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Tracing the Anthropocene in the Rhine-Meuse delta

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The Holocene Rhine-Meuse delta developed during the past ∼8000 yr under a first rapid and later decreasing sea level rise in a back-barrier area along the North Sea. After about 3500 yr BP, natural delta evolution became increasingly influenced by humans, with different types of imprints: increased discharge and sediment load associated with deforestation in the hinterland affecting channel geometry and deposition; artificial avulsion; large-scale peat excavation; reclamation and drainage of flood basins resulting in compaction and oxidation of peat; river embankment preventing delta-wide overbank deposition and finalizing avulsion; channelization, changing channel belt geometry and causing shifts in sediment deposition within the delta. After the onset of the industrial revolution, contaminants have been deposited along with the river sediment on the embanked floodplains and in the estuary. The extremely well-documented human-affected evolution of the delta provides a unique opportunity to demonstrate how the Anthropocene can manifest itself in such an environment. We give an overview of human-affected processes in the Rhine-Meuse delta and discuss their effect on fluvial architecture, morphology and sediment composition, and how these may remain preserved within the delta sedimentary record.