



LAKE SUPERIOR LAKEWIDE ACTION AND MANAGEMENT PLAN

Annual Report 2016

Overview

In this Issue

- Overview 1
- Accomplishments 2
- Addressing Challenges 3
- Contact Information 4

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.

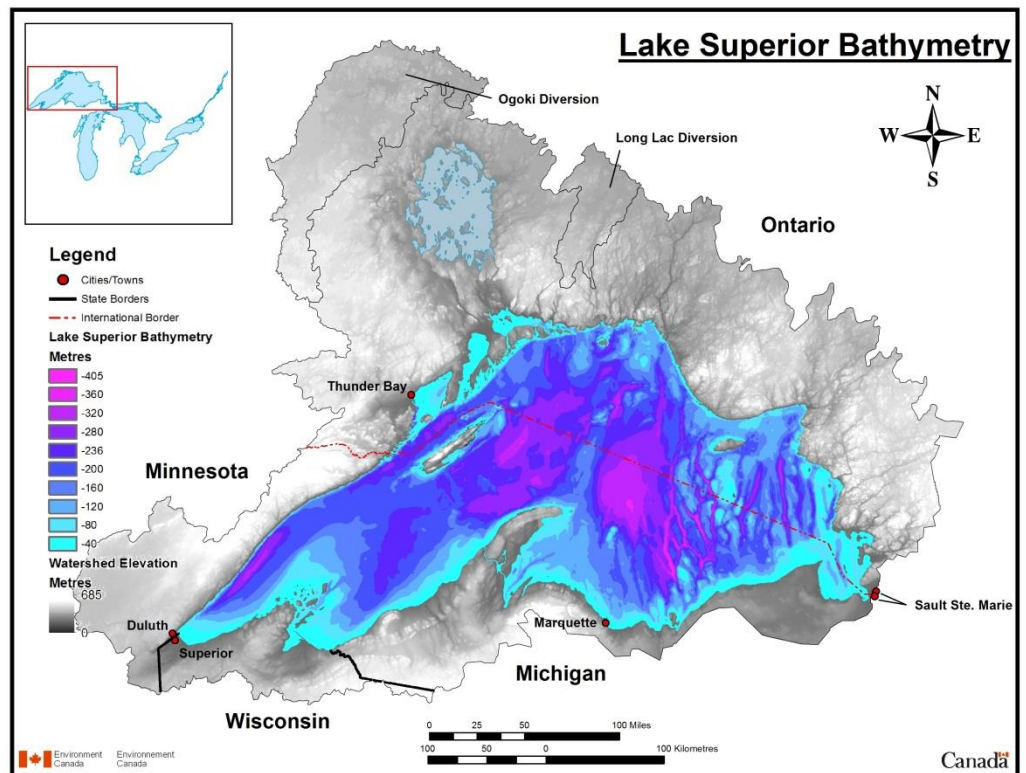
This annual report highlights accomplishments and progress in achieving LAMP goals during the past year and identifies LAMP-related activities including outreach, monitoring, and protection and restoration actions.

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.



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.



LAKE SUPERIOR LAKEWIDE ACTION AND MANAGEMENT PLAN

Annual Report 2016



Accomplishments

State of the Lake

Ongoing monitoring shows that the Lake Superior ecosystem continues to be in good condition:

- Fisheries are in good condition, supported by a robust lower food web;
- Populations of Lake Trout are self-sustaining and the abundance of Lake Sturgeon is increasing;
- Most major habitats are healthy on a lakewide scale, including coastal wetlands; and
- Concentrations of legacy contaminants in the environment [e.g., Polychlorinated Biphenyls (PCBs)] are generally decreasing or stable.

However, the ecosystem faces a number of challenges, including:

- Existing aquatic invasive species, such as Sea Lamprey, and the risk of new invaders;
- Climate change impacts (e.g., warming surface waters are stressing some cold-water species, such as Brook Trout);
- Areas of impaired habitat connectivity between the tributaries and the open lake;
- Fish consumption advisories due to pollutants such as mercury and PCBs;
- Substances of emerging concern, such as microplastics; and
- Other threats, such as impacts from the mining and energy sectors.

