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for tomorrow.

## Lake Evaluation Record

Ann Lake, Benzie County

Casey Shoaff-August 7, 2024

AVAS Survey

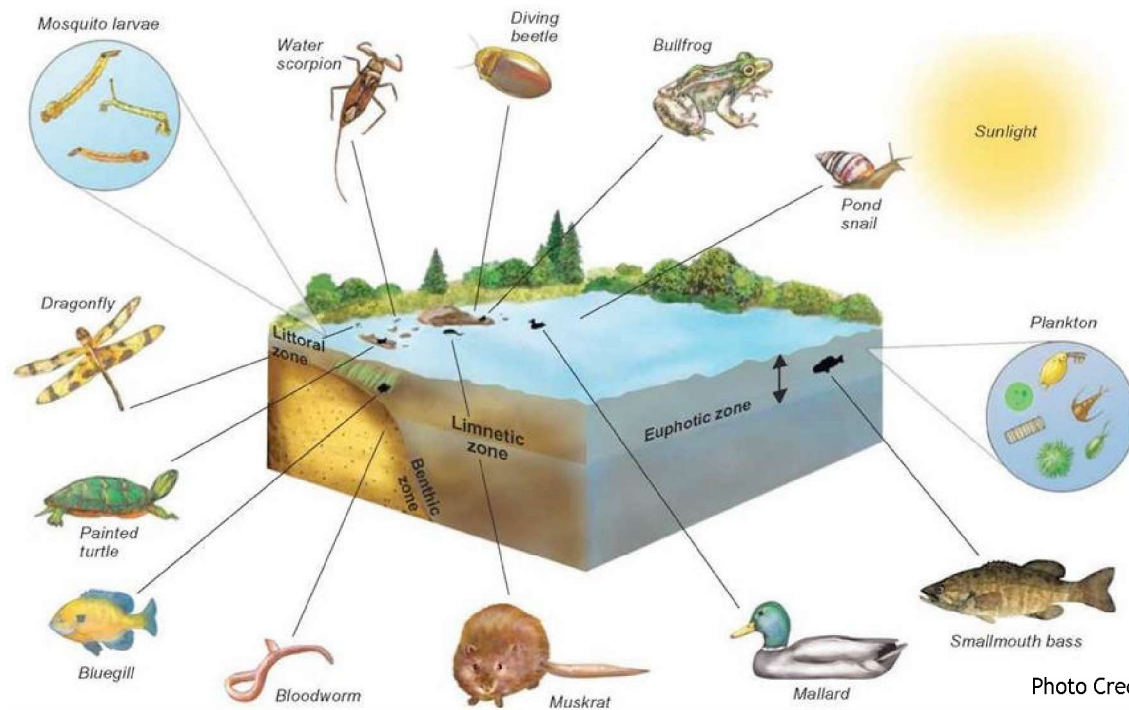


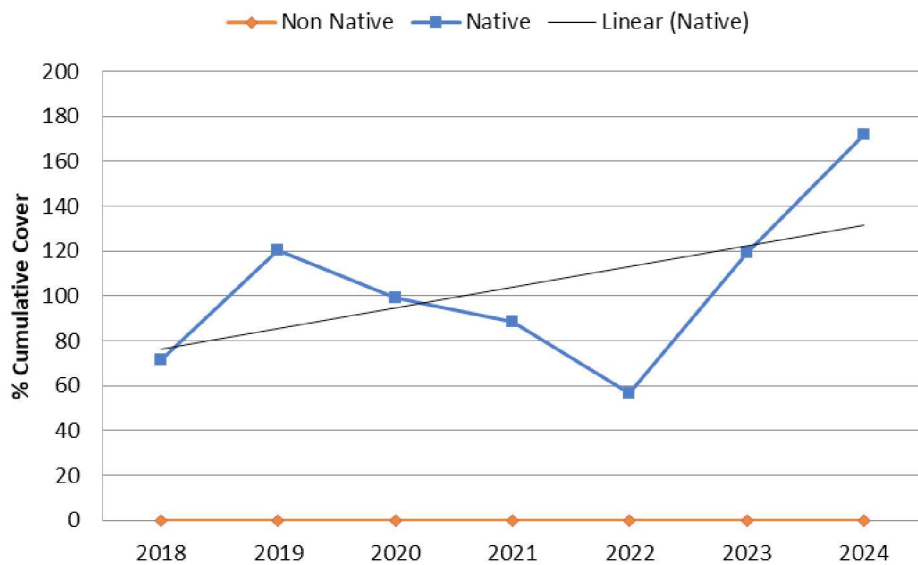
Photo Credit: schoolbag.info

Ann Lake was surveyed on August 7th, by experienced PLM scientists. The goal of this survey was to identify any exotic species and document native plant diversity. An AVAS Survey was performed, using EGLE approved survey techniques which broke the lake down into 82 segments to document all vegetation present by species and density. July through September are ideal months for finding peak biomass in this geographical area. Out of the 82 sites surveyed, 26 native (submersed) species were found and two nonnative species were identified (Phragmites and Purple Loosestrife). Overall, the growth in Ann Lake was moderate and Chara, Naiad, Water lilies, and various pondweeds were the most prevalent species found. Chara is a vital part of the lake ecosystem, providing sediment control and is a natural filter for the lake, while providing habitat for fish. Over the past few years, Ann Lake is showing strong trend lines with a healthy native plant community and no immediate concerns regarding invasive or exotic plants exist. It is not uncommon to have native biomass at the levels in some areas on Ann Lake receive recreational concern due to density. It is recommended to rake/remove biomass from beach areas whenever possible to improve swimming areas. Additional management options are available if needed but currently, no concerns have been made.





