

A Spatial Analysis of the NC Ecosystem Enhancement Program's Stream and Wetland Mitigation Banking Programs

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In the United States, wetland and stream restoration technologies are developing alongside regulations requiring the compensation for impacts to these resources through ecosystem restoration. Likewise, emerging stream mitigation regulations mirror those of the well-established wetland mitigation industry. Recent studies have shown that the wetland mitigation programs commonly shift wetlands across space from urban to rural areas and between communities comprising vastly different social and economic characteristics. However, it is not yet known if stream mitigation mirrors this behavior, and if so, what effects this may have on ecological processes and social disparity. This project addresses three primary research questions: (1) What are the spatial relationships between stream impact and compensation sites as a result of North Carolina stream mitigation regulations? (2) How do stream impacts come about due to the actions of different types of developers, and how do the characteristics of impacts sites compare with mitigation sites? (3) To what extent is compensatory mitigation performed on publicly owned lands? (4) To what extent does stream compensation relocate high quality streams within the river network? (5) Finally, do restoration projects adequately compensate for localized (intra-watershed) loss of aquatic resources? Using geo-spatial data collected from the North Carolina Division of Water Quality and the Army Corps of Engineers' Wilmington District, we analyze the behavior of the North Carolina Ecosystem Enhancement Program in providing stream and wetland mitigation for the State of North Carolina. Our preliminary results suggest major differences between the types of developers impacting wetlands and streams throughout the State. Our results also identify significant discrepancies between impact and mitigation sites, in terms of both location and position within watersheds.