

# South Carolina Water Resources Monthly Summary

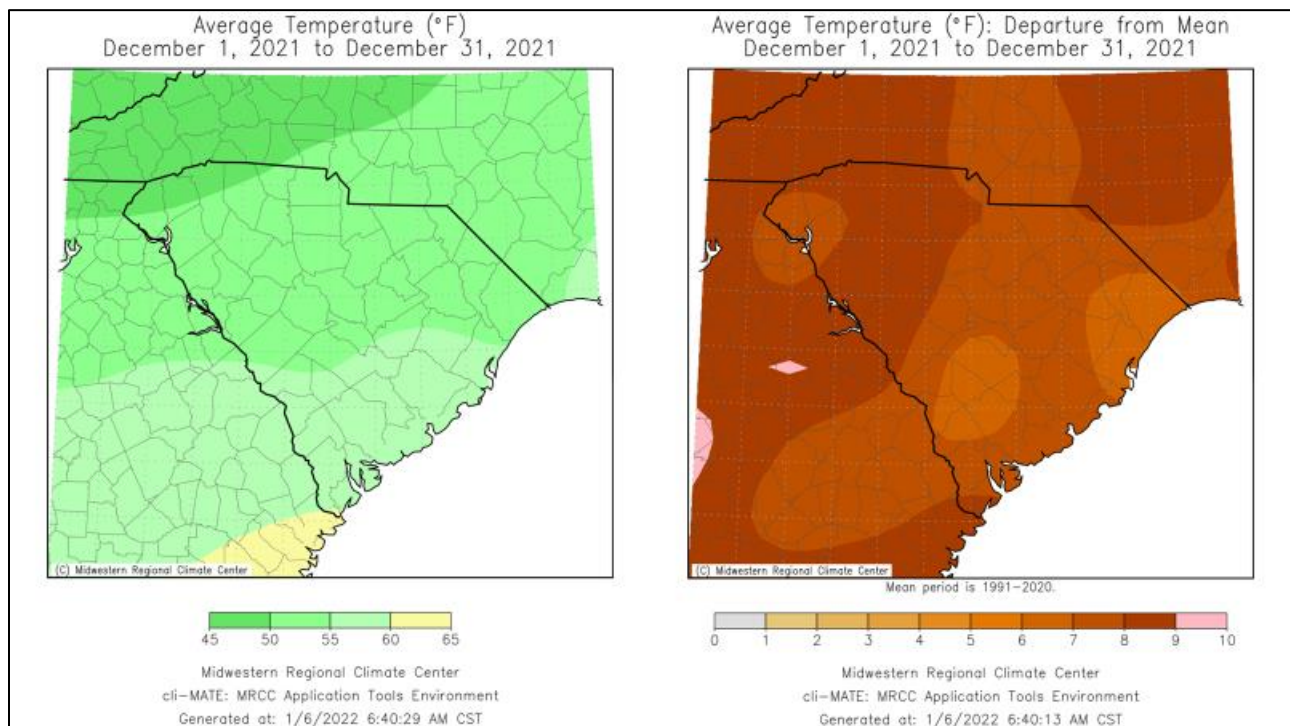
## For December 2021

Provided by

The South Carolina Department of Natural Resources

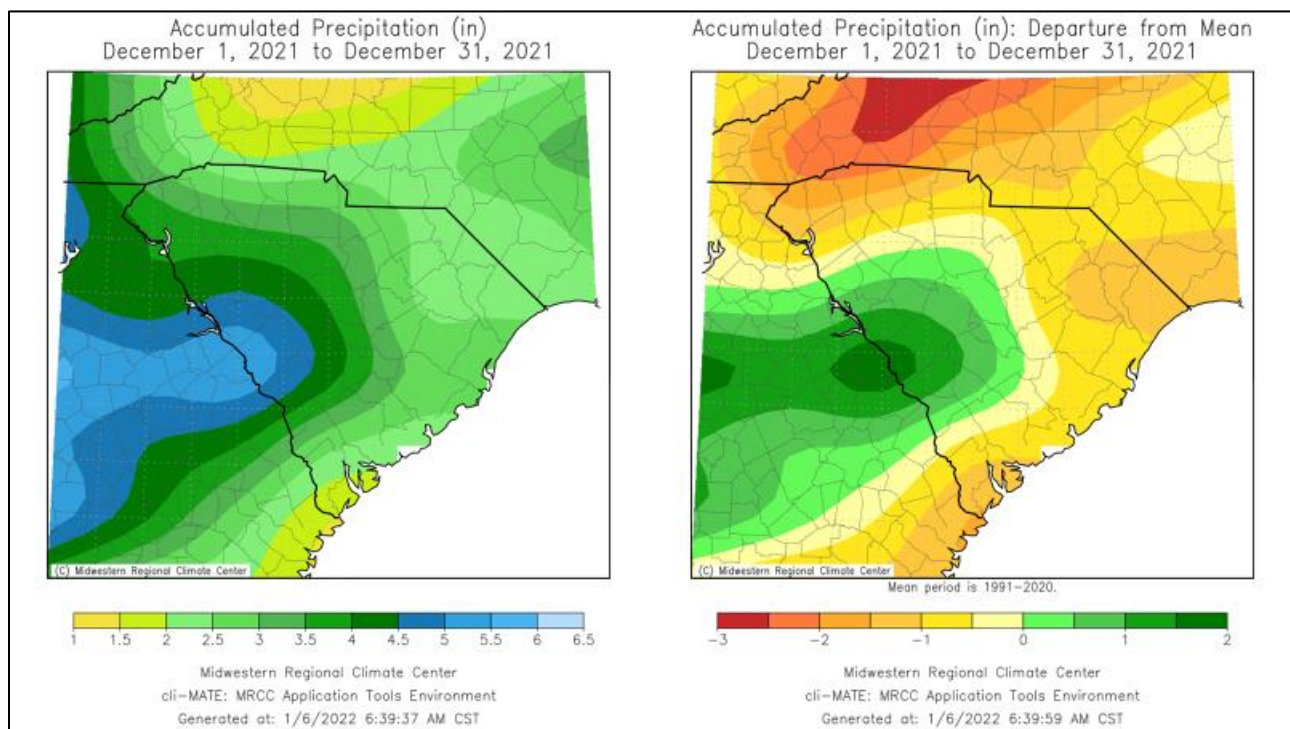
### Temperature

Statewide, South Carolina had an average temperature of 54.7 degrees, 9.1 degrees above the long-term average (1895-2020) of 45.6 degrees, becoming the Second warmest December on record for the state. December 2021 was the second warmest December on record in Charleston (since 1937) and Greenville (since 1962); it was the third warmest in Florence (since 1948); and the fourth warmest at Columbia (since 1948). The highest temperature during the month was 84 degrees, recorded at the National Weather Service (NWS) station at the University of South Carolina's campus in Richland County on December 3. The NWS station in Charleston did not report any low temperatures at or below freezing (32 degrees) for the month. The Columbia station recorded only six days; the normal for December is twelve days. Similarly, the NWS Greenville station was less than 32 degrees nine days in December, below the normal fourteen days. The lowest temperature observed during the month was 22 degrees at the NWS station near Cedar Creek on December 16.



