

# The Center for Watershed Science and Education

North Branch Tenmile Creek (Photo credit: Jessica Haucke)

Annual Report  
2015-2016



College of Natural Resources  
University of Wisconsin-Stevens Point

**UW**  
**Extension**  
University of Wisconsin-Extension



# About the Center

The Center for Watershed Science and Education is a partnership between the UW-Stevens Point College of Natural Resources and the UW-Extension. In the spirit of the Wisconsin Idea, the Center works to:

- *Support watershed stewardship*
- *Assist citizens with lake, river and drinking water quality problems*
- *Promote management strategies for water resource protection*
- *Provide water quality assessment and support*
- *Prepare students for careers as water resource professionals*

The Center works in every corner of Wisconsin, with concerned citizens, lake and stream associations and stewardship organizations, county conservation and Extension offices, and state and federal agencies. Contained in the Center is the Water and Environmental Analysis Laboratory (WEAL), a state of the art facility performing dozens of different analyses on water and other environmental media. Center staff includes three UW-Extension specialists, five project and technical staff, four environmental chemists, and three support staff. Typically, fifteen students are employed as laboratory or project assistants.

## Center for Watershed Science and Education

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# Key Programs

## Drinking Water Safety and Groundwater Education

The safety of drinking water for Wisconsin's families is a vital health concern. The Center's WEAL facility tested the well water of over 3,500 Wisconsin residents this past year. Analyses included coliform bacteria, nitrate, chloride, metals and sometimes pesticides. Twelve percent of households had drinking water that exceeded standards for nitrate, the most common health-related contaminant found in Wisconsin groundwater. Additionally, 17% of samples were found to contain coliform bacteria. Lab staff often counseled homeowners on interpreting their test results, well disinfection, and ways to make their water supplies safe.

Fourteen community-based drinking water education programs reached over 1,200 well users in 10 counties (Clark, Dodge, Green, Green Lake, Kewaunee, Sauk, Sheboygan, St. Croix, Taylor, and Trempealeau). These programs enlist the help of local agencies and test water at the scale of one or two townships. Homeowners collect and submit samples from their wells and receive results along with interpretive assistance. Maps and interpretive materials specific to the area were prepared and delivered at educational sessions for participants.

In the past year, the Center also received a grant to study groundwater quality in central and northern Wisconsin, where uranium can be naturally occurring in geologic materials. This area is also known for some

of the highest concentrations of nitrate in Wisconsin's groundwater, which research suggests can



*“The safety of drinking water for Wisconsin’s families is a vital health concern.”*

contribute to increasing solubility and concentrations of uranium in water supplied to private wells. Little data currently exists on the occurrence of uranium in groundwater. Because there are health concerns associated with uranium in drinking water, the results of the project will be useful for understanding whether uranium is an important test for private well owners in Central Wisconsin.

Water testing does not only happen in the lab! Center staff hit the road this past June to the Midwest Renewable Energy Fair ([theenergyfair.org](http://theenergyfair.org)), where they operated a convenient nitrate screening booth. Event attendees could bring a sample of their well-water and have it tested for nitrate on the spot. The booth also made an appearance at the 2016 Wisconsin Farm Technology Days event, held in Walworth County in July. Between these two events, some 500 people were counseled on water quality concerns, and nearly 200 had their water tested.

The Center also made an appearance at UW-Extension Day at the Wisconsin State Fair held in West Allis, where a display engaged attendees regarding groundwater and



*Kevin Masarik demonstrates how to use a sand-tank groundwater model, which serves as an excellent tool for groundwater education.*



drinking water issues. Over 150 people participated in a “Water Taste-Test Challenge”, which helped people to learn what gives water its taste.

Groundwater models are an essential teaching tool for incorporating groundwater education into an instructor’s curriculum. Annual workshops are offered by the Center as a way to provide K-12 teachers with instructions on using a sand-tank groundwater model. This past year, forty-eight teachers and other educators participated in three one-day workshops. Teacher reports indicated that over 1,600 students participated in groundwater activities in school following the workshops. The models are assembled by and purchased from the UW-Stevens Point Student Chapter of the American Water Resource Association. This program represents a team effort with WDNR and WGNHS.



The results of the Center’s efforts will be used by Chippewa County to identify areas where groundwater quality concerns exist, understand the extent to which groundwater quality has changed, inform groundwater management decisions, and focus outreach efforts to rural well owners.

*UWSP student Sean Piette collects a water sample from a resident participating in the Chippewa County Groundwater Quality Inventory Project.*

## Chippewa County Groundwater Quality Inventory

Efforts are currently underway to sample 800 private wells as part of an inventory of groundwater quality in Chippewa County. The work will allow for a comparison of current water quality to extensive groundwater sampling of private wells conducted in 1985 and 2007.

