

# Streamflow Conditions across North Carolina

*Assessment of hydrologic conditions  
observed since July 2024*

S. Little USGS  
USGS South Atlantic Water Science Center (Raleigh)  
<http://nc.water.usgs.gov>



*Presented to:*  
North Carolina Drought Management Advisory Council (annual meeting)  
Steve Troxler Agricultural Sciences Center, Raleigh, NC  
September 18, 2025

*Wilson Creek, western North Carolina  
([Source URL](#))*

# Visualizing the components of streamflow



*Initial source: Selected stock images associated with Google search using term “North Carolina streams rivers”*

*Brooks Creek, above Eddie Perry Road, Chatham County  
Source: Flickrriver: Photoset 'Rivers And Streams, North Carolina' by Alan Cressler*



# The components of streamflow

## Example Streamflow Hydrograph

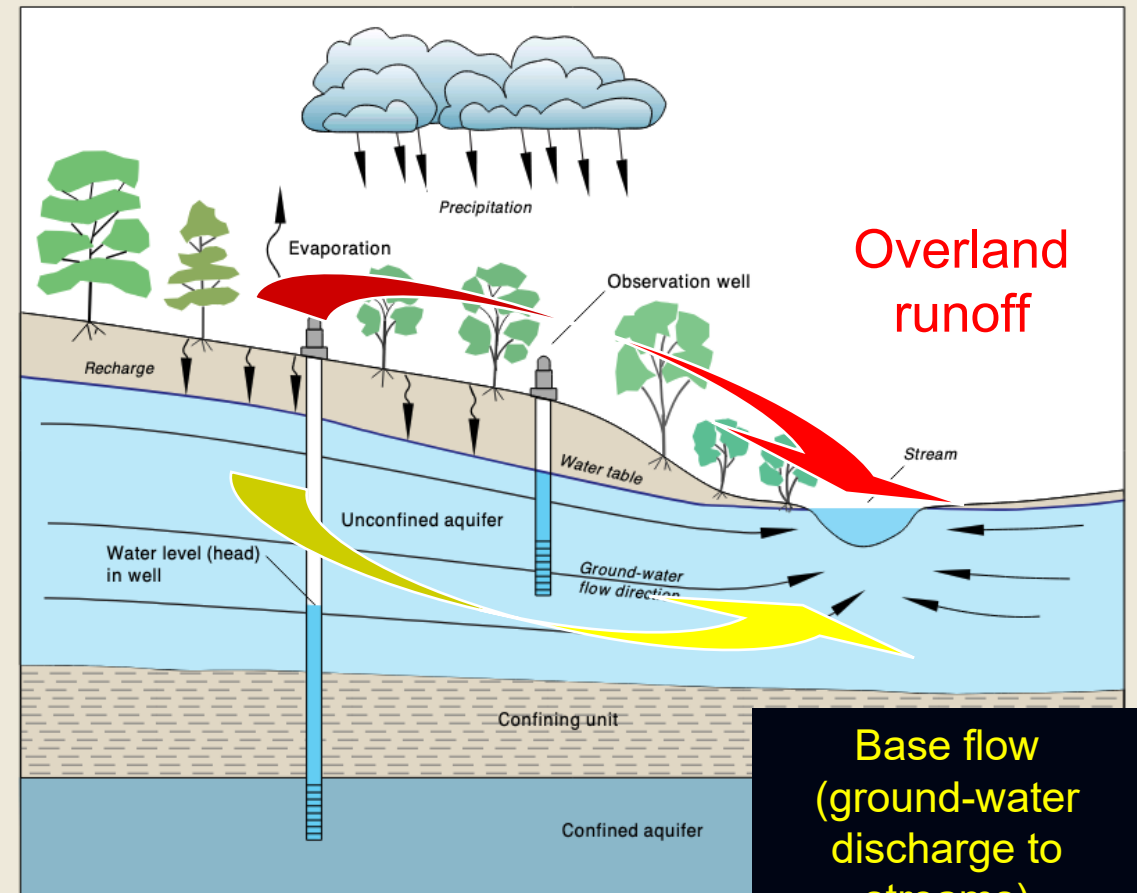
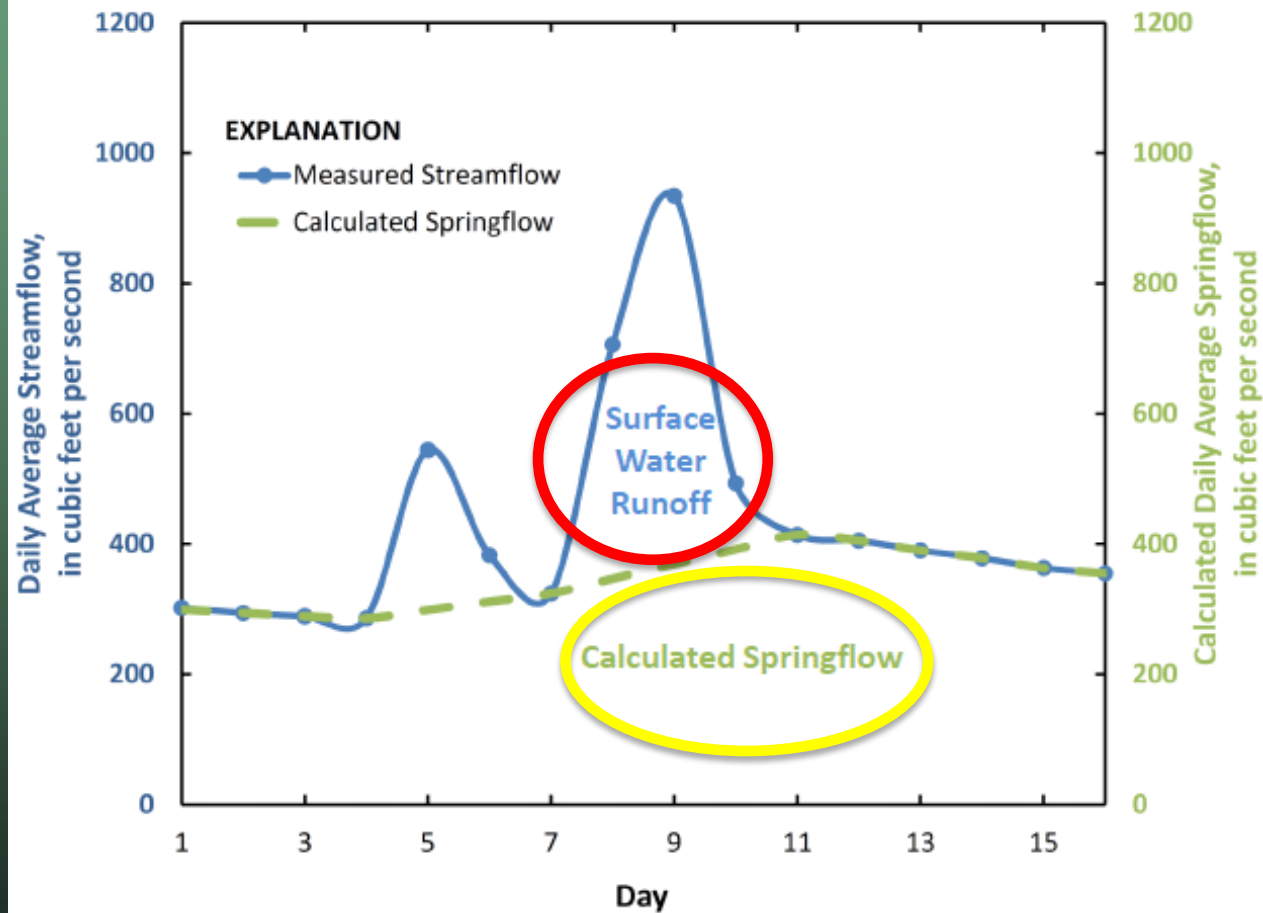
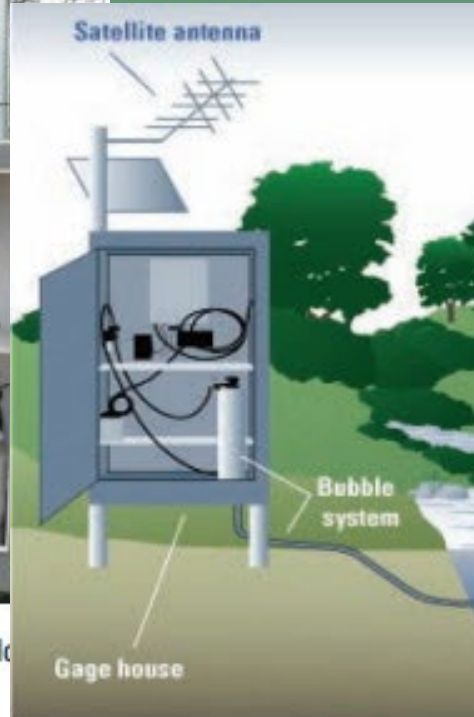


Figure A-2. Cross-section sketch of a typical ground-water-flow system showing the relation between an unconfined and confined aquifer, a water table, and other hydrologic elements.

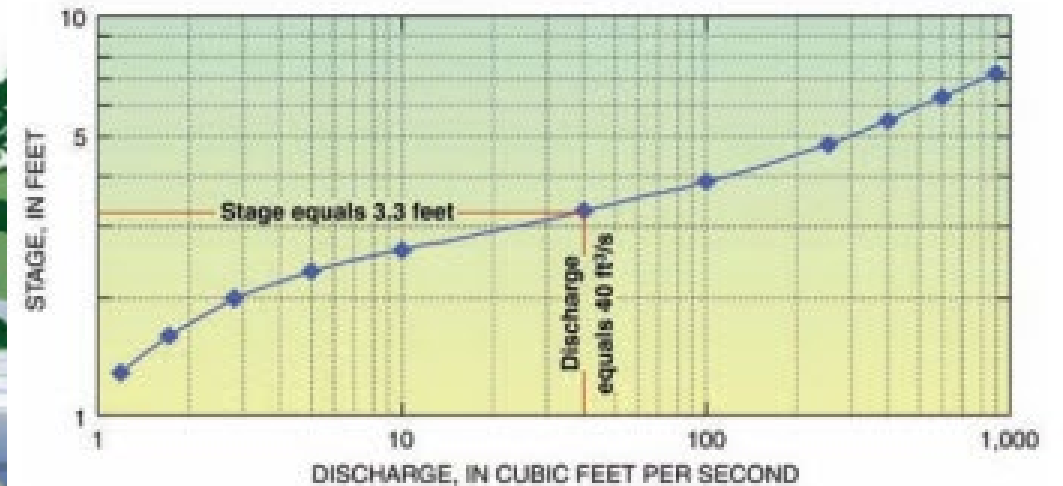
# How a USGS streamgage works



**Figure 1.** Examples of gage structures located at U.S. Geological Survey streamgaging stations.



**Figure 2.** Diagram of a typical streamgage installation with equipment used to measure stream stage (by L.S. Coplin, U.S. Geological Survey).



