

From Shore to Shore

A publication of the University of Minnesota Extension
Water Resources Team

March - April 2013

Issue #113

www.shorelandmanagement.org

Get Ready for Greener Days: Attend a U of M Extension Horticulture Day

David Moen, University of Minnesota Extension, 763-767-3874, moenx010@umn.edu



Karen Kreiser, Wildwood, Erhard, MN

Take a break from snow and slush. Get ready for greener days of spring. Now through April, University of Minnesota Extension Master Gardeners will host nearly twenty "Horticulture Days" across the state. To locate an event near you visit: www1.extension.umn.edu/garden/events/. Click on "Horticulture Day" in the Upcoming Workshop section.

Horticulture Day speakers and presenters are University of Minnesota faculty, green industry experts and University of Minnesota Extension trained Master Gardener volunteers. They will bring information on the latest trends and topics for gardens and home landscapes.

In addition to a full slate of workshops, most events feature demonstrations, displays and

Master Gardener booths to answer horticulture questions.

Whether your interest is growing your own vegetables, installing environmentally friendly landscapes, dealing with pests like the emerald ash borer, or learning about the latest varieties of annuals and perennials, there will be fun and learning opportunities for the novice and the experienced gardener alike.

Registration and admission costs vary depending on location and whether a meal is provided.

Check out University of Minnesota Extension Master Gardener Horticulture Days and get ready for the greener days of spring. ■



Calendar of Events

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

Healthy Watersheds, Healthy Communities – Urban Water Resources and the Connection to Trees: NEMO presentations at the Minnesota Shade Tree Short Course

Date: March 12 & 13, 2013

Location: Arden Hills, MN

Contact: www.cce.umn.edu/Minnesota-Shade-Tree-Short-Course

18th Annual Ladies Night: What about our Water?

Date: April 4, 2013

Location: Wahpeton, ND

Contact: Diane Lommel, 218-643-2933

Septic System Care

Date: April 8, 2013

Location: Brainerd, MN

Website: Eleanor Burkett, 218-828-2326, burke044@umn.edu

Introduction to Lakescaping

Date/Location: April 17, Faribault;

April 18, Forest Township Hall

Contact: Jenny Mocol-Johnson, 507-333-3871, jmocol@co.rice.mn.us

Inside...

2 High-Tech Teachers

3 The State of the River Report

4 Flooded Septic Systems

High-Tech Teachers: NRRI uses fun technology to connect people and water

Article courtesy of the University of Minnesota Duluth's Natural Resources Research Institute.

Smart Phones can help make people smarter, too. Capitalizing on the “fun factor” of cool apps for the phones and the adaptable technologies, Natural Resources Research Institute (NRRI) scientists at the University of Minnesota Duluth are using Smart Phones to share knowledge of the natural environment. They're also using the World Wide Web as a storehouse of easily accessible environmental information for students, teachers, city workers... well, anybody.

www.WaterOnTheWeb.org (WOW) started with remote water quality sensors in five Minnesota lakes. Information was collected on things like water temperature, oxygen and salinity levels, then downloaded to the WOW website. From there the “real world” data can be used as a basic science teaching aid. The project team, funded by the National Science Foundation from 1997 to 2005, included staff from NRRI, Minnesota Sea Grant and UMD's Department of Education.

“WOW hasn't been funded in six or seven years and it still gets about a million requests a month,” said project scientist Rich Axler. “It seems like every week or so a teacher or student from somewhere in the world requests information. And a number of textbooks have images and graphics from it.”

WOW's water science curriculum was developed using the same real-time data from ecologically important lakes, streams and rivers around the country. The site includes free, online lectures and lab exercises on the ecology of fresh waters to challenge students and teachers with real data – which is often messier than what they get in text books.

“There's less and less money for teachers to get this kind of training,” said Axler. “This helps train teachers, new scientists, engineers and technicians in how science works in the real world. It's extremely valuable.”

After the successful launch of WaterOnTheWeb.org, the team received funding from a U.S. Environmental Protection Agency initiative called Environmental Monitoring for Public Access and Community Tracking which perfectly fit the web tools and field sensors. Targeting Minnesota's metropolitan area, they partnered with the Three Rivers Park District to track algal growth in Lake Minnetonka and how fertilizers in stormwater exacerbate noxious algal blooms in Medicine Lake.

When funding was available to expand to northern Minnesota, similar sensors were used to collect data on Duluth's trout streams and www.LakeSuperiorStreams.org was launched.

