

2025 Stream Monitoring

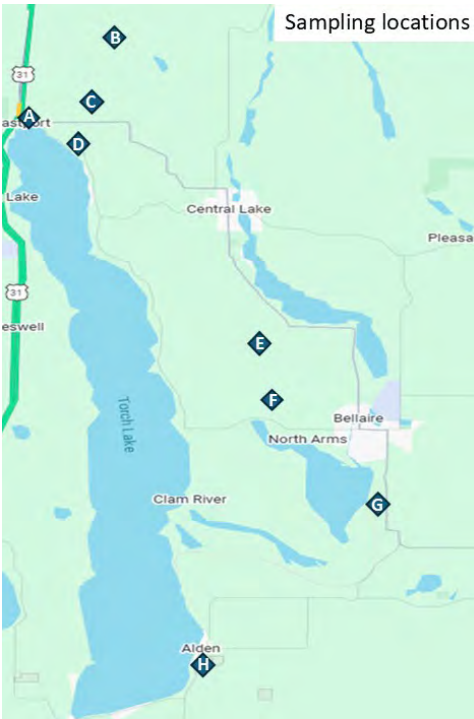
By Rick Doornbos

Monitoring conducted two years ago by Three Lakes Association found high levels of E.coli bacteria in Wilkinson and Eastport Creeks which enter the north end of Torch Lake. Several samples exceeded the State of Michigan full body contact limit for swimming which is 300 counts per 100ml of water or greater. Elevated levels indicate fecal contamination which can originate from a wide variety of sources and potentially the presence of other pathogens. Concerns were raised further by newly available laboratory methods which determined some samples contained E. coli which came from humans. The presence of human source fecal bacteria increases chances pathogens may be present which can seriously impact human health. The most common sources of fecal contamination at beaches and swimming areas are geese, ducks, gulls and dogs.

When State limits are exceeded, the health department issues advisories or closes beaches until levels come down. The advisories and closures apply to specific beaches or swim areas and do not extend to adjacent shorelines or open waters of the lake. Tributaries such as Wilkinson and Eastport Creeks are not considered swimming areas and generally are not monitored by the health department. However, if bacteria from human sources is routinely present in these creeks it raises the possibility of an ongoing wastewater treatment failure which can result in lake-wide impacts such as increased levels of nutrients like phosphorus.

A decision was made to increase monitoring of streams and tributaries entering Torch,

Clam, and Lake Bellaire in 2025. Eight locations across five streams were chosen. Eastport Creek, three locations on Wilkinson Creek, two locations on Grass Creek which flows into the North Arm of Lake Bellaire, Maury Creek which enters along the East shoreline of Lake Bellaire and Spencer Creek



TLA E.coli Monitoring Results for 2025								
Location	A	B	C	D	E	F	G	H
Sample	Eastport Creek at	Wilkinson Creek at	Wilkinson Creek at	Wilkinson Creek at	Grass Creek at	Grass Creek at	Maury Creek at	Spencer Creek at
Date	M-88	Church Rd	M-88	NETLD	Honey Hollow	Bellaire Hwy	Fisherman's P	Alden Harbor
6/10/2025	1299.7	387.3	920.8	>2419.6	365.4	67	178.9	115.3
6/17/2025	47.3			21.6				
7/2/2025	157.6	579.4	248.1	29.2	214.3	59.1	313	325.5
8/5/2025	307.6	1553.1	228.2	16.1	435.2	61.3	159.7	125.9
					P - 2 ppb	P - 1.7 ppb		
9/2/2025	198.9	195.6	517.2	14.4	517.2	25.3	41.4	37.9
					P - 1.6 ppb	P - 1 ppb	P - 1.5 ppb	
9/4/2025			307.6		>2419.6			
	Red	E.coli level above State of Michigan full body contact guideline						
	Red Highlight	Human E.coli source detected						

Sneak peek

STATE OF THE LAKE
SEOP
BOATER STEWARDSHIP

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Executive Director

Lois MacLean

Mark your calendar:

July 14 is the community education
outreach event at the Summit Village
Beach Club.