**Figure 3.** Example of a typical stage-discharge relation or rating curve (Nielsen and Norris, 2007, fig. 2).



# Access to USGS real-time records for NC



*Ararat River, Mount Airy, Surry County*  
*Source: Selected stock images associated with Google search using term "North Carolina streams rivers"*

# Access to USGS real-time records for NC

Streamflow (283 streamgages) –

<https://waterdata.usgs.gov/nc/nwis/current/#dataTypes=00060>

Groundwater (60 observation wells) –

<https://waterdata.usgs.gov/nc/nwis/current/#dataTypes=72019>

Water quality (36 sites) –

<https://waterdata.usgs.gov/nc/nwis/current/#dataTypes=00010>

Precipitation (168 raingages) –

<https://waterdata.usgs.gov/nc/nwis/current/#dataTypes=00045>

# Access to USGS real-time records for NC

The screenshot shows the USGS website for North Carolina water conditions. The browser's address bar is circled in red, displaying the URL <https://waterdata.usgs.gov/nc/nwis/current/>. A blue box on the right side of the page also contains this URL. The page features a navigation bar with the USGS logo and the title "North Carolina water conditions". Below the navigation bar, there is a "DID YOU KNOW" section and a "Select a different State or Territory" dropdown menu. A red circle highlights the "Customize filters" button. The main content area displays a map of North Carolina with monitoring locations. A red circle highlights the "Discharge" option in the legend, which is selected. The legend also lists other data types: Gage height, Depth to water level, Water temperature, and Any data. The page footer includes a "Legend" section and a "Questions or Comments" button.

<https://waterdata.usgs.gov/nc/nwis/current/>

**Customize filters**

**North Carolina**

243 monitoring locations  
Data collection - Continuous  
Using filters for  
Data collection duration - The last 120 days  
Showing locations with  
- Discharge, cubic feet per second  
Showing locations with

- ☒ Discharge
- ☐ Gage height
- ☐ Depth to water level
- ☐ Water temperature
- ☐ Any data

Click a monitoring location or zoom map for more details.

**Legend**

- ☐ Monitoring location with Discharge, cubic feet per second
- ! Extreme conditions

For an explanation of dot color shading and extreme conditions, see the [Extreme conditions](#) section below.

Current condition estimate

Questions or Comments



# Access to USGS real-time records for NC – NWIS Legacy Page

USGS Current Water Data for North Carolina

<https://waterdata.usgs.gov/nc/nwis/rt>

**USGS**  
science for a changing world

**National Water Information System: Web Interface**  
USGS Water Resources (District Access)

Click to hide News Bulletins

- Introducing The Next Generation of USGS Water Data for the Nation
- Full News

**USGS Current Water Data for North Carolina**

Click to hide state-specific text


**\*\*\*PLEASE BOOKMARK THIS PAGE FOR EASE OF ACCESS\*\*\***

- USGS Water Resources of the South Atlantic Water Science Center: the place to start for all USGS water information in the SAWSC.
- Real-time data [Streamflow](#) || [Water-Quality](#) || [Groundwater Levels](#) || [Precipitation](#)
- Statewide River Gage Map
- Live Streaming RiverCams
- StreamStats - online tool for basin and flow characteristics
- USGS Flood Event Viewer
- Sign up for [custom Water Alerts by text or email](#)

Questions about data? [Click here.](#)

Predefined displays ---  
Introduction go

**Daily Streamflow Conditions**  
Select a site to retrieve data and station information.  
Wednesday, April 03, 2019 10:30ET



**Statewide Streamflow Table**

Current data typically are recorded at 15- to 60-minute intervals, stored onsite, and then transmitted to USGS offices every 1 to 4 hours, depending on the data relay technique used. Recording and transmission times may be more frequent during critical events. Data from current sites are relayed to USGS offices via satellite, telephone, and/or radio telemetry and are available for viewing within minutes of arrival.

All real-time data are [provisional and subject to revision](#).

<a href="#">Build Current Conditions Table</a>	Show a custom current conditions summary table for one or more stations.
<a href="#">Show custom graphs or tables for a series of</a>	

<https://waterdata.usgs.gov/nc/nwis/rt>  
-or-  
Search on “USGS real time conditions NC”





# Access to USGS real-time records for NC

USGS National Water Dashboard

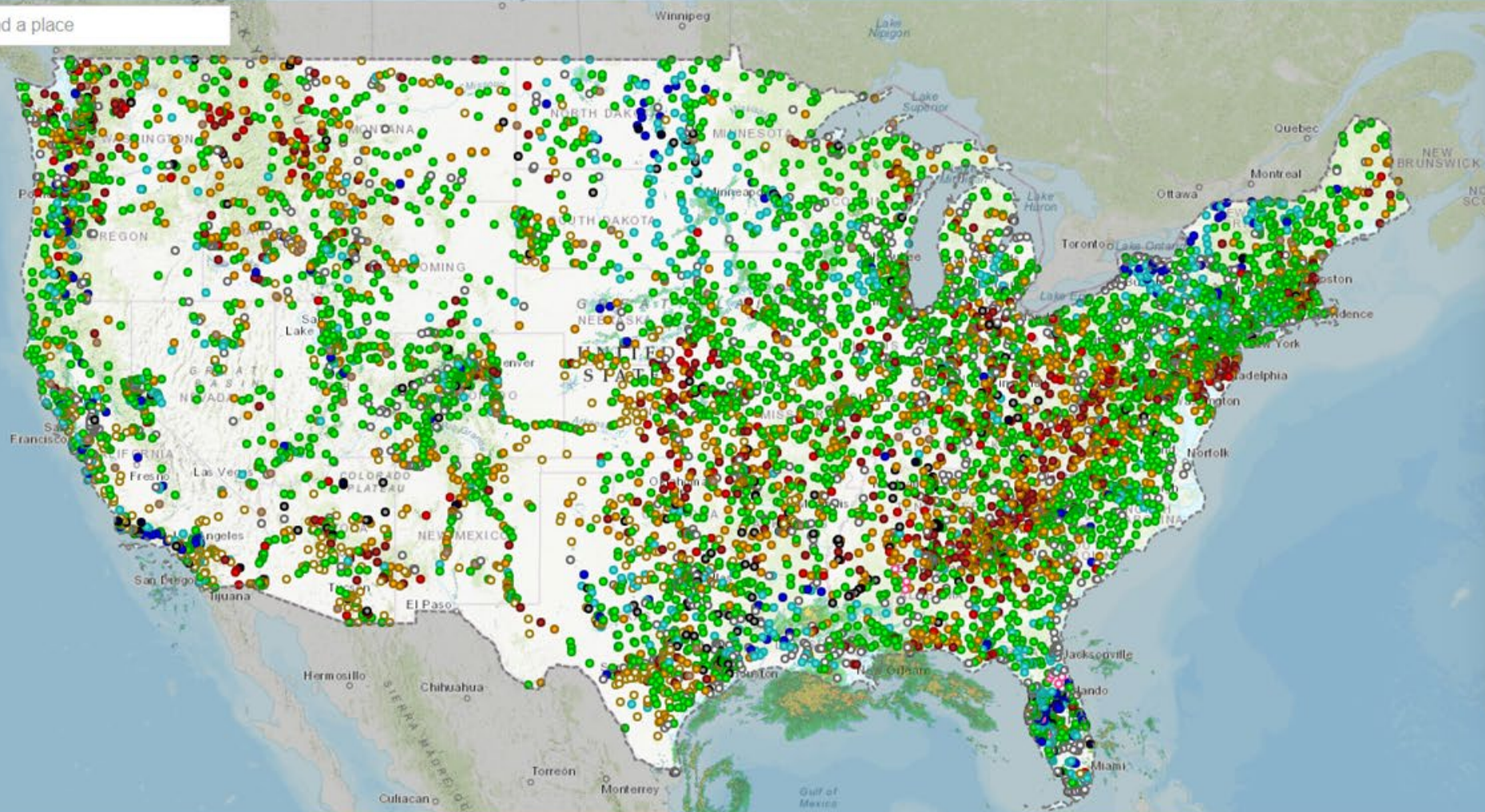
Available at:

<https://dashboard.waterdata.usgs.gov/app/nwd/?aoi=default>

Or just search on “USGS National Water Dashboard”



Find a place



**Layers**

Close

**USGS Stations** 1

- ▶ **STREAMFLOW** 8,868
- ▶ SURFACE-WATER LEVELS
- ▶ GROUNDWATER LEVELS
- ▶ SPRING WATER LEVELS
- ▶ WATER QUALITY
- ▶ PRECIPITATION
- ▶ ATMOSPHERIC

