

From Shore to Shore

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Shoreland Education Team

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Watershed Assessment Tool - Understanding and Assessing the Health of Minnesota's Watersheds Online

Amy Childers, Minnesota Department of Natural Resources, Amy.R.Childers@state.mn.us

Over the past several years, Minnesota Department of Natural Resources and University of Minnesota staff worked to develop the Watershed Assessment Tool (WAT; www.dnr.state.mn.us/watershed_tool/index.html), which is organized by five components: hydrology, geomorphology, biology, connectivity, and water quality. The purpose of this tool is to present information in a framework that encourages a "systems approach" to understanding our watersheds.

The major feature of the WAT is "MAP YOUR WATERSHED," which provides an overview of information at the "major watershed scale" with links to other online resources, summary information about each watershed, and an interactive mapping tool that allows you to explore questions about your watershed, such as:

- What streams and lakes have been designated impaired?
- Where are the wastewater treatment plants and superfund sites?
- Where are the USGS gauging stations?
- Where are public lands (state forests, state parks, scientific and natural areas, etc.)?
- Where are the 100- and 500-year floodplains?
- What types of land use and habitat are present?

Recently, a new module was launched that features 18 health indices, which factor into scores for the 81 major watersheds throughout Minnesota. The health indices act as snapshots taken across the state to assess and compare the status of watershed health. We have taken these shots from many angles to

broaden perspective and to show the trends influencing the health of our watersheds. The plan is to update the snapshots on a regular schedule to help us all keep an informed eye on emerging health trends.

The "WATERSHED HEALTH REPORT" allows you to view the health scores and statewide rankings that address questions such as:

- How healthy is my watershed compared to others in Minnesota?
- Which watersheds are most impacted by development or agricultural practices?
- Which watersheds are most vulnerable to non-point source pollution?
- Which watersheds have the most developed riparian areas?
- Which watersheds have high terrestrial habitat quality?

The "HEALTH INDEX LIST" explains the approach used to develop each of the 18 health indices. The five-component framework was used to organize the health assessments. These indices were developed using GIS data that is available statewide and will be refined over time and data and resources become available; additional indices will be added in the future.

If you are wondering how healthy our watersheds are in Minnesota, or more specifically the watershed you live in, and what factors are affecting watershed health, we invite you to visit the Watershed Assessment Tool to examine your watershed through maps, health indices, and text. ■



For the most current listing of Shoreland Education workshops, visit www.extension.umn.edu/shoreland.

Stormwater BMP Introduction

Date: January 24 and January 25
Locations: Crow Wing County Land Services Building, Brainerd, MN
Contact: Shane Missaghi, 952-221-1333, miss0035@umn.edu; www.extension.umn.edu/stormwater

Introduction to Rain Gardens

Date: Tuesday, March 2
Locations: Forestview Middle School in Baxter, MN
Contact: Jackie Froemming at 218-824-1068 or froem022@umn.edu

Home Composting: Indoors & Out

Date: Thursday, March 22
Locations: Forestview Middle School in Baxter, MN
Contact: Jackie Froemming at 218-824-1068 or froem022@umn.edu

Inside...

② Lake-Friendly Development Awards Recognize Five Deserving Projects

③ Plenty of Fish in the Sea?

④ Education for Local Officials: Their Roles in Protecting and Improving Watersheds

Lake-Friendly Development Awards Recognize Five Deserving Projects

Philip Hunsicker, Envision Minnesota, phunsicker@envisionmn.org

In October, the ninth annual Lake-Friendly Development Awards were granted to five deserving projects. All of these projects promote ecologically sustainable and sensitive development. The hope is that through these awards, we will change the way we think about development in our shorelands and watersheds.

The Lake-Friendly Protection Strategy Award recognizes an organization that creates an ordinance or regulatory code that seeks to preserve the environmental integrity of our lakes and rivers. The first of three of these awards went to Crow Wing County, working closely with respected consultants John Sumption and Paul Radomski, to revise their shoreland ordinances. Many of the revisions were based on the DNR's recommended changes to update the state's standards, which guide development in shorelands. The Crow Wing County Board of Commissioners unanimously approved adoption of the revisions. Commissioner Nystrom said, "The revisions are a thoughtful, progressive way to protect the county's biggest asset – the lakes."

