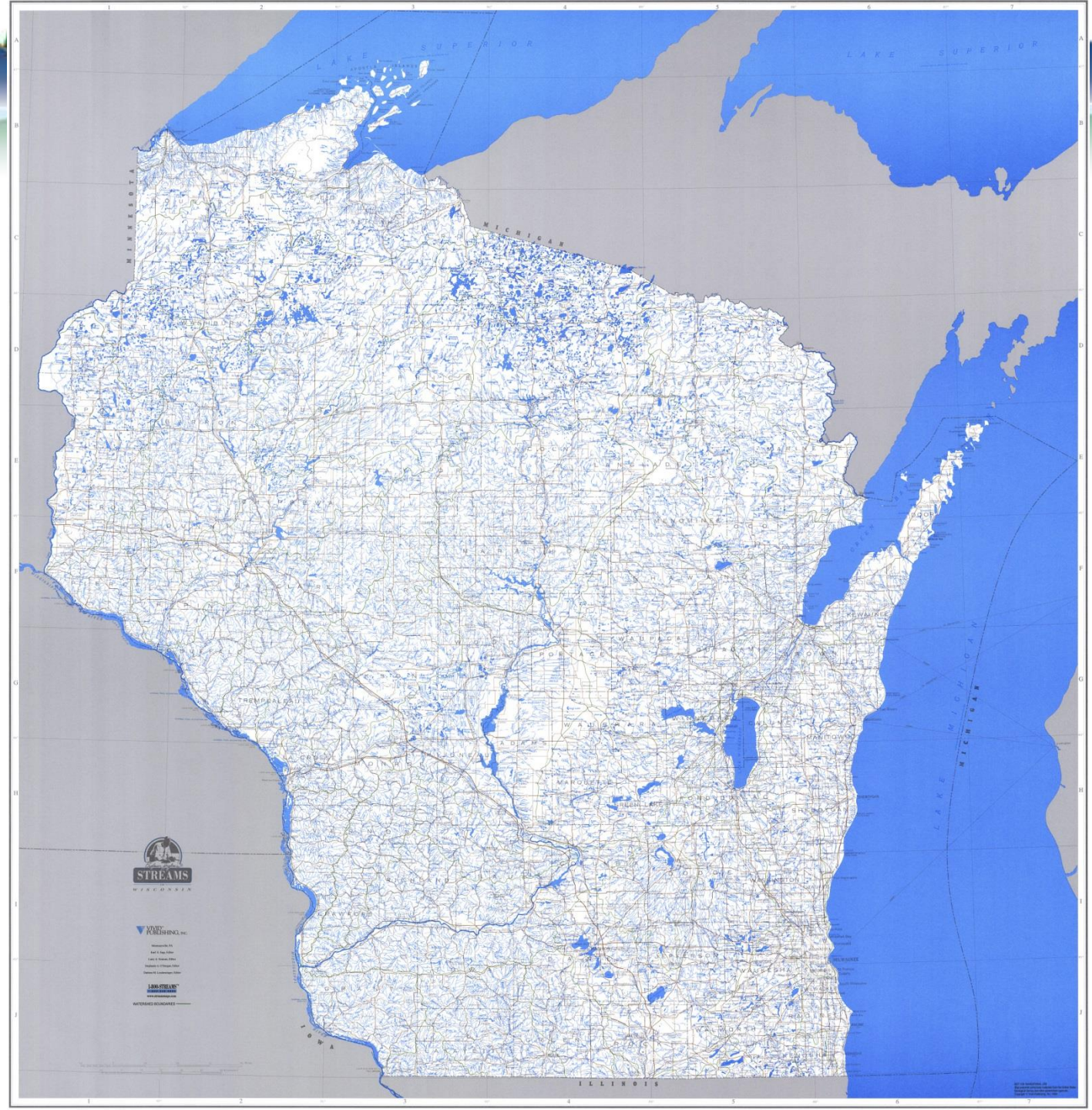
DNR Aquatic & Wetland Invasive Species Monitoring

Maureen (Ferry) Kalscheur
Statewide AIS Monitoring Lead
Wisconsin Department of Natural Resources

Webinar
May 13, 2021


LAKE SUPERIOR
LAKE SUPERIOR
MINNESOTA
MICHIGAN
LAKE MICHIGAN
ILLINOIS
IOWA
STREAMS
WISCONSIN
VIVEY PUBLISHING, INC.
1-800-STREAMS
WATERSHED BOUNDARIES

Dawn of an era

- First detections in Wisconsin

Year	Species	Waterbody
1923	Rainbow smelt	Lake Michigan
1955	Curly leaf pondweed & Chinese mystery snails	William Lake, Marquette County
1957	Rusty crayfish	Whitefish Lake, Oneida County
1962	Eurasian water milfoil	Lake Mendota, Dane County

Evolution

- Initially incidental reports
- Some systematic *attempts* in 90's
- SWIMS ~2002

Wisconsin's AIS Monitoring

WISCONSIN
DEPT. OF NATURAL RESOURCES

Citizen Lake
Since 1986
Monitoring Network

Extension
UNIVERSITY OF WISCONSIN–MADISON

wav WATER ACTION VOLUNTEERS

Wisconsin's AIS Monitoring

WISCONSIN
DEPT. OF NATURAL RESOURCES

Citizen Lake Monitoring Network
Since 1986

Extension
UNIVERSITY OF WISCONSIN–MADISON

wav WATER ACTION VOLUNTEERS

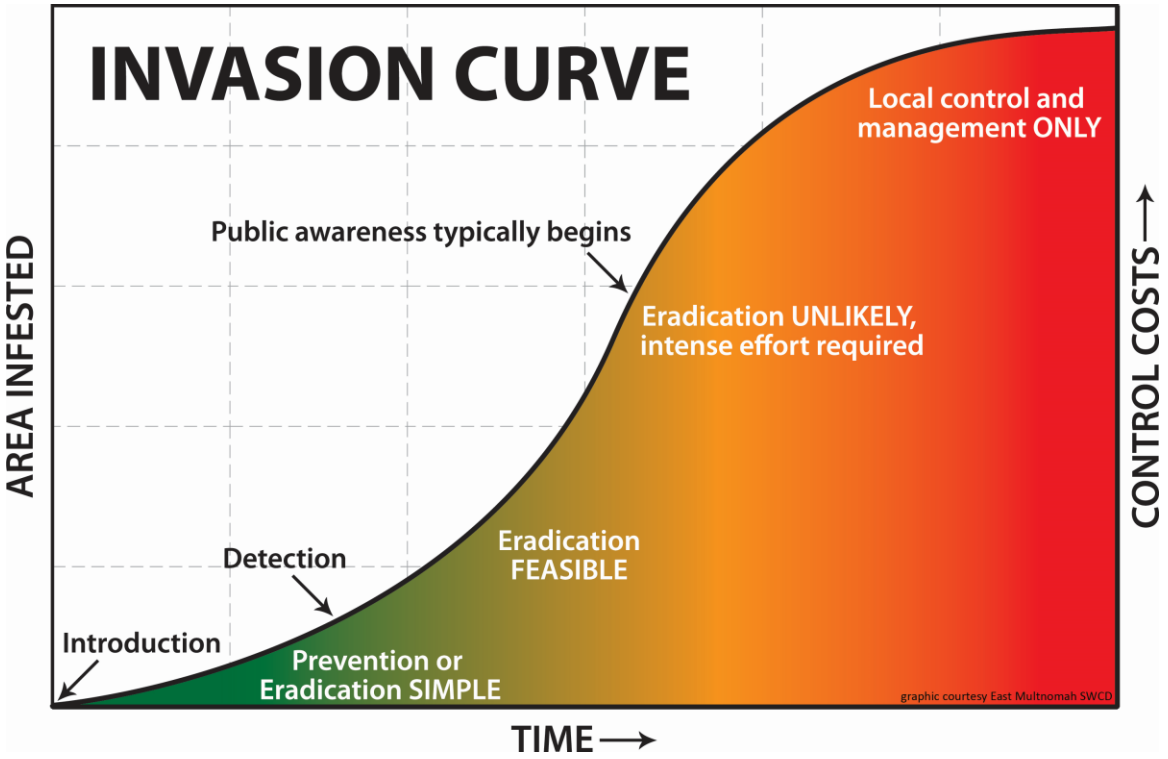
Evolution

- GLRI Partnership Grant in 2010 for prevention, education, and **monitoring**.

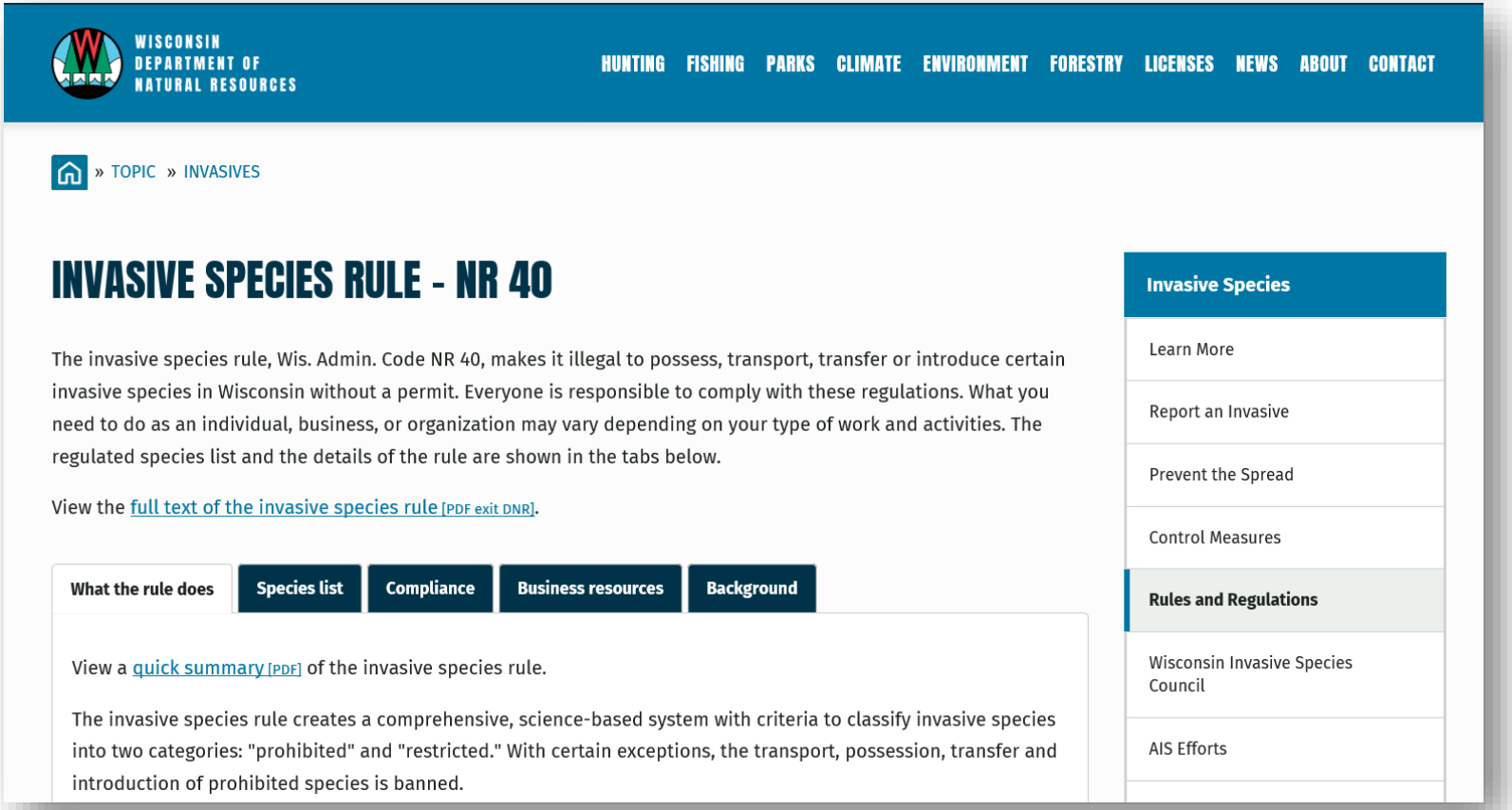
- First statewide systematic AIS monitoring

Objective

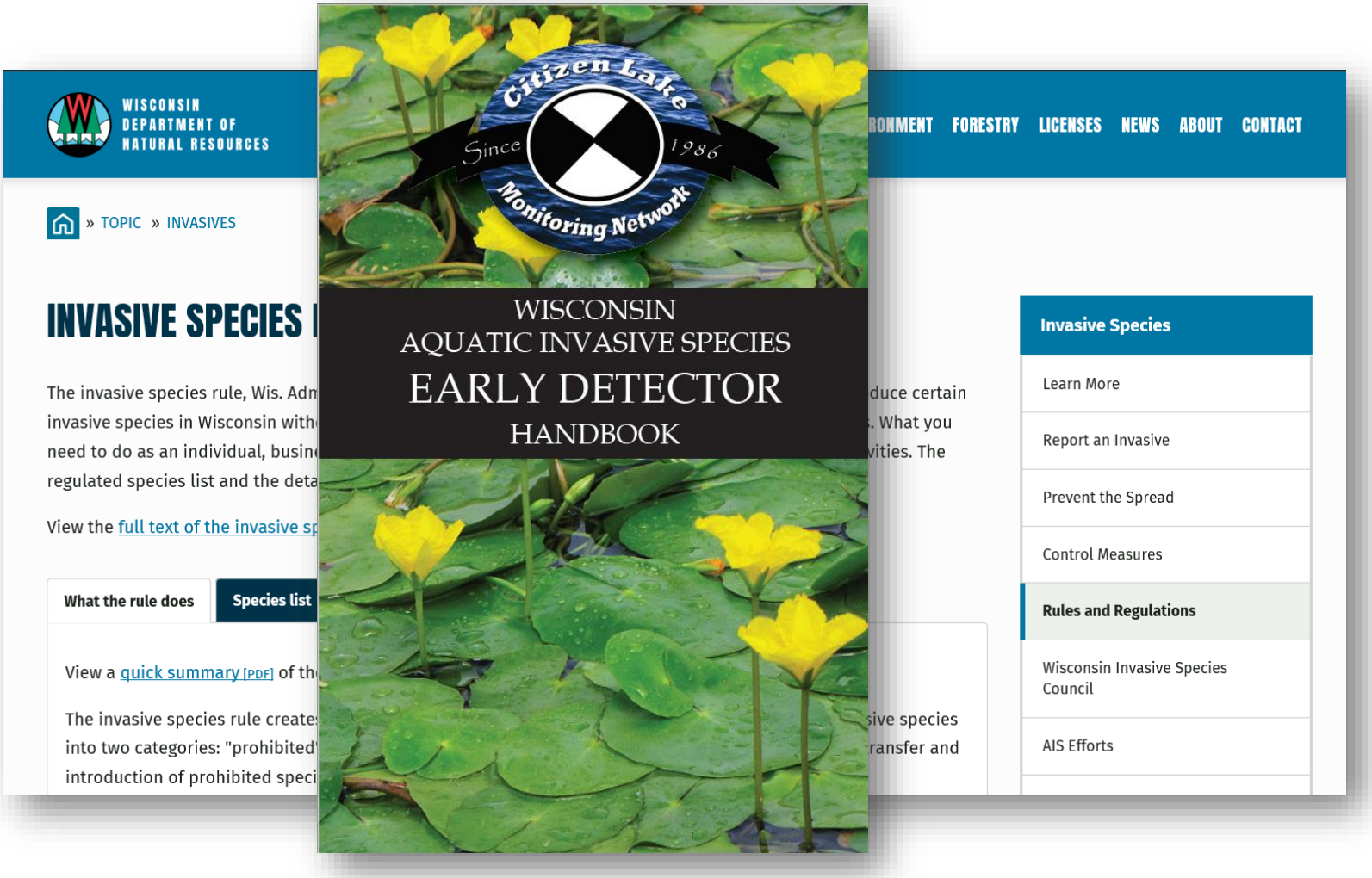
- Objective:
  - Locate pioneer invasive species populations
  - Enable response
  - Understand spread



Become Familiar



Become Familiar



Become Familiar

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

» TOPIC » INVASIVES

INVASIVE SPECIES

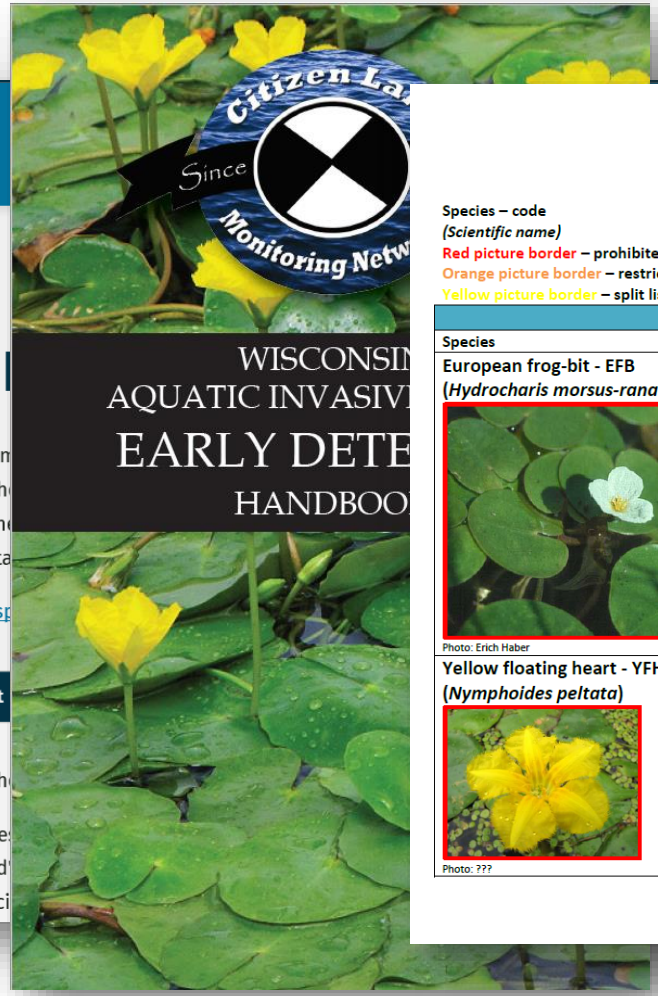
The invasive species rule, Wis. Adm
invasive species in Wisconsin with
need to do as an individual, busin
regulated species list and the deta

View the full text of the invasive sp

What the rule does | Species list

View a quick summary [PDF] of th

The invasive species rule create
into two categories: "prohibited"
introduction of prohibited speci

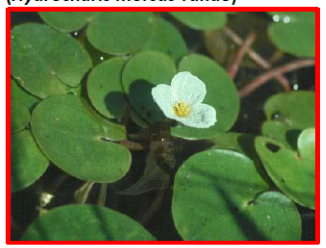
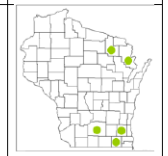


