Delaware River Basin Commission

Hydrologic Conditions

Anthony Preucil
Water Resource Scientist

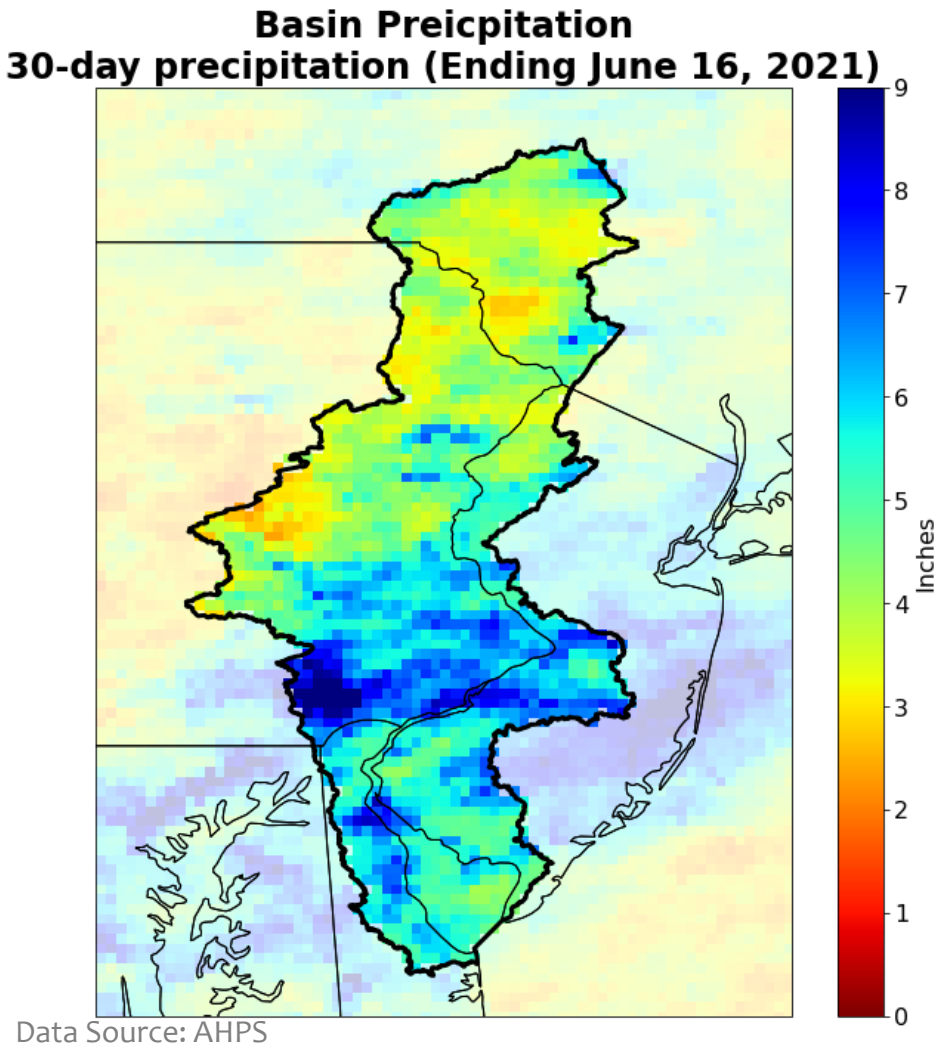
Water Management Advisory Committee
June 17, 2021

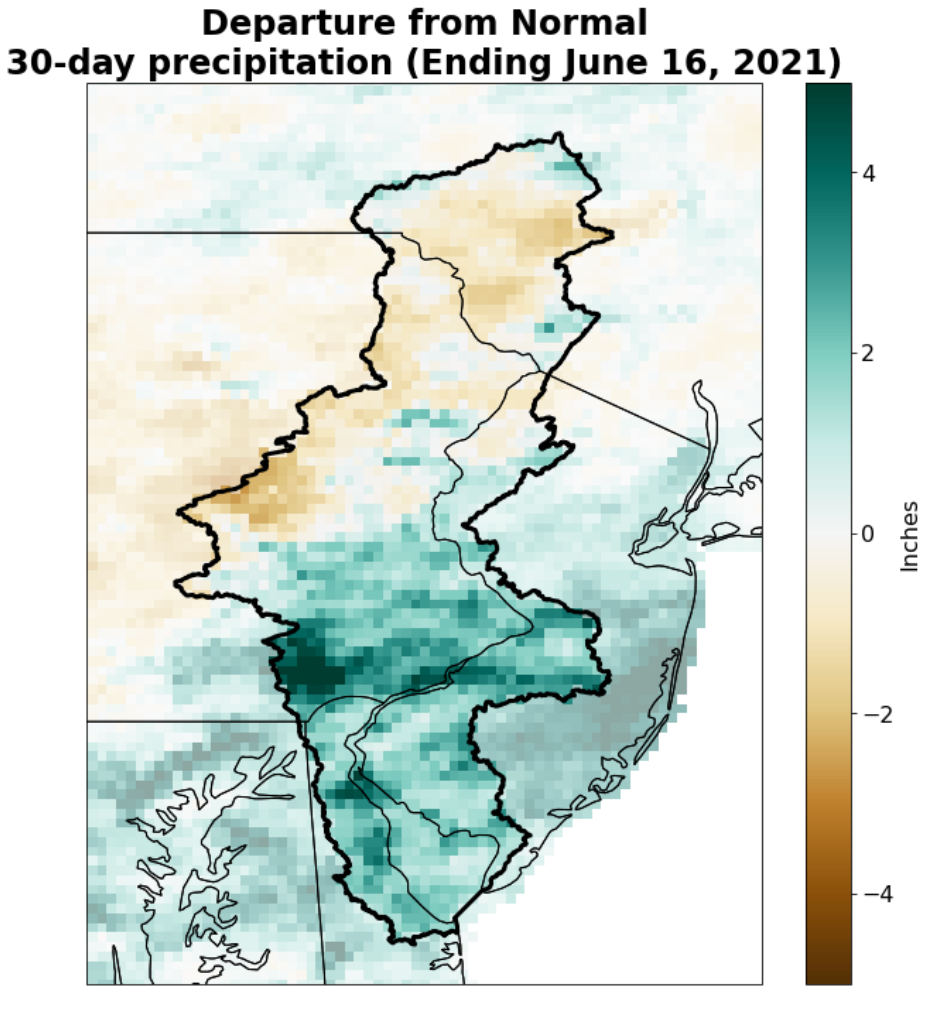




Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

Precipitation



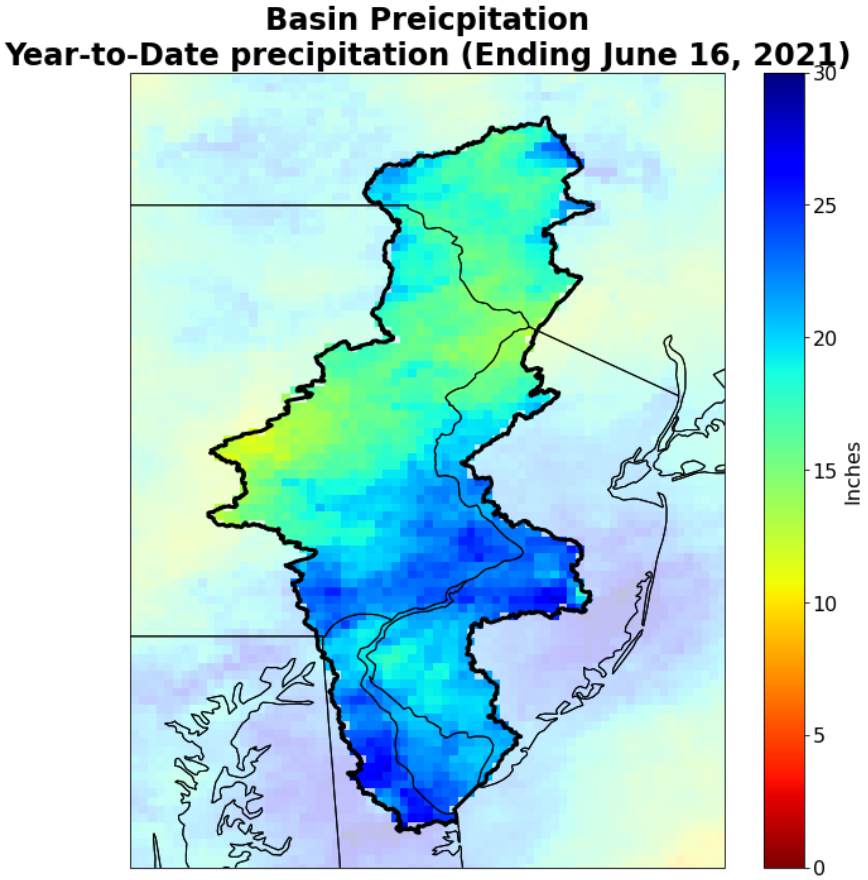


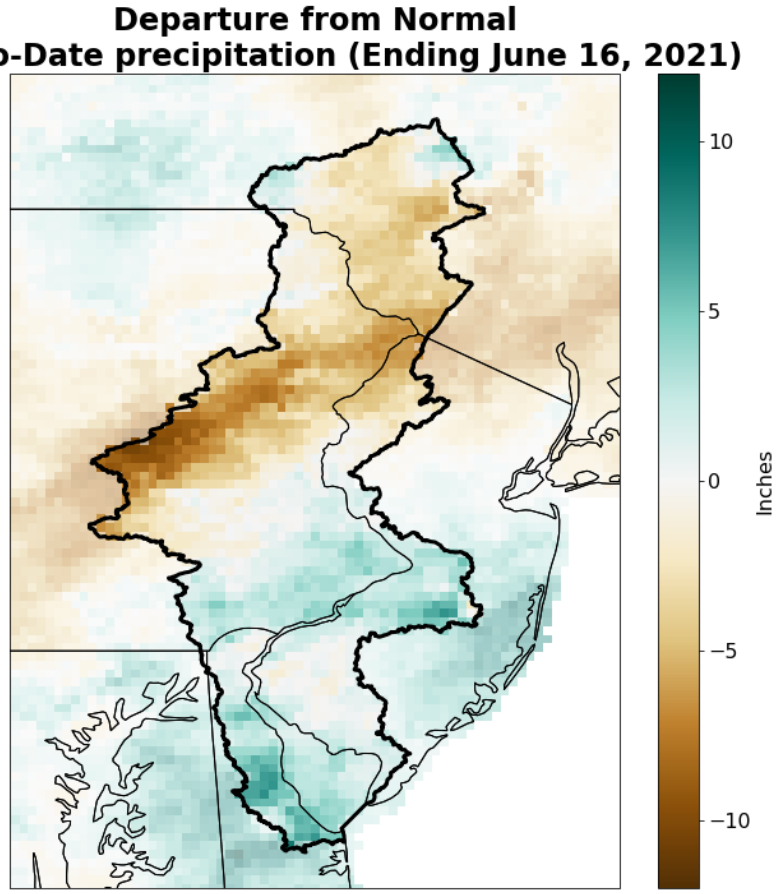
Data Source: AHPS

* Slow moving summer storms in the lower basin over the last two weeks produced flash floods

Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

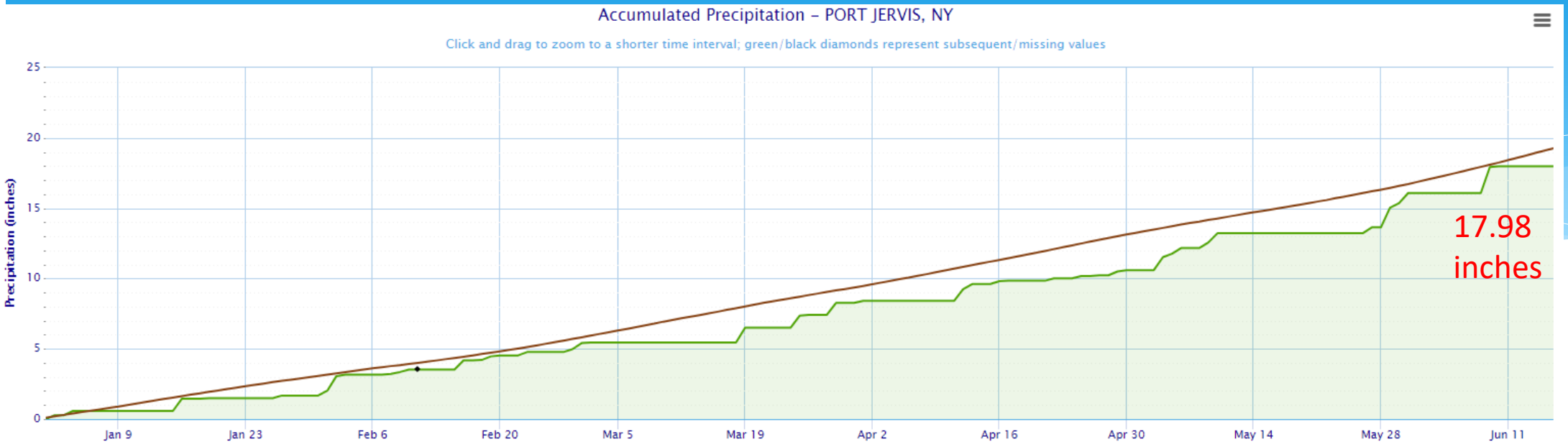
Precipitation

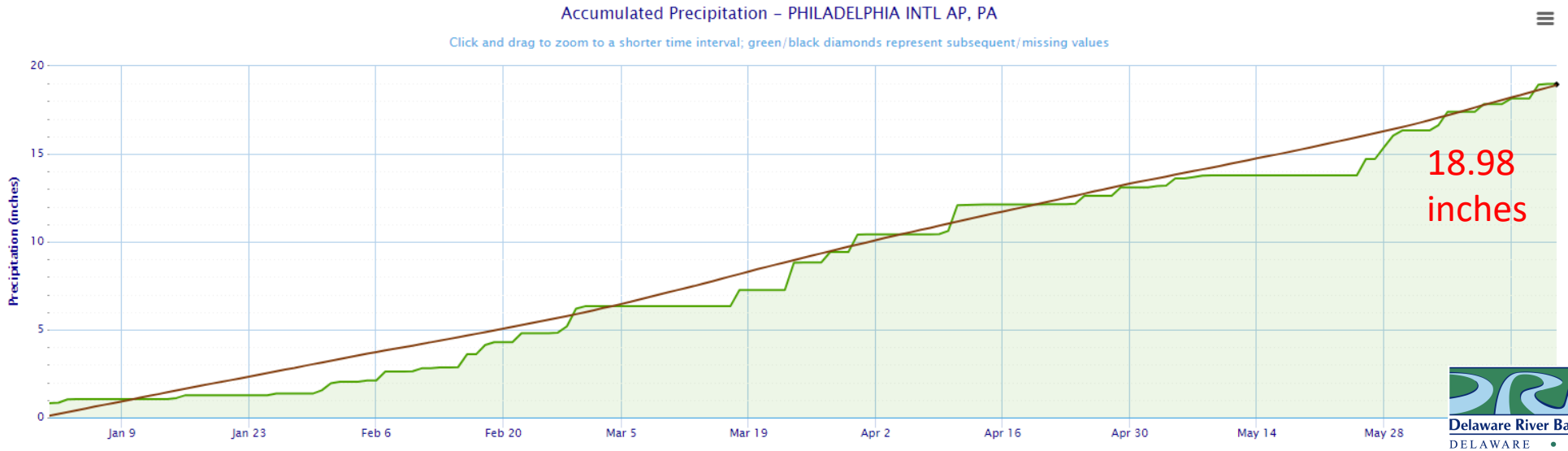




Data Source: AHPS

Precipitation

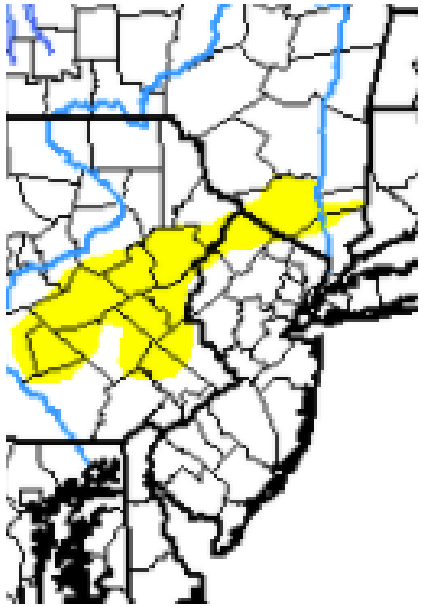




Source: ACIS

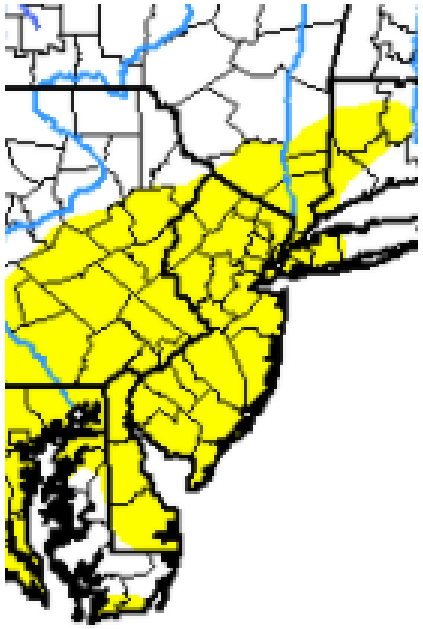
Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

None
D0 Abnormally Dry
D1 Moderate Drought



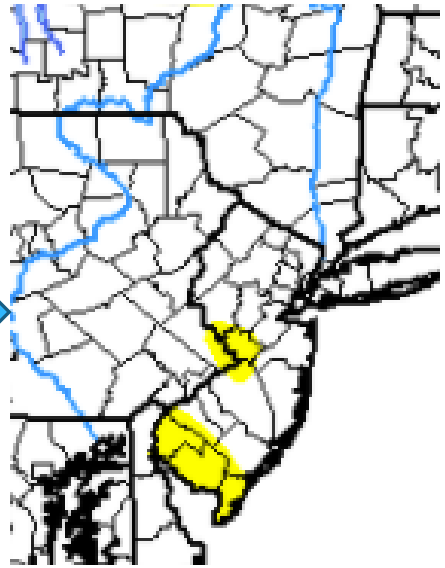
U.S. Drought Monitor on **May 11, 2021** had little of the basin in D0 conditions

None
D0 Abnormally Dry
D1 Moderate Drought



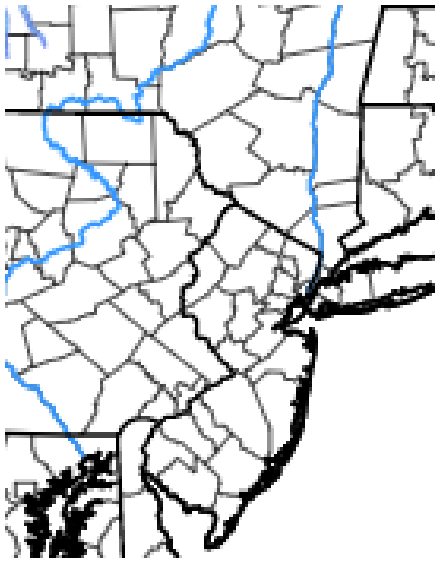
U.S. Drought Monitor on **May 25, 2021** had much of the basin in D0 conditions

None
D0 Abnormally Dry
D1 Moderate Drought



U.S. Drought Monitor on **June 8, 2021** had little of the basin in D0 conditions

None
D0 Abnormally Dry
D1 Moderate Drought



U.S. Drought Monitor on **June 15, 2021** had no D0 conditions

Source: NOAA CPC

Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

New Climate Normals

* Updated Climate Normals using 1991 - 2020

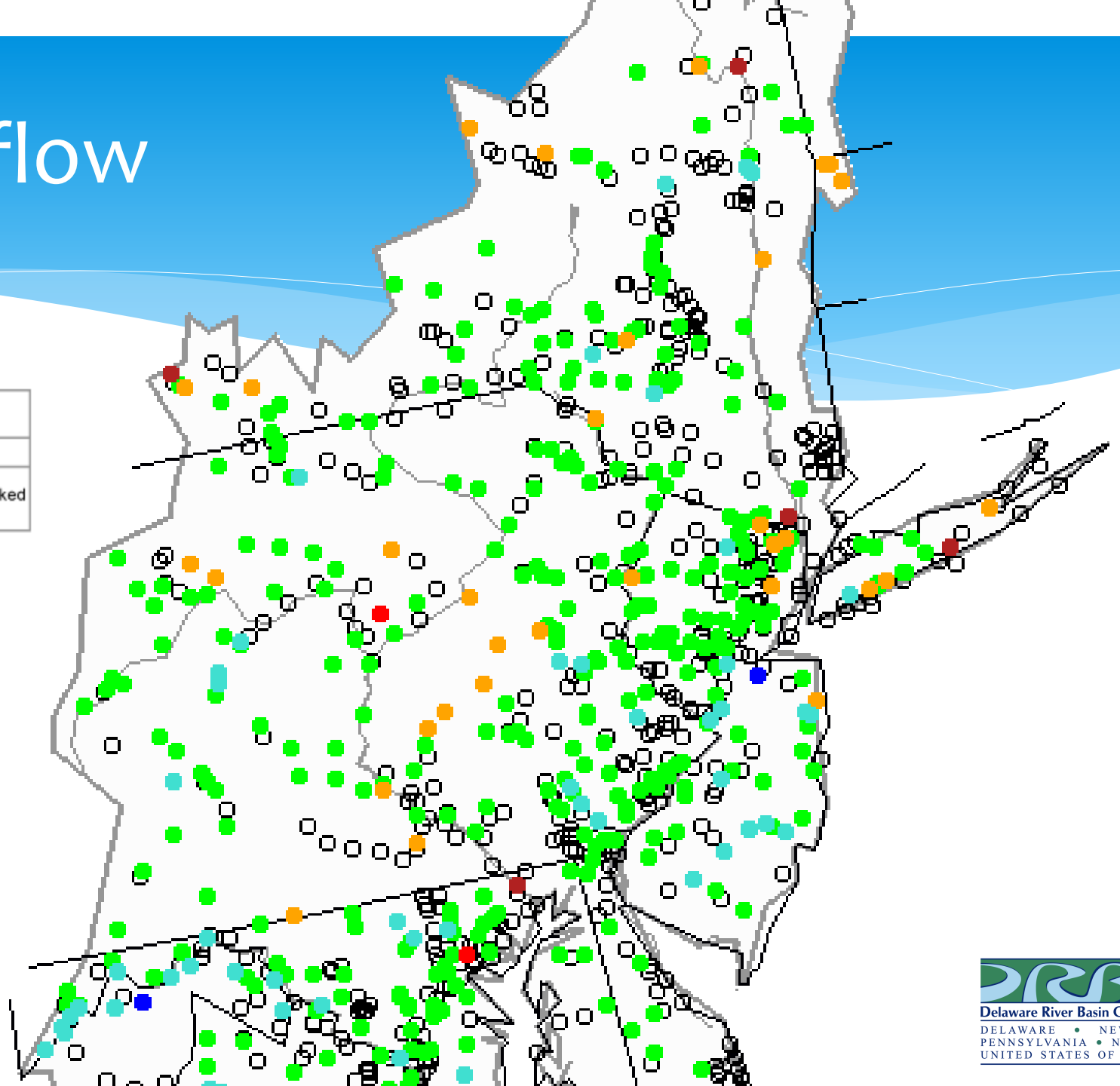
Average High Temperature and Precipitation, June - August (1991 - 2020)				
	Milleville, NJ	*Philadelphia, PA*	*Mount Pocono, PA*	*Binghamton, NY*
June	81.6	83.2	73.0	74.0
July	86.1	87.8	77.7	78.4
August	84.3	85.8	75.7	76.7
JJA PRECIP	12.78 inches	12.71 inches	14.06 inches	12.59 inches
JJA PRECIP (OLD)	10.76 inches	11.28 inches	13.48 inches	11.46 inches
CHANGE	**+2.02 inches**	**+1.43 inches**	**+0.58 inches**	**+1.13 inches**