For these most recent efforts, Chippewa County sought to partner with the Center because of our extensive experience working with well owners and the advanced water analysis capabilities of the WEAL facility. Current efforts will look for nearly 20 different chemical parameters in 800 private wells around Chippewa County. An additional 40 wells will be selected to perform additional analyses for pesticides, pharmaceuticals and personal care products to investigate the source of elevated nitrate.

The data collected in 2016 combined with previous data collected in 2007 and 1985 will allow for comparisons and detailed investigation of whether groundwater quality has changed over time.

Work began in Spring of 2016 to identify and recruit participating homeowners. Two open houses were held for residents of Chippewa County to learn more about the project. To assist with the project, the Center hired two College of Natural Resource undergraduate students. Brewster Johnson and Sean Piette have been busy putting their skills to use during the summer as they assist with water sampling, database management and spatial analysis.

## Understanding of Groundwater Pumping Impacts



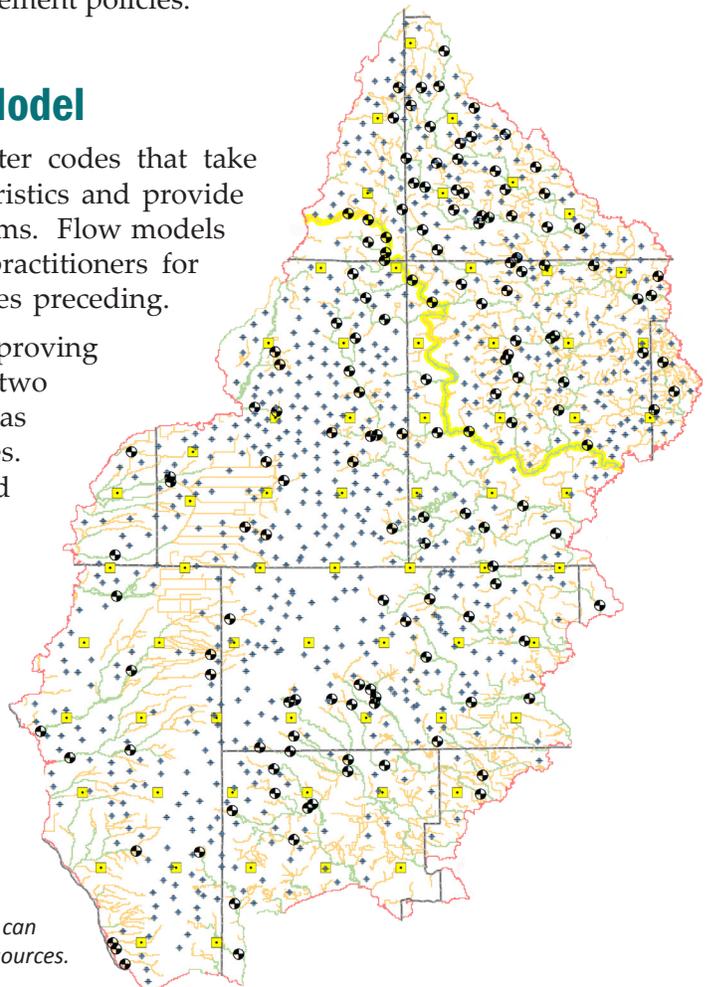
Groundwater pumping continued to be politically contentious in Wisconsin during 2015-16, peppered with claims and counter-claims about groundwater origins (it's not Canada!), groundwater connections to lakes and streams, and how groundwater pumping affects surface waters. Wisconsin returned to a policy where new high capacity wells are approved without review for potential harms to lakes and streams and wetlands, just five years after the Wisconsin Supreme

Court unanimously determined that surface water harms must be considered when approving new wells. Center staff have contributed immensely to groundwater pumping education and knowledge; performing the basic science that demonstrated pumping impacts, creating and utilizing tools for impact prediction, and reaching out to audiences of lake groups, citizen groups, legislators and policy makers to help them understand consequences of various management policies.

## Improved Central Sands Groundwater Model

Groundwater flow models are mathematical computer codes that take inputs of groundwater recharge and aquifer characteristics and provide as outputs groundwater levels and discharges to streams. Flow models have been in widespread use among groundwater practitioners for perhaps the last 30 years, and research use for decades preceding.

