



Hydrologic Conditions Report

February 2024

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Summary

Less-than-normal rainfall, near to below normal temperatures, and low evapotranspiration resulted in generally stable or slightly decreasing streamflow, aquifer levels, and lake levels across most of the District. Abnormally dry conditions expanded from a small area of northwest Escambia County to encompass all of Escambia County and a portion of western Santa Rosa County. In southern Washington County, lake levels and aquifer levels continued to decline slowly, following the period of much above average hydrologic conditions that extended through 2022 in this region.

Rainfall

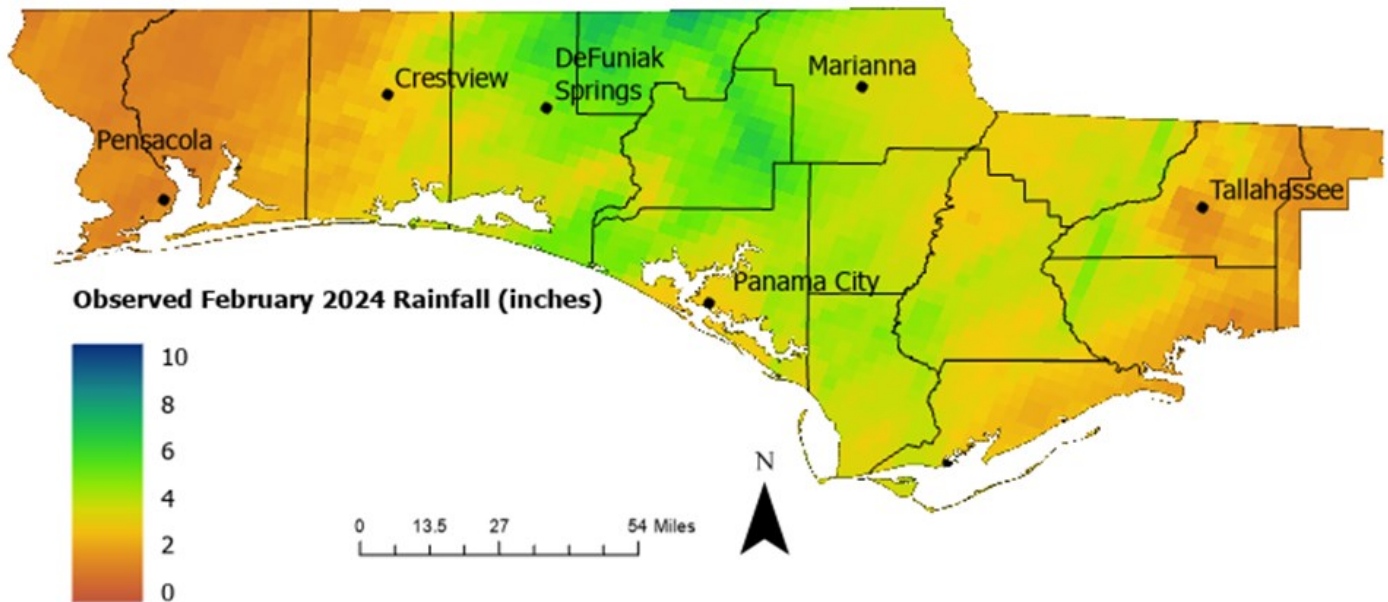
The Districtwide average rainfall for February (3.27 inches) was 36.7% (1.47 inches) below the 30-year normal value for February (4.74 inches). Normal rainfall is defined as average monthly rainfall for the 1991 to 2020 reference period. Rainfall varied spatially, with the highest rainfall occurring in the central portion of the District with the north-central counties receiving slightly above normal rainfall (**Table 1; Figures 1 - 7**). There was a significant rainfall event on February 4, 2024, caused by an area of low pressure that moved inland from the Gulf of Mexico into the central-eastern region of the District producing up to three inches of rain in some areas. There was another rainfall event caused by a weak frontal passage across the panhandle on February 17, 2024, that produced up to 0.75 inches of rain in some areas.

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

Station	February Normals (1991 to 2020)	February 2024 Observed Rainfall	Percent Difference
Tallahassee Regional Airport	4.28	2.25	-62.2%
Marianna Regional Airport	4.49	3.57	-22.8%
Niceville, FL	5.25	2.59	-67.9%
Pensacola Regional Airport	4.77	1.37	-110.7%

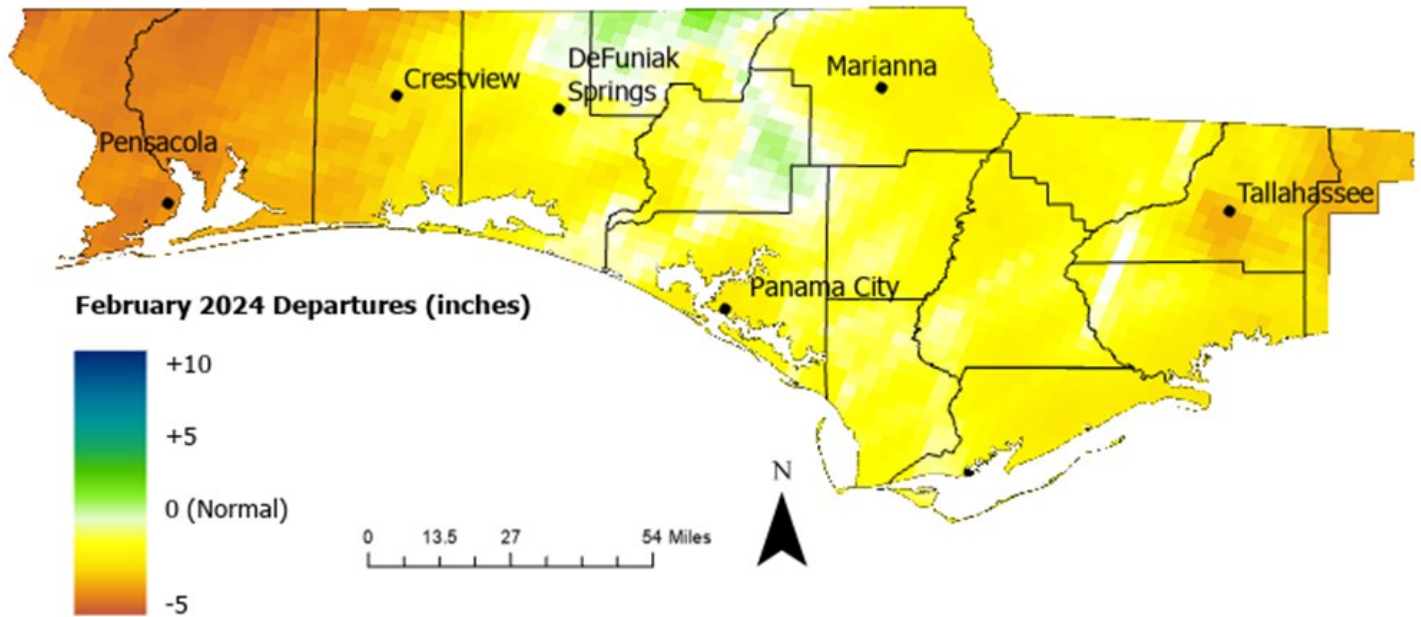
Source: <https://www.weather.gov/wrh/Climate?wfo=tae>

Figure 1: District-wide February 2024 observed rainfall



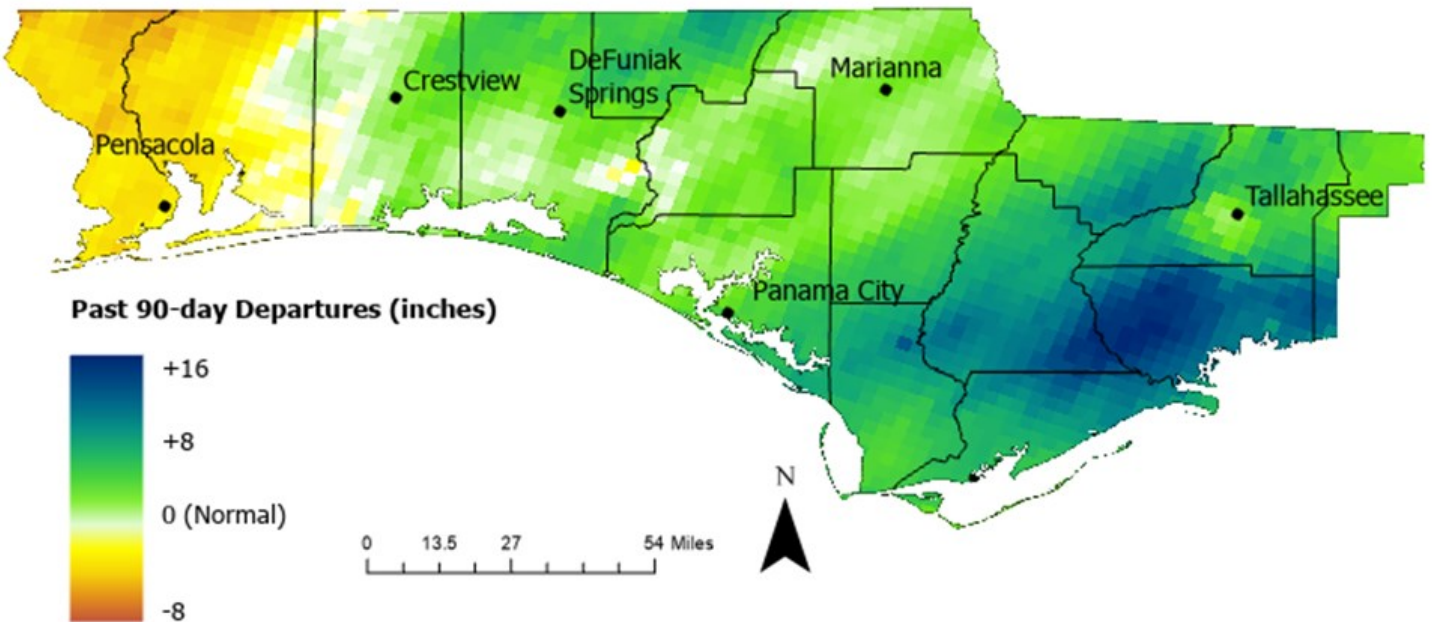
Source: <https://water.weather.gov/precip/download.php>

