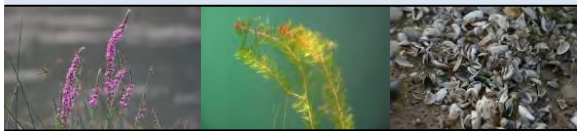
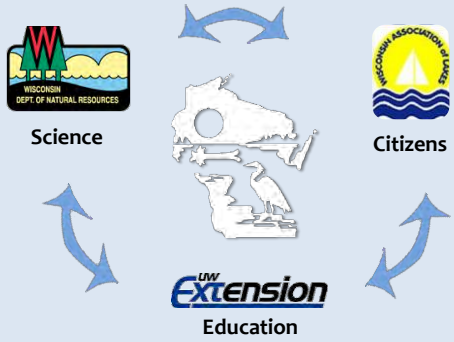
Appendix A: Clean Boats, Clean Waters

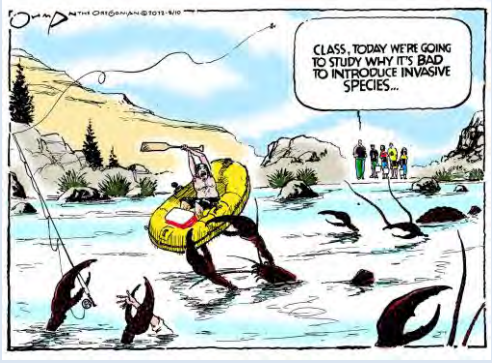
Clean Boats, Clean Waters

Watercraft Inspection Program, 2014



Wisconsin Lakes Partnership





Wisconsin: A Gathering of Waters

- 11,190 square miles of water
- 15,081 lakes
- 43,000 miles of rivers and streams
- 5.3 million acres of wetlands
- 6.4 million acres of Great Lakes
- Estimated 1 million boats on waters each year!

Polk County: A Gathering of Waters

- 42 square miles of water
- 437 lakes
- 365 miles of rivers and streams
- 21,000 acres of wetlands

What are Invasive Species?

- Non-native species that can "take over"
- Not all non-native species are invasive
- Successful because:
  - No natural predators, parasites, etc.
  - Native species can't hide, compete, or fight back
  - Often aggressive, prolific, and mature early

How do they get here?

- Shipping - ballast water
- Intentional introduction - stocking
- Canals - migration from the ocean
- Nursery industry
- Anglers/Bait industry
- Aquaculture
- Aquarium trade

How do they spread?

- Boaters
- Anglers
- Other water users (sea planes, SCUBA, etc)
- Water garden & aquarium owners
- Natural dispersal

Why do we care?

- Economic impacts
  - Sport and commercial fishing
  - Tourism
  - Water users & property owners
- Ecological
  - Native fish, invertebrates, plants impacted
- Recreational impacts
  - Boating
  - Angling

Zebra Mussels

- Ballast water introduction to the Great Lakes in 1980's
- Present in 163 waterbodies (April 2014)
- Attach to any hard surface - may reach tens of thousands per square meter!
- Are microscopic in early life stages
- Female can produce 1 million eggs/season

Zebra Mussel Distribution

Zebra Mussel Distribution

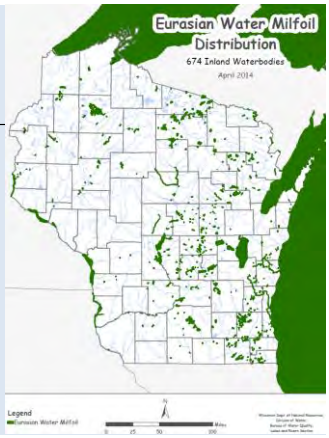
0 Polk County Waterbodies

3 St. Croix County Waterbodies: Bass Lake, Bass Lake, and Lake St. Croix

Eurasian Water-milfoil

- First found in WI in 1960s
- Currently found in 674 waterbodies (April 2014)
- Forms dense mats - interferes with water recreation
- Can spread from small fragments

Eurasian Water-milfoil Distribution



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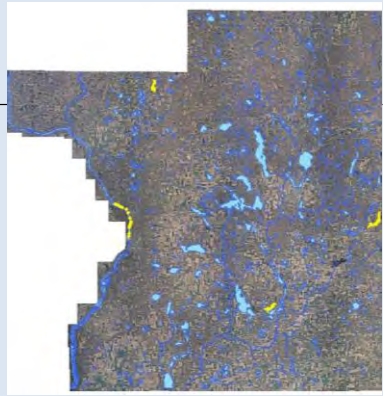
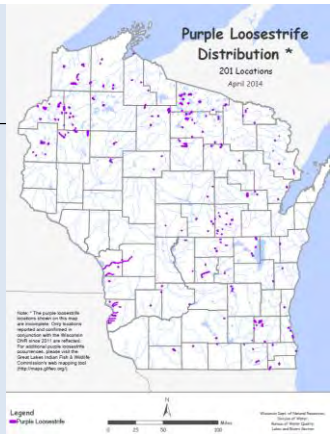


Purple Loosestrife

- Imported from Europe for gardens (late 1800s), also seeds in ballast water
- Crowds out native wetland species
- Spreads rapidly: >1 million seeds annually, plus vegetative spread

Purple Loosestrife Distribution



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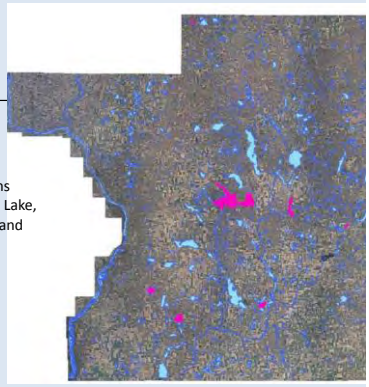


Purple Loosestrife

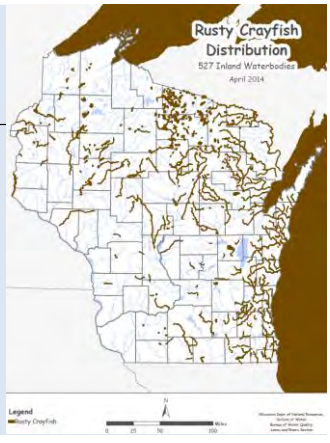
- Raise Galerucella beetles

Rusty Crayfish

ID tip: Dark, rusty spot on each side of carapace.

- Brought to WI as bait 1960's
- In 527 waterbodies (April 2014)
- Severely reduce aquatic vegetation, impacting spawning
- Aggressive; compete with native crayfish and fish for cover and food

Rusty Crayfish Distribution



Rusty Crayfish Distribution

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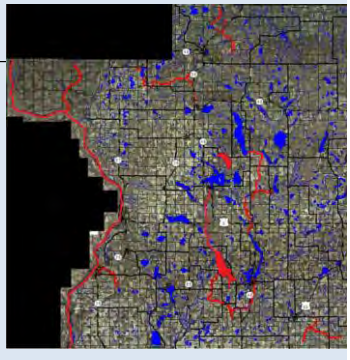
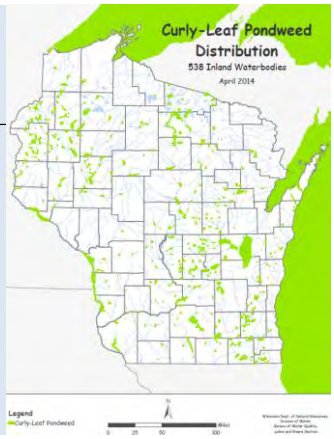


Curly-leaf Pondweed

- Accidentally introduced as aquarium plant (1880s)
- Fairly widespread – in 538 waterbodies (April 2014)
- Active very early in growing season – even under ice
- Can form dense mats, interfering with recreation and native plants

Curly-leaf Pondweed Distribution



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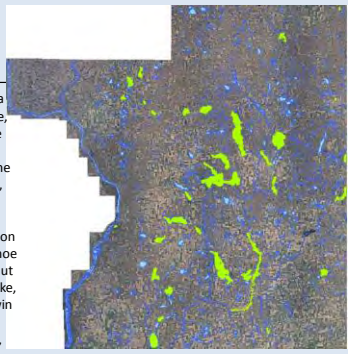


Spiny Waterfleas

- Ballast water introduction to Great Lakes in 1980s
- Found in 11 lakes & rivers
- Disrupt food chain & harm native fish
- Foul fishing gear—form gummy clumps

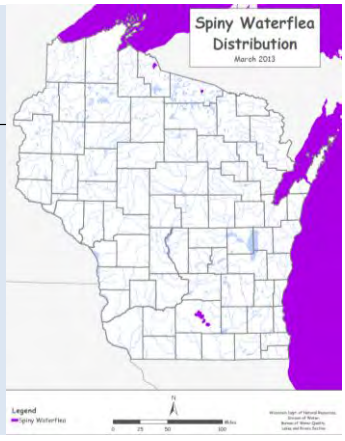
Spiny Waterflea Distribution

Lake Superior & Lake Michigan

Iron County
Gile Flowage

Vilas County
Stormy Lake

Dane County
Lake Medonta
Lake Monona
Lake Waubesa
Lake Kegonsa



Viral Hemorrhagic Septicemia

- Documented in Lake Michigan, Lake Superior, & Winnebago System
- Can kill more than 25 fish species
- No danger to humans
- Introduced by ballast water or migrating fish - ?

Viral Hemorrhagic Septicemia

Transmission:

- Virus shed in urine & reproductive fluids

The Disease:

- Start shedding virus 2 days after infected
- Antibodies can be developed by fish
- Fish may or may not show clinical signs of virus
- Stress is important

Signs of virus:
- Pop-eye
- Anemia
- Swollen organs

Wisconsin's AIS Program

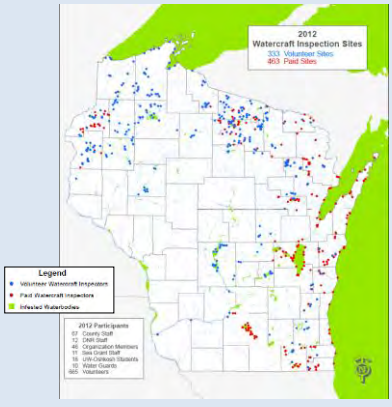
Prevent introduction and limit the spread of aquatic invasive species

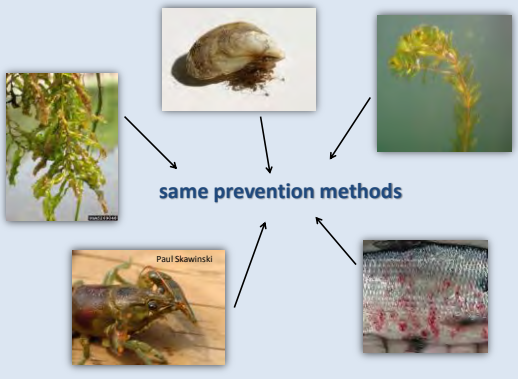
Program Goals

- Focus on containment
- Increase AIS awareness & responsible behaviors
- Strengthen partnerships

AIS Program Elements

- Education & Outreach
- Watercraft Inspection
- Citizen Lake Monitoring
- Purple Loosestrife Biological Control
- Aquatic Invasive Species Grants
- Research
- Rules to Prevent Spread





AIS Prevention Message

- **INSPECT** boats, trailers, and equipment.
- **REMOVE** all attached aquatic plants and animals.
- **DRAIN** all water from boats, vehicles, and equipment.
- **NEVER MOVE** plants or live fish away from a waterbody.
- **BUY** minnows from a WI bait dealer. Use leftover minnows only under certain conditions.

Current AIS Regulations

- **NR 40**
  - Classification of invasives into two categories: Prohibited or Restricted
  - Preventive measures required
    - INSPECT
    - REMOVE
    - DRAIN
    - NEVER MOVE

Current AIS Regulations (cont'd)

- **VHS regulations**
  - All water must be drained from boats and equipment – up to 2 gal may be used for minnows.
  - You may take leftover minnows away from any state water and use them again on that same water, or on other waters, but only if no lake or river water, or other fish were added to their container.
  - You may not transport any live fish or fish eggs away from any state waters.

Clean Boats, Clean Waters

- Trains volunteers, citizens, and staff to conduct boater education campaigns in their communities
- Over 2,500 people trained since 2004

Recruiting Volunteers

- Commit volunteers with: newsletters, phone call, personal visits
- Develop a recruiting/training packet
- Appoint a coordinator to schedule and organize volunteer hours
- Select optimum days and high use landing sites

Manitowoc Co. Lakes Council

Retaining Volunteers

- Generous thank-you!
- Offer supplies
  - T-shirt & hat
  - Water
  - Sun tan lotion
  - Bug spray
- Publish volunteer names
- Advertise accomplishments
- Awards and certificates
- Celebrate!

Waupaca Chain Of Lakes

Materials Needed

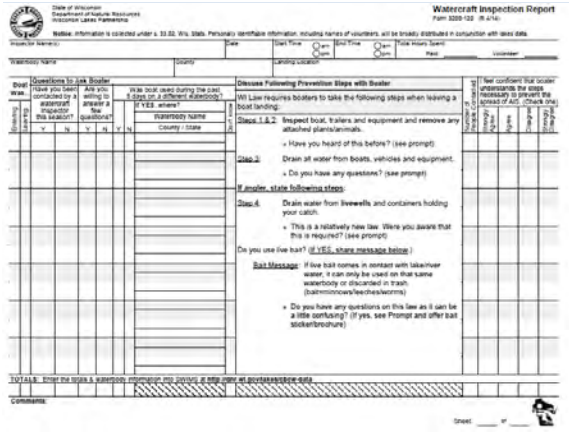
- ✓ CBCW T-shirt or sticker
- ✓ Clipboard & pencil
- ✓ Boat landing script
- ✓ Watercraft Inspection form & Check Point List
- ✓ Tool kit
- ✓ List of lakes identified with AIS
- ✓ Plastic bags & marker
- ✓ Cell phone & local contacts
- ✓ Camera and Violation form

Getting Started: Inspector Duties

- Inform and educate boaters
- Perform watercraft inspections
- Collect and report watercraft data

Boat Landing Message

- Discuss the AIS preventive actions (which are now law)
  - Inspect
  - Remove
  - Drain
  - Never move
- Perform a watercraft check – Involve boater!
- Offer a SAH sticker - commitment and prompt



State of Wisconsin
Department of Natural Resources
Wisconsin Lakes Partnership

Watercraft Inspection Report
Form 3200-123 (R 4/14)

Notice: Information is collected under s. 33.02, Wis. Stats. Personally identifiable information, including names of volunteers, will be broadly distributed in conjunction with lakes data.

Inspector Name(s): | Date: | Start Time: ☐ am ☐ pm | End Time: ☐ am ☐ pm | Total Hours Spent: | Paid: | Volunteer:

Waterbody Name | County | Landing Location

Boat was: Launching	Leaving	Questions to ask Boater: Have you been contacted by a watercraft inspector this season? Y	N	Are you willing to answer a few questions? Y	N	Was boat used during the past 5 days on a different waterbody? Y	N	If YES, where? Waterbody Name / County / State	Discuss Following Prevention Steps with Boater: Will Law requires boaters to take the following steps when leaving a boat landing:	Feel confident that boater understands the steps necessary to prevent the spread of AIS. (Check one) Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
									Steps 1 & 2: Inspect boat, trailers and equipment and remove any attached plants/animals. • Have you heard of this before? (see prompt) Step 3: Drain all water from boats, vehicles and equipment. • Do you have any questions? (see prompt) If angler, state following steps: Step 4: Drain water from livewells and containers holding your catch. • This is a relatively new law. Were you aware that this is required? (see prompt) Do you use live bait? (if YES, share message below.) Bait Message: If live bait comes in contact with lake/river water, it can only be used on that same waterbody or discarded in trash. (bait=minnows/leeches/worms) • Do you have any questions on this law as it can be a little confusing? (If yes, see Prompt and offer bait sticker/brochure)					

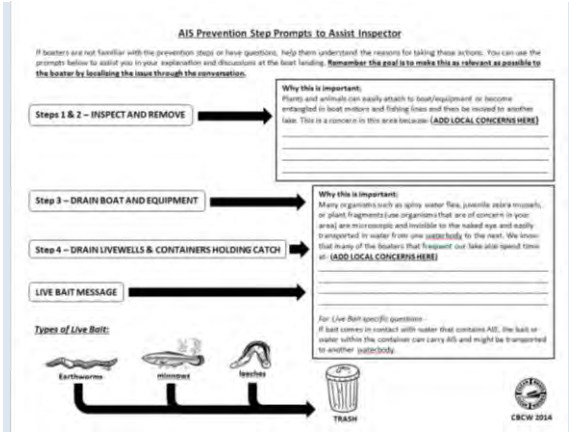
TOTALS: Enter the totals & waterbody information into Dnrinfo at http://dnr.wi.gov/lakes/apm/data

Comments:

Sheet ____ of ____

New Prompts Handout

- Resource for inspector
  - Reminder of why steps important
  - Leads to discussion rather than just information
  - Local concerns addressed
- Diagram layout simple & easy to read
- Quick visual reminder for live bait



AIS Prevention Step Prompts to Assist Inspector

If boaters are not familiar with the prevention steps or have questions, help them understand the reasons for taking these actions. You can use the prompts below to assist you in your explanation and discussions at the boat landing. **Remember the goal is to make this as relevant as possible to the boater by localizing the issue through the conversation.**

Steps 1 & 2 – INSPECT AND REMOVE

Why this is important:
Plants and animals can easily attach to boat/equipment or become entangled in boat motors and fishing lines and then be moved to another lake. This is a concern in this area because **(ADD LOCAL CONCERNS HERE)**

Step 3 – DRAIN BOAT AND EQUIPMENT

Step 4 – DRAIN LIVEWELLS & CONTAINERS HOLDING CATCH

Why this is important:
Many organisms such as spiny water flea, juvenile zebra mussels, or plant fragments (use organisms that are of concern in your area) are microscopic and invisible to the naked eye and easily transported in water from one waterbody to the next. We know that many of the boaters that frequent our lake also spend time at **(ADD LOCAL CONCERNS HERE)**

LIVE BAIT MESSAGE

For Live Bait specific questions:
If bait comes in contact with water that contains AIS, the bait or water within the container can carry AIS and might be transported to another waterbody.

Types of Live Bait:

Earthworms | Minnows | Leeches

TRASH

CBCW 2014

Collecting Data

Efforts for 2013:
114,959 boat inspections
249,027 people contacted
69,691 hours spent

- Determine traveling patterns of recreational users
- Useful data for lake planning grants, local ordinance reviews

Handling a Violation

Do your homework beforehand…

How to Change Boater Behavior

- Educational materials
- Prompts (decals, stickers)
- Personal contacts
- Modeling behavior
- Social diffusion

Steps for an Effective Watercraft Inspection Program

- Determine boat landing ownership & have up-to-date AIS signage!
- Maintain effective inspection hours
- Develop a plan to recruit, train, and retain inspectors
- Wear Clean Boats, Clean Waters t-shirts or stickers
- Develop an accurate and concise message

Steps for an Effective Watercraft Inspection Program

- Know what educational materials are available and who to contact
- Keep and report watercraft inspection records
- Report any suspect specimens
- Encourage others!

CBCW Resources & Gear

- **Resources**
  - Watercraft Inspection Manual
  - Tool kit
  - DVDs
  - Web site: **www.uwsp.edu/cnr/uwexlakes/CBCW**
- **Gear**
  - T-shirts
  - Aprons
  - Hats
  - Stickers

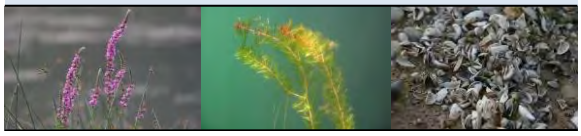
Please Contact Us!

- For more information contact:
  Erin McFarlane
  715-346-4978
  erin.mcfarlane@uwsp.edu
- To order t-shirts, kits, handbooks, aprons, or hats, contact Erin.
- To download materials & presentations, visit our web site:
  www.uwsp.edu/cnr/uwexlakes/CBCW

Clean Boats, Clean Waters

Watercraft Inspection Program

Unity, 2015



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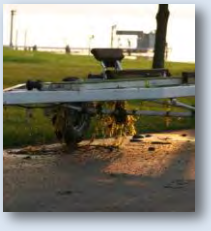

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Zebra Mussel Distribution

Paul Skawinski, UW-Extension Lakes

Up from 163 in April 2014

Zebra Mussel Distribution

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Northern or Eurasian Watermilfoil?

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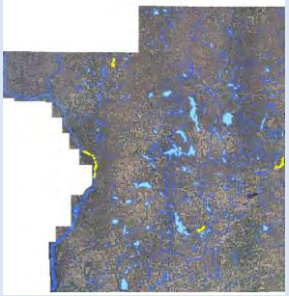

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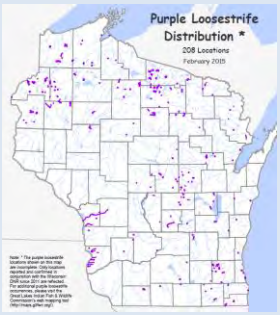

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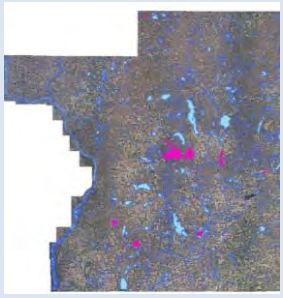

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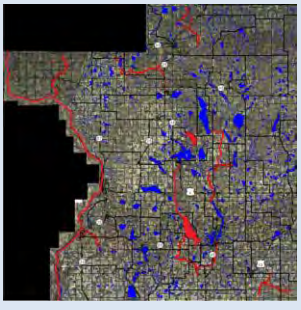

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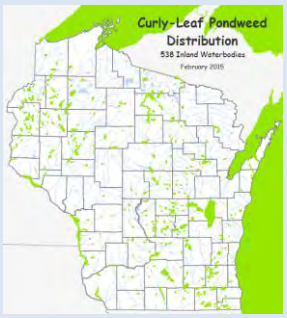

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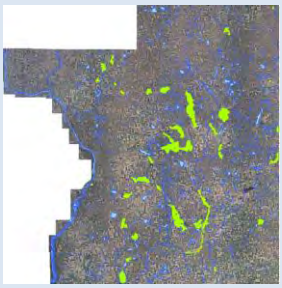

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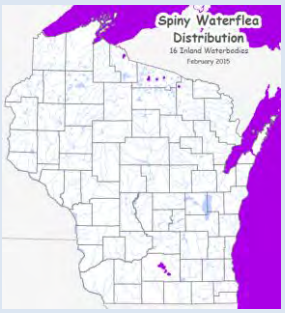
Iron County

Vilas County

Forest County

Dane County



Viral Hemorrhagic Septicemia

- Documented in Lake Michigan, Lake Superior, & Winnebago System
- Can kill more than 25 fish species
- No danger to humans
- Introduced by ballast water or migrating fish - ?

Viral Hemorrhagic Septicemia

Transmission:

- Virus shed in urine & reproductive fluids

The Disease:

- Start shedding virus 2 days after infected
- Antibodies can be developed by fish
- Fish may or may not show clinical signs of virus
- Stress is important

Signs of virus:
- Pop-eye
- Anemia
- Swollen organs

AIS Prevention Message

- **INSPECT** boats, trailers, and equipment.
- **REMOVE** all attached aquatic plants and animals.
- **DRAIN** all water from boats, vehicles, and equipment.
- **NEVER MOVE** plants or live fish away from a waterbody.
- **BUY** minnows from a WI bait dealer. Use leftover minnows only under certain conditions.

VHS Regulations

- All water must be drained from boats and equipment
  - up to 2 gal may be used for minnows.
- You may take leftover minnows away from any state water and use them again on that same water, or on other waters, but only if no lake or river water, or other fish were added to their container.
- You may not transport any live fish or fish eggs away from any state waters.

Polk County Laws

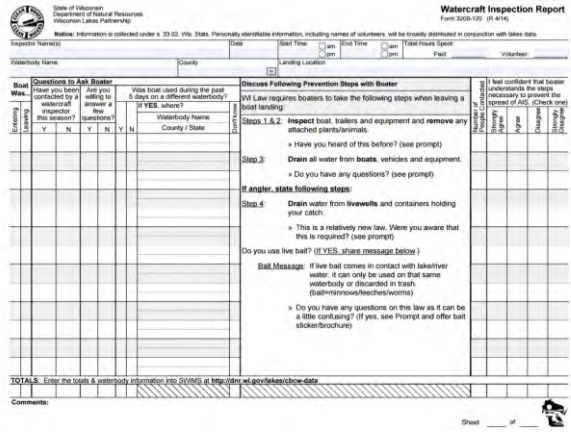
- Polk County Ordinance 29-11: prohibits launching or operating on a public roadway any boat, boat trailer, or hunting, trapping, fishing, or boating equipment, including canoes, lines, anchors, nets, decoys, and waders if aquatic plants or invasive animals are attached.

Getting Started: Inspector Duties

- Inform and educate boaters
- Perform watercraft inspections
- Collect and report watercraft data

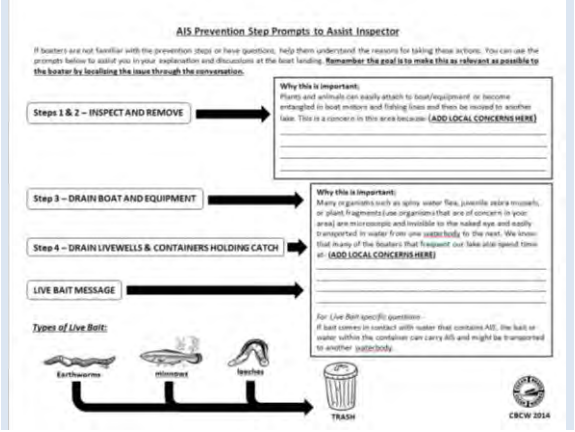
Boat Landing Message

- Discuss the AIS preventive actions (which are now law)
  - Inspect
  - Remove
  - Drain
  - Never move
- Perform a watercraft check – Involve boater!
- Offer a sticker or brochure



New Prompts Handout

- Resource for inspector
  - Reminder of why steps important
  - Leads to discussion rather than just information
  - Local concerns addressed
- Diagram layout simple & easy to read
- Quick visual reminder for live bait

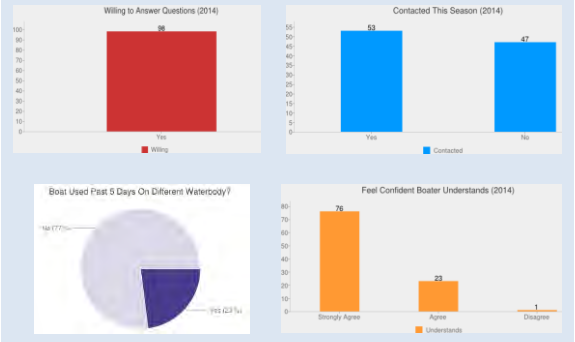


Collecting Data

- Determine traveling patterns of recreational users
- Determine if boaters understand prevention steps

Statewide efforts for 2014:	Polk County efforts for 2014:
124,530 boat inspections	6,002 boat inspections
259,378 people contacted	11,420 people contacted
100% of boaters aware of invasive species law	

Polk County 2014 Data



How to Change Boater Behavior

- Educational materials
- Prompts (decals, stickers)
- Personal contacts
- Modeling behavior
- Social diffusion

Steps for an Effective Watercraft Inspection Program

- Maintain effective inspection hours
- Wear Clean Boats, Clean Waters t-shirts or stickers
- Develop an accurate and concise message
- Report suspect specimens

Thank you!
?
?
?

