LOWER COLUMBIA-KOOTENAY LOCAL REFERENCE GROUP

2023 ENGAGEMENT REPORT

Living Lakes CANADA

KOOTENAY LAKE WEST ARM © IULIIA STASHEVSKA

KOKANEE SALMON IN THE COLUMBIA BASIN © JOANNE SIDERIUS

LAND ACKNOWLEDGEMENT

Living Lakes Canada acknowledges that our water stewardship work originated in the unceded traditional territories of the Ktunaxa, Secwepemc, Sinixt and Syilx Nations who have stewarded these lands for generations. Recognizing Indigenous People as the rightful caretakers of their unceded territories, we work to complement their intergenerational work and Indigenous-led water stewardship initiatives.

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Existing water monitoring networks in the Canadian Columbia Basin are insufficient to understand the complex impacts of climate change and other stressors on fresh water sources in the region's diverse watersheds.

The goal of the Columbia Basin Water Monitoring Framework is to establish a unified monitoring network to support the tracking of climate and other impacts on water supply for communities and ecosystems. The data collected will be used to inform adaptive strategies for watershed management.

Integral to the process is the selection of monitoring sites using a Priority Monitoring Matrix which is developed to collate scientific and community priorities, identify synergies, and select sites which will meet multiple objectives, resulting in a nested, cost-effective approach to monitoring.

LOCAL REFERENCE GROUP OVERVIEW

The Columbia Basin can be divided into 10 hydrologic regions (HRs) reflecting broad differences in climate. In 2022, this project was implemented in 3 pilot HRs. In 2023, the project is being expanded to include the **Lower Columbia-Kootenay Hydrologic Region**.

The Lower Columbia-Kootenay Hydrologic Region includes the communities and areas surrounding:

- Rossland
- Trail
- Castlegar
- Nelson
- Salmo
- Yaqan Nu?kiy
- Creston

Major water bodies in this region include the:

- Columbia and Kootenay rivers
- South portion of Kootenay Lake
- West Arm of Kootenay Lake
- Lower Arrow Lake
- Salmo River
- Goat River

KOOTENAY LAKE WEST ARM © SARAH GOWER

To inform site selection, a Local Reference Group (LRG) was assembled for the Lower Columbia-Kootenay HR. An LRG is composed of individuals with interest in or knowledge of the HR. LRG Engagement ensures local values and interests are incorporated into and represented by the monitoring network.

A series of meetings were held in February and March 2023 in Trail, Nelson, Creston and online. In each meeting, participants were presented with a program overview and several discussion questions and activities. Attendees also completed a written survey. For those unable to attend the meetings, one-to-one interviews were conducted with interested individuals. Local First Nations bands were invited to participate in direct consultations in addition to the broader engagement meetings. Recognizing Indigenous People as the rightful caretakers of their unceded territories, Living Lakes Canada works to complement their intergenerational work and Indigenous-led water stewardship initiatives.

The feedback provided through this LRG engagement process will be paired with the results of the geospatial data gap analysis conducted by MacDonald Hydrology Consultants Ltd. (MacHydro), a specialized consulting company based out of Cranbrook, BC, to create the Priority Monitoring Matrix that will guide the selection of monitoring sites in the Lower Columbia-Kootenay (LCK) HR.

ENGAGEMENT OUTCOMES

This report provides a broad overview of the community engagement process. Sensitive information has been omitted. Some of the feedback provided is related to factors and concerns outside of the scope of this project; those inputs are still presented in this report as they may be of use for other projects or initiatives.


CRESTON LRG MEETING © LLC PHOTO

DEMOGRAPHIC BREAKDOWN

111 participants from a broad range of sectors and demographics participated in the LCK LRG overall. This includes attending a meeting, participating in an interview, or independently completing the online survey (Figure 1). Out of the 111 LRG participants, 70 people completed the survey.

