Northwest Florida Water Management District

# Hydrologic Conditions Report

## January 2024




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Northwest Florida Water Management District

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## Summary


Near normal to slightly above average rainfall, near normal temperatures, and low winter season evapotranspiration resulted in stable or slightly increasing streamflow, aquifer levels, and lake levels across most of the District. Abnormally dry conditions were alleviated across the western counties, with the exception of a small area of northwest Escambia County. In southern Washington County, lake levels and aquifer levels continue to decline slowly, following the period of much above average hydrologic conditions that extended through 2022 in this region. Near normal to slightly wetter than average conditions are forecast to continue through February 2024.


## Rainfall

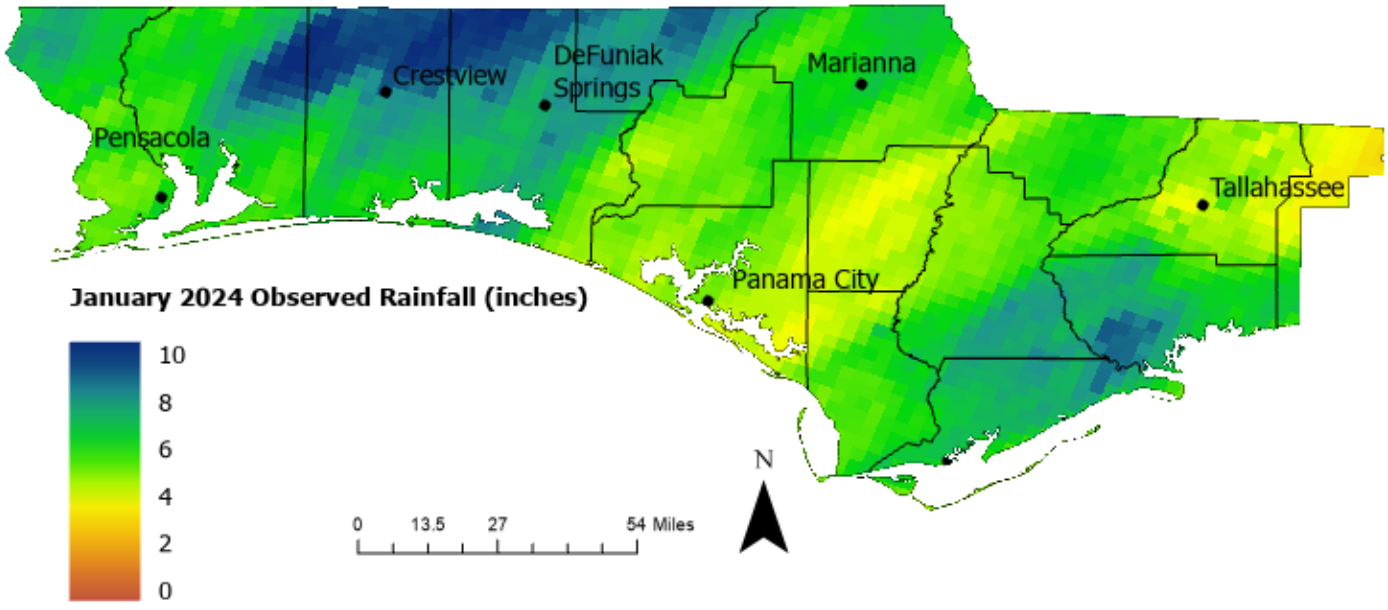
The Districtwide average rainfall for January (5.40 inches) was 4.7% (0.25 inches) above the 30-year normal value for January (5.15 inches). Normal rainfall is defined as average monthly rainfall for the 1991 to 2020 reference period. Rainfall varied spatially, with the highest rainfall occurring in the west-central portion of the District and in Wakulla and Franklin counties (**Table 1; Figures 1 - 7**). Severe weather moved across the panhandle on January 9th. The storm system led to an outbreak of several tornados and heavy rainfall. A second high rainfall event in the western portion of the District at the end of January contributed to increasing streamflows and aquifer levels in this region.

***Table 1: January 2024 rainfall compared to 30-year normals for Tallahassee, Marianna, Niceville, and Pensacola, Florida***

| Station | January Normals (1991 to 2020) | January 2024 Observed Rainfall | Percent Difference |
|---|---|---|---|
| Tallahassee Regional Airport | 4.41 | 5.35 | 19.3% |
| Marianna Regional Airport | 4.04 | 5.95 | 38.2% |
| Niceville, FL | 5.86 | 5.40 | -8.2% |
| Pensacola Regional Airport | 5.03 | 6.29 | 22.3% |

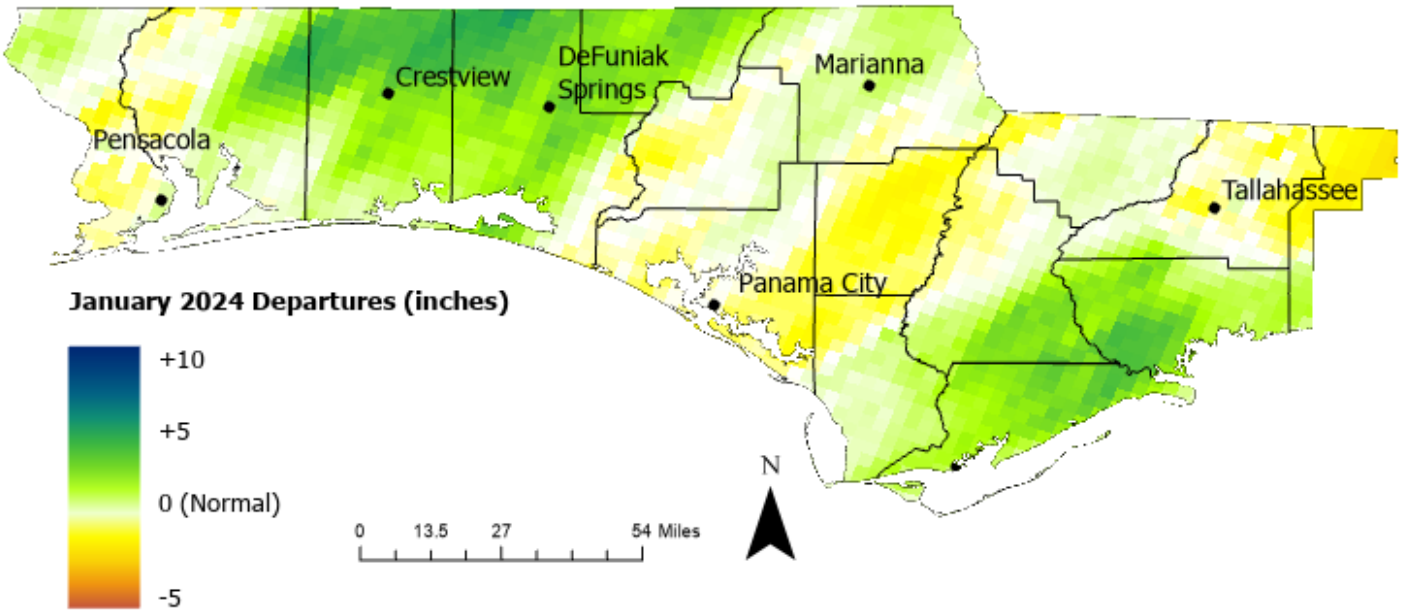
Source: https://www.weather.gov/wrh/Climate?wfo=tae

