

HURRICANE AND STANDING WAVE, LAGOONAL PATTERN MAKERS, TEXAS COAST

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ABSTRACT

The wind, rain and the low-pressure eye of a hurricane activate three hydrodynamic agents: surge, flood, and, as recently recognized, the mass oscillation known as the standing wave, or seiche. These agents, working differently, have produced erosional and depositional effects little modified by the normal forces.

The greatest effect, north of the shoaling Laguna Madre, has been the segmenting of the barrier lagoons by the deepening of troughs, the movement of sand to the crests as bars and spits armored by oysters and, in places, the building of opposed transverse shore-based bars and spits. These affects, with washover fans at tidal inlets, have segmented the lagoons into successions of oval and round basins in harmonic series of 12, 6, 4, 2, 1, and 0.5 mile lengths. Some drowned valleys have also been segmented.

The surge of the hurricane and storms of advancing cold fronts have maintained narrow channels between the basins, streamlining shorelines to funnel tides and floods into inlet mouths. The storm surges move southward, leaving many southward-pointed shoreline spits, some curing around shoals related to deep structures.

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