**Weather Conditions** 1

Hydrology

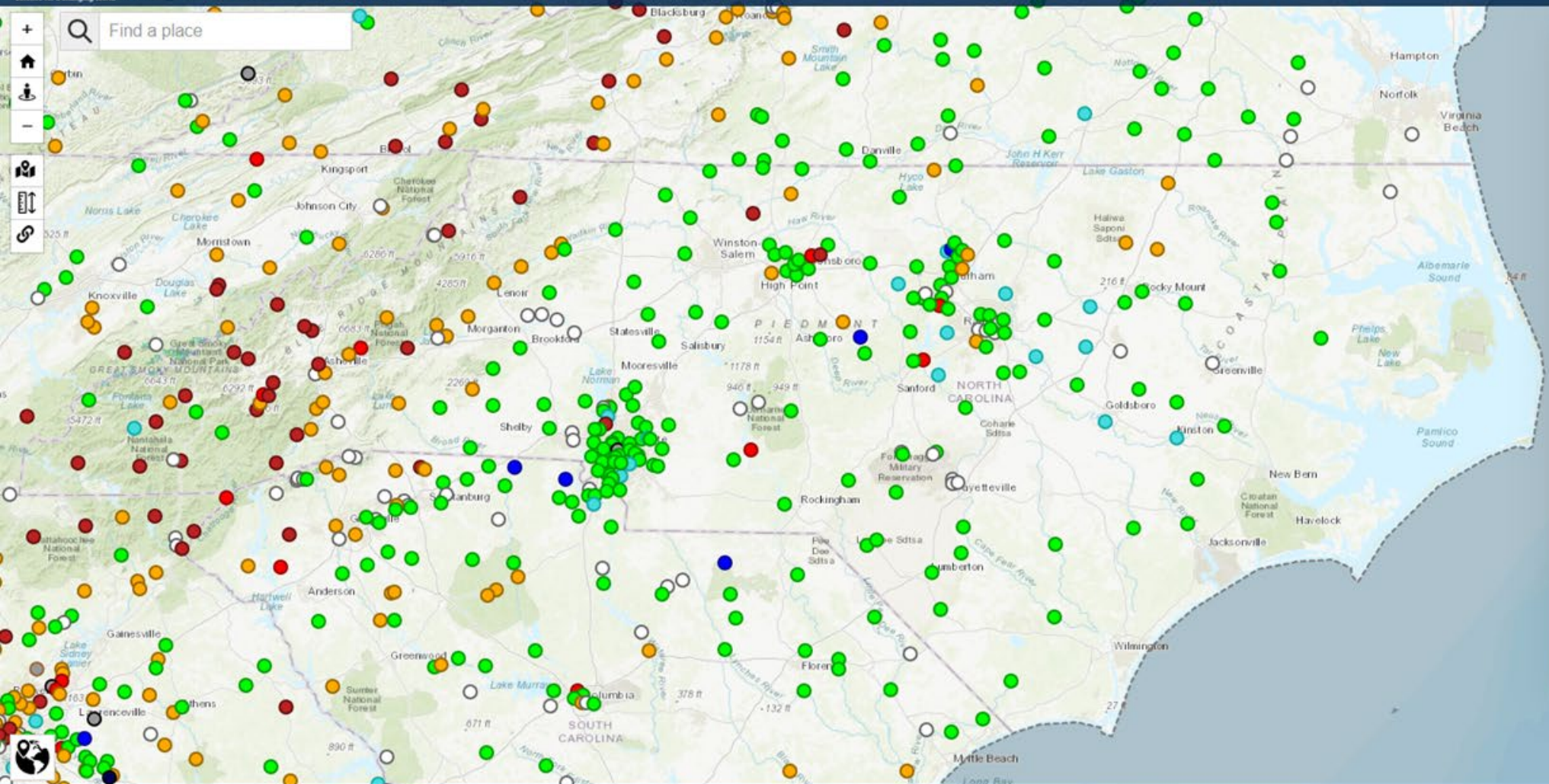
Base Map

Clear Layers

Scale 20,338,228 Lat 31.8776 Lon -69.9287

500 km  
500 mi





**Layers**

**USGS Stations** 1

- ▶ STREAMFLOW 8,858
- ▶ SURFACE-WATER LEVELS
- ▶ GROUNDWATER LEVELS
- ▶ SPRING WATER LEVELS
- ▶ WATER QUALITY
- ▶ PRECIPITATION
- ▶ ATMOSPHERIC

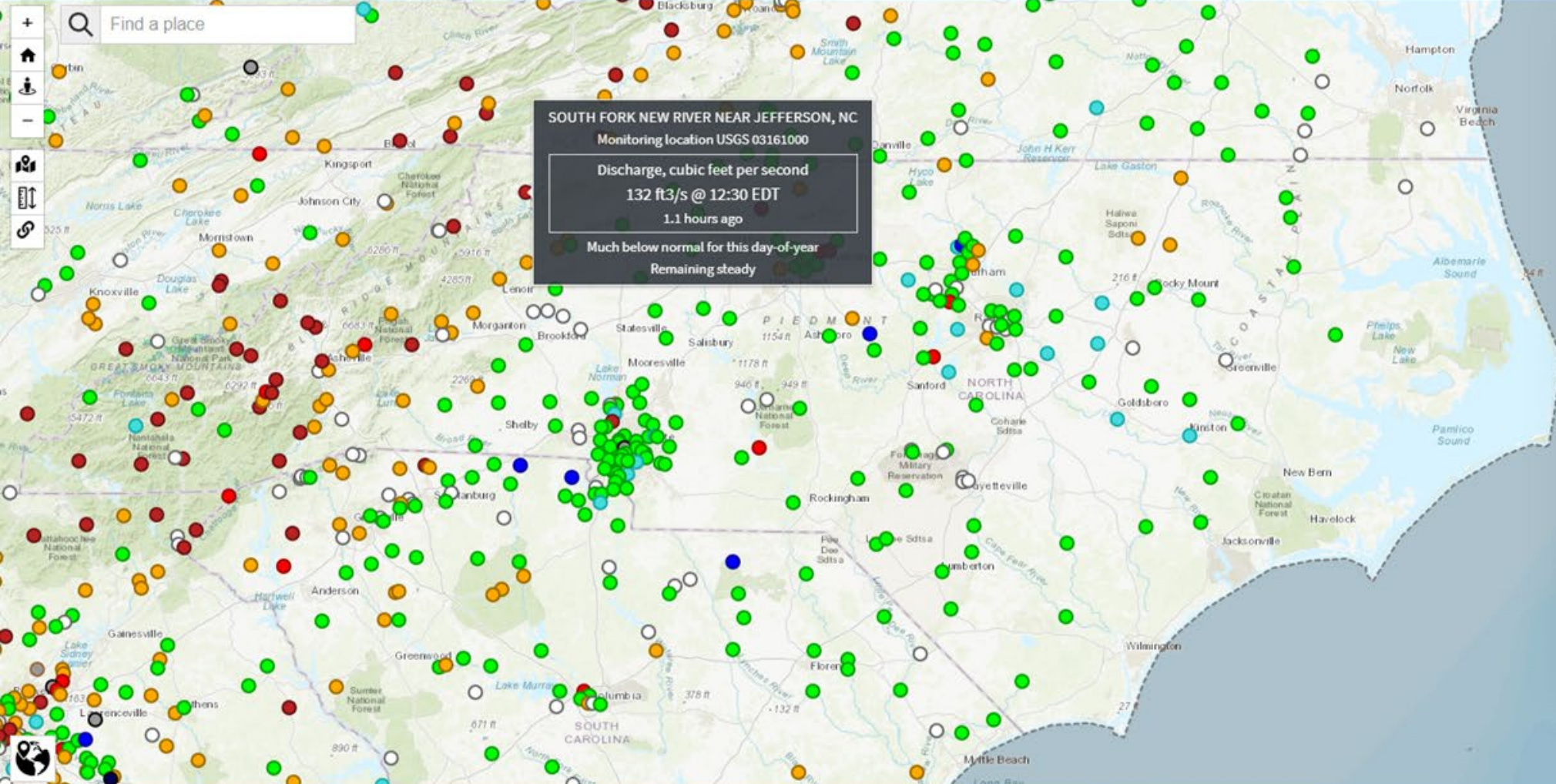
**Weather Conditions** 1

**Hydrology**

**Base Map**

**Clear Layers**





**Layers**

**USGS Stations** 1

- ▶ STREAMFLOW 8,858
- ▶ SURFACE-WATER LEVELS
- ▶ GROUNDWATER LEVELS
- ▶ SPRING WATER LEVELS
- ▶ WATER QUALITY
- ▶ PRECIPITATION
- ▶ ATMOSPHERIC

**Weather Conditions** 1

**Hydrology**

**Base Map**

**Clear Layers**

Scale 2,773,395 Lat 36.3955 Lon -81.4064

100 km  
50 mi



## South Fork New River Near Jefferson, NC

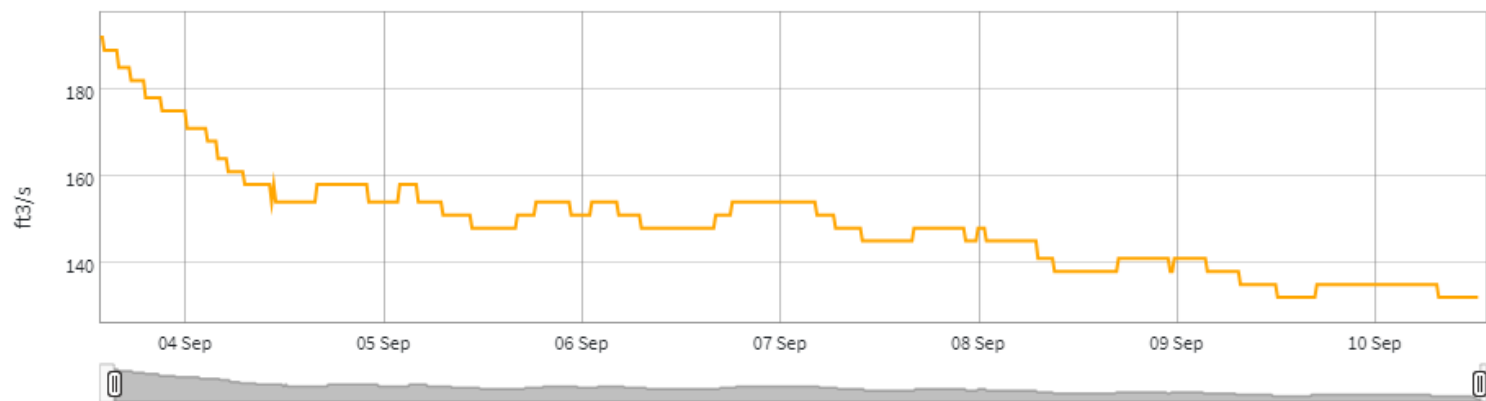
USGS 03161000 (Surface Water, Stream)

[Show map](#)[Show plots](#)[Site page](#)[Data](#)[WaterAlert](#)[NWS forecast](#)

▼ Discharge, cubic feet per second

132 @ 12:30 PM EDT

67 minutes ago



[Past 1 day](#) [2 days](#) [3 days](#) [1 week](#)

