

WORCESTER CYANOBACTERIA MONITORING COLABORATIVE

Monthly Report August 2018

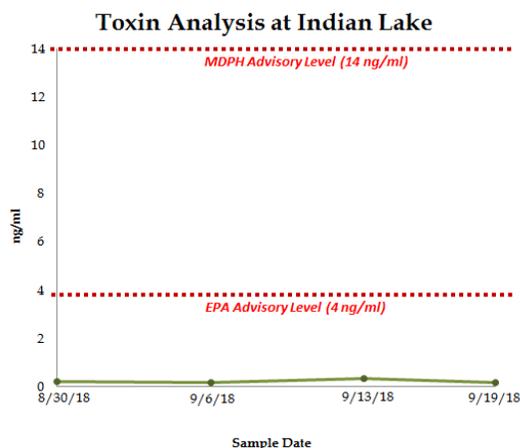
This August was a good one for cyanobacteria in Worcester. Density monitoring at Indian Lake and Coes Reservoir signified that the population was increasing, and the City therefore applied algaecide to both waterbodies. While this seemed to keep the population in check at Coes, that of Indian Lake bounced back very quickly and with more density than before, ultimately leading to a closure of the lake for about two and a half weeks. Thankfully, concurrent toxin analysis showed very low levels of cyanotoxins. The incident reminds us that there is still much we don't understand about the triggers and indicators of cyanobacteria blooms and toxin production, making it so important to use every tool at our disposal to continue to monitor our waterways.



Young volunteers search for cyanobacteria in water samples from Lake Quinsigamond.

Sampling Weather: Samples were collected on the morning of Saturday, September 1st, 2018. It was a bit cooler this month than last on sample day and air temperature was only about 63 degrees. Even the water was cool, at an average of 74 degrees across all the lakes and ponds. All samples were collect between 8:30 and 10:15 am.

General Findings: This month saw some new and old cyano- and algal players in the mix. While we spotted no *Microcystis*, we did see several instances of *Anabaena*. We spotted a few colonies of *Woronichinia* at Lake Quinsigamond as well, which we had not seen as much of this summer. We observed several diatoms this month as well.



Even while Indian Lake was closed for too high a density of cyanobacteria, the toxin levels were well below advisory thresholds.

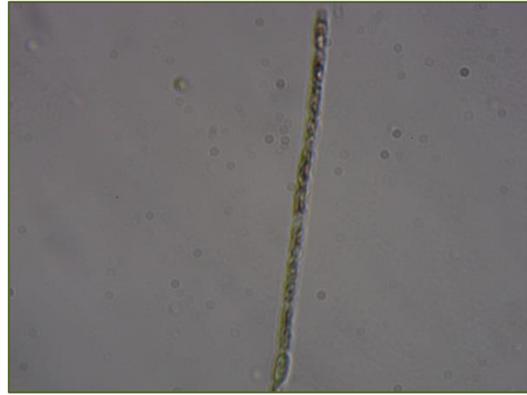
What it means: Up to this point in the summer, the plankton community has been free to settle its own ecological battles for resources. Throughout our sampling season we have witnessed the well-documented natural progression from communities dominated by diatoms to those dominated by cyanobacteria. That all changed in August, when the number of cyanobacteria in the lakes rose to levels that were deemed potentially harmful to humans and pets. By applying algaecides to Patch Reservoir, Indian Lake, and Coes Reservoir, we have essentially hit the reset button on the plankton population. But the lakes are not providing the same environment now as they were back in early spring, they are much warmer. How will the population bounce back? Will it be the same cycle? Or will there be new dominant players? We need to sample again in September to find out more!

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

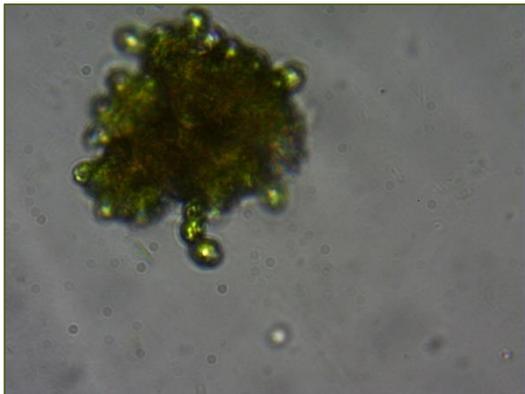
CYANOBACTERIA



Anabaena at Indian Lake (40x)



