Webinar Summary

Water Data Management – Planning & Sharing

January 18, 2022, 9:30-10:30am PT

Attendance

There were 219 people in attendance during the live webinar from 331 registered participants. Webinar participants joined from a variety of affiliations including Indigenous (~8%) and non-Indigenous (~14%) Community-Based Water Monitoring Groups, other environmental NGO's (~20%), all levels of government (~13% from local & regional, ~16% from provincial, ~13% from federal, and ~5% from Indigenous), academia (~10%), industry (~2%), and consulting (~5%).

Introduction

The Collaborative Monitoring Initiative (CMI) designed this webinar on water data management planning and sharing to provide introductory information to the regional water monitoring cohort and other groups with similar aspirations. Participants gained knowledge and insights about developing monitoring information and distributing it so that it is trusted by decision-makers.

Nikki Kroetsch (Community Engagement Coordinator, DFO Pacific Science Enterprise Centre) presented on her new guidebook and template, *Improving Environmental Monitoring Collaborations Through Co-development of Data Management Plans.* Nikki highlighted some of the lessons learned from her master's research; in particular, how collaborating with others and working together to create a data management plan can help alleviate many of the challenges stewardship groups and their collaborators currently face with regards to environmental monitoring. Nikki hopes that her presentation, and the guidebook and template she created as part of her master's project, will help stewardship groups and government agencies work together more efficiently and effectively, with the ultimate goal of having stewardship groups contribute meaningfully to resource management and decision-making by helping reduce data gaps currently experienced by resource management agencies.

Lindsay Day (Program Manager, DataStream) and Mary Kruk (Water Data Specialist) presented on the new Pacific DataStream that the Gordon Foundation would like to initiate in B.C. and the Yukon. Lindsay and Mary introduced DataStream, Canada's leading open access platform for sharing water quality data, developed by the Gordon Foundation and delivered in collaboration with regional monitoring networks. DataStream currently operates in four hub regions with the vision of becoming a pan-Canadian platform. Scoping work has just begun for a Pacific DataStream hub. By sharing data on

DataStream, community science and watershed groups, Indigenous Nations, academic researchers, and governments at all levels broaden the audience and impact of their work. This presentation will outline the scientifically robust and digitally secure DataStream platform, including the map-based search, data visualization tools, and its focus on data access, storage, and interoperability.

Presentations were followed by participant questions and views on community-based water monitoring data management.

Please complete our Webinar feedback survey: https://www.surveymonkey.com/r/2B7K5DX

Guest Speakers

Moderator: Ania Javorski, Collaborative Monitoring Initiative Coordinator

Part 1 Improving Environmental Monitoring Collaborations Through Co-development of Data Management Plans

Nikki Kroetsch is the Community Engagement Coordinator at the Fisheries and Oceans Canada (DFO) Pacific Science Enterprise Centre (PSEC), which is a research facility in West Vancouver that prioritizes collaborations with community partners. Nikki completed a Master's in Resource Management at Simon Fraser University in January 2021. Her research, which was done in collaboration with PSEC, looked at how governments can better collaborate with stewardship groups on environmental monitoring initiatives, focusing on the role of data management and communication. In her current role, Nikki runs the PSEC Community Stream Monitoring (CoSMo) project, which is a stream monitoring collaboration involving several stewardship groups, post-secondary institutions, and municipal governments in the Metro Vancouver region. Nikki originally became interested in working for DFO when she volunteered at the Hyde Creek Watershed Society in Port Coquitlam in her early 20s and is thrilled that she now gets to work with and support the same stewardship groups that inspired her so many years ago (and continue to inspire and motivate her every day).

Part 2 DataStream: An open access hub for sharing water data

Lindsay Day is the Program Manager for DataStream, Lindsay works with communities, researchers, and governments to continually grow and improve the DataStream platform. Lindsay has a background in health and science communications and is passionate about working with others to improve how we live with, and care for, water in Canada.