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



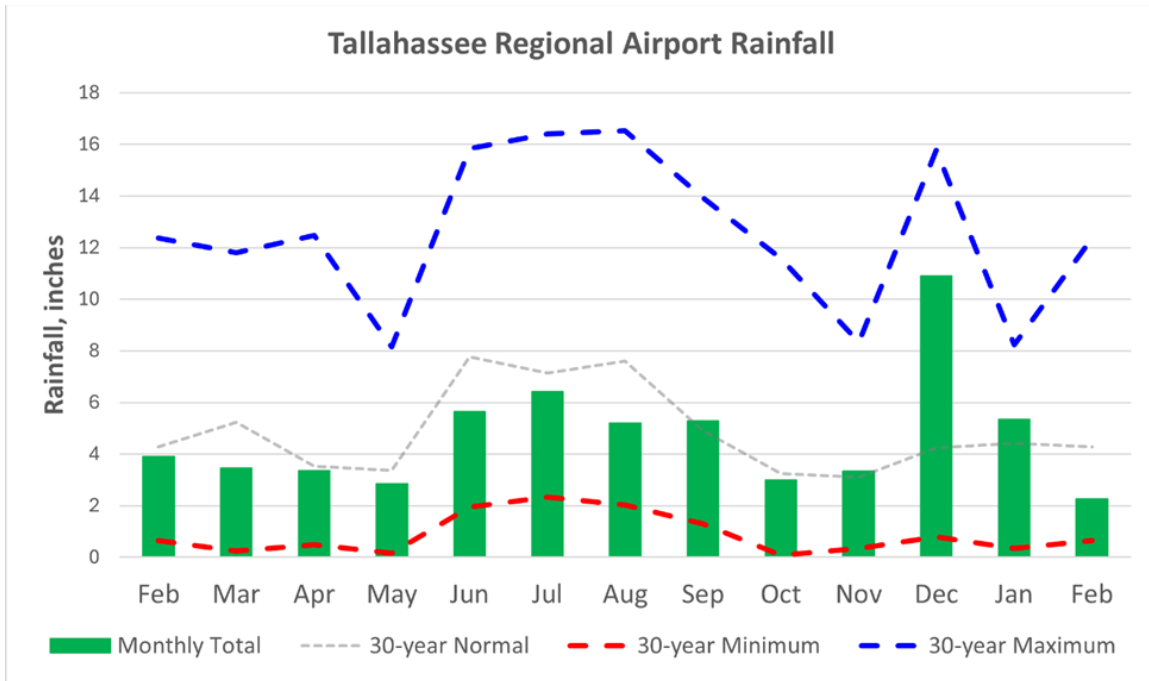
Source: <https://water.weather.gov/precip/download.php>

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



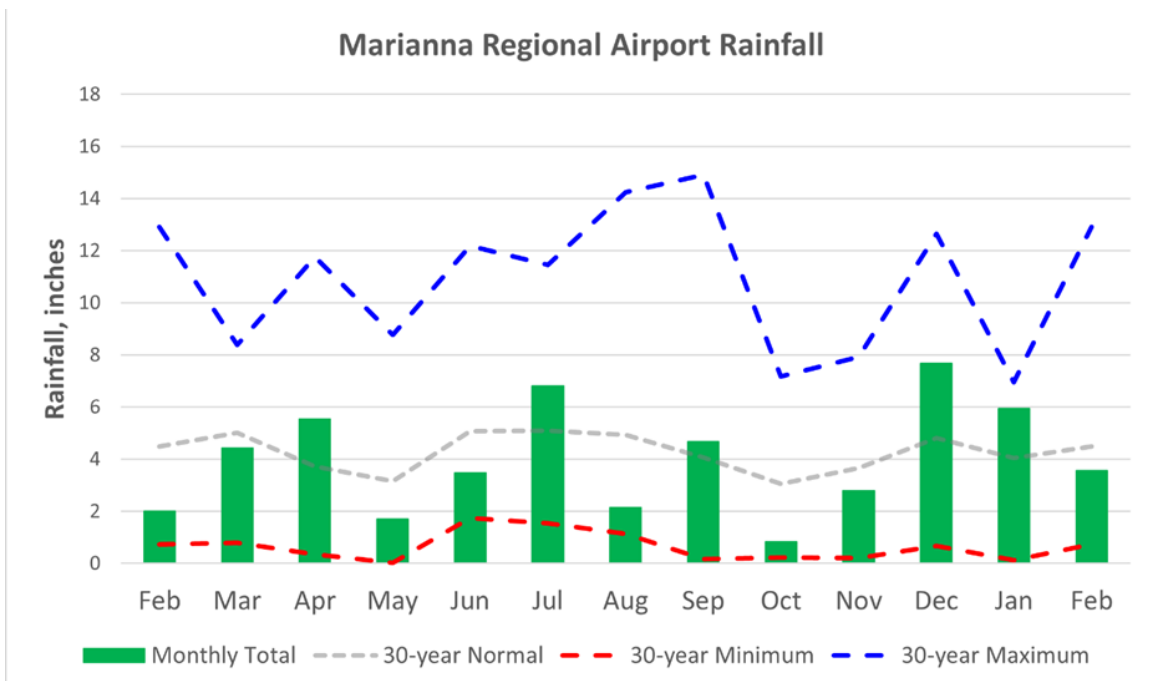
Source: <https://water.weather.gov/precip/download.php>

Figure 4: Observed rainfall for February 2023 to February 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>

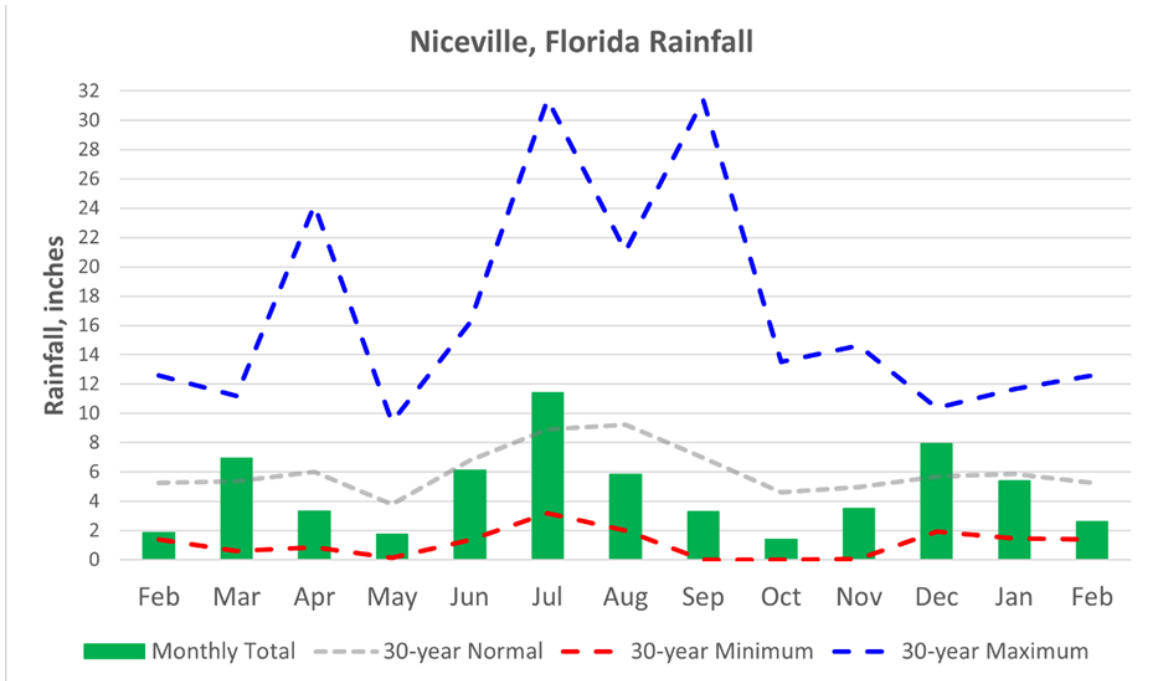
Figure 5: Observed rainfall for February 2023 to February 2024 compared to the 30-year normal, minimum, and maximum precipitation for each month for Marianna Regional Airport



