



From Shore to Shore

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Water Resources Team

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Farewell From Shore to Shore

Here's to the New Year! As we reported in the last issue, this issue of From Shore to Shore is the last as we merge with the University of Minnesota Water Resources Center's *Minnegram*. It seems appropriate to reminisce a bit about *From Shore to Shore* as we say goodbye.

This newsletter began in June 1996 as a communication tool for the Shoreland Volunteer program. It was roughly a bimonthly publication, becoming more sporadic in winter when there wasn't as much news to report. In July 1999, the format changed to include general articles. The newsletter in those days usually had a "Plant of the Month" feature and, a little later, "Out and About: Getting to Know the Shoreland Volunteers." Topics covered ranged from "Getting to Know Geese" (July 2000) to "Ice Safety on Minnesota Lakes" (December 1999) to "Water Surface Use Management" (April 2001) to "I Love Loons!" (February 2003) to "What is Conservation Drainage?" (November 2010). Color was introduced in 2008 and in 2013 we transitioned to an electronic-only format in conjunction with the Water Resources News that currently goes out to about 2000 subscribers.

Farewell Doug Malchow

With this issue we also say goodbye to our Water Resources Team colleague Doug Malchow as he retires. You have likely read articles by Doug, such as the one on page 2 of this newsletter. Many of you

It has been our honor to provide this service to you for the past 20 years and know that we are committed to continuing to serve you through the *Minnegram*. We know that many of you share our articles with others and we will work continue to make that easy for you to do. Past issues will be archived on our Water Resources Team's website (www.extension.umn.edu/environment/water); issues from 2003 to the present are currently available at www.shorelandmanagement.org/shore_shore/newsletter_archive.html.

We would also like to express our deep gratitude for services that have been provided by Minnesota Sea Grant professionals, especially Sharon Moen for her tireless and exceptional editing skills and Chris Benson for his top-notch layout of each issue. We appreciate their years of assistance, expertise and commitment!

You will begin receiving the *Minnegram* in the Spring – you don't have to take any action. For *From Shore to Shore* correspondence, please contact Karen Terry, 218-770-9301, kterry@umn.edu. ■

have probably attended workshops he taught or worked with him on projects. We will miss his expertise and good humor! We wish him all the best in his retirement. ■



Calendar of Events

For the most current calendar items and more details, visit www.extension.umn.edu/environment/water/calendar/.

Governor Dayton's Town Hall Water Summit

Date: January 27

Location: University of Minnesota – Morris, satellite locations in Duluth, Crookston, and St. Paul, and live streamed

For more information or to register to attend at a satellite location, visit <http://bit.ly/2jXWYPo>

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Funding Water Quality Improvement Projects: Don't Overlook Potential Partners

By Doug Malchow, Extension Educator, malch002@umn.edu



Motor boats were common on East Side Lake in Austin, MN, until the 1970s; the 40-acre manmade lake is now too shallow for boating. Sedimentation from Dobbins Creek, a main tributary to the Cedar River, slowly made this lake shallower since it was created in the mid-1930s

Before discussing the funding of water quality improvement projects, I need to give you a little background information.

I grew up in Austin, Minnesota, and although I haven't lived there in over 40 years, I still pay attention to what takes place in the community and area. Austin is located in Mower County, which is one of the southern counties that border Iowa and is one of the few counties in the state that does not contain a natural lake. The terrain is very flat and most of the county is encompassed in the Cedar River Watershed. The Cedar River flows into Iowa and is a major drainage for much of northeastern Iowa. Most of the watershed is planted in field corn and soybeans. Much of the agricultural land is tilled to speed the flow of excess water off the land and out of the soil to increase agricultural production.

Austin and surrounding areas experienced extensive flooding in 1978, 1983, 1993, 2000, 2004 and 2010. Many of

these floods were classified as 100-year floods. Due to this flooding and degraded water quality in the Cedar River and its tributaries, part of which is a state-designated Water Trail, many in the area realized something needed to be done. The inception of the Cedar River Watershed District (CRWD) was one of the results.