Aquatic Invasive Species Identification Guide

November 28, 2017
EGAD #3200-2017-44

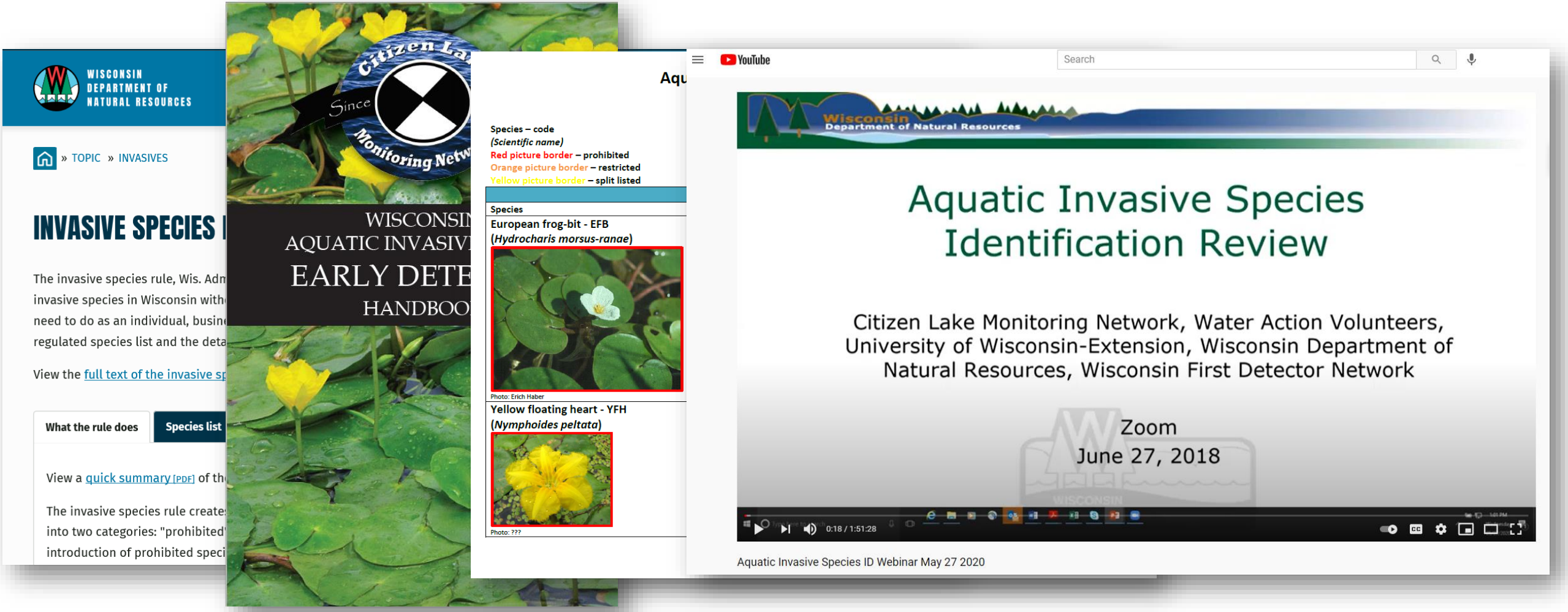
Species – code
(Scientific name)
Red picture border – prohibited
Orange picture border – restricted
Yellow picture border – split listed

WISCONSIN DEPT. OF NATURAL RESOURCES

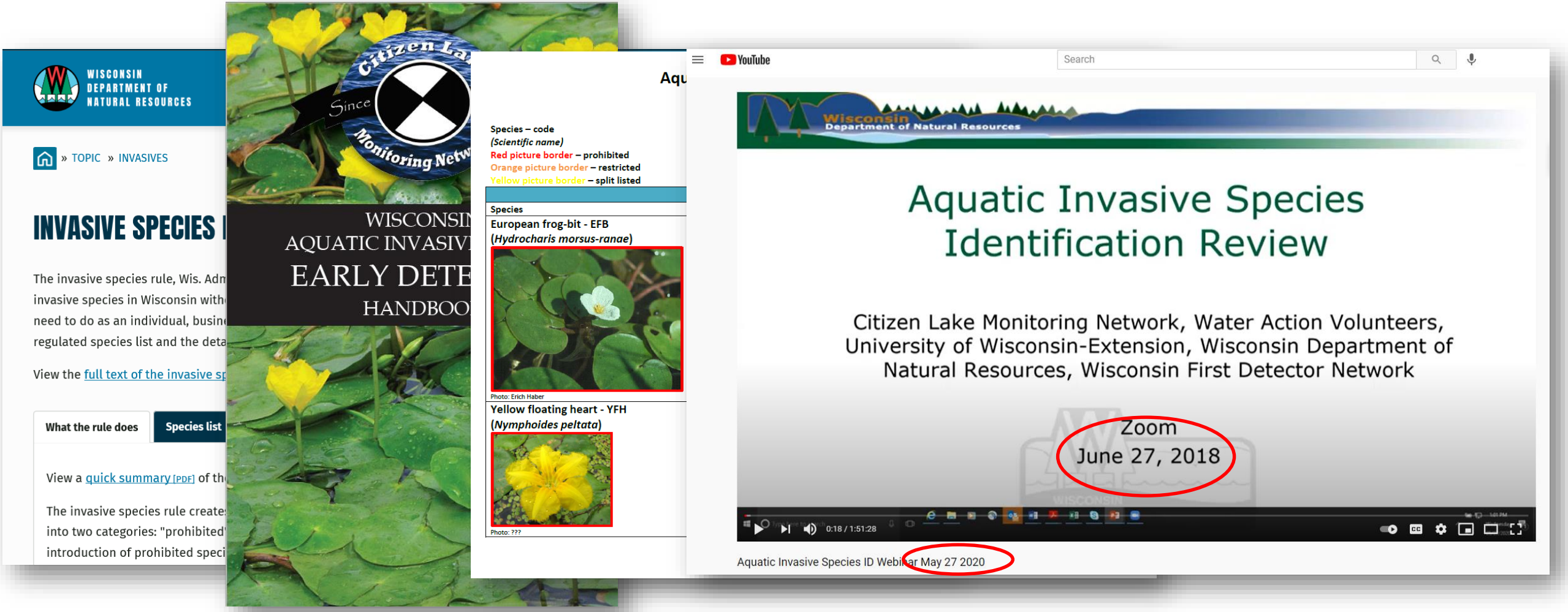
SUBMERGED AQUATIC		
Species	**Identification**	**Distribution/Notes**
European frog-bit - EFB (***Hydrocharis morsus-ranae***)  Photo: Erich Haber	**Leaves:** Usually floating; heart-shaped with long stems; 1.2-6.3 cm (0.5-2.5 in) in diameter; smooth margins; often dark purple beneath; lateral veins are arching and make a 75-90° angle with the midvein; tissue containing airpockets are located mostly along the midvein. **Flowers:** Three white petals with yellow center; blooms mid-summer. **Fruits & seeds:** Rarely produces viable seeds and instead relies on vegetative stolons and turions for reproduction. **Similar species:** Often confused with American frog-bit (*Limnobium spongia*; not known in WI), whose leaves have lateral veins that make a 30-80° angle with the midvein, and whose leaf tissue contains large air pockets throughout. White water lilies (*Nymphaea odorata*) have circular leaves with a triangular slit, and large, multi-petaled white flowers. *Nuphar* spp. have yellow cup-like flowers.	Not reported in Wisconsin
Yellow floating heart - YFH (***Nymphoides peltata***) Photo: ???	**Leaves:** Floating; heart-shaped with slightly wavy margins; 3-15 cm (1.2-6.0 in) in diameter; alternately arranged near the stem base and oppositely arranged near the top; frequently have purplish undersides. **Flowers:** 2-5 bright yellow flowers arise from erect flower stalks; 3-4 cm (1.2-1.6 in) in diameter; 5 petals arranged like the spokes of a wheel, each with a distinctive fringe along the edge. **Fruits & seeds:** Fruit is a pod-like capsule (1.2-2.5 cm; 0.5-1.0 in) that splits on one side. One fruit is produced from each flower, and contains many smooth, oval seeds with winged margins.	

Last updated November 28, 2017

Become Familiar

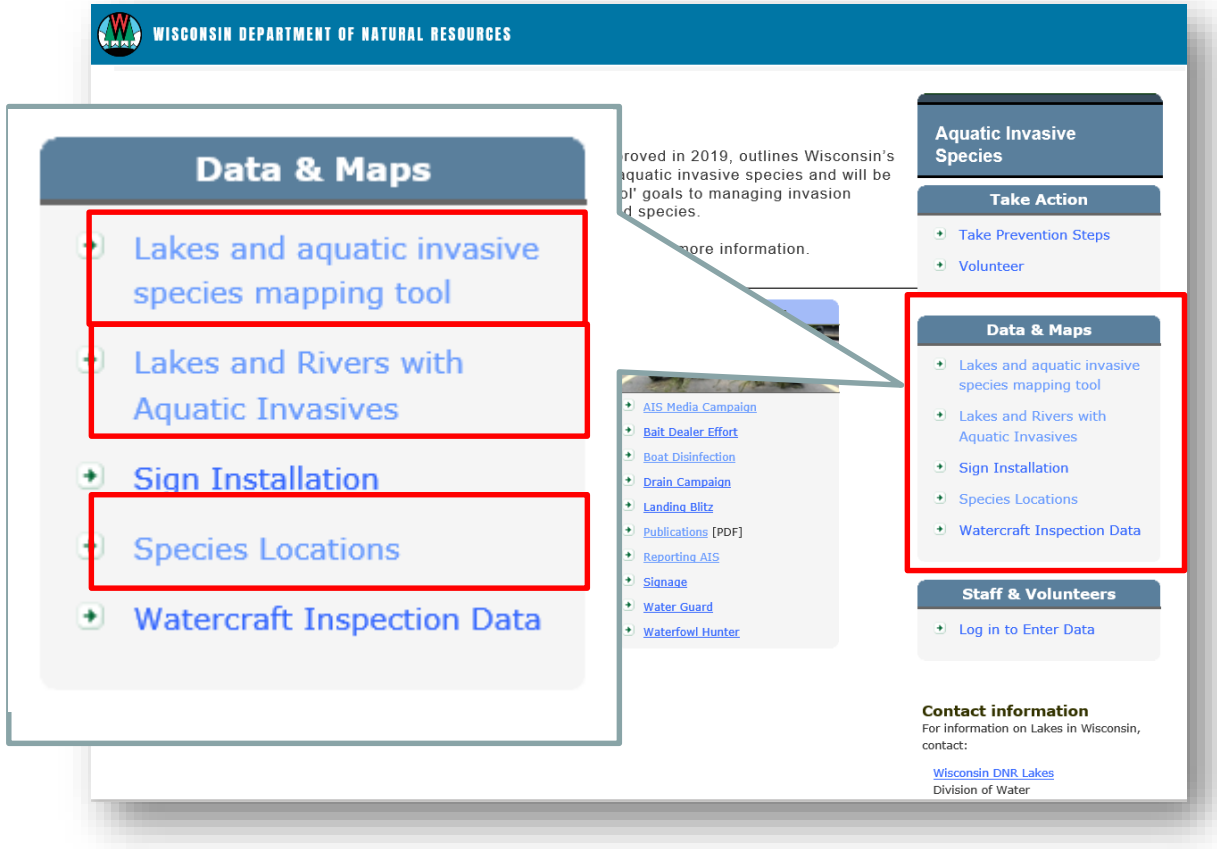


Become Familiar



Field Prep

- Identify monitoring locations
  - Not recently surveyed
  - Proximal AIS
  - Prioritize based on use
- Sample from least to Most AIS



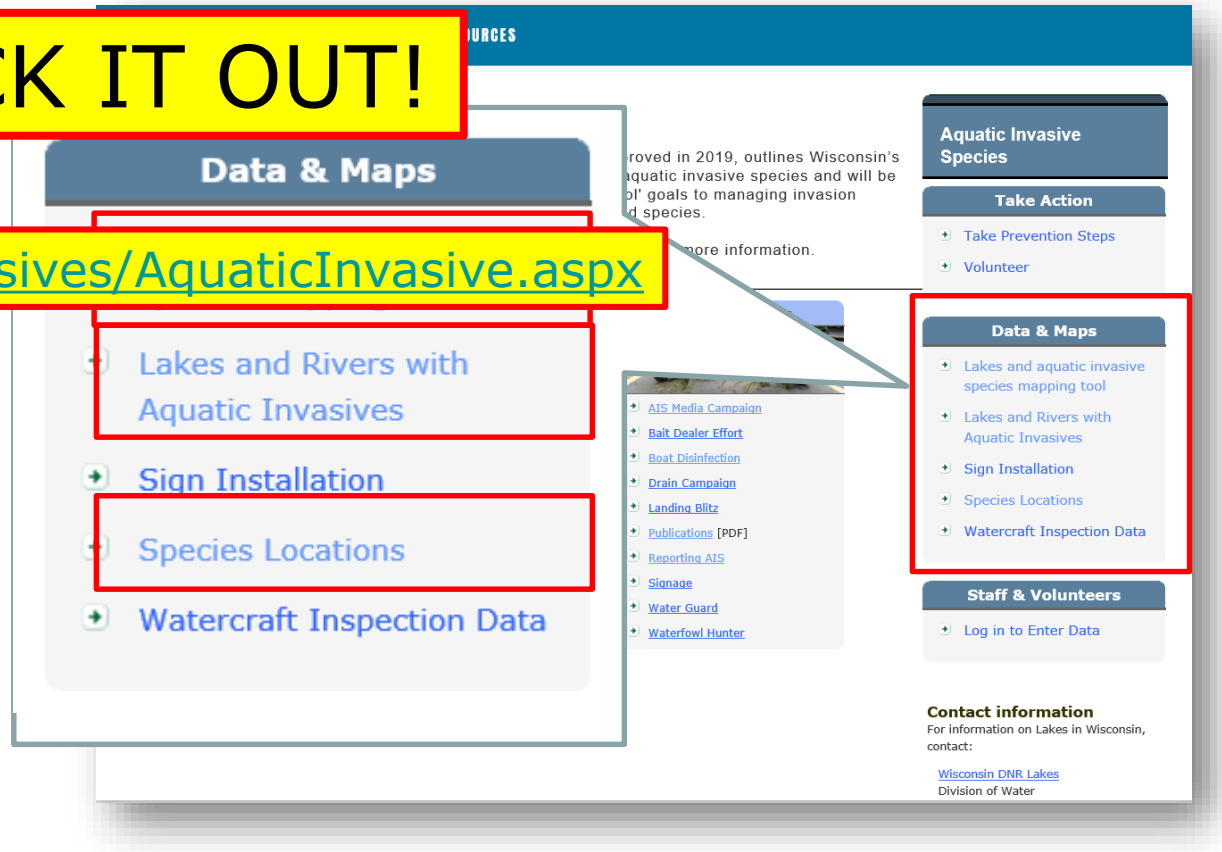
Field Prep

- Identify monitoring locations
  - Not recently surveyed
  - Proximal AI
  - Prioritize based on use
- Sample

Most AIS

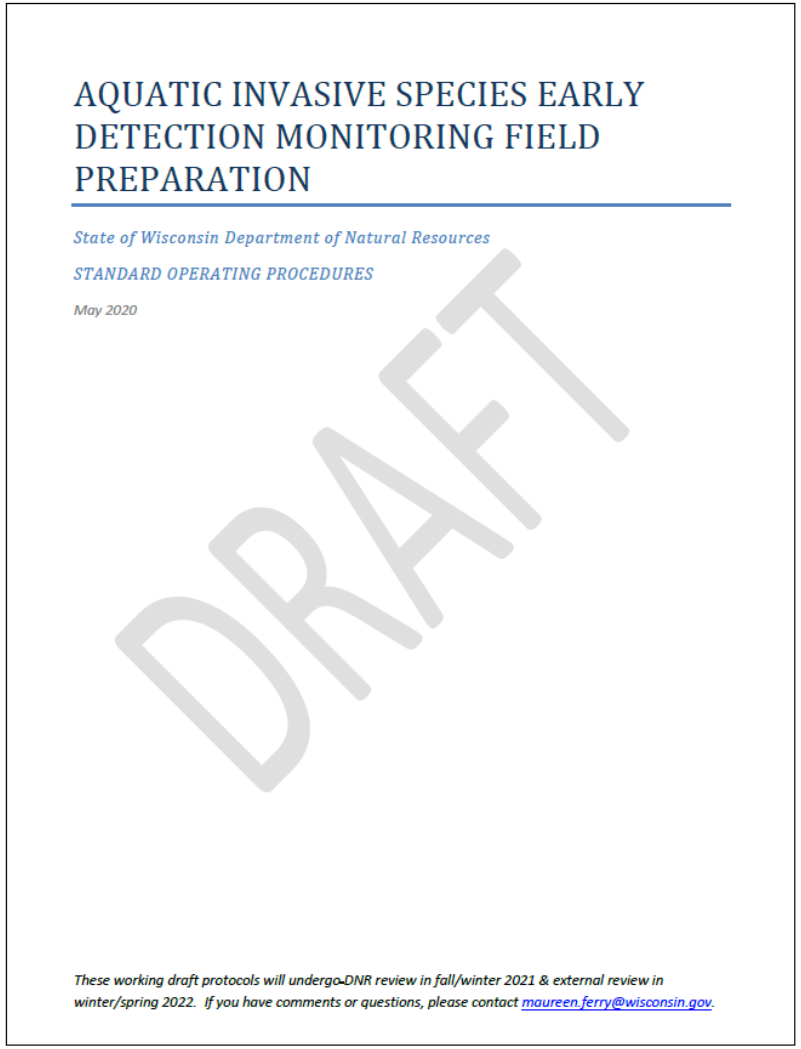
LET'S CHECK IT OUT!

https://dnr.wi.gov/lakes/invasives/AquaticInvasive.aspx



Field Prep

- Communication
- Crews
- General safety guidelines
- Snorkeling guidelines
- Ethanol guidelines
- Datasheets



AQUATIC INVASIVE SPECIES EARLY DETECTION MONITORING FIELD PREPARATION

State of Wisconsin Department of Natural Resources

STANDARD OPERATING PROCEDURES

May 2020

DRAFT

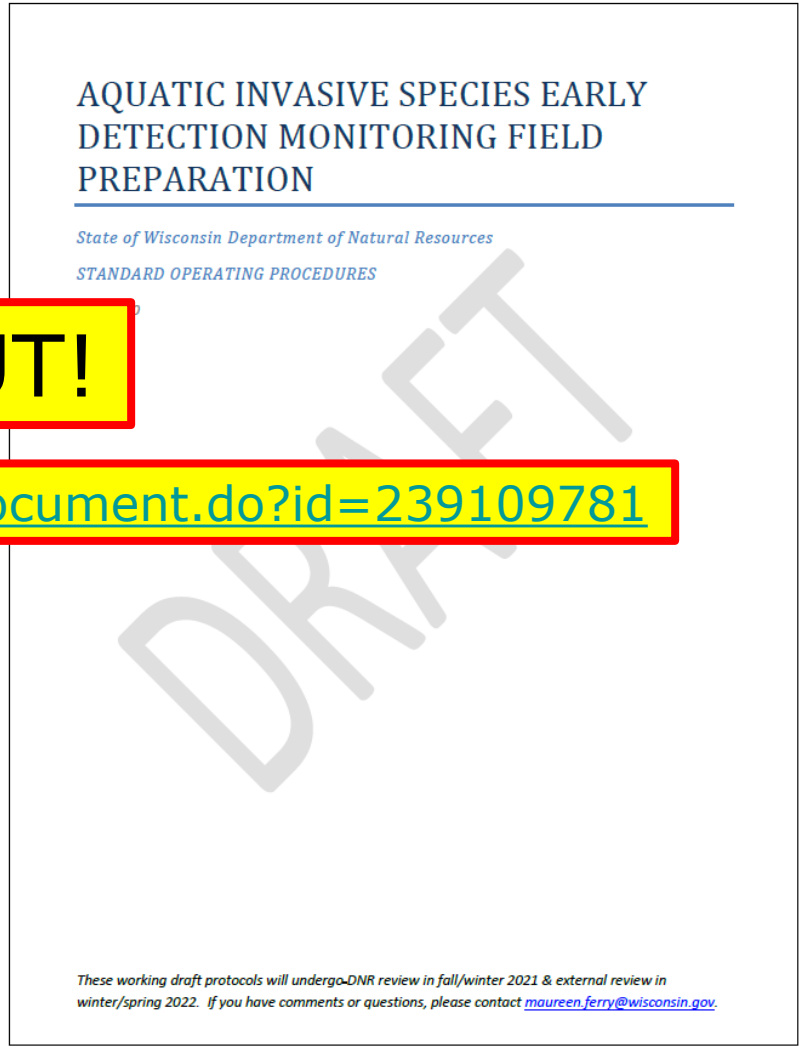
These working draft protocols will undergo DNR review in fall/winter 2021 & external review in winter/spring 2022. If you have comments or questions, please contact maureen.ferry@wisconsin.gov.

Field Prep

- Communication
- Crews
- General safe
- Snorkeling guidelines
- Ethanol guidelines
- Datasheets

LET'S CHECK IT OUT!

https://dnrx.wisconsin.gov/swims/downloadDocument.do?id=239109781



AQUATIC INVASIVE SPECIES EARLY DETECTION MONITORING FIELD PREPARATION

State of Wisconsin Department of Natural Resources

STANDARD OPERATING PROCEDURES

DRAFT

These working draft protocols will undergo DNR review in fall/winter 2021 & external review in winter/spring 2022. If you have comments or questions, please contact maureen.ferry@wisconsin.gov.

Forms

Aquatic Invasive Species Monitoring Data

Form 3200-154 (2/21) Page 1 of 3

The purpose of this form is to notify DNR of aquatic invasive species (AIS) surveillance results.
To find where aquatic invasives have already been found, visit: http://dnr.wi.gov/topic/Invasives/report.html
Notice: Information on this voluntary form is collected under ss. 33.02 and 281.11, Wis. Stats. Personally, identifiable information collected on this form will be incorporated into the DNR Surface Water Integrated Monitoring System (SWIMS) Database. It is not intended to be used for any other purposes but may be made available to requesters under Wisconsin's Public Records laws, ss. 19.32 - 19.39, Wis. Stats.
If the plant or animal cannot be collected due to safety concerns or it is located on private property, please take a photo (see Sample section below). DNR staff will then follow-up if further monitoring is needed for identification
Instructions: Bold fields must be completed.

Location Name	SWIMS Station ID	County	Collector(s)	Date	Start Time	End Time

Protocol	Wetland ◯ Lake ◯ Stream ◯ Roadside ◯ OIT ◯	AIS Sign Present	Paid Hours (Hrs x PPL)	Vol. Hours (Hrs x PPL)
Pathway	Maritime ☐ State & Fed ☐ Road & Trans ☐ Canal, Dam, Div ☐ Rec ☐ OIT ☐ Natural ☐	◯ Yes ◯ No ◯ N/A		

STEP 1: Become familiar with the ID handout before monitoring. Circle species looked for. These species will appear in SWIMS dropdown when entering fieldwork event.

AQUATIC PLANTS/ALGAE	RIPARIAN PLANTS	INVERTEBRATES

***Prohibited or Split Listed Species, †Unregulated species**

STEP 2: Record locations of sites in decimal degrees. If diverting from the protocol (i.e. not snorkeling), indicate how and why in comments. List AIS found, gross area, cover, infested area and whether specimens were live/dead. Indicate whether specimens/photos were collected. Include internal and external labels with species name, SWIMS Station ID, Station name, county, sample date, and collector(s). Indicate if no AIS were found. Legibility is important. If needed, preserve with alcohol (4:1). If possible, submit maps.

1 Boat landing (BL), access (A), targeted search site (TS), meander/incidental site (MS). **2** Record locations of sites in decimal degrees. **3** Record whether AIS present at the site (Y/N). **4** Species present. Each species on a separate row. **5** Gross Area: estimate square meter area of survey site. We generally survey 15m x 15m or 225m² (~50ft x 50ft or 2,500ft²) at each site. **6** Cover (Daubenmire): 1: 0-5% (2.5%), 2: 5-25% (15%), 3: 25-50% (37.5%), 4: 50-75% (62.5%), 5: 75-95% (85.0%), 6: 95-100% (97.5%). Median % cover is the value in parentheses. **7** Infested area: gross area x median % cover. For median % cover see value in parenthesis in cover above. This will be calculated on iPads, but manually calculated in SWIMS.
8 Live:Dead Classes - 1: 100:0; 2: 95:5; 3:75:25; 4: 50:50; 5: 25:75; 6: 5:95; 7: 0:100. Live (L) animals will contain flesh and respond; live plants will be green or with live tissue when scratched and have reproductive fragments (seeds, flowers, apical meristem, etc.). Dead (D) animals will not contain flesh or respond and dead plants sterile fragments that won't root. **9** Indicate whether a photo was taken of the species at the site (Y/N). Photos are only mandatory when first occurrence. **10** Indicate whether a specimen was collected (Y/N). Specimens only mandatory for NR 40 prohibited species. **11** Indicate how and why protocols varied from SOP. Habitat description. Any other pertinent information.

Site[1]	Latitude[2] XX.XXXXX	Longitude[2] -XX.XXXXX	AIS Present[3] (Y/N)	Species[4], gross a[5]., cover (1-6)[6], infested a. (sq m)[7], and L:D (1-7)[8]					Photo taken?[9] (Y/N)	Specimen collected?[10] (Y/N)	Comments[11] (include habitat description or protocol changes)
				Species[4]	Gross Area[5]	Cover[6]	Infested Area[7]	Live:Dead[8]			
					Gross Area	Cover	Infested a. (sq. m.)	Live:Dead			
					Gross Area	Cover	Infested a. (sq. m.)	Live:Dead			
					Gross Area	Cover	Infested a. (sq. m.)	Live:Dead			
					Gross Area	Cover	Infested a. (sq. m.)	Live:Dead			

Save... Clear Data **Note:** In order to fill and save this form electronically, it must be opened using Adobe Reader or Acrobat software. Save a copy of the file, open Adobe Reader, select File > Open and browse for the file you saved.

State of Wisconsin
Department of Natural Resources
Wisconsin Lakes Partnership

Aquatic Invasive Species Incident Report

Form 3200-153 (R 05/21) Page 1 of 2

The purpose of this form is to notify DNR of a new populations of AIS. Only use if you found an aquatic invasive species where it hasn't been found previously.
To find where aquatic invasives have already been found, visit: http://dnr.wi.gov/topic/Invasives/report.html
Notice: Information on this voluntary form is collected under ss. 33.02 and 281.11, Wis. Stats. Personally identifiable information collected on this form will be incorporated into the DNR Surface Water Integrated Monitoring System (SWIMS) Database. It is not intended to be used for any other purposes, but may be made available to requesters under Wisconsin's Public Records laws, ss. 19.32 - 19.39, Wis. Stats.
If the plant or animal cannot be collected due to safety concerns or it is located on private property, please take a photo (see Sample section below). DNR staff will then follow-up if further monitoring is needed for identification

Primary Data Collector

Name	Phone Number	Email

Location

Name (e.g. Lake, Stream, Wetland)	Township	County

Date and Time of Monitoring or Discovery

Monitoring Date	Start Time	End Time

Add a new Invasive Specie found below ==> [+] +

Information on the Aquatic Invasive Species Found (Fill out one form for each species found.)

AQUATIC PLANTS	RIPARIAN PLANTS	INVERTEBRATES

Habitat Type (Lake, Stream, Wetland, Roadside, or Other)

Where did you find the invasive species? (Give boat landing, nearest intersection/road, stream crossing, and general description)

Latitude in decimal degrees (xx.xxxxx, -xx.xxxxx):	Longitude in decimal degrees (xx.xxxxx, -xx.xxxxx):

Area species was covering. Estimate in square feet.	About how many individuals were there (1, 50, 100, 1,000, many beds, etc.)?

Can the species move or is it attached? Check One: ◯ Rooted/Attached ◯ Floating/Swimming/Crawling

Is specimen alive or dead? Check One: ◯ Live ◯ Dead

Habitat

Water depth where the Invasive(s) were found (if applicable) ◯ Feet ◯ Meters

Where was the Invasive Species Located? Check all that apply

☐ Below water ☐ Mud / Muck ☐ Sand ☐ Rock ☐ In/on plants ☐ Dock / Pier
☐ Watercraft ☐ Above water ☐ Shoreline ☐ Wet field ☐ Ditch ☐ Other

Sample

Did you collect a sample (specimen) and bring it to your local DNR office? If so, which office?

☐ Eau Claire ☐ Green Bay ☐ Plymouth ☐ Spooner ☐ Did not take sample to a DNR office
☐ Fitchburg ☐ Oshkosh ☐ Rhinelander ☐ Superior ☐ Other Office

Photo Taken? ◯ Yes ◯ No Photos should be sent to WNDR AIS Coordinators or DNRInvasivePhotos@wisconsin.gov

Aquatic Invasive Species Monitoring Data

The purpose of this form is to notify DNR of aquatic invasive species (AIS) surveillance results.

To find where aquatic invasives have already been found, visit: http://dnr.wi.gov/topic/Invasives/report.html

Notice: Information on this voluntary form is collected under ss. 33.02 and 281.11, Wis. Stats. Personally, identifiable information collected on this form will be incorporated into the DNR Surface Water Integrated Monitoring System (SWIMS) Database. It is not intended to be used for any other purposes but may be made available to requesters under Wisconsin's Public Records laws, ss. 19.32 - 19.39, Wis. Stats.

If the plant or animal cannot be collected due to safety concerns or it is located on private property, please take a photo (see Sample section below). DNR staff will then follow-up if further monitoring is needed for identification

Instructions: Bold fields must be completed.

Location Name	SWIMS Station ID	County	Collector(s)	Date	Start Time	End Time

Protocol	Wetland ◯ Lake ◯ Stream	s (Hrs x PPL)	Vol. Hours (Hrs x PPL)
Pathway	Maritime ☐ State & Fed ☐ R		

LET'S CHECK IT OUT!

STEP 1: Become familiar with the ID handout before monitoring. Circle species looked for. These species will appear in SWIMS dropdown when entering fieldwork event.

AQUATIC PLANTS/ALG		
	https://dnr.wi.gov/files/pdf/forms/3200/3200-154.pdf	

***Prohibited or Split Listed Species, †Unregulated species**

STEP 2: Record locations of sites in decimal degrees. If diverting from the protocol (i.e. not snorkeling), indicate how and why in comments. List AIS found, gross area, cover, infested area and whether specimens were live/dead. Indicate whether specimens/photos were collected. Include internal and external labels with species name, SWIMS Station ID, Station name, county, sample date, and collector(s). Indicate if no AIS were found. Legibility is important. If needed, preserve with alcohol (4:1). If possible, submit maps.

1 Boat landing (BL), access (A), targeted search site (TS), meander/incidental site (MS). **2** Record locations of sites in decimal degrees. **3** Record whether AIS present at the site (Y/N). **4** Species present. Each species on a separate row. **5** Gross Area: estimate square meter area of survey site. We generally survey 15m x 15m or 225m^2 (~50ft x 50ft or 2,500ft^2) at each site. **6** Cover (Daubenmire): 1: 0-5% (2.5%), 2: 5-25% (15%), 3: 25-50% (37.5%), 4: 50-75% (62.5%), 5: 75-95% (85.0%), 6: 95-100% (97.5%). Median % cover is the value in parentheses. **7** Infested area: gross area x median % cover. For median % cover see value in parenthesis in cover above. This will be calculated on iPads, but manually calculated in SWIMS.
8 Live:Dead Classes - 1: 100:0; 2: 95:5; 3:75:25; 4: 50:50; 5: 25:75; 6: 5:95; 7: 0:100. Live (L) animals will contain flesh and respond; live plants will be green or with live tissue when scratched and have reproductive fragments (seeds, flowers, apical meristem, etc.). Dead (D) animals will not contain flesh or respond and dead plants sterile fragments that won't root. **9** Indicate whether a photo was taken of the species at the site (Y/N). Photos are only mandatory when first occurrence. **10** Indicate whether a specimen was collected (Y/N). Specimens only mandatory for NR 40 prohibited species. **11** Indicate how and why protocols varied from SOP. Habitat description. Any other pertinent information.

Site[1]	Latitude[2] XX.XXXXX	Longitude[2] -XX.XXXXX	AIS Present[3] (Y/N)	Species[4], gross a[5]., cover (1-6)[6], infested a. (sq m)[7], and L:D (1-7)[8]					Photo taken?[9] (Y/N)	Specimen collected?[10] (Y/N)	Comments[11] (include habitat description or protocol changes)
				Species[4]	Gross Area[5]	Cover[6]	Infested Area[7]	Live:Dead[8]			
					Gross Area	Cover	Infested a. (sq. m.)	Live:Dead			
					Gross Area	Cover	Infested a. (sq. m.)	Live:Dead			
					Gross Area	Cover	Infested a. (sq. m.)	Live:Dead			
					Gross Area	Cover	Infested a. (sq. m.)	Live:Dead			

Save... Clear Data

Note: In order to fill and save this form electronically, it must be opened using Adobe Reader or Acrobat software. Save a copy of the file, open Adobe Reader, select File > Open and browse for the file you saved.

State of Wisconsin
Department of Natural Resources
Wisconsin Lakes Partnership

Aquatic Invasive Species Incident Report

Form 3200-153 (R 05/21) Page 1 of 2

The purpose of this form is to notify DNR of a new populations of AIS. Only use if you found an aquatic invasive species where it hasn't been found previously.

To find where aquatic invasives have already been found, visit: http://dnr.wi.gov/topic/Invasives/report.html

Notice: Information on this voluntary form is collected under ss. 33.02 and 281.11, Wis. Stats. Personally identifiable information collected on this form will be incorporated into the DNR Surface Water Integrated Monitoring System (SWIMS) Database. It is not intended to be used for any other purposes, but may be made available to requesters under Wisconsin's Public Records laws, ss. 19.32 - 19.39, Wis. Stats.

If the plant or animal cannot be collected due to safety concerns or it is located on private property, please take a photo (see Sample section below). DNR staff will then follow-up if further monitoring is needed for identification

Primary Data Collector

Name	Phone Number	Email

LET'S CHECK IT OUT!

http://intranet.dnr.state.wi.us/formscatalog/ffAPI.aspx?HotLink=InitiateForm&formid=6162

Information on the Aquatic Invasive Species Found (Fill out one form for each species found.)

AQUATIC PLANTS	RIPARIAN PLANTS	INVERTEBRATES

Habitat Type (Lake, Stream, Wetland, Roadside, or Other)

Where did you find the invasive species? (Give boat landing, nearest intersection/road, stream crossing, and general description)

Latitude in decimal degrees (xx.xxxxx, -xx.xxxxx):	Longitude in decimal degrees (xx.xxxxx, -xx.xxxxx):
Area species was covering. Estimate in square feet.	About how many individuals were there (1, 50, 100, 1,000, many beds, etc.)?

Can the species move or is it attached? Check One:
◯ Rooted/Attached ◯ Floating/Swimming/Crawling

Is specimen alive or dead? Check One:
◯ Live ◯ Dead

Habitat

Water depth where the Invasive(s) were found (if applicable) ◯ Feet ◯ Meters

Where was the Invasive Species Located? Check all that apply

☐ Below water ☐ Mud / Muck ☐ Sand ☐ Rock ☐ In/on plants ☐ Dock / Pier
☐ Watercraft ☐ Above water ☐ Shoreline ☐ Wet field ☐ Ditch ☐ Other _____

Sample

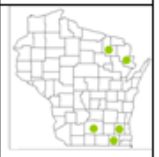
Did you collect a sample (specimen) and bring it to your local DNR office? If so, which office?

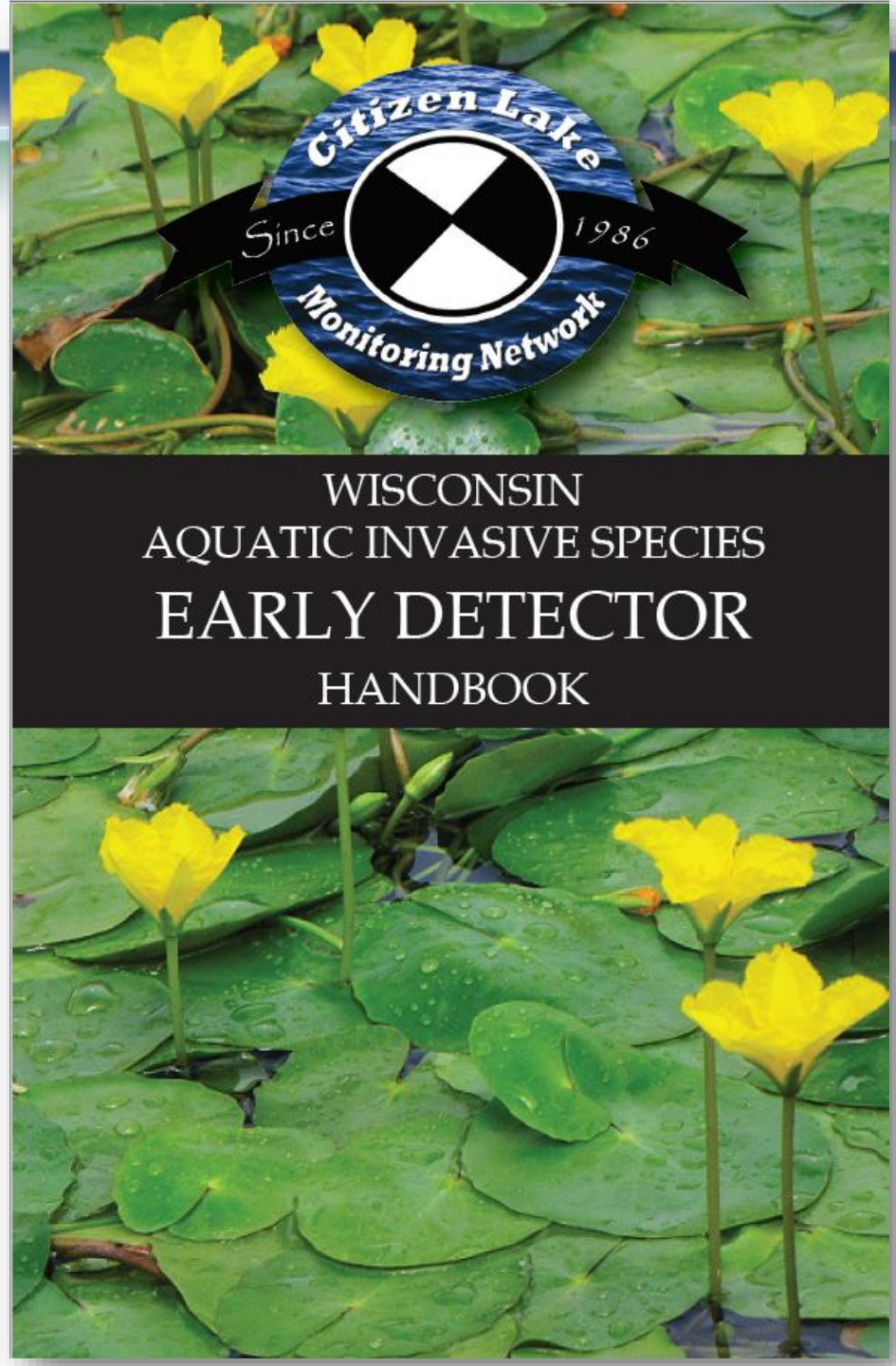
☐ Eau Claire ☐ Green Bay ☐ Plymouth ☐ Spooner ☐ Did not take sample to a DNR office
☐ Fitchburg ☐ Oshkosh ☐ Rhinelander ☐ Superior ☐ Other Office _____

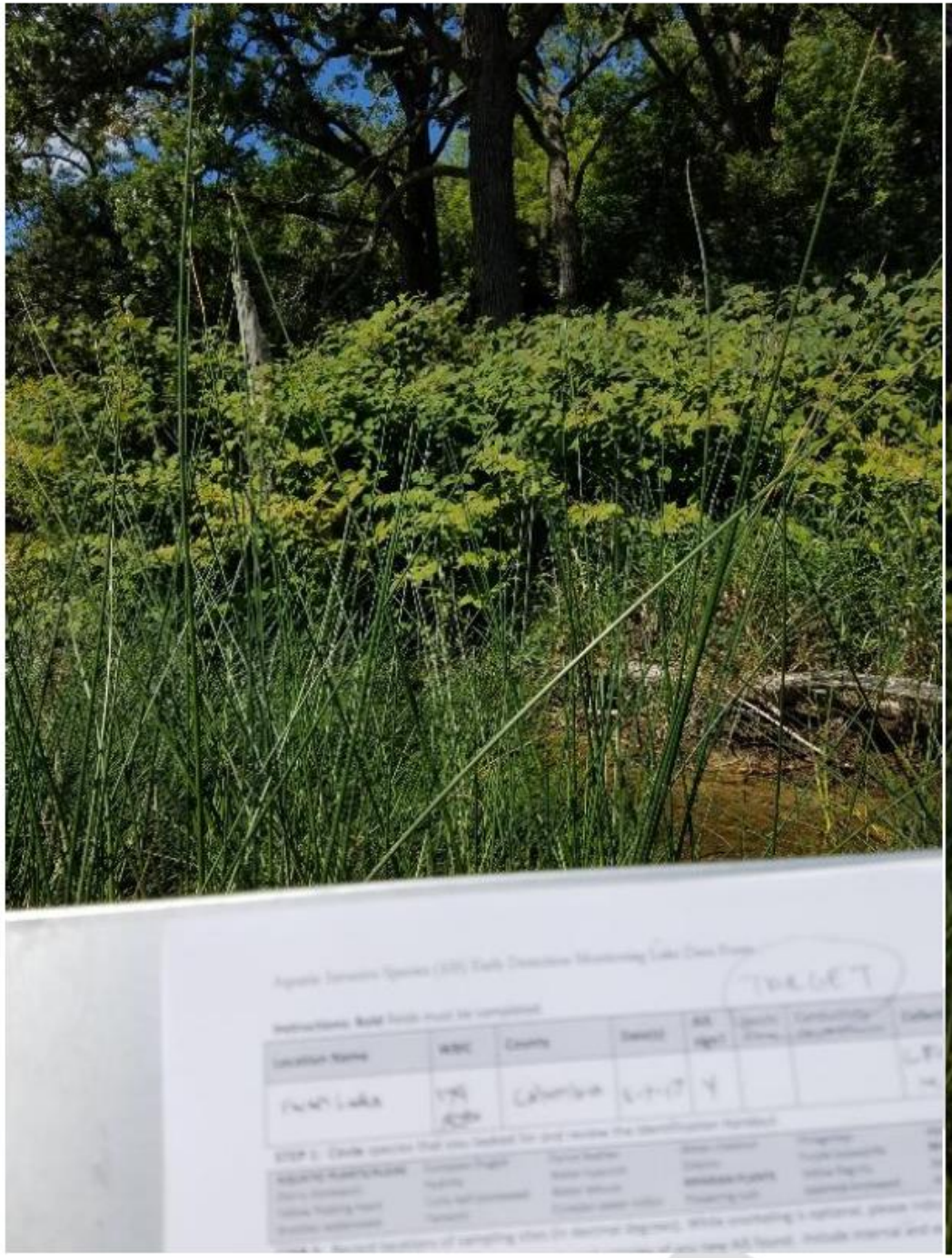
Photo Taken? ◯ Yes ◯ No Photos should be sent to WNDR AIS Coordinators or DNRInvasivePhotos@wisconsin.gov

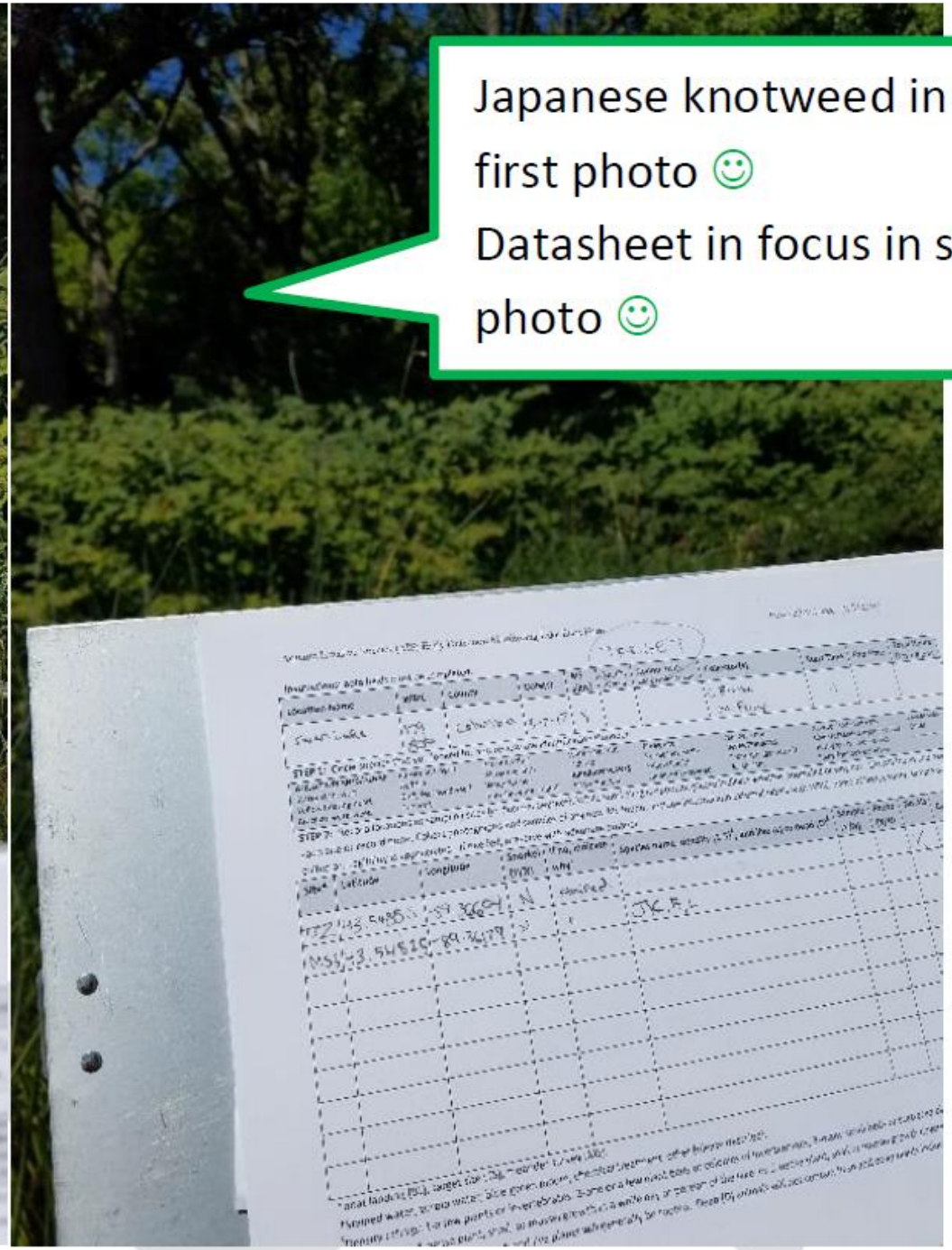
Photos

- Collect MULTIPLE photos of each new species
- Target identification characteristics
- Include datasheet
- Include landscape

SUBMERGED AQUATIC		
Species – code *Scientific name*	Identification	Distribution/Notes
European frog-bit - EFB (*Hydrocharis morsus-ranae*)  Photo: Erich Haber	**Leaves:** Usually floating; heart-shaped with long stems; 1.2-6.3 cm (0.5-2.5 in) in diameter; smooth margins; often dark purple beneath; lateral veins are arching and make a 75-90° angle with the midvein; tissue containing airpockets are located mostly along the midvein. **Flowers:** Three white petals with yellow center; blooms mid-summer. **Fruits & seeds:** Rarely produces viable seeds and instead relies on vegetative stolons and turions for reproduction. **Similar species:** Often confused with American frog-bit (*Limnobium spongia*; not known in WI), whose leaves have lateral veins that make a 30-80° angle with the midvein, and whose leaf tissue contains large air pockets throughout. White water lilies (*Nymphaea odorata*) have circular leaves with a triangular slit, and large, multi-petaled white flowers. *Nuphar* spp. have yellow cup-like flowers.	Not reported in Wisconsin
Yellow floating heart - YFH (*Nymphoides peltata*) 	**Leaves:** Floating; heart-shaped with slightly wavy margins; 3-15 cm (1.2-6.0 in) in diameter; alternately arranged near the stem base and oppositely arranged near the top; frequently have purplish undersides. **Flowers:** 2-5 bright yellow flowers arise from erect flower stalks; 3-4 cm (1.2-1.6 in) in diameter; 5 petals arranged like the spokes of a wheel, each with a distinctive fringe along the edge. **Fruits & seeds:** Fruit is a pod-like capsule (1.2-2.5 cm; 0.5-1.0 in) that splits on one side. One fruit is produced from each flower, and contains many smooth, oval seeds with winged margins. **Similar species:** Spatterdocks (*Nuphar* spp.) have much larger leaves, and cup-like flowers without fringed petals. Watershield (*Brasenia schreberi*) has small oval floating leaves often with a jelly-like covering on the undersides, and small purple flowers. Other species of *Nymphoides* such as *N. aquatica* and *N. cordatum* (native	
Photos: ????	to the southern U.S.), and *N. cristata* and *N. indica* (non-native and sold as ornamental plants) are also similar in appearance.	
Brazilian waterweed - BWW (*Egeria densa*)  Photos: ???? (left); Washington State Department of Ecology (right)	**Leaves:** Finely serrated (under magnification); 1-3 cm (0.4-1.2 in) long and up to 5 mm (0.2 in) wide; occur in whorls of 4-8. **Flowers:** Small (1.8-2.5 cm; 0.7-1.0 in); three white petals with yellow center; float on or rise above the surface of the water. **Fruits & seeds:** Seeds are not known to be produced outside of its native range. Spreads through vegetative reproduction - plant fragments containing double nodes can produce new plants. **Roots:** Slender, and white or pale. Adventitious roots are freely produced from double nodes on the stem. **Similar species:** Common and slender waterweed (*Elodea* spp.) have leaves in whorls of 3, and leaf edges appear smooth to the naked eye. *E. densa* is overall more robust than native *Elodea* spp. Non-native hydrilla (*Hydrilla verticillata*), often produces tubers and has small teeth on the underside of the leaf midrib, while *E. densa* does not produce tubers and the leaf underside is smooth.	
Hydrilla - HYD (*Hydrilla verticillata*) 	**Leaves:** Occur in whorls of 3-8; 6-20 mm (0.2-0.8 in) long and 1-4 mm (0.04-0.16 in) wide; small spines give leaf margins a visible toothed appearance; midrib on underside of leaf is often reddish and has visible spines; rough to the touch. **Flowers:** Tiny (4-8 mm; 0.16-0.31 in); female flowers are white, have 3 petals and 3 sepals, and are located on threadlike stalks emerging from the leaf axils; male flowers are white to red/brown. **Fruits & seeds:** Monoecious variety can set viable seed although primarily	

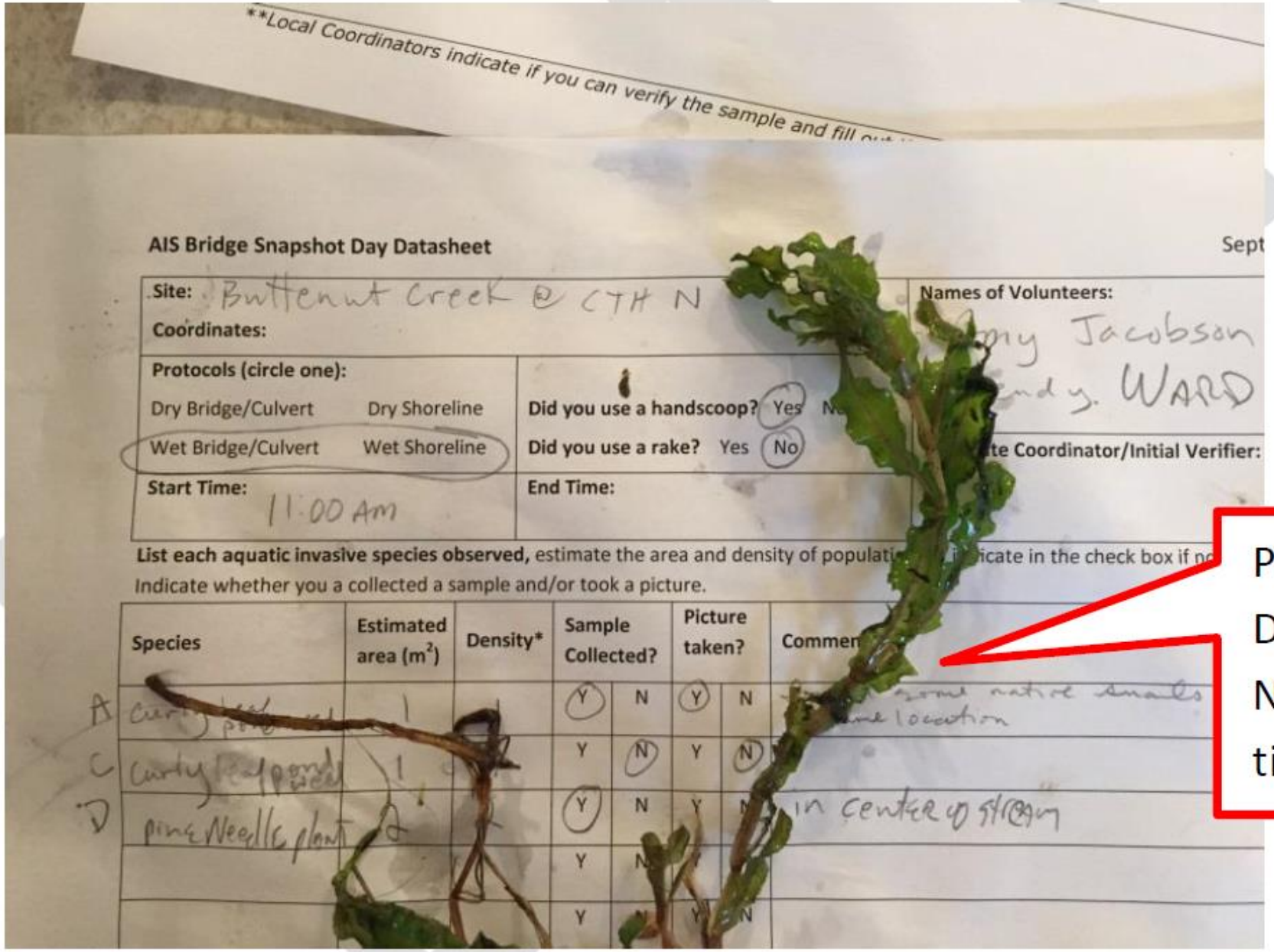






Japanese knotweed in focus in first photo ☺

Datasheet in focus in second photo ☺



Plant and data sheet in focus ☺

Data sheet mostly complete ☺

No coordinates and no end time ☹

Aquatic Invasive Species (AIS) Early Detection Monitoring Data Form

Form

Instructions: Bold fields must be completed.

