



Collaborative  
Monitoring  
Initiative



POLIS Project on Ecological Governance

watersustainabilityproject



Watersheds BC

## Webinar Summary

### Water Data Management for Community Based Monitoring Groups

October 18, 2021

#### Attendance

There were 223 people in attendance during the live webinar from 305 registered participants. Webinar participants joined from a variety of organizations including Indigenous (~5%) and non-Indigenous (~12%) Community-Based Water Monitoring Groups, other environmental NGO's (~23%), all levels of government (~10% from local & regional, ~29% from provincial, ~8% from federal, and ~2% from Indigenous), academia (~5%), industry (~1%), and consulting (~6%).

#### Introduction

The Collaborative Monitoring Initiative (CMI) designed this webinar on water data management and sharing to provide introductory information to the Healthy Watersheds Initiative (HWI) Regional Water Monitoring Cohort and other groups with similar aspirations, and to assist in “raising the bar” on how these groups manage their water-related data for use in decision-making. Ian Sharpe, CMI Strategic Advisor, provided an introduction to CMI and an example of water data use cases and the panel of guest speakers provided descriptions of water data management systems large and small, with emphasis on challenges and opportunities in connecting Community-Based Water Monitoring (CBWM) groups into decision-making processes.

The panel presentations provided information on various levels of complexity in water data management systems currently in use in BC, and the types of opportunities these systems may present for CBWM groups. The first two presentations gave an overview of federal and provincial systems that have been in place for many years, mostly for use by government agencies and/or their decision-making processes. However, there are plans being developed to make them more user friendly for CBWM groups, spanning a broader range of features and uses. The third presentation was on the Columbia Basin Water Data Hub, which was specifically designed for CBWM groups, industries, and governments in collaborative data sharing arrangements. This platform uses open-source software which is transferrable and adaptable to other groups. References were also made to the Skeena Knowledge Trust's Salmon Data Centre in this context, although there are some differences between the Columbia and Skeena platforms. The final presentation was the Skeena Fisheries Commission example that shows a range of sophistication, depending on the intended use, from local hard drives with downloading to statistical software (e.g. R), to cloud based storage for data sharing, to full fledged institutional data systems that

have some built-in analytical and visualization tools. These presentations were meant as an introductory level scan of what the water data management landscape currently looks like in BC.

Participants gained knowledge and insights about storing, analyzing, interpreting, and reporting monitoring information so that it is trusted by decision-makers and can be used in land and water planning and decision-making. This includes statutory and non-statutory applications by local, provincial, federal, and Indigenous governments, industries, environmental non-government organizations, and individuals. Our intent over the coming months is to share more educational materials and provide guidance and tools for CBWM groups to better understand how they can better manage water data in a way that influences the decisions they are focused on (this can be their own decisions or those of others, including industries, governments, ENGOs and other communities). Due to some technical difficulties, we ran out of time for a panel discussion on collaborating to “raise the bar” on community-based monitoring data management but we were able to address some participant questions and views on community-based water monitoring data management.

## Guest Speakers

**Moderator:** Ania Javorski, Collaborative Monitoring Initiative Coordinator

### **Part 1** [Introduction to the Collaborative Monitoring Initiative and an example of a water data use case](#)

**Ian Sharpe**, BSc., MSc., RPBio (retired), CMI Strategic Advisor

Ian has always had a passion for water and environmental management. He began his career as a seasonal waterfowl biologist, which worked out nicely for his other passion, skiing. While competing with the rest of the baby boomers in the 70’s and 80’s for meaningful employment, Ian has been an environmental consultant, National Park warden, ENGO fundraiser/educator, and federal regulator. His 25 years with BC MOECCS Environmental Protection Division in the Skeena region was split equally among duties as an impact assessment biologist, environmental quality section head and regional director. Since his retirement, Ian has continued to pursue his passion for water as a consultant and is currently employed by MakeWay as an advisor to the Collaborative Monitoring Initiative.

### **Part 2** [Federal Geospatial Platform - Data Dissemination - Federal Approach to Data Sharing and Access](#)

**Janice Sharpe**, Senior Director, Federal Geospatial Platform, Canada Centre for Mapping and Earth Observation, Natural Resources Canada, Government of Canada

Janice Sharpe has been the Senior Director of the Government of Canada’s Federal Geospatial Platform since 2018. Ms. Sharpe joined the management team at Natural Resources Canada 5 years ago. Previously, she held leadership positions at Agriculture and Agri-Food Canada in environment, science and technology policy and program delivery; during this time, she also led a number of strategic planning and transformation initiatives at senior levels in the department. She first joined the federal government as a Project Manager at Public Works and Government Services Canada after leaving the private sector as Area Manager of Triathlon Inc. Ms. Sharpe possesses ITIL and Balanced Scorecard certification and holds a Bachelor of Science from the University of Guelph.