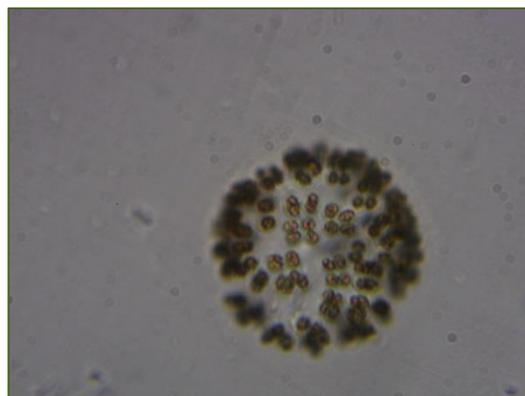
Anabaena at Indian Lake (40x)



Perhaps an *Anabaena* at Kiver Pond (40x)



Woronichinia at Lake Quinsigamond (40x)



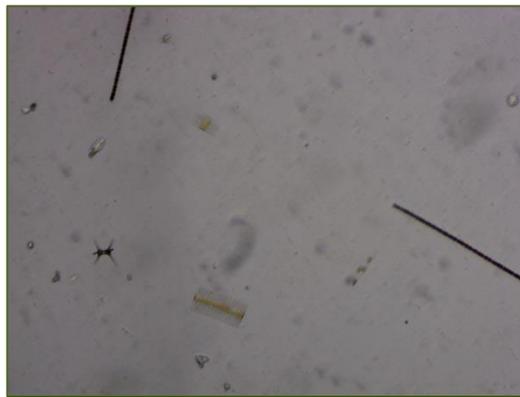
Woronichinia at Lake Quinsigamond
(40x)

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DIATOMS



Fragilaria and debris at Cooks Pond (10x)

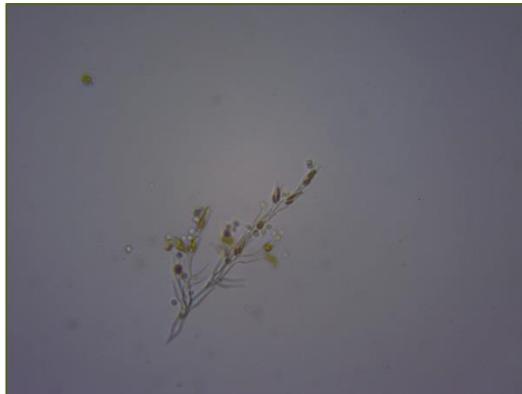


Staurodesmus (left) *Fragilaria* (middle) and *Anabaena* (right and top) at Coes Reservoir (10x)

GOLDEN ALGAE

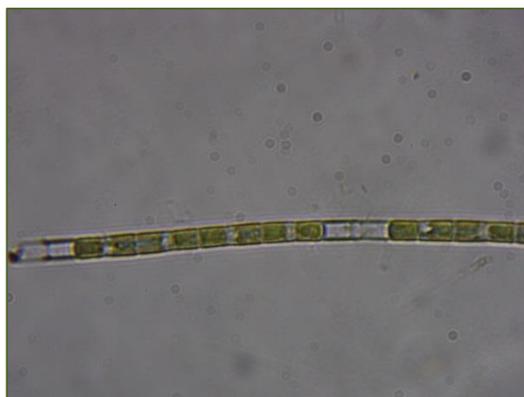


Small cells at Patch Reservoir (40x)



Dinobryon at Patch Reservoir

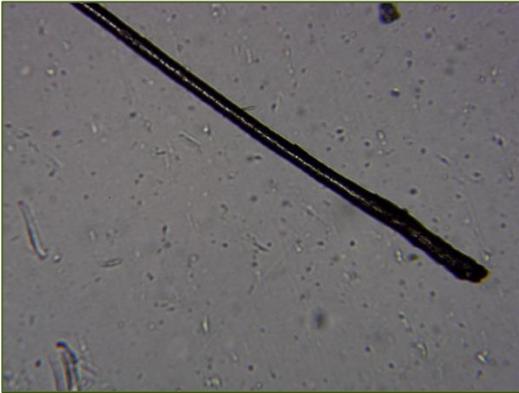
GREEN ALGAE



Perhaps a *Mougeotia* at Indian Lake (40x)

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

OTHER



Debris at Cooks Pond (10x)



Cladocera at Coes Reservoir (10x)

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