



Hydrologic Conditions Report

November 2024

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Summary

November 2024 was characterized by near normal precipitation and above normal temperatures (averaging around 67.4 degrees Fahrenheit) that contributed to generally normal or below normal hydrologic conditions across most of the Panhandle. Spatial differences in rainfall amounts, with more rain received towards the west than the east, allowed streamflows to return to generally normal ranges after Hurricane Helene in late September 2024 elevated flows to the east through October 2024. Moderate drought conditions expanded in the inland portions of the District.

Rainfall

The District in November 2024 recorded an average of 4.44 inches of rain across the Panhandle. This was 0.55 inches (13.2%) above the District normal rainfall amount for the month of November, 3.89 inches (**Table 1; Figures 1 - 7**). Normal rainfall is defined as average monthly rainfall for the 1991 to 2020 reference period. The most significant rain event occurred on November 19-20, 2024, when the remnants of Tropical Storm Sara moved into the Panhandle from the Gulf of Mexico. The remnant tropical storm system produced between 1.00 and 3.50 inches of rain within the District.



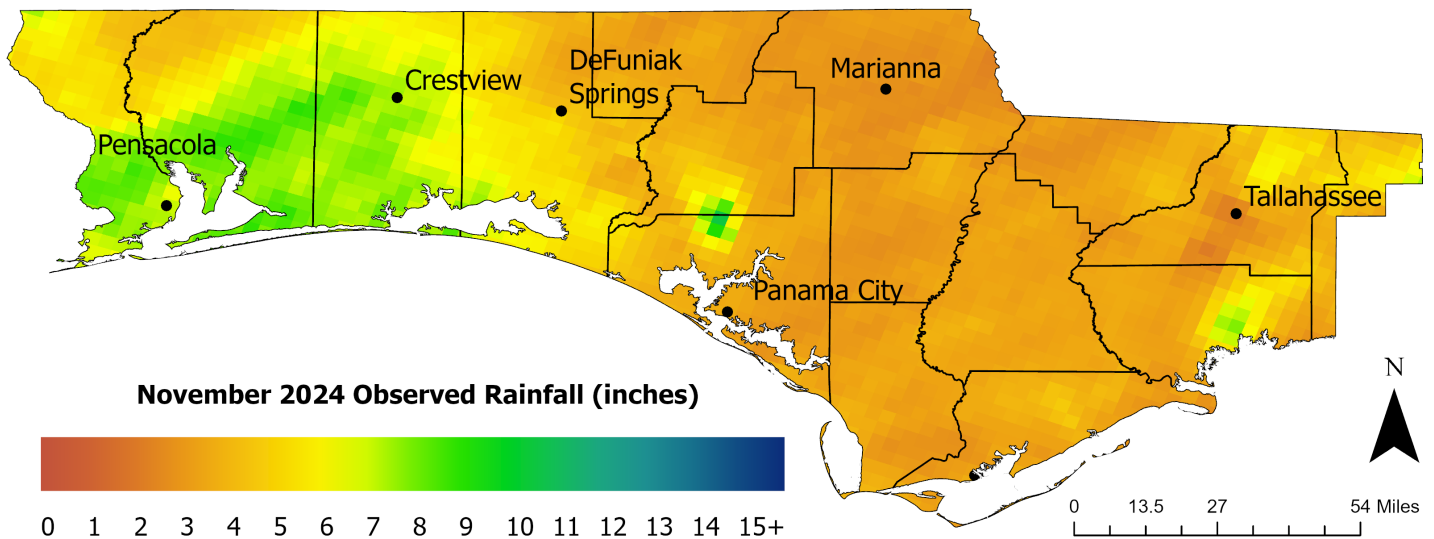
For additional information, write or call:
Northwest Florida Water Management District
81 Water Management Drive
Havana, FL 32333-4712
(850) 539-5999
www.nwfwater.com

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

Station	November Normal Rainfall (1991 to 2020)	November 2024 Observed Rainfall	Percent Difference
Tallahassee Regional Airport	3.10	2.88	-7.4%
Marianna Regional Airport	3.67	2.63	-33.0%
Niceville, FL	4.97	6.60	28.2%
Pensacola Regional Airport	4.42	6.63	40.0%

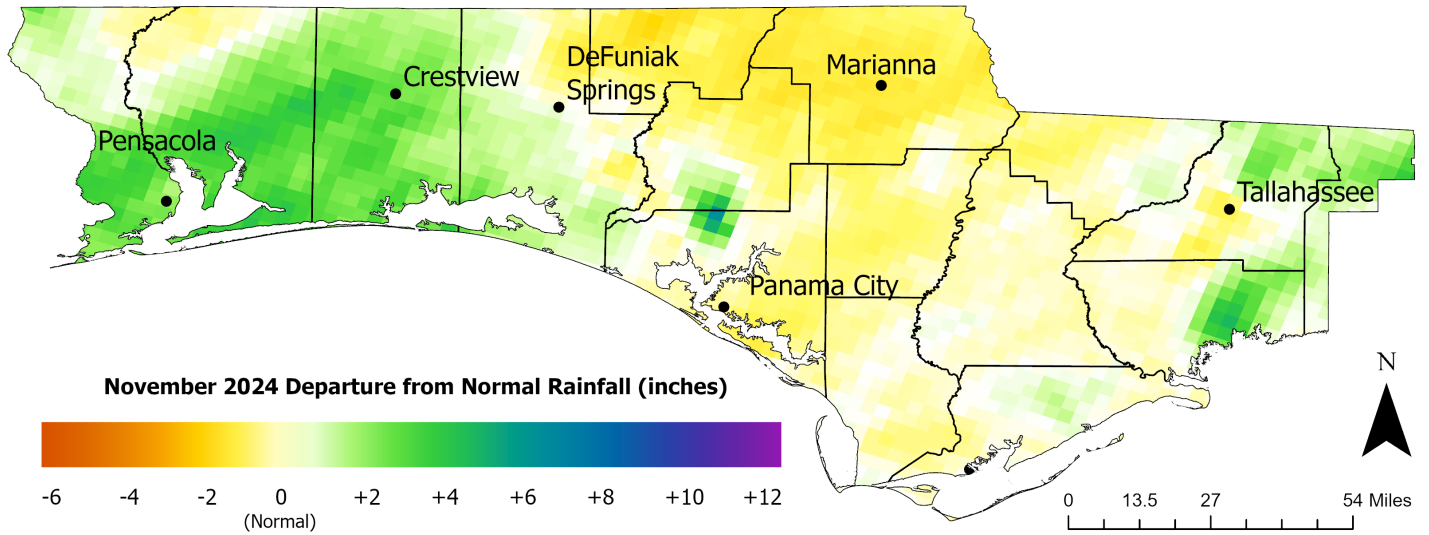
Source: <https://www.weather.gov/wrh/Climate?wfo=tae>
<https://www.weather.gov/wrh/Climate?wfo=mob>

Figure 1: District-wide November 2024 observed rainfall



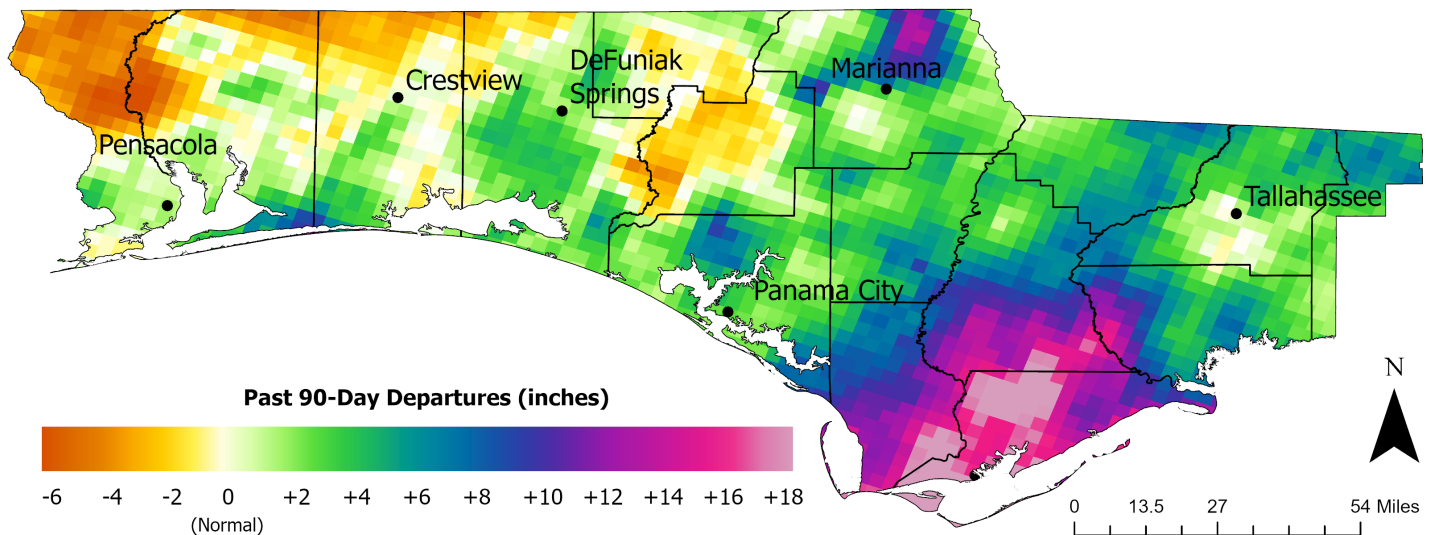
Source: <https://water.weather.gov/precip/download.php>

