Credit: NFWF

Estimated Groundwater Availability in the Delaware River Basin

Water Management Advisory Committee

June 16th, 2022

Sara Sayed

Water Resource Scientist,

DRBC Water Resource Planning Section

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Outline

1. Introduction
2. Recap: Methods
3. Results
4. Next Steps

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2060 Sustainable Water Supply Plan

Goal: Provide projections of future average annual water use in the Delaware River Basin, through the year 2060, to be used in future planning assessments.

Represent each water use *sector* at the Basin-wide scale. ✓

→

Apply GW results to the 147 subbasins (Sloto & Buxton, 2006) and the sub-watersheds of SEPA-GWPA. ★

↓

Apply SW results at the source level for future availability analyses.

←

Relate results to regulatory approvals.

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Purpose

- Analyze groundwater availability for the Delaware River Basin and provide projected availability estimates to the year 2060 in support of water supply planning.

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Recap: Methods

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Data Sources

1

Groundwater Baseflow Data, Basin Wide

- 147 subbasins
- Sloto & Buxton baseflows

2

Groundwater baseflow data, SEPA-GWPA

- 18 CFR Part 430

3

Groundwater withdrawal data

- Water Withdrawal and Consumption Use Estimates for the Delaware River Basin (1990-2017) With Projections through 2060 (Thompson & Pindar, 2021)

Availability Analysis

Basin ID	Basin Name (abbreviated)	25-year RI (MGY)	50-year RI (MGY)	Projected net GW Withdrawals (MGY)		Projected 95% withdrawals		Percent of 25-year RI		Percent of 50-year RI		Percent of 25-year RI (95%)		Percent of 50-year RI (95%)	
				2020	2060	2020	2060	2020	2060	2020	2060	2020	2060	2020	2060
DB-001	Upper West Branch Delaware River	21,161	19,576	236	221	296	286	1%	1%	1%	1%	1%	1%	2%	1%

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Results

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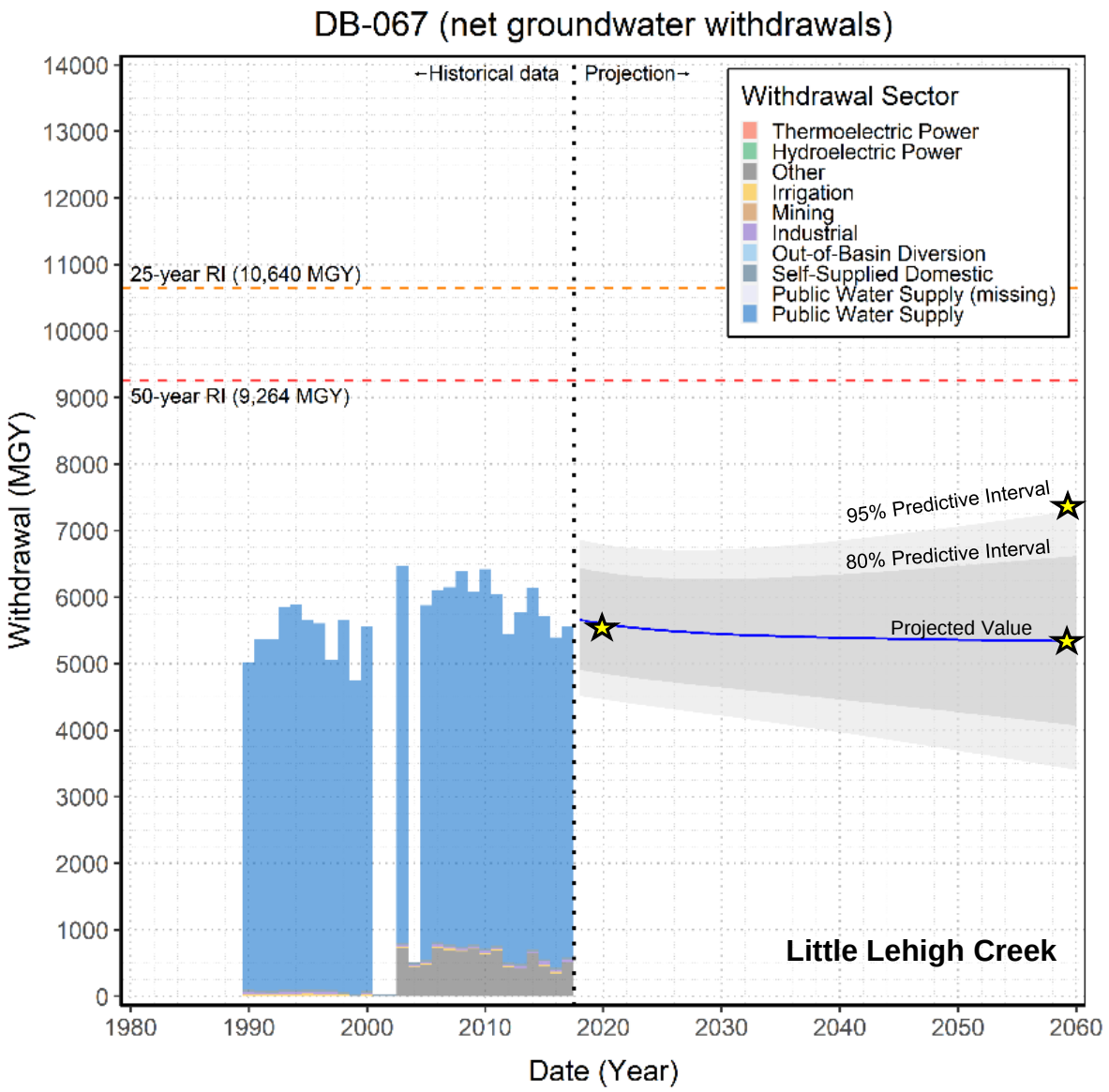
Screening tool assessment (DB-067)



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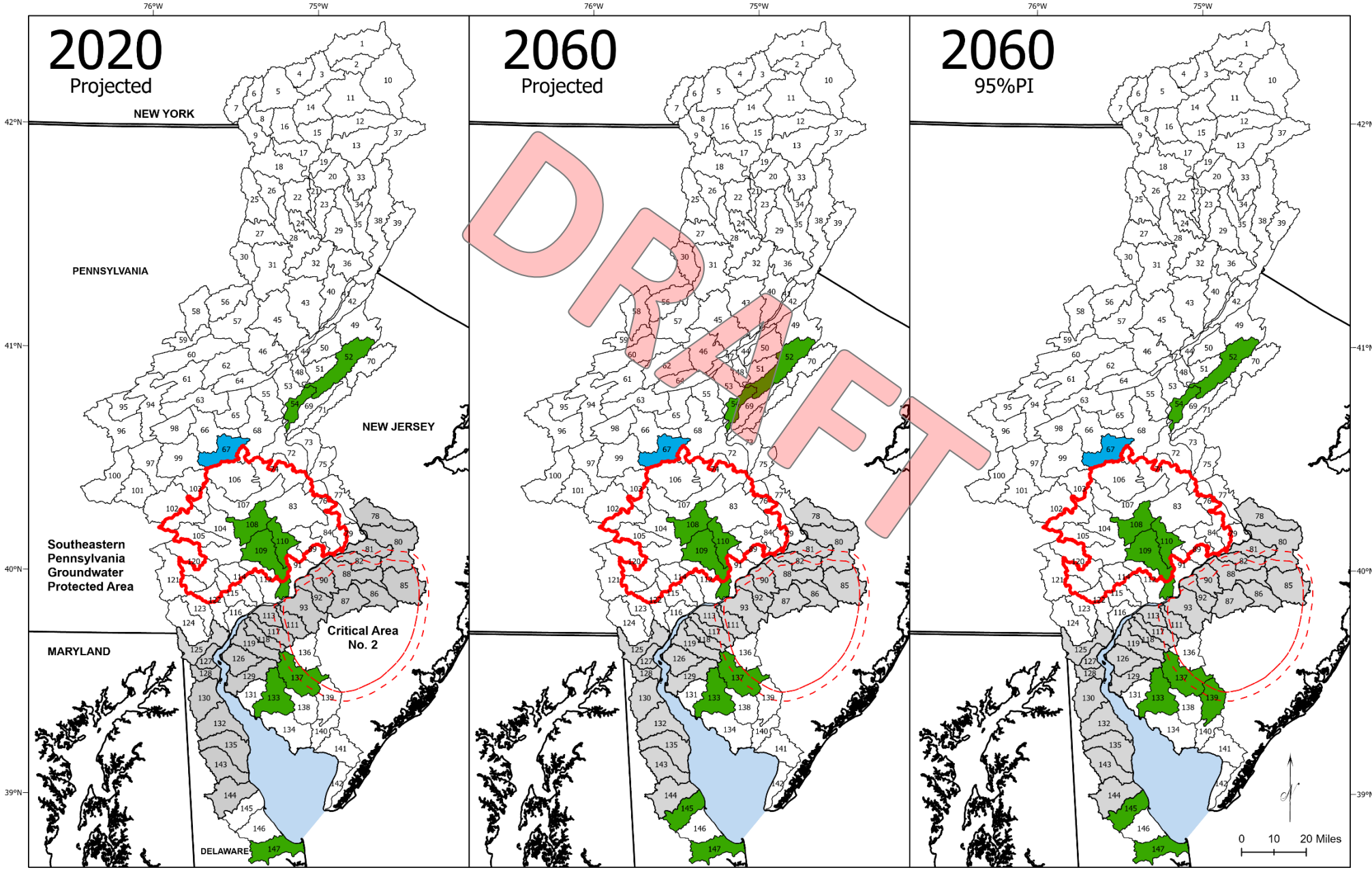
Percent Groundwater Use for 25-Year Annual Baseflow Recurrence