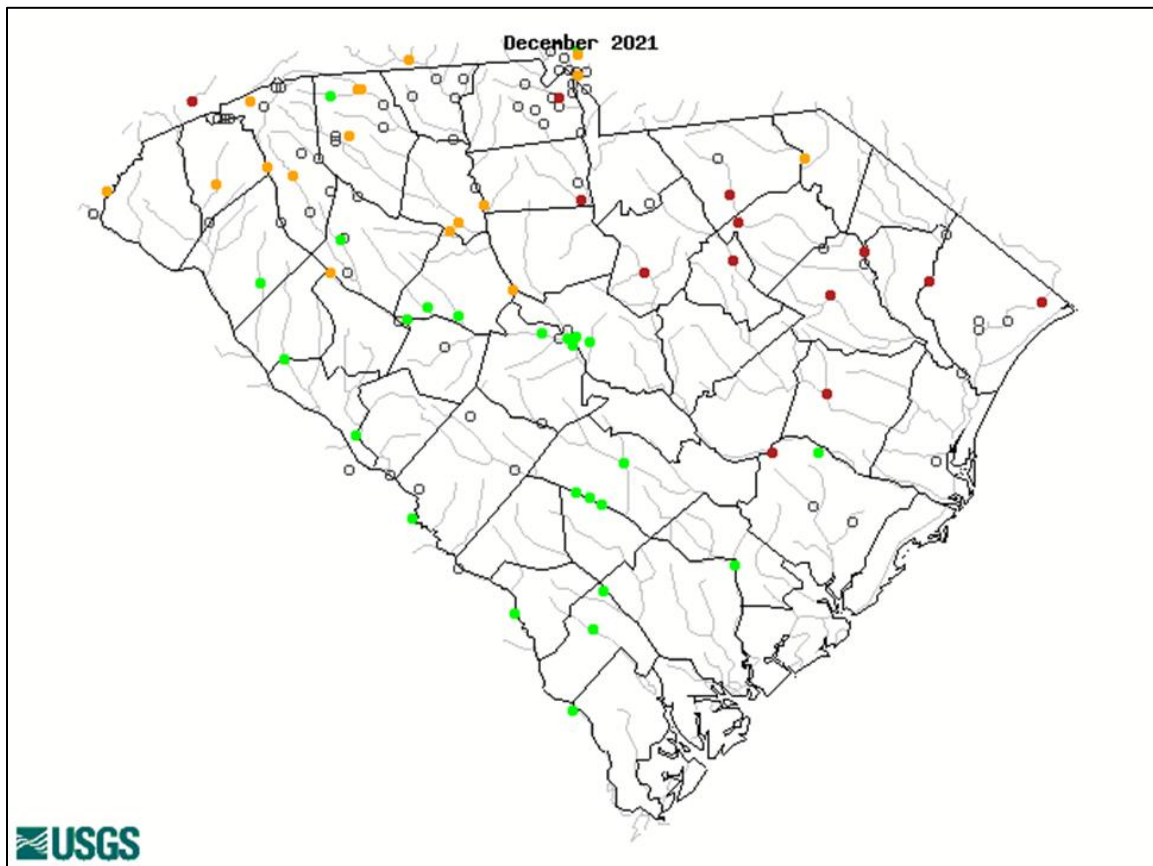
## Precipitation

The statewide average precipitation for December 2021 was 2.97 inches, which is 0.64 inches below the long-term average for the month (1895-2020) of 3.61 inches. During the month, only Parts of the Central Savannah River Area reported above-normal precipitation, with precipitation totals between four and six inches. Multiple CoCoRaHS observers near Aiken recorded monthly totals over six inches, with one observer measuring 7.24 inches. Locations in the Pee Dee and Upstate measured less than 50% of their average monthly rainfall, where totals ranged from two to three inches. Some coastal portions of Beaufort, Charleston, and Colleton counties received less than 25% of their normal rainfall for December, including one CoCoRaHS observer near Beaufort that only reported 0.93 inches for the month.



## Streamflow

The USGS's monthly streamflow map compares the current monthly average streamflow at each gage for a given month to each gage's historical monthly average streamflows for the same month over the gage's period of record. As observed from the map, most of the gages in the northern, northeastern, and northwestern area of the State, which includes the Pee Dee, Catawba, Broad, Saluda, and parts of the Savannah basins, show below normal to much below normal conditions. The below normal conditions experienced in these portions of the basins are consistent with other drought monitoring indicators. A few rain events in December did not provide much relief to the dry streamflow conditions. Most of the gages with below normal conditions in November declined to show much below normal conditions in this month. Overall, streamflow conditions at the vast majority of sites across the State have observed a gradual decline from the past month.

