

DELTAIC BARRIER DEVELOPMENT ON THE LOUISIANA COAST

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ABSTRACT

An evolutionary sequence of modern deltaic sandy barriers is recognizable on the Louisiana coast. Each barrier island system has developed during the destructional phase of one of the major Holocene Mississippi River deltas. Three distinct evolutionary stages are identified within the destructive phase of the deltaic cycle. Major distributary abandonment transforms a delta complex into Stage 1, an erosional headland with flanking barrier islands. With increasing age, subsidence, marine reworking, and further subaerial delta deterioration, the barrier system evolves into Stage 2, a transgressive barrier island arc and eventually culminates in its final form, Stage 3, an inner shelf shoal. This three stage model provides a conceptual framework for examining the temporal as well as spatial evolution of a Mississippi River deltaic barrier system. It further provides a means of evaluating the relevance of existing concepts for barrier island genesis.

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