Clean Boats, Clean Waters Training

Wednesday, April 29th
9:30-11:30 am
Polk County Government Center, North Conference Room

9:30 Welcome and Introductions

9:40 Clean Boats, Clean Waters Watercraft Inspection Presentation
- Aquatic invasive species 101: species profiles, distribution maps, and laws
  - * *Specimens will be available*
- Recruiting and retaining volunteers
- Inspector duties: data collection form and prompt handout
- Clean Boats, Clean Waters data

11:00 Questions and Discussion

11:30 Wrap Up

Presenters

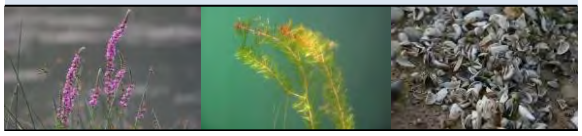
Polk County Land and Water Resources Department

Katelin Holm
katelin.holm@co.polk.wi.us
(715) 485-8637

Jeremy Williamson
jeremyw@co.polk.wi.us
(715) 485-8639

Clean Boats, Clean Waters

Watercraft Inspection Program, 2015



Polk County: A Gathering of Waters

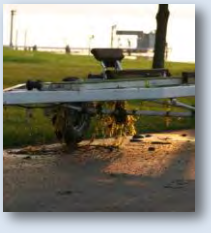
- 42 square miles of water
- 437 lakes
- 365 miles of rivers and streams
- 21,000 acres of wetlands

Wisconsin: A Gathering of Waters

- 11,190 square miles of water
- 15,081 lakes
- 43,000 miles of rivers and streams
- 5.3 million acres of wetlands
- 6.4 million acres of Great Lakes
- Estimated 1 million boats on waters each year!

What are Invasive Species?

- Non-native species that can "take over"
- Not all non-native species are invasive
- Successful because:
  - No natural predators, parasites, etc.
  - Often aggressive, prolific, and mature early



How do they get here?

- Shipping - ballast water
- Intentional introduction - stocking
- Canals - migration from the ocean
- Nursery industry
- Anglers/Bait industry
- Aquaculture
- Aquarium trade

How do they spread?

- Boaters
- Anglers
- Other water users (sea planes, SCUBA, etc)
- Water garden & aquarium owners
- Natural dispersal

Why do we care?

- Economic impacts
  - Sport and commercial fishing
  - Tourism
  - Water users & property owners
- Ecological impacts
  - Native fish, invertebrates, plants
- Recreational impacts
  - Boating
  - Angling

Zebra Mussels

- Ballast water introduction to the Great Lakes in 1980's
- Attach to any hard surface - may reach tens of thousands per square meter!
- Are microscopic in early life stages
- Female can produce 1 million eggs/season

Zebra Mussel Distribution

Paul Skawinski, UW-Extension Lakes

Up from 163 in April 2014

Zebra Mussel Distribution

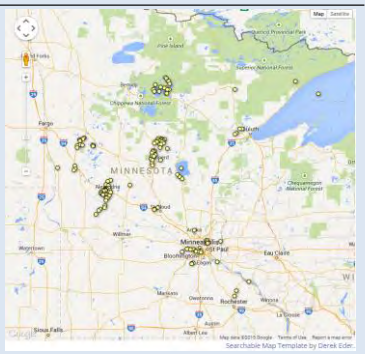
0 Polk County Waterbodies

3 St. Croix County Waterbodies: Bass Lake, Bass Lake, and Lake St. Croix

Paul Skawinski, UW-Extension Lakes

Zebra Mussel Distribution

141 waterbodies in Minnesota



Minnesota Public Radio

Eurasian Water-milfoil

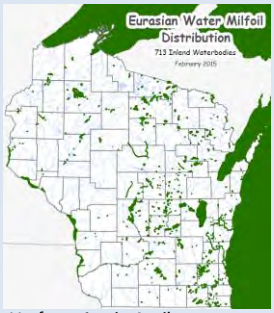
Paul Skawinski, UW-Extension Lakes

- First found in WI in 1960s
- Forms dense mats - interferes with water recreation
- Can spread from small fragments

Northern or Eurasian Water-milfoil?

Eurasian Water-milfoil Distribution

Paul Skawinski, UW-Extension Lakes

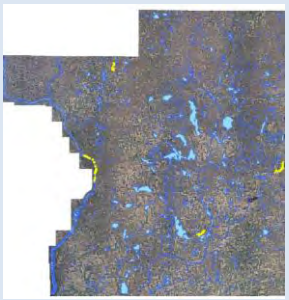


Up from 674 in April 2014

Eurasian Water-milfoil Distribution

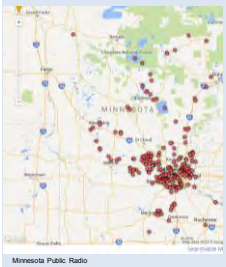
4 Polk County Waterbodies: Horseshoe Lake, Long Trade Lake, Pike Lake, St. Croix River

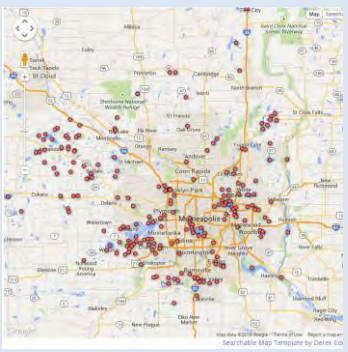
Paul Skawinski, UW-Extension Lakes



Eurasian Water-milfoil Distribution

275 waterbodies in Minnesota


Minnesota Public Radio



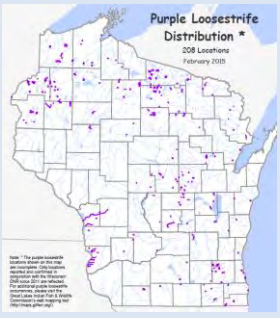
Purple Loosestrife

Paul Skawinski, UW-Extension Lakes

- Imported from Europe for gardens (late 1800s), also seeds in ballast water
- Crowds out native wetland species
- Spreads rapidly: >1 million seeds annually, plus vegetative spread

Purple Loosestrife Distribution

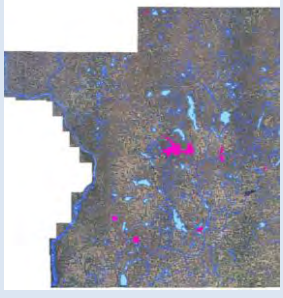
Paul Skawinski, UW-Extension Lakes



Purple Loosestrife Distribution

8 Polk County Waterbodies: Balsam Lake, Big Lake, Grimhs Lake, Lotus Lake, North Twin Lake, Silver Lake, White Ash Lake, and North White Ash Lake

Paul Skawinski, UW-Extension Lakes



Purple Loosestrife

Rusty Crayfish

Paul Skawinski, UW-Extension Lakes

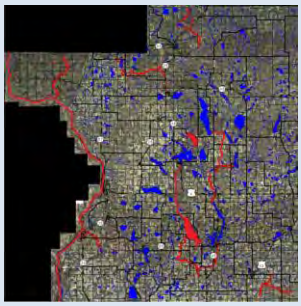
- Brought to WI as bait 1960's
- Severely reduce aquatic vegetation, impacting spawning
- Aggressive; compete with native crayfish and fish for cover and food

Rusty Crayfish Distribution

Up from 527 in April 2014

Rusty Crayfish Distribution

10 Polk County Waterbodies: Apple River, Balsam Branch, Fox Creek, Half Moon Lake, Osceola Creek, St. Croix River, Trade River, Wapogasset Lake, Willow River, and Wood River



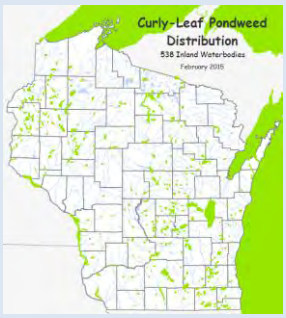
Curly-leaf Pondweed

Paul Skawinski, UW-Extension Lakes

- Accidentally introduced as aquarium plant (1880s)
- Active very early in growing season – even under ice
- Can form dense mats, interfering with recreation and native plants

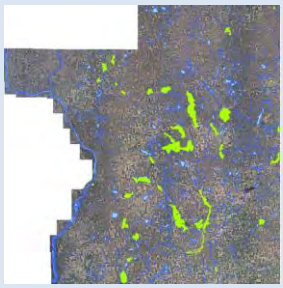
Curly-leaf Pondweed Distribution

Paul Skawinski, UW-Extension Lakes



Curly-leaf Pondweed Distribution

38 Polk County Waterbodies: Alabama Lake, Apple River, Apple River Flowage, Balsam Lake, Bear Trap Lake, Big Blake Lake, Big Butternut Lake, Big Lake, Big Round Lake, Black Brook Flowage, Bone Lake (2454500), Bone Lake (2628100), Bridget Lake, Cedar Lake, Clam Falls Flowage, Deer Lake (2619400), Deer Lake (2460500), Dwight Lake, Half Moon Lake, Herby Lake, Horse Lake, Horseshoe Lake, Lake O' the Dalles, Little Butternut Lake, Little Mirror Lake, Long Trade Lake, Loveless Lake, Magnor Lake, North Twin Lake, Pike Lake, Pine Lake (2490400), Sand Lake, Sandhill Lake, Staples Lake, Unnamed (2658800), Wapogasset Lake, White Ash Lake, North White Ash Lake



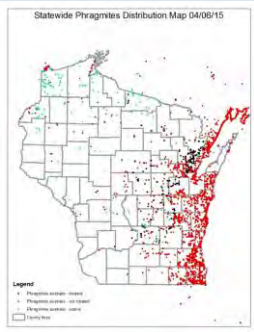
Phragmites

National Park Service

Characteristic	Native	Invasive
Stem color	Stem nodes are shiny and reddish-purple	Stem nodes are tan-green, dull and rigid
Leaf color	Lighter, yellow-green	Dark blue-green
Rhizome	Yellow	White to light yellow
Growth habit	Co-occurs with other plants	Tend towards mature, dense, monotypic stands
Other	Leaf sheaths fall off during the winter, leaving bare stems standing in the spring	Leaf sheaths do not fall off, litter from the previous year has remnant leaves.

Great Lakes Phragmites Collaborative

Phragmites Distribution



Spiny Waterfleas

- Ballast water introduction to Great Lakes in 1980s
- Disrupt food chain & harm native fish
- Foul fishing gear—form gummy clumps

Spiny Waterflea Distribution

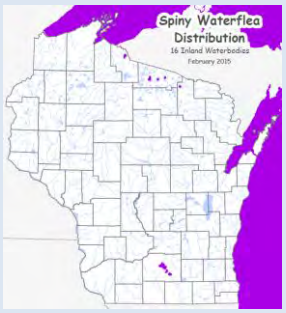
Lake Superior & Lake Michigan

Iron County

Vilas County

Forest County

Dane County



Spiny Waterflea Distribution

39 waterbodies in Minnesota

Minnesota Public Radio

Viral Hemorrhagic Septicemia

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- Can kill more than 25 fish species
- No danger to humans
- Introduced by ballast water or migrating fish - ?

Viral Hemorrhagic Septicemia

Transmission:

- Virus shed in urine & reproductive fluids

The Disease:

- Start shedding virus 2 days after infected
- Antibodies can be developed by fish
- Fish may or may not show clinical signs of virus
- Stress is important

Signs of virus:
- Pop-eye
- Anemia
- Swollen organs

AIS Prevention Message

- **INSPECT** boats, trailers, and equipment.
- **REMOVE** all attached aquatic plants and animals.
- **DRAIN** all water from boats, vehicles, and equipment.
- **NEVER MOVE** plants or live fish away from a waterbody.
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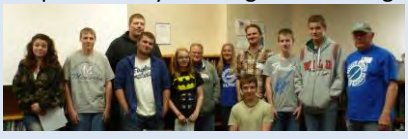
Recruiting Volunteers

- Commit volunteers
  - Newsletters, phone calls, personal visits
- Develop a recruiting/training packet
- Appoint a coordinator to schedule and organize volunteer hours
- Select optimum days and high use landing sites



Retaining Volunteers

- Generous thank-you!
- Offer supplies
  - T-shirt and hat
  - Forms and educational materials
- Publish volunteer names
- Advertise accomplishments
- Awards and certificates

Materials

- CBCW t-shirt or sticker
- Clipboard and pencil
- Watercraft inspection form
- Prompt handout
- Publications
- List of lakes with identified AIS
- Plastic bags and markers
- Cell phone and local contacts

Getting Started: Inspector Duties

- Inform and educate boaters
- Perform watercraft inspections
- Collect and report watercraft data

Boat Landing Message

- Discuss the AIS preventive actions (which are now law)
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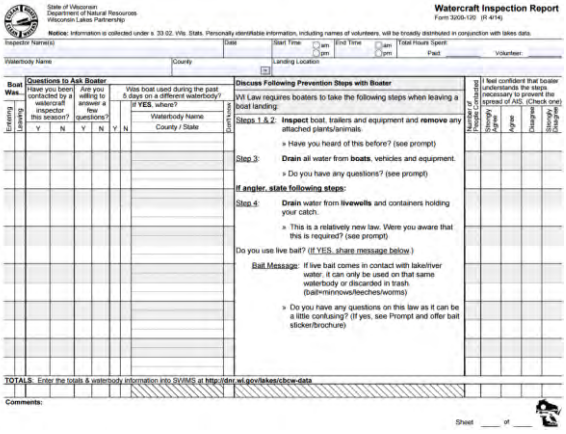
  - Remove
  - Drain
  - Never move
- Perform a watercraft check – Involve boater!
- Offer a sticker or brochure



State of Wisconsin
Department of Natural Resources
Wisconsin Lakes Partnership

Watercraft Inspection Report
Form 3200-120 (R 4/14)

Notice: Information is collected under s. 33.02, Wis. Stats. Personally identifiable information, including names of volunteers, will be broadly distributed in conjunction with lakes data.

Inspector Name(s) | Date | Start Time ☐ am ☐ pm | End Time ☐ am ☐ pm | Total Hours Spent: Paid ____ Volunteer ____

Waterbody Name | County | Landing Location

Boat Was: Entering	Boat Was: Leaving	Questions to Ask Boater: Have you been contacted by a watercraft inspector this season? Y	N	Are you willing to answer a few questions? Y	N	Was boat used during the past 5 days on a different waterbody? Y	N	If YES, where? Waterbody Name / County / State	Discuss Following Prevention Steps with Boater	Number of Times Discussed	I feel confident that boater understands the steps necessary to prevent the spread of AIS. (Check one): Strongly Agree	Agree	Disagree	Strongly Disagree

Discuss Following Prevention Steps with Boater

WI Law requires boaters to take the following steps when leaving a boat landing:

Steps 1 & 2: **Inspect** boat, trailers and equipment and **remove** any attached plants/animals.

» Have you heard of this before? (see prompt)

Step 3: **Drain all** water from **boats**, vehicles and equipment.

» Do you have any questions? (see prompt)

If angler, state following steps:

Step 4: **Drain** water from **livewells** and containers holding your catch.

» This is a relatively new law. Were you aware that this is required? (see prompt)

Do you use live bait? (If YES, share message below.)

Bait Message: If live bait comes in contact with lake/river water, it can only be used on that same waterbody or discarded in trash. (bait=minnows/leeches/worms)

» Do you have any questions on this law as it can be a little confusing? (If yes, see Prompt and offer bait sticker/brochure)

TOTALS: Enter the totals & waterbody information into SWIMS at http://dnr.wi.gov/lakes/cbcw-data

Comments:

Sheet ____ of ____

New Prompts Handout

- Resource for inspector
  - Reminder of why steps important
  - Leads to discussion rather than just information
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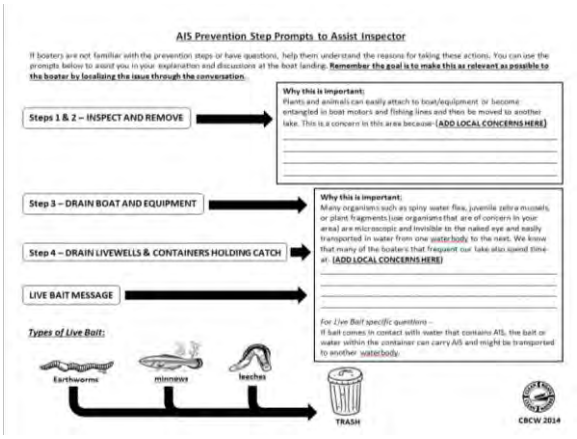
- Diagram layout simple & easy to read
- Quick visual reminder for live bait



AIS Prevention Step Prompts to Assist Inspector

If boaters are not familiar with the prevention steps or have questions, help them understand the reasons for taking these actions. You can use the prompts below to assist you in your explanation and discussions at the boat landing. **Remember the goal is to make this as relevant as possible to the boater by localizing the issue through the conversation.**

Steps 1 & 2 – INSPECT AND REMOVE

Why this is important:
Plants and animals can easily attach to boat/equipment or become entangled in boat motors and fishing lines and then be moved to another lake. This is a concern in this area because: **(ADD LOCAL CONCERNS HERE)**

Step 3 – DRAIN BOAT AND EQUIPMENT

Step 4 – DRAIN LIVEWELLS & CONTAINERS HOLDING CATCH

Why this is important:
Many organisms such as spiny water flea, juvenile zebra mussels, or plant fragments (use organisms that are of concern in your area) are microscopic and invisible to the naked eye and easily transported in water from one waterbody to the next. We know that many of the boaters that frequent our lake also spend time at **(ADD LOCAL CONCERNS HERE)**

LIVE BAIT MESSAGE

For Live Bait specific questions –
If bait comes in contact with water that contains AIS, the bait or water within the container can carry AIS and might be transported to another waterbody.

Types of Live Bait:

Earthworms | minnows | leeches

TRASH

CBCW 2014

Collecting Data

- Determine traveling patterns of recreational users
- Determine if boaters understand prevention steps

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100% of boaters aware of invasive species law	

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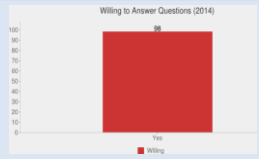
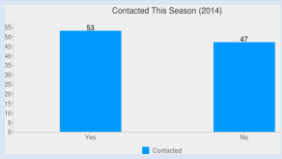
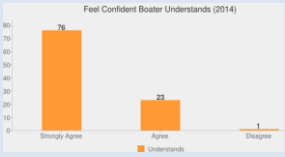






How to Change Boater Behavior

- Educational materials
- Prompts (decals, stickers)
- Personal contacts
- Modeling behavior
- Social diffusion

Steps for an Effective Watercraft Inspection Program

- Maintain effective inspection hours
- Wear Clean Boats, Clean Waters t-shirts or stickers
- Develop an accurate and concise message
- Collect and report data
- Report suspect specimens

Upcoming Events

- Polk County AIS Strategic Planning Session 1
  - May 20th, 7-9pm, Polk County Justice Center
- Polk County AIS Strategic Planning Session 2
  - June 17th, 7-9pm, Polk County Justice Center
- Project RED
  - Session 1: June 11th, 6-8pm, SCRA in St. Croix Falls
  - Session 2: June 16th, 6-8pm, SCRA in St. Croix Falls
  - River Paddle: June 23rd, St. Croix River
- Aquatic Invasive Species Bridge Snapshot Day
  - August 29th, 9am-1pm, SCRA in St. Croix Falls

Appendix B: Fall Snapshot Day

AIS Bridge Snapshot Day 2014 : The Plan

9:00am	Registration
9:00am – 10:00am	Training/Group Picture
10:00am – 12:00pm	Field Work
12:00pm – 1:00pm	Submit Data and Vouchers

Why we are here today?

- Detect infestations early
- Raise awareness about invasive species in rivers and other connected waterbodies
  - Species of Concern
  - Sources or Vectors
    Ex. Water Garden/Aquarium Dumps

What we are searching for….

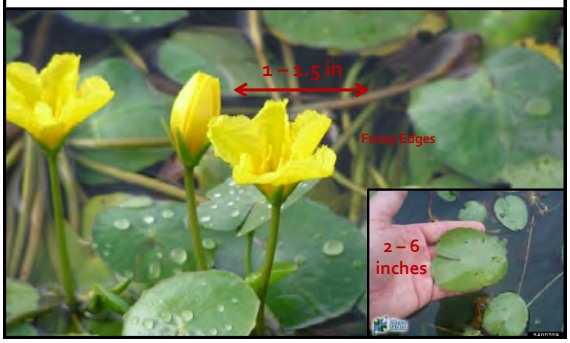
Wetland Plants
- Flowering rush
- Phragmites
- Japanese knotweed
- Purple loosestrife
- Japanese hops

Animals
- Zebra mussels
- Quagga mussels
- Asian clam
- Faucet snails
- New Zealand mudsnails

Aquatic Plants
- European frog-bit
- Yellow floating heart
- Water chestnut
- Brazilian waterweed
- Hydrilla
- Curly-leaf Pondweed
- Parrot feather
- Eurasian Water Milfoil
- Didymo
- Water hyacinth
- Water lettuce

European Frog-bit

Yellow Floating Heart



Water Chestnut

Brazilian Waterweed

Hydrilla

4 to 8 leaves whorled
Spines
Serrated Leaves

Curly-leaf Pondweed

Parrot Feather

Eurasian Watermilfoil

Didymo

Water Hyacinth

Water Lettuce

Flowering Rush

Phragmites

Japanese Knotweed

Purple Loosestrife

Japanese Hops

Zebra Mussels

Bissel Threads?

No Native Mussels or Clams Have Bissel Threads As Adults

Zebra Mussel has a flat edge.

Quagga Mussels

Bissel Threads?

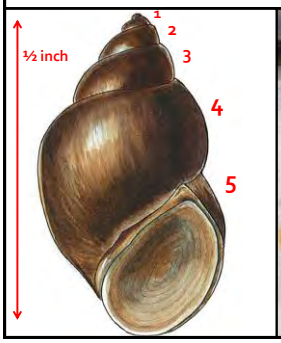
No Native Mussels or Clams Have Bissel Threads As Adults.

Quagga Mussel DOES NOT have a flat edge.

Asian Clam

- Shells are normally thick and hard to crush
- Adults range from 1 to 2 inches in length
- Thick concentric rings on the shell
- Inside of the shell ranges from white to purple/blue

Faucet Snails



New Zealand Mudsnails

Select a Protocol & Know Your Limits

1. **Once you arrive at your site assess the situation.**
   - Is it safe to wade?
   - Are you comfortable wading?

If you for any reason do not feel comfortable wading, use a dry protocol.

2. **Sites will vary dramatically.** Please use common sense when following the protocols. It may not be possible to do all of the following at every site - simply note what was not possible on your datasheet. Stay safe!

3. **Rivers and streams can be dangerous.** Use extreme caution when entering the stream and wading.

If you for any reason do not feel comfortable wading, use a dry protocol.

4. **Avoid getting too near any dam or water control structure.**

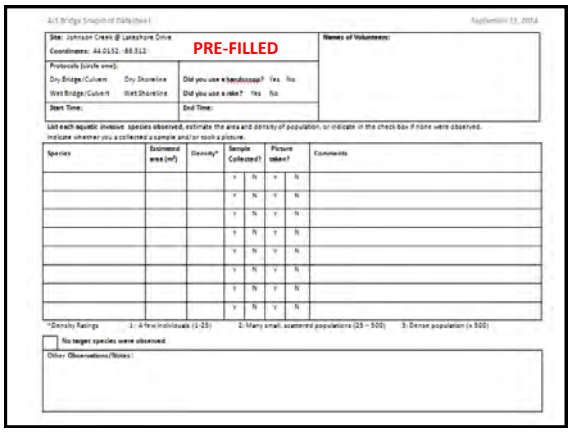
Do Not Trespass

You have the legal **right to access any navigable waterway** at public road crossing if you stay within the right-of-way. Most road right-of-ways are 66 feet wide (33 feet from the center of the road in each direction).

You also have **the right to be in or on any navigable waterway**; however, you must keep your feet wet.

The only time you may step foot on dry land (even exposed streambank) is when you must get out of the water temporarily to circumnavigate around an obstruction in the river or stream. Obstructions could include trees or rocks or deep water. In this case you must use the shortest route possible to return to the stream.

Do not trespass to collect a specimen or take a photograph!



PRE-FILLED

Site: Johnson Creek @ Lakeshore Drive
Coordinates: 44.0152, -88.312
Protocols (circle one): Dry Bridge/Culvert, Dry Shoreline, Wet Bridge/Culvert, Wet Shoreline
Did you use a hand scoop? Yes No
Did you use a rake? Yes No
Start Time:
End Time:
Names of Volunteers:

List each aquatic invasive species observed, estimate the area and density of population, or indicate in the check box if none were observed. Indicate whether you collected a sample and/or took a picture.

