



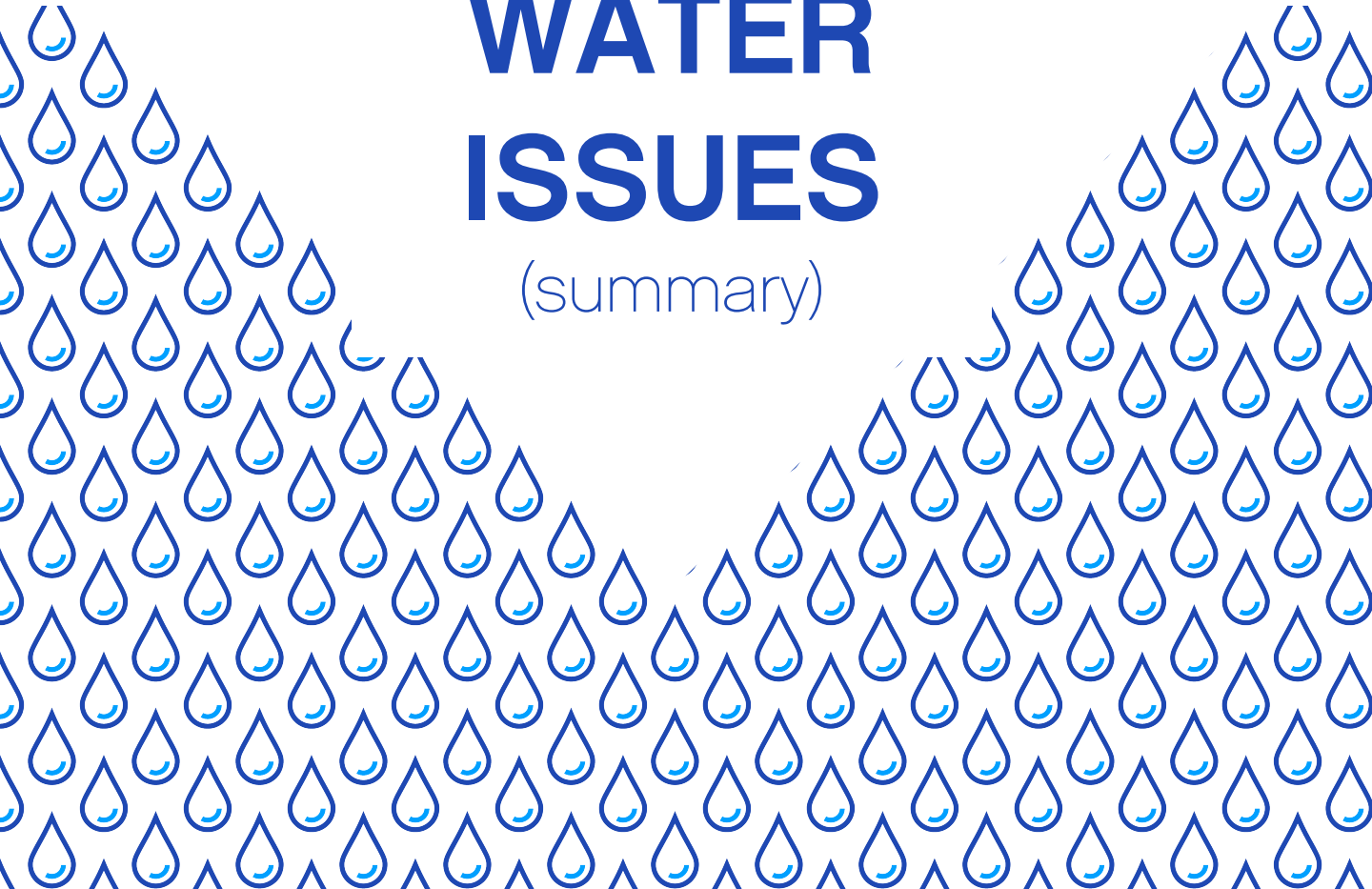
Western Canada

Hosted by



WATER ISSUES

(summary)



Western Canada 2021 AquaHacking Challenge

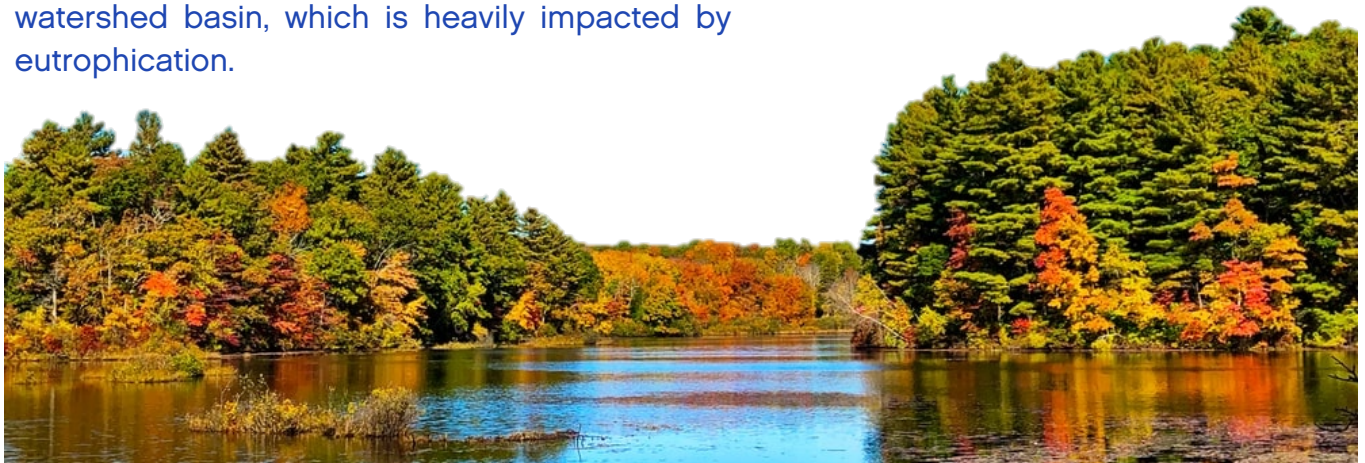
The Western Canada 2021 AquaHacking Challenge is co-hosted by Aqua forum and the Okanagan Basin Water Board (OBWB).

The Challenge invites young innovators and problem-solvers from across Canada to put their skills into action creating ground-breaking technological solutions to some of the most critical issues facing watersheds in British-Columbia, Alberta, Saskatchewan, and Manitoba.

Water issues

Spanning four provinces and 2.9 million square kilometers, the Western Canada region covers almost 29% of Canada's land area, including many different geographies such as the prairies, mountain ranges, the Pacific coast, and the Columbia and Fraser Rivers – the second- and third-largest rivers, respectively, to drain to the west coast of North America.

Resource extraction and land management activities across this region cause water stress points, including oil sands development, potash and uranium mining, shale gas development, agriculture in the Okanagan and Southern Alberta, and urbanization. The Western Canada region also includes the Lake Winnipeg watershed basin, which is heavily impacted by eutrophication.



The Okanagan Basin Water Board (OBWB)

The OBWB located in Kelowna, BC, is unique to Canada and was formed in 1970 as a valley-wide partnership to identify and resolve critical water issues in the Okanagan watershed.

The OBWB has three main programs:

- Milfoil Control Program
- Sewage Facilities Grants Program, and the
- Water Management Program which includes the WSC, Water Research, etc.

Its mission is to provide leadership to protect and enhance quality of life in the Okanagan Basin through sustainable water resource management.

This is the second time the OBWB partners in the delivery of an AquaHacking Challenge, following the British Columbia 2020 AquaHacking Challenge.

