MICHIGAN'S INVASIVE SPECIES PROGRAM: A 5 YEAR PERSPECTIVE

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September 28, 2017

Treetops Resort Gaylord, MI

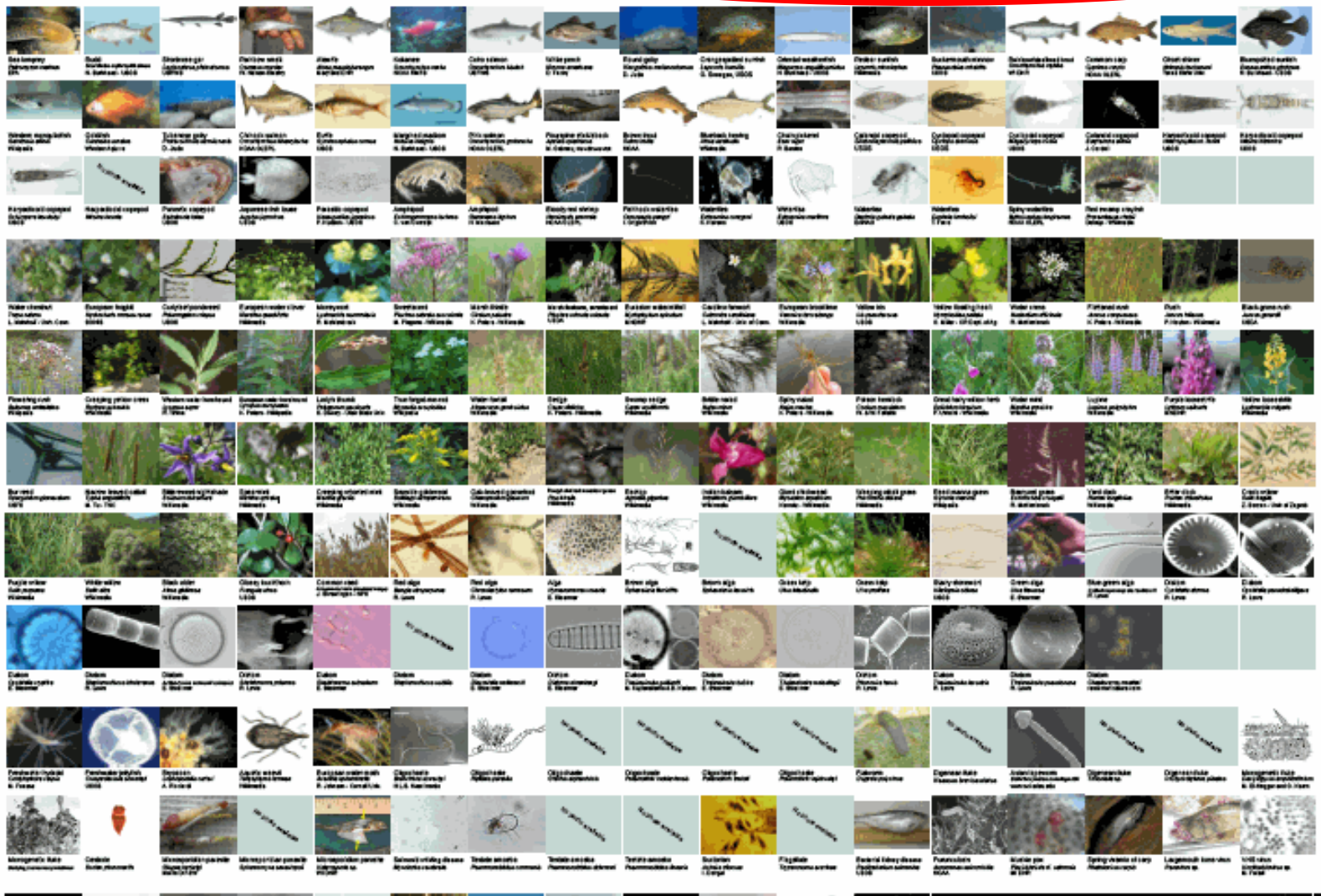
WHAT ARE INVASIVE SPECIES?

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/res/Programs/glansis/glansis.html

Some of the ~~180~~ ~~181~~ ~~185~~ 184 Non-Native Species Established in the Great Lakes



GLANSIS

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

GLANSIS ENHANCEMENTS 2010-2011

The GLANSIS 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-taxa 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. (IL-IN Sea Grant)
- Addition of non-technical fact sheets for priority species of public interest. (IL-IN Sea Grant)

Great Lakes RESTORATION

GLANSIS NEEDS Your Verified Reports

Send reports to:

Dr. Rochelle Sturtevant
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NOAA Great Lakes Environmental Research Laboratory
4840 South State Road
Ann Arbor, MI 48108
734-741-2235
www.glerl.noaa.gov

THESE ARE NOT INVASIVE SPECIES

INVASIVE SPECIES LIFE HISTORY TRAITS

- Fast growing/ reproduce quickly
  - Early maturity
  - Short generation time
- Rapid reproduction
- High fecundity
- High dispersal ability
- Ecological competence
  - Tolerate wide range of conditions
- Phenotypic Plasticity
  - Alter growth to suit conditions
- Generalist
  - Wide range of food types
- Opportunistic
  - Inhabit disturbed or unstable habitats
- ★Lack competitors and/or predators

WHY CARE?
ENVIRONMENTAL EFFECTS

- Compete with native species for food and habitat or indirectly harm natives
- Effect diversity and abundance of native species
- Effect water quality and habitat
- Alter foodweb and ecosystem processes

INVASIVE SEA LAMPREY CONTRIBUTED TO THE COLLAPSE OF THE GREAT LAKES COMMERCIAL FISHERY IN THE 1940s AND 1950s

WHY CARE?
ECONOMIC EFFECTS

- Cost for control and management and economic losses
- Reduced property values
- Lost aesthetic value
- Impacts on recreation
- Impacts on tourisms
- Lost timber value

WHY CARE?
ECONOMIC EFFECTS

WHY CARE?
ECONOMIC EFFECTS

Washington State study compared over 1,200 property sales on invaded and uninvaded lakes and adjusted for structural and other characteristics…

Eurasian Watermilfoil has a significant negative effect on property sales price, corresponding to a 19% decline in mean property values.

(Olden Tamayo, 2014)

WHY CARE?
ECONOMIC EFFECTS

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

INVASIVE SPECIES ARE NOT EVERYWHERE!