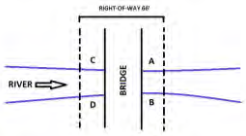
Species	Estimated area (m²)	Density*	Sample Collected?		Picture taken?		Comments
			Y	N	Y	N	
			Y	N	Y	N	
			Y	N	Y	N	
			Y	N	Y	N	
			Y	N	Y	N	
			Y	N	Y	N	
			Y	N	Y	N	
			Y	N	Y	N	

*Density Ratings 1: A few individuals (1-25) 2: Many small, scattered populations (25 – 500) 3: Dense population (> 500)

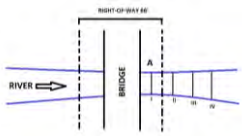
☐ No target species were observed

Other Observations/Notes:

Dry Protocol (Bridge or Culvert Sites)



Wet Protocol (Bridge or Culvert Sites)

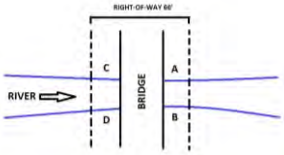


Dry Protocol (Shoreline)

Wet Protocol (Shoreline)

Dry Protocol

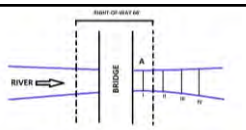
(Bridge or Culvert Sites)



1. Approach the stream at point A.
2. Search the banks, adjacent wetlands and the water's surface for species of concern for at least 2 minutes.
3. Drag a long-handled rake collecting submerged vegetation and course woody debris for at least 2 minutes. After each drag inspect the vegetation and any attached organisms. Clean rake thoroughly before leaving site.
4. Use a scoop or your hands to scoop substrate at least 3 times. Scoop different places each time. Sift through the sample for invertebrates.
5. Repeat steps 1 – 4 at points B, C, and D.
6. Collect all suspicious samples as you find them. Refer to collection protocols.
7. Return to your vehicle and scrub boots/shoes and equipment to remove all plant material and debris.

Wet Protocol

(Bridge or Culvert Sites)



1. Approach the stream at point A.
2. Monitor transects I, II, III, and IV in that order. Leave 20 paces between each transect.
3. At each transect, search the banks, adjacent wetlands and the water's surface for species of concern for at least 2 minutes.
4. Drag a long-handled rake collecting submerged vegetation and course woody debris for at least 2 minutes. After each drag inspect the vegetation and any attached organisms. Clean rake thoroughly before leaving site.
5. Use a scoop or your hands to scoop substrate at least 3 times. Scoop different places each time. Sift through the sample for invertebrates.
5. Wade back upstream to the start point (A), being observant as you go.
6. Collect all suspicious samples as you find them. Refer to collection protocols.
7. Return to your vehicle and scrub boots/shoes and equipment to remove all plant material and debris.

Dry Protocol

(Shoreline Sites)

1. Approach the stream at point A.
2. Search the banks, adjacent wetlands and the water's surface for species of concern for at least 2 minutes.
3. Drag a long-handled rake collecting submerged vegetation and course woody debris for at least 2 minutes. After each drag inspect the vegetation and any attached organisms. Clean rake thoroughly before leaving site.
4. Use a scoop or your hands to scoop substrate at least 3 times. Scoop different places each time. Sift through the sample for invertebrates.
5. Walk to the top of the reach being observant as you go. At the upper end of the reach (B), repeat steps 1 – 4.
6. Collect all suspicious samples as you find them. Refer to collection protocols.
7. Return to your vehicle and scrub boots/shoes and equipment to remove all plant material and debris.

Wet Protocol

(Shoreline Sites)

1. Approach the stream at point A.
2. Monitor transects I, II, III, and IV in that order. Leave 20 paces between each transect.
3. At each transect, search the banks, adjacent wetlands and the water's surface for species of concern for at least 2 minutes.
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5. Use a scoop or your hands to scoop substrate at least 3 times. Scoop different places each time. Sift through the sample for invertebrates.
5. Wade back upstream to the start point (A), being observant as you go.
6. Collect all suspicious samples as you find them. Refer to collection protocols.
7. Return to your vehicle and scrub boots/shoes and equipment to remove all plant material and debris.

If you find something suspicious…

Collect up to 5-10 intact specimens

– For plants, collect: the root system, all leaves, seed heads, and flowers if present.

Place all specimens is a 2-gallon ziplock bag

– Transport in cooler (if available).

If it is not feasible to collect specimens due to safety or trespassing concerns, **take photographs**.

Photographs

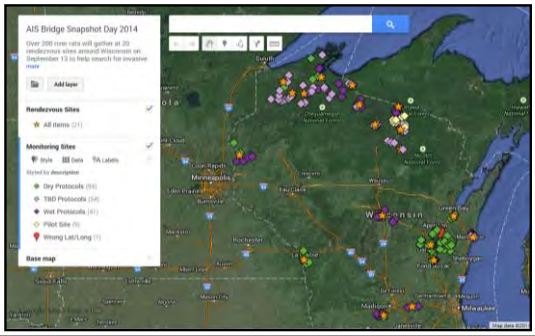
- Email photographs labeled with site name or coordinates for verification to **lmacfarland@wisconsinrivers.org**
- Post them twitter **#BridgeSnapshot** labeled with site name or coordinates for verification
- Upload your photographs after the event into AIS Bridge Snapshot Day Flickr Group **https://www.flickr.com/groups/bridgesnapshot/**

Prevent the Spread

Clean your boots when you return to your car!

Try to remove all mud, debris, seeds, etc.

Site Assignments



Group Picture

THANK YOU!!!

St. Croix River Association · Polk County of Wisconsin · River Alliance of Wisconsin

AIS Bridge Snapshot Day 2015 : The Plan

9:00 am – 9:30 am	Registration
9:00 am – 10:00 am	Training/Group Picture
10:00 am – 12:00 pm	Field Work
12:00 pm – 1:00 pm	Submit Data & Vouchers & *Lunch!*

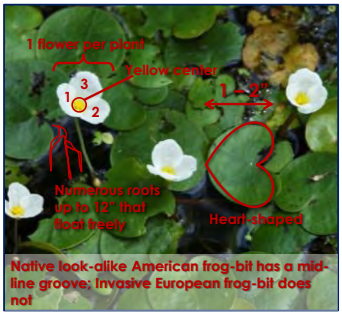
Why we are here today

- **Detect infestations early**
- **Raise awareness** about invasive species in rivers & other connected water bodies
  - Species of Concern
  - Sources or Vectors (i.e., Water Garden/Aquarium Dumps)

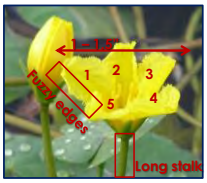
What we are searching for….

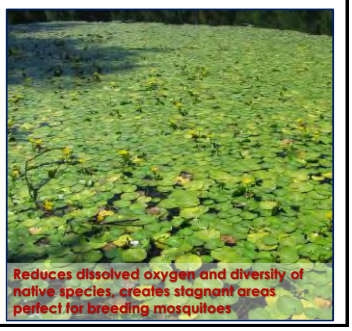
Wetland Plants	Animals	Aquatic Plants
1. Flowering rush	1. Zebra mussels	1. European frog-bit
2. Phragmites	2. Quagga mussels	2. Yellow floating heart
3. Japanese knotweed	3. Asian clam	3. Water chestnut
4. Purple loosestrife	4. Faucet snails	4. Brazilian waterweed
5. Japanese hops	5. New Zealand mudsnails	5. Hydrilla
		6. Curly-leaf Pondweed
		7. Parrot feather
		8. Eurasian Water Milfoil
		9. Didymo
		10. Water hyacinth
		11. Water lettuce

European frog-bit

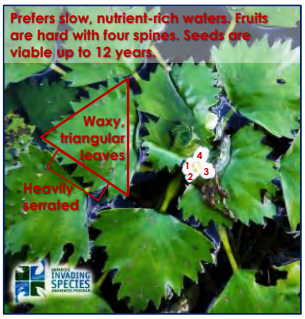


Yellow floating heart





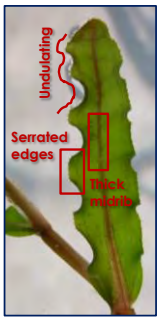
Water chestnut



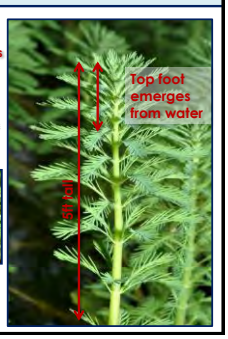
Brazilian waterweed

Hydrilla

Curly-leaf pondweed



Parrot feather



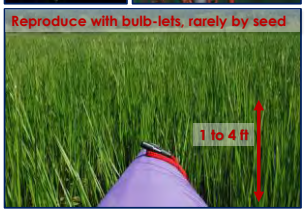
Eurasian water milfoil

Didymo

Water hyacinth

Water lettuce

Flowering rush



Phragmites

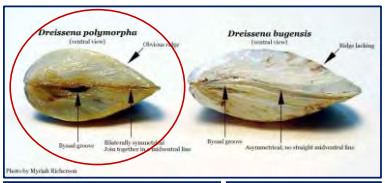
Nonnative stems:
- Dull
- Rough
- Tan
- Ribbed
- No Black Spots

Japanese knotweed

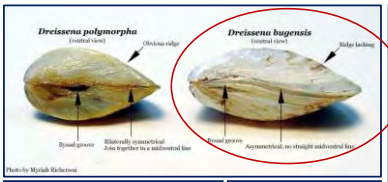
Purple loosestrife

Japanese hops

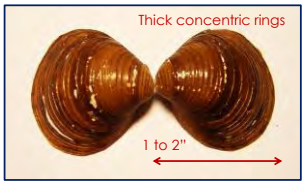
Zebra mussels



Quagga mussels

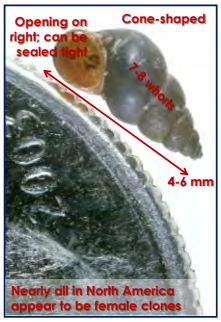


Asian clam



Faucet snails

New Zealand mud snails



Overwhelmed?

You don't have to be the expert…

Bring back species that might be suspicious!

Select a Protocol & Know Your Limits

1. **Once you arrive at your site assess the situation.**
   - Is it safe to wade?
   - Are you comfortable wading?

If you for any reason do not feel comfortable wading, use a dry protocol.

2. **Sites will vary dramatically.** Please use common sense when following the protocols. It may not be possible to do all of the following at every site - simply note what was not possible on your datasheet. Stay safe!

3. **Rivers and streams can be dangerous.** Use extreme caution when entering the stream and wading.

If you for any reason do not feel comfortable wading, use a dry protocol.

4. **Avoid getting too near any dam or water control structure.**

Do not trespass

You have the legal right to:

1. **Access any navigable waterway** at a public road crossing if you stay within the right-of-way.
   a. *Most road right-of-ways are 66 feet wide (33 feet from the center of the road in each direction).*
2. **Be in or on any navigable waterway**; however, you must keep your feet wet.
3. **Step foot on dry land if you MUST get out of the water temporarily to circumnavigate an obstruction.**
   a. *This includes exposed stream banks.*
   b. *Obstructions could include trees or rocks or deep water. In this case you must use the shortest route possible to return to the stream.*

Do not trespass to collect a specimen or take a photograph!

How to Search

Methods

DRY | WET

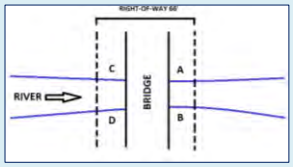
Site Types

BRIDGES

SHORELINES

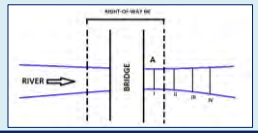
Dry Protocol

(Bridge or Culvert Sites)



1. Approach the stream at point A.
2. Search the banks, adjacent wetlands and the water's surface for species of concern for at least 2 minutes.
3. Drag a long-handled rake collecting submerged vegetation and course woody debris for at least 2 minutes. After each drag inspect the vegetation and any attached organisms. Clean rake thoroughly before leaving site.
4. Use a scoop or your hands to scoop substrate at least 3 times. Scoop different places each time. Sift through the sample for invertebrates.
5. Repeat steps 1 – 4 at points B, C, and D.
6. Collect all suspicious samples as you find them. Refer to collection protocols.
7. Return to your vehicle and scrub boots/shoes and equipment to remove all plant material and debris.

Wet Protocol
(Bridge or Culvert Sites)



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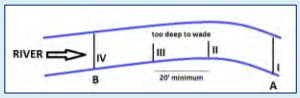
5. Use a scoop or your hands to scoop substrate at least 3 times. Scoop different places each time. Sift through the sample for invertebrates.
5. Wade back upstream to the start point (A), being observant as you go.
6. Collect all suspicious samples as you find them. Refer to collection protocols.
7. Return to your vehicle and scrub boots/shoes and equipment to remove all plant material and debris.

Dry Protocol
(Shoreline Sites)

1. Approach the stream at point A.
2. Search the banks, adjacent wetlands and the water's surface for species of concern for at least 2 minutes.
3. Drag a long-handled rake collecting submerged vegetation and course woody debris for at least 2 minutes. After each drag inspect the vegetation and any attached organisms. Clean rake thoroughly before leaving site.
4. Use a scoop or your hands to scoop substrate at least 3 times. Scoop different places each time. Sift through the sample for invertebrates.
5. Walk to the top of the reach being observant as you go. At the upper end of the reach (B), repeat steps 1 – 4.
6. Collect all suspicious samples as you find them. Refer to collection protocols.
7. Return to your vehicle and scrub boots/shoes and equipment to remove all plant material and debris.

Wet Protocol
(Shoreline Sites)



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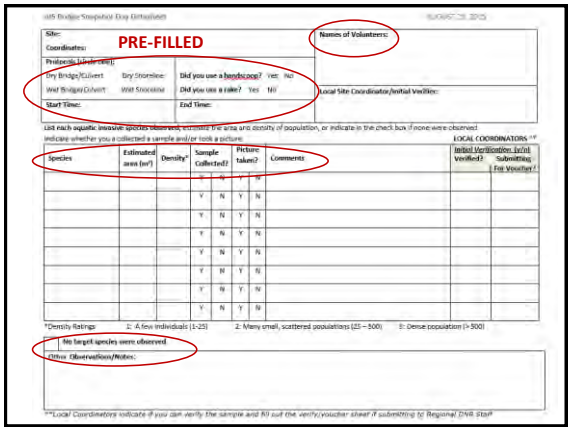

AIS Bridge Snapshot Day Datasheet

AUGUST 23, 2015

Site:
Coordinates:
Protocols (circle one): Dry Bridge/Culvert Dry Shoreline Wet Bridge/Culvert Wet Shoreline
Start Time:
Did you use a hand scoop? Yes No
Did you use a rake? Yes No
End Time:
Names of Volunteers:
Local Site Coordinator/Initial Verifier:

PRE-FILLED

List each aquatic invasive species observed, estimate the area and density of population, or indicate in the check box if none were observed.
Indicate whether you a collected a sample and/or took a picture.

LOCAL COORDINATORS ** Initial Verification (y/n) Verified? Submitting For Voucher?

Species	Estimated area (m²)	Density*	Sample Collected?	Picture taken?	Comments	Verified?	For Voucher?
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			

*Density Ratings: 1: A few individuals (1-25) 2: Many small, scattered populations (25 – 500) 3: Dense population (> 500)

No target species were observed

Other Observations/Notes:

**Local Coordinators indicate if you can verify the sample and fill out the verify/voucher sheet if submitting to Regional DNR Staff

Example Data Sheet

AIS Bridge Snapshot Day Datasheet

AUGUST 23, 2015

Site: Pre-filled. Super at Hwy M. Left/long
Coordinates:
Protocols (circle one): Dry Bridge/Culvert Dry Shoreline Wet Bridge/Culvert Wet Shoreline
Start Time: 12:00
Did you use a hand scoop? Yes No
Did you use a rake? Yes No
End Time: 1:00
Names of Volunteers: Roger Danger, Max Power
Local Site Coordinator/Initial Verifier: Jeremy Jones

List each aquatic invasive species observed, estimate the area and density of population, or indicate in the check box if none were observed.
Indicate whether you a collected a sample and/or took a picture.

LOCAL COORDINATORS ** Initial Verification (y/n) Verified? Submitting For Voucher?

Species	Estimated area (m²)	Density*	Sample Collected?	Picture taken?	Comments	Verified?	For Voucher?
P. Longstalk?	1	1	Y N	Y N	Firewood	n	n/a
J. Knotweed	5	3	Y N	Y N	Dense stand near bridge	y	y
unknown Plant	10	3	Y N	Y N		n	n
Asian clam	1	1	Y N	Y N	empty shell, native finger nail	n	n/a
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			

*Density Ratings: 1: A few individuals (1-25) 2: Many small, scattered populations (25 – 500) 3: Dense population (> 500)

No target species were observed

Other Observations/Notes:

**Local Coordinators indicate if you can verify the sample and fill out the verify/voucher sheet if submitting to Regional DNR Staff

If you find something suspicious…

Collect up to 5-10 intact specimens
- For plants, collect: the root system, all leaves, seed heads, and flowers if present.

Place all specimens is a 2-gallon ziplock bag
- Transport in cooler (if available).

If it is not feasible to collect specimens due to safety or trespassing concerns, **take photographs**.

Photographs

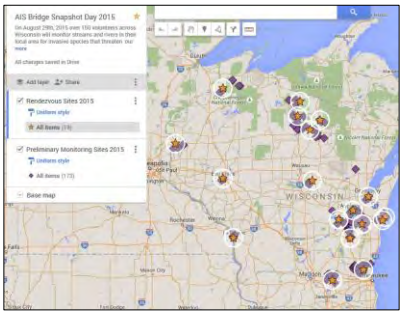
- Email photographs labeled with site name or coordinates for verification to **jjones@wisconsinrivers.org**
- Post them twitter **#BridgeSnapshot2015** labeled with site name or coordinates for verification
- Upload your photographs after the event into AIS Bridge Snapshot Day Flickr Group **https://www.flickr.com/groups/bridgesnapshot/**

Prevent the Spread

Clean your boots when you return to your car!

Try to remove all mud, debris, seeds, etc.

Site Assignments



Group Picture

THANK YOU!!!

Appendix C: Citizen Lake Monitoring Network

Citizen Lake Monitoring Network – Aquatic Invasive Species Monitoring

Location: Polk County Government Center, 100 Polk County Plaza, Balsam Lake, WI 54810, East Conference Room—2nd Floor
Date: Wednesday, June 11, 2014
Time: 1-4 pm

Part One *(20 minutes)*
Welcome & Introduction

Speaker: Laura Herman and Katelin Holm
Speaker points:

- Welcome
- Polk County AIS maps
- Manual review
- Citizen Lake Monitoring Program history
- Why monitor for aquatic invasive species?
- Casual observer – vs. – trained volunteer

Part Two (*50 minutes*)
Aquatic Invasive Species Information

Speakers: Jeremy Williamson, Katelin Holm, and Laura Herman
Speaker points:

- Learn to recognize invasive species
  - Aquatic invasive plants
  - Aquatic invasive animals
- Native water-milfoil weevil monitoring

Part Three (*30 minutes*)
Computer Data Entry and Downloading Data

Speaker: Laura Herman
Speaker points:

- SWIMS review
- How to find data
- How the volunteers will enter data

Part Four (*20 minutes*)
New Wisconsin Invasives

Speaker: Laura Herman
Speaker points:

- New AIS to Wisconsin – New Zealand mudsnails, faucet snails and Asian Clams

Part Five (*50 minutes*)
Interactive Training & Equipment Distribution

Speakers: Laura Herman

Use live specimens if possible, otherwise substitute preserved specimens to help participants identify species. Identify the most common aquatic plants and the look-a-likes commonly associated with Eurasian water-milfoil

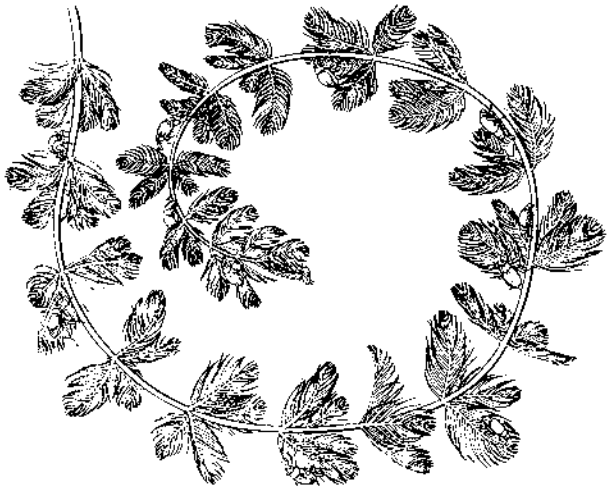
- Go over the guidelines for collecting and submitting suspect specimens
- Review statewide contacts
- Distribute monitoring equipment to participants
- Distribute *Through the Looking Glass* and laminated plant scans

Closing *(10 minutes)*

Speaker: Jeremy Williamson and Katelin Holm

Speaker points:

- Summarize workshop activities.
- Answer any participant's questions



Citizen Lake Monitoring: Aquatic Invasive Species

Polk County Land and Water Resources Department
July 15th, 2015
Polk County Government Center North Conference Room

Aquatic Invasive Species Overview

AIS 101
- *What are they?*
- *How do they spread?*
- *Why do we care?*

Species profiles
Wisconsin laws
Where and when to look
Opportunities to get involved
Hands on: species identification

What Are Invasive Species

Non-native species that can take over

Not all non-native species become invasive

Paul Skawinski, UWEX Lakes

Successful Because:
Few or no natural predators, parasites, etc
Often aggressive, prolific, and mature early
Able to outcompete native species

How Do Invasive Species Get Here

Shipping—ballast water
Intentional introduction—stocking
Canals—migration from the ocean
Nursery industry
Anglers/bait industry
Aquaculture
Aquarium trade

U.S. Coast Guard

How Do Invasive Species Spread

Boaters
Anglers
Other water users
- *Sea planes, SCUBA*

Water gardens
Aquarium owners
Natural dispersal

Paul Skawinski, UWEX Lakes

Pebble Path Gardens

Why Do We Care?

Economic impacts
Sport/commercial fishing
Tourism
Property values
Ecological impacts
Native wildlife/plants
Recreational impacts
Boating
Angling

Paul Skawinski, UWEX Lakes

Eurasian Water-Milfoil

First found in WI in the 1960's
Forms dense mats—interferes with recreation
Spreads from small fragments

Paul Skawinski, UWEX Lakes

Native milfoil typically has 7 to 10 pairs of leaflets; whereas,
Eurasian water-milfoil has 12 to 21 pairs

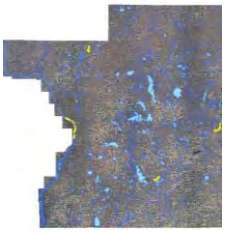
Eurasian Water-Milfoil

Native Water-Milfoil

Eurasian Water-Milfoil Distribution

4 waterbodies in Polk County : Horseshoe Lake, Long Trade Lake, Pike Lake, and St. Croix River

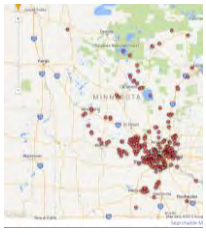
Just found on Cedar Lake

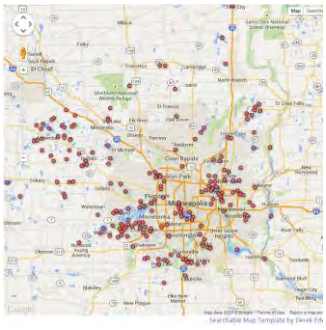


Up from 674 in April 2014

Eurasian Water-Milfoil Distribution

275 waterbodies in Minnesota





Minnesota Public Radio

Curly-Leaf Pondweed

Introduced through ballast water, aquarium dumping, and/or during common carp stocking programs

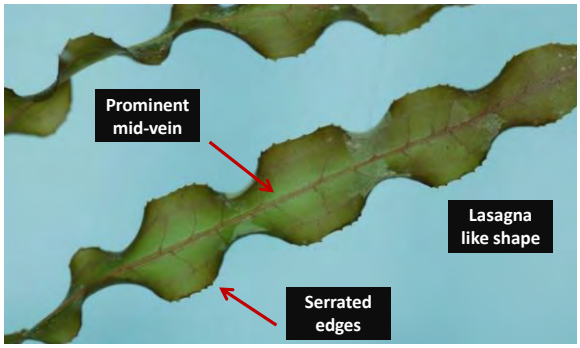
Grows from October through June

Releases nutrients into the water column when it dies, contributing to algae blooms

Spreads by rhizomes and turions

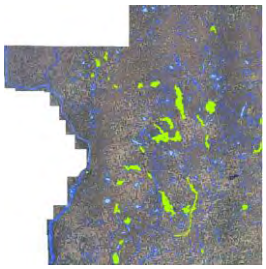
Paul Skawinski, UWEX Lakes

Curly-Leaf Pondweed Identification



Curly-Leaf Pondweed Distribution

38 locations in Polk County



Purple Loosestrife

Imported from Europe for gardens (late 1800's), also seeds in ballast water/soil

Crowds out native wetland species

Spreads rapidly; producing over 1 million seeds annually

Paul Skawinski, UWEX Lakes

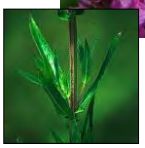
Purple Loosestrife Identification

Square or 6-sided stem

Opposite or whorled leaves

Leaf margins are smooth or with very small teeth

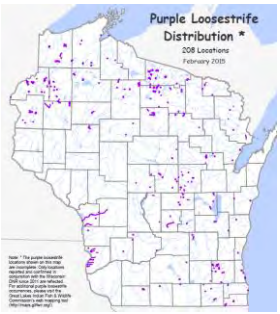
Pink/purple flowers in spike arrangement, each with 6 petals, appearing in July-September



Paul Skawinski, UWEX Lakes

Purple Loosestrife Distribution

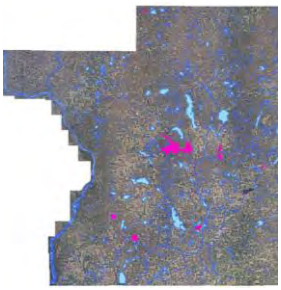
Paul Skawinski, UWEX Lakes



Purple Loosestrife Distribution

8 waterbodies in Polk County: Balsam Lake, Big Lake, Grimhs Lake, Lotus Lake, North Twin Lake, Silver Lake, White Ash Lake, and North White Ash Lake

