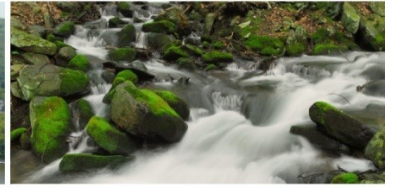




pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION



Bureau of Safe Drinking Water

Drought Management in PA

96th Annual WWOAP Conference

Boalsburg, PA

September 30, 2024

Josh Shapiro, Governor

Jessica Shirley, Acting Secretary

Drought Management in PA

- Coordination between agencies
- Three-Level process
- Statewide network to monitor conditions
- Drought Emergency Regulations
- Focus on Community Water Systems (CWSs)



Drought Management in PA

***To assure sufficient water is available
to serve essential health, safety and
economic needs***



Coordination Efforts

- PEMA responsible to manage Commonwealth's water resources during a drought emergency
- Commonwealth Drought Coordinator
- Drought Task Force



Drought Task Force

- Statewide internal group of agencies involved with drought and drought operations.
- Meet when hydrologic conditions indicate the beginning of drought and throughout drought.
- Presentations from the NWS and DEP followed by discussion to agree on appropriate actions.



Drought Status/Declarations

- **Watch**

- DEP Secretary issues press release and letters to CWSs
- Voluntary 5% reduction

- **Warning**

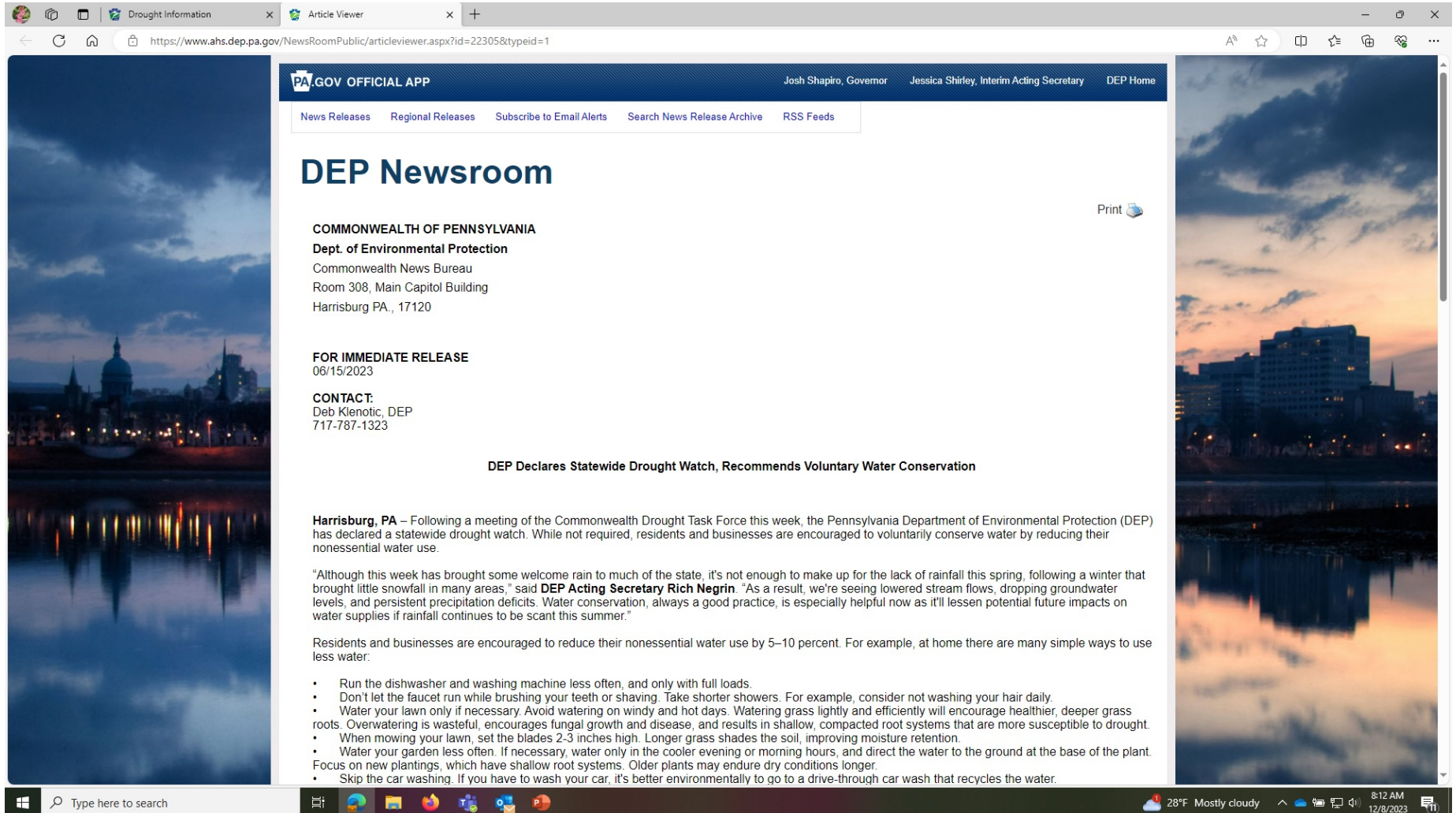
- DEP Secretary issues press release and letters to CWSs
- Voluntary 10-15% reduction

- **Emergency**

- Governor declares proclamation and letters to CWSs
- Nonessential use bans
- Local water rationing plans
- Last Drought Emergency was 2002



Drought Watch Declaration 6/15/2023



The screenshot shows a web browser window with two tabs: "Drought Information" and "Article Viewer". The address bar shows the URL: <https://www.ahs.dep.pa.gov/NewsRoomPublic/articleviewer.aspx?id=22305&typeid=1>. The page header includes the PA.GOV OFFICIAL APP logo, navigation links for "News Releases", "Regional Releases", "Subscribe to Email Alerts", "Search News Release Archive", and "RSS Feeds", and names of state officials: "Josh Shapiro, Governor", "Jessica Shirley, Interim Acting Secretary", and "DEP Home".

DEP Newsroom

COMMONWEALTH OF PENNSYLVANIA
Dept. of Environmental Protection
Commonwealth News Bureau
Room 308, Main Capitol Building
Harrisburg PA., 17120

FOR IMMEDIATE RELEASE
06/15/2023

CONTACT:
Deb Klenotic, DEP
717-787-1323

DEP Declares Statewide Drought Watch, Recommends Voluntary Water Conservation

Harrisburg, PA – Following a meeting of the Commonwealth Drought Task Force this week, the Pennsylvania Department of Environmental Protection (DEP) has declared a statewide drought watch. While not required, residents and businesses are encouraged to voluntarily conserve water by reducing their nonessential water use.

"Although this week has brought some welcome rain to much of the state, it's not enough to make up for the lack of rainfall this spring, following a winter that brought little snowfall in many areas," said **DEP Acting Secretary Rich Negrin**. "As a result, we're seeing lowered stream flows, dropping groundwater levels, and persistent precipitation deficits. Water conservation, always a good practice, is especially helpful now as it'll lessen potential future impacts on water supplies if rainfall continues to be scant this summer."

Residents and businesses are encouraged to reduce their nonessential water use by 5–10 percent. For example, at home there are many simple ways to use less water:

- Run the dishwasher and washing machine less often, and only with full loads.
- Don't let the faucet run while brushing your teeth or shaving. Take shorter showers. For example, consider not washing your hair daily.
- Water your lawn only if necessary. Avoid watering on windy and hot days. Watering grass lightly and efficiently will encourage healthier, deeper grass roots. Overwatering is wasteful, encourages fungal growth and disease, and results in shallow, compacted root systems that are more susceptible to drought.
- When mowing your lawn, set the blades 2-3 inches high. Longer grass shades the soil, improving moisture retention.
- Water your garden less often. If necessary, water only in the cooler evening or morning hours, and direct the water to the ground at the base of the plant. Focus on new plantings, which have shallow root systems. Older plants may endure dry conditions longer.
- Skip the car washing. If you have to wash your car, it's better environmentally to go to a drive-through car wash that recycles the water.