To learn more, visit www.obwb.ca

Selected Water Issues

The Advisory Committee for the Western Canada 2021 AquaHacking Challenge selected 4 water issues of significant concern to be the focus for this edition of the Challenge. Each team must choose one of the four proposed issues.

Water Issues	Description	Water Issue Leaders (WIL)	Data sets	Webinars and AMA*	End-users and potential clients
Optimization of Drinking Water and Wastewater Treatment Plants	How can we improve the operations of primary water/wastewater utility infrastructure?	Robert Haller , Executive Director, CWWA David Paul Teasdale , College Professor - Water Engineering Technology, Okanagan College	Open Canada (link1 and link2) Reach out to the Water Issues Leaders	Webinar https://bit.ly/3ppyrid AMA – March 11 Register	Treatment Plants Water utilities
Innovative ‘Social’ Technologies for Water Information	Are there new ways we can link to existing social media and communications technologies to support community access to water information?	Gabrielle Parent-Doliner , Director, Water Rangers Graham Strickert , Assistant Professor, University of Saskatchewan	IISD (Link) Open Canada (link) Reach out to the Water Issues Leaders	Webinar https://bit.ly/3aoVQxa AMA – Feb 18 Register	Citizens, NGOs
On-Farm Nutrient Capture and Recycling	How can we capture and reuse the valuable nutrients from livestock operations and improve the health of nearby rivers, lakes and aquifers?	David Lobb , Professor, University of Manitoba; Maggie Romuld , Executive Director, Canadian Water Resources Association Merrin Macrae , Professor, University of Waterloo	Reach out to the Water Issues Leaders	Webinar https://bit.ly/3qt7JaW AMA – March 9 Register	Farmers
Toxic Algal Blooms	How can we improve testing and reduce the incidence of toxic algal blooms?	Helen Baulch , Associate Professor, University of Saskatchewan Heather Larratt , Principal Biologist, Larratt Aquatic	IISD (link) Open Alberta (link) Open Canada (link) Reach out to the Water Issues Leaders	Webinar https://bit.ly/3baugCZ AMA – March 4 Register	Municipalities Farmers

*Once registered to the Challenge you'll have access to the AMA Q&A

About the Water Issue Leaders (WIL)

A WIL is an organization whose proposed water issue that has been selected for the AquaHacking Challenge. One or more people are appointed by the organization to be responsible for the water issue and have the mandate to support the teams that have chosen their issue in order to ensure a good understanding of the chosen issue and its scope, the type of market targeted, the needs of end users, etc... The WILs are the expert/mentors of the water issues. Participants can contact them directly via the Discord platform made available to them. They are also available to provide data or references to data sets.

In addition, information sessions specific to each water issue are also organized and accessible to all (with mandatory registration) to allow newly registered and future participants to learn more about each water issue and to ask their questions to the WILs..

AquaHacking Alumni Activities in Western Canada

Following the completion of the British Columbia and Lake Winnipeg 2020 AquaHacking Challenges, the first cohort of AquaHacking Alumni members in Western Canada was established and continues to have an impact on water issues in the region. :



[Ozero](#)

Developed a washing station to decontaminate ballast water from sport boats to prevent the spread of zebra and quagga mussels in fresh water.



[Water Rangers](#)

Developed a water testing tool kits and data platform for citizen and scientist water monitoring.



[Gravity-Assisted Particle Separation Systems](#)

Offers a technical solution, adapted to the terrain, to collect debris, waste and sediments as they flow into the urban landscape during high water periods.



[Above Atlantis](#)

Designed an interactive online platform that makes flood risk information more accessible to the public, adaptable to climate change scenarios and capable of integrating publicly available information.



[A2Z Filters](#)

Developed a gravity filtration system that removes hydrocarbons, dust and petroleum contaminants from stormwater.



[UniteAg](#)

Developed a simulated digital platform that provides feedback to policy makers on the effectiveness of agricultural incentives for water conservation and nutrient management to protect water quality.



[Particuleye Technologies](#)

Developed a portable automatic detection device that uses machine learning to classify and quantify microplastics for use in commercial, academic and scientific settings.



