

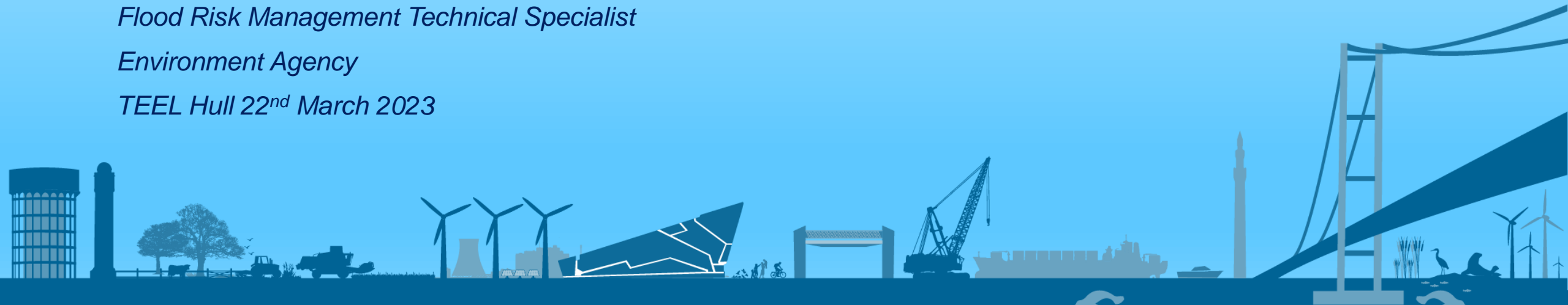
An introduction to Managed Realignment on the Humber estuary

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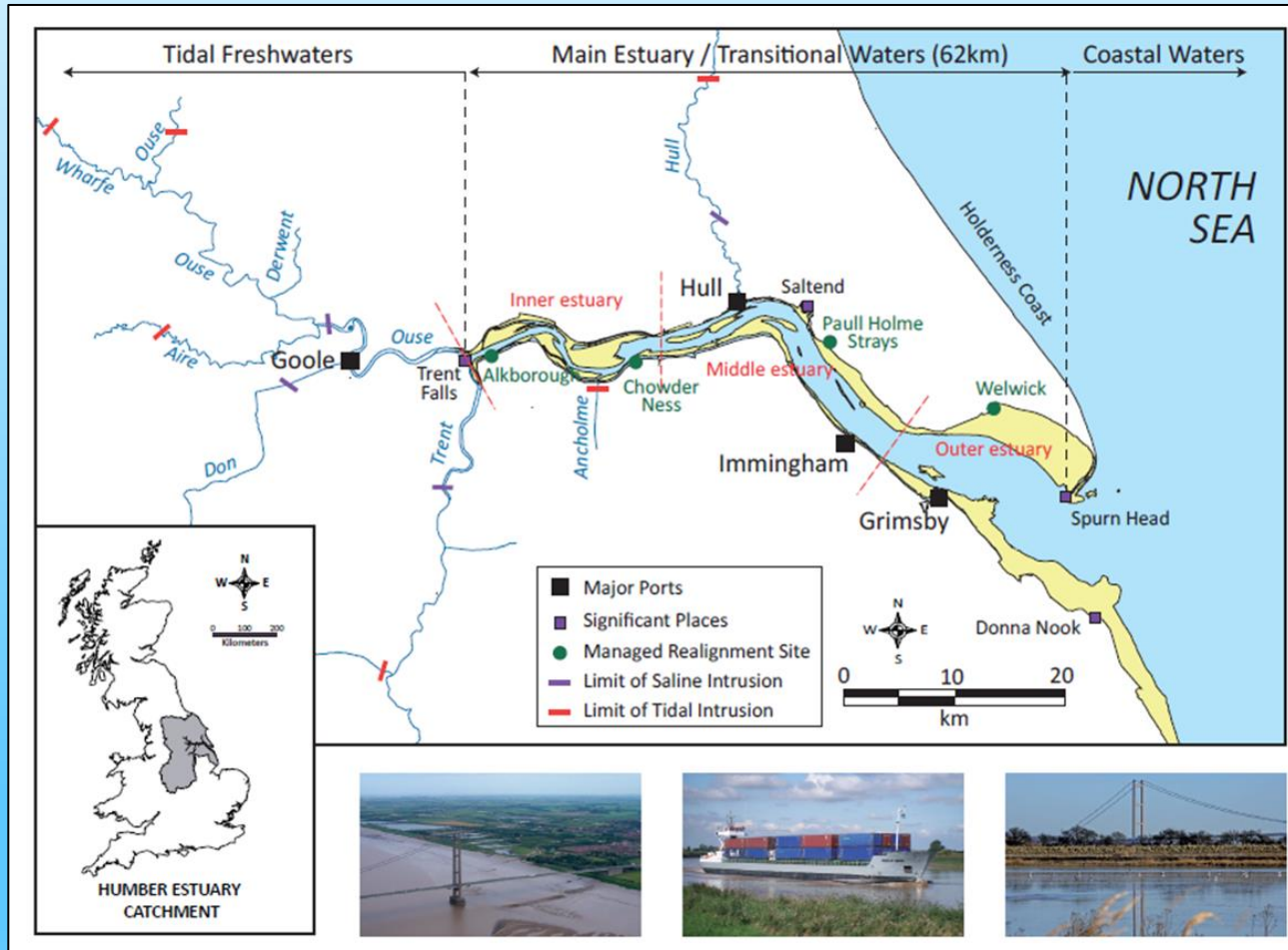