Paul Skawinski, UWEX Lakes



Purple Loosestrife Biocontrol

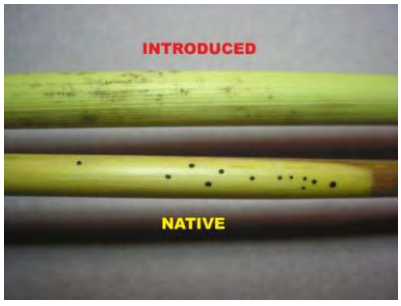
Phragmites

Perennial growing 3-20 feet tall

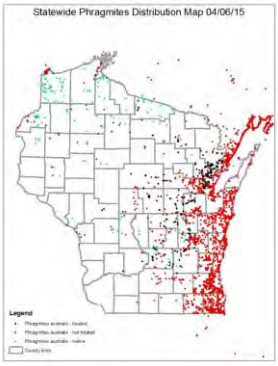
Dull, tough, tan, cane-like stems

Large feather like plumes

Phragmites Identification



Phragmites Distribution



Yellow Iris

Typically 3-4 feet tall

Spreads by seeds, which float

Seeds are 6-angled, 120 seeds per capsule

Flowers in May/June

Yellow Iris

Blue Flag Iris

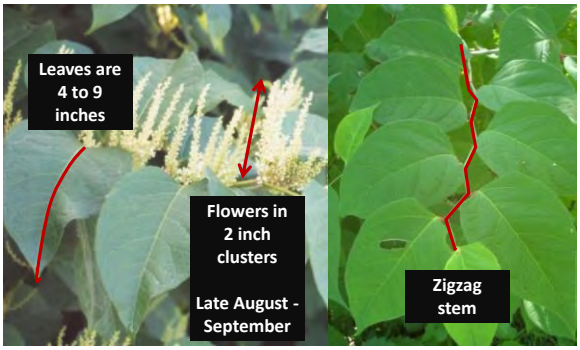
Japanese and Giant Knotweed

Perennial growing 5-10 feet tall

Primarily spreads by rhizomes, but can produce viable seeds

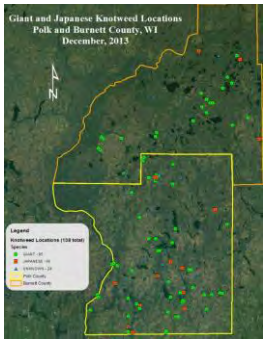
Hollow, bamboo-like, reddish to tan stems

Japanese Knotweed Identification



Japanese and Giant Knotweed Distribution

138 locations in Polk and Burnett Counties



Rusty Crayfish

Brought to Wisconsin as bait in the 1960's

Severely reduce aquatic vegetation, impacting spawning

Aggressive; compete with native crayfish and fish for cover and food

Jeff Gunderson, MN Sea Grant

Paul Skawinski, UWEX Lakes

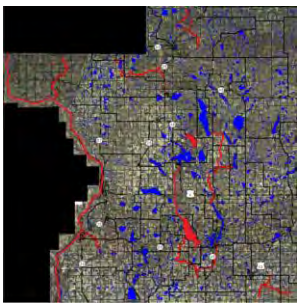
Rusty Crayfish Distribution

Up from 527 in April 2014

Rusty Crayfish Distribution

10 waterbodies in Polk County: Apple River, Balsam Branch, Fox Creek, Half Moon Lake, Osceola Creek, St. Croix River, Trade River, Wapogasset Lake, Willow River, and Wood River

Paul Skawinski, UWEX Lakes



Zebra Mussels

Ballast water introduction to the Great Lakes in the 1980's

Attach to firm surfaces; reaching tens of thousands per square meter

Microscopic in early life stages

Females can produce 1 million eggs/season

S. Van Meerbeken

Zebra Mussel Distribution

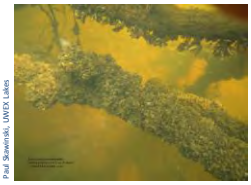
Paul Skawinski, UWEX Lakes

Up from 163 in April 2014

Zebra Mussel Distribution

0 waterbodies in Polk County

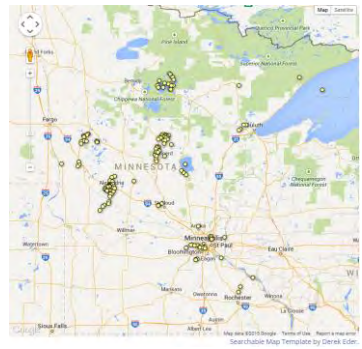
3 waterbodies in St. Croix County: Bass Lake, Bass Lake, and Lake St. Croix



Paul Skawinski, UWEX Lakes

Zebra Mussel Distribution

141 waterbodies in Minnesota



Minnesota Public Radio

Quagga Mussels

Closely related to zebra mussels

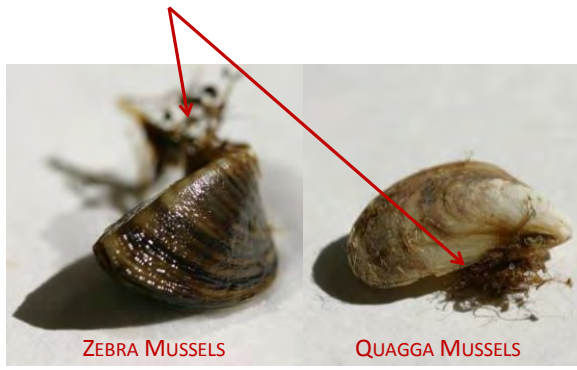
Can survive a wide range of conditions

Filter feeders that alter the food web and accumulate pollutants

Found in all Great Lakes, except Superior

Paul Skawinski, UWEX Lakes

Byssal threads are bad news



Asian Clam

Filter feeders that compete with native species

Clog intake pipes

1-2 inches in length

Thick green/brown shells with concentric rings

Found in the St. Croix River near Hudson

Chinese and Banded Mystery Snails

Chinese mystery snail: up to 3 inches, uniform brown color

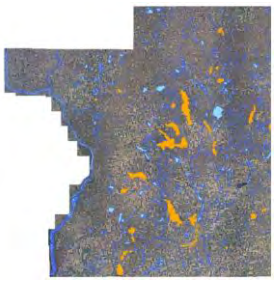
Banded mystery snail: up to 1.5 inches, brown horizontal bands

Impacts are poorly understood

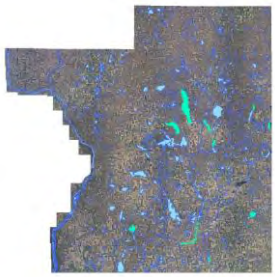
Paul Skawinski, UWEX Lakes

Chinese and Banded Mystery Snail Distribution

Chinese mystery snails: 38 waterbodies



Banded mystery snails: 10 waterbodies



New Zealand Mudsnail

Very small ranging from 3-6 mm

Brown to black cone-shaped shell

Can reach more than half a million per square meter and can comprise over 95% of the invert biomass in a river

Can survive 25 + days out of water

Found in Black Earth Creek

New Zealand Mudsnail

Spiny Waterflea

Introduced to the Great Lakes through ballast water

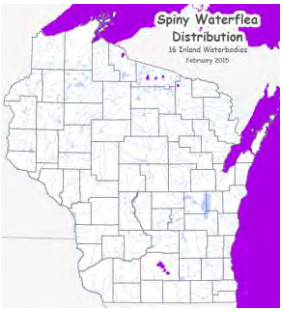
Disrupt the food chain and harm native fish

Foul fishing gear, creating gummy clumps

Spiny Waterflea Distribution

Found in Lake Superior, Lake Michigan, Iron, Vilas, Forest, and Dane Counties

39 waterbodies in Minnesota



Rainbow Smelt

Slender fish typically 6-8 inches long

Obvious teeth

Eat young walleye and compete with young fish

Probably used as bait and released

Rainbow Smelt Distribution

Just found in Lower Pine Lake in Polk County

AIS Prevention Laws

Inspect boats, trailers, and equipment

Remove all attached aquatic plants and animals

Drain all water from boats, vehicles, and equipment

Never move plants or live fish away from a waterbody

Buy minnows from a WI bait dealer, use leftover minnows only under certain conditions

Where to Look for Invasive Species

Bridges
Backyards
Parks
Boat launches
Other access points

Swimming
Fishing
Boating
Removing your dock

When to Look for Invasive Species

Ideally monitor up to three times per year
June, July, and August

Eurasian water milfoil: May-October
Curly leaf pondweed: May and June
Purple loosestrife: July and August
Rusty crayfish: June-August
Mussels/Snails: open water season
Spiny water flea: June-September

Wisconsin's Program: How to get Involved

- Education and Outreach
- Clean Boats, Clean Waters Program
- Volunteer Monitoring
  - *Lake Health*
  - *Aquatic Invasive Species*
- Purple loosestrife biological control
- Grant programs

Appendix D: Project RED

Help Protect Our Rivers from Invasive Species!

Classroom and Field Trainings to be offered Saturday, July 12th from 10am – 2:30pm and Wednesday, July 16th from 1pm – 5:30pm in St. Croix Falls, Wisconsin

The River Alliance of Wisconsin, St. Croix River Association, National Park Service, Polk County Land and Water Resources Department, and Wisconsin DNR will host two classroom trainings and paddles on the St. Croix River to teach citizens how to monitor for invasive species in rivers. Paddlers, fisherman, water quality monitors, shoreline owners, and river enthusiasts are encouraged to attend.

The River Alliance of Wisconsin's Project RED (riverine early detectors) is a monitoring program that trains citizens to identify and report invasive species within river corridors statewide. During the free training, the River Alliance, St. Croix River Association, National Park Service, and Polk County Land and Water Resources Department will teach you to monitor your river by canoe, kayak, or on foot for species of concern. They will help you choose locations and a monitoring schedule that are convenient to you. The protocols are easy and fun. In addition, you can use this activity to become more familiar with your river or stream and to engage your friends and neighbors!

Species of concern include garlic mustard, oriental bittersweet, purple loosestrife, Japanese knotweed, yellow iris, curly-leaf pondweed, Eurasian water milfoil, zebra mussel, quagga mussel, and New Zealand mudsnail.

Project RED trainings are scheduled for Saturday, July 12th from 10am – 2:30pm and Wednesday, July 16th from 1pm – 5:30pm at the St. Croix River Association, 230 S. Washington Street, St. Croix Falls, Wisconsin. Both training sessions will include a paddle on the St. Croix River (weather permitting). All equipment, including canoes and life vests, will be supplied along with a light lunch or snacks. To reserve your space, please contact the St. Croix River Association at 715-483-3300 or monicaz@scramail.com.

To learn more about invasive species in our river corridors and how you can help in the fight against invasives, please visit the River Alliance's website: http://wisconsinrivers.org.

Anglers and Paddlers! Protect Your River…

Project RED

Do your part **to help detect invasive plants and animals in Wisconsin's rivers and streams.**

Learn how to be a Riverine Early Detector. The River Alliance will teach you to monitor your river by canoe, kayak, or on foot for 10 species of concern. The protocols are easy and fun! Use this activity to become more familiar with your river or stream and to engage your friends and neighbors!

Free Training Session & Paddle
St. Croix River Association, 230 S Washington St, St. Croix Falls, WI
July 12th, 10am – 2:30pm
July 16th, 1pm - 5:30pm

To register for this workshop contact the St. Croix River Association at 715-483-3300 or monicaz@scramail.com

Photo Credit: Remfry

RIVER ALLIANCE of Wisconsin

St.Croix River ASSOCIATION

NATIONAL PARK SERVICE

Polk County WI

WISCONSIN DEPT. OF NATURAL RESOURCES

Riverine Early Detectors protecting Wisconsin's flowing waters

Project RED

RIVER ALLIANCE of WISCONSIN

Agenda

- Introduction to Invasive Species
- Species of Concern
- Break
- Monitoring Protocols
- Reporting Data Online
- Sending Samples/Photographs for Verification
- Taking Action

Definitions

NON-NATIVE

An organism that is not indigenous to a given area and **has been accidentally or deliberately transported to a new location** by human activity

INVASIVE

A subset of non-native species and **are likely to cause harm to the economy, environment, or human health**

How do they impact rivers?

Species of Concern

PLANTS

- Garlic Mustard
- Oriental Bittersweet
- Japanese knotweed
- Purple loosestrife
- Phragmites
- Yellow Iris
- Eurasian watermilfoil
- Curly-leaf pondweed
- Japanese Hops

ANIMALS

- New Zealand mudsnail
- Zebra mussel
- Quagga mussel

Garlic Mustard (*Alliaria petiolata*)

1ST YEAR - ROSETTE

Low, kidney shaped leaves

2ND YEAR - FLOWERING

1 – 4 feet tall flowering stalks

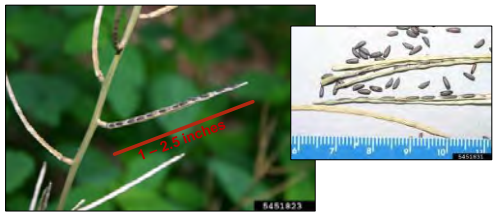
Garlic Mustard (*Alliaria petiolata*)

- Crushed leaves smell like garlic
- Flowers late April - June

- Flowers have four pedals in the shape of a cross

Garlic Mustard

- A single plant can produce hundreds of seeds
- Seeds spread by wind, water, wildlife, and people
- Seeds viable for five or more years in the soil

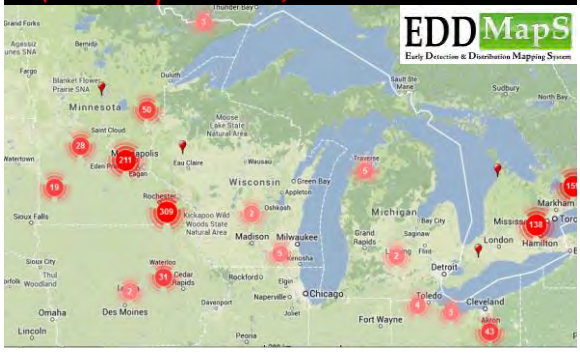


Garlic Mustard (*Alliaria petiolata*)

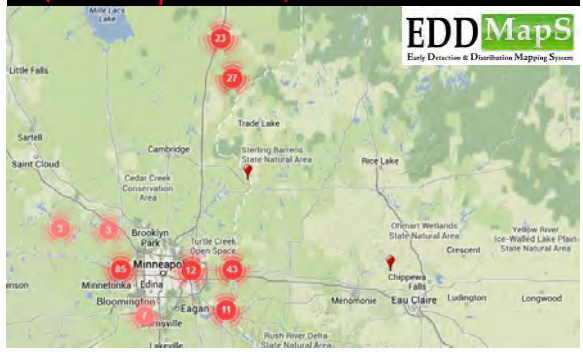
- Displaces native spring wildflowers such as Spring Beauty, Trilliums, and Wild Ginger
- Produces a toxin that prevents native trees and other plants from growing

Garlic Mustard (*Alliaria petiolata*)

Garlic Mustard (*Alliaria petiolata*)



Garlic Mustard (*Alliaria petiolata*)



Oriental Bittersweet (*Celastrus orbiculatus*)

Fruits are
- round
- change in color from green to bright red
- **yellow capsule** as they mature.
- can produce up to 370 fruits which ripen in the fall

Oriental Bittersweet (*Celastrus orbiculatus*)

Leaves
- Alternate
- Oblong to Round
- 2 – 5 inches long
- Margins have rounded teeth

Oriental Bittersweet (*Celastrus orbiculatus*)

Oriental Bittersweet (*Celastrus orbiculatus*)

Non-native vs. Native

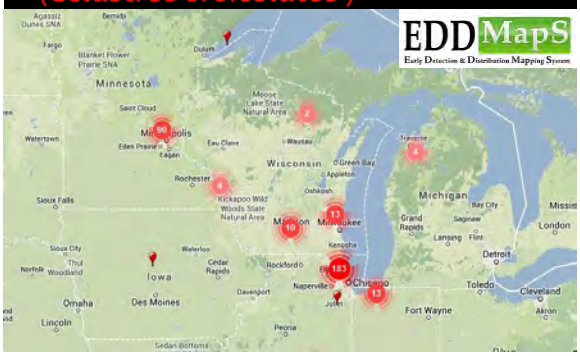
ORIENTAL BITTERSWEET

- Fruit clusters in the leaf axils

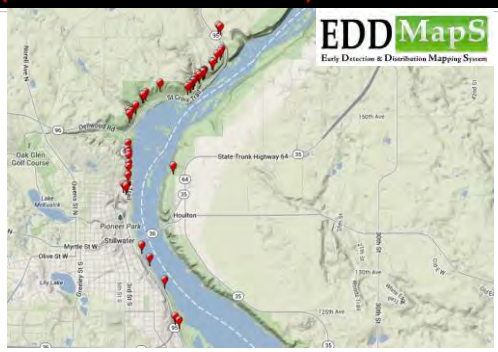
AMERICAN BITTERSWEET

- clusters at its branch tips

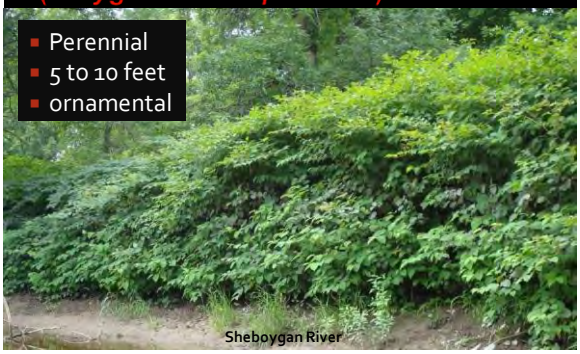
Oriental Bittersweet (*Celastrus orbiculatus*)



Oriental Bittersweet (*Celastrus orbiculatus*)

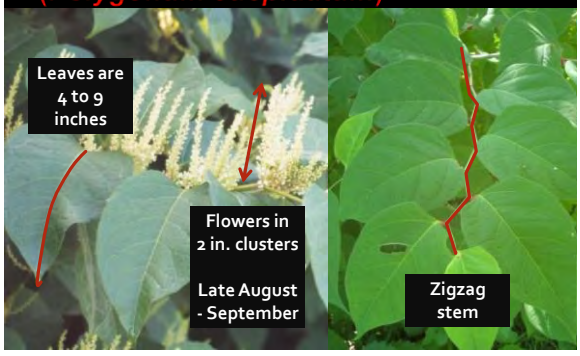


Japanese Knotweed (*Polygonum cuspidatum*)



- Perennial
- 5 to 10 feet
- ornamental

Japanese Knotweed (*Polygonum cuspidatum*)



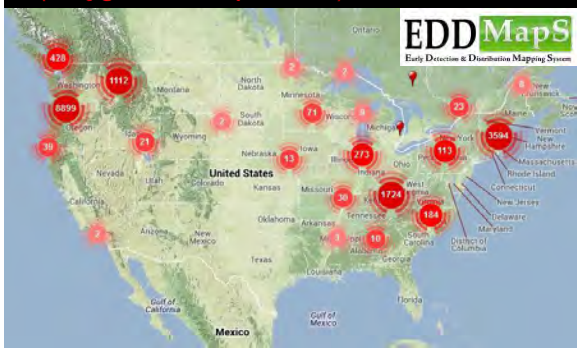
Hollow stems more brittle than bamboo

Japanese Knotweed seeds

Impacts: alters stream's nutrients and hydrology

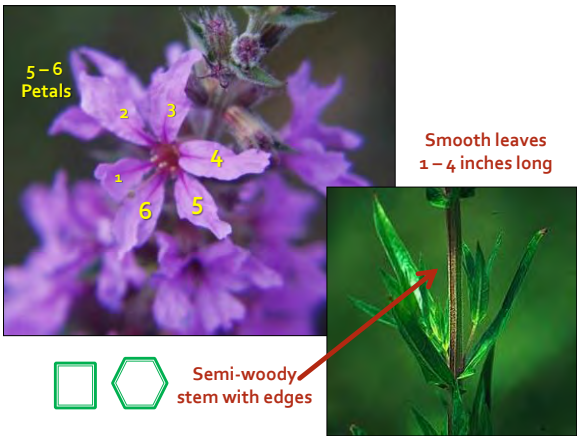
- Sequesters nitrogen (nutrients) in rhizomes before leaf fall
- Provides litter of lower nutritional quality, impacting the productivity of macroinvertebrates
- Can alter the hydrology of a stream year round

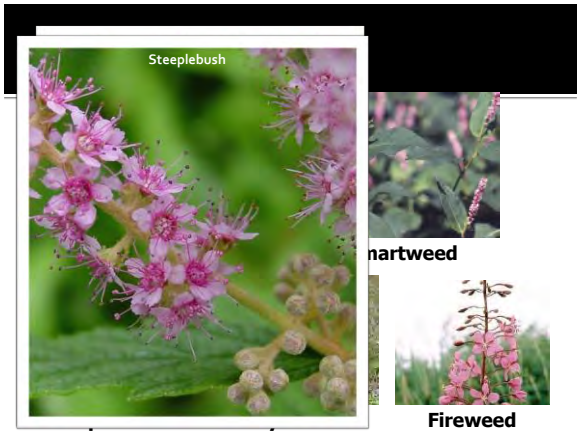
Japanese knotweed
(Polygonum cuspidatum)



Japanese knotweed
(Polygonum cuspidatum)

Purple Loosestrife
(Lythrum salicaria)





Phragmites *(Phragmites australis)*

Common Reed Grass

- Tall Grass
- 10 -20 inch leaves

Native vs. Nonnative

Nonnative stems:

Dull

Rough

Tan

Ribbed

No Black Spots

Yellow Iris (*Iris pseudacorus*)

- Typically 3 – 4 feet tall
- Spreads by seed and vegetatively
- Seeds float
- All parts of the plant are poisonous
- Flowers May/June

Yellow Iris (*Iris pseudacorus*)

Yellow Iris (*Iris pseudacorus*)

- 6-angled, egg shaped fruit capsule
- About 120 seeds per capsule

Non-native vs. Native

YELLOW IRIS

- Yellow Flower
- 6 sided seed pod
- Seed capsule opens at maturity

BLUE FLAG IRIS

- Blue Flower
- 3 sided seed capsule
- Seed capsule <u>does not</u> open

Eurasian Water-milfoil
(*Myriophyllum spicatum*)

7 native milfoils in Wisconsin

EWM only easily confused with northern water milfoil

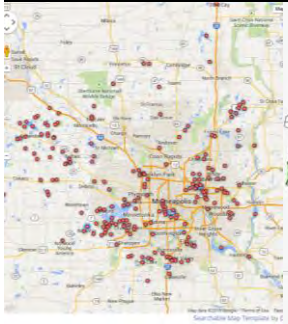
Most likely found in slow flowing water 10 feet deep or less

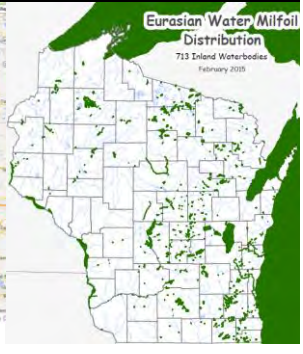
Eurasian Water-milfoil

Native Northern Watermilfoil or Eurasian?

Native Northern Watermilfoil or Eurasian?

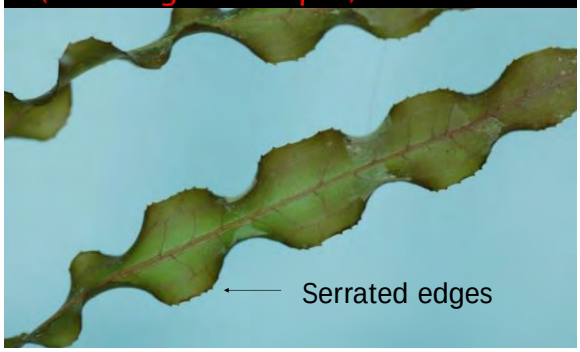
Eurasian Water-milfoil
(*Myriophyllum spicatum*)





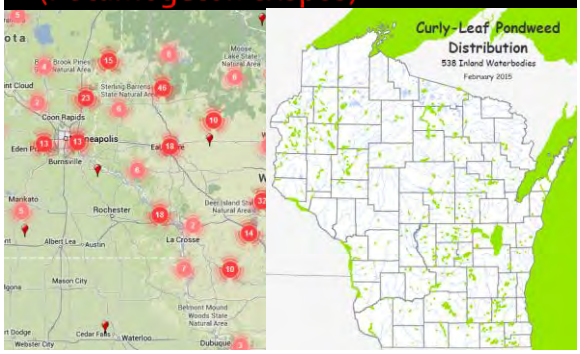
Curly-leaf Pondweed
(Potamogeton crispus)

Curly-leaf Pondweed (Potamogeton crispus)



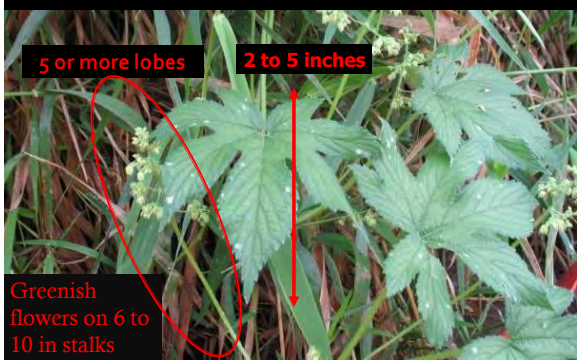
Curly-leaf Pondweed (Potamogeton crispus)

Curly-leaf Pondweed (Potamogeton crispus)

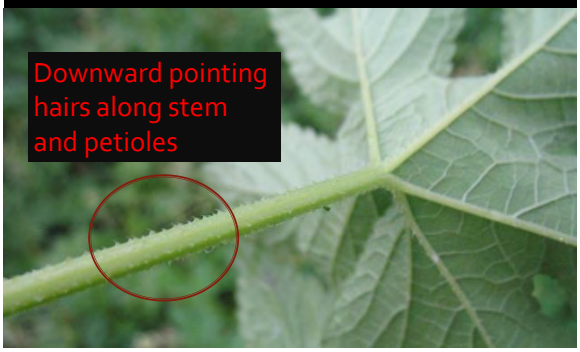


Japanese hops *(Humulus japonicus)*

Japanese hops *(Humulus japonicus)*

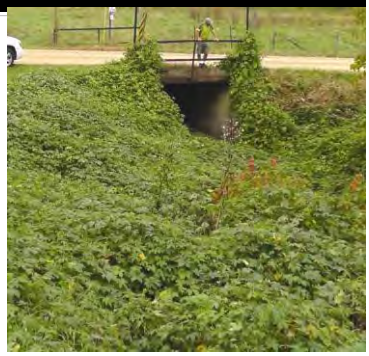


Japanese hops *(Humulus japonicus)*



Japanese hops *(Humulus japonicus)*

- Smothers native vegetation
- Thin root structure does not hold banks in place causing erosion



New Zealand mudsnails
(Potamopyrgus antipodarum)

New Zealand mudsnail
(Potamopyrgus antipodarum)

1/10 to ¼ inch high

Operculum present

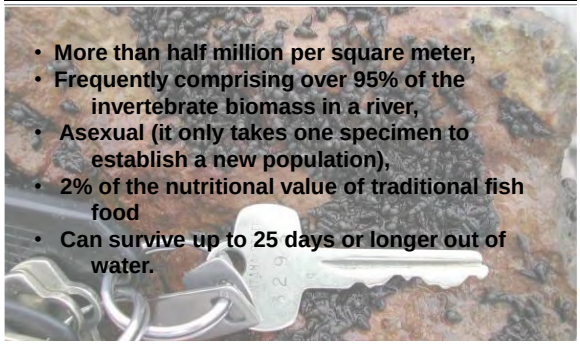
Light to dark brown

Cone shaped shell with 5-6 whorls

Raised carina (keel) on whorls

New Zealand mudsnail
(Potamopyrgus antipodarum)

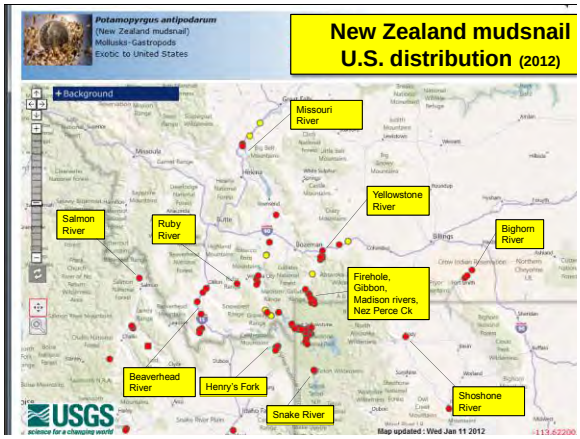
New Zealand mudsnail
(Potamopyrgus antipodarum)



- More than half million per square meter,
- Frequently comprising over 95% of the invertebrate biomass in a river,
- Asexual (it only takes one specimen to establish a new population),
- 2% of the nutritional value of traditional fish food
- Can survive up to 25 days or longer out of water.