South ⟷ North

Data Source: ACIS

Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

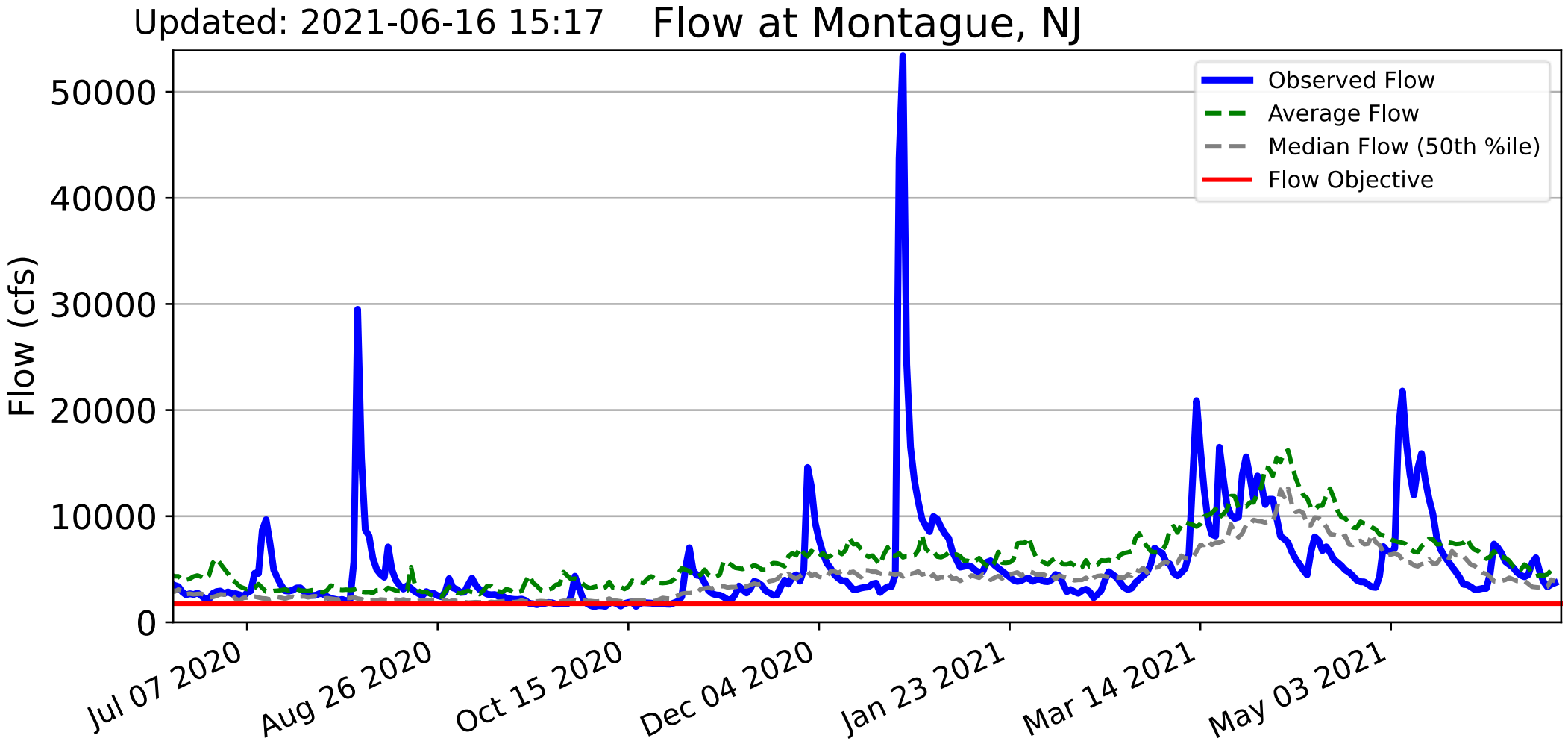
Streamflow



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

Source: USGS

Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA



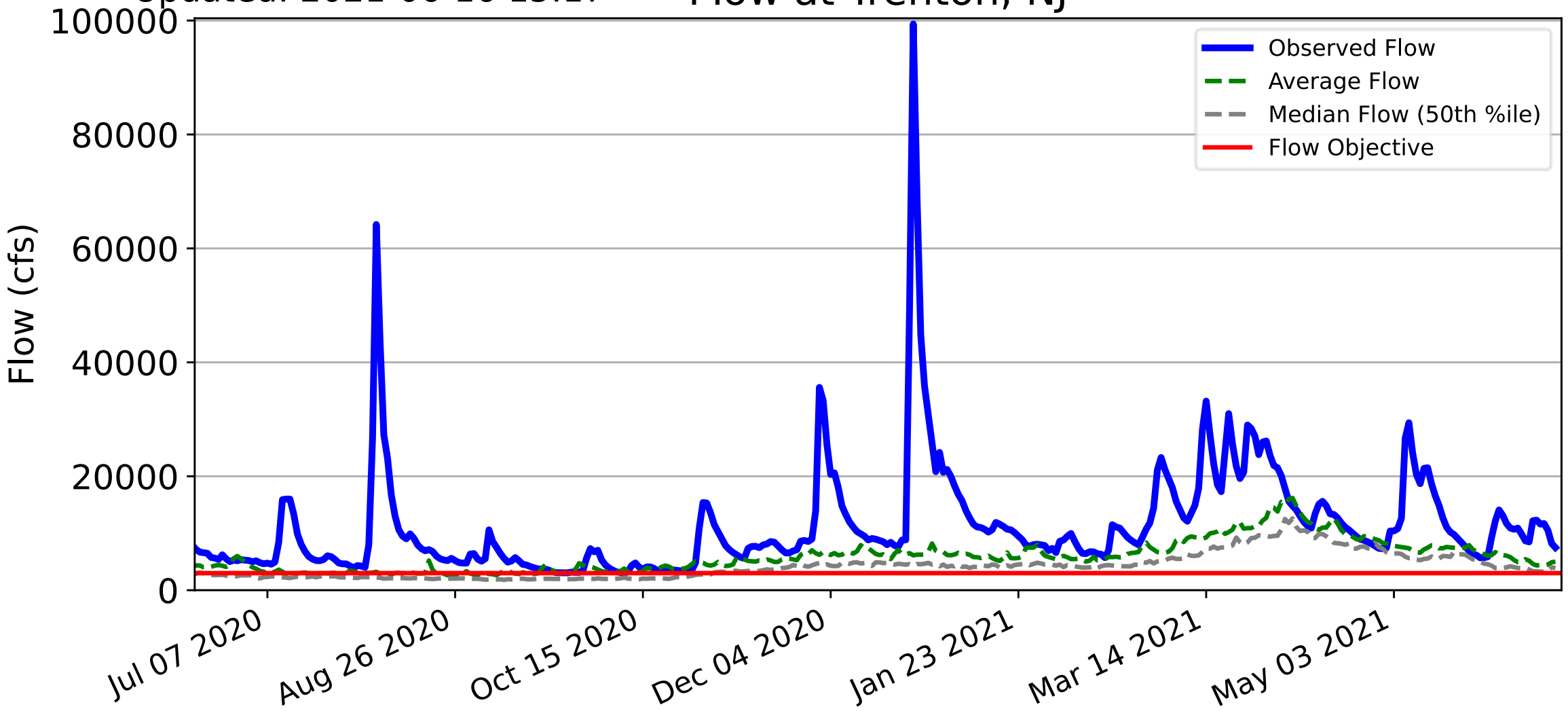
Data Source: USGS

Data Source: USGS

Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

Updated: 2021-06-16 15:17

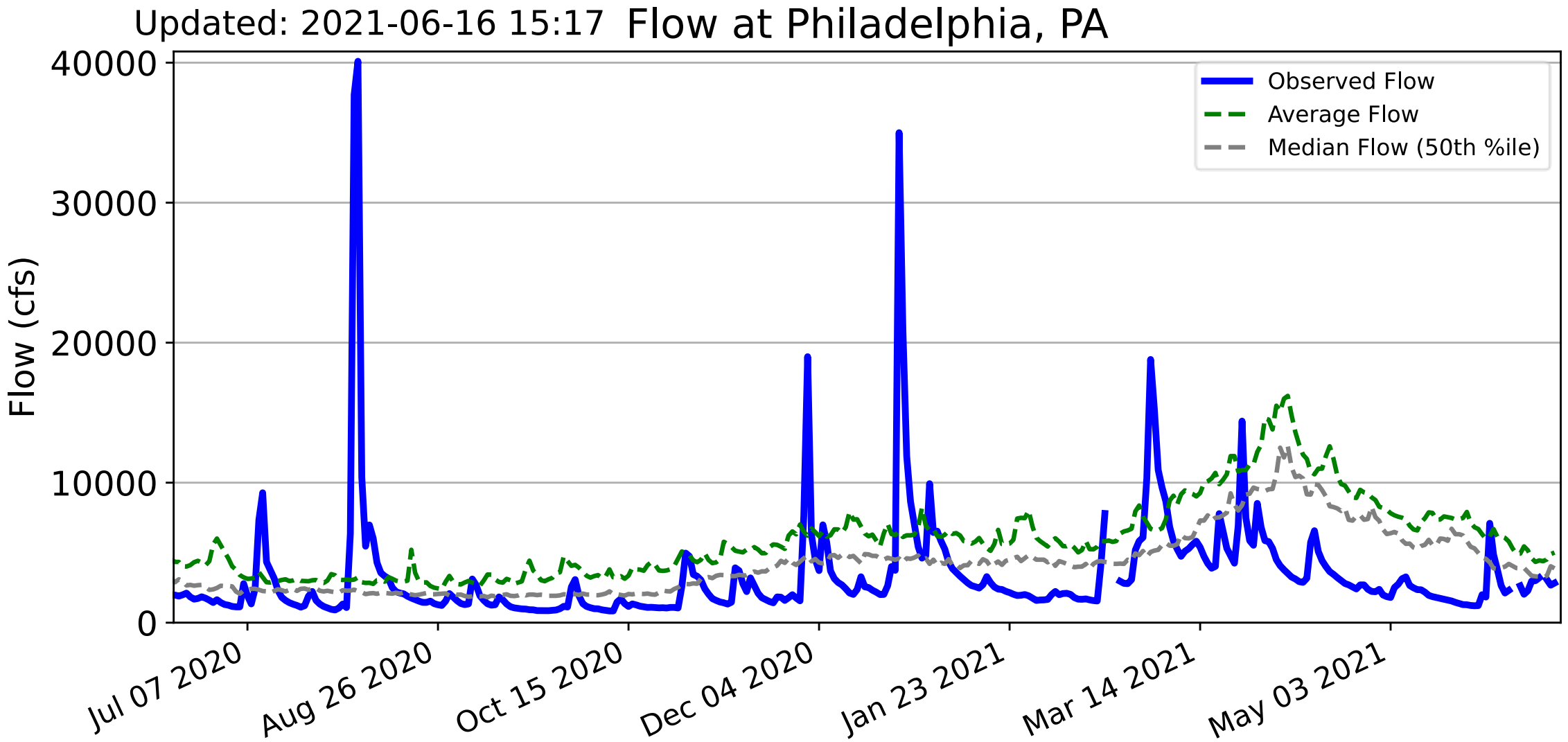
Flow at Trenton, NJ



Data Source: USGS

Data Source: USGS

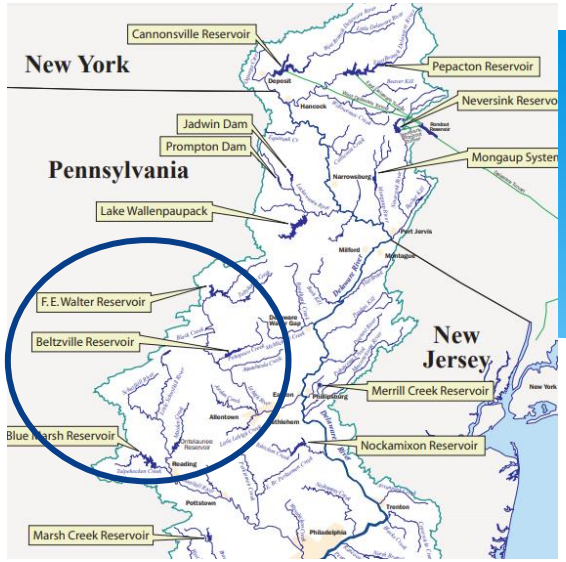
Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA



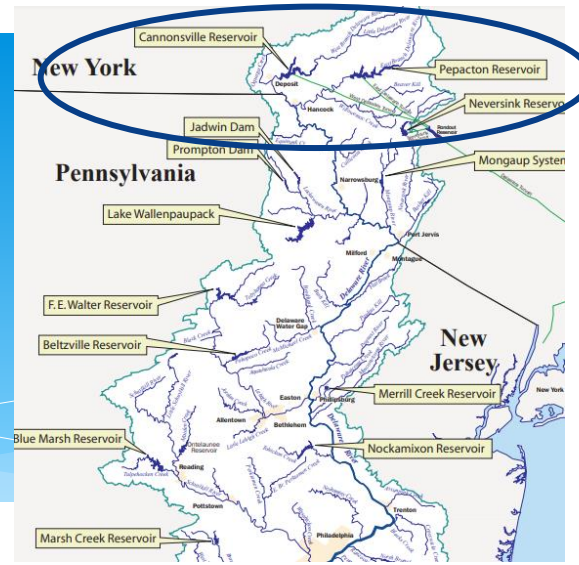
Data Source: USGS

Data Source: USGS

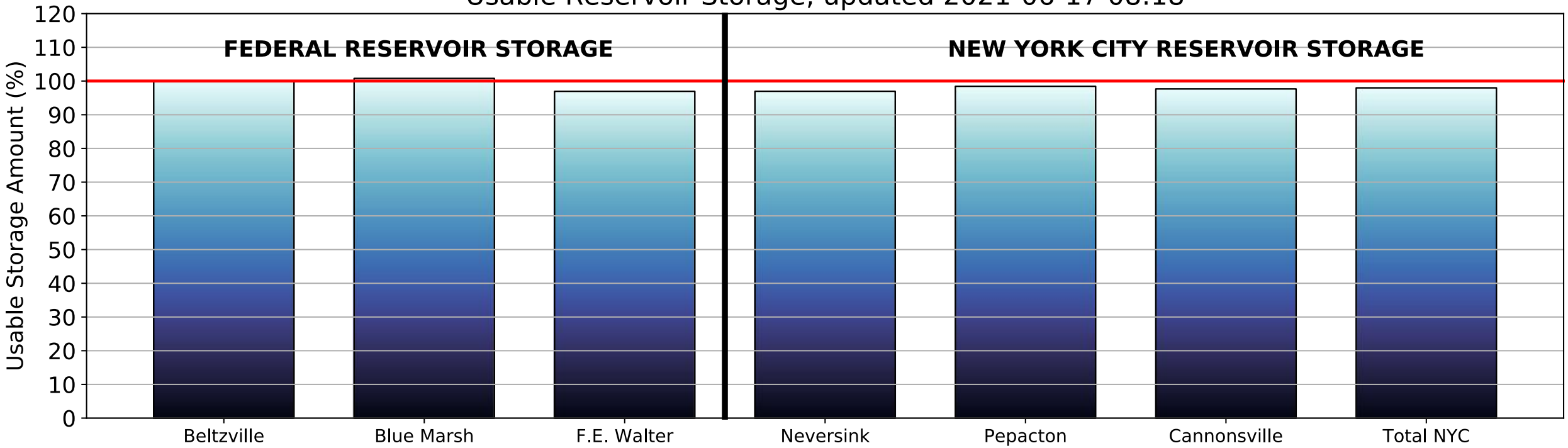
Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA



Basin Storage



Usable Reservoir Storage, updated 2021-06-17 08:18

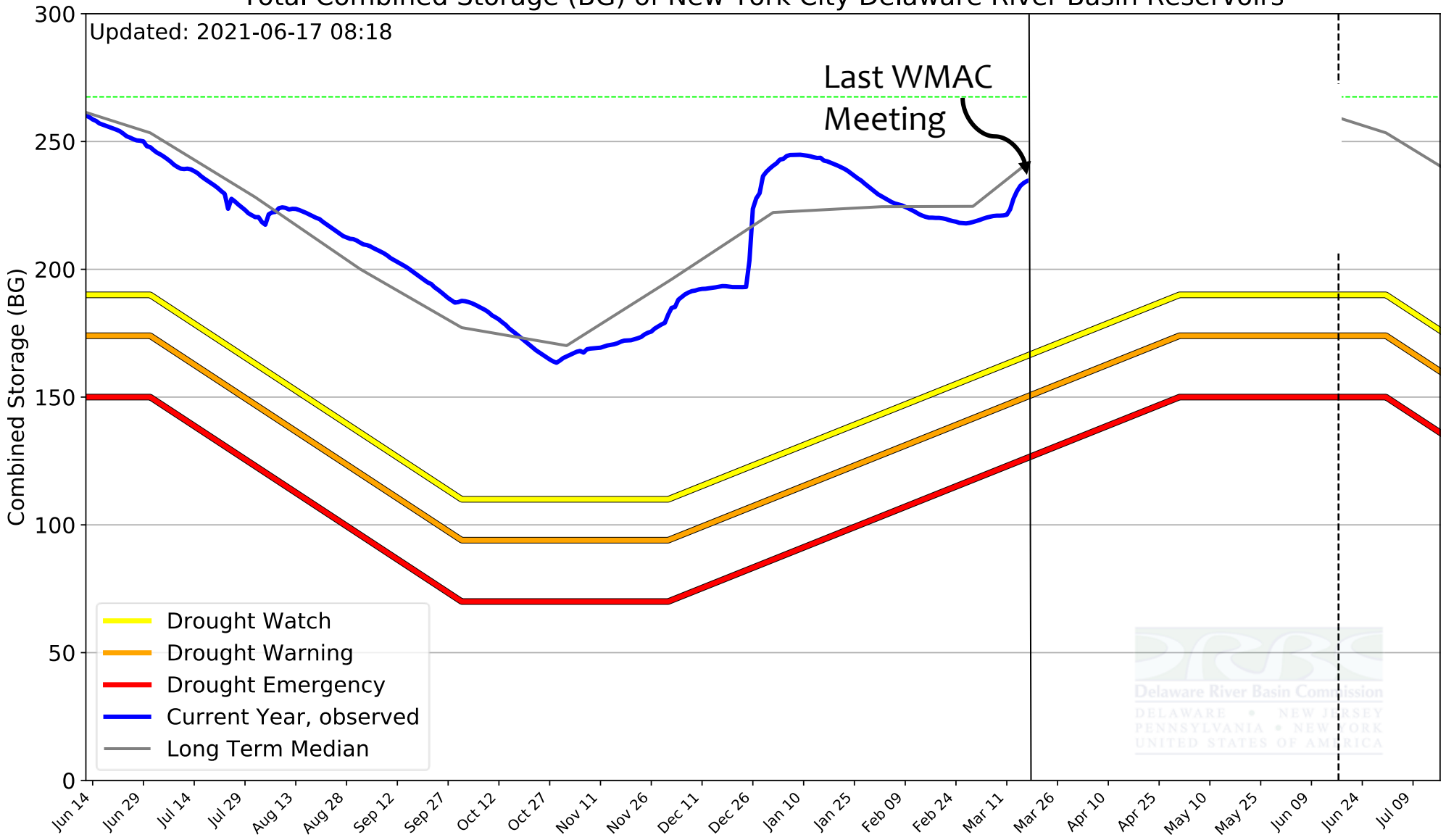


*** Storage below lowest outlet (pipe) is not taken into account ***

Data Source: USGS

Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

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

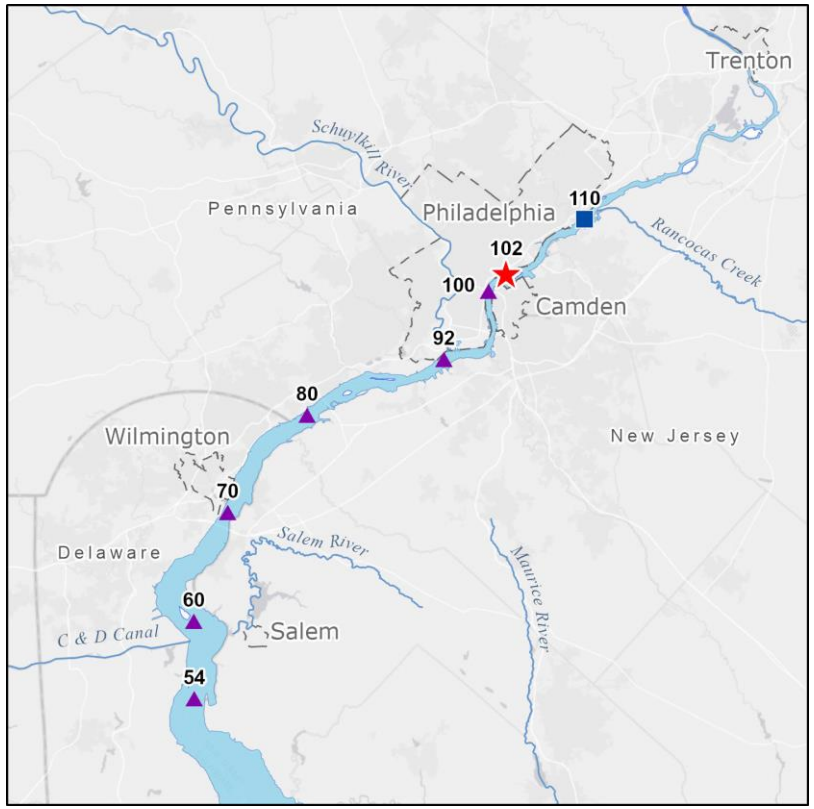


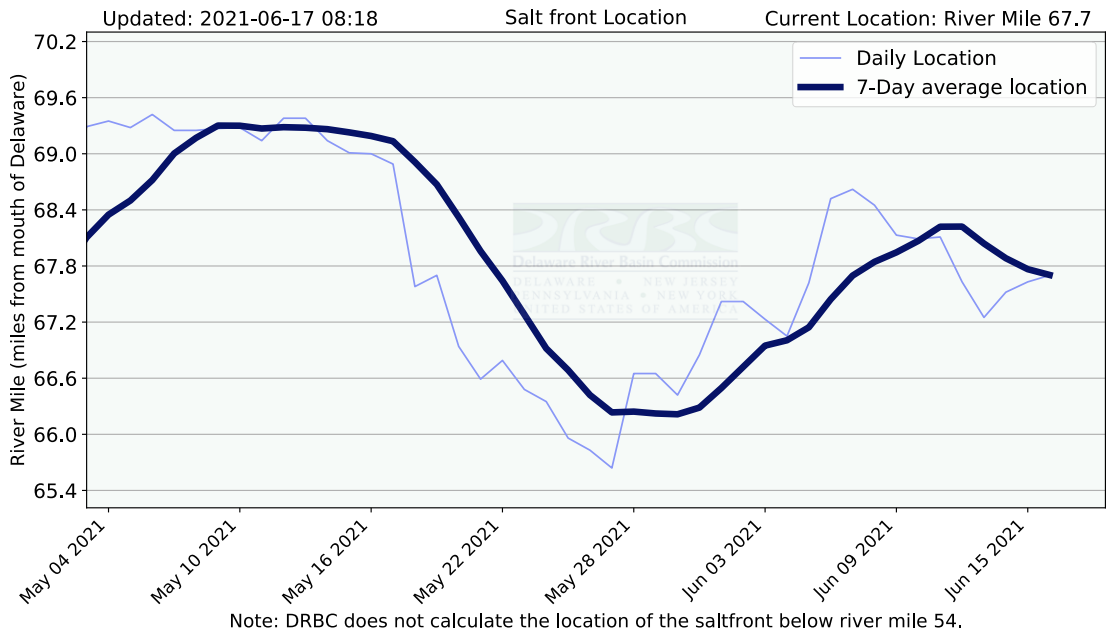
Usable Storage	Cannonsville	Pepacton	Neversink	Total		
BG	91.3	137.1	33.6	262.0	BG above drought watch = 72.0	BG above median = 2.7
%	97.7	98.4	97.0	98.0	BG above drought warning = 88.0	BG above one year ago = 5.9
					BG above drought = 112.0	

