



Idaho DEQ

KOOTENAI/MOYIE WATERSHED ADVISORY GROUP

OCTOBER 26, 2023

Agenda

1. INTRODUCTIONS
2. HOUSEKEEPING
3. SELENIUM IN THE KOOTENAI RIVER
4. FUTURE AGENDA ITEMS
5. FUTURE DISCUSSION TOPICS
6. ADJOURN

Introductions

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WAG

Housekeeping

- INTEGRATED REPORT UPDATE
- TEMPERATURE LOGGERS

Integrated Report WAG Consultation

- BAG/WAG CONSULTATION SEPTEMBER 2, 2023 THROUGH OCTOBER 31, 2023
- EPA INFORMAL REVIEW BEGINS NOVEMBER 1, 2023 THROUGH DECEMBER 31, 2023
- POST FOR PUBLIC COMMENT JANUARY 24, 2024 THROUGH FEBRUARY 24, 2024
- SUBMIT TO EPA APRIL 1, 2024
- [HTTPS://STORYMAPS.ARCGIS.COM/STORIES/05BA969D242C43B6B1564F49DF408789](https://storymaps.arcgis.com/stories/05ba969d242c43b6b1564f49df408789)

Temp Loggers?

DEQ MAY BE REVISING OUR WATER QUALITY CRITERIA FOR TEMPERATURE AND THE ROBUST DATASET FOR TEMPERATURE IN THE KOOTENAI/MOYIE MAY BE CRITICAL

THE KOOTENAI/MOYIE TEMP DATA WILL BE COMPARED TO A SIMILAR PRIEST LAKE DATASET

[HTTPS://STORYMAPS.ARCGIS.COM/STORIES/F8D2EBACF8E343998C762436D1AD775D](https://storymaps.arcgis.com/stories/f8d2ebacf8e343998c762436d1ad775d)

Selenium

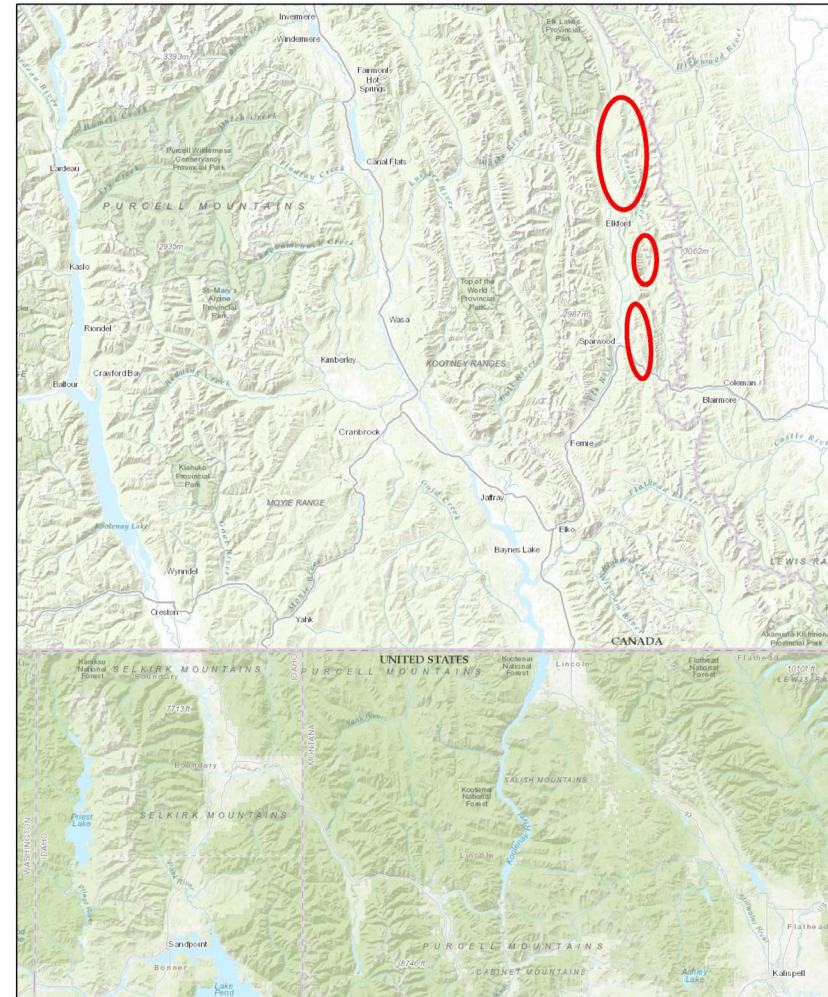
- ▶ Naturally occurring metal in very small trace amounts
- ▶ Essential for aquatic life in trace amounts
- ▶ Very toxic to wildlife in elevated concentrations
- ▶ Selenium pollution does not originate in Idaho
- ▶ <https://storymaps.arcgis.com/stories/5c8c3b33b1d04adc8157a04455e7eca1>

