

# Delaware River Basin Commission

## Hydrologic Conditions

*Amy Shallcross*

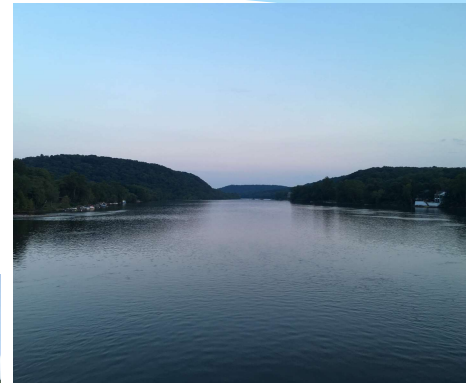
Manager, Water Resource Operations

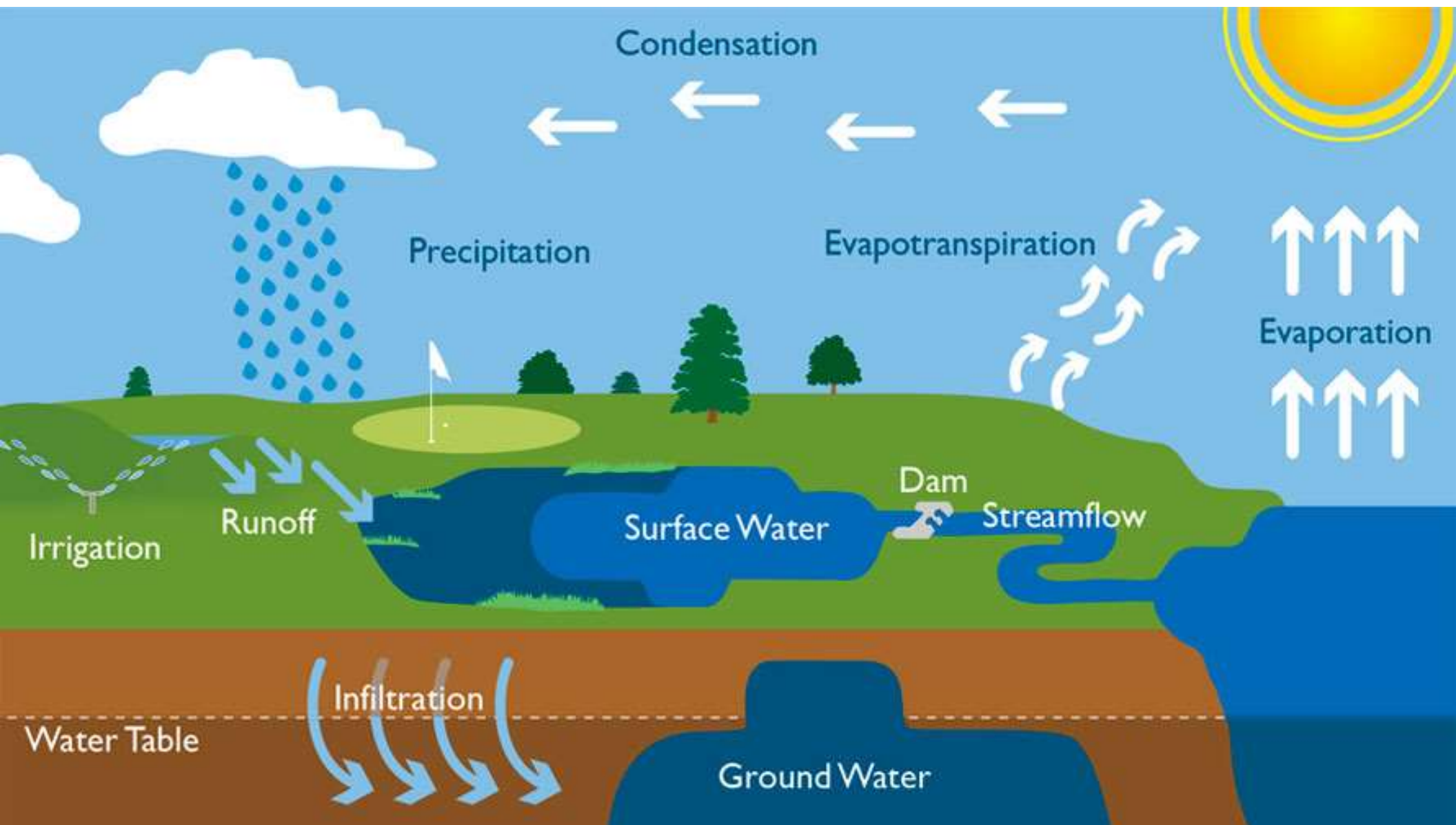
*Anthony Preucil*

Water Resource Scientist

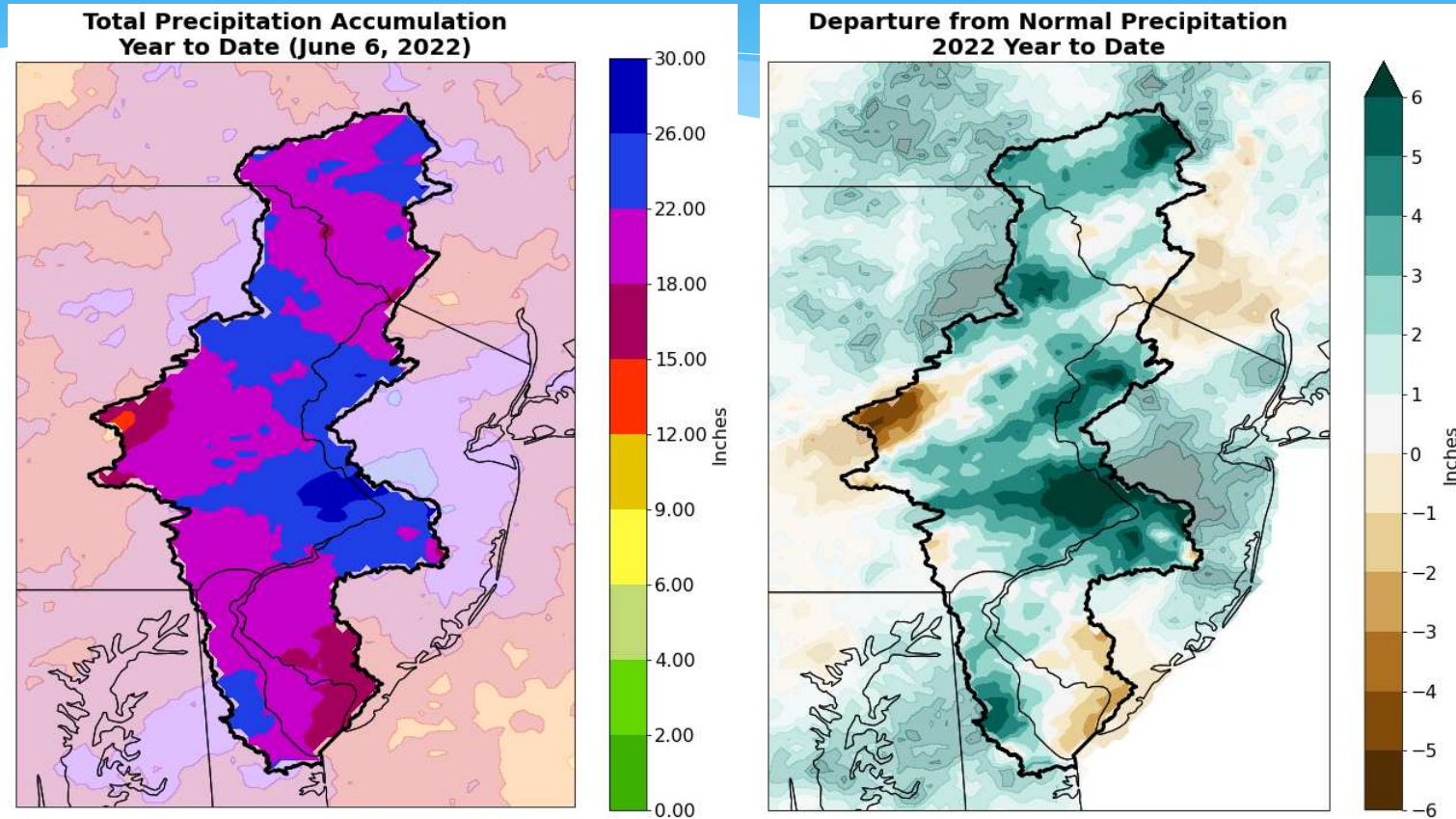
Commission Business Meeting

June 8, 2022



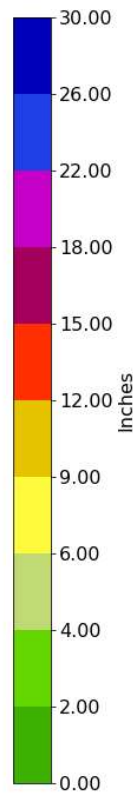
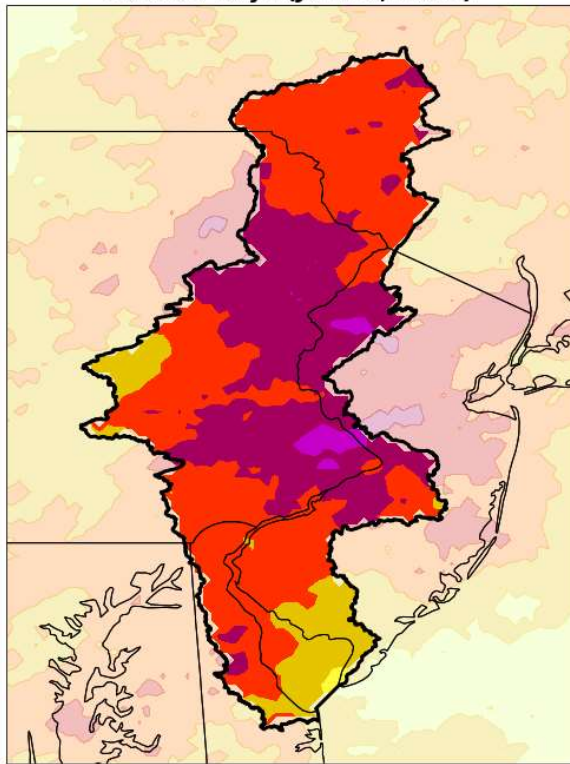


