Asian Carp and Round Goby Status

Participants will learn the current status of Asian carp and Round Goby in the region and Wisconsin, and what federal and state agencies are doing to prevent their expansion. The message remains the same - PREVENTION is the key, and everyone can play a role in our success.

Presented by
Bob Wakeman
WDNR Statewide AIS Coordinator

Asian Carp – What are they?

Four species of carp native to Asian countries.

- Silver carp

Asian Carp – What are they?

Four species of carp native to Asian countries.

- Silver carp
- Black carp

Asian Carp – What are they?

Four species of carp native to Asian countries.

- Silver carp
- Black carp
- Bighead carp

Asian Carp – What are they?

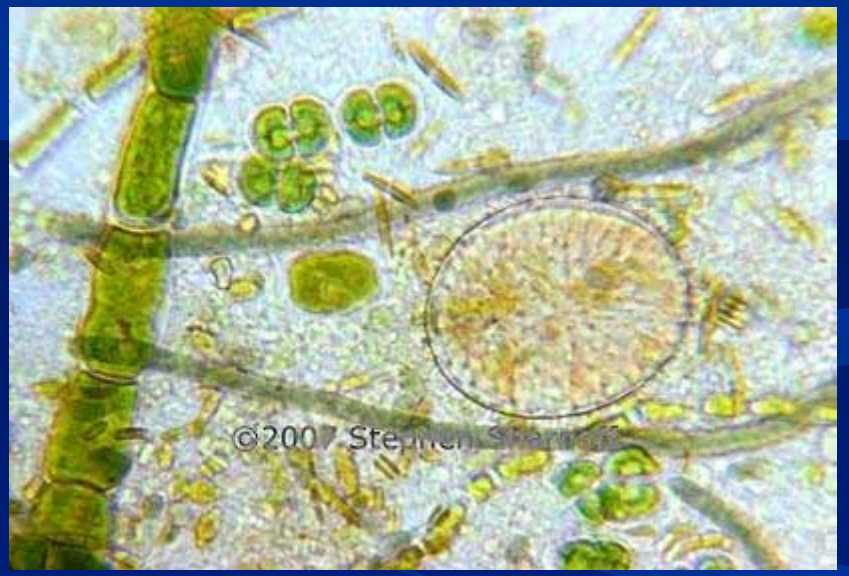
Four species of carp native to Asian countries.

