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Paleoenvironment of Paleocene Wilcox Big Shale in LaSalle Parish, Louisiana

The Paleocene Wilcox Big Shale is a subsurface mapping unit traceable by electric-logs across central Louisiana. The Big Shale, which represents the base of a coarsening-upward sequence, is usually 40 to 80 ft (12 to 24 m) thick and is fossiliferous, thinly bedded, poorly sorted, silty clay and sandy silt.

A paleoenvironmental investigation finds that the Big Shale sequence in LaSalle Parish, LA represents the prodelta-delta front facies of a Wilcox delta deposited on the inner continental shelf of the Late Paleocene Gulf of Mexico. Paleosalinity of beds within the Big Shale range from normal marine to hyposaline (brackish), reflecting variations in influence of river discharge and delta-lobe development. The paleoclimate of the region was humid subtropical to tropical.

Paleoenvironmental data for this investigation are derived from 1) foraminiferal assemblages contained in Big Shale core samples from the Hunt Petroleum A-68 well in LaSalle Parish, Louisiana and from 2) published paleoenvironmental studies of Late Paleocene-Early Eocene stratigraphic units exposed at the surface in northwestern Louisiana and eastern Texas.