

DEER ISLAND, COASTAL MISSISSIPPI - A GEOLOGICAL AND HISTORICAL STORY
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Deer Island is a spindle-shaped, 5.7 km long island off Biloxi and Ocean Springs that was recently added to the Coastal Preserves Program. Prior to being utilized by European settlers, it was inhabited by Indians for possibly more than four thousand years. The island has one of the few remaining natural sandy shores on the Mississippi coast. Since 1850, rapid erosion has reduced the island area by about one-third. Vibracores and auger samples taken for a renourishment study revealed that the island, like the coastlines in Harrison County and part of Jackson County, is cored by late Pleistocene beach ridges. The Gulfport Formation ridges, in combination with estuarine Biloxi Formation and alluvial Prairie Formation deposits, form the island's geological framework. During the Wisconsin glacial lowstand these deposits formed bluffs on the incised Biloxi River valley. Overlying them, a series of Holocene fresh and brackish water sediments were deposited before and during the submergence of the river valley under steadily rising estuarine waters. Age dates suggest that sea-level rise slowed shortly after ca. 4650 ^{14}C yr B.P. The buried Pleistocene land surface slopes southeastward under the island and at lower elevations mud, sand, and intertidal marsh peat cover the Pleistocene units. Small textural changes in the surface deposits have a strong influence on shore retreat rates. Understanding how local geology impacts erosion rates is essential in designing beach renourishment and marsh reclamation projects.

