

IISD Experimental Lakes Area

The World's Freshwater Laboratory



“IISD-ELA is the place for high-impact science. It is unlike any other facility for its ability to answer the big and pressing questions.”

—Dr. Karen Kidd, Canada Research Chair, Canadian Rivers Institute and University of New Brunswick

In a time of growing populations and a rapidly changing climate, the world is struggling to respond to challenges to their fresh water. These challenges include the impacts of climate change, agricultural runoff, water management, contaminants such as mercury and organic pollutants, and a growing list of new chemical substances.

ENTER IISD-ELA: an exceptional natural laboratory comprised of 58 small lakes and their watersheds set aside for scientific research. Located in a remote region of northwestern Ontario, Canada, it is one of the only places in the world where it is possible to conduct experiments on whole ecosystems. By manipulating these small lakes, scientists are able to examine how all aspects of the ecosystem—from the atmosphere to fish populations—respond. Findings of real-world experiments are often much more accurate than those from research conducted at smaller scales, such as in laboratories.

For the last 50 years, our unique research approach has influenced billion-dollar decisions of governments and industries. It has generated more cost-effective environmental policies, regulations and management—all in the name of keeping our water clean.



Algal Blooms Blanketing our Lakes

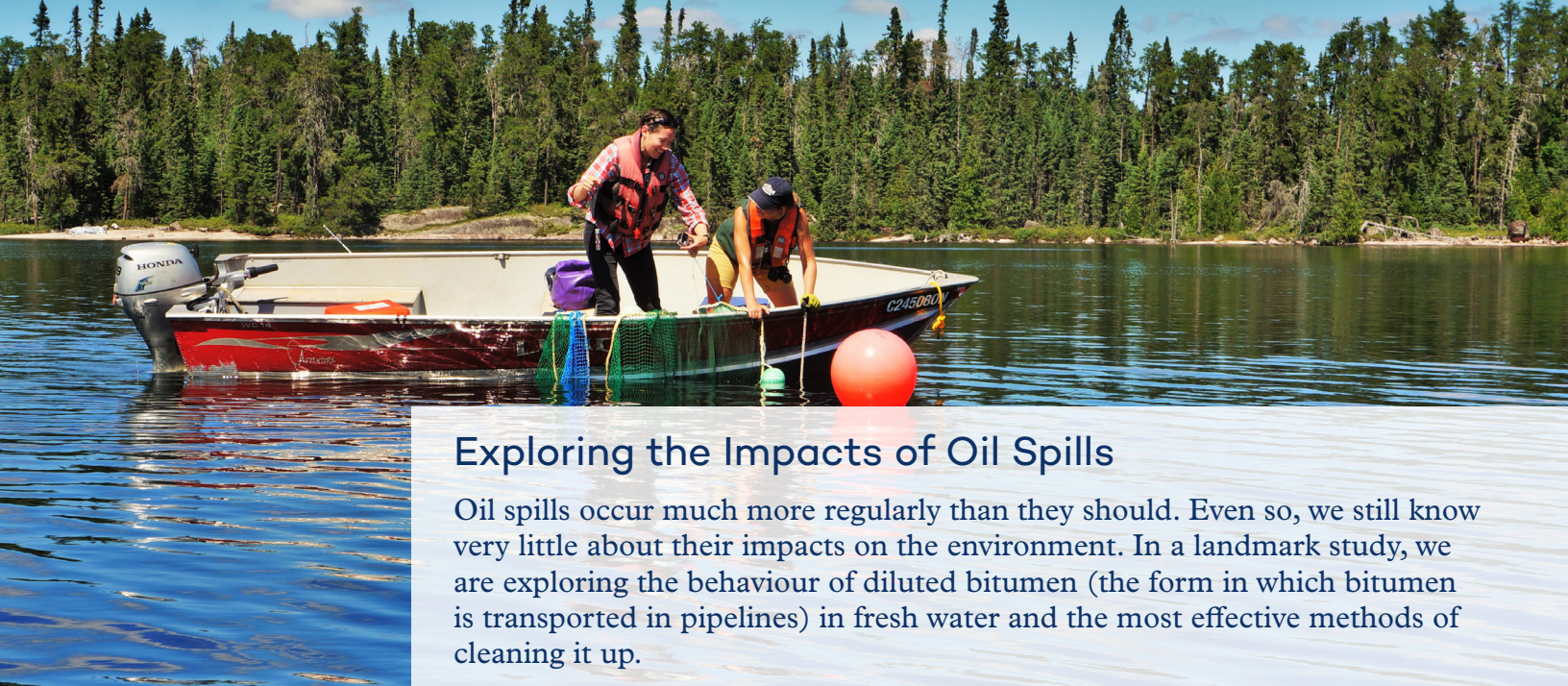
Algal blooms occur when too many nutrients enter a body of water, and algae feed on them. Groundbreaking discoveries at IISD-ELA regarding which nutrients cause algal blooms led to policy changes around the world that restrict phosphorus entering lakes and rivers. Now that algal blooms plague many water bodies across the world, including the Great Lakes, IISD-ELA is working to explore the role of nutrients in algal blooms, food web dynamics and greenhouse gas emissions.

