



The MiCorps Monitor: Fall 2011

The newsletter of the Michigan Clean Water Corps, Issue 9

Welcome!

Welcome to the Fall 2011 edition of the *MiCorps Monitor*! As always, this edition is full of updates and information on the activities and individuals of the Michigan Department of Environmental Quality's Michigan Clean Water Corps (MiCorps).

Please note: this PDF is a an archived version of the original, web-based newsletter. As such, some features (photos, captions, navigation) are not available, and links may be broken. We apologize for the inconvenience!

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Article 1:

Yoopers Love Bugs: Gogebic Conservation District Prepares to Start their Aquatic Insect Program

Macroinvertebrates?...riffle?...rock snot?...oh my! These scary sounding words were all new to me...and I soon learned that rock snot is not a punk band!

As the Gogebic Conservation District Board of Directors and I were soon educated, monitoring macroinvertebrates (also known as bugs) is the basis of how a MiCorps stream monitoring program works. Macroinvertebrates are highly effective barometers of a river's health. Negative environmental changes to their stream habitat directly threaten the existence of these sensitive creatures. By monitoring the presence, quantity and diversity of macroinvertebrates, stream quality is assessed. The expectation is to be able to organize a stream monitoring program that would generate scientific data and information by using standardized monitoring protocols to establish baseline data to be used for future water management issues. Projects and funding can then be prioritized to meet critical needs.

Speaking for myself as District Administrator, I was a bit apprehensive about “getting our District’s feet wet” with the MiCorps Stream Monitoring grants...this was new territory and certainly a lot of trepidation as to what was exactly required and if we could do the program justice. After much discussion, the Board approved going ahead and a start-up grant application was submitted to MiCorps. On May 17, 2010, a MiCorps Start-Up Grant was awarded to the Gogebic Conservation District.

As with learning to walk, we were encouraged to take baby steps first. We were advised to keep our goals attainable and reasonable. We established a first goal to create public awareness about the program and recruit interested volunteers. This was done through press releases in the local media and recruiting those with a passion for our rivers and streams – local fisherman. They have a vested interest that our streams are healthy and vibrant for native fish species’ sustainability.

On June 21, 2010, local volunteer, Tom Bergman, attended a stream monitoring training session downstate in Owasso. As an avid stream fisherman, Tom was the perfect candidate and eagerly assumed his role as a volunteer stream leader.

We held a mock stream monitoring training session on September 9th with about 15 “raring to go” volunteers. Each volunteer also received a packet of information on stream monitoring procedures. Immediately afterward, we attempted to identify the collected macroinvertebrates at the science lab at Gogebic Community College. Partnerships like this are invaluable to the success of any program!

Our first organizational meeting was held on September 15, 2010. Other organizations and agencies with a vested or similar focus in water resources management were contacted.

Climbing on board with enthusiasm and support for this project were federal, state, local agencies, and interested public. Reaching out to a broad partner base is important in developing interest and accomplishing our goals. We are already thinking down the road for long term program sustainability. Funding will be critical for maintaining and expanding our stream monitoring program. We are fortunate to have the UP Resource Conservation & Development Council (UP RC&D) assisting us in that respect.

In October, I attended the MiCorps Conference at Higgins Lake. What a great experience that was! Not only did I learn more about the MiCorps program, but networking with different organizations and volunteers proved very valuable and insightful. The sharing of information, ideas, and enthusiasm really sparked the commitment level for what our District could do.

Another benefit of having a local stream monitoring program is the environmental education opportunity it provides. Volunteers experience a greater appreciation for the importance of protecting our local rivers and watersheds when they are actually involved in the process. These volunteers become our "ambassadors" to the general public. Our partners (especially Marilyn Shy, NRCS, and Darcy Rutowski, UP RC&D) were instrumental in assisting in drafting a successful grant proposal for a full stream monitoring program with MiCorps. Grab your waders...here we go!

The MiCorps program is a fantastic way to get engaged in stream monitoring activities. The support, encouragement, and technical assistance received from MiCorps (special thanks to Paul Steen and Laura Kaminski) has enabled the Gogebic Conservation District to get a stream monitoring program up and running. And, of course, having fun doing it!

Author:

Mary Powell

Administrator

Gogebic Conservation District



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Article 2:

Internal Phosphorus Loading: The Unseen Source

Editor's Note: Dr. Alan Steinman, Director of the Robert B. Annis Water Resources Institute at Grand Valley State University, was the 2010 keynote speaker at the sixth annual MiCorps Conference. At the conference last October, Dr. Steinman spoke about phosphorus in Michigan waters, including an overview of phosphorus sources and eutrophication. Several case studies (Muskegon, Spring, and Mona lakes) were presented, detailing researchers' attempts to monitor and remediate phosphorus in various lake environments. His presentation, "[Phosphorus in Michigan Waters: Overview, Monitoring, Impacts and Control \(aka bloom, gloom and doom\)](#)," was very well received and sparked a valuable discussion among the attendees at the conference. At our request, Dr. Steinman has provided the following summarization of internal phosphorus loading in Michigan lakes and possible mitigation strategies for our MiCorps Monitor readers. We again thank Dr. Steinman for his participation in last year's conference and look forward to following his work in this and other areas in coming years.

Background

Phosphorus (P) is a naturally occurring element. It is essential for life, as it is a structural component of nucleic acids, phospholipids, several critical co-enzymes, and phosphate-rich molecules that store energy in living organisms.^{1, 2}

However, too much phosphorus in fresh water ecosystems can result in "cultural eutrophication." This process refers to the accelerated aging process of a lake or wetland, whereby human-induced elevated levels of phosphorus lead to excess growth of algae and aquatic vegetation, which ultimately fill in the water body. The overabundance of plant life also results in reduced aesthetic, recreational, and even economic values of aquatic ecosystems.³ In general, as phosphorus concentrations increase in fresh waters, there is an associated decline in the ecological health of the ecosystem.

The phosphorus entering a water body can be measured either as concentration (mass per unit volume, with units such as $\mu\text{g/L}$) or as load (concentration multiplied by flow, resulting in units of mass per unit time). Both concentration and load provide important information for aquatic scientists and managers: concentration provides a snapshot of water body conditions, but it also can be misleading. For example, a very low concentration of dissolved inorganic phosphorus (DIP) in a lake, such as less than $5 \mu\text{g/L}$, may suggest that the water quality is very good. However, the low concentration may be due to an algal bloom taking up most of the inorganic phosphorus from the water, resulting in low DIP but very high total phosphorus (TP) concentrations. So, one has to be careful when evaluating concentration data. Load data, on the other hand, integrates concentration and flow to give an index of how much nutrient a system is receiving overall. Nutrient load data are needed

to assess what areas are contributing the most nutrient to a lake (see below); this information, in turn, can be used to identify the optimal locations for best management practices to reduce nutrient loads to the lake.

Nutrient loads are classified as coming either from "outside" the water body of concern, such as from tributaries or the atmosphere—these are **external** loads—or from "inside" the water body, such as from the sediments—these are referred to as **internal** loads. When external loading of phosphorus is high, a phosphorus pool accumulates in the sediments. This phosphorus pool is susceptible to release via two different mechanisms:⁴

- Release at the sediment-water interface during periods of anoxia or hypoxia (undetectable or very low levels of dissolved oxygen), and the subsequent diffusion of soluble phosphorus into the water column; and
- Resuspension of bottom sediment, whereby phosphate in the pore water can be released into the water column or phosphorus adsorbed to sediment particles can desorb into the water column.

Internal phosphorus loading is a frequent phenomenon in shallow, eutrophic lakes throughout the world.⁵ In highly eutrophic lakes, internal loading can account for a substantial amount of the total phosphorus (TP) load entering the water column. Indeed, many studies have shown that reductions in external loading, to levels where water quality improvement should be detected, do not have the desired effect because of the counteracting release of phosphorus from sediments.^{6, 7, 8}

Internal Phosphorus Loading in West Michigan Lakes

Our lab at Grand Valley State University's Annis Water Resources Institute has been studying internal phosphorus loading in a number of lakes in west Michigan over the past 10 years. We collect sediment cores from local lakes and incubate them in the lab under controlled conditions, maintaining temperature conditions similar to those in the lake at the time of collection. We manipulate dissolved oxygen concentrations to create either oxic or anoxic conditions (Fig. 1). Under *oxic* conditions (i.e., sediments exposed to oxygen), the oxidized iron has a strong capacity to bind phosphate (PO_4), thus retaining the phosphorus in the sediment. Under *anoxic* conditions, the iron becomes reduced ($\text{Fe}^{3+} \rightarrow \text{Fe}^{2+}$) and releases the bound phosphorus into the sediment porewater or the water column, thus resulting in internal phosphorus loading.

Figure 1 description. *Experimental set up of sediment cores, which are housed inside plastic tubes held in racks. The racks are placed inside an experimental growth chamber under controlled temperature conditions. The tubing and manifolds above each core tube carry either oxygen (for oxic conditions) or nitrogen (for anoxic conditions) to the cores.*

Our experiments have resulted in several interesting findings:

1. Internal phosphorus loading rates are much greater under anoxic than oxic conditions. This is to be expected based on what we know of the relationship between iron and

phosphorus. Indeed, the sediment phosphorus release rate under oxic conditions was usually near zero and in some cases negative, indicating that the sediments are actually taking up phosphorus from the water column, and thereby acting as a phosphorus sink (not a source).

