MiCorps Final Project Report

Lower Muskegon River Watershed 2017 Stream Monitoring

Muskegon River Watershed Assembly

Awarded: May 18, 2017

Project#: VSM2017 - 02

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Executive Summary:

The Muskegon River Watershed Assembly was awarded a MiCorps grant in May of 2017 to implement a MiCorps program in Newaygo, Montcalm and Muskegon Counties. During the grant period, one training and three sampling events were completed. Although the number of committed volunteer monitors fluctuated during the project, a number of new volunteers were added and veteran volunteers retained. The level of excitement from the current group of monitors is high and has prompted MRWA to sustain the program even in the absence of grant funds. Also, notable partnerships have occurred that will help ensure sustainability of the program which includes financial donors and a new partnership with the Missaukee Conservation District to collaboratively host volunteer trainings.

Program Goals and Objectives:

The overarching goal of the Muskegon River Watershed MiCorps Program is to engage volunteers and residents in stream monitoring in order to educate on the importance of watershed protection.

The specific goals are to:

1. Educate Muskegon River Watershed residents on ways to monitor, protect and improve quality of water resources.
2. Engage volunteers to provide water monitoring and protection.
3. Monitor stream health and maintain a long-term dataset to document changes over time in the Muskegon River Watershed.
4. Determine stream locations where best management practices should be used in order to address stream degradations or maintain high-quality areas.

Program Summary:

During the project period, there was one MiCorps volunteer training and three sampling events. The volunteer training was held on April 28, 2019, in Newaygo, Michigan where a total of sixteen people attended. The morning classroom work was held at Brooks Township Hall and during the afternoon, participants conducted monitoring on Brooks Creek at Marshall Memorial Park. Brooks Creek provided an excellent location for training because of the macroinvertebrate community's high diversity of species and other taxonomic groups. The training instructor was Dr. Cindy Fitzwilliams-Heck, who is a Ferris State University biology professor, longtime MiCorps volunteer, FSU Outdoor Club advisor and a director on the Muskegon River Watershed Assembly board. The primary education material used during the training included the MiCorps Volunteer Stream Monitoring Procedures manual and a slideshow, which used examples to demonstrate correct techniques for completing field data forms.

Three sampling events occurred from May 2018 through May 2019 and were all held at Ed Henning Park in Newaygo, Michigan. Ed Henning Park became the central location for volunteers to meet prior to each monitoring event. Following the sampling, the volunteers would again return, and sort through samples, identify organisms, and complete each section of the data sheets. A total of forty-three

volunteers participated during the three events at Ed Henning Park. Eight sites (seven in spring of 2018), identified in the grant scope of work, were monitored during spring and fall of 2018 and spring of 2019. The first monitoring event had the fewest number of volunteers and three teams monitored two sites each, including the MRWA team. Three sites were added during the project period; two from Mitchell Creek (Mecosta County) and one from the Muskegon River near Hersey (Osceola County). The Mitchell Creek (Mecosta County) sites were added to the list in part due to BMPs which are being considered to address severe erosion. The downstream site was monitored three times during the grant period by the Ferris State Outdoor Club including their advisor, Dr. Cindy Fitzwilliams-Heck. An upstream Mitchell Creek site was delineated and monitored in the spring of 2019 by the MRWA team. The MRWA used the monitoring as a welcome to their new Invasive Species Program Coordinator and an introduction to the MiCorps program. This site will continue to be monitored and has been included as part of Professor Doug Workman's biology class curriculum at Ferris State University in the upcoming fall and spring semesters. The Muskegon River site was formed by a trained leader who established a team and monitored the location one time but because of the high water and fast current, the site was discontinued. This one-time monitoring had four volunteers participating.

The volunteer base diversified through the project because of the vast recruitment efforts by MRWA. Volunteers included high school and college students, families, sport fishing enthusiasts, laborers, representatives from the Fremont Area Community Foundation, members of the MRWA Board of Directors, a retired USFWS employee, a stream ecologist, an artist, a member of the Native Circle from Newaygo County and educators.

At the first monitoring event and all subsequent events, all volunteers were given T-shirts, food and beverages prior to leaving for the sites, which was funded by MRWA's local partner, the Fremont Area Community Foundation. Local merchants were also involved in supporting the program by donating door prizes for volunteers. MRWA also donated items for door prizes. The door prizes and food brought excitement and energy to the event. At the final event each volunteer who attended the training session and all three monitoring events were given a one-year individual membership to MRWA. There were nine memberships given to those dedicated volunteers.

Extensive program management occurred throughout the project and built the capacity of MRWA to implement the project into the future. In the spring of 2017, the Program Coordinator attended the leadership training for MiCorps Volunteer Stream Monitoring in Grandville, Michigan, under the instruction of Dr. Paul Steen. The Quality Assurance Project Plan (QAPP) was approved by MiCorps staff on October 19, 2017. All the required quarterly reports were processed on time; all data were verified for accuracy and then entered in the MiCorps Data Exchange Network. Habitat Assessments were completed in spring 2018 and 2019 with data entered in the MiCorps Data Exchange Network. In 2018, a new Program Coordinator was assigned by MRWA and she attended the MiCorps Annual Conference in 2017 at the Kettunen Center along with the Executive Director and a veteran volunteer. Attendance of the 2018 conference was not required because of budget and program cuts.

A major focus of MRWA during the project was to demonstrate to the volunteer monitors how the information they collected was important for management of the watershed and to make the information collected accessible and relevant to them. To this end, MRWA created Site Summaries (Appendix A) for each monitoring location that are easy to understand and will help the public to evaluate their favorite streams and monitor the quality of the stream water. The summaries will allow the public to become involved and draw their own conclusions and analysis of their watershed. These summaries will be posted on the MRWA website with a link from Facebook. All volunteers will also

receive the summaries via email. The summaries will be updated in the future with data collected during each seasonal monitoring event.

The most difficult challenge that MRWA faced was the recruitment and retaining of volunteers. An early challenge was the reluctance of veteran volunteer monitors, some of which had been volunteering for ten years, to adhere to the new protocols. Two meetings were scheduled for the veteran volunteer monitors on April 18, 2018 and April 24, 2018. No one attended the April 18 meeting even though they had RSVP'd; only four volunteers attended the April 24 meeting. The meetings were to discuss the new Quality Assurance Project Plan and the resulting changes the volunteers would need to follow. One of the primary changes that frustrated veteran monitors was how teams of at least four people would be required and that monitoring teams could only sample sites for two years to prevent bias. The veterans had been monitoring the same sites for many years and usually they worked by themselves or with one or two other people. All but one veteran volunteer rejected the new guidelines and discontinued their involvement. Two veteran volunteers recently rejoined the program and have commented how they enjoy the new MiCorps volunteer stream monitoring events.

During the early recruitment process, 56 people signed up for training but only 16 attended. Because of these early numbers, additional equipment and supplies were purchased. Throughout the grant period, MRWA experienced quite a bit of volunteer remorse while also finding volunteers that are highly committed. Poor volunteer attendance was observed during the last event in May of 2019, nine new volunteers signed up but only 3 attended. High retention and excitement from the April 2018 cohort has helped rejuvenate the program. Recruitment will be considered a top priority by MRWA and will continue in the future to keep the program sustainable.

A barrier that MRWA faced was realized during the first monitoring of the Deaner Road location (Site ID# MWA-04-31-05). The MRWA team tried to monitor the site but found it was impossible due to high water and dangerous conditions. The site was checked on subsequent dates and conditions remained the same. Brooks Creek at Marshall Memorial Park (Site ID# MWA-06-31-06) was added as a location to replace the Deaner Road location. Brooks Creek, located on Vista Drive (Site ID# MWA-06-43-05) was a targeted site from the grant and is the headwaters of Brooks Creek as it leaves Brooks Lake, a highly populated residential area. The new monitoring location at Marshall Memorial Park is also on Brooks Creeks and allows data to be collected close to the creek's mouth before it flows into the Muskegon River.

Another difficulty faced by the MRWA occurred when two experienced staff left during June to December of 2017. The hard work by remaining and additional staff eliminated the barrier and it merely became a challenge.

