



# LAKE MICHIGAN LAKEWIDE MANAGEMENT PLAN

## Annual Report 2011

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### Overview

Lake Michigan is the second largest Great Lake by volume and the only one located totally within the United States. Of the basin’s 45,000 square miles, the northern portion is colder, covered with second growth forest and less developed except for the Fox River Valley. 307 miles to the south, the more temperate southern portion is very developed from Milwaukee through Chicago to Northwest Indiana. Lake Michigan discharges into Lake Huron through the straits of Mackinac at a rate that allows for a complete change of water about every 100 years.

Lake Michigan contains the world’s largest collection of fresh water sand dunes along with many wetlands, prairies, and savannas all providing essential habitat to a great diversity of life. The aquatic food web supports fish for food, sport and culture. The fertile southern soils are amenable to agriculture and the coast is home to 25 harbors and hundreds of marinas. Lake Michigan’s coastlines also serve as a key North American migratory bird flyway.

### What is the LaMP?

In the 1987 amendments to the Great Lakes Water Quality Agreement (GLWQA), the United States and Canada agreed “to restore and maintain the chemical, physical and biological integrity of the Great Lakes Basin Ecosystem.” The Lakewide Management Plan (LaMP) is an adaptive management program that integrates and targets actions for contaminated Areas of Concern (AOCs), watershed plans that address land-based activities contributing to degraded water quality, and strategies for habitat and biodiversity protection.

The LaMP is a collaborative effort among federal, state, tribal governments, and a public involvement partnership with the Lake Michigan Forum, planning commissions and local groups.

The Lake Michigan Lakewide Management Plan (LaMP) vision is of “a sustainable Lake Michigan ecosystem that ensures environmental integrity and that supports and is supported by economically viable, healthy human communities.” The primary goal “is to restore and protect the integrity of the Lake Michigan ecosystem through collaborative, place-based partnerships.” The LaMP focuses its efforts through a collaborative effort in meeting the vision and goal through monitoring the changing environmental conditions and adapting management strategies by addressing the following:

1. Can we eat any fish? 2. Can we drink the water? 3. Swim in the water?



Credit: Provided by the West Michigan Tourist Association.



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4. Are habitats healthy, naturally diverse, and sufficient to sustain viable biological communities?
5. Does the public have access to abundant open space, shorelines, and natural areas, and does the public have enhanced opportunities for interaction with the Lake Michigan ecosystem?
6. Are land use, recreation, and economic activities sustainable and supportive of a healthy ecosystem?
7. Are sediment, air, land, and water sources or pathways of contamination that affect the integrity of the ecosystem?
8. Are aquatic and terrestrial nuisance species prevented and controlled?
9. Are ecosystem stewardship activities common and undertaken by public and private organizations in communities around the basin?
10. Is collaborative ecosystem management the basis for decision-making in the Lake Michigan basin?
11. Do we have enough information, data, understanding, and indicators to inform the decision-making process?
12. What is the status of the 33 Lake Michigan sub-watersheds? ♦

## Accomplishments

### *2010-11 Coordinated Field Year: Near and Off Shore*

In the fall of 2010 and spring of 2011 Lake Michigan was sampled intensively in conjunction with the U.S. Environmental Protection Agency's (US EPA) 2010 National Coastal Conditions Assessment and leveraged work funded by the Great Lakes Restoration Initiative (GLRI). This collaborative effort was guided by the Lake Michigan Monitoring Coordinating Council's Near Shore Plan. Three special GLRI studies included sites along National Park boundaries, embayments, and 30 sites for collection of commonly consumed fish to be tested for Omega-3, pharmaceuticals and flame retardant chemicals.

States and the US EPA Great Lakes National Program Office's Lake Guardian sampled the near shore. Findings will begin to be reported in 2012.

### *GLRI Funds Lake and Area of Concern Work*

Over \$23 million was allocated for Lake Michigan basin and AOC work, including over \$3 million in direct capacity grants to the four Lake Michigan states. The competitive grants were provided to not only restore habitat but to also monitor and assess progress in meeting restoration targets in order to delist the Beneficial Use Impairments.

### *Fish Stories*

The Menominee River Fish Passage Partnership was awarded \$3 million from GLRI to design and construct facilities to pass migrating adults upstream and adults and juveniles downstream around the lower two dams of five. When

completed and operational in 2014, an additional 21 miles of river will again be available for sturgeon spawning.

Since 2005, five stream-side rearing facilities for the rehabilitation and restoration of Lake Michigan sturgeon populations have increase sturgeon numbers. A sixth location is being added in spring 2011 on the Kalamazoo River in Michigan through a GLRI-funded partnership.

