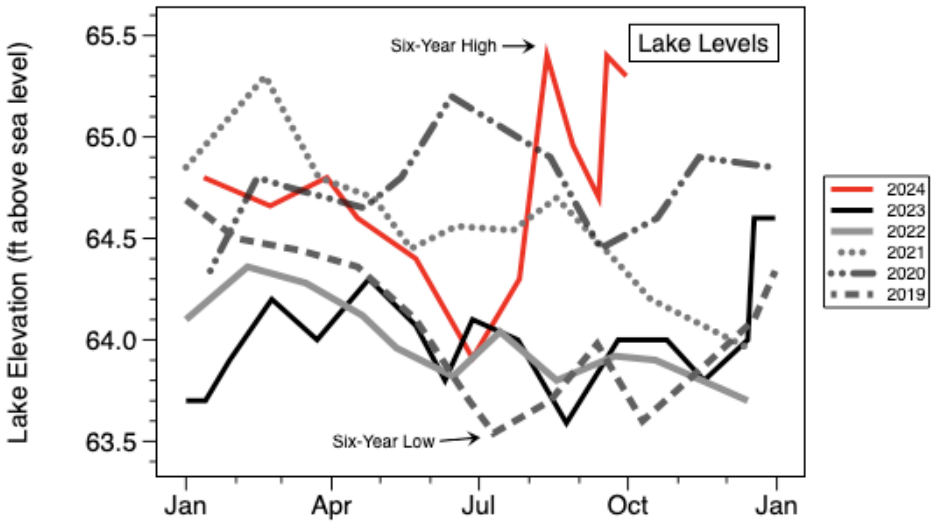
White Lake Board Report, October 2024

White Lake: 2019-2024 Lake Levels



Tropical Storm Idalia 8/29-30/2023, 7" rain, +6" lake level
Nor'easter storm 12/17/2023, 7" rain, +7.2" lake level
Tropical Storm Debby 8/7-8/2024, 9.8" rain (19" over 10-day period in August, +14.4" lake level)
"Potential Tropical Cyclone 8" 9/14-16/2024, Hurricane Helene 9/26-27/2024 (15" over 13 days)

Annual Lake Elevations, High and Low

2019 High (January 25): 64.6 Ft NAVD 88
2020 High (June 16): 65.2 Ft NAVD 88
2021 High (February 19): 65.3 Ft NAVD 88
2022 High (January 17): 64.3 Ft NAVD 88
2023 High (December 18): 64.6 Ft NAVD 88
2024 High (Aug. 12, Sep. 18): 65.4 Ft NAVD88

2019 Low (July 9): 63.5 Ft NAVD 88
2020 Low (January 1): 64.3 Ft NAVD 88
2021 Low (November 29): 63.9 Ft NAVD 88
2022 Low (May, Oct-Dec.): 63.7 Ft NAVD 88
2023 Low (August 28): 63.6 Ft NAVD 88
2024 Low (July 5): 63.7 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
2022 Lake Level Variation (High to Low): 7.2 Inches
2023 Lake Level Variation (High to Low): 12.0 Inches
2024 Lake Level Variation between July 5 and August 12: 20.4 inches

Variation (Highest-Lowest) Over the Six-Year Period 2019-2024: 22.8 Inches
Six-Year Mean High-Water Level (as of Sept. 30, 2024): 64.9 Feet NAVD 88

From the NC Climate Office Blog:

Event	Date Range	Maximum Rainfall in NC
Hurricane Dennis	Aug. 29 to Sep. 5, 1999	19.91" (Ocracoke)
Hurricane Floyd	Sep. 14 to 16, 1999	24.06" (Southport)
Hurricane Frances	Sep. 6 to 9, 2004	23.57" (Mount Mitchell)
Coastal Frontal Event	Sep. 26 to 30, 2010	22.54" (Wilmington)
Upper-Level Event	Sep. 29 to Oct. 5, 2015	18.23" (Longwood)
Hurricane Matthew	Oct. 8 to 9, 2016	18.95" (Evergreen)
Hurricane Florence	Sep. 13 to 17, 2018	35.93" (Elizabethtown)
Potential TC Eight	Sep. 14 to 17, 2024	20.81" (Carolina Beach)
Hurricane Helene	Sep. 25 to 27, 2024	31.33" (Busick)

Events since 1999 in which at least 18 inches of rain fell in parts of North Carolina.

That makes nine such events in the past 26 years, not counting close calls such as Hurricane Ivan (17.00 inches at Cruso in 2004), Hurricane Ophelia (17.50 inches at Oak Island in 2005), or Tropical Storm Fred (14.00 inches on Frying Pan Mountain in 2021).

It's no coincidence that these extreme events are becoming both more common and more intense. The North Carolina Climate Science Report, released in 2020, previewed that it's "*very likely* that extreme precipitation frequency and intensity in North Carolina will increase due to increases in atmospheric water vapor content."

While it's too early to say exactly how much worse climate change made the rain and flooding from PTC8 or Helene — and those studies have been done for storms like Florence — the environment in which both storms developed bears the hallmarks of climate change, including record warm sea surface temperatures in the Gulf of Mexico and the humid atmosphere that allowed them to send ample moisture in our direction.

We hope we'll never have another month like September 2024 again, but as the odds of these extreme, impactful storms continue to increase, we also hope our state will rebuild smarter, stronger, and safer in anticipation of whatever comes next.

Extreme rainfall events flush pollutants from commercial areas, roads and streets into White Lake

More Runoff = More Pollutants

Lake Stewardship = Stormwater Mitigation