

FRIO FORMATION OF THE UPPER TEXAS GULF COAST

Houston Geological Society Study Group Report

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ABSTRACT

A study group of the Houston Geological Society has concerned itself with the Tertiary Frio formation as it exists in the subsurface in the area from Jackson County, Texas, to Louisiana. To facilitate study, the formation was divided into upper and lower units and each was traced over the area of interest using electrical log characteristics. An electrical log correlation point in the *Marginulina* zone of the overlying Anahuac formation was used as a practical expedient for the "top" of the Frio. An horizon near the *Nodosaria blaspiedi* faunal zone in the middle of the Frio served as the top of the lower Frio unit. No specific electrical log datum was used for the base of the Frio.

The number of feet of porous and permeable sand within each unit was counted from the electrical logs. From these data, sand percentage and net sand maps were constructed for the upper and lower Frio units.

Lower Frio sand values range from 2 feet to 1600 feet. Maps tend to indicate that the center of deposition of the lower Frio unit is in Matagorda and Brazoria counties. Thick sequences of sand and shale occur in this area, particularly in the *Textularia seligi (mississippiensis)* and *Anomalina bilateralis* faunal zones. Wells here indicate as much as 1600 feet of sand in a total interval of more than 2600 feet.

The center of deposition of the upper Frio unit appears to be in Jefferson and Orange counties. This is accentuated by the occurrence of thick sands in the Hackberry zone, which results in more than 1200 feet of sand in the interval exceeding 3600 feet. Sand values range from 16 feet to 1289 feet and sand percentages from 3% to 62%.

Efforts were made to minimize the effects of local structure and local lithologic variations. Nevertheless, such large subregional features as the western Jefferson County graben; the Red Fish Reef—South Mayes complex of Chambers County; the Chocolate Bayou complex, Danbury dome, and the Chenango complex of Brazoria County; and the Old Ocean complex of Matagorda County exhibit lithologic anomalies coincident with the area of their structural influence. These anomalies indicate that structural movement was taking place during deposition.

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The ideas expressed in this paper are the result of group effort by the members of the Frio Study Group and its contributors.