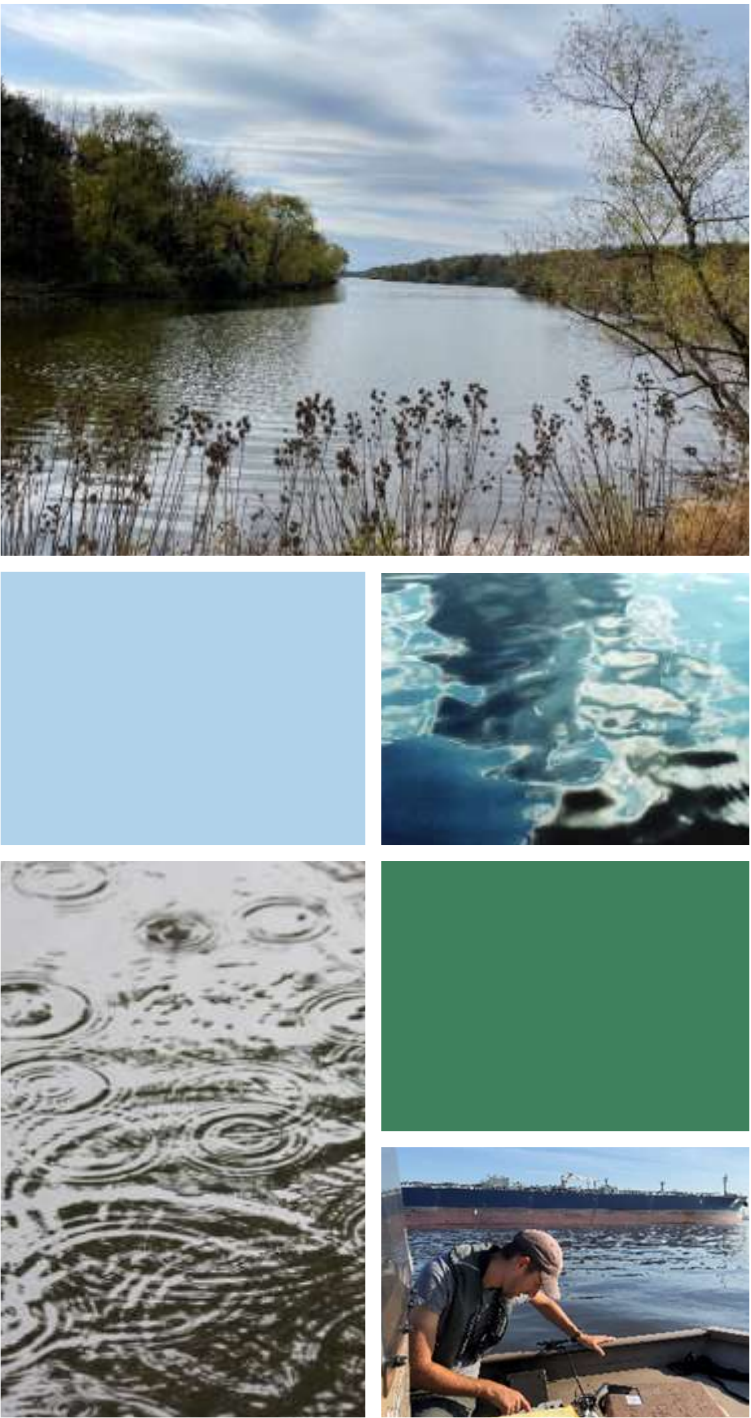




Hydrologic Conditions

Amy Shallcross, P.E.

Manager Water Resource Operations

Sara Sayed

Water Resource Scientist

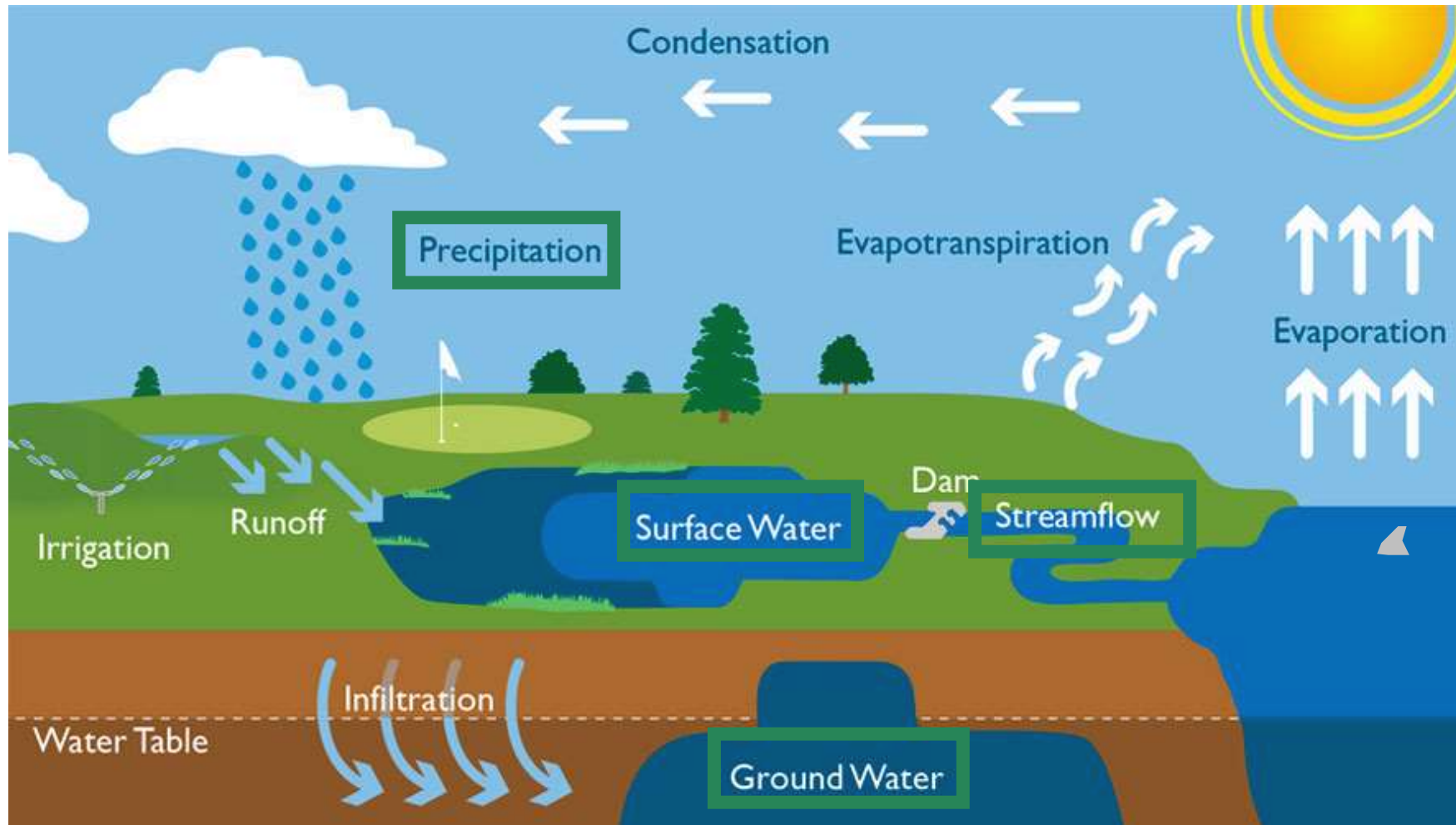
December 5, 2024

DRBC 4Q Business Meeting



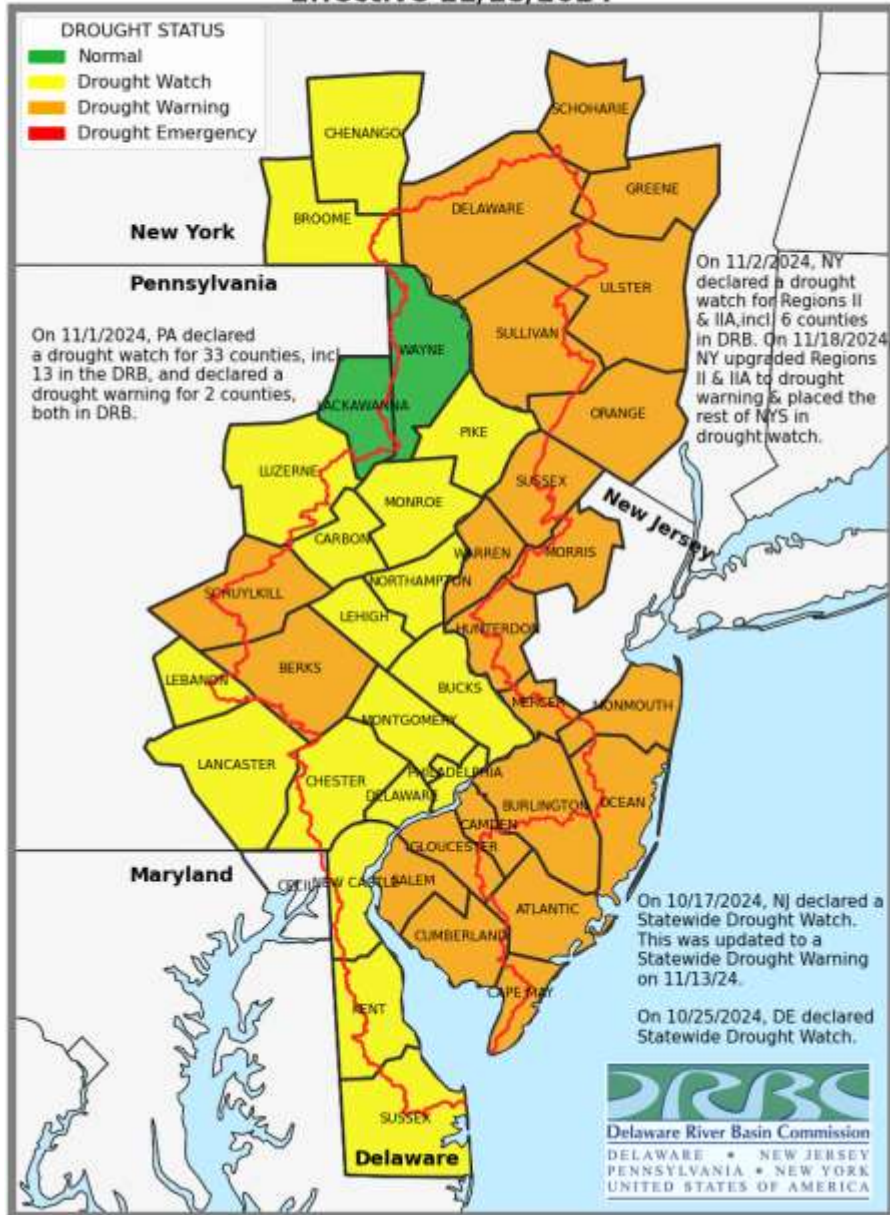
The Hydrologic Cycle

Water moves around the earth through air, soil, and over land.



Graphic courtesy of Pike County Soil Conservation District

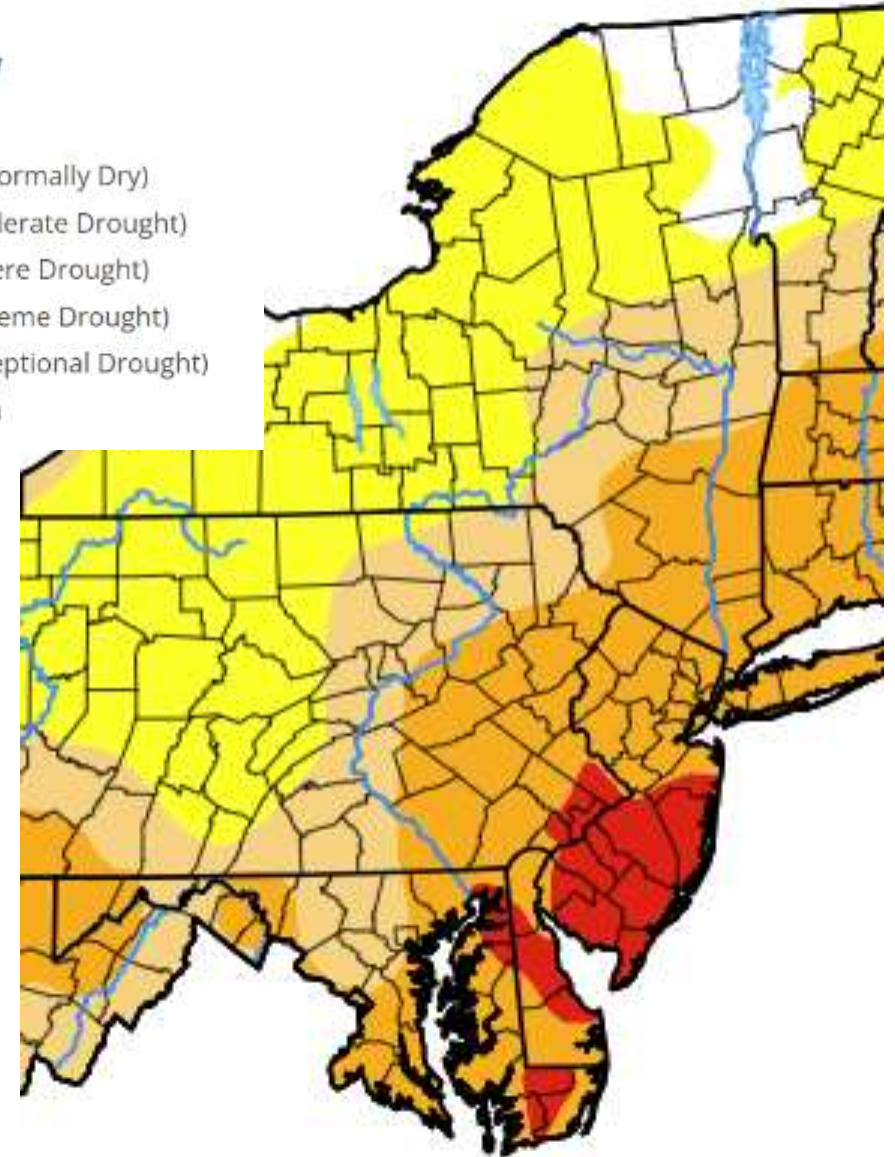
Drought Status In the Delaware River Basin As Declared by the Individual Basin States Effective 11/18/2024



U.S. Drought Monitor

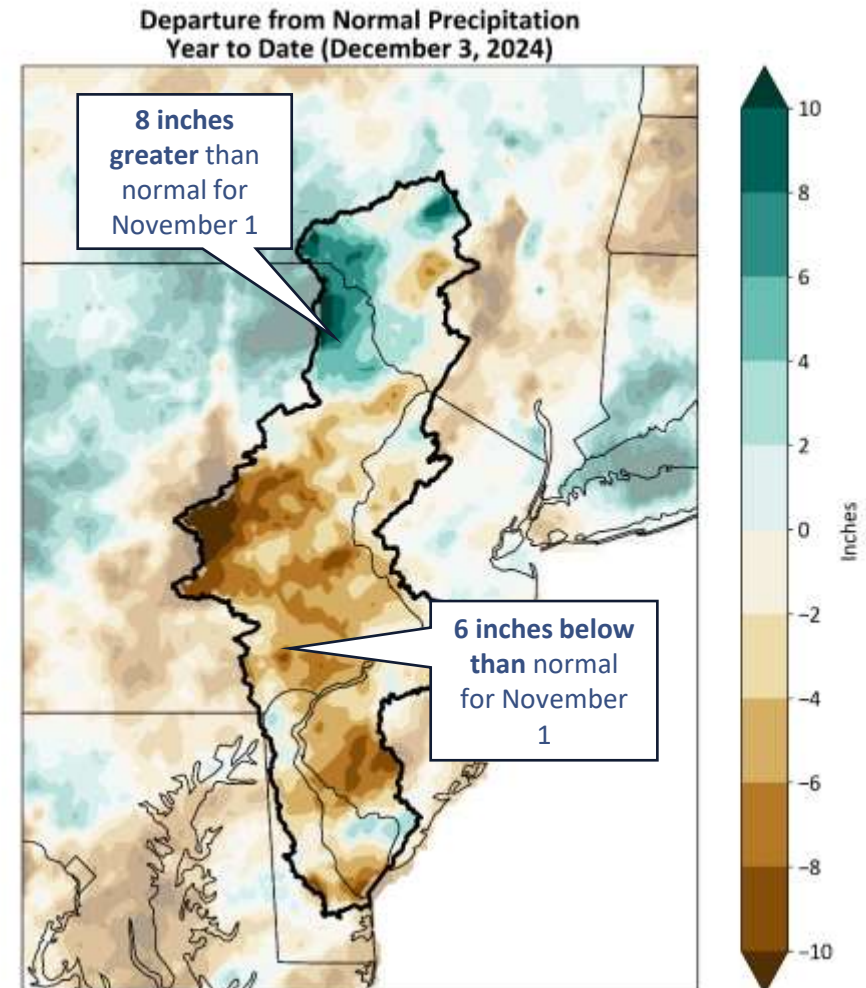
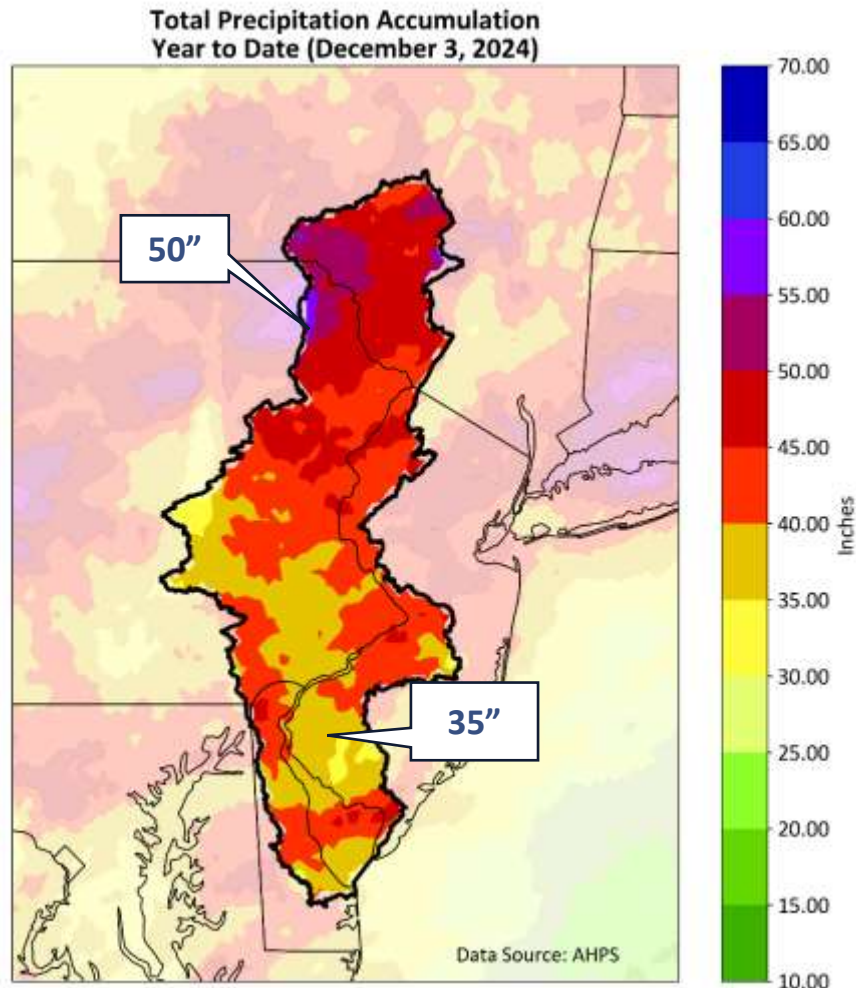
November 27

Intensity



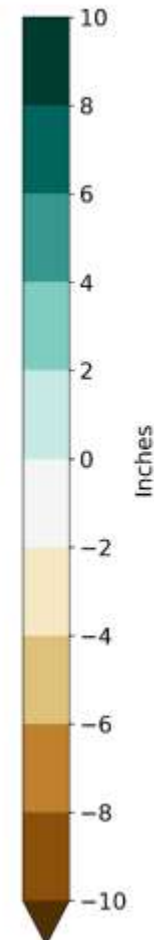
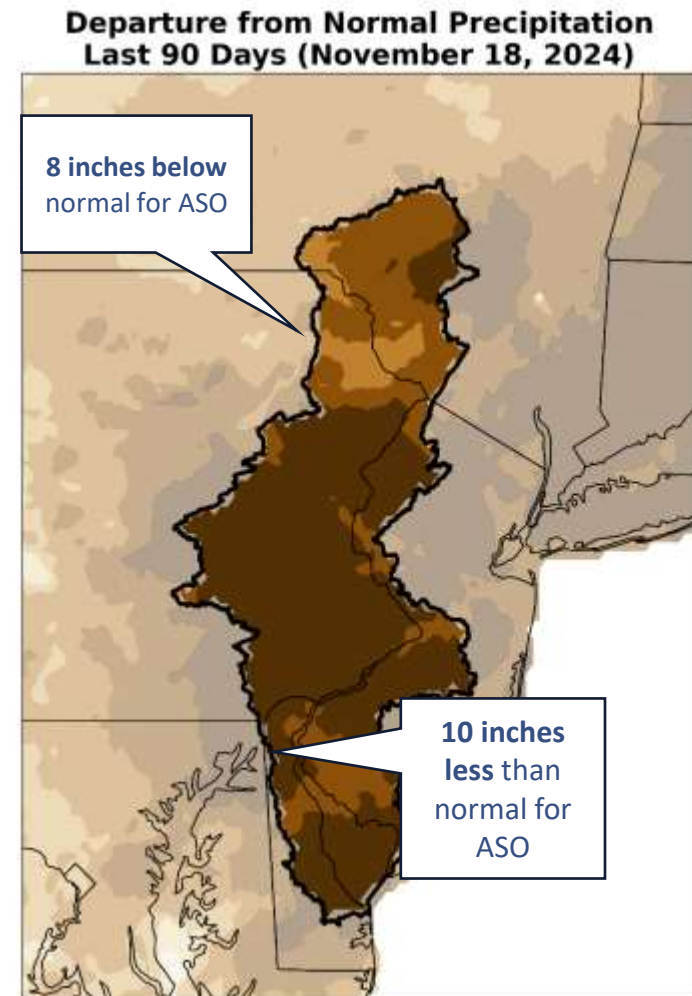
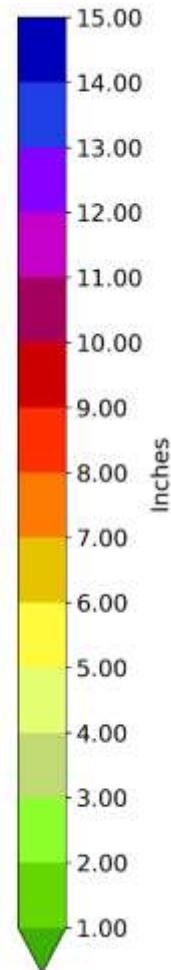
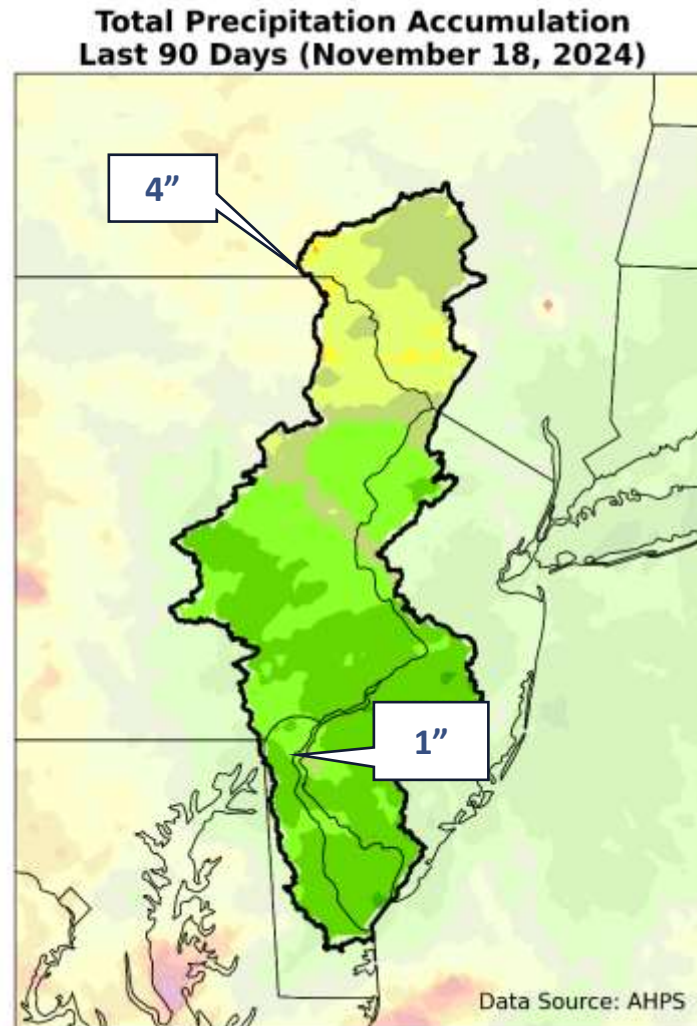
Precipitation since January 1

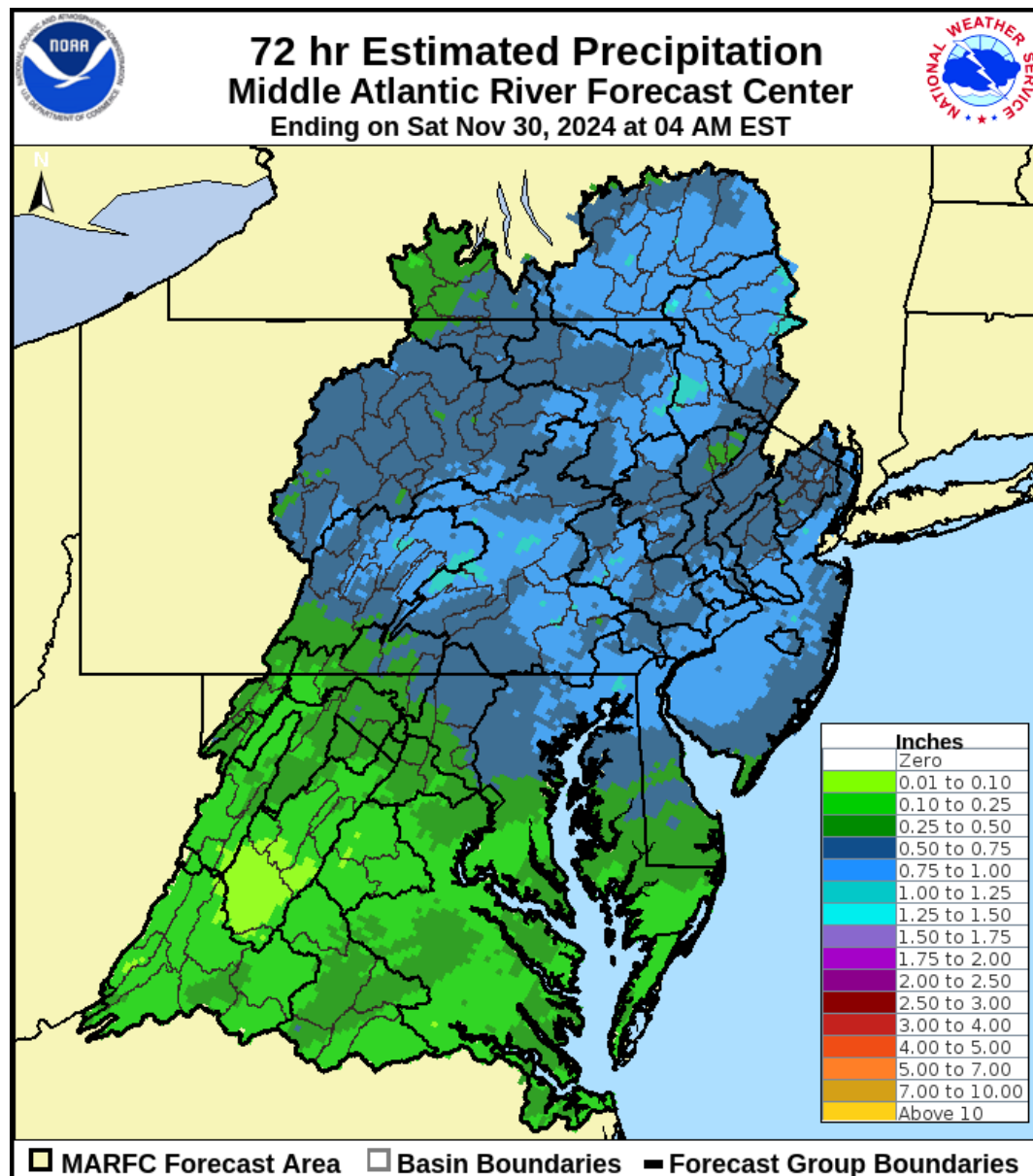
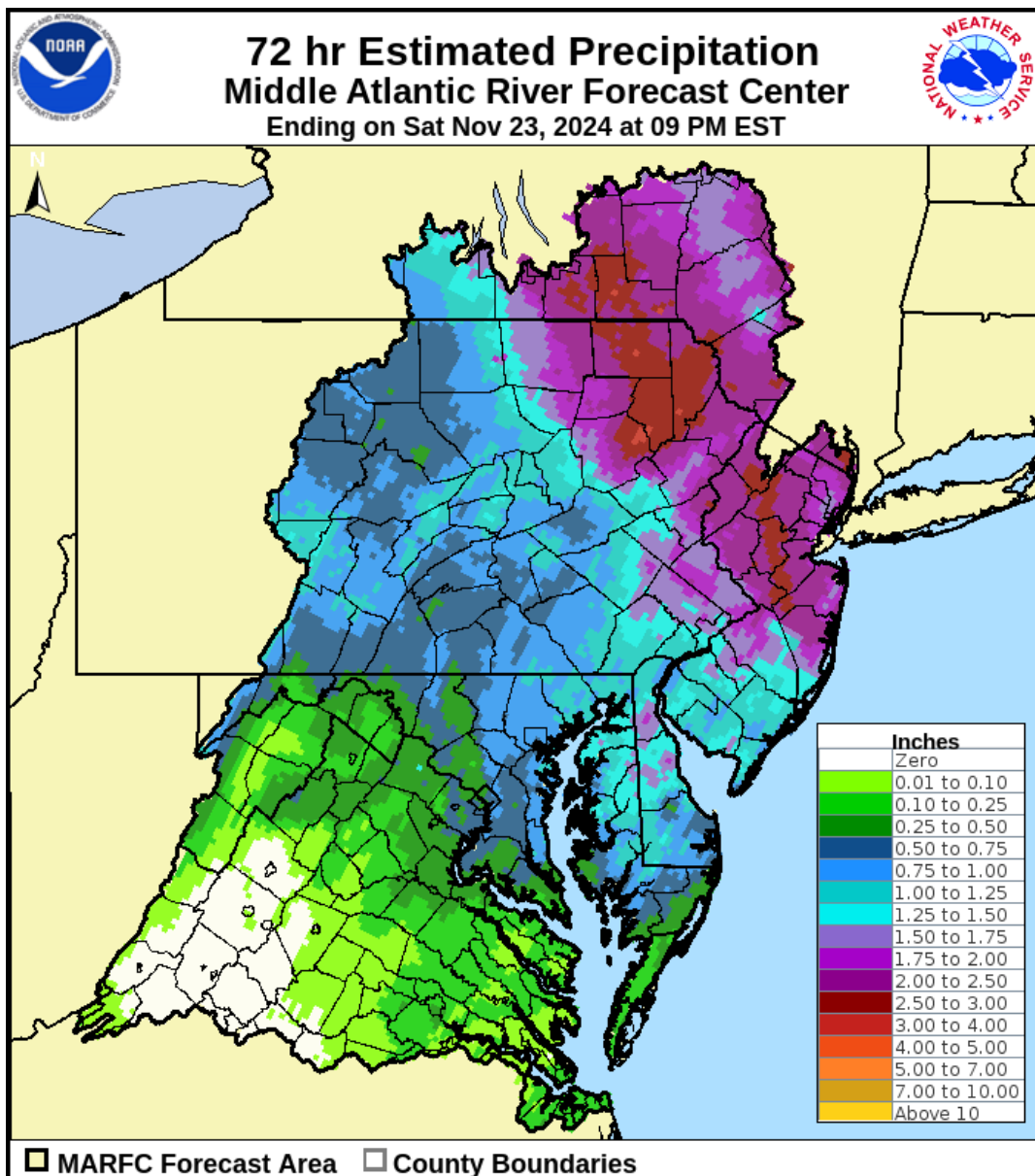
Majority of the basin has received slightly below normal rainfall for the year. Driest areas are in the western and southern parts.



Precipitation – 90 days – November 18

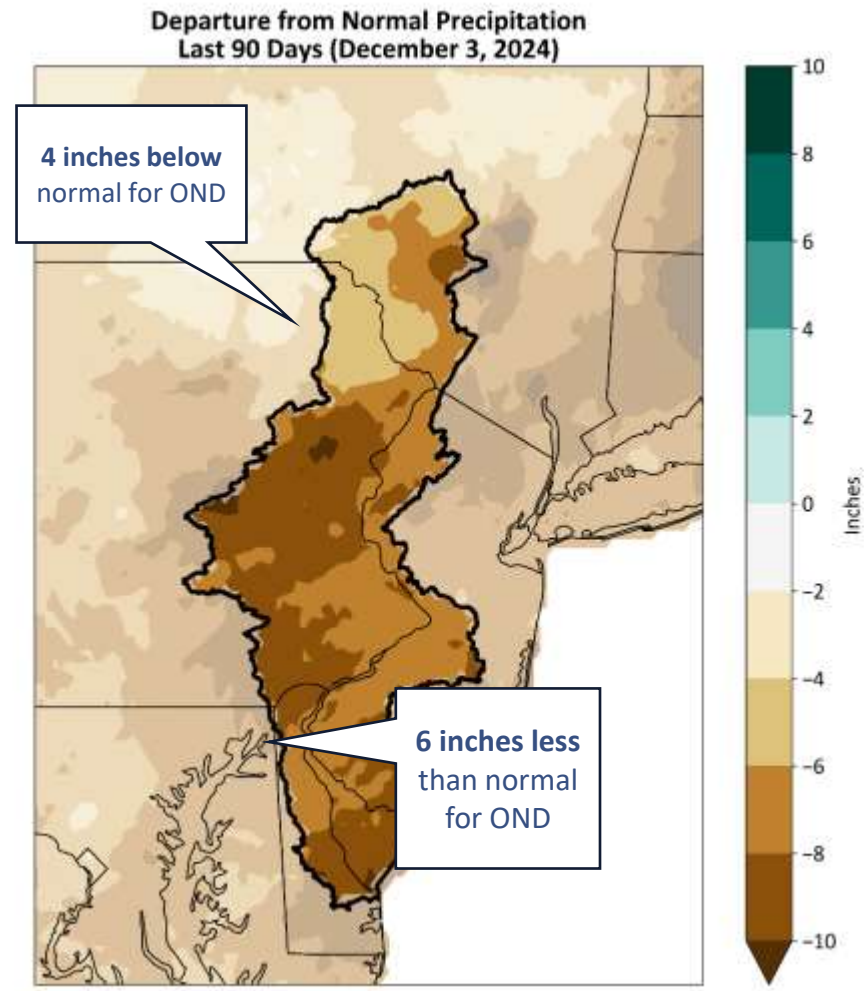
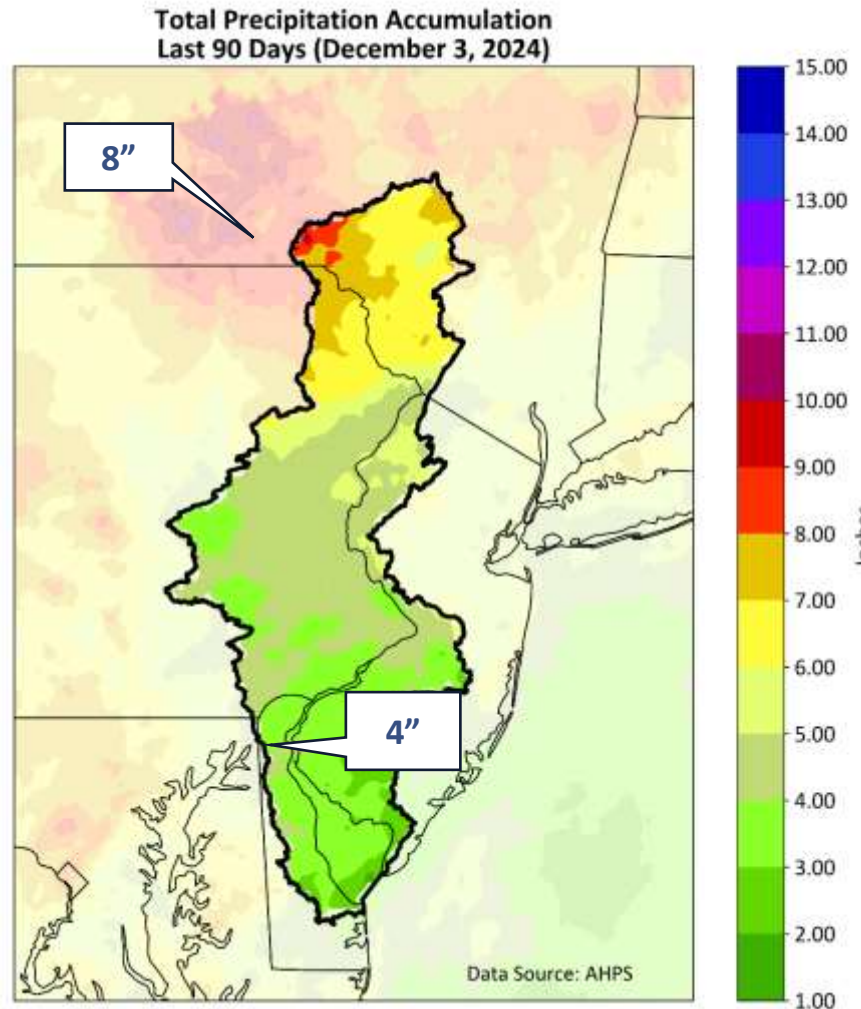
Most major rainfall gages in the basin were ranked the driest on record (Philadelphia Airport 2nd).





Precipitation – 90 days

The three-month deficits are still significant (4-10 inches below normal).

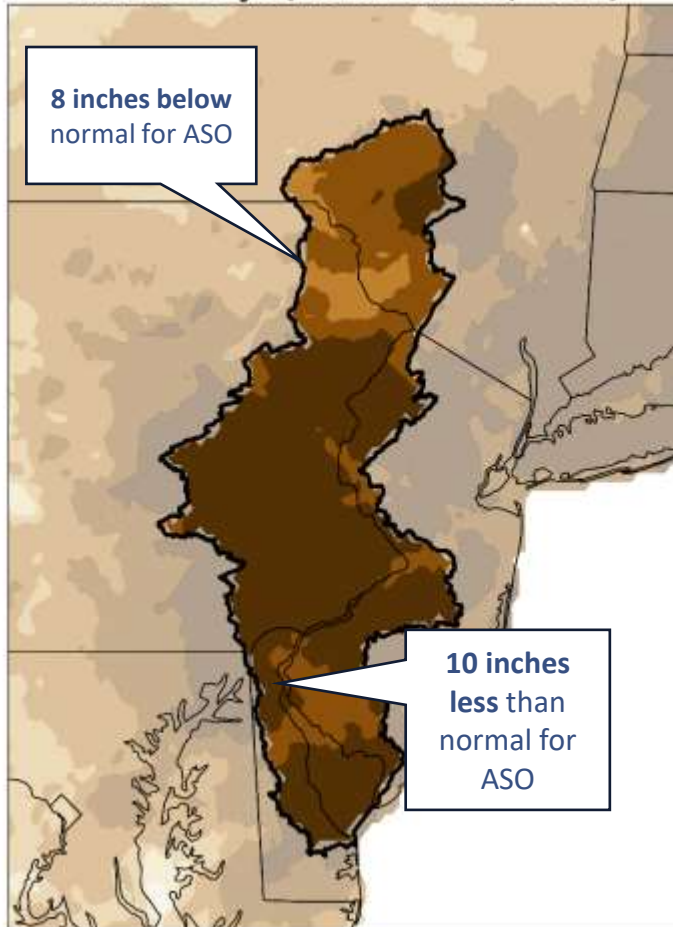


Precipitation Deficits – 90 days – pre/post rain

The three-month deficits are still significant (4-10 inches below normal).