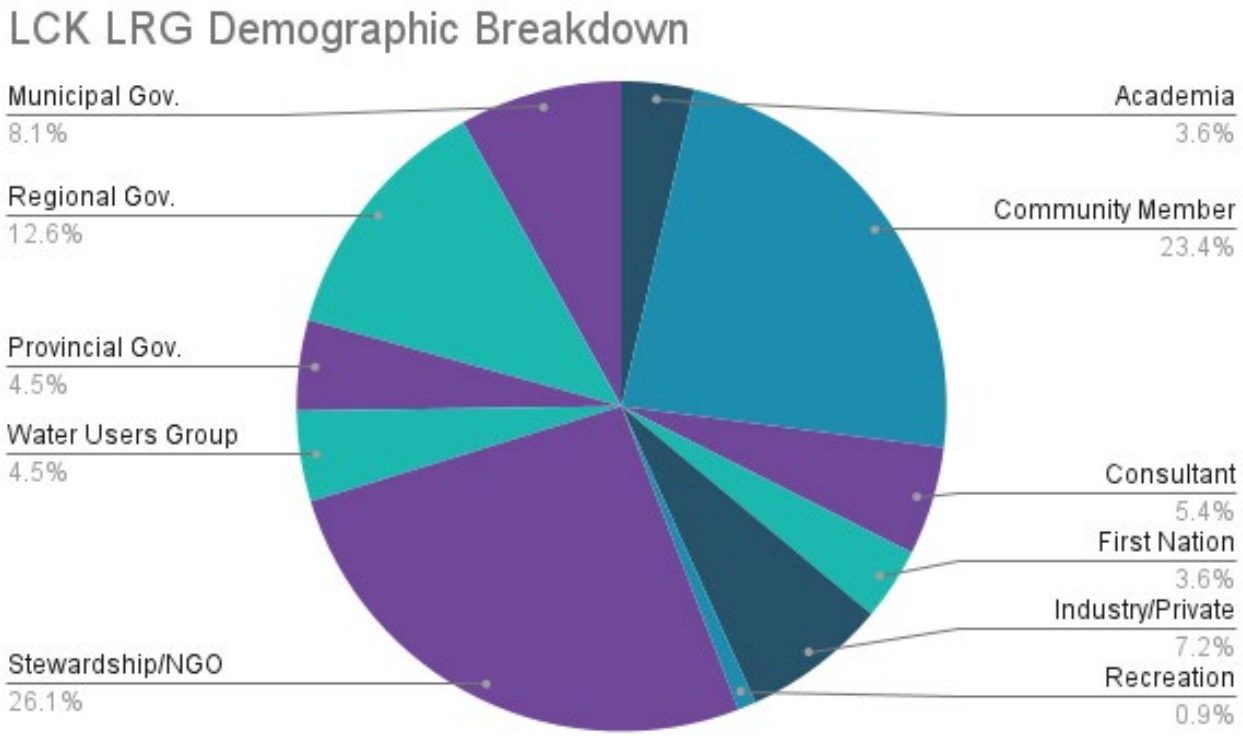

Figure 1: Participation in the Lower Columbia-Kootenay LRG across sectors and demographics.

QUESTIONS AND CONCERNS ABOUT WATER AND CLIMATE CHANGE

At the in-person meetings, participants were asked to generate questions or concerns they have about water and climate change. Prominent themes were around water supply, emergency preparedness and the impacts of human activity.

Select Questions and Concerns About Water and Climate Change From the LCK LRG:

- How will the hydrologic cycle change over time?
- What is the state of groundwater?
- What is the value of water?
- Are there enough monitoring stations to support climate predictions?
- Will my community have enough water (potable/fire hydrant) in future time of drought/wildfire?
- Are disturbed sites and undisturbed sites being monitored for comparison?
- What are the impacts on water quality and quantity from wildlifes or clear cut logging to the
- riparian edge?
- How vulnerable does our water supply have to be before it will take precedence over industrial interest?
- Will winter flows get lower in the future? What impact will that have on ecosystems, fish and communities?