Location Name	WBIC	County	Date(s)	AIS sign?	Secchi (ft or	tivity pos/cm)	Collector(s)	Start
Example Lake	123123	Portage	6/1/15	Y			Paul Skawi… Maureen Fe…	

STEP 1: Circle species that you looked for and review the Identification Hand…

AQUATIC PLANTS/ALGAE			RIPARIAN PLANTS		INVERTEBRATES
European frogbit	Hydrilla	Water hyacinth	Water chestnut		Zebra/quagga mus…
Yellow floating heart	Curly leaf pondweed	Water lettuce			Asian clam
Brazilian waterweed	Fanwort	Eurasian water milfoil	Flowering rush	Japanese knotweed	New Zealand mud…
	Parrot feather	Didymo	Phragmites	Japanese hop	

STEP 2: *Record locations of sampling sites (in decimal degrees). Indicate whether snorkeled or why not. List AIS f… sample of any new AIS found. Collect five new invasive plant specimens, 20 Dreissenids, and up to 3 of each… WBIC, name of lake, county, sample date, sample type (snails, spiny water flea or zebra mussel) and co… ethanol.*

Site*	Latitude	Longitude	Snorkel (Y/N)	If no, indicate why†	Species name, density (1-5)‡, and live (L) or dead (D)§
BL	44.xxxx	89.xxxx	Y		Asian clam (Corbicula), 1, L

Data sheet complete and legible ☺

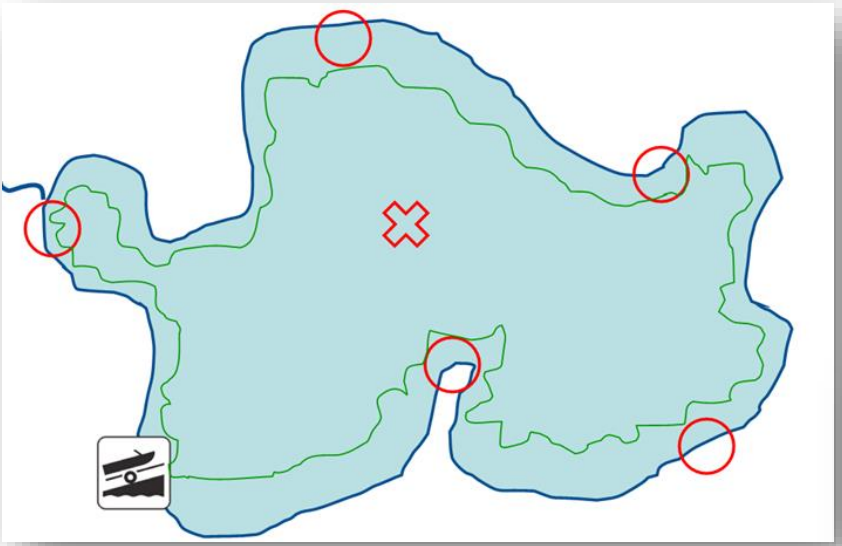
Asian clam in focus and with ID characteristics ☺

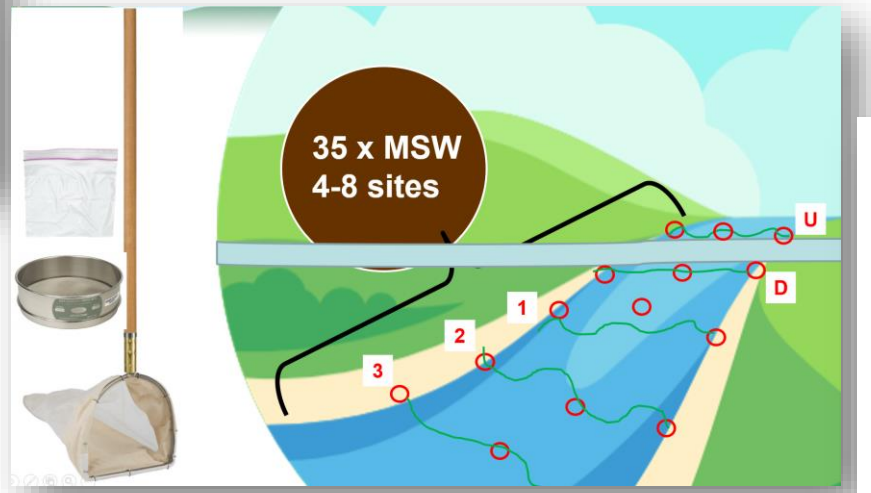
Photo Guidance

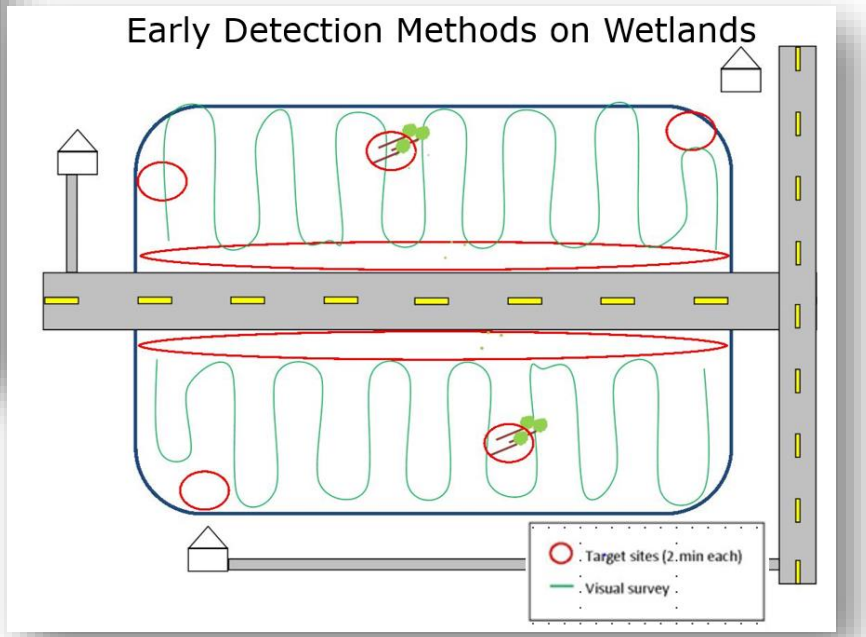
- Instruction for reporting aquatic and wetland invasive species with photos
- https://dnrx.wisconsin.gov/swims/downloadDocument.do?id=145712698

Specimens

Monitoring Protocols







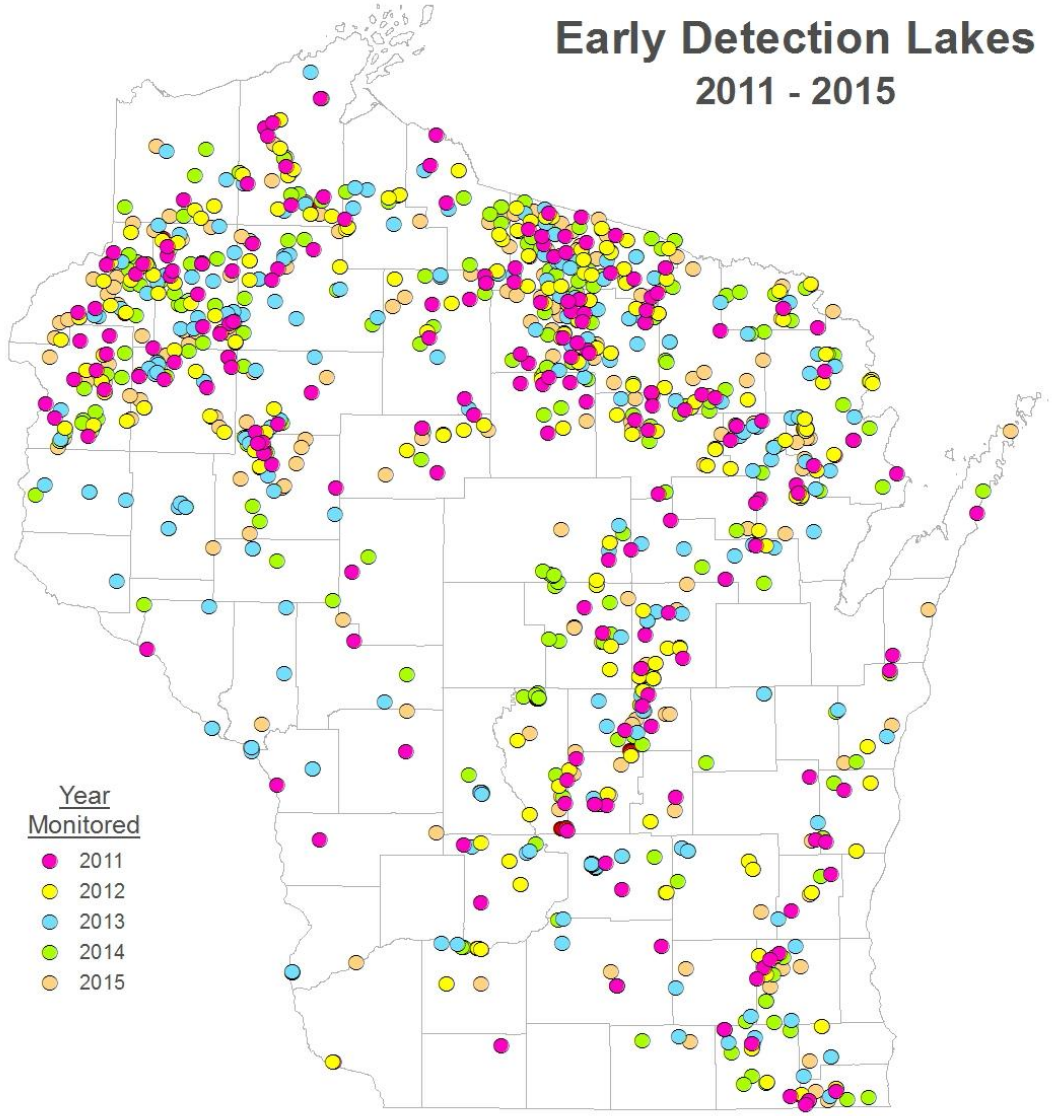
Design

- Design
  - May15-Sept 15 (shorter/broader for some species)
  - Access/target
  - Meander

AIS Monitoring in Lakes

- Rate of AIS spread
- 200 public lakes/year

2010-2015

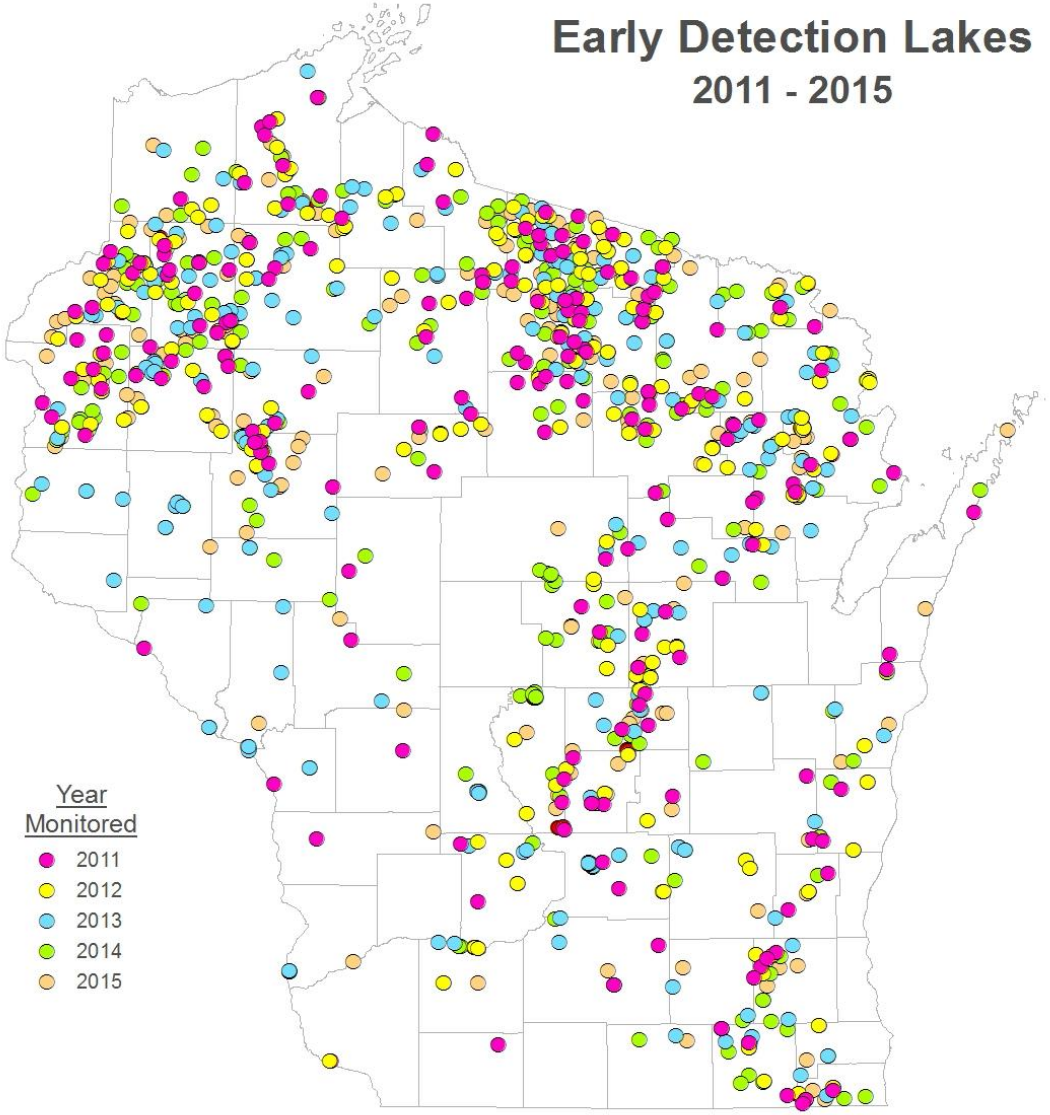


AIS Monitoring in Lakes

- Rate of AIS spread
- 200 public lakes/year

2010-2015

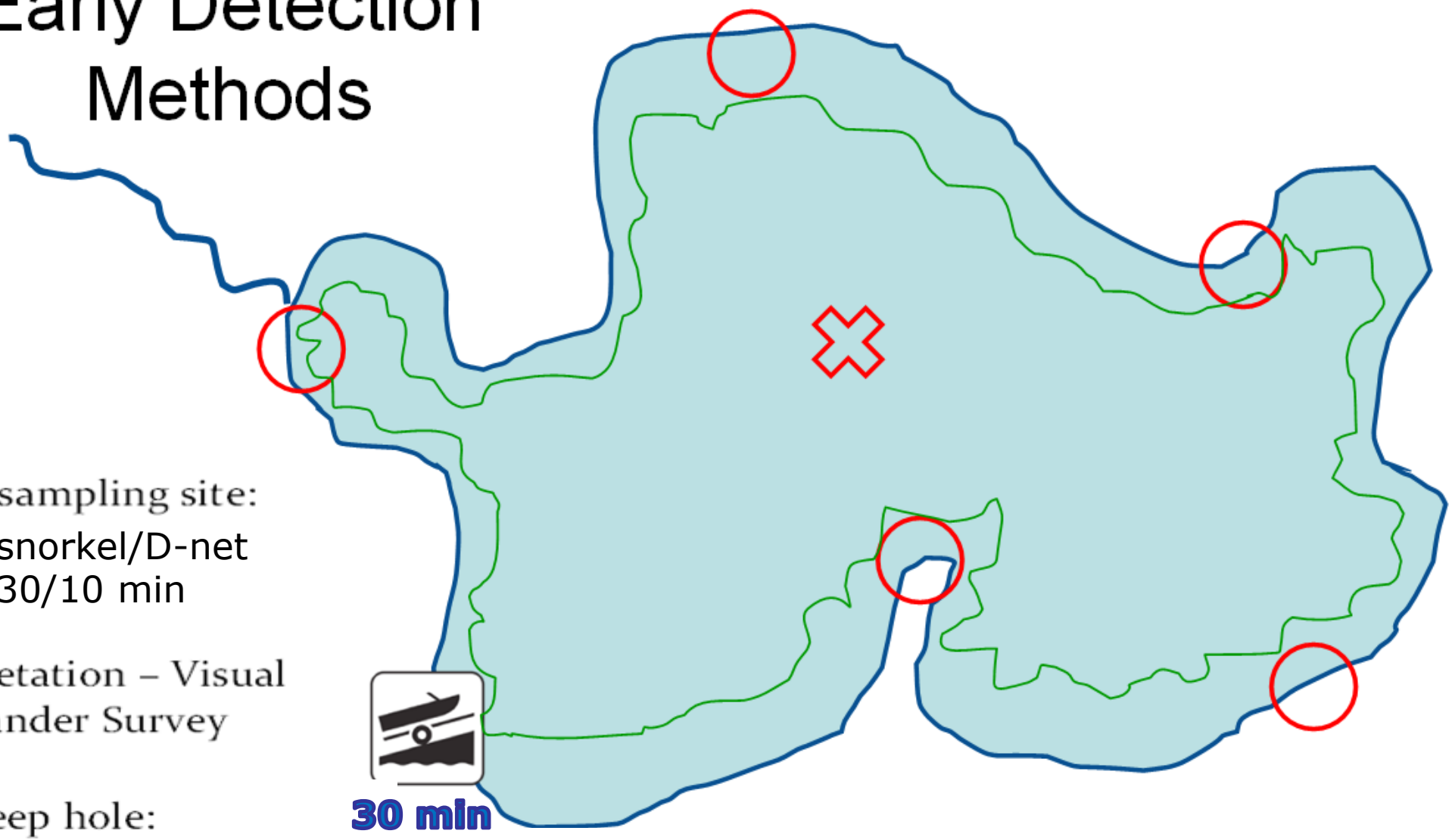
- Rate is stable
- AIS at ~75% sites
- Protocols detect AIS



LIFE IS EASIER WHEN YOU'VE GOT A POSSE.

Early Detection Methods

Any new species found will be counted as a "detect."



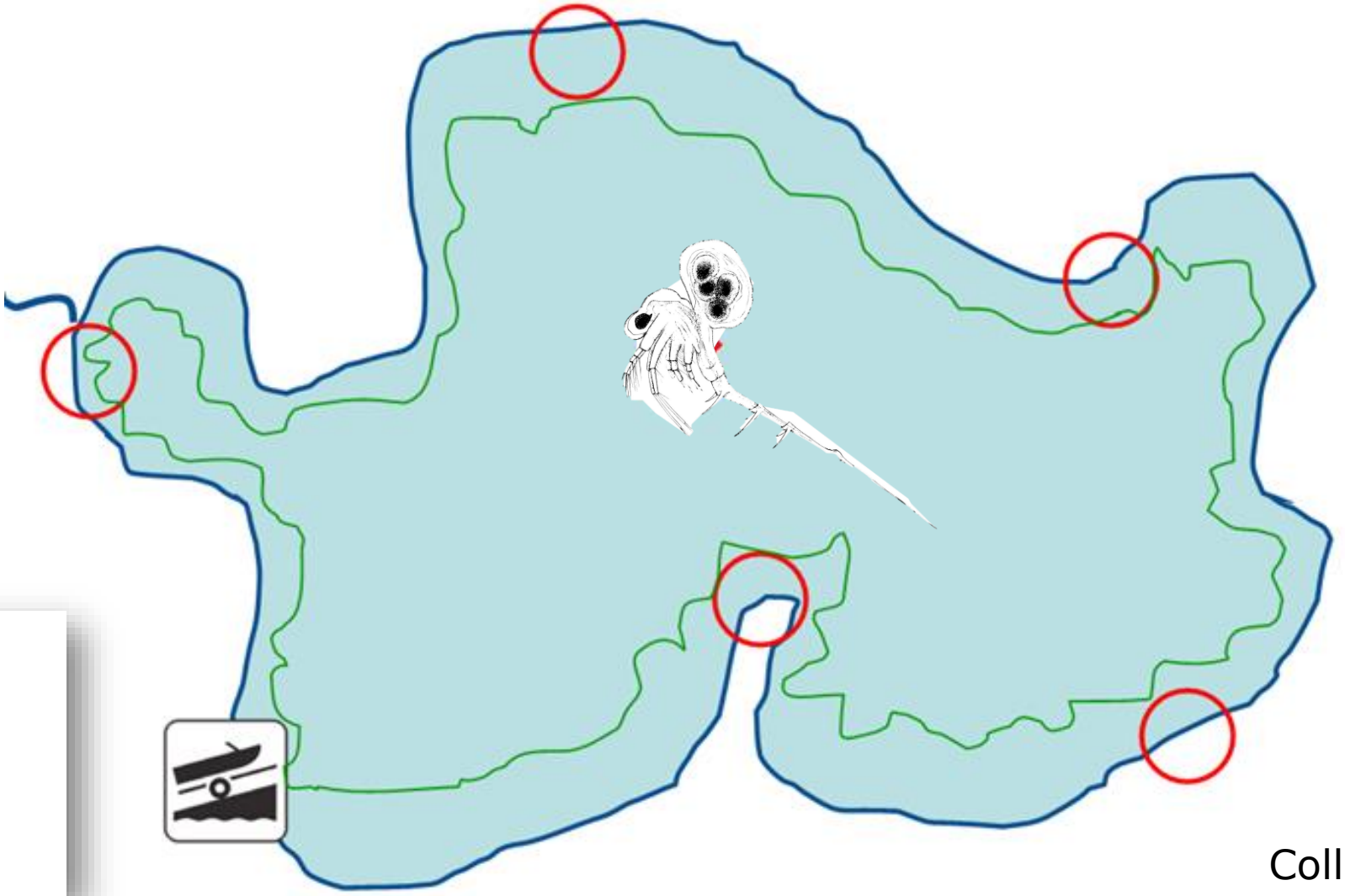
= sampling site:
snorkel/D-net
30/10 min