### *"Extinct" Native Strain Found in Grand Traverse Bay*

A lake herring population, thought to be extinct since the 1960s, has been identified and appears to be doing well. They can be mistaken for a whitefish and have been seen for sale as whitefish, but lake herring are more slender, with smaller fins.

### *Education, Outreach and Engagement*

- The State of Lake Michigan and Great Lakes Beach Association Conference has been held every two years since 1999 at different locations around the basin and provides in depth presentations as well as opportunities for engagement. In September 2011, the conference will be in Michigan City, Indiana.
- The Lake Michigan Forum stakeholders and the Watershed Academy network of regional planning commissions have launched a redo of their web site to provide for more interactive and up to date information. At [www.lakemichiganforum.org](http://www.lakemichiganforum.org) you can follow work on greening lake Michigan's ports and "growing" the basin's amount of green infrastructure.
- Watershed maps and status details of the 33 major tributaries from the LaMP are now on line at <https://wiki.epa.gov/watershed/index.php/Main>. This will enable the addition of sub-watershed data. This is part of EPA's Watershed Central effort to provide a site for sharing tools and experiences plus new data.
- New groups have been established and are working with the LaMP, including Milwaukee's Sweet Water Trust and Green Bay's New Wilderness Alliance. The Lake Michigan Water Trail Association has submitted an application to the National Park Service for National Recreation Trail designation for a portion of the Lake Michigan Water Trail that includes sections in Illinois, all of Indiana and into Michigan. New trails are announced the first Saturday in June which is National Trails Day across the country. ♦

## Challenges

### *Battling Invasives, Protecting Natives*

The Lake Michigan ecosystem has been significantly degraded in recent decades by the impacts of invasive species on both the aquatic food web and terrestrial plant communities. The National Park Service is planning to assess and develop an Invasive Plant Management Plan for their parks including two



Lake Michigan National Lakeshores, Sleeping Bear Dunes and Indiana Dunes.

In 2009, the Chicago Area Waterway System attracted national attention for invasive species concern when evidence of Asian Carp environmental DNA was detected above the electric barriers near entry points to Lake Michigan. The multi-agency Asian Carp Control Strategy Framework captures an increasing body of knowledge, on-going research and monitoring data and the ability to collaboratively discuss and plan management options and keep the public informed. In March 2011, U.S. Fish and Wildlife Service began the regulatory process to implement the Asian Carp Prevention and Control Act signed by President Obama in 2010 which will make it illegal to import or transport live bighead carp across state lines. Recent test results show no evidence of Asian carp in Wisconsin waters. For updates: [www.asiancarp.org](http://www.asiancarp.org).

### Climate Conditions: Dunes

The world's largest collection of freshwater sand dunes is in the news. The Indiana Dunes National Lakeshore has been identified as one of the endangered national parks due to possible impacts of changing climate conditions. The diverse dune ecosystem is at "the ecological crossroads of America". Recent research indicates the Mount Baldy dune is moving south more than 3 yards per year. Research continues to better understand the forces impacting the dune ecosystem and needed actions. The Saugatuck, Michigan dune area has 2,500 acres of woods, wetlands, and habitat for several endangered species and is home to a large number of significant historic and archeological sites. The area was listed as endangered by the National Trust for Historic Preservation in May 2010 due to development pressure.

### Climate Conditions: Lake Levels

While lake levels vary by year, the last decade has seen the speed of change increase. As lake levels drop and storms intensify, new shoreline may be exposed, eroded and rapidly colonized by the invasive reed *Phragmites*.

### Climate Conditions: Forest Habitat

Forests are home to 80% of terrestrial biodiversity. Since the mid 1970s, forest losses in the midwestern United States have increased significantly. Although multiple factors impact forest loss, there is growing evidence that changing patterns of precipitation, air quality factors, and the outbreak of exotic pest species keyed to temperature have played a significant role in stress on the forest ecosystem. The response by the USDA Forest Service and state agencies has included a large and increasing commitment to forest health monitoring, and research into better techniques of management for changing climate conditions. The United Nations has declared 2010-2020 The Decade of Biodiversity and 2011 as the International Year of Forests. For more information: [www.celebrateforests.com](http://www.celebrateforests.com). ♦

## Next Steps

### GLRI Funds Next Steps Projects

In 2010, President Barack Obama's \$475 million GLRI provided capacity grants to federal, state and tribal agencies for restoration and maintenance of the Great Lakes ecosystem. Approximately half of the funding was awarded in 270 competitive grants. These high-priority projects awarded to state, tribal, and local government; academic institutions, and nongovernmental organizations will accomplish the following for Lake Michigan:

- Collaboratively develop a Biodiversity Conservation Strategy for the entire basin that identifies key habitats and protection needs and prioritizes projects. For more information: [www.conserveonline.org/workspace/michiganblueprint](http://www.conserveonline.org/workspace/michiganblueprint)
- Facilitate turning the 2010 Field Year assessments into recommendations for adaptive management actions of the Cooperative Science and Monitoring Initiative;
- Facilitate the update and/or development of Watershed Action Plans based on GLRI 2010 field assessments work with emphasis on nutrient sources and loads and possible green infrastructure;
- Continue the Sustainable Harbors and Marina program development with outreach and education that leads to "Clean and Green" site certifications;
- Continue to develop and share lake and watershed tools and local information on climate change; and
- Investigate the possible impacts of resource extraction activities on groundwater in the basin. ♦



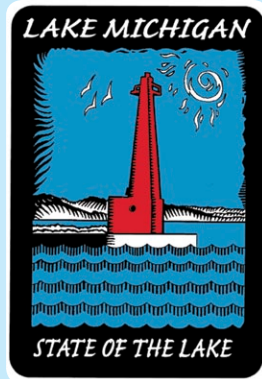
Credit: United Nations, adapted by the U.S. Forest Service.



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## Special Events



### State of Lake Michigan and Great Lakes Beach Association Conference

September, 27-28, 2011  
Michigan City, Indiana  
Contact: [dbarnett@idem.in.gov](mailto:dbarnett@idem.in.gov)

### Making Lake Michigan Great On Board Education Boat Tour

Milwaukee, Muskegon, Chicago, Traverse Bay  
For dates and more ports  
Contact: [vailj@gvsu.edu](mailto:vailj@gvsu.edu) or [isae@schoolship.org](mailto:isae@schoolship.org)

### Invasives Month in the Lake Michigan Basin

May and June, 2011  
State by state events

### International Beach Clean Up Day

September 17, 2011  
Contact: [Alliance for the Great Lakes](http://Alliance for the Great Lakes)  
[www.greatlakes.org](http://www.greatlakes.org)

### Areas of Concern Annual Meeting

October, 2011 Detroit, MI  
Contact: [mdoss@glc.org](mailto:mdoss@glc.org)

## Making Progress in Areas of Concern

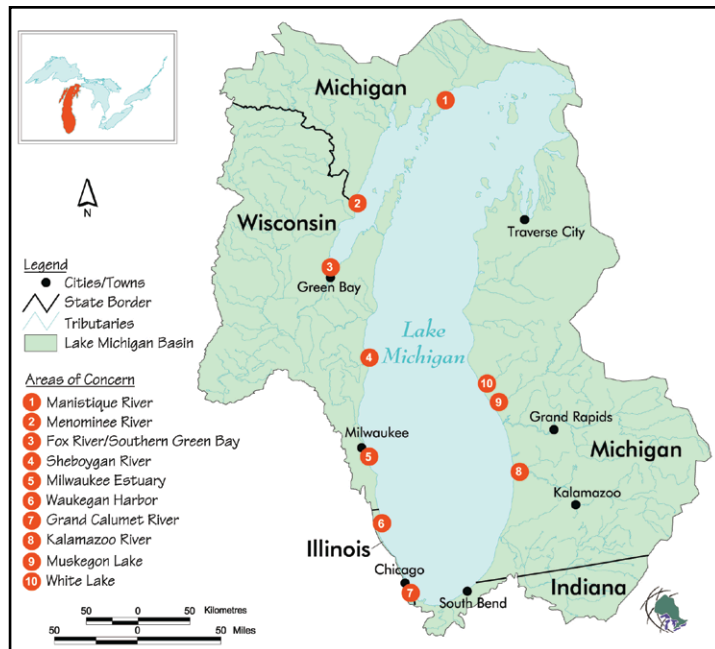
In 2010, GLRI grants to states and local groups added to the Great Lakes Legacy Act sediment clean up funds at work in the AOC harbors along the shores of Lake Michigan. The following AOCs have been able to take advantage of the 2010 funds to remove PCBs and other contaminants from the lake:

- Grand Calumet River, Indiana - 77,000 cubic yards removed;
- Milwaukee, Wisconsin - economic revitalization is following the Kinnickinnic River project and a signed Lincoln Park agreement for remediation of 100,000 cubic yards of sediment;
- Sheboygan, Wisconsin - a signed agreement for work in lower river and inner harbor to begin in 2011;
- Muskegon Lake, Michigan - the Division Street Outfall will be the scene of work in the summer of 2011.

Over \$23 million has been allocated for GLRI grant work to restore beneficial uses related to unique habitats in the basin, including seven projects in White Lake, Michigan, and endangered dune restoration in both Waukegan, Illinois and Grand Calumet, Indiana.

## Watershed Map

Find detailed watershed maps and information for the 33 major Lake Michigan tributaries at: <https://wiki.epa.gov/watershed/index.php/Main>.



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LaMP is at <http://www.epa.gov/glnpo/michigan.html>