VIRGINIA DROUGHT MONITORING TASK FORCE
Drought Status Report
June 20, 2024

Summary

On Thursday June 20, 2024, the Virginia Drought Monitoring Task Force (DMTF) met to discuss the drought indicators identified by the Virginia Drought Assessment and Response Plan. Precipitation deficits in combination with increased temperatures have resulted in rapid intensification of drought throughout the majority of the Commonwealth. Significant declines in surface and groundwater indicators throughout the past fourteen-day period have occurred, with much below normal observations within the Northern Virginia and Shenandoah drought evaluation regions. Soil moisture within the 0-100cm range show exceptional dryness occurring throughout the majority of the state west of I-81 and in the Shenandoah Valley. The 8-14 day outlook forecasts much above average temperatures and below normal precipitation, further intensifying drought conditions.

Due to below normal precipitation and continued declines of surface and groundwater indicators the Task Force recommends Drought Watch for the following regions:

- Big Sandy
- Middle James
- New River
- Northern Piedmont
- Roanoke River
- Upper James
- Chowan
- Eastern Shore
- Northern Coastal Plain
- Southeast Virginia
- York-James

Due to rapid declines in surface and groundwater indicators, reported impacts to agriculture, and increased temperatures forecasted the Task Force recommends a Drought Warning declaration for the following regions:

- Shenandoah
- Northern Virginia

The DMTF reviewed the status of drought monitoring and hydrologic conditions in the Commonwealth of Virginia. Precipitation over the past 30-60 day period show localized rainfall events within the far southwest corner of the state. Precipitation percent of normal over the 30-60 day period shows exceptional dryness within the Shenandoah Valley and Piedmont regions, with the majority of Virginia much below normal. Area-average rainfall since the beginning of the current water year (October 1, 2023) has remained below long-term normal values for the Big Sandy drought evaluation region (see DEQ website for more info on drought indicators). The Task Force will continue closely monitoring drought indicator and is scheduled to meet on July 1, 2024.

Streamflow over the past 14-day period has shown widespread declines throughout the Commonwealth. Flows are currently below the 25th percentile for 10 of the 13 drought evaluation regions, with the Roanoke within the 25th percentile and declining. Three regions are currently bel ow the 10th percentile including the Shenandoah, Chowan, and Big Sandy.

Groundwater levels for monitoring wells in the Climate Response Network have shown continued declines within many northern, central, and eastern portions of the state. Five regions are currently below the 25th percentile including the Big Sandy, Upper James, Northern Piedmont, Northern Coastal Plain, and Southeast. Levels are currently below the 5th percentile for five of 13 drought evaluation regions including Shenandoah, Roanoke, New River, York James, and Northern Virginia. Additionally, two of 13 drought evaluation regions are below the 25th percentile including the Eastern Shore and Big Sandy.

Storage at major water supply reservoirs throughout Virginia remain within normal ranges at this time.

The most recent weekly U.S. Drought Monitor (USDM) web page map for Virginia (Appendix A, released June 18, 2024) showed abnormally dry (D0) conditions mapped across approximately 95% of the Commonwealth, and moderate drought (D1) conditions mapped across approximately 24% of the Commonwealth. Appendix B includes presentations from the United States Geological Survey and National Weather Service

Reports

The U.S. Army Corps of Engineers (USACE) reported that Lake Moomaw (Philpott Lake) and J. H. Kerr Reservoir have received below normal inflows over the past month. J. H. Kerr Reservoir is currently approximately 1ft below guide curve elevation.

Virginia Department of Agriculture and Consumer Services

Producers in the Shenandoah Valley, Northern, and Eastern Shore regions of the Commonwealth report negative impacts from dry conditions. In these areas, pastures are in poor condition, with hay feeding occurring as a supplement. Additionally, corn and soybean crops throughout these regions are beginning to show signs of stress

As widespread impacts to producers throughout the Commonwealth have been experienced information regards assistance programs was provided by VDACS.

Information regarding the U.S. Department of Agriculture's Disaster Assistance Programs is available here: https://www.fsa.usda.gov/programs-and-services/disaster-assistance-program/index.

Information regarding the federal disaster declaration process is available here: https://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdafiles/FactSheets/emergency_disaster_designation_declaration_process-factsheet.pdf
Contact information for each locality's USDA Farm Service Agency office can be found by clicking-through the map available here: https://offices.sc.egov.usda.gov/locator/ap

Virginia Department of Environmental Quality

The DEQ report presents a map of current conditions of DEQ Drought Indicators, and summary of current conditions at the four large multi-purpose reservoirs listed as key reservoir storage indicators in the Virginia Drought Assessment and Response Plan.

Smith Mountain Lake on the Staunton River in the Roanoke drought evaluation region was observed at an adjusted elevation of 794.47 feet, which is 1.47 feet above Watch level (793 ft). The adjusted elevation is the level the lake would be if the water currently held in the lower Leesville Lake for reuse were pumped back into Smith Mountain Lake. Recent 7, 14, and 28-day inflows were below normal for this time of year.

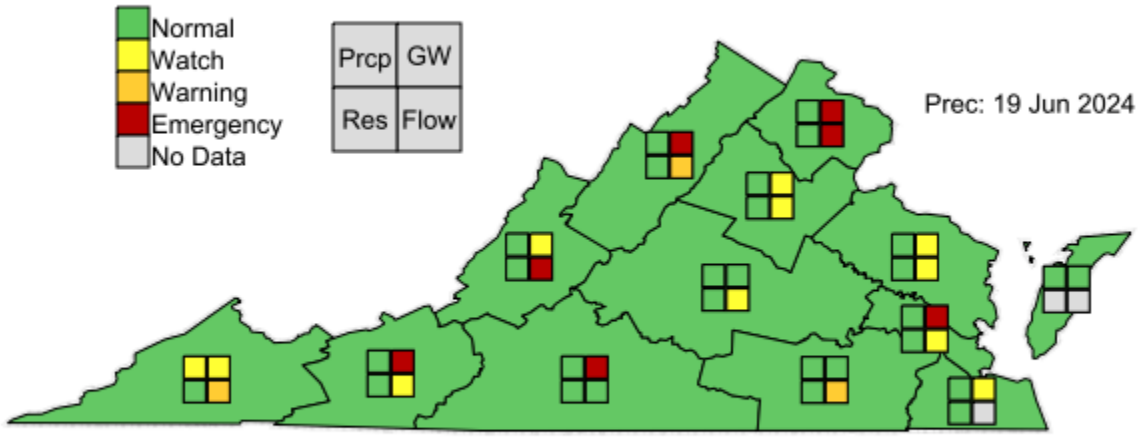
Lake Moomaw at Gathright Dam on the Jackson River in the Upper James drought evaluation region was observed at an elevation of 1579.51 feet, which is 14 feet above Watch level (1565 ft). Recent 7, 14, and 28-day average inflows were much below normal for this time of year.

Lake Anna on the North Anna River in the Northern Piedmont drought evaluation region was observed at an elevation of 249.7 feet, which is 1.7 feet above Watch level (248 ft). Recent 7, 14, and 28-day inflows were below normal for this time of year.

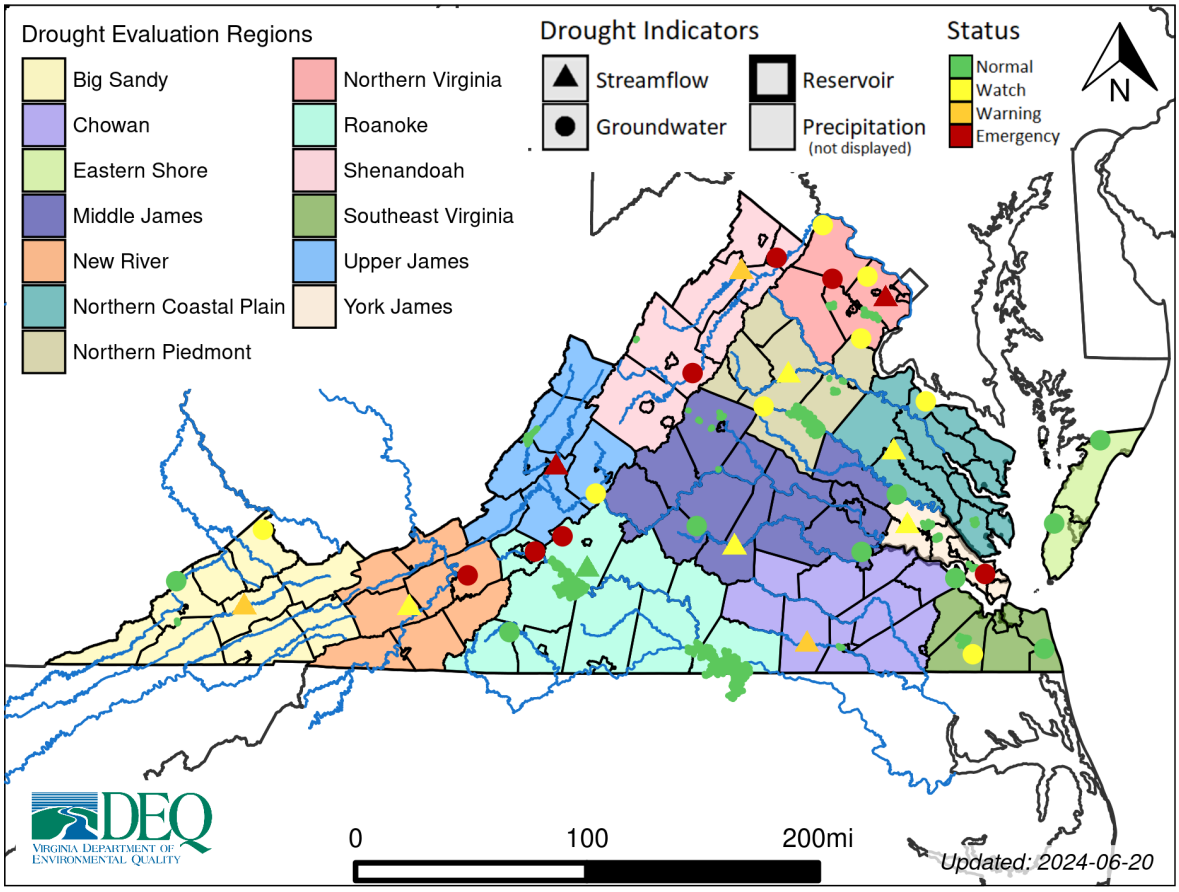
J. H. Kerr Reservoir on the Staunton River in the Roanoke drought evaluation region was observed at an elevation of 299.94ft, which was 1.86ft below the guide curve elevation for this time period (301.8 feet) and 1.14ft above the Watch level (Watch level is 3 to 6 ft below guide curve). Recent 7, 14, and 28-day inflows were below normal for this time of year.

DEQ Daily Drought Status Summary: 06/20/2024

Drought Summary Map:



Drought Indicator Map:



Regional Drought Response:

#	Region	Reduction Type	Target Reduction %
1	Eastern Shore	none	none
2	Big Sandy	none	none
3	Upper James	none	none
4	Roanoke	none	none
5	Southeast Virginia	none	none
6	Northern Coastal Plain	none	none
7	New River	none	none
8	Middle James	none	none
9	Chowan	none	none
10	York James	none	none
11	Northern Virginia	none	none
12	Northern Piedmont	none	none
13	Shenandoah	none	none

Precipitation Indicators:

#	Region	Start Date	End Date	Water Year % of Normal	Status
1	Big Sandy	10/1/2023	6/19/2024	82.98	Watch
2	Eastern Shore	10/1/2023	6/19/2024	84.26	Normal
3	New River	10/1/2023	6/19/2024	90.11	Normal
4	Roanoke	10/1/2023	6/19/2024	90.47	Normal
5	Upper James	10/1/2023	6/19/2024	92.05	Normal
6	Northern Piedmont	10/1/2023	6/19/2024	95.69	Normal
7	Middle James	10/1/2023	6/19/2024	97.08	Normal
8	Shenandoah	10/1/2023	6/19/2024	99.1	Normal
9	Northern Virginia	10/1/2023	6/19/2024	104.63	Normal
10	Southeast Virginia	10/1/2023	6/19/2024	106.12	Normal
11	Northern Coastal Plain	10/1/2023	6/19/2024	106.92	Normal
12	York James	10/1/2023	6/19/2024	116.38	Normal
13	Chowan	10/1/2023	6/19/2024	118.9	Normal

Surface Water Indicators:

#	Region	Gage Name	Start Date	End Date	Percentile	Status
1	Upper James	COWPASTURE RIVER NEAR CLIFTON FORGE, VA	6/13/2024	6/19/2024	4.5	Emergency
2	Northern Virginia	ACCOTINK CREEK NEAR ANNANDALE, VA	6/13/2024	6/19/2024	4.97	Emergency
3	Shenandoah	N F SHENANDOAH RIVER NEAR STRASBURG, VA	6/13/2024	6/19/2024	8.68	Warning
4	Chowan	MEHERRIN RIVER NEAR LAWRENCEVILLE, VA	6/13/2024	6/19/2024	9.49	Warning
5	Big Sandy	CLINCH RIVER AT CLEVELAND, VA	6/13/2024	6/19/2024	9.6	Warning
6	York James	CHICKAHOMINY RIVER NEAR PROVIDENCE FORGE, VA	6/13/2024	6/19/2024	12.58	Watch
7	Northern Coastal Plain	MATTAPONI RIVER NEAR BEULAHVILLE, VA	6/13/2024	6/19/2024	13.5	Watch
8	Middle James	APPOMATTOX RIVER AT FARMVILLE, VA	6/13/2024	6/19/2024	15.57	Watch
9	Northern Piedmont	RAPIDAN RIVER NEAR CULPEPER, VA	6/13/2024	6/19/2024	17.28	Watch
10	New River	REED CREEK AT GRAHAMS FORGE, VA	6/13/2024	6/19/2024	18.65	Watch
11	Roanoke	GOOSE CREEK NEAR HUDDLESTON, VA	6/13/2024	6/19/2024	25.43	Normal

Groundwater Indicators:

#	Region	Well Name	Start Date	End Date	Percentile	Status
1	New River	Christiansburg DEQ Observation Well (27F 2 SOW 019)	6/13/2024	6/19/2024	0.0	Emergency
2	Northern Virginia	Prince William County USGS Observation Well (49V 1)	6/13/2024	6/19/2024	0.0	Emergency
3	Roanoke	Bedford County USGS Observation Well (33G 1 SOW 224)	6/13/2024	6/19/2024	3.33	Emergency
4	Roanoke	Roanoke-Nelson DEQ Observation Well (31G 1 SOW 008)	6/13/2024	6/19/2024	0.5	Emergency
5	Shenandoah	Blandy Farm USGS Observation Well (46W 175)	6/13/2024	6/19/2024	3.78	Emergency
6	Shenandoah	McGaheysville USGS Observation Well (41Q 1)	6/13/2024	6/19/2024	4.97	Emergency
7	York James	York County DEQ Observation Well (59F74 SOW 184C)	6/13/2024	6/19/2024	0.0	Emergency
8	Big Sandy	Buchanan County USGS Observation Well (15G 19 SOW 222)	6/13/2024	6/19/2024	14.35	Watch
9	Northern Coastal Plain	George Washington Birthplace USGS Observation Well (55P 9)	6/13/2024	6/19/2024	16.1	Watch
10	Northern Piedmont	Gordonsville DEQ Observation Well (45P 1 SOW 030)	6/13/2024	6/19/2024	21.95	Watch
11	Northern Virginia	Fairfax County USGS Observation Well (52V 2D)	6/13/2024	6/19/2024	16.29	Watch
12	Northern Virginia	Prince William County USGS Observation Well (51S 7)	6/13/2024	6/19/2024	12.2	Watch
13	Northern Virginia	Harper's Ferry DEQ Observation Well (49Y 1 SOW 022)	6/13/2024	6/19/2024	12.55	Watch
14	Southeast Virginia	Brinkley USGS Observation Well (58B 13)	6/13/2024	6/19/2024	22.05	Watch
15	Upper James	Glasgow DEQ Observation Well (35K 1 SOW 063)	6/13/2024	6/19/2024	19.67	Watch
16	Big Sandy	U.S. Forest Service - SOW 223 Cane Patch Well	6/13/2024	6/19/2024	100.0	Normal
17	Chowan	Slade Farm DEQ Observation Well (57E 31 SOW 094C)	6/13/2024	6/19/2024	61.11	Normal
18	Eastern Shore	Withams DEQ Observation Well (66M 19 SOW 110S)	6/13/2024	6/19/2024	31.48	Normal
19	Eastern Shore	P. C. Kellam DEQ Observation Well (63H 6 SOW 103A)	6/13/2024	6/19/2024	62.5	Normal
20	Middle James	Buckingham USGS Observation Well (41H 3)	6/13/2024	6/19/2024	47.82	Normal
21	Middle James	Colonial Heights USGS Observation Well (51G 1)	6/13/2024	6/19/2024	77.0	Normal
22	Roanoke	Fairystone State Park USGS Observation Well (30C 1 SOW 010)	6/13/2024	6/19/2024	27.91	Normal
23	Southeast Virginia	Pungo DEQ Observation Well (62B 1 SOW 098A)	6/13/2024	6/19/2024	47.86	Normal
24	York James	Hanover County DEQ Observation Well (53K 19 SOW 080)	6/13/2024	6/19/2024	80.66	Normal

Reservoir Indicators:

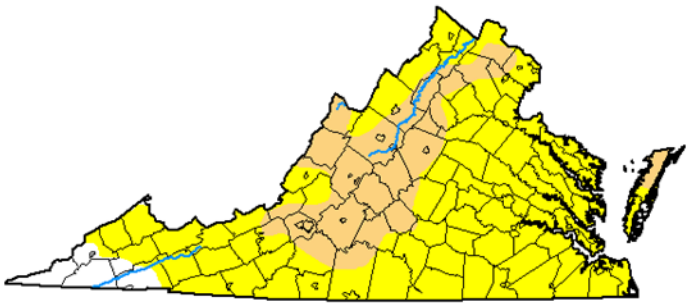
Note, these reservoir statuses require manual review as they are NOT automated at this time

#	Region	Reservoir	Date	Status
1	Big Sandy	Big Cherry Reservoir	06/20/2024	Normal
2	Chowan	Emporia Reservoir	06/20/2024	Normal
3	Middle James	Beaver Creek Reservoir	06/20/2024	Normal
4	Middle James	Totier Creek Reservoir	06/20/2024	Normal
5	Middle James	Ragged Mountain	06/20/2024	Normal
6	Middle James	Sugar Hollow	06/20/2024	Normal
7	Middle James	Lake Moomaw	06/20/2024	Normal
8	Middle James	South Fork Rivanna River Reservoir	06/20/2024	Normal
9	Northern Coastal Plain	Beverdam Reservoir	06/20/2024	Normal
10	Northern Piedmont	Hunting Run Reservoir	06/20/2024	Normal
11	Northern Piedmont	Motts Run Reservoir	06/20/2024	Normal
12	Northern Piedmont	Lake Anna	06/20/2024	Normal
13	Northern Piedmont	Ni River Reservoir	06/20/2024	Normal
14	Northern Virginia	Lake Manassas	06/20/2024	Normal
15	Northern Virginia	Occoquan Reservoir	06/20/2024	Normal
16	Roanoke	Smith Mountain Lake	06/20/2024	Normal
17	Roanoke	Kerr Reservoir	06/20/2024	Normal
18	Shenandoah	Skidmore Fork Lake (Switzer Lake)	06/20/2024	Normal
19	Southeast Virginia	Lake Cohoon	06/20/2024	Normal
20	Southeast Virginia	Lake Kilby	06/20/2024	Normal
21	Southeast Virginia	Speights Run Reservoir	06/20/2024	Normal
22	Southeast Virginia	Lake Meade	06/20/2024	Normal
23	Southeast Virginia	Kerr Reservoir	06/20/2024	Normal
24	Upper James	Lake Moomaw	06/20/2024	Normal
25	York James	Diascund Creek Reservoir	06/20/2024	Normal
26	York James	Lee Hall - City Reservoir	06/20/2024	Normal
27	York James	Harwoods Mill Reservoir	06/20/2024	Normal
28	York James	Little Creek Reservoir	06/20/2024	Normal
29	York James	Skiffes Creek Reservoir	06/20/2024	Normal

Appendix A

U.S. Drought Monitor

Virginia



June 18, 2024

(Released Thursday, Jun. 20, 2024)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	4.46	95.54	24.57	0.00	0.00	0.00
Last Week *06-11-2024*	62.95	37.05	0.00	0.00	0.00	0.00
3 Months Ago *03-19-2024*	100.00	0.00	0.00	0.00	0.00	0.00
Start of Calendar Year *01-02-2024*	31.65	68.35	34.77	4.07	0.00	0.00
Start of Water Year *09-26-2023*	51.40	48.60	24.99	6.12	0.00	0.00
One Year Ago *06-20-2023*	35.92	64.08	26.19	0.42	0.00	0.00

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

Author:

Richard Tinker

CPC/NOAA/NWS/NCEP

droughtmonitor.unl.edu

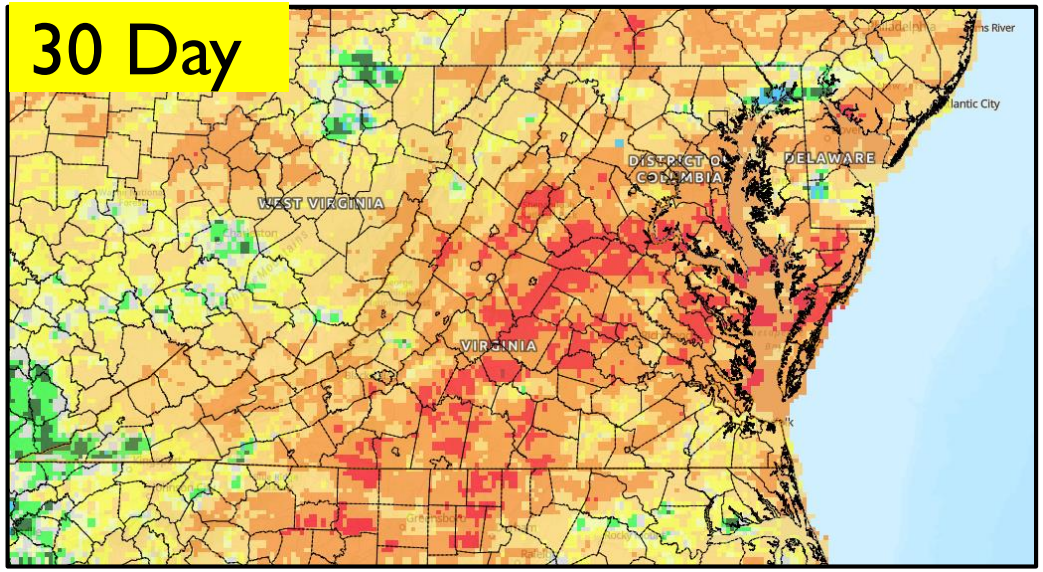
Appendix B

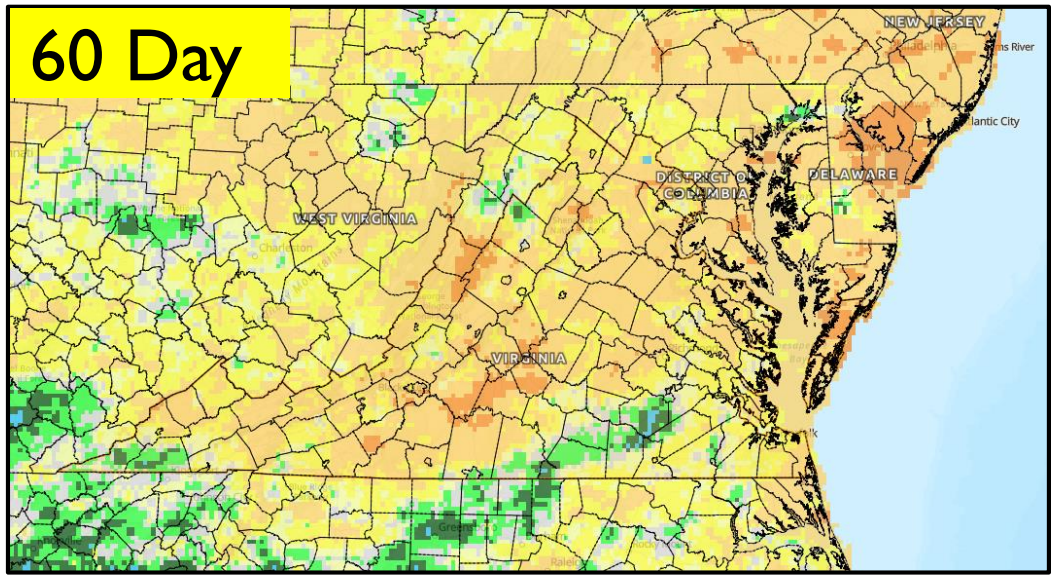
VA Drought Monitoring Task Force

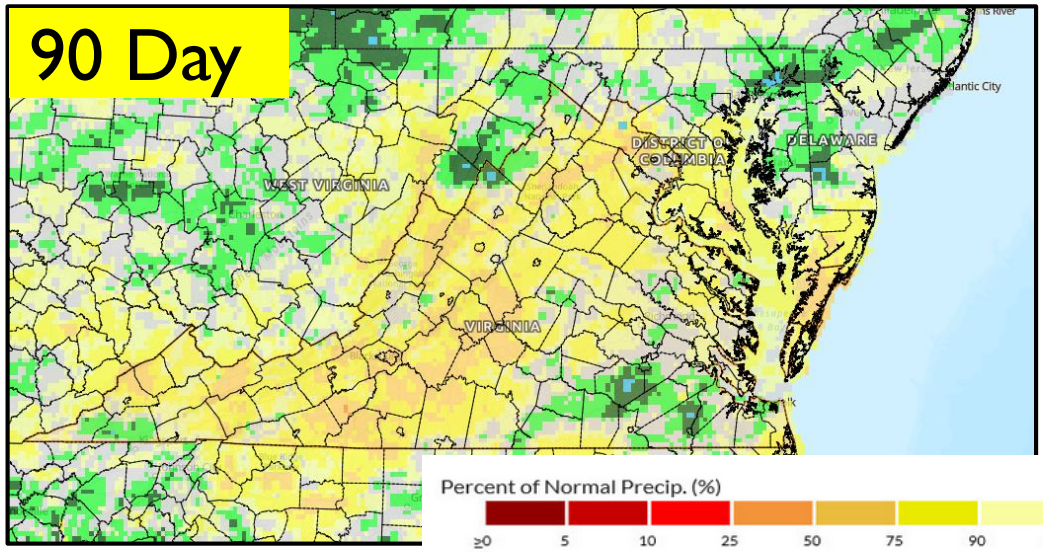
Jonathan McGee
National Weather Service – Wakefield, VA
June 20, 2024

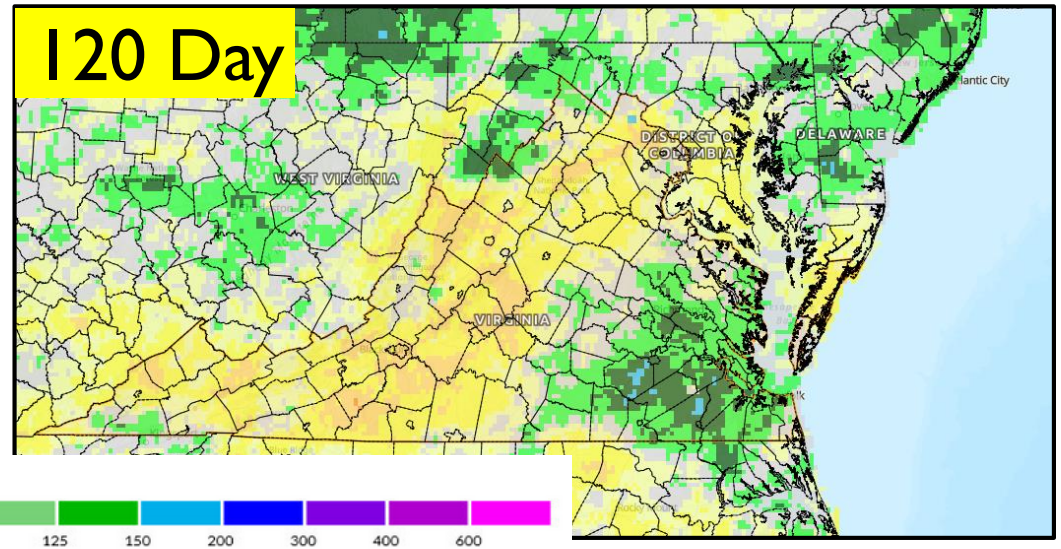
Percent of Normal Precipitation

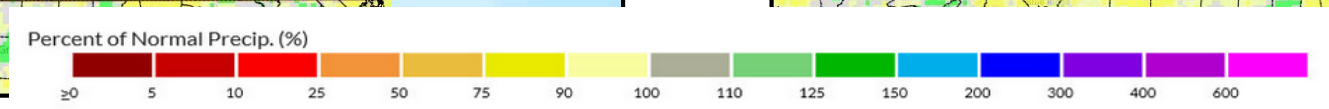
Wakefield, VA
WEATHER FORECAST OFFICE





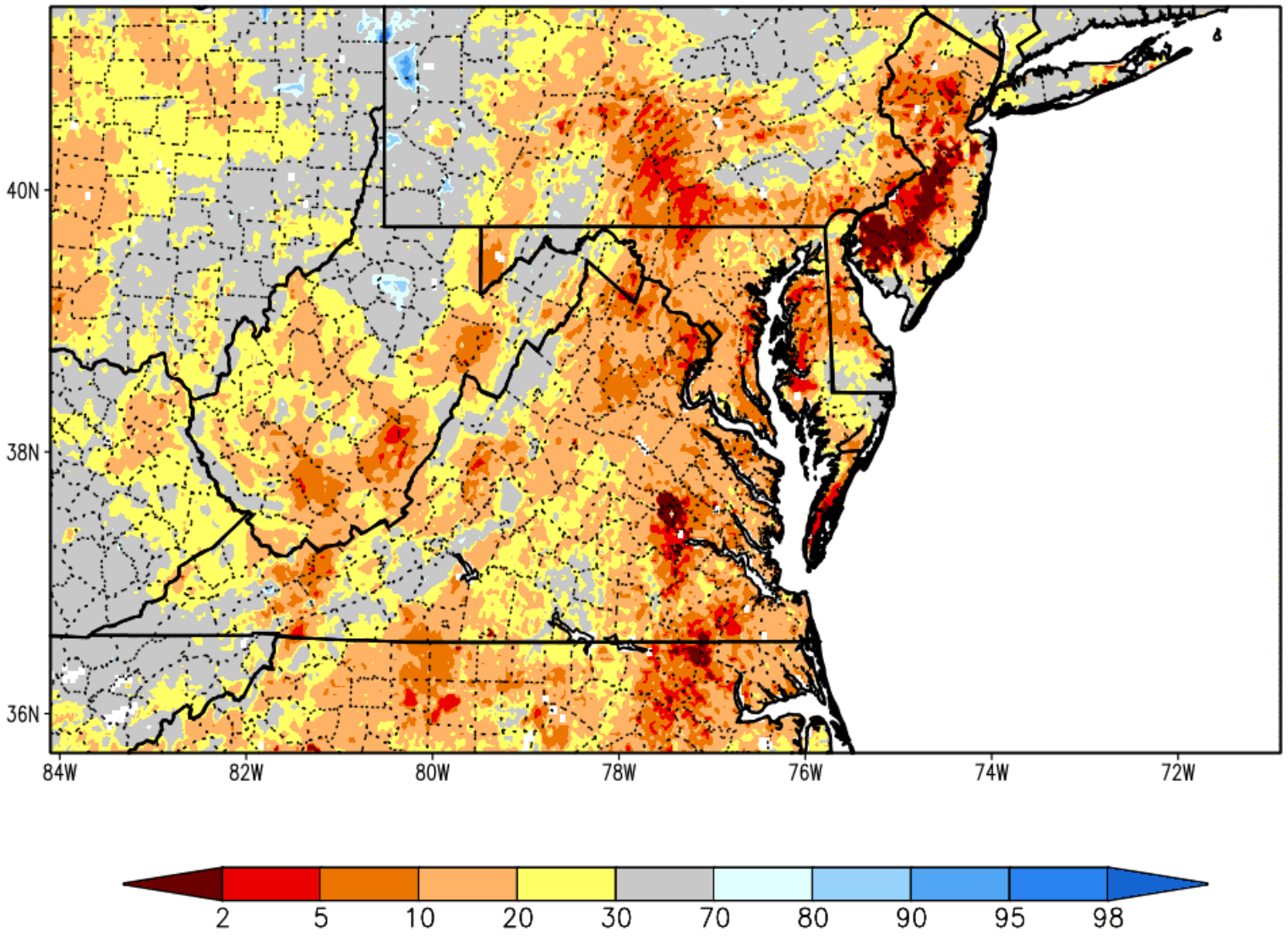






Soil Moisture Percentile (0-1 meter)

Wakefield, VA
WEATHER FORECAST OFFICE



Drought Monitor (As of June 20th)

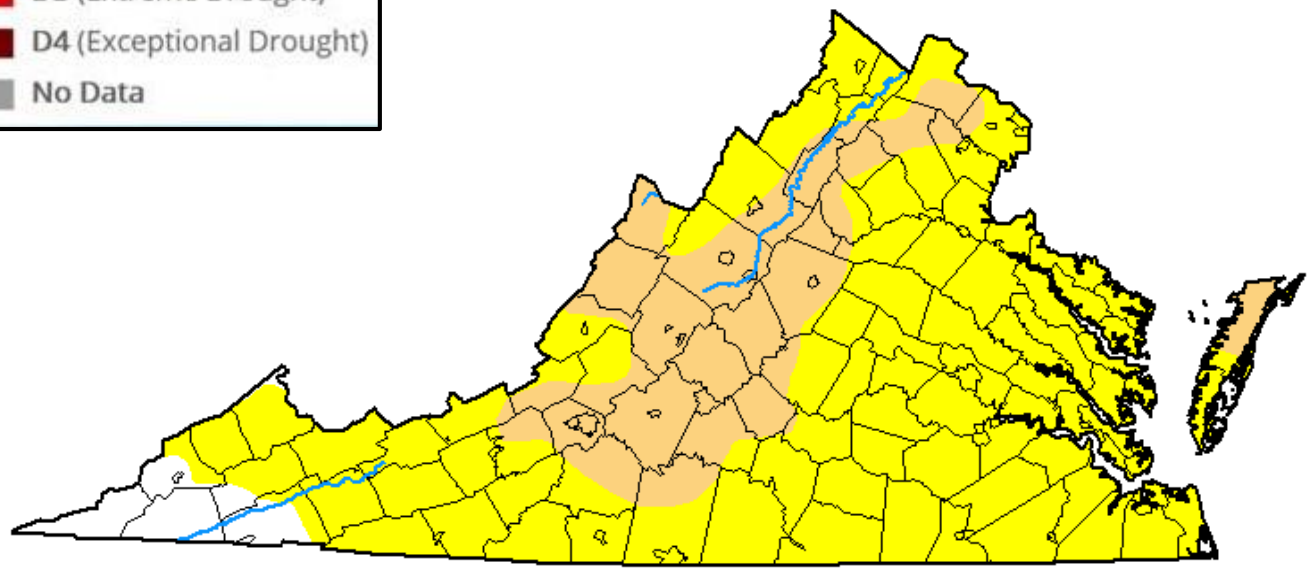
For more info, visit: droughtmonitor.unl.edu

