AQUAHACKING

USING TECH TO TACKLE FRESHWATER ISSUES

by **Catherine van Reenen**

"Hacking" describes using technical knowledge to overcome persistent problems, which range from the simple (is there an easier way to tie my shoes?) to the complex (how can cities coordinate snow removal more efficiently?). Indeed, just about anything can be hacked. Why not water?

AquaHacking does exactly that. This multi-stage, start-up competition challenges students and young professionals to design practical engineering, web, and mobile solutions to the problems plaguing North America's freshwater lakes. Its multidisciplinary teams of hackers compete for seed money and incubator space, with end goals of developing demand-driven solutions and launching new businesses that may have measurable impacts on freshwater issues.

Launched in 2015 by the de Gaspé Beaubien Foundation in Montréal, AquaHacking has thus far engaged more than 1,500 youth in 12 critical water issues and supported the launch of 18 start-ups. For example, the 2018 winner, Geosapiens, produced E-Nundation, a software tool that performs flood simulations to assess their potential impacts and support effective flood risk-management procedures. Water Rangers, AquaHacking's first winning team, is also one of its most successful start-ups. The organization offers a web-based data collection platform and portable water-testing kits to enable citizen scientists to sample water quality, upload their data, and track specific issues such as algal blooms and pollution over time.

Tech competitions like AquaHacking are an emerging strategy for tackling freshwater issues across the globe. Erie Hack, for example, is a water tech challenge launched by the Cleveland Water Alliance in 2017 in which coders, developers, engineers, and water issue experts generate solutions to issues affecting Lake Erie. Similarly, in 2018 a Milwaukee nonprofit, The Water Council, started a global Tech Challenge devoted to identifying new freshwater technologies based on topics selected by corporate sponsors, while the Global Water Tech Hub Alliance, a project of the Neterhlands-based Water Alliance, established an open platform to help match water issues with relevant solutions.



Photo courtesy of AquaHacking

A hacker team presents their solution at the 2018 AquaHacking semifinal in Toronto, Ontario.

What distinguishes AquaHacking and its international counterparts from traditional hackathons is a long-term focus on real-world problems with well-defined end users. While most hackathons are weekend affairs, the AquaHacking Challenge is an eight-month endeavor. As the problems plaguing our freshwater lakes are as multifaceted and complex as the stakeholders involved—from researchers, NGOs, and governments to industry, entrepreneurs, and regulators—it takes time both to understand the scientific processes at play and to build relationships across sectors. Because of the extended timeline AquaHacking uses in its tech challenges, competing teams can engage key stakeholders throughout the challenge to ensure they have support from expert mentors in water, technology, and business as they build their solutions. The solutions developed as a result of these synergies are well worth the extra time needed: they are more likely to be effective, and, more importantly, they have a better chance of being implemented by end users.

After five years of holding successful competitions in the Great Lakes-St. Lawrence region, AquaHacking is going national in 2020 with regional competitions planned in British Columbia, Atlantic Canada, and Lake Winnipeg. The AquaHacking Lake Winnipeg Challenge will be hosted by the International Institute for Sustainable Development (IISD), and it aims to find innovative solutions to issues such as microplastics pollution, algal blooms, and pharmaceutical contaminants.

IISD's AquaHacking Lake Winnipeg team will be hosting information sessions for potential participants throughout January 2020 at various university and college campuses. Although major competition events will take place in Winnipeg, teams can participate in person or virtually. Participants from both within and beyond the Lake Winnipeg watershed are welcome.

Catherine van Reenen is the AquaHacking project coordinator for the IISD.

AquaHacking @ IAGLR20

AquaHacking's Lake Winnipeg semifinal will be held June 8–12, 2020, at IAGLR20 in Winnipeg, where you can meet the hackers, learn about their solutions, and hear the top five teams present their pitches. The winning team will be determined at the final in October 2020.

For more information, contact cvanreenen@iisd.ca or visit the AquaHacking website.