



Hello,

Welcome to the first Living Lakes Canada newsletter. We will be distributing program updates and recent news bi-annually. If you would like to unsubscribe or do not wish to receive these updates please unsubscribe at the bottom.

Sincerely,

The Living Lakes Canada Team



## Save the Date

Open Source Water Data Hub Dialogue:

Towards a Columbia Basin Water Monitoring Framework

November 29-30, 2017

Invermere, BC



Join the dialogue to create a water monitoring framework and shared data hub in the Columbia Basin. Our goal is to create a collective vision for modernizing shared water data with useful, reliable and open source water data that is freely accessed and evaluated by users. The time for a coordinated, collaborative, innovative, user friendly, cost effective and open water data platform has arrived.

Together we will work to address the water data gaps identified in the Columbia Basin Trust's Feb 2017 report; [Water Monitoring and Climate Change in the Upper Columbia Basin](#). We will examine best practices examples from regions in Canada and the U.S. and learn about water monitoring and open source data storage from the perspectives of government (all levels), indigenous and non indigenous engaged water stewardship groups, engaged industry sectors and academia.

Outcomes;

1. A vision for a Columbia Basin specific, open source, water data hub.

2. An understanding for what is required to catalyze a water monitoring framework towards filling the water data gaps for a watershed.
3. Cross-sector working groups will be formed to move forward on the shared water data hub and the water monitoring framework.

Convened by Living Lakes Canada, Columbia Basin Watershed Network & Selkirk College.

## Looking Back & Moving Forward

In 2016 Living LLC worked in partnership with WWF Canada to lead a national dialogue on the relevance of community based water monitoring and citizen science. To this end, LLC conducted a national scan in partnership with two Canadian Universities to take a snapshot of citizen based water monitoring in Canada. This information was shared at the (NALMS) North American Lake Management annual gathering in Banff, November 2016 for the Building Bridges workshop– connecting citizen science with scientist.

[A Snapshot of Community Based Water Monitoring in Canada here.](#)



Hay River Basin CABIN Field Practicum with Beaver, Dene Kue and Dene Tha First Nation. Photo: Living Lakes Canada.

### Canadian Aquatic Biomonitoring Network (CABIN)

Living Lakes Canada aims to shift paradigms by empowering communities to take care of the water central to their lives. We use the Canadian Aquatic Biomonitoring Network (CABIN) protocol to train citizen scientists, which looks at aquatic benthic macroinvertebrate populations as indicators for the health of the rivers and streams. In 2016, Living Lakes Canada trained 30 citizen scientists and organizations to use the CABIN protocol to protect their local waters, in the face of oil sands and natural gas extraction pollution issues.

Living Lakes Canada also uses CABIN to correlate the effects of logging on the landscape to changes in water quality. [Read more here.](#)



Nelson Wildflower students installing self drawn interpretive sign with Kootenay Lake Stormwater Treatment Wetland partners Central Kootenay Invasive Species Society and Friends of Kootenay Lake. Photo: Monica Nissen.

## Kootenay Lake Stormwater Treatment Wetland

The Know Your Watershed program taught over 1012 students about water use through field trip and classroom sessions. We also offer deep learning programs for students to delve further into their watersheds, focusing on local issues like ranching and riparian areas, invasive plants and water quality, stormwater runoff and more. Student action projects give students opportunities to take action for clean water by protecting storm drains, removing invasive plants, cleaning urban streams and installing signage. Part of the student action projects included the Kootenay Lake Stormwater Treatment Wetland, an education and habitat restoration project, which uses a constructed wetland to treat stormwater naturally.



Living Lakes Canada advisors, foreground limnologists Rick Nordine and David Schindler, background - Paul Bowman. at Wings Over the Rockies 2016. Photo: Living Lakes Canada.

## Sensitive Habitat Inventory Mapping

To protect the shoreline of Canada's lakes and reservoirs, we use the Sensitive Habitat Inventory Mapping (SHIM) method. SHIM provides decision-makers, planners, developers, landowners and government agencies with the tools required to make sustainable foreshore land use decisions that take into account cumulative impacts to fish and wildlife habits. In 2016, SHIM was applied to the Lake Koochanusa, a transboundary reservoir with a significant draw down zone, broad recreational interests and increased selenium levels. Cumulatively, these pressures sparked increased concern and community engagement, the development of an Official Community Plan and a Recreation Management Planning process. We have also just completed the first SHIM project in Alberta, at Lac la Biche.

