

**AAPG Annual Convention
Salt Lake City, Utah
May 11-14, 2003**

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Reconstructing Submerged and Buried Valley Systems on the Northern English Channel Shelf

Late Quaternary sea-level fluctuations exposed large expanses of the English Channel continental shelf during glacial periods. This shelf is characterised by development of a major incised palaeovalley network that is variably infilled with Pleistocene fluvial sediments. The origin of this valley system has been attributed to sea-level lowering and, controversially, to catastrophic flooding in response to breaching of a structural barrier at the Straits of Dover. However, the controls on the genesis and evolution of the English Channel river system remain enigmatic because it has been difficult to reconstruct its detailed erosional and depositional history.

Here we describe the morphology, internal stratigraphy and evolution of a set of drowned and partially infilled valley systems in the eastern English Channel using an extensive suite of boomer seismic records collected for aggregate resource evaluation. These valley systems show complex channel infills and submerged terrace deposits considered to be associated with cold climate fluvial activity during lower than present sea-levels on the inner shelf. Coarse-grained gravels within the valley-fill succession have been interpreted as the deposits of braided rivers in a periglacial environment. We aim to collect high-resolution swath bathymetry on the submerged terrace systems, together with additional boomer and Chirp data. Detailed observations of seafloor surface features, stratigraphic units and surfaces will be used to create a relative chronology of depositional events from geometric relationships. This study has importance for paleoenvironmental reconstruction of Lower Palaeolithic submerged landscapes and the reconstruction of human migration pathways across the English Channel 'landbridge'.