



# LAKE SUPERIOR LAKEWIDE ACTION AND MANAGEMENT PLAN

## Annual Report 2014

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### What is the LaMP?

Under the Great Lakes Water Quality Agreement, the governments of Canada and the United States are obligated to protect the physical, biological and chemical integrity of the waters of the Great Lakes.

The Lakewide Action and Management Plan (LAMP) includes shared ecosystem goals, threats, required actions and results.

The Lake Superior Binational Program (LSBP) implements the LAMP as well as the Zero Discharge Demonstration Program, unique to Lake Superior, with the goal to virtually eliminate the input of nine chemical pollutants. The LSBP is a partnership of federal, state, provincial and tribal organizations. Many actions are implemented through the Canada-Ontario Agreement (COA) on Great Lakes Water Quality and Ecosystem Health, 2014 and the U.S. Great Lakes Restoration Initiative (GLRI).

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### Overview

The Lake Superior ecosystem is in good to very good condition as a result of a long term, cooperative, binational partnership between the United States and Canada to protect this beautiful resource. Key levels of the aquatic food web are healthy. Water quality is good, with many contaminants in lower concentrations than in the past.

Progress is being made to restore degraded areas and protect important habitats. The introduction and spread of aquatic invasive species has slowed down; and Lake Superior natural resources are increasingly being used in a sustainable and/or responsible manner.

While in good condition, the Lake Superior ecosystem is facing serious ongoing and emerging challenges. Contaminants continue to cause fish consumption advisories and/or exceed water quality guidelines. Mercury is found in higher concentrations in Lake Superior fish than in other Great Lakes fish. Mercury fish concentrations have returned to levels observed in the 1980s and appear to be increasing. Invasive sea lamprey continue to cause significant mortality for lake trout. Climate change is negatively affecting the ecosystem; and an increase in mining and energy sector activities has the potential to degrade habitat and release contaminants into the Lake Superior ecosystem.

#### Canada-U.S. Great Lakes Water Quality Agreement (GLWQA) of 2012

Continual improvements to lakewide management are being made. Current areas of focus are the lake ecosystem objectives, outreach and engagement plans, LAMPs, and management of the nearshore waters. More information can be found at [www.binational.net](http://www.binational.net).



Lake trout are benefiting from good water quality, a healthy food web, progress in habitat and species restoration, sound management of fisheries, and invasive species controls.

Photo Credit: U.S. Fish and Wildlife Service..



### Accomplishments

#### Reducing Chemical Pollutants

The Lake Superior Zero Discharge Demonstration Program targets nine critical toxic chemicals for zero release by 2020. National, state, provincial, and indigenous community actions in both Canada and the United States have reduced discharges and emissions from pollution sources within the basin, while hazardous waste collections, disposal of polychlorinated biphenyl (PCB)-containing equipment and open burning abatement projects have reduced in-basin stockpiles and household sources.

In 2013, a multi-state project in the United States phased out coal-tar sealants, which reduced loadings of polyaromatic hydrocarbons (PAHs). In Ontario, the environmental organization EcoSuperior held “greener cleaner” events where participants traded in conventional cleaning products for a non-toxic cleaning kit. They also ran “rain barrel for a burn barrel” exchange events.

In an effort to obtain regional data on mercury levels in people within the basin, the Minnesota Department of Health (MDH) measured total mercury in bloodspots from newborns. Eight percent had blood mercury levels above the US EPA safe reference dose. The data also revealed a seasonal exposure pattern, which suggests that the mercury exposure is due to fish consumption. The results are prompting the MDH to improve communication about fish consumption guidelines for women of childbearing age.



Basin stakeholders are preventing toxic contaminants from contaminating Lake Superior by properly disposing of pesticide and mercury containers through events such as household hazardous waste collection events in 2013. Credit: Keweenaw Bay Indian Community.

#### Cooperative Science & Monitoring Initiative

Under the GLWQA 2012, the U.S. and Canada coordinate basinwide research and monitoring efforts under a program called the Cooperative Science and Monitoring Initiative (CSMI).

CSMI efforts focused on Lake Superior in 2011, and results show many important findings, such as:

- Lake Superior continues to have a robust native and generally diverse fish community;
- Over the past thirty years, the amount of surface water flowing from rivers into Lake Superior has decreased by up to 30 percent;
- In Canada, the snowmelt is occurring about four to seven days earlier than in the past; and
- 33 of 89 chemicals of emerging concern were detected in St. Louis Bay near Duluth, MN/Superior, WI. This will inform future management actions aiming to maintain good water quality in the bay.

#### Climate Change Impacts Report Completed

Concerned about what you are hearing about climate change and how it is affecting Lake Superior? The report, *Lake Superior Climate Change Impacts and Adaptation*, synthesizes available science and identifies adaptation strategies and actions for Lake Superior ecosystems. The Report is available at: <http://www.epa.gov/greatlakes/lakesuperior/lake-superior-climate-change-impacts-report-201401.pdf>.

#### Binational Biodiversity Conservation Underway

With the completion of a science-based biodiversity conservation assessment for Lake Superior in 2013, LAMP organizations are now developing a Binational Biodiversity Conservation Strategy (BBCS) due for completion in 2015. The 2012 GLWQA includes a commitment to complete and begin to implement BBCSs for each of the Great Lakes. Many important habitat restoration projects that will support the Lake Superior BBCS are already underway.



