

Delaware River Basin Commission

Hydrologic Conditions

Anthony Preucil

Water Resource Scientist

Water Management Advisory Committee

June 16, 2022

Presented to an advisory committee of the DRBC on June 16, 2022. Contents should not be published or re-posted in whole or in part without the permission of the DRBC.



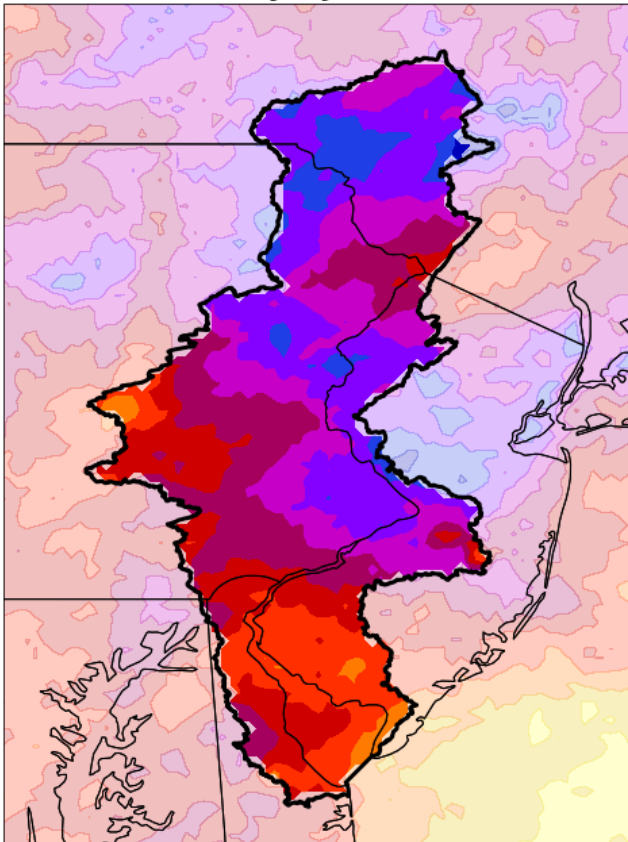
Delaware River Basin Commission

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

365 Day Precipitation

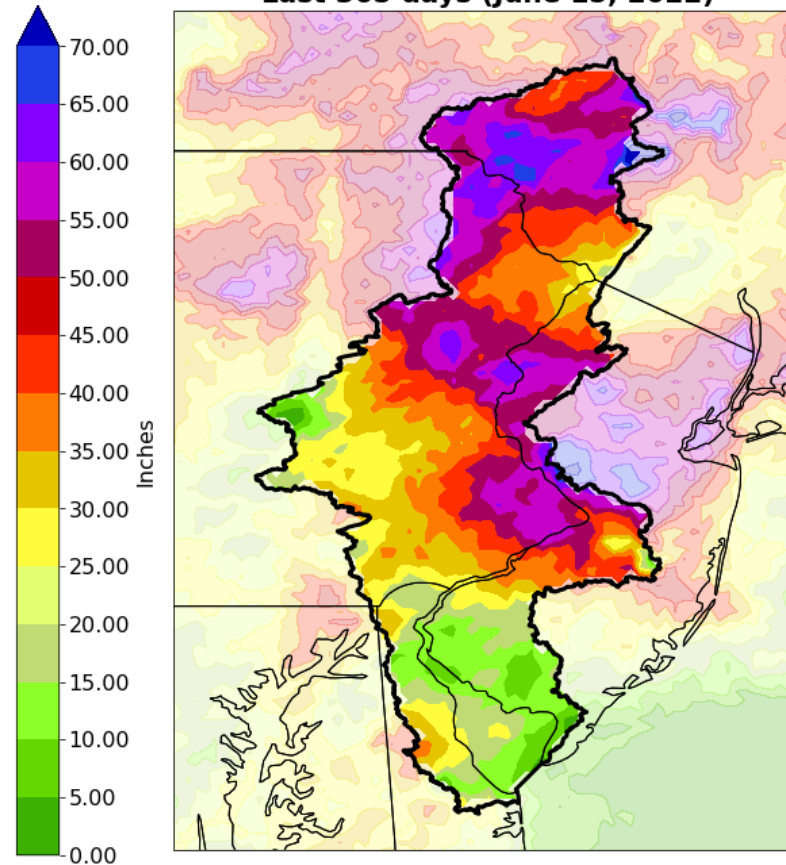
NORMAL: 45 – 52 inches

**Total Precipitation Accumulation
Last 365 days (June 15, 2022)**



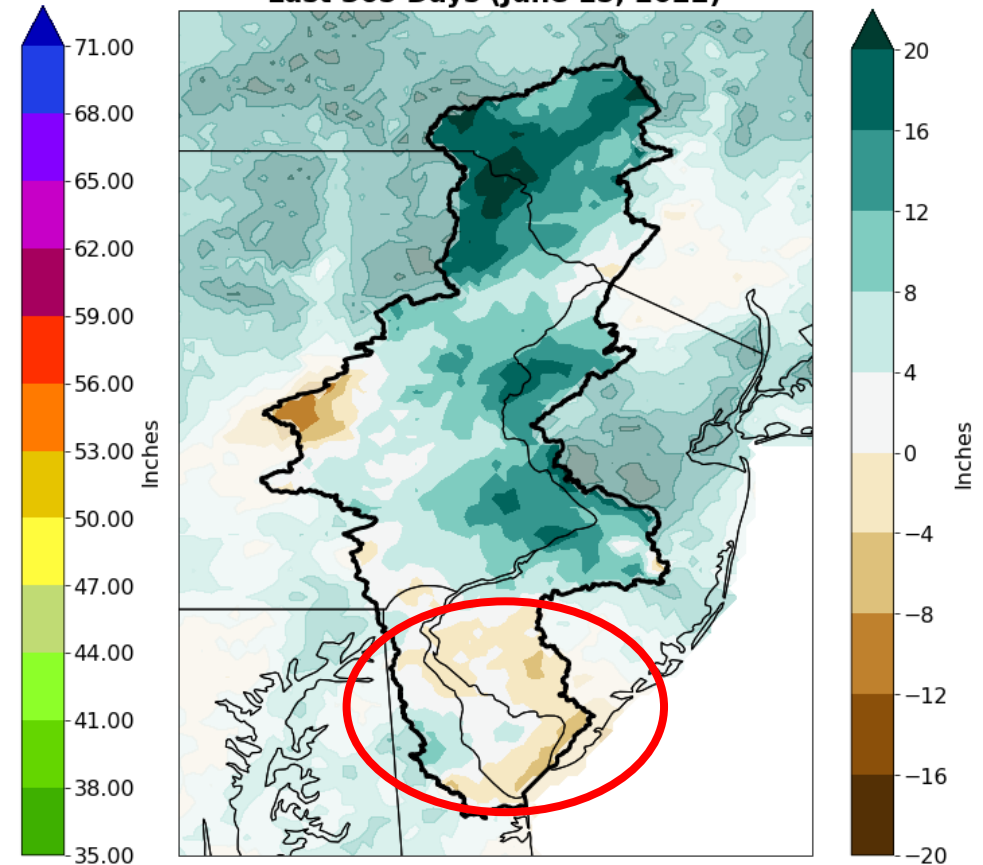
Includes Tropical Systems from 2021

**Total Precipitation Accumulation
Last 365 days (June 15, 2022)**



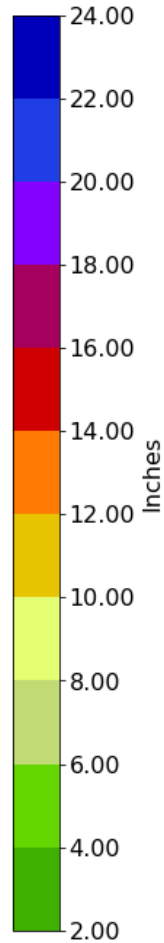
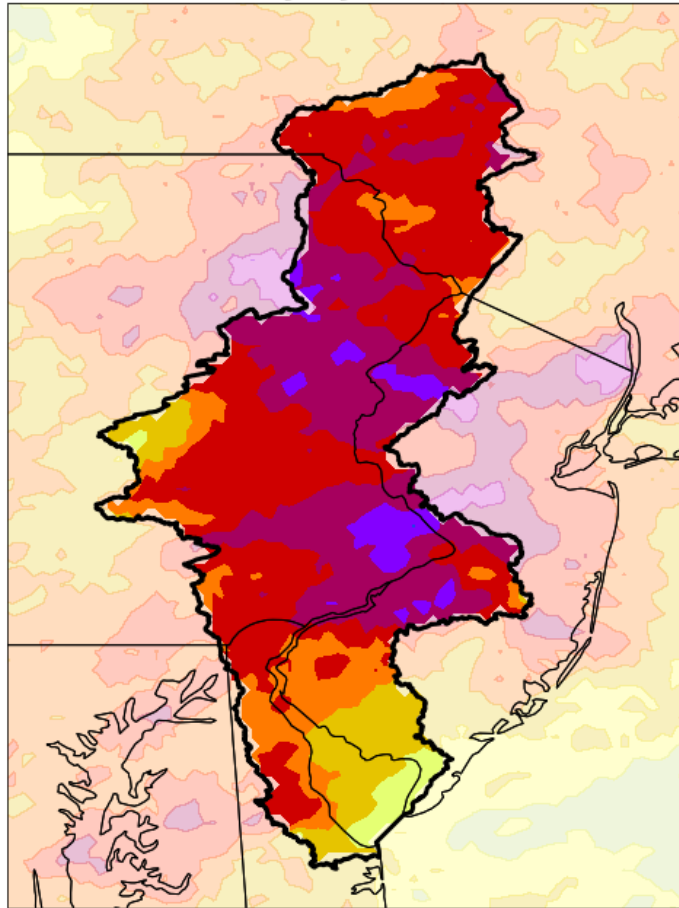
Note: Zoomed Scale

**Departure from Normal Precipitation
Last 365 Days (June 15, 2022)**

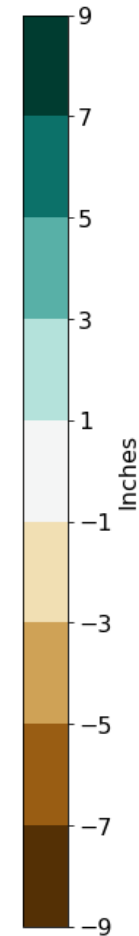
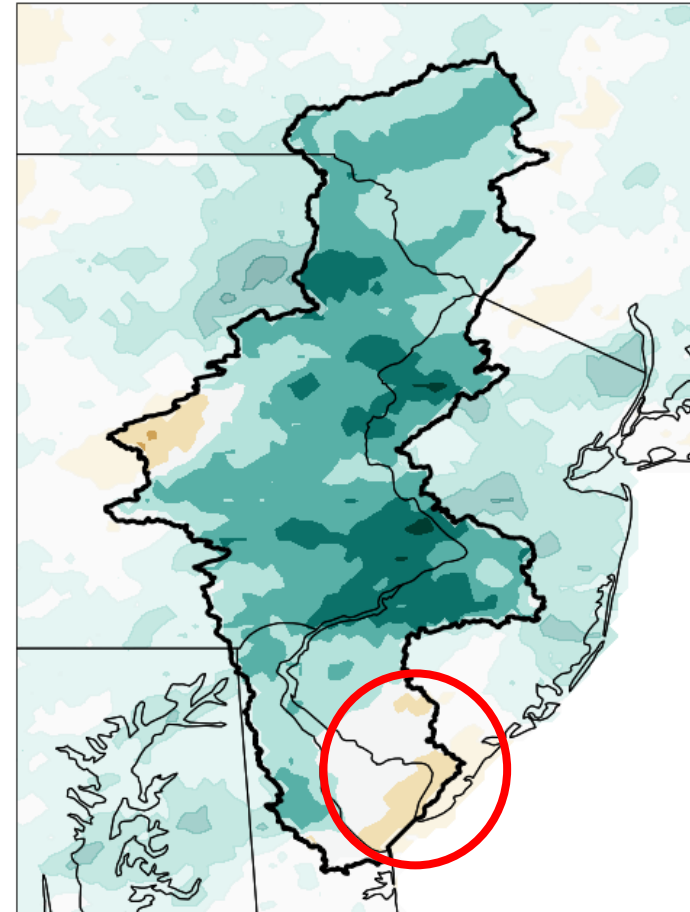