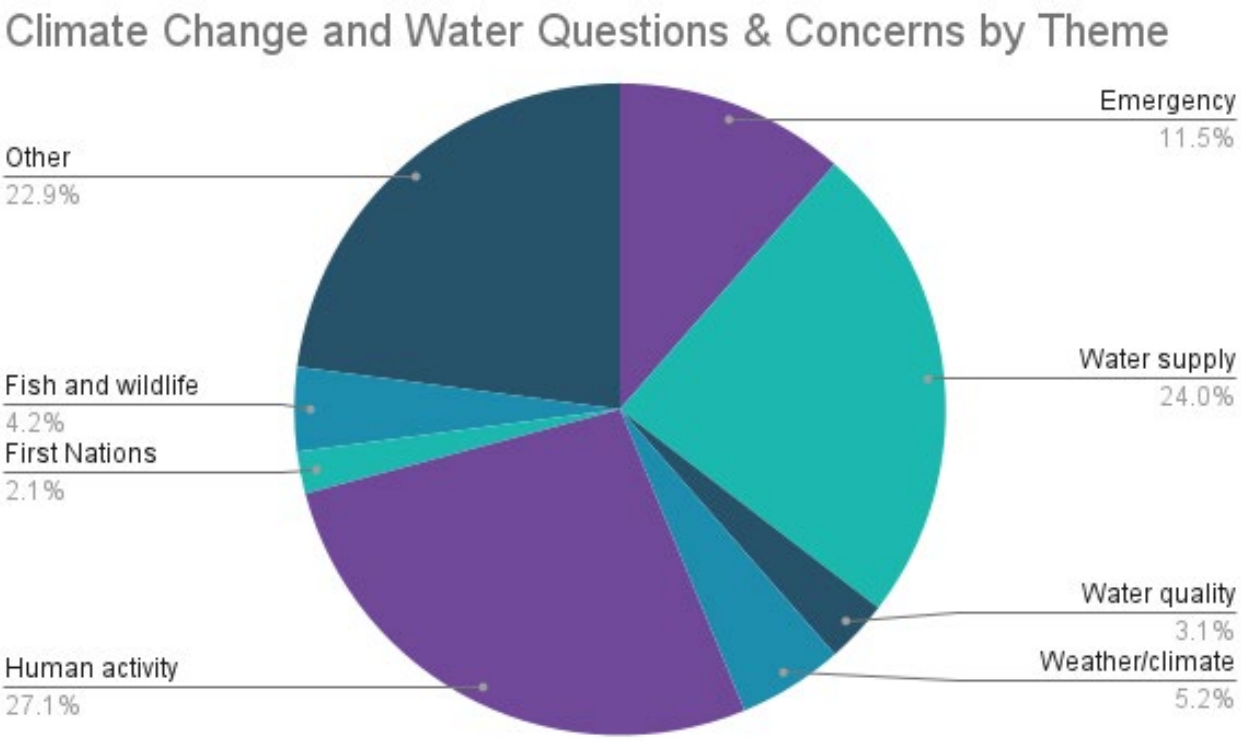

Figure 2: Themes of community concerns and questions from the in-person meetings.

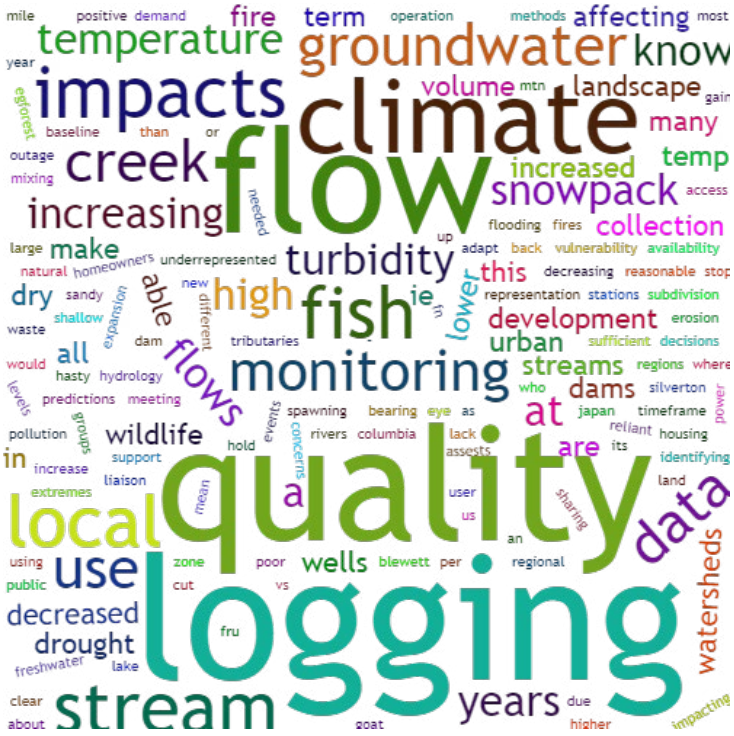

Figure 3: Word cloud of keywords from the climate and water supply questions activity at the in-person LRG meetings. Words mentioned more frequently appear in a larger size.

LOCATIONS OF CONCERN

Through the survey, meeting discussions, map activities, and interviews, participants had the opportunity to suggest specific streams, creeks, lakes, ponds, watersheds and aquifers they would like to see monitored. They were also invited to share local knowledge, concerns, and identify opportunities for collaboration.

