

**Report to the Board, Town of White Lake
August 2021**

Two Sides to the White Lake Clarity Issue



East side, Goldston's Motel pier, July 22, 2021



West side, at Nathan's Cove, July 22, 2021



Filamentous green algae at Nathan's Cove on July 2, 2019.

Dark brown sediment stirred up by boating activity as well as algal mats and vegetation can collect in this area and others along the western shore; the decomposing organic material is unsightly and smelly and is best removed by raking up what washes ashore.

This is not a new issue:

White Lake: Historic Water Quality Issues

- Summer Algae Die-off
- Benthic Filamentous Green Mats
 - *Spirogyra*, *Oedogonium* & *Ulothrix*
- Black, Smelly & Stains





From NC DEQ 2015 Presentation "What the pH Happened?"

Newspaper articles from July 1991 document the same concerns at that time, with subsequent discussions of reducing boating activities and moving no-wake buoys further out into the lake in order to reduce the amount of algae that could be stirred up from the lake bottom by boating and wave action.

July rainfall totaled 7.5", and the lake level remained steady for the month, at an elevation of 64.5 feet NAVD 88.

June 2021 conditions and nutrient levels were similar to what has been seen in recent years.

White Lake Monitoring Data Collected in June, From 1974 to 2021

	1974	1998	2003	2013	2017	2018	2019	2020	2021
Mean Temperature (C)	26.1	28.3	27.6	27.5	28.6	30.2	29.0	27.5	28
Mean Secchi Depth (m)	>3.0	2.4	2.6	2.8	1.2	1.75	>3.0	1.25	1.25
Mean Chlorophyll a (µg/L)			5	2.5	10.7	8	5.5	6.4	9.4
pH Range (std. units)	4.6	4.2-4.3	4.2	6.0-6.8	6.5-7.4	6.6-7.3	6.2-6.7	7.1-7.3	6.8-7.0
Mean Dissolved Oxygen (mg/L)	8.6	7.2	8.0	7.0	7.3	7.6	7.9	8.6	7.8
Mean Total Nitrogen (mg/L)	0.211	0.11	0.11	0.39	0.68	0.50	0.481	0.757	0.870
Mean Total Phosphorus (mg/L)	0.017	<0.01	<0.02	<0.02	0.02	0.02	0.014	0.025	0.031
TN/TP (mass)	12.4				34	25	34.4	30.3	28.1
# of Samples		3	3	3	7	7	6	6	6

*A filamentous cyanobacteria bloom September 2017 to May 2018
pH > 9, fish kill
low-dose alum treatment 5/3 to 5/16; June 2018 data 6 wks. post trt*