

Hello,

The end of the open water season is near. Most of the boats, pontoons, jet skis and docks are out of the water. Part of the fall routine for the lake is a shoreline survey. I received a report (copy attached) from Matt Berg, our biologist, who conducted his fall survey of the lake to check for Eurasian Water Milfoil (EWM). The areas that were treated in the south end of the east basin showed no presence of EWM. There were, however, four plants found in the nook on the south end of the west basin where plants were found last fall. Matt removed the four plants that he found. He also found fragments of the EWM on the north shore area of the west basin. These most likely came from the plants in the nook. Matt searched both east and west basins of the lake for EWM. He spent extra time in the areas that were previously treated in prior years. Nothing was found. This doesn't mean that there aren't more plants—they just aren't visible if they are present.

Matt's report was sent to the DNR for their files as well as the prior intercept point search that Dave Blumer conducted shortly after the lake was treated this spring. The good news is that the ProcellaCOR was effective in treating EWM. We will have to decide what to do with the infestation in the nook next spring if we find more plants. It is extremely important that everyone watch for the presence of EWM in the lake. I attached pictures of an EWM plant to this email. If you see any fragments on the surface of the lake or see plants like this in the lake, please contact me or a board member. Fragments should be carefully removed from the water, put in a plastic bag and given to me or a board member. Fragments are EWM's way of propagating. The fragments eventually drop to the bottom of the lake and take root.

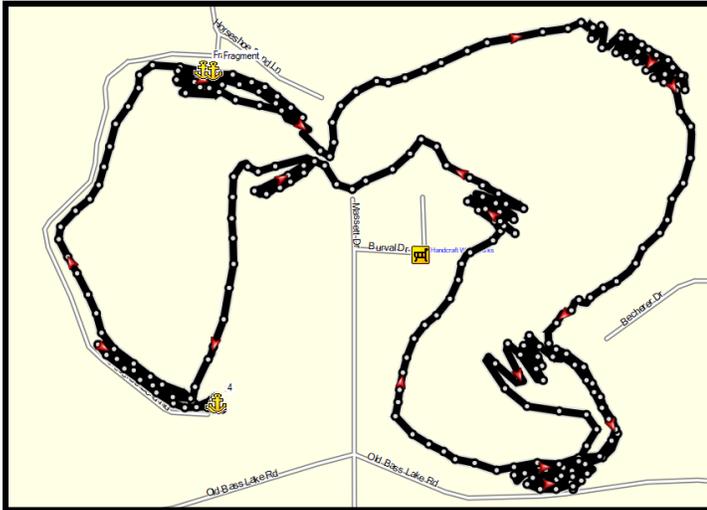
We also need to be vigilant about zebra mussels. Attached to this email is a picture of what zebra mussels can do to docks and other submerged items. I am also including instructions about what we should be doing to ensure that zebra mussels do not infest our lake. Late this summer I received monitoring plates for zebra mussels. I will contact two property owners in the east basin to periodically check the plates for any evidence of zebra mussels. I will have one set of plates on the end of my dock on the west basin.

We will be applying for a grant to manage invasive species in our lake. So that we qualify for grants we will update our Aquatic Plant Management Plan. This is a Wisconsin DNR requirement. We will have to pay the total cost of the Plan update which is estimated to cost a couple thousand dollars.

If you have questions or comments, please do not hesitate to contact me or a board member.

Ed Wink  
Secretary/Treasurer  
Horseshoe Lake Property Association, Inc.

**Eurasian Water-milfoil (*Myriophyllum spicatum*)  
Meandering Littoral Zone Survey  
Horseshoe Lake (WBIC: 2470000)  
Washburn County, Wisconsin**



Survey tracks and EWM found 9/18/19



Small rooted EWM plant raked out of "nook" 9/28/19

**Project Initiated by:**

The Horseshoe Lake Property Owners Association, and the  
Wisconsin Department of Natural Resources



EWM fragment found on the north shoreline of the west basin 9/28/19

**Surveys Conducted by and Report Prepared by:**

Endangered Resource Services, LLC  
Matthew S. Berg, Research Biologist  
St. Croix Falls, Wisconsin  
September 22, 2019

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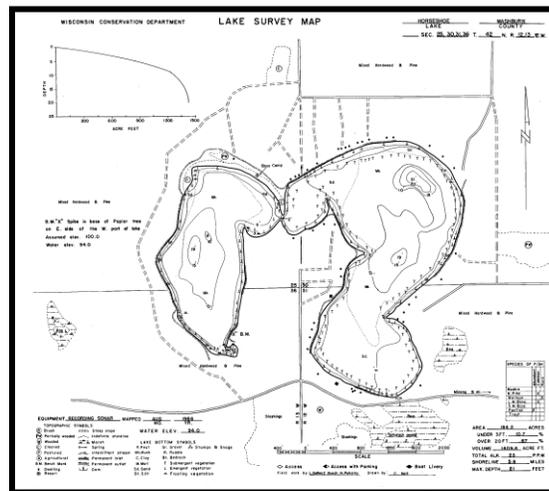
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## INTRODUCTION:

Horseshoe Lake (WBIC 2470000) is a 177 acre seepage lake in north-central Washburn County, Wisconsin in the Town of Minong (T42N R12W S30 SW SW). It reaches a maximum depth of 21ft in the northeast corner of the eastern basin and has an average depth of approximately 7ft (WDNR 2019). Secchi disc readings from 2014-2019 have averaged 12ft in the west basin and 14ft in the east basin. This suggests the lake is mesotrophic in nature with good to very good water clarity (WDNR 2019). The lake's bottom substrate is predominately sand along the shoreline, but this gradually transitions to sandy muck at most depths over 6ft (Figure 1). The only organic muck occurs in the tiny “nook” bay on the southeast end of the lake's west basin (Sather et al. 1971).



**Figure 1: Horseshoe Lake Bathymetric Map**

## BACKGROUND AND STUDY RATIONALE:

Eurasian water-milfoil (*Myriophyllum spicatum*) (EWM) is an exotic invasive plant species that is a growing problem in the lakes and rivers of northwestern Wisconsin. Present in nearby Nancy Lake since 1991, the Minong Flowage since 2002, and Gilmore Lake since 2009, EWM was first found in Horseshoe Lake in May 2011. Under the direction of Lake Education and Planning Services, LLC (LEAPS), the Horseshoe Lake Property Owners Association (HLPOA) conducted herbicide treatments of the known EWM areas in 2011, 2012, and 2016. They also authorized meandering shorelines surveys of the entire lake to look for surviving/new EWM plants/beds throughout the summers of 2013-2018 as a way to rapidly identify and manage pioneer beds. During the two posttreatment surveys in 2016, three surveys in 2017, and the first two surveys in 2018, we failed to find any sign of surviving EWM. Unfortunately, the third survey on September 28, 2018 documented a significant “blow up” of EWM in the southeast bay near the public boat landing. We also found and rake removed a handful of plants in the “nook” bay – the first time ever EWM plants have been found in the west basin.

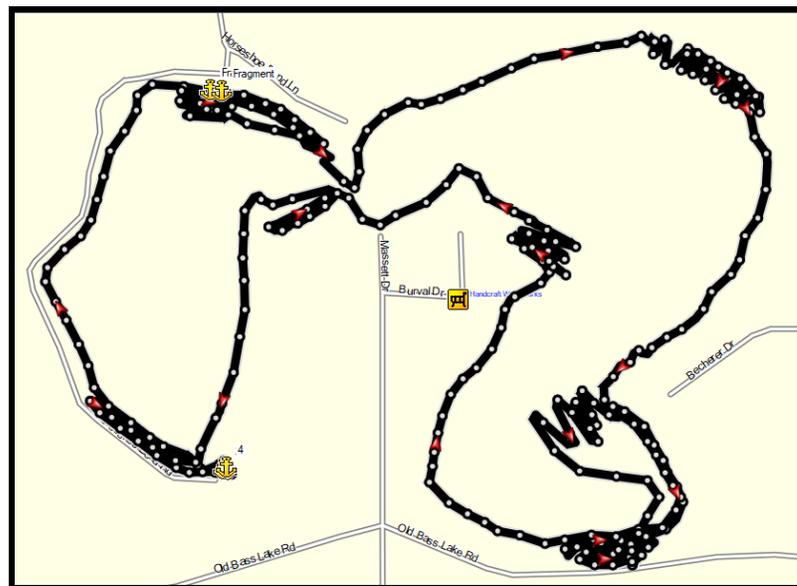
Following a June 2 herbicide treatment of 3.65 acres in the southeast bay (procellaCor – target concentration of 5.8 ppb), we were asked to complete a fall shoreline survey to look for surviving EWM. This report is the summary analysis of that survey conducted on September 28, 2019.

## **METHODS:**

We conducted a meandering survey over much of the lake's visible littoral zone spacing transects close enough that our field of view overlapped from one transect to another. We paid special attention to the areas around docks as this is where Eurasian water-milfoil brought in on props is most likely to establish. We also spent extensive time motoring around, through, and between the 2016 and 2019 treatment areas to look for surviving EWM.

