

Rates of deposition on intertidal mudflats: an initial synthesis

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In considering restoration of estuaries for re-establishment of salt marsh areas it is important to be able to predict the rate of increase of deposition of inter-tidal sediment in a range of different environments. This is especially challenging in high tidal range environments, and particularly so when these are subject to pressures from a range of different stakeholders and interest groups. The effects of climate change, especially sea level rise and increased storminess, may also moderate the tendency of intertidal muddy sediments to settle in some areas. At sheltered sites such as Pagham Harbour on the heavily populated South Coast of the UK, increased sediment deposition over time has led to the establishment of salt marsh, and although this seems to have been a result of luck rather than planning, numerical models of geomorphological change must take into account the processes of erosion, transport and deposition as influenced by a complex set of hydrodynamic factors.

We present a reinterpretation of some previously published results of long term increase of sediment levels and show how these compare with measurements made in other systems (Seine, Scheldt, Humber) in anthropogenically moderated high tidal range environments. This enables us to build our understanding of the importance of a range of factors, including tidal range, the availability of sediment supply, and the sheltering effect from winds and storm waves. Using this approach enables us to start to build up a profile of the (environmental) factors most likely to favour the growth of salt marsh plants such as *Salicornia*. This can then inform attempts to promote the growth of salt marsh plants as part of a wider estuarine restoration strategy, and can inform management practices in systems of this kind in a range of settings.