

Lake Superior

LENGTH: 350 miles/563 kilometers
BREADTH: 160 miles/257 kilometers
AVERAGE DEPTH: 483 feet/147 meters
MAXIMUM DEPTH: 1,332 feet/406 meters
VOLUME: 2900 cubic miles/12,100 cubic kilometers
WATER SURFACE AREA: 31,700 square miles/82,100 square kilometers
TOTAL DRAINAGE BASIN AREA: 49,300 square miles/127,700 square kilometers
MICHIGAN DRAINAGE BASIN AREA: 16,100 square miles/41,700 square kilometers
SHORELINE LENGTH (including islands): 2,726 miles/4,385 kilometers
ELEVATION: 600 feet/183 meters
RETENTION/REPLACEMENT TIME: 191 years

Known for excellent lake trout fishery
Includes 7 Michigan State Parks, 2 National Parks, 4 Underwater Preserves

Canadian and U.S. Government Develop Aquatic Invasive Species Prevention Plan



Canadian and United States government agencies have long recognized the need to prevent aquatic invasive species from entering the Great Lakes. Almost 20 years ago, the Governors and Premiers of the region created the Binational Program to Protect and Restore Lake Superior. They have joined together again to build

upon that effort to protect Lake Superior from new aquatic invasive species and developed the Lake Superior Aquatic Invasive Species Complete Prevention Plan.

Lake Superior is situated at the head of the 2,342-mile long Great Lakes-St. Lawrence Seaway system, making it particularly vulnerable. This global trade route while economically viable can also be a detriment to the ecosystem and the local economies if aquatic invasive species are introduced. Aquatic invasive species cause significant losses in the form of damage and control costs, job losses, declining property values, compromised native species and decreased biodiversity.

The Plan identifies “vectors” – or ways in which aquatic invasive species arrive in the basin and outlines recommended actions that need to be implemented to prevent new aquatic invasive species from entering and becoming established

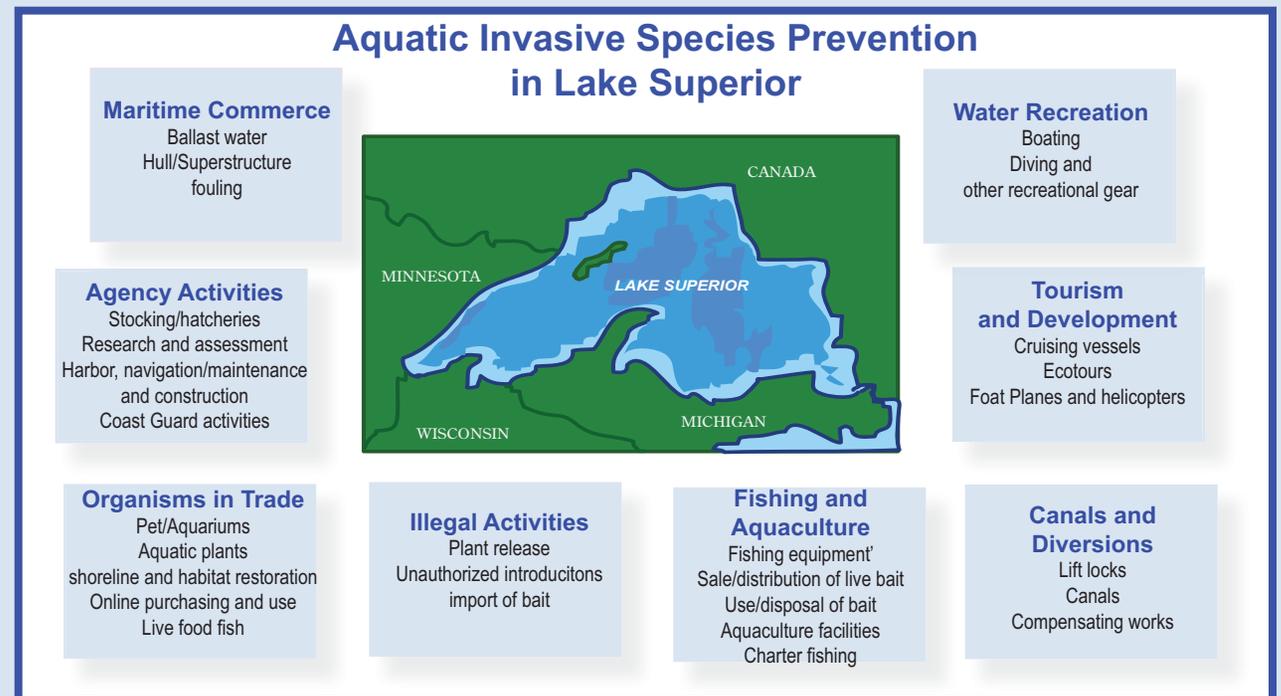
in the Lake Superior ecosystem. These vectors are: maritime commerce, agency activities, organisms in trade, fishing and aquaculture, canals and diversions, illegal activities, tourism and development and water recreation. The recommended actions block the specific pathways for each vector rather than addressing prevention species by species.

