

LAKE MICHIGAN



2020
ANNUAL
REPORT

LAKEWIDE ACTION AND MANAGEMENT PLAN

Lake Michigan. Source: Jennifer Ostermeier

In this Issue

Overview	1
Reducing Chemical Contamination	1
Managing Nutrients and Algae	2
Preventing and Controlling Invasive Species.....	3
Protecting and Restoring Habitat and Native Species.....	3
Outreach and Engagement.....	4
Contact Information	4

What is the Lake Michigan 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 Michigan Lakewide Action and Management Plan (LAMP) is an ecosystem-based strategy for protecting and restoring Lake Michigan's water quality. The LAMP is coordinated by the Lake Michigan Partnership, which is led by the U.S. Environmental Protection Agency (EPA) with participation from federal, state, tribal and local governments or agencies, and with input from nongovernmental stakeholders and the public. The next LAMP will be issued in 2021 and in the coming years, the Lake Michigan Partnership will be working to assess the state of the lake, measure progress towards LAMP goals and objectives, and promote management actions to address identified problems.

This 2020 Annual Report highlights accomplishments and progress in achieving LAMP goals and objectives.

OVERVIEW

The Lake Michigan basin is home to the world's fifth largest lake and contains the world's largest collection of freshwater sand dunes. It hosts many wetlands, prairies, forests, and savannas that provide essential habitat to a diverse array of plant and animal species. The Lake Michigan coastline has 25 harbors, hundreds of marinas, and serves as a key North American migratory bird flyway. The Lake Michigan Partnership's 2020 Annual Report provides information and updates on reducing chemical contamination, managing nutrients and algae, preventing and controlling invasive species, and protecting and restoring habitat and native species.

REDUCING CHEMICAL CONTAMINATION

Delisting of Lower Menominee River Area of Concern

After an over 30-year pollution cleanup and restoration effort, the Lower Menominee River Area of Concern (AOC) has been removed from an international list of the 43 most polluted places on the Great Lakes. As Michigan's Upper Peninsula and northeastern Wisconsin meet at the Menominee River, this AOC was shared by Michigan and Wisconsin. The Lower Menominee River AOC was the third AOC to be delisted in Michigan and the first to be delisted in Wisconsin.

The river's sediment was severely contaminated with arsenic and other related legacy contaminants including paint sludge, coal tar, heavy metal, petroleum and PCBs. Sources of pollutants were controlled by improving industry practices, such as upgrades to wastewater treatment systems, and by removing contaminated sediments within the boundaries of the AOC. Major cleanups in the Lower Menominee River included the removal and remediation of 30 million pounds of paint sludge-impacted sediments, 302,000 cubic yards of arsenic-impacted sediments, 15,000



Menekaunee Harbor after restoration, with thriving native plant communities.
Source: Cheryl Bougie

cubic yards of coal tar wastes and 59,000 cubic yards of contaminated and excess sediment from Menekaunee Harbor. In addition to cleanup of contaminated sediment, many habitat restoration projects were completed in the AOC. Fish passage restoration projects have reopened 21 miles of river including 32 acres of prime spawning habitat and 1,400 acres of juvenile habitat for lake sturgeon and more than 204 acres of shorelands, wetlands, and uplands have been restored to provide valuable habitat for fish, birds and other wildlife. Menekaunee Harbor is now cleaner, deeper and able to accommodate recreational and commercial fishing boats. The change from a highly contaminated three-mile section of river into one that is a sportfishing destination with successfully reproducing fish and wildlife populations is a result of substantial long-term commitments from many partners.



Menekaunee Harbor before restoration, dominated by invasive *Phragmites*. Source: Cheryl Bougie

Completion of the Fox River Clean Up

One of the largest and most innovative PCB (polychlorinated biphenyls) cleanups worldwide is complete after decades of scientific investigations and a successful 17-year cleanup implementation. Sampling of the Lower Fox River beginning in the early 1970s found PCB contaminated sediment deposited along the entire length of the river. In 2004, the Wisconsin Department of Natural Resources (DNR), in partnership with EPA, began oversight of the cleanup along 39 miles of the Lower Fox River. The project removed 6.5 million cubic yards of PCB contaminated sediment through hydraulic dredging, followed by installation of engineered caps spanning over 275 acres of riverbed to contain PCBs. Sand was also installed to cover 780 acres. Approximately 10 billion gallons of river water was restored. The removal of toxic chemicals and pollution is already reducing risk to human health and the environment. Long-term testing is underway to monitor for PCBs in fish tissue, sediment and water. Current results from the Lake Butte des Morts to De Pere Dam are promising, with PCB reductions of approximately 90% in river water and sediment compared to concentrations measured in 2006. PCBs in walleye decreased by an average of 65% in upstream areas and are approaching the unlimited consumption advisory levels for PCBs. Testing will continue until cleanup goals are met.



Remediation of contaminated sediment at a former manufactured gas plant site in the Fox River AOC. Source: JF Brennan

MANAGING NUTRIENTS AND ALGAE

Michigan Non-Point Source Grants

Non-Point Source (NPS) Programs at the state and federal levels work to protect high quality waters and restore impaired waters by addressing watershed inputs of nutrients, sediments, and other contaminants. The four state NPS Programs around Lake Michigan each contribute to the protection of lake's water quality in different ways. One key role is to support local organizations through grants that develop and implement watershed management plans. In Michigan, seven grants (totaling over \$3 million) were awarded in 2020 to organizations working in the Lake Michigan basin. These grants supported implementation of best management practices on agricultural land; creation of green infrastructure in urban areas; permanent protection of undeveloped riparian properties; and updates to existing plans.

Little Traverse Bay Bands (LTBB) Green Infrastructure Installation

In August 2020, a LTBB project to install green infrastructure was completed at Victories Square, a new Tribal development in Petoskey, Michigan. The project features bioswales and permeable pavers that reduce stormwater runoff into the Bear River, which runs through downtown Petoskey and is the largest tributary of Little Traverse Bay. The Bear River is not only ecologically important but is also historically important with a rich industrial history and culturally important as Tribal members continue to practice their treaty rights to hunt, fish, and gather in the river and its watershed. Current threats to this water body are high levels of conductivity, chloride and total suspended solids. This project, along with other watershed and stormwater management practices, may prevent further degradation of water quality. The project was funded by the EPA 319 Program. LTBB plans to continue implementing best management practices at Victories Square to offset the impact of impervious surfaces in the watershed from this development.

PREVENTING AND CONTROLLING INVASIVE SPECIES

Invasive Carp Action Plan

The Asian Carp Regional Coordinating Committee (ACRCC) continues to coordinate the federal, provincial, state and local partner actions to stop the introduction, spread, and establishment of four species of invasive carp (Bighead Carp, Silver Carp, Black Carp, and Grass Carp) into the Great Lakes. ACRCC initiatives include increased efforts for the detection of invasive carp and continued development of control technologies. Since the ACRCC's establishment in 2009, the actions of the partnership have successfully defended the Great Lakes from self-sustaining populations of invasive carp through research, monitoring, and efforts. As a result of ACRCC activities, the leading front of the invasive carp population in the Illinois River remains approximately 47 miles from Lake Michigan, which has not changed in over 10 years. More information can be found at www.asiancarp.us.

Emerald Ash Borer Control to Contain Continued Spread



The Emerald Ash Borer is a destructive wood-boring pest of ash trees. Source: USDA-APHIS

The Emerald Ash Borer (EAB), an invasive forest beetle, first took hold in the Great Lakes basin several decades ago and continues its slow march across the region. It has been confirmed in most counties throughout the Lake Michigan basin. EAB kills multiple species of ash, which are important trees in both urban and natural forest landscapes. In September 2020, Wisconsin DNR confirmed EAB in two new counties along the western shore of Lake Michigan. State foresters will work with property owners to develop removal or protection plans. Though impossible to completely eradicate from the Lake Michigan basin, federal and state agencies seek to slow the spread and remain vigilant to monitor the remaining areas not yet impacted by EAB. On Beaver and Garden Islands, which are over 30 miles offshore in northern Lake Michigan, a single EAB was first detected in 2017 and by 2019 approximately 30 of these beetles were collected. These islands are beyond the known flying capabilities of EAB and they likely hitchhiked on firewood or other products from the mainland. The local island

community led the development of a multi-faceted plan to contain the isolated EAB locations and prevent long-term damage to the unique island resources through a public-private partnership. In 2020, islanders collaborated with the US Department of Agriculture-Animal and Plant Health Inspection Service (USDA-APHIS) to strategically release tiny parasitoid wasps, a federally-approved biocontrol agent for EAB. These tiny wasps lay their eggs exclusively in EAB larvae, causing them to die. Next year, USDA-APHIS will attempt to recapture the wasps to evaluate whether they successfully established on the islands.

US Forest Service (USFS) Invasive Species Grants

With support from USFS and Great Lakes Restoration Initiative (GLRI) funding, partners continued strategic efforts to recover from EAB damage despite monumental challenges in 2020. As described in a recent [USFS Feature Story](#), the City of Milwaukee's management plan, established in 2009, includes periodically treating large, healthy ash trees to keep their environmental benefits in place while gradually removing lower-quality ash trees. The city's strategy also involves replanting with a diverse array of species that will better withstand future pests as well as changing climate. Recent grants have supported practices like gravel bed growing systems to increase the cost-effectiveness of replanting. As an added benefit, the tree-planting work creates career pathways through initiatives like Milwaukee Community Service Corps, a program that gives local youth the opportunity to earn a wage and serve their community while acquiring new job skills.

