

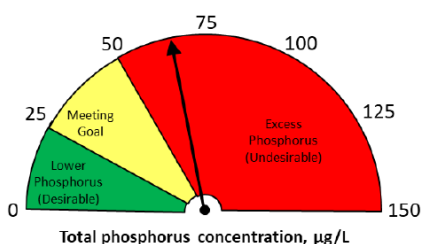


In 2022, we continued our commitment to improving the water quality of Lake Macatawa and the Macatawa Watershed in a number of ways. With the support of the community and multiple grants, we were active in water quality monitoring, green stormwater infrastructure (GSI) installation, best management practices implementation, creating a watershed resiliency plan, and public education events. The combination of these activities help us improve the health of the Macatawa Watershed, ultimately leading to a positive impact on the environment and community.

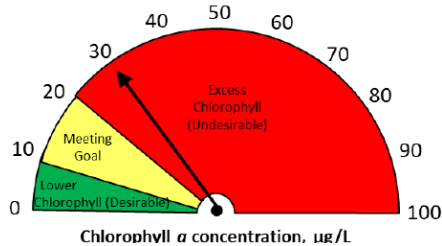
## 2021 AWRI Monitoring Report

Grand Valley State University's Annis Water Resource Institute (AWRI) is a partner of Project Clarity and has been monitoring Lake Macatawa since 2013. The program allows us to determine if water quality is improving in Lake Macatawa. Water samples are taken from the lake three times per year, focusing on long-term trends in total phosphorous concentration, chlorophyll a concentration, and secchi disk depth. These tests are commonly used to assess lake health. The results from 2021 are encouraging, positive signs of an improving Lake Macatawa. Data from 2022 will be available in early 2023.

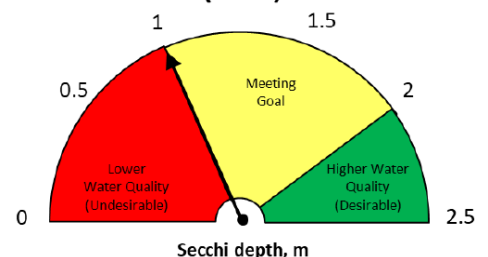
**Current status  
(2021)**



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(2021)**



**Current status  
(2021)**



- Abundant phosphorous (P) can cause excess vegetation growth and lead to harmful algal blooms
- Although total P was in the undesirable range, 2021 saw the lowest levels since monitoring began in the 1970's

- Chlorophyll a concentration estimates the amount of algal growth in the lake
- Although it was in the undesirable range, 2021 saw a major decrease from recent years and the lowest levels since Project Clarity began

- Secchi disk depth measures water clarity
- Secchi depth met the goal of 1 meter for the first time since Project Clarity began
- This indicates water clarity is improving

# 2022 Watershed Interns



This summer we had three interns helping with Project Clarity tasks. Each week Eric, Syd, and Izzy completed secchi disk readings, chloride testing, and stream inventories to monitor water quality within the Macatawa Watershed. They also completed projects to improve water quality such as planting and maintaining rain gardens and restoring streambanks. They also assisted in macro-invertebrate sampling and river cleanups.

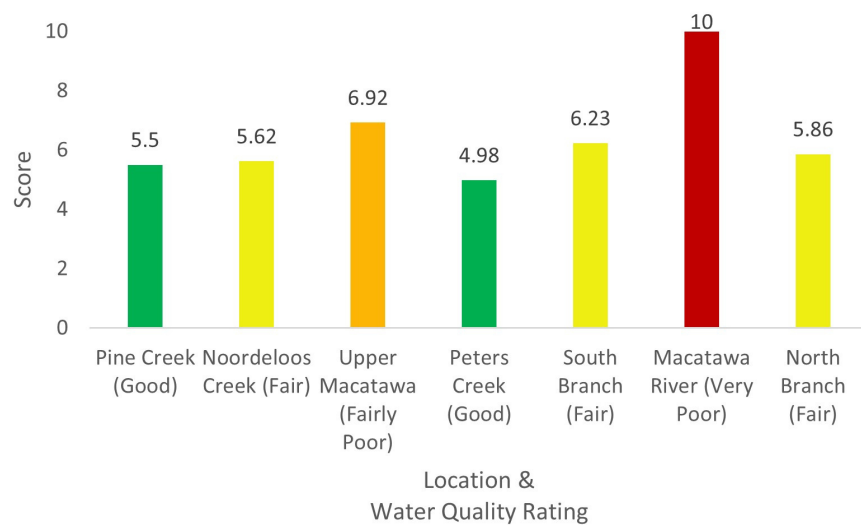


Additionally, the interns assisted in community outreach events including the Macatawa Water Festival, Cultivating Resilience Farm Field Day, and the Green Stormwater Infrastructure Seminar. The trio quickly became best friends, making the time they spent together in the office and the field the highlight of their summer. (Above photo from left to right) Eric Bauder went to Cornerstone University, and Sydney Quillian and Izzy Hammond go to GVSU. All three have majors related to environmental science.



