Lake Evaluation Record

Lake Name: Miramichi Lake **County:** Mecosta/Osceola

Evaluated by: Sal Adams **Reviewed by:** Bre Grabill **Date:** Aug 31, 2022

Purpose of evaluation: End of Season Survey

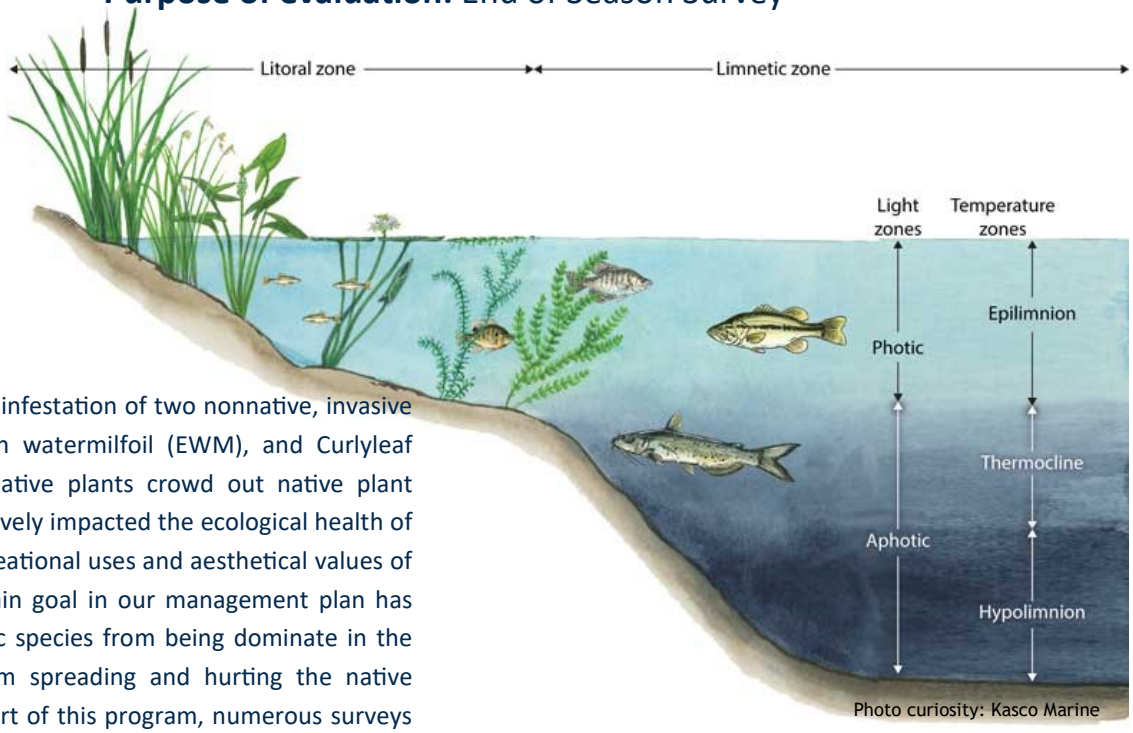
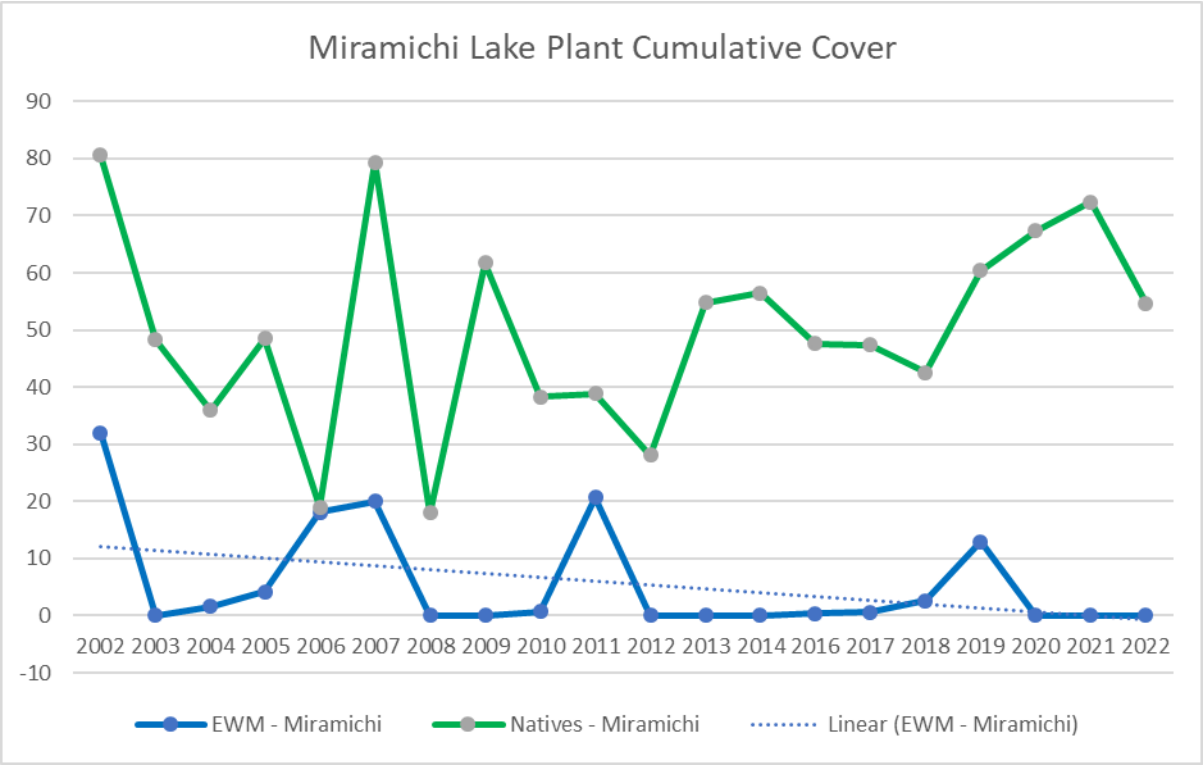