The Center's Dave Mechenich has been building and improving Central Sands flow models for some time, beginning two decades ago with the Little Plover vicinity. The model was expanded several times and now covers parts of 8 counties. The model has been used to calculate drawdowns and streamflow diversions from groundwater pumping, to estimate the impacts of proposed wells, and wetland restoration. Currently the model is being improved to include a better representation of streams and a finer look at lake levels.



*A snapshot of the Central Sands Groundwater Model. This model is a tool helpful for understanding groundwater and surface waters within the region, and can aid in decision-making on how to manage our water resources.*

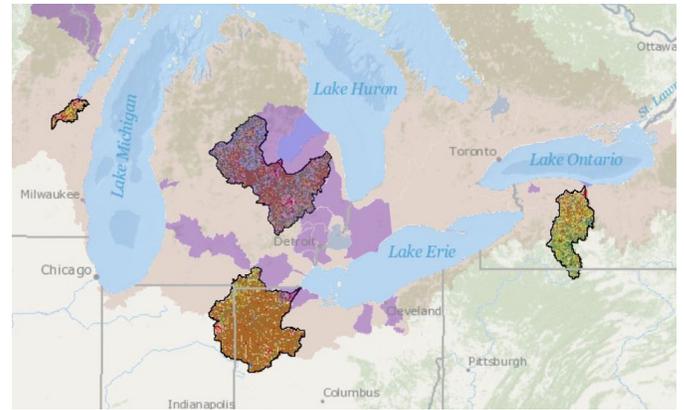
## WEAL Key in USGS Great Lakes Initiative

Thousands of runoff samples, often the color of chocolate milk and sometimes with the aroma of barnyards, arrive at the WEAL after snowmelt and large rainfalls from across the Great Lake states. These samples are part of the USGS Great Lakes Restoration Initiative, and originate as a collaboration that has existed since 2010 with the USGS.

The Initiative was launched in 2010 to protect and restore the largest system of fresh surface water in the world. The Great Lakes contain 20% of the Earth's fresh surface water, provides drinking water to over 40 million people, and supports recreation, fishing, and industrial uses worth billions in economic benefit to the region.

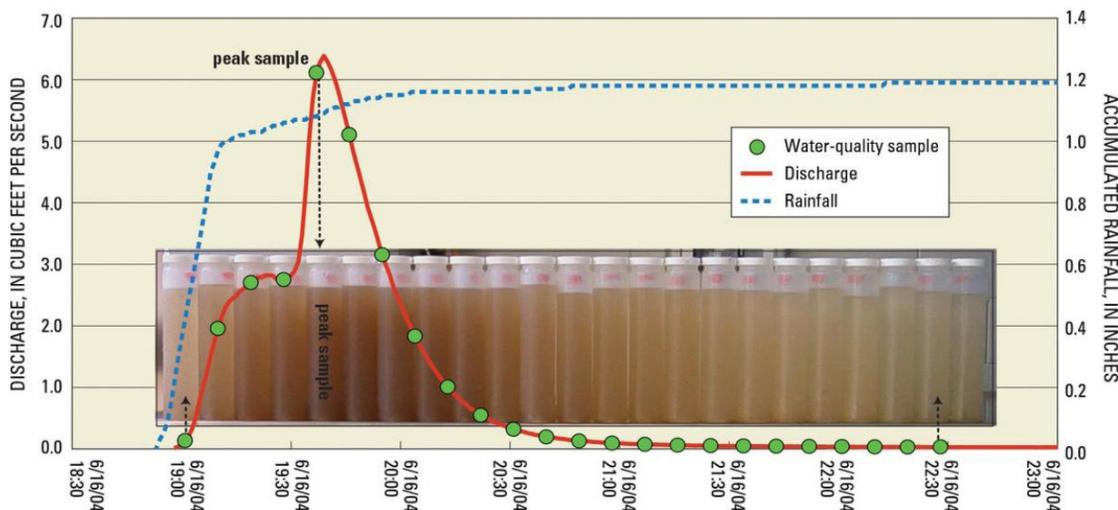
Water quality in the Great Lakes basin has become more impaired in recent decades, with high-profile problems including blue-green algae blooms in Lake Erie and Green Bay, the result of excessive nutrients running off of lands and urban areas. The samples that arrive at WEAL are runoff collected in automated stations on farm fields. They inform USGS about pollutant loads coming from various practices, and where needs exist to make improvements.

The WEAL – USGS partnership works because of the high quality analytical work provided by WEAL, and the flexibility of the student labor force to react to rapid increases in sample numbers. Undergraduate students employed by the WEAL are trained to perform the analyses under the guidance of a professional level staff who directly oversee their work. They leave UWSP with an asterisk on their resumes that highlights this experience with real world problems.



