Informal AIS Learning Session
"In the Field"

August 15th – Brainerd
August 22nd – Plymouth
DNR Invasive Species Staff





Goals & Agenda

Goals

- Get to know the basics through informational presentations
- Share your county's work
- Discuss successes, challenges, and future directions of your county's work

Agenda Overview

- AIS Identification
- Sharing Your Monitoring Work
- EDDMapS
- Planning Response to New Infestations
- Sharing Your Response Planning Work
- Q&A on DNR's Role in Responding to New Infestations

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Aquatic Invasive Species: Methods for Identification & Detection

Definition of Aquatic Invasive Species

Minnesota Statute 84D, Subd. 9a. Invasive species.

"Invasive species" means a nonnative species that:

(1) causes or may cause economic or environmental harm or harm to human health; or

(2) threatens or may threaten natural resources or the use of natural resources in the state.

Why Do Minnesotans Care?

Simply put, invasive species impact our:

Carry diseases that kill wildlife

Crowd out native species

ENVIRONMENT

Kill native species

Damage infrastructure

High cost for control

ECONOMY

Negatively impact fisheries

Decrease lakefront property values

Affect human health

Foul gear

SOCIETY

Impede recreation

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Species of Concern

- General Biology, Impacts, and Means of Spread
- What Can I Do?
- Identification: Invasives vs. Native Look-a-likes

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Species of Concern Covered Today

- Aquatic Plants
  - Eurasian Watermilfoil
  - Curly Leaf Pondweed
  - Starry Stonewort
  - Purple Loosestrife
- Invertebrates (Animals)
  - Zebra mussels
  - Invasive snails
    - Brief overview, typically need an expert to ID them

General Biology, Impacts & Means of Spread

- Lack natural enemies
- Reproduce rapidly and often

- Crowd out native species
- Provide poor habitat and/or food source for native species
- Change ecosystem function

- Impact use of natural resources
- Impedes recreation
- Impacts human health
- Costly to control
- Nearly impossible to completely eradicate once established

- Attach to water-related equipment moved by humans
- Can survive out of water for days, sometimes weeks in wet conditions (zebra mussels).

What Can I Do?

1. Know the **biology and identification** of invasive species, and thus in turn know how to better prevent their spread and establishment.
2. Know the presence of an invasive species is **not the end of the world**, but it often permanently changes how communities use and enjoy the resource.
3. Help your community protect their waters by taking these actions to **prevent the spread**:
   - **Clean** and **Drain** all water-related equipment,
   - **Dispose** of bait in the trash, and
   - **Dry** docks, lifts, rafts, and associated equipment **for 21 days** before moving to another waterbody.
4. Dispel false perceptions: **invasive species are NOT "everywhere"**

95% of Minnesota lakes are not on the infested waters list

Less than 2% of Minnesota lakes have zebra mussels

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Not Everything is a "weed": Native Aquatic Plants

Native aquatic plants are a vital part of a healthy lake ecosystem.