Vegetation – Visual Meander Survey

= deep hole:
Water quality
Eckman

Eckman Dredge

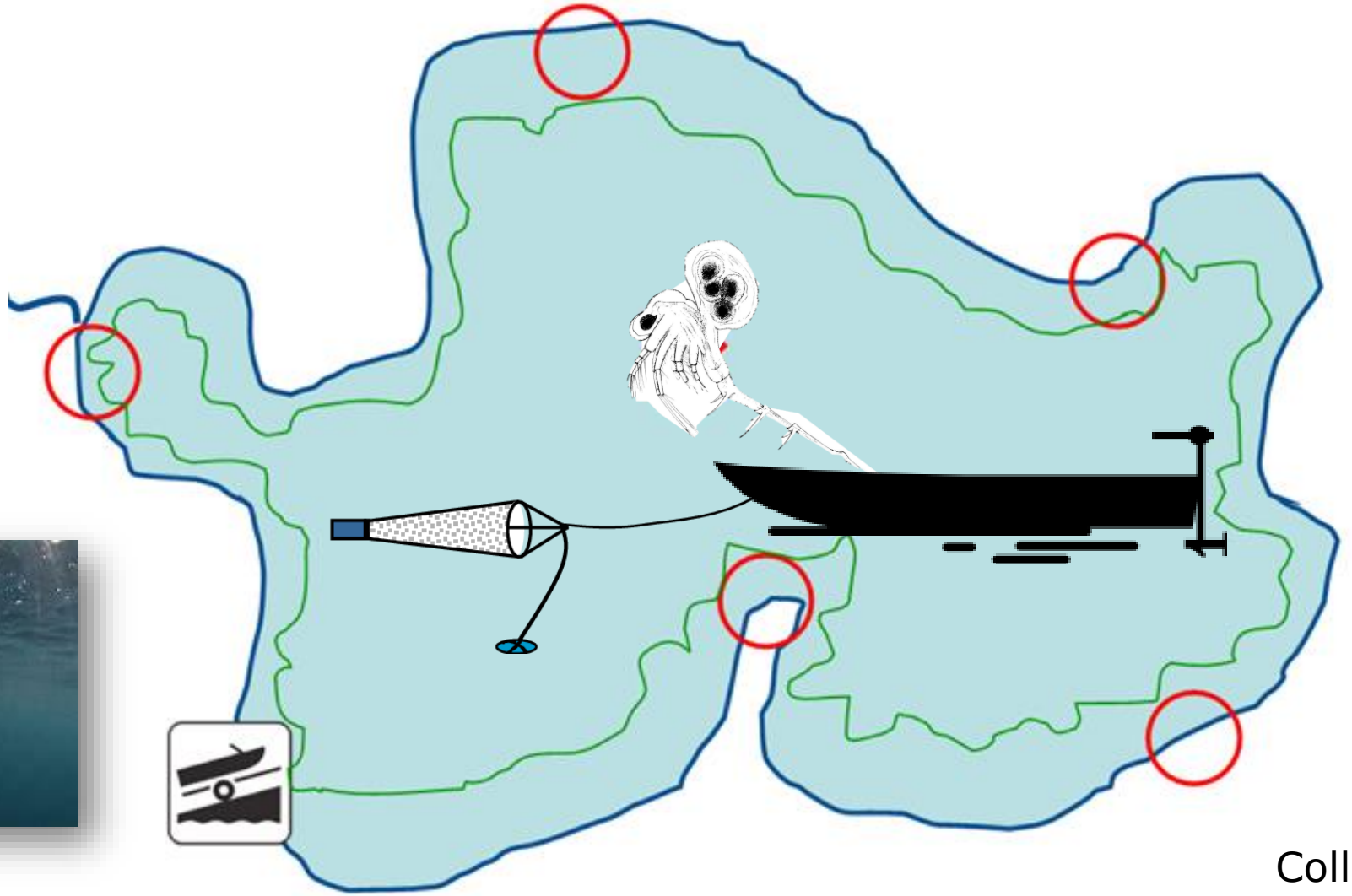
- Carefully lower
- Keep boat clean!
- Scoop into baggie



Collected year-round

Waterflea Tow

- Reverse
- Slow!
- 2 min
- Raise
- 4:1 ethanol: water

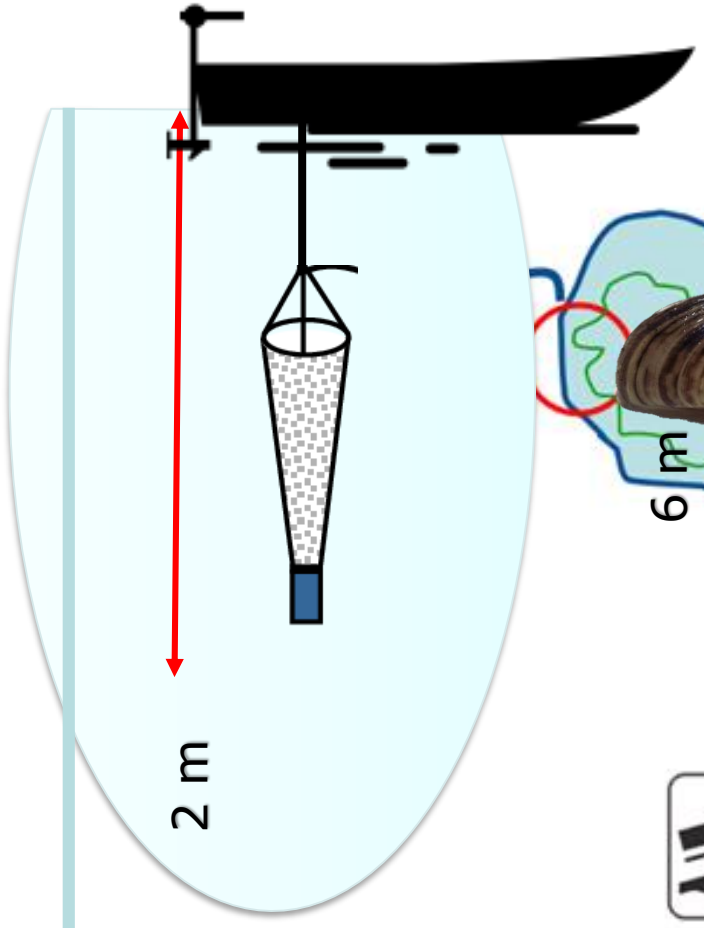


Collected Sept-Oct

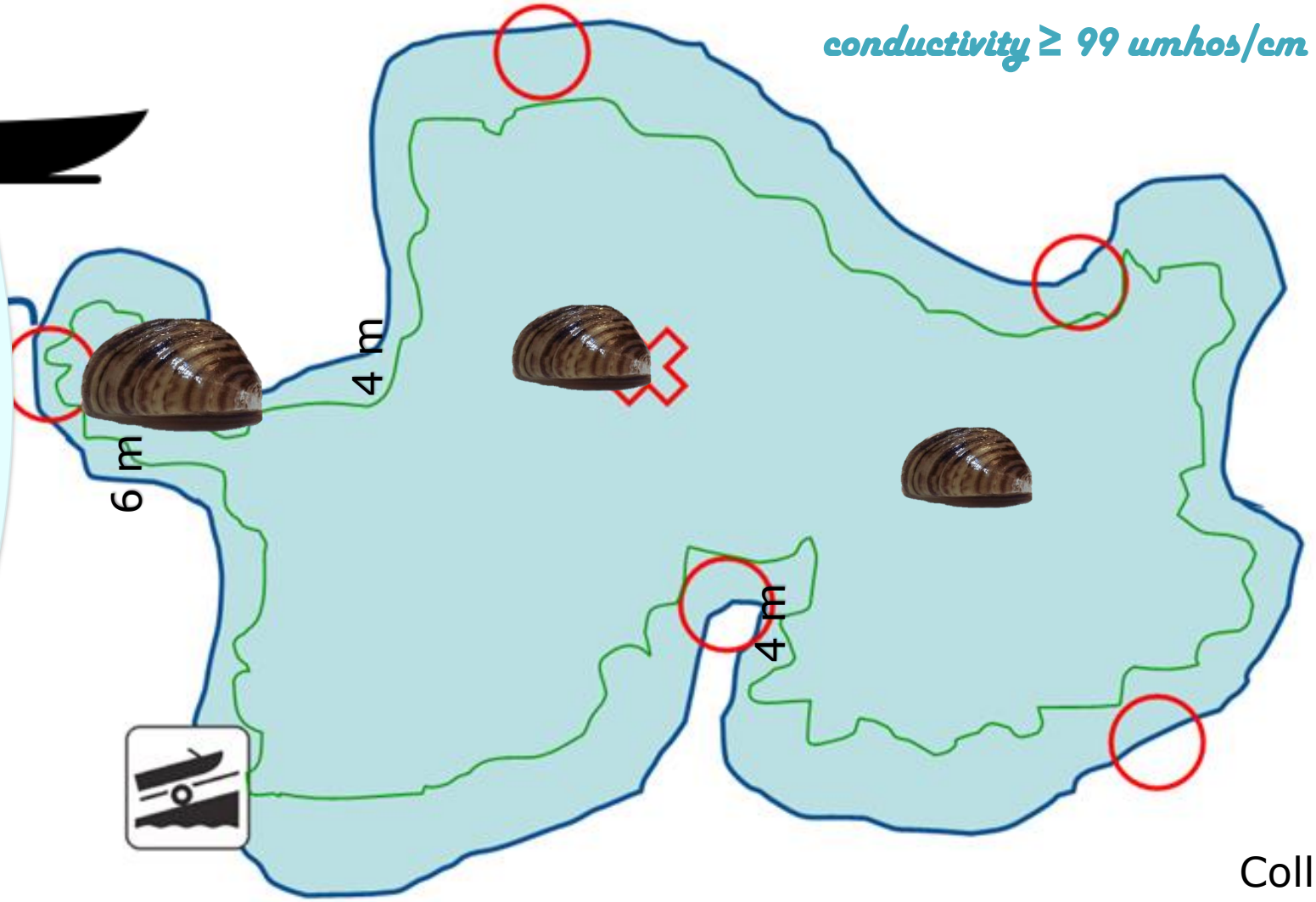
Veliger Tows

Water column ≥6 m

Water column <6 m



conductivity ≥ 99 umhos/cm



- Downwind/ downstream
- Lowering below thermocline
- 4:1 ethanol: water

Collected >55F

Lake Sampling Protocols

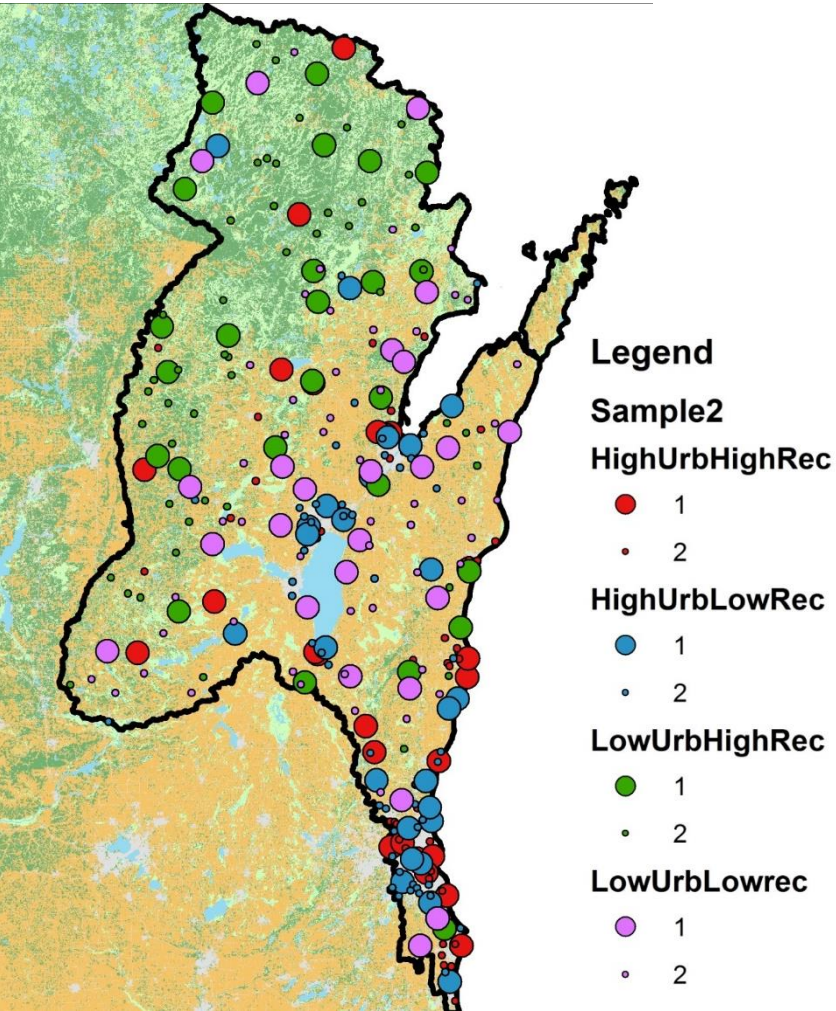
Invasive Species Monitoring in Lakes

Procedures for AIS Monitoring in Lakes (PDF)
https://dnrx.wisconsin.gov/swims/downloadDocument.do?id=239110004

Procedures for waterflea and mussel veliger sampling (tows and dredges). Webinar (1 hour 20 minutes)
https://p.widencdn.net/dcyuvs/WaterfleaVeligerSampleWebinar20200424
PowerPoint (PDF)
https://dnrx.wisconsin.gov/swims/viewDocument.do?id=272389726

AIS Monitoring in Streams

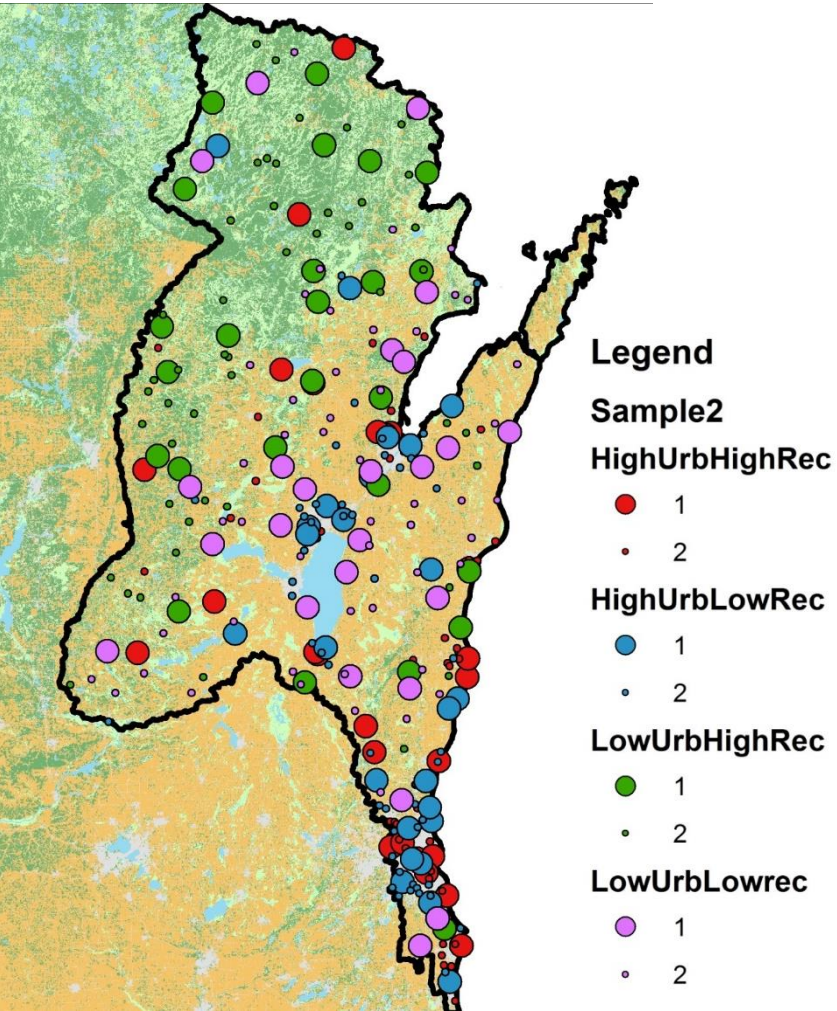
AIS Monitoring in Streams



- Where are AIS in streams?

	Number of Targeted Samples	
	High Urban	Low Urban
High Recreation	25	25
Low Recreation	25	25

AIS Monitoring in Streams



- Where are AIS in streams?

