

Volunteer Monitoring for Water Quality Improvements in the Macatawa Watershed

June 2012- May 2014



The purpose of this project was to establish a long-term volunteer stream monitoring program to assess water quality trends over time in the Macatawa Watershed. The Macatawa Watershed Project, a program of the Macatawa Area Coordinating Council, in partnership with the Outdoor Discovery Center Macatawa Greenway (ODCMG), has achieved this goal through the assistance of a Volunteer Stream Monitoring Grant completed in May 2014. The project partners will continue to maintain a volunteer monitoring program at seven designated locations throughout the Macatawa Watershed.

Grant Amount: \$ 8,774.96

Match Funds: \$ 6,288.64

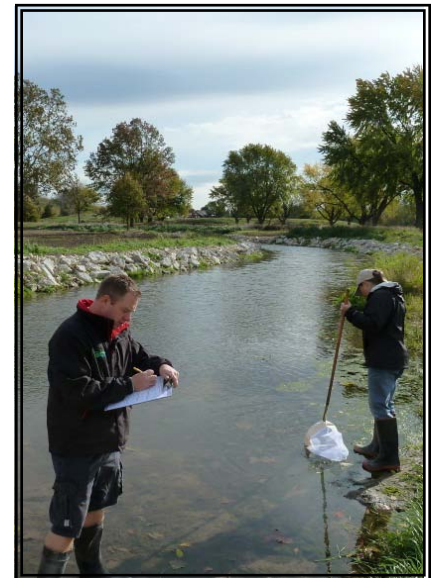
Total Amount: \$ 15,063.60

Project Partners:

- Outdoor Discovery Center
Macatawa Greenway
- DeGraaf Nature Center

Project Accomplishments:

- Conducted monitoring events in spring and fall of each year, 4 total
- Over 70 volunteers participated in 4 monitoring events
- Conducted periodic surveys of team leaders and volunteers, 4 total
- Entered habitat and macroinvertebrate data into MiCorps online database
- Submitted quarterly narrative reports and financial reports
- Created a sustainable program that can continue well into the future



Sampling and site inventory at
Macatawa Greenspace - Fall 2012

Monitoring Activities:

- Seven project sites are sampled twice a year (spring/fall).
- Macroinvertebrates are collected for 30 minutes within the stream.
- After insects have been collected, team members extract up to 11 of each family found and place them in a glass jar filled with water.
- Drawings of each site are sketched from a birds-eye view perspective. Each drawing includes the direction of water flow, a north arrow and other distinguishing features such as woody debris and locations of nearby bridges or buildings. Additional information about the site is recorded on a datasheet.
- Once site collection is complete, insect identification and counts are completed offsite. Insects are sorted by family and counted. If 1-10 are present, they are considered rare, 11+ means they are common. Each family is grouped by pollution tolerance; sensitive, somewhat-sensitive and tolerant. Based on abundance and group, the stream is given a score (example at right).

STREAM QUALITY SCORE

Group 1:

$$\begin{array}{r} \underline{2} \text{ \# of R's } * 5.0 = 10.0 \\ \underline{\quad} \text{ \# of C's } * 5.3 = \underline{\quad} \\ \text{Group 1 Total} = \underline{10.0} \end{array}$$

Group 2:

$$\begin{array}{r} \underline{3} \text{ \# of R's } * 3.0 = 9.0 \\ \underline{2} \text{ \# of C's } * 3.2 = 6.4 \\ \text{Group 2 Total} = \underline{15.4} \end{array}$$

Group 3:

$$\begin{array}{r} \underline{1} \text{ \# of R's } * 1.1 = 1.1 \\ \underline{2} \text{ \# of C's } * 1.0 = 2.0 \\ \text{Group 3 Total} = \underline{3.1} \end{array}$$

Total Stream Quality Score = 28.5
(Sum of totals for groups 1-3; round to nearest whole number)

Check one:

- Excellent (>48)
- Good (34-48)
- Fair (19-33)
- Poor (<19)

Example of the scoring system

Results:

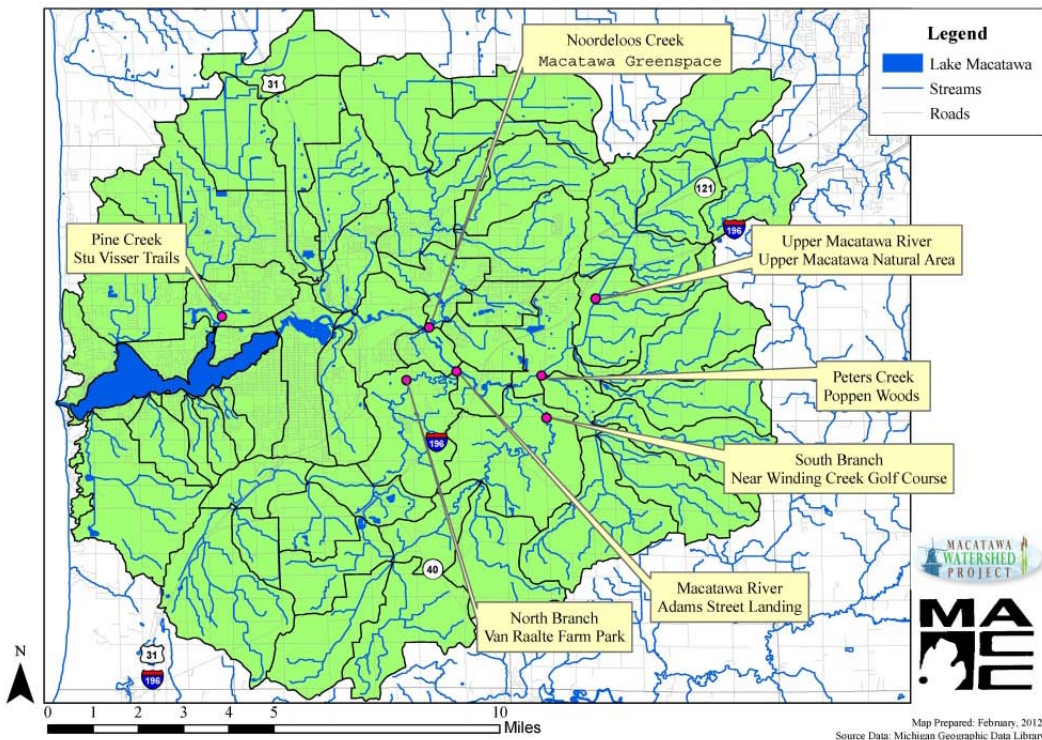
Location	Oct 2012	June 2013	Sept 2013	May 2014
Pine Creek	29	34	29	30
Noordeloos Creek	29	33	20	15
Upper Macatawa	20	15	19	19
Peters Creek	33	19	16	33
South Branch	10	32	22	26
Macatawa River	ND	32	35	33
North Branch	32	43	25	34

ND = no data

Macroinvertebrate sorting and ID at ODCMG facility - Fall 2012



Volunteer Monitoring Locations:



Macatawa Watershed map showing the seven monitoring locations. The Macatawa Watershed is located in both Allegan and Ottawa County.



Holland Christian High School Environmental Science students picking through the collection from the North Branch at Van Raalte Farm Park - Fall 2013



Sampling event on Noordeloos Creek at the Macatawa Greenspace- Fall 2012