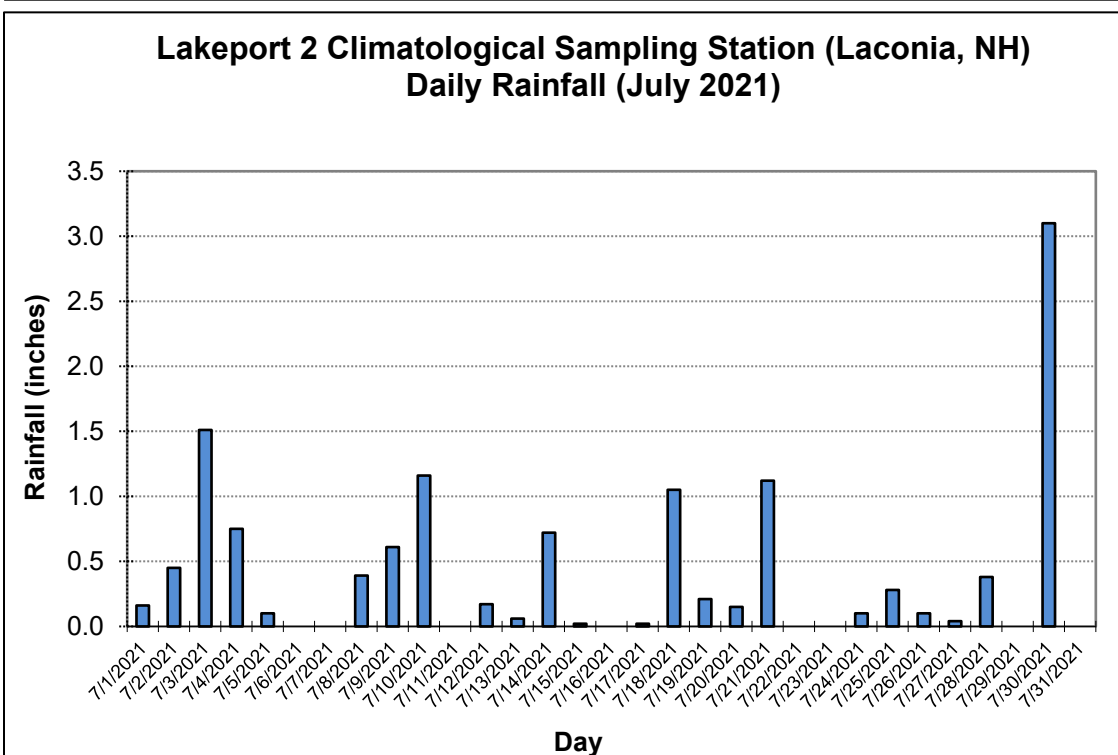
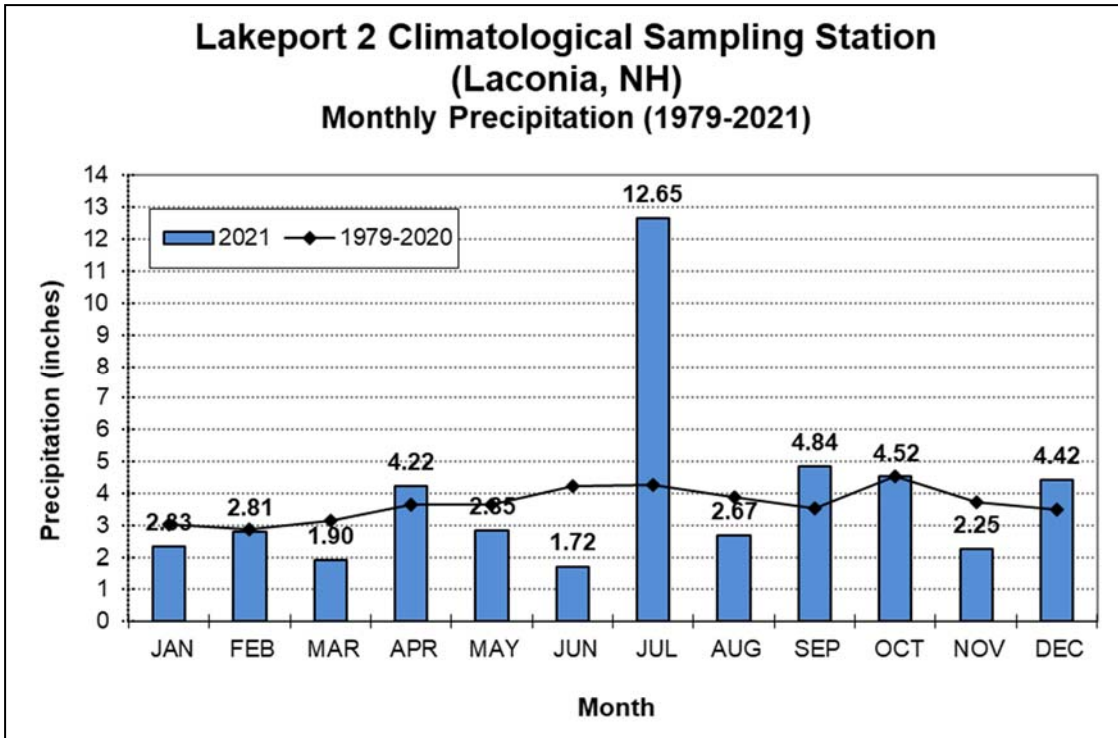


