

From Shore to Shore

A publication of the University of Minnesota
Shoreland Education Team

March - April 2012

Issue #108

www.shorelandmanagement.org

New Aquatic Invasive Species Videos

Erika Johnson, South Shore Productions, Inc., erikajohnson@arvig.net, (218) 849-1643



Aquatic invasive species such as zebra mussels, flowering rush, spiny waterflea and Eurasian watermilfoil are drawing attention across the nation and especially in Minnesota. Minnesota lakes and rivers are threatened by these invasive species that hurt fish populations and tourism, cause algae blooms and foul beaches, and wreak economic havoc by clogging boat motors, water supplies and drainage systems.

A series of eleven 30-second public service announcements have been professionally produced to educate residents and visitors on easy steps to stop the spread of aquatic invasive species. RMB Environmental Laboratories and the Pelican River Watershed District led the productions, which were

funded by the Central Region Sustainable Development Partnership, the MN DNR and a blend of lake coalitions, watershed districts, property owner associations, and foundations.

It is vital to our current and future local, state, and regional economy to greatly increase our education efforts to inform the public about aquatic invasive species and steps to prevent their spread. Can you help get these videos out to the public? Consider asking your local access TV station to air them or local newspapers to highlight them, or include information about them in your own newsletters and listserves, or share them via Facebook! To see the videos, download, share, and learn more, go to www.naturalinnovations.org. ■



Calendar of Events

2012 MECA Conference

Date: March 8-9, 2012 with pre-conference workshops on March 7
Location: Grand View Lodge, 23521 Nokomis Avenue, Nisswa, MN 56468
Website: <http://mnerosion.org>

Native Gardens for Home Landscapes

Presenter: Eleanor Burkett
Event: Garden Expo 2012
Date: Saturday, April 14, 2012
Location: Central Lakes College, Brainerd
Contact: Jackie Froemming at 218-824-1068 or froem022@umn.edu

Inside...

- ② **University of Minnesota Extension Offers Workshops for Small-Farm and Acreage Owners**
- ③ **New Water Quality Practice Offers First-Year Surprises**
- ④ **Learning About Your Lake: Light**

University of Minnesota Extension Offers Workshops for Small-farm and Acreage Owners

Do you dream of owning acreage in the country? Do you have acreage that could benefit from a bit of strategizing? Attend the Living on the Land Workshop Series, offered by University of Minnesota Extension! It will equip you with the education and resources to be a successful landowner and manager.

The eight-week course is designed to arm landowners with agricultural information to enable them to be good stewards of their land. The course will begin with goal-setting and individual property inventory, then cover soil, plant and water basics.

The Living on the Land curriculum addresses a growing need for information regarding small acreages. The series incorporates knowledge and experience from a team of instructors to address topics including: what do you have and what do you want, what you can do with your land, water quality, protecting household drinking water, how plants grow, what to do about weeds, lawn and pasture maintenance, getting down and dirty with soils. The series also includes a farm tour.

The series will be taught by Extension educators and natural resource professionals at two locations: the McLeod County Fairgrounds 4-H Café in Hutchinson, and the Historic Courthouse's conference room in Mankato.

Both workshop series will be held on Thursday evenings from March 8 – April 26 from 6-9 p.m.

Early registration is \$175 until Friday, March 2 and all registrations received



Betsy Wieland, U of MN Agriculture Extension Educator

afterwards will be \$200. The fee covers two people who will share materials (for example a husband and wife or two siblings). Benefits include printed material, an educational farm tour and dinner, a site visit/consultation from a University of Minnesota Extension educator in your area, as well as the tools to help you succeed with your goals and dreams on your country acreage.

Register now; space is limited. Contact Nathan Winter for a brochure and with questions regarding the Hutchinson series at (320) 484-4303 or by e-mail at

wint0146@umn.edu. Contact Diane DeWitte at (507) 304-4325 or by e-mail at stouf002@umn.edu for more information and registration questions about the Mankato series.

View the 2012 Living on the Land Workshop Series Brochure at www.extension.umn.edu/county/McLeod/news/Living.On.The.Land.Brochure.2012.pdf. ■

New Water Quality Practice Offers First-year Surprises

This article is from the Leopold Center for Sustainable Agriculture, located at Iowa State University in Ames, Iowa.

AMES, Iowa – Researchers working with the Leopold Center for Sustainable Agriculture report promising results from a new type of conservation practice that removes nitrate from water flowing in underground field drainage tiles before it reaches streams, rivers and other waterways.

An estimated 500 pounds of nitrate-nitrogen coming from crop fields along a 1,000-ft. stretch of Bear Creek in Story County never reached the waterway this past growing season. Instead, the subsurface drainage water was diverted to an existing riparian buffer along Bear Creek before it reached the stream.

The new practice is called a saturated buffer, in which a shallow lateral line intercepts tile lines before they release water into a stream. The lateral line has control structures that raise the water table and slow outflow, allowing the buffers to naturally remove nutrients such as nitrate and phosphorus.

“One weakness of riparian buffers in protecting water quality is that our extensively tiled farm fields rush the subsurface drainage water right past and through them,” says Jeri Neal, who leads the Leopold Center’s Ecology Initiative that is funding the study. “As a result, we are not able to take full advantage of the clean water work those buffers are capable of doing.”

Dan Jaynes, a soil scientist at the USDA’s National Laboratory for Agriculture and the Environment and lead researcher for the project, said the system was able to redistribute about 60 percent of the field tile flow during the first year of data collection at the research site.

“The system removed 100 percent of the nitrate from 60 percent of the field



Researcher Dan Jaynes at the Bear Creek site in November 2010 when the saturated buffer was installed. The line intercepts tile line going into the creek (behind him in the trees) – the interceptor line runs parallel to the stream.

tile flow,” he said. “We figure that 250 kilograms, or about 500 pounds, of nitrate nitrogen was kept out of the stream.”

The saturated buffer was installed in 2010 as part of a multi-year competitive grant project supported by the Leopold Center’s Ecology Initiative. Initially, Jaynes had hoped the new system would be able to divert 10-15 percent of the field tile flow, so these first-year results show great promise for exploring the new technology.

“You would need a lot of these at different points along a stream to make a difference in water quality, but this is a start,” he said.

Jaynes recently presented the initial project findings at a national conference in Minneapolis. He also is a cooperator on a \$200,000 grant to install saturated

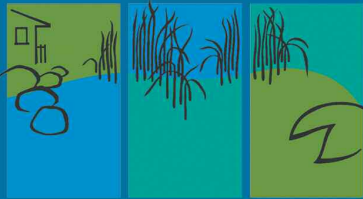
buffers on nine sites in Iowa, Illinois and Indiana to see how they work under different conditions and other conservation practices. The grant is from the USDA’s Natural Resources Conservation Service and Jaynes will be working with the Agricultural Drainage Management Coalition, a partnership of companies and organizations interested in conservation drainage practices.

“This is a technology that many people definitely are interested in, and in having more information about how they work,” he added.

You can view a short video about this project online at www.leopold.iastate.edu/news/on-the-ground/farming-untroubled-waters-reconnecting-tiles-and-buffers. ■

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 Shoreland Education 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

Learning About Your Lake: Light



Physical properties such as the distribution of light, lake morphology, heat, waves, and currents are important elements in learning about the structure of your lake. Light influences the biological activity of a lake, the temperature of lake water and, therefore, the distribution of most aquatic organisms.

A lake can be split into light regions. The upper sunlit region is the photic (or euphotic) zone. This zone reaches from the lake surface down into the lake to where the light dims to 1 percent of what it was at the surface. This zone is where oxygen is produced during the daylight hours because plants are photosynthesizing: using light and carbon dioxide (CO₂) for energy and giving off oxygen (O₂) as a waste product. At night, when oxygen is not produced, oxygen levels may decline as animals and plants respire.

The aphotic, or profundal, zone stretches from the bottom of photic zone to the bottom of the lake. There is not enough light in this area for photosynthesis to take place, so no oxygen is produced. Organisms that live there must respire, however, using oxygen. The boundary between light zones can vary daily and seasonally with differences in the strength of the sunlight. As algae or suspended solids increase in the water column, the photic zone becomes shallower. When there is a thick growth of algae covering a lake, there may not be enough light pene-

trating through the water to allow for photosynthesis, thereby stifling oxygen production.

Light can penetrate through ice, but the intensity depends on the quality of the ice. Clear ice can transmit about 70 percent of the surface light, while ice with compacted snow on it may only transmit about 8 percent of the surface light. Most plants are dormant in the winter, but some remain photosynthetically active even under the low water temperature and low light conditions. However, they produce only about 40-75 percent of the oxygen they consume during respiration, adding to the oxygen stress that occurs in many lakes during the winter.

Measuring the amount of solar radiation underwater can be done using high tech waterproof photocells or spectroradiometers, but the simplest and least expensive way to measure the transparency of lake water is to use a Secchi disk. In most lakes, the Secchi depth is approximately one-third the depth of the photic zone. To view the historic Secchi disk readings for a particular lake, visit the Minnesota Department of Natural Resources' LakeFinder site at www.dnr.state.mn.us/lakefind/index.html; once you find the lake you are interested in, click on 'lake water clarity' to see past Secchi readings. ■