



Management of starry stonewort, *Nitellopsis obtusa*

Tim Plude, WI-Department of Natural
Resources

What is starry stonewort?

- Starry stonewort, *Nitellopsis obtusa* is a member of the Characeae family
- Characeae are macrophytic green algae that can range in size from centimeters to meters
- *Chara* and *Nitella* species are found around the world.

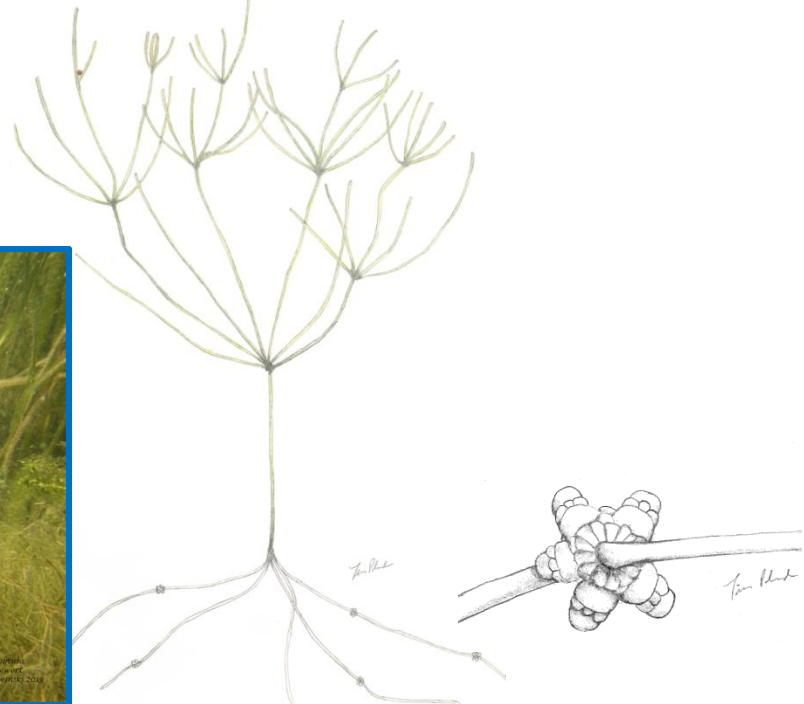
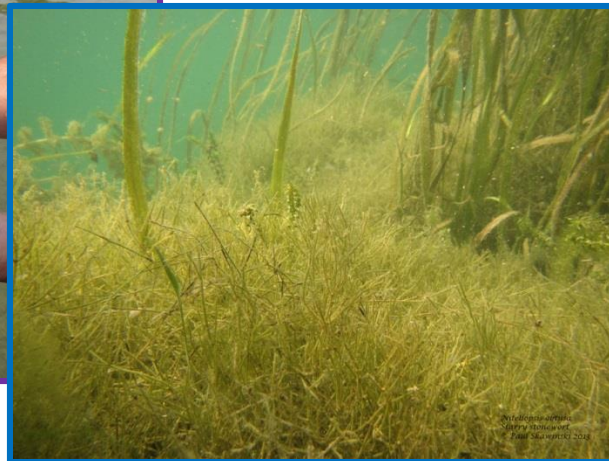
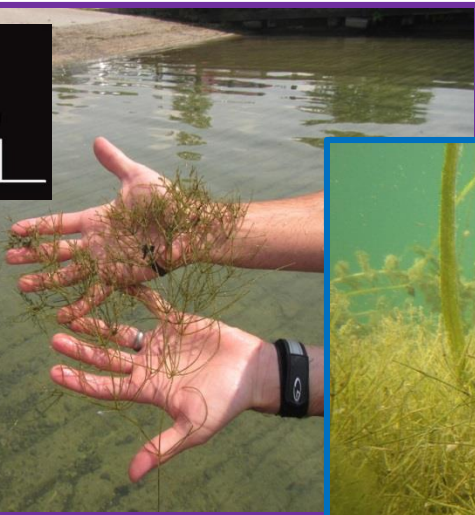
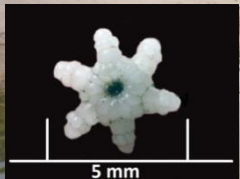


Photo credit: Paul
Skawinski

Why is it a Problem?



- Bulbils are small and easily hid
- Bulbils are not susceptible to herbicide
- Nodes can form into bulbils
- Species is hard to ID

One Positive Note:

Only Male plants have been found in USA = only reproducing via asexual means

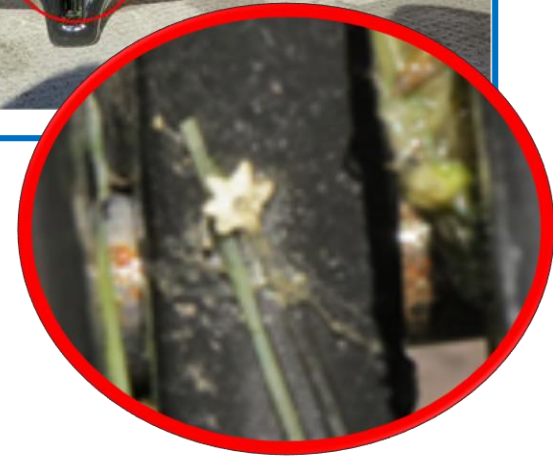
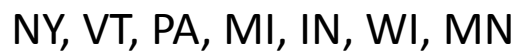
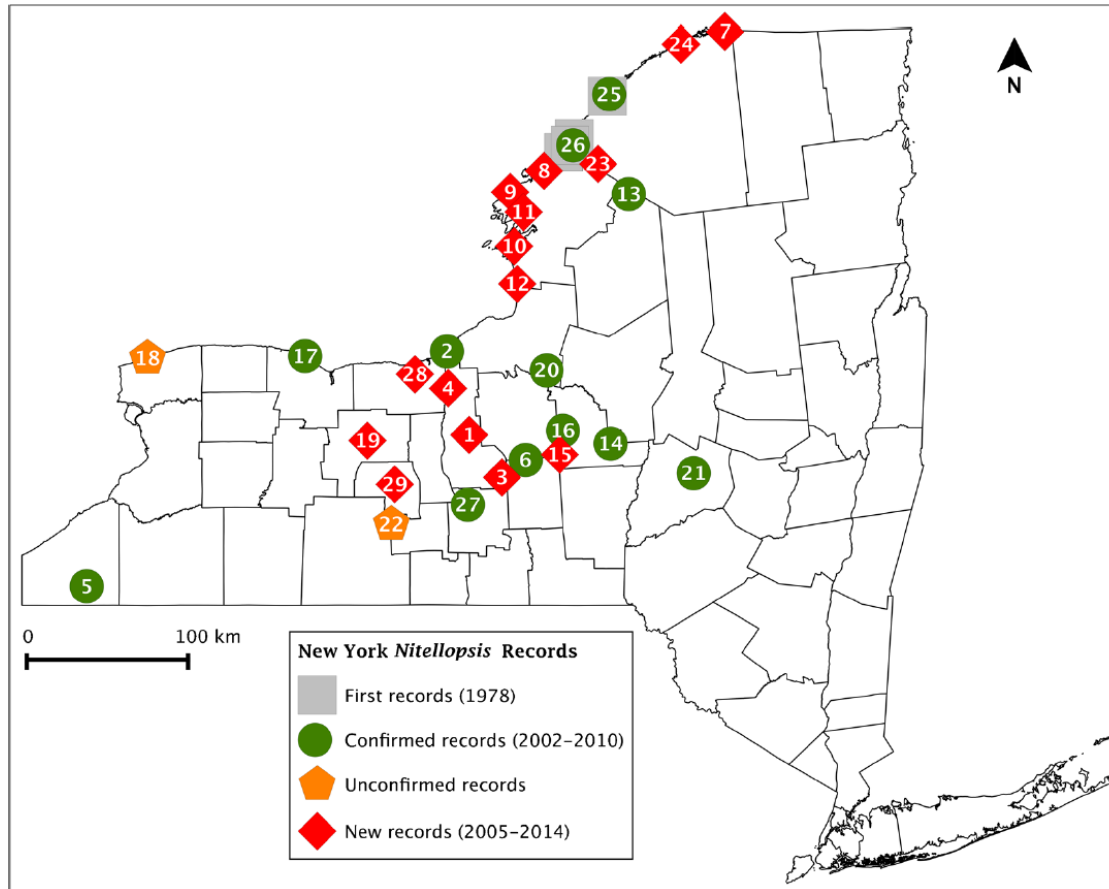


