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Minnegram Winter 2017

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A record-setting attendance of over 700 attendees and a first-time appearance from a sitting Minnesota governor, set the tone for an eventful and instructive 2016 Minnesota Water Resources Conference.

[Mysteries in the sediment: UMD's Nathan Johnson is focused on the St. Louis River Estuary's complex mercury problem](#)

Just south of Duluth, Minnesota, the St. Louis River Estuary forms a 12,000 acre network of critical habitat for North American wildlife, water and migratory birds, and native plants and fish. Located at the confluence of the St. Louis River and Lake Superior, the estuary also plays a key role in Minnesota's wild rice trade, commercial fishing industry, and cultural and recreational heritage.

[WRS student Brian Bohman tracks increased sedimentation in Minnesota River](#)

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Assistant Professor in the Department of Earth Sciences, and Brian Bohman, WRS M.S. student and Research and Policy Intern at Freshwater Society, are working together to cross traditional disciplinary and academic boundaries. Through collaboration at Freshwater Society, the two are applying recent research findings to help the Lower Minnesota River Watershed District (LMRWD) identify the sources of and solutions to their problem of excess in-channel sedimentation.

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The Water Resources Center is a unit of the [College of Food, Agricultural and Natural Resource Sciences](#) and [University of Minnesota Extension](#).





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Winter 2017 Director's Corner

The dawn of a new year invites us to reflect on the past while also looking ahead. It was brought to my attention recently that Janus, the Roman god of passages, beginnings, and endings, can be a fitting image for our thoughts at his time year. The Romans usually depicted Janus with two faces, one looking back and one forward, believing that he watched over those passing through doorways as they moved from the past of one space and into the future of the next. After my first full year as WRC director, I've gotten to walk alongside our staff as we moved through a full cycle of annual activities, and now journey with them into the promise and opportunity of a new year.

One set of highlights from the past year is that we to sponsored and cosponsored several events illustrating the wide range of current water resource issues in Minnesota, including the [Climate Adaptation Conference](#), the [Buffer Science and Design Symposium](#), the [10th International Drainage Symposium](#), and of course, the annual Minnesota Water Resources Conference. Looking ahead into 2017, our Wetlands Delineator Certification Program will be co-hosting the [Minnesota Wetlands Conference](#) in January, and in May, Minnesota's climate change adaptation efforts will be on display as the [National Adaptation Forum](#) comes to Saint Paul.

Elsewhere in this issue you'll find an article describing the success of the 2016 Minnesota Water Resources Conference. Governor Dayton spoke to another record-setting number of attendees, noting in his remarks that he has called for a [Year of Water Action](#) in Minnesota going from August 2016 to August 2017. He also honored the attendees by [proclaiming](#) Oct. 19-26, 2016 Water Resources Professionals Week. The Governor's Year of Water Action is partly a legislative agenda but also a public campaign to raise awareness about how our individual actions affect the health of our water resources. Following



WRC Director Jeff Peterson

this lead, the WRC is helping to develop Year of Water Action activities at the University. We are working with the Water Resources Students in Action group to organize events on campus this year to inform the campus community about water issues and facilitate discourse about water policy.

One big change the WRC will face in the coming year is that our associate director, Faye Sleeper, recently informed us of her plan to retire in April. That timing will conclude a full decade of Faye's work at the WRC and will cap off an illustrious career of public sector service. Faye will be certainly be missed and I am personally grateful to her for her interim leadership of the center as well as for ensuring I had a smooth transition into my job. We'll have more to say about her many accomplishments in the next issue.

It's perhaps fitting that the next issue of the Minnegram will introduce new features that Faye helped bring to fruition. For the past year, Faye has served as the Program Leader for the [Extension Water Resources Team](#) (WRT) and has seized on the opportunity for a natural partnership between the WRT and the WRC. One example of that partnership is that we will merge the WRT's newsletter, [From Shore to Shore](#), into the Minnegram starting with the Spring 2017 issue. This will mean we will welcome the thousands of readers of Shore to Shore and will be able to include the expert research-based content written by the WRT [Extension Educators](#). This arrangement will make our delivery of news and content more efficient and streamlined, while also adding new content for both sets of readers.

