

Algae

Through the Docktalk program, FOCA encourages waterfront landowners to help control the growth of algae in lakes.

What is Algae?

Algae are tiny organisms. Like plants, most algae use photosynthesis to make their own food, and are often green.

How Do Algae Survive?

Algae make their food in the form of starches or oils by using the energy of sunlight and nutrients from the water. They grow in many forms. Some species are microscopic simple cells; others can grow as mass aggregates of cells or in strands. They can even resemble higher plants.

Are Algae Good for the Lake?

Algae are critical to the life of our lakes. They are the base of the food chain, convert nutrients to organic matter, and oxygenate the water. Fish production in lakes varies directly with the amount of algae the lake produces. If there were no algae there would be no fish. Virtually all aquatic animals are dependent (directly or indirectly) on algae.

Factors that Affect Algal Growth

There are a number of environmental factors that influence algal growth. The major factors that determine the type and amount of algae in your lake are:

- the amount of light that penetrates the water
- the concentration of nutrients in the water
- water temperature
- the physical removal of algae by sinking or flushing through an outflow
- grazing on the algae by microscopic animals and fish
- parasitism by bacteria and fungi
- competition from aquatic plants for nutrients and sunlight

Algal Blooms

Nutrient sources such as detergents, septic tank seepages, and fertilizer runoff from lawns and gardens feed the algae in a lake and can result in increased algal growth or a bloom. Blooms of algae can affect the appearance of a lake, result in unpleasant tastes or odours, reduce clarity, and colour the lake a vivid green, brown, or yellow.

Filamentous and colonial algae can mass together and form scum or mats on the lake surface that can drift and clog water intakes, cause unsightly shorelines, foul beaches, ruin recreation, and provide habitat for bacteria. Peeling paint and staining on boats and docks are partially the result of algae growth. Some species actually produce acids that may chemically corrode submersed metal pipes and concrete. Death and sickness to animals have been attributed to certain algae, mostly blue-green bloom-forming species.

Reduction in Oxygen Levels

Algae produce oxygen as a by-product of photosynthesis, but also take in oxygen for respiration. A lake that has a large population of algae can experience a great fluctuation in dissolved oxygen concentration during a 24-hour period. Extreme oxygen fluctuations stress fish and other wildlife in the lake. When algae die, the decay consumes oxygen in the water. When dissolved oxygen reaches a critically low concentration, phosphorus is released from lake sediments and becomes available for algal growth—thus the cycle feeds itself and speeds up the degradation of the lake, or eutrophication.

Types of Algae

Several thousand species of algae live in Ontario's waters. Algae are extremely diverse in form, colour, habit, and habitat. They can live in water or on land. There are four general groups. The descriptions below relate to algae found in fresh water in Ontario:

Green Algae can be filamentous or free-floating. Filamentous greens (or attached algae) range from several millimetres to a metre in length. In many cases they develop into large colonies of floating or attached mats. They can cause odours in water and clog filters. Examples: Spirogyra, Mougeotia, and Cladophora. Free-floating green algae are important in the aquatic food chain and help to maintain oxygen levels. Examples: Chlorella, Pediastrum, and the desmids.

Diatoms are food for many aquatic microscopic animals. Diatoms have silicon cell walls that do not decompose. This is the group of algae most likely to clog filters. Some diatoms produce tastes and odours in the water. Examples: Asterionella, Fragilaria, and Cyclotella.

Flagellated Algae possess one or more flagella, whip-like 'tails' that act as propellers. These algae can sometimes produce strong tastes and odours in water supplies. For example, Synura can impart a cucumber odour to water even when present in low numbers. Examples: Dinobryon, Euglena, and Synura.

Blue-Green Algae, commonly known as pond scum, range in colour from olive-green to red.. Some forms are gelatinous floating masses of various shapes. Sometimes, when a bloom of blue-green algae decomposes pigments are released, giving the water a bluish or pinkish colour. They have a pleasant grassy odour while healthy, but this may change to an unpleasant odour as they decompose.

How Can I Protect My Lake?

Try to maintain a natural shoreline to increase nutrient uptake by plants and reduce erosion and nutrients leaching into the lake.

Use low-phosphorus detergents and soaps.

Avoid fertilizers.

Keep shampoos and soaps out of the lake.

Know how to maintain your septic system to keep it functioning properly. Have your septic system inspected and pumped every 3 to 5 years by a licensed contractor.

Be familiar with your lake's healthy conditions and be able to recognize troublesome symptoms.

Be a lake steward and join the Lake Partner program, contact FOCA for more information.

For more information contact:

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Resources online:

www.foca.on.ca
www.ene.gov.on.ca/programs/index.htm#WATER
www.ene.gov.on.ca/cons/5088.pdf
www.microscopy-uk.org.uk/pond/algae.html

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