[Keep Reading](#)



Columbia Basin Groundwater Monitoring Program tutorial at Invermere well. Photo: Living Lakes Canada

## Columbia Basin Groundwater Monitoring Program

In 2013, Living Lakes Canada collaborated with the Lake Windermere Ambassadors on implementing a community groundwater monitoring Pilot Project in the Upper Columbia region of British Columbia. This project was adapted from the successful Groundswell Project, developed in Nova Scotia by the Ecology Action Centre in order to monitor groundwater quality and availability throughout that Province. Our key project objective was to generate data on groundwater for newly created groundwater protection plans and community engagement through citizen science. Phase 2 of the project

included an initial expansion of monitoring wells in priority aquifers and the expansion of the monitoring protocol to assess hydraulic connectivity. The project achieved success by engaging and training community volunteers to regularly collect water level data. Support was provided by the Province of BC and a team of researchers from the University of British Columbia who analyzed the data, and produced a groundwater monitoring report, that was presented to the local council for implementation in the Groundwater Protection Plan. [More information here.](#)

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## Brilliant Head Pond Scoping Study

Living Lakes Canada works with residents and local governments to take a larger role in managing watersheds for ecological and cultural values in the Brilliant Headpond Scoping Study. We created a community led Steering Committee to guide the study, which identifies priority actions for stewardship in the Headpond.

The Canadian Columbia River Intertribal Fisheries Commission would like to have the re-introduction of ocean going salmon into the Columbia system and accurate data to determine what areas are still suitable for a re-introduction and for applied reconciliation is necessary. Viability for this is being determined given climate impacts to the oceans, as well as water flow and temperature for fish habitat in the basin is changing as glaciers feeding much of the Columbia watershed are anticipated to be gone within 25 years.



Columbia Basin Lake - SHIM. Photo: Heather Leschied

## Columbia Wetlands

Living Lakes Canada has worked to protect the 180km long Columbia Wetlands, through education and public campaigns for boating restrictions and to protect sensitive shorebird aquatic life habitat, designated as a Ramsar Wetland of International Importance. We continue to work with the Columbia Wetlands Stewardship Partnership to develop an overarching strategic management planning process for the wetlands that identifies existing literature in a literature review and threats, ecosystem services provided by the wetlands and other wetland health related projects. In October 2016, the final piece of a three--part boating regulation was passed by Transport Canada in support of

the control of the navigation of vessels in the Columbia River and Wetlands between Fairmont Hot Springs and Donald Station. The regulations were proposed and championed in partnership with the provincial government and the Columbia Wetlands Stewardship Partners, representing 80--plus organizations, institutions, government agencies, First Nations and guide--outfitter and river based businesses. The regulation is precedent setting as it is implemented based on the protection of ecological values of the Columbia Wetlands.



Donna Mendelsohn, Upper Athabasca River Biomonitoring Program with partners Keepers of the Athabasca. Photo: Raegan Mallinson.

## Moving Forward

In February 2017 Living Lakes Canada became a legal registered not for profit society. Living Lakes Canada started as a project of the East Kootenay based not for profit society Wildsight, Global Nature fund in Germany and the Lake Winnipeg Foundation. Living Lakes Canada's citizen science and community based water stewardship initiatives began in 2004 and have now grown beyond Wildsight's, East Kootenay geographic focus area. We celebrate continued collaboration for healthy ecosystems to support healthy communities .

In 2017 LLC will work on reaching success with our current 2016 projects while also building upon the momentum to focus on;

### Community Based Water Monitoring (CBM) and Citizen Science

We are working in partnership with the Gordon Foundation and WWF Canada to research and develop rationale to encourage governments in Canada to seriously examine the under utilized potential of CBM.

Community-based water monitoring (CBM) is a type of citizen science that engages the public in generating data and indigenous traditional knowledge (TK) to understand the state of aquatic ecosystems. CBM holds enormous potential to provide information for decision makers but it is presently underutilized in Canada.

Over the past decade there has been a surge in CBM activity across the country, and these grassroots initiatives are becoming increasingly sophisticated. CBM is not only generating critical datasets, it is changing the way citizens connect with their watersheds and participate in decision-making to protect them. Despite this growth in interest and initiatives, the full value of

CBM has yet to be realized in Canada. This is due, in part, to a poor understanding regarding the potential of CBM as well as a lack concerted efforts from all levels of government to both engage with, and support existing CBM efforts.

The output of this research will be a white paper designed to advance the position that CBM holds immense potential to fill the data gap that currently hinders comprehensive watershed assessment across Canada. The case will also be made for the adoption of CBM data as a valid evidence-base for water policy and decision-making. The report will address the challenges and opportunities for CBM that have been identified in the growing body of practical case studies, summary reports, and in the scholarly literature. Using evidence from a review of the literature and from interviews with stakeholders, the white paper will propose recommendations to develop a concerted approach for CBM at the Federal level, through the creation of a national policy on CBM.

