

# Streamflow conditions across North Carolina

*Assessment of hydrologic  
conditions observed since  
July 2020...*

*Presented by:*

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USGS South Atlantic Water Science Center (Raleigh office)

<https://www2.usgs.gov/water/southatlantic/>



*Presented to:*

*North Carolina Drought Management Advisory Council  
Virtual presentation (2<sup>nd</sup> year of the COVID-19 pandemic)  
September 14, 2021*

Access to

Streamflow (2)  
<https://waterdata.usgs.gov/nc/nwis/rt>

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

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

Precipitation (1)  
<https://waterdata.usgs.gov/nc/nwis/rt>

USGS Current Water Data for No. x +

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

USGS Home  
Contact USGS  
Search USGS

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

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

-or-

Search on "usgs real time conditions NC"

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 go for all USGS water information in the SAWSC.
- Real-time Data Streamflow || Water-Quality || Groundwater Levels || Precipitation
- Statewide River Reach Map
- Live Streaming River Cams
- 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

USGS  
Explanation

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="#">Build Custom Graphs or Tables</a>	Show custom graphs or tables for a series of

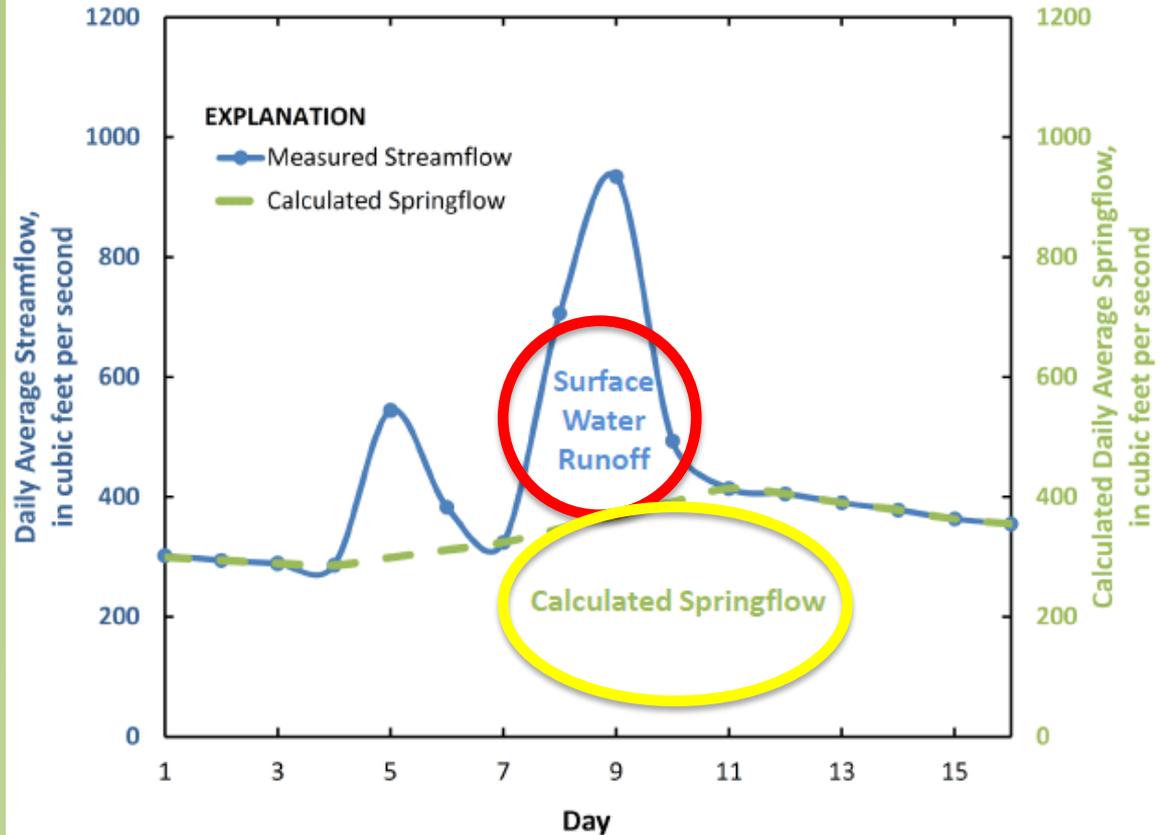


# Visualizing the components in streamflow

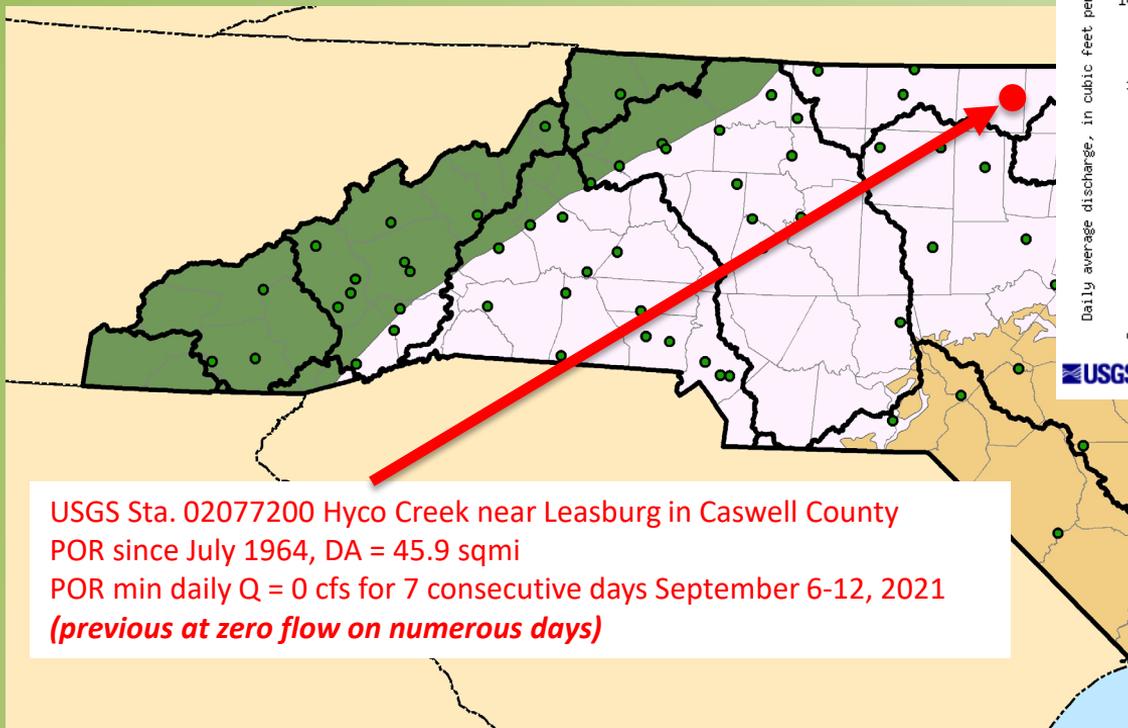
Overland  
runoff

Base flow  
(ground-water  
discharge to  
streams)

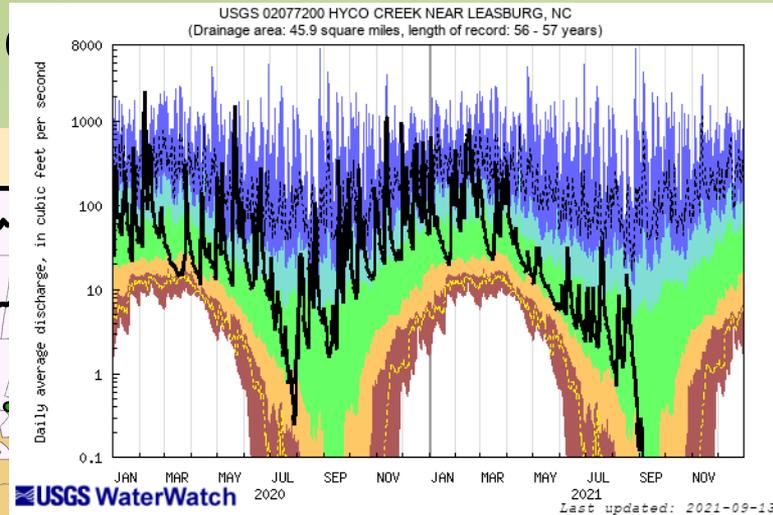
## Example Streamflow Hydrograph



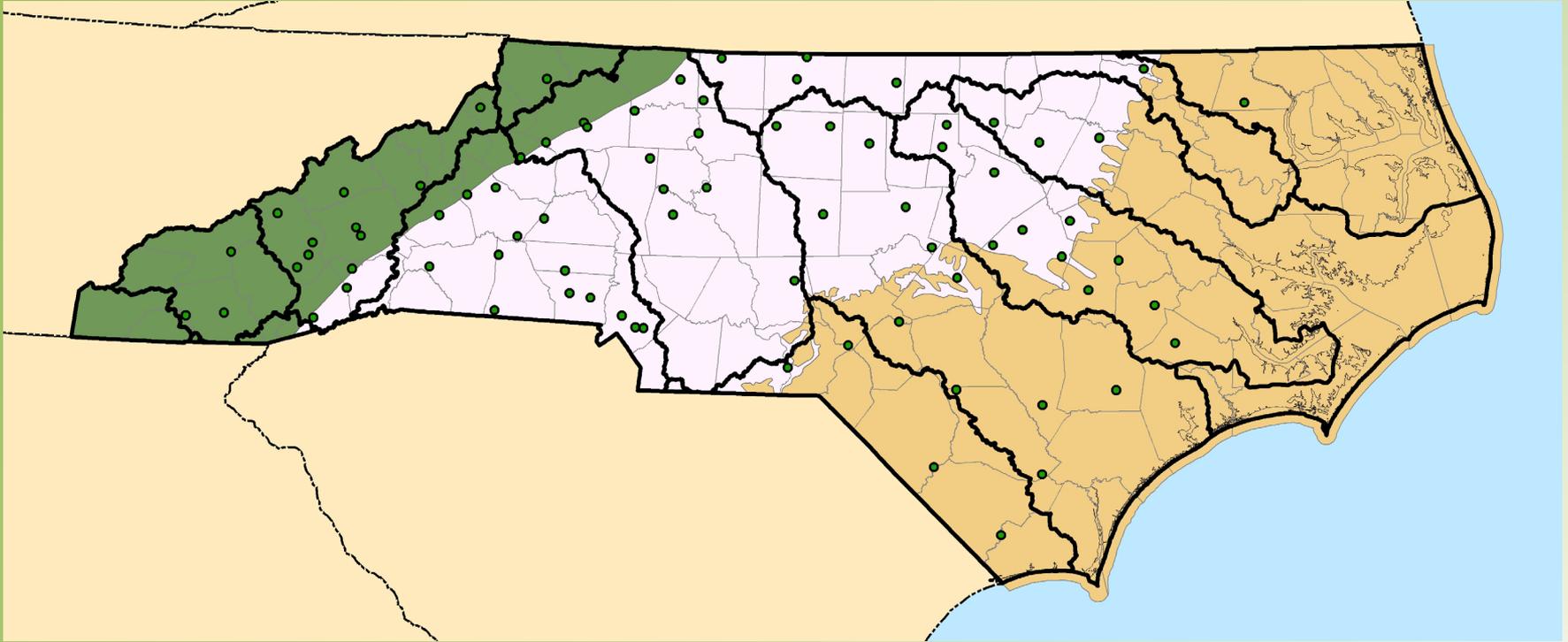
# New record POR minimum



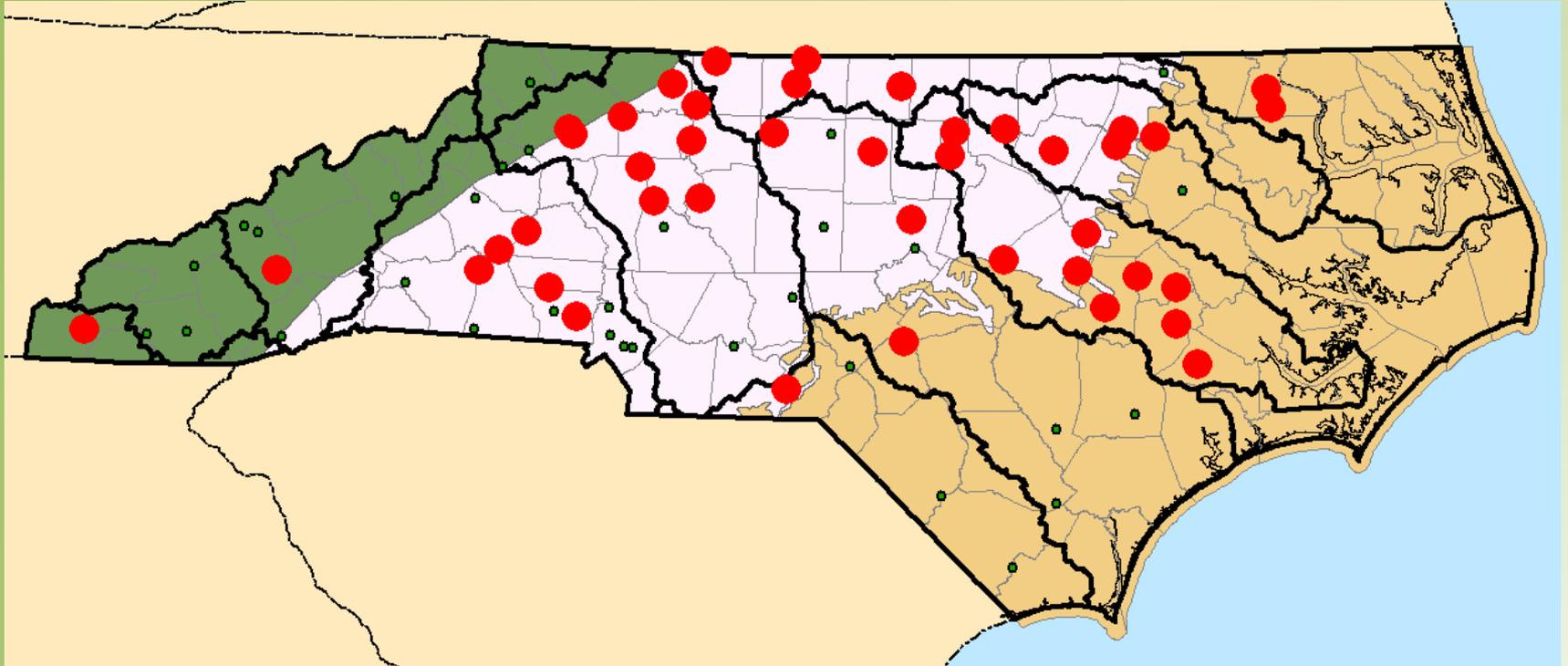
USGS Sta. 02077200 Hyco Creek near Leasburg in Caswell County  
