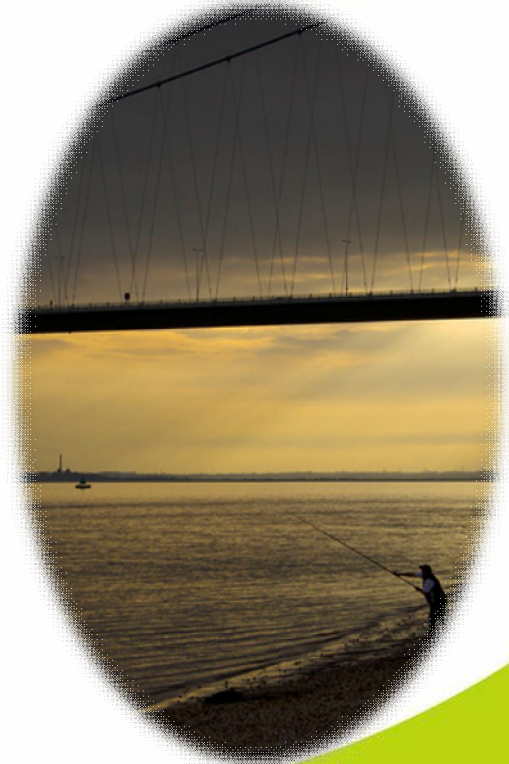


Humber Subtidal Project



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1. Introduction

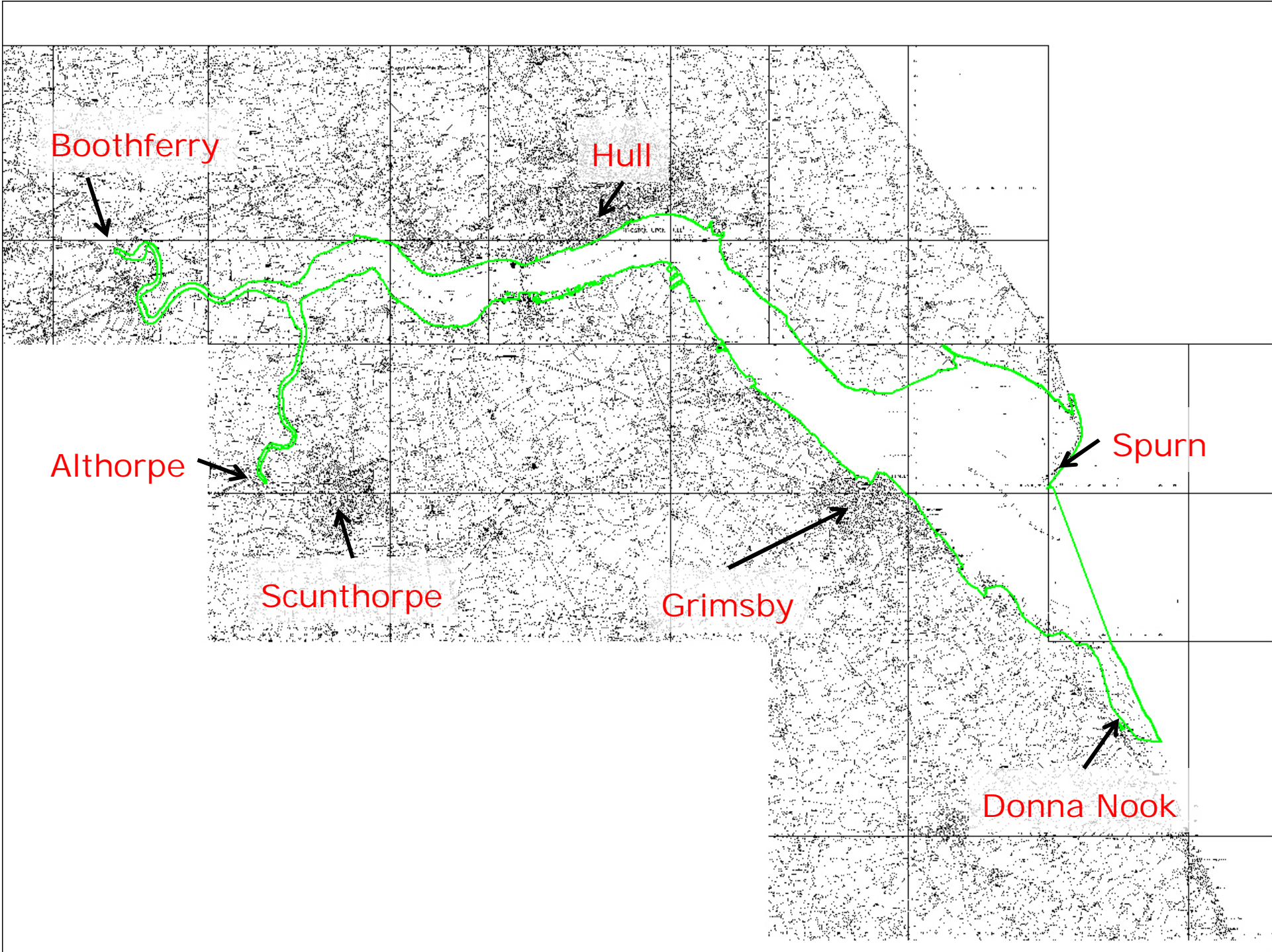
- The Humber is the largest estuary in the UK with a catchment that drains about one fifth of the area of England. The biological significance of the estuary is recognised by its designation as a Natura 2000 site.
- Tidal variation between neap and spring high tides of 2.5m.
- Subtidal Area: 16830ha (55%)
- Intertidal area: 13,500ha (44%)
- Subtidal sediments are mostly sandy with patches of gravel and glacial till.
- Intertidal sediments are mainly silty/clay with sand at the outer part of the south bank.

