

Lakewide Action and Management Plans - LAMPs

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An Overview

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Great Lakes Water Quality Agreement



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



Great Lakes
Water Quality
Agreement

*Protocol Amending the Agreement Between Canada and the United States of America
on Great Lakes Water Quality, 1978, as Amended on October 16, 1983,
and on November 18, 1987*

*Signed September 7, 2012
Entered into force February 12, 2013*



Great Lakes Water Quality Agreement

Annexes

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** that provides science-based answers to three questions:

- How is the lake doing?
- What is stressing the lake?
- What additional actions are necessary to help the lake meet the 9 GLWQA General Objectives?

A lakewide **mechanism** to help coordinate and facilitate:

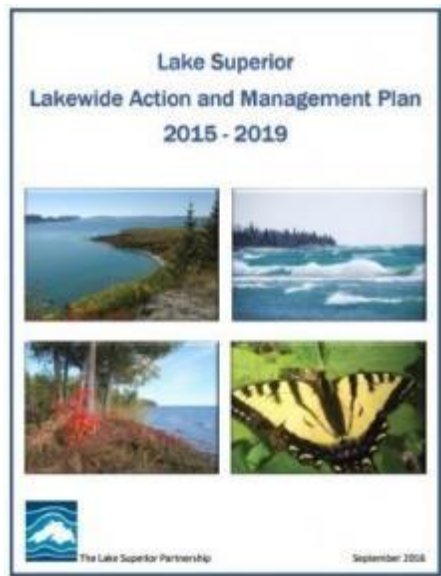
- Taking action
- Tracking progress and challenges

Lake Partnerships

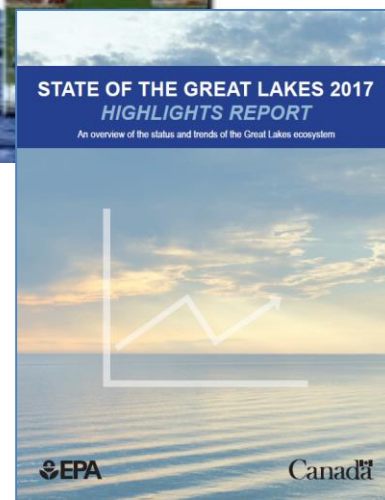
- Members representing federal, provincial, state, indigenous, tribal, and local governments
- Participation from others including NGOs, academia, and the public
- Co-chaired by Environment and Climate Change Canada and the U.S. Environmental Protection Agency



