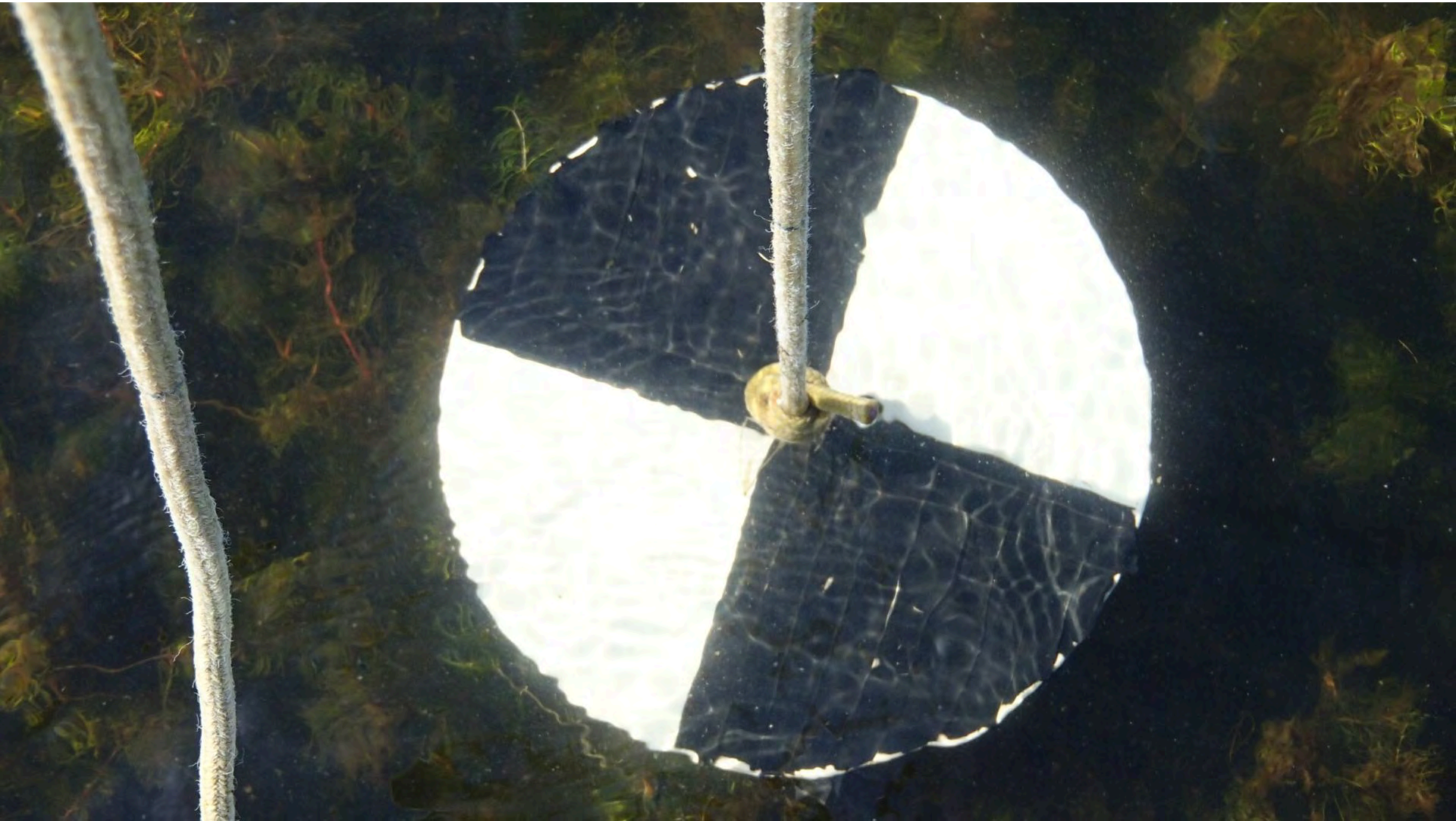
Michigan's 2020 Lake Monitoring



Michigan Clean Water Corps

MiCorps

Monitoring Michigan's Water Quality

www.micorps.net

Cooperative Lakes Monitoring Program

EGLE

Great Lakes Commission
des Grands Lacs

Huron River Watershed Council

MICHIGAN LAKES AND STREAMS ASSOCIATION

MSU Extension

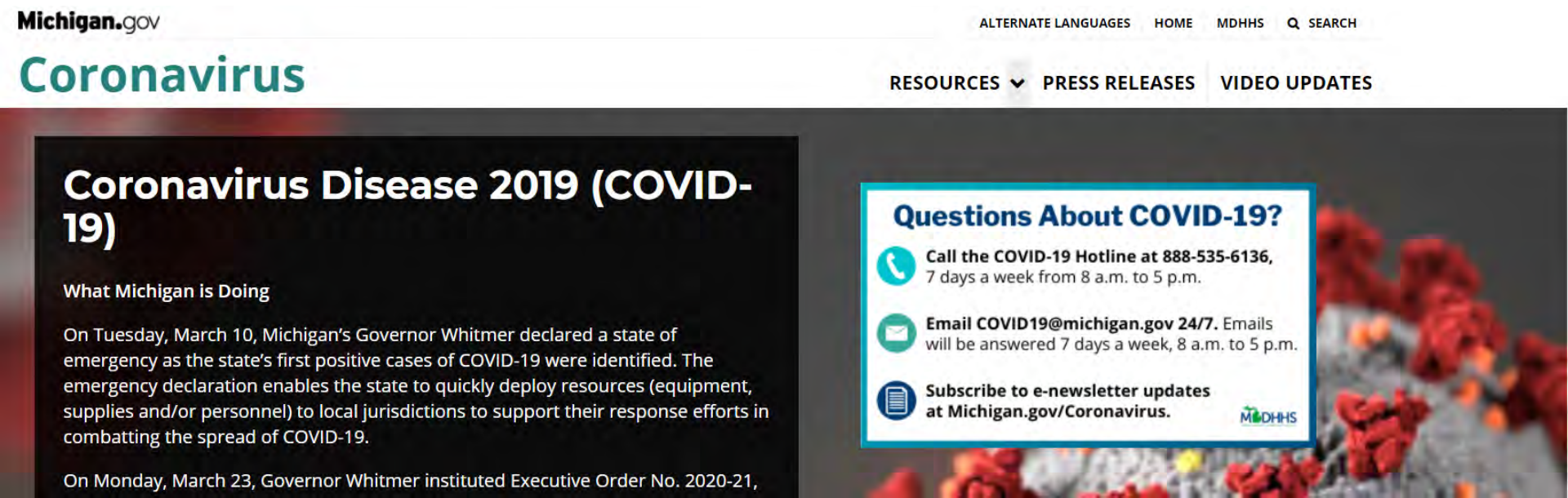
The CLMP is on hiatus until 2021, but there are lake monitoring options for the summer of 2020.

- Parameters Supported in 2020
- Parameters You Can Continue on Your Own in 2020
- Parameters Not Offered in 2020