August 6 is our Annual Meeting at
the Summit Village Beach Club.

Stream continued from page 1

in Alden which flows into Torch Lake were selected for monitoring. Samples were taken one to two times per month and submitted to the Great Lakes Environment Center laboratory in Traverse City for analysis. When results equaled or exceeded 300 counts per 100 ml, a portion of the sample was frozen for future source identification using the newly available test method which can distinguish human source bacteria. Some samples exhibiting high bacteria levels were also tested for phosphorous.

Overall, thirty-six samples were tested from June to September. Levels greater than 300 counts per 100ml were detected in fifteen samples which included at least one sample from each of the five streams. Wilkinson and Eastport Creeks represented nine of the fifteen samples with elevated levels. Human sourced E.coli was detected in seven samples with four of those being from either Wilkinson or Eastport Creeks. Samples from Grass Creek where it flows under Honey Hollow Road had high bacteria levels at various times during the year but samples collected several miles downstream where Grass Creek flows under M-88 and enters the North Arm of Lake Bellaire did not. Grass Creek meanders through wetlands south of Honey Hollow Road which may be filtering contaminants and protecting Lake Bellaire. Elevated levels detected on a single sampling date for both Maury and Spencer Creeks also tested positive for human source bacteria so both

creeks warrant additional monitoring. The few samples with high bacteria levels that were also tested for nutrients did not contain excess levels of phosphorous.

Repeatedly high E. coli counts in Wilkinson and Eastport Creeks are concerning and warrant additional investigation. The presence of human sourced bacteria in some samples raises the possibility of ongoing wastewater treatment failures such as malfunctioning septic systems. TLA shared results with the Health Department of Northwest Michigan to discuss next steps. HDNM representatives said no action can be taken with adjacent landowners, such as a septic system inspection, until more specific data become available. HDNM did agree to help organize a walk along Wilkinson and Eastport Creeks to look for potential sources of contamination.

TLA's monitoring has increased public awareness of the importance of keeping an eye on bacteria levels not only at beaches and public swimming areas but also in streams and tributaries entering our lakes. Our team was interviewed by Interlochen Public Radio last July which resulted in a podcast of that interview the following month. The HDNM expressed interest in our results and committed to partner with us as we investigate potential sources of contamination. They agreed to add the Summit Village Association beach on Lake Bellaire to their list of routine testing locations next summer. Also, District 10 health department which serves Kalkaska County committed to work with us to establish routine testing of the Torch Lake sandbar beginning next summer.

TLA is expanding stream monitoring this year and will continue collecting samples from the five streams monitored in 2025, with a special emphasis on Wilkinson and Eastport Creeks which will include a walk of both streams to identify possible sources of contamination. It is anticipated that up to one-hundred individual water samples will be collected and analyzed this year.

TLA thanks the Dole Family Foundation for their generous grant to help cover laboratory costs associated with creek monitoring. We also thank our volunteers, Bob Milliron and Brian Hayes, who spent many hours collecting water samples and transporting them to the laboratory for analysis within the required twenty-four hour period. An additional thank you goes to Jeremy Fruk, HDNM Director of Environmental Health, for his guidance and support interpreting test results and assistance with follow-up action plans.

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protecting and preserving our lakes.

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Torch Lake “State of the Lake” Meeting

By Fred Sittel

On Friday, June 5th, members of the Three Lakes Association board and Dr. Jan Stevenson attended a State of the Lake meeting cosponsored by the Torch Lake Protection Alliance and Torch Conservation Center. It was the fourth annual meeting of its kind under TLPA's Keep Torch Lake Blue Project which has the goals of establishing an adaptive lake management plan and a more nuanced and predictive annual water quality monitoring program. Dr. Dale Robertson, a limnologist with the U.S. Geological Survey is the principal researcher under the KTLB project which is in the final reporting stage.

At the core of the USGS investigation are a wide variety of water volume and chemistry measurements made over a three-year period to establish a phosphorus mass balance for the lake similar to the 2005 effort led by TLA and the Great Lakes Environmental Center. The current effort drew upon the traditional strengths of the USGS in making precise measurements of annual water flows in Clam and Torch Rivers, tributary streams, groundwater, rainfall and evaporation.

