

MAN-MADE AND NATURAL CHANGES ON THE MISSISSIPPI GULF COAST

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ABSTRACT

The Mississippi Gulf Coast exhibits a dynamic interaction between man and the coastal environment. Changes brought about by natural processes are contrasted with those changes resulting from the direct or indirect intervention of man and the development of the Mississippi shoreline. Historical shorelines for the Mississippi mainland coast and the barrier islands were digitized from USGS T-sheets for 1850, 1917, and the 1950's and from air photo interpretation for 1986. Data were manipulated in ARC/INFO for analysis and display, and changes were quantified for various shoreline types. Erosion and accretion trends recognized were related to known activities and events, and classified as either man-made or natural. Major man-made changes include the Harrison County seawall and artificial beach, Gulfport and Biloxi harbor development, Port of Pascagoula and Ingalls Shipyard, dredging and spoil disposal in harbors and access channels, and individual bulkheads and groins placed for property protection. Notable natural changes include the westward migration of the barrier islands, erosion of marsh shorelines in Hancock and Jackson Counties, and erosion of the Belle Fontaine headland in Jackson County. Natural processes acting on the mainland shoreline have resulted in an average net land loss of 2968 acres between 1850 and 1986, while man-made changes resulted in a net gain of 1616 acres during the same period. Maximum erosion rates occurred in the west Hancock County and east Jackson County areas as a result of natural processes. Maximum accretion occurred as a result of dredge spoil disposal and beach nourishment in Jackson and Harrison Counties.