

## **Facies Models for Transgressive Coasts**

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Transgressive coasts occur on the critical interface between land and sea. Modern global coastlines have most recently experienced an extensive relative sea level (RSL) rise of over 100 m from ca. 18 ka to around 6 ka. As a result, most of the world's coastlines away from major sediment sources retain a transgressive form and much modern research has been focused on these coasts. In contrast, fewer investigations have targeted ancient transgressive coasts. Transgressive coastlines record a lower rate of sediment input compared to their rate of relative sea level rise. The resulting stratigraphy is composed of more seaward facies overlying more landward facies and details are determined by the presence of incised valleys, the accumulation of estuarine and coastal barrier sediments and the trajectories of the major wave and tidal ravinement surfaces. Styles of modern and ancient stratigraphy range from low accommodation and low trajectories in which only the lowest incised valley and estuarine deposits are preserved (Morrow Sandstone, NSW and Delaware modern coast examples), to complex transgressions with higher accommodation and higher trajectories and stacked transgressive/regressive parasequences (Hosta Sandstone, Holocene Louisiana coast, McMurray Formation?). Composite stratigraphies evolve at locations of transgressive/regressive reversal. However transgressive coastal processes, geomorphology, facies and stratigraphic surfaces are relatively consistent over the range of sediment flux and RSL change, allowing for a set of consistent facies models to be constructed and used.