

Presenter	Kevin Tweedy Senior Water Resources Engineer Michael Baker Engineering, Inc.
Type	oral presentation
Category	Benefits of Stream Restoration
Title	<i>The Benefits of Stream Restoration in Coastal Plain Environments – A Practitioner’s Perspective</i>
Abstract	<p>In many areas of the Coastal Plain, streams were historically part of vast wetland systems. The science of stream restoration developed initially for gravel-bed and steeper slope systems. Restoration practices have been modified to address sand-bed, lower slope Coastal Plain systems, and are based on an understanding of the link between streams and wetlands in these environments. Techniques have been in use for a number of years, and include less dependence on hardened structure, greater emphasis on vegetation, emphasis of groundwater connections, and greater attention to sediment transport capacity over competency.</p> <p>Coastal Plain stream restoration projects can provide significant water quality benefits when wetland components are included, as they often are. Most Coastal Plain stream valleys contain hydric soils with high seasonal water tables. Even if wetland components are not specifically designed into a project, the reconnection of the stream with its floodplain often results in high water table conditions and wetland conditions. Surface and ground water flows moving toward the stream system from adjacent lands must pass through a wetland buffer, promoting denitrification, settling of solids and sediment, filtration, and plant uptake of nutrients. Vegetation is often dense in Coastal Plain projects, further promoting the water quality benefits of filtration, reduced water temperatures, and nutrient uptake. Whereas mountain stream restoration projects often focus on ecological and habitat benefits provided by the stream channel itself, Coastal Plain ecological benefits are more closely tied to the restoration of the stream, floodplain, and wetland system. Coastal Plain stream channels themselves seldom support a rich diversity of aquatic life, as stream bed and flow variations are minimal. However, the system as a whole can be quite diverse, supporting a broad range of flora and fauna in response to the wide variety of wetness conditions between the stream system and the adjacent uplands.</p> <p>This presentation will discuss the benefits of Coastal Plain stream restoration projects, in particular how these benefits are of critical importance to coastal areas. Completed project examples will be used to illustrate the topics discussed. Project examples will include a variety of restoration approaches, from projects completed across the Coastal Plain of North Carolina. Completed projects range in age from newly completed sites to projects that have been “in-the-ground” in excess of five years, with discussion of how the design approaches have evolved to maximize the benefits achieved.</p>