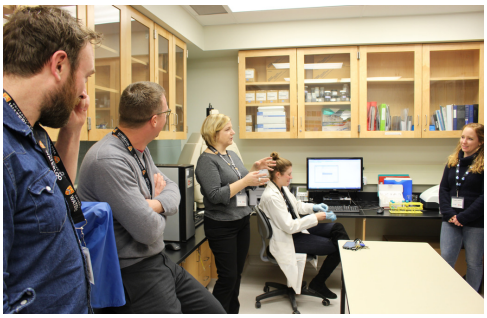
*for*Water YP WORKSHOP:

DRINKING WATER TREATABILITY

WATER TREATABILITY, NOT WATER QUALITY

During the 2019 Drinking Water Treatability Workshop, *for***Water** researchers and young professionals dove into the topic of "treatability."

Treatability involves evaluating the relationship between source quality and how easily it can be treated by any of a range of technologies.



WORKSHOP OBJECTIVES

Trans-disciplinary training

Give Canada's future water and forest management leaders the skills to reasonably speak to drinking water treatability risks, including describing drinking water treatability impacts of disturbances in research plans, data analysis, knowledge dissemination, and understanding technological solutions and limitations

Maximize treatability analyses

Streamline the collection, organization, and interpretation of water samples from the watershed research platforms to the Theme 3 labs at the Universities of Waterloo, Calgary, and Alberta

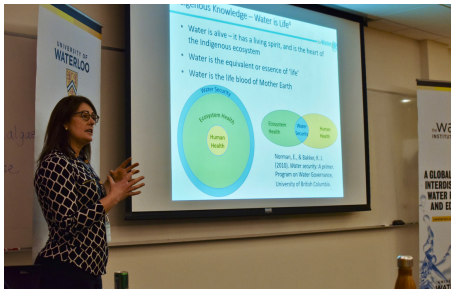
Facilitate connections

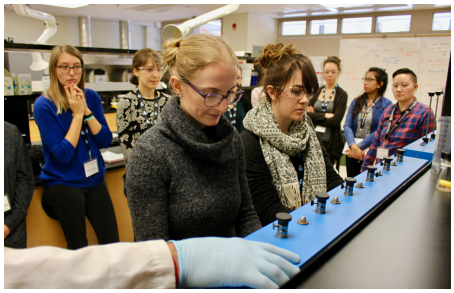
Facilitate connections and collaboration between *for***Water** YPs and researchers, especially between Theme 3 drinking water treatability experts and other network members

Trans-disciplinary Training

- **Researcher presentations**
- **Hands-on lab sessions**
- **Guest lecture**

*for***Water** researchers enabled YPs to gain important treatability knowledge by sharing their expertise. **Monica Emelko** gave an introduction to drinking water treatability, and explained the critical importance of chemical pretreatment processes (especially coagulation) for ensuring public health protection. She then emphasized the need to include these impacts in treatability assessment and discussed approaches for assessing infrastructure needs and coagulant demand. **Susana Kimura-Hara** delivered a primer on DBP and DBP-FPs and **Mike Stone** elaborated on phosphorus form and mobility, presenting methods for their characterization. **David Olefeldt** followed with a presentation on NOM characterization approaches and offered to conduct PARAFAC analysis of fluorescence excitation-emission measurements (FEEM). **Kirsten Müller** spoke on the threats and treatability implications from cyanobacteria and cyanotoxins. **Sarah Dickson-Anderson** brought the discussion full circle presenting on treatability considerations for First Nations, Inuit, and Métis communities.





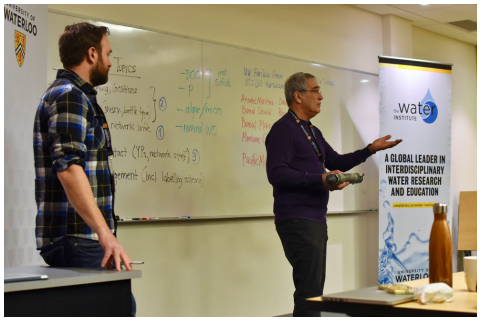
IN THE LAB

Workshop participants gained hands-on lab experience with solids/dissolved organic carbon and associated treatment challenges, as well as assessment tools for supporting coagulation and associated processes. Challenges associated with responding to rapid water quality changes were highlighted.

Maximize Treatability Analyses

- **Researcher presentations**
- **Facilitated discussion**
- **Identification of regional coordinators**

Throughout the workshop, the Network's commitment to sharing technical and analytical capacities was emphasized. The **University of Waterloo** labs have processed most of the treatability samples to date (including disinfection by-product formation potentials) and have expanded the types of analyses being conducted. The **University of Calgary** lab is now ready to receive greater numbers of samples and the **University of Alberta** lab has further offered to conduct additional NOM characterization (specifically PARAFAC of FEEMs) across the Network. Thus, the *for* **Water** Network is positioned to maximize and streamline treatability analyses network-wide.



Sampling Coordinators

Special thanks to these individuals who have volunteered to serve as points of contact for the collection and shipping of samples across the network:

- **Network-wide coordinator & database manager:** Fariba Amiri
- **University of Waterloo:** Fariba Amiri (for Emelko, Stone, & Müller labs)
- **University of Calgary:** Jill Murakami
- **University of Alberta:** Julia Orlova (for Olefeldt lab)
- **Pacific Maritime:** Emily Mistick (with Hannah McSorley)
- **Montane Cordillera:** Chris Williams (with Erin Cherlet)
- **Boreal Plain:** Julia Orlova
- **Boreal Shield:** Rhys Bauer
- **Atlantic Maritime:** David Foster

Facilitate Connections

- **Facilitated discussion**
- **Identification of collaboration opportunities**
- **Networking**
- **Evening events**

The *for***Water** Network provides a tremendous opportunity for the continuation of old relationships and the forging of new ones, particularly with inter- and trans-disciplinarity in mind. Workshop presentations and subsequent discussions created opportunities for Network members to connect, solidified through small opportunities throughout the day to dialogue about research and time in the evenings to break bread and share meals.

forWater would like to thank...

Our hosts & sponsors:

University of Waterloo

WATER Science, Technology & Policy Group

Our Participants & Partners

NSERC CRSNG

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UBC

Trent University

Brock University

Vancouver Island University

University of Calgary

Dalhousie University

McMaster University

CRD Making a difference...together

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Alberta Agriculture and Forestry

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Canada

Ontario Ministry of the Environment and Climate Change

Nova Scotia Natural Resources

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CANFOR

Weyerhaeuser

SLS Spray Lake Sawmills

COST Action CA15206 PESFOR-W Payments for Ecosystem Services Forests for Water

ACFT Alberta Centre For Toxicology Advancing Public Health through Excellence in Toxicology

Canadian Water Network

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eawag aquatic research

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