

# Delaware River Basin Commission

## Hydrologic Conditions

***Amy L. Shallcross, PE***

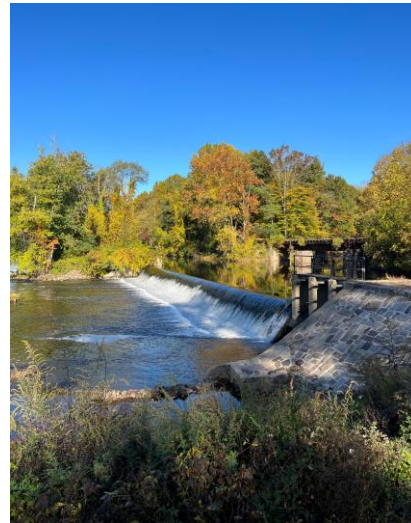
Manager, Water Resource Operations

***Anthony Preucil***

Water Resource Scientist

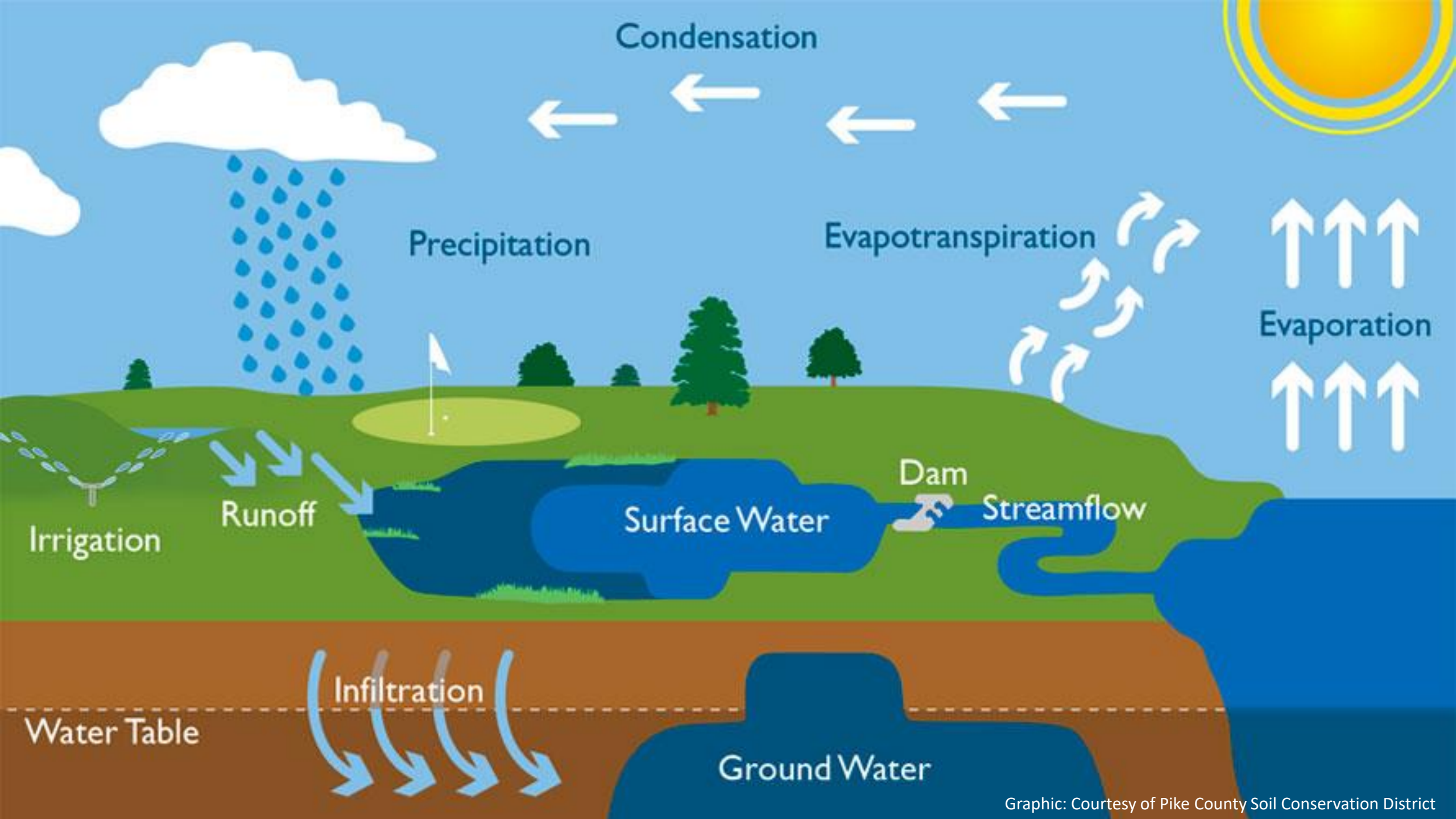
Commission Business Meeting

March 8, 2023



**Delaware River Basin Commission**

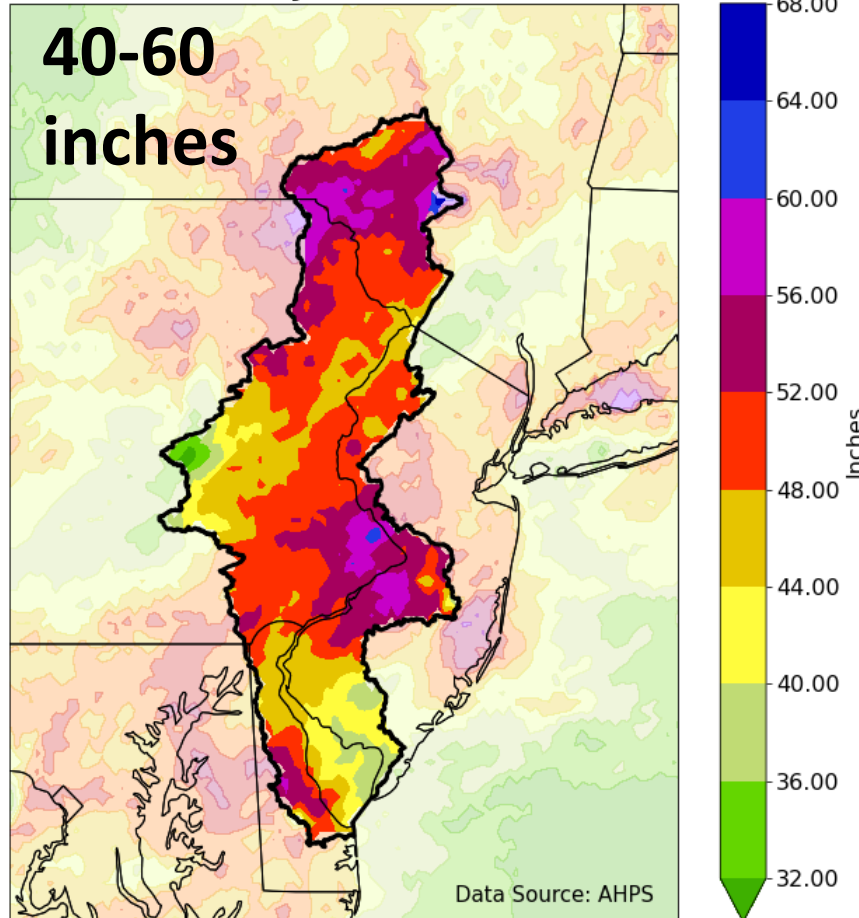
DELAWARE • NEW JERSEY  
PENNSYLVANIA • NEW YORK  
UNITED STATES OF AMERICA



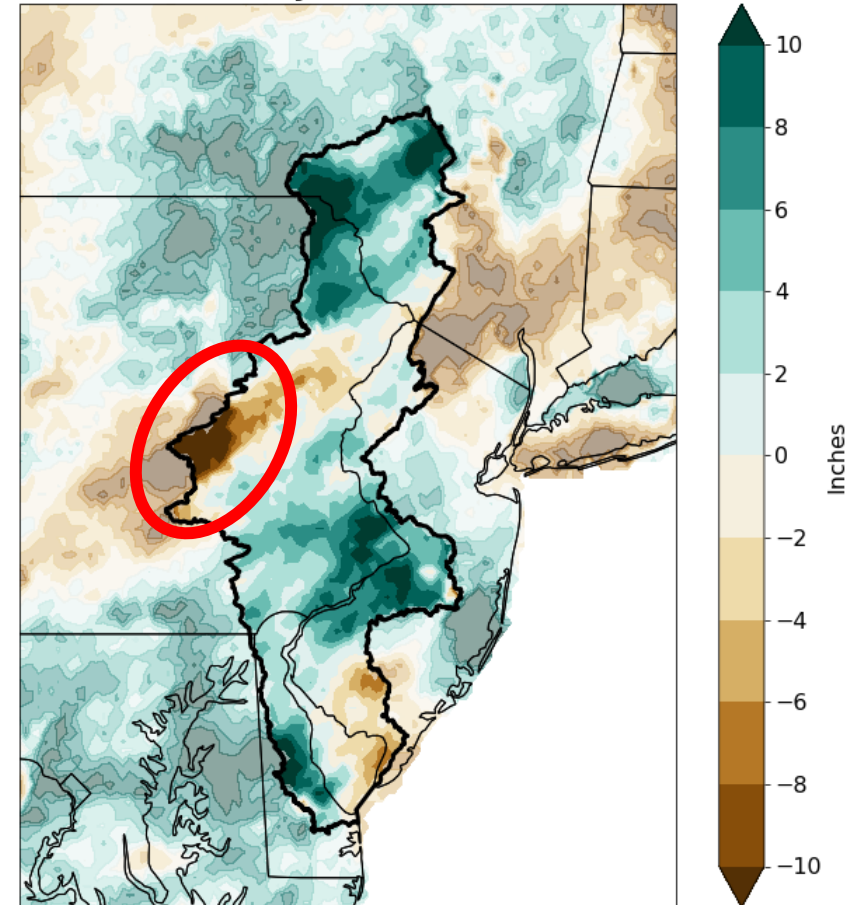


# 365 Day Precipitation

**Total Precipitation Accumulation  
Last 365 Days (March 7, 2023)**



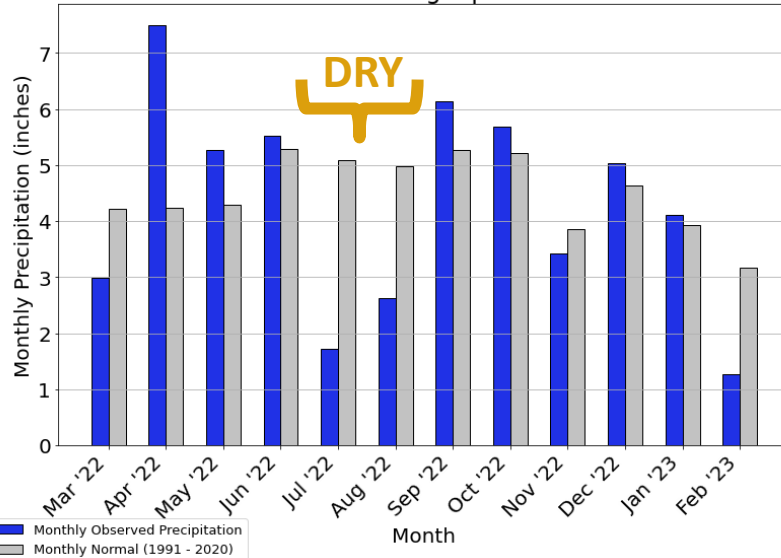
**Departure from Normal Precipitation  
Last 365 Days (March 7, 2023)**



# 365 Day Precipitation

## Upper Basin

Monthly and Normal Precipitation  
Middle Delaware-Mongaup-Brodhead basin



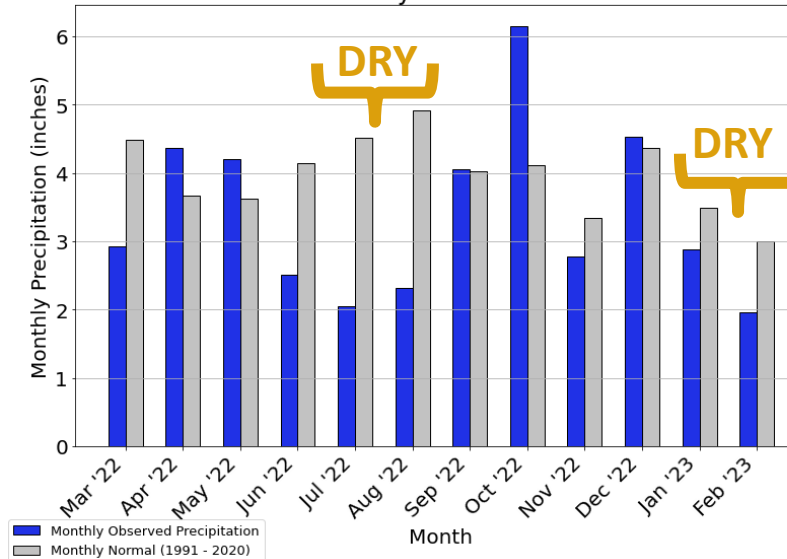
Locator Map



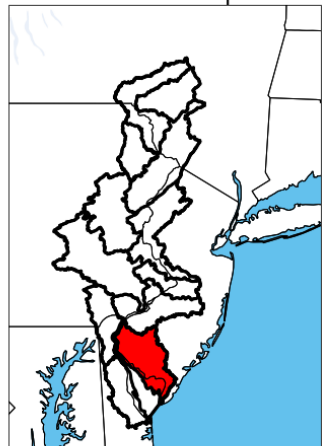
Source: ACIS, USGS HUC: 02040104  
Monthly Normal is based of 6 stations in the Middle Delaware-Mongaup-Brodhead basin

## Lower Basin

Monthly and Normal Precipitation  
Cohansey-Maurice basin



Locator Map

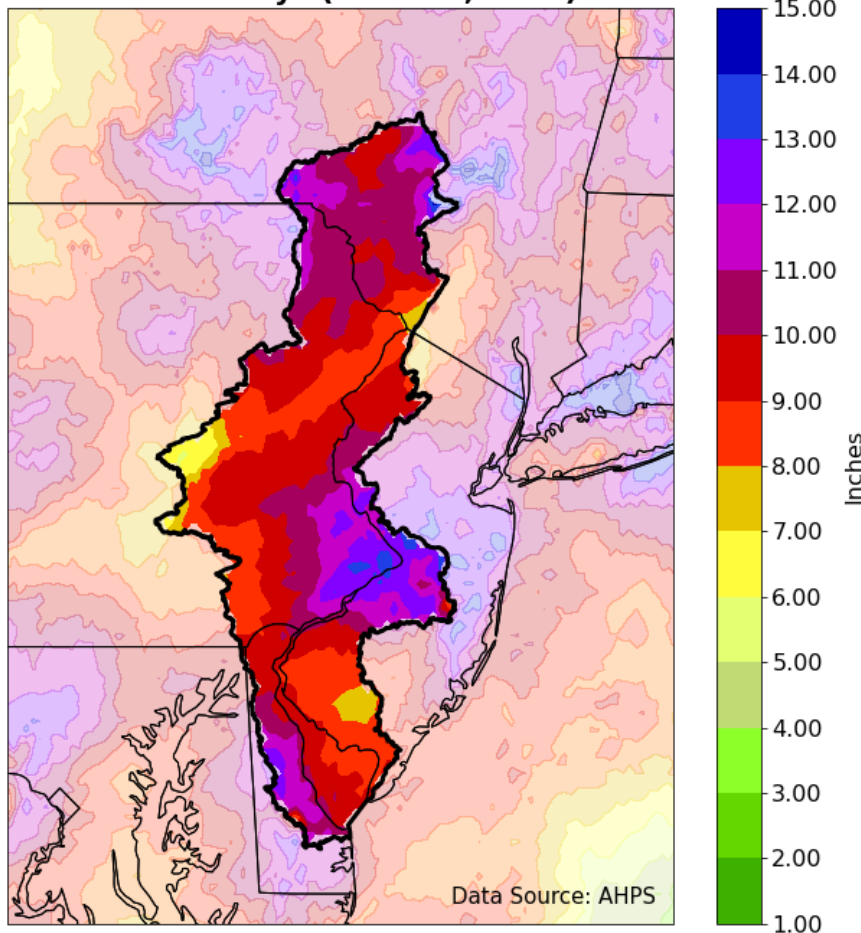


Source: ACIS, USGS HUC: 02040206  
Monthly Normal is based of 3 stations in the Cohansey-Maurice basin

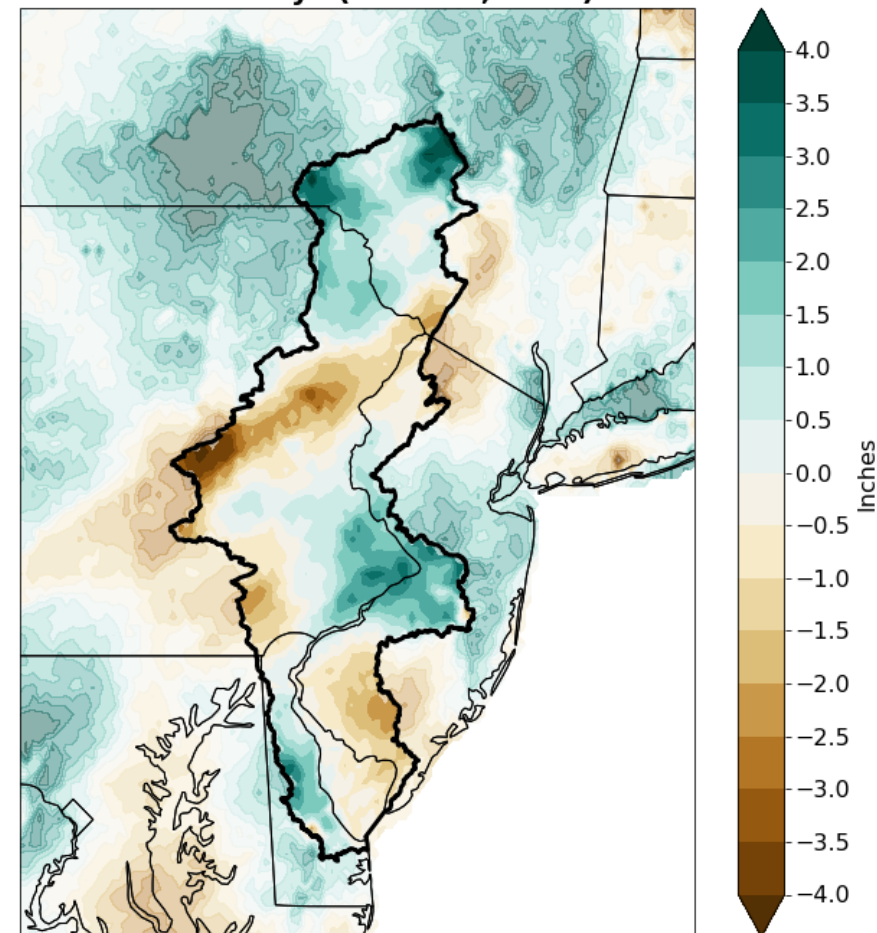
- Monthly Observed Precipitation
- Monthly Normal Precipitation (1991-2020)

# 90 Day Precipitation

**Total Precipitation Accumulation  
Last 90 Days (March 7, 2023)**

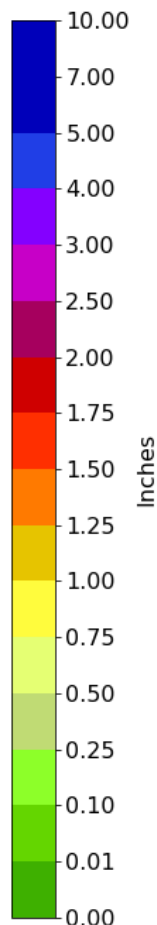
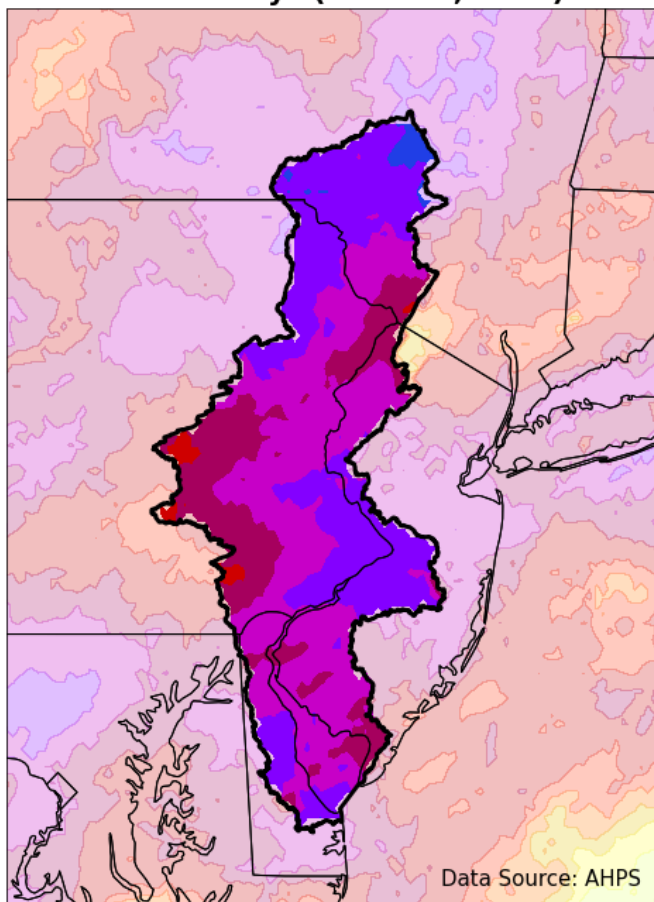


**Departure from Normal Precipitation  
Last 90 Days (March 7, 2023)**

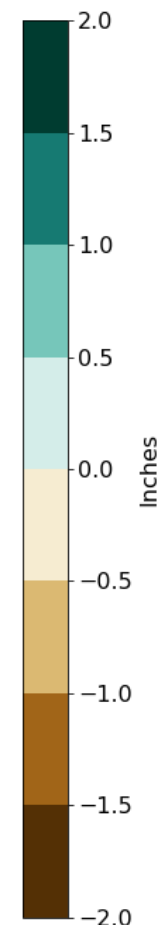
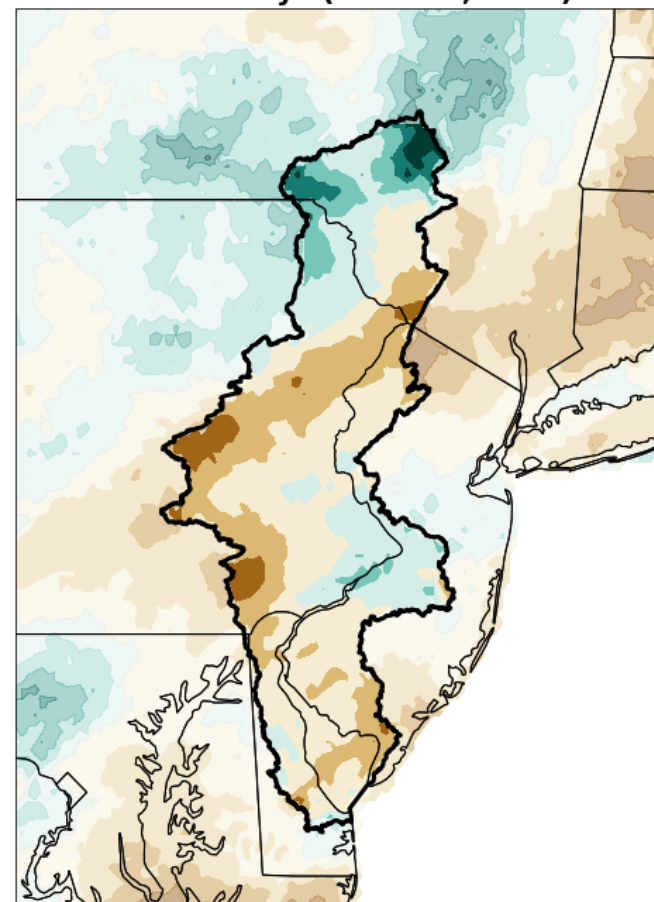


