

# **November 2019**

## **Summary of Precipitation Departures and Other Hydrologic Indicators in the Delaware River Basin**

Below is a summary of precipitation departures and other hydrologic indicators for the Delaware River Basin (DRB).

November did not see a lot of changes in the hydrologic conditions throughout the month. After a wet October with above average precipitation everywhere in the basin, November was the opposite. Precipitation was lower than average for all counties in the Delaware River basin, with the top 5 counties still having only 75% of their normal precipitation. In the first week of the month, the basin was still feeling the effects of the Halloween Storm that even brought a few tornadoes to the region. Reservoir levels quickly rose to a combined storage amount near 200 BG by November 12. The basin remained relatively dry for the remainder of the month, except for a few scattered rain events. November 22, a storm system passed through bringing another burst of rain that helped to push the reservoirs a bit higher as well.

Since the only main event in November occurred late in the month, precipitation totals ended up below normal across the entire basin for the period of interest. This offset some of the gains made through the second half of October. Looking at the last three months, only two counties (Chenango and Broome, NY) ended the past 90 days with above normal precipitation. That being said, the counties are only 6% and 2% above normal, respectively. The dry November has greatly increased the number of counties reporting below normal precipitation in the past 180 days as well. The split is close to 50% above and 50% below normal for precipitation, with the highest surplus occurring in Berks County PA at 23% above normal.

The Climate Prediction Center still has a few of the areas in the central and southern portions of the basin in abnormally dry conditions. Most groundwater and surface water conditions are reporting normal or above normal conditions, and the drought monitor does not show any signs of drought development.

The precipitation has clearly affected the salt front, and we see that while flows were high after the rainfall in October, the salt front continued to decrease until it hit river mile 68. Here, the salt front hovered for about a week, before slowly increasing to river mile 70 by the end of the month. This lines up with the average location of the salt front in November of river mile 70. As we head into December, the average location decreases to river mile 69. For reference, this is still south of Wilmington, DE.



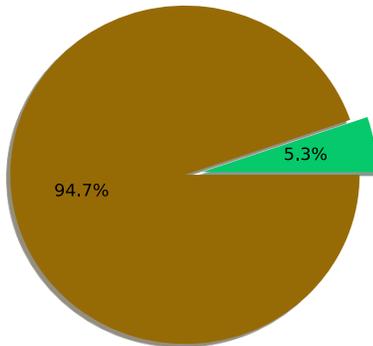
**90-Day Period Ending December 3, 2019**

**Range of 90-Day Precipitation Totals for Delaware River Basin Counties**

**MIN MEAN MAX**



**Cape May, NJ: 6.5 inches      9.74 inches      Delaware, NY: 12.2 inches**  
 Number of counties above and below normal



Above Normal: 2

**Top 5 Surpluses in the past 90 days for DRB counties:**

County, State	Inches From Normal	% From normal
Chenango, NY	0.7	6
Broome, NY	0.3	2
Lebanon, PA	-0.1	1
Delaware, NY	-0.1	1
Lehigh, PA	-0.5	4

**180-Day Period Ending December 3, 2019**

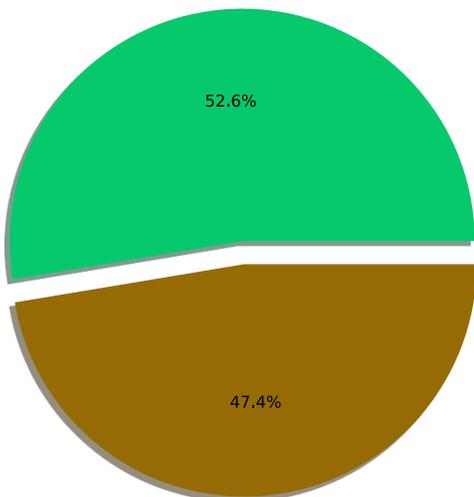
**Range of 180-Day precipitation totals for DRB Counties**

