

CONDUCTIVITY AS AN INDICATOR OF DISTURBANCE AND TOOL FOR WATERSHED MANAGEMENT

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Increased conductivity of streams is a common symptom of watershed urbanization and is often highly correlated with degraded water quality and impaired biotic assemblages. Stormwater runoff, sewage effluent, and sediment inputs have all been cited as sources of ions that drive conductivity. However, it is often difficult to identify these sources of pollution and distinguish them from one another. In order to better understand the spatial and temporal patterns of conductivity we continuously monitored specific conductance (SpC), stage height, and temperature from October 2016 – April 2017 in seven streams in Athens, GA. Baseflow SpC was consistent in time but variable among streams, suggesting chronic sources of ions in some urban streams. In addition, our study revealed distinct patterns of high conductivity that may be diagnostic of specific stressors and events. For example, we saw clear “first flush” phenomena in the most urbanized watersheds, as well as potential evidence of sewer leaks and sedimentation events. Thus, the continuous monitoring of conductivity may be an effective management tool for identifying specific sources of pollution. Ongoing work will synthesize results and test the application of these monitoring techniques as a tool for watershed management. Additionally, we will explore relationships between macroinvertebrate assemblage characteristics and drivers of conductivity to allow us to better understand how pollution is altering biological communities in Athens streams.

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