



Factsheet

ALGAL BLOOM

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What are algae?

Algae are a diverse group of aquatic plants containing photosynthetic pigments such as chlorophyll. Many are microscopic (often single celled organisms) but some can be large, including some seaweeds. Giant kelps can

grow up to 45 metres and weigh as much as a small tree). Algae can be found on soil, beneath polar ice and in snow, but the greatest numbers are found in the waters that cover 70% of the earth's surface.

Why are algae important?

Algae occur naturally in all surface waters and are a fundamental part of aquatic systems. Through a process called photosynthesis, algae convert carbon dioxide and water to carbohydrates using light energy. Oxygen is

produced in the process. Algae are therefore, an important primary food source for aquatic animals (i.e., fish). Without algae our waterways would be deprived of oxygen and food and would support very few life forms.

What are algal blooms?

When algae become very abundant and form floating clumps, they are called algal blooms. The water may look like thick pea soup and emit a strong odour. Algal blooms commonly occur during calm, hot weather in areas with shallow, slow moving water that is rich in nutrients. The bloom can last up to two or three weeks. Nutrient inputs of typically nitrogen and phosphorus, found in sewage, grey water, animal feces, fertilizers or soil from land erosion, can lead to excessive algae growth. Heat, a lack of wind and plenty of sun create optimal conditions for the growth of algae. Clear water transmits more light and can support more algae when nutrients are available.



Algal blooms - the good and the bad

- **Some algae purifies water** - Duck weed, an aquatic plant that grows on the Morrison Dam in Exeter, removes phosphorus and nitrogen from water and converts it to Duckweed leaves and roots. The removal of the nutrients in the headwaters of the Ausable River may mean that these nutrients are not available downstream.
- **Some algae provide a food source for waterfowl and other aquatic animals.**
- **Reduced evaporation** - A cover of duckweed will reduce evaporation compared to a clear surface.
- **Reduced recreational appeal** - water with a large algal bloom may look murky and smell foul, making it undesirable for swimming and wading.
- **Degraded aquatic habitat** - too much algae can result in low oxygen concentrations in the water when the algae decays, leading to winter and summer fish kills.
- **Toxic algae** - some species of blue-green algae produce toxins which can cause illness or death in livestock or pets drinking the water.
- **Drinking water problems** - excessive algae in municipal drinking water supplies can affect the taste and odour. Algal blooms can also increase water treatment costs by clogging water filters.

What can be done to reduce algal blooms?

Chemicals can be used to kill algae. However, many of these chemicals are expensive and toxic to other forms of life, including fish and fish food organisms. The continued use of these chemicals may create further problems. For example, copper based herbicides have been used to control algae in reservoirs used for drinking water. Recent evidence suggests that this may lead to formation of nuisance algae, which are resistant to this pesticide and difficult to remove by conventional water treatment processes. In addition, copper can accumulate in lake

sediments where it could cause harm to bottom-dwelling organisms.

Prevention is the preferred method for control of algae in surface waters. The most effective long-term control is to minimize the quantity of nitrogen and phosphorus entering the water. The main nutrient sources that can be controlled are sewage effluent and agricultural runoff. Cottage owners and recreational users of rivers and lakes can help reduce the nutrient inputs through individual action.

You can help to prevent algal blooms

- Use fertilizers with care - remember that water that runs off your garden can end up in your local stream or lake.
- Conserve water in your home and garden.
- Plant local native plants in your garden to save water and fertilizer.
- Use low phosphate detergents.
- Protect and plant vegetation along streams and agricultural drains - plants filter nutrients.
- Join community water monitoring, tree planting and clean-up projects.
- Ensure proper maintenance of your private septic system.

Information from:

Australia Water and Rivers Commission http://www.wrc.wa.gov.au/public/waterfacts/6_algal_blooms/index.html-menu

Alberta Environment <http://www3.gov.ab.ca/env/waterswq/brochures/algablooms.html>

Manitoba Environment http://www.gov.mb.ca/conservation/watres/water_guide/algae.html

<http://en.wikipedia.org/wiki/Duckweed>

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