***Figure 1: District-wide January 2024 observed rainfall***



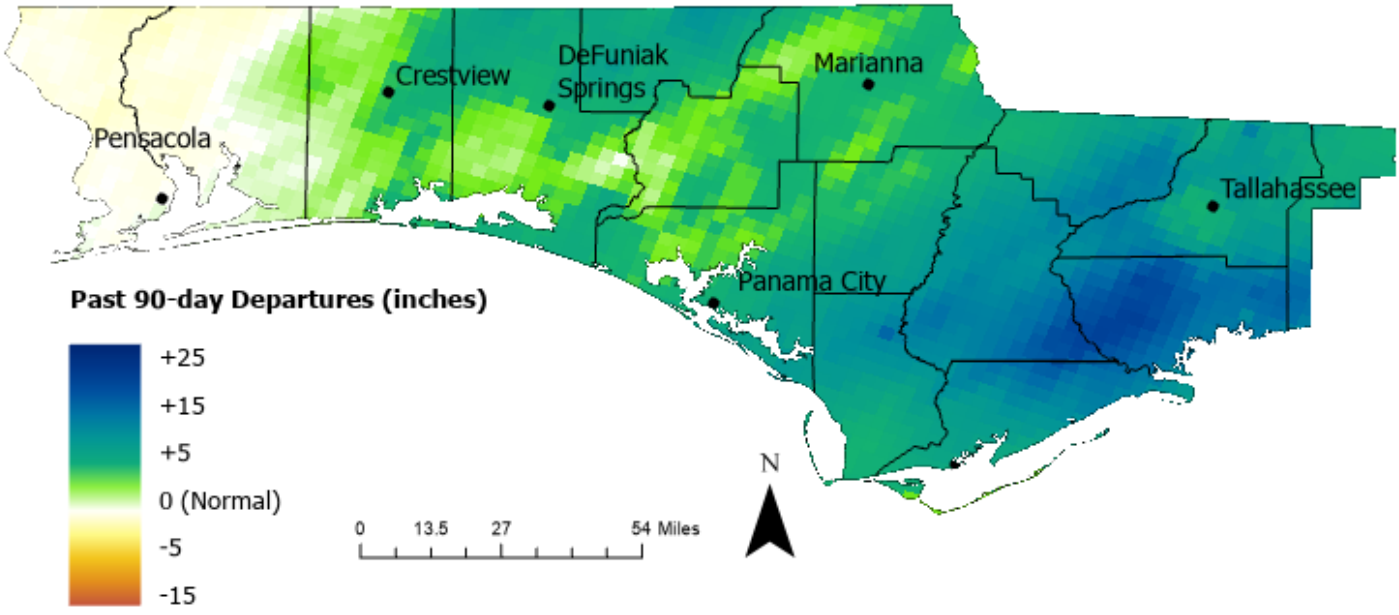

Source: https://water.weather.gov/precip/download.php

***Figure 2: District-wide January 2024 precipitation departure from normal***



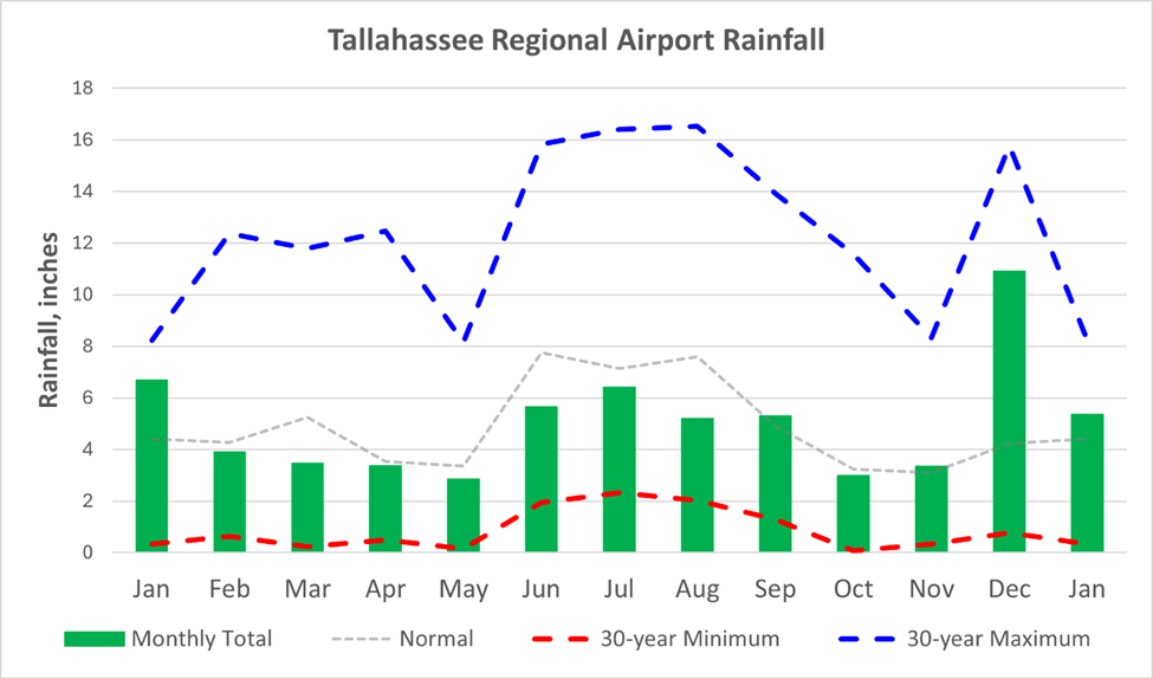

Source: https://water.weather.gov/precip/download.php

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



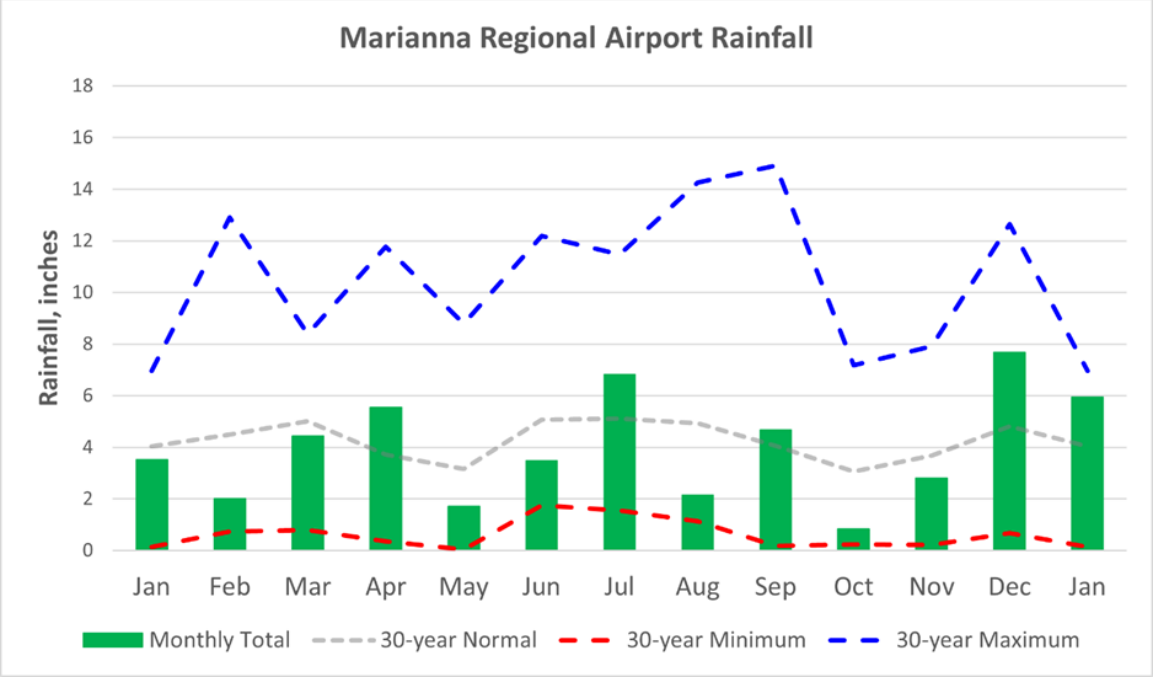

Source: https://water.weather.gov/precip/download.php

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



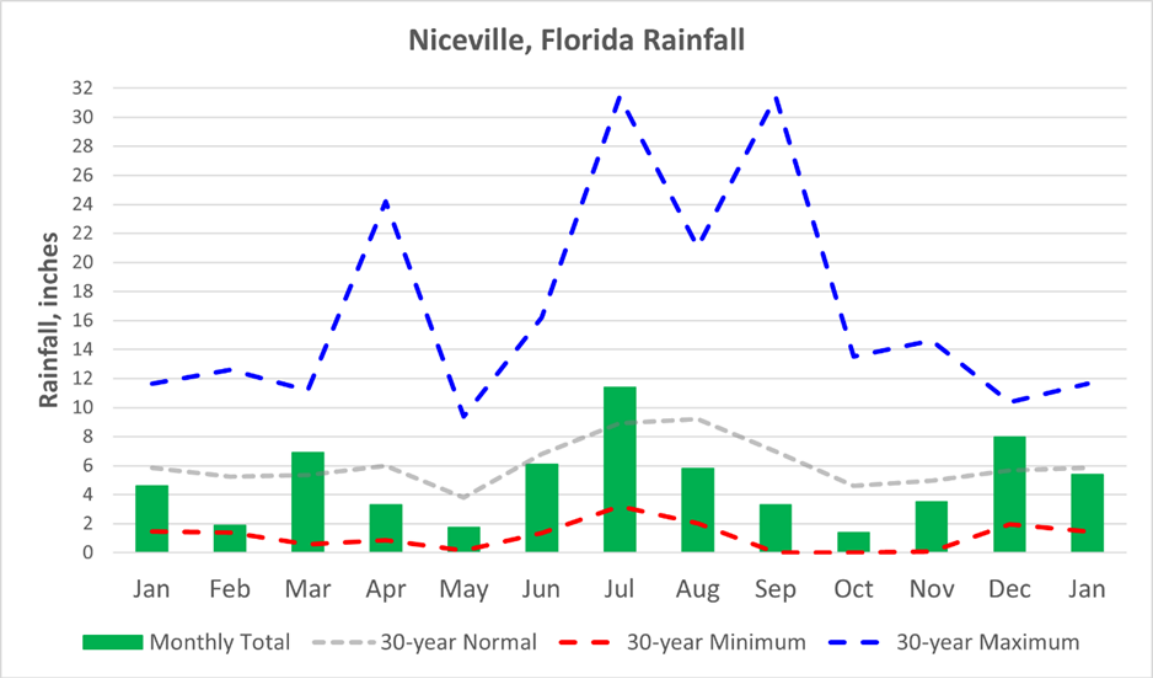

Source: https://www.weather.gov/wrh/Climate?wfo=tae

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



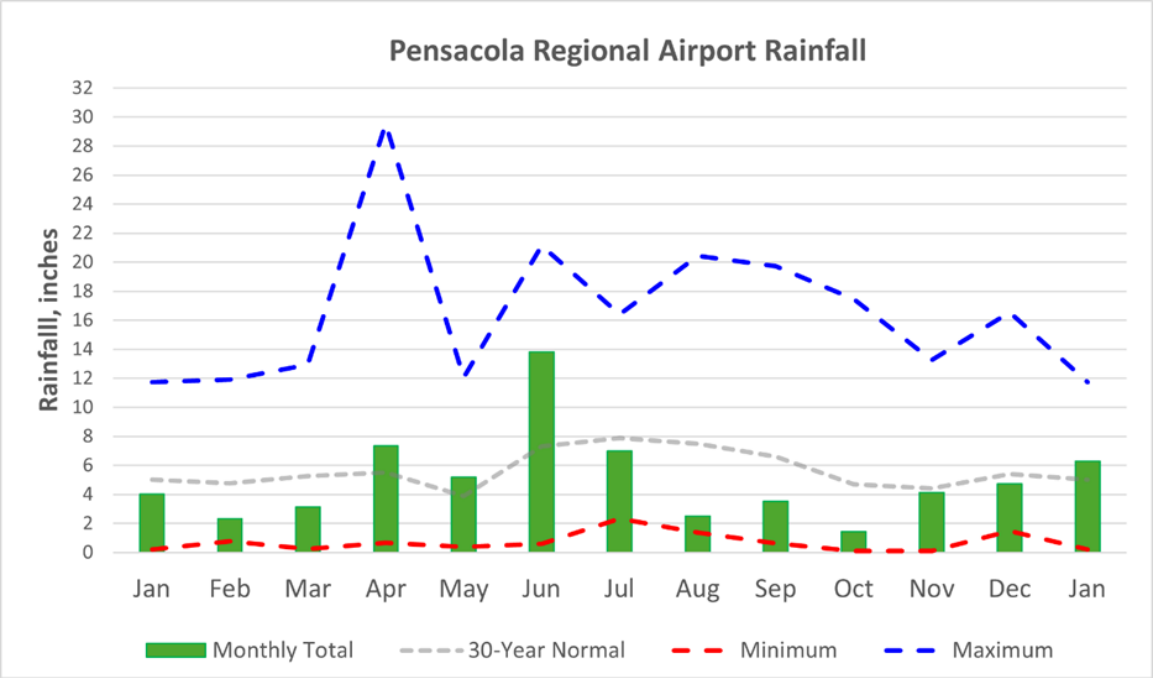

Source: https://www.weather.gov/wrh/Climate?wfo=tae

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




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

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

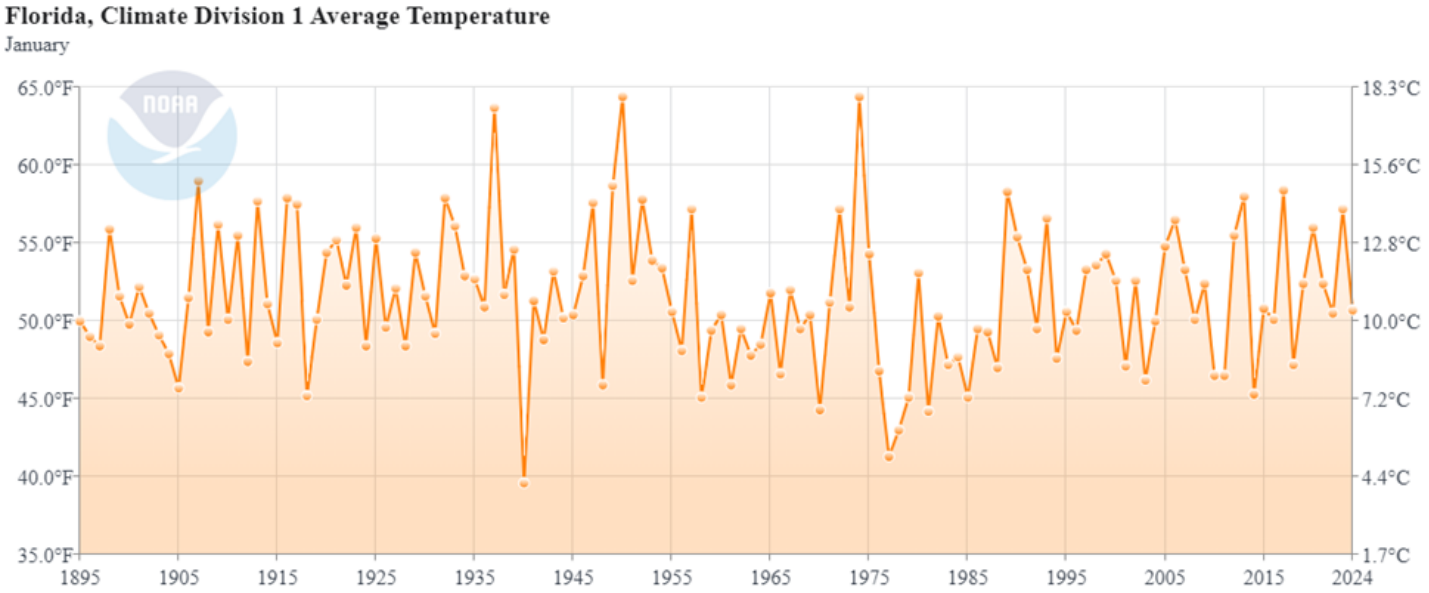



Source: https://www.weather.gov/wrh/Climate?wfo=mob

## Temperature

The average January temperature in Northwest Florida was near normal at 50.7 degrees Fahrenheit (**Figure 8**). The median temperature for the period of record is 50.9 degrees Fahrenheit. A hard freeze occurred across the panhandle in mid-January.

***Figure 8: January 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

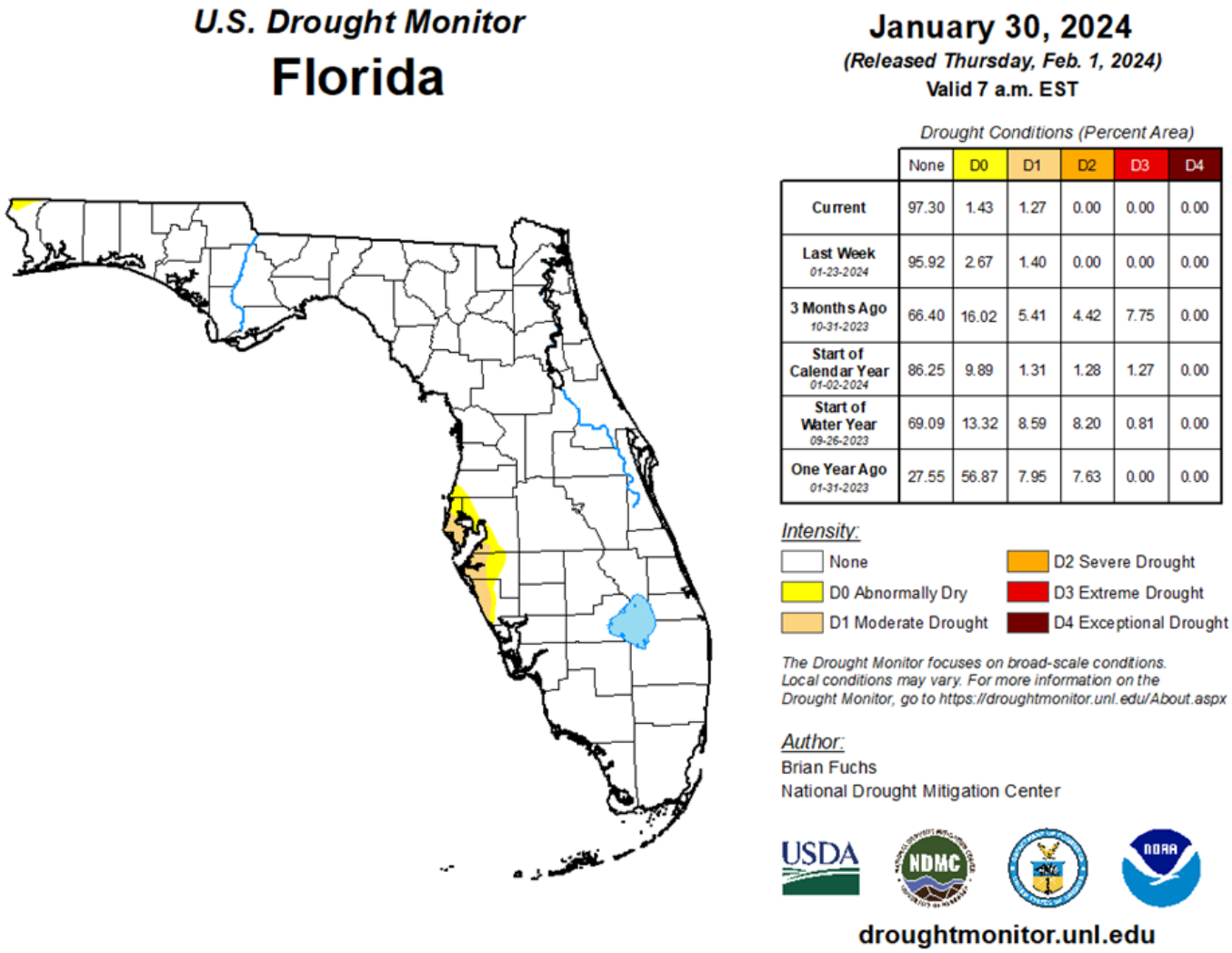
According to NOAA's climate prediction center, the forecast for February 2024 is for near normal temperatures and a slight probability of above average rainfall across the District. El Niño conditions are anticipated to persist through February 2024, and are typically associated with above average winter precipitation in the southeastern U.S.

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

## Drought Conditions

January rainfall alleviated the abnormally dry conditions present in the western portion of the District during December 2023. The U.S. Drought Monitor report released on January 30, 2024, showed abnormally dry conditions remain only in the northwest corner of Escambia County (Figure 9).

