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# ENVIRONMENTAL Fact Sheet

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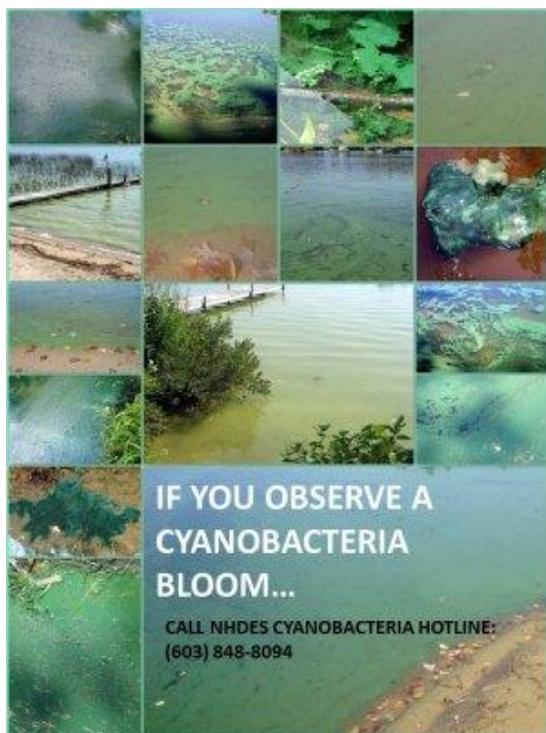
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## Cyanobacteria in New Hampshire Waters

### What are Cyanobacteria?

Cyanobacteria (formerly known as blue-green algae) are photosynthetic bacteria that utilize the sun's energy but also behave as bacteria. Cyanobacteria are some of the earliest inhabitants of our waters; naturally occur in most of our lakes, though often in relatively low numbers in New Hampshire. Many species of cyanobacteria grow in colonies to form surface water "blooms." Blooms are usually blue-green in color and consist of thousands of individual cells. Research indicates that cyanobacteria abundance increases as lake nutrients increase, however each taxa have their own unique requirements for growth.



### Cyanobacteria Blooms

Although most often seen when floating near the surface during the swim season, many cyanobacteria spend most of their life cycle suspended throughout the water column, regulating their buoyancy to suit their needs. Cyanobacteria can also overwinter, surviving on the lake bottom during the winter months. Increased water temperature and light in the spring promote the upward movement of cyanobacteria through the water column toward the surface where blooms or scums are often formed. The surface blooms become caught in the surface tension and are subject to dispersal or accumulation based on weather, wind and lake morphometry. These scums are observed in summer in New Hampshire, when lakes are visited the most. Though cyanobacteria blooms are sometimes reported in the fall, or even as late as when ice cover occurs.

## Why are Cyanobacteria a Concern?

While cyanobacteria blooms are considered unsightly and aesthetically displeasing, there are more serious concerns associated with high concentrations of cyanobacteria. Many taxa of cyanobacteria produce toxins (“cyanotoxins”) and have been reported to adversely affect livestock, domestic animals and humans globally. According to the World Health Organization (WHO), toxic cyanobacteria are found worldwide in both inland and coastal waters. The WHO has documented acute impacts to humans from cyanobacteria from the US and around the world as far back as 1890. While most human health impacts have resulted from ingestion or injection, cases of illnesses have also been attributed to swimming in cyanobacteria infested waters.

The possible effects of cyanobacteria on the “health” of New Hampshire lakes and their natural inhabitants, such as fish and other aquatic life, are under study at this time. The Center for Freshwater Biology (CFB) at the University of New Hampshire is currently examining the potential impacts of these toxins upon the lake food web and from aerosols. The potential human health hazards via exposure through drinking water and/or during recreational water activities are a concern. Exposure to toxic cyanobacteria scums may cause various symptoms, including nausea, vomiting, diarrhea, mild fever, skin rashes, eye and nose irritations, numbness and general malaise. Some studies suggest cyanobacteria may be linked to serious illness.

## Do Cyanobacteria Occur in New Hampshire Waters?

The first reports of toxic cyanobacteria in New Hampshire occurred in the 1960s and 1970s. Cyanobacteria have been found in a majority of lakes in New Hampshire, but most often cyanobacteria numbers present in our lakes are near the minimum level of detection. The most common cyanobacteria found in New Hampshire are *Dolichospermum (Anabaena)*, *Microcystis*, *Aphanizomenon*, *Woronichinia*, and *Oscillatoria (Planktothrix)*. Though there are also unique blooms such as *Gloeotrichia* and *Nostoc*. There are several different cyanobacteria taxa found in NH waters.

## If you Observe a Cyanobacteria Bloom or Scum, please call NHDES at (603) 848-8094.

NHDES will sample the scum and determine if it contains cyanobacteria. If concentrations are elevated, a lake warning will be issued. NHDES will continue to monitor the water and will notify the appropriate parties regarding the results of initial and subsequent testing. Public notification occurs through press releases and the NHDES website. When monitoring indicates that cyanobacteria are no longer present at levels that could harm humans or animals, the lake warning will be removed. If anyone comes in contact with a cyanobacteria bloom or scum (including pets), they should rinse off with fresh water as soon as possible.

- ✓ Do not wade or swim in the water, especially near surface blooms.
- ✓ Do not drink the water; avoid drawing lake water.
- ✓ Do not let pets or livestock into or near the water; dogs are especially vulnerable to toxic cyanobacteria.
- ✓ Call NHDES to report a cyanobacteria bloom sighting.

## Where to Find Current Cyanobacteria Advisories and Warnings

Please visit <https://www.des.nh.gov/> and click “Beach Advisory” under the ALERTS banner on the left sidebar to access the currently posted advisories and lake warnings for elevated bacteria and cyanobacteria blooms. These advisories and warnings will be spatially displayed on an interactive map as well as listed with text descriptions below the map.