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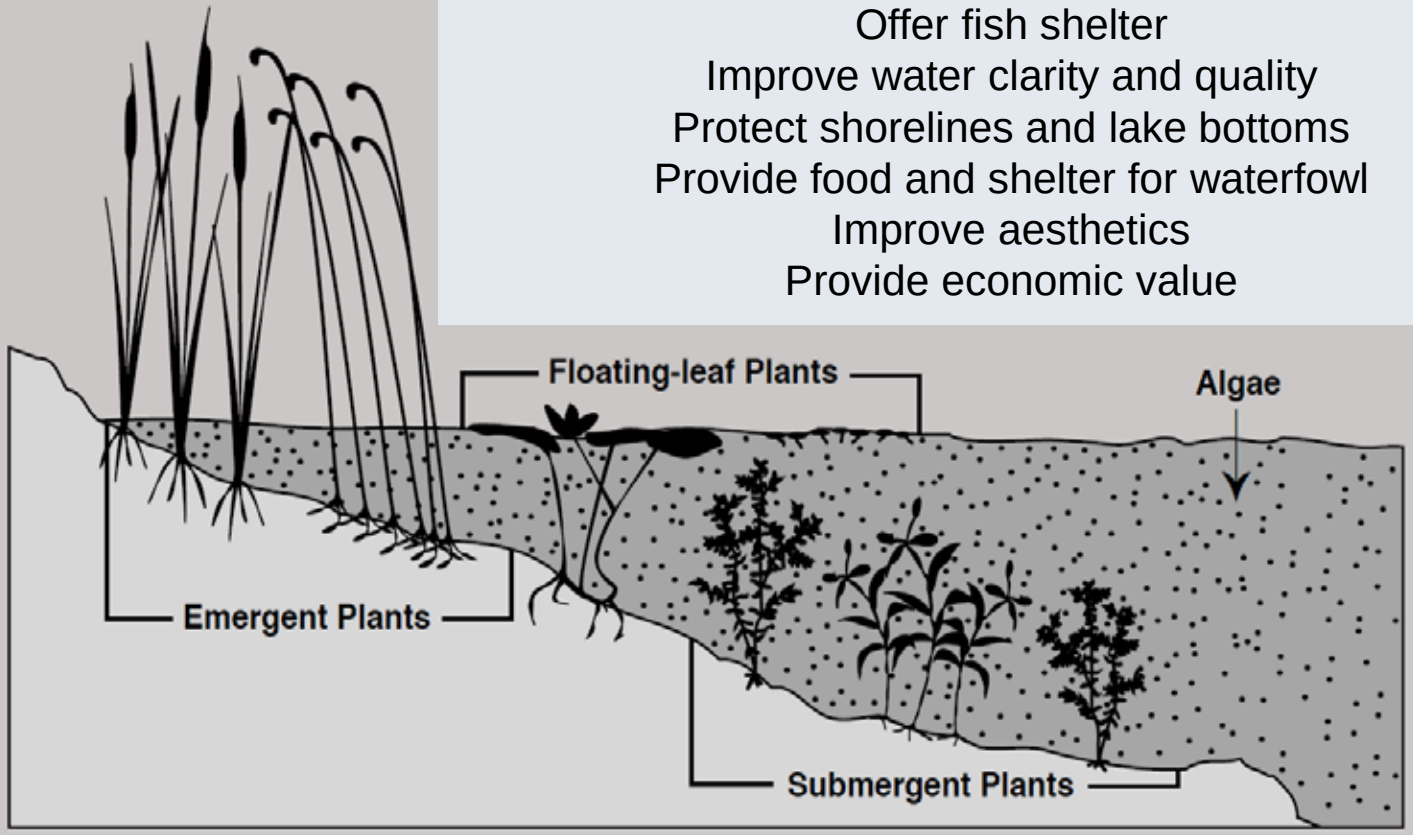
Native Aquatic Plants:
A vital part of a healthy lake ecosystem

Native aquatic plants serve many important functions:

Provide fish food
Offer fish shelter
Improve water clarity and quality
Protect shorelines and lake bottoms
Provide food and shelter for waterfowl
Improve aesthetics
Provide economic value



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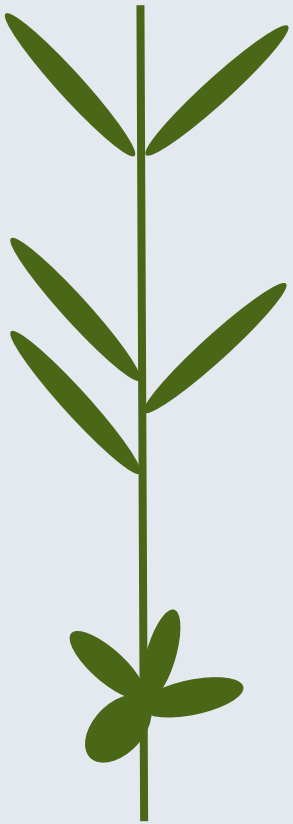
The Basics of Aquatic Plant Identification

Leaf arrangement on stem



Opposite

Alternate

Whorled

Leaves and leaflets

Serrated (sawblade)

