

Environmental Policy

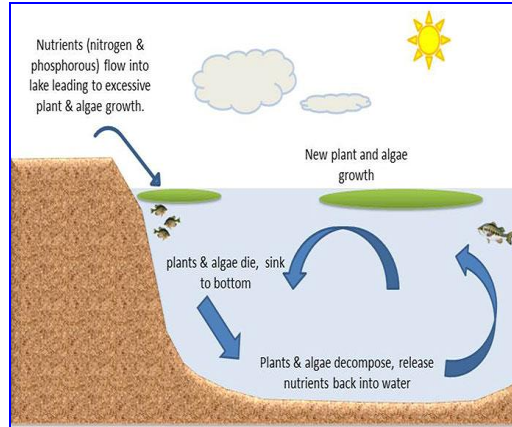
The Higgins Lake Property Owners Association supports:

1. Maintaining the legal lake level established in 1926 as amended in 1982.
2. A comprehensive, science-based lake wide program to better understand and control Swimmer's Itch.
3. Efforts to reduce nutrient levels in Higgins Lake, including: the proper and frequent servicing and maintenance of septic systems, the use of phosphate free detergents, the preservation and restoration of shrubs and trees along the shoreline to utilize nutrients and reduce sedimentation, minimizing the use of lawn fertilizers near the lake and promoting green belts around the lake.
4. Sustainable development and land use practices, including: sound watershed management planning, the conservation of land around the lake and in the watershed, the preservation of old growth trees and plantings of trees that benefit wildlife, zoning regulations to maintain property values and ensure building densities which do not exceed the environment's capability to assimilate.
5. Efforts to reduce the impact of toxic substances in the lake, including: reducing hydrocarbon emissions from watercraft, reducing or eliminating the nearshore or in-the-water application of pesticides, herbicides and chemicals that are persistent and or become concentrated in the food chain (bioaccumulation).

The HLPOA does not support any activity that is unlawful or any regulated activity which is conducted without the necessary local, state and federal permits or that is conducted in violation of such permits.

Nutrients

Phosphorus and nitrogen are the primary essential nutrients for aquatic life. In a process known as photosynthesis, rooted aquatic plants (macrophytes) and algae synthesize nutrients into biomass (primary production) that supports the food web of lakes and streams (Figure 1).



Total phosphorus monitoring in Higgins Lake indicates the open lake is oligotrophic (low in nutrients)¹. In contrast, the nearshore waters have been reported to be hyper-eutrophic (excessively high total-P levels)². Septic tank leachate is reportedly believed to be the source of these high nutrient levels.

¹ Cooperative Lake Monitoring Program Results
<https://micorps.net/lake-monitoring/individual-lake-reports/>

² [Investigating the Influences of Septic Systems on Near-Shore Water Quality and Swimmer's Itch in Higgins Lake, MI](#)

Higgins Lake Property Owners Association



Environmental Bulletin No.2

Nutrients and Water Quality

Prepared by the HLPOA Environmental Committee, September 2016

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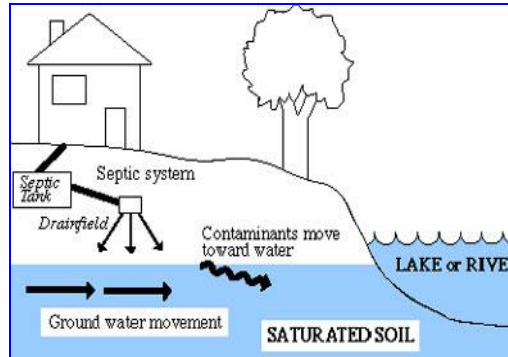
HLPOA Monitoring

The HLPOA sampled nutrients (ortho-P, nitrate-N and ammonia-N) and benthic algae at 11 locations in the nearshore waters of Higgins Lake in 2016. Algae samples were collected from the lake bottom along with water samples at each site. These data were compared to snail density data obtained by SICON, LLC at each location. The results show that the nearshore waters contain high levels of nitrate and ammonia and support extensive algal growth on the bottom. The source of nutrients is indicated to be from the groundwater and/or recycling of nutrients in the lake. The two sites having the highest algal densities, except for the control site, also had the highest snail densities. The predominant snail species is *Stagnicola sp.*, the one that transmits swimmers itch. Further studies are being planned and your support would help this initiative.

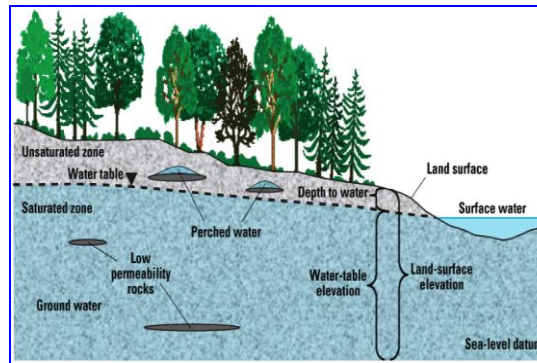
What can you do to help?

1. Do not clear native shoreline vegetation and trees as they stabilize the bank from erosion and utilize nutrients before entering the lake.
2. Landscape for water quality and wildlife by leaving a buffer zone along the shoreline and planting native shrubs and trees instead of grass.
3. [Except for new lawns - first year only, or required testing showing soil deficiency, the use of lawn fertilizer containing phosphorus is prohibited in Roscommon County.](#) Never use fertilizers containing phosphorus next to or near the lake because it promotes the growth of algae and aquatic plants.
4. Inspect and maintain septic tank systems by pumping at least every 2 years; or, more often depending on specifications and use.

Properly designed, installed and maintained septic tank systems function well in removing solids but water soluble nutrients are released from the dry well or drain field and soak into the soil (Figure 1).



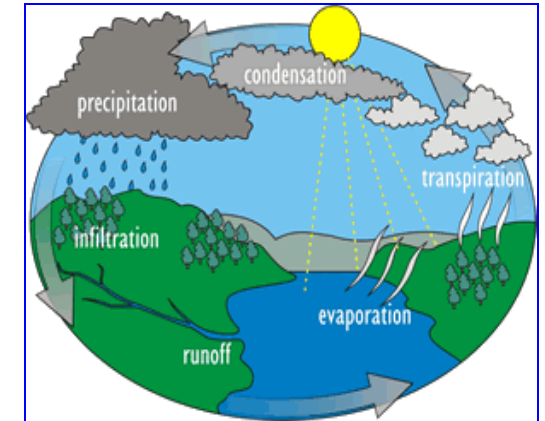
Soils adsorb nutrients like a sponge absorbs water. When soils become saturated after decades of use the water soluble nutrients move into the groundwater table and the lake.



The surface of Higgins Lake is at the level of the groundwater connected to it (Figure 2). Perched water tables can flow into the lake from artesian springs like the ones that form the creek entering the lake between the North State Park and the RAM Center.

The Hydrologic Cycle

The water environment is a living breathing system comprised of the atmosphere, surface water and groundwater. The movement or cycling of water between components is called the hydrologic cycle (Figure 3).



The hydrologic cycle affects the level of the groundwater, the lake level and is directly tied to precipitation patterns. Forests and plants release moisture into the air via evapo-transpiration but also reduce the evaporation of moisture from the soil. Wetlands store water and recharge the groundwater table, filtering sediments and pollutants in the process. The groundwater carries clean water into our rivers and lakes.

Understanding this process and preserving forests and wetlands around the lake is essential to helping maintain the “water balance” that is vital to protect the health and future of Higgins Lake.

Donations for further environmental studies can be sent to the HLPOA, P.O. Box 55, Roscommon, MI 48653.