TIMELINE

1988 — Zebra mussels Lake St. Clair

1990 — Federal Nonindigenous Aquatic Nuisance Prevention Act

1996 — Michigan's first ANS State Management Plan

2002 — MI Updated ANS Plan

2010 — GLRI Funding AIS Core Team Established

2013 — MI Updated AIS Plan

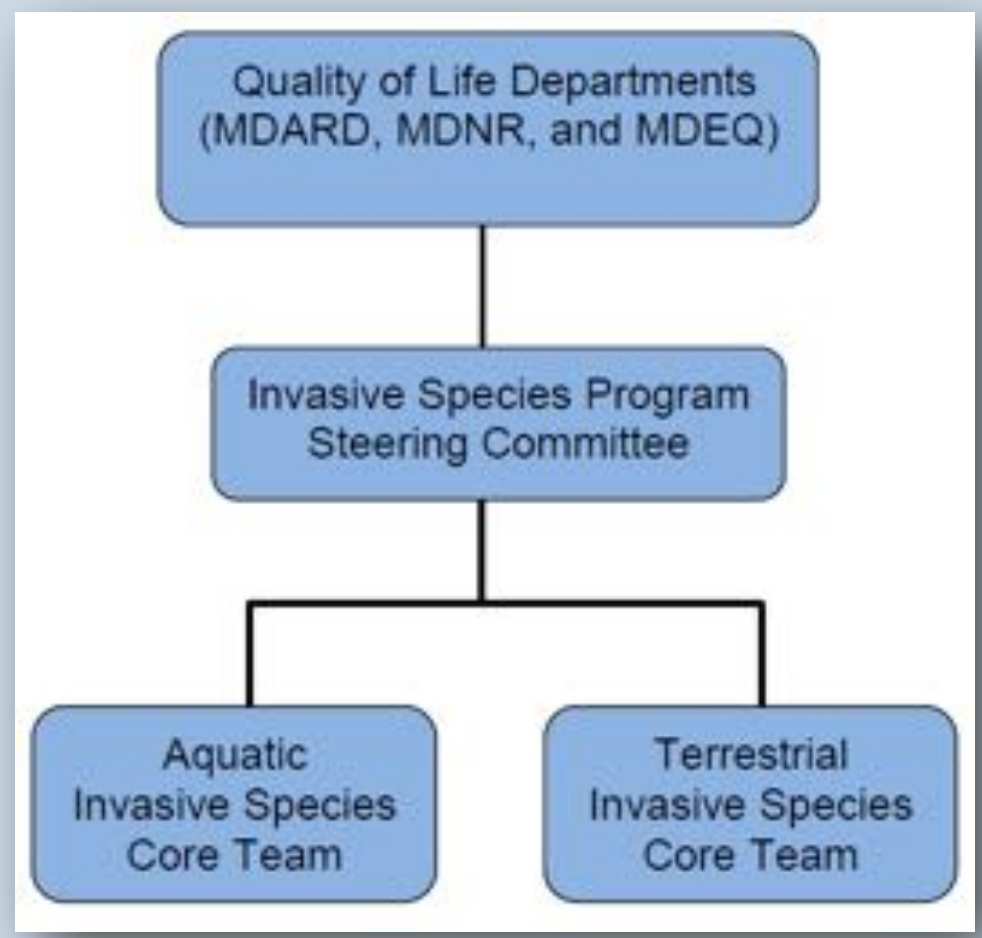
2015 — MI State Program Funding

Terrestrial Core Team

AIS Response Plan & Decon. Plan

MI Grant Program

INVASIVE SPECIES PROGRAM



Workgroups: decontamination, education and outreach, early detection and response, webpage, boat wash strategy, firewood, grant program

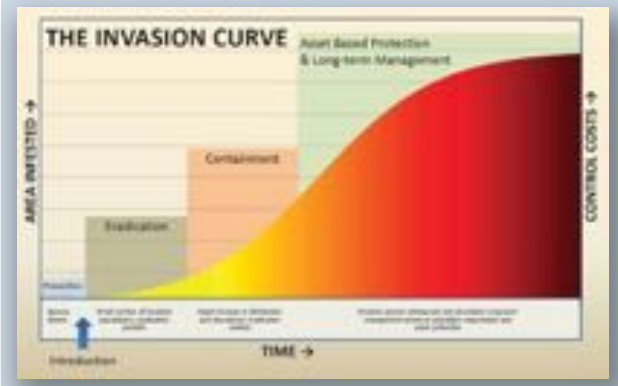
State of Michigan AIS Team

established 2010

- **Department of Environmental Quality**
  - Water Resources
  - Office of the Great Lakes
- **Department of Natural Resources**
  - Fisheries
  - Wildlife
  - Parks and Recreation
  - Law Enforcement
  - Forest Resources
  - Marketing and Outreach
- **Department of Agriculture and Rural Development**
  - Pesticide and Plant Pest Management
  - Animal Industry
- **Department of Transportation**

