Northwest Florida Water Management District

Hydrologic Conditions Report

April 2024

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Northwest Florida Water Management District

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Summary

The District in April 2024 observed near normal average rainfall amounts, near normal temperatures, and rising evapotranspiration rates resulting in generally normal streamflows, aquifer levels, and lake levels across most of the Panhandle. No drought conditions were present in the District throughout April.

Rainfall

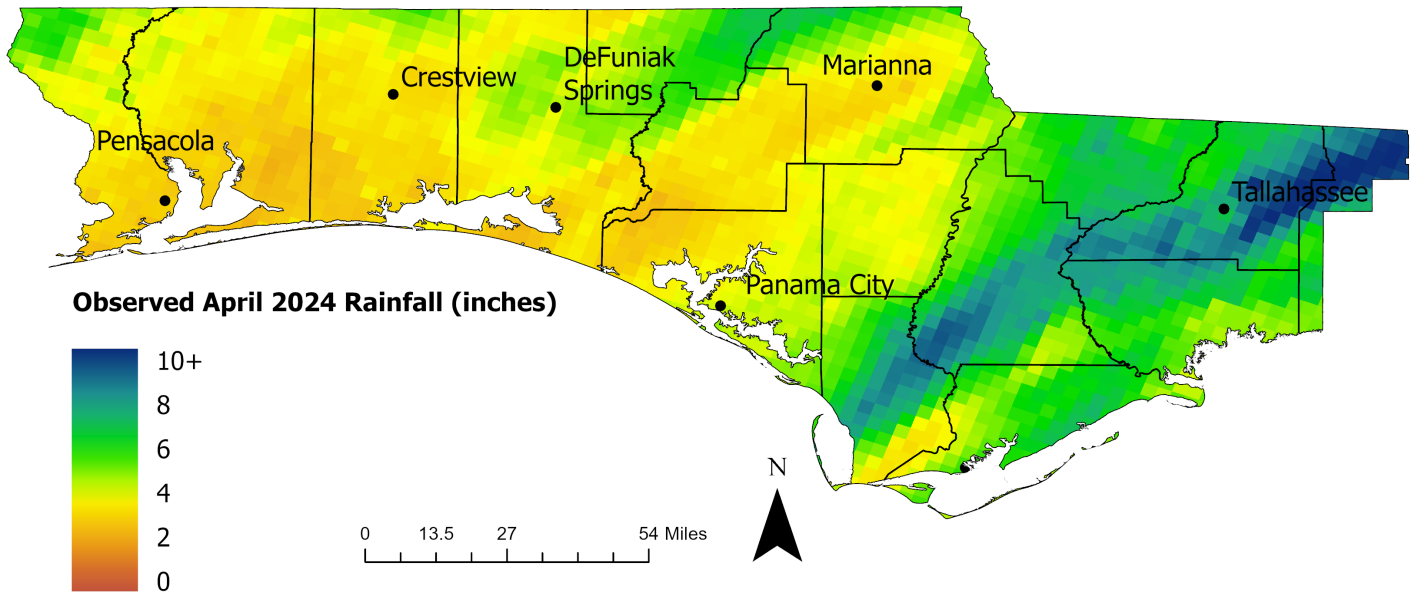
The District-wide average rainfall for April (4.70 inches) was 1.9% (0.09 inches) below the 30-year normal value for April (4.79 inches). Normal rainfall is defined as average monthly rainfall for the 1991 to 2020 reference period. Though as a whole the District-wide average rainfall was near normal, rainfall varied spatially, with the highest rainfall amounts of around 10 inches occurring in the eastern portions of the District and the lowest rainfall amounts of around 3 inches occurring in some places throughout the central and western counties, especially along the Gulf of Mexico. (**Table 1; Figures 1 - 7**). A significant rain event occurred on April 3, 2024, caused by a strong cold front moving across the Panhandle, producing up to 2 inches of rain in some areas. The most significant rain event occurred on April 10 and 11, 2024. This severe storm was caused by a cold front associated with a strong low-pressure system that produced up to 9 inches of rain in some parts of Leon and west Jefferson County and contributed to major flooding throughout these areas.

Table 1: April 2024 rainfall compared to 30-year normal monthly rainfall for Tallahassee, Marianna, Niceville, and Pensacola

Station	April Normals (1991 to 2020)	April 2024 Observed Rainfall	Percent Difference
Tallahassee Regional Airport	3.53	7.41	70.9%
Marianna Regional Airport	3.72	3.43	-8.1%
Niceville, FL	5.99	3.09	-63.9%
Pensacola Regional Airport	5.52	4.38	-23.0%

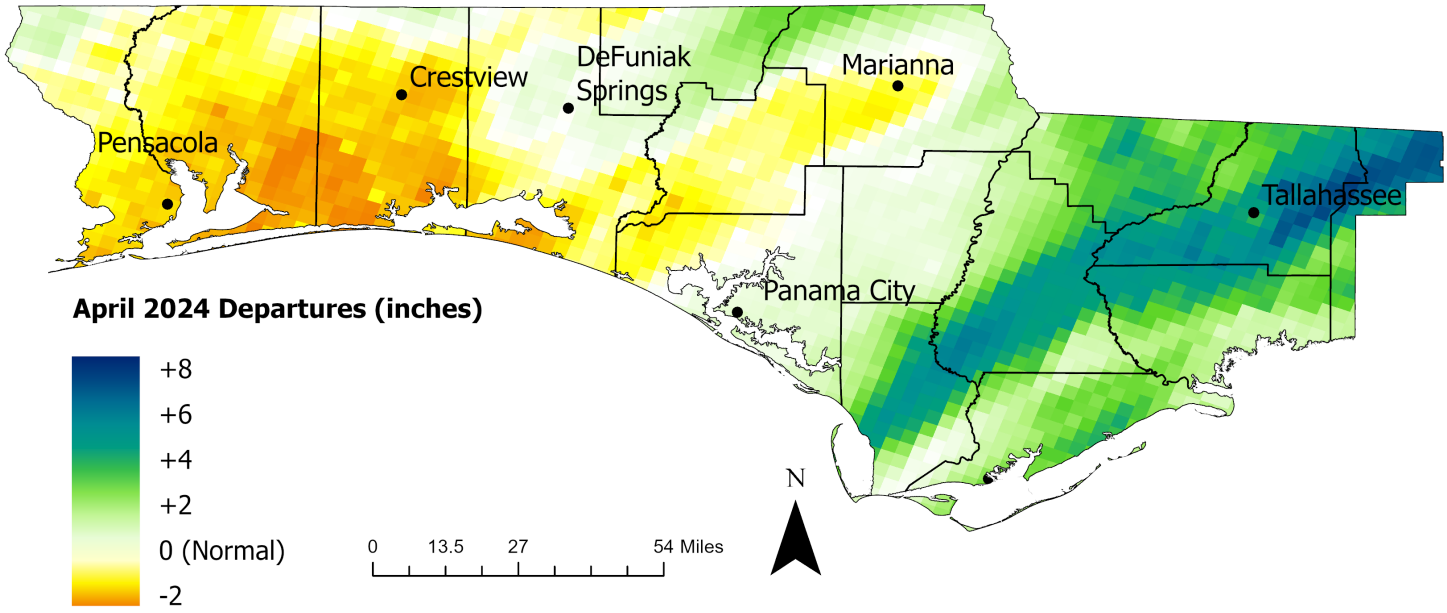
Source: https://www.weather.gov/wrh/Climate?wfo=tae

Figure 1: District-wide April 2024 observed rainfall



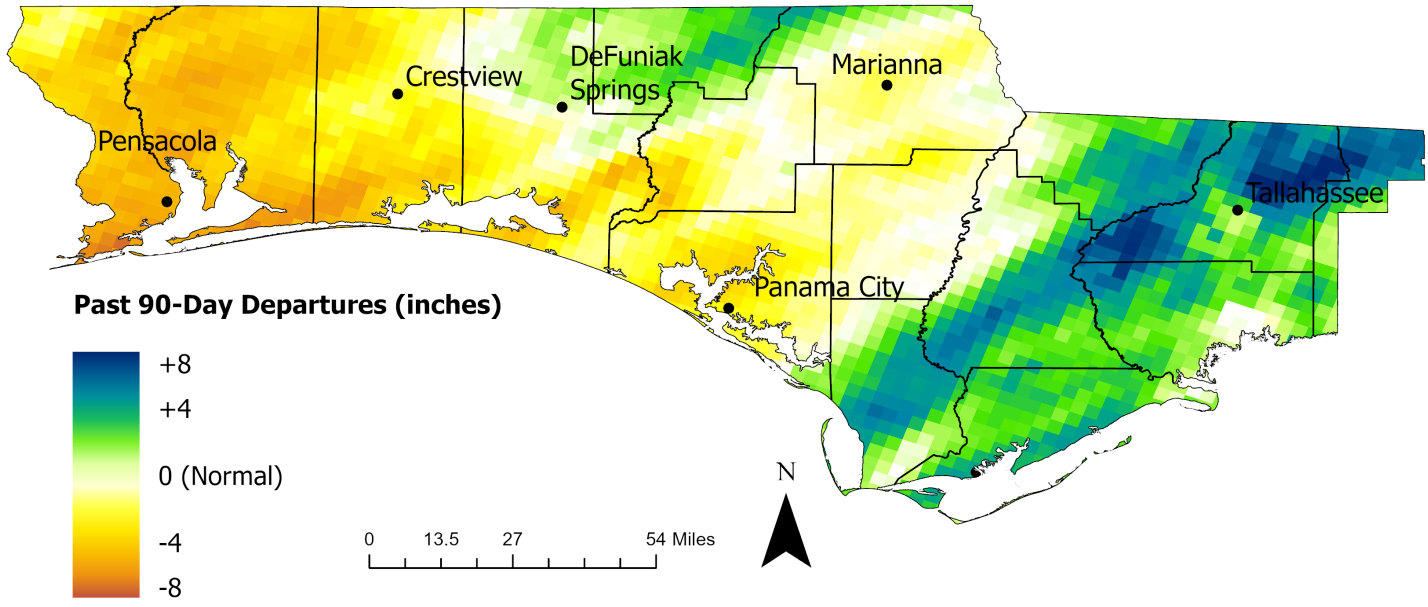
Source: https://water.weather.gov/precip/download.php

