Abstract
Estuaries and their surrounding salt marshes are critical for the health of marine fisheries species as well as the health and protection of populated areas further inland (Cowart 2010). Salt marches found along the shorelines of tidal creeks are important for protecting upland areas from erosion (Leonard and Reed, 2002; Moller and Spencer, 2002). Wave and tidal action along with sea level rise are the main forces that shape the variable shorelines of estuarine systems (Mattheus et al., 2010), but potential effects from anthropogenic efforts to stabilize in an attempt to mitigate erosion are largely unknown. Understanding how these shorelines and adjacent ecosystems respond to anthropogenic impacts is necessary when assessing the vulnerability of areas to sea level rise and erosion so that proper management techniques may be utilized to protect them.

Purpose
This project seeks to understand the geomorphological behavior of shorelines adjacent to shoreline stabilization structures including bulkheads, riprap structures, and living shorelines. Approximately 3,000 shoreline structures are documented along the Georgia coast (Georgia Department of Natural Resources), but there has been minimal research conducted regarding the impact of these structures on the change rates and vegetation of adjacent shorelines (Jackson et al., 2007). This project aims to evaluate the impacts of shoreline stabilization structures through analyzing shoreline change rates and vegetation cover.

Methodologies
- Shoreline Change Rate Analyses
The Shoreline change rate analysis portion of this project is GIS and imagery based. Historical aerial imagery and previously digitized historical shoreline locations were used to determine shoreline change rates of shorelines adjacent to 12 structures in the Georgia coast between the years 1880 and 2010. (This project was created adjacent to each shoreline stabilization structure parallel to the shoreline, and at each intersection point of the grid, percent cover, stem density, and stem height of the vegetation were recorded. These data were then grouped by shoreline stabilization structure and analyzed using Kruskal-Wallis and Wilcoxon rank sum tests.)

- Vegetation Analyses
Vegetation data were collected from shoreline stabilization structures permitted between 1980 and 2010. A 50-meter transect was used parallel to the shoreline immediately adjacent to the structure. This line was measured from the start of the structure to a line opposite of the midpoint of the sampling grid. Transects (y-axis) extended from the midpoint to each transect, 15 meters downstream and 15 meters upstream. Vegetation percent cover, densities, and stem heights were recorded at 5-meter intervals along the newly constructed mowed line and at every 5 meters along the perpendicular transects (x-axis points using a 0.25-meter quadrat).

Conclusion
The preliminary data from the shoreline change rate analyses show that shorelines adjacent to shoreline stabilization structures are erosional and there is no significant difference between the end point rates of bulkhead- and riprap-adjacent structures (Tables 1 and 2). The preliminary vegetation percent cover analyses subject to test a framework for future study. These shoreline change rate data are of a higher resolution than has previously been calculated, and especially in the case of the living shoreline structures, these data are critical in order to monitor the health and stability of the shorelines adjacent to the structures.

Acknowledgements and Literature Cited
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