“Stormwater issues were hitting the fan nationally with new regulations from the Clean Water Act,” Axler explained. “Duluth and other towns in the region had a charge to improve public and industry understanding that we thought we could address with our tools, allowing people to ‘see’ how streams work and download information to reduce stormwater pollution.”

This effort was accomplished by partnering with the City of Duluth, the Western Lake Superior Sanitary District and the Minnesota Pollution Control Agency. The project also helped create the Regional Stormwater Protection Team that for almost a decade has sponsored workshops, watershed festivals, and shared information and technical expertise.

LakeSuperiorStreams.org is still actively connecting weather, landscape and people's activities on land to streams, wetlands, the St. Louis River Estuary and Lake Superior. It's a resource that helps the community to understand the value of clean water systems and sustainable development.

Another project to use Smart Phones turns a hike or visit to the St. Louis River Estuary into a learning

experience. Using the location-sensitive GPS technologies in the phones and real locations, the free app will trigger information about a place – a video, text or a photo – when the user is near it, making the walk into a game.

For example, in the game, you might be a chef with the task of getting fresh fish. You find a local fish market and talk with the seller (all on your phone app, of course) to get what you need. Near a fish advisory posting, your phone might be triggered to share information about the risks of high mercury in the fish. Passing a bridge where real anglers often fish might cause your phone to ask if you want to join them “virtually.”

“So you pick your bait using the phone, you catch a virtual goby and then you learn about invasive species,” explained NRRI project lead George Host. “Kids get to use the tools they enjoy, but they're also out in the real world.”

Those who have GPS units and enjoy the popular pastime of Geocaching can also do an environmental education version the team developed. Navigating to hidden caches with their GPS receivers to, say, Duluth's Stryker Bay, the player will find a container with tools and instructions for taking water samples. In the woods they might find information about the plants and birds in the area.

The tools and website were developed with Wisconsin and Minnesota Sea Grant to improve understanding of the many issues associated with the history of the river.

“Our goal is to connect people with science focused on the St. Louis River Estuary, and drive home the understanding that people are part of the ecosystem,” said Host.

Visit www.nrri.umn.edu to learn more about NRRI and to access their newsletter, NRRI Now. ■

The State of the River Report

Submitted by Trevor Russell, Friends of the Mississippi River, and Lark Weller, National Park Service's Mississippi National River and Recreation Area

How is the Mississippi River? Can we swim in it? Is water pollution improving? Can we eat the fish we catch?

We all know the Mississippi River is a large and complex ecosystem, and it can be difficult to know how to answer these questions. That's why Friends of the Mississippi River (FMR) and the National Park Service's Mississippi National River and Recreation Area (MNRRA) developed *The State of the River Report*.

The State of the River Report highlights the history, status, and trends of 13 key indicators of water quality and river health in the Twin Cities metro Mississippi River. Developed over 15 months in partnership with a team of more than 30 scientific advisors, the report distills a wealth of river data down into simple terms that non-scientists can understand.

By presenting clear and concise information on important factors of water



Friends of the Mississippi

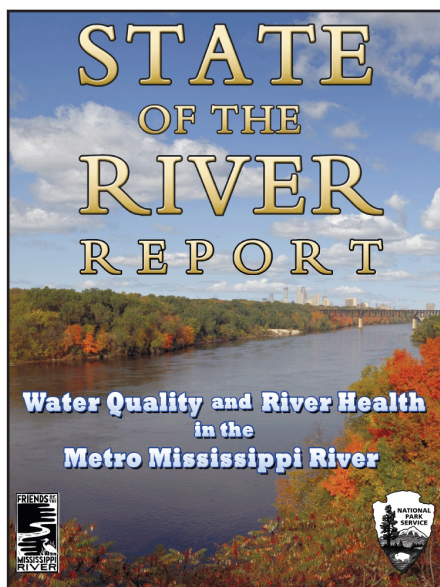
quality and river health, *The State of the River Report* offers readers the opportunity to learn more about this resource and contribute to its protection and restoration.

So, how is the metro Mississippi River?

It's a river that has improved in both water quality and ecological health over time, but there are also some distressing trends and emerging concerns.