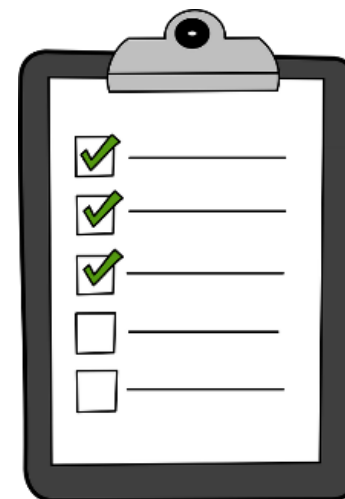
Lakewide Management Annex Commitments



***Develop
LAMPs***



***Assess Lake
Status***

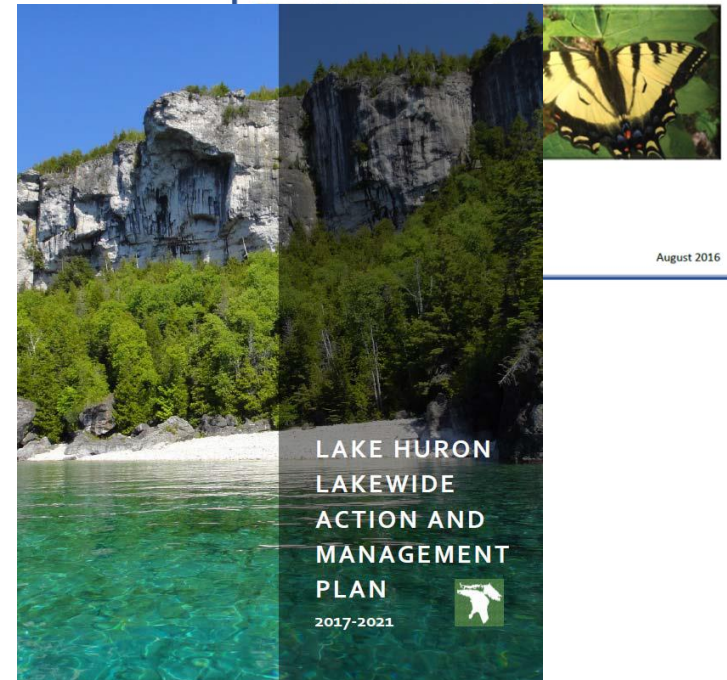


***Set Science
Priorities***

Lakewide Action and Management Plans

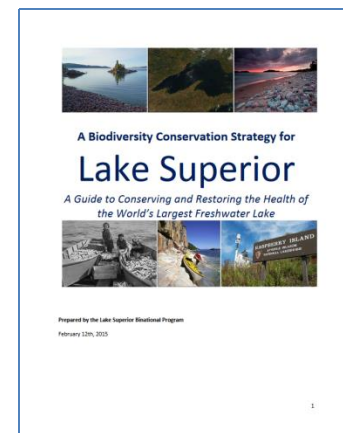
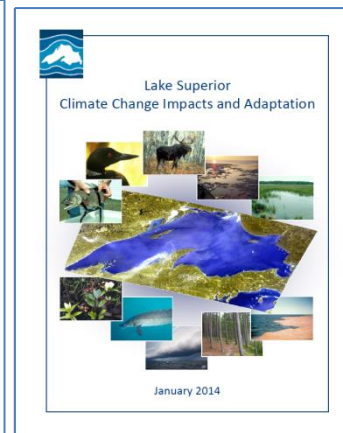
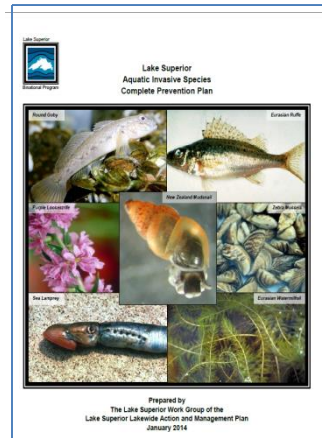
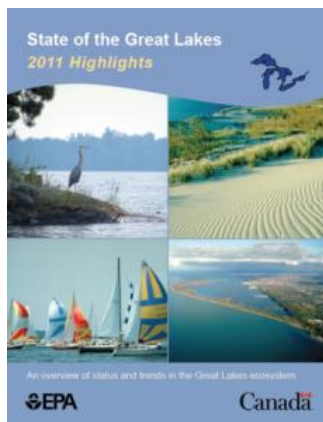
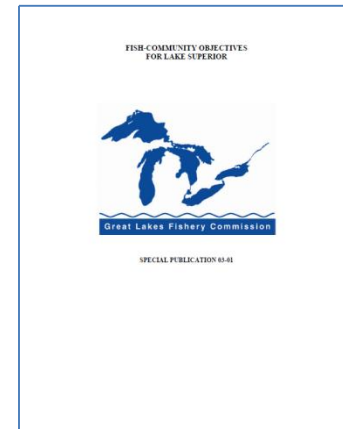
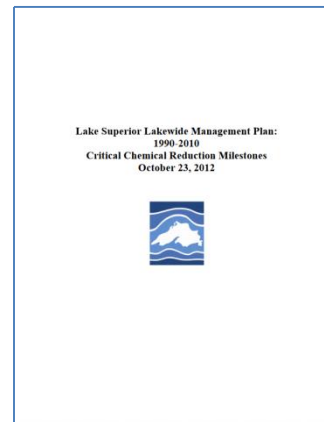
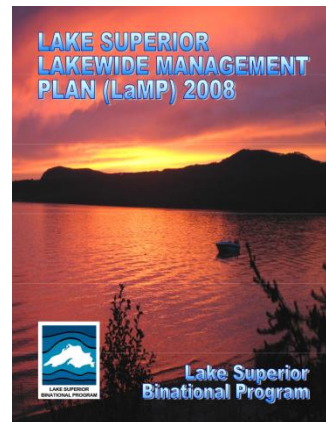
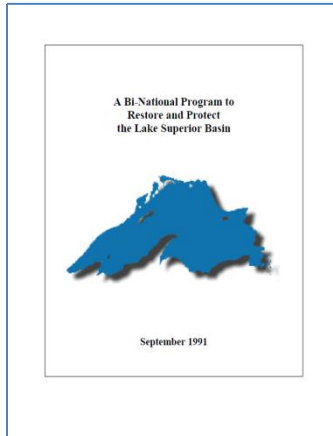
LAMPs are binational ecosystem-based **action plans** for restoring and protecting Great Lakes water quality