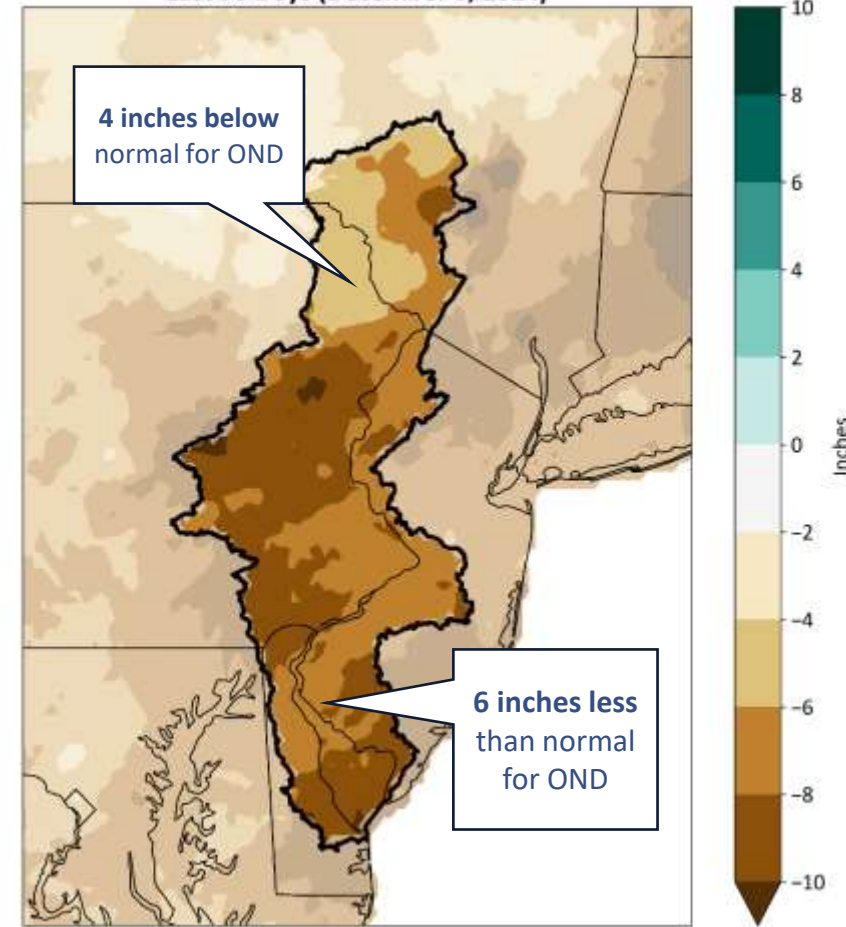
November 18

Departure from Normal Precipitation
Last 90 Days (November 18, 2024)



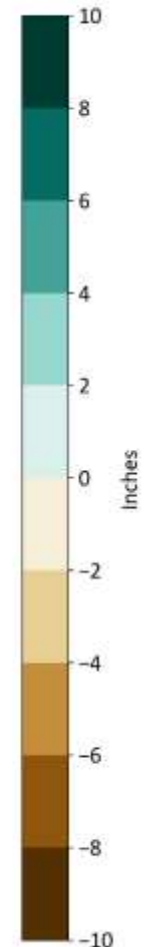
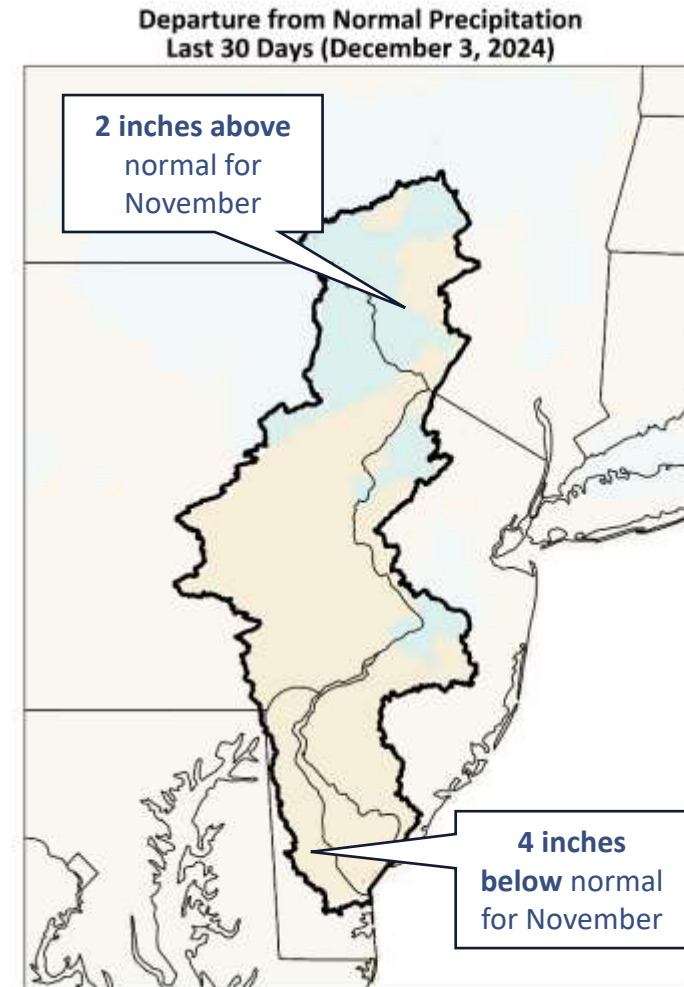
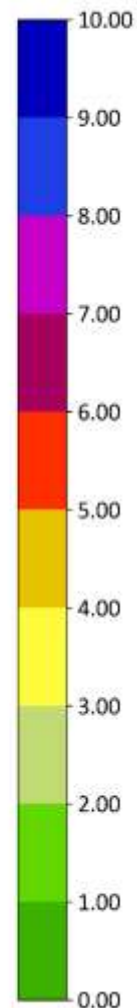
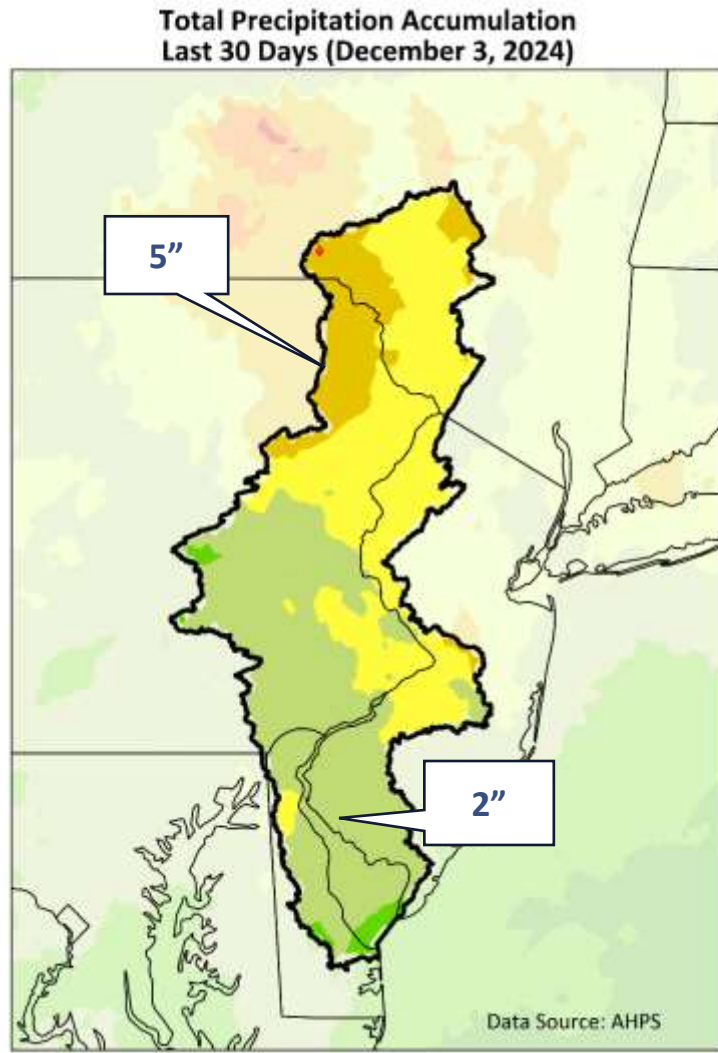
December 3

Departure from Normal Precipitation
Last 90 Days (December 3, 2024)



Precipitation – past 30 days

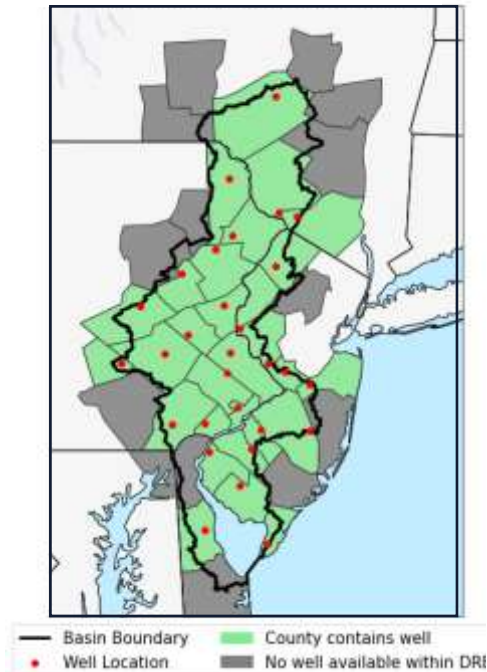
Recent precipitation was only above normal in the upper basin.



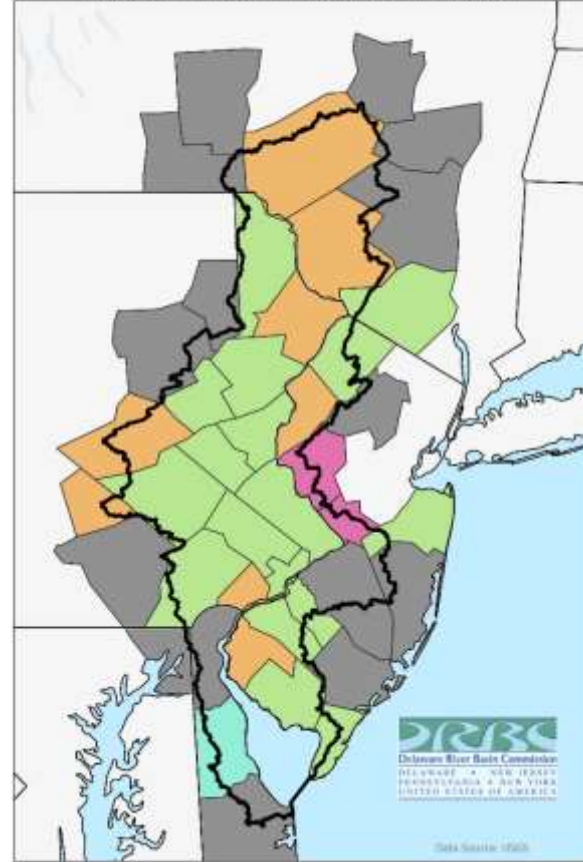
Groundwater Levels

Groundwater levels are generally below normal due to lack of precipitation.

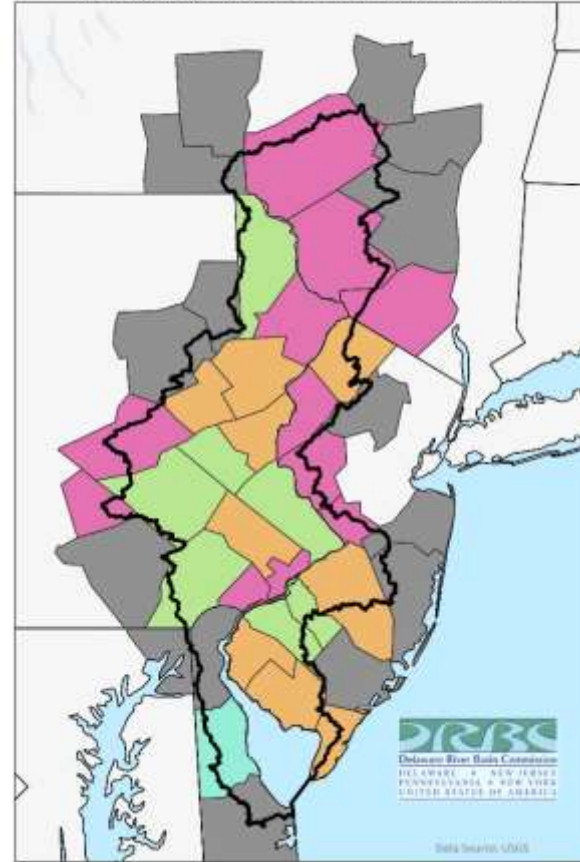
Reference Wells



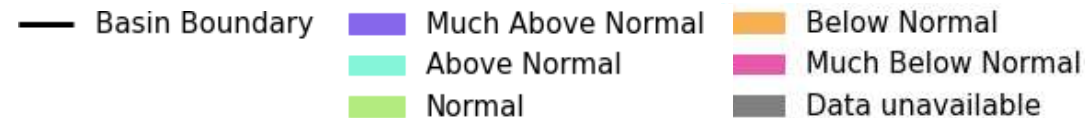
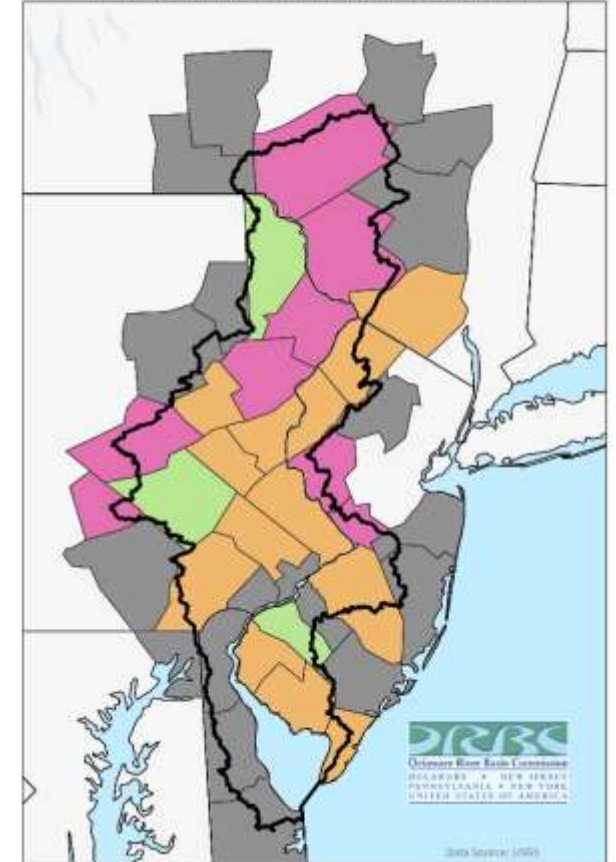
Groundwater Ranking on October 03, 2024



Groundwater Ranking on November 03, 2024



Groundwater Ranking on December 03, 2024



Streamflow

Flows remain below normal even with recent precipitation.

Flow Conditions:

Upper Basin: Below Normal

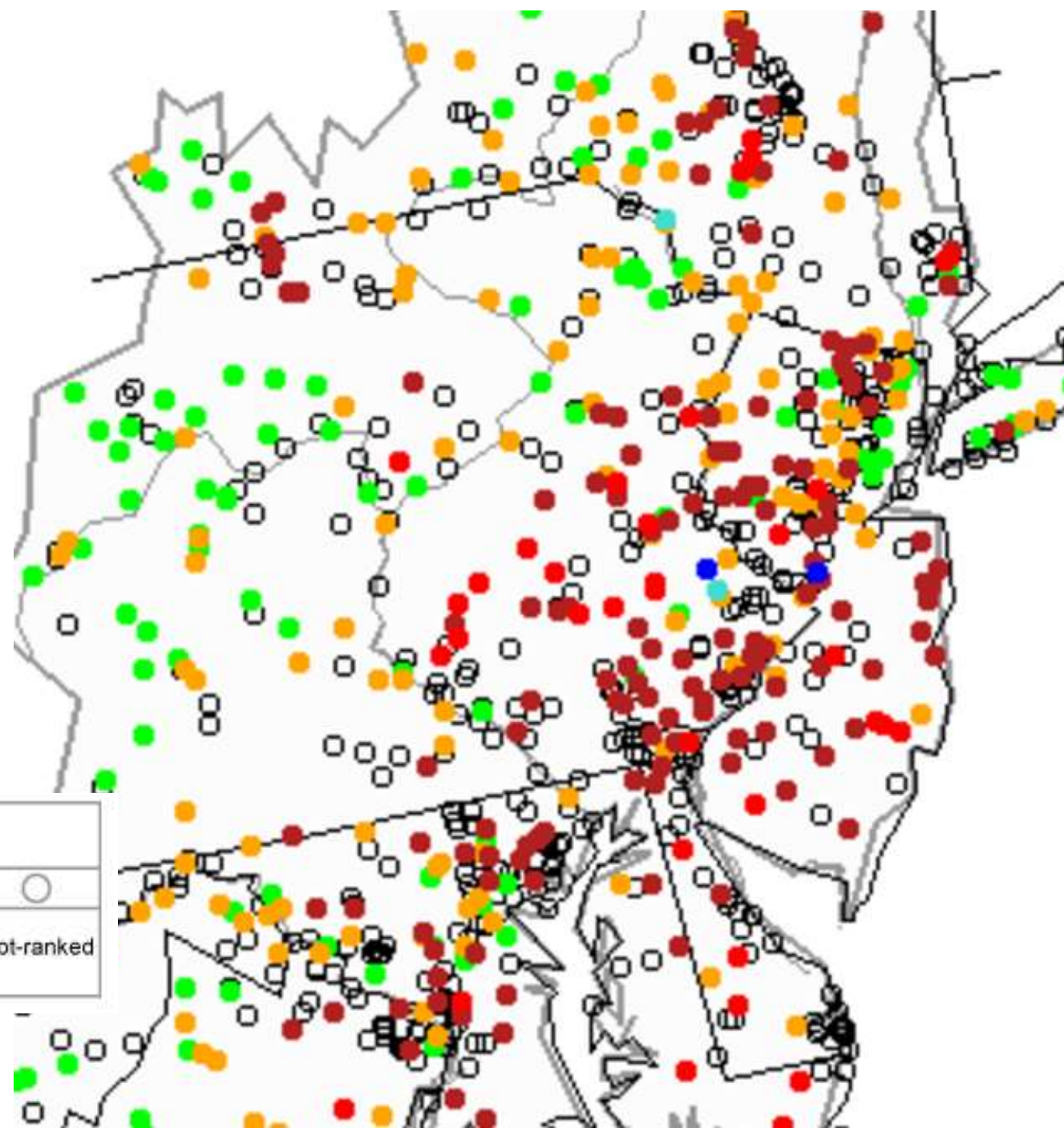
Central Basin: Much Below Normal

Lower Basin: Much Below Normal

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		

Map last updated:
2:50 pm, December 3, 2024

Data Source: USGS



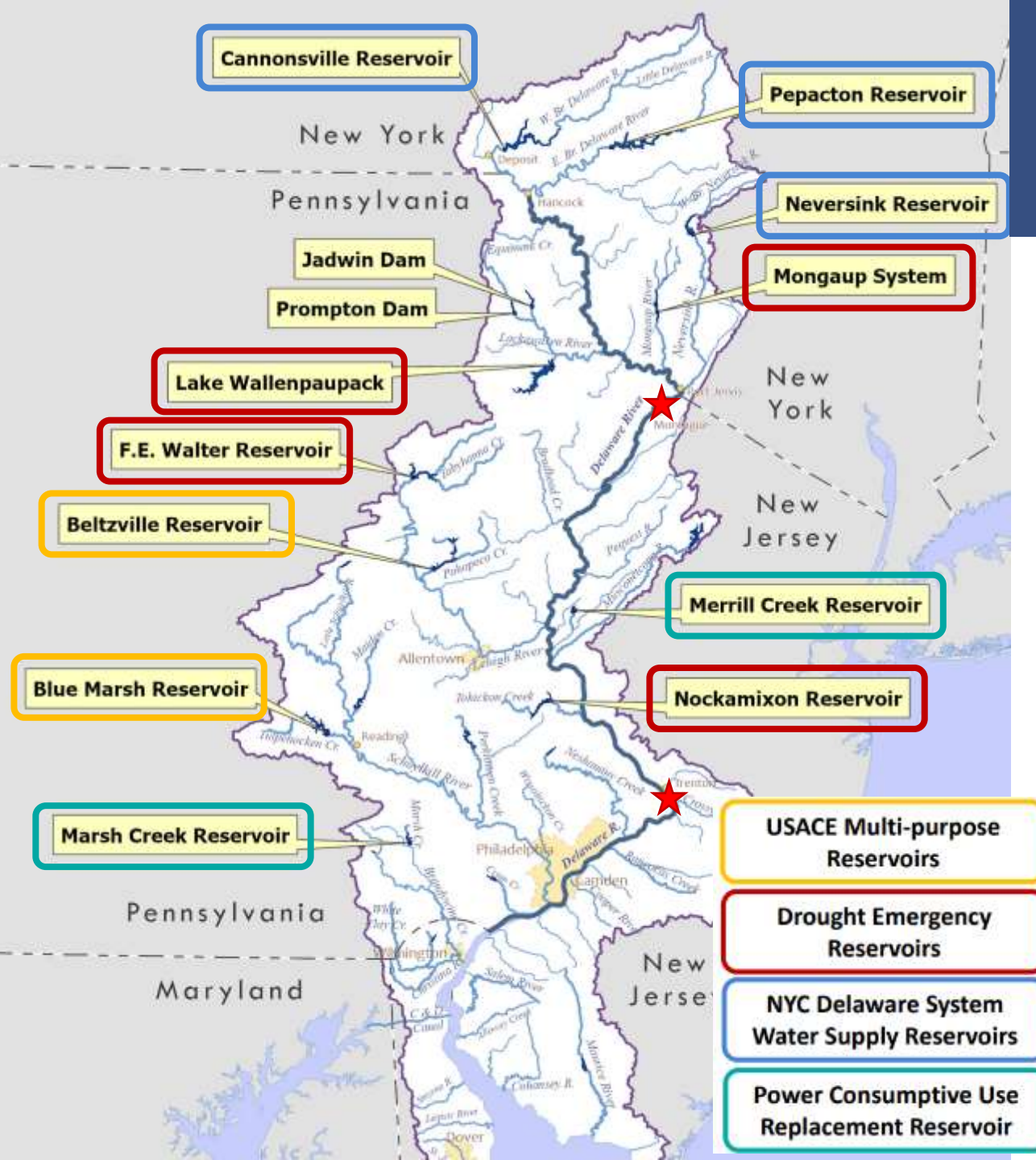
Montague and Trenton

Flow Objectives maintain mainstem flows

The Delaware River Master directs NYC to make releases for Montague

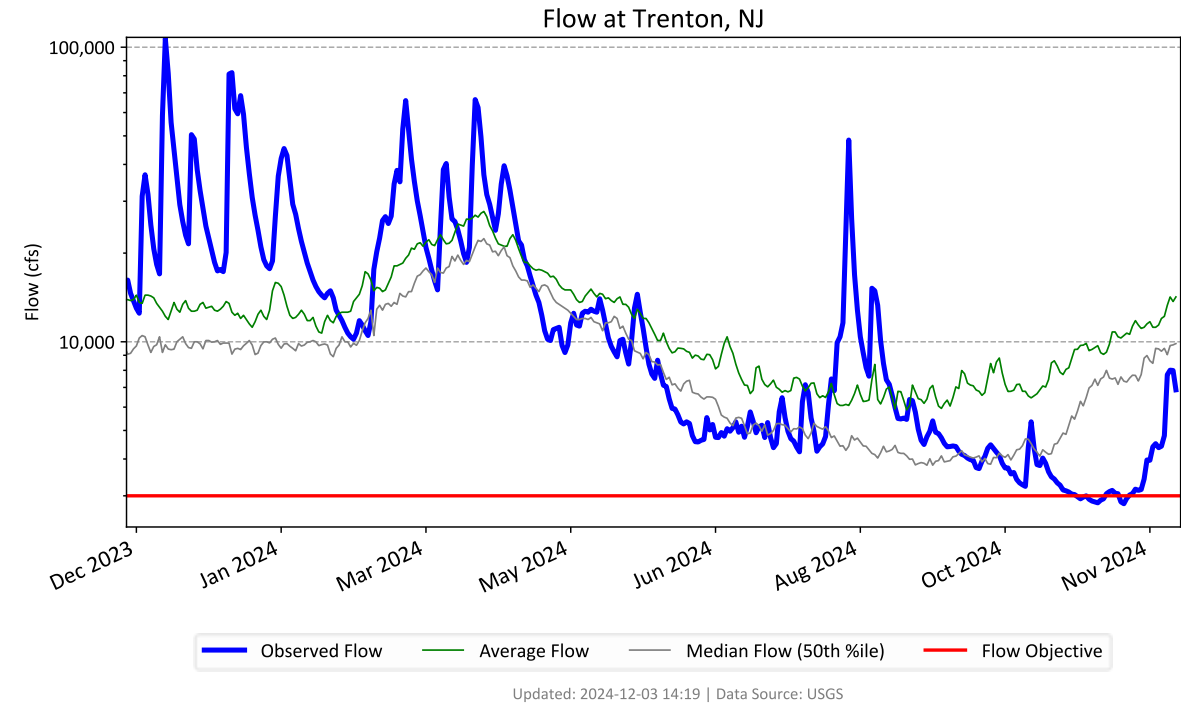
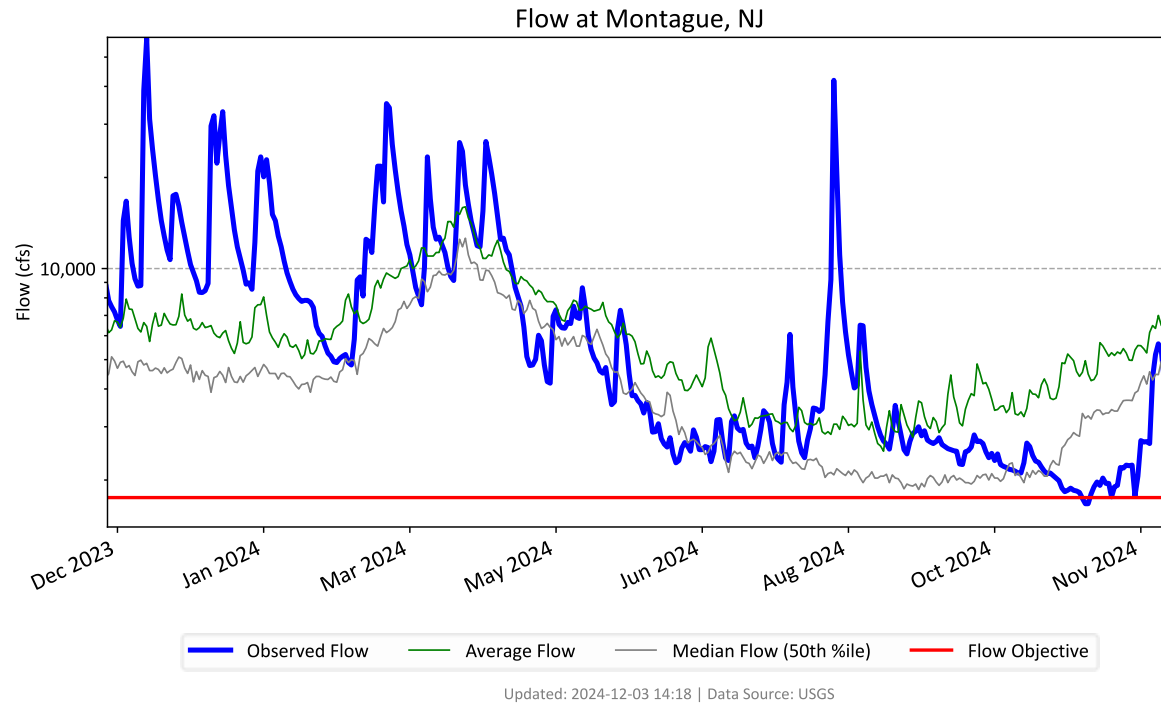
DRBC directs releases from lower basin storage for drought

Under drought operations, additional reservoirs can be used to support mainstem flows (level dependent)



Streamflow

Flows along the mainstem are below normal but above the flow target.



