

# **Does Sequence Stratigraphy Need Biostratigraphy?: Abstract**

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## **ABSTRACT**

The sequence stratigraphy methodology integrates diverse geophysical and geological data sets, which has revitalized both geoscience disciplines. Biostratigraphic data has become essential to the geological interpretation of seismic record sections. Quantitative analyses of fossil abundances, diversities and ranges provide important data for the definition and constraint of hypotheses of sequence stratigraphy. Within carbonate platforms sequence boundaries may separate similar facies and so be difficult to recognize. For example, regional unconformities within skeletal limestones of the Silurian-Devonian Hunton Group in Oklahoma were first clearly defined by means of the biofacies and extinctions. Within mixed siliciclastic and carbonate facies successions the subtle changes in biotic associations define the stacking pattern. Quantitative biotic analyses of the Midcontinent Pennsylvanian cyclothems constrain the depth limits of the cyclothem members. The timing of sea level changes and their correlation within and between basins is essential for distinguishing the relative effects of basinal tectonics and eustasy. Mid-Cretaceous transgressive and regressive depositional cycles in the Denver Basin can be correlated precisely with shoaling-deepening cycles in the East Texas Basin. The consistent delineation of depositional or seismic sequences depends upon the successful integration of biostratigraphic, geochemical and petrographic data with well log and seismic data.

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