Introduction

The Mid-Michigan Environmental Action Council (Mid-MEAC) is an action-based, nonprofit organization that raises awareness of various environmental concerns in the Tri-County Region (Ingham, Eaton, and Clinton). Through volunteering and educating the community, Mid-MEAC has been monitoring six sites along the Red Cedar Watershed for more than a decade. The Volunteer Stream Monitoring program is designed to engage the community through macroinvertebrate collection along the selected sites.

The abundance and diversity of macroinvertebrates are extremely useful indicators of the overall health of streams and rivers. The types of macroinvertebrates collected are indicative of the amount of pollution in certain parts of the rivers, as some species thrive in polluted areas while others require a clean and healthy river. Volunteers collect these bugs using nets and they later identify the species collected from each site. Mid-MEAC uses this data, with the help of volunteers, to contribute to a public database (www.micorps.net). Volunteer Stream Monitoring encourages the public to become more knowledgeable about issues which their watershed faces and promote better stewardship of these streams and rivers.

In 2012, Mid-MEAC added two monitoring sites: upstream and downstream of the Montgomery Drain. These locations have proven to be an important addition to the program and reflect the environmental concerns associated with the pollution and contaminants from the Frandor Shopping Center parking lot in Lansing. In 2013, Mid-MEAC added two more monitoring sites: Ferguson Park in Okemos and near the Layton Road Bridge in Fowlerville. These two additions bring the total sites monitored to ten –helping create a more complete report of the Red Cedar River Watershed.

2014 Stream Monitoring Events

Spring 2014 Monitoring

On June 7th, volunteers collected macroinvertebrates from ten sites. The volunteers worked diligently, sampling from all areas of the stream and recording the appearance of each site. Many different bugs were collected and stored until the Spring bug ID day.

Spring 2014 Bug ID Day

On July 22nd, volunteers sifted through the macroinvertebrates collected from the stream monitoring day. With the help of Mid-MEAC employees, the bugs were successfully identified and recorded. Stream scores of overall health were calculated and recorded as well.

Fall 2014 Monitoring

An impressive group of volunteers braved the cold temperatures on October 11th to help collect macroinvertebrates. At each site, they sampled the different habitats in the stream, catching macroinvertebrates with nets. The Lansing State Journal and HOMTV provided excellent coverage of the event. Help from the numerous volunteers and the great weather aided in making the Fall 2014 monitoring day a success.

Lansing Community College Identifications

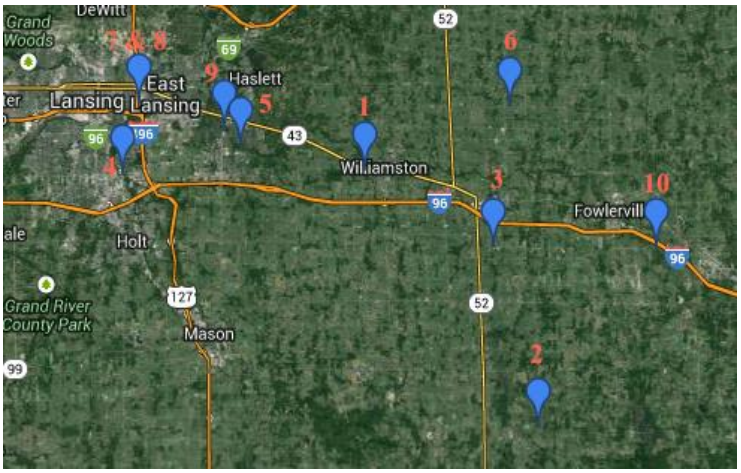
On October 23rd, Mid-MEAC had the opportunity to teach an Environmental Science class at Lansing Community College about the Volunteer Stream Monitoring Program. Students learned about the Michigan Clean Water Corps, the collection and identification of macroinvertebrates, and how these bugs can tell us about the health of the streams. Students were then separated into groups and given an actual sample to identify the bugs and calculate a stream score using what they just learned.

Fall 2014 Bug ID Day

On November 11th, volunteers helped identify the macroinvertebrates collected from the Red Cedar Watershed. After the identifications were made, a stream quality score was calculated for each site. These scores were entered into the MiCorps database and will be used to track the health of the Red Cedar Watershed over time.

