

Groundwater Report

Drought Management
Advisory Council

Raleigh, NC

September 27, 2022

Mark Durway, Hydrogeologist
919-924-6400

mark.durway@ncdenr.gov

Groundwater Management Branch
Groundwater Resources Section



NC DMAC
Current Conditions Tab

[https://www.ncdrought.org/
current-conditions](https://www.ncdrought.org/current-conditions)



Groundwater Monitoring Network

DWR Well Network

- 235 groundwater monitoring stations
- 700 wells (multiple wells at each station)
- 68 of 100 counties have stations
- 65 drought wells (surficial aquifer, also referred to as the “water table”)
- 16 telemetry drought wells
- selected USGS and local network wells



Well Drilling Merchants Millpond State Park



Sample Collecting Merchants Millpond State Park



Typical Well Station Merchants Millpond State Park

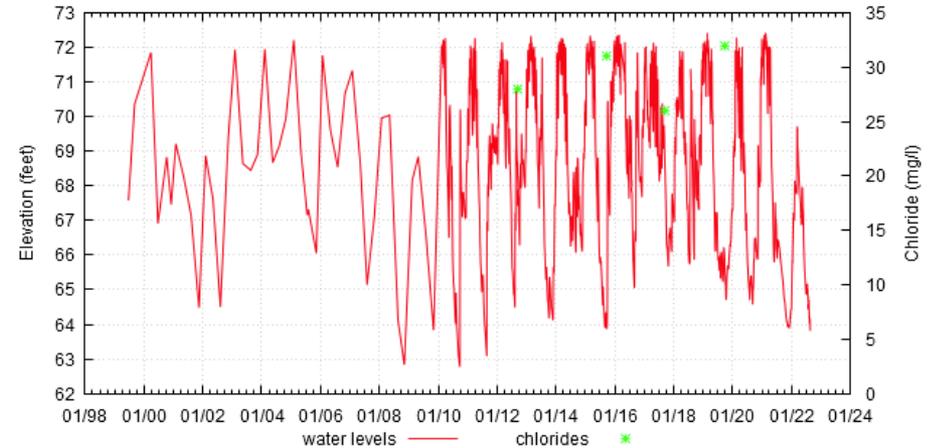


Example DIW (Roxobel, Bertie County)

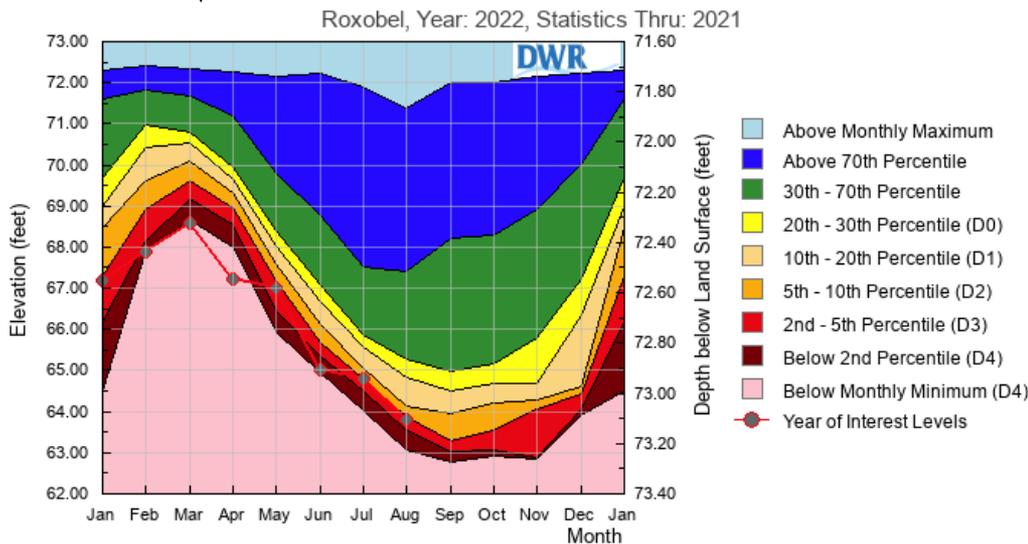
Water levels collected over time at various times of year can be seen in the time-series plot.

