
Litho- and Biostratigraphic Evolution of the Upper Jurassic through Top Cretaceous Section, Northern Deepwater Gulf of Mexico: Preliminary Results

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GCAGS Explore & Discover Article #00041*

http://www.gcags.org/exploreanddiscover/2016/00041_weimer_et_al.pdf

Posted September 13, 2016.

* Abstract extracted from a full paper published in the *GCAGS Transactions* (see footnote reference below), which is available as part of the entire 2016 *GCAGS Transactions* volume via the GCAGS Bookstore at the Bureau of Economic Geology (www.beg.utexas.edu) or as an individual document via AAPG Datapages, Inc. (www.datapages.com), and delivered as an oral presentation at the 66th Annual GCAGS Convention and 63rd Annual GCSSEPM Meeting in Corpus Christi, Texas, September 18–20, 2016.

ABSTRACT

The stratigraphic evolution of the Upper Jurassic through top Cretaceous strata in the northern deepwater Gulf of Mexico is interpreted based on the well logs from 58 well penetrations. About 43% of the wells are present to the northeast associated with exploration of the Norphlet-Smackover play.

The Oxfordian through Tithonian strata are penetrated in 25 wells, primarily to the northeast. At the base, log patterns indicate the eolian Norphlet facies were deposited primarily north of Middle Ground Arch; to the south, a non-productive mixed fluvial-eolian facies is present. A major transgression resulted in deposition of the shallow-marine Smackover limestone, 170 to 410 feet thick, and characterized by low gamma-ray and high resistivity values. The limestone is capped by a regional flooding surface, and overlain by marls and micritic limestone, 120 to 2600 feet thick. The continued water deepening resulted in Kimmeridgian-Tithonian shale-rich interval 220-2060 feet thick, the uppermost of which is a source rock.

To the northeast, the Cretaceous section is 550 to 5500 feet thick and characterized by fine-grained carbonate with low gamma-ray values, punctuated by numerous thin, shale-rich intervals. These deposits are the downdip strata to the carbonate dominated platforms. To the northwest, logs indicate a more shale-rich section, likely caused by the presence of Upper Cretaceous deltas (Navarro and Mendoza shale). Cenomanian sandstones are present in two wells. Across the northern Gulf, portions of the Upper Creta-

Originally published as: Weimer, P., R. Denne, E. Zimmermann, S. Cumella, W. Gutterman, T. Payeur, B. Snyder, H. Hirsh, and D. Bettinger, 2016, Litho- and biostratigraphic evolution of the Upper Jurassic through top Cretaceous section, northern deepwater Gulf of Mexico: Preliminary results: Gulf Coast Association of Geological Societies Transactions, v. 66, p. 569–582.

ceous section were eroded by the KPg Chicxulub deposit. The amount of eroded section varies considerably across the area.