

# WORCESTER CYANOBACTERIA MONITORING COLLABORATIVE

## Monthly Report

July 2019

It was the heart of summer on Saturday, July 20<sup>th</sup>, when our Worcester Cyanobacteria Monitoring Collaborative brought their third round of samples for examination at the Blackstone Heritage Corridor Visitor Center. Volunteers participated from Patch Reservoir, Bell Pond, Coes Reservoir, Cooks Pond, Indian Lake, and Lake Quinsigamond; in addition to Manchaug Pond and Singletary Lake in Sutton. This month, we continued to observe instances of cyanobacteria in several lakes, however, there were many green species as well, some of which are new to our team!

**Sampling Weather:** This mid-summer Saturday was clear and hot. In fact, a heat advisory was in place for the weekend, to the algae's delight. All volunteer water samples were taken between 8:00 and 10:00 am. During this window, air temperature in the area ranged from around 80 to 85 degrees F. Surface water temperature was around 80 degrees as well. There had been no rain in the previous 24 hours.



*A water sample from brought in from Patch Reservoir, which has been struggling with periodic blooms in the shallower coves throughout the summer months. Unlike the muddy green tinges seen in some lakes, Patch's blooms boast a fluorescent blue-green scum.*



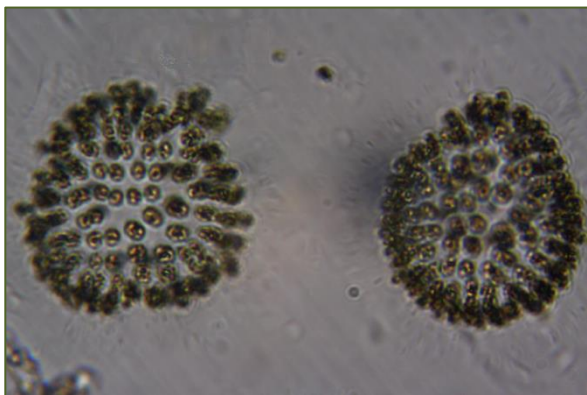
*Citizen scientists prepare their water samples using a device to concentrate and separate floating cyanobacteria from zooplankton.*

**General Findings:** For the second month, the largest group of organisms found was of cyanobacteria. We found four kinds of cyanobacteria across Coes Reservoir, Cooks Pond, Lake Quinsigamond, Patch Reservoir, and Lake Singletary. Genera included *Woronichinia*, *Dolichospermum*, *Microcystis*, and *Oscillatoria*. While *Microcystis* and *Dolichospermum* are known to produce toxins, however, even during blooms, very few toxins have been recorded in Worcester lakes.

**What it means:** Cyanobacteria has continued to lead to beach closures throughout Massachusetts, and much earlier in the season than in previous years. We expect that this is because of the warmer- and wetter-than-usual July that we have experienced. We have also seen the blooms behave differently than in the past. In Patch Reservoir, for example, we have seen blooms come and go in the shallow coves, while cell density in the open water is very low. Thankfully, the City of Worcester has been able to keep the blooms at bay in its largest recreational waters. Better understanding how our lakes behave in these conditions is an important part of ensuring public health.

*Thanks again to Joy Trahan-Liptak, Emily Dart, and all the volunteers for their support!*

# CYANOBACTERIA



*Woronichinia* at Coes Reservoir (40x)



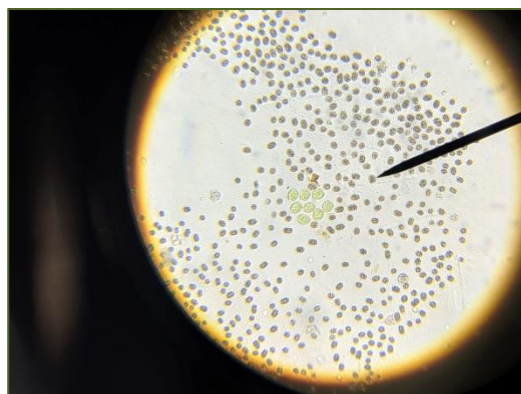
*Woronichinia* at Cooks Pond (40x)



*Dolichospermum* at Lake Quinsigamond (40x)



*Dolichospermum* at Lake Singletary (40x)



*Microcystis* at Lake Singletary



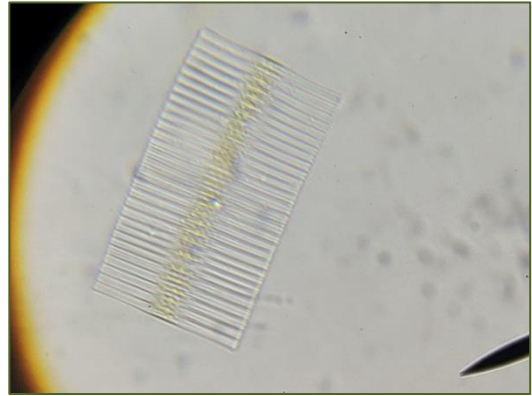
*Woronichinia* at Lake Singletary

Thanks again to Joy Trahan-Liptak, Emily Dart, and all the volunteers for their support!

