

DRBC Science & Water Quality Management Monitoring Updates









Delaware River Basin Commission

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

Presented to an advisory committee of the DRBC on May 14, 2025. Contents should not be published or re-posted in whole or in part without permission of DRBC.

Special Protection Waters (SPW) Monitoring





Assessment Period 2023 – 2025

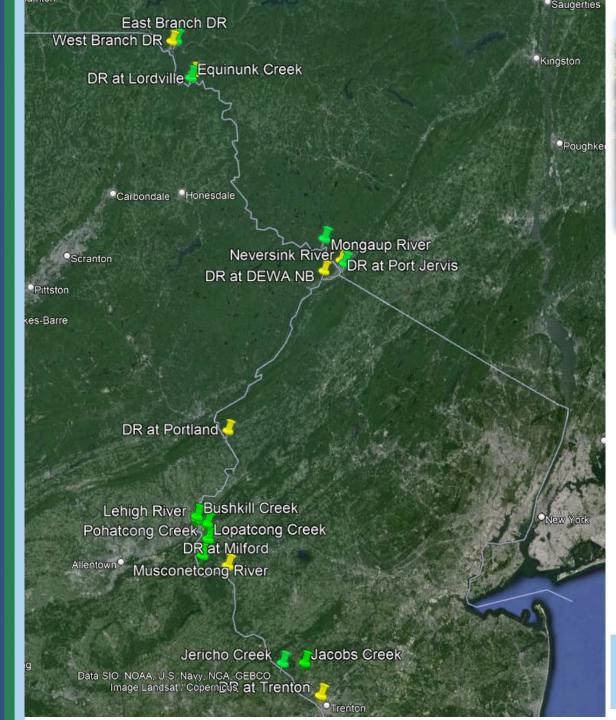
- Last assessment done for 2009 – 2011
- Rotating site basis vs. reachwide

NPS Partners

- DEWA and UPDE
- DRBC monitors the Lower Delaware (LDEL)

Monitoring plan

- Twice monthly
 - May September
- 7 mainstem sites (ICPs)
- 11 tributaries (BCPs)
- Alkalinity, hardness, nutrients, ions, and in-situ parameters







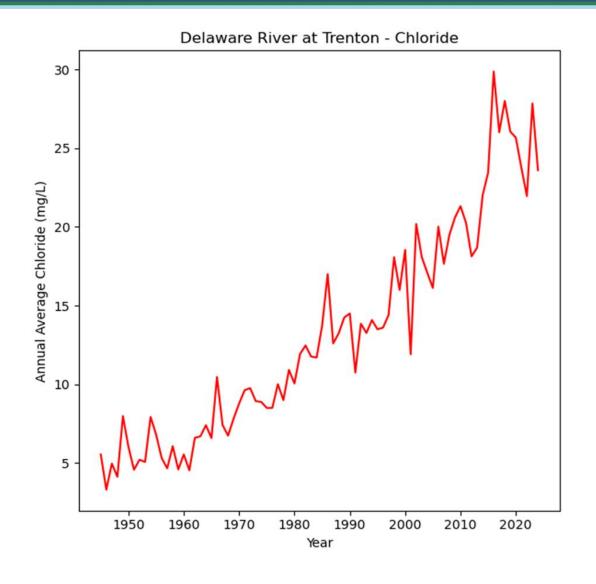
"No measurable change shall occur"

Chloride Monitoring and Salt Reduction Pilot Study





Increasing Chloride Trends in the Non-tidal Delaware River



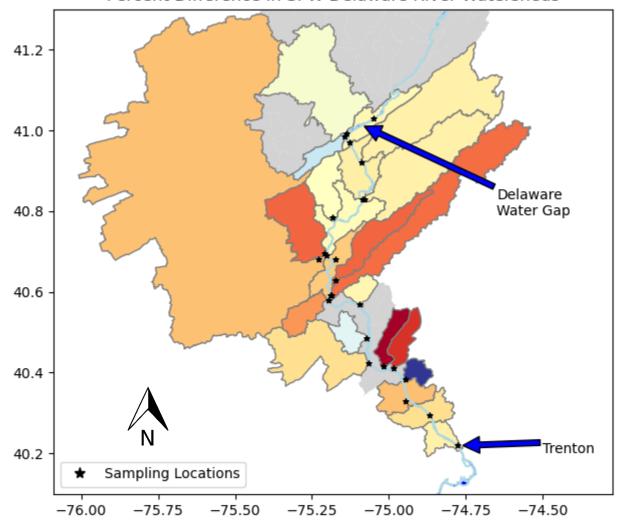
- Historical monitoring site
- Non-tidal boundary location