Photo curiosity: Kasco Marine

Miramichi Lakes has an infestation of two nonnative, invasive aquatic plants, Eurasian watermilfoil (EWM), and Curlyleaf pondweed (CLP). Nonnative plants crowd 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 dominate in the water column and from spreading and hurting the native plant community. As part of this program, numerous surveys occur annually on Miramichi Lakes, including the end of year AVAS Survey. Throughout the summer, recommendations for management are provided for spot treatment of EWM, and CLP. Spot treatments for nuisance algae and native plants is done as needed throughout the summer. Native plants should be promoted to improve overall plant diversity. Native plants are vital to the overall health of the lake promoting a healthy fishery, stabilizing sediments and improving water clarity and should be promoted when possible. If and when native plants cause a recreational nuisance, management techniques can be done to improve navigation throughout the lake. Note: Little Miramichi has a larger issue with native plants and this is a top priority on that waterbody.

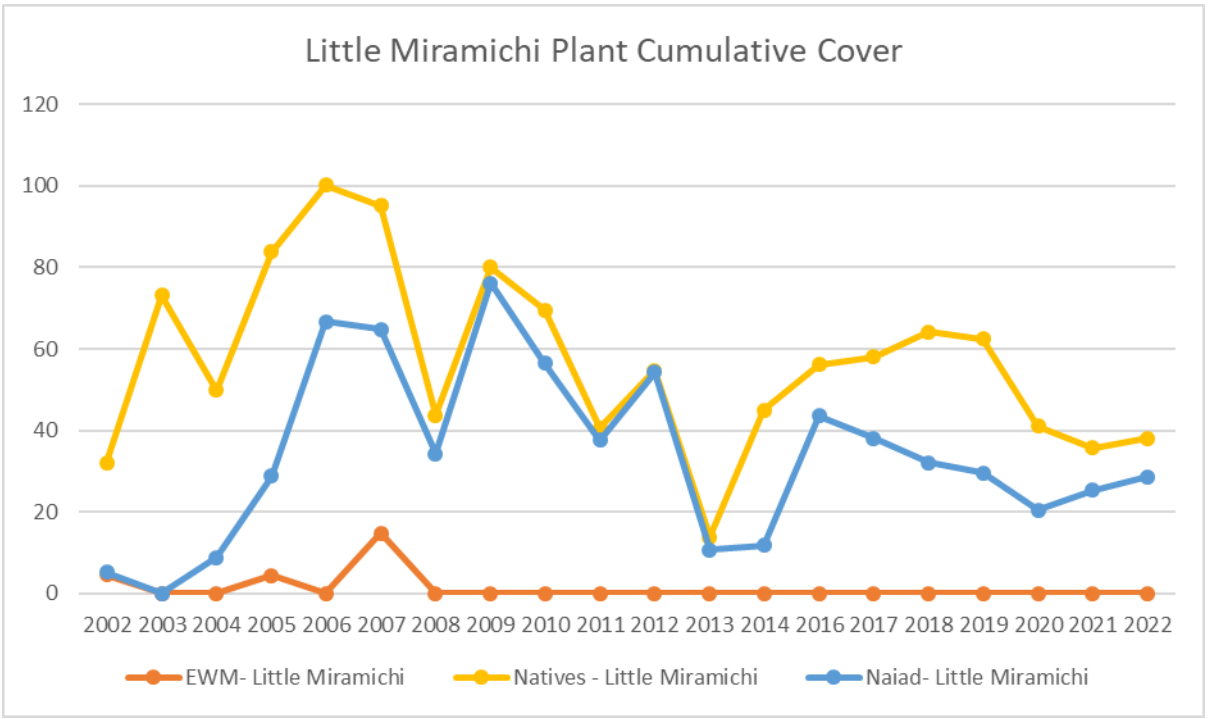
2022 Service Timeline:

Service	Date
Survey, Water Quality @both lakes	4/27
Survey, Algae Treatment @both lakes	5/19
Survey, Weed/Algae Treatment @both lakes	6/2
Little Miramichi Weed Treatment	6/8
Survey, Weed/Algae Treatment @both lakes	6/22
Weed Treatment Miramichi Lake	6/28
Survey, Water Quality @both lakes	7/6
Survey, Weed/Algae Treatment @both lakes	7/28
AVAS Survey, Water Quality @both lakes	8/31
Survey, Algae Treatment @Miramichi	9/2

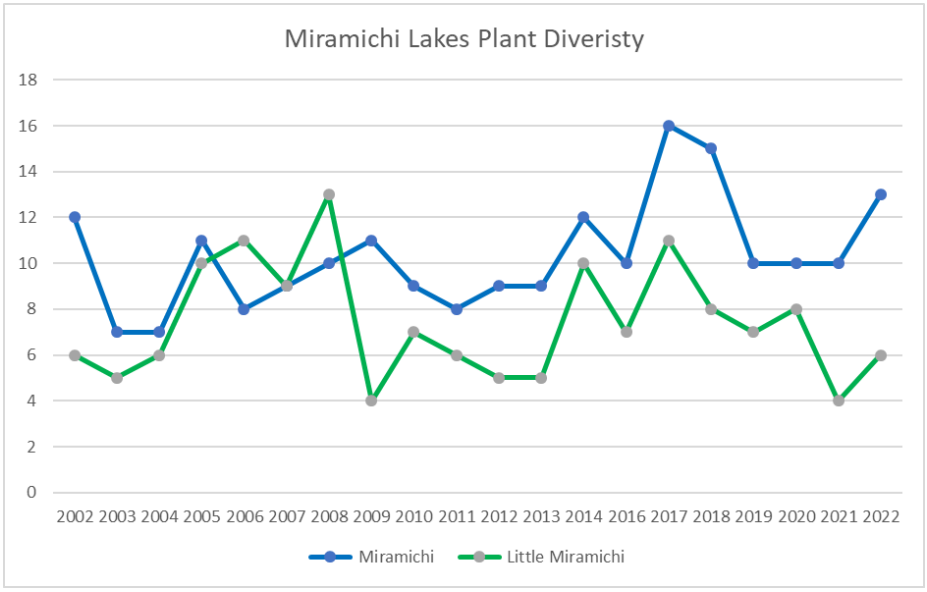


Graph 1 (top graph) compares native plant cover to nonnative plant cover throughout Miramichi Lake. Participating in an Annual management program, allows plant trends to be tracked over time. This allows for oversight over nonnative plants as well as tracking new infestations of any plants (early detection rapid response for nonnative species) and fluctuations in the native plant community. An Annual management program can be vital in tracking changes over time and a great addition to any citizen scientist programs underway. This graph shows the success of using alternating active ingredients in the management program and an overall trendline of decreasing milfoil from the start of the management program. Native plants in this lake are thieving and need to continue to be promoted for plant diversity and density.

Graph 2 (bottom graph) compares plant coverage on Little Miramichi Lake which has a different plant makeup than the large lake. Overall, the nonnative plants have been successfully controlled and various native plants have been the focus of management, specifically Naiad and since 2020, Buttercup. The nuisance growth since 2020 has been down compared to some previous years and tracking plant trends here is vital to help combat this productive, shallow waterbody.



Exotic Plant Species (from left to right: Phragmites, Eurasian watermilfoil and Starry stonewort) cause most of the serious weed problems in Michigan's lakes. Exotic plants (or nonnative) are plants that are not native to this geographical area, which have been brought to the region inadvertently. Because they often have few natural enemies (their pests, pathogens, etc. may not have come over with them) therefore, they grow out of control. When exotic aquatic plants such Eurasian watermilfoil, Starry stonewort or Phragmites invade a lake, they often form extensive dense populations, crowd out native species, negatively impact fisheries, reducing the quality of habitat for other organisms and impacting the entire lake ecosystem.



The graph to the left shows the diversity or number of native plant species present in both Miramichi and Little Miramichi Lake. In addition to tracking plant cumulative cover, diversity is important and the goal is to have as many different plant species within a lake as possible. Nonnative plants typically decrease diversity as they can out compete the good plants. Both lakes have decent diversity; however, in recent years, Little Miramichi diversity has decreased with the nuisance growth of Naiad. Continuing to focus on plant diversity in both lakes will help stabilize the lake long term and benefit the fishery.

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Final Recommendations

- A spring vegetation survey
- Weed treatments for exotic/nonnative plants
- Spot treatments for nuisance algae
- Spot treatments of nuisance natives, if needed/approved
- Mid summer surveys for monitoring
- Water Quality monitoring
- End of summer AVAS Survey