

DETERMINING ARTIFICIAL VS NATURAL HOLOCENE SEDIMENTATION, HANCOCK COUNTY, MISSISSIPPI

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The recreational, esthetic, and cost benefits of sand beaches have made renourishment an attractive protection option in Mississippi Sound. Thus, nearshore sediment volumes and projected beach life spans are important information to local and state planners. Quantifying volumetric change and shoreline retreat values is an important first step; however, the unique aspects of fill deposition also provide an opportunity to clarify long-term sediment transport. Naturally, this is made easier by the use of “unique” fill sediment; or, alternately, with highly accurate bathymetry prior to and following renourishment. Unfortunately, use of both fill sediment and bathymetry in Hancock County were limited by sediment source and time, respectively. Although the fill sediments were not unique, trace fossils, the sediments filling them, changes in shell content, and faint contacts helped distinguish discreet sedimentary sequences. The differences were subtle enough, however, to raise questions as to their origins. To increase confidence in the elevation of Fill/Holocene contacts an ‘if then’ logic, using both profile and sediment data was employed. Short-term depositional patterns determined from profiles were used to validate or reject individual sedimentary sequence contacts as the Fill/Holocene boundary. The volume of the calculated fill thickness agrees well with historical fill additions and suggests that most of the sediment stays within the nearshore system. This technique, while taking some purity out of the interpretation, helped increase confidence and repeatability in determining the Fill/Holocene boundary.