Source of the Selenium

- ▶ The selenium pollution is a byproduct of coal mining in Canada
- ▶ Elk River, British Columbia
- ▶ Elevated Selenium concentrations have been observed in the Kootenai and Columbia River systems
- ▶ Affects British Columbia, Montana, Idaho, Washington and the Confederated Salish and Kootenai Tribes

Source of the Selenium

Elk Valley Mines



0 12.5 25 50 75 100 Miles

Source of the Selenium

Teck Coal Mine Pit



0 1 2 4 6 8 Miles

Idaho Selenium Water Quality Standard

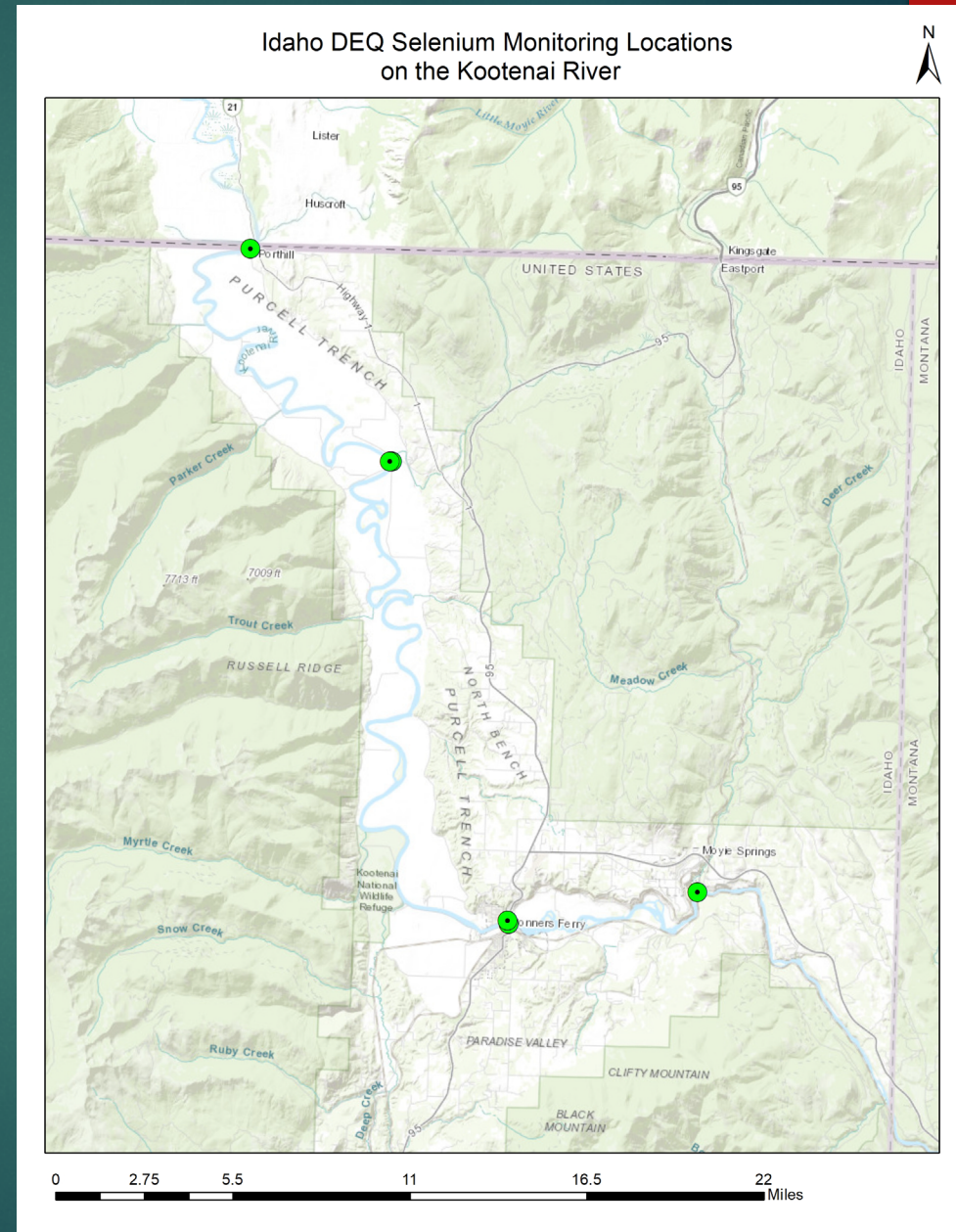
I. Chronic				Short-term	
Egg-Ovary (mg/kg dw)	Fish Tissue (mg/kg dw)		Water Column (µg/L)		Water Column (µg/L)
Egg-Ovary	Whole-Body	Muscle	Water Lentic	Water Lotic	Water
15.1 ¹	8.5 ²	11.3 ²	1.5 (30 day average) ³	3.1 (30 day average) ³	Intermittent Exposure Equation ^{3,4}
mg/kg dw – milligrams per kilogram dry weight, µg/L – micrograms per liter					
<p>1. Egg-ovary supersedes any whole-body, muscle, or water column element when fish egg-ovary concentrations are measured. Single measurement of an average or composite sample of at least five (5) individuals of the same species. Not to be exceeded; DEQ will evaluate all representative egg-ovary data to determine compliance with this criterion element.</p> <p>2. Fish whole-body or muscle tissue supersedes water column element when both fish tissue and water concentrations are measured. Single measurement of an average or composite sample of at least five (5) individuals of the same species where the smallest individual is no less than seventy-five percent (75%) of the total length (size) of the largest individual. Not to be exceeded; DEQ will evaluate all representative whole body or muscle data to determine compliance with this criterion element.</p> <p>3. Water column values are based on dissolved total selenium in water and are derived from fish tissue values via bioaccumulation modeling. Water column values are the applicable criterion element in the absence of steady-state condition fish tissue data. In fishless waters, selenium concentrations in fish from the nearest downstream waters may be used to assess compliance using methods provided in Aquatic Life Ambient Water Quality Criterion for Selenium – Freshwater, EPA-822-R-16-006, Appendix K: Translation of a Selenium Fish Tissue Criterion Element to a Site-Specific Water Column Value (June 2016).</p> <p>4. Intermittent Exposure Equation=</p> $\frac{WQC - C_{bkgnd}(1 - f_{int})}{f_{int}}$ <p>where WQC is the applicable water column element, for either lentic or lotic waters; C_{bkgnd} is the average background selenium concentration, and f_{int} is the fraction of any 30-day period during which elevated selenium concentrations occur, with f_{int} assigned a value ≥ 0.033 (corresponding to one day).</p> <p>m. There is no specific acute criterion for aquatic life; however, the aquatic life criterion is based on chronic effects of the selenium on aquatic life and is expected to adequately protect against acute effects.</p>					