Benefits of the Project:

Many benefits occurred during the project including more public awareness in the importance of protecting stream habitat and biota, new and engaged volunteers, an increase in monitoring sites, the nurturing of a long-term data set and capacity building for MRWA. A primary benefit included the increased awareness of the public and the expansion of monitoring sites into counties that have not been previously monitored. An additional benefit directly affecting MRWA is the revitalization and updating of a fourteen-year-old MiCorps Volunteer Stream Monitoring Program.

The sites that were part of the grant were more geographically focused than previous active monitoring sites allowing for a more robust data set which targeted stream locations where problems were believed to exist. Adding the second Mitchell Creek site (Site ID# MWA—02-25-13) will enable MRWA to monitor any degradation of the water quality due to excessive erosion from the Clay Cliffs erosion area and serious streambank erosion due to flooding. The second addition, Brooks Creek at Marshall Memorial Park, data shows a remarkable stream quality score recovery as the creek flows from the headwaters at Vista Road, (Site ID# MWA-06-43-05) to the mouth at Marshall Memorial Park (Site ID# MWA-06-31-06) with a stream quality score of poor/fair and excellent respectfully. The three locations on Tamarack Creek will allow for similar analysis in the future and the targeting of any threats namely from agriculture runoff and non-point source pollution.

Another benefit of the program was development of a new Program Coordinator and the sustainability of the MiCorps program into the future. The Coordinator, who had not been overly familiar with the MiCorps program, took on the program as a learning experience and learned the protocols and nuances of the program. The Program Coordinator was able to use her interpersonal skills and re-energize the volunteer base and recruit new volunteers. What at first seemed to be a challenge soon turned into a strengthening of the program and sustainability, which had not been observed for many years. Much focus was placed on continuous recruitment and it was learned how more volunteers than needed should be targeted because turnout is questionable.

Public Outreach:

Volunteers were recruited through the MRWA newsletter, which is received by 1,600 people, shared and boosted advertisements on Facebook, notification and registration on the MRWA website, email blasts through Mail Chimp, posters distributed throughout the lower watershed, notifications given at regular meetings of the Newaygo County Conservation Collaborative and notifications at regular MRWA board meetings. The volunteer recruitment efforts continued throughout the grant period.

The MRWA educated elementary students through a series of events throughout the watershed. In 2017 and 2018, MiCorps monitoring education for students was held at the Twin Lake Water Fair in Muskegon County and the Tri-County Water Fair in Montcalm County. Due to poor weather conditions the MRWA was only able to conduct MiCorps monitoring education at the Twin Lake Water Fair in 2019. The yearly water fairs are presented by the Muskegon River Watershed Assembly's Education Committee and staff. In July of 2018, MRWA staff conducted a MiCorps monitoring education segment at a Newaygo County Conservation Collaborative event for teens. MRWA considers these youth events crucial to the future protection of the watershed.

The River View, MRWA's newsletter, has covered the MiCorps Volunteer Stream Monitoring extensively and one article was the first article published on a new blog available on the MiCorps program website, "Monitoring for Macros in the Muskegon" (https://micorps.net/blog/monitoring-for-macros-in-the-muskegon/).

The current stream leaders are also doing their part in community outreach. One stream leader is a teacher and has borrowed equipment from MRWA for the past two years to monitor a local stream with her elementary students. She has reported a lot of enthusiasm on the part of the students.

Project Sustainability:

The MRWA is committed to the sustainability of the MiCorps program by continuing to organize and implement sampling events. Events are currently being scheduled including a fall sampling event in 2019 and a collaborative volunteer training event between MRWA and the Missaukee Conservation District. MRWA is actively seeking multiple funding sources and donors to continue its role of facilitating, scheduling and planning of MiCorps events with two donors that have committed partial funding.

Appendix A. Site Summaries Cover

Mitchell Creek – Cold Spring Creek Subwatershed

Site ID #: MWA-02-25-03

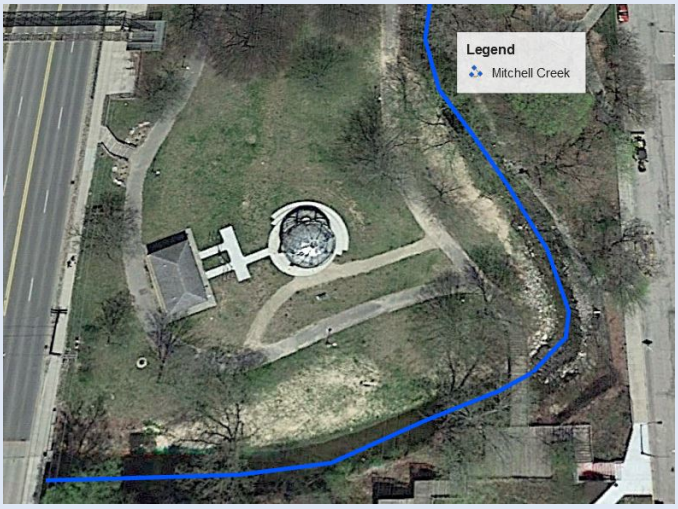
Site Details: City park with excessive removal of streamside vegetation and canopy.

Location Coord.(dd): 43.70010° N, -85.48307° W

Township: Big Rapids

Stream Order: 2

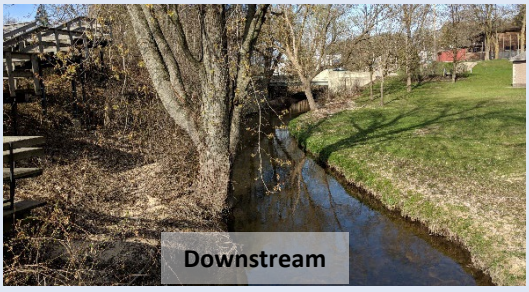
Site Map:



Description

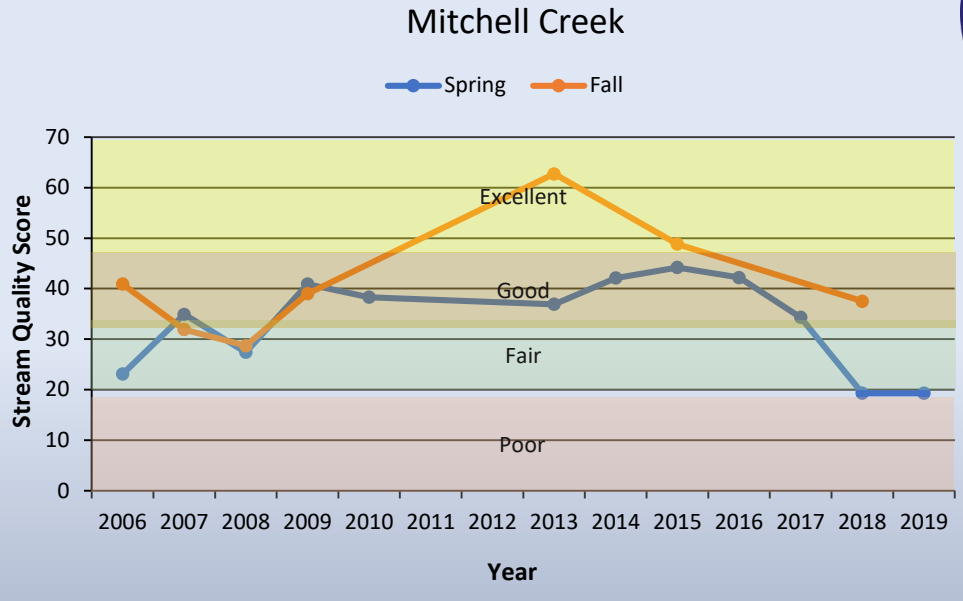
Monitoring Location: Mitchell Creek Park beginning 12 feet downstream of north footbridge to 10 feet upstream of big tree at south footbridge. 300 feet downstream accessed.

Site Photos:



Monitoring Data

Summary of Monitoring Data:



Mitchell Creek/Clay Cliffs – Cold Spring Creek Subwatershed

Site ID #: MWA-02-25-13

Site Details: Heavily used rustic public trail with excessive stream bank erosion and flooding.