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

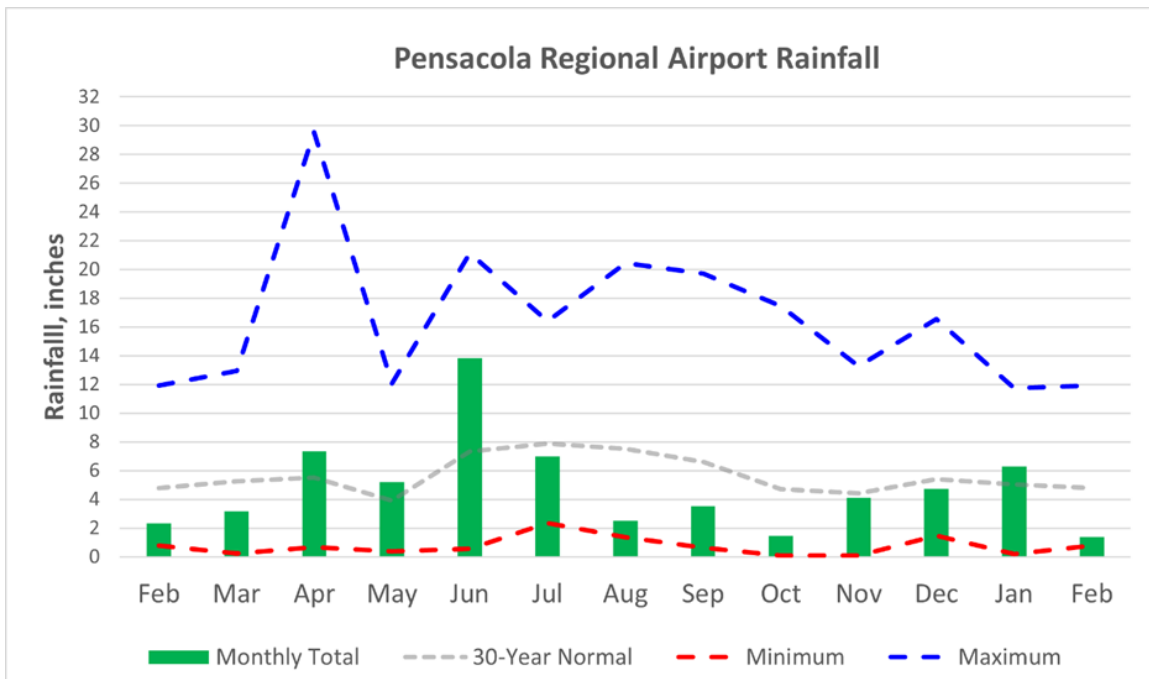


Figure 6: Observed rainfall for February 2023 to February 2024 compared to the 30-year normal, minimum, and maximum precipitation for each month for Niceville, Florida



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

Figure 7: Observed rainfall for February 2023 to February 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>



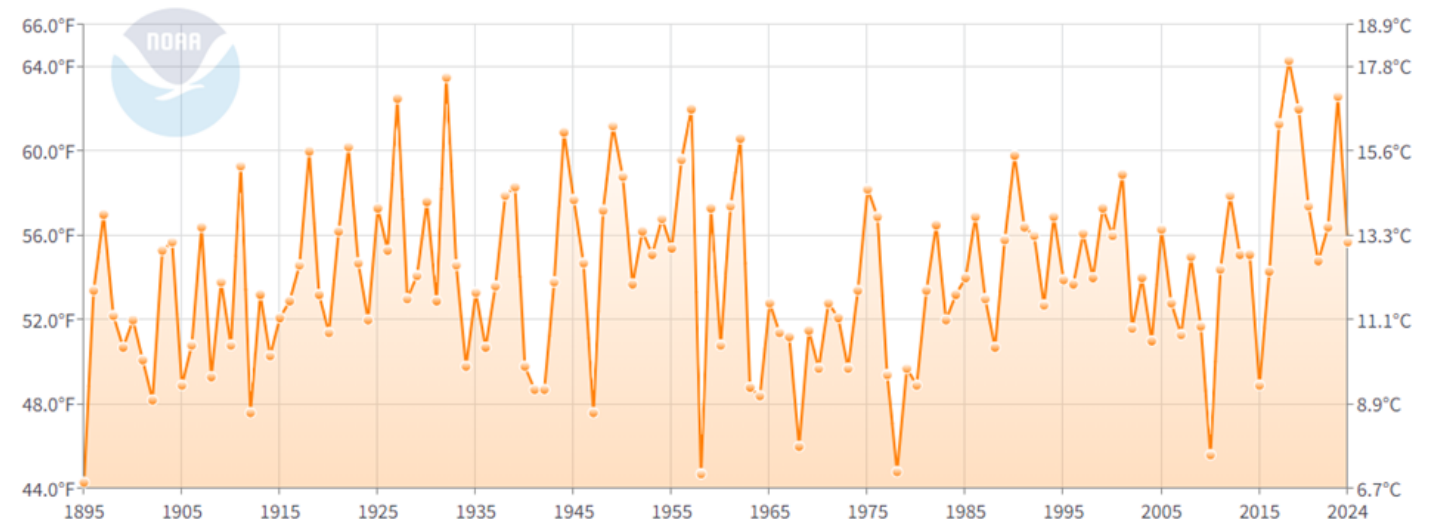
Temperature

The average February temperature in Northwest Florida was near normal at 55.7 degrees Fahrenheit (Figure 8). This was 0.5 degrees Fahrenheit warmer than the 30-year (1991-2020) normal for the District for February of 55.2 degrees Fahrenheit.

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

Florida, Climate Division 1 Average Temperature

February



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

Climate Outlook

According to NOAA’s climate prediction center, the forecast for March 2024 is for slightly above normal temperatures and a likely probability of above average rainfall across the District. El Niño conditions are anticipated to persist through March 2024, and are typically associated with above average precipitation during the spring in the southeastern U.S.

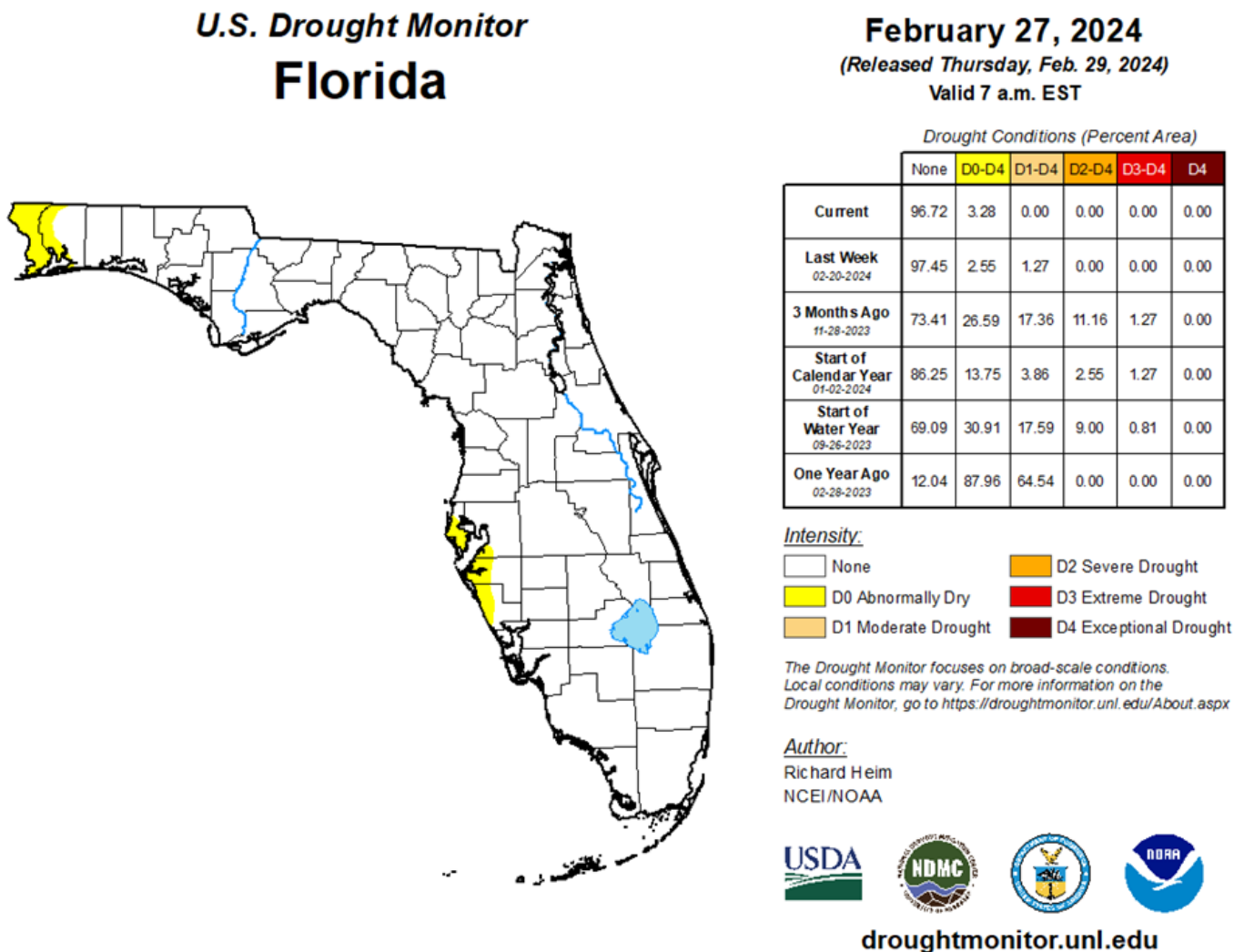
Source: <https://www.climate.gov/news-features/understanding-climate/us-climate-outlook-march-2024>



Drought Conditions

Below average rainfall in February across the panhandle expanded the abnormally dry conditions present in the far northwestern portion of the District at the end of January 2023. The U.S. Drought Monitor report released on February 27, 2024, showed that abnormally dry conditions encompassed all of Escambia County and the western portion of Santa Rosa County (**Figure 9**).