**Top:** Priority watershed study sites in the Great Lakes Restoration Initiative

**Middle:** Spring runoff at a USGS automated sampling station at an edge-of-field site



This image shows an example hydrograph showing how the discharge, or volume of water passing through a streamgage (red line), changes as the result of accumulating rainfall (blue dotted line). The bottles shown are the water-quality samples collected at each time point (green circles), showing the discharge response and variability in sediment and nutrient concentrations of water samples collected during an edge-of-field runoff event.

## County-Wide Lake Planning

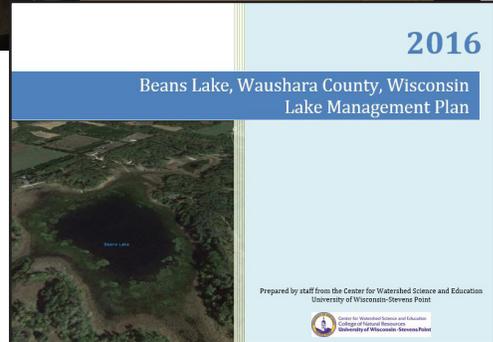
Since 2002, Center staff members have provided structure and support to help Wisconsin counties and lake stewards enhance their understanding of local lakes, and take steps to protect and improve them.

2016 marked the conclusion of a six-year collaborative project in Waushara County, the Waushara County Lakes Project. The Center partnered with citizens, Waushara County, UW-Extension, WDNR, and Golden Sands Resource Conservation & Development Council, Inc. in collecting data from 30 lakes (including measures of water quality, shoreland health, the aquatic plant community, and community opinions) and then applying these and additional data and knowledge to the development of lake management plans. The plans have already been used as guides for managing aquatic plants and invasive species, testing drinking water, developing lake partnerships and informing the public. There has been an observed increase in interest among property owners to restore shoreland habitat and woody structure for fish habitat around the lakes. On one lake, planning efforts resulted in the installation of an aeration system to prevent winter fish kills. The plans have also contributed to the success of grant proposals pursuing aquatic plant management efforts, such as hiring divers to aid in the control of Eurasian watermilfoil. Conversations that took place during the planning process further benefited the lakes by transferring institutional knowledge to citizens and staff.

2016 also saw the beginning of a multi-year collaborative project with Oconto County, citizen groups, UW-Extension, and WDNR. Data collection has begun on 9 lakes, with lake management planning to follow in 2018. Up to 60 lakes will be included in the Oconto County Lakes Project.



*A highlight of the Oconto County Lakes Project is the introduction of “Meet Your Scientist” events, where lake stewards can meet with professionals to exchange information about the lakes and build capacity for future project efforts.*



*More than 4,000 citizen-hours went into learning and making decisions about lakes in Waushara County. Thirty lake management plans were developed by citizens, with technical guidance provided by professionals and scientists in the Waushara County Lakes Project.*



*Center staff member Jessica Haucke oversees a volunteer as they learn to take a streamflow measurement.*

## Volunteer Streamflow Monitoring

The Center has promoted and supported citizen science since 1972. The Volunteer Streamflow Monitoring program is no exception. Launched in 2013, this program provides citizen volunteers with the tools they need to collect valuable streamflow data. Formal, hands-on training sessions empower volunteers to accurately measure flow using professional grade equipment (OTT MF Pro flow meters). To date, nearly 40 volunteers and county conservation staff have been trained to gather streamflow data.

Because of this unique program, over eighty stream sites across six counties are being monitored monthly. In addition to the trainings, Center staff also provides ongoing technical support and quality control tests to maintain the integrity of the data being collected. Data are uploaded to the WDNR’s Surface Water Integrated Monitoring System (SWIMS) database for archiving.

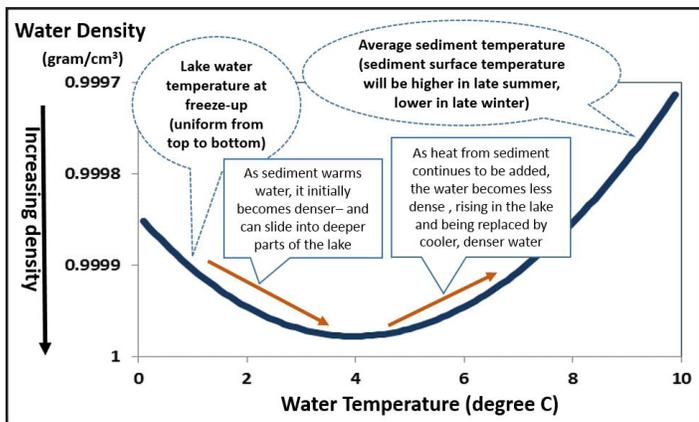
This volunteer program is not only unique to Wisconsin, but it is also unique to the country. To our knowledge, no similar programs currently exist. The Volunteer Streamflow Monitoring program is part of a joint project with county conservation offices and Wisconsin DNR.

