

# A SEDIMENT YIELD INVESTIGATION IN AN URBAN STREAM

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Even though urban streams have been sampled extensively for conventional water quality parameters, very little attention has been focused on sediment transport. A sediment yield study was conducted on Rock Creek which is an urban stream located along the fallline in Augusta-Richmond County, Georgia. The stream was sampled for suspended load and bedload at three stations over two storm hydrographs during January 2017. Land use within the Rock Creek watershed, which is approximately 0.5 square miles, is predominantly medium density residential, resulting in 25 percent impervious surfaces. The objective of the sediment yield study was to determine the sediment-discharge relationship and develop the correlation between turbidity and total suspended solids (TSS). Bedload was collected using a handheld Helly-Smith sampler with a 6-inch orifice, and suspended sediment was sampled via grab samples at the three stations and automated sampling on 30-minute intervals at one of the stations. A direct relationship was observed between bedload and TSS (by weight) and stage and discharge. TSS was higher in the first hydrograph even though the second hydrograph was of higher magnitude. Sediment particle size class distribution collected in the bedload sampler was higher in the downstream stations. The linear relationship between turbidity and TSS ( $r^2 = 0.85$ ) was noteworthy in that, it can be used accurately by stream watch organizations to monitor suspended sediment indirectly at a significantly reduced cost and effort. Overall, the results of the study can be utilized by the City of Augusta in planning and maintenance in regards to identification of sediment sources, sediment removal and stream restoration, and establishing best management practices.

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