White Pond Water Quality Monitoring Program Update August 11, 2022

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

Cyanobacteria Sampling and Bloom Status

This week, August 9, 2022, a shift was seen in the composition of the cyanobacterial population in the bloom forming cyanobacteria (BFC) sample and the beach shoreline sample from *Microcystis* to *Dolichospermum. Dolichospermum* increased relative to *Microcystis* in BFC samples at the Town Beach sample site and comprises approximately 95% of the bloom forming cyanobacteria. Of the bloom forming cyanobacteria seen in White Pond, Dolichospermum is the most closely associated with the production of anatoxin, which is a neurotoxin. For this reason, the small wind-driven scum line which has formed along the town beach was tested for anatoxin. Anatoxin levels in the scum (which consists of very concentrated cyanobacteria cells) was found to be 0.5 ppb (micrograms/Liter). For comparison, the state of Oregon issues a Pet Advisory warning at a level of 1.0 ppb of anatoxin; Vermont sets a 10 ppb standard, and the World Health Organization has a 30 ppb standard. The scum line was also tested for microcystin toxin, which was not detected. The area of the town beach where the small wind-driven scum line forms has been roped off to prevent human and pet contact. The scum line will continue to be tested for both anatoxin and microcystin in coming weeks as needed.

The August 9 samples show that phycocyanin (a measure of cyanobacteria biomass) has not changed significantly in either the BFC or whole lake water (WLW) samples compared to last week. Estimated microcystin toxin remains low in the BFC samples and extremely low in the whole lake water (WLW) samples. The WLW samples represent the lake water and toxin levels a person would typically be exposed to while swimming. The BFC samples are a more concentrated sample than the whole lake water (WLW) samples. Estimated microcystin levels in the BFC samples represent toxin levels that could be encountered in areas where cyanobacteria have accumulated (usually along the shoreline as a result of wind or currents).

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 are continuing to trap and build up residues (HABs, benthic algae fragments, possibly good algae). Approximately 30 lb. of material was removed from the A-Pods this week.

Slight HAB scums were observed on several days before the A-Pod traps in Thoreau Cove. HAB surface scums have coincided following days/nights of no real wind, followed by slight wind build up. Some scums not trapped by A-Pods broke up and dispersed into the pond as days went on and winds built up; this likely contributed to the small scums observed along the shoreline at the Town Beach.

Phycocyanin (a measure of cyanobacterial biomass) snapshots have not been elevated (1.5-2.5 RFUs) even in areas of visible HABs. PC of 1RFUs is a very low level. This is consistent with the samples being taken by Lim-Tex, where phycocyanin levels remain low in whole lake water samples.

Activities for coming week include continuing water quality assessments around the A-Pods with surveys around the pond as a whole at times. The location of the third main A-Pod trap configuration will be adjusted to help maximize water flow through the trap all while optimizing HAB retention and concentration. Once this occurs, the current main A-Pod trap section will be replaced.

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.