https://www.hrwc.org/what-we-do/programs/2020-lake-monitoring/

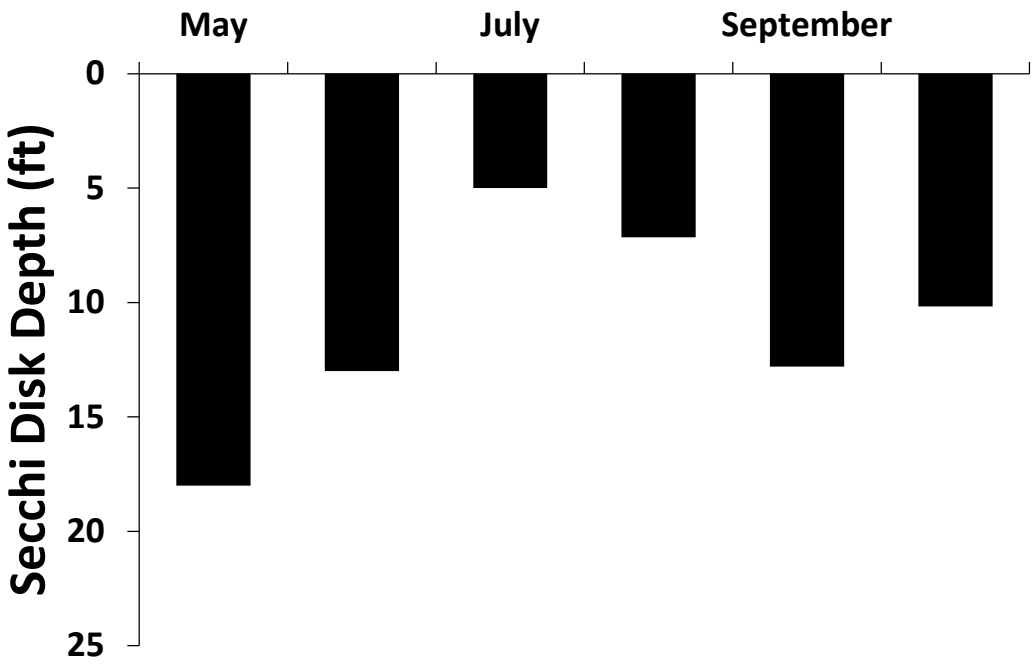
Monitoring and Coronavirus

- Don’t be silly. Follow State Guidelines https://www.michigan.gov/coronavirus/



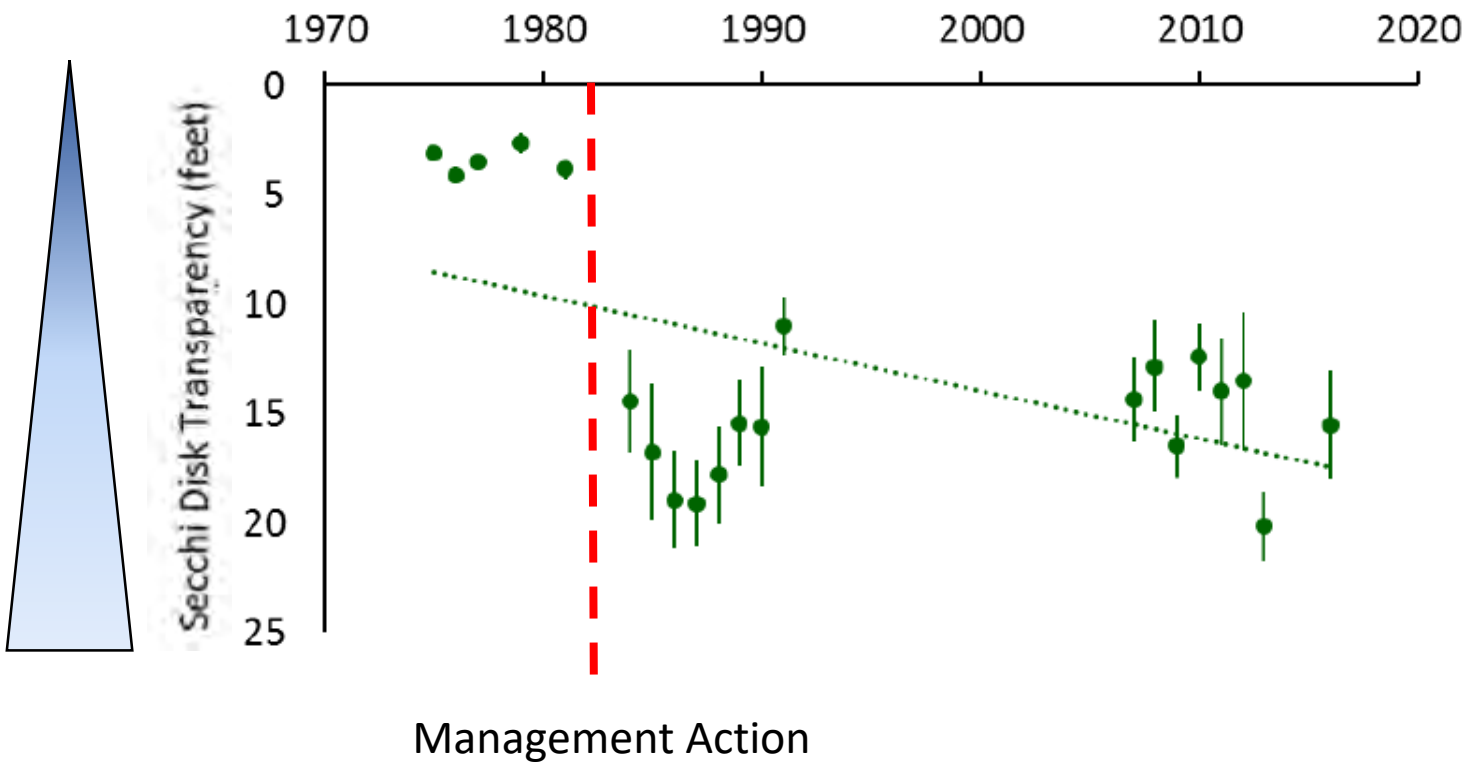
Water Transparency & Secchi Disk

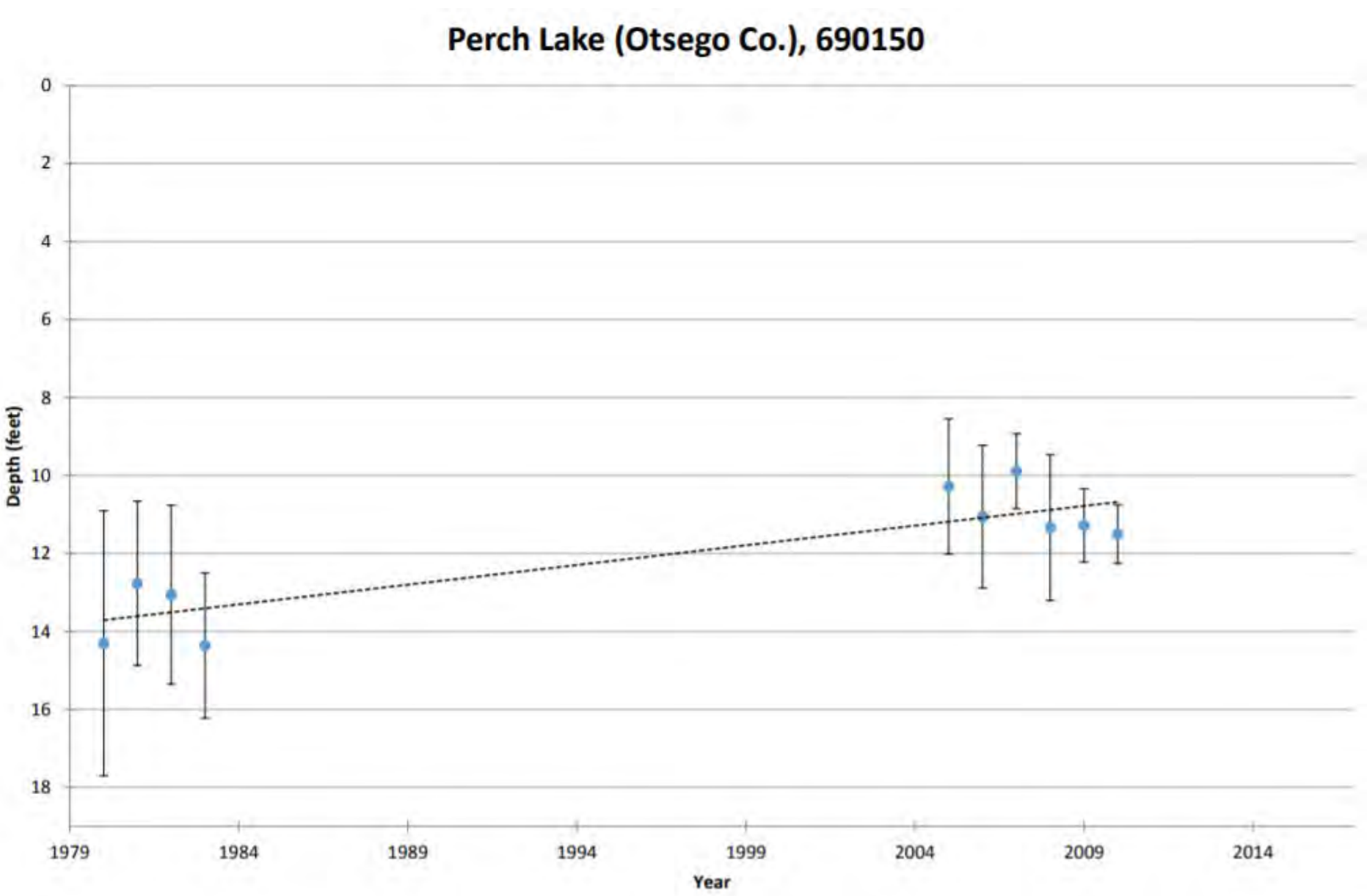
Water clarity provides clues to your lake



Water clarity changes over time

- 40 year data record
- CLMP and EPA



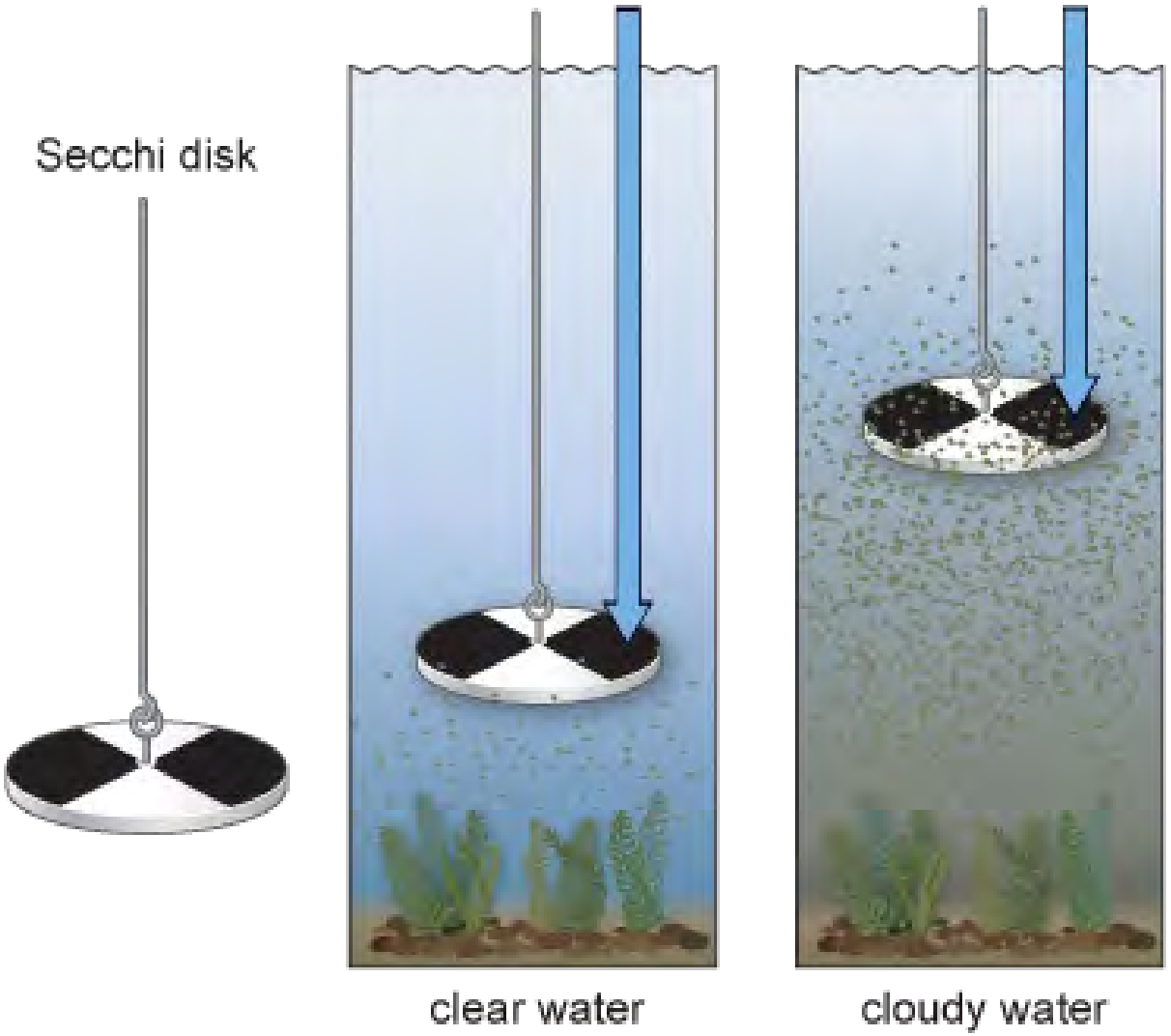

Perch Lake (Otsego Co.), 690150
0
2
4
6
8
10
12
14
16
18
Depth (feet)
1979
1984
1989
1994
1999
2004
2009
2014
Year

Water Clarity Impacts Property Values

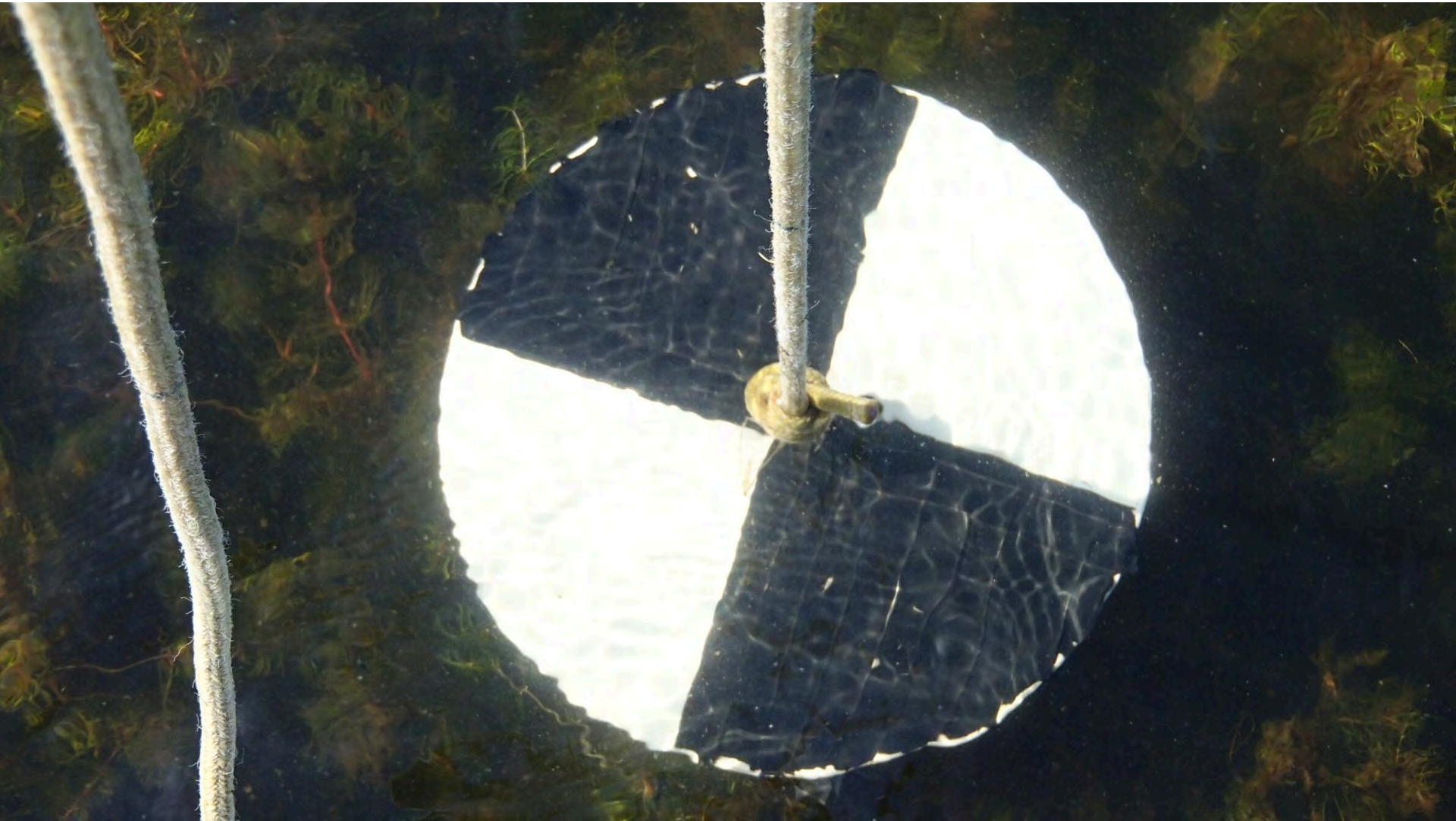
- Lakes with 3 feet greater clarity have **2.6% - 6.5%** higher property values
- A one meter decrease in minimum clarity can cause a **3.3 – 8.5%** decrease in property values