2021 Rainfall Overview

Precipitation (2021)

The 2021 annual precipitation (reported as “rainfall” water equivalent) measured 47.18 inches and was approximately three inches above the 42 year (1979-2020) average of 44.09 inches (note: precipitation data are reported for the Lakeport 2 Climatological sampling station located in Laconia New Hampshire: 43°33'N and 71°28'W). The 2021 January through June monthly precipitation totals were near/below average and were associated with atypically dry spring conditions. A series of rainfall events during the month of July contributed to an atypically high monthly precipitation of 12.65 inches while the remainder of the year oscillated between above to below average monthly precipitation totals.



Water Quality Implications:

Total Phosphorus – Phosphorus is oftentimes flushed into lakes and ponds during, or immediately following, heavy rainfall periods. Dry periods, on the other hand, oftentimes limit the amount of phosphorus that enters lakes through channelized (e.g. streams and drainage culverts) and sheet flow, that flows in a thin layer over the ground, runoff. The unusually dry spring favored low phosphorus concentrations in many of our New Hampshire lakes while the atypically wet July rainfall events were associated with short-term phosphorus pulses.

Secchi Disk Transparency – Water transparency (measured with the Secchi Disk) can be heavily impacted by the amount of algal growth (measured as chlorophyll a concentrations), the amount of suspended particles (both organic and inorganic) and the amount of dissolved color compounds, many of which are naturally occurring and are associated with decaying vegetation and surrounding wetland complexes. Generally speaking, dry periods oftentimes favor clearer water while wetter periods are oftentimes associated with reduced water transparencies.

- **Chlorophyll a** (surrogate for algal/cyanobacteria growth) – Algal and cyanobacteria populations can be heavily influenced by water temperatures, the amount of light penetration into the water column and nutrient concentrations. Thus, there are multiple factors that could influence the chlorophyll content. In general, wet periods are oftentimes associated with increased algal/cyanobacteria growth that take advantage of nutrients that are flushed into our lakes. On the other hand, dry periods can be associated with lower algal/cyanobacteria levels in our lakes.
- **Turbidity** – Turbidity is a measure of the scattering of light and is associated with particles in the water. Since wet periods are oftentimes associated with displacement of fine sediments into our lakes, higher turbidity levels are frequently associated with unusually wet periods while lower turbidity levels are frequently associated with dry periods. Algal/cyanobacteria levels, discussed above, can also impact turbidity by increasing/decreasing the number of cells in the water.
- **Dissolved Color** – Dissolved color, a byproduct of microbial decomposition of soils and plants, varies among lakes as well as seasonally. Dissolved color concentrations tend to be lower during dry period while wet periods, when highly colored water from the surrounding wetlands is flushed into our lakes, tend to be associated with elevated dissolved color concentrations. Dissolved color concentrations increased significantly during/following the unusually wet July, 2021, and corresponded to lower Secchi Disk transparency measurements in many of our New Hampshire Lakes.