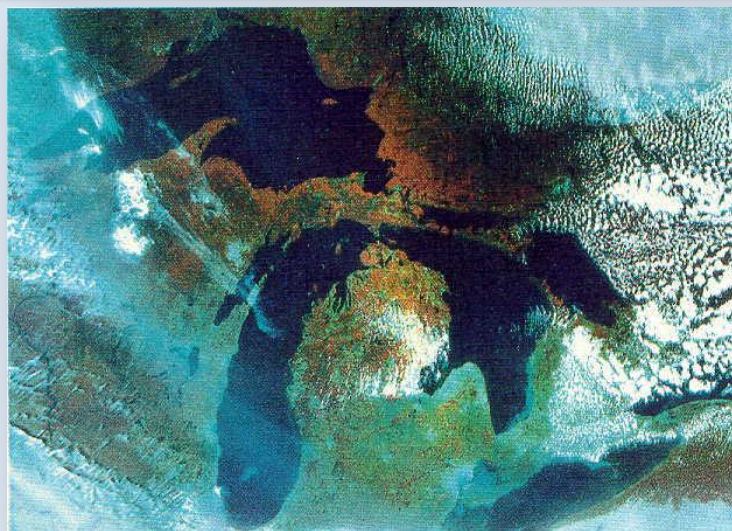




Michigan's Aquatic Invasive Species Program



Jennifer Johnson, Aquatic Biologist
Aquatic Invasive Species Program

The St. Clair River: Bridging the Environment and Economy

Port Huron, MI

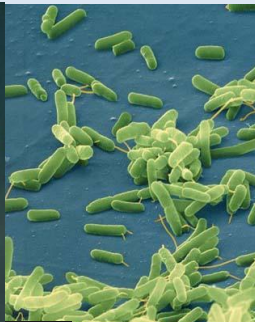
September 18, 2014



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.





Aquatic invasive species



- Compete with native species for food and habitat or indirectly harm natives.
 - 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