☐ Logscale

► Gage height, feet

1.76 @ 12:30 PM EDT

67 minutes ago

► Stream water level elevation above NAVD 1988, in feet

2,658.56 @ 12:30 PM EDT

67 minutes ago

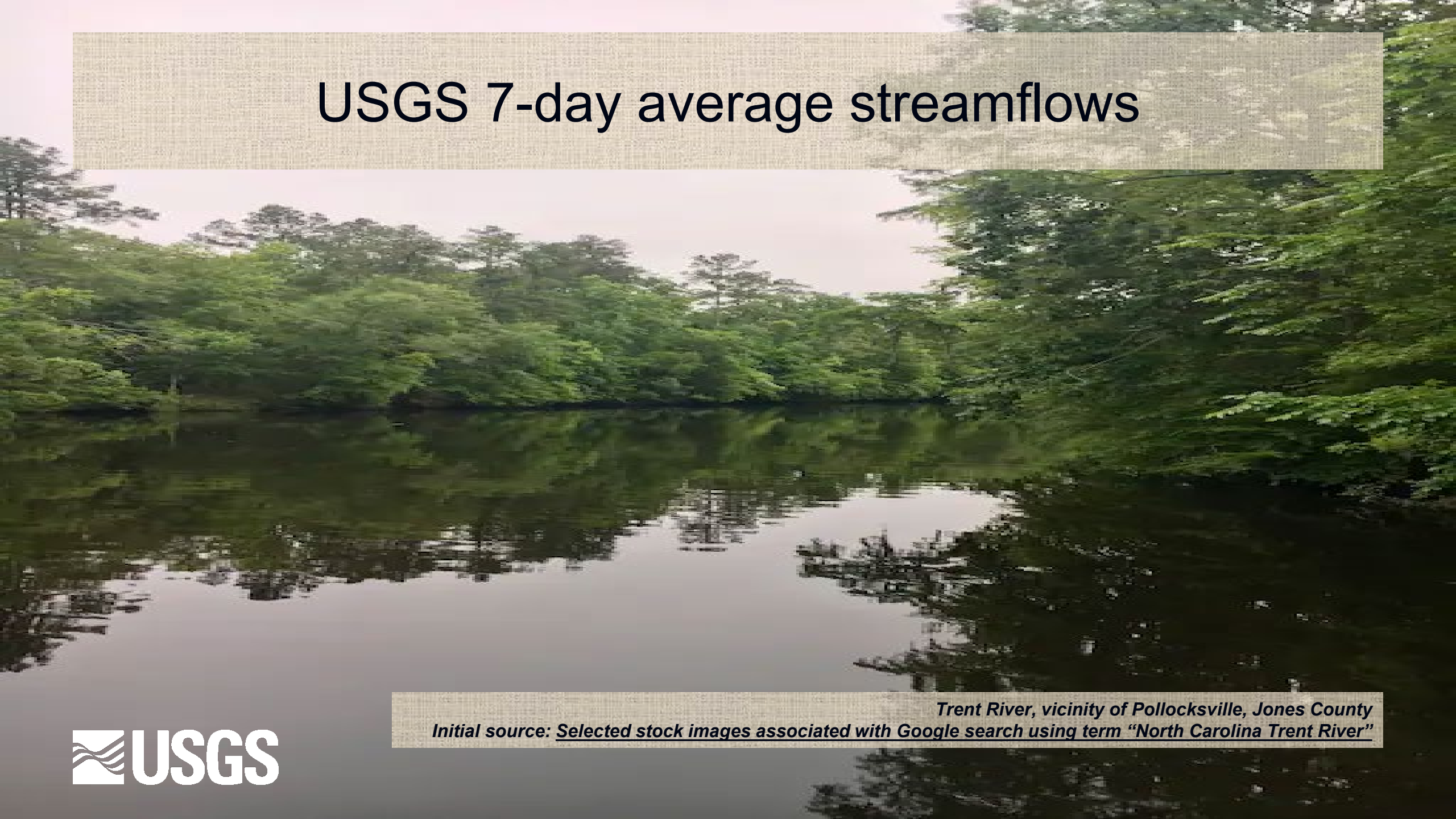
[DOI Privacy Policy](#) | [Legal](#) | [Accessibility](#) | [Site Map](#) | [Contact USGS](#)

[U.S. Department of the Interior](#) | [DOI Inspector General](#) | [White House](#) | [E-gov](#) | [No Fear Act](#) | [FOIA](#)





# USGS 7-day average streamflows

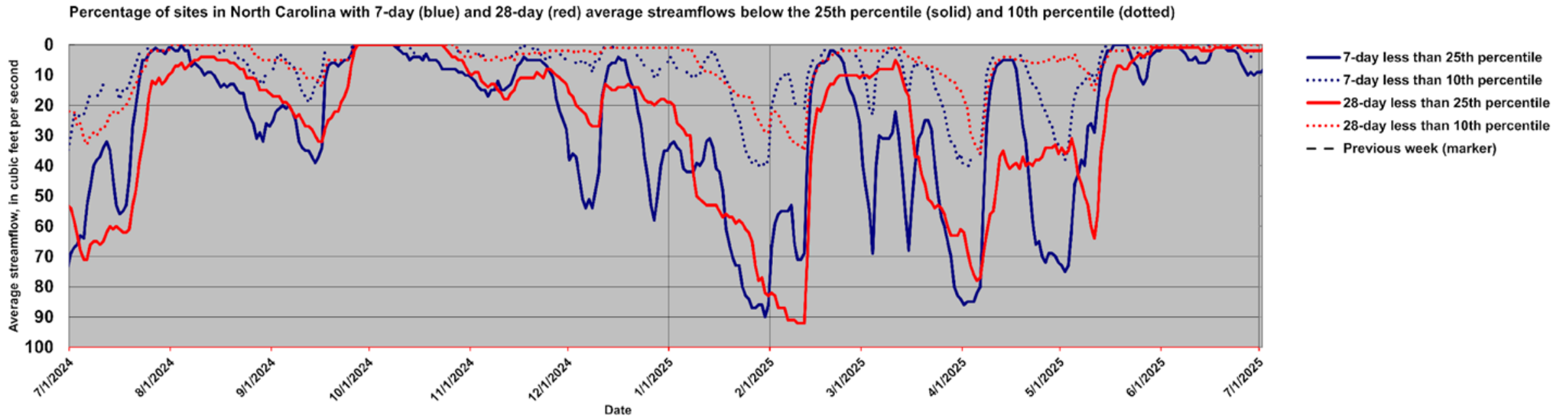


*Trent River, vicinity of Pollocksville, Jones County*

*Initial source: Selected stock images associated with Google search using term "North Carolina Trent River"*

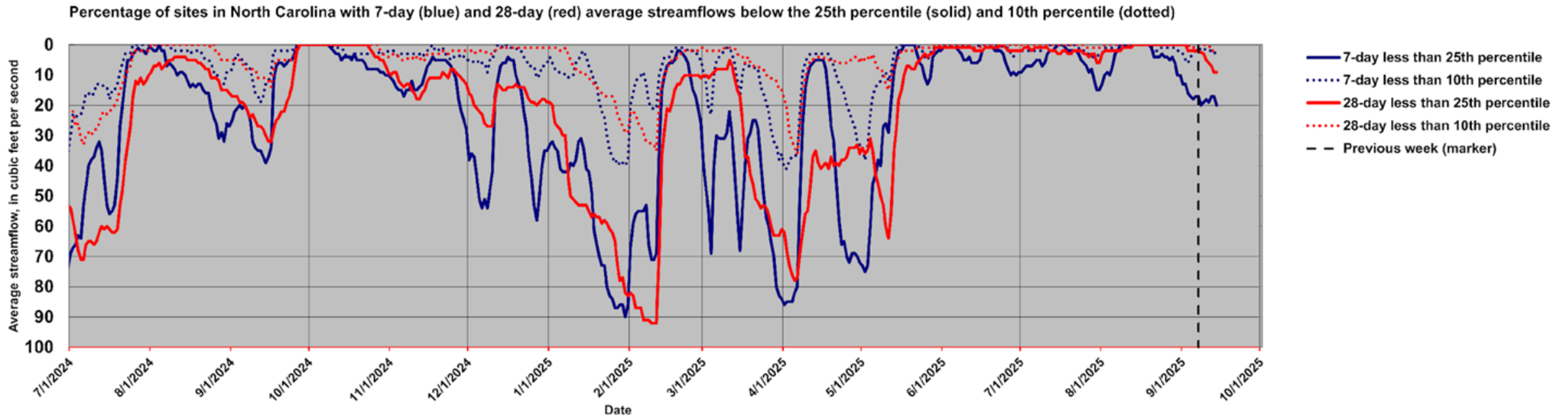


# Percentage of sites with 7-day and 28-day average streamflows below the 25<sup>th</sup> percentile (solid) and 10<sup>th</sup> percentile (dotted)



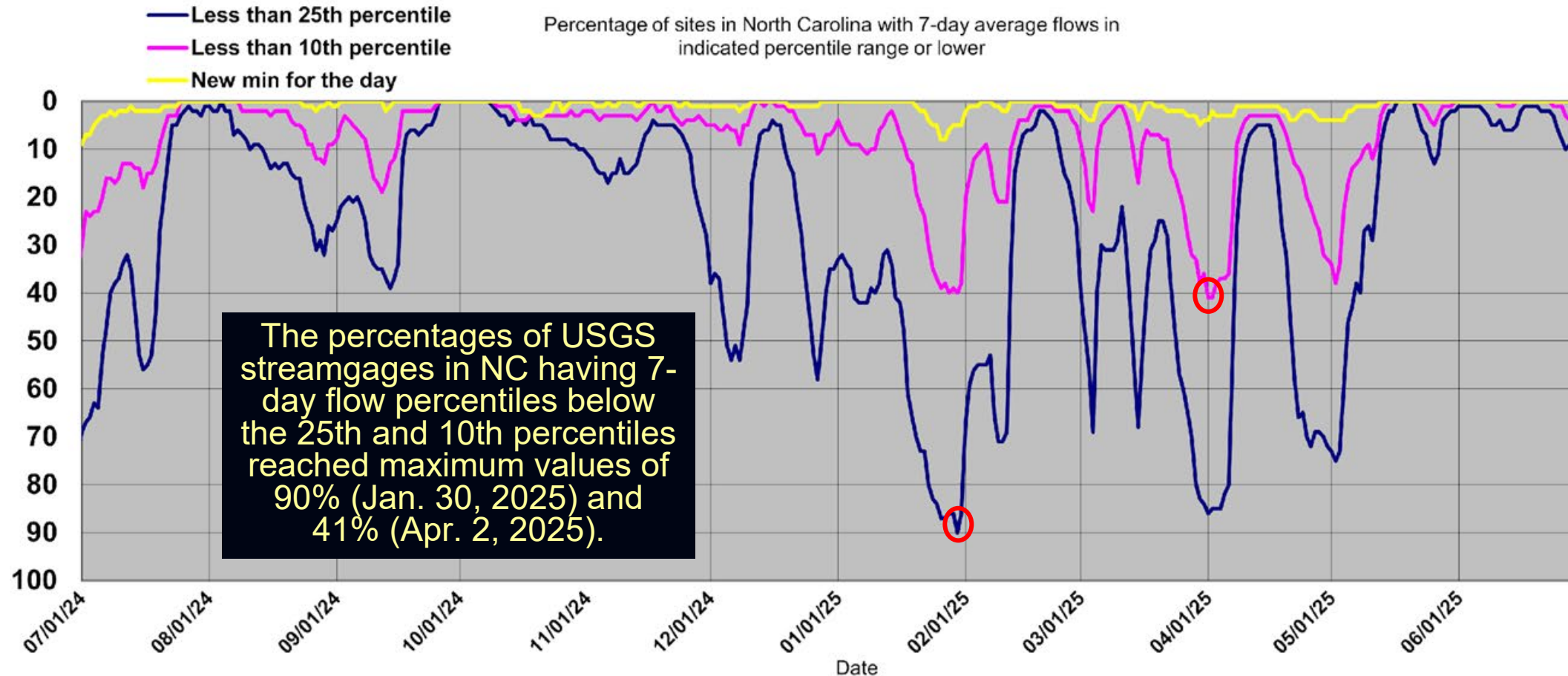
*July 1, 2024 – June 30, 2025*

# Percentage of sites with 7-day and 28-day average streamflows below the 25<sup>th</sup> percentile (solid) and 10<sup>th</sup> percentile (dotted)



