

# AquaHacking Lake Winnipeg 2020 Challenge

FINAL REPORT



Lake  
Winnipeg

Hosted by



Established by



Powered by



# Contents

- Bringing the AquaHacking Challenge to Lake Winnipeg ..... 3
- Vision & Strategy..... 3
- The AquaHacking Lake Winnipeg 2020 Challenge Timeline ..... 4
- Lake Winnipeg Water Issues & Water Issue Leaders..... 5
- The Launch..... 6
- Recruitment and Outreach ..... 7
- The Semi-Final..... 8
- The Finalists’ e-Expedition ..... 9
- The Final..... 10
- What’s Next? ..... 16
- Thank You to Our Partners..... 17



## Bringing the AquaHacking Challenge to Lake Winnipeg

### Vision & Strategy

The AquaHacking Challenge was established in 2015 by Aqua Forum to harness the talent of innovative young Canadians to help solve some of our country's most urgent water issues with cleantech solutions. Every year, post-secondary students and recent graduates are recruited into this water-focused innovation challenge, where they are mentored by experts and participate in leadership development workshops as they develop solutions to critical issues plaguing our fresh water. Challenges have been held annually in the Great Lakes and St. Lawrence region since 2015, resulting in 22 new startups and social enterprises, as well as 30 jobs created in the water sector.

In 2020, the International Institute for Sustainable Development (IISD) brought the AquaHacking Challenge to the Great Lake of the Prairies: Lake Winnipeg. With a watershed spanning over 1,000,000 km<sup>2</sup>, the iconic Lake Winnipeg provides cultural, economic, and recreational benefits to over 7 million people. It's also facing serious threats, such as new contaminants, harmful algal blooms, and a lack of funding to invest in the health of the lake. IISD set out to showcase the talent of our youth and the leadership of our tech and business communities here in Manitoba by bringing them together through the AquaHacking Challenge to solve some of Lake Winnipeg's most pressing water issues.

# The AquaHacking Lake Winnipeg 2020 Challenge Timeline

**January 31**

## KICK OFF

At DisruptED Future Conference  
in Winnipeg, MB



**February–May**

## PHASE 1

Register and form teams,  
3 workshops on demand,  
360° Mentorship

**June 10 & 11**

## SEMI-FINAL

Top 5 teams move on to Phase 2



**June–September**

## PHASE 2

\$2,000 bursary per team,  
teams refine their solutions,  
360° Mentorship

**July 27–29**

## E-EXPEDITION

Virtual workshops in  
team-building and professional  
development



**October 20**

## FINAL

\$50,000 in prizes and  
Incubator Space awarded

## INCUBATION

Business support



# Lake Winnipeg

## Water Issues & Water Issue Leaders



### MICROPLASTICS

*How can we keep microplastics out of Lake Winnipeg?*

#### WATER ISSUE LEADERS

**Dr. Chelsea Rochman**, Co-Founder of the UofT Trash Team & Assistant Professor, University of Toronto

**Susan Debreceni**, Co-Founder & Outreach Lead UofT Trash Team, University of Toronto



### WATERSHED INVESTMENT

*How can we create systems that make it easy for people to invest in the health of Lake Winnipeg?*

#### WATER ISSUE LEADERS

**Geoff Gunn**, Policy Advisor – Data & Technology, IISD

**Madeline Stanley**, Project Officer, IISD



### FISH HEALTH

*How can we better assess fish health and populations without having to kill them?*

#### WATER ISSUE LEADERS

**Dr. Vince Palace**, Head Research Scientist, IISD-ELA

**Lauren Hayhurst**, Fisheries Research Biologist, IISD-ELA

**Lee Hrenchuk**, Senior Biologist, IISD-ELA



### DRINKING WATER

*How can we ensure that remote northern centres have access to clean drinking water?*

#### WATER ISSUE LEADER

**Pauline Gerrard**, Deputy Director, IISD-ELA and Corporate Secretary



### WATER & LAND MANAGEMENT

*How can we provide agricultural producers with cost-effective solutions for water and land management?*

