

PLM Lake & Land Management Corp. Northern Division

P.O. BOX 424 Evart, MI 49631 800-382-4434 ext. 2200 (o) 231-372-5900(f) www.plmcorp.net

On-Site Lake Evaluation Record

Lake Name: Au Sable Lake	County: C)gemaw
Evaluated by: Bre Grabill	Reviewed by: Bre Grabill	Date: 18 August 2016
Purpose of evaluation: Summer Survey		
Evaluations PerformedAquatic Vegetation EvaluationXAquatic vegetation surveyAquatic vegetation briefAquatic vegetation briefVegetation evaluation methodsXVisual evaluationXSample collection with rationXSonar profilingGPS-mapped sample location	/ check ke tionsOth	Water quality sampling On-site (Temperature, DO, Secchi disk) Water samples collected for TP, Nitrates, ALK analysis S data collection Depth survey Shoreline mapping Reference point location her
Overall Condition of Lake		
 excellent (no problems or developing problems noted) very good (no immediate action required) fair (management required soon) 		

- (management needed as soon as possible) x poor
- very poor (management action past due-IMMEDIATE response required)

Problems Noted

- X Growth of exotic and/or invasive plants (mark locations on map)
 - x Variable leaf milfoil
 - □ curlyleaf pondweed
 - x Starry Stonewort
- x Excessive growth of native plants
- □ Excessive filamentous algae growth
- □ Poor water clarity
- □ Blue-green algal blooms

RECOMMENDATIONS

- X Monitoring Program: Continue monitoring program next season: x Yes, \Box No
- X Herbicide application: Need for herbicide treatments next season: x urgent, \Box serious, \Box moderate, \Box slight
- X Algaecide application: Need for algae treatments next season: \Box urgent, \Box serious, x moderate, \Box slight



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Au Sable Lake was surveyed on 18 August 2016, as a follow up to the survey performed in September 2015. Two areas of concern were identified during the visit. The largest concern is with the presence of Starry stonewort (SSW). The second concern is with the milfoil populations in the lake. Variable leaf milfoil was the most prevalent plant growing in Au Sable Lake. In addition to Variable leaf milfoil, northern milfoil (perhaps a small area of hybrid (exotic) milfoil) and numerous native plants were found growing. In general, plant growth was slightly less than that of the survey in 2015, which could be due to multiple factors including timing (earlier in season), individual treatments, heat and weather, and natural cycles in native plant populations. An AVAS Survey was not completed and should be for mapping and identification of all plants throughout the entire littoral zone.

SSW is a macro alga that grows as a mat on the lake bottom. It looks similar to Michigan's native chara, however grows far more aggressively. It is an exotic, invasive plant and is one of the greater threats in aquatic plant management. The survey found it in the channel area and east end of the lake (going into channel). Currently, treatment options include chemical application. Cutting is not preferred and no known biological control method exists. Eradication is not likely and control measures could be required multiple times throughout the season. SSW is one of the most invasive and negatively impacting species we work with in aquatic plant management.

There are many milfoil types found growing in Michigan's inland lakes. Eurasian watermilfoil (EWM) and its hybrid biotypes are found in many lakes and this species is highly invasive and is an exotic plant. Northern watermilfoil, which is very similar to EWM, is a native species to this area and generally causes less problems. A third milfoil biotype is Variable leaf milfoil (VLM). Although VLM is not exotic to North America, it is not common in Michigan, and it is highly invasive in many lakes in which it is found. It quickly crowds out native plants and in many situations will out compete EWM (exotic). VLM is best managed when found early and not allowed to infest an entire lake. Milfoil spreads by fragmentation and can grow very quickly. It forms a canopy once it reaches the surface and will overwinter. Milfoil should not be mechanically harvested and there are no biological control methods. Chemical control is best suited and can be done with both systemic and contact herbicides. Systemic herbicides are very selective in controlling just the milfoil. VLM control measures are slightly different from EWM and once milfoil is found in a lake, eradication is nearly impossible, especially given the population size found in Au Sable Lake. The extensive root system along with fragmentation will allow for plants to lay dormant and spread very quickly. Although annual management will be required, the long term control goal of reducing the size of the infestation is possible.

Native plant growth needs to be encouraged around the lake to combat exotic and invasive species as well as provide fish habitat, sediment stabilization and oxygen. There were numerous native plants found growing, some of which may cause a recreational nuisance at some point throughout the year. If and when other native plants cause an issue, control may become part of a management program (if desired by residents). Using an integrated pest management approach, incorporating multiple best management practices including mechanical and chemical control are available for native plants. Wild Celery was found growing and at nuisance levels. Some of the other native plants found include: Chara, Lily Pads, Bladderwort, Variable leaf pondweed, Richardsons pondweed, Illinois pondweed, Naiad, Sago pondweed and Thinleaf pondweed.

It is recommended to work to form a lake wide program to control the exotic and invasive plants in Au Sable Lake and perhaps include dense native plant concern areas (if approved). A lake wide program will allow for all the areas requiring treatment to be targeted for control (permission) as well as financing for the program from all riparian's. It is important to survey the lake regularly for changes to the plant community and/or new introductions. Water quality testing should also be considered. A management program for the lake is highly recommended to protect your mutli million-dollar asset, AuSable Lake!

Please contact me with questions or concerns.

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