**MIN MEAN MAX**



**Cape May, NJ: 17.2 inches      24.35 inches      Berks, PA: 30.2 inches**  
 Number of counties above and below normal

Above Normal: 20



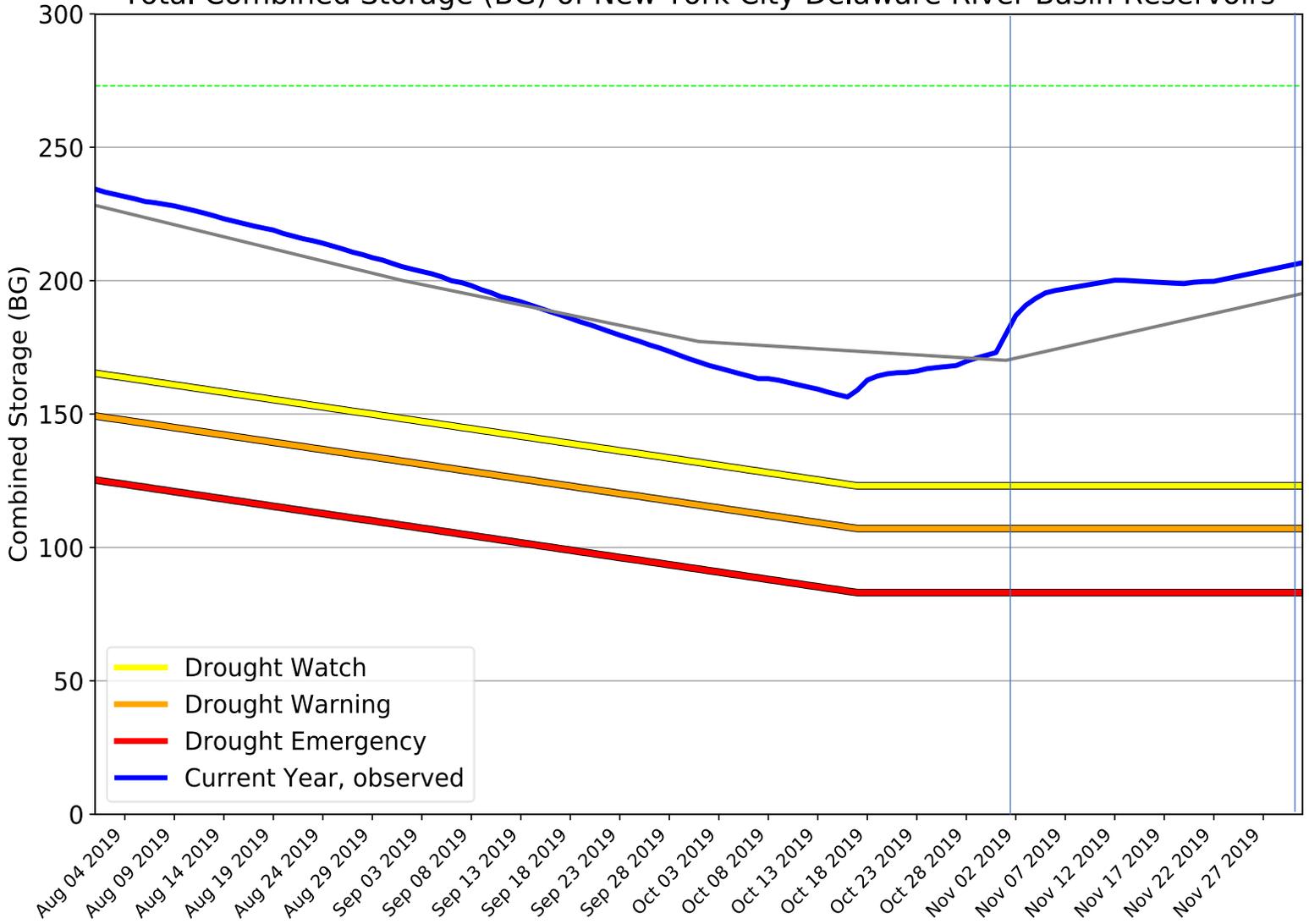
Below Normal: 18

**Top 5 Surpluses in the past 180 days for DRB counties:**

County, State	Inches From Normal	% From normal
Berks, PA	5.7	23
Warren, NJ	4.2	16
Lehigh, PA	4.1	17
Burlington, NJ	3.3	14
Northampton, PA	3.3	13

## Storage (NYC and Lower Basin)

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



Usable Storage	Cannonsville	Pepacton	Neversink	Total	BG above drought = 124.4	BG above median = 11.4
BG	66.1	109.9	31.5	207.5	BG above drought watch = 84.4	BG below one year ago = 57.7
%	70.8	78.8	91.0	76.018	BG above drought warning = 100.4	

## Surface Water and Groundwater Conditions

### Surface Water

The table below displays the status (December 3, 2019) of 28-day running average streamflow for the index stations. Water levels within the 25% to 75% range are defined as “normal.”