Through the process of developing the Plan, Canadian and United States government agencies have consulted broadly and have developed recommendations for consideration by each jurisdiction. However, citizens, organizations and government agencies

in both Canada and the United States need to work together to implement the recommended actions and ensure that protecting Lake Superior from new invasive species is a top priority for all. Implementation progress and overall effectiveness of the Plan will be reported through the Lake Superior Lakewide Management Plan.

Information about the Lake Superior Lakewide Management Plan, Binational Program and Aquatic Invasive Species Complete Prevention Plan can be found at www.binational.net.

For more information, contact Roger Eberhardt, DNRE, at 517-335-4056.



Coaster Brook Trout Population Rebounds



A decades-long effort to help the threatened Coaster Brook Trout in the Salmon Trout River Watershed is proving successful, thanks in part to the efforts of the Superior Watershed Partnership (Partnership). The Salmon Trout River, located in the Huron Mountains, is the last river on the south shore of Lake Superior in which Coaster Brook Trout naturally reproduce.

The Partnership, along with local, state, federal and tribal support, is implementing the Salmon Trout Watershed Management Plan they developed which is approved by the U.S. Environmental Protection Agency (U.S. EPA) and DNRE. The Partnership has conducted more than twenty large-scale projects and implemented nearly \$1 million in funding in the Salmon Trout Watershed alone. Funding comes from a myriad of sources including the U.S. EPA, DNRE, Michigan Coastal Management Program, U.S. Fish and Wildlife Service, Great Lakes Commission, the Joyce Foundation, the Keweenaw Bay Indian Community and others.

A sampling of the watershed restoration projects include erosion control, clear-span bridges, bottomless arch culverts, sediment traps, storm water controls, native plant restoration and stream bank stabilization. These projects improve habitat for the Coaster Brook Trout and provide spawning areas, which are important for the long-term health of the fish population.

The tireless work of biologists, planners, technicians, officials and on-the-ground crews are paying off. The DNRE and Michigan Technological University monitor the number of large Coaster Brook Trout in the Salmon Trout River. After years of decline, researchers have seen a 70 percent increase in the number of adult fish since 2002. Although that is clearly a reason for celebration, according to the Partnership, there is still work to be done.

For more information about the Coaster Brook Trout restoration effort, contact Carl Lindquist, Superior Watershed Partnership, at 906-228-6095.

Bete Grise Coastal Wetland Protection Efforts Gain Momentum

The 8,000-plus acres of coastal wetlands at Bete Grise Wetland preserve are gaining protection from development one step at a time. The latest in an ongoing, multi-phase effort came in May when the Houghton Keweenaw Conservation District received a \$1.7 million grant from the federal government's new Great Lakes Restoration Initiative (GLRI).

The funding was the first grant Michigan received under the GLRI. The funds will support the acquisition of 1,475 acres of high-quality wetlands, sand dune uplands and 3,500 feet of shoreline frontage on Lac La Belle — a freshwater estuary of Lake Superior.

The wetlands are home to a healthy population of diverse plant and animal species that live in the rich mosaic of habitats, including a rare type of wetland called a patterned fen. The preserve also contains the last best coastal dune swale system of its type in the United States. The area will be preserved in perpetuity for conservation and open to the public for passive recreation, such as hiking, kayaking and bird watching.

The grant process and funding was made possible by the efforts of several organizations including DNRE, Coastal and Estuarine Land Conservation Program, The Nature Conservancy, Keweenaw Land Trust and the Houghton Keweenaw Conservation District. The Houghton Keweenaw Conservation District will serve as the titleholder and land manager for the conservation area.

For more information about the Bete Grise Wetland acquisition efforts, contact Gina Nicholas, Houghton Keweenaw Conservation District, at 906-370-7248.

Menominee River Dam Project Will Benefit Lake Sturgeon



A project proposed by the River Alliance of Wisconsin to build a fish bypass around two dams on the Menominee River has received a \$1.5 million grant from the National

Fish and Wildlife Foundation under the GLRI. The project is aimed at creating a fish bypass at each of two dams to allow lake sturgeon to migrate and spawn resulting in more lake sturgeon reaching Lake Michigan.

The Menominee River, which forms the boundary between Michigan and Wisconsin in the Upper Peninsula, is a major tributary to Lake Michigan. Historically, lake sturgeon migrated 71 miles from the bay of Green Bay to Sturgeon Falls, near present day Norway, Michigan. The Menominee River has an abundance of high quality lake sturgeon spawning, staging and rearing habitat; however, the river is fragmented by five hydroelectric dams. The two lower dams are within the Menominee River Area of Concern.

The grant will fund the first of this four-phase project with a total project cost of \$10 million. The first phase of the project includes installing a fish guidance rack within the Menominee Area of Concern at the upper dam's powerhouse to direct Lake Sturgeon to a bypass structure where they will be safely directed to downstream. Biologists will monitor fish at the bypass structure to evaluate fish health and success of the passage device. The fish will

then be directed around the lower dam through an open spillway gate. Ultimately a permanent device will allow fish to pass around the lower dam.

Phase 2 will create an upstream lake sturgeon collection and sorting facility; Phase 3 creates a downstream passage conduit; and Phase 4 creates an upstream natural passageway. Once all phases are complete, the project will open 21 miles of river to Lake Michigan sturgeon, increasing spawning habitat. It will also address the Beneficial Use Impairment issues contributing to the Menominee River Area of Concern designation including the Loss of Fish and Wildlife Habitat and the Degradation of Fish and Wildlife Populations. Habitat gained by providing access upstream of the dams would mitigate for loss of habitat in the Menominee River AOC, directly addressing the Loss of Fish and Wildlife Habitat Beneficial Use Impairment. Sturgeon population growth from increased recruitment as a result of downstream passage would address the Degradation of Fish and Wildlife Populations Beneficial Use Impairment.

Overall, this project will help reconnect

fragmented populations and allow growth and increased resilience of lake sturgeon in Lake Michigan, potentially increasing the population in Lake Michigan by as many as 20,000 adults over the next 50 to 100 years (up from the current estimated 3,000 adults).

Multiple agencies and stakeholders are working collaboratively on this project including the DNRE, Wisconsin Department of Natural Resources, U.S. Fish and Wildlife Service, River Alliance of Wisconsin, Michigan Hydro Relicensing Coalition and N.E.W. Hydro, LLC.

For more information about this project contact Denny Caneff, River Alliance of Wisconsin, at 608-257-2424.



Funding Announcements

Great Lakes Restoration Initiative

The information provides a summary of projects awarded within the Lake Superior Basin under the 2010 Great Lakes Restoration Initiative that will protect and restore the rivers and coastal areas of Michigan's Lake Superior Basin.

