

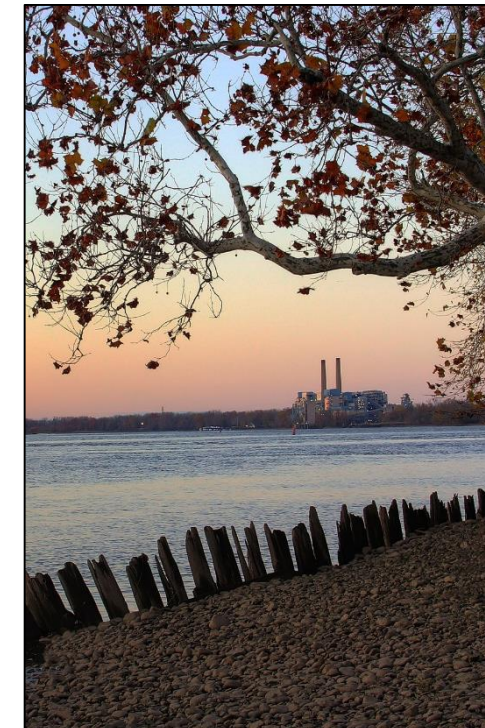
Water Use and Groundwater Protected Area Update - 2017

Water Management Advisory Committee (WMAC)

October 22, 2019

Michael Thompson
Water Resource Engineer, DRBC

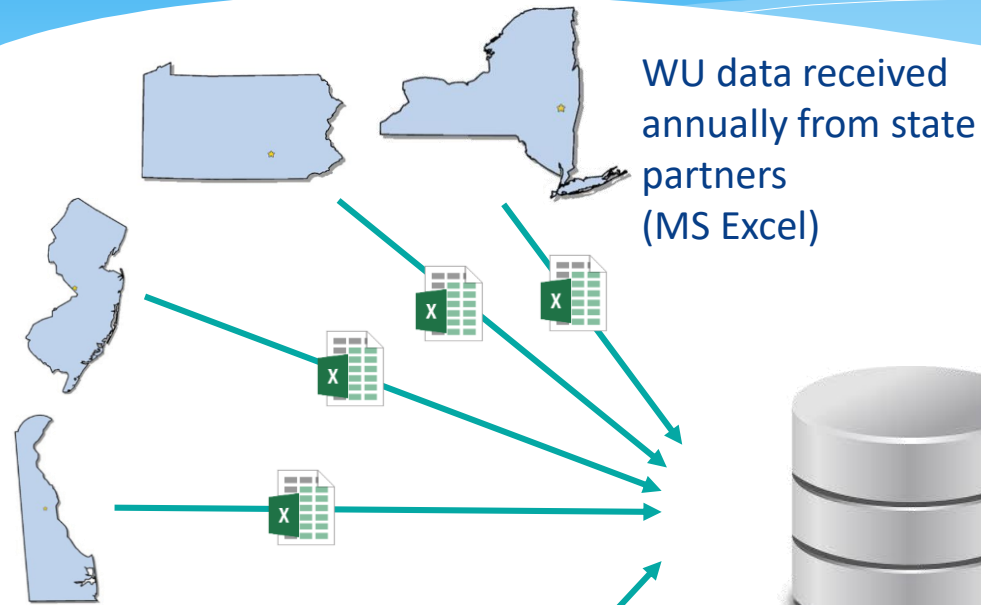
Evan Kwityn
Water Resource Scientist, DRBC



Photos: Samuel Vovsi

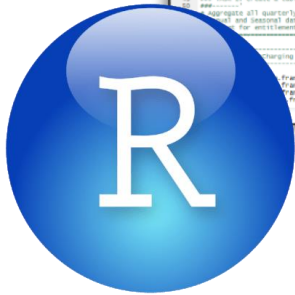
Presented to an advisory committee of the DRBC on October 22, 2019. Contents should not be published or re-posted in whole or in part without permission of DRBC.

Where does all of this data come from?



Query the data for specific systems

The image shows a screenshot of the R-Studio interface. The top pane displays R code for data processing, including file paths and data frame creation. The bottom right pane shows a scatter plot with 'DUP_data_use\$UseAmount' on the x-axis and 'DUP_data\$Charge\$Amount' on the y-axis. The data points form a strong positive linear correlation, with a red regression line fitted to the data.



Analyze data outputs using computational programs such as R-Studio and/or MS Excel.



