Non-tidal Chloride Monitoring 2021-2023

Joint STAC-MACC Meeting

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Why?
Freshwater Chloride Trends

Chloride Time Series, Delaware River at Trenton

Integrated Water Availability Assessments Program
A Historical Look at Changing Water Quality in the Delaware River Basin
"DRBC’s SPW Program is designed to prevent degradation in streams and rivers where existing water quality is better than established water quality standards; the program states that there shall be no measurable change in existing water quality."
In May 2021, DRBC deployed 7 continuous conductivity loggers in rivers and streams that lack continuous conductivity loggers:

- Brodhead at 611 in Delaware Water Gap
- Paulins Kill at Route 46 bridge in Columbia, NJ
- Martins Creek
- Pequest River at Belvidere, NJ
- Lehigh River at Easton
- Pohatcong Creek near USGS discharge gage
- Tohickon Creek at Point Pleasant Park

During spring through early autumn → logger maintenance twice per month or more to clean biofilm off sensors, ensure loggers are working, offload data, etc.

Later autumn through winter → once per month logger maintenance (we will need wet suits!)
In addition to logger maintenance, 27 sites were selected for concomitant surface water quality monitoring of chloride, turbidity, and TDS (in-situ conductivity at all sites)

- Sites were selected based on:
  - Sites identified in the SPW Lower Delaware Measurable Change Assessment that have both increased chloride and specific conductance from baseline conditions established (2000-2004);
  - Identify temporal and spatial data gaps in Middle Delaware SPW tributaries

- 2-year continuous logger deployment and (once monthly) monitoring period → 24 total events

So far...
- DRBC deployed 7 continuous loggers and collected samples from 27 sites in May and are scheduled to go out June 16th for the next round of monitoring

* ArcGIS Map -- Non-tidal Chloride Monitoring
Create a more robust and current dataset for chloride, TDS, and specific conductance in Lower and Middle SPW tributaries;

- Utilize this data for further classification and regression analyses (assess land-use and changes, point-discharge influences, effects of precipitation, etc.);

- Assess 2021-2023 dataset against SPW baseline dataset established for 2000-2004 (plus any additional paired chloride & specific conductance and/or TDS observations available on WQP between 2018-2023)

- Utilize discrete specific conductance, chloride, and TDS observations for development of regression models on a site-specific basis;

- Identify results for further research and investigation (potential causes in varying concentrations among tributaries, future track-down studies, work with municipalities, etc.)