0.201	0.204	0.207	0.21	0.213	0.216	0.219	0.222	0.0311
9.30	0.226	0.229	0.232	0.235	0.239	0.242	0.245	0.249	0.252	0.256	0.0335
9.31	0.259	0.263	0.266	0.27	0.273	0.277	0.281	0.284	0.288	0.292	0.036
9.32	0.295	0.299	0.303	0.307	0.31	0.314	0.318	0.322	0.326	0.33	0.0386
9.33	0.334	0.338	0.342	0.346	0.35	0.354	0.358	0.362	0.366	0.371	0.0411
9.34	0.375	0.379	0.383	0.388	0.392	0.396	0.401	0.405	0.41	0.414	0.0437
9.35	0.419	0.423	0.428	0.432	0.437	0.441	0.446	0.451	0.455	0.46	0.0462
9.36	0.465	0.47	0.474	0.479	0.484	0.489	0.494	0.499	0.504	0.509	0.0488
9.37	0.514	0.519	0.524	0.529	0.534	0.539	0.544	0.549	0.555	0.56	0.0514
9.38	0.565	0.57	0.576	0.581	0.586	0.592	0.597	0.603	0.608	0.614	0.0541
9.39	0.619	0.625	0.63	0.636	0.642	0.647	0.653	0.659	0.664	0.67	0.0567
9.40	0.676	0.682	0.688	0.693	0.699	0.705	0.711	0.717	0.723	0.729	0.0594
9.41	0.735	0.741	0.747	0.754	0.76	0.766	0.772	0.778	0.785	0.791	0.0621
9.42	0.797	0.804	0.81	0.817	0.823	0.829	0.836	0.842	0.849	0.856	0.0648
9.43	0.862	0.869	0.875	0.882	0.889	0.896	0.902	0.909	0.916	0.923	0.0675
9.44	0.93	0.937	0.943	0.95	0.957	0.964	0.971	0.978	0.986	0.993	0.0702
9.45	1.00	1.01	1.01	1.02	1.03	1.04	1.04	1.05	1.06	1.07	0.0729
9.46	1.07	1.08	1.09	1.10	1.10	1.11	1.12	1.13	1.13	1.14	0.0757
9.47	1.15	1.16	1.16	1.17	1.18	1.19	1.20	1.20	1.21	1.22	0.0785
9.48	1.23	1.23	1.24	1.25	1.26	1.27	1.28	1.28	1.29	1.30	0.0812
9.49	1.31	1.32	1.32	1.33	1.34	1.35	1.36	1.37	1.38	1.38	0.084
9.50	1.39	1.40	1.41	1.42	1.43	1.44	1.44	1.45	1.46	1.47	0.0868

How to Check Rating Curve Table – Field Example

Site visit to Wilfred Creek (08HB0024) on 2025-02-18:

- Staff gauge reading (start) = 0.303m
- Staff gauge reading (end) = 0.303m
- Measured discharge by Flowtracker = 0.345 m^3/s

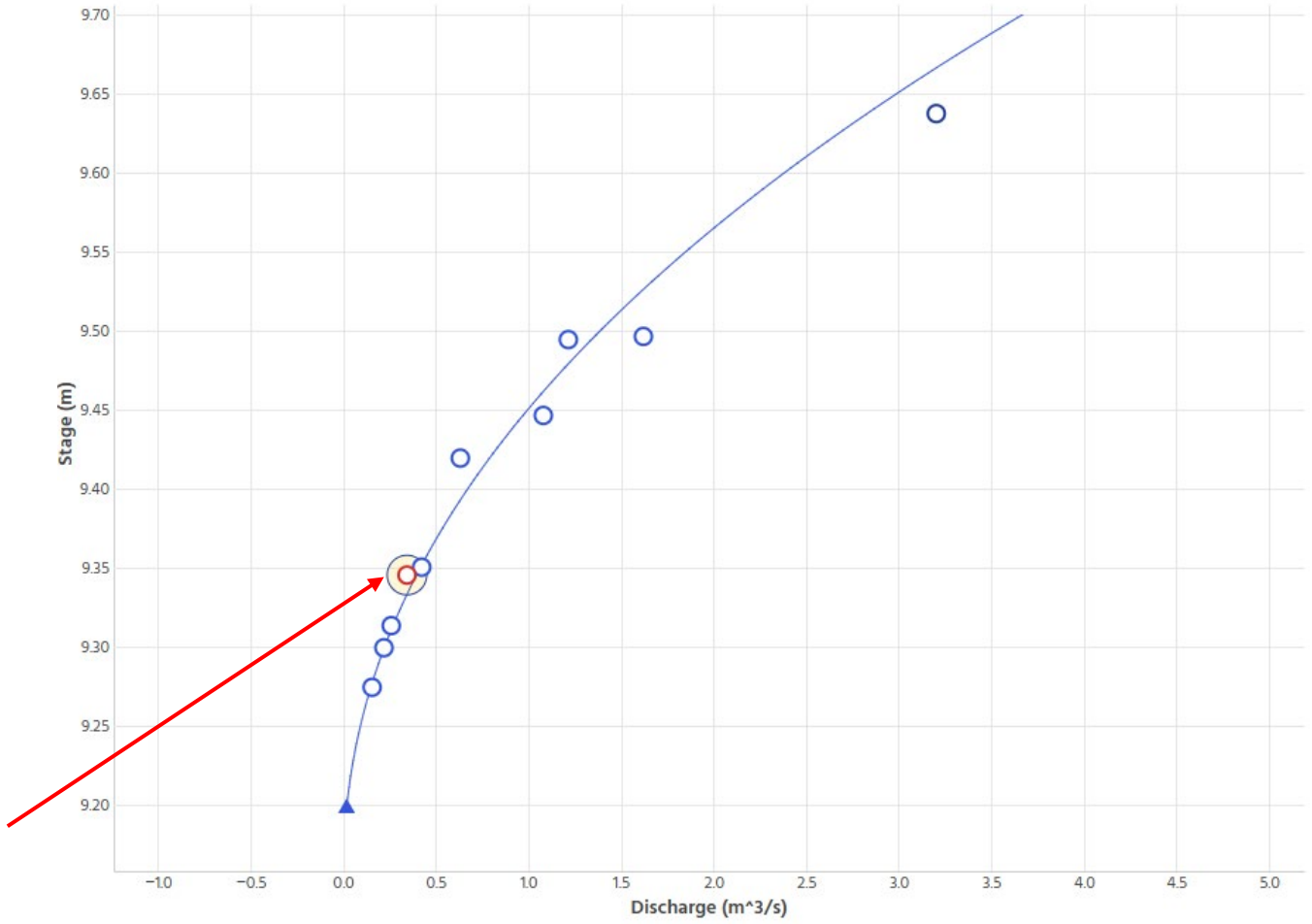
Calculate stage and find rated discharge in rating curve table

- Stage = 9.042 m + 0.303 m = **9.345m**
  - Elevation bottom of staff gauge = 9.042 m
- Rated discharge = **0.396 m^3/s**

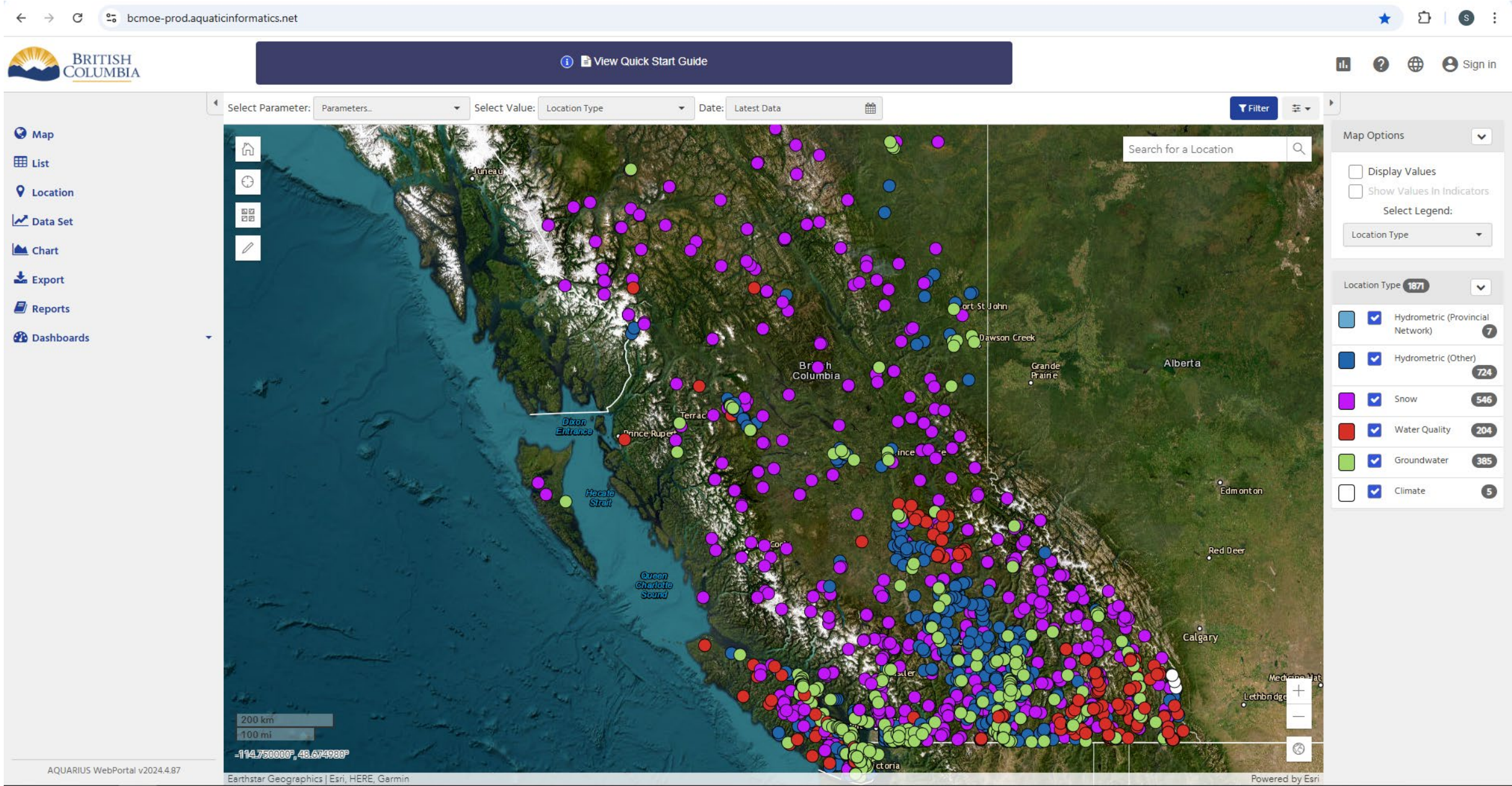
Compare rated discharge to measured discharge

$$\text{Discharge deviation (\%)} = \frac{Measured\ discharge - Rated\ discharge}{Rated\ discharge} \times 100\%$$