90 Day Precipitation

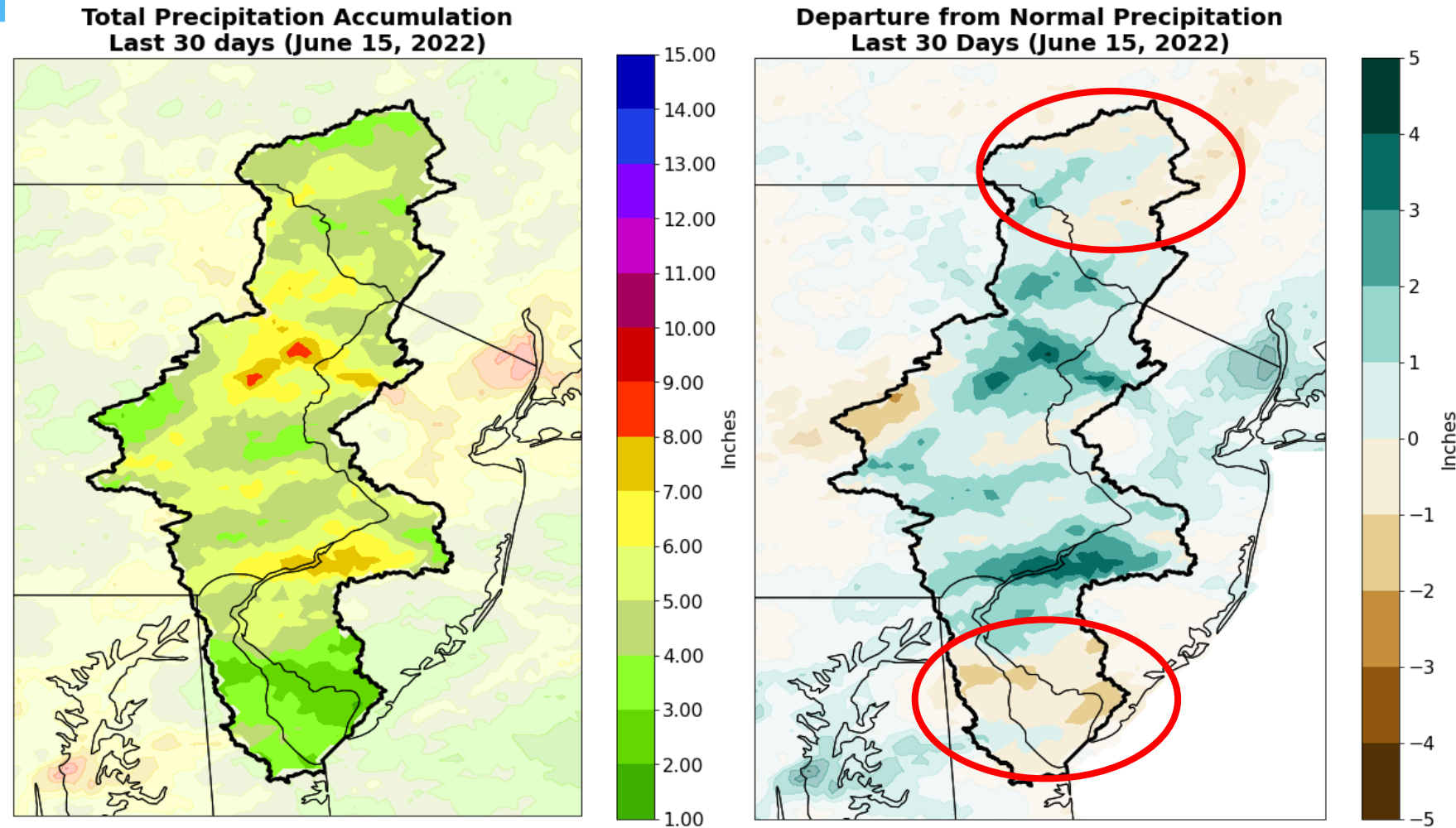
**Total Precipitation Accumulation
Last 90 days (June 15, 2022)**



**Departure from Normal Precipitation
Last 90 Days (June 15, 2022)**



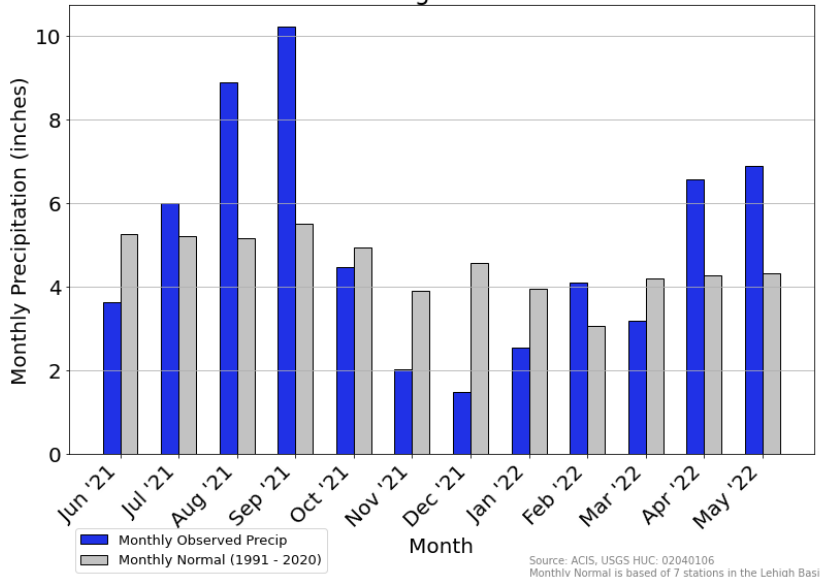
30 Day Precipitation



New!

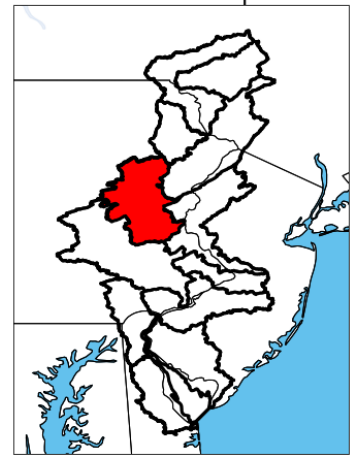
Precip by HUCs

Monthly and Normal Precipitation
Lehigh basin

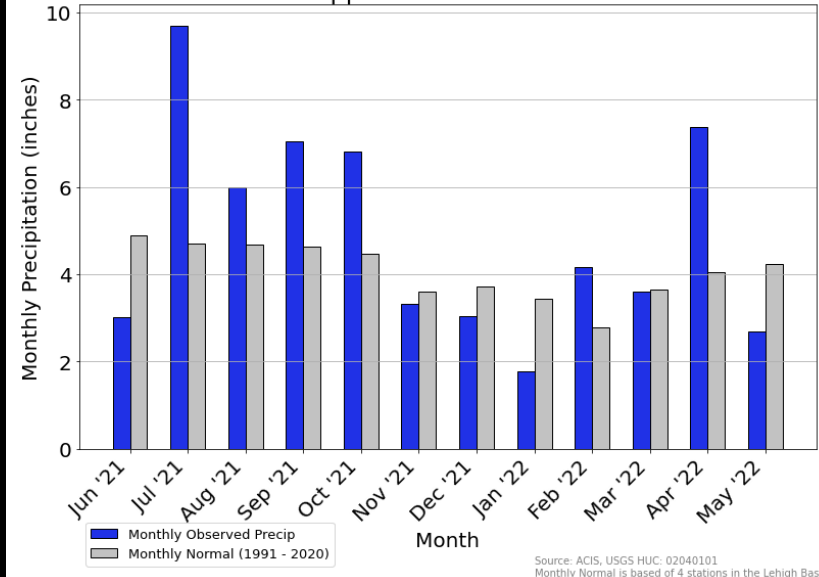


Source: ACIS, USGS HUC: 02040106
Monthly Normal is based of 7 stations in the Lehigh Basin

Locator Map

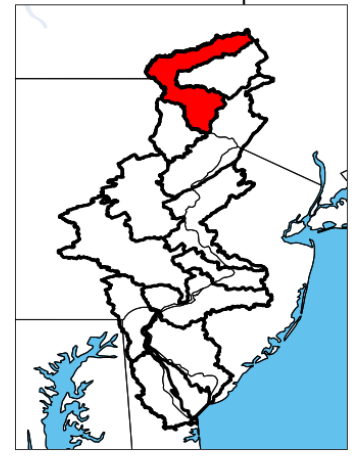


Monthly and Normal Precipitation
Upper Delaware basin



Source: ACIS, USGS HUC: 02040101
Monthly Normal is based of 4 stations in the Lehigh Basin

Locator Map

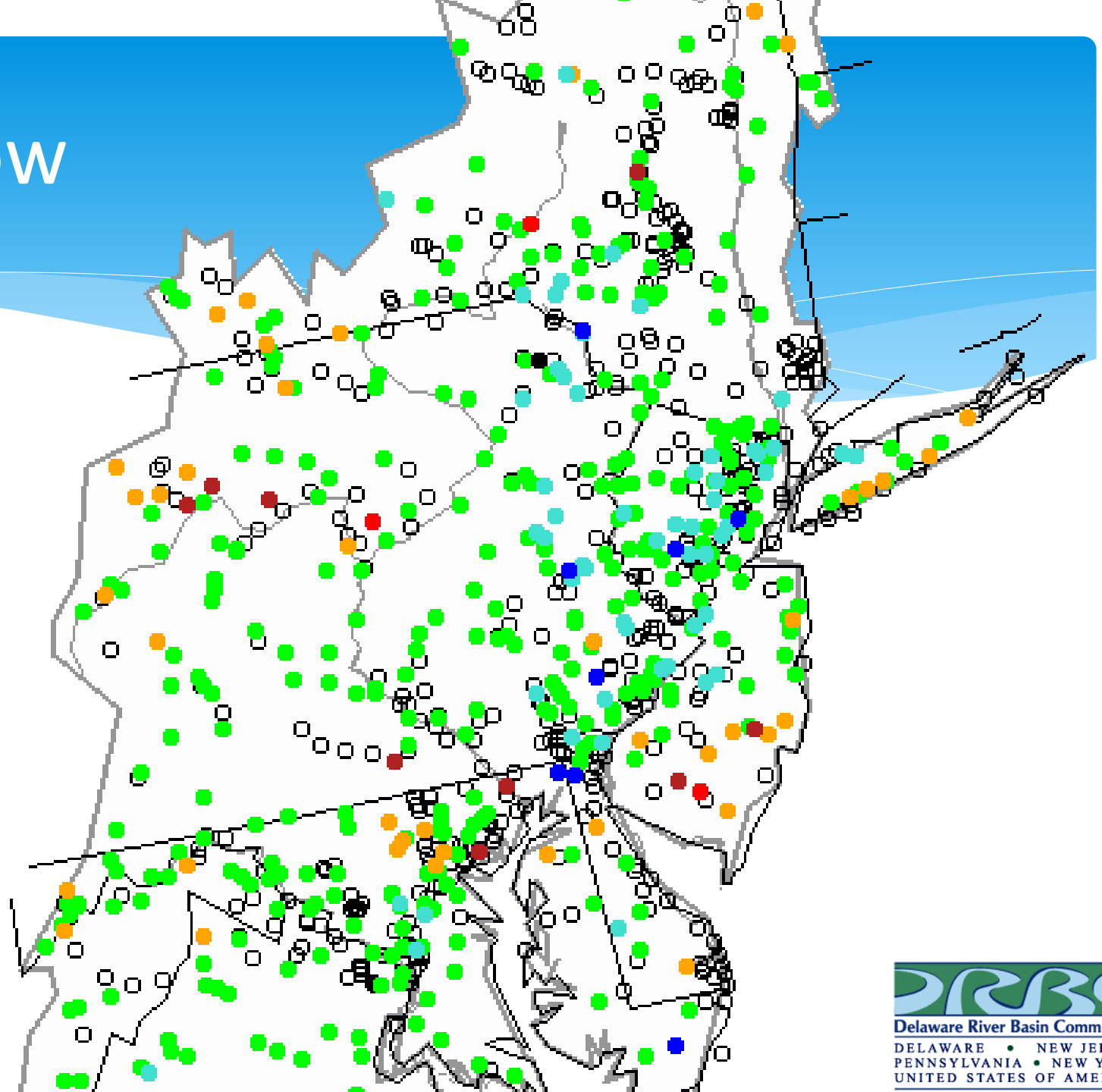


Streamflow

Explanation - Percentile classes

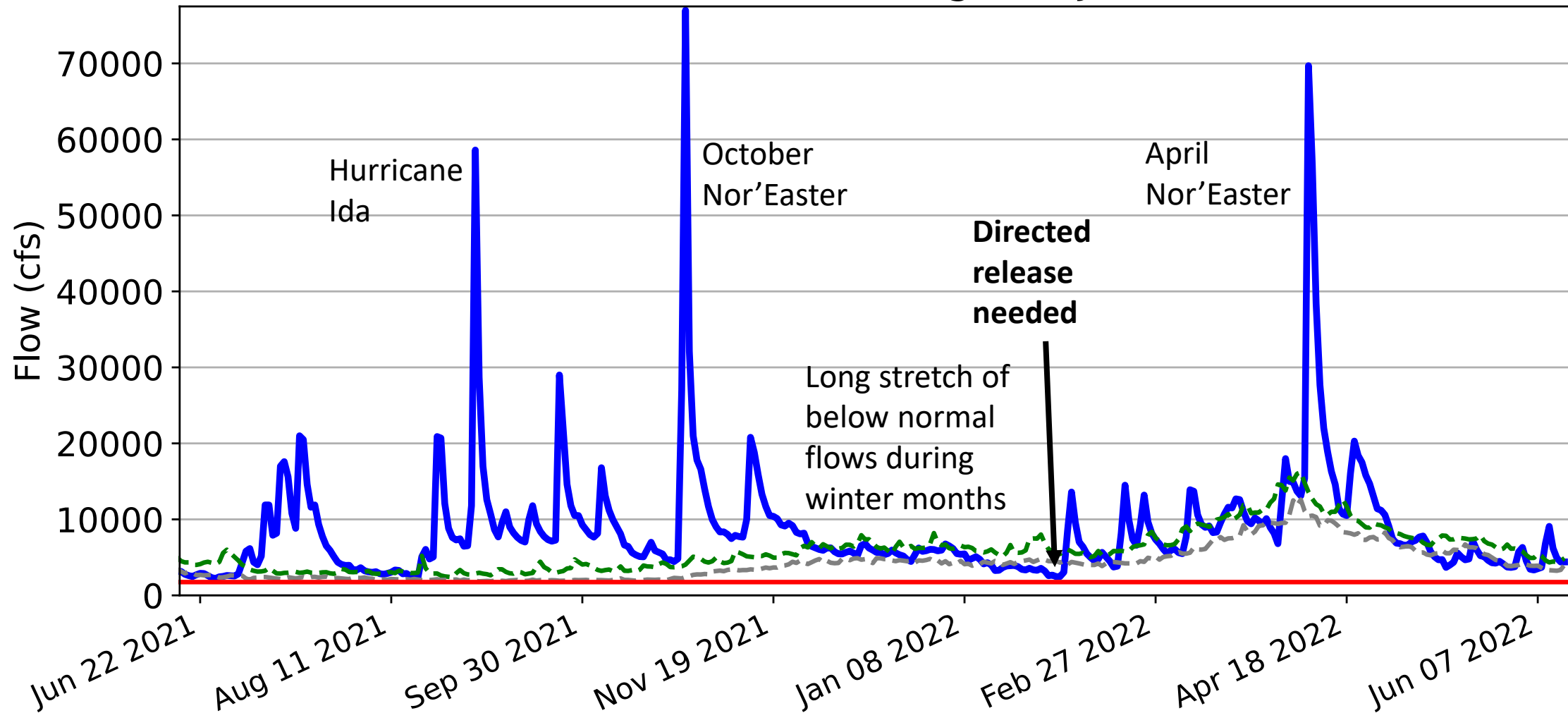
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

Map last updated: 8:30 AM June 16, 2022



Updated: 2022-06-15 15:21

Flow at Montague, NJ

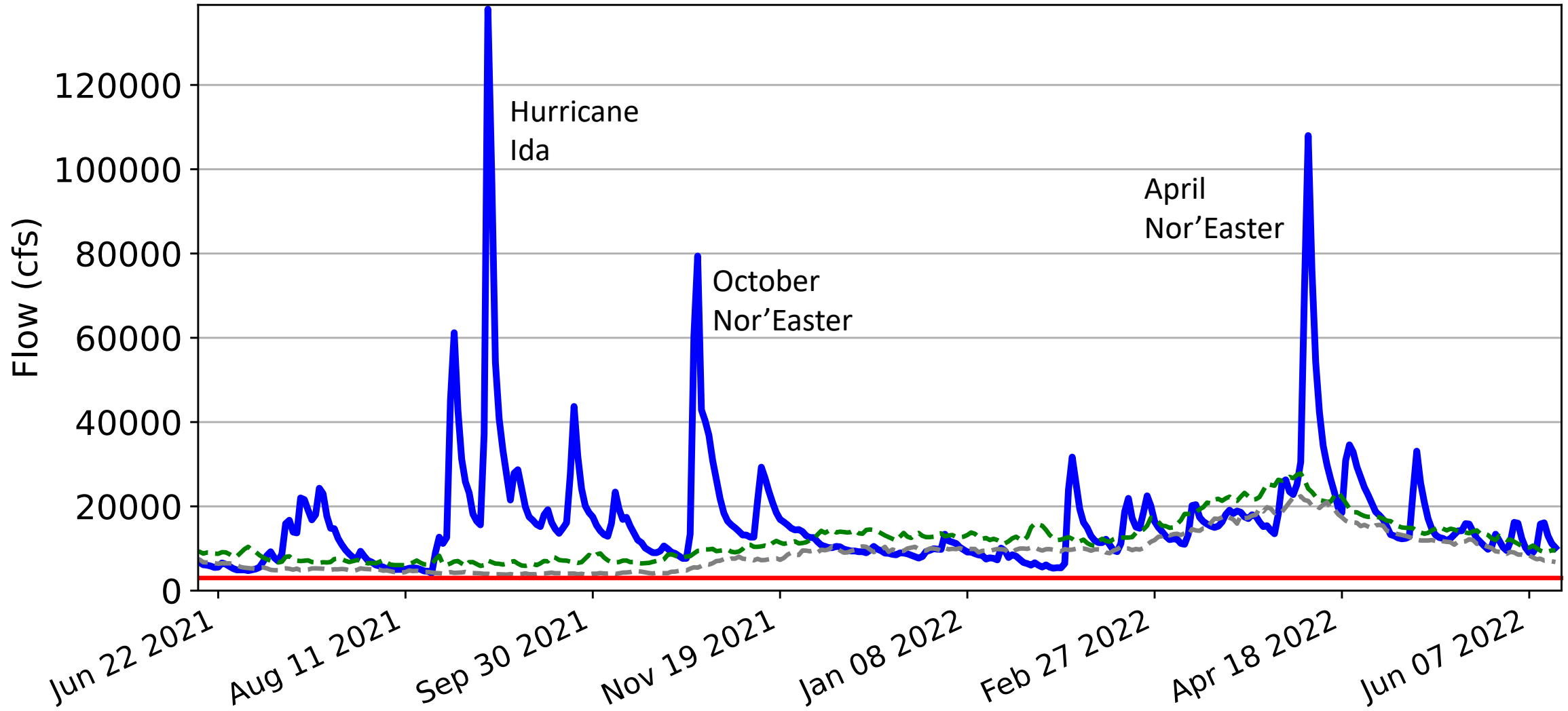


Data Source: USGS



Updated: 2022-06-15 15:21

Flow at Trenton, NJ

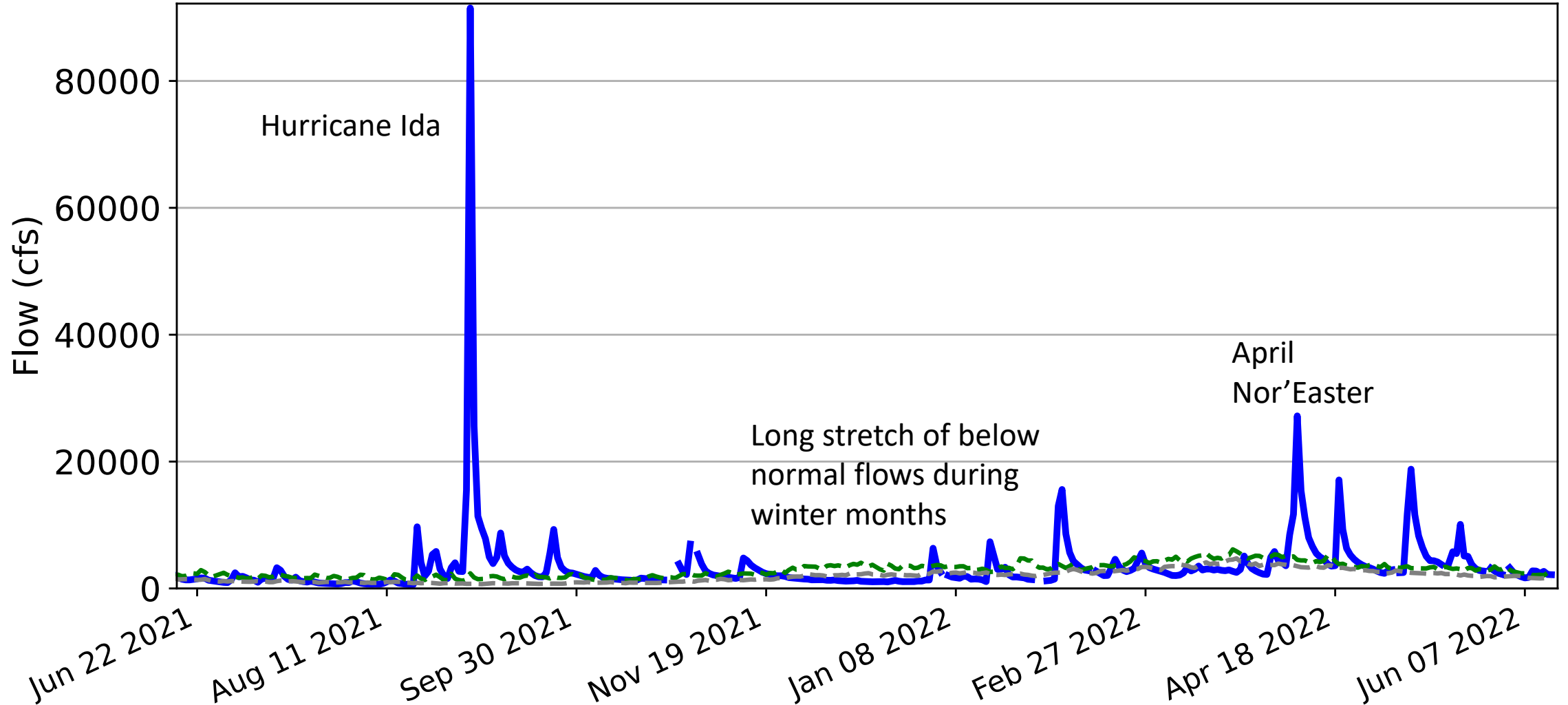


Data Source: USGS



Updated: 2022-06-15 15:21

Flow at Philadelphia, PA



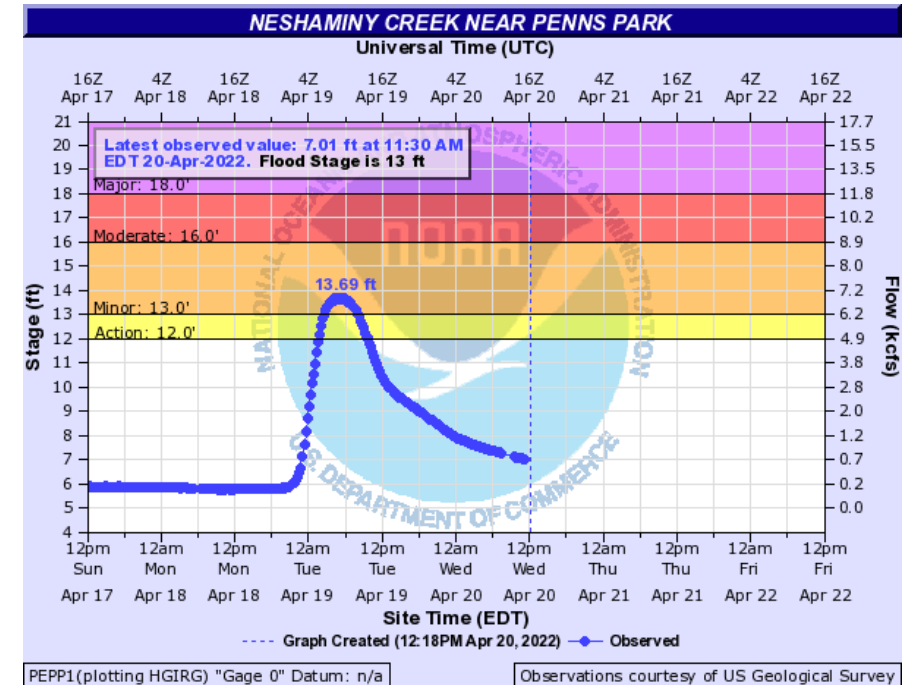
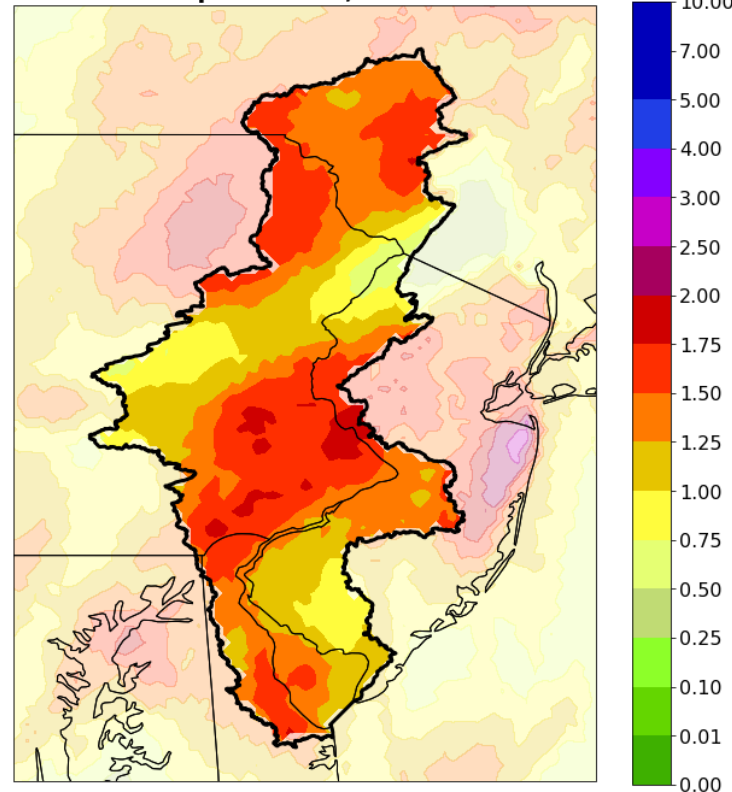
Data Source: USGS



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

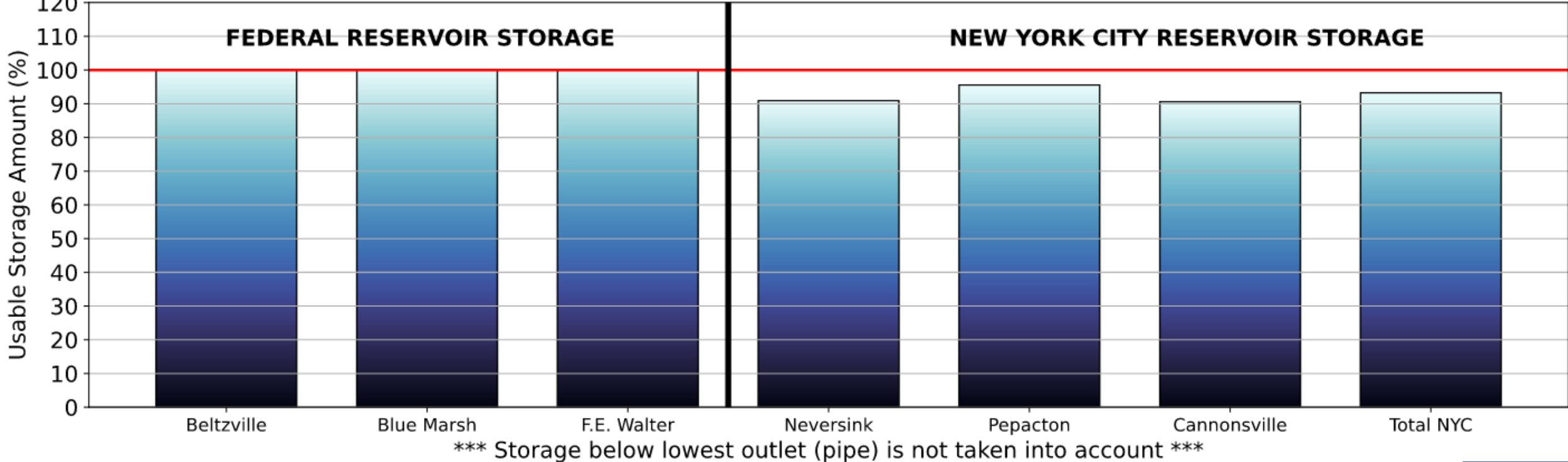
**Total Precipitation Accumulation
April 18 - 19, 2022**



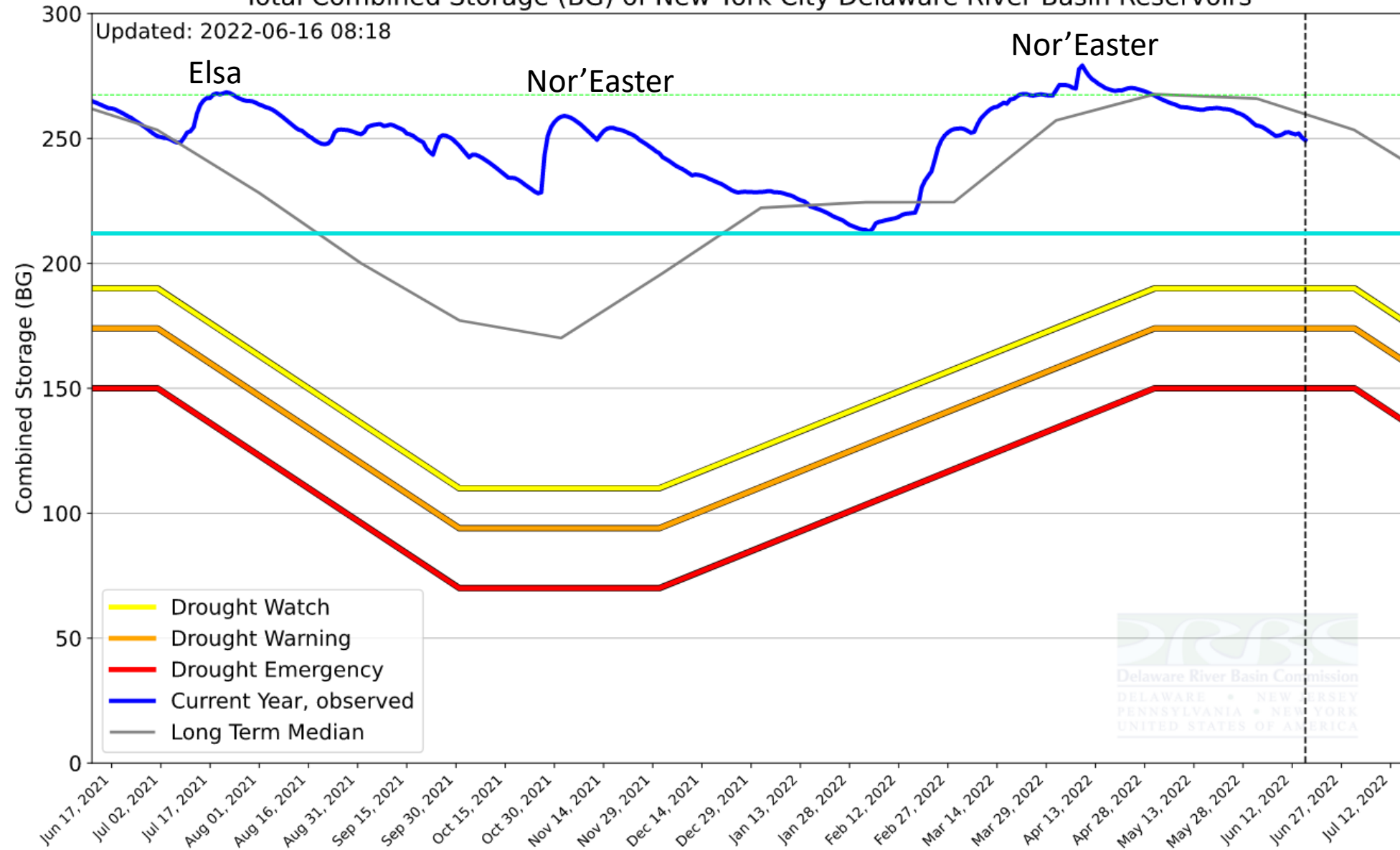
Data Source: AHPS

Basin Storage

Usable Reservoir Storage, updated 2022-06-16 08:18



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



Usable Storage	Cannonsville	Pepacton	Neversink	Total	BG above drought watch = 59.3	BG below median = 10.4
BG	84.7	133.1	31.5	249.3	BG above drought warning = 75.3	BG below one year ago = 12.7
%	90.6	95.6	90.9	93.2	BG above drought = 99.3	

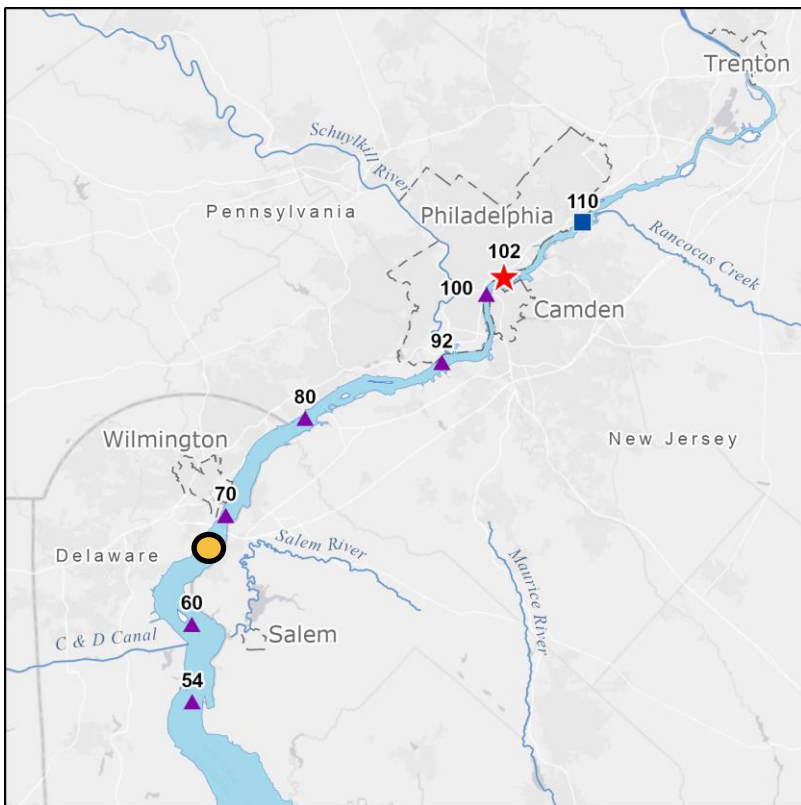
Data Source: USGS



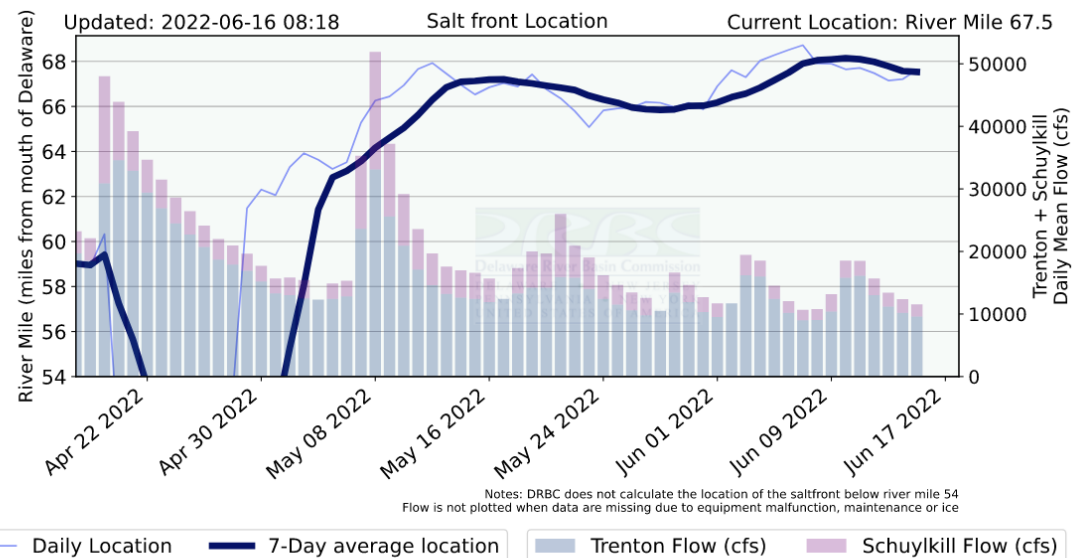
Salt Front

hydrosnap.drbc.net

Current Location: South of Delaware Memorial Bridge



● = current location



Chlorides

7-Day Average RM Location of 250 mg/L

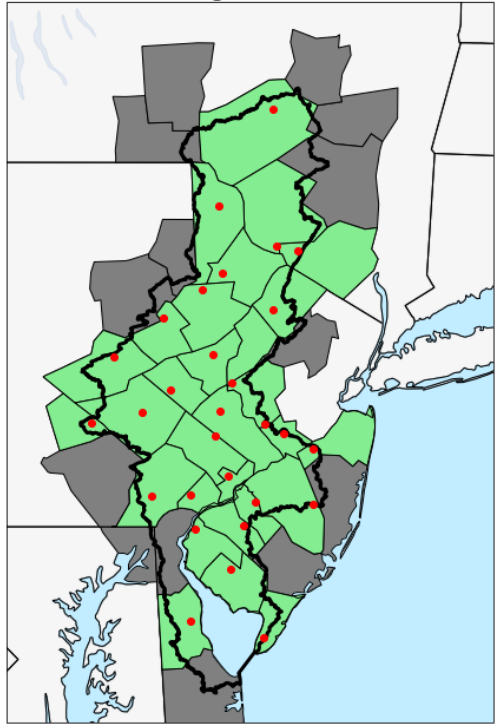
Current (06/16/2022): 67.5
June Median: 69

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

New,
Experimental

Groundwater Conditions

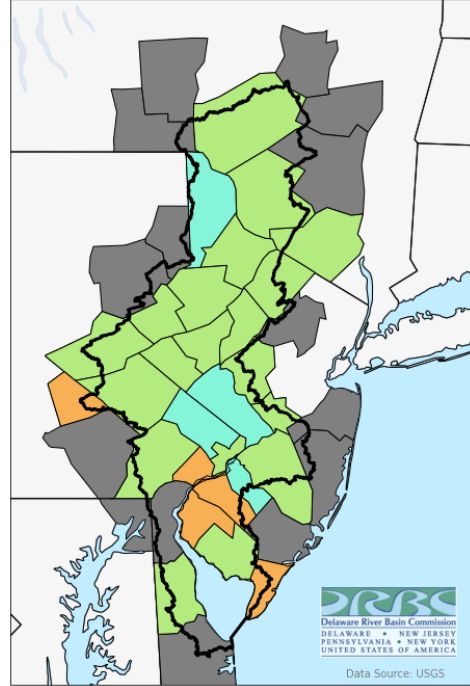
Location of groundwater wells



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

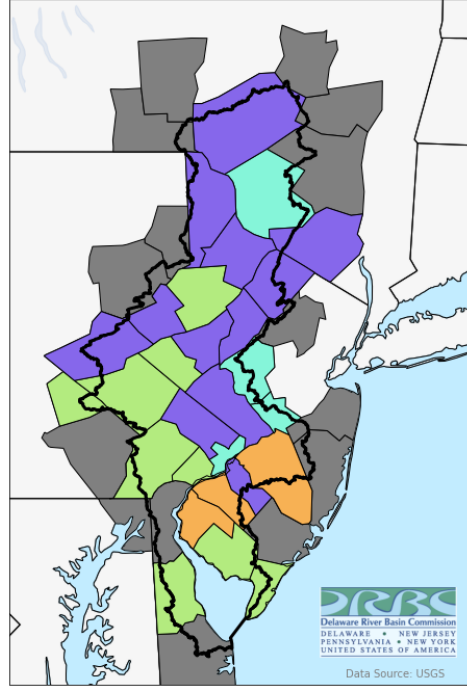
Wells chosen based on location and length of record

Groundwater Ranking on March 14, 2022



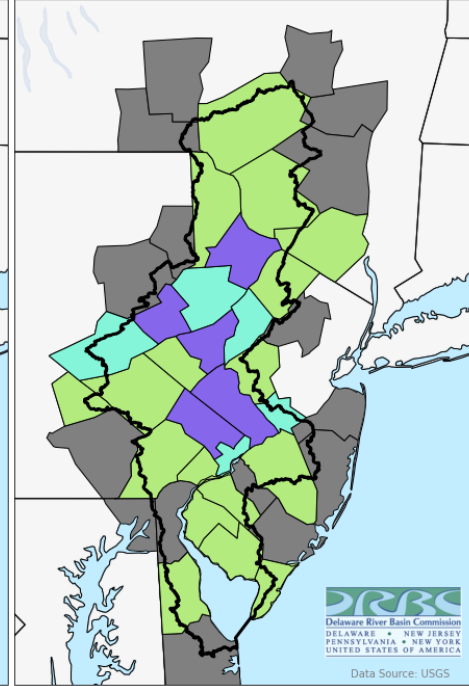
- Basin Boundary
- Much Above Normal
- Above Normal
- Normal
- Below Normal
- Much Below Normal
- Data unavailable

Groundwater Ranking on April 14, 2022



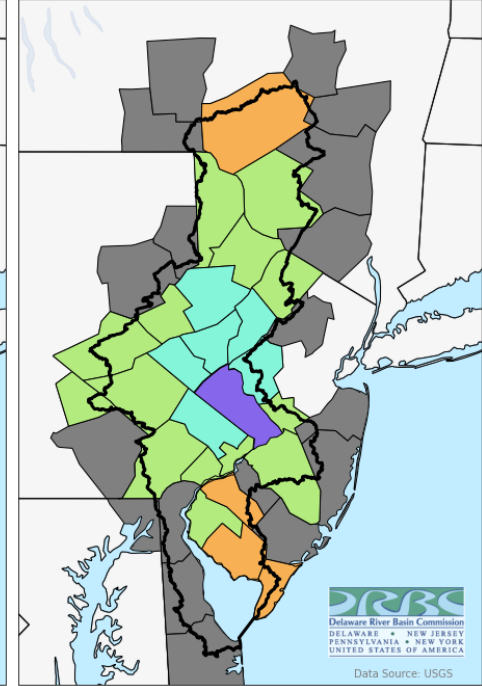
- Basin Boundary
- Much Above Normal
- Above Normal
- Normal
- Below Normal
- Much Below Normal
- Data unavailable

Groundwater Ranking on May 14, 2022



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

Groundwater Ranking on June 14, 2022

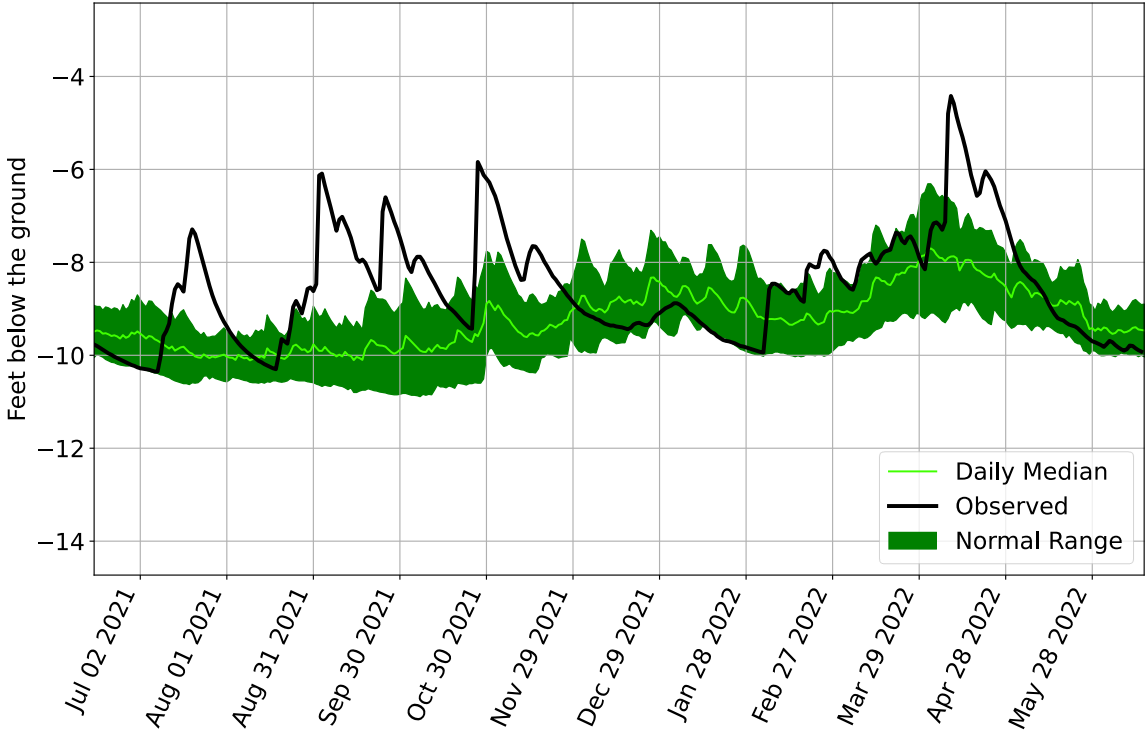


- Basin Boundary
- Much Above Normal
- Above Normal
- Normal
- Below Normal
- Much Below Normal
- Data unavailable

