ANACOSTIA RIVERKEEPER®

What's in the Water?

Community Science Recreational Water Quality Monitoring

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Community Science Monitoring



Improve water quality in the Anacostia watershed by:

1. Training local residents to be clean water advocates.
2. Creating a public facing database of up-to-date water quality data.
3. Educating & empowering residents to make safe recreational decisions.

Anacostia Riverkeeper: Maryland Monitoring Program

Chesapeake Monitoring Cooperative:
Tier 2 Certified Data
*** Pursuing Tier 3 in 2025****

Monitoring in Montgomery County funded via CBT's *Clean Water Montgomery* grant

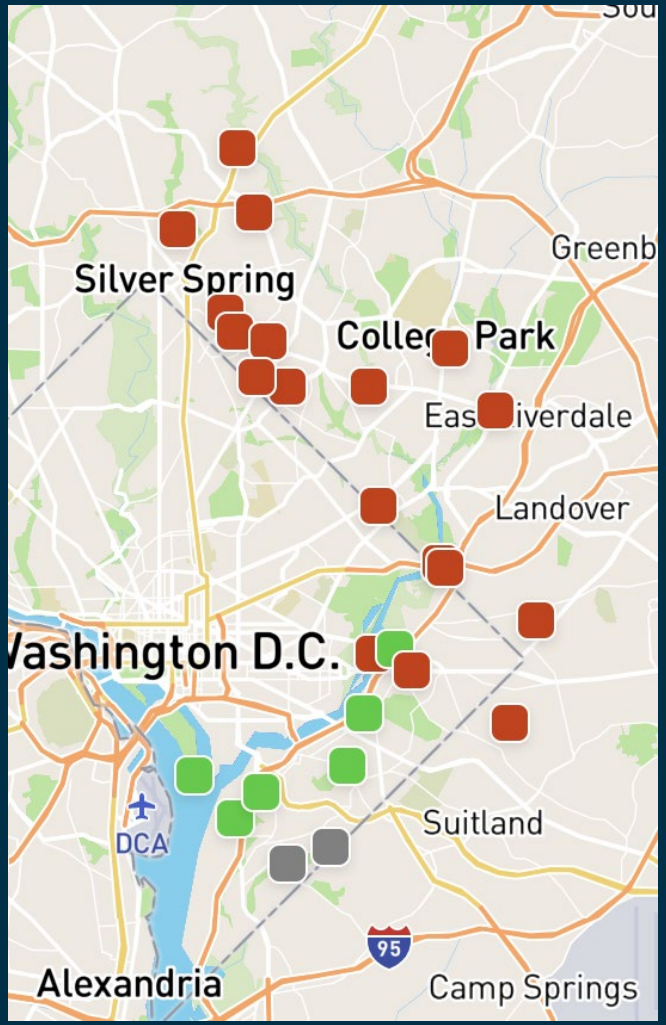
In partnership with:

Defensores de la Cuenca

Friends of Sligo Creek

Neighbors of Northwest Branch

One Montgomery Green



Recreational Monitoring Focus:

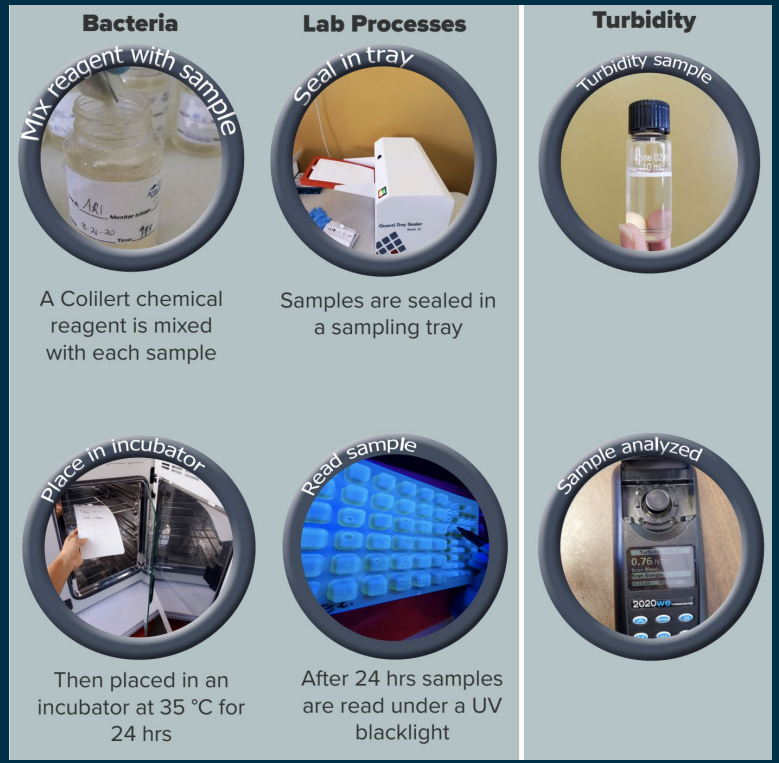
- Educating public on when & where water might be safe for recreational contact
- Follow EPA guidelines for recreational water contact:

Bacteria *(E. coli)*	**pH**	**Turbidity**
Single-sample value: <410 MPN/100 mL Geometric mean: <126 MPN/100 mL	6.5 - 8	<20 NTU above ambient

Field Sampling Technique

- Trained volunteers visit sites biweekly on Wednesday morning between 7-10am
- Water and air temperature, pH, and general observations measured at site
- Bacteria & turbidity samples collected in field
- Samples kept on ice & turned into ARK lab within 5 hours of sample collection

Sample Processing at Lab



Bacteria:

→ *IDEXX Colilert system*

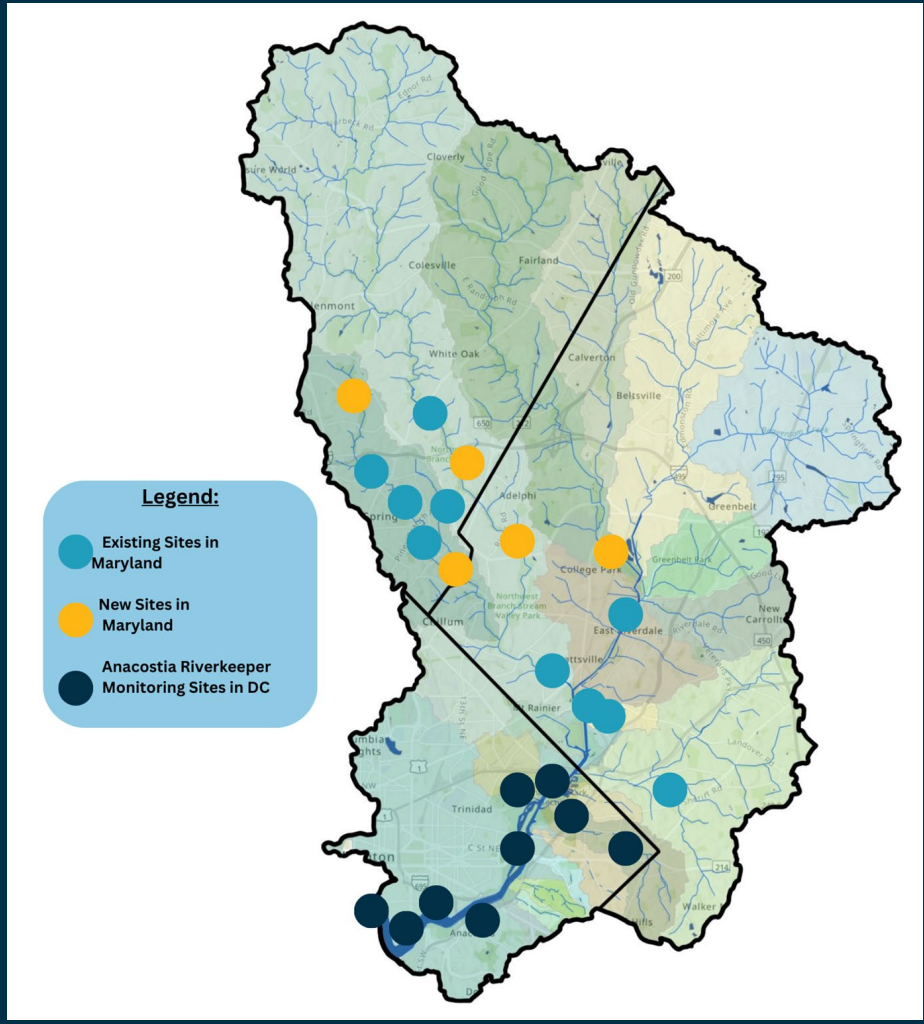
Turbidity:

→ *LaMotte 2020t (nephelometric method)*

Monitoring Program in Montgomery County

- ➔ Five sites monitored since 2021
  - Sligo Creek (3 sites)
  - Northwest Branch @ Burnt Mills
  - Long Branch @Rolling Terrace ES

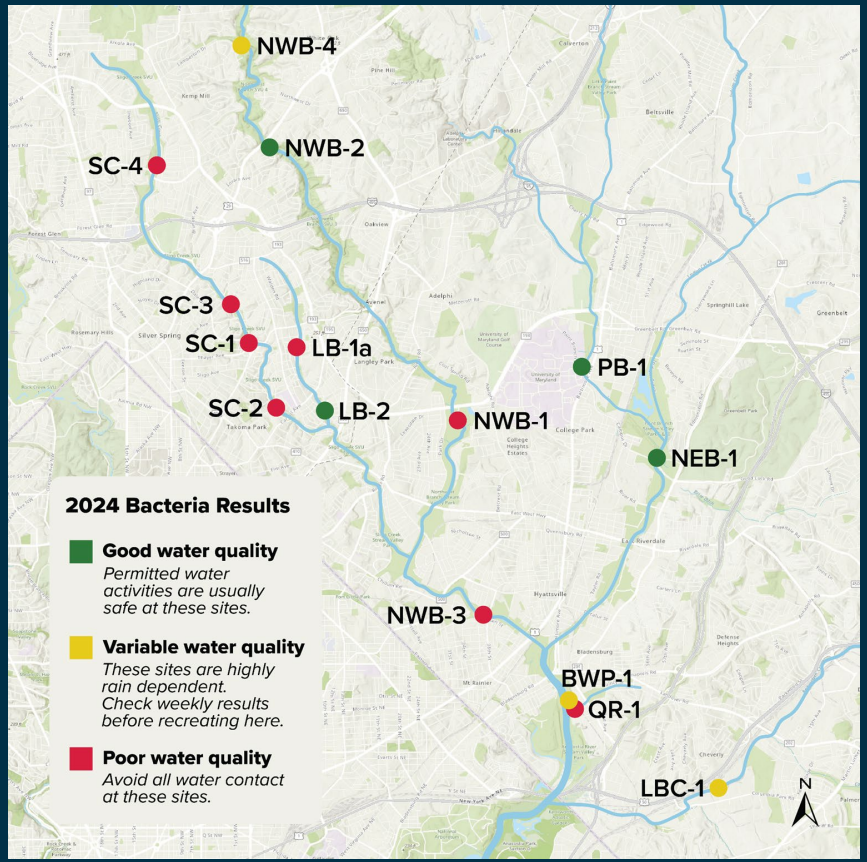
- ➔ Added three new sites in 2024
  - Sligo Creek @ Dennis Ave
  - Northwest Branch @ Lamberton Dr
  - Long Branch @ Becca Lilly Park