Current Condition of the Subtidal: **Unfavourable recovering (at risk)** – due to DO sag and low sp abundance in areas.

2 Humber – physical characteristics



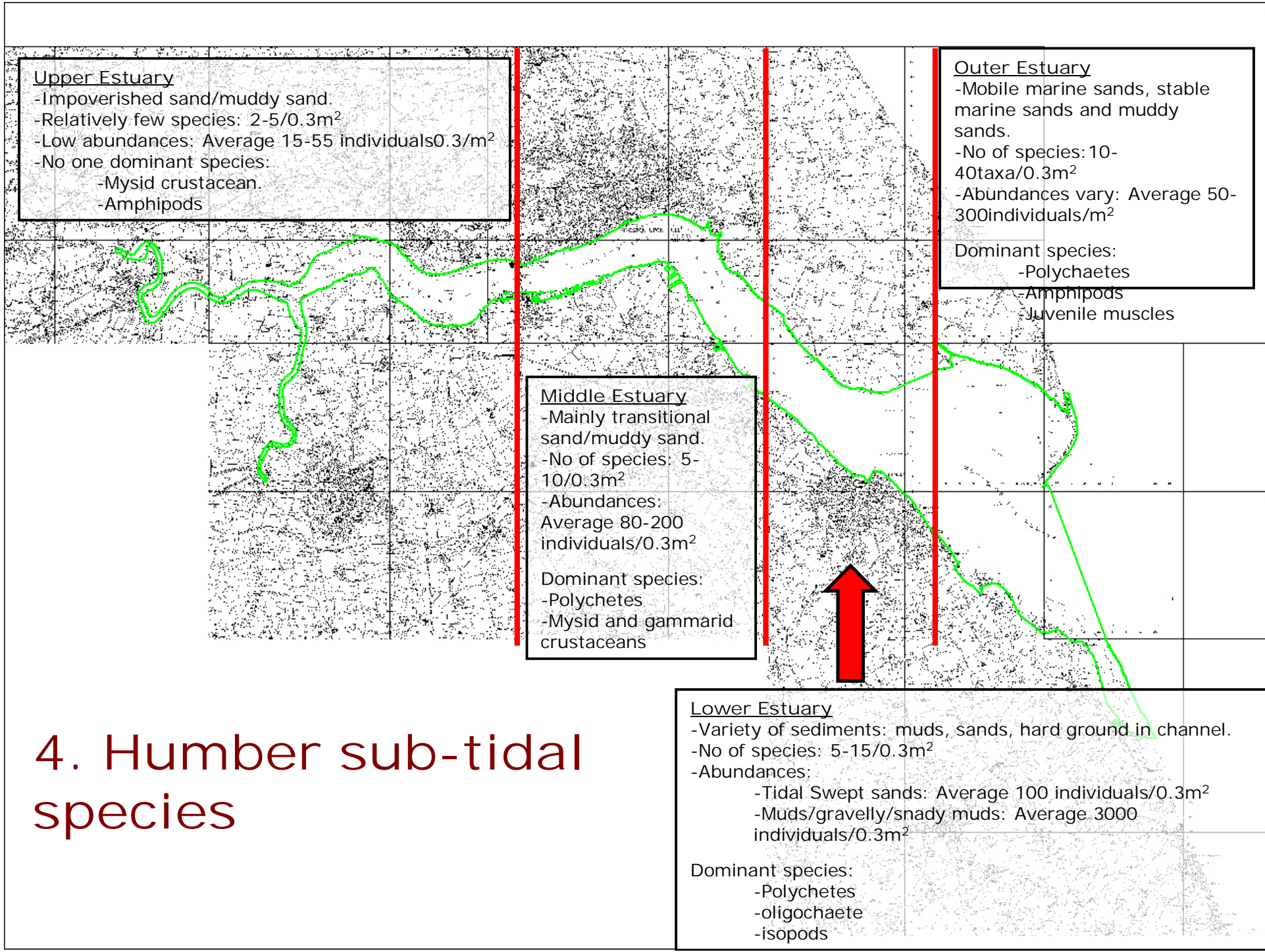
- Sediment transport is extremely important within the estuary, as it influences both physical and biological characteristics.
- Three main sources of sediments are the North Sea, the Holderness coastline and fluvial sources.
 - The North Sea: over 1,500 tonnes carried per tide
 - average of 320 tonnes from rivers.
 - Estimated that up to 1.26 million tonnes of sediment may be in suspension at one time.
- Land claim and flood protection works have resulted in changes in the form of the estuary over the last few centuries.