MAP ACTIVITY, TRAIL LRG MEETING
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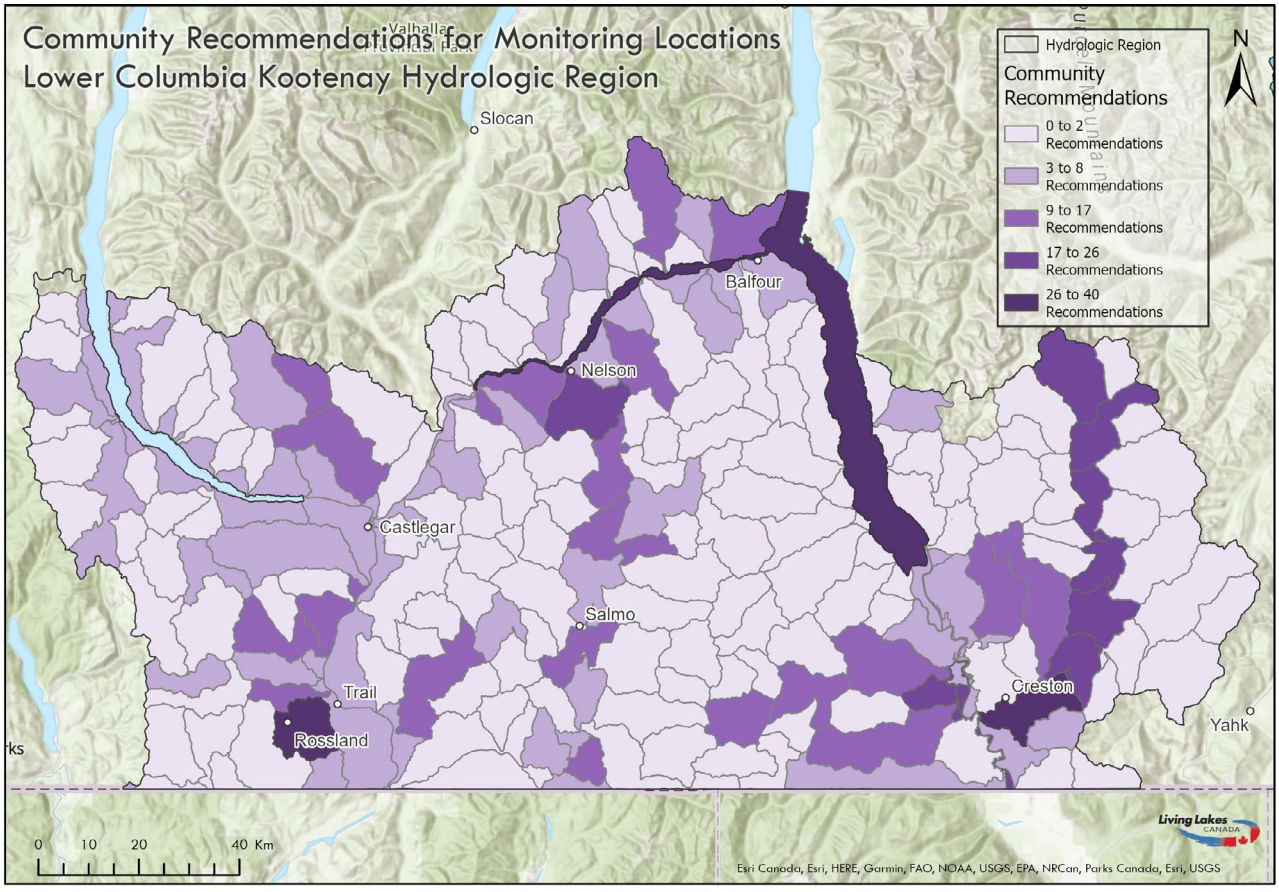

Figure 4: This map highlights watersheds and locations which LRG participants recommended for increased monitoring of various types.

These are the locations most frequently recommended by the LRG for increased monitoring. All other locations recommended have been recorded and will be considered for site selection. Note that several of these locations may already be monitored, and others may be outside of the scope of this project.