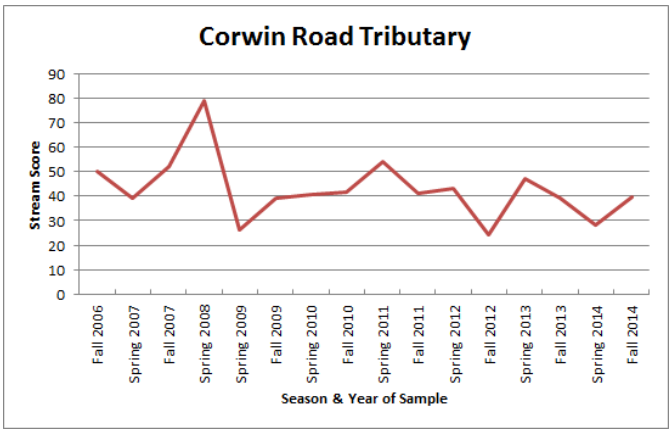
Right: Map showing the ten sites where Mid-MEAC's volunteer stream monitoring program collected data in relation to major highways and roads.

Below: Mid-MEAC volunteers collecting and sorting bugs at the various sites.



Scoring

Since macroinvertebrates are important indicators of water pollution, it is important to sample all of the different habitats in the stream. Once the macroinvertebrates have been identified, a stream score is calculated based on how many pollution sensitive or insensitive bugs were found in the area. A score of 49 or higher shows excellent water quality, 34-48 represents good quality, 19-33 is fair quality, and 0-18 is poor stream quality.

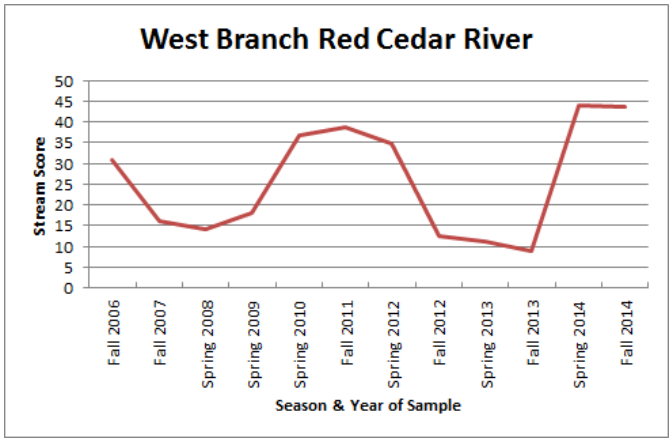


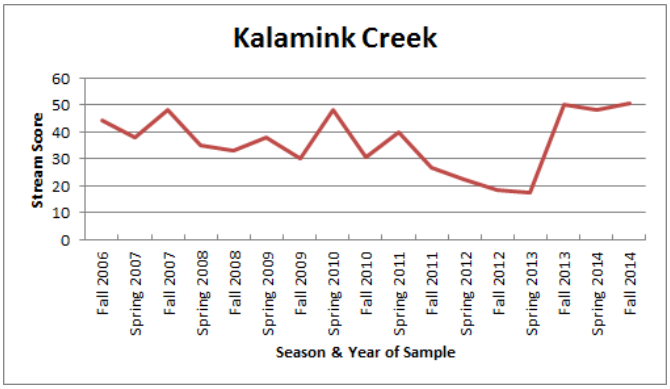
Site #1
Corwin Road Tributary

The Corwin Road site is located on a small tributary that flows into the Red Cedar River just west of Williamston. The site is at the foot of a steep embankment near Grand River Avenue. The many riffles, cobbles, pools, woody debris, leaf packs, and runs make for a diverse macroinvertebrate habitat. This site is one of our more consistent sites and typically tends to have a good stream score, as found during our Fall 2014 sampling.

Site #2
West Branch of Red Cedar at Kane Road

This site is located on the West Branch of the Red Cedar River near the intersection of Kane Road and M-36 near Stockbridge. The stream is in an agricultural area with a riparian zone along its banks. The muddy substrate makes for an interesting bug community and proves to be difficult for volunteers during monitoring. As seen in the graph, this site fluctuates greatly –both the lowest and highest recorded stream scores were collected over the past year.