Lake Superior
Lakewide Action and Management Plan
2015 - 2019



Lake Superior LAMP

Building from a strong basis of cooperative lakewide management



COMMITMENT TO ACTION

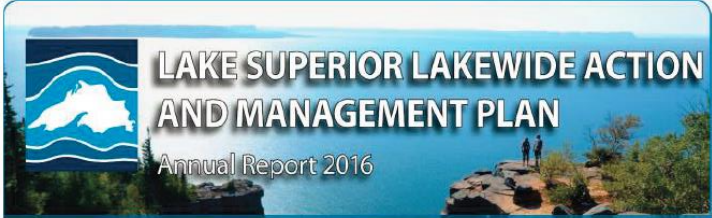
- Agencies commit to incorporate, to the extent feasible, LAMP objectives and projects in their decisions on programs, funding, and staffing.
- Agencies commit to specific projects in which they anticipate involvement.



Photo credit: WDNR

REPORTING

- Lake Partnerships will provide annual updates to the public
- Annual reports will include a brief status of LAMP projects



LAKE SUPERIOR LAKEWIDE ACTION AND MANAGEMENT PLAN

Annual Report 2016

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Overview

The Lake Superior basin is one of the most beautiful and unique ecosystems in North America. To protect this precious resource, federal, state, tribal and provincial agencies have developed the 2015-2019 Lake Superior Lakewide Action and Management Plan (LAMP).

Under the Lake Superior Partnership, over 30 science-based agencies worked together with input from over 50 other organizations, representing thousands of people and many diverse interests, to document the following in the LAMP:

- The state of Lake Superior's ecosystem;
- The challenges facing the ecosystem; and
- Actions and projects that may be undertaken to restore and protect the ecosystem.

The LAMP truly represents a model of binational collaboration. The full document is available on www.binational.net; highlights of the LAMP and examples of ongoing projects are presented in the following pages.

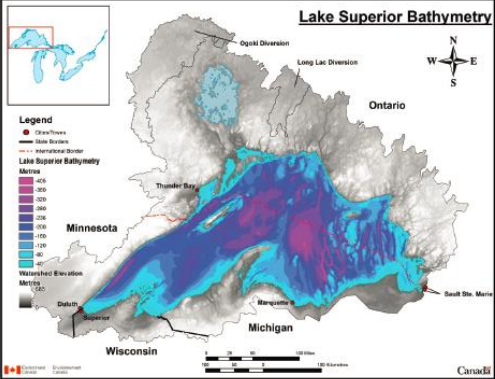
What is the Lake Superior LAMP?

Under the Great Lakes Water Quality Agreement, the governments of Canada and the United States have committed to restore and maintain the physical, biological and chemical integrity of the waters of the Great Lakes.

The Lake Superior Lakewide Action and Management Plan (LAMP) is a binational action plan for restoring and protecting the Lake Superior ecosystem. The LAMP is developed and implemented by the Lake Superior Partnership, which is led by the U.S. Environmental Protection Agency (U.S. EPA) and Environment and Climate Change Canada and which facilitates information sharing, sets priorities, and assists in coordinating binational environmental protection and restoration activities.

This annual report highlights accomplishments and progress in achieving LAMP goals during the past year and identifies LAMP-related activities including outreach, monitoring, and protection and restoration actions.

Lake Superior Bathymetry



Lake Superior is the largest freshwater lake in the world by surface area, and holds more water than all of the other Great Lakes combined. Its maximum depth is 1,332 feet (406 metres).
Credit: Environment and Climate Change Canada.

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Status of LAMP Development

Lake	Status
Superior	<ul style="list-style-type: none">- Developed in 2015-2016- Released in September 2016
Huron	<ul style="list-style-type: none">- Developed in 2016-2017- Released in April 2018
Ontario	<ul style="list-style-type: none">- Developed in 2017-2018- Soon to be made available for public comment
Erie	<ul style="list-style-type: none">- Development initiated in 2018- To be released in 2019
Michigan	<ul style="list-style-type: none">- Development initiated in 2018- To be released in 2020



Actions to Address Aquatic Invasive Species

Under the Lake Huron and Lake Superior Lakewide Action and Management Plans (LAMPs)

Lake Superior LAMP Project #1

- Add additional locations to the lakewide AIS early detection/rapid response surveillance projects.
- Status: Complete
- Details: Three locations added in 2016 as part of coordinated lakewide AIS survey. Agencies are continuing existing and implementing new early detection efforts.