***Figure 9. Florida Drought Conditions on January 30, 2024***

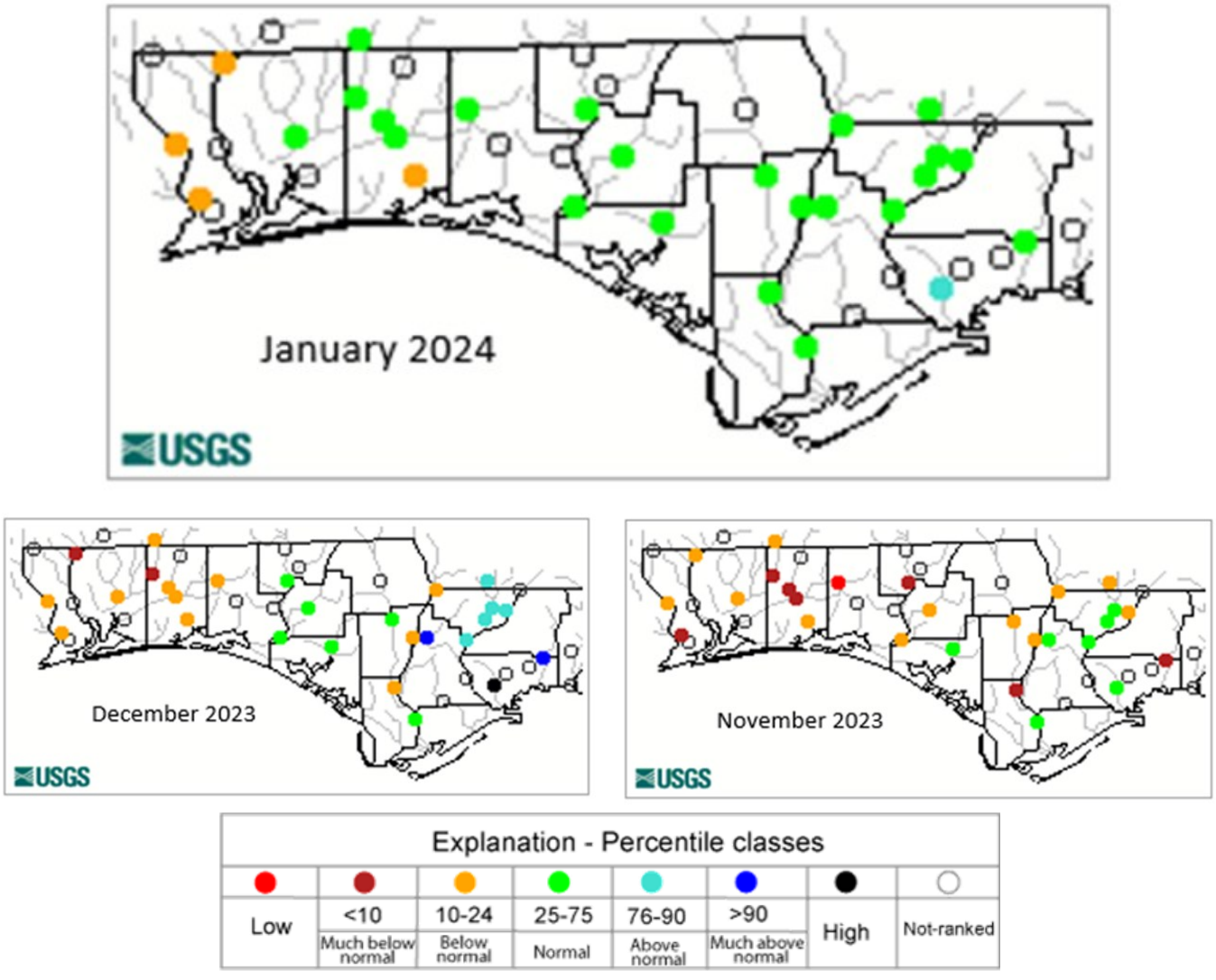



Source: https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?FL

## Surface Water

**Streamflows.** Higher-than-normal rainfall during December and January contributed to an increase in streamflow during the month of January across most of the District (**Figure 10**). The USGS streamflow stations indicate that daily discharge values in January were in the normal range for most of the District (**Figures 10 - 16**). Average monthly flows at several sites in the far western portion of the District were classified as below normal, including stations along the Escambia and Perdido Rivers, but flows increased in response to rainfall received at the end of the month.

***Figure 10: Northwest Florida November 2023 to January 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***

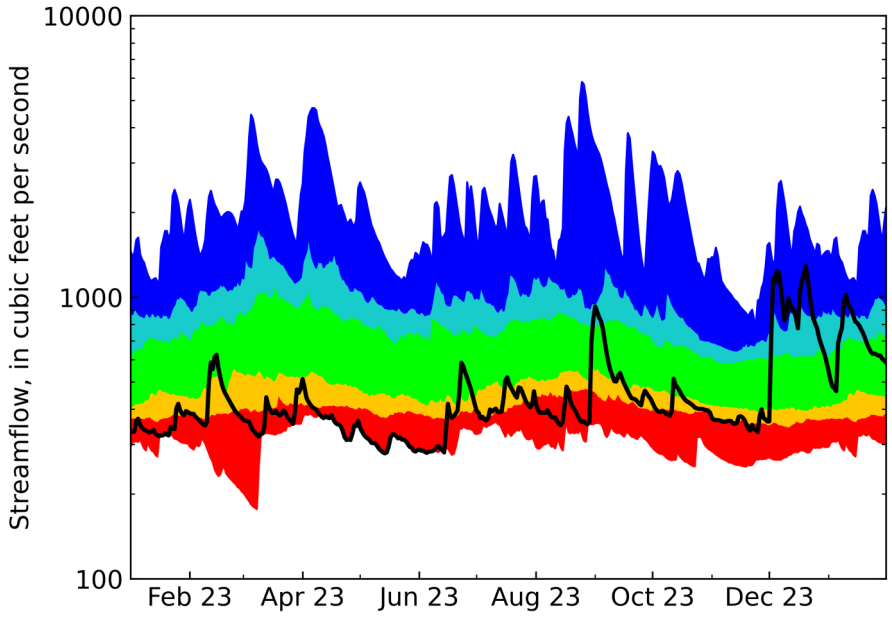



***Figure 12: Daily streamflows and percentile ranges for USGS Station 02329000 Ochlockonee River Near Havana, Florida***

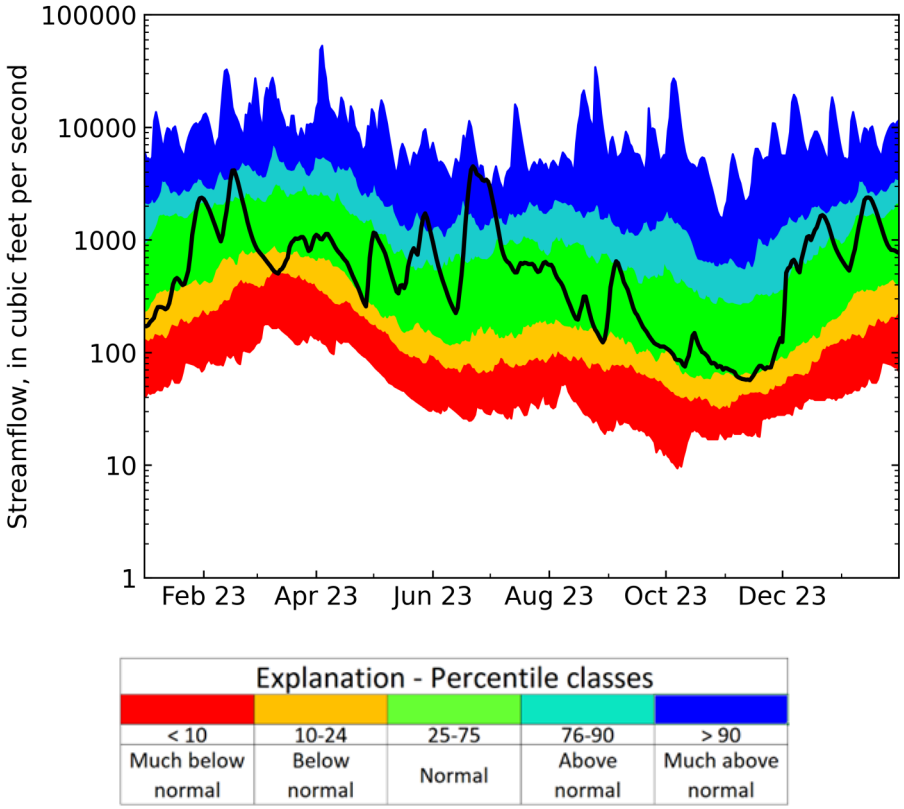


***Figure 13: Daily streamflows and percentile ranges for USGS Station 02358700 Apalachicola River Near Blountstown, Florida***

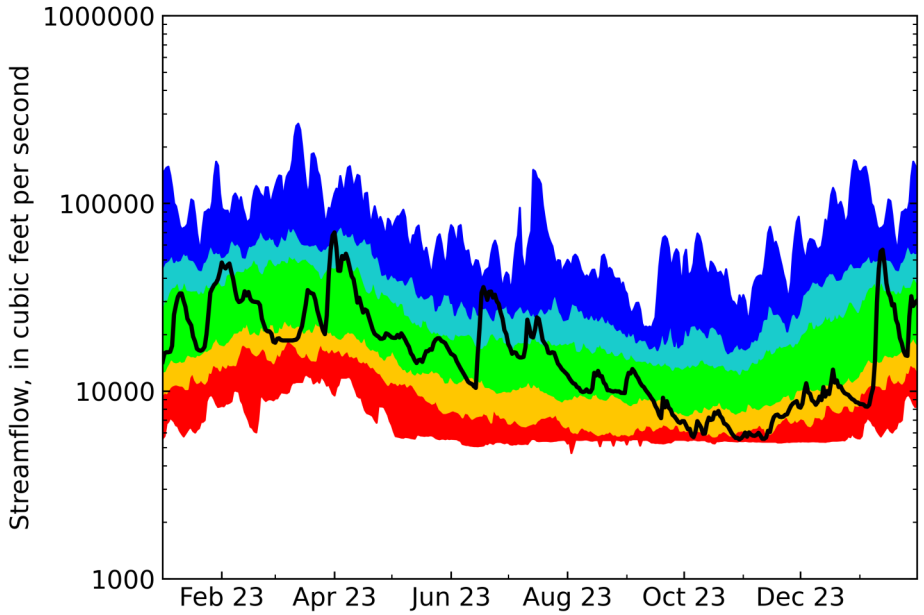



***Figure 14: Daily streamflows and percentile ranges for USGS Station 02366500 Choctawhatchee River Near Bruce, Florida***

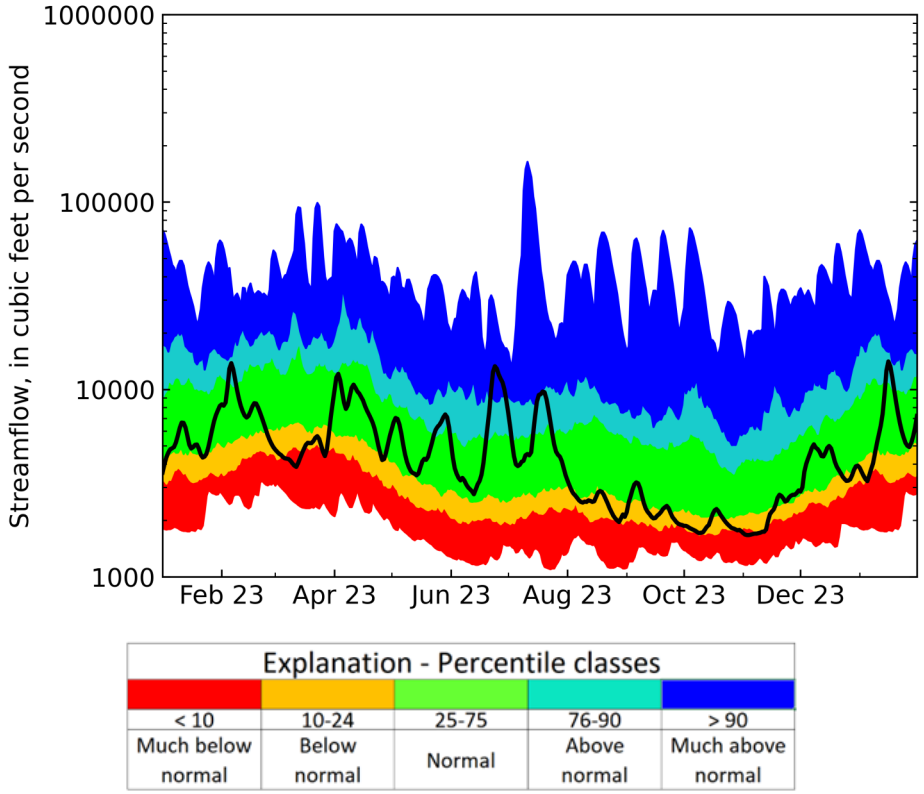


***Figure 15: Daily streamflows and percentile ranges for USGS Station 02370000 Blackwater River Near Baker, Florida***

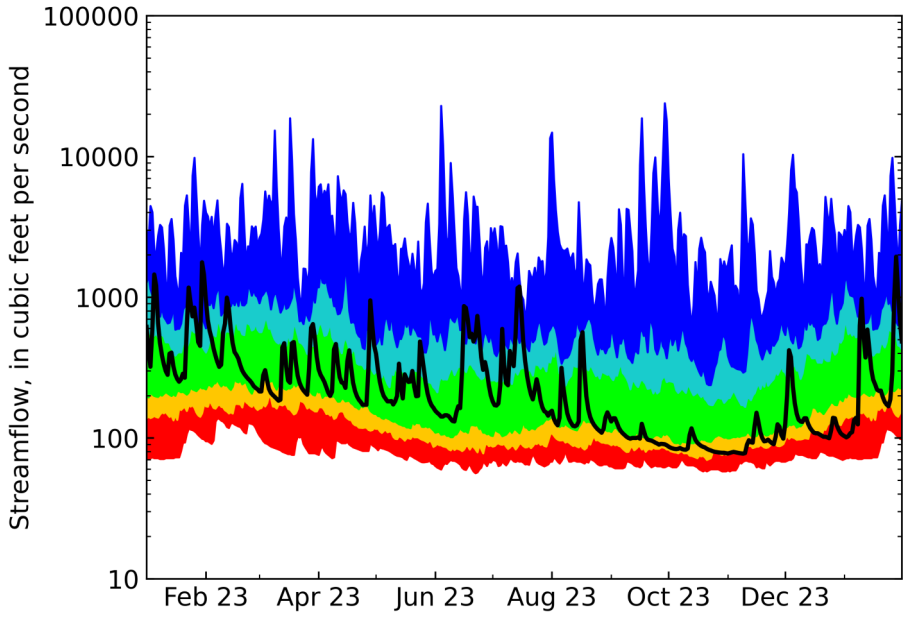
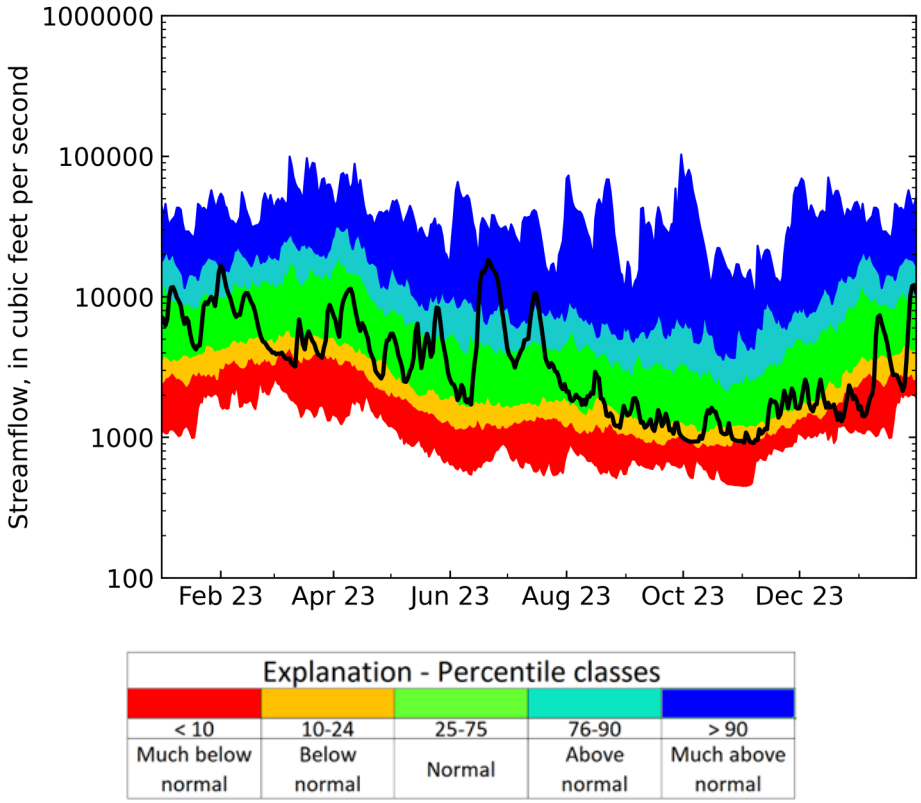



***Figure 16: Daily streamflows and percentile ranges for USGS Station 02375500 Escambia River Near Century, Florida***



**Lake Levels.** Water levels at Lake Jackson in Leon County were relatively stable, near 80 ft NAVD 88. Lake Jackson levels remain below the full pool level of 86 ft, NAVD 88 (Figure 17). In southern Washington County, water levels at Piney Lake continued to decrease in January, reaching the 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***

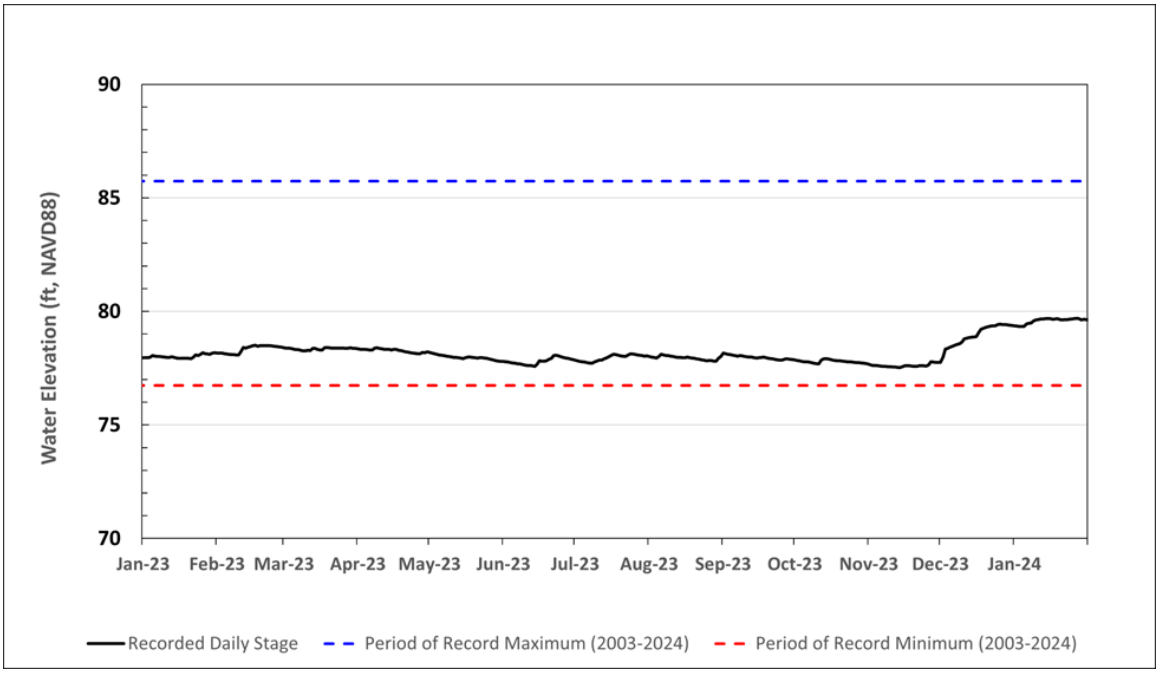
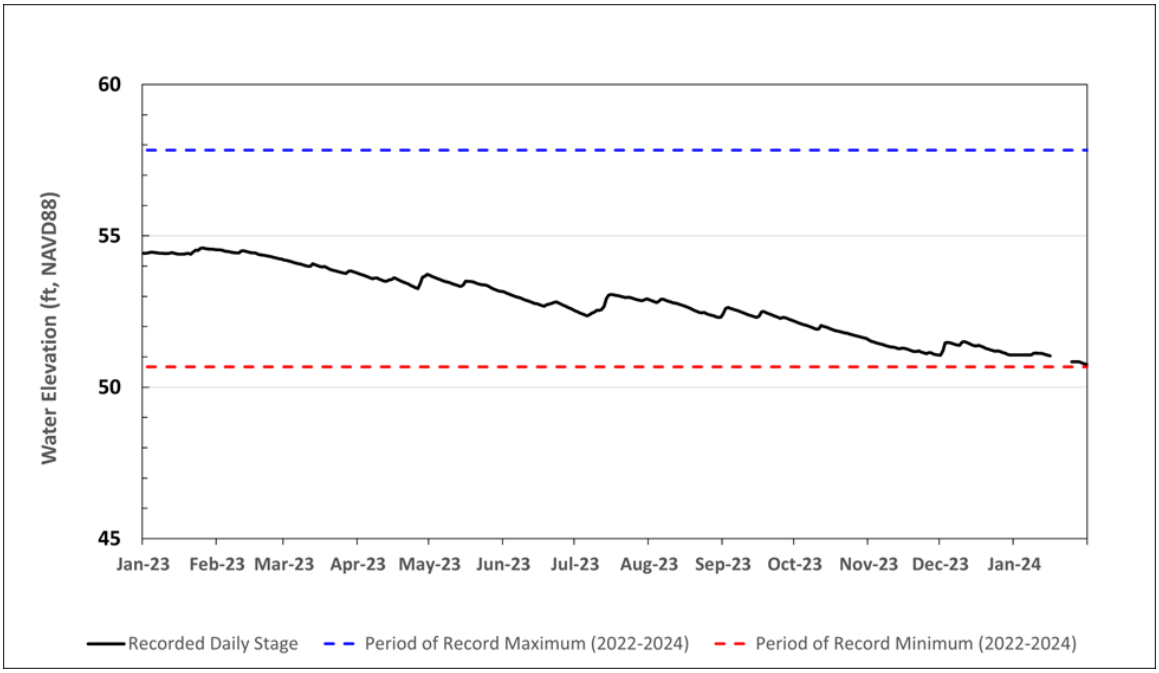



***Figure 18: Daily water levels at Piney Lake, Washington County***



## Spring Flows

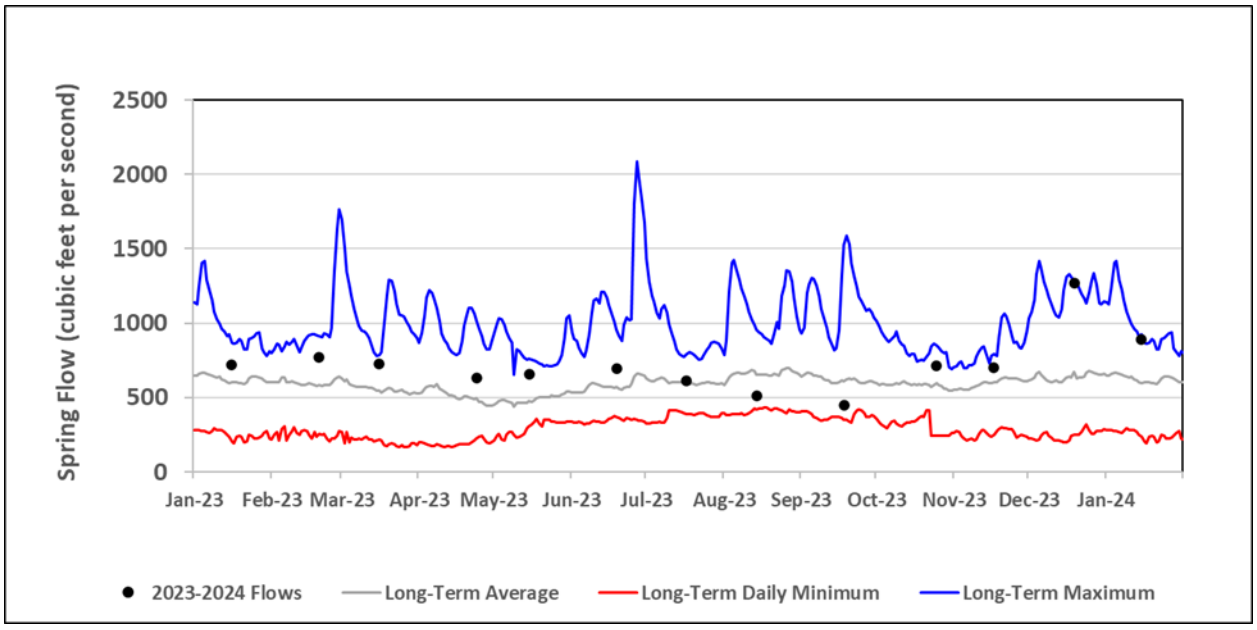
**Wakulla and Sally Ward Spring System.** Flow at Wakulla Spring continues to be elevated relative to the long-term average. The most recent flow measurement for Wakulla Spring was 887 cubic feet per second (cfs), which was collected on January 15, 2024 (**Figure 19**). Similar to discharge measurements occurring since October 2023, this measurement is close to the maximum value measured at Wakulla Spring since 2005. The long-term (2004 to present) average flow for the month of January is 626 cfs.

Flow at Sally Ward Spring continues to be slightly elevated (36.8 cfs) compared to the long-term average for the month of January of 24.8 cfs. The January minimum and maximum Sally Ward Spring flow, based on the November 1, 2004, to present period of record were 13.4 and 38.4 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, to present) average flows for Wakulla and Sally Ward Springs through January 2024 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.

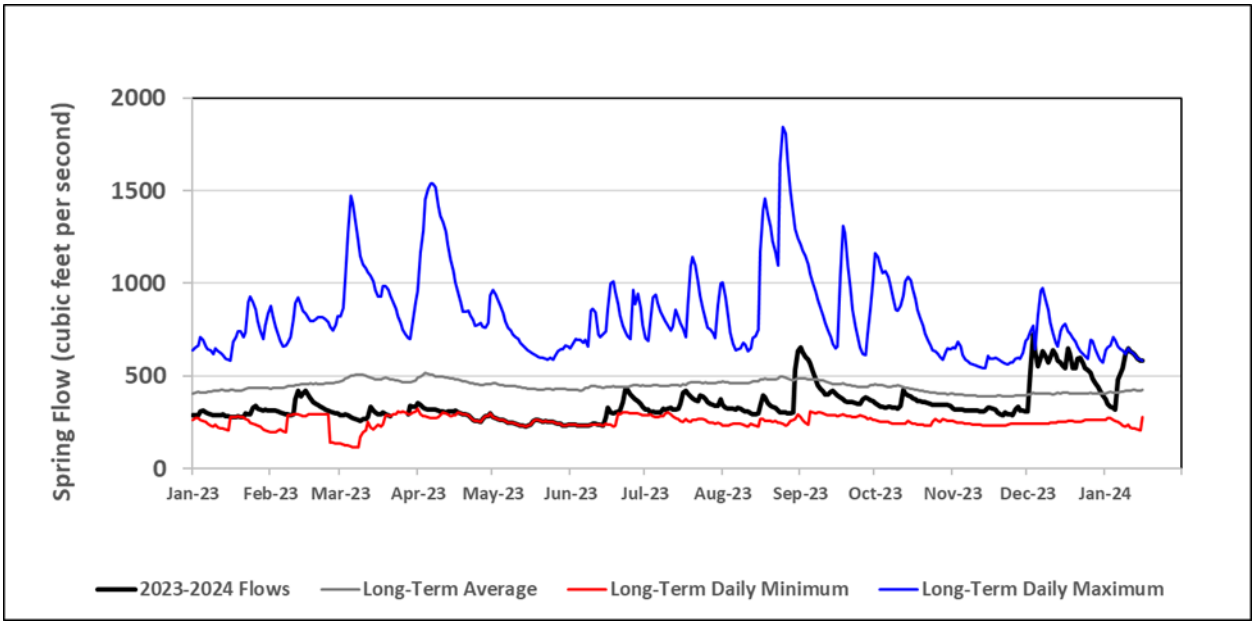
***Figure 19: Daily Wakulla Spring flows***

Data from January 2023 through February 2024 represent discrete measurements. Daily statistics are based on the October 22, 2004, through December 31, 2023, period of record.



**St. Marks River Rise.** The mean daily spring flow for January 2024 at the St. Marks River Rise is 509 cfs, based on the available USGS provisional data which extends through January 16, 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 (October 14, 1992, through October 13, 2022) is 434 cfs. If the provisional data from October 14, 2022, through January 16, 2024, are included, the 30-year moving average spring flow for the St. Marks River Rise is 428 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 January 2024 averaged 70.2 cfs, which is below the January monthly average of 95 cfs (**Figure 21**). Spring flows have been increasing in relation to the observed daily flows since May 2023. Between March and May 2023, Jackson Blue spring flows were among the lowest on record ranging from 67.8 to 76.6 cfs.

**Gainer Spring Group.** The average daily flow at the Gainer Spring Group was 169 cfs during January 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 January is 187 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 represent daily averages. Long-term flows represent the daily average between December 21, 2004, and January 31, 2024.