# Year to Date Precipitation

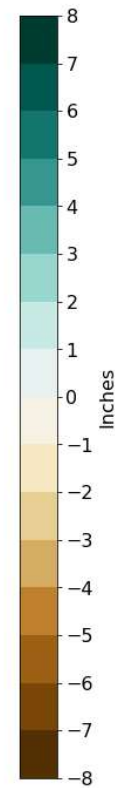
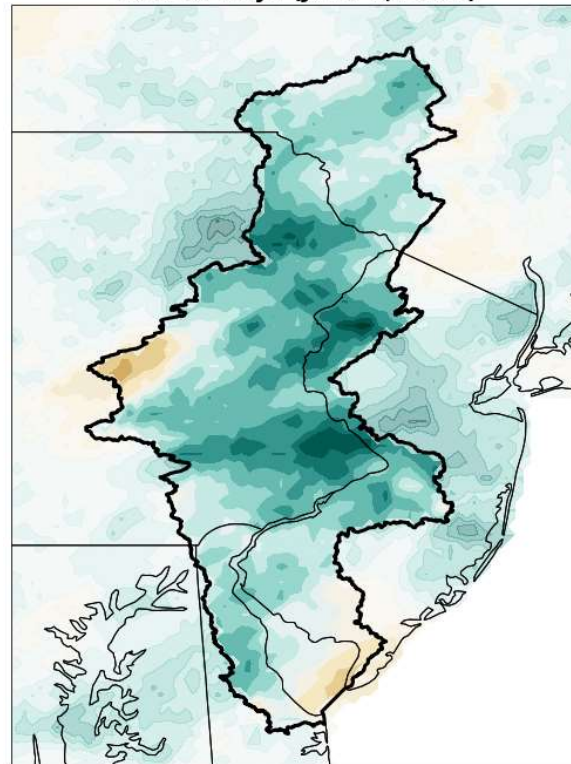


# 90 Day Precipitation

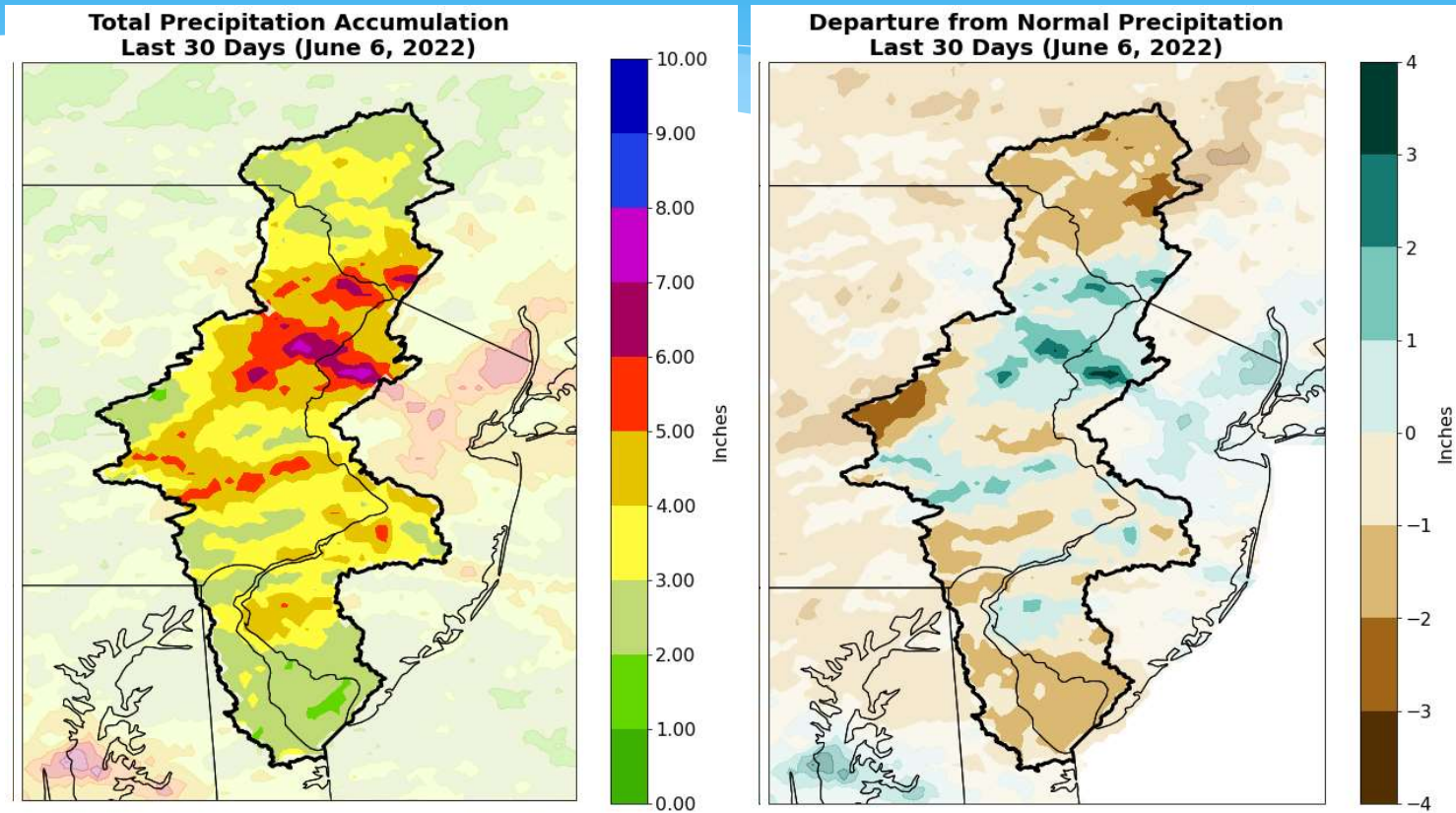
**Total Precipitation Accumulation  
Last 90 Days (June 6, 2022)**

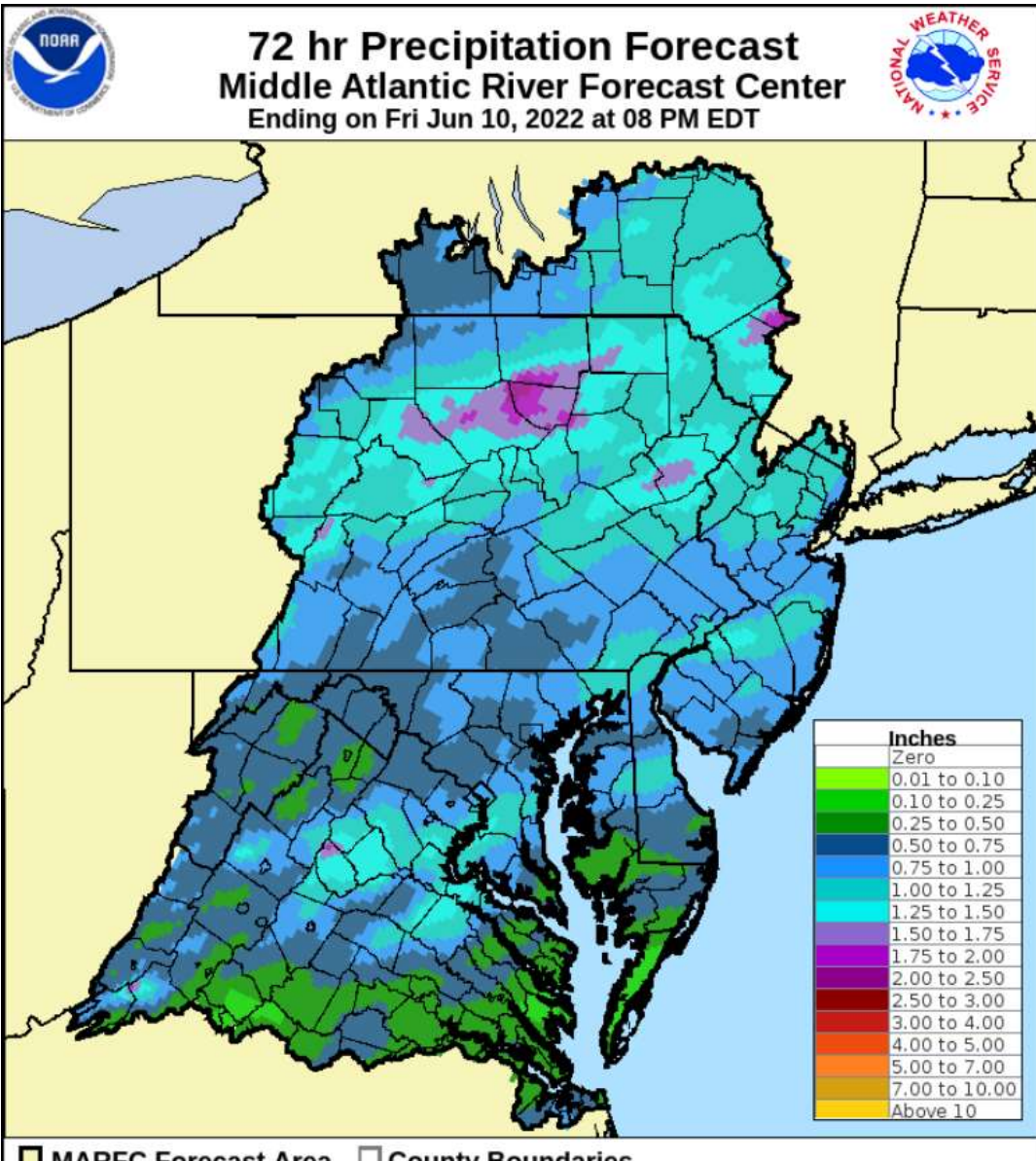


**Departure from Normal Precipitation  
Last 90 Days (June 6, 2022)**



# 30 Day Precipitation












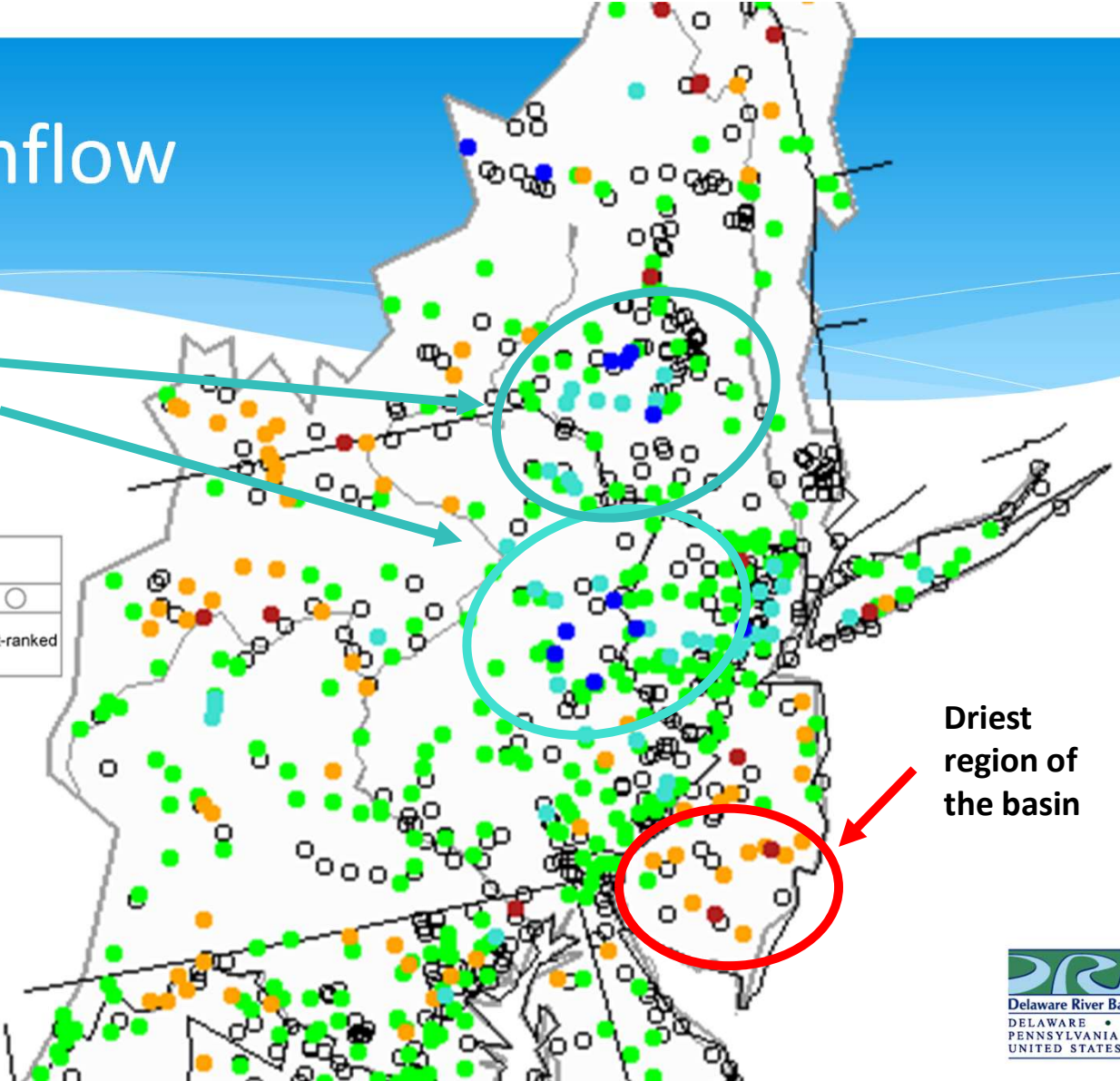
Forecast  
 Precipitation  
 (not including  
 Saturday)