AIS STATE MANAGEMENT PLAN

Finalized 2013

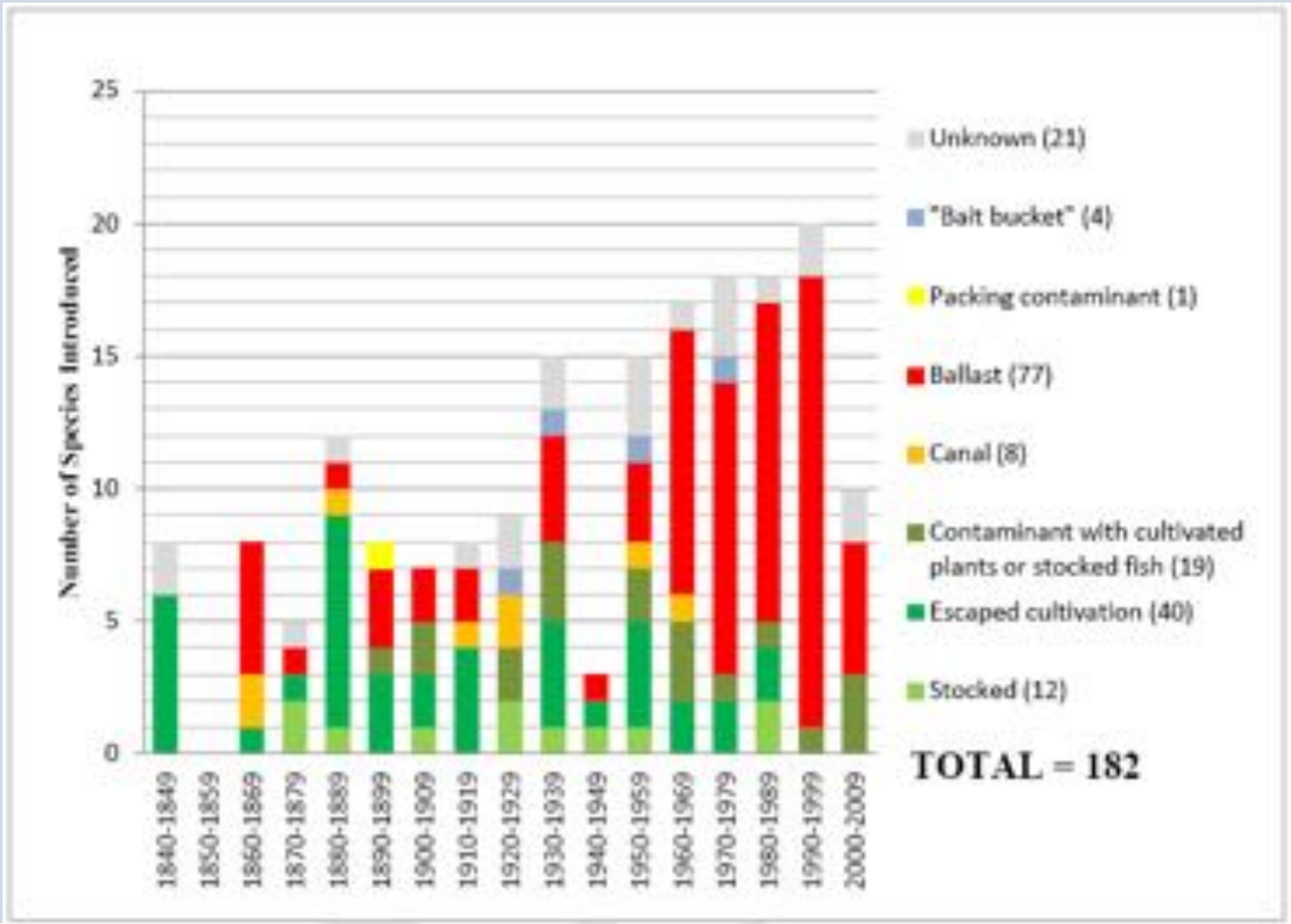


- Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990
- Goal I: Prevent new introductions of AIS into Michigan waters.
- Goal II: Limit the dispersal of established populations of AIS into uninfested waters of the state.
- Goal III: Develop an early detection and rapid response program 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.