Distribution of New Zealand mudsnail

Suggested citation: Benson, A. J. 2011. New Zealand mudsnail sightings distribution. Retrieved 2/24/2011 from newzealandmudsnaildistribution.aspx.



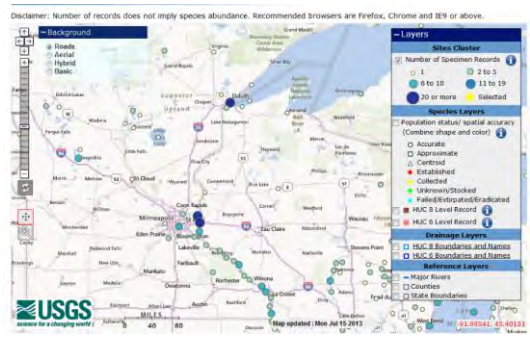
Zebra Mussel (*Dreissena polymorpha*)

Zebra Mussels On Native Milfoil

Native (Amblema plicata) with the Zebra mussels

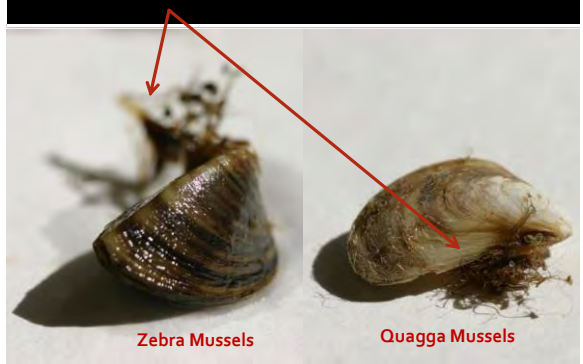
Zebra Mussel (*Dreissena polymorpha*)

Zebra Mussel (*Dreissena polymorpha*)



Quagga Mussels
(Dreissena bugensis)

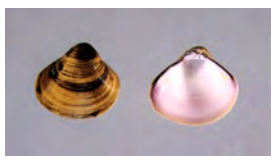
Bissell threads are bad news.



Quagga Mussels
(Dreissena bugensis)

Quagga Mussels
(Dreissena bugensis)

Asian clam



- Adults range from 1 to 2 inches in length
- Yellow-green to brown shells
- Thick concentric rings on the shell
- Top and bottom shells almost identical
- Shells are normally thick and hard to crush
- Inside of the shell ranges from white to purple/blue

Native fingernail clam

- Native fingernail clam Identification.
- Adults normally less than 1 inch in length
- Yellow-green to brown shells
- Thin or no concentric rings on the shell
- **Shells are normally thin and easy to crush**
- Inside of the shell is white.

Other Species

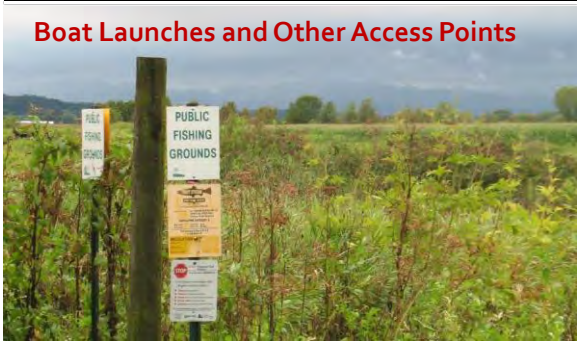
How to look for invasives:

- Canoeing/Kayaking
- Wading
- Driving Bridge Surveys

When to look for invasives:

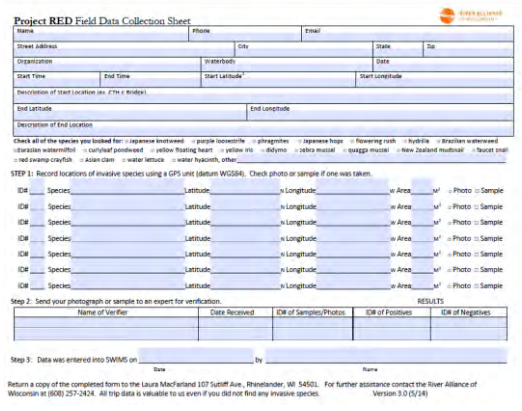
MAY	JUNE	JULY	AUGUST	SEPTEMBER
curly-leaf pondweed snails and mussels didymo	flowering rush curly-leaf pondweed Eurasian water-milfoil snails and mussels didymo	purple loosestrife common reed Japanese hops flowering rush Eurasian water-milfoil hydrilla Brazilian waterweed snails and mussels didymo	Japanese knotweed purple loosestrife common reed Japanese hops flowering rush Eurasian water-milfoil hydrilla Brazilian waterweed snails and mussels didymo	Japanese knotweed purple loosestrife common reed Japanese hops hydrilla Brazilian waterweed snails and mussels Didymo

Where to look for invasives:



Recording Data in the Field

- GPS Locations are important
- GPS units are stored at technology libraries around the state.



Project RED Field Data Collection Sheet

Name	Phone	Email	
Street Address	City	State	Zip
Organization	Waterbody	Date	
Start Time	End Time	Start Latitude°	Start Longitude
Description of Start Location (ex. ETH x Bridge)			
End Latitude	End Longitude		
Description of End Location			

Check all of the species you looked for: ☐ Japanese knotweed ☐ purple loosestrife ☐ phragmites ☐ Japanese hops ☐ flowering rush ☐ hydrilla ☐ Brazilian waterweed ☐ Eurasian watermilfoil ☐ curlyleaf pondweed ☐ yellow floating heart ☐ yellow iris ☐ didymo ☐ zebra mussel ☐ quagga mussel ☐ New Zealand mudsnail ☐ faucet snail ☐ red swamp crayfish ☐ Asian clam ☐ water lettuce ☐ water hyacinth, other_____

STEP 1: Record locations of invasive species using a GPS unit (datum WGS84). Check photo or sample if one was taken.

ID# ___ Species___ Latitude___ n Longitude___ w Area___ m² ☐ Photo ☐ Sample
ID# ___ Species___ Latitude___ n Longitude___ w Area___ m² ☐ Photo ☐ Sample
ID# ___ Species___ Latitude___ n Longitude___ w Area___ m² ☐ Photo ☐ Sample
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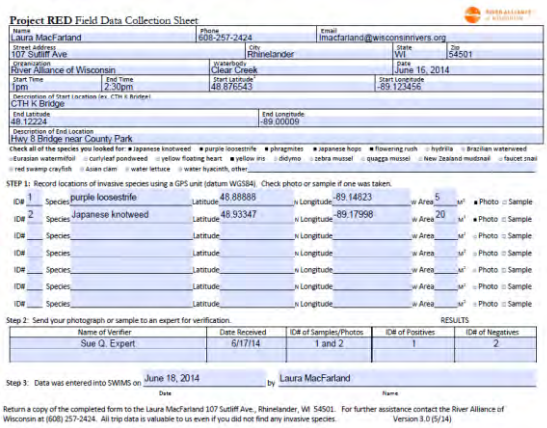
ID# ___ Species___ Latitude___ n Longitude___ w Area___ m² ☐ Photo ☐ Sample
ID# ___ Species___ Latitude___ n Longitude___ w Area___ m² ☐ Photo ☐ Sample

Step 2: Send your photograph or sample to an expert for verification.

Name of Verifier	Date Received	ID# of Samples/Photos	RESULTS ID# of Positives	ID# of Negatives

Step 3: Data was entered into SWIMS on ___ (Date) by ___ (Name)

Return a copy of the completed form to the Laura MacFarland 107 Sutliff Ave., Rhinelander, WI 54501. For further assistance contact the River Alliance of Wisconsin at (608) 257-2424. All trip data is valuable to us even if you did not find any invasive species. Version 3.0 (5/14)



Project RED Field Data Collection Sheet

Name	Phone	Email
Laura MacFarland	608-257-2424	lmacfarland@wisconsinrivers.org

Street Address	City	State	Zip
107 Sutliff Ave	Rhinelander	WI	54501

Organization	Waterbody	Date
River Alliance of Wisconsin	Clear Creek	June 16, 2014

Start Time	End Time	Start Latitude	Start Longitude
1pm	2:30pm	48.876543	-89.123456

Description of Start Location (ex. CTH K Bridge): CTH K Bridge

End Latitude	End Longitude
48.12224	-89.00009

Description of End Location: Hwy 8 Bridge near County Park

Check all of the species you looked for: ■ Japanese knotweed ■ purple loosestrife ■ phragmites ■ Japanese hops ■ flowering rush □ hydrilla □ Brazilian waterweed □ Eurasian watermilfoil □ curlyleaf pondweed □ yellow floating heart ■ yellow iris □ didymo □ zebra mussel □ quagga mussel □ New Zealand mudsnail □ faucet snail □ red swamp crayfish □ Asian clam □ water lettuce □ water hyacinth, other ____

STEP 1: Record locations of invasive species using a GPS unit (datum WGS84). Check photo or sample if one was taken.

ID#	Species	Latitude	Longitude	Area	Photo	Sample
1	purple loosestrife	48.88888	-89.14823	5 m²	■	□
2	Japanese knotweed	48.93347	-89.17998	20 m²	■	□
				m²	□	□
				m²	□	□
				m²	□	□
				m²	□	□
				m²	□	□

Step 2: Send your photograph or sample to an expert for verification.

Name of Verifier	Date Received	ID# of Samples/Photos	RESULTS: ID# of Positives	RESULTS: ID# of Negatives
Sue Q. Expert	6/17/14	1 and 2	1	2

Step 3: Data was entered into SWIMS on June 18, 2014 (Date) by Laura MacFarland (Name)

Return a copy of the completed form to the Laura MacFarland 107 Sutliff Ave., Rhinelander, WI 54501. For further assistance contact the River Alliance of Wisconsin at (608) 257-2424. All trip data is valuable to us even if you did not find any invasive species. Version 3.0 (5/14)

Collecting a Sample

PHOTOGRAPH

- Object for scale
- All parts
- Multiple pictures

SPECIMEN

- All parts
- 5 – 10 specimens
- Keep cool and damp

Prevent the Spread

INSPECT, CLEAN & DRY
BAG ANY SPECIMENS IMMEDIATELY
WORK DOWNSTREAM
LOSE THE FELT SOLED BOOTS

Pledge

- Pledge to monitor a river or stream this year
- Complete this form and turn it in prior to leaving
- You will receive it in the mail reminding you to get out on the water!

THANK YOU!

Jeremy Jones
(608) 257-2424 x122
jjones@wisconsinrivers.org
www.wisconsinrivers.org

RIVER ALLIANCE of WISCONSIN

Appendix E: Education and Outreach

NEWS RELEASE

DATE: *June 2014*

CONTACT: *Polk County Land and Water Resources Department, 715-485-8699*

SUBJECT: Sixth Annual Landing Blitz tackles aquatic invasive species

Polk County, Wisconsin – Citizen volunteers and aquatic invasive species experts will be teaming up to educate boaters and conduct free boat checks during the weekend of July 4th at boat landings throughout Wisconsin so the boaters do not accidentally spread Eurasian water-milfoil, zebra mussels, and other aquatic invasive species (AIS).

Throughout the sixth annual Landing Blitz inspectors stationed at boat landings on Balsam Lake, Pipe and North Pipe Lakes, Ward Lake, Antler Lake, the Apple River Flowage, Lake Wapogasset, Bear Trap Lake, Big Round Lake, Big Blake Lake, Church Pine Lake, Big Lake, and Lotus Lake from July 3rd – 6th will help boaters understand Wisconsin's invasive species laws and what steps to follow to avoid spreading invasive species.

During last year's holiday, inspectors contacted 37,000 people and inspected over 15,000 boats at 290 lakes and rivers in fifty-three counties. Inspectors included citizen volunteers, state and local AIS staff, wardens and water guards, and numerous lake associations, organized by the Department of Natural Resources and the University of Wisconsin-Extension's Clean Boats, Clean Waters program.

After watching Landing Blitz coverage grow from 90 lakes in 2011 to last year's 290, Michigan launched their inaugural Landing Blitz last month. "We are happy to see the dedicated work of our boat inspectors inspire Michigan to start their own Landing Blitz. Michigan's program complements our efforts and will strengthen regional efforts to control the spread of invasive species," said Bob Wakeman, DNR's Aquatic Invasive Species Coordinator.

Invasive species can crowd out native species, disrupt lake ecosystems, interfere with boating, fishing and other recreation, and cause economic harm. The main way that invasive species and fish diseases such as viral hemorrhagic septicemia (VHS) spread to new waters is aboard boating and fishing equipment and with live fish or water moved from one waterbody to another.

Inspectors will demonstrate the required prevention steps boaters must take, provide educational prompts to remind boaters of these steps, and talk about Wisconsin invasive species and VHS laws. Boaters found already practicing the prevention steps can again be rewarded with a free boating towel.

Boaters, anglers, and others enjoying Wisconsin waters are required to:

INSPECT boats, trailers, and equipment.

REMOVE all attached aquatic plants and animals.

DRAIN all water from boats, vehicles, and equipment.

NEVER MOVE plants or live fish away from a waterbody. *

*Limited exceptions apply. Visit www.dnr.wi.gov and search for "bait laws."

Statewide effort to look for aquatic invasive species comes to Polk County

Staff and volunteers in Polk County are assisting in a statewide effort this summer to determine the extent of aquatic invasive species (AIS) in Wisconsin.

This summer, staff from Polk County Land and Water Resources Department will be monitoring the following waterbodies for aquatic invasive species: King Lake, the Apple River Flowage, Balsam Lake, Church Pine Lake, Pipe Lake, Lower Pine Lake, Largon Lake, Lake Wapogasset, and Big Round Lake.

It's part of a five-year effort by the Department of Natural Resources, volunteers and partner organizations to survey or monitor 200 randomly selected lakes with public access every year. The project is the first effort of this scale in the U.S. and will have searched more than half of Wisconsin's 16,000 lakes with public access by completion. For many lakes, this will be the first time the lake will be monitored for invasive species, while some lakes are routinely monitored by dedicated Citizen Lake Monitoring Network volunteers.

The five-year project is coordinated by DNR specialist Maureen Ferry, who says that, in addition to catching new populations for control measures early on, the project will answer the big question on everyone's mind – how fast are aquatic invasive species spreading?

"For our first three years, the rate at which we are finding lakes with AIS has stayed the same," says Ferry. "This is good news because it means AIS are not spreading at a detectable level, which would increase that rate of discovery."

As an added benefit, the surveys help local residents know where to target their prevention and control efforts against harmful invasive species. In total since 2011, nineteen lakes in Polk County have been monitored for AIS through the early detection smart prevention protocol. Chinese mystery snails were the most common invasive species detected, being found in three quarters (74%) of the lakes which were monitored. Curly leaf pondweed was detected in nearly half of lakes monitored (42%) and purple loosestrife and banded mystery snails were detected in approximately a quarter of lakes monitored (26% and 21%, respectively).

The protocol was also adapted for the St. Croix River, where Eurasian water milfoil was found for the first time in September 2013. This spring the Polk County Land and Water Resources Department, National Park Service, and St. Croix River Association teamed up to educate agency staff and citizen volunteers about the impacts of Eurasian water milfoil by field demonstration and identification. Citizen volunteers also assisted in efforts to hand pull the aquatic invasive Eurasian water milfoil.

Although the monitoring surveys are thorough – teams snorkel, tow nets for plankton and small animals, rake up plants, and check the shorelines – the state program does not cover every lake in Polk County. This is why it's important for citizens to stay vigilant. If you suspect you've found a new population of invasive species, you can find instructions to report the find to a local expert on the DNR website: http://dnr.wi.gov/topic/invasives/report.html or search "reporting invasive species."

Purple Loosestrife: Wetland Invasive

Purple loosestrife is an aquatic invasive plant that was introduced to the United States from Europe and Asia in the early 1800's for beekeeping and as a garden ornamental. It has been present in Polk County for many years and is known to be established on 8 Polk County lakes. In addition to colonizing the shores of lakes, purple loosestrife is also found in numerous wetland sites and roadside ditches across Polk County. On Balsam Lake, purple loosestrife is located along the channel north from the beach and boat landing and in Raskin Bay.

As an introduced species lacking natural predators, purple loosestrife spreads rapidly and colonizes wetlands, shorelines, and roadside ditches. Thick stands of purple loosestrife crowd out native vegetation and reduce food, shelter, and nesting sites for a variety of wildlife including birds, turtles, and frogs.

Purple loosestrife is a perennial plant that grows 3-7 feet tall and develops a spike of small purple flowers in late summer. The leaves of the plant are lance shaped and arranged oppositely along a square shaped stem. Purple loosestrife can establish from root or stem fragments, but spreads primarily by seed. A single mature purple loosestrife plant can produce over 2 million seeds. Additionally, as a perennial, purple loosestrife is able to survive northern Wisconsin winters.

The DNR website recommends digging or hard pulling young small purple loosestrife plants or digging large plants to ensure all root fragments are removed. All plant parts should be burned or land filled. Chemicals such as imazapyr or glyphosate work well against purple loosestrife, although a permit may be required if applying near water and aquatic use formulas should be used. At a minimum, carefully cutting the flower spikes into a garbage bag and prevent the spread of purple loosestrife seed.

For large stands of purple loosestrife, *Galerucella* beetles have been used successfully to control purple loosestrife in many parts of the state. *Galerucella* beetles feed extensively on the foliage of purple loosestrife, stressing the plant enough so that it is unable to produce seeds. Long term monitoring has ensured that these insects pose no threat to crop plants or native plant species. This spring, the Balsam Lake Protection and Rehabilitation District worked with the Polk County Land and Water Resources Department and a dedicated volunteer to raise and release beetles in Raskin Bay. This effort will continue in the future.

Healthy purple loosestrife plant growing in a roadside ditch.

Purple loosestrife plant which is unable to flower and produce seed due to extensive *Galerucella* beetle damage.

Previous year's dead flower stalks remain standing, allowing purple loosestrife sites to be easily identified even before new plant growth is obvious.

Close up of purple loosestrife flower spike.

Close up showing the square stem and opposite leaf arrangement characteristic of purple loosestrife. Note the lance shape of the leaves.

Stand of purple loosestrife.

FOR IMMEDIATE RELEASE
July 30, 2014

For more information, contact:
Laura MacFarland, Invasive Species Director
River Alliance of Wisconsin
lmacfarland@wisconsinrivers.org
608-257-2424 ext.110

Aquatic Invasive Species Bridge Snapshot Day:
Volunteers Needed for this Unique Scavenger Hunt

On September 13, 2014, the St. Croix River Association (SCRA) and Polk County Land and Water Resources Department (LWRD) will team up with the River Alliance of Wisconsin for a one-of-a-kind volunteer event. Statewide nearly 200 volunteers will help search for invasive species, including escaped or intentionally released water garden and aquarium species that could choke our rivers and streams. Locally 20 volunteers are needed.

When asked why this event is important, Wisconsin Department of Natural Resources AIS Monitoring Coordinator Maureen Ferry explained, "In recent years we have discovered some new infestations of non-native plants and animals that were likely the result of releases, such as water lettuce and Louisiana red swamp crayfish. If given the opportunity, these could do great harm to Wisconsin waters. It is important that we detect these invasive species early and eradicate them before they spread, as well as work to educate the public to not release things in the first place. Snapshot Day volunteers play a key role serving as our eyes on the ground, or the water as the case may be."

After receiving a brief identification training from SCRA and Polk County LWRD, teams of volunteers will disperse to predetermined monitoring sites on the Trade River, Apple River, Cowan Creek, Horse Creek, and Osceola Creek to help look for species of concern. The monitoring sites are bridges, culverts, parks, or boat landings where invasives are likely to be introduced, intentionally or unintentionally. After their scavenger hunt, volunteers will reconvene at the SCRA office to report on what they found and enjoy light refreshments.

There will be 20 rendezvous sites around the state, including St Croix Falls, Appleton, and Minocqua. Volunteers will monitor over 150 locations on rivers such as the Bois Brule River, Fox River, Sugar River, Mississippi River, Wisconsin River and more. Advanced registration is required. Registration will close on August 31st. For a complete listing of rendezvous and monitoring sites and to register for this exciting event, visit www.wisconsinrivers.org/events

About the River Alliance of Wisconsin:
The River Alliance of Wisconsin is a non-profit, non-partisan group of citizens, organizations and businesses who advocate to protect, enhance and restore rivers and watersheds throughout Wisconsin. For more information, visit www.wisconsinrivers.org.

About the St. Croix River Association:
The St. Croix River Association's mission is to protect, restore, and celebrate the St. Croix River and its watershed. For more information, visit www.stcroixriverassociation.org.

About the Polk County Land and Water Resources Department:

The mission of the Polk County Land and Water Resources Department is to preserve, protect, and enhance our natural resources. For more information, visit http://www.co.polk.wi.us.

Fall is prime time to check equipment for zebra mussels

It isn't every day that someone has the ability to look underneath their dock and see what is happening on their structure. That rare opportunity will present itself as summer gives way to autumn and lake residents and lake service providers start to remove boats, docks and piers from the water. Why would anyone want to take a look at the bottom of the piers?

"The clean equipment that gets installed every year provides an excellent home for aquatic invasive species (AIS) like zebra mussels to colonize," explains Jeremy Williamson, Polk County Land and Water Resources Department**.** "It's often difficult to thoroughly inspect a structure while it's in the water; however during removal anyone involved with the process can easily monitor for invasive species."

AIS are non-native plants and animals that threaten Wisconsin's waters by causing environmental and economic harm. One example, zebra mussels, can clog water intakes and pipes, encrust piers, boats and motors, and their sharp shells can cut the feet of swimmers.

Zebra mussels have been found in less than 5% of Wisconsin lakes predicted to be suitable for zebra mussels. "Zebra mussels have not been reported in Polk County, but have been documented in Bass Lake in St. Croix County and numerous lakes in the Twin Cities Metro Area," explains Katelin Holm, Polk County Land and Water Resources Department.

To protect Polk County's lakes and rivers, WDNR and Polk County Land and Water Resources Department is asking landowners and contractors to carefully examine piers, boats, boatlifts, rafts and any other equipment that has been in the water for a prolonged period of time for signs of zebra mussels during removal.

In addition to a visual inspection, citizens/contractors are encouraged to feel smooth surfaces of equipment to check for juvenile zebra mussels as they may have a "sand-paper like" feel and are often invisible to the human eye. If zebra mussels or other new invasive species are found:

- Check that the invasive species has not been previously found on the waterbody by visiting http://dnr.wi.gov/lakes/invasives/AISLists.aspx?species=ZM
- Note the exact location where the animal was found.
- Take a digital photo of the animal in the setting where it was found (if possible). Then collect up to five specimens of varying sizes. Place in a jar with water; put on ice and transport to refrigerator.
- Contact Polk County Land and Water Resources Department, at 715-485-8699 and deliver specimens.

"Responding quickly to new AIS detections is critical to help slow the spread into other waterbodies," says Tim Campbell, AIS communications specialist for UW-Extension and the Wisconsin DNR. "It can also help control AIS within a body of water. Efforts of citizens statewide can help us achieve that."

There are also specific laws lake property owners and contractors must follow to prevent the spread of AIS. Prior to transporting any equipment Wisconsin law requires you to:

- **INSPECT boats, trailers, boat lifts, piers, rafts and equipment.**
- **REMOVE all attached aquatic plants and animals.**
- **DRAIN all water from boats, vehicles, and equipment.**

To learn more about zebra mussels or Wisconsin aquatic invasive species regulations visit: dnr.wi.gov keyword “invasive species”.

In September 2014, the WDNR AIS Early Detection Smart Prevention Protocol was completed on Balsam Lake by the Polk County Land and Water Resources Department. The protocol includes the collection of basic water quality data (secchi depth and conductivity) and a variety of methods designed to detect aquatic invasive species including:

- ✓ Using rakes and D-nets to search each boat landing for thirty minutes and five sites for ten minutes
- ✓ Three spiny water flea tows
- ✓ Three zebra mussel veliger tows
- ✓ Meander survey including rake throws and D-nets

Beginning in 2011, approximately 200 lakes per year have been monitored for AIS statewide using the AIS Early Detection and Smart Prevention Protocol. To date, Balsam Lake is one of eighteen lakes that have been monitored in Polk County using the protocol. Four invasive species were found in Balsam Lake: curly leaf pondweed, purple loosestrife, Chinese mystery snail, and Japanese knotweed.