Releases to meet flow objectives

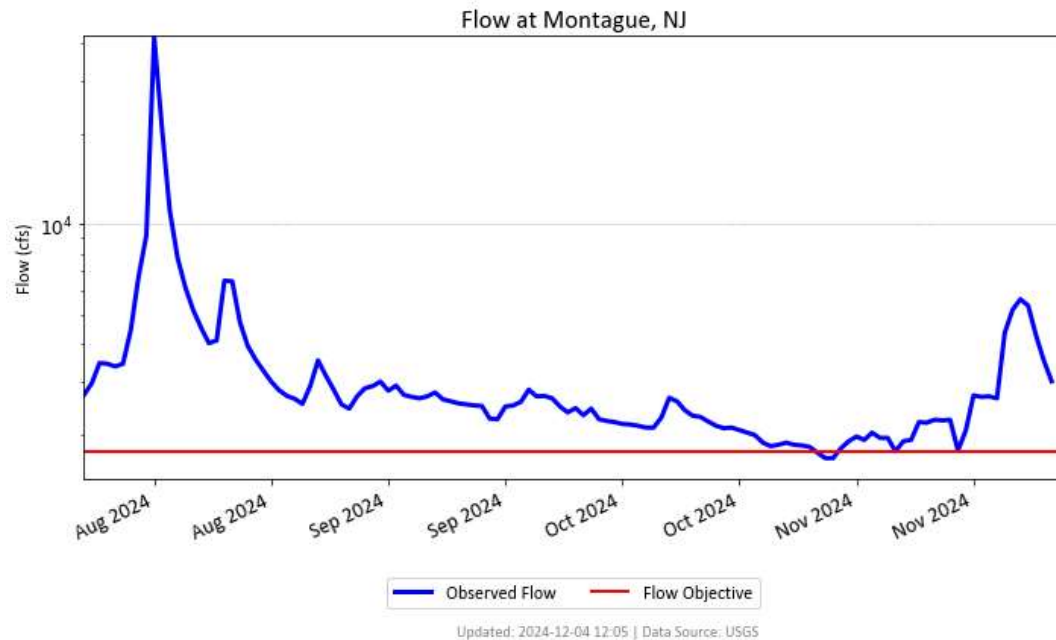
Less water was released than in 2016: 72% Montague; 34% Trenton

MONTAGUE

(ODRM 8/29 – 11/21)

48.3 BG (77 days)

Includes conservation



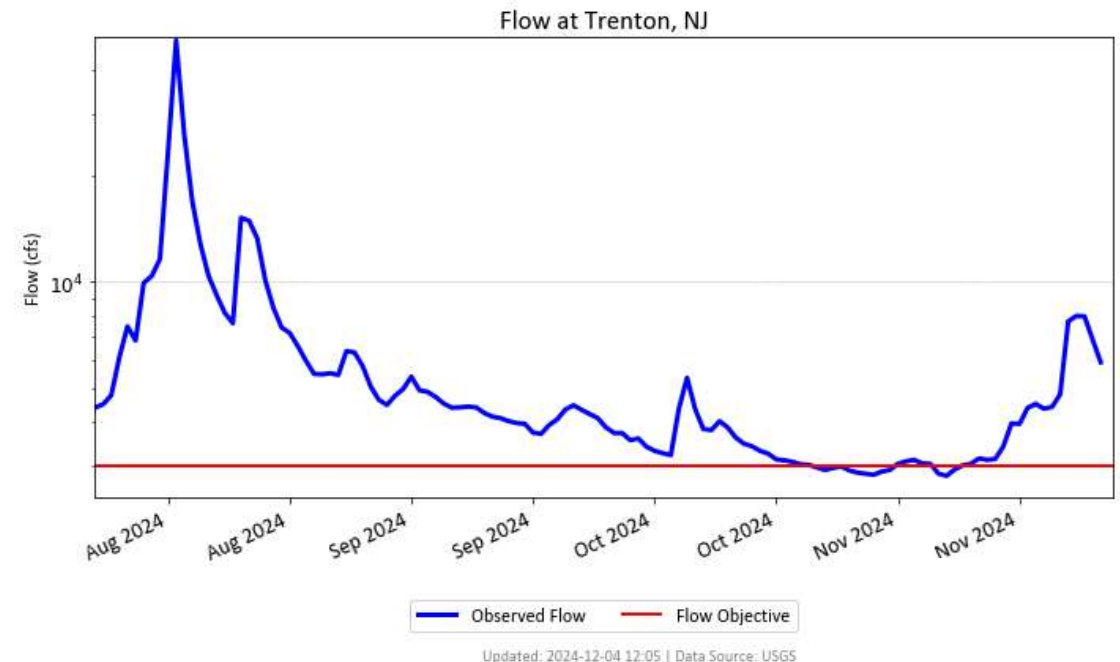
TRENTON

(DRBC - 10/26 - 11/17 intermittent)

Beltzville - 3.03 BG (21 days)

TEFO Bank (from NYC) - 1.87 BG (9 days)

Excludes conservation



Raub's Island – near Riegelsville, PA

Large area of riverbank was exposed after no rain in October.

NOV 6
Trenton
2,900 cfs



NOV 30
Trenton
8,010 cfs

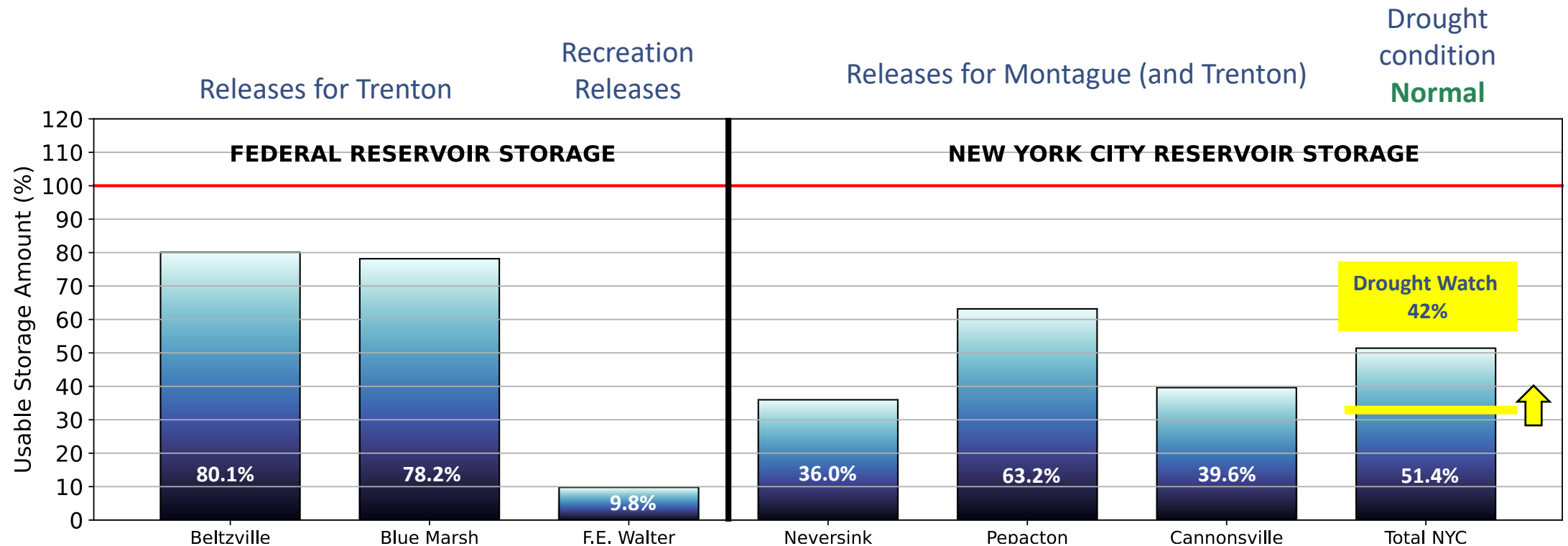


Photo credit: John Yagecic

Reservoir Storage for Flow Management

Lower Basin is OK. NYC combined storage is approaching Drought Watch.

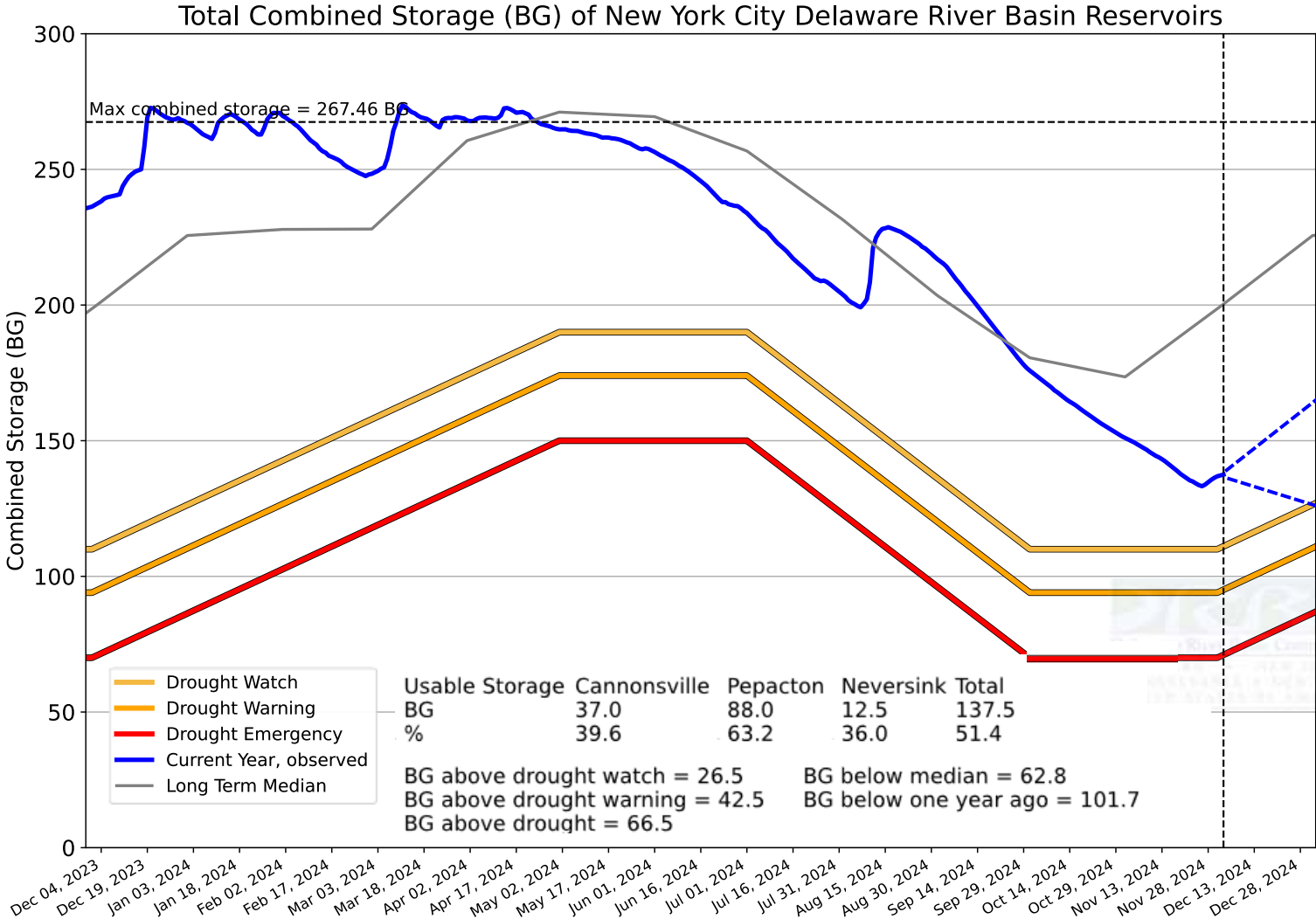
Releases from Lower and Upper Basin Reservoirs are used to meet flow objectives.



Blue Marsh is 78.2 percent of full summer pool and 100 percent of its winter pool. FE Walter is percent of summer pool.

New York City Reservoir Storage

Low rainfall and high directed releases are reflected in the combined storage.

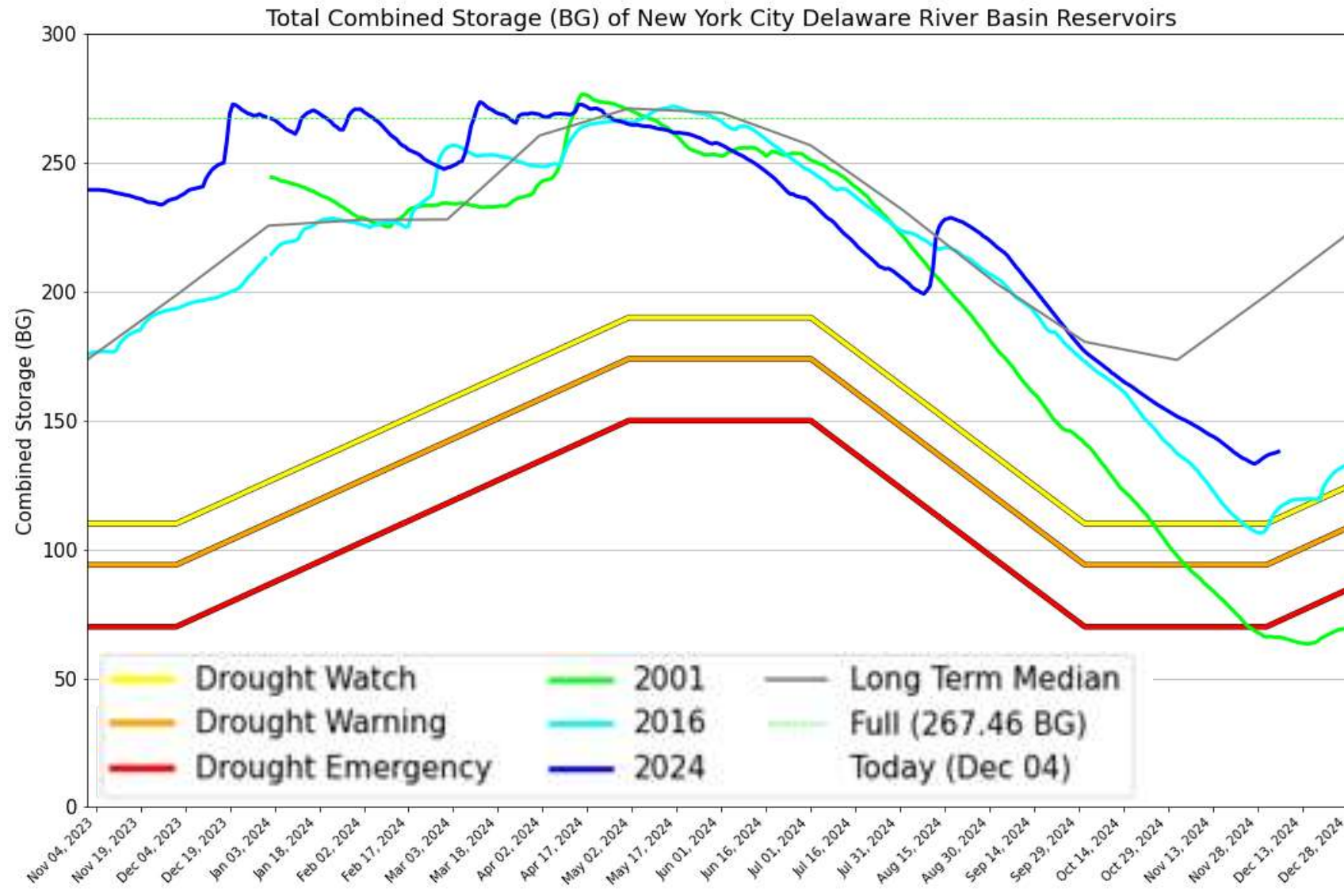


Aqueduct Project
Cancelled 11/18

?
diversions to resume

New York City Reservoir Storage – Dry Years

The lack of diversion during October and November was beneficial.



DRBC Drought Operations

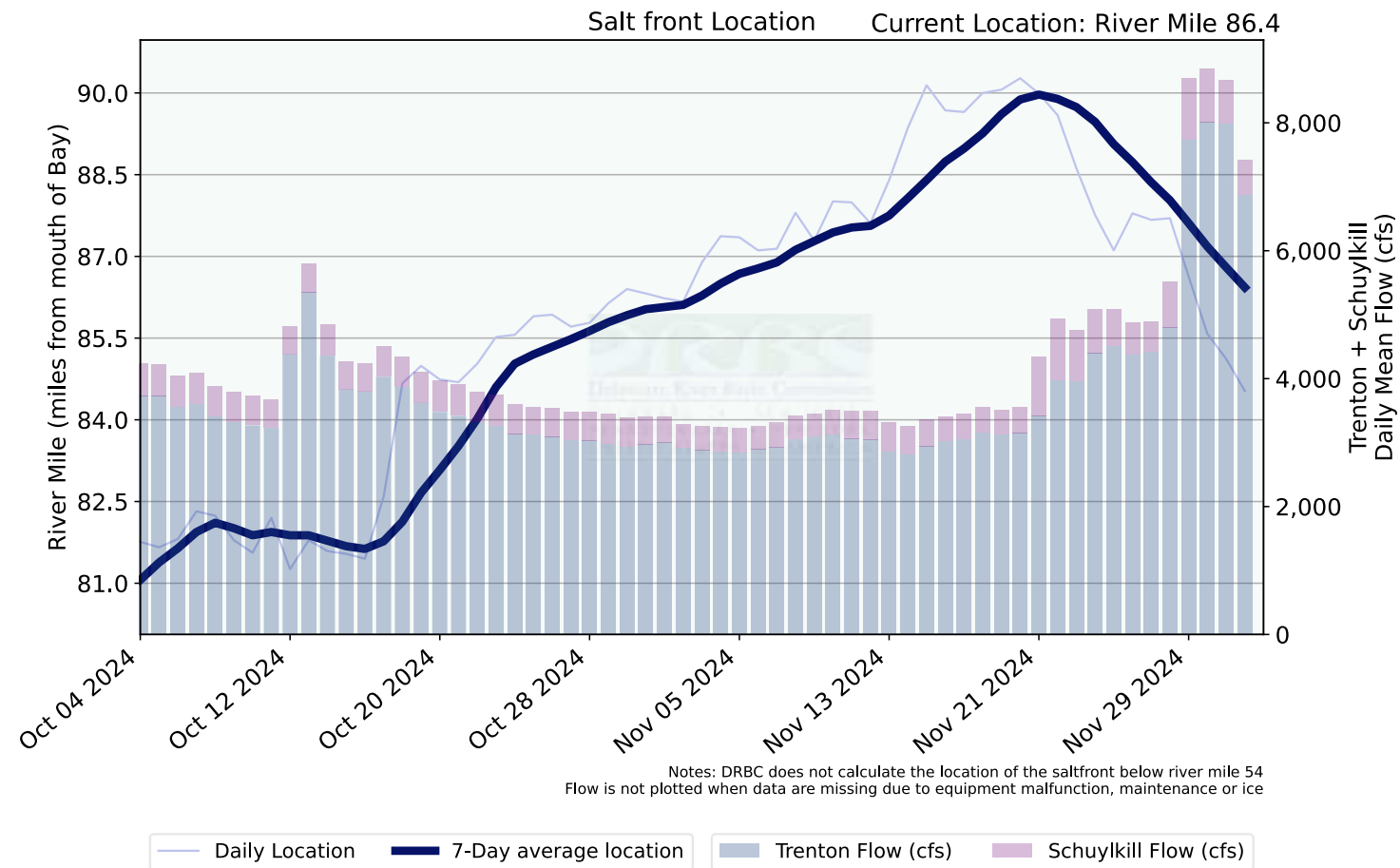
preserve regional (NYC) storage – repel salinity – support flow

protect major water supplies

- Storage defines status
- Protect major water supplies
- Maintain mainstem flows
- Access to additional storage
(drought stage dependent)
- Complementary to states
(e.g., interstate water)
- Phased reductions
 - out-of-basin diversions
 - flow objectives
 - reservoir releases
- Conservation
 - voluntary
 - consumptive use replacement
 - docket requirements

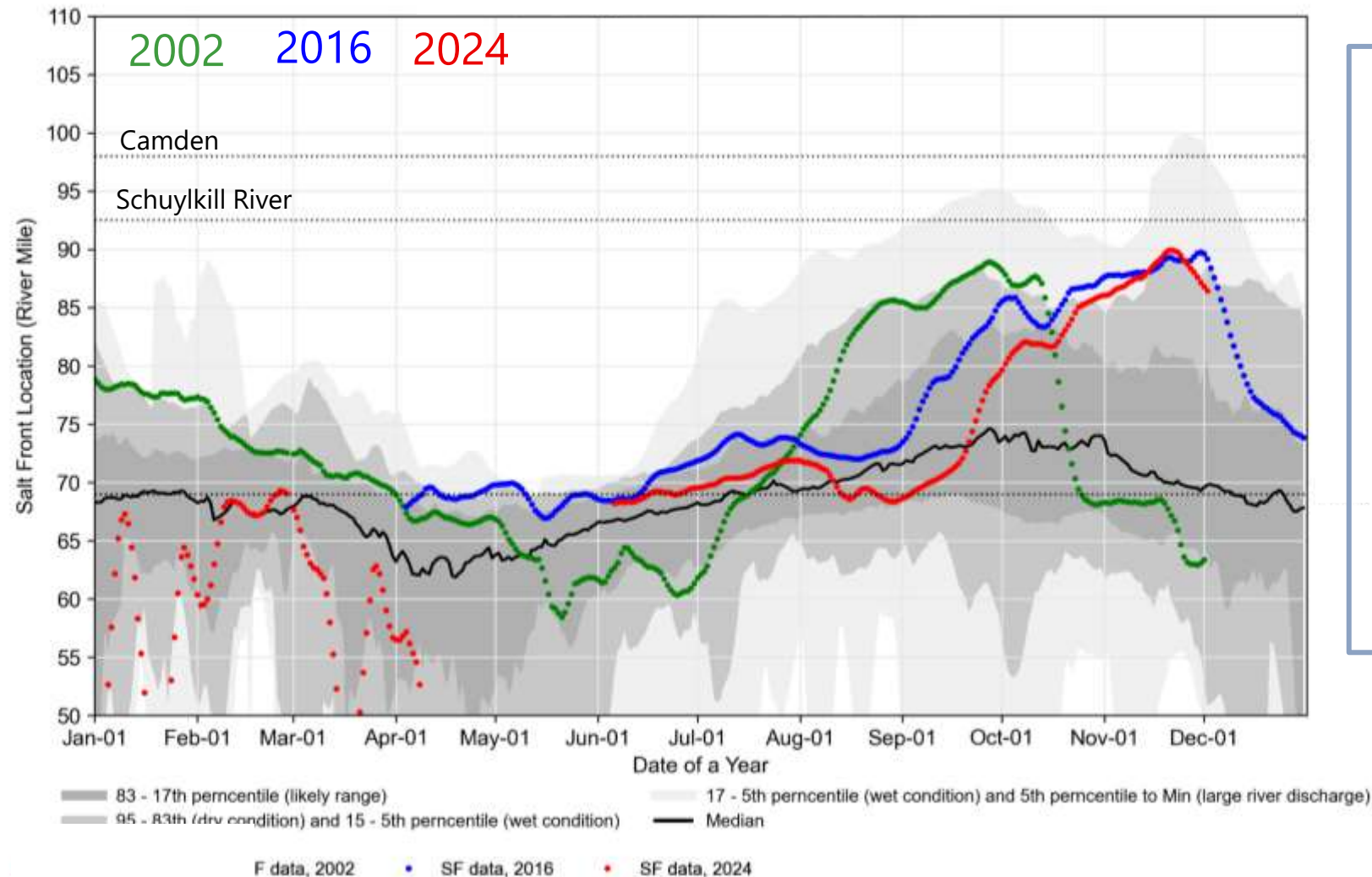
Salt Front Location

The salt front is at RM 85.4. Its most upstream location was RM 90 on 11/21.



Salt Front during recent dry periods

The upstream movement of the salt front and timing were similar to 2016.



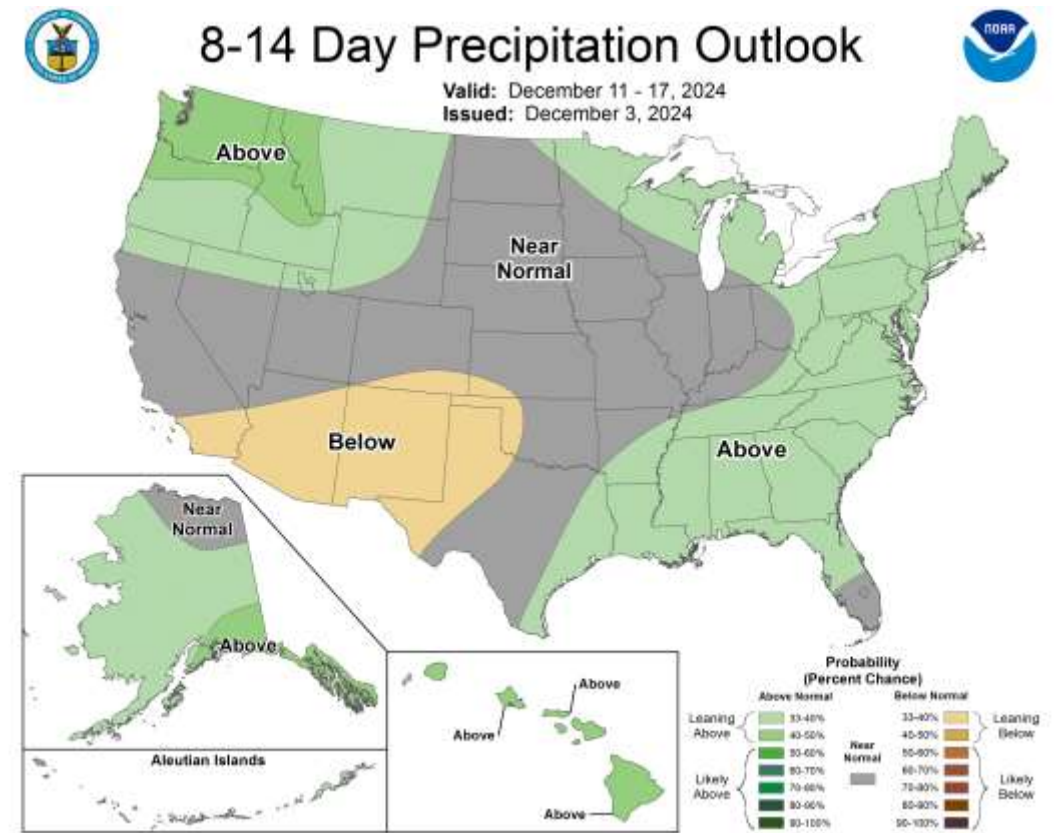
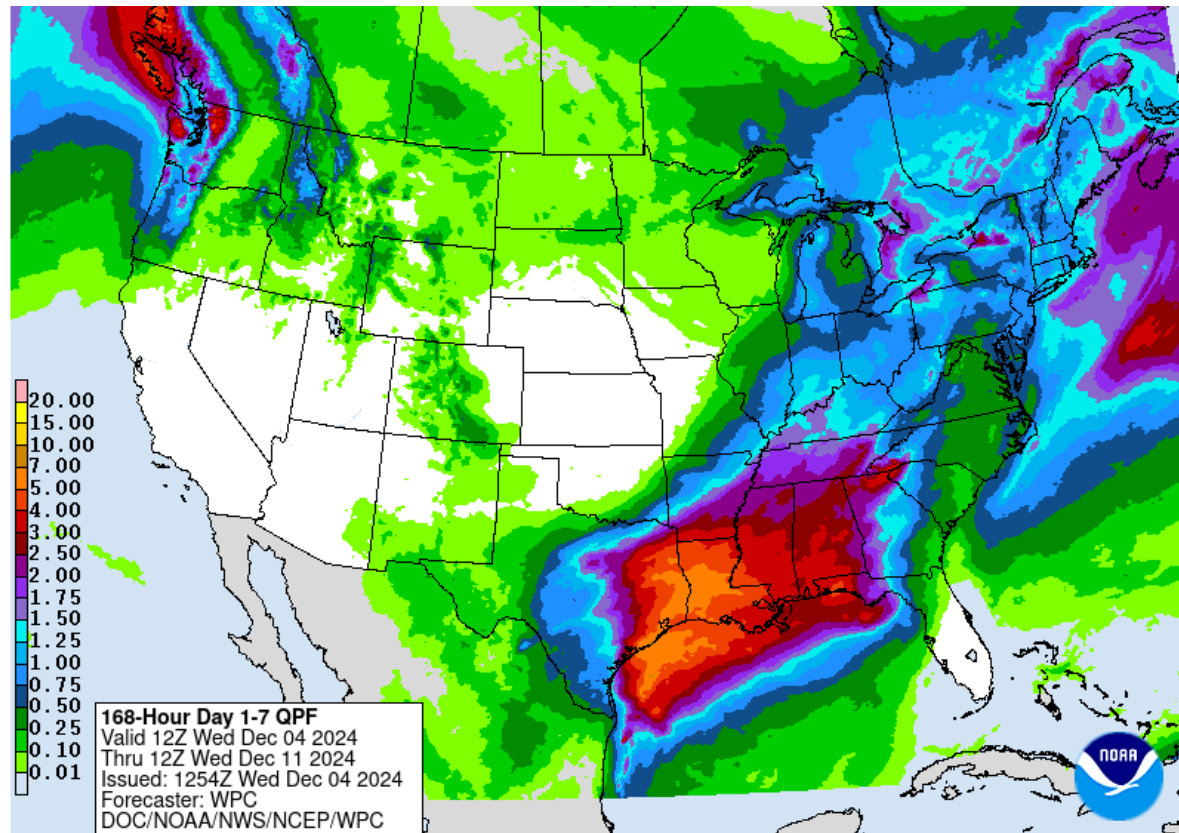
Today:
RM 85
Darby Creek

