

White Pond Water Quality Monitoring Program Update July 9, 2022

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

SUMMARY:

Water sampling conducted July 5 shows results below state closure limits.

Microcystin toxin was measured at 0.30 ppb in water near the beach this week, which is well below the swimming closure standard of 8 ppb. The pond will be re-opened as of July 7 and will be posted as Swim at Your Own Risk. A Pet Advisory is also posted.

The prevailing wind direction caused a small amount of cyanobacterial scum to accumulate along the shoreline on the left side of the Town Beach. As long as the area of scum remains small, this area will be roped off at the beach as needed to prevent public exposure. Pond users should always avoid any areas of visible scum or visible bloom accumulations; make sure to keep small children and pets out of these areas, and rinse off with fresh water as soon as possible after contact.

It is possible that small scums and visible blooms may accumulate temporarily at other areas along the shoreline; these should be avoided if encountered.

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

As is expected in summer months, the cyanobacteria population has increased in White Pond in recent weeks. Over the July 4 weekend, wind caused a small visible bloom to accumulate in the water column at the Town Beach area. As a result, the beach was closed to swimming on July 3 and has remained closed while the town waited to get the results of regular water samples which were taken July 5.

Microcystis made up 50% of all Bloom Forming Cyanobacteria (BFC) at all sample sites across the pond on June 5. This is a significant decrease from the June 28 sample, where *Microcystis* accounted for 95% of the species composition. Per Nancy Leland of Lim-Tex, who conducts the town water sampling program, the pond water column is now completely seeded with cyanobacteria, with lots of small *Dolichospermum* filaments and small to medium sized *Microcystis* colonies. These two species will likely compete for dominance for the rest of the summer, and the dominant species may change from week to week. *Microcystis* is the genus primarily responsible for the production of the toxin microcystin, so this week's decrease in *Microcystis* gives us some assurance that toxin levels will remain low in the water for at least another week. *Microcystis* divides more rapidly than *Dolichospermum* so when it is dominant, there is greater potential for a bloom to form rapidly. In addition, *Microcystis* is the genus primarily responsible for the production of the toxin microcystin, while *Dolichospermum* is less likely to produce microcystin. So relative dominance will be an important factor going forward, both in terms of predicting blooms and predicting toxin levels.

At present, toxin levels remain low in the pond. Microcystin toxin was measured at 0.30 ppb in water near the beach this week, which is well below the swimming closure standard of 8 ppb.

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

The A-Pods in Thoreau Cove have had a significant amount of scum forming against and into the units; this scum is being trapped and removed. Higgins Environmental reports phycocyanin (a measure of cyanobacterial biomass) outside the traps was fairly low, so the A-Pods are collecting cyanobacteria/HABs even under low cyanobacteria conditions leading up to the trap areas.

Signage with QR codes has been placed on all A-Pod units. For those who are curious about the A-Pod technology, more 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 them. The floating fabric of the A-Pods can be easily damaged and is an important part of the cyanobacteria collection system.