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



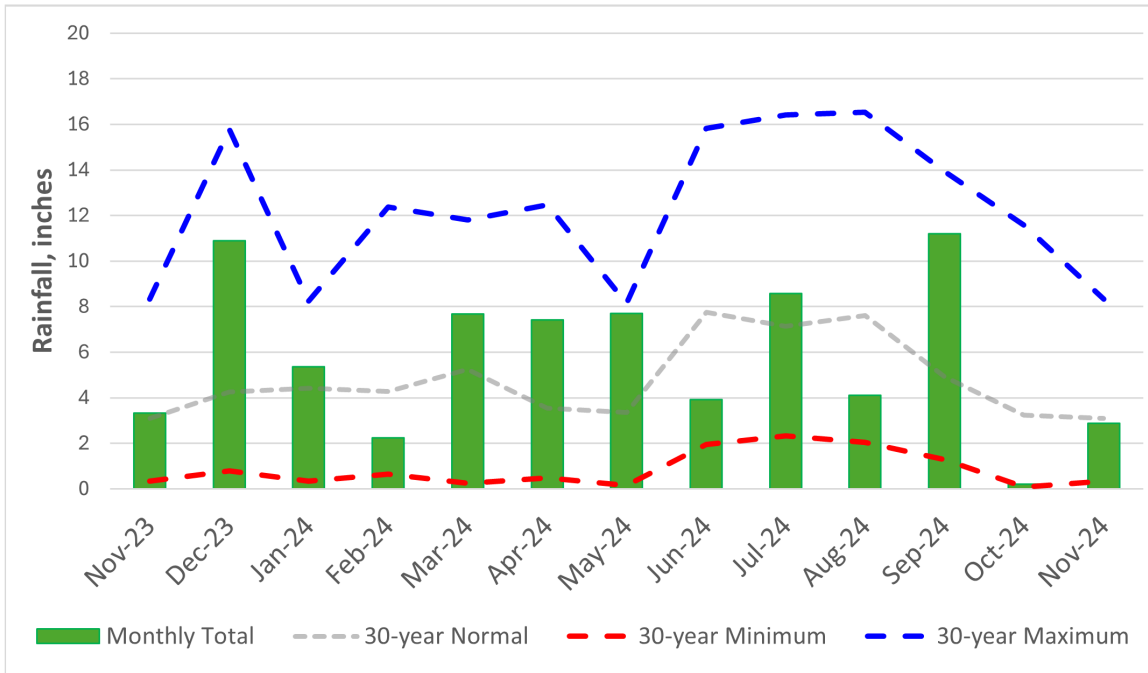
Source: <https://water.weather.gov/precip/download.php>

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



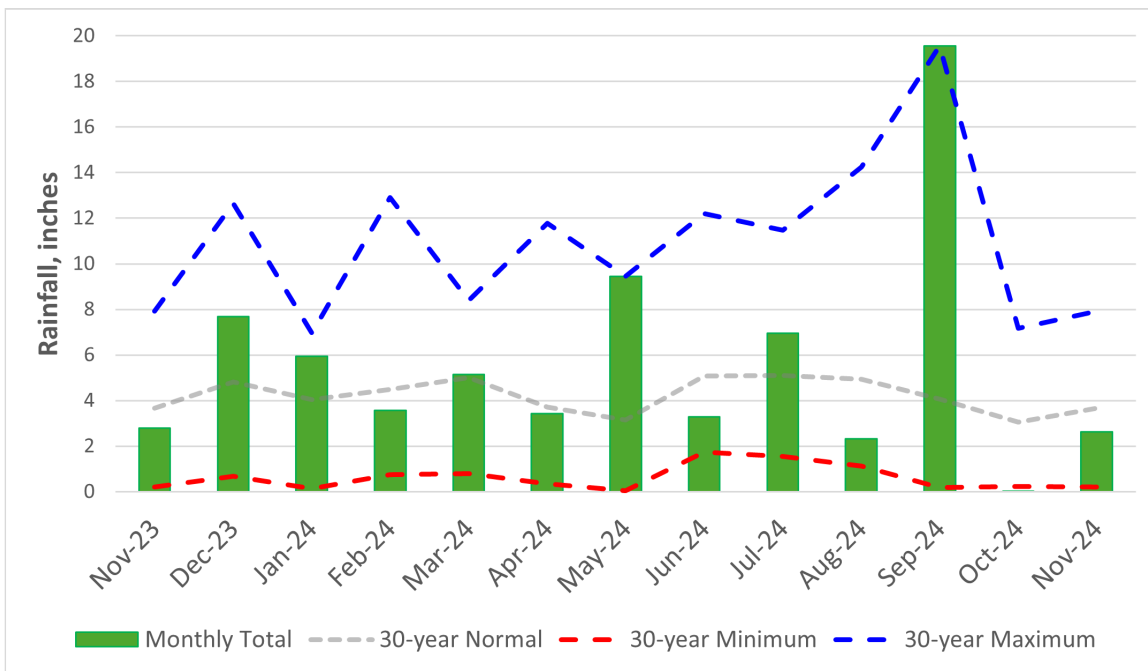
Source: <https://water.weather.gov/precip/download.php>

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



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

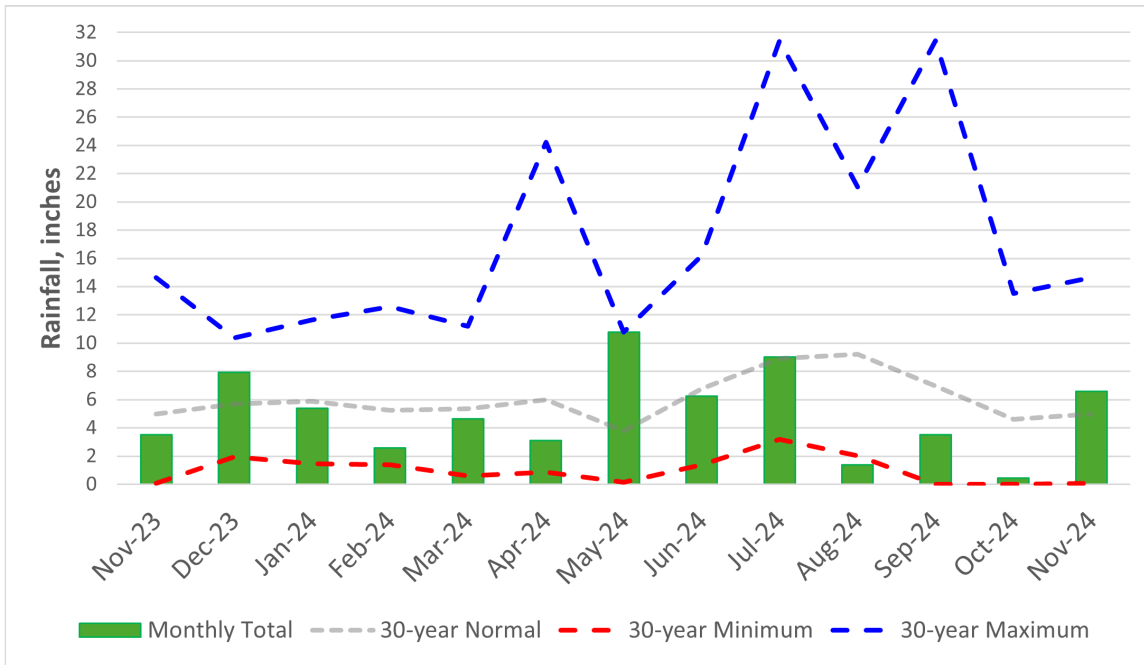
Figure 5: Observed rainfall at Marianna Regional Airport for November 2023 to November 2024 compared to the 30-year normal, minimum, and maximum precipitation for each month



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

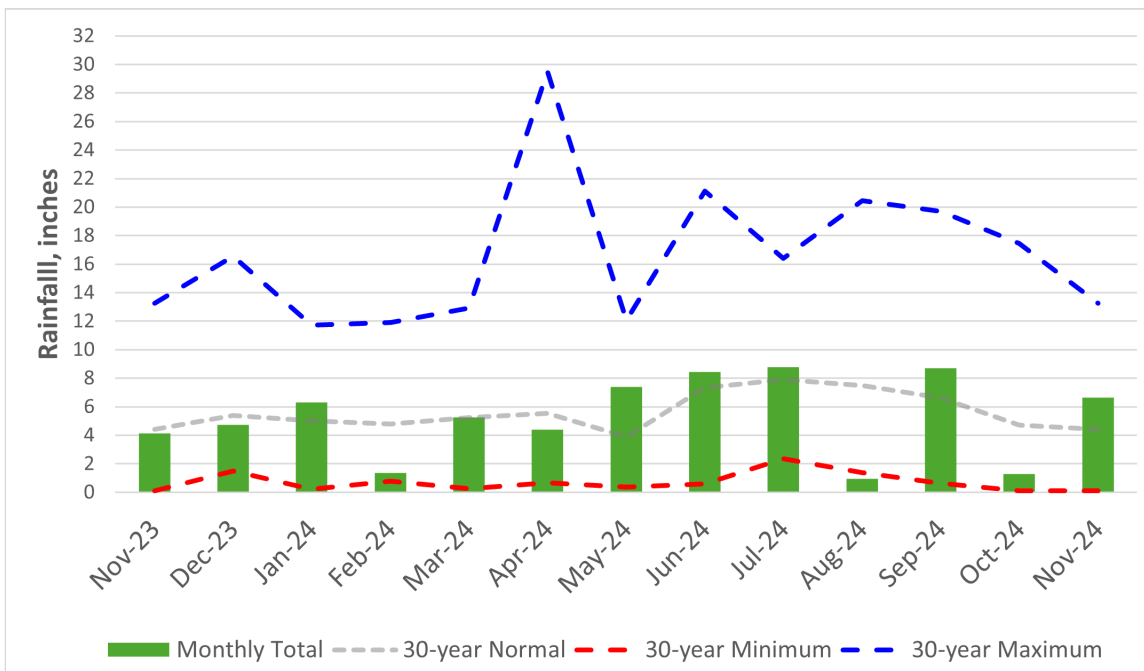


Figure 6: Observed rainfall in Niceville for November 2023 to November 2024 compared to the 30-year normal, minimum, and maximum precipitation for each month



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

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



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



Climate Outlook

According to NOAA’s Climate Prediction Center, the forecast issued November 30, 2024, for December 2024 shows equal chances for temperatures leaning above or below normal and equal chances of above or below normal rainfall amounts across the District.