2. Phosphorus release rates from sediment, even in summer, are very variable in west Michigan lakes. We have measured rates that range from 1.55 mg P/m²/d (White Lake, Muskegon County) to 26.55 mg P/m²/d (Spring Lake, Ottawa County) under anoxic conditions.
3. Internal phosphorus loading rates are temperature-dependent, with much lower release rates under colder conditions than under warmer conditions.⁹ This means that more phosphorus will be released from the sediments during summer months, contributing to algal bloom conditions in our lakes.
4. It is possible to control internal phosphorus loading by applying aluminum sulfate (alum) to the water column. Alum is particularly effective because it removes phosphorus in two ways: 1) it reacts with soluble phosphorus to form an insoluble precipitate, and 2) alum forms an insoluble aluminum hydroxide floc at pH 6 to 8, which has a high capacity to adsorb large amounts of inorganic P.

Case Study: Spring Lake, MI

Our work in Spring Lake (Ottawa County) provides an example of the effect an alum treatment may have on internal loading. Historically, Spring Lake had some of the highest P concentrations measured in western Michigan lakes; between 1999 and 2002, TP levels averaged 100 µg/L and ranged from 6 to 631 µg/L during ice-free periods. In response to concerns from residents regarding impaired water quality in the watershed, studies to assess internal phosphorus loading were conducted in 2003 and 2004 using sediment cores from Spring Lake. Results indicated that internal loading accounted for between 55 and 65% of the total phosphorus entering the lake water column on an annual basis (i.e., internal loading was a larger source of phosphorus than external loading), and that an alum application of 24 mg Al/L should be extremely effective at reducing TP release from the sediments.^{10, 11} As a consequence, we concluded that alum application may be an effective tool to reduce P flux from sediments in Spring Lake, but noted that external P load reduction must accompany alum application to address the long-term impacts associated with cultural eutrophication.

In the fall of 2005, an alum treatment of between 10 and 20 mg/L alum was applied as a liquid slurry to the surface of Spring Lake, in locations where depths were ≥ 15 ft. The permit from Michigan Department of Environmental Quality (DEQ) approving this application mandated that the rate of internal phosphorus loading and ecological parameters be measured following treatment and again after 5 years (i.e., 2010). We measured rates of internal phosphorus loading and evaluated ecological effects of the alum application in summer 2006, eight months after treatment. Our results indicated that the alum treatment effectively reduced internal P loading in Spring Lake, but water column phosphorus concentrations remained high and overall benthic invertebrate density had been reduced.¹²

Table 1. Mean summer flux rates of TP from sediment cores collected from Spring Lake. 2003 data are pre-alum treatment; 2006 and 2010 data are 8 mo and 5 yr after alum

treatment, respectively. Results from Steinman et al. (2004), Steinman and Ogdahl (2008), and unpublished data.

TP Release Rate (mg P/m ² /d)		
Site	Anoxic	Oxic
Spring Lake (2003)		
1	26.71	0.40
2	16.02	-2.00
3	9.04	0.16
4	10.64	-1.04
Spring Lake (2006)		
1	0.0	0.52
2	0.72	-0.21
3	0.26	0.0
4	0.0	0.10
Spring Lake (2010)		
1	1.79	0.70
2	0.98	-0.53
3	1.12	-0.25
4	-0.04	-0.25

Per the Michigan DEQ permit, we repeated the same suite of internal phosphorus loading experiments and ecological analyses in September 2010, approximately 5 years post-treatment. Our results showed that although the efficacy of the alum treatment has declined slightly between 2006 and 2010 (Table 1), the alum is still retaining phosphorus in Spring Lake sediments. However, this effect has not translated into a major reduction in water column phosphorus concentrations in Spring Lake. Elevated water column phosphorus and chlorophyll concentrations (roughly 50 µg/L and 14 µg/L, respectively) point to the continued need for reductions in external P sources in the Spring Lake watershed. Our results support the statements that we have made in previous studies^{11, 12}: alum application is a short-term solution to the longer-term problem of internal P loading and its effectiveness is critically tied to concurrent reductions in external P loading.

Conclusions

Understanding the sources of phosphorus to a waterbody is critical in making sure the appropriate restoration measures are taken. In many cases, sediment phosphorus can be a substantial, if not dominant, source of phosphorus to a lake. In those situations, addressing internal phosphorus loading is essential to improving lake health over the short-term.

