

Full Aquatic Plant Survey of Torch Lake Completed!

The full plant survey of Torch Lake funded by the Dole Family Foundation and conducted by the Tip of the Mitt Watershed Council in 2021 is now complete! This is the first comprehensive aquatic plant survey of the entire lake perimeter that has been completed for Torch Lake.

Background

The Eurasian Watermilfoil (EWM) Task Force was started in 2020 as a joint effort between Three Lakes Association and Torch Lake Protection Alliance. The objectives of this team were first to assess the growth of this invasive species in Torch Lake and then to develop a long term monitoring/treatment plan to keep it from spreading and to eliminate it where possible.

Initial steps to manage EWM were to determine sizes of known milfoil patches followed by chemical treatment of EWM patches. This bold action was important to prevent milfoil from spreading, however it was not the preferred long-term solution. Our team has now shifted its focus to evaluating non-chemical treatment options combined with native plant restoration as a more effective long term solution to control and potentially eliminate EWM infestation. To do that, we needed a comprehensive plant survey of the entire lake to confirm any new locations of EWM and to understand the composition and extent of all plant communities in Torch Lake.

This plant survey also serves to facilitate permit applications for future treatment methods, such as diver assisted suction harvesting, as required by state agencies, which often want detailed documentation of adjacent plant beds. Plant and algae growth are important indicators of lake aging (yes, even lakes age) so this survey would also provide an important baseline of all plant species and their locations that will help us track the ways Torch Lake is changing over time in a quantitative way.

Key Results

One of the most important findings of this survey was the fact that we did not find any new or previously unknown patches of Eurasian watermilfoil. It appears that the EWM that is present in Torch Lake, is limited to the 5-6 known patches on/near the lake that we have been monitoring and treating for the last few years. In addition, we did not find any other invasive aquatic plants in Torch Lake, which is really good news!

Secondly, we learned that 16 different aquatic plant species live in Torch Lake. Muskgrass (*Chara sp.*) was found at 47% of the



Plant Bed on the East Side of Torch Lake (from 2012 video footage by YouTube user Kurt Schuler.)

sampling locations, and accounted for 97% of all of the vegetated area. Muskgrass is actually a native macro alga that is often finely coated in lime and smells a little musky. It often grows in monoculture and is an indicator of good water quality.

Most locations with plants were at a moderate or very light density, and the average number of species per location was just under 2.

Lastly, the majority of Torch Lake has no plants at all, which you probably already knew! Just under 2% of the littoral (or shallow) zone is covered in plants; more than 98% of the littoral zone is plant-free. There are no plants at all in the deep zones, which is typical for all lakes. This makes Torch Lake one of the least vegetated lakes in all of northern Michigan.

The survey also covered the Torch River lagoon located near the south end of Torch Lake. This area was created through dredging in the late 1800's and early 1900's. The substrate disturbance and shallow, slow-moving water, make it prone to plant growth and invasive species establishment; 37% of the lagoon is covered with aquatic vegetation.

Plant density was much greater in the lagoon than in the main lake. Plant diversity was also greater (20 species and an average of 3.5 species per location), as was the extent of EWM, which was found at nearly 50% of the sampling locations.

Places where sediment and debris can catch and collect will be more prone to plant growth; sheltered shores, depressions, obstructions and river mouths can all provide these conditions. Sediment disturbance, such as dredging will also encourage plant and especially invasive species growth. We did not find much growth in Torch Lake at river and stream mouths, but the rest of these conditions did foster aquatic plants.

Many more details on methods and findings are included in the full report that can be found on the TLA website at 3lakes.com. In addition, you can also find information on comparisons to other lakes and insights on how aquatic plant species and densities in Torch Lake may have changed over time.

Next Steps

Over the summer Tip of the Mitt Watershed Council will build a Story Map about the plant survey, which should be available by the time you get our next newsletter in October. A Story Map is an interactive website that includes maps and diagrams which allow the user to visualize the data and manipulate their view so they can explore the data in more depth.

The Story Map will also house data from our EWM monitoring volunteers who several times a year observe the growth rate of existing EWM patches and track the effectiveness of treatment methods. If you have an interest in volunteering as a member of this EWM monitoring team, please email us at 3lakes.info@gmail.com or call: 231-412-7551.

Thanks again to the Dole Family Foundation for funding this important plant survey and to you, Three Lakes Association members, for allowing us to co-sponsor this project along with Torch Lake Protection Alliance. We were motivated to do this study to protect Torch Lake from the encroachment of invasive species, especially Eurasian watermilfoil, but it also showed us another beautiful aspect of our lake. Small but very beneficial patches of native plant species like leafy pondweeds and billowing wild celery, shelter fish and create quiet and serene oases of greenery in an otherwise bright and glowing water body. We are getting to know and appreciate this less well-known part of Torch Lake too.