Costs of management and control of AIS



\$20M/year



\$25M/year



\$10M/year



**Total = over \$2.5 billion
over 20 years**



Total costs of aquatic invasive species



**All AIS in GL
region
\$5.7 billion
per year**

**GL fishery
\$4.5 billion
per year**

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

**Aquatic +
terrestrial
invasive species
nationally
\$137 billion/year**



State of Michigan AIS team



- **Department of Environmental Quality**
 - **Water Resources**
(Sarah LeSage, Anne Garwood, Eric Bacon, Tom Alwin, Jennifer Johnson, Kevin Walters)
 - **Office of the Great Lakes** (Matt Preisser)
- **Department of Natural Resources**
 - **Fisheries** (Nick Popoff, Seth Herbst)
 - **Wildlife** (Sue Tangora, Kile Kucher)
 - **Parks and Recreation** (Alicia Ihnken)
 - **Law Enforcement** (Steve Huff)
 - **Forest Resources** (Ron Murray)
 - **Marketing and Outreach** (Kevin Frailey, Jon Spieles)
- **Department of Agriculture**
 - **Pesticide and Plant Pest Management** (Mike Bryan, John Bedford)
 - **Animal Industry** (Nancy Barr)
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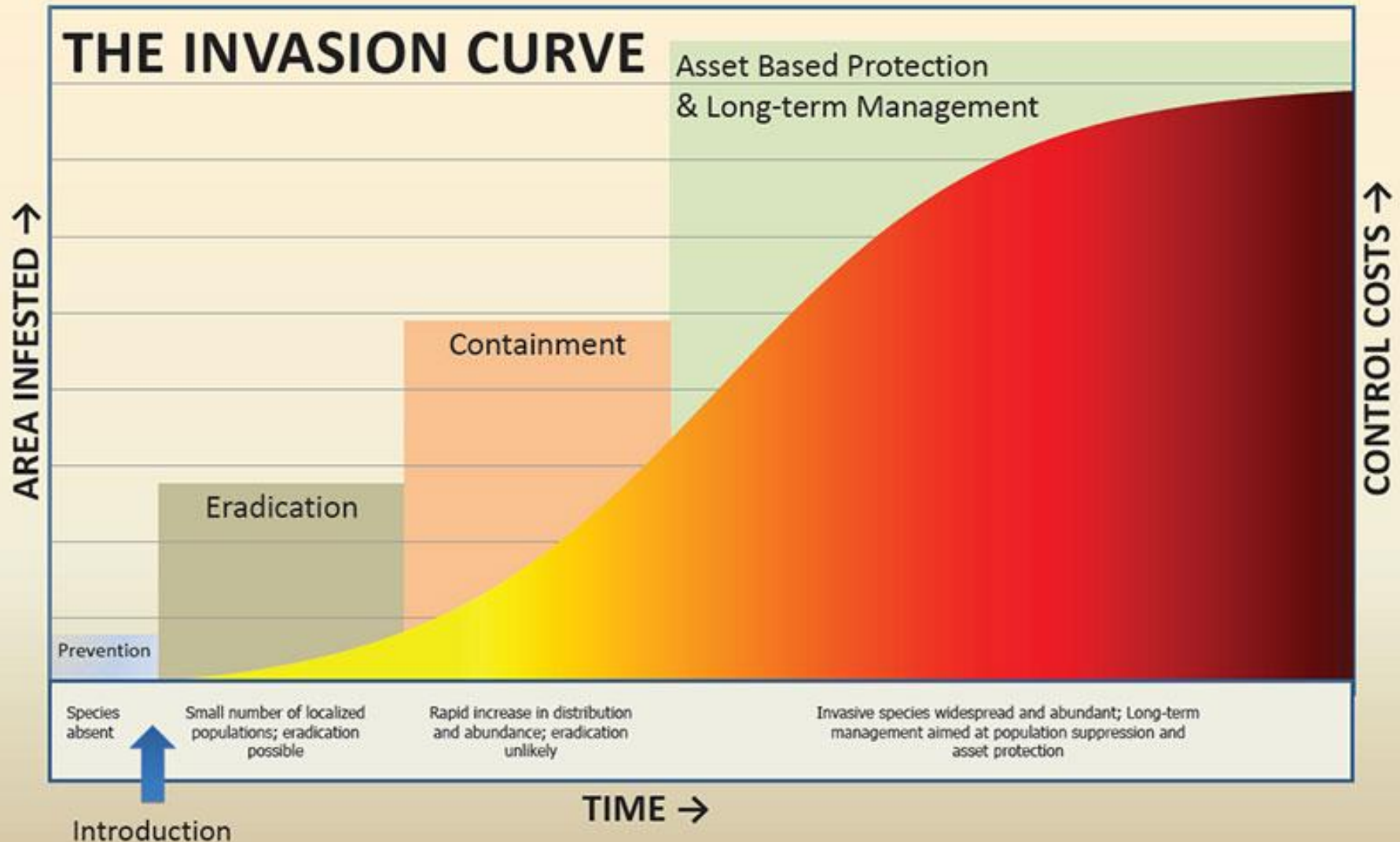
AIS State Management Plan



Finalized June, 2013

- Goal I: **Prevent** new introductions of AIS into Michigan waters.
- Goal II: **Limit the dispersal** 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.