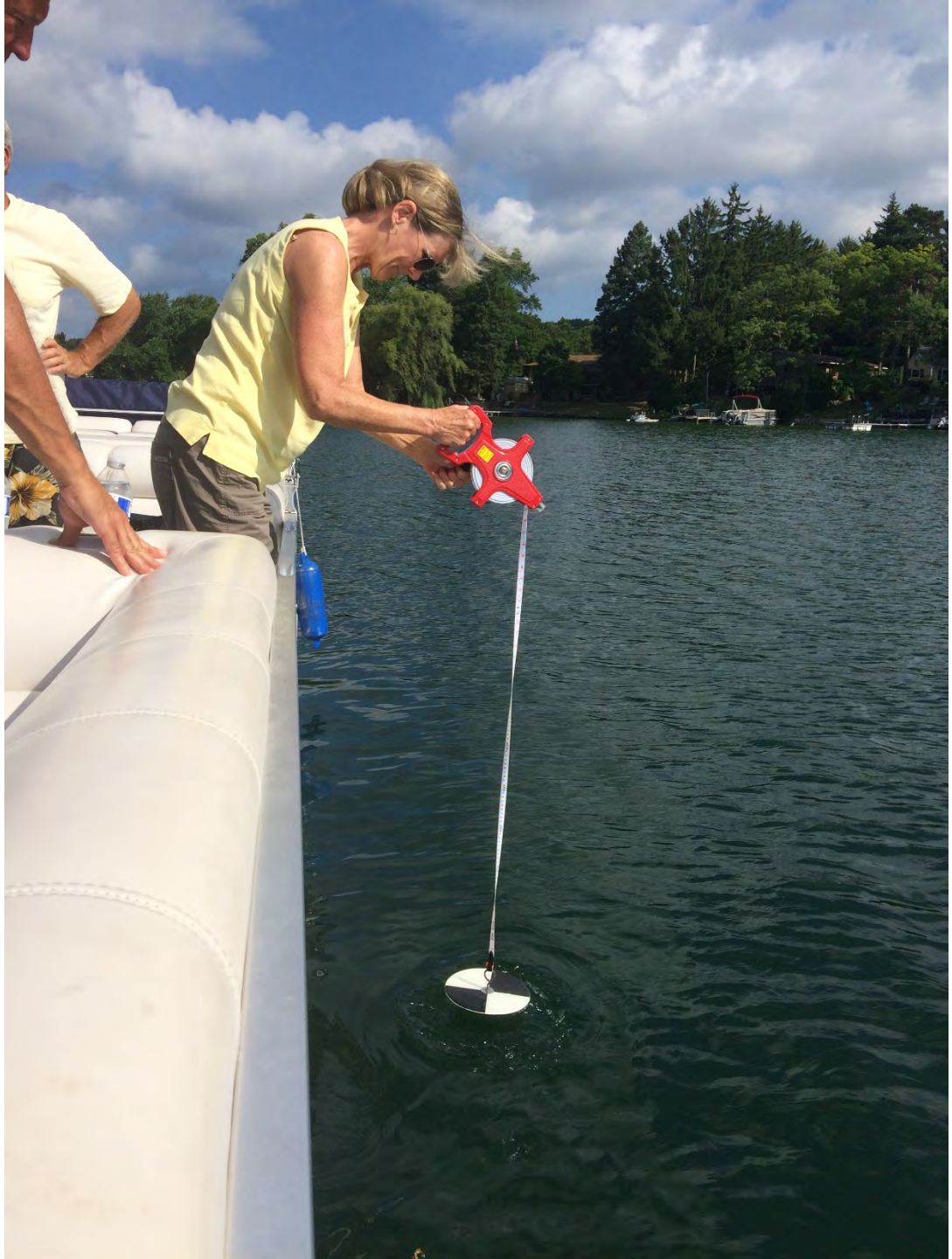
Boyle et al. 2003

How it works



The Protocol

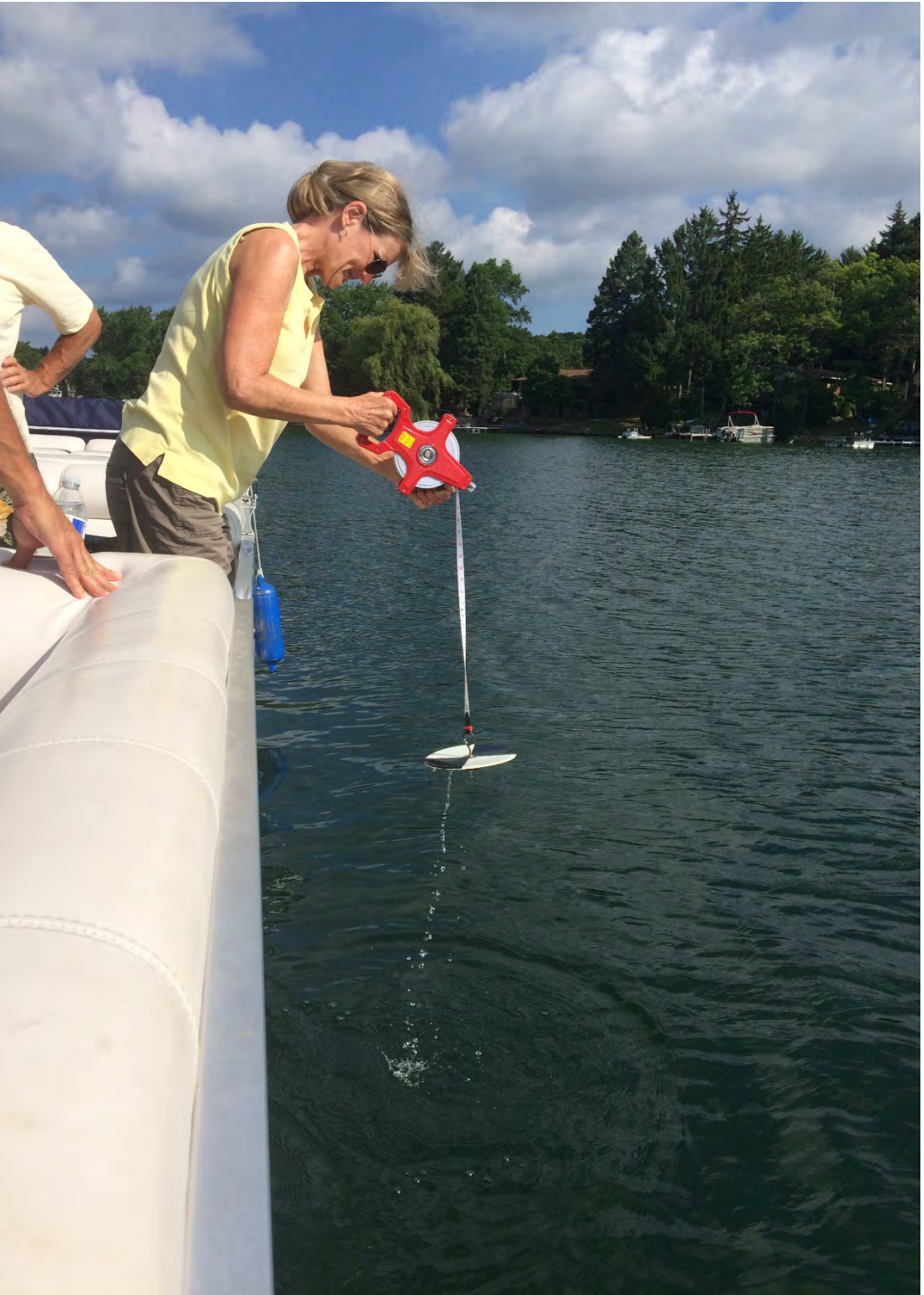




1. Drift your boat approximately over the deepest part of the lake

2. Slowly lower disk until it disappears from view

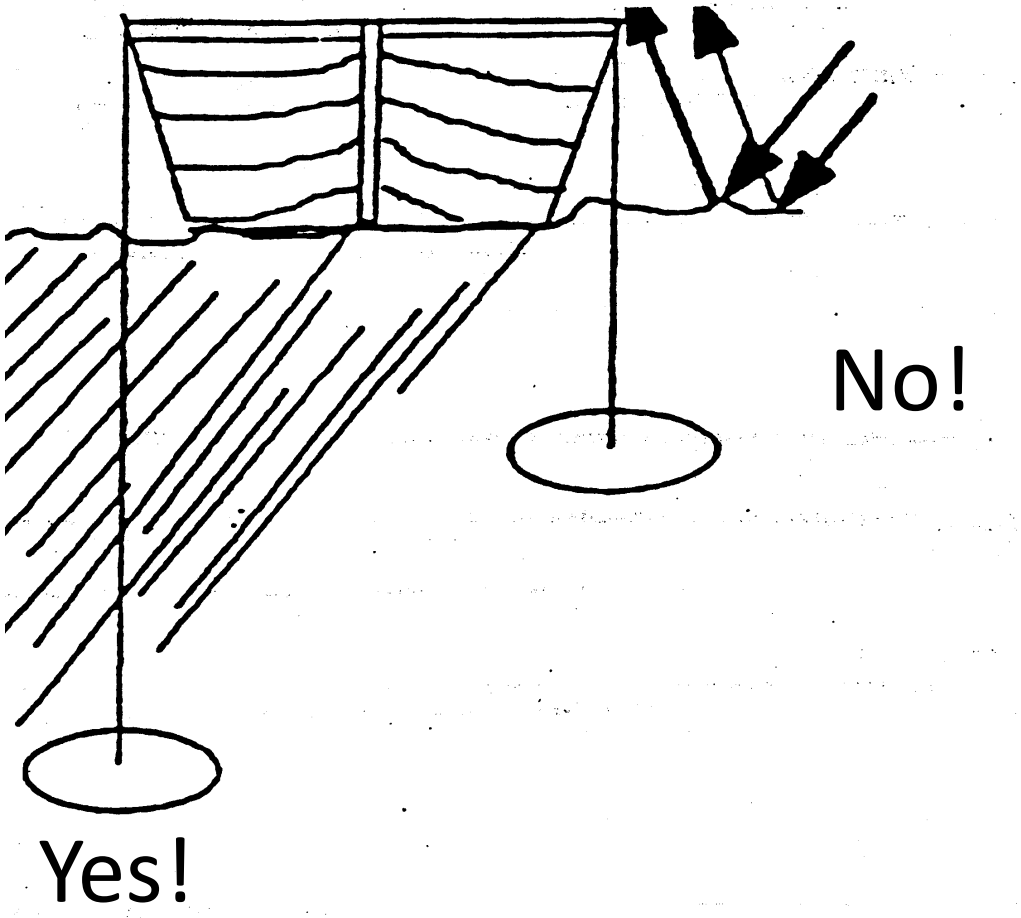
2. Slowly raise disk until it reappears



3. The official measurement is the average of the 2 depths.

Don’t use sunglasses!

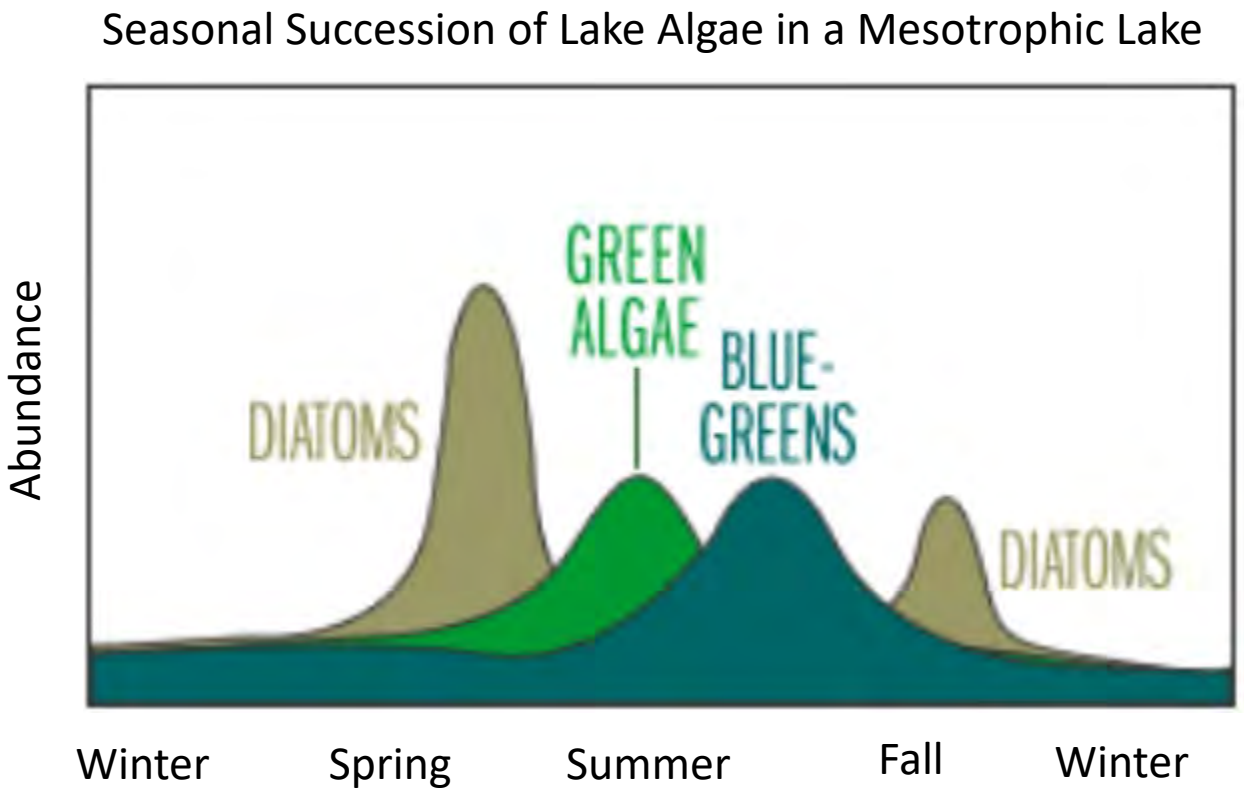
Pick the shadow side!



Measure between 10 am and 4 pm

8 measurements required across entire summer

Evenly space monitoring through May - Sept



Credit: Water on the Web

https://www.hrwc.org/what-we-do/programs/2020-lake-monitoring/

SECCHI DISK TRANSPARENCY

2020 Data Form

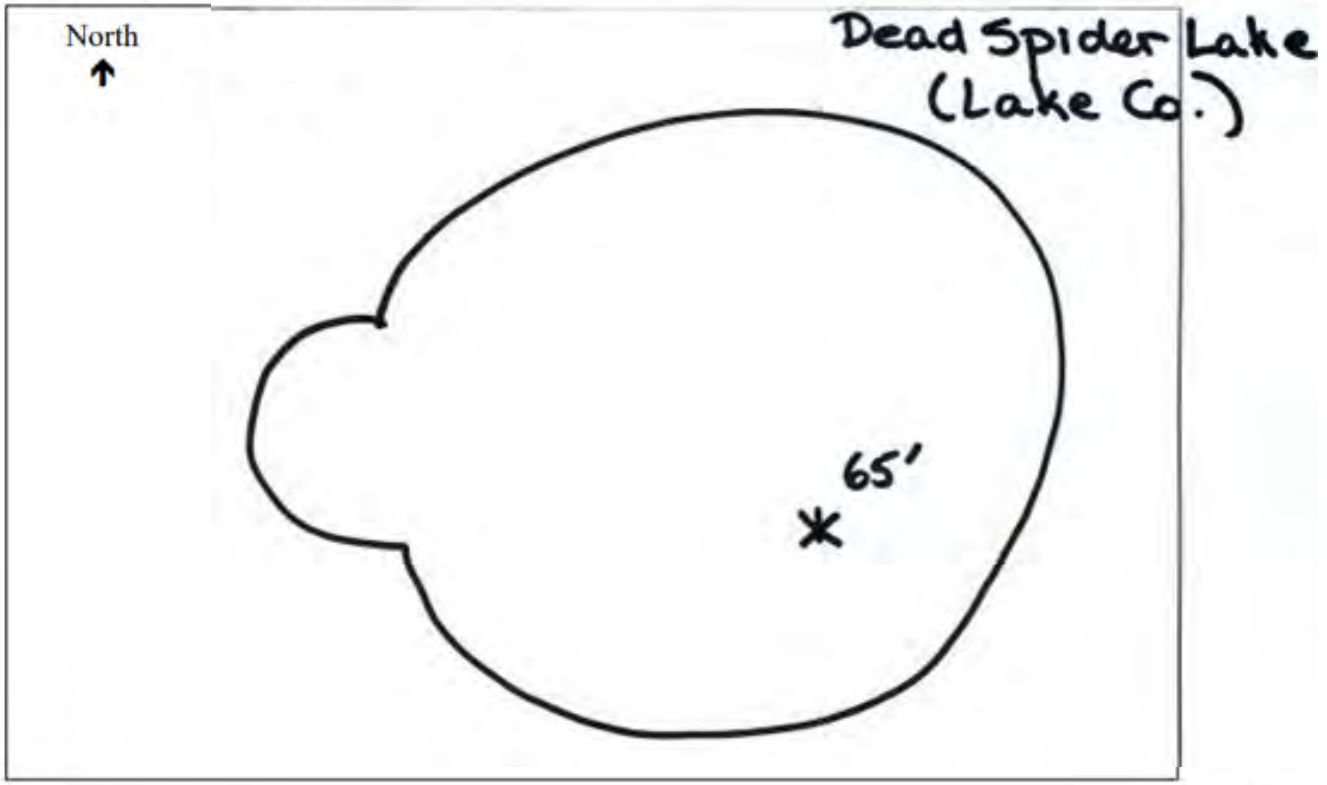
Lake Name:_____ County:_____ Township:_____
Lake Sampling Site (Field ID) Number:_____ (see reverse and mark location on map)
Latitude:_____ Longitude:_____
Volunteer Monitor Name(s):_____ Total Depth of Location:_____

WEEKLY SAMPLING INTERVAL	DATE SAMPLED	TIME OF DAY	SECCHI DEPTH (to nearest ½ foot)	WEATHER CONDITIONS (sunny, cloudy, windy)	UNUSUAL CONDITIONS (secchi disk is on bottom of lake, heavy rain, boating, etc.)
May 10-16					
May 17-23					
May 24-30					
May 31-June 6					
June 7-13					
June 14-20					
June 21- 27					
June 28- July 4					
July 5-11					
July 12-18					

- In the box below draw an outline of your lake (i.e lake map)

- On the lake map outline, mark your Secchi disk sampling location (this should be at the deepest basin in the lake) and write in the total LAKE DEPTH at this location.