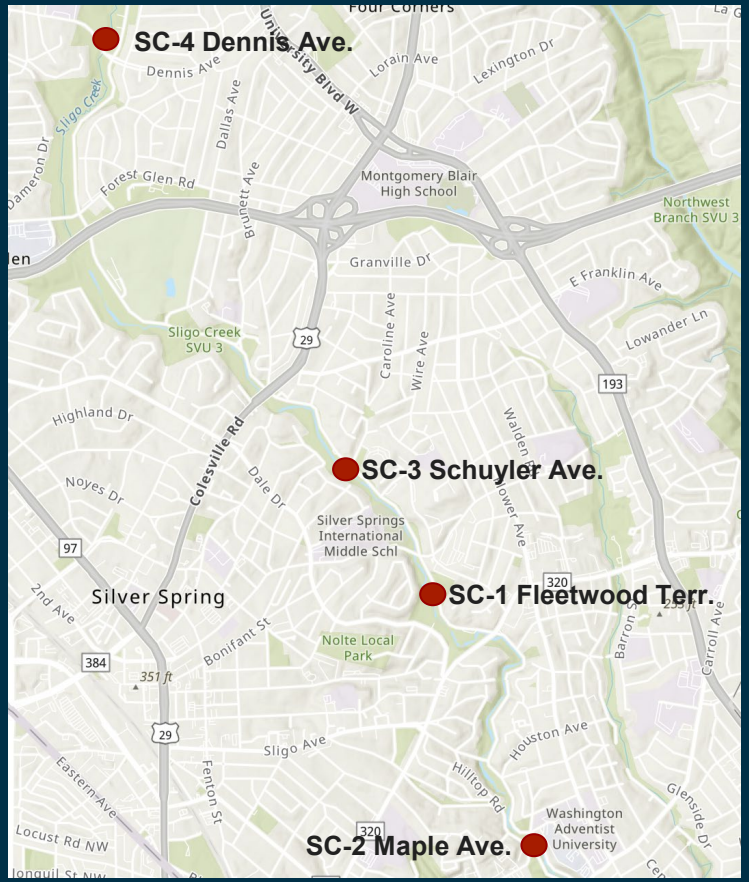
2024 Upper Anacostia Results

→ Best water quality tends to be closer to headwaters

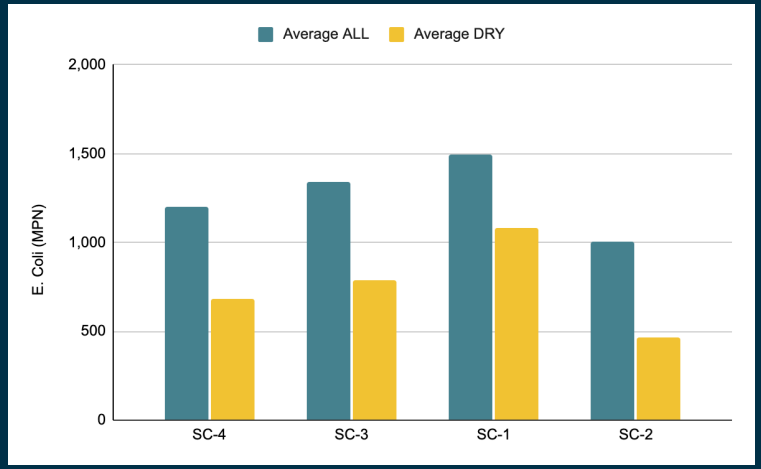
→ Despite dry summer, overall bacteria levels were higher than past years, especially in Montgomery County.