The page also features a "Print" button and a large background image of a city skyline at dusk reflected in water.

Drought Watch Declaration 6/15/2023





Browser tabs: Drought Reports and News, PA_Drought_History_Maps_1980, Article Viewer

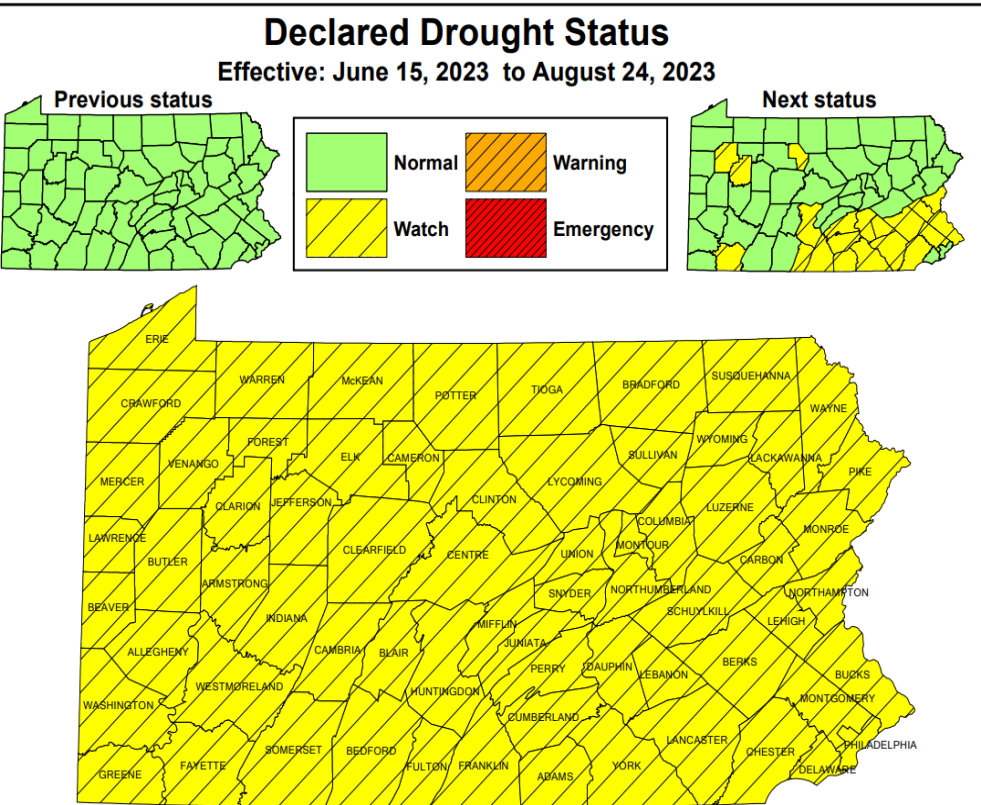
URL: https://files.dep.state.pa.us/Water/BSDW/Drought/DroughtStatusMaps/PA_Drought_History_Maps_1980_Present.pdf

Page: 105 of 109

Declared Drought Status

Effective: June 15, 2023 to August 24, 2023

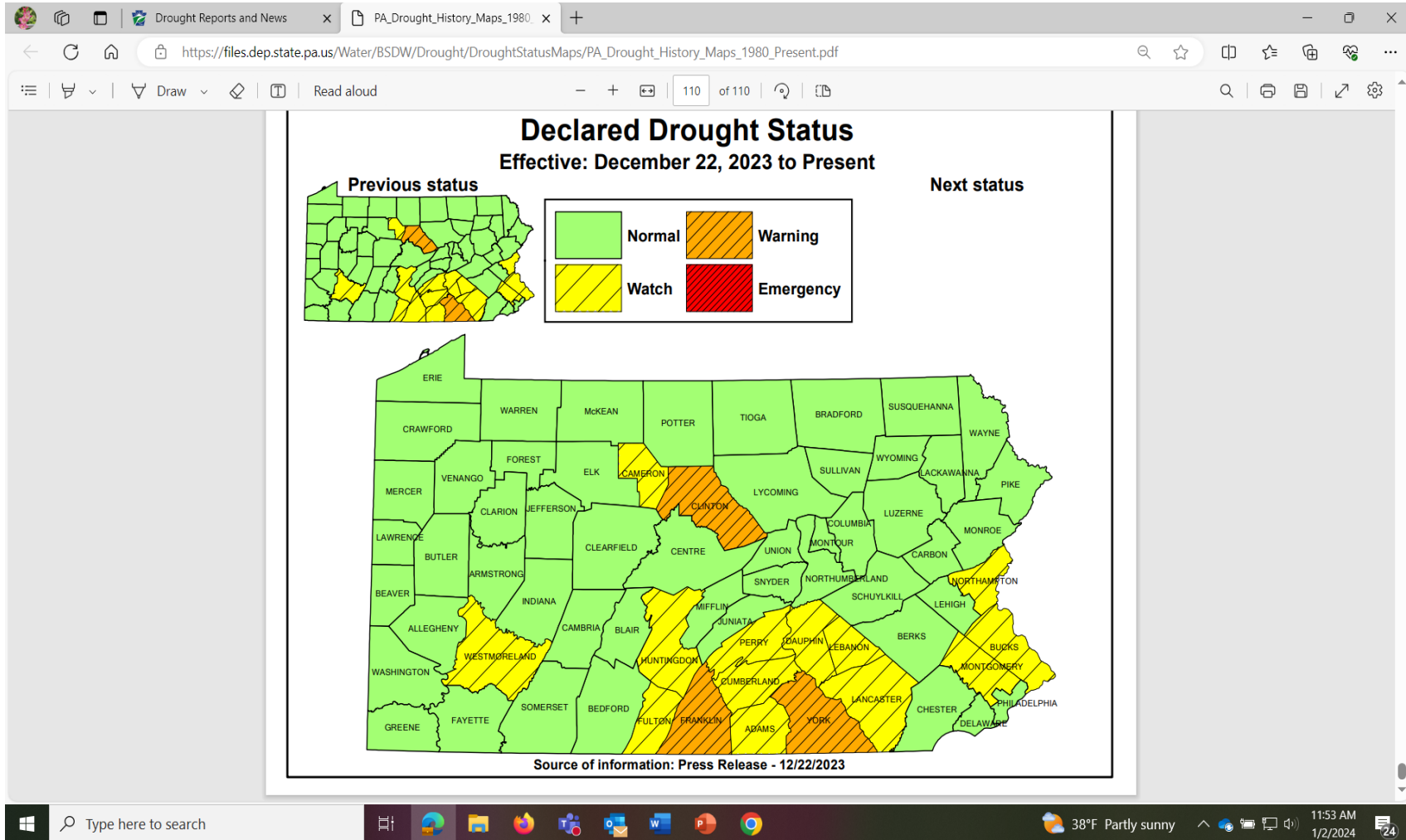
Previous status	Next status
	
	



Source of information: Press Release - 6/15/2023

Taskbar: Type here to search, 28°F Mostly cloudy, 8:15 AM 12/8/2023

Drought Watch Declaration 12/22/2023



Hydrologic Conditions & Water Suppliers

- **Four hydrologic indicators**

- Precipitation – 90-, 120-...365-day deficits
- Stream Flow – moving 30-day average
- Groundwater Level – moving 30-day average
- Soil Moisture – Palmer Index

- **Status of Community Water Systems**

- Voluntary or Mandatory Restrictions



Hydrologic Data Collection

- Stream flows and groundwater levels are collected through a cooperative program with United States Geologic Survey (USGS)
- National Weather Service (NWS) provides daily updates of precipitation data and weekly updates on the Palmer Drought-Severity Index



Drought Monitoring Network

- County-based network, coverage of entire state
- Real-time display of data
- Degree of drought severity based upon long-term records
- Designed to provide timely ID of developing drought conditions



Drought Monitoring- PA Specific

- Four stages of conditions—**normal**, **watch**, **warning** and **emergency**
- Current condition is compared to the historical data in order to assess the monitoring data/parameters relative to drought conditions



Data Available on Websites

- USGS Drought Monitoring Website
[Pennsylvania Drought Condition Monitoring \(usgs.gov\)](https://www.usgs.gov/drought-monitoring/pennsylvania-drought-condition-monitoring)
- PA DEP Drought Monitoring Website
[Drought Information Links \(pa.gov\)](https://www.dep.state.pa.us/drought-information-links)



New Color Palette 3/25/2024

Previous Shading



Normal: Value is within 75% to 25% of the long-term average value



Drought Watch: Value is within 25% to 10% of the long-term average



Drought Warning: Value is within 10% to 5% of the long-term average



Drought Emergency: Value is less than 5% of the long-term average

New Shading



Normal: Value is within 75% to 25% of the long-term average value



Drought Watch: Value is within 25% to 10% of the long-term average



Drought Warning: Value is within 10% to 5% of the long-term average



Drought Emergency: Value is less than 5% of the long-term average

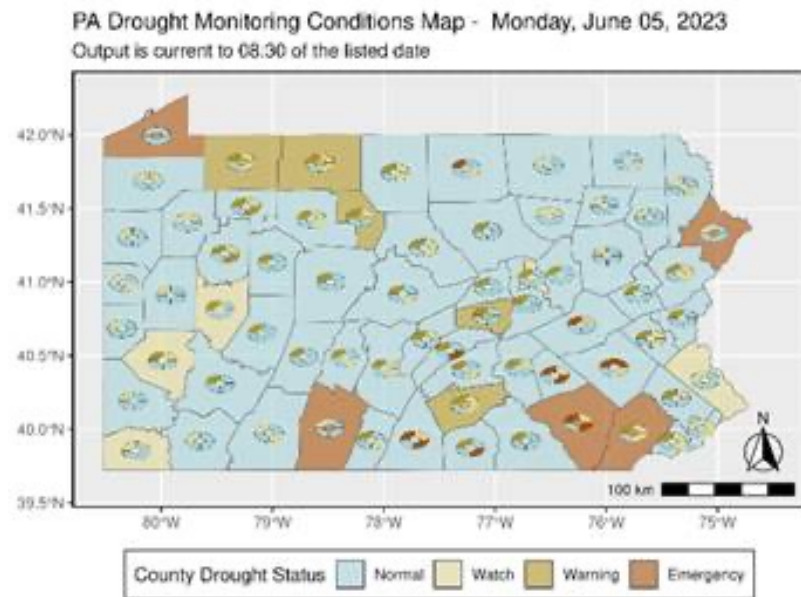


New Color Palette 3/25/2024

USGS Previous Display



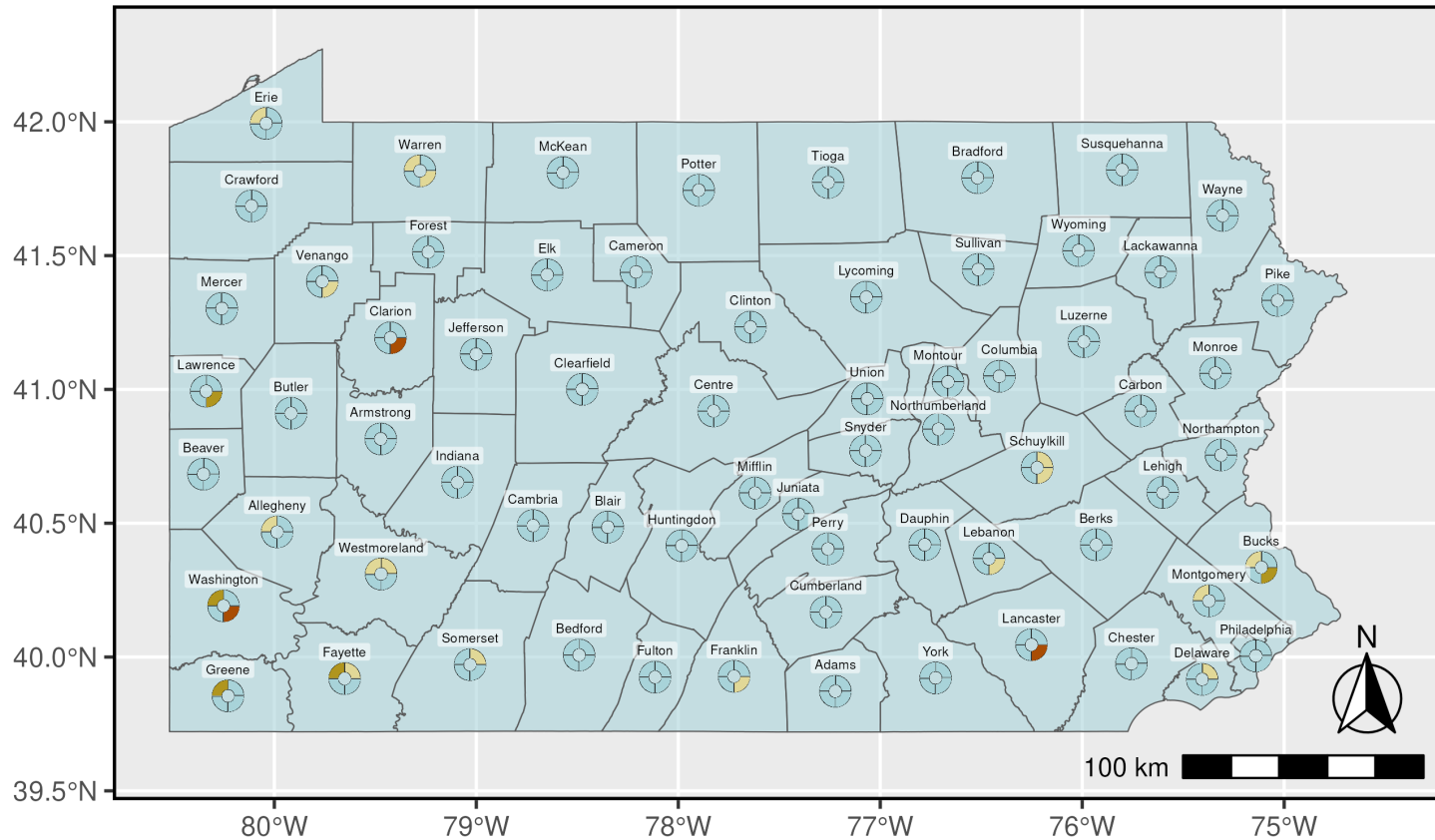
USGS Example Display



Composite Indicator Map

PA Drought Monitoring Conditions Map - Sunday, September 29, 2024

Output is current to 08:30 of the listed date



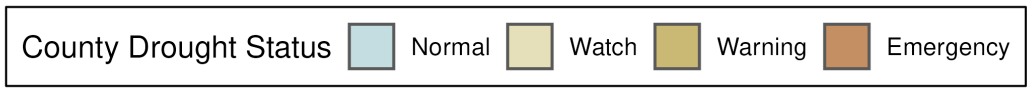
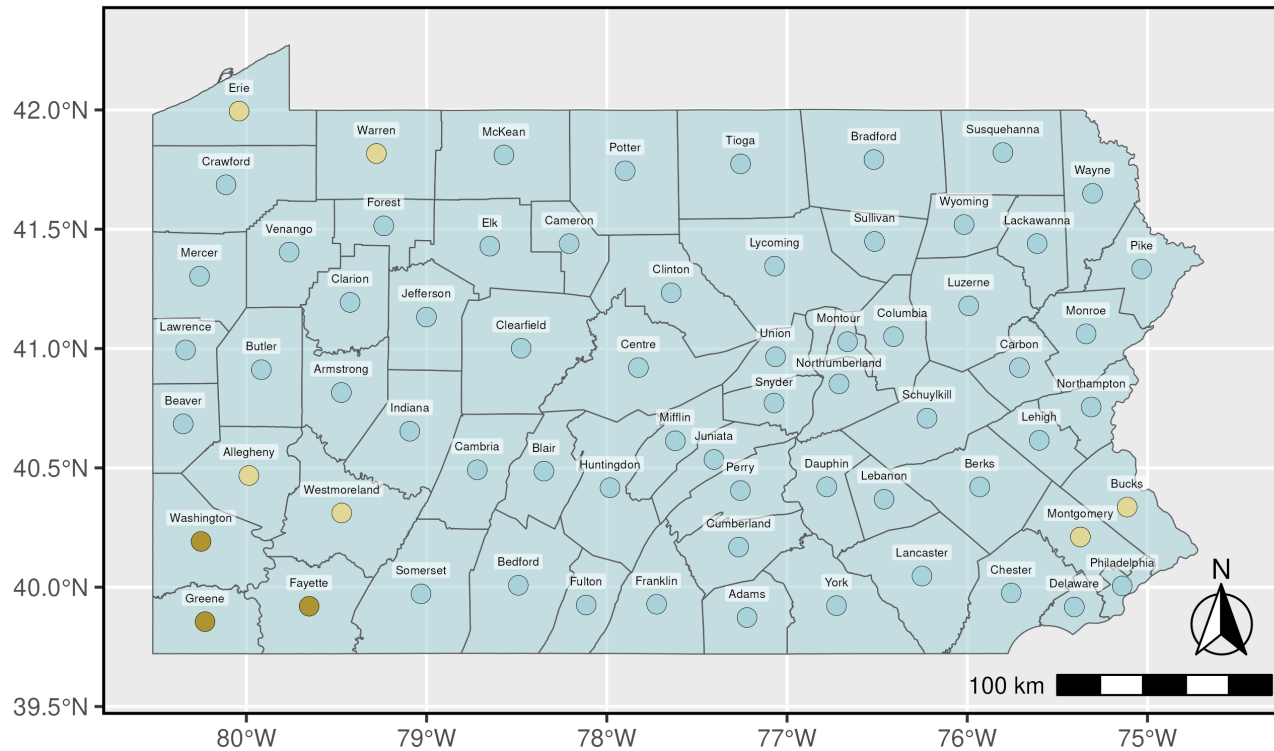
Precipitation Deficits

- Earliest indicator of a potential drought
- Precipitation is monitored in terms of departures (surpluses or deficits) from 30-year normal
- Droughts result from accumulations of precipitation deficits



Precipitation Deficits

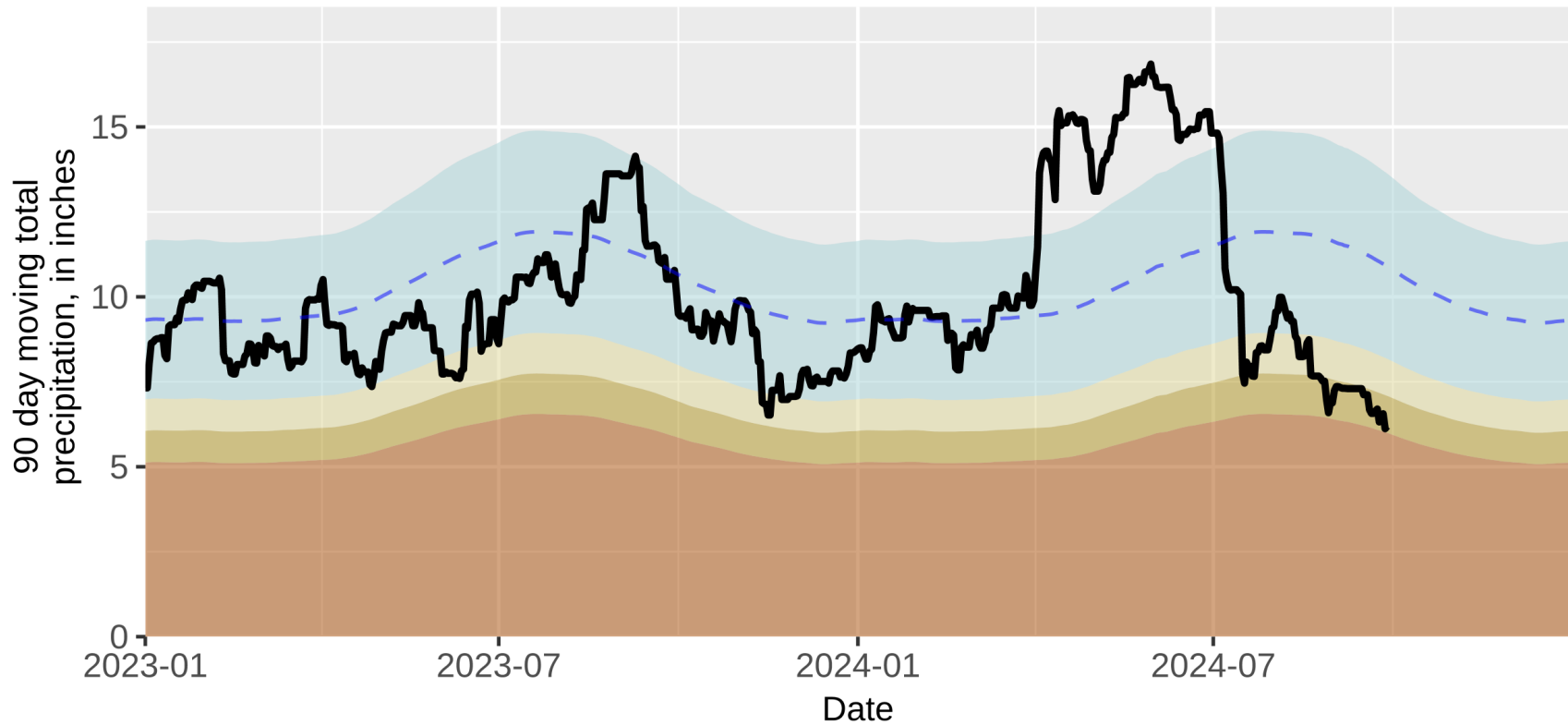
PA Drought Monitoring Conditions Map - Sunday, September 29, 2024
90-day cumulative precipitation indicator. Output is current to 08:30 of the listed date