Wakefield, VA

WEATHER FORECAST OFFICE

Intensity:

- None
- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)
- No Data



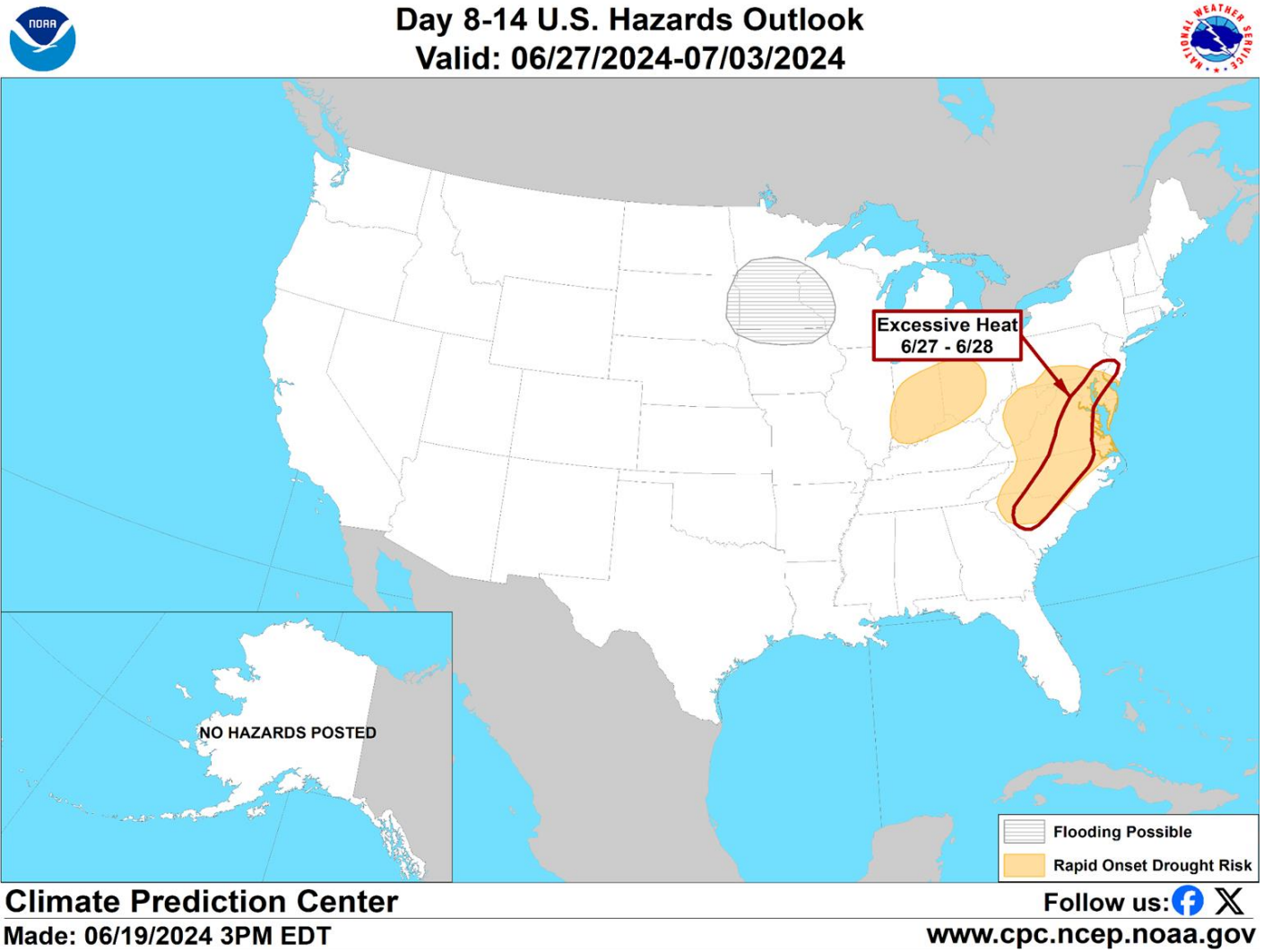
Potential Impacts

Category	Impact
D0	Crop growth is stunted; planting is delayed
	Fire danger is elevated; spring fire season starts early
	Lawns brown early; gardens begin to wilt
	Surface water levels decline
D1	Irrigation use increases; hay and grain yields are lower than normal
	Honey production declines
	Wildfires and ground fires increase
	Trees and landscaping are stressed; fish are stressed
	Voluntary water conservation is requested; reservoir and lake levels are below normal capacity
D2	Specially crops are impacted in both yield and fruit size
	Producers begin feeding cattle; hay prices are high
	Warnings are issued on outdoor burns; air quality is poor
	Golf courses conserve water
	Trees are brittle and susceptible to insects
	Fish kills occur; wildlife move to farms for food
	Water quality is poor; groundwater is declining; irrigation ponds are dry; outdoor water restrictions are implemented
D3	Crop loss is widespread; Christmas tree farms are stressed; dairy farmers are struggling financially
	Well drillers and bulk water haulers see increased business
	Water recreation and hunting are modified; wildlife disease outbreak is observed
	Extremely reduced flow to ceased flow of water is observed; river temperatures are warm; wells are running dry; people are digging more and deeper wells

Flash Drought Developing

June 20, 2024
9:19 AM

For more info, visit: drought.gov or cpc.ncep.noaa.gov

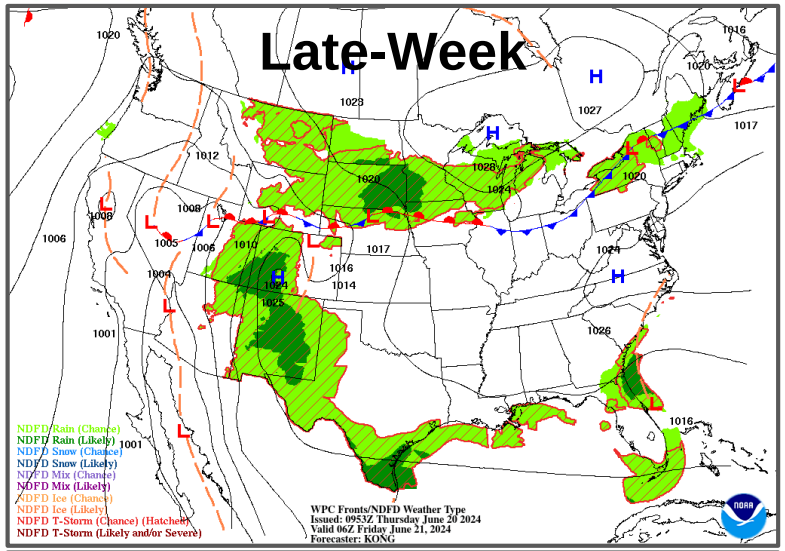


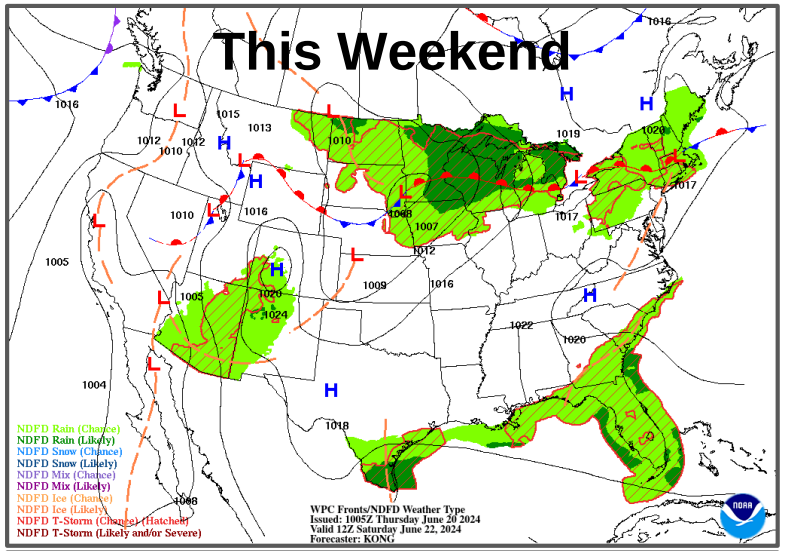
What is Flash Drought?

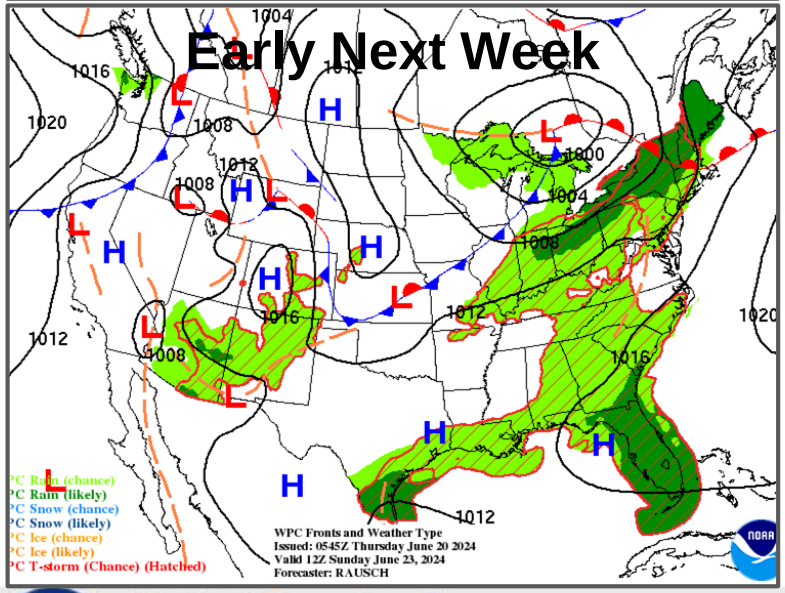
- Flash drought is the rapid onset or intensification of drought. It is set in motion by lower-than-normal rates of precipitation, accompanied by abnormally high temperatures, winds, and radiation.
- Higher temperature increases evapotranspiration and further lowers soil moisture, which decreases rapidly as drought conditions continue.
- Changes in soil moisture that accompany flash drought can cause extensive damage to agriculture, economies, and ecosystem goods and services.