Select Groundwater Time Series

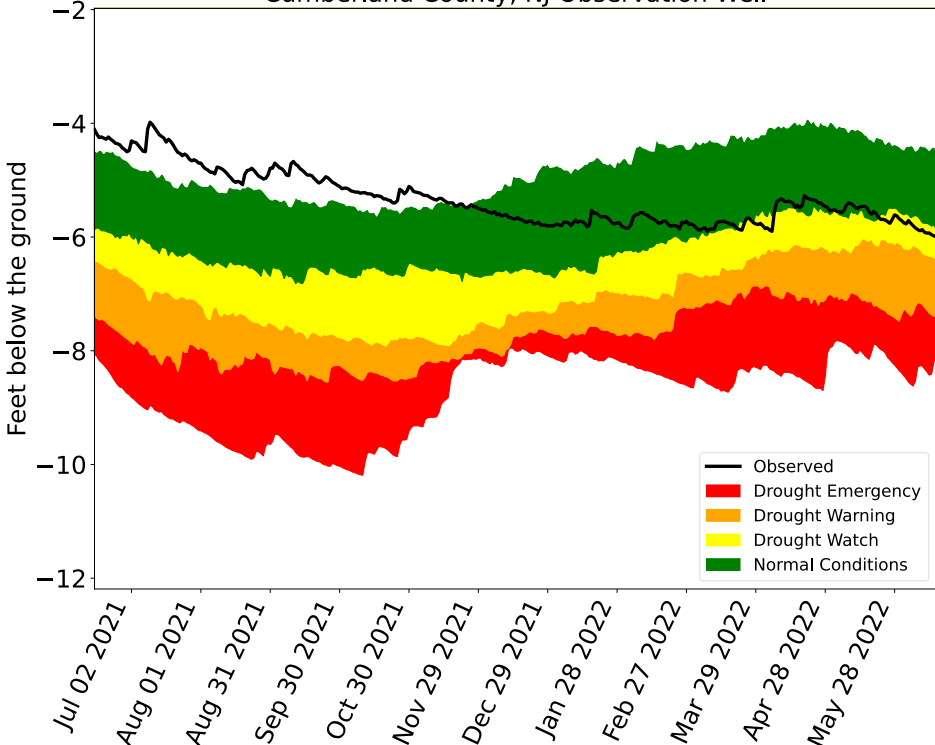
Upper Basin

Woodbourne, NY Observation Well



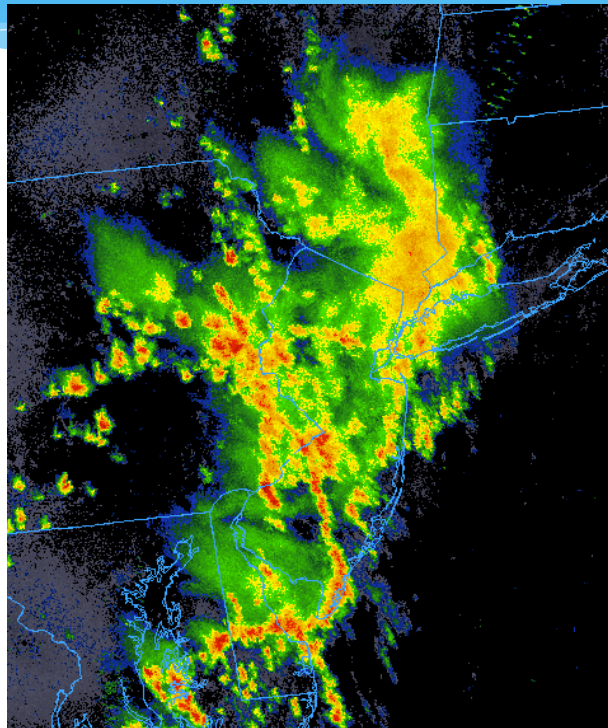
Lower Basin

Cumberland County, NJ Observation Well



Near Future Hydrologic Impacts

- * Showers and storms moving through this morning, river flooding not forecast to occur
- * A few areal flood advisories issued
- * Coastal flood advisory has been cancelled, more possible tomorrow morning

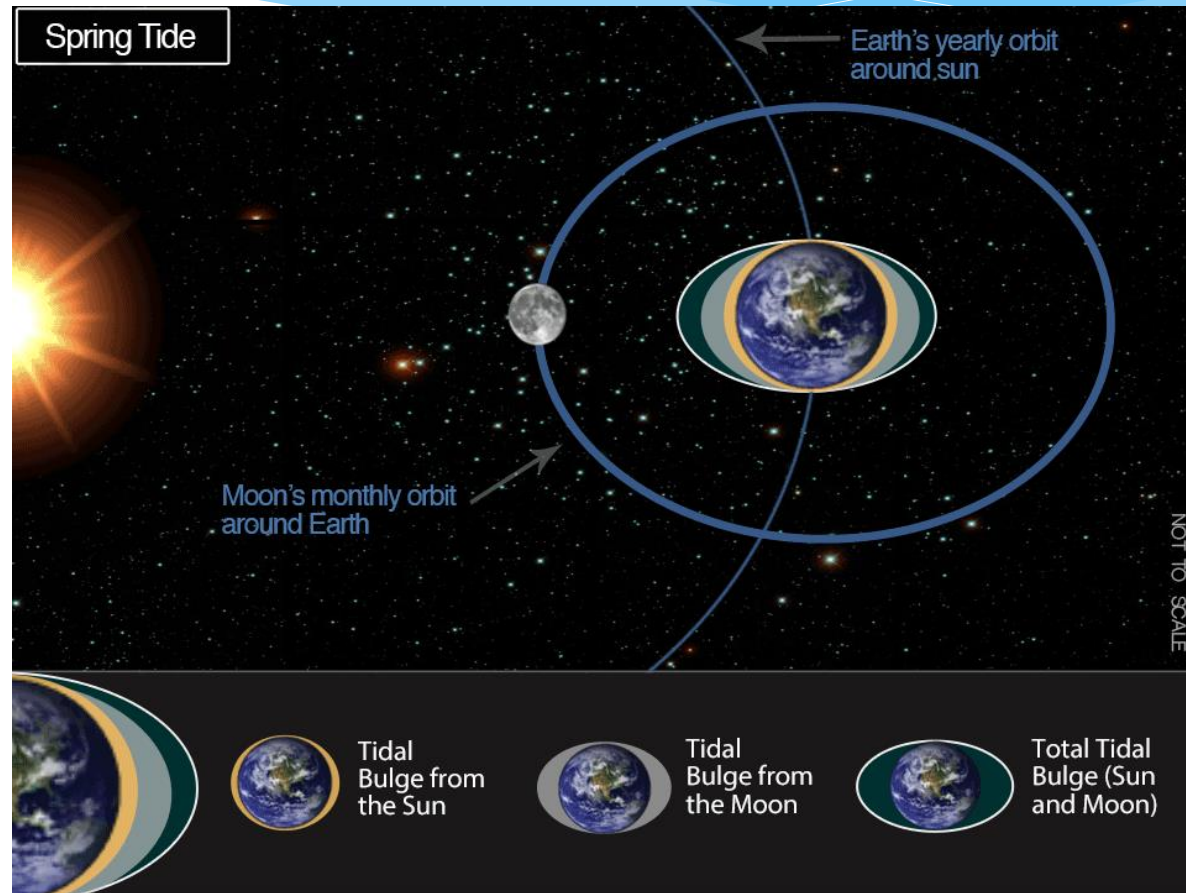
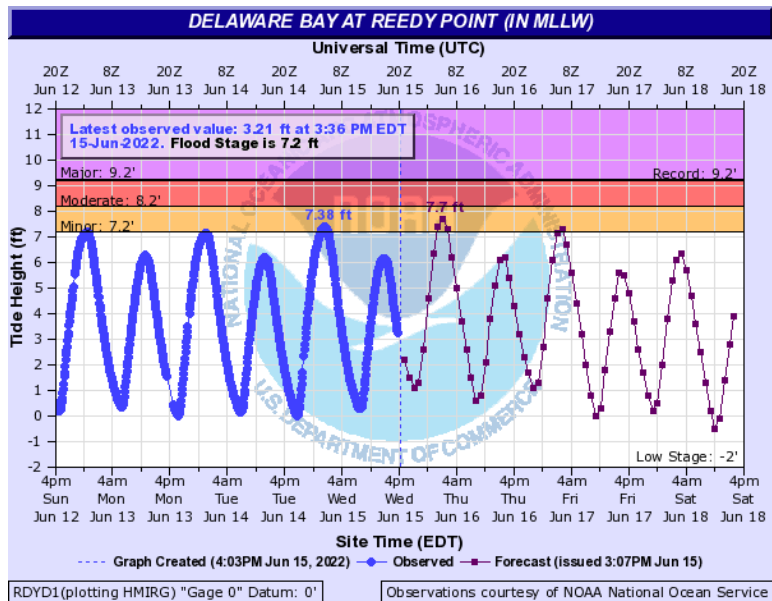


Amounts as of 9:30 am:

- Trenton NJ – 0.47 inches
- Philadelphia PA – 0.21 inches
- Wilmington DE – 0.25 inches
- Allentown PA – 1.26 inches
- Doylestown PA – 1.43 inches
- Mount Pocono PA – 0.17 inches
- Sussex NJ – 0.68 inches