Alum treatments, or any treatments involving chemical inactivation to control internal phosphorus loading, are not without issues. First, they can be expensive, so funding must be available for the treatment. Second, the water pH must be balanced to avoid the creation of free aluminum ions, which can be toxic to fish. Third, the alum floc blankets the lake bottom, often smothering the benthos for the first few years; the benthic community does rebound after several years, however. Finally, alum treats the symptom of impaired water quality, not the disease itself. Regardless of the long-term effectiveness of an alum

treatment, it is critical that external load reduction complement alum applications. Continued efforts at reducing stormwater discharge, conversion of septic systems to sewers, use of low-P fertilizer, and implementation of other best management practices should be emphasized and incentivized wherever possible.

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Article 3:

Volunteer Stream Monitoring Grants Awarded for 2011

MiCorps is pleased to announce that nine organizations have been selected to receive volunteer water quality monitoring grants in 2011 to further expand the existing network of volunteer-dependent monitoring groups and committed citizens who work to monitor water quality in Michigan. Since 2005, the Volunteer Stream Monitoring Program (VSMP) has provided financial and technical assistance in the form of competitive grants to local units of government and nonprofit entities to initiate or improve local volunteer monitoring programs around the state. Grantees are trained to collect reliable, high-quality benthic invertebrate and stream habitat data that is then used by the Department of Environmental Quality as a screening tool to focus and prioritize future work. Data collected under this program is also shared via the [MiCorps Data Exchange](#) for use by other resource professionals and interested parties.

Full grants are awarded to eligible monitoring programs to build upon an existing program over a period of 18-24 months. Smaller, one-year “start-up” grants are awarded to newly forming volunteer monitoring groups to assist them in developing a monitoring strategy for their community and to build capacity for their program so that they might be eligible to apply for a full grant in future years. Successful grant recipients are able to demonstrate a commitment to continuing the monitoring program in years to come. This year, the VSMP has awarded four full grants and five start-up grants, totaling nearly \$46,000 in funds, to support the recipients’ volunteer monitoring work beginning in 2011.

Full grants:

Cannon Township

Project Title: Macroinvertebrate Study on Bear Creek

Watershed: Bear Creek Watershed

Funding Amount: \$13,556.81

Contact: Bonnie Blackledge, Ph: 616-874-6966 bonnies@cannontwp.org

Cannon Township wishes to address macroinvertebrate stream health on Bear Creek for the purpose of comparing it to similar studies done in the early 1990s and to track any changes that may occur in the future related to increased development. Cannon Township and its volunteers will sample benthic macroinvertebrates and conduct a habitat survey at five sites on Bear Creek from Fall 2011 through Spring 2013. Grant funds will assist with the cost of implementing the volunteer-based stream study program.

Tipp of the Mitt Watershed Council

Project Title: Expanding Volunteer Monitoring to the Maple and Sturgeon Rivers

Watersheds: Maple and Sturgeon River Watersheds

Funding Amount: \$9,351.66

Contact: Kevin Cronk, Ph: 231-347-1181 kevin@watershedcouncil.org

The overall goal of this project is to protect the water quality and aquatic ecosystem integrity of the Maple and Sturgeon Rivers through biological monitoring of aquatic macroinvertebrate populations. The Tip of the Mitt Watershed Council Volunteer Stream Monitoring program will be expanded to include four additional sites on each of these rivers, which will result in the collection of baseline water quality data to assess impacts from known stressors, as well as continued monitoring to detect additional problems that emerge in these river systems. Monitoring will include macroinvertebrate collection identified to the family level and habitat assessment. The Miller Van Winkle chapter of Trout Unlimited has committed to provide volunteer support for monitoring these rivers.

Gogebic Conservation District

Project Title: Gogebic Conservation District Volunteer Stream Monitoring

Watersheds: Presque Isle and Black River Watersheds

Funding Amount: \$8,975

Contact: Mary Powell, Ph: 906-663-4512 mary.powell@mi.nacdn.net

This project provides an opportunity for the Gogebic Conservation District to initiate a program to collect meaningful data on habitat and macroinvertebrates in the Presque Isle Watershed (specifically the Black River and tributaries). The data collected will enable regulatory agencies to make informed decisions when considering watershed management practices; create a baseline; track significant changes; and prioritize stream projects accordingly. In total, seven sites will be monitored: six on Black River tributaries and one on the Black River main branch.

