ABSTRACT
At present, little data is available concerning the overall quality of small aquatic ecosystems in South Carolina. A study of 21 small streams in South Carolina is currently being conducted in order to meet this need. The objective of this work is to assess overall ecosystem quality in order to provide information needed for improved management strategies. The project examines fish populations and methods in addition performs measurements of stream characteristics, chemical concentrations present, and fish exposure to chemical contaminants. This presentation focuses on several contaminant factors detected in water and sediments in 2006 and 2007 and relationship between metals and land use in the drainage areas or watersheds of the sites sampled. Here three randomly selected small streams and GIS-determined watersheds of appropriate size (less than 150 km²). GIS and the South Carolina Division of Watershed Management (SCDW) were used to determine the land use in each watershed. The streams were sampled using ICP-MS, ICP-AES, and Cold Vapor AAAS. Among the metals of interest are aluminum, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, silver, tin, and others. Results indicate that a small number of sites exceeded the published US EPA contaminant concentration and contaminant maximum concentration for a few waterborne or dissolved metals (e.g., cadmium, copper, and nickel). In addition, a small number of sites exceeded published risk threshold values for several contaminant trueness. Linear regression was used to correlate individual dissolved metal concentrations with land use activities in individual and combined watersheds. Results indicate that changes in land use can impact metal pollution in wadable streams. Results are presented in tables and figures and are observed for agricultural and forest land use with several metals (e.g., aluminum, nickel, and others). Developmental land uses do not observe significant effects on these small and largely rural watersheds. Correlations are also considered for the whole study and are separated by biological and ecologic principles. Component analysis (PCA) is applied to watershed land use to simplify interpretation and to reveal parameter responsible for metal contamination variability.

SITE SELECTION
The current study site is characterized by the large river watersheds that further subdivided into smaller wadable streams. Sites were randomly selected in each ecoregion using a Geographic Information System (GIS)–based selection program.

LAND USE CORRELATION
Several linear relationships are observed in the water column or sediments of the major river watersheds that further subdivided into smaller wadable streams.

DISCUSSION
• Results strongly indicate the presence of metals in the water column and sediments, with several sites at concentrations above the EPA Constant Contaminant Concentration (CCS), and sediment risk thresholds.
• Significant trends between metal contaminations and land use within the watersheds are evident.
• Geographic hot spots of metal contamination are evident. This indicates that metals are geographically distributed.

ACKNOWLEDGEMENTS
Kevin Kubachi, SCDNR; Tony Colbe, SCDNR; William Poly, SCDNR; Cathy Marion, SCDNR; Drew Gelder, SCDNR; Brandon Sesa, CIET, Molly Keenan, CIET; S.C. Water Resources Center.