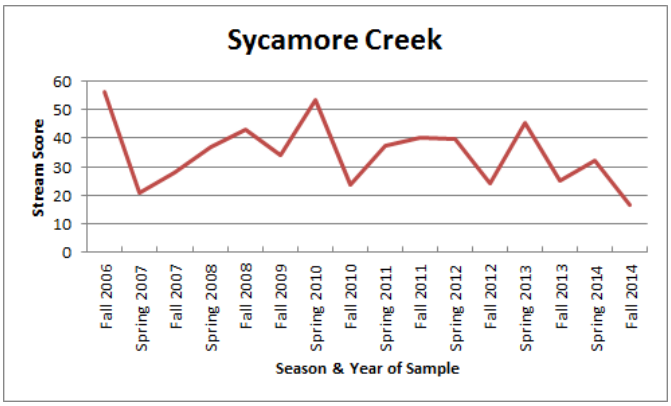


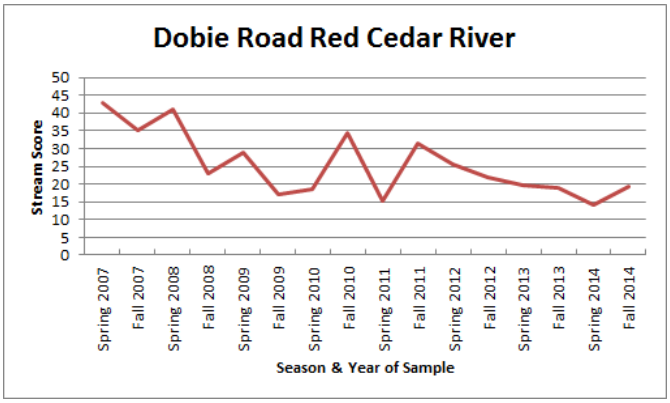
Site #3
Kalamink Creek at Van Orden Road

The Kalamink Creek site is located near the intersection of Elm Road and Van Orden Road south of Webberville. It is a wooded area near the Alchin Farm Cemetery with overhanging trees and muddy substrate. This site has also recovered from being in the poor health category and earned excellent health in Fall 2014.

Site #4
Sycamore Creek at Biggie Munn Park

The Sycamore Creek site is located at Biggie Munn Park near the intersection of Jolly Road and Aurelius Road in Lansing. A large grass field runs directly to the edge of the stream. A small buffer zone and minimal rooted plants results in high erosion on the side of the park. The other side of the stream is lined with trees and other vegetation. Runs, small pools, and woody debris offer a good habitat for bugs. This site has shown a decreasing trend in health and was classified as poor health in Fall 2014.