# Streamflow

Upper Basin: Normal/~~Below~~ 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		

Map last updated: 9:00 AM, June 8, 2022



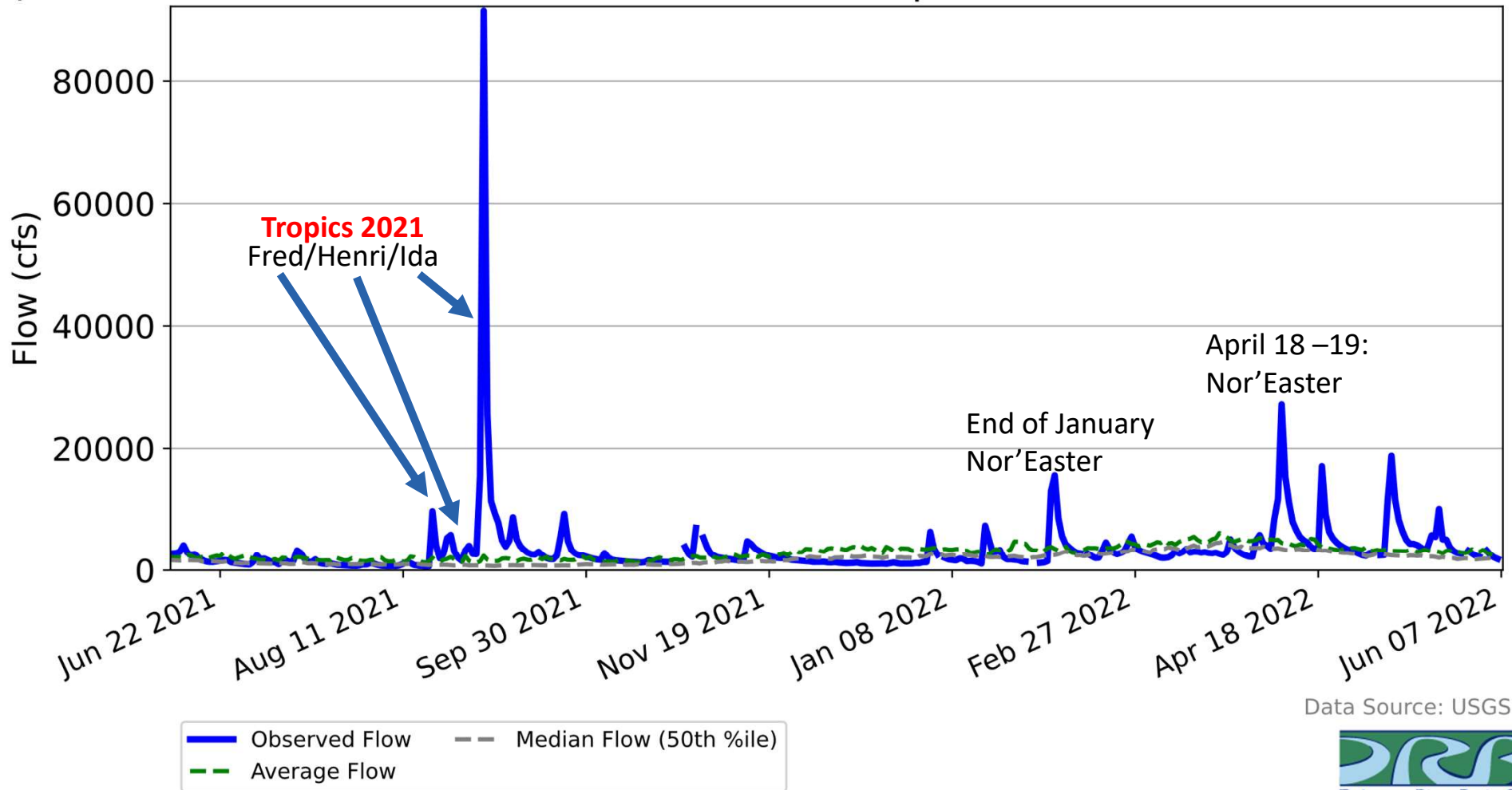
**Driest region of the basin**



Data Source: USGS

Updated: 2022-06-07 10:36

# Flow at Philadelphia, PA



Data Source: USGS



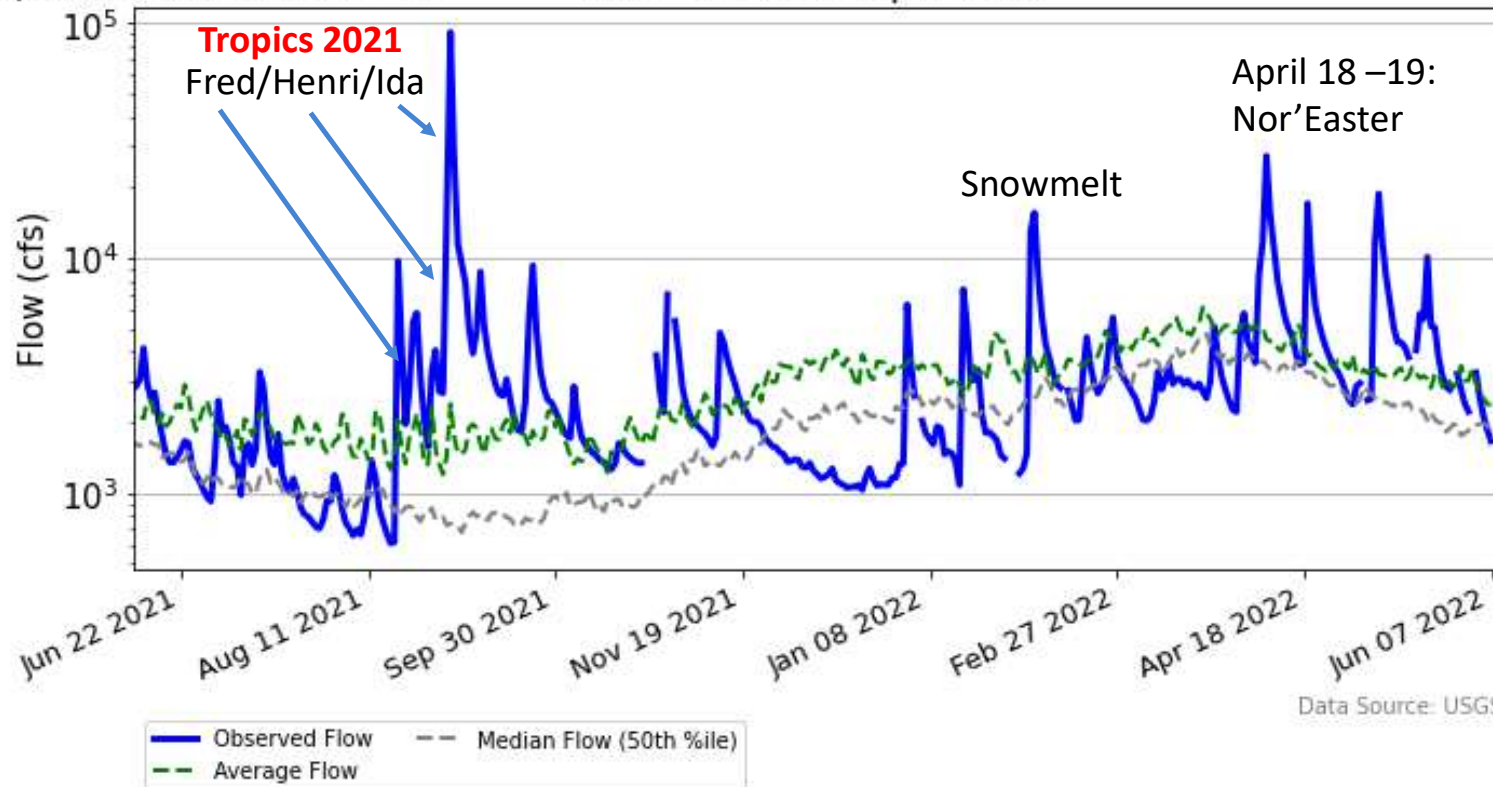
Note – November 12 rain event was an upper basin event, and does not show up in the Schuylkill Basin