- Surface Area of Lake (if known):_____(acres)



DATA SHEET TURN IN

Hold onto your datasheet. It is our intention to get these uploaded into the new MiCorps database in 2021.

Important **2020** Information

- No registration required
- No enrollment fees
- We will provide technical support
- Datasheets found here:
  - hrwc.org/what-we-do/programs/2020-lake-monitoring/
- Hold onto your datasheets!
  - Hopefully, we will incorporate them into the new database
- If you need a Secchi Disk – visit MLSA
  - mymlsa.org/2020-volunteer-lake-monitoring-for-michigan/
- Procedures and training videos found here:
  - hrwc.org/what-we-do/programs/2020-lake-monitoring/

MICHIGAN'S 2020 LAKE MONITORING PROGRAM PRESENTS

Exotic Aquatic Plant Watch

REGISTER TODAY!

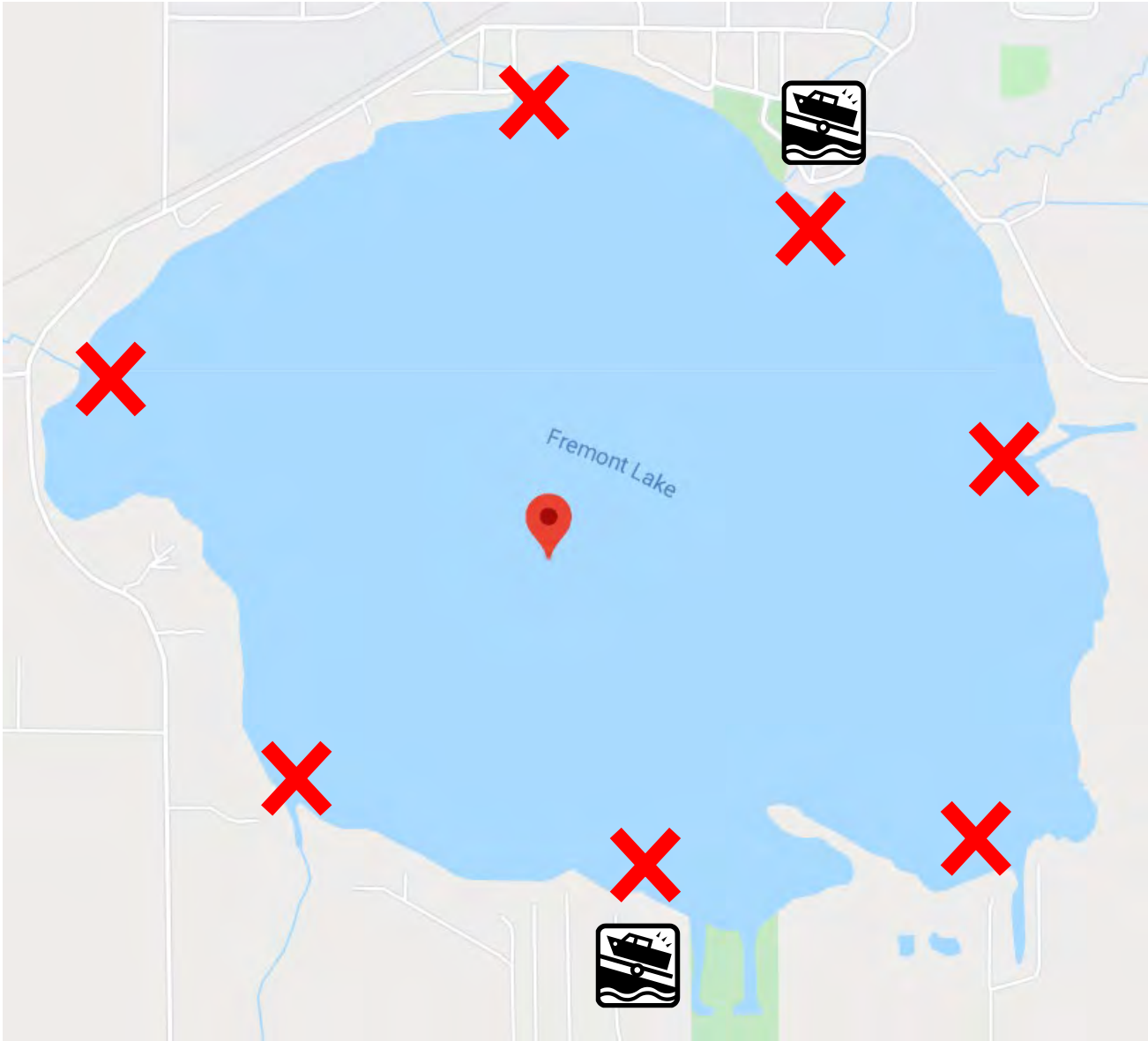
EAPW is an Early Detection Survey

- The earlier you find an invasive species, the better the chance of eradication
- Early intervention typically means lower management costs

Monitoring Protocol

Where do I start?

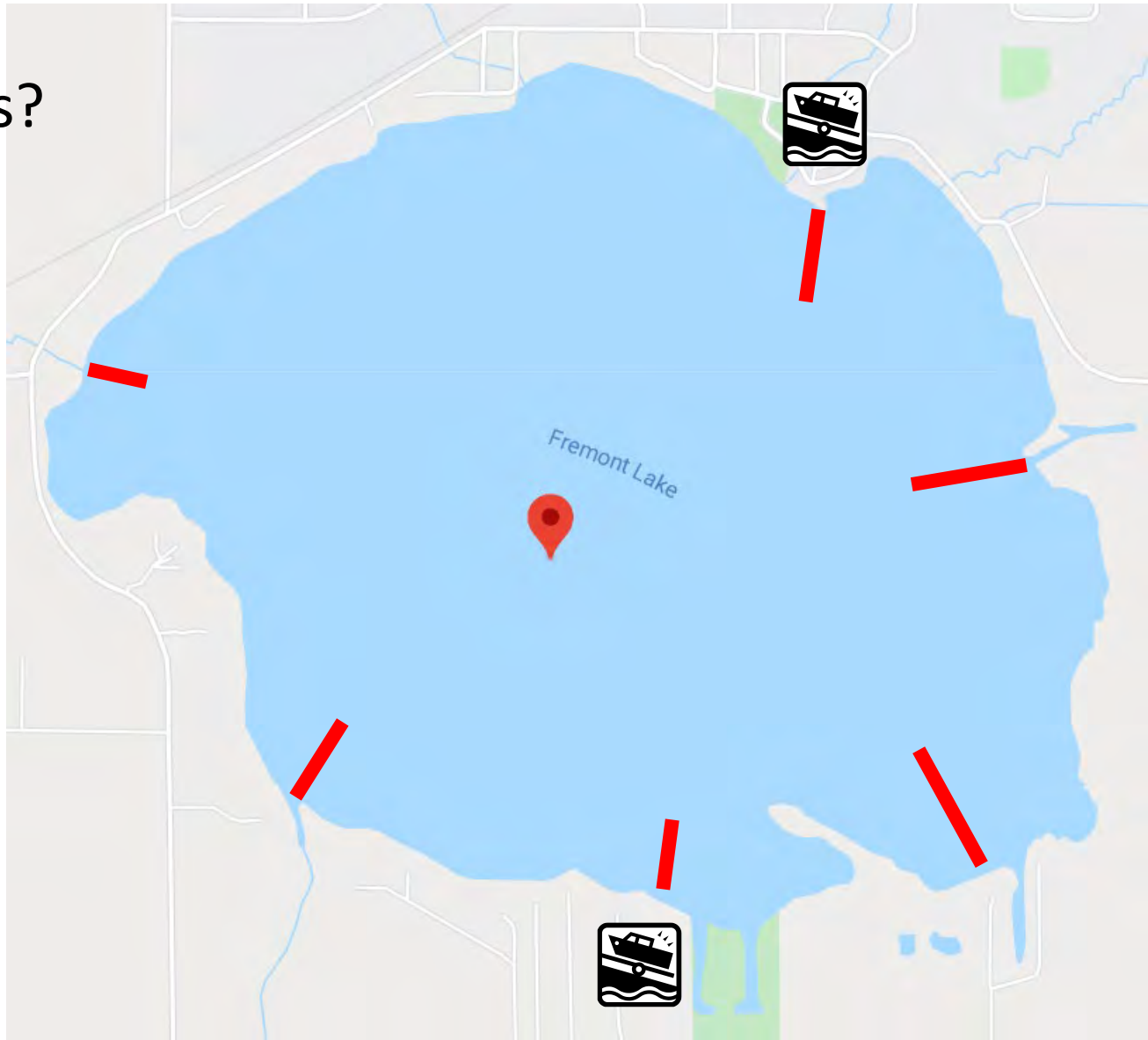
1. Locate:
   1) Boat Ramps
   2) Public Beaches / Parks
   3) Attached inlets (streams, creeks, canals)
   4) Quiet Bays and Coves