Location Coord.(dd): 43.69780° N, -85.49432° W

Township: Big Rapids

Stream Order: 2

Site Map:

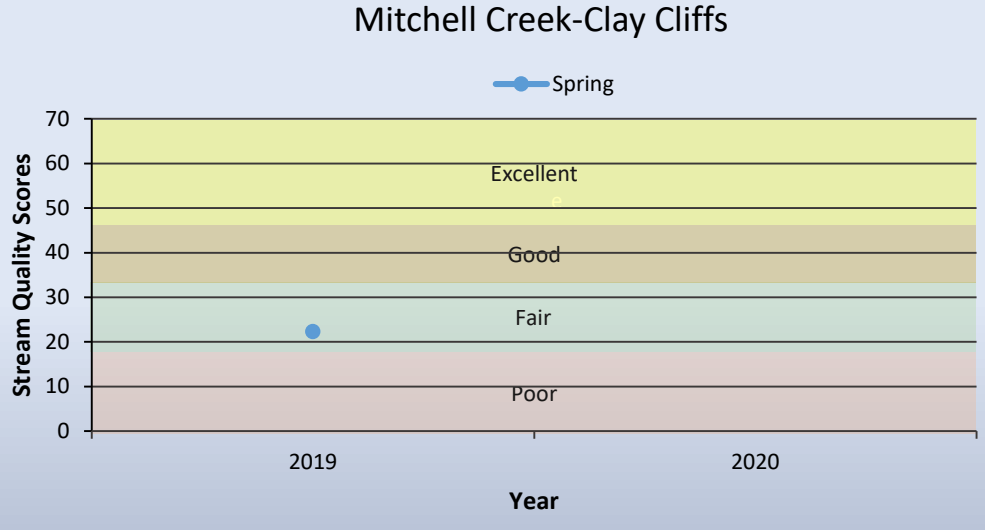
Description

Monitoring Location: 300 feet upstream from the starting point of the Clay Cliffs erosion site.

Site Photos:

Monitoring Data

Summary of Monitoring Data:



Tamarack Creek – Weatherby Drain Subwatershed

Site ID #: MWA-04-31-05

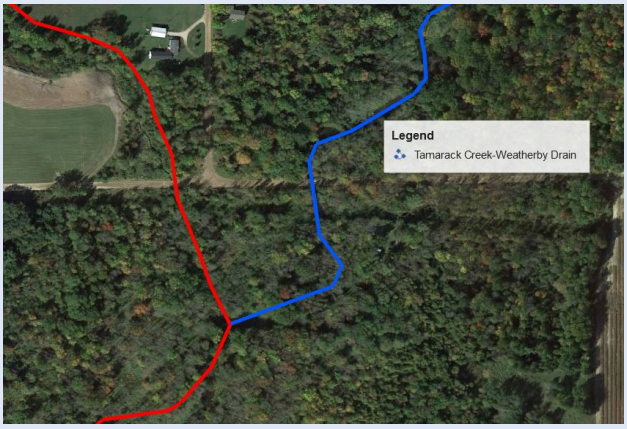
Site Details: Bridge site found to be unsuitable for monitoring due to high water and limited access.

Location Coord.(dd): 43.39921° N, -85.41095° W

Township: Winfield

Stream Order: 3

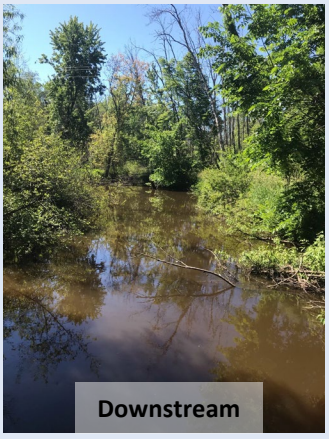
Site Map:



Description

Monitoring Location: Deaner Road monitoring location was never determined.

Site Photos:



Monitoring Data

Summary of Monitoring Data:

Tamarack Creek – Weatherby Drain Subwatershed

Site ID #: MWA-04-31-06

Site Details: Agricultural drain with culvert replacement coordinated by MRWA in 2016.

Location Coord.(dd): 43.40878° N, -85.41246° W

Township: Winfield

Stream Order: 1

Site Map:

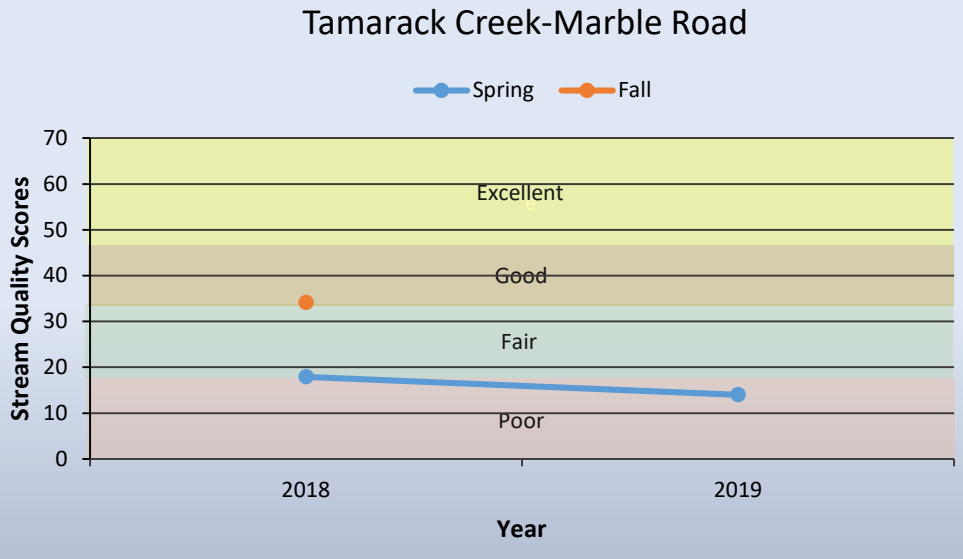
Description

Monitoring Location: 300 feet downstream from the culvert located on Marble Road off from West Almy Road.

Site Photos:

Monitoring Data

Summary of Monitoring Data:



Tamarack Creek – Weatherby Drain Subwatershed

Site ID #: MWA-04-31-07

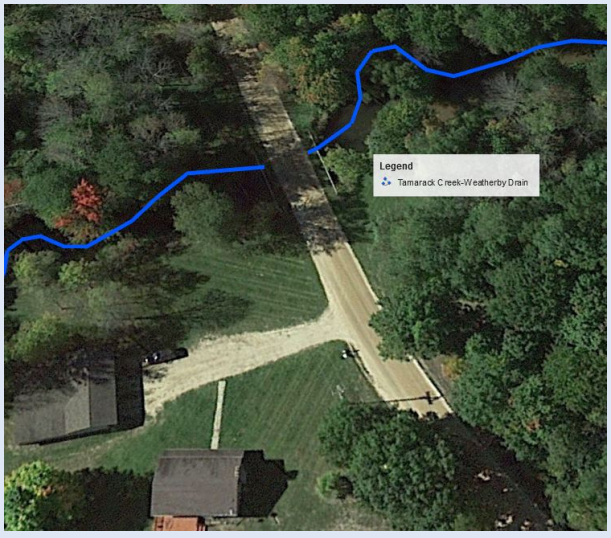
Site Details: Culvert replacement coordinated by MRWA in 2016. Downstream from agricultural and livestock operations.

