Why Does My Lake Have Algae?

Algae Are Essential to All Lakes

At the base of the food-web, algae directly or indirectly support the whole biological community in your lake. Algae are essential to a healthy fishery and the overall health of lakes. There are many species of algae that naturally occur in lakes. The type of algae and their populations within a given lake reflect the available nutrients, water clarity, temperature, acidity, time of year, and abundance of grazers that eat algae.

Too Many Algae Can Cause Problems

In large numbers, algae can affect people's enjoyment of lakes, the taste and odor of drinking water drawn from surface waters, and the health of aquatic plants, fish, and other animals. Many of us have experienced over-abundances of algae (often called "blooms") either as mats of algae that can cover a lake or the "pea soup" green water that occurs on calm days in the heat of late summer; followed by the odor that arises as these algae die and decompose. On rare occasions, blue-green algae blooms can produce toxins that are harmful to fish and other animals, including cattle, dogs, and humans. Blue-green algae can irritate the skin, eyes, nasal passages, cause sickness or even death. If humans or pets come in contact with blue-green algae, wash thoroughly as soon as possible and prevent pets from licking algae off their fur.

Which Algae are Blooming?

Most algae are microscopic and require professionals for their identification. However, large colonies are visible during a bloom, and the general nature of the bloom can give us clues on which type of algae is blooming (identification by professionals is still advised). A green mat of algae on the surface that has a rope-like texture may be green algae. A bright green layer of algae on the surface that has a slimy texture may be a blue-green algae. If the green layer on the surface is made up of small floating leaves, it is not algae, but rather an aquatic plant called duck weed.

What Causes Algae Blooms?

Turn up the water temperature and add some phosphorus and you have the perfect recipe for algae soup! Algae blooms occur when the water is warm and calm, when nutrients are plentiful, and/or when the grazers that eat algae are few. Small fish and zoo-plankton are the most common grazers of algae.

The small amount of phosphorous that naturally occurs in our lakes is usually insufficient to support large algal blooms. However, phosphorus entering our lakes from the surrounding watershed (the area of land that drains to a lake or stream) or re-suspension of phosphorus that has settled on the lake bottom will fuel algae blooms. Under optimal conditions, the addition of only one pound of phosphorus can promote the growth of 500 pounds of algae!

Fishing pressure on a lake can add to the problem. The saying, "tug on one part of the food web and you'll affect all the other parts" holds true. Removal of too many northern pike, walleye, bass, or other game fish from a lake can affect the population of small fish and other grazers, and can ultimately lead to a greater abundance of algae.

CONTINUED ON OTHER SIDE

What Can I Do to Prevent or Control Algae Blooms on My Lake?

The most cost effective strategies for long-term results involve reduction of phosphorous inputs to a lake. Phosphorus commonly enters a lake attached to soil particles, dissolved in run-off, in seepage from failing septic systems, and through re-suspension of lake bottom sediments. *Watershed strategies* to filter, trap, and contain phosphorus include maintaining septic systems, planting vegetative buffers along streams and lakes, and re-routing run-off into rain gardens and stormwater ponds. *In-lake strategies* to reduce phosphorus re-suspension include maintaining or restoring the native aquatic plant population, removing/controlling carp if they exist in your lake, reducing the speed of motor boats and personal watercrafts in shallow water, and minimizing other activities that "stir up" the sediments in the lake.

Lakes with high phosphorus levels will benefit from the long-term practices listed above, but may also require additional actions to reduce existing phosphorus in the lake. These are best determined with the assistance of a professional water expert, called a limnologist, rather than someone trying to sell you a particular product.

Examples of treatments to consider are: phosphorus inactivation, sediment removal, artificial circulation, algae harvesting, food-web manipulation, and algaecides. Keep in mind that implementation of these treatments will require planning and substantial funding. They will probably require a Minnesota Department of Natural Resources permit, and repeated treatments are often necessary. With any treatment option there may be negative impacts on the biological communities in your lake, and none of the treatments alone will be effective in the long-term restoration of your lake unless phosphorus inputs from watershed and in-lake activities are also controlled.

Source: University of Minnesota Extension Service Faculty.

Want to know more?

INFORMATION ON THE WEB

http://www.extension.umn.edu/shoreland

http://www.shorelandmanagement.org

http://www.extension.umn.edu/distribution/naturalresources/dd7040.html

MPCA web site on blue-green algae: www.pca.state.mn.us/water/clmp-toxicalgae.html

FOR PERMIT INFORMATION

http://www.dnr.state.mn.us/ecological_services/pubs_regulations.html

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