

# SEISMIC STRATIGRAPHY AND LATE QUATERNARY EVOLUTION OF EASTERN MISSISSIPPI SOUND, ALABAMA

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## ABSTRACT

Eastern Mississippi Sound is a 375 km<sup>2</sup> shallow lagoon (average depth of 3m) extending behind Dauphin Island from Pass Aux Herons in the east to Petit Bois Pass in the west. The Pascagoula/Escatawpa fluvial-deltaic system, a main source of freshwater for Mississippi Sound, flows into the lagoon from the north about 17 km west of Grand Bay. To examine the Late Quaternary evolution of the lagoon and associated Pascagoula/Escatawpa fluvial-deltaic system, approximately 66 kilometers of high-resolution seismic chirp data (2-15 kHz, 20 ms pulse) were collected from Eastern Mississippi Sound (Fig 1). These data show four stacked unconformity

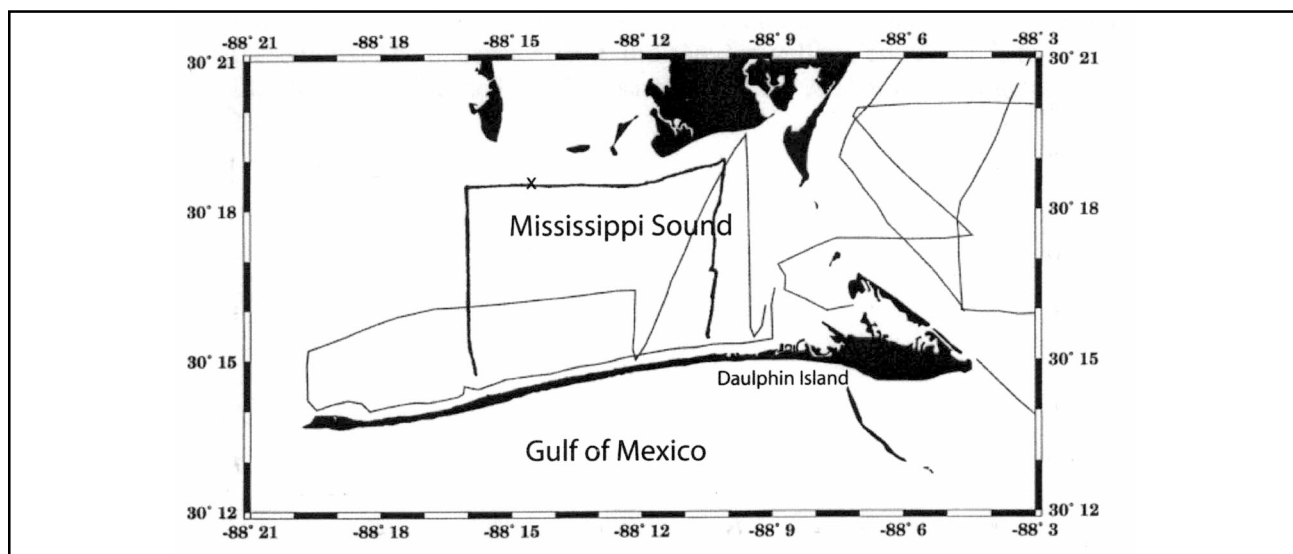
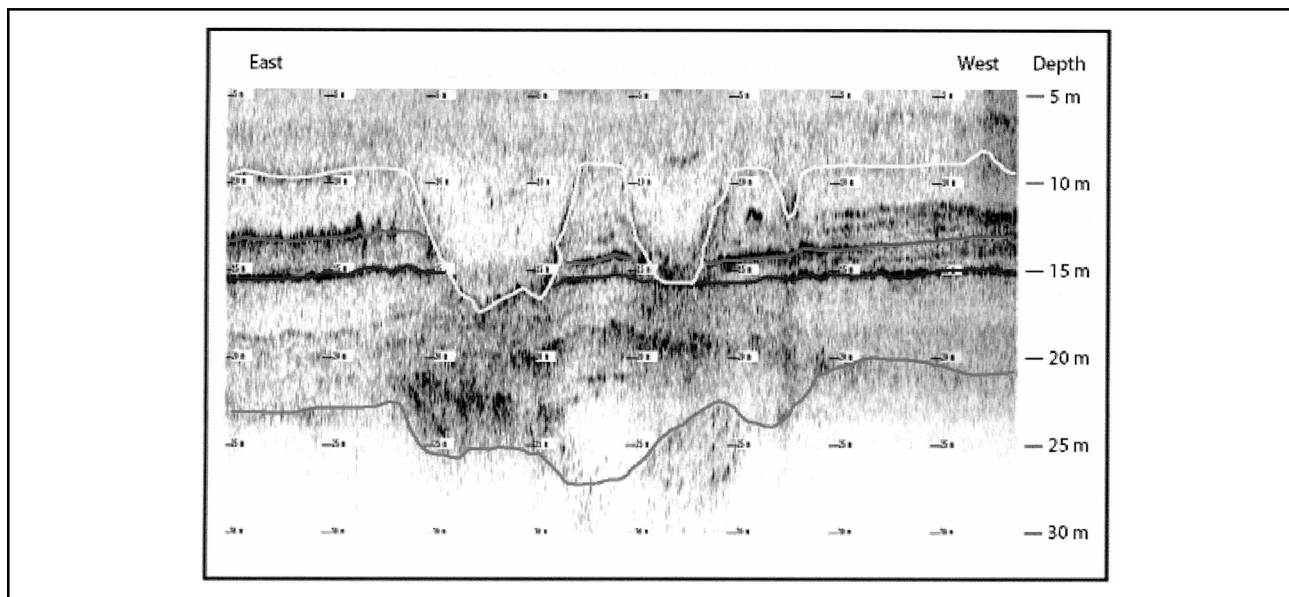


Figure 1. Index map of Eastern Mississippi Sound seismic tracklines. Gray lines represent Alabama Geological Survey dataset (1995) and black lines indicate University of Alabama dataset (2002).

bound seismic units (Fig 2). The unconformities are interpreted to have formed during episodes of Pascagoula/Escatawpa fluvial incision. The uppermost seismic unit and unconformity was sampled by vibracores collected in 1995 by the Geological Survey of Alabama, indicating that

the youngest unconformity is the Pleistocene/Holocene boundary, an exposure surface that formed during the last lowstand in sea level. This is an ongoing project and future work will focus on developing of a robust chronostratigraphic framework for the area.



*Figure 2. Mississippi Sound seismic line MS-02-01 showing four-stacked unconformity bound units. Across the line, multiple channeling events are found in each of these units. The uppermost unit corresponds to the Pleistocene/Holocene boundary sampled by the Alabama Geological Survey in 1995.*