Location Coord.(dd): 43.41017° N, -85.39702° W

Township: Winfield

Stream Order: 3

Site Map:



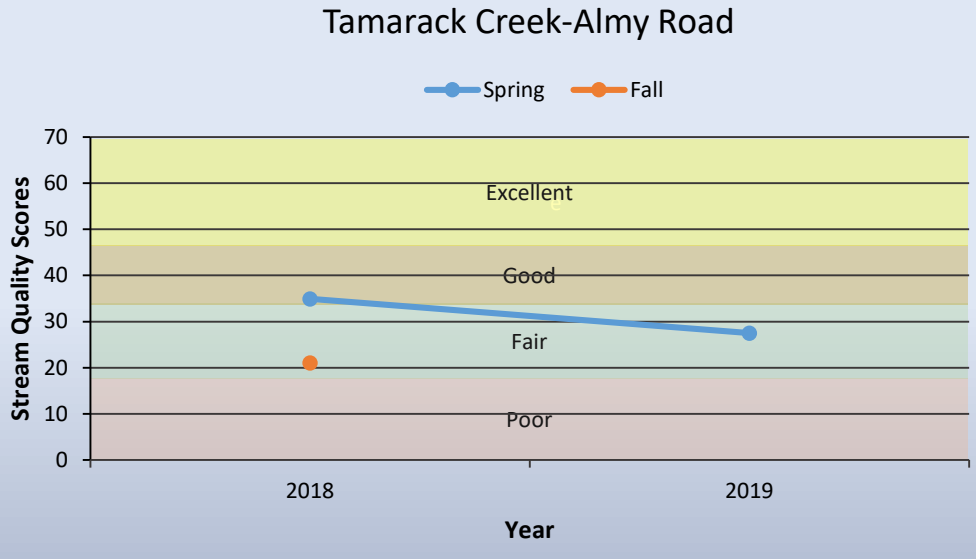
Description

Monitoring Location: 300 feet upstream from culvert located on West Almy Road just past North Bailey Road.

Site Photos:

Monitoring Data

Summary of Monitoring Data:



Tamarack Creek – Tamarack Creek Subwatershed

Site ID #: MWA-04-31-08

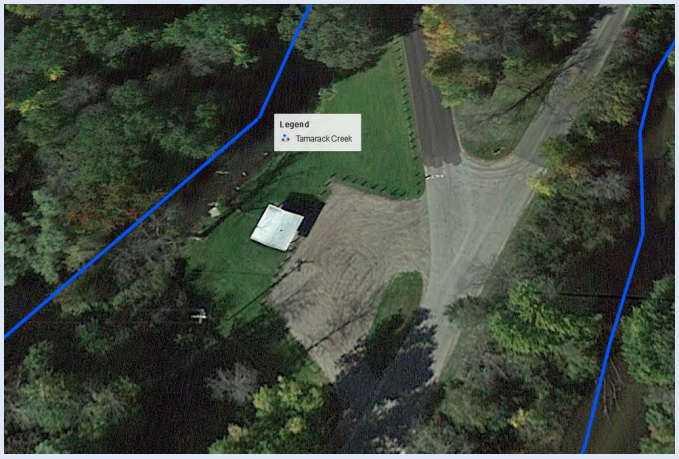
Site Details: Heavily used city park. Streambank stabilization coordinated by MRWA in 2016. Suspected nutrient loading from road.

Location Coord.(dd): 43.39837° N, -85.46263° W

Township: Reynolds

Stream Order: 3

Site Map:



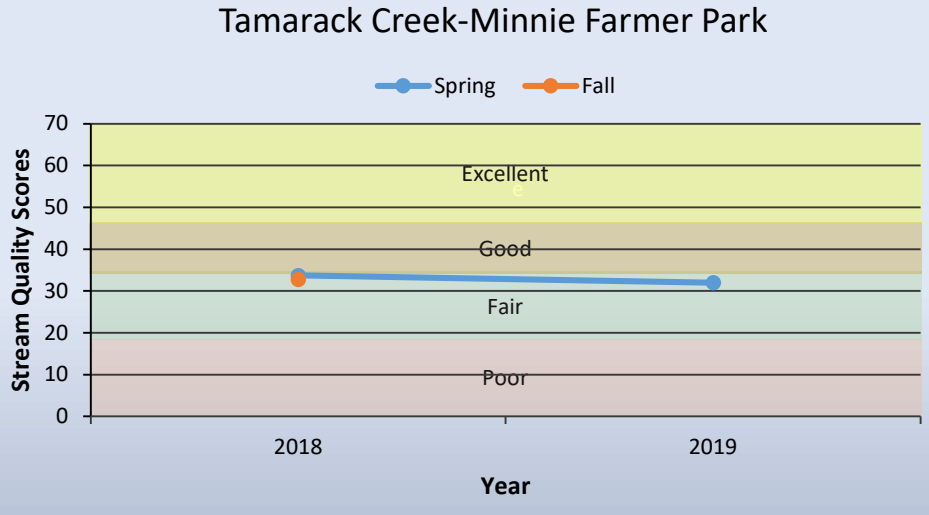
Description

Monitoring Location: 300 feet downstream of the flowing well located at Minnie Farmer Park, Howard City, Michigan.

Site Photos:

Monitoring Data

Summary of Monitoring Data:



Bear Creek – Bear Creek Subwatershed

Site ID #: MWA-05-39-01

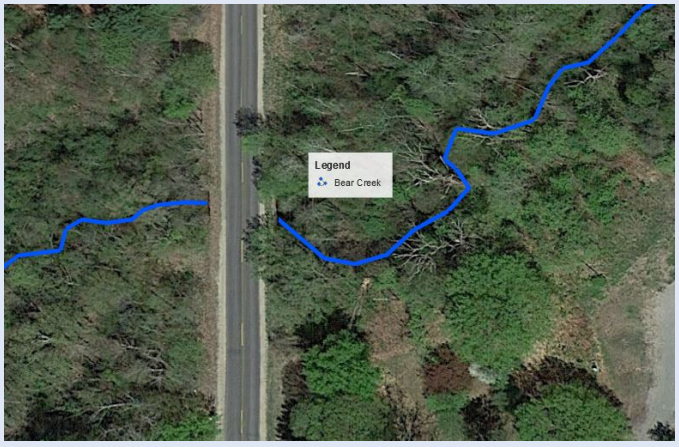
Site Details: Old culvert/road stream crossing on a secondary paved road. Previous studies have shown excessive nutrients.

Location Coord.(dd): 43.31456° N, -86.18715° W

Township: Dalton

Stream Order: 2

Site Map:



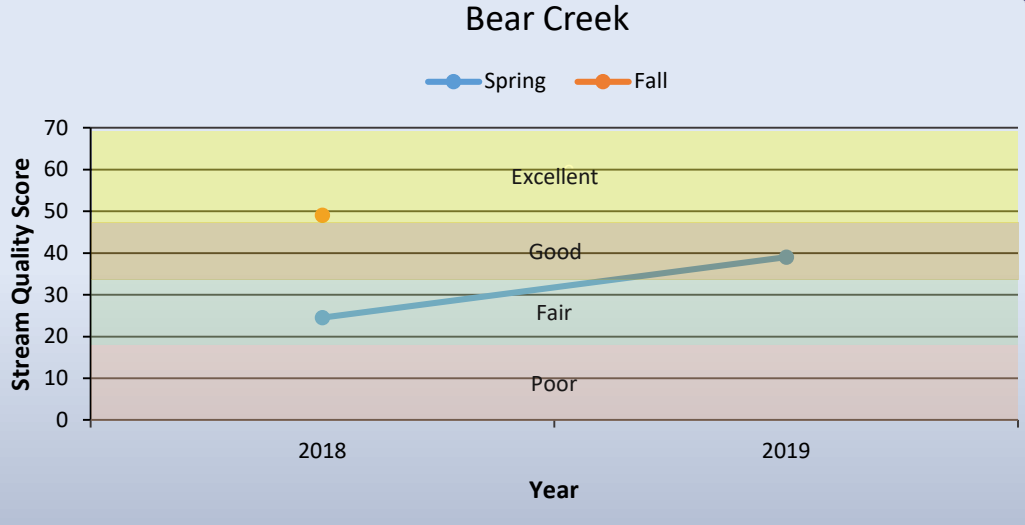
Description

Monitoring Location: 300 feet downstream of the culvert located on Pillion Road.