Washington County- 90-day Precip Deficit

Washington County 90-day Precipitation Indicator

Derived from long-term PRISM gridded data. Plot generated: 2024-09-29



Pennsylvania
Department of Environmental Protection

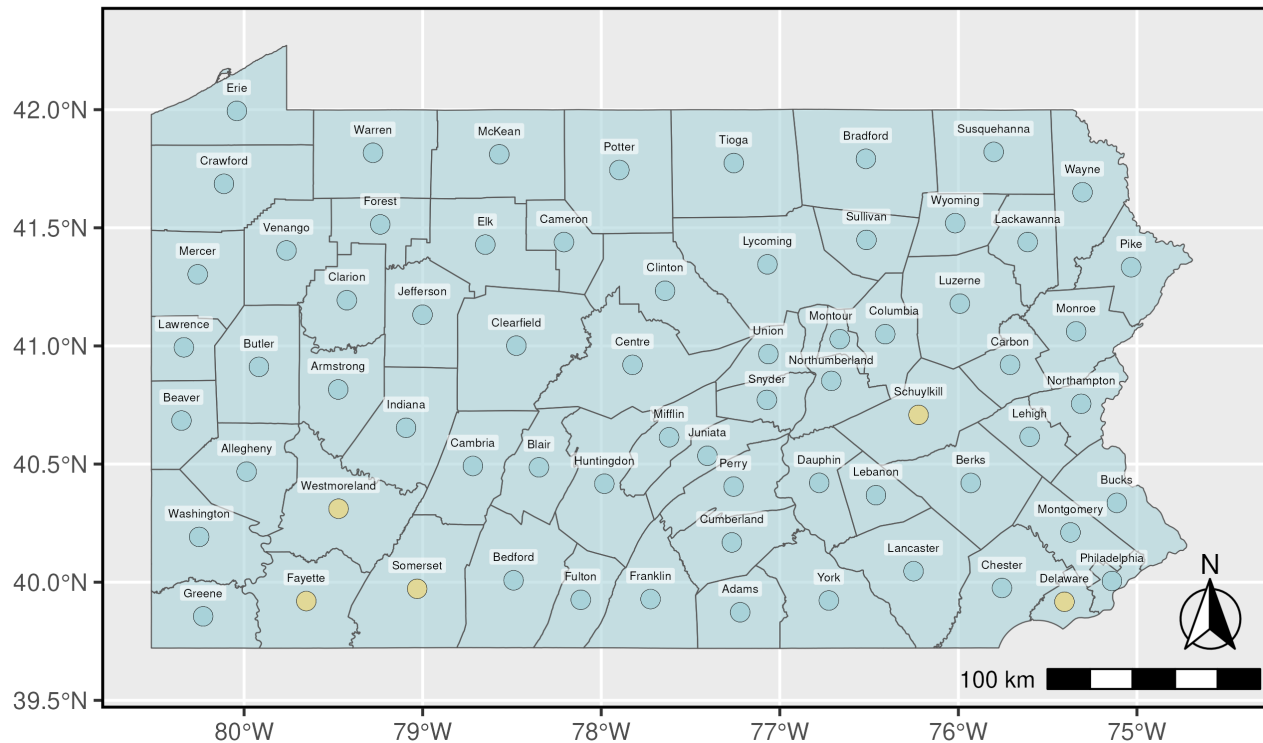
Stream Flows (Surface Water)

- Stream flows typically lag 1-2 months behind precipitation in signaling a drought
- USGS stream-gage records are used to compute the 30-day moving average daily flow, which serves as a stream flow indicator
- Stream flow indicators compared with statistical flow values known as “percentiles” derived from historic stream-gage records



Stream Flows (Surface Water)

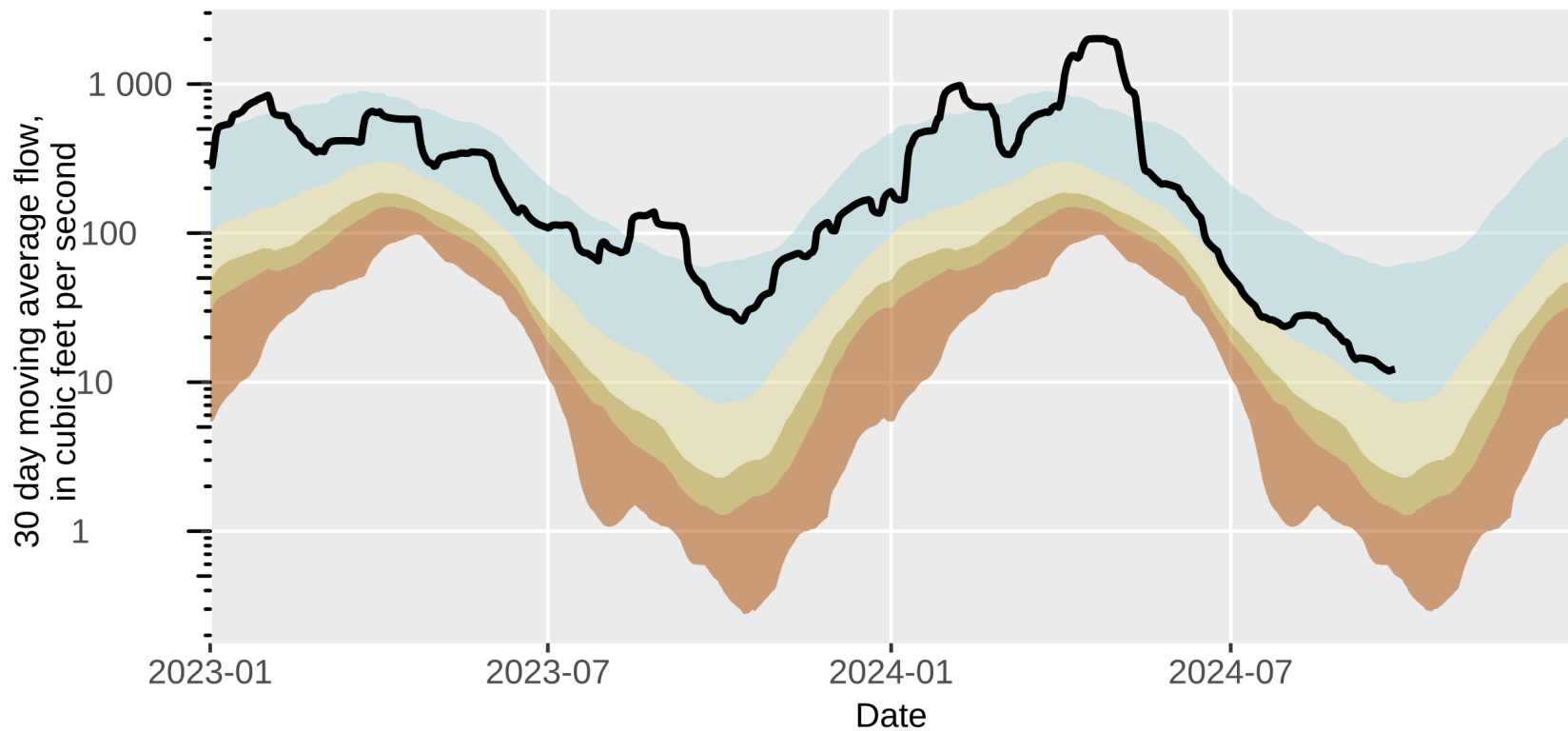
PA Drought Monitoring Conditions Map - Sunday, September 29, 2024
Surface water indicator. Output is current to 08:30 of the listed date