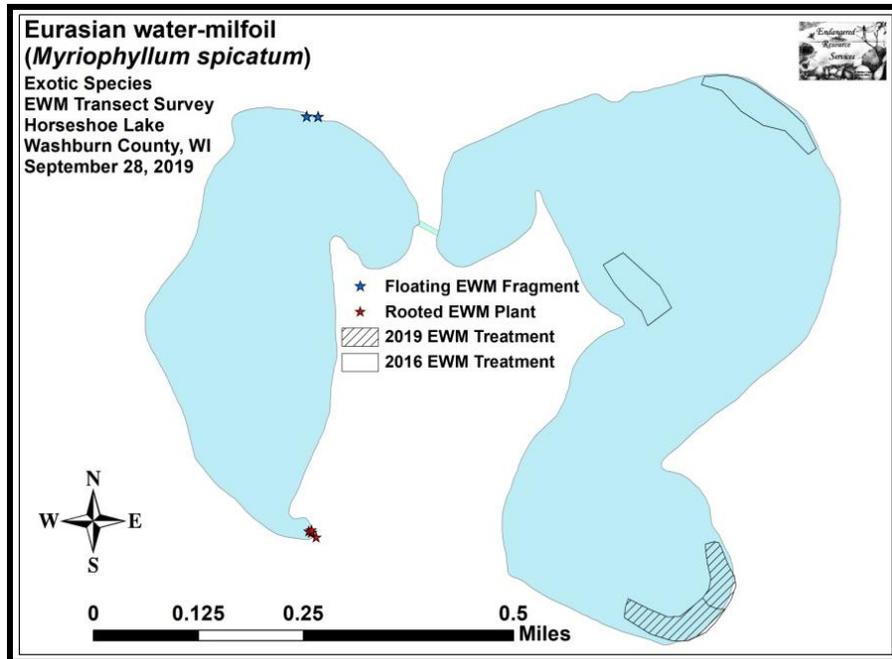
## **RESULTS AND DISCUSSION:**

Water levels on the lake continued to be exceptionally high throughout the summer of 2019. Because of this, much of the east basin, where we have historically found Eurasian water-milfoil growing in 8-12ft of water, was now in the 11-15ft range. We also noted that, unlike during most past surveys, water clarity was relatively poor, and we could only see the bottom in 5-6ft of water. Both of these factors – high water levels and limited clarity – made for somewhat challenging search conditions. In total, we looked for evidence of EWM along transects totaling 11.8km (7.3 miles) (Figure 2).



**Figure 2: Horseshoe Lake September 28, 2019 Survey Tracks**

The treatment in the southeast bay appeared to have been exceptionally successful as we found no evidence of EWM anywhere in the former beds or along the lake's shoreline in the east basin. However, we again found and rake removed four plants in the southeast "nook" bay in the west basin. In addition to these rooted EWM plants, we also found two 3-5 inch fragments floating within 20m of each other along the north shoreline (Figure 3). Despite spending significant time slowly searching the immediate area, we were unable to locate any additional rooted plants or any other floating fragments.



**Figure 3: Horseshoe Lake September 28, 2019 EWM Plants**

**FUTURE MANAGEMENT CONSIDERATIONS:**

Although it is possible the fragments found on the north end of the west basin drifted out of the “nook” bay, it seems more likely there is an as of yet undiscovered bed somewhere in deeper water. Hopefully the planned point-intercept survey in July of 2020 will locate any such bed. However, an earlier search might be warranted if clarity improves in the spring; especially if treating any newly discovered bed in 2020 is desired. Ultimately, the HLPOA, LEAPS, and the Wisconsin Department of Natural Resources will have to decide on a course of action. In the meantime, lake residents should remain on the lookout for any signs of EWM. If they discover a plant they even suspect may be EWM, we strongly encourage them to **immediately** contact Matthew Berg, ERS, LLC Research Biologist at 715-338-7502 and/or Alex Smith/Pamela Toshner, Regional Lakes Management Coordinators in the Spooner DNR office at 715-635-4073 for identification confirmation. If possible, a specimen, a jpg, and the accompanying GPS coordinates of the location should be included. Texting pictures from a smartphone is actually ideal as it give immediate feedback. Likewise, we are happy to identify ANY plant a lake resident finds that they may want identified.

**LITERATURE CITED**

Sather, L, C. Busch, N. Pokorny, and C. Holt. [online]. 1971. Horseshoe Lake Bathymetric Map. Available from <http://dnr.wi.gov/lakes/maps/DNR/2470000a.pdf> (2019, October).

WDNR. [online]. 2019. Wisconsin Lake Citizen Monitoring Data for Horseshoe Lake - Washburn County. Available from <http://dnr.wi.gov/lakes/lakepages/LakeDetail.aspx?wbic=2470000&page=more> (2019, October).