# Streamflow: Order of Magnitude

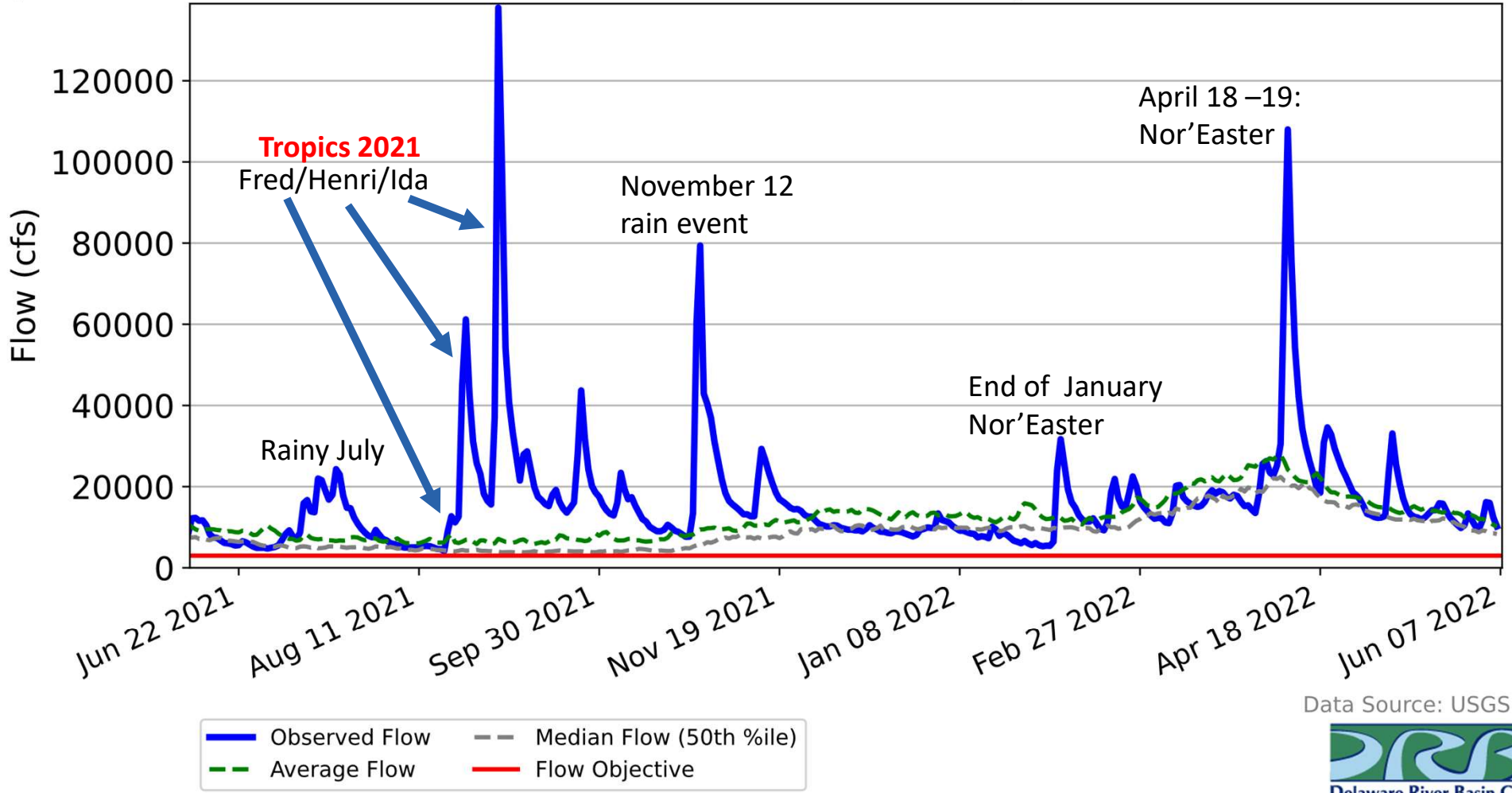
Updated: 2022-06-08 07:50

Flow at Philadelphia, PA



Updated: 2022-06-07 10:36

# Flow at Trenton, NJ

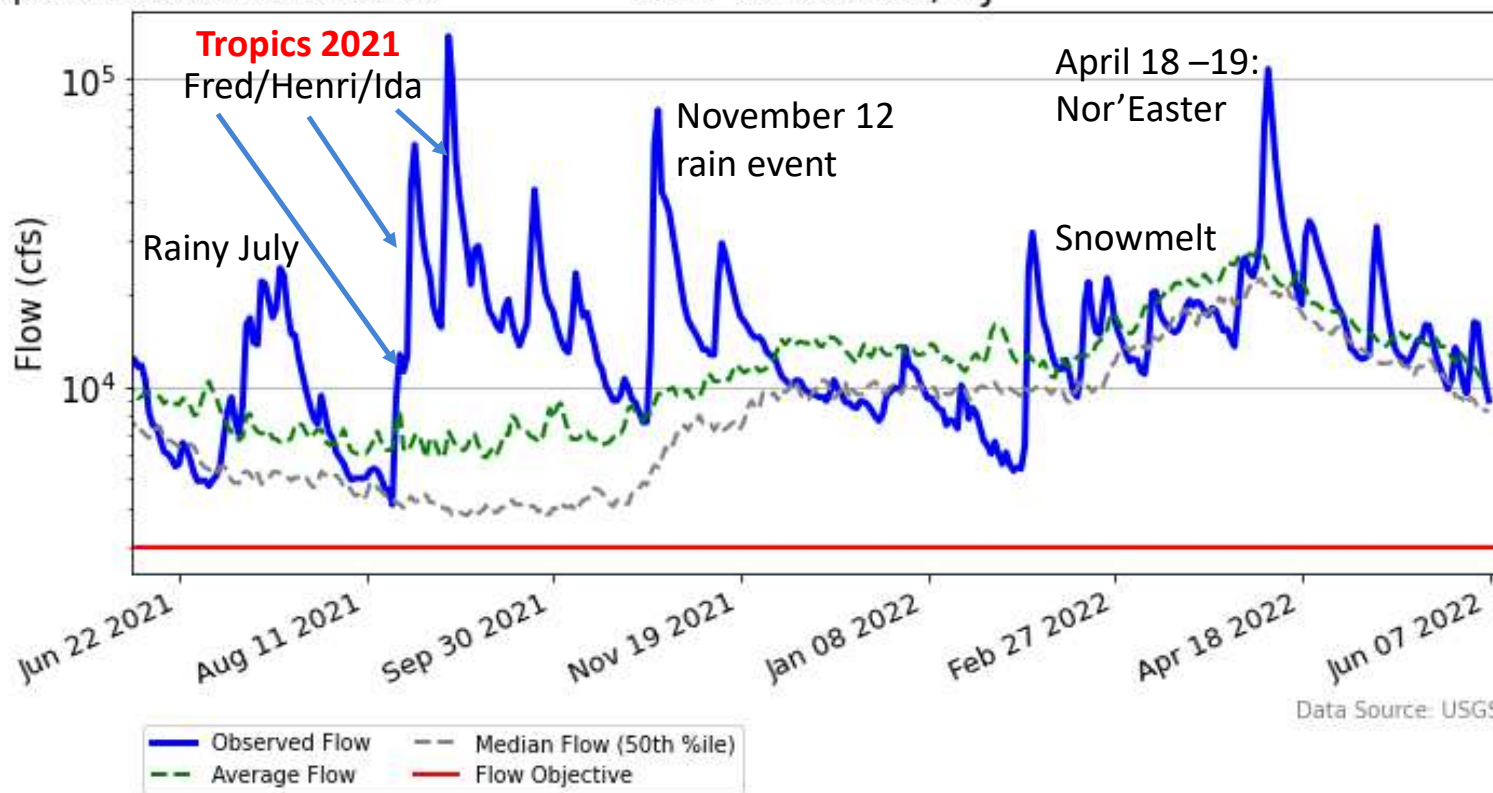


Data Source: USGS



Updated: 2022-06-08 07:50

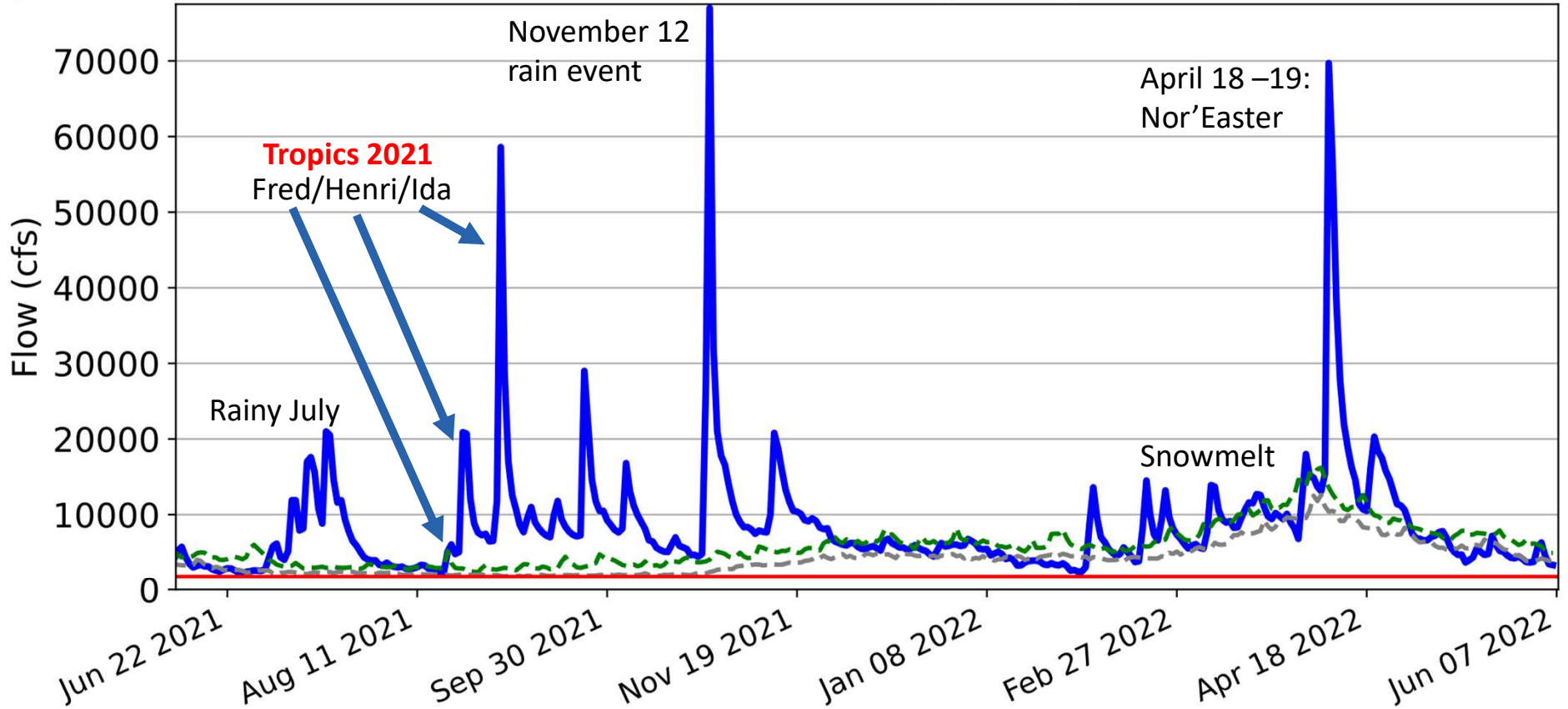
### Flow at Trenton, NJ



Data Source: USGS

Updated: 2022-06-07 10:36

### Flow at Montague, NJ



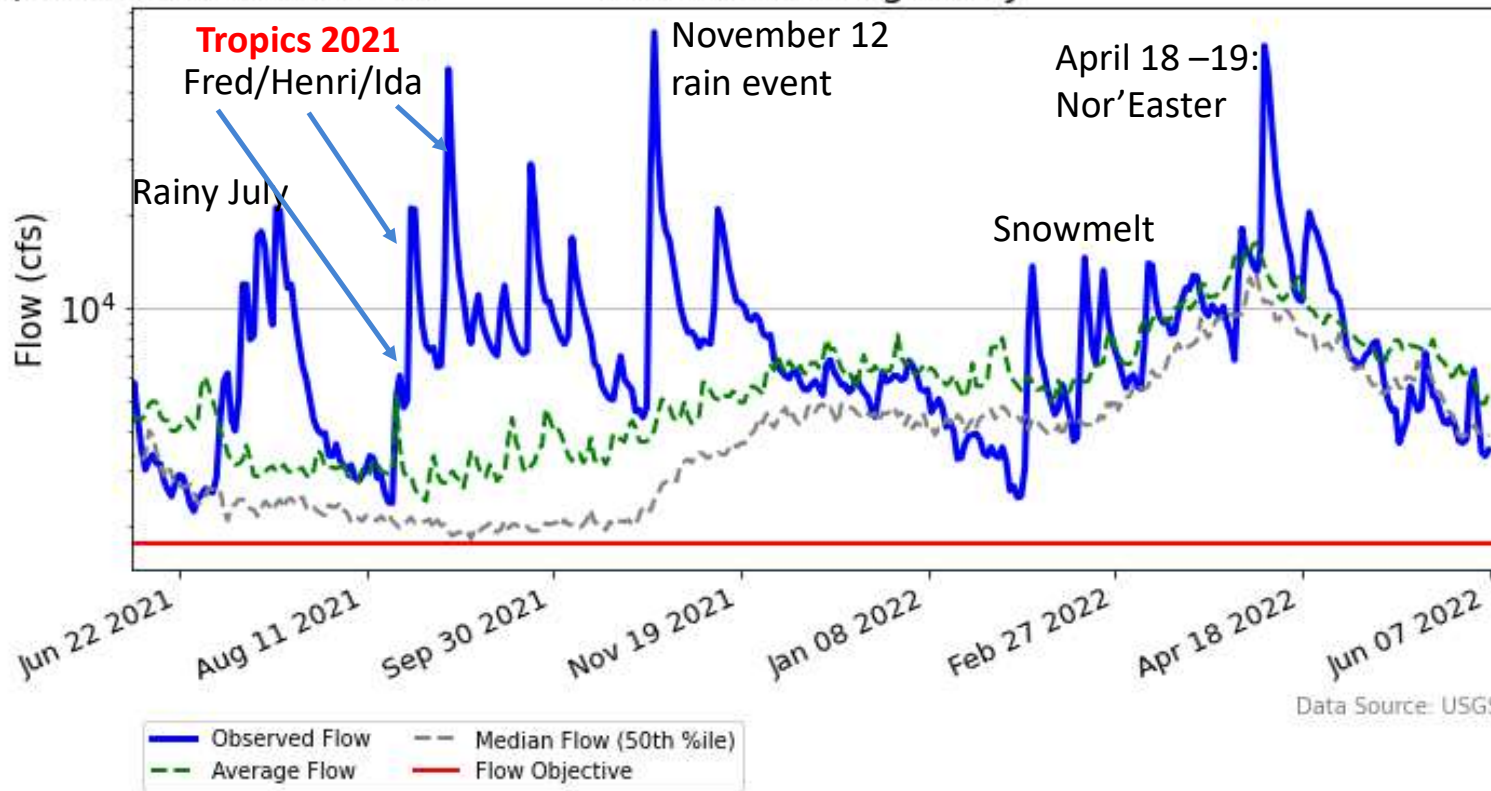
Data Source: USGS

Observed Flow	Median Flow (50th %ile)
Average Flow	Flow Objective



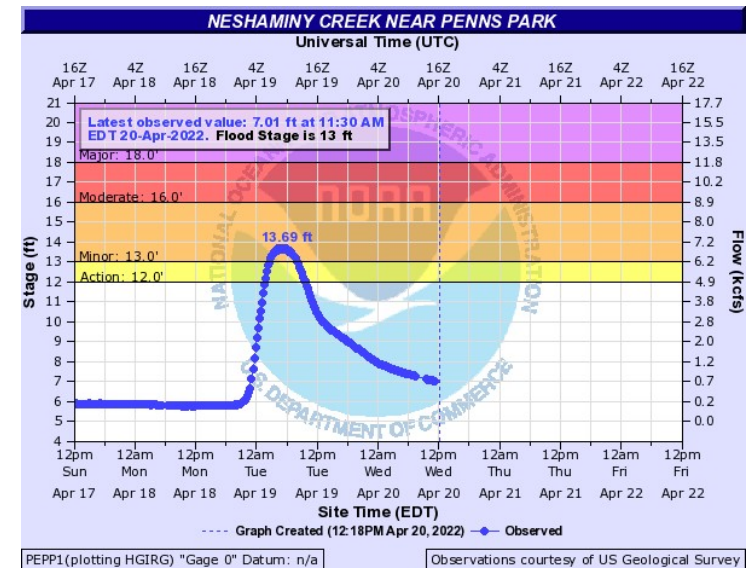
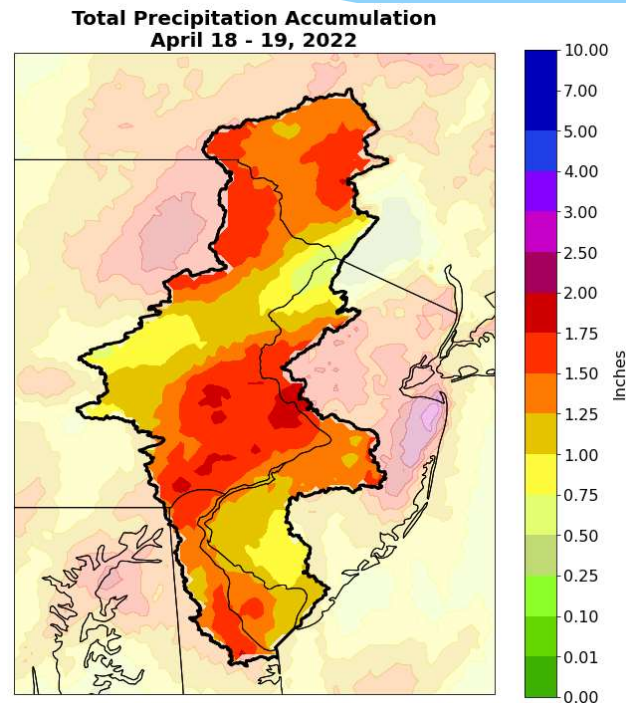
