

Anacostia Field Experience

Comparing Water Quality



Anacostia Riverkeeper offers these educational experiences when out exploring the watershed. Feel free to print & use when exploring on your own!

Anacostia Field Experience: Comparing Water Quality

Suggested Grade Band:	Grades 3-5
Next Generation Science Standard:	5-ESS3-1: <i>Obtain and combine information about ways individual communities use science ideas to protect the earth's resources and environment.</i>

Background Information

Anacostia Riverkeeper has been running volunteer water quality monitoring since 2018 in the Anacostia Watershed. This data is gathered weekly during the summer recreational season (May-September), and published on social media as well as SwimGuide and WaterWatch so residents and tourists in DC can make responsible recreational decisions while exploring the nation's water. Data analyzed includes physical attributes (temperature, pH, and turbidity), but as you will see focused in this lesson, also includes bacteria levels like *E. coli*.

Supporting Materials & Resources

To help you (& your students) understand this data, we suggest the following websites & readings:

- USGS: [Bacteria and *E. coli* in the Water](#)
- DOEE [Water in the District Homepage](#)
- Anacostia Riverkeeper [Water Quality Monitoring homepage](#)

Answer Key

Site A (upstream in Sligo Creek) has the slowest moving water, with lots runoff from the surrounding neighborhood, and therefore has the lowest water quality. We actually see the best water quality from site C (Yards Park) as the deep water & tidal influence helps reduce bacterial loads.

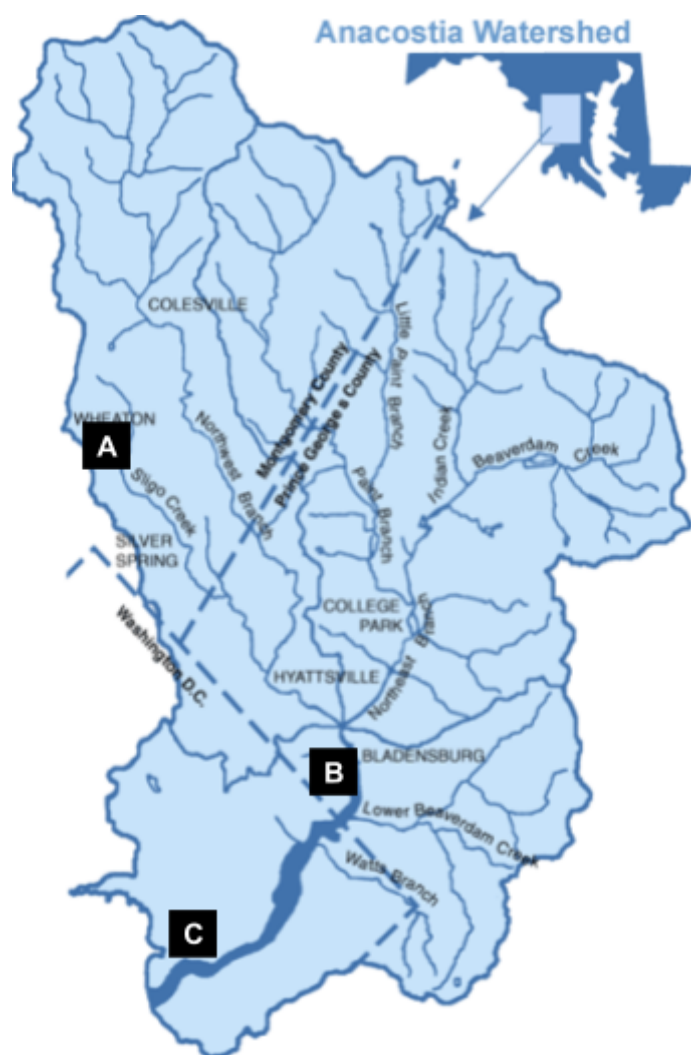


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Water quality in the Anacostia and its tributaries vary greatly. One of the major pollutants in the water is *E. coli*, a bacteria found in feces of any warm blooded animals- including human sewage or dog waste!

In general, we can predict that bacterial levels are highest in areas with:

- Shallow or slow-moving water
- Water near lots of impervious surfaces (*sidewalks, roads, parking lots or driveways that water can not pass through*)
- Water near stormwater outflow or drains (i.e culverts & pipes)



Comparing sites A-C, what site do you expect to have the **MOST** bacteria?
Why?

Comparing sites A-C, what site do you expect to have the **LEAST** bacteria?
Why?

Anacostia Riverkeeper has volunteers collect water samples in the summer, and then processes samples in their lab. Using the IDEXX system, they place these samples in trays that grow out the bacteria and then count how many wells that bacteria grow in.

Below, you can see three images of IDEXX trays from sites A-C. To calculate the bacteria in the water, you would count the numbers of large and small wells that turn yellow under a black-light. Count the wells that are yellow (both large & small) and then try and match with your water quality predictions on the last page!

Quanti-Tray	Number of Small Wells	Number of Large Wells	Which site is this from?