IISD-ELA is “the SUPERCOLLIDER of ecology.”

- **Dr. David W. Schindler**, OC, AOE, Dphil, FRSC, FRS, Killam Memorial Chair and Professor of Ecology, Department of Biological Sciences, University of Alberta

Changing Climate, Changing Lakes

Our scientists are mimicking conditions that could be seen with climate change, and examining the impacts on the lake’s ecosystem. Using long-term data from the site, researchers are also uncovering further insights on the response of lakes, their watersheds and fish to climate change. This will prove invaluable when predicting and planning for the future.



Exploring the Impacts of Oil Spills

Oil spills occur much more regularly than they should. Even so, we still know very little about their impacts on the environment. In a landmark study, we are exploring the behaviour of diluted bitumen (the form in which bitumen is transported in pipelines) in fresh water and the most effective methods of cleaning it up.



Pharmaceuticals in our Water

Hundreds of pharmaceuticals and personal care products enter bodies of water and the environment every day. We know very little about their impacts on wildlife or human health. IISD-ELA uncovered some striking results when researching the effect of synthetic estrogen on fish populations—including male fish producing eggs in their testes. We are now getting ready to explore the impact of anti-depressants on ecosystems.



Managing Mercury Pollution

By adding small amounts of mercury to a lake and its watershed using a crop-duster airplane, scientists examined the relationship between atmospheric mercury loading and toxic methyl mercury concentrations in fish. This research provided strong support for proposed legislation to restrict emissions of mercury into the atmosphere from coal-fired power plants.

Opening Our Doors

IISD-ELA is dedicated to engaging young people and the general public in the importance of freshwater science for sustainable development in Canada and around the world. We are happy to welcome the freshwater scientists of tomorrow for one-of-a-kind educational experiences, as well as build relationships with local communities and First Nations.

Our Legacy

Throughout its history, researchers at the Experimental Lakes Area (ELA) have addressed a range of environmental issues, including the impacts of nutrients, acid rain, mercury and other contaminants. The facility has been used to examine the effects of freshwater aquaculture and to assist hydroelectric companies in improving the design of reservoirs. It has also enabled the study of emerging chemicals including synthetic hormone disruptors, flame retardants and household antibacterial products containing nanosilver.

Since ELA's creation in 1968, our scientists have also amassed one of the longest and most comprehensive data sets on freshwater lakes in the world. These long-term records have provided invaluable information for regional and global climate modelling, and helped us understand climate change and its effects on freshwater lakes and the plants and animals that depend on them.

Bridging Science and Policy

The facility is operated by the International Institute for Sustainable Development—an independent think tank. This means that we are in the unique position of being able to take the groundbreaking freshwater research conducted at IISD-ELA and apply it directly to policy decisions that really address global water issues.

IISD-ELA's status as a registered charity rather than a federal facility means that its core operations and scientific goals will require funding and public support to maintain and continue its long history of influential and unique whole-ecosystem research. IISD-ELA is looking for partners and collaborators to continue to grow and expand this unique body of work.

“The ongoing experiments and long-term data sets at the Experimental Lakes Area are an unparalleled resource for critical evaluations of the ongoing changes to our planet.”

—Dr. William Schlesinger, President of the Cary Institute of Ecosystem Studies, New York




To help us continue the incredible work of the IISD-ELA and safeguard the world's freshwater supplies for generations to come, please consider donating online via CanadaHelps.org.

Proudly supported by:



IISD Experimental Lakes Area Inc., www.iisd.org/ela

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