3 Humber - Biological characteristics



- Intertidal mudflats are internationally important feeding and roosting areas for migratory and wintering waterfowl
- Mudflats and saltmarsh provide nursery grounds for North Sea fish, particularly bass and flatfish
- Migratory route for lampreys (2 sp), salmon, eel and smelt
- Grey seals breed in the outer estuary and Harbour porpoise occurs
- Main biotopes: sheltered eulittoral hard, littoral gravels and sands, littoral muddy sands, littoral muds, sublittoral gravels and sands, sublittoral muds.
- Soft sediments predominate.



4. Humber sub-tidal species

4. Mobile species

- Crustacea.
 - Mysids and shrimps (Brown shrimp dominant)
- Fish
 - Total of 78 species recorded in the Humber, grouped as:
 - Diadromous. 9 spp
 - Marine adventitious. 32 spp
 - Marine seasonal migrants. 6 spp
 - Freshwater adventitious. 8 spp
 - Marine juvenile migrants. 10 spp
 - Estuarine residents. 13 spp
- Smelt, Shads, Lampreys and Salmonids (salmon and trout)
- Grey seals breed in the outer estuary and Harbour porpoise and common dolphin have known to occur.

5 Fisheries.

- Historically there have been fisheries for shrimp (brown & pink), crab, mussel, oyster, whelk, scallop, cockle, cod, sole, smelt, sprat, sea trout, salmon, bass, mullet, brill, flounder, whiting, eel.
- Recreational exploitation for shrimps, eel, cod, whiting, sole, flounder, cockle.
- Landings of brown shrimp using nets (mesh 20-25 mm) in the NESFC area have been declining since 2001 (~500 tonnes) to 2006 (23 tonnes).
- Approximately 25 vessels trawl seasonally for brown shrimps in the lower Humber. 20 of these visit only when fishing is poor on their home fishing grounds.
- Impact of shrimp trawling on finfish species within the Humber has not been quantified although this activity discards significant quantities of juvenile target and non-target fish in the UK east coast fishery. The market value of losses of non-target whiting, cod, sole, dab and plaice is estimated at £2.5 million.

6. Threats to subtidal



- Physical (sediments) aspects – ‘natural’ scouring (including climate change effects)
- Coastal engineering
- Dredging and spoil disposal
- Water quality
 - direct discharges from Humber banks
 - indirectly receives discharges from 20% of the area of England
 - pollutants in suspension and attached to sediments (subject to resuspension)
 - chemical barrier (Dissolved oxygen sag) to migration
- Power generation.
 - Cooling water - powerstations
 - Wind Turbines and large wind farms offshore.
 - Tidal energy – Pulse and Tidal stream generators
- Climate change and its effects on biology.

7. Gaps in information



- What DO we know:
 - Subtidal habitats and distribution:
 - Good Knowledge from many different sources (ABP, EA, NE and others)
 - Invertebrate abundances and distribution:
 - Good Knowledge from many different sources (ABP, EA, NE and others)
 - Mobile species:
 - More information needed (anecdotal and patchy)

8. Where to go from here?



- identify the habitat resource and its importance based on available data
- gaps in information to be identified
- threats and opportunities to be identified
- draft out possible objective
- Identify mechanisms to take forward any actions if they are not already
- Identify any actions that cannot be taken forward through existing mechanisms
- Discuss the potential for a sub-tidal B/HAP based on the above.



The logo for Natural England, featuring the words "NATURAL" and "ENGLAND" stacked vertically in a white, sans-serif font. The text is set against a solid green rectangular background.

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Any Questions?