POR since July 1964, DA = 45.9 sqmi  
POR min daily Q = 0 cfs for 7 consecutive days September 6-12, 2021  
*(previous at zero flow on numerous days)*



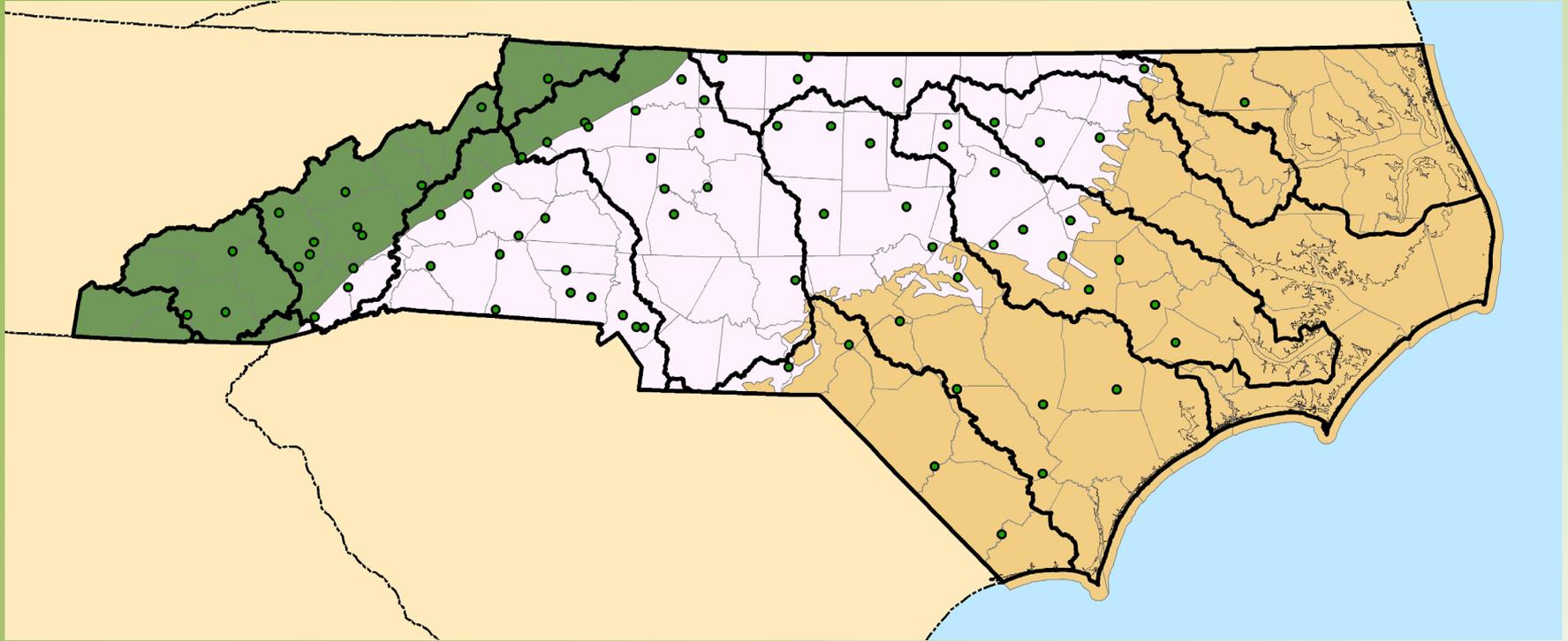
# New record minimum monthly average discharges