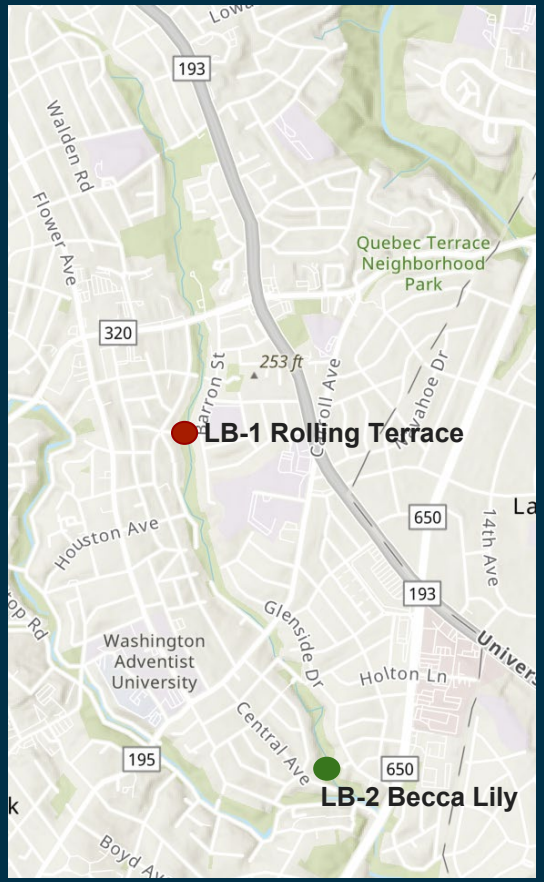
2024 Results: Sligo Creek



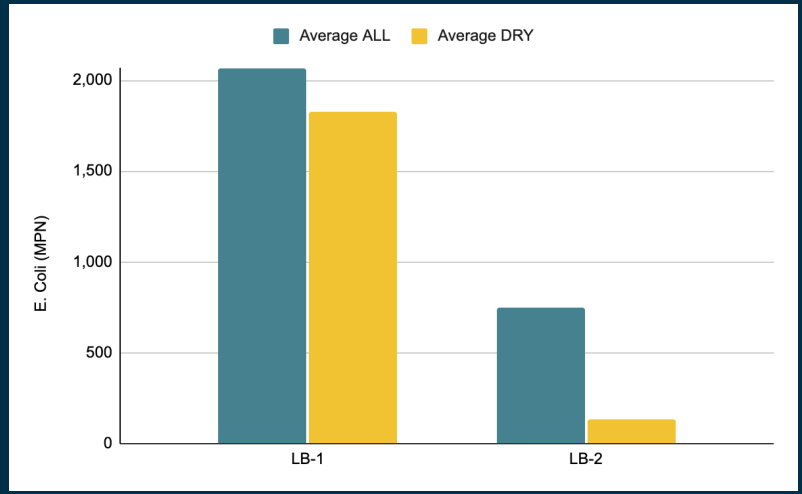
- Despite low rain this summer, Sligo Creek had abnormally high bacteria levels, especially upstream.
- Contradicts previous understanding that bacteria in Sligo is stormwater/ dog linked.