Whorl

Leaf

Leaflet

Leaflet pair

Reproductive structures

Flower spike

Turion

Bulbil

Tuber, Rhizome, Root

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Eurasian Watermilfoil

Photo: University of Wisconsin - Extension

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Northern Watermilfoil

Photo: University of Wisconsin - Extension

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Curly Leaf Pondweed

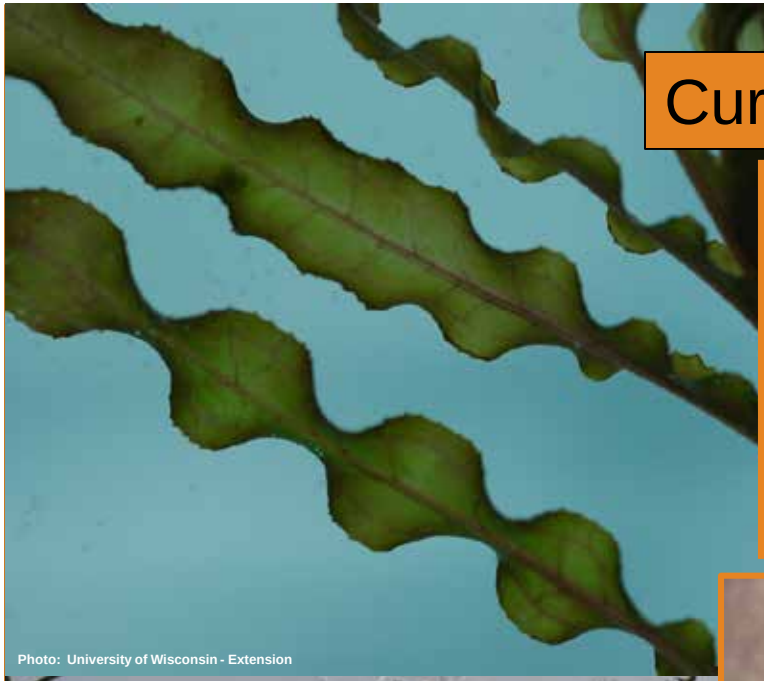

Photo: University of Wisconsin - Extension

Photo: University of Wisconsin - Extension

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Clasping Leaf and White Stem Pondweed

Native

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Starry Stonewort

Invasive

Photo: Paul Skawinski

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Native Macro-Algae (*Chara* and *Nitella* spp.)

Photo: Paul Skawinski

Native

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Starry Stonewort vs. Native Look-a-Likes