[LaSIR Nutrient Technology](#)

Developed an agronomic decision support tool for on-site soil analysis. The tool will use ATR infrared spectroscopy techniques and will collect multiple soil samples simultaneously without the use of added reagents, reducing the cost per sample.



[Typha Co.](#)

Developed eco-packaging products that compete economically with plastics while maintaining a high level of environmental responsibility. The products will be made from fibers extracted from cattails, which contribute significantly to the eutrophication of Lake Winnipeg.



[Water Secure](#)

Established a series of localized testing centers that allow water quality to be monitored at an affordable price and data to be downloaded to a living water map that can be used to raise public awareness, help governments identify and invest in infrastructure gaps, and improve population health and water security in remote communities.

To connect with members of the AquaHacking Alumni community, write to alumni@aquahacking.com.

Additional resources- Water Management Strategies and Policies

General

- [Prairie Water and Land Management \(more info\)](#)
- [Manitoba Water Policies \(more info\)](#)
- [Saskatchewan Safe Drinking Water Strategy \(more info\)](#)
- [25-Year Saskatchewan Water Security Plan \(more info\)](#)
- [SaskH2O \(more info\)](#)
- [Alberta Water Act \(more info\)](#)
- [Alberta Water Act Fact Sheets \(more info\)](#)
- [Alberta Water for Life Strategy \(more info\)](#)
- [B.C. Water Sustainability Act \(more info\)](#)
- [Water Conservation Guide for BC \(more info\)](#)
- [B.C. Living Water Smart \(more info\)](#)
- [Northeast Water Strategy \(more info\)](#)

Toxic algal bloom

- EOLakeWatch: Remote sensing of algal blooms ([more info](#))
- Monitoring Water Bodies with Harmful Algal Blooms: A Canadian Landscape Scan by Our Living Waters ([link](#))
- New USask app tracks causes of algae bloom ([link](#))

Social Tech innovation

- WWF Watershed reports ([link](#))
- The Water We Drink, Lead and Social Media ([link](#))
- Water Rangers - <https://waterrangers.ca/>

Optimization of drinking water and wastewater Treatment plants

- Prioritization process for the development of Guidelines for Canadian Drinking Water Quality ([link](#))
- Municipal wastewater treatment - Canadian environmental sustainability indicators ([link](#))
- CWWA - Survey of large-scale pump system optimization practices ([link](#))
- Strengthening the Resilience of the Canadian Water Sector – Final Report ([link](#))
- AWWA -Self Assessment for Wastewater treatment plant optimization ([Link](#))
- Canada's challenges and opportunities to address contaminants in wastewater- Report - March 2018 ([Link](#))

On-Farm Nutrient

- Nutrient management - Research insights for decision makers ([link](#))
- Soil and water management: opportunities to mitigate nutrient losses to surface waters in the Northern Great Plains ([link](#))
- Conventional and Conservation Tillage: Influence on Seasonal Runoff, Sediment, and Nutrient Losses in the Canadian Prairies ([link](#))
- Agricultural Water Quality in Cold Climates: Processes, Drivers, Management Options, and Research Needs ([link](#))
- Nutrient and Sediment Losses in Snowmelt Runoff from Perennial Forage and Annual Cropland in the Canadian Prairies ([link](#))
- Nutrient Management plans in British Columbia, click [here](#).
- Nutrient Management reference guide (BC government), click [here](#).
- Projects funded by Lake Winnipeg Basin Program, Nutrient reduction projects. Click [here](#).
- The effect of land management changes and nutrient runoff capture on water quality and farm and water shed economics ([link](#))
- Capturing and Recycling Excess Nutrients from Farmland – Illinois Sustainable Technology Center ([link](#))

To Learn More

To learn more about the Western Canada 2021 AquaHacking Challenge, visit <https://aquahacking.com/en/westerncanada2021/>.

For further information or inquiries, please contact:

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