



LAKE HURON LAKEWIDE ACTION AND MANAGEMENT PLAN

Annual Report 2015

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What is the Lake Huron LAMP?

Under the *Great Lakes Water Quality Agreement (GLWQA)*, 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 Huron Lakewide Action and Management Plan (LAMP) will be a binational action plan for restoring and protecting the Lake Huron ecosystem. The LAMP will be developed and implemented by the Lake Huron Partnership, which is led by the U.S. EPA and Environment Canada and which facilitates information sharing, sets priorities, and assists in coordinating binational environmental protection and restoration activities. The first Lake Huron LAMP will be issued in 2016; in the interim, the Lake Huron Partnership will be assessing the state of the lake, measuring progress against LAMP goals and objectives, and promoting management actions to address identified problems.

This 2015 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.

Overview

With its land and waterscapes evolving through the interacting forces of water, geology, and climate, Lake Huron and its watershed have been shaped into an area of global ecological significance. Lake Huron is renowned for its beaches, dunes, rugged shorelines, coastal wetlands, diverse river systems, forests, and for its more than 30,000 islands. Conserving this precious resource is important to maintaining its enormous social, recreational, and economic benefits.

The Lake Huron Partnership is expanding its work to be fully consistent with all other Great Lakes in preparing its first Lakewide Action and Management Plan (LAMP) in 2016. The priorities of the Partnership are to continue to study, report on, and address key issues such as contaminants in fish and wildlife, biodiversity and ecosystem change, fish and wildlife habitat, and localized domestic water quality issues including beach closings and algal fouling.

The Lake Huron Partnership's 2015 Annual Report provides information and updates on:

- Turning community interest into environmental action;
- Restoring fish populations and spawning habitat;
- Clean up of contaminated sediment in the Tittabawassee River Floodplain; and
- The St. Marys River Area of Concern and the Spanish Harbour Area in Recovery.



A view of the Niagara Escarpment at Lions Head, Ontario. (Photo credit: Greg Mayne)



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Accomplishments

Turning Community Interest into Environmental Action

Since 2005, the Canadian Lake Huron/Georgian Bay Framework for Community Action (Framework) has engaged the public and supported community-based efforts that address environmental issues across the Ontario watershed. In late 2014, a Framework Summit brought together 45 organizations from Sarnia to Sault Ste. Marie to share lessons learned and discuss approaches that turn community interest into environmental action.

The Bruce Peninsula Biosphere Association is one of the newest Framework members. Yet, in just three years, collaboration with cattle farmers resulted in 26 solar powered fencing projects and watering systems that prevent over 2000 cattle from degrading streams and water quality at the same time improving livestock health. Building on the Lake Huron Biodiversity Conservation Strategy and Framework principles, the Biosphere Association completed a regional Conservation and Stewardship Plan to ensure a healthy future for this unique region. A conservation network of local environmental groups and municipal, provincial, and federal agencies now facilitate community awareness, access to resources, and joint decision making to support projects that study, restore, and protect water quality and biodiversity. The Framework and its guiding principles have demonstrated that working collaboratively with communities and landowners leads to effective decision making and lasting conservation results. To learn more about the Framework, see www.lakehuroncommunityaction.ca.



Cattle exclusion and alternate watering improves river habitat on the Bruce Peninsula. (Photo credit: Greg Mayne)

Advancing Saginaw Bay Rock-Reef Restoration

Over the past few years, Michigan's Office of the Great Lakes has supported capacity building efforts and collaboration with local, state, and federal partners to advance priority restoration efforts. One such example is to restore inner Saginaw Bay rock-reef habitat. Historically, Saginaw Bay contained exposed rock-reefs that provided critical spawning habitat for many native fishes including Walleye and Lake Whitefish. These reefs were largely covered over by clay and sand (a process called sedimentation) following land disturbing activities like logging and farming.

With studies now showing that sedimentation has decreased in some nearshore areas, a collaborative team of local, state, and federal partners have come together to collect information on two remnant rock-reefs and two potential rock-reef restoration sites. The team is funded by a U.S. Fish and Wildlife Service, Great Lakes Fish and Wildlife Restoration Act grant and the knowledge gained from this project will be used to inform the design and implementation of reef restoration efforts in other areas of the Great Lakes. To learn more about this project see: www.miseagrant.umich.edu/saginawbayreefstudy/.

Restoring Lake Huron Sturgeon

The Lake Sturgeon is the largest of Great Lakes fish and a species of conservation concern for Lake Huron. It was once one of the most abundant fish species in the lake; however, over exploitation and loss of river spawning habitat from dam construction reduced its populations to 1% of its former abundance. The Lake Sturgeon is designated as 'threatened' by the State of Michigan and the Committee on the Status of Endangered Wildlife in Canada.



