North Carolina DMAC Assessment Process

August 9, 2022

NCGS §143.355.1 Drought Management Advisory Council

- To improve coordination among local, State, and federal agencies; public water systems, and water users to improve the management and mitigation of the harmful effects of drought.
- To provide consistent and accurate information on drought conditions in the State to the U.S. Drought Monitor, the Environmental Management Commission, the Secretary, the Environmental Review Commission, and the public.
- The Council shall consider **stream flows, ground water levels, the amount of water stored in reservoirs, weather forecasts, the time of year, and other factors** that are relevant to determining the location and severity of drought conditions.
- Other factors such as **precipitation, temperature, soil moisture, agricultural conditions, forestry conditions, wildlife conditions, water demand, water restrictions, on the ground reports,** etc.

NORTH CAROLINA
Drought Management
Advisory Council

DMAC Meetings

- The Council **will have expertise or responsibility** in **meteorology, ground water and surface water hydrology, water system operation** and **management, reservoir management, emergency response,** or **another subject area related to assessment and management of drought impacts**.
- The term used in looking at all factors is "**Convergence of Evidence**".
- **Weekly Interagency Meetings on Tuesday**
- Generally 30 to 60 minutes with detailed reports to delineate drought conditions
- Recommendations are sent to the US Drought Monitor author
- Drought advisory released on Thursday
- Required to meet at least once in each calendar year in order to maintain appropriate agency readiness and participation

Weekly Agenda

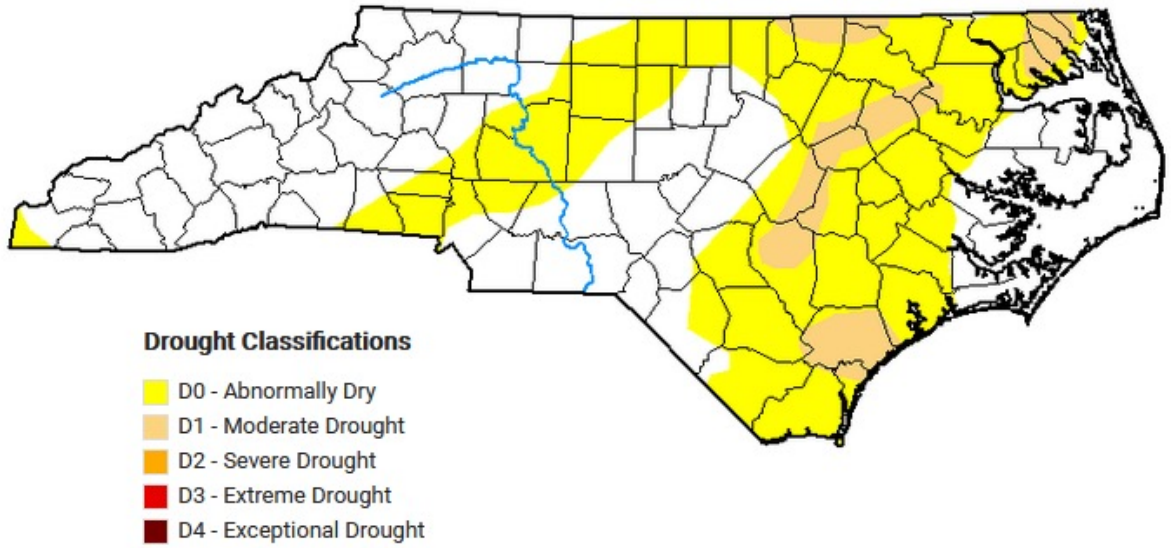
Weather & Climate

- Recent rainfall / Weather & CoCoRaHS Monitoring Reports – SCO
- Short / Long Range Forecast – NWS

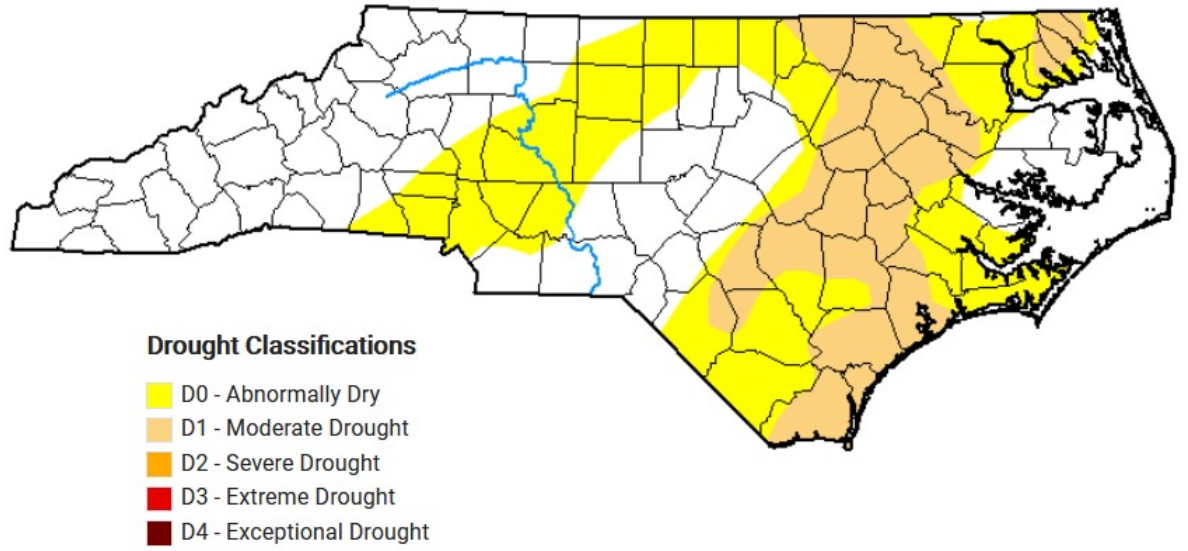
Water Resources & Impacts

- Streamflow / Groundwater – USGS
- Reservoir levels – USACE, Duke Energy, TVA, Cube Hydro-Yadkin, etc.
- Forestry – NCFS
- Agriculture – Cooperative Extension/NCDA&CS
- Water supply status, water restrictions, etc. – DWR-PWSS/WSPB
- Water Quality – DWR-WSS
- Wildlife – NCWRC
- Other Agencies – NCDEM, NCUC, etc.
- Recommendations to US Drought Author

Last Week's Map:



Previous Map:



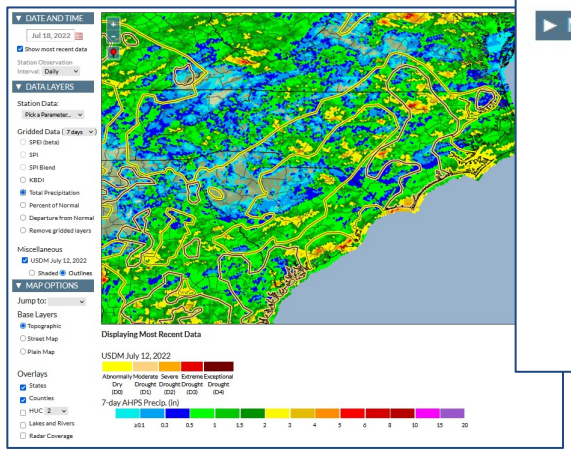
http://www.ncdrought.org/index.php

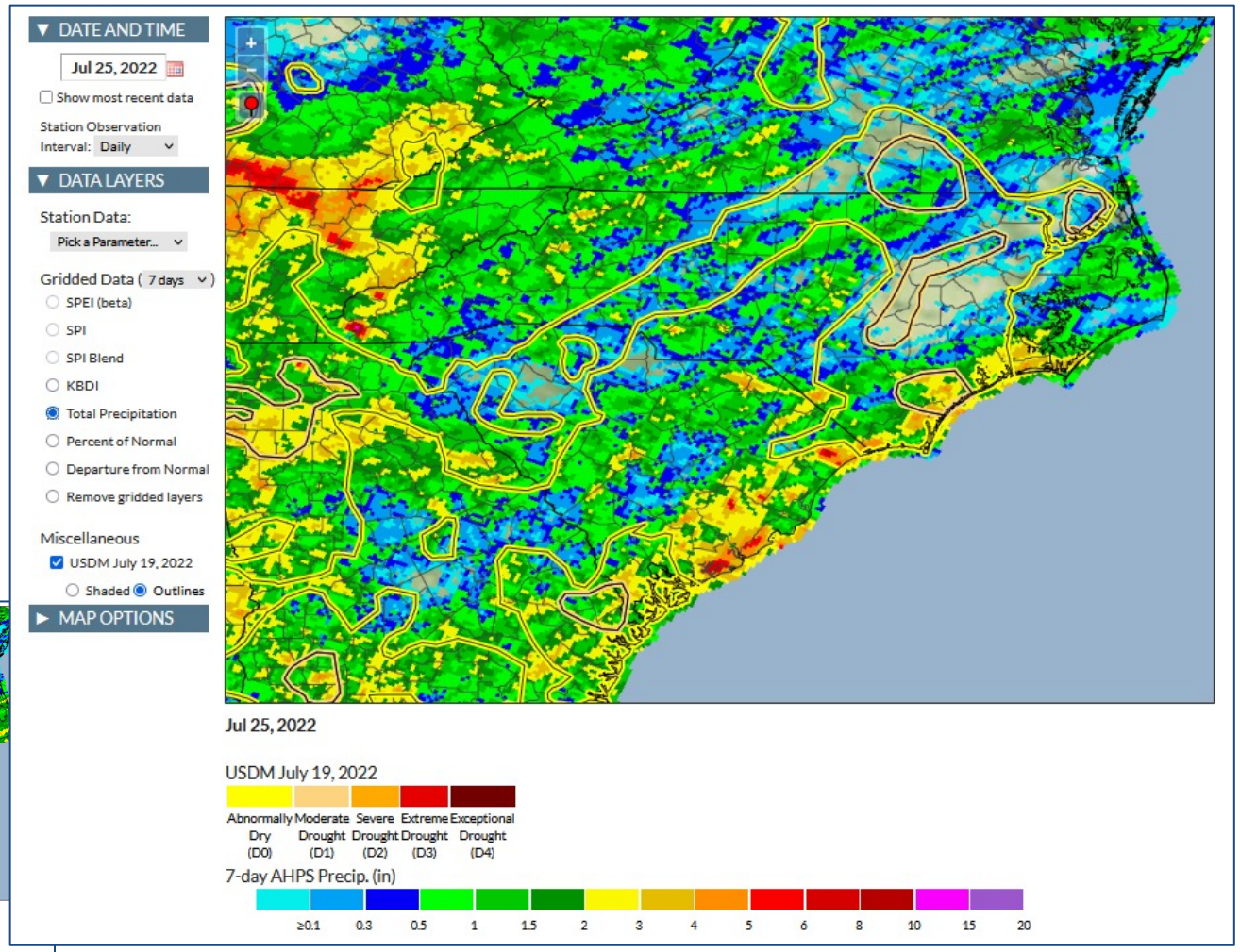
State Climate Office

Weather & Climate

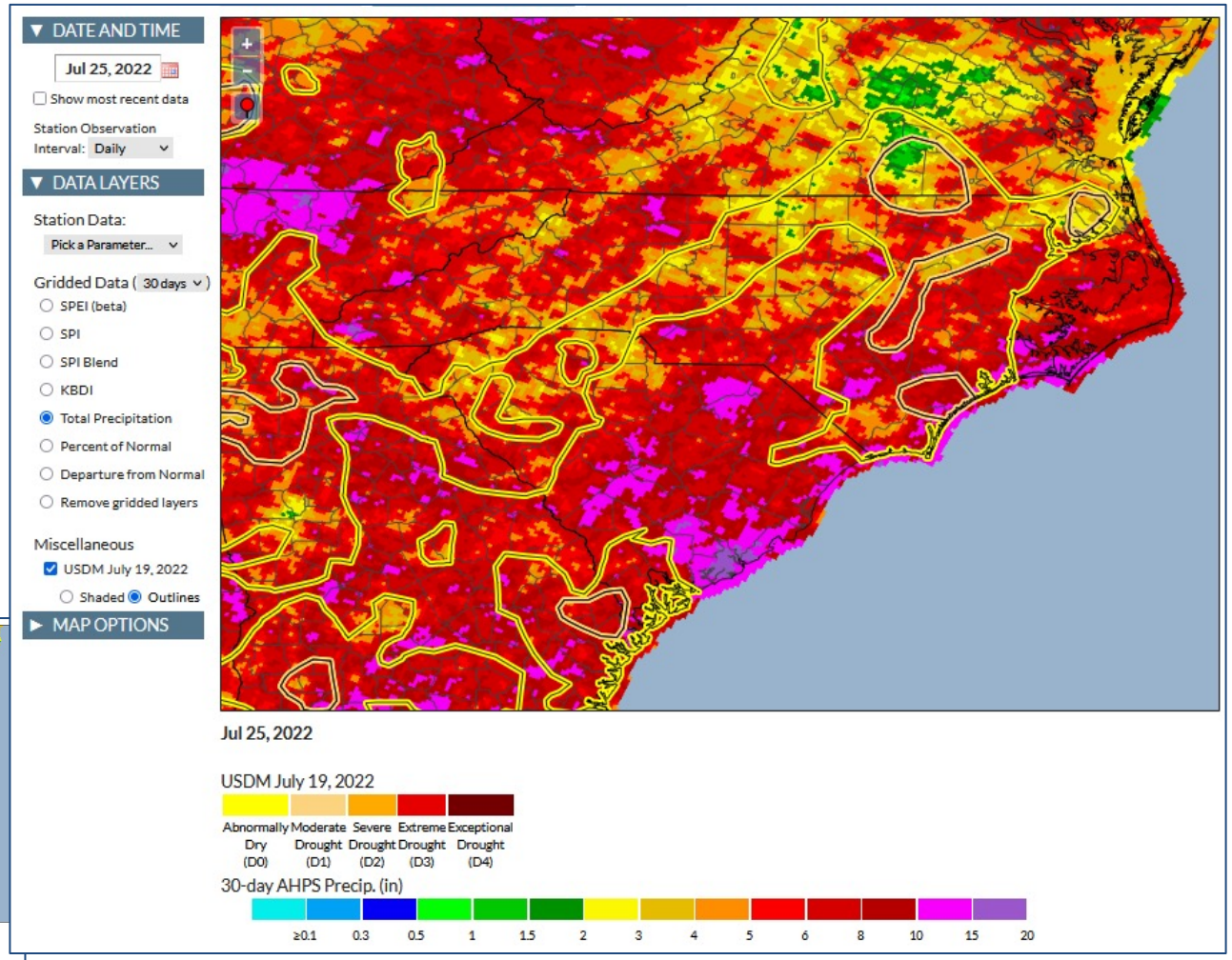
- Recent rainfall
- Weather
  - http://www.climate.ncsu.edu/water/map
  - **7-day**, 30-day, 60-day, 90-day & 6-month
    - Precipitation estimates
    - Precipitation % of normal
- Community Collaborative Rain, Hail, and Snow Network (CoCoRaHS)
- CoCoRaHS Monitoring Reports
  - https://www.cocorahs.org/maps/conditionmonitoring/

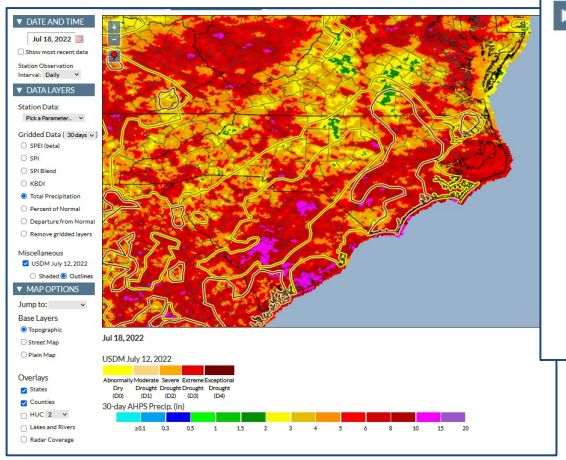
7-Day Accumulation:





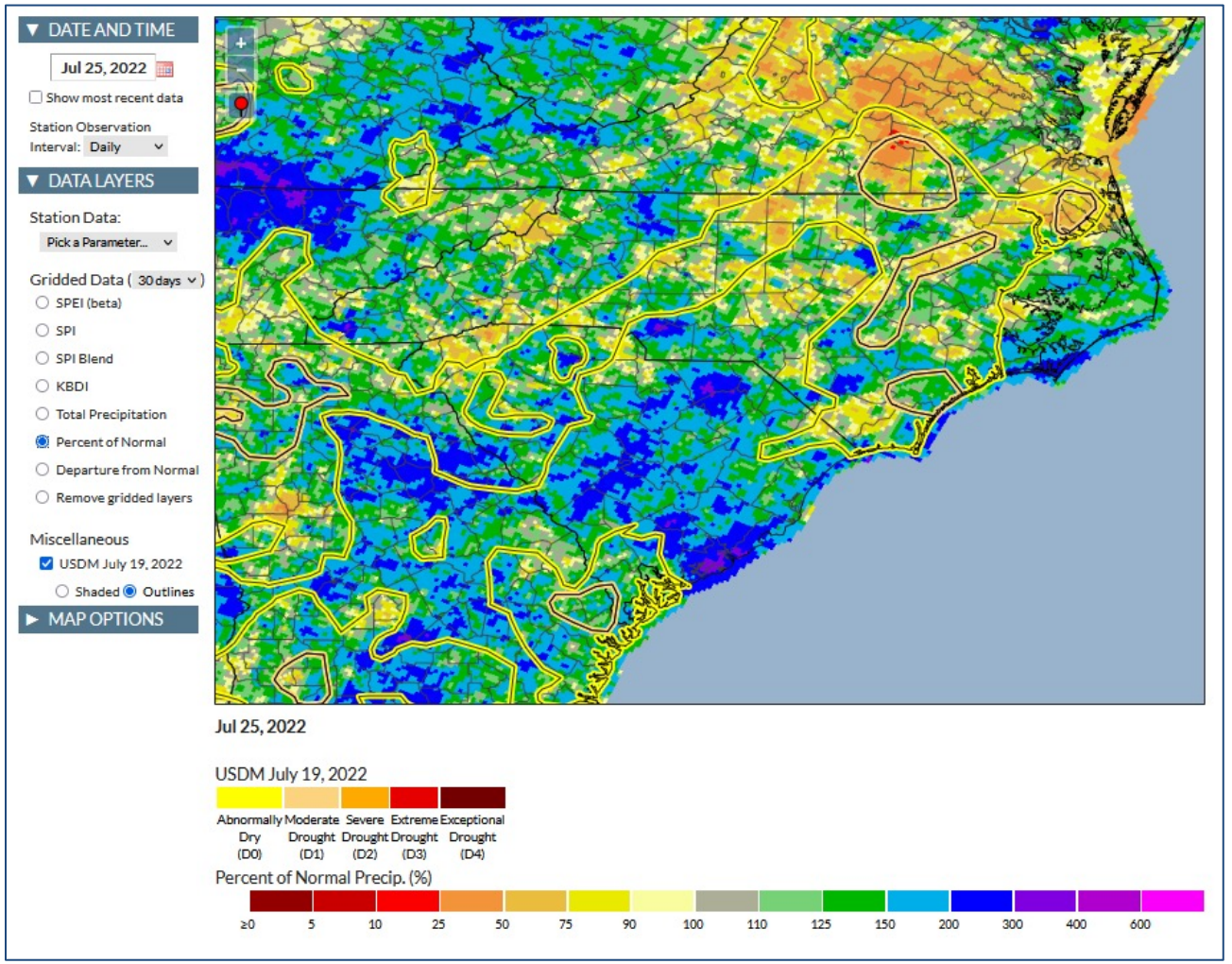
30-Day Accumulation:

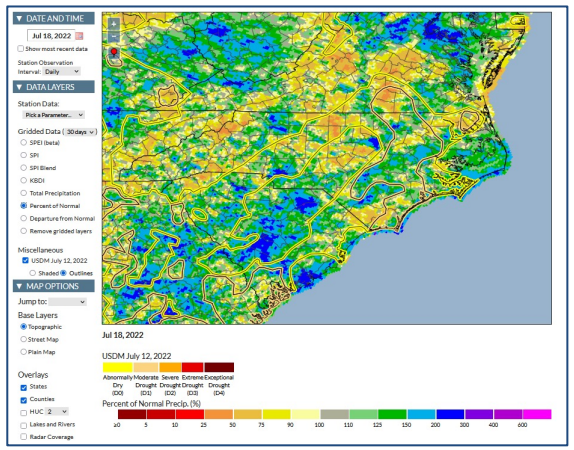




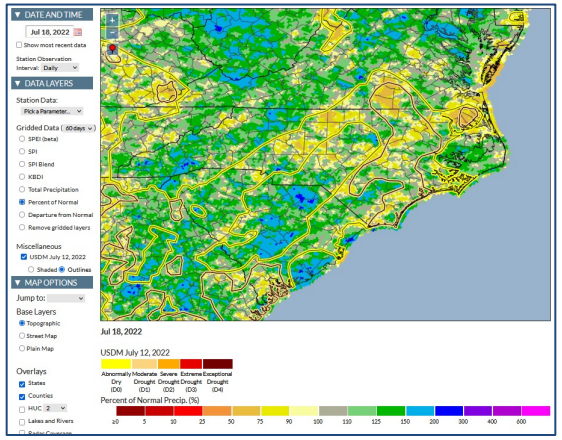
http://climate.ncsu.edu/water/map/

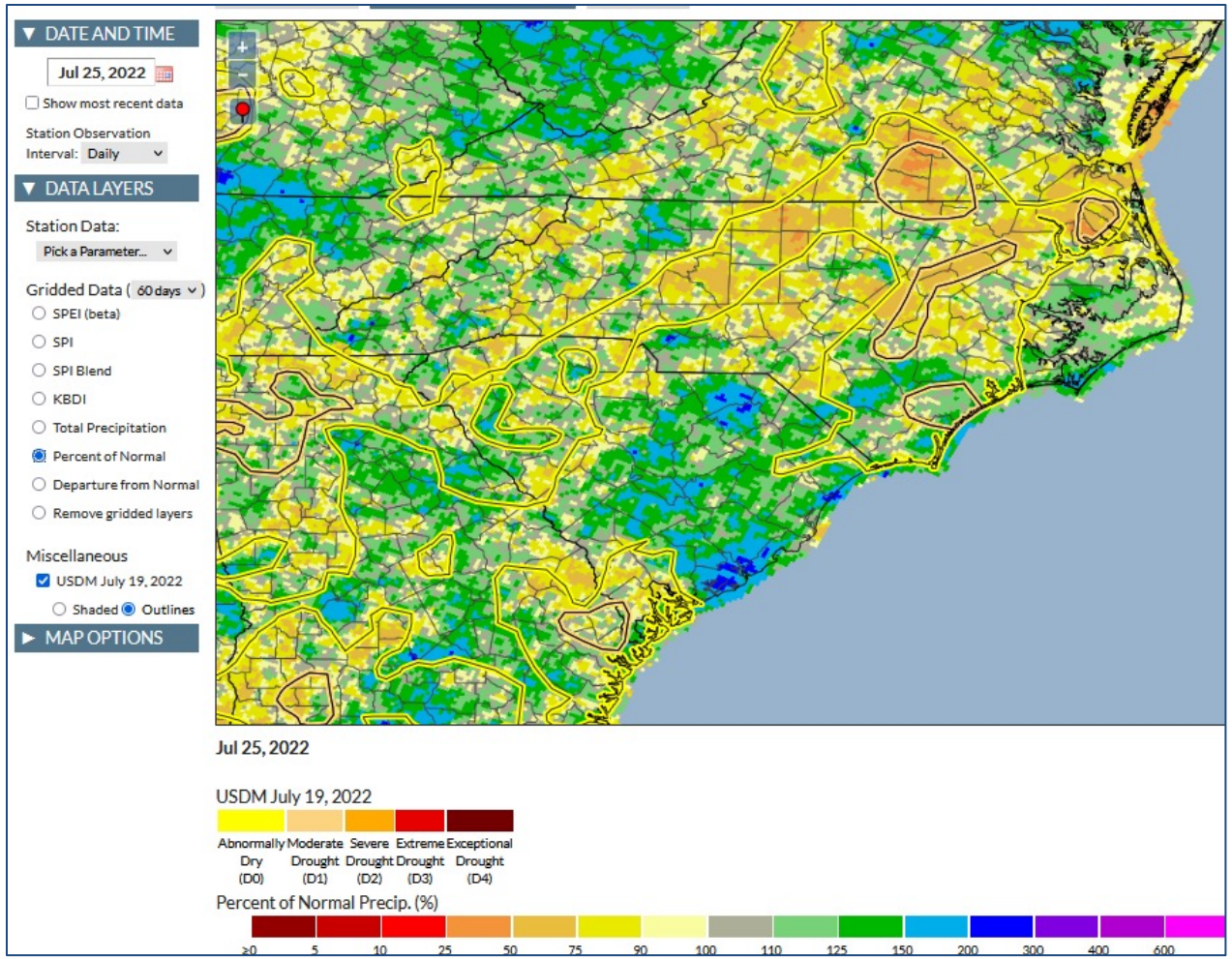
30-Day Percent of Normal:





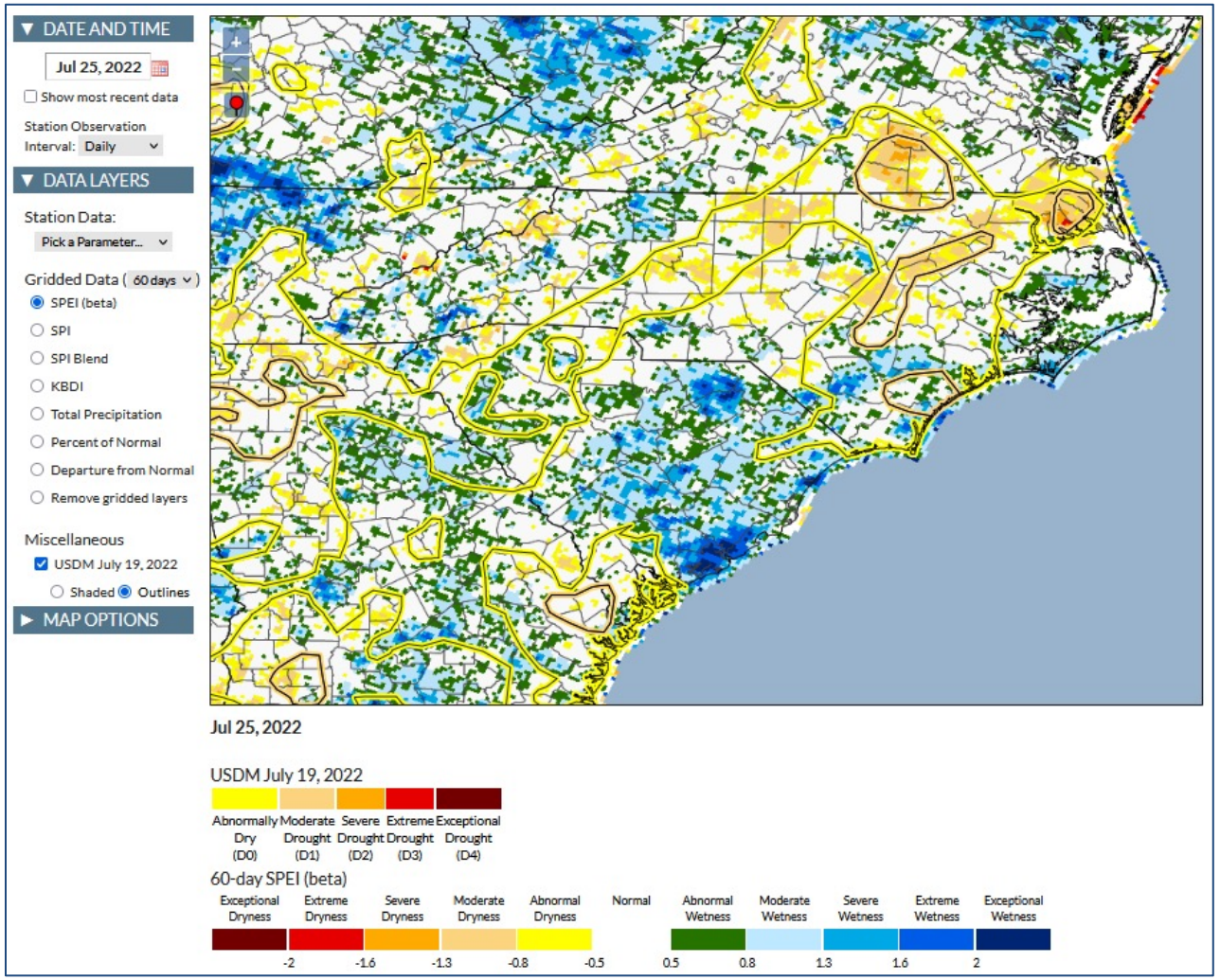
60-Day Percent of Normal:

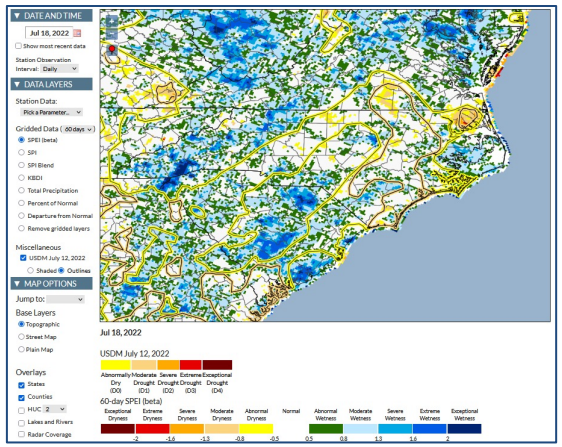




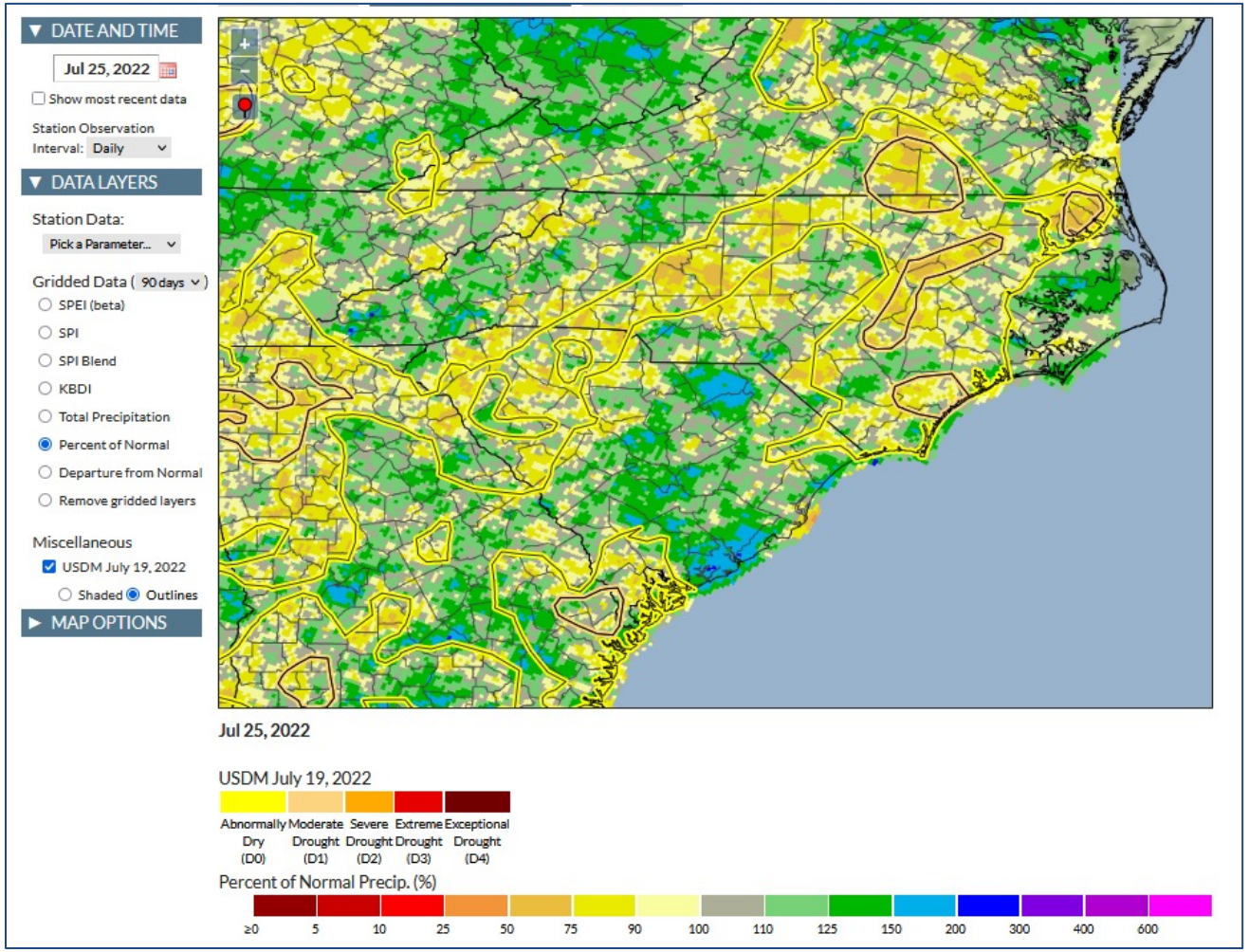
http://climate.ncsu.edu/water/map/

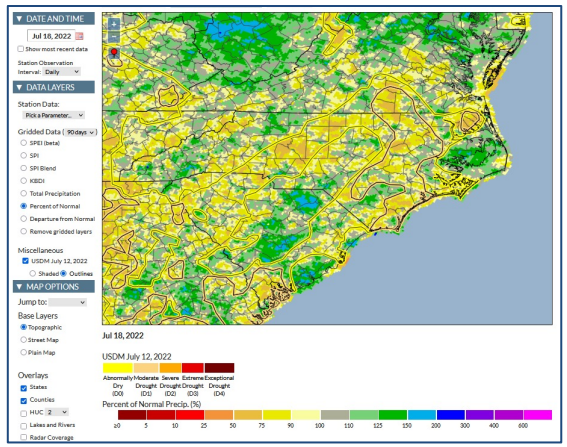
60-Day SPEI:


DATE AND TIME
Jul 25, 2022
Show most recent data
Station Observation
Interval: Daily
DATA LAYERS
Station Data:
Pick a Parameter...
Gridded Data (60 days)
SPEI (beta)
SPI
SPI Blend
KBDI
Total Precipitation
Percent of Normal
Departure from Normal
Remove gridded layers
Miscellaneous
USDM July 19, 2022
Shaded Outlines
MAP OPTIONS
Jul 25, 2022
USDM July 19, 2022
Abnormally Dry (D0)
Moderate Drought (D1)
Severe Drought (D2)
Extreme Drought (D3)
Exceptional Drought (D4)
60-day SPEI (beta)
Exceptional Dryness
Extreme Dryness
Severe Dryness
Moderate Dryness
Abnormal Dryness
Normal
Abnormal Wetness
Moderate Wetness
Severe Wetness
Extreme Wetness
Exceptional Wetness
-2
-1.6
-1.3
-0.8
-0.5
0.5
0.8
1.3
1.6
2

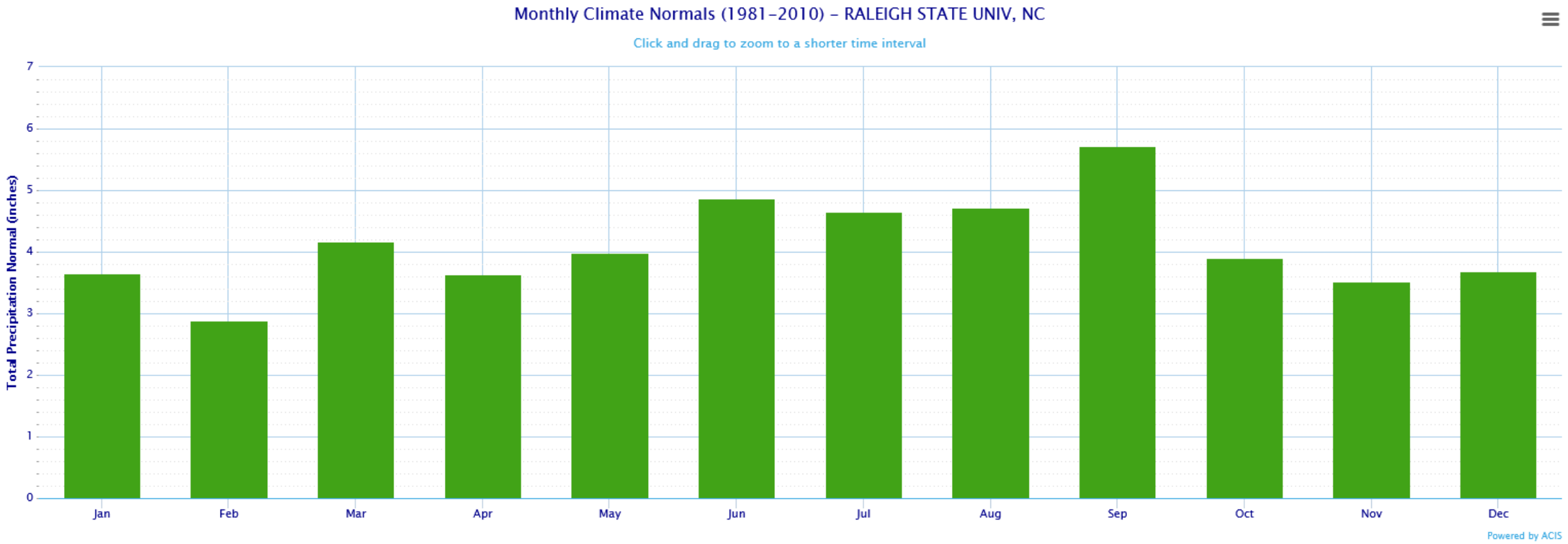


90-Day Percent of Normal:



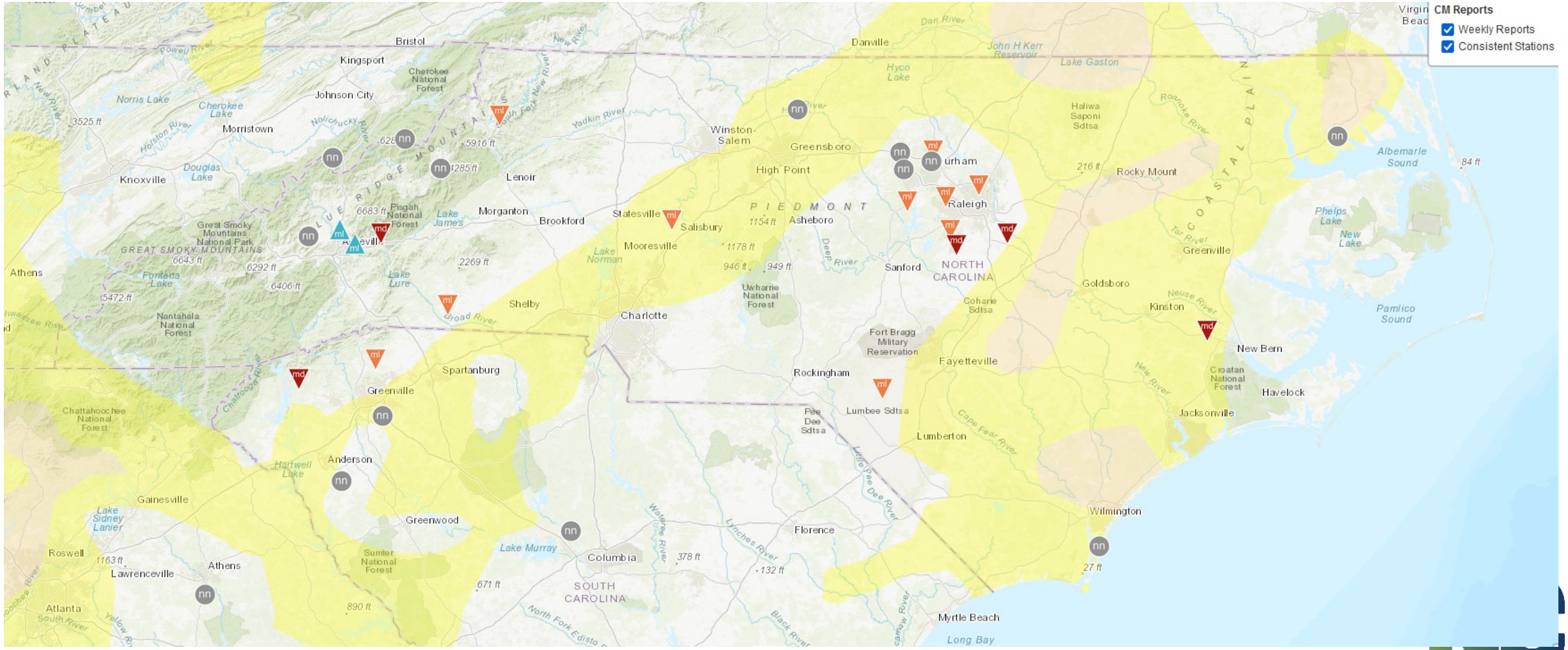


Normals:



http://climate.ncsu.edu/water/map/

CoCoRaHS Condition Monitoring reports:



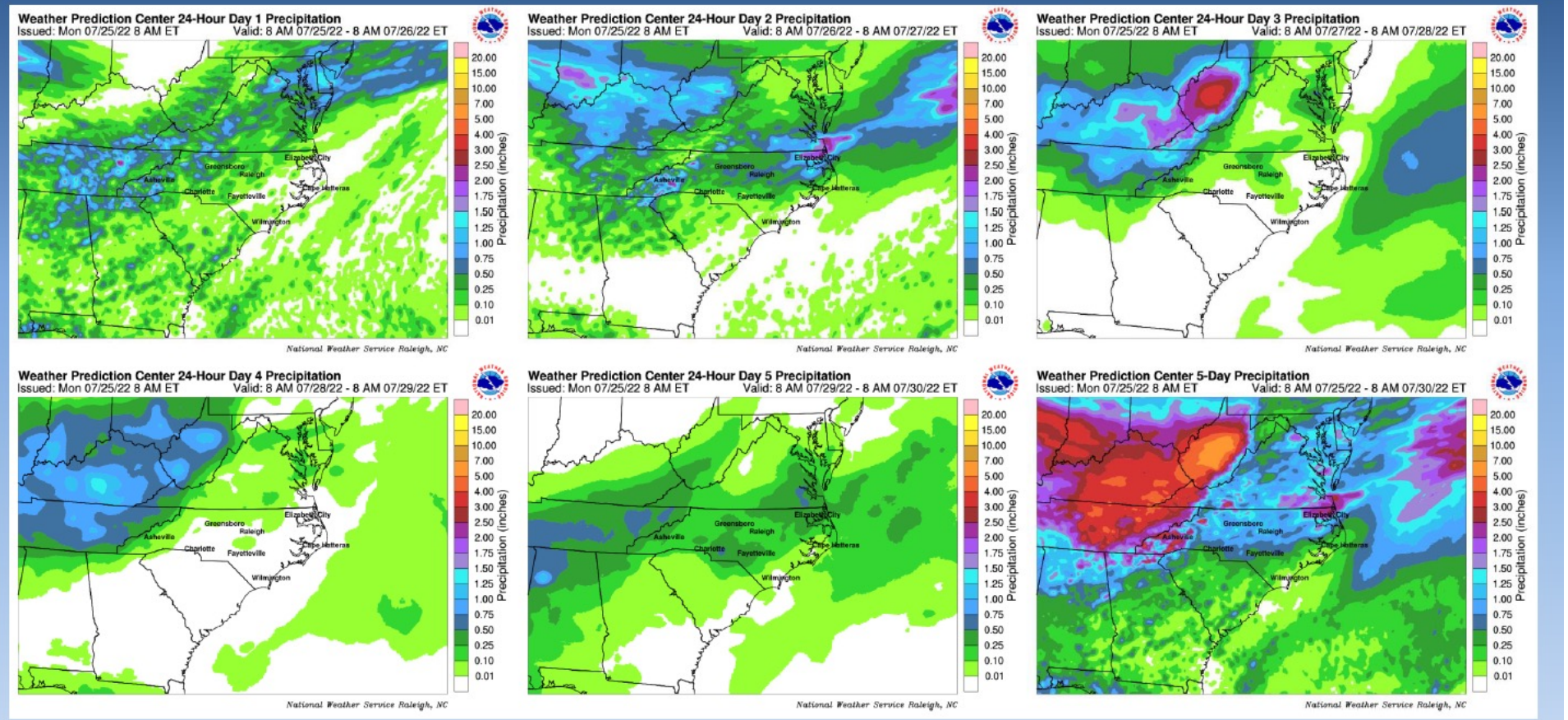
https://www.cocorahs.org/maps/conditionmonitoring/

National Weather Service

Weather & Climate

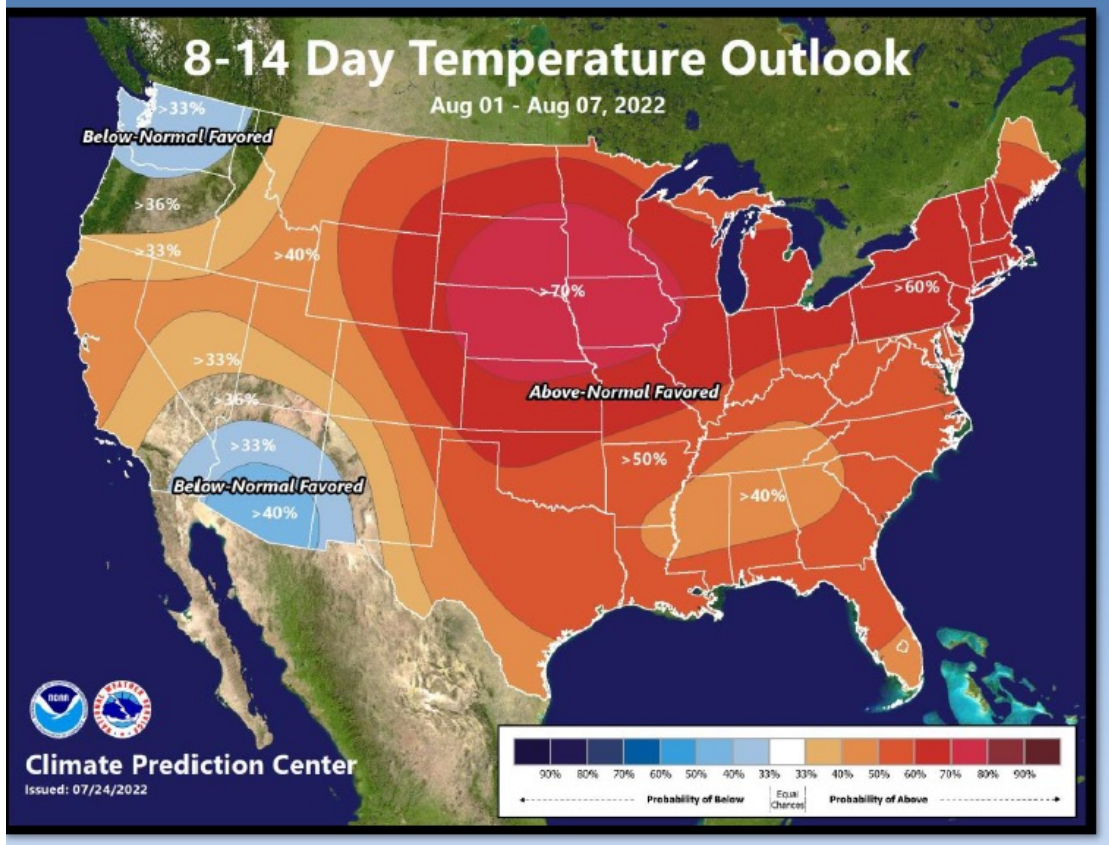
- Short Range Forecast
- Long Range Forecast

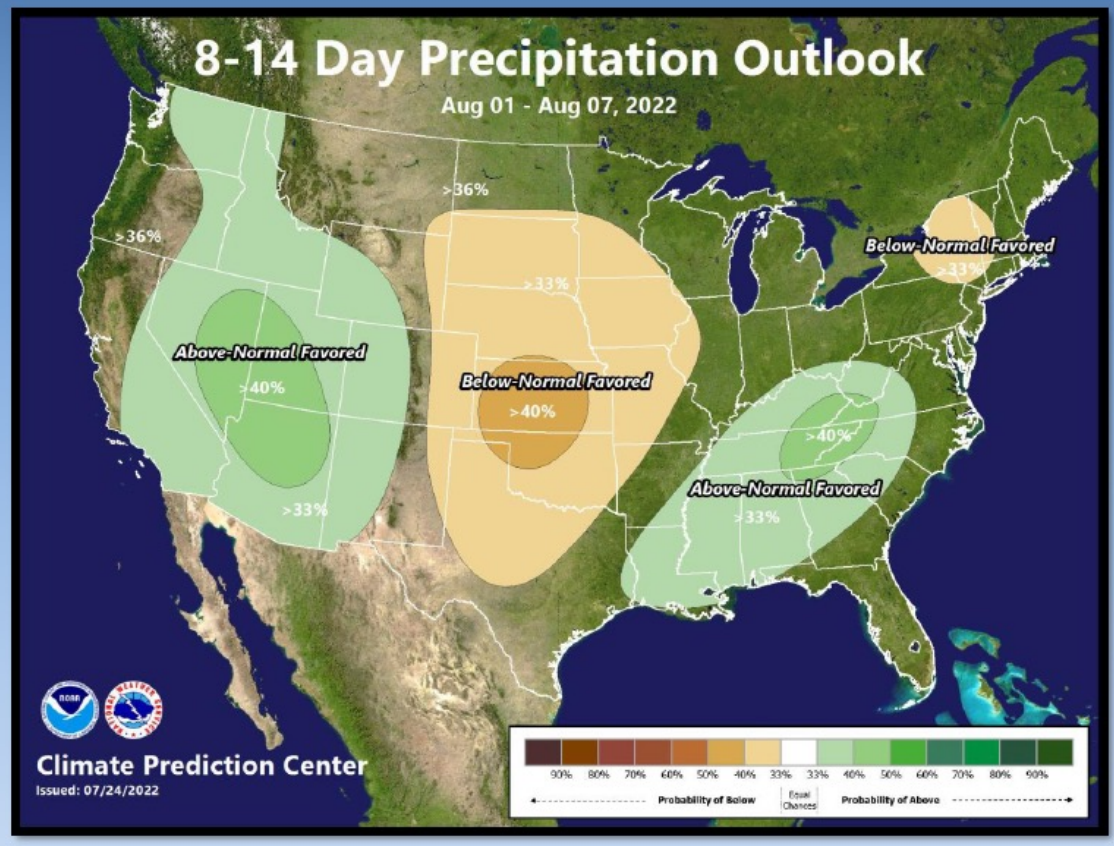
Accumulated Precipitation Forecasts Through the Next 5 Days



- The days with the greatest storm coverage may be Tuesday and Friday.
- One to two inches of rain is possible through the next week, with locally higher amounts.

8 to 14 day outlook courtesy of the Climate Prediction Center





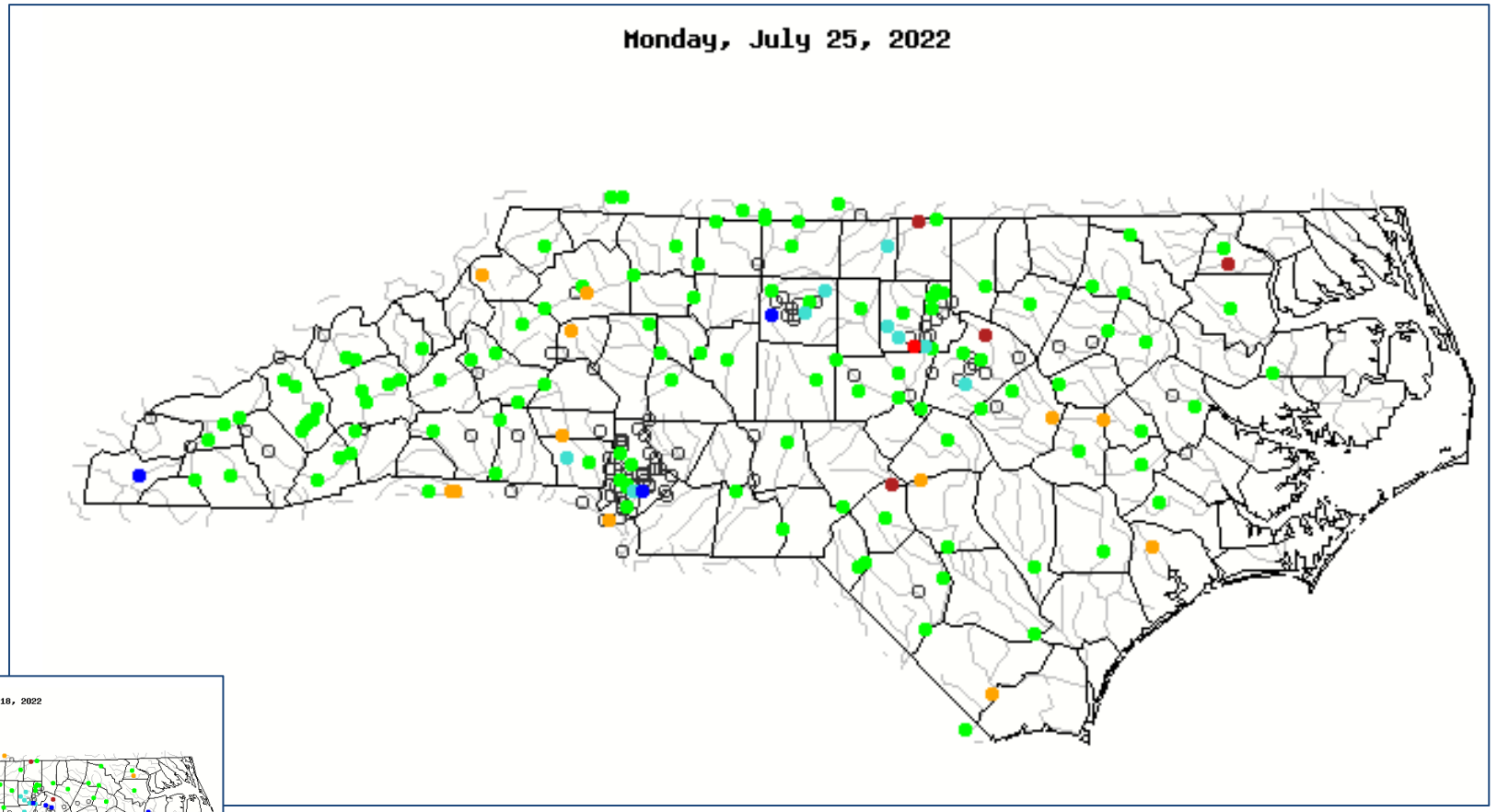
http://www.cpc.ncep.noaa.gov/products/predictions/30day/

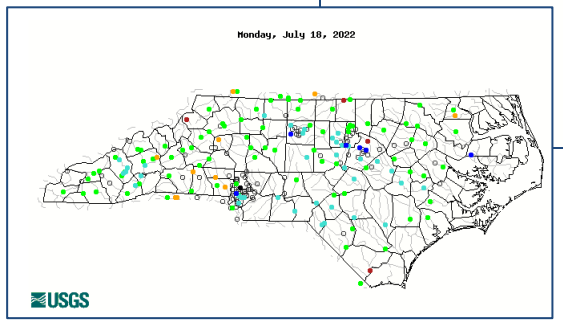
USGS

Streamflow / Groundwater

- 7-Day Flow Percentiles
- 7-Day Average Streamflows
  - http://waterwatch.usgs.gov/index.php?r=nc&id=pa07d
- 28-Day Average Streamflows
  - http://waterwatch.usgs.gov/index.php?r=nc&id=pa28d
- GW Conditions – NC Climate Response Network
  - http://groundwaterwatch.usgs.gov/NetMapT1L2.asp?ncd=crn&sc=37

7-Day Streamflows

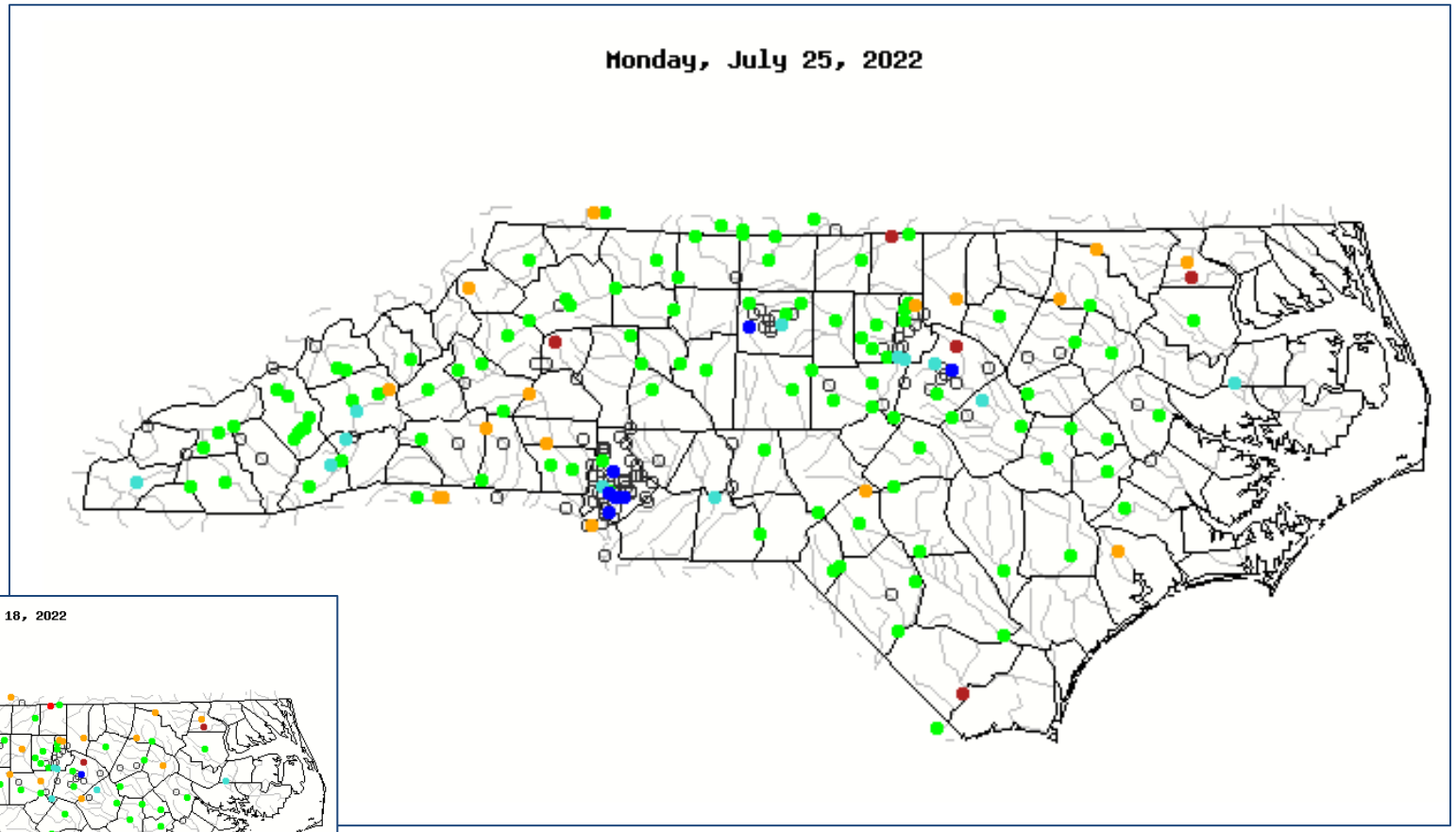


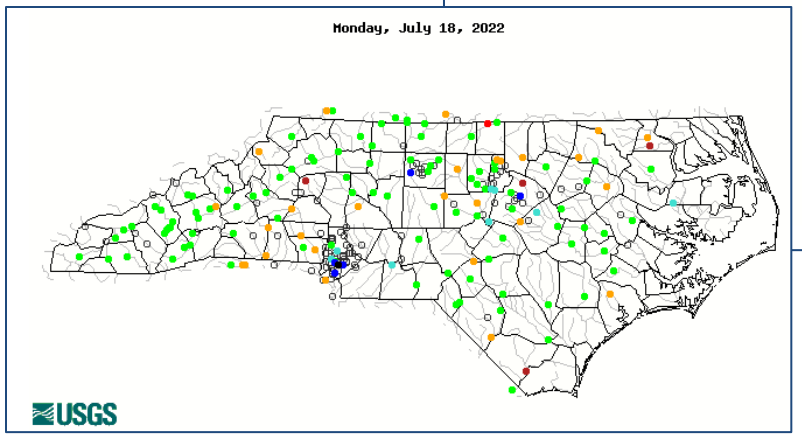


Explanation - Percentile classes							
Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High	Not-ranked

