ANALYSIS OF GEORGIA CONSERVATION LANDS: FOR ENDANGERED & THREATENED FISH AND MUSSEL SPECIES AND BIOTA LISTED STREAMS USING GEOSPATIAL TECHNOLOGY

Sudhanshu Sekhar Panda[1] and Michele P Brossett[2]

AUTHORS: [1]Gainesville State College - Institute of Environmental Spatial Analysis, 3820 Mundy Mill Road Oakwood Georgia 30566; and [2]DNR - Watershed Protection Branch, 4220 International Parkway , Atlanta, Georgia 30354
REFERENCE: *Proceedings of the 2013 Georgia Water Resources Conference*, held April 10–11, 2013, at the University of Georgia

Abstract. In United States of America (US), as part of the Clean Water Act (CWA) Section 101 (a), it is the obligation of each state to monitor and assess the chemical, physical, and biological conditions of streams within its boundaries for human and animal consumption and to sustain aquatic animals. As Georgia's population continues to grow, the state will have increased runoff from non-point sources combined with the continual loss of critical habitat. With the use of geospatial technology, this study is intended to determine which areas need to be conserved for fish and mussels and to determine if the potential opportunity conservation areas covers all the fish and mussels habitats in Georgia. Several conservation geospatial layers including 303d list of impaired rivers in Georgia were collected from different authentic sources. They were processed in ArcGIS 10 to prepare them for analysis. Fish and Mussels habitat spatial layer was separately created from the available ASCII format data. The spatial location of the habitats were correlated to the 12-digit HUC watershed of Georgia and the critical watersheds were determined with respect to fish and mussels habitat conservation. Present conservation land spatial layer of Georgia was obtained and compared with the critical watershed layer using Map Algebra. Thus, the area eroneously provided with the present GA conservation land layer were determined and correct spatial locations for fish and mussels conservation was suggested. In Georgia, 439 critical 12-digit HUC watersheds were found for fish and mussels conservation. Above all, the entire study procedure was modeled through an automated geospatial model developed using ArcGIS 10 Model Builder. This analysis would help conversationalist, regional development authorities, and other groups to determine where the best area would be to conduct restoration on streams and would help them find funding or would use existing funding wisely.