Improving Our Knowledge through Science and Monitoring

Science and monitoring priorities are identified through the Lake Superior Cooperative Science and Monitoring Initiative—an intensive, binational scientific review conducted on a five-year

rotational basis. In 2016, a wide range of ongoing and intensive science and monitoring activities will be undertaken to determine ecosystem conditions and trends, assess challenges, and inform actions that are necessary to achieve lakewide objectives.



A young Brook Trout—assessing fish populations is a key part of ongoing monitoring. Credit: Ontario Ministry of Natural Resources and Forestry.

Taking Action Together

The LAMP includes 29 projects that will be targeted for implementation by Lake Superior Partnership agencies over the 2015-2019 period. These projects include efforts for science, monitoring, restoration and protection, including the following:

- Promote and support local and regional implementation of *A Biodiversity Conservation Strategy for Lake Superior*, and corresponding Regional Plans;
- Contribute to the elimination of European Common Reed (*Phragmites australis*) from the Lake Superior basin;
- Support local climate change initiatives to help communities and/or natural resource managers develop adaptation plans; and
- Increase the level of public education on new and emerging chemicals; their potential toxicity; pathways into fish, wildlife and humans; and how the public can help remove them from the basin.



The mouth of the Nipigon River — the largest tributary flowing into Lake Superior. Credit: David Crawford.

Six Ways to Help Make a Great Lake Superior

The LAMP includes many actions that everyone can take to help protect Lake Superior, such as:

- Never burn garbage;
- Take hazardous household materials to designated waste collection depots;
- Return unused medicines, including over-the-counter drugs, to pharmacies; never flush them down the toilet or dump them down the sink;
- When boating, clean your boat and trailer thoroughly before leaving the boat access;
- Install rain gardens, green roofs, native landscaping, and other green infrastructure; and
- Use proper catch and release practices to protect species such as Brook Trout, Lake Sturgeon, and Muskellunge.



LAKE SUPERIOR LAKEWIDE ACTION AND MANAGEMENT PLAN

Annual Report 2016



Addressing Challenges

Agencies of the Lake Superior Partnership undertake and support many actions around the lake to address challenges. Below are examples of these actions.

Teaching Ontario Teenagers about Chemicals of Emerging Concern



Students making body scrub with sugar, olive oil, and essential oil. Credit: EcoSuperior.

Since 2013, EcoSuperior Environmental Programs, a not-for-profit organization based in Thunder Bay, ON, has delivered their “Natural Habits” program to 625 students in 7 schools on the Canadian north shore of Lake Superior. The program teaches

grade 10-12 students about the potential human health and ecosystem impacts of personal care products. Students are guided through an in-class presentation which includes an analysis of the ingredients in common personal care products and an introduction to the Environmental Working Group’s Skin Deep® Cosmetics Database and the downloadable app. The program is part of EcoSuperior’s ongoing outreach and education initiatives and is funded by the Ontario Ministry of the Environment and Climate Change.



Phragmites is a tall invasive grass that forms dense thickets and can out compete native plants. Credit: U.S. EPA.

Restoring and Protecting Wisconsin’s Wetlands

Coastal wetlands are highly productive habitats that support a wide range of species. There is an abundance of these wetlands along Wisconsin’s southern shore of Lake Superior. Over 9,000 acres (3,640 hectares) of these Lake Superior coastal wetlands will be protected and

restored by the Wisconsin Department of Natural Resources, the U.S. National Park Service, Bad River and Red Cliff Tribes. The project will include restoration and protection of priority wetland sites, removal of *Phragmites* from wastewater treatment plants’ dewatering ponds in Washburn, Bayfield and Red Cliff, and restoration of wild rice, a culturally significant species to the Ojibwe. The U.S. EPA has provided over US \$2.5 Million dollars through the Great Lakes Restoration Initiative (GLRI) to fund these projects.

Building Climate Change Resilience with Lake Superior Tribes

The Great Lakes Indian Fish and Wildlife Commission (GLIFWC) and U.S. tribes around the Lake Superior basin are engaged in many efforts to adapt to climate change and its expected effects on treaty resources. One of GLIFWC’s projects involves studying traditionally harvested plant species to learn how changes in climate may affect aspects of their life cycle, such as budding or flowering. GLIFWC is also conducting vulnerability assessments within the Ceded Territories, evaluating which species, habitats, and ecosystems are most vulnerable to climate change. When GLIFWC moves on to the adaptation planning phase of its climate change work, it will not be alone in the process. The Grand Portage Band of Lake Superior Chippewa has developed a tribal adaptation plan and the 1854 Treaty Authority is working on intertribal adaptation strategies. Other tribes around the basin including Bad River, Keweenaw Bay, Red Cliff, and Fond du Lac are approaching climate change in various ways, some with stand-alone climate change plans and others incorporating climate change into their overall training and tribal planning.

