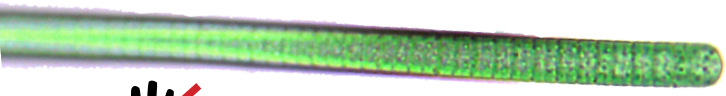
Clumps of Benthic Cyanobacteria

Community Science Institute
Partnering with Communities to Protect Water

Cyanobacterial Harmful Algal Blooms (HABs or cyanoHABs) have become a regular seasonal occurrence in freshwater lakes and ponds throughout the Finger Lakes region. Differing from the typical "spilled paint" or "streaky" appearance of most locally-reported HABs, floating clumps of benthic cyanobacteria are increasingly being noted by Community Science Institute (CSI) volunteers. These clumps originate as mats that form on the bottom (benthic) substrate of water bodies and then get dislodged and float to the surface as clumps. Like traditional HABs, some of the cyanobacteria constituting these "blooms" have been known to produce toxins.



Avoid Contact

Humans, pets and livestock should avoid contact with clumps of benthic cyanobacteria. The clumps observed so far by CSI in Cayuga Lake have consisted of cyanobacteria in the order *Oscillatoriales*. Some *Oscillatoriales* species (e.g. *Oscillatoria*) can produce cyanotoxins (including liver toxins and neuro toxins such as microcystins and anatoxins). CSI is working with the chemistry department at SUNY-ESF to see if toxins are being produced by these clumps found in and around Cayuga Lake.

Report sightings

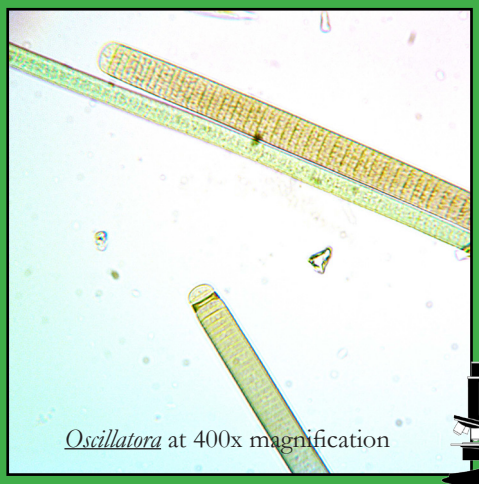
In order to get a better sense of where and when these clumps of benthic cyanobacteria are occurring, please send any photos of sightings to CSI. Please be sure that you include the date, time, and location (coordinates are ideal, but be as exact as possible). In 2024, HABs Harrier volunteers are also being trained to collect samples that will be analyzed for toxins.

Send photos with date/time/location to
adrianna@communityscience.org

Are they similar to other HABs?

Both typicial HABs and these clumps consist of high densities of cyanobacteria (photosynthesizing prokaryotic organisms that sometimes produce toxins) though their appearance from the shore is quite different. While HABs are often described as looking streaky or like spilled paint or pea soup, clumps of benthic cyanobacteria appear more as concentrated blobs of floating material that are usually brownish but can also contain hints of dark green or black and some parts of them can be very light brown in color (almost bleached-looking). All HABs should be avoided by humans, pets, and livestock. Unlike typical HABs which mainly occur July through October, these clumps have been seen in the Finger Lakes Region throughout the year.

One of the *Oscillatoriales* species:



Oscillatora at 400x magnification

Oscillatoria are filamentous cyanobacteria that are capable of independent movement. Their bodies are made up of coin-shaped cells that are stacked together into long, unbranching filaments. Through gliding and oscillating movements, these filaments weave themselves into mats that coat surfaces on the bottom of shallow water bodies such as mud, plants, stones or sand. Parts of the mats often separate and float to the surface. While Oscillatoria are a natural part of freshwater ecosystems, heavier densities of them are sometimes associated with elevated nutrient levels.

clumps as seen from the shore