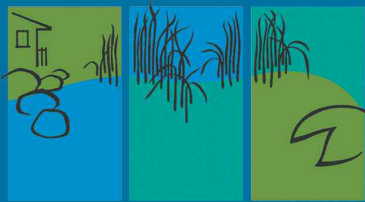
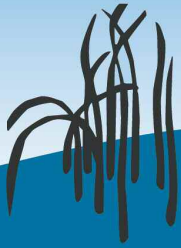
- Indicators of serious concern include **river flow**, which has increased 25% between 1976 and 2005. **Nitrate** concentrations have increased by 47% during the same time period. The invasive **Asian carp** have reached the metro area, and emerging contaminants like **triclosan** and **PAH** are becoming more widespread.
- Positive trends in **bald eagle**, **native mussel**, and **fish populations** are signs of a restored river that is once again home to healthy and abundant wildlife.
- Other indicators remain causes for concern. Portions of the river are impaired with excess **sediment** and **bacteria**. The metro area sends too much **phosphorus** downstream. Site-specific **fish consumption** guidelines are in place throughout the river due to elevated levels of **PFOS**, **mercury**, and **PCBs**.

To learn more about *The State of the River Report*, or to download your copy for free, visit www.stateoftheriver.com. There, readers can also review stewardship and policy guides, and take the Clean Water Stewardship Pledge to help protect the Mighty Mississippi River. ■



Contact

Karen Terry
University of Minnesota Extension
From Shore to Shore Editor
320-589-1711
kterry@umn.edu



From Shore to Shore

www.shorelandmanagement.org

A publication of the Water Resources Team, dedicated to educating Minnesota citizens about shoreland management to improve water quality, habitat, and aesthetics of our lakes and rivers.

From Shore to Shore is available in hard copy and electronic formats. Archived issues are available online at www.shorelandmanagement.org

To subscribe or unsubscribe, please contact Barb LaPlante at bjla@umn.edu or 320-589-1711.

The University of Minnesota is an equal opportunity employer and educator.



UNIVERSITY OF MINNESOTA
EXTENSION

Flooded Septic Systems

Submitted by Doug Malchow, University of Minnesota Extension. Based upon a fact sheet provided by the University of Minnesota's Onsite Sewage Treatment Program.

According to University of Minnesota Extension and the Onsite Sewage Treatment Program (OSTP) staff, if you have a septic system that is in an area affected by flooding, it is in harm's way. Take action during and after flooding to minimize the potential damage. If the drainfield or ground above your septic tank floods, your sewage treatment system is not working and should not be used.

If Your System Floods

The OSTP staff recommends the following steps to help your system recover:

- Pump the tank(s) as soon as possible after floodwaters recede and prior to resuming use of the septic system. Be sure to pump both the septic tank and the pump/lift station (if you have one). Silt and other debris may have collected in your septic tank while it was under water. This silt could end up damaging the drainfield. Additionally, a variety of pesticides, petroleum products and other contaminants may have entered the tank. These contaminants could harm the beneficial bacteria in both the tank and the drainfield and therefore need to be removed. However, don't leave the septic tank empty after pumping if the soil around the area of the tank(s) is saturated; this can cause the tank to "float" toward the ground's surface if the soil's water pressure remains high. If you have this concern, consult a licensed tank pump/maintainer.
 - Locate and protect the drainfield from compaction by keeping all traffic off the area. As flood cleanup and home restoration occur extra traffic, including foot traffic, debris piles, dumpsters, and heavy equipment, can reduce the capacity of your drainfield to treat wastewater and could lead to the early failure of your entire system.
 - Check electrical connections for damage or wear before turning electricity back on.
 - Check that the septic tank manhole cover is secure and that inspection ports have not been blocked or damaged.
 - Check the vegetation over your septic tank and drainfield. Repair erosion damage; sod or reseed as necessary to provide a good plant cover. You may need to mulch the area to provide insulation if the grass has not become well established before winter.
- If sewage backed up into the house or garage, be sure to disinfect the areas thoroughly. Disease-causing organisms (pathogens) in wastewater can lead to serious illnesses, such as dysentery and hepatitis. Avoid flushing disinfectants into drains that empty into the septic system. Disinfectants can kill the beneficial bacteria in both the tank and the drainfield. If you need to chlorinate your well, follow the University of Minnesota Extension instructions (www.extension.umn.edu/distribution/naturalresources/DD5941.html). Do not allow the bleach to enter your septic system.
 - If you have a drainfield that has not been flooded but is soggy due to heavy rain, minimize water use within the home. Additional water can cause poorly treated sewage to surface in your yard or raw sewage to back up into your house.



Call the professionals

Contact a licensed septic system professional or the local septic system permitting authority to discuss options that will meet state and local codes if:

- The drainfield still will not accept effluent from the septic tank after the floodwater has receded and the surrounding soil has dried. The drainfield pipes or soil might be "plugged."
- Components of a septic system are partially or completely washed away. Don't assume that soil or other "fill" can be added and new system components constructed.
- Your drainfield is saturated or has standing water not caused by flooding or heavy rain.