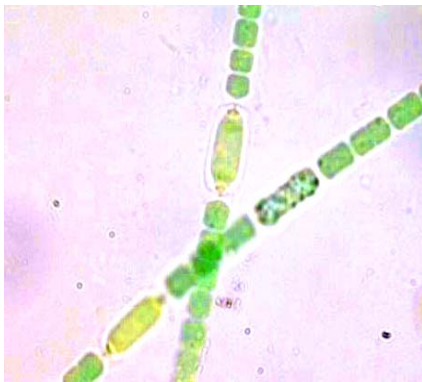


Are there cyanobacteria in Lake Sunapee?

Gloeotrichia echinulata, or “*Gloeo*,” is a cyanobacterial species that has been appearing in Lake Sunapee regularly since 2004. (See LSPA’s *Gloeotrichia echinulata* pamphlets). *Gloeo* is a cyanobacterium that contains low levels of toxins and can form a thin yellowish-green layer on the lake surface (resembling tapioca) in late August and September.

There are a few other species of cyanobacteria that have been identified in Lake Sunapee, such as *Anabaena* and *Microcystis*, but surface blooms have not been recorded in the lake.



Anabaena under a microscope
www.bluegrass.kctcs.edu

How can we manage cyanobacterial blooms?

The most important preventive measure to reduce cyanobacteria is to limit nutrient loads of nitrogen and phosphorus into a lake. Cyanobacteria are dependent on high levels of phosphorus in lake water and lake sediment. Increased phosphorus levels in lakes are often caused by agricultural and lawn fertilizers in runoff, excess sediment from construction and other disturbed sites, certain detergents, and leaky septic systems.

Want to know more about cyanobacteria?

Contact the Lake Sunapee Protective Association to ask more questions about these fascinating organisms!



Lake Sunapee Protective Association
68 Main Street, PO Box 683
Sunapee, NH 03782
Phone: 603-763-2210
Fax: 603-763-2077
Email: lspa@lakesunapee.org
Web Address: www.lakesunapee.org

Text by Cayelan Carey, 2006.



Cyanobacterial (*Gloeotrichia echinulata*) bloom, Lake Sunapee, September 2005
Photo: Midge Eliassen

Blue-Green Algae: Cyanobacteria in our Lakes



Cyanobacteria, also known as blue-green algae, are some of the oldest organisms inhabiting Earth. Cyanobacteria were responsible for filling the atmosphere with oxygen three billion years ago and made the planet habitable for humans and animals. Unfortunately, in current times, cyanobacteria can pose problems for humans by blooming in both saltwater and freshwater. Their blooms often have a distinct unpleasant odor, a yellow or green discoloration of water, and may be toxic.

What are cyanobacteria?

Cyanobacteria are photosynthesizing bacteria that are commonly classified as algae. The cyanobacteria taxonomic group is extremely large and very diverse. The size of a cyanobacterial colony varies per species, ranging from microscopic to almost 1/16th of an inch in diameter. Some cyanobacteria form spherical colonies, while others exist as long filaments. Within a lake, different species have different life cycles, and some species live in the water column, while others reside on rocks or in the sediment.

What traits give cyanobacteria an advantage over other algae?

Because cyanobacteria have lived on the Earth for such a long time, many species have evolved special traits that enable survival. First, most cyanobacteria have the ability to produce nitrogen, an important nutrient for algal growth. Second, many species are able to control their buoyancy with gas bubbles, allowing them to move from the lake bottom to the water surface to maximize light and temperature levels. Third, some cyanobacteria produce special cells that become dormant at times of low light or temperatures, allowing the population to survive stressful environmental conditions.



Where do cyanobacteria live?

Cyanobacteria can exist in some of the most diverse and harsh habitats on the planet, including everywhere from polar ice caps to hot springs. You can find cyanobacteria in almost all bodies of water,

How are cyanobacteria helpful?

Most cyanobacteria photosynthesize, producing oxygen that humans and animals can breathe. They help keep soils moist and aid the survival of many important organisms, such as fungi, lichens, and ferns.

Are cyanobacteria harmful?

Yes and no. Certain species of cyanobacteria have evolved the ability to produce toxins to resist being eaten by predators. These toxins can also be harmful to humans and animals, and there have been approximately 50 recorded human deaths worldwide believed to be due to cyanobacteria-contaminated water. However, not all cyanobacterial species produce toxins, and only a very high density of toxic cyanobacteria, far higher than Lake Sunapee has ever experienced, could be unsafe. The NH Department of Environmental Services monitors toxin levels in drinking water.