#### WATER ISSUE LEADERS

**Alanna Gray**, Policy Analyst, Keystone Agricultural Producers

**Patty Roshier**, General Manager, Keystone Agricultural Producers

**Mitchell Timmerman**, Agri-Ecosystems Specialist, Manitoba Agriculture & Resource Development



## The Launch

IISD and Aqua Forum launched the AquaHacking Lake Winnipeg Challenge on January 31, 2020, at Tech Manitoba's DisruptED Future tech conference. Jane McDonald, IISD's Executive Vice President, announced the official start of the challenge during a panel discussion on harnessing tech for social good chaired by RBC's Valerie Chort and featuring Chelsea Lobson of the Lake Winnipeg Foundation and Carolyn DuBois of the Gordon Foundation. IISD also participated in the Coffee With Strangers event and ran an AquaHacking booth in the Interactive Playground. Over 400 tech workers, entrepreneurs, policy-makers, educators, and students attended the 2-day conference.



[Click here to watch the launch video!](#)



## Recruitment and Outreach

Between January and May, IISD hosted nine on-campus information sessions at various universities and colleges to get the word out to students about the AquaHacking Lake Winnipeg 2020 Challenge. Other recruitment tools included classroom presentations, campus info booths, and virtual information sessions. We also held a series of “Ask Me Anything” virtual networking sessions where students and young professionals had the opportunity to meet experts working in the water sector.



# 472

youth engaged  
in water-related  
activities

# 109

individuals  
registered for  
the challenge

# 19

teams  
registered for  
the challenge



# The Semi-Final

On June 11, nine teams went head-to-head in the AquaHacking Lake Winnipeg 2020 Challenge virtual Semi-Final. Each team pitched their solution ideas to a panel of 12 judges with expertise in business, technology, and water. Based on the judges' scores, five teams were selected to move on to Phase 2 of the challenge, where they continued developing their solutions with the help of expert mentors and a \$2,000 bursary.

[Click here to watch the recording of the Semi-Final!](#)

