

December 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).

December saw a return to above normal conditions for precipitation, extending from a pattern that began late in the month of November. While the first week of the month was relatively dry, an active pattern set up that lasted from December 8 to December 17. During this time, the basin received over 3 inches of rain in most areas. The region then began a drier period, with no precipitation occurring again until December 28. Of the 38 counties in the Delaware River Basin, 32 (~84%) remained above normal for the month. Monmouth county and Ocean County in New Jersey both had the highest surpluses above normal (80% and 75%, respectively). The steady precipitation and therefore runoff has helped to increase the storage in the New York City Reservoirs. As of today, January 2, 2020, the combined storage is at 89.4%. This is 115 BG above drought watch, and 16.4 BG above normal. The active precipitation period can be noted on the storage graph as well, with a steeper increase in storage for the middle third of the month, before leveling out after December 18th.

The ample precipitation has helped to improve the dry conditions across most of the basin from the dry November. In the past three months, 31 counties in the basin are reporting above normal precipitation. The highest surplus of precipitation is located in Chenango County, New York at close to 30% above normal for the past 90 days. Alternatively, the trend of the past 180 days has gotten drier, even with the above normal December precipitation. This is due to the fact that we are now eliminating the month of May from the 6 month analysis which accounted for a good amount of rain. Currently, 40% of the counties are reporting above normal, with 60% reporting below normal. The top surplus is in Warren County, NJ and is 20% above normal for the 6 month period Jun-Dec.

The Climate Prediction Center only has one spot of abnormally dry conditions in the basin, according to the drought monitor released on Thursday, January 2, 2020. This spot is in the far southern region of the basin in Sussex County, DE.

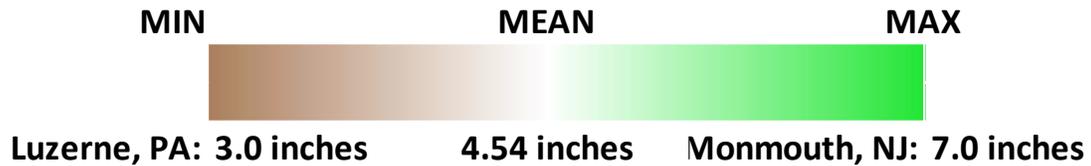
Most groundwater and surface water conditions are reporting Normal or Above Normal levels as of January 2, 2020. The one exception is the well in Carbon County, PA which is reporting below normal levels at this time.

In the first week of December, the salt front was able to push slightly upstream towards river mile 71. After the active pattern began on December 8th, the salt front was pushed back downstream, ending the active rainfall and runoff period near river mile 67.2. In the last week of the month, it was able to come upstream once more, ending the month around river mile 68. The average location of the salt front in December and January is around river mile 69.

Precipitation

December 2019

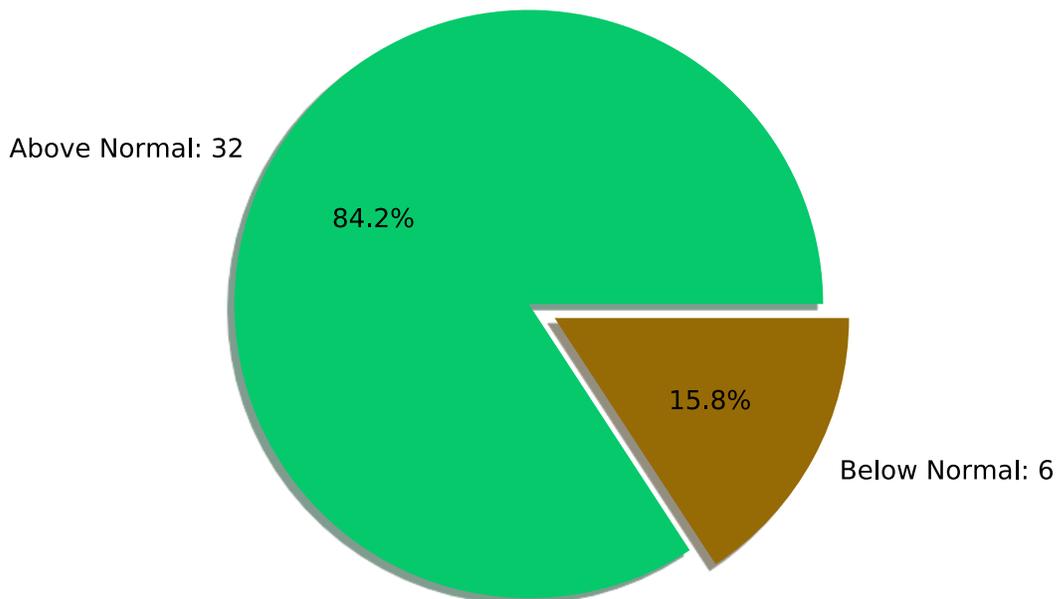
Range of Monthly Precipitation Totals for Delaware River Basin Counties



