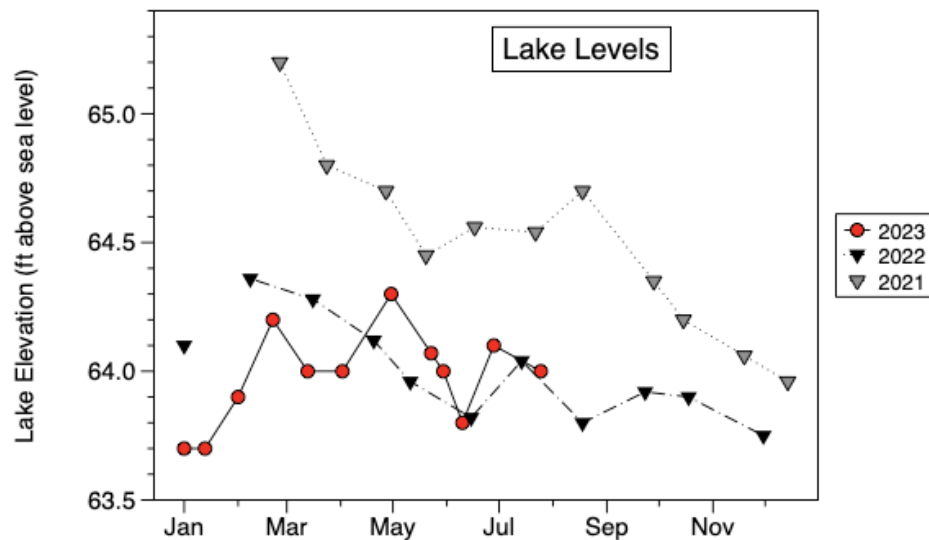


Report to White Lake Town Board August 2023

Diane Lauritsen, Ph.D.
LIMNOSCIENCES

1. Lake Levels

The lake level is showing little variability so far this summer and is in line with what was seen last year at this time.



2. Productivity Influences on Dissolved Oxygen and pH

Nutrients + Shallowness + Sunlight

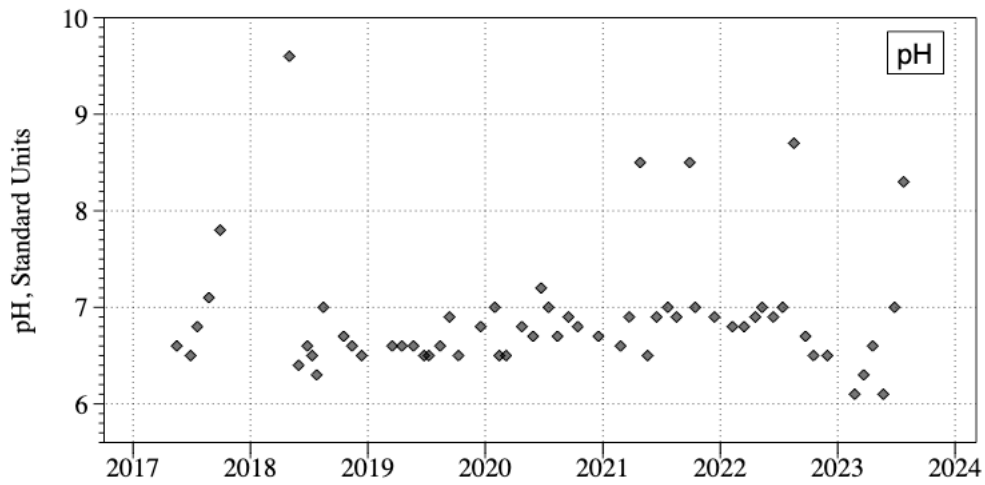
Nitrogen levels higher

Lake water heats up quickly

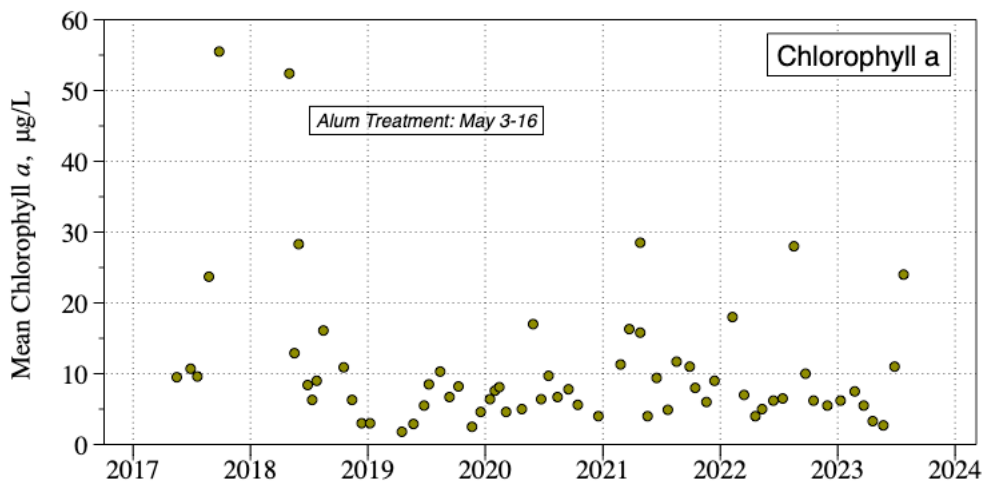
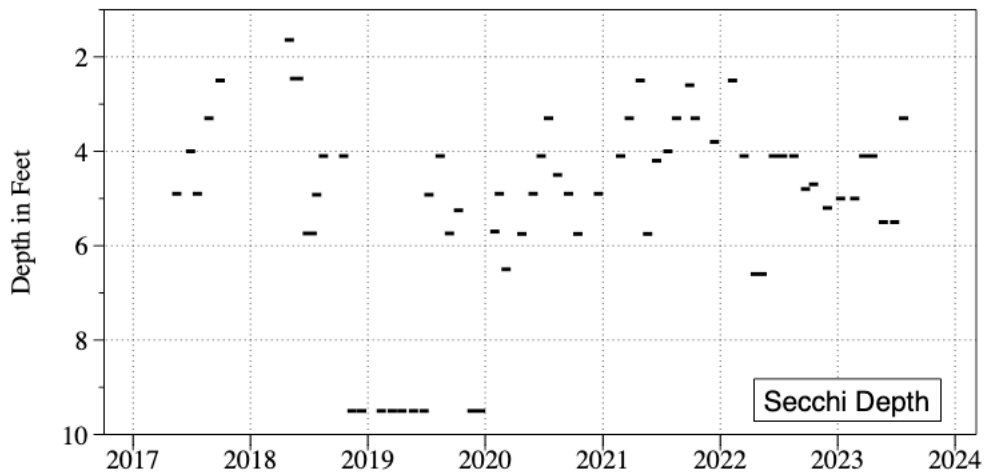
Reaches lake bottom

