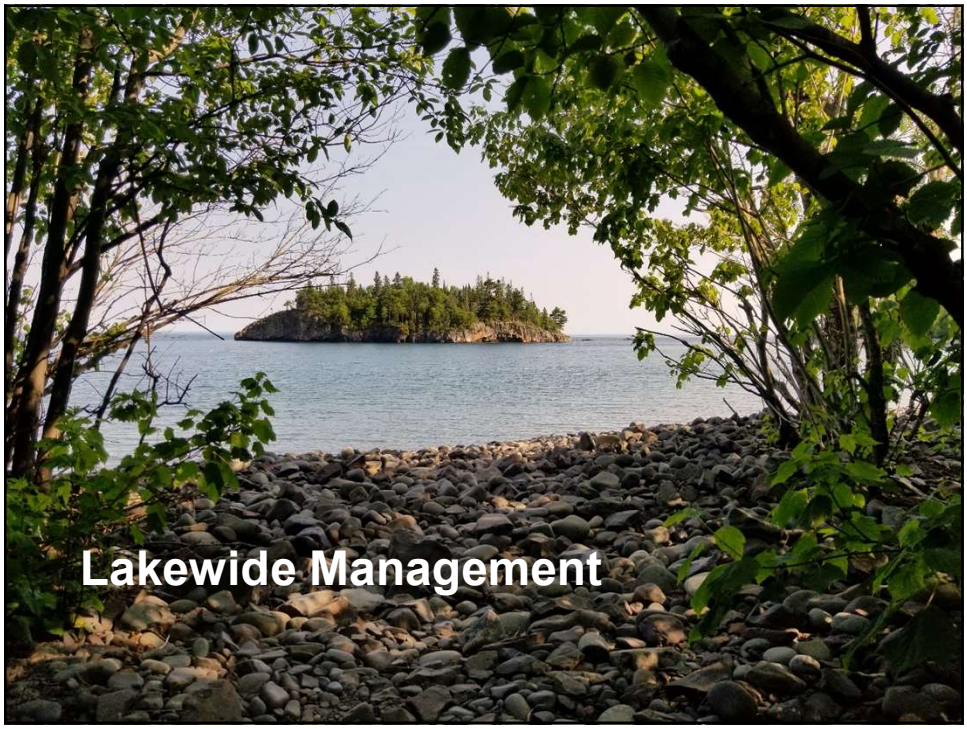
Outline

1. Lakewide Management

- Agreement to restore and protect the Great Lakes
- Partnership of government agencies working together
- Lakewide Action and Management Plans

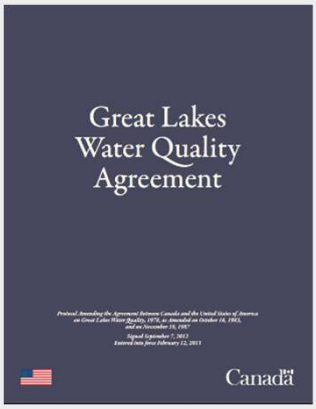
2. Lake Huron Lakewide Management

- 2022-2026 Lake Huron Lakewide Action and Management Plan
  - ➢ Lake conditions
  - ➢ Stressors and further actions necessary
  - ➢ Achieving objectives through collective action, because everyone plays a role



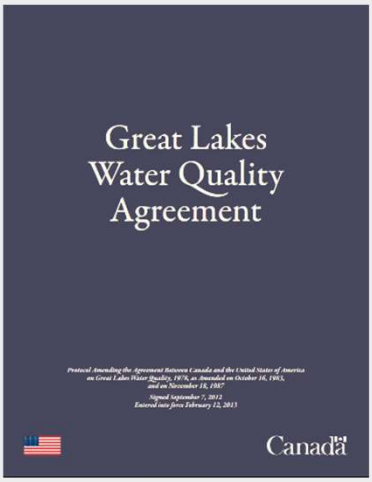
Great Lakes Water Quality Agreement

Purpose is “to restore and maintain the chemical, physical and biological integrity of the Waters of the Great Lakes”.



Ten Annexes of the Great Lakes Water Quality Agreement

1. Areas of Concern
2. **Lakewide Management**
3. Chemicals of Mutual Concern
4. Nutrients
5. Discharges from Vessels
6. Aquatic Invasive Species
7. Habitat and Species
8. Groundwater
9. Climate Change Impacts
10. Science



Lakewide Management

An open **process** to help answer:

- How is the lake doing?
- What is stressing the lake?
- What additional actions are necessary?

