From Shore to Shore

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Where's Your Walden Pond?

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Lakes are interesting however you look at them. We can talk about their majestic beauty and how we grow to adopt them as our own or how they become iconic like Walden Pond or Lake Wobegon or the fact that only three percent of all water is fresh water and lakes make up just 0.26 percent of that. With such a small planetary footprint somehow lakes still manage to capture our imaginations while supporting a complex web of plants, bacteria, algae, zooplankton, fish, birds, and other creatures. Lakes are complex, and the more we study them (limnology) the more complex we find them.

At the very basic level, lakes are a reflection of the land around them: they are made up of the water that drains into them from their watersheds. An analysis of regional patterns in lake water quality in Minnesota in the 1980s showed that the 1,100 lakes studied fit nicely into their respective ecoregions, which are areas with similar types of geology, vegetation, hydrology, and land use. Recognition that lakes within certain ecoregions have similar water quality meant that there were regional differences and that not all of the lakes are the same. Lakes in southwestern Minnesota, for example, are different from lakes in northeastern Minnesota. Therefore, each lake in a specific region could be managed accordingly — a big step in lake management.

Lake morphometry (size, shape, and geometry) also determines much of a lake's characteristics. Lake depth and size play a role in the water temperature changes from the top to bottom (stratification) and drive the mixing and delivery of nutrients and oxygen throughout the lake. Recent advancements in technology and computer science have allowed physical limnologists, the folks who study the lake related physical phenomena, to develop remarkable computer models to accurately predict lake responses under various environmental conditions — another huge step in managing lakes. Resource managers can now evaluate the impacts and the risks of multiple lake management strategies prior to developing and implementing lake management plans, thereby reducing uncertainty and increasing effectiveness.

Nonetheless, lakes also face many issues. Climate change, in particular, has increased uncertainty in water resources management by altering the frames of reference that formed the "normal" baseline of information used to evaluate and manage risks to water resources. Plus, the arrival of aquatic invasive species is also changing the balance of many lakes. For example, zebra mussels consume most types of algae except one: a type of blue-green algae called *Microcystis* that can create harmful algae blooms. The arrival of zebra mussels in a lake is an extra boast for the cosmopolitan *Microcystis*, which has become a dominant global alga in response to climate change and excessive nutrient availability.

Walden Pond impressed Henry Thoreau, and he made it famous. What are we going to do for our lakes? ■

Calendar of Events

NEMO Workshop: Conservation Design Principles and Practices
Date: September 5, 2012
Location: Shorewood Community Center, Shorewood, MN
Website: www.northlandnemo.org

Clean Water Summit: Green Infrastructure for Clean Water: The Essential Role of Soil
Date: September 13, 2012
Location: Minnesota Landscape Arboretum, Chaska, MN
Contact: www.arboretum.umn.edu/2012greeninfrastructurecleanwater_essentialsoil.aspx

National NEMO U8! A Tentacular Event
Date: October 1-3, 2012
Location: Duluth, MN
Website: http://nemonet.uconn.edu/u8/

Water Resources Conference
Date: October 16-17, 2012
Location: RiverCentre, St. Paul, MN
Website: www.wrc.umn.edu/waterconf

2012 Upper Midwest Invasive Species Conference
Date: October 29-31, 2012
Location: La Crosse Center, La Crosse, WI
Website: www.umisc2012.org

Inside...

Closing up the Cabin for the Winter

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

Closing a septic system for the winter for seasonal homeowners helps prevent the system from freezing, prolongs the life of the system, and keeps it operating at a high level.

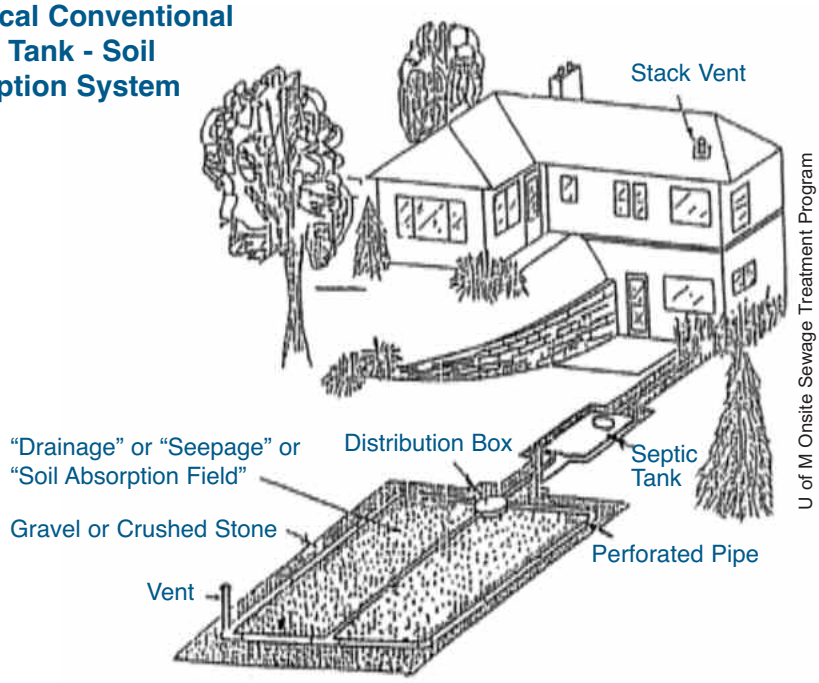
Preparing the Drainfield

Stop cutting the grass over the drainfield in mid-September; the extra grass length will capture snow, which provides insulation. Consider placing snow fence near the drainfield to help capture drifting snow on the drainfield to add to the natural insulating blanket of snow. Make sure all inspection pipes have covers to keep cold air from flowing into the drainfield pipes.

