

WORCESTER CYANOBACTERIA MONITORING COLLABORATIVE

Coes Pond - October 2021

Sampling Conditions

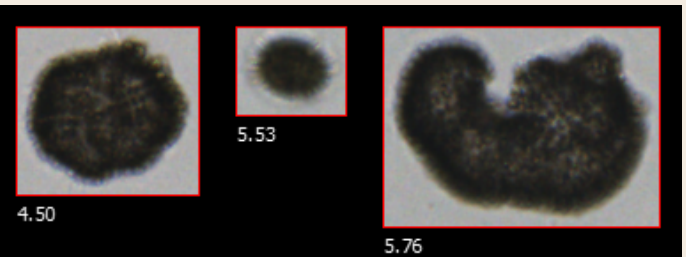
October 16th was a sunny, breezy Saturday at 68°F. The water was 65°F and calm. There was no rainfall the day before the sample was taken.

FlowCam Findings from the GRAB Sample

The particle density at Coes Pond was 186 particles/ml in October, down from 2,319 particles/ml in September, according to the FlowCam. While the sample did include some cyanobacteria particles, including *Woronichinia* and *Aphanizomenon*, there were few compared to last month's sample. The sample was dominated by smaller particles, including cryptomonads.



Cryptomonad Cryophytes



Woronichinia cyanobacteria

Fluorimetry Data from the Integrated Tube Sample

We used the fluorometer to find the amount of phycocyanin in the sample, which we can use as an indicator of cyanobacteria. Coes Pond had undetectable levels of phycocyanin in October. A pond becomes at risk for a bloom when it is at levels above 50 Au.

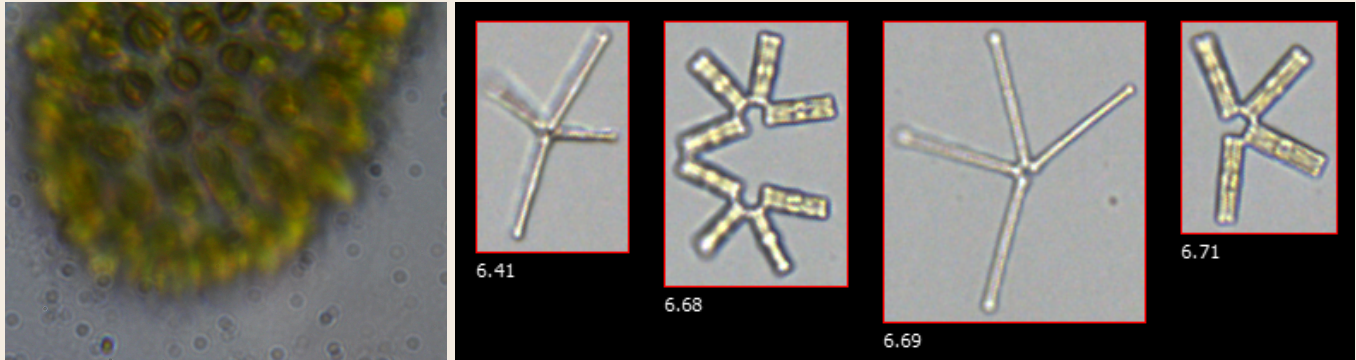
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Coes Pond - September 2021

Sampling Conditions

September 25th was a sunny Saturday at 66°F with a light breeze. There were .34 inches of rainfall the day before the sample was taken.