Updated: 2022-06-08 07:46

### Flow at Montague, NJ



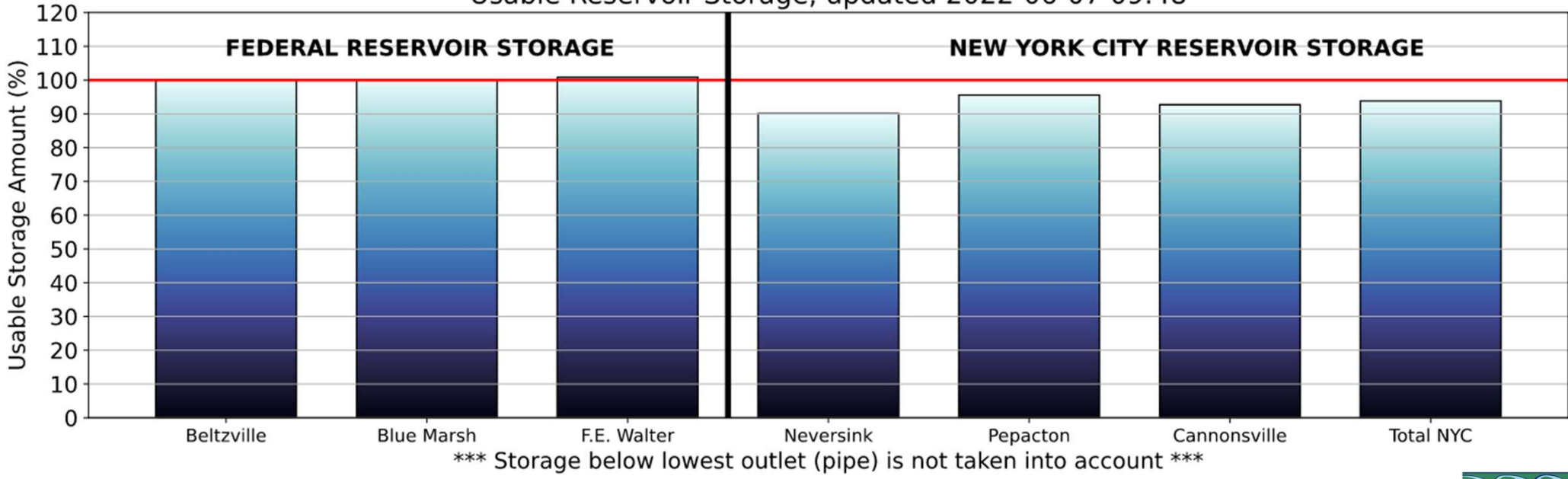
# April 2022 - Nor'Easter and Flooding

- \* On April 18, a late-season Nor'Easter type storm system led to widespread heavy rain across the basin
- \* The basin received between 1-2 inches of rain over two days
- \* Action Stage was Reached:
  - \* Chester Creek
  - \* White Clay Creek
  - \* Red Clay Creek
  - \* Schuylkill River
  - \* Neshaminy Creek
- \* Minor Flooding occurred along:
  - \* Neshaminy Creek
  - \* Christina River
  - \* Brandywine Creek
  - \* Perkiomen Creek
- \* Additional, Flooding occurred at nine Tidal gage locations