## Business Judges



**Brent Wennekes**  
**MITACS**



**Glenn Crook**  
**RBC**



**Jan Forster**  
**GOVERNMENT OF  
MANITOBA**



**Kevin Parsons**  
**THE WINNIPEG  
FOUNDATION**

## Water Judges



**Chelsea Lobson**  
**LAKE WINNIPEG  
FOUNDATION**



**Karen Scott**  
**LAKE WINNIPEG  
RESEARCH CONSORTIUM**



**Mark McMaster**  
**ENVIRONMENT AND  
CLIMATE CHANGE  
CANADA**



**Sharon Gurney**  
**GURNEY AND  
ASSOCIATES**

## Tech Judges



**Gonzalo Lavin**  
**LAVERY LAWYERS**



**Gord Currie**  
**BOLD COMMERCE**

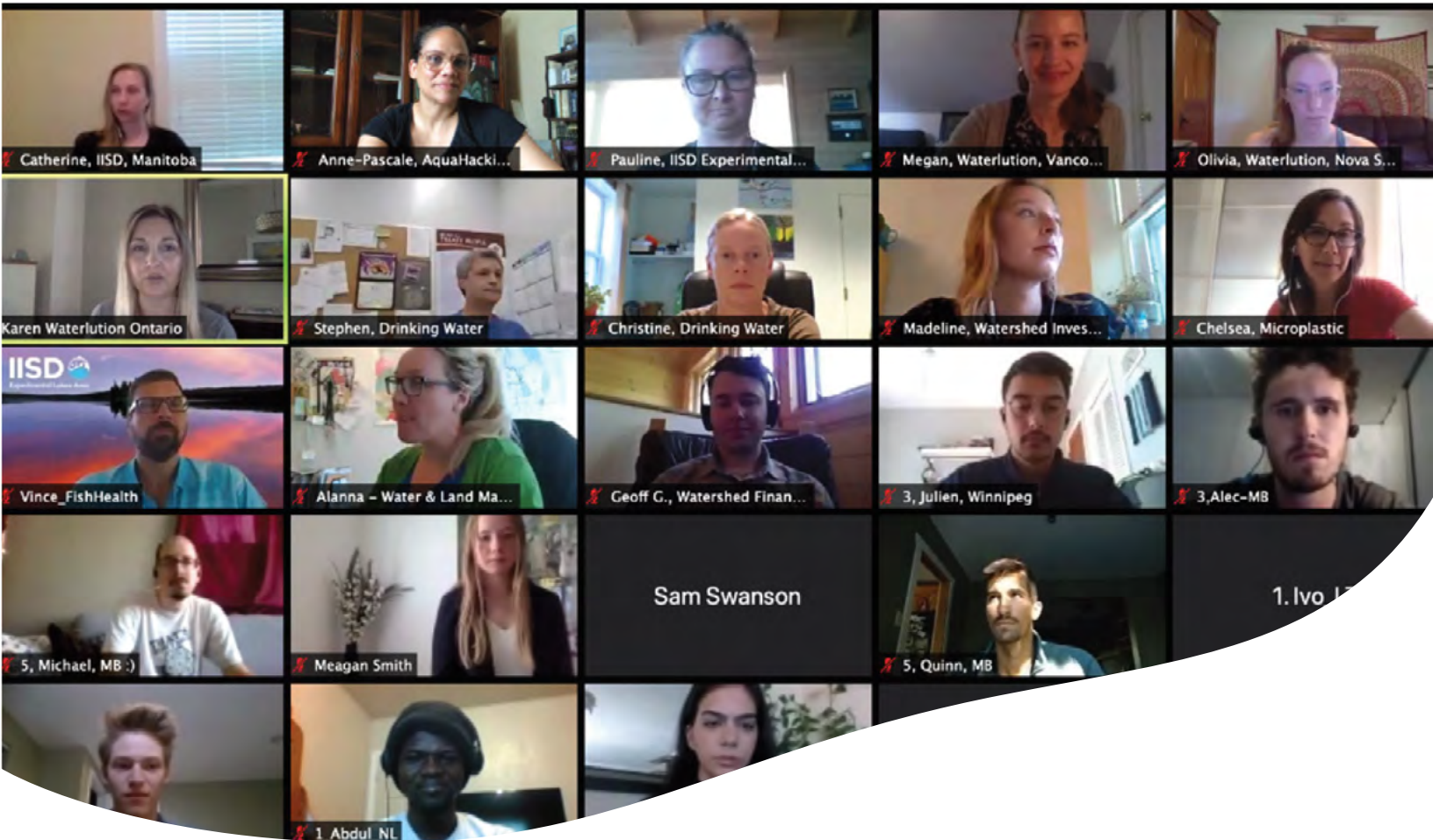


**Tareq Al-Zabet**  
**GOVERNMENT OF  
MANITOBA**



**William Locke**  
**OVIVO**





## The Finalists' e-Expedition

From July 27 to 29, the finalists went on a virtual retreat, or “e-Expedition,” to learn more about the Lake Winnipeg watershed. The finalists participated in professional development workshops on communication, empathy, collaboration, and leadership to get to know their teammates better and enhance their soft skills. The e-Expedition also included a session on the role of water in Anishinaabe culture and a world café with water experts, who facilitated discussions on connections between the water issues affecting Lake Winnipeg.

“

It’s made me more aware of the interconnections of the issues and how ecosystem thinking can be helpful to address the issues better.

Abdul-Latif Alhassan  
TEAM ABBATEK

“

My team will be able to communicate and debate the best way to tackle a problem more effectively due to our knowledge of collaboration and leadership types/styles.