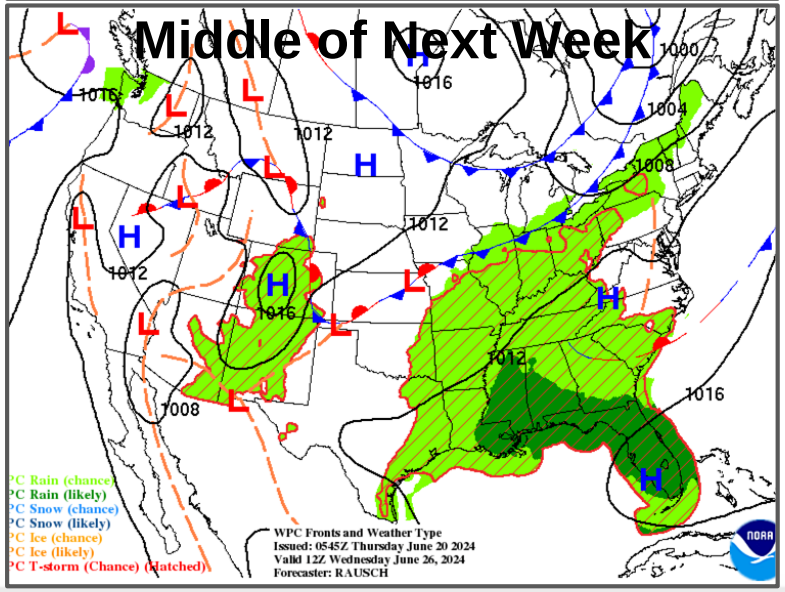
This Week's Weather Pattern

June 20, 2024
9:19 AM









Key Points:

- Dry weather with increasing heat and humidity is expected through the weekend.
- A cold front will bring the chance for scattered showers and thunderstorms late Sunday or Sunday night into Monday.
- Another opportunity for rain comes during the middle of next week.

Precipitation Forecasts

Courtesy of the Weather Prediction Center (www.wpc.ncep.noaa.gov)

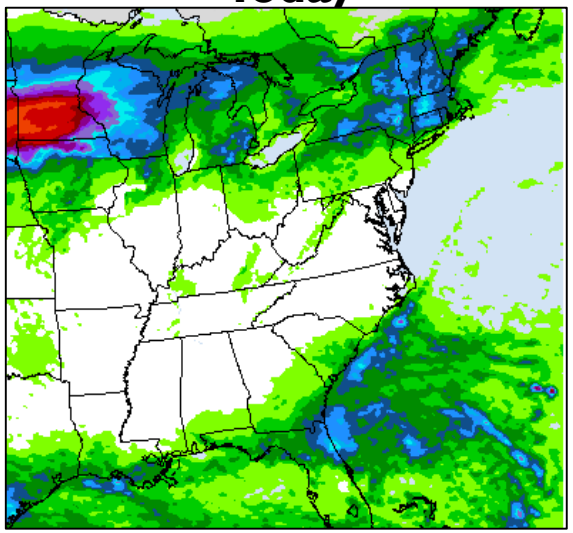
Wakefield, VA

WEATHER FORECAST OFFICE

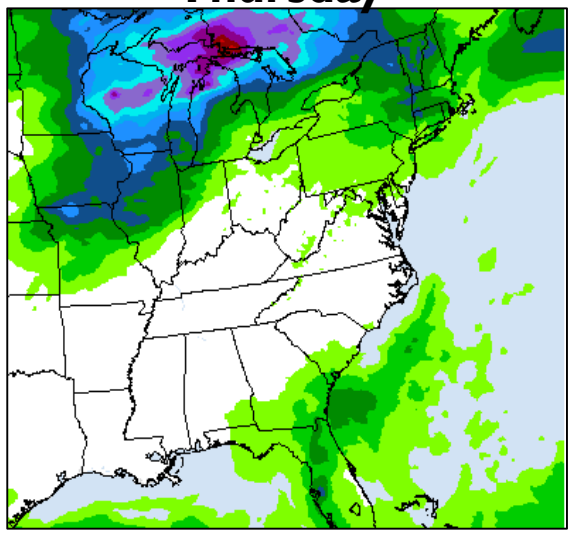
Forecast Daily Rainfall Through Wednesday (June 27th)

- **Generally 0.5" of rain or less through the period.**

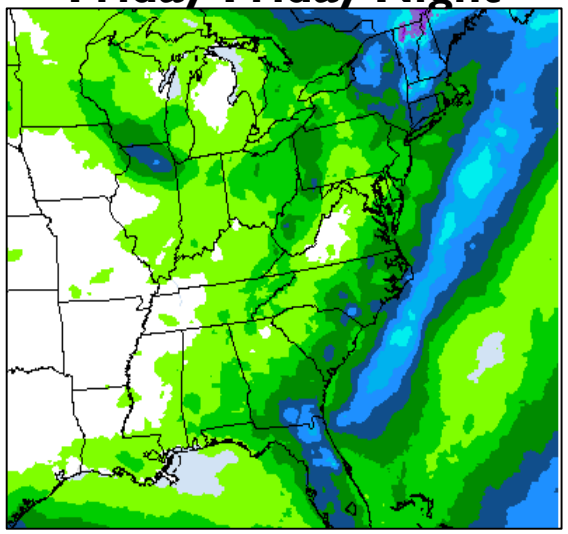
Today



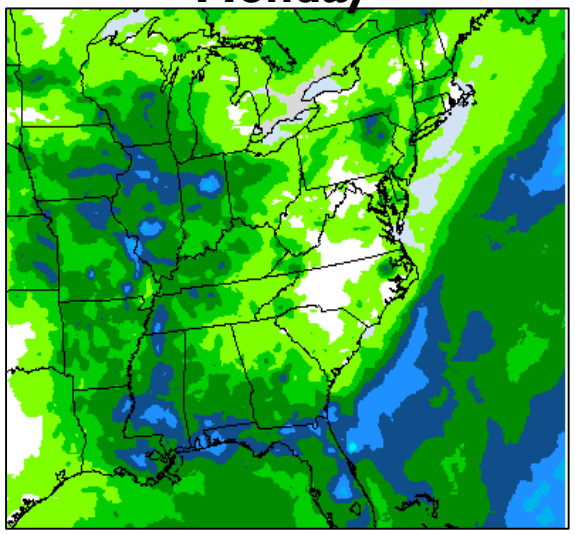
Thursday



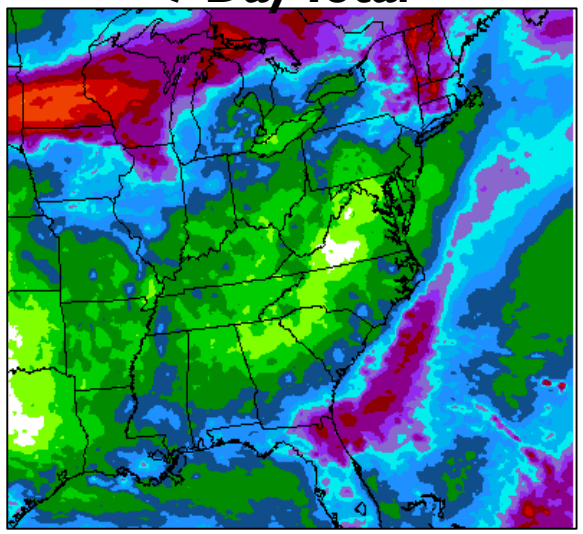
Friday-Friday Night

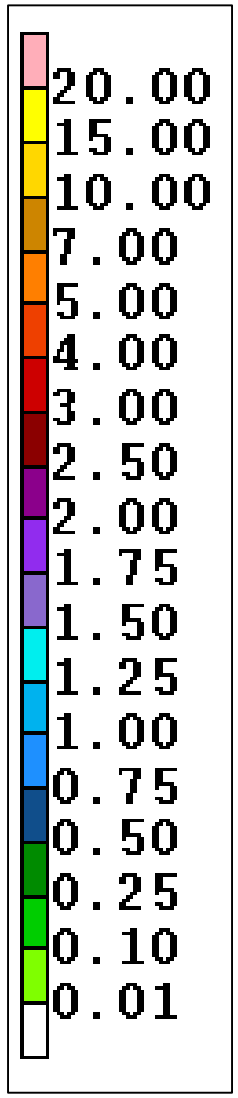


Monday



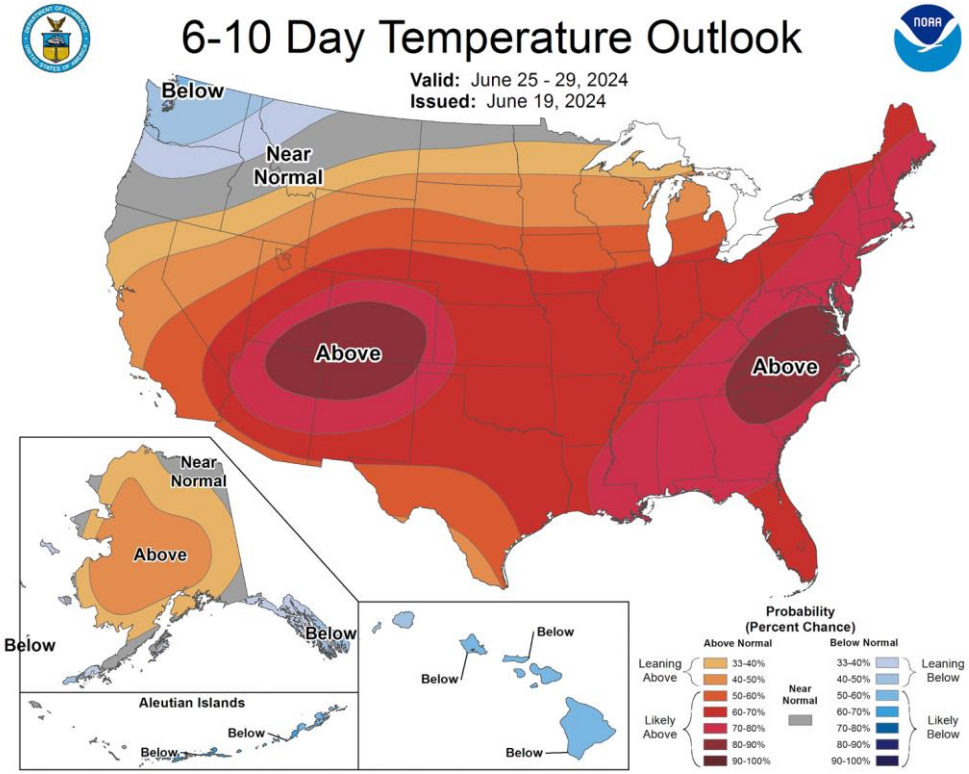
7 Day Total

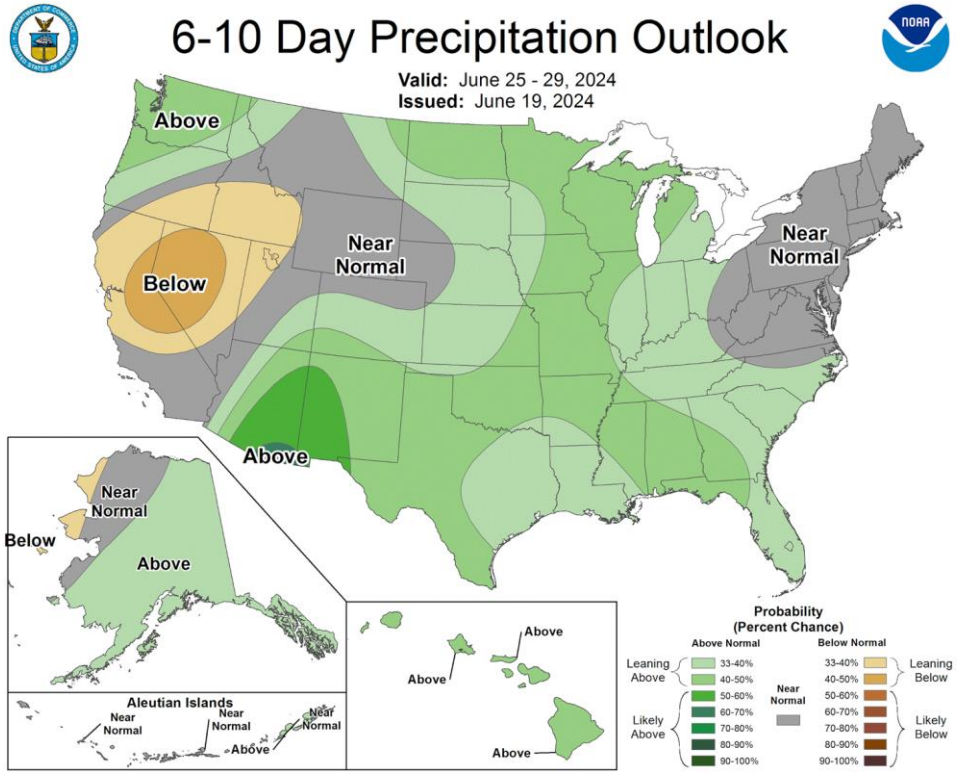




Looking Ahead to Next Week

June 20, 2024
9:19 AM





- Above normal temperatures favored next week.
- Near normal precipitation chances favored next week.

