Lake Evaluation Record

Lake Name: Big Bass Lake **County:** Lake

Evaluated by: Sal A. **Reviewed by:** Bre Grabill **Date:** Sept. 12, 2022

Purpose of evaluation: End of Season Survey

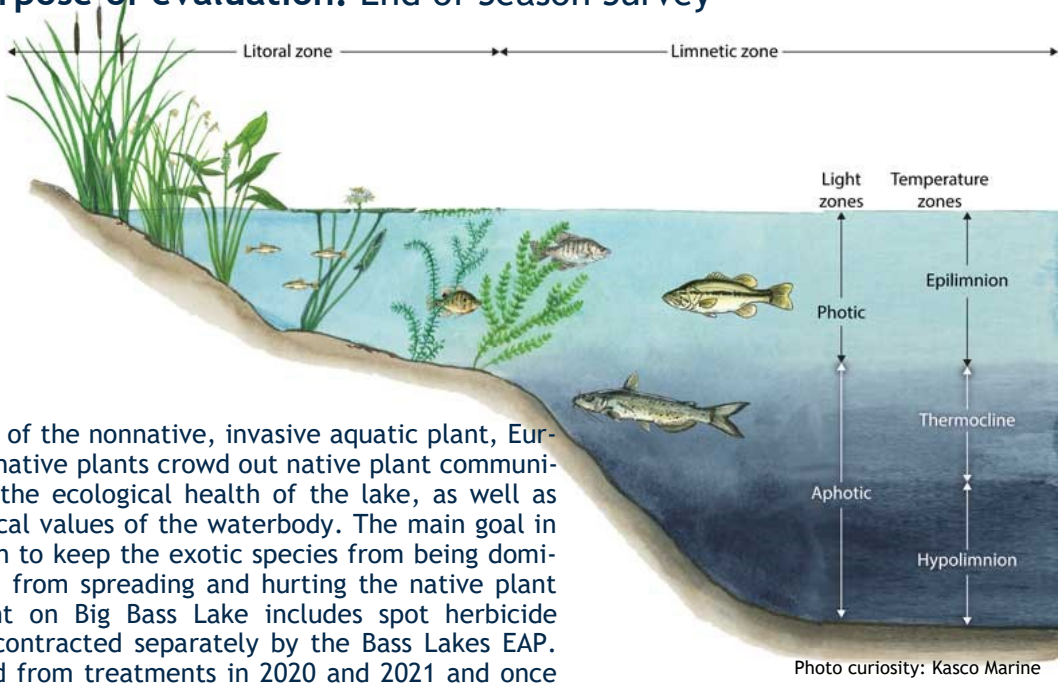

Photo curiosity: Kasco Marine

Big Bass Lake has a infestation of the nonnative, invasive aquatic plant, Eurasian watermilfoil (EWM). 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 dominant in the water column and from spreading and hurting the native plant community. EWM management on Big Bass Lake includes spot herbicide treatments as well as DASH, contracted separately by the Bass Lakes EAP. DASH areas have been isolated from treatments in 2020 and 2021 and once DASH was complete in 2021, follow up treatment in that area occurred for remaining plants. This area was also aggressively treated in 2022. As part of the management program, numerous surveys occur annually on Big Bass Lake, including the end of year AVAS Survey. Water Quality monitoring is also completed. Throughout the summer, recommendations for management are provided for spot treatment of EWM. Spot treatments for nuisance algae was not needed this summer. Native plants are not managed on Big Bass Lake. 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.

2023 Recommendations

- Full Survey Program, including spring, summer and AVAS surveys
- Weed treatments for exotic/nonnative plants
- Water Quality monitoring

2022 Service Timeline

Service	Date
Survey, Water Quality	4/18
Survey	5/23
Survey, EWM Treatment	6/9
Survey, Water Quality	7/4
Survey, EWM Treatment	7/11
Survey	8/9
Survey, EWM Treatment	8/16
AVAS Survey, Water Quality	9/12

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.

Over the past few seasons, PLM has been monitoring the plant growth in Big Bass Lake. The top graph to the right shows the cumulative coverage of nonnative and native growth. The 2022 season found slightly more cumulative coverage or density of plants as the last year but down from 2019. When reviewing plant trends, keeping in mind that seasonal variance is expected and can be impacted by many factors including seasonal weather pattern changes, natural plant biological tendencies, surveyor and/or weather impacts to name a few. The goal of tracking plants long term is to be able to 1) identify plants for early detection and rapid response 2) review long term trends for lake health. The most dominate species' in Big Bass Lake is Chara, which is a number 1 species to have within a waterbody, and Variable pondweed. Chara is a natural filter to help clean the water and provides excellent habitat as well as stabilizing the sediments and poses no concern unless it starts impacting recreational uses of the lake. If that occurs, limited management can be discussed however this plant needs to be promoted lake wide. Continuing to survey the lake is recommended to track all plants in the lake and see seasonal and long term changes within the plant community. Over time, plant trends can help determine the overall health of a plant community in more depth than just a single survey. The bottom graph to the right shows the decreasing acreage of EWM treatment under PLM's management program. This graph shows a positive sign of the programs success.