

Information about Blue Green Algae in Lake Lorelei From the LLPOA Water Quality Committee July 2020

The LLPOA Water Quality Committee monitors the water quality of the main lake by testing for e-coli at the recreational beaches twice a month from April through August. In addition to testing for e-coli, we monitor dissolved oxygen levels and water clarity. In late June of 2020, a potentially harmful algal bloom (HAB) developed, was tested and confirmed by an EPA lab to be blue green algae, or cyanobacteria.

WHAT IS A HARMFUL ALGAE BLOOM (HAB)?

According to the Ohio Department of Natural Resources, since 2016, every water body in the state of Ohio is presumed to have some level of cyanobacteria, but recreational waters need to be especially cautious since high levels of toxicity can be harmful. Below information was provided by the US EPA in April 2020 :

Cyanobacterial Harmful Algal Blooms (CyanoHABs) in Water Bodies - Certain environmental conditions in water bodies can intensify algae growth, causing algal blooms. Blooms with the potential to harm human health or aquatic ecosystems are referred to as harmful algal blooms or HABs. In freshwater systems, cyanobacteria (also called blue-green algae) are microorganisms that can produce HABs. Some cyanobacterial HABs, or cyanoHABs, can produce toxins. CyanoHABs and their toxins can harm people, animals, aquatic ecosystems, the economy, drinking water supplies, property values, and recreational activities, including swimming and commercial and recreational fishing.

WHAT DOES A HARMFUL ALGAE BLOOM (HAB) LOOK LIKE?

Active blooms are best seen from the shore line or waters' edge. They resemble bright green paint spilled across the top of the water, although a bloom is never just on top of the water, it resides in the water column as well. As the bloom accumulates in one area it might also look blue, brown or even red. As the bloom dies, it releases toxins, and often has a strong ammonia smell. Blooms move with current and wind. They can sink and re-appear. In the last three weeks, the Water Quality Committee has observed blooms in the Recreational Areas of Cove B, C and D, F and G, Main Beach, and East Beach. Here are some pictures of blooms from Lake Lorelei:





WHAT SHOULD I DO IF I SEE A HARMFUL ALGAE BLOOM?

First, be sure to stay out of the water, and keep pets from swimming in or drinking the water. Second, you can notify the Lake Office or email Chuck Farmer, chair of the Water Quality Committee at farmerap42@gmail.com. As the summer rolls on, and days become hotter, we expect a surge in blooms. Water Quality meets on the first Monday of the month and has purchased test kits to be used during the summer to monitor the toxicity levels of the algae. If we are notified of a frequency in bloom sightings, we will test the area. Lastly, pay attention to the updates about Water Quality posted on the LLPOA website and Facebook page. If necessary, advisories will be posted.

WHAT ARE THE RISKS OF EXPOSURE TO A HARMFUL ALGAE BLOOM?

Based on our first testing in June, the level of toxicity from our lake is at 1.7. The level of danger to humans and pets is 6. Water Quality will continue to monitor the levels throughout the summer. If we rise to a 6 or higher the dangers to humans include skin irritation, throat irritation and nausea. Ingestion of the algae at a level 6 can be fatal to pets. Local health organizations and veterinary organizations have been encouraged to “screen for green” meaning they should survey patients who present with symptoms for appropriate treatment.

WHAT CAN BE DONE TO PREVENT HAB's IN LAKE LORELEI?

We can never completely eradicate the bacteria from our water, but we can take measures to control toxic levels:

Chemical influx from nitrogen and phosphorus rich farm fields is the number one cause of HAB's in Ohio's lakes. In an effort to decrease farm field runoff pollution to lakes and streams, Ohio farmers were incentivised to participate in certification sessions about proper use of fertilizers through a program funded by the Ohio Dept. of Agriculture and instructed by The Ohio State University Extension Offices in 2018. We cannot control what the farmers around Lake Lorelei choose to do on their land, but one solution Lake Lorelei Water Quality has promoted relies on Mother Nature's help. Planting riparian zones and allowing the growth of natural vegetation on shorelines and end coves filters the runoff entering our lake and cuts back on the amount of pollutants that enter our water. Currently we have one riparian zone and LLPOA maintenance has been limiting the amount of weed control in recreation areas and end coves to allow some filter vegetation to grow.

A shallow lake bed is a friend to algae, all algae, especially the harmful kind. A deeper lake would certainly make a big difference.

Turbidity or turbulence is important. Good strong rains over a series of days dilutes the algae enough to lower its toxicity. Unfortunately, rain also causes the influx of farm field runoff. Waves generated by boat traffic also helps, but once the lake becomes still, and as the summer heats up, the blooming resumes. Some lakes have used aerators and turbines to lessen the frequency of blooms.

HABs have become so great a problem in Ohio, the State of Ohio, Ohio Dept. of Health and the Ohio EPA collaborated on a 45 page response strategy published in 2016, largely due to the closing of Grand Lake St. Mary's in 2010. Blooms have closed beaches at Buckeye Lake and Lake Harsha as recently as this year. Because of large toxic blooms in shallow regions of Lake Erie, and the Toledo Water Crisis in 2017, Ohio researchers have established HABRI - Harmful Algal Bloom Research Initiative - through the Ohio Sea Grant program, fifty research teams from colleges and universities in Ohio whose sole purpose is to develop solutions to HABs.

RESOURCES USED AND TO LEARN MORE ABOUT HAB's:

EPA website on HAB's: <https://www.epa.gov/cyanohabs>

Ohio Department of Natural Resources:

<https://ohiodnr.gov/wps/wcm/connect/gov/Ohio+Content+English/odh/know-our-programs/harmful-algal-blooms>

Ohio Department of Health:

<https://odh.ohio.gov/wps/portal/gov/odh/know-our-programs/harmful-algal-blooms/welcome/>

Ohio Farmers Fertilizer Certification information: <https://clinton.osu.edu/program-areas/agriculture-and-natural-resources/new-ohio-agricultural-fertilizer-applicator>

Ohio HAB Response 2017 - <https://epa.ohio.gov/portals/35/hab/HABResponseStrategy.pdf>

HABRI and Ohio Sea Grant: <https://ohioseagrant.osu.edu/>