



THREE LAKES  
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A brief summary of just some of our many accomplishments of 2023.

Members, donors, volunteers and program attendees provide the financial support, hands-on labor, and enthusiasm that make the work of Three Lakes Association possible.

### **Golden Brown Algae (GBA)**

Experiments and investigations to determine forces that encourage and maintain growth of GBA continued in 2023! Some of the questions we asked:



- Do additional nutrients encourage the growth of GBA, or do they shift algal dominance to other forms of algae?
- Does an increase in phosphorus (P) cause growth, or could a decrease in phosphorus cause the GBA development?
- Can changes in nutrients induce GBA growth in locations that do not naturally favor GBA?

The low P hypothesis is being looked at more closely in Torch Lake and other northern Michigan lakes. These studies are partially funded by a Dole Family Foundation grant. Analysis accuracy is of the utmost importance and it takes time to bring all of the information together. We will continue to share our findings. These Studies are partially funded by a Dole Family Foundation grant.



### **Eurasian Water Milfoil (EWM)**

This summer the EWM team recruited volunteers to focus on Clam Lake and Lake Bellaire. Patches of EWM in Torch lake at Ball Point, Stoney Point, and Alden Harbor were treated and another EWM hand-pulling event was completed at Butch's Marina in September.

### **Summer Internship Program**

This summer's program followed up on work performed on Torch Lake last year by TLA interns. Three high school students participated from Bellaire, Central Lake and Kalkaska. The goal this year was to document the extent of the invasive quagga mussel infestation in Torch Lake.



They collected samples using specialized equipment and, with guidance from their mentors, the interns also adapted an underwater video camera to augment their collection of physical samples. The findings were quite startling.

The TLA Internship program is partially funded by the Gerrit Lee Wierda Memorial Internship Fund.

### **Science Education Outreach Program (SEOP) Education Grants Awarded**

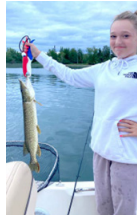


Our SEOP expanded for the 2023/2024 school year to include nine teachers from five local elementary schools!

All the funded programs are excellent examples of hands-on science and environmental education for the youngest of our future environmental lake stewards, students who would not likely be able to have these experiences.

### **First Fish Photo Contest**

We got some great shots for our First Annual Great Catch Fish Photo Contest. We will be doing it again next year. Hope you share your 2024 Great Catch!



### **Partnerships:**

We are continuing to dialogue with TLPA to coordinate their sponsored USGS sampling project on Torch Lake with our sponsored GBA research so we can better understand lake chemistry changes/trends and how those changes are affecting GBA.

### **Lake Monitoring and MORE:**



- Continued Volunteer Lake Monitoring on all three lakes for long term trends in key water quality indicators.
- Completed sampling of Intermediate River to monitor impact of the Bellaire

Wastewater Treatment Plant on Lake Bellaire water quality.

- Aerial photography continued as we monitor seasonal and annual trends in GBA density.
- Regularly responded to inquiries from riparian owners about observed changes/anomalies to lake conditions and water quality.

### **Grass River Connects:**

In collaboration with the Grass River Natural Area (GRNA), the Grass River Adaptive Management Plan (GRAMP) was finalized and has been approved by the Michigan Department of Environment, Great Lakes, and Energy. Together we can protect and restore the water quality of Grass River and its main tributaries for wildlife and recreation.



### **Lake Levels / Hydrology:**

TLA has been very hands on working with the Hydraulic Engineering Center's River Assessment Software (HEC-RAS) model and study of lake levels. The study showed that there are concerns in the event of a rain storm that is only seen once every 100 or 500 years. Goals include stabilized water levels to protect property values and the lake environment; ensure structures throughout the watershed are appropriately maintained and maximize recreational benefits.



### **Education Events and the Annual Meeting**

These events brought new faces and people we had not seen in several years. At both events we were able to share GoPro video of quagga mussel sampling by the interns.

The annual meeting and education events give us an opportunity to socialize and learn in a relaxing atmosphere along the water's edge.



### **Planning ahead for 2024:**

1. We will investigate causes of GBA with continued studies into 2024 with the help of scientists and volunteers!
2. Develop an implementation plan for the completed Grass River Adaptive Management Plan.
3. Keep in touch with our local township boards regarding water quality concerns.
4. Continue to promote our efforts and engage the public using social media and education events.
5. Continue long-term lake level and water quality monitoring of Bellaire, Torch and Clam lakes.
6. Continue working to manage Eurasian Water Milfoil and other invasives in our lakes.
7. Continue publishing informative, engaging and high-quality newsletters throughout the year.
8. Continue our engagement with partner organizations in water quality protection throughout the Elk River Chain of Lakes.

### **Join or Renew to Make it All Possible!**

Please join or renew your membership today and consider an additional donation to support a specific project or program.

Our watershed thanks you!

To join or make a donation, go to our new membership website:

**[member.3lakes.com](https://member.3lakes.com)**

Or mail us a check:



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