A **mechanism** to help coordinate:

- Actions being taken
- Tracking progress and challenges

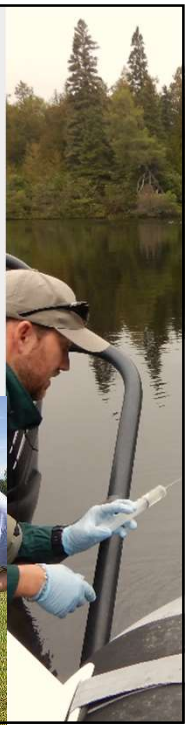
Lake Partnerships

- Members representing federal, indigenous, tribal, state, provincial and local governments and watershed agencies, with participation from academia, researchers, non-governmental organizations, businesses, and the public.
- Co-Chaired by Environment and Climate Change Canada and the United States Environmental Protection Agency.

Lake Objectives

Nine General Objectives of the Great Lakes Water Quality Agreement are related to restoring and/or protecting:

1. Drinking water
2. Swimming and recreational use
3. Fish and wildlife consumption
4. Pollutants that could harm people, wildlife or organisms
5. Habitats and species
6. Algal blooms
7. Invasive species
8. Groundwater
9. Other conditions



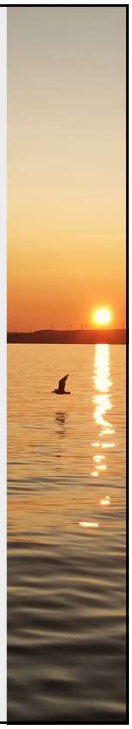
Lakewide Action and Management Plans

- Ecosystem-based strategies for protecting and restoring lake water quality
- Also known as a LAMPs
- Prepared for each of the Great Lakes on a five year cycle

LAMP Implementation

LAMPs acknowledge and build upon existing efforts to restore and protect each of the Great Lakes.

- Canadian Environmental Protection Act and the U.S. Clean Water Act.
- U.S. Great Lakes Restoration Initiative, and the Canada-Ontario Agreement of Great Lakes and Ecosystem Heath.
- LAMP actions are necessary lake specific work. LAMPs help the Lake Partnership agencies pursue and coordinate projects, and allow for tracking and reporting on collective progress and challenges.



Everyone Plays a Role

Local communities, groups, and individuals are among the most effective champions to achieve environmental sustainability in their own backyards and communities.

Lake Huron Partnership

- Representatives from over 40 government agencies participate in the Lake Huron Partnership as of 2022.
- Lake Huron Partnership agencies worked with at least 130 other organizations, agencies, groups and businesses to implement the 2017-2021 LAMP.
- A draft 2022-2026 Lake Huron Lakewide Action and Management Plan will be released in 2023 for public input.

Lake Huron Conditions Overview

Lake Huron conditions vary from location to location. From a lakewide perspective conditions are as follows:

1. Drinking water is **good**
2. Swimming and recreational use is **good**
3. Fish and wildlife consumption is **fair**
4. Pollutants that could harm people, wildlife or organisms is **good**
5. Habitats and species is **fair**
6. Nutrients Algal blooms is **fair**
7. Invasive species is **poor**
8. Groundwater is **good**
9. Other conditions if **fair**

LAMP Actions

The LAMP identifies threats and corresponding actions to further:

- Reduce chemical contaminant pollution.
- Prevent nutrient and bacterial pollution.
- Protect and restoring habitat and species.
- Address invasive species.
- Address other issues including plastics, risks from oil transport and mining, and cumulative stress of nearshore areas.

Chemical contaminant conditions

- Lake Huron fish are a nutritious food source, but consumption guidelines exist in part due to PCB & mercury contamination

- Lake Huron continues to be a good source of high-quality drinking water and has beaches and nearshore areas that continue to provide opportunities for swimming and recreational use.

