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Lake Evaluation Record

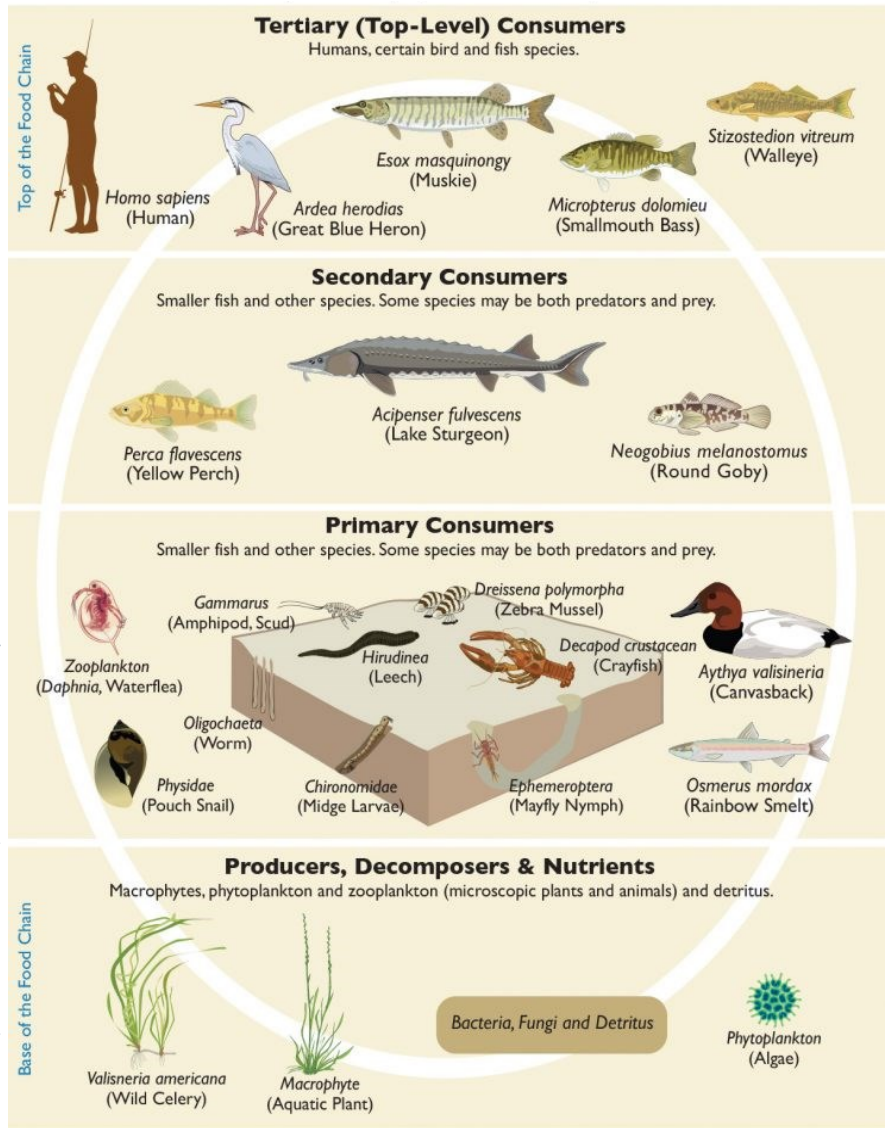
Lake Name: Bear Lake

County: Kalkaska

Evaluated by: Mike Pichla

Reviewed by: Bre Grabill

Date: Sep. 5, 2023



Bear Lake has a minor infestation of the nonnative, invasive plant, Eurasian watermilfoil (EWM). This species can crowd out native plant communities and negatively impact the ecological health of the lake, as well as recreational uses and aesthetic values of the waterbody. The main goal in our management plan has been to keep this exotic species from becoming more dominant around the lake negatively impacting the native plant community. As part of this program, numerous surveys occur annually on Bear Lake. EWM was treated on Bear Lake, using ProcellaCor a systemic herbicide that targets root control. Bear Lake also has a population of native, northern milfoil. Native and non-native milfoils can hybridize causing populations that require increased application rates and more aggressive treatment protocols. It is important to stay on top of milfoil populations and manage a waterbody for changing genetic makeups. Native plant growth should be encouraged to help promote plant diversity and ensure a healthy plant community for the fishery; Continued Monitoring and herbicide treatment, when necessary, is recommended to maintain the pristine condition of Bear Lake.

