

## HIGH RESOLUTION BIOSTRATIGRAPHY AND PALEOBATHYMETRY — THE FUNDAMENTAL DATA SET IN SEISMIC SEQUENCE STRATIGRAPHIC ANALYSIS

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Seismic sequence stratigraphy is the integration of high resolution biostratigraphy (including paleobathymetry and fossil diversity and abundance histograms), well-log signatures and seismic profiles themselves. Each of these three components are interdependent and incomplete by themselves. Therefore they must be analyzed and integrated with each other using an iterative process in order to obtain accurate, reliable and reproducible results.

Of these three components, high resolution biostratigraphy is the least used and understood. Without this component the interpretation is merely a form of seismic stratigraphy not a seismic sequence stratigraphic interpretation. Therefore the key to interpreting third order depositional sequences, systems tracts, condensed sections and sequence boundaries is high resolution biostratigraphy. The fossil bioevents permits precise age determinations that can be correlated with the Global Cycle Chart while the sample by sample paleobathymetric interpretation permits the relative water depth of the associated sediments. Fossils diversity and abundance histograms and condensed sections form reproducible patterns that aid in the identification of sequence boundaries, maximum flooding surface condensed sections, lowstand prograding, slope fan, and basin floor complexes. Therefore the key to interpreting third order depositional sequences and systems tracts is the identification and location on well-logs and seismic of the various types of condensed sections including the:

MFS CS =	Maximum Flooding Surface Condensed Section
st cs =	Bottom-Set (Shingled) turbidite condensed section
sf cs =	Slope fan complex condensed section
co cs =	Channel overbank condensed section
bf cs =	Basin floor fan complex condensed section