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Assessing the use of metal pollution trends in saltmarsh sediments from the Mersey Estuary, UK, to provide chronological data for recent sea-level reconstructions.

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Obtaining reliable high resolution sea-level data from the sediment record requires precise age determination, however obtaining a chronology for recent saltmarsh sediments may prove difficult with dating techniques such as radiocarbon, ^{210}Pb and luminescence. Alternatively chronostratigraphic markers can be used to provide a chronology and verify other dating techniques employed. Metal pollution trends in saltmarsh sediments from the Mersey Estuary were investigated as a potential means for providing chronological data for reconstructing sea-level for the historical period. As the areas on and adjacent to the estuary banks have been heavily industrialised since the 18^{th} century, coastal wetland sediments have consequently been subjected to pollution from effluent inputs and atmospheric deposition from the industrial activity. Metal concentrations were determined on a core from Oglet Bay using both XRF and AAS. Down-core metal concentration trends were first examined for potential influences from variations in grain size and organic content, before being referenced to the history of metal pollution in the Mersey catchment, previous work on metal and organic pollution of Mersey saltmarsh sediment cores, and the documented discharge of radionuclides into the Irish Sea from Sellafield. Trends in As, Br, Cu, Hg, Pb, S and Zn provide a record of metal pollution since the 19^{th} century, in particular the 1800s, 1920s, WWII and post-1960. The sedimentation rate of the core was estimated using these dates and is observed to decrease from approximately 3.84 cm year^{-1} to 0.83 cm year^{-1}up-core. This decrease is probably linked to a change in marsh location within

the tidal frame, changing from a low marsh to mid-marsh environment.