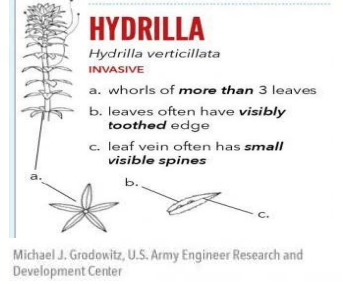
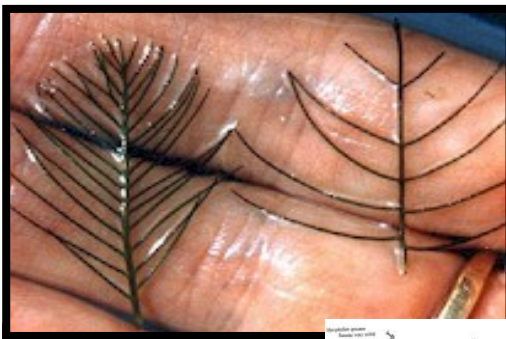
Not to scale. Adapted from the Life of the Lakes MICHU 09-400 Michigan Sea Grant, www.miseagrant.umich.edu

2023 Service Timeline:	
Service	Date
Survey & EWM Treatment	6/12
Survey & EWM Treatment	7/27
Survey & EWM Treatment	8/2
End of Year Survey	9/5

Nonnative (Eurasian) milfoil Native (Northern)

Starry stonewort

Hydrilla



HYDRILLA

Hydrilla verticillata

INVASIVE

- a. whorls of **more than 3** leaves
- b. leaves often have **visibly toothed** edge
- c. leaf vein often has **small visible spines**

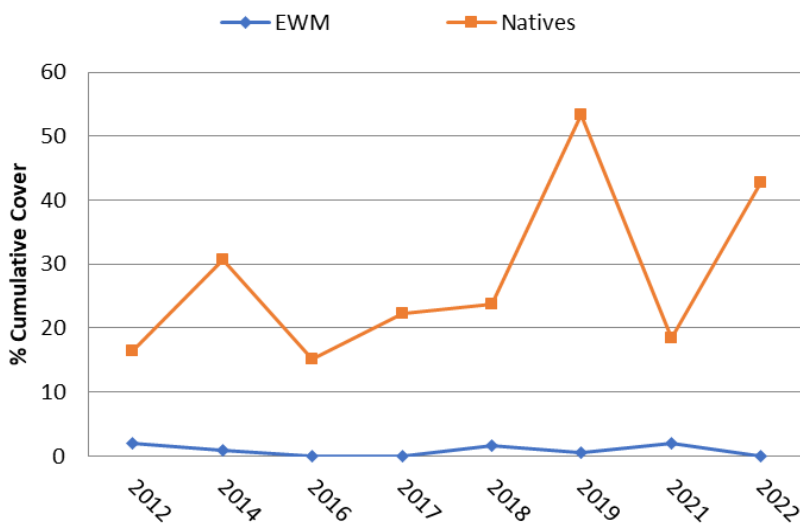
Michael J. Grodowitz, U.S. Army Engineer Research and Development Center

EXOTIC AQUATIC PLANT SPECIES

Exotic aquatic plant species cause many of the most serious weed problems in lakes and ponds. Exotic plants are plant species that are not native to this area and have been introduced here inadvertently. Because they have few natural enemies in this region, they tend to grow unchecked often forming dense mats at the water's surface. These dense mats displace native vegetation, reducing diversity and can have serious implications to the aquatic habitat.

The most common exotic aquatic plant species in Michigan are Eurasian watermilfoil (*Myriophyllum spicatum*), Curlyleaf pondweed (*Potamogeton crispus*) and Starry stonewort (*Nitellopsis obtusa*). Other less common species include European frog-bit (*Hydrocharis morsus-ranae*), Cabomba (*Cabomba caroliniana*) and Parrot feather (*Myriophyllum aquaticum*). However, the majority of management efforts focus on the three main species.

The dreaded news we feared for over a decade was met with reality in September when Hydrilla was positively identified by the Water Resource Division of EGLE in two small waterbodies in Berrien Springs, Michigan. Hydrilla, widespread in southern states, has been a top "Watch List" species in Michigan for decades. PLM was contacted by EGLE, as part of their Rapid Response Plan for new exotic plants, to get these waterbodies treated as quickly as possible. PLM responded immediately with an herbicide treatment to systemically treat the infestation in hopes to prevent it from spreading regionally or state wide.



PLM has been tracking plant trends in Bear Lake as part of the management program. Per request an AVAS was not performed in 2023. Our most recent AVAS survey in 2022, the cumulative cover was found and plant diversity was good with 14 native plant species identified, with good overall coverage. Additional monitoring will allow plant health to be determined long term. PLM recommends doing an AVAS survey again in 2024. Graph 1 shows the cumulative coverage of native and nonnative plants. The 2022 treatment was effective and no EWM was found in the end of year survey. Additional monitoring in the future will allow plant trends and overall health of plant community be determined.

Final Recommendations

- A spring vegetation survey (to evaluate conditions in the lake and direct management efforts)
- Herbicide treatments for nonnative plants
- Spot treatments of algae or nuisance natives, if needed and approved
- Mid summer surveys for monitoring
- Water Quality monitoring
- End of summer AVAS Survey