**Sonia Trentin**, Manager, Data Integration, Federal Geospatial Platform  
Strategic Policy and Innovation Sector, Natural Resources Canada, Government of Canada

Sonia started her career working for MétéoMédia/The Weather Network as a meteorologist before moving to Environment and Climate Change Canada as a Climate Specialist and then Natural Resources Canada as the Manager of Data Integration with the Federal Geospatial Platform Team. She holds a bachelor degree in Physics from the Université du Québec à Montréal and a Certificate in business administration from the Université de Sherbrooke.

### **Part 3** [Water Data Management, Reporting & Open Government](#)

**Tarik Dessouki**, Director, Environmental and Climate Monitoring, BC Ministry of Environment & Climate Change Strategy

Tarik received his MSc specialising in Limnology from the University of Saskatchewan and began his career in Public Service with Environment and Climate Change Canada where he coordinated a water quality monitoring network that sampled rivers across Northern Canada. He began working with the BC Public Service in 2007 and coordinated a similar water quality monitoring network across B.C. in partnership with Environment and Climate Change Canada. Tarik is currently the Director of the Environmental and Climate Monitoring Section which coordinates and manages various hydro-climate monitoring networks and data management systems on behalf of the BC Ministry of Environment and Climate Change Strategy.

*(Note: Webinar host had to restart Zoom due to some technical difficulties and missed recording about 5 minutes of Tarik Dessouki's presentation).*

**Rob Williams**, Unit Head, Data & Systems Management, BC Ministry of Environment & Climate Change Strategy

Rob Williams leads a team of technical staff in the Ministry of Environment & Climate Change Strategy's Knowledge Management Branch. The Environmental Data Management Unit focuses on data acquisition, management and publishing of air & water quality, water quantity and climate related monitoring data.

### **Part 4** [The Columbia Basin Water Hub: Water and Community-Based Databases](#)

**Santiago Botero**, Applied Innovation and Technology Manager, Living Lakes Canada

Santiago Botero is the Applied Innovation and Technology Manager at Living Lakes Canada. He is also a recent graduate from the Integrated Environmental Planning Technology and the Geographic Information Systems programs at Selkirk College. He is also taking the required courses to one day register as a Professional Biologist in British Columbia. Santiago is passionate about people, nature, and technology, and believes in harmony between them all. As the Applied Innovation & Technology Manager for Living Lakes Canada, he is excited to combine his passions, and help make a difference in protecting his local, and all watersheds.

### **Part 5** [Data Management in the Real World](#)

**Allison Oliver**, Aquatic Ecologist, Skeena Fisheries Commission

Dr. Allison Oliver is a Senior Aquatic Ecologist with the Skeena Fisheries Commission, in an Aboriginal Aquatic Resource and Oceans Management (AAROM) program in the Skeena River watershed. Her background includes scientific research on aquatic ecology, watershed processes, and biogeochemistry as well as working with community groups on topics of watershed monitoring and water governance.

Allison has a M.S. and Ph.D. in Ecology from the University of California, Davis, and was a post-doctoral research scholar at the Hakai Institute. Allison is a Trustee with the Skeena Knowledge Trust, a Climate Change Ambassador for the American Fisheries Society and serves on multiple committees for salmon recovery efforts throughout the Skeena. Allison collaborates with many different groups on projects incorporating aspects of water monitoring for various objectives, which require working within different types of existing data management structures or creating new ones.

## Themes from discussion in Q&A and chat

General atmosphere of curiosity and interest in various data storage platforms, opportunities to share data, and how to support integration of data. There was a lot of enthusiasm about Columbia Basin Water Hub and sharing of comparable resources for other watersheds.

- Participants interested in networking and connecting amongst participants
- Need for accessible and coordinated approach to water data management amongst Community-based monitoring/stewardship groups, need concrete “next steps”
  - CBWM groups asking questions that were also front of mind for presenters: Where should we store data? How do we combine quantitative data with other types of knowledge forms?
  - Need for establishing a community of practice for water monitoring data
  - Need for more approachable data management practices for CBWM groups
  - Increase in availability of training and tools for CBWM groups: keep track of data, make it available & accessible, enable these groups to grow
- Funding for WQM is a challenge
  - Funders want “action-based projects”
  - CMI is looking for ways to help by collaborating with funders and CBWM groups. Vision for the legacy of CMI to outlive its funding. Pathway for Indigenous and non-Indigenous groups to get onto, to elevate their data management.
  - Stewardship groups are still providing valuable data that “needs to be utilized”
- How to access Open Maps
  - Query re: whether Open Maps will access/share any of the “centralized” datasets, (eg. those of Water Rangers, or Data Stream?)
  - Janice is meeting with Data Stream folks and are figuring out how to connect these access points
- Collaboration of data management amongst sectors could be more extensive, as other sectors (ie. forestry) have significant impacts on water
  - CMI has begun helping to build collaborative relationships amongst groups with common interests to bring forest sector representation into collaborative water sustainability efforts
- Considerations around access and editing privileges for data sets
  - Need for continued dialogue on who has access and editing privileges for data sets
  - Application of OCAP principles: data subject to OCAP can be accessed by others through relationship building, data sharing agreements with Indigenous groups that own and control the data
- Challenges of incorporating various forms of data/information, including Indigenous knowledge and quantitative measurements, into data sets
- At the RSEA level (BC Environmental Stewardship Initiative for Northeast BC) “our only concern was that there was no real consensus in format for data on watersheds and water bodies”.