Washington County- Wheeling Creek

03112000 - Wheeling Creek at Elm Grove, WV

Provisional data, subject to revision. Plot generated: 2024-09-29



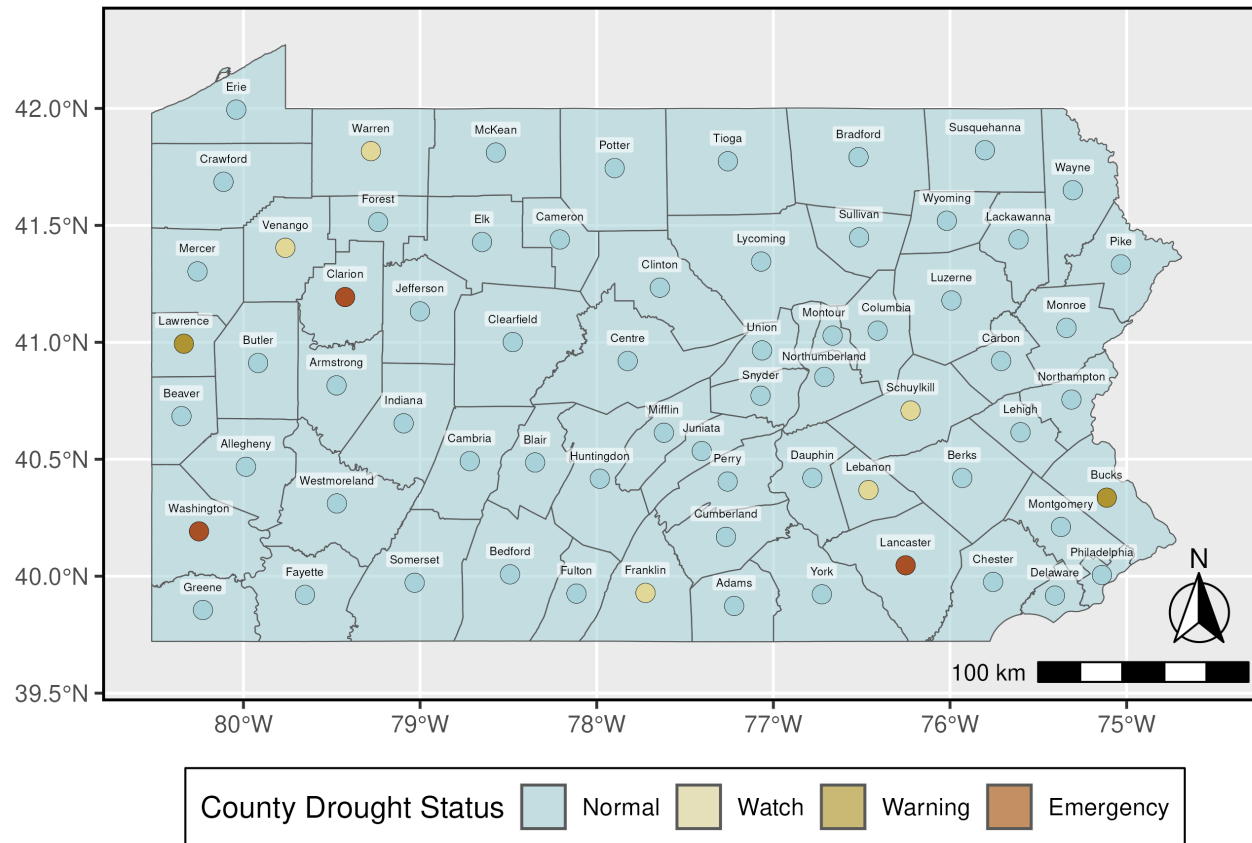
Groundwater Levels

- Groundwater typically lags 2-3 months behind precipitation, largely because of the storage effect
- Groundwater levels are used to indicate drought status in a manner similar to stream flows
- Groundwater levels in USGS observation wells are used to compute the 30-day moving average groundwater level, that serves as a ground water indicator



Groundwater Levels

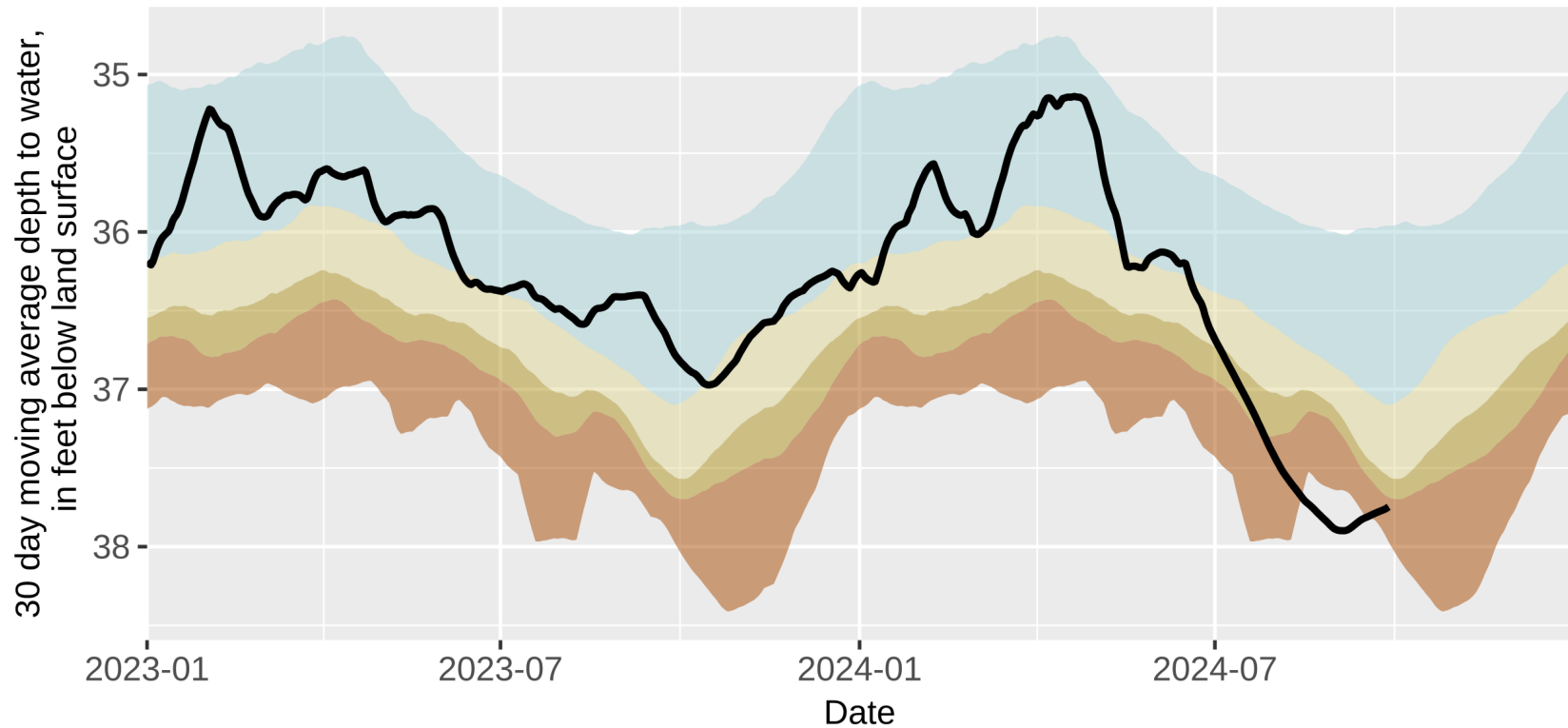
PA Drought Monitoring Conditions Map - Sunday, September 29, 2024
Groundwater indicator. Output is current to 08:30 of the listed date