What happens on the land affects the lake. This terrestrial wood turtle would agree, as it lives in the rivers and streams that make their way into Lake Superior. Photo Credit: Bad River Watershed Association.



In **Ontario**, fish habitats in urban streams are being enhanced to increase coaster brook trout populations and provide for other species.

In **Michigan**, a coalition of local partners is developing a coordinated vision to identify and address critical habitat issues across the south-central Lake Superior basin. Partners are removing barriers to stream connectivity, controlling invasive species, and improving aquatic habitat.

In **Minnesota**, landowners are being trained to identify invasive species and to use control techniques when necessary.

In **Wisconsin**, nearly 400 acres (about 160 hectares) of priority terrestrial and aquatic habitat were protected in 2013 through the establishment of the Lincoln Community Forest, along the Marengo River southwest of Ashland. The site is home to native brook trout, wood turtles, more than 145 bird species, as well as bear, bobcat, sandhill cranes, deer and wolf.

### *Binational Forum Explores Mining Issue*

The Lake Superior Binational Forum is a volunteer-driven stakeholder involvement and advisory group representing industrial, U.S. Tribes, Canadian First Nations and Métis peoples, business, environmental, recreational, tourism, health, labour, and academic interests. The Forum and the LAMP share a common vision.

In 2013, the Lake Superior Binational Forum, the public stakeholder group of the Lake Superior LAMP, increased the public's understanding of the opportunities and potential risks of increased mining activity in the Lake Superior watershed. Some of the Forum's activities included:

- Hosting nearly 1000 people in public meetings and webinars focused on mining. Speakers included representatives of the mining industry and related businesses, U.S. Tribes, environmental groups, and historical, legal, and legislative experts.
- Creating *Recommendations for Responsible Mining in the Lake Superior Basin*, which were distributed to approximately 4000 federal, state, provincial and tribal agency leaders, elected officials, non-government organizations, mining and other industries and environmental groups.
- Maintained a website ([www.superiorforum.org/mining](http://www.superiorforum.org/mining)) with facts about mining operations in Minnesota, Wisconsin, Michigan and Ontario.
- Created an online open comment form that allowed people to share their insights and reactions to mining issues. Over 1500 people responded. 💧

## Addressing Challenges

Although in relatively good condition, the Lake Superior ecosystem continues to face challenges.

**Fish consumption advisories** for PCBs and mercury persist in Lake Superior. Total mercury levels in fish appear to be rising. **Chemicals of emerging concern** such as flame retardants, pharmaceuticals and plasticisers continue to be found in Lake Superior, with the exact sources and toxicological characteristics partially unknown. To address these chemical challenges, projects will be implemented to identify and reduce sources and impacts of harmful chemical pollution. In addition, lessons learned from the over 20-year history of voluntary multi-stakeholder efforts to eliminate certain

## Restoring Areas of Concern

Areas of Concern (AOCs) are geographic areas that are severely contaminated and degraded. There are six AOCs in Lake Superior. Restoring AOCs helps to improve conditions in the lake, and therefore is a complementary initiative to the LAMP.

- **Deer Lake, MI:** All actions are complete and Deer Lake was removed from the list of AOCs in October 2014. The last controllable point source of mercury was eliminated in 2013, with completion of the diversion of Partridge Creek.
- **Torch Lake, MI:** The State of Michigan is leading a new multi-year project to identify the source(s) of PCBs as the levels in fish and sediments remain high.
- **St. Louis River, MN/WI:** 58 priority actions have been identified with the goal of completing major actions by 2020 and delisting by 2025. Feasibility and design studies are underway at 10 sites, while habitat restoration is planned or in progress at 12 sites.
- **Thunder Bay, ON:** Field work to assess contaminated sediment adjacent to a former paper mill was completed in 2013. Preliminary options for remediation have been identified and consultation is underway.
- **Nipigon Bay, ON:** Monitoring shows that environmental conditions in Nipigon Bay have improved. The Township of Red Rock has made progress toward upgrading its wastewater treatment plant. This is the only incomplete action.
- **Jackfish Bay, ON:** A long-term monitoring plan has been underway since 2010. Results are being reviewed to track natural recovery of this official Area in Recovery.
- **Peninsula Harbour, ON:** Monitoring of the sand cap, which was placed over contaminated sediment in 2012, shows that the cap is remaining in place and that aquatic vegetation is growing in the area.



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chemical emissions within the Lake Superior basin will be prepared and shared, and future science and monitoring priorities will be determined.

Among the Great Lakes, Lake Superior has the fewest **aquatic invasive species** causing ecological and economic harm, but there are many ways that new aquatic invasive species could become established. **Physical changes**, such as increasing average water temperatures, are occurring due to climate change impacts. Increasing land use for activities such as mining, coastal development, and energy generation can have the potential to degrade fish and wildlife habitat. To address these challenges, projects are being implemented to restore and protect important habitats and species. In addition, an educational guide on Lake Superior's aquatic invasive species will be released, and a new Lake Superior BCS will be developed and implemented. ♦

## Watershed Map



## Contact Information

For more information, please visit our website at [www.binational.net](http://www.binational.net) or contact:

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