98 WATERSHED AND IDENTIFICATION NUMBER - Prefix DB is omitted

EQUAL TO 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

SCREENING TOOL NOT APPLIED

Sloto, Ronald A., and Debra E. Buxton. "Estimated Groundwater Availability in the Delaware River Basin, 1997-2000." USGS Scientific Investigations Report, 25 May 2007, doi:10.3133/sir20065125.

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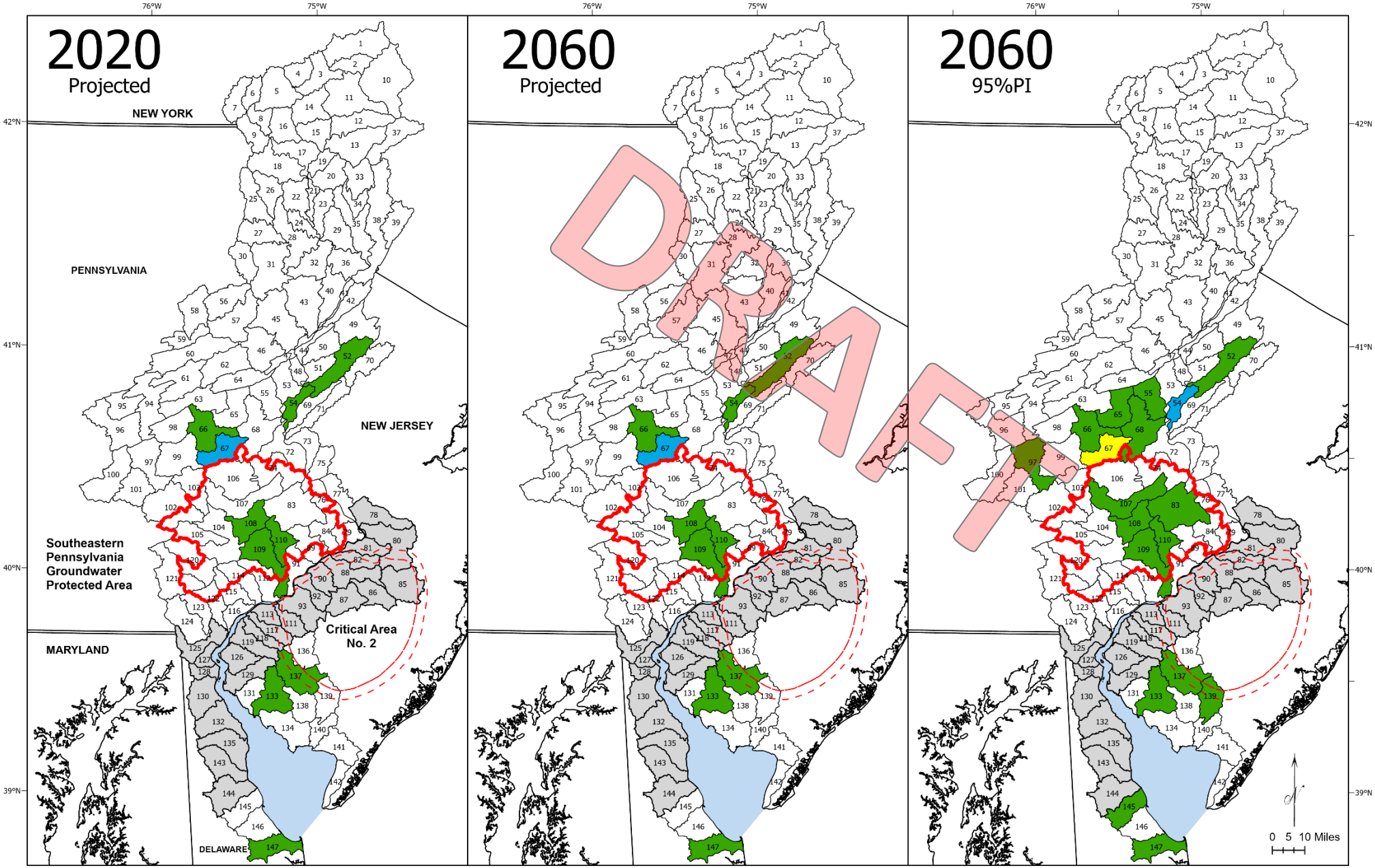
Percent Groundwater Use for 50-Year Annual Baseflow Recurrence



