



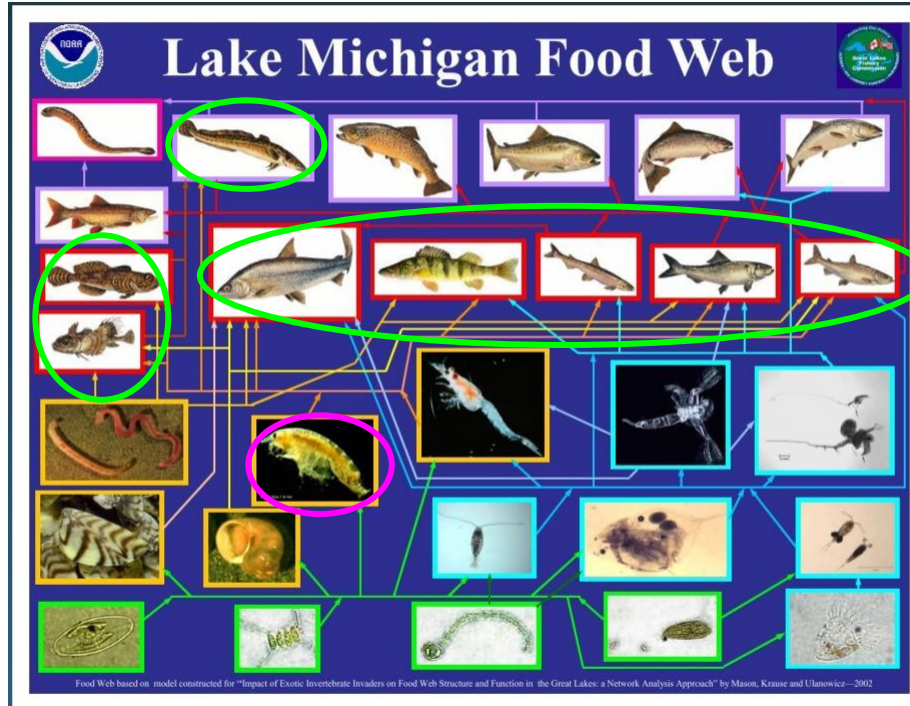
A group of six people are on a white pontoon boat on a large body of water. The boat has "Crest" and "CARIBBEAN MC 9745 SN" written on its side. The people are waving and giving thumbs up. The background shows a forested shoreline under a blue sky with some clouds.

Life at the Bottom of Torch Lake and Lake Bellaire

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Diporeia



Diporeia are an essential part of the diets of Slimy Sculpin, Burbot, Lake Whitefish, Yellow Perch, Bloater, Alewife, and Rainbow Smelt.



Quagga Mussel

Dreissena bugensis

Zebra Mussel

Dreissena polymorpha

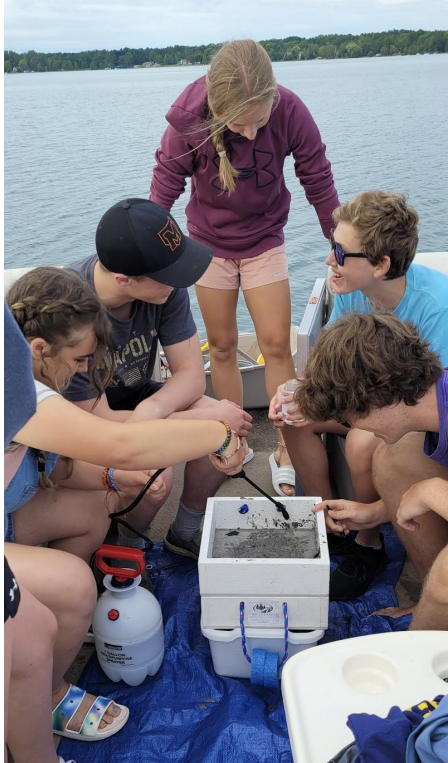
Method:

We made weekly trips throughout the summer onto Torch Lake and Lake Bellaire and used a PONAR dredge to collect the samples for this study

We used the same GPS coordinates as the previous 2007 *Diporeia* studies' and a few new locations decided by random

