

# Lake Superior Aquatic Invasive Species Complete Prevention Plan

## A Project of the Lake Superior Lakewide Management Plan

Minnesota-Wisconsin Invasive Species Conference  
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# The Great Lakes

- Largest surface freshwater system on Earth
  - Spans more than 745 miles from west to east
- Approximately 40 million people live in the Great Lakes basin
  - Roughly 10% of the U.S. population and 25% of the Canadian population
- System of 5 lakes:
  - Superior, Michigan, Huron, Erie, Ontario
- Contain about 90% of North America's and about 20% of the world's surface fresh water

# The Great Lakes: Lake Superior



Image credit: Great Lakes Information Network

Image credit: Environment Canada

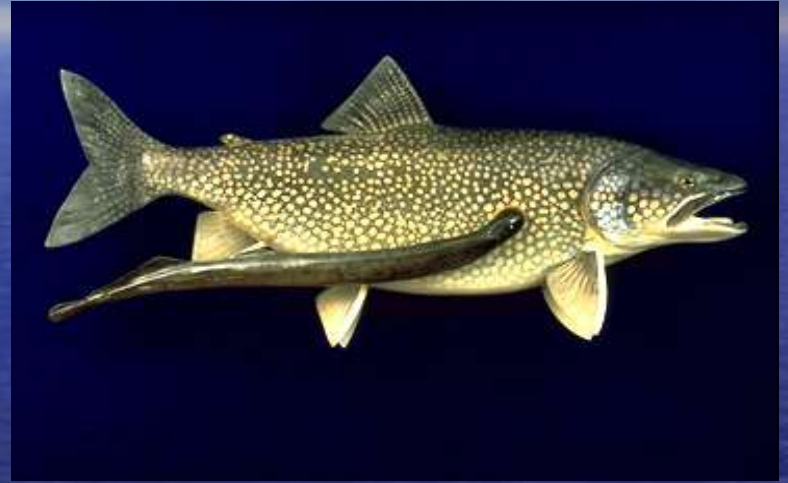


# Lake Superior



- Largest freshwater lake in the world by surface area
- End of the line for much ocean-going shipping
- Cold, oligotrophic waters
- Limited human population and access
- Fisheries in good to excellent condition
- Contaminant levels are declining or remaining constant
- Lower food web robust and stable

# *Some of the Most Harmful Aquatic Invaders ...*



# Aquatic Invasive Species Complete Prevention Plan

## Purpose of plan

- To outline recommended binational actions needed to close existing pathways and prevent new aquatic invasive species from entering and becoming established in the Lake Superior ecosystem.

## Background of plan

1. Integrates various AIS prevention plans relevant to Great Lakes into a common plan for Lake Superior
2. Used to highlight and communicate Lake Superior AIS prevention actions to stakeholders
3. Offered as an example of AIS prevention plans for the other Great Lakes



# Project Timeline

- **2006:** Lake Superior Workgroup discussion; Concept Paper draft
- **2007:** Establishment of Project Teams; Making a Great Lake Superior Conference breakout session discussion
- **2008:** Draft plan under development; State of the Great Lakes Conference breakout session discussion
- **2009:** Draft plan under development; International Association of Great Lakes Research presentation
  - Superior Work Group review
  - Expert technical review
  - Red-flag agency review
- **2010:** Full draft plan prepared; stakeholder input & public workshops; Lake Superior Work Group and Task Force approval

# Plan Reviewers

## Writing Team

- Elizabeth LaPlante, USEPA
- Nancy Stadler-Salt, EC
- Susan Greenwood, OMNR
- Roger Eberhardt, MDNRE
- Amy Thomas, Battelle

## Expert Technical Review

- Environment Canada
- Fisheries and Oceans Canada
- International Joint Commission
- Minnesota Department of Natural Resources
- Minnesota Sea Grant
- Ontario Ministry of Natural Resources
- Ontario Federation of Anglers and Hunters
- Transport Canada
- University of Windsor
- Wisconsin Department of Natural Resources
- Wisconsin Sea Grant

## Stakeholder Review

- Baitfish Advisory Committee for the North
- Canadian Shipowners Association
- Council of Great Lakes Industries
- Great Lakes Maritime Task Force
- Great Ships Initiative
- Interlake Steamship Company
- International Lake Superior Board of Control
- Mayor of Duluth
- Michigan Sea Grant
- Minnesota Sea Grant
- National Oceanic and Atmospheric Administration
- Ontario Live Bait Angling Association
- Ontario Ministry of Natural Resources
- Shipping Federation of Canada
- US Department of Agriculture
- US Fish and Wildlife Service
- Wild Ones

# Features of the Complete Prevention Plan

- Initiated under the auspices of the Lake Superior Lakewide Management Plan (LaMP), which provided the essential institutional arrangements
- Binational and multi-jurisdictional, rather than one jurisdiction
- Pathway blocking approach, rather than species or agency approach
- Focus on prevention of aquatic invasive species (AIS)

## ***What is the LaMP?***

- ✓ Required by the Great Lakes Water Quality Agreement
- ✓ An adaptive management plan for restoring and protecting the Lake Superior ecosystem
- ✓ Implemented by Lake Superior Binational Program, a collaborative effort between Canada and the US
- ✓ Involves public participation and coordination of Canadian and US federal, state, provincial, and tribal/First Nations governments.