## Water Quality in the Big Eau Pleine

The Big Eau Pleine Reservoir (BEP) is one of the largest lakes in Wisconsin and supports a world class musky fishery. Unfortunately, the lake has been periodically subject to devastating winter fish kills since it was formed in the 1930s. Studies of the lake since the 1970s have helped us understand the causes of winter oxygen problems, but it was still not clear how to best manage this complex lake.

Winter fish kills result when oxygen concentrations under ice become too low to support fish. In BEP, oxygen consumption under the ice is high because large quantities of phosphorus from the watershed lead to extensive algae growth. When that algae dies, it is decomposed by bacteria who deplete the oxygen. Although the cause of oxygen consumption is well known, the year-to-year variations in dissolved oxygen concentration are the result of a complex interaction between nutrient loading, flow, and weather along with water level variations because this is a Wisconsin River storage reservoir which releases water in the winter.

To understand how the many factors influencing oxygen combine and contribute to fish kills, Center researchers Paul McGinley, Nancy Turyk, and James Brodzeller combined more than twenty years of temperature and oxygen monitoring with the sophisticated computer

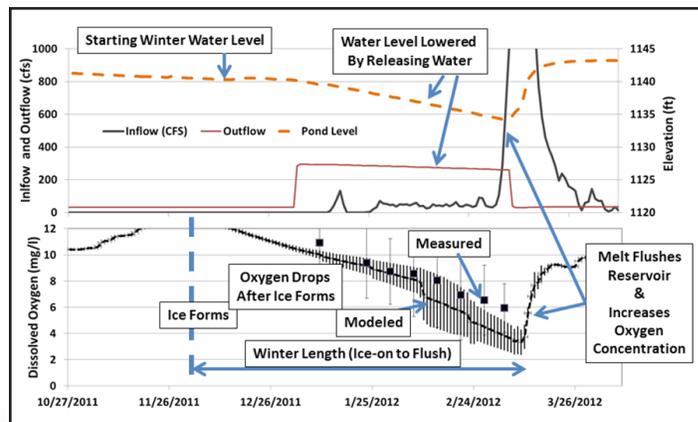


Schematic representation of how water warming under the ice leads to density changes and water movement downslope as it initially warms, and later convective rising as it warms further.

model CE-QUAL from the Army Corps of Engineers. The model was used to incorporate year-by-year variations in flow, water level and ice cover. The graph below on the right shows how water level and oxygen concentrations varied during one year. The model successfully described the variation in dissolved oxygen from year-to-year.

One interesting observation from the work was how sediment warming under the ice leads to water movement. Water temperatures are just above freezing (0 C or 32 F) as ice cover develops. But once ice forms, the sediment is a source of heat to the water. When sediment warms the water, it changes the density and induces currents that move water across the sediment and accelerate the depletion of oxygen.

The model was also used to explore how changes in one or more conditions might have altered dissolved oxygen concentrations in the lake during some of the years when fish kills were observed. This information was used to assist a technical advisory committee composed of lake residents, county staff, the WI Valley Improvement Company who manage the lake, WDNR scientists and advisors from the Center and the River Alliance. This committee is developing a set of evaluation criteria to inform management decisions during future winters.



Results from the Center's CE-QUAL model of BEP showing a typical winter where water level is lowered to release water to the Wisconsin River (above) and how oxygen concentrations in the lake drop during the winter until the spring melt.



2012 World Ice Fishing Tournament held at BEP (Photo credit: John Kennedy.)

# Recognitions of Excellence



## Spirit of Community Service

Kevin Masarik, Groundwater Education Specialist with the Center, was the recipient of the University “Spirit of Community Service” award for 2016. Masarik was nominated for his commitment to outreach education and devotion to the “Wisconsin Idea” tradition of bringing the knowledge of the University beyond the walls of campuses to the entire state of Wisconsin. During the last 12 years, he has worked with most of Wisconsin’s counties and thousands of Wisconsin residents on issues of safe drinking water quality, pollution, and stewardship of natural resources.



## Wisconsin Stormwater and Erosion Control Industry

UW-Extension Water Quality Specialist Paul McGinley received the Annual Award from the North American Stormwater and Erosion Control Association of Wisconsin (nasecawi.org) conference in 2016. Paul was cited for his “ability to provide education and training to professionals practicing in the fields of stormwater and erosion control,” as well as his integrity and outstanding contributions to the organization.



