IISD Experimental Lakes Area committed to policy

By Sumeep Bath, Communications Manager, IISD Experimental Lakes Area

WHEN MANAGEMENT of the Experimental Lakes Area, the self-proclaimed *world's freshwater laboratory,* moved in 2014 from the Government of Canada to the International Institute for Sustainable Development (IISD), a nonprofit think tank whose *raison d'etre* is policy research and knowledge sharing, there was a clear opportunity to make that much-cited yet mostly mythical bridge between science and policy a reality.

But first, let's back up a bit.

A group of 58 lakes and their watersheds in northwestern Ontario, Canada, IISD Experimental Lakes Area (IISD-ELA) is the only place in the world where scientists can manipulate whole lakes to build a more accurate and complete picture of the impacts of human activity on freshwater systems. Findings from IISD-ELA's 50-plus years of groundbreaking research have rewritten environmental policy around the world and the organization aims to keep freshwater clean for generations to come.

Researchers at IISD-ELA have added nutrients to lakes to improve our understanding of the relationship between phosphorous and algal blooms, acidified a lake to mimic acid rain, added artificial estrogen to a lake in similar levels to that which is found downstream from sewage treatment plants, and sprayed a small amount of mercury stable isotopes onto a lake and its watershed to understand mercury cycling in the environment. Research conducted at IISD-ELA is applied science with the goal of improving our understanding of human impacts on freshwater systems.

When it comes to applying that science to government and industrial policy and public consciousness, Pauline Gerrard, who heads up IISD-ELA's education and outreach program, has been leading that charge since the organization became an independent entity.

Pauline, however, was no stranger to those famed 58 lakes. Starting as an undergraduate student in 1994 on a project focused on the impact of hydroelectric reservoir creation, she contributed toward research aimed at understanding mercury biogeochemistry in flooded systems. For her master's research at the University of Alberta, she was back at the site examining the uptake of methylmercury in tree swallows living around the experimentally flooded reservoir.



Photo courtesy of IISD Experimental Lakes Area.

Pauline Gerrard has worked at the world's freshwater laboratory in many different roles since 1994.

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She then tore herself away from her beloved lakes, moving away from Canada and spending 10 years working in southeast Asia for the World Wildlife Fund for Nature focusing on wetland management and connections between poverty alleviation and biodiversity conservation. In 2010, Pauline returned to Canada and started, coincidentally, working for IISD to manage an internship program for Canadian students interested in international development.

When IISD took over management of the site, Pauline immediately flagged the potential for IISD-ELA to communicate its unique take on freshwater science to educate students and the public, engage industry, and influence governmental policy in Canada and around the world.

IISD-ELA's outreach to students and the public has slowly blossomed over the past six years to include field courses, public tours, school presentations, and educational resources. Pauline has worked to make sure that thousands of people from across the country have literally and figuratively walked through IISD-ELA's doors to learn, often firsthand, what freshwater research looks like, and why it matters.

Of course, public education is valuable in and of itself, but it is all the more so when it leads to policy change at the governmental level. While the research born from IISD-ELA over the last 50 years has had significant impact on policy in North

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America and around the world, this was often not the result of concerted efforts toward improved policy outcomes.

The challenge for a nonprofit focused on sustainable development and human impacts on the environment is to strengthen these connections and actively direct science toward better public policy. Research has shown that legitimacy, or studies that were designed to incorporate multiple points of view, is the strongest predictor of science that drives policy change (Posner et al., 2016).

Based on those principles, Pauline and IISD-ELA have been working to engage multiple stakeholders in the research and its outcomes. This includes building diverse research partnerships with academic institutions, government regulators, and industry. It also involves conducting community meetings, presenting in schools, and meeting with decision makers at key stages of the research.

They also track the policy landscape in search of opportunities for recommendations related to their research and communicate these recommendations in a variety of public fora, from opinion pieces to policy briefs.

A next step for IISD-ELA is to build policy-needs analysis into experimental design at the onset. This ongoing process will involve mapping the existing policy landscape and determining priorities as part of the development of the research project so the outcomes of the experiment have an immediate relevance for policy makers.

In fact, you can see for yourself exactly how the world's freshwater laboratory bridges science and policy next year when it hosts IAGLR 2020 in Winnipeg. You will be able to take a tour of the site, meet the scientists in person, and try your hand at some of the science for yourselves.

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Photo courtesy of IISD Experimental Lakes Area.

Researchers assess the health of a fish as part of their experiment to determine the impact of atmospheric mercury deposition on lake ecosystems.



Photo courtesy of IISD Experimental Lakes Area.

The very evident result of the site's first experiment that revealed phosphorus to be the key culprit in algal blooms.