## Questions and Answers

Q: How does the CMI program meld with Land Use issues - governmental land use issues?

A: CMI role is to build collaborative relationships and relationships among interested groups. It is not specifically involved in advocacy or direct problem solving.

Q: Our neighbourhood forest is owned by Mosaic/TimberWest contains 28 watersheds and Aquifer 190 lies at the bottom of the steep forested mountains. It is an unconfined, highly vulnerable aquifer. We can access the results of testing done by CVRD, but have no power to change forestry practices, which have a huge impact on the water. I'm hopeful some ideas from this presentation will be able to help us here in Youbou.

A: CMI's focus is on building collaborative relationships among groups with common interests. We are currently working to help bring more participants, including forest sector representation into collaborative water sustainability efforts.

Q: OCAP - how can this help us get to a place where "community data" is accessible to statutory decision makers?

A: The OCAP principles have been developed by Indigenous organizations and are becoming more commonly applied in environmental data management. Data that is subject to OCAP may be accessed by others through relationship building and data sharing agreements with the Indigenous group that owns and controls the data.

Q: Could you shed some light on how you will use CMI to source for unavailable data, if that makes sense?

A: CMI promotes collaboration among data creators. Our goal is to help build the relationships among these groups, hopefully one of the benefits will be more data sharing.

Q: A huge question on my mind is most of the Funders we work with in the Kootenays want 'action-based projects". Oftentimes WQM is not something they want to fund. Oftentimes WQM data can lead to action, but you can't know the action until you have the data. Do any of the speakers have recommendations on where to access funds for community-based water monitoring? How do you get around Funders wanting "action-based projects" and not wanting to support monitoring projects? Thank you - Claire with Slocan Lake Stewardship Society.

A: Yes, it has been a challenge for us too. Unless there is a conspicuous problem in the water, there is generally no interest or support for WQM and management. CMI is looking for ways to help by collaborating with funders and CBM groups so they can understand how to integrate opportunities with needs for water monitoring and other water related projects. Curious if those communities are eligible for the Terrestrial Cumulative Effects Initiative, which funds projects that are Indigenous-led related to cumulative effects in mainland terrestrial and freshwater environments.

Q: Are there unified protocols for the collection of water quality data? Also unified protocols for training of personnel, specifications for equipment and calibration of equipment?

A: There are many standardized protocols and training opportunities available. CMI plans to work with others to provide online catalogues of them in the coming months. Hopefully this will include ongoing updating to keep abreast of new documents and opportunities as they arise.

Q: When did the CB Water Hub get up and running?

A: The Water Hub went live to the public in March of 2021

Q: What were the driving factors for you to build the Columbia Basin Water Hub as opposed to utilizing the BC EMS/Aquarius databases?

A: The driving factor was that EMS and Aquarius have high standards for the storage of data which not all historical or current data adheres to. There was also a need for a "centralized" database focusing on the Columbia Basin due to the lack of data available.

Q: How would the Columbia Basin Water Hub incorporate qualitative and quantitative data in analysis tools? Could you run an analysis that considers technical data and indigenous traditional knowledge data sets in decision making?

A: We are currently focusing on data storage, and once we have enough data to be able to carry on analysis, we will ensure that we have the approaches to analysis at the Water Hub to unify qualitative and quantitative data in a conscious, positive, and collaborative way!

Q: Does the Stories from the Land map or any of the examples discussed today allow for editing by First Nations communities or other partners? Who has editing privileges?

A: Provincial and Territorial officials do the consultation process with Indigenous communities before places are named and added to the database. Natural Resources Canada hopes to update map every couple of years as place names change and as they gather more information and validate it with the First Nation group. Editing privileges are part of a bigger negotiation process.