Mary Kruk is the Water Data Specialist on the DataStream team. Mary provides water science expertise and grows the user community across the DataStream hubs. Mary has a background in water quality monitoring and assessment and advocates for the use of open data in research and decision-making.

Questions and Answers

1. In your studies and or training, did that include Cultural sensitivity within your co-development of data management?

My Master's research focused mainly on volunteer stewardship groups, primarily Streamkeepers, so it didn't involve Cultural Sensitivity training specifically. However, I've made efforts to self-educate about Cultural Sensitivity and working with Indigenous peoples by utilizing resources offered through DFO as well as exploring publicly available resources, such as those offered by Indigenous Awareness Canada (https://indigenousawarenesscanada.com/). Another person in the chat suggested OCAP (https://fnigc.ca/ocap-training/) as a resource for those looking to respectfully engage with Indigenous communities. I'm certainly not an expert and still have lots to learn, but I recognize that working with Indigenous communities requires different levels of consideration, especially regarding data sharing, than when working with volunteer groups, and recommend that anyone who wants to collaborate with an Indigenous community utilize the resources that are available so that you do so with a better understanding of the historical and social landscape, including what's meant by Cultural Sensitivity.

2. Thank you for your presentation, this is so helpful. Question: How do you manage qualitative data, like relationships between society and the water? And how do you aggregate quantitative and qualitative data towards wholistic ecosystem health?

Great question, and not an easy one to answer! My Master's research incorporated qualitative and quantitative data, which I collected by interviewing volunteers from stewardship groups and employees from government agencies who had collaborated to some extent with said stewardship groups. The information can be processed, categorized, and analyzed using Excel, or more specialized qualitative data management software, such as NVivo. The challenge, however, would be attempting to use qualitative data to show changes in societal perceptions, opinions, and relationship to water over time. Attempting to show these changes in the broader public may be too great a task; however, showcasing the benefits of stewardship groups as far as how participation contributes to changes for volunteers is certainly doable. For example, some studies have shown the beneficial socio-ecologic effects of volunteering with a stewardship group by asking new members to fill out a survey when they first join the group, and then again once they've worked with the group for a set amount of time (e.g., one year). These surveys were really helpful in that they were able to document changes that occurred in the same individual(s) over time, such as their perceptions about certain things, how much they'd learned, etc.

3. Do you have suggestions as to how best to get agencies such as municipalities to consider and use water quality monitoring data? It seems that at times because it is collected by "volunteers" in stewardship groups that agencies may not take it seriously.

This goes back to the trust factor and the importance of working together from the very beginning. Research has shown that governments are more likely to use data collected by volunteers if they have a relationship with the volunteer group and were involved in the project from the beginning, including planning, implementation, quality checks, etc. So, if you're looking to collect data that you want your local government agency to use, I recommend reaching out to them and suggesting that you collaborate well before you begin collecting data. If you're not sure what data they need and aren't focused on a specific issue, but you want to help contribute to decision-making, then you could start by asking 'where do you experience data gaps, and can we help fill these gaps so that you have more information on which to base decisions? Alternatively, if you have a specific parameter or issue in mind that you want the government to consider, then you could reach out and say "we're concerned about the potential effect that X is having on [the stream/ecosystem] and would like to help collect data to determine if there's any adverse impacts, specifically in hopes that we can support you in making informed resource management decisions that affect [this ecosystem]. However, we want to make sure that the data we collect are useful to you and worthy of being considered in decision-making. Would you be willing to work with us to create a data management plan, so that the data we produce are meaningful and useful for you?" The tone that is used when reaching out is also important. Remember that we're all human

(volunteers and government employees), and even though we should all be thinking and making decisions objectively, we're also working in a social landscape where egos and different backgrounds, opinions, experiences, perspectives, and personalities come into play. If you reach out to someone and essentially tell them that you think they're bad at their job and you have the data to prove it, they're likely going to (consciously or subconsciously) become defensive, which will likely hinder efforts to collaborate and create a sense of distrust from the beginning. Alternatively, if you reach out and your tone implies that you're not placing blame but that you'd like to work together to help achieve shared goals, the person is likely going to be much more receptive, and the foundation of trust can be built up from there. If you still have questions, I recommend reaching out to the West Vancouver Streamkeepers. They have a great relationship with the District and are a wealth of information when it comes to establishing and maintaining positive relationships. They're also just a great group of people and I'm sure would be willing to offer advise for other stewardship groups :)

4. Where can one get the DMP Template

The link was provided in the Webinar invitation and also at the top of this summary, but you can also go to SFU Summit and search Nicola Kroetsch (http://summit.sfu.ca/search/apachesolr_search/Nicola%20Kroetsch). Appendix A is the Guidebook that the presentation was based off of, and Appendix B is the template. There are two versions of the template; one is blank so that groups can easily fill in the sections and the other is an extended version that includes instructions and suggestions of what to include in each section.

5. Please define poor quality data, there is always a grade (A to E?), dependant upon setting and equipment. In the absence of nothing, all can add potential value.

There are a number of data grading systems in use in north America. They are generally based on multiple criteria.

6. Our agencies/organisations are "on-board" (for the last three years), but it is apparent that there is no real time for their review of the process or data. How to work this further?

This is a challenging question to answer not having information about the collaboration/project/relationship, but my suggestion would be to contact the agency representative who you have been collaborating with (or determine who best to talk to about the situation if you've been speaking to more than one representative, and then reach out to them) and ask if you can set up a meeting to discuss what's needed to move the project forward and what in-kind support they're able to offer. For example, if they struggle with capacity issues and lack the time to review the process/data themselves, they might be able to provide funding to contract someone to do the analysis. I've seen this done with other collaborations between local governments and stewardship groups and it's reportedly been quite effective in ensuring the project moves forward while not overwhelming the local government staff who may already have a lot on their plate.

7. How does one overcome the proprietary attitude of companies that have collected data and will not share?

Another great, but also challenging, question. Companies often have legally binding agreements in place, meaning they aren't allowed to share their data, even if they wanted to. If that's the case, I suspect there's likely not much that can be done as far as getting them to share the data. However, if there are no formal/legal reasons for them not to share data but they are still opposed to sharing, it may again link back to issues of trust. Data that are taken out of context can often be misconstrued, which can contribute to the spread of misinformation and be quite harmful for the company or others. So, there's a lot of risk involved in handing over data to someone who may (1) not understand the data or (2) have an

agenda and intend to use the data to pursue said agenda. I certainly don't mean to imply that either is the case in your situation, but if there's no relationship between you and the company, how are they to know? So, in this sense establishing a relationship and working to build trust may help. Some of the groups I work with host annual or biannual round-table meetings, where they invite representatives from local governments and relevant companies to join, which I believe has been helpful in establishing positive relationships. Having in-person meetings allows people to get to know each other, to discuss concerns, and to establish shared goals, which helps build trust and breaks down the "us vs. them" mentality that often prevents collaborations from succeeding. Building relationships and trust takes time, and I don't mean to imply that inviting a company rep to a meeting or two will automatically result in them sharing their data, but it may open doors for data sharing or collaboration of some sort in the future.

8. Will you be covering likely the most important point of water quality monitoring, that is if there are issues identified with poor water quality, then what will be done to deal with such issues. If the collection of data does not result in improvements to water quality, does this limit the value of such data?

I wouldn't say it limits the value of the data, but I agree that the ideal scenario would be for the data to contribute to resource management decisions that ultimately result in improvements in the water quality. In the Data Management Plan Template, I included a section called Linking the Data to Action, which is meant to facilitate discussions about what actions might be taken, should issues of water quality be identified. This is where it's really important to determine which agencies you might want to involve in the project, as the jurisdiction of each agency limits what they're able to do. For example, municipal governments have jurisdiction over land-use, so they may have the ability to install rain gardens or other types of green infrastructure to address water quality issues related to stormwater runoff; whereas the Province, specifically the Ministry of Agriculture, Food, and Fisheries, has jurisdiction over agriculture, so if you're partnered with your local government and suspect that water quality issues may be the result of agricultural runoff, it may be helpful to involve the Ministry of Agriculture, Food, and Fisheries, because the local government may not have the ability to address the issue alone.

9. What top 10 Monitor Quality parameters are most important to collect?

It can depend on the region and the water quality concerns in your region. If you want to learn more about commonly measured water quality parameters, you can do so here: https://datastream.org/guide

10. Why no water quantity data stored - impacts/allows determinations of groundwater components (groundwater health) and directly impacts water quality?

There are some groups that share water quantity data on DataStream, however since the Water Survey of Canada manages and shares water quantity and hydrometric data publicly across the country and does a good job of this, we keep our focus on water quality.

11. Would your groundwater data include data from various mines within the industry?

Yes, we can certainly share groundwater data from industry. If you want to stay up to date with when we will begin to accept groundwater data you can sign up for the DataStream newsletter https://bit.ly/DataStreamNewsletter

12. Why is BC in development?

DataStream has been developed with a regional approach by taking time to build networks with monitoring groups, communities, and governments each time we enter a region. The scoping work has

just begun for the Pacific, so it will take some time to build networks in the region before Pacific DataStream will launch.

13. Are you also monitoring water levels or just water quality?

DataStream can accept water level data, however, our focus is on water and sediment quality.

14. Is DataStream intended as a replacement for EMS?

DataStream isn't a replacement for open government systems, though we do link and connect with them in other regions where we work and are speaking with the governments of BC and Yukon to explore how best to so for the Pacific region.

15. What differentiates Data Stream from e.g., the Strait of Georgia Data Center or the Pacific Salmon Explorer?

DataStream focuses on water quality (and sediment quality) specifically and has a regional (transboundary, drainage basin level) approach to data sharing. DataStream aims to elevate the work of existing data management systems and be as interoperable as possible. DataStream has connected with data systems in other regions and helps to provide more exposure to these platforms. It also helps the water quality data from these systems be more easily integrated with other data from other providers, since when the data is accessed through DataStream it is in a consistent format.

16. Does DataStream connect with BC Ministry of Environment Environmental Management Systems (EMS)? or received directly from labs?

We are just beginning to have conversations with the BC government about how we can best work together. There is potential to work directly with labs. To date most of our conversations with labs are around mapping to the DataStream-WQX schema and how lab data exports could align with this standard.

17. Can you share community-based monitoring organizations, preferably for the pacific data stream (future sharing)?

We focus a lot of time on working with community-based monitoring organizations and can provide hands-on training and resources for groups who would like to share data on DataStream.

18. So does this include BC Water Tool data sources?

Water quality data from the BC Water Tool could be shared on DataStream, however we are just starting to have initial conversations in the region.

19. Can you share some stats on how often Data Stream data are downloaded/used, and for what purposes? Would be interesting to know who the main DataStream users are.

Use cases for DataStream data include national-scale reporting such as WWF-Canada's watershed health assessment, API integration with water quality modeling and analysis tools, data sufficiency and gap analyses, and development of new water monitoring programs. Many community groups use DataStream to communicate monitoring results and elevate the impact of their programs. It also satisfies open data sharing requirements tied to funding and publications. We do track visitors to the site and number of downloads for each dataset and are working on publicly sharing these stats. Dataset DOI's can also be used to track citation and use of a given dataset.

20. In terms of the Pacific Data Stream - how does this tool overlap with the BC water tool?

This would depend on the type of data, as DataStream focuses on water quality data specifically, and whether or not the data contributor would want to share on DataStream. We have been successful in linking with other data systems in the other regions we work and are just beginning to have these sorts of conversations in BC and Yukon.

21. Do you know if the DataStream platform is used by the Province of BC at all or Federal Government (i.e., DFO?).

We are just beginning to have conversations with the BC government about how we can best work together. In other regions we commonly work with provincial/territorial governments, and we are already actively working with ECCC and DFO to share long-term water quality data. DFO has already published some water quality data on DataStream in the Pacific region.