# 30 Day Precipitation

**Total Precipitation Accumulation  
Last 30 Days (March 7, 2023)**



**Departure from Normal Precipitation  
Last 30 Days (March 7, 2023)**





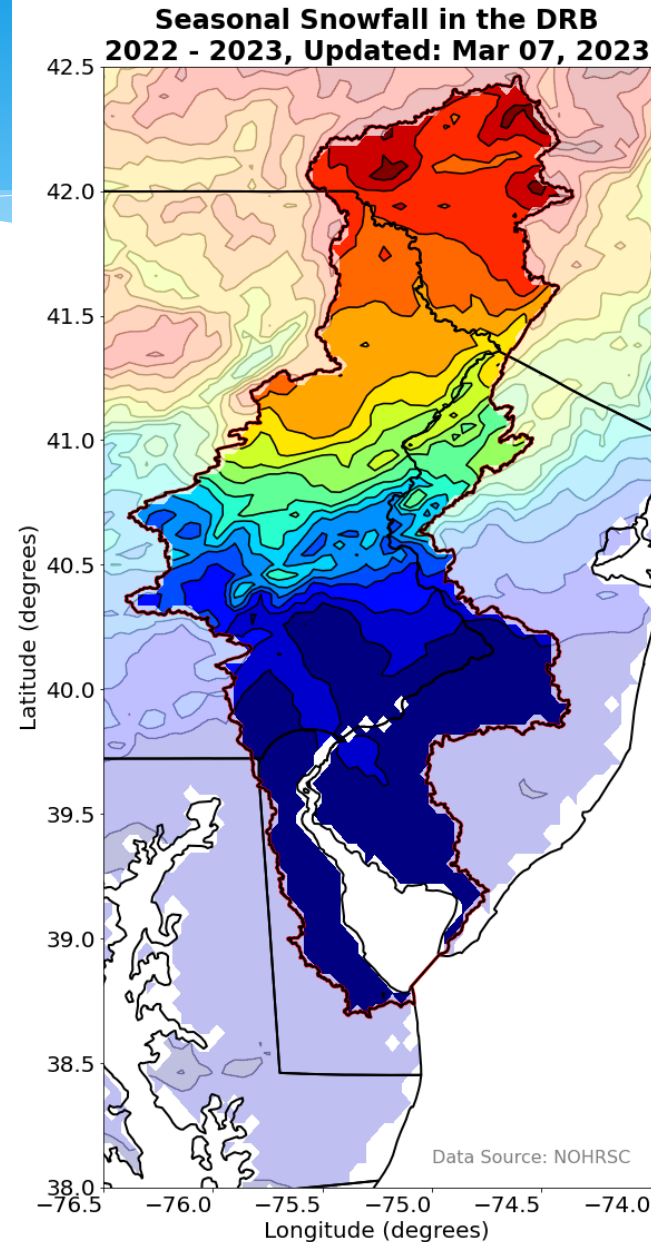
# Snow

- \* Below average for season
- \* Snow in middle-upper basin Monday night
- \* **More snow possible in upper basin Friday night into Saturday morning**
- \* ... and maybe next week.

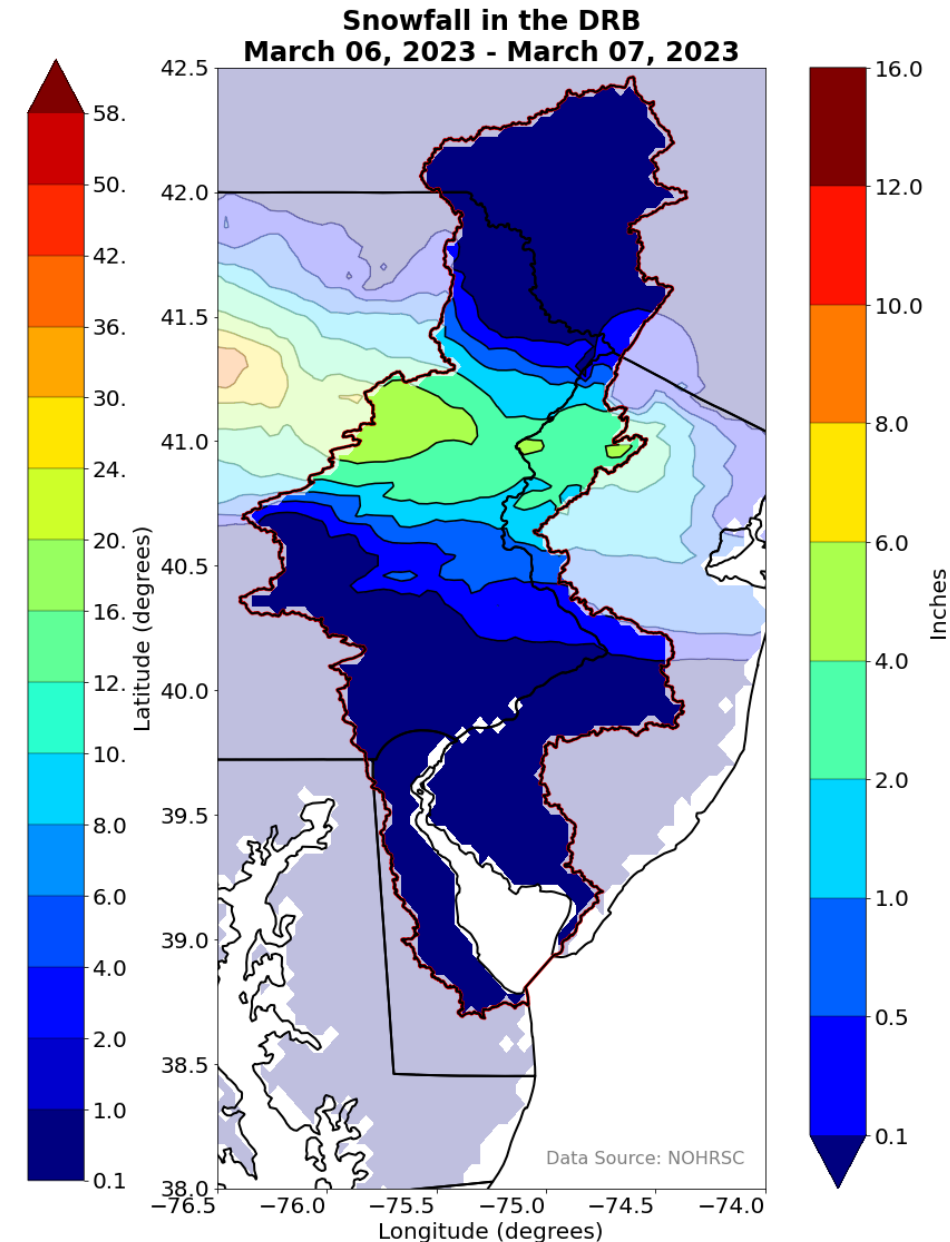
#TeamSnow



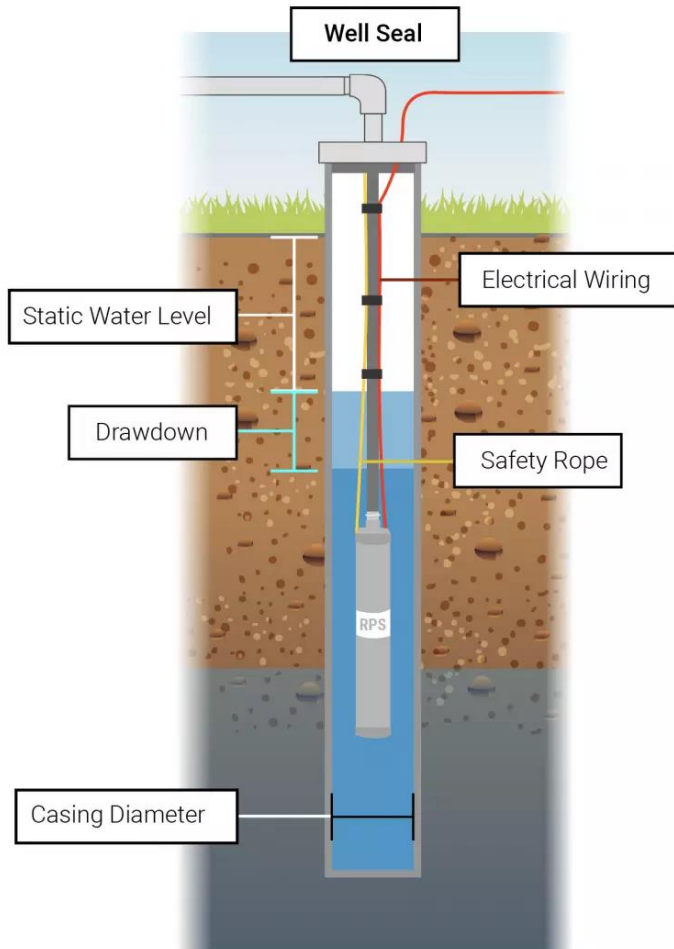
## This Winter



## Monday - Tuesday



# Groundwater Conditions

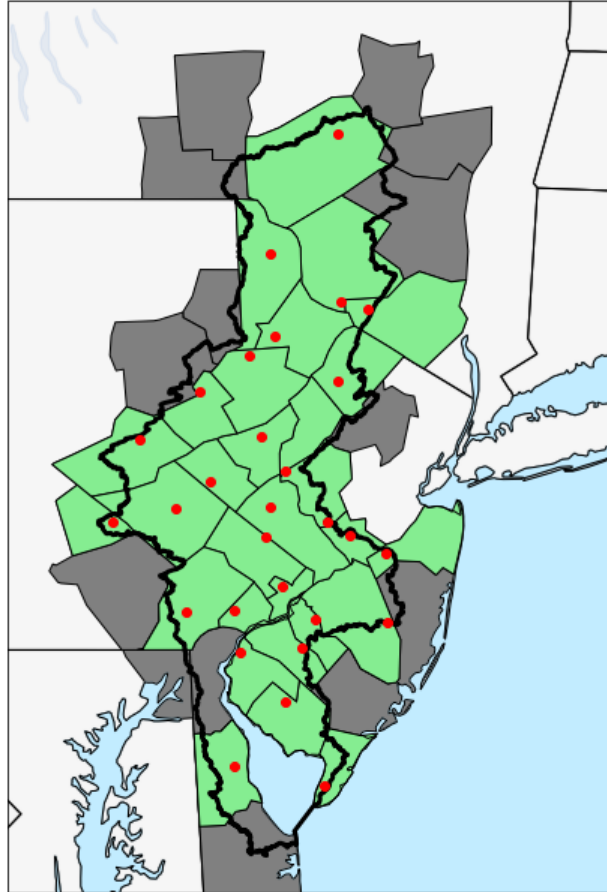


COUNTY	STATE	DATA SOURCE	WELL ID	INDICATOR AS OF 2023-03-06
Wayne	PA	USGS	WN 64	Normal
Monroe	PA	USGS	MO 190	Normal
Carbon	PA	USGS	CB 104	Drought Watch
Schuylkill	PA	USGS	SC 296	Normal
Lehigh	PA	USGS	LE 372	Normal
Bucks	PA	USGS	BK 1020	Normal
Chester	PA	USGS	CH 10	Normal
Delaware	PA	USGS	DE 723	Normal
Lebanon	PA	USGS	LB 372	Normal
Burlington	NJ	USGS	050689	Drought Watch
Cumberland	NJ	USGS	110042	Drought Warning
New Castle	DE	USGS	db24-18	Below Normal
Woodbourne	NY	USGS	sv-535	Normal

