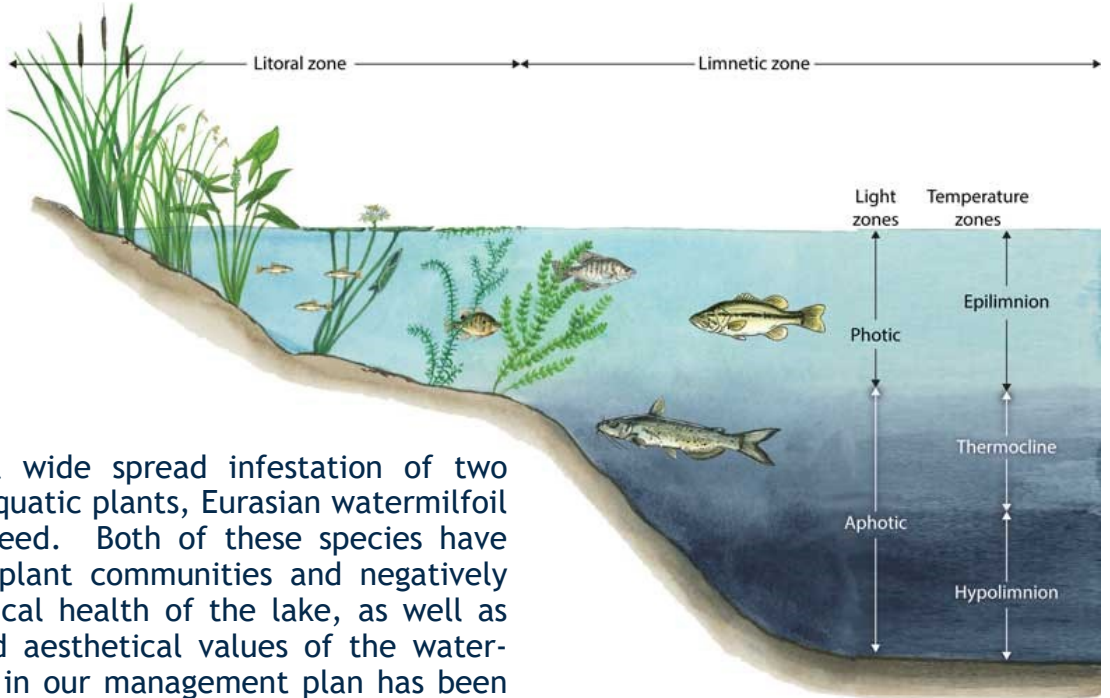


Protecting your environment today for tomorrow.

Lake Evaluation Record

Lake Name: Fremont Lake County: Newaygo

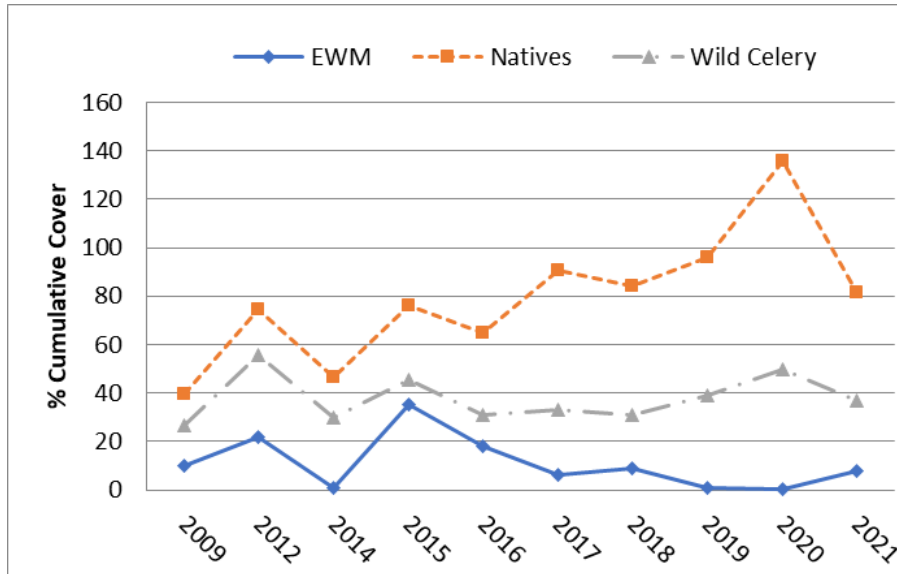
Evaluated by: Sal Adams Reviewed by: Bre Grabill Date: October 1, 2021



