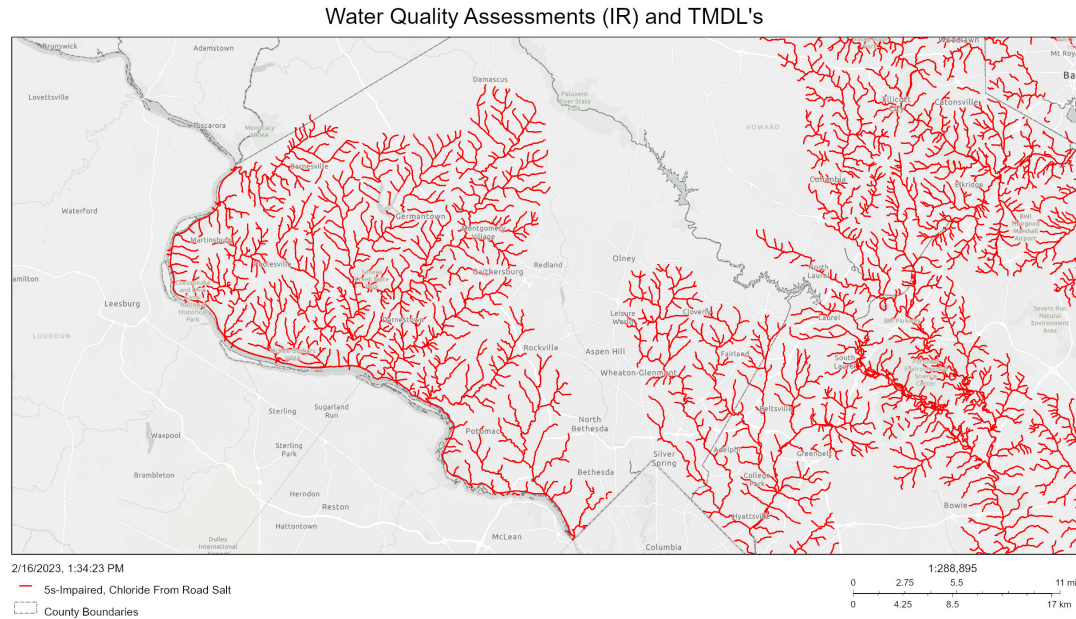


Montgomery County Department of Environmental Protection Conductivity Monitoring



Why We Monitor

Special Protection Areas (SPAs)

- Quantify impacts of development on surface and ground water

Watts Branch Monitoring

- Impacts on WSSC source water
- Fulfilling phase I MS4 permit conductivity monitoring requirements

Patuxent Reservoirs Monitoring

- Assessing conductivity of reservoir tributaries



Lower Hawlings Logger Location , Upstream

Special Protection Areas

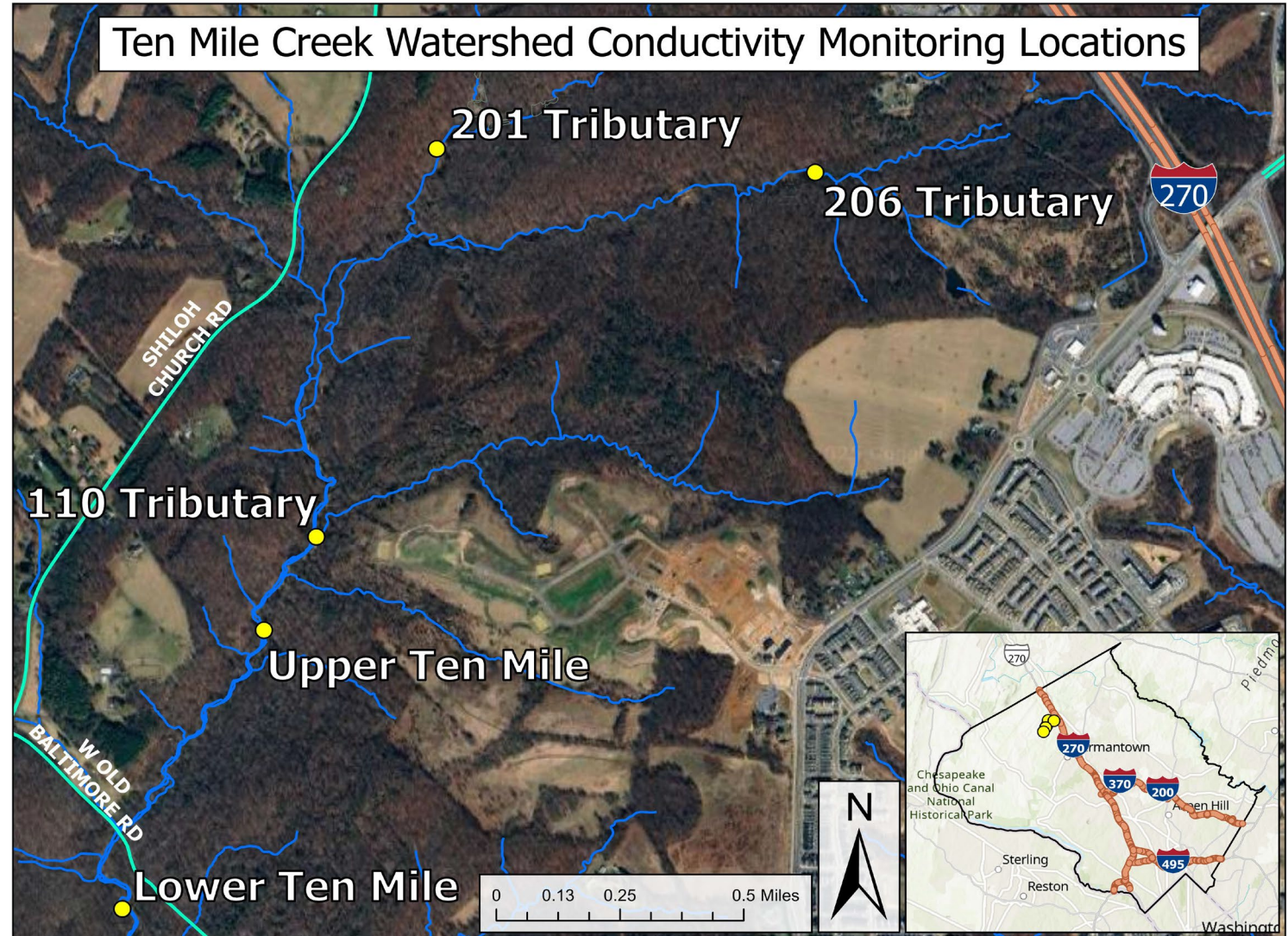
What is an SPA?