Microscopic Findings from the Plankton NET

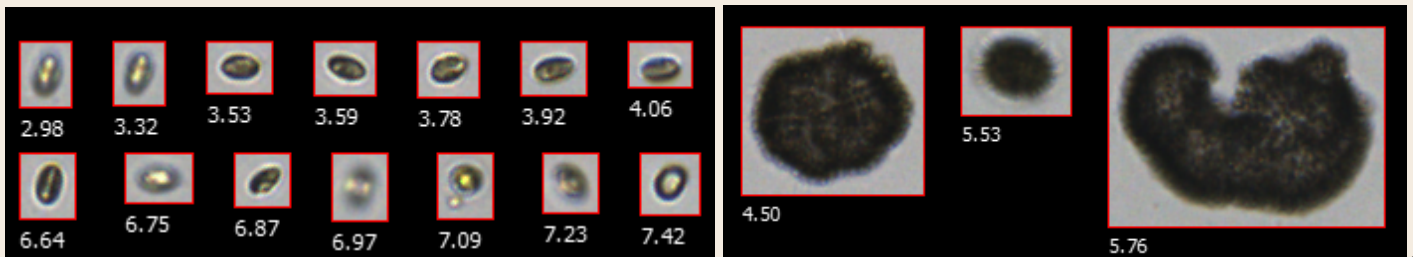


Possibly *Synura* golden algae

Flowcam Images of *Tabellaria* and *Asterionella* Diatoms

FlowCam Findings from the GRAB Sample

The particle density at Coes Pond was 2319 particles/ml in September, according to the FlowCam, which was higher than it was in August. Unlike in August, however, there were very few cyanobacteria cells, and only three images of *Woronichinia* were obtained. The sample contained many diatoms, including from the genera *Tabellaria* and *Asterionella*, as well as *Cryptomonads*. The sample diversity was similar to that of Coes Reservoir, which flows into Coes Pond.



Cryptomonad Cryophytes

Woronichinia cyanobacteria

Fluorimetry Data from the Integrated Tube Sample

We used the fluorometer to find the amount of phycocyanin in the sample, which we can use as an indicator of cyanobacteria. Coes Pond was unfortunately not sampled with the Integrated Tube in September. A pond becomes at risk for a bloom when it is at levels above 50 Au.

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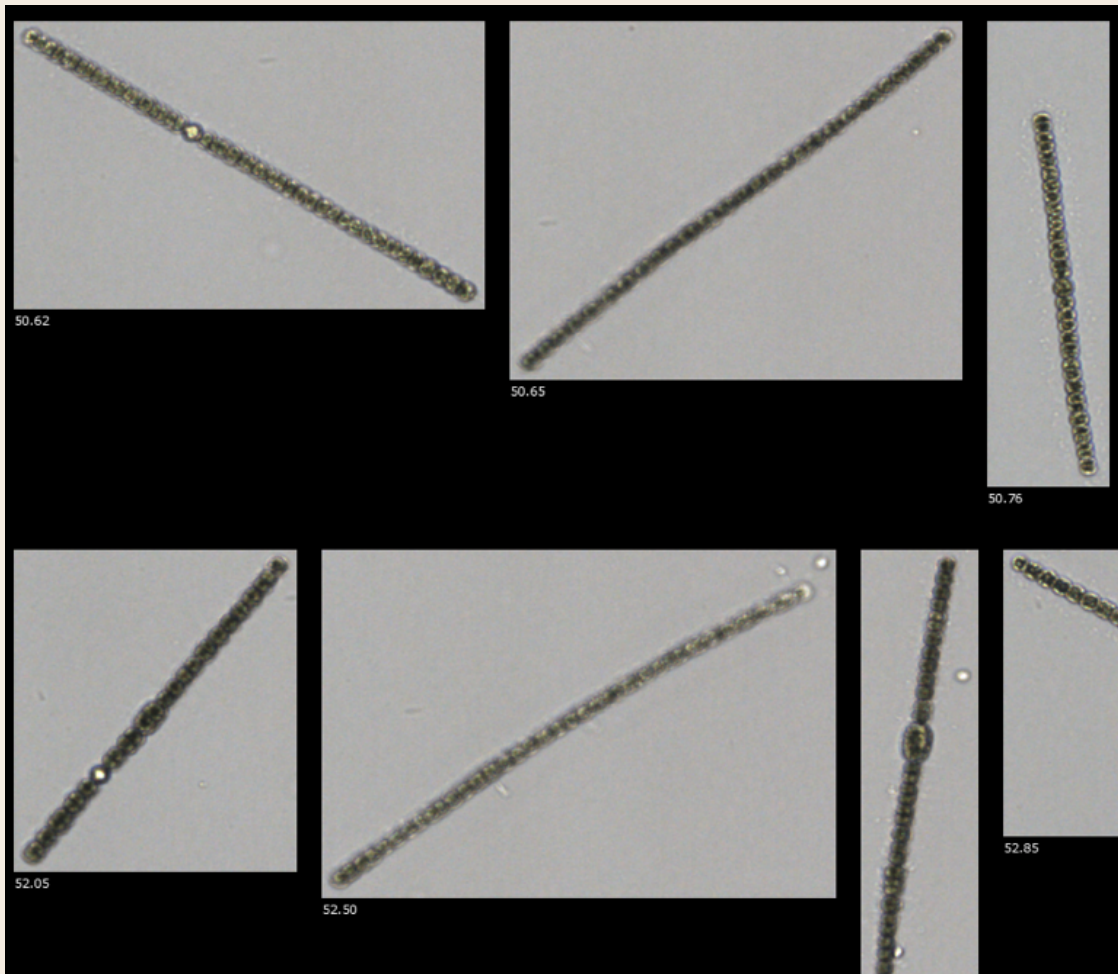
Coes Pond - August 2021