22. How do you ensure data in Data Stream has been quality assured?

We require that data stewards provide information on sample collection methods, as well as analytical methods for lab-analyzed samples, and standardized parameter names, so that secondary users are able to evaluate if the quality of the data is fit for purpose. We also have some basic quality control checks upon upload, e.g., if pH is outside the range of 0-14. In addition, all data uploaded must conform to the DataStream-WQX schema, which ensures necessary information is included with each observation (e.g. location, units of measurement, sample fraction as applicable, etc.).

23. Are there limits to quantity of data? We're monitoring temperature hourly at 30 sites in the Chilliwack/Vedder watershed. Wondering if we could upload that 1 to 4 times per year per site along with water quality data that's measured each time temperature data is retrieved?

The DataStream database is scalable and doesn't have limits in how much data it can store. There is a 5GB limit for each manual upload, and a theoretical 1TB limit for automatic integration uploads. So the amount and frequency of data uploads that you have suggested would not be an issue.

24. As an applications developer, I would be interested what platforms were used to develop datastream.org.

We use a number of open-source software on the platform (e.g. Leaflet, Plotly), however the system was custom built by our senior software developer. If you would like to learn more, you can reach out to us at datastream@gordonfn.org and we can set up a conversation with the DataStream developer.

25. How easy would it be to develop an API to "Epicollect5" (our data platform), including water quantity data…)?

There is likely potential for us to integrate with the Epicollect5 API, if you reach out to mary@gordonfn.org we would be interested in continuing the conversation.

26. Who would we contact for information about reasonably priced water quality measurement and sampling equipment for community groups?

DataStream does not participate in water monitoring ourselves. Water Rangers, who develop easy to use community water monitoring test kits could be worth reaching out to: https://waterrangers.ca/about/contact/

27. Are you able to briefly summarize the types of data uploaded and shared? There is a great deal of variation in what data are collected.

DataStream's focus is ambient water quality data. So we typically handle quantitative data such as field collected observations and measurements and discrete lab-analyzed samples of surface water and

sediment. Currently DataStream shares over 800 water quality parameters that can range from nutrients, metals, pesticides, PAHs, pharmaceuticals, etc.

28. Is there any way to use the DataStream platform without making all of the data public? Some of our nation-specific data needs to remain private for political reasons, but this platform seems very useful! Alternatively, is it possible to upload data and then remove it at a later date?

All data on DataStream are published under an open data licence. The site was built for the data that people want to publicly share to support collaborative water stewardship. In 2021, we began offering embargo periods, if you would like to delay publication for up to a year. Once data is uploaded to the site it also can sit in 'Preview' mode until the contributor is ready to publish it, and only the data contributor has access to the data during this time. Though datasets can be updated, and data removed, there would still be a record of past versions of a dataset.

29. How does DataStream work with existing water data repositories? Would DataStream aim to connect directly to access existing data?

DataStream aims to be as interoperable as possible with other data systems and repositories. This can look differently depending on the system. For example, we may work with data contributors to pull data from an existing system, transform it to the DataStream-WQX schema, and publish it on DataStream through an automated integration (note that data must be available in structured, open, machine-readable format to do this). In other cases, datasets published on DataStream can be searchable and accessed (via metadata + DOI link) from other data systems and catalogues (such as DataCite and Federated Research Data Repository).

30. We have community members collecting data throughout the summer on an app, is there live updating of the data or would I need to bring their data all together and submit it periodically to DataStream?

At this time DataStream doesn't host near real time (or live) data, so once data is collected on the app it could either be periodically submitted, or if it is uploaded to a data system with an open API, DataStream could pull the data at regular intervals, which could be a yearly to daily frequency depending on your preference.

31. Can streamkeepers send data to Nikki to add to the CoSMo project rather than upload it themselves? or can DataStream build APIs on our behalf?

