

# Delaware River Basin Commission Groundwater Management

Elizabeth Koniers Brown, *Director of  
External Affairs and Communications*  
*WeConserve PA Conference*

**October 5, 2024**



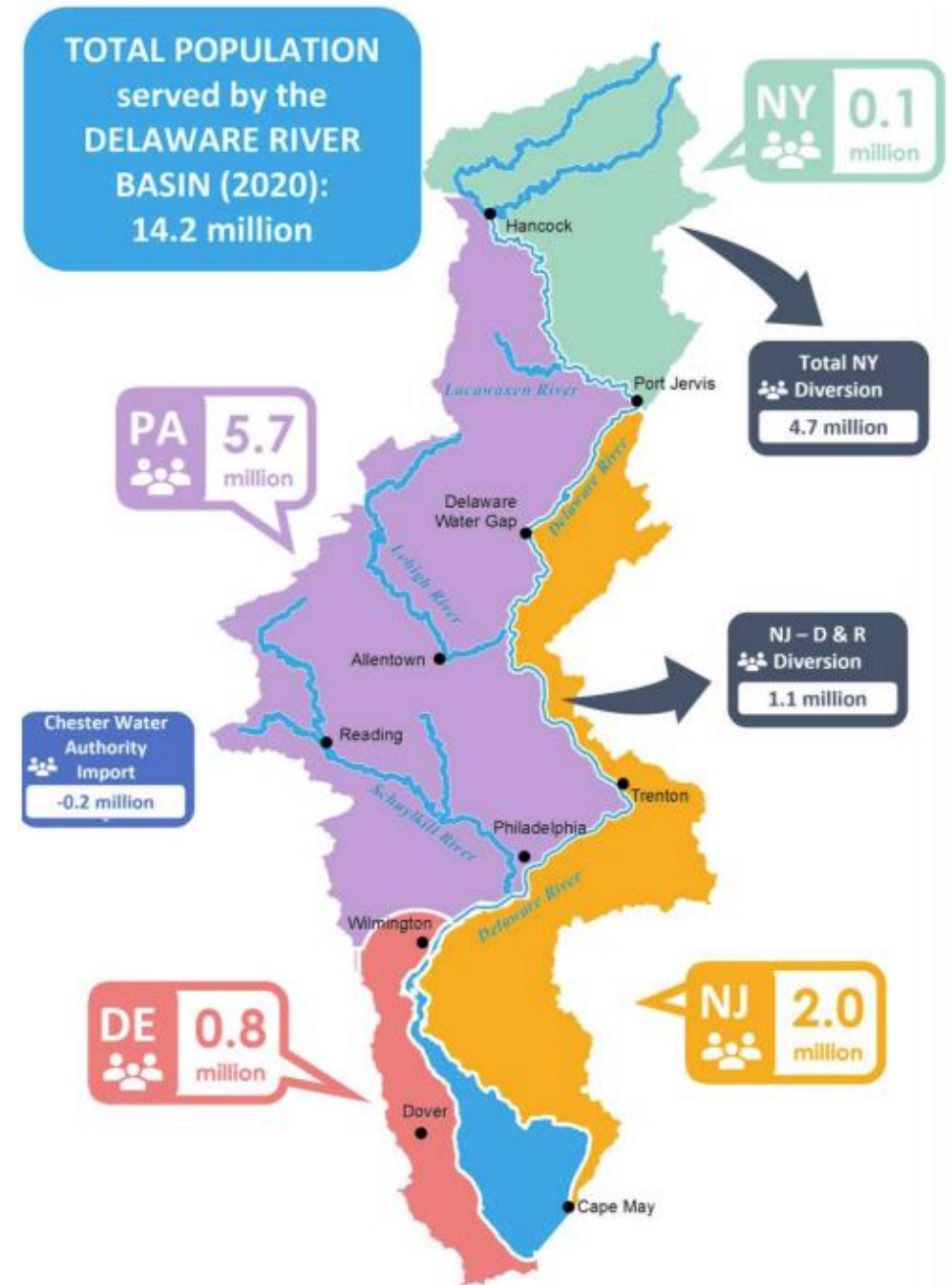
# The Delaware River

- 330 miles
- Tidal from ocean to Trenton, NJ
- Unique habitats and communities
- 13,500 sq. mi. watershed
- Free-flowing mainstem



# The Delaware River meets our needs

- >14 million people in four states
- Half of NYC drinking water
- Four states
- 6.4 billion gallons withdrawn daily
- >\$21 billion in economic value
- Interstate boundary







# DRBC 101



## Groundwater Basics



## Protecting and Managing



## Planning and Projecting



# Delaware River Basin Commission 101





# The Delaware River Basin Commission is a federal-interstate Compact agency established in 1961.



## *Our Mission*

Manage, protect, and improve the water resources of the Delaware River Basin.

## *Our Vision*

Provide trusted, effective, and coordinated management of the Basin's shared water resources.



# The DRBC's authority and jurisdiction are defined by the Delaware River Basin Compact.

- U.S. Constitution, Compact Clause, Article 1, Section 10, Clause 3.
- Once approved by Congress, a Compact is an agreement with the force of federal law to effectuate shared interests and responsibilities.
- Pub. L. 87-328, 75 Stat. Ann. 688 (1961).
- Recognized as a regional asset with local, state and national interests.