The second Lake-Friendly Protection Strategy Award went to the Land and Water Tour on Lake Margaret in Cass County. In 2006, Lake Margaret was placed on a list of impaired lakes due to pollutants, primarily phosphorous. The Land and Water Tour invited residents of the watershed to hop on busses and pontoon boats to learn how to reduce the pollution in Lake Margaret and make the water quality better. Tour participants were treated to a lunch of locally grown beef and poultry.

The third Lake-Friendly Protection Strategy Award went to the Annual Lakes and Farm Harvest Dinner. This event is an evening to celebrate community, bounty, diversity, and a common interest in clean water. The Harvest Dinner makes it easier for lake dwellers, farmers and ranchers living



Sandy Holm

(Left) Crow Wing County Commissioners Paul Thiede and Rosemary Franzen accepting the award for Crow Wing County for revising their shoreland ordinances.

(Right) Accepting the award for the 2011 Land and Water Tour on Lake Margaret (Cass County) are (from left to right) Elaine Leach, Arla Johnson, Mel Wiens, Teri Hastings, and Vicky Kettlewell.



Sandy Holm

within the Pine River Watershed to get together to remind one another that stewardship of the land and water is in everyone's best interest. Local farmers and ranchers provide the locally grown meat and vegetables, prepared by a local chef. A local band entertains and there is an educational presentation during dinner.

The Lakescaping Award goes to a homeowner or contractor who uses native vegetation and natural materials to landscape riparian property in a manner that goes beyond local shoreland regulations to protect the shoreline's environmental integrity to improve water quality. The 2011 Award went to Jeff and Sharon Herwig on Sorenson Lake in Crow Wing County. When they purchased the property, which has 800 feet of shoreline, the Herwigs assessed their recreational needs and the needs of their lake. As their children moved away, they decided to allow vegetation from adjacent undisturbed areas to reclaim those areas they no longer wished to maintain. By allowing nature to restore itself, there were virtually no out-of-pocket expenses.

The Lake-Friendly Home Construction Award goes to a riparian property owner or contractor who has undertaken new home construction or major reconstruction while preserving the environmental integrity of the natural lakeshore or river shore setting. This award went to Geoff and Martha Davidge on Lower Whitefish Lake in Crow Wing County. The land, about 40 acres that Martha's parents purchased in 1956, includes 1,300 feet of shoreline on Lower Whitefish Lake, 16 acres of wetlands, and three ponds in the woods. In 2008, Geoff and Martha built a modestly-sized home and embraced the vision of Martha's parents, who saw the land as wildlife habitat and not just as people habitat. They set back their house more than 75 feet from a pond (minimum setback was 15.5 feet). The yard is all no-mow natives, they maintain a small prairie-like environment that was planted by Martha's father, and they have three rain gardens to catch runoff. In the future, they hope to place their shoreland and wetlands into a permanent conservation easement. ■

Plenty of Fish in the Sea?

Nick Phelps, U of M Aquaculture Research and Extension, 612-624-7450, phelp083@umn.edu

Is it time to retire the old adage: there are plenty of fish in the sea? Well, with a finite number of fish and rapidly increasing pressures – maybe so. We have made significant progress in recent years, but many of the world's fish populations remain at risk. Overfishing, environmental contamination, invasive species, and exotic diseases are a few of the significant pressures our fish face.

All of these factors affect Minnesota's fish populations, too. However, as you have undoubtedly heard through this and other publications, there is hope! Minnesota has some of the best minds in the fields of water resources, ecosystem health, and conservation working to alleviate these pressures. One particular topic receiving increased attention is aquaculture. Safe, sustainable fish production is essential to supplement natural production and maintain healthy fish populations. Fish populations in Minnesota supply food, recreation, and ecosystem stability, and are an important part of the economy. Aquaculture helps ensure that supply meets growing demands.

Since 1970, global aquaculture production has increased at a rate of 9.2% per year, compared to 2.8% for terrestrial meat production and 1.4% for capture fisheries. This rise in production now supplies 38% of the world's fish – a significant contribution! In Minnesota, state and private aquaculture has operated for more than 100 years and has primarily been focused on supplementing natural production for recreational improvement. Production numbers in 2009 were staggering, with more than 265-million walleye (mainly fry), 1.4-million trout/salmon, and 35,100 muskies stocked into Minnesota lakes and rivers. Minnesota also produces some food fish, with about 1-million



Nick Phelps examines minnows from a Minnesota fish farm at the Veterinary Diagnostic Laboratory. Routine inspections are critical to monitor population health and identify emerging diseases.

pounds of tilapia sold each year, as well as 30 other species of fish, leeches (100,000+ pounds!), and turtles. Our state leads the nation in walleye, muskie, and leech production, and ranks second for baitfish.