Photo Credit: right-hand side Brad Steckart, left-hand side Paul Skawinski

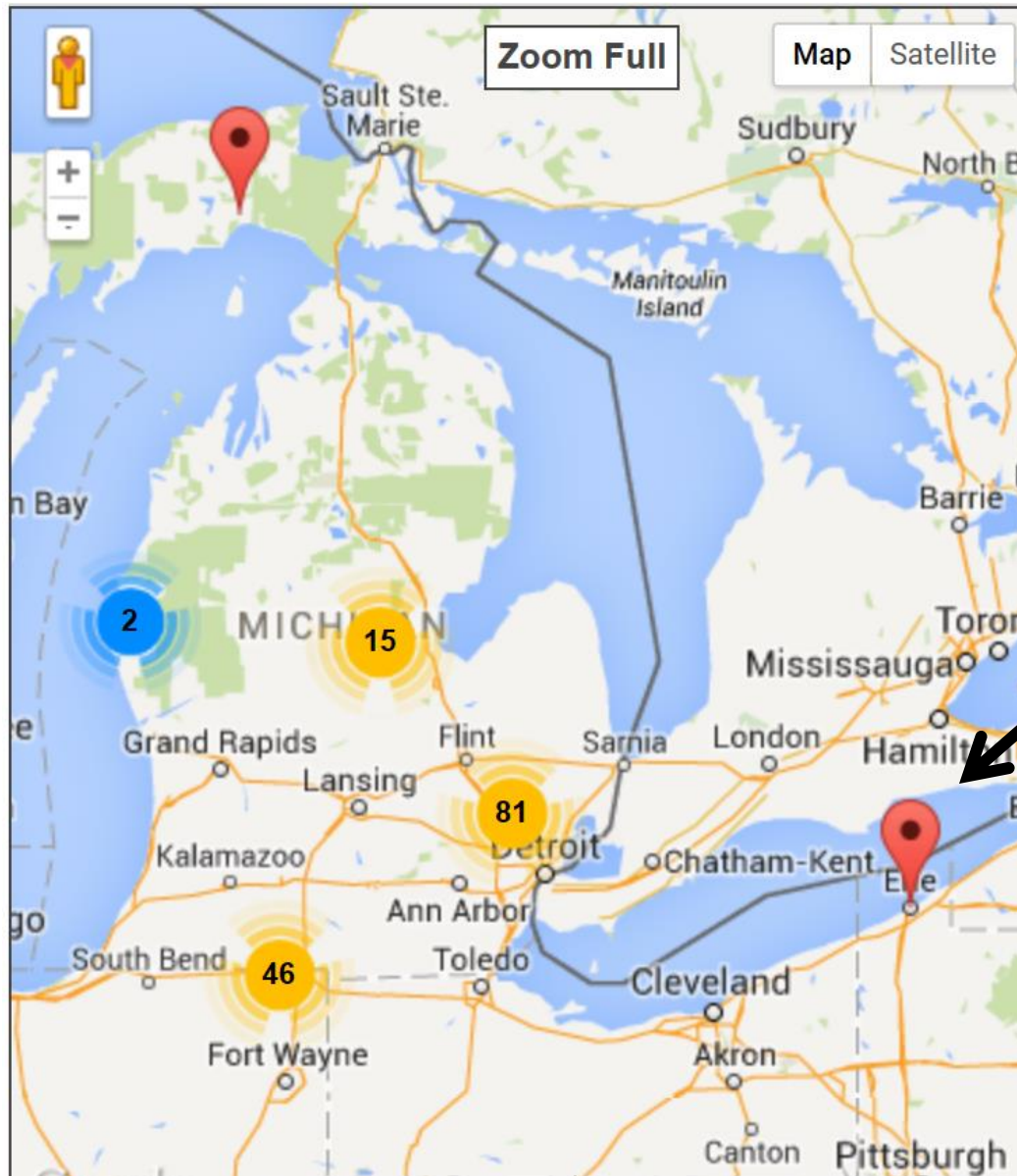


New York



Sleith R.S. et al (2015)

Michigan and Pennsylvania



PA's only discovered population

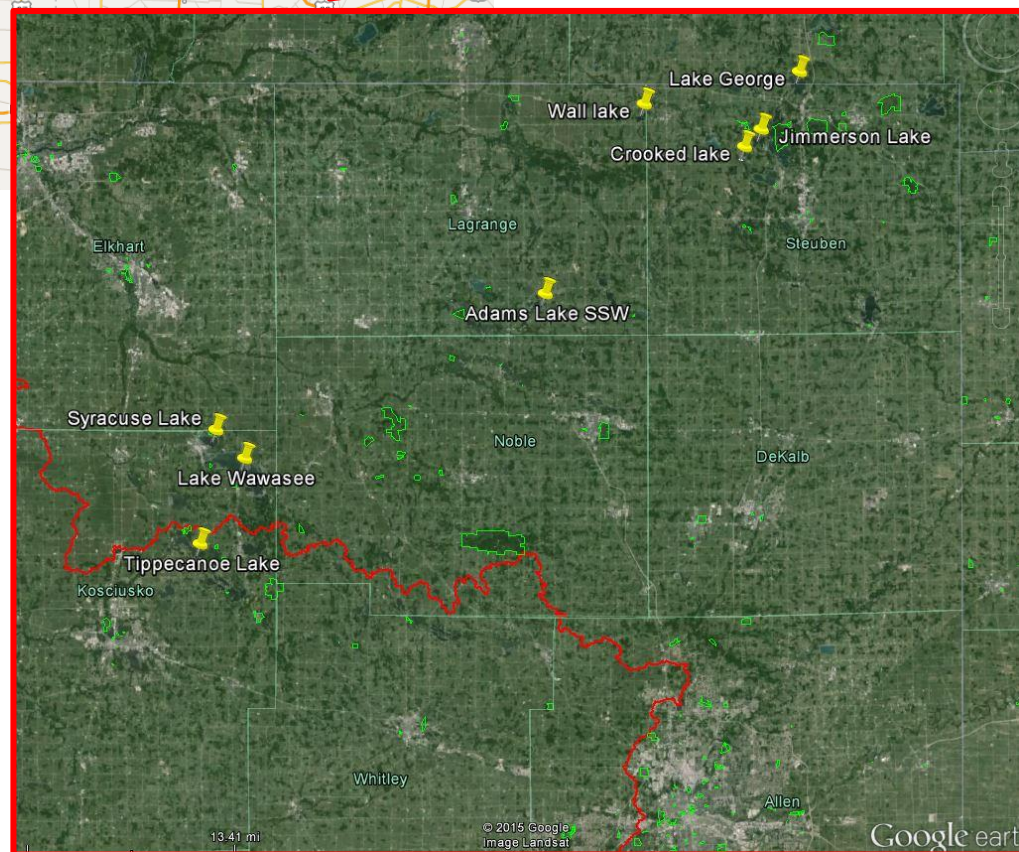


Michigan

- Aquatic Nuisance Control tracking system is under construction- no data to show
- Contractor conversations: Doug Pullman, Jeff Knox, Scott Brown, Paul Hausler
- Unpredictable behavior,
- exponential increase in infested lakes identified,
- 70-75°F for active growth,
- few anecdotal accounts of eradication (one with no management),
- one account of growth from 10 to 250 acres in 3 years (Lake Templane)