- Silver carp
- Black carp
- Bighead carp
- Grass carp

Food Web Impacts

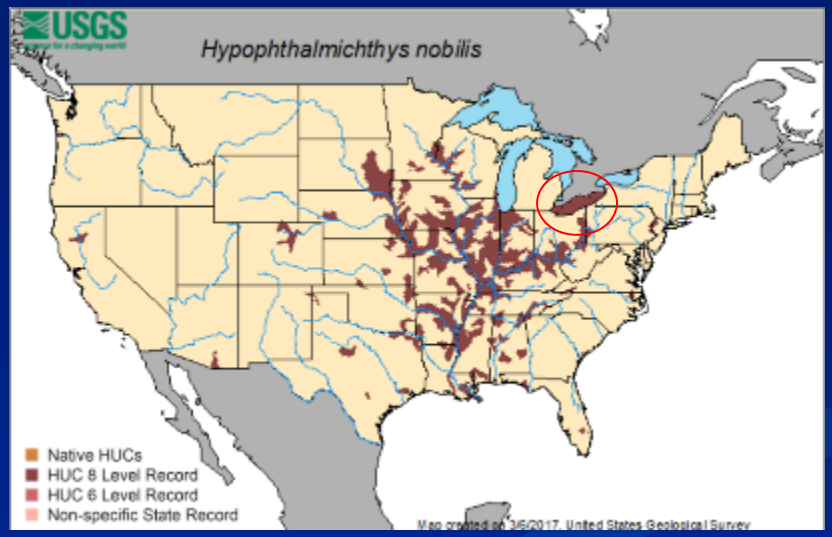
Zooplankton

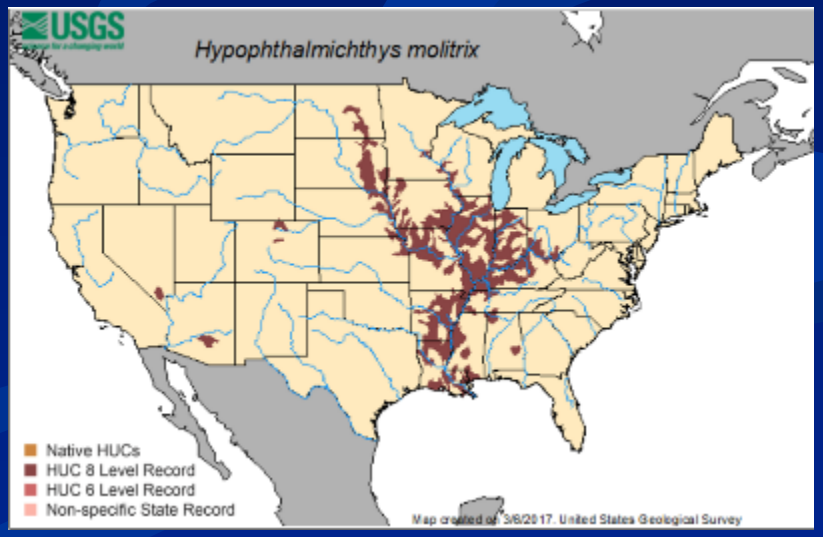
Phytoplankton



Bighead & Silver Carp

- Large bodied (>100 lbs)
- Consume ~40% BW/Day
- Fecund, rapid development (8” in yr 1)
- Can migrate 125 mi/month to spawn

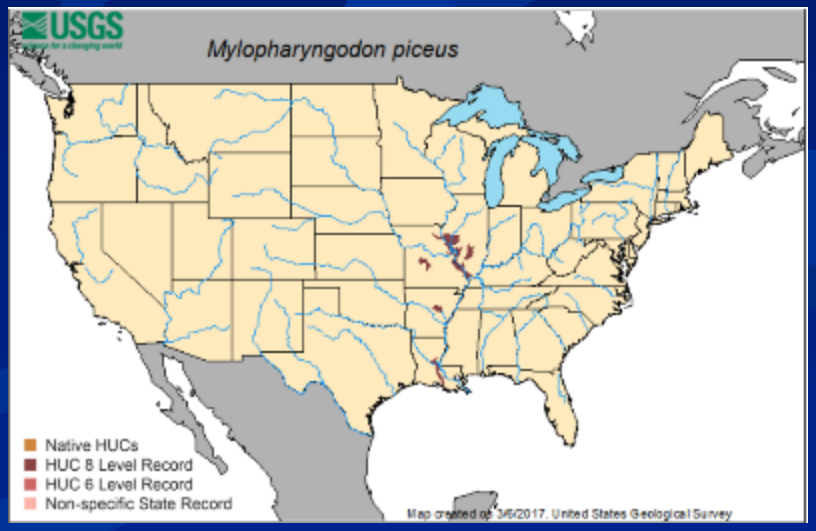




Black carp

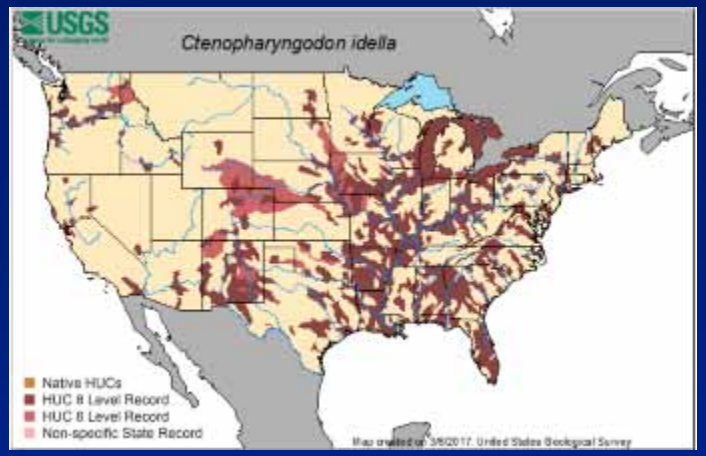
- Consume mussels
- Live 15+ years
- 5 feet long
- 150 pounds

