



Explorer



Winter 2016

2016 Macatawa Watershed Stakeholder of the Year

The Macatawa Area Coordinating Council was pleased to name the Annis Water Resources Institute (AWRI) at Grand Valley State University its 2016 Watershed Stakeholder of the Year. The Watershed Stakeholder of the Year Award is given to an individual, organization or group that has made significant contributions to improving water quality in the Macatawa Watershed.

Many staff and students from AWRI have been involved in various aspects of the Macatawa Watershed Project for many years. Their participation in the watershed has increased in recent years due to Project Clarity. Dr. Alan Steinman's Lab is conducting water quality monitoring in Lake Macatawa and in streams near significant restoration projects. Their 2016 report will be published after the first of the year. They are also monitoring streambank erosion using a remote sensing technique called LiDAR. Dr. Carl Ruetz has conducted fish surveys of Lake Macatawa the last three summers. Several students, including graduate student Emily Kindervater who presented her work at the December 15 meeting (see story inside), have conducted research in the watershed. The *W.G. Jackson* and its knowledgeable crew made six trips to Lake Macatawa since 2002, allowing 100's of residents to explore water quality in Lake Macatawa and Lake Michigan. They also brought some of this hands-on learning to the Macatawa Water Festival the last two years. AWRI staff participated in other MACC projects including the urban tree canopy assessment completed in 2013 and the sustainable funding study completed earlier this fall.



Several AWRI representatives were at the meeting to accept the award. From left are Michael Hassett, Lab Manager, Maggie Oudsema, Research Assistant and Emily Kindervater, GVSU Graduate Student.

About the MACC

Steve Bulthuis

Executive Director

Elisa Hoekwater

Transportation Manager

Kelly Goward

Watershed Project Manager

Rob Vink

Agricultural Technician

Carolyn Ulstad

Program Assistant

The Macatawa Area Coordinating Council (MACC) was formed in 1993. It is the Metropolitan Planning Organization for the Holland, Michigan, urbanized area and is required by federal legislation to provide coordinated transportation planning. The MACC's transportation program is funded by planning funds from the Federal Highway Administration, the Federal Transit Administration, the Michigan Department of Transportation, and local dues. Other programs of the MACC include the Macatawa Watershed Project that works to improve area water quality and the Clean Air Action Program that promotes voluntary actions on Clean Air Action! Days.



**Macatawa Area
Coordinating Council**
A Cooperative Effort Among Units of Government

301 Douglas Ave

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www.the-macc.org

Calendar of Events

January 26, 1:30-3:00pm—Watershed Advisory Committee Meeting

Opportunity for public participation! This meeting will focus on the future of green infrastructure in our area. Bring your questions and suggestions. All are welcome! The meeting will be held in Zeeland at the Howard Miller Library (14 S. Church Street, Zeeland, MI 49464). For more information contact Kelly at kgoward@the-macc.org

February 7, 6:30-8:00pm—Where is our Starry Night?

Living Sustainably Along the Lakeshore brings you a program on light pollution. Join members from the community to learn more about light pollution and dark sky initiatives. The event will be hosted in the basement of the Herrick District Library (300 S River Ave, Holland, MI 49423). Email Michelle Gibbs at gibbsm@hope.edu for more info.

March 25, 8:30-9:30pm—Earth Hour 2017!

Join other members of our community and people all around the world for Earth Hour 2017! Take the pledge to change your energy use for at least one hour. You can participate by turning off non-essential lighting around the house or outside. Eating a late dinner? Maybe sit by candle light! Get creative and show your support for energy conservation and a better planet! You can take the pledge by going the MACC's Calendar (www.the-macc.org/calendar/2017-03) and clicking on the event. Have questions? Contact Carolyn at ulstadcm@gmail.com. To learn more about the world-wide event visit earthhour.org



Looking for a New Year's Resolution? Resolve to reduce your mailbox clutter and paper waste! Sign up to receive this newsletter via email! It's easy to do. Simply visit www.the-macc.org, scroll to the bottom of the page and enter your email address in the box to "Sign up for our Email newsletter." This way you will also receive reminders about watershed events and activities.

Student Research Presented at Watershed Annual Meeting

Students from Hope College's Advanced Environmental Seminar, under the instruction of Dr. Brian Bodenbender, presented results of their semester-long research at the Macatawa Watershed Annual meeting on December 15 at Holland City Hall.