DWR Monitoring Well Database Detail for [F 22B7](#) -- Station W/Ls -- Pics -- Geo-Cons

HEADER	REDUCERS	CHLORIDES	WATER LEVELS	STS	RECORDERS	LAND OWNER	MONUMENT
	0 reducers	4 samples download chlorides	4580 water levels download water levels		Hobo30	susceptibility 3	installed 2010-06-08



Collapse that plot into a year's time and represent the distribution of historical data as colored, monthly percentile ranges.

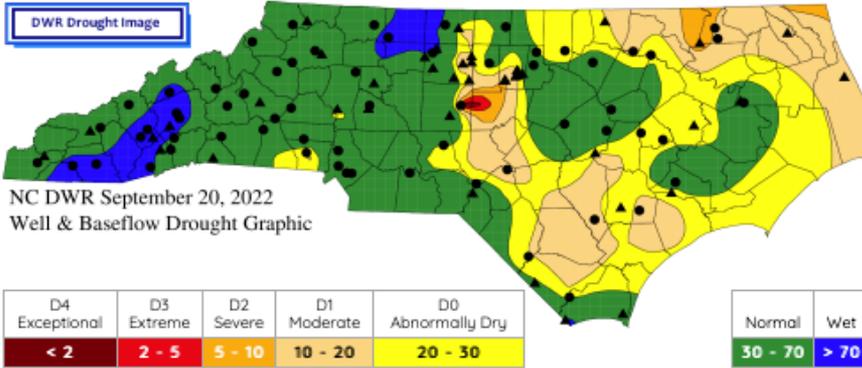


Now it's much easier to see how this year's water levels compare to that well's history of water levels.

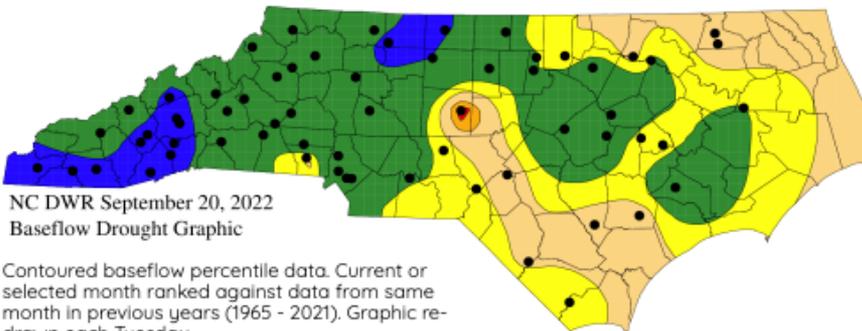


DWR Drought Image

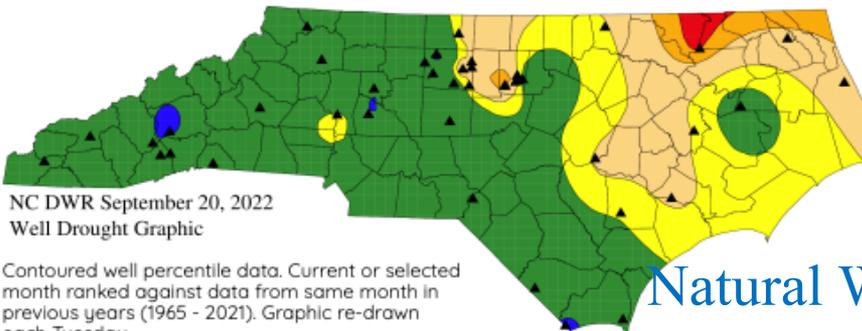
- Surface water gage data is filtered to create daily baseflow data – baseflow separation
- Latest baseflow values are ranked against historical baseflow data
- The resulting percentiles are contoured
- Similarly, latest ground water levels are ranked against historical ground water level data and the resulting percentiles are contoured
- The combined set of percentiles are contoured in the DWR Drought Image (top map)



Contoured baseflow (circles) and well (triangles) percentile data. Current or selected month ranked against data from same month in previous years (1965 - 2021). Graphic re-drawn each Tuesday.