Dr. Robertson presented several slides comparing TLA's conclusions from 2005 to the measurements made by USGS over the past three years. The annual phosphorus loading to the lake was found to be lower than previously estimated. More significantly, much less phosphorus is being retained in the lake in a dormant state as calcite precipitation while a far greater amount flows out the Torch River. Over the last twenty years the lake has become more alkaline mirroring a trend seen in rainfall which is less acidic than it once was due to increased industry regulation. Significantly less phosphorus loading was found to be coming from rainfall than estimated in 2005 while significantly more comes from the inflow of Clam River. The percentage of phosphorus coming from groundwater infiltration appears to be the same as previously estimated at around one-third of total loading but Dr. Robertson used EPA estimates of per person phosphorus output in home wastewater to conclude most of that is due to residential septic systems which represent one fifth of the total phosphorus loading to the lake. Actual laboratory results of groundwater samples, however, continue to indicate relatively low levels of the nutrient.

Establishing a more precise water and nutrient balance for Torch Lake is central to KTLB project goals but much of the discussion during collaborative meetings with TLA over the last four years focused on possible causes of benthic Golden Brown Algae. Dr. Stevenson has been working with TLA for more than a



Dr. Stevenson presents his findings about Golden Brown Algae.

decade to understand the makeup and biology of GBA and its causes.

After the lunch break, Dr. Stevenson gave an update on his research sponsored by TLA. Recently, he has been analyzing benthic algal samples pulled from eighteen different lakes in Northern Michigan to better understand conditions for GBA formation across a broad range of nutrient levels. This can provide a better understand of why GBA formed in our lakes in the first place and what conditions might trigger continued proliferation. The latest results confirm the development of GBA decreases with increasing phosphorous availability, similar to what was seen during the in-lake experiments conducted in Torch Lake over the last several years. It was also found that GBA requires a minimum level of nitrogen to thrive when phosphorus levels are low and Torch Lake nitrogen levels exceed that threshold by a wide margin. Dr. Stevenson also found that calcium deposition within the benthic algae mats, which provides their density and durability, decreases with increasing concentrations of phosphorous in the lake water as does the relative abundance of the specific diatom species most associated with calcareous benthic algal mat formation. The data support the conclusion that GBA development in Torch and other northern Michigan lakes was most likely caused by a decrease in water column phosphorous which occurred over decades. Dr. Stevenson is still analyzing the results of his field investigations to add to our understanding of the causes of GBA. He plans to finish his work by the end of this

year and publish a final report and conclusions in the first half of 2027.

Another interesting presentation during the meeting came from TLPA volunteer Wayne Lancaster who is following up on TLA's discovery in 2024 that there are literally billions of invasive quagga mussels thriving in Torch Lake. These mussels form dense beds at depths not commonly observed by most lake users. Research conducted elsewhere has determined an individual adult quagga mussel can filter up to a liter of water every day, raising the probability their presence in Torch Lake is having an impact on lake nutrient cycling. TLPA volunteers used innovative deep water photography techniques to validate TLA's estimates of the current mussel population. There is a lot more to learn about quagga mussels in Torch Lake. At what stage is the infestation and how much larger could it get? How much phosphorus is tied up in mussel biomass and for how long? What impacts are the mussels having in the benthic zones where their density is greatest? TLPA volunteers plan to collect more information about the invasive mussel population in Torch Lake this season.

The series of State of the Lake meetings held over the past four years brought together experts from different fields to collaborate with the single goal of protecting Torch Lake. The work conducted by USGS under the project represents the most comprehensive water quality assessment of Torch Lake ever conducted. TLA thanks the members and sponsors of the KTLB project for their terrific effort and for adding to local knowledge about the chemistry of Torch Lake to

Science Education Outreach Program

Steve Laurenz,
help preserve the lake for future generations.