The team of Cody Berkobien, Amanda Dort and Elijah Riggen studied the pollution of heavy metals in Lake Macatawa that are associated with antifouling paints used on boats. The heavy metals in these paints, copper in particular, can be dislodged during boat washing and concentrations may build up in

nearshore areas of marinas. The team took sediment samples from several marinas around Lake Macatawa to see if there is a significant concentration of copper in Lake Macatawa, if there are other heavy metals present and what the spatial distribution of these metals are in relation to boat haul-out areas. Copper was found in sediments at all 5 marinas that were sampled and no copper was found in control sites at parks. Copper concentrations were higher near boat-washing or haul out areas compared to sediment near docks. More research is needed to fully explore the extent of copper pollution and what, if anything, should be done about it.

The team of John Harron, Monica Elliott and Lea Vehling (not present at meeting) studied the effectiveness of various restored wetlands in removing phosphates from the watershed. High phosphate levels are a concern in the Macatawa Watershed, and past remediation methods have involved the human construction of wetlands. Their research sought to provide insight on how well the wetlands are retaining phosphorus, and whether it was correlated to the land management techniques or restoration history at each site. Data were collected during periods of high and low flow in the watershed to examine peak phosphate removal conditions. So far, they found that seasons have a large impact on the amount of phosphate being removed or added to wetlands. More research is needed to understand how systems change over time and whether or not these wetlands that are designed to trap phosphorus could become a source of phosphorus to the watershed.

Emily Kindervater, A Grand Valley State University Graduate Student, also presented some preliminary results of her research investigating phosphorus retention in two-stage ditches in the Macatawa Watershed. Several agricultural two-stage ditches were installed over the last several years with local farmers in partnership with Project Clarity. Two farmers are cooperating with the study to allow sediment samples to be taken from their ditches. Overall, her preliminary results are showing lower concentrations of phosphorus within the two-stage ditch when compared to samples taken upstream. She is also looking at whether or not the two-stage ditches could potentially be a source of phosphorus. In other words, as the sediment in the ditches accumulates phosphorus, could some of that become soluble and transported downstream to Lake Macatawa? Initial results show that one of the two-stage ditches could potentially be a source of phosphorus, but that ditch was constructed, about a year ago. More data and long-term monitoring is needed to fully answer this question. Emily hopes to wrap up her research and publish her thesis within the next year.



From left to right: Elijah Riggen, Amanda Dort, Cody Berkobien, John Harron, and Monica Elliott.



Emily Kindervater in action, collecting sediment samples from one of the two-stage ditches.

The MACC Welcomes a New Agricultural Technician!



Growing up in the heart of California's Central Valley, Rob Vink was surrounded by a thriving agricultural community. It was here that Rob developed a great interest and appreciation for the work and efforts of the region's growers and dairymen. Rob left California to attend Calvin College in Grand Rapids, Michigan. He spent a summer researching and making recommendations for the management of the Mt. Pisgah sand dune situated near Holland State Park. Rob graduated from Calvin College in 2007 with a degree in Environmental Geology. Rob is an avid outdoorsman and a father to two young boys. He enjoys hunting, fishing, camping, taxidermy, and spending time with his family in the outdoors. Most recently he has had the opportunity to work with one of West Michigan's premier agricultural service providers. Rob provided assistance to the precision agriculture department and was responsible for dispatch and customer service. Rob's experience working with West Michigan farmers has taught him that the key to being successful is by building long term, trusting relationships, and by providing innovative, creative, and sustainable solutions for growers and their operations.

At the MACC, Rob will continue working with farmers on sustainable options that benefit the farm and our water quality. He will provide technical assistance to plan and implement agricultural best management practices that reduce sediment and nutrient pollution. Rob will also assist farmers in seeking financial assistance through the MACC's Great Lakes Restoration Initiative Grant and Project Clarity. Rob can be contacted at rvink@the-macc.org or 616-395-2688.