*July 1, 2024 – Sept 16, 2025*

# Percentage of sites with 7-day average streamflows below the 25<sup>th</sup> percentile (blue) and 10<sup>th</sup> percentile (pink)



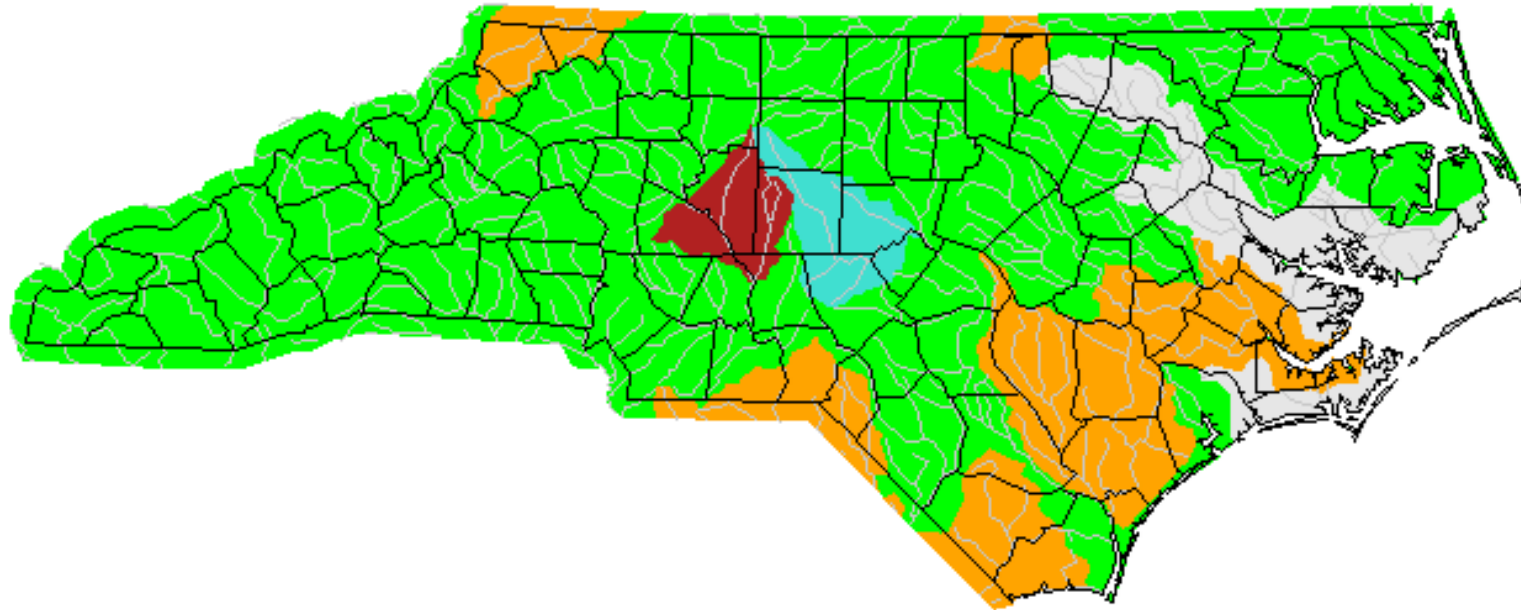
*July 1, 2024 – June 30, 2025*



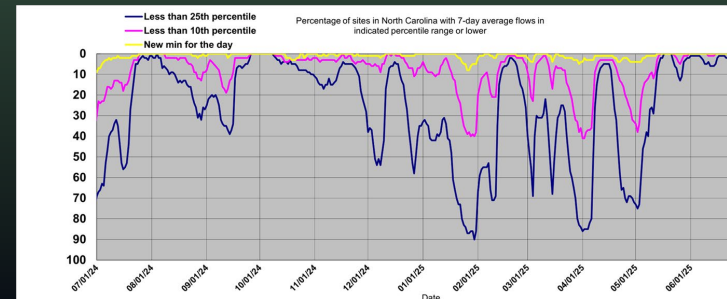
# HUC map

## 7-day average flows

Tuesday, September 16, 2025



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

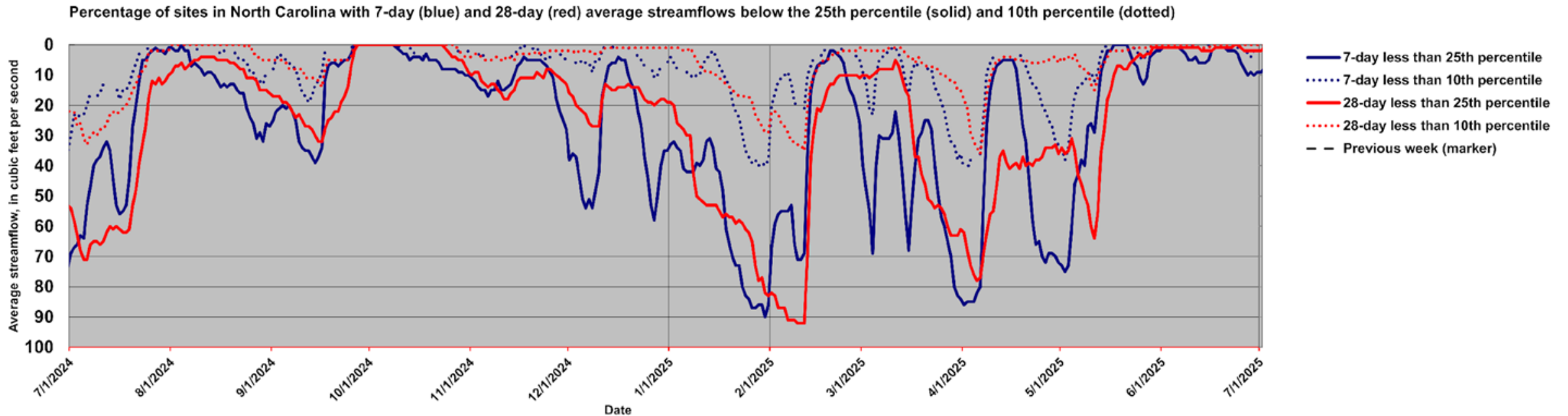


# USGS 28-day average streamflows



*South Fork of the New River, northwestern North Carolina*  
*Initial source: Selected stock images associated with Google search using term "North Carolina streams rivers"*

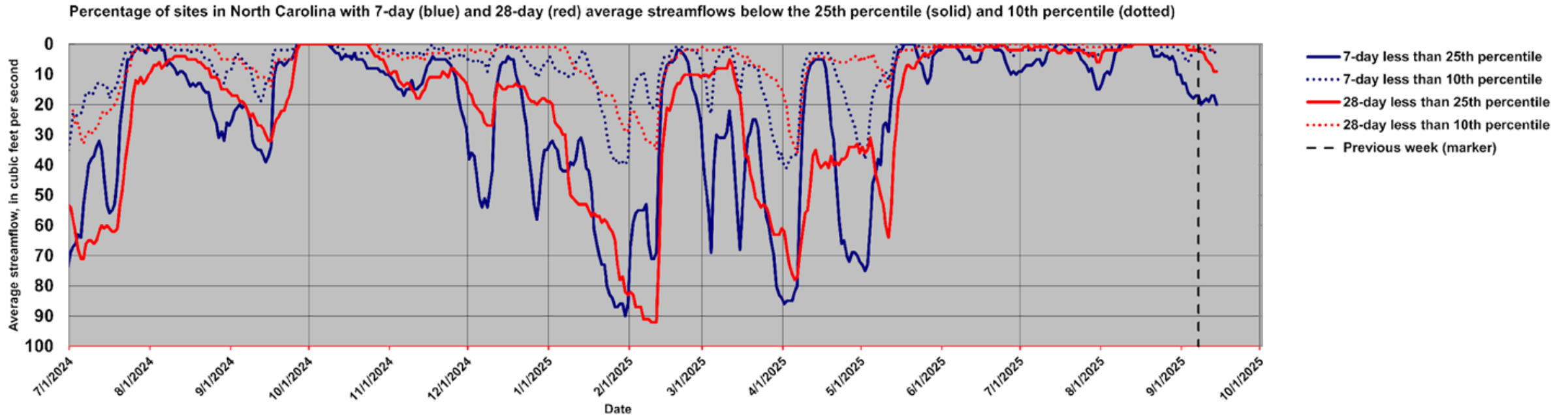
# Percentage of sites with 7-day and 28-day average streamflows below the 25<sup>th</sup> percentile (solid) and 10<sup>th</sup> percentile (dotted)