Figure 9. Florida Drought Conditions on February 30, 2024



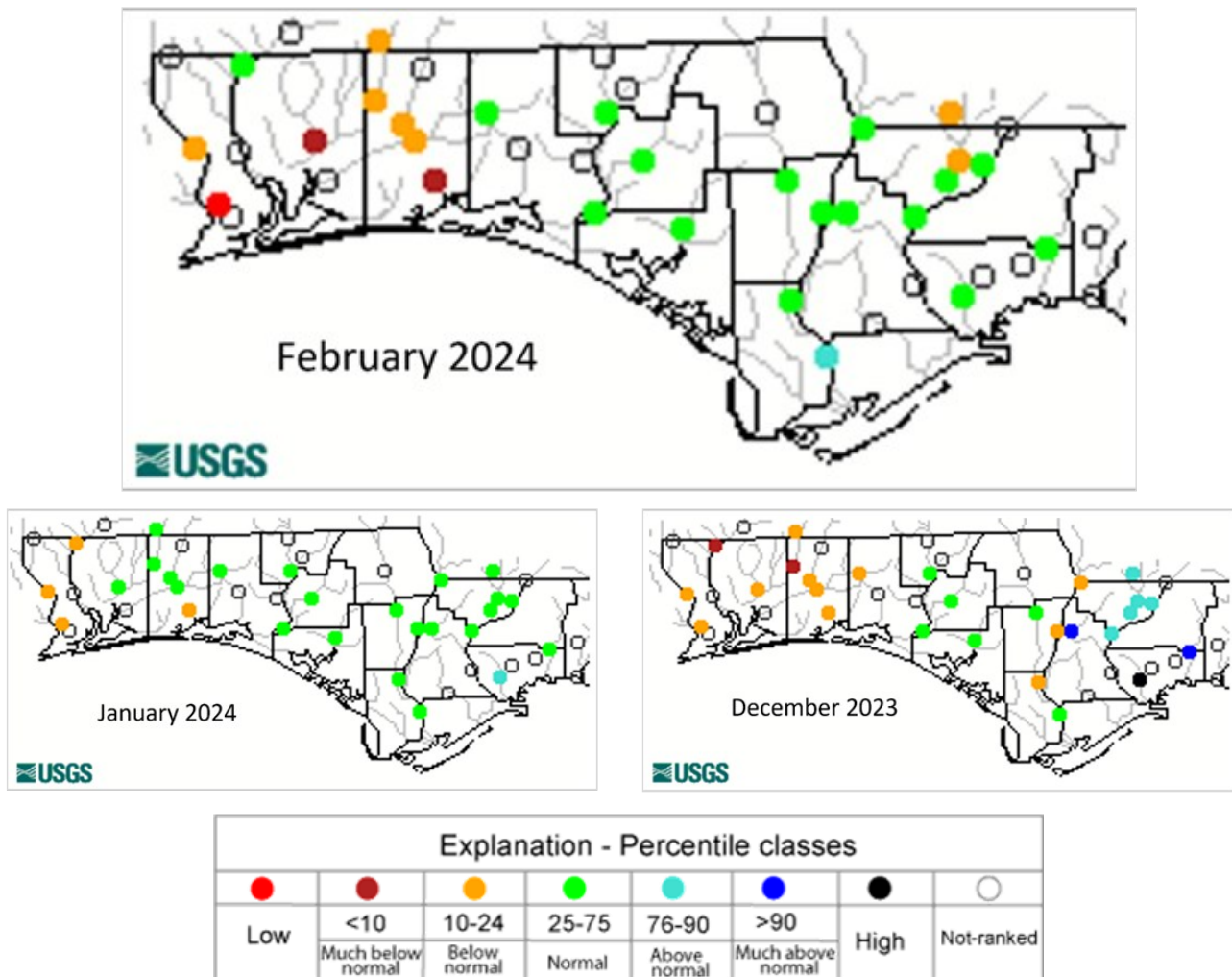
Source: <https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?FL>



Surface Water

Streamflows. Higher-than-normal rainfall during December and January followed by lower-than-normal rainfall during February contributed generally to a stabilization of normal ranges in streamflow across the central and eastern regions of the District and a decrease in streamflow in the western region during the month of February (Figure 10). The USGS streamflow stations indicate daily discharge values in February were decreasing but most remained within the normal range for most of the District except for stations toward the west and a few stations in northeast Gadsden County (Figures 10 - 16). Average monthly flows at several sites in the western portion of the District as well as the few stations in Gadsden County were classified as below normal or much below normal.

Figure 10: Northwest Florida December 2023 to February 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

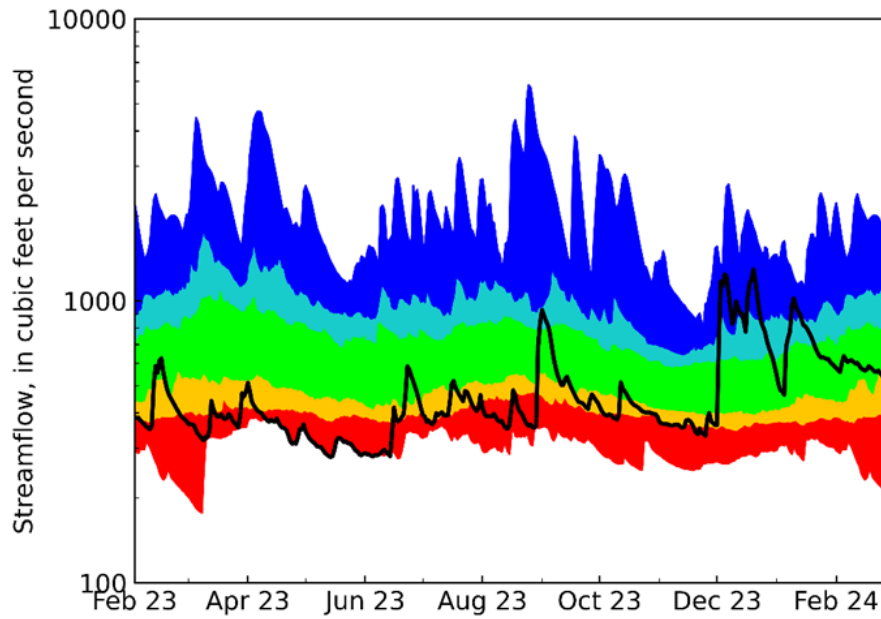
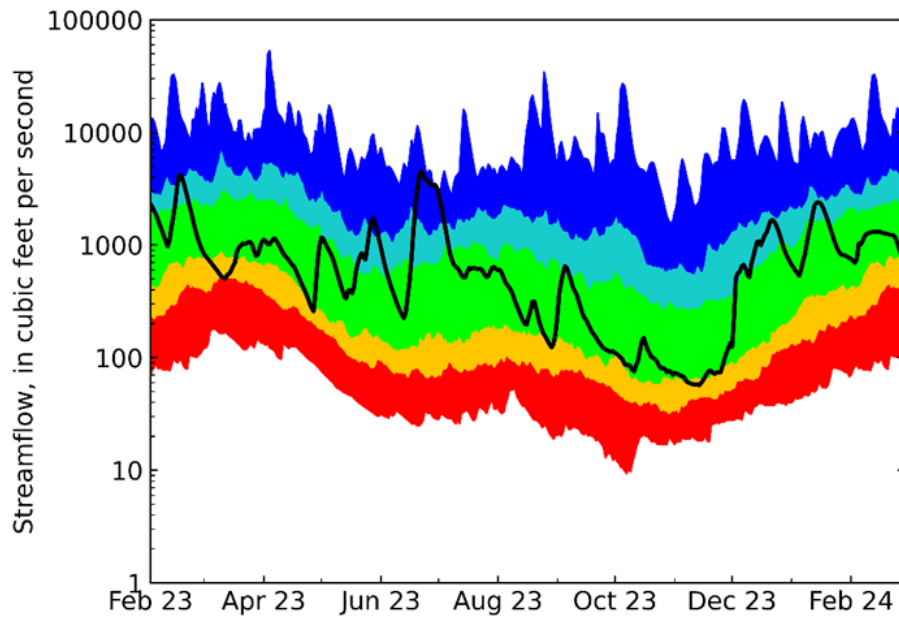


Figure 12: Daily streamflows and percentile ranges for USGS Station 02329000 Ochlockonee River Near Havana, Florida



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



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

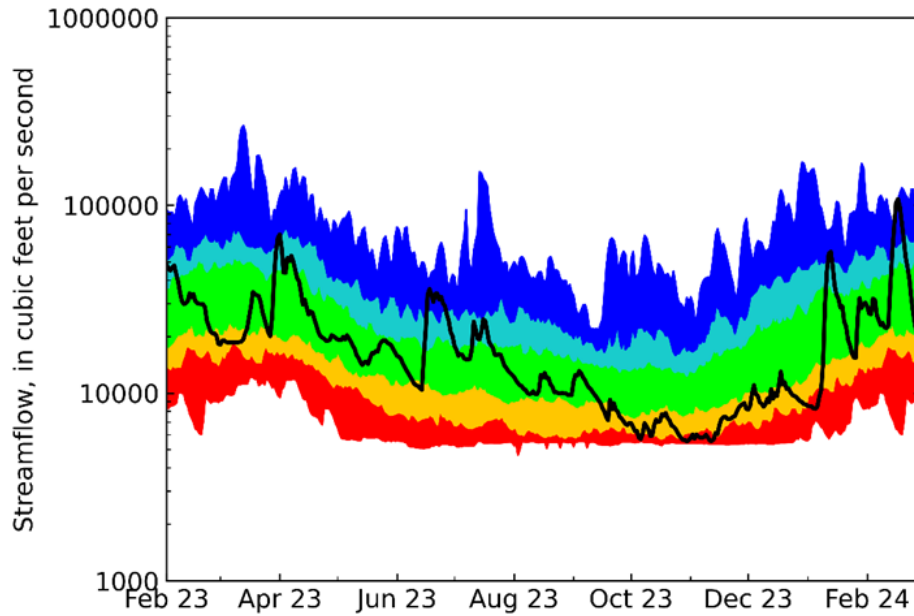
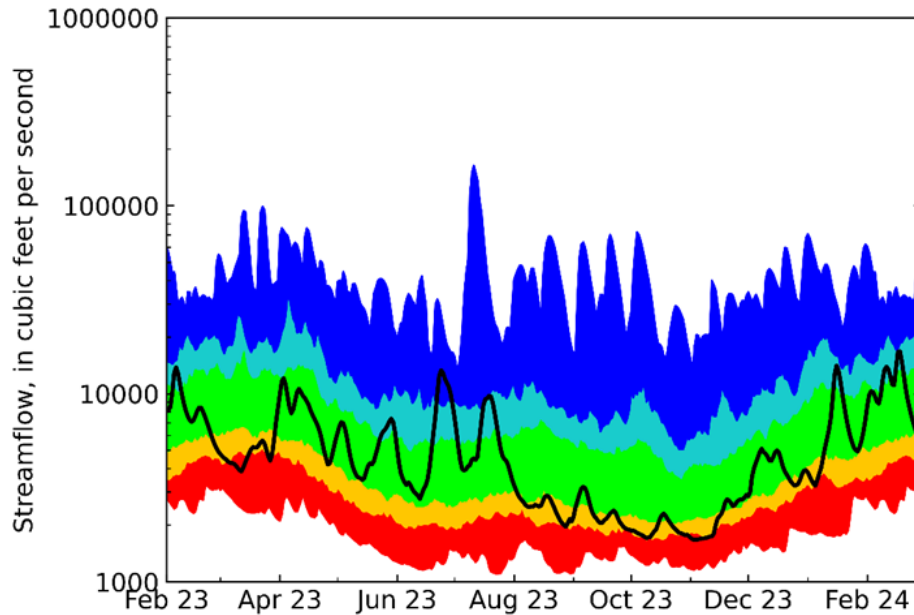


Figure 14: Daily streamflows and percentile ranges for USGS Station 02366500 Choctawhatchee River Near Bruce, Florida



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



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

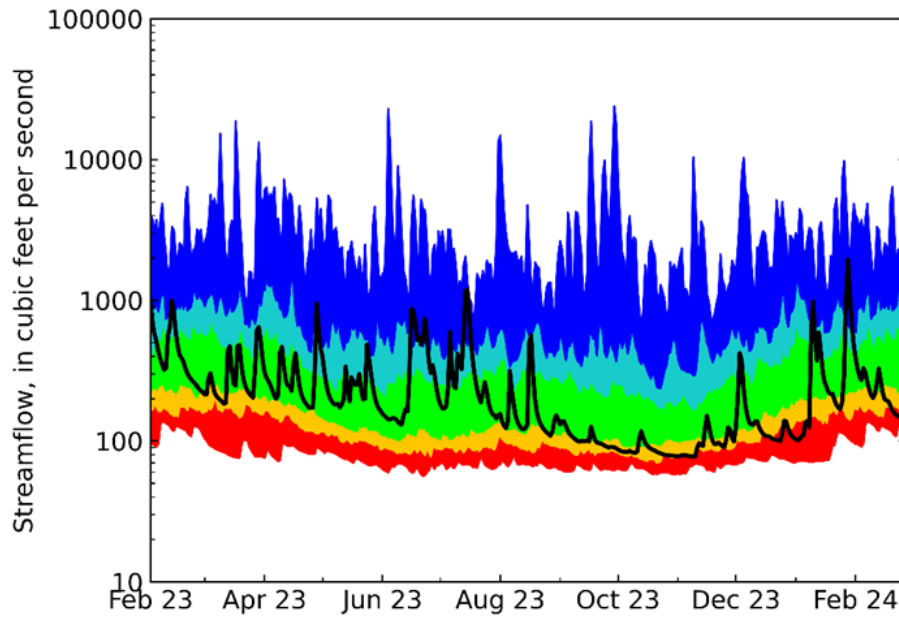
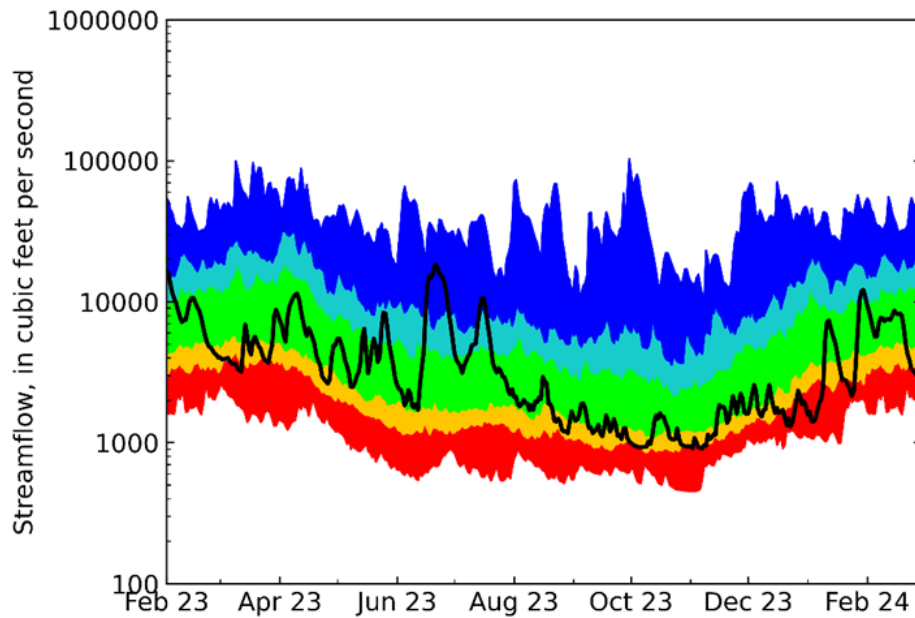


Figure 16: Daily streamflows and percentile ranges for USGS Station 02375500 Escambia River Near Century, Florida



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



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 during February, 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

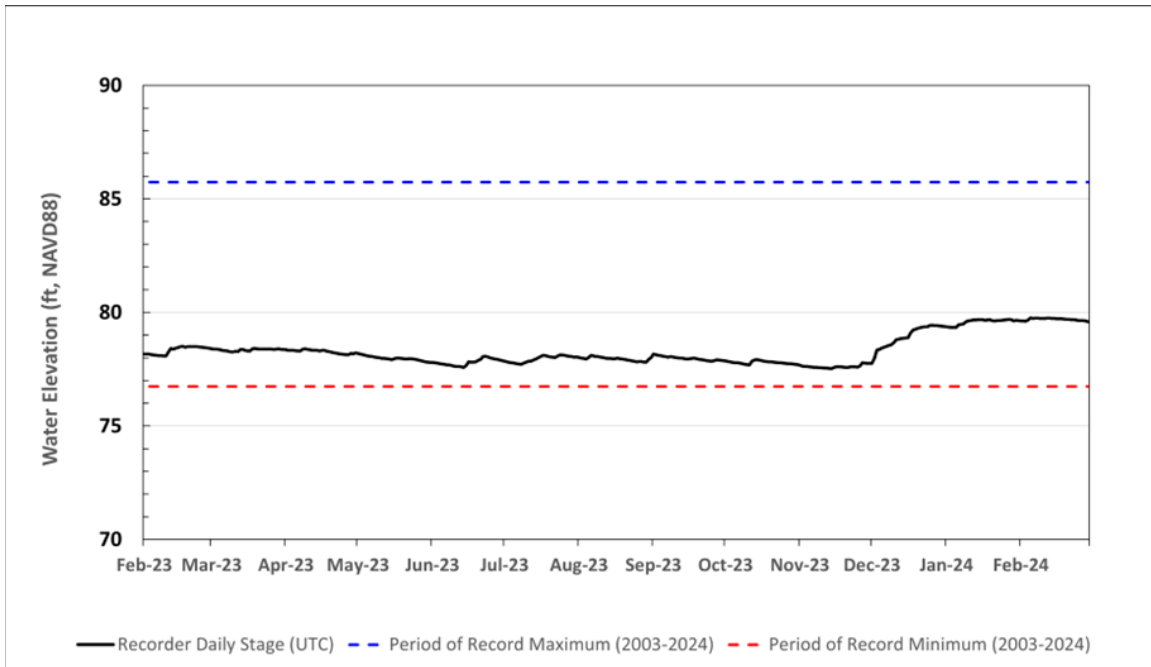
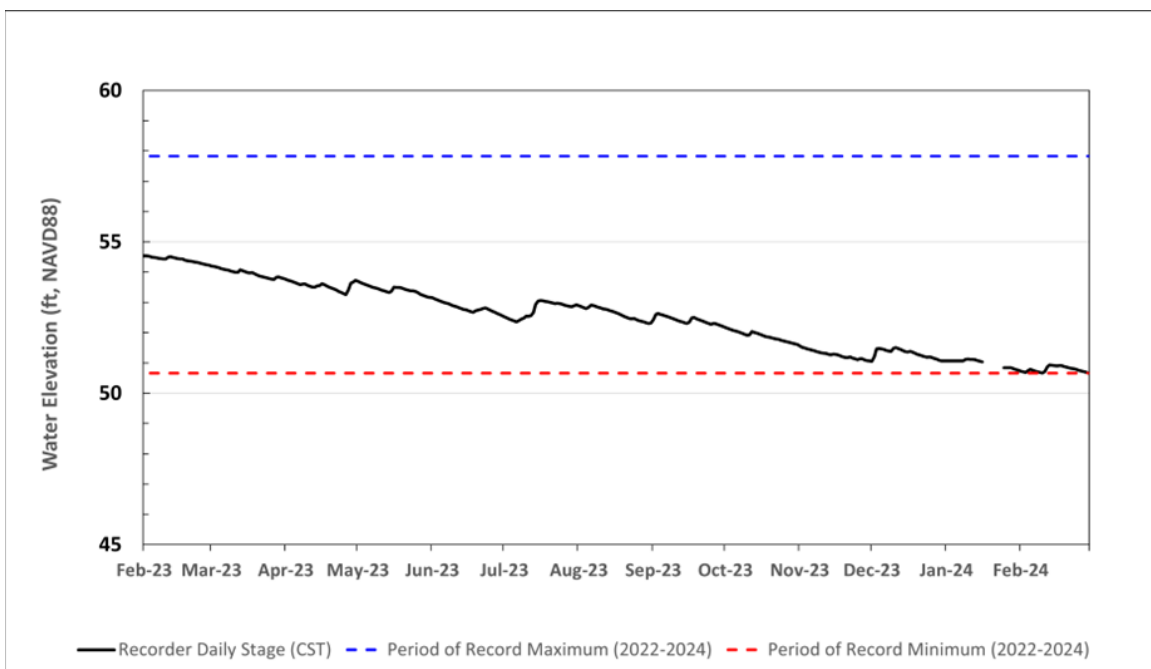


Figure 18: Daily water levels at Piney Lake, Washington County



Spring Flows

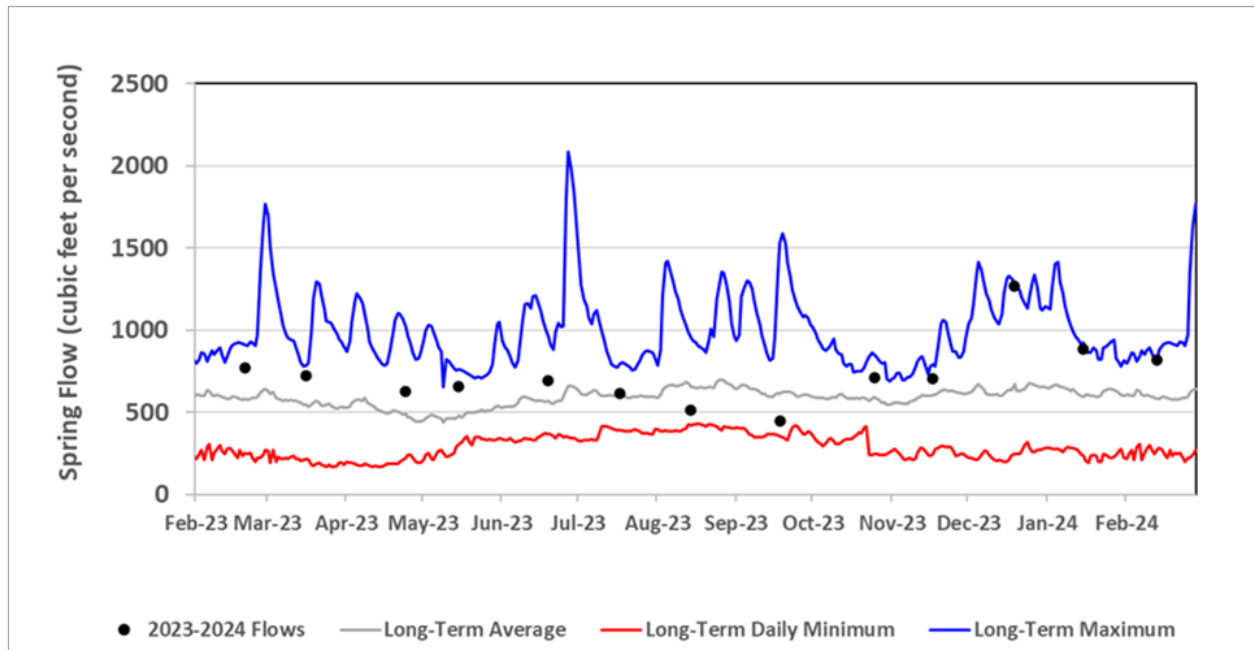
Wakulla and Sally Ward Spring System. Flow at Wakulla Spring continues to be elevated relative to the long-term average. The most recent flow measurement for Wakulla Spring was 817 cubic feet per second (cfs), which was collected on February 13, 2024 (**Figure 19**). Similar to discharge measurements 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 February is 612 cfs.

Flow at Sally Ward Spring continues to be slightly elevated (31.2 cfs) compared to the long-term average for the month of February of 28.4 cfs. The February minimum and maximum Sally Ward Spring flow, based on the November 1, 2004, to present period of record were 14.6 and 35.5 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, to present) average flows for Wakulla and Sally Ward sSprings through February 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.

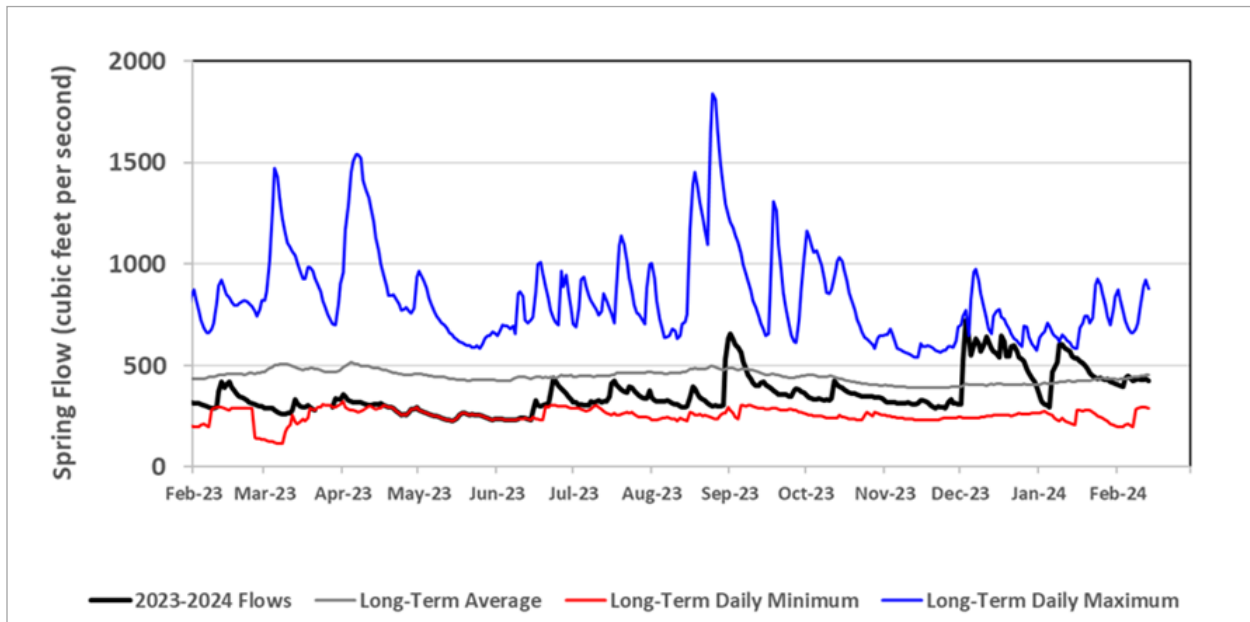
Figure 19: Daily Wakulla Spring flows

Data from February 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 February 2024 (February 1 through February 13, 2024) at the St. Marks River Rise was 425 cfs, based on the available USGS provisional data which extends through February 13, 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 February 13, 2024, are included, the 30-year moving average spring flow for the St. Marks River Rise is 430 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 February 2024 averaged 79.3 cfs, which was below the February monthly average of 98 cfs (**Figure 21**). Spring flows have been increasing since May 2023 in relation to the long-term daily minimum and long-term daily average flows but continue to remain lower than the long-term daily average flow. 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 160 cfs during February 2024 (February 1 through February 13, 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 February 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 represents daily averages. Long-term flows represent the daily average between December 21, 2004, and February 31, 2024.