Work crews removing sediment in dry conditions on Tittabawassee River. (USEPA)

Lake Huron shoreline, Bay Mills Indian Community

Reducing chemical contaminant pollution

Eight LAMP Actions including projects to:

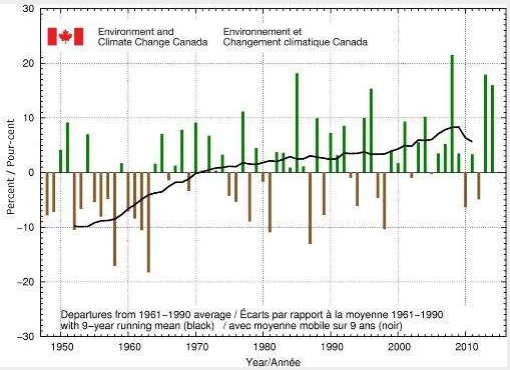
- Manage contaminated sediment in Areas of Concern
- Support to innovative approaches and technologies
- Undertake science and monitoring, with focus on mercury and PFAS
- Implementation of CMC binational strategies

Actions everyone can take include:

- Taking household hazardous materials to hazardous waste collection depots
- Not burning garbage in barrels, open pits, or outdoor fireplaces
- Choosing environmentally friendly household cleaning and personal care products

Nutrient and bacterial pollution conditions

- Beaches and the waters close to the shore continue to provide good opportunities for swimming and recreational use.
- Sightings of algal blooms occur in some locations, likely driven by the changing climate such a warming waters and run-off during rain events.
- The graph illustrates the increasing average amount of annual precipitation in the Great Lakes basin.



Preventing nutrient and bacterial pollution

11 LAMP Actions including projects to:

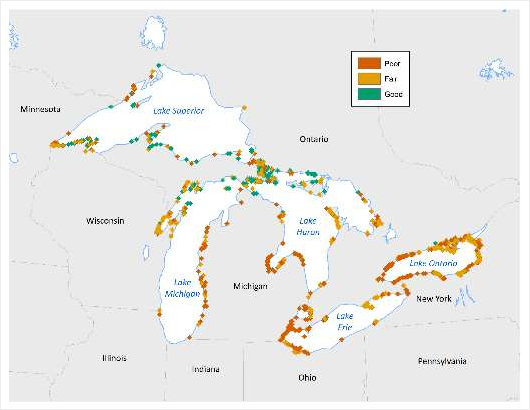
- Advance green infrastructure and nature-based solutions that help to manage storm water runoff.
- Agricultural BMPs to improve soil and forest health with a focus on increasing resilience to climate change and decreasing excessive runoff and erosion.
- Undertake science and monitoring to better understand nutrient and sediment conditions in Lake Huron.

Actions everyone can take include:

- Install a rain barrel or rain garden to slow the flow of water during storms.
- Inspect and pump out your septic system as necessary.
- Record and report sightings of algal blooms.

Habitat and species conditions

- Lake Huron habitats are fairly healthy compared to the other Great Lakes, but are stressed by the changing climate, invasive species, and land-use changes.
- The figure shows amphibian conditions in Great Lakes coastal wetlands. The majority of sites in Lake Superior are in good or fair condition, but some sites are poor.



Protecting habitat and species

13 LAMP Actions including projects to:

- Restore habitat in Areas of Concern.
- Restore native fish species
- Protect habitat through land acquisitions or other means.
- Undertake science and monitoring, to better understand impacts of a changing climate.

Actions everyone can take include:

- Support local conservation groups in your area.
- Plant native trees, shrubs and flowers on your property.
- Share your knowledge about the ecological importance of special habitats and species in your local area.

Thunder Bay, MI reef restoration (Michigan Sea Grant)

Invasive species conditions

- Fewer non-native species are finding their way to Lake Huron compared to decades past.

- Established invasive species have altered Lake Huron's ecosystem at all trophic levels and have reduced the ecosystem's resilience.

Preventing and controlling invasive species

10 LAMP Actions including projects to:

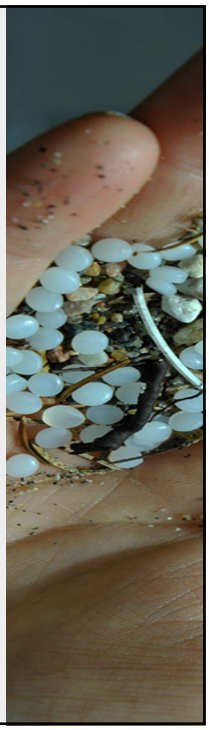
- Maintain and improve the effectiveness of Sea Lamprey control measures.
- Contribute to the elimination of European Common Reed (i.e., *Phragmites australis*) from the basin.
- Undertake early detection monitoring.
- research and monitoring to improve understanding of the impacts of invasive species

Actions everyone can take include:

- Learn how to identify, report and stop the spread of selected invasive species in your area.
- Clean-Drain-Dry your boat before using it on a different body of water.
- Volunteer at a local park to help remove invasive species.

