

**Report to the White Lake Town Board
January 2022**

Diane Lauritsen, Ph.D.
LIMNOSCIENCES

1. Total Annual Rainfall and Lake Level Variability for 2021

Total rainfall volume for the year: 1.578 billion gallons (= 71% of the lake's volume)

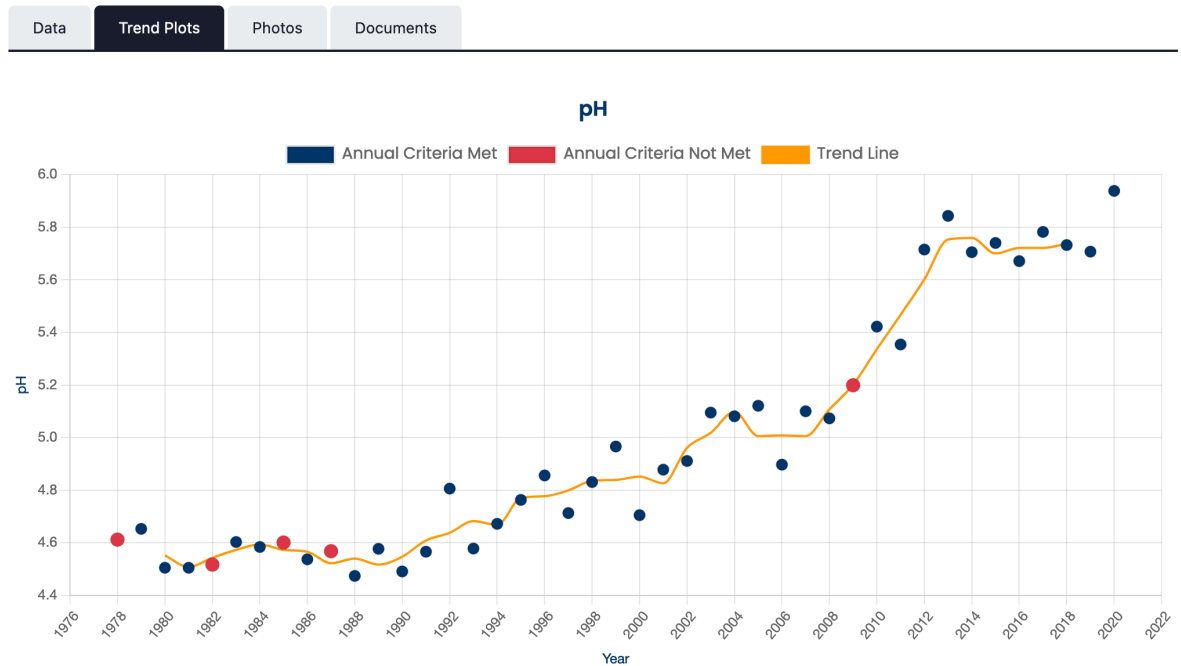
Total variation in lake level (high to low): 16.8 inches

The attached page provides summary information for the year; this page is included in an update to a document titled White Lake Rainfall and Lake Levels (available at the White Lake Watch website) which also includes historical information related to lake levels, such as the legislation related to the digging of ditches below a certain level, measurement of lake elevation and the elevations of the Turtle Cove outlet, and lake level variability as far back as the 1940s.

2. Annual pH of Rainfall Long-Term Trends

It bears repeating: **the pH of rain has changed considerably over time**. The graph below (from the National Atmospheric Deposition Program; site NTN NC 35 is a Clinton station) includes 2020 data, with the highest annual average pH to date; this was a year in which rainfall was 1.4 times the long-term average for the region, equivalent to **2.171 billion gallons** falling on the lake surface (basically adding an additional lake's worth of water at an average **pH >5.9**). It will take time to get 2021 data posted, as it first goes through a rigorous quality control review process.

Site NTN NC35





White Lake: Monthly Rainfall (in inches)

Monthly Rainfall (inches) for White Lake 2012-2021

Month	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	Monthly Average for Region
January	8.25	4.5	2.75	4.20	7.0	3.0	2.5	2.0	1.75	2.75	3.81
February	9.2	6.7	2.25	2.00	1.5	10.7	5.5	1.5	2.5	4.0	3.44
March	2.7	3.7	3.25	3.95	3.7	1.55	4.15	ND	1.0	7.0	3.91
April	1.75	5.1	7.25	6.75	6.75	6.75	4.55	ND	1.75	2.25	3.12
May	3.0	12.25	1.20	7.70	2.7	4.5	4.20	ND	2.25	9.25	3.67
June	7.9	7.15	5.25	10.00	4.5	3.65	8.70	3.0	17.0	2.0	4.70
July	7.5	6.85	6.00	4.75	6.75	3.75	3.0	4.65	11.25	8.6	5.75
August	6.5	7.55	5.35	6.25	5.6	4.12	9.4	9.75	8.25	9.75	5.95
September	3.2	5.95	5.00	29.45	5.2	15.0	4.7	7.0	1.0	5.0	5.29
October	0.6	3.35	3.60	2.25	2.95	14.25	9.75	1.7	1.75	2.25	3.38
November	0.4	7.5	4.90	4.25	1.0	0.50	7.25	4.15	0	2.25	3.16
December	3.4	4.25	6.00	7.5	5.45	5.1	6.5	3.7	5.75	4.25	3.14
Total	54.4	74.85	52.80	89.05	53.1	72.87	70.20		54.25	59.35	49.32
% of Lake Volume	71	97	69	116	69	95	91		70	77	64

(Volume of Total Rainfall on Lake Surface/Total Lake Volume) x 100 Gives an Estimate of Volume of Rainfall as % of Lake Volume



White Lake: Annual Lake Elevations, High and Low

2019 High (January 25): 64.6 Ft NAVD 88

2019 Low (July 9): 63.5 Ft NAVD 88

2020 High (June 16): 65.2 Ft NAVD 88

2020 Low (January 1): 64.3 Ft NAVD 88

2021 High (February 19): 65.3 Ft NAVD 88

2021 Low (November 29): 63.9 Ft NAVD 88

2019 Lake Level Variation (High to Low): 12.7 Inches

2020 Lake Level Variation (High to Low): 10.3 Inches

2021 Lake Level Variation (High to Low): 16.8 Inches

Variation (Highest-Lowest) Over the Three-Year Period 2019-2021: 21.1 Inches