Indiana





- Source: Eric Fischer, IN-DNR AIS Coordinator
- Treating starry stonewort for 7 years
- 8 lakes in Indiana infested
- Working with Clemson Univ. and Applied Bio-chemists on algal assay
- Study Lakes: Crooked Lake & Lake George

Crooked Lake

- 2012, 3.0% freq.; June: **8.1** ac, July: **9.1** acres SSW treated
 - 2013, 5.0% freq.; surveyed no treatment
 - 2014, 10.0% freq.; July: **12.07**ac, August 7: **17.08** ac treated
- Cutrine ultra 2.4 gallons/ac-ft & Hydrothal 191 1 quart/ac-ft



801 acres
Mean depth= 12 feet
Treating SSW since 2010
Also treats EWM and CLP

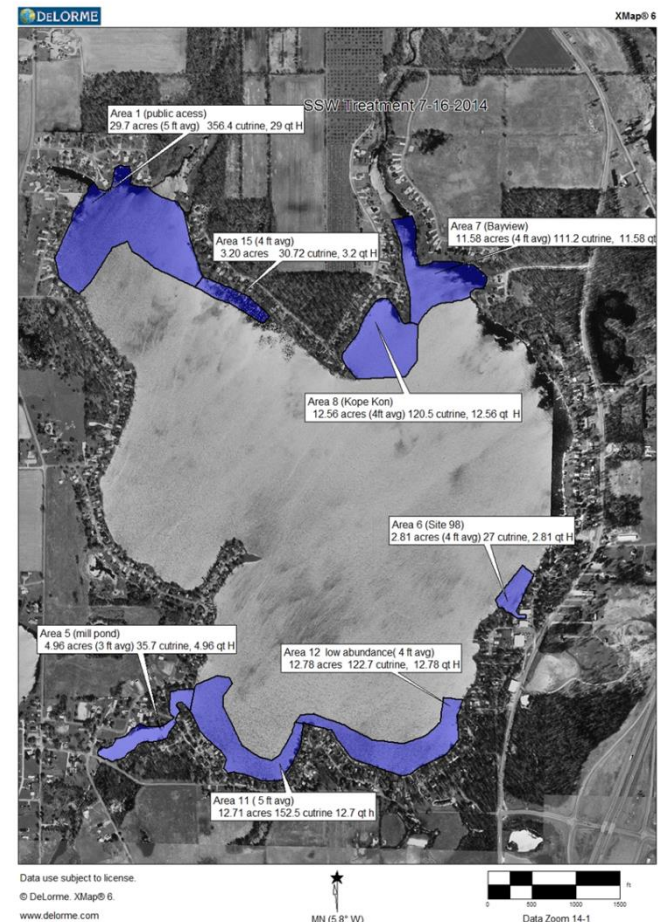
Lake George

- 2009, 1.1% freq.; **5 acres treated (Fall)**
- 2010, 5.9% freq.; June 1: **5ac.**, June 29: **5ac.**, Aug.: **2ac.**, Sept. **4.5ac.**
- 2011, 10.0% freq.; June 8: **7ac.**, June 22: **7ac.**, July 25: **7ac.**, Aug 12: **7ac.**, Sept 14: **24.7ac.**
- 2012, 6.3% freq.; May: **7ac.**, June: **29.2ac.**, July: **9.2ac.**, Oct.: **20.8ac.**
- 2013, 15.0% freq.; July 10: **42.86ac.**, Aug 22: **37.86ac.**, Sept 16: **17.87ac.**
- 2014, 28.8% freq.; July 15: **90.3ac.**, Aug 13: **90.3ac.**, Sept 26 **4.96ac (mill pond)**

2014 also reported a snail die-off possibly linked to treatment

Cutrine ultra 2.4 gallons/ac-ft & Hydrothal 191
1quart/ac-ft

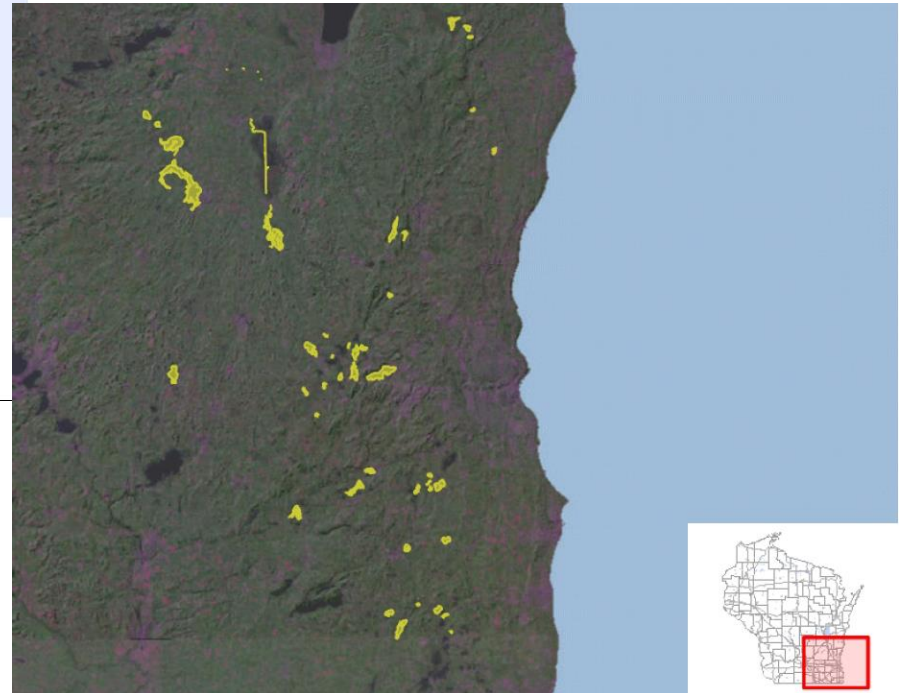
509 acres
Mean depth= 22 feet
Treating SSW since 2009
Also treats EWM

