Michigan’s Aquatic Invasive Species Program

Michigan Wetlands Association
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Aquatic Invasive Species Program
DEQ Water Resources Division

Photo credit: MI Sea Grant
Outline

• Definition of Aquatic Invasive Species (AIS)

• AIS State Management Plan
  - How does this impact wetlands

• AIS Program
  - AIS Core Team
  - AIS Advisory Council

www.mi.gov/aquaticinvasives
What Are Aquatic Invasive Species?

• A species that is **not native** and whose introduction causes, or is likely to cause, economic or environmental **harm** or harm to human health.
Great Lakes Aquatic Nonindigenous Species Information System

http://www.glerl.noaa.gov/ree/Programs/glansis/glansis.html

Some of the 184 Non-Native Species Established in the Great Lakes

GLANIS
A one-stop source for information about non-indigenous species in the Great Lakes region!

GLANIS Enhancements 2010-2011
The GLANIS project has received funding under the Great Lakes Restoration Initiative (GLRI) for several improvements in support of early detection and rapid response.

- Addition of “range expansion” species—those native to one portion of the Great Lakes but are considered invasive to other portions of the basin.
- Addition of high priority “watchlist” species—those that have been identified in the literature as high risk for invading and becoming established in the Great Lakes.
- Updated and consistent “impact” information allowing cross-area comparisons that are better able to support risk assessment and management.
- Addition of management information—regulations, best management practices, and control methodologies—for all the species in the database.
- Enhanced bibliographic information.
- Addition of non-technical fact sheets for priority species of public interest.

Appendix
Send reports to: Dr. Rochelle Strutten rochelle.strutten@noaa.gov
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4840 South State Road
Ann Arbor, MI 48108
734-761-5235
www.glerl.noaa.gov
Pop quiz:

• What are the two most recent AIS verified as being established in the Great Lakes basin?
Pop quiz:
- What are the two most recent AIS verified as being established in the Great Lakes basin?

Viral hemorrhagic septicemia (VHS)
Bloody-red shrimp (*Hemimysis anomala*)
Why care about Aquatic Invasive Species?

• Compete with native species for food and habitat or indirectly harm native species.
  – Effect diversity and abundance of native species
  – Alter foodweb
• Economic effects
  – Decreased commercial and recreational fisheries
  – Decrease property values
  – Decreased tourism
  – Effects on utilities and other industries
Sea lamprey

- Major impacts to the food web
  - Collapse of the lake trout fishery
  - Explosion and collapse of the alewife population
- Now under control with management efforts costing $20 million each year. For over 30 years and into the future!
Phragmites
Common reed

- Crowds out native plants and animals
- Effects property values
- Reduces access for recreation
- Creates fire hazard

Photo credit: MI Sea Grant
Costs of management and control of AIS

$20M/year

$10M/year

$25M/year

Total = over $2.5 billion over 20 years
Pop Quiz

What is the cost of the two most recent AIS verified as being established in the Great Lakes basin?

Viral hemorrhagic septicemia (VHS)

Bloody-red shrimp (Hemimysis anomala)
Pop Quiz

Viral hemorrhagic septicemia (VHS)

"$ tens of millions staff time, lost hatchery capacity, and research"

"$1.2 million on research projects and to develop diagnostic tests"

Bloody-red shrimp (Hemimysis anomala)

$ ?
Total costs of AIS

Economic losses due to AIS caused ecological impacts (damages) + management and control costs = the total economic impact

All AIS in GL region
$5.7 billion per year

GL fishery
$4.5 billion per year

Aquatic + terrestrial invasive species nationally
$137 billion/year
Management Options

Prevention (focused on pathways of introduction)

Surveillance – early detection and rapid response

Containment, Control, Eradication (Integrate pest management)

Adaptation

Slide credit: L. Chadderton TNC
Aquatic Invasive Species Program Priorities


• Priority Pathways and Vectors
  – Canals - focus on the Chicago area waterway system and Asian Carp
  – Ballast water control
  – Organisms in trade
AIS State Management Plan

• Goal I: Prevent new introductions of AIS into Michigan waters.

• Goal II: Limit the spread of established populations of AIS into uninfested waters of the state.

• Goal III: Develop an early detection and rapid response program to address new AIS invasions.

• Goal IV: Manage and control AIS to lessen the harmful ecological, economic, social and public health impacts resulting from infestation of AIS.
Prevention of Aquatic Invasive Species in Michigan Waters: Vectors and Pathways Concept Map (Adapted from Lake Superior AIS Complete Prevention Plan)

**Shipping, Boating**
- Maritime Commerce (ballast water and vessel fouling)
- Water Recreation (boating, fishing, etc.)
- Research and Monitoring Activities

**Biological**
- Organisms in Trade
- Fishing (Live Bait)
- Fish Stocking and Hatchery Activities

**Habitat Alteration**
- Habitat Modification and Restoration
- Canals and Lift Locks
- Transportation Facilities
Introduction of aquatic non-native species to the Great Lakes

Source: NOAA GLANSIS
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Ballast water

(Keller, Drake, Drew, Lodge 2010 Div & Dist)
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STOP AQUATIC HITCHHIKERS!

- Inspect
- Clean
- Drain

To avoid spreading aquatic invasive species

BEFORE launching ... BEFORE leaving:
- Remove aquatic plants and aquatic animals
- Drain lake or river water away from landing
- Dispose of unwanted live bait in the trash

It’s the Law... Do not:
- Transport aquatic plants, zebra mussels, or other prohibited species on public roads
- Launch a watercraft or place a trailer in the water if it has aquatic plants, zebra mussels or other prohibited species attached
- Transport water from infested waters

Michigan Department of Natural Resources
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**Habitat Alteration**
- Habitat Modification and Restoration
- Canals and Lift Locks
- Transportation Facilities
Habitat Modifications
Discussion

• How Does This Impact Wetlands or Wetlands Related Work???
  - Ecology
  - Wetland Mitigation
  - Education/Outreach
  - BMPs
    • Soil Handling
    • Equipment Washing
    • Others?
AIS core team

• Formally established in 2010
• Objective: update and implement the AIS State Management Plan
• Coordinated by DEQ-WRD
• Diffuse program
• Different Departments and Divisions = different authorities, perspectives, procedures, priorities, and timelines
• Team of Peers
State of Michigan AIS team

- **Department of Environmental Quality**
  - **Water Resources** (Sarah LeSage, Todd Losee, Anne Hokanson, Eric Bacon, Tom Alwin)
  - **Office of the Great Lakes** (Roger Eberhardt, Matt Preisser, Emily Finnell)

- **Department of Natural Resources**
  - **Fisheries** (Tammy Newcomb, Nick Popoff, Tom Goniea, Marty Williams)
  - **Wildlife** (Sue Tangora, Kevin Walters, Matt Ankney)
  - **Parks and Recreation** (Jason Fleming)
  - **Law Enforcement** (Steve Huff)

- **Department of Agriculture**
  - **Pesticide and Plant Pest Management** (Mike Bryan)
  - **Animal Industry** (Nancy Barr)

- **Others**
  - **Department of Transportation** (Dave Schuen)
  - **DNR Forestry** (Ron Murray)
  - **Attorney General** (Bob Reichel)
AIS Advisory Council

• Established by law in 2011
• Appointed members
• State agencies, tribes, local gov, industries, environmental groups, university, etc.
• Objective- satisfy statutory requirements
  – Ballast water
  – AIS State Management Plan
  – Organisms in trade
  – Phragmites management
  – Program funding
• Chaired by DEQ
• Different levels of experience and knowledge
• Decision by consensus