Clinton River Watershed Council

Project Title: Adopt-A-Stream Monitoring Expansion Project

Watershed: Clinton River Watershed

Funding Amount: \$1,350

Contact: Michele Palermo, Ph: 248-601-0606 michele@crwc.org

Start-up grants:

Kalamazoo Nature Center

Project Title: Planning Benthic Macroinvertebrate Monitoring in the Kalamazoo River Watershed

Watershed: Kalamazoo River Watershed

Funding Amount: \$3,000

Contact: Anna Kornoelje, Ph: 269-491-7647, akornoelje@naturecenter.org

This startup grant is intended to help plan for a stream monitoring program that will train volunteers to sample and identify macroinvertebrates, make their data publicly available, and provide other information that is useful for citizens and scientists alike.

Mason-Lake Conservation District

Project Title: Upper Hamlin Lake Watershed Stream Monitoring Project

Watersheds: Hamlin Lake and the Big Sable River Watersheds

Funding Amount: \$2,988

Contact: Lynda Herremans, Ph: 231-757-3708 lynda.herremans@mi.nacdn.net

This startup grant will fund the development of a program to monitor several creeks and small tributaries which flow into Hamlin Lake and the Big Sable River to document where there are known water quality problems and pinpoint areas with good water quality.

Macatawa Area Coordinating Council

Project Title: Developing a Volunteer Stream Monitoring Program in the Macatawa Watershed

Watershed: Macatawa Watershed

Funding Amount: \$2,980.48

Contact: Mary Fales, Ph: 606-395-2688 mfales@the-macc.org

This startup project is intended to fund the efforts of the Macatawa Area Coordinating Council in developing a long term volunteer stream monitoring program to assess water quality based on the health of stream macroinvertebrates and stream habitat throughout the Macatawa Watershed.

Lake Leelanau Lake Association

Project Title: Volunteer Stream Monitoring Program – Start-Up

Watershed: Lake Leelanau area streams

Funding Amount: \$2,500

Contact: Wayne Swallow, Ph: 231-649-2087 wayneswallow@att.net

This startup grant will assist in the effort to increase volunteer participation, educate volunteers on identification and the ecological significance of macroinvertebrates in determining stream quality, and measure the effectiveness of watershed improvement projects conducted under the group's watershed protection plan.

Cass River Greenway Committee

Project Title: Cass River Water Study

Watershed: Cass River Watershed

Funding Amount: \$1,033

Contact: Don Zoller, Ph: 989-652-3820 don.zoller@gmail.com

This startup grant will improve the water quality of the Cass River through the development of a long term study of the water quality through macroinvertebrate monitoring by volunteers.

Volunteer River, Stream and Creek Cleanup Program

While not specifically funded under the MiCorps umbrella of programs, the DEQ also

offers an additional grant program, the Volunteer River, Stream and Creek Cleanup Program (VRSCCP), that may be of interest to local units of government and other partnering entities looking to engage volunteers and promote stewardship through watershed activities. If you've never applied for a grant before or are interested in gauging the interest of potential volunteers in your area, this program might be a good "stepping stone" opportunity to consider before applying for a MiCorps Volunteer Stream Monitoring grant or to supplement existing volunteer programs already underway.

Since 1998, the VRSCCP program has provided small grants (\$5,000 or less per award) to support volunteer river cleanup efforts on rivers, streams and creeks throughout the state to improve the waters in Michigan. Funds for this program are generated by fees collected from the sale of the State's Water Quality Protection license plates (Public Act 74 of 2000). Awards under the program are intended to pay for trash removal and the clean-up of other anthropogenic debris, and can support equipment purchases for things like waders and other supplies and volunteer appreciation items to be used for the sponsored cleanup event and future cleanup activities.

The VRSCCP is managed by the DEQ and administered under contract by the Great Lakes Commission. To find out more about the program, the funding process, or to read about volunteer events in your area, please visit the program website at www.glc.org/streamclean.

2012 Grant Application Packages

Grant Application Packages (GAPs) for the 2012 grant cycle for all three grant programs described above will be available later this fall or early winter. Please visit www.micorps.net/streamgrants and www.glc.org/streamclean for additional information and application instructions.

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MiCorps Staff

Great Lakes Commission



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Article 4:

Focus on the CLMP

What is the CLMP?

MiCorps is made of two main components - the Volunteer Stream Monitoring Program and the Cooperative Lake Monitoring Program (CLMP). The CLMP is the second oldest volunteer lakes monitoring program in the country and has been an important component of Michigan's inland lakes monitoring program for over 30 years. The primary purpose of the CLMP is to help citizen volunteers monitor the water quality of their lakes and document changes in lake quality over time. CLMP participants collect data on a variety of different parameters including: Secchi disk transparency, total phosphorus, chlorophyll a, dissolved oxygen, temperature, aquatic plant identification and mapping, and monitoring for exotic plants.