Other issue conditions

- Plastics concentrations in Lake Superior are comparable to Lake Michigan and higher than Lake Huron.
- With oil pipelines in the Lake Huron basin, risks from accidents should be minimized.
- Understanding cumulative effects (i.e. multiple stressors) to nearshore areas inform priorities for action.



Addressing other issues, including plastics and risks from oil transport

10 LAMP Actions including projects to:

- Prevent and remove plastic pollution.
- Engage landowners and the public to protect and enhance the function and resilience of watershed headwater features, streams, forests, and wetlands to maintain and enhance resilience to climate change impacts
- Undertake science and monitoring to improve understanding of cumulative impacts of stressors to Lake Huron.

Action everyone can take include:

- Report oil or hazardous materials spills to your local authority.
- Pick up litter on the beach.
- Participate in public input opportunities for major development proposals.
- Implement low impact development initiatives

River restoration and tree planting at the Kagawong River (Manitoulin Island Stream Improvement Association).

Objectives will be achieved through Collective Action

- Lake Huron Partnership agencies commit to incorporate LAMP actions in their decisions on programs, funding and staffing to the extent feasible.

- Local communities, groups, and individuals are among the most effective champions to achieve environmental sustainability in their own backyards and communities.

Be involved in lakewide management

- Attend public meetings, conferences or summits hosted by government agencies of the Lake Huron Partnership.
- Review and provide input on the draft Lakewide Action and Management Plans.
- Keep informed on the Lake Huron Partnership email list or reading LAMP annual updates found on the Great Lake Water Quality Agreement website at binational.net.
- Participate in Great Lakes events, many of which are captured on the Great Lakes Commission's Calendar of Events.
- Attend the triannual Canada-U.S. Great Lakes Public Forum, find more info at binational.net

Thank You

Visit binational.net

Contact the Lake Huorn Partnership Working Group, co-chairs

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Decorative image locations and credits

Slide 1 Tettegouche State Park, Minnesota, Esteban Chiriboga.

Slide 2 Pukaskwa National Park, Ontario, Parks Canada.

Slide 3 Split Rock State Park, Minnesota, Rob Hyde.

Slide 4 Signing of the GLWQA by Canada and the U.S. in 2012, Environment and Climate Change Canada

Slide 6 Great Lakes from space, S*eaWiFS Project, NASA/Goddard Space Flight Center, and ORBIMAGE*

Slide 7 Frog Bay Tribal National Park, Wisconsin, Rob Hyde.

Slide 8 Lake Superior National Marine Conservation Area, Parks Canada.

Slide 10 Whitefish Bay, Michigan, Scott Parish.

Slide 11 Lake Superior National Marine Conservation Area, Parks Canada.

Slide 12 Sleeping Giant Provincial Park, Jim Bailey.

Slide 13 Terrace Bay, Ontario, Stephanie Swart.

Slide 15 Whitefish Bay, Michigan, Bay Mills Indian Community.

Slide 17 Community hazardous waste take-back event, Michigan, Keweenaw Bay Indian Community.

Slide 19 Wisconsin, National Park Service.

Slide 21 Lake Superior, Ontario, Pays Plat First Nation.

Slide 23 Non-native *Phragmites*, Wisconsin, Jason Wilke.

Slide 24 Beach clean up in Nipigon Bay, Ontario, Parks Canada;; Map of Canadian Lake Superior nearshore assessment results, Environment and Climate Change Canada.

Slide 25 Map of Oil Pipelines intersecting with rivers, United States, Great Lakes Indian Fish and Wildlife Commission.

Slide 26 Lake Superior Day, Keweenaw Bay Indian Community.

Slide 27 Science priorities workshop 2019, Duluth, Minnesota, Environment and Climate Change Canada.

* Figures and graphs are from Environment and Climate change Canada and U.S.EPA, *State of the Great Lakes 2019 Technical Report* available on binational.net.