Content

- Introducing the Humber estuary
- Managed Realignment – what and why?
- Coastal Squeeze – a rising challenge
- Virtual tour of the estuary's Managed Realignment sites
- Future challenges and opportunities



Introducing the Humber estuary



- Second-largest coastal plain estuary in the UK; largest coastal plain estuary on the east coast of Britain;
- Drains a catchment area of some 24,472 km², around 20% of the total land surface of England;
- One of the most important European estuaries for nature conservation:
 - Special Area of Conservation (SAC)
 - Special Protection Area (SPA)
 - Ramsar wetlands
 - Sites of Special Scientific Interest (SSSI)



www.tide-project.eu



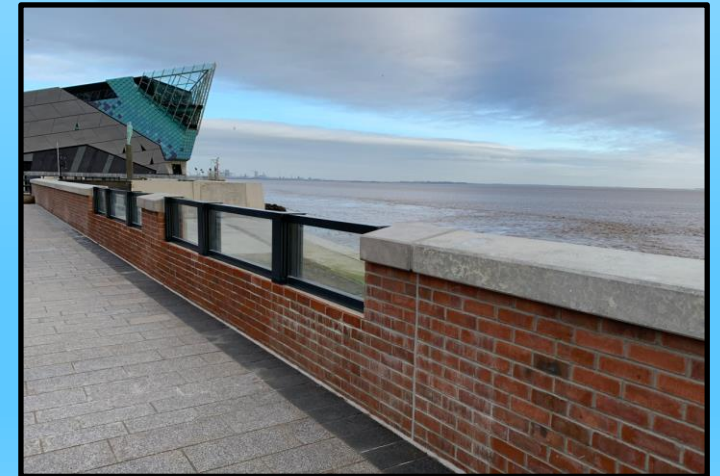
Humber estuary – place of contrasts





Humber estuary – Flood defences

- Network of 489 km of defences around the estuary and tributaries;
- 80% are raised earth flood embankments, predominantly in rural areas; Concrete, masonry and steel in urban areas;
- Network of pumping stations, outfalls, flood gates, barriers;
- Many defences need erosion protection – rock armour, steel sheet piles, vegetated foreshores.



Managed Realignment – what?

“the deliberate process of realigning river, estuary and/or coastal defences. This may take the form of retreating to higher ground, constructing a set-back line of defence, shortening the overall defence length to be maintained, reducing wall or embankment heights or widening a river flood plain” *DEFRA/EA Managed Realignment Review FD2008*



Managed Realignment – why?

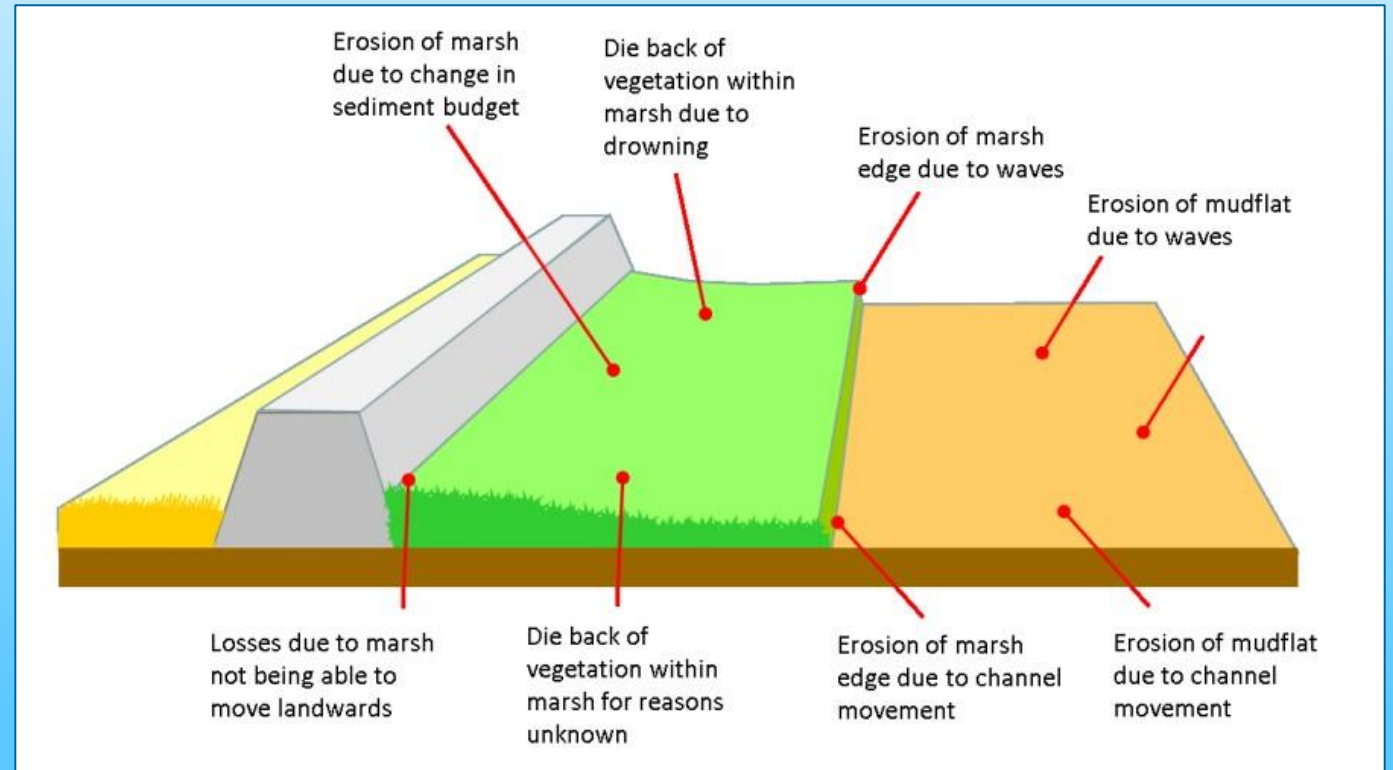
- Reduce defence costs by shortening the overall length of defences to be maintained;
- Increase the efficiency and long term sustainability of flood and coastal defences by recreating river, estuary or coastal habitats and using their flood and storm buffering capacity;
- Provide other environmental benefits through re-creation of natural habitats;
- Provide replacement habitats in or adjacent to a European designated site to compensate for habitat loss as a result of reclamation or coastal squeeze
DEFRA/EA Managed Realignment Review FD2008
- On a 1:1 ratio of habitat loss to creation for coastal squeeze; on a 1:3 ratio for habitat loss to creation for direct construction related losses [TIDE toolbox - Management measures \(tide-toolbox.eu\)](https://tide-toolbox.eu/)