As of December 2, 2024, ENSO-neutral conditions are present and a La Niña Watch has been advised. La Niña conditions are favored to develop during December (57% chance) and are forecast to persist through January-March 2025. In the winter, La Niña is associated with warmer and drier conditions than usual for the southern United States.

Source: <https://www.cpc.ncep.noaa.gov/products/predictions/30day/>
https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.pdf

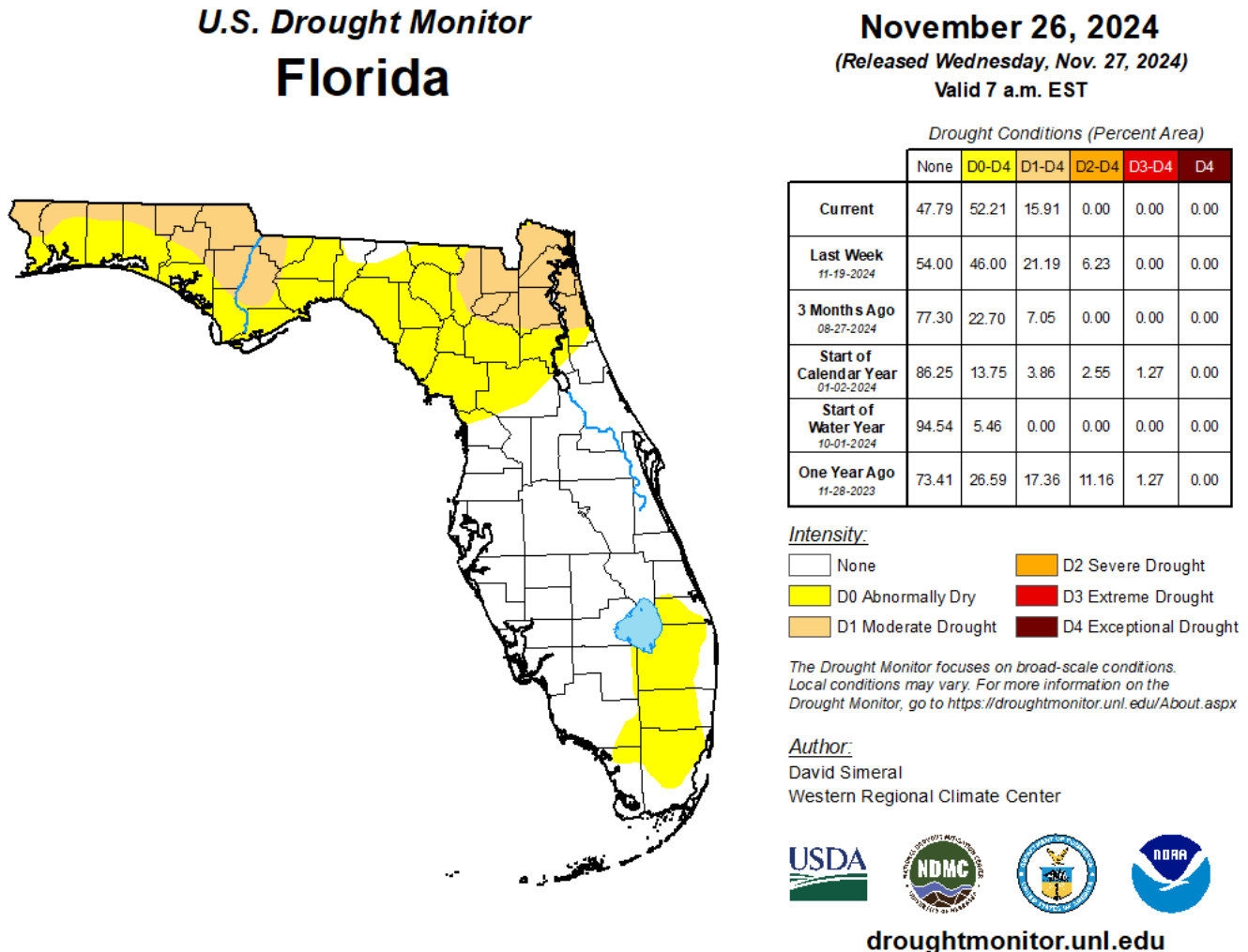


Drought Conditions

The U.S. Drought Monitor report released November 27, 2024, showed nearly the entire Panhandle under at least abnormally dry with the generally inland portions of the District under moderate drought conditions. The only area in the District not under any drought conditions was a small portion of northwest Jefferson County (**Figure 8**).

This was an improvement from the U.S. Drought Monitor report for November 19, 2024, that showed most of the Panhandle under either moderate or severe drought conditions. This improvement came as a result of the rainfall received from the remnants of Tropical Storm Sara on November 19-20, 2024. According to the U.S. Monthly Drought Outlook valid for December 2024, drought conditions in the Panhandle are expected to persist.

Figure 8. Florida Drought Conditions on November 26, 2024



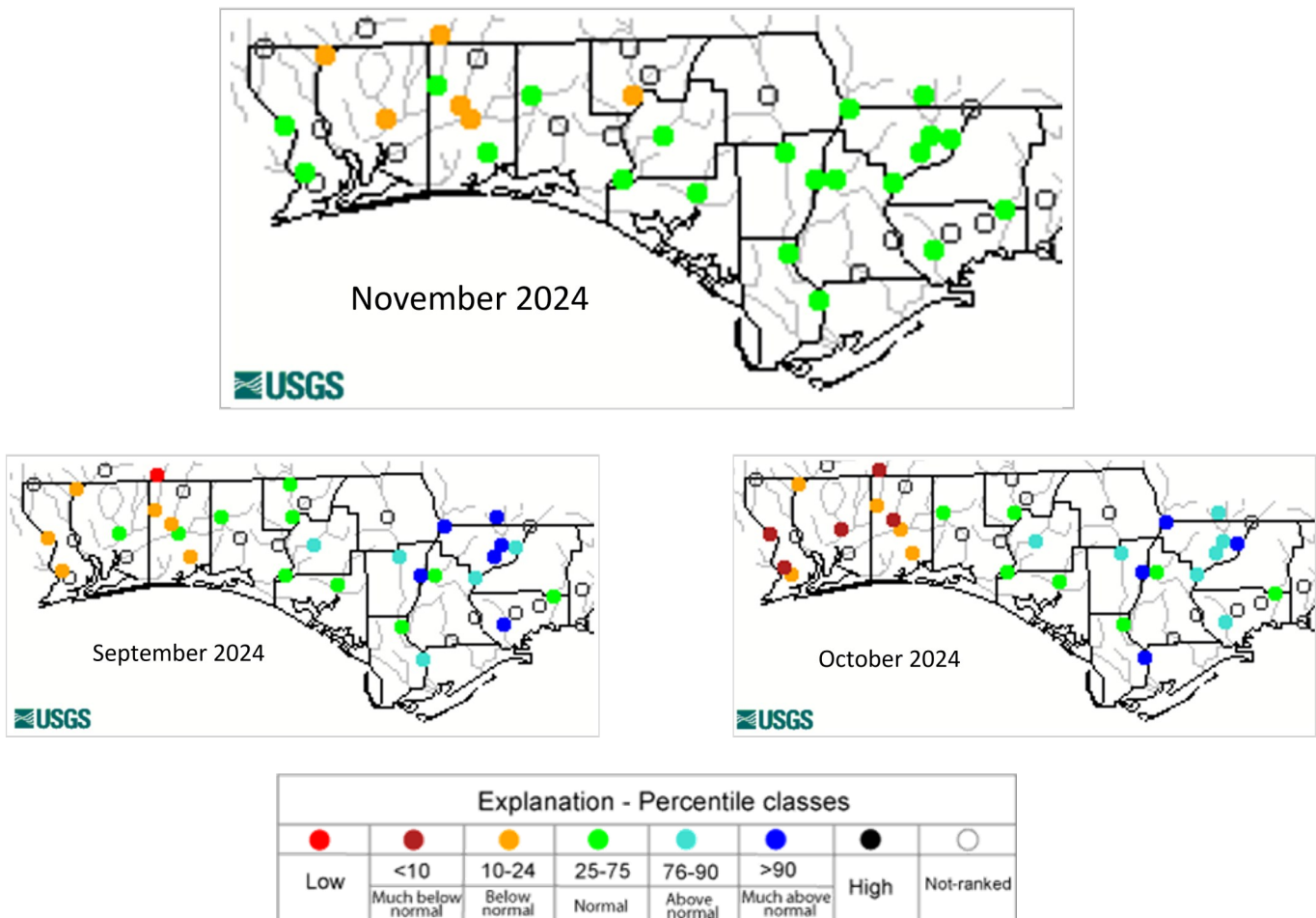
Source: <https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?FL>



Surface Water

Streamflows. Increased rainfall amounts throughout November 2024, particularly in the western portion of the District (Figures 1 & 2), contributed to streamflow percentiles across the Panhandle generally evening out into normal ranges compared to mid-September and mid-October 2024 (Figures 9 – 15). Slightly less than normal rainfall towards the eastern portion of the Panhandle brought streamflow percentiles that were previously elevated in September and October 2024 due to the rain received from Hurricane Helene down into normal ranges. Above normal rainfall in the western portion of the Panhandle resulted generally in increased streamflow. The only streamflow stations not recording flows within normal ranges were six stations in the northwestern portion of the District, likely a result of the continued drought conditions in the area (Figure 8).