Starry Stonewort

Native Macro-Algae

Photos: Paul Skawinski

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Purple Loosestrife

Photos: University of Wisconsin - Extension

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Zebra Mussels

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Native Mussels

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Invasive Snails

Faucet Snails

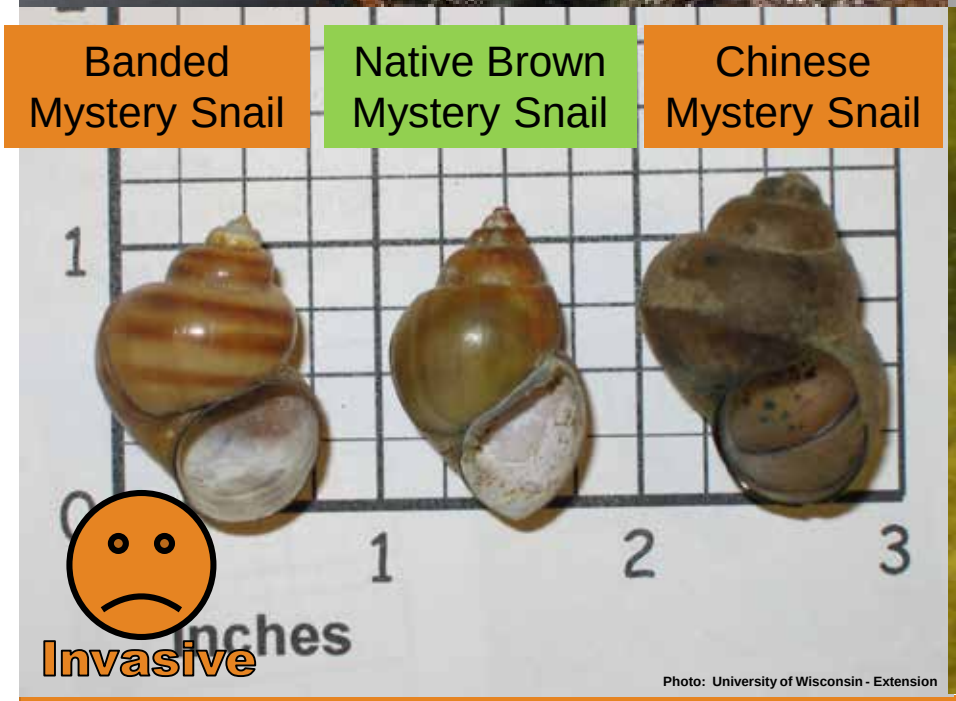
New Zealand Mudsnails

Photo: Laura McFarland

Banded Mystery Snail

Native Brown Mystery Snail

Chinese Mystery Snail



Invasive

Photo: University of Wisconsin - Extension

Mystery Snails

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POP QUIZ!

NATIVE OR INVASIVE?

Native (Coontail), but with attached invasive zebra mussels

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Photo: University of Wisconsin - Extension

Invasive (Curly Leaf Pondweed), with attached invasive zebra mussels

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Invasive (Starry Stonewort)

Native (Northern Watermilfoil)

Native (Clasping Leaf Pondweed)

Left: Invasive (Eurasian Watermilfoil) Right: Native (Coontail)

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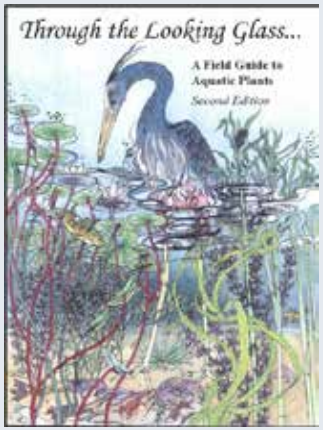
Know What You Are Looking For: Identification Resources

- Online resources: www.mndnr.gov/ais
- DNR publications, contact: AISpublications.dnr@state.mn.us
- University of Minnesota Sea Grant publications
- WATCH Cards
- Factsheets
- Identification guides and books



Know How to Report New Infestations

If you suspect a new infestation of an aquatic invasive plant or animal:

1. Note the exact location (GPS point, lake, county, nearest city)
2. Take a photo or keep the specimen
   - Clear photos with all parts of the plant/animal, include item for scale
   - Place specimen in tightly sealed plastic bag/container with small amount of water – you may transport directly to a MN DNR office for identification
3. Contact the **DNR Invasive Species Specialist** in your region.
4. Optional: Report it in EDDMapS