Current Impairment Status for the Kootenai River

- ▶ Two Kootenai River Assessment Units are 303d listed as “Not supporting” for the Cold-Water Aquatic Life Beneficial Use. Selenium was listed as a pollutant based on USGS and Kootenai Tribe of Idaho egg/ovary selenium data.
- ▶ ID17010104PN031_08 - Idaho/Montana to Moyie River
- ▶ ID17010104PN029_08 – Moyie River to Deep Creek
- ▶ <https://mapcase.deq.idaho.gov/wq2022/default.html>

Idaho DEQ Kootenai River Se Monitoring Sites

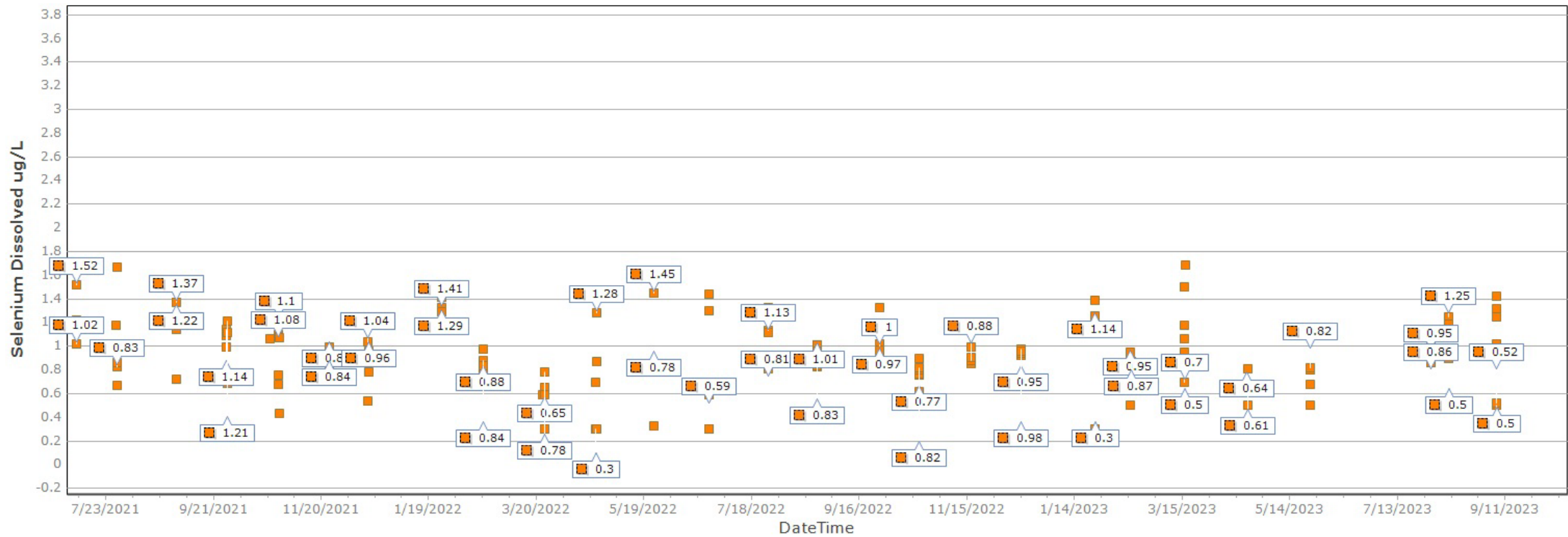
- ▶ Twin Rivers Boat Launch
- ▶ Bonners Ferry Bridge South
- ▶ Bonners Ferry Bridge North
- ▶ Copeland Bridge
- ▶ Copeland Boat Launch
- ▶ Porthill Boat Launch



All Selenium samples in the Kootenai River

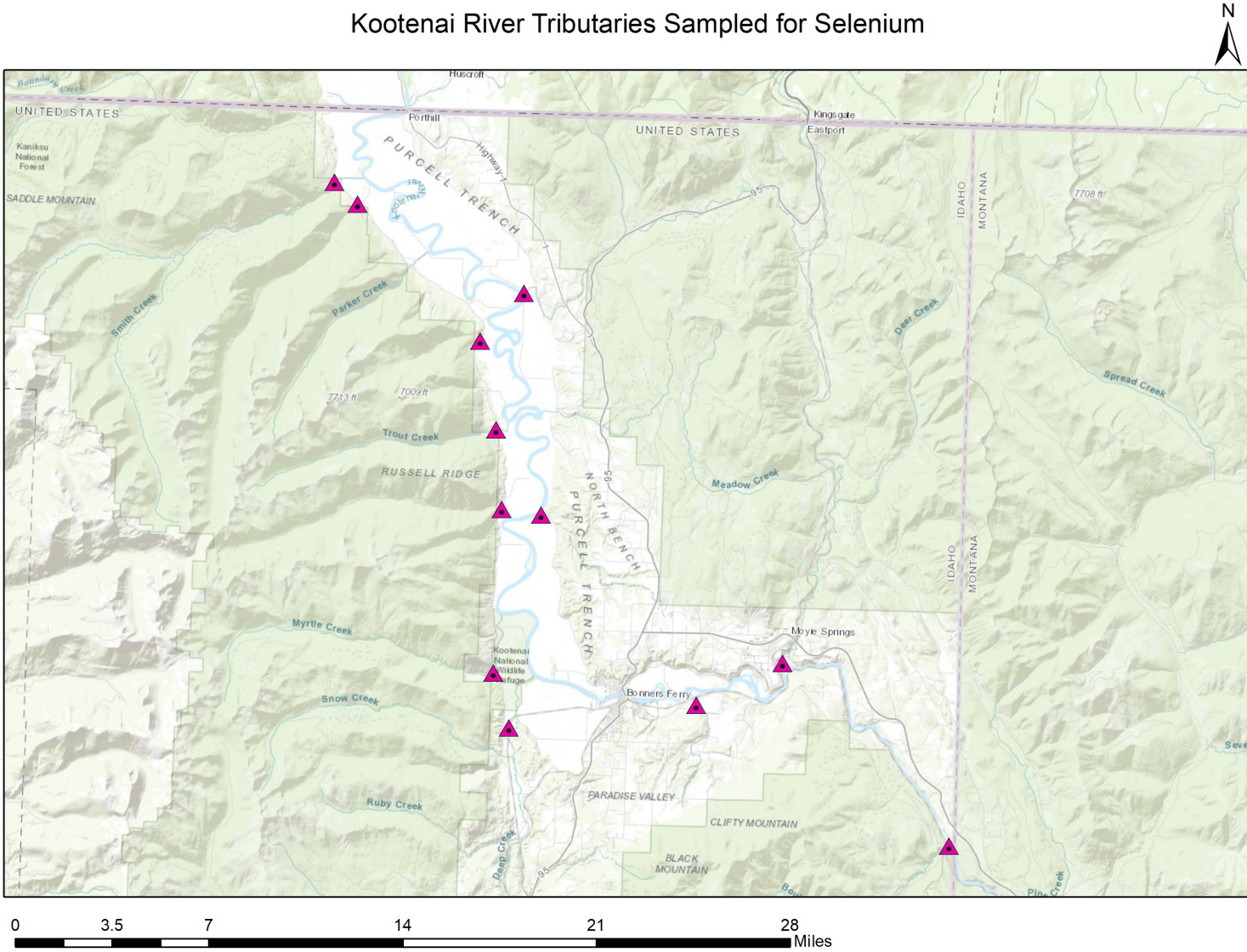
Kootenai River Selenium (All Samples)