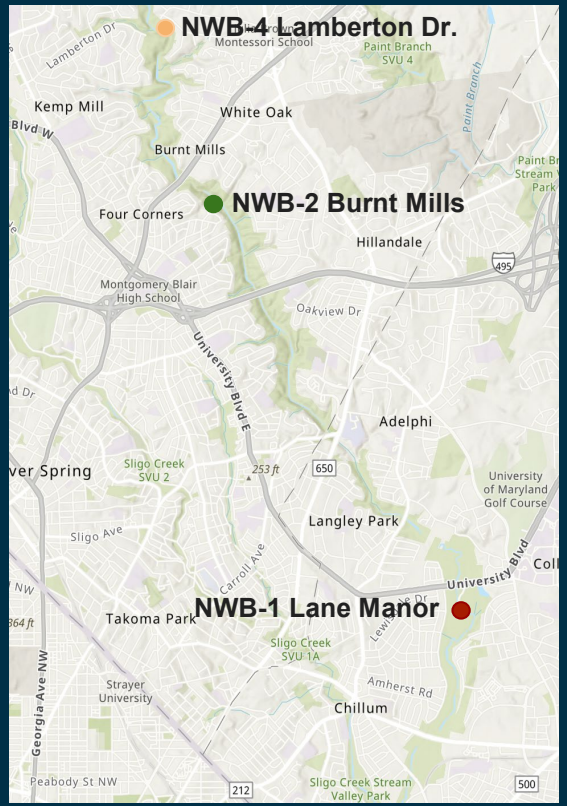
2024 Results: Long Branch



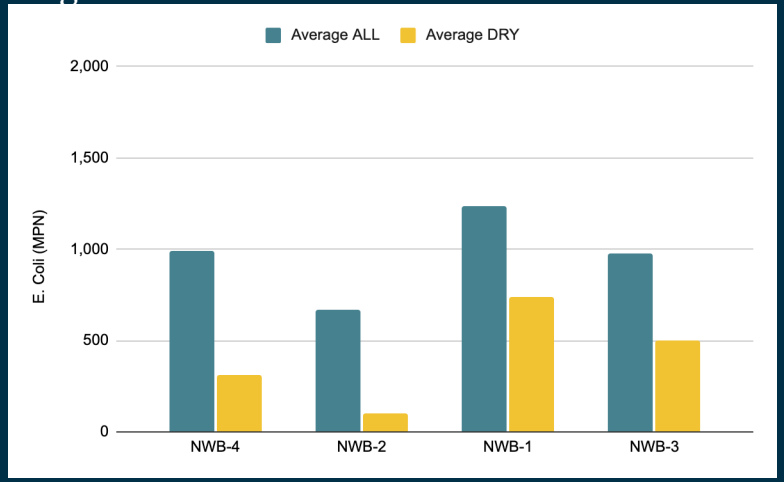
- "Tale of Two Streams", with upstream water quality poor, yet downstream among the best in the watershed!
- Active construction & streambank restoration just below LB-1, looking forward to next year's data.



2024 Results: Northwest Branch



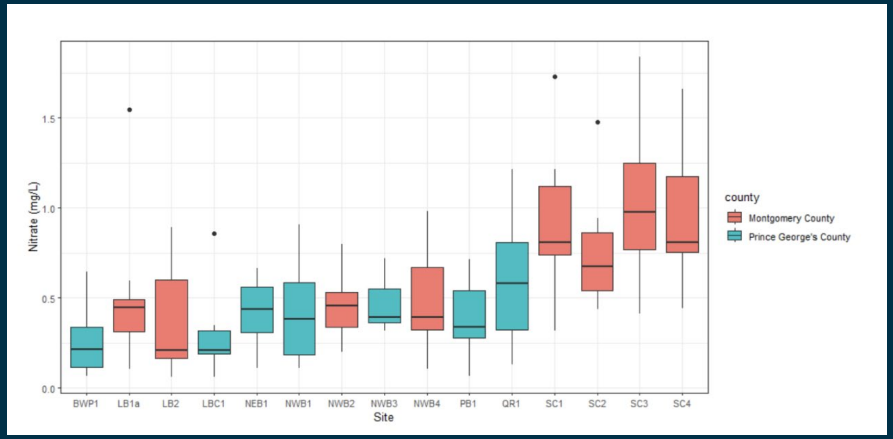
- Burnt Mills historically lowest dry-weather bacteria in the watershed, trend continued this summer.
- New site @ Lamberton Dr had higher bacteria late summer, potentially caused by known WSSC leak in area.
- Note, that downstream in Prince George's County we see high bacteria in all weather conditions.