Figure 2: District-wide April 2024 precipitation departure from normal



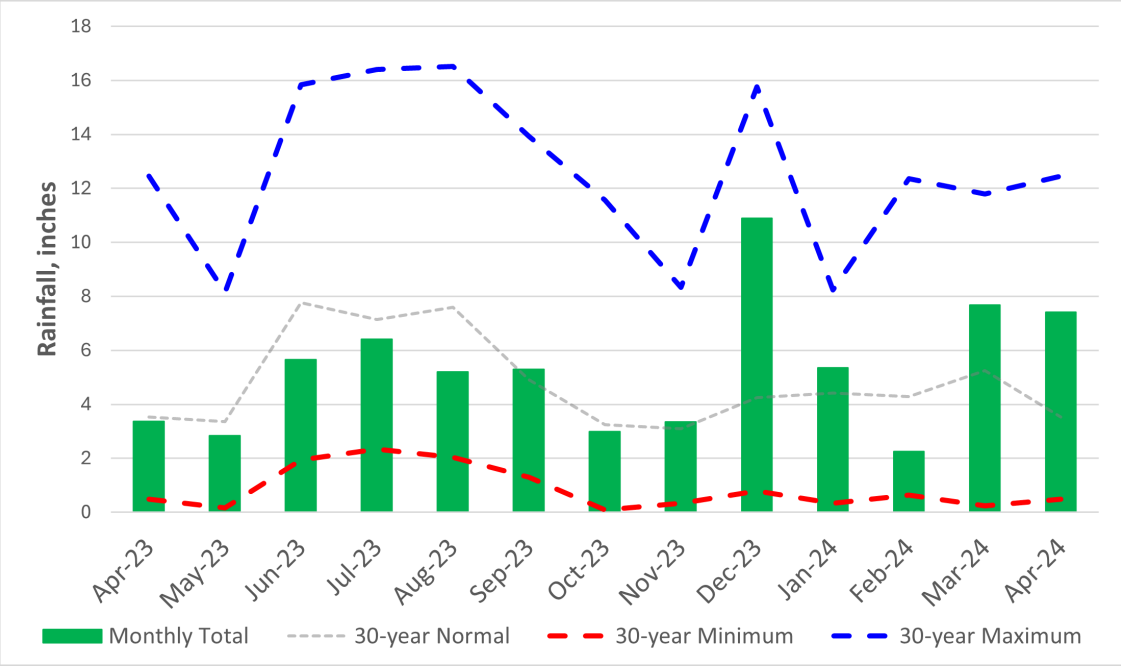
Source: https://water.weather.gov/precip/download.php

Figure 3: District-wide precipitation departure from normal precipitation for the previous 90 days



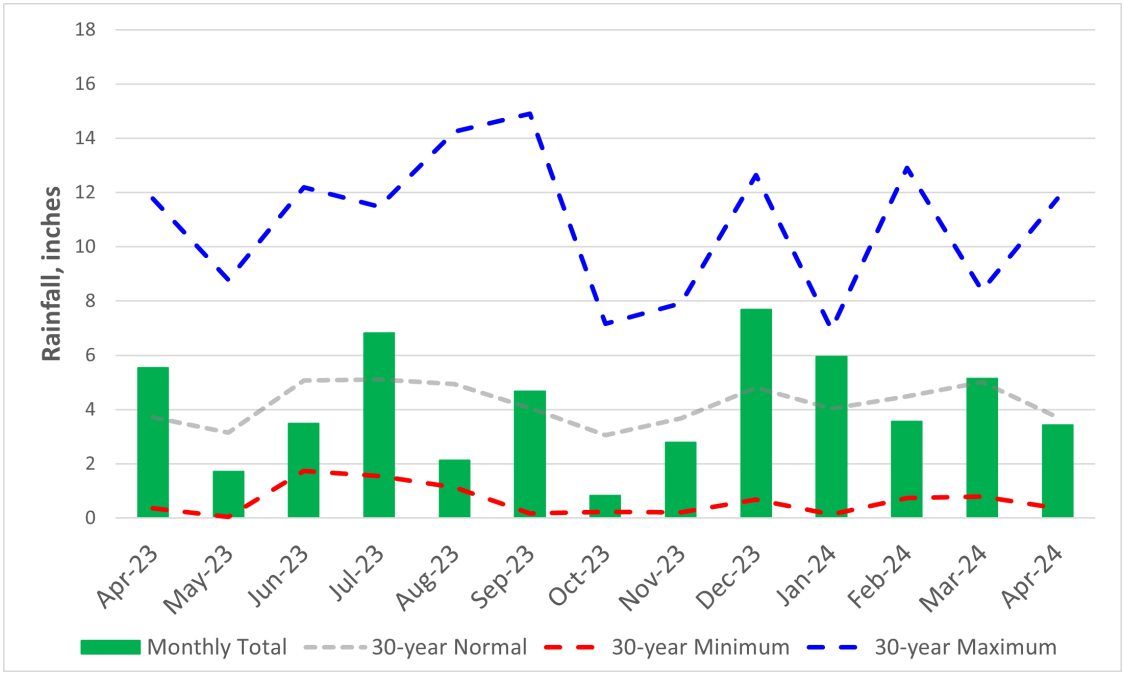
Source: https://water.weather.gov/precip/download.php

Figure 4: Observed rainfall at Tallahassee Regional Airport for April 2023 to April 2024 compared to the 30-year normal, minimum, and maximum precipitation for each month



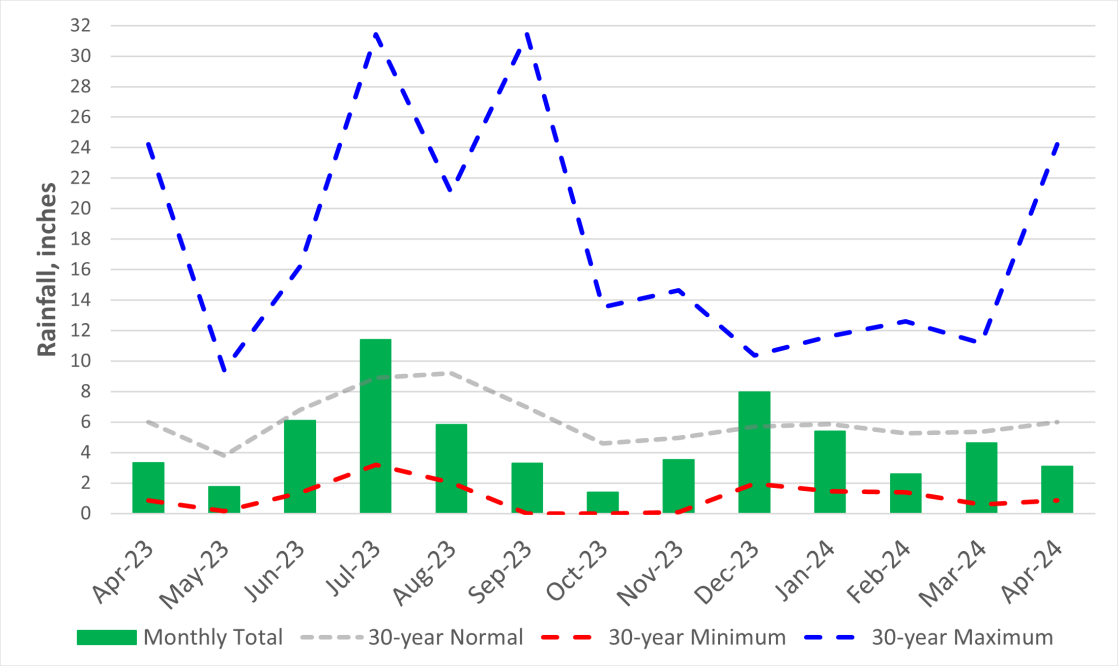
Source: https://www.weather.gov/wrh/Climate?wfo=tae

Figure 5: Observed rainfall at Marianna Regional Airport for April 2023 to April 2024 compared to the 30-year normal, minimum, and maximum precipitation for each month



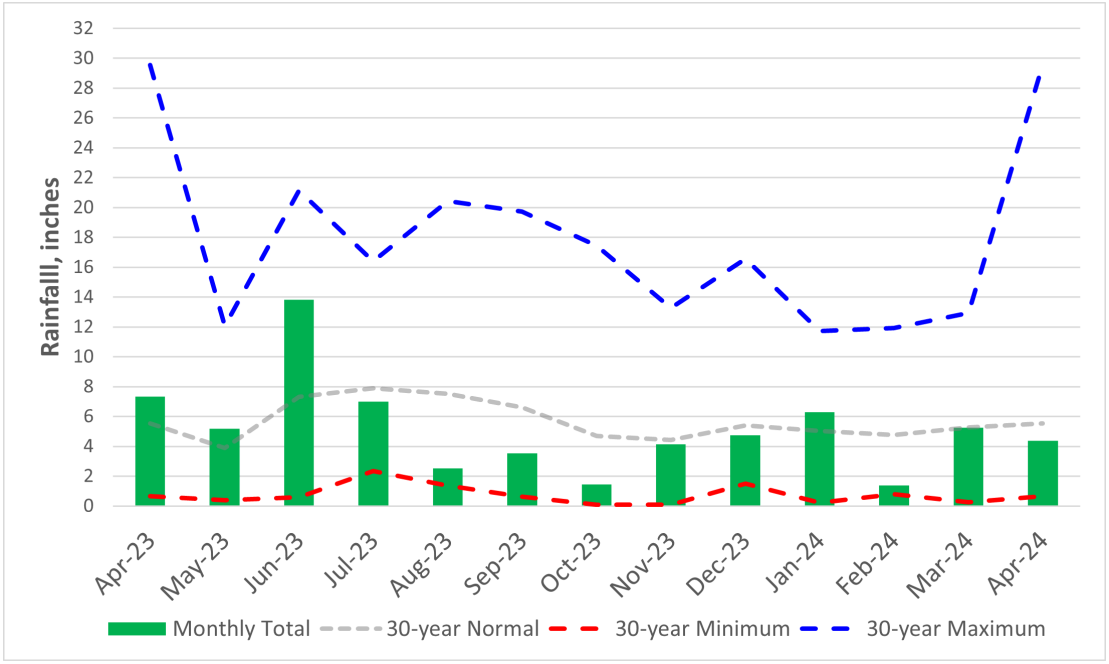
Source: https://www.weather.gov/wrh/Climate?wfo=tae

