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Response of Texas Rivers to late Quaternary Sea-Level Variations

High resolution seismic data and engineering platform borings from the coast and continental shelf were used to examine the response of Texas rivers to fall and rise in sea level during the last glacial eustatic cycle (120,000 ybp to Present). Transgressive, lowstand and highstand channels are compared and contrasted, both in terms of channel geometry and fill. Seismic stratigraphy, grounded by a robust chronostratigraphy, was used to relate individual channels to the sea-level curve for this time interval. The Intercoastal Waterway provides a superb cross section of virtually every river channel occupied during the last eustatic cycle. The results show that fluvial avulsion has resulted in fluvial incision during all stages of the eustatic cycle, so not every incised valley is a lowstand valley. Rivers with relatively high sediment yields are more prone to avulsion than rivers with lower sediment yields. As a result, rivers with relatively low sediment yields may, over the long term, deliver more sediment to the slope than rivers with higher yields. This has major implications with regard to down-dip reservoir prediction.