Figure 9: Northwest Florida September 2024 to November 2024 monthly streamflow percentiles



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



Figure 10: Daily streamflows and percentile ranges for USGS station 02326900 St. Marks River Near Newport, Florida

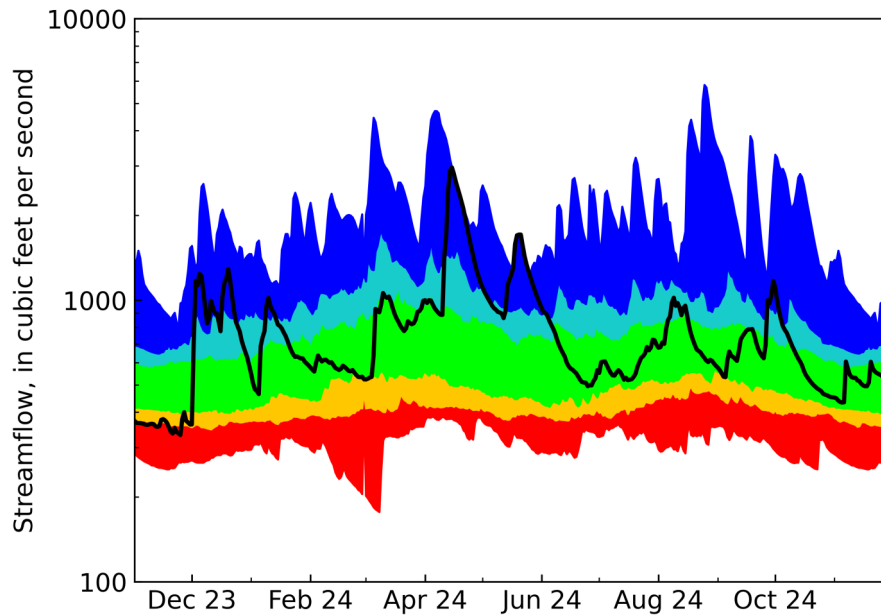
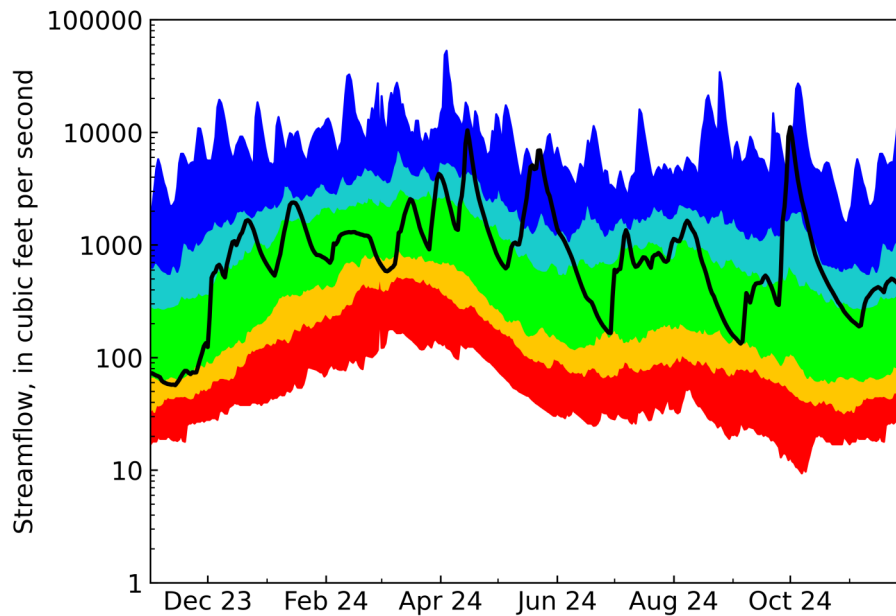


Figure 11: Daily streamflows and percentile ranges for USGS Station 02329000 Ochlockonee River Near Havana, Florida



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



Figure 12: Daily streamflows and percentile ranges for USGS Station 02358700 Apalachicola River Near Blountstown, Florida

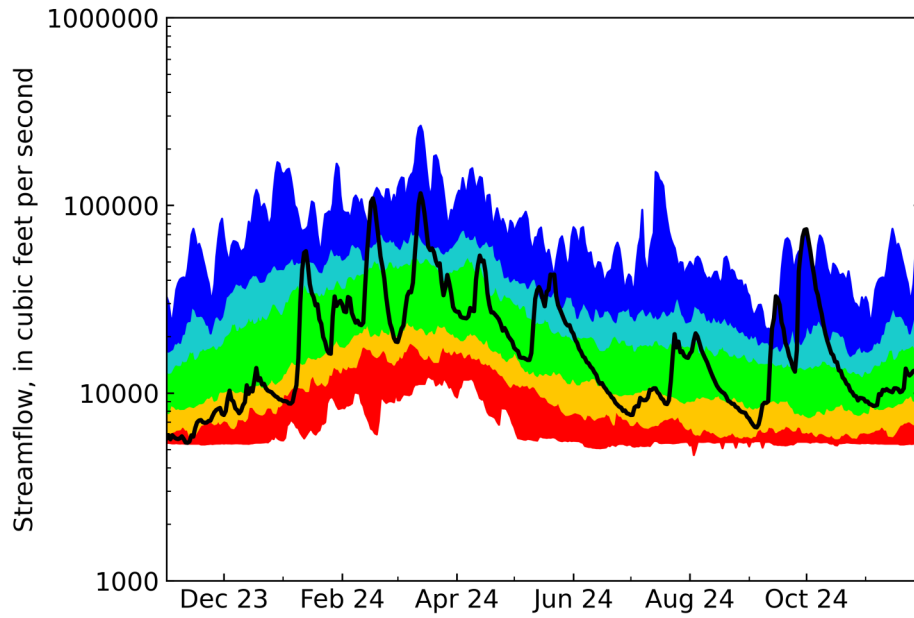
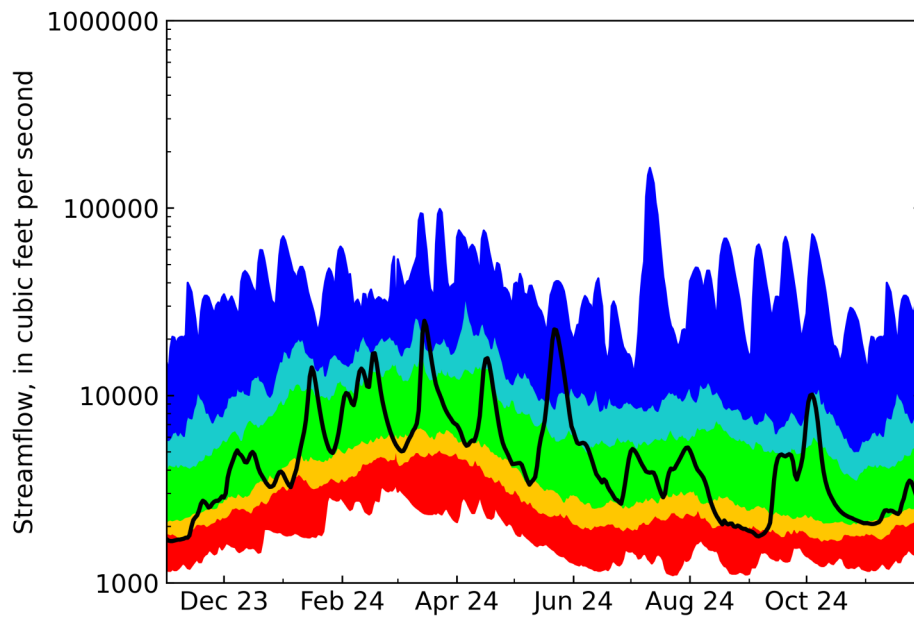


Figure 13: Daily streamflows and percentile ranges for USGS Station 02366500 Choctawhatchee River Near Bruce, Florida



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



Figure 14: Daily streamflows and percentile ranges for USGS Station 02370000 Blackwater River Near Baker, Florida