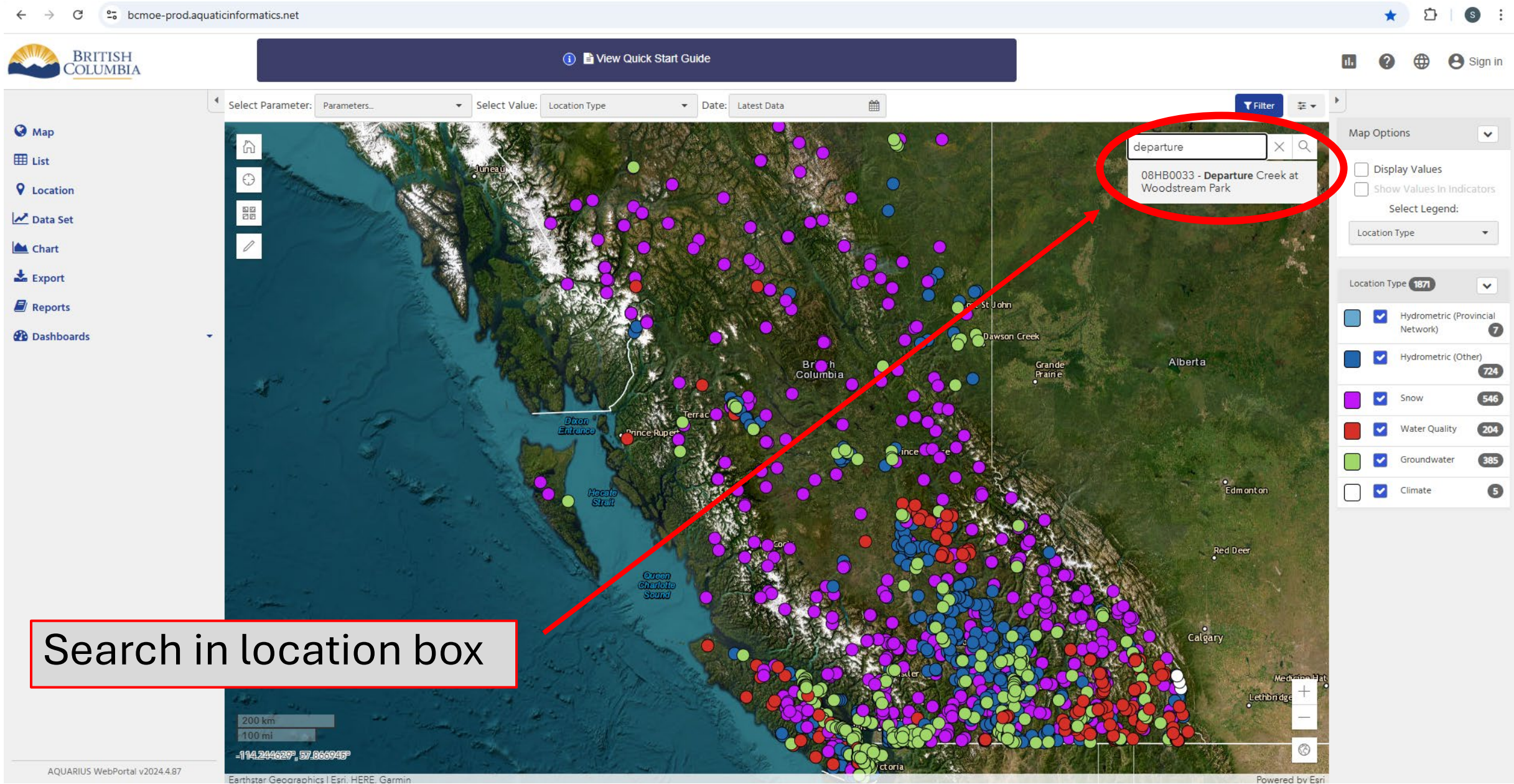
$$\text{Discharge deviation (\%)} = \frac{0.345 m3/s - 0.396 m3/s}{0.396\ m3/s} \times 100\% = \mathbf{-12.8\%}$$