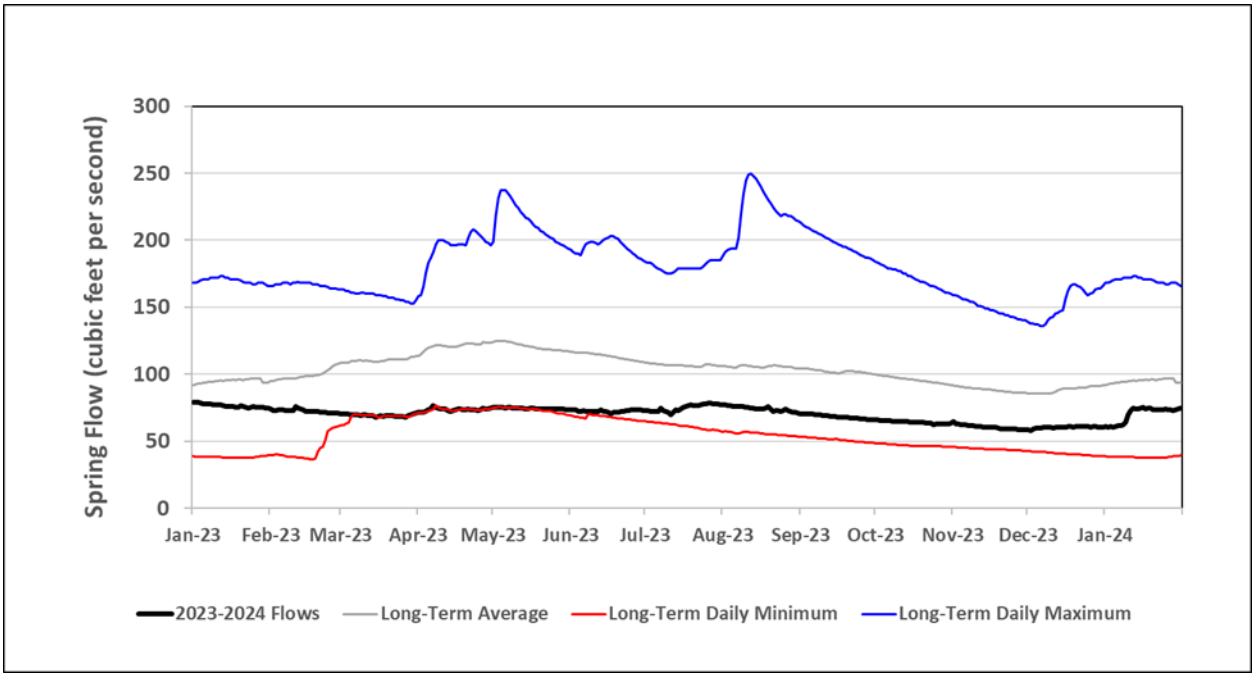
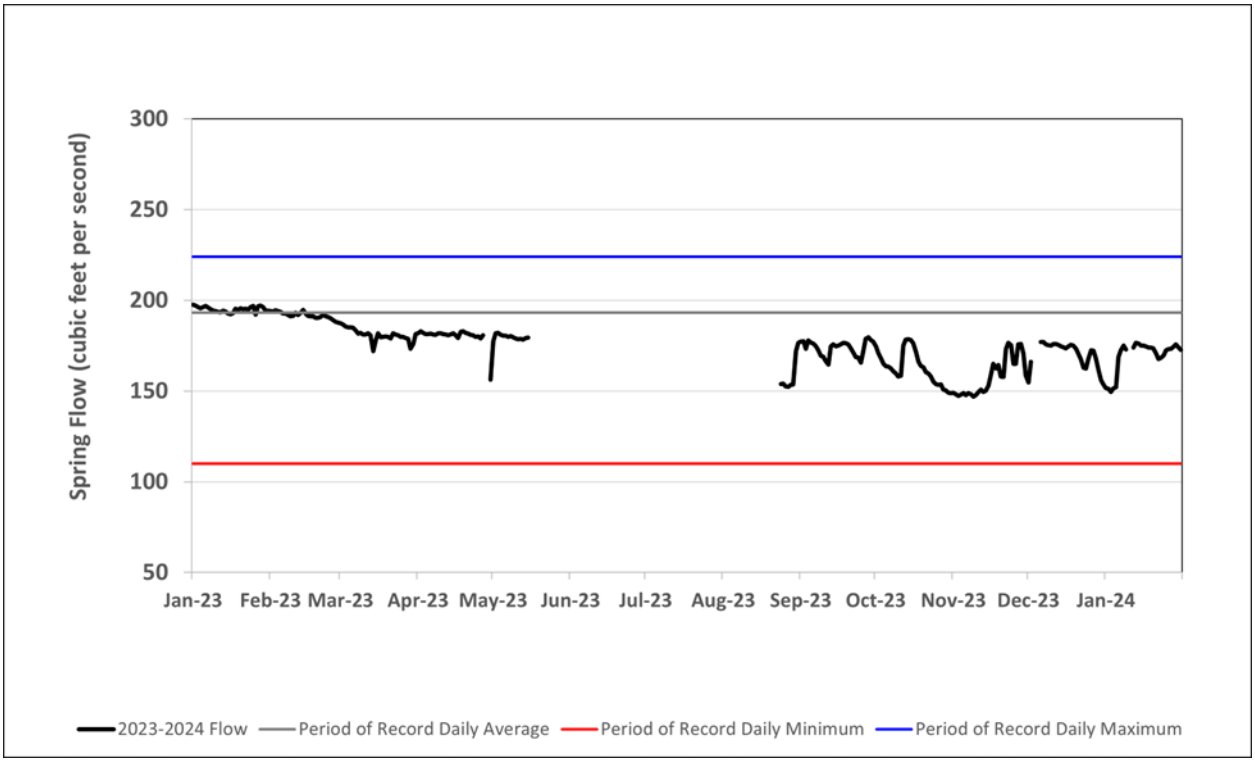



***Figure 22: Gainer Spring Group flows***

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



## Aquifer Levels

Floridan aquifer levels across the District were classified as at or above normal at the end of January (Figures 23 - 29). At most monitor wells, aquifer levels remained stable or increased slightly during January 2024. Groundwater levels at the USGS-422A Near Greenhead monitor well in northern Washington County continued to decline slowly, reaching normal ranges, following an extended period of above normal levels that extended from September 2020 to September 2023. Groundwater levels at the NWFWMD-Pittman VISA monitor well in central Jackson County increased to normal levels at the end of the month following several months at below to much below normal levels.