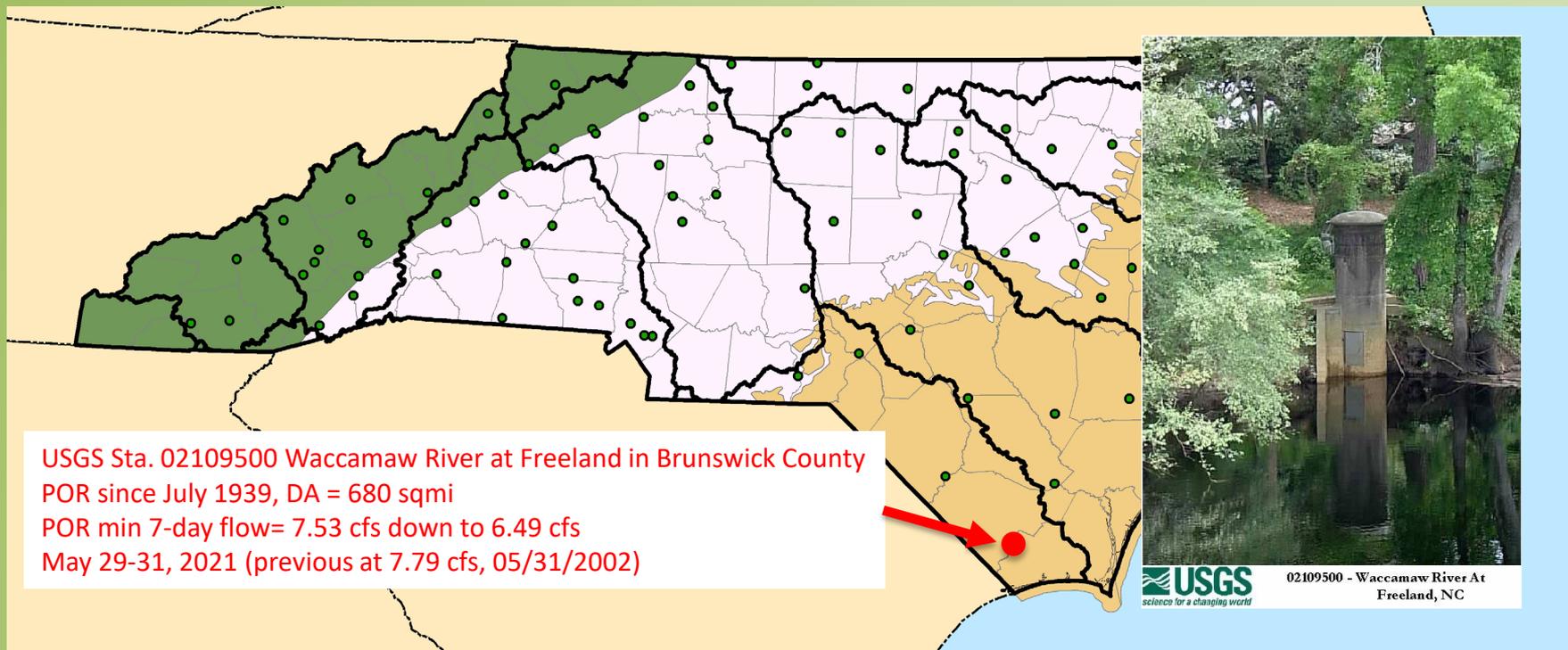
# New record **MAXIMUM** monthly average discharges



# New record POR minimum 7-day average streamflow



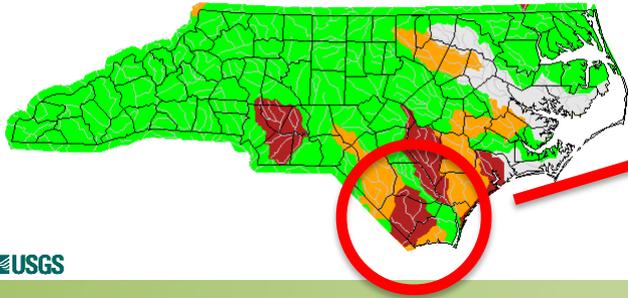
# New record minimum **monthly** 7-day average discharges



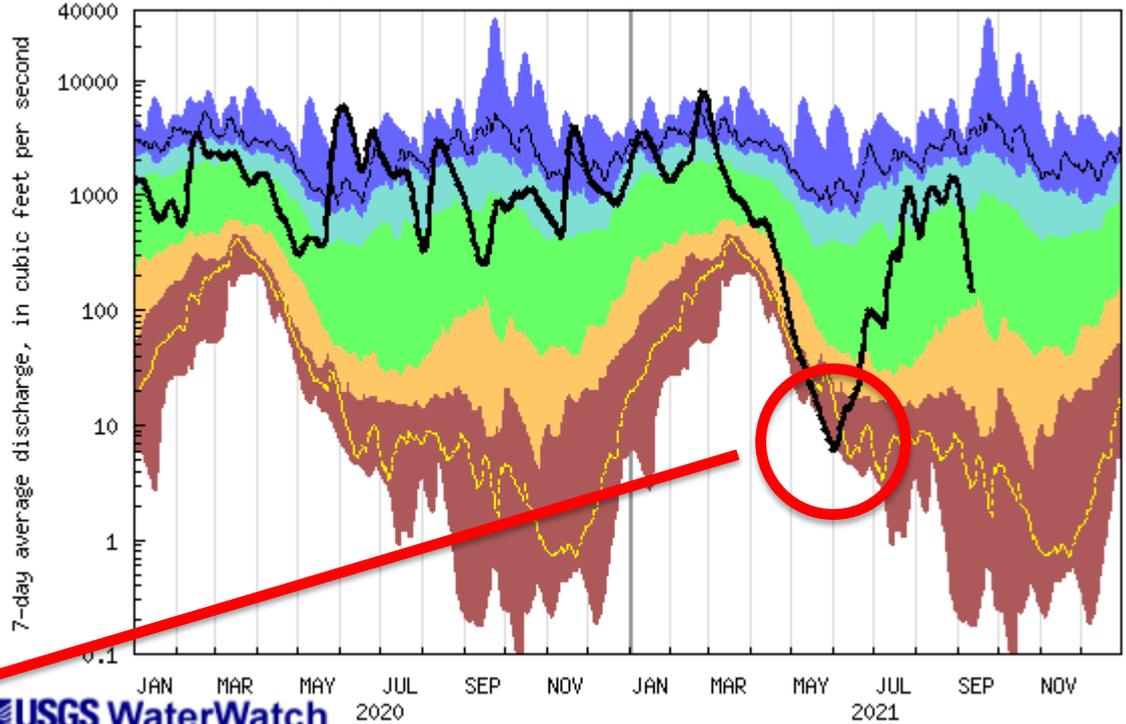
USGS Sta. 02109500 Waccamaw River  
at Freeland in Brunswick County  
POR since July 1939, DA = 680 sqmi