**Exotic Plants**—Exotic plant species 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 and Curlyleaf pondweed 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. Management efforts are underway across Michigan to reduce the spread of nonnative aquatic plants, yet typically property owners and local municipalities are left to oversee and pay for management efforts.



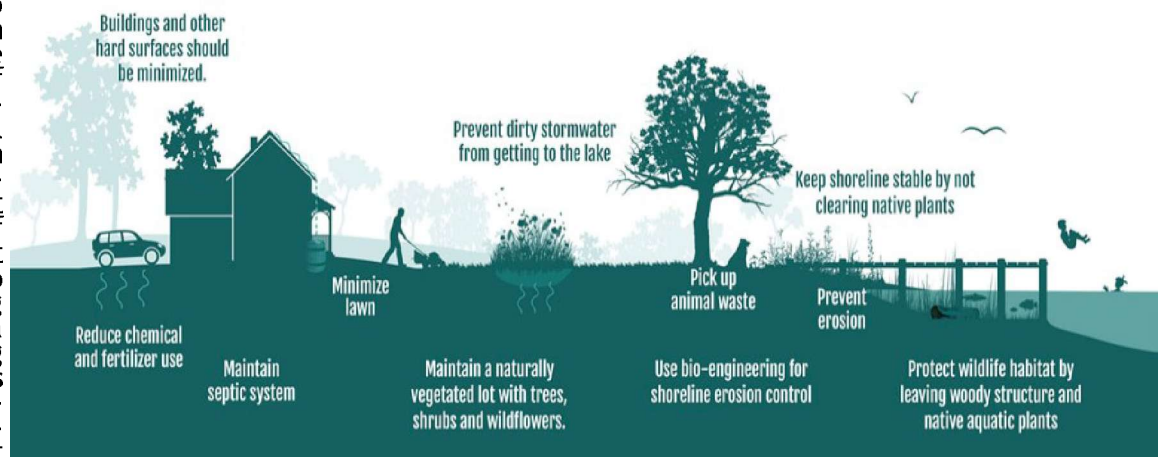
This graph compares native plant cover to nonnative plant cover throughout Ann Lake. Participating in an annual management program, allows plant trends to be tracked over time. This allows for oversight over nonnative plants as well as tracking new infestations of any plants (early detection rapid response for nonnative species) and fluctuations in the native plant community. An annual management program can be vital in tracking changes over time and a great addition to any citizen scientist programs underway. Overall, this graph shows stability in the native plant community, an excellent sign for Ann Lake!

**AVAS Survey**—It is important to perform an AVAS survey each year to track changes in plant growth. AVAS surveys give us the ability to identify infestations of any nonnative plant species before they become established in the lake. The earlier a potential threat is identified, the earlier it can be treated and the less time it will have to potentially take over healthy native plant species.



## Shoreline protection

Shoreline development has led to habitat degradation and as lakes continue to become more and more developed, the impacts continue to be damaging to the lake ecosystem. From mowed grass and sandy beaches, to seawalls and riprap to wake boat waves and fertilizer, development has negatively impacted a lake in all ecological aspects. By working to reduce the human footprint around the lake, the health of the lake will be improved. Natural shoreline restoration is helpful from reducing nutrient loading and runoff to providing habitat for frogs and fish to naturally defending against Canada geese congregating in your yard, it is important that action is taken to minimize development impact and restore natural features.



## A Lake Resident's KEY TO SURVIVAL

PLM appreciates the opportunity to be a part of your lake management program. Your lake is a diverse ecosystem which requires the use of multiple management tools. In addition to the services we provide, we still need your help! You can directly improve your lake frontage by taking a few small steps that can have widespread impacts on the entire lake. Everyone's actions play a role in the health of your lake and as you own property on the lake, you have a large investment in the overall health of the lake. Therefore, everyone needs to take action for the overall health of the lake. It is not just the land touching the lake that impacts the health of the lake, but all the land in the area that makes up the watershed. Everyone's actions on and off the lake play a role in the condition of the lake. Do your part and help get your neighbors involved in caring for the lake. The following suggestions are just a few actions that can be taken to help create a healthy lake and beach frontage.

Do not feed the ducks and geese. Remove dog, geese and duck droppings from lawns, docks, etc. Excess feces will increase nutrients within the lake. Please, do not sweep it into the lake!

Create a natural buffer close to the water's edge and remove grass/turf touching the water's edge. A natural setting will filter excess nutrients from entering the water and help decrease erosion. The greenbelt should consist of native plant varieties of shrubs, flowers or trees that do not shed their foliage into the water. Natural buffers are also an excellent way to deter geese from making a stop on your beach front. Geese do not like areas where they cannot see the predators coming towards them.

If you do fertilize make sure you are using Phosphorus free fertilizer. Talk with your neighbors and develop a Phosphorus Free program which uses no phosphates and slow release nitrogen. One pound of phosphorous may produce over 775 pounds of algae- "The slimy green stuff". If you must fertilize, apply nitrogen fertilizer when the grass is actively growing to minimize loss of nutrients to nearby waters. Begin fertilizing in the spring when temperatures are warm and discontinue before the grass ceases to grow in the fall. Avoid application of fertilizer prior to rainy days.

Perforate lawn periodically and seed and mulch exposed soil (to prevent erosion).

Remove aquatic plants, leaves/branches and other debris that washes up along the lakeshore so less decomposition occurs in or near the lake.

Always use silt fences when building a new home or doing any yard-work that would cause erosion.

Keep all burn piles and debris piles away from lake. Do not burn near the water. The ash is concentrated nutrients!

Encourage the use of stone, brick and similar porous materials when building a landscape to minimize urban water collection.

## Ann Lake's Recommended Management Program:

- Survey Program including:
  - Annual AVAS Survey
- Water quality evaluation (optional)



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