Data Source: USGS

Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

Salt Front





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

Current: 67.7
June Normal: 69

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

Data Source: USGS

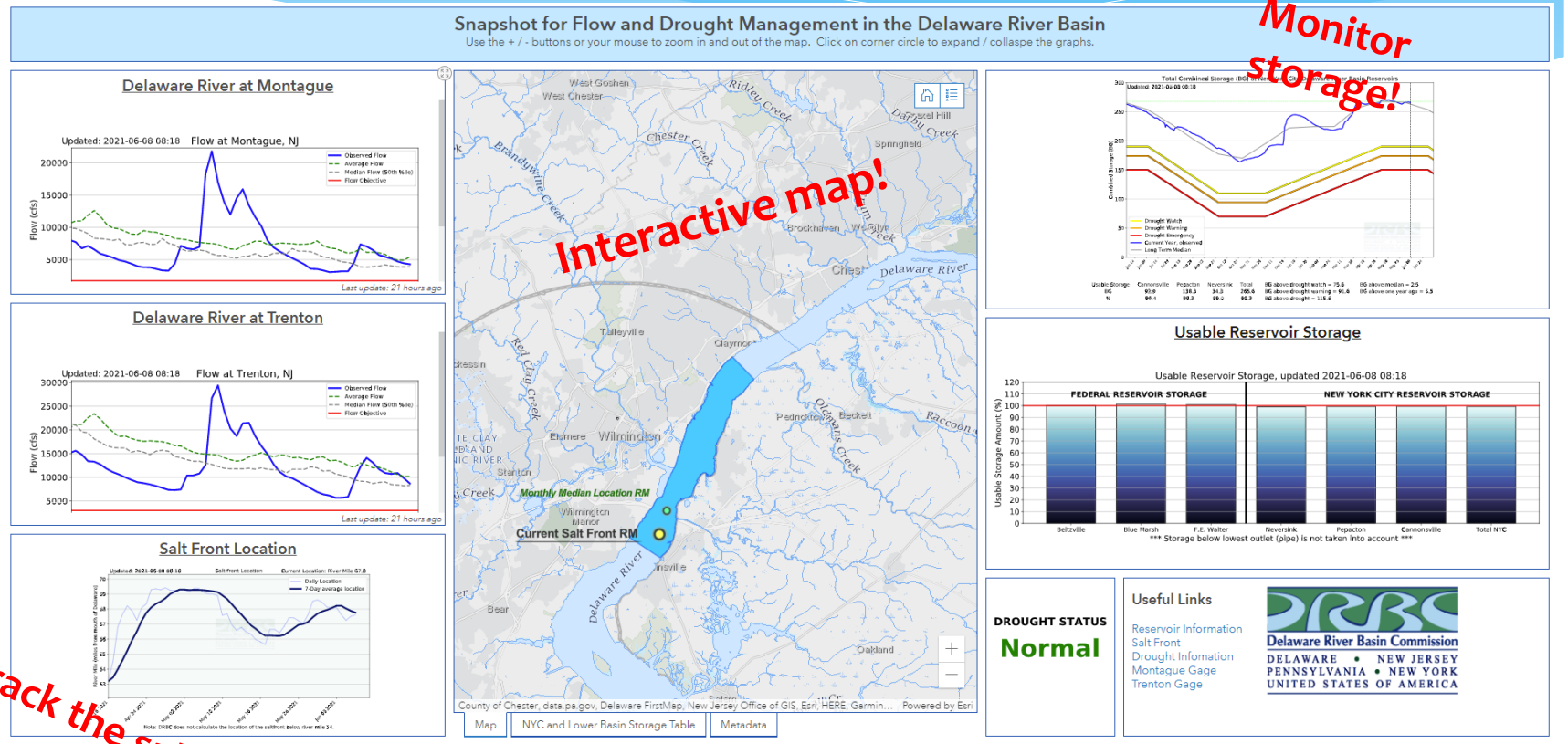
Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

Daily updates on our dashboard

* Reminder: Conditions will update daily at or around 8:20 AM

* Short-cut link:

hydrosnap.drbc.net



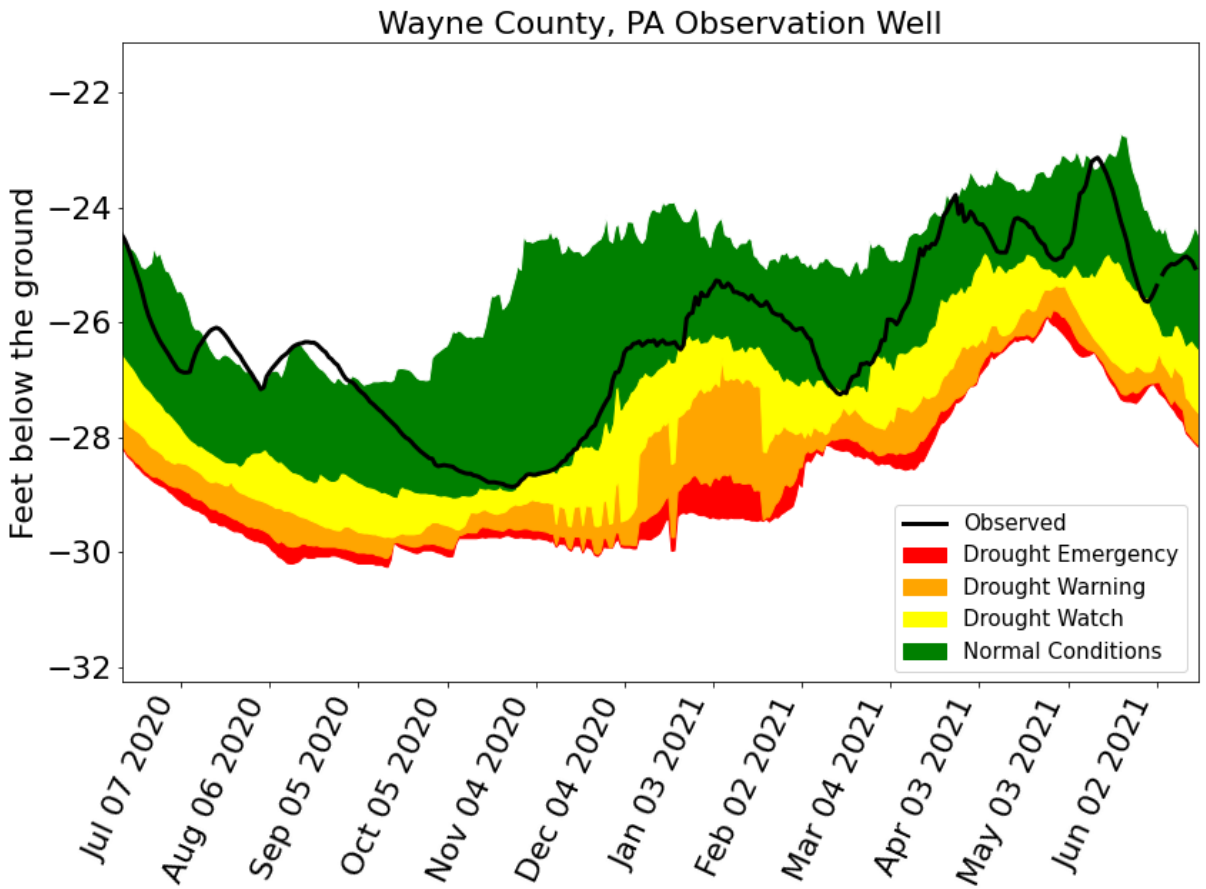
Groundwater

COUNTY	STATE	DATA SOURCE	WELL ID	INDICATOR AS OF 2020-06-16
Wayne	PA	USGS	WN 64	Normal
Monroe	PA	USGS	MO 190	Drought Watch
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	Normal
Chester	PA	USGS	CH 10	Above Normal
Delaware	PA	USGS	DE 723	Normal
Lebanon	PA	USGS	LB 372	Normal
Burlington	NJ	USGS	050689	Normal
Cumberland	NJ	USGS	110042	Above Normal
New Castle	DE	DGWS	db-24-18	Normal
Woodbourne	NY	USGS		Normal

