

## **Sequence Stratigraphy of Pliocene-Pleistocene Turbidite Systems in the Northern Gulf of Mexico Continental Slope**

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Neogene turbidite systems are major reservoirs and exploration targets in the northern deep Gulf of Mexico. Few publications have described the stratigraphic variations or the three-dimensional geometries of these turbidite systems in the detail. Hence, an understanding of the seismic stratigraphic characteristics of the producing sands is important for deep-water exploration in the Gulf of Mexico and similar basins worldwide.

This study focuses on the northern Green Canyon and central Ewing Bank protraction (lease) areas where the Pliocene-Pleistocene turbidite systems were mapped utilizing an integrated exploration database. Interpretation of an integrated regional data base of 10,000 km of 2-D seismic, 185 well logs, and biostratigraphy from 100 wells allowed of us to define the regional sequence stratigraphic framework for this area and to help define the potential areas for future exploration. The complex Pliocene-Pleistocene geologic evolution of the area is indicated by the seismic and geologic facies, depositional rates, nature of turbidite systems, sand content, amount and type of slides, and presence of erosional features.

Significant sand deposits (basin-floor fans) were deposited in most sequences and directly overlie sequence boundaries. Salt tectonics and faulting greatly influenced where the loci of these fans' deposition. Large, thick fans fill entire salt withdrawal mini-basins at the bases of the older sequences. In the younger sequences, where the rate of salt withdrawal was less, smaller and thinner fans were deposited downdip of faults and shallow salt bodies. Channel systems interbedded with overbank shales constitute most of the sediments in the sequences. The older sequences contain more channels, and the sandier channel fills than the younger sequences.