

September 6, 2022

## **Drought Report**

### **Summary: August 30 – September 6**

#### **Preface**

This report summarizes the various indicators utilized in drought monitoring; it is current to noon on September 6<sup>th</sup>, 2022. Each parameter (precipitation, surface water, groundwater, and palmer index) has its 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 “Watch” and “Warning” declarations are determined by the Commonwealth Drought Coordinator and the Department of Environmental Protection (DEP), with support of the Drought Task Force; “Emergency” declarations follow a similar process but are given final approval by the Governor.

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*Precipitation* – Over the past week, there was varying precipitation across the state, ranging from 0.2-5.3 inches. The 90-day precipitation departures shows counties ranging from 50% below up to 75% above normal precipitation. Note that these statistics do not take into account the most recent rains that took place on Sunday through Monday of this week.

The precipitation indicators based on a 90--day departure is showing 14 counties in drought “Watch” (Cameron, Carbon, Clinton, Juniata, Lackawanna, Lebanon, Lehigh, Lycoming, Monroe, Northampton, Perry, Potter, Schuylkill, and Tioga), eight counties in “Warning” (Bucks, Dauphin, Montgomery, Philadelphia, Pike, Snyder, Sullivan, and Wyoming), and three in “Emergency” (Montour, Northumberland, and Union) condition. Since the last report nine counties have improved from “Warning” to “Watch” (6), or from “Watch” to “Normal” (3) condition, and four counties have declined in condition from “Normal” to “Watch” (3), or from “Watch” to “Warning” (1) condition. These changing indicators reflect a nearly statewide improvement of precipitation conditions within the last week until Saturday September 4, 2022. Recent rains have yielded improved conditions throughout the state with notable exceptions on toward the eastern end.

*Surface Water* – For this date, there are 2 gages showing instantaneous flow at less than the 10th percentile. The 30-day moving average streamflow indicators are showing 14 counties in drought “Watch” (Columbia, Dauphin, Elk, Forest, Juniata, Lebanon, Lycoming, McKean, Montour, Susquehanna, Tioga, Wayne, Wyoming, and York), six counties in “Warning” (Berks, Northumberland, Pike, Schuylkill, Snyder, and Union), and one in “Emergency” (Sullivan) condition. Since the last report seven counties have improved from “Emergency” to “Warning” (1), “Emergency” to “Watch” (1), “Emergency” to “Normal” (1), or from “Watch” to “Normal” (4) condition and one county has declined in condition from “Watch” to “Warning” condition. Surface water is following similar patterns to the precipitation indicators throughout the state with some critical improvements with some exceptions.

*Groundwater* – The 30-day moving average indicators for groundwater levels are showing 16 counties in drought “Watch” (Adams, Bradford, Columbia, Huntingdon, Juniata, Lackawanna, Luzerne, Monroe,

Perry, Pike, Schuylkill, Sullivan, Susquehanna, Wayne, Wyoming, and York), four counties in “Warning” (Lawrence, Mercer, Montour, and Union), and four counties in “Emergency” (Dauphin, Lebanon, McKean, and Potter) condition. Since the last report ten counties have declined from “Warning” to “Emergency” (2), “Watch” to “Warning” (2), or from “Normal” to “Watch” (6) condition and four counties have improved from “Emergency” to “Warning” (2), “Emergency” to “Watch” (1), or from “Warning” to “Watch” (1) condition. Though the recent rains have improved conditions statewide for precipitation and surface water gages there has yet to be broader improvement in groundwater. Since groundwater is a lagging indicator it’s likely that these conditions are reflective of drier surface water and precipitation conditions a few reports back which would explain the declining indicator scores for this metric.

*Palmer Drought Severity Index* – The Palmer soil moisture indicator is displaying 34 counties in drought “Watch” (Adams, Allegheny, Armstrong, Beaver, Bedford, Blair, Butler, Cambria, Cameron, Centre, Clearfield, Clinton, Columbia, Cumberland, Elk, Fayette, Franklin, Fulton, Greene, Huntingdon, Indiana, Juniata, Lawrence, Lycoming, Mifflin, Montour, Northumberland, Perry, Snyder, Somerset, Union, Washington, Westmoreland, and York), 23 counties in “Warning” (Berks, Bradford, Bucks, Carbon, Chester, Dauphin, Delaware, Lackawanna, Lancaster, Lebanon, Lehigh, Luzerne, Monroe, Montgomery, Northampton, Philadelphia, Pike, Schuylkill, Sullivan, Susquehanna, Tioga, Wayne, and Wyoming), and ten counties in “Emergency” (Clarion, Crawford, Erie, Forest, Jefferson, McKean, Mercer, Potter, Venango, and Warren) condition. Since the last report 24 counties have declined from “Warning” to “Emergency” (10), “Watch” to “Warning” (9), or from “Normal” to “Watch” (5) condition throughout the state. The Palmer Drought Severity Index (PDSI) is currently viewed with some skepticism, as a result, hard data such as precipitation, groundwater, and surface water data are the favored drought indicators in decision making. The recent decline in conditions throughout the state is puzzling and does not appear to comport with the above findings.

*Public Water Supply Agencies (PWSAs)* – Presently, DEP is aware of eight PWSs on voluntary water use restrictions and three on mandatory water use restrictions.