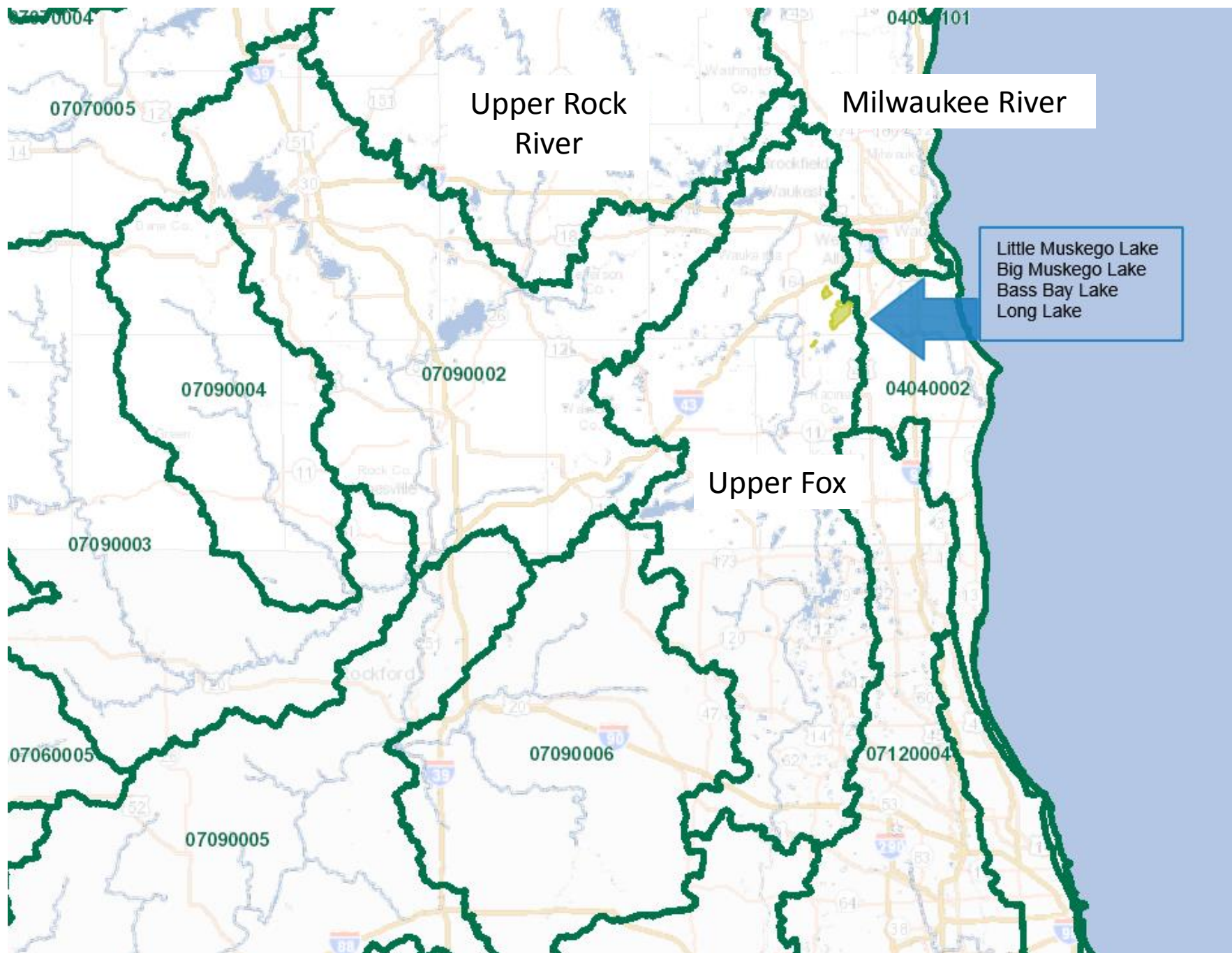


Wisconsin



Lakes searched for starry stonewort in 2015 by DNR & partners







Little Muskego Lake

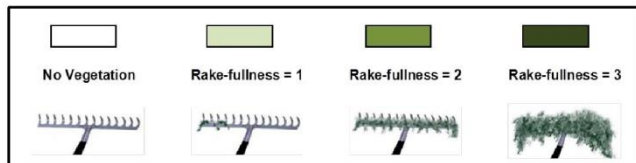
- Stakeholder team formed and met
- Apply for WI-DNR Rapid Response Grant
- Activities:
 - Riparian notification
 - Signage at Launches
 - CBCW
 - Multiple surveys
 - Hand-Pulling and DASH
 - Considering Drawdown & Chemical trials 2016
 - Possible Dredging 2017

Lake Attributes:

- 470 acres
- Drainage Lake
- Waukesha County
- Max depth 65 feet
- Mesotrophic
- 4 public boat landings

Nitellopsis obtusa found throughout western bay approx. 30 acres (a few satellite populations south and east)

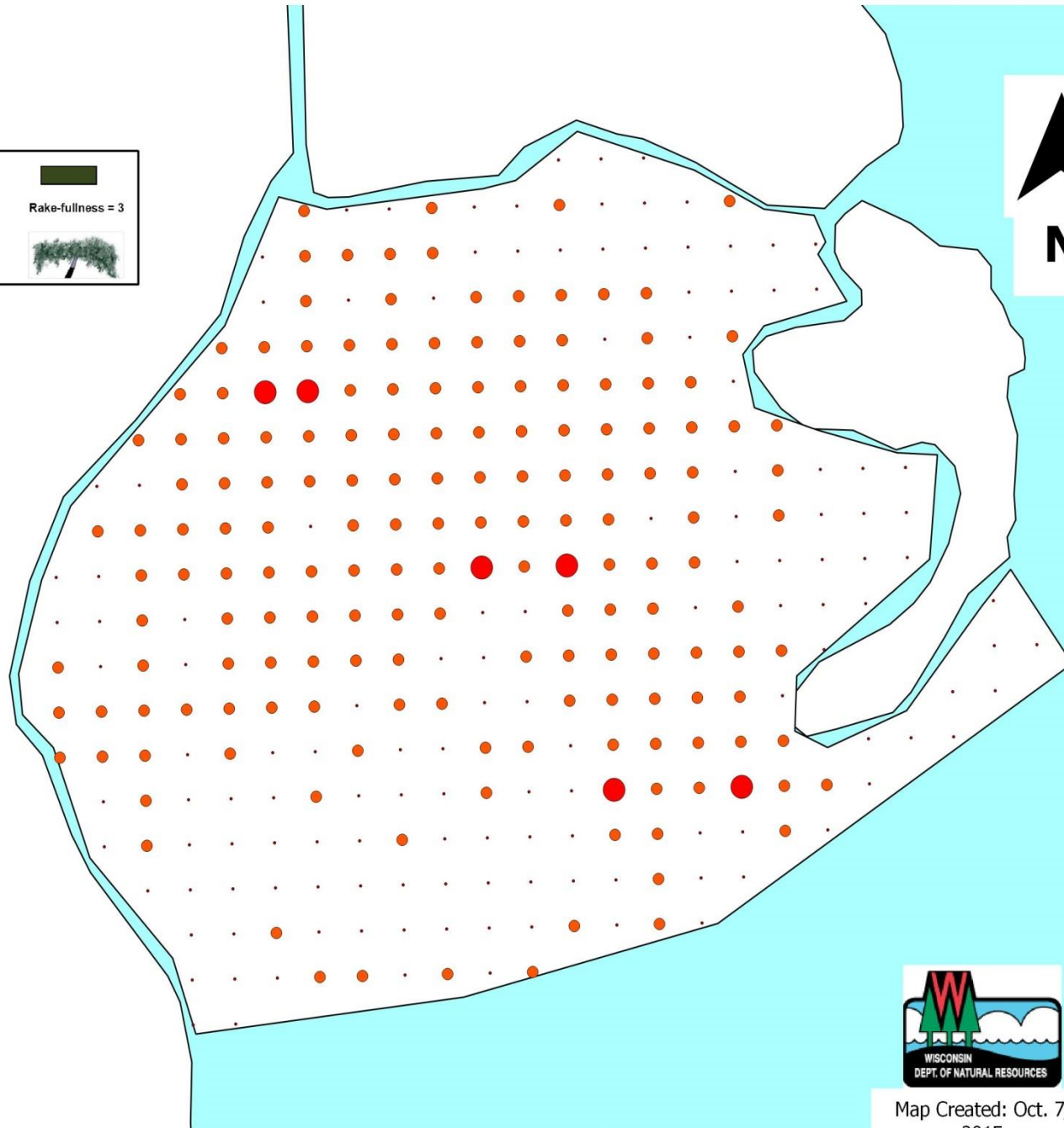
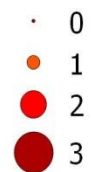