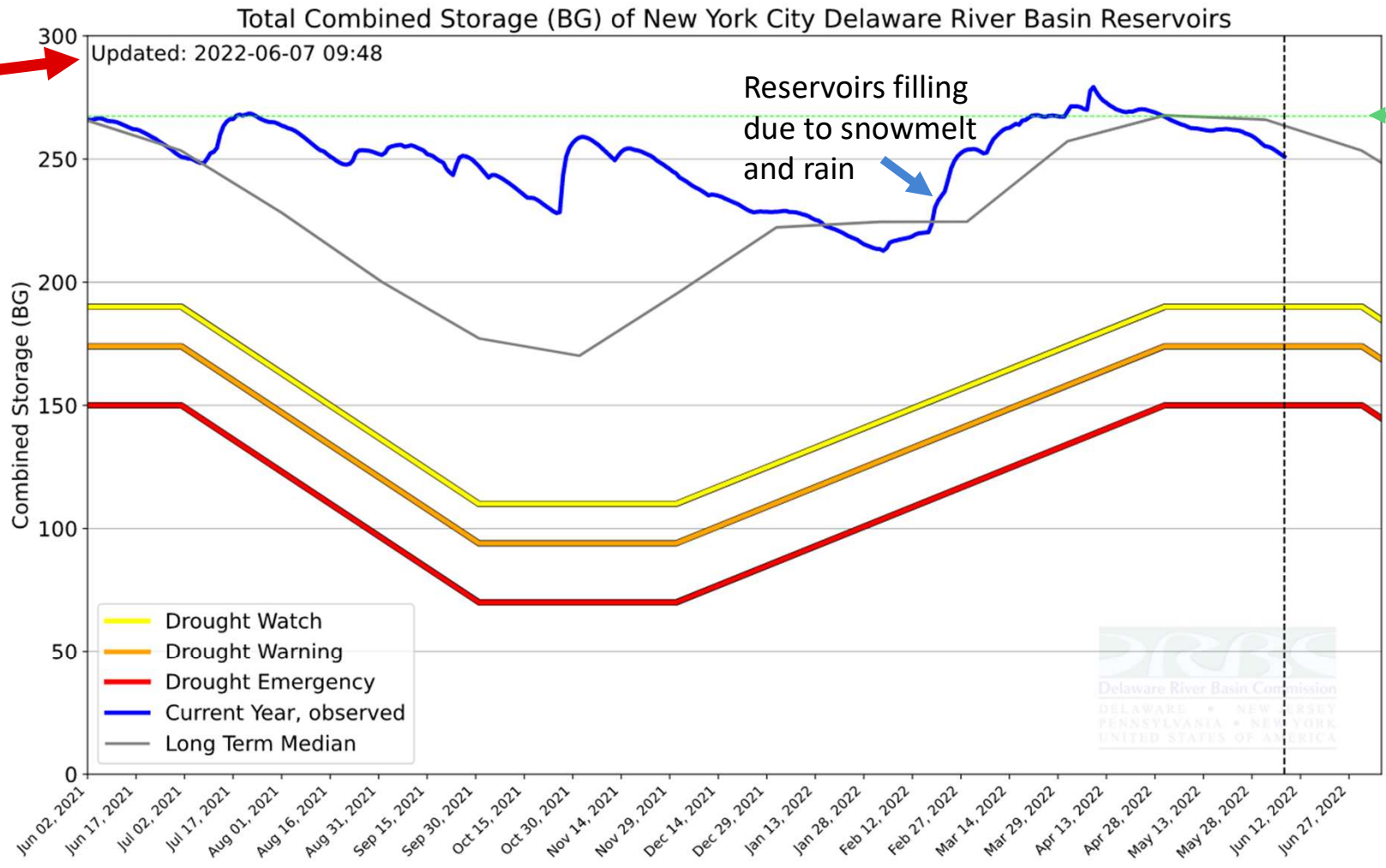
# Basin Storage

Usable Reservoir Storage, updated 2022-06-07 09:48



Data Sources: USGS, AHPS





Usable Storage	Cannonsville	Pepacton	Neversink	Total	BG above drought watch = 61.0	BG below median = 12.5
BG	86.6	133.1	31.2	251.0	BG above drought warning = 77.0	BG below one year ago = 14.6
%	92.7	95.5	90.1	93.8	BG above drought = 101.0	

Data Source: USGS





# Salt Front Location: June 6, 2022

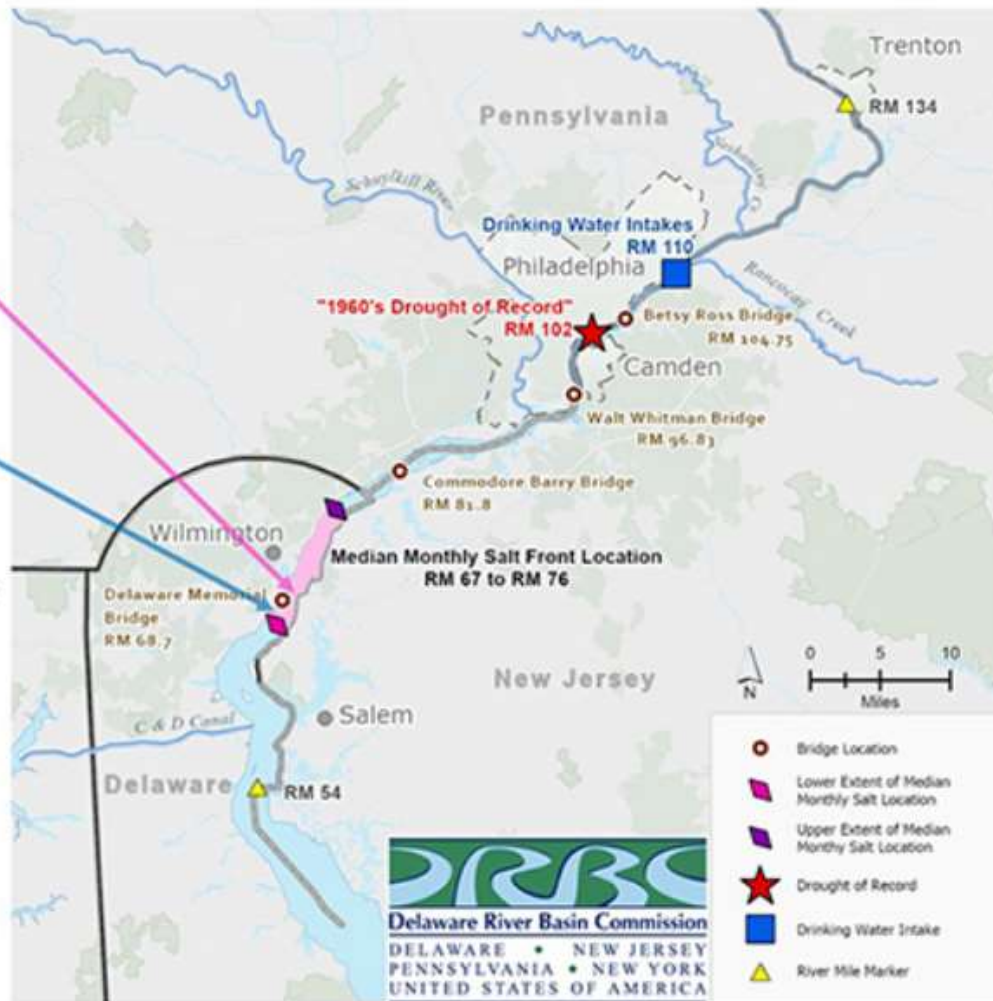
Normal June  
Location:  
RM 69

6/6/2022  
Location:  
RM 67.2

Salt front not tracked below RM 54.

Median Monthly Salt Front Locations

January	69
February	71
March	70
April	67
May	68
June	69
July	70
August	74
September	76
October	72
November	70
December	69

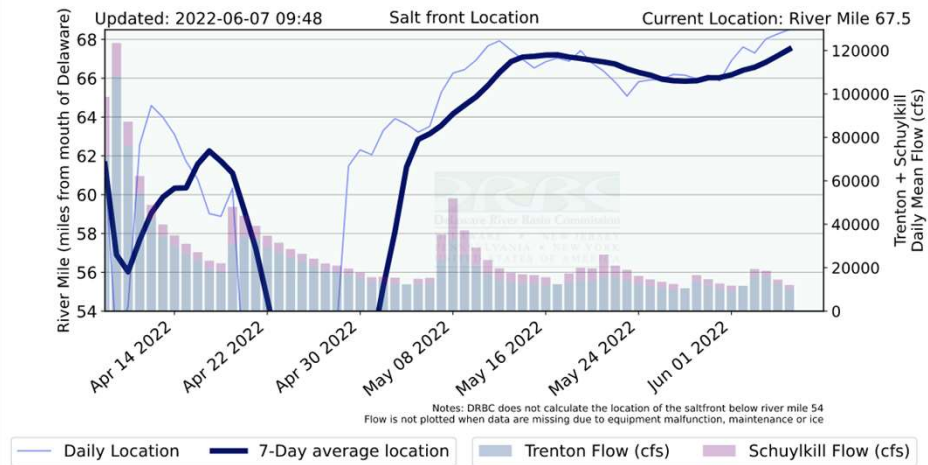
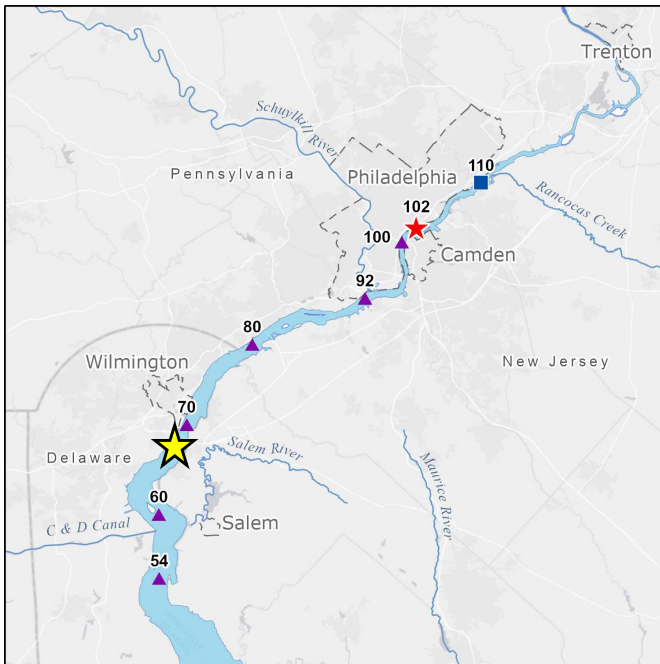


(RM= river mile)

The next scheduled update is June 13, 2022.

For current copies of this graph (posted on Mondays, see <https://www.nj.gov/drbc/programs/flow/salt-front.html>)

# Salt Front



**Chlorides**  
**7-Day Average RM**  
**Location of 250 mg/L**

**Current (6/7/2022): 67.5**  
**June Median: 68**

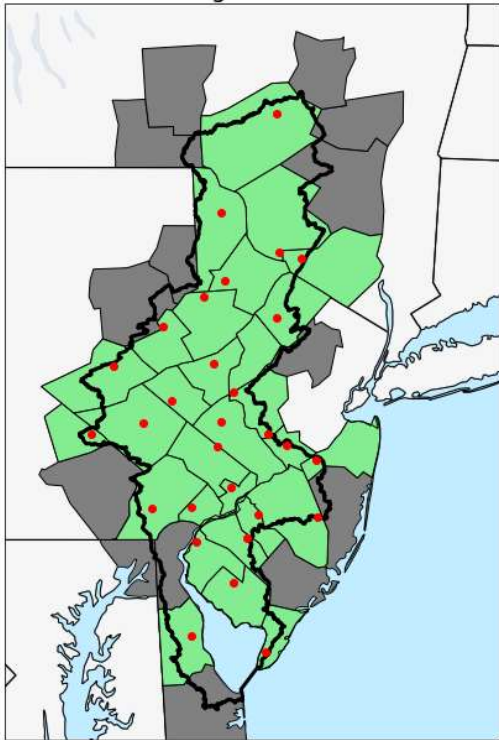
**The Flow Objective at Trenton was designed to repel salinity for the protection of drinking water treatment facilities and industrial intakes.**

Updates to hydrologic conditions can be viewed daily on [hydrosnap.drbc.net](https://hydrosnap.drbc.net)