Figure 6: Observed rainfall in Niceville for April 2023 to April 2024 compared to the 30-year normal, minimum, and maximum precipitation for each month



Source: https://www.weather.gov/wrh/Climate?wfo=mob

Figure 7: Observed rainfall at Pensacola Regional Airport for April 2023 to April 2024 compared to the 30-year normal, minimum, and maximum precipitation for each month

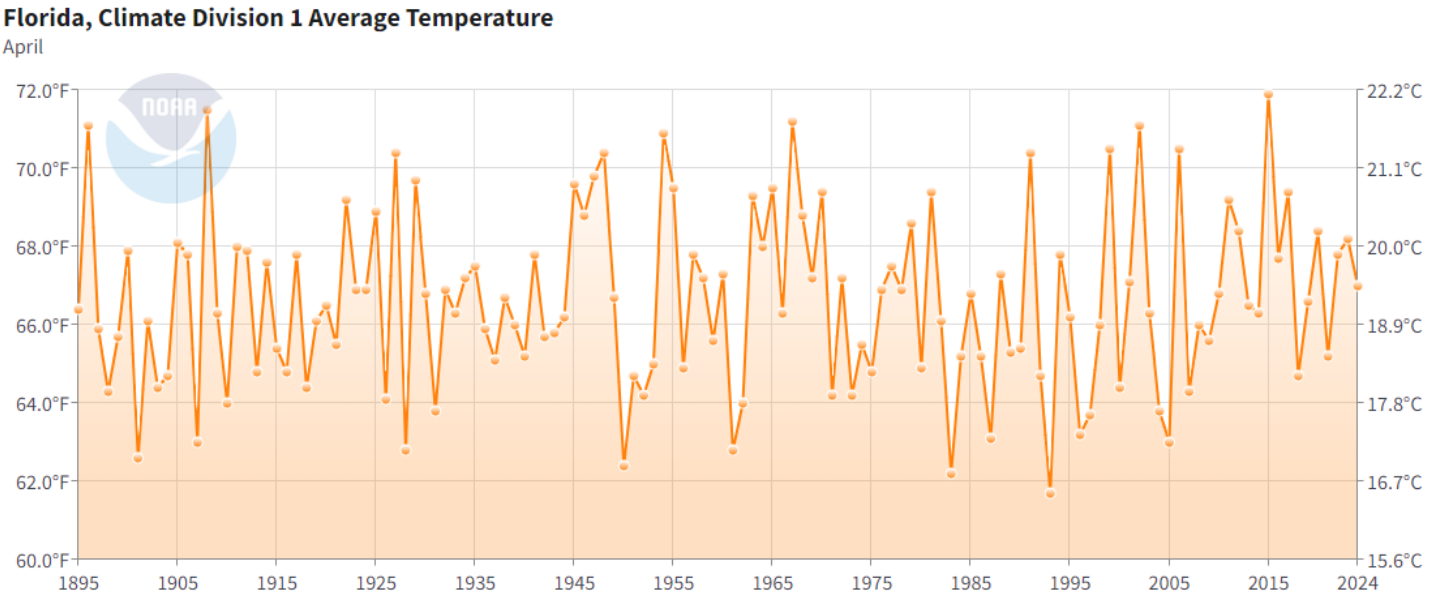


Source: https://www.weather.gov/wrh/Climate?wfo=mob

Temperature

The average April temperature in Northwest Florida was near normal at 67.1 degrees Fahrenheit (Figure 8). This was 0.4 degrees Fahrenheit warmer than the 30-year (1991-2020) normal for the District for April of 66.7 degrees Fahrenheit. Out of 130 years on record (1895-2024), April 2024 ranked 80/130, making it the 80th warmest April on record.

Figure 8: April average temperatures for the NOAA Florida Northwest Division, 1895-2024



Source: https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/divisional/time-series

Climate Outlook

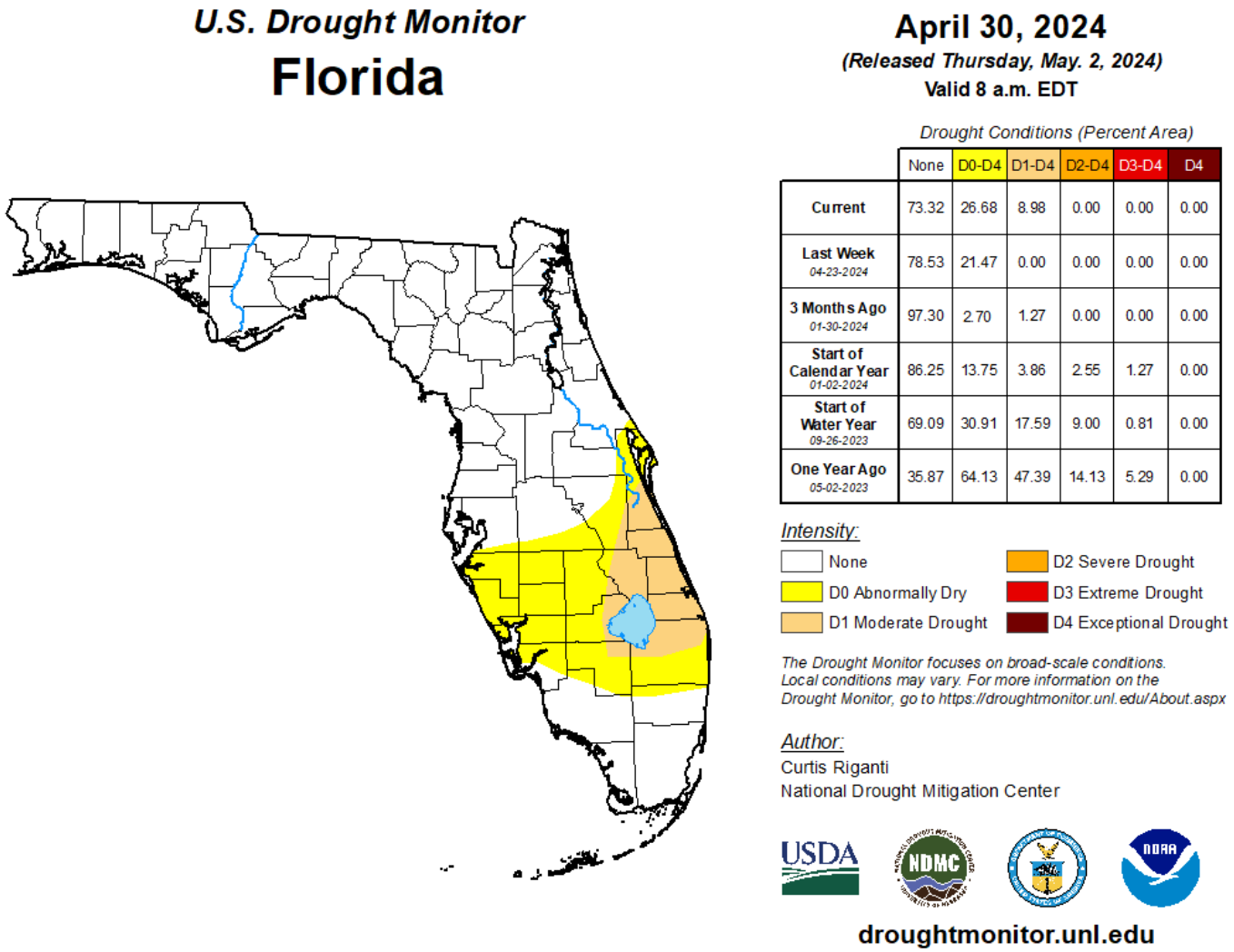
According to NOAA's climate prediction center, the forecast issued May 1, 2024, for May 2024 shows a likely probability for above normal temperatures and a slight probability of below normal rainfall amounts across the District. As of April 19, 2024, El Niño conditions persist and a transition from El Niño to ENSO-neutral is very likely by June 2024.

Source: https://www.climate.gov/news-features/understanding-climate/us-climate-outlook-may-2024

Drought Conditions

Despite receiving slightly below normal rainfall amounts during April, it was enough to continue to stave off drought conditions from forming in the Panhandle. The U.S. Drought Monitor report released on April 30, 2024, showed no drought conditions were present in the District at the end of April 2024 (Figure 9).

Figure 9. Florida Drought Conditions on April 30, 2024



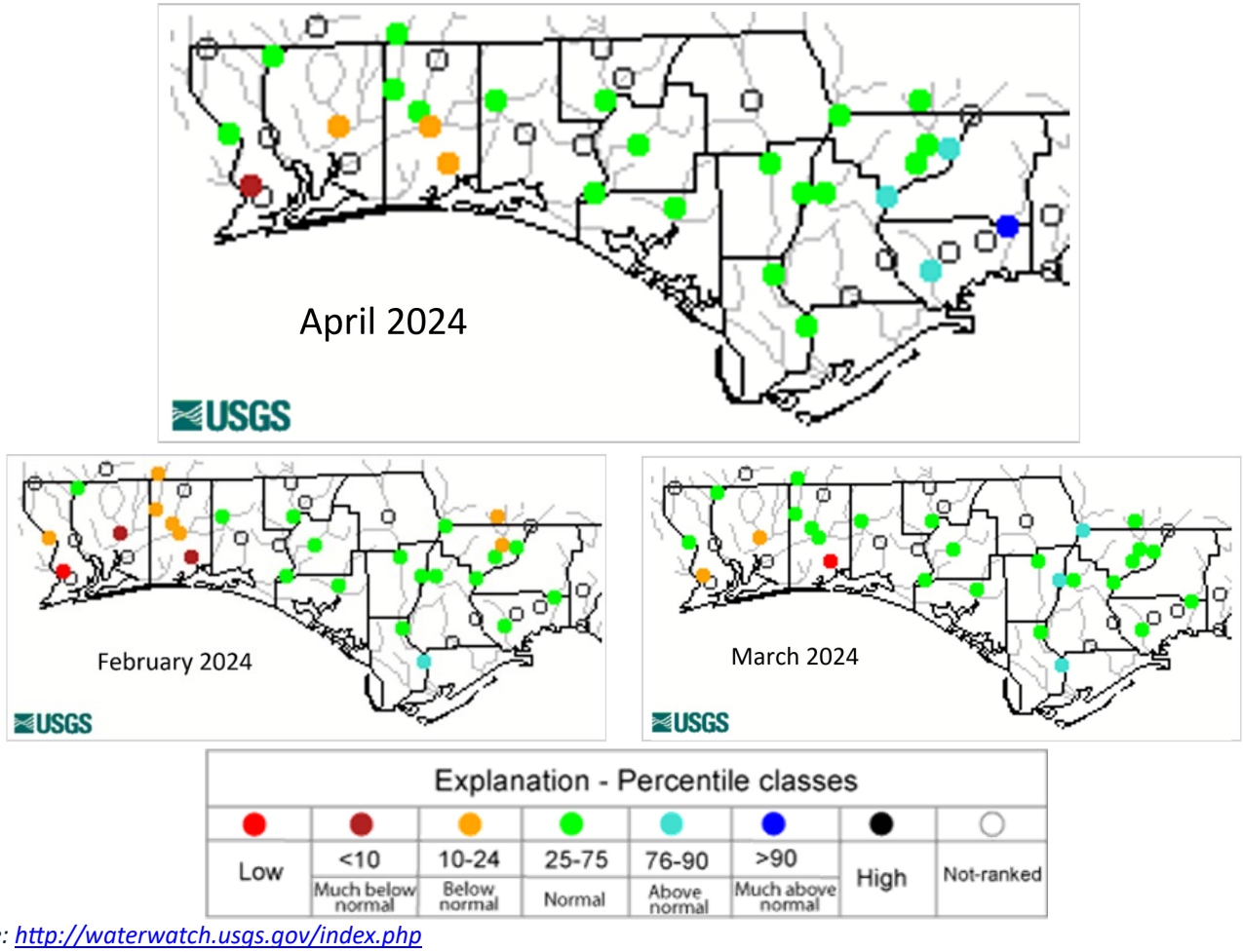
Source: https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?FL

