

White Pond Water Quality Monitoring Program Update July 21, 2022

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

SUMMARY:

There has been no noticeable change in the water as tested this week compared to last week.

Water sampling conducted July 19 shows 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.

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

Cyanobacteria Sampling and Bloom Status

Samples taken July 19 show that the pond water column is now completely seeded with cyanobacteria at all sample sites across the pond. This week's bloom forming cyanobacteria (BFC) samples show that the *Microcystis* population remains dominant, and is currently composed mainly of smaller colonies. The presence of smaller colonies suggests *Microcystis* is rapidly growing and forming new colonies, however, these have not yet emerged as a bloom. Estimated microcystin toxin concentrations remain low at all sites across the pond, well below the swimming closure standard of 8 ppb.

Phycocyanin levels (a measure of cyanobacteria biomass) across the pond are somewhat lower than last week in the BFC samples. This suggests there is some grazing on cyanobacteria by copepods (the only crustacean observed for the past 3 weeks). Some spatial variability is also being seen, with the Deep Site 2 and the sample site near the Town beach showing somewhat higher levels of BFC phycocyanin. Phycocyanin in whole lake water (WLW) samples remains very 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

Similar to last week's report, there have been no visually apparent/significant cyanobacteria scums in the A-Pods or pond. Approximately 30 pounds of suspended solids were removed from the main A-Pod trap this week; this includes pine needles, benthic algae (*Chara* or *Nitella* that floated up) and some HABs. In total, about 180 pounds of solids have been removed to date.

Sonde snapshots show only slight concentrations of HABs build up this past week in the main A-Pods and secondary A-Pod traps. On July 13th vertical profile sonde survey of deep holes (three) had fairly consistent phycocyanin (PC; a measure of HAB biomass) from one foot below the water surface to just above the sediment surface at about 32 to 62 feet depending upon deep hole location. PC ranged from 2.5 to 3.2 RFUs compared to last week's results which were 2.0 - 2.5 RFUs. Dissolved oxygen was greater than 5 mg/L down to 45 feet. On July 19th, PC dropped to about 2.1-2.6 RFUs off the main trap (100 to 300 feet away) and in the deep hole off the beach. These results are consistent with this week's Lim-Tex water samples above.

On July 19th, at about noon with no clouds by some water turbulence, secchi disk readings were reading of 18.3 feet, about two feet deeper than last week.

Two hydrologic drogues, which track water currents, were deployed July 19 at 2-foot and 6-foot depth. The two drogues were set within 10 feet of each other and have followed their own circuitous paths around the pond. Drogue positions and times are tracked by GPS and help document different current strengths and directions at depth in the pond (top 2 feet and 6 feet down).

There are a great deal of zooplankton apparently using the A-Pod sides as substrate. These appear to be copepods or similar. Numbers of very small to larger fish were observed around the traps and collection members.

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.