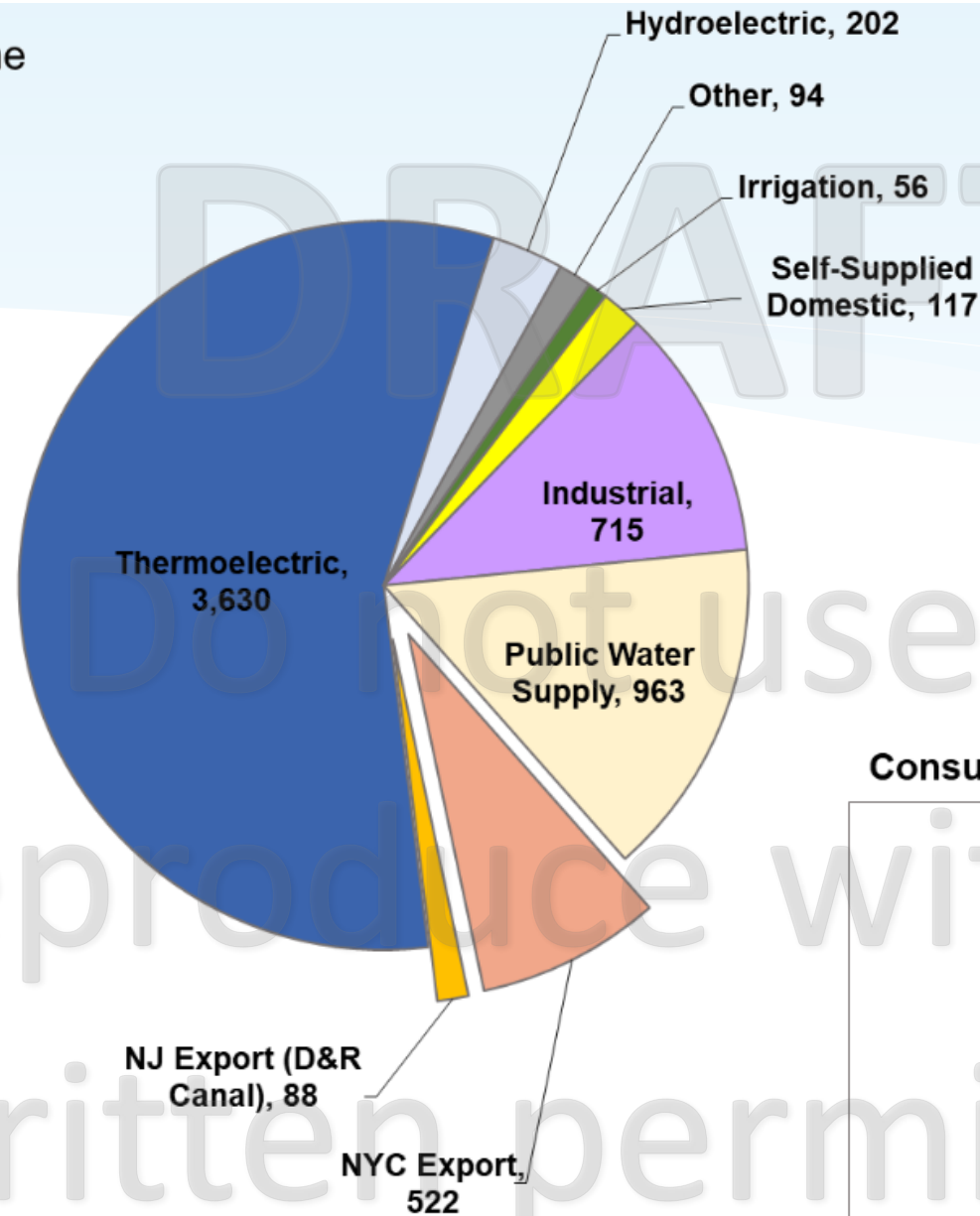
WU data received annually through the DRBC Water Charging Program

- DRBC staff:
- Review data (QAQC)
 - Assign our own IDs
 - (System Level) OAID = OrgAddressID
 - (Source Level) WSID = WaterSourceID
 - Upload to an MS Access Database

Total Water Withdrawals
(ground and surface) from the
Delaware River Basin, **2017:**
6,389 mgd

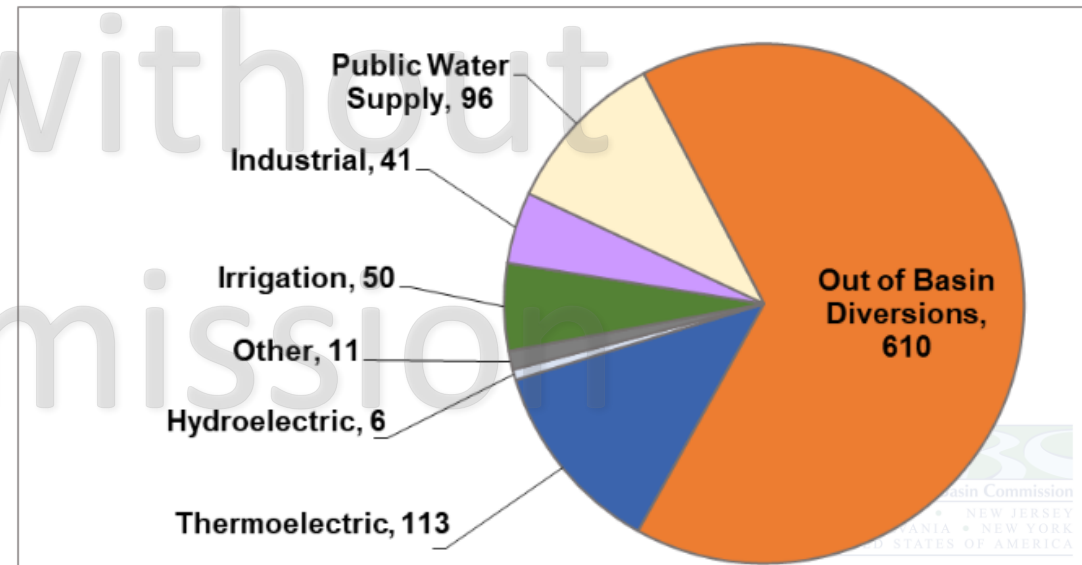
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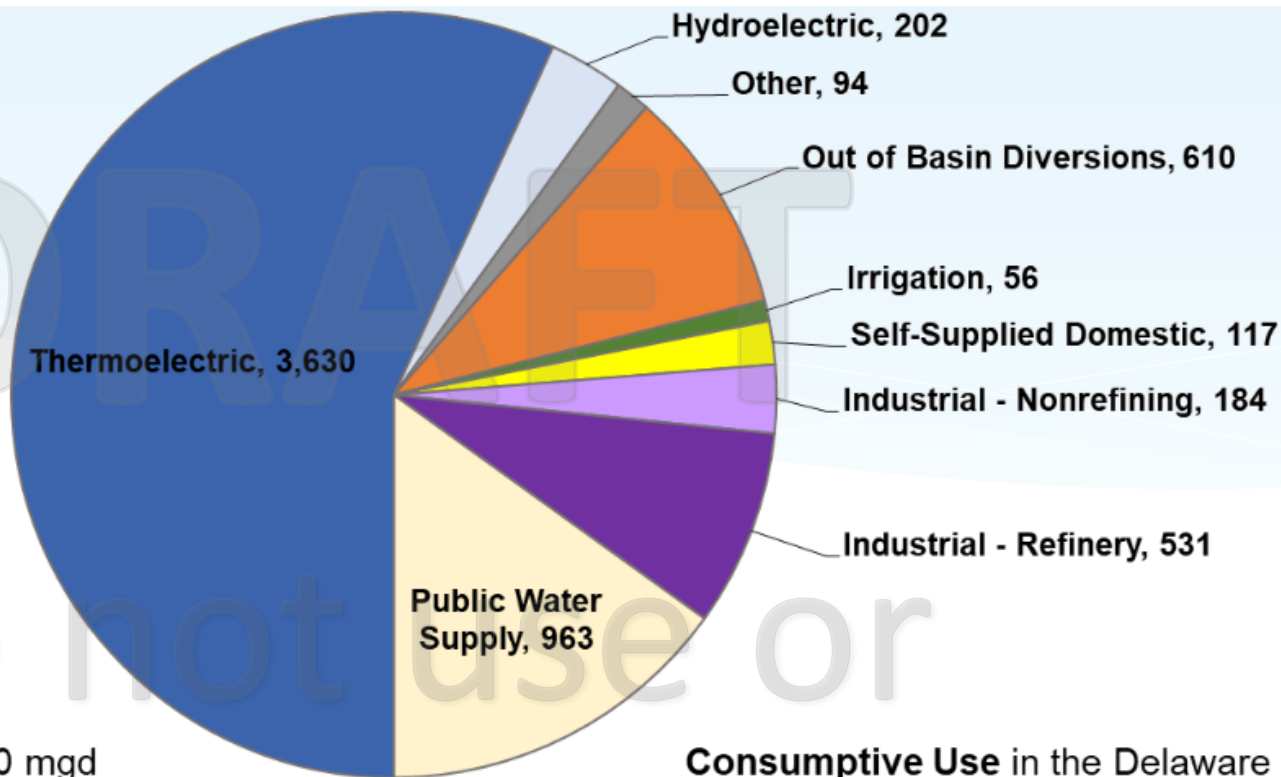
- Thermoelectric
- Hydroelectric
- Other
- Irrigation
- Self-Supplied Domestic
- Industrial
- Public Water Supply
- NYC Export
- NJ Export (D&R Canal)

