



Algae

What is it?

Algae are tiny plants that usually you can't see without a microscope, although some types of algae clump together into colonies that you can see. Algae are an important part of the lake ecosystem, since they add oxygen to the water and are part of the base of the food chain.

Algae are a natural part of a lake.

There is another type of algae called blue-green algae, which is not a plant. It is actually a bacteria, but it behaves like the plant type of algae because it has chlorophyll that it uses to turn sunlight into energy (photosynthesize) just like plants do.

Where did it come from?

The algae have always been there, but when there are lots of available nutrients, especially phosphorous, and there is enough light and oxygen, the algae multiply rapidly and stick together to form blooms. These nutrients may come from municipal wastewater treatment plant effluents, agricultural runoff containing fertilizers, cottage septic systems, or from natural sources.

Can I tell when a bloom is going to happen?

Algae blooms can happen any time of the year. Some kinds of algae typically bloom in the spring, some in the fall, and some under the ice in the middle of winter. Summer algae blooms usually happen after calm, hot weather, when the water gets warm. Spring blooms are common because during the winter the water is cold and there is not much light under the ice for the algae to use to photosynthesize, so algae alive through the winter don't use up many nutrients and a lot accumulates in the lakes. In spring, the ice goes away and the water warms up so the algae can rapidly multiply, causing a spring bloom.

The two types of algae

Although the plant and bacterial forms of algae behave similarly, they are not at all the same. The plant form of algae is not harmful, but some types of the blue-green bacterial type algae can be toxic. It is difficult to tell the plant algae apart from blue-green algae without a microscope, but one way to tell is to scoop up a small handful and let it drain between your fingers.

Plant-type algae is *usually* in a stringy form, so if long stringy masses are left behind it is most likely the plant form.



If all that is left is little bits, it is *most likely* the blue-green algae form.

Wash your hands with soap and hot water after this test, and realize that this is not a fool-proof way to tell. Some plant types of algae aren't stringy (they're in little bits). However, all toxic forms of blue-green algae are in little bits (if it's in clumps don't let that fool you – swishing the water with your hand will break up the clumps into little bits again).

Algae are sometimes confused with duckweed, which is actually a small floating aquatic plant. You can tell duckweed from algae because duckweed has a tiny white root that hangs below the leaf into the water.

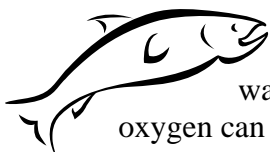
Can I still drink the water? Can I go swimming?

Big blooms of algae can sometimes clog water intake pipes or filters, and they aren't very nice to look at. They make the water smell and taste bad as well. If it is plant type algae it won't hurt you if you go swimming or drink the water, but if it's blue-green algae you could develop serious health problems from drinking the water or swimming in it.

You need to have a water sample analyzed by a lab in order to tell what kind of algae it is, and if it happens to be blue-green algae, whether it's a toxic form or not.

Do blooms hurt the lake?

Normally algae is part of a well-functioning lake ecosystem, and blooms can occur naturally.



When blooms die, they use up a lot of oxygen from the water as they rot. This lack of oxygen can cause fish kills.

Blooms that occur as a result of excess nutrients are an indication that things are off-balance in the lake. Usually blooms are short-lived, but if nutrients build up in the lake it can cause a condition called eutrophication, which changes the lake ecosystem – algae blooms become common, the water warms up, and some of the fish, insects, and other organisms can no longer live there because there isn't enough oxygen.

Will a bloom go away? How can I get rid of it?

Algae blooms can go away on their own, as fast as they appeared or it may take a few days to a couple of weeks. After the algae have used up all the extra nutrients they run out of food and will die off. Windy or rainy days can help break up algae blooms. Plant algae blooms, if they are small and near the shore can also be collected with a rake, and then composted away from the water.

The best way to get rid of algae blooms is to stop the source of nutrients that causes them. By

locating outhouses and septic systems at least 30m away from the shoreline, not allowing livestock to drink water directly from the lake, using low phosphorous soaps and cleaners, and not using fertilizers near lakes or rivers will eliminate some common sources of nutrients.

Having a strip of vegetation along the shoreline acting as a buffer between the lake and the land near the lakeshore is a good idea because it filters runoff going into the lake. Making a buffer can be as easy as not mowing the grass close to the waters edge and/or planting some native shrubs.

Aeration systems can work to stop algae blooms from occurring because it keeps the water moving, although this is better suited to ponds and small bodies of water.

There are chemical options for controlling blooms, but if the nutrient sources aren't controlled chemical options are only a short term solution and other algae blooms will occur. Chemical options include treatments of lime, alum, ferric chloride, or copper sulphate. Chemical treatments may harm fish and other aquatic organisms (plants, insects, etc.), and some algae types become resistant after repeated treatments. Chemicals are chosen depending on the type of algae that is in bloom.

Interesting Fact: A record of water quality can be made by taking sediment cores from lake bottoms and looking at the chlorophyll in the algae that has settled in the sediments over time. Dating the cores shows whether water quality has changed as a result of human or natural activities.

Where can I get more information?

For more information on blue-green algae, please see the separate fact sheet.

Photos and information are taken from a fact sheet produced by Agriculture and Agri-Food Canada entitled Algae, Cyanobacteria, and Water Quality, which can be found on the internet at http://www.agr.gc.ca/pfra/water/algcyano_e.htm. Other information was compiled from the Manitoba Environment Water Quality Section fact sheet, on the web at www.gov.mb.ca/conservation/watres/water_guide/algae.html.