Hunters can help prevent the spread of aquatic invasive species this fall

MADISON, Wis. -- Wisconsin waterfowl hunters are among the most dedicated conservationists in the nation and during this fall's hunt, they are again being asked to take some time to clean and drain their equipment to prevent the spread of aquatic invasive species.

"Our state waterfowl hunters contribute an exceptional level of time, talent and resources to improve habitat and as various duck and goose seasons get underway, we are again asking for their help in preventing the spread of aquatic invasive species," said Bob Wakeman, aquatic invasive species coordinator for the Wisconsin Department of Natural Resources.

Aquatic invasive species are nonnative plants and animals that can cause severe economic or environmental harm. Species including zebra mussels, Eurasian water milfoil and nonnative phragmites spread when people move water, mud, seeds or plant fragments between sites.

Once established, invasive species can alter fish and game habitat, damage gear and make sites harder to access. For example, tall, dense stands of nonnative phragmites grass can reduce habitat for waterfowl while limiting access to ideal hunting sites.

Wakeman said all water users -- no matter the activity -- are required to follow aquatic invasive species control efforts: remove plants, animals and mud, and drain all water from watercraft and equipment. These easy actions help protect Wisconsin's valuable water resources from the negative effects of aquatic invasive species.

Patrice Eyers, a DNR wildlife technician at Mead Wildlife Area, said waterfowl hunters may have additional considerations because of their specialized gear.

"In addition to the standard boating gear, waterfowl hunters often use decoys, dogs, waders and push poles," Eyers said. "This equipment may contain water, debris and mud where invasive species like zebra mussels and invasive snails can hide. This equipment needs to be cleaned right along with the boat before leaving a hunting location. We also remind hunters at Mead to avoid using aquatic invasive species such as nonnative phragmites for their blinds."

DNR is working with the Wisconsin AIS Partnership and Wildlife Forever, a conservation nonprofit organization, to better understand challenges that might limit waterfowl hunters' efforts to clean and drain their equipment. Christal Campbell, an aquatic invasive species education specialist for DNR and the University of Wisconsin-Extension, is leading the effort.

"This collaborative project will identify the best ways to help waterfowl hunters prevent the spread of these invasive hitchhikers," Campbell said. "We've had a lot of success working with recreational boaters and anglers to prevent the spread of AIS through programs such as Clean Boats, Clean Waters and our drain campaign. This effort will help extend the initiative to waterfowl hunters."

As a reminder, all water users in Wisconsin are required to:

- Inspect boats, trailers and equipment.
- Remove any attached aquatic plants, seeds or animals (before launching, after loading and before transporting on a public highway).
- Drain all water from boats, motors and all equipment.
- Never move live fish away from a water body.

FOR MORE INFORMATION CONTACT: Bob Wakeman, 262-574-2149, robert.wakeman@wisconsin.gov; Christal Campbell, aquatic invasive species education specialist, 608-266-0061, Christal.Campbell@Wisconsin.gov

16 Polk County lakes emphasize that draining boats and livewells can stop invasive species in their tracks.

You may know to inspect your boat for plants before you leave the lake, but did you know some of Wisconsin's worst aquatic invasive species (AIS) can spread through transported water? Invaders like zebra mussel larvae or spiny water fleas – too small to readily see – can survive to the next lake when water is left in your livewell, buckets, bilge, motor or equipment.

That's why volunteers on Polk County Lakes and Rivers will be reminding anglers and boaters to drain their gear this summer before hitting the road.

UW-Extension's AIS Communications Specialist, Deborah Seiler, says the campaign came about based on feedback from anglers. "Across the state, anglers were telling us the rules on fish and water transport just aren't as clear to them. The DNR and our AIS partners listened, and we're trying to help spread the word and offer a good alternative."

Once your day's catch is out of water, the fish aren't considered live and can be safely transported home. Since fish need to be kept fresh on the road, an alternative to livewells that's already preferred by many anglers is ice.

To help anglers out, sixteen Polk County lakes and rivers will be handing out ice packs at boat landings on June 13-14 as part of a statewide effort. Lakes and rivers participating include: Bone Lake, Big Blake Lake, Lakes Wapogasset, Bear Trap Lake, the Apple River Flowage, Big Round Lake, Church Pine Lake, Round Lake, Big Lake, Horseshoe Lake, Loveless Lake, Pipe Lake, North Pipe Lake, Balsam Lake, Deer Lake, and the St. Croix River.

Some folks are used to taking their catch home in livewells, but ice is a legal and better way to get those fish home. It stops any bacterial growth, and then your catch isn't ingesting the fish toxins that concentrate in fouled, low-oxygen water on the way home, which some say affects the taste. You also don't want that water making it to a new lake. Fish diseases or very small invasive species can get around that way.

Travelers may see and hear reminders to drain in other counties as well, as Polk County is one of many partners in a statewide initiative to share the message. Statewide radio will be carrying reminders to drain livewells from pro angler Joe Bucher and chef Kyle Cherek of *Wisconsin Foodie*, and partnering bait shops and convenience stores will have reminders on their ice chests for anglers who want to pick up extra ice.

Seiler adds, "We also hear that anglers are really passionate about protecting their lakes, and will take time to remove and drain invasive species from their boats just because it's the right thing to do. No one wants to bring zebra mussels to a new lake just because they forgot to pull the plug."

It takes just a few minutes at the landing to keep our lakes beautiful and our fish healthy. Know the laws and follow the AIS prevention steps every time you leave the water.

INSPECT boats, trailers and equipment
REMOVE all attached aquatic plants and animals
DRAIN all water from boats, vehicles, and equipment including livewells and buckets containing fish
NEVER MOVE plants or live fish away from a waterbody
DISPOSE of unwanted bait in the trash
BUY minnows from a Wisconsin bait dealer, use leftover minnows only under certain conditions*

*You may take leftover minnows away from any state water and use them again on that same water. You may use leftover minnows on other waters only if no lake or river water or other fish were added to their container.

For more information contact http://dnr.wi.gov/lakes/invasives

Aquatic Invasive Species Training Opportunity

The Polk County Land and Water Resources Department will host an Aquatic Invasive Species (AIS) monitoring workshop on Wednesday, July 15th at the Polk County Government Center, from 1-4pm.

The training and resource materials provided will help citizens identify invasive species such as Eurasian water milfoil, curly leaf pondweed, and zebra mussels. The training will also provide instructions on where and when to look for invasive species and what to do if you suspect that you have found an invasive plant or animal. Invasive species identification will take place, along with some native plant identification.

There is no cost to attend the workshop. To register, please contact Katelin Holm, katelin.holm@co.polk.wi.us, 715-485-8637.

RESCHEDULED--Boat Decontamination Unit Visits Polk County to Aid in Preventing Aquatic Invasive Species

ST. CROIX FALLS and AMERY, WI – As a result of a partnership between the St. Croix River Association, Polk County Land and Water Resources Department, Wisconsin Department of Natural Resources, the Town of Garfield, and the Lake Wapogasset and Bear Trap Lake Sanitary District, a boat decontamination unit from Spooner, WI, will be visiting Polk County on July 18 and 26. This event has been rescheduled due to equipment malfunction with the decontamination unit. The decontamination unit will clean boats and aid in preventing the spread of aquatic invasive species.

The Wisconsin Department of Natural Resources Water Guard will staff the unit and will clean boats at risk for spreading aggressive aquatic invasive species like Eurasian water milfoil, curly leaf pondweed, and zebra mussels. Eurasian water milfoil and curly leaf pondweed are found in Polk County and zebra mussels are found in neighboring counties. Invasive species such as these are harmful to native species and ecosystems.

The decontamination unit will be at Garfield Park on Lake Wapogasset on Saturday, July 18, from 8:00 AM to 4:00 PM. Local Clean Boats, Clean Waters volunteers from the Lake Wapogasset and Bear Trap Lake Sanitary District will join the Water Guard to remind boaters to clean, drain, and dry their boats.

The decontamination unit will be at Lions Park in St. Croix Falls on Sunday, July 26, from 8:00 AM to 4:00 PM. There, two St. Croix River Association interns will join the Water Guard as Clean Boats, Clean Waters ambassadors.

For more information, contact the St. Croix River Association or Polk County Land and Water Resources Department.

Details:

Garfield Park on Lake Wapogasset
July 18, 2015
8:00 AM – 4:00 PM

Lions Park, St. Croix Falls
July 26, 2015
8:00 AM – 4:00 PM

Contact:

Angelique Edgerton, Invasive Species Coordinator, St. Croix River Association
(715) 483-3300 | angeliquee@scramail.com

Katelin Holm, Water Quality Specialist, Polk County Land and Water Resources Department
(715) 485-8637 | katelin.holm@co.polk.wi.us

###

The St. Croix River Association works to protect, restore and celebrate the St. Croix River and its watershed. With an approach based on partnerships, the organization is working to realize a vision for the St. Croix as a place where rivers run free and clean, a diverse habitat sustains our unique and diverse flora and fauna, people have access to our National Park and the park flourishes, towns throughout the basin thrive, and people celebrate the river. More information is available at www.stcroixriverassociation.org.

FOR IMMEDIATE RELEASE

Aquatic Invasive Species Bridge Snapshot Day:
Volunteers Needed for this Unique Monitoring Event

On Saturday, August 29, 2015, from 9 am - 12 pm the Polk County Land and Water Resources Department and the St. Croix River Association will team up with the River Alliance of Wisconsin to host a one-of-a-kind volunteer event. Statewide nearly 200 volunteers will help search for invasive species, including escaped or intentionally released water garden and aquarium species that could choke our rivers and streams. Locally ten volunteers are needed to monitor sites across Polk County.

When asked why this event is important, Jeremy Jones, Aquatic Invasive Species Program Director for the River Alliance of Wisconsin, explained "At the 2014 Snapshot Day, volunteers found invasive species in previously undocumented locations and painted a fuller picture of the distribution of species around our river systems. Volunteers play a key role in early detection on their local waters and with their help we have more eyes on the water to prevent the spread of invasive species across the state. And besides, you get out to explore and have fun in your local river or stream, what could be better?"

After receiving training at the St. Croix River Association in St. Croix Falls, teams of volunteers will disperse to predetermined monitoring sites on the Balsam Branch, Apple River, Behning Creek, Horse Creek, and Osceola Creek to help look for species of concern. The monitoring sites vary from bridges spanning large rivers to culverts on country roads crossing small trout streams where invasives are likely to be introduced, intentionally or unintentionally. After monitoring their river or stream sites, volunteers will reconvene to report on what they found and enjoy lunch (provided).

There will be 17 rendezvous sites around the state, including St. Croix Falls, Appleton, and Minocqua. Volunteers will monitor over 150 locations on rivers such as the Fox River, Chippewa River, Mississippi River, Wisconsin River and more. Advanced registration is requested and will be open until August 21st. For a complete listing of rendezvous sites and to register, visit www.wisconsinrivers.org/events

Fall is best time to look for zebra mussels as boats, piers removed for winter

It isn't every day that someone has the ability to look underneath their dock and see what is happening on their structure. That rare opportunity will present itself as summer gives way to autumn and lake residents and lake service providers start to remove boats, docks and piers from the water. Why would anyone want to take a look at the bottom of the piers?

"The clean equipment that gets installed every year provides an excellent home for aquatic invasive species (AIS) like zebra mussels to colonize," explains Katelin Holm Polk County Aquatic Invasive Species Coordinator**.** "It's often difficult to thoroughly inspect a structure while it's in the water; however during removal anyone involved with the process can easily monitor for invasive species."

AIS are non-native plants and animals that threaten Wisconsin's waters by causing environmental and economic harm. One example, zebra mussels, can clog water intakes and pipes, encrust piers, boats and motors, and their sharp shells can cut the feet of swimmers.

Zebra mussels have been found in less than 5% of Wisconsin lakes predicted to be suitable for zebra mussels. They have not yet been reported in Polk County.

To protect the rest of Polk County's lakes and rivers, landowners and contractors can carefully examine piers, boats, boatlifts, rafts and any other equipment that has been in the water for a prolonged period of time for signs of zebra mussels during removal.

In addition to a visual inspection, citizens/contractors are encouraged to feel smooth surfaces of equipment to check for juvenile zebra mussels as they may have a "sand-paper like" feel and are often invisible to the human eye. If zebra mussels or other new invasive species are found:

- Check that the invasive species has not been previously found on the waterbody by visiting http://dnr.wi.gov/lakes/invasives/AISLists.aspx?species=ZM
- Note the exact location where the animal was found.
- Take a digital photo of the animal in the setting where it was found (if possible). Then collect up to five specimens of varying sizes. Place in a jar with water; put on ice and transport to refrigerator.
- Contact Katelin Holm, Polk County AIS Coordinator at (715) 485-8637 and deliver specimens.

"Responding quickly to new AIS detections is critical to help slow the spread into other waterbodies," says Tim Campbell, AIS communications specialist for UW-Extension and the Wisconsin DNR. "It can also help control AIS within a body of water. Efforts of citizens statewide can help us achieve that."

There are also specific laws lake property owners and contractors must follow to prevent the spread of AIS. Prior to transporting any equipment Wisconsin law requires you to:

- **INSPECT boats, trailers, boat lifts, piers, rafts and equipment.**
- **REMOVE all attached aquatic plants and animals.**

- **DRAIN all water from boats, vehicles, and equipment.**

To learn more about zebra mussels or Wisconsin aquatic invasive species regulations visit: dnr.wi.gov keyword “invasive species”.

County aims to slow spread of aquatic invasives

Posted: Tuesday, October 6, 2015 11:01 am | *Updated: 11:01 am, Tue Oct 6, 2015.*

By Suzanne Lindgren Editor@osceolasun.com | 0 comments

From the Chinese Mystery Snail in Balsam Lake and rusty crayfish in Osceola Creek to curly leaf pondweed in Lake O' the Dalles and bighead carp in the St. Croix River, Polk County is host to an array of aquatic invasive species (AIS).

At the same time, many of the county's waters are exceptionally pure, giving residents and officials good reason to protect lakes, streams and rivers from further spread of invasive species.

A new countywide plan should help in two ways. First, simply as a management plan. Second, by setting the county up for grants to manage AIS.

Katelin Holm, information and education coordinator for Polk County's Land and Water Resources Department, did much of the work involved in creating the AIS strategic plan for the county.

Her department's work is funded by DNR grants, she said, and the plan will set the county up nicely for future awards.

Before drafting the strategic plan, Holm researched other AIS management plans, including Douglas, Bayfield and Washburn counties' plans, the state's and those created by large watershed basins.

The finished plan includes information about where aquatic invasive species have taken hold in the county and efforts by the Land and Water Resources Department and local lake associations to mitigate their spread.

The plan's final pages, on implementation, are key. They include specific examples of what the county is doing and how it hopes to slow AIS.

Current efforts include cameras to monitor activity at boat landings, and the sharing of information through maps, billboards, stickers and kiosks.

The plan also lists potential projects for AIS detection, response and educational outreach, for which the Land and Water Resources Department would seek grant funding.

"This is what is going to help us with future grants because it lays out important goals for the county in terms of invasive species and the actions we're going to take to achieve those goals," said Holm.

Specific goals are tied to a timeline.

“That’s so we know the most important things we want to do each year,” said Holm, “and what we can do as the need arises.”

Polk County approved the plan Sept. 15. An OK from the DNR is the final step, said Holm, who thinks the plan will be approved by year’s end.

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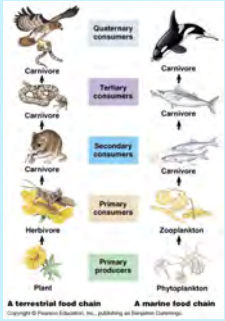
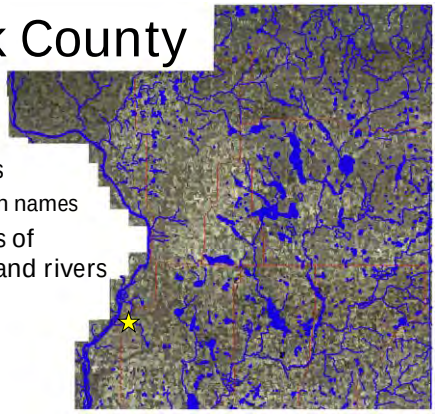
What makes a species invasive?

- Not from Wisconsin
- Lots of seeds or eggs
- No natural predators
- Can tolerate many conditions



Polk County

- 437 lakes
  - 218 with names
- 375 miles of streams and rivers



Purple loosestrife
Galerucella beetles

Spiny water flea

Zebra Mussels

Rusty crayfish

Sea Lamprey

Asian carp

Polk County cares about our water resources!
LOCAL ORDINANCE
Boaters must remove all aquatic plants and invasive animals before launching and entering a roadway.
Fines - $200-$500.
Illegal to Transport
Polk County Ordinance 10-08
www.co.polk.wi.us/landwater/

Appendix F: Polk County Aquatic Invasive Species Strategic Plan

Polk County Aquatic Invasive Species Strategic Plan
Planning Session 1

Wednesday, May 20th 2015
7-9 pm
Polk County Justice Center, Balsam Lake

Agenda

7:00 Introductions

7:05 Purpose of the meeting

7:15 Review AIS issues

7:20 Review draft Polk County AIS Strategic Plan

7:30 Review and provide feedback on goals, objectives, and actions (GOA's)

8:30 Consider additional ideas for GOA's

8:50 Wrap up

9:00 Adjourn

This meeting is open the public according to WI Statute 19.83. Persons with disabilities wishing to attend and/or participate are asked to notify the County Clerk's office (715-485-9226) at least 24 hours in advance of the scheduled meeting time so all reasonable accommodations can be made. Requests are confidential.

If this is a public meeting, which it must be, it needs to have this ADA compliant statement on the agenda.

Advertisement for paper

Polk County Aquatic Invasive Species (AIS) Strategic Plan

The first meeting to develop a County AIS Strategic Plan will be held at the Polk County Justice Center on Wednesday, May 20th at 7 pm.

A draft plan can be found at www.co.polk.wi.us, Departments, Land and Water Resources, Reports. Call 715-485-8699 for more information.

News Release

Polk County Aquatic Invasive Species Strategic Plan Meetings

For Immediate Release

The presence of aquatic invasive species (AIS) can have devastating impacts on native ecosystems, decrease property values, and harm businesses that depend on water recreation.

You have a stake in the prevention of aquatic invasive species in Polk County!

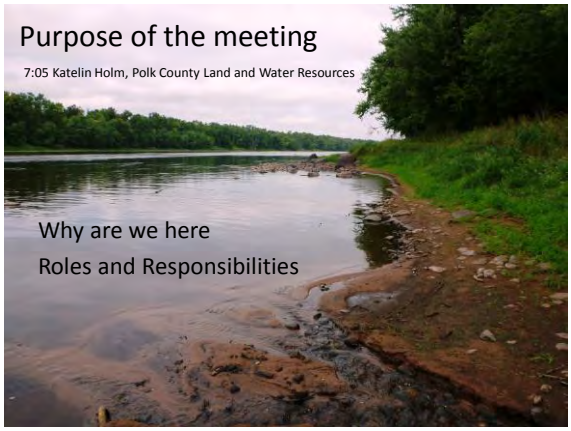
Please plan to attend two upcoming meetings to develop a strategic plan to prioritize which actions should take place in Polk County in response to aquatic invasive species. Meetings dates have been set for **Wednesday, May 20th** and **Wednesday, June 17th.** Both meetings will be held at the **Polk County Justice Center Community Room** in **Balsam Lake** from **7-9pm.** The June meeting will be held in conjunction with the Polk County Association of Lakes and Rivers Meeting.

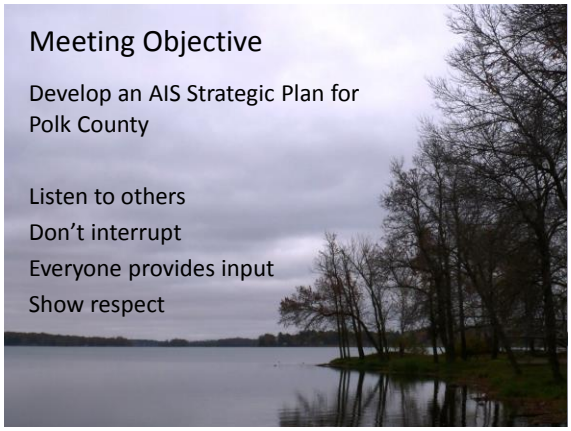
By attending these meetings, you can help shape countywide AIS priorities through sharing your ideas. The development of this plan is supported by a Wisconsin Department of Natural Resources grant and the plan will help with obtaining grant funds for implementation of the plan.

The draft strategic plan can be found online at: www.co.polk.wi.us, Departments, Land and Water Resources, Reports. For more information please contact the Land and Water Resources Department at 715-485-8699.

Polk County Aquatic Invasive Species
Strategic Plan

Introductions
7:00 Tim Ritten, Polk County Land and Water Resources


Purpose of the meeting
7:05 Katelin Holm, Polk County Land and Water Resources
Why are we here
Roles and Responsibilities


Meeting Objective
Develop an AIS Strategic Plan for Polk County
Listen to others
Don't interrupt
Everyone provides input
Show respect

Roles and Responsibilities
Participants
Share knowledge
Share concerns
Review materials
Staff
Stay on schedule
Write draft and final plan
Share progress

Review aquatic invasive species issues
7:15 Jeremy Williamson, Polk County Land and Water Resources

Review draft Polk County AIS Strategic Plan

7:20 Katelin Holm, Polk County Land and Water Resources

Plan Structure

- Background information
- Goals, Objectives, Actions

Review and provide feedback on goals, objectives, and actions

7:30 Tim Anderson, Polk County Land Information

Consider additional ideas for goals, objectives, and actions

8:30 Tim Anderson, Polk County Land Information

Wrap up

8:50 Katelin Holm, Polk County Land and Water Resources

June 17
7-9 pm
Justice Center

Incorporate feedback
Email revised plan

Tentative Timeline

June 17th	Polk County AIS Strategic Planning Session 2
June 30th	Plan finalized, 30 day public comment period begins
August 1st	Public comment period concludes
August	Land Conservation Committee approval
September	Polk County Board approval
December	Wisconsin Department of Natural Resources Approval

Adjourn

Thank you!

Polk County Aquatic Invasive Species Strategic Plan
Planning Session 2

Wednesday, June 17th 2015
7-9 pm
Polk County Justice Center, Balsam Lake

Agenda

A quorum of the County Board may be present

7:00 Introductions

7:05 Purpose of the meeting

7:10 Review changes to goals, objectives, and actions from May meeting

7:40 Consider additional changes to goals, objectives, and actions

7:50 Wrap Up
Tentative Implementation Timeline
June 30th: Plan finalized and ready for 30 day public comment period
August 1st: Public comment period concludes
August: Land Conservation Committee approval
September: Polk County Board approval
December: Wisconsin Department of Natural Resources approval

8:00 Begin Polk County Association of Lakes and Rivers (PCALR) Annual Meeting
For more information on PCALR visit: http://pcalr.org/
Introductions
Treasurer Report
Membership Report
Website Report
Updated Bylaws Discussion and Adoption
Elections
Adjourn

This meeting is open the public according to WI Statute 19.83. Persons with disabilities wishing to attend and/or participate are asked to notify the County Clerk's office (715-485-9226) at least 24 hours in advance of the scheduled meeting time so all reasonable accommodations can be made. Requests are confidential.

If this is a public meeting, which it must be, it needs to have this ADA compliant statement on the agenda.

Advertisement for paper

Polk County Aquatic Invasive Species (AIS) Strategic Plan

The second meeting to develop a County AIS Strategic Plan will be held at the Polk County Justice Center on Wednesday, June 17th at 7 pm, directly followed by the annual meeting of the Polk County Association of Lakes and Rivers.

A draft plan can be found at www.co.polk.wi.us, Departments, Land and Water Resources, Reports. Call 715-485-8699 for more information.

Notice of Taking Public Comment, Polk County Land and Water Resources Department

The public is invited to review and provide comments on the Polk County Aquatic Invasive Species Strategic Plan. A hard copy of the plan is available at the Polk County Land and Water Resources Department and an online version is available at www.co.polk.wi.us, Departments, Land and Water Resources, Reports, Polk County Aquatic Invasive Species Strategic Plan.

Comments and suggestions should be submitted in writing or email and received by Friday, July 31st to ensure they are given proper consideration in the final plan. Anyone interested in providing input should contact the Polk County Land and Water Resources Department, Katelin Holm, katelin.holm@co.polk.wi.us or 100 Polk County Plaza, Ste 120, Balsam Lake, WI 54810. Please call 715-485-8699 for more information.

Polk County, Wisconsin Aquatic Invasive Species (AIS) Strategic Plan, 2015-2020

Prepared by Polk County Land and Water Resources Department

ACKNOWLEDGEMENTS

Polk County Aquatic Invasive Species Strategic Plan Workgroup Members

Angelique Edgerton, St. Croix River Association
Annette Viebrock, Church Pine, Round, and Big Lakes
Blaine Erickson, Loveless Lake
Bob Boyd, Bone Lake
Bob Goodlad, Cedar Lake
Byron Karns, National Park Service
Carl Holmgren, Balsam Lake
Chelsey Collette, Wisconsin Department of Natural Resources
Dan Bergeron, Big Round Lake
Derrick Carlson, Apple River Flowage
Dick Hollar, Pipe Lakes
Gordon Kill, Big Round Lake
Jeremy Williamson, Polk County Land and Water Resources Department
Jim Maxwell, Big Blake Lake
Joe Ziglinski, Lake Wapogasset/Bear Trap
John Wright, Deer Lake
Karen Engelbretson, Polk County Association of Lakes and Rivers
Katelin Holm, Polk County Land and Water Resources Department
Larry Bresina, Pipe Lakes
Lee Rickard, Lake Wapogasset/Bear Trap
Marianne Shira, Church Pine, Round, and Big Lakes
Mark Jacobson, Lake Wapogasset/Bear Trap
Roger Breault, Round Trade Lake
Roland Peterson, Apple River Flowage
Tim Anderson, Polk County Land Information Department
Tim Ritten, Polk County Land and Water Resources Department
Vicki Breault, Round Trade Lake
Wally Trudeau, Conservation Congress
Warren Nelson, County Board Supervisor
Wayne Wolsey, Bone Lake

Funding support provided by Wisconsin Department of Natural Resources Aquatic Invasive Species Control Grant AEPP-429-14.