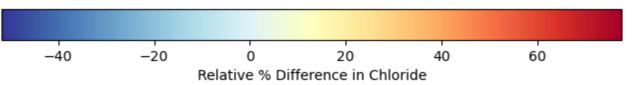
Non-tidal Chloride Monitoring

- 2016 SPW Lower
 Delaware Measurable
 Change Assessment
 results prompted
 monitoring at 27
 locations
- Increasing trends prevalent
- Chloride levels are well below state criteria
 - Aquatic life
 - 860 and 230 mg/L (acute and chronic)
 - Drinking water
 - 250 mg/L

Chloride Concentrations (2021-2023 vs. EWQ Baseline): Percent Difference in SPW Delaware River Watersheds

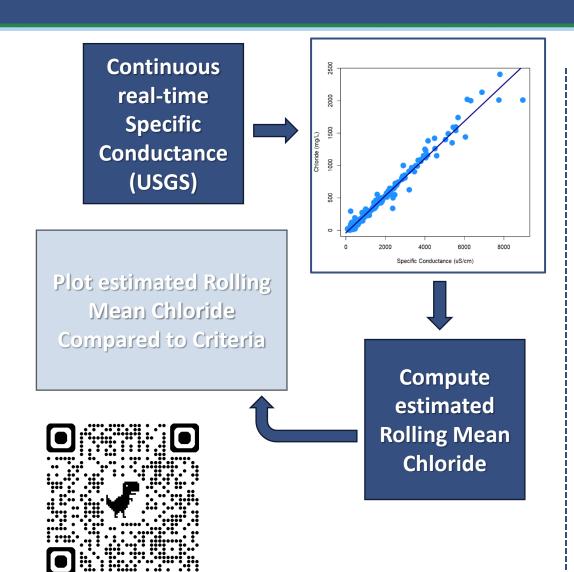


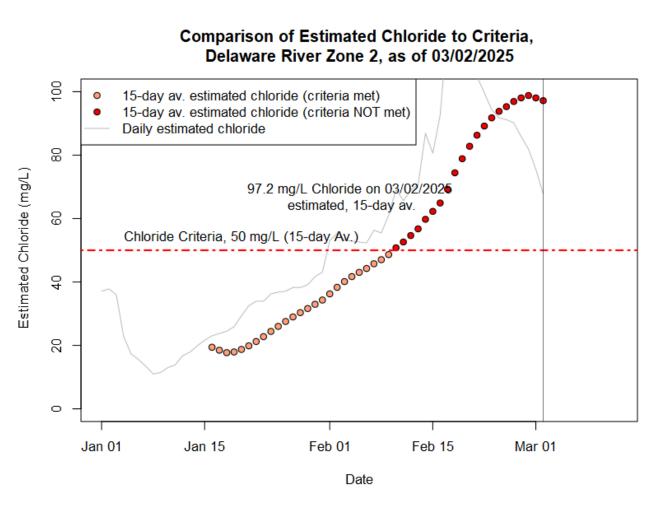
Upper 95% C.I. of Median EWQ Median 2021 – 2023 Period



Zone 2 Chloride Exceedance (Winter 2025): Daily Assessment via DRBC Water Quality Dashboard







https://drbc.net/Sky/waterq.htm



Potential Solution to Manage Chloride

Pilot study to implement salt reduction measures



2024/2025

Maryland State Highway Administration - Salt Management Plan





A toolkit to reduce the environmental impacts of winter maintenance practices



Winter Best Practices to Reduce Road Salt Impacts



Department of Transportation

Adirondack Road Salt Reduction
Task Force Assessment and
Recommendations





- Identify salt reduction actions.
 - Options for municipalities to adopt BMPs with or without funding for equipment upgrades.
- Funding opportunities for the pilot study program.
 - Support for municipalities without funding to implement BMPs using existing equipment.
 - Recent salt application records will serve as baseline data for future reductions.