USGS Drought Status Summary

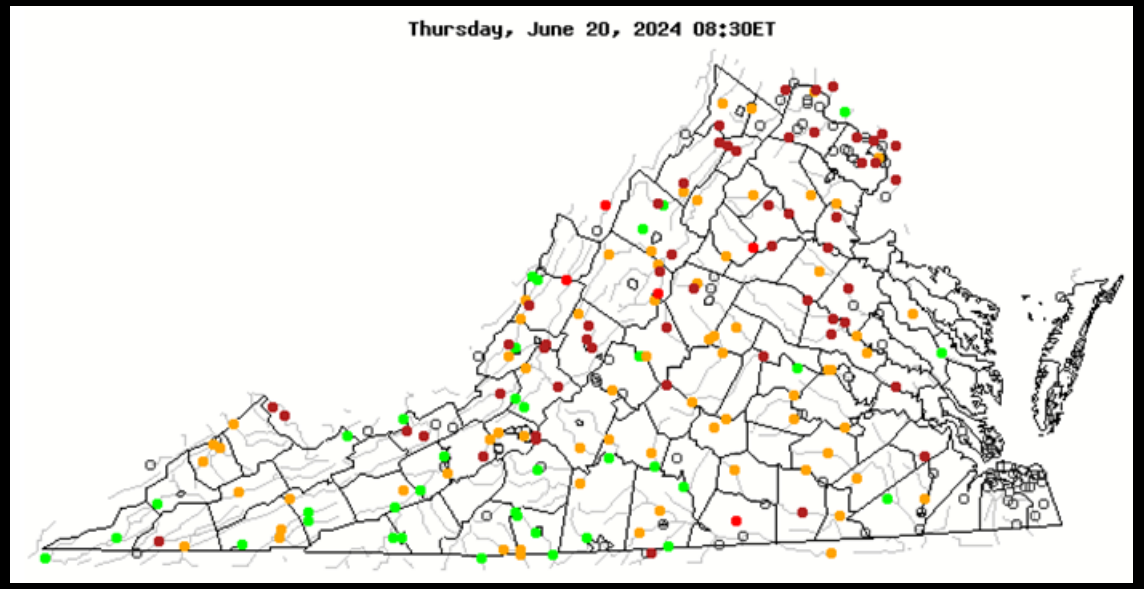
Streamflow and Groundwater Levels in Virginia