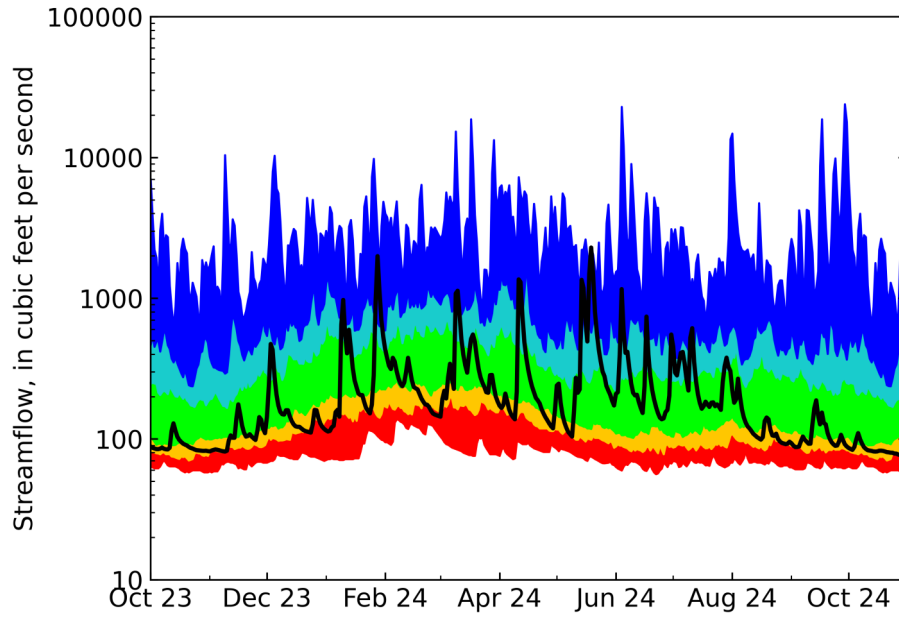
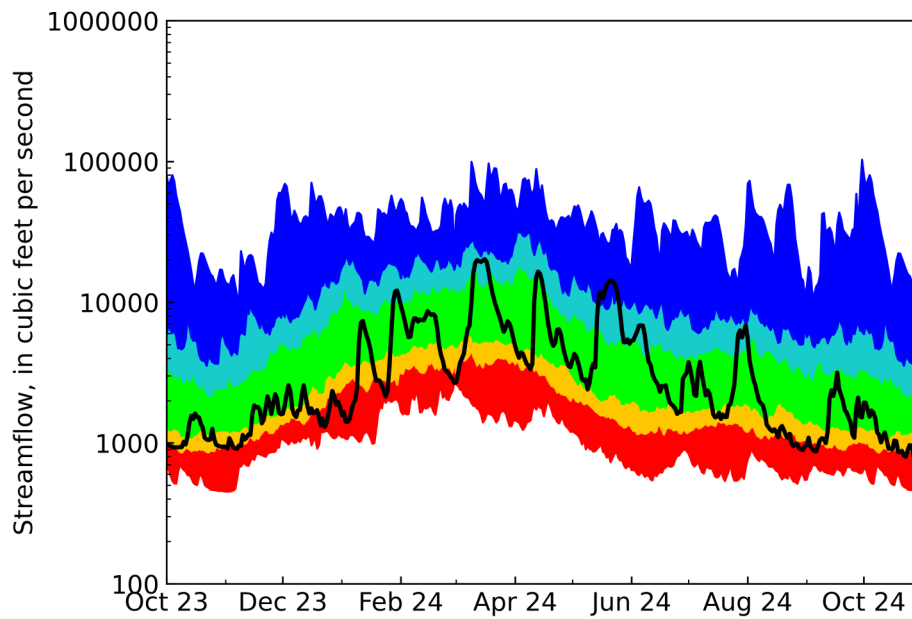


Figure 15: Daily streamflows and percentile ranges for USGS Station 02375500 Escambia River Near Century, Florida



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 remained generally stable at a stage level of 81.59 feet, NAVD 1988 throughout the month of November 2024 (Figure 16). The long-term (January 29, 2003 to November 30, 2024) average stage level for Lake Jackson is 80.88 feet, NAVD 1988, and the full pool level is 85.74 feet, NAVD 1988.

Water levels at Piney Lake in southern Washington County increased by 0.47 at the beginning of November 2024 and remained generally stable around 49.55 feet, NAVD 1988 for the remainder of the month (Figure 17).

Figure 16: Daily water levels at Lake Jackson at Miller Landing, Leon County

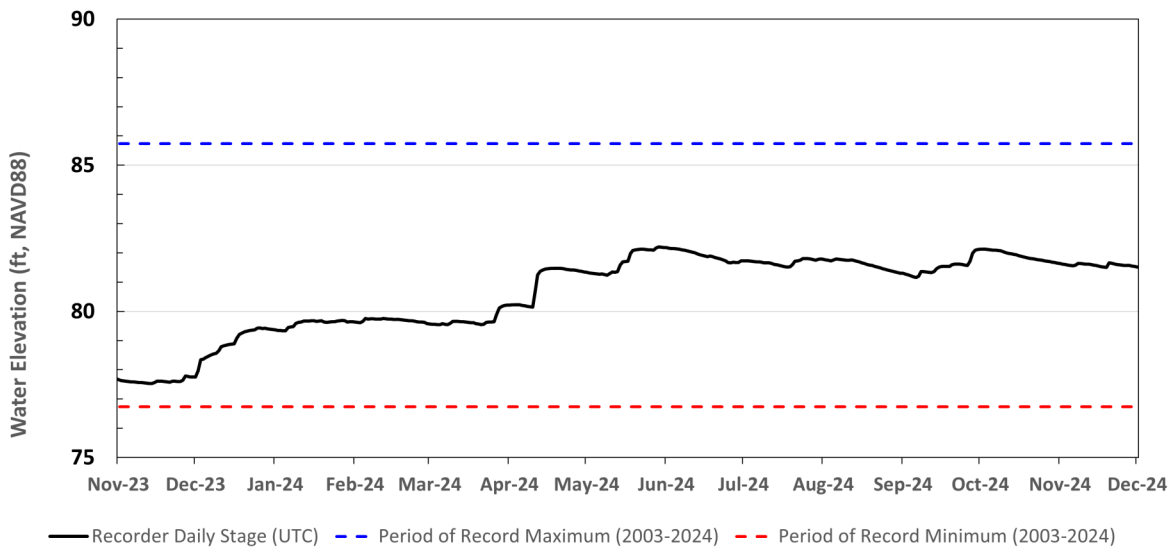
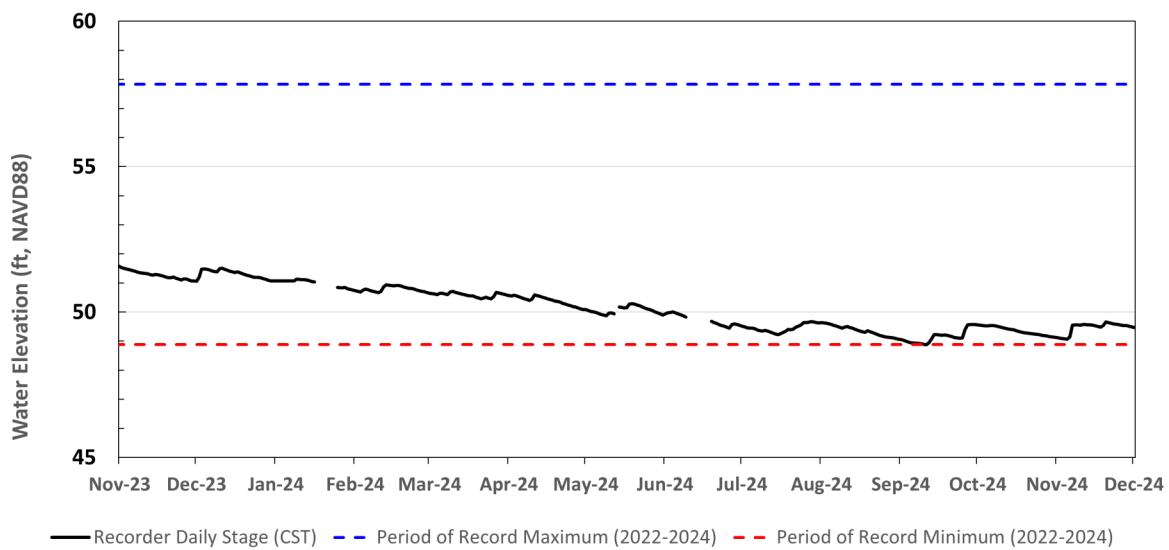


Figure 17: Daily water levels at Piney Lake, Washington County



Spring Flows

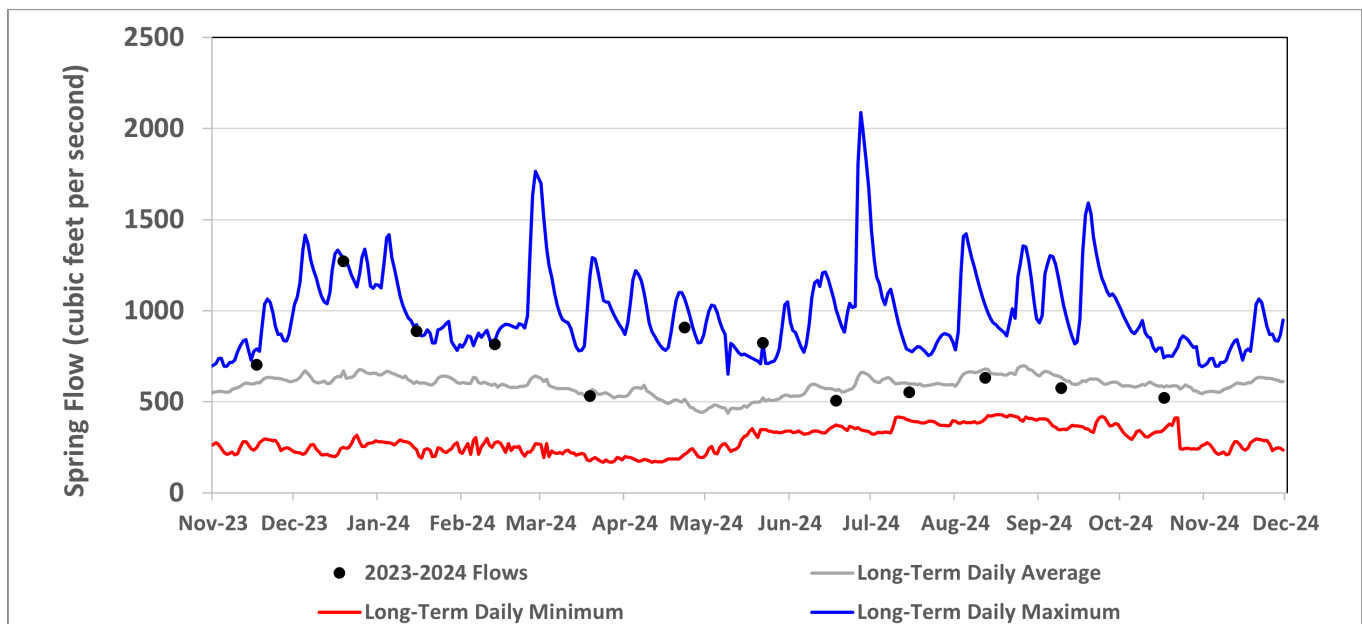
Wakulla and Sally Ward Spring System. Flows at Wakulla Spring decreased slightly between the measurements taken in September and October 2024, continuing to remain slightly below the long-term average flow. The most recent flow measurement for Wakulla Spring was 522 cubic feet per second (cfs), which was conducted on October 17, 2024 (Figure 18). The long-term (November 2004 to October 2024) average flow for the month of October is 583 cfs. No measurement was taken in November 2024, measurements will resume in December 2024.