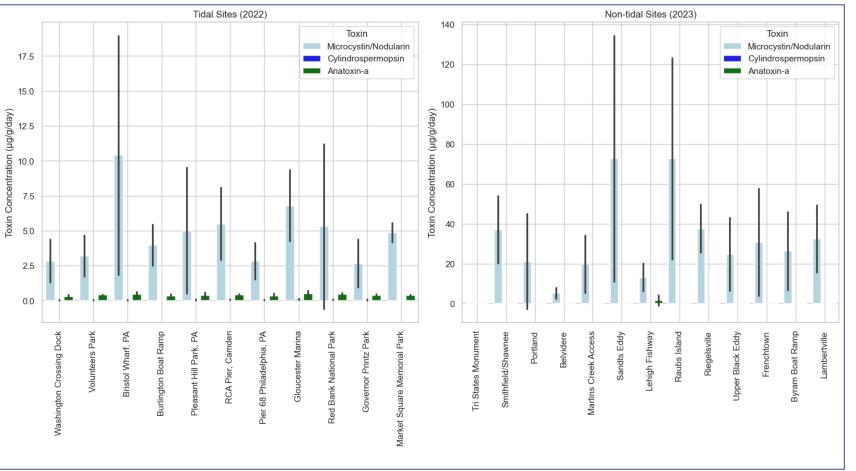
Cyanotoxin Monitoring



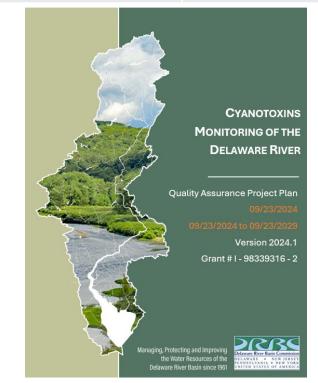


SPATT (Solid Phase Adsorption Toxins Tracking) Pilot Study Conducted 2022 – 2023

Next steps: Identify congeners (e.g., MC-LR) in SPATT bags and estimate cyanotoxin concentrations in the mainstem



Cyanotoxin	10-day Drinking Water Health Advisory (USEPA)
Cylindrospermopsin	0.7 – 3.0 μg/L
Microcystin	0.3 – 1.6 μg/L



*Note different y-axes

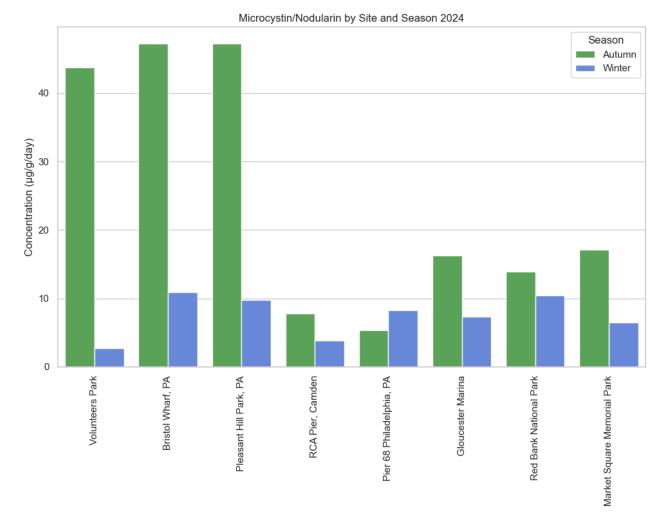
More Cyanotoxin Monitoring 2024 – 2025

Recent drought conditions restricted flows in non-tidal



Algae or duckweed?
Both, but no detectable cyanotoxins





Antimicrobial Resistance (AMR) Monitoring: Pilot Study 2025





What is Antimicrobial Resistance?

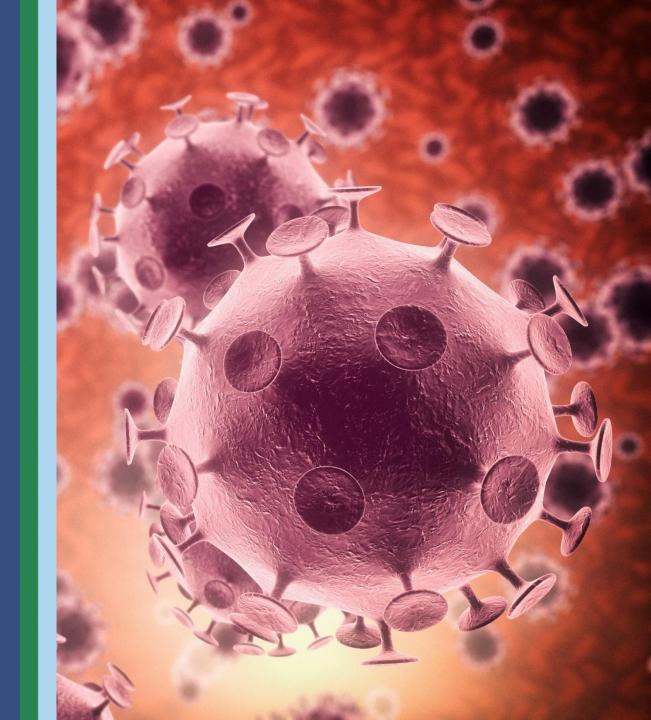
 AMR occurs when bacteria and other microorganisms become resistant to drugs like antibiotics, making infections harder to treat.

Why Monitor AMR?

Aquatic environments spread drugresistant pathogens, posing risks to public health.