During the 2025–2026 school year, the Three Lakes Association Science Education and Outreach Program (SEOP) grants supported a wide range of hands-on science and environmental learning experiences for local students. Teacher feedback was overwhelmingly positive. Students explored Grass River and other natural areas through guided hikes, tree and plant identification, bird listening, moss and insect observations, creek and river sampling, and hands-on investigations of amphibians, reptiles, salamanders, beavers, and aquatic invertebrates. Teachers emphasized how much students enjoyed discovering living organisms under logs, rocks, and in the water, with one teacher noting that the salamanders were “a huge hit.” Another project enabled Central Lake students to design and construct a greenhouse to support the school garden and serve as an outdoor classroom. Through that project, students practiced planning, measuring, budgeting, construction, collaboration, to leadership and real-world problem solving. Teachers expressed deep appreciation for TLA’s support, noting that the grant funding made these experiences possible and helped create lasting memories and resources for students. Through these programs, TLA is helping the next generation to cherish our natural environment.

Adult Education

The student education opportunities tend to get a lot of attention but keeping the adults well informed is also part of our program.

Join the Three Lakes Association for our annual Summer Adult Education Event on Monday, July 14, at the Summit Village Beach Clubhouse. This popular

program is designed to bring the latest local environmental science and lake stewardship information directly to our members and community. This year’s presentations will feature Jeanie Williams, who leads our intern program, discussing the importance of aquatic plants and survey results; Wayne Lancaster from the Torch Lake Protection Alliance, presenting the Torch Lake Protection Alliance’s 2025 Quagga Mussel Survey findings; and Mike Novak from the Three Lakes Association providing an update on the joint TLA/TLPA Eurasian watermilfoil management team and the ongoing efforts to monitor and control invasive species.

Whether you are a lakefront property owner, year-round resident, seasonal visitor, or simply interested in the health of our local lakes, this event offers a unique opportunity to learn about current environmental issues and stewardship efforts affecting the Three Lakes area.



Last summer’s adult education event and silent auction fundraiser.

Teacher Review

Jessica Schepperly
Mancelona Third Grade Team

My name is Jessica Schepperly and I am one of the Third-Grade teachers at Mancelona Elementary School. Thank you for your generous support in funding our grade-level field trip to Grass River Natural Area. Because of your grant, our students were able to participate in an engaging day of hands-on environmental learning that brought science concepts to life.

Throughout the day, students explored the stream ecosystem using nets to collect and study aquatic insects, small organisms, and shells. They learned about the important role these creatures play in maintaining healthy waterways. In the forest, students investigated animal tracks and practiced identifying signs of wildlife in their natural habitats. They also enjoyed searching for salamanders and frogs, gaining a deeper understanding of local amphibian species and their ecosystems.

The experience concluded with a walk along the boardwalk, where students identified native birds and plants while learning about the watershed and the connections between land, water, and wildlife.

This field trip provided meaningful opportunities for observation, discovery, and scientific inquiry that simply cannot be replicated in the classroom. We are grateful for your investment in our students and for helping create an unforgettable educational experience that fostered curiosity, environmental stewardship, and a greater appreciation for the natural world.

Thank you again for making this valuable learning opportunity possible.



Students using nets to gather specimens.

2026 Intern Kickoff

We kicked off the the summer intern program at Noteware's Landing on Lake Bellaire. Jeanie Williams, Gary Bart and other TLA enthusiasts had an excellent opportunity to meet and greet our 2026 Summer Interns. Elsie, Brooke, Charlie, and Alana, come to us from Elk Rapids and Kalkaska High Schools.

This is a very impressive group! It is clear that we have a group of good thinkers who are invested in this summer's project.

On the agenda is an aquatic plant survey of Lake Bellaire. This is the last of our three lakes to get the updated plant survey. Also on the agenda, as this is a well rounded program, is helping the interns experience hands on science, project planning, teamwork, personal growth and fun!



Boater Stewardship

Lois MacLean

Three Lakes Association led the way in getting boater certification education into our local schools in 2013 and it has been going strong ever since. Leslie Meyers, Executive Director at the time, brought together Sheriff Bean, a retired teacher from Mancelona and the Marine Patrol to offer free Boater Safety Certificate (BSC) training. Thirteen years later it is still going strong. This year we



had five Boat Smart, Boat Safe, Boat Legal classes to anyone 12 and up, including adults, at local schools.