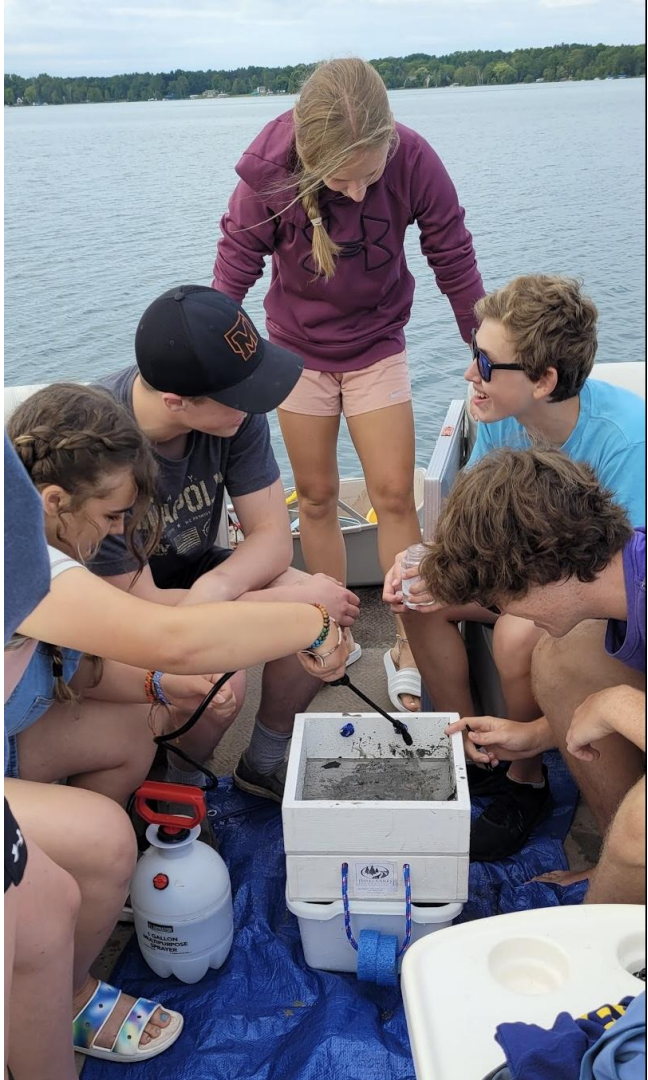


PONAR Dredge



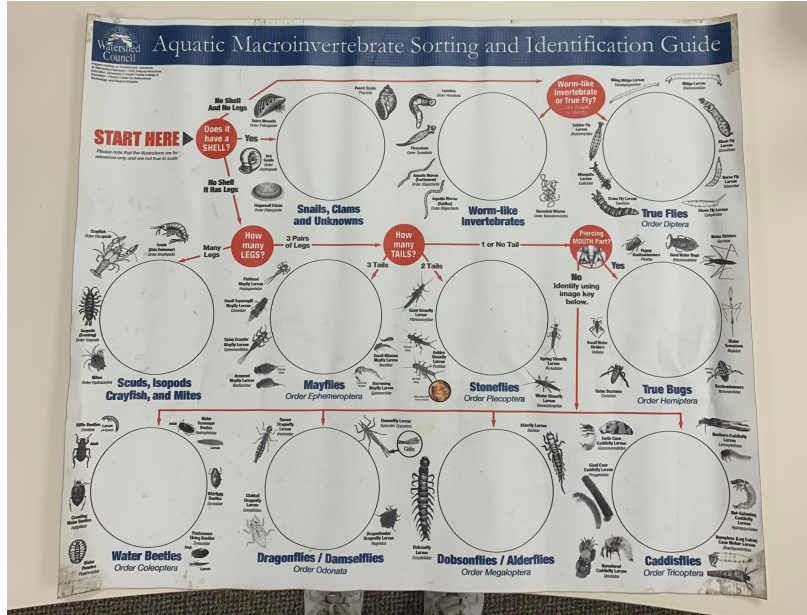
On Torch Lake samples were taken between depths of 41-205 ft