## Outstanding Contributor

WEAL manager Bill DeVita was recognized as Outstanding Contributor by the UWSP College of Natural Resources (CNR) for his work during the 2015-2016 academic year. He was nominated for his many contributions to the WEAL and the CNR, as well as his dedication to student success.



## Friend to the Little Plover River

This year, Center director George Kraft was the recipient of an Appreciation Award from the Friends of the Little Plover River (FLPR). The award was presented at their annual Little Plover Appreciation Day, an event which teaches children about stream biology, trout, invertebrates, fly fishing, and healthy waters. “Since 2005, George has always been there to provide science based facts, lend his expertise and support to all educational efforts like the FLPR Annual Appreciation Day Event,” said Barb Gifford, FLPR president, “And for this he has our gratitude and thanks, along with over 1,400 fourth grade students who will carry forward the message of river conservation.”

# Contributing to Student Success

The Center provides students with experience and employment doing real-world work in the water resources field. The Center employed undergraduate students to work side-by-side with staff and community members on a variety of projects. This past year, student staff were involved in field work, laboratory duties, research projects and presentations, and data assessment.

Center and WEAL staff also engages with students in a number of UWSP courses, such as Advanced Techniques for Environmental Analysis (Water 492/692) to promote a scientific assessment of polluted environments using state-of-the-art methods and instrumentation. In addition, Center/WEAL staff offers laboratory tours and analyses for a number of classes taught in fisheries, water resources, soils, waste management, and chemistry.



*The WEAL provided 20 students with paid internships last year, including an international student. Students receive training and supervision from professional environmental chemists in a WDNR-certified lab.*

## Research and Scholarship

Many students have the opportunity to work with Center/WEAL staff advisors to conduct research for presentations at events including the CNR Research Symposium, American Water Resources Association (AWRA) Conference, and Wisconsin Lakes Convention. These opportunities help students to improve their presentation and research skills while receiving helpful feedback from judges, faculty and/or professionals in their field.

Undergraduate student and Center intern Amy Sandel received “Highest Honors” for her poster presentation on “Crop Type and Soil Texture Effects on Nitrogen Leaching from Irrigated Agroecosystems in the Wisconsin Central Sands” at the 2016 CNR Research Symposium and at the AWRA Conference. Sandel also received the Byron Shaw Water Resources Scholarship. She worked for the Center as a research assistant and also in the WEAL facility.

“I’m passionate about environmental stewardship, but I am more focused on water quality in developing countries,” said Sandel, “I want to be able to use my education to provide those in need with the resources they need to survive.”



## Global Impact

Nyumbani is a Kenyan village for AIDS orphans that seeks to be self-sustaining from crops to farm animals to products. Laura Risser, a UWSP student working in the WEAL facility, provided assistance to this worthy project by analyzing and interpreting water sample data from seven Village water sources. The hope is to use this local water to supplement stocks that have to be brought in from far away. Much of her work involved checking water analyses against standards for potability and irrigation.

“This water is so different from what we have in Wisconsin,” she said, “and about what we should expect in an arid climate. For the most part, the water meets drinking water standards, but due to the high salt levels it would have to be diluted to be usable.”



## Academic Excellence

This past year, the Center employed and advised graduate student Vadym Ianaiev throughout his research projects involving wastewater treatment. Ianaiev was awarded an Academic Excellence Award by the Central States Water Environment Association, for his research poster presentation “Estimating the Degradation Rate for Pharmaceuticals in Municipal Wastewater During Short Solids Retention Time Treatment”.



## Unique Opportunities

The Center hired two undergraduate students for the Chippewa County Groundwater Quality Project. Students Brewster Johnson and Sean Piette have had the opportunity to assist with water sampling, database management and spatial analysis.

“Being welcomed on to this project has been the best thing that’s happened to me since I’ve attended UW-Stevens Point,” said Johnson, “This project has reassured me of my career path and has given me confidence that will help me excel upon graduating.”



# Communications

In the past year, Center staff have worked to update and maintain the Center for Watershed Science and Education website. The site has 2,000+ site visitors each month with nearly 1,500 unique page views. Currently, there are over 70 recent or historical reports available for download and viewing. The Center's social media presence has grown as well, with nearly 250 page likes on Facebook. Center staff have also managed the Marathon, Portage, and Waushara county lakes Facebook pages and email list-serves. These venues help the Center to connect with hundreds of citizens and provide updates on lake planning, volunteer opportunities, events and other relevant lake and river information.