Sustainable Watershed Funding Study Completed

The MACC, in partnership with the Grand Valley Metropolitan Council and the West Michigan Shoreline Regional Development Commission, secured funding from the West Michigan Prosperity Alliance in February 2015 to investigate sustainable funding options for watershed management plan implementation. The study was completed by Public Sector Consultants (PSC), a Lansing based firm, and the final report was delivered to the MACC in October 2016. The results of the study were presented by PSC this fall to the West Michigan Watershed Collaborative, a group that represents over 20 watersheds in West Michigan. The study has also been presented at various local venues throughout West Michigan.

Overall, the study looked at four funding mechanisms: millages, flat fee assessments, watershed-based assessments, and pay for success bonds. The first three options offer alternatives to generate a sustainable source of funding for all types of watershed implementation, including staff salaries, outreach and education programs, best management practice implementation, and land protection activities. The study presents scenarios of how much funding could be generated by each mechanism at the county and watershed scale. Included are potential legal considerations and implementation guidelines for each method. The fourth option offers an alternative mechanism for units of government to fund a single, large project. Pay for success bonds are a model for private investors to fund projects that may be too risky for the government entity to fund on their own. The investor would receive a return on their investment if the project is successful at achieving agreed upon goals, such as a phosphorus reductions.

The full report is available on the MACC's website: the-macc.org/watershed/research



Macatawa Watershed Project Annual Report Highlights

The 2016 Macatawa Watershed Annual Report was recently published in recognition of the accomplishments of the program over the past year. The full report is available on the MACC's website (www.the-macc.org/watershed/overview/). Hard copies are also available in the MACC office. Here are a few of the highlights:

Outreach and Education

The Macatawa Watershed Project participated in 11 community events, interacting with people of all ages and engaging them in hands-on learning about water quality and the Macatawa Watershed. A major highlight of the year was the Macatawa Water Festival, held on July 9 at Windmill Island. About 3,000 people attended and were able to experience over 20 different activities and learning experiences, including bike riding, kayaking, fishing, and building a rain barrel. Another way that the MACC engages the public in the watershed project is through volunteer events. Over 60 volunteers participated in our river cleanups, water bug monitoring, habitat assessments, and road-stream crossing inventories in 2016.



Checking out some of the smaller water bugs using a magnifying glass. Kinderplaats, May 7-8, 2016.

Storm Water Management

Much of what the MACC did during 2016 regarding storm water was plan review and updates. In April, MACC staff successfully submitted applications to the State of Michigan's Storm Water permit program for our six local units of government that are required to have a permit: the Cities of Holland and Zeeland, Ottawa and Allegan County, and the Ottawa and Allegan County Road Commissions. In partnership with these six units of government, the MACC started a new volunteer program this year to inventory road-stream crossings in the Macatawa Watershed. Road-stream crossings serve as an entry point for storm water from roads and road side ditches to enter county drains and streams. One goal of the inventory is to prioritize crossings that are in need of repair, especially to reduce any erosion and transport of sediment downstream to Lake Macatawa. Forty sites were inventoried in 2016 and at least 15 more will be completed in spring 2017 as part of the initial project that was funded by the Michigan Clean Water Corps.



Volunteers Nick Pierson (left) and Keith Moore (right) in Peters Drain at 43rd St in Overisel Township.

Agriculture

The MACC continues to implement a grant from the Great Lakes Commission to install agricultural best management practices (BMPs) in high priority agricultural fields. In 2016, 700 acres of cover crop, 750 acres of reduced tillage and 900 acres of gypsum were approved under the grant. The MACC also received a new grant from the EPA's Great Lakes Restoration Initiative in April 2016. This grant, financially supported by Project Clarity, will provide financial assistance to farmers to install additional BMPs in high priority agricultural areas. In 2016, 320 acres of reduced tillage were implemented. Together, practices implemented in both grants reduced sediment and phosphorus pollution of Lake Macatawa by 2,700 tons and 7,100 pounds per year, respectively. The MACC also continues to work with the Outdoor Discovery Center Macatawa Greenway to implement agricultural BMPs under the guidance of the Project Clarity Agricultural Committee. In 2016, the committee approved funding for 1,500 acres of cover crops, 3,600 acres of gypsum, 1.5 miles of two-stage ditches, and other practices.