On Lake Bellaire samples were taken between depths of 47-85 ft



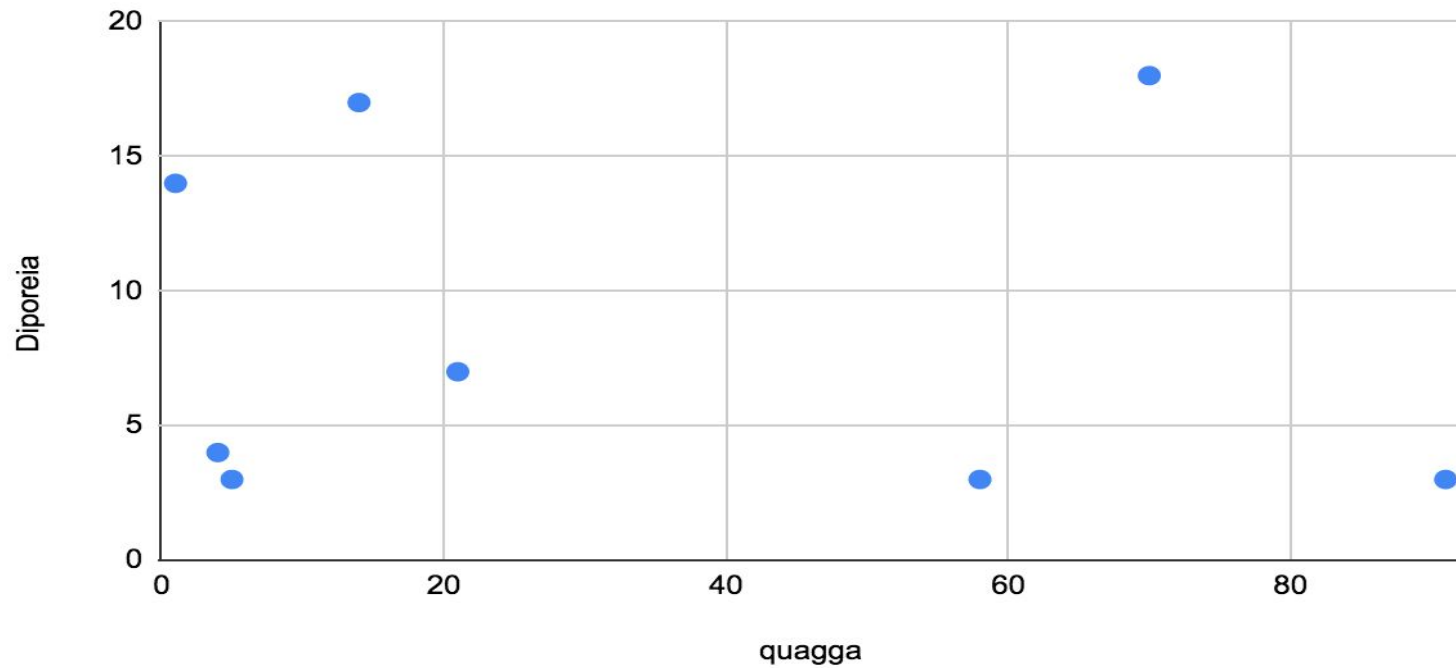
Identification

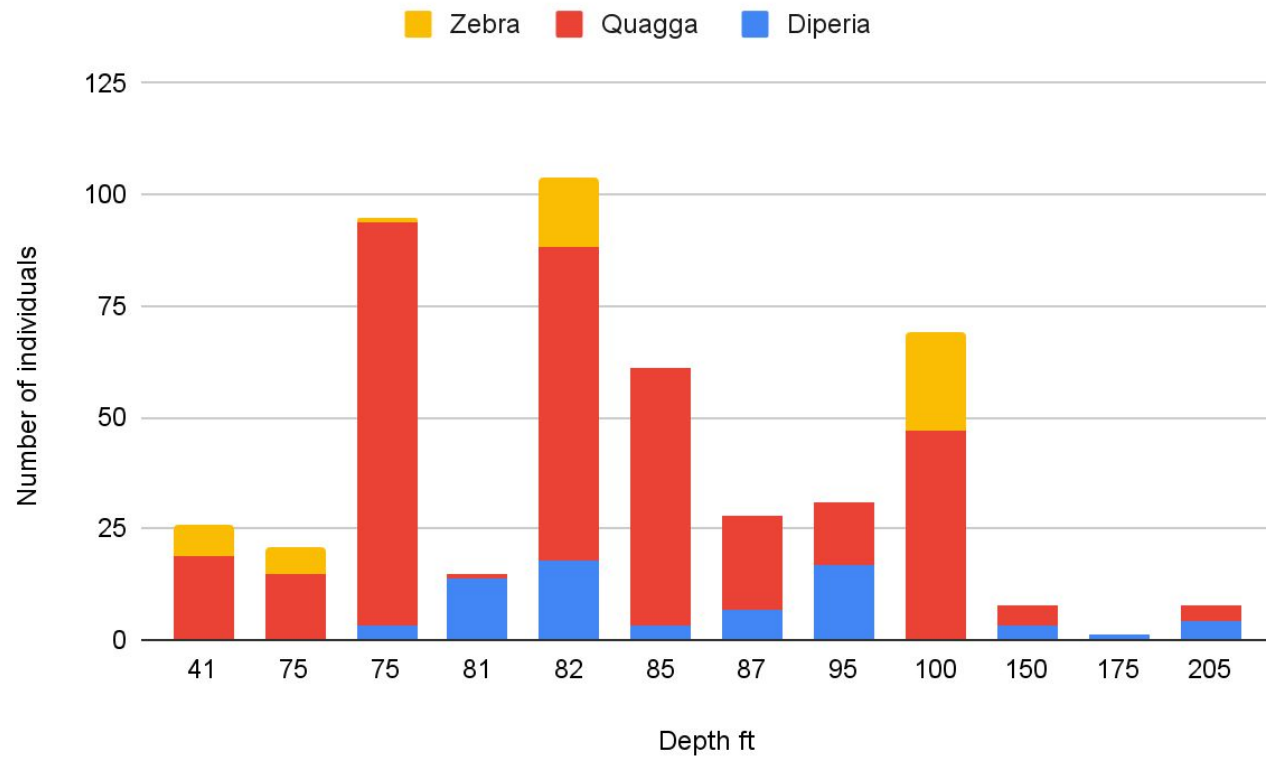
We identified the samples using 40 x magnification microscopes and an identification key