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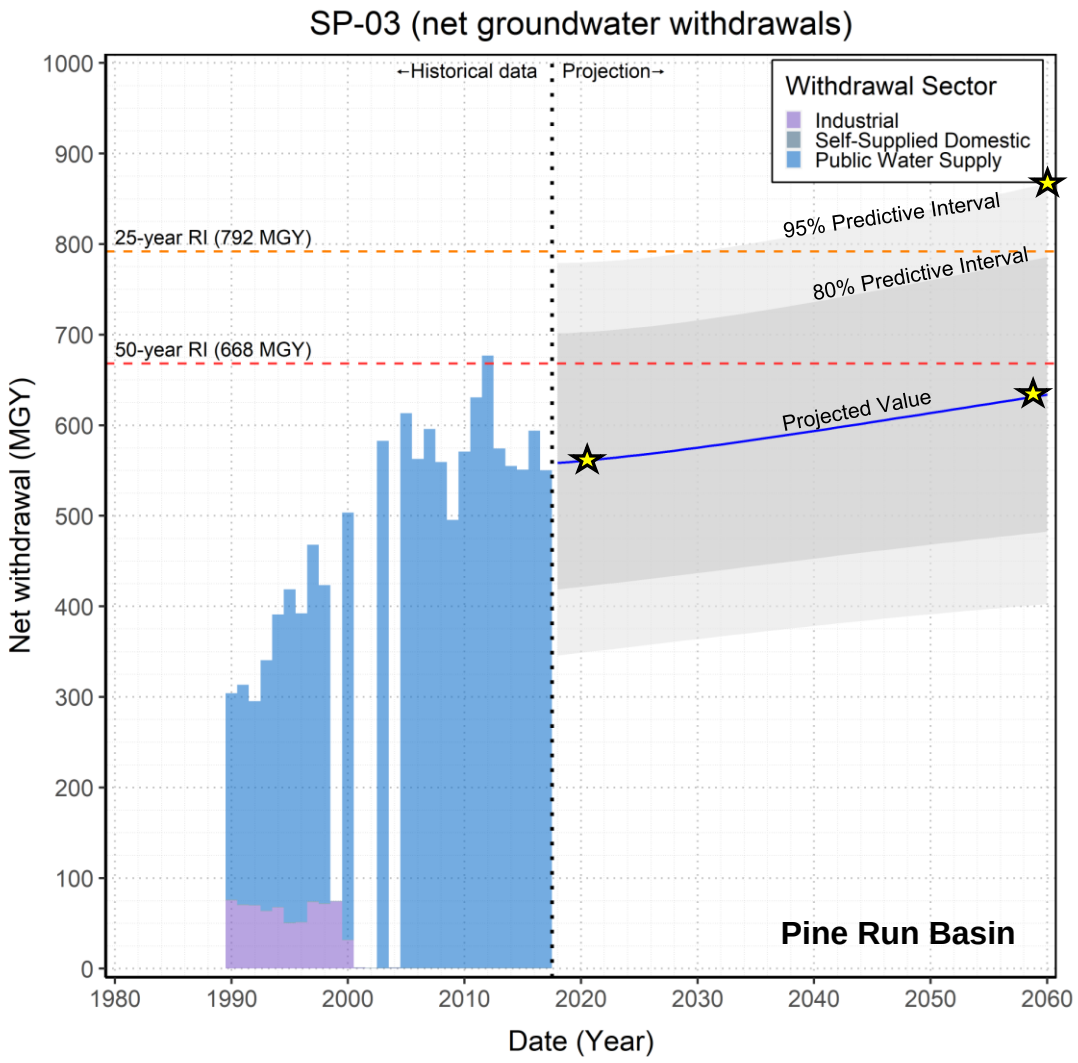
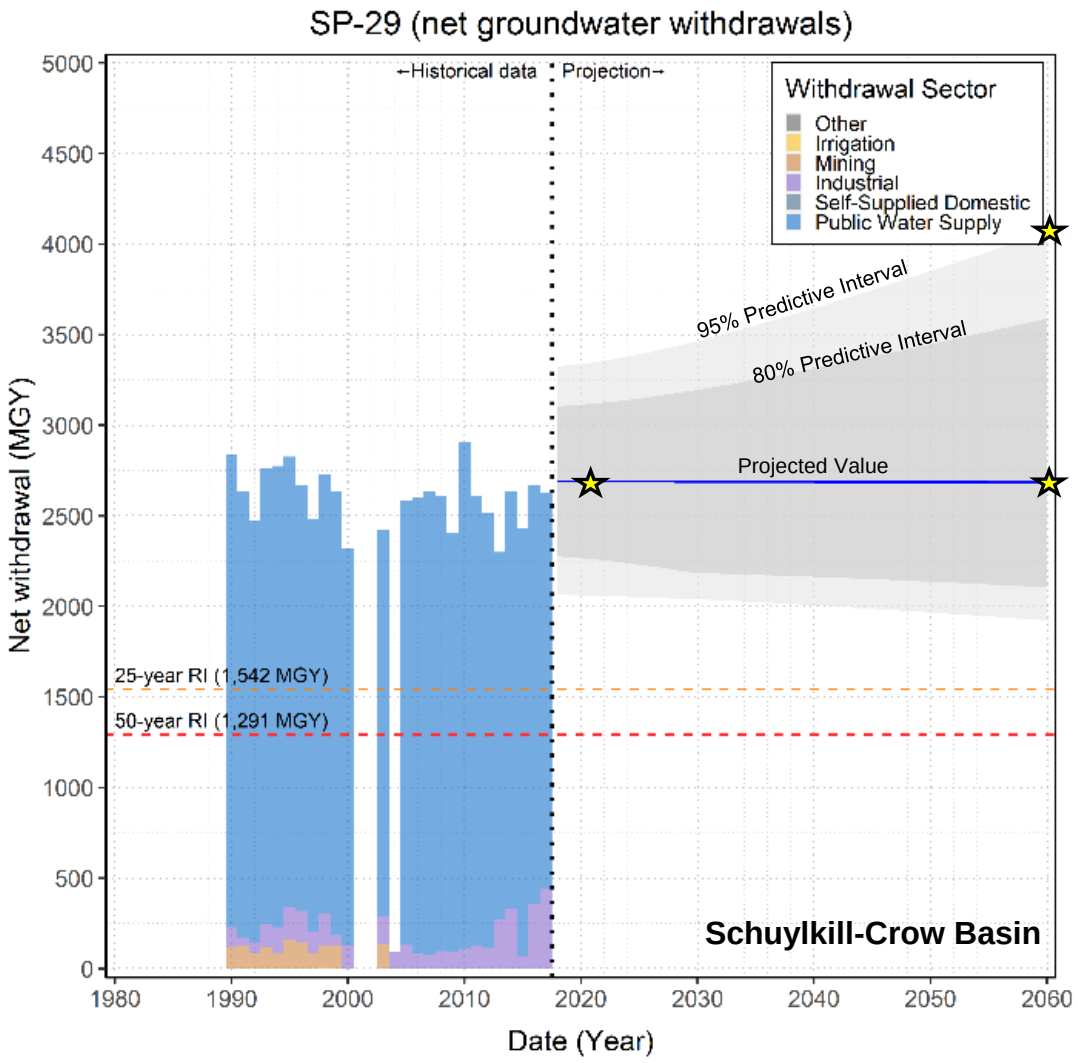
SEPA-GWPA Basins of Concern (SP-03 & SP-29)





