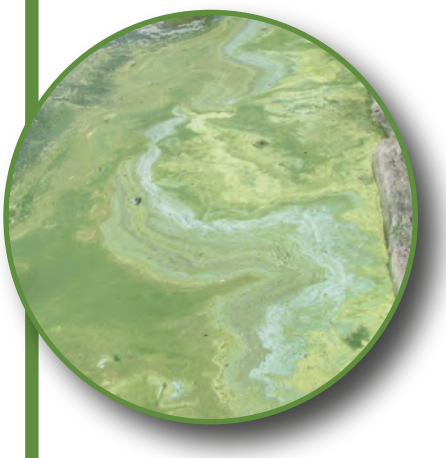
Harmful Algae Blooms

Know the Facts – Reduce Your Risk

Blue-green algae (known scientifically as *cyanobacteria*) occur naturally and can be found in oceans and many freshwater lakes, bays and inlets. Harmful Algae Bloom (HAB) is another term to describe blue-green algae, since it can be harmful to people and pets. Know the facts to reduce your risk.



Where and how do Harmful Algae Blooms form?

When conditions are right, HABs can be found in some Ontario waterways (especially where water is shallow, slow moving and warm). Normally, algae are barely visible. During warm weather, this can change as algae rapidly increase in size to form large masses called blooms. HABs are usually detected in the hot summer months and early fall, often forming repeatedly in the same lake or waterway.

Dense blue-green algal blooms can make the water look like a bluish-green pea soup, or a shiny paint slick. Fresh blue-green algal blooms often smell like fresh cut grass, while older blooms can stink like pig pens. Older blooms are more likely to release toxins when dying as their cells break down.

What is the risk to people and pets?

While many forms of blue-green algae are harmless, some may produce toxins. If you see HABs in a waterway, do not swim, drink or use the water. Keep animals away from the water too. Longer exposure to more severe toxins in the water through drinking, swimming, bathing, cooking or washing may lead to health problems. This includes: itchy, irritated eyes and skin; headache; fever; diarrhea; abdominal pain; nausea; and vomiting. *NOTE:* **Never boil** the water, as it kills the algae resulting in the release of more toxins. If you feel unwell after encountering a HAB, seek medical attention.

What to do if you see Harmful Algae Blooms in the water?

If you live on or use a lake or waterway, be on the lookout for HABs. **If you spot a bloom, report it to the Spills Action Centre at 1-800-268-6060.** If your home or cottage gets its drinking water from a local waterway, consider using test strips (for example, Algal Toxin Test Strip Kits - eurofins-technologies.com) to check if algae toxins are present, even if a bloom is not visible. In general, HABs can be placed in one of three categories depending on how bad they are. In categories 2 or 3, people should not swim or use water at all. **Use the chart on page three to identify the category and actions to take to stay safe.**

How to further protect your drinking water from Harmful Algae Blooms?

If you get drinking water from a lake, river, creek, or a shallow well near a body of water, ensure the water is properly treated to protect against harmful bacteria and HABs. Water treatment is a complex process. Consult a qualified professional who can assess your water supply to ensure the best treatment system is in place. If unsure about the effectiveness of your water treatment system, find another source of drinking water such as a drilled well, a dug well far from shore, or water holding tank filled with water from a licensed water treatment plant. An alternate water source may also be recommended if you draw water from a water source that has frequent HABs.

Are there water treatment systems that reduce toxin levels from Harmful Algae Blooms?

Yes. Water treatment systems based on the following technologies can reduce cyanobacteria toxin levels:

- One micron filter, cleaned or replaced frequently (as per manufacturer's instructions), for removal of cyanobacteria cells, PLUS
- Reverse osmosis, PLUS
- Ozonation, or chlorination (with adequate levels and contact time), PLUS
- Point-of-use filter (installed on a specific tap) that has been certified to NSF/ANSI 53 f or microcystin reduction.

UV lights or water softeners are not effective at removing either Cyanobacteria or cyanotoxins from the water.

What can be done to prevent Harmful Algae Blooms?

Human activities (like fertilizer runoff, agricultural runoff and faulty septic systems) can increase levels of phosphorus and nitrogen in the water. This can lead to the growth of HABs. To reduce the nutrient levels in water that promote algae growth, do the following:

- Use phosphate-free laundry detergents.
- Avoid using fertilizers.
- Reduce surface runoff by maintaining a naturalized shoreline on waterfront properties.
- Ensure septic systems work properly and are maintained so sewage does not leak.

Additional Resources:

- Ontario Government - www.ontario.ca/page/blue-green-algae
- Health Canada - www.canada.ca/content/dam/canada/health-canada/migration/healthy-canadians/publications/healthy-living-vie-saine/water-cyanobacteria-cyanobacterie-eau/alt/water-cyanobacteria-cyanobacterie-eau-eng.pdf

Harmful Algae Blooms (Blue-Green Algae)

	Category 1	Category 2	Category 3
Appearance	The water appears cloudy, but you can still see your toes. Particle density can vary greatly in the water column.	There is a significant change in the cloudiness and colour which may appear blue, green, brown, red etc. Algae may be in clusters or balls or flakes in the water, like pea soup. Water may have observable taste and odour that can be described as earthy-musty, grassy, septic or pig-pen odour.	This is a dense bloom; it may resemble an oil or paint spill and the surface of the water may form a scum. Water may have observable taste and odour that can be described as earthy-musty, grassy, septic or pig-pen odour. Algae is easily swept by the wind and deposited near the shore.
Recreational Precautions	Health effects are unlikely at this stage, but toxins might still be present. Monitor the water quality for decrease in clarity, cloudiness and change in color. It is unsafe to swim or to allow children to play in water if you cannot see your toes in the water. Wait until the bloom has subsided and the water is clear.	Do not swim in a Category 2 or 3 algal bloom, or any bloom which obscures your view into the water. Even if it is not blue-green algae, it is unsafe to swim or to allow children to play in any dense algal bloom, since you cannot see into the water. Wait at least 24 hours after the bloom has disappeared and the water is clear. Do not allow pets to swim in the water. Pets will lick their fur and could ingest toxin that could make them ill. In both Category 2 and 3, individuals may develop mild symptoms of skin rash or eye irritation. Do not eat organs of fish caught in an area with HABs.	
Drinking Water Precautions	Health effects are unlikely at this stage, but toxins might still be present. Consider using test strips to determine if toxin is present in raw water. If you don't have test strips or suspect a toxin is present, refer to precautions described in Category 2 & 3.	Do not use the water from a Category 2 or 3 bloom for drinking, cooking, rinsing fruits or vegetables, washing dishes, or other consumption. **Instead, use potable water from a safe alternative source.** Do not boil the water as it kills the algae resulting in the release of more toxins in the water. Do not let pets or livestock drink the water. Be observant of when the water has cleared. If you treat surface water for cooking or consumption as per recommendations in this pamphlet, wait until after the bloom has disappeared before resuming normal use of the treated water. Over time, the toxin is naturally reduced by dilution, degradation by other bacteria in the water, and sunlight. If the bloom re-appears, follow the precautions described above.	

Fact sheet produced with the input and assistance of:

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