Coastal Flooding Ongoing

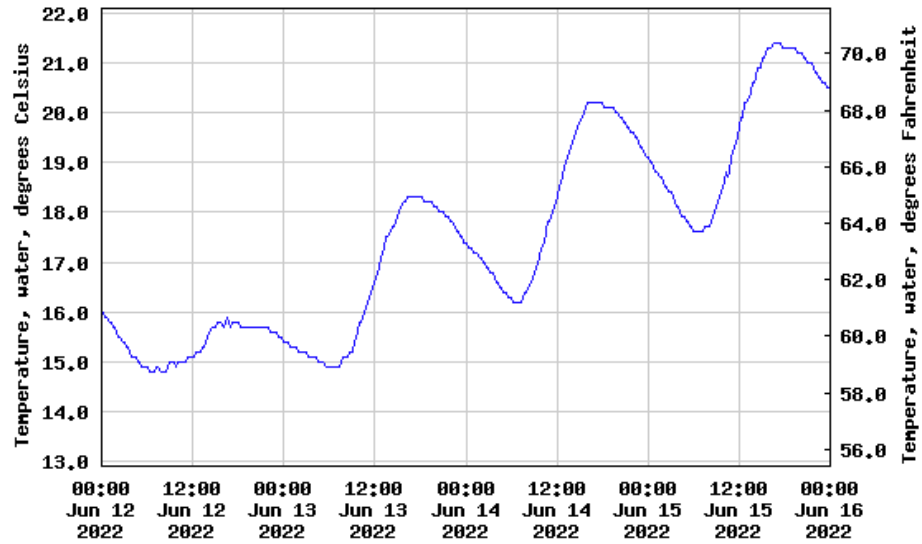
Full Moon occurred on June 14



https://oceanservice.noaa.gov/education/tutorial_tides/tides06_variations.html

Upper Basin Thermal Releases

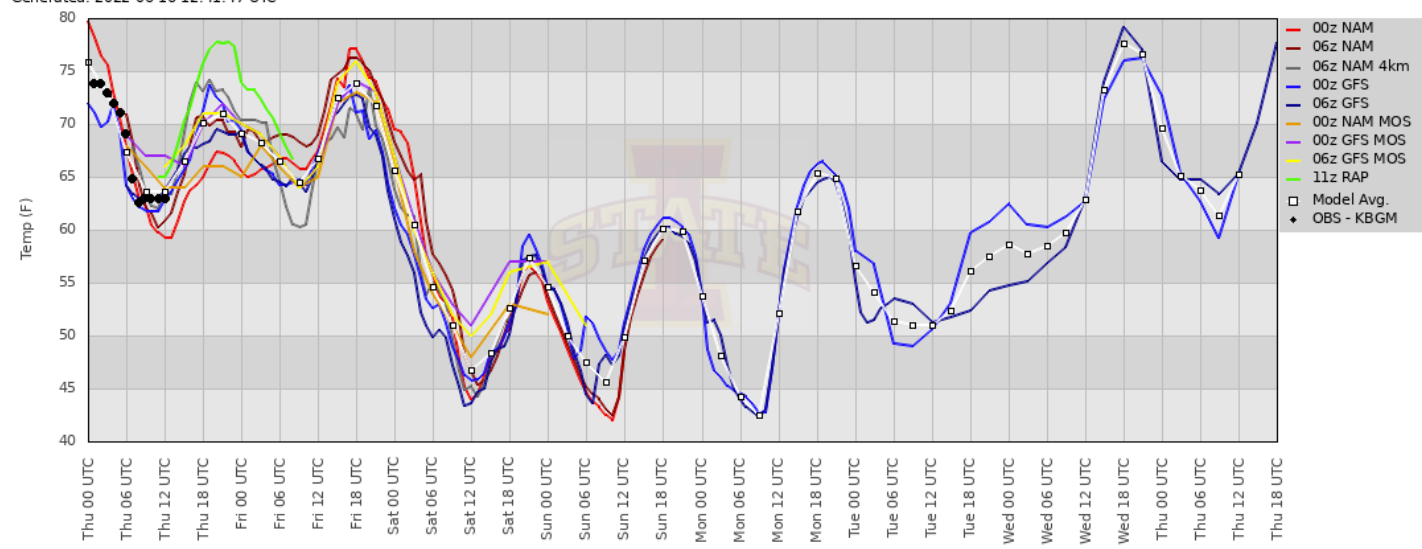
USGS 01427207 DELAMARE RIVER AT LORDVILLE NY



----- Provisional Data Subject to Revision -----

Start: 2022-06-16 00:00:00 UTC
 End: 2022-06-23 18:00:00 UTC
 Generated: 2022-06-16 12:41:47 UTC

HOURLY TEMPERATURE FORECAST – Binghamton, NY

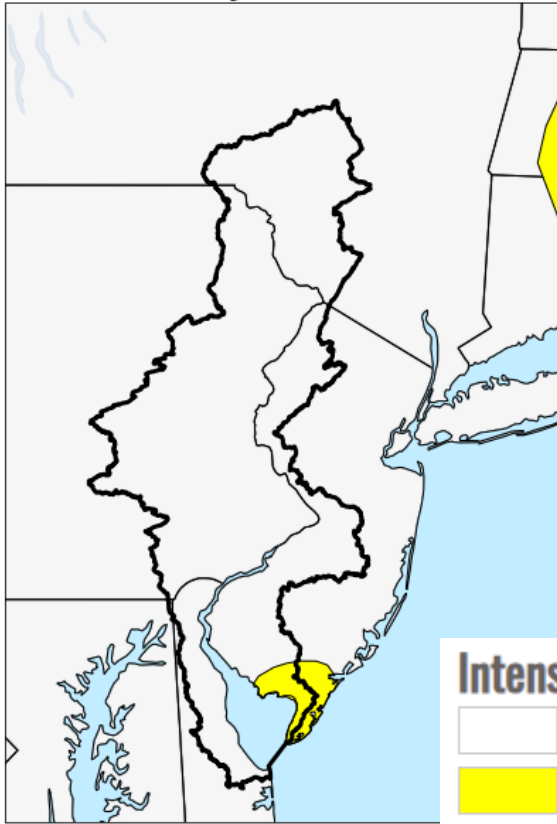


- * Protect water temperature below NYC reservoirs from exceeding 24 degrees C
- * Thermal releases were made on 3 days in May 2022 (5/21, 5/22, 5/31) for a total of 115 cfs-days
- * No thermal release have been needed in June this year

Drought Monitor

June 16, 2022

Drought Monitor
Valid: Jun 14, 2022



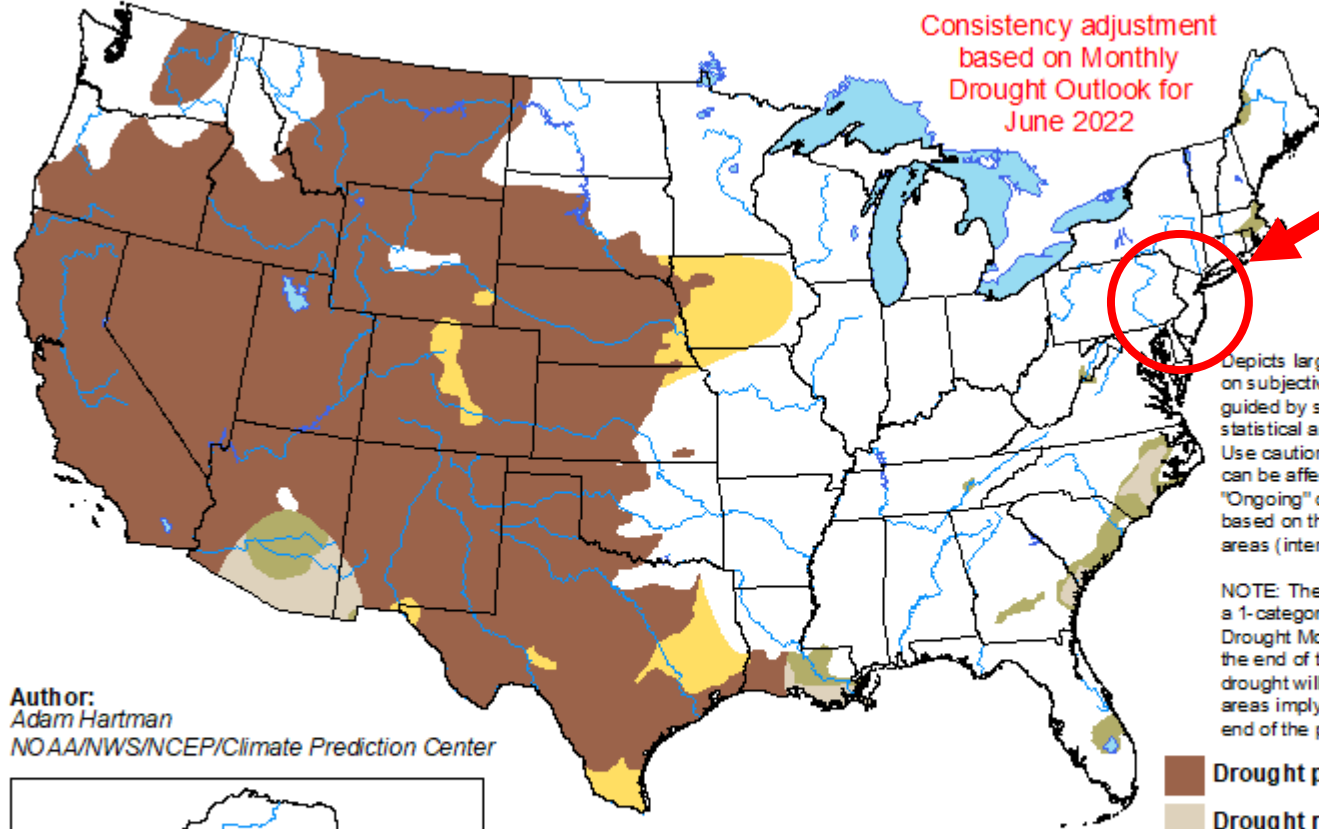
Intensity

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

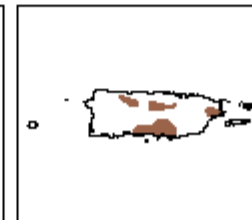
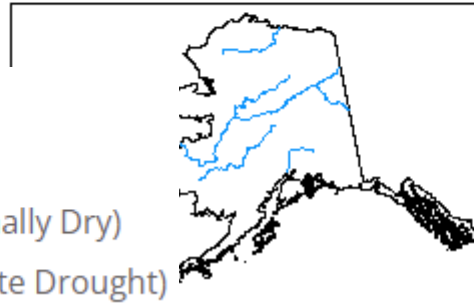
U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

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



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



<http://go.usa.gov/3eZ73>

Summer Outlook 2021 - 2022

La Nina continuing, but weakening

La Nina advisory in affect

This summer will be similar to last summer

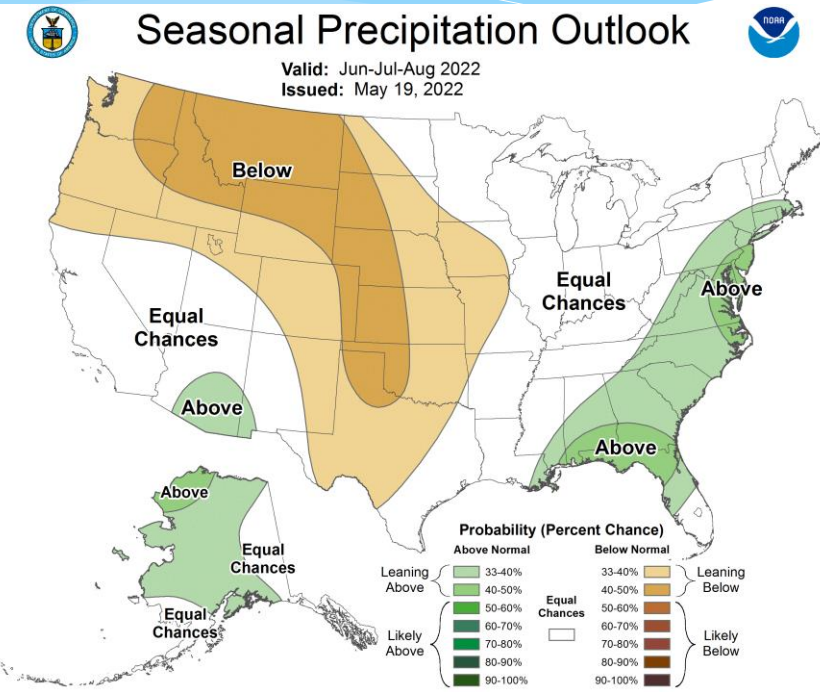
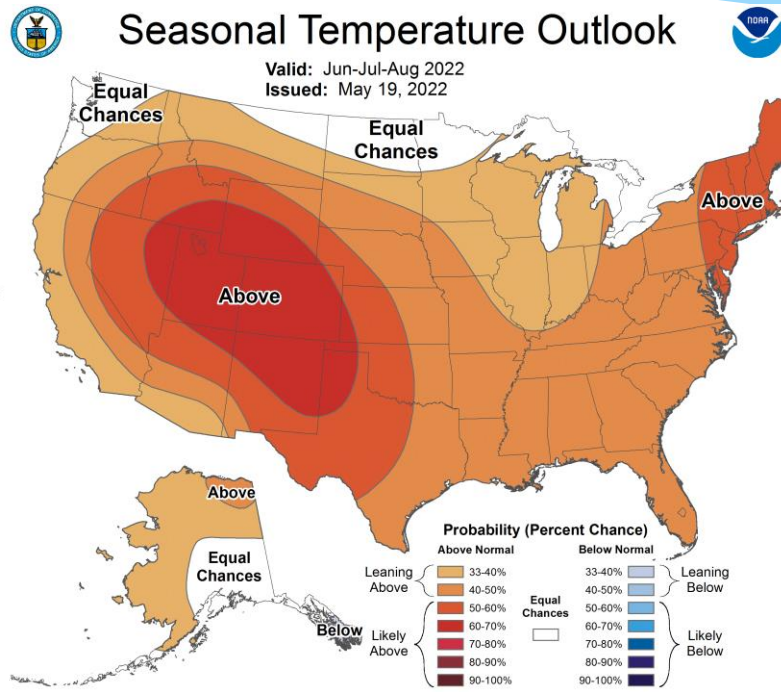
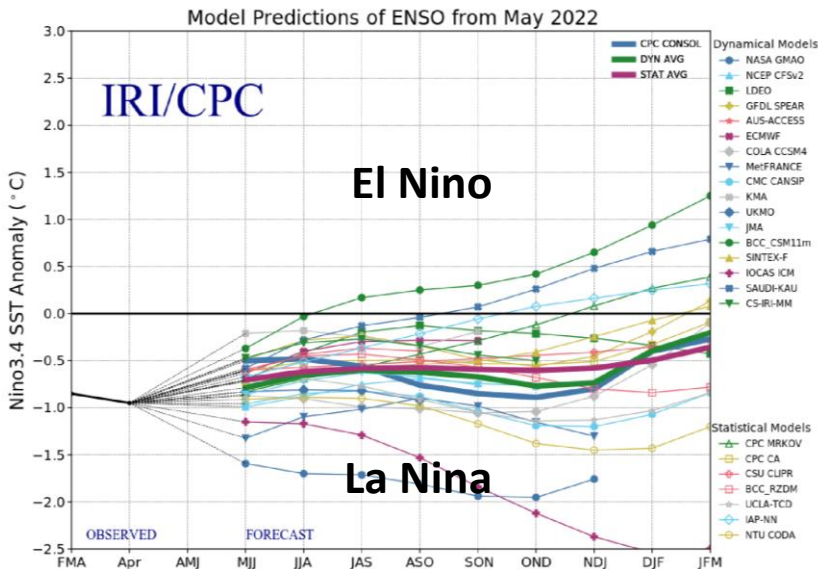


