Water Quality and Biodiversity in Sandy Spring: A Stream in the NW Branch of the Anacostia (39.14 Lat. -77.028 Long.)

The NW Branch of the Anacostia River flows through Sandy Spring. For this project, students measured water quality in relation to various measures such as water chemistry and macroinvertebrate biodiversity in an effort to better understand the health of urban streams.

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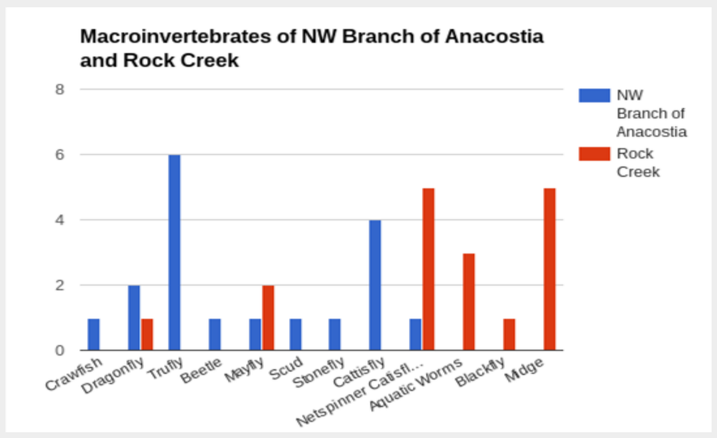
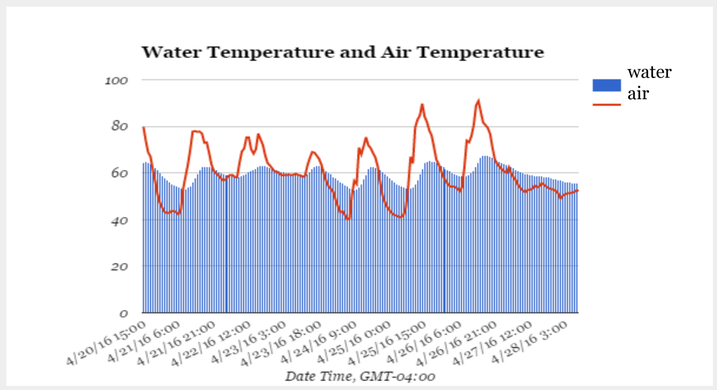
Macroinvertebrates of the NW Branch of the NW Anacostia River and Rock Creek, Comparatively

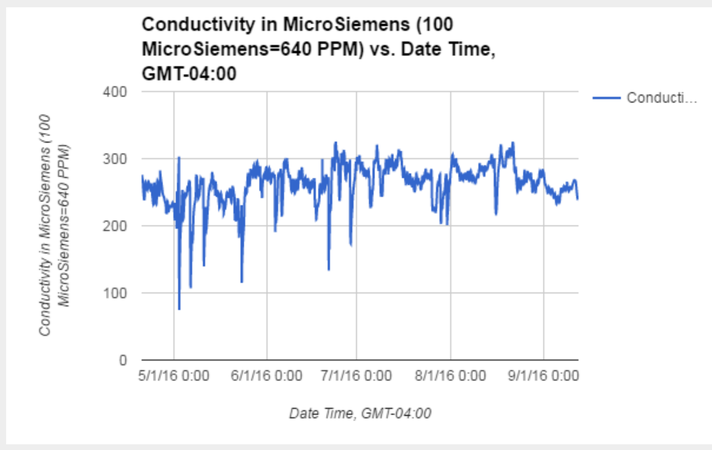


-Based on the quantity and diversity of macroinvertebrates found at the two locations, both sites are able to provide an environment suited for somewhat sensitive organisms.
-The species found at both sites indicate that Rock Creek may have worse water quality because there were more of the tolerant species and fewer of the sensitive species.
-The species diversity was greater at the Anacostia site, a less urban area. The species diversity was significantly less in Rock Creek, which is a more urban location.
-Both streams support different sensitive organisms. (Rock Creek supports alderflies; the Anacostia stream supports stoneflies, beetles, and caddisflies.)
-The purpose of comparing these two locations is to develop a better understanding of the health of urban streams and to use this knowledge as a baseline for future projects that will improve the stream's health.

Water Chemistry



Water and Air Temperature
The water temperature of the stream usually ranges from 65-75 F in the summer and 35-45 F in the winter. The average temperature of this stream stayed around 58.1 F. The average air temperature measured to around 68.5F.



Conductivity and Salinity
-Most pristine conditions range between 0 - 128 PPM, and the Northwest Branch of the Anacostia averages from 96 to 179.2 PPM, with many fluctuations. -Fluctuations in conductivity are associated with fluctuations of dissolved oxygen and biological oxygen demand in a body of water.
-High conductivity levels indicate higher salinity
as conductivity increases, the concentration of ions (salt) increases.

Methods

Examining macroinvertebrate samples from the NW Branch of Anacostia

Collecting macroinvertebrate samples by seining at Rock Creek on April 18

Damselfly found in the NW Anacostia, later preserved with ethyl alcohol.

Credits:
USGS Surface-Water Historical Instantaneous Data for the Nation: Build Time Series. (n.d.). Retrieved May 30, 2017, from https://waterdata.usgs.gov/nwis/uv/?referred_module=sw waterboards.ca.gov

Stream Health. (n.d.). Retrieved May 30, 2017, from http://dnr.maryland.gov/streams/Pages/streamhealth/default.aspx

"FieldScope 5 - Chesapeake Watershed Project." *FieldScope*. N.p., n.d. Web. 30 May 2017.

Sharova, M. (2016, March 17). Smithsonian Environmental Research Center. Retrieved May 30, 2017, from https://serc.si.edu/citizen-science/projects/urban-ecology-engagement-initiative