	Number of Targeted Samples	
	High Urban	Low Urban
High Recreation	25	25
Low Recreation	25	25

- No statistical difference
- AIS at ~75% sites
- Protocols detect AIS

AIS Monitoring in Streams

35 x MSW
4-8 transects

Target (2 min)

Meander

U

D

1

2

3

AIS Monitoring in Streams

Invasive Species Monitoring in Streams
https://dnrx.wisconsin.gov/swims/downloadDocument.do?id=239110032

AIS Monitoring in Wetlands

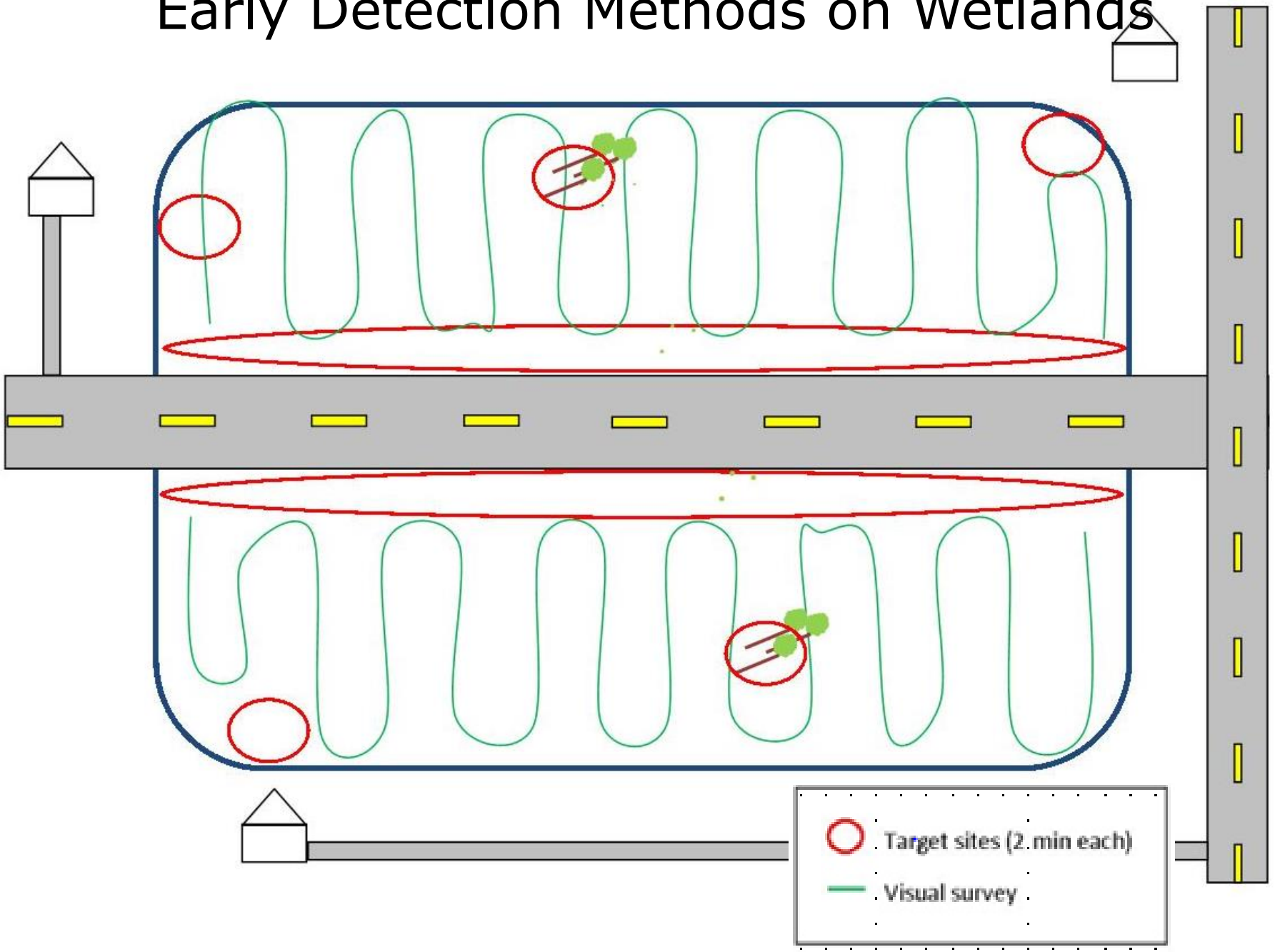
AIS Monitoring in Wetlands

- Great Lakes-Mississippi River Interbasin Study
- Locations with AIS transfer risk
- 8 locations in WI

AIS Monitoring in Wetlands

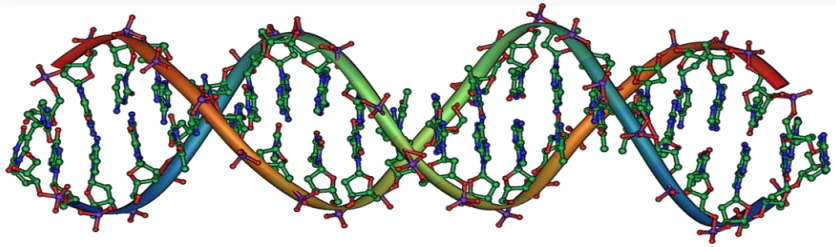
- Coastal Management Grant, 2016

Early Detection Methods on Wetlands



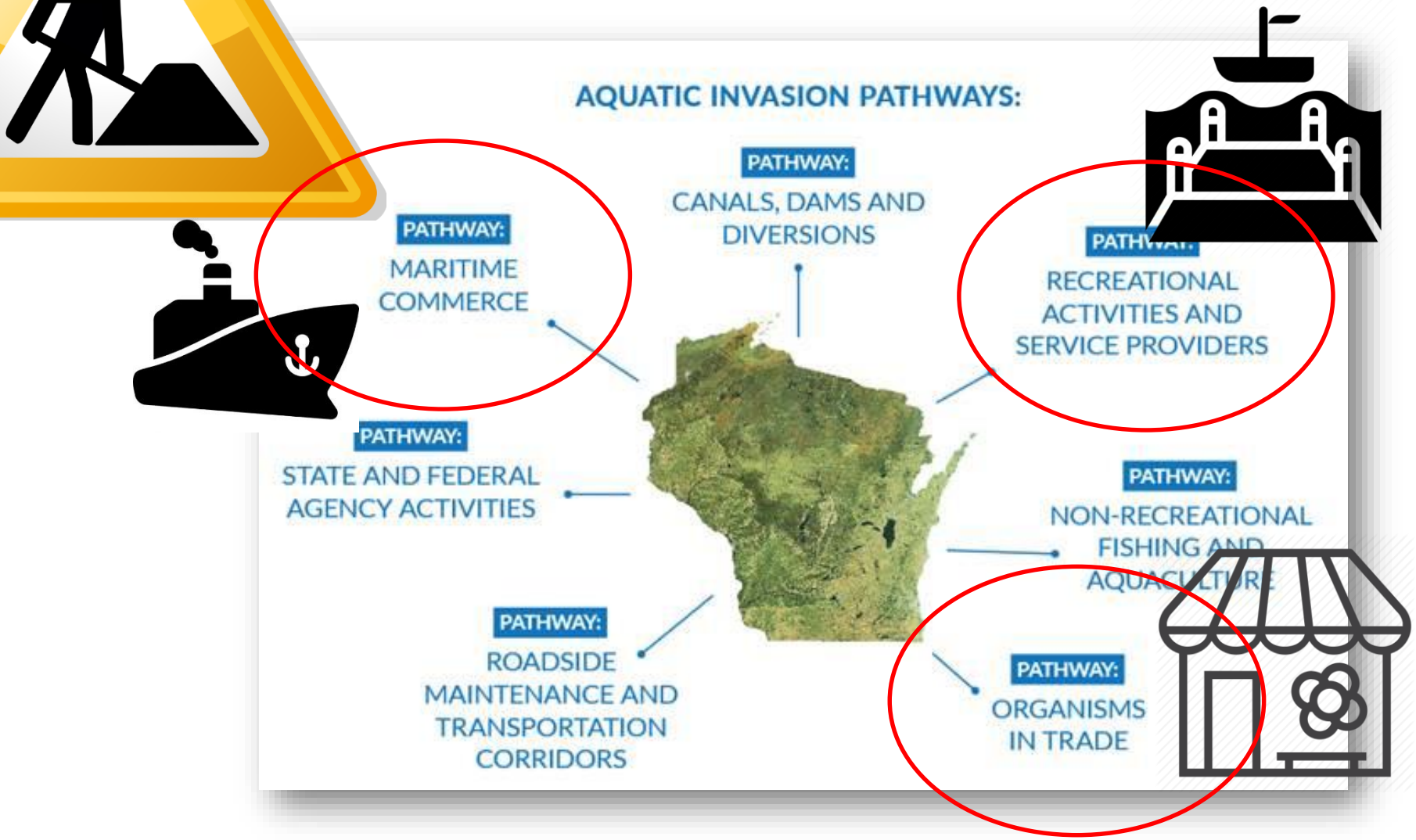
Wisconsin DNR Boat, Gear, & Equipment Disinfection Manual Code

Monitoring Projects



Monitoring Projects

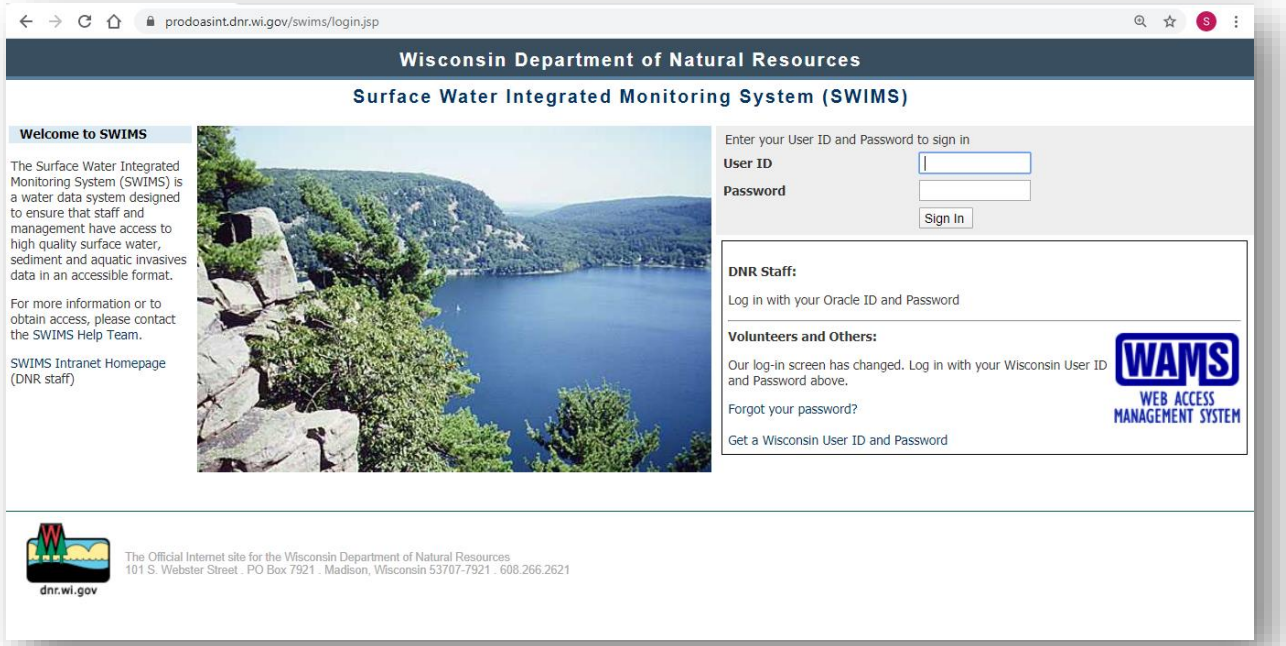
Monitoring Projects



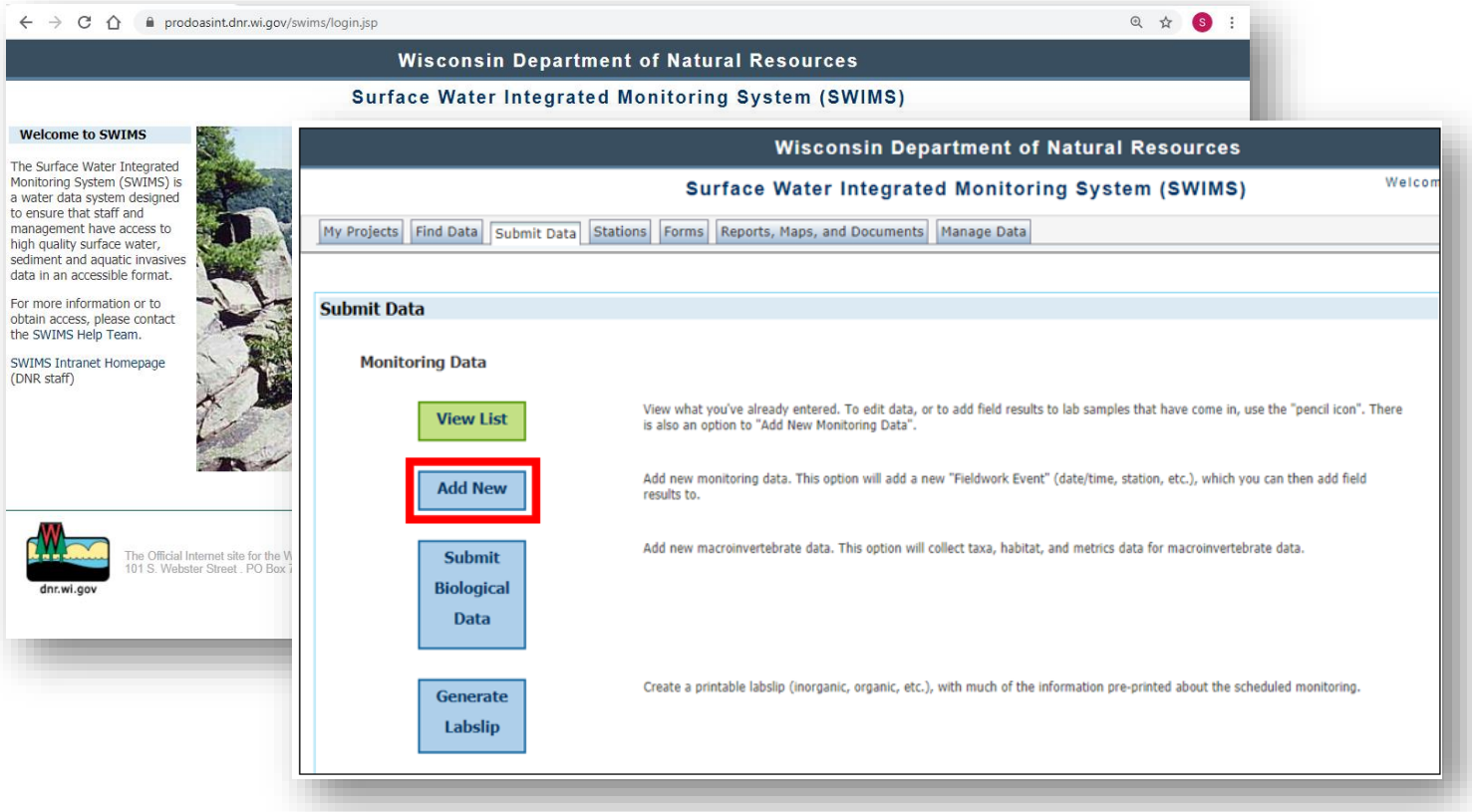
Report

- Enter monitoring data:
  - Planned fieldwork – enter data to SWIMS
  - Unplanned fieldwork - submit Incident Report

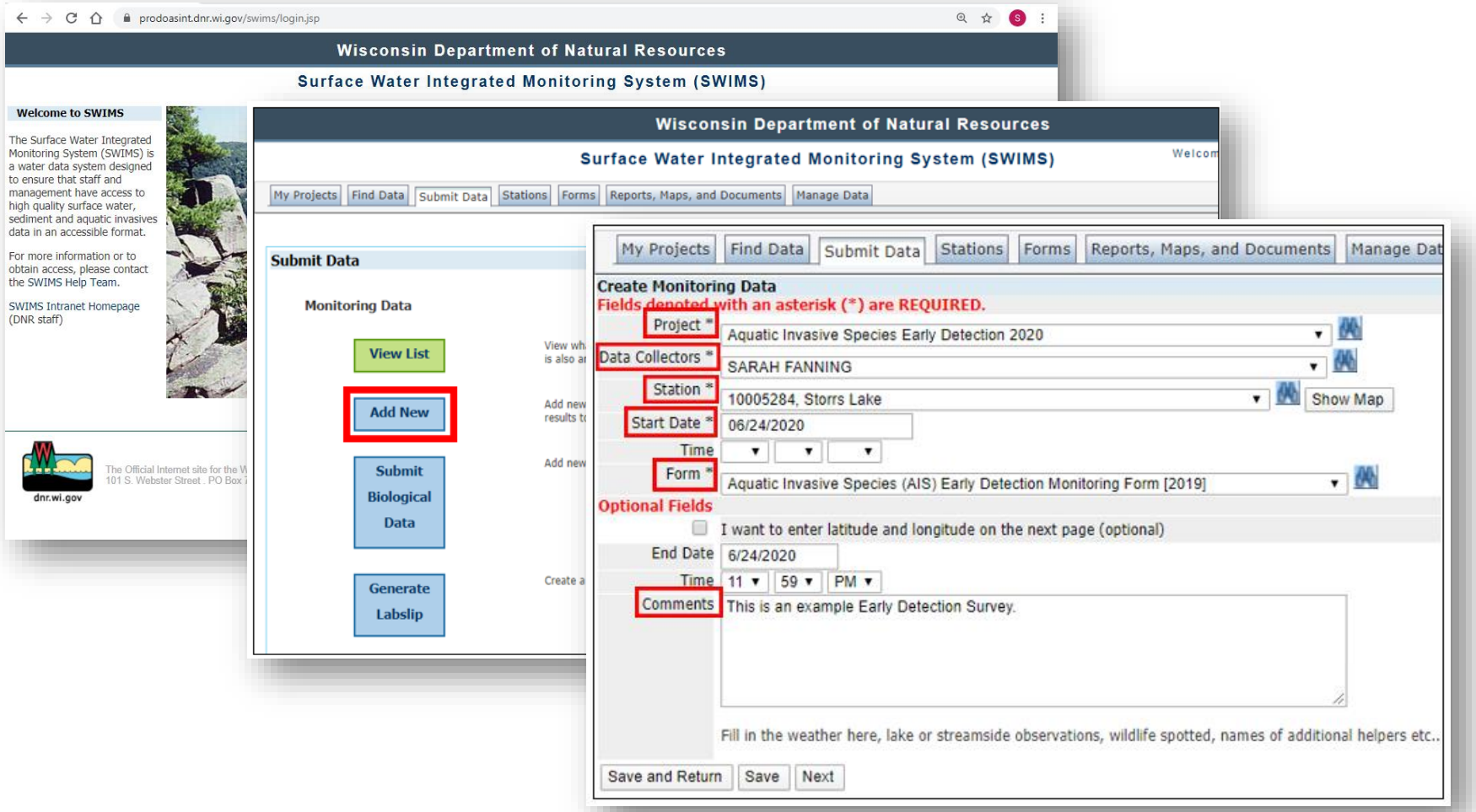
SWIMS entry


prodoasint.dnr.wi.gov/swims/login.jsp
Wisconsin Department of Natural Resources
Surface Water Integrated Monitoring System (SWIMS)
Welcome to SWIMS
The Surface Water Integrated Monitoring System (SWIMS) is a water data system designed to ensure that staff and management have access to high quality surface water, sediment and aquatic invasives data in an accessible format.
For more information or to obtain access, please contact the SWIMS Help Team.
SWIMS Intranet Homepage (DNR staff)
Enter your User ID and Password to sign in
User ID
Password
Sign In
DNR Staff:
Log in with your Oracle ID and Password
Volunteers and Others:
Our log-in screen has changed. Log in with your Wisconsin User ID and Password above.
Forgot your password?
Get a Wisconsin User ID and Password
WAMS
WEB ACCESS MANAGEMENT SYSTEM
dnr.wi.gov
The Official Internet site for the Wisconsin Department of Natural Resources
101 S. Webster Street . PO Box 7921 . Madison, Wisconsin 53707-7921 . 608.266.2621

