

STRATIGRAPHY OF THE CIBICIDES CARSTENSI ZONE, MIOCENE OF LOUISIANA

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ABSTRACT

The fundamental stratigraphic unit of Gulf Coast subsurface geology is the biostratigraphic zone. These zones are named after benthonic Foraminifera and are widely used in a time-rock sense by most workers in the region. Zonal nomenclature has developed informally within competitive oil companies. The middle Miocene *Cibicides carstensi* Zone has been generally recognized for at least 15 years, but use of the name has been inconsistent since no type section had been previously designated. The *C. carstensi* Zone of south central Louisiana, at its type locality, consists of 4 subzones. Boundaries of the Zone and its components are defined on the basis of Foraminifera-rich lentils and distinctive electric-log markers.

Percentage of foraminiferal tests per unit volume of sediment provides an index to rate of clastic deposition. Widely spaced lentils containing abundant Foraminifera in a predominantly clastic sequence record episodes of relatively slow deposition. Abundance and composition of fauna in benthonic communities is controlled, in large part, by depositional rates and nature of substrate. Both of these factors are dependent upon tectonic history in the Gulf Coast. Stratigraphic thickness and sequence are intimately related to faulting in this province. Episodes of fault movements can be accurately dated by their influence on depositional thickness and lithologies in equivalent strata on opposite sides of a fault. Stratigraphy, paleontology, and structural history are consequently inseparable. All 3 must be considered simultaneously in any geologic interpretation.

Hydrocarbons of the *C. carstensi* Zone accumulated in blanket sand bodies deposited under conditions of tectonic stability. Sands which have a sharp basal contact tend to be erratic and limited in areal distribution. These sands are thought to have been deposited on a steeply inclined or irregular submarine topography during or immediately following spasms of tectonic activity. Such sands rarely produce hydrocarbons.

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