Recommendations will consider:

- Sustainability of long-term CBM activities;
- Standardized monitoring protocols for water quality and quantity;
- Recognized water quality/quantity standards that are regionally relevant;
- Access to datasets through open access data hubs.

### **Columbia River Treaty**

The Columbia River Treaty, signed in 1964 between Canada and the US, governs the operation of large dams in the Columbia Basin for flood control and hydroelectric generation. Columbia Basin First Nations have a vision to reintroduce spawning salmon to the Columbia River, which are currently blocked by dams in the US and Canada. We will continue to collaborate with other organizations to ensure that, in this new era of climate change impacts, environmental priorities be addressed in the modernization of the Columbia River Treaty.

### **SHIM**

Sensitive Habitat Inventory Mapping (SHIM) is a tool we use to support improved shoreline management and protection of ecological, archaeological and cultural values. SHIM provides decision-makers, planners, developers, landowners and government agencies with the tools required to make sustainable foreshore land use decisions that take into account cumulative impacts to fish and wildlife habits - and for the first time - archaeological and cultural values, a project led by the Kootenay Lake Partnership and Ktunaxa Nation Council. The resulting Kootenay Lake Shoreline Guidance Document is now ready, and we will support the Kootenay Lake Partnership as they take it to the public this summer. In 2015, with our leadership, SHIM was initiated at Kooconusa Reservoir, by the East Kootenay Integrated Lake Management Partnership. This transboundary reservoir has a significant drawdown zone and intensive recreational pressures. Cumulatively, these pressures sparked increased concern and community engagement and the launch of a Recreation Management Planning process - something that SHIM will help to inform. Another reservoir, although unique in its own management challenges, Brilliant Headpond, is on the slate for 2017 field season. We led the now Brilliant Headpond Stewardship Collaborative through a stewardship Scoping process, and are working with Ktunaxa Nation Council and Okanagan Nation Council to lead a joint SHIM project for this stretch of the Kootenay River. We have also just completed the first SHIM project in Alberta! Lac la Biche, northwest of Edmonton has recently been completed and we hope that this is just a start of

more efforts to preserve, conserve and restore shorelines in Alberta, and elsewhere across Canada.

### **Groundwater**

The Columbia Basin Groundwater Monitoring Program is a 3-year initiative that will expand the monitoring network established in Phases 1 and 2. Monitoring will include all 12 priority aquifers in the Basin, which are identified by the province based on vulnerability and relevance for future water management. Trained community volunteers will collect data from public and private wells, building a baseline of knowledge on groundwater quantity and quality. Results will be used to assess hydraulic connectivity with surface water sources, support the development of water budgets using climate data, and inform decision-making for community Groundwater Protection Plans and the forthcoming Water Sustainability Act Groundwater Protection Regulations. We will continue to increase groundwater awareness in the communities and aim to conduct presentations and training workshops along with growing our network to include dedicated technical advisors in the field of hydrology and hydrogeology. We aim to focus this project to become an example of a citizen-science project that can be replicated and provide support to other areas that require groundwater monitoring for sustainable water use planning, climate change planning, and proactive water management.

### **CABIN**

Living Lakes Canada is designing water quality community based water monitoring programs (CBM) using the Environment Canada's CABIN protocol in an effort to implement the recommendations resulting from the *Building Bridges* workshop hosted at the NALMS conference in Banff Nov 2106. From our on –the-ground experience and working with First Nation communities, we recognize the CABIN protocol as a holistic approach to investigate watershed health that aligns closely with traditional knowledge. This field season we are partnering with the Ktunaxa Nation Alliance for the Cross Cultural Connections Pilot Project. The pilot project will train community members in the CABIN water quality monitoring protocol, and use the protocol as a tool to engage in a collaborative water monitoring, language preservation project, including traditional stream names included in the water monitoring protocol. We will also be partnering with the University of Guelph, WWF and Environment Canada to deliver a national environmental DNA Freshwater Pilot Program that will test the eDNA protocol with the existing CABIN macro invertebrate sampling.



Kat Hartwig with PM Justin Trudeau in Ottawa for WWF Freshwater Health



Assessment release June 22, 2017. Photo: Living Lakes Canada.

## Recent News

Kat Hartwig and Living Lakes Canada featured in Kootenay Conservation Program July [Faces & Places](#)

Living Lakes Canada, Executive Director with PM at WWF [Freshwater Health Assessment Release.](#)

Kat Hartwig, Living Lakes Canada ED wins two national awards with Water's Next [Water Steward of the Year and People-NGO.](#)

Living Lakes Canada presents Community Based Monitoring Across Canada at [Columbia Basin Watershed Network](#) Spring Member Meeting and AGM.



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