Nitellopsis obtusa

starry stonewort

Rake Densities



0

0.25 miles



Map Created: Oct. 7, 2015

Big Muskego Lake

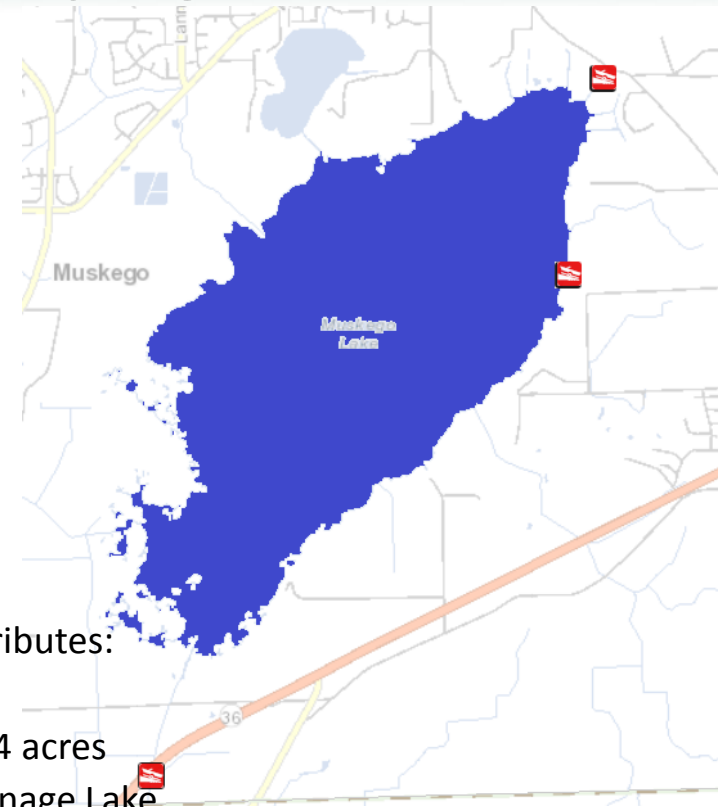
- District, DNR and City communicate
- Apply for WI-DNR grant
- Activities:
 - Manual removal of dense beds at launches
 - Riparian notification
 - Signage at Launches
 - CBCW
 - Plant survey (PI method)
 - 2015 Experimental chemical control at launches *decrease biomass at launches

0.75 ac w/Clipper 0.2ppm and
1.5 ac w/ Cutrine Ultra 0.8ppm & Hydrothal 191
0.17ppm Sept. 24, 2015

Lake Attributes:

- 2194 acres
- Drainage Lake
- Waukesha County
- Max Depth 3 feet
- Eutrophic
- 2 public boat landings

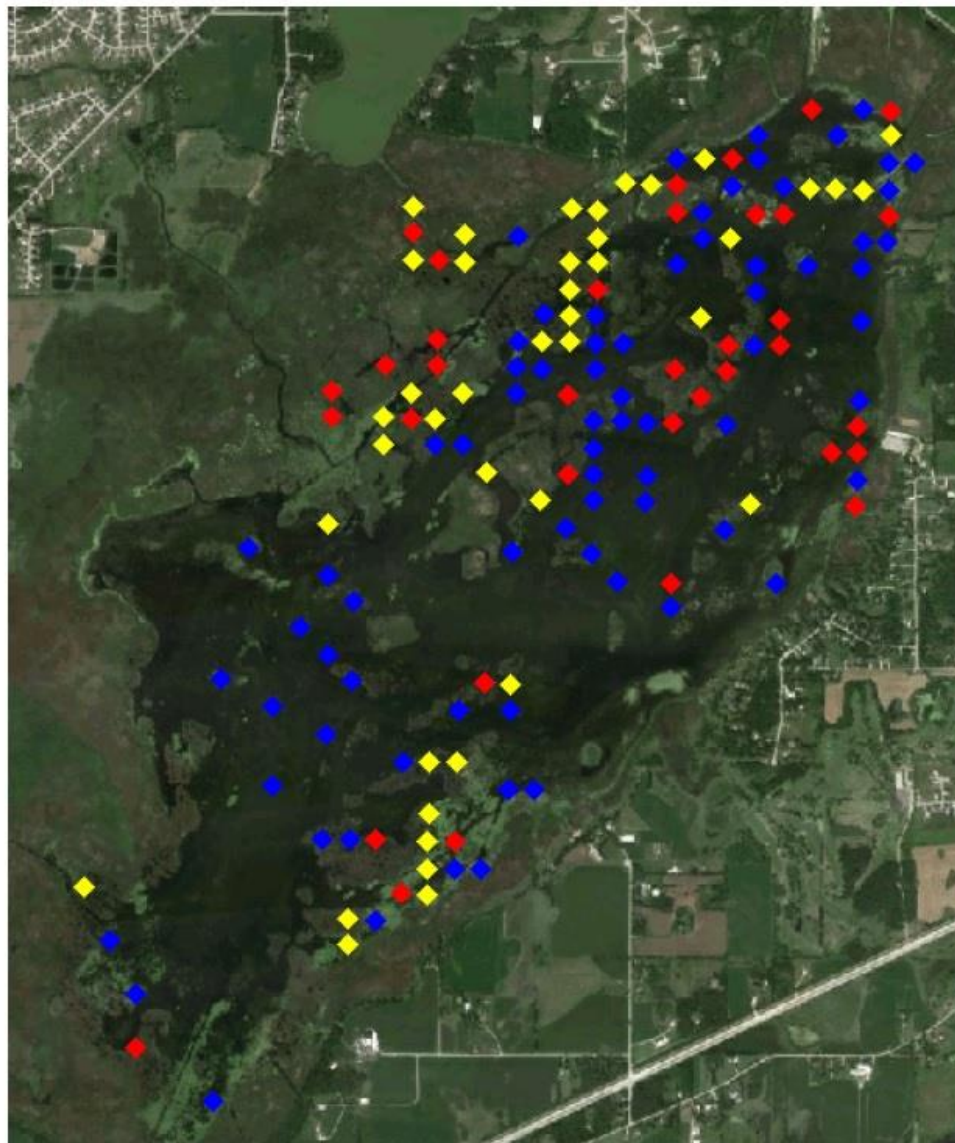
Nitellopsis obtusa thought to be wide spread (PI Survey results to come)





Big Muskego Lake, Waukesha County, WI

Sites with Starry Stonewort



Rake Fullness :
 ◆ 1
 ◆ 2
 ◆ 3
 ◆ (Visual)

Total # Sites: 152

Source:

Marine Biochemists
6302 W. Eastwood Ct.
Mequon, WI 53092
(888) 558-5106

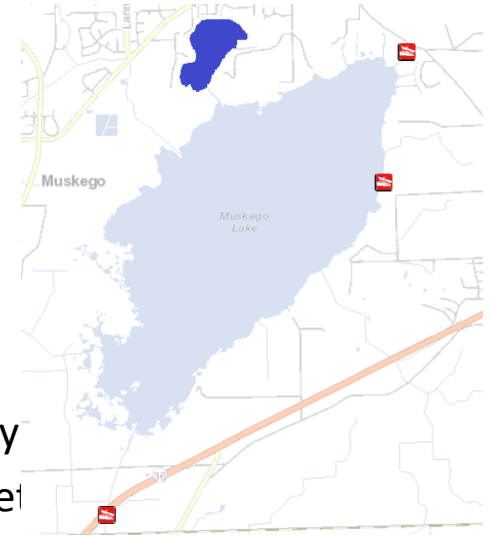
www.marinebiochemists.com

Bass Bay Lake

- Currently vouchering and verifying
- Will work with Bass Bay Lake/Big Muskego Lake District on planning steps

Lake Attributes:

- 104 acres
- Drainage Lake
- Waukesha County
- Max Depth 23 feet
- Eutrophic
- Boat access through Big Muskego Lake