*July 1, 2024 – June 30, 2025*

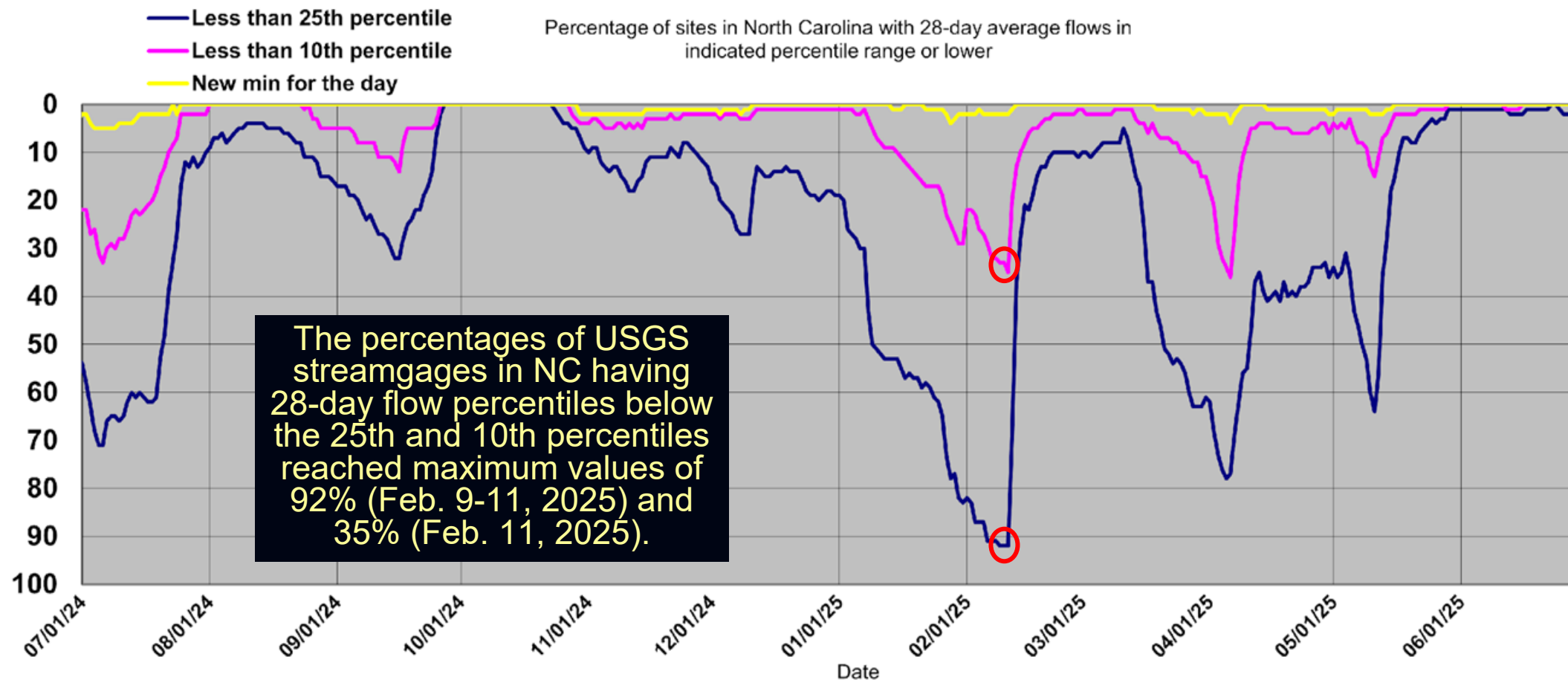


# Percentage of sites with 7-day and 28-day average streamflows below the 25<sup>th</sup> percentile (solid) and 10<sup>th</sup> percentile (dotted)



*July 1, 2024 – Sept 16, 2025*

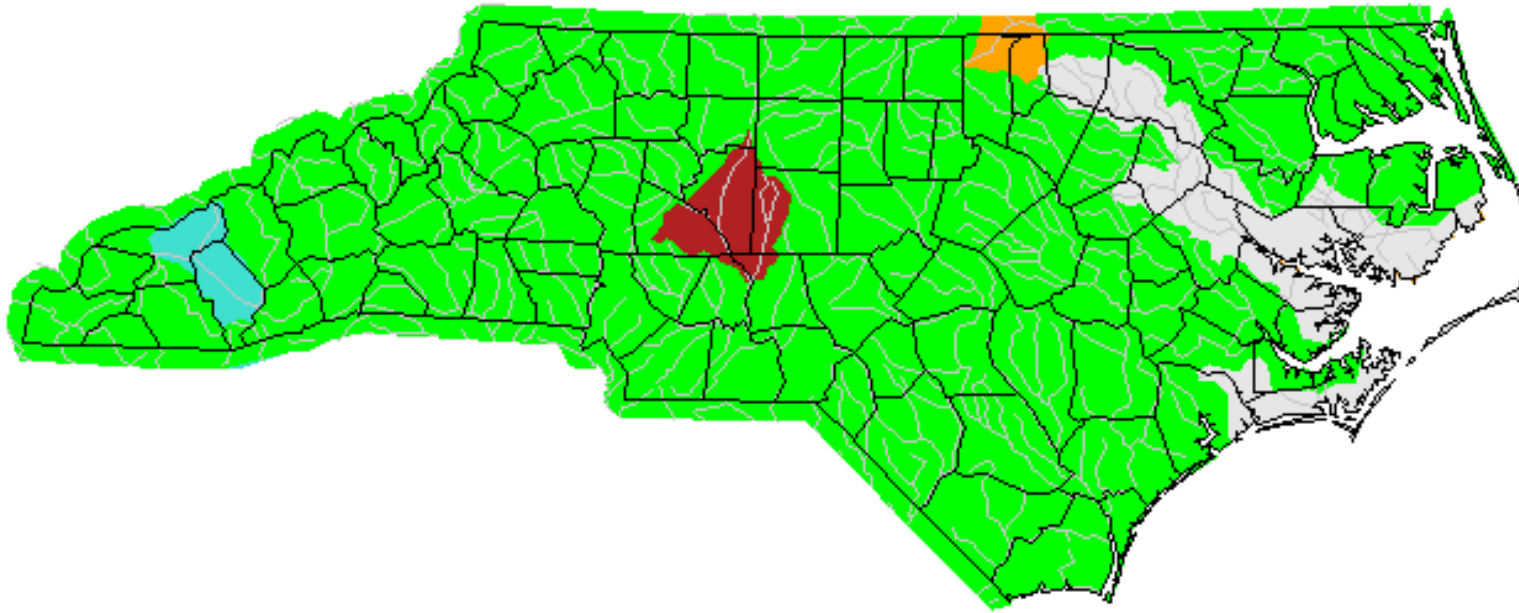
# Percentage of sites with 28-day average streamflows below the 25<sup>th</sup> percentile (blue) and 10<sup>th</sup> percentile (pink)



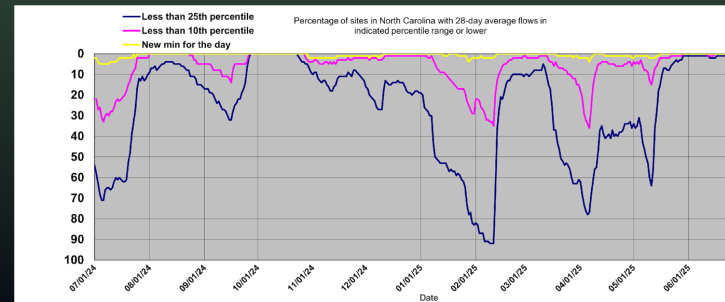
*July 1, 2024 – June 30, 2025*

## 28-day average flows

**Tuesday, September 16, 2025**



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



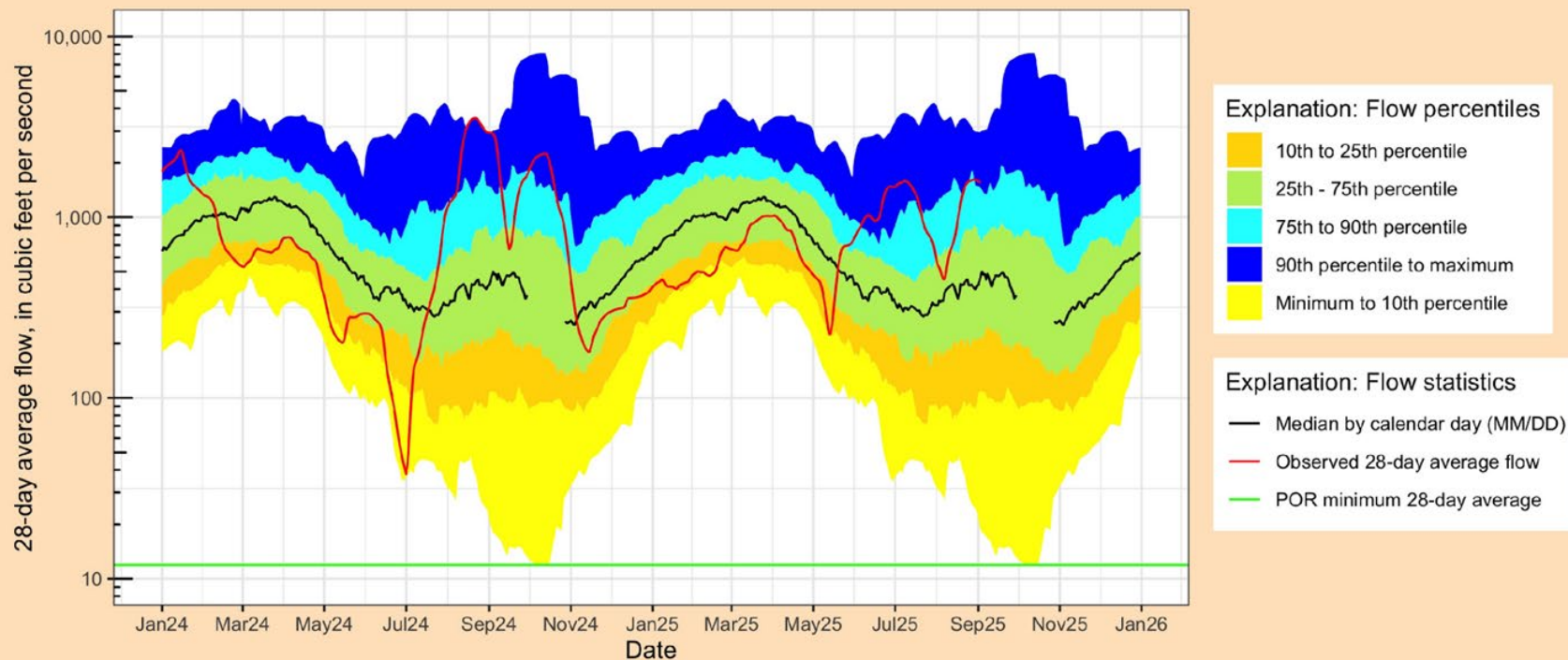




## USGS Sta. 02106500 BLACK RIVER NEAR TOMAHAWK, NC

Drainage Area: 676 sq mi, available POR for daily mean discharge: 1951-10-01 to 2025-09-03

Flow conditions at this site are known or considered to be Unregulated



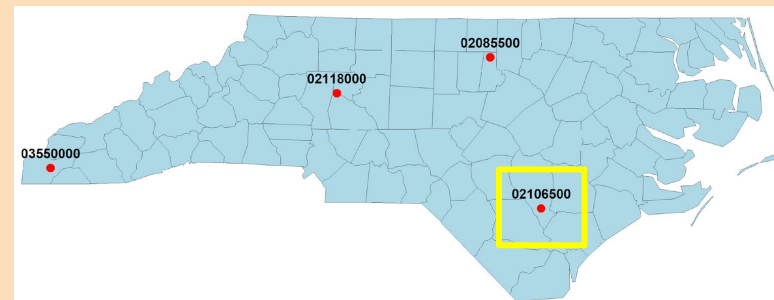
Period of record minimum 28-day average flow: 11.925 cfs ending on 1954-10-15