- Five areas designated by County Council requiring protections beyond standard environmental laws, regulations, and guidelines for land development and certain uses



Ten Mile Creek Conductivity Monitoring

- One reference site (control) in the Patuxent Watershed
- 3 large developable parcels shifting from Ag/Forest to Residential/Commercial
- 5 test sites



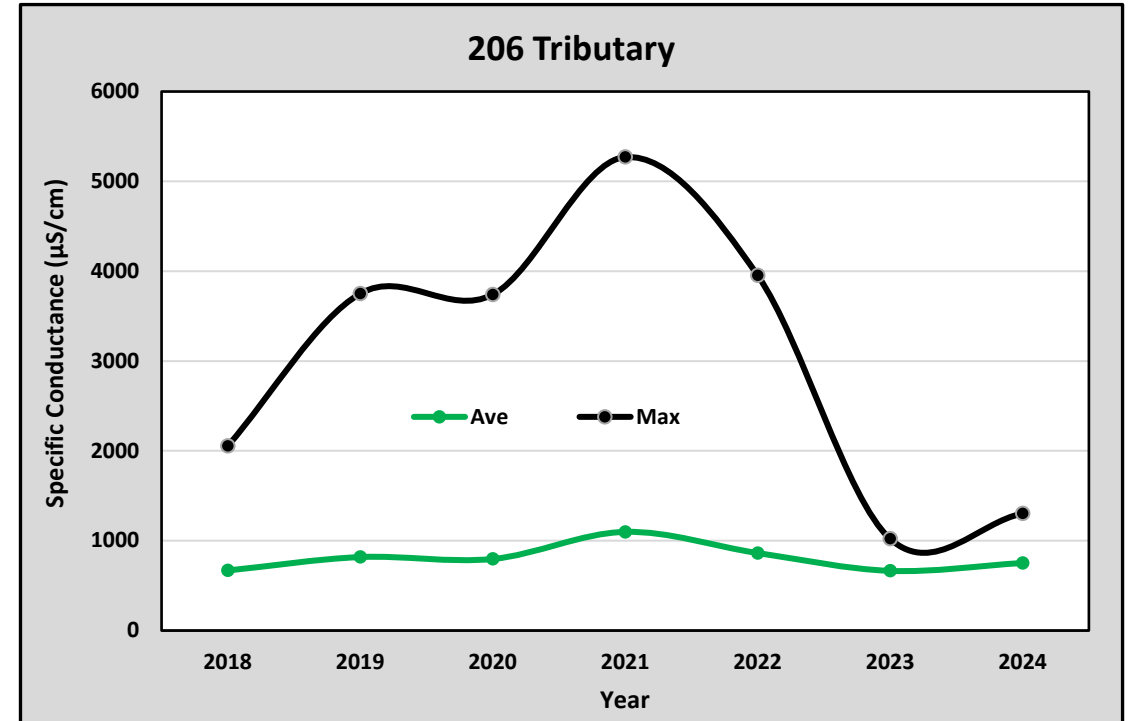
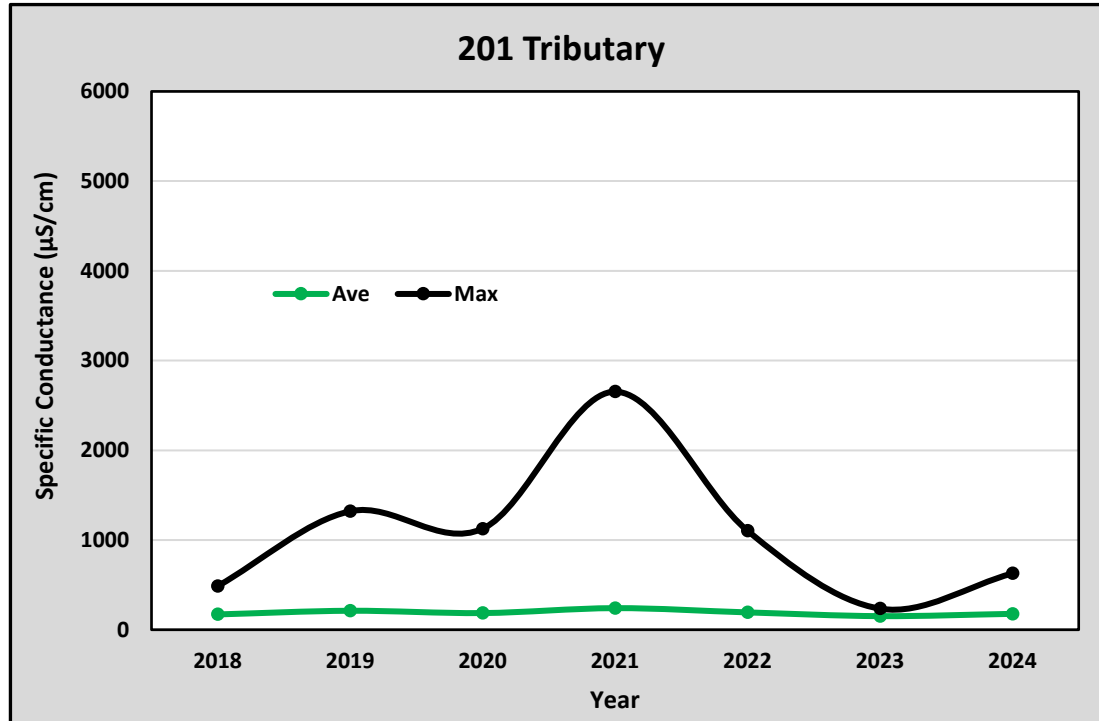
Specific Conductance Summary for the Ten Mile Creek Study Area