Flow at Sally Ward Spring increased by 1.5 cfs between the measurements taken in September and October. The most recent flow measurement for Sally Ward was 24.4 cfs on October 17, 2024. This measurement was 2.4 cfs higher than the long-term average flow for the month of October of 22.0 cfs. The long-term average flow is based on the November 1, 2004, to October 17, 2024, period of record. No measurement was taken in November 2024, measurements will resume in December 2024.

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 23, 2004, through October 17, 2024) average flows for Wakulla and Sally Ward Springs are 588 cfs and 24.2 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 18: Daily Wakulla Spring flows

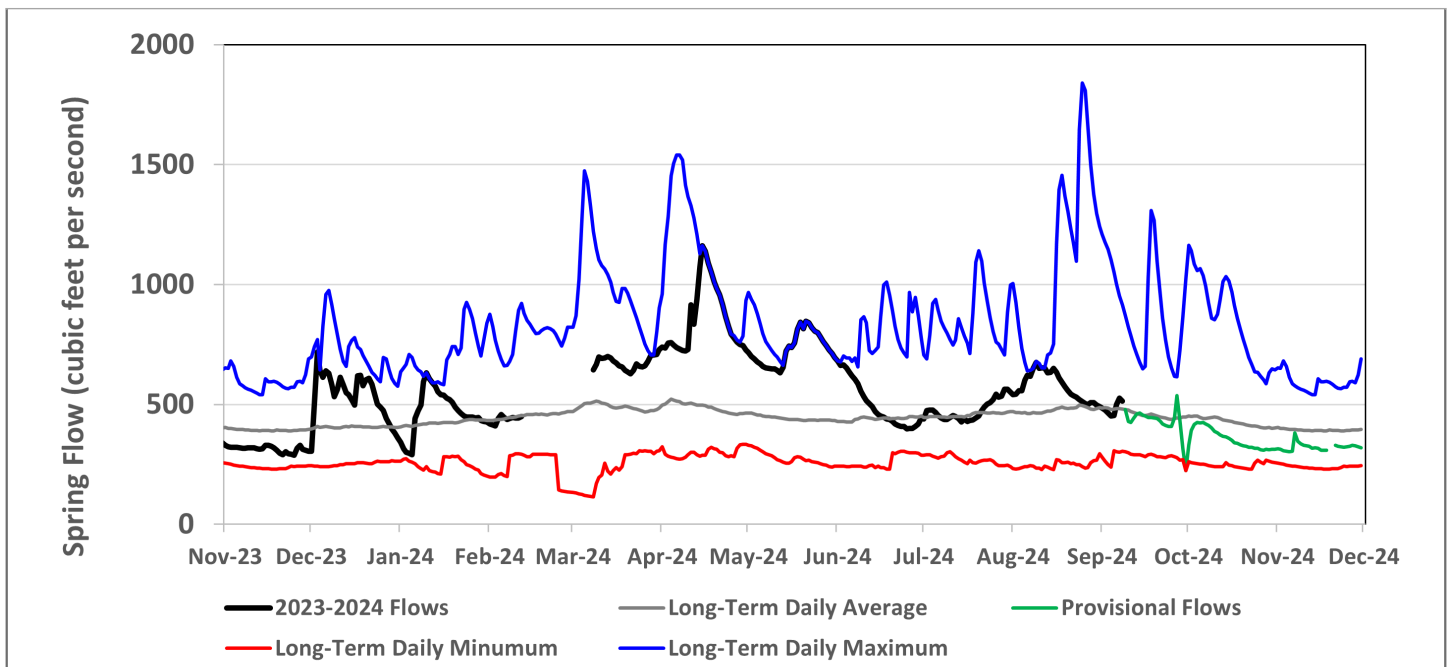
Data from November 1, 2023, through November 30, 2024, represent discrete measurements. Daily statistics are based on the October 23, 2004, through October 17, 2024, period of record.



St. Marks River Rise. The mean daily spring flow for November 2024 at the St. Marks River Rise was 322 cfs, based on the available USGS provisional data which extends through November 30, 2024 (Figure 19). 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 November 30, 2024, are included, the 30-year moving average spring flow for the St. Marks River Rise is 425 cfs. The established Minimum Flow for the St. Marks River Rise is 419 cfs. Whether using the approved or provisional data, the 30-year moving average flow exceeded the established Minimum Flow for the St. Marks River Rise by 10 cfs and 6 cfs, respectively.

At the beginning of October 2024, a spike followed by a steep drop in flow can be seen in the time-series caused by the precipitation received during Hurricane Helene. The steep drop occurred because the rain increased the stage of the St. Marks River, exerting extra pressure and lowering the flow from the spring. Flow from the spring then increased in the following days as the stage of the St. Marks River dropped.

Figure 19: Daily spring flows for the St. Marks River Rise

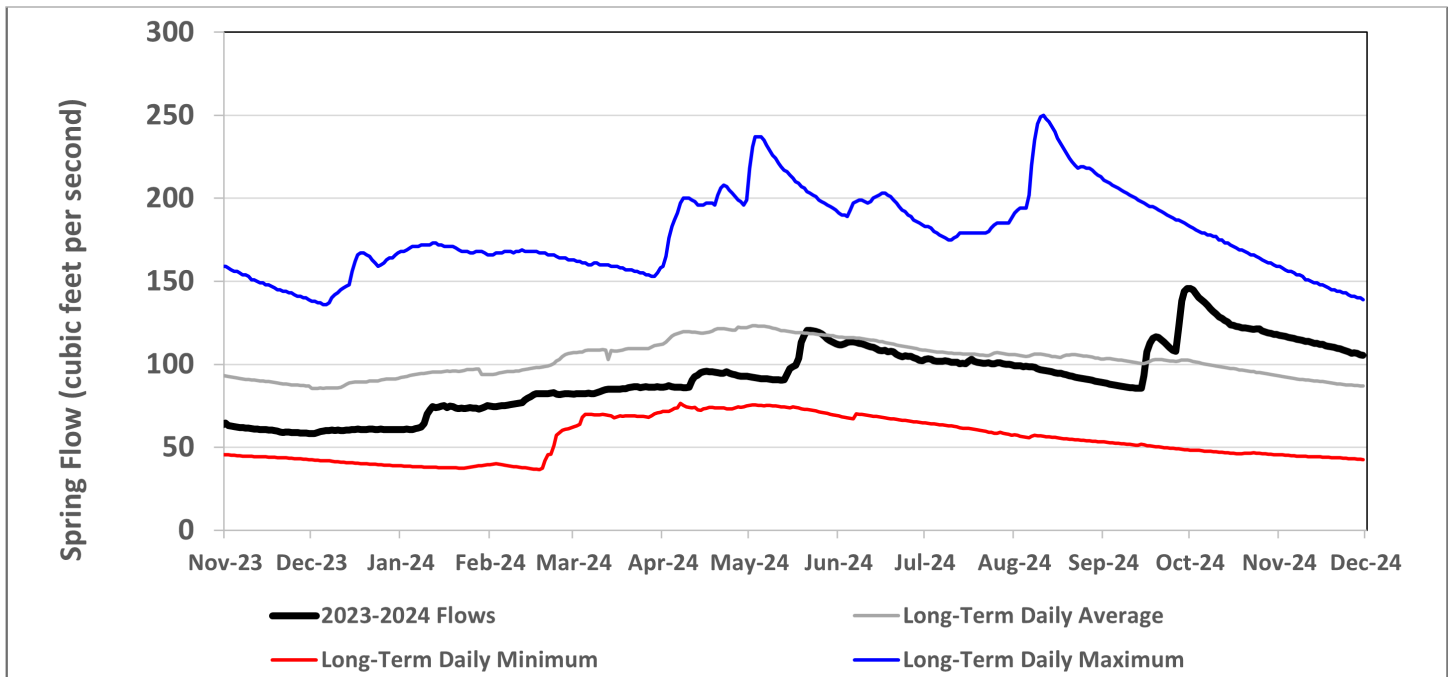


Jackson Blue Spring. Daily average flows at Jackson Blue Spring for the month of October 2024 averaged 127 cfs. This was above the long-term (December 21, 2004, through October 31, 2024) average flow for the month of October of 97.4 cfs (**Figure 20**).

After flow from Jackson Blue Spring stabilized around 125 cfs in the last half of October 2024, flow decreased steadily through November 2024, ending the month with a flow of 105 cfs.