THE INVASION CURVE





Prevention by Pathways



Shipping & Boating

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



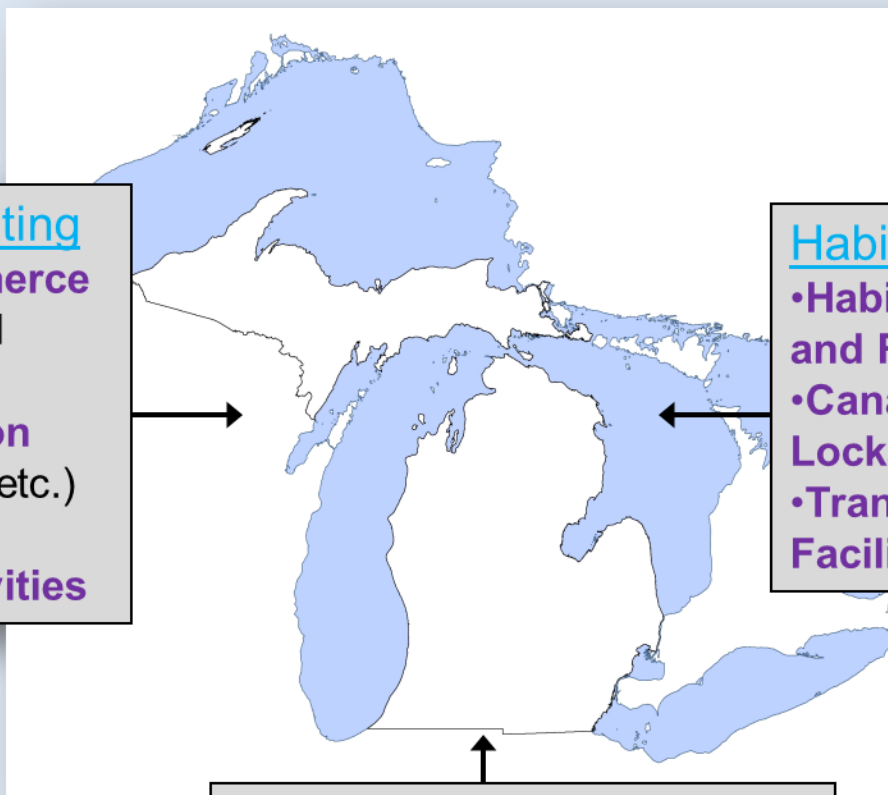
Habitat Alteration

- **Habitat Modification and Restoration**
- **Canals and Lift Locks**
- **Transportation Facilities**