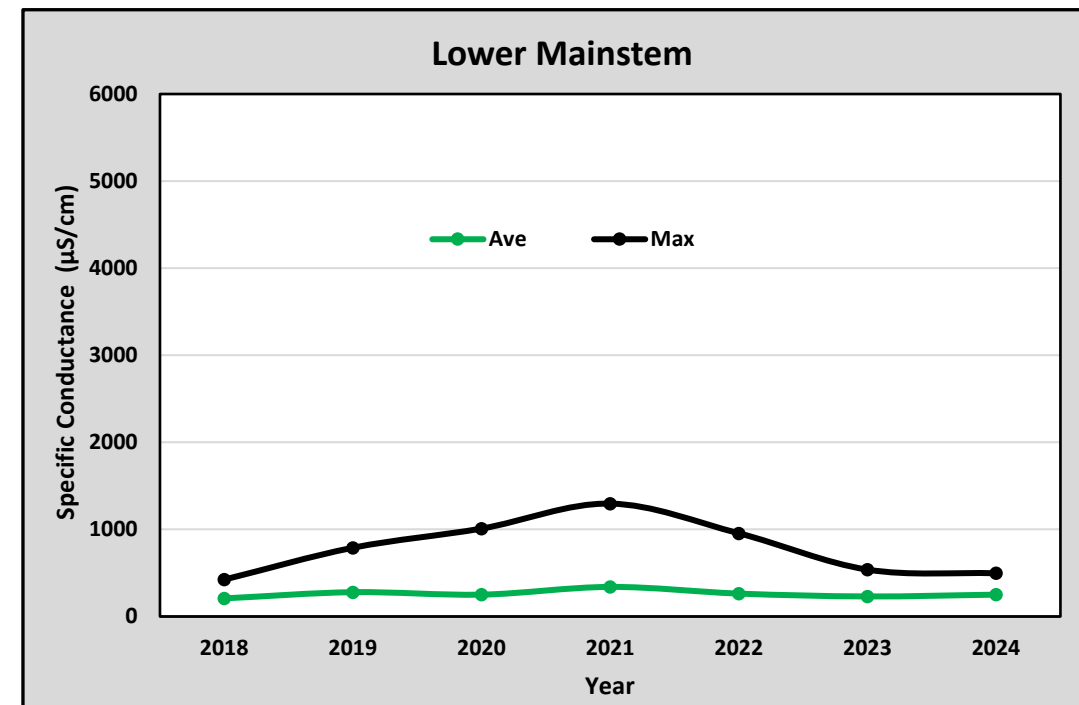
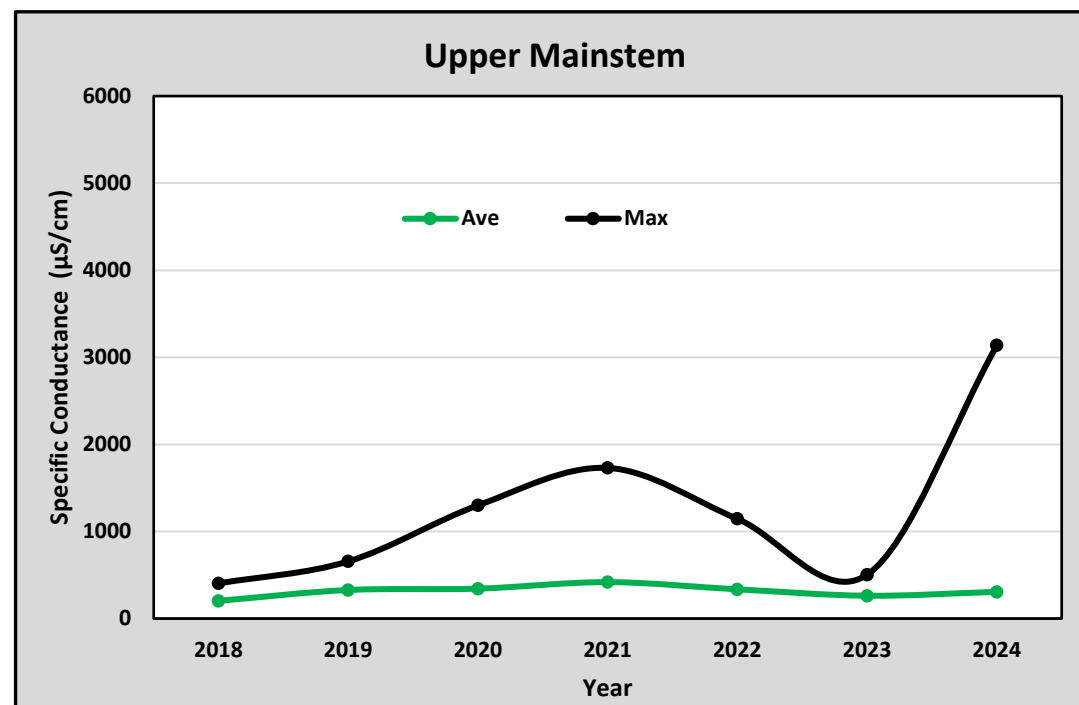
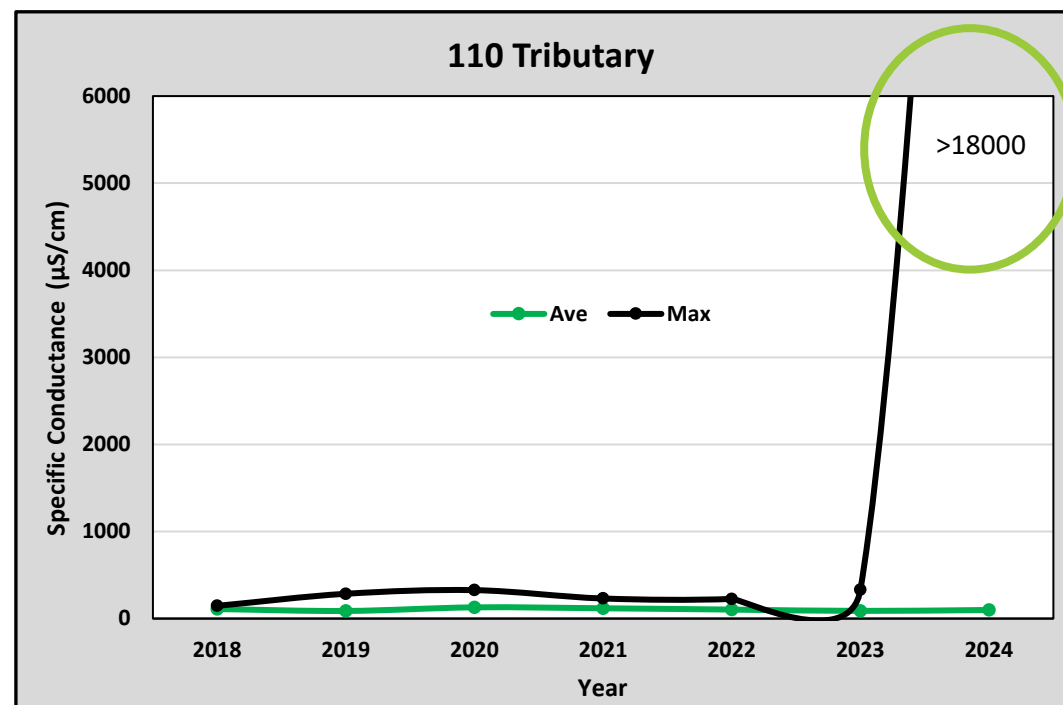
Station	Median 2018-2023	Median 2024	Average 2018-2023	Average 2024	Maximum 2018-2023	Maximum 2024
110 Tributary	109.2	99.5	104.6	98.4	330.7	18127.9
201 Tributary	174.4	165.9	194.1	177.5	2653.6	627.9
206 Tributary	829.1	790.6	835.5	752.4	5269.8	1303.1
Upper Mainstem	325.7	306.7	327.5	306.7	1729.9	3136.6
Lower Mainstem	261.6	246.3	268.8	251.0	1296.2	496.4
Patuxent Control	113.3	124.8	114.1	224.4	699.2	3336.9

