NUTRIENTS IN WADEABLE STREAMS IN THE PIEDMONT AREA OF THE SOUTHEASTERN UNITED STATES

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During the spring and summer of 2014, the USGS National Water-Quality Assessment Program assessed stream quality across the Piedmont and southern Appalachian Mountain region in the southeastern United States. The goal of the Southeast Stream Quality Assessment (SESQA) is to characterize multiple water-quality factors that are stressors to aquatic life – contaminants, nutrients, sediment, and streamflow alteration – and the relation of these stressors to ecological conditions in streams throughout the region. Two important anthropogenic factors affecting water quality in the region are urbanization and streamflow alteration; therefore, these factors were targeted in the assessment. Findings from the assessment will provide communities and policymakers with information about which human and environmental factors are the most critical in controlling stream quality, and, thus, provide insight about possible approaches to protect and improve stream quality. The targeted design of the assessment used streamflow and land-use data to identify and select sites that reflected a range in the amount of urbanization and streamflow alteration. Seventy-eight multi-stressor sites were selected and sampled across the region for as many as 10 weeks during April, May, and June 2014 for contaminants, nutrients, and sediment. This water-quality "index" period culminated with an ecological survey of habitat, periphyton, benthic macroinvertebrates, and fish at all sites. Fifty-nine sites were on streams in watersheds with varying degrees of urban land use, 5 were on streams with numerous confined feeding operations (CAFOs), and 13 were reference sites with little or no development in their watersheds. This presentation will provide preliminary findings from the SESQA study and focus on spatial distribution of nutrients and related watershed characteristics of selected streams that drained a gradient of urbanized, animal-feeding-operation-dominated, and reference conditions. The data were assessed regionally and by urban center that included Atlanta, Ga., Greenville-Spartanburg, S.C., Charlotte, N.C., Raleigh-Durham-Greensboro, N.C., and Washington, D.C.

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