

**AAPG Annual Convention
Salt Lake City, Utah
May 11-14, 2003**

Kimberly A. Johnson¹, Diane L. Kamola², Stephen J. Culver³ (1) Old Dominion University, Norfolk, VA
(2) University of Kansas, Lawrence, KS (3) East Carolina University, Greenville, NC

Transgressive Systems Tract Deposition, Book Cliffs, Utah, USA: A Combined Facies and Micropaleontologic Approach

Depositional sequences within the Cretaceous Blackhawk Formation occur at a relatively high frequency (approximately 400,000 years or less), and consist mainly of highstand systems tract deposition (HST); depositional events associated with transgressive system tracts (TST) (other than incised valley fills) are often poorly preserved, therefore, their associated depositional history is not well understood. An example of one such TST is found in the Aberdeen Member, and is expressed in the outcrop as a 1 to 1.5 meter thick, fine-grained unit with brackish water bivalves. Delta front and lower shoreface deposits of bounding HSTs bracket this interval. Foraminifera collected along 13km of continuous TST outcrop exposure aided in paleoenvironmental analysis, and were compared to Foraminiferal data collected from marginal marine to offshore marine environments within the underlying HST. This comparison shows the entire 13km extent of TST sampled is a marginal marine back barrier environment. This back barrier environment differs from those of the HST in that it is incomplete, i.e., the associated sand-rich barrier island facies always seen in the HST is missing. We interpret the incomplete preservation to reflect deposition during a slow transgressive event. Depositional events seen in this TST are analogous to the "roll-over" process seen in modern barrier island environments (outer banks of North Carolina, USA). This TST record is unusual for the Blackhawk Formation as it records deposition associated with transgression, and is interpreted to reflect a slower rate of transgression when compared to transgressive events associated with parasequence boundaries within the HSTs.