For monitoring of **STREAM FLOW** (quantity), participants frequently recommended:

- Goat River
- Duck Creek
- Murphy Creek
- Arrow Creek
- 5 Mile Creek
- Corn Creek
- Hanna Creek
- Kokanee Creek
- Laird Creek
- Selous Creek
- Topping Creek
- Summit Creek

For monitoring of **STREAM WATER QUALITY,** participants frequently recommended:

- Boundary Creek
- Casino Creek
- Deadhorse/Dodds Creek
- 5 Mile Creek
- Arrow Creek
- Granby River
- Hasty Creek

For monitoring of **LAKE LEVEL,** participants frequently recommended:

- Duck Lake
- Kootenay Lake
- Lomond Lake
- Nancy Greene Lake
- Rosebud Lake
- Slocan Lake
- Violin Lake

For monitoring of **LAKE WATER QUALITY**, participants frequently recommended:

- Cottonwood Lake
- Duck Lake
- Erie Lake

For monitoring of **WETLAND WATER QUANTITY AND QUALITY**, participants frequently recommended:

- Creston Valley Wetlands
- Tin Can Marsh
- Apex Wetland
- Goat Mountain Wetland
- Rossland/Jubilee Wetlands
- Canal Flats
- Oasis Wetland

For **CLIMATE** monitoring, participants recommended the following watersheds:

- Anderson Creek
- Fell Creek
- Five Mile Creek
- Selous Creek

MONITORING PRIORITIES FOR WATER QUANTITY AND QUALITY

In addition to specific locations, the survey asked residents to identify values or conditions that would merit additional monitoring for various parameters. Watersheds which meet these criteria will be identified in the Priority Monitoring Matrix.

For lake and stream **WATER QUANTITY** (lake level or stream flow), participants identified the top 3 priorities for monitoring as lakes and streams that are sources of drinking water, fish habitat, and impacted by agriculture.

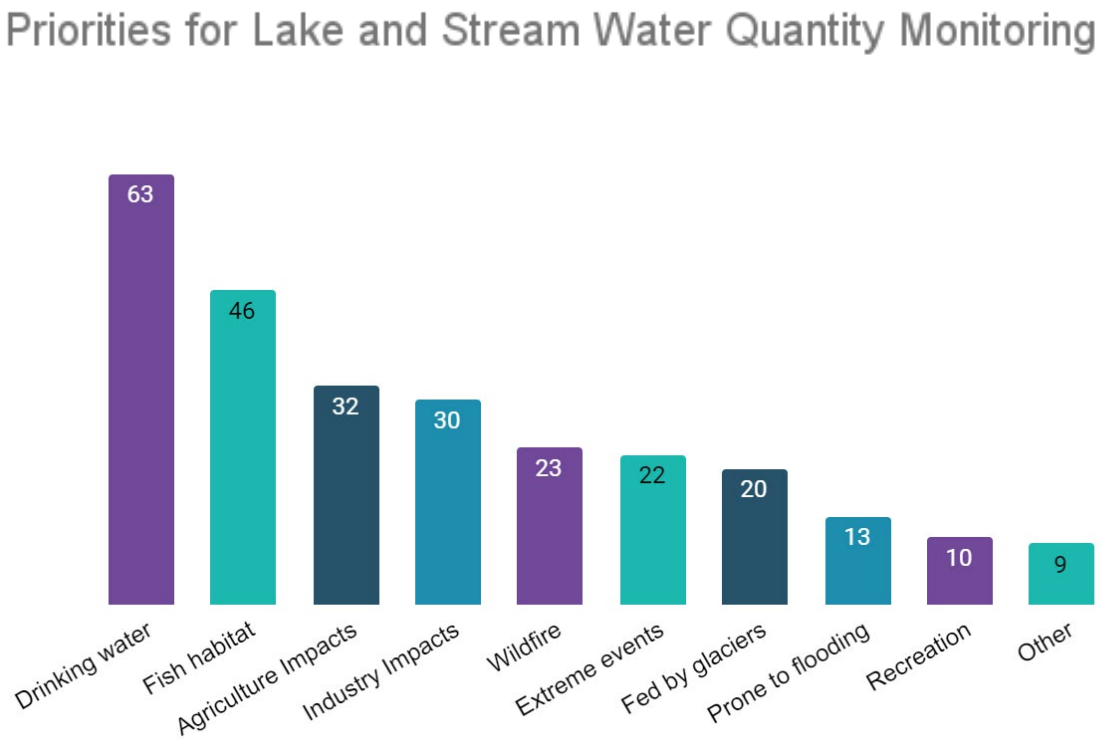

Figure 5: Survey responses for the question "More WATER QUANTITY monitoring should be completed on lakes or streams that are:"

For lake and stream **WATER QUALITY**, the top 3 priorities for monitoring were also lakes and streams that are sources of drinking water, fish habitat, and impacted by agriculture.

