

Presenter	Kayne Van Stell Environmental Scientist
Type	Poster or oral presentation
Category	Benefits of Stream Restoration
Title	<i>Bailey Fork Stream Restoration Project – A Case Study Comparing the Pre- versus Post-Construction Benthic Macroinvertebrate Communities within Constructed Riffles</i>
Abstract	<p>The Bailey Fork Stream Restoration was contracted in 2005 through the North Carolina Ecosystem Enhancement Program's full delivery mitigation program. The site is located in Burke County, NC, near the Town of Morganton. Historically, the stream channels had been straightened for agricultural purposes and riparian buffer vegetation was cleared throughout various sections of the project. Restoration activities included the assessment and design of over 6,000 feet of stream. An alternative design goal for the site was to utilize various grade control structures such as constructed riffles to promote habitat diversity and aquatic species propagation. Baker has performed pre- and post-construction benthic macroinvertebrate monitoring for the project area. Benthic macroinvertebrates were collected annually in constructed riffle sections as well as upstream reference locations to assess and compare the quantity and quality of life in the stream system. In particular, Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (caddisflies) were evaluated as an index of water quality since these three groups (EPT) are generally the least tolerant to water pollution. Additionally, habitat assessments were conducted to measure physical and chemical properties including water temperature, percent dissolved oxygen, dissolved oxygen concentration, pH, and specific conductivity. This presentation will focus on an evaluation of the restoration project as a case study for comparing the pre- versus post-construction benthic macroinvertebrate communities within constructed riffles. The presentation will examine the efficacy of installing constructed riffles not only for the purposes of maintaining grade control, but for re-establishing a viable aquatic habitat that provides functional uplift to the overall ecosystem. The presentation will also cover the design and sampling techniques used, monitoring results, and site evaluations based on sampling data trends.</p>