http://waterwatch.usgs.gov/index.php?r=nc&id=pa07d, Accessed 9/15/22

28-Day Streamflows

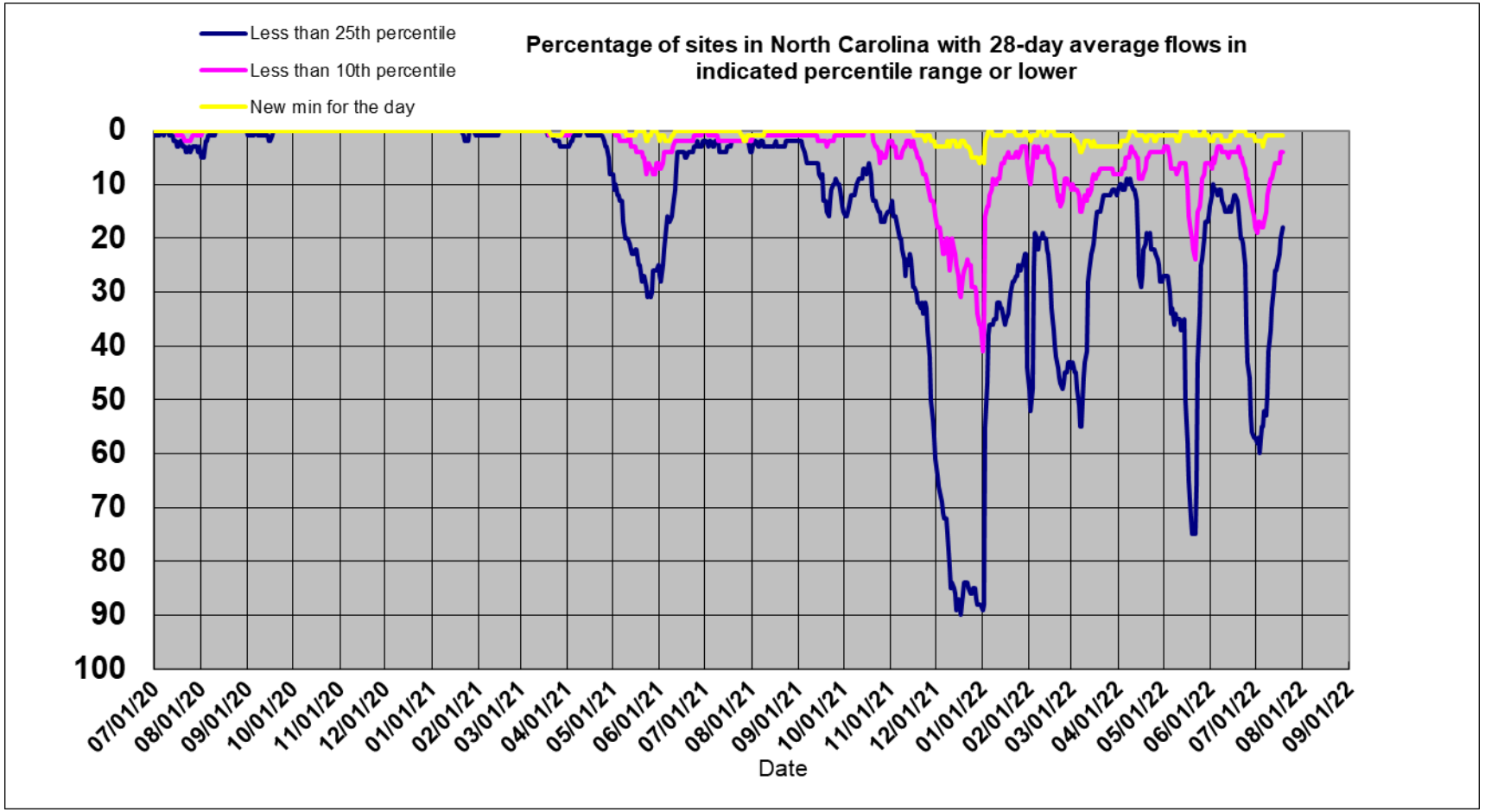




Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

http://waterwatch.usgs.gov/index.php?r=nc&id=pa28d, Accessed 9/15/22

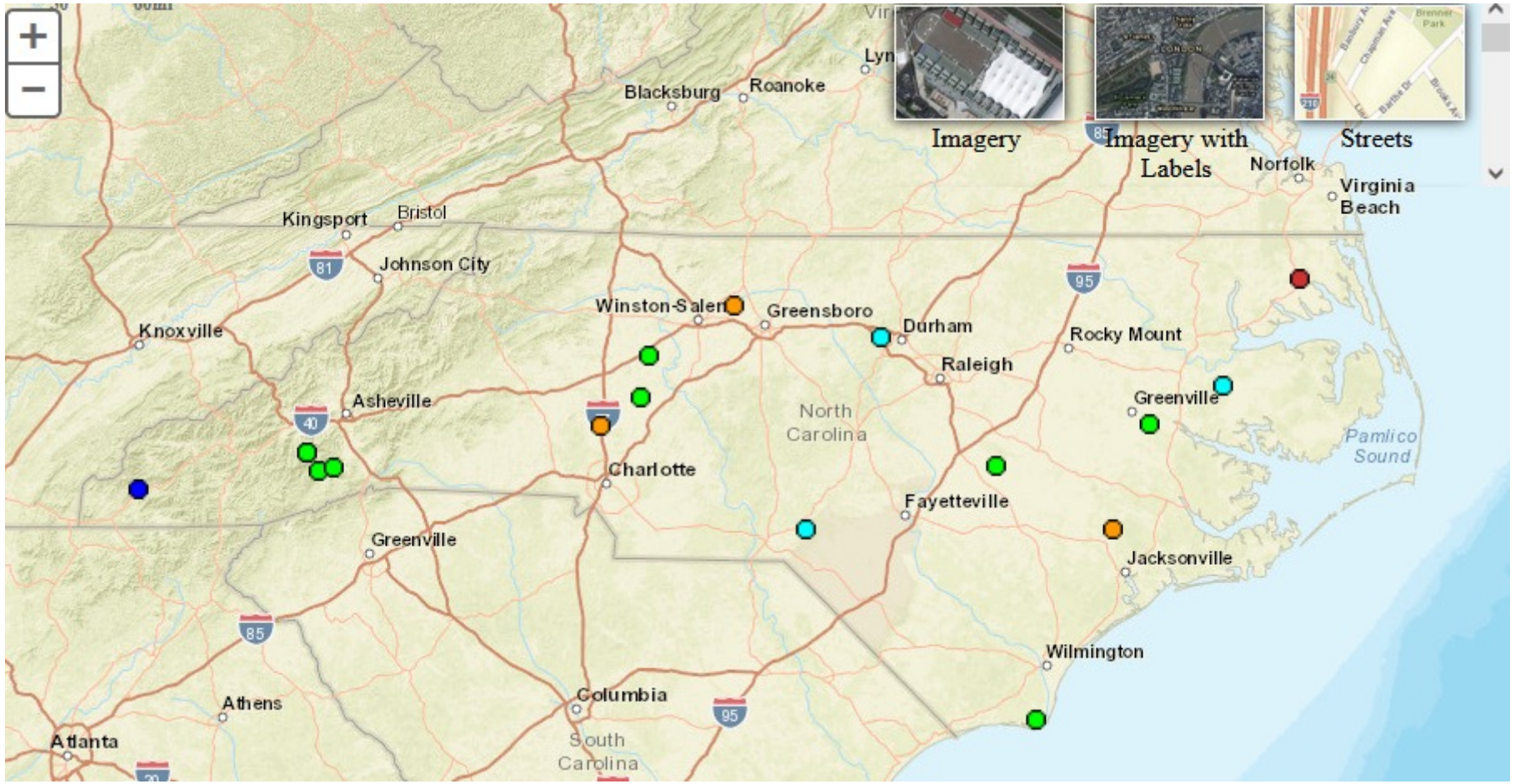
28-Day Flow Percentiles



As of **July 10** (Sunday), the graph of 28-day flow percentiles shown below indicates **18%** of sites across North Carolina have percentiles for 28-day average streamflows falling below the 25th percentile for the calendar date. And 4**%** of sites across North Carolina are shown as having 28-day average streamflows below the 10th percentile or reaching new minimum for the calendar date.

http://waterwatch.usgs.gov/index.php?r=nc&id=pa07d, Accessed 9/15/22

NC Climate Response Network – GW Conditions

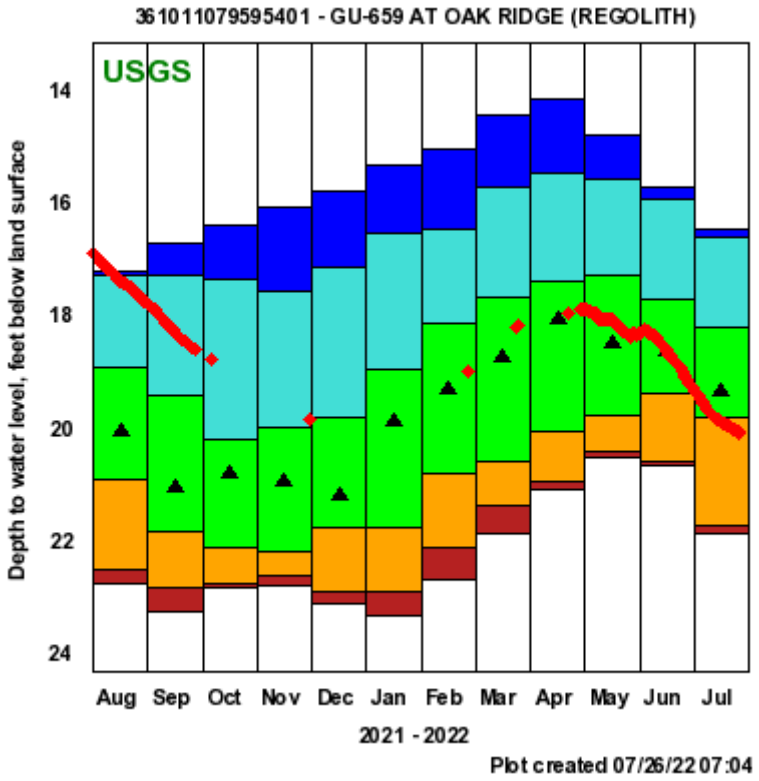


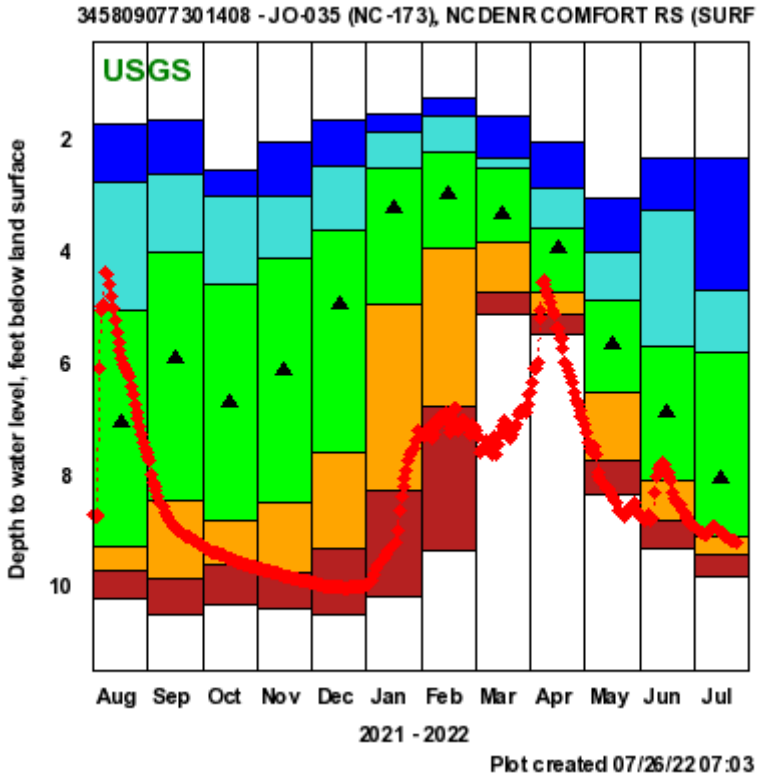
Explanation - Percentile classes (symbol color based on most recent measurement)

Low	<10	10-24	25-75	76-90	>90	High	Not Ranked
	Much Below Normal	Below Normal	Normal	Above Normal	Much Above Normal		

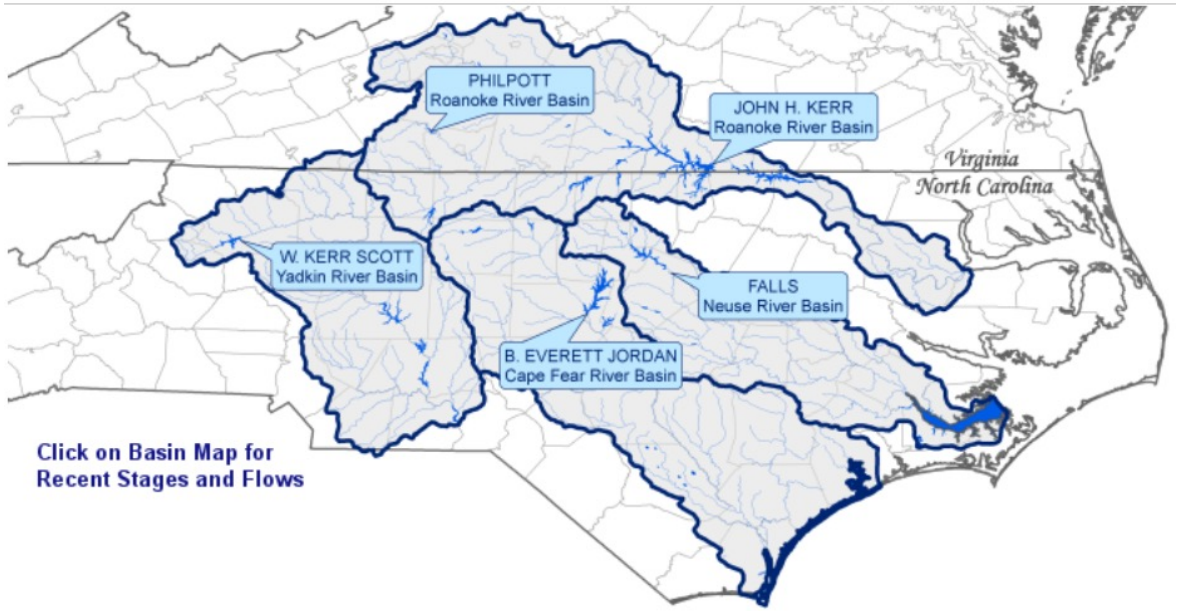
http://groundwaterwatch.usgs.gov/NetMapT1L2.asp?ncd=crn&sc=37 Accessed 9/15/22

NC Climate Response Network – GW Conditions





http://groundwaterwatch.usgs.gov/NetMapT1L2.asp?ncd=crn&sc=37 Accessed 9/15/22



This week

	Kerr	Philpott	Falls	Jordan	Scott
0800 Elevation (ft-msl)	299.78	970.96	251.09	215.98	1030.18
Guide Curve (ft-msl)	300.31	973.50	251.50	216.00	1030.00