Contoured baseflow percentile data. Current or selected month ranked against data from same month in previous years (1965 - 2021). Graphic re-drawn each Tuesday.



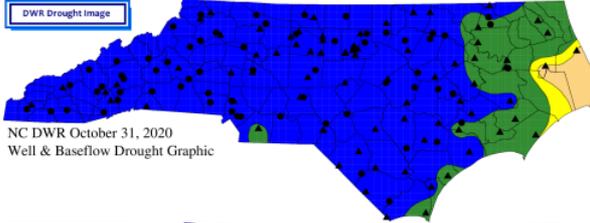
Contoured well percentile data. Current or selected month ranked against data from same month in previous years (1965 - 2021). Graphic re-drawn each Tuesday.

Natural Water  Storage Status



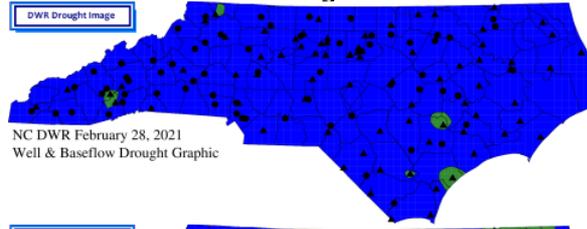
Last Year in Review

October 2020



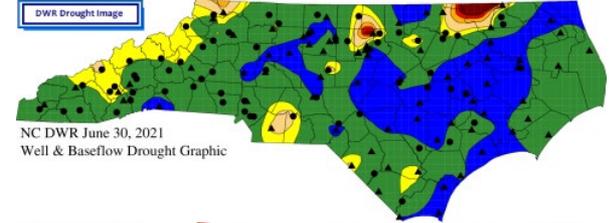
NC DWR October 31, 2020
Well & Baseflow Drought Graphic

February 2021

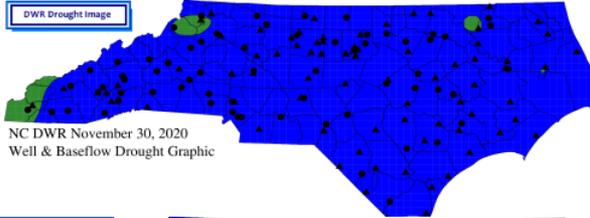


NC DWR February 28, 2021
Well & Baseflow Drought Graphic

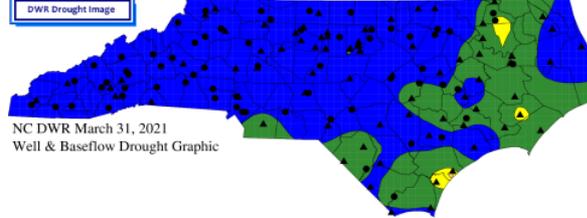
June 2021



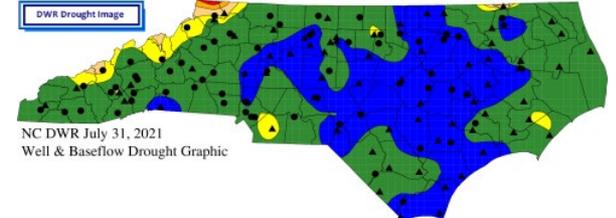
NC DWR June 30, 2021
Well & Baseflow Drought Graphic



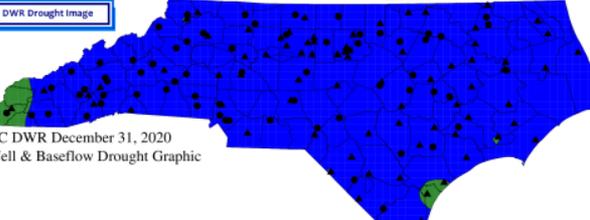
NC DWR November 30, 2020
Well & Baseflow Drought Graphic