Surface Water

Streamflows. Streamflow classifications across the District did not exhibit a significant pattern change from March 2024 through the month of April 2024. Flows to the far east continue to be elevated with one station in north Wakulla County being classified as much above normal while flows to the west around Pensacola Bay and Choctawhatchee Bay continue to be below normal with one station in south Escambia County being classified as much below normal. All other monitored stations in the central portion of the District continue to be stable at normal flows (**Figures 10 - 16**).

Though the average rainfall across the District was near normal, most of the observed rainfall fell toward the east while the rain deficit continued to build toward the west (**Figures 2 & 3**). The USGS streamflow stations indicated a variety of patterns across the District that generally correlate to this spatial analysis. Generally, streamflows in the eastern portion of the District increased with the St. Marks River near Newport and the Ochlockonee River near Havana climbing into much above normal flows (**Figures 11 & 12**) following the significant rain event in this portion of the District on April 10 and 11 while streamflows to the west decreased with Blackwater River near Baker dipping into much below normal ranges (**Figure 15**).

Figure 10: Northwest Florida February 2024 to April 2024 monthly streamflow percentiles



Source: http://waterwatch.usgs.gov/index.php

Figure 11: Daily streamflows and percentile ranges for USGS station 02326900 St. Marks River Near Newport, Florida

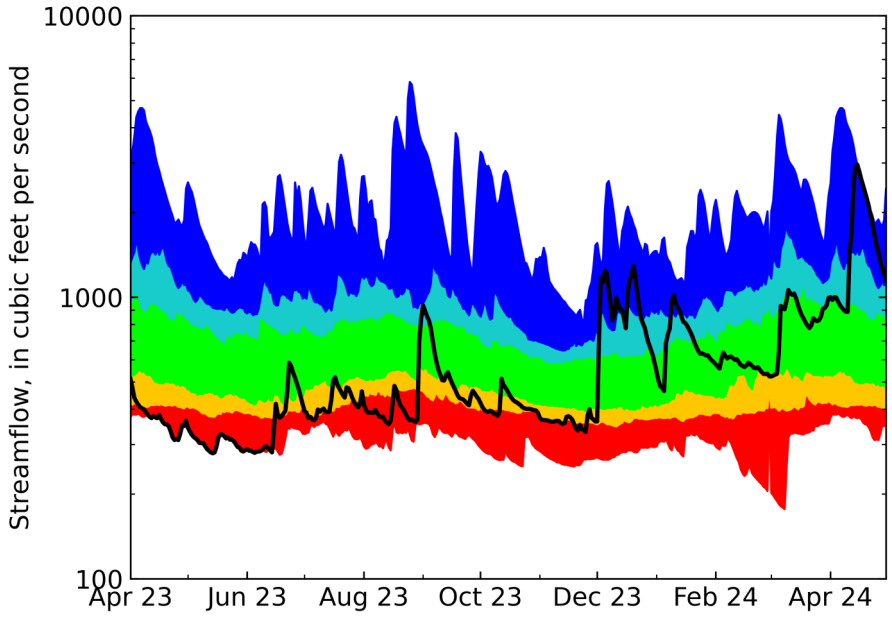


Figure 12: Daily streamflows and percentile ranges for USGS Station 02329000 Ochlockonee River Near Havana, Florida

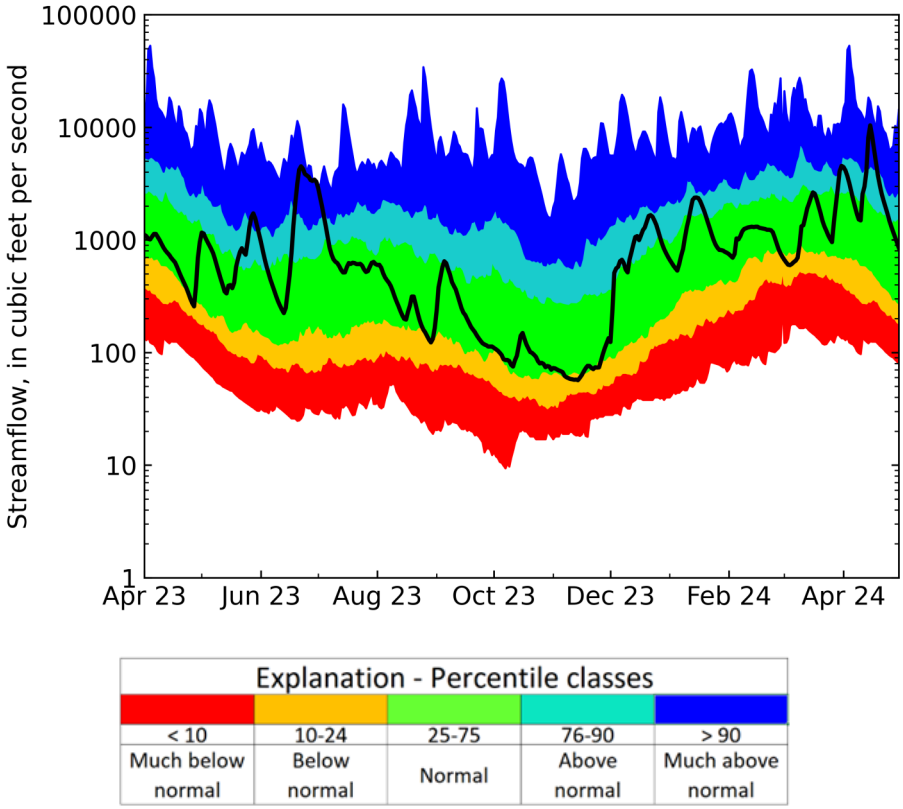


Figure 13: Daily streamflows and percentile ranges for USGS Station 02358700 Apalachicola River Near Blountstown, Florida

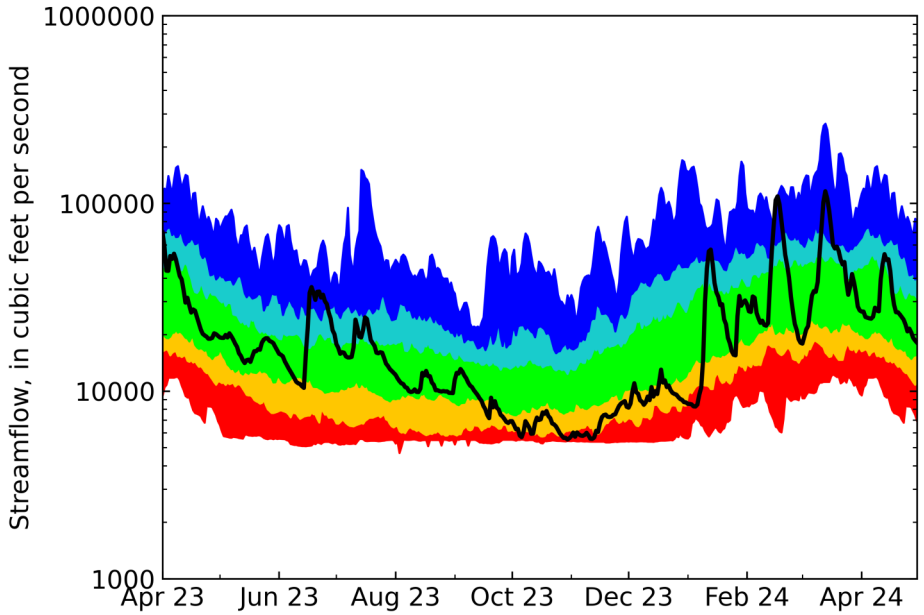


Figure 14: Daily streamflows and percentile ranges for USGS Station 02366500 Choctawhatchee River Near Bruce, Florida