PREVENTION BY PATHWAYS

Preventing new introductions and limiting dispersal of established AIS by blocking pathways

PREVENTION BY PATHWAYS



ORGANISMS IN TRADE

- Prohibited and restricted species
- Inspections and enforcement
  - DNR Law Enforcement
    - Fish markets, fish haulers, bait wholesalers and retailers, pet shops, internet
  - Dept. Agriculture and Rural Development
    - Nursery wholesalers and retailers, pet shops, internet
- Education and outreach

MICHIGAN'S EXPANDED PROGRAM

- $5M FY15 State General fund
- Aquatic and terrestrial invasive species
- DNR budget- shared across DNR, DEQ, DARD
- $3.6M in grants

State of Michigan TIS Team

established 2014

- **Department of Environmental Quality**
  - Water Resources
  - Office of the Great Lakes
- **Department of Natural Resources**
  - Wildlife
  - Parks and Recreation
  - Law Enforcement
  - Forest Resources
  - Marketing and Outreach
- **Department of Agriculture and Rural Development**
  - Pesticide and Plant Pest Management
  - Animal Industry
  - Environmental Stewardship
- **Department of Transportation**

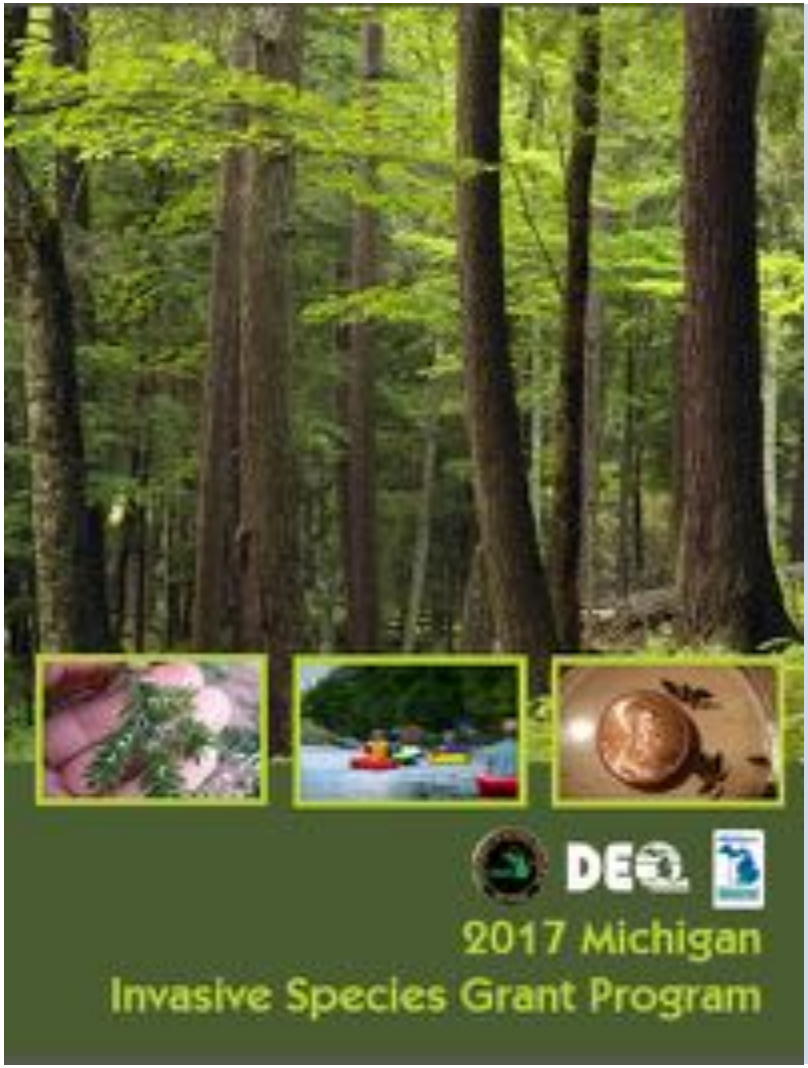
CREATING THE TIS STATE MANAGEMENT PLAN

- Terrestrial Invasive Species Core Team
- Partner survey and review
- First draft 2015
- Public review 2016
- Final expected soon!