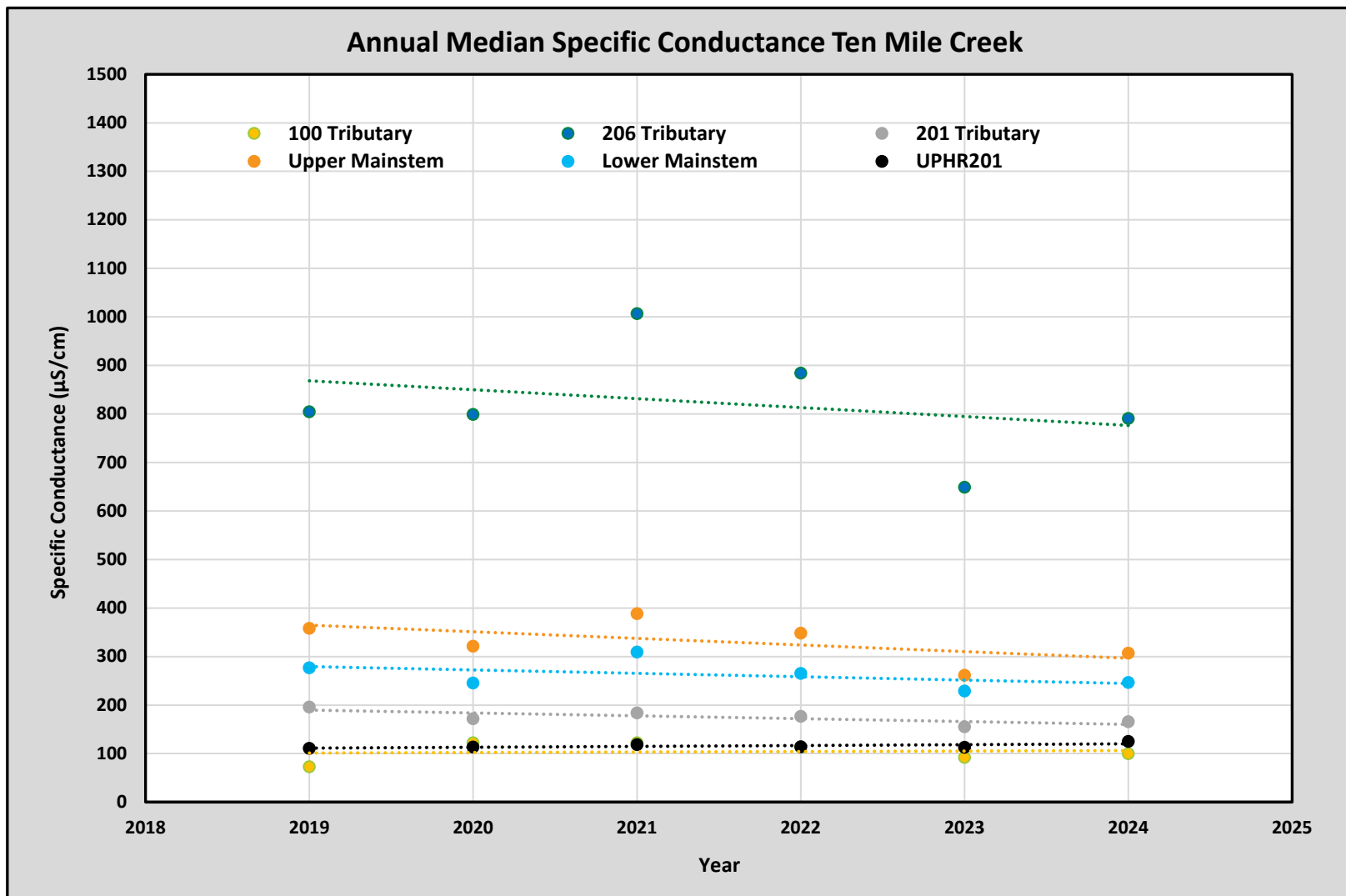
Lower Mainstem Logger Location



Non-Impacted Sites

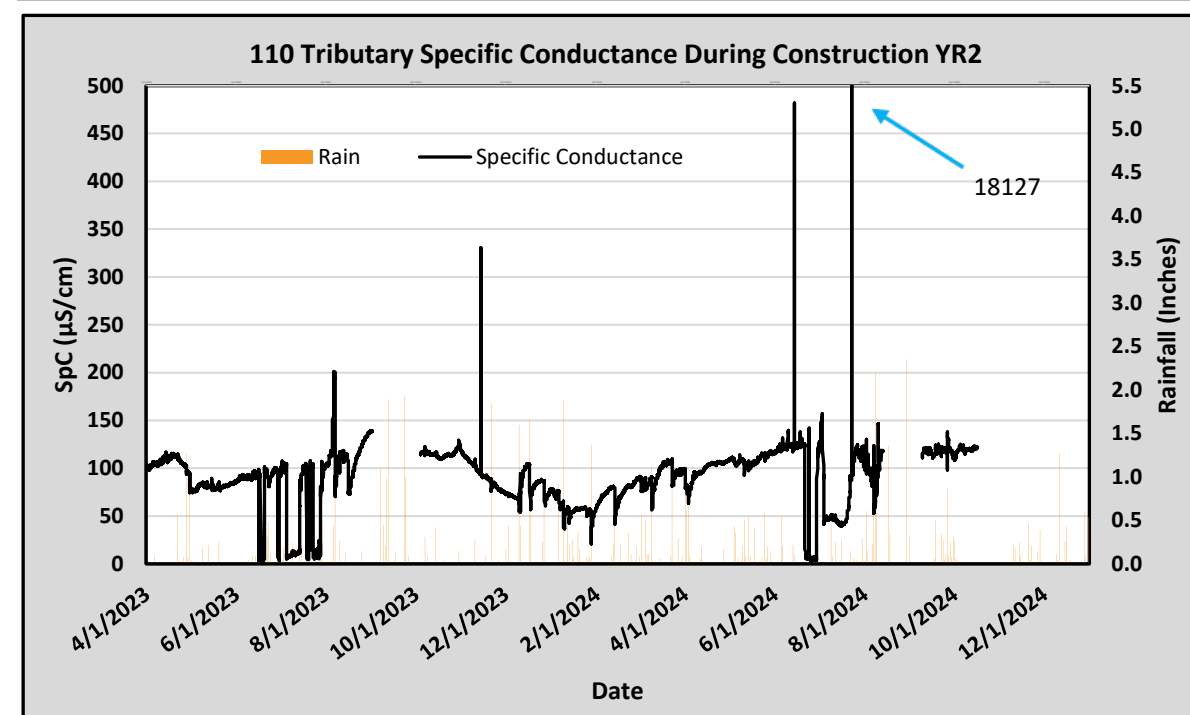
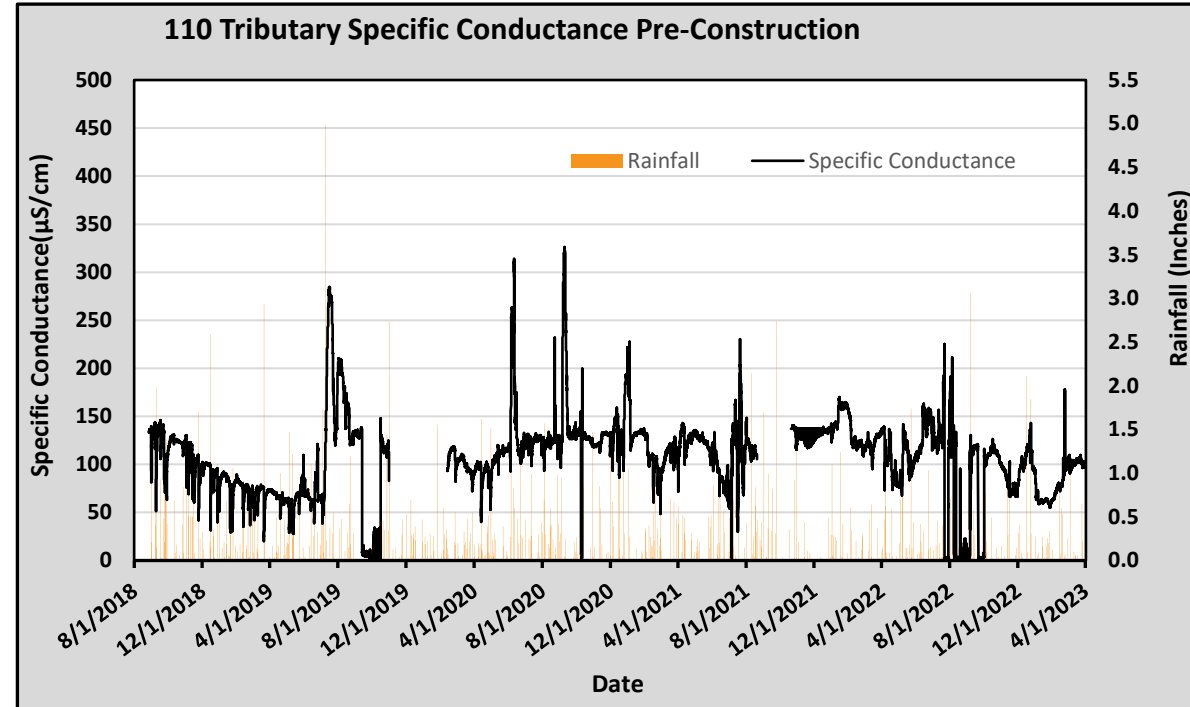