Figure 20: Daily spring flows for Jackson Blue Spring

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

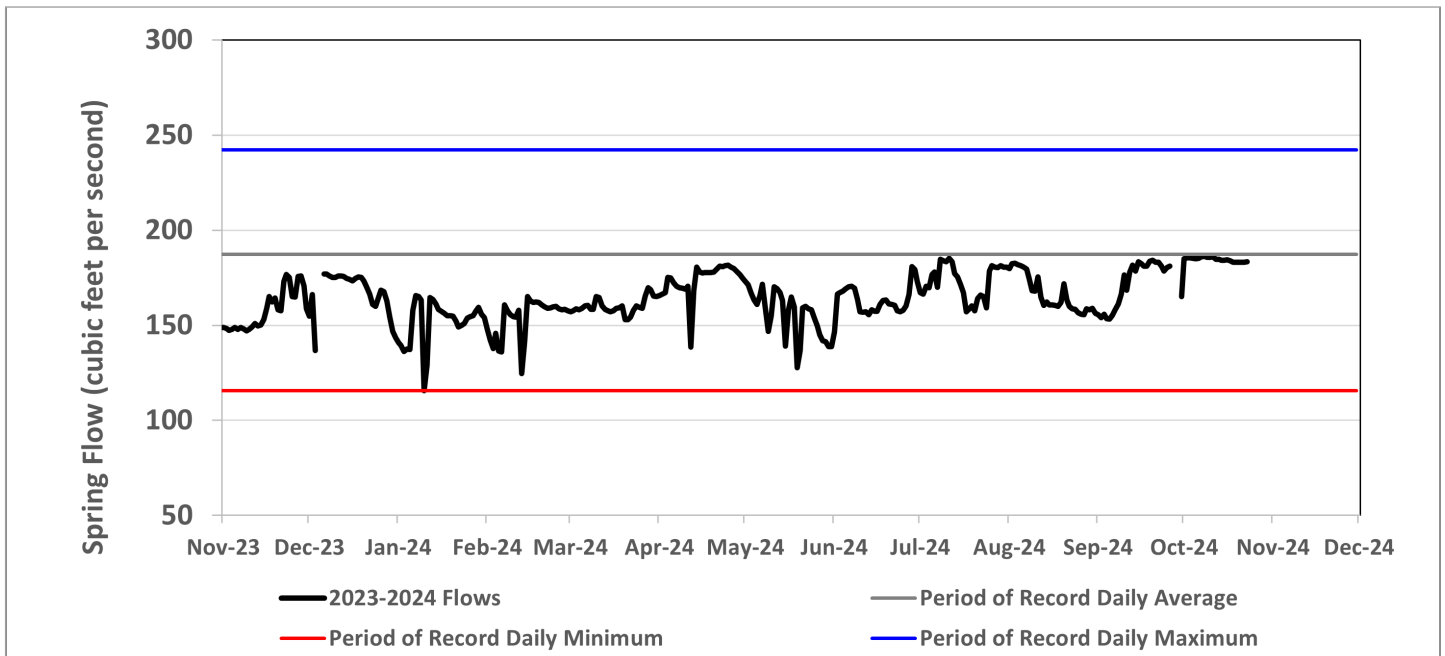


Gainer Spring Group. During October 2024 (October 1 through October 29, 2024), flow at the Gainer Spring Group was 184 cfs (**Figure 21**). The period of record (October 28, 2019, through October 29, 2024) average monthly spring flow for October is 177 cfs. No measurement was taken during November 2024, measurements will resume in December 2024. It should be noted that there is a relatively brief period of record for this system, and spring flows among the highest and lowest on record are to be expected.

Throughout the timeseries, there are several drops and recoveries in the spring flow. This is caused by Econfina Creek spiking in stage adjacent to the spring group after rain events. The extra pressure exerted on the groundwater by the surface water in the stream slows flow from the spring group. Since Econfina Creek does not tend to stay high for long after the conclusion of a rain event, as the stage level quickly drops, the flow from the spring group recovers since there is less pressure from the stream.

Figure 21: Gainer Spring Group flows

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



Aquifer Levels

Classifications of Floridan aquifer monitor wells remained generally within normal ranges in the eastern portion of the District while Floridan monitor wells to the west recorded generally below normal levels in the middle of November 2024 (Figures 22 - 28). Groundwater levels at USGS-Lake Jackson Floridan monitor well (NWFID 3402) in northwest Leon County and NFWMD Pittman Visa well (NWFID 5266) in northeast Jackson County decreased from above normal to normal percentile classifications between October and November 2024 (Figures 23 & 25). Groundwater levels at NFWMD-Sand Hill Upper Floridan (NWFID 5597) in northwestern Okaloosa County also decreased but into much below normal ranges, likely a result of the continued drought conditions present in the northwestern region of the District.

All sand-and-gravel aquifer wells depicted have continued to record below normal groundwater levels except for NFWMD-Weller Ave Deep monitor well (NWFID 1382) in southern Escambia County, which has remained within normal ranges for most of 2024 (Figure 28).

Figure 22: Floridan aquifer monitor wells and aquifer level percentiles for mid-November 2024

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

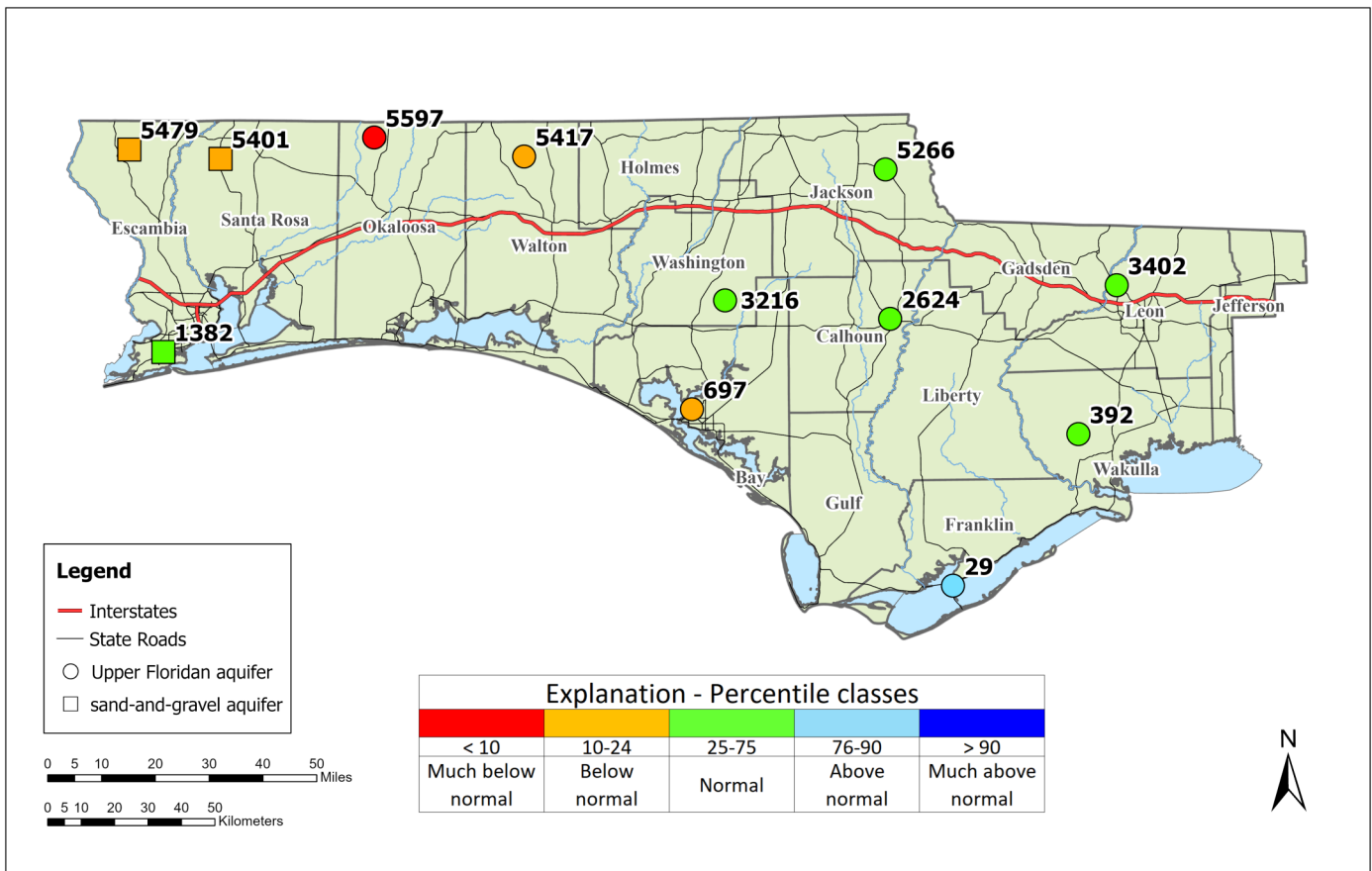


Figure 23: Daily Upper Floridan aquifer levels at USGS-Lake Jackson well (NWFID 3402), Leon County