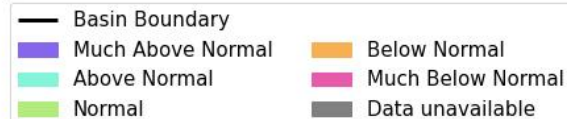
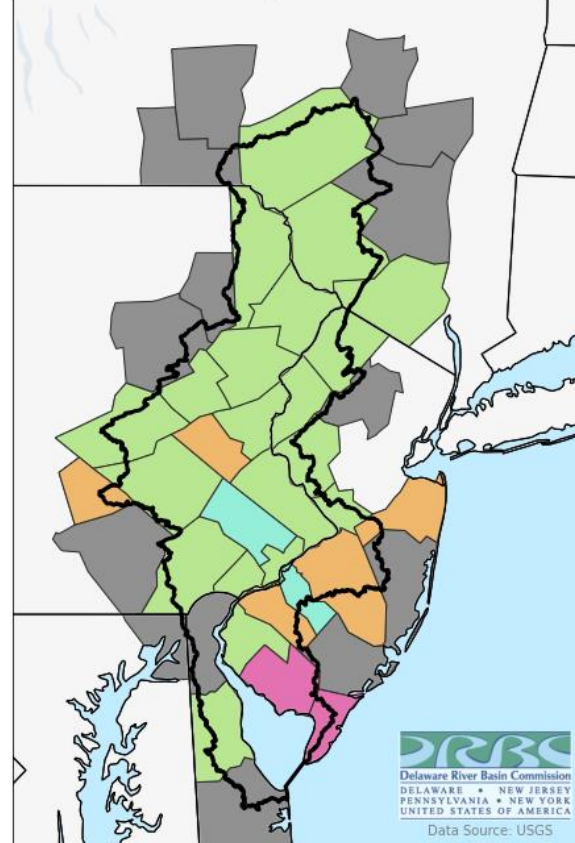


# Groundwater Conditions

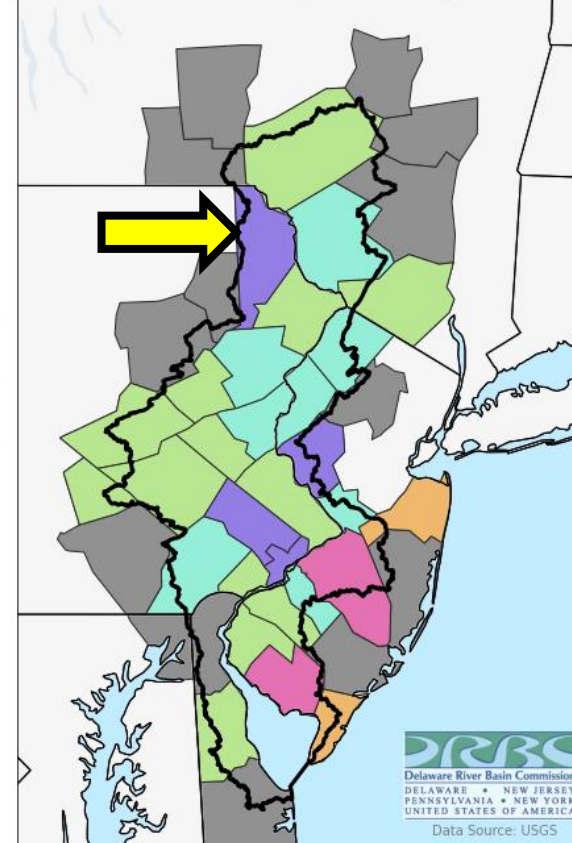
Location of groundwater wells



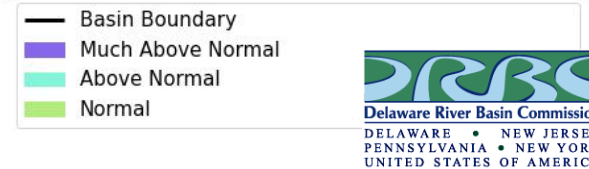
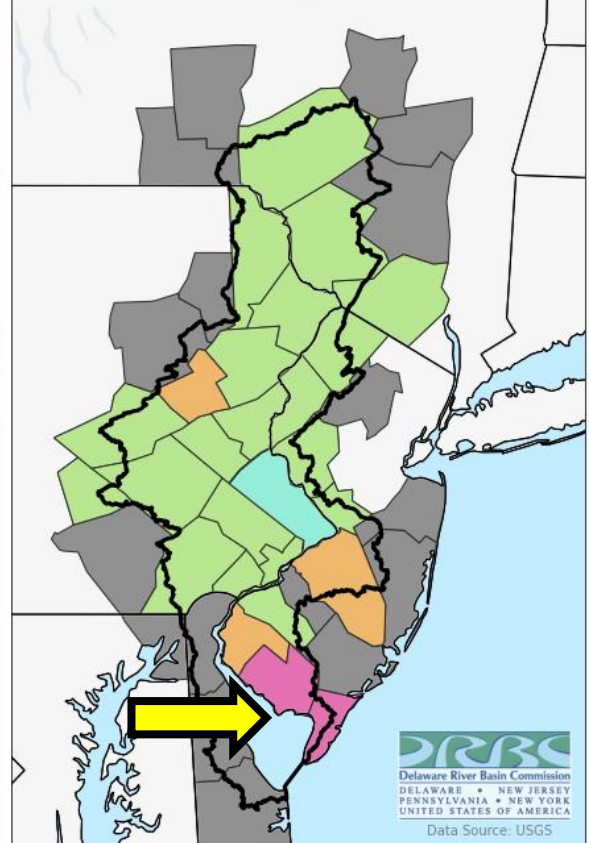
Groundwater Ranking on December 06, 2022



Groundwater Ranking on January 26, 2023



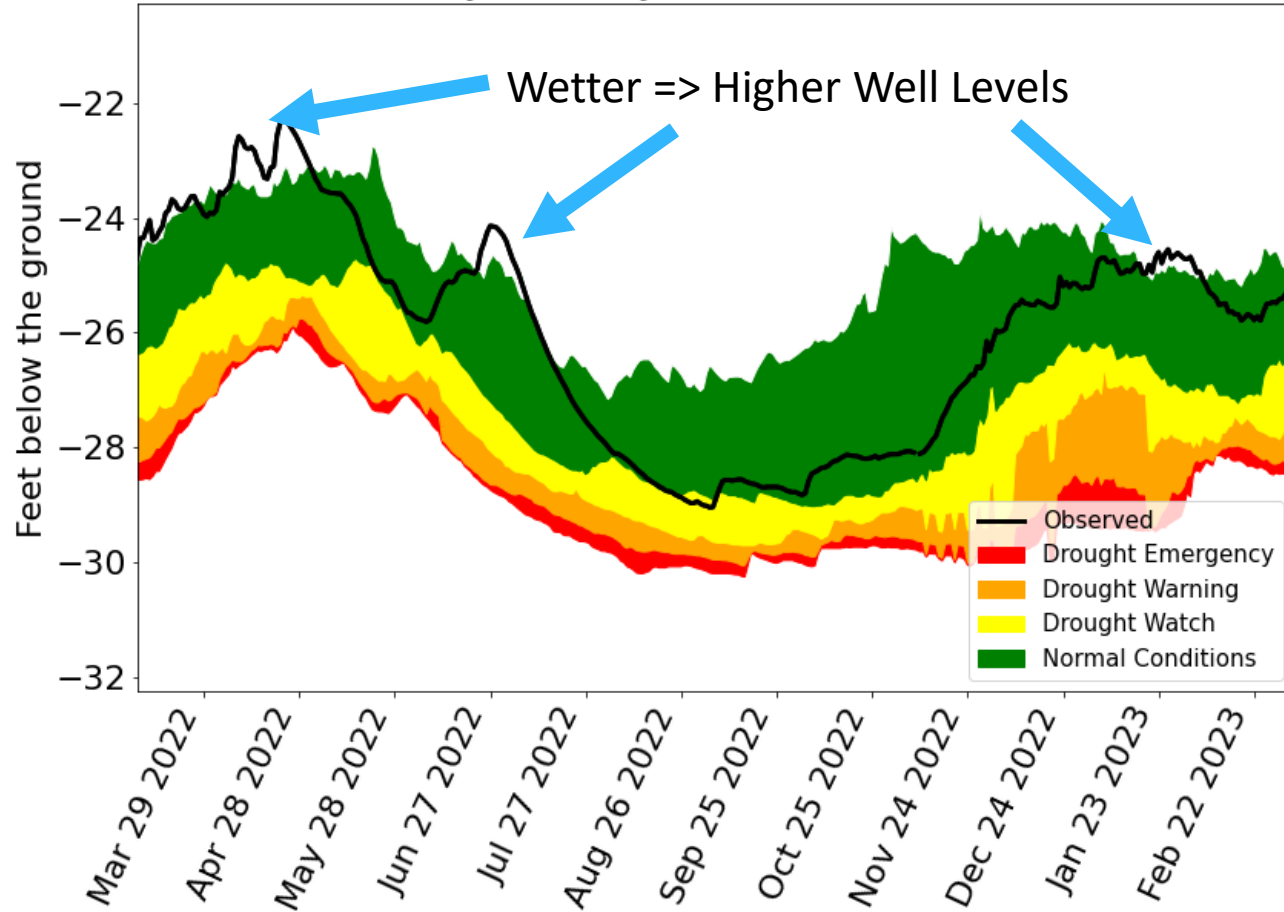
Groundwater Ranking on March 06, 2023



Well selected based on length of period of record

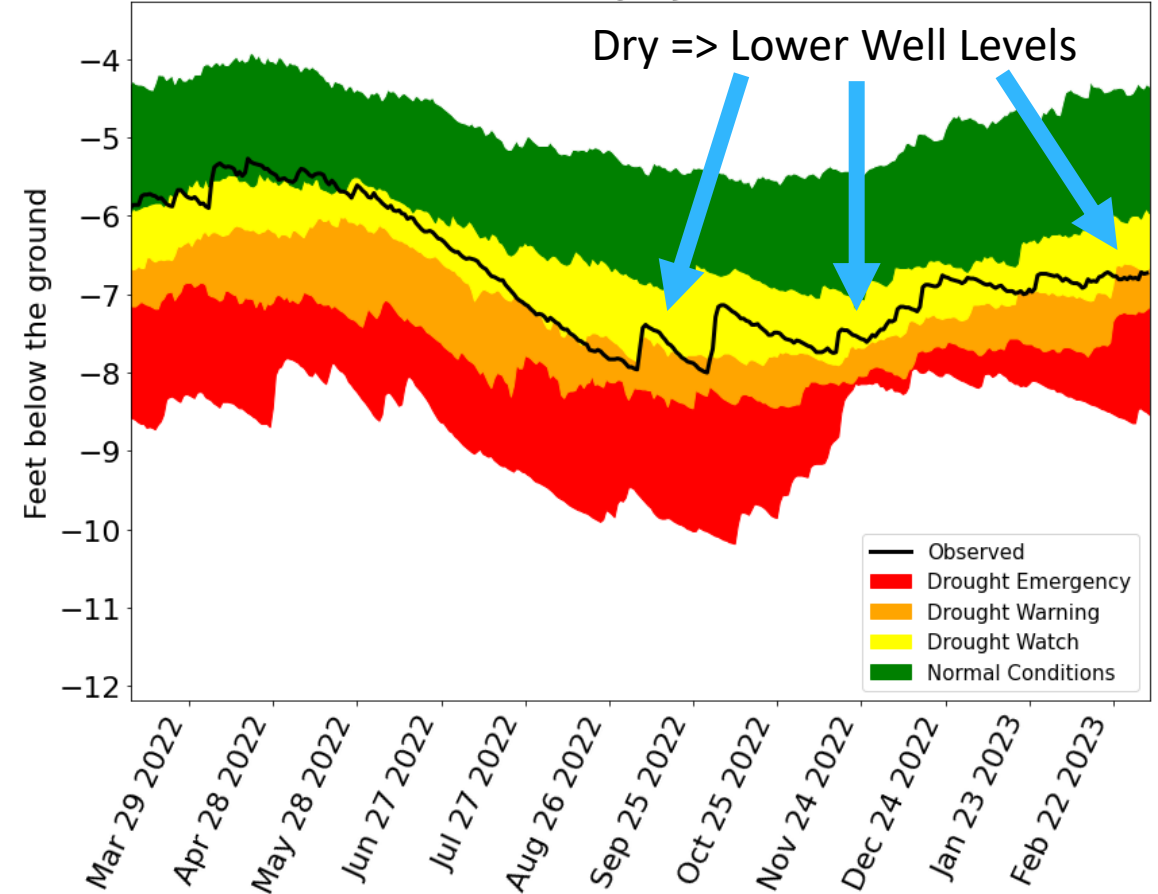
# Groundwater Well Levels

Wayne County, PA Observation Well



Upper Basin









Cumberland County, NJ Observation Well



Lower Basin

# Streamflow

Upper Basin: Above Normal  
Central Basin: Normal/ Above Normal  
Lower Basin: Normal/Below Normal