Consumptive Use and Major Basin Exports: 929 mgd



Total Water Withdrawals
(ground and surface) from the Delaware River Basin, **2017:**
6,389 mgd

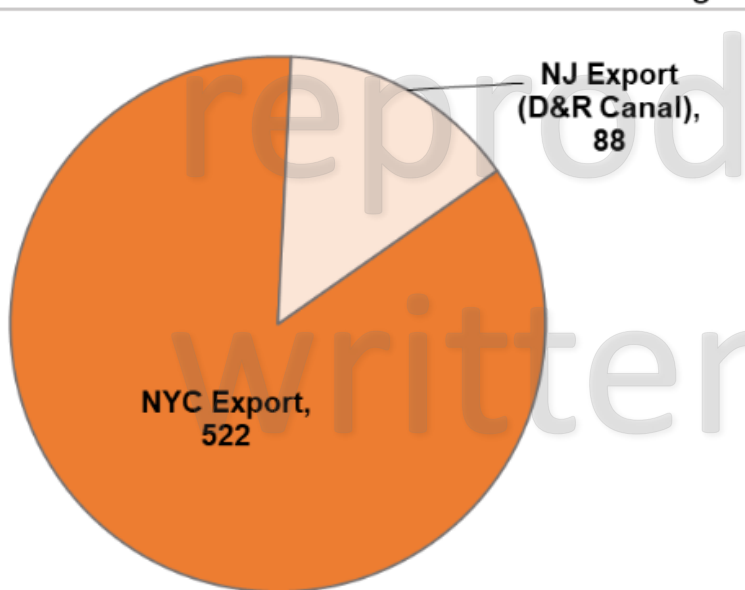
- Thermoelectric
- Hydroelectric
- Other
- Out of Basin Diversions
- Irrigation
- Self-Supplied Domestic
- Industrial - Nonrefining
- Industrial - Refinery
- Public Water Supply



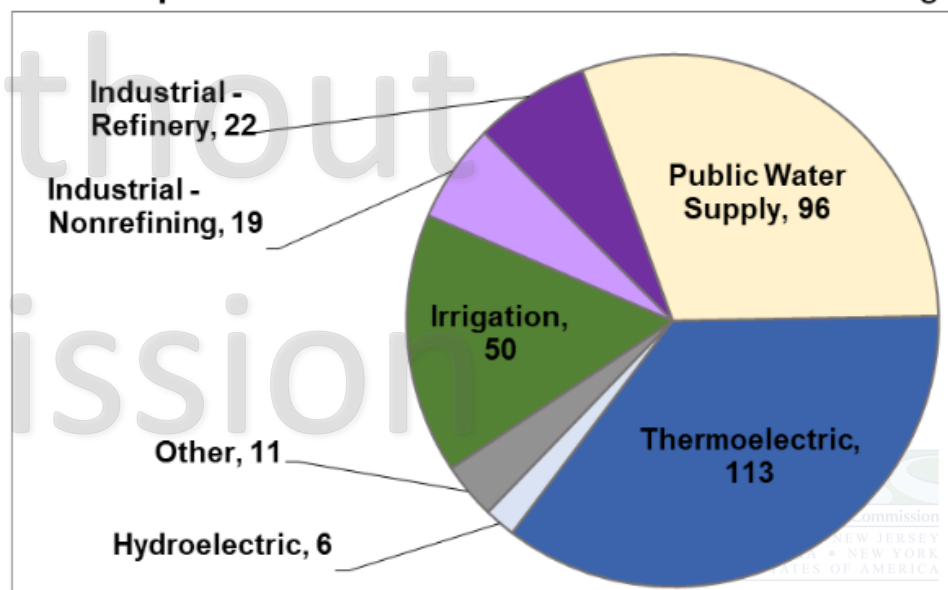
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Major Exports from the Delaware River Basin: 610 mgd



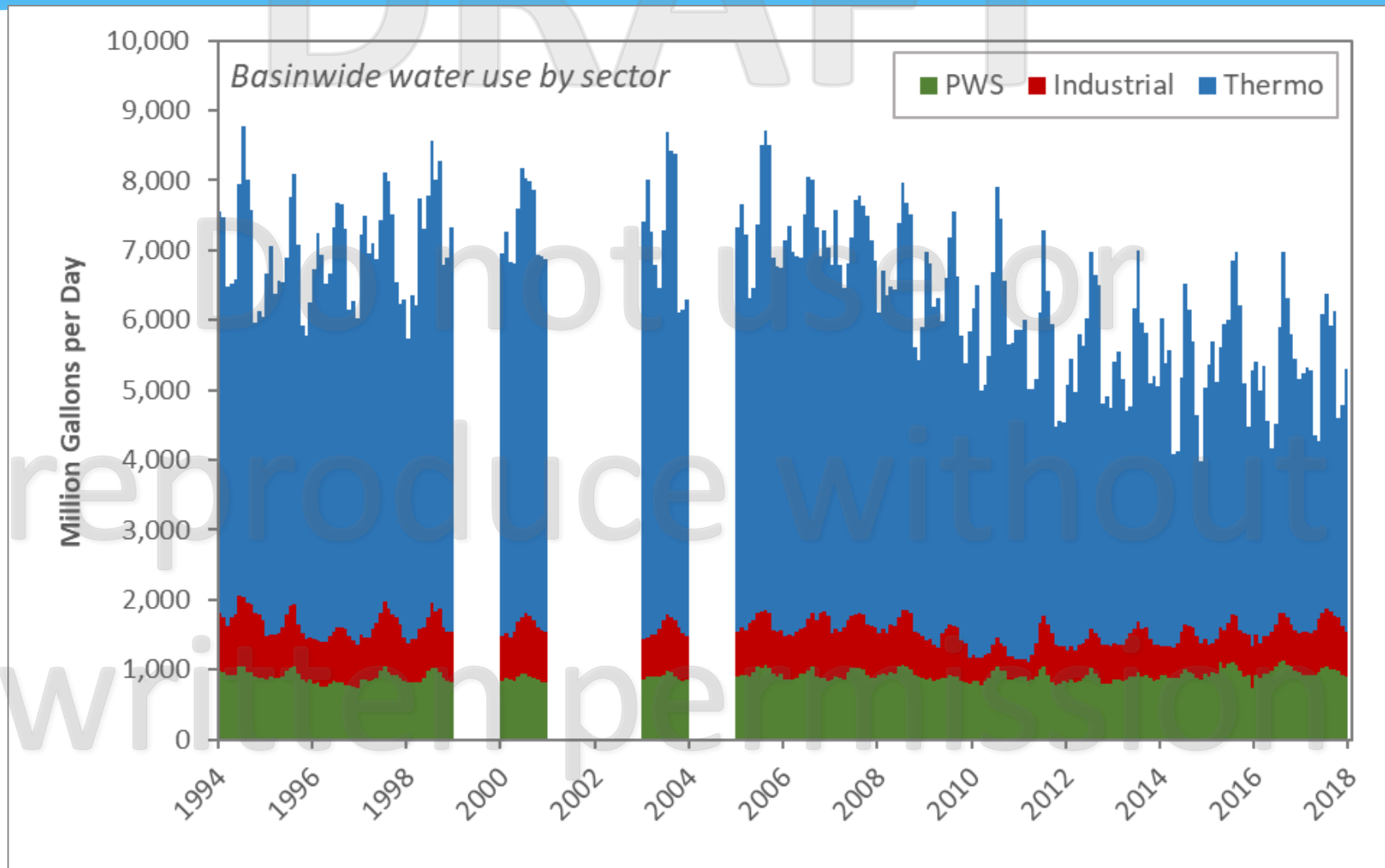
Consumptive Use in the Delaware River Basin: 318 mgd



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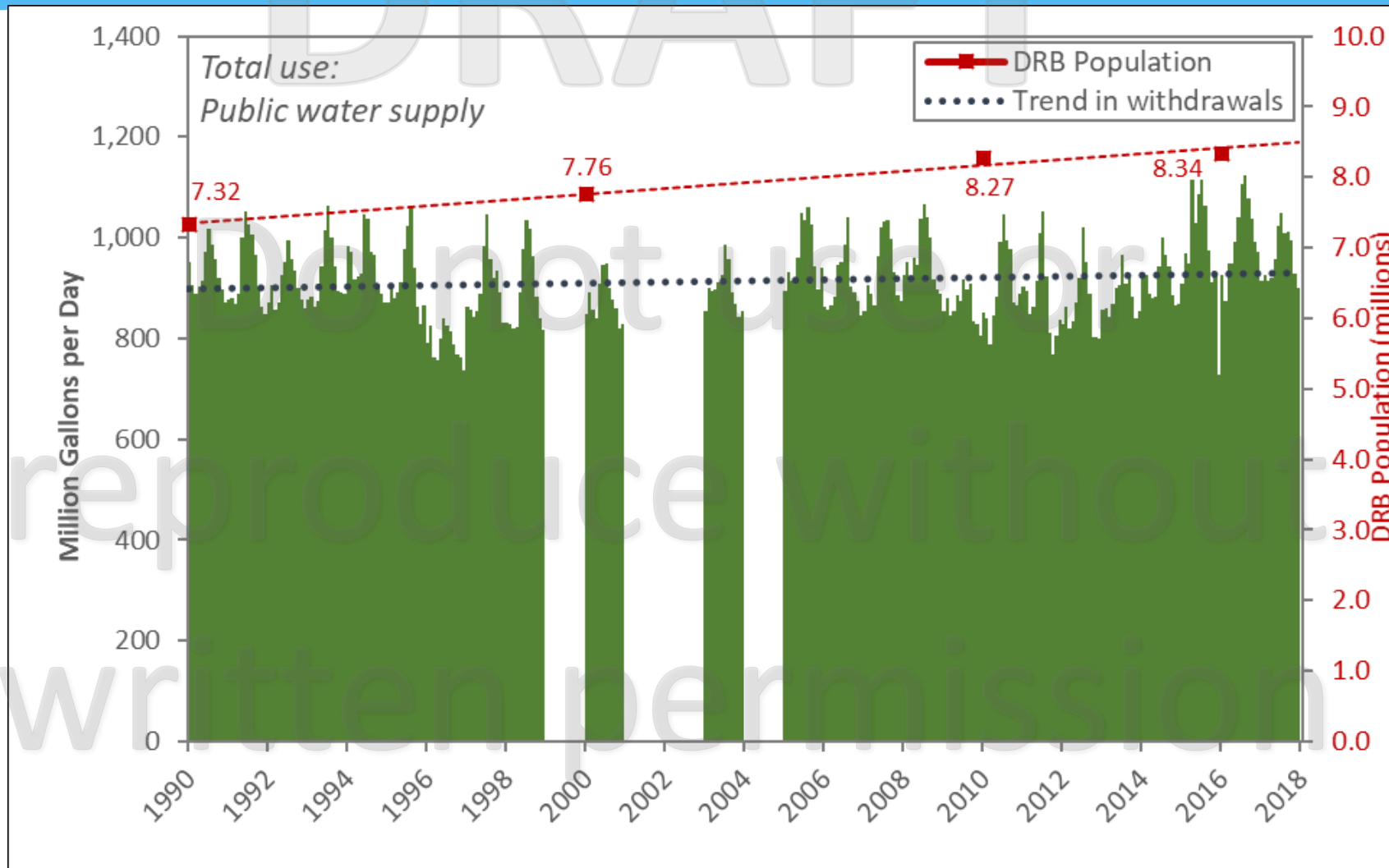
Water Use Trend – Three Key Sectors



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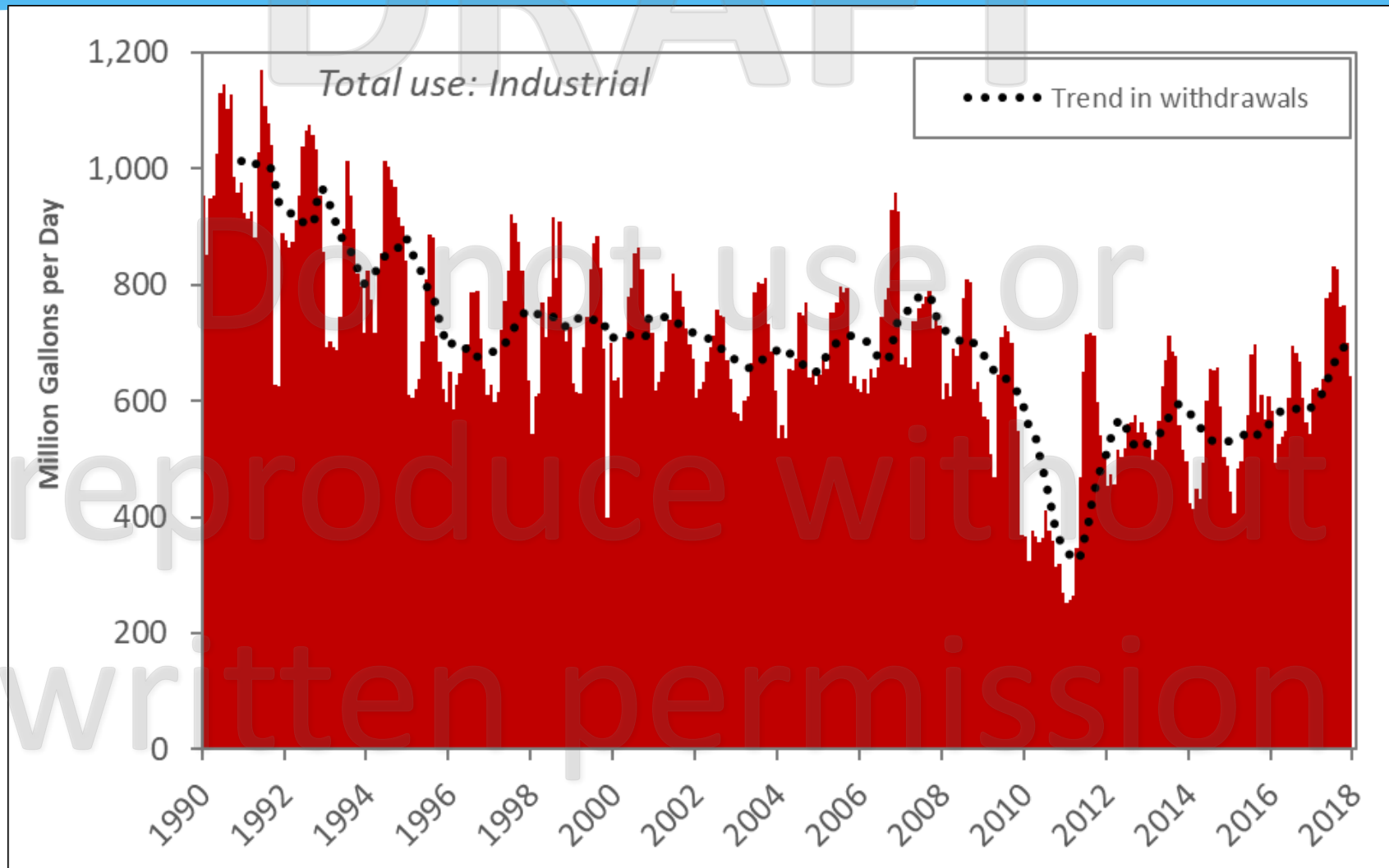
Water Use Trend – Public Water Supply