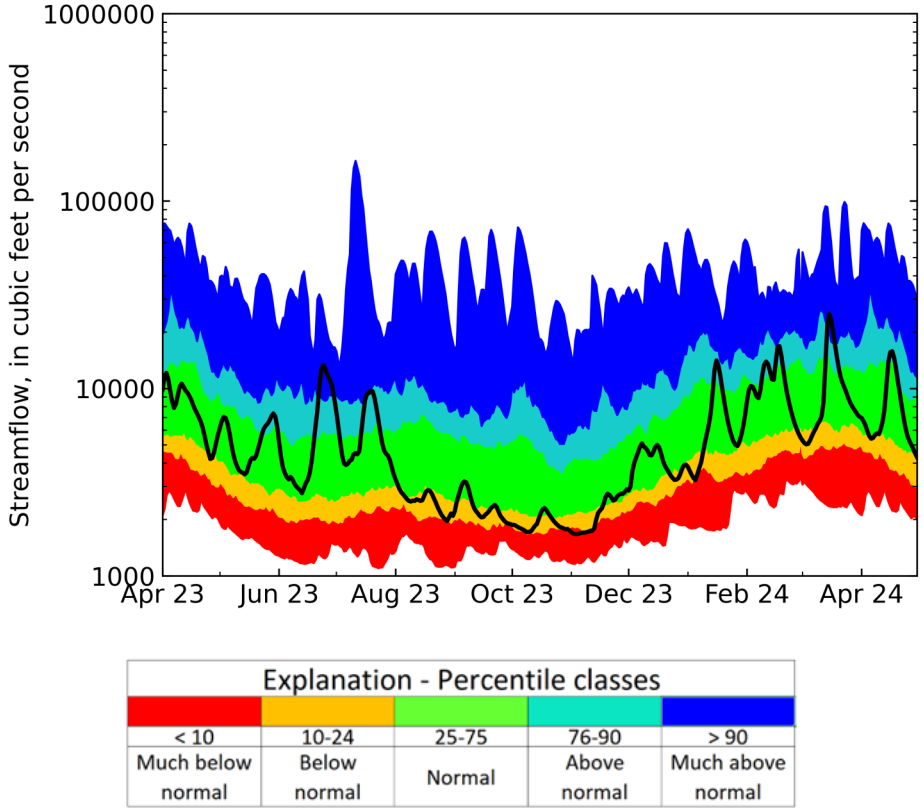


Figure 15: Daily streamflows and percentile ranges for USGS Station 02370000 Blackwater River Near Baker, Florida

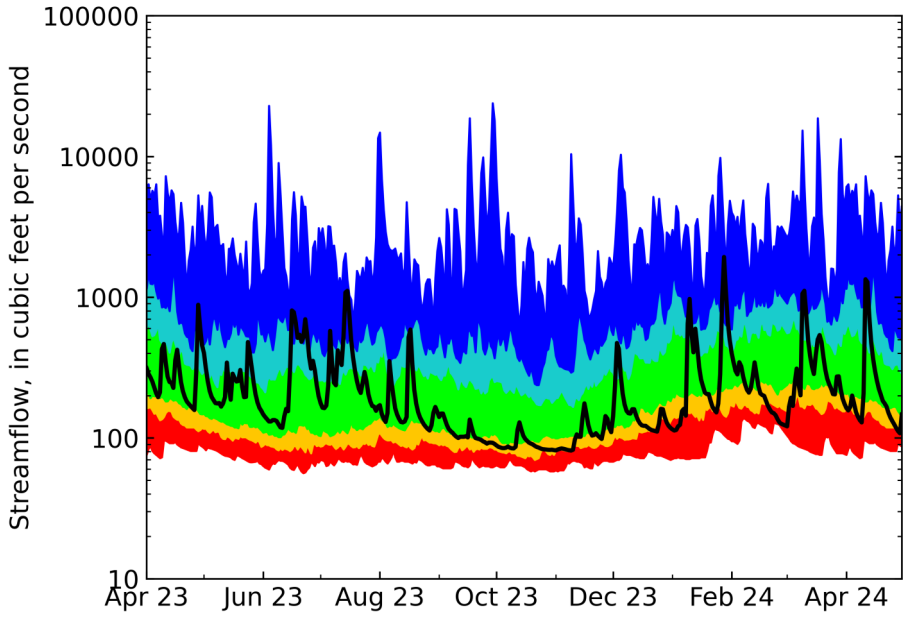
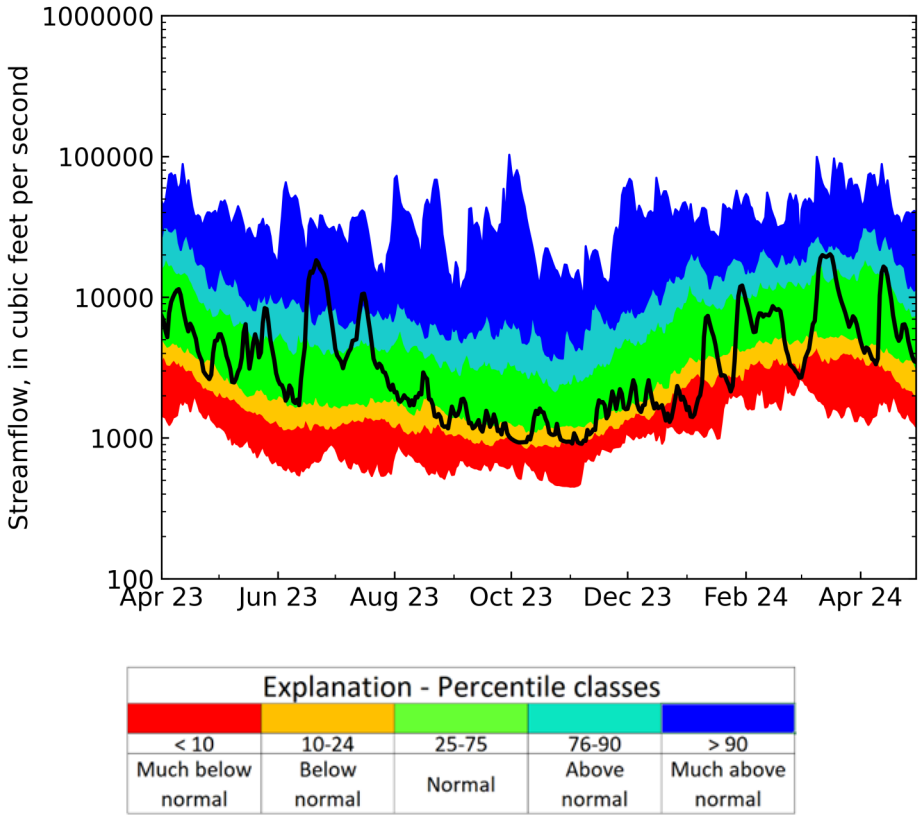


Figure 16: Daily streamflows and percentile ranges for USGS Station 02375500 Escambia River Near Century, Florida



Lake Levels. After a period of relative stability around 80 feet NAVD 1988 between January 2024 and March 2024, water levels at Lake Jackson in Leon County exhibited a steep increase of about 1 foot after the significant rain event on April 10 and 11, 2024 (**Figure 17**). Lake Jackson levels remain below the full pool level of 86 feet, NAVD 1988.

In southern Washington County, water levels at Piney Lake continued to decrease during April 2024, reaching its lowest level since monitoring began during the 2022 flooding event (**Figure 18**).

Figure 17: Daily water levels at Lake Jackson at Miller Landing, Leon County

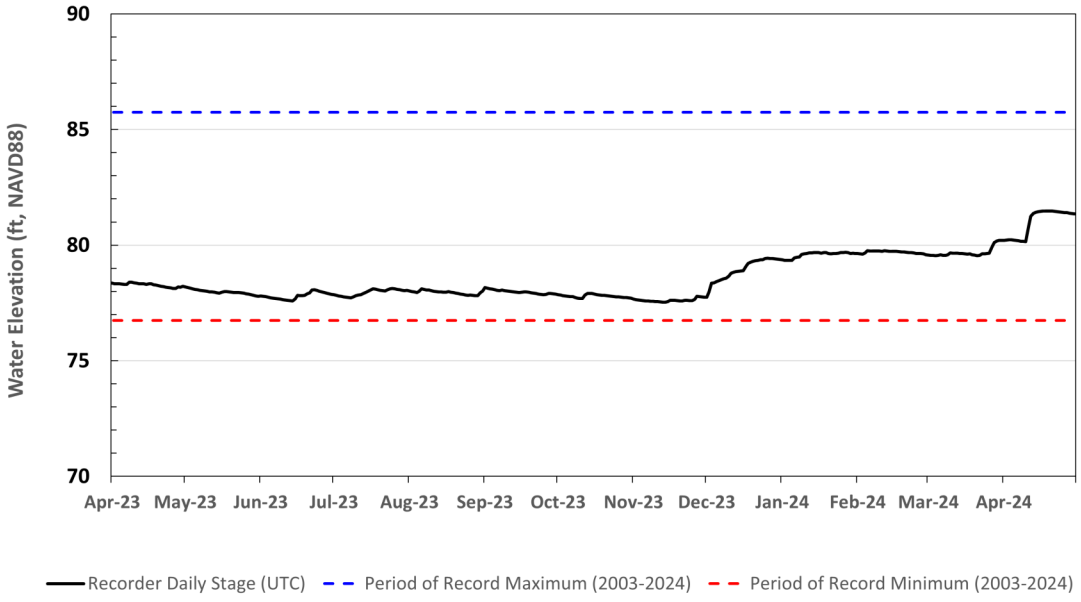
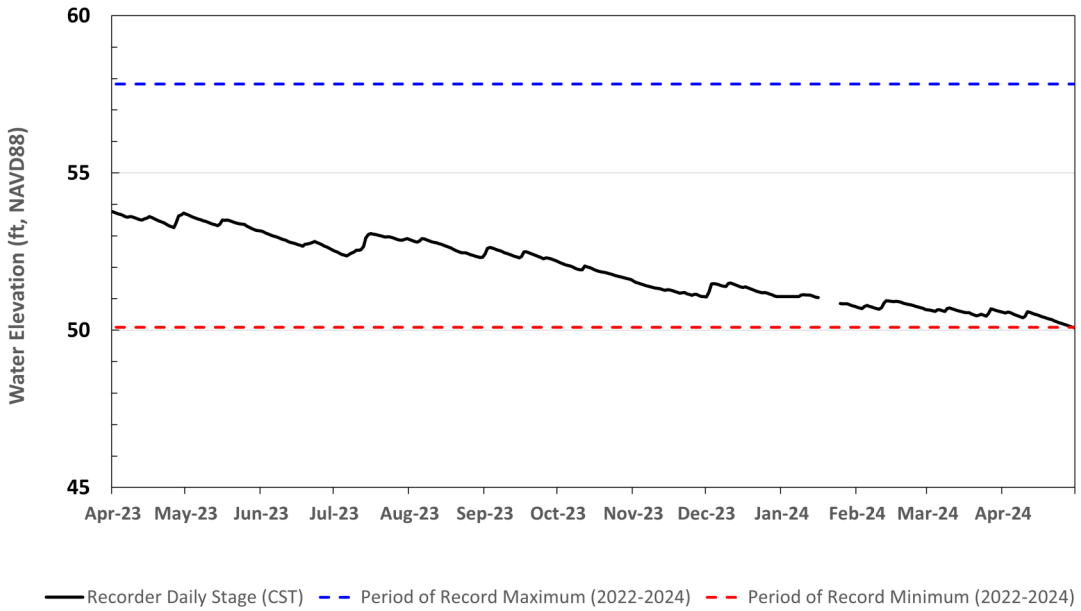