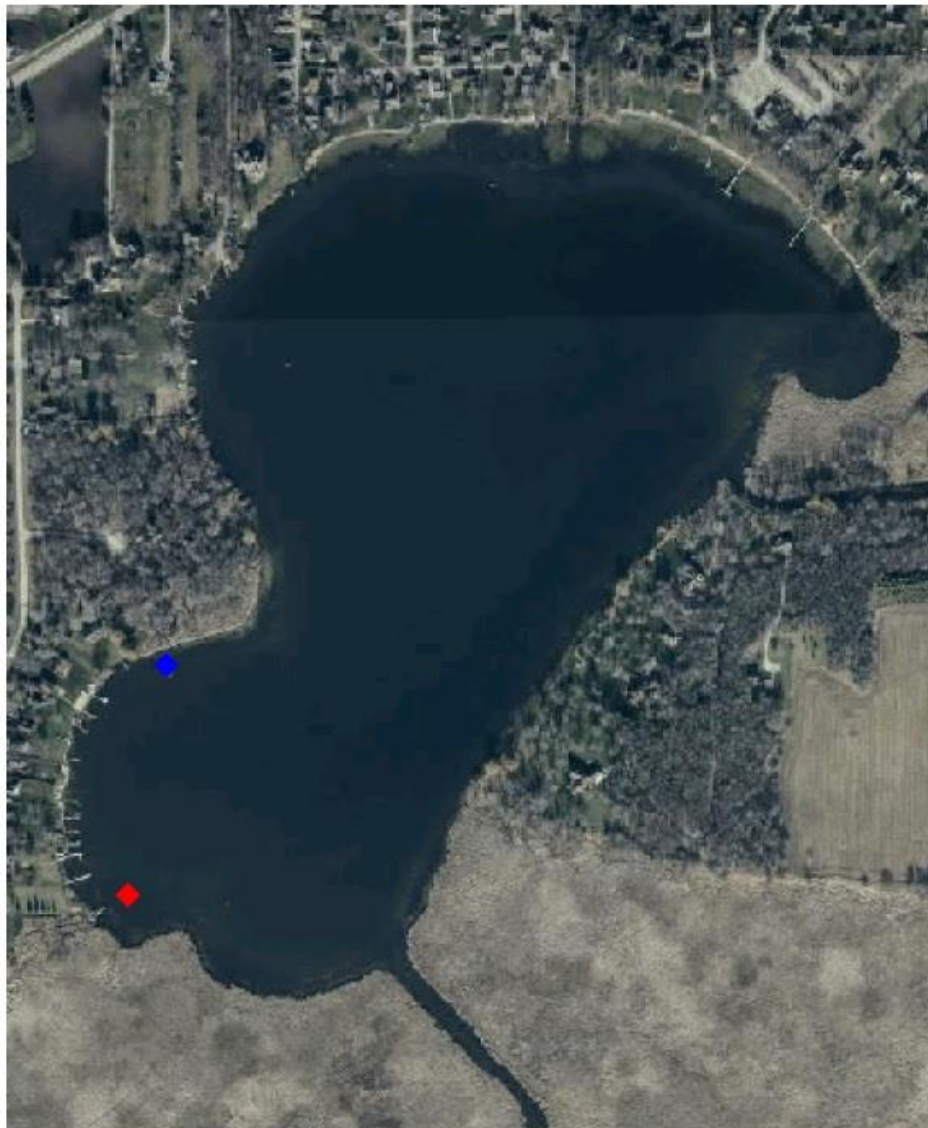
Nitellopsis obtusa thought to be wide spread; highly dense in channel to Big Muskego Lake



Figure 11

Bass Bay, Waukesha County, WI

Sites with Starry Stonewort



Rake Fullness :
◆ 1
◆ 2
◆ 3
◆ (Visual)

Total # Sites: 2

Source:

Marine Biochemists
6302 W. Eastwood Ct.
Mequon, WI 53092
(888) 558-5106
www.marinebiochemists.com

Long Lake

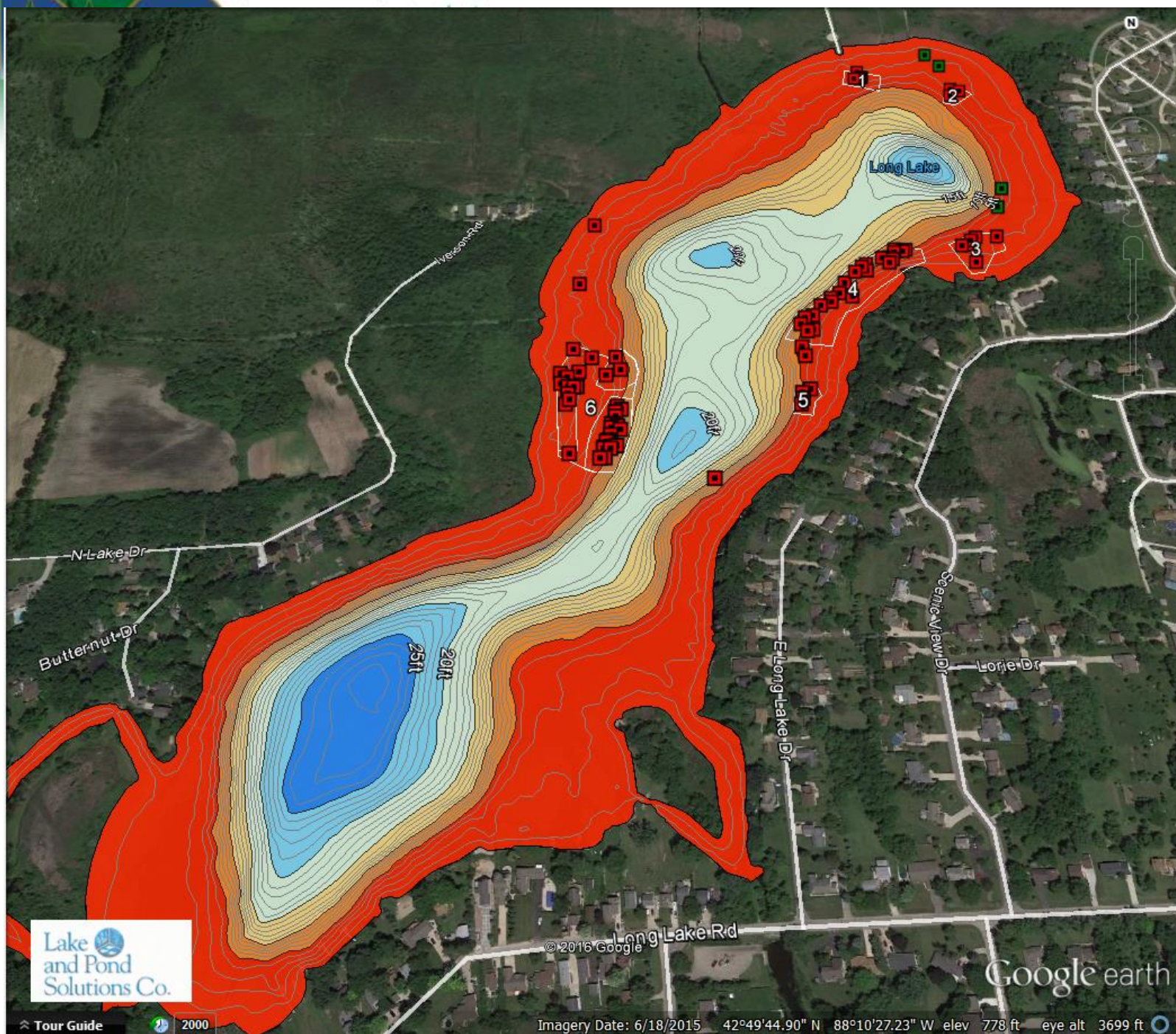
- District, DNR, Lake Manager communicate
- Apply for WI-DNR grant
- Activities:
 - Multiple surveys
 - Riparian notification
 - Signage at Launch
 - Plant height monitored over year
 - Experimental chemical control near launch

Lake Attributes:

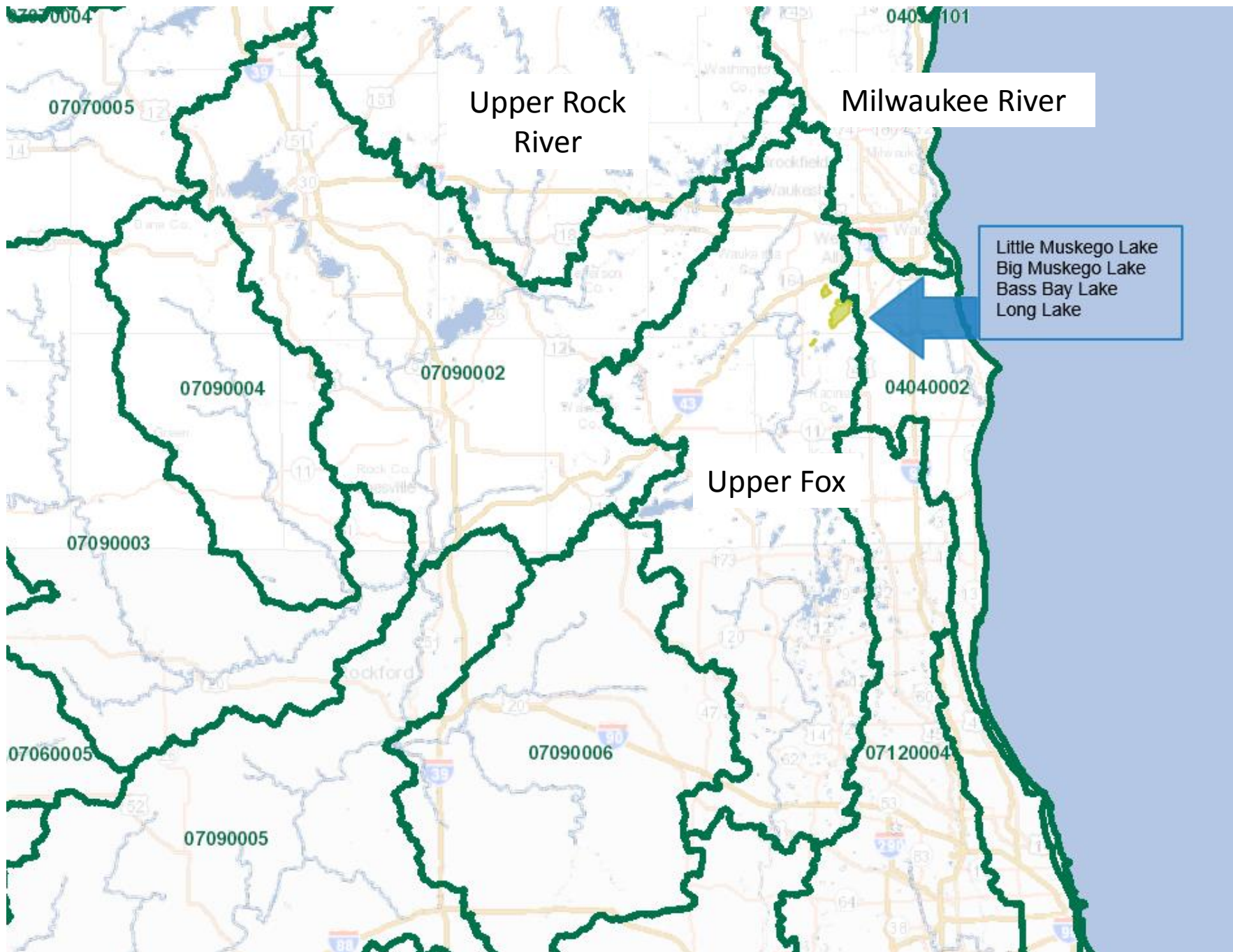
- 105 acres
- Drainage Lake
- Racine County
- Max Depth 25 feet
- Eutrophic
- 1 public boat landing

Nitellopsis obtusa thought to be fairly wide spread in low densities, with a few beds (PI Survey results to come)





Source: Lake and Pond Solutions Co., Jeff Stelzer



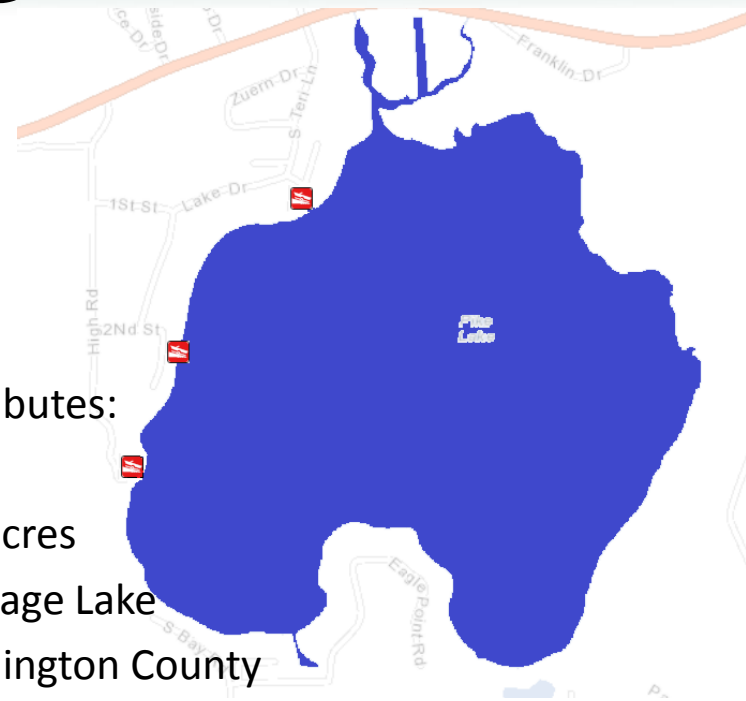
Pike Lake

- County, DNR and Lake District meet
- Activities:
 - Riparian notification
 - Meander survey targeting bed locations
 - Signage at Launches
 - Wait and see approach
 - Plant survey planned for 2016 (PI method)

Lake Attributes:

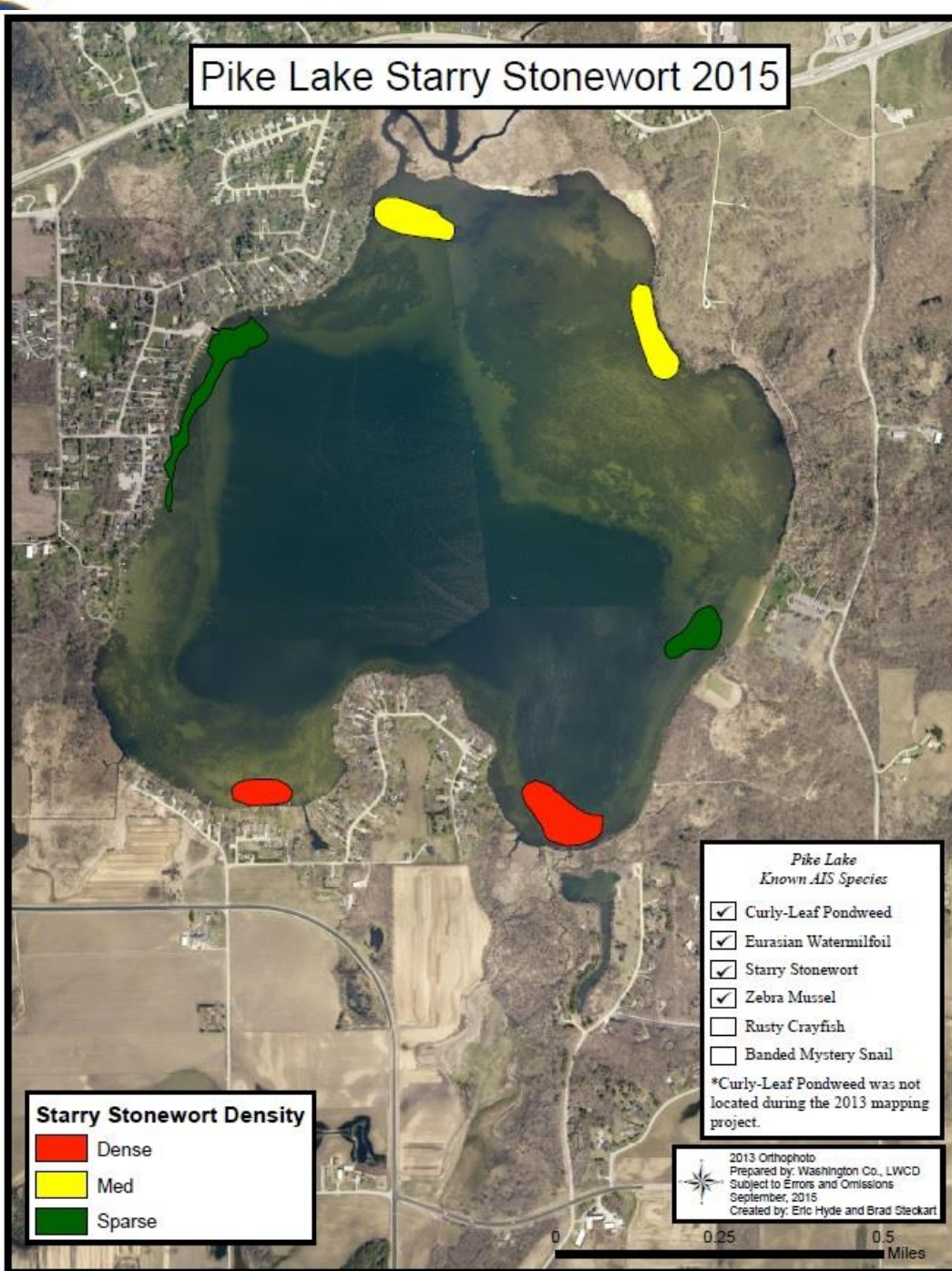
- 461 acres
- Drainage Lake
- Washington County
- Max Depth 45 feet
- Mesotrophic
- 3 public boat landings

Nitellopsis obtusa is found around perimeter of lake in low-to-moderate density beds



*Upper Rock River Watershed

Pike Lake Starry Stonewort 2015



Source: Washington
County Land & Water
Conservation
Department, Brad
Steckart

Silver Lake

- County, DNR and Lake District communicate
- Apply for WI-DNR grant
- Activities:
 - Riparian notification
 - Signage at Launches
 - Wash. County closed launch after assessing risk
 - DASH
 - Multiple surveys (PI & Meander: 2015; Meander: 2016)

Lake Attributes:

- 122 acres
- Drainage Lake
- Washington County
- Max Depth 47 feet
- Mesotrophic
- 1 public boat landing

Nitellopsis obtusa found only near boat launch, approx. 1 acre



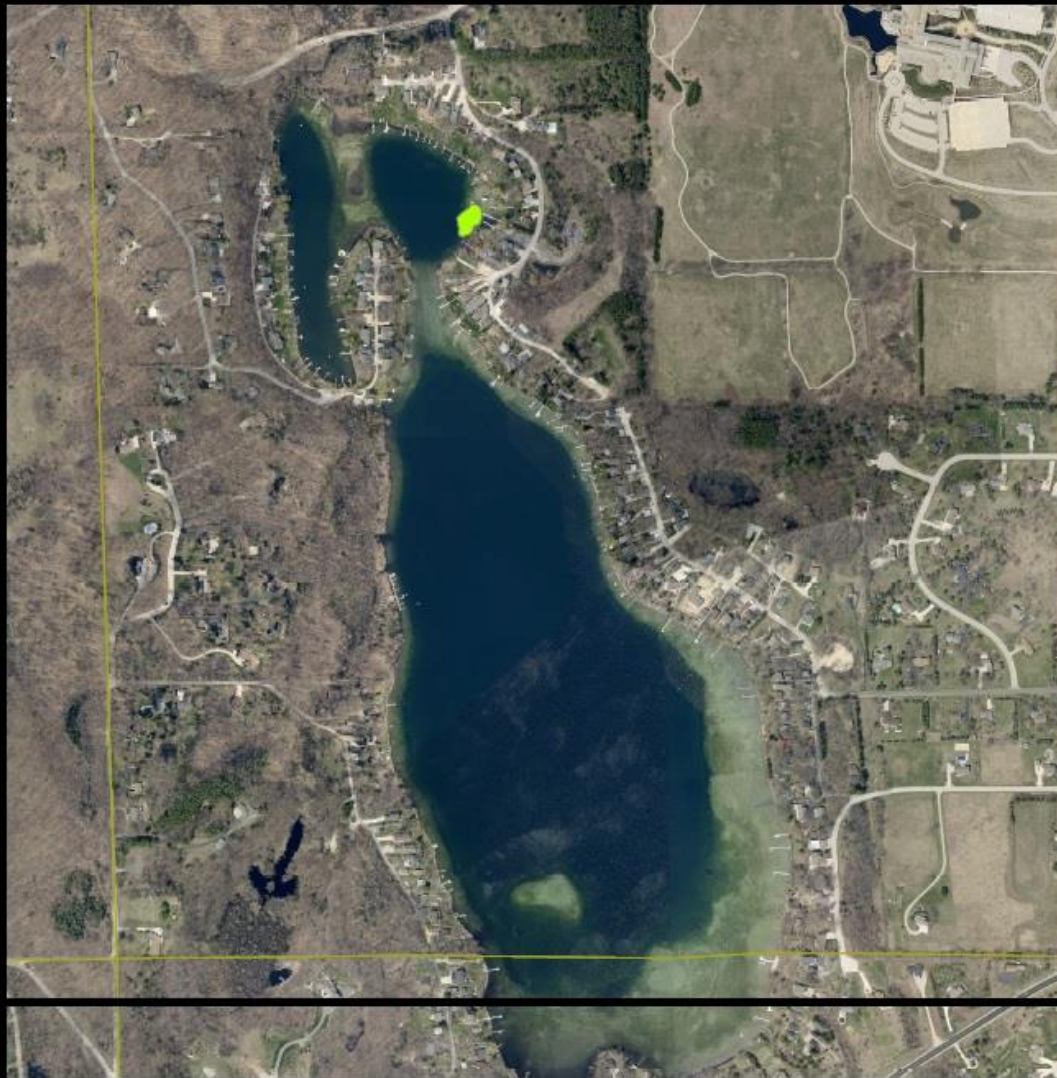
*Milwaukee River Watershed



SILVER LAKE

Location of Starry Stonewort (*Nitellopsis obtusa*)

Brad Steckart



2013 Pictometry
Prepared by: Washington County Land Conservation
Subject to Errors and Omissions
February, 2015

Legend

 StarryStonewort

SCALE
0 400 800 Ft




Source: Washington
County Land & Water
Conservation
Department, Brad
Steckart

An underwater photograph showing a green, branching marine plant, possibly a type of seaweed or algae, growing on a sandy seabed. The plant has several upright, thin stems with small, feathery or branched structures at the tips. The water is slightly turbid, and the sand is visible in the background and foreground. The lighting is natural, coming from above, creating some shadows on the sand.

Thanks!

Photo Credit: Paul Skawinski