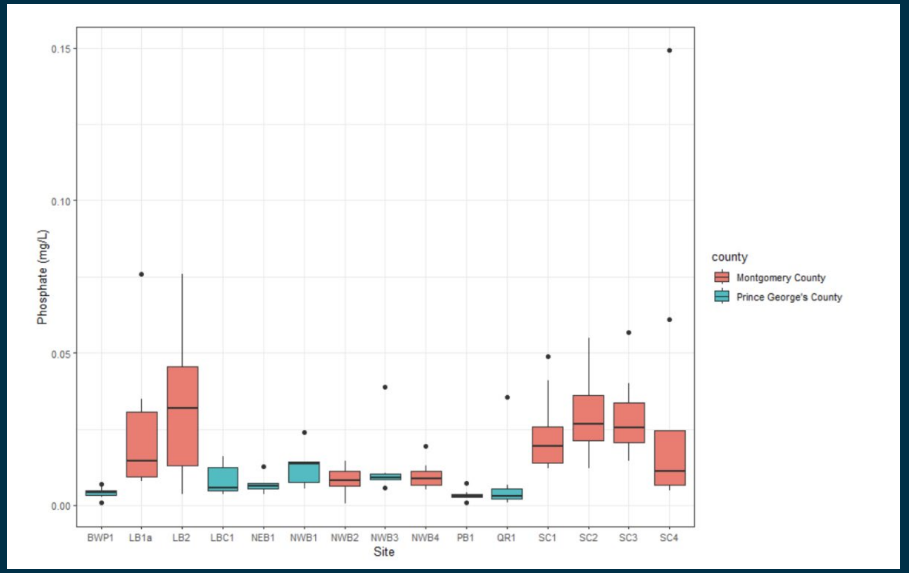


Nitrogen & Phosphorus

Smithsonian
Environmental Research Center

- Overall, nutrient concentrations were typical of urban streams, relatively high compared to background due to urban sources of pollution such as fertilizer, pet waste, and wastewater.
- Nitrate levels (and overall nitrogen) highest in Sligo Creek. Long Branch showed relatively high phosphate levels.





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Climate Change, Recreational Water Quality and Public Health: A Novel Microbial Water Quality Assessment

Dr. Amy Sapkota, Dr. Suhana Chattopadhyay, Dr. Leena Malayil
School of Public Health- CONSERVE Lab

At 10 sites across the watershed, UMD scientists:

1) Confirm coliform & vibrio spp presence, and isolate colonies **(Completed)**
2) Explore microbial resistance & virulence of collected isolates. (**In process, expected December 2024)**
3) Using MST (Microbial Source Tracking), look for human, canine, and bird markers in each isolate. (**In process, expected spring 2025)**

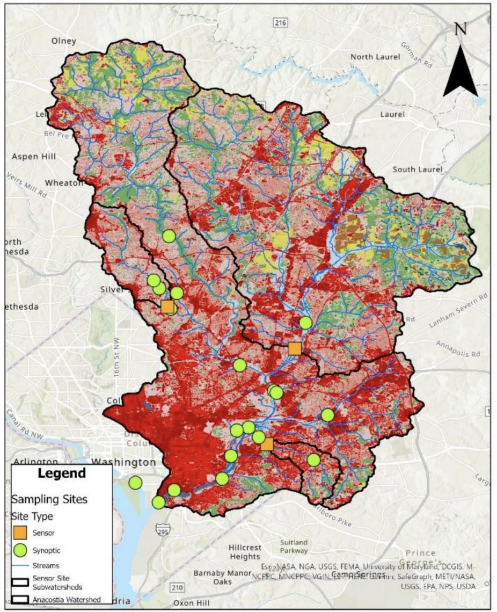
Combining incubations, sensors, and molecular approaches to understand E. coli sources and wastewater contamination across the Anacostia River watershed

Dr. Rebecca Hale & Dr. Katrina Lohan
Smithsonian Environmental Research Center

Smithsonian Environmental Research Center

What are the dominant sources of *E. coli* across the Anacostia watershed? How do they vary among sites and seasons?
Microbial source tracking (MST) to characterize *E. coli* sources at existing monitoring locations in Maryland.

What sensor parameters are associated with *E. coli* concentrations? How do sensor proxies vary for different sources of *E. coli,* across seasons and flow conditions?
Combine high frequency sensors (turbidity, DO, optical brighteners, tryptophan & other fluorescence signatures) with regular sampling for *E. coli* concentrations and MST.



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Goals for 2025 & Beyond…

- ➔ Increased public outreach & advocacy for safe recreation in the watershed.
- ➔ Continue to build monitoring partnerships.
- ➔ Utilize MST data to move the needle and decrease bacteria in the watershed.