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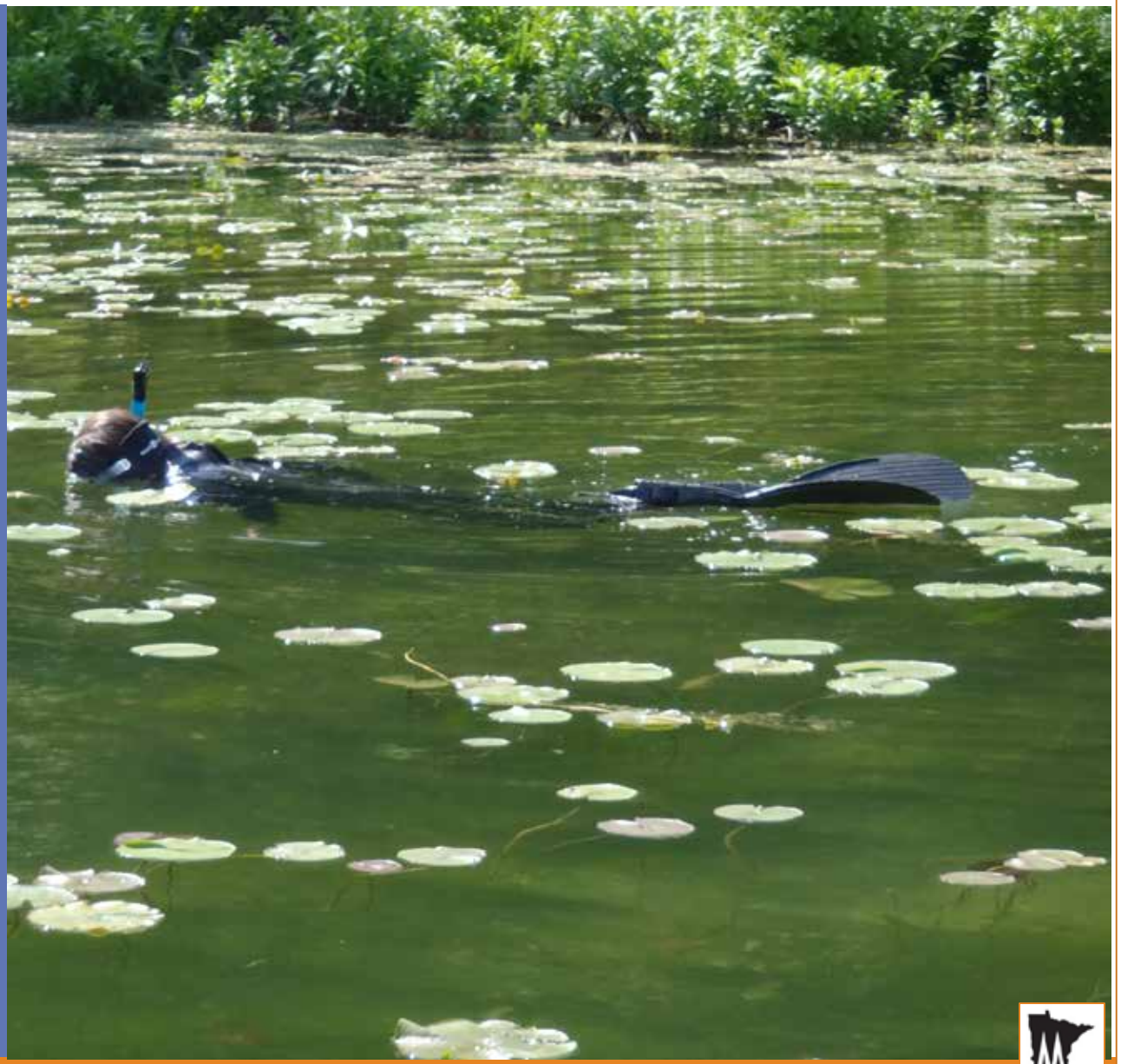
BREAK

Look at AIS specimens (epoxy and live samples)