Resolution # 34-15

Resolution Adopting the Polk County Aquatic Invasive Species Strategic Plan

TO THE HONORABLE SUPERVISORS OF THE COUNTY BOARD OF THE COUNTY OF POLK:
Ladies and Gentlemen:

WHEREAS, aquatic invasive species (AIS) have spread into watersheds in Polk County, posing increased risks to un-infested waters, and potentially threatening water quality, wildlife habitat, property values, and the tourism industry in the region; and

WHEREAS, the residents and professionals in and outside of the county understand that to address AIS effectively, many activities performed by many entities are needed; and

WHEREAS, the resulting plan identifies goals, objectives, and actions for implementation by many entities across the county to prevent, monitor, manage and control AIS in the county, and sustain these efforts into the future; and

WHEREAS, two public informational meetings were held and public comments were received, reviewed, and added to the plan where deemed necessary.

NOW, THEREFORE, BE IT RESOLVED THAT the Polk County Board of Supervisors approves and adopts the Polk County Aquatic Invasive Species Strategic Plan, attached hereto and incorporated herein.

Funding Source/ Funding Amount:	Not Applicable
Date Reviewed as to Appropriations:	Not Applicable
Committee Recommendation as To Appropriation:	Not Applicable
Effective Date:	Upon Passage
Dated Submitted To County Board	September 15, 2015
Submitted By:	
Review By County Administrator: ☒ Recommended ☐ Not Recommended ☐ Reviewed Only Dana Frey, County Administrator	Review By Corporation Counsel: ☒ Approved as to Form ☒ Recommended ☐ Not Recommended ☐ Reviewed Only

Acknowledgement of County Board Action
Mark As Appropriate:

At its regular business meeting on the 15th[th] of September 2015, the Polk County Board of Supervisors considered and acted on the above resolution, Resolution No. 34-15: Resolution Adopting the Polk County Aquatic Invasive Species Strategic Plan, as follows:

- ☐ Adopted by simple majority of the board of supervisors by a vote of _____ in favor and _____ against.
- ☒ Adopted by unanimous vote.
- ☐ Defeated by a vote of _____ in favor and _____against.
- ☐ Defeated by voice vote.
- ☐ Action Deferred by Procedural Action, as follows: _____

_____

_____

SIGNED BY: _____

William F. Johnson, IV, County Board Chairperson

Attest: _____

Carole T. Wondra, County Clerk

STATE OF WISCONSIN)
)SS
COUNTY OF POLK)

I, Carole T. Wondra, Clerk for Polk County, do hereby certify that the attached is a true and correct copy of Resolution No. 34-15, that was adopted by the Polk County Board of Supervisors on Sept. 15, 2015.

Carole T. Wondra 9-18-15
Carole T. Wondra Date

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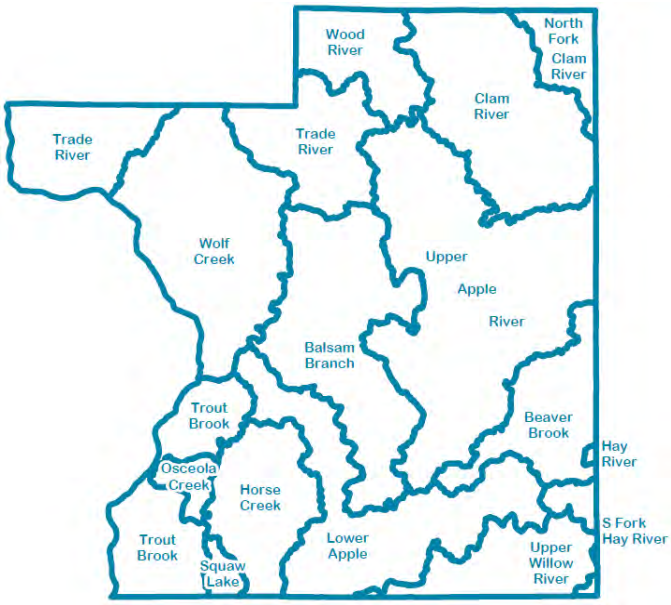
INTRODUCTION TO POLK COUNTY

Polk County is located in west-central Wisconsin, with its western border being formed by the St. Croix River, a National Scenic and Wild River. The county is bordered on the north by Burnett County, on the east by Barron County, on the south by St. Croix County, and on the west by Chisago and Washington County, Minnesota. Polk County is located northeast of the Minneapolis-St. Paul metropolitan area.

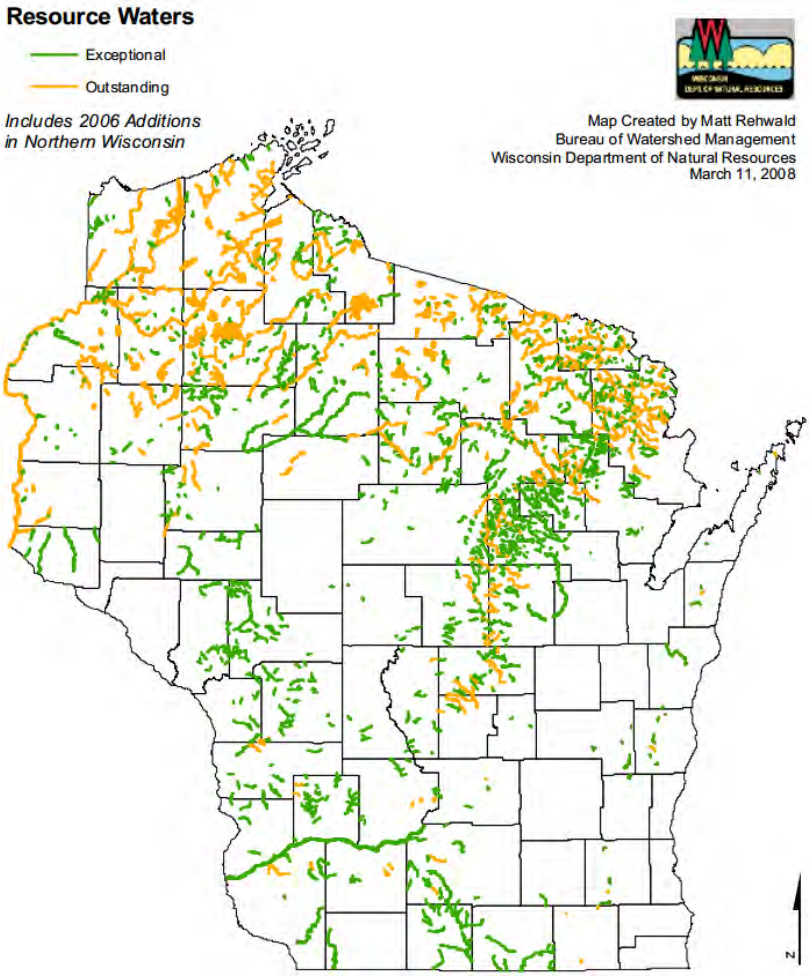
Polk County has a total surface area of 605,672 acres, or 946 square miles. Surface waters cover 24,960 acres or 39 square miles of Polk County. The county has 437 lakes totaling over 22,600 acres and 200 miles of rivers and streams, including 98 miles of trout streams. There are a total of 86 ramp access sites and 28 carry-in sites in Polk County which provide access to Polk County waterbodies.

The vast majority of Polk County falls in the St. Croix Basin, with the southeastern corner falling in the Lower Chippewa Basin. Major surface water drainage basins include Balsam Branch, Beaver Brook, Clam River, Horse Creek, Lower Apple River, North Fork Clam River, Osceola Creek, Squaw Lake, Trade River, Trout Brook, Upper Apple River, Upper Willow River, Wolf Creek, and Wood River in the St. Croix Basin and the Hay River and South Fork Hay River in the Lower Chippewa Basin.



Wisconsin has designated many of the state's highest quality waters as Outstanding Resource Waters or Exceptional Resource Waters. Waters with these designations provide outstanding recreational opportunities, support valuable fisheries and wildlife habitat, have good water quality, and are not significantly impacted by human activities.

Six Polk County waterbodies are classified as Outstanding Resource Waters (Clam River, McKenzie Creek, Orr Creek, Pipe Lake, Sand Creek/Tributaries, and portions of the St. Croix River) and ten are classified as Exceptional Resource Waters (Behning Creek, Big Rock Creek, Burns Creek, Knapp Creek, Little McKenzie Creek, Marquee Creek/Springs, Peabody Creek, the St. Croix River, Toby Creek/Springs, and Wolf Creek).



According to the Natural Heritage Inventory, Polk County has 90 rare species (15 fish and 14 mussels) and 30 natural communities.

The western boarder of the county is formed by the St. Croix River, an Outstanding and Exceptional Resource Water and National Wild and Scenic Waterway, which is classified as an Aquatic Invasive Species (AIS) Source Water. Well over 50% of the shore of the river is in public ownership, with public lands along the river including the Governor Knowles State Forest and Interstate State Park. Twelve boat access ramps and 11 carry-in sites provide access to the river from Polk County.

Polk County is generally rural with a 2010 population of 44,205. The population for 2000-2035 is projected to grow at a rate solidly above the state percentage (30%-48%). Over 20% of the county's total housing supplies are seasonal or recreational units. This large percentage results from Polk County's close proximity to the Twin Cities and its abundance of natural resources.

INTRODUCTION TO AQUATIC INVASIVE SPECIES

Aquatic invasive species (AIS) are non-indigenous species that dwell in water or wetlands whose introduction cause, or is likely to cause, economic or environmental harm or harm to human health. When AIS arrive in Polk County they have a competitive advantage over native species because they lack natural predators, parasites, pathogens, diseases, and competitors to keep their populations in check. As a result, populations of AIS can explode and outcompete native species by using available resources.

Additionally, many AIS have life strategies which give them a competitive advantage over native species. Strategies include high reproductive rates, early seasonal growth and development, and tolerance for a wide range of environmental conditions.

Invasive species can come from other parts of the United States or from other countries and can be released either intentionally or unintentionally. Modes and reasons for introduction can vary widely and include: ballast water for shipping, food sources, bait sources, and the garden/aquarium plant trade. Although some species may have been introduced through natural migration, humans are the primary way invasive species are spread.

AIS can displace native species; reduce wildlife habitat; and negatively impact property values, recreational activities, tourism, and industries.

AQUATIC INVASIVE SPECIES IN POLK COUNTY

To date there are documented populations of seven different AIS in Polk County: banded mystery snails, Chinese mystery snails, curly leaf pondweed, Eurasian water milfoil, Japanese/giant knotweed, purple loosestrife, and rusty crayfish. Additionally, zebra mussels are present just south of Polk County in St. Croix County.

The most common AIS in Polk County are curly leaf pondweed and Chinese mystery snails which are documented on 39 and 36 waterbodies, respectively. Banded mystery snails have been documented on 12 waterbodies, rusty crayfish on 10 waterbodies, purple loosestrife on 8 waterbodies, Japanese/giant knotweed on 7 waterbodies, and Eurasian water milfoil on 5 waterbodies.

Waterbody Name	Waterbody ID Code (WBIC)	Banded Mystery Snail	Chinese Mystery Snail	Curly-Leaf Pondweed	Eurasian Water Milfoil	Giant and Japanese Knotweed	Purple Loosestrife	Rusty Crayfish
Alabama Lake	2449200			x				
Antler Lake	2449400		x					
Apple River	2614000		x	x				x
Apple River Flowage	2624200			x				
Balsam Branch	2618300			x				x
Balsam Lake	2620600		x	x		x	x	
Bear Trap Lake	2618100		x	x				
Big Blake Lake	2627000	x	x	x		x		
Big Butternut Lake	2641000	x	x	x				
Big Lake	2615900	x	x	x		x	x	
Big Round Lake	2627400			x				
Black Brook Flowage	2621900	x	x	x				
Bone Lake	2454400	x		x				
Bone Lake	2628100	x	x	x				
Camelia Lake	2079400		x					
Cedar Lake	2615100		x	x	x	x		
Church Pine Lake	2616100		x					
Clam Falls Flowage	2666400		x	x				
Clear Lake	2623500		x					
Deer Lake	2460500			x				
Deer Lake	2619400		x	x				
Fox Creek	2626800							x
Grimhs Lake	2467400						x	
Half Moon Lake	2621100	x	x	x				x
Herby Lake	2468900			x				
Horse Lake	2616200			x				
Horseshoe Lake	2470100		x					
Horseshoe Lake	2630100			x	x			
Lake O' the Dalles	2634200			x				

Waterbody Name	Waterbody ID Code (WBIC)	Banded Mystery Snail	Chinese Mystery Snail	Curly-Leaf Pondweed	Eurasian Water Milfoil	Giant and Japanese Knotweed	Purple Loosestrife	Rusty Crayfish
Little Butternut Lake	2640700			x		x		
Little Mirror Lake	2477100			x				
Long Trade Lake	2640500			x	x			
Lotus Lake	2616900						x	
Loveless Lake	2620000			x				
Lower Pine Lake	2479900		x					
Magnor Lake	2624600	x	x	x				
McKenzie Lake	2667300		x					
Mud Lake	2619100			x				
North Pipe Lake	2485700	x	x					
North Twin Lake	2623900		x	x			x	
North White Ash Lake	2628800	x	x	x			x	
Osceola Creek	2632700							x
Pike Lake	2624000		x	x	x			
Pine Lake	2489900		x					
Pine Lake	2490400		x	x				
Pipe Lake	2490500		x					
Round Lake	2616400			x				
Sand Lake	2495000		x	x				
Sandhill Lake	2495400		x	x				
Silver Lake	2496700		x				x	
South Twin Lake	2623800		x					
St. Croix River	2634400				x	x		x
Staples Lake	2631200	x	x	x				
Swede Lake	2500500		x					
Trade River	2636000							x
Unnamed	2658800			x				
Wapogasset Lake	2618000		x	x		x		x
Ward Lake	2599400		x					
White Ash Lake	2628600		x	x			x	
Willow River	2606900							x
Wood River	2642900							x

Banded Mystery Snails are native to the southeastern United States, being found primarily in the Mississippi River System up to Illinois. This invasive snail species is popular in the aquarium trade which likely explains it's presence outside its native range.

Besides causing aesthetic problems, banded mystery snails can cause mortality of largemouth bass embryos if nests are invaded. The banded mystery snail is easily distinguished by the presence of reddish bands which are arranged parallel to the whorl of the shell.

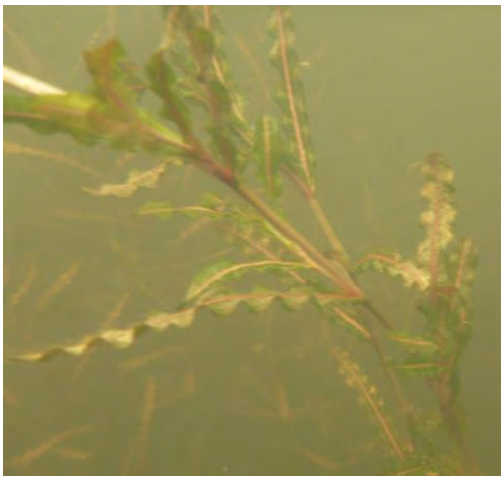
Banded mystery snails were first documented in Polk County in 2003 in Half Moon Lake. Although their spread had continued, they are still much less common in Polk County as compared with the Chinese mystery snail. They have been documented on only 12 Polk County waterbodies.

Chinese Mystery Snails were imported to the west coast in the late 1800's as a food source for the Asian market and have spread via aquarium release and other accidental and intentional introductions. When introduced to a new waterbody, the Chinese mystery snail alters the ecosystem composition, structure, and function by competing with native snails for food and space.

Populations of Chinese mystery snails are established in many Northern Wisconsin lakes and have been documented in 36 Polk County waterbodies.

Curly Leaf Pondweed is a submerged aquatic invasive plant. The leaves of curly leaf pondweed are easily distinguished by their rounded tip, prominent mid-vein, and finely toothed edges. In certain growing conditions, the leaves appear wavy or crimped.

Curly leaf pondweed is found in a wide variety of habitats, although it prefers alkaline and high nutrient waterbodies and typically grows in less than 3 meters of water.



This invasive species outcompetes native aquatic plants because it exhibits rapid growth in the early spring, sometimes growing beneath ice cover. Curly leaf pondweed forms large, dense mats on the surface of waterbodies inhibiting the light necessary for native plant growth and interfering with navigation and recreational activities.

Curly leaf pondweed was first discovered in Polk County in the Apple River Flowage in 1977. It has been documented in 39 waterbodies in Polk County.

Eurasian Water Milfoil is a submerged aquatic invasive plant with delicate, feather-like leaves arranged in a whorl around the stem of the plant. It can be distinguished from native milfoils by the 12-21 leaflets making up each leaf.

Eurasian water milfoil is capable of forming large, thick mats which interfere with recreational uses. It can have devastating impacts on native ecosystems, displacing native aquatic plants and impacting fish and wildlife populations.

Eurasian water milfoil was first discovered in North America in the 1940's. Since this time it has invaded nearly every state in the United States. Eurasian water milfoil spreads when small fragments of the plant break off, form new plants, and float on water currents or are transported by boater traffic.

Establishment of Eurasian water milfoil populations in Polk County has occurred relatively recently, being first found in Long Trade Lake in 1995. Long Trade Lake is part of the Trade River System, which includes Little Trade, Big Trade, and Round Lakes in Burnett County. Eurasian water milfoil was discovered in Round Lake in 2003 and in Little Trade Lake in 2009. Eurasian water milfoil was found in Horseshoe Lake in 2006, in Pike Lake in 2010, in the St. Croix River between Spanglers Landing and Lions Park Landing in 2013, and in Cedar Lake in 2015. Eurasian water milfoil is currently documented on 5 Polk County waterbodies.

Japanese and Giant Knotweed are native to Asia and were imported to the United States in the mid 1900's as ornamental plants, although they are becoming more prevelant in the wild. The plant can reach up to fifteen feet and is easily distinguished by hollow bamboo-like stalks.

Knotweed is a perennial, meaning that each spring it re-grows from an extensive root system. Both species grow extremely fast and form a dense canopy of foliage which blocks sunlight from reaching the ground. As a result, native vegetation is unable to grow beneath a knotweed stand. When knotweed establishes on stream banks, the lack of understory can promote intense erosion causing soil and knotweed roots to move downstream.

Knotweed was first discovered in Polk County in 2009. In 2012 and 2013 knotweed control measures were conducted by Polk County LWRD under an early detection and response grant. Knotweed has been documented at 93 sites in Polk County and on 7 waterbodies.

Purple Loosestrife is an aquatic invasive perennial plant that grows 3-7 feet tall and develops a spike of small purple flowers in late summer. The leaves are oblong and arranged oppositely along a square shaped stem. Purple loosestrife spreads rapidly and colonizes wetlands, shorelines, and roadside ditches. Thick stands of purple loosestrife crowd out native vegetation and reduce food, shelter, and nesting sites for a variety of wildlife.

This plant, native to Europe and Asia, was introduced in North America in the 1800's for beekeeping and as a garden ornamental. Purple loosestrife has been present in Polk County for many years. An inventory was conducted in 2000 by Polk County LWRD to identify the extent of purple loosestrife and to reduce its spread. Purple loosestrife is currently documented on 8 Polk County waterbodies.

Rusty Crayfish are invasive crustaceans that can have profound impacts on lakes, rivers, and streams. They are more aggressive and are better able to avoid predation than native crayfish. Rusty crayfish can be identified by the rust colored spots on the hard part of their upper shell. They can also harm native fish populations by eating their eggs and young.

Rusty crayfish are currently documented on 10 Polk County waterbodies.

Zebra Mussels are aquatic invasive mussels with a D-shaped shell exhibiting alternating black and white stripes. Since they are able to attach to hard surfaces, zebra mussels can clog water intakes and damage equipment such as boat motors. When water bodies are infested with zebra mussels their shorelines become littered with sharp shells, impeding human recreational opportunities. Additionally, zebra mussels damage ecosystems by harming fisheries and smothering native mussels, snails, and crayfish.

Zebra mussels arrived in the Great Lakes in the late 1980's from contaminated ballast water. Since that time they have expanded in range via the Mississippi River. Zebra mussels have not been found in Polk County; however, in 2010 they were discovered in Bass Lake in St. Croix County.

Aquatic Invasive Species Ordinances, Laws, Related Plans, and Databases

In 2001, the Wisconsin Legislature directed the Department of Natural Resources to establish a statewide program to control invasive species and to promulgate rules to identify, classify, and control invasive species for purposes of the program. By 2004, the Wisconsin Council on Invasive Species formed to assist WDNR with this task.

As a result, on September 1, 2009 the WDNR created Wisconsin's Invasive Species Identification, Classification, and Control Rule, Chapter NR 40, Wisconsin Administrative Code. The rule helps citizens learn to identify and minimize the spread of plants, animals and diseases that can invade our lands and waters and cause significant damage.

The invasive species rule creates a comprehensive, science-based system with criteria to classify invasive species into two categories: prohibited and restricted. With certain exceptions, the transport, possession, transfer, and introduction of prohibited species is banned. Restricted species are also subject to a ban on transport, transfer, and introduction, although possession is allowed, with the exception of fish and crayfish.

Wisconsin has various laws in place to prevent the introduction and control the spread of AIS and diseases in Wisconsin.

Wisconsin Transport Laws for Boaters and Anglers

- INSPECT your boat, trailer and equipment.
- REMOVE any attached aquatic plants or animals (before launching, after loading and before transporting on a public highway).
- DRAIN all water from boats, motors, and all equipment.
- NEVER MOVE live fish away from a waterbody.
- DISPOSE of unwanted bait in the trash.
- BUY minnows from a Wisconsin bait dealer. You may take leftover minnows away from any state water and use them again on that same water. You may use leftover minnows on other waters only if no lake or river water, or other fish were added to their container.

In 2008, the Polk County Illegal Transport of Aquatic Plants and Invasive Animals Ordinance was adopted, making it illegal to operate or transport equipment with aquatic plants or invasive animals attached. Public input into the decision making process was sought through public meetings which were advertised

in local papers. The Ordinance was amended in 2011 to include language regarding liability of a vehicle, watercraft, trailer, or equipment of the owner or lessor. Polk County LWRD purchased and installed ninety metal ordinance signs in 2009. In 2011, LWRD staff worked closely with local law officials to ensure enforcement of the amended ordinance.

The Polk County Land and Water Resource Management Plan, 2009, adopted by the County Board and approved by the state describes the strategy LWRD will employ to address the factors that affect the natural resources of Polk County. Goal 1, Objective 1A pertains to AIS:

Goal 1. Protect the water quality of our groundwater, lakes, streams, rivers, creeks, and associated ecosystems.

Objective 1A. Prevent, control, or eliminate AIS to protect the integrity of our surface water resources.

1. Educate water users, lake groups, and special parties (fishing groups) of the impact, spread, and peril of AIS.
2. Monitor waterbodies for the presence/absence or extent of invasion.
3. Create a plan for invasive species management.
4. Use volunteers and interns whenever possible.
5. Employ strategies to keep native ecosystems intact.
6. Work with other agencies to coordinate programs and provide information.

The St. Croix River Association is currently in the process of developing an AIS Strategic Plan for the St. Croix River Watershed. Polk County was represented at the planning meetings.

Polk County does not currently have its own AIS database. Data that is collected in accordance with statewide protocols or through statewide programs such as Clean Boats, Clean Waters are entered into the WDNR Surface Water Integrated Monitoring System (SWIMS) database. A username and password is required to enter data into SWIMS, making this database only accessible to trained volunteers. Many forms of data, in addition to AIS information, can be entered into SWIMS.

Much of the data entered into SWIMS is readily available on the WDNR website without a login. The locations of AIS can be found on the WDNR Surface Water Data Viewer at: http://dnrmaps.wi.gov/sl/?Viewer=SWDV and Clean Boats, Clean Waters data and graphs can be found at: http://dnr.wi.gov/lakes/cbcw/. Additionally, WDNR grant details can be found at: http://dnr.wi.gov/lakes/grants/Projects.aspx?location=.

The Great Lakes Indian Fish and Wildlife Commission (GLIFWC) also maintains a website for viewing AIS locations in Michigan, Minnesota, and Wisconsin available at http://invasives.glifwc.org/.

Polk County Land and Water Resources Department Aquatic Invasive Species Initiatives

AIS efforts by Polk County LWRD have been primarily funded with support from WDNR grants. The county's first grant was received in 2008 and two additional grants have been awarded since this time. Additionally, a rapid response grant for Japanese Knotweed was awarded to Polk and Burnett Counties in 2009. The efforts of LWRD can be organized into three categories detailed below: education, monitoring, and control. Many of these efforts occur with statewide and local support.

Education

LWRD provides AIS education and information to any group requesting it. Support ranges from providing brochures and specimens for meetings, creating display boards, or presenting programs. In a typical year, LWRD attends and gives presentations at lake organization's annual meetings, community events, schools, and libraries. LWRD submits WDNR press releases customized for Polk County to local newspapers and authors AIS newsletter articles for lake organizations when requested. Beginning in 2011, LWRD has been a bi-weekly featured guest on WPCA radio, which provides an avenue for communicating AIS updates to the public. LWRD has also filmed and produced YouTube videos with an AIS message. In 2010, Polk County LWRD designed a two page color advertisement regarding invasive species and the Polk County Illegal to Transport Ordinance for the Polk County Visitors Guide.

LWRD provides support and training for all statewide AIS programs including: Project RED, Citizen Lake Monitoring, Clean Boats, Clean Waters, the Landing Blitz, the Draining Campaign, and the Bridge Snapshot Day. In the past, LWRD has provided county-wide trainings and individual lake organization trainings.

Monitoring

Since 2001, LWRD has participated in the statewide AIS early detection smart prevention protocol. This protocol was adapted and used to monitor the St. Croix River in 2013. Since Eurasian water milfoil is only established in four Polk County waterbodies, LWRD also monitors lakes in the vicinity of Eurasian water milfoil lakes for this early detection species. With the discovery of zebra mussels in northern St. Croix County, LWRD has also monitored lakes near the county border for zebra mussels. Most knotweed and purple loosestrife sites are located when traveling across the county to project sites or from concerned landowner contact.

Control

LWRD has been most involved with controlling knotweed and purple loosestrife. Knotweed has been managed in Polk County since 2009 and purple loosestrife since 2000. Knotweed and small stands of purple loosestrife are managed with herbicide and *Galerucella* beetles are used as a biological control for large stands of purple loosestrife. In 2014, LWRD partnered with the National Park Service, St. Croix River Association, St. Croix Tribal Youth Program, and volunteers to hand pull Eurasian water milfoil on the St. Croix River.