U.S. Environmental Protection Agency

Aquatic Invasive Species

Enhanced St. Marys River Sea Lamprey Control

Great Lakes Fishery Commission **\$228,000**

Freshwater Ballast Treatment: NaOH a Treatment of Promise

National Parks of Lake Superior Foundation **\$776,320**

Habitat and Species Restoration

Habitat Restoration of Sand Point Brownfield Site

Keweenaw Bay Indian Community **\$360,960**

Implementation of the Great Lakes Coastal Wetland Consortium Wetland Mapping Protocol

Michigan Technological University - Michigan Tech Research Institute **\$852,483**

Restoring Peatlands from Large Scale Ditching

Michigan Technological University **\$148,650**

Stewardship Network - Lac Vieux Desert Wild Rice Restoration

Stewardship Network **\$213,644**

Nonpoint Source Pollution

Collaborative Partnership to Restore Alger County Watersheds

Alger Conservation District **\$789,384**

Hancock Beach BMPs Project

City of Hancock **\$244,000**

Hills Creek Stamp Sand Stabilization

Houghton Keweenaw Conservation District **\$415,000**

Michigan Beaches-Chippewa County Health Department

DNRE **\$230,025**

Michigan-Expanded Lake Superior Beach Testing-Source Tracking

DNRE **\$258,010**

Improved Cladophora Monitoring through Remote Sensing

Michigan Technological University - Michigan Tech Research Institute **\$276,281**

Two Hearted River Watershed Sedimentation Reduction

The Nature Conservancy **\$480,726**

Village of Lake Linden Torch Lake Nonpoint Source Pollution Reduction

Village of Lake Linden **\$243,000**



Funding Announcements

Toxic Pollutants and Areas of Concern

Partridge Creek Diversion Benefitting the Deer Lake AOC
City of Ishpeming **\$2,000,000**

Keweenaw Bay Indian Community Sustainable Hazardous Waste Collection Program
Keweenaw Bay Indian Community Natural Resources Department **\$295,000**

U.S. Fish and Wildlife Service - Joint Venture

Habitat and Species Restoration

Completing the Swamp Lakes Wetland Project. The Nature Conservancy. This project will protect 150 acres in one of the best examples of a peat land-forest ecosystem in the Eastern Upper Peninsula. **\$103,400**

National Fish and Wildlife Foundation - Sustain Our Great Lakes

Habitat and Species Restoration

Clearing a Path: Revitalizing Lake Michigan's Sturgeon. River Alliance of Wisconsin. Menominee River, a major tributary to Lake Michigan, forms the border of Wisconsin and Michigan's Upper Peninsula. This project will construct a fish bypass around the lower two dams on the Menominee River at Menominee, Michigan and Marinette, Wisconsin to effectively remove two barriers to downstream sturgeon migration thus improving lake sturgeon population growth in Lake Michigan. **\$1,500,000**

Michigan Coastal Management Program

The information provides a summary of projects within the Lake Superior Basin that were awarded approximately \$93,500 through the Michigan Coastal Management Program. Those projects that will protect and restore Michigan's Great Lakes and waterways.

Nonpoint Source Pollution

Chocolay Township, Marquette County – This project will coordinate and update the township's land use plan and the Chocolay River Watershed Management Plan. The project includes a natural features inventory and evaluation of current zoning ordinances. The township will also provide information to the public about voluntary practices to help protect coastal and watershed resources. **\$15,000**

Sustainability

Superior Watershed Partnership - This project will allow for the completion of a series of low-altitude aerial photography of the Lake Michigan and Lake Huron shorelines of the Upper Peninsula, including the shores of Drummond, Mackinac and Bois Blanc Islands. The photography will be linked to maps and other information on the Internet to assist in local land use planning and coastal management decisions. **\$36,000**

Superior Watershed Partnership – This project will develop a conservation model for wind energy development in northern Michigan in cooperation with Northern Michigan University and Mackinaw Power. **\$42,500**

For additional information on grant opportunities and funding announcements visit www.michigan.gov/dnregreatlakes and click on Protection and Restoration.



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