The following PWSs implementing voluntary measures:

- BCI Municipal Authority (PWSID 6170052), Clearfield County
- Driftwood Borough (PWSID 6120001), Cameron County
- Jersey Shore Area Joint Water Authority (PWSID 4410156), Lycoming County
- Lock Haven (PWSID 4180048), Clinton County
- Palmerton Municipal Water Authority (PWSID 3130012), Carbon County
- Pennsylvania American Water Company – Bangor District (PWSID 3480038), Carbon County
- Tower City Borough Authority (PWSID 3540045), Clinton County
- South Renovo Water System (PWSID 4180059), Clinton County

The following PWSs are implementing mandatory measures:

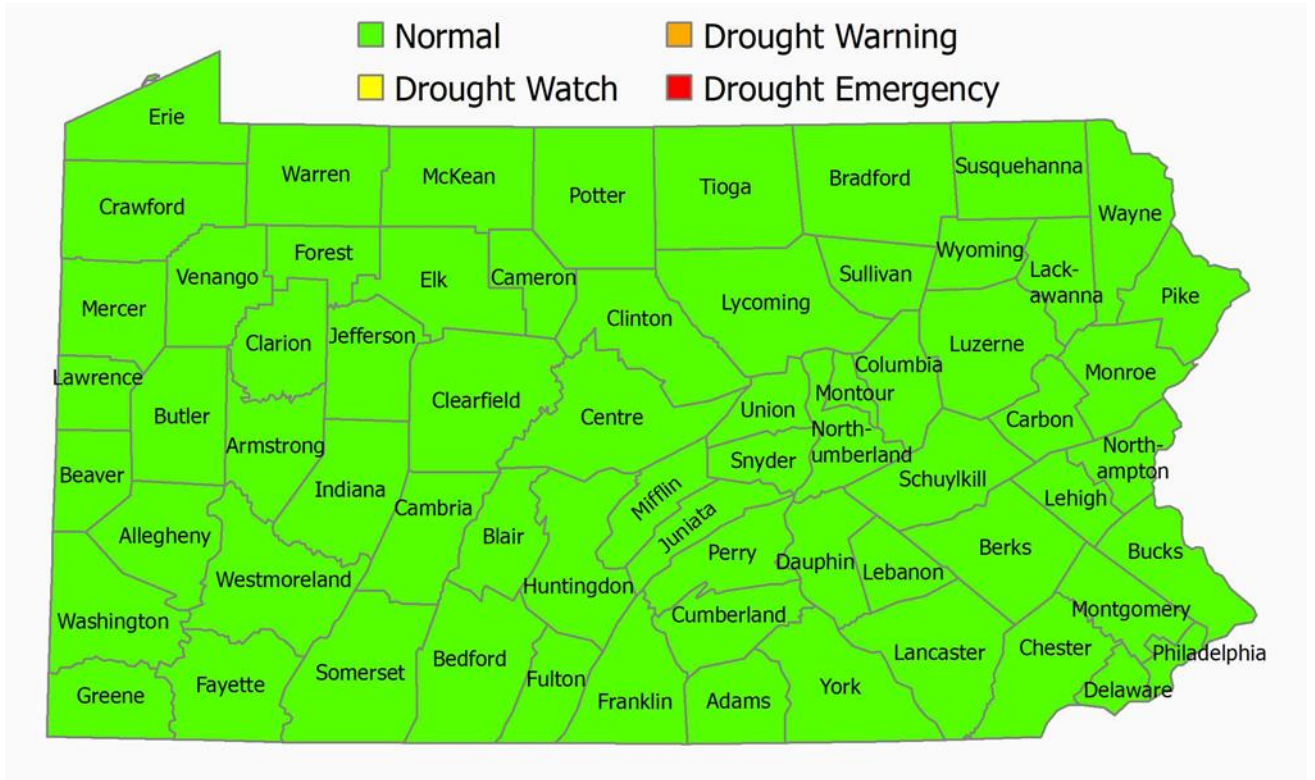
- Galeton Borough Water Authority (PWSID 6350010), Potter County
- Porter Township Municipal Authority (PWSID 4180055), Clinton County
- Waterville Water Association (PWSID 4410187), Lycoming County

*Forecast* – The 7-day forecast indicates approximately 0.66 to 3.5 inches of precipitation for the state, with the highest amounts in the eastern portion of the state and the lowest values in the southwestern portion of the state. The 8 to 14-day forecast indicates 0.5 to 2.66 inches of precipitation for the state, with the eastern portion of the state receiving the most precipitation and the western portion receiving the least.

*Summary* – The 90-day precipitation departures are showing 14 counties in drought “Watch”, eight counties in “Warning”, and three in “Emergency” condition. Instantaneous streamflow varies across the Commonwealth, however, there are 2 gages showing instantaneous flow at less than the 10th percentile. The 30-day moving average streamflow indicators are showing 14 counties in “Watch”, six counties in “Warning”, and one county in “Emergency” condition. The 30-day moving average groundwater well levels are showing 16 counties in “Watch”, four counties in “Warning”, and four counties in “Emergency” condition. The 16 counties showing “Watch” indicators for groundwater are based on nine wells, the four counties in “Warning” are based on two wells, and the four counties in “Emergency” are based on two wells since several counties have groundwater monitoring indicators that reference a neighboring county.

A set of slides including maps and a summary of the data contained in this report is attached.

A Drought Task Force meeting has been scheduled for Wednesday, September 13<sup>th</sup> at 10am. Conditions will continue to be closely monitored.



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