Now, via webinar, we bring experts, like the Sheriff, Marine Patrol, DNR and conservation directors together to help us all answer the questions Is it a law or a courtesy? Can boaters and nature coexist? Who needs a boater certification?

In the last three years we have had 180+ people participate. The experts share what is happening and what they are doing around the lakes. Then, we open it up for a Q&A session.

Here is some of what we have learned:

Every person on the boat must have a life preserver on or available.

Who has to have a boater certificate? A BSC is required for anyone born after July 1996 to operate a boat with a 6 hp or higher motor. A BSC is required for anyone born after Dec 1978 to operate a personal water craft / jet ski.

What about wakes and wake boating? The law: Lansing is currently working on wake boat legislation, but no specific laws have yet been passed. All boats must stay at least 100 feet from the shoreline unless operating at a no wake speed. However, boats operating in wake boat mode are recommended to stay at least 500 feet from the shoreline and in at least 20 feet of water to minimize the environmental damage. We are counting on responsible operators and common courtesy to protect our lakes and shorelines from damage caused by excessive wakes.

What buoys are allowed and where?

The law: Varies – you may be surprised – Designated swim areas are allowed with a permit. These are generally only allowed at public swim areas. Mooring buoys are allowed. Star buoys, the ones that you put out from your property to keep people from coming up close to your shoreline are not.

What are the laws about people shoring their boats in the water by your dock? The law: They can stop/anchor in the water along the shore. They cannot come onto your shore or your dock. They cannot stay overnight.

Who patrols the lakes and how often? Sheriff marine patrol boats are regularly present on our lakes at varying times during the day and season. The officers prefer to educate boaters rather than issue citations unless violations are reckless or unsafe.

The question of nature and boaters co-existing is very much dependent on peoples' understanding of the fragility of the environment around and under the water. That is why it is so very important to educate. Because the more you know, the more you care.

Watershed Resource Guide

We are excited to share that the resource guide for waterfront property owners in the Elk River Chain of Lakes watershed is now LIVE! You'll find great information on storm water run-off, shoreline protection, permits, zoning and more.

<https://gtbay.org/waterfront-guide/>

Water Sampling Volunteers Needed

Based on our 2025 findings of elevated E.coli levels in some of the tributaries and streams entering our lakes, Three Lakes Association is planning to expand our E.coli monitoring activities in 2026. To accomplish this, we will need several volunteers who are willing to help collect and transport water samples periodically during the months of May - September 2026. Duties would include collecting water samples a few times per month and/

or transporting these samples to Traverse City for E.coli testing. No previous experience or technical background is necessary and all supplies and training will be provided. If you are interested and willing to be a 2026 volunteer for this important monitoring program, please contact:
Rick Doornbos (rsdoornbos@torchlake.com , 989-600-9907)
or Lois MacLean (3lakes.info@gmail.com , 231-412-7551).

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FISHING OR JUST ENJOYING THE VIEW IT'S A MARVELOUS PLACE TO BE!

The mission of the Association is to provide leadership to preserve, protect, and improve the environmental quality of the Elk River Chain of Lakes Watershed for all generations with emphasis on Lake Bellaire, Clam Lake, Torch Lake and their tributaries.

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**Three Lakes Association invites you to our education event at the
Summit Village Beach Clubhouse**

5597 Northlakes Rd.

Bellaire MI 49615

Tuesday, July 14th, 4:30 p.m.—6:30 p.m. with presentations at 5 p.m.

Adult refreshments and a meal of hor d'oeuvres will be provided!

**Get the latest news about Eurasian Water Milfoil,
Aquatic Plant Surveys, Quagga Mussel impacts
And meet our 2026 interns!**

**There will also be a silent auction in support of
the Science Education Outreach Program (SEOP)
promoting stewardship in our local schools!**

**We have gift cards for golf, local eateries, guided boat tours,
unique one of a kind items and much more!**

This event is for the general public as well as members! Bring your family and friends!



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