



## USDA-CSREES 2006 National Water Quality Conference

Comparison of fecal coliform loading for three different coastal land using storm event monitoring and antibiotic resistance index data.

This presentation will examine knowledge that can be inferred to determine sources and transport vectors of fecal coliform bacterial contamination in estuarine waters for three watersheds in the coastal zone with various land uses—residential, industrial, row-crop agriculture and forestry -- using storm event monitoring and resistance indices developed from multiple antibiotic resistance panels.

The sites are first, Jumping Run Creek in Carteret County, NC which is approximately 800 acres. It contains mixed land use of single-family residential, business, and industrial facilities. The second site is the Pettiford Creek watershed which is populated by the Croatan National Forest. This forest is managed to meet production as well as habitat and restoration objectives. The third site is the South River watershed, which is covered by 15,000 acres of row-crop agriculture and are now under active water control (flashboard risers).

Flow weighted water samples from a minimum of 8 storms per year over 3 years were collected from three stations in Jumping Run, one in Pettiford and one in South River. All samples were analyzed for fecal coliforms, nutrients, sediment. In all three watersheds, a minimum of ten known sources of scat were collected (for example: human, raccoon, beaver, geese, dogs, cats, rats, mice, otter, bear, bobcat and deer). *E. coli* isolates were tested for antibiotic resistance, and the resistance index for each watershed was calculated using the methods recommended by Parveen *et al.*, (1997). While many consider these methods to be outmoded, they continue to be used because there are few comparative studies presented or published to help communities assess their efficacy.

Author: Nancy White

Coauthor(s): Daniel E. Line Lucretia Garrigan