Involvement in Statewide Aquatic Invasive Species Initiatives

The WDNR offers support for implementing a variety of statewide AIS initiatives. Whenever possible, these initiatives are implemented in Polk County.

Clean Boats, Clean Waters

Through the Clean Boats, Clean Waters program, inspectors are trained to organize and conduct a boater education program in their community. Adults and youth teams educate boaters on how and where invasive species are most likely to hitch a ride into waterbodies. Inspectors perform boat and trailer checks for invasive species, distribute informational brochures, and collect and report any new water body infestations.

Clean Boats, Clean Waters programs were implemented at thirty landings on twenty-one Polk County waterbodies from 2012-2014. In 2014 in Polk County, 6,006 boats were inspected and 11,428 people were contacted with the Clean Boats, Clean Waters message. During this season, approximately half of boaters (47%) had not already been contacted by an inspector, a quarter (23%) had used their boat on a different waterbody in the past 5 days, and inspectors felt confident that three-quarters (76%) of boaters understood the steps necessary to prevent the spread of AIS.

LWRD provides county-wide and individual waterbody trainings for the Clean Boats, Clean Water Program. The most recent county-wide training occurred in 2015.

Landing Blitz

The Landing Blitz is a media campaign completed as part of the Clean Boats, Clean Waters program. To assist local participants, WDNR provides partner groups with template media releases, outreach materials, and free towels to be handed out to boaters practicing AIS prevention steps. The Landing Blitz occurs over the Fourth of July weekend, the busiest time of the boating season. Over this single weekend in 2014, 666 boats were inspected and 1,270 people were contacted in Polk County with the Clean Boats, Clean Waters message. LWRD mails out a county-wide press release to promote the event and serves as a pick up site for supplies.

Clean Boats, Clean Waters Story Hour

The Clean Boats, Clean Waters Story Hour is a tutorial for educators interested in providing AIS information to children. The program includes a template lesson plan for the program and example hands on activities.

In 2012, LWRD made contact with all Polk County libraries and implemented the program at seven libraries and one youth camp. On an average year, LWRD visits three libraries and incorporates AIS messaging into the program.

Project RED (Riverine Early Detectors)

Project RED is a monitoring program that trains volunteers to identify and report invasive species within river corridors statewide. During a Project RED training, volunteers learn which invasive species threaten their local rivers, how to differentiate them from native look-a-likes, and how to keep an eye out for them by canoe, kayak, or on foot. The training includes a paddle where AIS monitoring protocols are implemented. After the training, participants choose a location to monitor that is convenient for them and record their findings in the WDNR statewide database.

The most recent Polk County Project RED training took place in 2015. Additionally, one training session was offered in 2014 and two training sessions were offered in 2013. These trainings were offered through a partnership between the National Park Service, the Polk County Land and Water Resources Department, the River Alliance of Wisconsin, and the St. Croix River Association.

AIS Bridge Snapshot Day

Initiated in 2014, this project trains volunteers to identify and search for target AIS of concern to Wisconsin's rivers. Volunteers from across the state monitored over 180 sites ranging from public parks on large rivers to small culverts on county roads on a single day in the fall of 2014.

The Polk County Land and Water Resources Department and the St. Croix River Association partnered to offer this opportunity to benefit Polk County waterbodies in 2014 and 2015.

Citizen Lake Monitoring: AIS

The goals of the Citizen Lake Monitoring Network are to collect high quality data, educate and empower volunteers, and share information. The program provides volunteers with necessary equipment and training to conduct AIS monitoring activities on their waterbody. Most volunteers complete the monitoring protocols a few times per year at high risk sites around their lakes to detect early populations of AIS.

The most recent Polk County AIS Citizen Lake Monitoring Training was held in 2015.

Draining Campaign

The goal of the Draining Campaign is to ensure that anglers understand Wisconsin's draining laws, why they are important, and easy ways to comply. This program was developed in response to research showing that Wisconsin's AIS laws against the transport of water and live fish are not well understood and practiced by the angling community.

The Draining Campaign provides partner groups with education materials, template press releases, laminated posters, and free ice packs to hand out to anglers. LWRD mails out a county-wide press release to promote the event and serves as a pick up site for supplies.

Bait Dealer Initiative

The Bait Dealer Initiative is a toolkit containing informational materials for bait shops and their customers. The toolkit provides participating bait dealers with brochures, frequently asked question cards, floating key chains, and bait bucket stickers for anglers. Additionally, participating bait shops receive media advertisements and a certificate of participation.

AIS Early Detection Smart Prevention Protocol

Since 2011, LWRD has been implementing the statewide AIS early detection smart prevention protocol for Polk County. The protocol is an extensive effort to monitor for AIS involving meandering the shoreline, throwing rakes to examine the aquatic plant community, using zooplankton tows to determine presence or absence of spiny water fleas and zebra mussels, and snorkeling. Thirty-five Polk County lakes have been monitored using this protocol.

Water Guards

Water Guards are WDNR Deputy Conservation Wardens who perform law enforcement duties to protect Wisconsin lakes, rivers, and streams. Their efforts are aimed at ensuring compliance with Wisconsin's laws related to preventing the spread of aquatic invasive species and aquatic diseases. Through this program, decontamination units are available on a first come first serve basis. The Water Guard that covers Polk County is based out of Eau Claire. In July 2015, the Polk County Land and Water Resources Department, St. Croix River Association, Wisconsin Department of Natural Resources, the Town of Garfield, and the Lake Wapogasset and Bear Trap Lake Sanitary District partnered to bring a decontamination unit to Garfield Park on Lake Wapogasset and the Lions Park on the St. Croix River.

AIS Boat Landing Signs

In 2010, WDNR developed a new AIS sign for boat landings. The new signs (which are black, white, and red) are meant to replace all old AIS signs (typically with a green background).

Polk County LWRD has made these free signs available to lake organizations and has also installed signs at boat landings without active organizations. As a result the vast majority of Polk County landings have the new signage installed.

Local Aquatic Invasive Species Initiatives

Thirty Polk County waterbodies are managed by organizations, with half of these waterbodies being managed by a District with taxing authority. These organizations are very active in implementing local AIS initiatives.

Kiosks

Boat landing kiosks provide an opportunity for lake organizations to provide additional AIS messaging to waterbody users. Kiosks typically display general information such as lake maps, slow no wake areas, and fishing regulations. Many also include AIS messaging such as photos of AIS which are already present or a particular threat, laws and regulations, and contact information to report AIS.

Polk County waterbodies with additional AIS messaging at kiosks include: Balsam Lake, Big Blake Lake, Big Butternut Lake, Big Round Lake, Big, Round and Church Pine Lakes, Bone Lake, and Pipe Lakes.

I-LIDS

I-LIDS cameras provide an extra level of prevention by monitoring boat landing activities with video footage. A sensor, triggered by the presence of a vehicle or trailer, records video footage of the boat landing and plays a recording to prompt compliance with AIS laws. Images are stored for review to determine waterbody users who aren't complying with AIS laws.

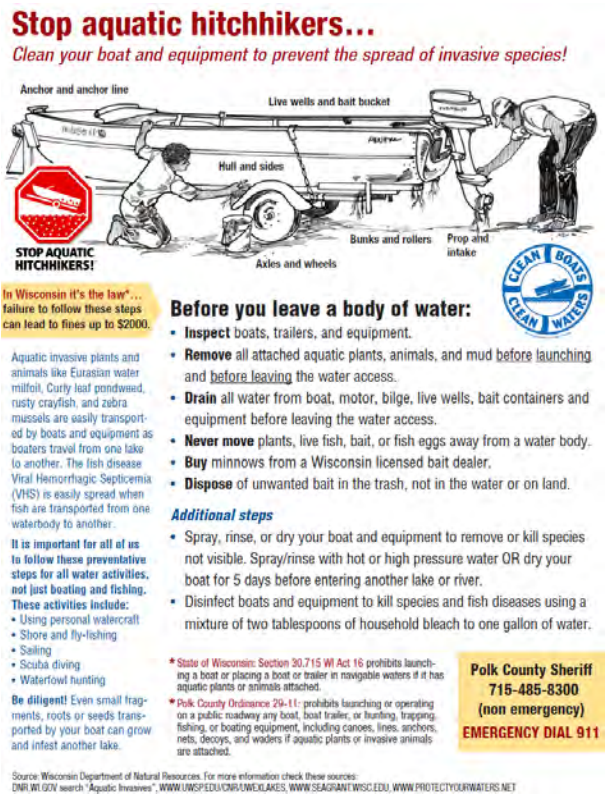
Church Pine Lake, Big Round Lake, Bone Lake, and Half Moon Lake currently have I-LIDS cameras installed at their boat landings.

Bait Stickers

In 2009, the Polk County Association of Lakes and Rivers and the Polk County LWRD developed Stop Aquatic Hitchhiker stickers for bait containers as a means to communicate AIS laws to anglers. Rolls of stickers were distributed to local bait shops and handed out at local events.

Lake Maps

Polk County LWRD, the Polk County Association of Lakes and Rivers, and ten lake and river organizations partnered to produce individualized lake maps with AIS messaging. The flyer was first designed and produced for Bone Lake to put AIS prevention messaging in the hands of visitors and property owners as a useful map for recreation and fishing. The two-sided flyers are printed in full color on standard size waterproof paper. One side of the flyer has a contour bathymetric map of the lake with relevant information such as maximum depth, acres, and species of fish present and the other side of the flyer has AIS prevention information, Clean Boats, Clean Waters information, and emergency numbers.



The flyers currently exist for: the Apple River Flowage, Balsam Lake, Big Blake Lake, Big Butternut Lake, Big Round Lake, Big, Round, and Church Pine Lakes, Bone Lake, Lake Wapogasset/Bear Trap Lake, Long Lake, and Pipe and North Pipe Lakes.

AIS messaging is updated when reprints are ordered. Reprints are ordered in quantity to save each organization printing and shipping costs. The uses for the flyers are many, with organizations mailing copies to residents, leaving flyers at the boat landing, or incorporating the flyers into existing Clean Boats, Clean Waters programs.

Billboard

In August 2012, an AIS billboard was installed along HWY 87 north of the Lions Park in St. Croix Falls. The billboard was designed by the Wisconsin Lakes Partnership and organized by LWRD with support from WDNR.

In 2014, LWRD partnered with the Bone Lake Management District and Wildlife Forever to locate billboard space along HWY 8 near the Minnesota border. The AIS billboard was funded by the Bone Lake Management District with support from WDNR.

GRANTS TO ADDRESS AQUATIC INVASIVE SPECIES IN POLK COUNTY

Polk County lake organizations have been extremely active in AIS management, with the first WDNR AIS grant being applied for in 2004. Since this time a total of forty-four AIS grants have been awarded to Polk County lake organizations. Although many lakes implement AIS activities outside of grant funding, the WDNR grant program awards provide a thorough summary of many AIS projects at the county level.

The WDNR awards grants to public and private entities for up to 75% of the costs of projects to control AIS. There are five WDNR AIS Prevention and Control Grants subprograms.

- Education, Prevention, and Planning Projects (including Clean Boats, Clean Waters)
- Early Detection and Response Projects
- Established Population Control Projects
- Maintenance and Containment Projects
- Research and Demonstration Projects

Education, Prevention, and Planning Projects are intended to broaden the public's awareness and understanding of AIS, threats they pose to the health of aquatic ecosystems, measures to prevent their spread, and management practices used for their control. These projects are intended to prevent the introduction and spread of AIS into a waterbody/wetland.

This grant program is the most commonly awarded in Polk County, with most applications including a Clean Boats, Clean Waters program. Educational initiatives funded with this grant program include improved signage, workshops, brochures, mailings, participation in the Landing Blitz program, and lake fairs. Additional projects funded with this grant program include monitoring for invasive species, point intercept plant surveys, aquatic plant management plan development, and camera monitoring.

Early Detection and Response Projects provide funds for the early identification and control of pioneer populations of AIS before they become established. These projects are intended for waters and wetlands where the presence of AIS is relatively new and the area of coverage is limited such that there is a high likelihood that they can be removed or significantly reduced and managed at low densities.

In Polk County, this program has been primarily used to respond to new populations of Eurasian water milfoil. Grants have been used to monitor plant populations and remove Eurasian water milfoil with chemical or manual treatment. These grants have included the creation of aquatic plant management plans and education initiatives including workshops, websites, and signage. This grant program has also been used to monitor and control pioneer populations of knotweed in Polk County and to determine treatment efficacy.

Established Population Control Grants are intended to assist in eradicating or substantially reducing established populations of AIS to protect and restore native species communities.

In Polk County, these grants have been used primarily to treat curly leaf pondweed with herbicide or less frequently, through harvesting. Treatments often involve pre/post treatment aquatic plant surveys, bed mapping, and turion monitoring, and have included herbicide concentration monitoring. Other species chemically or manually controlled through this grant program include Eurasian water milfoil, purple loosestrife, and giant knotweed. Removal projects typically involve monitoring and mapping. Additional projects have included watercraft inspections, automated video surveillance, aquatic plant management plan updates, planting of native aquatic plants, and educational efforts such as signage and newsletters.

Maintenance and Containment Projects are intended to provide sponsors limited financial assistance for the ongoing control of established AIS populations. These projects are intended for waters where management activity has achieved the target level of control identified in an approved plan. Ongoing maintenance is needed to contain these populations so they do not re-establish throughout the waterbody, spread to other waters, or impair navigation and other beneficial uses of the waterbody.

At this time, this grant program has not been used by Polk County lake organizations.

Research and Demonstration Projects are intended as a cooperative activity between applicants and the WDNR. Projects are designed to increase scientific understanding of the ecological and economic implications of AIS and its management and to assess experimental and innovative techniques for AIS prevention, containment, and control.

At this time, this grant program has not been used by Polk County lake organizations.

Polk County Aquatic Invasive Species Strategic Plan Planning Process

In 2014, LWRD received a WDNR Aquatic Invasive Species Education, Prevention, and Planning Grant to address the spread of aquatic invasive species at the county level. One deliverable of this grant was to create a Polk County Aquatic Invasive Species Strategic Plan.

Using existing county, regional, and state aquatic invasive species strategic plans as a template, LWRD drafted a Polk County Aquatic Invasive Species Strategic Plan as a starting point for citizen input.

Two planning meetings were held to develop a strategic plan to prioritize which actions should take place in Polk County in response to aquatic invasive species. The agenda for the first meeting—held on May 20th, 2015—included a review of AIS issues, a summary of the draft Polk County Aquatic Invasive Species Strategic Plan, and an opportunity to review and provide feedback on the goals, objectives, and actions of the plan. A second meeting—held on June 17th, 2015—provided a review of changes made in response to the May meeting and also provided an opportunity for additional changes to be made to the plan. The meeting dates coincided with the dates, times, and places of Polk County Association of Lakes and Rivers (PCALR) meetings, with the second meeting taking place directly preceding the 2015 Annual Meeting of the organization.

The meetings were publicized in the Polk County Leader, through press releases submitted to all Polk County papers, through the Polk County Association of Lakes and Rivers email list, and through direct emails to stakeholders. Once the plan was finalized, it was opened to a 30 day public comment period ending on Friday, July 31st, 2015. Notice of taking public comment was posted in the Polk County Government Center, the Polk County Justice Center, the Village of Balsam Lake Municipal Building, and as a two week ad in the Polk County Leader. The plan was approved by the Polk County Conservation, Development, Recreation, and Education Committee on Tuesday, September 2nd, 2015; by the Polk County Board of Supervisors on September 15th, 2015; and by the Wisconsin Department of Natural Resources on October 5th, 2015.

While creating this plan, citizens determined that progress on the plan should be reviewed and updated on an annual basis. Likely, this review will take place in conjunction with PCALR meetings.

The majority of the goals of the plan will be funded with grant assistance through the WDNR Aquatic Invasive Species Education, Prevention, and Planning Grant program (Goal 1, Goal 2, Goal 3, Goal 4, and Goal 5, Objective 3). Early Detection & Response and Maintenance & Containment Grants will be being applied for on an as needed basis.

POLK COUNTY AQUATIC INVASIVE SPECIES IMPLEMENTATION PLAN

Partner Group Acronyms

LWRD: Polk County Land and Water Resources Department
SCRA: St. Croix River Association
RA: River Alliance
NPS: National Park Service
MPCA: Minnesota Pollution Control Agency
WDNR: Wisconsin Department of Natural Resources
MDNR: Minnesota Department of Natural Resources
UWM: University of Wisconsin-Madison
PCALR: Polk County Association of Lakes and Rivers
LRO: Polk County Lake and River Organizations
SD: Polk County Sherriff's Department

Goal 1. Prevent the introduction, establishment, and spread of AIS in Polk County waterbodies			
Objective	**Action**	**Partners**	**Timeline**
Objective 1. Increase compliance with local and state prevention laws and ordinances	**Action 1.** Organize and conduct Clean Boats, Clean Waters trainings	LWRD, WDNR, SCRA	Yearly, ongoing
	Action 2: Assist set up and maintenance of statewide prevention programs: Clean Boats, Clean Waters, Landing Blitz, Bait Dealer Initiative, and Drain Campaign	LWRD, WDNR, SCRA	Yearly, ongoing
	Action 3. Support local efforts to install electronic monitoring and information devices, such as ILIDS cameras and motion-activated recorded messages at public boat landings to monitor and educate about AIS.	LWRD, LRO	As interest arises
	Action 4. Partner with local law enforcement to provide augmented enforcement of AIS laws and ordinances	LWRD, SD	Yearly, ongoing
	Action 5. Increase presence of WDNR Water Guard	LWRD, WDNR, SCRA	Yearly, ongoing
	Action 6. Determine the feasibility of watercraft washing sites, especially along the county border	LWRD, LRO, SCRA	As interest arises
	Action 7. Create an inventory of public boat landing AIS signs and install signs when necessary	LWRD, LRO	Yearly, ongoing
	Action 8. Consider developing infestation indication signs to alert users that AIS are present in specific waterbodies	LWRD, LRO, PCALR	As interest arises

Goal 2. Control populations of aquatic invasive species			
Objective	**Action**	**Partners**	**Timeline**
Objective 1. Respond to existing AIS populations	**Action 1.** Support individual waterbody group actions to accomplish control efforts	LWRD, PCALR, LRO	Yearly, ongoing
	Action 2. Prioritize control efforts on tributaries and chains of lakes with existing populations of AIS and waters with a high risk of spread	LWRD, WDNR	Yearly, ongoing
Objective 2. Respond to new and pioneer AIS populations	**Action 1.** Respond to new AIS populations using best practices, including the WDNR Rapid Response Framework	LWRD, WDNR, LRO	As need arises
	Action 2. Conduct initial monitoring in response to new infestations, including bed mapping and aquatic plant point intercept surveys	LWRD	As need arises
	Action 3. Eradicate new and pioneer AIS populations, if possible	LWRD, LRO, WDNR	As need arises
Objective 3. Support citizen efforts to control and eradicate AIS	**Action 1.** Implement the statewide purple loosestrife biocontrol project, involving citizens whenever possible	LWRD, LRO	Yearly, ongoing
	Action 2: Provide training and equipment to citizens for giant and Japanese knotweed control	LWRD, LRO	Yearly, ongoing
	Action 3. Determine seed viability of knotweed stands	LWRD, UWM	As need arises

Goal 3. Monitor Polk County waterbodies for AIS and document results			
Objective	**Action**	**Partners**	**Timeline**
Objective 1. Encourage and support efforts to monitor for aquatic invasive species	**Action 1.** Organize and conduct Citizen Lake Monitoring Network AIS Workshops	LWRD, SCRA, WDNR	Yearly, ongoing
	Action 2. Organize and conduct Project RED Workshops	LWRD, NPS, SCRA, RA	Yearly, ongoing
	Action 3. Organize and conduct the AIS Bridge Snapshot Day Training	LWRD, SCRA, RA	Yearly, ongoing
	Action 4. Promote opportunities for engagement on websites (Polk County, PCALR, WDNR, Wisconsin Lakes, SCRA)	LWRD, PCALR, WDNR, LRO, SCRA	Yearly, ongoing
Objective 2. Complete statewide monitoring priorities	**Action 1.** Implement statewide monitoring protocols on Polk County lakes, rivers, and streams	LWRD, WDNR	As need arises
	Action 2. Adapt the Early Detection Smart Prevention Protocol to monitor the St. Croix River, an AIS Source Water	LWRD, NPS, WDNR, WDNR, MPCA	Biyearly, ongoing
Objective 3. Respond to local monitoring needs	**Action 1.** Monitor for Eurasian water milfoil near where this species occurs: the Upper Apple River, Beaver Brook, Trade River, and Wolf Creek Watersheds	LWRD, LRO	Biyearly, ongoing
	Action 2. Monitor for zebra mussels near where this species already occurs: the Horse Creek Watershed	LWRD, LRO	Biyearly, ongoing
	Action 3. Respond to any new AIS reaching Polk County by monitoring nearby waterbodies	LWRD, LRO	As need arises
Objective 4. Document monitoring results	**Action 1.** Ensure citizens are knowledgeable in using the WDNR statewide database, SWIMS	LWRD, LRO, PCALR	Yearly, ongoing
	Action 2. Voucher undocumented specimens according to WDNR procedures	LWRD	As need arises
	Action 3. Alert stakeholders if a new AIS is found by the best means available (WDNR, local lake organization, etc.), including following the WDNR Rapid Response Framework	LWRD, WDNR, LRO, PCALR, SCRA	As need arises
	Action 4. Explore the need for a Polk County AIS database	LWRD, PCALR	Ongoing

Goal 4. Provide AIS information and education in Polk County and surrounding areas			
Objective	**Action**	**Partners**	**Timeline**
Objective 1. Conduct a mass media campaign to inform residents and visitors about AIS	**Action 1.** Distribute press releases, information, and articles to local papers/radios, PCALR, and county lake organizations	LWRD, PCALR	Yearly, ongoing
	Action 2. Distribute AIS brochures at local businesses, bait stores, and public spaces	LWRD, PCALR, LRO	Yearly, ongoing
	Action 3. Work with partner groups to develop a high quality, eye catching, portable AIS traveling display that can be checked out by local groups	LWRD, PCALR, SCRA	As need arises
	Action 4. Install a billboard with AIS messaging on major travel routes into Polk County	LWRD, LRO, PCALR	As interest arises
	Action 5. Consider the inclusion of AIS information in the Polk County Tourism Guide and other county publications and mailings	LWRD, PCALR	Yearly, ongoing
	Action 6. Provide up-to-date AIS information on the Polk County website	LWRD	Yearly, ongoing
	Action 7. Use social media such as Facebook, PCALR email and news list serves, and websites to expand messaging	LWRD, PCALR	Yearly, ongoing
	Action 8. Explore additional ways to expand messaging and highlight efforts such as geo-fencing (ads that pop up based on proximity to an infested waterbody, Washington County, MN)	LWRD, PCALR	Yearly, ongoing
	Action 9. Provide AIS information as a featured guest on local radio programs	LWRD	Yearly, ongoing
Objective 2. Undertake a targeted AIS educational effort to reach specific audiences	**Action 1.** Present an AIS display at county events (County Fair, local festivals, fishing tournaments, local radio stations, etc.)	LWRD, LRO, PCALR, SCRA	Yearly, ongoing
	Action 2. Provide education to Polk County schools, libraries, civic groups, camps, bait stores, etc.	LWRD, PCALR, LRO, SCRA	Yearly, ongoing
	Action 3. Provide lake organizations with an AIS display for meetings and/or attend lake organization annual meetings as a presenter	LWRD	Yearly, ongoing
	Action 4. Provide trainings to assist volunteers in identifying aquatic invasive species and their native look-alikes	LWRD, SCRA, NPS, WDNR, PCALR	Yearly, ongoing
	Action 5. Explore opportunities for providing education for fishing tournaments, focusing on when tournaments are registered	LWRD, LRO, WDNR, SCRA	Yearly, ongoing

Objective 3. Provide AIS education at Polk County boat landings	**Action 1.** Install AIS signs at public boat landings	LWRD, LRO	Yearly, ongoing
	Action 2. Support local efforts to install or update kiosks with AIS information	LWRD, LRO	As interest arises
	Action 3. Assist local efforts to create, print, and distribute individualized waterproof lake maps with AIS information	LWRD, PCALR, LRO	As interest arises
	Action 4. Support statewide programs with educational components: Clean Boats, Clean Waters, the Landing Blitz, and the Drain Campaign	LWRD, LRO, WDNR, SCRA	Yearly, ongoing

Goal 5. Sustain the implementation of the plan			
Objective	**Action**	**Partners**	**Timeline**
Objective 1. Continue to seek funding for a Polk County AIS program	**Action 1.** Apply for WDNR AIS Education, Prevention, and Planning Grants to continue a county program	LWRD	Biyearly, ongoing
	Action 2. Apply for WDNR AIS Early Detection and Response and Maintenance and Containment Grants	LWRD, LRO	As need arises
	Action 3. Leverage current partner efforts to strengthen grant applications	LWRD, SCRA, NPS, PCALR, LRO	Yearly, ongoing
	Action 4. Identify additional funding sources and partners to expand opportunities for action	LWRD, SCRA, NPS, PCALR, LRO	Yearly, ongoing
Objective 2. Support funding for local AIS programs	**Action 1.** Provide grant reminders and information to local organizations	LWRD, PCALR	Yearly, ongoing
	Action 2. Support local AIS Control Grant applications	LWRD, PCALR	As need arises
	Action 3. Provide template Rapid Response Plans on the PCALR website to assist Control Grant applications	LWRD, PCALR	Yearly, ongoing
Objective 3. Increase communication and collaboration with partners	**Action 1.** Consider the formation of an AIS Steering Committee, either at the county, watershed, or regional level, including Minnesota	LWRD, WDNR, MDNR, PCALR, NPS, SCRA	Yearly, ongoing
	Action 2. Create an annual report to document AIS initiatives, including maps showing the presence and absence of aquatic invasive species	LWRD	Yearly, ongoing
	Action 3. Support lake and river organizations in exploring all ways they could help prevent and control the spread of AIS, including forming a Lake District	LWRD, WDNR	Yearly, ongoing
	Action 4. Form a communication network to convey pertinent AIS information (success stories, new AIS locations, etc.) across county and state lines	LWRD, PCALR,	Yearly, ongoing
Objective 4. Support objectives of related AIS plans	**Action 1.** Support the goals of related AIS Strategic Plans including the St. Croix River Watershed and WDNR plans	LWRD	Yearly, ongoing
	Action 2. Support the goals of Polk County Aquatic Plant Management Plans	LWRD	Yearly, ongoing