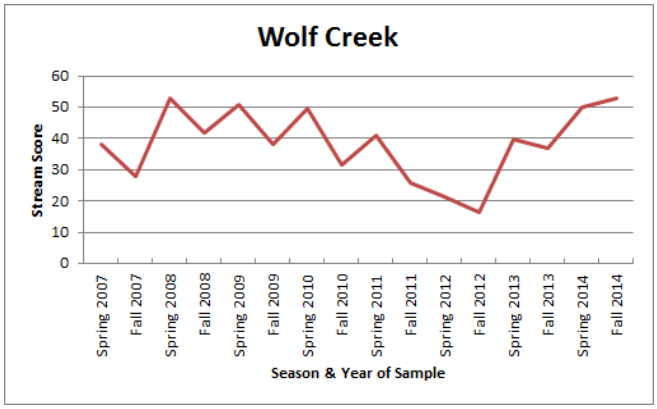


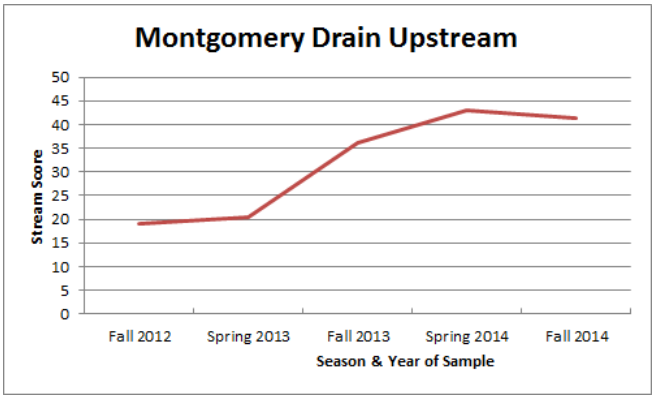
Site #5
Red Cedar by Dobie Road

This site is located at the mouth of a small tributary of the Red Cedar River near the intersection of Dobie Road and Kinawa Road in Okemos. It is the most remote and wooded site. A wide variety of wildlife can be spotted during monitoring events. Aquatic habitats include riffles, runs, woody debris, cobbles, and pools. Severe erosion is present along parts of the stream bank. This site has also experienced a decrease in health, but went from poor health in Spring 2014 to fair health in Fall 2014.

Site #6
Wolf Creek at Bell Oak Road

Our Wolf Creek site is located near the intersection of Bell Oak Road and Morrice Road just north of Webberville. The stream has good riparian vegetation along the banks, with some good runs, small pools, riffles, and woody debris for bugs. This site was in good health in Spring 2014 and improved to excellent health status in Fall 2014.



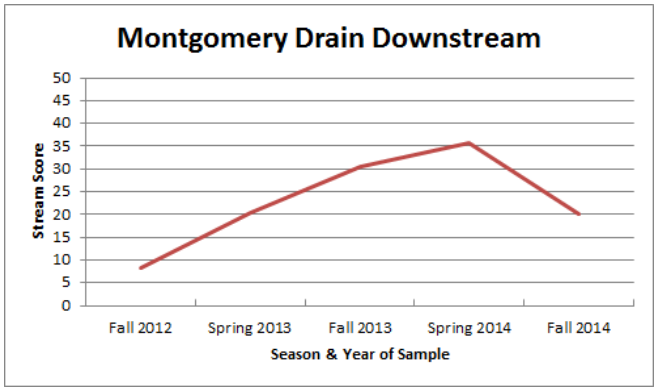


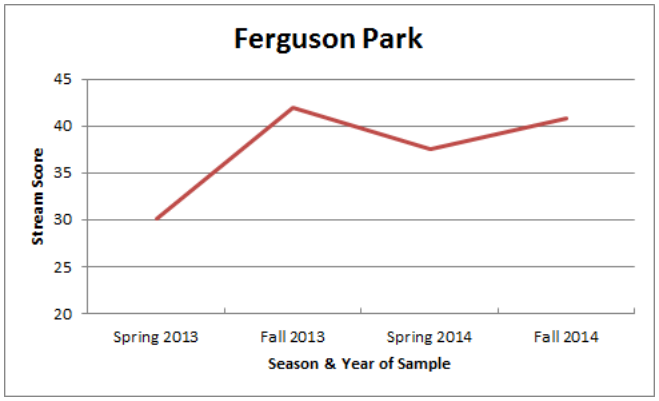
Site #7
Montgomery Drain: Upstream

This site is located just west of Michigan State University's campus near the former Red Cedar Golf Course and upstream of the Montgomery Drain. Parts of this section of the Red Cedar have been channelized, while other areas host a variety of habitats including woody debris from downed trees, cobbles, riffles, and aquatic plants. The substrate is mostly gravel and silt. This site fell from excellent health in Spring 2014 to good health in Fall 2014.

Site #8
Montgomery Drain: Downstream

This site is directly downstream from the Montgomery Drain. The river is not as wide or as deep as it is upstream. Woody debris and riffles are the two main habitats found here. Erosion can be seen along the outside bank. Gravel deposition occurs along the inside bank of the meanders. The substrate tends to be mostly sand and gravel. This site fell from good health in Spring 2014 to fair health in Fall 2014.