Removing Invasive Plants in Michigan’s Upper Peninsula

The Upper Peninsula Resource Conservation and Development (UP RC&D) Council worked with partners in 2015 to apply a herbicide treatment to non-native *Phragmites* infestations over an area of 1,087 acres (440 hectares). Most of these infestations are on private property along Lake Michigan with a handful located in the Lake Superior watershed of the Upper Peninsula. All infestations will be retreated in 2016. Because *Phragmites* is such an aggressive invader, preventing further infestations in the Lake Superior watershed is a high priority for partners and landowners. More than 2,500 landowners were contacted and educated about the negative impacts of *Phragmites*, and more than 1,000 have been directly engaged in the treatment program. The project was funded by a GLRI grant to the UP RC&D from the U.S. EPA.



LAKE SUPERIOR LAKEWIDE ACTION AND MANAGEMENT PLAN

Annual Report 2016



Protecting Minnesota's Coastal Watersheds

Laurentian Resources Conservation and Development, a not-for-profit organization, hosted the second Minnesota Lake Superior Watershed Stream Science Symposium in Duluth, MN in January of 2016. The Symposium provided an opportunity for resource managers to hear about current research, including future climate scenarios, which could influence decisions affecting Minnesota's coastal watersheds. Over 200 participants gained valuable knowledge directly applicable to resource management work. In turn, resource managers were able to provide input to scientists on how research could be tailored to be more relevant to the management decision process. The Symposium was funded by a grant from Minnesota's Lake Superior Coastal Program with funds from U.S. National Oceanic and Atmospheric Administration and the GLRI, and was organized by a team of partners including the Minnesota Department of Natural Resources, Trout Unlimited, U.S. EPA Mid-Continent Ecology Division Lab, Minnesota Pollution Control Agency, Natural Resources Research Institute, Superior National Forest, and Minnesota Sea Grant.

Keeping Ontario's Streams Superior



Kama Creek, east of Nipigon, ON.
Credit: Jim Bailey.

Building on lessons learned in Minnesota, Lakehead University in Thunder Bay, ON, is working with a not-for-profit stewardship group, Superior Streams, to collect information on streams flowing into Lake Superior. The purpose is to evaluate the health of fish and fish habitat in tributary streams and assess the impact of emerging and existing stressors, such as highway expansion, perched culverts, and water crossings. Once an inventory of existing habitat conditions and

potential rehabilitation sites is completed, Superior Streams will focus on developing community-based efforts to improve water quality and fisheries resources. The group has developed a database and online mapping tool to encourage information sharing, increased awareness, and community involvement.

Removing Barriers to Fish Passage and Improving Water Quality in Michigan



The culvert (above, before) on Menge Creek was removed to restore natural flow (below, after). Credits: Keweenaw Bay Indian Community.

Eight miles (13 kilometres) of stream habitat in Baraga County, MI were restored by the Superior Watershed Partnership. The work involved removing a barrier to fish passage at the Menge Road crossing of Menge Creek and was completed in 2015. The project also reduced the amount of sediment deposited into the creek by about 2 metric tons (2.2 tons) per year. The

creek, like many rivers and streams within the Lake Superior watershed, is home to Brook Trout and other cold water species that have both cultural and ecological significance to the region. Changes to the landscape over time impaired water quality and obstructed the movement of aquatic organisms. By removing barriers, the health of the creek and its fish will improve. The project was funded by the U.S. Fish and Wildlife Fish Passage Program, Baraga County Road Commission, and the Natural Resources Conservation Service via the Keweenaw Bay Indian Community.

Contact Information

For more information, please visit our website at binational.net or contact:

In Canada:

Rob Hyde
Environment and Climate Change Canada
Phone: (905) 336-4453
Email: ec.grandslacs-greatlakes.ec@canada.ca

In the United States:

Elizabeth LaPlante
U.S. Environmental Protection Agency
Phone: (312) 353-2694
Email: laplante.elizabeth@epa.gov