Fremont Lake has a wide spread infestation of two nonnative, invasive aquatic plants, Eurasian watermilfoil and Curlyleaf pondweed. Both of these species have crowded out native plant communities and negatively impacted the ecological health of the lake, as well as recreational uses and aesthetical values of the waterbody. The main goal in our management plan has been to keep the exotic species from being as dominate in the water column, from spreading and hurting the native plant community. As part of this program, numerous surveys occur annually on Fremont Lake, including the end of year AVAS Survey. Throughout the summer, recommendations for management are provided to the committee for spot treatment of EWM, CLP and if needed Algae and/or nuisance native plants. Nuisance native plants and algae have not been treated per the treatment authority. Native plants lake wide have been promoted to improve plant diversity; which has historically been quite low. Water Quality monitoring is recommended for monitoring in addition to the vegetation surveys.

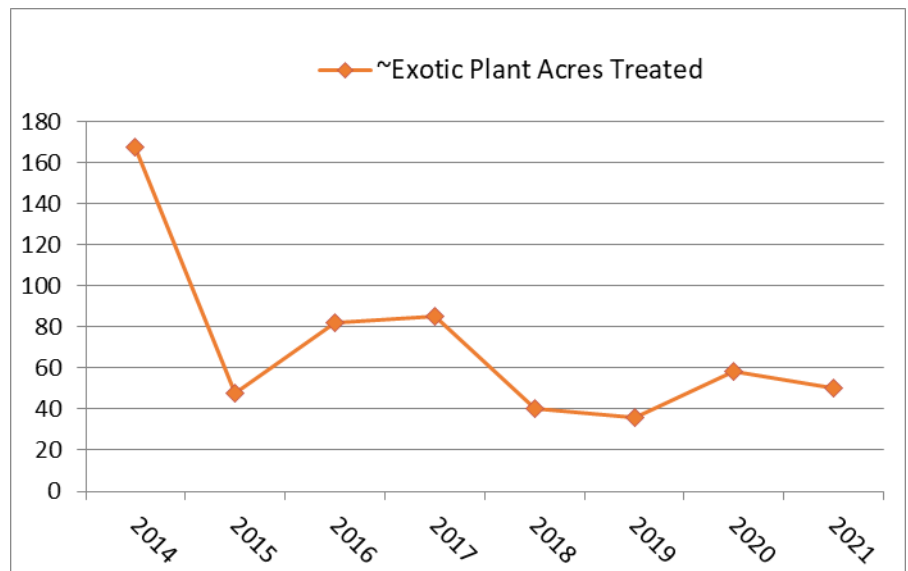
2021 Service Timeline:	
<u>Service</u>	<u>Date</u>
Survey	5/26
EWM/CLP Treatment	6/9
Survey	7/22
Survey	8/26
AVAS Survey	10/1

PLM is on your waterbody at a minimum of once a month. It is our philosophy that you cannot effectively manage a lake if you are not on it regularly. We perform routine surveys both pre and post treatment as well as an end of year survey, that is more in depth, referred to as an AVAS survey. Results can be seen below in Graph 1. AVAS surveys take into account the whole littoral zone of a lake. We break down the perimeter into 300' sections and classify all species found within each section by density (A-D, D being most dense). These surveys are ideal for identifying the amount of exotics within the lake as well as the cover and diversity of native species. These surveys also help to quickly identify new exotic species introductions to our lakes which is vital for early detection and rapid response.



Graph 1 shows the cumulative coverage of EWM, Native plants and Wild Celery. Over the last few years, native plant populations have increased, as well as the density of Wild celery. EWM populations have stayed quite low over the few years, a positive sign of the management efforts in place. The 2021 survey was done a few weeks later into the year than previous years. With the spike of EWM late season 2021 and the survey timing, native plant coverage has been slightly impacted. However, the overall abundance is better than historical levels and trend lines are still positive. The spike in EWM is concerning and most of the density is in areas not approved for treatment.

Graph 2 shows the number of non native (EWM and CLP) acres treated annually. Overall acreage has decreased significantly in recent years. With EWM spreading by fragmentation, with established seed banks and new introductions, eradication is unlikely. However, managing the populations to the lowest levels possible will allow the native plants in the lake to thrive. It is important to manage all EWM to keep it from repopulating treatment areas and to rotate active ingredients to avoid plant resistances to management methods.



Final Recommendations

- A spring vegetation survey (to evaluate conditions in the lake and direct management efforts)
- Herbicide treatments for exotic/nonnative plants
 - EWM, CLP and Phragmites
- Algaecide treatments, if approved and needed to noxious algae
- Mid summer surveys for monitoring
- Water Quality monitoring
- End of summer AVAS Survey