Top 5 Surpluses for Delaware River Basin Counties this month:

County, State	Inches From Normal	% From normal
Monmouth, NJ	3.1	80
Ocean, NJ	2.9	75
Burlington, NJ	2.1	53
Mercer, NJ	2	51
Atlantic, NJ	1.9	47

Number of counties above
and below normal



90-Day Period Ending January 2, 2020

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

MIN **MEAN** **MAX**

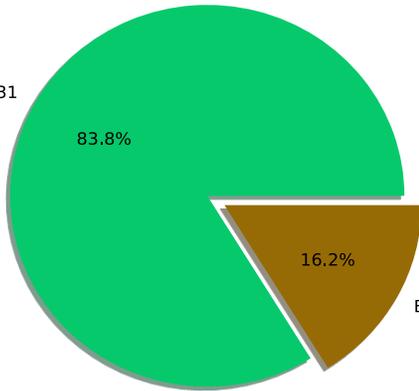


Sussex, NJ: 9.9 inches

12.37 inches

Morris, NJ: 15.0 inches

Number of counties above and below normal



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

County, State	Inches From Normal	% From normal
Chenango, NY	2.9	28
Morris, NJ	2.7	22
Sullivan, NY	2.7	23
Warren, NJ	2.6	22
Northampton, PA	2.3	20