Land surface elevation is 121.40 ft, NAVD 88

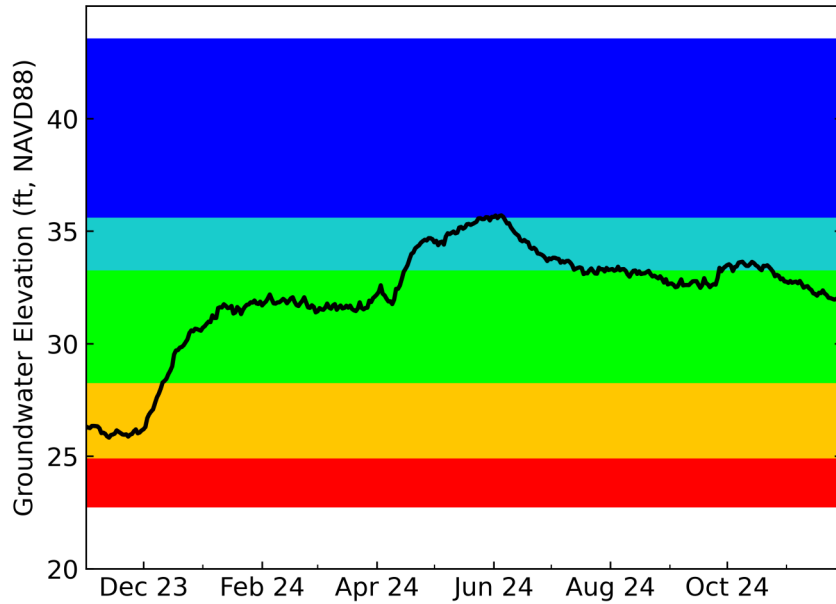
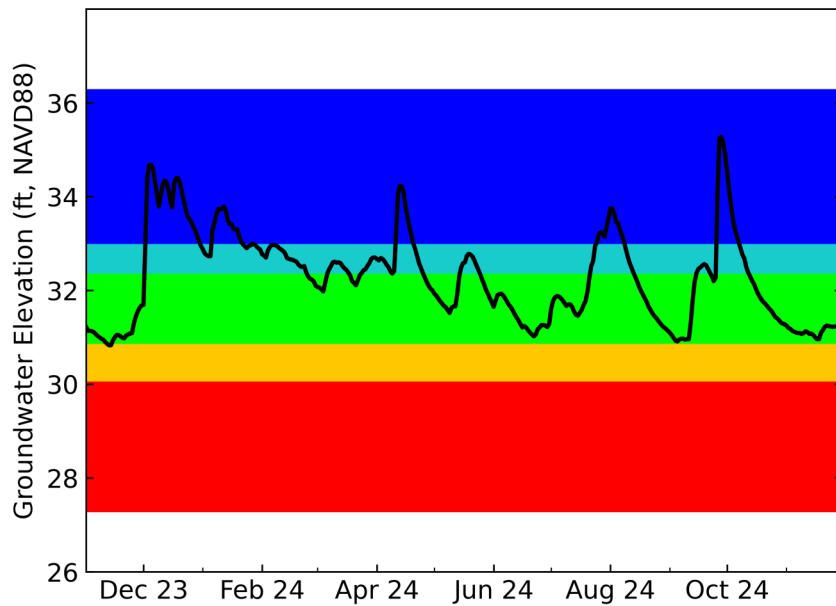


Figure 24: Daily Upper Floridan aquifer levels at USGS Benchmark well (NWFID 392), Wakulla County

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 25: Daily Upper Floridan aquifer levels at NFWFMD Pittman Visa well (NWFID 5266), Jackson County

Land surface elevation is 127.31 ft, NAVD 88

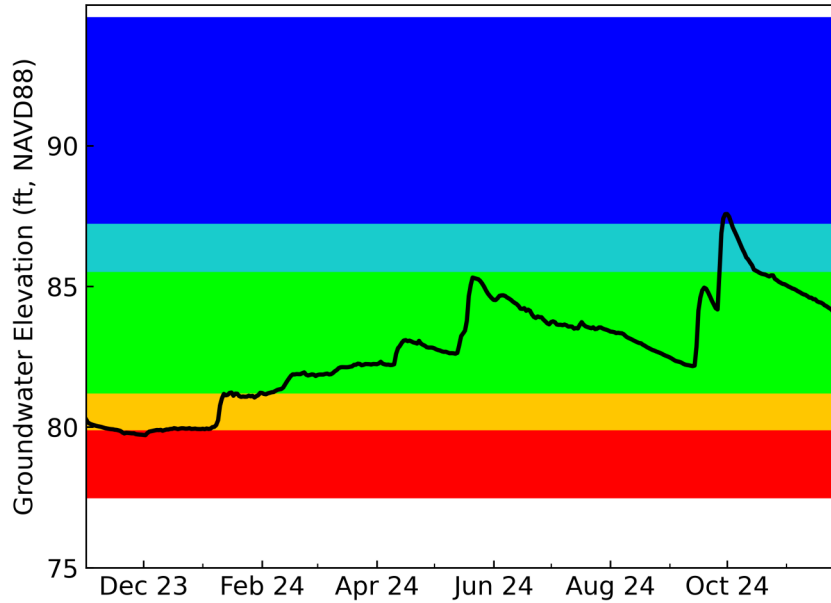
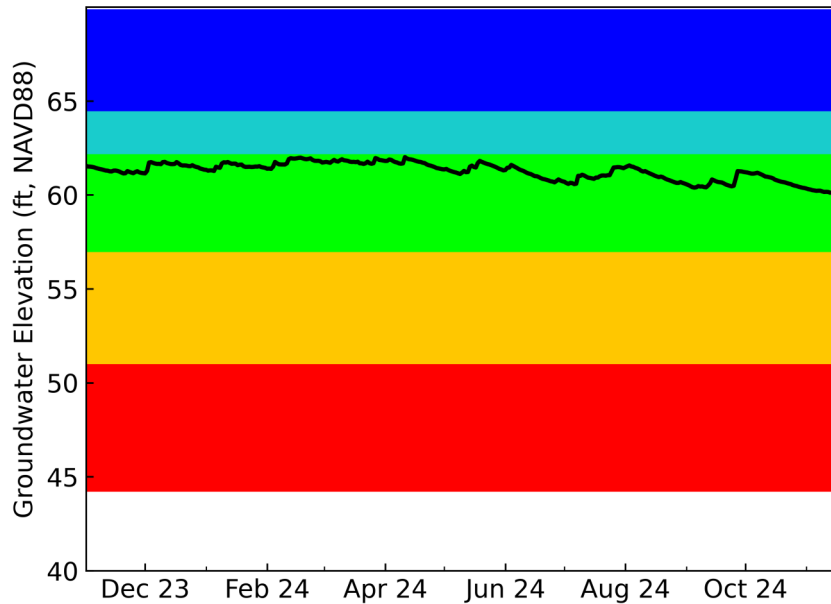


Figure 26: Daily Upper Floridan aquifer levels at USGS-422A Near Greenhead well (NWFID 3216), Washington County

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

Land surface elevation is 4.05 ft, NAVD 88

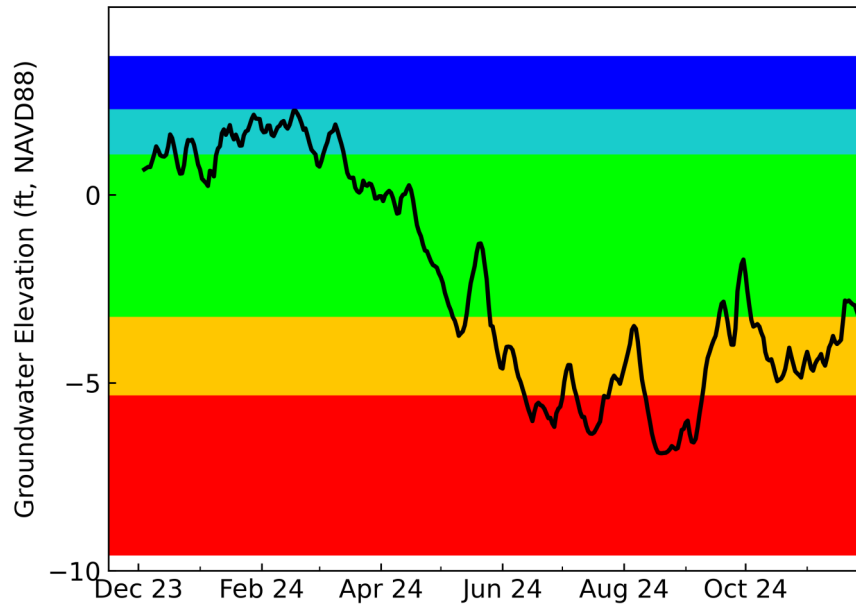
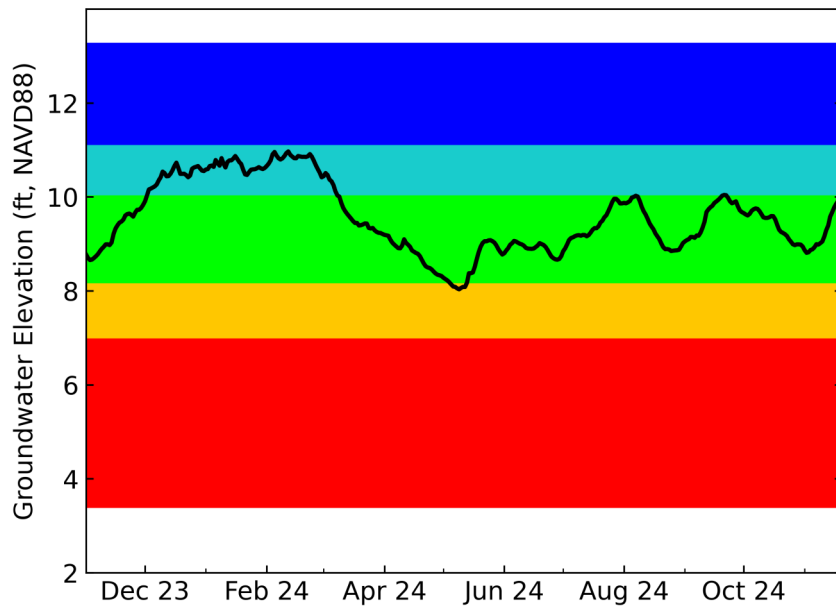


Figure 28: Daily sand-and-gravel aquifer levels at NFWMD Weller Ave Deep well (NWFID 1382), Escambia County

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