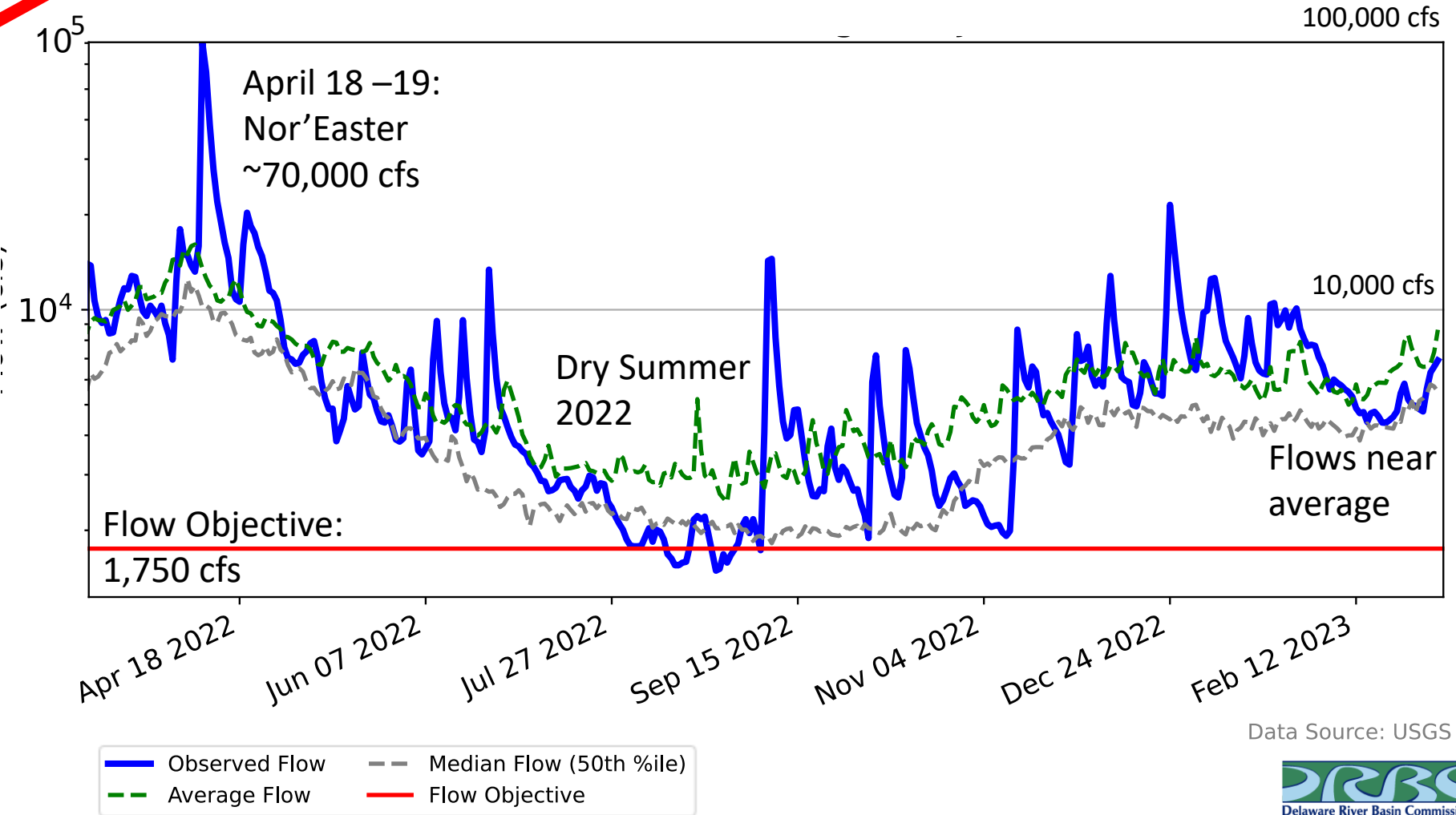
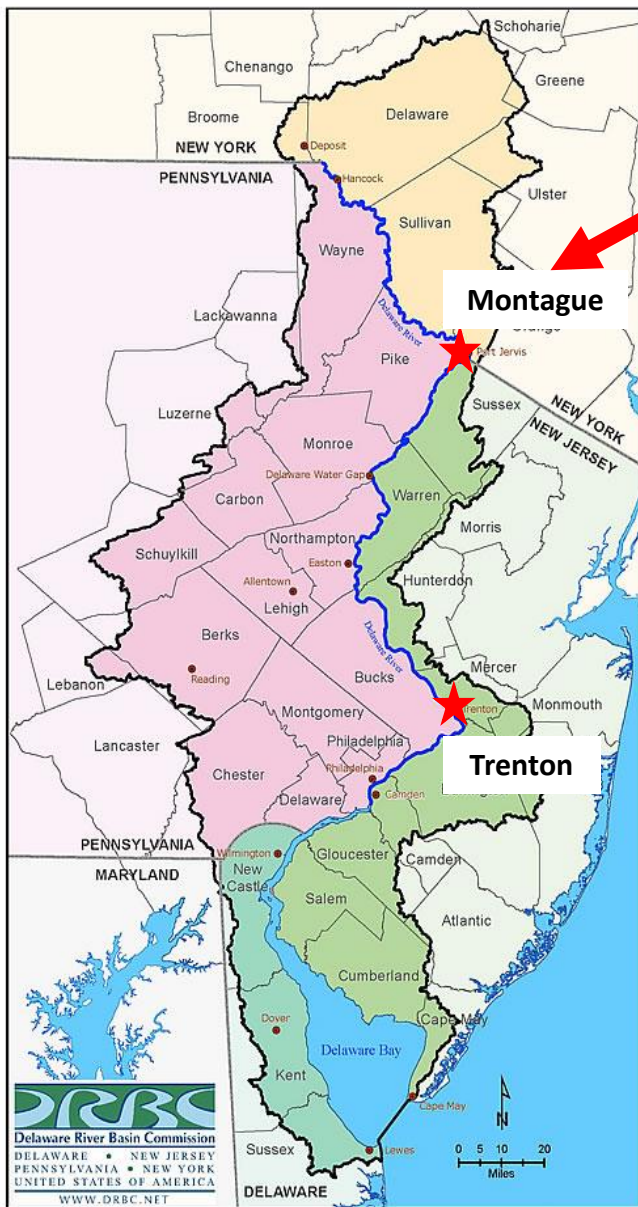
Explanation - Percentile classes							
							
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

March 8, 2022, 7:00 am

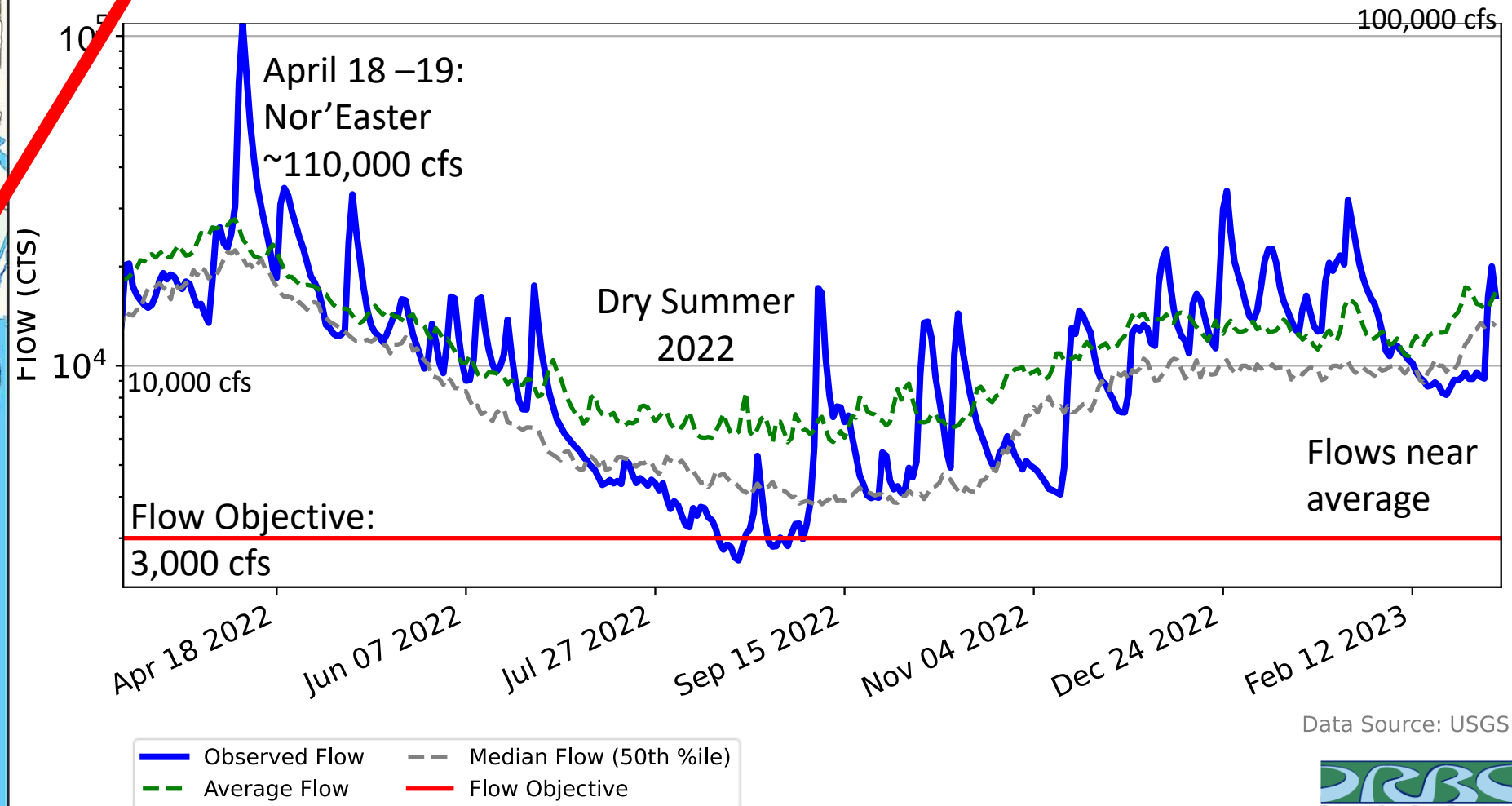
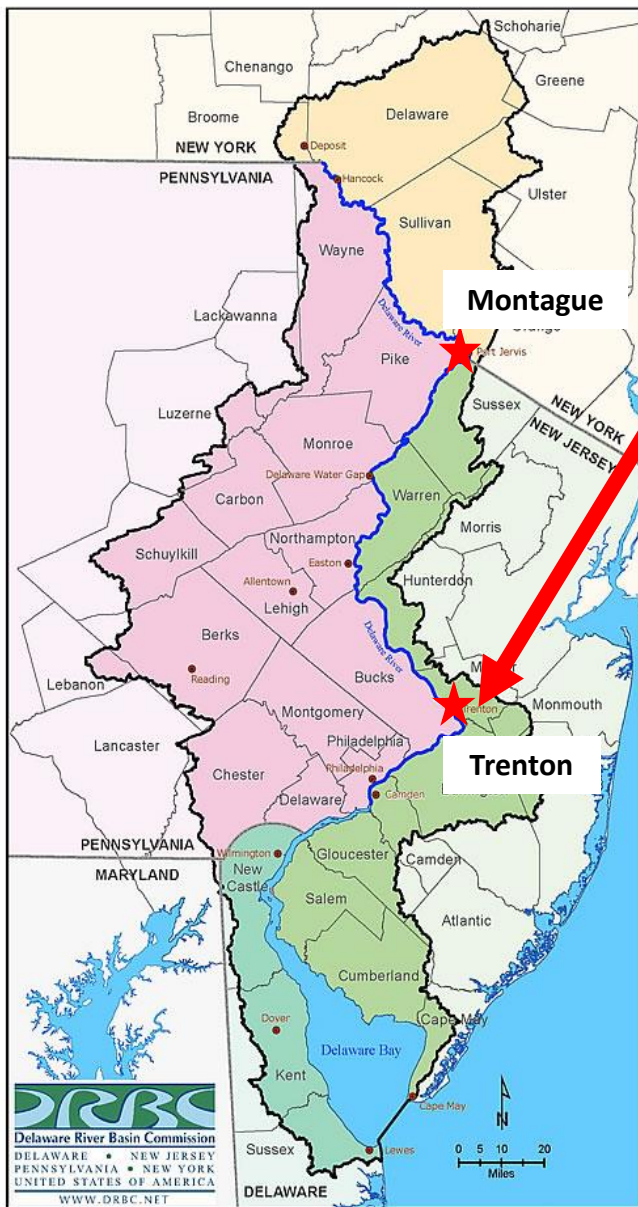
Source: United States Geological Survey (USGS)  
<https://waterwatch.usgs.gov>