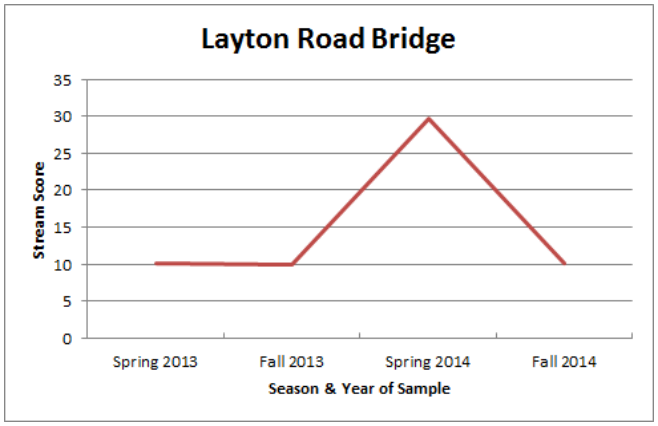


Site #9
Ferguson Park

This site is located slightly north of the cross section of Okemos Road with Mt. Hope Road. The bank has almost no erosion, but has a poor riparian zone with little vegetation. Grasses are dominant with some trees and algae on the rocks. The substrate was mostly sand with some evidence of gravel. This site was classified to be in good health in both the Spring and Fall 2014.

Site #10
Layton Road Bridge

This site is located just downstream of a newly rebuilt bridge in a rural area heavily dominated by farmland. The substrate is primarily fine grain organic matter and some sand, making it extremely difficult to traverse and sample. With the exception of the Spring 2014 sampling, this is typically our lowest scoring site.



The MiCorps Database: How to Access Data Online

The data Mid-MEAC collects each season is uploaded into a statewide lake and stream monitoring database called the Michigan Clean Water Corps (MiCorps) database. Using the MiCorps database, any person, group, or governmental agency can access data from Volunteer Stream Monitoring programs around the state. The database is watched by the Department of Environmental Quality, along with the concerned public, to detect problems with water quality. Specific data, such as stream scores and bug types collected, can be found for all of Mid-MEAC's sites. To access the MiCorps database, follow these steps:

1) Go to www.micorps.net.
2) Move the mouse over the Data Exchange tab in the upper right hand corner and select View Data.
3) On the MiCorps Data Exchange Network page, click Streams.
4) Select the search criteria. To view all of Mid-MEAC's sites, select Upper Grand in the Watershed/Hydrologic Unit Code tab.
6) Hit Search and find the Mid-Michigan Environmental Action Council sites.
7) Hit the 'more' button for more detailed data.

Acknowledgements

Mid-MEAC would like to thank all the volunteers who devoted time to protecting the Red Cedar Watershed. Your work ensures that we will have healthy water resources for generations to come.

Spring 2014 Monitoring Volunteers: Cheryl Overley, Elisha Overley, Norma Bauer, Margaret Barondess, Rachael Loucks, Ken Roubal, Nicole Smith, Jennifer Hunnell, Don Moore, Theresa Moore, Kya Rose, Elizabeth Merchant, Gabe Zawadzki, Paige Filice, Julie Powers, Brandon Kawalec, Andrew Stables, Rachel Townsend.

Spring 2014 Bug ID Volunteers: Brandon Kawalec, Rachel Townsend, Mark Bauby, Christo Ferguson, Liutauras Gedvilas, Julie Powers, Courtney Weatherbee, Gabe Zawadzki.

Fall 2014 Monitoring Volunteers: Bruce Peffers, Kendra Peffers, Caitlin Peffers, Sara Weeden, Christo Ferguson, Cheryl Overley, Boaz Overley, Elisha Overley, Matthids Overley, Theresa Moore, Don Moore, Nicole Smith, Bob Kavetsky, Lihong Li, Juliana Baker, Gabe Zawadzki, Paul Brogan, Matt Flechter, Bethany Renfer, Enoch Overley, Intesar Hameed, Hannah Meyer, Brandon Kawalec

Fall 2014 BUG ID Volunteers: Cheryl Overley, Elisha Overley, Emily Dievendorf, Ryan Walquist, Jonaton Martinez, Ryan Rowe, Hannah Meyer, Brandon Kawalec

Photographs: Bob Killips, Lansing State Journal

If you would like more information about our program, or would like to participate in future events, contact Mid-MEAC at:

midmeac@gmail.com or (517) 292-3078.
www.midmeac.org