

# From Shore to Shore

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.



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## Rain Gardens at Franklin Art Center in Brainerd

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*Photo Credit: Jackie Froemming*

It's official! The Franklin Art Center in Brainerd embraces not only the arts but also the environment. With the help of Crow Wing County Master Gardeners and other volunteers, three rain gardens were recently installed in the art center's new parking lot area.

These rain gardens are designed to retain parking lot runoff, allowing the water to infiltrate into the soil. Without these rain gardens, runoff from this location — polluted with sediment and chemicals — goes into the Mississippi River. Curb cut-outs will allow runoff from rain and snowmelt to enter the rain garden areas.

For these rain gardens, native and non-native shrubs were selected. The plant list includes Red-osier Dogwood, Dwarf-bush Honeysuckle, Black Chokeberry, Autumn Jazz Viburnum, Arctic Blue Willow, and Creeping Juniper. ■

## New Shoreland Educator Joins Team



*Shirley Nordrum*

The Shoreland Education Team is pleased to introduce Shirley Nordrum, who started in September as the water resource management Extension educator located in Leech Lake. Shirley has more than 17 years of experience as the environmental program manager for the Leech Lake Band of Ojibwe. She has developed and led programs in water and wetlands, air quality, and environmental services. One of Shirley's primary responsibilities will be to design, implement, and evaluate research-based educational programs for residents on the Leech Lake reservation. Programs will concentrate on individual onsite sewage treatment systems and shoreland education. Welcome Shirley! ■

## Clean Water, Land, & Legacy Amendment

On November 4th, 2008 the following question will appear on your ballot: "Shall the Minnesota Constitution be amended to dedicate funding to protect our drinking water sources; to protect, enhance, and restore our wetlands, prairies, forests, and fish, game, and wildlife habitat; to preserve our arts and cultural heritage; to support our parks and trails; and to protect, enhance, and restore our lakes, rivers, streams, and groundwater by increasing the sales tax and use tax rate beginning July 1, 2009, by three-eighths of one percent on taxable sales until the year 2034?"

### What the Amendment Does

**Clean Water: Lakes, Rivers, Streams, and Drinking Water:** "33%...to protect, enhance, and restore water quality in lakes, rivers, and streams and to protect groundwater from degradation, and at least five percent of the clean water fund must be spent only to protect drinking water sources.

**Natural Areas and Wildlife:** "33%...to restore, protect, and enhance wetlands, prairies, forests, and habitat for fish, game, and wildlife."

**Parks and Trails:** "14.25%...to support parks and trails of regional or statewide significance."

**Cultural Legacy and Arts Education:** "19.75%...for arts, arts education, and arts access and to preserve Minnesota's history and cultural heritage."

-MN Law Chapter 151, 2008  
Source: *Embrace Open Space*

## LAKES AREA CLEAN WATERS COUNCIL – Treating Stormwater as an Asset

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Reducing the amount of runoff that reaches lakes and rivers must truly be a community effort. This is not just something for lakeshore owners to think about, but for all of us, regardless of how close we live to a body of water. The phrase “everyone lives in a watershed” best sums it up. (A “watershed” is the area of land that drains to a particular body of water.) In most instances, actions we take – and decisions we make – miles away from a lake or river will ultimately affect that lake or river. Hopefully our actions will affect these bodies of water in a positive way: less and cleaner runoff reaching them. *Drop, Stop, Absorb!* should be everyone’s goal.

To assist residents of Crow Wing and Cass counties with this goal, the group **Lakes Area Clean Waters Council** (LACWC) was recently formed. In October of 2007, five people sat down together and discussed ways in which they could promote the concepts of “lake stewardship” and “best management practices.” Fast forward to fall of

In most instances, actions we take – and decisions we make – miles away from a lake or river will ultimately affect that lake or river.

2008, and you will find a membership that has expanded to 42 and a new Web site. If you visit [www.dropstopabsorb.org](http://www.dropstopabsorb.org),



*Example of a sign available for property owners to display.*

you will find technical information as well as local resources on the runoff-reducing projects of “Rain Gardens,” “Rain Barrels,” and “Shoreland Buffers.” The LACWC Web site also provides a place for residents to register their projects. Area residents can submit information on their rain gardens, rain barrels, and/or shoreland buffers using the “Registration” Web page. After a registration is submitted, residents can obtain signs and/or decals for their respective projects. One of the goals of the LACWC is to recognize one thousand of these projects by the year 2010.

If you would like to learn more about the LACWC, you are welcome to attend our meetings on the third Thursday of every other month from 9 a.m. to 11 a.m. at the Northland Arboretum in Brainerd. For additional information, please visit the “About Us” Web page of the LACWC Web site or contact Jackie Froemming, County Extension Educator, at [froem022@umn.edu](mailto:froem022@umn.edu) or (218) 824-1068. Funding

for the LACWC Web site was provided by the following sponsors: Crow Wing County Water Plan Advisory Committee, Cass County, the Initiative Foundation and Crow Wing Lakes and Rivers Alliance. ■





## What You Can Do – Minnesota Lakes Top 10

### Keep it natural - restore your shore

Preserving or installing a shoreline landscape rich in native species allows water to soak in rather than run off. Plants absorb nutrients that would otherwise end up in the lake, causing algae blooms and excessive growth in aquatic vegetation. Vegetative buffers along shorelines also trap sediments that fill in wetlands and lakes. As an added benefit, natural shoreline erosion controls are more consistent with an "up-north" look than unnatural shoreline erosion treatments such as rip-rap.

### Know your lake rules

Shoreline areas provide important habitat for waterfowl, shorebirds, and fish, and are crucial for maintaining healthy populations of the native species that Minnesotans cherish. It is unlawful in Minnesota to knowingly alter shoreline, fish habitat, or aquatic vegetation without a permit from the Minnesota DNR. Upland permits are often required by the county or city — check local ordinances. It is also important to inform yourself about all the rules that govern lake use — from boat and water safety, to installing permanent and floating docks, to hunting and fishing regulations.

### Appreciate aquatic plants

Those aquatic "weeds" everyone seems to be trying to get rid of are actually a critical life support system for our lakes. With their amazing filtering abilities, native aquatic plants such as cattails and bulrush are natural water purifiers — taking up nutrients and allowing sunlight to penetrate into the lake and create the base of the food chain. The rooted aquatic vegetation is also a veritable fish nursery, providing critical refuge habitat for young fish. Do your part by minimizing removal of aquatic vegetation along your shoreline.

### Reduce your lawn

The fertilizers and clippings from traditional suburbanized lawns contribute to poor water quality in our lakes. Install a native landscape and mow less. Once established, natural landscapes are less expensive and easier to maintain than traditional lawns. If lawn is desired, use only phosphorus-free fertilizers and maintain a lawn that is at least 30 feet from the lake. Keep native trees and vegetation. Their extensive root systems help stabilize the landscape,



Photo Credit: Karen Terry

aid in groundwater recharge, and reduce runoff.

### Maintain your septic system

A well-maintained septic system saves money, headaches, and the environment. To keep your septic system in good working order: 1) pump at least every three years (more if you use a garbage disposal); 2) conserve water; 3) properly dispose of harmful paints and household chemicals; 4) fix leaky faucets; and 5) consider service agreements with regular maintenance.

### Reduce roofs and roads

Roofs, sidewalks, paved driveways, and roads all increase the amount of water that runs off into our lakes — carrying with it fertilizers, household cleaners, paints, solvents, pesticides, and motor oil. Decrease the amount of hard surfaces on your property to allow water to soak into the landscape and keep pollutants out of lakes. Consider installing a rain garden or use newer, more pervious materials or pavers for sidewalks, driveways, and patios.

### Properly dispose of animal waste

Controlling pet and livestock waste not only makes you a courteous neighbor, it also improves the quality of our waters. Pet and livestock waste can travel into our waters more easily than human-produced wastes because they are not subject to the same wastewater treatment that human wastes are. Dispose of such wastes far from the water's edge to help ensure that bacteria, phosphorus, and nitrogen from these wastes don't end up in our lakes.