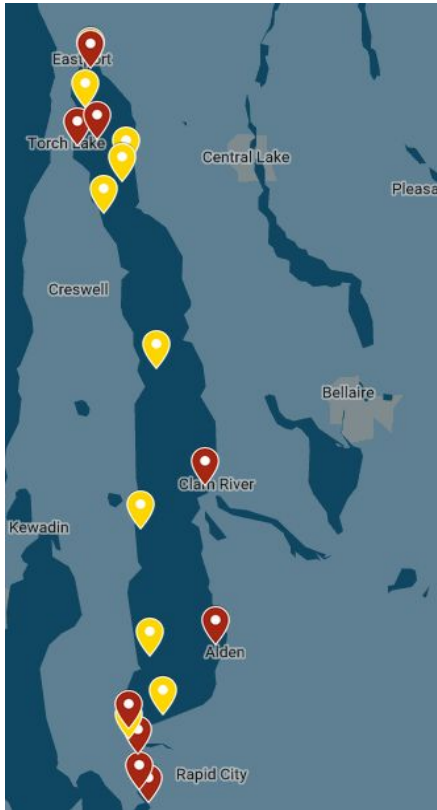


Results

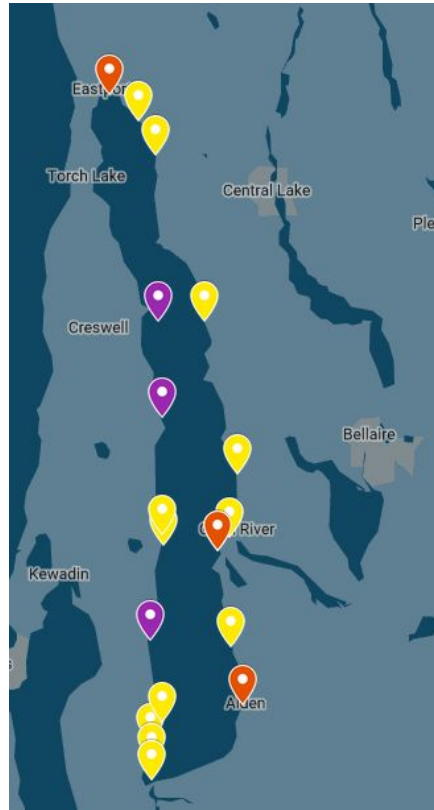
Quagga v Diporeia



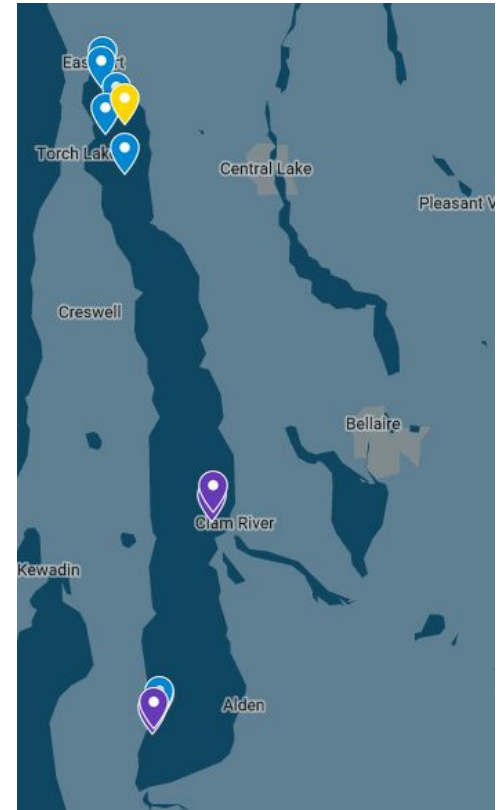




2015 Tip of the Mitt
Invasive Species Study



2015 DNR Aquatic
Invasive Species Survey



2022 TLA Interns Study

Yellow - No mussels collected
Red/Orange - Zebras only
Blue - Only Quaggas
Purple - Zebras and Quaggas

Our 1st of Many Encounters with Quagga Mussels



On June 29th our team witnessed it's very first encounter with quagga mussels. With our 1st successful pull on Torch, and our first documented sample. In this picture, there are 15 mussels.



Conclusion



While we did not find any quagga mussels in Lake Bellaire. They seemed to be prominent within Torch Lake.

Conclusion Cont.



According to both our results and Three Lakes 2007 Study results, Diporeia have had steady numbers in Torch Lake and Lake Bellaire.

What Does This Mean for the Chain of Lakes?

What we found- We found large amounts of Quagga Mussels, and a comparable amount of Diporeia to the 2007 study. We also observed Zebra Mussels

