

White Pond Water Quality Monitoring Program Update July 28, 2022

CURRENT WATER USE STATUS: SWIM AT YOUR OWN RISK/PET ADVISORY

SUMMARY:

Water sampling conducted July 26 continues to show cyanobacteria and microcystin toxin results below state beach closure limits. The pond remains at Swim at Your Own Risk, due to the possibility that small wind-blown visible blooms and scums may accumulate temporarily at areas along the shoreline. These should be avoided when encountered. A Pet Advisory is also posted.

The July 19 samples show that phycocyanin (a pigment produced by cyanobacteria that is used as a measure of cyanobacteria biomass) is slightly higher at all sampling sites, and significantly higher at the Deep 1 site, compared to last week's samples. *Microcystis* remains dominant in at all sample sites, comprising 95% of the bloom forming cyanobacteria. Estimated microcystin toxin levels remain low at all sample sites.

Water sampling will continue weekly to monitor cyanobacterial populations in the pond.

When water use advisories are issued, the town will notify the public via the White Pond Bloom Notifications (sign up at <https://concordma.gov/3039/White-Pond-Watershed>), as well as posting signage at public access points to the pond.

Cyanobacteria Sampling and Bloom Status

Water samples taken July 19 showed that the pond water column is completely seeded with cyanobacteria at all sample sites across the pond. This week's samples taken July 26 show that phycocyanin (a pigment produced by cyanobacteria that is used as a measure of cyanobacteria biomass) in whole lake water (WLW) samples is slightly higher at all sampling sites, and significantly higher at the Deep 2 site, compared to last week's samples. Phycocyanin levels in the bloom forming cyanobacteria (BFC) samples show small increases at all sampling sites, with a large increase at the Deep 2 sample site (PC=51.86 micrograms/liter vs. 19.653 micrograms/liter in the sample taken July 19). Phycocyanin results to date at all sample sites are shown in the graphs on the last two page of this update.

This data indicates that, for the week of July 26, there is spatial variability of cyanobacterial biomass across different sampling sites, with significantly higher biomass observed at Deep Site 2. The cyanobacterial population in the water column could be influenced by several variables, including current, wind speed and direction, and hydrodynamics related to the morphometry of the pond. This current data will be shared with Higgins Environmental to assist in optimal placement of the A-pod for capture of the biomass.

Estimated microcystin toxin levels remain low at all sample sites.

Pond water will continue to be monitored weekly.

Pond users who are interested in learning more about the sampling program can visit the White Pond Reports webpage <https://concordma.gov/3126/Bloom-Reports>. Two documents on this page provide more information about the sampling protocol and rationale being used in the White Pond water sampling program.

White Pond Monitoring Addendum Oct 29 2021

<https://concordma.gov/DocumentCenter/View/37187/White-Pond-Monitoring-Addendum-Oct-29-2021>

Evaluation of Size Structure in Freshwater Cyanobacteria

<https://concordma.gov/DocumentCenter/View/37186/Evaluation-of-Size-Structure-in-Freshwater-Cyanobacteria>

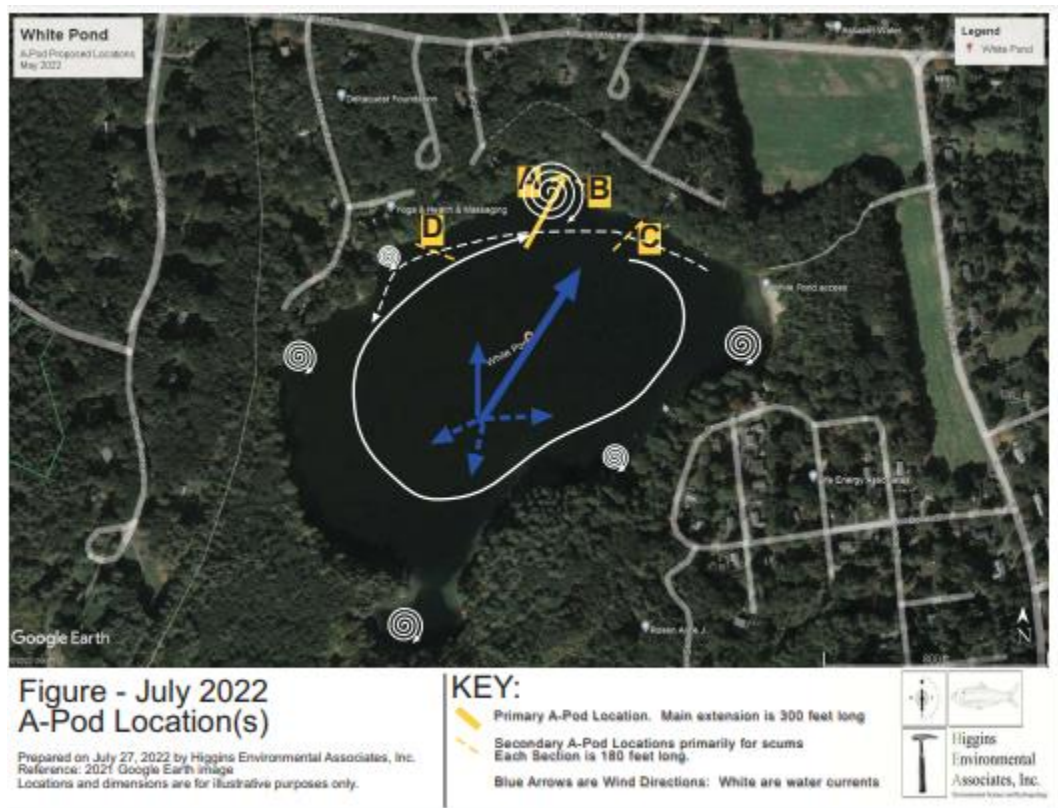
A-Pod HAB Trap update

This week, approximately 5 pounds of fine residue was removed from three of the four A-Pods (Main and easterly-most). Some slight scums have been observed at the main and secondary A-Pod in Thoreau Cove which are likely very fine scum on water surface which are pushed into the A-Pod trap areas when winds pick up. Higgins Environmental is seeing fine residue/sediment build up in A-Pods relative to predominant and sustained wind directions. The Main A-Pod had the most residue and these inflows would include the deeper, more sustained water currents in the pond.

About 185 pounds of residue have been removed to date this summer; this has been a mixture of cyanobacterial HABS, pollen, green algae and pine needles and other debris. All residues removed are being composted.

Signage with QR codes has been placed on all A-Pod units. For those who are curious about the A-Pod technology, more information is available at <https://blog.cyanos.org/2021/04/19/a-pod-hab-trap-and-removal-process-jonathan-b-higgins>.

All pond users are asked to stay away from the A-Pods and not disturb or fish near them (fish hooks may cause damage if they snag the fabric). The floating fabric of the A-Pods can be easily damaged and is an important part of the cyanobacteria collection system.



White Pond phycocyanin levels through July 19 at all sample sites. Note the high levels of phycocyanin observed in the June 15 and June 28 samples—these represent the “seeding events” discussed in early weekly reports, where large numbers of *Dolichospermum* and *Microcystis* emerged and seeded the pond. Since that time, phycocyanin (a measure of cyanobacterial biomass) levels have dropped and remain relatively low.

█ BFC = Bloom-forming cyanobacteria
 █ <50µm = Less than 50 micron fraction
 WLW = Whole lake water
 ★ Grab = Accumulated on water surface or shoreline

