



## EXECUTIVE SUMMARY

## PREPARING FOR WATER BUDGETS TO SUPPORT CLIMATE ADAPTATION OPTIONS

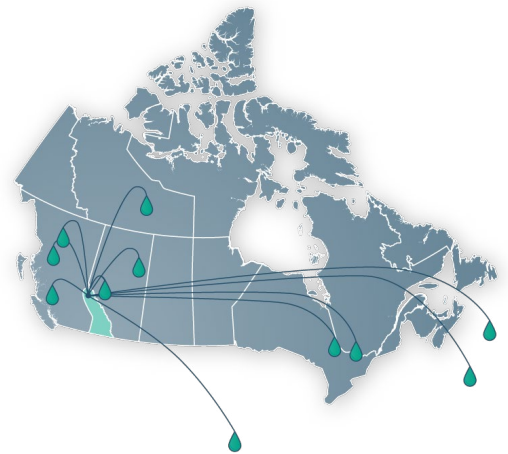
## CASE STUDY: CANADIAN COLUMBIA BASIN

### THE CLIMATE CRISIS & COLUMBIA BASIN WATER MONITORING FRAMEWORK

Over the past two decades, a series of reports have projected the impacts of climate change on hydrological cycles in the Canadian Columbia Basin. Climate impacts taking place now are presenting as extreme temperature and precipitation, flooding, fire events and peak glacial melt. Water quantity, quality (temperature, acidity, turbidity, etc.) and timing of flow are changing. Climate impacts are also present in both high and low elevation lake ecosystems, soil moisture, wetlands, and groundwater aquifers in the region.

Variability in hydrologic response to climate impacts across the Columbia Basin is too great to be sufficiently understood based on existing water monitoring networks, the establishment of which pre-date the identified need for regional climate impacts monitoring.

The goal of the Columbia Basin Water Monitoring Framework is to establish a unified monitoring network based on a Priority Monitoring Matrix that reflects local priorities within a scientific water balance approach. This collaborative approach, facilitated by Living Lakes Canada, will improve and strengthen the monitoring configuration for tracking and understanding a broader range of implications of climate change on the water supply for Basin ecosystems and its people.



LLC's water stewardship work in the Canadian Columbia Basin can serve as an innovative, paradigm-changing template that can be applied in other river basin watersheds.

### FRAMEWORK FOR CLIMATE CHANGE ADAPTATION

A unified monitoring framework for the Upper Columbia Basin (UCB) will take into account a broader range of potential watershed responses according to the UCB's 10 hydrologic regions (HRs) that reflect broad variations in the Basin's climate.

A water balance approach will form the basis for evaluating the functional aspects of individual watersheds within the HRs. This approach will provide a scientifically defensible and widely accepted framework for the development of a Priority Monitoring Matrix to be developed in consultation with First Nations; water stewardship groups; industry/commercial water users; and local, regional and provincial governments to reflect local priorities for expanded monitoring. An emphasis will be placed on watersheds critical to biodiversity conservation, community sustainability and ecosystem resilience in the face of climate disruption.

Integral to the process is the identification of selection criteria for ranking monitoring sites. The long-term objective is to expand the monitoring network so it eventually covers representative locations across the UCB.





## SHIFTING THE PARADIGM OF WATERSHED MANAGEMENT

The comprehensive approach in the Canadian Columbia Basin will provide a project template for other watersheds to support local and regional efforts to increase adaptation options and support the longer term viability of natural ecosystems and ecosystem services.

Governments at all levels are conducting the cost benefit analysis of maintaining healthy watersheds. The Watershed Sector currently contributes \$5 billion to B.C.'s GDP, and is projected to grow. Supporting community-based water monitoring (CBWM) is a proactive, progressive and impactful investment for the future and well-being of communities.

Employed by the community for the community, CBWM builds a water literate constituency and empowers citizens to help in efforts to manage and protect water. CBWM includes collecting high quality data used to support informed decisions for watershed health management, water use and water budgeting.

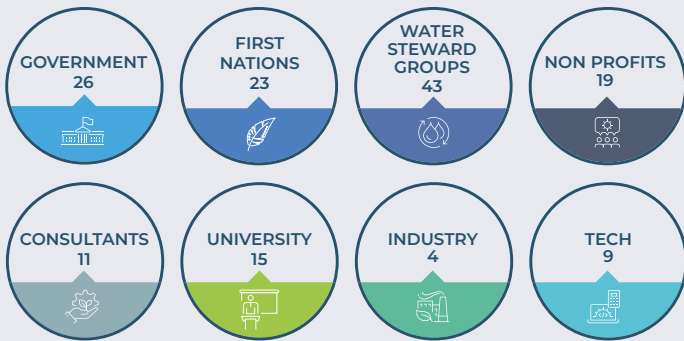
The positive economic spin-offs of CBWM related to a growing green job stewardship sector include applying advanced technology to on-the-ground restoration; the development of water resource management and watershed planning; and providing cross-sector training and impactful work for young people that can support their mental well-being (ie. addressing climate anxiety). The climate crisis will require full community involvement in order to provide future generations a quality of life.

Complementary to the water monitoring framework is the Columbia Basin Water Hub, an online open data repository for water-related data shared in the Basin. Easily accessible water data will facilitate informed decisions regarding the protection and use of the Columbia Basin's freshwater supply. With seed funding, the Water Hub formally launched in March 2021 and is managed by Living Lakes Canada who coordinate and support a growing list of users including water stewardship groups and private sector companies in the data curating and upload process. Visit [cbdatahub.ca](http://cbdatahub.ca).

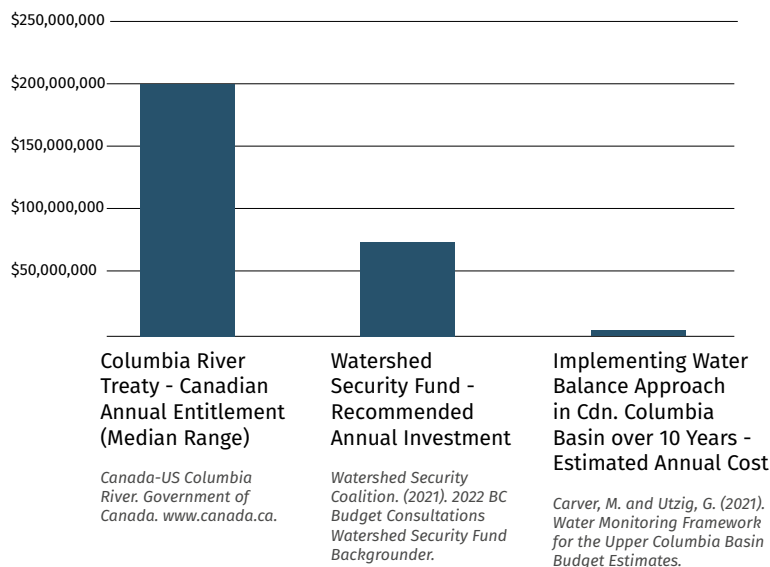


## OUR PARTNERS AND SUPPORTERS

With a wealth of expertise available through its network of national and international advisors, Living Lakes Canada is well-positioned to bridge the gap between science and action, supporting and facilitating adaptation options within the transboundary Canadian Columbia Basin watershed, which can serve as an innovative, paradigm-changing template to be applied in other river basin watersheds. Our national partners include:



## IMPLEMENTATION COST OF COLUMBIA BASIN FRAMEWORK: A COMPARISON



**StrongerBC**  
for everyone



**Watersheds BC**



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