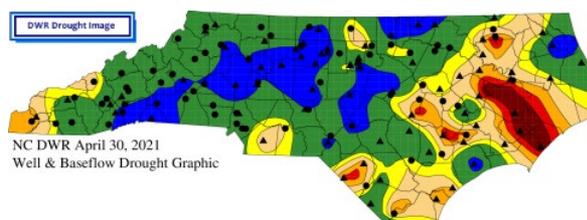
NC DWR March 31, 2021
Well & Baseflow Drought Graphic



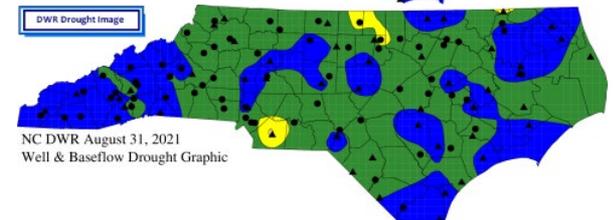
NC DWR July 31, 2021
Well & Baseflow Drought Graphic



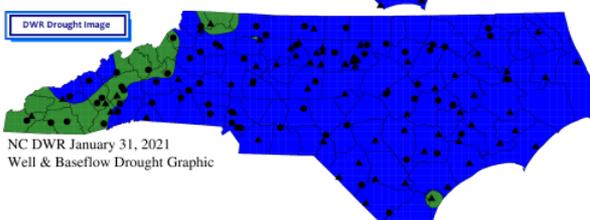
NC DWR December 31, 2020
Well & Baseflow Drought Graphic



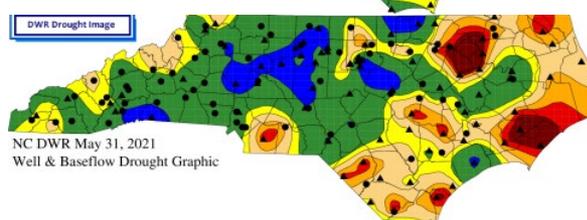
NC DWR April 30, 2021
Well & Baseflow Drought Graphic