# Flow at Montague, N.J.



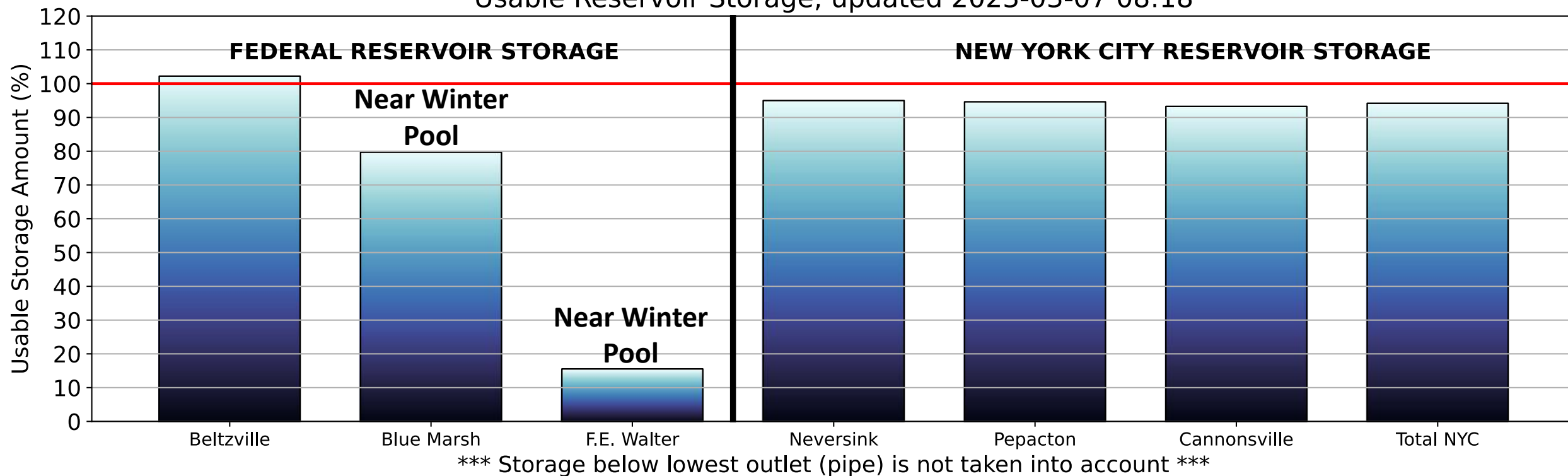
# Flow at Trenton, N.J.



Data Source: USGS

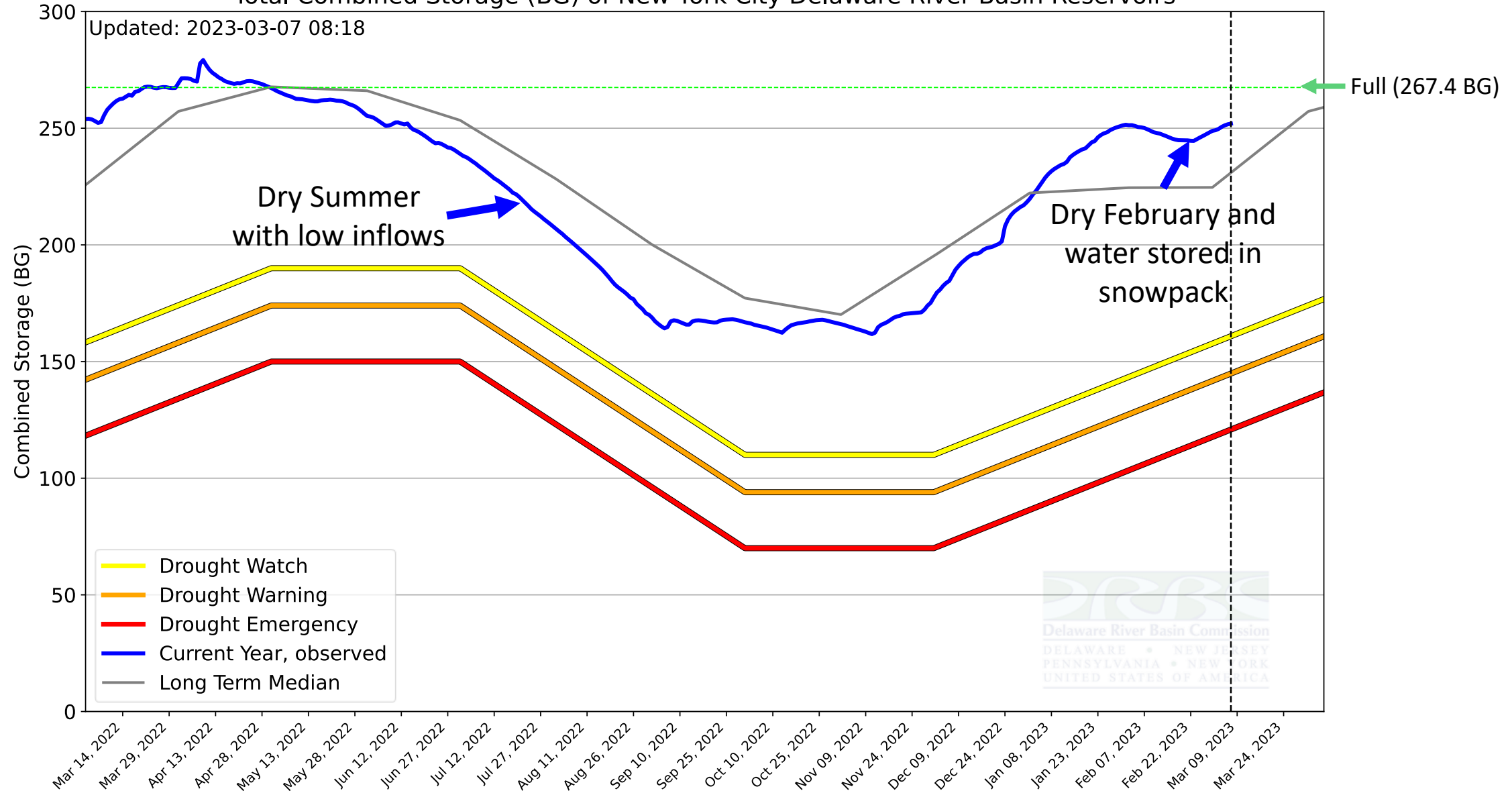
# Basin Storage

Usable Reservoir Storage, updated 2023-03-07 08:18



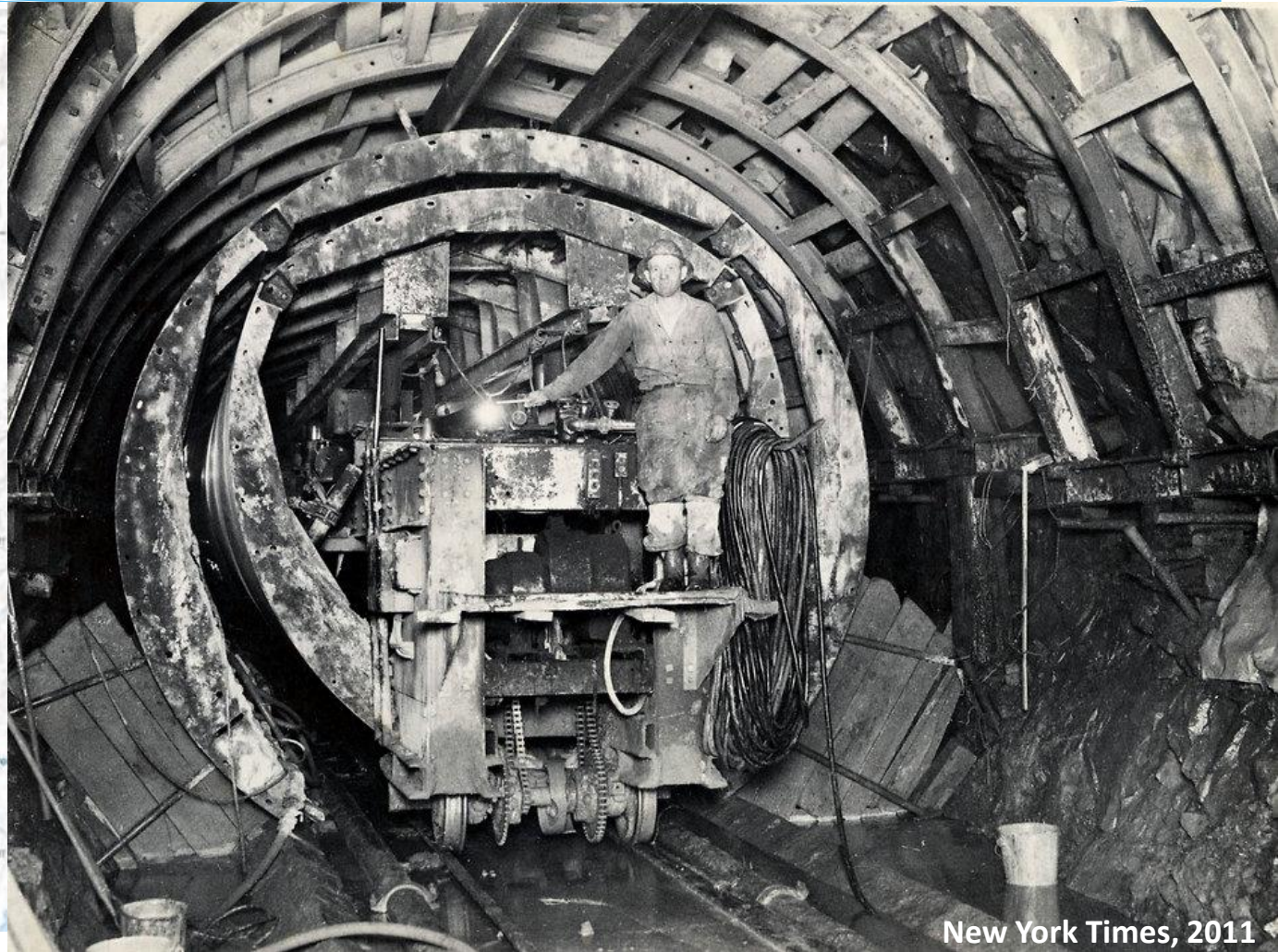
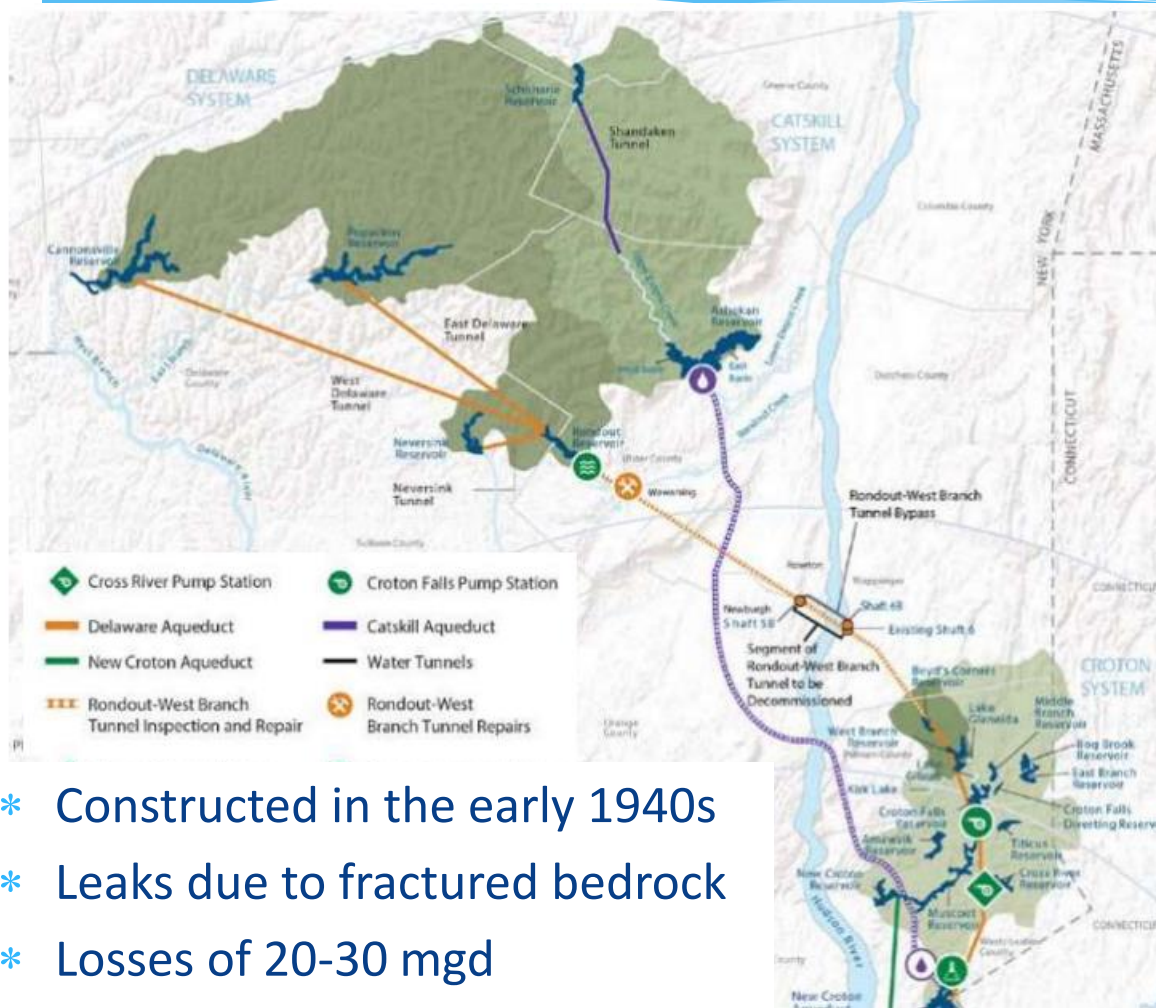


