



Elk River
Watershed
Qukin
ʔamakʔis Collaborative
Monitoring
Program

Monitoring Working Group

14th Meeting – June 15, 2026 - Meeting Notes

Attendance

1. Aaron Glover, *EVR*
2. Allie Ferguson, Cumulative Effects Specialist, *Yaqit ʔa-knuqti'it First Nation*
3. Arlo Bryn-Thorne, Program Manager, *LLC*
4. Ashlee Jollymore, Consultant, *MacHydro*
5. Caitlin Henneker, Program Manager, *ERA*
6. Cybele Heddle, Senior Lead: Aquatic Science, *EVR*
7. Farin Sreya, Environmental Stewardship and Outreach Intern, *ERA*
8. Jocelyn Kopas, Aquatic Sciences Coordinator, *EVR*
9. Kara Przewczek, Environmental Impact Assessment Biologist, *BC ENV*
10. Mariah Arnold, Aquatic Program Director, *EVR*
11. Nick Pennell, Manager of Engineering, *City of Fernie*
12. Samantha Mertens, Land and Resource Specialist, *BC WLRS*
13. Stella Swanson, Consultant, *ERA*
14. Tyler Phillips, Lands Director, *Yaqit ʔa-knuqti'it First Nation*

Meeting outcomes

EVR Water Monitoring Programs	<p>EVR delivered a presentation on their current water monitoring programs. The presentation covered the adaptive management cycle, an overview of regional and local monitoring programs, key results, and the monitoring data and reports access locations.</p> <p>Action items</p> <ul style="list-style-type: none">- Mariah to identify a concise Elk Valley Water Quality Plan reference/'cheat sheet' on critical effect sizes for IJC TWGs and report back to Stella Swanson.
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<p>Data overview report: IJC sharing</p>	<p>Caitlin updated the group on the IJC’s request for an advance copy of Version 1 of the data overview report. The Steering Committee supported sharing if the Working Group was comfortable with the report’s status. Caitlin summarised key updates between draft versions. The Working Group formally agreed to share the finalised Version 1 with the IJC Technical Working Groups once all updates are made.</p> <p>Action items</p> <ul style="list-style-type: none"> - Report team: Update report sources to reflect all publicly accessible EVR data (Glencore Canada, NMODS, WQX, Elk Valley Water Quality Hub), tag Mariah Arnold for review, address final comments, prepare Version 1 for end-of-June delivery, circulate it to the group before sharing with the IJC, and meet with Yaqit ‘a·knuqhi’it First Nation to incorporate Land and Water Use study content. - Mariah Arnold: Supply EVR references, links, and report names, review the benthic section to ensure habitat and climate context is included and causal statements are avoided. - Report team: Provide Sam Mertens with a proposed citation for CEMF data.
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Meeting minutes