Figure 6. Forecasts of sea surface temperature (SST) anomalies for the Niño 3.4 region (5°N-5°S, 120°W-170°W). Figure updated 19 May 2022.

Summer Outlook 2021 - 2022

La Nina continuing, but weakening

La Nina advisory in affect

This summer will be similar to last summer

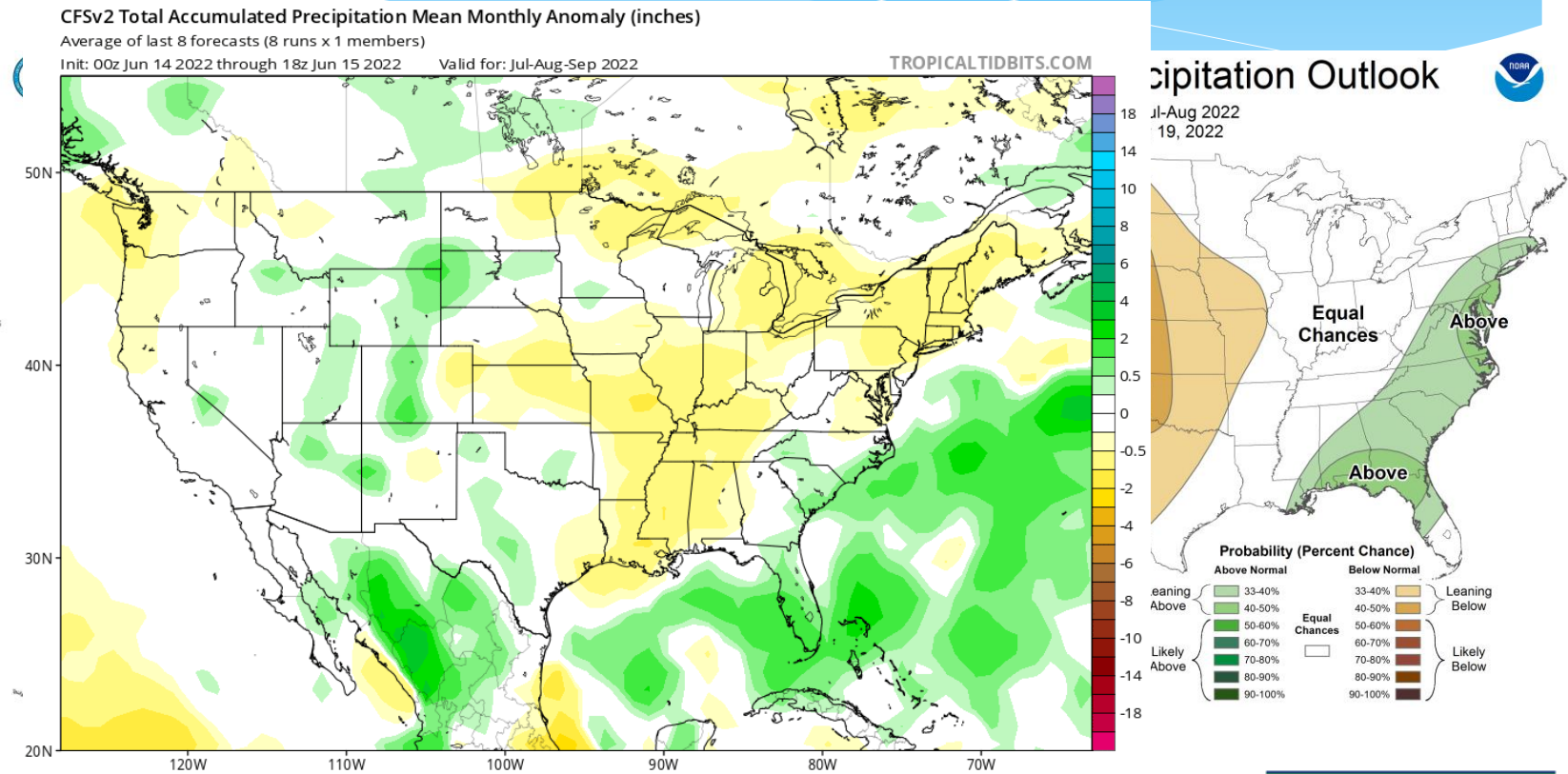
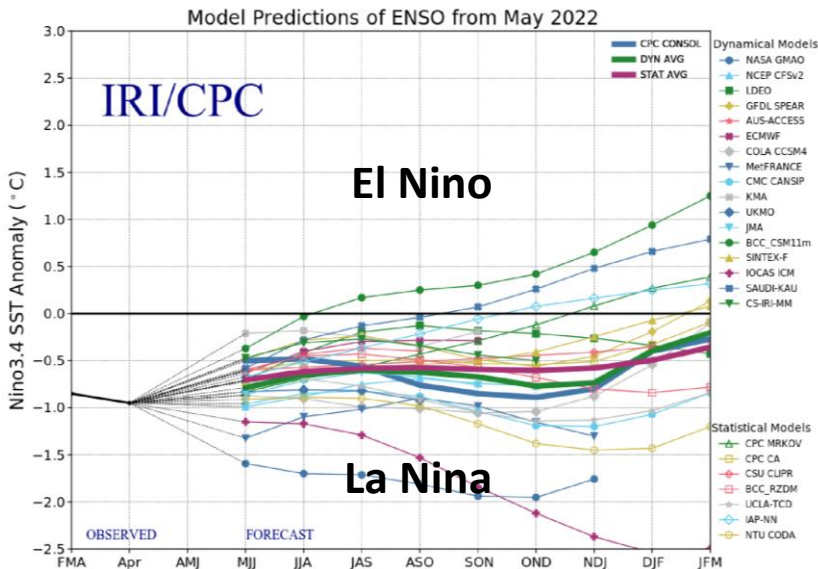
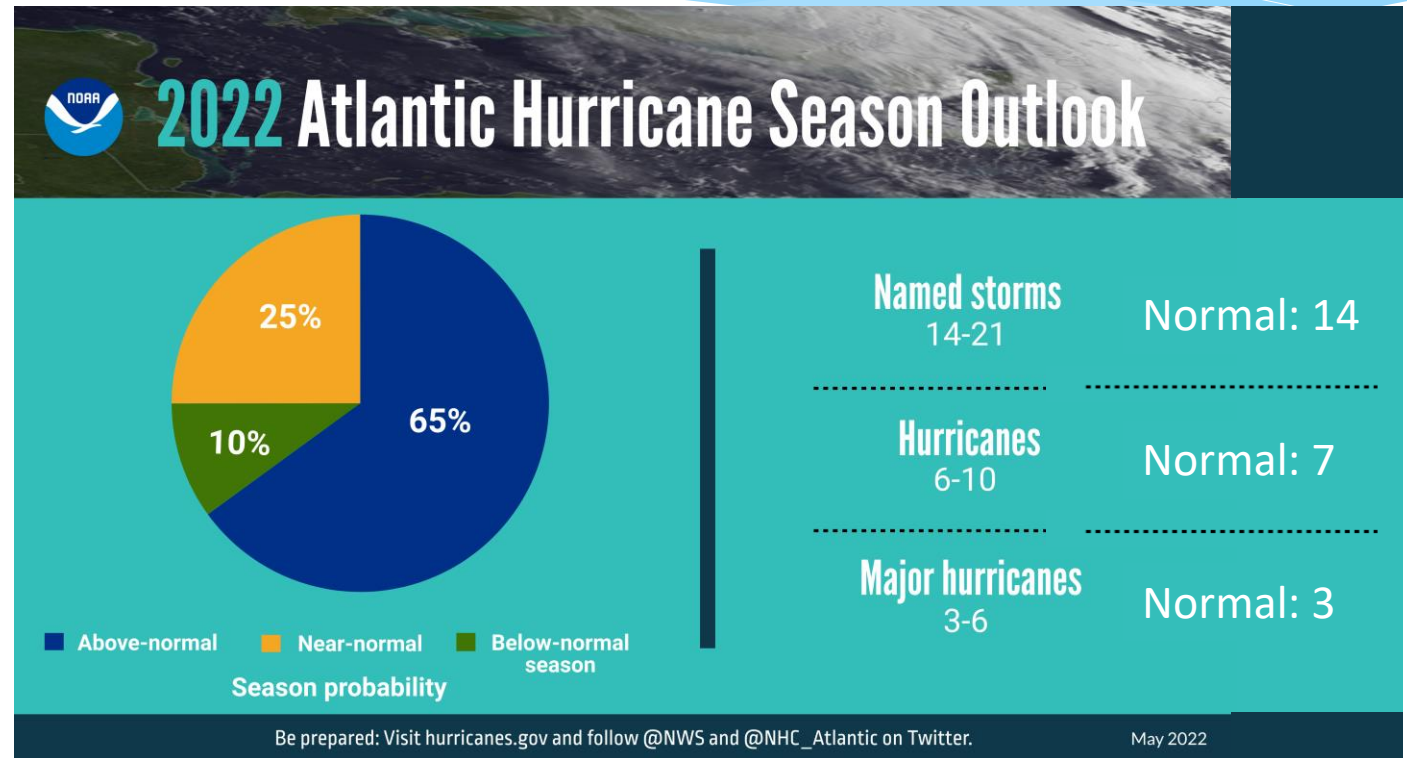


Figure 6. Forecasts of sea surface temperature (SST) anomalies for the Niño 3.4 region (5°N-5°S, 120°W-170°W). Figure updated 19 May 2022.

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)



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)