2016 was certainly an eventful year at the WRC, but 2017 is shaping up to be even more active. In the coming months we will be hiring staff, including the associate director position. We will also have more to say in the future about a strategic planning process we have launched, which will help us to focus our goals and shape our work in the future.

And so, like Janus, we move ahead while also reflecting on where we have been. National and international events in 2016 were sometimes tumultuous and unforeseen. We can't fully know what 2017 will bring, but what we can do is learn from the past, adapt to change, and look ahead with readiness and renewed purpose.

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Minnesota Water Resources Conference: Questions about Flint, solutions to ag pollution and a visit from the Governor

A record-setting attendance of over 700 attendees and a first-time appearance from a sitting Minnesota governor, set the tone for an eventful and instructive 2016 Minnesota Water Resources Conference.

The Dave Ford award was presented to Cliff Aichinger by Tina Cartens of the Ramsey-Washington Metro Watershed District. Aichinger, now retired, spent 43 years providing vision and leadership at the Ramsey-Washington Metro Watershed District. His many projects include the Battle Creek restoration, Fish Creek restoration and Phalen shoreline restoration. Aichinger served as a mentor to many including Carstens, in the areas of staff development and management training. "I never imagined that I would be a recipient of this award," said Aichinger, who went on to praise Dave Ford as a mentor to him and the "Father of Floodplain Management."

Tuesday morning's plenary session featured Chris Kolb, President of the Michigan Environmental Council and co-chair of the Flint Water Advisory Task Force, who spoke about the drinking water crisis in Flint, Michigan.

Kolb was part of the five member task force charged by Michigan Governor Rick Snyder with finding out how and why Flint's drinking water was fouled. The committee's investigation found that safe drinking water mechanics can be overlooked by environmental regulators because the science of making water fit for human consumption is well-understood by the water community and regulators. This is what happened in Flint, and it changed everything in regard to monitoring the safety of drinking water. Now, the focus will be on the water source, and followed all the way to the tap.



The factors in Flint that contributed to high lead levels in water:

- Flint was not equipped to manage the change in source of drinking water from Lake Huron to the Flint River. Flint hadn't treated its own water since 1967.
- Lack of oversight at the state level Health and Human services.
- The state did not require Flint to add corrosion control treatment to the water, treatment that would have prevented the lead from the pipes from leaching into the water. Instead of adding the treatment, a year of monitoring lead levels passed with no action taken to correct the problem, instead protecting their decision.
- The corrosive nature of the water was blamed for a legionnaire's disease outbreak, lead poisoning in children and multiple water main breaks.

Chris Kolb, co-chair of the Flint Water Advisory Task Force, pictured here with WRC Director Jeff Peterson, warned his audience that the Flint crisis could be repeated where regulatory oversight is lax.

In the end says Kolb, the cause of the Flint water crisis was "ignorance, incompetence and arrogance," on the part of regulators at the state level. Today, the Flint water system is healing and in compliance with FDA rules, though Kolb said that federal regulations are the baseline, and that state regulations should be stronger. Michigan is now doing that.



Assistant Administrator for NOAA Craig McLean (center) and WRC Director Jeff Peterson and Minnesota Sea Grant Director John Downing following McLean's presentation at the conference. McLean stressed the importance of NOAA's funding of Minnesota Sea Grant, directly and positively affecting the health of the Great Lakes.

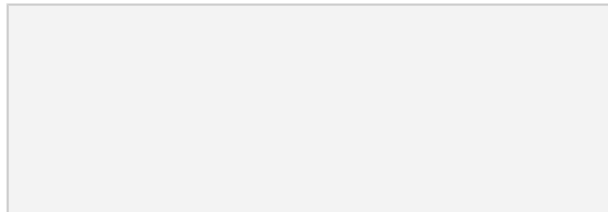
Craig McLean, Assistant Administrator, Oceanic and Atmospheric Research, National Oceanic and Atmospheric Administration (NOAA), spoke at Tuesday's luncheon. McClean framed the work of NOAA and Sea Grant as that of a conduit, bringing solutions directly to the citizens who are asking the questions.