Many lake associations, cities, counties, watershed partnerships and watershed districts seek funds to pay for projects to improve the water quality in their lakes, streams and rivers. Funds supporting best management practices, including education, are often generated through taxes, grants, loans and allocations from local and state sources, such as:

- Clean Water Funds, through the Pollution Control Agency, provides funding for restoration and protection of the state's water bodies.
- The Board of Water and Soil Resources, through the Clean Water Land and Legacy Amendment, pro-

vides funds for stormwater projects.

- Clean Water Revolving Fund makes loans for point source (wastewater and stormwater) and nonpoint source water pollution control projects.
- Cost share programs are available through many watershed districts in Minnesota; Soil and Water Conservation Districts often provide cost share programs for stormwater projects, as well.

Minnesota: Home to Many Large Companies

Twenty-five Minnesota-based companies are on the Fortune 1000 list of the largest U.S. public companies based on revenues. These range from sixth-ranked United Health Group with over \$150 billion in revenues down to 959-ranked H. B. Fuller with approximately \$2 billion in revenues.

When looking for funding sources for projects that address water quality improvement and flow issues in → ③

←2 Funding Water Quality Improvement Projects

your community, don't overlook companies, large and small, as sources of support; many agree to provide funds to help with water quality improvement projects and education to raise public awareness about the importance of clean water and the benefits of healthy watersheds.

One such example is the Hormel Food Corporation, which was founded in Austin in 1891 as a butcher shop. Hormel's best known product is Spam (mmm, good) which was first produced in 1937 and became the meat that helped win World War II. Over its 125-year history, Hormel has become a worldwide company and is number 310 on the Fortune 1000 list with annual sales of over \$9.3 billion. Despite the company's growth and size, its corporate headquarters are still in Austin and the company, through the Hormel Foundation, remains committed to improving lives in the community. Since its inception in 1941, the Hormel Foundation has provided grants totaling almost \$137 million for projects in Austin and the surrounding area.

In the past, few of these grant funds were provided for projects related to the environment and those were generally modest. However, in 2015 the Foundation granted \$3.2 million to the CRWD in matching funds to ensure that 25 projects, including stormwater detention, stormwater basins, flood risk reduction and ravine stabilization, would improve water quality in the area.

What Changed?

In 2011, Austin community members and leaders came together and created Vision 2020, which is a process designed to intentionally chart a course for the future by asking an important question: what kind of community do we want to be? That group also realized that nothing happens in a community without

people working together. Since its inception, Vision 2020 has formed partnerships in the area and has leveraged over \$23 million in grants, donations and investments from every sector throughout Austin: private, public, non-profit and philanthropic.

One of Vision 2020's goals was to embrace and maintain Austin's waterways through its Waterways committee. That committee began by researching local water issues and found that the CRWD was already making headway. However, they discovered the district had a backlog of projects and was in need of more resources and funding to take their water quality efforts to the next level.

Armed with information, community support and a set of firm steps developed by CRWD staff, Vision 2020 approached the Hormel Foundation with a plan for cleaning up two of Austin's biggest waterways.

The Hormel Foundation's \$3.2 million grant is the largest in the CRWD's history and will cover half of the \$6.4 million Accelerated Results Plan, which features 25 permanent projects to start in 2016, many of which are upstream from Austin along the Cedar River and Dobbins Creek.

According to Hormel Foundation Chairman Gary Ray, "Just the fact that we're going to be cleaning up the waterways in and out of Austin ... is a huge, huge step in the right direction." He added the project was a no-brainer for the Foundation and its board, as it will be good for the community, affecting health, quality of life and recreational opportunities.

According to CRWD Resource Specialist Justin Hanson the CRWD didn't have the leveraged funds to get large-scale projects going because statewide funding

for clean water projects is limited and the needs are many. Hanson called the private capital investment from the Foundation a unique one that puts CRWD ahead of the curve.

The CRWD has a track record of success. Its work has kept 1,512 tons of sediment on land since 2012 and it has held 632 pounds of phosphorus on the land. CRWD was named Watershed District of the Year by the Minnesota Department of Natural Resources in 2012 and by Izaak Walton League in 2013. According to Hormel Foundation representatives, this track record was an important consideration in providing the grant funds to Vision 2020 for the long-term project.

