



The shift from hold-the-line to management retreat and implications to coastal change: Farlington Marshes, a case of conflicts

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Although it can be argued that coastal erosion is primarily a natural process, in many developed coasts it has been triggered or intensified by human-induced activities affecting local sediment budget and pathways. For a long time, coastal engineering works have been used to reshape the world's coastlines to accommodate for social and economic needs. The realisation that such interference with natural processes would result in cascading environmental impacts at various temporal and spatial scales is relatively recent. As a result, a series of regulations have been implemented to mitigate further damage to coastal environments and compensatory measures are now required as part of licensing approval for certain coastal activities. For example, the construction and upgrade of coastal defences are now constrained due to potential detrimental impacts caused on adjacent designated European habitats or species. This study evaluates how a shift from socio-economic needs to a natural-conservancy focus is influencing coastal management approaches in England and the implications for coastal evolution. More specifically, Farlington Marshes (Portsmouth, southern England) will be used as a case study to assess how complex interactions between natural coastal processes, coastal defences and the need for environmental conservation are affecting shoreline changes, evolution of intertidal habitats and biodiversity. Farlington Marshes are designated grazing marshes of national and European importance and a valued recreational area used by local residents. Seawalls built in the 18th century protect the freshwater habitats from flooding but cause detrimental impact on intertidal habitats of Langstone Harbour, which are also designated conservation areas (Ramsar, Special Areas of Conservation, Special Protection Areas, Sites of Special Scientific Interest). The presence of seawalls has caused erosion and coastal squeeze, which are the main causes of the rapid loss of saltmarshes observed in Langstone Harbour (more than 80% between 1946 and 2002, Cope et al. 2008). Coastal defences protecting Farlington Marshes are reaching the end of their life-time in the next decade. Upgrading of existing defences might be required in the future if flood risk in the developed areas inland of Farlington Marshes is to be kept at current levels. Constraints arise from the high costs to upgrade the defences and, principally, from the potential environmental impact on designated conservation zones. For these reasons, the North Solent Shoreline Management Plan (2010) suggests that, in the long-term (in 50 to 100 years), managed realignment might be a better option for Farlington Marshes. This study assesses potential consequences of the implementation of managed realignment in Farlington Marshes, concerning: future changes in sediment budget and pathways, impacts on coastal erosion and flood risk, sustainability of habitats and implications to conservation objectives.