Viewing Data on the B.C. Real-time Water Data Tool

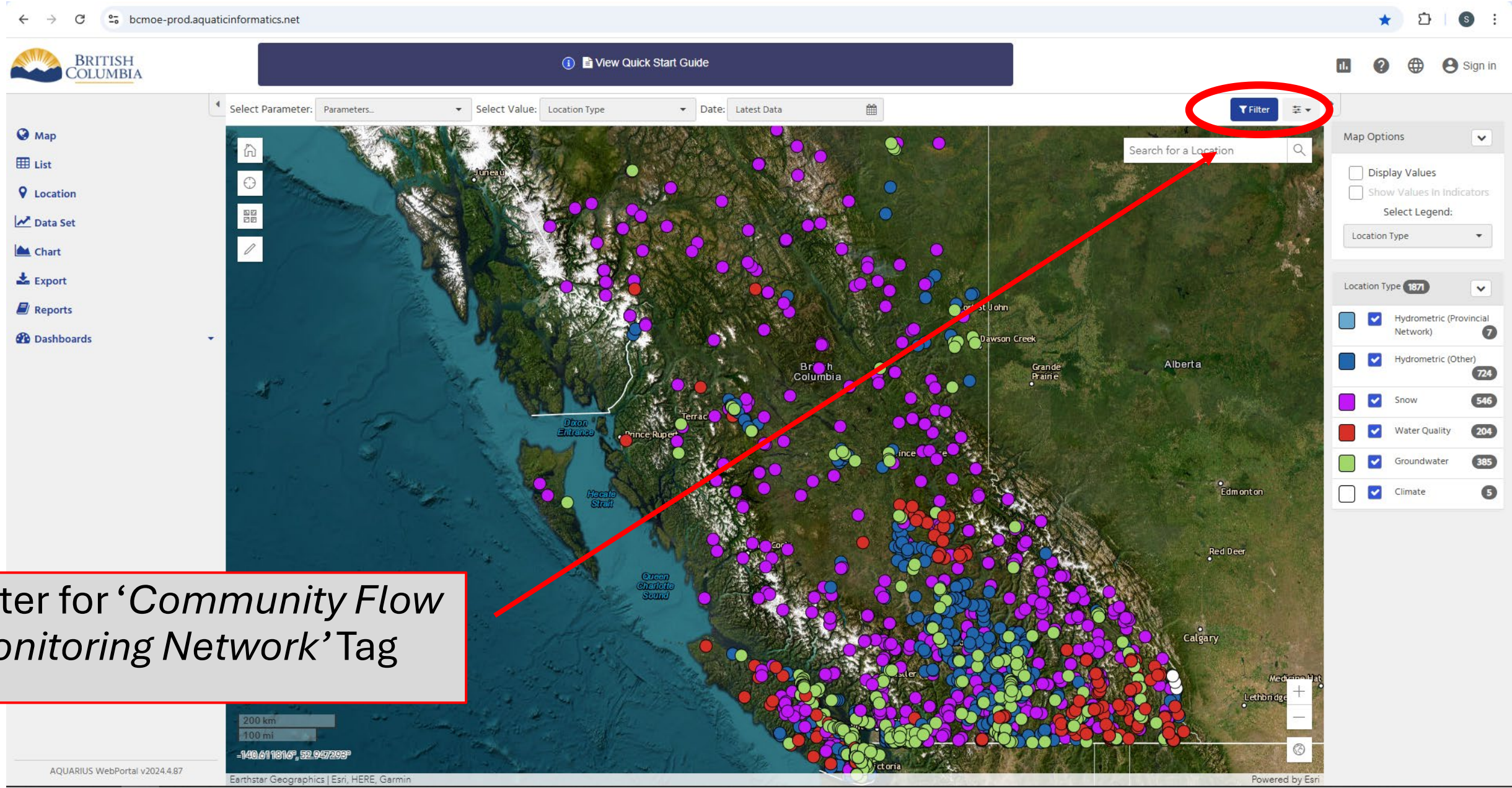


How to Search for a Station



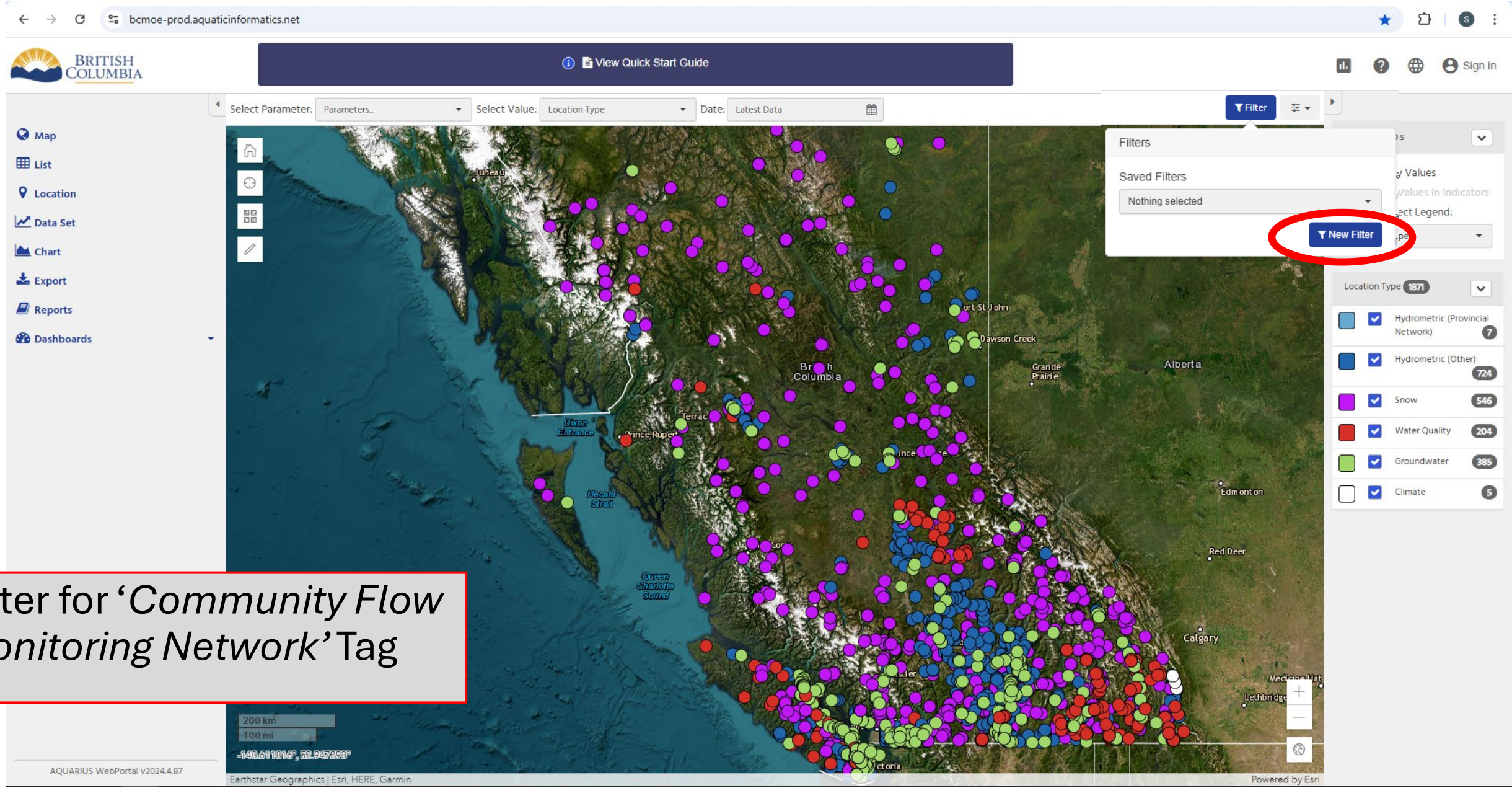
Search in location box

How to Search for a Station



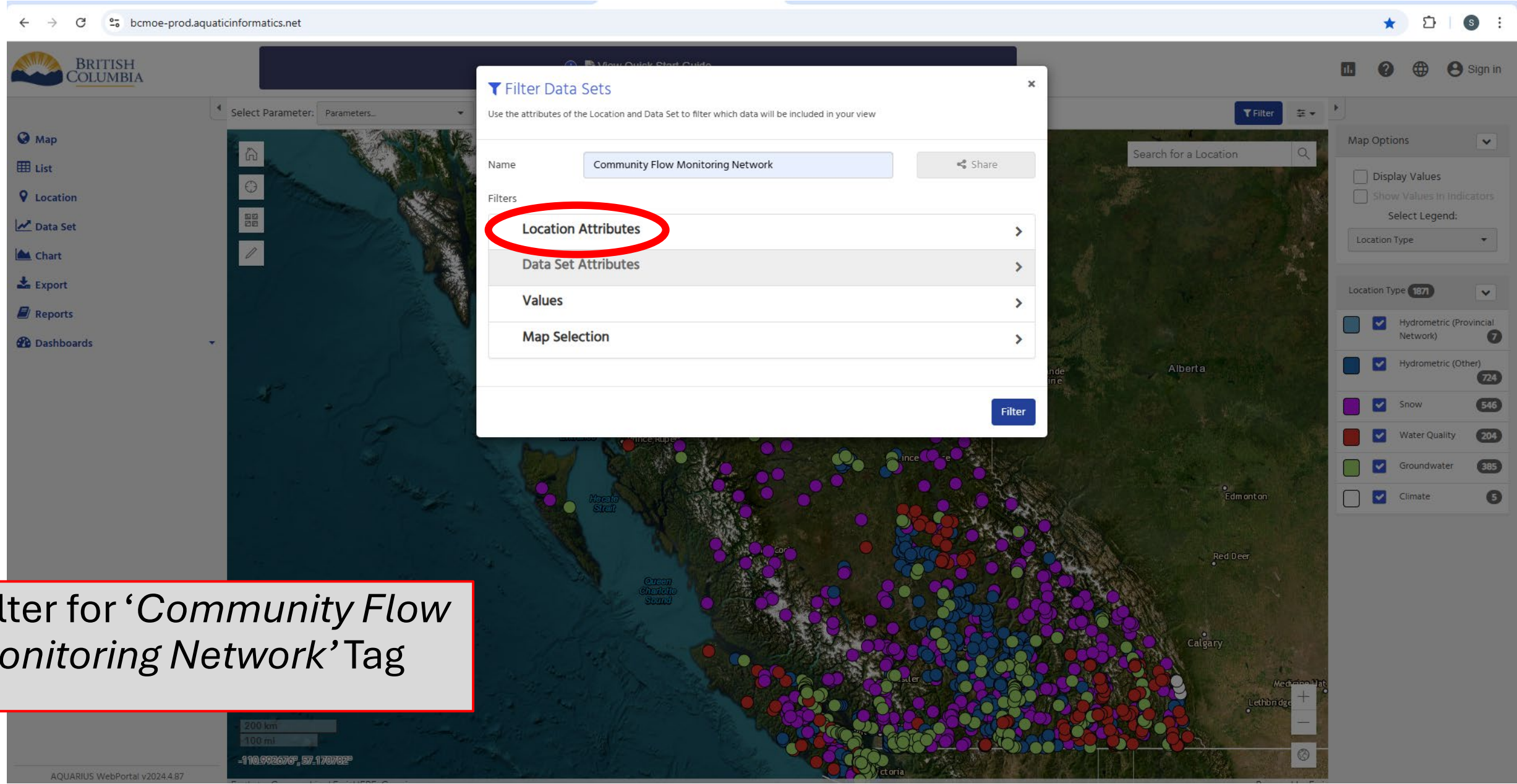
Filter for '*Community Flow Monitoring Network*' Tag

How to Search for a Station



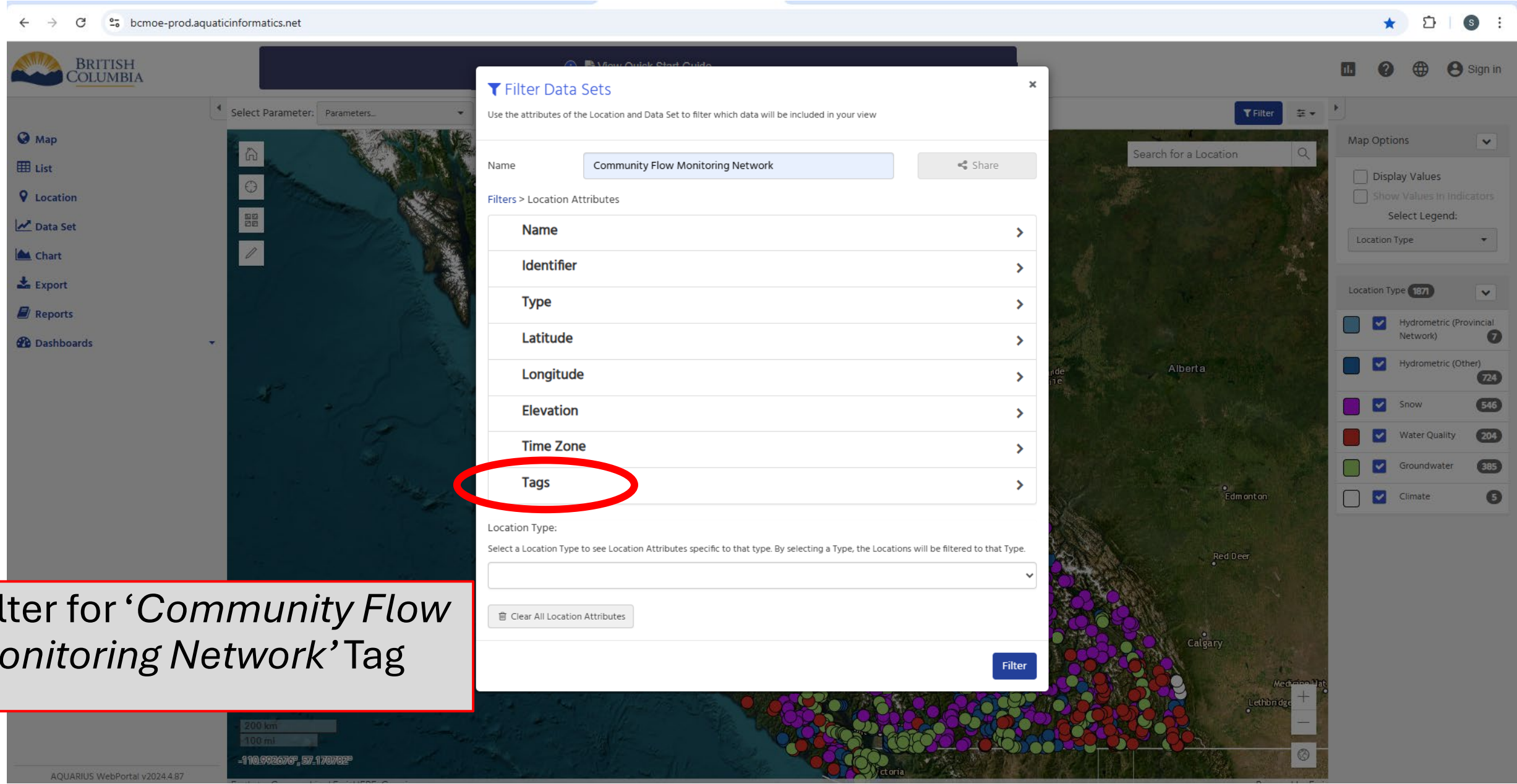
Filter for '*Community Flow Monitoring Network*' Tag