Lessons

1. Develop a shared vision of what you, your neighbors and local leaders want your community to look like in the future.
2. Based upon that vision, develop a plan which can be used to show potential funders that you will use their financial assistance to undertake coordinated projects that will show positive results.
3. Partner with local organizations (watershed, soil and water control, lake improvement districts; watershed partnerships; and others) to leverage expertise and secure funds to undertake projects in your community.
4. Think creatively. Approach non-traditional sources, such as local corporations and other businesses, for funds to improve your community by solving water resources challenges and improving water resources in general.
5. Think about working with local business groups that engage many business leaders. A consortium of companies desiring to improve the community in which they do business may be able to accomplish the same outcome as a single large corporation.

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Autumn Nitrogen Application and Its Implications for Water Quality

By Anne Struffert, Extension Educator, Agriculture Water Quality, 320-203-6058, struf003@umn.edu

Conversations about water quality in Minnesota often involve agricultural runoff containing fertilizers like nitrogen. Scientists have been studying nitrogen (N) in the environment for decades and, while they have a grasp on how it acts, they have yet to find the silver bullet for controlling it. Research has centered on eliminating nitrate leaching, ranging from timing of application, plant density, crop rotations and more, but a persistent controversy remains: the autumn application of N fertilizers.

To understand why autumn application of N fertilizers is so controversial, one needs to understand the N cycle. Research shows that microbes in the soil are responsible for converting insoluble forms of N to soluble forms that can be carried away with water. For example, many nitrogen fertilizers are applied as ammonium (NH_4^+) and are converted to nitrate (NO_3^-) through nitrification. Both NH_4^+ and NO_3^- can be taken up by plants; the difference is that nitrate has a higher potential for being washed away into lakes and rivers.

The key to justifying autumn applications is that the nitrification process essentially stops once the soil temperature is below 50°F. The University of Minnesota Extension's Best Management Practices (BMPs) recommend waiting until the top inches of the soil reach 50°F. The BMPs recommend that producers take field-by-field temperature readings to determine when to apply fertilizer, rather than using generalizations such as the average 50°F soil temperatures across the state.

Autumn application of N fertilizer is allowed in northwest, west-central, south-west and south-central Minnesota where climate and soils make N loss less likely. The main concern with autumn N application from a water quality standpoint is that farmers are applying it for a crop that has either yet to be planted or is not growing during the winter or early spring months. So even if fertilizer goes on soil colder than

50°F, significant N losses can occur in early spring with spring rains and snow melt. The combination of dormant plants and warming soil leads to a high potential for N losses to ground and surface water.

Research funded by the Minnesota Corn Growers Association indicates that autumn applications of urea should not be done in south-central Minnesota. There, between 2013 and 2015, fields fertilized in autumn lost 38 percent more nitrate in tile drainage water compared to fields where urea was applied in spring. A new study will evaluate the feasibility of autumn urea applications with different application methods and the use of nitrification inhibitors, focusing on northwestern, west-central, southwestern and south-central Minnesota. By 2018, the U of M researchers hope to have amassed a dataset large enough to determine if applying urea in autumn might continue to be a recommended BMP for southwestern, west-central and northwestern Minnesota farmers.

Data collected from southeastern Minnesota shows that an autumn application of 150 lbs of N/acre leached 13 mg/L more a spring application. In other cases, however, such as in Waseca researchers have seen that 120 lbs of N/acre in the autumn rather than the spring leached similar amounts of N, although the spring application yielded 14 more bushels, making it more economical. For most of Minnesota this is the usual trend: either the autumn application is lost to the environment at a higher rate and/or yields are lower than with a spring application. Therefore, the University of Minnesota Extension recommends applying fertilizer to fields in spring; autumn applications are acceptable in only some instances.

For additional information on nutrient management from the University of Minnesota, visit: <https://z.umn.edu/nutrientmgmt>. ■