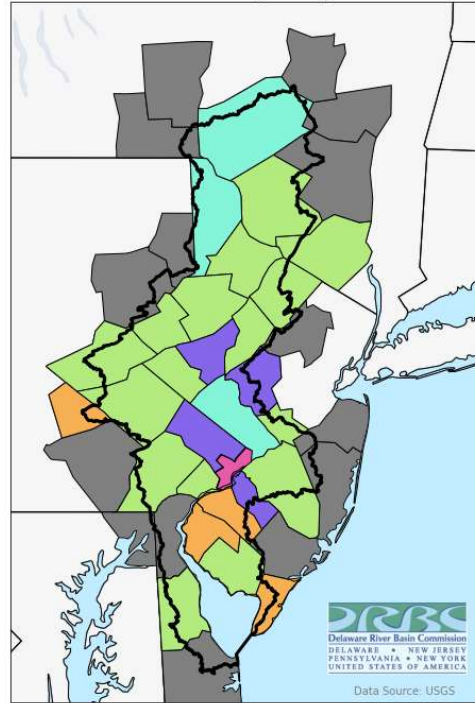
# Groundwater Map (by county)

Location of groundwater wells



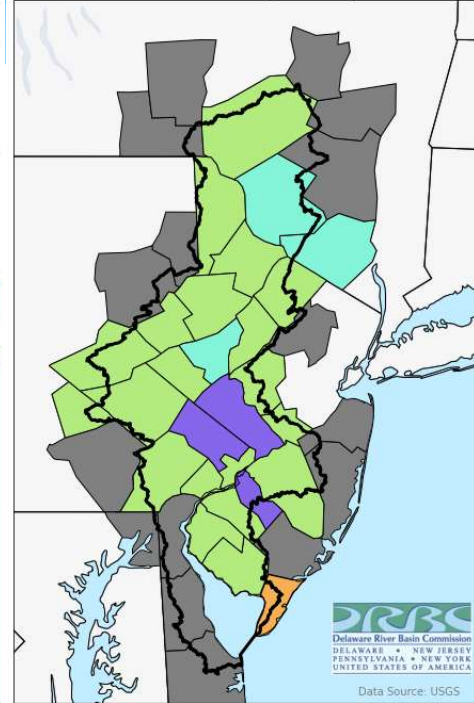
- Basin Boundary
- Well Location
- County contains well
- No well available within DRB

Groundwater Ranking on April 06, 2022



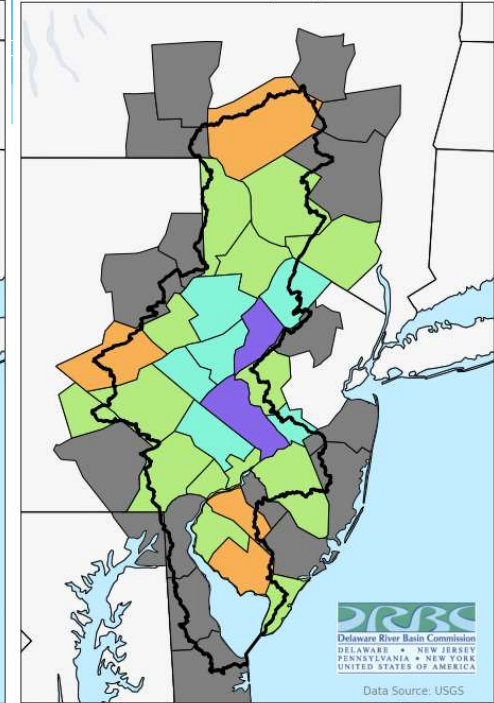
- Basin Boundary
- Much Above Normal
- Above Normal
- Normal
- Below Normal
- Much Below Normal
- Data unavailable

Groundwater Ranking on May 06, 2022



- Basin Boundary
- Much Above Normal
- Above Normal
- Normal
- Below Normal
- Much Below Normal
- Data unavailable

Groundwater Ranking on June 06, 2022



- Basin Boundary
- Much Above Normal
- Above Normal
- Normal
- Below Normal
- Much Below Normal
- Data unavailable

Well selected based on length of period of record

# Select Well Conditions

COUNTY	STATE	DATA SOURCE	WELL ID	INDICATOR AS OF 2022-06-06
Wayne	PA	USGS	WN 64	Normal
Monroe	PA	USGS	MO 190	Above Normal
Carbon	PA	USGS	CB 104	Normal
Schuylkill	PA	USGS	SC 296	Drought Watch
Lehigh	PA	USGS	LE 372	Above Normal
Bucks	PA	USGS	BK 1020	Above Normal
Chester	PA	USGS	CH 10	Normal
Delaware	PA	USGS	DE 723	Normal
Lebanon	PA	USGS	LB 372	Normal
Burlington	NJ	USGS	050689	Normal
Cumberland	NJ	USGS	110042	Drought Watch
New Castle	DE	USGS	db24-18	Below Normal
Woodbourne	NY	USGS	sv-535	Normal

Water level graphs for some of the wells will be included in the posted version of this presentation.

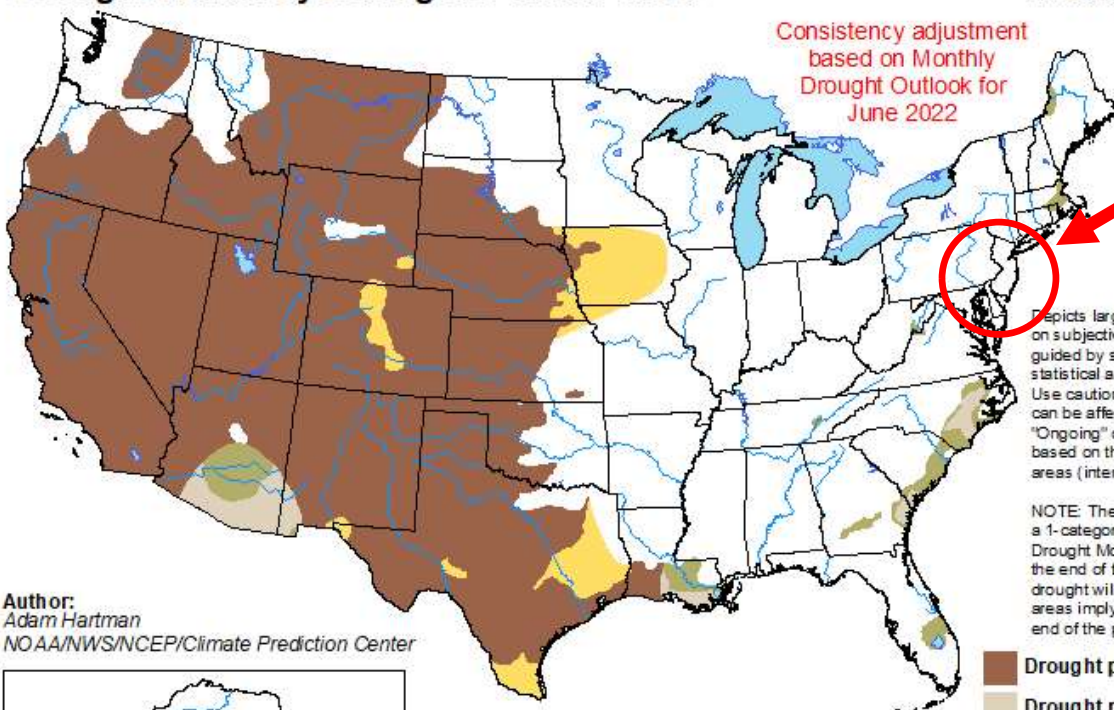
**Drought Monitor  
Valid: May 31, 2022**



- None
- D0 (Abnormally Dry)
- D1 (Moderate Drought)

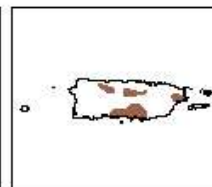
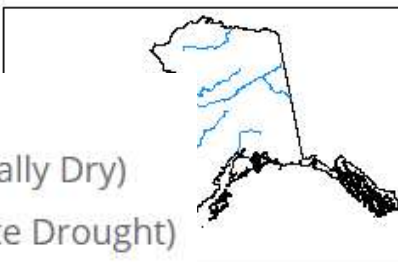
**U.S. Seasonal Drought Outlook  
Drought Tendency During the Valid Period**

Valid for June 1 - August 31, 2022  
Released May 31, 2022



Consistency adjustment  
based on Monthly  
Drought Outlook for  
June 2022

Author:  
Adam Hartman  
NOAA/NWS/NCEP/Climate Prediction Center



depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

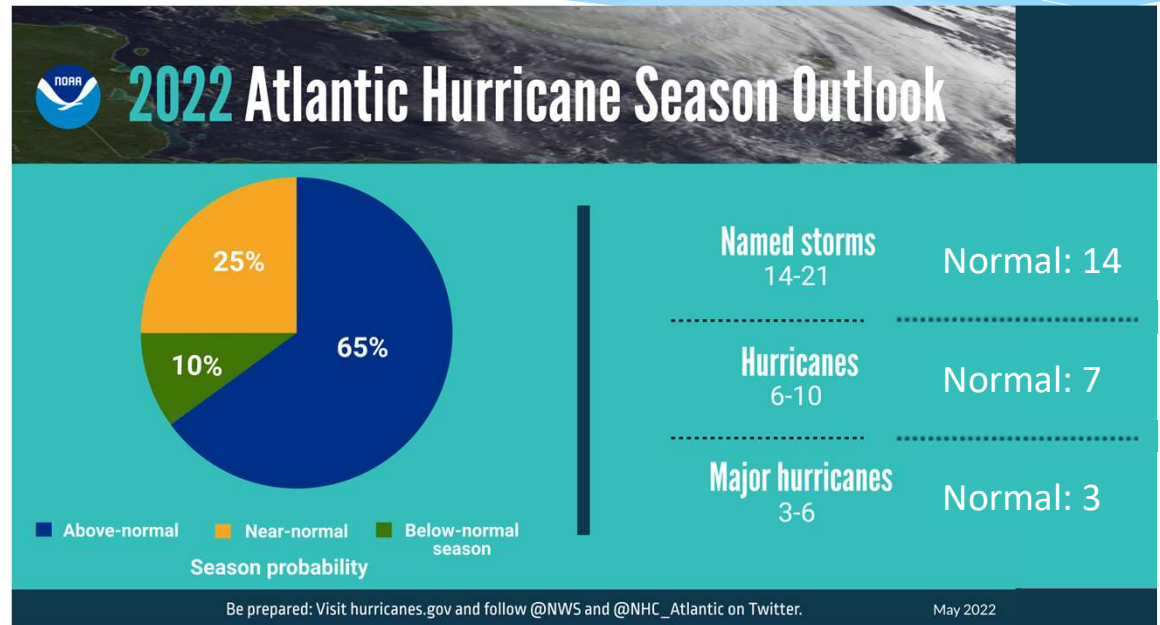
- Drought persists
- Drought remains but improves
- Drought removal likely
- Drought development likely



