

Using the Sediment Record in Lake Mead to Address Issues Related to Global Sequence Stratigraphy: a Mid-scale Analogue.

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Lake Mead, NV and AZ provides a unique mid-scale analog to relate experimental and regional studies of similar sedimentary processes that exist within this reservoir. The historic record of water elevation, sediment influx and basin physiography, with no evolving tectonic nor climatic influences, are highly constrained for Lake Mead. This study is significant because it provides insight into how a drop in relative sea level can cause erosion of sediment that was deposited during periods of higher relative sea level, and result in the transport of sand-sized sediment to deep marine basins.

The methods being used to address the distribution and temporal emplacement of sediment throughout Las Vegas Bay in Lake Mead include sediment core descriptions and correlation for 16 cores collected in June 2002, and physical mapping of subaerially exposed deltaic deposits in Las Vegas Wash. Correlation of the cores and dating of several horizons is accomplished through chemostratigraphic techniques including isotope, organic and inorganic chemical analyses, in addition to quantitative grain size measurements of the sediment within the cores. Photomosaic mapping will be conducted in conjunction with GPR geophysical surveying on abandoned subaerially exposed deltaic deposits in Las Vegas Wash, to determine their internal morphologies and temporal relationships to each other. It is anticipated that at the end of this study, time correlations may be drawn relating deltaic evolution and erosion in Las Vegas Wash, driven by lake level changes, to distal sedimentary deposits observed in the cores collected in Las Vegas Bay.