If the data are collected as part of the CoSMo project, then Streamkeepers don't need to worry about uploading the data to DataStream, as the data will be uploaded by Nikki. So people can simply continue sending the data files to me as they have been previously. However, for historical data and/or data that were not collected as part of the CoSMo project, each Streamkeeper group will have to upload them themselves, as I unfortunately don't have the capacity to QAQC, manage, and upload all the historical SK data at this point. DataStream does not currently build APIs for other organizations but if an open API exists there is potential for DataStream to connect and pull data.

32. Do you have a list of Data Stream collaborators (BC agencies/organisations)? Islands Trust, FLNRO, CRD?

At the moment we are just beginning to network and look for potential collaborations in BC and the Yukon.

33. It seems like DataStream is one of many existing platforms - from the Strait of Georgia Data Center, the Pacific Salmon Explorer, to Water Rangers and the Open Science and Data Platform.

How do we "streamline" efforts or do you recommend different platforms for different purposes? (Like OSDP is focused on cumulative effects)

A great question. We believe a healthy digital data sharing ecosystem consists of many tools, platforms and services to meet different needs (e.g., repositories, data analysis/reporting tools, and for different data types). When these systems can connect and work in complementary ways, it's a win for everyone. Fostering this kind of interoperability includes both technical aspects (e.g., adopting common data and metadata standards, using machine-readable and non-proprietary data formats, and establishing well-defined APIs), as well as convening and dialogue to support coordination and collaboration among those working in the space. We've seen success with this approach in the other regions where we work (e.g., connecting with Water Rangers, government portals and other systems) and are just beginning these conversations in BC and Yukon.

34. Are there plans to add stream flow data to DataStream? Such an important (and related) part of the freshwater analysis story.

A handful of groups do share flow data on DataStream. However, since the Water Survey of Canada manages and shares water quantity and hydrometric data publicly across the country and does a good job of this, we have not focused on it as we do water quality. Being able to better link these two data sources is something we know would be valuable and continue to keep in mind as our respective systems evolve. Taking in groundwater data will be the next big data type for us in the near-term.

35. Can you add older water quality analysis reports as is, i.e., without point based data? It would be for a lake, for example.

Reports and analyses can be included as attachments to a dataset.

36. As a charitable foundation what guarantees are there that there will be long term funding to support the Data Stream Hubs?

DataStream is committed to ensuring long-term access to data everywhere we operate. As with any organization— charitable, private, public or otherwise—this means having robust plans in place for long term organizational sustainability. DataStream's activities are supported by funding from a diversity of sources including governments and foundations. This includes DataStream's founding donor, The Gordon Foundation which is invested in the long-term sustainability of the system. Though DataStream is very well positioned from a sustainable funding perspective, we do have plans in place to ensure continued access to data in the unlikely event that DataStream were no longer able to operate. This includes data preservation and access plans.

37. Is it possible to keep specific data points private because they're taken from a homeowner's property (e.g., shallow well)?

Yes. There is the option to omit these monitoring locations from the dataset, or else DataStream offers a horizontal accuracy buffer, where you can define a horizontal accuracy for the monitoring location so that the exact location remains private.

38. Is the Gordon Foundation working with the Federal Govt in the creation of a "ministry of water?"

The Gordon Foundation took an active role in discussions as well as presented in panels during the public engagement period of the formation of the Canada Water Agency, and is committed to continued engagement.

39. It would be great to see more information on the data schema used, how this aligns with WQX and what elements (attributes) are in-place and /or being considered.

The DataStream schema can be accessed publicly through our Github page:
https://github.com/gordonfn/schema. Please reach out if you would like to discuss further!

40. Will DataStream provide a trend analysis feature in the future?
The DataStream platform focuses on data sharing and access, and in order to remain a neutral home for data, does not perform any data analysis or interpretation. So at this time trend analysis is not a supported feature.

41. Would you be interested in a demo presentation to FN Government Depts? (Mary and Lindsay)
Yes, we would certainly be interested! Please send us an email and we can continue the conversation: lindsay@gordonfn.org, mary@gordonfn.org

42. Is there any means for data owners to know who has downloaded their data?
DataStream doesn't track who has downloaded datasets, only the number of downloads.