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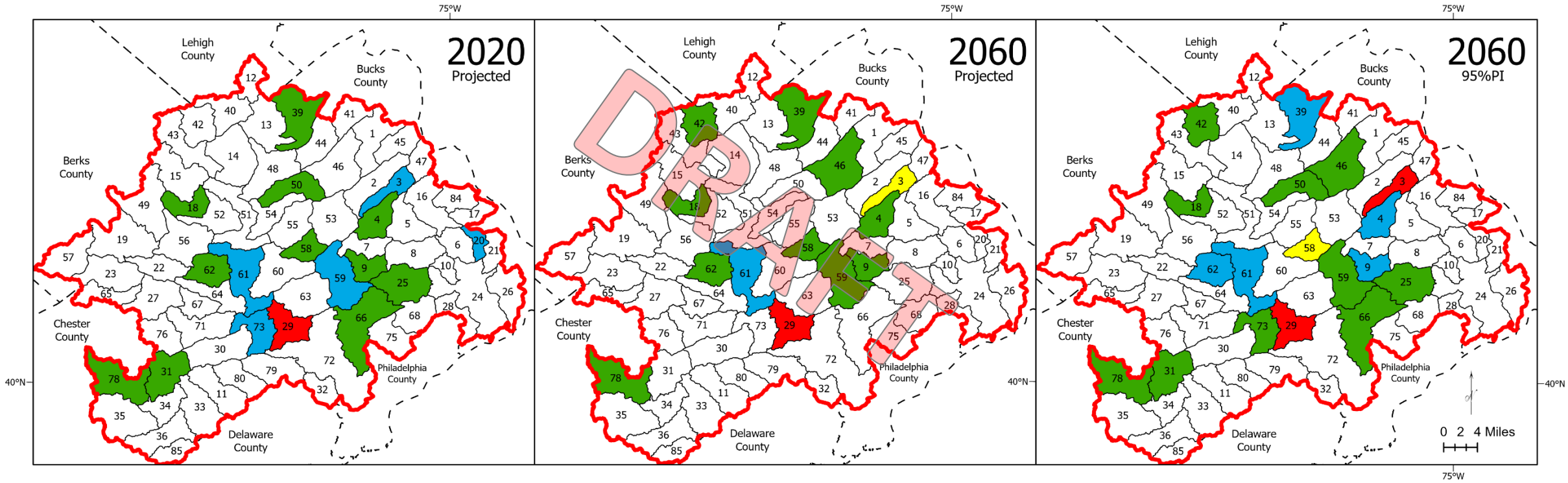
Percent Groundwater Use for 25-Year Annual Baseflow Recurrence