Use & Trade of Organisms

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





Ballast water discharges



BALLAST WATER CYCLE

① At source port



② During voyage



③ At destination port



④ During voyage



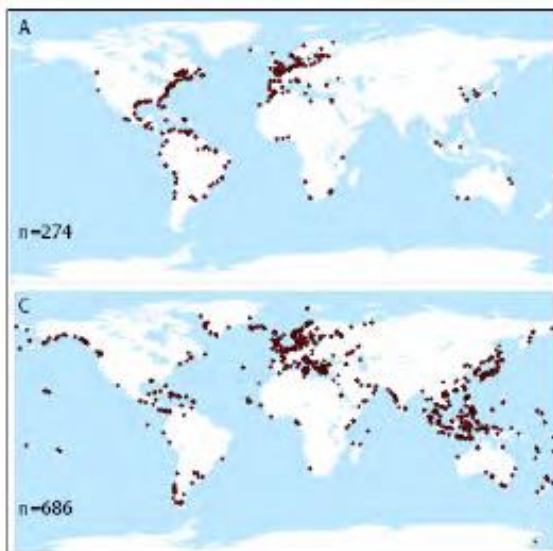
SOURCE: GloBallast



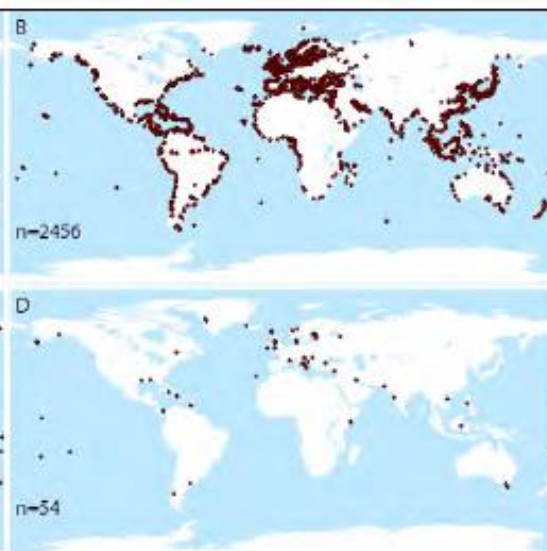
Ballast water discharges



**Direct connections to
Great Lakes**



2-step connections



3-step connections

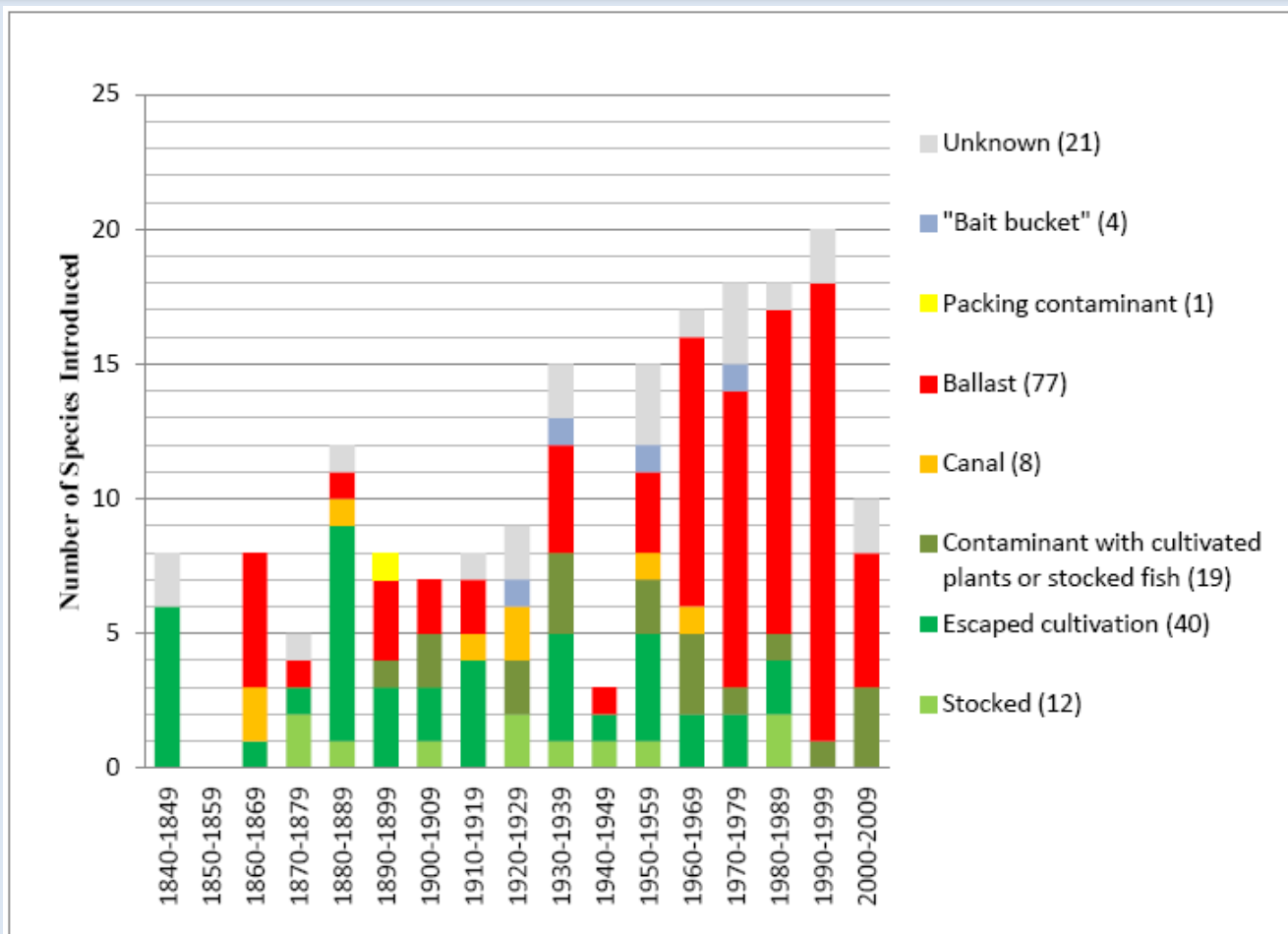


4-step connections





Pathways to Invasion





Ballast water regulation



- International Maritime Organization Ballast Water convention
- United States Coast Guard final rule



- Delegated authority under the National Invasive Species Act
- United States Environmental Protection Agency Vessel General Permit (VGP)



- Delegated authority under the Clean Water Act
- State of Michigan Ballast Water Control General Permit, Port Operations and Ballast Water Discharge



- State Certification of the USEPA VGP under Section 401 of the Clean Water Act



Michigan's permit



- Authority: [Michigan legislation in 2005](#) amended the Natural Resources and Environmental Protection Act
- “...prevent the introduction of and minimize the spread of aquatic nuisance species...”
- State general permit for [oceangoing vessels](#) conducting port operations [effective 2007](#)
- Requires treatment of ballast water discharges using one of [four approved treatment methods](#), [certify no discharge](#), or [request use of an alternative treatment](#) (effectiveness demonstration)
- Permit reissued in February, 2012 with minimal changes





Ballast water regulation



(Canada has signed onto this convention)



Requirements

Timeline

Technologically achievable, numeric concentration based standards for multiple sizes/types of organisms	Not in effect Enters force 12 months after ratification by 30 States, representing 35% of the world merchant shipping tonnage. As of 2/28/14, 38 states contracted representing 30.38% of the tonnage.
Technologically achievable, numeric concentration based standards for multiple sizes/types of organisms	Existing vessels: First dry docking after 1/1/2014 for vessels with 1500-5000m ³ capacity First dry docking after 1/1/2016 vessels <1500m ³ or >5000m ³ New vessels: Upon delivery
Treatments methods , certify no discharge, or request use of an alternative treatment	Effective January 1, 2007



Looking Forward



Need to work together to achieve:

- Timely installation and proper operation of ballast water treatment systems.
- Implementation of treatment-based discharge limits (technologically achievable).
- Development of discharge limits that are protective of water quality while recognizing that the Great Lakes are a unique natural resource.
- Consistent application of ballast water discharge limits on a regional basis.



www.michigan.gov/aquaticinvasives



For specific ballast water questions, contact Sarah LeSage

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