Lake Sturgeon spawning under the Sarnia to Port Huron Blue Water Bridge. (Photo credit: Adam Lintz)



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A binational team of federal, state, and provincial management agencies are working with First Nations, universities, and the commercial fishing industry to gather new information on the Lake Huron Sturgeon population using several innovative technologies. For example, ultrasound can now determine sex and maturity in the field without causing harm to adult Sturgeon. Sound receivers strategically placed along the shoreline are tracking the movement of Sturgeon implanted with “pinging” tags to understand their migration over time and space and to identify important spawning habitat. Commercial fishermen are also helping to determine abundance, and First Nations and the Anishinabek/ Ontario Fisheries Resource Center are partnering to study important spawning locations within the Magnetawan, Garden, and other key Rivers. Conservation of this ancient species depends on strict control of harvests, habitat rehabilitation, and protection of spawning habitat and fish during spawning periods. This once mysterious fish is now better understood and it is hoped that this “Giant” of the Great Lakes may now be saved from extinction and restored for all to enjoy.

Addressing Challenges

Clean Up of the Tittabawassee River Floodplain

Work on this Dow Chemical Superfund site continues with a recently announced plan to clean up dioxin-contaminated soil in frequently flooded areas along the Tittabawassee River. The floodplain includes approximately 4,500 acres (1821 ha) and extends 21 miles (34 km) from Midland, MI through several counties to Saginaw Bay. The multi-year effort will help to protect human health and the environment while balancing the community's desire to maintain a natural river system. Work will take place in the most contaminated and highly used areas and compliment prior agreements that address the dredging and capping of contaminated sediment from within the Tittabawassee and Saginaw rivers as well as the stabilization or removal of eroding contaminated riverbanks. The Dow Chemical Company will perform the floodplain work with U.S. EPA oversight. U.S. EPA's estimated present worth cost for the work in the floodplain is \$10 million.

Managing Lake Huron Walleye

Restoring native fish populations that support key ecosystem functions and human wellbeing is important to Lake Huron biodiversity conservation and fisheries management efforts. Walleye populations are of particular interest, and while the status of Walleye populations in the main basin appears to be stable or improving (mostly due to recovery of Saginaw Bay stocks), the majority of populations in eastern Georgian Bay and to a lesser extent the North Channel are found at a critically low abundance

relative to historical levels. This is due mostly to habitat degradation, over exploitation, and invasive species.

To prevent further declines and the potential loss of Walleye stocks, the Upper Great Lakes Management Unit of the Ontario Ministry of Natural Resources and Forestry is developing a comprehensive Walleye Management Plan for the Ontario waters of Lake Huron. Input from local interest groups is an important part of plan development, and to this end, the Eastern Georgian Bay Stewardship Council hosted two workshops in the spring of 2015 for local environmental organizations, angling clubs, First Nations, municipalities, and the business sector to discuss the threats facing Walleye along the Eastern Georgian Bay coast, potential locations for spawning rehabilitation sites, and the need for harvest controls and improved water flow management.

On the U.S. side of Lake Huron, the Michigan Department of Natural Resources has shifted its priority from Walleye stocking to choosing the best policies and regulations for Walleye harvest. Managers now use improved computer

Update on St. Marys River Area of Concern and Spanish Harbour Area in Recovery

The St. Marys River was identified as a Great Lakes Area of Concern (AOC) due to Beneficial Use Impairments (BUIs) to water quality and aquatic habitat. In 2014, the State of Michigan was able to remove the *Fish & Wildlife Deformities and Degradations of Aesthetics* BUIs from the U.S. side of the river.

Fish habitat restoration efforts continue at the Little Rapids site and it is anticipated that this project will be sufficient to remove the *Degradation of Fish & Wildlife Populations* and *Loss of Fish & Wildlife Habitat* BUIs from the U.S. list of BUIs. On the Canadian side, an intensive water quality survey is underway to assess the status of the *Eutrophication or Undesirable Algae and Degradation of Aesthetics*. A “Dredging Administrative Controls” document is also being developed to advance progress on the *Restrictions on Dredging Activities*.

The Spanish Harbour AOC was re-designated to an Area in Recovery in 1999. The area covers the lower 52km of the Spanish River, the harbour area, and western end of the Whalesback Channel in the North Channel. Concerns over elevated levels of dioxins and trace metals in sediment resulted in several federal and provincial studies. Results of this work show that dioxin levels in sediment in the Spanish River are low, metals have little or no adverse effects to sediment dwelling organisms, and dioxin concentrations in bottom sediment are the result of resuspension and recirculating of historic contamination. Although the deposition of clean suspended sediment is expected to occur slowly over time, this will help to minimize the exposure of contaminants to organisms.



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models to understand age-specific death rates (e.g., from the recreational or commercial fishery) and to test stock sustainability under different management options. A movement is underway to relax restrictions on the recreational catch limit to allow more fish to be taken from

the recovered Saginaw Bay Walleye stock, and at the same time improve Yellow Perch survival by decreasing Walleye predation. Next steps involve careful evaluation of the population response to the selected management changes.

Lake Huron Watershed

The Lake Huron drainage basin is defined by an expansive watershed with numerous lakes and rivers. Activities in the watershed have downstream effects that can influence the water quality of Lake Huron, Georgian Bay, and the North Channel.



Map Credit: Environment Canada, 2014

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