180-Day Period Ending January 2, 2020

Range of 180-Day precipitation totals for DRB Counties

MIN **MEAN** **MAX**

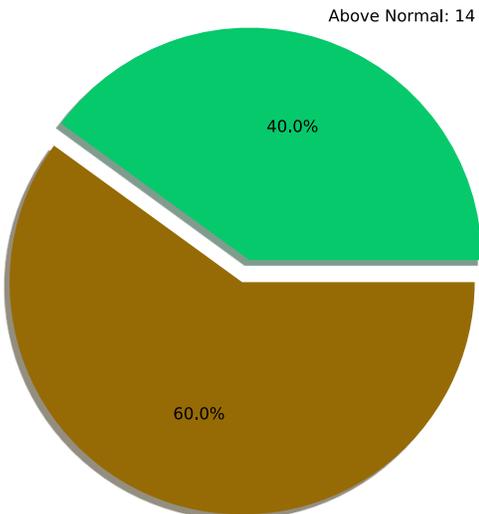


Kent, DE: 17.8 inches

23.25 inches

Warren, NJ: 29.8 inches

Number of counties above and below normal

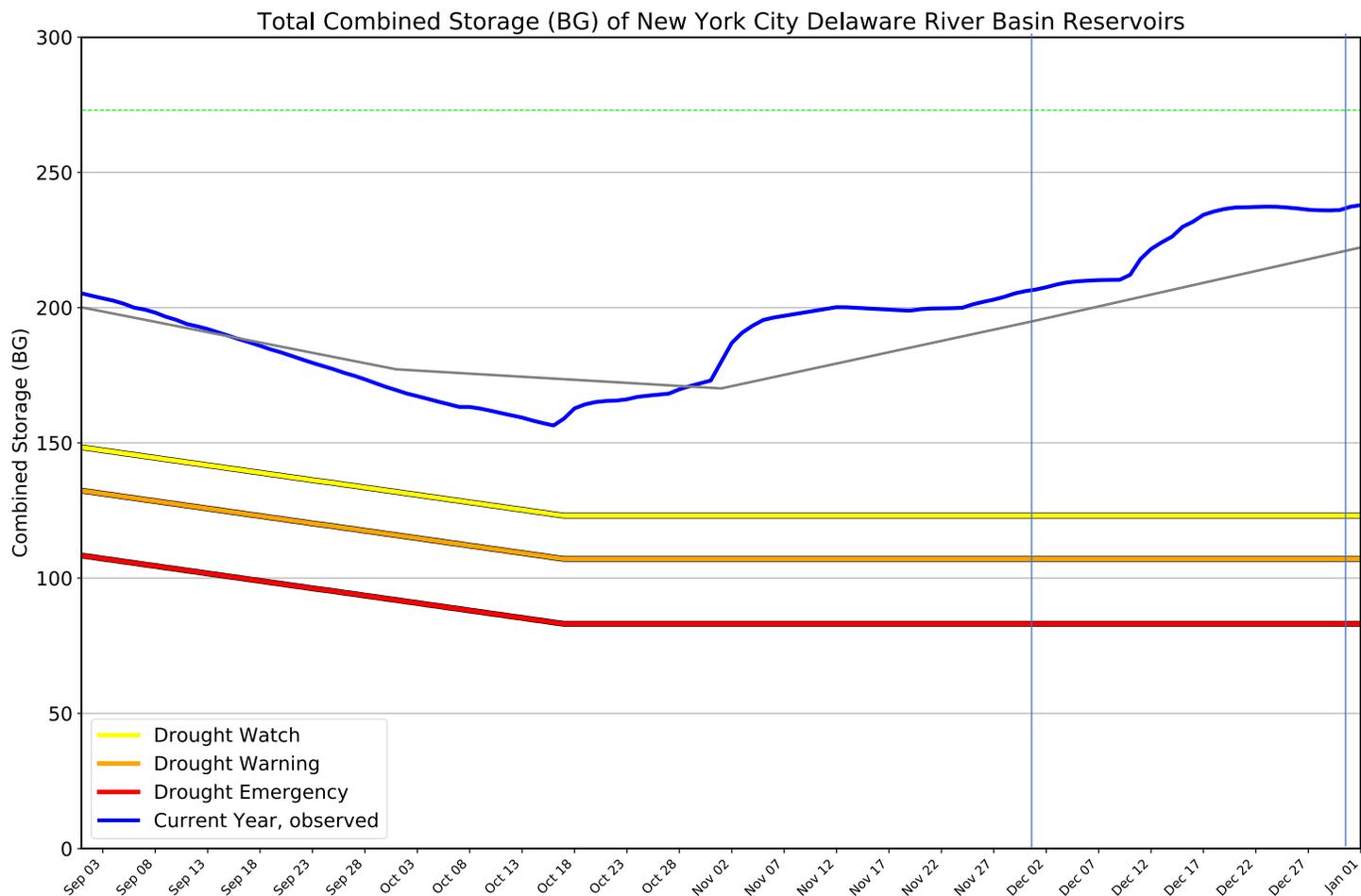


Top 5 Surpluses in the past 180 days for DRB counties:

County, State	Inches From Normal	% From normal
Warren, NJ	5	20
Berks, PA	3	13
Northampton, PA	2.9	12
Morris, NJ	2.7	11
Lehigh, PA	2.5	10

Below Normal: 21

Storage (NYC and Lower Basin)



NEW YORK CITY

	Usable Storage	
	(BG)	(%)
Neversink	32.2	92.8
Pepacton	123.2	88.4
Cannonsville	83.3	89.1
NYC Total	238.7	89.4

LOWER BASIN

	Usable Storage	
	(BG)	(%)
FE Walter	0.2	2.6
Beltzville	13.5	100.3
Blue Marsh	4.5	77.6

Surface Water and Groundwater Conditions

Surface Water

The table below displays the status (January 2, 2020) 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	Normal
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

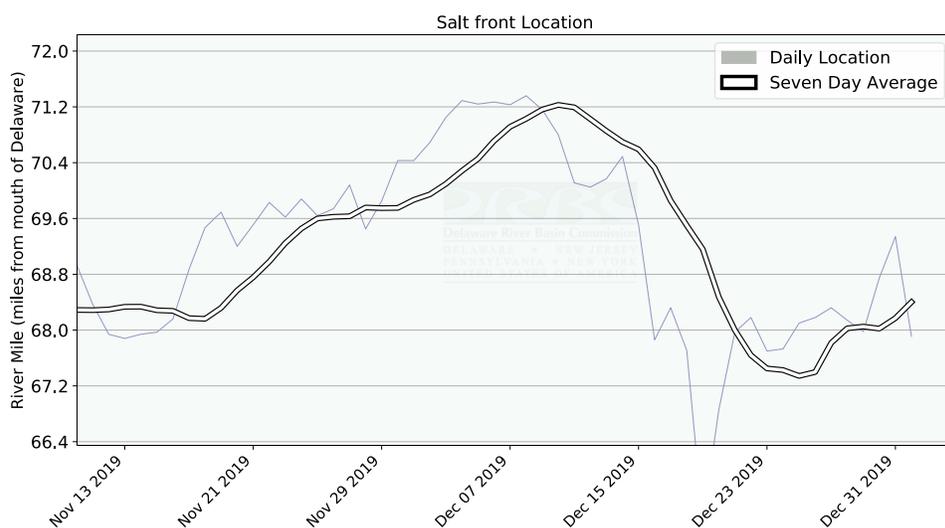
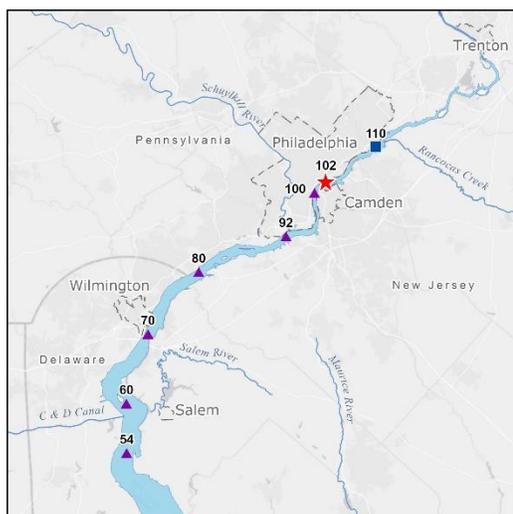
Groundwater

The table below displays the status (January 2, 2020) 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 2020-01-01
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	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	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.

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