

# Elk River Watershed Collaborative Monitoring Program



## The Need

The Elk River begins high in the Canadian Rockies as a series of picturesque alpine lakes before flowing southwest through the broad sweep of the Elk Valley until it meets Lake Kooconusa and the mighty Columbia River. The Elk Valley, Qukin ʔamakʔis (land of the raven), forms part of the traditional territory of the Ktunaxa Nation. The Elk River and the valley it flows through are essential to its human, fish and wildlife inhabitants, providing economic, cultural, and ecological benefits that ripple far beyond the valley. It provides a critical bridge between continental-scale ecosystems, connecting a vast habitat that runs from the Yukon to the Southern United States. This ecosystem has sustained the Ktunaxa (Kutenai) peoples since time immemorial.



*The Elk River supporting a variety of land use*

# Elk River Watershed

## Collaborative Monitoring Program

Today, the Elk River forms part of the core habitat for Westslope cutthroat trout and bull trout in Canada. Westslope cutthroat trout was listed nationally in 2005 as a species of special concern for British Columbia populations, including the Elk River<sup>1</sup>. The Elk River is recognized as a premier dry fly-fishing stream and destination, contributing over five million dollars annually to the local economy.

Natural resource development, including coal mining and forestry, has sustained local communities for over 100 years and provides valuable economic opportunities for many of the Elk Valley's residents. These same residents also prize the watershed's beauty and recreational opportunities, as do many of the seasonal visitors to the area, which sustains a robust and growing tourism industry.

***Today the Elk River and its tributaries are under threat from a combination of human stressors:***

- ***Private managed forest logging***
- ***Metallurgical Coal Mining***
  - *waste rock seepage*
  - *valley/tributary fill*
- ***Linear development***
  - *roads,*
  - *railroads*
  - *power transmission*
  - *gas pipelines*
- ***Agriculture***
- ***Invasive Species***
- ***Recreational fishing***
- ***Climate Change***



*Michel Creek – a fine fly fishing tributary of the Elk river - shows multiple stressors on the landscape*

While considerable mine-related compliance monitoring is underway, ***the Elk River Alliance (ERA) sees that there are significant gaps in monitoring to assess water quality and the status of fish populations and their habitats. There is a critical need to understand the current and future effects of cumulative stressors on those ecosystems and fish populations.***

The ERA has heard from Valley citizens, local businesses, not-for-profit organizations and resource industry companies that they are concerned about the impact of these multiple stressors on the health of the Elk River. Our consultations have shown widespread agreement that there is a need for an ***independent body to undertake watershed monitoring based on scientific, local and Indigenous knowledge to build a full understanding of the health of the Elk River watershed. Data and information need to be fully available and accessible to land managers, resource groups, researchers and the broader community.***

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<sup>1</sup> Westslope cutthroat trout COSEWIC assessment and status report: Technical Summary British Columbia Population, 2005

<https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/cosewic-assessments-status-reports/westslope-cutthroat-trout/chapter-11.html>

# Elk River Watershed

## Collaborative Monitoring Program

The Elk River Alliance is well-positioned to facilitate monitoring of multiple stressors and cumulative effects, given its history of watershed collaboration, science and education-based work and its role as an independent voice for the health of the watershed.

### Monitoring Program Goal

The overall goal of the collaborative monitoring program is to:

*Create an independent, credible water quality, quantity and aquatic habitat monitoring program to build an understanding of the health of the watershed and inform management actions*

### Initial Monitoring Program Objectives

Successful implementation of a collaborative cumulative effects monitoring program will require the development of consensus-based monitoring objectives and straightforward questions geared towards building an understanding of the long-term health of the watershed. Specifically, data requirements need to be defined to guide decision-makers and users towards sustainable management of the watershed. Monitoring results will need to enable adaptive adjustments to the monitoring design as experience and data analysis indicate.

At this point, some general and initial objectives for the collaborative monitoring program are:

- Undertake **independent and scientifically robust water quality, quantity and aquatic habitat monitoring** to understand long-term trends in the health of the watershed in response to cumulative stressors
- **Serve as a platform for communicating** monitoring results to Elk River communities
- Ensure monitoring **data and information** from **multiple sources** are **accessible** and made available to all watershed interests
- **Build relationships** and connectivity across organizations and people in the watershed

Possible outcome-related objectives may include:

- **Identification of priority tributaries** for fish habitat protection or restoration
- Inform **conservation and restoration** action and management
- **Determining the success of specific restoration programs** e.g. fish barrier removal
- Developing **community-level watershed monitoring approaches** that can be replicated or adapted to other watersheds

### Building the Collaborative

The Elk River Alliance is working to establish a robust, committed set of partners with technical capacity and mandates for watershed monitoring and management across:

- The Ktunaxa Nation
- Industry – coal, forestry, hydropower, gas pipeline companies

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- Not-for-profit conservation organizations – water, land conservation, data management
- Community watershed user groups with local knowledge - fly-fishing/rafting guide/outfitters, rod and gun clubs, local environmental professionals; and,
- Government at all levels (municipal, regional, provincial and federal)
- Researchers

The focus of activity for the first year of the initiative in 2021 is to build this credible and engaged set of partners across the balance of watershed interests. This engagement includes understanding how organizations can contribute (e.g. through technical capacity, financially or other means of support) to developing and implementing long-term (10 years +) watershed monitoring critical to understanding long-term trends in cumulative effects. A **Steering Committee** of participating partners and community voices will guide the collaborative.

The Collaborative partners will define critical questions for monitoring to answer, the scope of monitoring, the design of the monitoring program, and will then guide its implementation, under the management of the Elk River Alliance and other delivery partners. Year 1 is also the opportunity to strengthen ERA capacity through human resources and monitoring equipment, and to develop data management systems.

### Collaborative Partnership

The ERA is seeking two forms of Monitoring Collaborative partners:

- **Contributing partners** to provide both financial contribution and substantive support to the Monitoring Collaborative and its program of work
- **Supporting partners** to provide substantive support to the Monitoring Collaborative and its program of work; this may lead to future financial support through joint fundraising

Both Contributing Partners and Supporting Partners will **participate in shaping** the Collaborative and the design and implementation of the community-based Monitoring Program of work.

The Elk River Alliance will lead the implementation of the Monitoring Program of work. **Implementation Partners** will be identified to take responsibility for leading on specific elements of the community-based monitoring program.

### Developing the Monitoring Program

Based on initial Elk Valley community feedback, the current proposed focus of monitoring is to develop an understanding of **water quality, water flow and fish habitat** in non-mine affected Elk River tributaries. It is worth noting that **many non-mine impacted areas of the Elk Valley are affected by forest harvest activities** that can significantly impact water quality and aquatic habitat. **This focus is subject to adjustment as additional partners are engaged.**

The second area of work may involve the **Elk River mainstem**, concentrating on **water quality trends and fish population status**. Mainstem work would cover stretches from Elkford to the river mouth, downstream of current monitoring conducted by Teck, which concentrates on mine impacts.

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## Collaborative Monitoring Program

Project partners will identify the specific areas of focus for monitoring and the nature of research questions in Year 1. The development of questions will be guided by best scientific practices and informed by Indigenous and local knowledge to provide holistic and comprehensive viewpoints.

Year 2 (2022) will be devoted to the design of the watershed monitoring system, including:

- Re-confirm/update the **nature of the collaborative** and monitoring **program objectives/scope**.
- Formulate **key questions** for water quality, water flow, fish habitat and fish population monitoring. Questions may cover stressors, impacts and conservation opportunities
- **Design the monitoring program**, including the selection of parameters, monitoring methods/tools, locations and sampling effort
- Put in place **data-sharing** agreements
- Develop methods for **community data collection** such as fly-fishing catch information and development of an *iNaturalist* project for collecting river user observations
- Develop **reporting protocols** – including regular reporting to Collaborative partners and the community
- **Pilot monitoring** – test methods, confirm data quality, data analysis approaches, issue pilot report

Data collection will use established methods and standards and adhere to agreed-upon protocols. The Collaborative will maintain transparency, openly share data across its partners and make data, assessments and information available and accessible to the public and all interests in the Valley.

### Implementing the Monitoring Program

Initially, the monitoring program will establish a “current state” understanding of watershed health. The program will need to continue for a minimum of 10 years to assess natural variability and trends in water quality, water flow, fish habitat and ultimately fish populations. Natural systems are complex and variable; attributing changes to specific stressors or cumulative effects will require careful design.

Learnings and results from the year two pilot will allow for adjustments to the program to ensure key monitoring questions are addressed. Over time the program can be adapted to meet changing environmental, social and economic conditions while ensuring proper data collection of key water quality, fish habitat and fish population parameters.

There will be regular reporting to the Collaborative Steering Committee and the community.

### Resourcing the Program

Year 1 collaborative development will require one full person year and an additional full person-year for program management and public communications and education. The collaborative will recruit a full-time fisheries biologist in Year 2 (2022) for design and initial implementation of the program. The program may also use contracted technical experts with solid monitoring program experience in water quality, hydrology and fish studies.

Our initial estimate of financial requirements are as follows:

# Elk River Watershed

## Collaborative Monitoring Program

**Year 1:** Building the Collaborative: \$100,000

- Identify and secure **collaborative partners**
- **Establish governance structure** to guide and implement the monitoring program
- Identify the preliminary **scope of monitoring** and high priority tributaries
- **Identify information and data** from a range of existing sources and monitoring programs
- **Build capacity** to manage and deliver the monitoring collaborative and program

**Year 2:** Monitoring Program Design and Pilot Testing \$250,000

- Identify **data gaps** in Elk River watershed for water quality and fish habitat
- Develop and agree on **questions to be answered** by the monitoring program
- Establish **data sharing agreements** with information holders
- **Design monitoring program** – locations, sampling effort, parameters,
- **Develop reporting protocols** – including reporting to partners and to the community
- **Pilot monitoring** – test procedures, confirm QA/QC, data analysis approaches, pilot report

**Year 3 – 10:** Monitoring Program Implementation: to be determined by scope and scale of monitoring program as determined by Monitoring Collaborative partners and availability of resources.

ERA has secured funding of \$55,000 per year for three years as the first contribution to these financial targets, to enable the establishment of the Collaborative.

The program is seeking additional resources of \$250,000 to \$500,000 to initiate targeted water quality and fish habitat monitoring.

*The Elk River Alliance welcomes the interest, ideas, participation and support of all those interested in an independent, long-term water and fish monitoring program in the Elk River Watershed*

*To ensure a healthy river ecosystem that sustains the Elk Valley for present and future generations*