Goals for 2025:

- Develop a monitoring approach (with QAPP)
- Conduct a sampling event targeting sites in the populated urban corridor



Tributary Nutrient Monitoring with NJDEP





- Support NJ efforts to monitor several tidal tributaries for nutrients and water quality
- DRBC will assist on Crosswicks, Blacks, and Pennsauken creeks
- Installation of sondes to measure Temperature, Specific Conductance, Dissolved Oxygen, pH, and Turbidity
- Grab samples for nutrients



- Sampling began in April 2025
- Grab samples monthly
- Logger maintenance as needed



Toxics Monitoring

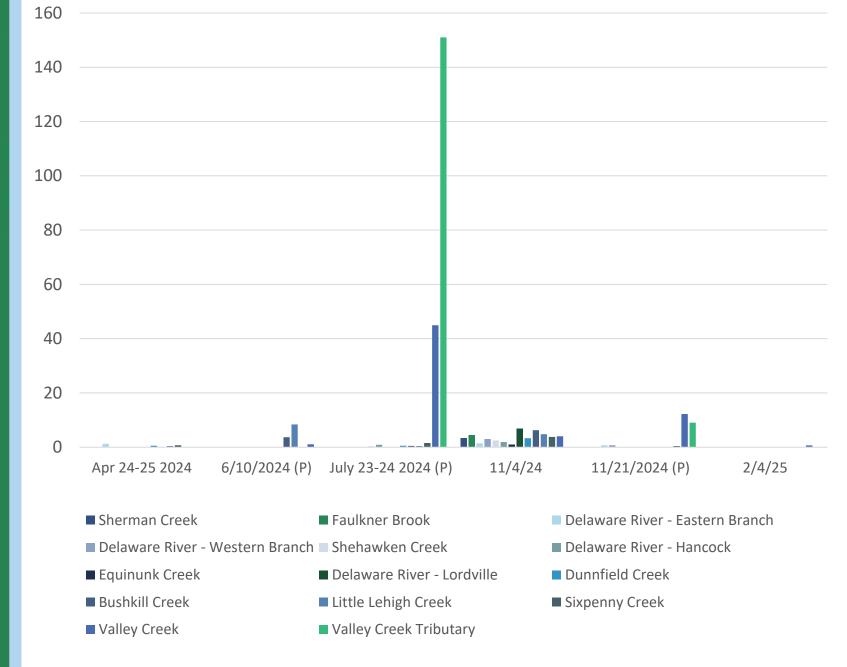




6-PPDq Monitoring



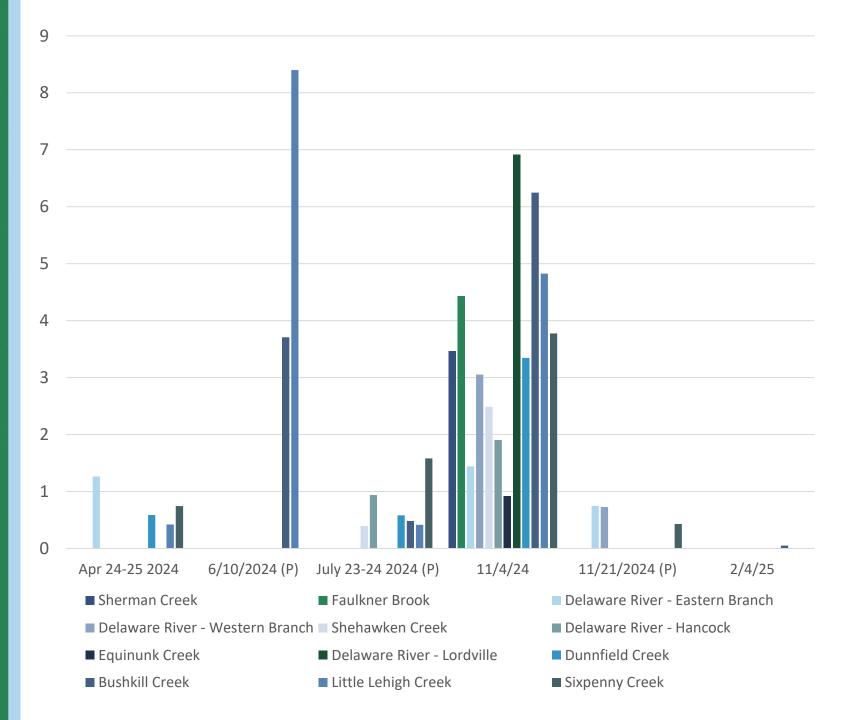
6-PPDq Monitoring





6-PPDq Monitoring





PFAS



Reports

- PDE BIL Toxics in Tributaries April 2025
 - https://www.nj.gov/drbc/library/documents/DelEstTribs_monitoringrpt_April2025.pdf



- Will be released within the next month
- NFWF Yr 3 PFAS
 - Being drafted and should be released early in the Fall
- NFWF 6-PPDq
 - Look for a report later this year



