From Shore to Shore

For Minnesota citizens promoting the health of our rivers & lakes

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Workshops Focus on Potentially Toxic Algal Blooms

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The frequency, intensity, and duration of blue-green algal blooms and their toxicity seem to be increasing in Minnesota and across many of the lake-rich regions of the world. These increases may be related to increased nutrient loading and warmer surface waters.

To help local decision-makers increase their capacity to identify and deal with harmful algal blooms (HAB), Minnesota Sea Grant joined forces with the Minnesota Pollution Control Agency, the Center for Excellence in Great Lakes and Human Health (CEGLHH), and local partners to offer three workshops in bloom-prone areas of Minnesota. About 100 representatives of local government, lake associations, and state agencies attended the workshops in Sauk Centre (March 4), Mankato (March 5), and St. Paul (March 6). The workshops were well-received and evaluated positively.

Howard Markus from the Minnesota Pollution Control Agency (MPCA) gave a brief introduction to algal ecology, followed by presentations by the MPCA's Steve Heiskary and Matt Lindon on the history of blue-green algal blooms in Minnesota and research on the occurrence and conditions that may promote HAB. Sonia Joseph from CEGLHH, and Mike Murphy from the University of Minnesota College of Veterinary Medicine, summarized potential risks and effects on human and animal health from exposure to HAB. Annie Felix, Benton Co. SWCD, and Sarah Duda, Minnesota State University, Mankato, shared lessons they have learned through dealing with toxic blue-green blooms at the local level in recent years.

The St. Paul workshop was also shown as a Web cast so folks did not have to travel to a distant location to attend. The Web cast worked well and was viewed by at least 250 people across the U.S. You can access the handouts, PowerPoint PDFs, and other resource materials at www.seagrant.umn.edu/water_quality (see "Harmful Algal Blooms" listed under Featured Initiatives). Until about July 2008, you'll be able to view the workshop itself, online through a link from that page.

See a related article ("Toxicity from Blue-Green Algae? Recent Research") in the May/June 2007 newsletter at http://www.shorelandmanagement.org/downloads/may_jun07.pdf. ■

Collecting an algae sample. Photo credit: Matt Lindon, MPCA.

Calendar of Events

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

→ The Value of Healthy Lakes: What Realtors Should Know About Lakeshore Property
May 6, 2008 – Walker, MN
Details and registration information are available at: www.leechlakewatershed.org.
Contact: Paula West, 218-838-5010, westcom@brainerd.net

→ Rain Gardens
May 14 - 16, 2008 – Brainerd, MN
Contact: Northland Arboretum, 218-829-8770, arboretum@brainerd.net

→ Lake Leaders Workshop
June 14, 2008 – Pine River, MN
Contact: Ed Feiler, 218-833-8613, ed.feiler@dnr.state.mn.us

What You Should Know About Blue-Green Algae

Algae are common in surface waters throughout Minnesota. They are microscopic plants that are a natural part of any aquatic environment. When temperature and water conditions are right, algae "blooms" can turn the water green and smelly and may contribute to fish kills. Most algae are harmless; however under certain conditions, a type of algae, called "blue-green" algae, can produce toxins. People or animals who contact toxic blue-green algae can become sick. In some cases, animals have died from it.

What Is it?

Algae occur in virtually all waters in Minnesota, but their concentration can vary considerably through the year and with location.

There are numerous forms of algae, but one form — blue-green algae (also referred to as cyanobacteria) can produce toxins that affect humans or animals. This type of algae is found throughout Minnesota, but thrives in warm, shallow, nutrient-rich lakes, commonly found in central and southern Minnesota.

How and Where Does it Occur and How Can I Recognize it?

While blue-green algae can be present throughout the year, they usually don't cause problems until there's an extensive "bloom." In nutrient-rich lakes, they can become so abundant that they completely dominate other free-floating algae. The water will often become cloudy, with a green, yellow or blue-green cast or hue.