Observed data through: September 03, 2025

Data are provisional after 2025-06-01

Flow percentile statistics calculated using POR from 1951-10-01 to 2024-09-30

Plot generated: 2025-09-04 11:13:59 EDT

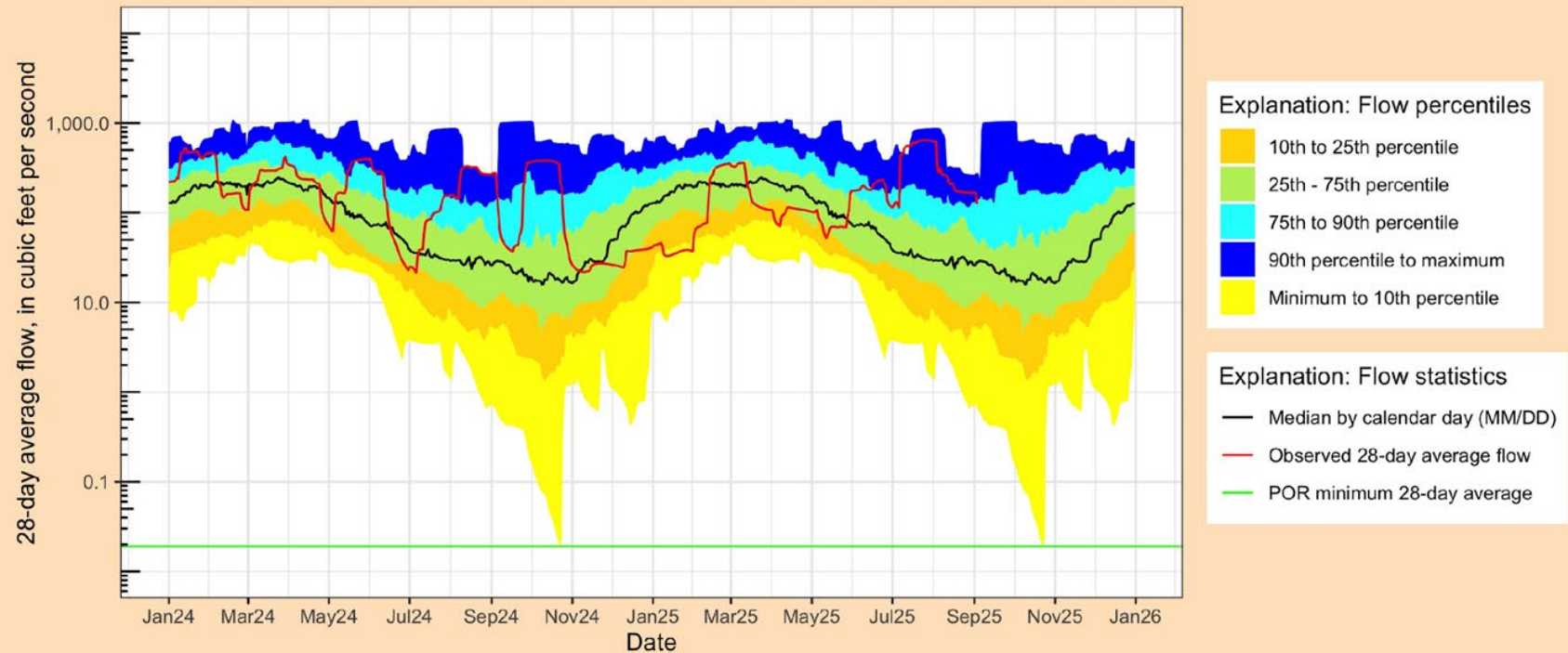




## USGS Sta. 02085500 FLAT RIVER AT BAHAMA, NC

Drainage Area: 149 sq mi, available POR for daily mean discharge: 1925-08-01 to 2025-09-03

Flow conditions at this site are known or considered to be Unregulated



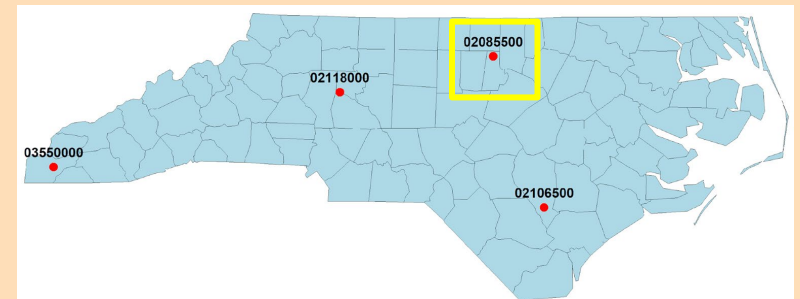
Period of record minimum 28-day average flow: 0.019 cfs ending on 2007-10-23

Observed data through: September 03, 2025

Data are provisional after 2025-06-25

Flow percentile statistics calculated using POR from 1962-10-01 to 2024-09-30

Plot generated: 2025-09-04 11:13:22 EDT



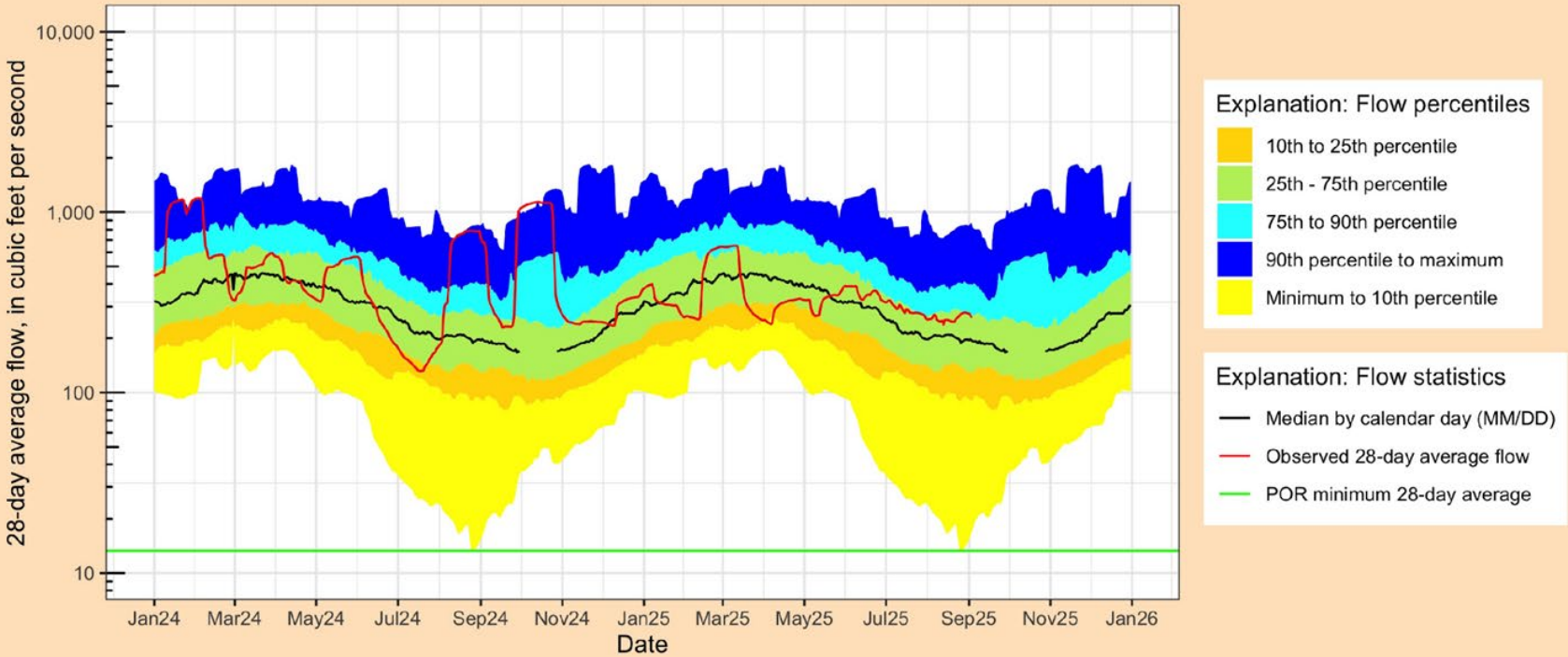




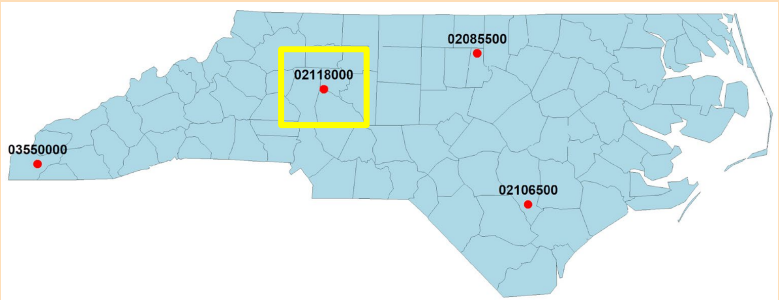
USGS Sta. 02118000 SOUTH YADKIN RIVER NEAR MOCKSVILLE, NC

Drainage Area: 306 sq mi, available POR for daily mean discharge: 1938-10-01 to 2025-09-03

Flow conditions at this site are known or considered to be affected by Diversion(s)



Period of record minimum 28-day average flow: 13.271 cfs ending on 2002-08-26  
Observed data through: September 03, 2025  
Data are provisional after 2025-07-07  
Flow percentile statistics calculated using POR from 1938-10-01 to 2024-09-30  
Plot generated: 2025-09-04 11:14:15 EDT



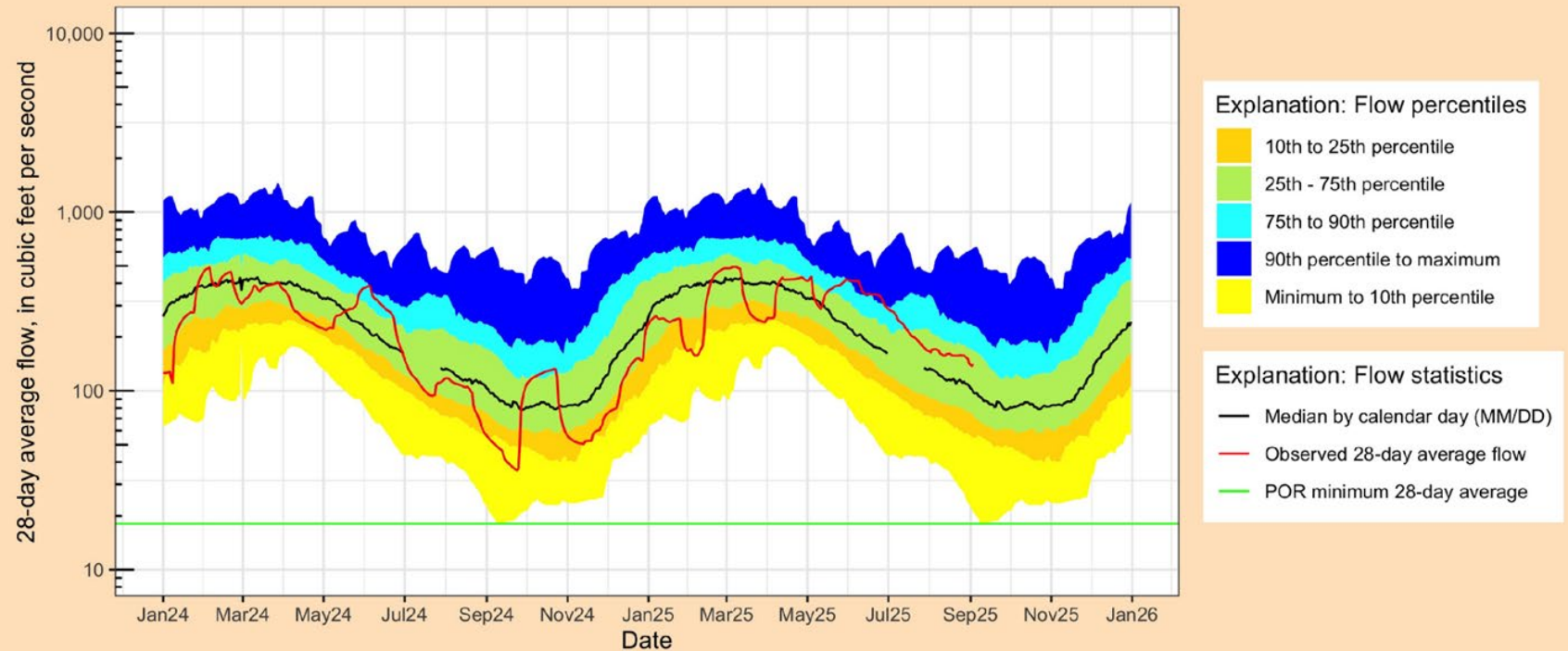




# USGS Sta. 03550000 VALLEY RIVER AT TOMOTLA, NC

Drainage Area: 104 sq mi, available POR for daily mean discharge: 1904-07-01 to 2025-09-03

Flow conditions at this site are known or considered to be Unregulated



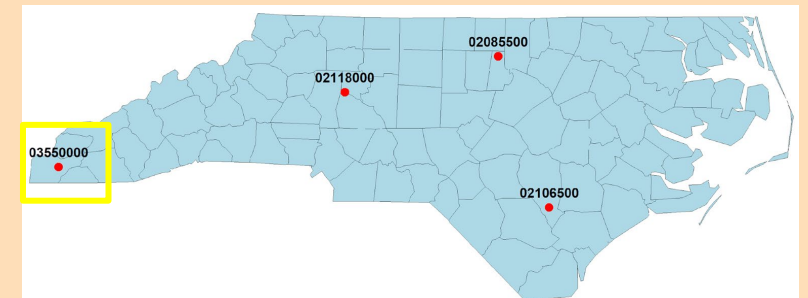
Period of record minimum 28-day average flow: 18.071 cfs ending on 1925-09-12

Observed data through: September 03, 2025

Data are provisional after 2025-05-14

Flow percentile statistics calculated using POR from 1903-10-01 to 2024-09-30

Plot generated: 2025-09-04 11:15:36 EDT





# New streamflow records this past year

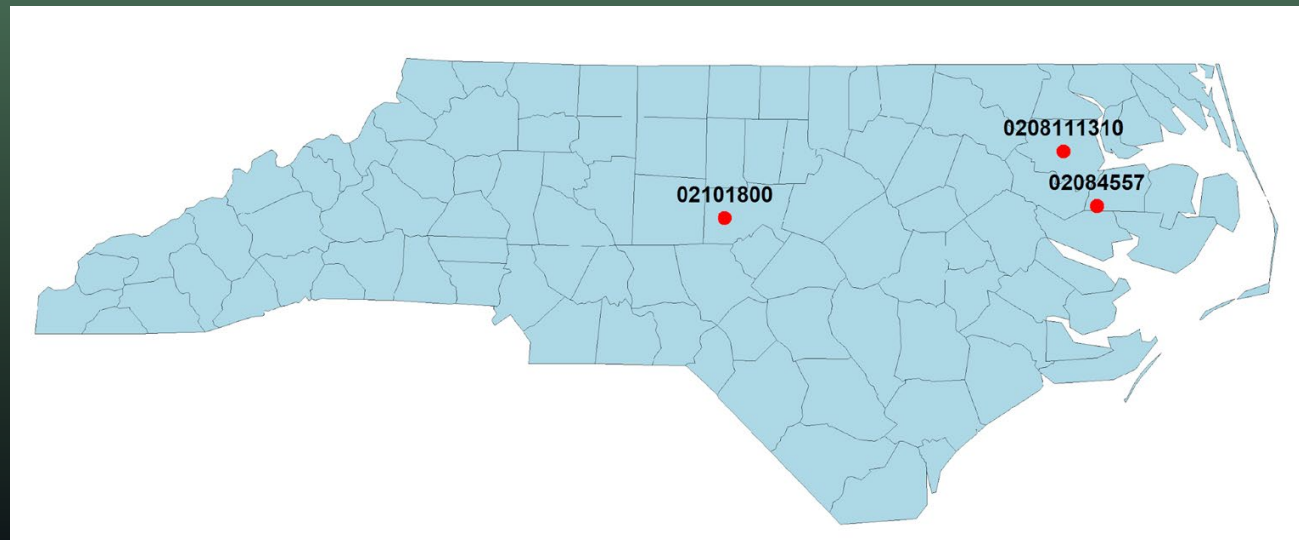




# No new POR minimum daily mean discharge, but...

## 3 “zero-flow” sites during July 2024 through June 2025

1. USGS 0208111310 - Cashie River at SR 1257 near Windsor in Bertie County (11 days during July 1-11, 2024)
2. USGS 02084557 – Van Swamp near Hoke in Washington County (2 days during July 5-6, 2024)
3. USGS 02101800 – Tick Creek near Mount Vernon Springs in Chatham County (5 days during July 1-5, 2024)

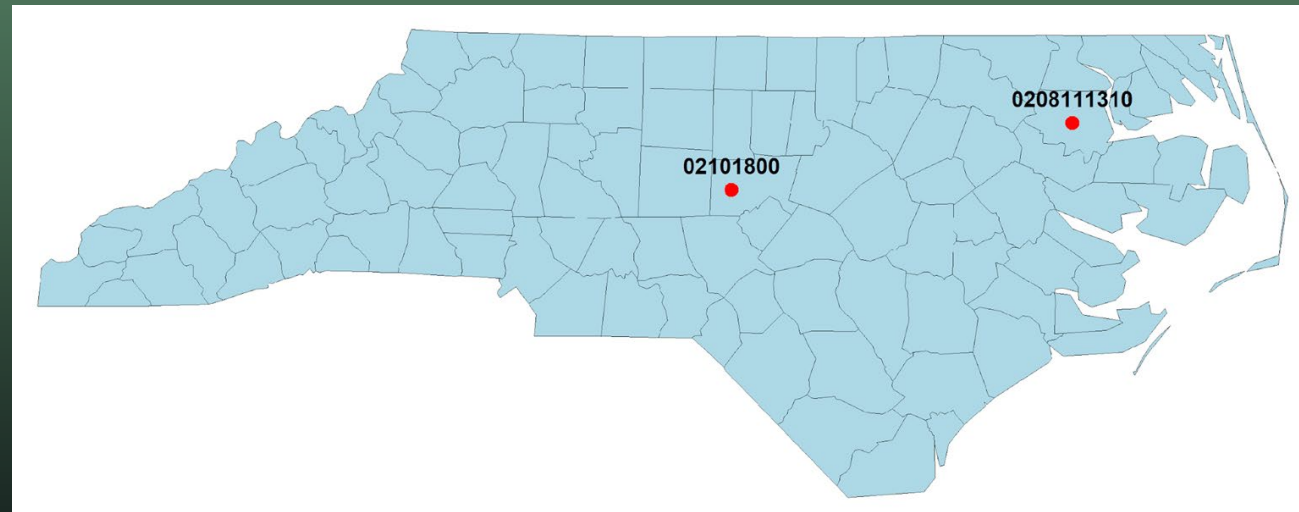




# No new POR minimum 7-day average streamflow, but...

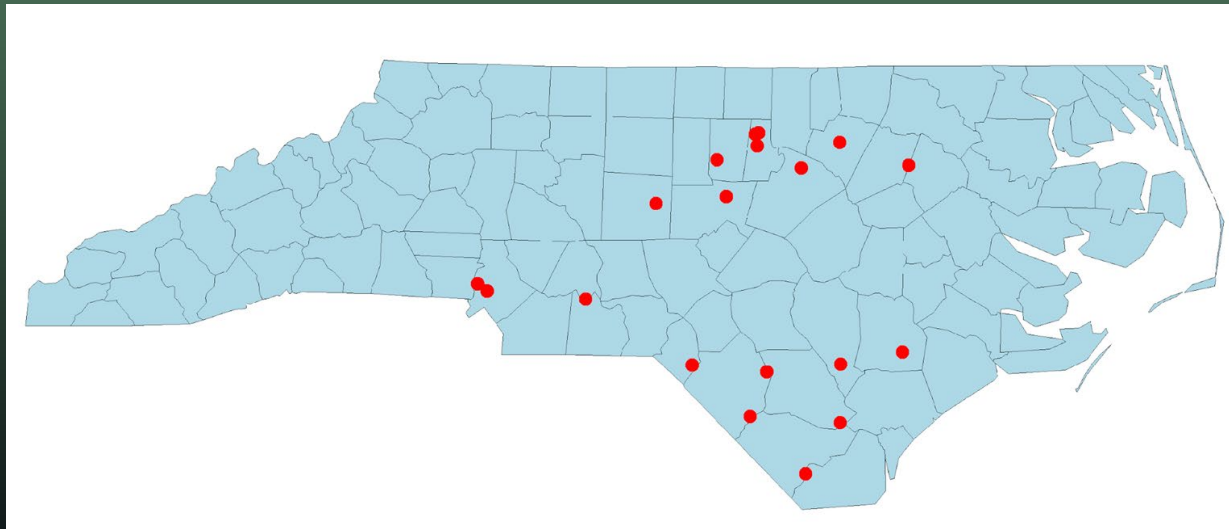
## *2 “zero-flow” sites during July 2024 through June 2025*

1. USGS 0208111310 - Cashie River at SR 1257 near Windsor in Bertie County (11 days during July 1-11, 2024)
2. USGS 02101800 – Tick Creek near Mount Vernon Springs in Chatham County (5 days during July 1-5, 2024)



# No new POR minimum monthly average streamflows or “zero-flow” sites, but...

*New maximum monthly average streamflows were observed across central and eastern parts of the state at 19 sites. All new records were set for the month of August 2024 following the passage of Hurricane Debby across central and eastern of the State.*



# Questions? Comments?

*Contact info:*

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*Hydrologic Technician*

*Mobile: (919) 530-9819*

*Email: [slittle@usgs.gov](mailto:slittle@usgs.gov)*



**USGS South Atlantic Water Science Center**

**<https://www.usgs.gov/centers/sa-water>**