Site Photos:

Monitoring Data

Summary of Monitoring Data:



Cedar Creek – Cedar Creek Subwatershed

Site ID #: MWA-05-37-02

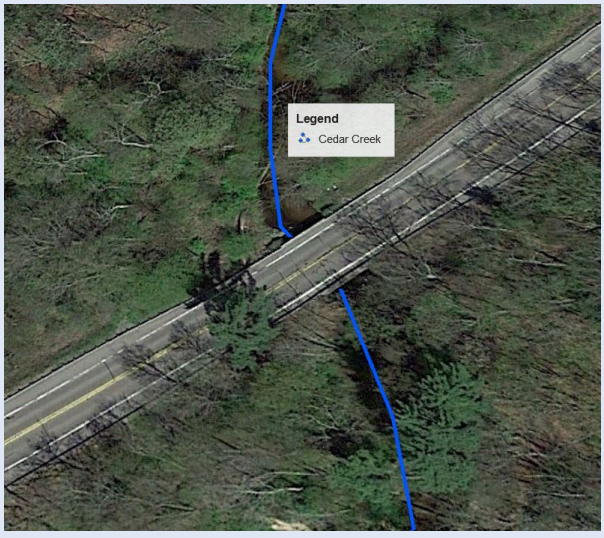
Site Details: Paved bridge located on a heavily used paved highway. Downstream from major livestock and agricultural operations.

Location Coord.(dd): 43.38605° N, -86.12810° W

Township: Cedar Creek

Stream Order: 3

Site Map:



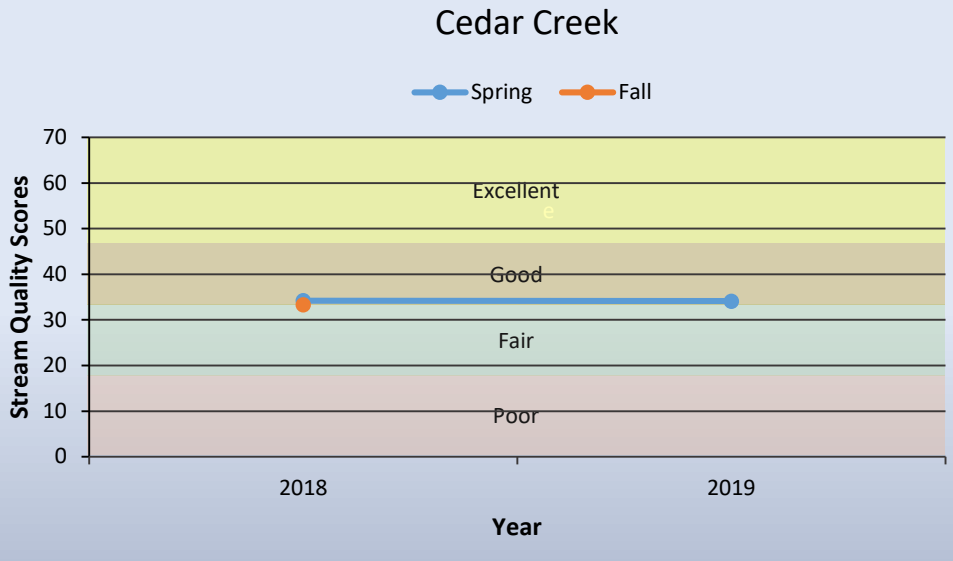
Description

Monitoring Location: 300 feet upstream from Holton Road Bridge.

Site Photos:

Monitoring Data

Summary of Monitoring Data:



Brooks Creek – Fourmile Creek Subwatershed

Site ID #: MWA-06-43-05

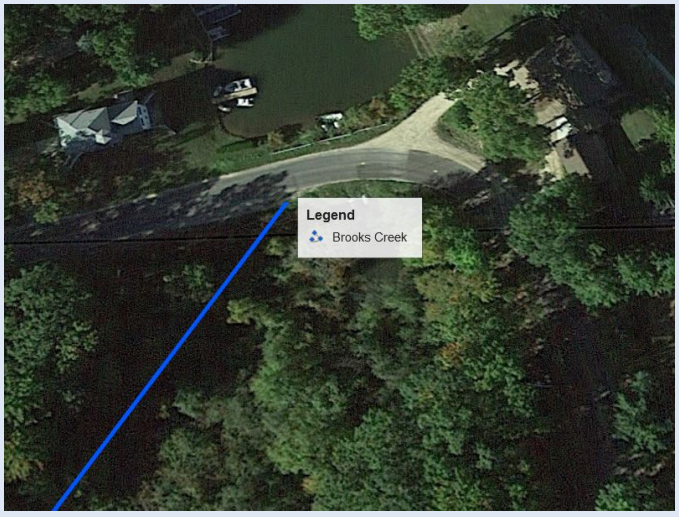
Site Details: A heavily developed residential area with dual culverts and a flow control device on the outlet from Brooks Lake.

Location Coord.(dd): 43.40038° N, -85.76092° W

Township: Brooks

Stream Order: 3

Site Map:



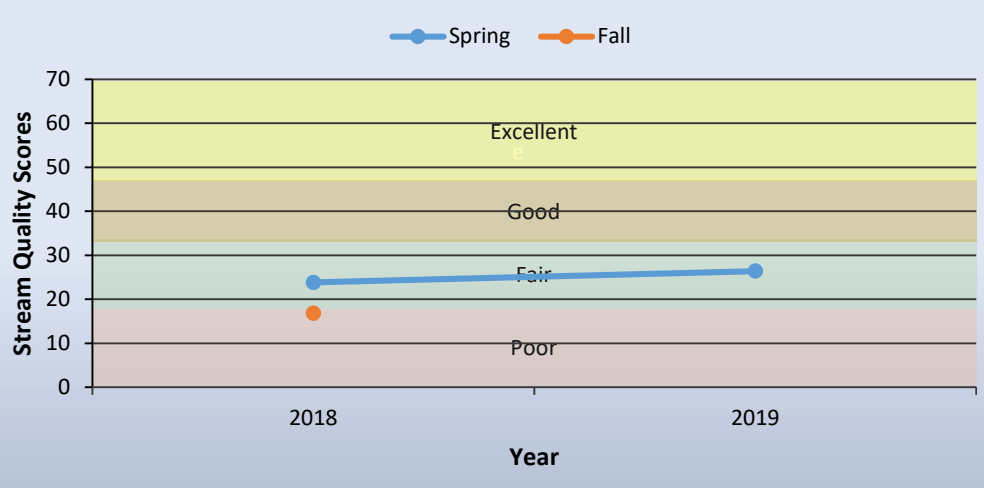
Description

Monitoring Location: 300 feet downstream from the dual culverts on Vista Drive.

Site Photos:

Monitoring Data

Summary of Monitoring Data:



Brooks Creek – Fourmile Creek Subwatershed

Site ID #: MWA-06-31-06

Site Details: Well maintained public park and hiking trail. High flow with steep banks and diverse habitat.

Location Coord.(dd): 43.41681° N, -85.80463° W

Township: Garfield

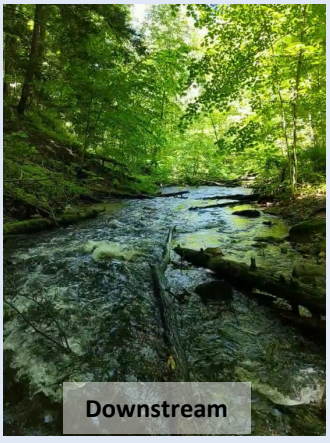
Stream Order: 3

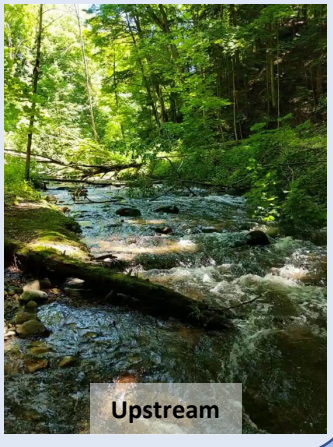
Site Map:

Description

Monitoring Location: 300 feet downstream of the first access point on creek at Marshall Memorial Park.