## Webinar Poll Results

1. What type of organization are you from?

- a) Indigenous Community-Based Water Monitoring Groups (~5%)
- b) Non-Indigenous Community-Based Water Monitoring Groups (~12%)
- c) other environmental NGO's (~23%)
- d) Local & Regional Government (~10%)
- e) Provincial Government (~29%)
- f) Federal Government (~8%)
- g) Indigenous Government (~2%)
- h) Academia (~5%)
- i) Industry (~1%)
- j) Consulting (~6%)

2. Where do you store most of your water data? (63% of participants chose 1 option, 30% chose 2 options, 6% chose 3 options, and 1% chose all 4 options)

- a) Local hard drive (28%)
- b) Shareable cloud-based platform (18%)

- c) Non-Government database (17%)
- d) Government database (34%)
- e) Other - Specify in chat (2%)
  - *Our SSI FreshWater Catalogue data is shared in a cloud database and with Water Rangers (WR) (discussions ongoing with WR and DataStream about further sharing). Not using EMS*
  - *Various - we are trying to figure it out. We are a partnership-based organization so it's very difficult and a collaborative approach is needed, so thank you!*
  - *Provincial and Regional Governments need to support the development of a network of Agricultural Community Based Water Monitoring Groups of farmers gathering water use information to provide statistics to support demand. Water Demand report for RDN is 2014 - data is irrelevant, but district is resistant to update.*
  - *We store and share our data on Pacific Streamkeepers Federation website*

3. What is your biggest obstacle to producing high quality hydrometric data? (22% of participants chose 1 option, 48% chose 2 options, 21% chose 3 options, 7% chose 4 options, and 2% chose 5 options)

- a) Lack of Training (22%)
- b) Standards are confusing (8%)
- c) Lack of funding (34%)
- d) Outdated or lack of good field equipment (10%)
- e) Raw data collection (field work) (9%)
- f) Data production (post-processing raw results) (16%)
- g) Other - Specify in chat (1%)
  - *funding increase to cover lab analysis quantifying samples collected by community water monitoring groups*

## Resource List

### Part 1

- [What is Adaptive management?](#)
- [Open Access Water Data Hubs Across Canada](#)
- [Okanagan Basin WQ database](#) (pilot project)
- [Community-Based Water Monitoring and Decision Making](#)

### Part 2

- [Data Strategy Roadmap](#)
  - [Open Government Partnership](#)
  - [Federal Open Government Directives](#)
  - [Open Government Portal](#)
  - [The Federal Geomatics Accord](#)
  - [Open Maps](#)
  - [Access to water data resources in British-Columbia](#)
- GEO(dot)ca web site will be launched soon but is not available yet.
- Some federal water maps highlighted in the presentation:
- <https://open.canada.ca/data/en/dataset/de1704c8-ba69-4e66-ac4b-13b966e2eedf>
  - <https://open.canada.ca/data/en/dataset/de1704c8-ba69-4e66-ac4b-13b966e2eedf>
  - <https://open.canada.ca/data/en/dataset/4ae5b0d1-b811-4238-9aed-ce97363f51eb>

<https://open.canada.ca/data/en/dataset/c0ea8c27-e62e-45bc-b64c-d475650d84a2>

### **Part 3**

[Environmental Monitoring System](#)

[Canada Open government Portal. 55 datasets related to water](#)

[BC Data Catalogue](#)

[Provincial Groundwater Observation Well Network](#) (groundwater level data)

[BC Snow Survey Program](#)

[BC Lake Monitoring Network and Volunteer Lake Monitoring Program](#)

[Canada-BC Water Quality Monitoring](#)

[BC Surface Water Quality Monitoring Interactive Map](#)

[BC Data Sharing Agreement Information](#)

[Provincial Biomonitoring Program](#)

### **Part 4**

[Columbia Basin Water Monitoring Collaborative](#)

[Elevating Community-Based Water Monitoring in Canada](#)

[Columbia Basin Water Hub](#)

[Columbia Basin Water Hub Executive Summary](#)

[Columbia Basin Monitoring Collaborative Executive Summary](#)

[Columbia Basin Water Hub Exec Summary](#)

[GitHub](#) for sharing and collaborating on code and software development

### **Part 5**

[Skeena Knowledge Trust](#)

[Skeena Salmon Data Centre](#)

### **Other Relevant Webinars:**

[Pooling Water Knowledge: Strengthening B.C.'s Water Monitoring](#)

[Strengthening Monitoring and Reporting for B.C.'s Waters](#)

[What's Beneath the Surface? Insights into Collaborative Water Monitoring Data and Decision-Making](#)

[Living Lakes Canada Webinar Series: "Why Care About Water Data?"](#)

[Data Tools and Information Management for Indigenous Guardians](#)

[Indigenous Data Management Webinar Series: What is Research Data Management?](#)