

SECTION 18.0

MANAGEMENT UNIT 13: SPURN PENINSULA

18.1 Information Summary

18.1.1 Location

Management Unit 13 is located at the southern end of the Holderness coastline and is approximately 6.0 km long. The northern limit of the unit is located at Kilnsea Warren.

18.1.2 Coastal Processes

The future evolution of the Spurn Peninsula has been the subject of much research and debate. There are two principle hypotheses -destruction and re-growth, and development by wash-over. Neither of these hypotheses has been confirmed, however it is apparent that the integrity of the peninsula is a function of a balance between the erosion of the eastern shoreline and deposition on the western side. At the present time, the mean high water level along the peninsula is fixed by a series of man-made defences which have delayed erosion. Limited research undertaken to date suggests that a net southerly transport pathway exists between the Spurn peninsula and the Lincolnshire coast. This, however, remains unconfirmed.

18.1.3 Coastal Defences

The coastal defences along the eastern shore comprise a combination of timber groynes, timber breastworks, and concrete/rubble revetments which are now largely derelict (owned by Yorkshire Wildlife Trust). There are also isolated defences on the western shore, notably a concrete and masonry wall and timber breastwork in the vicinity of the RNLI station.

18.1.4 Land-Use, Human and Built Environment

Spurn peninsula comprises open land which is managed as a nature reserve by the Yorkshire Wildlife Trust. There is a permanently manned lifeboat station at Spurn Head where there are also residential properties used by the RNLI crew and their families. An access road, incorporating water and electricity mains services, runs the length of the peninsula. Other facilities include the Humber Pilots Station (comprising a control room, radar and temporary quarters), a sewage treatment plant, fuel tanks, and field centre and observatory facilities associated with the nature reserve.

Beach launched fishing vessels operate from the unit and there is extensive recreational use based mainly around walking and observing the wildlife. Fishing vessels other than those launched from within the unit also work the nearshore waters for lobster and crab.

18.1.5 Natural Environment

Management Unit 13 is arguably one of the most important areas for nature conservation within the study area. The peninsula, which is founded on a hard glacial till (moraine) base, forms a part of the Humber Flats and Marshes site which is subject to multiple nature conservation designations including SSSI, Ramsar and Special Protection Area.

There are examples of many different coastal habitat types including dunes, sandy beaches on the eastern shoreline which are retained between timber groynes, and a sandy foreshore at the head giving way to mudflats over much of the western shoreline. The site is important, amongst other species, for wildfowl and for seals. Other marine mammals (e.g. whales, dolphins or porpoises) have been sighted offshore.

In addition to its wildlife interest, Spurn peninsula is included within the Spurn Heritage Coast and it is thus covered by the Spurn Heritage Coast Management Strategy, and there is a Geological Conservation Review site at Spurn Head.

18.1.6 Policies

The policies of the former Holderness Borough Council and Humberside County Council will continue to apply to the unit. These will be replaced in due course by new policies of the forthcoming development plans to be prepared by East Riding of Yorkshire Council. The policies of the Spurn Heritage Coast Management Strategy, the Local Environment Agency Plan and the Humber Estuary Management Strategy (HEMS) are also relevant to the unit.

The unit is located within the area covered by the forthcoming Humber Estuary Shoreline Management Plan. Consequently, no definitive decisions will be taken on the preferred coastal defence policy for Management Unit 13 until this latter document is at a similar stage to the current HECAG SMP.

18.1.7 Issues

The primary issue facing Management Unit 13 is the future of the Spurn peninsula. Since the mid 19th Century, the peninsula has been artificially retained in its current position. However, the current policy adopted by those responsible for the management of the unit is to allow nature to take its course. This policy is encompassed within the Spurn Heritage Coast Management Strategy, which states that the aim is "to support the restoration and maintenance of Spurn's natural, dynamic, geomorphological functions and viability", based on the natural coastal processes of erosion and deposition. The use of appropriate soft engineering methods will be supported or promoted (Spurn Heritage Coast Project, 1996). It is therefore important, if these objectives (which have been agreed by the various parties with an interest in the future of Spurn) are to be achieved, that the policy option selected facilitates the restoration of the natural development of the peninsula.

The potential effects along the northern shoreline of the Humber Estuary and indeed the Humber Estuary as a whole, should parts or all of the peninsula become temporarily or permanently removed, are currently unclear. This particular subject is currently being studied as part of work in the, "Humber Estuary Geomorphological Study -Stage 2". The latest available research suggests that the peninsula is founded on the remains of a moraine ridge. The prospect of a breach involving a significant length of Spurn, sufficient to disrupt processes within the Humber Estuary and compromise the current Standard of defence provided by the Humber Bank defences, is therefore unlikely. Nonetheless the potential significance/severity of a temporary or permanent breach is such that the preferred option with regard to the future management of the peninsula, should include for measures to safeguard its future integrity.