Winterizing the Water Pipes in the Cabin

- Do not add automotive antifreeze, salts, or any other additives to your plumbing.
- Even if the heat is left on, it is still a good idea to drain water supply lines. Shut off the water where it enters the house and drain all lines. Drain the pump and then run it for a couple of seconds to be sure all water is out of the lines. Drain the system by opening all the faucets, and then leave the faucets open. Completely drain the pressure tank. Flush the toilets and add RV antifreeze to the toilet tanks at the recommended dilution ratio. Check flexible hoses in sinks and bathtubs to be sure they are drained completely. Remove and drain inlet hoses for the dishwasher and clothes washer. Clear the water valve by starting the machine for a few seconds; then drain the tub. Remove the drain hoses and drain completely. Disconnect the electrical supply to the pump, water heater, softener, washer, and dishwasher. Drain the water heater and water softener with a hose after power is disconnected. RV antifreeze can be added to traps in sinks, bathtub and shower drains, washtubs, floor drains, and sump pumps.

A Typical Conventional Septic Tank - Soil Absorption System



- If you do not drain the water lines for the winter, be very sure that there are no leaks or drips. This constant, low flow of water can cause septic system freezing.

Furnace

If you have a high efficiency furnace that is left on for the winter, be sure that there is no water drip from the furnace that enters the septic system. This small trickling of water into the septic system can cause the system to freeze. Re-route the drip water to a floor drain that does not enter the septic system or reroute to another water source that enters the septic system in larger amounts. If shutting off the furnace, drain all water from forced hot water and steam systems unless the system contains antifreeze; call a plumber for assistance.

Cleaning/Pumping the Septic Tank

Consider pumping the tank if closing the cabin for the winter or if it will only be used a few times during the winter (if you use the system periodically during the winter, the tank will essentially become a holding tank). If you live in an area with a high groundwater table, you should only pump the tank if it was designed for such conditions. If a tank is left full but the system is not used during the winter, the sewage will get very cold or possibly freeze. In the spring, it will take some time for the frozen sewage in the tank to thaw, meaning the septic tank may not be able to accept fresh sewage until the sewage in the tank thaws. ■

Adapted from a paper posted on the Onsite Sewage Treatment Program webpage.

For more information about this topic or other septic topics visit:
http://septic.umn.edu/owners/index.htm

Wolf Lake Roadless Forest Citizens Monitoring Group

Susan Cebelinski, President of Brainerd Chapter of Wild One Native Landscapes, LTD and a member of the monitoring group
Doug and Peggy Wallace, Wolf Lake Citizens Monitoring Group Organizers

Wolf Lake, as an inland lake, drew the interest of property owners on Lake Vermilion in 2007 as they became aware of a plan to build a logging road through the area. This plan was perceived as a threat to the pristine nature of the area, which instigated conversations with the USDA-Forest Service. As a result of the discussions, the Superior National Forest entered into a formal agreement with the Wolf Lake Citizens Monitoring Group, made up of nearby landowners, to provide monitoring of the Wolf Lake Inventoried Roadless Area.

Lake Vermilion is nestled in the middle of the Superior National Forest and Wolf Lake, nestled in a remote area of land between Lake Vermilion and Trout Lake, borders the Boundary Waters Canoe Area Wilderness (BWCAW). Currently, Wolf Lake is accessible by a portage trail that begins in Wolf Bay on Lake Vermilion. This trail is used by hikers and anglers who carry in all the gear they need for the day. Another potential access point is several miles away on the other side of Lake Vermilion at St. Mary's Point.

The agreement reached between the Forest Service and Monitoring Group was composed of monitoring five components:

- Existence of invasive species
- Existence of rare species
- Effectiveness of logging road closures
- Public recreation use within and adjacent to the Wolf Lake area
- Water quality in Wolf Lake

In 2011, an updated agreement was signed by the Superior National Forest Monitoring Coordinator, Bruce Anderson, and the Monitoring Group adding three more components to the original agreement:

1) Track information on birds and raptors
2) Earthworm surveys
3) Documented changes in vegetation, particularly pine

The Wolf Lake Citizens Monitoring Group has grown to include 16 families with 22 individuals contributing observations for the fifth year report, submitted for 2011. The following highlights were reported for 2011 activities of this monitoring group.