# Total Combined Storage (BG) of New York City Delaware River Basin Reservoirs



Usable Storage	Cannonsville	Pepacton	Neversink	Total	BG above drought watch = 91.1	BG above median = 21.0
BG	87.1	131.8	33.0	251.9	BG above drought warning = 107.1	BG below one year ago = 3.6
%	93.3	94.6	95.0	94.2	BG above drought = 131.1	

# Delaware Aqueduct Shutdown and Repair



New York Times, 2011

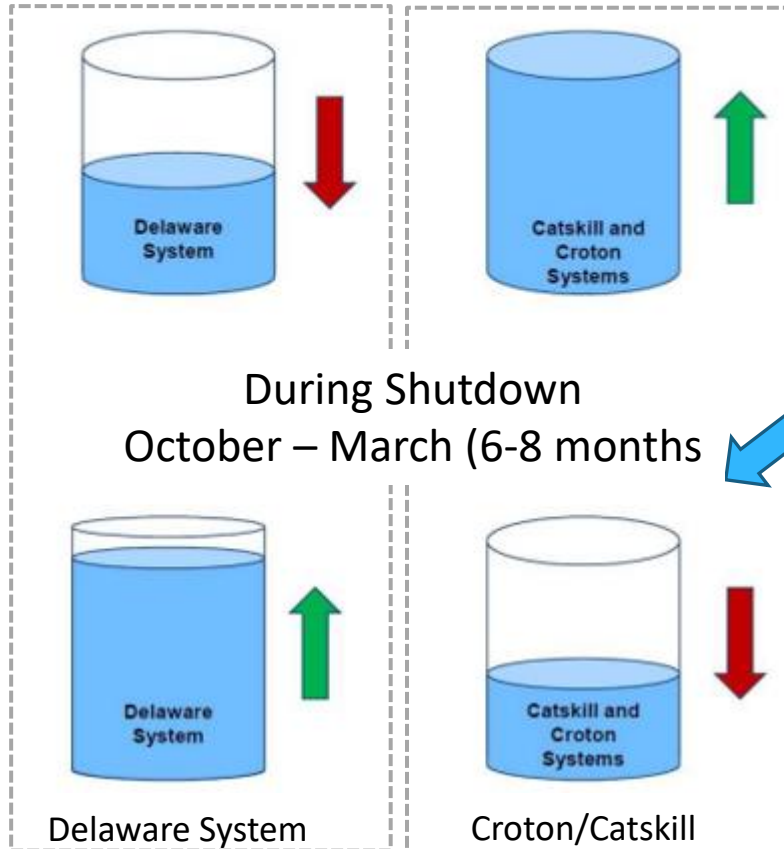
- \* Constructed in the early 1940s
- \* Leaks due to fractured bedrock
- \* Losses of 20-30 mgd
- \* Go-No/Go Decision May-June



# Operations and Effects During Shutdown

More information at 4/26 RFAC Meeting

Before Shutdown  
June - September



## \* Operations during shutdown

- \* Maximize Diversions from DRB (Jun – Sep)
- \* Suspend diversions (Oct – Mar +/-)
- \* Higher Diversions from DRB (Mar-Jun)

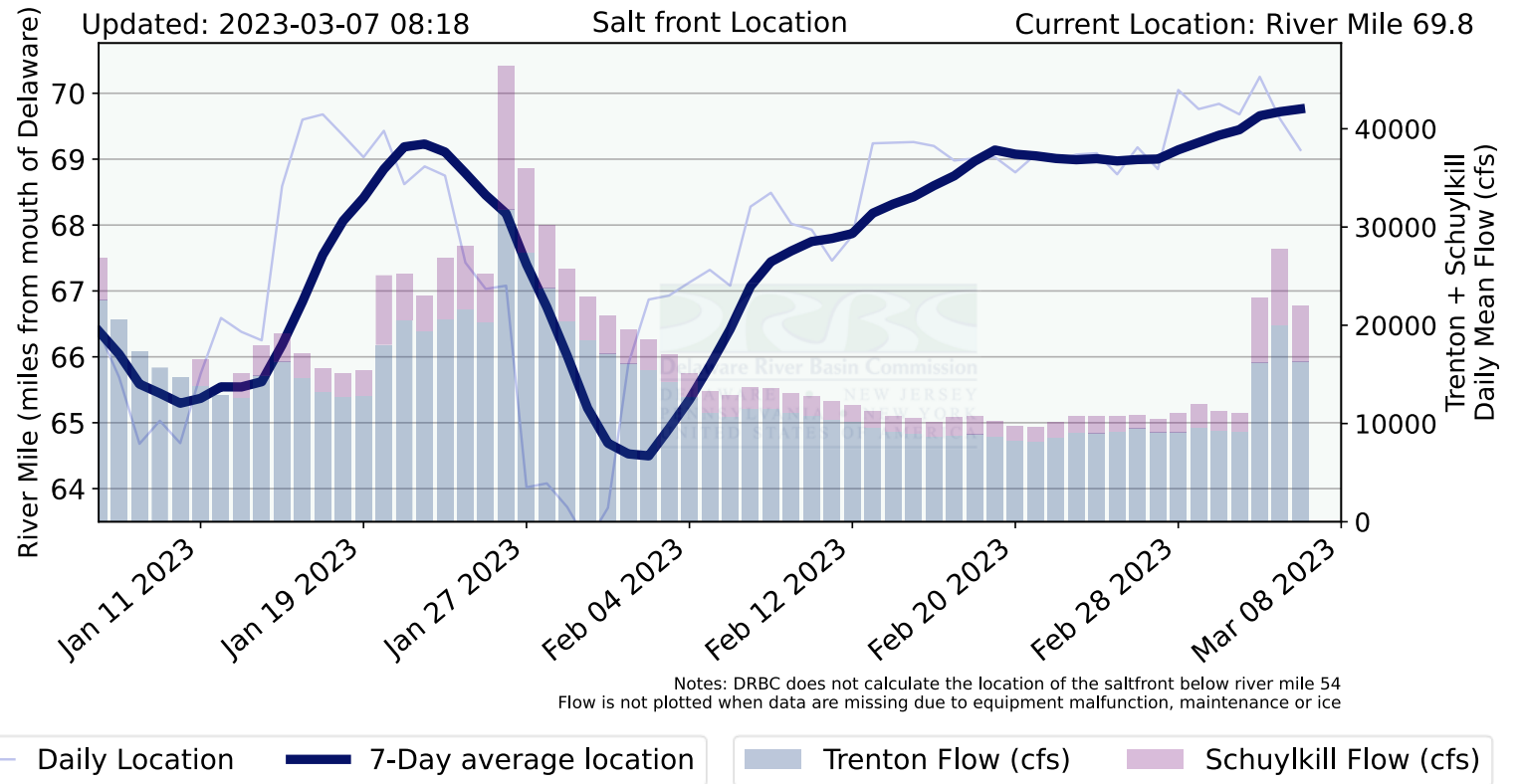
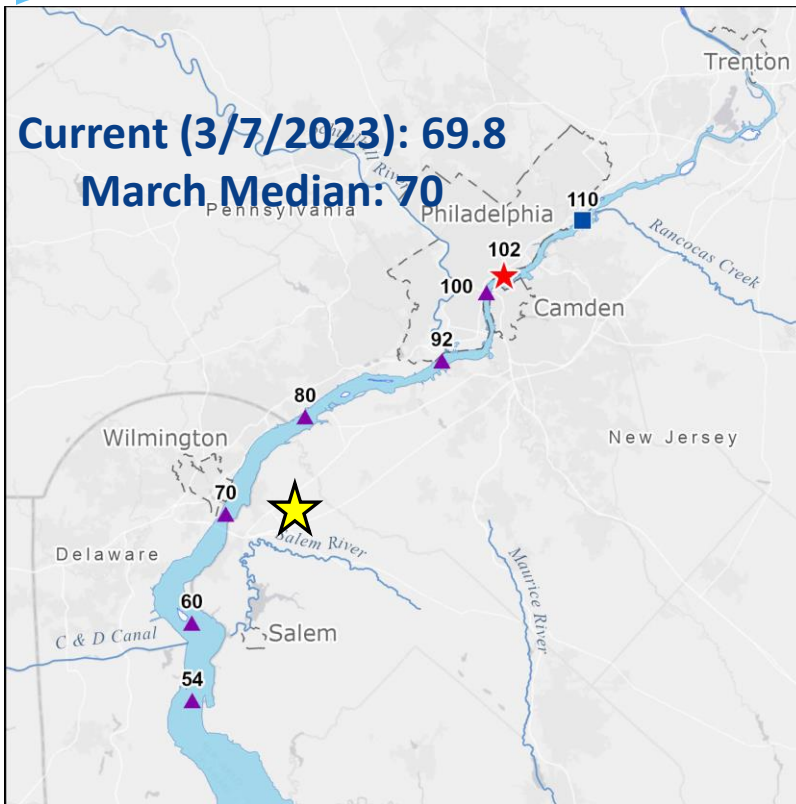
## \* Potential Effects (6/2023 – 6/2024)

