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COASTAL DEVELOPMENT REGULATION IN RESPONSE TO COASTAL EROSION IN THREE NORTHWEST FLORIDA COUNTIES

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A worldwide trend of beach erosion attributed to many natural causes was first characterized in 1985 (Bird 1985). Prior to this, in the United States, a group of concerned scientists identified that humans were both responsible and affected by this erosion (Pilkey et al 1981). Coastal counties account for over 50 % of all Florida counties. Sandy beach shoreline in these counties has eroded to a designation of over 50% critical erosion which indicates the scale and significance of this threat to the state of Florida. With the highest total number nationally of beach renourishment projects, it is clear that the state of Florida has been forced to respond (FDEP 2007, Trembanis et al 1999).

An evaluation of the trends of coastal erosion and its relationship to government mitigation in Florida is warranted and crucial at this time with the added complexities of the impacts of climate change and the status of Florida's economy. Furthermore, the overall increasing trends in coastal population growth and development in Florida provide an opportunity to investigate the relationship between coastal development and coastal degradation. This study does not propose to explicitly examine the causal relationship between coastal development and coastal erosion in an effort to identify coastal construction as the sole and major contributory cause of coastal erosion. However, it does examine the relationship between two factors which should characterize both the policy response to erosion and the strength of a possibly indirect causal factor through trends in coastal construction permitting.

The study presented hypothesizes that increasing development exacerbates the occurrence of coastal erosion. Coastal development is represented using both state and local governmental newly issued construction permits for habitable structures. Coastal degradation is estimated utilizing the designation of critically erosion areas. Research sites selected include the northwest Florida counties of Gulf, Franklin and Bay County which are adjacent to one of Florida's most productive estuaries protected within the Apalachicola National Estuarine Research Reserve. Permitting data from the period 1987-2007 was analyzed statistically as an independent variable to directly represent coastal land use planning and indirectly represent coastal development. Shoreline change and policy translation interpreted through subsequent critical erosion designation is

analyzed as the variable which is dependent on this coastal development. Using Pearson analysis, Bay County was found to have a significantly positive correlation between the number of permits and critical erosion designation while Franklin and Gulf County showed a negative correlation. Differing trends within these correlations from county to county and from year to year, will be further described in this presentation. Other ongoing transformations of data and GIS will be presented in order to further statistically characterize and represent these relationships. These results not only indicate the governmental policy response through permitting activity but also the response of these coastal communities to the designation of critical erosion.

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