How to Search for a Station



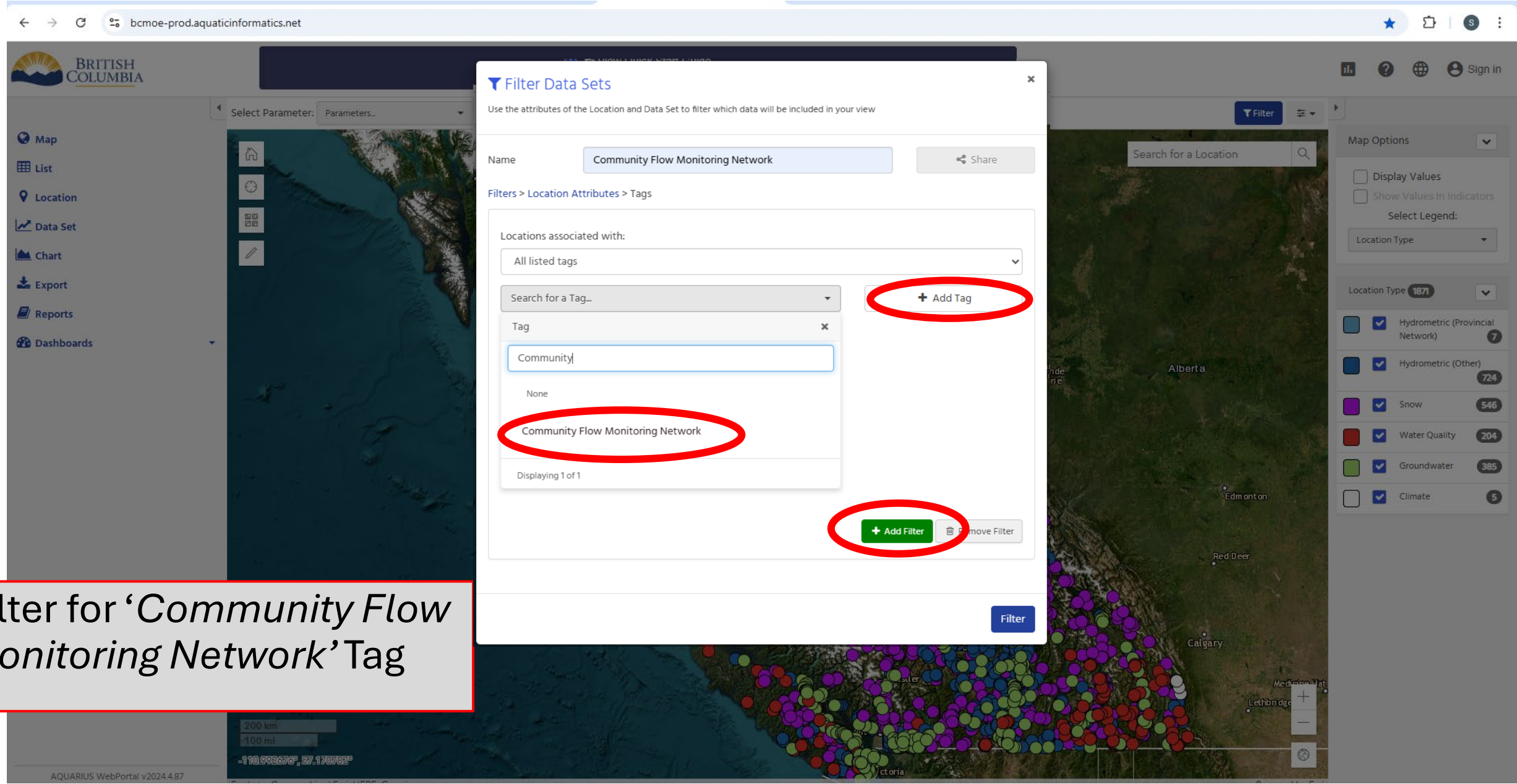
Filter for '*Community Flow Monitoring Network*' Tag

How to Search for a Station



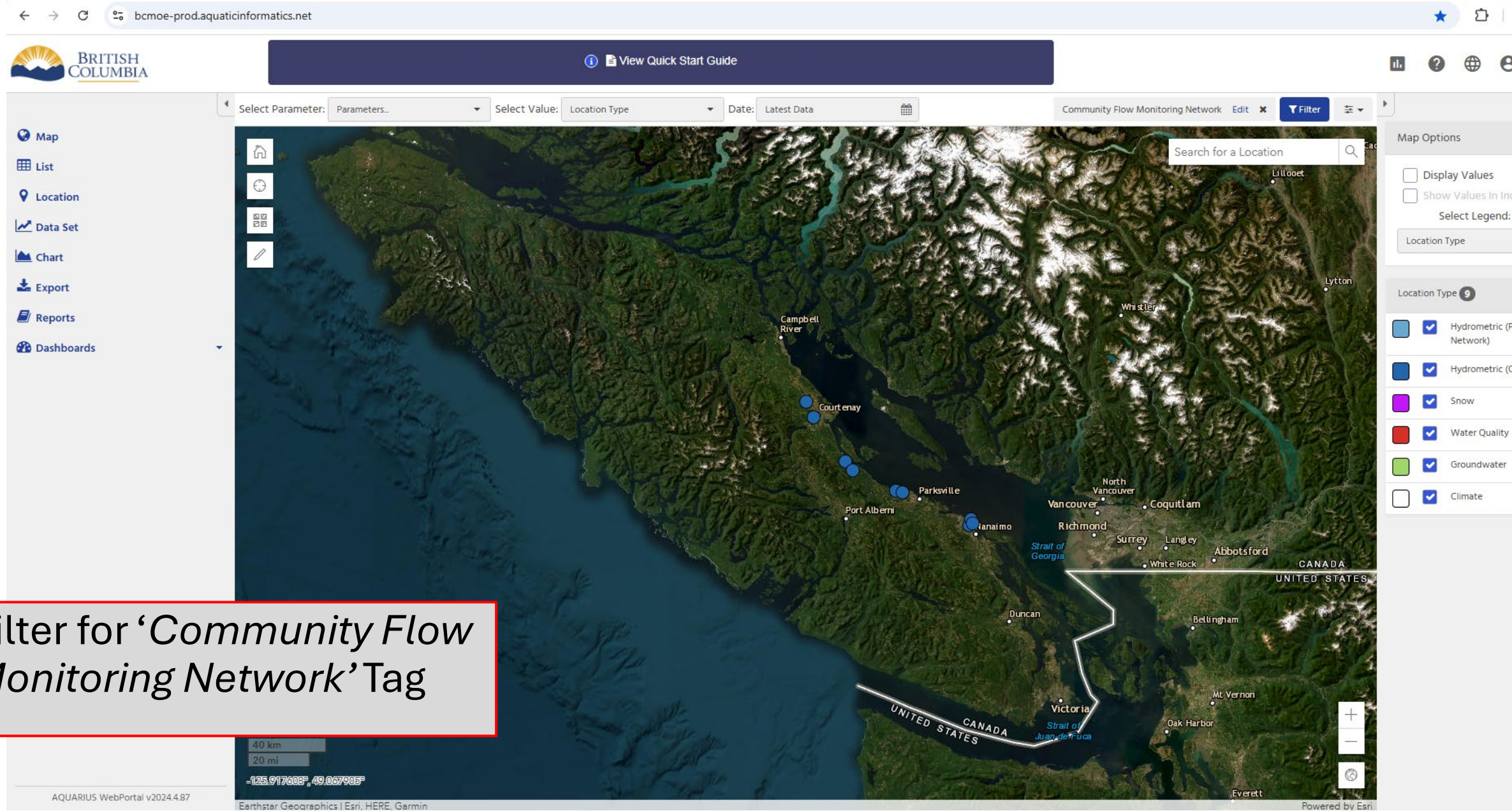
Filter for '*Community Flow Monitoring Network*' Tag

How to Search for a Station



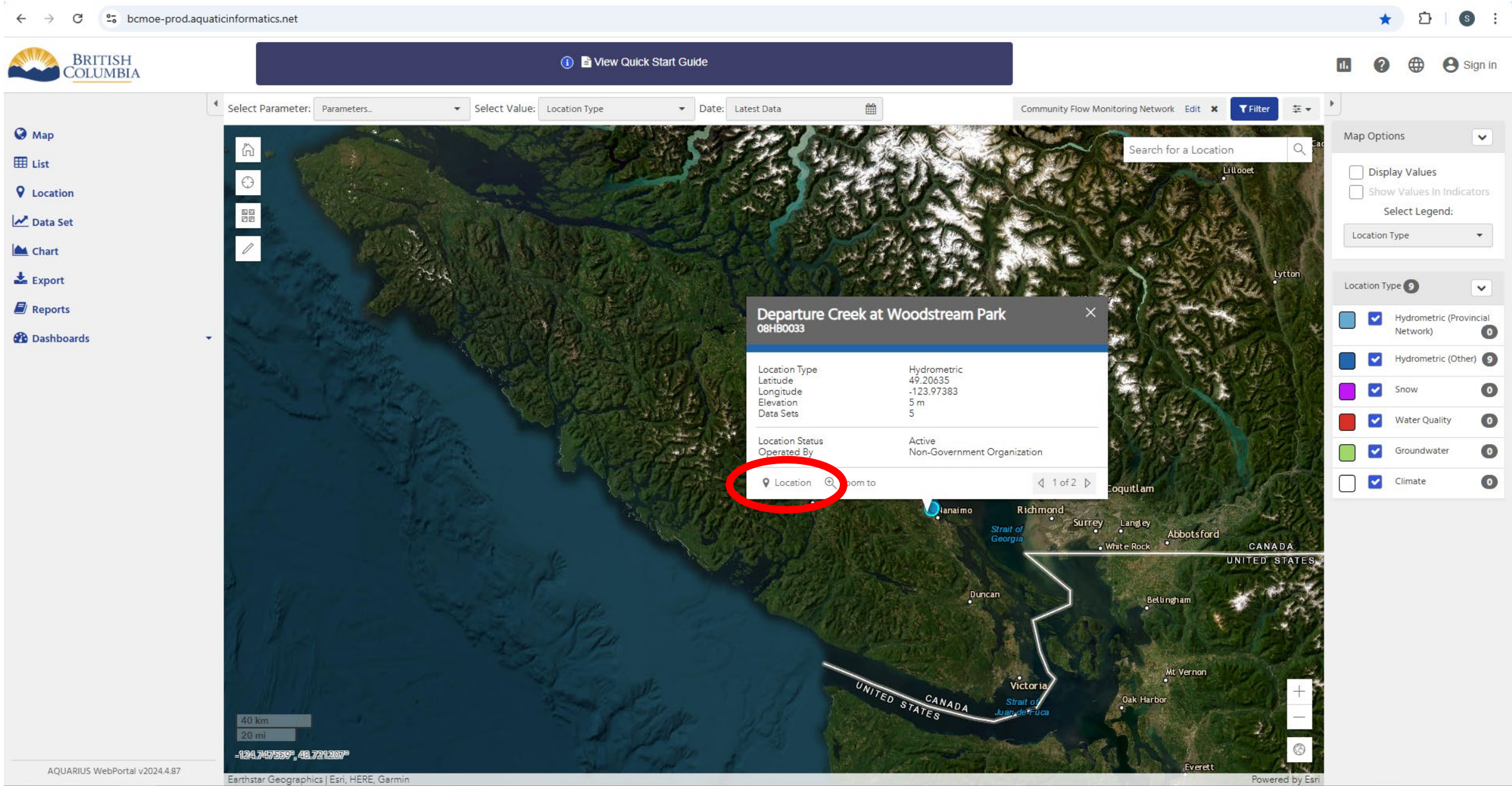
Filter for '*Community Flow Monitoring Network*' Tag