NC DWR August 31, 2021
Well & Baseflow Drought Graphic



NC DWR January 31, 2021
Well & Baseflow Drought Graphic



NC DWR May 31, 2021
Well & Baseflow Drought Graphic



NC DWR September 14, 2021
Well & Baseflow Drought Graphic

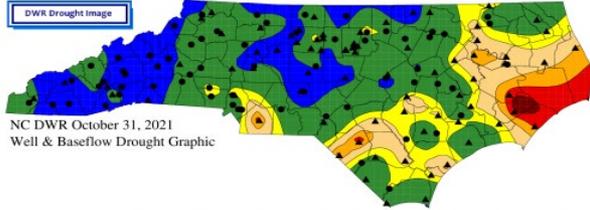
January 2021

May 2021

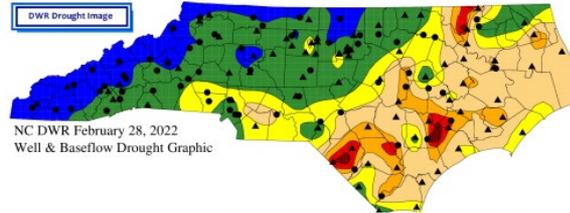
September 2021

Current Year in Review

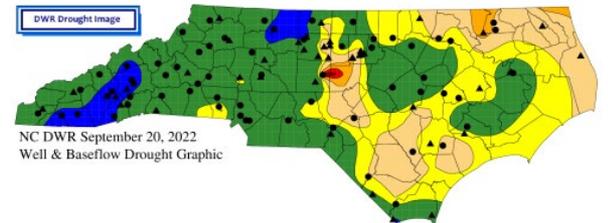
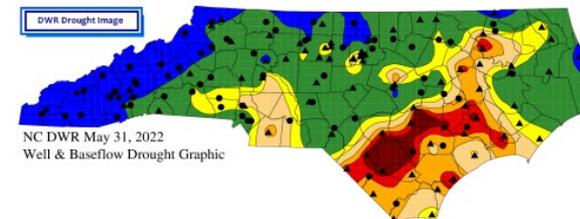
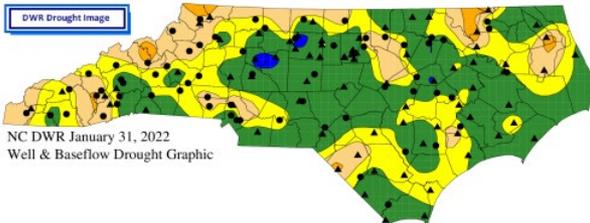
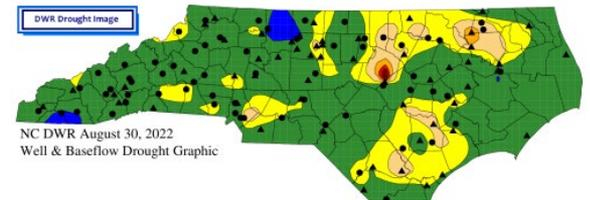
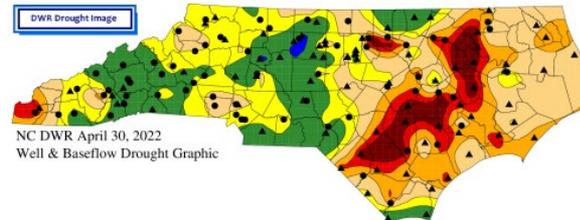
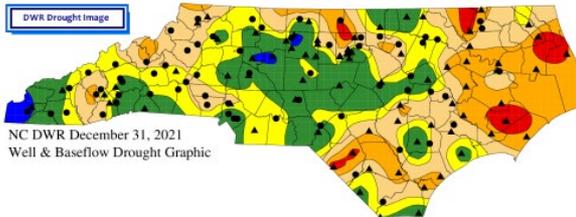
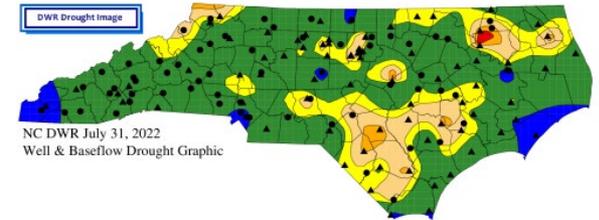
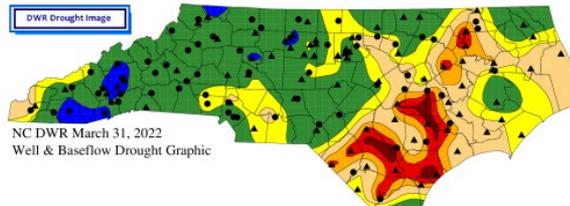
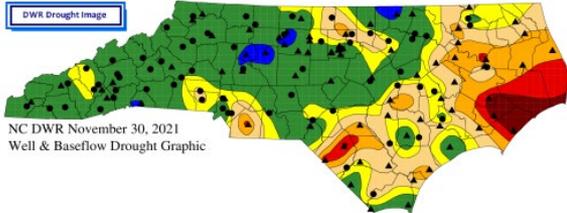
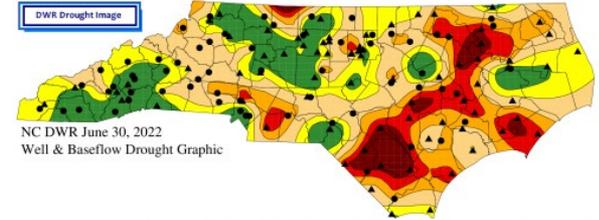
October 2021



February 2022



June 2022



January 2022

May 2022

September 2022

What's Next?



Topsail Beach Station
Pender County

Adding wells

- Adding new wells with another USGS grant

Upgrading Telemetry System

- Making software upgrades to our 16 telemetry wells

Collaborating with NCGS

- Working with the NC Geological Survey on a 3-D state geologic map