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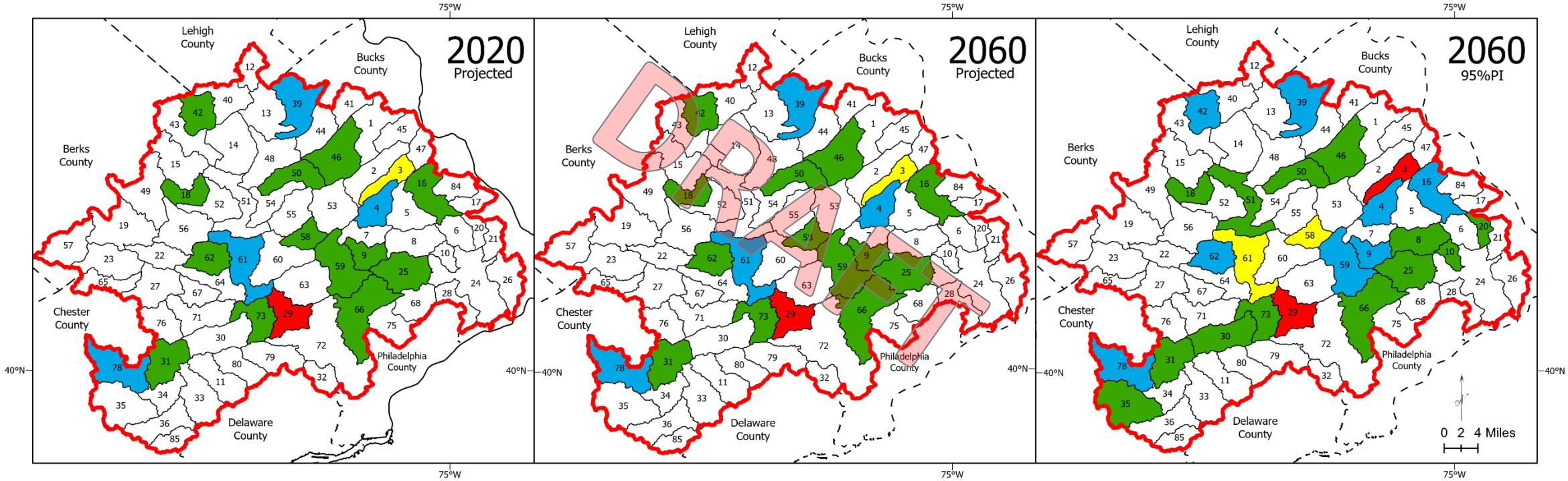
Percent Groundwater Use for 50-Year Annual Baseflow Recurrence



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Swann Memorial Fountain in Logan Square
Philadelphia, Pennsylvania.
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Next Steps

- DRBC will request review of specific report sections from DNREC, NJDEP, PADEP & PA Water Science Center
- Technical Report to be published in **mid 2022**
- Recommended areas for further exploration:
  - Updating and improving the accuracy of recurrence interval baseflow values
  - Impacts to groundwater availability from climate change
  - Coastal Plain geology & groundwater availability
  - Seasonality of use and availability

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Questions?

Sara Sayed
Water Resource Scientist

Delaware River Basin Commission
E: Sara.Sayed@drbc.gov

Michael Thompson, P.E.
Water Resource Engineer

Delaware River Basin Commission
E: Michael.Thompson@drbc.gov

Chad Pindar, P.E.
Manager – Water Resource Planning Section

Delaware River Basin Commission
E: Chad.Pindar@drbc.gov

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