Survey respondents contributed additional criteria to the "Other" category, including wildlife habitat, Indigenous or other cultural priorities, and locations with exposed mineral bedrock (Figure 6).

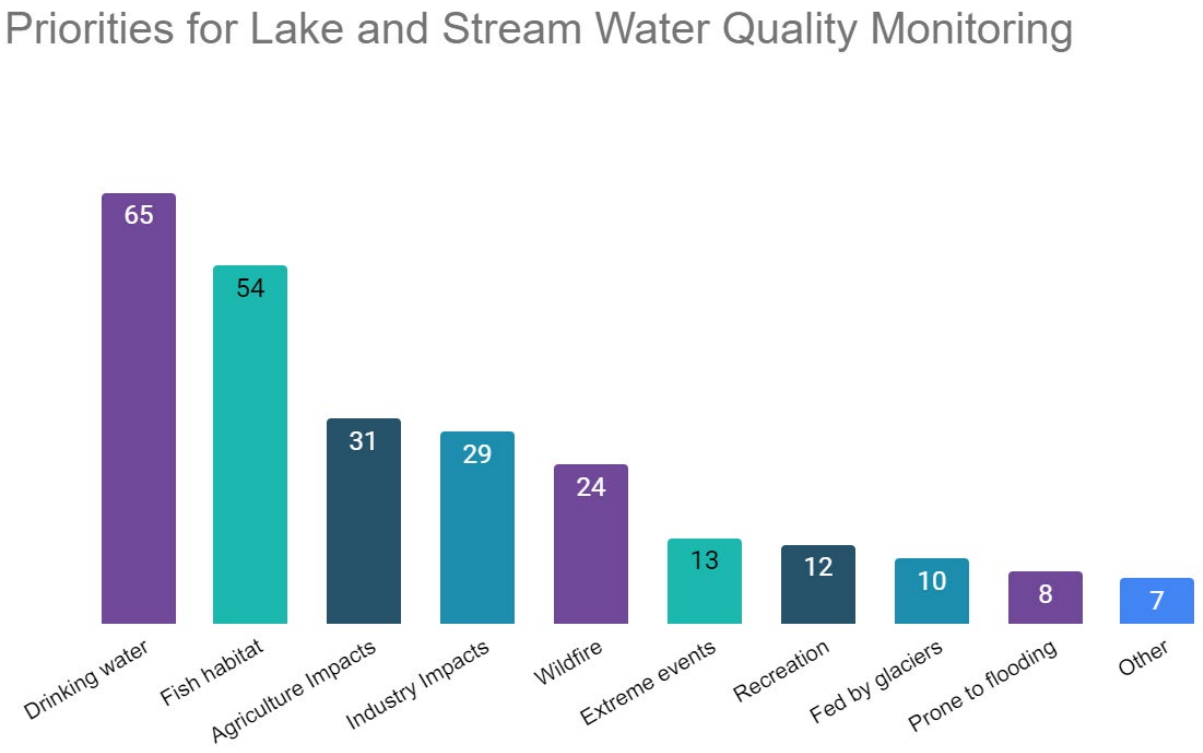

Figure 6: Survey responses for the question "More WATER QUALITY monitoring should be completed on lakes or streams that are:"

GROUNDWATER

Concerns about aquifer depletion, reduced supply in wells, over-allocation of groundwater, and logging were themes related to groundwater.

HIGH ELEVATION

Participants expressed concerns about melting glaciers, and strong interest in monitoring changes to snowpack and snowmelt patterns.

CULTURAL CONSIDERATIONS

Participants highlighted the need for Indigenous perspectives to be included in the project. Other cultural considerations suggested included consulting with private landowners, safety, working with local governments, and collaborating with other stewardship initiatives.