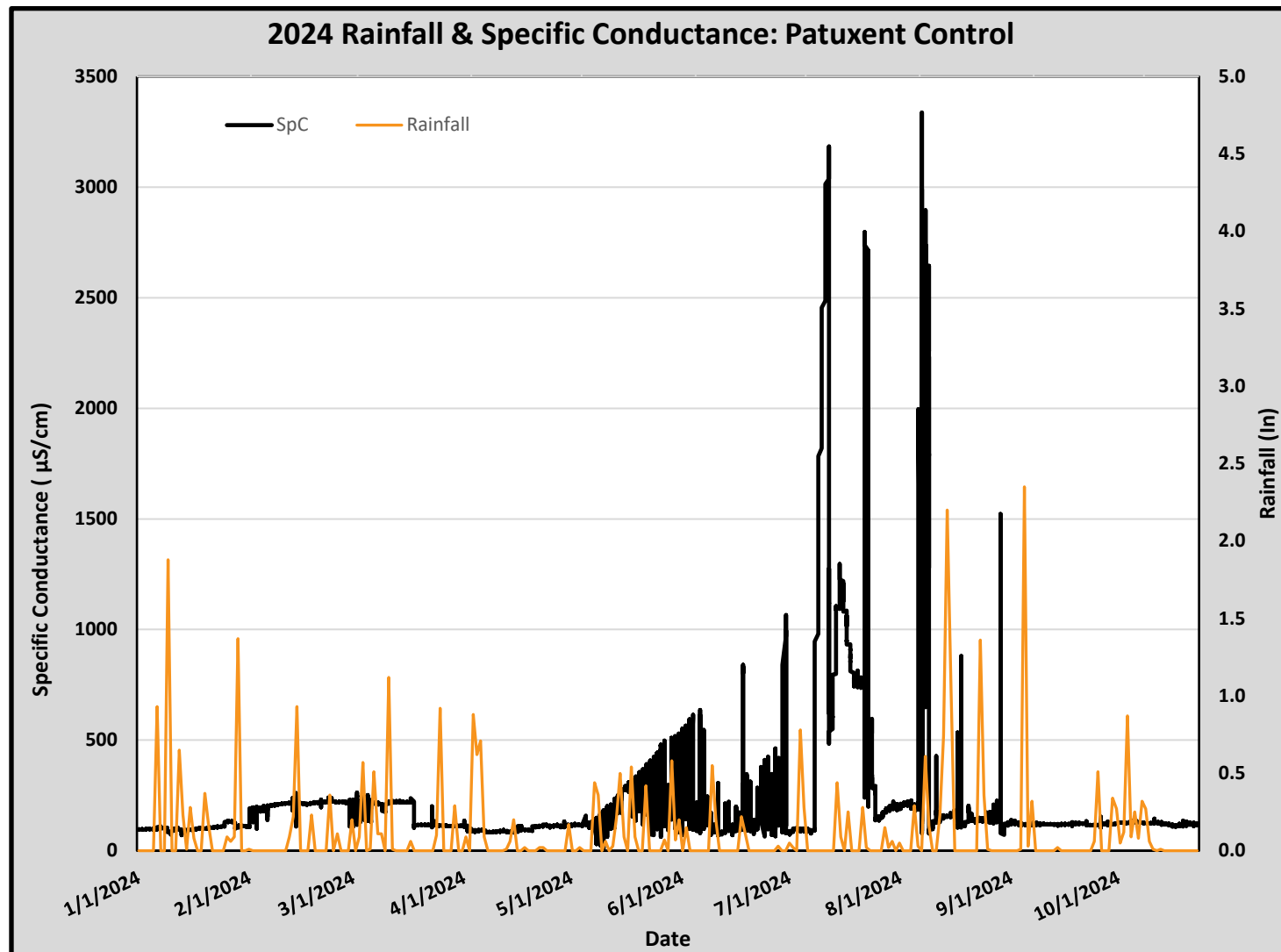






110 Tributary Logger Location





Patuxent Control Logger Location

Patuxent Reservoirs Conductivity Monitoring

- Pilot study
- Two monitoring stations
 - Upper Patuxent River at Rt. 97
 - Lower Hawlings River at Rt. 650
- Assessing two major water sources for Triadelphia and Rocky Gorge Reservoirs