Gather ID cards and factsheets

Guidance for Conducting AIS Early Detection and Baseline Monitoring in Lakes



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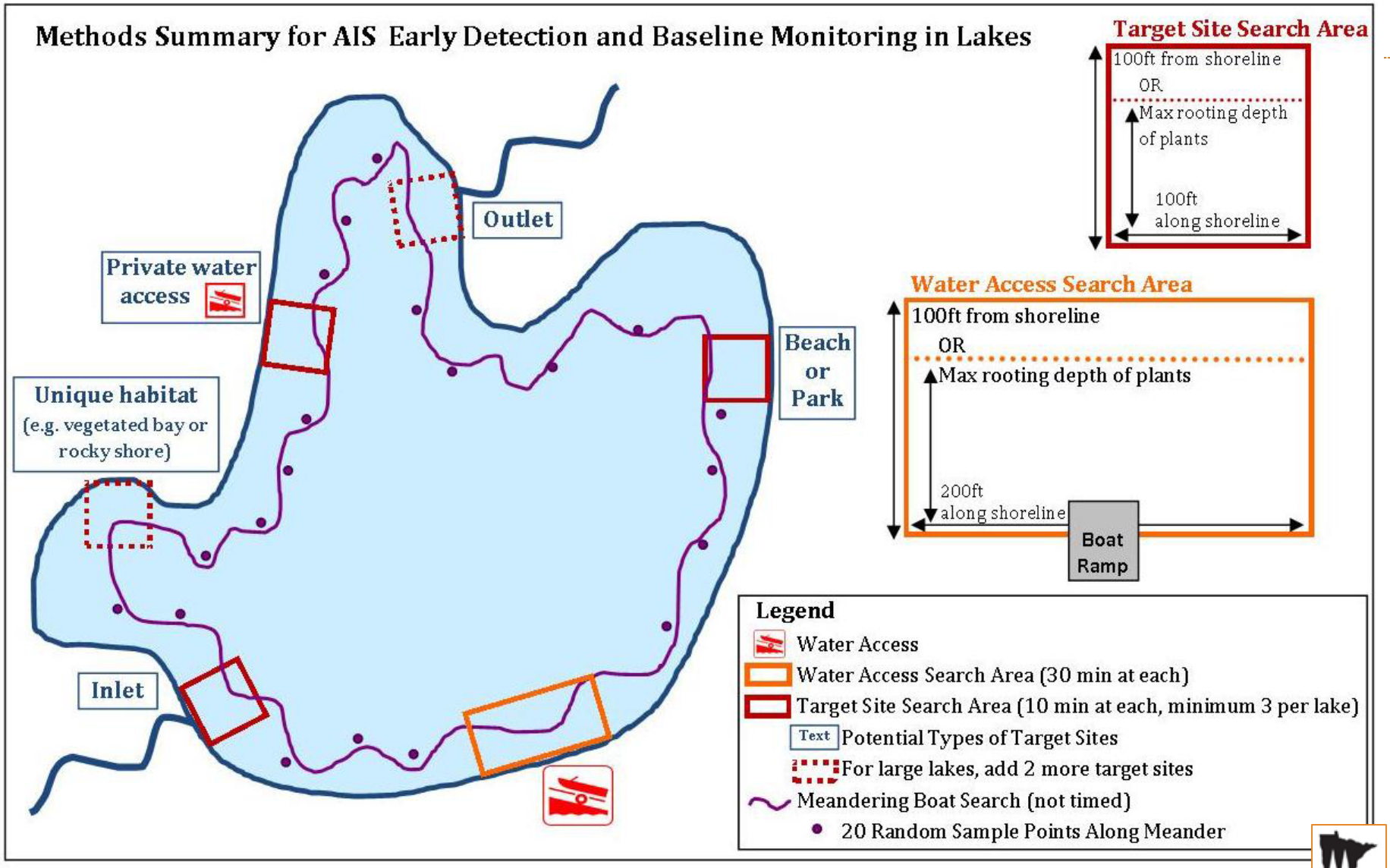
Overview of Methods



Know What Equipment You Need

- Equipment
  - Double sided rake
  - D-net
  - Snorkel equipment (depending on water clarity)
  - Waders
  - Watercraft
  - GPS unit
  - Identification resources
- Areas of focus
  - Water accesses
  - Unique habitat features / high use or disturbed areas
  - Littoral zone (area from shore to about 15ft of water depth)