Your Secchi Disks at Work

The United States Geological Survey (USGS) has released a [report](#) that predicts lake transparency by correlating field data with satellite imagery. The field data for this report comes directly from the thousands of secchi disk measurements made by CLMP volunteers, who carefully time their samples so that their data can be used in the project. While the CLMP measures transparency in about 250 lakes across Michigan, there are many thousands of other lakes that are not monitored at all. Using the models developed in this report, it is possible to predict the trophic state in these unmonitored lakes and track changes over time. USGS offers their thanks to all CLMP volunteers who helped make this study possible!

Congratulations to the Glen Lake Association!

We are extremely proud to see the [Glen Lake Association](#) (GLA) receive the 2011 National Fish Habitat Action Plan award; this is a national award for outreach and education in fish habitat conservation! GLA president Andy DuPont accepted the reward in Washington DC on April 15. "The Glen Lake Association has over 100 volunteers that work countless hours to protect and preserve the uniquely beautiful area we live in. To have our efforts nationally recognized is very special. This award will help keep our volunteers and members motivated as we continue to reach out and educate those who have an impact on the quality of our lakes."

GLA has been involved with the CLMP since the late 1970s (back when then program was called "Self-Help"). In addition to CLMP monitoring, this group is engaged with a variety of lake management activities, including biological sampling, fish improvement, greenbelt surveys, and controlling invasive species. GLA has been operating for over 50 years and has 800 individual and business members.

2011 Annual Training Event

Over 80 people gathered at the foot of Boyne Mountain this past April to learn about the CLMP and how to properly take lake water quality measurements. Held in conjunction with the Michigan Lakes and Streams Associations (MLSA) conference, this annual training is a very important time for new lake monitors to become oriented to the program and also is a great social time to reconnect with Michiganders who love our lake resources.

At the annual MLSA dinner, Jean Roth received the 2011 "Masters Jacket" Award for her work as the CLMP Program Administrator. This is a very high honor given out by MLSA. Jean's work makes the CLMP run and everyone who works with MiCorps and who volunteers with the CLMP knows that she deserves this! Congratulations, Jean!

New to CLMP!

We would like to welcome the following new lakes to the CLMP for the 2011 sampling season:

Lake Name	County
Angelus	Oakland
Bridgeway	Washtenaw
Bruin	Washtenaw
Cedar	Leelanau
Chabenau	Marquette
Cranberry	Oakland
Crooked (Big)	Kent
Duck	Muskegon
Gorr	Isabella
Greenook	Washtenaw
Leelanau (North)	Leelanau
Leelanau (South)	Leelanau
Pleasant	St. Joseph
Ottawa	Oakland
South Bar	Leelanau
Sturgeon	St. Joseph
Tahoe	Oceana
Upper Scott	Allegan

CLMP data is available!

All the data collected through the CLMP program are available online on the searchable Michigan Data Exchange (www.micorps.net).

Reports for specific years, including the Spring 2011 Total Phosphorus data, are available at <http://www.micorps.net/lakereports.html>.

Author:

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Huron River Watershed Council



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Article 5:

Volunteer Corner: An Interview with Darren Bagley

Wanting to learn from and recognize the volunteers who give of their time and energy to monitor the health and quality of our lakes and streams, the MiCorps team created a new section of the MiCorps Monitor dedicated to these individuals. For the Fall 2011 installment of the Volunteer Corner, the MiCorps team caught up with stream monitor Darren Bagley, a veteran volunteer with the [Flint River Watershed Coalition](#), to learn about his experiences as a volunteer and trainer of volunteers thus far.

***MiCorps Monitor:** First of all, thank you for taking time out of your busy summer schedule to speak with us. I know it was a challenge to coordinate our schedules to make this happen, but we very much appreciate the opportunity to learn more about your volunteer work with the Flint River Watershed Coalition. So let's get started. How long have you been a volunteer there and what is your role with the Coalition?*

Bagley: I've been a volunteer with the Flint River Watershed Coalition for about 12 years and have served as a trainer and volunteer during that entire time.

***MiCorps Monitor:** Can you tell me a little bit about your background and how you first become a volunteer with the Coalition? What keeps you involved year after year?*

Bagley: I started water quality monitoring in high school and then continued on as a MSU student in college. With the leadership of our teacher, Craig Culver, we monitored four lakes near Delton Kellogg High School. I enjoyed going out on pontoon boats and sampling the lakes. What I liked the best, though, was being able to share the data back with the lake associations and help them understand how they could improve their lake. I enjoy watching the "light bulb experience" when citizens see how their actions are directly impacting the quality of their water and what they can do about it. The water testing also gave me an excuse to spend time with my girlfriend, Autumn, who I have now been married to for 15 years.

***MiCorps Monitor:** What a great answer! Please tell me about your monitoring team. Is it the same group of volunteers each time? Are you able to engage new volunteers? How often do you sample?*

Bagley: I have been involved with many different volunteer monitors over the years. We engage new volunteers through our [Project GREEN](#) student stream monitoring program, through community events where we have live bugs to look at, and through the Flint River Watershed Coalition's community network. We sample twice a year.

***MiCorps Monitor:** Describe the river or stream setting where you monitor. Are these predominantly urban settings?*

Bagley: The Flint River Watershed is diverse; we do monitoring in agricultural, suburban, and urban areas.

MiCorps Monitor: In your opinion, how healthy are the rivers and streams that you monitor? How quickly would you expect to see a change in typical river conditions due to positive or negative causes or events?

Bagley: We have a range of quality in our watershed. I have sampled some stream reaches with only a few different critters, and some where every dip of the net brings up something new. We've seen streams take a major downturn after a drain maintenance, then rebound. Usually it takes longer to recover than decline.

MiCorps Monitor: What do you see as the biggest challenge to the health of your watershed?

Bagley: I think the biggest challenge to stream health is apathy. Individuals don't think about the consequences of their own actions. We all like to place the blame on others – such as farmers or corporations – for what is happening to our environment. The way we treat our pet waste, clean and maintain our vehicles, and manage our landscape has a large impact, especially collectively.

MiCorps Monitor: What words of wisdom do you have for others who might be interested in volunteering as a lake or stream monitor, or starting a new volunteer monitoring program?

Bagley: Start with a small, sustainable program, and grow slowly as you get more volunteers and resources.

MiCorps Monitor: In your years of volunteer monitoring, what has been your most interesting "find" or observation?

Bagley: I always like finding water pennies and hellgrammites. I also like the fact that dragonflies suck water in their butts and squirt it out as a form of propulsion. I know that is oversimplifying it, but that is the way I tell it.

MiCorps Monitor: I bet the kids you work with find that fascinating, too! What is your favorite part of being a stream monitor?

Bagley: Getting the chance to show young people bugs I have caught from the stream to spark their interest in something I find rewarding.

MiCorps Monitor: In what new directions do you hope to take these programs in the future?

Bagley: I would like to make better use of the data with locally elected officials and state-level agencies. I would also like to work with young people to develop stream teams who can expand the sampling beyond the twice-a-year benthic sampling we do now.

MiCorps Monitor: Those both sound like valuable efforts and we wish you the best in your future endeavors! Again, thank you so much for your time and for all that you do.

About the Flint River Watershed Coalition:

The Flint River Watershed Coalition applied for and received a two-year grant through the MiCorps program in 2010, which provides grants for water quality monitoring in wadable streams and rivers. The ultimate goal of their funded project is to expand and strengthen the monitoring program to the point that comprehensive stream habitat data for the Flint River Watershed may be adequately collected. Funding is being provided to strengthen the Coalition's existing program and to coordinate monitoring at more than 30 sites within the Flint River watershed to track the long-term health of the system.

The Flint River Watershed Coalition was formed in the fall of 1997 and is a collaboration between educational institutions, local government, local business, environmental groups, and concerned citizens who feel strongly that the Flint River and its tributaries are a vital resource we all need to protect. For more information on the Coalition, visit:

<http://flinriver.org>.

Do you know an extraordinary volunteer lake or stream monitor? Please send your nominations for future installments of the Volunteer Corner to Laura Kaminski, MiCorps Program Administrator, at laurak@glc.org.

Author:

Laura Kaminski

MiCorps Staff

Great Lakes Commission



MiCorps

Monitoring Michigan's Water Quality

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Article 6:

MiCorps Updates

Fourteen participants from ten different organizations throughout the state attended the annual MiCorps Stream "Train the Trainer" Day on July 21, 2011 – arguably the hottest day of the summer – at the Warren Townsend Park in Cannonsburg, Michigan. At this training day, MiCorps staff give important information on how to start and run a stream monitoring program through the MiCorps program. Topics covered include MiCorps methods of macroinvertebrate collection and habitat analysis, insect identification, recruiting volunteers, holding monitoring events, and data quality assurance plans. The attendees also spent plenty of time in Bear Creek, which flows through the park, trying their hand at collecting and identifying insects and crustaceans. Many thanks to everyone who attended (staff and volunteers) for their participation on this very hot day!

Participants came from a variety of organizations:

- Cannon Township
- Cass River Greenway Committee
- Friends of the Shiawassee River
- Gogebic County Conservation District
- Kalamazoo Nature Center
- Lake Leelanau Lake Association
- Macatawa Area Coordinating Council
- Mason-Lake Conservation District
- Mid-Michigan Environmental Action Council
- West Michigan Environmental Action Council

2011 Annual MiCorps Conference and Training – Register Now!

The MiCorps conference and training is an annual event featuring afternoon training sessions (free of charge) for interested volunteer coordinators on Day 1, and presentations and dialogue on lake and stream monitoring activities in Michigan on Day 2. This year's event will take place on October 24-25, 2011, at the R.A. MacMullan Conference Center at Higgins Lake (Roscommon, MI). Volunteer monitoring program leaders, citizen volunteers (both new and experienced), water resource professionals, and others interested in the health and protection of Michigan's rivers, lakes and streams are encouraged to attend.

At this year's conference, we will explore how water quality monitoring can help address emerging threats to Michigan's freshwater systems through presentations and training from regional experts, MiCorps staff, and the Michigan DEQ and DNR. We will also be celebrating the amazing work being done by MiCorps volunteers and grantees through

presentations from volunteers from across the state of Michigan covering both lake and stream topics of interest and success stories from their volunteer efforts. More information and online registration are now available at the conference website at www.micorps.net/conference.

Upcoming Conferences of Interest

Some additional upcoming events of interest include:

- **31st International Symposium of the North American Lake Management Society (NALMS): Diverse and Sustainable Lake Management**
October 26-28, 2011
Spokane, WA

Visit the [NALMS website](#) for more information and to submit an abstract for the symposium.

- **National Water Quality Monitoring Council's (NWQMC) 8th National Monitoring Conference – Water: One Resource – Shared Effort – Common Future**
April 30 – May 4, 2012
Portland, OR

Visit the [NWQMC conference website](#) for more information and to submit an abstract for the conference.

In Case You Missed It: MiCorps in the News

Our very own Dr. Paul Steen, MiCorps Staff at the Huron River Watershed Council, was interviewed for a July 18th article entitled, "[Volunteer Program Watches Over Michigan Lakes for over 35 Years](#)," by Audrey Rabalais of the *Lake Scientist*. Paul spoke about the history and successes of the Cooperative Lakes Monitoring Program, and CLMP volunteer, Ralph Vogel, is featured as well. Congratulations to Paul, Ralph, and all of our lake monitors who have contributed to the program year after year!

Staff Transitions

With this issue of the MiCorps Monitor, we have several staffing changes to announce within the MiCorps team at the Michigan Department of Environmental Quality (DEQ). Ralph Bednarz, long-time CLMP coordinator and MiCorps administrator, retired from the DEQ at the end of December 2010. Ralph devoted much of his career to inland lakes management and volunteer monitoring in Michigan and is eager to see this work continue – so much so that he is currently back at the DEQ now with a part-time appointment to plan and implement the 2012 National Lakes Assessment survey in Michigan. We will miss Ralph and all that he has done to promote MiCorps and volunteer monitoring during his time at the DEQ, but wish him a happy retirement, whatever that may bring!

Replacing Ralph as the new MiCorps administrator is William (Bill) Dimond, who comes to

us from the DEQ Water Toxics Unit where he was engaged in implementing Michigan's whole effluent toxicity water quality protection program. Bill is a veteran Aquatic Biology Specialist and has been with the DEQ for 25 years. Bill has a master's degree in Environmental Biology, and describes himself as a data-head scientist. After growing up in the Detroit area, Bill attended the Michigan State University and is an avid MSU sports fan. Bill also enjoys fishing, sailing, and skiing, and has spent a lot of time in the field enjoying Michigan's great outdoors. Bill brings new perspectives and insights as well as a renewed enthusiasm to the program, and has already been key in recommending improvements to MiCorps during his first year in this new role. We welcome Bill to the team and look forward to working with him in support of our many volunteers and volunteer programming under the umbrella of MiCorps. Bill can be reached at dimondw@michigan.gov.

Another program staffing change also occurred at the end of 2010. Kay Edly, an aquatic biologist with the DEQ, who has been supporting and overseeing the work conducted under the Volunteer Stream Monitoring Program (VSMP) component of MiCorps in recent years, also transitioned into a new role at the DEQ. Kay's insight into the use of MiCorps data by DEQ staff, along with her love for field work and skilled macroinvertebrate identification, will also be missed. We wish Kay well in her new endeavors!

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