How to Search for a Station

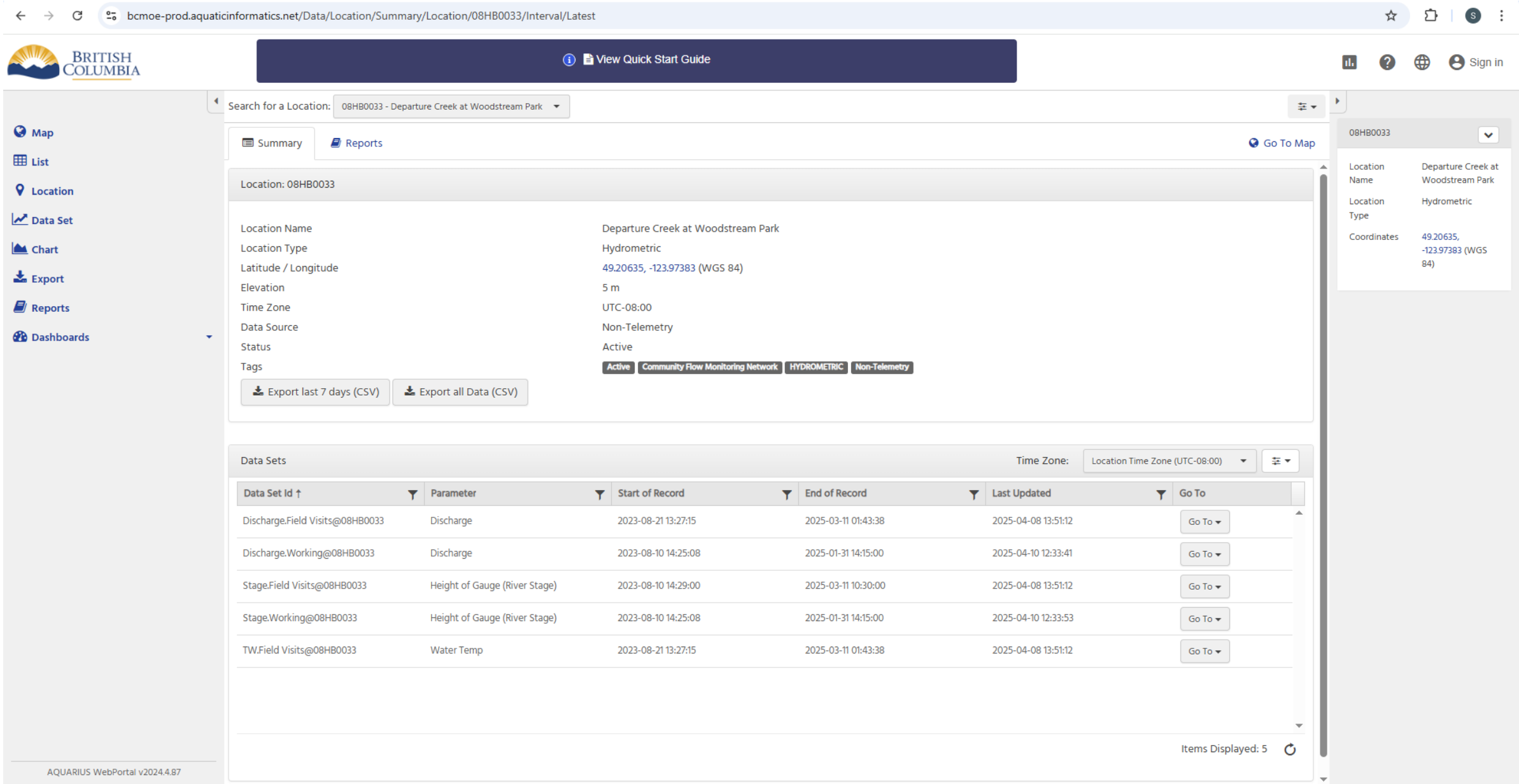


Filter for '*Community Flow Monitoring Network*' Tag

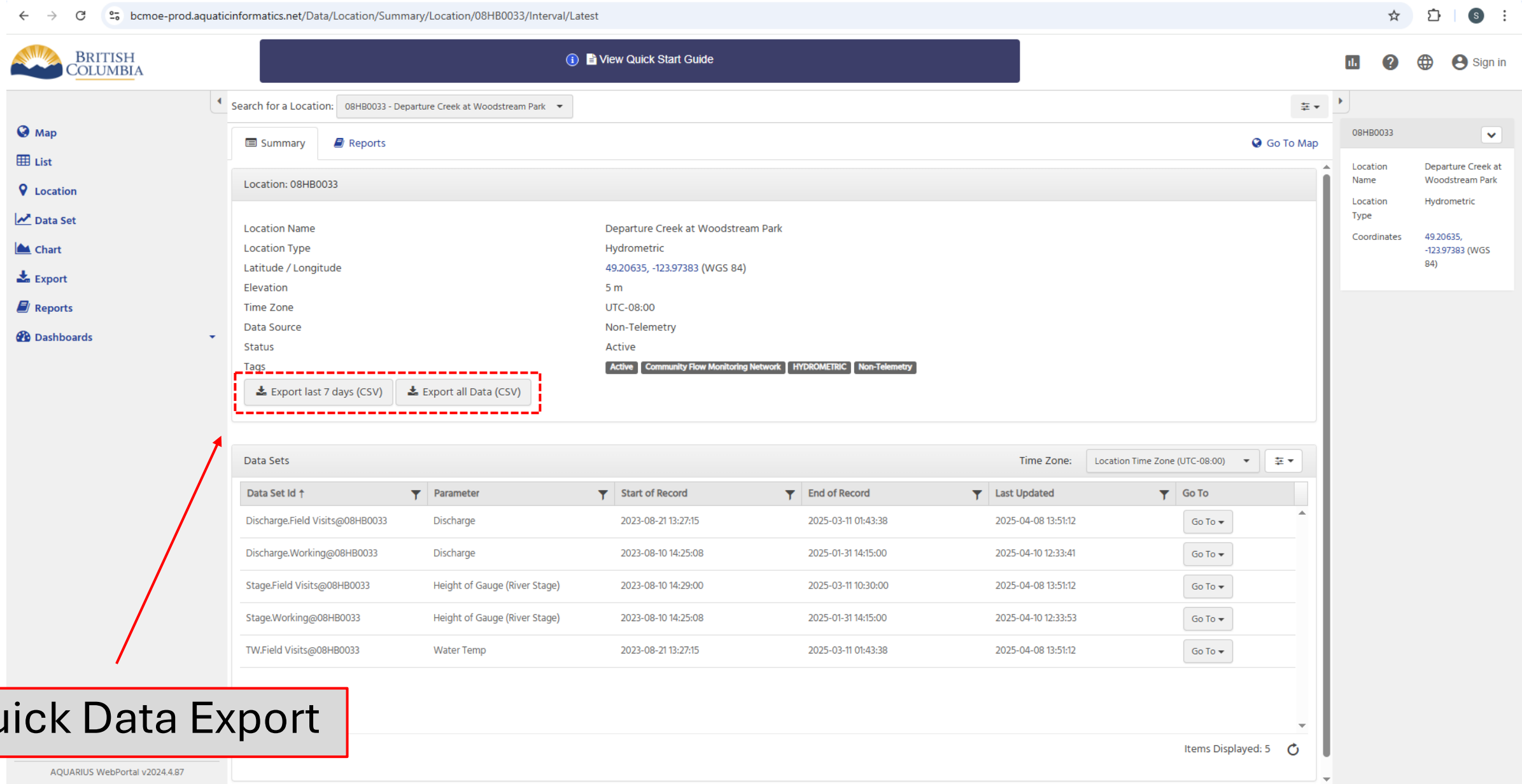
How to View Data



How to View Data – Main Page

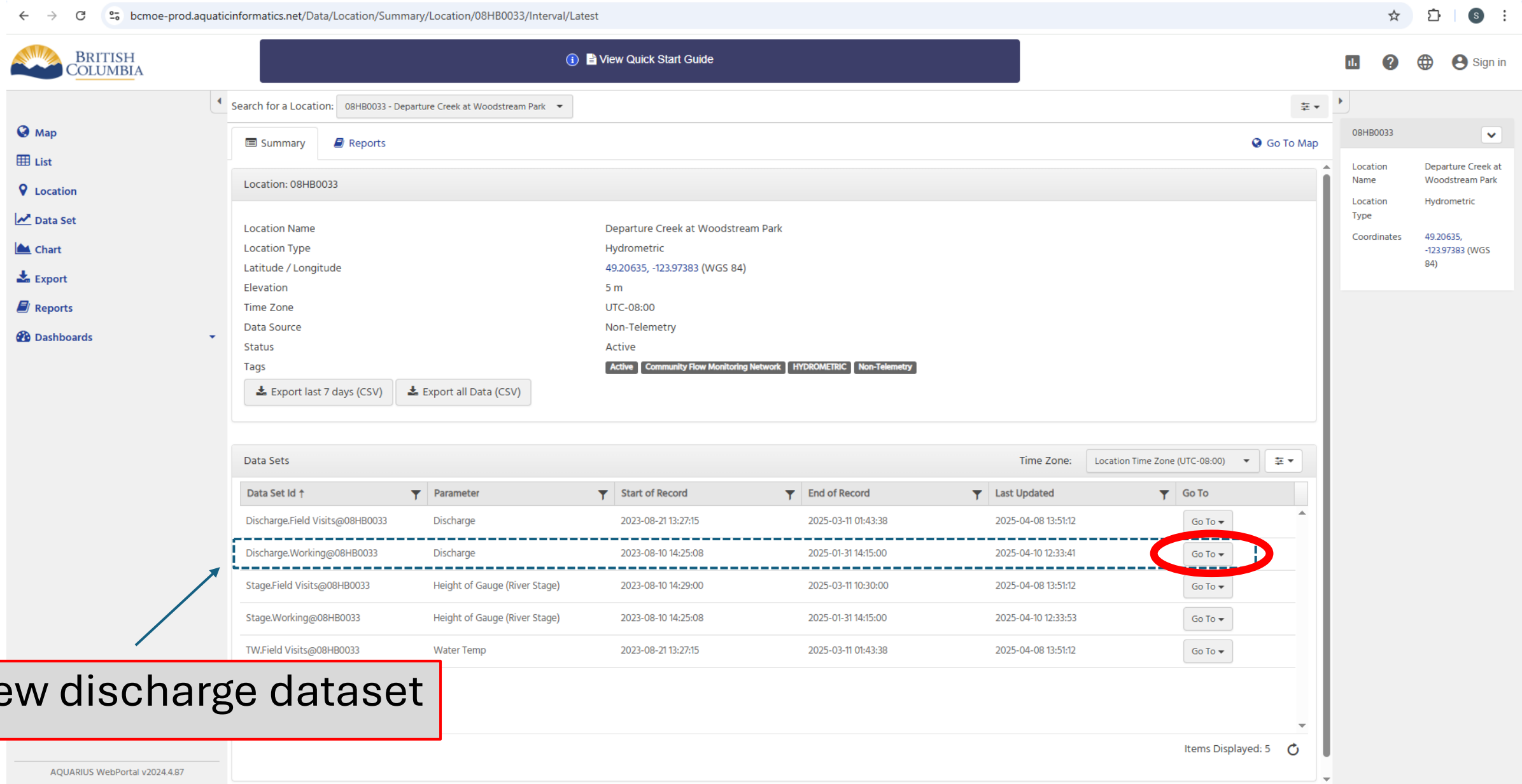