Last week

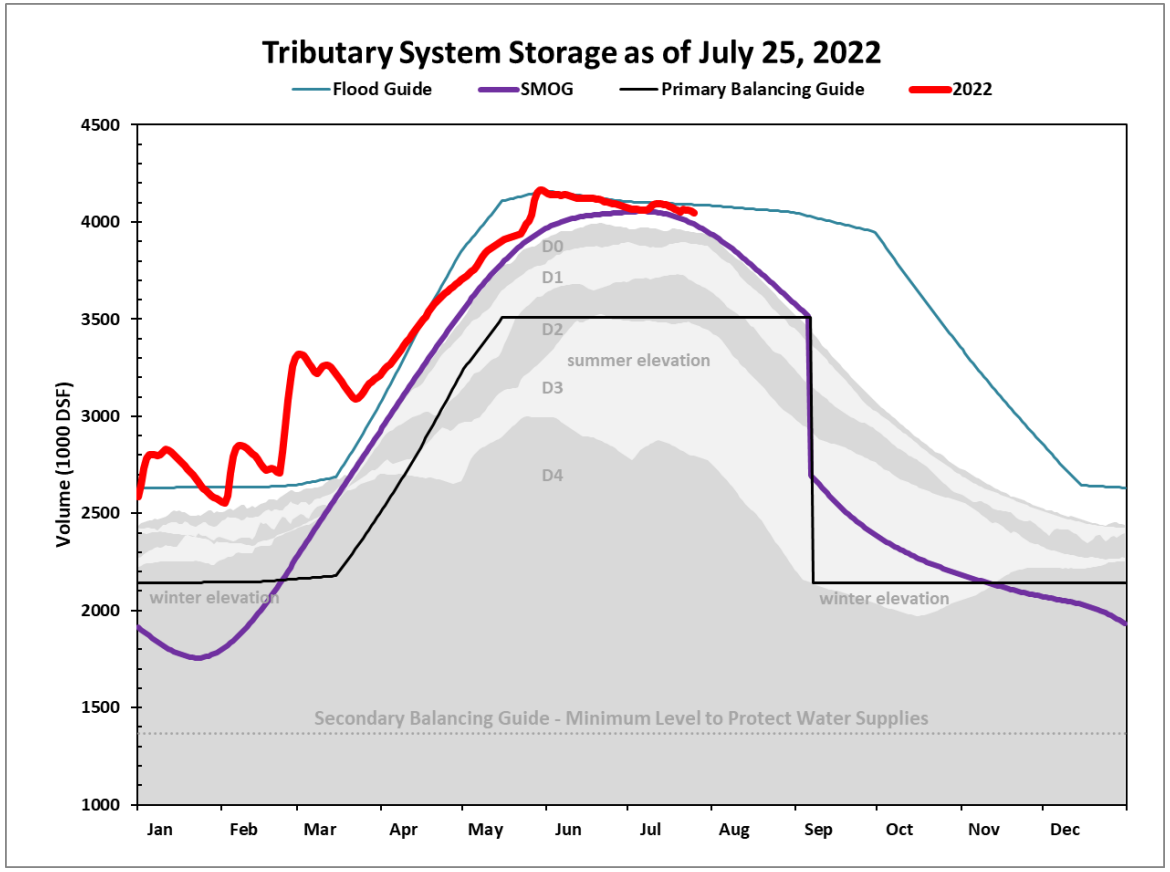
	Kerr	Philpott	Falls	Jordan	Scott
0800 Elevation (ft-msl)	300.22	971.44	251.11	215.82	1030.22
Guide Curve (ft-msl)	300.59	973.50	251.50	216.00	1030.00

https://epec.saw.usace.army.mil/

Catawba - Wateree

NAME OF LAKE	ACTUAL	TARGET	MINIMUM	MAXIMUM	DROUGHT STAGE	RANGE	DATE LAKE MESSAGE UPDATED
LAKE JAMES	97.0	98	95	100	0	View	6/24/2022 9:25:00 AM
LAKE RHODHISS	97.6	97	94	100	0	View	6/1/2022 7:40:00 AM
LAKE HICKORY	97.1	97	94	100	0	View	None
LOOKOUT SHOALS LAKE	97.1	97	94	100	0	View	None
LAKE NORMAN	96.9	98	95	100	0	View	6/24/2022 9:28:00 AM
MOUNTAIN ISLAND LAKE	96.6	96	94.3	100	0	View	6/24/2022 9:27:00 AM
LAKE WYLIE	96.7	97	94	100	0	View	6/24/2022 9:27:00 AM
FISHING CREEK LAKE	97.6	98	95	100	0	View	9/1/2021 10:44:00 AM
LAKE DEARBORN - GREAT FALLS	94.8	97.5	95	100	0	View	9/17/2021 8:43:00 AM
CEDAR CREEK - ROCKY CREEK	98.3	97.5	96	100	0	View	None
LAKE WATEREE	97.3	97	94	100	0	View	4/4/2022 2:02:00 PM

http://www.duke-energy.com/lakes/levels.asp



Tributary System Storage: 101.4% of Normal

CYTD Observed Rainfall vs. Normal

Location	Observed (in)	Normal (in)	Normal (%)
Above Chatt	33.85	27.73	122.05%
Below Chatt	34.90	34.05	102.50%
System	34.35	30.79	111.59%

CYTD Observed Runoff vs. Normal

Location	Observed (in)	Normal (in)	Normal (%)
Above Chatt	15.98	15.98	99.96%
Below Chatt	20.09	17.09	117.57%
System	17.96	16.52	108.71%

Elevation Status

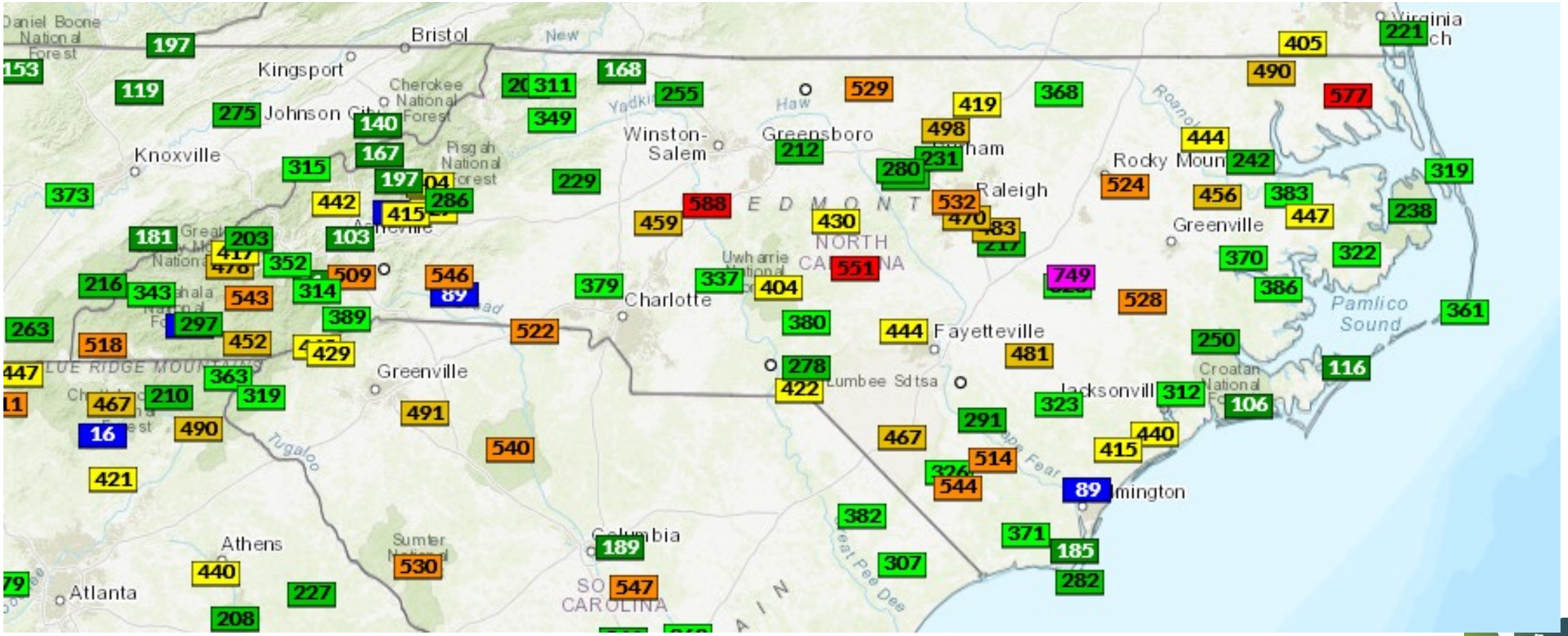
- Above operational range
- Within operational range
- Below operational range

Reservoir

- Fontana
- Chatuge
- Nottely
- Hiwassee

Accessed on 9/15/22

KBDI



Fire Weather Intelligence Portal

*NC Forest Service Wildfire Activity**

Monthly Fire Summary for July 2022

Date	# Fires	# Acres	Date	# Fires	# Acres
1	11	9.4	17	3	5.5
2	11	8.2	18	2	10.8
3	10	17.6	19	2	0.1
4	10	12.1	20	6	1.2
5	8	5.2	21	4	2.8
6	13	12.1	22		
7	4	1.5	23		
8	3	1.8	24		
9	2	8.1	25		
10	0	0	26		
11	0	0	27		
12	1	0.1	28		
13	1	0.1	29		
14	1	0.1	30		
15	3	2.8	31		
16	2	0.2	Month to date	97	100

https://www.ncforestservice.gov/fire_control/sit_report.htm

CROP SUMMARY FOR THE WEEK ENDING JULY 24, 2022

Crop information in this report is provided voluntarily by county officials of the Cooperative Extension Service, FSA, NRCS, and other knowledgeable individuals.

DAYS SUITABLE FOR FIELD WORK

This Week	Last Week	Last Year
6.3	5.1	5.6

SOIL MOISTURE PERCENT

	VS	ST	A	SS
Subsoil Moisture	5	31	62	2
Topsoil Moisture	7	28	63	2

VS= Very Short ST = Short A = Adequate SS = Surplus

CROP PROGRESS PERCENT – WITH COMPARISONS

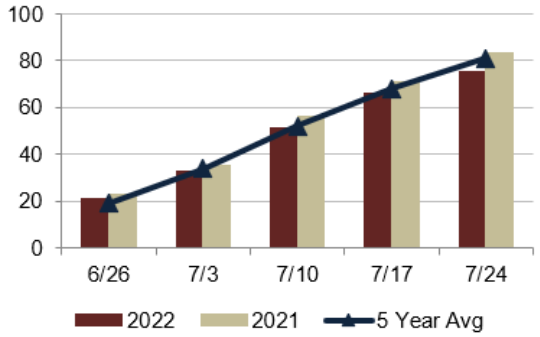
	This Week	Last Week	Last Year	5Yr Avg
PLANTED:				
Tobacco Burley	100	90	100	100
PHENOLOGICAL:				
Corn Silking	85	77	95	95
Corn Dough	56	43	60	65
Corn Dent	15	n/a	20	26
Cotton Squaring	76	67	79	87
Cotton Setting Bolls	35	19	38	49
Peanuts Pegging	75	66	83	81
Soybeans Blooming	64	52	52	48
Soybeans Setting Pods	35	25	27	26
HARVESTED:				
Barley	95	90	100	100
Hay: Second Cutting	37	30	47	58
Oats	95	85	97	98
Peaches	50	40	49	51

CROP CONDITION PERCENT

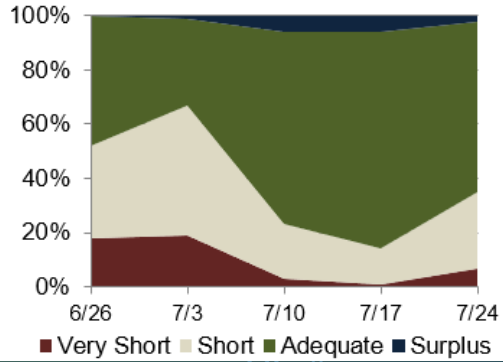
	VP	P	F	G	EX
Apples	0	0	24	71	5
Corn	21	21	28	24	6
Cotton	3	10	28	56	3
Hay	6	17	34	38	5
Pasture	5	12	46	32	5
Peaches	0	22	49	19	10
Peanuts	2	2	24	65	7
Sorghum	2	4	51	35	8
Soybeans	4	9	36	42	9
Sweet Potatoes	0	11	22	57	10
Tobacco Burley	0	0	47	53	0
Tobacco Flue-Cured	2	8	25	55	10

VP = Very Poor P = Poor F = Fair G = Good EX = Excellent

PEANUTS PEGGING



TOPSOIL MOISTURE PERCENT



http://www.ncagr.gov/stats/weather/weather.htm

Agriculture

NC State University
A&T State University
COOPERATIVE EXTENSION
Empowering People · Providing Solutions

USDA, NASS
North Carolina
Field Office
PO Box 27767
Raleigh, NC 27611
Phone (919) 856-4394
www.ncagr.gov/stats

CROP SUMMARY FOR THE WEEK ENDING NOVEMBER 13, 2016

DAYS SUITABLE FOR FIELD WORK

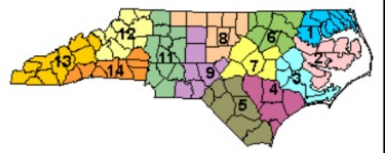
This Week	Last Week	Last Year	5-Year Avg.
6.7	6.7	3.4	5.1