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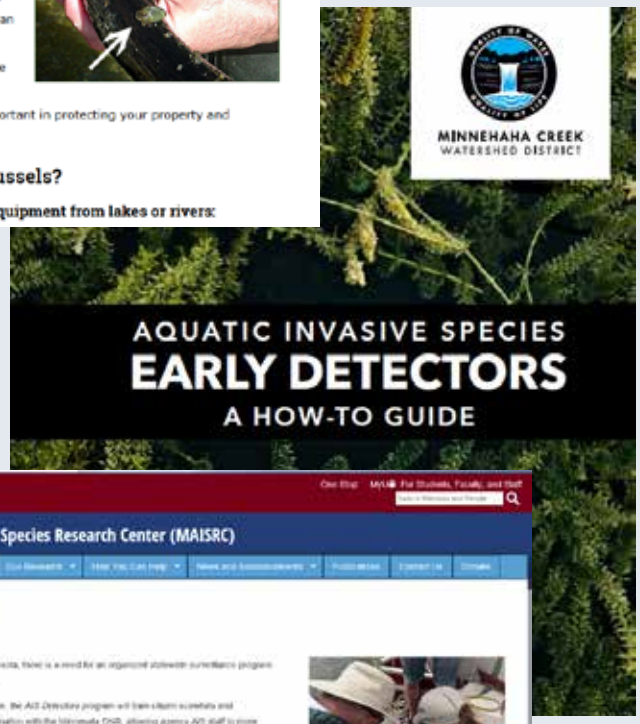
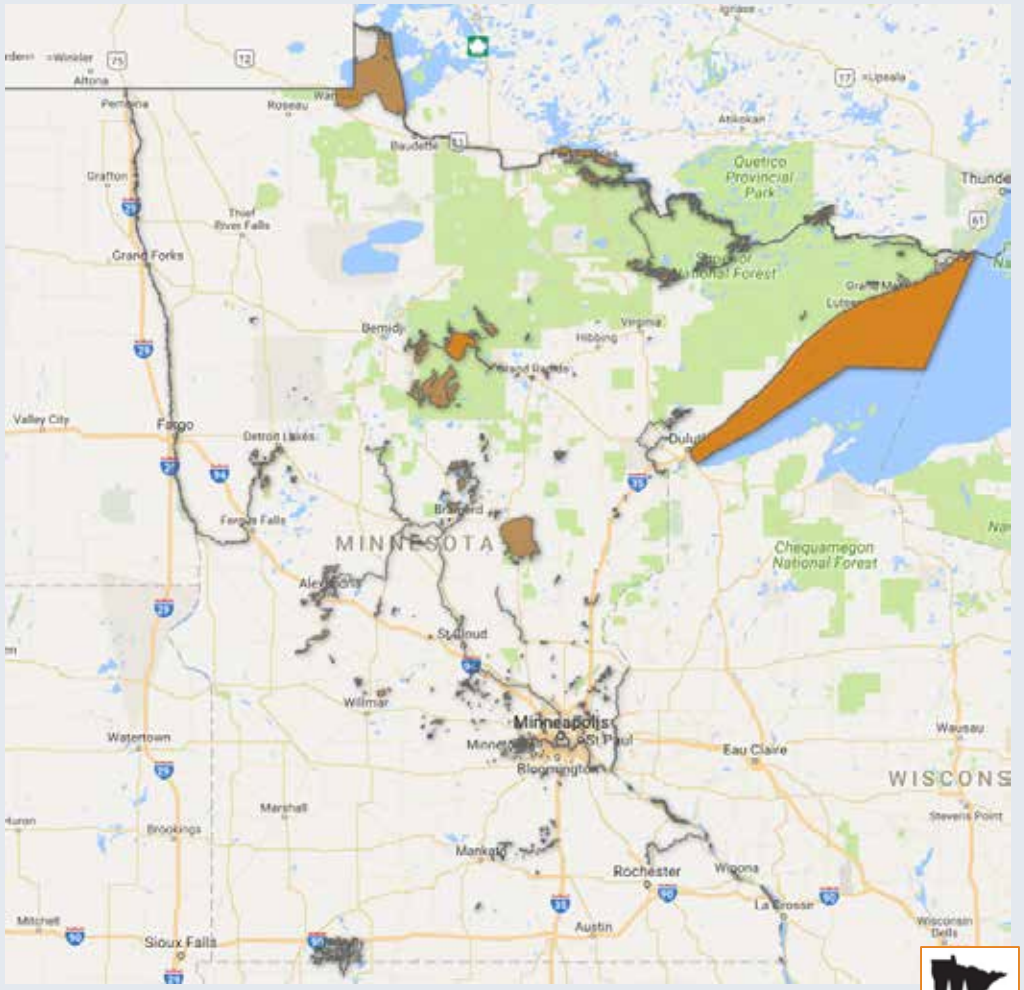
More AIS Monitoring Resources

- Statewide
  - MN DNR Zebra Mussel Monitoring Program
  - AIS Detectors & Trackers
    - Sign up here to receive updates
- Local Examples
  - AIS Early Detectors – A How to Guide (Minnehaha Creek Watershed District)
  - Aquatic Invasive Species Sentry Program (St. Louis River Alliance)



Know Your Area:
Invasive Species Location Information

- DNR Infested Waters List & Map
  - http://www.dnr.state.mn.us/invasives/ais/infested.html
- EDDMapS Midwest:
  - https://www.eddmaps.org/midwest/
  - Includes new reporting application



Know How to Plan Your Work

- Move from un-infested waters to infested waters
- Move upstream to downstream
- If possible, dry gear for 5 days (especially after zebra mussel waters)
- Schedule time for decontamination / best management practices

- Best management practices in a nutshell:

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Know How to Prevent the Spread

Legal Requirements:

CLEAN

aquatic plants and animals from watercraft and water-related equipment.