PROTECTING AND RESTORING HABITAT AND NATIVE SPECIES

Michigan Natural Resources Trust Fund Grants

The states and Tribes surrounding Lake Michigan are important partners to the federal government in protecting the many important habitats and species of Lake Michigan. For over 40 years the Michigan Natural Resources Trust Fund has provided support for land acquisition and outdoor recreation projects in Michigan. Grants awarded in 2020 included acquisition of critical property in the Lake Michigan basin for wildlife and fishery habitat conservation. These efforts complement the on-the-ground restoration projects funded through the GLRI and together help support robust and resilient populations of fish and wildlife.

Environmental Priorities for Lake Michigan Fisheries

Great Lakes fishery managers have long recognized the importance of clean water and physical habitat in the production and sustainability of fish stocks. In 2016, the Council of Lake Committees (CLC), a Joint Strategic Plan committee made up of senior managers from state, provincial and tribal fisheries management agencies, adopted its [Environmental Principles for Sustainable](#)

[Fisheries in the Great Lakes Basin](#). In brief, the CLC recognized that diverse functional habitats are required for sustainable fish production and the protection and improvement of fish habitat should occur systematically, cumulatively and collaboratively. Guided by these principles, individual lake committees embarked on a process to identify key habitats and prioritize environmental issues impeding achievement of fish community objectives for each Great Lake.

The Lake Michigan Committee (LMC) began the process of developing its environmental priorities by forming a Habitat Task Group comprised of fishery and aquatic habitat technical experts from around the Lake Michigan basin. This task group then conducted a technical inventory and assessment of the lake's functional habitats as they relate to production of fish stocks that provide broad fisheries benefits. The group also identified impediments to production of all life stages of these important fish stocks and recommended actions to address impediments. The technical inventory included over 300 individual items that were then prioritized based upon the LMC's determination of potential fishery benefits, including fish species and population importance, certainty in proposed actions and outcomes, and feasibility of implementation.

The prioritization process resulted in a short-list of high priority regional and site-specific actions that, if implemented, would move the LMC closer to achievement of its Fish-Community Objectives and sustain Lake Michigan's vibrant fisheries. The LMC priorities cover a broad range of action categories including protection, coastal wetland restoration and reconnection, reef restoration, tributary connectivity and fish passage, shoreline complexity and nearshore vegetated habitat restoration and in-stream habitat restoration. Fish stocks that will benefit from these actions include Walleye, Lake Whitefish, Lake Sturgeon, Lake Trout, Yellow Perch, salmonines and a variety of nearshore fishes (e.g., bass, pike, muskie and sunfish). Look for the LMC Environmental Priority actions along with other Lake Michigan Partnership habitat improvement recommendations in the Habitat and Species chapter of the next Lake Michigan 5-Year LAMP Report.

OUTREACH AND ENGAGEMENT

CommuniTree program connects people, trees, and water in Northwest Indiana

The region of Northwest Indiana encompasses three counties and over 25 cities. Known for being the largest producer of steel in the US, the landscape has felt the impact of heavy industry for many years. It is also the home of Indiana Dunes National Park, an ecologically significant remnant dune and swale ecosystem. Partnerships like the Northwest

Indiana Urban Waters Partnership acknowledge the importance of trees for filtering harmful substances out of the region's waters and providing habitat for wildlife.

Given the economic challenges of the region, most cities and towns don't have a forestry department, and very few have urban forestry master plans, tree inventories or trained forestry professionals on staff. Out of this need, several organizations came together five years ago to create the CommuniTree program.

Based on the Collective Impact model, representatives from local, state and federal government, local industry, and not-for-profit groups began meeting in 2016 to develop a plan of action. From these meetings, funding for urban forestry efforts was secured primarily through grants, and programs were developed to encourage tree planting and maintenance, as well as training in basic tree care, tree inventories and ordinances, tree pruning, and other urban forestry topics.

The CommuniTree program now involves over 20 communities in Northwest Indiana. The program continues to grow and add new partners in this endeavor. With help from local organizations in both the private and public sector, and hundreds of volunteers, CommuniTree has planted and currently cares for over 5,000 trees in communities in Northwest Indiana, while providing these communities with educational materials on the environmental, economic and health benefits of trees. Get a firsthand look at what the collective effort brings to Northwest Indiana in this [CommuniTree Video](#).



Calumet tree crew planting at Robinson Lake in Lake County, Indiana.
Source: Abbie Dutton

GLWQA Engagement Opportunities

You can keep up to date on GLWQA engagement opportunities in the [Engagement](#) section of Binational.net. Information on many of our partner organizations' upcoming outreach and engagement opportunities can also be found at the Great Lakes Commission's "[Great Lakes Calendar](#)".

CONTACT INFORMATION

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