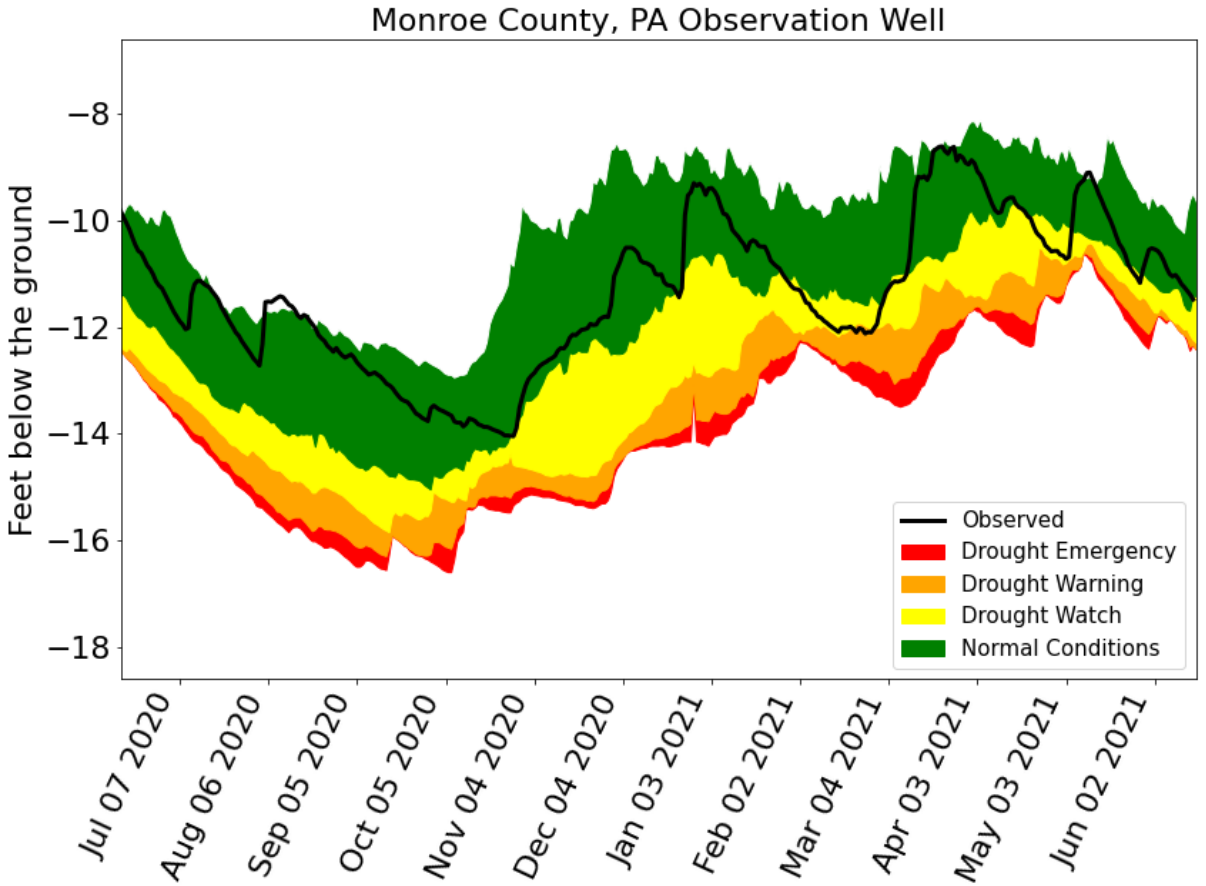
Data Source: USGS

Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

Upper Basin



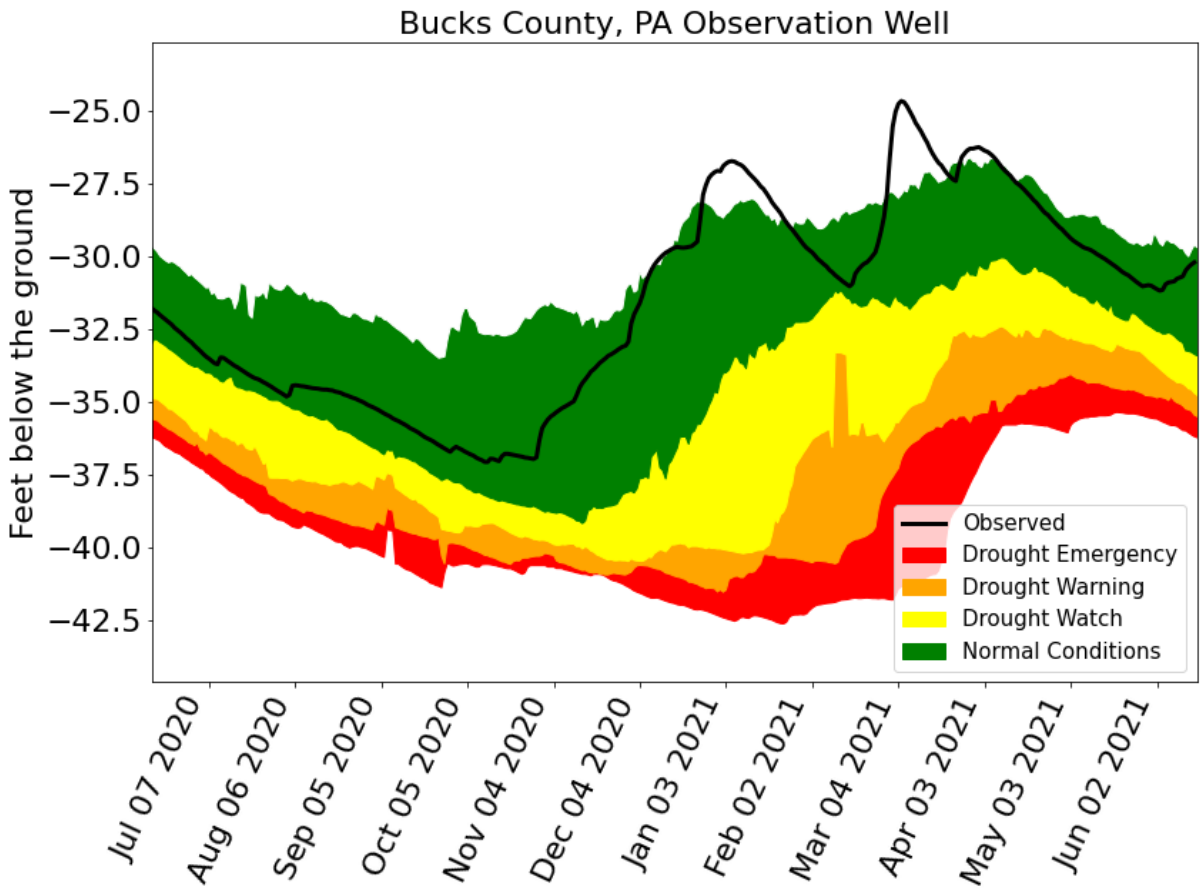
Middle-Upper Basin



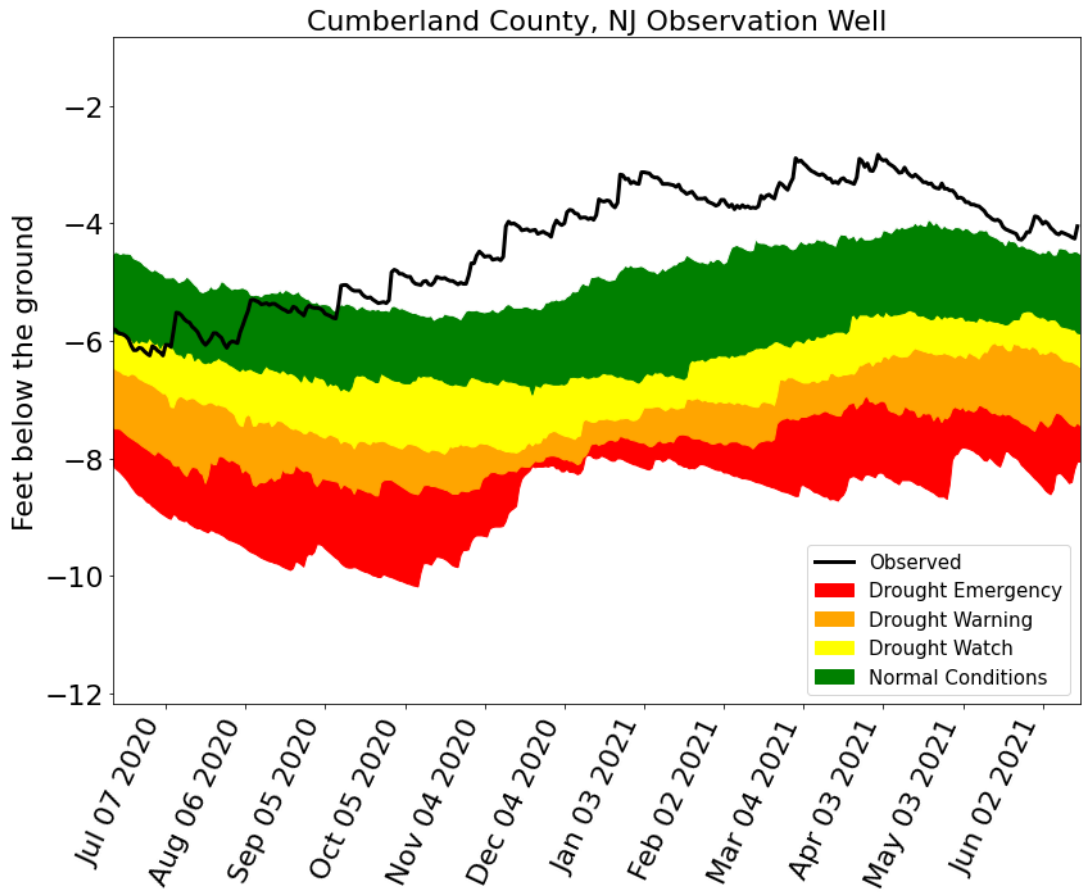
Data Source: USGS

Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

Middle-Lower Basin

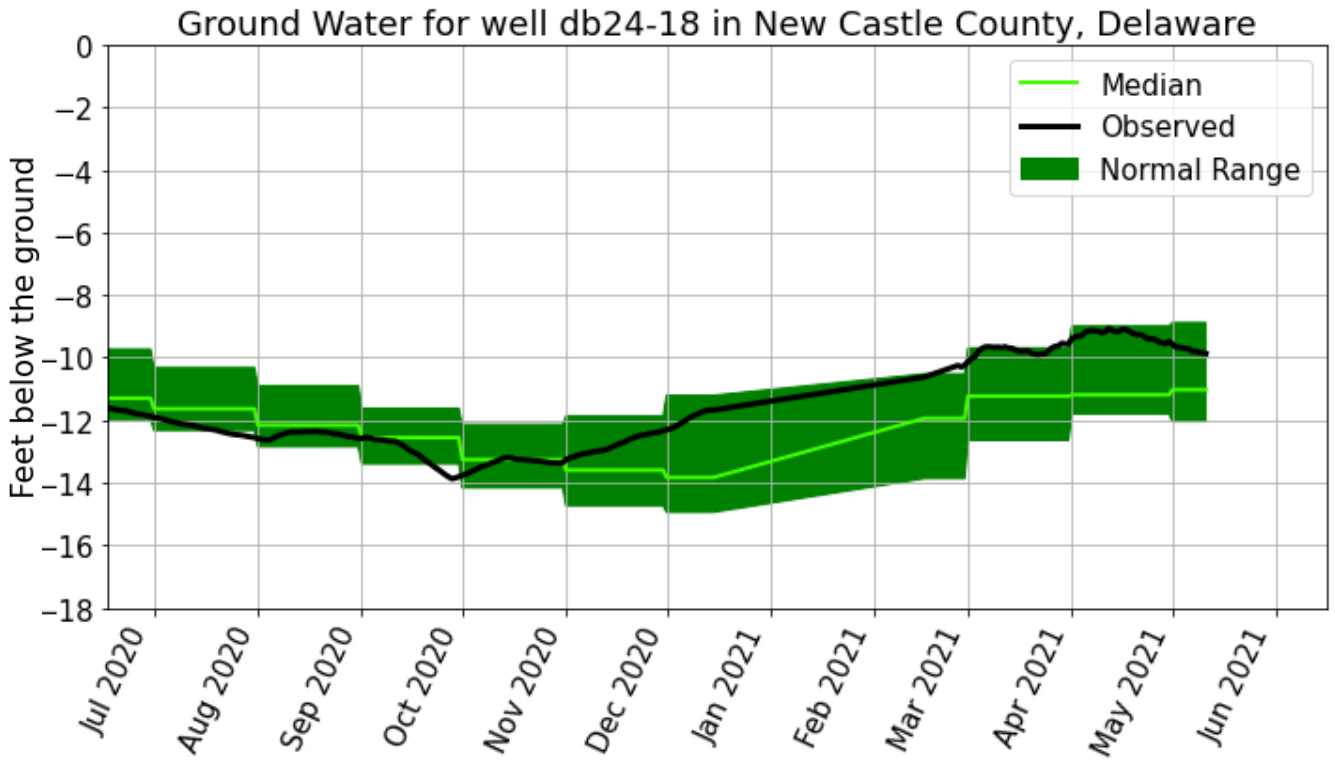


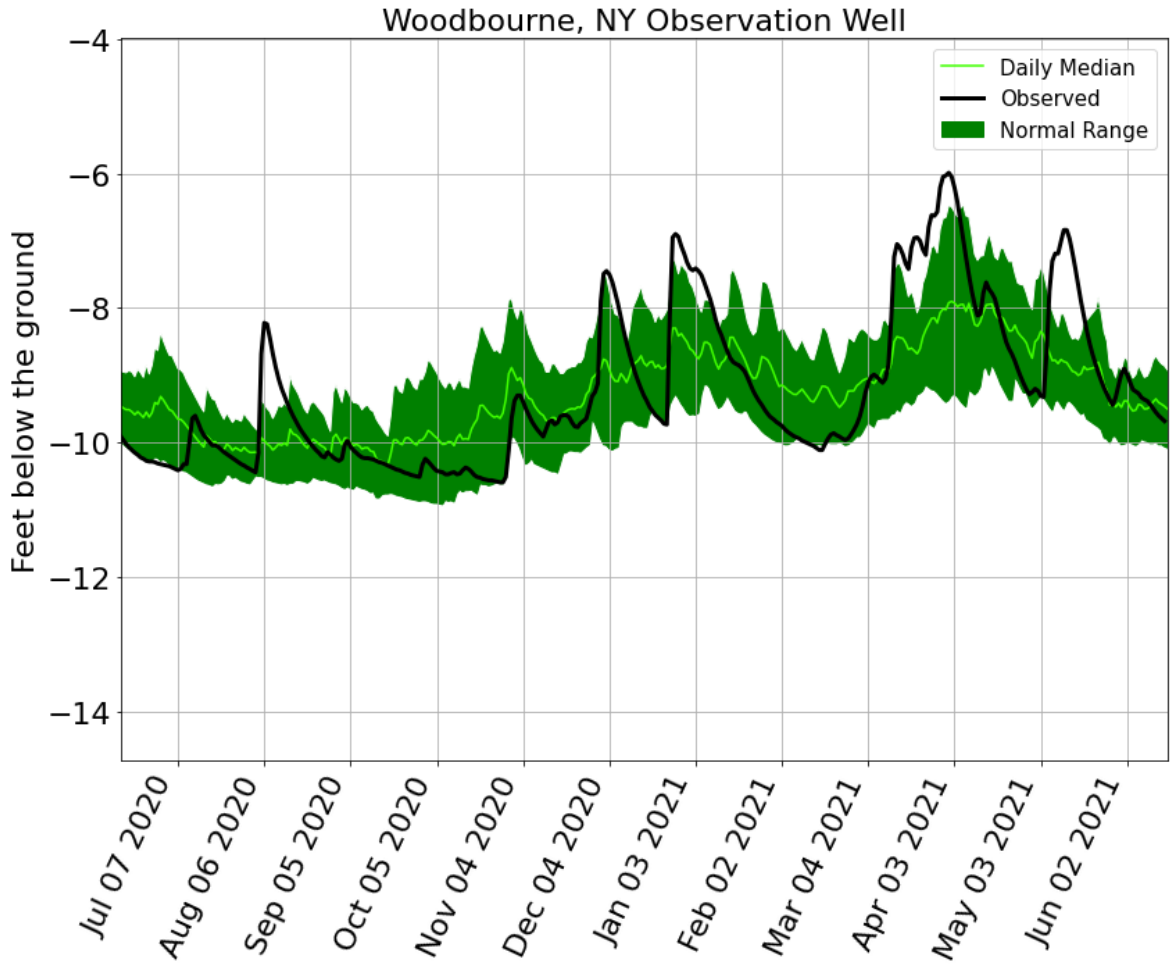
Lower Basin



Data Source: USGS

Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA



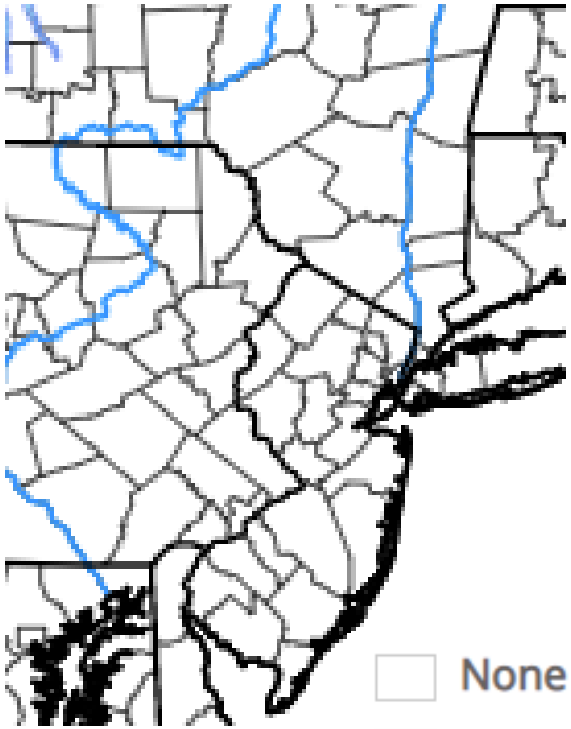


Note: New Castle data available through May 8, 2021.