Figure 18: Daily water levels at Piney Lake, Washington County



Spring Flows

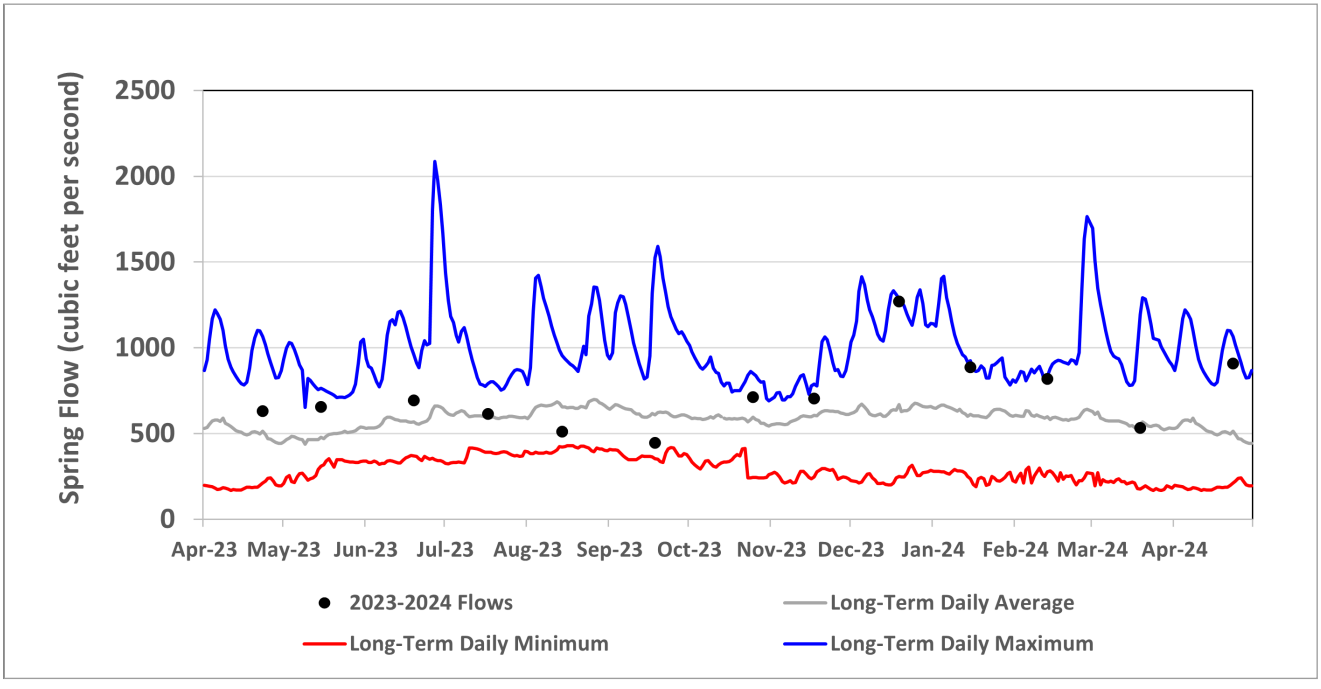
Wakulla and Sally Ward Spring System. After a short period where flows were near the long-term average in March, flow at Wakulla Spring during April 2024 increased to near the long-term maximum flow. The most recent flow measurement for Wakulla Spring was 909 cubic feet per second (cfs), which was collected on April 23, 2024 (**Figure 19**). The long-term (2004 to present) average flow for the month of April is 516 cfs.

Flow at Sally Ward Spring rose to 34.6 cfs which is the highest value measured during the month of April. The April average and minimum Sally Ward Spring flow, based on the November 1, 2004, to present period of record, were 21.2 and 4.5 cfs, respectively.

The Minimum Flow established for the combined Wakulla and Sally Ward Spring System under Florida Administrative Code chapter 40A-8.041 continues to be met. The long-term (October 22, 2004, through April 2024) average flows for Wakulla and Sally Ward Springs are 588 cfs and 24 cfs, respectively. The combined long-term spring flow for both systems is 612 cfs, which exceeds the established Minimum Flow of 539 cfs by 73 cfs.

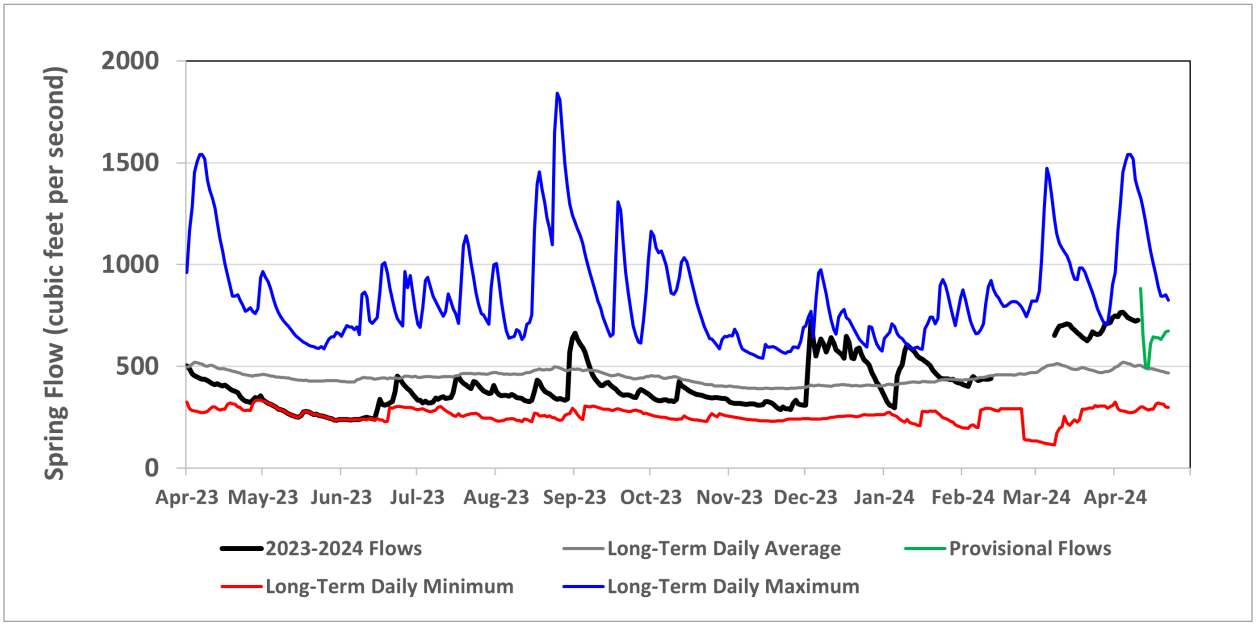
Figure 19: Daily Wakulla Spring flows

Data from April 2023 through April 2024 represent discrete measurements. Daily statistics are based on the October 22, 2004, through April 23, 2024, period of record.



St. Marks River Rise. The mean daily spring flow for April 2024 (April 1 – April 22) at the St. Marks River Rise is 687 cfs, based on the available USGS provisional data which extends through April 22, 2024 (**Figure 20**). The current 30-year moving average spring flow for the St. Marks River Rise based on the most recent approved USGS data (November 15, 1993, through November 14, 2023) is 429 cfs. If the provisional data from November 15, 2023, through April 22, 2024, are included, the 30-year moving average spring flow for the St. Marks River Rise is 431 cfs. The established Minimum Flow for the St. Marks River Rise is 419 cfs, indicating that the Minimum Flow is exceeded the 30-year moving average using both the approved and provisional data.

Figure 20: Daily spring flows for the St. Marks River Rise



Jackson Blue Spring. Daily average flows at Jackson Blue Spring for the month of April 2024 averaged 91.5 cfs, which is below the April monthly average of 119 cfs (**Figure 21**).

Gainer Spring Group. The average daily flow at the Gainer Spring Group was 154 cfs during April 2024 (April 1 through April 23, 2024) and represents the lowest monthly average for the period of continuous flow data, which extends from October 28, 2019, through present (**Figure 22**). The long-term average monthly spring flow for April is 191 cfs. It should be noted that there is a relatively short period of record for this system, and spring flows among the highest and lowest on record are to be expected.

Figure 21: Daily spring flows for Jackson Blue Spring

Data represents daily averages. Long-term flows represent the daily average between December 21, 2004, and April 30, 2024.

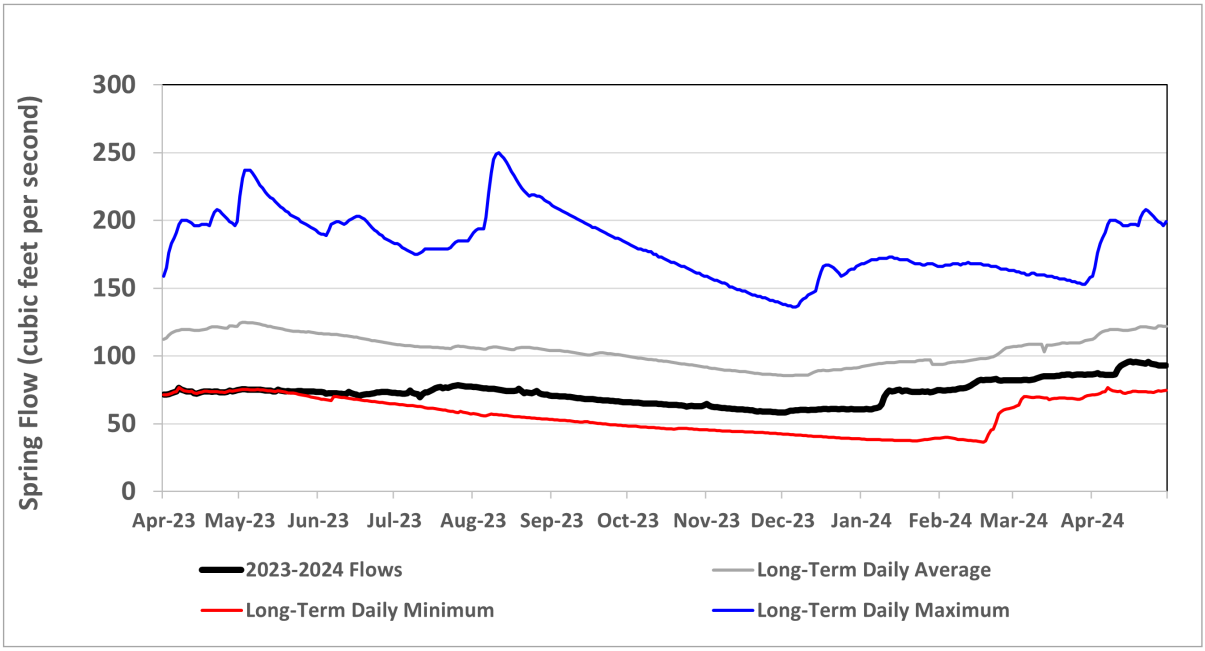
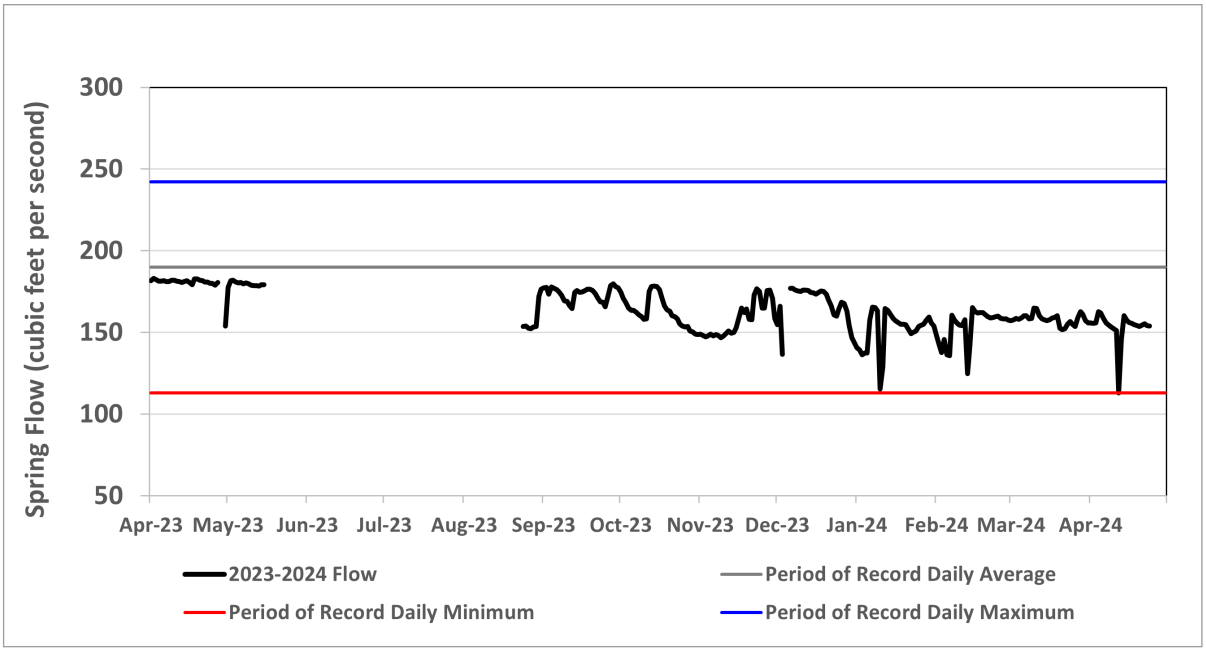


Figure 22: Gainer Spring Group flows

Data represents daily averages. Streamflow statistics are not shown due to the relatively short period of daily data.



Aquifer Levels

Most Floridan aquifer levels across the District were classified as within normal ranges by the middle of April 2024 except for at three stations (**Figures 23 - 29**). To the east, at the USGS-Benchmark Upper Floridan monitor well (NWFID 392) in central Wakulla County, levels increased to much above normal levels following the significant rain event on April 10 and 11, 2024 but quickly decreased to end the month back in normal ranges (**Figure 25**). At USGS-Lake Jackson Upper Floridan monitor well in northwest Leon County, levels increased to above normal ranges also following the April 10 and 11, 2024 significant rain event and continued to remain elevated at the close of the month (**Figure 24**). To the west, NWFWMD-Sand Hill Upper Floridan monitor well in northern Okaloosa County (NWFID 5597) continues to be classified as below normal, likely a result of a deficit of rainfall in the area (**Figures 2 & 3**). All sand-and-gravel aquifers depicted were within normal range (**Figure 23**).

Figure 23: Floridan aquifer monitor wells and aquifer level percentiles for April 2024

Percentile class rankings are based on each well's period of record. All wells have a minimum of 20 years of data.

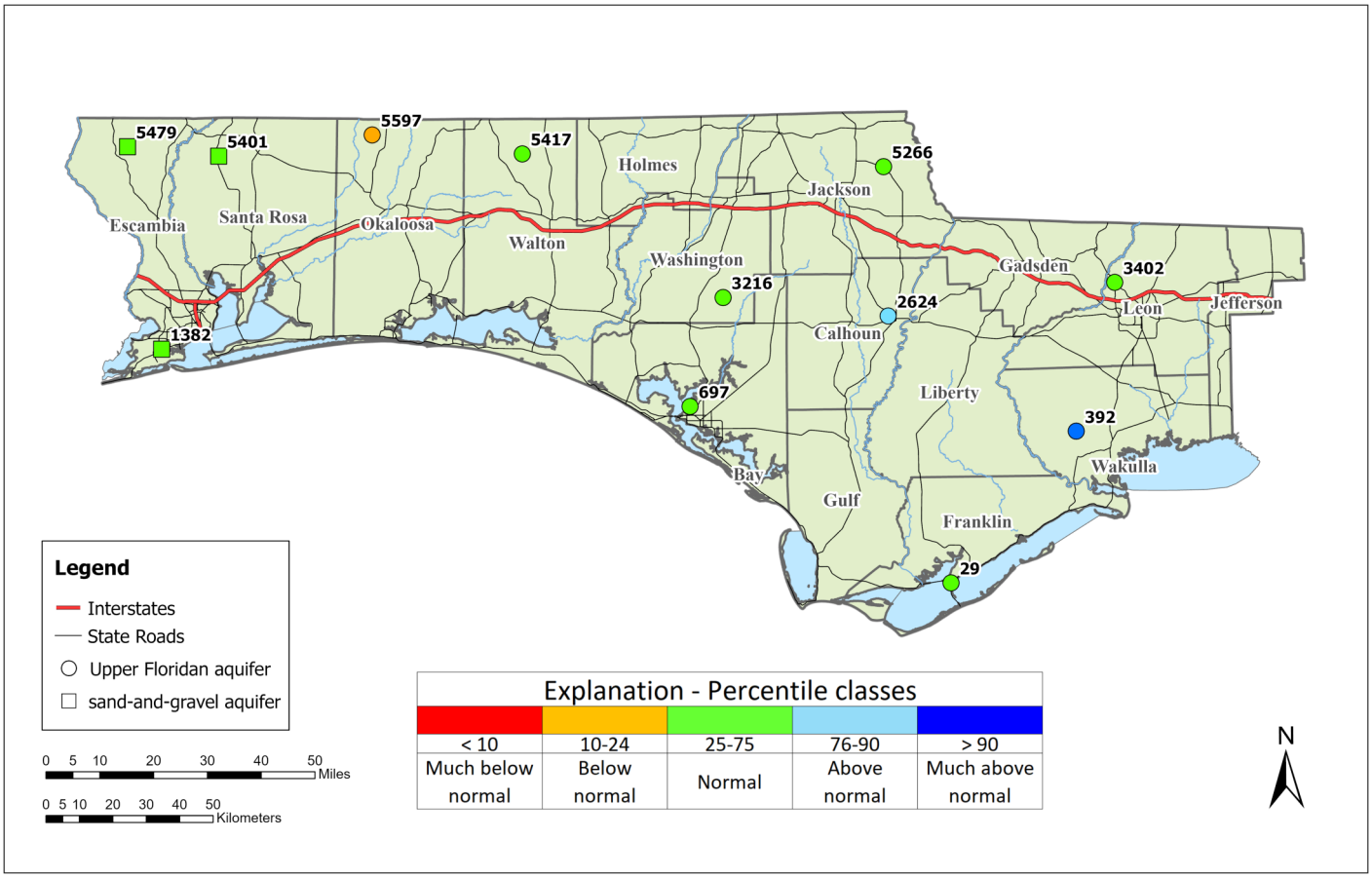


Figure 24: Daily Upper Floridan aquifer levels at USGS-Lake Jackson well (NWFID 3402), Leon County

Land surface elevation is 121.40 ft, NAVD 88

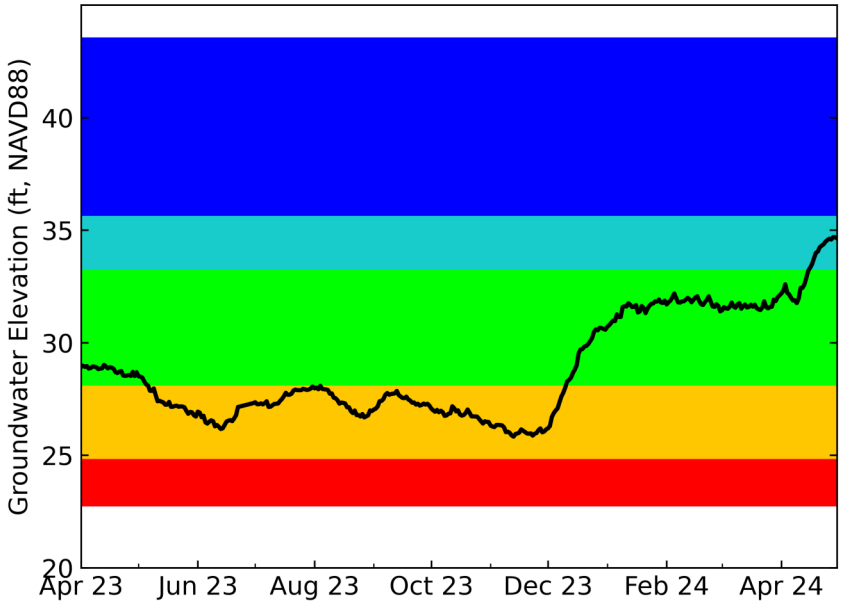
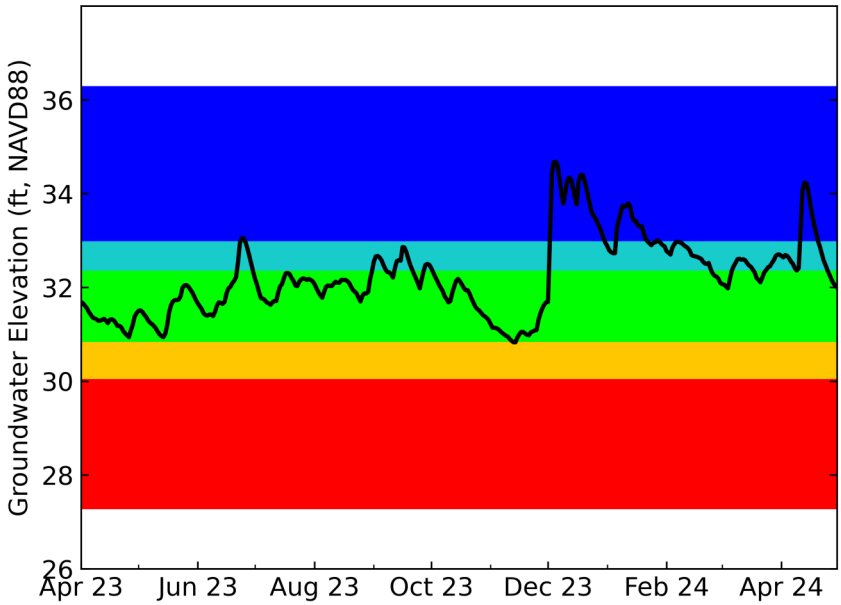