### Be considerate of all lake users

Lakeshore owners and users value Minnesota lakes in many different ways. Consider some of the many different ways we use our lakes: jet skiing, boating, tubing, water-skiing, fishing, hunting, canoeing, wildlife watching, and swimming. Part of being a good lake steward and neighbor is being considerate of everyone's values. Follow local watercraft rules and noise ordinances to help ensure a positive experience for everyone who uses Minnesota's lakes for recreation.

### Support land conservation

The donation or purchase of conservation easements is one of the most cost-effective ways to protect sensitive shorelines from development. Lakeshore owners and users can help in these efforts by maintaining records of changes to shoreline; keeping a watchful eye out for upcoming land sales or transfers; and encouraging donations (land or financial) to conservation easement programs, projects, committees, or land trusts.

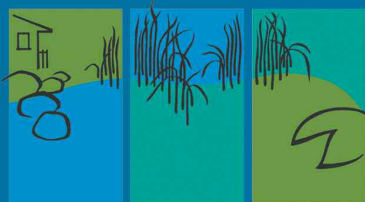
### Show up -- speak up -- write a check

Decisions are made by those who show up and speak up. Join your lake association. Give money, time, input, and feedback to support organizations working to protect Minnesota's lakes for future generations. Share your knowledge with your neighbors and with those elected and appointed officials who represent you. Be vigilant.

Source: North Central Lakes Collaborative. ■

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## From Shore to Shore

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# What is Lake-Effect Snow?

WeatherBug Meteorologist, Adam Bell

Locations along the southern and eastern shores of the Great Lakes are famous for the tremendous amounts of snow they receive. When snow starts to fall, people start tossing out the phrase "lake-effect snow."

Primarily a late-autumn and early-winter phenomena, lake-effect snowstorms are instigated by the movement of cold, arctic air over the relatively warm waters of the Great Lakes. Ideally, the temperature difference between the lake water and the overrunning air should be at least 20 degrees in order for clouds and subsequent snow to form.

As the cool air crosses the waters of the Great Lakes, the lowest levels of the atmosphere begin to warm and pick up moisture. This newly warmed layer is lighter than the cold air above it, so it starts to rise. As the modified air continues to climb higher into the atmosphere, it encounters much colder temperatures.

This cooler air forces the moisture to condense into water droplets and ice crystals, forming clouds. After this process repeats itself a number of times, the cloud becomes weighed down and is forced to precipitate in the form of snow.

Out of all the meteorological factors that determine snowfall intensity, the most important might be the direction of the wind. If the wind direction is running perpendicular across the lake, there won't



Photo Credit: FEMA: Liz Roll

be enough time for clouds to develop. However, if the wind runs parallel to the length of the lake, clouds should form without a hitch. The longer the cold air travels over the lake, the more moisture it is able to accumulate, which in turn leads to greater snowfall totals.

The highest annual lake-effect snowfall totals are found across the Upper Peninsula of Michigan, northwestern Pennsylvania, and the far southwestern and upstate sections of New York. In these locations, recording over 100 inches of snow in a winter season is a common occurrence.

This article was originally published by the North American Lake Management Society. ■

## Snow

Event	Measurement	Date	Location
Earliest recorded snow	Trace	August 31, 1949	Duluth
Earliest measurable snow	0.3 inches (0.8 cm)	September 14, 1964	International Falls
Latest recorded snow	1.5 inches (3.8 cm)	June 4, 1935	Mizpah
Most snow, 24 hours	36 inches (91 cm)	January 7, 1994	Lake County
Most snow, one storm	47 inches (119 cm)	January 6-8, 1994	Lake County
Most snow, one month	66 inches (168 cm)	March, 1965	Collegeville
Most snow, season	170 inches (432 cm)	1949 - 1950	Grand Portage State Park
Largest snow cover	88 inches (224 cm)	February 21, 1969	Meadowlands
Most fatalities, winter storm	up to 200	January 12-13, 1888	State-wide

From Wikipedia, [http://en.wikipedia.org/wiki/List\\_of\\_Minnesota\\_weather\\_records#cite\\_note-snow-5](http://en.wikipedia.org/wiki/List_of_Minnesota_weather_records#cite_note-snow-5); retrieved 8 October 2008.