

## 2024 Three Lakes Association Aquatic Science High School Summer Internship

### *Invasive mussels in Clam Lake, Lake Bellaire, and Grass River*

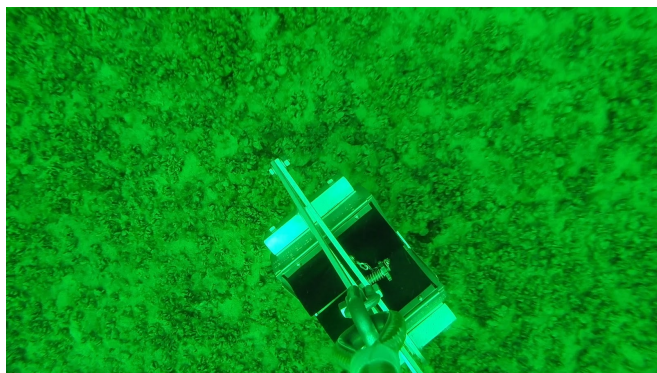
Each summer Three Lakes Association studies some aspect of our watershed with ambitious high school students. Our objectives are to monitor and improve water quality and to help young people gain experience with aquatic science and build their connection to the water bodies that define the landscape they live in. This year, TLA interns will look for quagga and zebra mussels in Clam Lake, Lake Bellaire, and Grass River.



Quagga mussel (left) Zebra mussel (right)

Quagga and zebra mussels are invasive species that have caused great ecological change in the Great Lakes and in the hundreds of freshwater lakes and streams they have invaded across the United States and Canada. They tend to filter nutrients out of the water column and deposit those nutrients on the bottom of the lake. This increases light penetration to the bottom of the lake and can encourage growth of bottom algae. Bottom dwelling species, fish and plankton are all impacted.

In most cases zebra mussels become established first in a lake. Some number of years later, quagga mussels also arrive. Their numbers will eventually match or surpass those of zebra mussels.



Mussels at the bottom of Torch Lake (75 feet, in the north end). Ponar grab is visible.

In 2023, TLA interns surveyed Torch Lake to quantify the number of quagga and zebra mussels living at different depths. Nearly 94% of collected mussels were quagga mussels, and in some locations quagga mussels completely carpeted the bottom of the lake. Prior to TLA intern studies on mussels in 2022 and 2023, very little was known about quagga mussels in Torch Lake; they were presumed to be a minor player in the ecology of the lake. The 2023 Internship study changed that assumption.

The year before, in 2022, TLA Interns collected a handful of samples from Lake Bellaire and found zebra mussels, but no quagga mussels. Knowing that quagga mussels easily move between connected bodies of water, and tend to increase in number slowly when they first arrive, we wonder if a more thorough survey of Lake Bellaire would locate quagga mussels?

And while we are at it, might there be quagga mussels in Clam Lake? Or in the Grass River?

**In summer of 2024, we will use a variety of sampling techniques to find out if there are quagga mussels upstream of Torch Lake.**

June and July will involve weekly boat trips through different water bodies to collect, identify and count mussels. We will place plates in the water for mussels to grow on and sample from the bottom of the lake with a Ponar grab. GoPro footage will also be collected when there is enough light to see to the lake bottom!



Ponar Grab

August will be being reserved for compiling the data, looking for patterns and preparing a presentation to the TLA board and the students' school boards. The presentation will be part of the TLA archives. School board presentations will be arranged for September and October.

*We hope you will join us!*

## 2024 Three Lakes Association Aquatic Science High School Summer Internship

### How to apply

Apply online at [3lakes.com/summer-internship-program-2024/](https://3lakes.com/summer-internship-program-2024/)

Only online applications are accepted

Deadline is Monday, May 13 at 5PM

Successful Applicants will be notified by May 20

Open to ambitious Sophomores, Juniors, and Seniors



Application is here

### Summer Schedule

Students will be required to attend a 1-hour orientation on **May 30 at 4:00 PM**

- Bring with you a signed Student Agreement; given when accepted to the program

The program will begin on Thursday **June 6 at 4:00 PM** with a shakedown and training on equipment

After that we will meet every Thursday **morning from 8AM-Noon**, and occasionally longer with advance notice. Conditions for boating are better in the morning, which is why we are starting so early.

- Meeting location will change weekly, depending on where we are sampling.
- Reliable transportation required.
- Communication and updates will occur via email and text.

In August, we will use our full time on Thursday mornings to compile data and put together a presentation for the TLA board of directors and for your individual school boards of education.

### About the Program Lead

Jeanie Williams is the former Executive Director of Three Lakes Association. She has a master's degree in environmental science, a bachelor's degree in biology, and has been certified as a secondary science teacher. She has worked with teens in numerous field research programs, including five years of Great Lakes data collection and teen science experiences with Inland Seas Education Association, where she collected and studied quagga and zebra mussels extensively.

She will be assisted by TLA volunteers, including Gary Bart and Beth Lavasseur



### To contact us

Intern Program Lead, Jeanie Williams at [jwilliams.threelakes@gmail.com](mailto:jwilliams.threelakes@gmail.com) or 231-492-0424

TLA Executive Director, Lois MacLean at [3lakes.info@gmail.com](mailto:3lakes.info@gmail.com) or 231-412-7551



*The mission of the Three Lakes 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.*