Data Source: USGS, DGWS

Drought Monitor

June 17, 2021



None

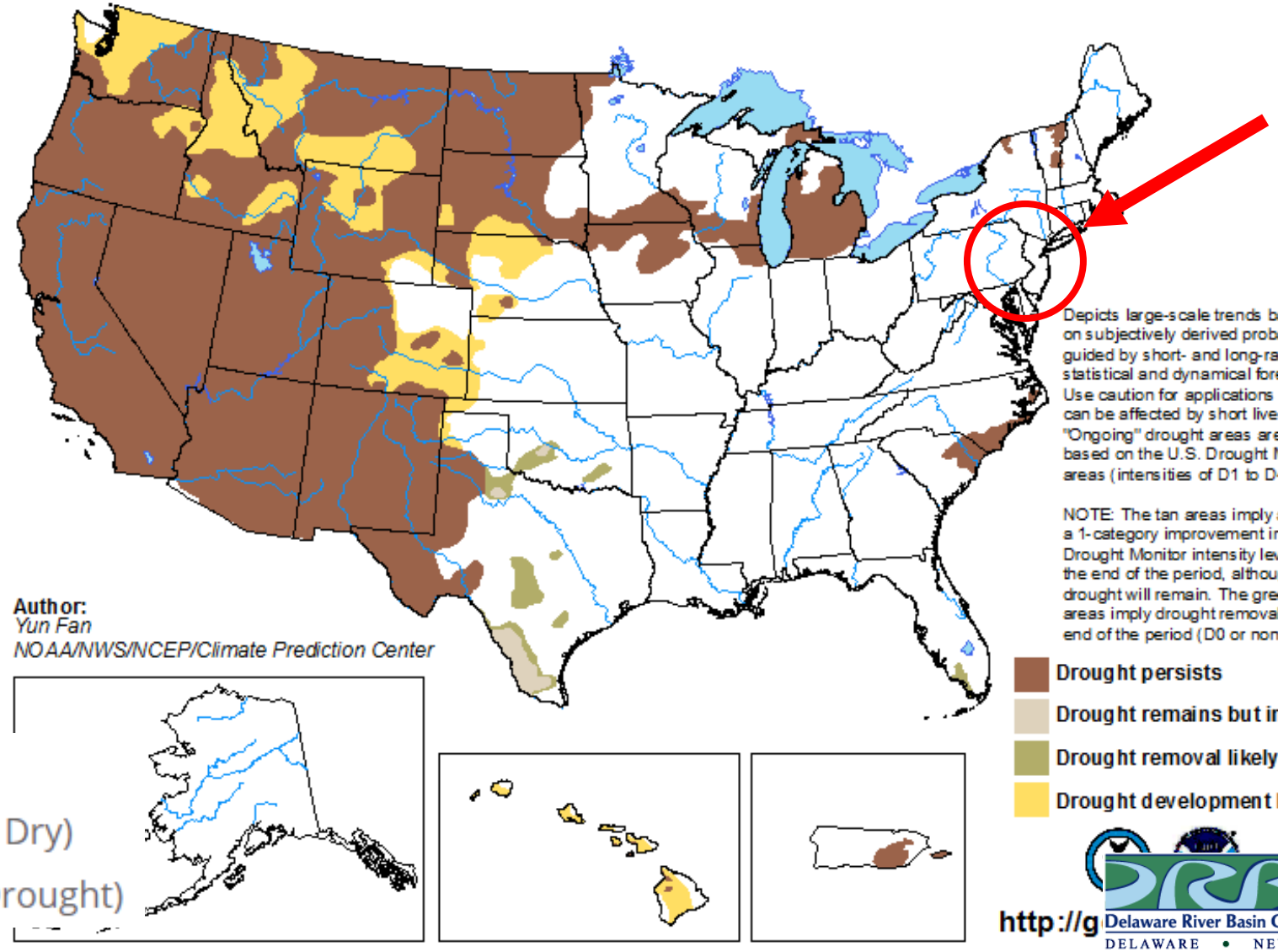
D0 (Abnormally Dry)

D1 (Moderate Drought)

U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid for May 20 - August 31, 2021
Released May 20



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

Author:
Yun Fan
NOAA/NWS/NCEP/Climate Prediction Center

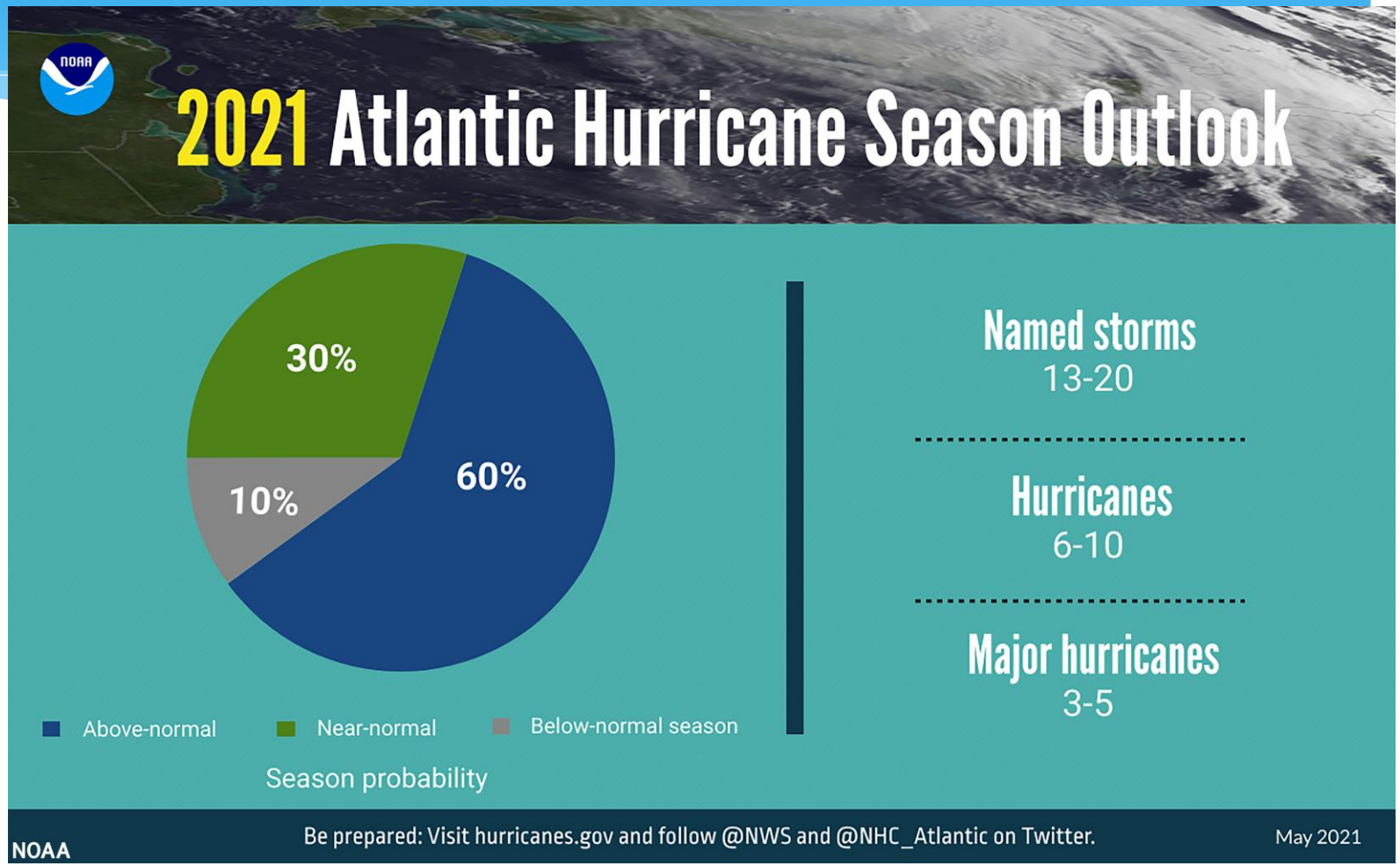
http://g

Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

Source: NOAA CPC

2021 Atlantic Hurricane Season

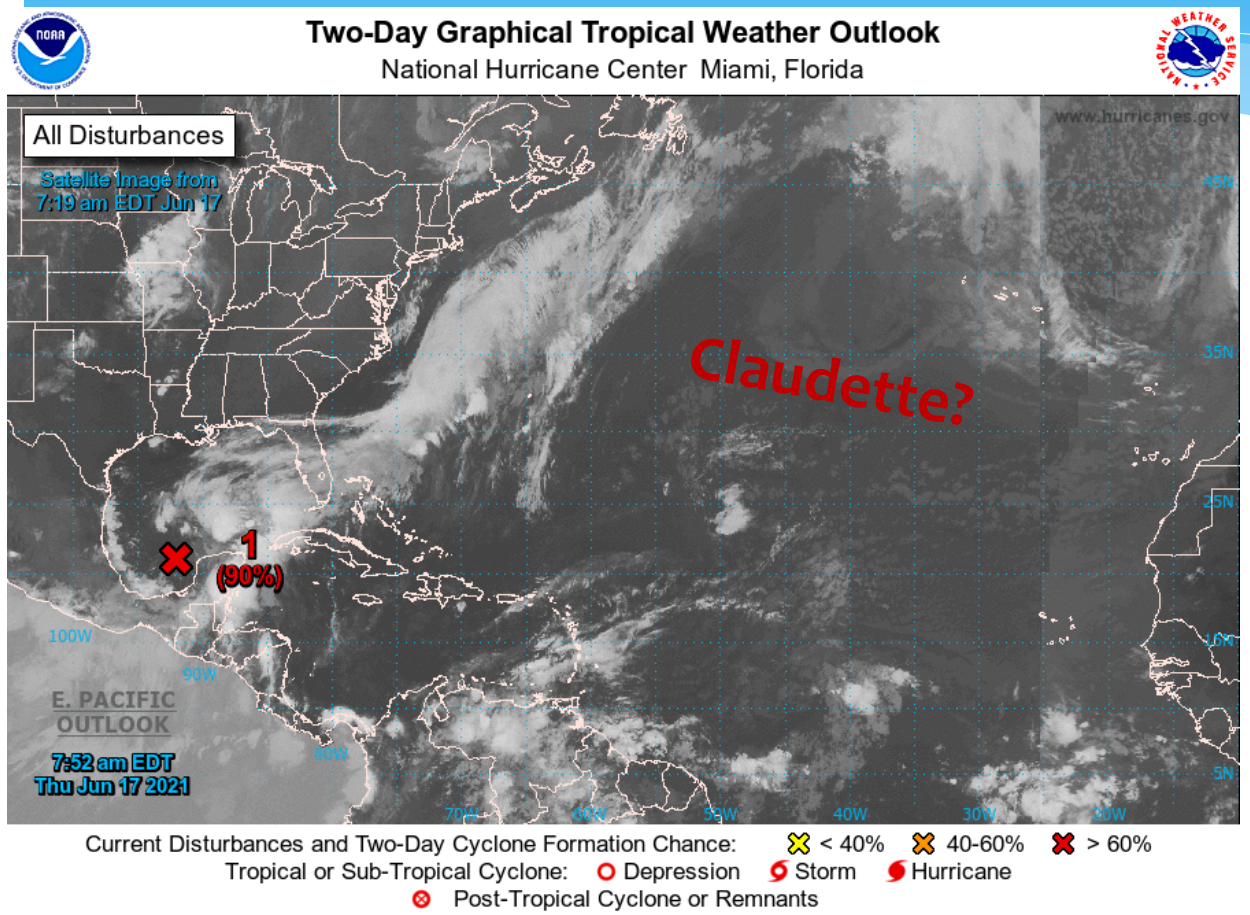
* Tuesday, June 1 – Tuesday, November 30
* NEW! NOAA updated annual averages to 14 named storms, 7 hurricanes, and 3 major hurricanes
* NEW! No Greek alphabet storm names
* This year: Above average tropical activity is likely