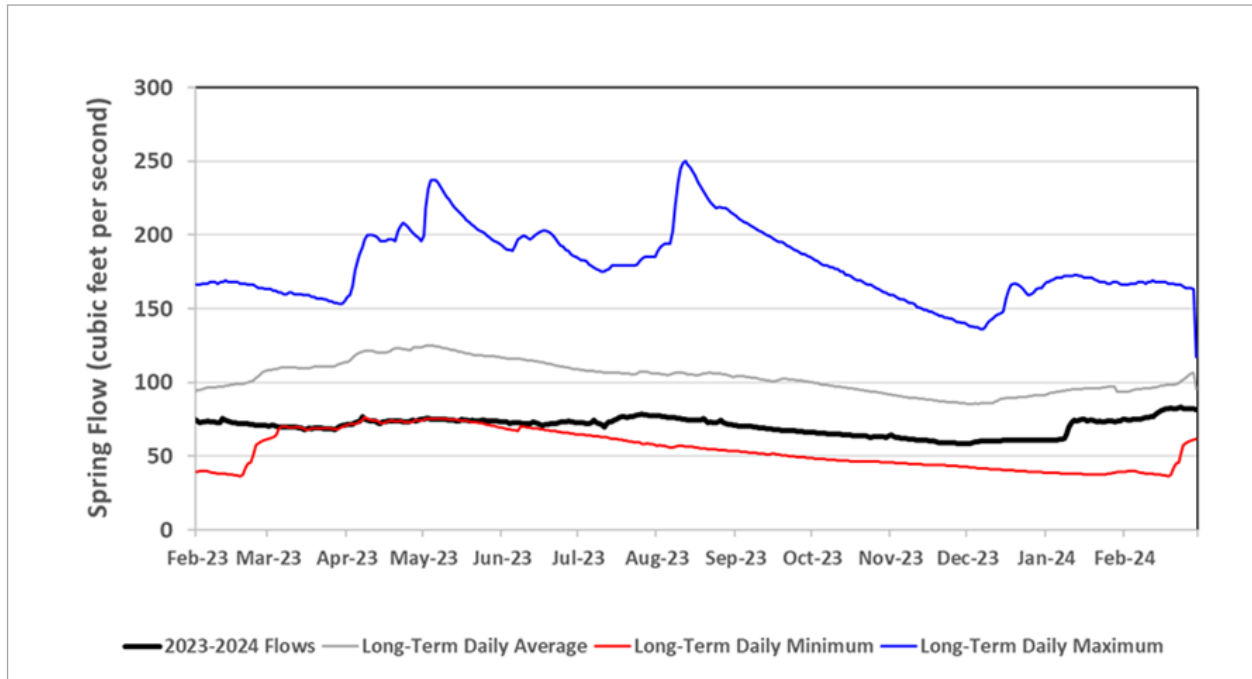
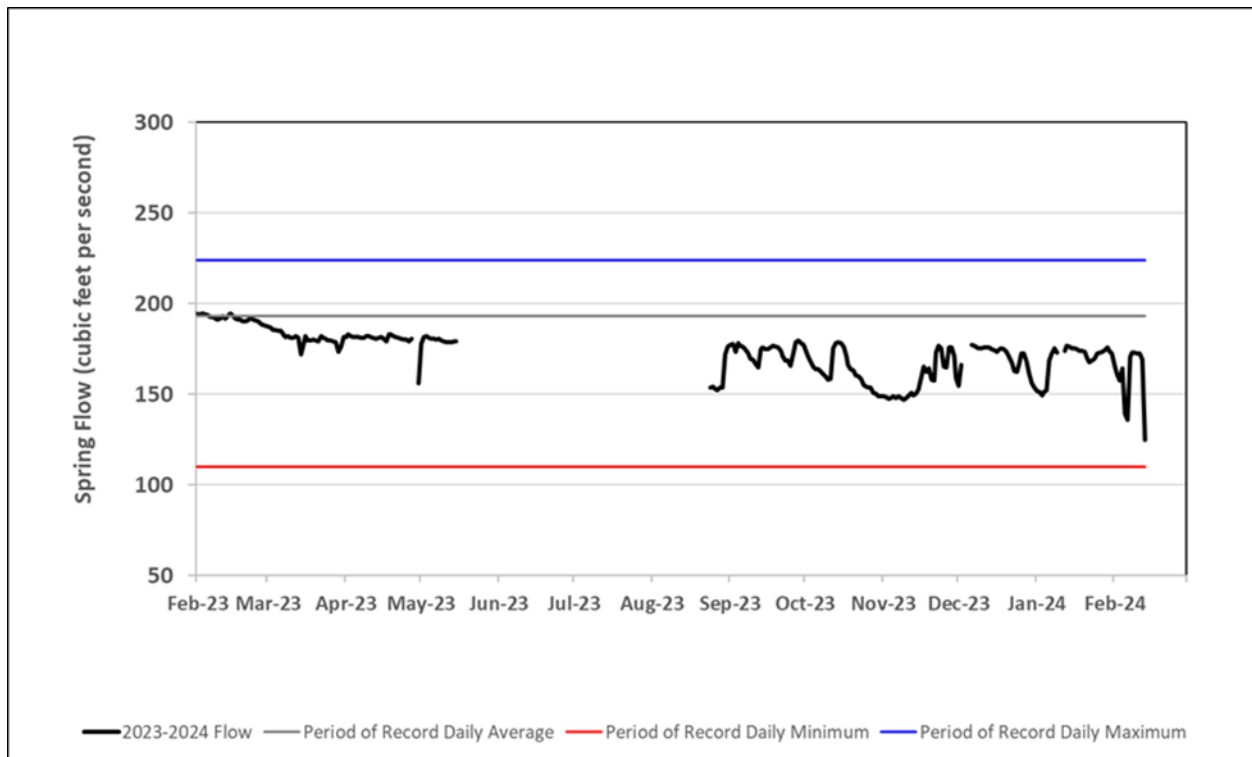


Figure 22: Gainer Spring Group flows

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



Aquifer Levels

Floridan aquifer levels across the District were classified as normal or above normal by the end of February (Figures 23 - 29). At all monitor wells depicted, aquifer levels remained stable or decreased slightly during February 2024, likely in response to lower-than-normal precipitation throughout the District. Three of the depicted monitor wells had noteworthy regime changes by the end of February 2024. Groundwater levels at the NFWFMD-Pittman VISA monitor well (NWFID 5266) in central Jackson County increased into the lower range for normal toward the end of January and stabilized in the normal range for the remainder of February following several months at below to much below normal levels. Groundwater levels at the USGS-Benchmark monitor well (NWFID 392) in central Wakulla County decreased into normal range near the end of February after having elevated levels since December 2023. Similarly, water levels at the Fannin Airport monitor well (NWFID 697) in southeast Washington County decreased into the normal range near the end of February after having elevated groundwater levels since the beginning of 2023.

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

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

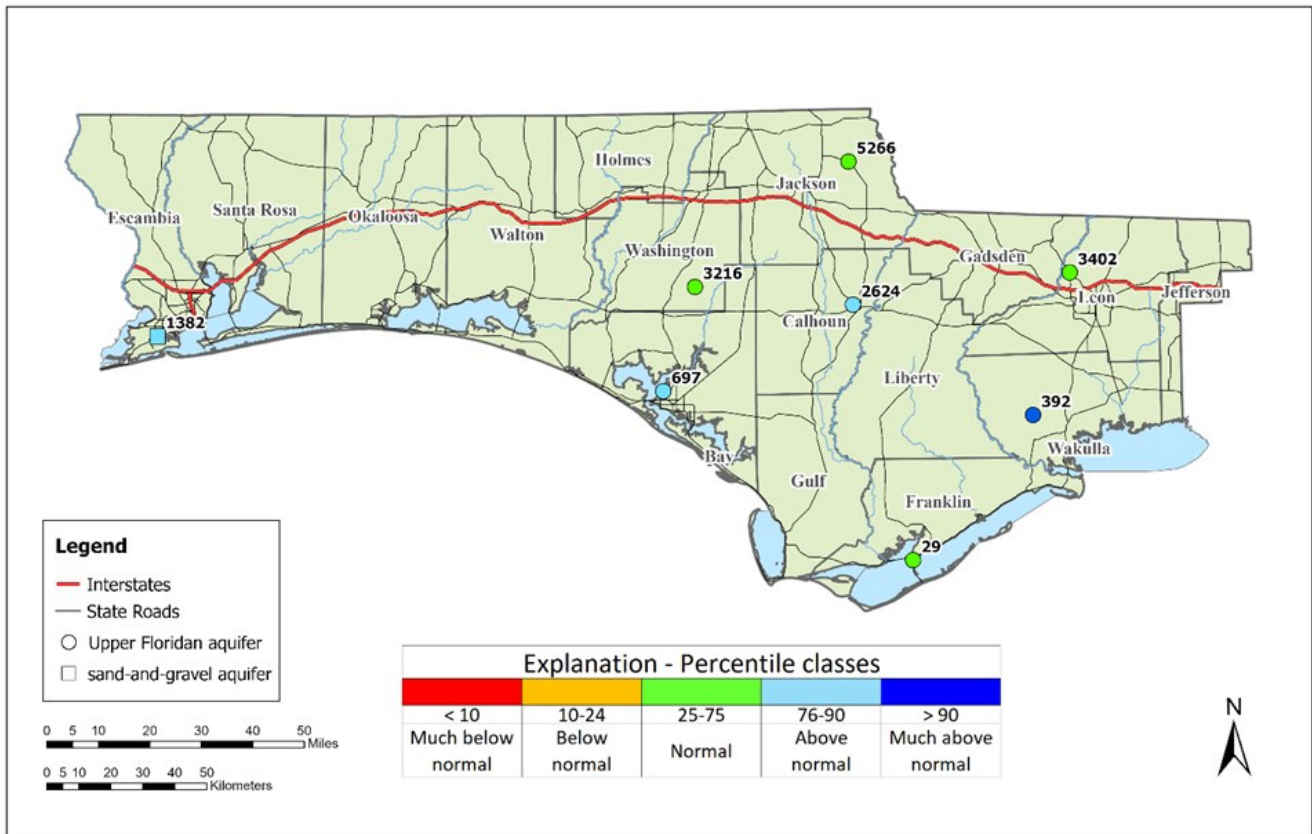


Figure 24: Daily Upper Floridan aquifer levels at USGS-Lake Jackson well (NWFID 3402), Leon County