Related to the above, coastal defence decision making will need to consider the needs of the RNLI and Humber Pilots. Associated British Ports have recently integrated Vessel Traffic Services at Hull with the Humber Pilots station in order to provide a single Traffic Control Centre for the whole of the Humber Estuary.

The importance of the Humber Estuary for navigation, nature conservation, recreation and many other activities means that the precautionary approach must be adopted. The strategic coastal defence policy adopted must be implemented in full awareness of the various interests in the estuary.

There is a need to address the issue of who would take action if a breach occurred. This would be best resolved by the HECAG Management Team, the RNLI, YWT and the RSPB.

18.1.8 Specific Objectives

Building on the objectives discussed in Section 4.4 of this document, the following unit-specific management objectives were identified for Management Unit 13:-

- To enable the Spurn peninsula to develop naturally in accordance with the objectives of the Spurn Heritage Coast Management Strategy, HEMS and other relevant plans
- To ensure that the needs of the RNLI, the Humber Pilots and fishing activities are not prejudiced
- To recognise the Strategic importance of the estuary and to ensure that existing interests are not unduly compromised
- To ensure that coastal processes and the standard of protection provided by coastal defences along the shoreline of the Humber Estuary are not compromised as a result of decisions with regard to the future management of the peninsula.

18.2 Results of Economic Appraisal

Spurn Peninsula comprises open land managed as a nature reserve, a permanently manned lifeboat station and associated residential properties, an access road (incorporating water and electricity mains services), the Humber Pilots Station, a sewage treatment plant, fuel tanks, and field centre and observatory facilities associated with the nature reserve. The monetary value of those tangible assets associated with the peninsula and the costs associated with relocating the existing services should this become necessary, are of the order of £ 18 million (ABP, personal communication). It is likely that the cost associated with coast protection measures to hold the current line of defence (for a 50 year design life) would exceed this benefit. There is insufficient economic benefit, to justify active intervention to advance the current line of defence.

Given that land would be lost and the material removed naturally by the sea as a consequence of a do nothing option, there is no economic benefit in undertaking works to accelerate the process by adopting an option to retreat the line.

The potential impact of a partial or total beach of the peninsula on the standard of protection provided by existing coastal defences along the shoreline of the Humber Estuary is unclear consequently the potential damages associated with a temporary or permanent beach of the peninsula are also unclear. If the "Humber Estuary Geomorphological Study -Stage 2' identifies areas within the Humber Estuary that would be subject to increased wave activity and/or flooding, it is recommended that further work is undertaken to establish the economic implications of a temporary or permanent breach.

18.3 Discussion of Policy Options

The objectives are set out in full in Section 4.0 and the evaluation process is described in Section 5.0.

18.3.1 Do Nothing

The do nothing option meets many of the objectives for the unit. It is technically viable, and compatible with the coastal processes operating within the cell. However, without monitoring and, if necessary intervention, it could be incompatible with the preferred option for adjacent units and it could conflict with many of the objectives relating to the human and built environment.

The do nothing option (i.e. no monitoring or mitigation) would not be an acceptable option for the Spurn peninsula. Allowing the natural development of the peninsula with careful monitoring, and, if appropriate, intervention would, however, be a potentially viable option for the unit. This would also comply with the objectives set out in the Heritage Coast Management Strategy.

18.3.2 Retreat the Line

The retreat the line option, if implemented as a major engineering operation, would conflict with most of the management objectives of the Spurn peninsula. However, some local intervention (to assist in the natural development of the peninsula as a result of a monitored do nothing option) may be beneficial in respect of meeting the management objectives.

Limited carefully managed intervention (retreat) based on the results of monitoring may, therefore, be potentially viable for Management Unit 13.

18.3.3 Hold the Line

The hold the line option fails to meet many of the management objectives for the Spurn peninsula. It would not be compatible with the coastal processes operating within the sediment cell, it would conflict with the objectives in respect of the natural environment and would not be sustainable. Whilst it would meet some of the objectives with respect to the human and built environment, most of the organisations who have an interest in the peninsula have, in fact, been party to the development of the objectives set out in the Heritage Coast Management Strategy.

Overall, therefore, the hold the line option is rejected.

18.3.4 Advance the Line

Advancing the line in the vicinity of Spurn would not meet the objectives of compatibility with the coastal processes operating within the sediment cell or with the preferred options for adjacent units. It would not, however, be a sustainable option. There is no environmental justification for adopting such a policy, and the option would not meet the unit specific objectives identified for the unit.

The advance the line option is therefore rejected.

18.4 Preferred Option

The preferred strategic coastal defence option for Management Unit 13 is to allow natural processes to continue. This would best be achieved, as indicated in the Heritage Coast Management Strategy, by monitoring and intervention if and when necessary (representing a qualified Do Nothing Approach).

The point at which intervention is considered necessary in order to maintain the integrity of the peninsula will be dependent on a careful monitoring programme and a methodology by which to predict its response following any damage sustained during extreme tidal conditions.

The preferred option should be reviewed following the outcome of the “Humber Estuary Geomorphological Study - Stage 2”.

18.4.1 Mitigation and Monitoring Requirements

In order to ensure that the management objectives are achieved, careful monitoring of the development of the peninsula will be essential, supported by intervention if this is required in order to safeguard the strategic importance of the estuary. Mitigation measures may also need to be implemented in respect of the RNLI, Humber Pilots and other users of the peninsula. In the meantime, restrictions on any further developments are recommended.

The monitoring and mitigation process will need to be the subject of further discussion and agreement between the many interested parties. However this issue is currently (1998) being addressed, in part, by the beach management plan which is being implemented as part of the scheme to protect the gas terminals at Easington, in so far that the beach monitoring extends over the full length of the peninsula. The Easington Monitoring Committee will review the results of monitoring and determine whether or not mitigation measures should be instigated.

See also Table 3.0, Monitoring Recommendations, Section 25.3.

MANAGEMENT UNIT 13: SPURN PENINSULA

STRATEGIC OPTION	GENERAL MANAGEMENT OBJECTIVES							UNIT SPECIFIC OBJECTIVES					
	Common to all Management Units							Defined Below					
	Technically Realistic	Economically Viable	Environmentally Acceptable: Human & Built Environment (See Supporting Matrix Below)	Environmentally Acceptable: Natural Environment (See Supporting Matrix Below)	Compatibility with Processes at Work within Sediment Cell	Compatibility with Preferred Options for Adjacent Management Units	Overall Sustainability	Facilitate Natural Development of Spurn	Meets Needs of the RNL, Humber Pilots, Fisheries Activities etc	Not Compromise Strategic Importance of the Humber Estuary	(Not Used)	(Not Used)	(Not Used)
Do Nothing	✓	(4)	✗	✓	✓	?	?	✓	✗	✗			
Retreat ⁽¹⁾	✗	?	✓	✓	✗✓	✗✓	✗	✗✓	✗✓	✓			
Hold the Line	✓	?	✓	✗	✗	✗✓	✗	✗	✗✓	✗✓			
Advance ⁽²⁾	✓	?	✗✓	✗	✗	✗	✗	✗	✗	✗			

Notes:

- ✓ Yes - complies with management objective
- ✗ No - conflicts with management objective
- ✗✓ Meets the objective in some respects but not in others
- ? Insufficient data to assess situation
- ⁽¹⁾ Defined as: active intervention to retreat from existing coastline (i.e. other than by natural erosion)
- ⁽²⁾ Defined as: active intervention to advance from existing coastline (i.e. other than by natural accretion)
- ⁽³⁾ Other than tourism, recreation and agriculture
- ⁽⁴⁾ Least cost option (see Section 4.2.2)
- N/A Not applicable

SUPPORTING MATRIX

STRATEGIC OPTION	MANAGEMENT OBJECTIVES FOR THE STUDY COASTLINE													
	Land Use and the Human and Built Environment							Natural Environment						
	Coastal Defence	Agriculture	Fisheries	Tourism and Recreation	Archaeology	Military Use	Offshore Activity	Industry/Economic Activity ⁽³⁾	Navigation	Biology	Geology	Natural Processes	Landscape	Water Quality
Do Nothing	✗	N/A	✗	✗✓	?	N/A	✓	N/A	✗	✓	N/A	✓	✗✓	✗
Retreat (1)	✗✓	N/A	✓	✗✓	?	N/A	✓	N/A	✓	✗✓	N/A	✗✓	✗✓	✓
Hold the Line	✓	N/A	✓	✗✓	?	N/A	✓	N/A	✓	✗	N/A	✗	✗	✓
Advance (2)	✓	N/A	✗	✗	?	N/A	✓	N/A	✗✓	✗	N/A	✗	✗	✓

N.B. Reference should be made to Section 5.0 which explains in detail the procedure used for completing the matrices