43. Could you briefly describe the data upload process? It would be helpful to have a sense of the effort involved.
Unfortunately, we were short on time during the presentation and would have liked to demo the upload process. We strive to make sure the data sharing process is as streamlined as possible. To begin contributing data you would first reach out to Mary (mary@gordonfn.org) to have an introductory call where the onboarding process is outlined in detail. Once you create a DataStream account and transform your data into the DataStream schema (with support from a DataStream data specialist), the upload process involves logging in to DataStream, copying in your dataset metadata (which you pre-populated in a form), and then uploading your data file to the site. We would be happy to discuss this further if you would like to reach out.

44. What is the process to sharing our water quality data here in BC and what Community groups are sharing data?
You can reference our response for a brief description of the data sharing process. We are just beginning initial conversations with monitoring groups in BC, but the data collected by water stewardship groups who work with the DFO CoSMo project is already accessible on DataStream (as per our demo): https://doi.org/10.25976/0gvo-9d12

Webinar Poll Results

1. What type of affiliation are you from?
   a) Indigenous Community-Based Water Monitoring Groups (~8%)
   b) Non-Indigenous Community-Based Water Monitoring Groups (~14%)
   c) other environmental NGO's (~20%)
   d) Local & Regional Government (~13%)
   e) Provincial Government (~16%)
   f) Federal Government (~13%)
   g) Indigenous Government (~5%)
   h) Academia (~10%)
   i) Industry (~2%)
   j) Consulting (~5%)

2. Do you currently have a data management plan in place?

a) No (~27%)
b) Informal plan (~22%)
c) Semi-formal plan (~36%)
d) Formal plan in place (~15%)

3. Are you interested in participating in a data management planning course?
a) Yes (~61%)
b) No (~5%)
c) Need more info (~34%)

4. Is your organization collecting water quality data?
a) Yes (~82%)
b) No (~18%)

5. Have you heard of DataStream prior to this webinar?
a) Yes (~28%)
b) No (~72%)

6. How does (or doesn't) your organization share water monitoring data?
a) We don't share our data publicly (~11%)
b) Upon request only (~17%)
c) Publicly on our website (~17%)
d) Publicly on an open data portal (~25%)
e) Reports/summary of findings only (~22%)
f) Metadata only (~2%)
g) N/A, our organization does not collect water data (~6%)

7. What are the biggest barriers your organization faces in sharing water monitoring data?
a) Concerns around sharing data openly (e.g. sensitive data) (~28%)
b) Capacity/time/resources (~68%)
c) Have not found appropriate open data portal (~20%)
d) No barriers - data sharing is easy! (~6%)
e) N/A, our organization does not collect water data (~10%)

Resources shared in Q&A and chat

Public WebPortal for Water Related Time Series Data for the Province of BC.
https://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-science-data/water-data-tools/real-time-water-data-reporting

Water Rangers national open platform https://waterrangers.ca/

Resources that are helpful for learning what it means to be culturally sensitive when engaging with Indigenous communities. This is one example of a publicly available resource:
https://indigenousawarenesscanada.com/

OCAP training to understand important factors when working with Indigenous data (including data collected in partnership with Indigenous groups). https://fnigc.ca/ocap-training/

For general knowledge about Indigenous history, culture, issues in Canada, "Indigenous Canada" is a free web course from UofA, appropriate for anyone in Canada. https://www.ualberta.ca/admissions-programs/online-courses/indigenous-canada/index.html

The BCWWA Annual Conference & Trade Show is the premier water and wastewater event in BC https://bcwwa.org/site/events/ac2022

DataStream newsletter: https://bit.ly/DataStreamNewsletter https://datastream.org

BC Watershed Security Fund https://poliswaterproject.org/2021/11/23/watershed-security-in-b-c/l

 info@watershedsecurity.ca

Other Relevant Webinars:

Water Data Management for Regional Community-Based Water Monitoring Groups
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?