Washington County- Groundwater Well

400233080261301 - WS 155 Washington County Observation Well

Provisional data, subject to revision. Plot generated: 2024-09-29



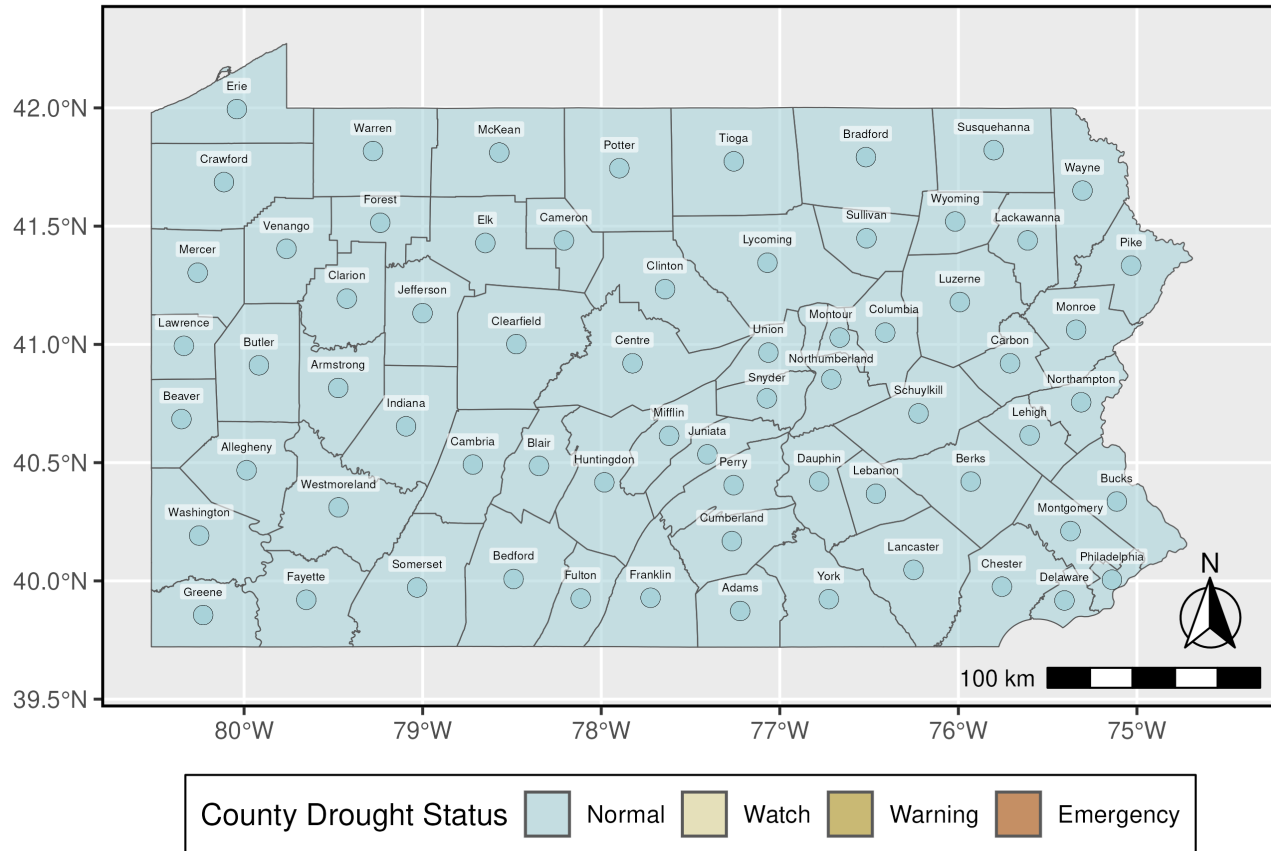
Palmer Drought Severity Index

- The Palmer Drought Severity Index is a value computed as a function of both meteorological and hydrologic data to measure soil moisture conditions
- It is compiled weekly by the Climate Prediction Center of the U.S. National Weather Service for each of their climatological regions
- The computed value ranges from +6.0 to -6.0

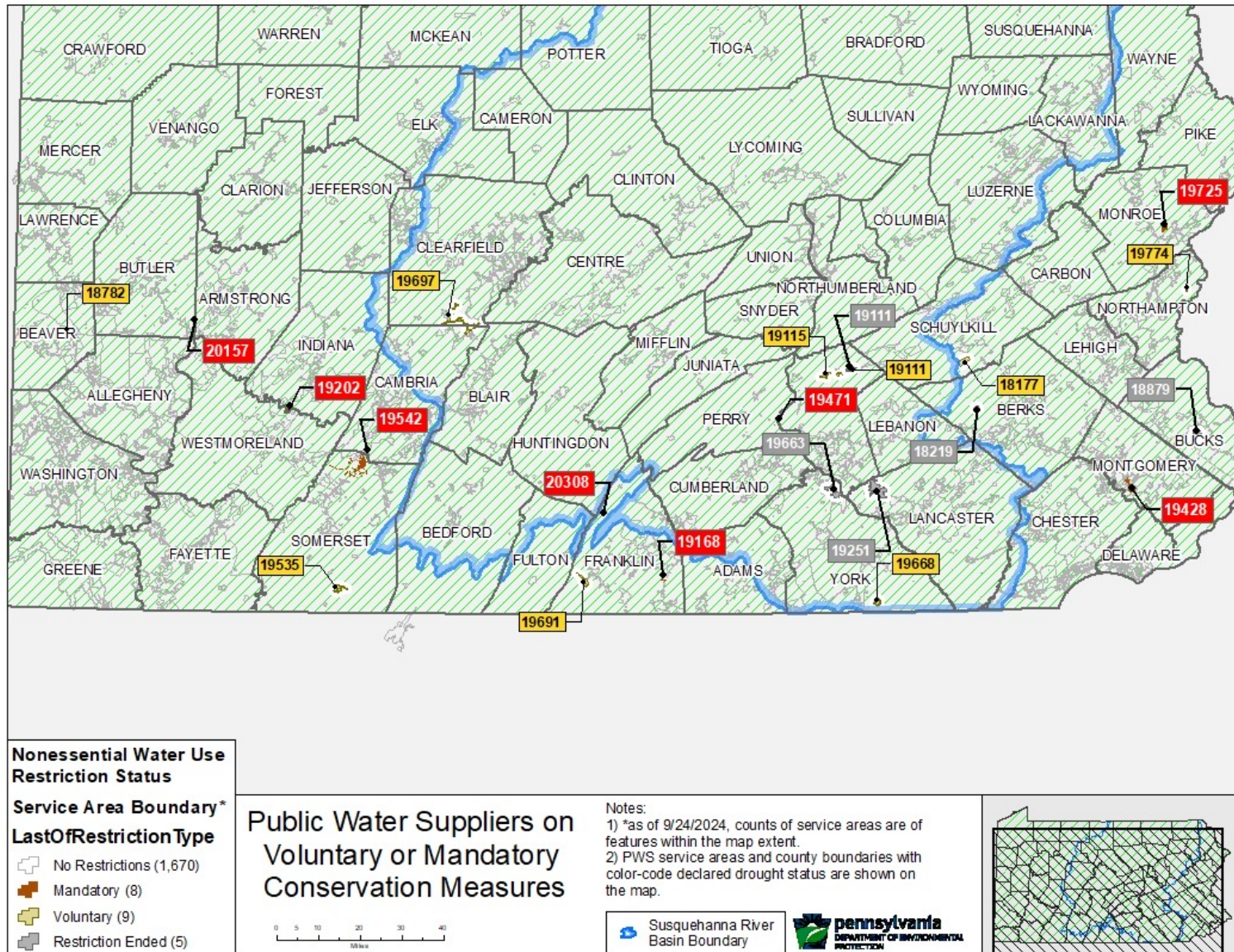


Palmer Drought Severity Index

PA Drought Monitoring Conditions Map - Sunday, September 29, 2024
Palmer Drought Index indicator. Output is current to 08:30 of the listed date