Upper Patuxent Logger Location

**Patuxent River Watershed
Conductivity Monitoring Locations**

Patuxent Mainstem

Haulings Mainstem

DAMASCUS RD

GEORGIA AVE

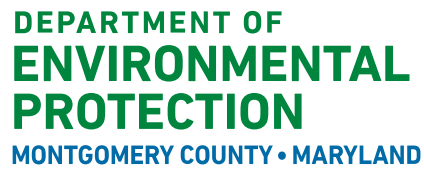
NEW HAMPSHIRE AVE

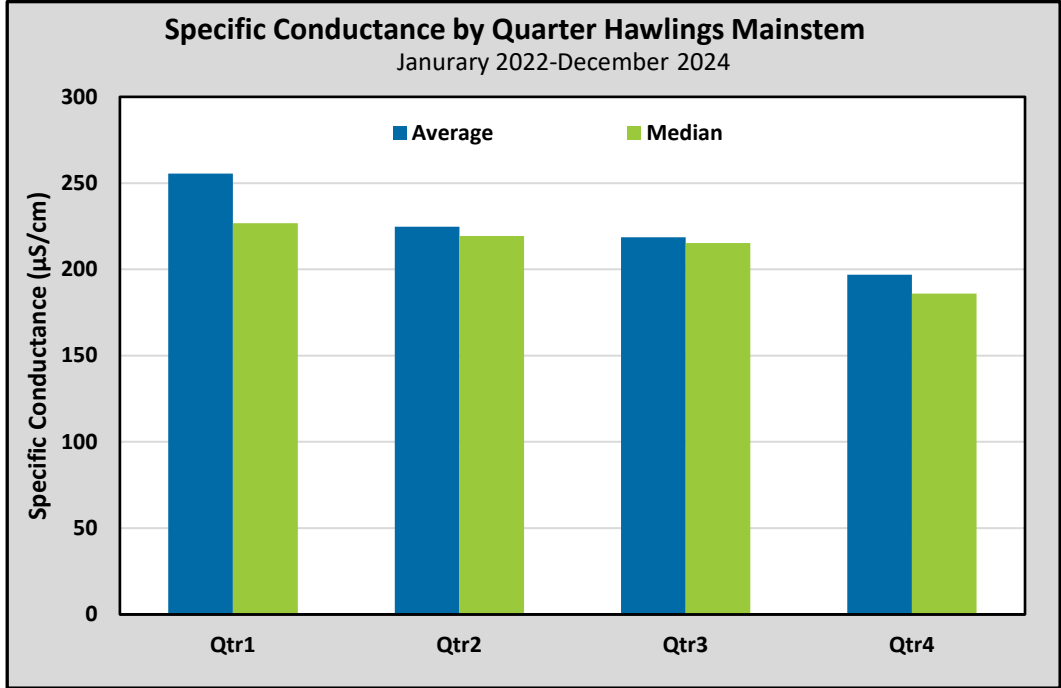
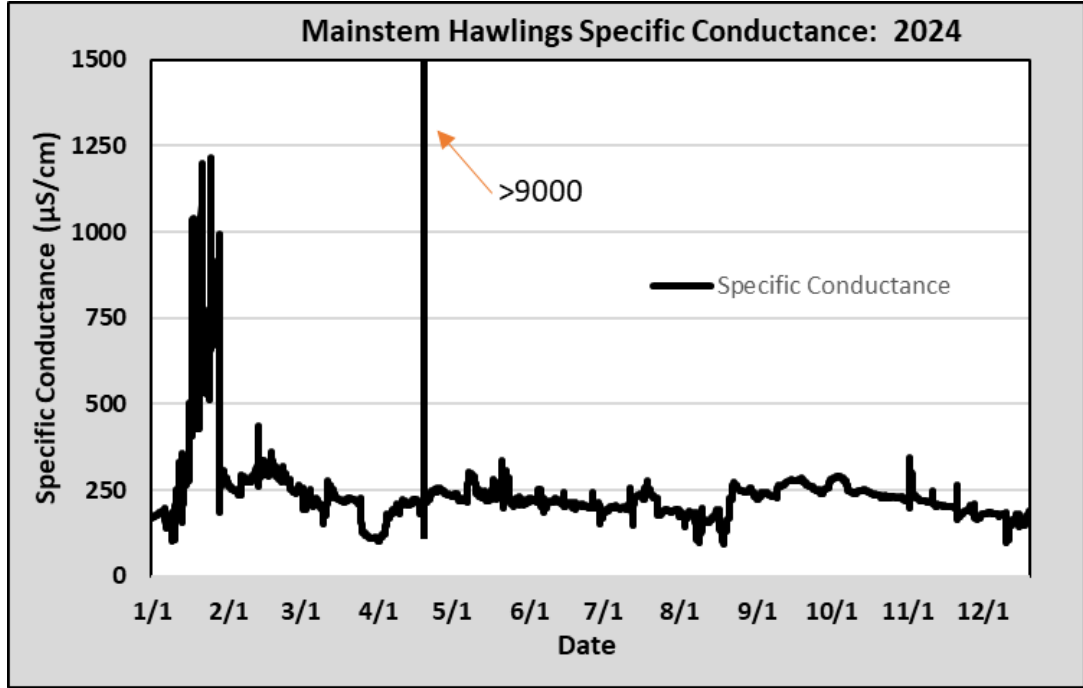
HIGH ST