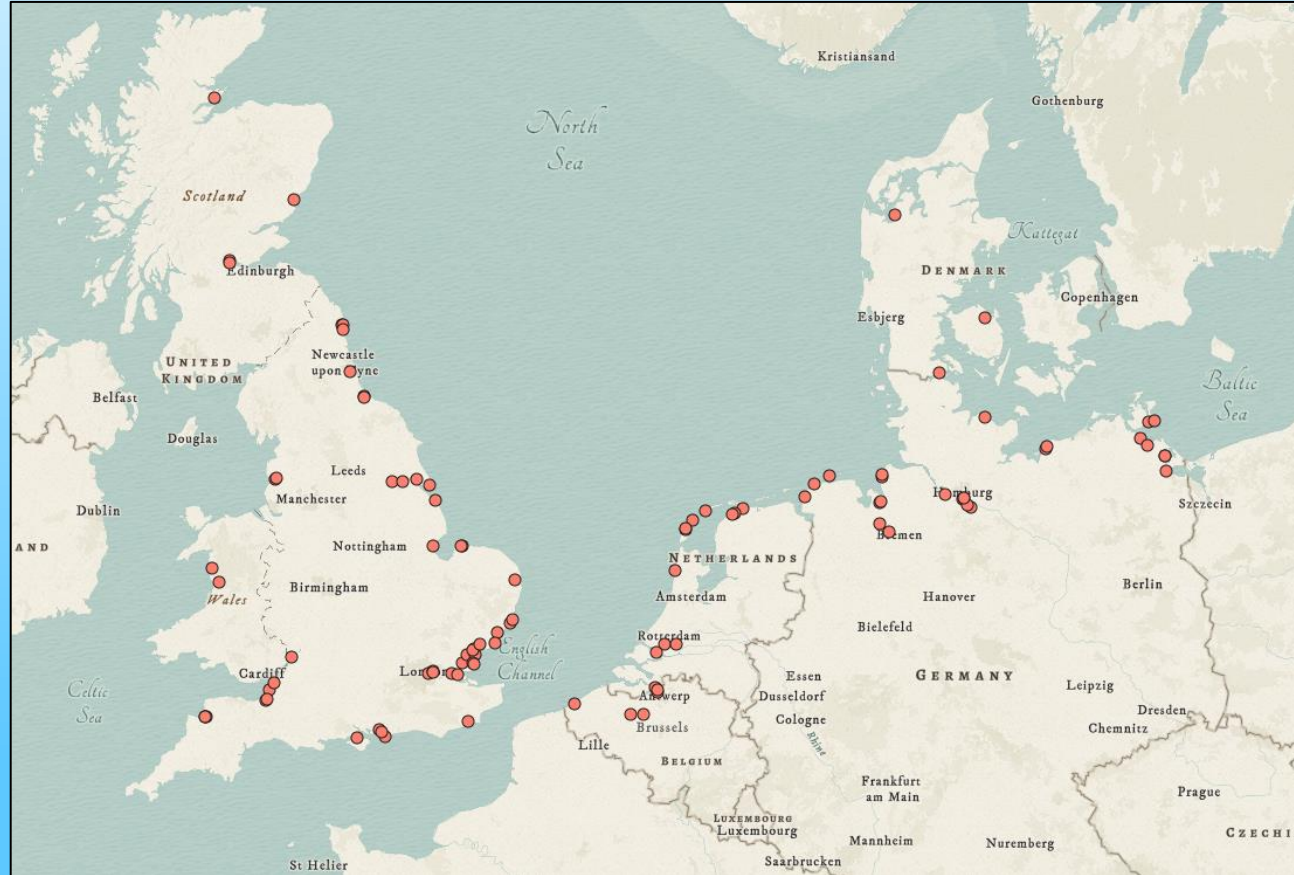
Coastal Squeeze – a rising challenge

“Coastal squeeze is the loss of natural habitats or deterioration of their quality arising from anthropogenic structures, or actions, preventing the landward transgression of those habitats that would otherwise naturally occur in response to sea level rise (SLR) in conjunction with other coastal processes. Coastal squeeze affects habitat on the seaward side of existing structures.”

*What is coastal squeeze? EA
Research Report FRS17187*



Managed Realignment – Europe-wide



[View the OMReg Map - ABPmer](#)



Virtual tour of the Humber's Managed Realignment sites



Alkborough Flats



- Completed 2006
- 370 hectares of MR, Flood Storage, Freshwater habitat
- Mudflat, reedbed, saltmarsh, transitional and wet grassland



Donna Nook



Before (2006)

- Completed 2019
- 125 hectares of mudflat and saltmarsh compensation for the Outer Estuary south



After (2022)

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Paul Holme Strays (aka Thorngumbald)



- Completed 2003
- 80 hectares of mudflat, saltmarsh and transitional grassland
- Innovative flood embankment construction – lightweight clay fill and polystyrene blocks
- Site visit tomorrow!



Future challenges and opportunities

- Sea-level Rise leading to an acceleration of coastal squeeze;
- Finding and purchasing enough land in the 'right' place;
- Difficulties of creating the required habitats;
- Embracing a Systems approach in the estuary;
- Humber 2100+ partnership project, planning adaptive pathways to meet the flood risk challenges of the next 100 years and beyond [Humber 2100+ - Environment Agency - Citizen Space](https://www.environment-agency.gov.uk/citizen-space/humber-2100-plus) ([environment-agency.gov.uk](https://www.environment-agency.gov.uk))