How to View Data – Main Page



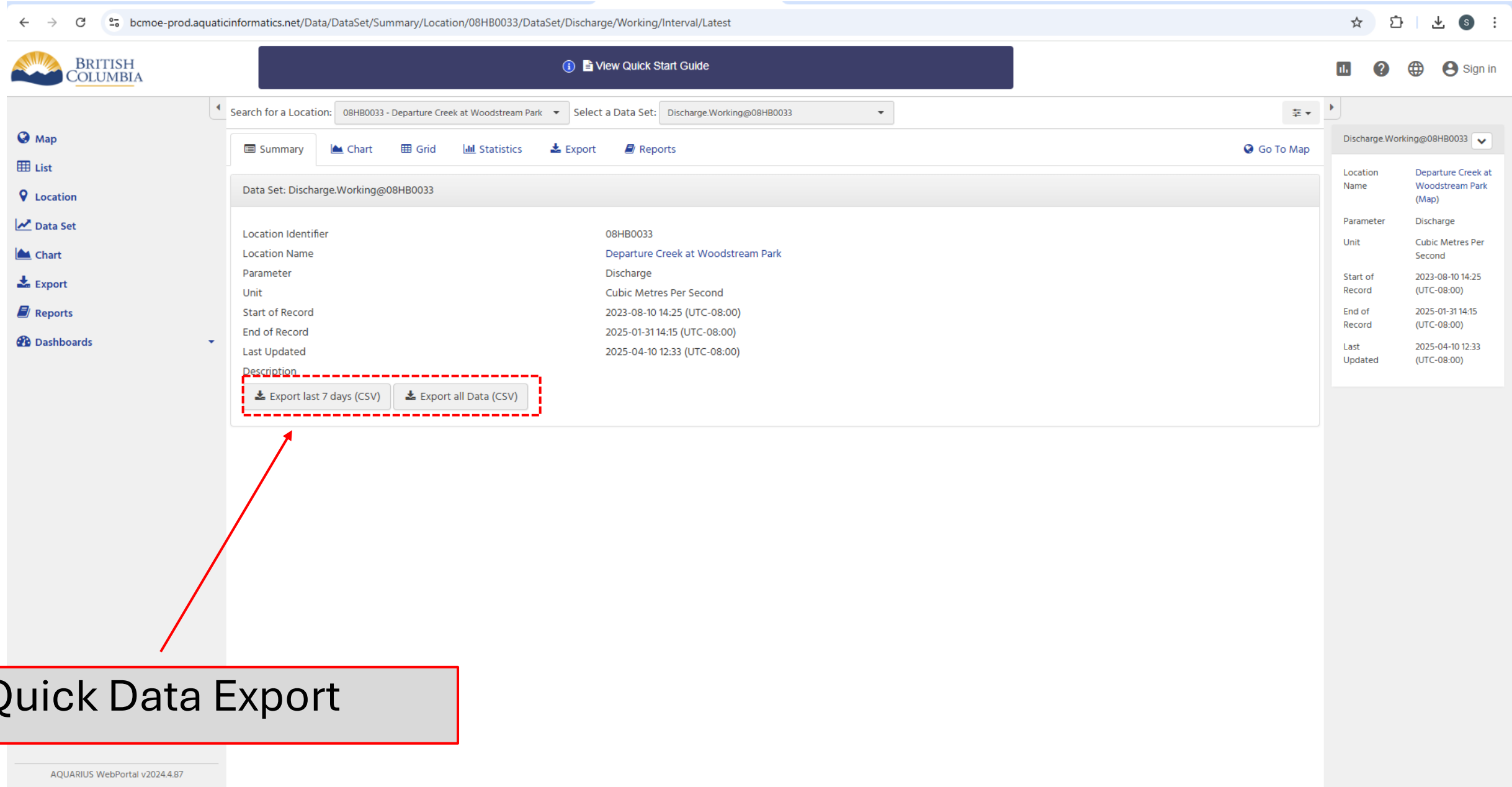
Quick Data Export

How to View Data – Main Page



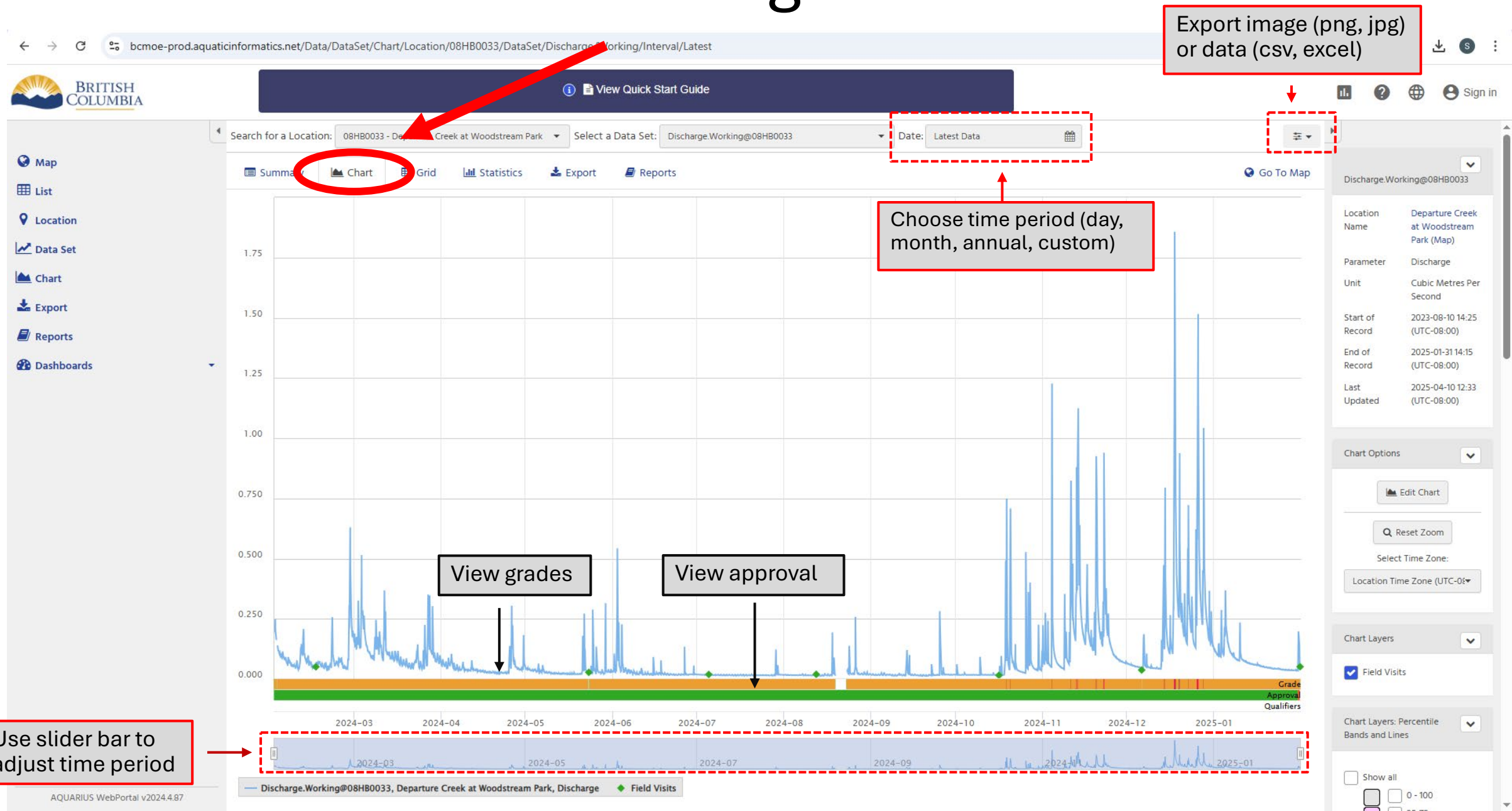
View discharge dataset

How to View Data – Discharge Summary

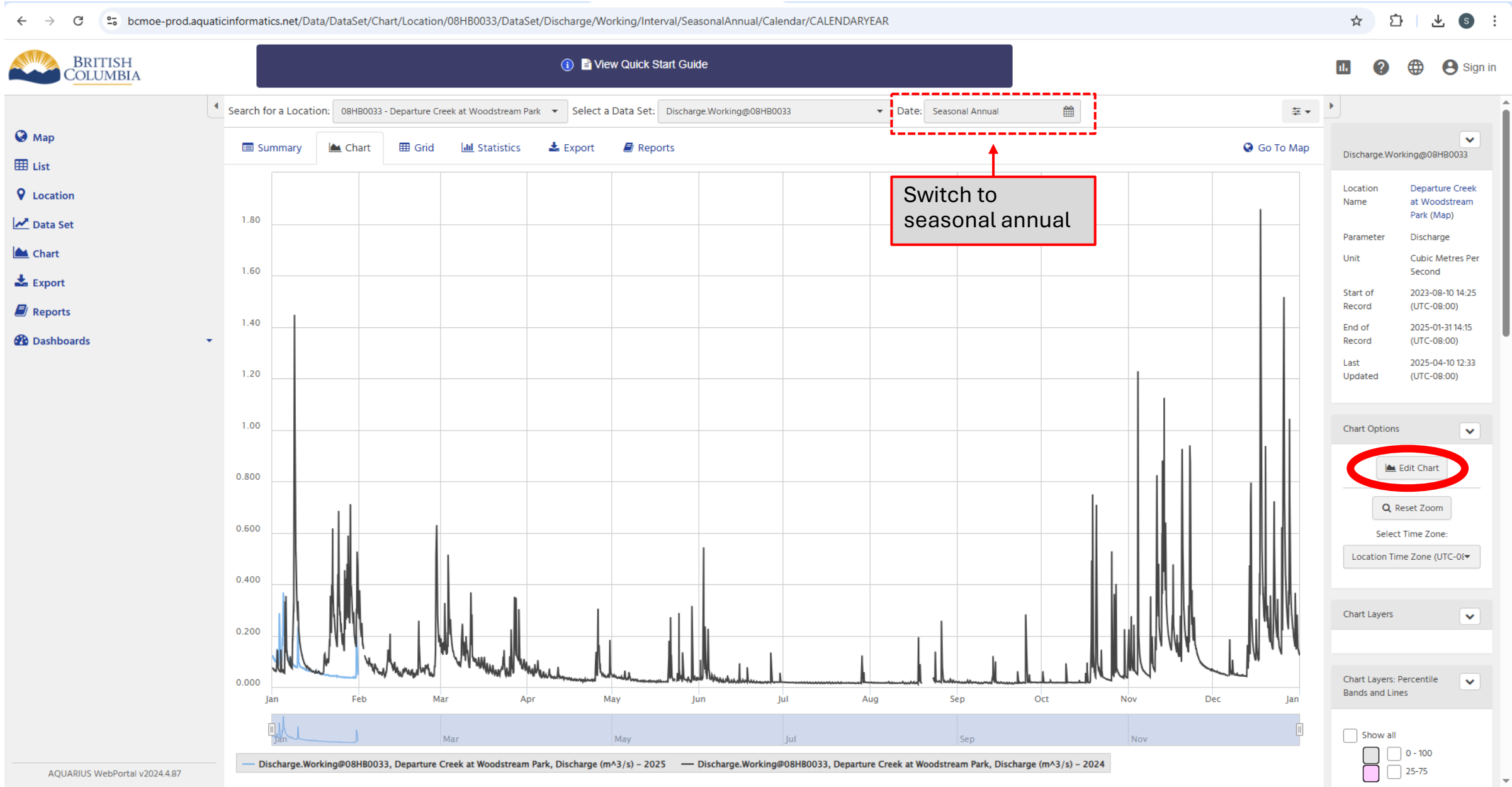


Quick Data Export