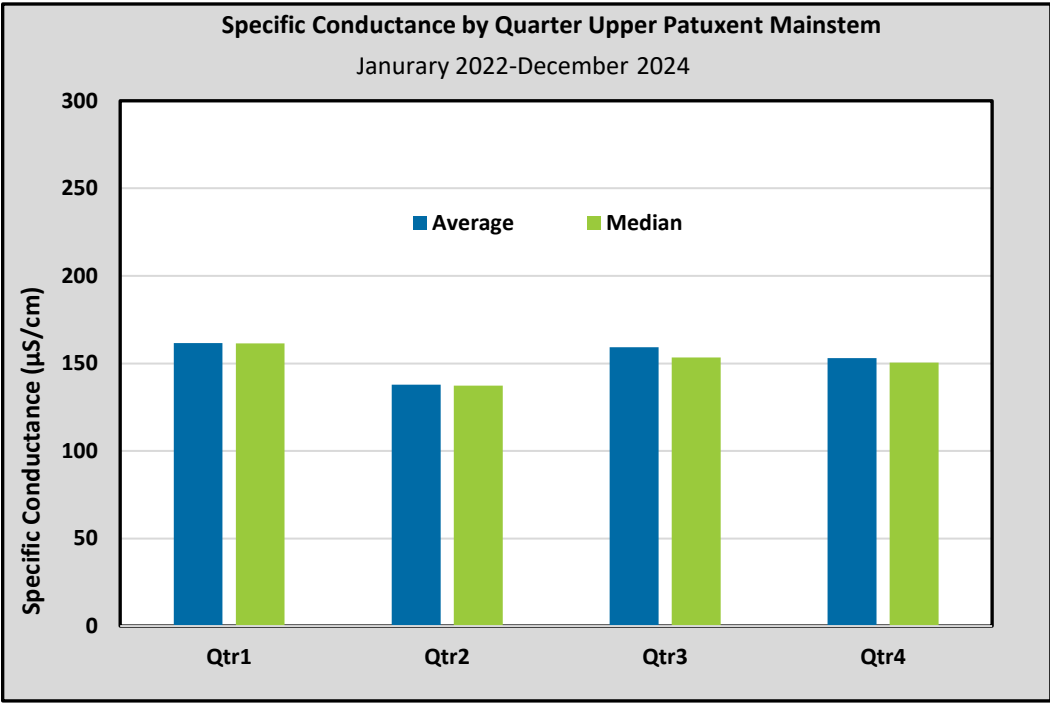
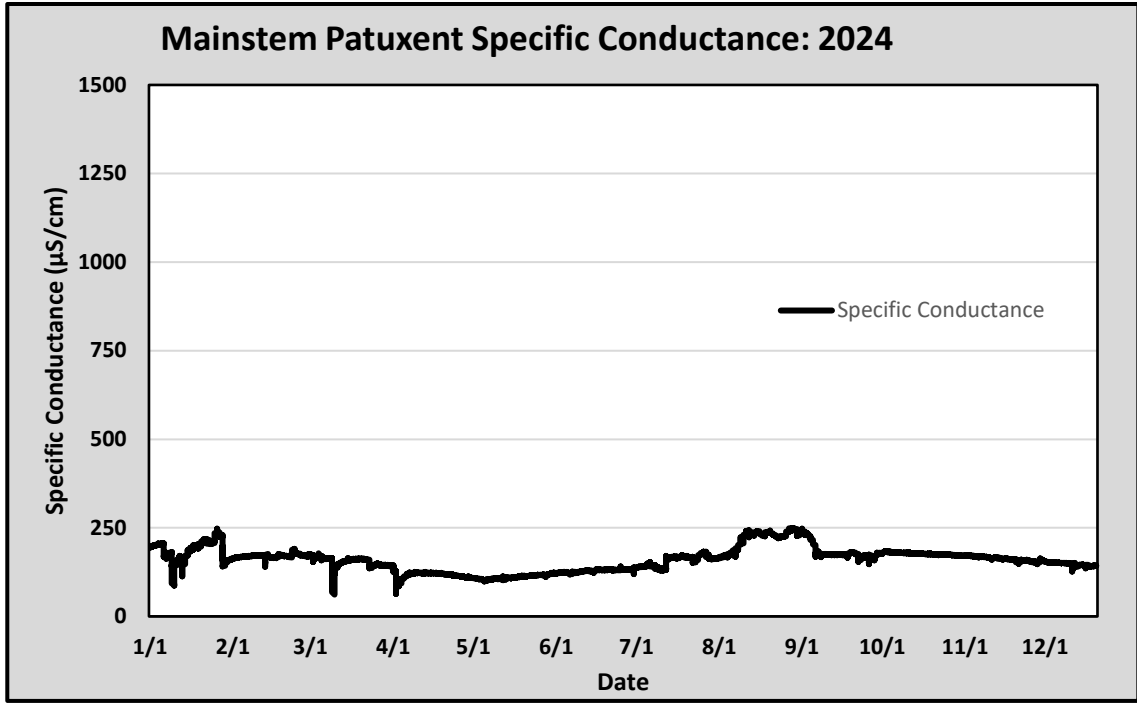
0 0.38 0.75 1.5 Miles

N

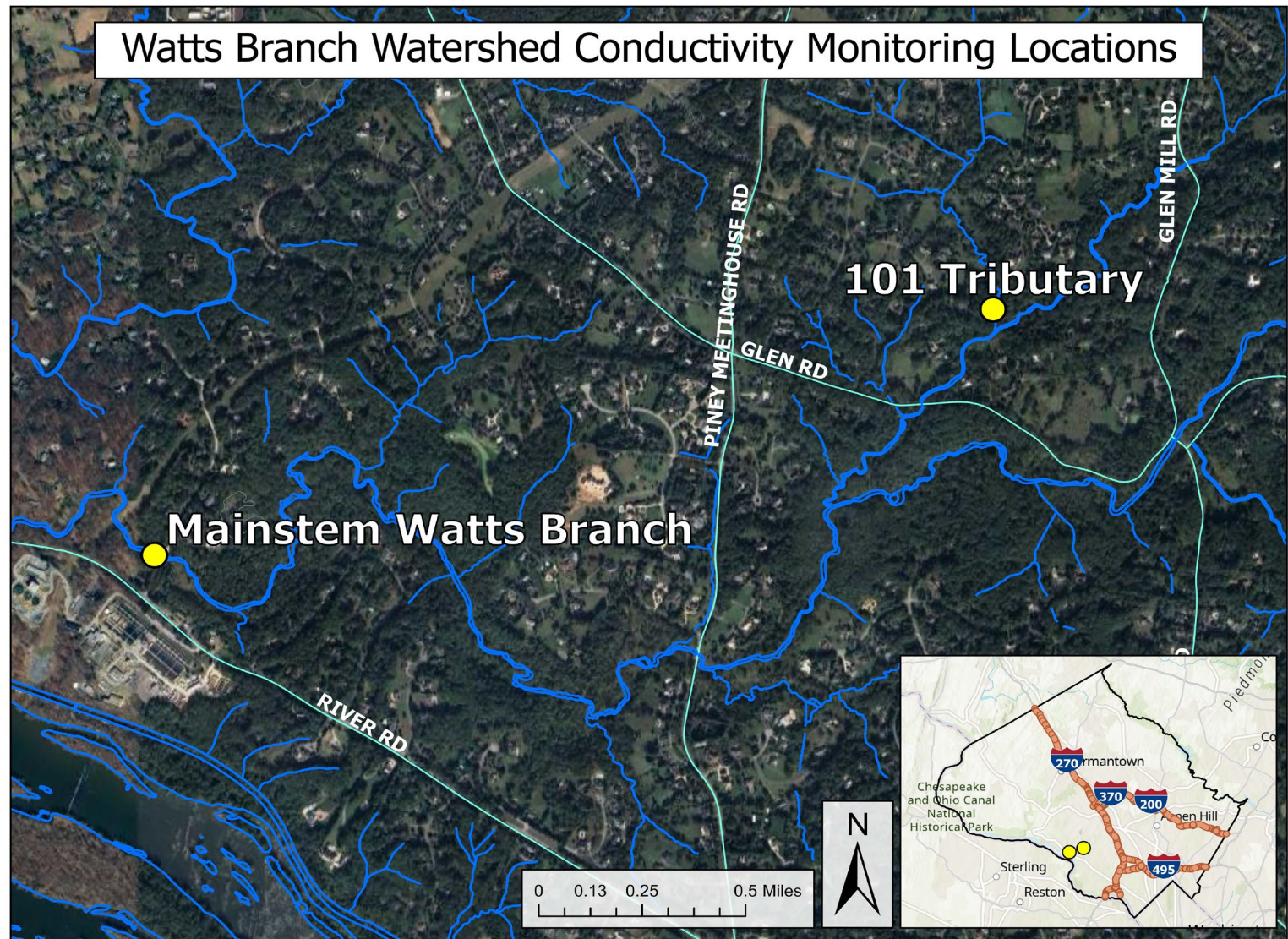
Inset map labels: Arlington, Manassas, Reston, Washington, D.C., Potomac River, and highways 270, 370, 200, 495.