## Macroinvertebrate Monitoring

Twice a year, the Project Clarity team visits seven streams within the Macatawa Watershed to collect aquatic insects, also known as macroinvertebrates. After collection, species diversity and abundance is tallied, and each stream receives a score (0-10) corresponding to a water quality rating (excellent-very poor). Some species thrive in poor water quality conditions, whereas others require clean water. An abundance of clean water species indicates a healthier stream and results in a lower score. The goal of this monitoring is to develop a long-term dataset to look for trends in water quality. We are always looking for volunteers to join us, so be on the lookout for 2023 sampling dates!



Above is a summary of fall 2022 monitoring. Scores will fluctuate seasonally and annually, so one poor score does not necessarily mean that the stream has poor water quality.





# 2022 Grant Summary

## Great Lakes Restoration Initiative Stormwater Grant

- During the 2.5 years of the grant we:
  - Installed 10 curb cut rain gardens in City of Holland right of ways
  - Installed 5 rain gardens and 2 bioswales at Holland City Hall and Kollen Park
  - Completed 6 rainscaping projects on private property (rain gardens and conversion of turf grass to native plants)
- In total, these projects will capture and filter an estimated 1.3 gallons of storm water annually



Rain garden and bioswale at Kollen Park



Rain garden in the City of Holland

## Great Lakes Commission Agricultural Grant

- During the 3 years of the grant, we helped farmers:
  - Plant 3,694 acres of cover crops
  - Construct 3,600 ft of grassed waterways
- These agricultural best management practices have kept an estimated 1,845 lbs of phosphorous and 1,100 tons of sediment out of Lake Macatawa!



Annual rye cover crop following corn harvest

## EPA Trash Free Waters Grant

- During the 2.5 years of the grant:
  - 6 partners held 55 beach and river cleanup events in Ottawa and Allegan counties
  - 1,000 volunteers have spent about 2,000 hours removing 5,100 lbs of trash!



River cleanup team at Ottawa Sands County Park in Grand Haven



## Peters Creek/Poppen Woods Streambank Restoration Project

With the support of a Nonpoint Source Grant from the Michigan Department of Environment, Great Lakes, and Energy, we completed the restoration of 1100' of Peters Creek in Zeeland Township. This project, located on our Poppen Woods property in Zeeland Township, is connected to an additional 700' that was restored in 2019. Using natural design techniques that use objects like downed trees and boulders to stabilize the stream, the restoration work will increase flood storage and significantly reduce the amount of erosion on site. Projects designed in this manner are designed to be more resilient and require less maintenance than a traditionally cleaned drain. The site restored in 2019 is already seeing improved populations of macroinvertebrates, fish, reptiles, and amphibians. Further stream restoration work will take place further upstream in Overisel Township in 2023.



July - erosion blankets staked



September - plant growth

### Watershed Council Grant

- This grant supported the development of engineering designs to stabilize an actively eroding section of the North Branch Macatawa River also known as the Tulip Intercounty Drain
- Fishbeck was hired to complete the design
- We are currently seeking funding to be able to construct the project

### Michigan Coastal Management Program

- This grant supported the development of a resilience plan for the watershed to help us plan and prepare for the predicted impacts of climate change
- Public input was important during this process and we thank everyone that participated!
- This plan will become an appendix in the Watershed Management Plan that will be updated in 2023



Streambank erosion typical in the Tulip Intercounty Drain



Flooding at Dunton Park on Lake Macatawa



# Educational Events



## Macatawa Water Festival

- The Macatawa Water Festival was held on August 13 at Windmill Island in Holland and was free to attend for all ages
- The unusually cold and rainy weather did not stop community members, partners, and sponsors from having a great time at the festival!
- Through many hands-on activities and fun booth displays, participants were able to learn and experience how we can all play an important role in conserving the Macatawa Watershed and how this will benefit our well-being



Canoeing on the Macatawa River



Trout fishing activity for kids

## Cultivating Resilience Farm Field Day

- The 3rd annual Farm Field Day was held at Shady Side Farm on August 18 with 130 attendees
- Farmers of all levels learned about sustainable practices they can implement to encourage both a healthy watershed and farm
- Key topics of the event included composting, no-till farming and rotational grazing, all of which protect water quality and soil structure



Presentation on no-till farming and root growth

## West Michigan GSI Seminar

- On August 25 the West Michigan Green Stormwater Infrastructure (GSI) Seminar was held at the Pinnacle Center in Hudsonville
- The 60 people who attended were engineers, conservation professionals, and municipal employees
- They learned about the importance of managing stormwater and how it can protect watersheds
- Several GSI techniques were discussed, such as rain gardens and bioretention ponds



Participants at the GSI seminar





## Help us in 2023!

This year we had many volunteers assist us with our work. The community is a vital component of restoring the watershed! By participating in events like river cleanups and macroinvertebrate collections, you are making a positive impact on both the environment and our community. Please consider helping us in 2023. We appreciate all you do to support us!



## 2023 Volunteer Events

Macroinvertebrate Collection - May 4

River Cleanup - May 20

Macatawa Water Festival - August 12



## 10 Year Anniversary of Project Clarity!

2023 marks the 10th year since Project Clarity began. Throughout these years, there has been substantial water quality improvement throughout the Macatawa Watershed. We will build upon this progress in years to come, and we could not have done this without the aid of our supporters. We are looking forward to another great year in 2023!

