

# Potential Health Issues Associated with Blue-Green Algae Blooms in Lake Champlain



## What are blue-green algae?

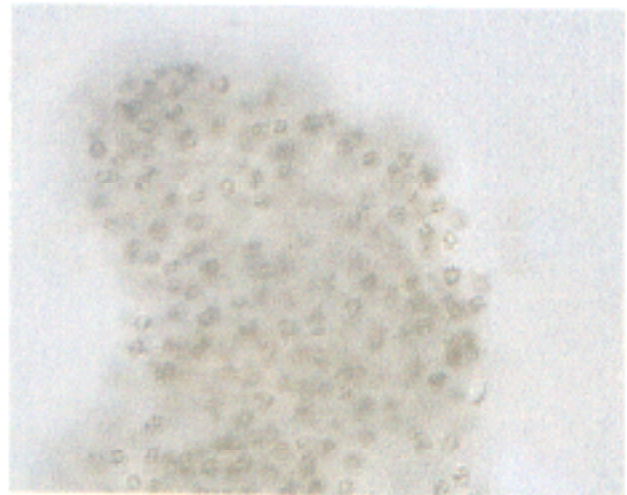
Cyanobacteria, also known as blue-green algae, are the most primitive group of algae. They are simple but remarkably successful organisms. Although they are most closely related to other bacteria, they have the same pigment for photosynthesis that plants have.

## Why be concerned about blue-green algae?

Some kinds of blue-green algae produce natural toxins. These toxins are produced inside the cells and stay there as long as they are alive. When cells die and break down, toxins can be released into the water. So far, no known human health problems have arisen in the U.S. from these toxins. Concern and interest is growing, however, and the U.S. EPA is considering putting microcystin, one of the toxins, on its list of water contaminants.

Some strains of *Anabaena* and *Aphanizomenon*, two summer inhabitants of Lake Champlain, have the potential to produce anatoxins. If animals ingest a large dose of anatoxin, their skeletal and respiratory muscles can be quickly paralyzed. During the summer of 1999, the death of two dogs was attributed to anatoxin poisoning after drinking large amounts of contaminated water directly from Lake Champlain.

*Microcystis*, another kind of blue-green algae found in Lake Champlain, is currently under investigation for its ability to produce a liver toxin called microcystin. This picture, as seen through a microscope, shows what *Microcystis* looks like.



## How can I tell if blue-green algae are present in a bloom?

Blue-green algae blooms may appear thick like pea soup, or look like green paint or grass clippings on the water. They are mostly green, although they can also be brown or purple. In contrast, if you pick up algae and it is stringy, made up of long bright grass-green strands that feel either slimy or cottony, it is not blue-green algae, but harmless green algae.

When a blue-green algae bloom washes up on shore, it can form a thick mat or a foam on the beach.

## If there is an algal bloom, when will it go away?

Generally, cooler weather, rainfall, and reduced sunshine will lead to the collapse of an algal bloom. Some blooms die off after a few weeks, while others persist for a few months, depending on environmental conditions.

## How should I act around a bloom?

For much of the year, Lake Champlain is safe to swim in, but it is important to be aware of algae blooms. Blue-green algae blooms usually don't happen until late summer and fall, but can happen earlier in a dry, hot year. If you are unsure or have any questions, contact the people listed below.

If the water is clear and the shoreline is free from green or brown scum, the water is probably safe to swim in. If there is a heavy greenish scum on the water or shore, it is probably best to avoid these areas until they are clear. Take the same precautions for your pets as you do for yourself – if the water has a lot of algae in it, have them drink from another source.



A motorboat leaves a track through a thick blue-green algae bloom.



Scientists collecting samples aboard UVM's research vessel, the *Melosira*

## What is being done to understand this?

Monitoring of the lake for blue-green algae occurs every two weeks in Burlington Bay as part of the Burlington Bay Project being conducted by UVM. In addition, lake-wide sampling is being conducted on Lake Champlain by the Vermont Department of Environmental Conservation (DEC).

The Centers for Disease Control and Prevention (CDC) and the Lake Champlain Basin Program (LCBP) have funded a study during summer 2000. It will assess blue-green algae blooms on the lake, and determine if they are producing toxins. In addition, this study will determine if these toxins are present in drinking water and beach areas.

## Who should I contact for more information or to report a bloom?

Peter Galbraith, State Epidemiologist  
Vermont Department of Health  
108 Cherry Street, Burlington, VT 05402  
(802) 863-7240

Barry Rosen (USDA-NRCS)  
Angela Shambaugh  
UVM School of Natural Resources  
Burlington, VT 05405  
(802) 656-4057 / (802) 859-3036

Doug Burnham  
VT DEC, WQ  
103 S Main St, 10 N  
Waterbury VT 05671  
(802) 241-3784

## Related Internet Sites

<http://www.ohd.hr.state.or.us/esc/docs/mafact.htm>  
<http://splash.metrokc.gov/wlr/waterres/lakes/bloom.htm>