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Water Use Trend – Industrial



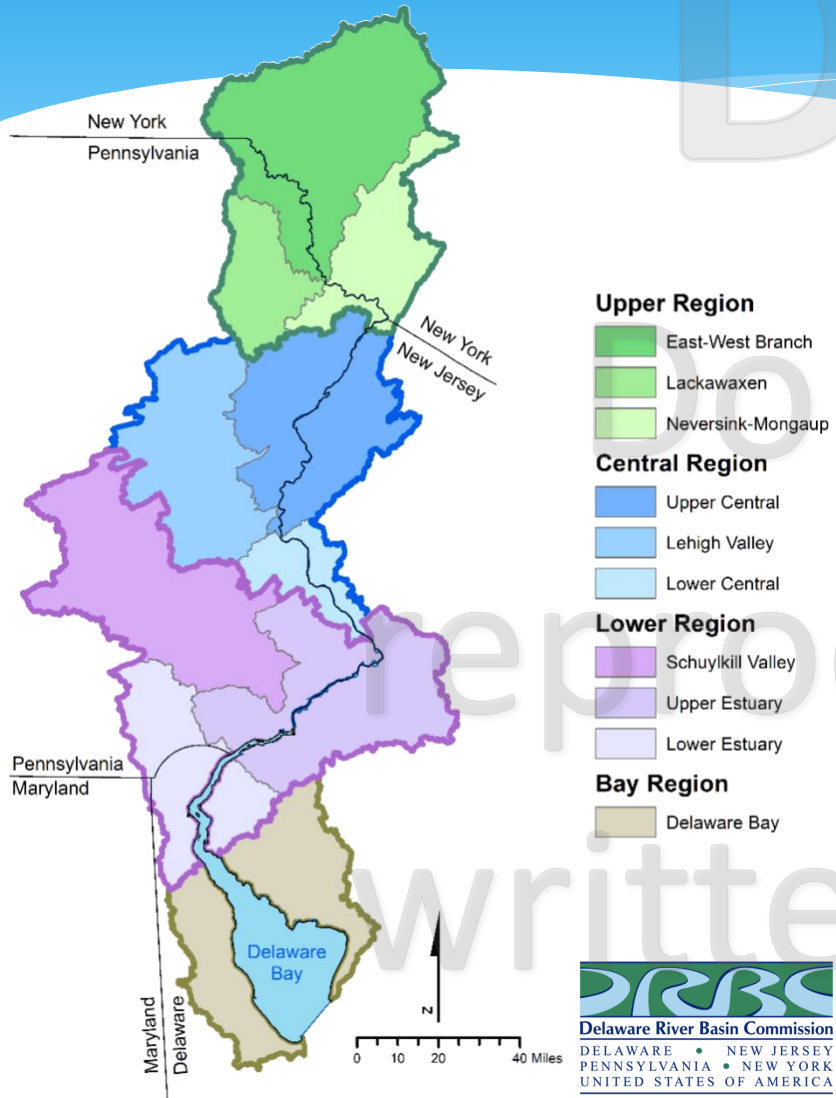
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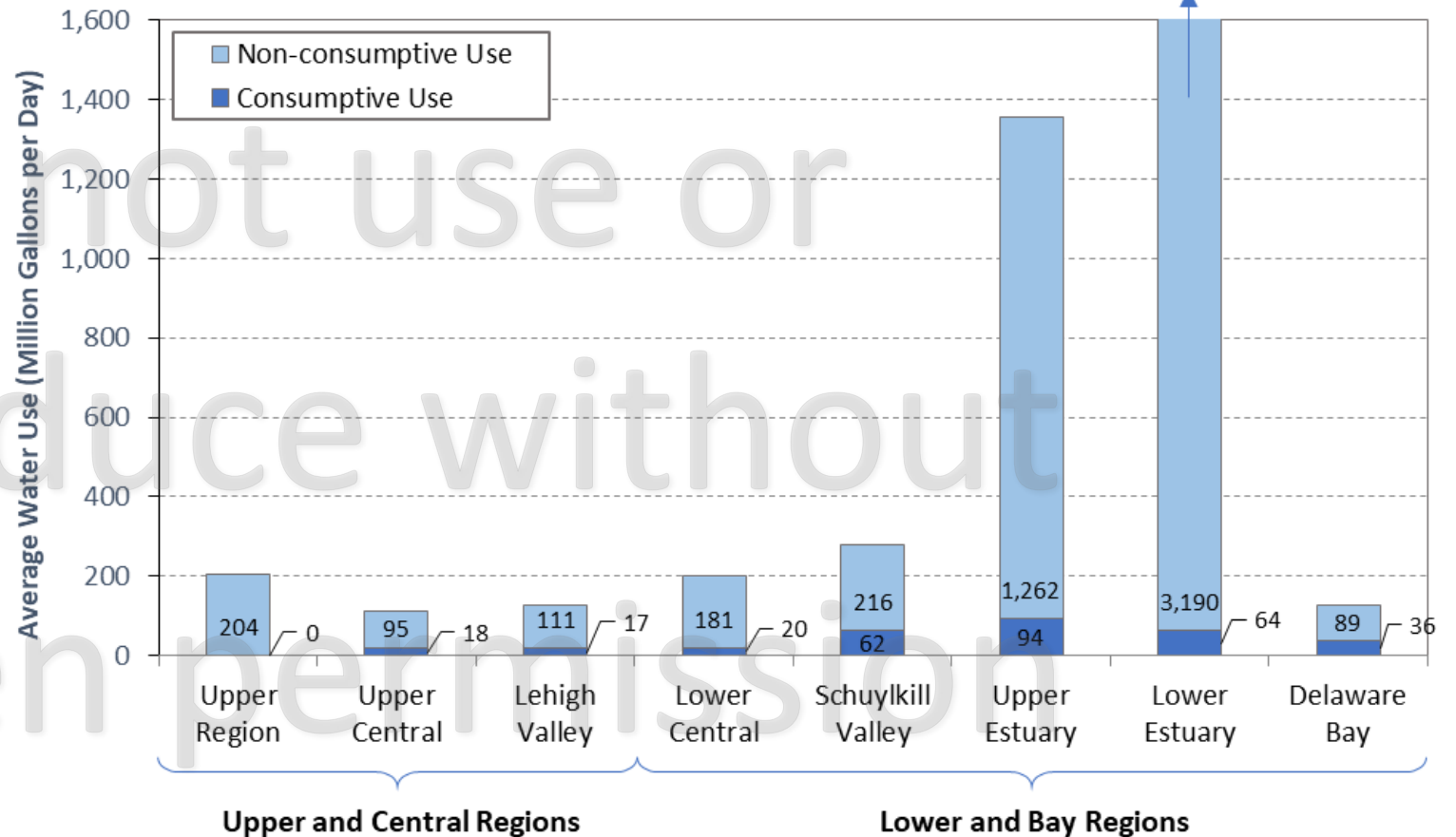
Water Use Trend – Spatial Distribution by Sub-Region