Community Water System Restrictions



Community Water System Restrictions

PWS Restriction List

(17) Systems Currently Active

WUDS ID	System Name and PWSID	County / Region	Municipality	Source Type(s)	Restriction Start	Restriction End	Consec Sys	Ration Start	Ration End	Restriction Reason	Days Active*	Status Type
19428	AUDUBON WATER CO (1460055)	Montgomery - SE	Lower Providence - T	INTC, GW	5/24/2024	N/A	No			Dry Conditions	118	Mandatory
19697	BCI MUNI AUTH (6170052)	Clearfield - NC	Coalport - B	INTC, SW, GW	9/17/2024	N/A	No			Dry Conditions	2	Voluntary
19202	BLAIRSVILLE MUNI AUTH (5320006)	Indiana - NW	Blairsville - B	INTC, SW, GW	8/20/2024	N/A	No			Dry Conditions	30	Mandatory
19542	CONEMAUGH TWP MUNI AUTH (4560048)	Somerset - SW	Conemaugh - T	INTC, SW, GW	8/2/2024	N/A	No			Dry Conditions	48	Mandatory
19471	DUNCANNON WATER SYS (7500019)	Perry - SC	Duncannon - B	INTC, GW	6/20/2024	N/A	No			Dry Conditions	91	Mandatory
19115	ELIZABETHVILLE AREA AUTH (7220003)	Dauphin - SC	Elizabethville - B	GW	7/9/2024	N/A	No			Dry Conditions	72	Voluntary
20157	FAIR WINDS MANOR (5100063)	Butler - NW	Winfield - T	GW	8/20/2024	N/A	No			Dry Conditions	30	Mandatory
20308	INDIAN LAKE CAMP CORP (7280055)	Franklin - SC	Metal - T	GW	7/8/2024	N/A	No			Dry Conditions	73	Mandatory
19111	LYKENS BORO AUTH (7220022)	Dauphin - SC	Lykens - B	SW, GW	9/4/2024	N/A	No			Dry Conditions	15	Voluntary
19691	MERCERSBURG BORO AUTH (7280021)	Franklin - SC	Mercersburg - B	SW, GW	7/8/2024	N/A	No			Dry Conditions	73	Voluntary
19535	MEYERSDALE MUNI AUTH (4560012)	Somerset - SW	Meyersdale - B	SW, GW	8/2/2024	N/A	No			Dry Conditions	48	Voluntary
18782	MONACA MUNI WATERWORKS (5040039)	Beaver - SW	Monaca - B	INTC, SW	8/2/2024	N/A	No			Dry Conditions	48	Voluntary
19168	MONT ALTO MUNI AUTH (7280040)	Franklin - SC	Mont Alto - B	INTC, GW	8/22/2024	N/A	No			Dry Conditions	28	Mandatory
19774	PA AMER WATER CO BERRY HOLLOW (3480053)	Northampton - NE	Lower Mount Bethel - T	SW, GW	6/21/2024	N/A	No			Dry Conditions	90	Voluntary
19725	PENN ESTATES UTILITIES (2450065)	Monroe - NE	Stroud - T	SW, GW	8/13/2024	N/A	No			Dry Conditions	37	Mandatory
18177	PLUM CREEK MUNI AUTH (3540049)	Schuylkill - NE	South Manheim - T	GW	8/2/2024	N/A	No			Dry Conditions	48	Voluntary
19668	STEWARTSTOWN BORO WATER AUTH (7670062)	York - SC	Stewartstown - B	INTC, GW	6/21/2024	N/A	No			Dry Conditions	90	Voluntary

(5) Systems No Longer On Restrictions (Last 3 Months)

WUDS ID	System Name and PWSID	County / Region	Municipality	Source Type(s)	Restriction Start	Restriction End	Consec Sys	Ration Start	Ration End	Restriction Reason	Days Active*	Status Type
18879	DOYLESTOWN BORO WATER(DBWD) (1090081)	Bucks - SE	Doylestown - B	INTC, GW	6/21/2024	8/2/2024	No			Dry Conditions	43	Voluntary
19251	ELIZABETHTOWN BORO (7360124)	Lancaster - SC	Elizabethtown - B	INTC, SW, GW	7/9/2024	8/14/2024	No			Dry Conditions	37	Voluntary
19111	LYKENS BORO AUTH (7220022)	Dauphin - SC	Lykens - B	SW, GW	7/7/2024	8/14/2024	No			Reservoir Levels	39	Mandatory
18219	NORTH HEIDELBERG WATER SYS (3060115)	Berks - SC	Jefferson - T	GW	7/18/2024	8/22/2024	No			Dry Conditions	36	Mandatory
19663	VEOLIA WATER PA NEWBERRY (7670061)	York - SC	Newberry - T	GW	7/3/2024	8/22/2024	No			Tank Contam	51	Mandatory

Drought Management Response Levels

- **Watch** - public notice of possible development of a drought
 - DEP requests meeting of Drought Task Force, issues press release
 - DEP notifies public water suppliers
 - 5% voluntary reductions in water use
- **Warning** - impending drought emergency conditions
 - DEP issues press release and notifies public water suppliers
 - 10-15% voluntary reductions in water use
- **Emergency** - water shortages exist that threaten health, safety or welfare
 - Governor declares emergency
 - Drought Emergency Regulations Effective
 - Mandatory nonessential water use restrictions
 - Variances
 - Rationing



Drought Emergency Laws and Regulations

- [35 Pa.C.S. § 7102](#) – Defines “natural disaster”, including drought
- [35 Pa.C.S. § 7301](#) – Authorizes the Governor to declare a disaster emergency
- [4 Pa. Code Chapter 118](#) Reductions of Major Water Use in a Commonwealth Drought Emergency Area
 - § 118.4 Contingency plans – public water supply agencies
 - § 118.9 County drought management task force- formation after Governor’s proclamation of drought emergency
- [4 Pa. Code Chapter 119](#) Prohibition of Nonessential Water Uses in a Commonwealth Drought Emergency Area
 - § 119.4 Prohibition of nonessential water uses
 - § 119.5 Penalties and enforcement
- [4 Pa. Code Chapter 120](#) Local Water Rationing Plans



4 Pa. Code Chapter 118

Reductions of Major Water Use in a Commonwealth Basin Drought Emergency Area

Purpose: provide for the preparation and implementation of contingency plans by Public Water Supply Agencies to reduce water use in response to a state of drought or water shortage emergency.

Objective: conserve water, balance demand with limited available supplies and assure that sufficient water is available to serve essential health, safety and economic needs.



Public Water Supply Agencies

- **Governor's Drought Emergency Declaration**
 - Prepare and submit a Drought Contingency Plan (DCP)
 - May use previously approved DCP if not more than 3 years old prior to Governor's proclamation
 - Implement approved DCP



4 Pa. Code Chapter 119

Prohibition of Nonessential Water Uses in a Commonwealth Drought Emergency Area

- Watering grass, irrigating trees and landscaped areas
- Irrigating athletic fields and golf courses without an emergency operations plan
- Washing paved surfaces
- Using water for ornamental use
- Washing mobile equipment (e.g. cars)
- Serving water in restaurants except when requested
- Filling or topping off pools
- Using water from fire hydrants except to fight fires

(each has exceptions and there is a variance process)



4 Pa. Code Chapter 120

Local Water Rationing Plans

Purpose: establish procedures for reviewing and approving plans by Public Water Supply Agencies or political subdivisions in response to a state of drought or water shortage emergency

Objective: balance the daily demands placed upon a public water supply agency with the requirement to maintain a sufficient water supply to meet the long-term needs that may be placed upon the public water supply agency during a period of water shortage or drought emergency



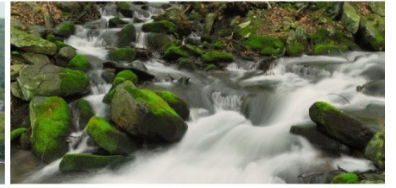
Summary

- Statewide network to monitor hydrologic conditions and water suppliers
- Three-Stage Response Level
- Coordination efforts between agencies
- Conditions were very dry last year (2023)
- As of 3/6/2024, return to normal, but dry again
- Public water suppliers are to ensure that safe and potable water is continuously supplied to customers





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DEPARTMENT OF ENVIRONMENTAL PROTECTION



Bureau of Safe Drinking Water

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