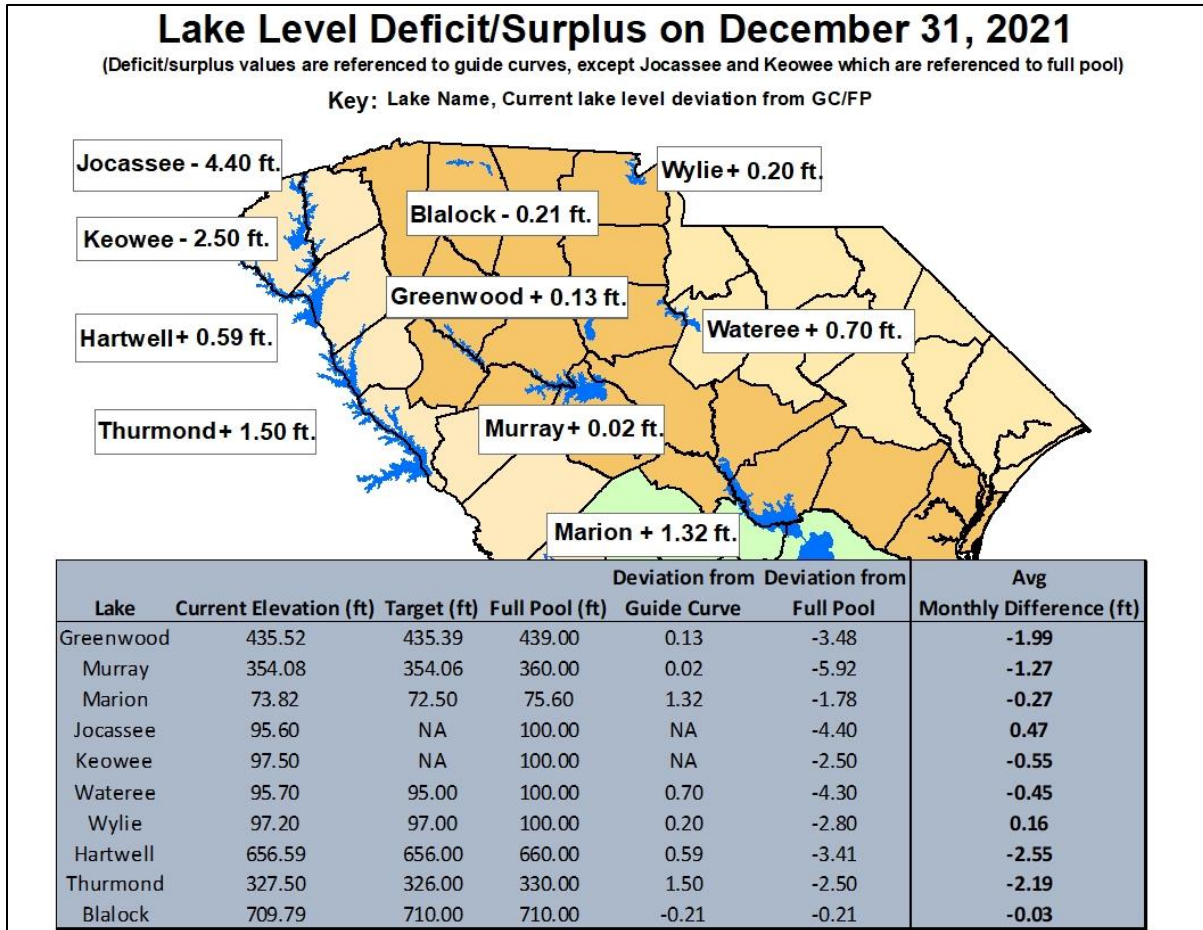


Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	No Data
	Much below normal	Below normal	Normal	Above normal	Much above normal		



