



**LAKEHEAD REGION**  
CONSERVATION AUTHORITY

## CYANOBACTERIA (BLUE-GREEN ALGAE)

July 13, 2022



### WHAT IS CYANOBACTERIA?

Cyanobacteria, also referred to as blue-green algae, is a microscopic plant-like organism that is naturally found within natural streams, rivers, and lakes. The organism thrives in warm, nutrient-rich (high in phosphorous and nitrogen) environments. Blooms occur when the populations rise rapidly, creating a large floating mass that can be bluish-green, brown, red, or yellow in color. Changes in cyanobacteria populations can be an excellent indicator of water quality.

### WHERE IS CYANOBACTERIA FOUND?

Cyanobacteria thrives in warm shallow water, with slow-moving currents, and minimal disturbance from wind or waves. Nutrient-rich water systems with high levels of phosphorous and nitrogen increase the risk of cyanobacteria. Fertilizer runoff or septic tank overflows can contribute to the rapid growth of cyanobacteria under idyllic conditions. Cyanobacteria blooms typically form in late summer or early fall.

### WHAT ARE THE NEGATIVE EFFECTS OF CYANOBACTERIA?

Cyanobacteria can have numerous negative impacts on local freshwater lakes including:

- Causing skin irritations or illness including respiratory and gastrointestinal distress.
- Toxic to pets, wildlife, and livestock.
- Loss of aesthetic appeal and a reduction in property value.
- Reduced recreational opportunities.
- Reduces oxygen levels within the water column, negatively impacting resident fish, mollusks, invertebrates, and aquatic plants.



### SUSPECT A BLUE-GREEN ALGAE BLOOM?



#### STEP 1:

Document the date, time and location of the suspect blue-green algae bloom.



#### STEP 2:

Take Pictures! Closeup photos, broad view photos, and try to capture the extent of the bloom.



#### STEP 3:

Take Notes! Write down a description of the bloom, general comments, and observations.



#### STEP 4:

Steer clear from the water and prevent family, pets, and livestock from swimming, playing or drinking the water.



#### STEP 5:

Report findings to Ontario Bloom Reporting:

(866) 663-8477

[www.report-pollution.ene.gov.on.ca](http://www.report-pollution.ene.gov.on.ca)

Report findings to the Spills Action Centre:

1-800-268-6060 (Toll-free)

(416) 325-3000

If found on LRCA property:

(807) 344-5857

[info@lakeheadca.com](mailto:info@lakeheadca.com)

## WHAT ARE THE SYMPTOMS OF CYANOBACTERIA POISONING?

Referred to as Harmful Algal Blooms (HABs), cyanotoxins can include microcystins (most common), cylindrospermopsin, and anatoxin. Exposure to cyanotoxins during recreational activity can result in hay fever-like symptoms, skin rashes, respiratory issues, and gastrointestinal distress. Each toxin has varied acute health effects and the extent of exposure will influence the severity of the symptom. Not all toxins are present in a cyanobacteria bloom, only lab testing can determine the toxin present and the amount. In order to determine what toxins are present a sample must be collected and analyzed in the lab as cyanobacteria and associated toxins are not visible to the naked eye.

CYANOTOXIN	ACUTE HEALTH EFFECTS
<i>Microcystin</i>	Abdominal pain, headache, sore throat, vomiting and nausea, dry cough, diarrhea, blistering around the mouth, and pneumonia.
<i>Cylindrospermopsin</i>	Fever, headache, vomiting, bloody diarrhea.
<i>Anatoxin</i>	Tingling, burning, numbness drowsiness, incoherent speech, salivation, respiratory paralysis.