Land surface elevation is 121.40 ft, NAVD 88

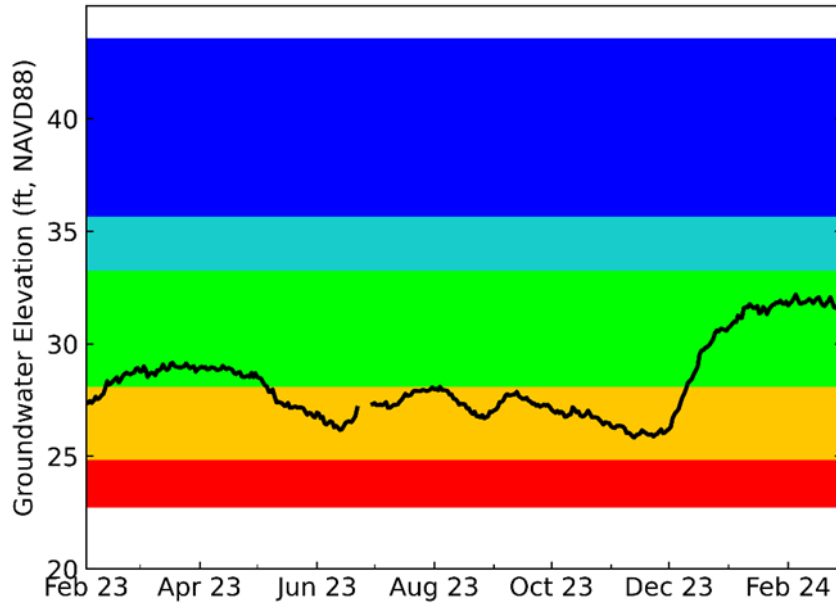
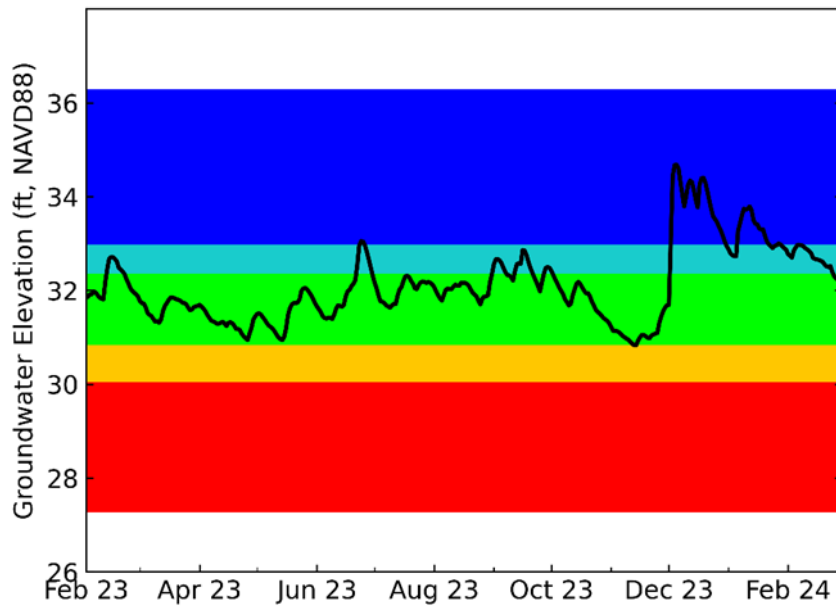


Figure 25: Daily Upper Floridan aquifer levels at USGS Benchmark well (NWFID 392), Wakulla County

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 NFWMD Pittman Visa well (NWFID 5266), Jackson County

Land surface elevation is 127.31 ft, NAVD 88

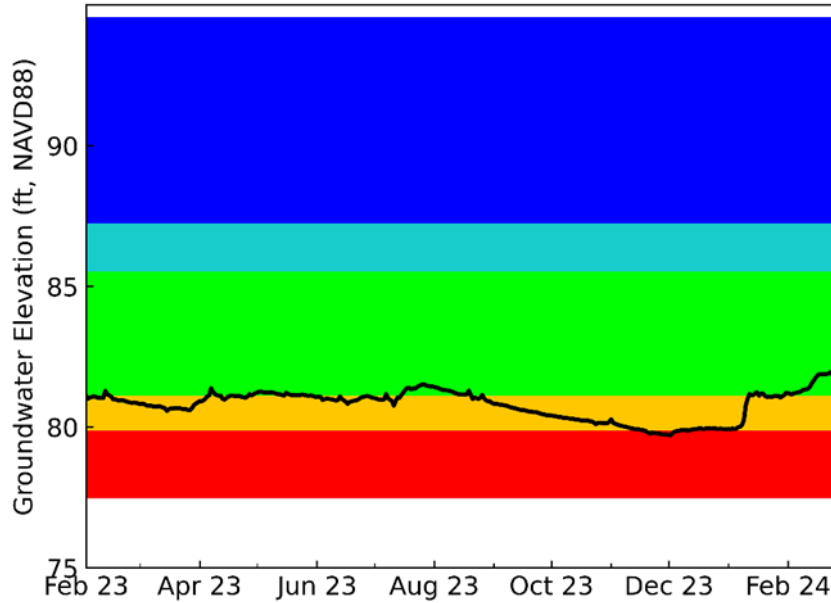
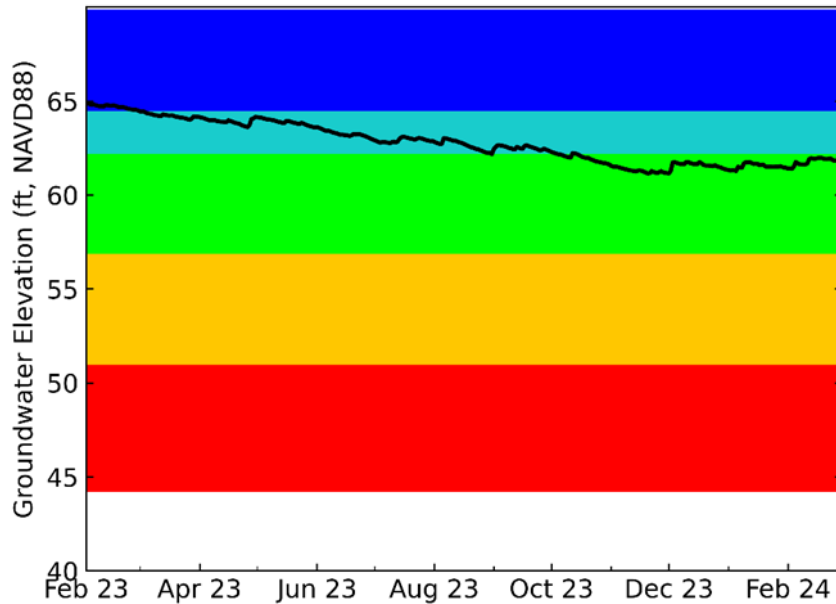


Figure 27: Daily Upper Floridan aquifer levels at USGS-422A Near Greenhead well (NWFID 3216), Washington County

Land surface elevation is 66.75 ft, NAVD 88



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



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

Land surface elevation is 4.05 ft, NAVD 88

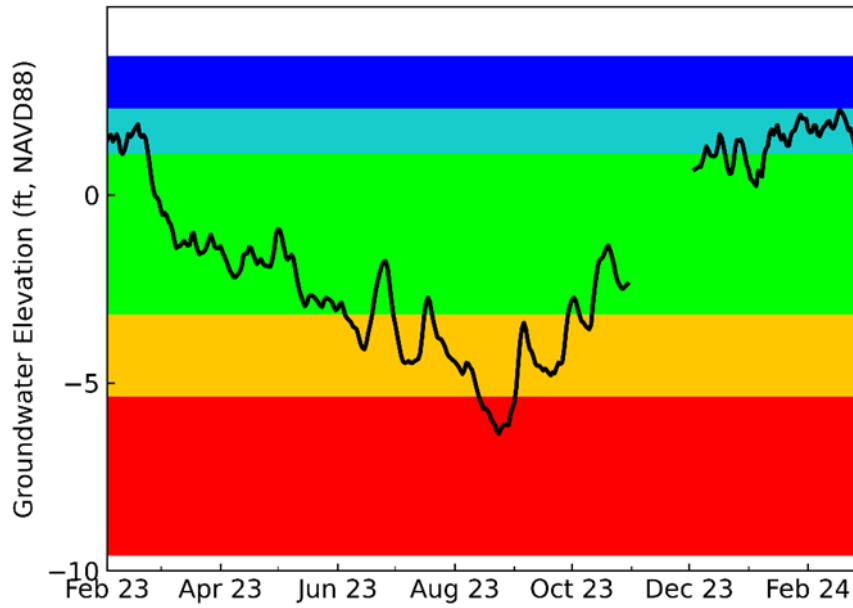
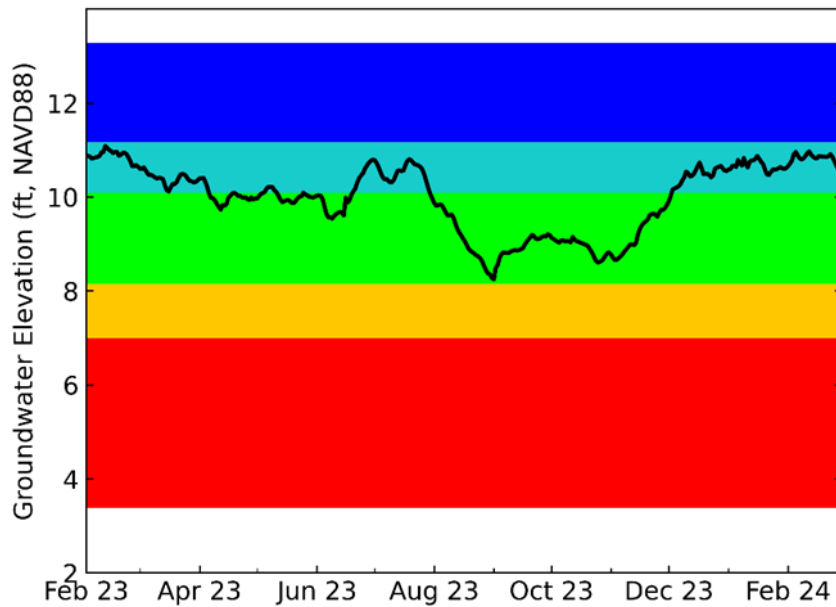


Figure 29: Daily sand-and-gravel aquifer levels at NFWMD Weller Ave Deep well (NWFID 1382), Escambia County

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