Sampling Conditions

August 21st was a partly cloudy Saturday at 82°F with a light breeze. There were .2 inches of rainfall the day before the sample was taken, and 3 inches two days before the sample was taken.

FlowCam Findings from the GRAB Sample

The particle density at Coes Pond was 609 particles/ml in August, according to the FlowCam, which was much lower than it was in July. The sample was dominated by the cyanobacteria *Dolichospermum*. Unfortunately, we do not have fluorometry data for this pond this month, so we are unsure if it is at risk for a bloom.



Dolichospermum Cyanobacteria

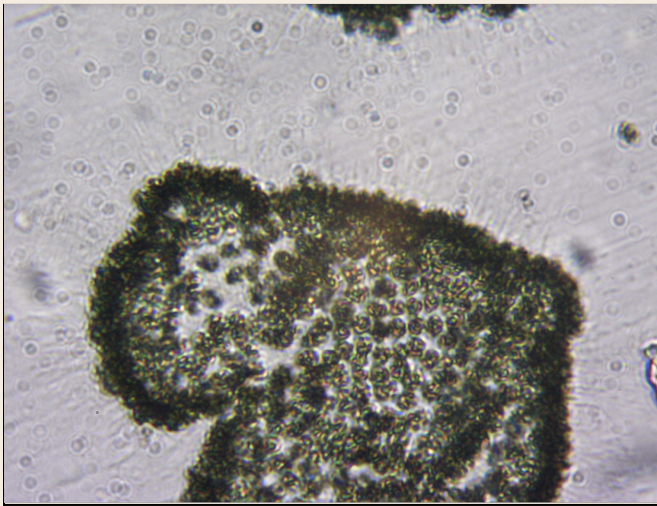
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Coes Pond - July 2021

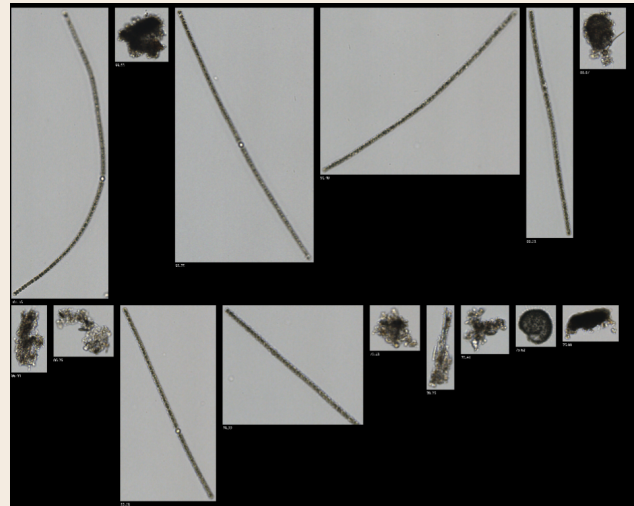
Sampling Conditions

July 17th was a partly cloudy Saturday at 73°F with a light breeze . Coes Pond's sample was taken at an access point across from Buffum Street, where there were .4 inches of rainfall the day before. Water surface temperature was 77.7 °F and the water was calm with no wave activity. The water was slightly turbid with floating plants and lily pads were along the surface, and turbid sediment along the bottom that smelled like sulfur.