SOIL MOISTURE PERCENT

	VS	ST	A	SS
Topsoil Moisture	15	20	58	7
Subsoil Moisture	8	20	63	9

VS= Very Short ST = Short A = Adequate SS = Surplus

NCDA &CS Regional Agronomist Territories



Rutherford County is extremely dry. Hay reserved for winter is being used for livestock and producers are waiting on rain to plant winter wheat. **Janice Nicholson – Rutherford County**

Extremely dry conditions continue with no measurable rainfall for the week. Temperatures were much cooler with lows primarily in the upper 20's with heavy frost most mornings this week. Conditions are ideal for wildfires with several fires burning in the area. Christmas tree harvest is now in full swing. **Stanley Holloway – Yancey County Extension**

Drought conditions exist in western North Carolina. 10-15% of small grain yet to be planted because farmers fear failure to survive dry conditions. Getting late to plant to ensure crop success even if conditions change. Small grain planted in October is struggling. Continued dry conditions for upcoming week. Minimal stockpiled grazing areas. Forage supplement feeding underway. **Dwayne Tate – Agronomist Region**

Continued extremely dry and unseasonably warm conditions. **Paige Burns – Richmond County Extension**

Very dry conditions affecting small grain stands. **Robin Watson – Agronomist Region 8**

Much needed rain arrived Monday November 14th. It will delay cotton and soybean harvest but is very helpful for the small grains. **Cathy Herring – Central Crops Station**

The county is very dry. Producers are feeding hay and may be short for the winter if we don't soon get rain. **Julia Houck – Ashe-Alleghany County Ext**

Drought conditions are delaying emergence of cover crops and forage crops that require moisture in the surface. This is a significant limitation in our sandy soils. **Taylor Williams – Moore County Extension**

Our current air is terrible quality due to burning of mass acreage in our county and we still have not had any rain to quell the issue. **Hannah Bundy – Rutherford County Extension**

6 weeks of dry weather have made conditions for wheat struggling to emerge. Most crops are out except soybeans. Soybean quality is down to drought and leaving in the field to long. **Gary Cross - Person County Extension**

Dry conditions allowed for multiple field activities this week. Great gains were made in soybean harvest and planting small grain crops. Considering rainfall levels obtained during the hurricane, dry weather has been good for allowing crops to dry down and for quick harvest of crops remaining in the field. Debris cleanup continues in hardest hit areas. **Georgia Love – Agronomist Region 5**

All small grains have been planted and have germinated but are in desired need for rainfall. Soil moistures have been depleted since the last rainfall from Hurricane Matthew. Livestock producers are feeding hay since pastures are beginning to decline. Very little rainfall is projected for the next 10 days here in the county. **Joey Knight – Caswell County Extension**

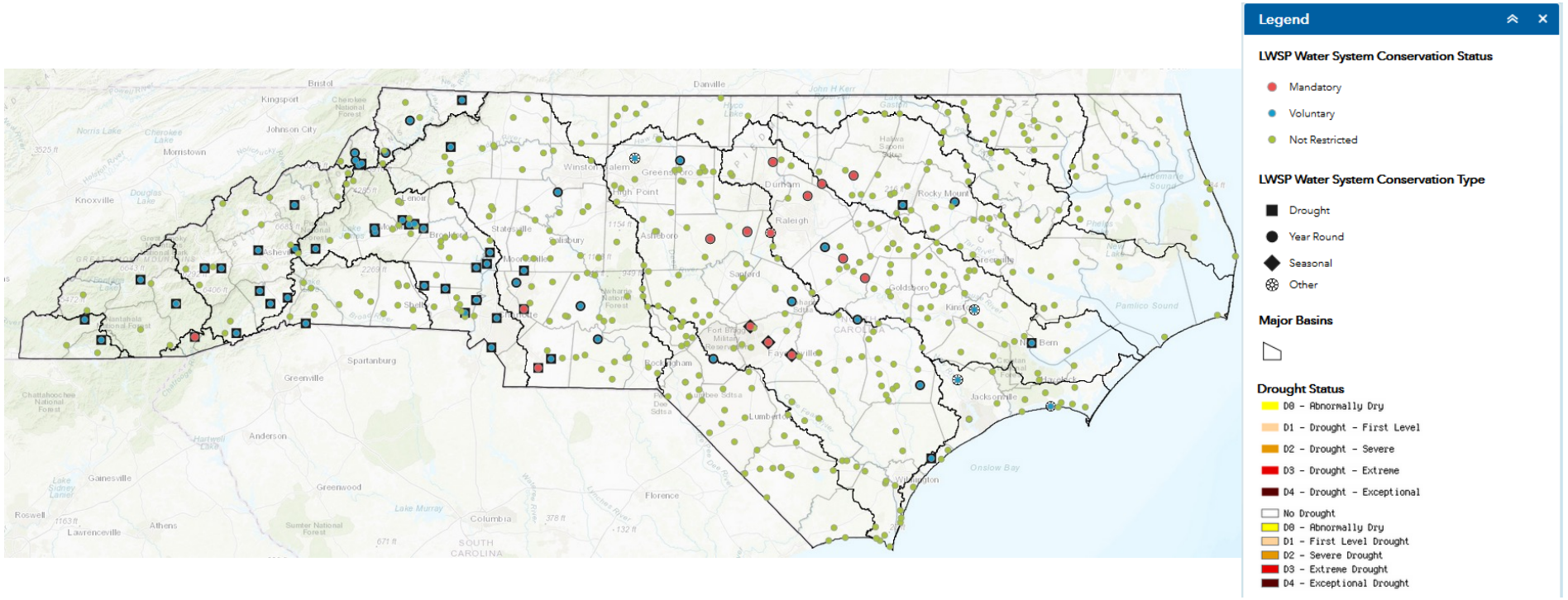
Conditions are good for soybean harvest. Some wheat will be planted but very little. **Daniel Simpson - Pamlico County Extension**

Very dry, no measurable precipitation in weeks. County has been smoke-filled because of wildfires in surrounding areas. **Milly Sandfoss – McDowell County Extension**

Great weather for harvest over the past 7 days. Wheat planting slowed due to dry conditions. **Tim Britton – Johnston County Extension**

Another dry week helped farmers get soybeans combined. Soybean yields are good to excellent across the county with the highest yields pushing 60 bushels per acre. Harvest of late planted soybeans is delayed due to maturity. Frost/freeze is needed to help finish these acres. Some wheat has been planted and early emergence looks good. Limited acres due to commodity prices. **Mark Seitz – Pender County Extension**

Water Systems Status



https://ncdenr.maps.arcgis.com/apps/webappviewer/index.html?id=9b8239e648674f1284b08bbce042b2f0m

NORTH CAROLINA
Drought Management
Advisory Council

NCDMAC Technical Teams' Comments

- Parts of the state received 2-3 inches of rain over the last week. Fortunately it actually coincided with our D1 areas this time. We suggest removing the two D1 blobs and reducing the D1 strip in NE NC.

- Good rain amounts occurred in the Granville/Franklin area NE of Charlotte and in the central coast so we recommend removing D0 from those areas.

- The areas from Randolph County east to Hoke/Harnett county have been getting drier over the last few weeks. For the most part, they received 0.5" or less this week so we recommend adding a bit of D0 in the southern Piedmont.

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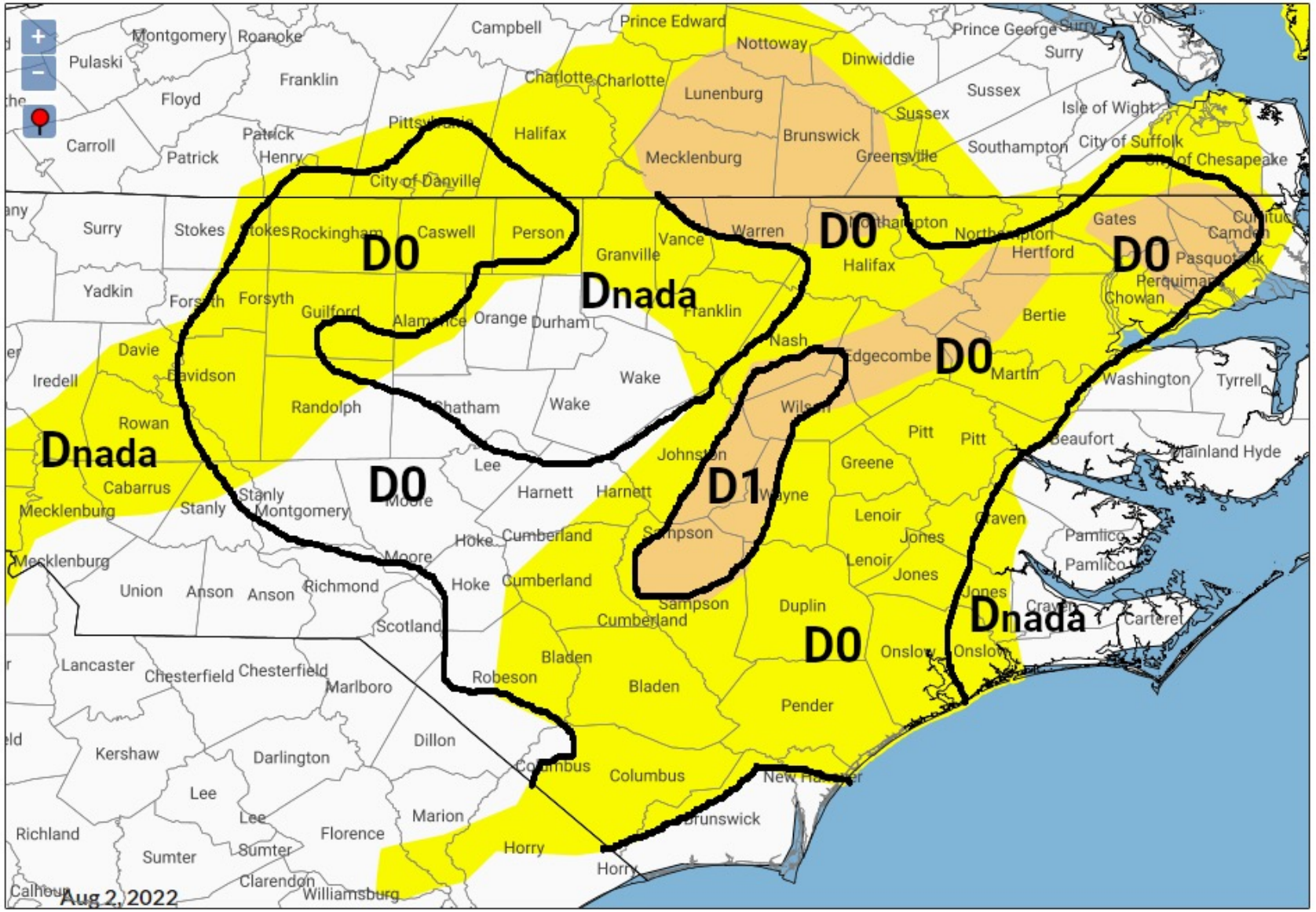
Recommended Map

DWR
Division of Water Resources



Adapted from Drought Author

U.S. Drought Monitor Classification Scheme

Category	Impact
D0	Pastures are dry; mild crop stress is noted; irrigation increases
	Lawns are brown
D1	Crop stress increases
	Hay production is reduced; producers feed hay to cattle early
	Wildfire danger is higher than the seasonal normal
	Increased signs of wildlife; trees and landscape are drought stressed
	Streamflow is reduced; lake and reservoirs levels decline
	Voluntary water conservation begins
D2	Dryland crop yields are low
	Wildfires are difficult to extinguish
	Swimming areas and boat ramps begin to close
	Voluntary and mandatory water use restrictions are implemented, people are asked to refrain from nonessential water use
D3	Hay is scarce, producers are purchasing outside of state; nitrate levels in forage are high
	Outdoor burn bans are implemented; wildfires are widespread
	Landscaping and greenhouse businesses lose revenue
	Aquatic wildlife is dying; fewer trout are stocked
	Hydropower generation decreases
	Voluntary conservation is requested even in sufficient water level areas; mandatory restrictions become more severe and fines are given to violators; stream levels are extremely low
D4	Producers sell cattle; hay shortages and crop loss occur; farmers are stressed
	Daily life is affected for all citizens; people pray for rain; drought education seminars increase
	Epizootic hemorrhagic disease is widespread in deer
	Reservoirs are low; officials are counting the days of remaining water supply; well water is low; residents are hauling water

NCDMAC Assessment Process

- The Council **will have expertise or responsibility** in **meteorology, ground water and surface water hydrology, water system operation** and **management, reservoir management, emergency response,** or **another subject area related to assessment and management of drought impacts**.
- The term used in looking at all factors is "**Convergence of Evidence**".
- **Weekly** Interagency Meetings
- Required to meet at least once in each calendar year in order to maintain appropriate agency readiness and participation

Questions?

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