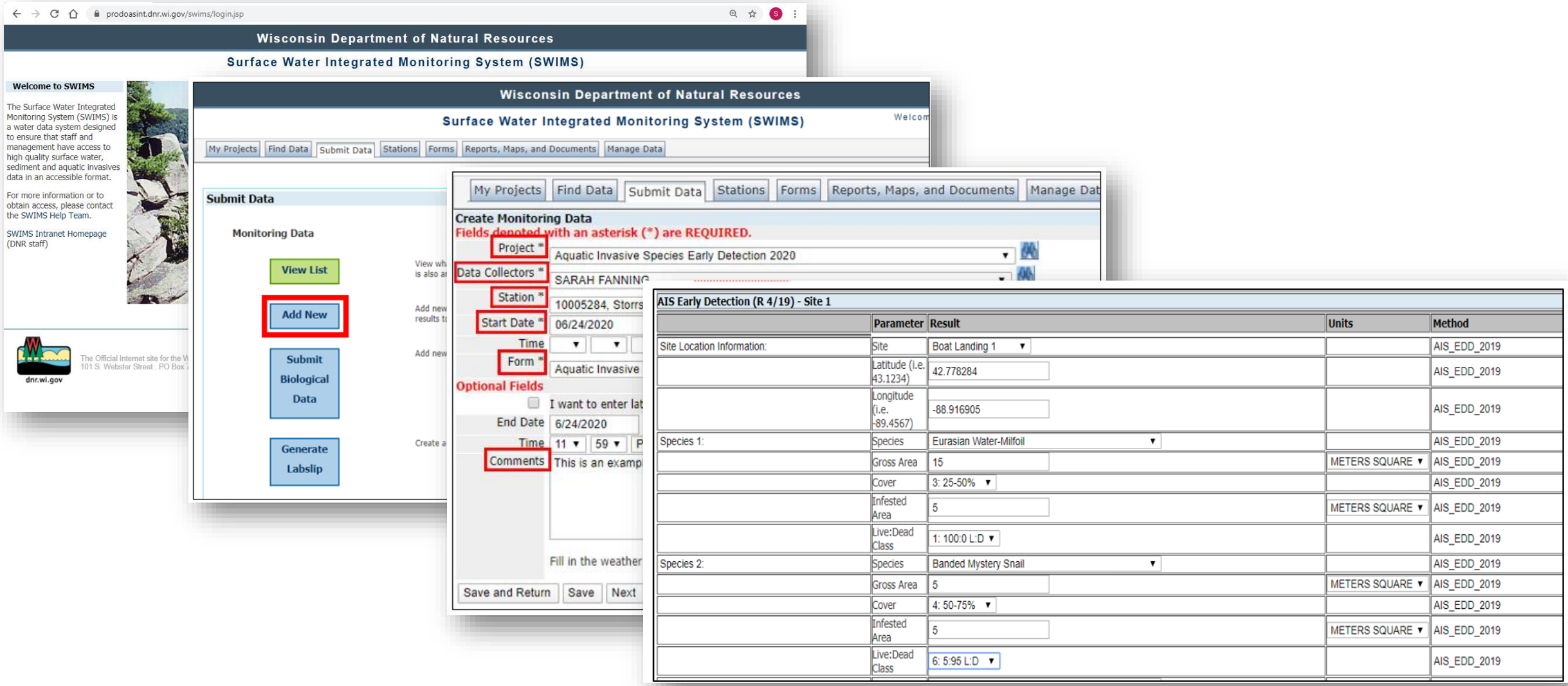
SWIMS entry


prodoasint.dnr.wi.gov/swims/login.jsp
Wisconsin Department of Natural Resources
Surface Water Integrated Monitoring System (SWIMS)
Welcome to SWIMS
The Surface Water Integrated Monitoring System (SWIMS) is a water data system designed to ensure that staff and management have access to high quality surface water, sediment and aquatic invasives data in an accessible format.
For more information or to obtain access, please contact the SWIMS Help Team.
SWIMS Intranet Homepage (DNR staff)
dnr.wi.gov
Wisconsin Department of Natural Resources
Surface Water Integrated Monitoring System (SWIMS)
Welcom
My Projects
Find Data
Submit Data
Stations
Forms
Reports, Maps, and Documents
Manage Data
Submit Data
Monitoring Data
View List
View what you've already entered. To edit data, or to add field results to lab samples that have come in, use the "pencil icon". There is also an option to "Add New Monitoring Data".
Add New
Add new monitoring data. This option will add a new "Fieldwork Event" (date/time, station, etc.), which you can then add field results to.
Submit Biological Data
Add new macroinvertebrate data. This option will collect taxa, habitat, and metrics data for macroinvertebrate data.
Generate Labslip
Create a printable labslip (inorganic, organic, etc.), with much of the information pre-printed about the scheduled monitoring.

SWIMS entry


prodoasint.dnr.wi.gov/swims/login.jsp
Wisconsin Department of Natural Resources
Surface Water Integrated Monitoring System (SWIMS)
Welcome to SWIMS
The Surface Water Integrated Monitoring System (SWIMS) is a water data system designed to ensure that staff and management have access to high quality surface water, sediment and aquatic invasives data in an accessible format.
For more information or to obtain access, please contact the SWIMS Help Team.
SWIMS Intranet Homepage (DNR staff)
dnr.wi.gov
Wisconsin Department of Natural Resources
Surface Water Integrated Monitoring System (SWIMS)
My Projects
Find Data
Submit Data
Stations
Forms
Reports, Maps, and Documents
Manage Data
Submit Data
Monitoring Data
View List
Add New
Submit Biological Data
Generate Labslip
My Projects
Find Data
Submit Data
Stations
Forms
Reports, Maps, and Documents
Create Monitoring Data
Fields denoted with an asterisk (*) are REQUIRED.
Project *
Aquatic Invasive Species Early Detection 2020
Data Collectors *
SARAH FANNING
Station *
10005284, Storrs Lake
Show Map
Start Date *
06/24/2020
Time
Form *
Aquatic Invasive Species (AIS) Early Detection Monitoring Form [2019]
Optional Fields
I want to enter latitude and longitude on the next page (optional)
End Date
6/24/2020
Time
11
59
PM
Comments
This is an example Early Detection Survey.
Fill in the weather here, lake or streamside observations, wildlife spotted, names of additional helpers etc..
Save and Return
Save
Next

SWIMS entry


prodoasint.dnr.wi.gov/swims/login.jsp
Wisconsin Department of Natural Resources
Surface Water Integrated Monitoring System (SWIMS)
Welcome to SWIMS
The Surface Water Integrated Monitoring System (SWIMS) is a water data system designed to ensure that staff and management have access to high quality surface water, sediment and aquatic invasives data in an accessible format.
For more information or to obtain access, please contact the SWIMS Help Team.
SWIMS Intranet Homepage (DNR staff)
dnr.wi.gov
Wisconsin Department of Natural Resources
Surface Water Integrated Monitoring System (SWIMS)
My Projects
Find Data
Submit Data
Stations
Forms
Reports, Maps, and Documents
Manage Data
Submit Data
Monitoring Data
View List
Add New
Submit Biological Data
Generate Labslip
Create Monitoring Data
Fields denoted with an asterisk (*) are REQUIRED.
Project *
Aquatic Invasive Species Early Detection 2020
Data Collectors *
SARAH FANNING
Station *
10005284, Storrs
Start Date *
06/24/2020
Time
Form *
Aquatic Invasive
Optional Fields
I want to enter lat
End Date
6/24/2020
Time
11
59
Comments
This is an examp
Fill in the weather
Save and Return
Save
Next
AIS Early Detection (R 4/19) - Site 1
Parameter
Result
Units
Method
Site Location Information:
Site
Boat Landing 1
AIS_EDD_2019
Latitude (i.e. 43.1234)
42.778284
Longitude (i.e. -89.4567)
-88.916905
Species 1:
Species
Eurasian Water-Milfoil
Gross Area
15
METERS SQUARE
Cover
3: 25-50%
Infested Area
5
Live:Dead Class
1: 100:0 L:D
Species 2:
Banded Mystery Snail
4: 50-75%
6: 5:95 L:D

dnr.wi.gov search “invasive”

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

HUNT LICENSES NEWS ABOUT CONTACT

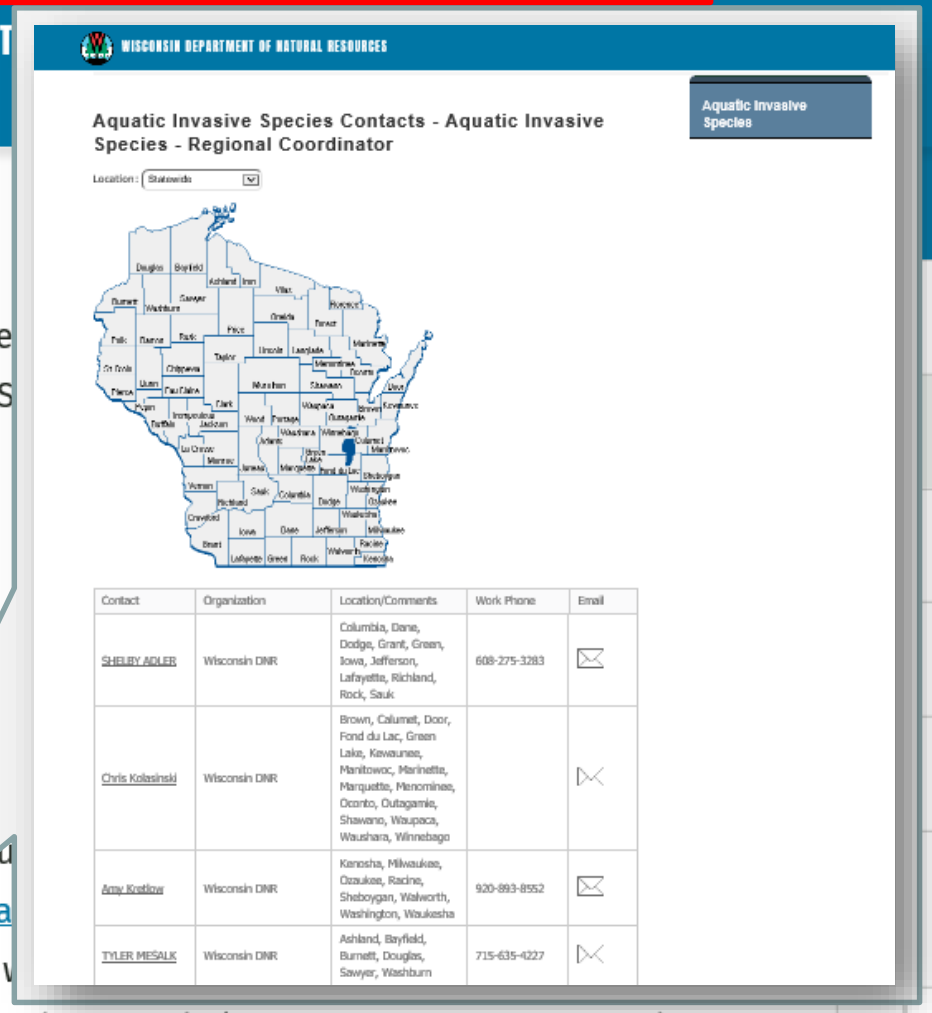
REPORT INVASIVE SPECIES

We are working to keep invasive species out of Wisconsin. Early re
rapidly and control invasives before they spread into new areas. S
you have found.

Aquatic, Shoreline and Wetland | **Terrestrial** | **NR40 species**

AQUATIC, SHORELINE AND WETLAND

Check to see if the suspected invasive species has been u
Search waterbody or species lists or refer to AIS mapp tool a
the invasive species is not known to occur in the wa erbody or v
Regional DNR Aquatic Invasive Species Coordinator by following the steps below. Report every suspected wetland invasive species not associated with a waterbody, except reed canary grass (unless the latter is a new, small stand adjacent to a un-infested, natural wetland).



- Invasive Species
  - Learn More
  - **Report an Invasive**
  - Prevent the Spread
  - Control Measures
  - Rules and Regulations
  - Wisconsin Invasive Species Council
  - AIS Efforts
  - Publications

Verification Process

- DNR trained and tested staff around the state
- Regional DNR AIS coordinator will confirm ID with 2 verifiers
- Once 2 verifiers agree, regional DNR AIS coordinator will create record in SWIMS for tabular and spatial website

Lakes, Rivers, and Wetlands with Aquatic Invasive Species

Aquatic Invasive Species

Location: Statewide

Aquatic invasive species (AIS) records are assigned statuses of "verified", "observed", or "no longer observed" based on AIS Status Guidance. In general, "verified" populations are established and have been verified by a taxonomic expert. Populations with the "observed" status have not been verified by a taxonomic expert or do not have established populations. Populations with the "no longer observed" status include populations where a reproducing population did not establish. Our inventories are not necessarily exhaustive so it is important to report occurrences. To report new discoveries visit: http://dnr.wi.gov/topic/Invasives/report.html. See the Aquatic Invasive Species Guidance for information on how statuses are assigned. Personally identifiable information on data collection forms may be provided to requesters to the extent required by Wisconsin's Open Records Law [ss. 19.31-19.39, Wis. Stats.].

To Excel

< First | < Prev | Page 1 of 99 | Next > | Last >

Waterbody Name	Waterbody ID Code (WBIC)	Invasive Species
Adams County (28)		
Arkdale Lake	1374300	Chinese Mystery Snail, Curly-Leaf Pondweed, Eurasian Water-Milfoil, Purple Loosestrife, Rusty Crayfish, Water Hyacinth
Big Roche A Cri Creek	1374100	Japanese Knotweed, Rusty Crayfish, Water Hyacinth, Zebra Mussel
Big Roche a Cri	1374800	Chinese Mystery Snail, Curly-Leaf Pondweed, Eurasian Water-

Species Locations

Business | Lice | Contact | Join DNR

Asiatic Clam (Corbicula)

Select Another Location:
Statewide

Total Locations: 23

Total Lakes and Rivers: 24 *

Disclaimer: Aquatic invasive species (AIS) records are assigned statuses of "verified", "observed", or "no longer observed" based on AIS Status Guidance. In general, "verified" populations are established and have been verified by a taxonomic expert. Populations with the "observed" status have not been verified by a taxonomic expert or do not have established populations. Populations with the "no longer observed" status include populations where a reproducing population did not establish. Our inventories are not necessarily exhaustive so it is important to report occurrences. To report new discoveries visit: http://dnr.wi.gov/topic/Invasives/report.html. See the Aquatic Invasive Species Guidance for information on how statuses are assigned. Personally identifiable information on data collection forms may be provided to requesters to the extent required by Wisconsin's Open Records Law [ss. 19.31-19.39, Wis. St

By County | By Waterbody | By Species | By Year | Open In Excel

Waterbody	Status	Waterbody ID Code (WBIC)	County
Bohners Lake	Verified and Vouchered	750800	Racine
Browns Lake	Verified and Vouchered	750300	Racine
Eagle Spring Lake	Verified and Vouchered	768600	Walworth, Waukesha
Fox River - CTH E	Verified and Vouchered	742500	Waukesha
Lake Andrea	Verified and Vouchered	733850	Kenosha

Aquatic Invasive Species

Contact information
For information on Lakes in Wisconsin, contact:

Wisconsin DNR Lakes
Division of Water
Bureau of Water Quality

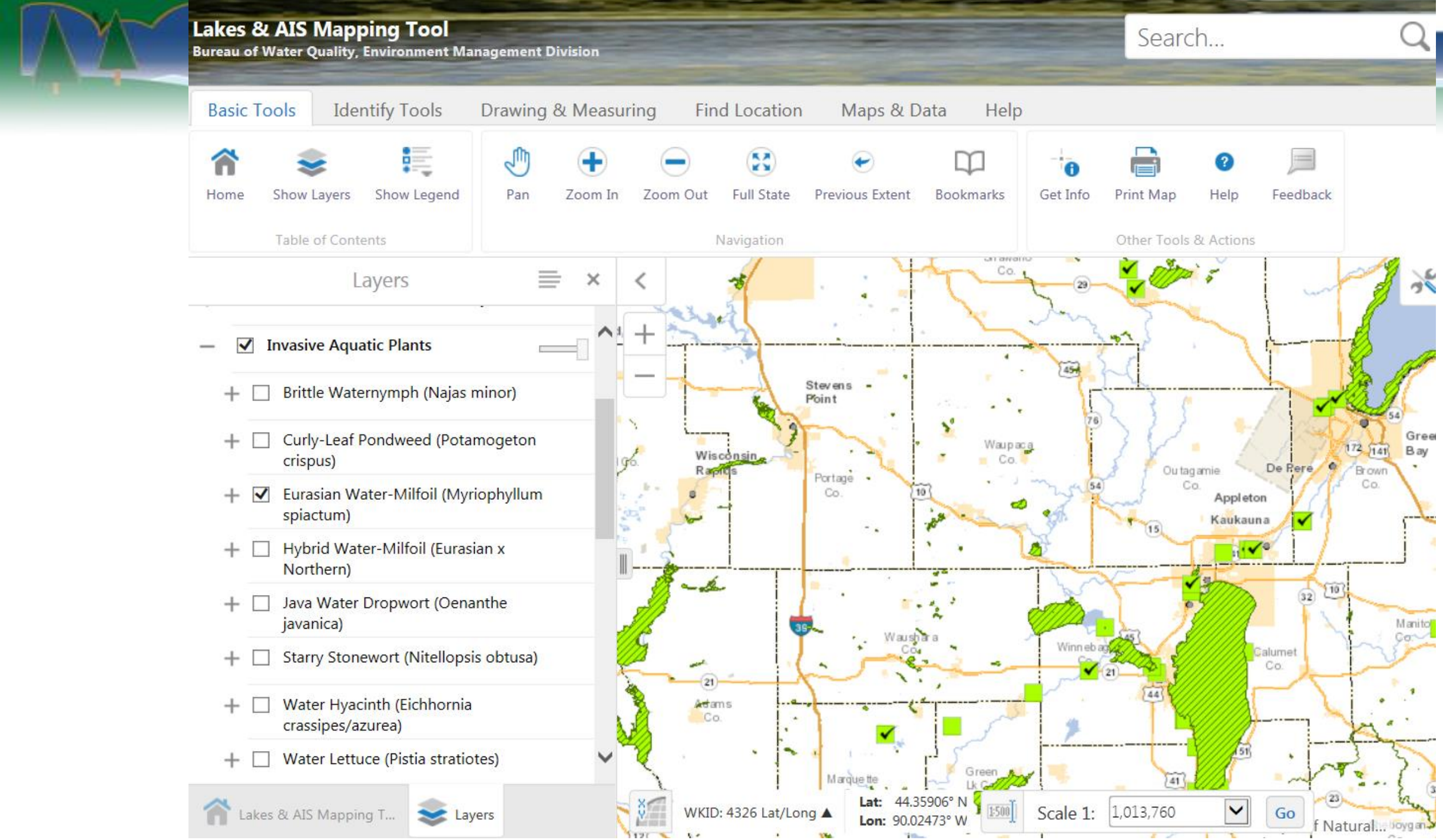
Aquatic Invasive Species Contacts

Business | Licenses & Regulations | Recreation

Aquatic Invasive Species Locations

- All - New 2016
- All - New 2017

- Asiatic Clam (Corbicula)
- Banded Mystery Snail
- Bighead Carp
- Brittle Waternymph
- Chinese Mystery Snail
- Curly-Leaf Pondweed
- Eurasian Water-Milfoil
- Faucet Snail
- Fishhook Waterflea
- Flowering Rush


Lakes & AIS Mapping Tool
Bureau of Water Quality, Environment Management Division
Search...
Basic Tools
Identify Tools
Drawing & Measuring
Find Location
Maps & Data
Help
Home
Show Layers
Show Legend
Table of Contents
Pan
Zoom In
Zoom Out
Full State
Previous Extent
Bookmarks
Navigation
Get Info
Print Map
Help
Feedback
Other Tools & Actions
Layers
Invasive Aquatic Plants
Brittle Waternymph (Najas minor)
Curly-Leaf Pondweed (Potamogeton crispus)
Eurasian Water-Milfoil (Myriophyllum spiactum)
Hybrid Water-Milfoil (Eurasian x Northern)
Java Water Dropwort (Oenanthe javanica)
Starry Stonewort (Nitellopsis obtusa)
Water Hyacinth (Eichhornia crassipes/azurea)
Water Lettuce (Pistia stratiotes)
Lakes & AIS Mapping T...
Layers
Stevens Point
Wisconsin Rapids
Portage Co.
Waupaca Co.
Outagamie Co.
De Pere
Appleton
Kaukauna
Brown Co.
Green Bay
Waushara Co.
Winnebago
Calumet Co.
Adams Co.
Marquette
WKID: 4326 Lat/Long
Lat: 44.35906° N
Lon: 90.02473° W
Scale 1: 1,013,760
Go

Questions?