## DIATOMS

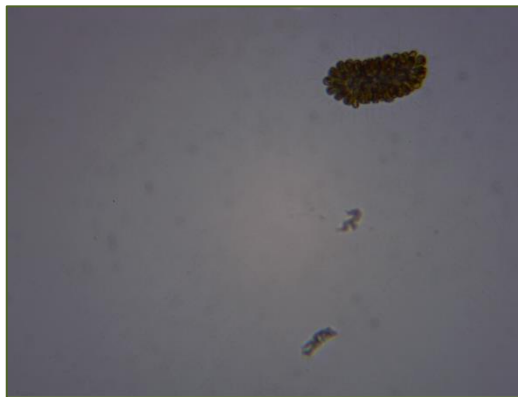


*Tabellaria* and *Oscillatoria*  
(cyanobacteria) at Patch Reservoir (10x)



*Fragilaria* at Lake Singletary

## GOLDEN ALGAE



*Synura* at Lake Quinsigamond (10x)

## ZOOPLANKTON



Decomposing *Bosmina* at Patch Reservoir (10x)

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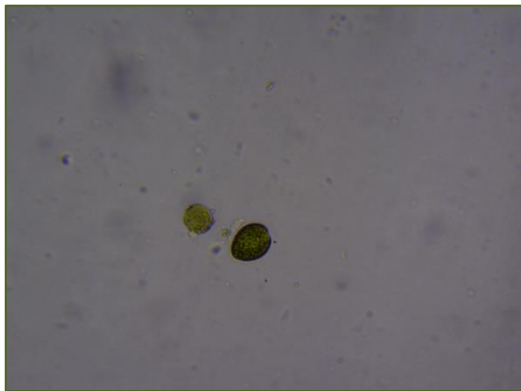
## GREEN ALGAE



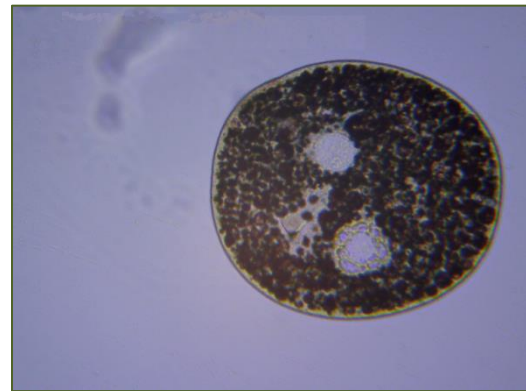
Bell Pond (10x)



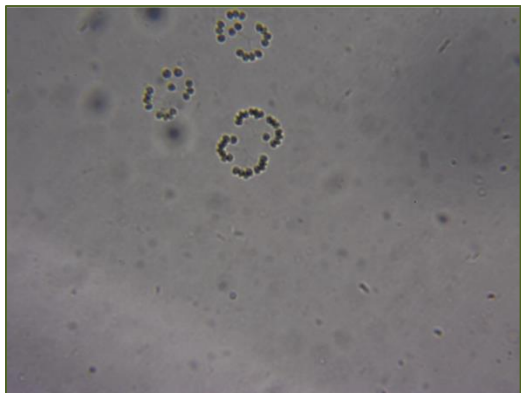
Perhaps a *Volvox* Cooks Pond (40x)



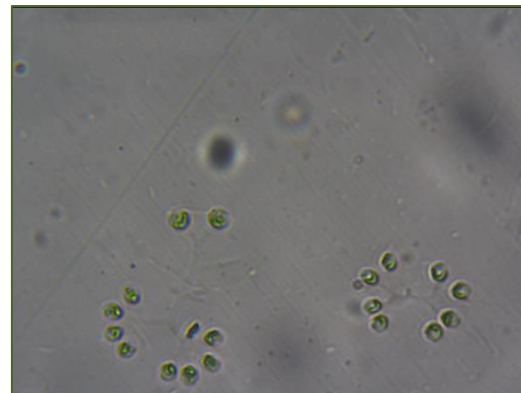
Perhaps a *Gloeocystis* or  
*Asterococcus* at Cooks Pond (10x)



Lake Quinsigamond (10x)



A *Dictyosphaerium* Patch Reservoir  
(10x)



A *Dictyosphaerium* Patch Reservoir  
(40x)

*Thanks again to Joy Trahan-Liptak, Emily Dart, and all the volunteers for their support!*

## MISCELLANEOUS



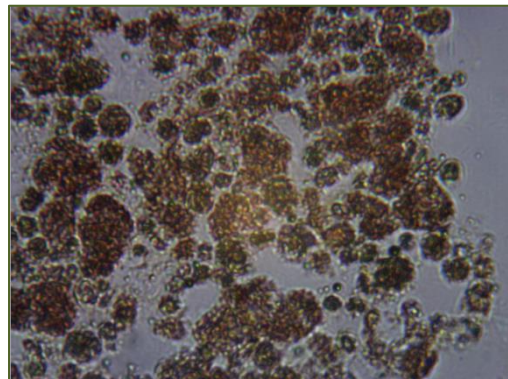
Debris at Bell Pond (40x)



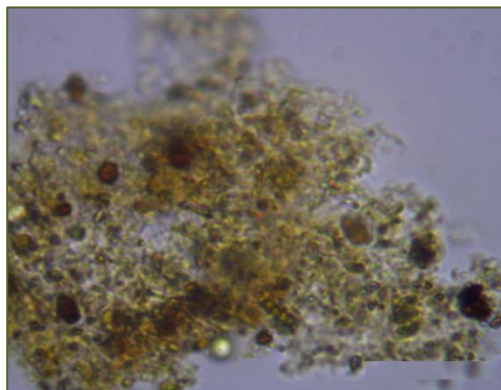
*Ceratium*, a dinoflagellate, at Lake Quinsigamond (10x)



*Ceratium*, a dinoflagellate, at Indian Lake (10x)



Debris at Lake Singletary (40x)



Debris at Bell Pond (40x)

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