PROJECT OUTCOMES

In terms of anticipated benefits and outcomes from the project, participants saw value in:

- generating baseline data for future comparisons
- improved climate change modeling
- having more resources available to support decision making around watershed protection and climate adaptation

PREFERRED RESOURCES

Survey respondents were interested in accessing the data from the program in a variety of ways, with the primary interests being:

- interactive maps
- charts and graphs
- scientific reports

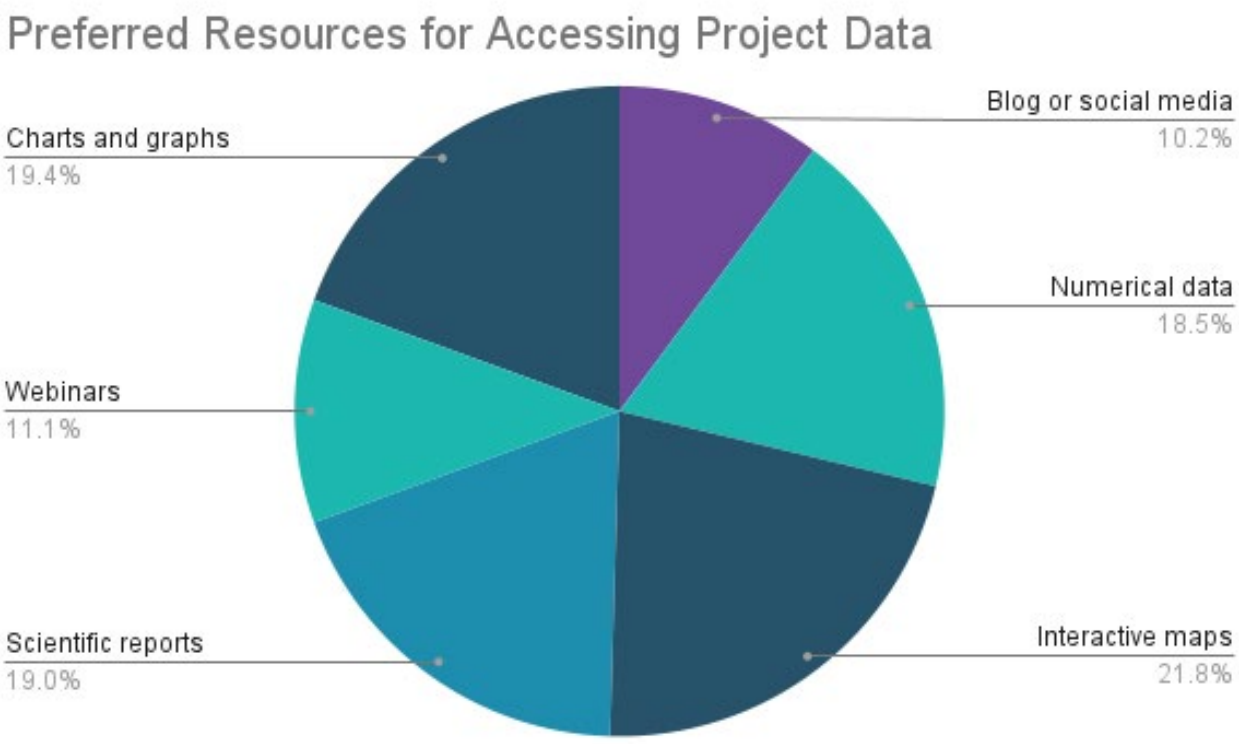

Figure 7: Survey responses for the question "Which of the following resources would be the most useful for you to interpret the data resulting from this program?"

WHAT'S NEXT?

⇨ Living Lakes Canada is currently developing a Priority Monitoring Matrix, which collates the LRG feedback and the results of the data gap analysis to guide monitoring site selection.

⇨ A shortlist of sites will be developed later this summer using the Priority Monitoring Matrix and shared with the LRG for review.

⇨ Final site selection will be informed by LRG feedback and the results of site reconnaissance.

⇨ Monitoring implementation will be phased, with some monitoring being initiated in Fall 2023, and further monitoring will be implemented in the following years.

⇨ Preliminary data from the project will be made available in 2024 through the Columbia Basin Water Hub database.

As multi-year data records are required for statistical analysis and subsequent application of data for decision making, this project is an investment in long-term benefits to water stewardship and climate resilience. Applications of the outputs of this project will continue to develop in the following years of the project.

CONTACT

If you have any questions, please contact:
Bill Coedy
Local Reference Group Coordinator
lck.lrg@livinglakescanada.ca

For updates and resources about the CBWMF, visit the project page:
www.livinglakescanada.ca/cbwmf

NELSON LRG MEETING © LLC PHOTO