Lakes may develop a "swampy" odor as the algae accumulate in large floating mats and begin to decompose. In extreme cases, there may be surface scums of dead and decomposing algae. While many algae can turn the water green, a lake with a blue-green bloom may look like "pea soup," or even like there's green paint floating on the surface.

Since blue-green algae often float near the surface of the water, they are strongly influenced by the wind. Wind-driven blooms accumulate on a downwind shoreline where the algae often form mats and decompose. These blooms may become toxic; however we are unable to predict which blooms are toxic and which are not. Alternately, wind can completely dissipate a toxic bloom over the course of a day. Although toxic blooms most often occur in late summer and early fall, they may occur early in the summer, as was the case in 2007. Extremely warm and dry conditions in May and June 2007 promoted bloom formation in many lakes.

A near-shore algal bloom. Photo credit: Matt Lindon, MPCA.

What Causes Blue-Green Algae Blooms?

There is no single factor that causes an algae bloom. A combination of factors such as excessive nutrients, warm temperatures, and lots of sunlight all encourage the growth of blue-green algae. A primary cause, excess nutrients (e.g., phosphorus), is largely due to nonpoint source runoff from agricultural lands (e.g., row crops), urban areas (e.g., streets, parking lots, lawns, etc.), and point sources, such as wastewater treatment facilities.

For More Information

This information was taken from a fact sheet available through the MPCA. For a copy of the complete fact sheet, visit the Web page of the Minnesota Interagency Work Group on Blue-Green Algae at: http://www.pca.state.mn.us/water/clmp-toxicalgae.html. For more information about blue-green algae, contact any of the following:

Minnesota Pollution Control Agency, 651-296-6300

Minnesota Department of Health, 651-215-5800

Minnesota Department of Natural Resources, 651-296-6157

Minnesota Veterinary Medicine Association, 651-645-7533 ■

Rain Barrels: A Way of Collecting and Using Rainwater

Jackie Froemming, University of Minnesota Extension, 218-824-1068, froem022@umn.edu

Have you ever watched a river of rainwater run down your driveway into the lake or storm sewer? Or even worse, seep into your basement? Collecting roof runoff in rain barrels is a good solution to these problems and it helps alleviate stressed water systems and conserve limited resources. Although rain barrels have been around for thousands of years, people are now encouraged more than ever to use them as a way to protect lakes and rivers while saving money on water bills.

What Is a Rain Barrel?

A rain barrel is any type of container used to catch water flowing from a downspout. Rain barrels reduce the amount of stormwater runoff by collecting roof runoff and storing the rainwater for future use.

How Does it Work?

The rain barrel is placed underneath a shortened downspout, diverting the roof runoff into the rain barrel. Placing the rain barrel on a *sturdy* platform will allow for more clearance under the spigot, and it will also increase the rate of flow if you are attaching a hose to the barrel's spigot.

How Do I Maintain the Rain Barrel?

During the spring and summer months, routinely inspect your rain barrel. Remove any debris that has accumulated on the lid that might block the screen mesh. You should also routinely clean the inside of your rain barrel. During the winter months, remember to take your barrel out of operation. Simply turn it upside down or store it inside and redirect the downspout away from the foundation.

Benefits of Using a Rain Barrel

- They provide an alternative to tap water for watering lawns and flower gardens.
- They help reduce peak volume and velocity of stormwater runoff reaching lakes and rivers.
- They help reduce peak water demands during the summer months.

Restrictions

- Water collected from rain barrels is not suitable for human or pet consumption.
- Due to lack of research data, water collected in a rain barrel is not recommended for watering fruit or vegetable gardens.

- The water flow (and pressure) will be less than from your outdoor spigot, making sprinklers ineffective. Plan to use soaker hoses, handheld spray nozzles and/or watering cans. Elevating your rain barrel on a sturdy platform will increase the flow.

