

## **Drought Report** **November 23, 2016**

### **Preface**

This report summarizes the various indicators utilized in drought monitoring. Each parameter (groundwater, surface water, precipitation, and palmer index) has their own individual indicator for each county. When readings hit a pre-determined trigger level, the indicator is coded as “Normal”, “Watch”, “Warning”, or “Emergency” for that county. These indicators are used to evaluate the drought status of a particular county; they are not, themselves drought declarations. Drought declarations are determined by the Commonwealth Drought Coordinator, with support of the Drought Task Force, and given final approval by the Governor.

### **Summary**

Lack of precipitation has, for another week, precluded relief from increasing precipitation deficits, dry soil moisture conditions and of lowering stream flows and groundwater levels across the central and eastern parts of Pennsylvania. In the past week, rainfall in Pennsylvania ranged from 0.1 inches in the eastern half of the state to 0.7 inches in the eastern portion of the Ohio River Basin. Precipitation for the next 7 days is forecast to range from 0.5 inches in the south to 1.5 inches in the northwest part of the state. This projection again continues the pattern of precipitation missing the areas of the state where it is needed the most.

The 90-day precipitation departures ranged from greater than 75% below normal in the south central and eastern part of the state to 75% above normal in some western counties. Departures ranged from -7.7 inches in Monroe County to +7.9 inches in Jefferson County.

Groundwater levels continue their decline in the Delaware River Basin counties and middle Susquehanna River Basin counties. Three counties moved to more severe status in the past 7 days.

Instantaneous flows ranged from normal to below normal in the western part of the state with much below normal flows in the central and eastern part of the state.

On November 23, 2016, the Delaware River Basin Commission (DRBC) placed the Delaware River Basin on a “Drought Watch” stage and issued a special permit for coordinated operation of regional reservoirs, out-of-state diversions, and Delaware River flow objections in response to persistent dry conditions. [http://www.nj.gov/drbc/home/newsroom/news/approved/20161123\\_newsrel\\_drought-mgt-special-permit.html](http://www.nj.gov/drbc/home/newsroom/news/approved/20161123_newsrel_drought-mgt-special-permit.html).

The salt front moved upstream another mile and is now at RM 89, which is 19 miles upstream of the normal location for November.

The next meeting of the Commonwealth Drought Task Force meeting has been scheduled for Wednesday, November 30<sup>th</sup> at which time changes to the drought declarations will be discussed.

## **Drought Report Details**

*Precipitation* – Over the last 7 days, county rainfall ranged from 0.1 inches in the lower Delaware and Susquehanna River Basins to 0.7 inches in the eastern Ohio River Basin with one county, Susquehanna, received 0.9 inches. The 90-day precipitation deficit shows counties ranging from greater than 75% below normal to 75% above normal precipitation.

The precipitation indicators based on a 90-day departure indicate 2 counties are now in “Watch” (Bedford and Blair), 15 counties are in “Warning” (Berks, Chester, Columbia, Cumberland, Delaware, Fulton, Huntingdon, Lackawanna, Lancaster, Lebanon, Lehigh, Luzerne, Schuylkill, Wayne and York) and 16 counties are in “Emergency” (Bucks, Carbon, Dauphin, Franklin, Juniata, Mifflin, Monroe, Montgomery, Montour, Northampton, Northumberland, Perry, Philadelphia, Pike, Snyder and Union).

Since the last report 24 counties moved to a lower status with no counties improving.

*Surface Water*- Instantaneous streamflow across the Commonwealth ranged from normal to below normal with the lowest flows in the Delaware River Basin and Susquehanna River Basin. For this date there were 55 gages with instantaneous flow at less than the 10th percentile, compared to 55 gages last week. There were 5 gages recording record low instantaneous flows.

The 30-day running average streamflow indicators a renewed decline in streamflow with 10 counties in drought “Watch” (Bucks, Chester, Columbia, Dauphin, Fulton, Lancaster, Lebanon, Montgomery, Montour and Wayne), 15 counties in “Warning” (Delaware, Franklin, Huntingdon, Lackawanna, Lehigh, Luzerne, Mifflin, Monroe, Northumberland, Perry, Philadelphia, Pike, Schuylkill, Sullivan and York) and 8 counties in “Emergency” (Adams, Berks, Carbon, Cumberland, Juniata, Northampton, Snyder and Union). Since our last report 10 counties moved to a lower status.

*Groundwater* – The 30-day moving average indicators for groundwater levels are showing 17 counties in drought “Watch” (Adams, Bedford, Centre, Chester, Columbia, Cumberland, Franklin, Fulton, Juniata, Lancaster, Luzerne, Mifflin, Northumberland, Perry, Susquehanna, Wayne and York); 7 counties in “Warning” (Bucks, Delaware, Montgomery, Montour, Philadelphia, Schuylkill and Union) and 9 counties in “Emergency” (Berks, Carbon, Dauphin, Lackawanna, Lebanon, Lehigh, Monroe, Northampton and Pike). Since our last report 3 counties moved to a lower status.

*Palmer Drought Severity Index* – The Palmer soil moisture indicator is showing 42 counties in “Watch” (Adams, Allegheny, Armstrong, Beaver, Berks, Bucks, Butler, Carbon, Chester, Columbia, Cumberland, Dauphin, Delaware, Fayette, Franklin, Greene, Indiana, Juniata, Lackawanna, Lancaster, Lawrence, Lebanon, Lehigh, Luzerne, Lycoming, Mifflin, Monroe, Montgomery, Montour, Northampton, Northumberland, Perry, Philadelphia, Pike, Schuylkill, Snyder, Somerset, Union, Washington, Wayne, Westmoreland and York) 5 counties in “Warning” (Bedford, Blair, Cambria, Fulton and Huntingdon). Since the last report 5 counties moved to a more severe status.

*Public Water Supply Agencies (PWSA's)* – The following water suppliers are on water use restrictions: Albion Borough Water System, Erie County

Bedford Borough Water Authority, Bedford County  
 Galeton Borough Water Authority, Potter County  
 Franklin County General Authority, Franklin County  
 Huntingdon Borough Water Department, Huntingdon County  
 Jay Township, Elk County  
 Mahanoy Township Authority, Schuylkill County  
 North Heidelberg Water, Berks County  
 Petersburg Commons Water System, Huntingdon County  
 Richfield Area Joint Authority, Juniata County  
 Shinglehouse Borough Water Department, Potter County  
 Timeless Towns, Adams County  
 Wellsboro Municipal Authority, Tioga County

*Forecast* – The 7-day forecast indicates approximately 0.5 inches of precipitation will occur in the south to 1.5 inch in the northwest.