Rye cover crop planted between rows of standing corn. Overisel Township, 10/14/2016

Project Clarity Update

Contributed by Dan Callam, Greenway Manager, Outdoor Discovery Center Macatawa Greenway

Another Project Clarity wetland restoration project designed to store floodwater was installed in along the Macatawa Greenway corridor. Referred to as our Middle Mac West restoration, the site has two wetland cells that were constructed on fallow pastureland on the north bank of the Macatawa River. Following the 38-acre restoration completed last year on the south side of the river, this five-acre wetland will also help capture storm water flowing from adjacent properties. It will also capture floodwater from the Macatawa River during periods of high flow.

What started as an early summer project turned into a late summer project due to wet site conditions. However, it did show that we picked a good site on which to construct a wetland! Material was excavated out of the site and placed into a berm between pools and a larger knoll overlooking the site, and then the entire site was reseeded with native plants. Future plans for the site will include a section of the Macatawa Greenway trail, as well as a nice overlook area for wildlife observation.

This project wraps up a grant the Outdoor Discovery Center Macatawa Greenway received from the EPA's Great Lakes Restoration Initiative. This resulted in 44 acres of improved wetland habitat and increased connectivity of the Macatawa River to its historic floodplain, further reducing the sediment and nutrient loads downstream. We are grateful for the support we have received on both Middle Mac projects, including design from Niswander Environmental, excavation work by 28 Specialties, and additional funding from numerous local sources.



Above shows Middle Mac West during excavation and the wet conditions that were present on site. Below is the finished wetland, fall 2016.



MACC Receives Community Foundation Grant to Study Green Infrastructure Possibilities



community foundation
Holland/Zeeland Area

The MACC was pleased to receive a grant from the Community Foundation of the Holland Zeeland area this fall. The \$21,000 awarded by the Foundation will help support a project that will take a deeper look at where to implement green infrastructure in the Holland-Zeeland urbanized area. Simply defined, green infrastructure is a way to manage water that mimics nature.

Consider the following two images. What are the differences in how water moves through these two systems?



In the image on the left, rain water will land on impervious surfaces like buildings and streets, and flow off of those surfaces and into storm drains that delivers water directly to streams and lakes. There is very little opportunity for water to be used by plants or soak into the ground. In the image on the right, rain water has different pathways. Some rain is caught in leaves and tree trunks, more soaks into the ground where it can replenish groundwater or be available for plants to use, and very little runs off the surface and is delivered directly to streams or lakes.

The MACC's project will include analyses of where green infrastructure can be implemented in the landscape and also look at areas that should be prioritized for green infrastructure. In other words, where are the best places to put green infrastructure and where can it be done easiest and most cost effectively? MACC staff will do a portion of the analyses, but much will be done by a professional engineer from Kieser and Associates, a Kalamazoo based environmental science and engineering firm that has extensive experience in planning and analyzing green infrastructure. The project will offer opportunities for public input and specifically focus community engagement in the Holland Heights area. The MACC will also actively seek input from local units of government in order to identify priority areas for green infrastructure implementation. Another key component of the project will be to hold a green infrastructure training for local decision makers, planners, engineers, developers, and anyone else interested in learning more about how green infrastructure can be used to effectively manage storm water. This event is scheduled for August 22 at the Haworth Inn and Conference Center in Downtown Holland. More information will be provided at a later date.

This project is just beginning, but hope to have some preliminary analysis ready for review at our January 26 Watershed Advisory Committee Meeting. All are welcome to attend to review our progress and provide feedback on the results. Further analysis will be completed by Kieser and Associates in late winter through early summer. At the same time, MACC staff will be engaging with the community to promote the uses and benefits of green infrastructure. The training seminar is planned for the end of August. All community engagement will be wrapped up in late summer/early fall and a final report will be submitted to the Community Foundation by the first of December.

Winter Water Quality Tips

- Just like in the fall with leaves, snow should not be piled on top of storm drains. As you are plowing your driveway this winter, try to keep the storm drains on your street clear too. As a general rule, if you can't see the storm drain, then melting snow or rain can't find it either!
- Salt pollutes! When snow melt or rain dissolves and washes salt off your driveway, it isn't gone. Dissolved salt, in particular the chloride portion, is toxic to plants on land and to aquatic life in water. Minimize your winter salt use to only what is necessary, or use alternatives to keep salt (chloride) out of Lake Macatawa.
- Use electric or mechanical methods to remove snow instead of gas-powered ones. Not only can gasoline easily spill and pollute our water, but also emit greenhouse gases that are harmful to air quality.

Contact Us

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