

# Biodiversity in the Sandy Spring

## A stream in the NW Branch of the Anacostia

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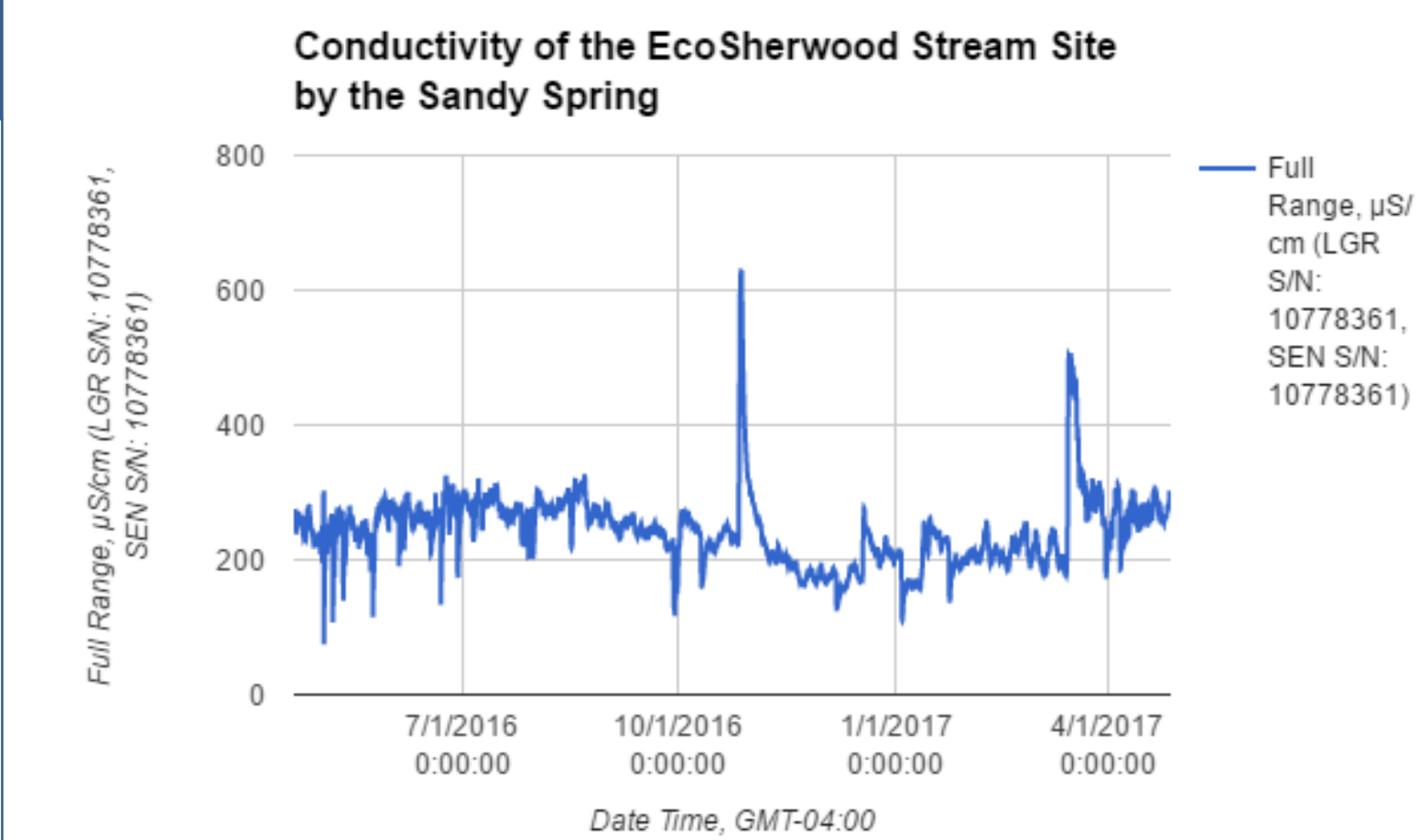
### Project Overview

We are in the preliminary stages of a long term study intending to answer the question:

- How does land use and natural occurrences (flooding, erosion, etc.) affect the biodiversity and environmental health of the Northwest branch of the Anacostia River? We will continue to conduct research throughout our next two years of high school, and then pass the project on to the future generations of Ecosherwood members.

