Big Whitefish Lake Update 2023

Provided by Big Whitefish Lake Association

Produced by PLM Lake & Land Management Corp.

Management Goals for Big Whitefish Lake

Eurasian watermilfoil

Big Whitefish Lake is a very productive diverse aquatic ecosystem. There are many aspects to management including but not limited to exotic plants, algae control, water quality monitoring, fish habitat and native plant diversity. The primary goal of aquatic plant management in Big Whitefish Lake is the control of exotic aquatic plants. The exotic plant species, Eurasian watermilfoil and curly leaf pondweed are controlled throughout Big Whitefish Lake on a yearly basis. The abundance of these species are reduced to the maximum extent possible, and efforts are made to reduce their recovery after treatment.

Curly leaf pondweed

Aquatic plant management in Big Whitefish Lake seeks to preserve species diversity and cover of native plants sufficient to provide habitat for fish and other aquatic organisms. The native plant species in Big Whitefish Lake benefit the lake, performing such functions as stabilizing sediments and providing habitat for fish and other aquatic organisms. In general, native species cause fewer problems, compared with those caused by exotic plants. Currently, Big Whitefish Lake has 20 different native plant species, which include submerged, floating and emergent varieties. Native plants are managed to encourage growth that supports the Big Whitefish Lake fishery, by creating structure and habitat. At times, native plants can excessively interfere with recreational uses of the lake (e.g., swimming and fishing) in high-use areas and management may be required. Where they must be managed, techniques that reduce the stature of native plants without killing them are used whenever possible. Specific areas are set aside where native plants are not managed, to provide habitat for fish and other aquatic organisms. Muskgrass (*Chara*) is allowed to grow throughout the lake, except in where it grows so tall as to interfere with boating and swimming in residential areas.

Starry stonewort

The species Starry stonewort (SSW), is aggressively controlled where present in Big Whitefish Lake. Starry stonewort is in the same family as Muskgrass (Chara) but is an exotic invasive species. Starry stonewort, which looks very similar to the beneficial species Chara, is appearing in more and more West Michigan lakes. Chara is a highly desired plant because it is typically low growing, keeps the water clear and can slow down the invasion of exotic weed species. Starry stonewort also forms dense mats, but unlike Chara, it can grow from 5 to 7 feet tall. Starry stonewort can be very detrimental to a lake's ecosystem and has the ability to kill off native plants and have a negative impact on a lake's fisheries. At the time of the 2022 year-end survey, SSW had been effectively controlled and not found actively growing in the lake.

Big Whitefish Lake Water Quality

Water quality monitoring is a critical part of lake management. Water quality monitoring provides an ongoing record of conditions in Big Whitefish Lake. Prompt identification of threats to water quality make it possible to remedy them before irreversible harm has been done. PLM has been monitoring the water quality of Big Whitefish Lake for over twenty years.

Water quality in Big Whitefish Lake was evaluated on April 19, and September 13, 2022. On both occasions, water temperature, dissolved oxygen, alkalinity, total dissolved solids, conductivity, pH, nitrates and phosphorous concentrations were measured/collected at each site. In addition to the standard sampling program, 3 residential shoreline sites were sampled as well as an inlet tributary located along the southeast shoreline for nutrient enrichment. The two nutrients, total phosphorus and nitrates, determine the amount of algae and plant growth in a water body. The more nutrients present in a system the more likely to have high plant densities and poor water

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clarity. Lower values are generally better; however very unproductive water bodies typically support little fish production.

Big Whitefish Lake's Total Phosphorus and Nitrate concentrations were, on average, not enriched at all sites and great for a developed lake. What this additional sampling has shown is that nutrient loading from the inlet and surrounding shoreline areas do not appear to be a significant factor in the overall enrichment of the lake. Great news!

Big Whitefish Lake Management Plan for 2023

The treatment program for the invasive species Eurasian watermilfoil (EWM) and Curlyleaf pondweed was effective during the 2022 season. The combination of the systemic herbicide ProcellaCOR with the contact herbicide Diquat were the primary herbicides used and provided excellent results controlling the invasive species. Algae was treated on an as needed basis and native plants were not treated. The invasive species, Starry stonewort was found actively growing in the lake at the end of July. It was immediately treated using SeClear G and was successfully controlled within the treatment areas.

The management plan for 2023 will be very similar to that of 2021 and 2022. PLM will continue to aggressively control exotic and nuisance native species (if required) throughout Big Whitefish Lake utilizing systemic herbicides when appropriate. PLM will focus on larger sections of shoreline treatments areas using a combination of ProcellaCOR and Diquat. This combination has proven to be less costly on an acre basis versus historical applications, more effective and will control two invasive species at one time (EWM and Curlyleaf pondweed). PLM is hopeful that this treatment plan will further reduce the need to use the lake wide herbicide, Sonar A.S.

Historically Big Whitefish Lake has experienced significant early season algal blooms which are significant recreational and aesthetic problems. Algal blooms are primarily fueled by phosphorous. PLM has been evaluating the use of Phoslock, a product that binds with phosphorous, and the results are promising. The active ingredient in Phoslock is lanthanum which is a natural element with no toxicity concerns. By using this product in a proactive manner, we can potentially reduce algal blooms, reduce copper usage and improve recreational and aesthetic values.

Aquatic vegetation and water quality will be monitored to document the condition of the lake and to provide warning of any changes in the condition of the lake that need to be addressed by additional lake management activities.

Invasive Species Watchlist - European Frog-bit

European frog-bit, an exotic plant, is a free-floating aquatic plant native to Europe, Asia and Africa. European frog-bit was first found in SE Michigan in 1996 but has recently made its way to west Michigan over the last 5 years. European frog-bit can form dense mats on the surface of slow-moving waters like bayous, backwaters and wetlands. Mats can impede boat traffic and alter food and habitat for fish. Prolific growth of European frog-bit can also reduce oxygen and light in the water column. The plant is spread by plant fragments or turions (seed pods) transported on boats, trailers and recreational gear. Once established, drifting mats of vegetation spread to connected waters. European frog-bit is now established throughout the lower Grand and connecting bayous and waterways. It has also been found actively growing in Reeds Lake, East Grand Rapids. If you frequent these areas, please make sure your boat or personal watercraft is weed free and clean of any debris before leaving the site. It only takes one introduction to the lake for this species to take hold and take over. PLM is always on the look-out for new invasive species, however if you think you have seen it on the lake, please don't hesitate to call or email.

Big Whitefish Lake Residential Questions and/or Concerns

Big Whitefish Lake residents who have any questions regarding the overall health of the lake or lake management activities are encouraged to attend the Big Whitefish Lake Association meetings. These meetings are public and all residents are welcome. If you cannot attend the meeting and have questions or concerns, please feel free to reach out to board members or PLM Lake and Land Management for assistance.