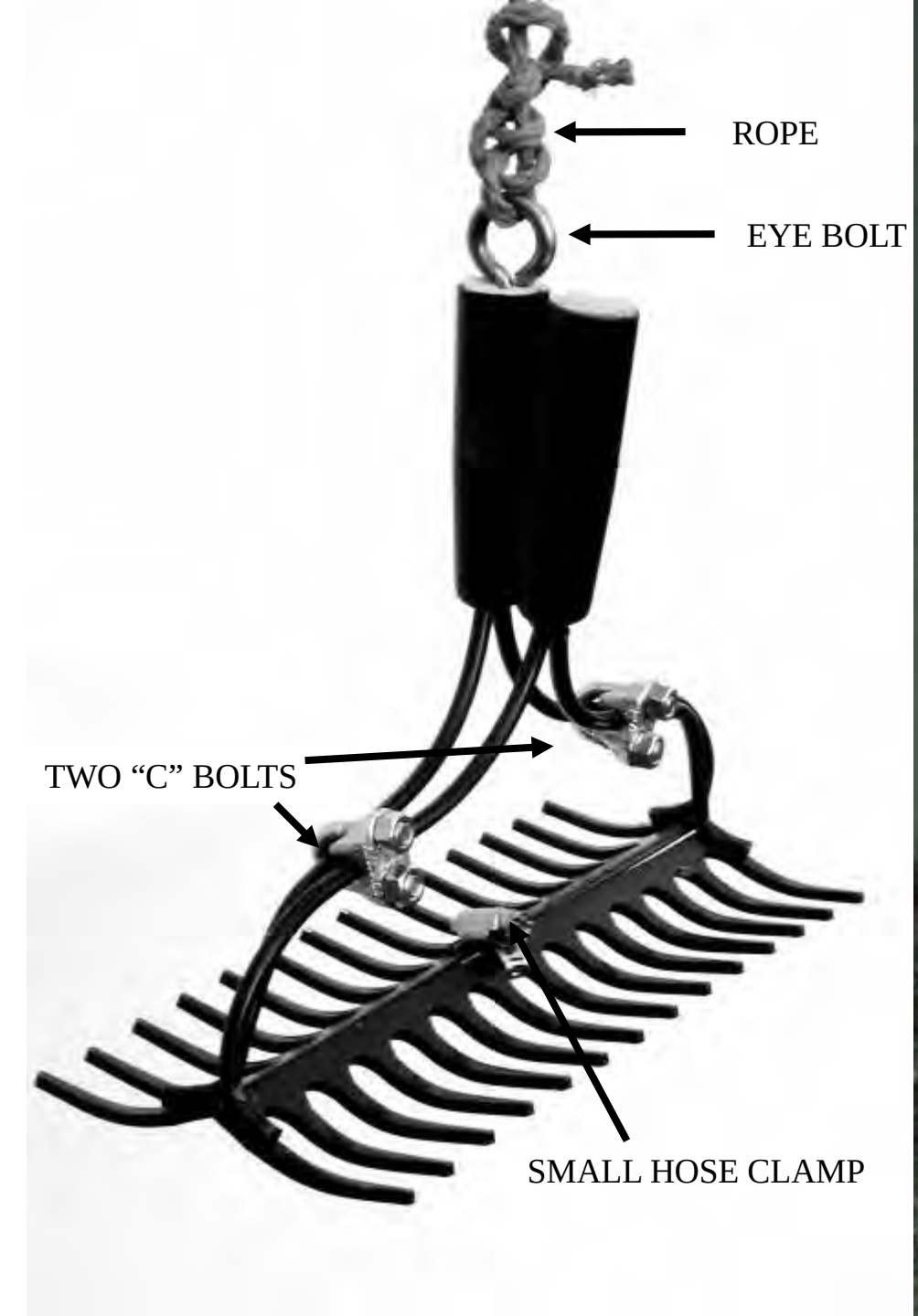


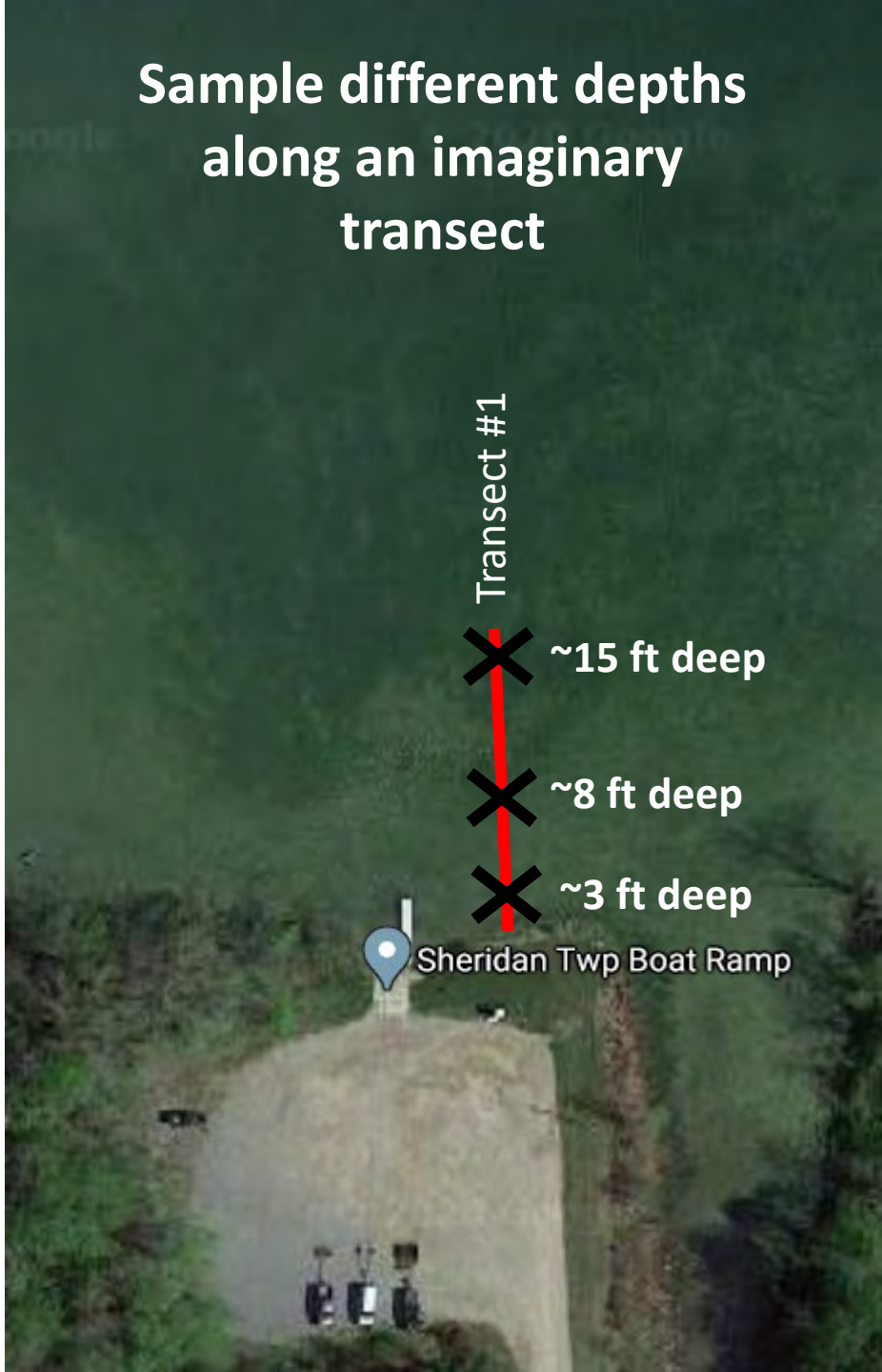
Early Detection Surveys are Adaptable!

How many transects?

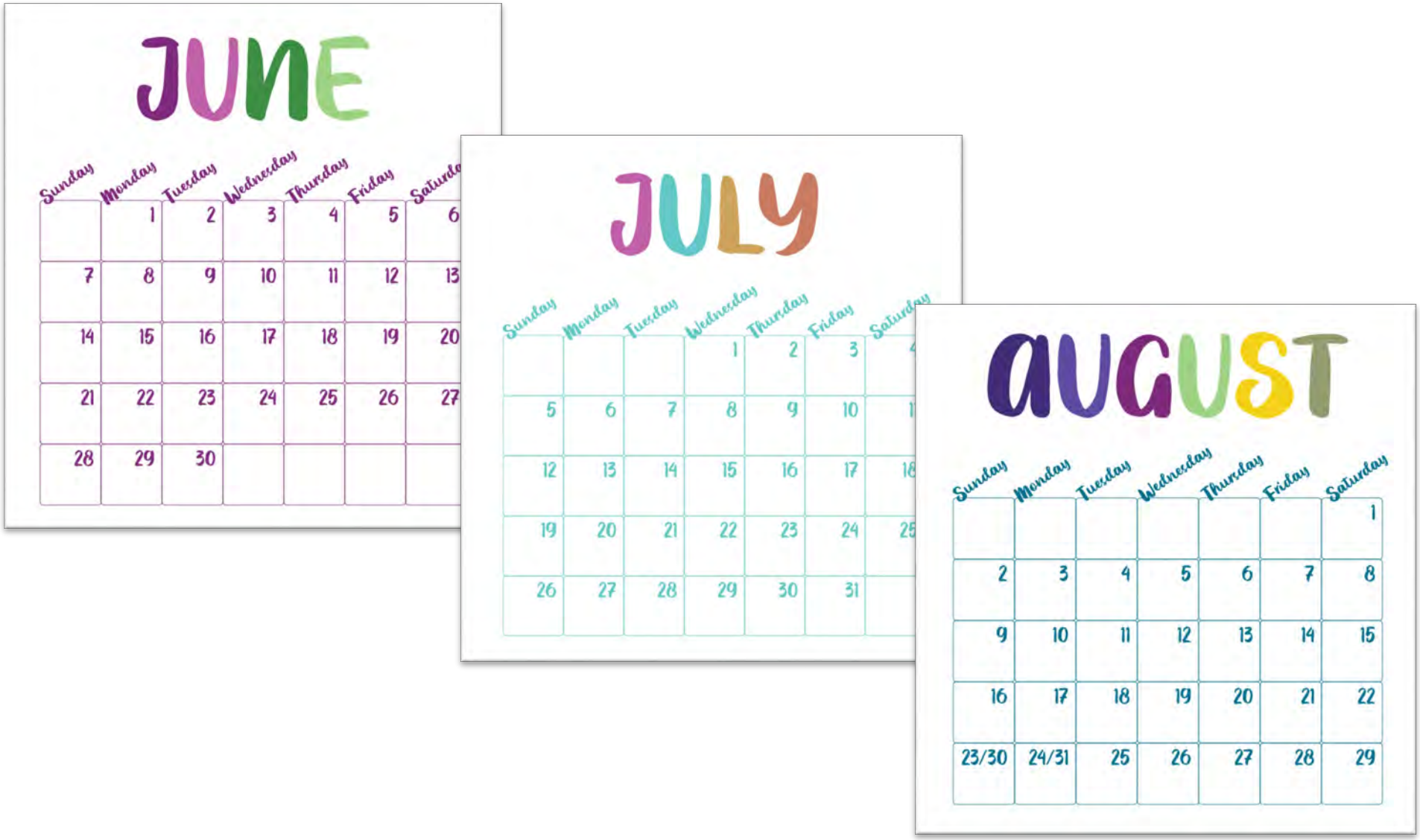
- Less than 100 acres
  - 5-15 transects
- 100 – 500 acres
  - 15-30 transects
- Over 500 acres
  - 30-50 transects
- At the very least high priority areas




ROPE
EYE BOLT
TWO “C” BOLTS
SMALL HOSE CLAMP


Sample different depths along an imaginary transect
Transect #1
~15 ft deep
~8 ft deep
~3 ft deep
Sheridan Twp Boat Ramp

When to sample?



Fill out the data sheet

https://www.hrwc.org/what-we-do/programs/2020-lake-monitoring/

EXOTIC AQUATIC PLANT WATCH

Lake Name:_____ County:_____

Township:_____

Lake Sampling Site (Field ID) Number:_____

Volunteer Monitor Name(s):_____

Date(s) of Survey :_____ Time:_____

Comments (unusual conditions, recent weed treatments, etc.): _____

_____

- If *no exotic aquatic plants were found* during the survey, check here: ☐
  Use Page 2 to document the locations you surveyed on your lake.

- If exotic plants were found, check the species found below:
  - ☐ Eurasian milfoil
  - ☐ Curly-leaf pondweed
  - ☐ Hydrilla
  - ☐ Starry Stonewort
  - ☐ European frog-bit
  - ☐ Other _____

Include the following items in your report:

- ☐ This completed data form (Pages 1 and 2)
- ☐ Lake map with numbered site locations
- ☐ Any photographs taken of collected plants

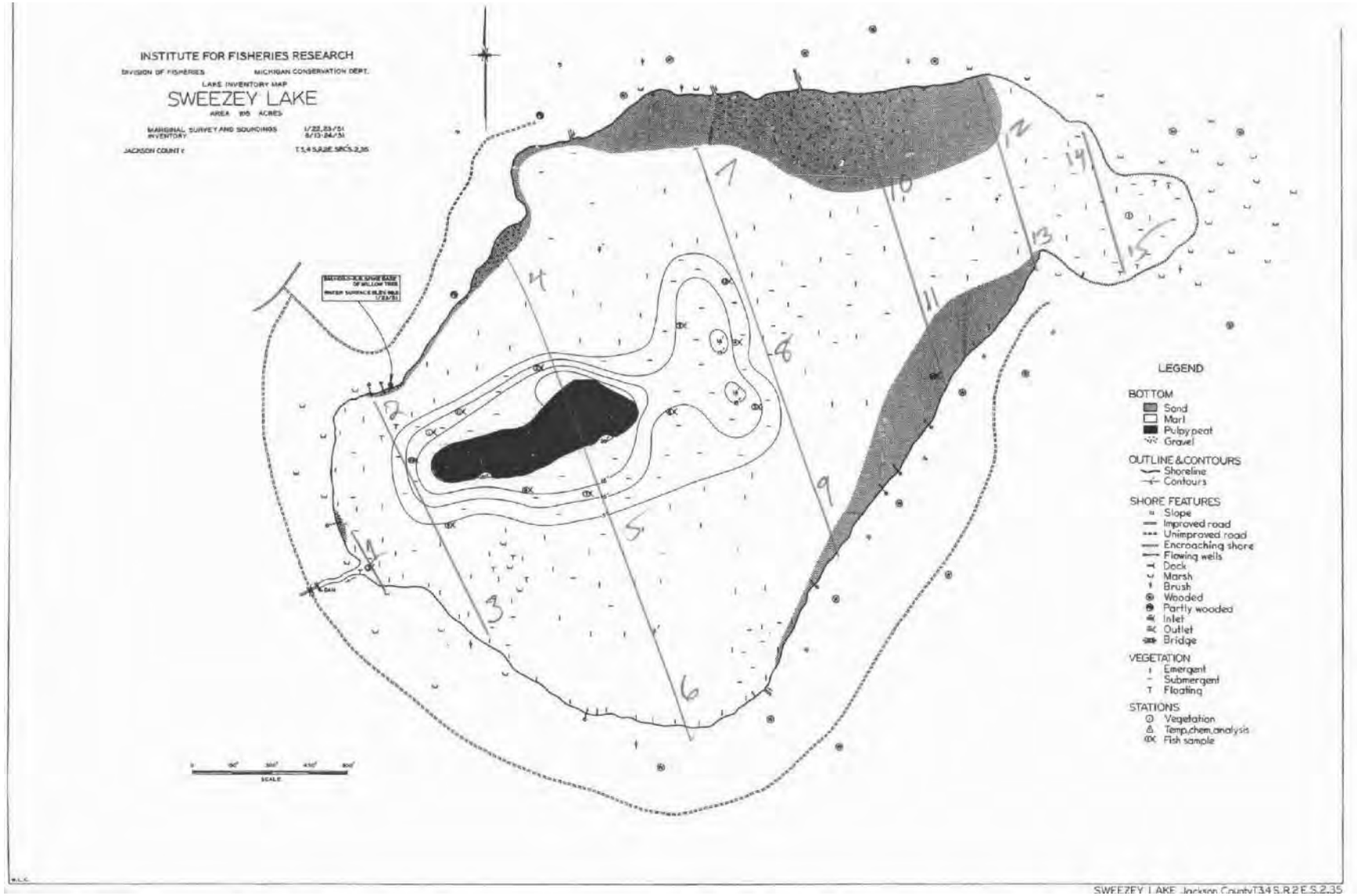
Email this data form as a PDF to Jo Latimore at latimor1@msu.edu,
Or mail a copy to:

Dr. Jo Latimore, MSU
480 Wilson Rd Room 13
East Lansing, MI 48824

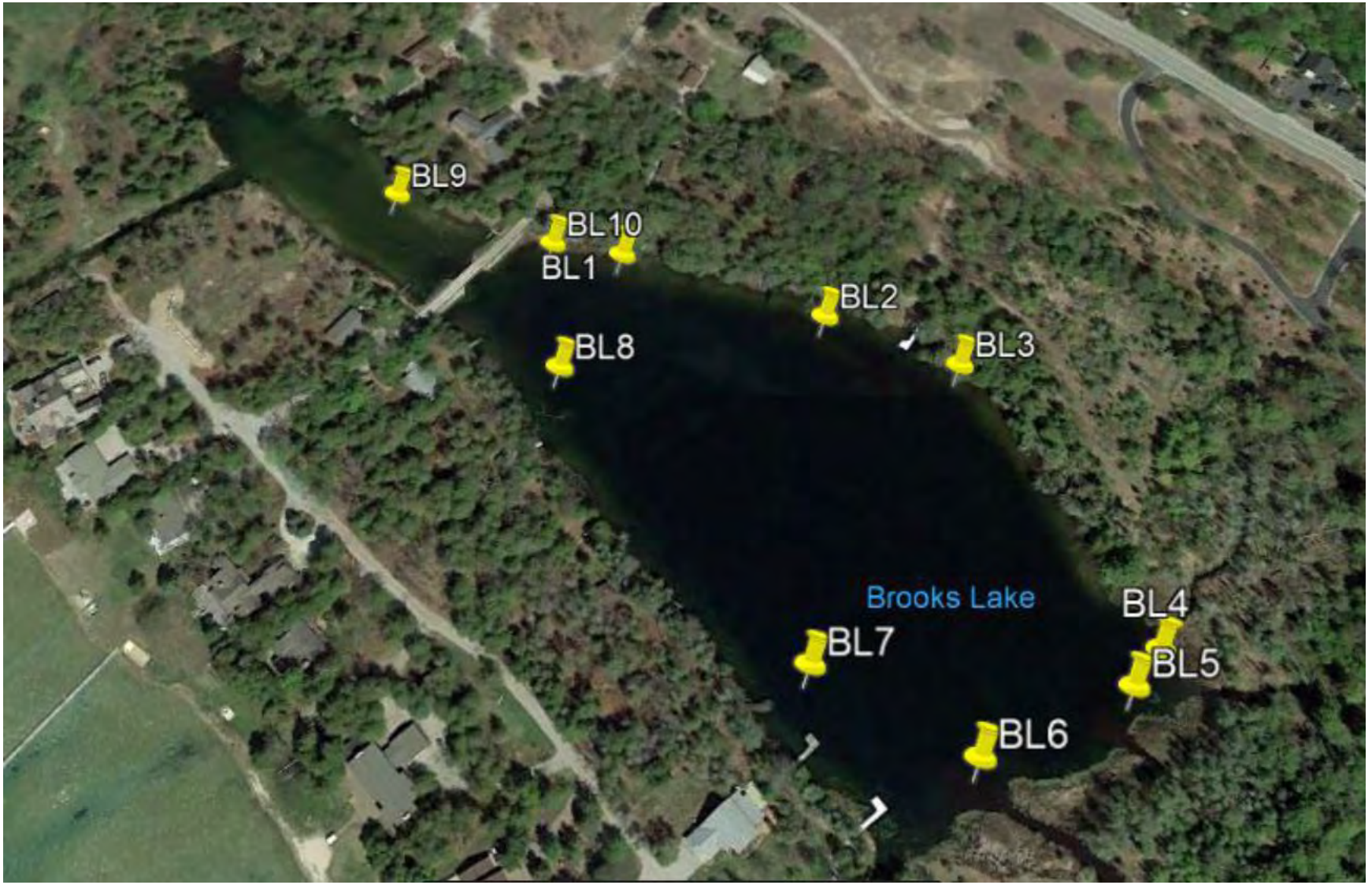
Use this table to document the results of your survey. You may also create your own table; just be sure to include a copy in your Survey Report.