As the funder of Minnesota Sea Grant, NOAA directly affects the health of the Great Lakes, by educating adults and students in schools, through initiatives like the Watershed Game, where players sit in the seats of policy-makers, and learn about all the factors that go into water and land use policy.

NOAA conducts a climate assessment every two years, hoping to predict and prepare for future weather events. Knowledge of future weather events creates community readiness and resilience.

David Mulla, Professor and Larson Endowed Chair in Soil and Water Resources, University of Minnesota, opened the Wednesday morning plenary session with Nonpoint Source Water Quality Issues and Solutions. Mulla

highlighted the Minnesota Nutrient Reduction Strategy, undertaken with the MPCA, which documents sources of water pollution and sets goals for pollution reduction, using a combination of voluntary and regulatory actions.



Southern Minnesota is most effected by nitrogen loss to lakes, with 70 percent of nitrogen pollution coming from farming. The MPCA's goal is to lower surface water nitrogen levels by 20 percent by 2025 and 40 percent by 2040. Some of the strategies employed to accomplish this are:

- Better management of fertilizer and manure
- Improved wastewater management
- Increased cover crops and native grasses

Mulla considers the 2025 goal to be economically feasible, while the long term goal is far more challenging, taking too much farm land out of production, and he looks for improved technology to achieve that larger goal.

Phosphorus in surface water is also largely a southern Minnesota problem, and requires a 40 percent load reduction for healthy lakes and rivers. Unlike nitrogen, phosphorus sources are predominately not from agriculture, with wastewater, stream bank erosion, forests and urban runoff accounting for 65 percent of phosphorus levels.

Phosphorus reduction strategies have made good progress. Phosphorus in water treatment plants has been reduced by 300 percent, through better cropland management of fertilizer and reducing erosion with cover crops, all accomplished without a lot of effort or loss of productive acreage.

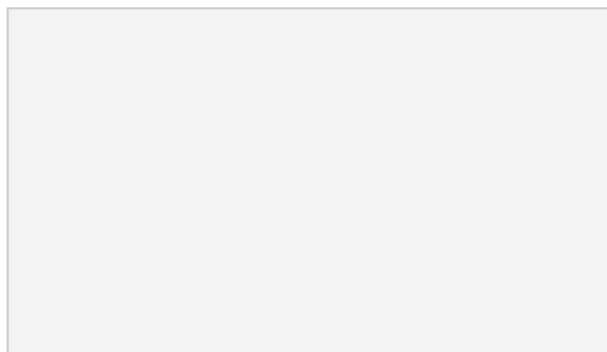
Mulla cited the Thompson Willow Lake farm near Windom as a water conservation success story. Tony Thompson farms 1500 acres of corn and soybeans, utilizing buffer strips, cover crops, and conservation tillage. "Stacking" these practices has been successful. A lake in the middle of the farm is crystal clear. "Water quality and successful farming do not have to be at odds," said Mulla.

Governor Mark Dayton arrived during the luncheon session to deliver the Water Professionals Week Proclamation and to reiterate his administration's commitment to improving surface and groundwater quality in

Minnesota. He referenced his Year of Water Action initiative, and urged all Minnesotans to take the Minnesota Water Ethic Pledge, and promise to renew their commitment to water stewardship. He also went on to thank the water professionals in the room for, in the words of the Proclamation: dedicating "...their education and professional lives to the protection, restoration, and management of the waters of the North Star



WRC Director Jeff Peterson and plenary speaker David Mulla.



State, as well as the protection of the health and way of life of Minnesotans.”

Aside from the plenary sessions, the conference offered over 90 concurrent sessions addressing problems and solutions to groundwater supply, innovative urban BMP's, and tools for managing road salt application. New this year was a special session on social justice in water supply, which asked the question: What is the impact to society of not providing high-quality water from water supply systems? Is Flint a symptom of a bigger problem? What are the issues the disparities and what can be done about it?



Minnesota Water Resources Conference 2016 co-chairs WRC director Jeff Peterson and Metropolitan Council's Karen Jensen accept the State of Minnesota Proclamation from Governor Mark Dayton, proclaiming the week of October 19-26, 2016 as Water Resources Professionals Week. Governor Dayton is the first sitting Minnesota governor to address the annual water conference.

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