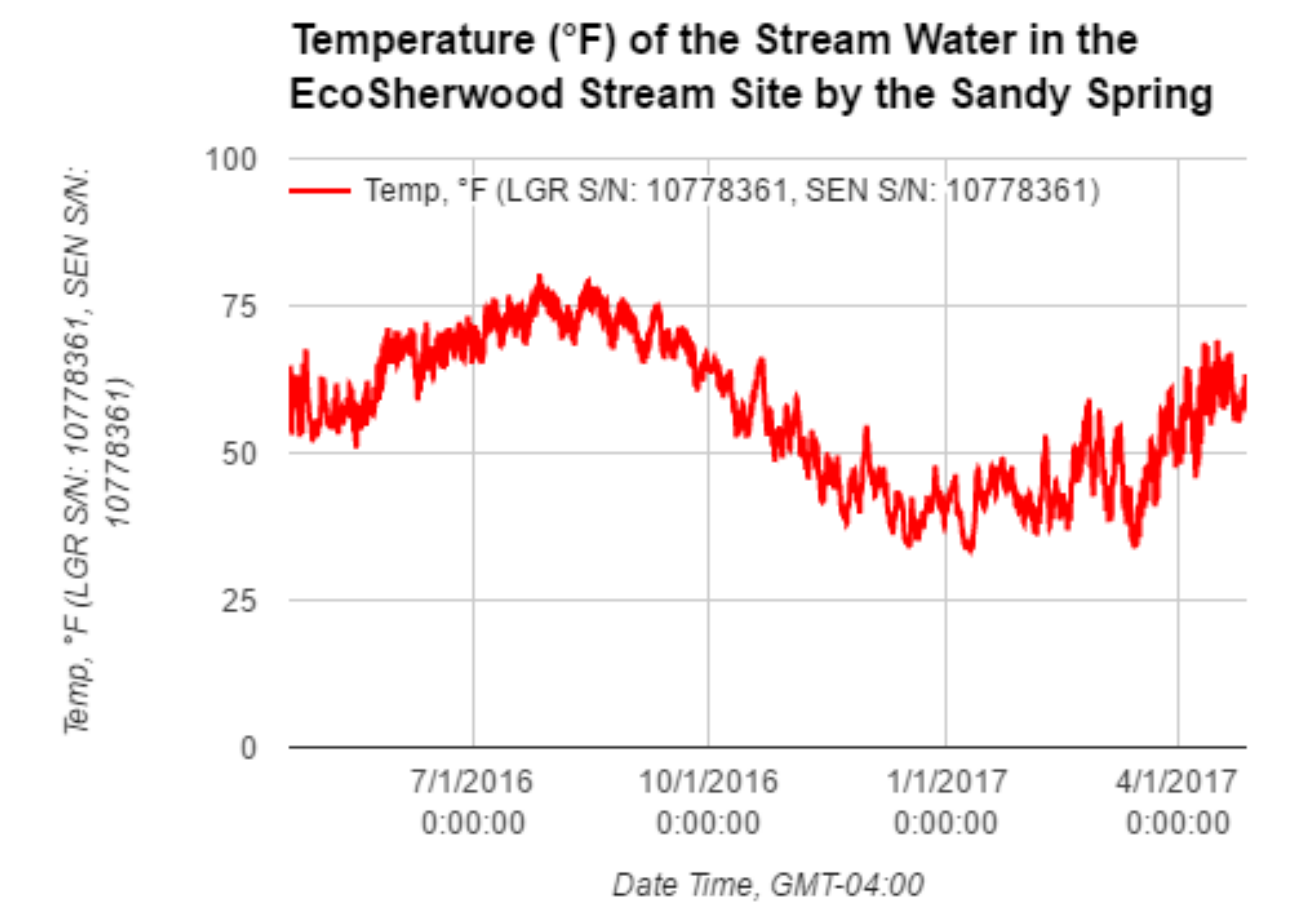
### Land Use

- Our site is in a mainly residential and agricultural area
- This may affect the biodiversity of the area from changing the natural land through construction, additional chemicals, changes in erosion, etc.
- Fertilization chemicals that come from farms and seep into the ground may cause harm to the biodiversity in Sandy Spring.
- These changes and their effects on the biodiversity of the region is the main focus of our three year study.