# Commissioners of the DRBC



New York Governor, Kathy Hochul,  
*DRBC Chair*



Delaware Governor, John Carney,  
*DRBC Vice Chair*



North Atlantic Division Commander  
US Army Corps of Engineers, BG John Lloyd



Pennsylvania Governor, Josh Shapiro

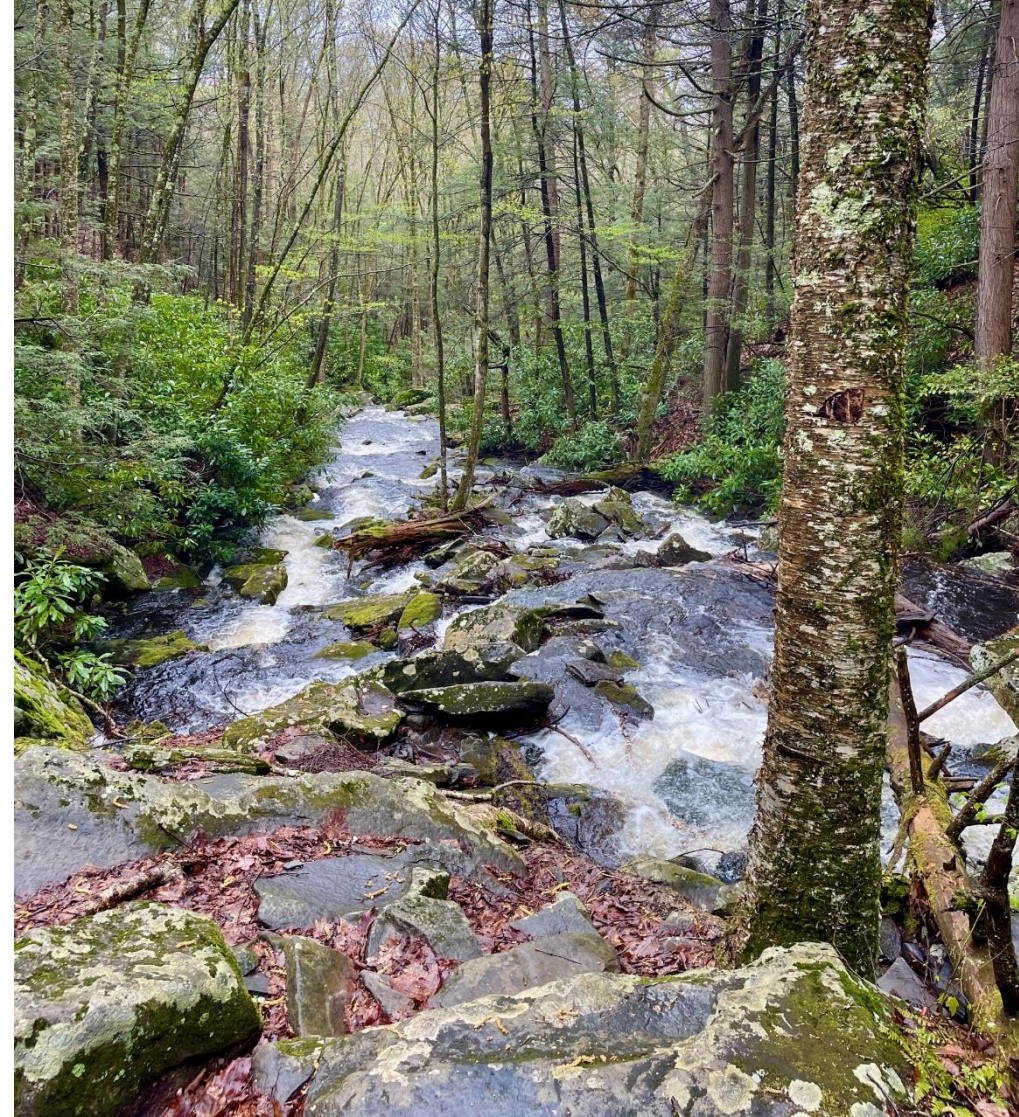


New Jersey Governor, Phil Murphy



# The DRB Compact includes broad authority for planning and regulation.

- Abatement and control of pollution
- Development of ground and surface water supply
- Development of recreational facilities
- Protection and aid to fisheries
- Promotion of watershed projects
- Development of hydroelectric power
- Control of movement salt water
- Flood damage reduction





# DRBC works with limited staff and budget.

- Professional planners, engineers and scientists
- 40 budgeted staff (8% vacancy rate)
- FY2025 budget = \$9.0 million
- Located in West Trenton, NJ, since 1974





# The DRBC may make and enforce reasonable rules and regulations.

- Compact Section 14.2(a)
- Existing regulations cover
  - Water Quality Standards and Regulations
  - Flood Plain Regulations
  - Water Supply Charging
  - Southeastern Pennsylvania Ground Water Protected Area
  - High Volume Hydraulic Fracturing
- Notice and comment