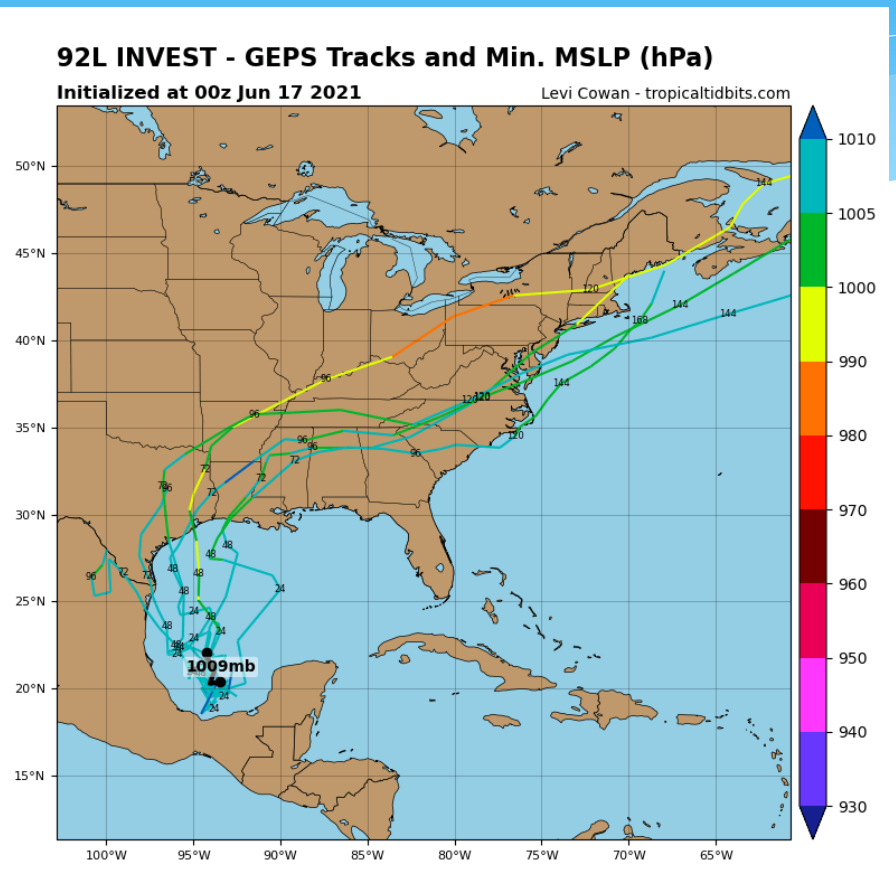


Source: NOAA

Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

Tropics Today…



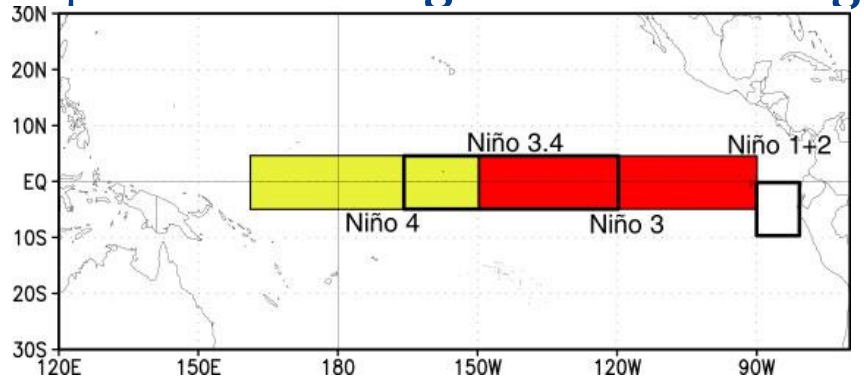


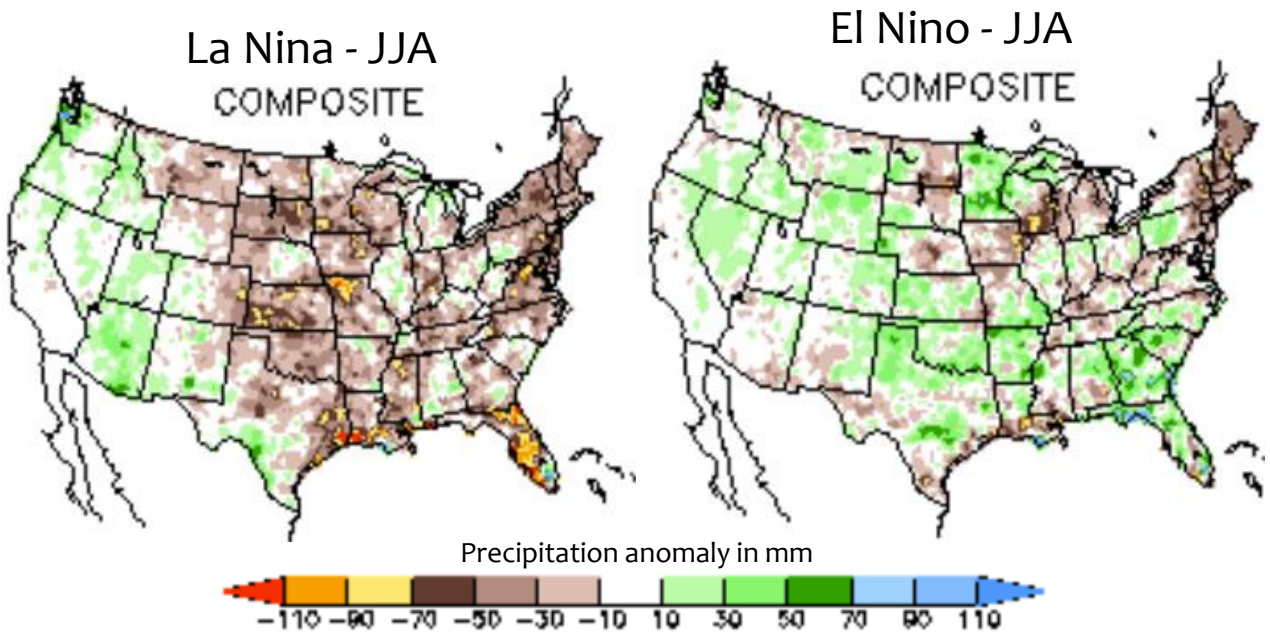
Source: NOAA NHC, Tropical Tidbits

Summer 2021 - ENSO

78% Chance of Neutral Conditions

* In the Delaware River Basin:
  * Strong La Nina summers (left image) are very dry and cooler than average
  * Strong El Nino summers (right image) are also dry, but not as dry as La Nina. El Nino summers are also cooler than average.
* What does this mean for neutral?
  * Temperature – likely **above normal**
  * Precipitation – **Average or above average**



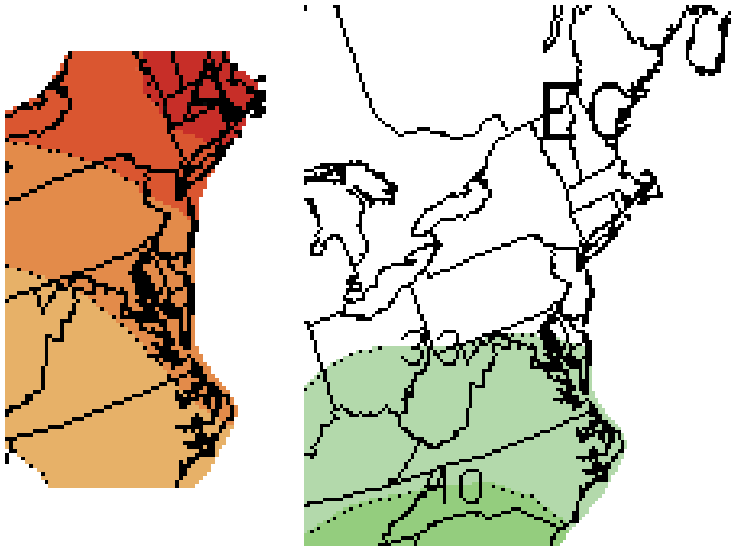


Source: NOAA, NWS

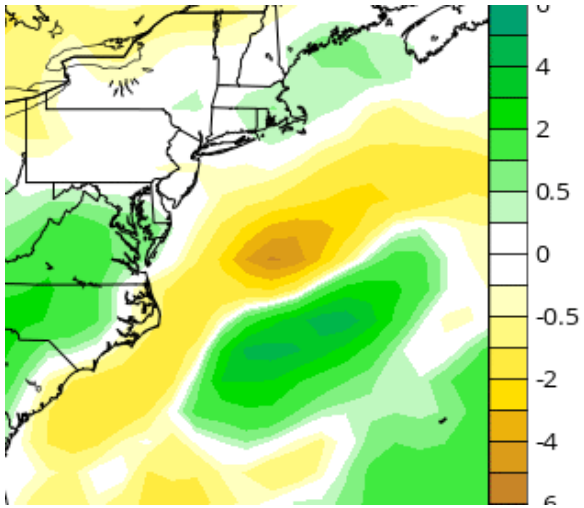
Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

Summer 2021 – CPC Forecast

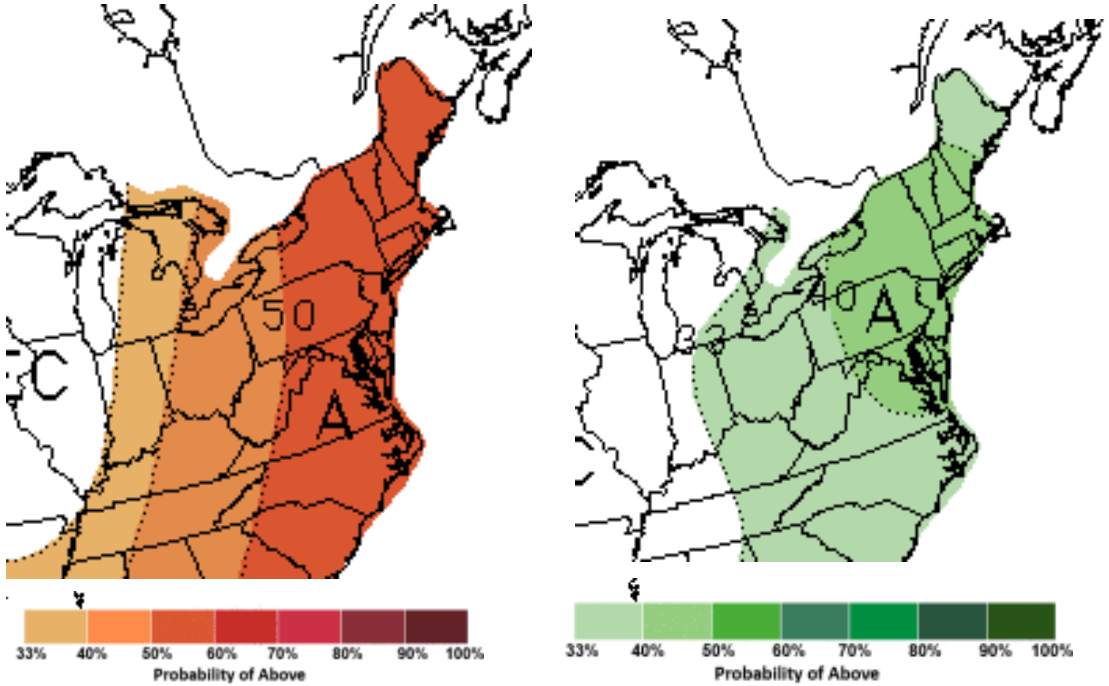
* Climate Prediction Center Forecast – agrees with ENSO trends! **Above average temperature** and **above average precipitation** are likely for summer 2021.



Source: NOAA CPC, Tropical Tidbits



CFS forecast for July



CPC Forecast for June - August

Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA