



LAKE ONTARIO LAKEWIDE ACTION AND MANAGEMENT PLAN

Annual Report 2014

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What is the Lake Ontario 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 Lake Ontario Lakewide Action and Management Plan (LAMP) is a binational plan to restore and protect the health of Lake Ontario by reducing chemical pollutants entering the lake and addressing the biological and physical factors impacting the lake. The LAMP's activities are coordinated by Canadian and U.S. federal, state and provincial government agencies. Many actions are implemented through the Canada-Ontario Agreement (COA) on Great Lakes Water Quality and Ecosystem Health, 2014 and the United States Great Lakes Restoration Initiative (GLRI).

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Overview

Over the past year, the Lake Ontario LAMP Partnership agencies have continued working cooperatively to protect and restore the lake's water quality and ecosystem health through actions and programs, including implementing the Binational Biodiversity Conservation Strategy (BBCS), conducting field sampling for the Cooperative Science and Monitoring Initiative (CSMI) study, reducing critical pollutants, restoring fish species and the food web, improving coastal wetland ecosystem and nearshore water-quality, as well as outreach and communication.

This 2014 annual report summarizes the following information:

- accomplishments in coastal wetland restoration, improvements to the lake fishery, and preliminary results of the 2013 CSMI sampling,
- challenges for protecting bald eagle habitat and managing aquatic invasive species,
- updates on the Niagara and St. Lawrence Rivers, and
- next steps for an integrated nearshore framework and updates to the BBCS.

In 2014, the LAMP partners continued their focus on addressing priority stressors that influence Lake Ontario's ecosystem and water quality.

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

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



This chinook salmon was caught in Lake Ontario near Oswego. The abundance and condition of Lake Ontario's top predatory fish indicate a functional ecosystem, but food web disruption caused by aquatic invasive species remains a cause for concern. Photo: Captain Ernie Lantiegne, Fish Doctor Charters.



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Accomplishments

Coastal Wetlands Restoration

Coastal wetlands provide a critical link between the land and water – they improve water quality in the lake by filtering sediment and contaminants from runoff and tributary flows, and support biodiversity by providing vital habitat for many species. Since 2011, over \$5 Million has been invested in coastal wetland restoration, and additional work is underway. Recently, two important coastal wetland restoration and monitoring projects have been undertaken in Priority Action Areas on the southeast and northwest shorelines of Lake Ontario.

The 17-mile (27 km) long Eastern Lake Ontario dunes and wetlands system in New York State is the largest freshwater dunes system in the eastern Great Lakes. With grants totaling over US\$1 million from the GLRI, the Nature Conservancy (TNC) has partnered with Ducks Unlimited and New York State Department of Environmental Conservation (NYSDEC) to restore wetlands, control invasive plant species, and improve natural flows in this priority area.

In Ontario, Rattray Marsh is one of the last remaining coastal wetlands along the western end of Lake Ontario, and provides habitat for multiple species at risk and species of conservation concern. Ontario Ministry of Natural Resources and Forestry (OMNRF), Credit Valley Conservation Authority and Environment Canada (EC) are collaborating to restore the Rattray Marsh. With a total investment to date of CAD\$1.7 million, contaminated wetland soil has been restored through dredging contaminated soils, and barriers have been installed to control invasive fish species. Additional work will help to conserve, rehabilitate and monitor biodiversity and habitat in the marsh and other coastal wetlands at the western end of Lake Ontario.

Together, these coastal wetland restoration projects on opposite shores of the lake have demonstrated the collaborative work being accomplished by government agencies and stakeholders through the LAMP partnership.

Lake Ontario Fishery Update

Lake Ontario supports a large and thriving recreational fishery for native (lake trout, smallmouth bass, and walleye) and introduced species (chinook and coho salmon, brown trout and rainbow trout). Each year, scientists monitor and assess the lake's food web from bottom to top (including water quality, zooplankton, prey fish and their predators) to ensure that the fisheries of Lake Ontario continue to provide economic, social and environmental benefits. Management of the fishery by Ontario and New York is guided by shared Fish Community Objectives for the lake.

In the offshore waters of Lake Ontario, salmon and trout are the top predators and provide anglers an opportunity to catch trophy-sized fish. Angler surveys conducted by NYSDEC and OMNRF provide estimates of angler effort, catch, harvest, and fishing success. In general, survey data indicate excellent salmon and trout catch rates over the last 10 years, and many trophy-size fish have been caught. The 2013 NYSDEC survey showed that anglers experienced the fourth highest trout and salmon fishing success rate in nearly 30 years, and the OMNRF survey also showed trout and salmon fishing remained above average in 2013.

An overall balance between predators and their prey are indicative of a well-functioning ecosystem. However, food web disruption caused largely by aquatic invasive species continues to hinder native fish species restoration and remains a cause for concern.

Cooperative Science and Monitoring Initiative

Lake Ontario's 2013 CSMI partners have successfully collected water and biological samples from tributaries, coastal, and offshore waters. The binational effort expanded on CSMI partnerships formed in 2003 and 2008 and provided the most comprehensive assessment conducted to date. Agencies that contributed in 2013 included: EC, United States Environmental Protection Agency, OMNRF, United States Geological Survey, Fisheries and Oceans Canada, and NYSDEC.

The 2013 CSMI monitoring was designed to inform management options and drive research on key LAMP science priorities including nutrient loadings, invasive species impact on energy dynamics, nearshore to offshore nutrient transport, and the ability of the ecosystem to sustain fisheries as the food web changes. Traditional approaches were used, as well as emerging technologies such as hydroacoustics, laser plankton counters, automat underwater vehicles, buoy-mounted sensors, and satellite imagery.



Staff from NYSDEC and Environment Canada work together to collect samples of lake bottom organisms for CSMI. Credit: NYSDEC.



The studies completed through CSMI build on decades of binational work to routinely monitor the water quality, ecosystem health, and fisheries of Lake Ontario. CSMI also provides an opportunity to investigate emerging issues and changes in the lake's ecosystem. Information gathered through CSMI and annual monitoring programs provide the scientific basis to guide management actions around the lake. Results allow LAMP partners, researchers, stakeholders, and citizens to identify management actions and focus them on issues that are most critical to the lake.

Data interpretation and synthesis from the 2013 CSMI are underway, and an initial report is expected in 2015. ♦

Addressing Challenges

Protecting Habitat for Bald Eagles

Bald eagles are making an impressive recovery throughout the Great Lakes region and have established at least 12 successful nesting territories along the shoreline of Lake Ontario and the Upper St. Lawrence River, with many additional territories further back in the watershed.

The return of the bald eagle to the Lake Ontario shoreline demonstrates the progress made to restore the lake's ecosystem and to reduce bioaccumulative contaminants. To continue their recovery, the conservation of remaining shoreline nesting and foraging habitats is extremely important. Between 2002 and 2008, US and Canadian bald eagle experts worked with LAMP partners to identify and prioritize valuable bald eagle habitats in the eastern Lake Ontario and Upper St. Lawrence River area. Twenty-one priority habitat sites were identified in the US, and 18 in Canada. Today at least half of these are fully or partially protected through public ownership or conservation easements.



Two young bald eagles in their nest. Credit: Bird Studies Canada.

The challenge remains to retain momentum for ongoing protection of bald eagles and their habitat. You can help by reporting nesting bald eagle pairs or unusual bald eagle activity to your local NYSDEC or OMNRF office, and by being

a "good neighbor" to eagles in your area by not disturbing them. Although bald eagles can often be seen near residential areas and roads, they prefer to nest in quiet areas away from human activities, buildings, and boat and vehicle traffic.

Managing Aquatic Invasive Species

Reducing the impact of Aquatic Invasive Species (AIS) is an ongoing challenge for LAMP partners. Managing AIS within Lake Ontario and its watersheds is critical to maintaining a healthy, stable lake ecosystem and to protect social, economic, and environmental resources.

One method of managing AIS is Early Detection/Rapid Response (ED/RR), which establishes prevention zones in areas of high ecological value. Seasonal monitoring for early detection is done at nearby sites where invasions are most likely to occur. If an AIS is detected, rapid response and immediate control efforts are implemented to help prevent the AIS from becoming established in the prevention zone. This method is currently being used in several coastal wetland and embayment areas around Lake Ontario.

A trained network of citizen volunteers is key to successful monitoring and early detection. You can help by learning how to identify and report AIS, and by working with the groups that implement ED/RR and other AIS control measures in the Lake Ontario Basin. These groups include TNC, Nature Conservancy of Canada, New York State Partnerships for Regional Invasive Species Management, and many others.

Connecting Channels Lake Sturgeon Update

Multi-agency efforts to monitor and restore remnant Lake Sturgeon populations have been ongoing on both the Niagara and St. Lawrence Rivers over the last 15 years.

In the lower Niagara River, U.S. Fish and Wildlife Service has been working with partners to monitor the recovery of Lake Sturgeon. First discovered in 2003, a small, young remnant population in the lower Niagara River was re-assessed in 2010. The population was estimated at about 2800 fish and was increasing faster than expected, likely through successful natural reproduction.

On the St. Lawrence River near Massena, NY, the New York Power Authority, NYSDEC, U.S. Fish and Wildlife Service, USGS and the St. Regis Mohawk Tribe are working to restore spawning habitats near hydropower and water diversion projects. Evidence of spawning and reproduction was observed in 2008 and 2009 and since then, the habitats have remained stable and clear of sediments. Researchers at Queens University at Kingston are currently studying Lake Sturgeon in the area.



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Addressing Nearshore Water Issues

There is a growing focus on the nearshore areas of the Great Lakes, where water quality is often affected by tributary inflows and where people have the most direct contact with the lakes. The Lakewide Management Annex of the 2012 GLWQA calls for the development of an integrated Nearshore Framework to be implemented collaboratively through the lakewide management process. The Nearshore Framework will assess the condition of nearshore waters, identify factors and cumulative effects causing stress to the nearshore, and establish priorities and collaborative partnerships for improving water quality and ecosystem health in nearshore areas. The intensive Lake Ontario CSMI nearshore research conducted in 2008 and 2013, together with the BBCS, will contribute to our understanding of the Lake Ontario nearshore.

Conserving Biodiversity

The binational biodiversity conservation strategy was developed by a project team consisting of over 300 people from over 50 different agencies, including First Nations, government, and non-governmental organizations. The BBCS was released in 2009 and an implementation plan was released in 2011. The strategy identified 24 action sites and 5 program focus areas that are key to conserving and restoring biodiversity in Lake Ontario. Dozens of projects are currently being implemented in the priority action sites to meet the objectives of the BBCS. ♦

Lake Ontario Watershed Map

Lake Ontario is the last of the chain of Great Lakes that straddle the Canada/United States border. Its shoreline is bordered by the Province of Ontario on the Canadian side and New York State on the U.S. side. Lake Ontario is the smallest of the Great Lakes, with a surface area of 18,960 km² (7,340 square miles), but it has the highest ratio of watershed area to lake surface area.



Contact Information

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