In addition to traditional aquaculture, a growing demand for locally grown and sustainable food fish has increased interest in aquaponics – a plant/fish production system. These indoor systems can range in size from a small living room aquarium to a Minneapolis warehouse. Large scale, these systems have shown promise with several businesses currently in operation selling a variety of leafy greens along with yellow perch, tilapia, and rainbow trout.

To sustain recreational pressures, and meet the demand for locally grown,

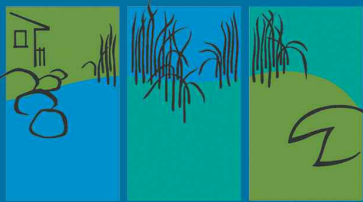
sustainable food sources, aquaculture is essential. This is evident by the increased collaboration and investment between the University of MN Extension, Minnesota Sea Grant, University of Minnesota College of Veterinary Medicine, Minnesota Department of Natural Resources, private aquaculture associations, Minnesota Veterinary Medical Association, Minnesota Board of Animal Health, and other stakeholders. These groups are working to alleviate some of the pressures facing our fish populations by supporting aquaculture in our state.

So no, don't retire that old adage yet, but perhaps change it to: There are plenty of fish in the aquaculture pond!



Contact

Karen Terry
University of Minnesota Extension
From Shore to Shore Editor
218-998-5787
kterry@umn.edu



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www.shorelandmanagement.org

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

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Education for Local Officials: Their Roles in Protecting and Improving Watersheds

Doug Malchow, University of Minnesota Extension, 507-280-5575, malch002@umn.edu

Local leaders from Kanabec, Mille Lacs, and Land Pine Counties attended workshops in September to learn more about their roles in protecting and improving water quality in their area. Elected and appointed officials representing townships, small cities, counties, watershed districts, and lake associations participated in a workshop titled "The Link Between Clean Water and Land Use" in Mora and Hinckley. During the presentations, University of Minnesota Extension Educators discussed the benefits of a healthy watershed, watershed dynamics, sources of nonpoint pollution, impacts of the pollution on water bodies, strategies for coping with runoff which carries the pollutants, and the roles of the local leaders in implementing those strategies. The workshop was delivered as part of the NEMO (Nonpoint Education for Municipal Officials) program. In addition to the presentation, the 41 attendees took part in the Watershed Game an interactive watershed planning exercise to achieve a clean water goal for the community. The Watershed Game is an interactive tool that helps individuals understand the connection between land use and water quality. Participants learned how land uses impact water and natural resources, discussed a variety of best management practices (BMPs), and learned how their choices as leaders can prevent adverse impacts. In playing the game, participants applied plans, practices, and policies that were discussed during the NEMO presentation that could help improve water quality in streams, lakes, and rivers in the real world.

In addition to the presentation and The Watershed Game, participants were afforded the opportunity to discuss as a group some of the key issues and barriers that exist to improving water quality in their areas. Those discussions led many in attendance to discuss how townships, cities, counties, and others need to work together to protect water quality in their area and downstream.

Evaluations showed that attendees learned about topics ranging from the need for clean water, impacts of pollutants on the beneficial uses of water resources, the impact of development on water resources, and the importance of planning. One participant comment-



Chris J. Benson

ed after the workshop that additional local staff "could use this workshop. I was not only educational, but also fun!" Overall, 96% of the attendees indicated they left the workshops with either a "very high" or "good" understanding the importance of clean water and the need to keep pollutants out of lakes, rivers, and streams.

NEMO workshops are available in several formats including presentations, but also field exercises, educational tours, and "NEMO on the Water" where leader attend training on specific water resources.

"NEMO on the Water" are waterborne workshops where participants get first hand observation opportunities to view and discuss how shoreline and adjacent land use practices can support healthy water resources. "Across the Land" workshops utilize buses to transport local leaders to specific land use types where they can walk and talk about those uses and their impacts on water quality.

If you are interested in bringing a NEMO workshop to your area, please contact Doug Malchow, Extension Educator, at 507-280-5575 or malch002@umn.edu. For additional information about NEMO please visit www.northlandnemo.org. ■