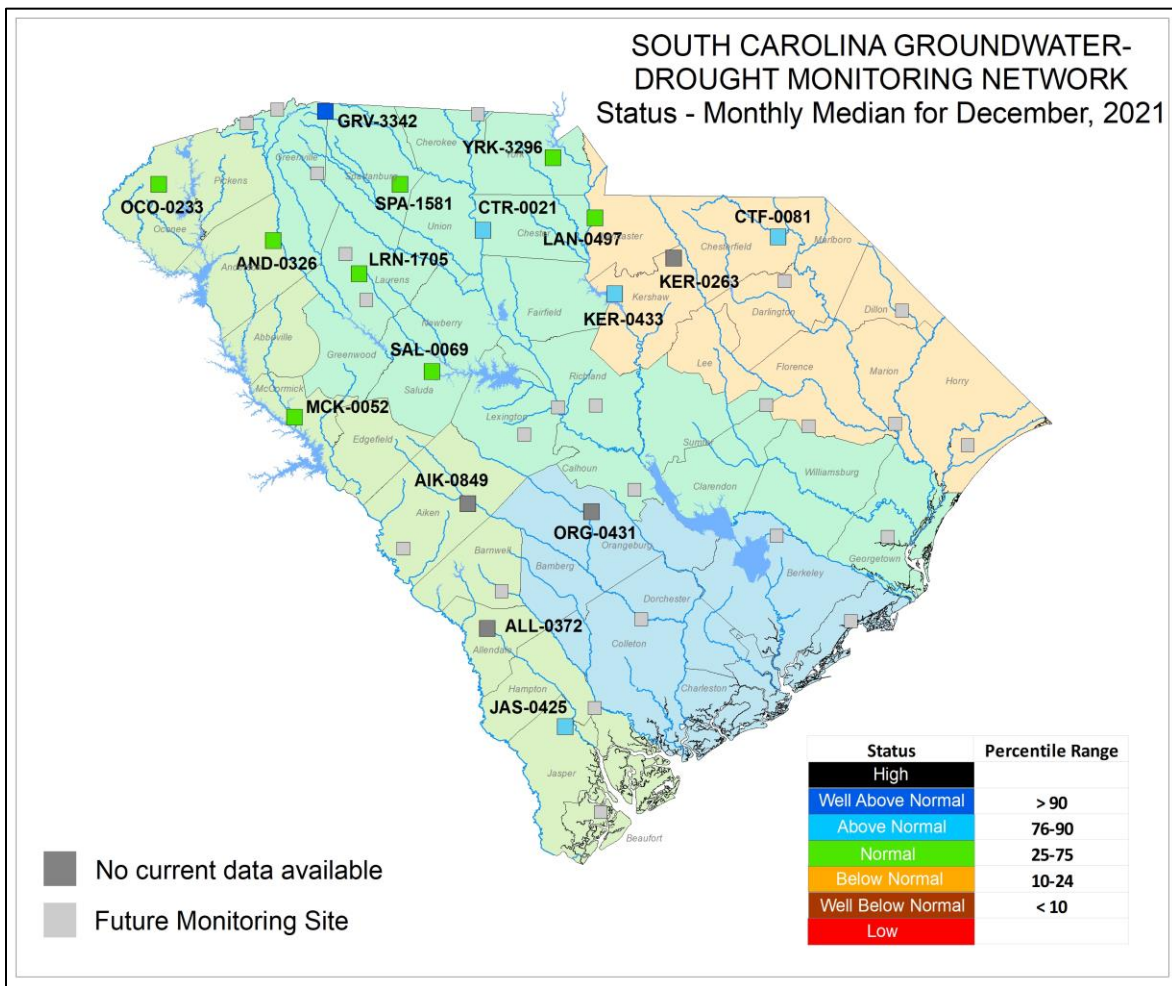
## Reservoirs

The map below shows the reservoir level surplus or deficit for each major reservoir and is based on conditions for December 31st. Three of the ten major reservoirs in South Carolina are below their target or full pool elevation. The lake levels for most reservoirs are lowered in the winter months in anticipation of higher inflows that typically occur in late winter and early spring. As of the end of December, the monthly average lake elevations for most of the lakes shown on the map below have dropped from the last month but are still maintained close to their guide curve elevations.



## Groundwater

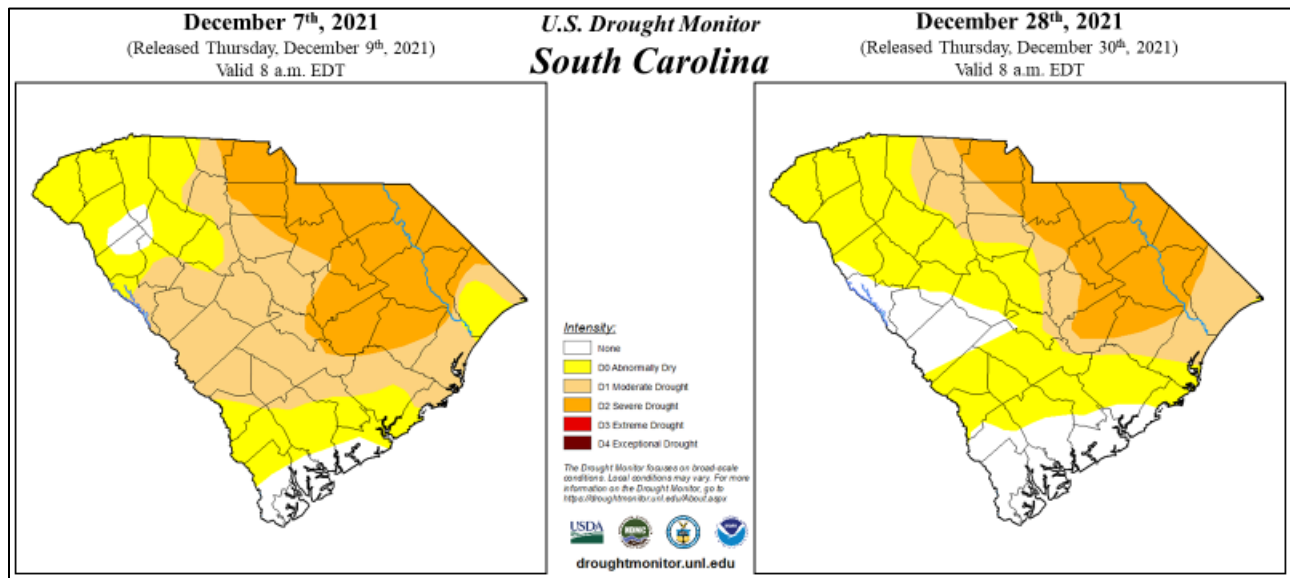
The groundwater conditions map for December is based on the monthly medians for the data collected by both the USGS and the SCDNR. As noted in the table below, nine out of the fourteen wells show a drop in the monthly median levels from November to December. Although there is a drop in the medians from the past month, some of the wells in the Savannah and Saluda basins showed slight improvements in their drought status from last month. Unfortunately, due to lack of data for Kershaw-0263, a current drought status based on the monthly medians could not be determined. Dryness experienced in the State has impacted the overall levels, but the past winter recharge has helped groundwater levels remain at or above normal for the sites shown on the map below.



