

SYSTEM TRACT HISTORY ANALYSIS: KEY TO UNDERSTANDING DEPOSITION IN CORED RESERVOIR ANALOG UNITS ON THE SHELF

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ABSTRACT

An analytical procedure: "shelf system tract history analysis", has been developed to integrate high-resolution bio-chronostratigraphy, sediment accumulation, compaction-induced subsidence, and late Quaternary sea level records into a detailed accommodation space framework for characterizing system tract deposition. The technique, a modification of geo-history analysis has been profitably applied to section cored on the mid-Louisiana shelf in ca. 70 m of water. Analysis of the cored section places a wave-based induced erosional fourth order sequence boundary at ca. 75 kyBP, within the isotope stage 4 sea level low-stand. It further indicates that a channel-cut, "forced regression surface," within a reservoir analog low-stand delta unit, marks a ca. +30 m terrace that was extant during a portion of the intense isotope stage 2 sea level low-stand which culminated ca. 18 kyBP. Bounding transgressive and highstand system tracts are consistent with deposition in middle neritic depths (ca. 60 to 90 m).