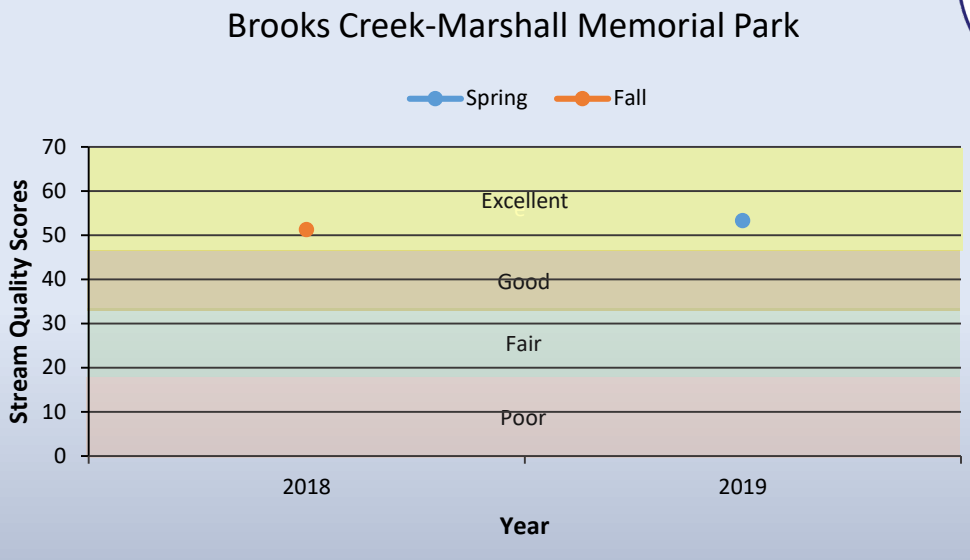
Site Photos:





Monitoring Data

Summary of Monitoring Data:



Sand Creek – Minnie Creek Subwatershed

Site ID #: MWA-06-37-01

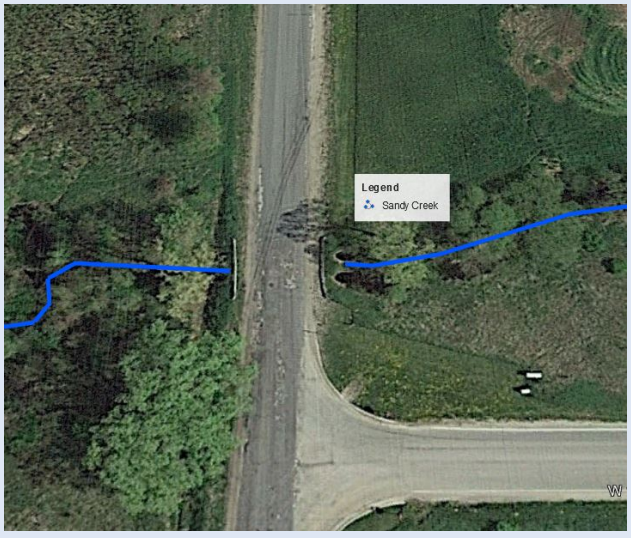
Site Details: Dual culverts on a paved secondary road. Downstream from livestock and agricultural operations with livestock access to creek.

Location Coord.(dd): 43.33575° N, -85.87646° W

Township: Ashland

Stream Order: 2

Site Map:



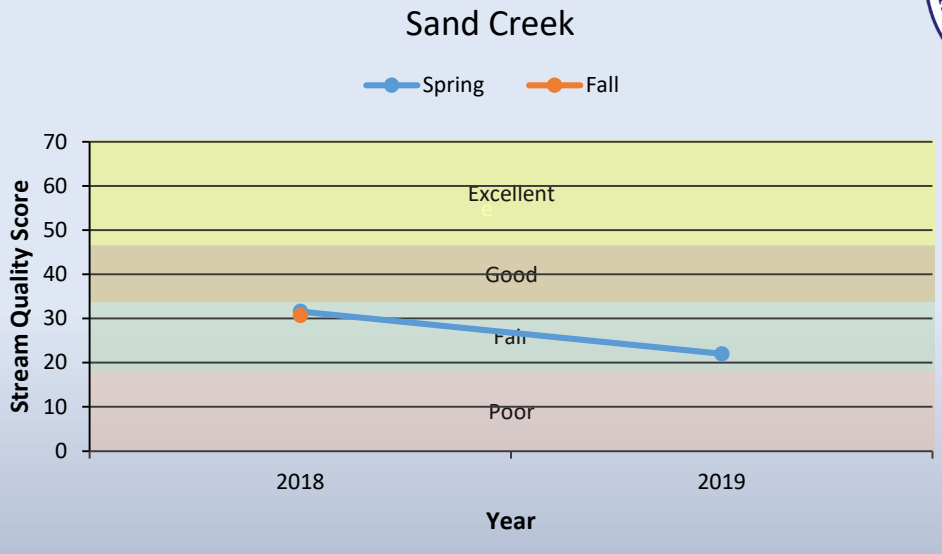
Description

Monitoring Location: 300 feet upstream from the footbridge towards the dual culverts on Wisner Avenue and 120th Avenue.

Site Photos:

Monitoring Data

Summary of Monitoring Data:



Appendix B. Project Fact Sheet

Project Name: Lower Muskegon River Watershed 2017 Stream Monitoring

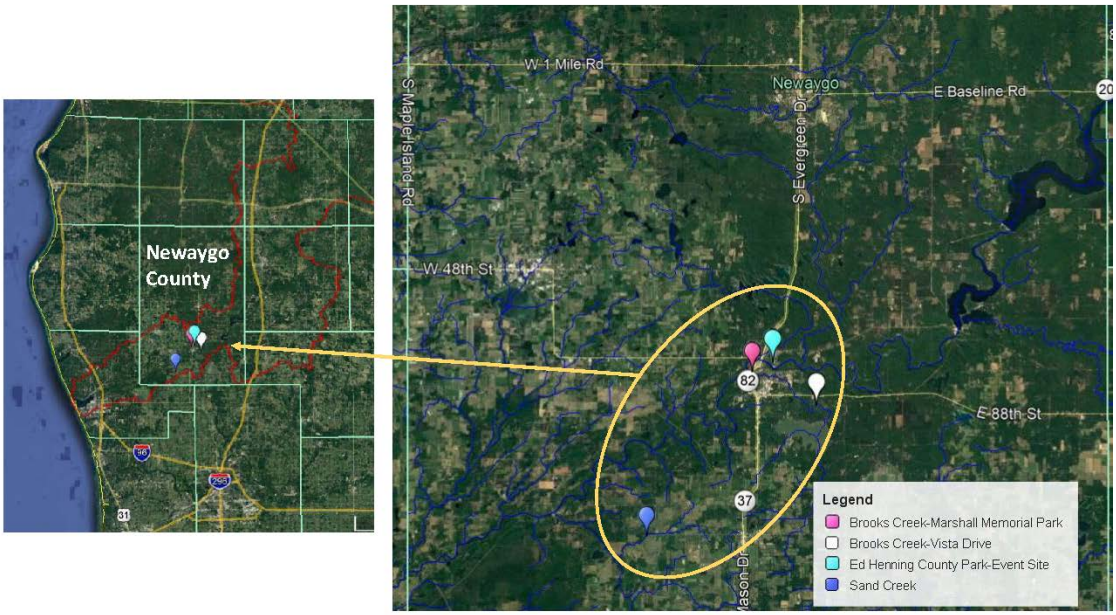
Amount of Grant: $13,132.00 **Amount of Match:** $10,579 = 44.6% of grant

Project Duration: June 1, 2017—June 30, 2019

Applicant: Muskegon River Watershed Assembly
@Ferris State University
1009 Campus Dr., JOH200
Big Rapids, MI 49307-2280
Phone: 231-591-2324

Contact:
Program Coordinator
Phone: 231-591-2334

Project Location and Map: Newaygo, Montcalm and Muskegon Counties



Project Partners: Fremont Area Community Foundation (local funding assistance) and the Newaygo County Conservation Collaborative (community outreach).

Summary of Project: The specific goals of the Muskegon River Watershed MiCorps Program are to educate Muskegon River Watershed residents on ways to monitor, protect and improve quality of water resources. To sign up stakeholder groups and/or volunteers to provide water monitoring and protection. Monitor stream health in the Muskegon River Watershed while documenting changes in conditions over time and to determine problem areas where best management practices can be used.