<p>EVR Water Monitoring Programs</p> <p>Adaptive Management Cycle</p>	<p>[M. Arnold] opened the session, noting that EVR’s aquatic sciences team has expanded to include human health, groundwater, and surface water monitoring. She introduced two new team members presenting on her behalf: [A. Glover] and [J. Kopas], coordinators within the Regional Aquatics Science Team.</p> <p>[A. Glover] presented the six stage adaptive management cycle used in all EVR water quality monitoring programs: assessment (identify the question), design (develop a sampling program), monitoring (collect data), evaluation (interpret results), response/adjustment (implement management actions or new studies), and confirmation (reassess whether questions were answered or new ones have emerged). Study designs are informed by lessons from previous programs, external experts and the Environmental Monitoring Committee (EMC), which includes</p>
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<p>Monitoring program overview</p>	<p>representatives from First Nations, government, Interior Health, and independent scientists. These stakeholders are not only involved in design but also receive results throughout the cycle. Programs operate at two scales: regional (Elk Valley-wide) and local (site-specific), with local programs often arising from questions generated by regional programs.</p> <p>[J. Kopas] provided an overview of EVR’s monitoring programs. These include the Surface Water Quality Monitoring Program, RAEMP (Regional Aquatic Effects Monitoring Program), Regional Calcite Monitoring Program, Chronic Toxicity Program, Fish Health Monitoring, the Koochanusa Reservoir Monitoring Program, Local Aquatic Effects Monitoring Programs (LAEMPs), the Selenium Speciation Monitoring Program (SeSMP), and Groundwater and Hydrometric Monitoring. [A. Glover] summarized key findings, noting that water treatment and management activities have reduced selenium and nitrate concentrations across the valley. Local monitoring has demonstrated that adjustments to mine management practices are improving outcomes, including documented improvements in benthic communities. The Chronic Toxicity Program has detected no mine-related adverse effects on fish early life stages since 2020, and SeSMP findings indicate that local selenium speciation effects are not expected to adversely affect aquatic populations. [J. Kopas] outlined public access to monitoring information, including reports on the Glencore Canada website, quarterly water quality data uploads to NMODS, Koochanusa data available through WQX, and resources hosted on the Elk Valley Water Quality Hub, noting that EVR monitoring data contribute to and are informed by peer-reviewed scientific research.</p>
<p>Q&A:</p>	<p>[C. Henneker] asked what triggers an observation to become a formal research question within the monitoring programs, noting interest in how recurring tributary concerns, such as additional CABIN sampling in some areas, are formalised. [M. Arnold] explained that study questions may arise from concerns about treatment facility performance, recurring monitoring patterns that may be mine-related, or community observations regarding fish health and fish use raised through open houses or the EMC. She noted that these questions are specifically tied to potential mining or treatment impacts and their relevance to risk assessment or management decisions. Habitat factors such as algae</p>

blooms, wildfire, unusual precipitation, and flooding are documented during routine sampling to provide context for results. **[C. Henneker]** acknowledged that while the collaborative receives substantial community input on recurring observations, such as algae and waterway changes, limited program scope and funding often restrict further investigation. **[M. Arnold]** confirmed that community concerns, particularly those related to fish health and fish use given their importance to rights and title holders, are considered in program planning, but funding constraints limit additional studies.

[C. Henneker] asked whether monitoring sites under permit 107517 are uploaded to the Elk Valley Water Quality Hub and EnMODs, as these databases are used to cross-reference sites for the data overview report. **[M. Arnold]** confirmed that both permitted sites and locations identified in approved monitoring study designs are uploaded to the databases. She noted that permit 107517 includes a large number of sites, with many additional monitoring locations existing within study designs that are not formally listed in the permit.

[C. Henneker] a key challenge remains that the provincial EMS database does not identify site ownership, leaving a small number of sites unattributed despite efforts to match naming conventions. **[M. Arnold]** acknowledged that site names and locations have changed over time due to treatment infrastructure, project expansions, and evolving naming conventions. She noted that some permitted sites may have been relocated or renamed and encouraged the collaborative team to flag any discrepancies for follow-up.

[A.B-Thorn] asked whether there is a quantified threshold for defining unusual precipitation events and, more broadly, how the team determines when parameter variation warrants investigation rather than reflecting normal seasonal or inter-annual variability. **[M. Arnold]** confirmed there is no formal trigger threshold. Instead, environmental conditions such as atmospheric rivers, unusually hot summers, or early freshet are evaluated against historical records and incorporated into a narrative interpretation of results. She cited a past atmospheric river event that coincided with changes in downstream organoselenium, where long-term SeSMP data helped contextualise a biological signal that would have been difficult to interpret from a single season.