An additional parameter that influences productivity is water temperature. The lake is very warm now—**88° F**—an increase of 6° this month. There is almost no difference in temperature between surface and bottom waters, as the lake is well-mixed by wind action. The extended period of very hot weather is the cause of the very high water temperatures (July water temps in 2022 were 82°).

Dissolved oxygen % saturation was higher this month (120%) compared with last month (110%), as were pH levels (they are above 8, which is an increase of 2 units above values seen in the spring). The high pH tends to drop substantially once algal productivity is reduced (see peaks in 2021 and 2022 all of which were resolved relatively quickly). Summer tends to be the most productive time in most lakes, although in White Lake productivity may spike in late winter as well, if there is sufficient nitrogen to support algal growth).



Water clarity diminished in July (as measured by Secchi depth) and the amount of chlorophyll *a* (an estimate of the phytoplankton biomass suspended in the water) more than doubled compared with the June 2023 level.



3. The Blobs Are Surfacing

Floating clumps of material can be seen on the lake surface again this summer, as they were last summer. The loosely aggregated material—algal blobs and sediment-- originates at the lake bottom. State Park staff notes that the floating clumps have been seen from time to time over the years.



Some of the material from the lake bottom was collected and placed in a small jar. When shaken up, which simulates what happens when the lake bottom is disturbed by boating or wind action, the material is suspended and looks brown (top left photo). The top right photo shows the same jar several hours later—the blobs have settled, but the water looks cloudy. Lake scientists call this turbidity, and it is one of the parameters that is analyzed every month.



This photo shows a jar with (still living) blobs collected last August (on the left) for comparison.

4. Changes to State Lakes Administrative Rules—Water Levels, Discharges, Mooring Buoys

07 NCAC 13C .0406 WATER LEVEL; DISCHARGE

- (a) No person shall in any way damage or alter drainage ditches, drainage gates, or any other outlet from or inlet to a state lake; nor in any way change the water level of a state lake.
- (b) No person shall discharge any of the following into a state lake:
 - (1) wastewater, stormwater or anything that causes water pollution, as defined in G.S. 143-213;
 - (2) other unfiltered or untreated drainage; or
 - (3) fill material, including sand, rock, or gravel, except as permitted pursuant to the rules of this Subchapter.

History Note: Authority G.S. 143B-135.16;
Eff. February 1, 1976;
Transferred from 15A NCAC 12C .0406 Eff. April 1, 2017;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. May 1, 2018;
Amended Eff. February 1, 2023.

07 NCAC 13C .0407 MOORING BUOYS

- (a) No stakes, poles, or posts shall be driven or placed into the floor of any state lake for any purpose, except to anchor a structure permitted by the Division pursuant to Rule .0301 of this Subchapter.
- (b) No mooring buoy shall be placed outside any posted no wake zone or, where a posted no wake zone does not exist, placed farther than 375 feet from the shore of the waterfront property for which the mooring buoy is permitted in accordance with Rule .0301 of this Subchapter.
- (c) The Division may authorize the temporary placement of mooring buoys for recreational purposes, such as shows, tournaments, and other recreational activities, through the Special Activity Permit process outlined in 07 NCAC 13B .0104.
- (d) Except as permitted in Paragraph (e) of this Rule, waterfront property owners may apply for and hold permits for no more than two mooring buoys.
- (e) Commercial waterfront property owners and homeowner associations may apply for and hold permits for more than two mooring buoys, in accordance with Rule .0301 of this Subchapter. All mooring buoys within the projected property lines of the permit holder must be owned and paid for by the waterfront property owner or homeowner association.
- (f) Mooring buoys are private property that shall be the responsibility of the owner to maintain. Maintaining a mooring buoy shall mean ensuring that the mooring buoy remains in working order, free of rust or damage, and securely fastened to the lake floor.
- (g) In addition to the requirements of Rule .0301(h)(6) of this Subchapter, all permitted mooring buoys shall display the permit holder's full name and phone number at all times or the buoy shall be subject to removal by the Division.
- (h) Transfer of a state lake permit for a mooring buoy shall not be permitted.
- (i) When a state lake permit for a mooring buoy is terminated, the permit holder shall remove the mooring buoy from the state lake.

*History Note: Authority G.S. 143B-135.16;
Eff. February 1, 1976;
Transferred from 15A NCAC 12C .0407 Eff. April 1, 2017;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. May 1, 2018;
Amended Eff. February 1, 2023.*