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

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

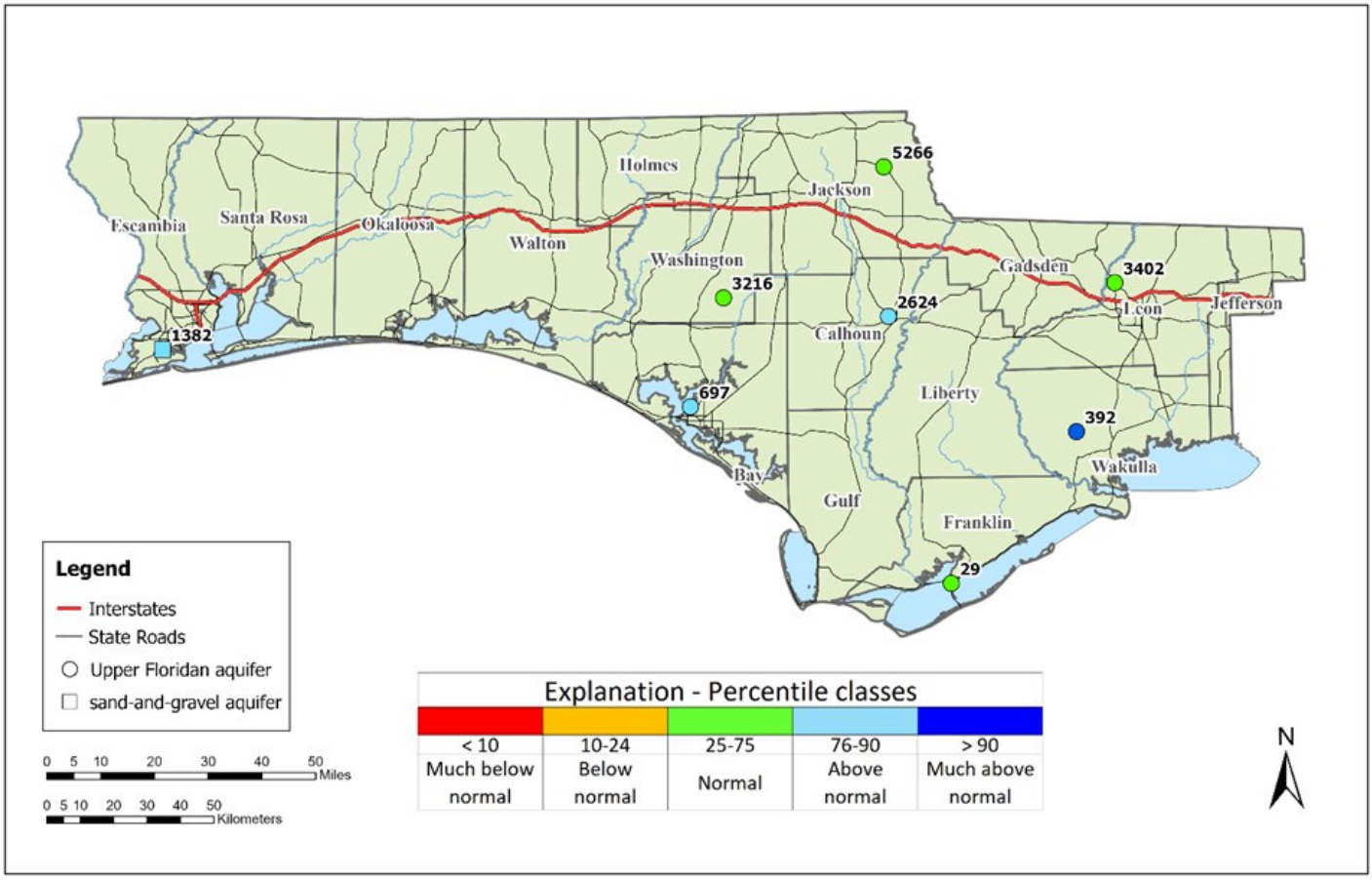


***Figure 24: Daily Upper Floridan aquifer levels at USGS-Lake Jackson well (NWFID 3402), Leon County***

Land surface elevation is 121.40 ft, NAVD 88

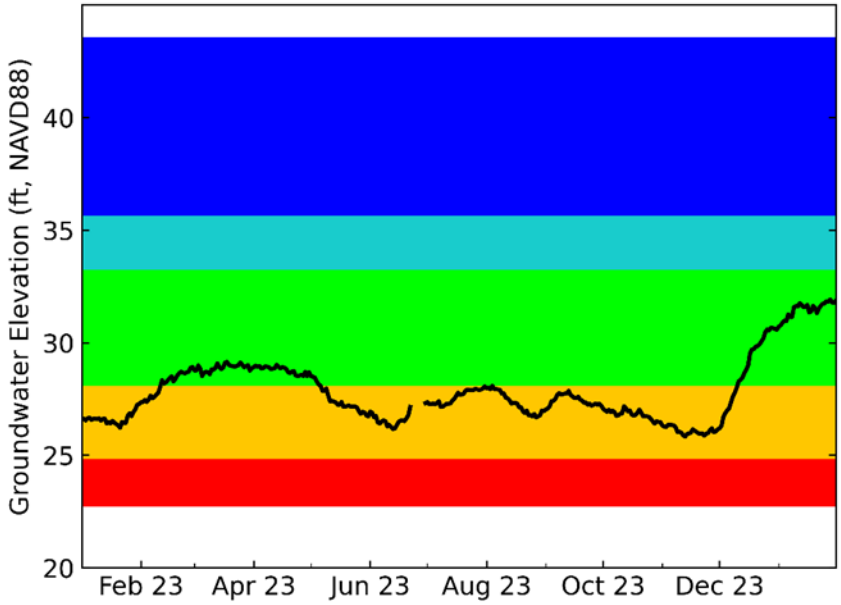
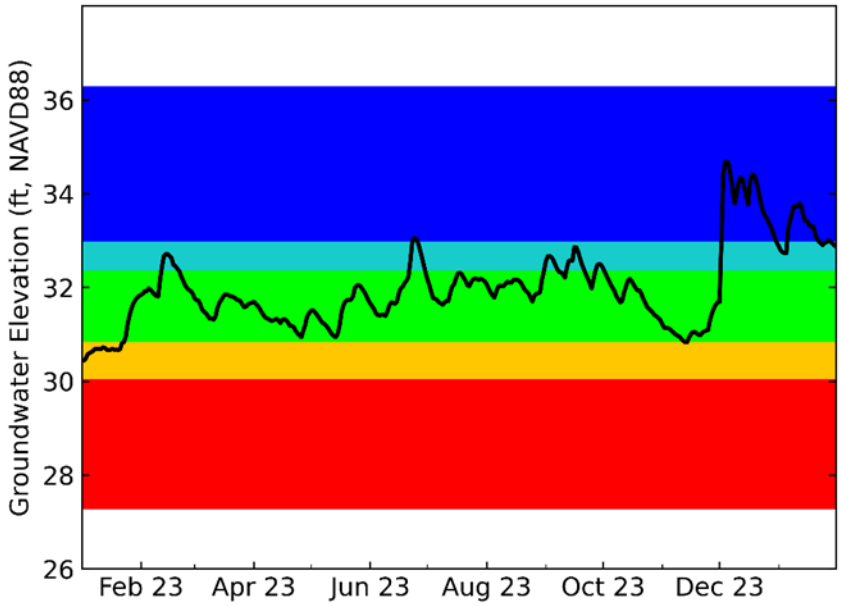



***Figure 25: Daily Upper Floridan aquifer levels at USGS Benchmark well (NWFID 392), Wakulla County***

Land surface elevation is 46.27 ft, NAVD 88




Explanation - Percentile classes

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

***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

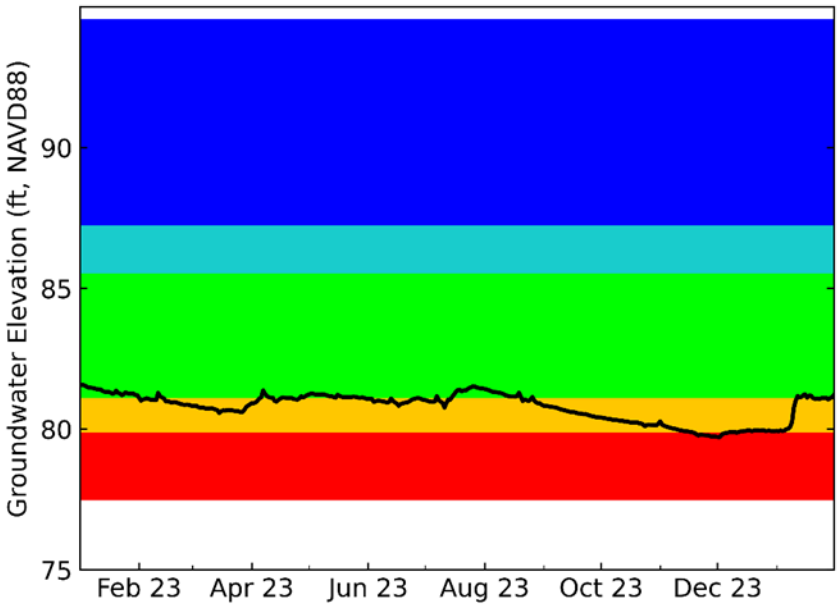



***Figure 27: Daily Upper Floridan aquifer levels at USGS-422A Near Greenhead well (NWFID 3216), Washington County***

Land surface elevation is 66.75 ft, NAVD 88

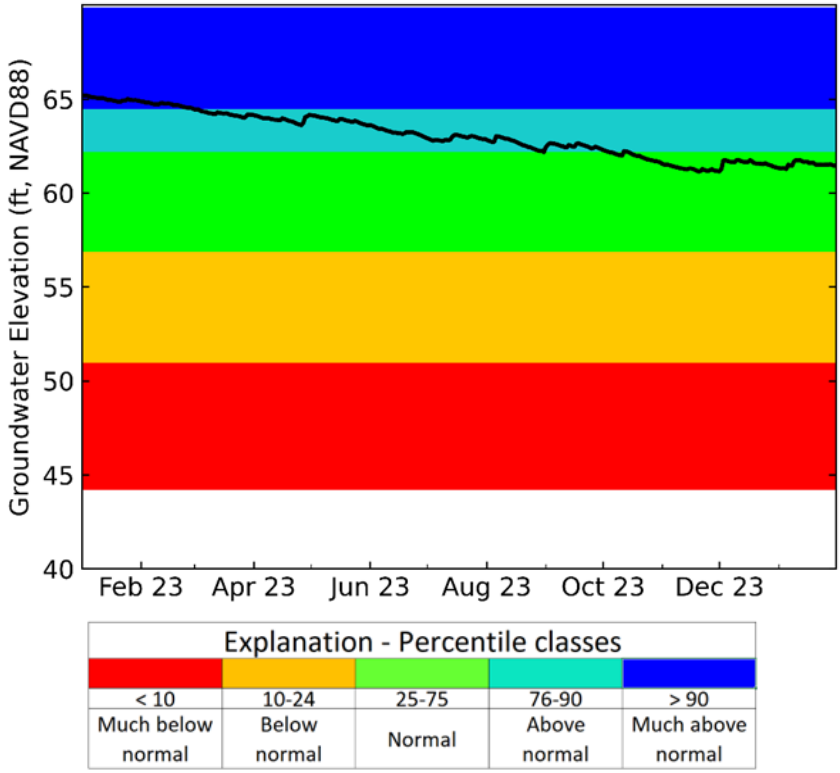


***Figure 28: Daily Upper Floridan aquifer levels at Fannin Airport well (NWFID 697), Washington County***

Land surface elevation is 4.05 ft, NAVD 88

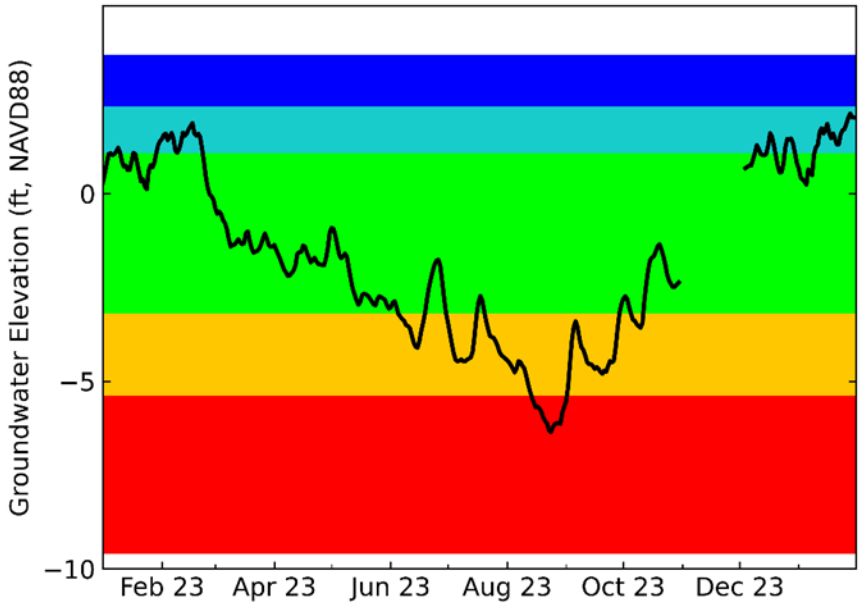



***Figure 29: Daily sand-and-gravel aquifer levels at NWFWMD Weller Ave Deep well (NWFID 1382), Escambia County***

Land surface elevation is 25.09 ft, NAVD 88