What will happen- Although there are no definite answers, we expect that the appearance of the Quagga Mussels will drive down the numbers of native Diporeia in Torch Lake.

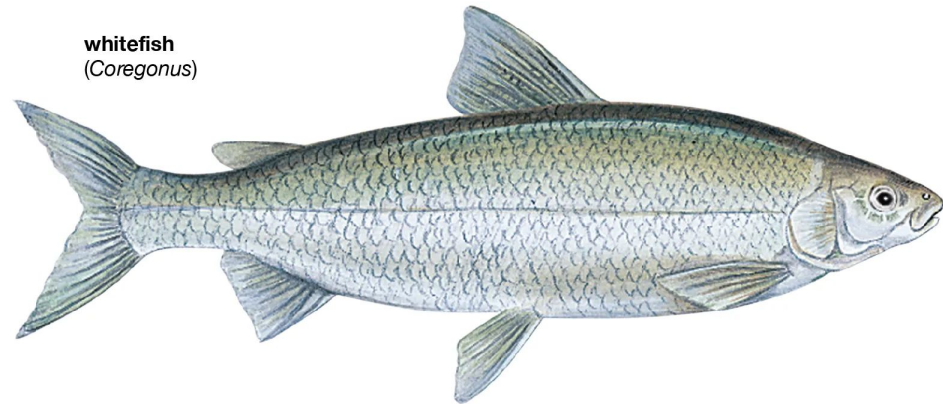
Overall Impact- Quagga Mussels could outcompete both Diporeia and Zebra Mussels. This could have a negative impact on many deepwater fish that depend on the softbody Diporeia as a food source because they cannot eat the invasive Mussels.

For Next Time- We did not collect as many samples as we had hoped for. If this study were to be repeated, more sampling would be necessary to draw more conclusive data.

Next Steps

- We need to redo this study in the future to see if the changes we expect happen
- We need to look at fish populations now to compare with later on.
- We will conduct the same fish study when we redo the Diporeia study so that we can confirm suspected correlations of fish and Diporeia
- Finally we need to come up with any conservation methods that are needed for any changes we find.

whitefish
(*Coregonus*)



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