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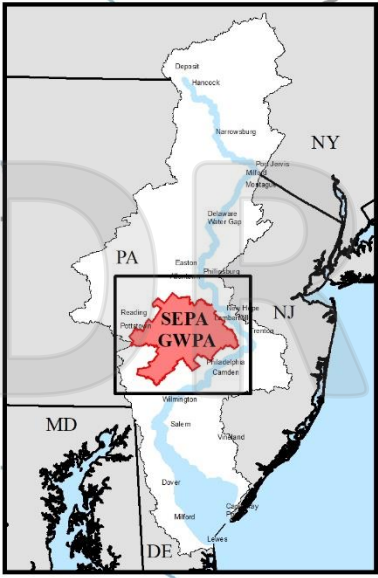
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Non-Consumptive and Consumptive Water Use in the DRB - 2017



2016 Groundwater Percent Withdrawals Based on Withdrawal Limits

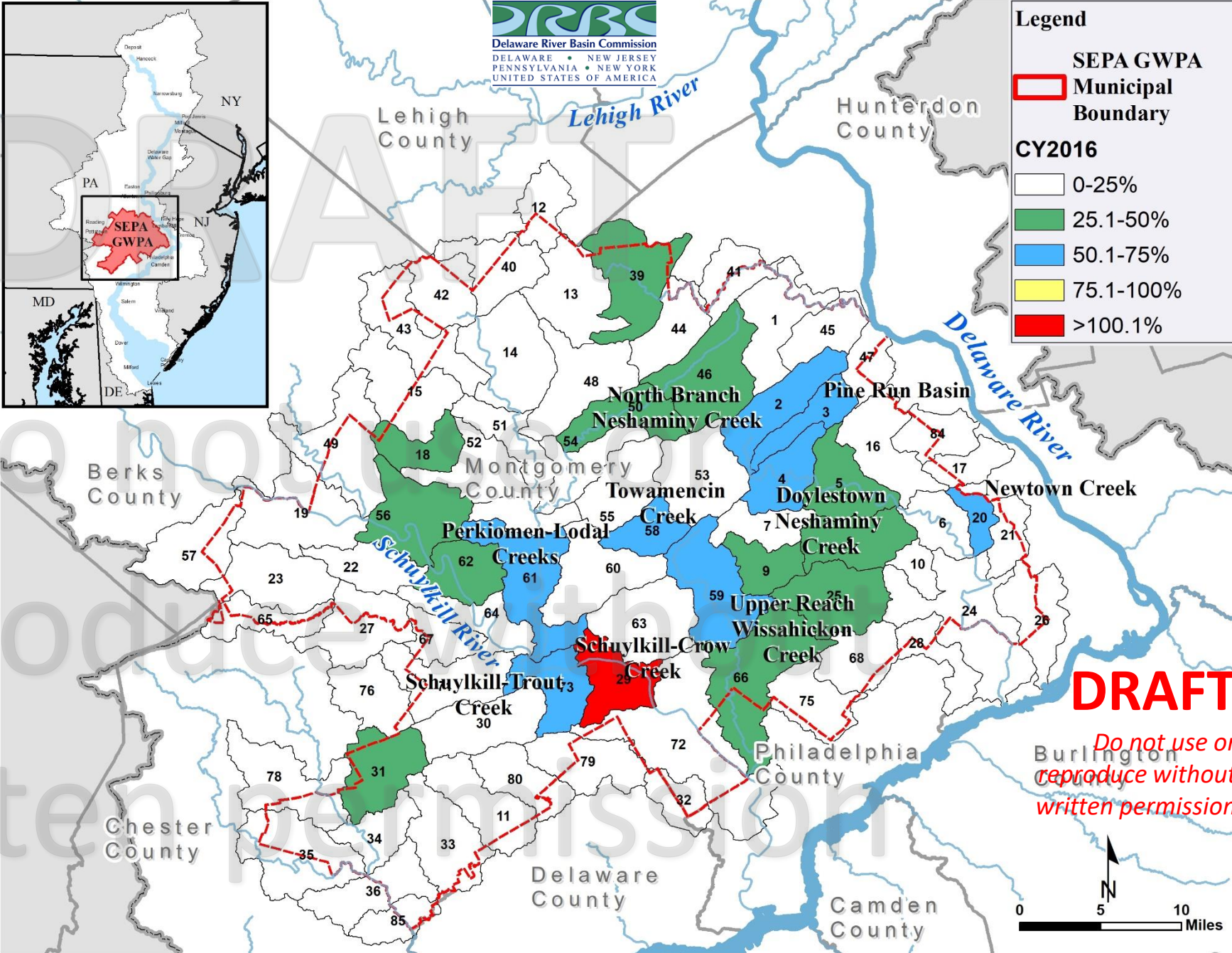


Legend

- SEPA GWPA
- Municipal Boundary

CY2016

- 0-25%
- 25.1-50%
- 50.1-75%
- 75.1-100%
- >100.1%

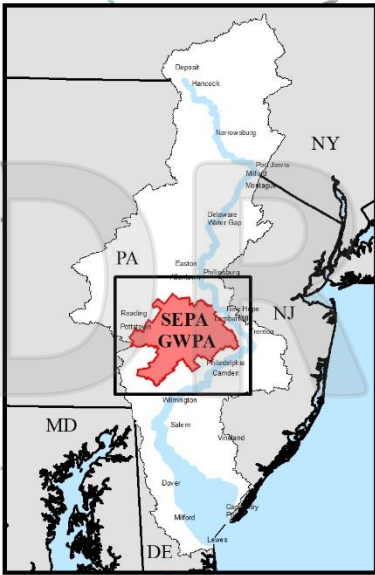


* Subbasin Names > 50% Withdrawal Limits

- * 29-Schuylkill- Crow Creek (171%)
- * 61-Perkiomen-Lodal Creeks (64%)
- * 3-Pine Run Basin (64%)
- * 2-North Branch Neshaminy Creek (63%)