HIGHLIGHTS FROM DRAFT TIS SMP

- 4 GOALS
  - Prevention
  - Early Detection and Response
  - Control, Management and Restoration
  - Collaboration
- 6 ACTIVITY AREAS
  - Leadership and Coordination
  - Regulation and Policy
  - Risk Analysis
  - Monitoring and Research
  - Management Measures
  - Outreach and Education

MICHIGAN INVASIVE SPECIES GRANT PROGRAM



Address strategic issues of prevention, detection, eradication, and control for both terrestrial invasive species and aquatic invasive species in Michigan

MICHIGAN INVASIVE SPECIES GRANT PROGRAM

- 2014, 2015, 2016
  - Over 50 grants, $11M
- $3.6 million anticipated for 2017

Eligible Applicants

- Local, Federal, Tribal governments
- Non-profit organizations
- Universities

MICHIGAN INVASIVE SPECIES GRANT PROGRAM

Focus areas 2017

1. Cooperative Invasive Species Management Areas
2. Advancing Aquatic Invasive Plant Control
3. Detection and Surveillance for Terrestrial Invasive Species
4. Reducing the Risk for Spreading Invasive Species through Firewood Transport
5. Preventing Invasive Species Introduction and Spread Through Recreation
6. Other projects of Demonstrated Urgent Need

MICHIGAN INVASIVE SPECIES GRANT PROGRAM

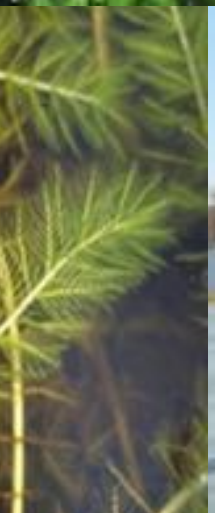
- Created 7 new CISMAs, expanded 2
- Clean Boats, Clean Waters
- Advancing aquatic plant control
  - Herbicide and benthic mat treatment of Eurasian Water Milfoil and Starry Stonewort
  - Method comparison for Eurasian Watermilfoil Control- herbicide, hand pulling, diver assisted suction harvest
  - European frog-bit remote sensing and control techniques
- Phragmites control
  - Remote sensing, modeling, and treatment
- Asian Longhorn Beetle and Oak Wilt
- Outreach to recreational users and industries related to organisms in trade

BIG ROCKS

- Last 5 years
  - Overhauled AIS Management Plan and aggressive implementation focusing on a pathway approach
  - Established a TIS Team and drafted a management plan
  - Secured state funding and created a grant program
- Next 5 years…

IMPLEMENTATION OF TIS PLAN

CONTROLLING SPECIES- IMPLEMENTATION AND INNOVATION



OUTREACH TO NEW AUDIENCES

OUTREACH TO NEW AUDIENCES

HABITAT MODIFICATION AND RESTORATION

CLEAN UPS AND RESTORATION

RISK ASSESSMENTS & PREDICTIVE MODELS

- Site Prioritization
- Species
- Pathways
- Climate change

Figure 2.4.3. Plant invasion risk pressure maps. Red represents highest risk sites and blue lowest risk sites. Only those squares with values greater than zero are shown.

BIG ROCKS

- Last 5 years
  - Overhauled AIS Management Plan and aggressive implementation
  - Established a TIS Team and drafted a management plan
  - Secured state funding and created a grant program
- Next 5 years
  - Implementation of TIS Plan
  - Enhanced outreach to new audiences
  - Innovative solutions to control species
  - Habitat modification and restoration
  - Risk assessments and predictive models

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Subscribe to Invasive Species Updates

WWW.MICHIGAN.GOV/INVASIVES

Acknowledgements:
Michigan AIS and TIS Core Teams
(DEQ, DNR, DARD and MDOT)

Michigan's Invasive Species Program is cooperatively implemented by the Michigan Departments of Agriculture & Rural Development, Environmental Quality and Natural Resources.