Graph 1. Conductivity of our site.

Graph 2. Temperature of water at our site.



### Background

- The Anacostia flows through Montgomery County, Prince George's County, and D.C.
- The Anacostia River flows into the Potomac River and ultimately the Chesapeake Bay.
- The stream we studied with in the NW Anacostia begins at Sandy Spring, MD (approximately 1 mile from our school). Lat: N39° 8'10.4" Long: W77° 16.19".
- The stream then flows 21.5 miles southward to meet up with the main stem of the Anacostia.
- Sandy Spring was used as a watering place for many forest animals as well as a meeting place for American Indians who were passing through the area.

### Observable Impact of Land Use

- Urbanization and construction has begun in the Sandy Spring area recently, disrupting the surrounding nature, such as our research site.
- An example of this can be seen in the recent construction of a parking lot approximately a mile from the site, resulting in an increase in pollutants, such as plastic, being found in the stream.
- Recent construction at the Sandy Spring Friends School for additional parking has resulted in increased human activity within an area with decreased proximity from stream.
- Results in increased plastic gathering around stream, capable of suffocating organisms and breakdown releases polychlorinated biphenyl PCB toxins, resulting in bioaccumulation

### Graph Analysis

- Salts from runoff can lead to increases in electrical conductivity because more dissolved salt leads to more ions that can carry electric charge through water; temperature also causes increases in conductivity.
- Increases in electrical conductivity may impact the biodiversity of the stream because many organisms have specific ranges they can tolerate; too much exposure to conductivity can cause harm/changes to populations of plants and animals.



Figure 1. Our study site.

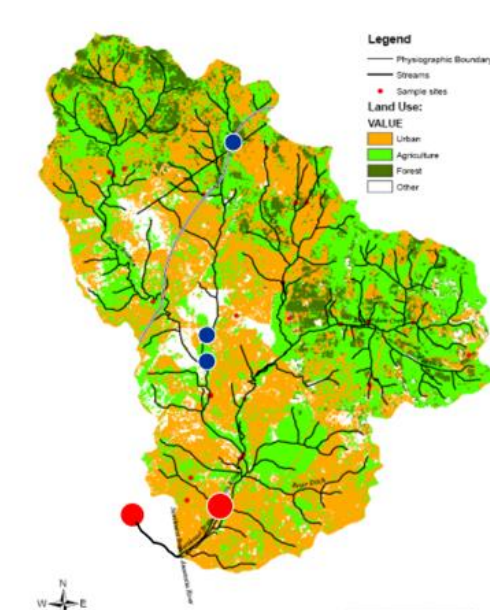


Figure 2. Distribution of land use in our region.



Figure 3. Iridescent substance.

Table 1. Data observed at our study site

	Observations
Site 1: Near Pathway	2 mayapples, 5 worms, Dead Leaves, Greenish-white fungus, Several ants, 6 ferns, Medium black spider
Site 2: Near Pathway	Caterpillars, Centipede, Toad, Two worms, Light-colored Ant colony
Site 3: Forest near stream	Daddy long legs, Chaotic spider nest; wolf spider, Tree fungus, Oak leaf, Young plant, 5 Worms, White fungus
Site 4: Underneath Tree	Tulip leaf, 10 Worms, Bulbous root, Millipede, Root, Petal, Spider
Site 5: Pool Near Stream	Many tadpoles and frogs, Larvae/ water worms, Water striders, Spiders, Earthworm
Site 6: Shore of Stream	Silt Deposit, Rocks, Deer tracks, Clay Deposits

### Future

- We found a dark, iridescent substance (Figure 3) floating on the surface of the water. In the upcoming year we will further investigate the substance and follow up on the question of what is this substance and what caused it to form?
- In June, Ecosherwood is traveling to Fox Island, in the Chesapeake Bay, close to Smith and Tangier Island. Here we will explore the collect data from the Island to use as a comparison site for our stream.
- Next year, Ecosherwood will be using Wildcams to collect larger mammal data by observing the different species that pass through the designated area.

### Contact

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