POR min 7-day flow= 7.53 cfs down to  
6.49 cfs May 29-31, 2021  
(previous at 7.79 cfs, 05/31/2002)

Monday, May 31, 2021



USGS 02109500 WACCAMAW RIVER AT FREELAND, NC  
(Drainage area: 680 square miles, length of record: 80 - 82 years)



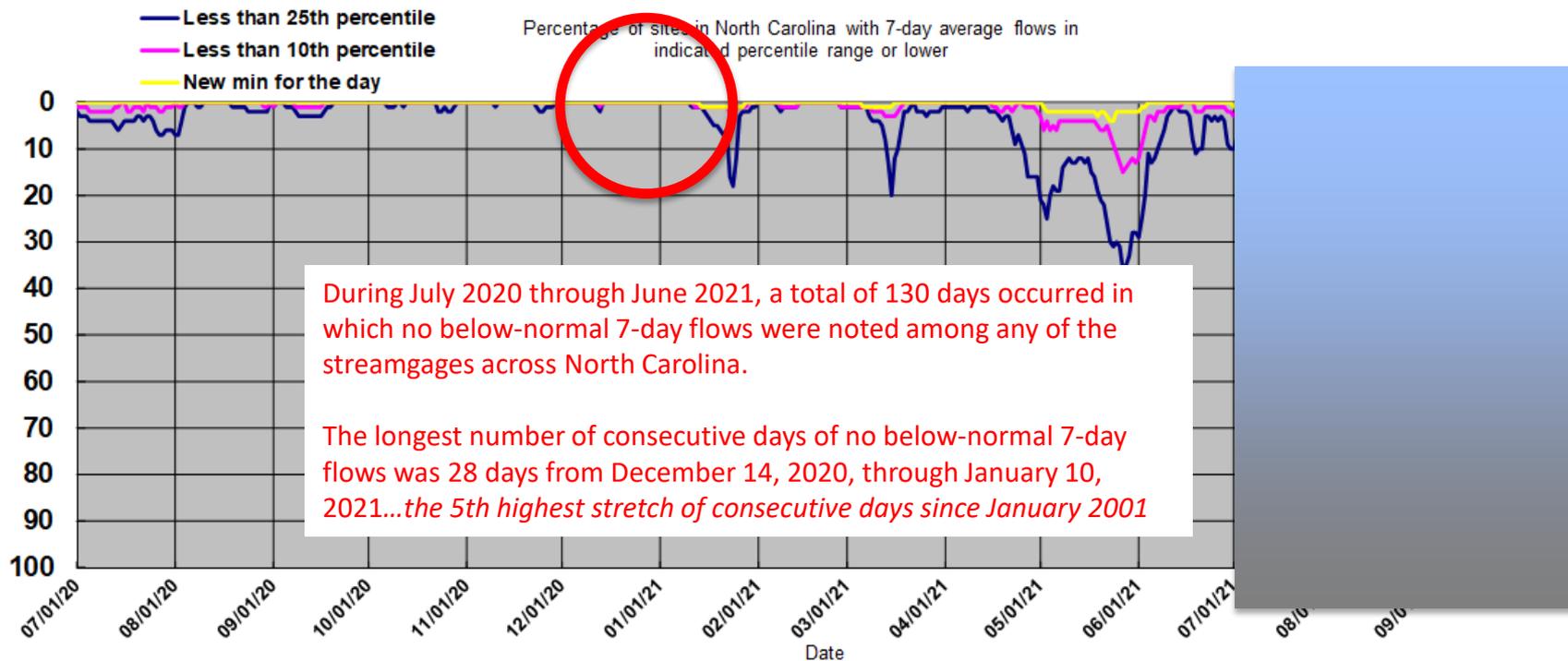
USGS WaterWatch

2021  
Last updated: 2021-09-13

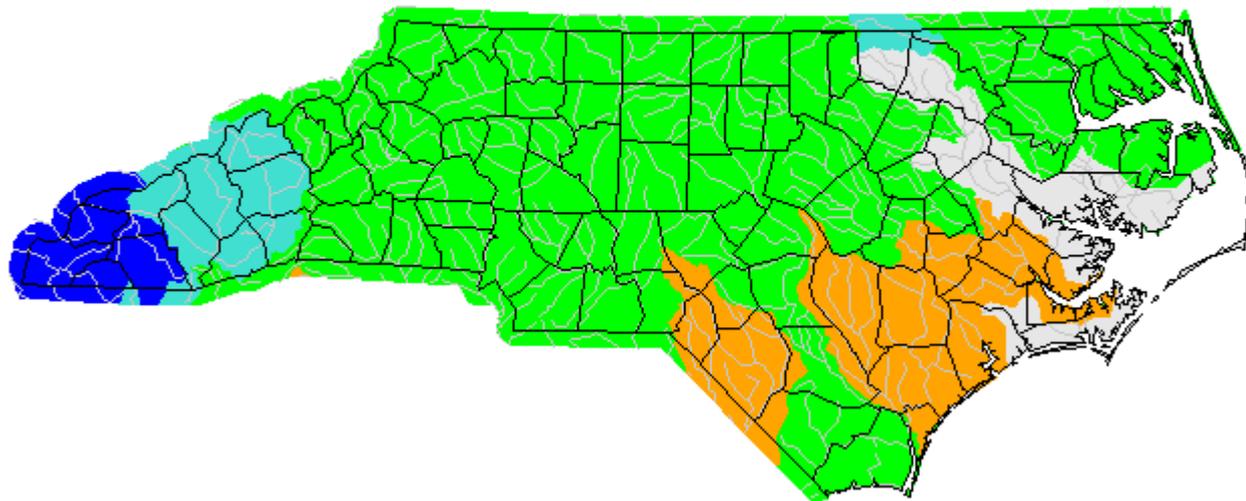
Explanation - Percentile classes

lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile-highest
Much below Normal	Below normal	Normal	Above normal	Much above normal		Flow

# Percentage of sites with 7-day average flows below normal (< 25<sup>th</sup> percentile)



Sunday, September 12, 2021



Overall  
7-day  
average  
flows

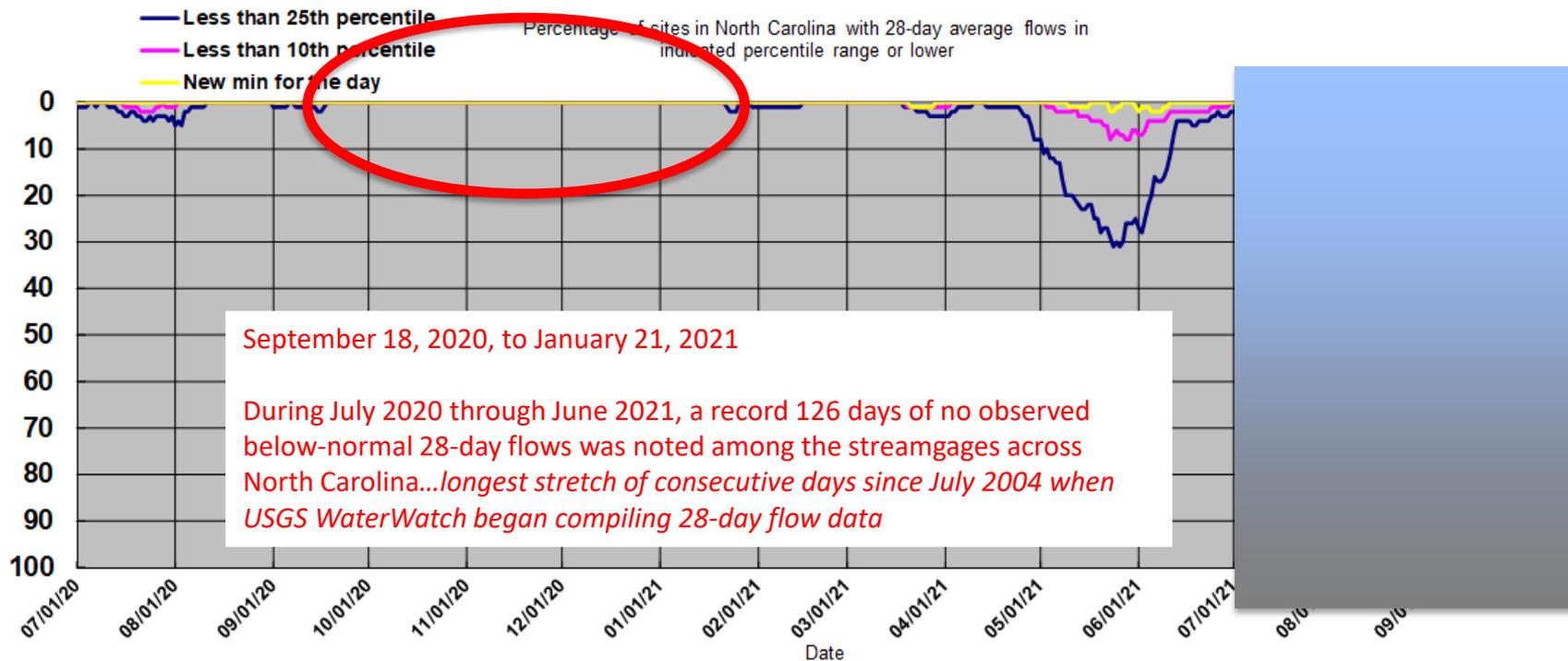
...as of  
Sept 12

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

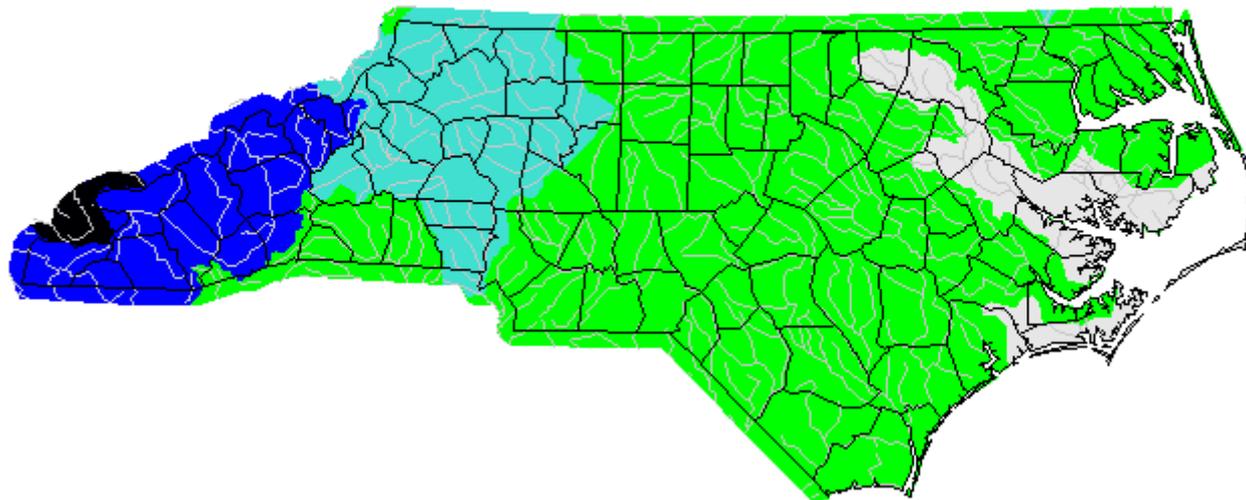


Available at URL <http://waterwatch.usgs.gov/index.php>

# Percentage of sites with 28-day average flows below normal (< 25<sup>th</sup> percentile)



Sunday, September 12, 2021



Overall  
28-day  
average  
flows

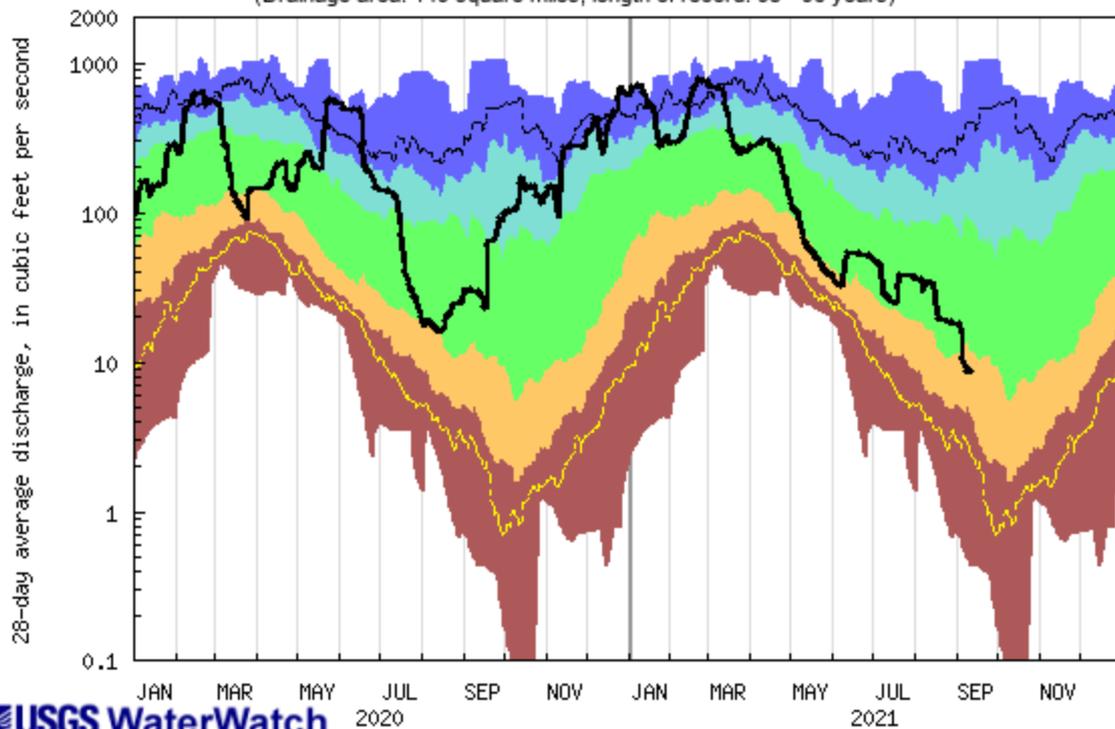
*...as of  
Sept 12*

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



Available at URL <http://waterwatch.usgs.gov/index.php>

USGS 02085500 FLAT RIVER AT BAHAMA, NC  
 (Drainage area: 149 square miles, length of record: 95 - 96 years)



USGS WaterWatch

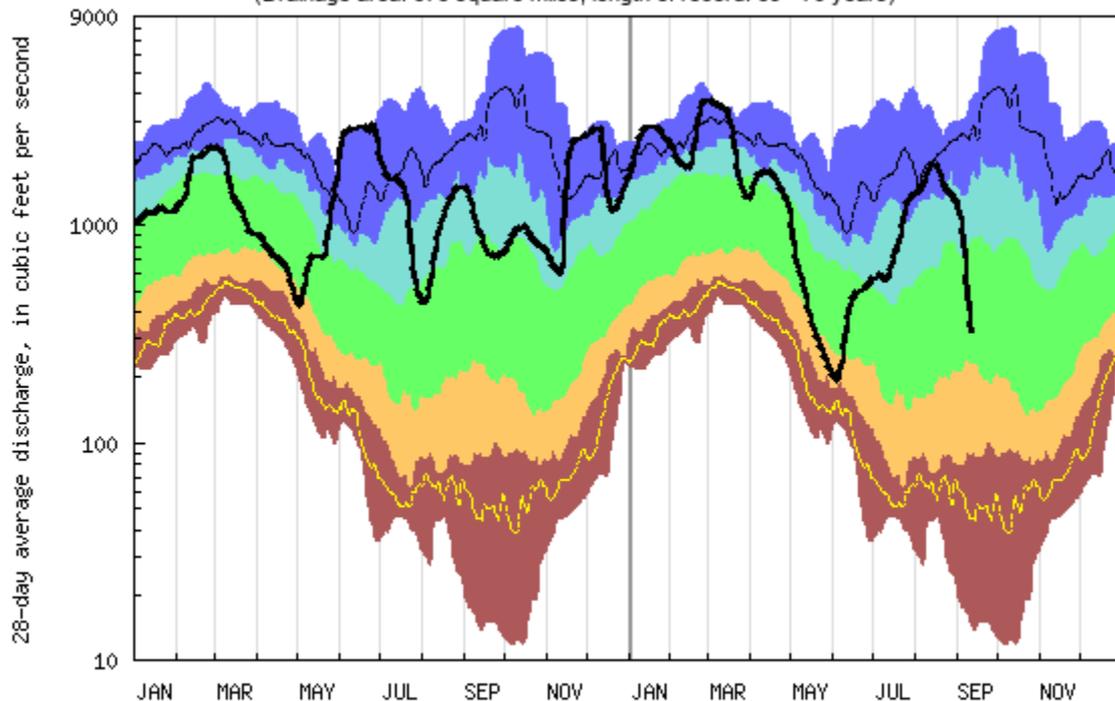
Last updated: 2021-09-13

Explanation - Percentile classes

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lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile-highest	Flow
Much below Normal		Below normal	Normal	Above normal		Much above normal	



USGS 02106500 BLACK RIVER NEAR TOMAHAWK, NC  
 (Drainage area: 676 square miles, length of record: 69 - 70 years)



USGS WaterWatch

2020

2021

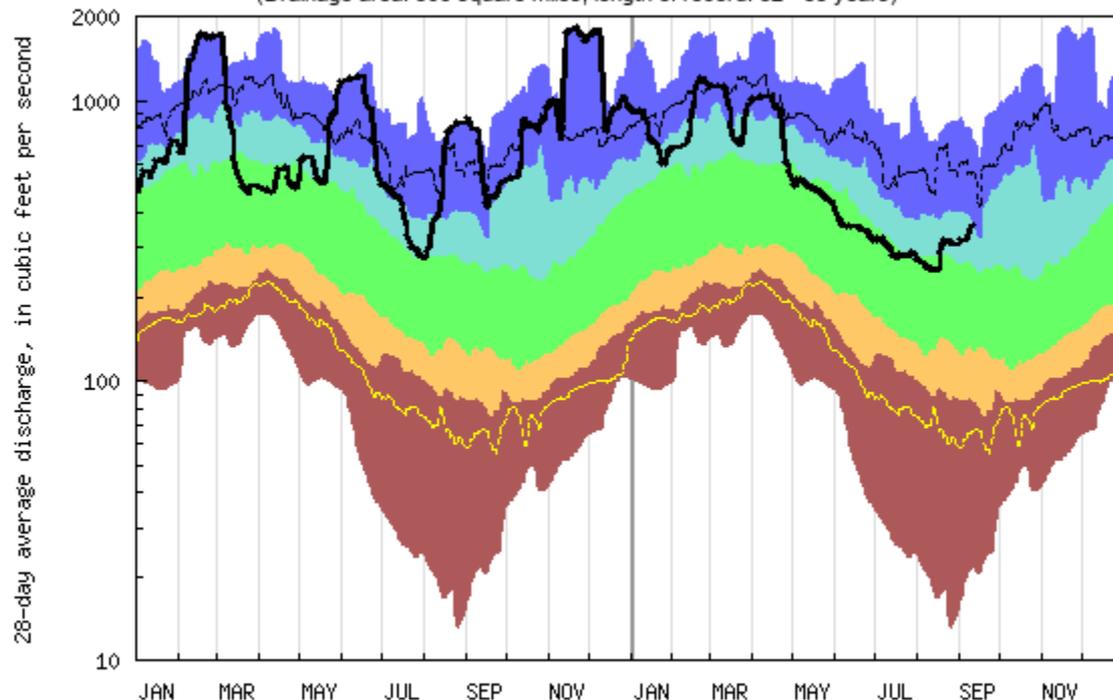
Last updated: 2021-09-13

Explanation - Percentile classes

lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile-highest
Much below Normal	Below normal	Normal	Above normal	Much above normal		Flow



USGS 02118000 SOUTH YADKIN RIVER NEAR MOCKSVILLE, NC  
 (Drainage area: 306 square miles, length of record: 82 - 83 years)



USGS WaterWatch

2020

2021

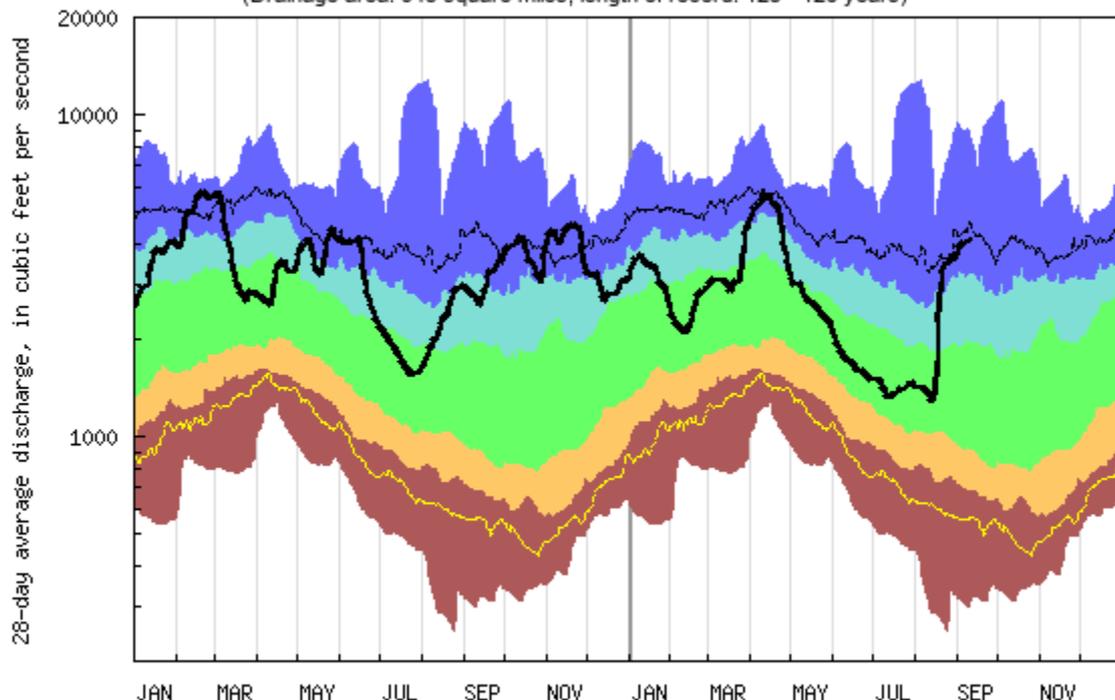
Last updated: 2021-09-13

Explanation - Percentile classes

lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile-highest
Much below Normal	Below normal	Normal	Above normal	Much above normal		Flow



USGS 03451500 FRENCH BROAD RIVER AT ASHEVILLE, NC  
 (Drainage area: 945 square miles, length of record: 125 - 126 years)



USGS WaterWatch

2020

2021

Last updated: 2021-09-13

Explanation - Percentile classes

lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile-highest
Much below Normal		Below normal	Normal	Above normal		Much above normal
						Flow



- Questions?
- Concerns?
- Complaints?

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Flat River at Bahama  
Durham County