- \* Drought Conditions Unlikely
- \* Highest Conservation Releases
- \* Flooding – slight increase in risk of action or minor flooding



# Salt Front

7-day Average of 250 mg/l isochlor (chloride concentration)



**The Flow Objective at Trenton was designed to repel salinity for the protection of drinking water treatment facilities and industrial intakes.**

# Spring Outlook 2022

(March – April – May)

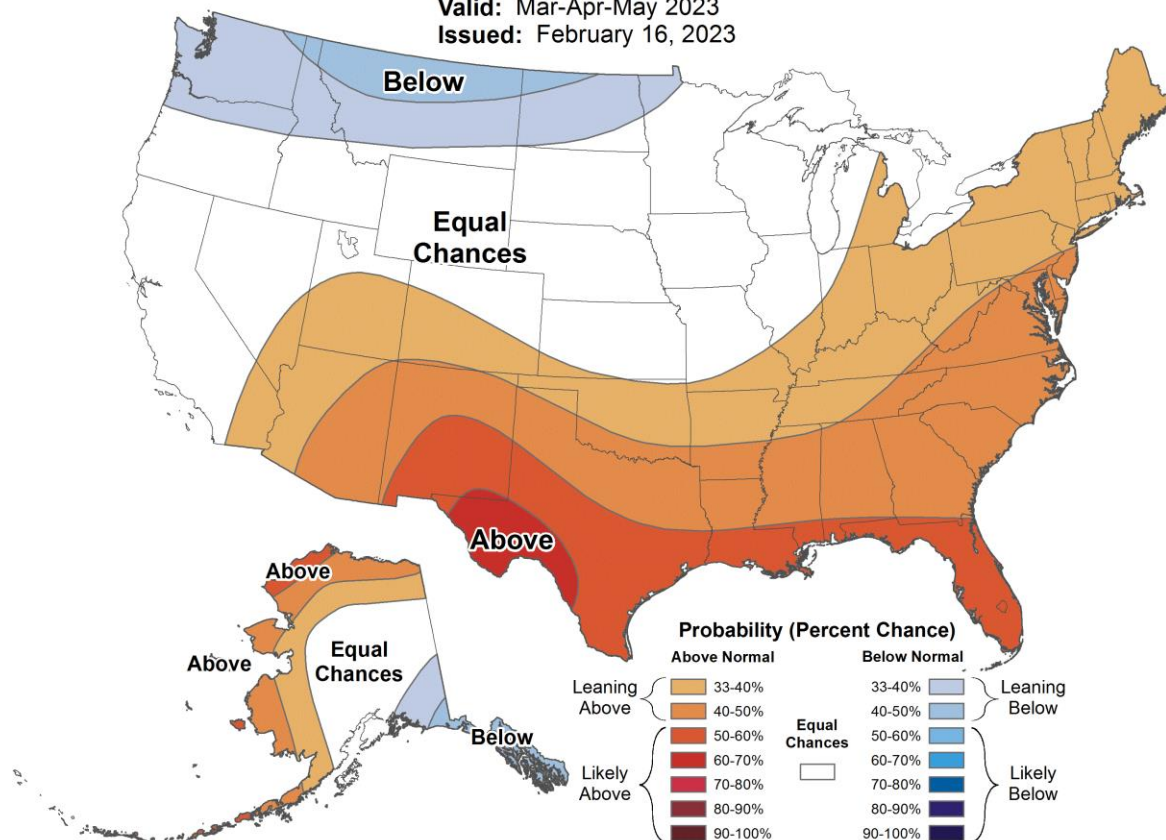


## Seasonal Temperature Outlook



Valid: Mar-Apr-May 2023

Issued: February 16, 2023

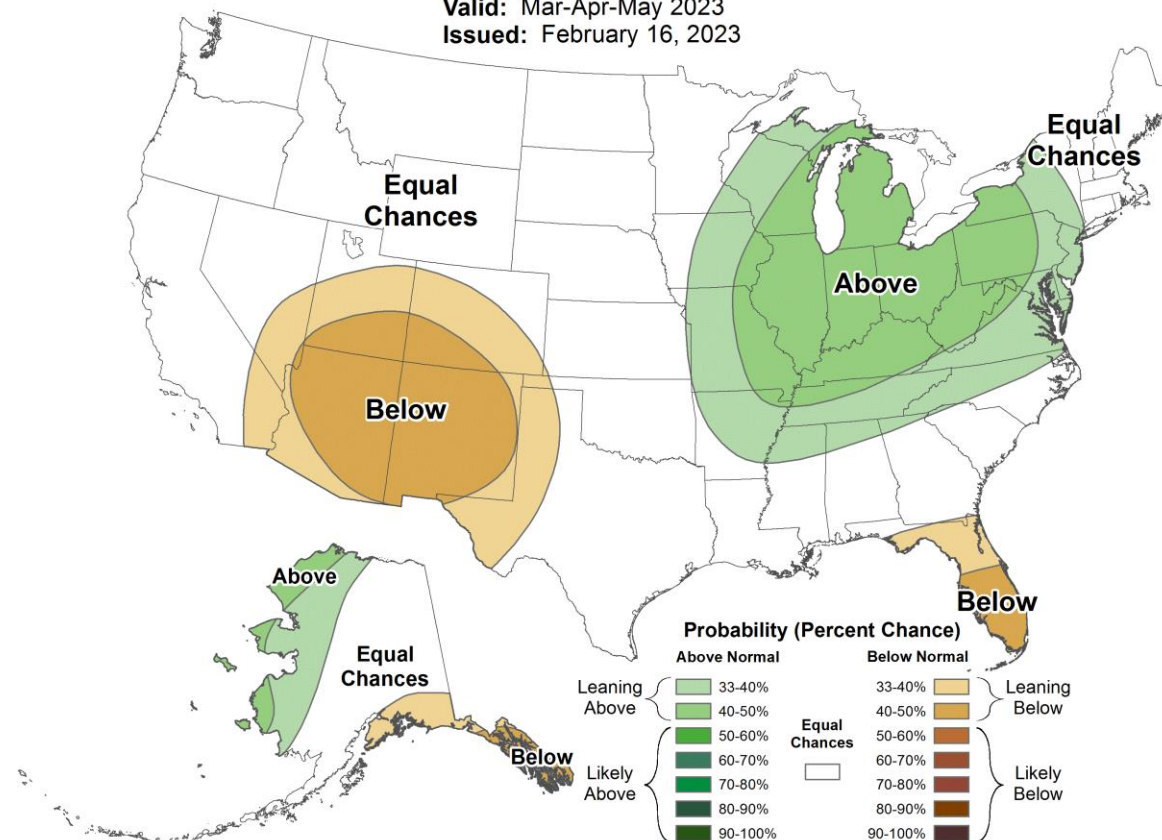


## Seasonal Precipitation Outlook



Valid: Mar-Apr-May 2023

Issued: February 16, 2023



# Drought Monitor Valid: Feb 28, 2023

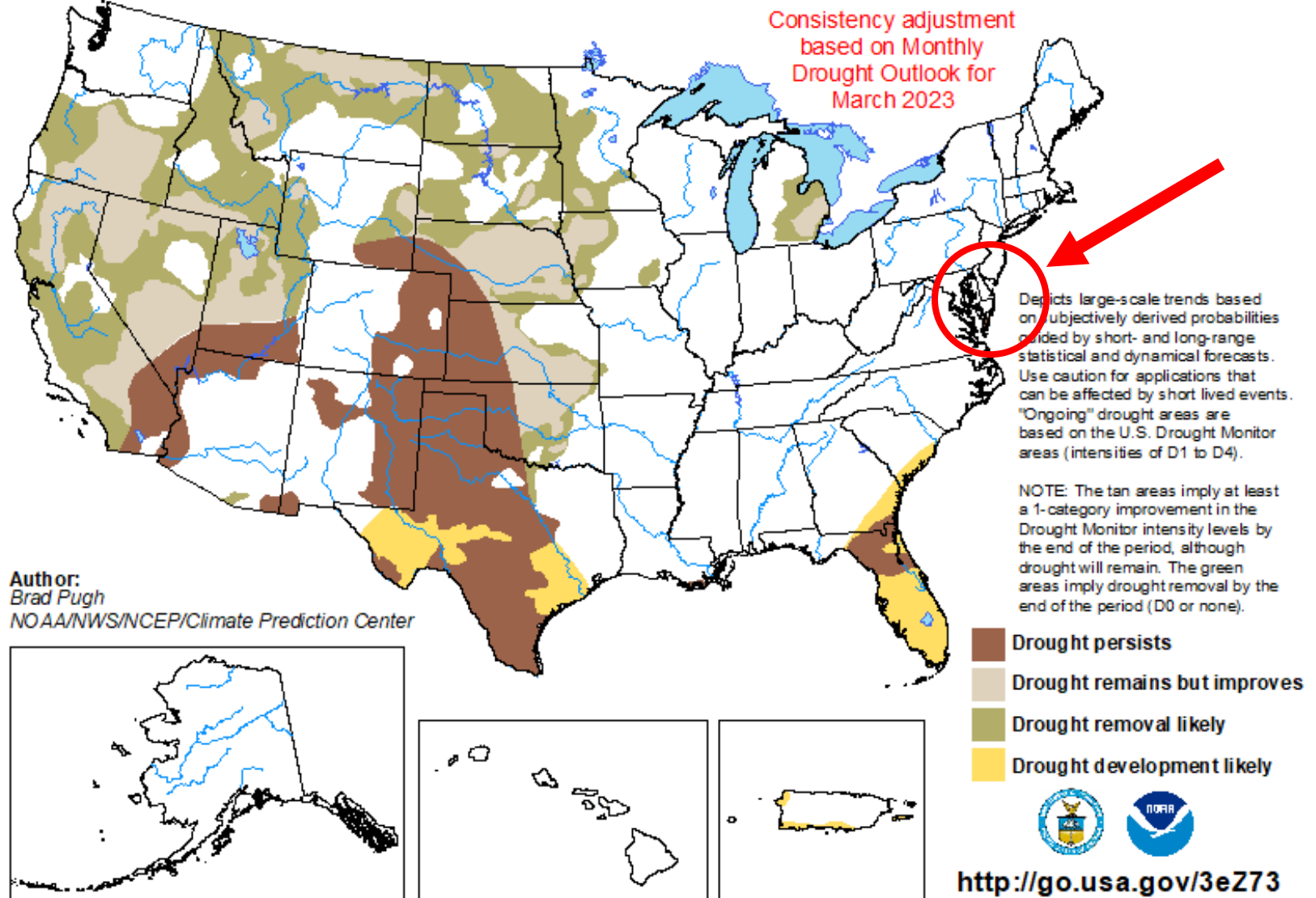


- Basin Boundary
- D0 - Abnormally Dry
- D1 - Moderate Drought
- D2 - Severe Drought

Data Source: NOAA CPC

# U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period

Valid for March 1 - May 31, 2023  
Released February 28, 2023





# Other Predictions/Predictors

## Farmer's Almanac

- \* Mild Temperatures
- \* Near Normal Precipitation



## Weather Lore

### April

*If the oak is out before the ash,  
expect a **splash**;  
But if the ash is out before the oak  
watch out for a **soak**.*

### May

*A heavy dew in morning promises a  
great day!*





Get out and enjoy the  
beautiful sights along  
the Delaware River!

Photo: Keith Balderson  
Biking on the Delaware Canal