Sedimentary architecture. The Eemian interglacial (MIS 5e) lower Rhine delta is situated in the central Netherlands and buries an incised valley originating from the preceding glacial period (MIS 6), where it incised into older Middle Pleistocene sediments (MIS 11-7).

After initial incision the valley became directly partly filled with coarse-grained glacio-fluvial deposits (Unit S5.5). Deposition of coarse material continued during the Late Saalian into the early Eemian interglacial (Unit A1). Later in the Eemian interglacial, flood basin fines were deposited (Unit A2), spanning the major part of the incised-valley. These fresh-water deposits gradually show more marine influence towards their top and finally prograde into a transgressive shell-rich estuarine sequence (Unit M1), deposited during the Eemian sea-level high-stand. Later deposited organic-rich Early Glacial/Rhine delta sediments (Unit A3), together with the interglacial sediments, are widely eroded and covered by younger coarse-grained Rhine sediments (Unit A4 and Unit A5) during the Early- to Middle Pleniglacial. The sedimentary sequence is capped by deposits of more local fluvial and eolian origin during the Late (Pleni-)Glacial and lateral and fluvio-deltic deposits during the Holocene.

Within near-coastal environments, the fluvial-tidal transition zone is one of the most complex zones due to the mixture of processes and sediments of different sources and depocentres. The Eemian interglacial (ca. 120 ka BP) Rhine record in The Netherlands constitutes a promising natural archive for improving our understanding of lower deltaic architecture and palaeogeography. Besides, the well investigated Holocene Rhine delta is available for analogue studies and to directly test concepts of preservation.

Comparing the Eemian interglacial and Holocene Rhine fluvial-estuarine transition zones, will lead to better insight in the development of lower-deltic areas and hence of better understanding the sedimentary architecture of hydrocarbon reservoir systems.