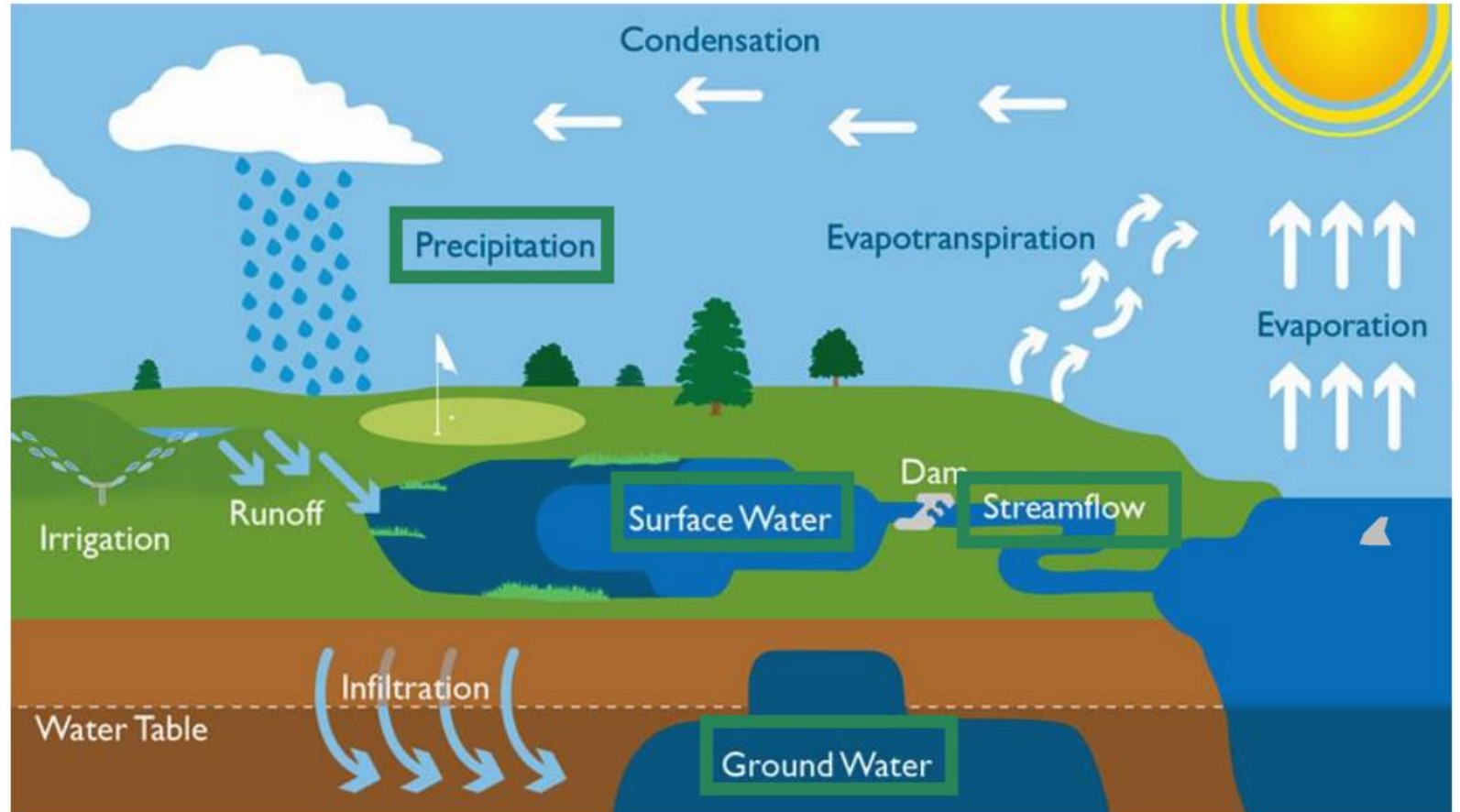


# Groundwater Basics



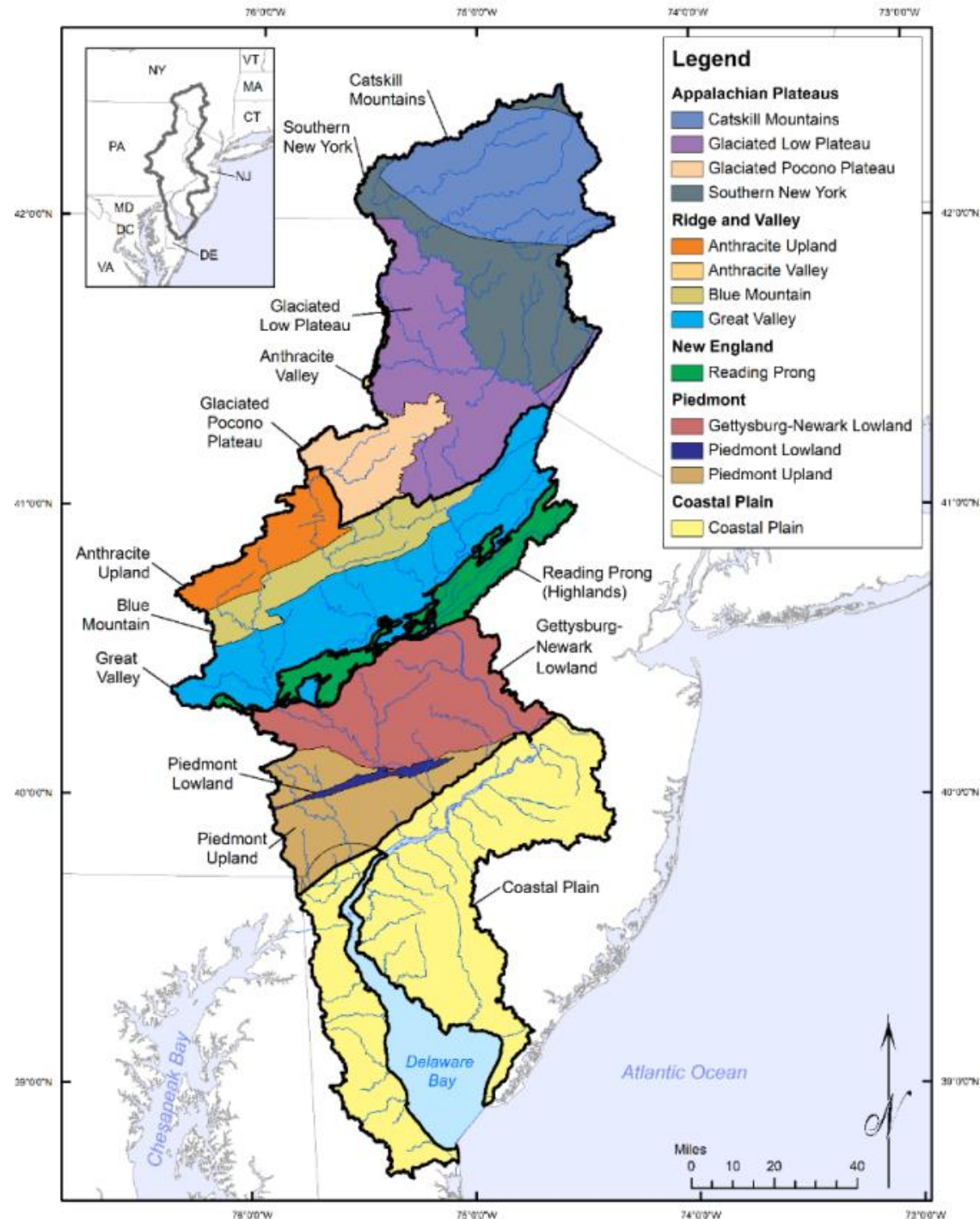
# The Hydrologic Cycle

Water moves around the earth through air, soil, and over land.





# Hydrology in the Delaware River Basin





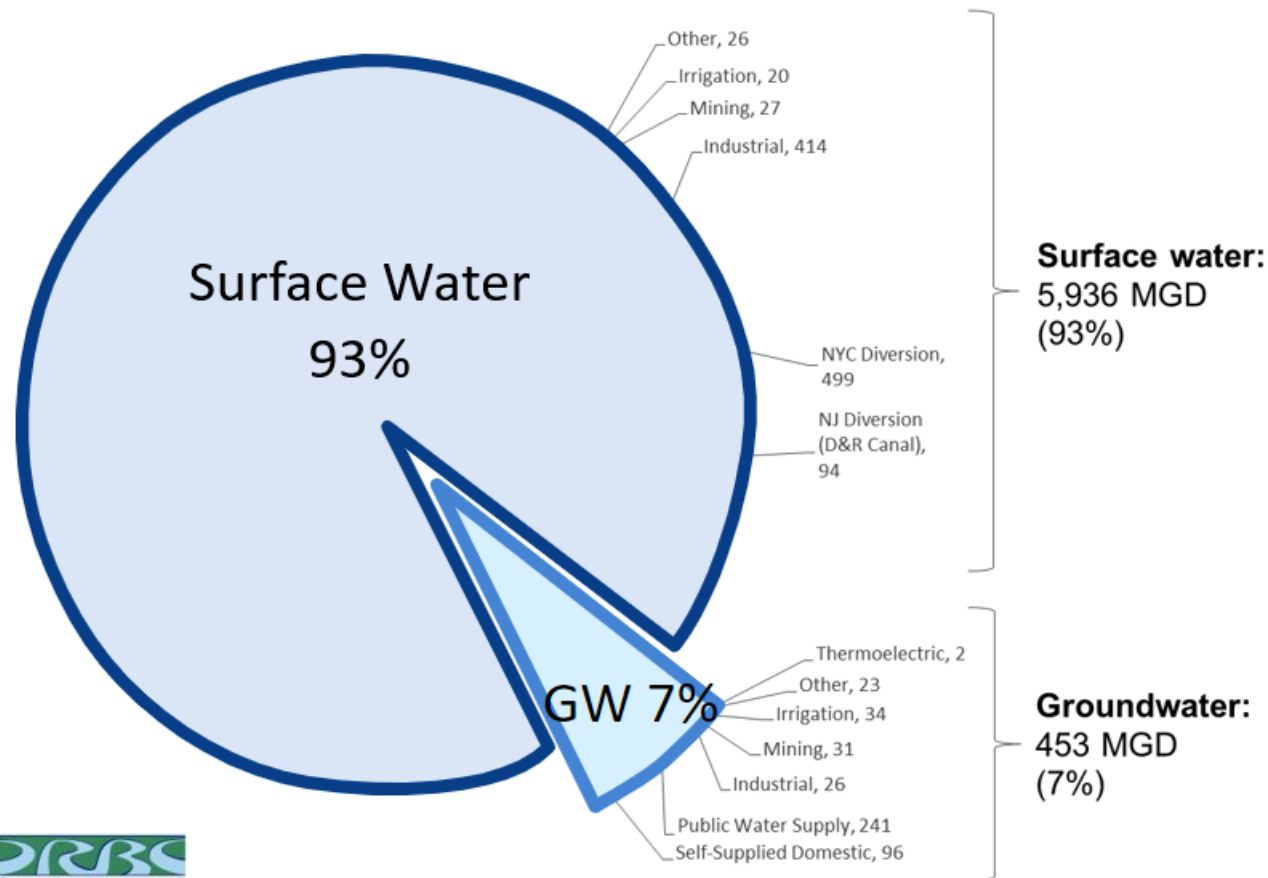
# Protecting and Managing Groundwater





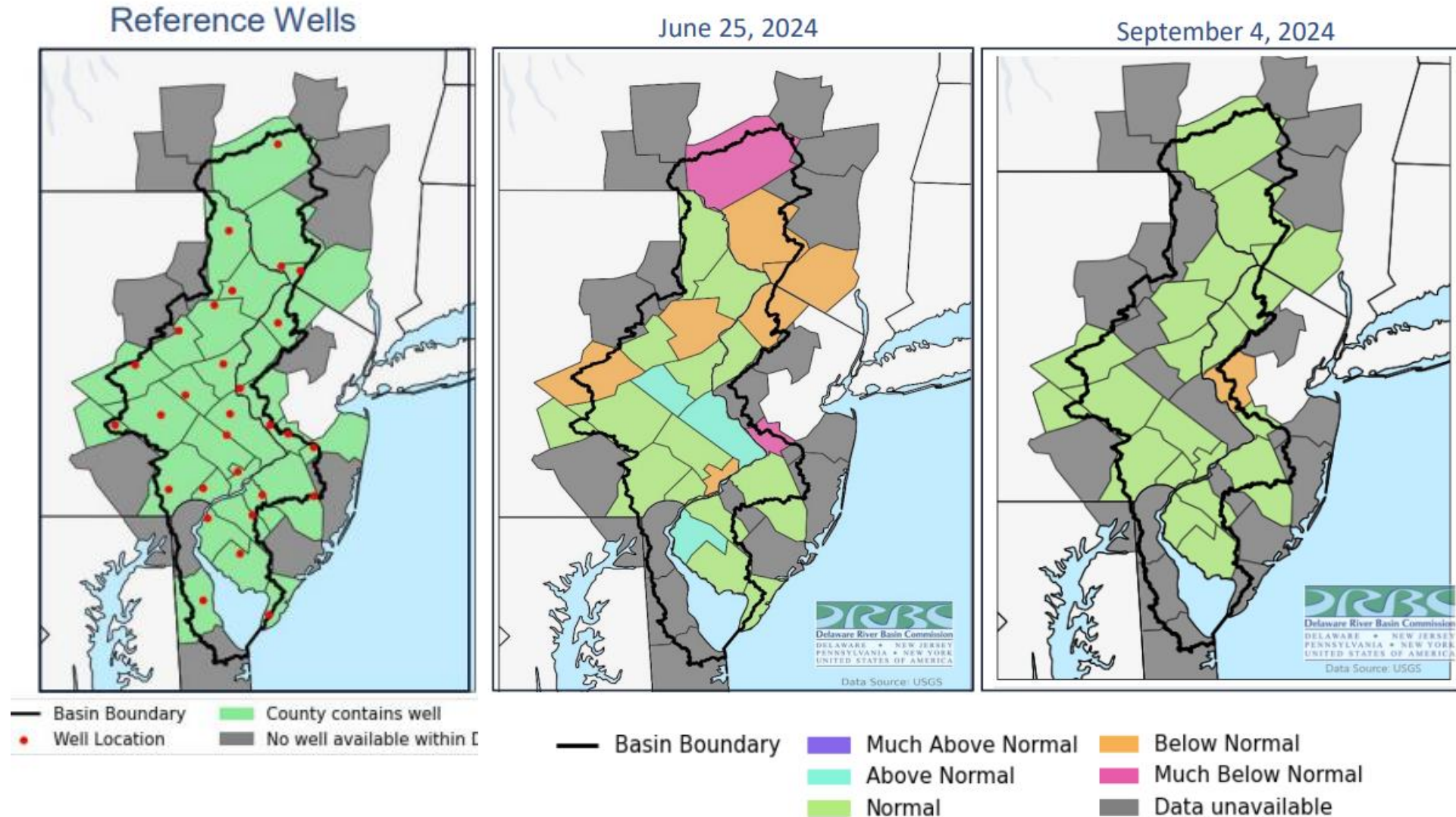
# Groundwater Use in the Basin is Small but Critical.