Figure 25: Daily Upper Floridan aquifer levels at USGS Benchmark well (NWFID 392), Wakulla County

Land surface elevation is 46.27 ft, NAVD 88



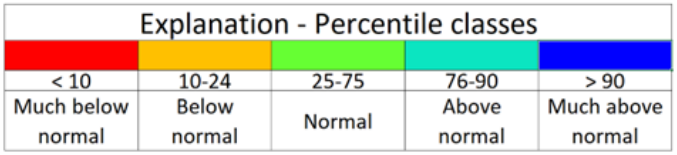


Figure 26: Daily Upper Floridan aquifer levels at NWFWMD Pittman Visa well (NWFID 5266), Jackson County

Land surface elevation is 127.31 ft, NAVD 88

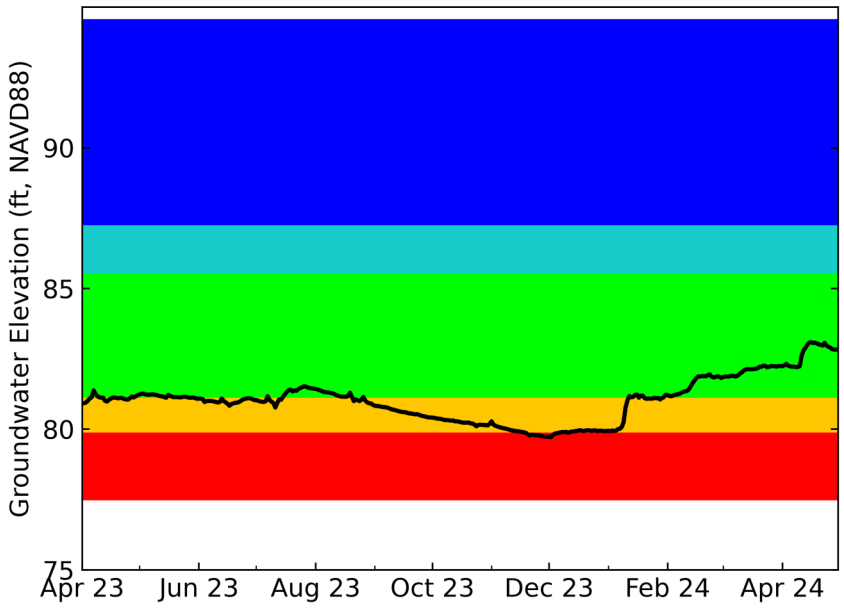


Figure 27: Daily Upper Floridan aquifer levels at USGS-422A Near Greenhead well (NWFID 3216), Washington County

Land surface elevation is 66.75 ft, NAVD 88

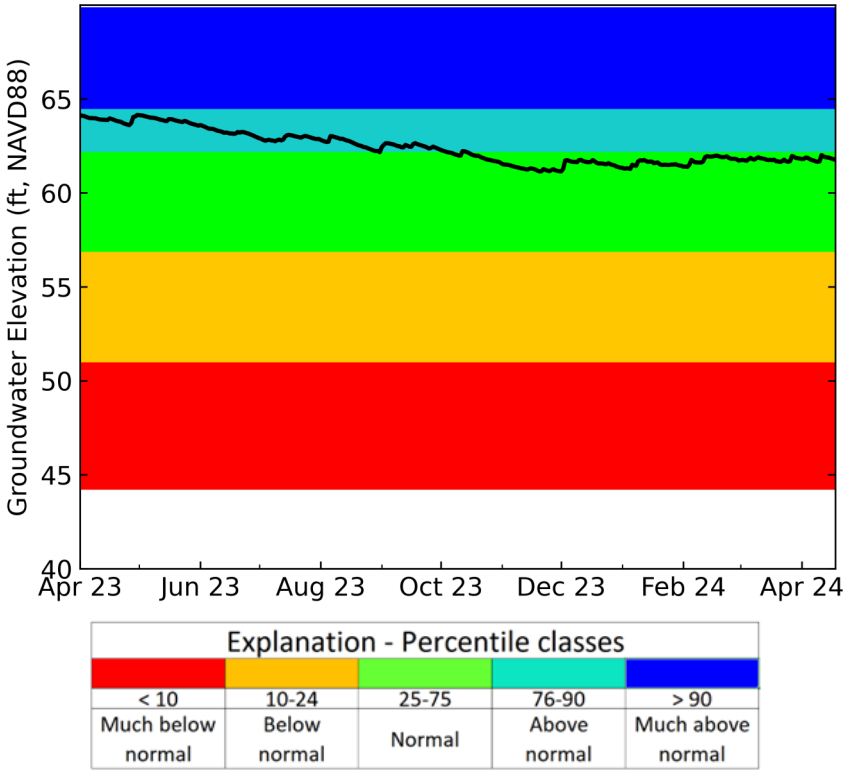


Figure 28: Daily Upper Floridan aquifer levels at Fannin Airport well (NWFID 697), Washington County

Land surface elevation is 4.05 ft, NAVD 88

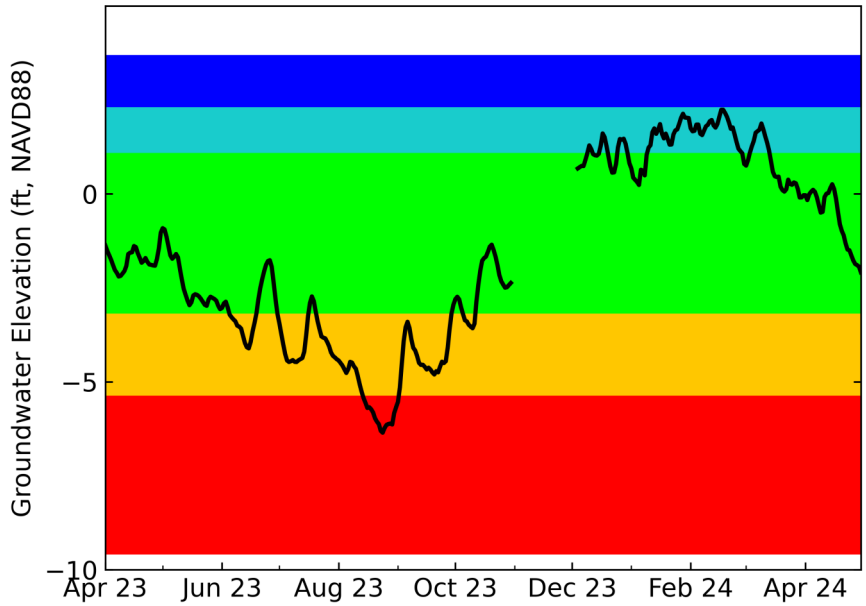
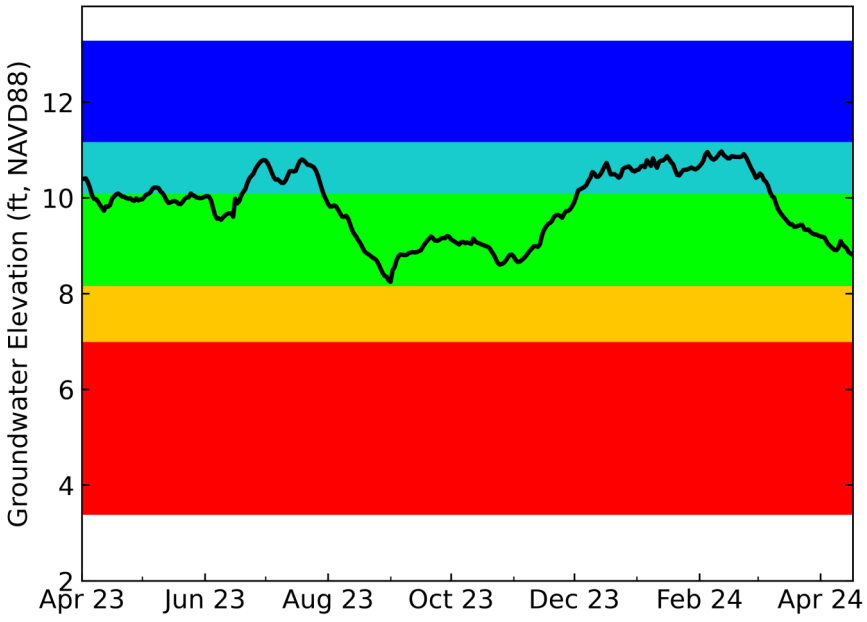


Figure 29: Daily sand-and-gravel aquifer levels at Weller Ave Deep well (NWFID 1382), Escambia County

Land surface elevation is 25.09 ft, NAVD 88



Explanation - Percentile classes				
< 10	10-24	25-75	76-90	> 90
Much below normal	Below normal	Normal	Above normal	Much above normal