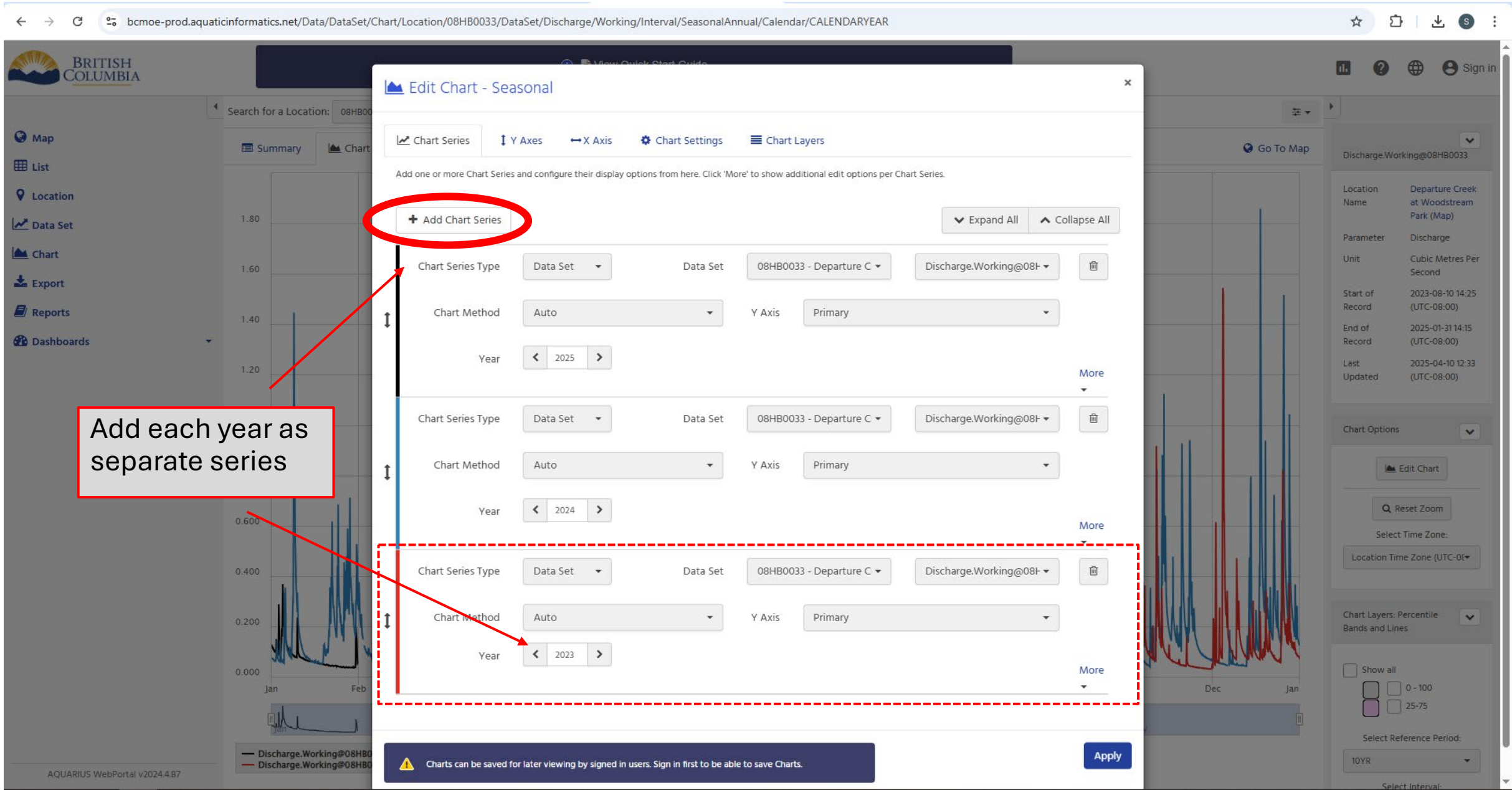
How to View Data – Discharge Chart



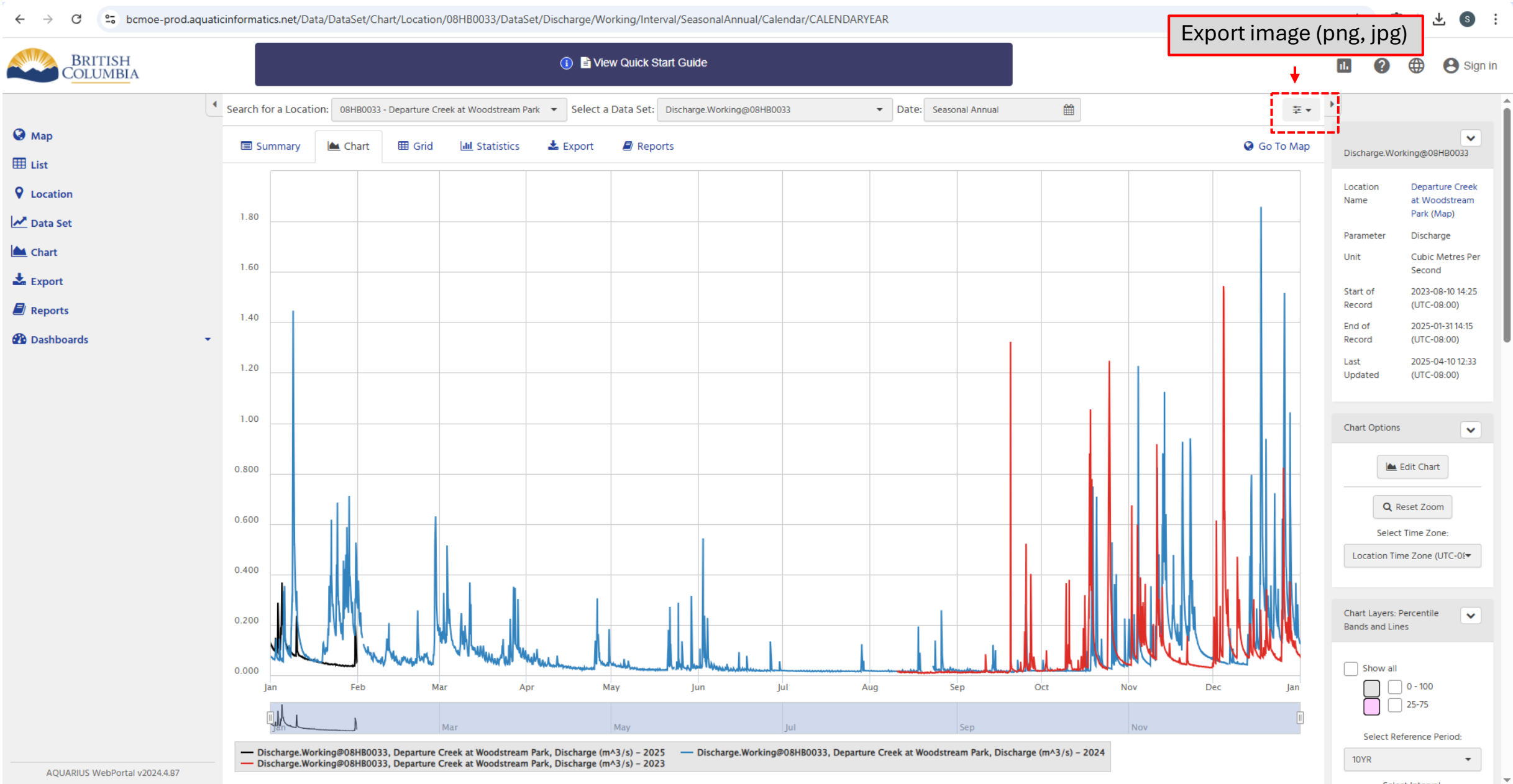
How to View Data –Discharge by Year



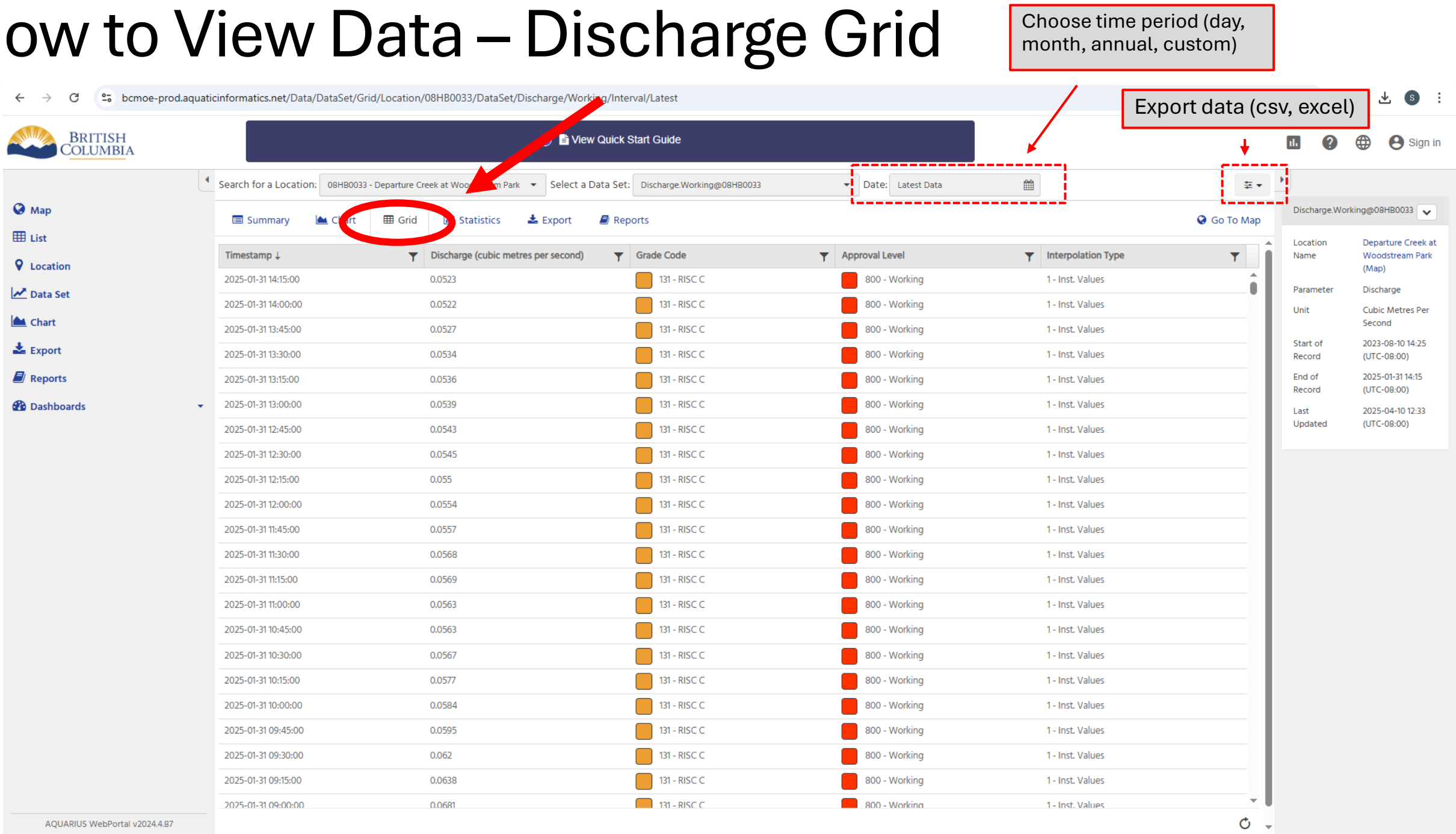
How to View Data –Discharge by Year



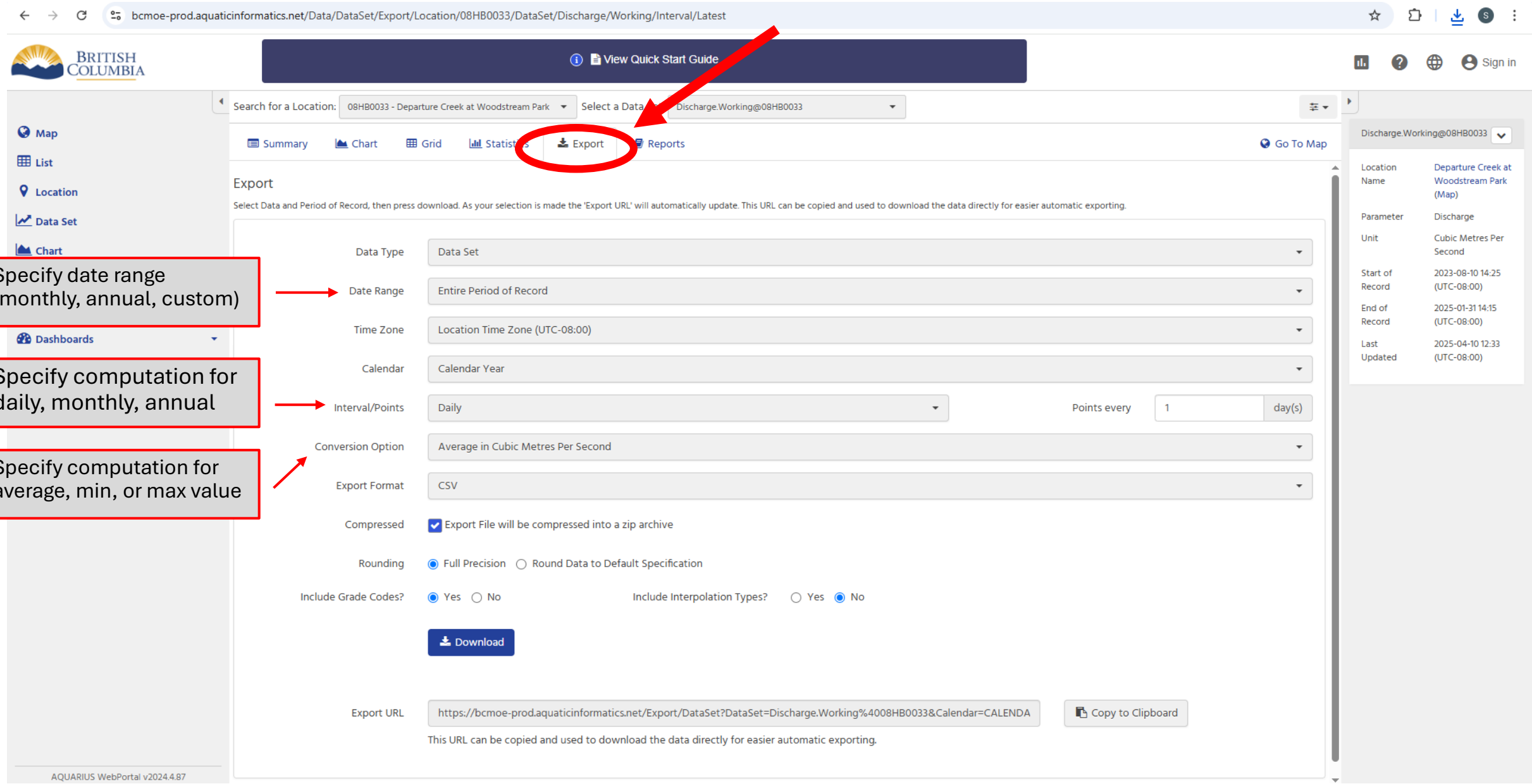
How to View Data –Discharge by Year



How to View Data – Discharge Grid



How to Export Data – Daily Average Discharge



Specify date range (monthly, annual, custom)

Specify computation for daily, monthly, annual

Specify computation for average, min, or max value