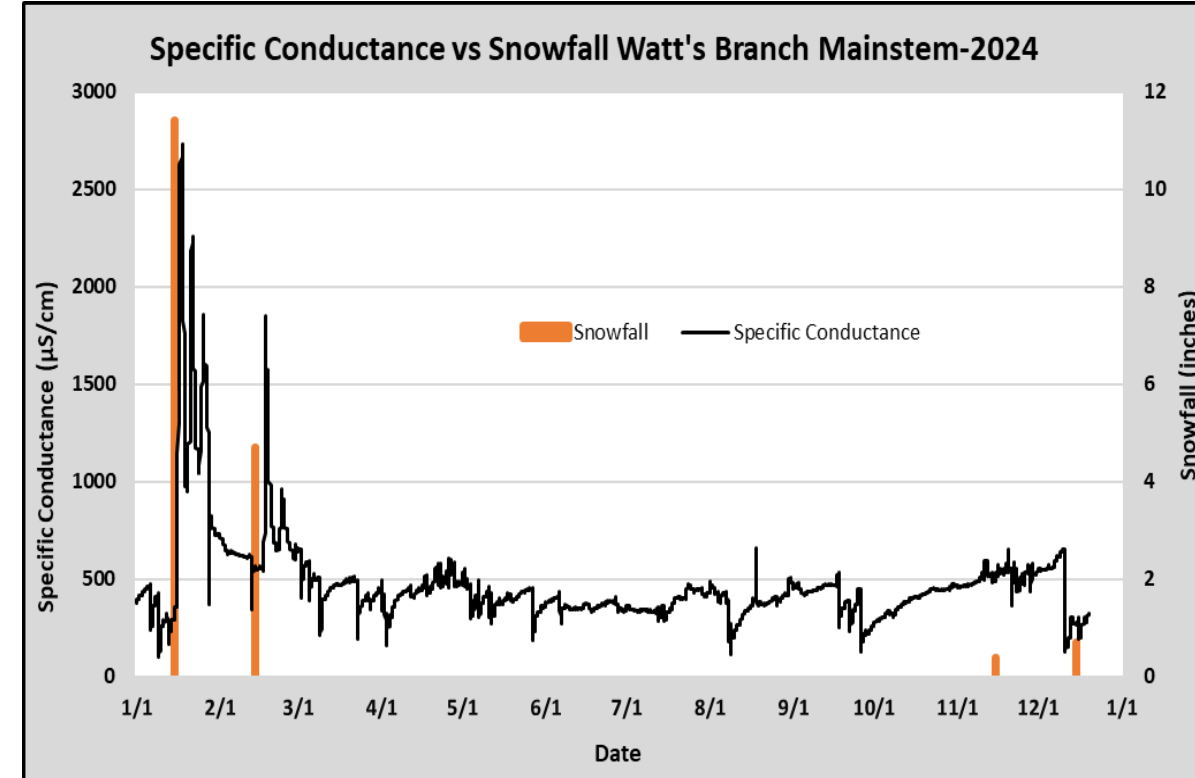
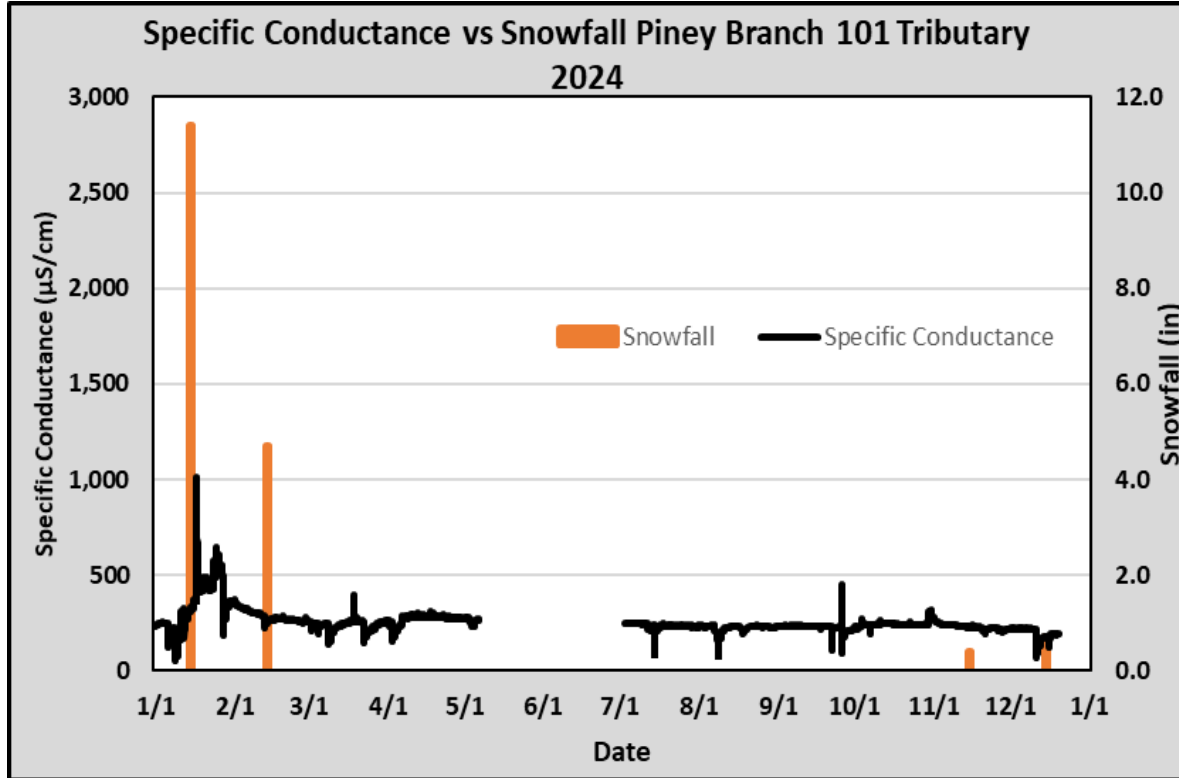


Watts Branch Watershed Conductivity Monitoring Locations



DEPARTMENT OF
**ENVIRONMENTAL
PROTECTION**
MONTGOMERY COUNTY • MARYLAND





Looking Forward: Watts Branch Cooperative Monitoring

- A partnership between University of Maryland, WSSC, and MCDEP
- Measure the contribution of Watts Branch ions to the Potomac Filtration Plant
- Two continuous conductivity loggers
 - Piney Branch tributary to Watts Branch
 - Mainstem of Watts Branch 1.2 miles above confluence with Potomac
- Collection of grab samples every 4-6 weeks to generate watershed specific ion curves.
(Thanks Sujay!)



What we are seeing:

- Small streams have higher conductivity than larger ones
 - Is this dilution or watershed storage?
- Small streams are more volatile than larger ones
- Low salt use in 2021 and 2022 resulted in reduced conductivity
 - If a low salt application year is detectable in most watersheds, management actions could have an immediate impact
- Road salt is not the only source of conductivity
 - Spring/summer spikes in undeveloped watersheds
 - These sources are generally small compared to road salt influence



Questions?

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Daniel.Isenberg@montgomerycountymd.gov