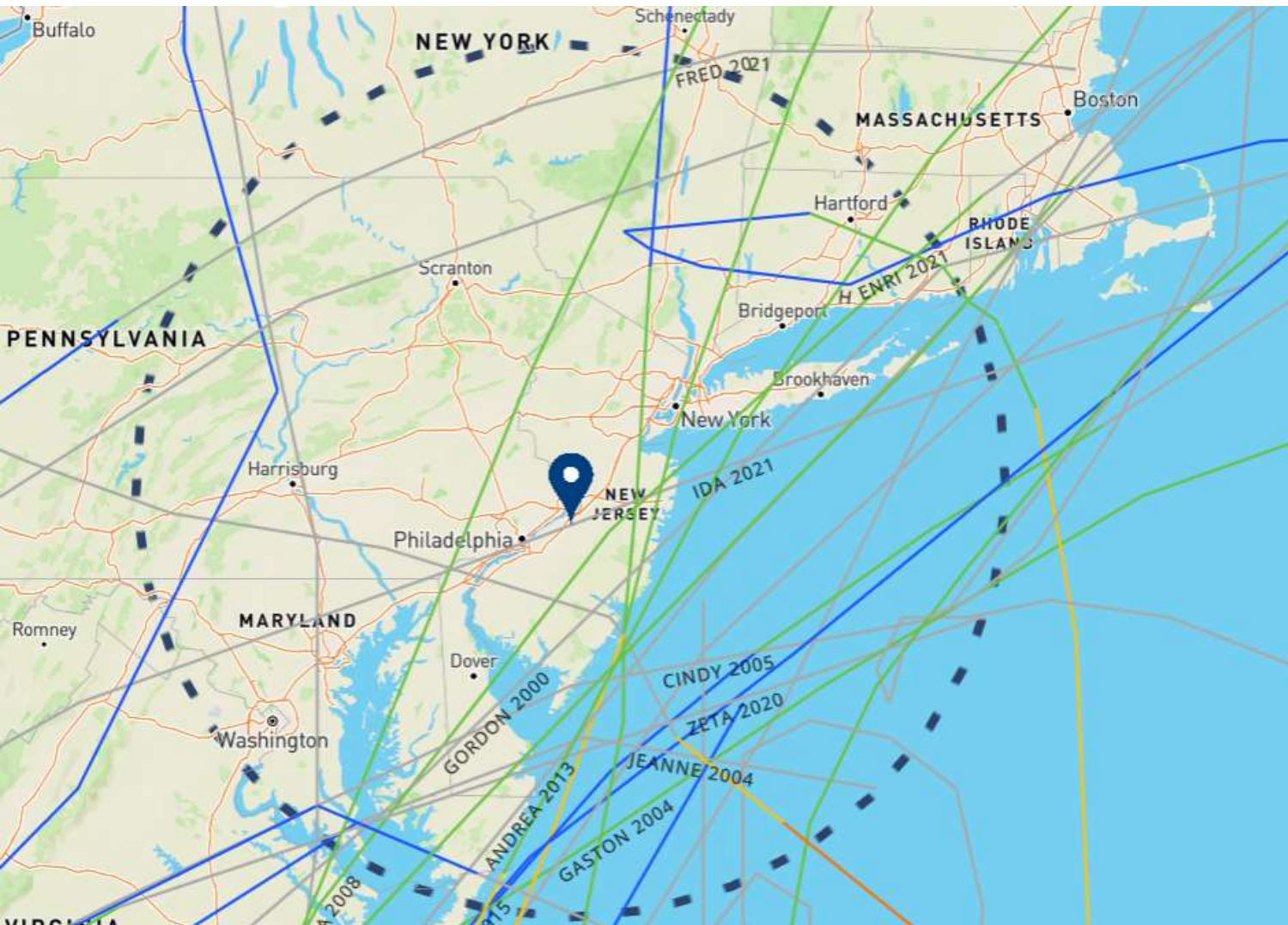
Data Source: NOAA CPC

# Hurricane Season Outlook

- \* NOAA Forecast for above average season (similar to 2021 season)
  - \* Note: A Detailed Analysis of the 2021 Hurricane Season and specific impacts to the DRB is now available on the DRBC website as part of the Annual Hydrologic Conditions Report
- \* Hurricane Season began June 1 and ends November 30
- \* Peak season is in September
- \* Have already had one Named Storm (Tropical Storm Alex)



Data Source: NOAA, NHC



## 21 Century Hurricane Tracks

- \* Ivan 2004
- \* Irene 2011
- \* Sandy 2012
- \* Isaias 2020
- \* **Elsa 2021**
- \* **Fred 2021**
- \* **Henri 2021**
- \* **Ida 2021**
- \* And Floyd 1999

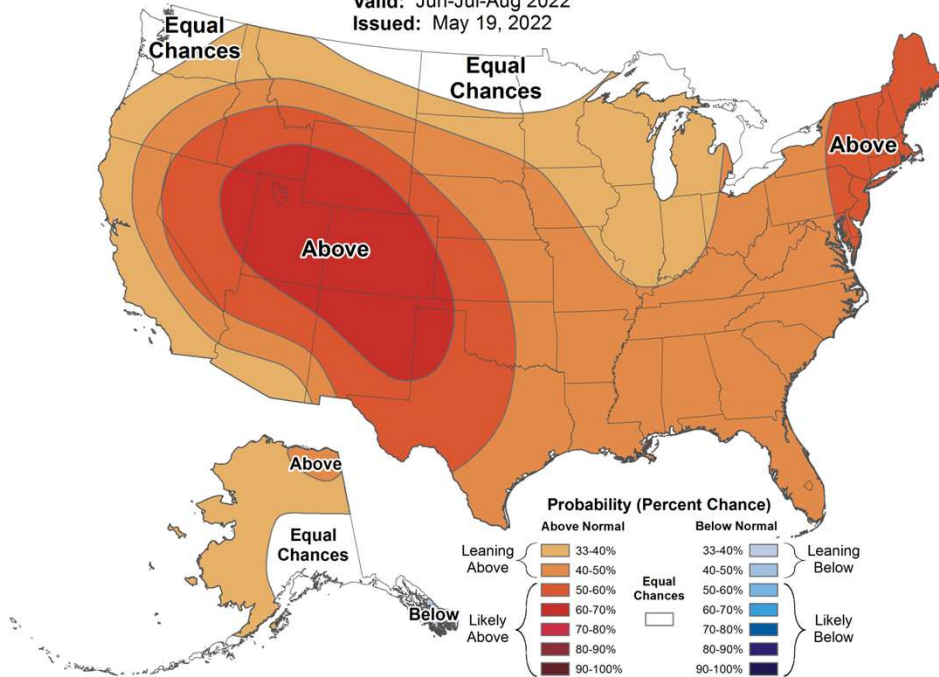
# Summer Outlook 2022



## Seasonal Temperature Outlook



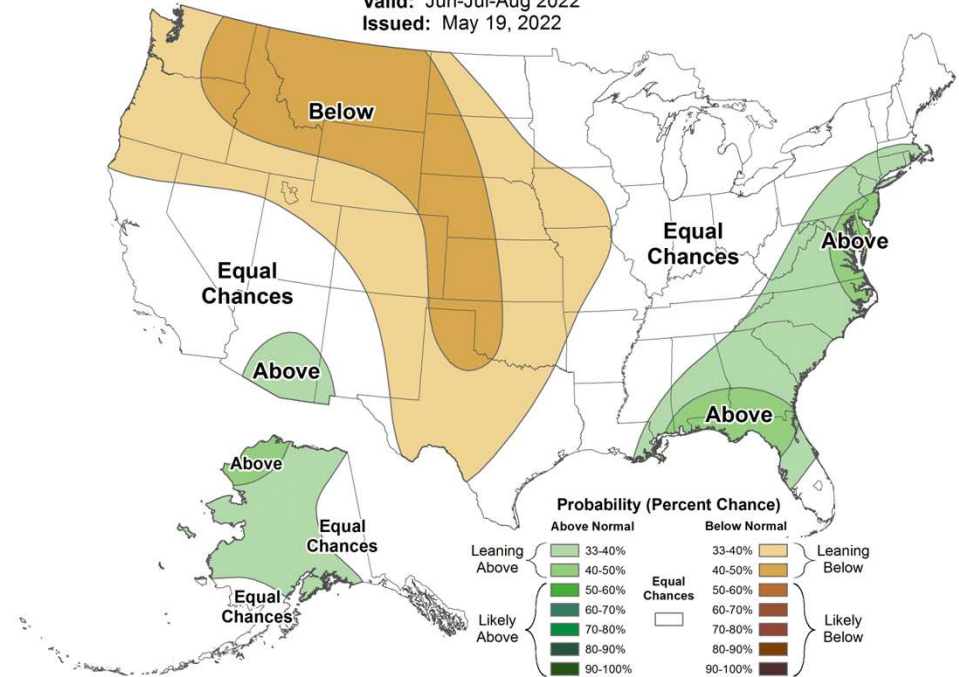
Valid: Jun-Jul-Aug 2022  
Issued: May 19, 2022



## Seasonal Precipitation Outlook



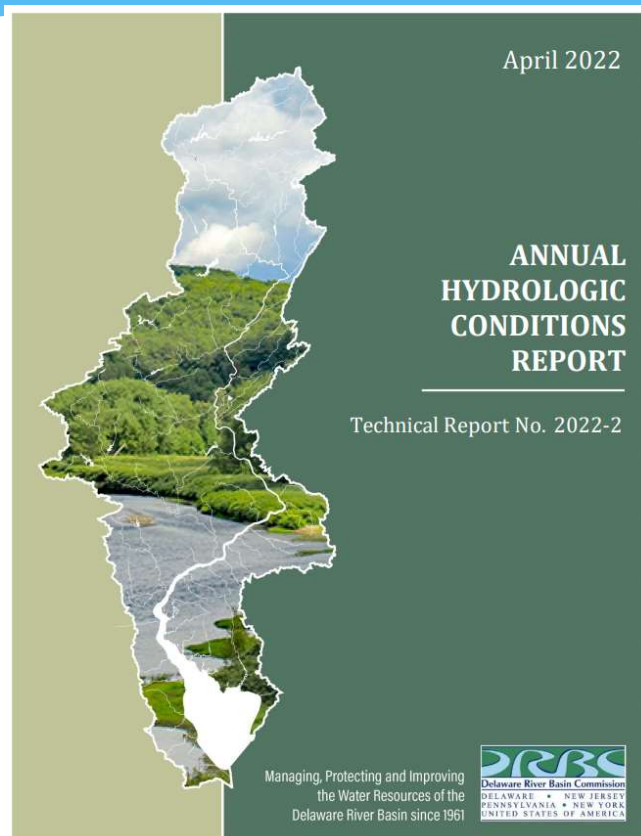
Valid: Jun-Jul-Aug 2022  
Issued: May 19, 2022



Data Source: NOAA, CPC



# 2021 Annual Hydrologic Conditions Report



- \* **Now Available!**
  - \* Highlights
  - \* Summary of Conditions
  - \* Flood Events
    - \* Bucks County
    - \* Fred
    - \* Henri
    - \* Ida
    - \* October Nor'Easter
  - \* Check it out

<https://www.nj.gov/drbc/library/documents/2021Hydrologic-Conditions-Rpt.pdf>

**Have a safe and happy summer!**

Photo by Carl LaVo  
D&R Canal Spillway,  
Lambertville, NJ