1) Nature Trail Exploration: Four monitors explored several sections of the roadless area by Lake Vermilion. The monitoring group has been encouraged by the LaCroix District Ranger to consider the possibility of identifying a route for a birding nature trail.
2) Bird Report Advances: Two expert birders who are members of this monitoring group, Alan and Karen Orr, consolidated several authoritative birding sources, cross referencing them to fashion a framework for identifying species of special concern in this forest and region.
3) Confirmation of earthworms in an upland section of the forest: Two monitors bushwhacked into an upland section northeast of Wolf Lake, accompanied by Professor Lee Frelich, Director of the University of Minnesota Forest Ecology Center. They used a standard protocol for surfacing earthworms, verifying that several species of non-native worms exist in an upland location near the Trout Lake section of the BWCAW.
4) Identification of a rare species in Wolf Lake: In September, a relatively rare freshwater species of bryozoa was discovered and photographed.
5) Participation in a climate change research project: Nick Jensen, University of Minnesota researcher, instructed 14 citizens in taking precise plant measurements using a trisect protocol in a plot near the Wolf Lake portage. This plot and its data are being incorporated into a vegetation and ecosystem carbon storage study gathered from several sites across the Superior National Forest.

As this group enters the sixth year of monitoring, there are goals for the future and hopes that we, as citizens, can continue to grow our group and improve our methods of monitoring the area of the Superior National Forest that we call home. ■

Superior National Forest

Established in 1909, the Superior National Forest is known for its boreal forest ecosystem, numerous clean lakes, and a colorful cultural history. The one million-acre Boundary Waters Canoe Area Wilderness lies within the boundaries of the Forest. Management by the USDA-Forest Service operates under principles of ecosystem management and multiple use as the Forest provides for a diverse community of plants and animals as well as products for human needs. The idea of "all lands" management maintains strong partnerships and collaboration across the landscape. The Superior Forest is the eighth most visited national forest in the nation due to a variety of popular recreational activities such as fishing, hunting, camping, canoeing, swimming, hiking, snowmobiling, and skiing. Source: www.fs.usda.gov

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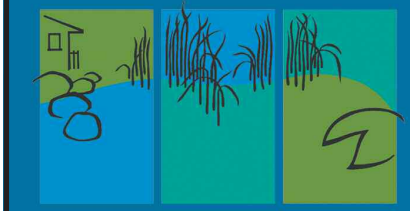

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Sea Grant Minnesota
University of Minnesota Extension

Bitten By the Wild Ricing Bug

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I hadn't grown up doing this. In fact, I was in my 40s before I first ventured out into a wild rice bed to harvest wild rice. Now, sitting on a small turkey hunting stool on the bottom of a canoe, my eyes quickly scanned the three dozen or so spiders scrambling out of the rice that lay about four inches deep in front of me. I don't like spiders. I really enjoy eating wild rice. Wild rice won. I have been an avid harvester of wild rice for the past four years.

Minnesota's native wild rice is an annual plant that grows up from seed every year. The biggest factor in how well it grows is typically water levels. This year, extreme precipitation events in the northeast will most likely have a negative impact on wild rice. The plant emerges in late April or early May and grows to the water surface. In early June wild rice is in the 'floating leaf' stage, a period of growth where the rice appears as floating ribbons of green on the water surface.

Harvesting wild rice is a bit of a challenge, even without the spiders and rice worms. First there's the equipment. My knocking sticks were picked up at a pow-wow on the Bad River Reservation in northwest Wisconsin. Carved from cedar, they are lightweight and fit nicely in my hands, which is a good thing considering that they will be in my hands for nearly six hours straight! A boat, of course, is necessary for accessing and gathering the rice. A canoe will suffice. And since wild rice tends to grow in shallow water with mucky bottoms, and often close together, a pole is required to push the boat through the rice. Most of the time two people go out to gather wild rice in a boat: one pushes or 'poles' and the other 'knocks.'

Finally, you have to know when the wild rice is ripe and ready to harvest. Grains of wild rice on a single stalk do not all ripen at the same time, nor does a stand of wild rice. When fully ripe, wild rice will fall into your hand if you simply run your hand up the stalk and over the seed head.

Another test is to drop some seeds in the water. If they sink, they are ripe. This characteristic of ripening over a 1 to 2 weeks means a rice bed can be harvested multiple times. It's important to make sure that you don't break the stalks when you are gathering rice so that all the seeds have time to mature.

Wild rice ripens across the state beginning sometime in mid-August and gathering can go into mid-September, although probably the largest portion is gathered in those weeks around Labor Day. For me, wild rice harvesting is a labor of love. Being in the rice is peaceful and quiet except for the occasional burst of feathers as ducks and sora rails flush out of the rice, the soft sound of laughter coming from other ricers, and the quiet patter of ripe grain falling into the bottom of your canoe. To learn more about wild rice harvesting, visit www.saveourrice.org or www.nativewildricecoalition.com. Wild rice harvest is regulated by the Minnesota Department of Natural Resources and harvesters are required to have a license; check www.mndnr.gov or call 888-646-6367 for more information. ■