Site / Transect # (match to sites on your map)	Latitude (or location description)	Longitude	List any exotics found in this transect (or "None")	Any photos taken at this site?	Notes
1	43°40'16.34N	89 15'48.24W	CLP, EWM	Yes (2)	Sparse
2	43°40'21.38N	89 15'47.02W	None	No	

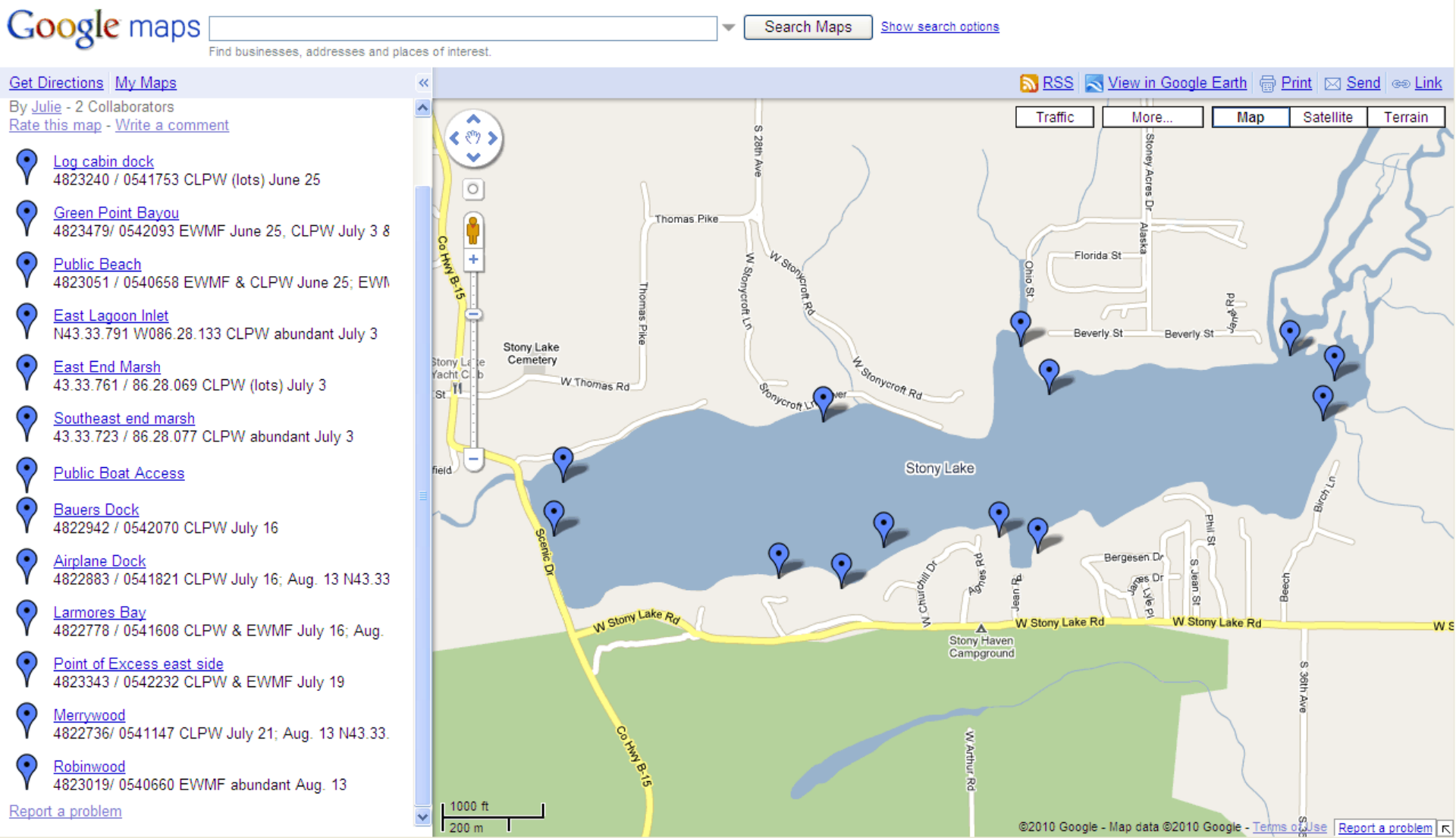
Mapping Options: By Hand



Mapping Options: Computer



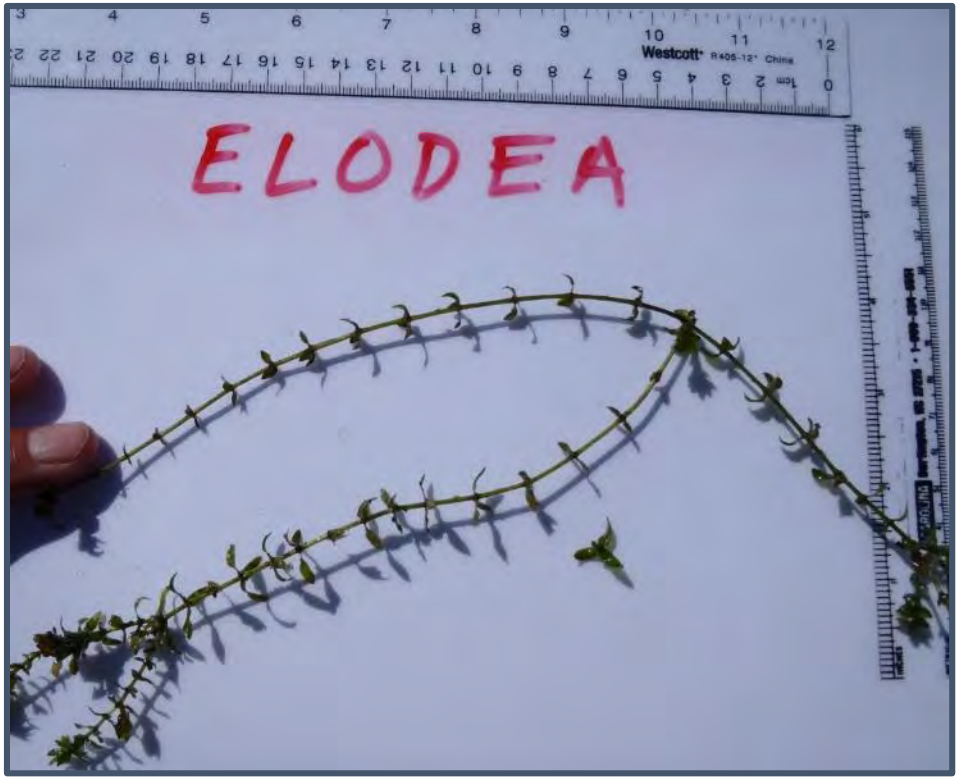
Mapping Options: Google Maps



Plant Identification Photography

- Take lots of pictures
  - Delete blurry photos
- Include key characteristics
  - Ex.) milfoil leaflets
- Scale
- Location

Use photography guide



Volunteer photos:
(Left) Lotus & Maceday Lake in Oakland Co.
(Top) Bristol Lake in Barry Co.

No ruler? A hand will do!

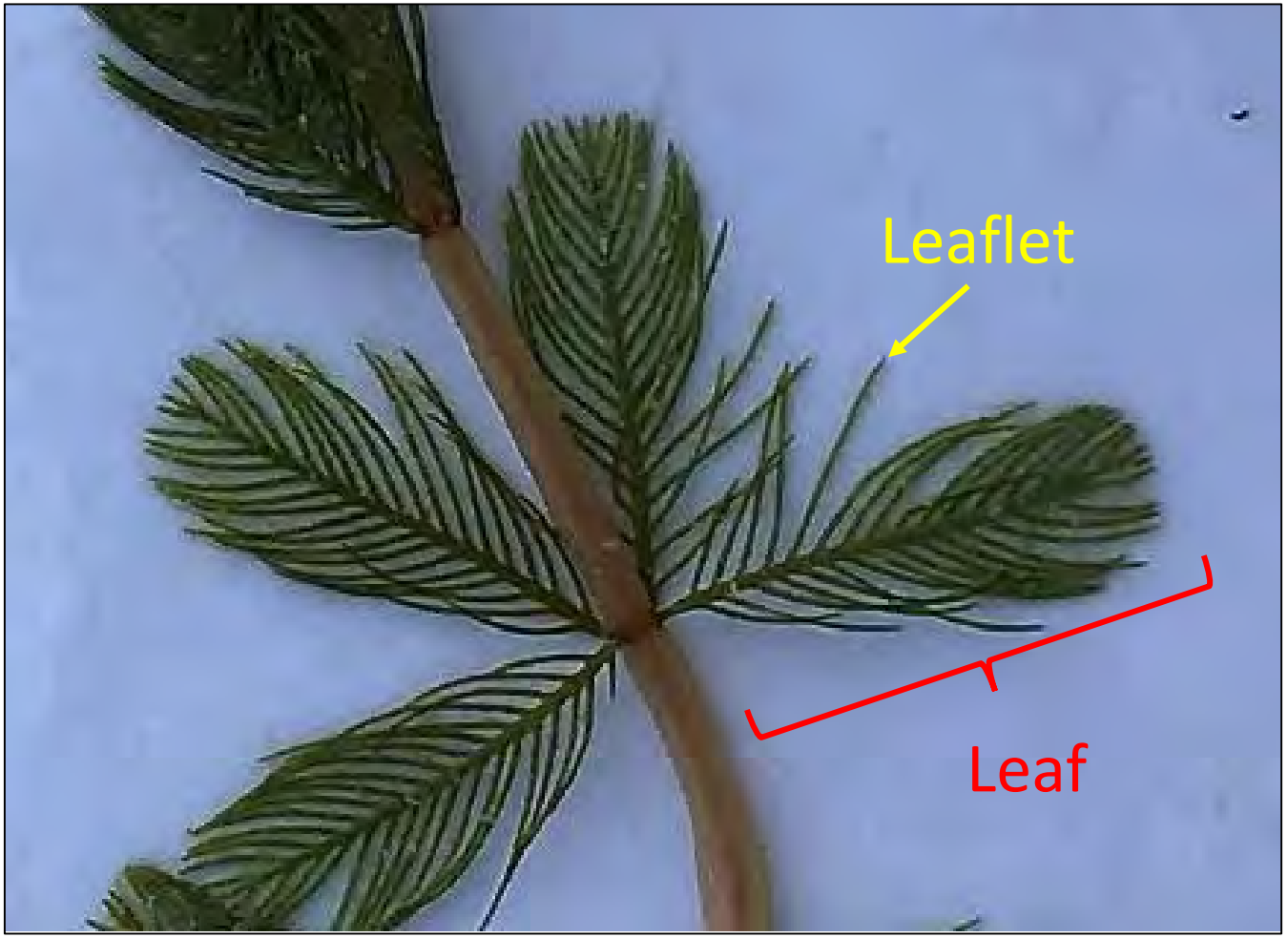
Registration is required in 2020

- Contact Jo Latimore
  latimor1@msu.edu
  517-432-1491

- Provide:
  - Your name and contact info
  - Lake name
  - County

- We provide training, plant identification help, and limited lake visits

Plant Identification



The key to **Early Detection**?
Know the Exotics!