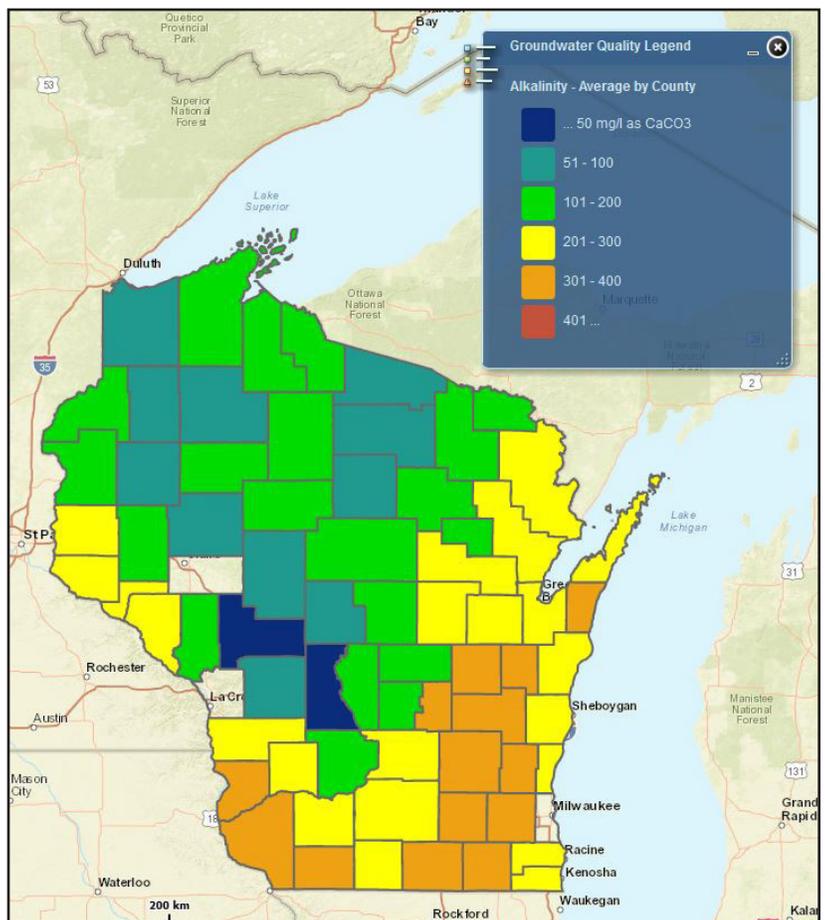
Over 20 scientific papers, posters, and reports have been prepared by staff members, who have also delivered over 100 presentations for various groups, meetings, and conferences. George Kraft and Kevin Masarik had presentations featured on Wisconsin Public Television's segment "University Place".

## Wisconsin Well Water Quality Viewer

The Wisconsin Well Water Quality Viewer is the most accessed resource on the Center's website, with over 5,000 visitors this past year. The Viewer is used by citizens looking for information about local groundwater quality and by professionals or local leaders looking for data related to their specific communities or stakeholders. Maps and tables generated from the viewer are used by a number of state agencies (e.g. Wisconsin Department of Health, Wisconsin Department of Natural Resources, county governments) and other organizations.

Recently the Viewer was updated to include more recent data through 2016. In addition, data from La Crosse and Eau Claire County Health Department have been integrated, providing more detailed coverage across the state.

The Wisconsin Well Water Quality Viewer can be found online at: [www.uwsp.edu/cnr-ap/watershed/pages/wellwaterviewer](http://www.uwsp.edu/cnr-ap/watershed/pages/wellwaterviewer).



*The Wisconsin Well Water Quality Viewer can be used by citizens to learn more about the water quality in their area.*

## Scientific Papers and Reports

Brodzeller, J., and P.M. McGinley. 2016. A CE-QUAL-W2 Model for Dissolved Oxygen in the Big Eau Pleine Reservoir, Wisconsin to Understand and Manage Winter Anoxia. Report from the Center for Watershed Science and Education, UW-Stevens Point. 59 pp.

Kraft, G.J., D.J. Mechenich, C. Mechenich, J. McNelly, and J.E. Cook. 2015. Natural resource condition assessment Mississippi National Riverway. Natural Resource Report NPS/MISS/NRR—2015/990 National Park Service, Fort Collins, Colorado.

Kraft, G.J., D.J. Mechenich, C. Mechenich, J. McNelly, and J.E. Cook. 2015. Natural resource condition assessment Saint Croix National Scenic Riverway. Natural Resource Report NPS/SACN/NRR—2015/1003. National Park Service, Fort Collins, Colorado.