Virginia Drought Monitoring Task Force

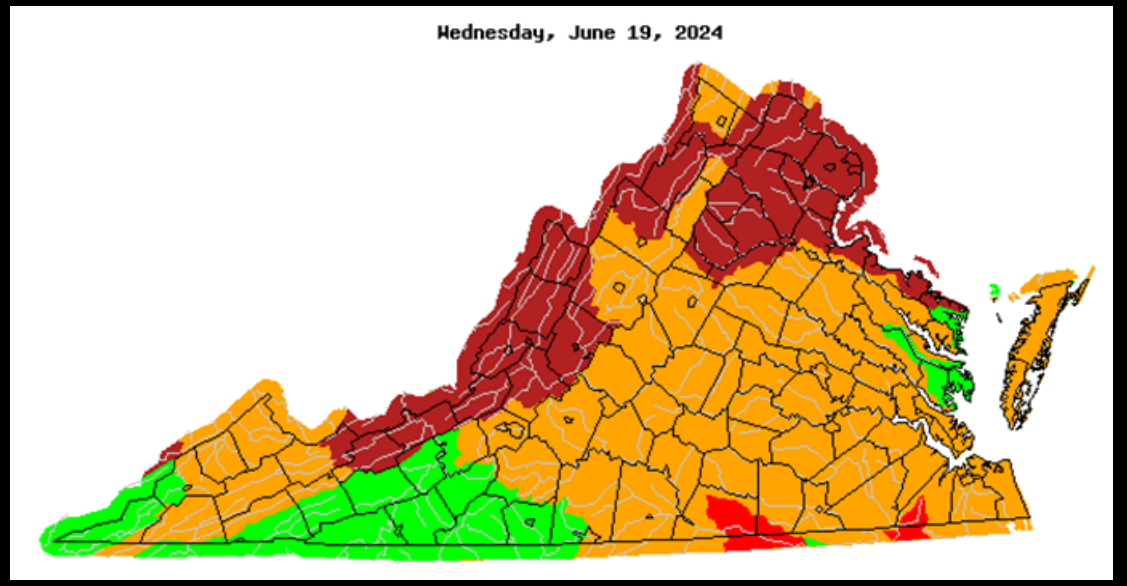
June 20, 2024

U.S. Department of the Interior
U.S. Geological Survey

Current Streamflow Conditions

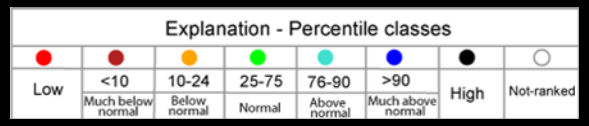


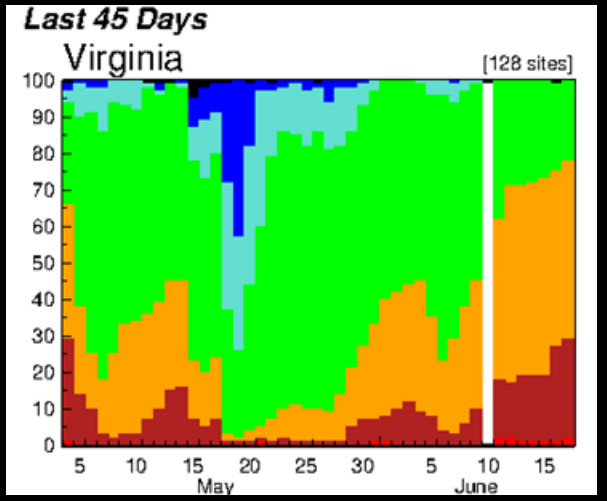
Realtime USGS Streamgages



Daily Flow HUC 8s

- Data from 06/19/2024
- Below normal flows in north and western mountains

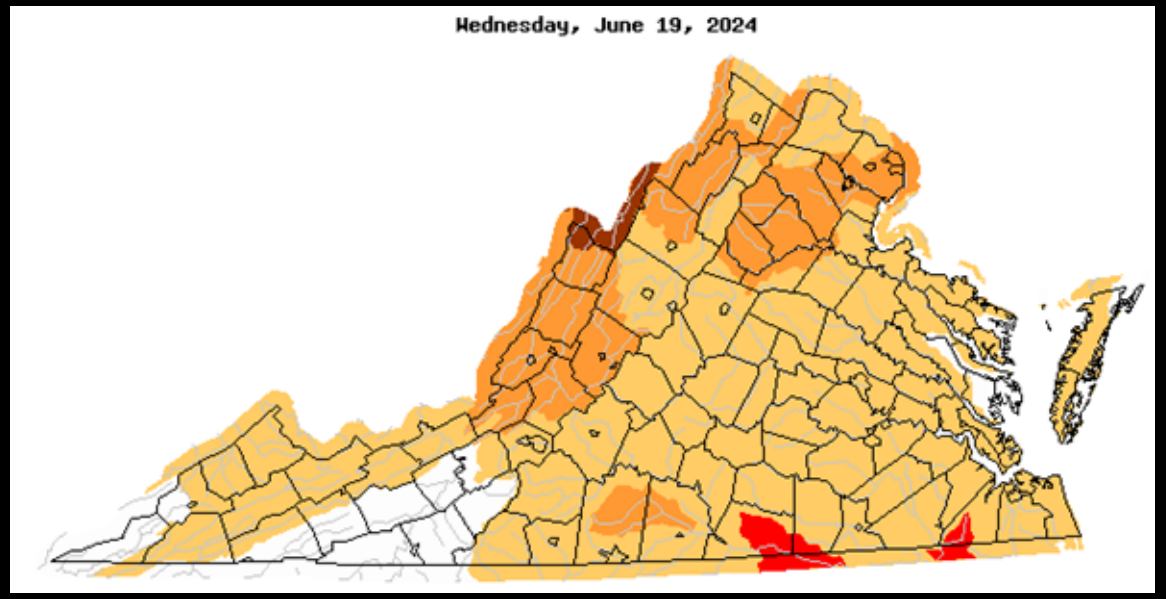




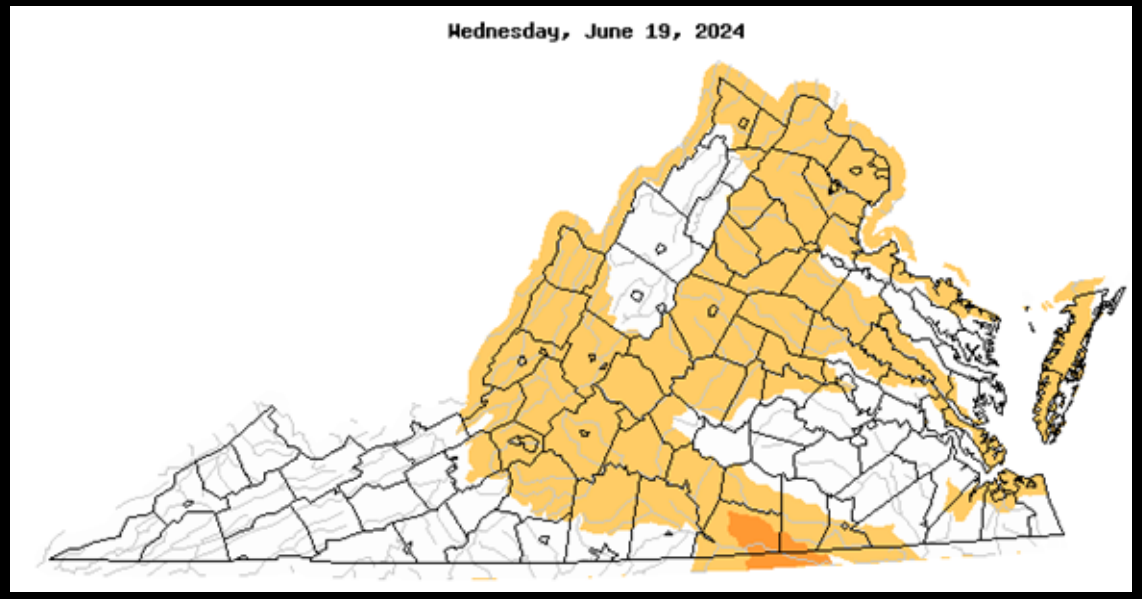
USGS

https://waterwatch.usgs.gov/index.php?m=real&r=va&w=map

Below-Normal Streamflow Conditions

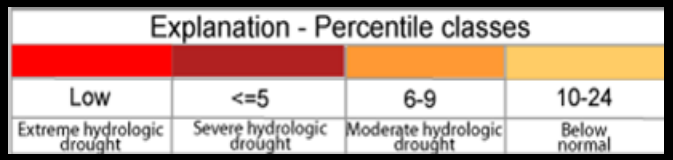


7-Day



28-Day

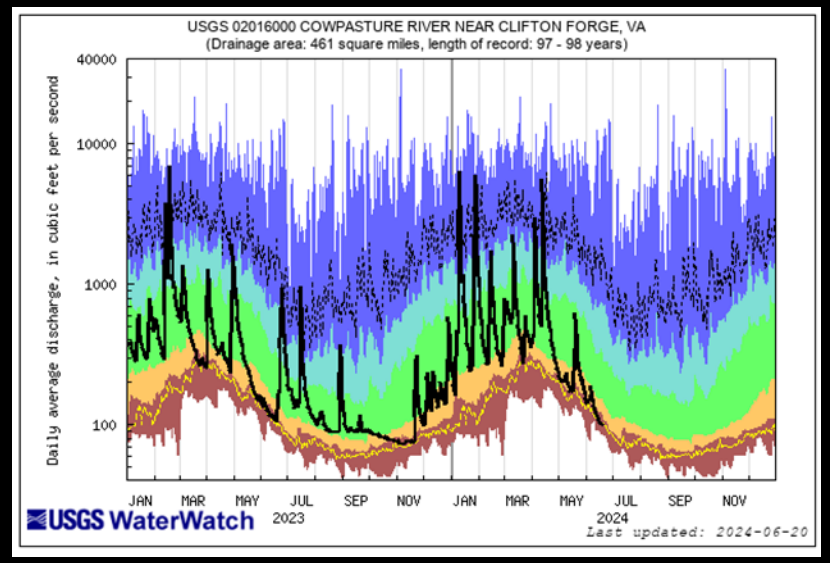
- Quick intensification of drought signal in north and western mountains

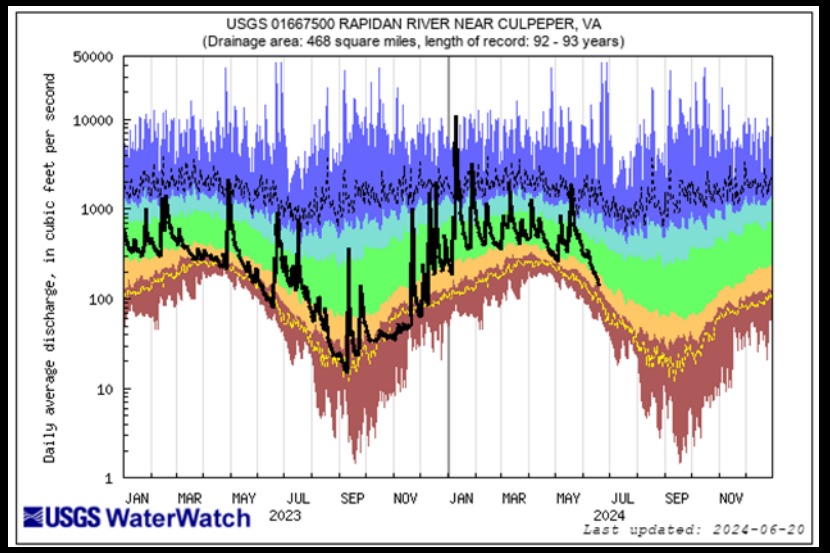


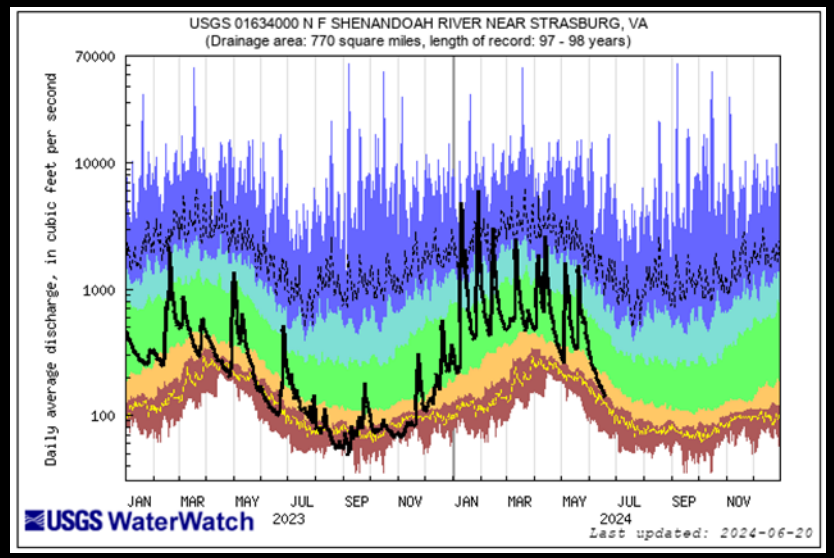
https://waterwatch.usgs.gov/index.php?m=pa07d_dry&r=va&w=map

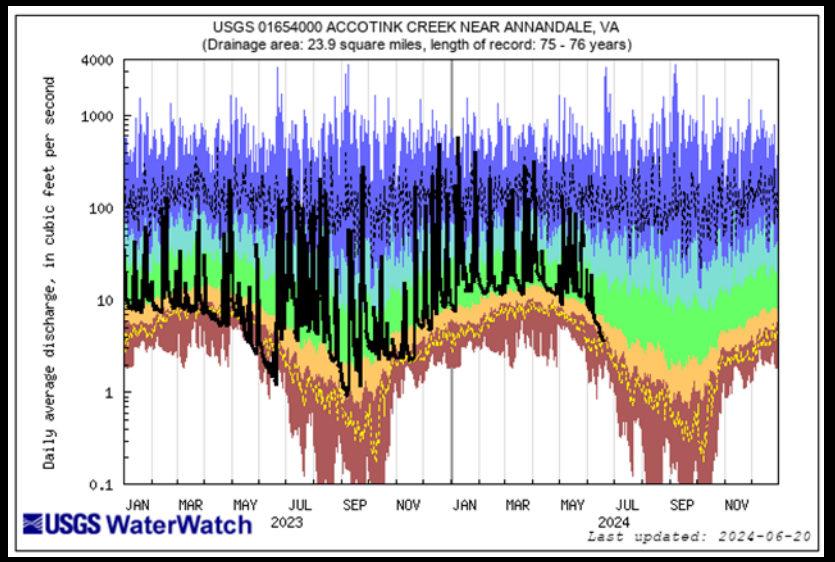
USGS

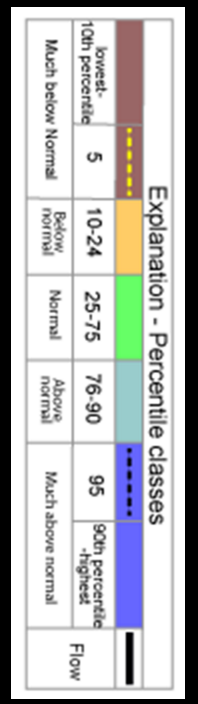
Site Duration Hydrographs







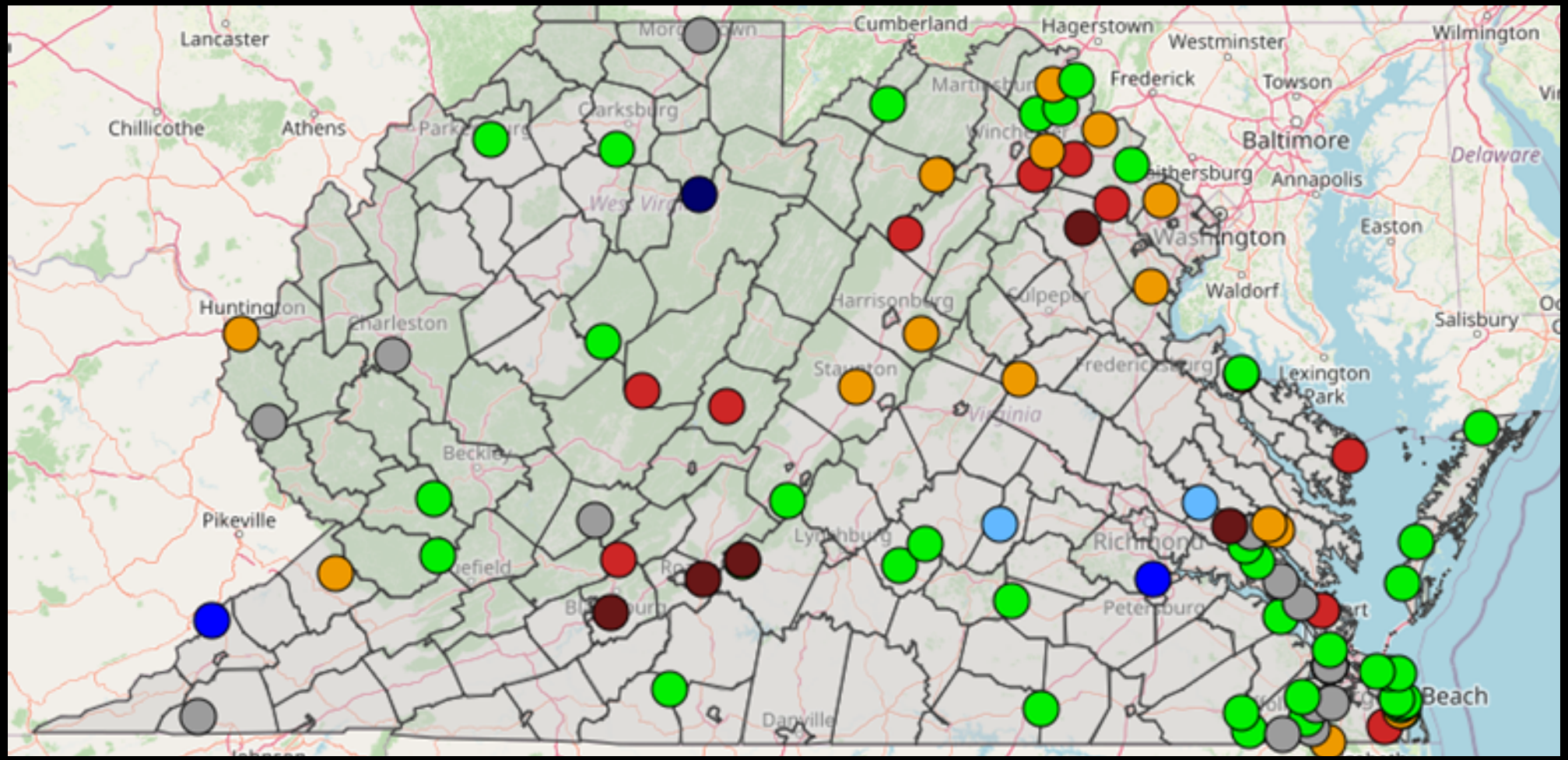




https://waterwatch.usgs.gov

USGS

Groundwater Levels – USGS Wells

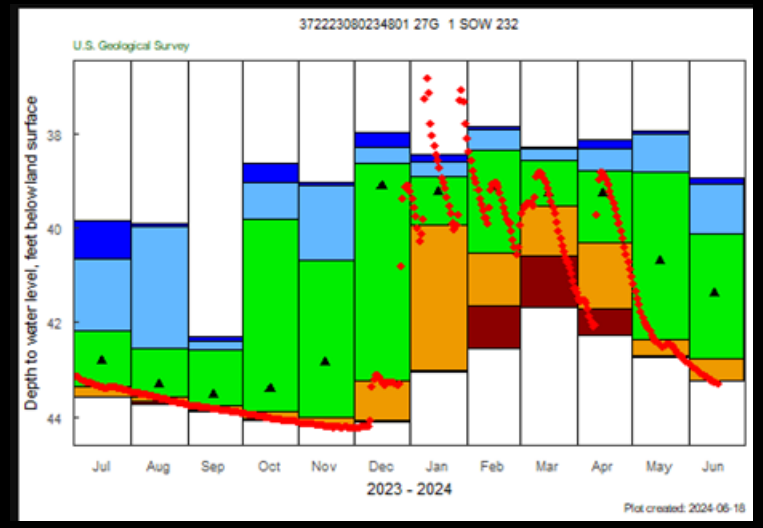


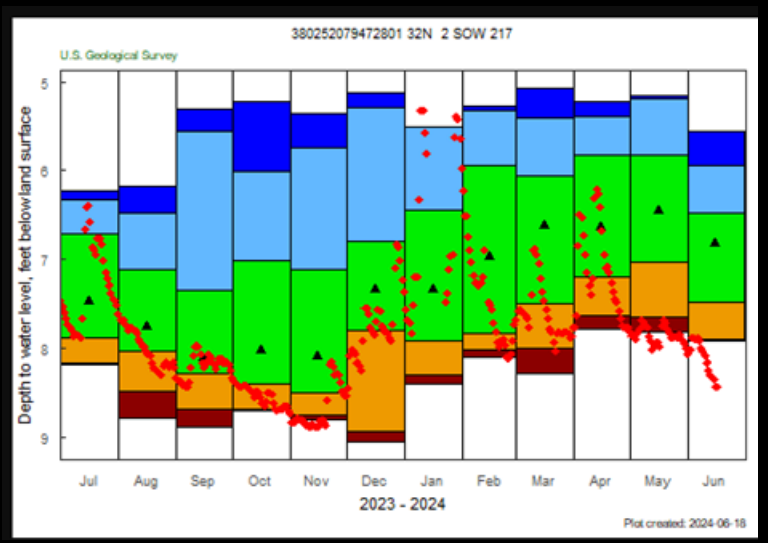
- Mountains and northern wells far below normal

VA-WV WSC Developed Page: https://rconnect.usgs.gov/vawv- groundwater/

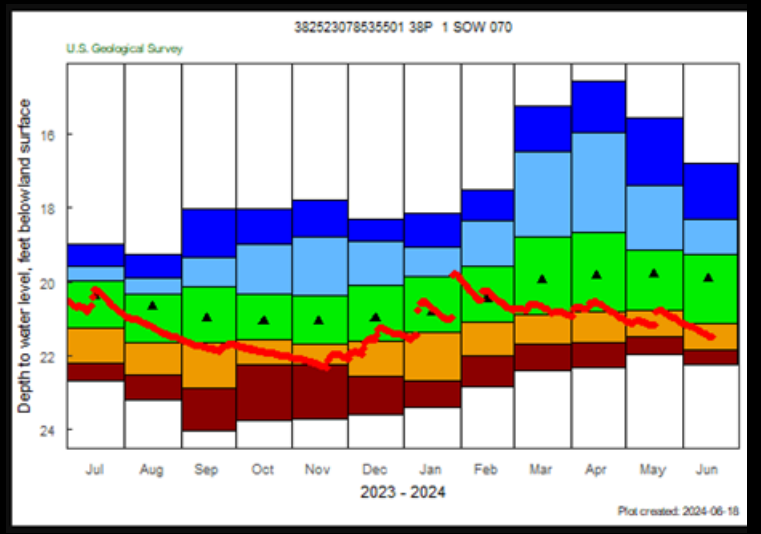
USGS

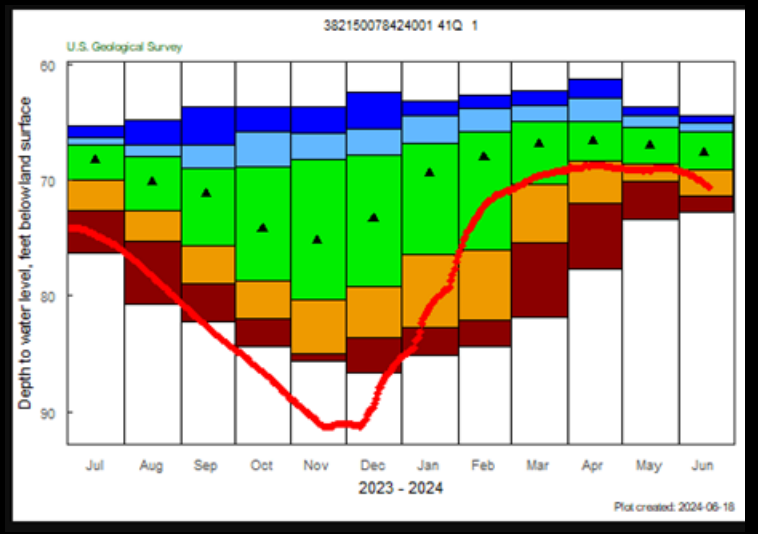
Mountains



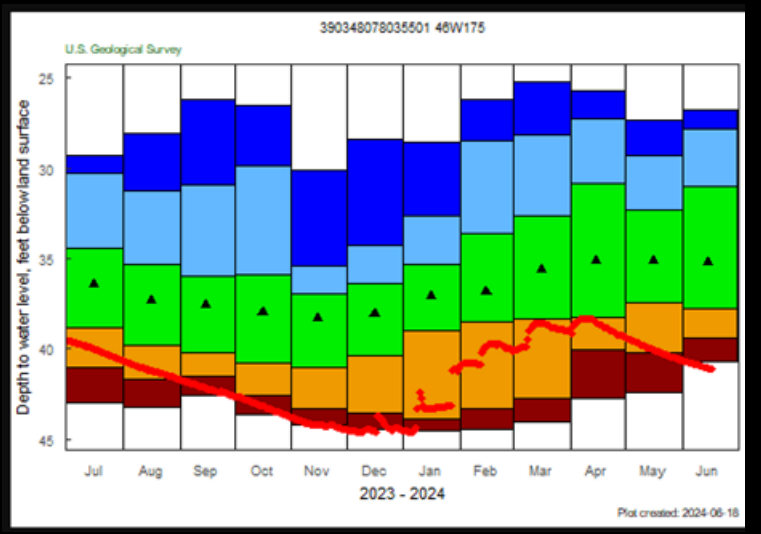


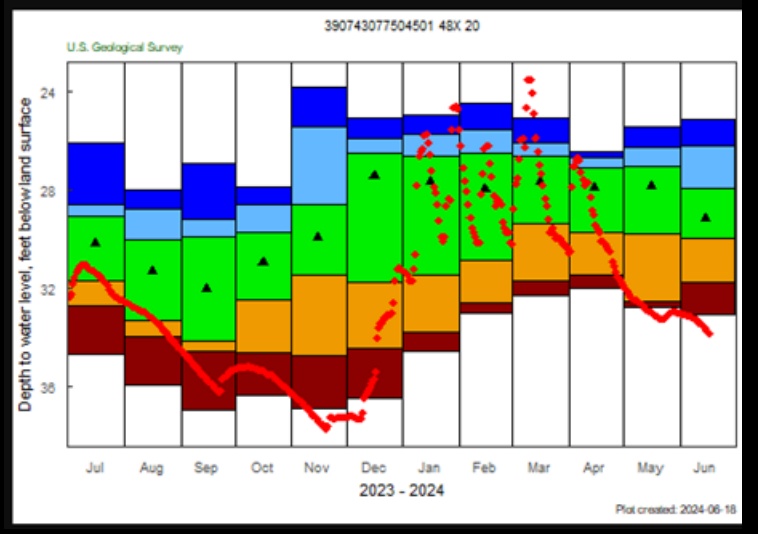
Central VA





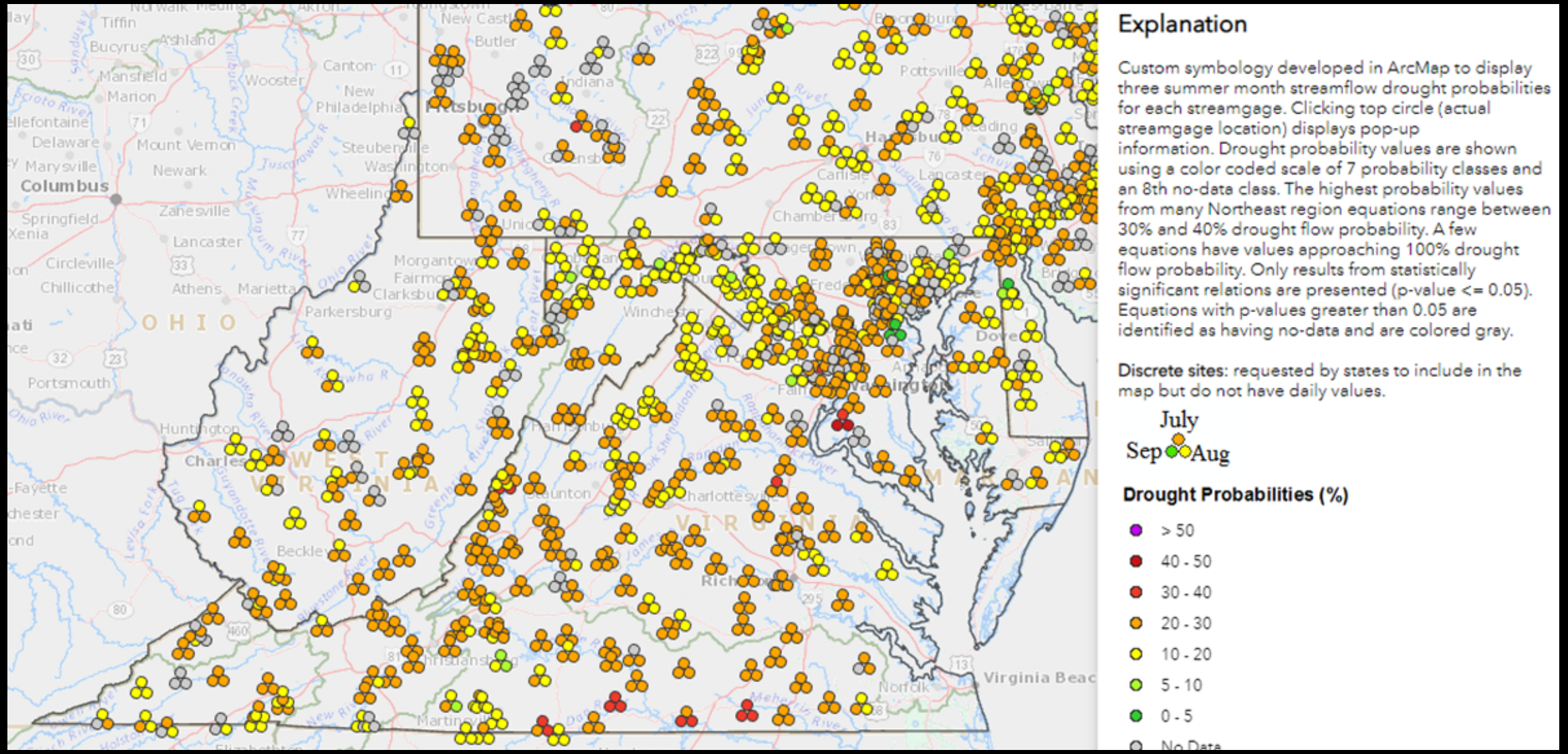
Lower Shen/Northern VA





USGS

USGS NE Drought Streamflow Probabilities



https://vawv-gis.usgs.gov/webapps/drought-ne/