- Eurasian Watermilfoil
- Curly-leaf Pondweed
- Starry Stonewort
- Hydrilla
- European Frog-bit

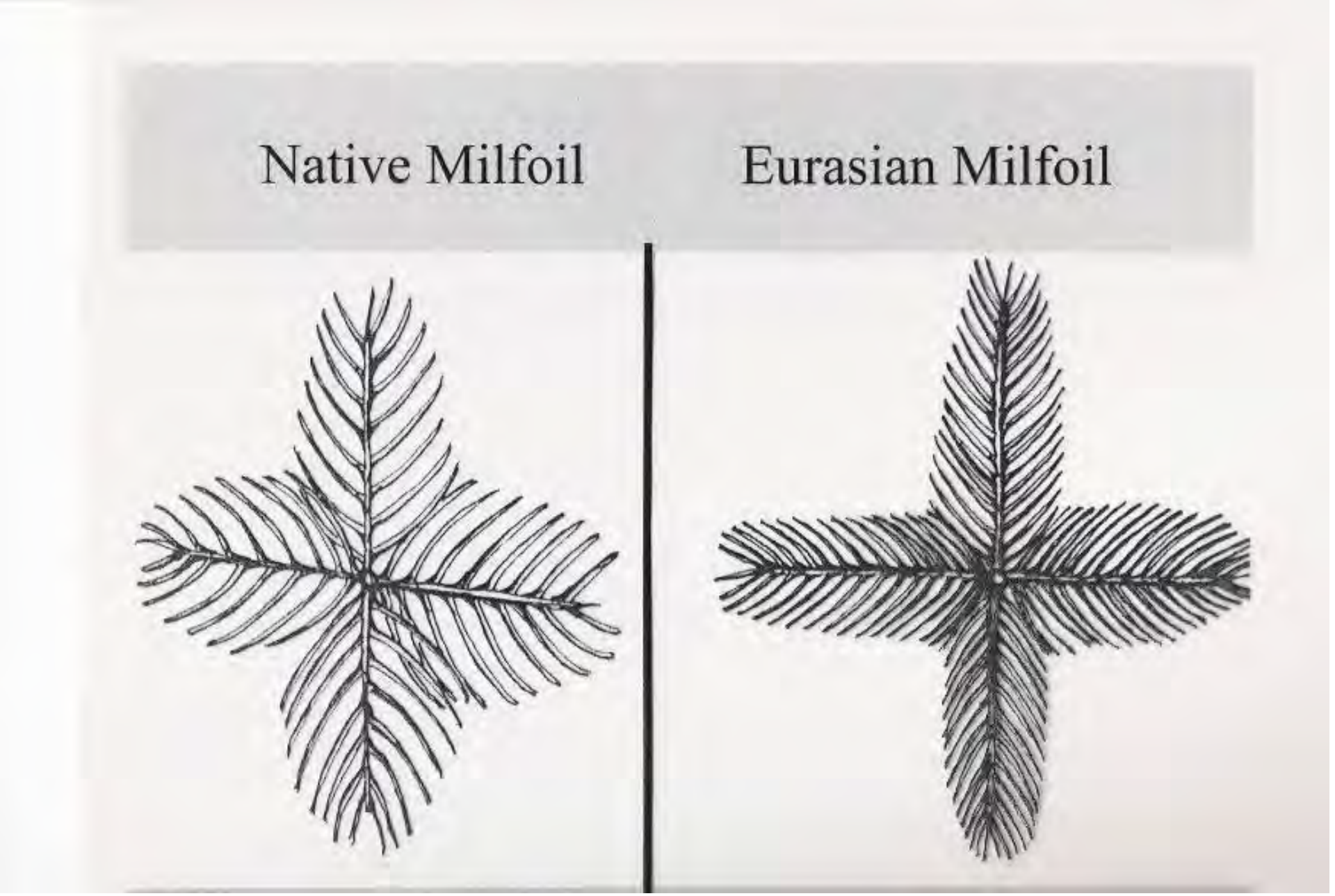
EAPW Watch List Species

Eurasian Watermilfoil– *Myriophyllum spicatum*

Key Characters:

- Feather-like leaves
- Whorled
- Leaves with **12 – 21** pairs of leaflets
- Leaves limp out of water

Allison Fox, University of Florida, Bugwood.org



What about “Hybrid Milfoils”??

Is this Eurasian Milfoil?

EAPW Watch List Species

Curly-leaf Pondweed – *Potamogeton crispus*

P. Skawinski

Key Characters:

- Leaves 2-3 inches long and ¼ to 3/8 inch wide
- Alternate leaf arrangement
- **Serrated leaf margin**

Leslie J. Mehrhoff,
University of Connecticut, Bugwood.org

Is this Curly-leaf Pondweed?

EAPW Watch List Species

Starry stonewort – *Nitellopsis obtusa*

- Tiny star-shaped, tan or white **bulbils** produced on rhizoids (clear filaments)
- Long, **uneven** length branchlets
- Smooth stem
- Brittle

P. Skawinski

B. Grabill

Scott Brown

Starry Look-a-like: Native Muskgrass (*Chara*)

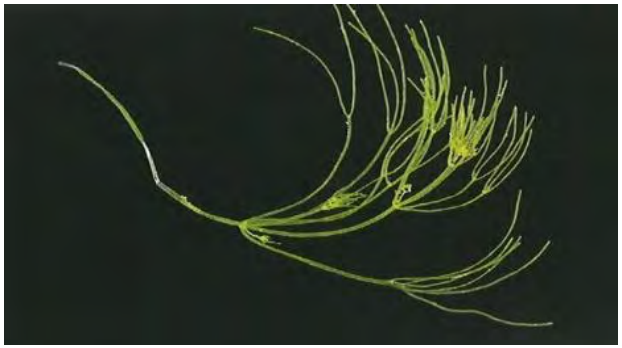
- Macroalgae
- No star bulbils
- "Smells skunky"
- Shorter 'branching' (i.e. reach) of the plant compared to Starry
- Rough feel

A. Dow

STARRY LOOK-A-LIKE: NATIVE *NITELLA*

Nitella furcata stem section. J. M. DiTomaso

Nitella clavata stem section. J. M. DiTomaso



- Macroalgae
- No star bulbils
- Even branching
- Shorter 'branching' (i.e. reach) of the plant compared to Starry

Nitella mucronata

HYDRILLA

Hydrilla verticillata

- **Whorls of 4-8 leaves** around the stem
- **Serrated** leaf edge
- **Teeth are also produced underneath the leaf**, along the midvein

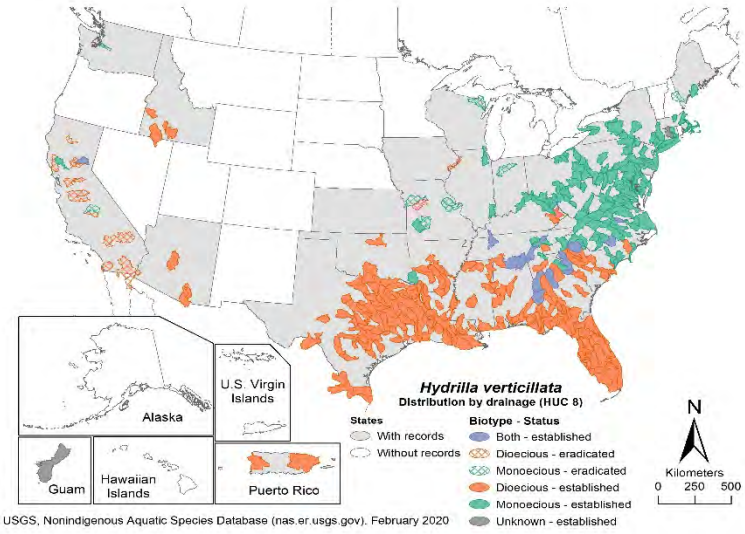


Illustration by Bruce Kerr

Is this Hydrilla?

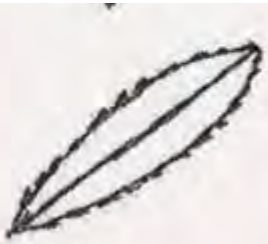
Native: Elodea

Hydrilla (exotic) Elodea (native)

Four
at ea

ch

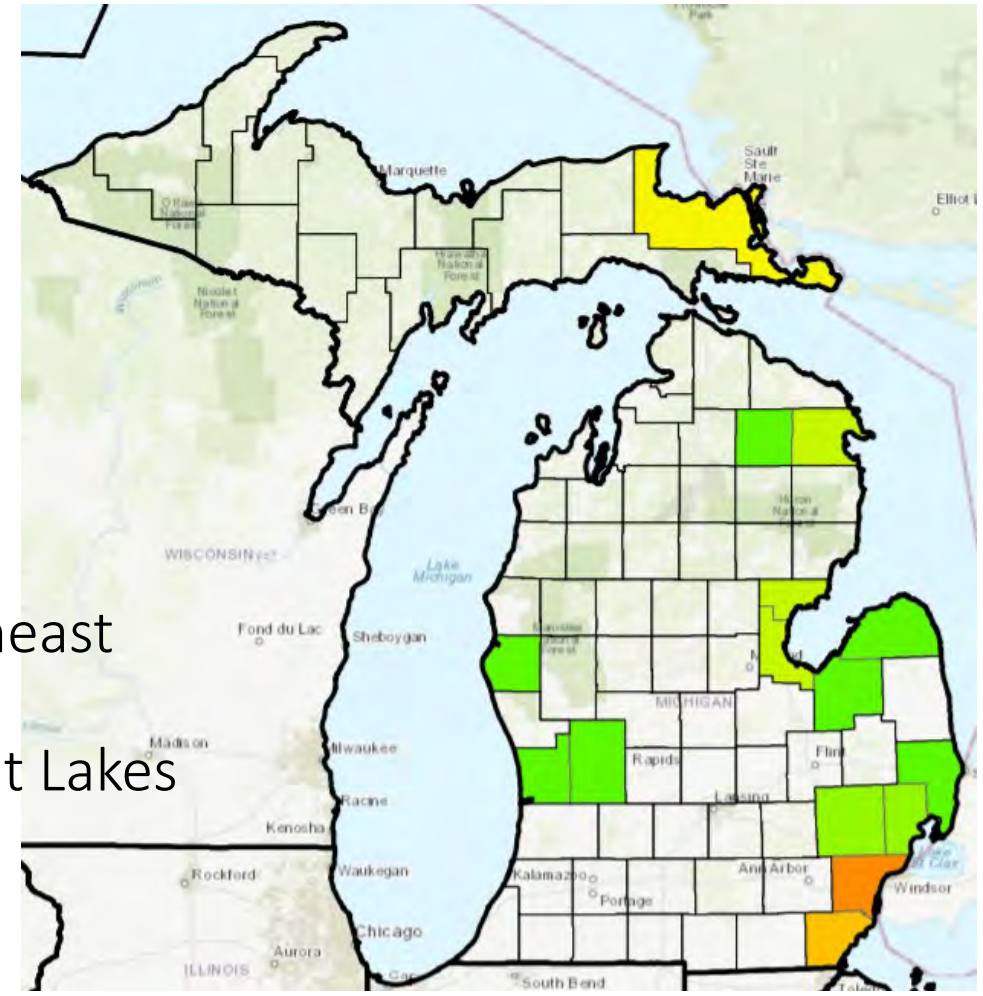
Leaves margins clearly toothed and spines on mid vein.



Leaves margins not clearly toothed and no spines on mid vein.

New Threat: European Frog-bit

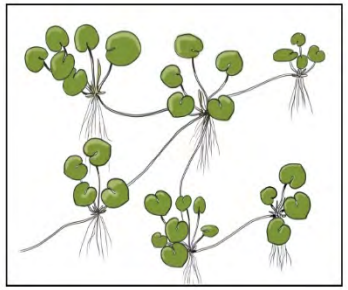
Hydrocharis morsus-ranae



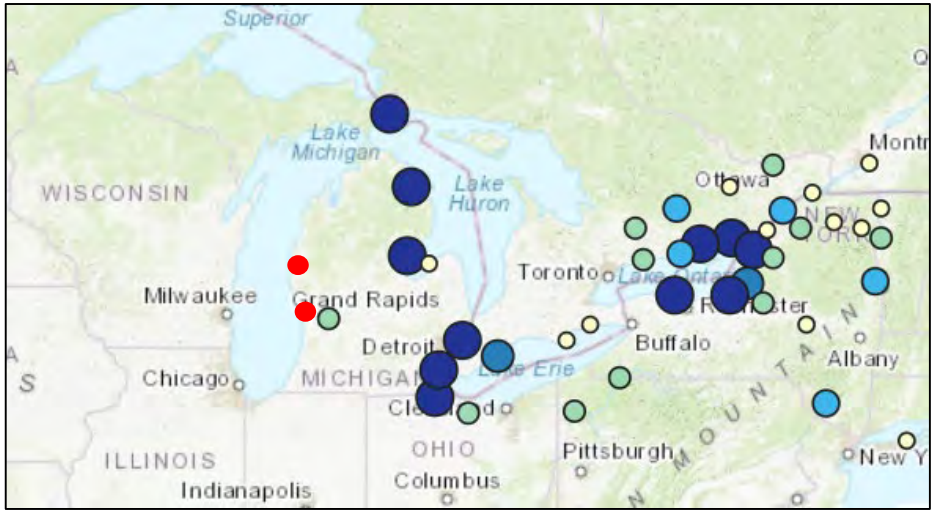
- First discovered in 1996 in Southeast Michigan
- Currently predominantly in Great Lakes wetlands
- High threat to our inland waters