**Total Water Withdrawals**  
(ground and surface) from the  
Delaware River Basin, **2020:**  
**6,389 MGD**





# Managing Groundwater starts with measuring.



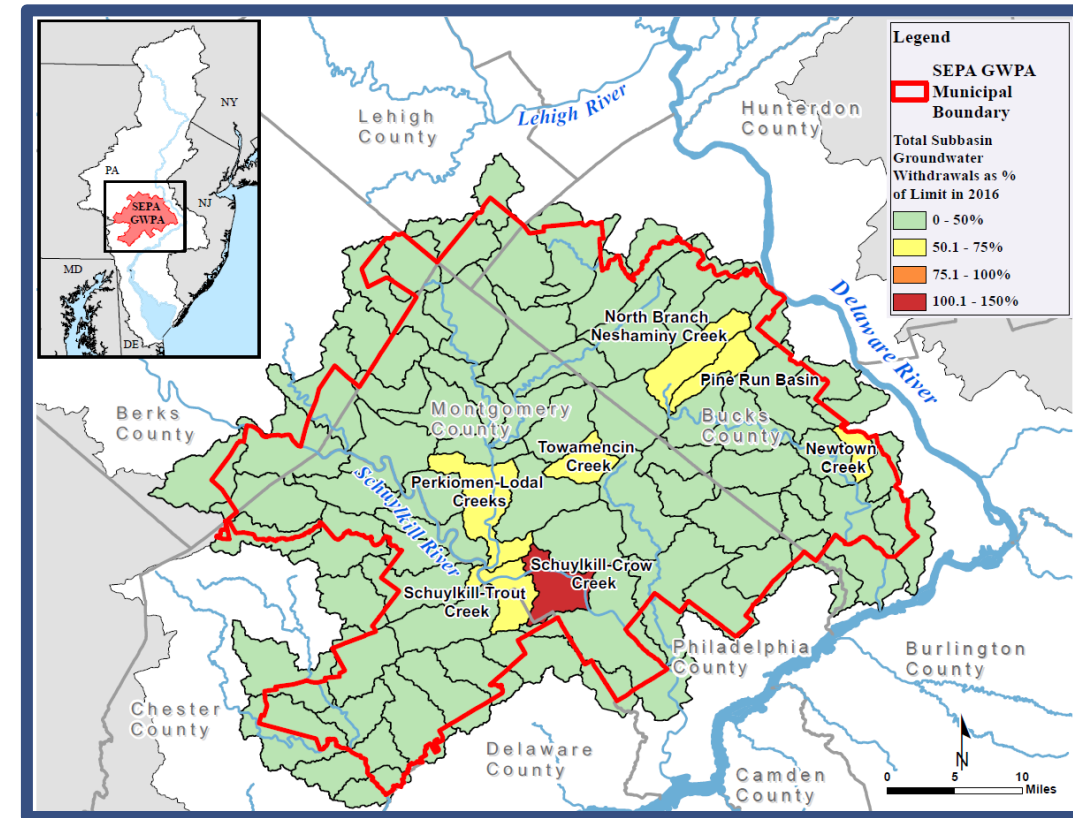
# Groundwater in Focus: Southeastern Pennsylvania





# The Southeastern Pa. Groundwater Protected Area supports sustainable groundwater use.

- “SEPA GWPA”
- DRBC program starts in 1980 at request of Pa.
- More stringent regulations
- Groundwater withdrawals
  - SEPA-GWPA = >10,000 GPD average
  - Outside SEPA-GWPA = >100,000 GPD average
- Successful in reducing cumulative net withdrawals



# This program supports sustainable groundwater use through permitting, monitoring and conservation.

In addition to lower-threshold permitting, SEPA GWPA includes:

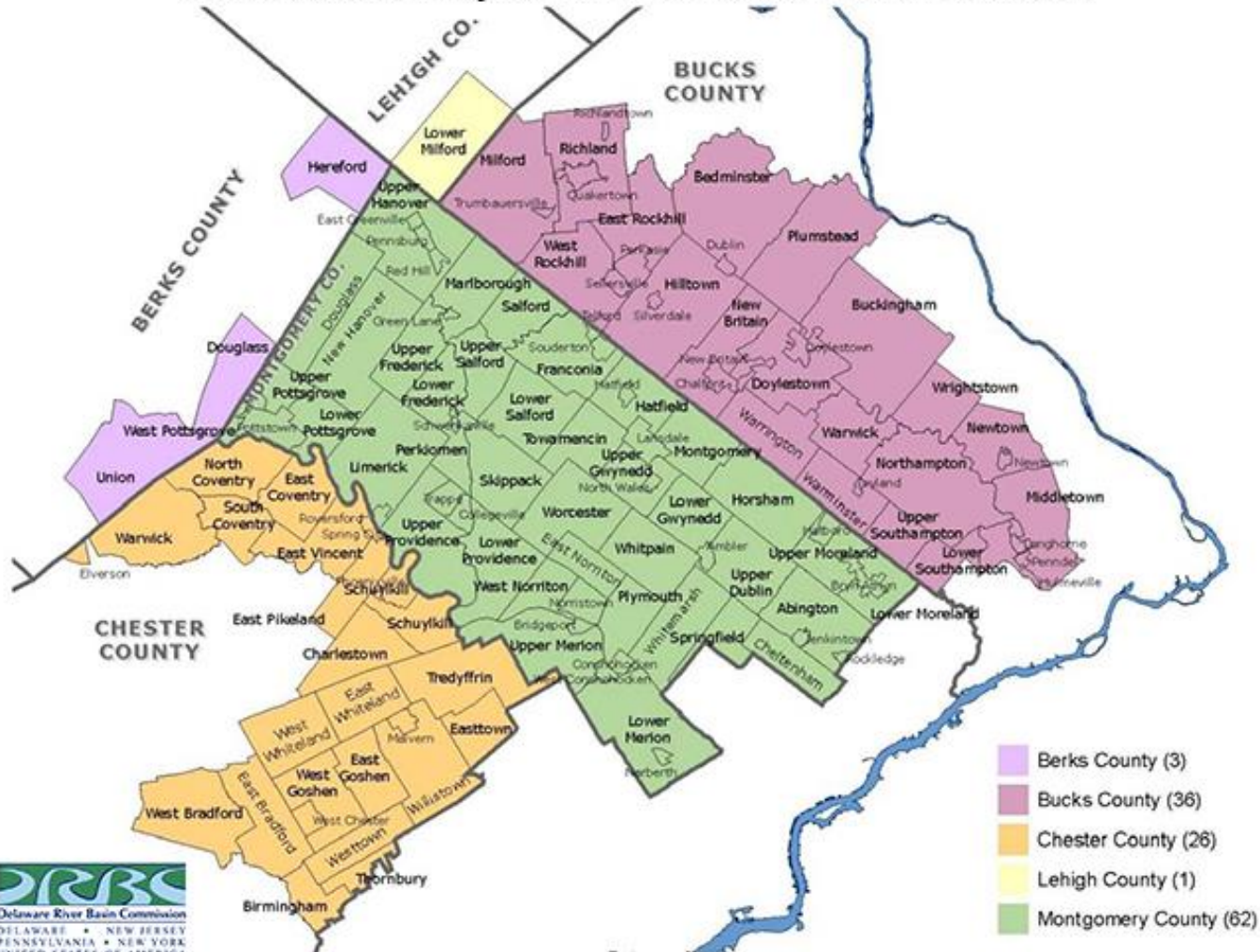
- Groundwater metering and reporting
- Conservation requirements
- Subbasin total withdrawal limits
- Additional mitigation in stressed subbasins, e.g. conjunctive use, artificial recharge





# Get to know the Southeastern Pa. Groundwater Protected Area.

Southeast Pennsylvania Groundwater Protected Area



- 1,200 square miles
- 127 municipalities
- Watersheds
  - Neshaminy Creek
  - Brandywine Creek
  - Perkiomen Creek
  - Wissahickon Creek



# Planning and Projecting Groundwater





DRBC  
Estimates Future  
Groundwater  
Availability in  
the Delaware River  
Basin.





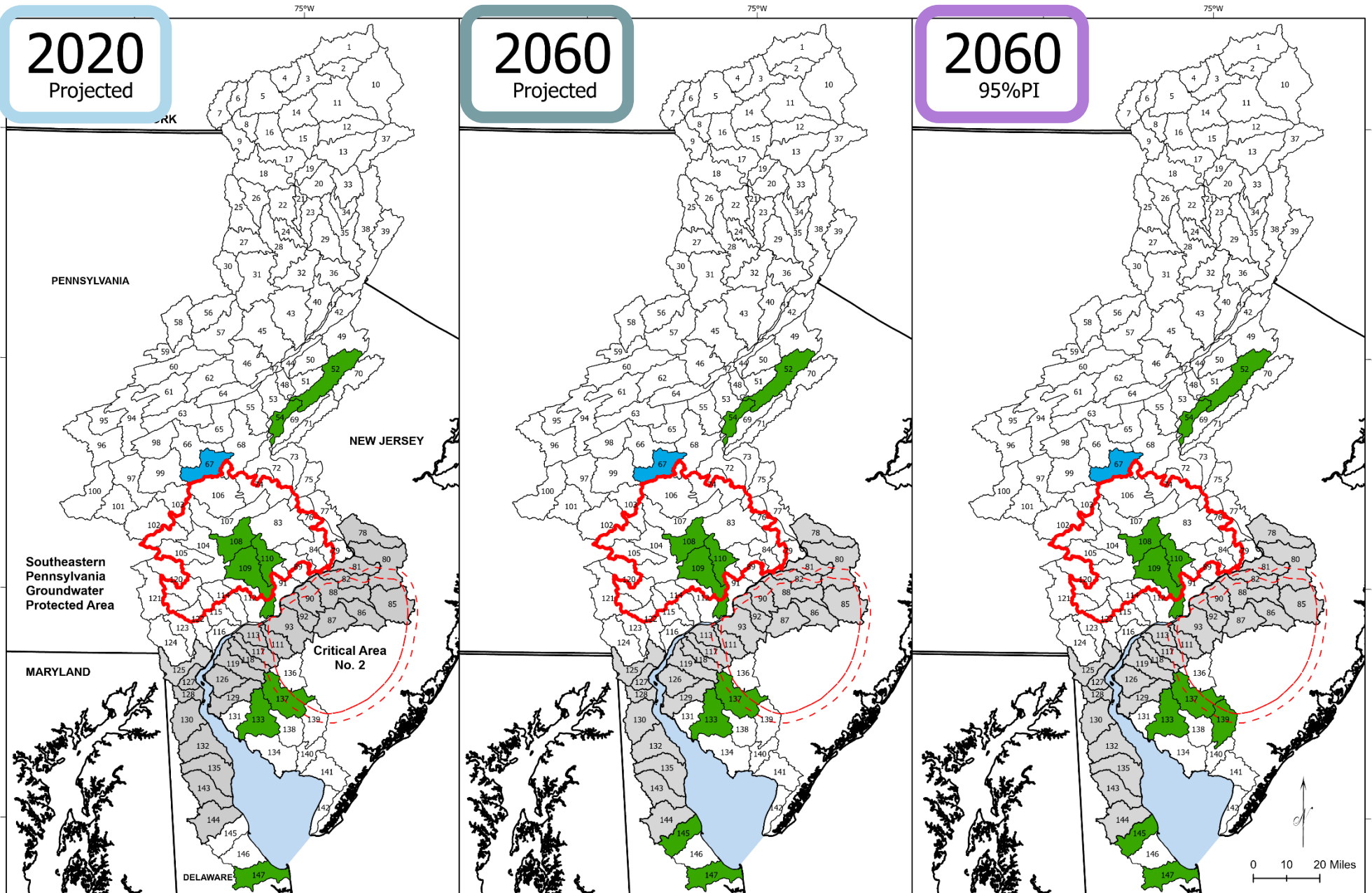
# Is there enough water for current and future demands during a repeat of the Drought of Record?

- What are the current and future water demands?
- Is there enough groundwater?
- Is there enough surface water?

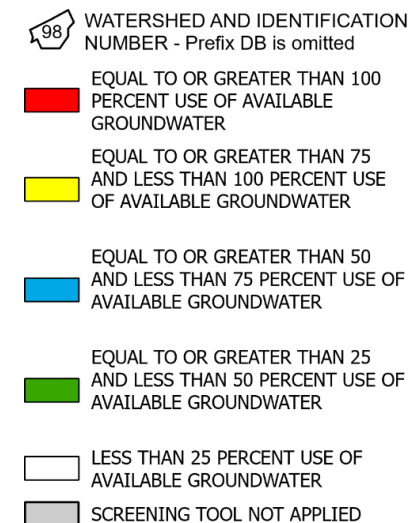




# Projected Groundwater Use for 25-year Annual Baseflow Recurrence



- Groundwater use is **expected to be sustainable** between 2020 and 2060
- Greyed area is where screening tool was not applied



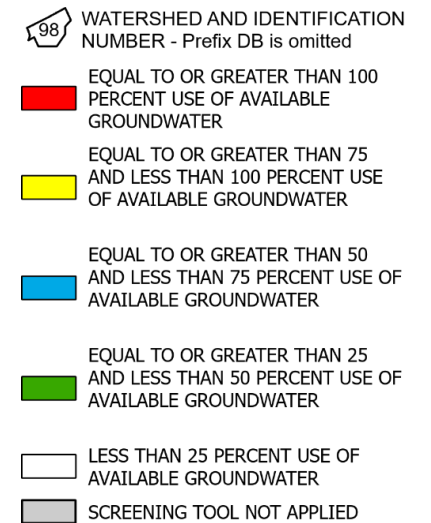
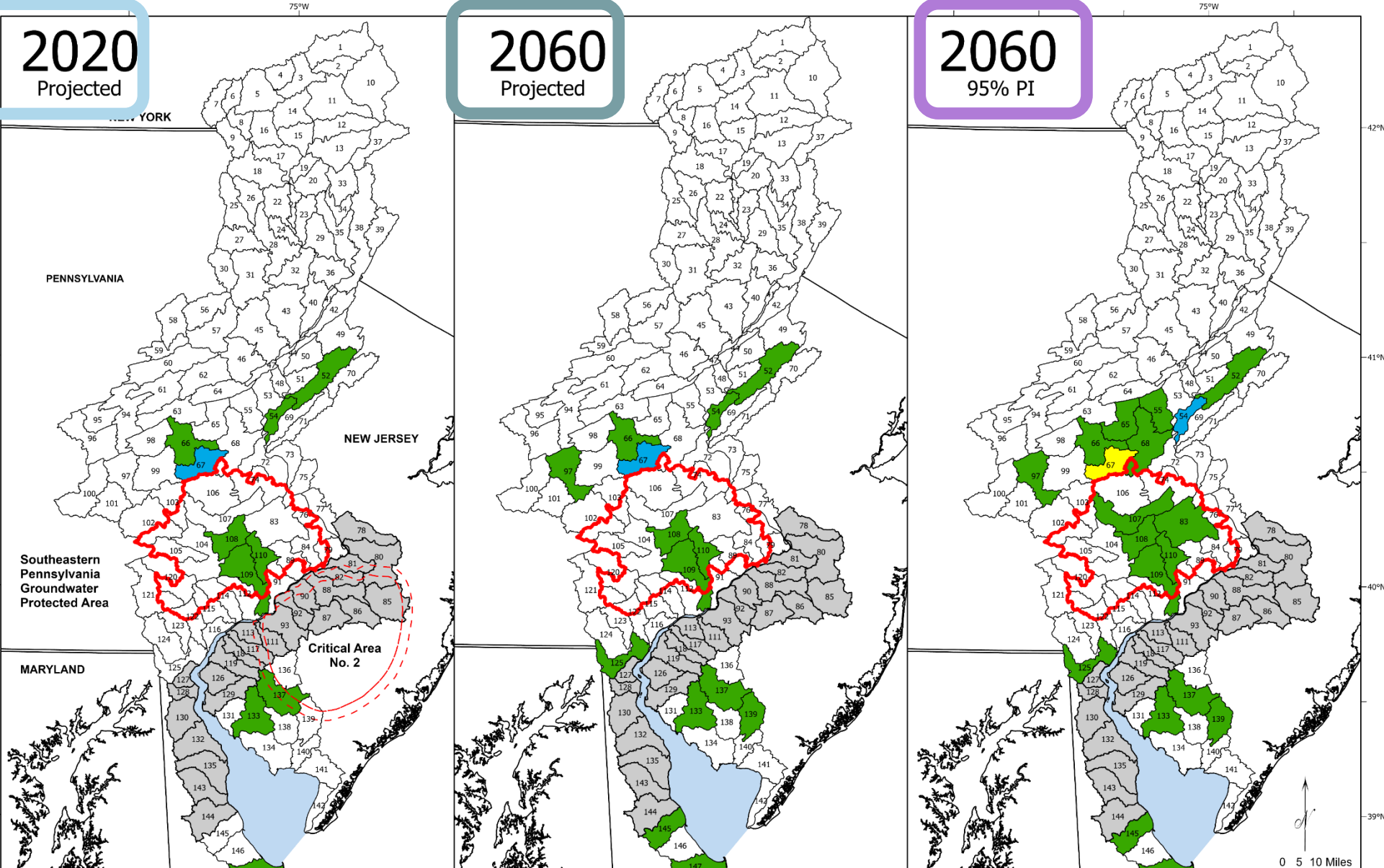
# Projected Groundwater Use for **50-year** Annual Baseflow Recurrence

**2020**  
Projected

**2060**  
Projected

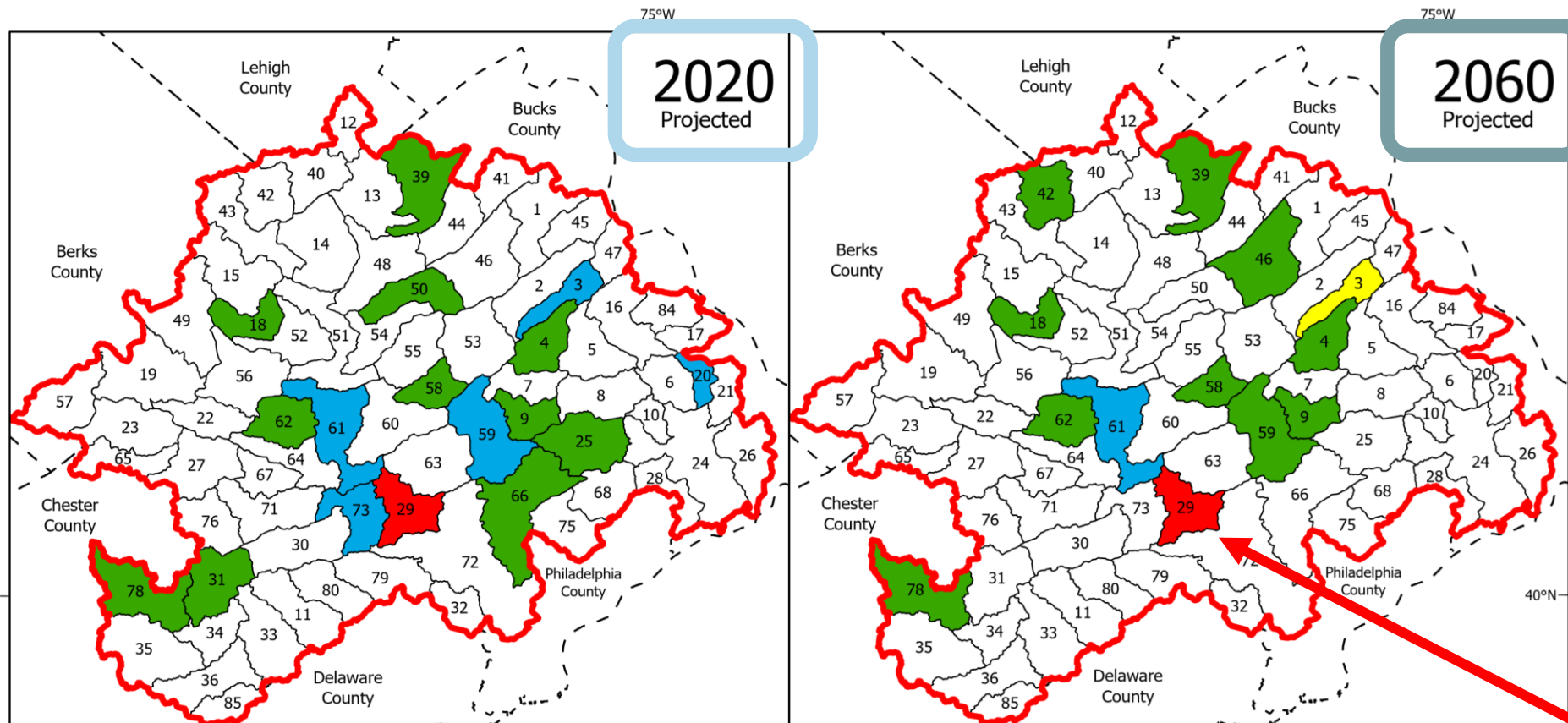
**2060**  
95% PI

- In a drier scenario groundwater use **continues to be sustainable**
- Greyed area is where screening tool was not applied





# Projected Groundwater Use for 25-year Annual Baseflow Recurrence

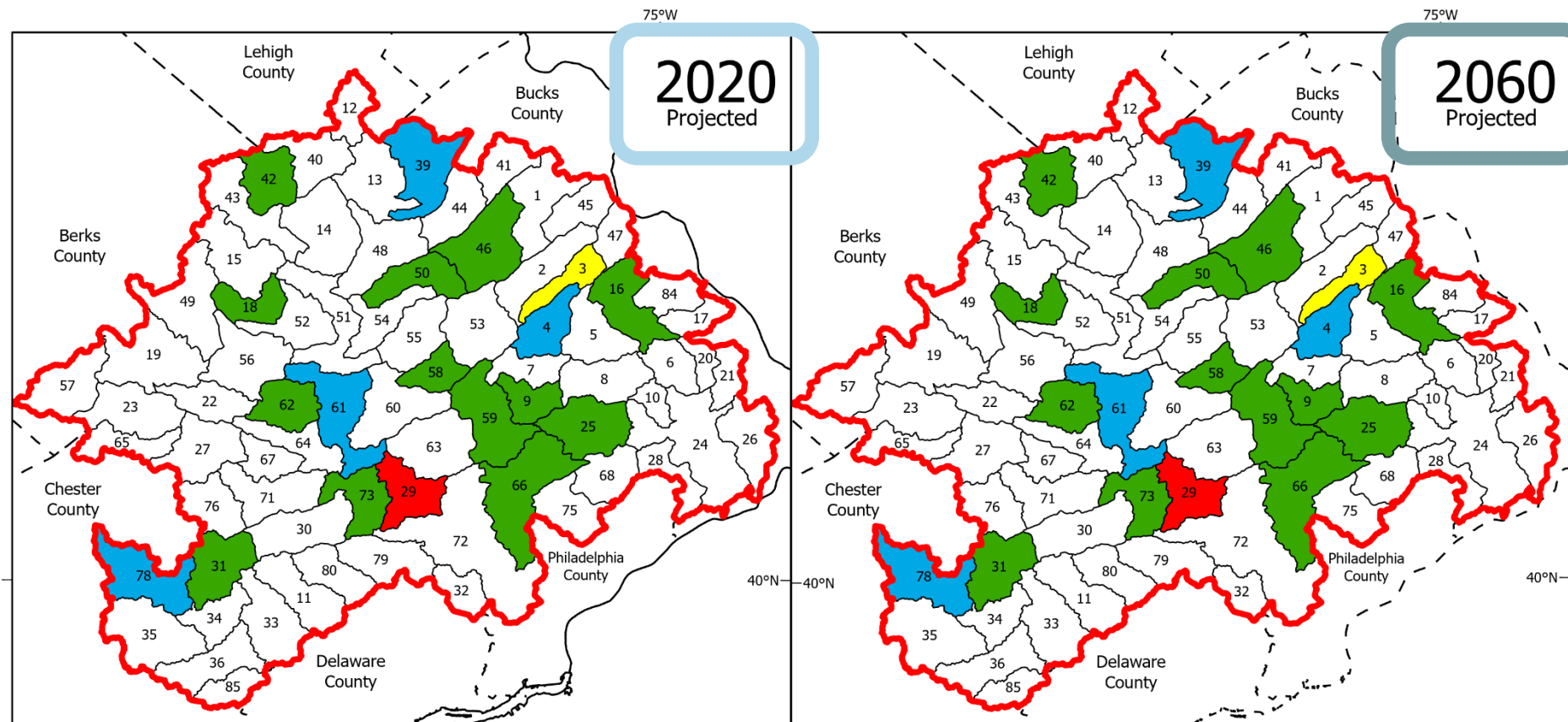


- EQUAL OR GREATER THAN 100 PERCENT USE OF AVAILABLE GROUNDWATER
- EQUAL TO OR GREATER THAN 75 AND LESS THAN 100 PERCENT USE OF AVAILABLE GROUNDWATER
- EQUAL TO OR GREATER THAN 50 AND LESS THAN 75 PERCENT USE OF AVAILABLE GROUNDWATER
- EQUAL TO OR GREATER THAN 25 AND LESS THAN 50 PERCENT USE OF AVAILABLE GROUNDWATER
- LESS THAN 25 PERCENT USE OF AVAILABLE GROUNDWATER

- Groundwater use is **expected to be sustainable** between 2020 and 2060
- **SP-03 (Pine Run)** is expected to use more than 75% of 25-year baseflow
- **SP-29 (Schuylkill-Crow)** is expected to use more than 100% of 25-year baseflow

- Majority of withdrawals from a pre-1980 PWS Quarry
- Projected use is constant
- No known interferences

# Projected Groundwater Use for **50-year** Annual Baseflow Recurrence



- Groundwater use continues to be sustainable
- SP-03 & SP-29 use more than 75% of estimated 50-year baseflow
- Further analysis shows that while groundwater use is high, these subbasins are expected to be okay

- EQUAL OR GREATER THAN 100 PERCENT USE OF AVAILABLE GROUNDWATER
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# Additional considerations for future groundwater use drive the need for continued management and planning.

- Climate change
- Water quality
- Evaluating seasonality
- Shifting water demands





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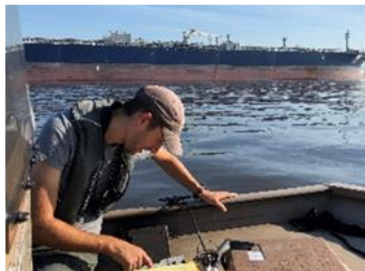
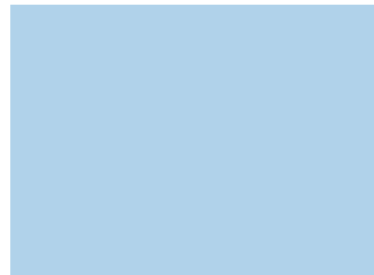


Photo Credits:

Slide 6 Carl LaVO, Keith Balderston

Slide 11 Pike County Conservation Dist.

N.B.

Slide 20 added in response to audience question.



**Delaware River Basin Commission**

DELAWARE • NEW JERSEY  
PENNSYLVANIA • NEW YORK  
UNITED STATES OF AMERICA



*Event is free and open to the public.*

# DELAWARE RIVER

## Climate Practitioners Workshop



October 28, 2024,  
10am-4pm



The Discovery Center  
3401 Reservoir Dr. Philadelphia, PA 10121



Hosted by the  
Delaware River Basin  
Commission (DRBC)  
and the U.S.  
Environmental  
Protection Agency  
(EPA) Region 3



# Join us October 28 in Philadelphia!