DRAIN

all water by removing drain plugs, and keep drain plugs out while transporting watercraft.

DISPOSE

of unwanted bait in the trash.

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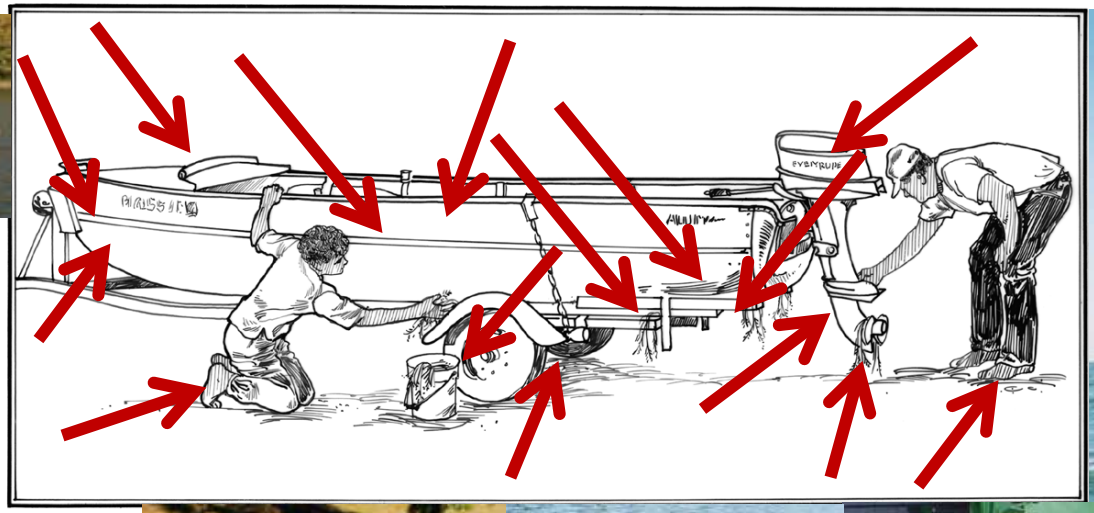

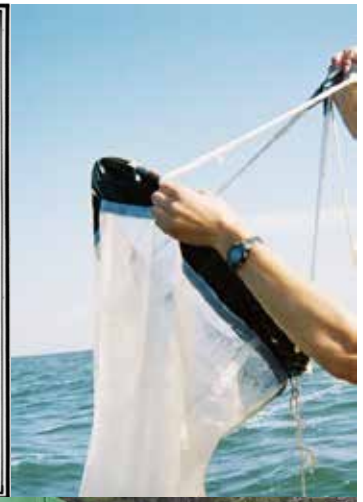

Clean off ALL:

- Vegetation
- Mud/sand
- Organic matter
- Seeds

from trailer, watercraft, anchor, and gear (boots, nets, wetsuits, etc)

Recommended:
Spray, Rinse, Dry

Drain ALL water from:

- Bilge / live well
- Sampling gear /containers
- Nets

and leave plugs out during transport

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Now You Know

- Invasive species threaten Minnesota's ecology, economy, and society.
- The basics to invasive species biology and identification.
- The difference between native "look-a-like" species and invasive species.
- The presence of an invasive species is not the end of the world, but it often permanently changes how communities use and enjoy the resource.
- Communities can protect their waters by taking action to prevent the spread.
  - Cleaning and draining all water-related equipment,
  - Disposing of bait in the trash, and
  - Drying docks, lifts, and swim rafts for 21 days before moving to another waterbody.
- You don't need to reinvent the wheel – protocols already exist
- To practice "clean in, clean out" – make sure ALL of your field gear is clean before and after each waterbody.

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THANK YOU!

QUESTIONS?

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