Meagan Smith  
TEAM LASIR NUTRIENT TECHNOLOGY

[Click here to watch the recording of the Final!](#)

## The Final

On October 17, the five finalist teams pitched their solutions to help Lake Winnipeg and the communities who depend on it. The issues addressed by the teams' proposals included testing drinking water quality in remote communities, microplastics pollution, eutrophication, and water and land management in agriculture. The teams presented their solutions in a Dragon's Den-style pitch competition, and they did not make it easy on our panel of five judges:

Jay Myers

**BOLD COMMERCE**



Erin Ussery

**ENVIRONMENT AND CLIMATE CHANGE CANADA**



Dave Morgan

**STANTEC**



Mark Alexiuk

**SIGHTLINE INNOVATION**



Blaine Favel

**KANATA EARTH**





## Particuleye Technologies

**ISSUE:** Microplastics

### TEAM MEMBERS:



Quinn Desrochers  
**CEO – PROJECT MANAGEMENT**  
*University of Manitoba*



Michael Beck  
**CTO – HARDWARE & EMBEDDED SYSTEMS**  
*University of Winnipeg*




Ryan Tran  
**CIO – IMAGE PROCESSING & PROGRAMMING**  
*University of Manitoba*



Zacharie Gousseau  
**CIO – IMAGE PROCESSING & PROGRAMMING**  
*University of Manitoba*



Waseem Jawad  
**CFO – FINANCE & MARKETING**  
*Queen's University*

 [Learn more about Particuleye Technologies!](#)

### SOLUTION:

The Particuleye is a smart camera capable of quantifying and classifying microplastic particles in running water, in real-time, using machine learning and image processing techniques. Initially, we will focus on applying our device in lab settings and to effluent from wastewater treatment plants to provide operators with accurate microplastics profiles without the need for time-intensive lab analysis. The Particuleye will also speed up the development of removal techniques and aid in their fine-tuning by quickly recognizing microplastics in a water stream.

 [Watch their pitch!](#)

**LinkedIn:** [@particuleye](#)



## LasIR Nutrient Technology



**ISSUE:** Water and Land Management

### TEAM MEMBERS:



Bentley Turner  
**CO-FOUNDER**  
*University of Manitoba*



Meagan Smith  
**CO-FOUNDER**  
*University of Manitoba*

### SOLUTION:

Our solution is a portable device that uses infrared spectroscopy to analyze plant-available phosphate concentrations in soil, providing users with on-site, real-time results. We hope to reduce agricultural phosphorus runoff by providing this device to agronomists and consulting companies as a decision support tool that will be easier and cheaper to use than current alternatives.

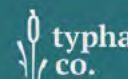
[▶ Watch their pitch!](#)

### Social Media:

[@lasirnutrient tech](#)



[🔗](#) Learn more about LasIR Nutrient Technology!



## Typha Co.

**ISSUE:** Watershed Investment

### TEAM MEMBERS:



Alec Masse

**CHIEF REPUTATION OFFICER AND  
MARKETING**

*University of Manitoba*



Julien Koga

**PRODUCT DEVELOPMENT AND  
RESEARCH LEAD**

*University of Manitoba*

### SOLUTION:

Typha Co. is developing eco-packaging products that will compete economically with plastics while maintaining a high standard of environmental responsibility. The products will be made from fibres extracted from cattail plants, significant contributors to the eutrophication of Lake Winnipeg.

▶ [Watch their pitch!](#)

**Website:** [typhacompany.com](http://typhacompany.com)

**Social Media:** [@typha\\_co](#)



🔗 [Learn more  
about Typha Co!](#)



## Water Secure

**ISSUE:** Drinking Water

### TEAM MEMBERS:



Arslan Azeem

**BUSINESS ANALYST**  
*University of Regina*



Noor Tajik

**OPERATIONS & COMMUNICATIONS MANAGER**  
*University of Regina*



Tinsae Alemu

**WATER QUALITY SPECIALIST**  
*University of Regina*

### SOLUTION:

Water Secure is a series of localized testing hubs that affordably track water quality and upload the data to a live water map that can be used to raise public awareness, help governments identify and invest in infrastructure gaps, and increase the population health and water security of remote communities.