Project Accomplishments: The grant allowed MRWA to update their program with the new MiCorps protocols and guidelines breathing new life into a fourteen-year-old program. Through the project, residents were educated on how to monitor and protect their own valuable water resources. All the objectives and goals of the program were met with a substantial degree.

Monitoring Activities: The MiCorps volunteer training in April of 2018 was attended by sixteen people and lasted five hours. From May of 2018 until May of 2019, three monitoring events were held at Ed Henning Park in Newaygo, Michigan. Forty-three people volunteered with each volunteer spending a minimum of four hours each time they participated. Eight sites (seven sites in spring of 2018) within the grant scope of work were monitored each spring and fall of 2018 and spring of 2019. One additional site at Mitchell Creek Park in Big Rapids was monitored three times during the grant duration by five volunteers from the Ferris State Outdoor Club. A second Mitchell Creek site was added to the MRWA program and monitored in the spring of 2019 by the MRWA team. The next monitoring event will be held on September 21, 2019, at Ed Henning Park in Newaygo. Recruitment efforts for volunteers will continue to sustain the program.

Measurable Results: The updating of a fourteen-year MiCorps water monitoring program bringing it into compliance with the current guidelines was an immediate and important measurable effect on the manner of collection and the quality of the data being collected. Residents, business owners and community agencies worked together and supported the MRWA's efforts to meet the grant requirements and will help to sustain the program into the future. The expansion of the MiCorps Volunteer Stream Monitoring Program to the lower Muskegon River Watershed is a positive measurable result to help protect the Muskegon River and its tributaries in areas threatened by agricultural runoff and non-point source pollution.

Photos of Monitoring Activities:

Team Isenhart Making ID's at Training

Brooks Creek Training Event-2018

Veteran Volunteers Monitoring Brook Creek-May 2019

MiCorps Volunteers September-2019

Appendix C. List of Partners

The Fremont Area Community Foundation has provided additional funding for the Muskegon River Watershed Assembly's volunteer stream monitoring program since it was created back in 2005 and has provided funding for the current program. During the grant duration, the funding was used to buy T-shirts for the volunteers, purchase food and beverages for the monitoring events and provide additional funds for the administration of the grant.

The Newaygo County Conservation Collaborative partnered with MRWA and offered in-kind support for the stream monitoring program. The MRWA staff held MiCorps educational sessions at events held by the Newaygo County Conservation Collaborative. Volunteers have also been recruited though the collaborative.

Appendix D. List of Products That Were Completed

52 Volunteers

16 Complete Equipment Kits Consisting Of:

- 1 Pair of waders
- 1 "D" net
- 2 Sorting trays
- 1 Reel-style measuring tape
- 1 Water bottle
- 2 Containers of preservative
- 1 Yardstick
- 1 Clipboard with data sheets and sampling checklist
- 1 Five-gallon bucket
- 1 Laminated identification packet
- Plastic bag containing 1-6-inch ruler, 2 pipettes, 1 first-aid kit, 2 jars with lids, labels for jars, 2 forceps/tweezers, hand sanitizer and one pencil

8 Decontamination kits received from the MiCorps Program Manager

1 Press Release

6 Paid Facebook advertisements

2 Posters

1 Website MiCorps registration system

2 Newsletter articles with volunteer requests

28 New macroinvertebrate data sets entered in the MiCorps Data Exchange Network

Appendix E. Photos and Promotional Material

Flooding at Deaner Road Site

Macroinvertebrate Identification at Training

Training at Brooks Creek

Volunteer Bob Ogren Monitoring at Bear Creek

Team Awsome Monitoring at W. Almy Road

Monitoring at Cedar Creek

Team Henning at Minnie Farmer Park Cleaning Up

Team Isenhart Monitoring at Sand Creek

MiCorps Volunteer Stream Monitors

CITIZEN SCIENTISTS APPLY HERE

A citizen science project is real scientific research conducted by people like you and me. If you decide to participate, you can contribute to our understanding of the Muskegon River Watershed and allow us to take steps to preserve and restore our valuable resource. No advanced degree is required, and you can do it in your spare time.

MRWA will conduct a series of Citizen Science projects in the coming months. The first in the series, launching in April, is Monitoring River and Stream Quality. Space is limited. So do not wait – get involved now!

Michigan Clean Water Corps (MiCorps) Stream Monitoring

A team of at least four people will conduct their research at a designated site on a local stream, typically along one of the tributaries of the Muskegon River. The project leader scrapes material from the bottom of the stream with a net and empties the sample into containers. Team members on shore sort through the material to find macroinvertebrates for identification. They label and preserve the aquatic insects they find in jars of alcohol, compile the data and send it to the MRWA.
We enter everything into the MiCorps database. The findings will help us learn about the quality of the water and the life it supports. Environmental agencies use the information to determine the health of sampled locations and consider possible restoration work if indicated.
This is a great opportunity for citizen scientists of all ages. Young participants learn the value of environmental stewardship with experiences that could not be more hands on. Monitor teams sample in the spring and fall each year and it only requires a couple of hours of volunteer time for each sampling. MRWA provides training free of charge to all team leaders and one assistant. Board Director and Ferris State University instructor Cindy Fitzwilliam-Heck has signed up as the class instructor so it will definitely be a valuable session. Thanks to a MiCorps grant, we also provide waders, net, handbook and all other necessary supplies.

The training date is April 28, 2018, 9:00 a.m. at Brooks Township Hall in Newaygo. After the classroom work, we will assemble at the stream site for sampling. The first sampling of record will take place in the month of May with your team.

Pre-registration is required. Contact the Muskegon River Watershed Assembly by email at mrwa@ferris.edu or by phone at 231-591-2334.

Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it's the only thing that ever has.
Margaret Mead

WHY?

Do you find yourself asking "What can I do to make a difference?" Because this is an opportunity to do so! By helping the MRWA conduct real scientific research as an ordinary citizen, you will help us form a better understanding of the Muskegon River Watershed and become a partner in preserving, protecting, and restoring our valuable resource.

WHO?

Anyone can become a citizen scientist, all you need is an interest in helping the Muskegon River Watershed and a commitment to collecting some data in some of your spare time. This is a great opportunity for youth groups, science classes, clubs, families, or just a group of friends enjoying an afternoon by the water.

WHEN?

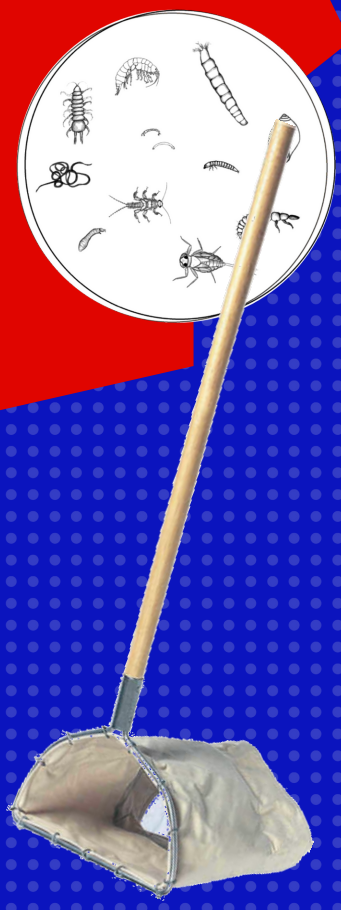
The MRWA will be conducting a series of projects for Citizen Scientists, the first being Monitoring River and Stream Quality. Training for team leaders and one assistant is free and will take place April 28th, 2018. The time to get involved is NOW!

BECOME A CITIZEN SCIENTIST

WHAT IS IT?

Teams of at least four people do stream monitoring in various locations along the Muskegon River with two people wading into the water and the rest working from shore. Usually within the smaller streams and creeks, the team leader will scrape material from the bottom of the water using a net to collect samples. The samples are emptied into containers for the team on shore to sort through in order to identify macroinvertebrates (insects and small aquatic life) that are living in that area of the water. The samples are labeled and preserved and the data collected by the team will help us learn about the quality of the water and the life it supports.

The data is entered into the Michigan Clean Water Corps' database by the MRWA to be used by Environmental agencies when determining the health of the sampled locations, changes that may be occurring in the Watershed and when evaluating the need for restoration.



Sign up to be a Citizen Scientist

NAME _____

EMAIL _____

MAILING ADDRESS _____

CITY _____

STATE _____ **ZIP CODE** _____

PHONE _____

Which stream, creek, or river are you interested in monitoring?

_____

Please list people that may be interested in being on your monitoring team

_____

Contact the MRWA with any questions at 231-591-2334 OR mrwa@ferris.edu

MRWA Needs You!

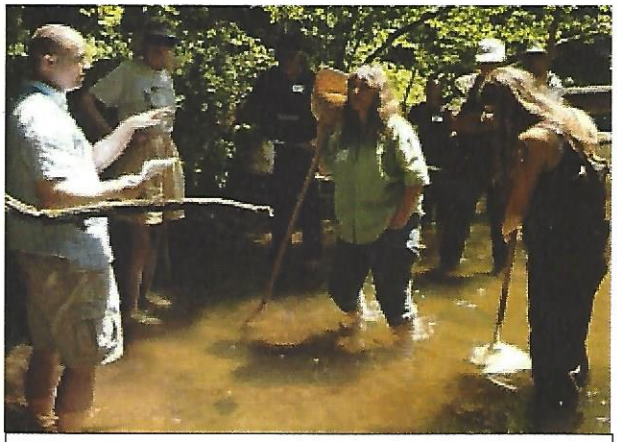
Become a Citizen Scientist

HELP us Monitor River and Stream Quality!

The Michigan Clean Water Corps (MiCorps) is a network of volunteer water quality monitors in the Muskegon River Watershed. Its purpose is to collect and share water quality data for use in water resources management and protection programs.

Mission

The mission of MiCorps is to network and expand volunteer water quality monitoring organizations statewide for the purpose of collecting, sharing and using reliable data; educate and inform the public about water quality issues; and foster water resources stewardship to facilitate the preservation and protection of Michigan's water resources.



MiCorps stream monitors learn about macroinvertebrate sampling at a recent training session.

What is Involved?

Volunteer monitors sample the river bottom in the spring and fall each year.

They are trained in sampling procedures and identification of macroinvertebrates.

MiCorps volunteers take a hands on approach to water quality by getting in the water, scooping up materials from the streambed and identifying the organisms in the stream. This helps us learn about the quality of the water and the life it supports. Volunteers record and report their findings for scientific use.

Questions?

Contact the Muskegon River Watershed Assembly at 231-591-2334 or email us at **chambj16@ferris.edu**.

The Muskegon River Watershed Assembly

NEEDS YOUR HELP

Register for Spring MiCorps Monitoring today! Help monitor river and stream quality as a citizen scientist and receive a **free t-shirt**.

May 18, 2019 @ 11 am

Ed Henning Park, Newaygo

Visit our website at https://mrwa.org/may-2019-micorps-monitoring/ to register!

Have you ever wondered how you can help protect the Muskegon River?

MRWA has your answer!

We need volunteers (no training required) for the Fall MiCorps Monitoring Event at Henning Park in Newaygo. The event is September 15, 2018, at 11:00 a.m. and will take approximately four hours. If you volunteer you will receive:

- **A free one-of-a-kind citizen scientist t-shirt**
- **A chance to win some great raffle prizes**
- **Giveaways**
- **Pizza and pop**

Interested? Please email jarretp@ferris.edu to sign up and/or to get more information.

***Do you need volunteer hours for school? This will qualify towards the hours you need.**


MUSKEGON RIVER WATERSHED
ASSEMBLY


CITIZEN SCIENTIST
MUSKEGON RIVER WATERSHED ASSEMBLY
FREMONT AREA
COMMUNITY
FOUNDATION
Michigan Clean
Water Corps

Muskegon River Watershed Assembly's Sampling Checklist

First Steps:

- ☐ With your leader, make sure you are at the correct location.
- ☐ Find a comfortable setup place for the team.
- ☐ With your leader, talk with all team members and make sure each knows their role.
    - 1) Collector, 2) Collector's Assistant, 3) Streamside Manager, 4) Picker and 5) Equipment Manager
- ☐ Make sure each habitat gets sampled many times.

Collection Methods:

- ☐ Always start downstream and work upstream to avoid disturbing where you're about to collect.
- ☐ Note the time. Collection should last between 35-45 minutes.
- ☐ Be aggressive in your sampling - many animals will hold on tightly to rocks and debris.
- ☐ Use a squirt bottle to rinse samples from the net into collection bucket.
- ☐ No need to collect crayfish, fish, or large clams but tell leader if you see any.
- ☐ Don't overload trays.
- ☐ Squirt a small amount of water in trays.
- ☐ Leader and team should try to collect about 100 insects (the most important part though is collecting many different types).
- ☐ Collector's assistant can run samples to the shoreline pickers.

Sorting Methods (for Streamside Leader and Pickers):

- ☐ All organisms collected should be placed into a bucket or tray.
- ☐ Rinse the sample and remove all large pieces of debris.
- ☐ Empty the remaining sample contents into the plastic pan(s).
- ☐ Carefully pick through the tray and inspect rocks and other debris. Insects can hide under bark, on rocks or in caddisfly cases. Use spray bottle to help dislodge debris from insects.
- ☐ Place the macroinvertebrates into jar(s) of 70% ethanol preservative for later identification.
- ☐ Be sure every jar has a label and placed inside the jar. (It is recommended that all individuals organisms collected be placed in the sample jar. However, where there are VERY large numbers of clearly identical organisms, no more than 15 individuals need to be included).

Four main collection techniques:

GRAB

- *Rocks and logs*- pull them out if possible and give to team. Look under bark and under the rock. If large, do the scraping method on them.
- *Leaf Packs and stream debris*- grab piles of leaves and loose vegetation and bring them to the team. A "good" leaf pack is starting to decompose (brown-black color). Leaf packs aren't readily found in late spring or summer.

SHUFFLE

- *Riffles and runs (turbulent and flat moving water)*- place net downstream of you and do a shuffle. Different water speeds can have different bugs. *Let the water do the work.*

PULL

- *Mucky, quiet places/pools*- The water won't do the work, so move the net yourself. You may need to massage the muck away, or use net as a filter. Don't go more than 1-2 inches down and don't dump an entire net of muck into a tray.

SCRAPE

- *Undercut banks/overhanging vegetation/roots*- Use the net's rim as a scraper. Move net towards the surface of the water, or against the current.
- *Submerged or emergent vegetation*- point the net opening upstream and use the rim to scrape, or use your hand to dislodge insects.

Finishing up

- *Rinse out nets and trays*- make sure nothing alive is sticking to them!

Michigan Clean Water Corps

Muskegon River Watershed Assembly's Team Roles

Team Roles

Every person on the team needs to have a role so they know their responsibilities and how they should be participating.

Picker:

- New volunteers typically start out as Pickers. This job does not require getting into the stream and is a good way to get introduced to monitoring and the interesting creatures that live in the stream.
- No training is required to be a Picker.
- Pickers are responsible for sorting through the samples collected by the Collector, picking out the macroinvertebrates from the rocks and leaves and putting them in a collection jar.

Collector Assistant:

- On a large site it is helpful to have one team member in waders assisting the Collector by carrying the trays to the team and the empties back to the Collector.
- The only training required to be an Assistant is experience wading in moving water on slippery rocks.

Collector:

- Collectors should attend training session in order to learn the techniques for sampling in the river.
- The Collector is the only person that enters the water (unless there is an Assistant).
- They are responsible for sampling all of the habitats, and bring the samples to the rest of the team to sort through.

Streamside Leader:

- The Leader instructs the team, keeps the team together, locates the sampling site, is responsible for filling out the data sheets, labeling the jars, and reminding the Collector which habitats still need to be found.
- Should require a training event.

Equipment Manager:

- The Manager is a person who is willing to take responsibility for the equipment and will check the list to be sure everything leaves each site with the team.
- This position should be a secondary job of one of the pickers.