# Aquatic Invasive Species Prevention in Lake Superior

## Vectors: Pathways

### Concept Map

**Maritime Commerce:**  
Ballast Water  
Hull/Anchor/Superstructure  
fouling

**Water Recreation:**  
Boating  
Diving and other recreational  
gear

**Agency Activities:**  
Stocking/hatcheries  
Research and assessment  
Harbor, navigation maintenance  
and construction  
Coast Guard activities

**Tourism & Development:**  
Cruising vessels  
Ecotours  
Float planes and helicopters

**Organisms in Trade:**  
Pets/Aquariums  
Aquatic plants  
Shoreline habitat restoration  
On-line purchasing and use  
Live fish food

**Canals & Diversions:**  
Lift locks  
Canals  
Compensating works

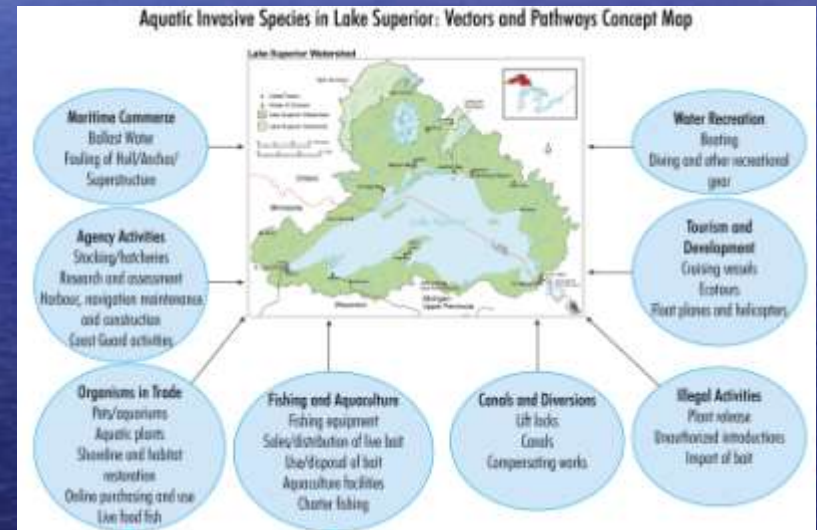
**Illegal Activities:**  
Plant release  
Unauthorized introductions  
Import of bait

**Fishing & Aquaculture:**  
Fishing equipment  
Sale/distribution of live bait  
Use/disposal of bait  
Aquaculture facilities  
Charter fishing



# Recommended Actions, by Vector

- Fishing and Aquaculture
- Tourism and Development
- Water Recreation
- Organisms in Trade
- Illegal Activities
- Agency Activities
- Canals and Diversions Vector
- Maritime Commerce



# Fishing and Aquaculture Vector

- Make AIS prevention education, regulation, and enforcement a priority in all Lake Superior jurisdictions.
- Fully implement *Stop Aquatic Hitchhikers!*
- Provide community grants for education and enforcement efforts
- Adequately enforce baitfish regulations



Spiny waterfleas  
on fishing line

# Tourism and Development Vector

- Increase education efforts targeting cruise vessel operators
- Liaison with plane charter companies, agencies, pilot associations
- Promote best management practices for pilots
- Support educational campaigns



# Water Recreation Vector

- Explore options for a broad range of solutions at public boat launches
- Identify the best methods or prevention approaches for reaching target audiences (e.g., boaters, anglers) and adapt for audiences not currently being reached (e.g., scuba divers)
- Use appropriate terminology and messages for the audience
- Coordinate consistent messaging across jurisdictions



# Organisms in Trade Vector

- Establish a federal screening process to classify species proposed for trade into three lists: prohibited, permitted, and conditionally prohibited/permitted.
- Establish an immediate moratorium on the trade of prohibited species
- Implement education and enforcement efforts addressing shoreline and habitat restoration

# Illegal Activities Vector

- Ensure effective education and prevention efforts at border crossings
- Work with plant nurseries or the industry to educate retailers about regulations pertaining to the sale of invasive plants
- Create or initiate educational campaigns at, e.g., sportsman shows, bait shops, aquaria trade fairs, schools



Sea Grant  
water gardener project  
tip cards for consumers



# Agency Activities Vector

- Ensure that government agencies and their contractors establish and perform best management practices during dredging operations, construction, and other maintenance activities
- Ensure that operating budgets allow for due diligence (e.g., adequate time and resources to take preventive measures)
- Apply AIS-Hazard Analysis and Critical Control Point to operations and products
- Encourage all agencies who issue permits for research and assessment in Lake Superior to include AIS precautions in the permit conditions



**AIS-HACCP**

Aquatic Invasive Species - Hazard Analysis and Critical Control Point

# Canals and Diversions Vector

- Support the state/provincial push for ecological separation of the Great Lakes and Mississippi River watersheds
- Maintain the electric barrier in Chicago at optimum conditions and ensure its continued operation
- Establish structural measures to prevent Asian carp introduction via Des Plaines River flooding in Chicago



# Maritime Commerce Vector

- Develop effective federal ballast water treatment standards that are consistent for the U.S. and Canada and address both oceangoing and lake vessels.
- Work with the US Maritime Administration and NOAA on the Great Ships Initiative to accelerate development, testing and implementation of effective ballast treatment systems
- Provide incentives for proving technology effective in freshwater environments



# Climate Change Actions



- Include climate change parameters in pathway analysis and prediction models
- Alert inspection and border control agencies to new invasive threats and reassess inspection priorities
- Revise import/introduction/releases standards to account for how changing conditions will affect the pathways
- Utilize existing outreach/education efforts to educate public about increased risks of invasive species introductions due to climate change

# Next Steps

- Implementation by appropriate agencies, organizations, and industry
- Monitoring implementation
- Reporting under the Lake Superior LaMP



# Contacts

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# Questions?

- September 2010 draft posted at [http://epa.gov/greatlakes/lakesuperior/LakeSuperior\\_AIS\\_Sept2010DRAFT.pdf](http://epa.gov/greatlakes/lakesuperior/LakeSuperior_AIS_Sept2010DRAFT.pdf)