



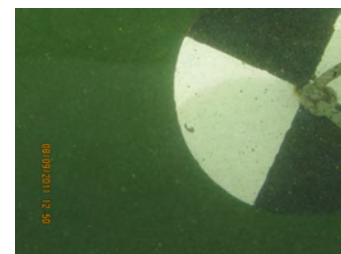
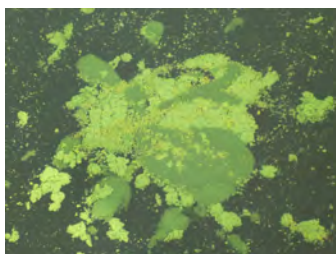
# Cyanobacteria in Vermont

## What Veterinarians Should Know

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Cyanobacteria, also known as blue-green algae, are common aquatic organisms found in freshwater and marine environments. Cyanobacteria thrive in nutrient-rich waters and can multiply rapidly, resulting in cloudy water and visible surface scums. These conditions, called blooms, are most likely to occur in summer and early fall in Vermont.

Cyanobacteria can produce potent toxins that have been implicated in pet and livestock deaths around the world. Dogs are particularly susceptible but livestock can also be affected. It is not possible to tell whether a bloom is toxic by looking at it and there are no known antidotes for many of these toxins. Cyanobacteria can also cause a variety of non-lethal illnesses.



### Recognizing Cyanobacteria in the Water

- Scum layer on the surface, typically green or blue-green in color but may be brown, purple or white. The layer is often described as 'pea soup' or spilled paint. Typically thickest on downwind or protected shores.
- Thick layer of foam and/or highly discolored water
- Look like small specks or grass-like clusters at or just below the surface.

Stringy, bright green strands are not cyanobacteria.

For a photo gallery and additional descriptions, visit

[http://healthvermont.gov/enviro/bg\\_algae/photos.aspx](http://healthvermont.gov/enviro/bg_algae/photos.aspx)

To see current conditions on Lake Champlain and selected inland lakes, visit

[http://healthvermont.gov/enviro/bg\\_algae/weekly\\_status.aspx](http://healthvermont.gov/enviro/bg_algae/weekly_status.aspx)

### Signs of Cyanotoxin Exposure in Animals

- Weakness or staggering
- Difficulty breathing
- Convulsions
- Vomiting or Diarrhea
- Foaming at the mouth
- Dark urine or blood in the urine
- Algae in the vomitus or stool

Microcystin, a hepatotoxin, has been documented frequently in Lake Champlain and occasionally in other Vermont lakes. Anatoxin, a neurotoxin, has also been found in Lake Champlain.

### Treatment Options

Most cyanotoxins have no known antidote and there are no widely available rapid diagnostics for confirmation of cyanotoxin poisoning. In the most severe cases, the animals succumb or are euthanized. There have been a limited number of successful recoveries after intensive care and support treatment (see **Resources**).

To help us better understand the extent of the problem, please report cyanobacteria-related illness to the Vermont Department of Health:

**AHS.VDHBlueGreenAlgae@state.vt.us or 1-800-439-8550**

### Preventing Exposure

- Keep pets and livestock away from suspected cyanobacteria blooms.
- Do not allow dogs to lick their fur if they have come in contact with blooms. Rinse them well with clean water to remove algae.
- Do not allow pets and livestock to eat algae or debris along shorelines.
- Provide alternate source of clean water if suspicious algae are present in ponds or watering troughs.

### Reducing the Frequency of Cyanobacteria Blooms

Cyanobacteria are common native organisms found in water and damp soil around the world. They are of ecological importance and it is not possible, or prudent, to eliminate them. We can, however, reduce the frequency and duration of blooms by keeping nutrients and sediments out of our waters.

Numerous products are advertised to control algae. Many of these cannot be used in Vermont without obtaining a permit from the VT Department of Environmental Conservation. Some cannot be used at all. For more information, see the Resource List.

**Caution:** Using chemicals or other means to disrupt an active bloom may release cyanotoxins directly into the water.

### Resources

S. Kahn, 2014

[veterinarymedicine.dvm360.com/vetmed/Toxicology/The-poison-in-the-pond-Blue-green-algae-toxicosis-/ArticleStandard/Article/detail/834356](http://veterinarymedicine.dvm360.com/vetmed/Toxicology/The-poison-in-the-pond-Blue-green-algae-toxicosis-/ArticleStandard/Article/detail/834356)

D. van der Merwe, 2012 - HAB impacts on domestic animals. Lakeline Magazine, Fall 2012, pages 25-27

L. Backer, J. Landsberg, M. Miller, K. Keel and T. Taylor. 2013. Canine cyanotoxin poisonings in the US (1920s-2012): a review of suspected and confirmed cases from three data sources. *Toxins* 2013, 5, 1597-1628;

[www.mdpi.com/2072-6651/5/9/1597](http://www.mdpi.com/2072-6651/5/9/1597) (open source)

K. Rankin, K. Alroy, R. Kudela, S. Oates, M. Murray, and M. Miller. 2013. Treatment of cyanobacterial (microcystin) toxicosis using oral cholestyramine: case report of a dog from Montana. *Toxins* 2013, 5, 1051-1063;

[www.mdpi.com/2072-6651/5/6/1051](http://www.mdpi.com/2072-6651/5/6/1051) (open source)

*LakeWise* - learn how to manage your property to protect Vermont's lakes. This guidance is useful for small ponds as well. [www.anr.state.vt.us/dec/waterq/lakes/htm/lp\\_lakewise.htm](http://www.anr.state.vt.us/dec/waterq/lakes/htm/lp_lakewise.htm)

Learn how to recognize cyanobacteria blooms following the system used by the Lake Champlain Committee's volunteers each summer. [www.lakechamplaincommittee.org/get-involved/volunteers/bga-monitors/algaebloomintensity/](http://www.lakechamplaincommittee.org/get-involved/volunteers/bga-monitors/algaebloomintensity/)

Controlling nuisance aquatic plants and algae

[www.watershedmanagement.vt.gov/lakes/docs/lp\\_controlplants.pdf](http://www.watershedmanagement.vt.gov/lakes/docs/lp_controlplants.pdf) - zoom=100

### Contact Information

Vermont Department of Health, (800) 439-8550, [healthvermont.gov/enviro/bg\\_algae/bgalgae.aspx](http://healthvermont.gov/enviro/bg_algae/bgalgae.aspx)

Vermont Department of Environmental Conservation, (802) 490-6130,

[www.watershedmanagement.vt.gov/lakes/htm/lp\\_cyanobacteria.htm](http://www.watershedmanagement.vt.gov/lakes/htm/lp_cyanobacteria.htm)

Vermont Agency of Agriculture, Food and Markets, (802) 828-2421, [agriculture.vermont.gov/animal\\_health](http://agriculture.vermont.gov/animal_health)



DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
AGENCY OF AGRICULTURE, FOOD & MARKETS  
DEPARTMENT OF HEALTH