PA COUNTY INDEX STATION	CURRENT STATUS
Dyberry Creek Nr Honesdale	Normal
Bush Kill at Shoemakers	Normal
Brodhead Creek Nr Analomink	Normal
Lehigh River at Stoddardsville	Normal
Pohopoco Creek at Kresgeville	Normal
Little Lehigh Creek Nr Allentown	Above Average
Monocacy Creek at Bethlehem	Above Average
Lehigh River at Bethlehem	Normal
Neshaminy Creek Nr Langhorne	Not Valid
Pennypack Creek at Lower Rhawn St, Phila.	Normal
Schuylkill River at Landingville	Normal
Schuylkill River at Berne	Normal
Tulpehocken Creek Nr Bernville	Normal
Schuylkill River at Pottstown	Normal
Perkiomen Creek at Graterford	Normal
Schuylkill River at Philadelphia	Normal
Chester Creek Nr Chester	Normal
Brandywine Creek at Chadds Ford	Normal

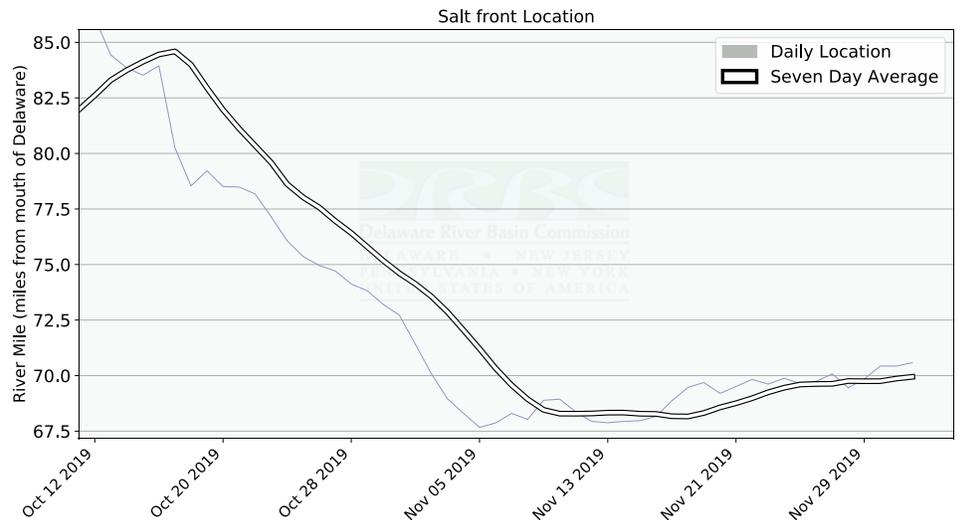
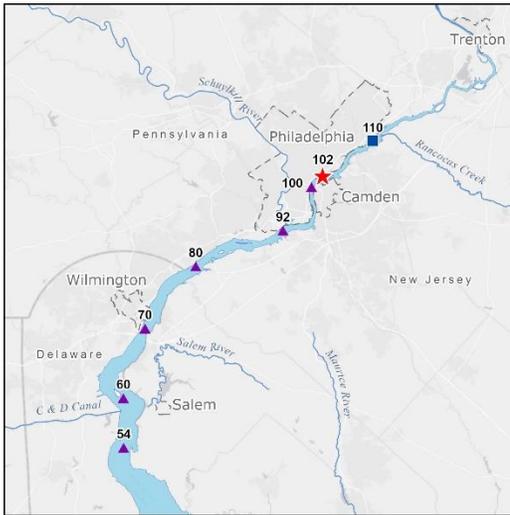
### Groundwater

The table below displays the status (December 3, 2019) of groundwater levels for 12 wells in the Delaware River Basin. Water levels within the 25% to 75% range are defined as “normal.”

COUNTY	STATE	DATA SOURCE	WELL ID	INDICATOR AS OF 2019-10-23
Wayne	PA	USGS	WN 64	Above Normal
Monroe	PA	USGS	MO 190	Normal
Carbon	PA	USGS	CB 104	Above Normal
Schuylkill	PA	USGS	SC 296	Normal
Lehigh	PA	USGS	LE 372	Above Normal
Bucks	PA	USGS	BK 1020	Above Normal
Chester	PA	USGS	CH 10	Above Normal
Delaware	PA	USGS	DE 723	Normal
Lebanon	PA	USGS	LB 372	Above Normal
Burlington	NJ	USGS	050689	Above Normal
Cumberland	NJ	USGS	110042	Above Normal

## Delaware River Salt Front Location

The salt front is defined as the 250 parts-per-million isochlor. The seven-day average location of the salt front is used by DRBC as an indicator of salinity intrusion in the Delaware Estuary. The salt front's location fluctuates along the main stem Delaware River as streamflow increases or decreases in response to changing inflows, diluting or concentrating chlorides in the river.



Note: DRBC does not calculate the location of the saltfront below river mile 54.

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Report prepared by DRBC Staff. Acknowledgments: NWS-MARFC; USGS; Delaware Geological Survey (DGS).

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