## HOW DO YOU PROTECT YOURSELF AND OTHERS?

Cyanobacteria blooms have become a growing problem within the Thunder Bay District affecting many inland freshwater lakes. Routes of exposure include ingestion, inhalation, skin contact, and eye contact. Assume any cyanobacterial bloom as being potentially toxic. Exposure is often related to recreational activities within a water system. To avoid exposure to cyanobacteria, it is recommended that:

- When in doubt, keep out! If algae bloom is observed, assume toxins are present in the water and restrict family and pets from accessing water.
- Do not drink water that is suspected of cyanobacteria contamination. Conventional water treatment and boiling are not effective methods for removing cyanobacterial toxins from the water.
- Avoid swimming, bathing, or other recreational activities within the suspect water when there is a presence of foam, scum, or mats of algae on the water's surface.
- Refrain from eating fish at locations where cyanobacteria may be present. Cyanobacterial toxins are not inactivated by cooking the fish. Avoid consumption.
- If in contact with suspect water, immediately rinse off with fresh water and monitor for symptoms.

## HOW DO I IDENTIFY CYANOBACTERIA?

Cyanobacteria is often confused with floating plants, filamentous algae, and plant-like algae. Cyanobacteria is typically free-floating and it does not produce a stringy mesh-like slime. Rather, cyanobacteria has been characterized as looking like paint floating on the water's surface. Identifying and determining the timing and spatial distribution of cyanobacteria is critical for protecting our fundamental freshwater ecosystems.



## THE LRCA'S CYANOBACTERIA MONITORING PROGRAM

The LRCA is taking progressive steps to further understand and analyze cyanobacteria within the conservation areas and the Lakehead Watershed. In July and August 2022, the LRCA will be conducting weekly testing, using Algal Toxin Test Strips, to ascertain the absence or presence of cyanobacteria at Hazelwood Lake, Mission Island Marsh, Hurkett Cove, and Silver Harbour Conservation Areas. Testing sites were selected based on the frequency of visitor contact with open water. Baseline data will be collected to determine the dominant genus of algae and characterize the trends within the water bodies throughout the year. The Canadian Recreational Water Quality Guideline for total microcystins in recreational waters used for primary contact recreation is 10 ppb. Positive test results that indicate an exceedance of the guideline will be reported to the Ministry of the Environment, Conservation, and Parks (MECP) and the Thunder Bay District Health Unit (TBDHU). Confirmed exceedances may result in a beach closure as directed by the MECP or TBDHU. Any swimming advisories or beach closures will be posted on the LRCA's website and social media platforms and signage will be displayed at the site.

## PREVENTION

Preventing cyanobacteria starts at home! Here are some tips for reducing your impact on our waterways and averting hazardous algal blooms:

- Use phosphate-free detergents, personal care, and household cleaning products.
- Reduce or avoid the use of fertilizers on lawns. Use phosphorus-free fertilizers only.
- Maintain a buffer strip of native vegetation on lake and riverfront properties.
- Monitor septic systems to ensure they are not leaching into nearby water sources.
- Prevent livestock or pet waste from entering water systems causing excess nutrients and bacteria.
- Implement landscaping strategies: aerators or fountains, rain gardens, xeriscaping, or revegetation of manicured lawns.





## OTHER SOURCES OF INFORMATION

- **Thunder Bay District Health Unit:**  
[www.tbdhu.com/health-topics/beaches-pools/blue-green-algae](http://www.tbdhu.com/health-topics/beaches-pools/blue-green-algae)
- **Center for Disease Control and Prevention:**  
[www.cdc.gov/habs/materials/factsheet-cyanobacterial-habs.html](http://www.cdc.gov/habs/materials/factsheet-cyanobacterial-habs.html)
- **Ontario Ministry of the Environment, Conservation, and Parks:**  
[www.ontario.ca/page/blue-green-algae](http://www.ontario.ca/page/blue-green-algae)
- **Government of Canada:**  
[www.canada.ca/en/health-canada/programs/consultation-cyanobacteria-toxins-recreational-water/document.html](http://www.canada.ca/en/health-canada/programs/consultation-cyanobacteria-toxins-recreational-water/document.html)
- **Report a Bloom Online:**  
[www.report-pollution.ene.gov.on.ca/](http://www.report-pollution.ene.gov.on.ca/)