Lisie Kitchel – WDNR mussel ecologist



Grass carp

A single Grass Carp can digest only about half of the approximately 100 lbs. of plant material that it consumes each day. The remaining material is expelled into the water, enriching it and promoting algal blooms (Rose 1972). These blooms can reduce water clarity and decrease oxygen levels (Bain 1993).



Asian Carp Range

How did they get here?

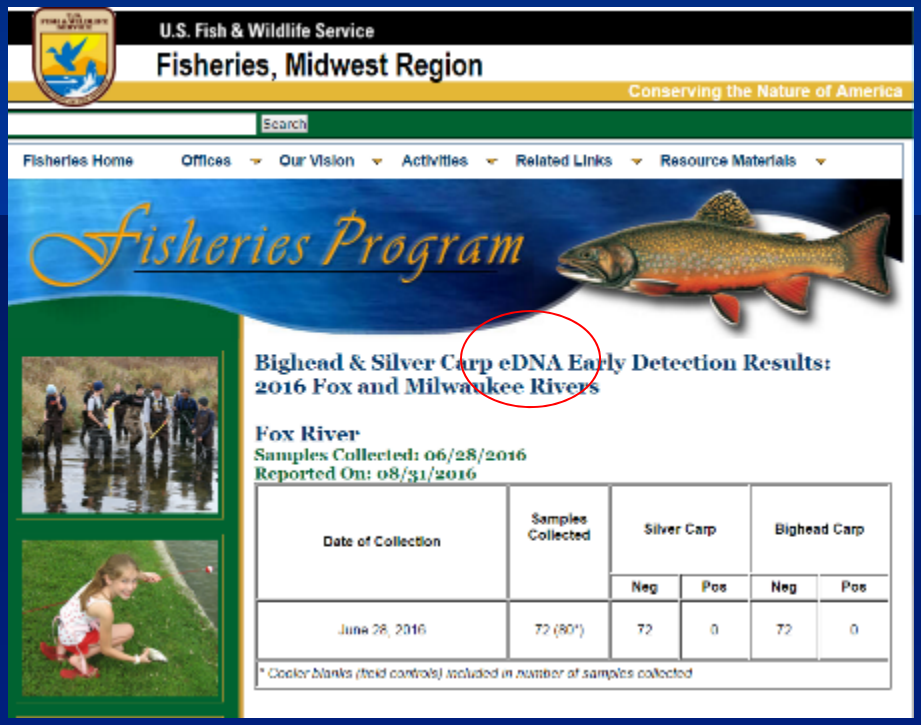
- Silver/Bighead carp
  - They were first brought into the United States in 1973 into Arkansas.
  - By 1980 they were discovered in natural waters.
  - Imported and stocked for phytoplankton control in eutrophic water bodies and also apparently as a food fish.
- Black carp
  - Early 1970s as a "contaminant" in imported grass carp stocks
  - Subsequent introductions of black carp into this country occurred in the early 1980s. It was imported as a food fish and as a biological control agent.
- Grass carp
  - First imported to the United States in 1963 to aquaculture facilities.
  - By the early 1970s there were many reports of Grass Carp captured in the Missouri and Mississippi rivers (Pflieger 1975, 1997).
  - Both authorized and unauthorized stockings of Grass Carp have taken place for biological control of vegetation.

Example of Arkansas Fish Farm

What is being done to stop Asian Carp?

- Asian Carp Regional Coordinating Committee
- 7 US federal agencies and Canada working to stop the spread of Asian carp
  - AIS Monitoring
  - Block Pathways
  - Research for biological controls
  - Permanent solutions

AIS Monitoring



Blocking Pathways

- Canals and Waterways
  - Great Lakes Mississippi River Interbasin Study
  - Wisconsin
    - 4 Medium Risk
    - 4 Low Risk
  - Illinois
    - Chicago Area Waterway System – High Risk

FIGURE N.1 Potential Aquatic Pathway Locations within Focus Area 2

Blocking Pathways

- Canals and Waterways
  - Great Lakes Mississippi River Interbasin Study
  - Wisconsin
    - 4 Medium Risk
    - 4 Low Risk
- Ballast Water

Blocking Pathways

- Canals and Waterways
  - Great Lakes Mississippi River Interbasin Study
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- Ballast Water
- Organisms In Trade

Research for Biological Control

Upper Midwest Environmental Sciences Center

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Aquatic Invasive Species Control

Current Projects

Asian Carp

Application of broadband sound for bigheaded carp deterrence
Principal Investigator: Marybeth Brey

Assessing the properties of DNA degradation in complex environmental water samples
Principal Investigator: Chris Merkes

Assessing the properties of RNA degradation in complex environmental water samples
Principal Investigator: Chris Merkes

Assessment of carbon dioxide as barrier to Bigheaded carp
Principal Investigator: Aaron Cupp

Bioacoustic manipulation of invasive Bigheaded carp
Principal Investigator: Marybeth Brey

Correlating seasonal trends and occupancy of bigheaded carp eDNA to land use and stream characteristics
Principal Investigator: Chris Merkes

Developing a portable LAMP assay for detecting grass and black carp
Principal Investigator: Chris Merkes

Dressenid Mussels

Development of Targeted Delivery Techniques for Zequanox
Principal Investigator: Jim Luoma

The effects of 28-day exposure to elevated C02 on survival, growth and condition of the juvenile life stage of *Lampsilis siliquoidea* and *Lampsilis higginsii* mussels
Principal Investigator: Diane Waller

Efficacy of *Pseudomonas fluorescens*, strain CL145A, SDP (Zequanox®) for controlling Zebra mussels within Lake Minnetonka, MN enclosures
Principal Investigator: Jim Luoma

Evaluation of CO_2 as a dreissenid mussel control tool
Principal Investigator: Diane Waller

Exposure-Related Effects of Zequanox on Lake Sturgeon (*Acipenser fulvescens*) and lake trout (*Salvelinus namaycush*) Survival and Condition
Principal Investigator: Jim Luoma

Temperature-dependent toxicity of molluscicides to zebra mussels
Principal Investigator: Jim Luoma

Permanent Solutions

What is Wisconsin Doing to Prevent the Spread of Asian Carp?

- Worked with other Fed. Agencies and states to develop management plans for Asian carp
- Wisconsin has banned the sale, transport, possession and introduction of bighead, black, grass and silver carp.
- Wisconsin has banned the harvest of baitfish from the Mississippi River and its tributaries to avoid spreading fish disease and having young Asian carp, which resemble popular bait species, from being taken to another water for use as bait.
- Wisconsin has an extensive outreach and education program and a network of paid and volunteer watercraft inspectors to help raise awareness of invasive species and help ensure boaters and anglers take steps to prevent spreading aquatic invasive species.

From Asian Carp to Round Goby

Round Goby

- Introduced into the Great Lakes from the Black Sea via freighter ballast. Spread to Lake Superior by freighters operating within the Great Lakes.

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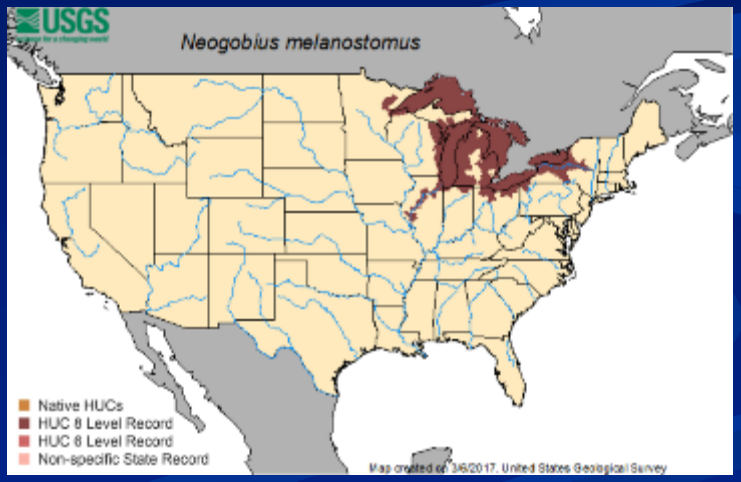
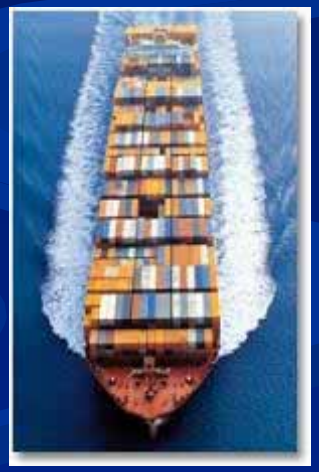
- What's the impact?

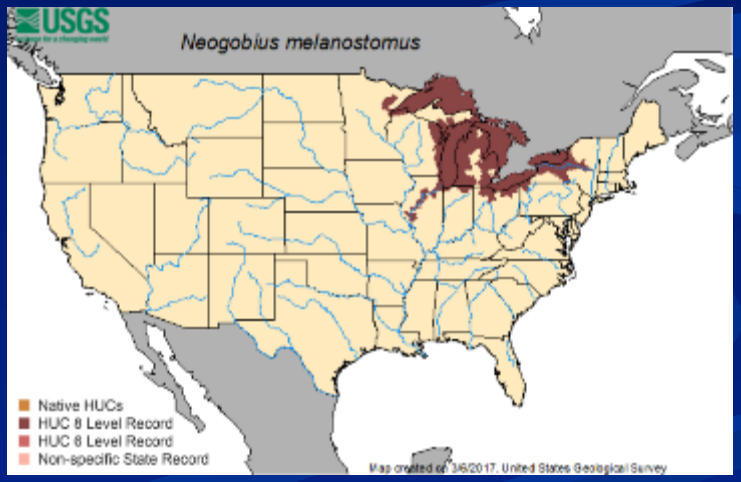


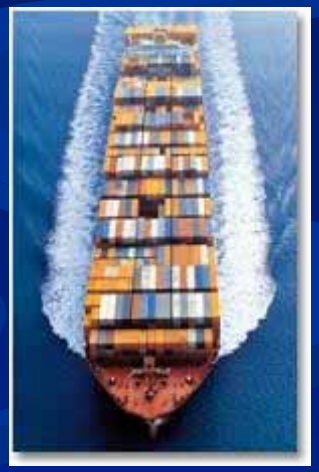


Current distribution of Round Goby.

Round Goby

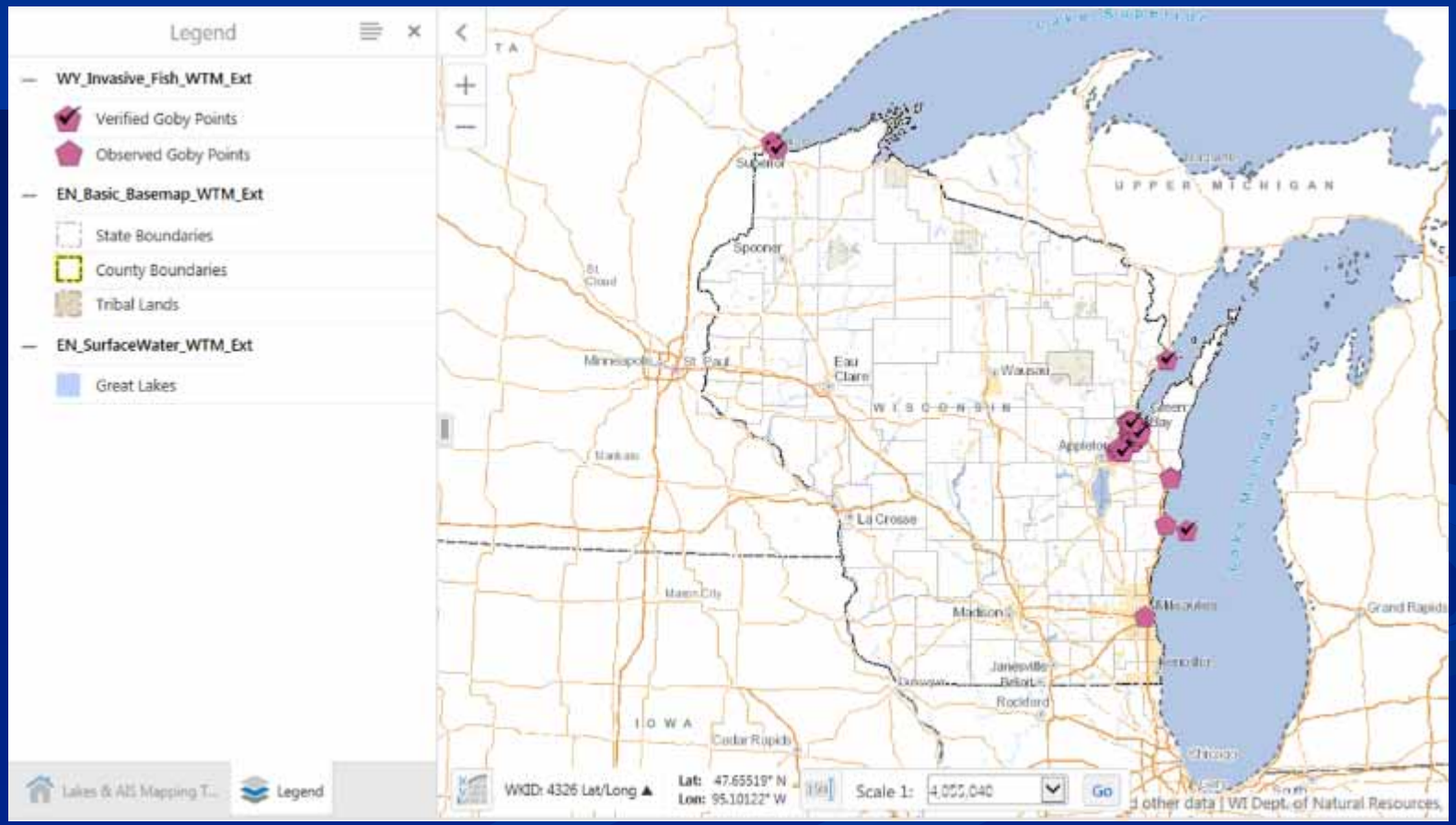
- Introduced into the Great Lakes from the Black Sea via freighter ballast. Spread to Lake Superior by freighters operating within the Great Lakes.
- The State of Ohio has shut down the smallmouth bass fishery in Lake Erie during the months of May and June. The reason is that high predation rates on nests are affecting smallmouth recruitment.
- Round Goby introductions may also be a vector for the spread of avian botulism.



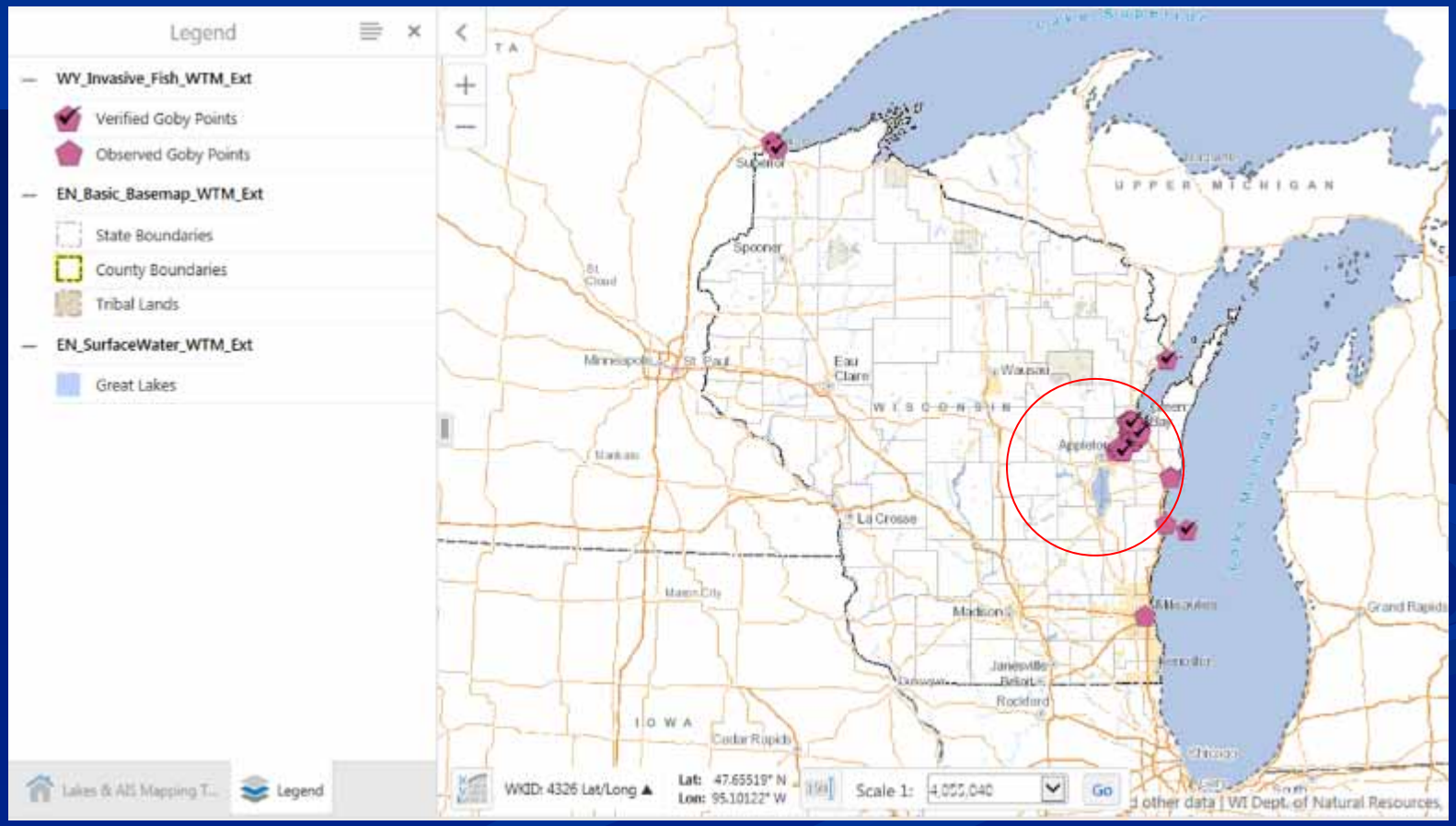


Current distribution of Round Goby.

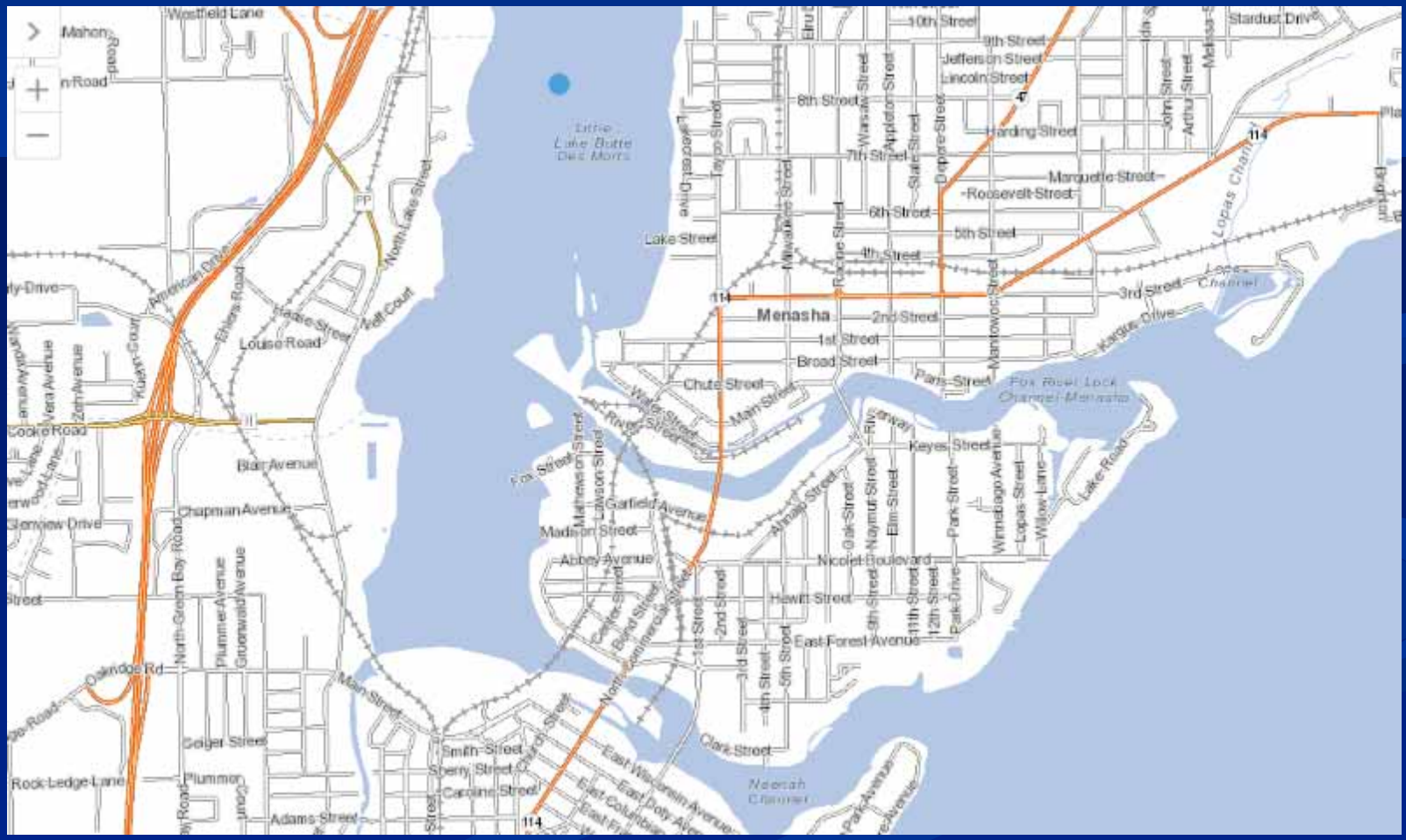
Distribution of Round Goby in Wisconsin



Distribution of Round Goby in Wisconsin



Round Goby
Knocking on Lake Winnebago



Round Goby
Knocking on Lake Winnebago

What is Wisconsin Doing to Stop the Round Goby?

- Wisconsin has banned the sale, transport, possession and introduction of Round Goby.
- Working with the US Geological Survey to develop an early detection sampling technique that will enable the Department to respond faster to inland detections (eDNA).
- Wisconsin has an extensive outreach and education program and a network of paid and volunteer watercraft inspectors to help raise awareness of invasive species and help ensure boaters and anglers take steps to prevent spreading aquatic invasive species.

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