PLM Lake & Land Management Corp.
Northern Division
P.O. BOX 424 Evart, MI 49631
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On-Site Lake Evaluation Record

Lake Name: Au Sable Lake County: Ogemaw

Evaluated by: Bre Grabill/Jim Chatel Reviewed by: Bre Grabill Date: 15 September 2015

Purpose of evaluation: End of Season Survey

Evaluations Performed

Aquatic Vegetation Evaluation

- X Aquatic vegetation survey
- ☐ Aquatic vegetation brief check

Vegetation evaluation methods

- X Visual evaluation
- X Sample collection with rake
- ☐ Sonar profiling
- ☐ GPS-mapped sample locations

- ☐ Water quality sampling
  - ____ On-site (Temperature, DO, Secchi disk)
  - ____ Water samples collected for TP, Nitrates, ALK_____ analysis
- ☐ GPS data collection
  - ☐ Depth survey
  - ☐ Shoreline mapping
  - ☐ Reference point location
- ☐ Other _____

Overall Condition of Lake

- ☐ excellent (no problems or developing problems noted)
- ☐ very good (no immediate action required)
- ☐ fair (management required soon)
- x poor (management needed as soon as possible)
- ☐ 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
  - ☐ other _____
- 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, ☐ No
- X Herbicide application:
  Need for herbicide treatments next season: x urgent, ☐serious, ☐ moderate, ☐ slight
- X Algaecide application:
  Need for algae treatments next season: ☐ urgent, ☐ serious, x moderate, ☐ slight

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NOTES

Au Sable Lake was surveyed on 15 September 2015. The goal of this survey was to determine the aquatic plants present in the lake and make lake management recommendations to initiate a lake wide program on the lake. Lake wide programs are within the best interest of the lake. It is vital to survey and control the lake as one entity, ensuring all areas are looked at and managed properly. At this time, 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 milfoil) and numerous native plants were found growing.

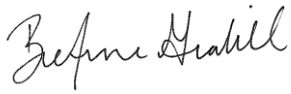
There are many milfoil types found growing in Michigan's inland lakes. Eurasian watermilfoil (EWM) and its hybrid biotypes are found in many lakes and this species is highly invasive and is an exotic plant. Northern watermilfoil, which is very similar to EWM, is a native species to this area and generally causes less problems. A third milfoil biotype is Variable leaf milfoil (VLM). Although VLM is not exotic, it is highly invasive in most every waterbody it is found. It quickly crowds out native plants and in many situations will out compete the exotic EWM. VLM needs to be aggressively managed and 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 often requires a higher application rate than EWM. The plant has much more biomass than EWM and takes longer to decompose as well. 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 native plants cause an issue, control can be part of a management program. 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 VLM in Au Sable Lake. 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 maintenance program for the lake and the VLM will be required annually to manage your mutli million dollar asset.

Please contact me with questions or concerns.



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