Microscopic Findings from the Plankton NET on July 17th



Woronichinia - 400x

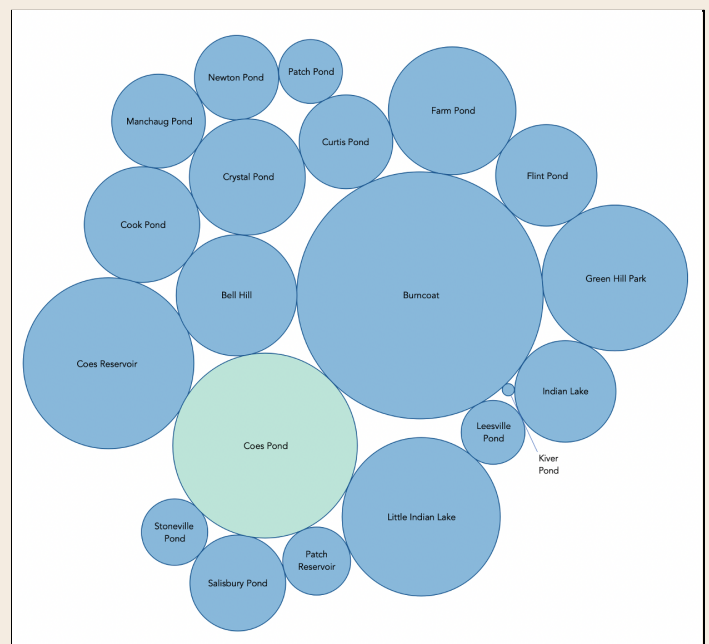


FlowCam Findings from the GRAB Sample

The FlowCam, an advanced microscopy technology, was run for all organisms in the water sample including green algae, golden algae, cyanobacteria, diatoms, and debris. The pond was not sampled in June, but results as 2,610 particles/ml in July. The figure provides a snapshot of some of the images that were seen by the camera at this lake.

Fluorimetry Data from the Integrated Tube Sample

Using the fluorometer to find phycocyanin levels, the following graph represents the relative cyanobacteria pigment in each pond. Coes Pond was not sampled this June, and now is equal to about 35 Absorbance Units (Au) in the month of July. A pond becomes at risk for a bloom when the level is above 50 Au.

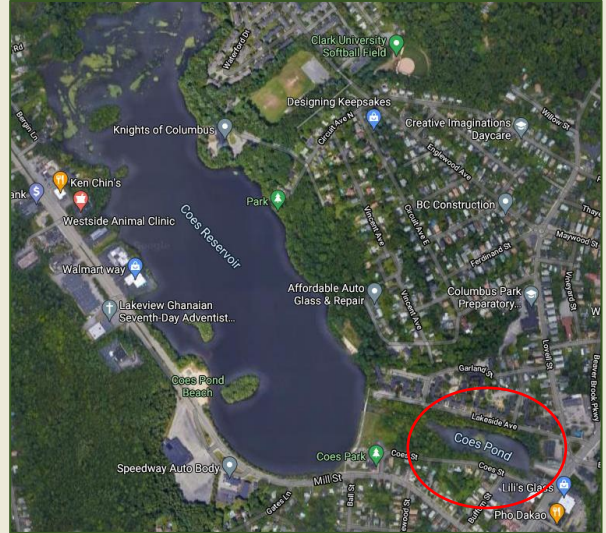


WORCESTER CYANOBACTERIA MONITORING COLLABORATIVE

Coes Pond

May 2021

Coes Pond is located at the corner of Park Ave and Coes Street and is a tributary off the western side of Coes Reservoir, part of the Tatnuck Brook Watershed. Near the pond is Coes Park, but there is not significant public access to the water. The area surrounding Coes Pond includes several significant historical attributes such as the former Coes Knife property built in the late 1800's. Today, the pond is mainly shallow surface water, which is more susceptible to blooms. The 2021 season is Coes Pond's first year of sampling from the WCMC, though Coes Reservoir has been a part of the program since its inception in 2017.



Sampling Conditions

May 22nd was a beautiful, sunny, spring Saturday at 75°F with no wind. Coe's Pond's sample was taken at the shore behind Barney's Bikes where there was no rain in the past 48 hours. Surface temperature was 69°F and the water was calm with little wave activity. The water was clear with no odor, with settled organic matter observed at the bottom.

Microscopic Findings



Trichome (100x)

Trichomes are fine hair – like outgrowths that occur on many plant and algal species. These are likely from aquatic macrophytes.

Monthly Overview

Underneath the microscope this month, volunteers found a trichome, and no types of cyanobacteria. Next month, fluorometry will be used on samples Coes Pond to better determine the threat of cyanobacteria.

Thank you to Pat and all our volunteers!