	<p>When asked how variation is assessed without a threshold, [M. Arnold] explained that the programs focus on characterising concentrations to which aquatic receptors are exposed, rather than classifying climatic variability. Flow, temperature, and precipitation data are compared to historical records to identify notable departures, and statistical analyses are used to evaluate whether habitat variables influence biological endpoints. The objective is to provide context rather than apply threshold-based classifications.</p> <p>[A. Jollymore] asked how year-to-year changes in flow and flow paths, and the resulting differences in constituent delivery, are accounted for given recent unusual flow patterns. [M. Arnold] explained that flow-path changes and constituent transport are primarily addressed through regional water quality modelling, while biological monitoring focuses on measured concentrations at the time of sampling. She noted that site placement, including locations immediately downstream of treatment facilities and areas receiving no treated water, is designed to help distinguish treatment effects from background variability.</p> <p>[S. Swanson] asked whether EVR uses critical effect sizes for biological monitoring endpoints and whether they are derived similarly to those used in the National EEM Program. [M. Arnold] confirmed that the Elk Valley Water Quality Plan incorporates critical effect sizes of 10% for fish and 20% for benthic invertebrates, based on published literature, including work by Chris Mebane, U.S. EPA guidance, and B.C. and U.S. standards. These thresholds also align with Level 1 and Level 2 benchmarks for key constituents, including nitrate, sulfate, cadmium, and selenium. [S. Swanson] asked whether this information is available in a concise reference document for IJC TWG members. [M. Arnold] noted that the primary source is the Elk Valley Water Quality Plan and committed to identifying a more accessible summary.</p>
<p>Data overview report: IJC sharing</p>	<p>[C. Henneker] transitioned to discussion of the data overview report, noting that several IJC TWGs, most recently the Mitigation TWG, had requested an advance copy by the end of June. She reported that the Steering Committee agreed the report could be shared once the Working Group was satisfied with its status, with the proposal being to finalise the document as “Version 1” following the current review period.</p>

	<p>[S. Swanson] provided context on the IJC timeline, noting that all four TWG draft final reports had recently been submitted and were being reviewed ahead of the July 7 deadline. She explained that the TWGs are eager to receive the Collaborative’s report as a high-level overview of available data to help contextualise status and trends across the study area. The TWGs are familiar with the Collaborative’s data quality and screening work and view the report as a valuable resource for identifying transboundary pollutant impacts. [S. Swanson] emphasized that the report would be treated as a guide to available data rather than a conclusions document. In response to a question from [A. Jollymore] about likely reception, [S. Swanson] said the report would likely be welcomed, as it provides a collaborative, multi-stakeholder summary of available information that the TWGs have not had the capacity to produce within their timelines. She noted that the ecological and human health TWGs are under particular pressure due to the breadth of their mandates.</p> <p>The Working Group approved a motion to share the finalised Version 1 of the data overview report with the IJC Technical Working Groups once all remaining comments and updates have been incorporated.</p>
<p>Data overview report: Feedback</p>	<p>[C. Henneker] summarised key revisions made between the first and second draft of the data overview report and opened for feedback.</p> <p>[M. Arnold] noted that the report currently overemphasises the RAEMP and does not adequately reflect the breadth of publicly accessible EVR data available through Glencore Canada, NMODS, WQX, and the Elk Valley Water Quality Hub. Given the IJC’s mandate to assess both data availability and accessibility, she stressed the importance of accurately representing all public EVR data sources. [C. Henneker] agreed and confirmed that ERA is updating that section and will seek [M. Arnold]’s review before finalisation. [S. Swanson] reinforced the importance of accurate data representation, noting the report will serve as a key reference for the IJC Technical Working Groups.</p> <p>The group agreed to determine an appropriate CEMF citation approach offline for road updates.</p> <p>[M. Arnold] raised concerns about the benthic invertebrate section, cautioning against causal interpretations that do not account for habitat</p>

	<p>and climate influences. She explained that factors such as channel morphology, scouring, and climate-driven changes can strongly influence benthic communities and often require many years of monitoring to distinguish from water-quality effects. She emphasized that even recent conclusions from EVR were only possible after long-term datasets and treatment-related reductions in water-quality stressors. [C. Henneker] agreed to connect [M. Arnold] with the ERA team to refine the benthic section and ensure habitat and climate context are appropriately reflected.</p>
Symposium	<p>An interactive public symposium is planned for October, with timing coordinated alongside the IJC’s reporting schedule. The event will primarily use a poster-session format, supplemented by keynote presentations, and is intended to serve as the main public launch of the report. Potential contributors include the IJC, Yaqit ?a·knuqi’it First Nation, and the CEMF team.</p>
Closing	<p>[S. Swanson] appreciated the active and thoughtful engagement from everyone to be a strong signal of group investment and will result in a reliably collaborative report, something the IJC values highly. [C. Henneker] adjourned the meeting, noting participants would be contacted individually regarding any outstanding report items, and that Version 1 will be shared with the full group before going to the IJC.</p>