- * 20-Newtown Creek (63%)
- * 4-Doylestown Subbasin Neshaminy Creek (63%)
- * 59-Upper Reach Wissahickon Creek (58%)
- * 73-Schuylkill-Trout Creek (53%)
- * 58-Towamencin Creek (52%)

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2017 Groundwater Percent Withdrawals Based on Withdrawal Limits

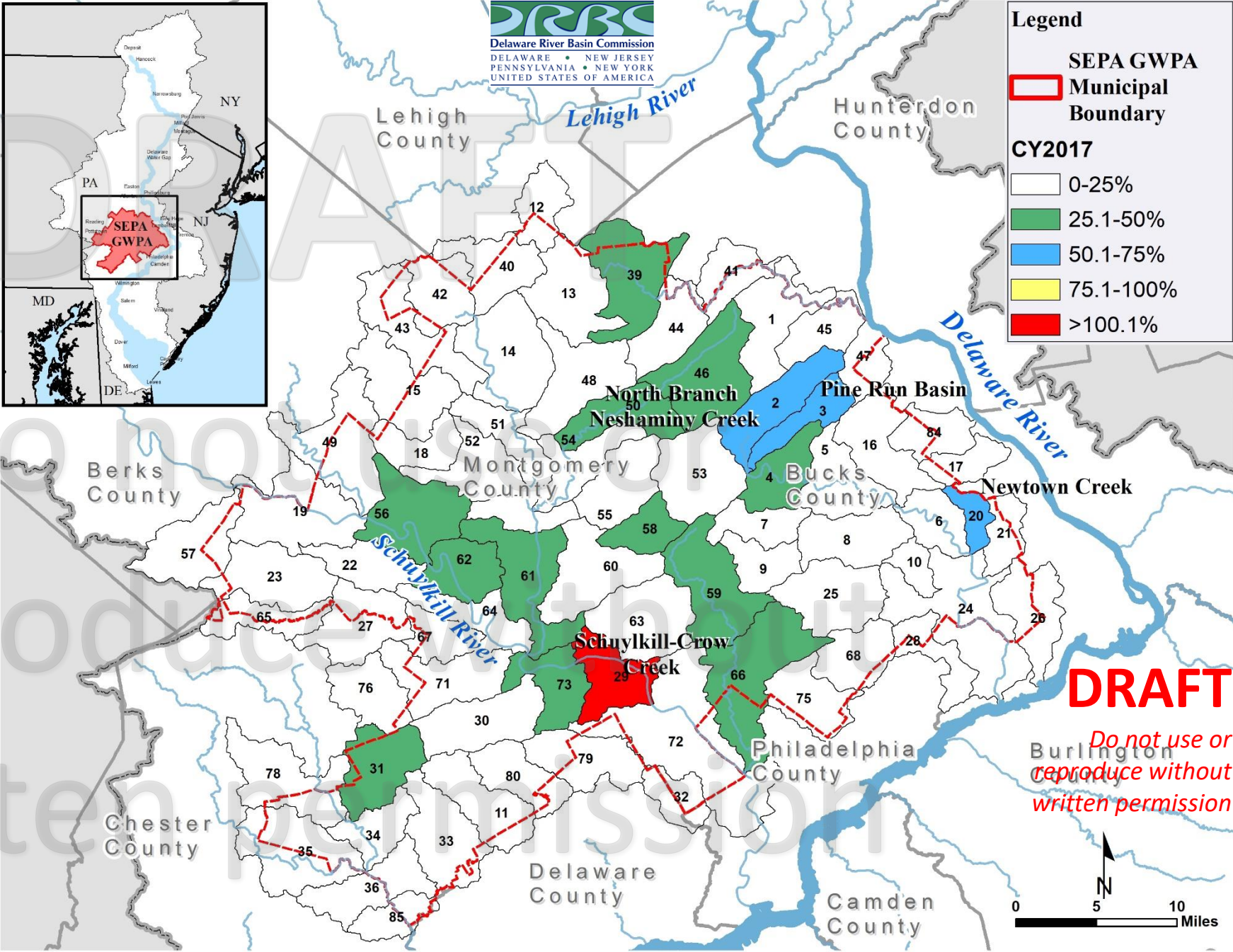


Legend

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CY2017

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Southeastern Pennsylvania Groundwater Protected Area

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- * Cumulative groundwater withdrawals from 1987-2017
- * Reductions since 2000

