Microplastics: A Major Great Lakes Issue

Determining impacts on Great Lakes ecosystems

- **The International Joint Commission (IJC)** helps Canada and the United States prevent and resolve issues over shared waters on 5,525 miles of boundary, including the Great Lakes.
- Plastic pollution is not systematically monitored or reported on in the Great Lakes.
- The IJC's **Great Lake Science Advisory Board** is creating a coordinated monitoring and risk assessment framework to better understand plastic pollution's impacts in the Great Lakes.

An emerging concern for Great Lakes water quality

Exploring ways to measure microplastics and assess impact on ecosystem health

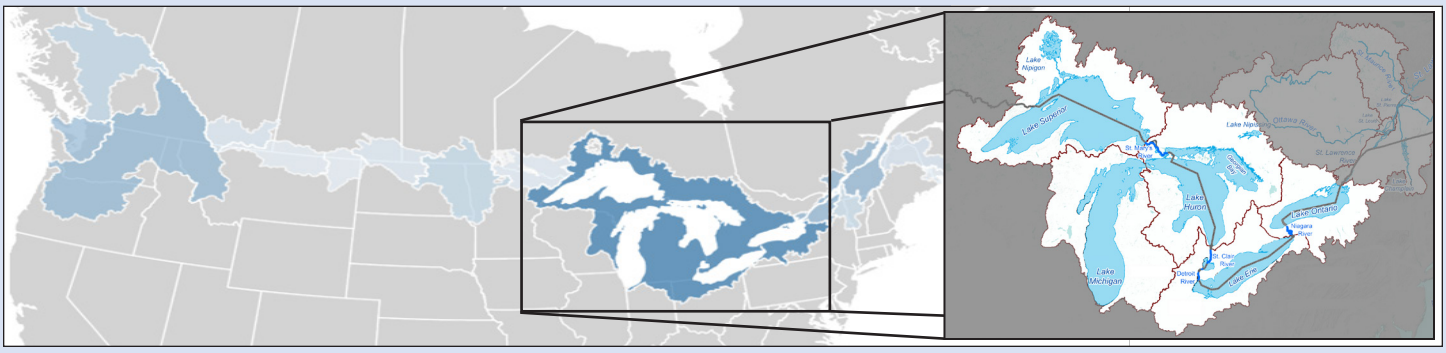
Plastic pollution is increasing globally, and the Great Lakes are no exception. Growing evidence points to its negative ecological, human health and socioeconomic impacts. Yet, the Great Lakes Water Quality Agreement does not evaluate the status of plastic pollution in the State of the Great Lakes report.

The IJC's **Great Lakes Science Advisory Board** explored if plastics could be assessed under the Agreement and identified best practices for their monitoring and ecological risk assessment. The Board's ***Microplastics in the Great Lakes*** project aims to identify the current understanding of microplastics particles (smaller than 0.2 in/5 mm) in water, sediment and aquatic species. The project offers an evidence-based framework for how microplastics could be an indicator of Great Lakes health to inform management and policy decisions.

Working with researchers from the Great Lakes and North America, the board developed:

- Monitoring protocols to support the adoption of microplastics pollution as a Toxic Chemicals sub-indicator in the State of the Great Lakes report,
- A coordinated ecological risk assessment framework to inform microplastics management,
- A review of studies on microplastics in the Great Lakes, and
- Updated databases of microplastics exposure and effects data relevant to the Great Lakes.

Where will this work impact?



Microplastics in the Great Lakes

Great Lakes Science Advisory Board

Identifying pollution sources, uncovering trends in environmental contamination and aquatic species exposures over time, and measuring the effectiveness of mitigation efforts all require the harmonized monitoring of plastic pollution in the Great Lakes. Similarly, a coordinated ecological risk assessment and management framework are critical to inform management responses. While all plastic pollution poses a threat to the Great Lakes, microplastics are the most well studied to date and can serve as an indicator for plastic pollution in general.

Plastic pollution accumulated on the shores of Lake Ontario. Credit: Eileen Stegemann, via NOAA

The Great Lakes Water Quality Agreement

Through the Great Lakes Water Quality Agreement, Canadian and United States governments strive to achieve nine objectives to protect and restore Great Lakes water quality. Published every three years, the governments' State of the Great Lakes report uses nine indicators, supported by sub-indicators, to collectively assess the status of the Great Lakes ecosystem and track progress towards achieving the Agreement's objectives.

Scan for more about this project!

Contact the IJC about this project: matthew.child@ijc.org

About the International Joint Commission

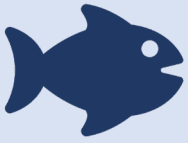
The IJC was established in 1909 under the Boundary Waters Treaty to help Canada and the United States prevent and resolve disputes over shared waters. The IJC's responsibilities include reporting on progress made by the governments under the 2012 Great Lakes Water Quality Agreement. The Great Lakes Science Advisory Board provides advice on research and scientific matters on Great Lakes water quality issues.

The Great Lakes ...

contain roughly 20 percent of the world's fresh surface water

support a US$6 trillion (CAD$7.5 trillion) regional economy

are a source of drinking water for 36 million people



are home to 4,000 species of plants and animals