Most Upstream:
RM 90 on 11/21
near airport

December Normal:
RM 69
Delaware Memorial
Bridge

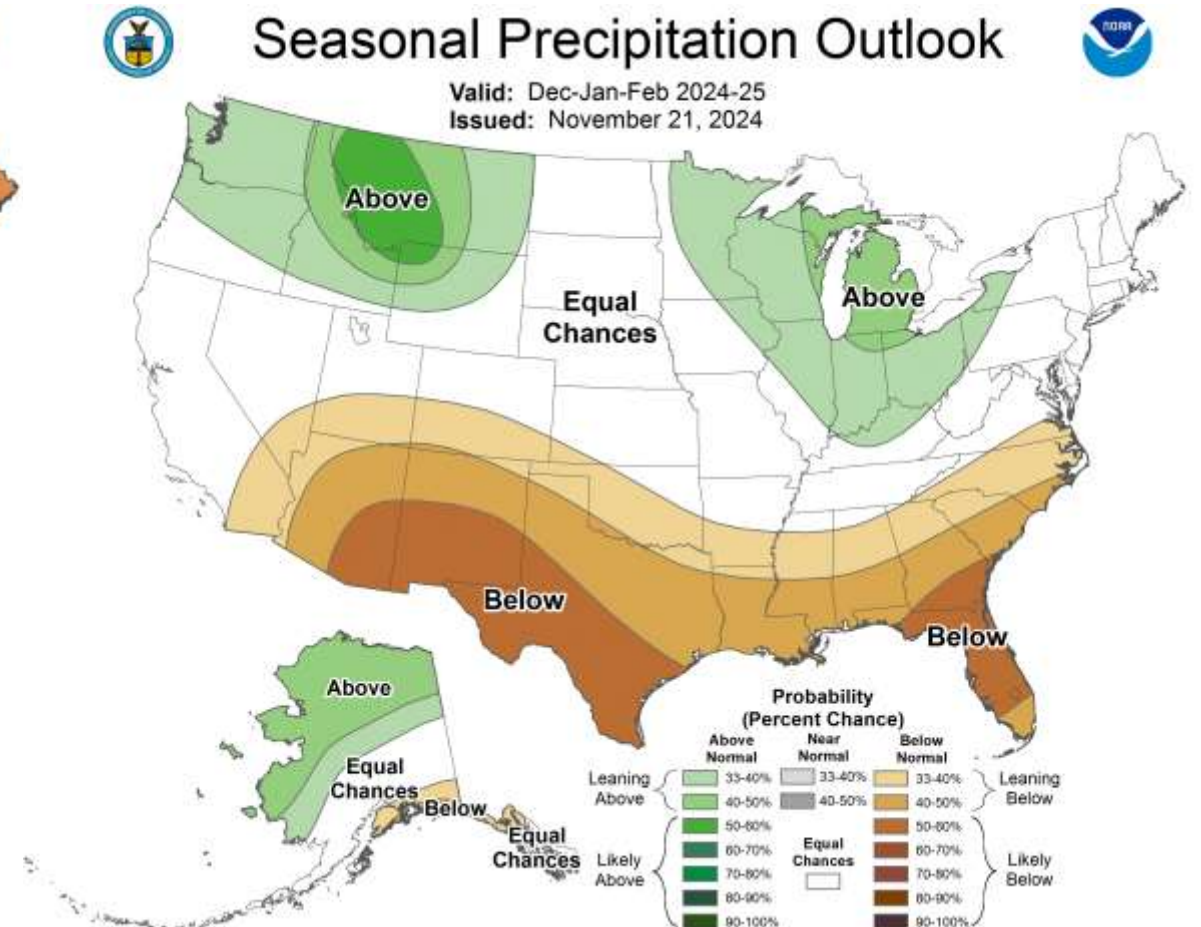
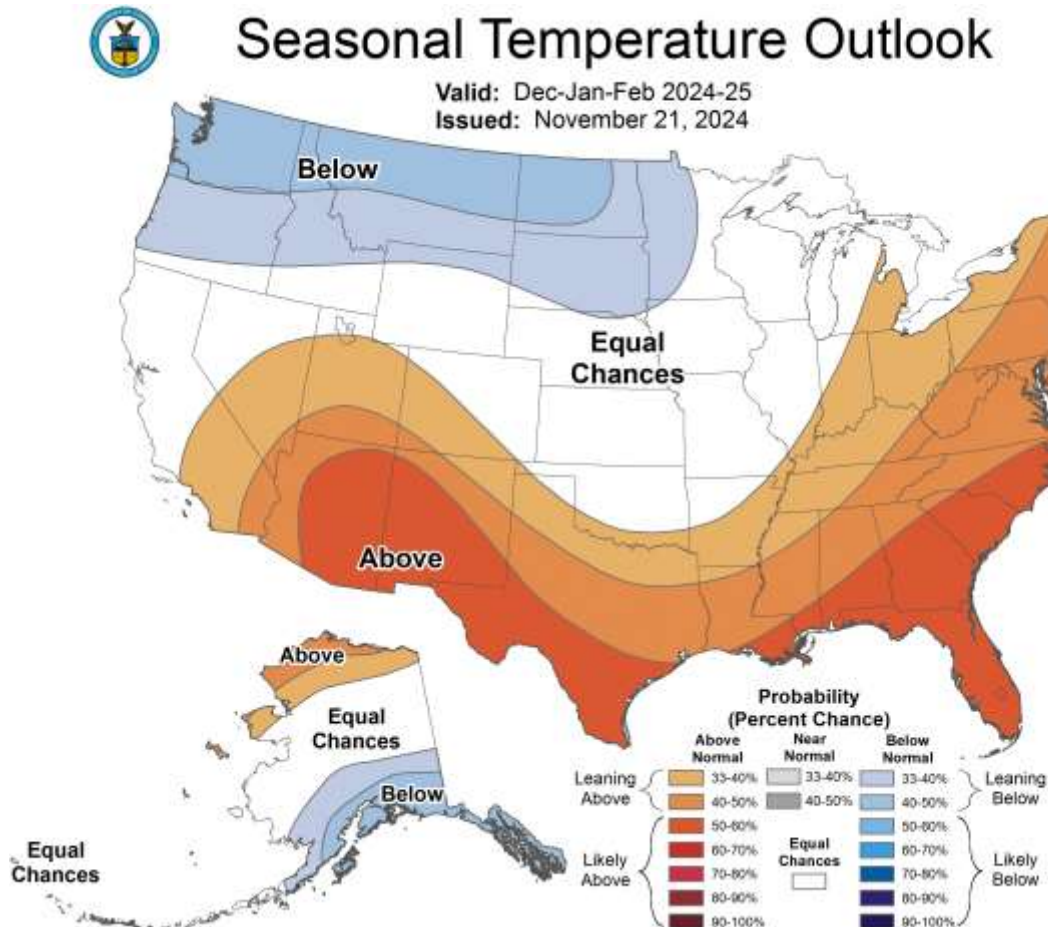
Near-term Outlook

Precipitation forecasts for the next two weeks are promising.



Three-Month Outlook

La Nina winters are typically warmer and wetter.

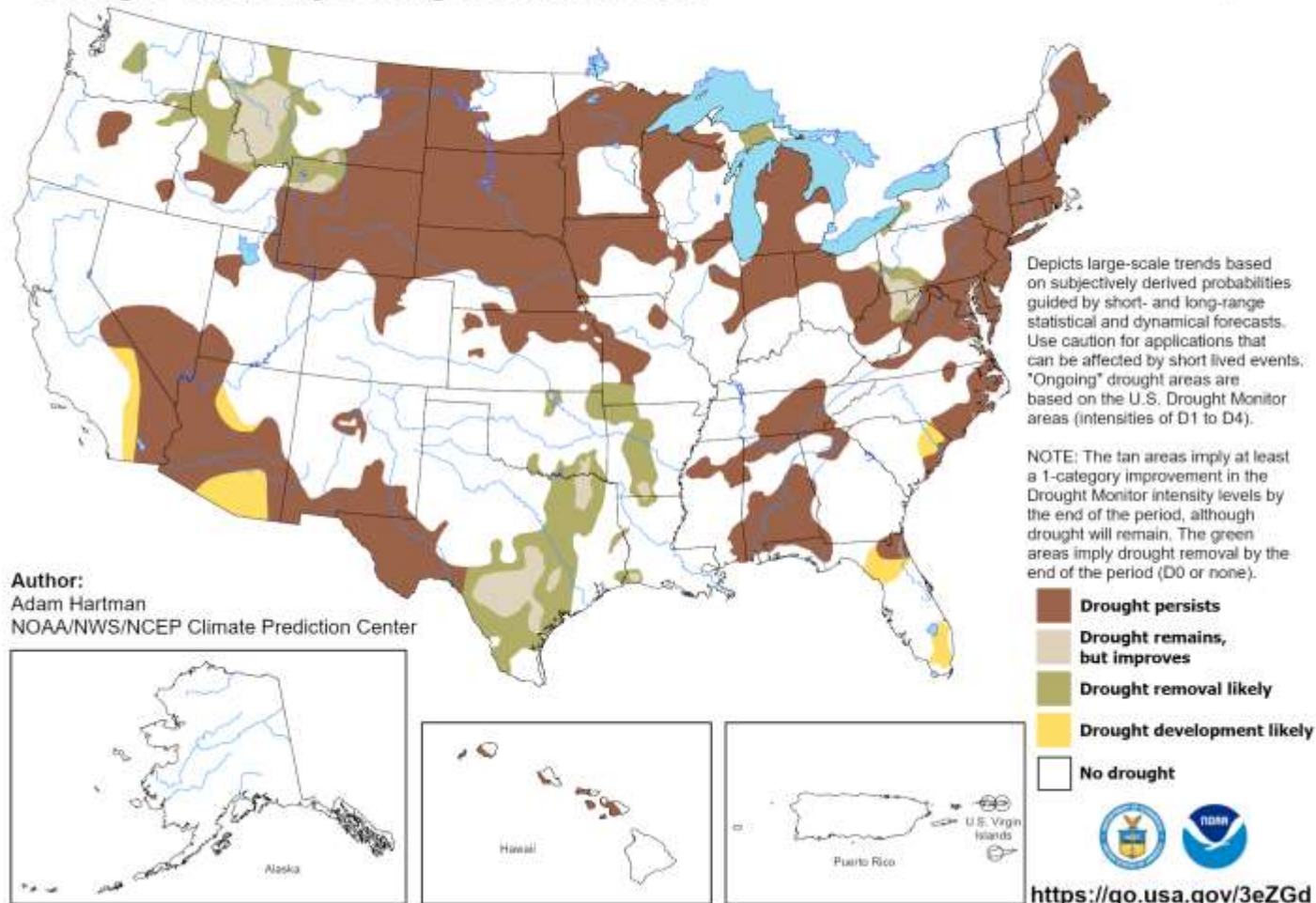


Drought Outlook

Drought conditions are expected to persist.

U.S. Monthly Drought Outlook Drought Tendency During the Valid Period

Valid for December 2024
Released November 30, 2024





- Recent precipitation - minimal effect on flow and storage
- Near term outlook - promising, but forecasts change
- Three-month outlook
 - Temperatures - warmer
 - Precipitation – who knows?



Best wishes for the holidays and 2025.

Thank you for caring about the Delaware River Basin.