

# White Lake Report to Town Board April, 2021

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## Rainfall and Lake Levels—First Quarter 2021

Rainfall in March was relatively low (2.8”), and the highest rainfall events—1.0” and 1.5”—were lower than what was found in February. First quarter rainfall = 20.15”, which is 9” (80%) above average for the region, and 5.25” above the first quarter rainfall in 2020. The lake level fluctuation over this period was 5.4”, with the elevation at the end of March (64.9 feet NAVD 88) equivalent to what was measured at the start of the year (and equivalent to what was measured at the end of March 2020).

## March Observations

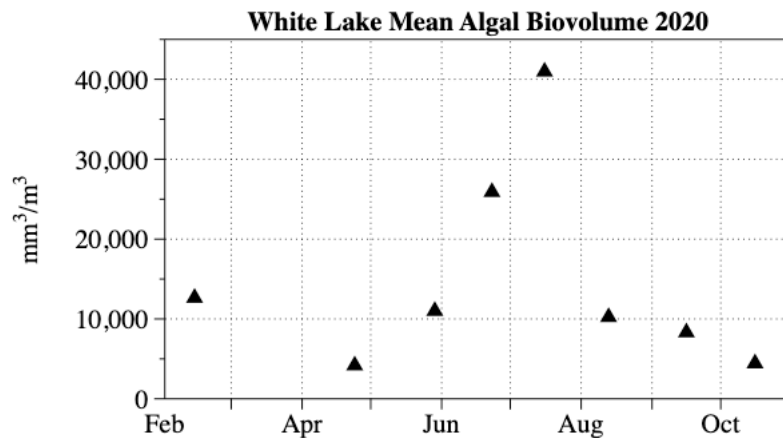
A survey of nearshore conditions around the lake indicated slightly improved clarity compared to February, according to Steve Bunn. Of note in late March were the piles of construction sand that had been dumped at a number of locations along the eastern side of the lake.



At the lake sampling stations, conditions appeared similar to what was observed in February. Laboratory results are slow to come back, but February results indicated a high level of one form of inorganic nitrogen at the station in the middle of the lake.

### Completing Analysis of 2020 Monitoring Program

The most time-consuming work that is being done for the monitoring program is analysis of the phytoplankton community in the lake. This involves taking samples (at the same stations as other types of samples are collected), adding a preservative, and shipping them off to an algae specialist, who looks at the samples and identifies all of the species found in the sample. In addition, she takes measurements so that she can determine the biovolume of each species, as there is a wide range in sizes and shapes. Very tiny things have a smaller biovolume even though they can be very abundant, so we tend to think of biovolume estimates as the “gold standard” in understanding phytoplankton community dynamics.



Some algae like cooler temperatures and some “like it hot”, but all algae do better under the conditions of more direct sunlight (or photosynthetically active radiation, in technical lingo) which is found in the summer months. The types of algae that are most abundant in the summer months are green algae which have been characteristic of the lake (as a group, they are called desmids). Cyanobacteria are present but constitute a very small portion of the biovolume.

Aquatic vegetation monitoring by NCSU and DEQ personnel found no hydrilla or hydrilla tubers. A new (for the lake) species which is characteristic of acidic conditions was found to be relatively abundant, and filamentous algae was also picked up in their sampling.

### The 2021 White Lake Monitoring Program

The Science Advisory Group met and provided some suggestions for monitoring going forward:

- do an annual lake-wide aquatic vegetation survey in October (and no monthly surveys or tuber surveys) as has been done in past years. As it has been observed that fishing tournaments are being held at the lake again, it is time to move forward with a boat/trailer decontamination station at the marina (the Aquatic Weed Program will fund 50% of this).

- Consider additional sampling stations for monthly water quality monitoring rather than sampling at two depths, as this is a well-mixed lake.
- Continue to do the full suite of phytoplankton analysis (including biovolume estimates) for 2021, as monitoring of chlorophyll a alone does not accurately reflect the community dynamics.
- Is it possible to develop a nitrogen budget for the lake? We will share data and discuss further.
- Review groundwater nutrient data by Shank and Zamora—what are NO<sub>3</sub>-NO<sub>2</sub> levels? Would more sampling be helpful (this would require installing new monitoring wells)?
- Town staff has constructed two seepage meters, and plan to sample the springs in April to estimate flow levels. I will work with them to take samples for nutrient analysis as this is the most direct way to determine groundwater nutrient loading to the lake.
- The SAG will also work with Kent White to review his ideas of groundwater flow—this was brought up after the meeting.

There has been no communication relative to the start of the CDBG-DR stormwater grant (the Town indicated an interest in participating in February 2020).

Another grant opportunity is coming up with an RFP to come out later this month; I will work with the Administrator to apply for funding if the Board would support a proposal for land protection-stormwater mitigation.