

# BLUE-GREEN ALGAE MONITORING

in Newfoundland and Labrador

2018  
Annual Report

  
Newfoundland  
Labrador



## Background

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Cyanobacteria, commonly called 'blue-green algae', are microscopic, plant-like bacteria that occur naturally in many aquatic and terrestrial environments throughout the world. Individual organisms are not normally visible, but aquatic populations can increase rapidly when conditions are favorable, causing the bacteria to congregate in large masses or 'blooms' that are often, though not always, easily visible.

These blooms most commonly occur in summer or early fall, when surface waters are warmest, but they can also occur at other times during the year. In addition to water temperature, a key factor contributing to the growth of blue-green algae and the formation of a bloom is the amount of available nutrients such as phosphorus and nitrogen in the water.

Many species of blue-green algae can produce toxins that are potentially harmful to humans and animals. The most common blue-green algae toxins encountered and monitored in Canadian waters are microcystins. Health Canada has established guidelines for the cyanobacterial toxin 'microcystin-LR'. The guidelines are "believed to be protective of human health against exposure to other microcystins (total microcystins) that may also be present" (Health Canada, 2016).

Health Canada's **Guidelines for Canadian Drinking Water Quality** recommend that microcystin-LR not exceed 1.5 µg/L. There are also **Guidelines for Canadian Recreational Water Quality** that recommend total cyanobacteria not exceed a density of 100,000 cells/mL and total microcystins not exceed 20 µg/L (expressed as microcystin-LR).

Summaries of blue-green algae monitoring in the province for the years 2007 to 2017, are available on the Department of Municipal Affairs and Environment website at:  
[mae.gov.nl.ca/waterres/quality/background/bgalgae.html](http://mae.gov.nl.ca/waterres/quality/background/bgalgae.html)



## Blue-Green Algae Occurrences in 2018

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On July 2, a blue-green algae bloom was reported and observed in Miller's Pond, Portugal Cove - St. Philip's (Figures 1 and 2). Grab samples were collected on July 2 by Water Resources Management Division (WRMD) staff. Samples were taken from an area where the bloom was most intense and were analyzed at the York-Durham Regional Environmental Laboratory in Pickering, Ontario. Results showed microcystin levels to be low at 0.31 µg/L, while the cell density level (cell count) was quite high at 9.9 million cells/mL. The cell count exceeds the **Guidelines for Canadian Recreational Water Quality** and indicates that the water was not safe for recreation at that time. The Town of Portugal Cove – St. Phillips was advised of these results.



Miller's Pond (Portugal Cove – St. Philip's), July 2, 2018



Millers' Pond (Portugal Cove – St. Philip's), July 2, 2018

The organism responsible for the bloom and present in large quantities was identified as a genus of cyanobacteria known as *Anabaena*, the same genus of blue-green algae that has been identified in Millers Pond blooms for the last several years.

The bloom did not persist for very long and was not observed when the area was again inspected on July 17. Microcystin levels in samples collected on July 17 were below detection limits and cell counts were below 5,000 cells/mL.

On July 30, WRMD staff inspected several areas on Grand Pond near Hodgewater Line following reports of a possible bloom occurring. Though green algae were observed in the area, there was no evidence of a cyanobacteria bloom.



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