Kraft, G.J., D.J. Mechenich, C. Mechenich, J. McNelly, and J.E. Cook. 2015. Natural resource condition assessment Voyageurs National Park. Natural Resource Report NPS/VOYA/NRR—2015/1007. National Park Service, Fort Collins, Colorado.

Luczaj, J., and K.C. Masarik. 2015. Groundwater Quantity and Quality Issues in a Water-Rich Region: Examples from Wisconsin, USA. *Resources* 2015, 4, 323-357. doi:10.3390/resources4020323

McGinley, P.M., K.C. Masarik, M.B. Gotkowitz, and D.J. Mechenich. 2016. Impact of anthropogenic geochemical change and aquifer geology on groundwater phosphorus concentrations. *Applied Geochemistry* 72:1-9, <http://dx.doi.org/10.1016/j.apgeochem.2016.05.020>.

McGinley, P.M., W.M. DeVita, and A.L. Nitka. 2015. Evaluating Chemical Tracers in Suburban Groundwater as Indicators of Nitrate-Nitrogen Sources. Final Report for the Wisconsin Department of Natural Resources. 48 pp.

Olson, E., S.E. Hull, and N. Turyk. 2016. Healthy Lakes, Healthy Shorelands Project Report to CERANR.

Turyk, N. and R. Haney. 2016. Lake Management Plans for 13 Lakes in Waushara County. Final Plans to Waushara County and WDNR.

Turyk, N. and R. Haney. 2016. Lake Management Plans for 15 Lakes in Portage County. Final Plans to Portage County and WDNR.

# Posters and Presentations for Professional Scientific Conferences

DeVita, W.M., and J. Hall. December 2015. Selection and Evaluation of Chemical Indicators for Waste Stream Identification. American Geophysical Union annual meeting. San Francisco, CA.

Kraft, George. Sep.2016. Impact of Groundwater Extraction on Groundwater and Surface Water Hydrology. HalfMoon Education Seminar. Madison, WI.

Kraft, G.J., and D.J. Mechenich. 2016. Irrigation Impacts in the Northern Great Lake States. Invited presentation at the Toward Sustainable Groundwater in Agriculture - and International Conference Linking Science and Policy. University of California Davis and Water Education Foundation. San Francisco, CA.

Masarik, Kevin. Jan. 2016. Nitrate in Wisconsin's Groundwater: What, Why and Where. Wednesday Nite @ the Lab speaking series at UW-Madison Campus. Madison, WI.

Masarik, Kevin. Mar. 2016. Investigating in-field variability of groundwater to quantify impacts of agricultural management practices on quality. Wisconsin Section American Water Resources Association Annual Meeting. Wisconsin Dells, WI.

Masarik, Kevin. 2016. Spatial and temporal variability of nitrate in Wisconsin's groundwater. 2nd International Groundwater Conference Linking Science and Policy. Burlingame, CA.

McGinley, Paul. Feb. 2016. Developing a Hydrodynamic Framework to Evaluate the Importance of Stream Corridor Wetlands and Topography on Water Movement and Water Quality. Abstract and poster presentation, Wisconsin Wetlands Association Annual Conference. Green Bay, WI

McGinley, Paul. May 2016. Understanding Stream Phosphorus Concentrations—Contrasting the Roles of External Inputs and Internal Reactions. Central States Water Environment Federation Annual Meeting, Madison, WI,

McGinley, P.M., A.L. Nitka, and W.M. DeVita. Sep. 2015. Peering in the 21st Century: Chemical Tracers for Nitrate Source Identification. Annual Meeting of the Wisconsin Water Association. Wisconsin Dells, WI.

McGinley, P.M., and V. Ianaiev. May 2016. Removal of Emerging Compounds during Wastewater Treatment. Central States Water Environment Association Annual Meeting.

McGinley, P.M., and A. Timm. Oct. 2015. Understanding Stream Phosphorus Concentrations—Contrasting the Roles of External Inputs and Internal Reactions. International Soil and Water Assessment Tool (SWAT) Conference. Purdue University, West Lafayette, IN.

Nitka, A.L., W.M. DeVita, and P.M. McGinley. 2015. Evaluating Chemical Tracers in Suburban Groundwater as Indicators of Nitrate-Nitrogen Sources. American Geophysical Union annual meeting. San Francisco, CA and Society of Environmental Toxicology and Chemistry. Madison, WI.

Turyk, Nancy. 2016. Lake Management in a Changing Climate. North American Lake Management Society Conference. Banff, Alberta, Canada.



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