## Drought

The first U.S. Drought Monitor (USDM) in December (12/7) had 28.53% of the state in abnormally dry (D0) conditions, 26.58% of the state in moderate drought (D1) conditions, and 28.98% of the state in severe drought (D2) conditions. This first map of December showed an increase in USDM category coverage across South Carolina from the last map in November, particularly for the coverage in D1 and D2 conditions. The increase in D1 and D2 conditions were primarily based on increasing deficits in soil moisture and streamflow values. Luckily the first USDM map in December was the peak of USDM coverage in the state for the month. Rain returned during the second week of December, which helped to remove much of the D1 conditions across the Central Savannah River Area (map for 12/14), reducing precipitation and soil moisture deficits. Continued rain allowed for more improvement for the 12/21 map, removing even more D1 conditions in the Midlands and D0 conditions from the Central Savannah River Area and Midlands. There was little change to the last USDM map in December (12/28) as there were little changes to conditions from the previous week. The state ended December with 41.17% of the state in D0 conditions, 17.58% of the state in D1 conditions, and 22.88% of the state in D2 conditions.

The South Carolina Drought Response Committee (DRC) did meet on December 9<sup>th</sup>, 2021. During this meeting the committee categorized 34 in incipient drought status, primarily due to the high potential for fire. The other 12 counties (Abbeville, Anderson, Beaufort, Charleston, Greenville, Greenwood, Jasper, Laurens, McCormick, Oconee, Pickens, and Spartanburg) were left in normal conditions.



## Summary

The first week of December followed the dry pattern of November. Unlike November, December received near normal rainfall due to precipitation events throughout the month. Also, the month was much warmer than normal, ranking as the second warmest December on record. For much of the eastern half of the state, particularly the Pee Dee region, had been experiencing precipitation deficits dating back to late September. After a dry October and November, the eastern half of the state saw declines in streamflows, continued to decline through December due to the long-term dryness. All nine of the stream gauges in the Pee Dee basin were below normal for December and eight of the nine stream gauges reported well below normal conditions for the monthly. Fortunately, the building dry conditions did not negatively impact groundwater or reservoir levels.

## Looking Forward

A large precipitation event moved through the state on January 2<sup>nd</sup> and 3<sup>rd</sup>, providing a much-needed soaking for the state. Most of the state received at least 2 inches of rain, with some localized amounts exceeding 3.5 inches. This helped to remove short-term precipitation deficits and reduce long-term precipitation deficits across much of the state. It also helped to minimize some soil moisture deficits and short-term streamflows. It took about another week or so, with more rain (0.25 to 0.75 inches) to improve long-term streamflows. As of January 11<sup>th</sup>, eight of the nine stream gauges in the Pee Dee basin are below normal, with only one of the nine in well below normal conditions. Although flows in this basin are still below normal, the long-term flow averages have improved compared to the average flows for December. For the remainder of January, the models are indicating that across the state, temperatures will be below normal, and precipitation will be above normal. If this forecast holds, these conditions should continue to alleviate long-term dry conditions across much of the state, particularly the Pee Dee region.

## Contact

For questions about:	Person to contact	Email	Phone
Drought, General	Elliot D. Wickham	<a href="mailto:Wickhame@dnr.sc.gov">Wickhame@dnr.sc.gov</a>	(803)-734-8311
Climate Data	Melissa Griffin	<a href="mailto:Griffinm@dnr.sc.gov">Griffinm@dnr.sc.gov</a>	(803)-734-9091
Hydrologic Data	Priyanka More	<a href="mailto:MoreP@dnr.sc.gov">MoreP@dnr.sc.gov</a>	(803)-734-3945
General Hydrology	Scott Harder	<a href="mailto:harders@dnr.sc.gov">harders@dnr.sc.gov</a>	(864)-986-6254