▶ [Watch their pitch!](#)

**Website:** [watersecure.ca](http://watersecure.ca)

**Social Media:** @watersecurenet

🔗 Learn more about Water Secure!





## AbbaTek Group

**ISSUE:** Microplastics

### TEAM MEMBERS:



Abdul-Latif Alhassan

**POLICY & PARTNERSHIPS**  
*Memorial University of  
Newfoundland*



Ivo Arrey

**RESEARCH & DEVELOPMENT**  
*Memorial University of  
Newfoundland*



Sam Swanson

**BUSINESS & MARKETING**  
*University of Manitoba*

### SOLUTION:

AbbaTek is developing CompoundConnect, a complete suite software as a service (SaaS) package that will revolutionize microplastics research by leveraging state-of-the-art machine learning (ML) and artificial intelligence (AI) for researchers to quickly, accurately, and cost effectively identify microplastics in Lake Winnipeg for improved water management and policy.

▶ [Watch their pitch!](#)

**Website:** [abbatekgroup.com](http://abbatekgroup.com)

**Social Media:** [@abbatekgroup](https://twitter.com/abbatekgroup)



🔗 [Learn more about  
AbbaTek Group!](#)

## What's Next?

Moving forward, the five finalist teams have been offered an incubation spot at North Forge Technology Exchange, where they will receive mentorship and support as they continue work on their solutions. IISD will continue to support the AquaHacking Lake Winnipeg finalist teams through mentorship and networking opportunities, and we are delighted to serve on the advisory committee for the [Western Canada AquaHacking Challenge](#) in 2021.

IISD's goal in bringing the AquaHacking Challenge to Lake Winnipeg was not only to find great solutions to problems facing our fresh water but also to build relationships between academia, tech, non-governmental organizations, government, and business. We have reached a point today where the impacts of our actions are reaching beyond our own backyards; we are changing entire global systems—like our climate—and we need to work together to come up with solutions.

AquaHacking highlights how cross-sector collaboration drives innovation. Drawing on the relationships we've built through the AquaHacking Lake Winnipeg 2020 Challenge, IISD will continue to champion solutions to global sustainability issues, especially through the innovative use of data and technology.

Stay tuned to our social media and website for updates on our work, and if you have ideas for how we can work together to solve freshwater challenges, be sure to contact us at [cvanreenen@iisd.ca](mailto:cvanreenen@iisd.ca).

 **Learn how IISD is using financial technologies to build a more sustainable planet**

 **Learn how Canada can use innovation and data to protect our fresh water**





# Thank You to Our Partners

## NATIONAL FINANCIAL PARTNERS



## LOCAL FINANCIAL PARTNERS



# Thank You to Our Partners

## IMPLEMENTATION PARTNERS



## ACADEMIC PARTNERS



## ADVISORY COMMITTEE MEMBERS

**Peter Tielmann**, President & CEO, Palliser Furniture Ltd. & IISD Board Member

**Ray Bouchard**, President, Enns Brothers

**Jay Myers**, Co-Founder & VP Growth, Bold Commerce

**Glenn Crook**, VP Commercial Financial Services, MB West, RBC & IISD-ELA Board Member

**Mark Alexiuk**, CTO & Co-Founder, Sightline Innovation Inc.

**Joelle Foster**, CEO, North Forge

**Annette Trimbee**, President & Vice-Chancellor, MacEwan University

**Dayna Spiring**, President & CEO, Economic Development Winnipeg

**Ray Hoemsen**, Executive Director, Research Partnerships & Innovation, Red River College

**Masoud Asadzadeh**, Assistant Professor, Civil Engineering (Water Resources), University of Manitoba

**Joanne Zuk**, Assistant Deputy Minister, Renewal and Strategic Alignment, Government of Manitoba

**Chris Kirby**, Senior Technology Leader, IBM

**Anne-Pascale Richardson**, Program Manager, Aqua Forum



[IISD.org](http://IISD.org)



**IISD Experimental  
Lakes Area**



**Aquahacking.com**

