Selection of Wetland Restoration Sites in Rural Watersheds to Improve Water Quality. (S10-richardson211952-Oral)

Authors:

- C.J.Richardson - *Duke University*
- N.E.Flanagan - *Duke University*
- R.A.Kramer - *Duke University*

Abstract:

The primary objective of this study was to develop a procedure for configuring mosaics of restored wetlands on the landscape to yield the greatest positive cumulative effect on watershed-level water quality given a set of ecological, economic and political constraints. The ecological portion of this study examined the relationship between wetlands and water quality at local, watershed, and regional spatial scales. Preliminary statistical models utilizing both Classification and Regression Tree (CART) and discriminant analysis models have been developed. Our analyses used flow-weighted water quality parameters as the dependent variable and watershed characteristics as independent variables. The CART model classified 300 samples into one of three water quality categories (low, medium and high) using watershed characteristics and hydrologic flux. Model predictions were correct for 80% of sample analyses. Model predictions indicate that lowest P concentrations existed in watersheds where drained agriculture was lowest, and wetland fragmentation was low. Buffer strips along second order streams were highly related to reduced P concentrations in streams. Other landscape factors influenced nitrogen concentrations in the streams.

Corresponding Author Information:

Curtis Richardson
Duke University
Duke Wetland Center

Durham , NC 27708

phone: 919-613-8006
fax: 919-613-8101
e-mail: curtr@duke.edu

Presentation Information:

Presentation Date: Monday, November 11, 2002
Presentation Time: 10:30 am

Keywords:
Wetlands, North Carolina , Watersheds , Water Quality