■ Selenium Dissolved ug/L



Kootenai River Tributaries

Kootenai River Tributaries Sampled for Selenium



Tributary Monitoring Results

- ▶ So far, we have not seen any tributary samples with a dissolved selenium concentration above the laboratory Detection Limit (DL) of 0.5 - ug/L.

Stream	Date	Time	Selenium Dissolved ug/L
Deep Creek	7/29/2021	1:30:00 PM	< 0.5
Smith Creek	8/31/2021	11:00:00 AM	< 0.5
Myrtle Creek	9/28/2021	1:25:00 PM	< 0.43
Mission Creek	10/27/2021	12:10:00 PM	< 0.5
Deep Creek	10/27/2021	1:25:00 PM	< 0.43
Long Canyon Creek	11/24/2021	12:10:00 PM	< 0.5
Fisher Creek	12/16/2021	11:45:00 AM	< 0.5
Trout Creek	12/16/2021	12:15:00 PM	< 0.5
Cow Creek	1/26/2022	1:20:00 PM	< 0.3
Ball Creek	1/26/2022	1:30:00 PM	< 0.3
Mission Creek	2/18/2022	11:45:00 AM	< 0.5
Boulder Creek	3/23/2022	8:45:00 AM	< 0.3
Deep Creek	7/27/2022	1:15:00 PM	< 0.3
Myrtle Creek	10/19/2022	11:40:00 AM	< 0.3
Boundary Creek	11/17/2022	11:17:00 AM	< 0.3
Smith Creek	11/17/2022	12:10:00 PM	< 0.3
Fisher Creek	1/25/2023	9:55:00 AM	< 0.3
Mission Creek	2/14/2023	10:50:00 AM	< 0.5
Moyie River Dam	4/20/2023	8:30:00 AM	< 0.5
Moyie River Dam	5/25/2023	8:45:00 AM	< 0.5
Long Canyon Creek	5/25/2023	10:45:00 AM	< 0.5
Ball Creek	5/25/2023	10:45:00 AM	< 0.5
Myrtle Creek	7/31/2023	2:40:00 PM	< 0.5
Trout Creek	9/6/2023	11:20:00 AM	< 0.5
Moyie River	3/24/2022	10:30:00 AM	< 0.3
Moyie River	1/25/2023	12:05:00 PM	< 0.3
Moyie River	2/14/2023	9:15:00 AM	< 0.5
Moyie River	3/16/2023	9:35:00 AM	< 0.5
Moyie River	7/31/2023	12:40:00 PM	< 0.5
Moyie River	8/10/2023	10:55:00 AM	< 0.5
Moyie River	9/6/2023	8:15:00 AM	< 0.5

Tributary Monitoring Results

Future Actions for Selenium?

- ▶ Continue to monitor the Kootenai and its tributaries.
- ▶ Develop Total Maximum Daily Load.
 - ▶ Ideally, we would like to coordinate with Montana in the development of the TMDL.
 - ▶ Idaho may request EPA contractors to create the TMDL.

Future WAG Topics?

- ▶ Any new discussion topics?



Thank you!

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