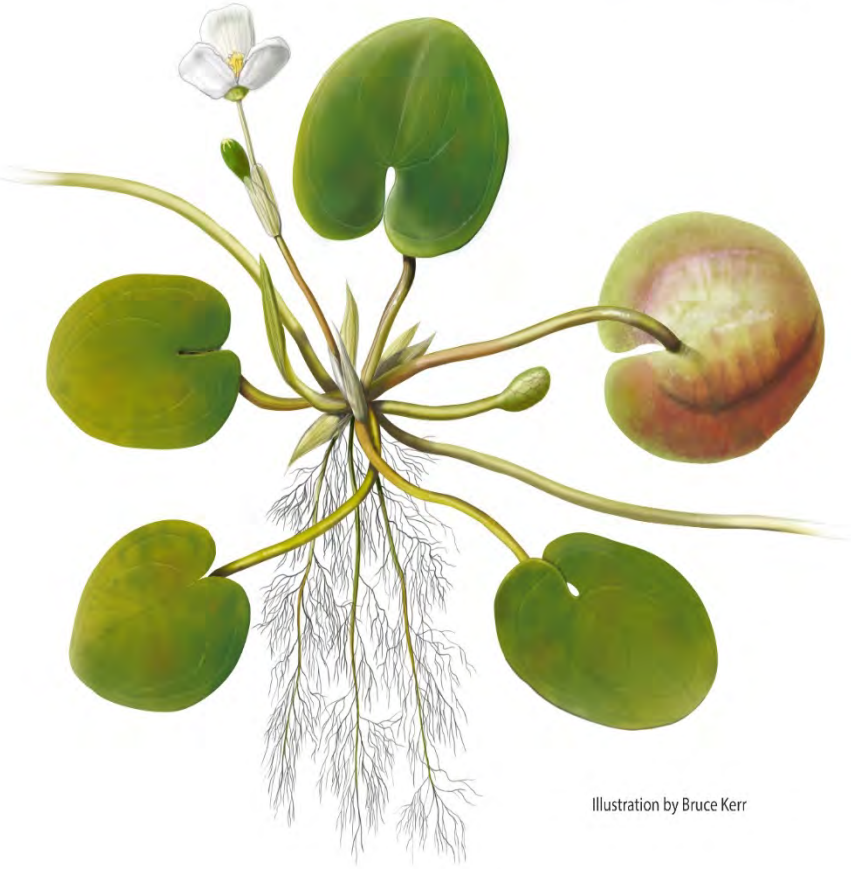
European Frogbit

Hydrocharis morsus-ranae

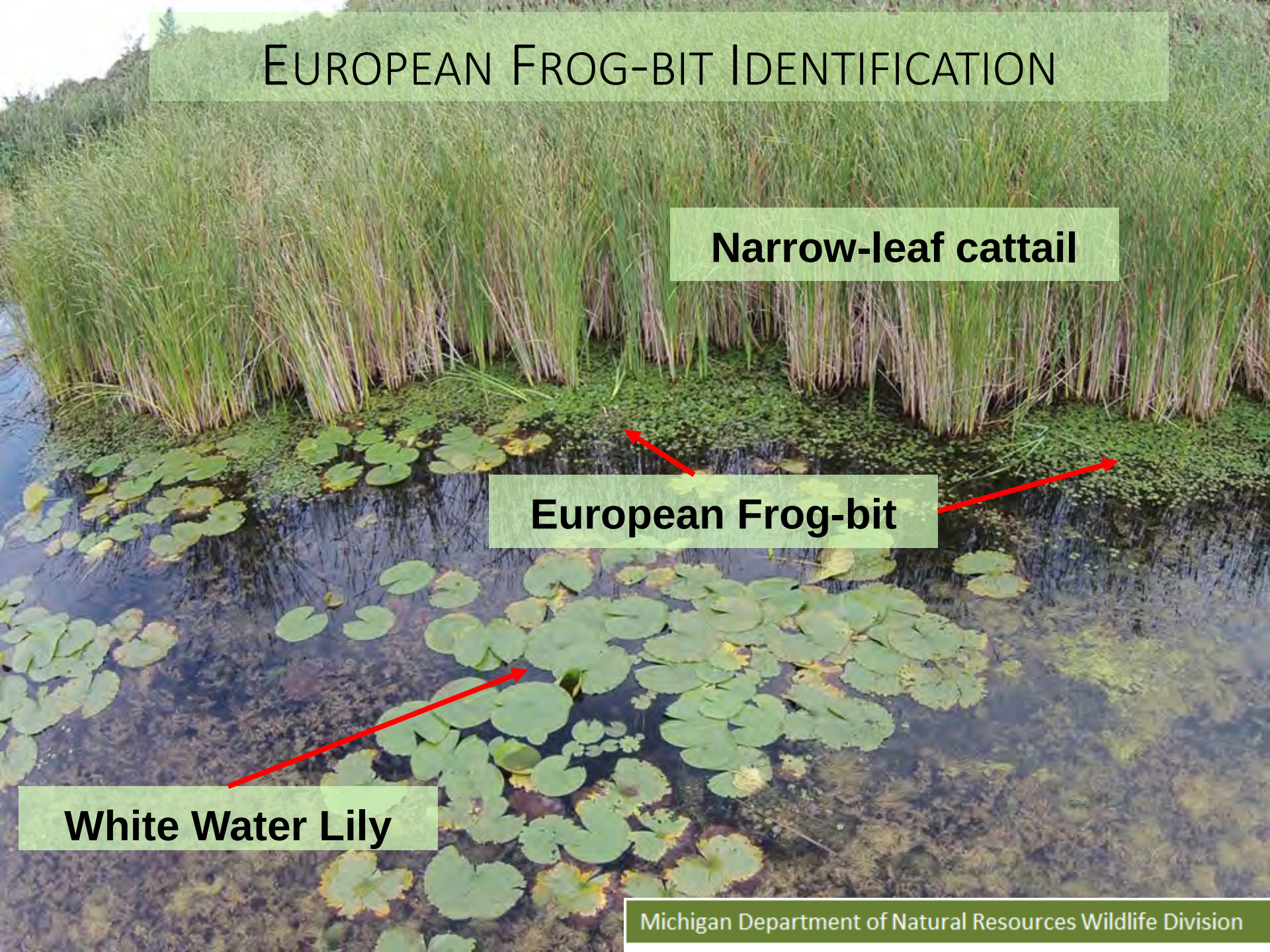


- **Free-floating rosette**, roots hang below
- Small, heart-shaped leaves (**2-3”**)
- Small, white flower, 3 petals



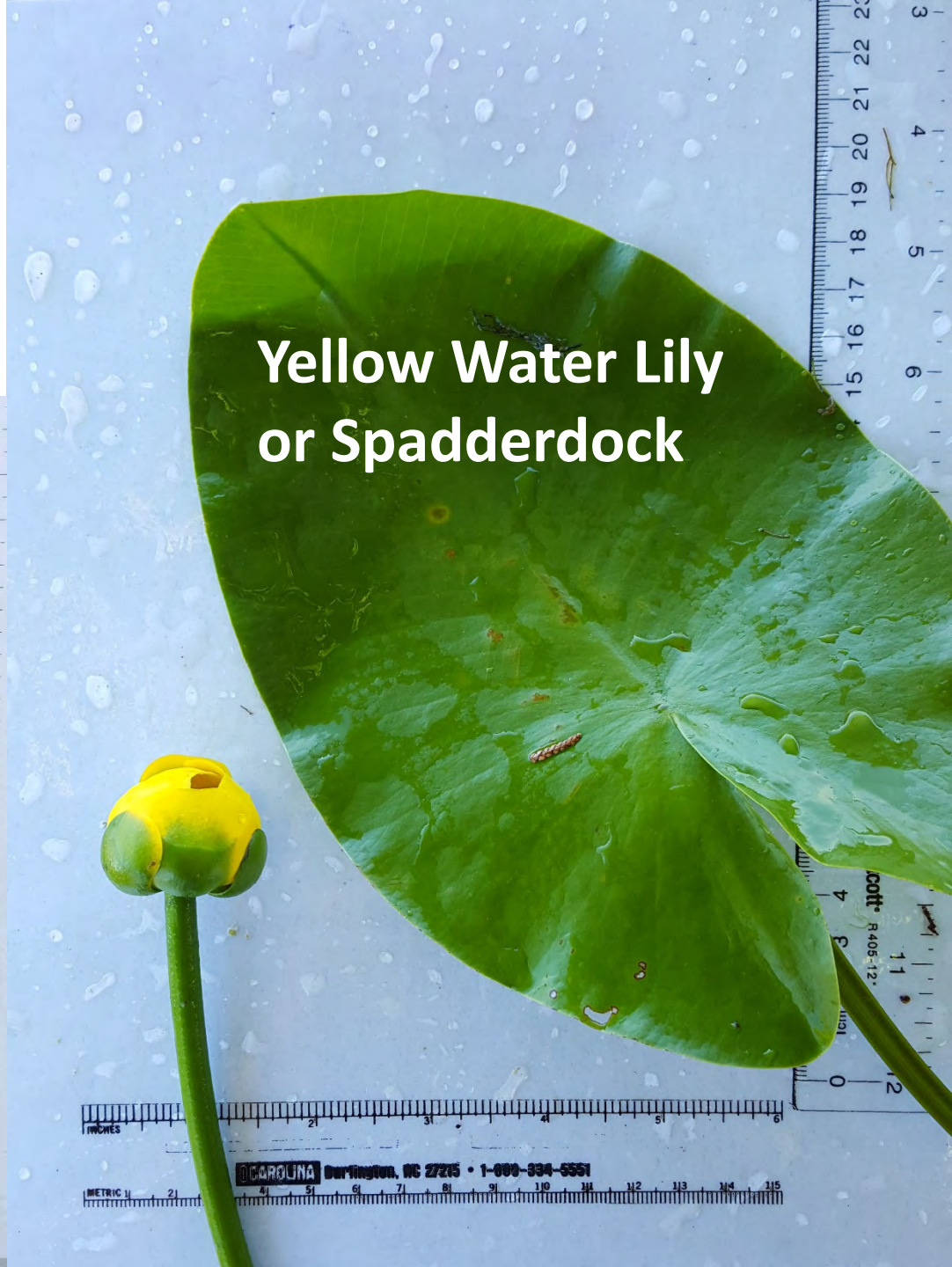


European Frog-bit Identification



Michigan Department of Natural Resources Wildlife Division

Is this European Frog-bit?



Is this European Frog-bit?

WATCH FOR THESE

Aquatic Invaders!

HYDRILLA

Leaves are whorled in groups of 4-8

Leaves are rough and have visible saw-toothed margins

Photo: Robert Vidéki, Doronicum Kft., Bugwood.org

WATER CHESTNUT

Green, floating leaves with sharply serrated edges

Small, white 4-petaled flowers

Photo: Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

BRAZILIAN ELODEA

Generally 4 leaves per whorl

Submerged

Photo: V. Morgan, PSU-CLR

EUROPEAN FROGBIT

Leathery, heart-shaped leaves

Free-floating

Leaf size: ½ - 2 ¼ in. across

Photo: V. Morgan, PSU-CLR

WATER HYACINTH

Rounded, shiny green leaves with spongy stalks

Lavender flowers with central yellow fleck

Free-floating

Photo: MDNR

WATER LETTUCE

Free-floating – forms a rosette of leaves that resembles an open head of lettuce

Fuzzy light green leaves with long feathery roots

Photo: MDEQ

EUROPEAN WATER CLOVER

Resembles a four leaf clover

Leaves are smooth and can be floating, submerged, or emergent

Leaf size up to 1 in. across

Photo: MDEQ

These 3 species are legal for sale and possession.
Please only report sightings outside of cultivation.

WATER SOLDIER

Leaves are 16 in. long, sword-shaped, sharply serrated edges, bright green

Leaves may be emergent or submerged

Photo: Branko Bakan

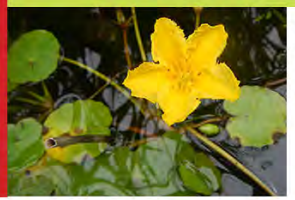
PARROT FEATHER

Spikes of stiff, feathery leaves grow in whorls of 4-6

Bright green upper stem emerges up to 1 foot above water

Photo: MDEQ

YELLOW FLOATING HEART



Flowers are bright yellow with 5 petals

Leaves are 2-6 in. across with scalloped edges

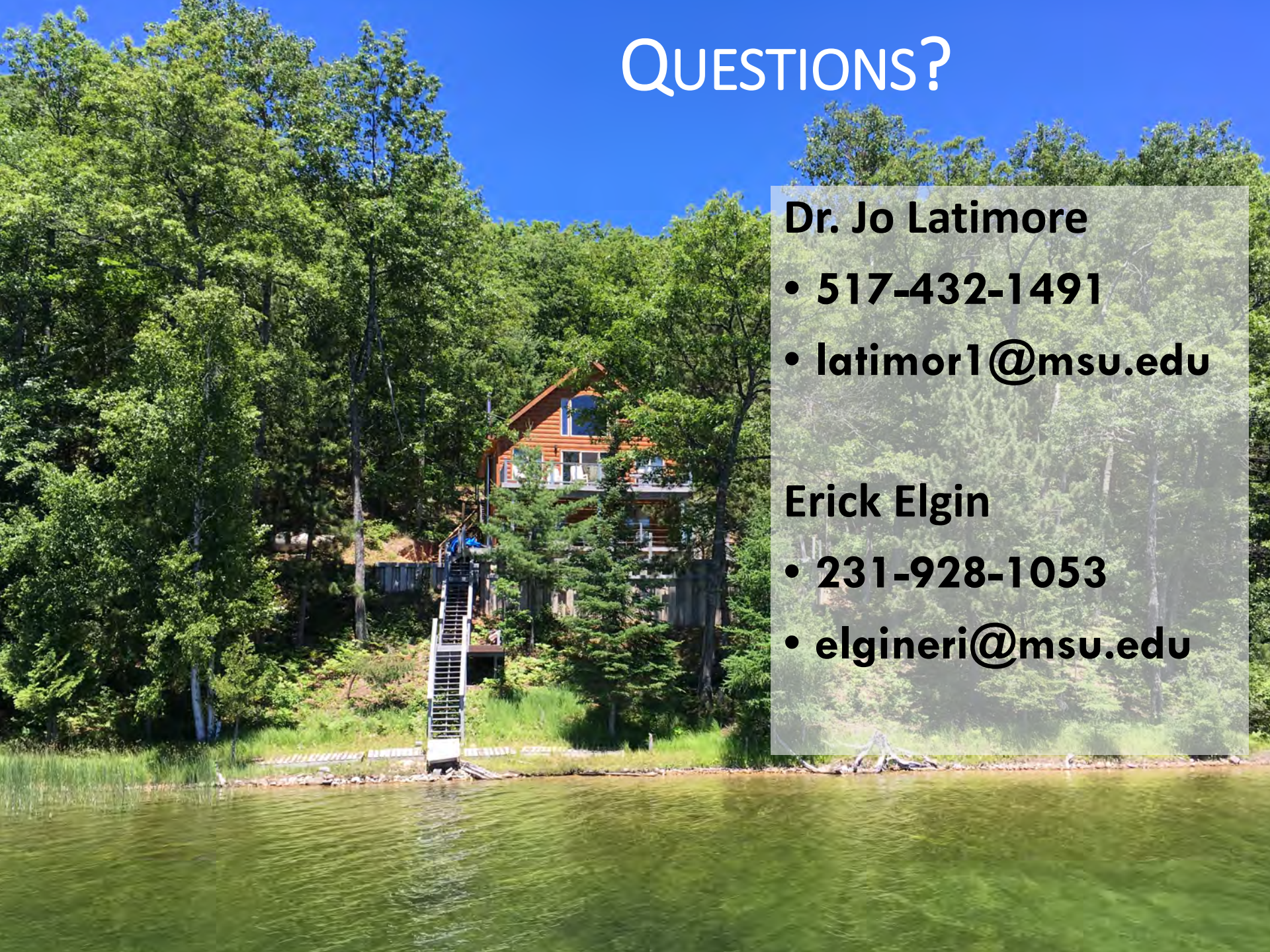
Photo: MDNR

For more information and to report sightings, visit *michigan.gov/invasives*

Check out our training video!

https://youtu.be/-i7IvA7gK-I

Questions?



Dr. Jo Latimore

- 517-432-1491
- latimor1@msu.edu

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