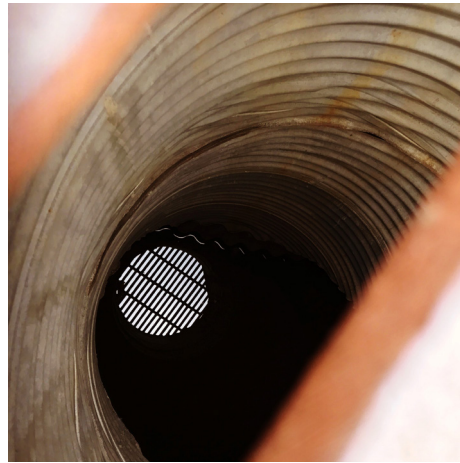


## Research council tackles stormwater concerns



A \$1.5 million Clean Water Land & Legacy Amendment award, leveraged with funds from watersheds and cities, will advance applied research that delves into questions about efficient, effective urban runoff treatments. The 20-member Minnesota Stormwater Research Council is behind the effort. **Photo Credits:** Ann Wessel, BWSR



When the Minnesota Stormwater Research Council (MSRC) formed a couple of years ago, federal and state research funding was drying up as questions about efficient, effective urban runoff treatments were on the rise.

On a small scale, local governments, organizations, and soil and water conservation districts had dabbled in research. The MSRC sought to pool resources and bankroll prioritized, large-scale applied research projects.

“The council will (aid in) the discovery of new information that can make stormwater management, stormwater practices more efficient on the landscape, more effective on the landscape,” said John Bilotta. A water resource management and policy educator with University of Minnesota Extension and the Minnesota Sea Grant, he helps lead the newly formed council.

“Ultimately, we’ll have more sustainable clean-water resources for Minnesota. Stormwater runoff will have minimal impacts,” Bilotta said.

The MSRC’s 20 board members —

including one Minnesota Board of Water and Soil Resources (BWSR) clean water specialist — collected about \$100,000 in pooled funding from local watersheds and cities in 2017.

Last year the council funded two of 13 proposed projects.

Andy Erickson of the University of Minnesota’s St. Anthony Falls Laboratory received about \$30,000 to study which practices are the most economical and effective in treating stormwater before it reaches a rain garden, AKA a pretreatment system.

The practices would extend the rain garden’s life by removing sediment, debris and related pollution. His team is testing rock-lined inlets, grass filter strips, and a proprietary screen-and-filter device.

Beth Fisher of the University of Minnesota’s Department of Earth Sciences received about \$40,000 to conduct lab experiments to determine which minerals in iron-enhanced sand filters remove phosphorus from stormwater runoff. Excessive phosphorus can feed algae growth.

“  
**How do we pool these resources together so we can do better, more effective work?**

— John Bilotta,  
University  
of Minnesota  
Extension

”

Work associated with those grants will wrap up in 2018.

A \$1.5 million Clean Water Land & Legacy Amendment award — leveraged with funds from watersheds and cities — will result in stormwater research and technology transfer over the next two years. The U of M's Water Resources Center is the fiscal and administrative agent for the council. Spring and fall RFPs will seek projects to fund.

The RFP deadlines have not been set. The council expects to solicit donations soon.

The council based its 2017 priorities partly on an interim report on stormwater research needs.

“What we’re working on now is what we’re calling a 10-year research roadmap for stormwater across the state,” Bilotta said. Once it’s finished in June, that document will help prioritize research.

Eight research priorities guide the council decisions.

They are: best management practices’ cost effectiveness, characterization of stormwater runoff (what’s in it, where is it coming from, can it be monitored more effectively), pollutants of concern (sediment, nutrients and chlorides), pollution reduction practices, innovative practices, improved maintenance of practices, behavior modification, and stormwater management policy.



Rain gardens such as this one at Como Park Zoo and Conservatory in St. Paul are among the practices currently used to treat urban stormwater runoff. **Photo Credit:** Ann Wessel, BWSR

Bilotta outlined three emerging priorities of increasing concern throughout Minnesota.

#### **REVISITING TRADITIONAL**

**POLLUTANTS:** “We’re seeing a continued need to look at some of our traditional pollutants for stormwater — sediment and nutrients. Dirt. Phosphorus and nitrogen. Someone might say, ‘You’ve been doing research on that for years. Do we need more?’ What we’re seeing is we still need more.”

**CONSIDERING CHLORIDE:** “There is a lot of concern and emphasis for

chloride pollution from across the state — predominantly from road salt, but also from water softeners. ... We’ve been using road salt since the mid-1970s. It’s taken a while for it to show up as a pollutant in our waters. ... As our monitoring and our science have become more effective, we’ve discovered a new problem. That’s emerging, and it’s emerging all across the state.”

**IRRIGATION INVESTIGATION:** “In many parts of the state we have turned to stormwater reuse, the use of cisterns in capturing stormwater runoff to be reused for irrigation. We’ve seen a huge increase in the use of this practice in the last five years. But we’ve also discovered that there’s a lot of need for more information about how to construct, how to monitor these systems more effectively.”

Bilotta linked the emergence of those irrigation systems, which have proliferated across the Twin Cities, to a focus on decreasing stormwater volume. Millions of gallons of runoff collected during a growing season irrigates athletic fields, golf courses, parks and, to a lesser extent, business and residential lawns.

“What is in this reuse water when it comes from stormwater runoff? Is it suitable for human contact? What about pet contact? Those are some of the concerns. It doesn’t look so bad. But it’s got chloride in it. It has materials from our brake linings and oil drippings from our cars.”