



Seneca Lake **PURE WATERS** Association

BLOOM WATCH UPDATE



SHORELINE MONITORING SCORECARD

Observation Dates: Thru 8/23/2020

% Zones Monitored: 80%

Suspicious Blooms: 0

Confirmed Blooms: 1

Week 3 Summary – First Bloom Report is in the Southeast Quadrant

Saturday, August 22 saw the first confirmed bloom report of the season. It occurred in the Southeastern part of the lake, between Burdett and Hector.

You can get more information and view the map at the Pure Waters [website](http://senecalake.org/Blooms) (senecalake.org/Blooms). Clicking the link below the map will open an interactive version in a new tab. There is a time slider at the bottom of the map. This allows anyone to narrow bloom searches based on dates. Clicking the dot will bring up a short information window.

The timing is in line with previous years' experience. Now that blooms have been spotted, expect to see more until they peak in mid-September.

Our volunteers continue to do a great job searching for HABS. Still, volunteers have a limited ability to see much the lake's surface and of course are limited to areas near the shoreline. This week's article highlights a new project aimed at finding blooms using drones and hyperspectral imagery, similar to equipment used to assess crops, written by Michael Brown at the Finger Lakes Institute.

New Research Project Studies Cyanobacteria from the Sky

The Finger Lakes Institute at Hobart and William Smith Colleges is collaborating with regional industry and university partners to monitor harmful algae blooms (HABs) in the Finger Lakes and other New York waterways using exciting cutting-edge technology.

The occurrence of HABs is increasing worldwide, including in New York. While cyanobacteria are natural components of aquatic ecosystems, certain conditions (e.g., high nutrients and warm temperatures) can cause them to grow quickly and form surface blooms, which are unsightly and negatively impact the ecosystem. Some types of cyanobacteria can also produce toxins that are dangerous to humans, pets, and wildlife.

Monitoring HABs using traditional techniques (e.g., boat surveys, water sample collection) can be expensive and time consuming. However, simply observing the color of the water can be a very effective method of spotting blooms. Cyanobacteria contain unique pigments that cause HABs to appear as specific colors, such as turquoise or pea-green, allowing them to be distinguished from the surrounding water and other types of phytoplankton.

The Harmful Algae Bloom Drone Surveillance Program uses unmanned aerial vehicles (UAVs), or drones, equipped with advanced optical sensors, along with novel data processing methodologies to monitor HABs in New York waterways. With drones, large portions of lakes and rivers will be routinely observed. The drone-mounted sensors are hyperspectral, meaning they measure light over many wavelengths (many more than your cell phone camera or instruments onboard NASA satellites) and will precisely determine the color of the water. These sensors collect large volumes of data. Innovative computer algorithms, including machine learning techniques, will sift through the imagery identifying HABs based on their specific color signals.

The primary benefit of this work will be the development of an effective and low-cost method to monitor HABs in New York waterways at high spatiotemporal resolutions that will integrate into existing observation networks. This in turn will help ensure public safety, as well as improve the understanding of HAB ecology, leading to better prediction models and improved impact mitigation strategies.

Unfortunately, the COVID situation has slowed the project as the full team has not been able to assemble. However, this summer SUNY Binghamton is test flying the hyperspectral camera and collecting preliminary data through the fall.

Partners for this project include Corning Incorporated, SUNY Binghamton, SUNY Fredonia, SUNY Oneonta, and the Cary Institute for Ecosystem Studies.

What do blooms look like?

We will provide some photos in each Bloom Watch to help everyone better identify blooms.



This week we provide photos of a phenomenon that may cause some confusion. The photo above was taken at the shoreline this last week. Note the brown cloud-like appearance in the water near shore. Also note the sharp distinction between the brown “clouds” and the clearer water to the left.

The brown area is sand trapped in a viscous liquid that seems not to dissolve in the water. It also traps other objects like sand and bits of algae or plant matter. The only reason it can be seen is because of the trapped material. It seems to float near the water’s surface.

Some might confuse this for a bloom, or at least wonder whether it is or not. Most blooms are a surface structure. However, it is certainly possible for cyanobacteria to get caught in the viscous substance.

We are not sure exactly what the substance is, but we will investigate it further.

Reminder: Do not put your hands in a bloom. Blooms are very 2-dimensional and don’t stick together like seaweed or filamentous algae does. It is mainly green, but can take on some other colors. It can be streaky, blotches, dots, or scum in appearance.

What is one of the best things I can do to stay on top of this situation?

Visit the Seneca Lake Pure Waters website frequently at senecalake.org. It will have the most

current information. In addition, if you live on the lake, it might be a good idea to check with neighbors and determine who your local Shoreline Survey Volunteer is. All of our volunteers are a wealth of information and a good person to know. Our 120+ volunteers are well distributed around the lake and many residents have regular conversations with our volunteers as they survey our shores on a regular basis.

If not a Pure Waters member, consider joining. We can use your support and help as we work hard to accomplish our mission of Preserving, Protecting and Promoting Seneca Lake Water Quality. Click [here](#) if you would like to become a member now. Those who need to renew and know their login information can click [here](#) to renew.

I look forward to keeping you up to date as we progress through our HABs/Cyanobacteria season. Enjoy the rest of your summer!!

Bill Roege

HABs Director

Seneca Lake Pure Waters Association

HAB FACTS: What you need to know!

Exposure to any cyanobacteria HABs can cause health effects in people and animals when water with blooms is touched, swallowed, or when airborne droplets are inhaled. This is true regardless of toxin levels; some blue-green algae produce toxins, while others do not. Exposure to blooms and toxins can cause symptoms such as diarrhea, nausea or vomiting; skin, eye or throat irritation and allergic reactions or breathing difficulties.

Because blue-green algal bloom conditions change rapidly over time, the best prevention is to take steps to avoid waters with visible blooms:

- People, pets, and livestock should avoid areas with blooms or surface scums, or water that is noticeably discolored.
- Avoid blooms when swimming, boating, fishing, and don't eat fish caught from areas of water with blooms.

- If you or your pets are exposed to blue-green algal blooms, stop using the water and rinse off with clean water.
 - Consider medical attention for people and animals if symptoms such as diarrhea, nausea, or vomiting; skin, eye, or throat irritation; and allergic reactions or breathing difficulties occur after contact with surface waters with blooms.
 - Never drink untreated surface water. Even if you treat it in your home with water filtration, chlorine, ultraviolet (UV) light, or other treatment; it's still not protected from blue-green algae and toxins.
 - If you would like to see where HABs are occurring in NY State, visit the DEC Website at <https://www.dec.ny.gov/chemical/77118.html>. Their map is [here](#).
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