Interesting Facts

- Rainwater can actually help improve the health of your flower gardens, lawn and trees. Rainwater is naturally "soft" and devoid of minerals, chlorine, and other chemicals found in city water.
- During a one-inch rain event, 0.6 gallons of water will fall on a square foot of roof and 54 gallons will fall on 90 square feet of roof — enough to fill a 55-gallon rain barrel. To collect twice this volume from the same downspout, connect the overflow hose from the first rain barrel to a second rain barrel.
- A plastic rain barrel may be painted any color you wish. Use spray paint specially formulated to bond well to plastic surfaces.
- Rain barrels cost between $70-$300. Or, you can reduce your costs considerably by making your own.

You can download a fact sheet about rain barrels, from which this information was taken, in the Features section online at http://www.extension.umn.edu/Shoreland/. To receive a hard copy of the fact sheet, contact Jackie Froemming, University of Minnesota Extension, 218-824-1068, froem022@umn.edu. ■

Don't Let Your Lake Get These Fleas

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Unlike Fido's fleas, spiny waterfleas are tiny predacious crustaceans (related to shrimp) that have long barbed tails. Adults range from 1/4- to 5/8-inches long. Females carry eggs in a bulbous brood pouch on their backs and can reproduce without males.

Native to Europe and Asia, they were introduced into the Great Lakes by ballast water discharged from ocean-going ships. They were first discovered in Lake Ontario in 1982 and spread to Lake Superior in 1987. They prefer deep lakes, but can be found in shallow lakes and rivers.

Spiny waterfleas eat small animals (zooplankton), including native waterfleas such as *Daphnia*, which are an important food for fishes. In some lakes, they have caused the decline and near extirpation of native zooplankton. When eaten by fishes, their spiny tail can damage the fishes' guts. For anglers, these invaders can the clog eyelets of rods, damage a reel's drag system, and prevent fish from being landed.

Spiny waterfleas have spread throughout the Great Lakes, and are established in some inland lakes and rivers in Minnesota. In the early 1990s, Minnesota's infestations were limited to Lake Superior, and Island, Fish, and Boulder lakes near Duluth. After a decade of no known spread, they were discovered in Saganaga Lake. Currently, they are found in: Caribou, Flour, Devil Track, Greenwood, Gunflint, McFarland, and Pine lakes (Cook County), and Crane, Kabetogama, Lake of the Woods, Little Vermillion, Namakan, and Sand Point lakes, as well as the Rainy River along the Canadian border.

Efforts to prevent spiny waterfleas from spreading include restrictions on bait harvest and sport gill netting. The Minnesota Department of Natural Resources (MN DNR) designated several border waters as infested.

There is on-going interagency collaboration by MN DNR, Sea Grant, Voyageur's National Park, Canadian Fisheries and Oceans, and local groups to raise public awareness featuring the Stop Aquatic Hitchhikers!™ logo and messages. New outreach and communications media were produced, including a billboard on Highway 53 near International Falls.

Boaters and anglers can inadvertently spread egg-laden females to inland waters. Spiny waterfleas can attach to fishing lines, downriggers, anchor ropes, and fishing nets. While female waterfleas die out of water, under certain conditions they produce eggs that resist drying, remain viable, and can establish a new infestation. They also can be unintentionally transported in bilge water, bait buckets, or livewells. They can collect as gelatinous globs on fishing lines and downrigger cables. Spiny waterfleas are a regulated invasive species, which means introduction into another waterbody is prohibited.

How Can You Help?

- **Learn** to recognize them on fishing gear.
- **Inspect** and **remove** gelatinous material from fishing lines, especially where they meet a swivel, lure, or downrigger ball connection (plucking the line like a guitar string helps).
- **Drain** water before transporting boats, personal water craft, and bait containers.
- **Report** new infestations.

For more information, visit:
http://www.seagrant.umn.edu/ais/waterflea. ■

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