

Blue-Green Algae

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What are blue-green algae?

Blue-green algae are primitive, microscopic aquatic plants which live in fresh water, such as ponds and lakes.

The scientific name for this microscopic organism is cyanobacteria. The name blue-green algae comes from the first documented case, which was blue-green in colour, but the colour can actually range from turquoise or olive-green to red.

Do blue-green algae blooms occur in Nova Scotia?

Blooms of cyanobacteria occur in fresh water ponds, lakes, bays and inlets all over the world.

Blooms have been reported in several locations in Nova Scotia. They normally occur in the late summer and early fall, when the weather is warmest.

What conditions favour algae growth?

Blue-green algae are usually not visible on the surface of a water body, but when conditions are favourable, the plant can quickly reproduce to form a large mass called a bloom or pond scum.

Blue-green algae thrive in areas where the water is shallow, warm, slow-moving and high in nutrients, such as phosphorous and nitrogen. The nutrient level seems to be a key factor affecting the growth rate of the blooms.

Where do the nutrients come from?

Phosphorus and nitrogen are naturally occurring elements which are essential to plant and animal life.

Excess phosphorous and nitrogen can make their way to our water bodies leading to nutrient enrichment which can promote the growth of algae blooms. Sources of these nutrients include:

- Stormwater runoff;
- Agricultural runoff;
- Industrial effluent;
- Wastewater effluent;
- Faulty septic systems; and
- Household fertilizers.

Controlling or eliminating the amount of additional nutrients entering fresh water bodies can help reduce the occurrence and severity of algae blooms.

Should I be concerned about blue-green algae?

Yes, you should be cautious, particularly during an algae bloom. Although many forms of blue-green algae are relatively harmless, some forms produce toxins which may be harmful to the health of both humans and animals. The most common algal toxins are called **microcystins**.

What are the health effects?

Human health effects caused by contact with these toxins can include:

- Itchy, irritated eyes and skin if you swim in contaminated water; and
- If toxins are swallowed, symptoms such as headaches, fever, diarrhea, abdominal pain, nausea and vomiting.

Prolonged or high exposure, such as swallowing a large quantity of toxins, may damage the liver. Children are at greater risk, due to their lower body weight and because they generally spend more time in the water than adults and are more likely to accidentally swallow contaminated water.

Can my drinking water be contaminated with toxins from blue-green algae?

If drinking water is obtained from a surface water source during a blue-green algae bloom, it's possible that the water may be contaminated with toxins.

Large drinking water treatment systems, such as those for municipal water supplies, generally have specialized treatment facilities capable of dealing with the effects of cyanobacteria blooms. Small, private drinking water systems with modest treatment facilities are less likely to have the specialized equipment to effectively filter and treat water during cyanobacteria blooms.

It's difficult to tell if drinking water has been contaminated unless confirmed by laboratory tests for microcystin levels.

Surface water is not recommended as a drinking water source unless properly filtered and disinfected and monitored for water quality.

How much microcystin is allowable in drinking water?

The guideline for microcystin-LR is: **0.0015mg/L** according to the current Guidelines for Canadian Drinking Water Quality.

How can I recognize a blue-green algae bloom?

The blooms may form strings, flakes, or globules and can reach a size of several millimetres. They may look like fine grass clippings in the water or a soupy mass.

The blooms may also have a distinct odour. Fresh bloom can smell like newly mown grass; older blooms may smell like garbage.

What do I do if I see a bloom and suspect it might be a blue-green algae bloom?

Do not swim in or drink from the water body or allow your pets or livestock to drink or swim in the water.

How to reduce the health risks

In the event of an algae bloom, avoid activities that increase the chance of exposure to algae toxins:

- Do not drink, swim, bathe, shower or brush your teeth with the water. Do not allow children, pets and livestock to drink or swim in the water.
- Do not use herbicides, copper sulphate or other algicides that may break open algae cells and release toxins into the water.
- Do not boil the water. Boiling water may release more toxins into the water.
- Do not cook with the water. Food may absorb toxins from the water.
- You may wash dishes or other objects, as long as you rinse them with uncontaminated water and dry them thoroughly.
- Do not eat the liver, kidneys and other organs of fish caught in the water body. Be cautious about eating fish caught in water where blue-green algae blooms occur.
- Do not water your vegetable garden with the water. If this is unavoidable, water the base of plants rather than the stem or leaves.
- Do not treat the water with a disinfectant like chlorine (bleach). This may break open algae cells and release toxins into the water.
- Do not rely on jug or pitcher-type filtration systems, as they do not fully protect against toxin poisoning.
- Use alternative water sources, including bottled water, carted or tanked water, or call a water treatment specialist for help.

For more information

Contact Nova Scotia Environment at: 1-877-9ENVIRO, or 1-877-936-8476.