Lake Superior LAMP Project #2

- Undertake additional AIS prevention outreach and education, including discussions with recreational boaters, and installation of lake access site signage.
- Status: On-track
- Details: A wide range of prevention activities underway around the lake, including new boat-launch signage, written articles, classroom education and citizen scientist initiatives



**STOP AQUATIC
HITCHHIKERS!™**



Lake Superior LAMP Project #3

- Maintain and improve effectiveness of Sea Lamprey control, prevent introduction of new species, and limit expansion of previously-established AIS.
- Status: On-track
- Details: Sea Lamprey control program is continuing. Monitoring for new invasive is occurring in some areas, as are place-based invasive species control efforts

Sea Lamprey. Photo: Minnesota Sea Grant

Lake Superior LAMP Project #4

- Contribute to the elimination of European Common Reed (i.e., *Phragmites australis*, subsp. *australis*) from the Lake Superior basin by undertaking or supporting lakewide distribution mapping, early detection efforts, and control efforts.
- Status: On-track
- Details: New efforts undertaken for mapping, early detection and control, with many examples in southwest end of the basin. New efforts in Canada in 2017, identifying some small stands along trans-Canada highway (but no presence on Lake Superior coastline within Canadian NMCA or parks)



Lake Huron LAMP Project #1

- **Ballast Water:** Establish and implement programs and measures that protect the Great Lakes basin ecosystem from the discharge of AIS in ballast water, consistent with commitments made by the Parties through Annex 5 of the GLWQA.
- Partners: Transport Canada, USCG, USEPA
- Status: In progress

Lake Huron LAMP Project #2

- **Early Detection and Rapid Response:**
Through the Annex 6 subcommittee, implement an 'early detection and rapid response initiative' with the goal of finding new invaders and preventing them from establishing self-sustaining populations.
- Partners: DFO, Little Traverse Bay Band, USFS, USFWS
- Status:





Lake Huron LAMP Project #3

- **Canals and Waterways:** Through the Asian Carp Regional Coordinating Committee, prevent the establishment and spread of Bighead and Silver Carp in the Great Lakes.
- Partners: USEPA, USFWS
- Status: In progress



Lake Huron LAMP Project #4

- **Sea Lamprey:**

- Control the larval Sea Lamprey population in the St. Marys River with selective lampricides. Continue operation and maintenance of existing barriers and the design of new barriers where appropriate.
- Design and construct Au Gres Sea Lamprey Trap in Arenac County, Michigan.
- Design and construct Au Sable Sea Lamprey Trap in Losco County, Michigan.
- Partners: DFO, USACE, USFWS
- Status: In progress



Lake Huron LAMP Project #5

- **Improve understanding of invasive species impacts to inform management efforts:**
 - Impacts of Round Goby on the Foodweb: Enhance assessment methods and technology to better understand Round Goby population density and distribution.
 - Causes of Botulism Outbreaks: Improve understanding of links between mussels, Round Goby, and Botulism outbreaks in waterfowl.
 - Cladophora growth: Work through the Annex 4 subcommittee to support the creation of Lake Huron sentinel Cladophora monitoring sites to determine the role of mussels in nearshore algae growth and possible mitigation efforts.
- Partners: MDNR, NOAA, OMNRF, USGS
- Status:

Lake Huron LAMP Project #6

- **Control of Terrestrial and Wetland Invasive Species:** Maintain coastal and nearshore aquatic habitat diversity and function through appropriate control of *Phragmites* and other detrimental invasive species (e.g., Glossy Buckthorn, European Frog-bit, Purple Loosestrife, Japanese Knotweed) including monitoring, mapping, and control efforts guided by BMPs.
 - Coordinate *Phragmites* control efforts and share BMPs through the *Ontario Phragmites Working Group and Great Lakes Phragmites Collaborative*.
- Partners: MDNR, Conservation Authorities, OMNRF, Parks Canada, Tribes, USDA-NRCS, USEPA, USFS, USFWS
- Status: In progress

