Report to the White Lake Town Board
December 2021

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LIMNOSCIENCES

1. Monthly Rainfall Variability in 2021: January and February highs, lows in October and November. *The long-range forecast predicts a dry winter and spring*.

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		4.25	6.00	7.5	5.45	5.1	6.5	3.7	5.75	4.25	3.14
Total		74.85	52.80	89.05	53.1	72.87	70.20		54.25	59.35	49.32
% of Lake Volume		97	69	116	69	95	91		70	77	64

2. Lake Level Variability in 2021: Lake level highs were found in February (65.3 feet above sea level NAVD 88), and the low at the end of November (63.9 feet NAVD 88) gives a range of 16.8 inches for the year to date. By comparison, the lake level variability was 12.7 inches in 2019 and 10.3 inches in 2020 (when rainfall was 1.4 times the average for the region). Comparisons of lake levels for February 1st in each of these three years:

   2019 64.5 feet
   2020 64.6 feet
   2021 65.0 feet

3. Springs Flow Variability: Recent measurements of springs flow rates by Steve Bunn and Bill Stafford ranged from no measurable flow in some springs to a total flow rate of 35 gallons/hour in a 15-foot diameter spring. Their sampling results have been described in the attached summary document on the springs. *It bears repeating that no one is claiming that the springs do not exist.*

4. Presence of the Aquatic Weed Hydrilla: NCSU personnel conducted a whole lake aquatic vegetation survey in late October, and a detailed report will be provided early next year, which will compare this year with previous years (2014, 2017-2021). A summary table of previous results (which is also found on the White Lake Watch web site):

Table 5. Aquatic vegetation found in annual whole-lake surveys of White Lake. Percentage occurrence is determined as the number of survey points in which each vegetation species is found divided by the total number of survey points sampled (Table from 2020 NCSU White Lake Aquatic Vegetation Survey Report).

Species	2014	2017	2018	2019	2020
Hydrilla	0%	84%	0.50%	1.50%	0%
Tuckerman's Pondweed	0%	0%	0%	0%	13%
Spikerush	40%	9%	56%	68%	45%
Bladderwort	14%	0%	0%	0%	0%
Dwarf Milfoil	0%	15%	20%	34%	20%
Low Milfoil	54%	0%	0.50%	0%	0%
Filamentous Algae	0%	0%	0%	0%	49%
Chara	29%	66%	0%	0%	6%
Aquatic Moss	43%	63%	32%	6%	8%
No Vegetation	11%	6%	36%	16%	25%
Vegetation	89%	93%	65%	84%	75%

5. Decontamination Station: The Town will be partnering with White Lake Marina and the NC Aquatic Weed Program to purchase a decontamination station for boaters to use before putting their trailer and boat in the lake.

6. No Wake Buoys: Steve Bunn has provided a proposal to State Parks for adjusting the location of some of the no wake buoys so that all are in the same depth of water. It will be beneficial to do this over this winter if funds are available, as it is likely that lake levels next summer will be substantially lower than they have been this year, as scour of the bottom by boat propellers is harmful to the lake.

7. Lake Monitoring: A quick measurement of the amount of algae in lake water can be obtained with this device; November amounts were lower than what was found in October, as water temperatures had dropped considerably: