

## **Broad Character: Coastal Infrastructure**

### **Character Type: Flood and Erosion Defence**

#### **Irish Sea Regional Perspective**

##### **Introduction: Defining/Distinguishing Attributes**

Flood and erosion defences take the form of either sea defences or flood defences and are found along most of the river estuaries, bays and low-lying coastal margins of England's Irish Sea coastline.

Although flood defences are common in north west England, most do not have a maritime character and are related to the drainage, enclosure and improvement of widespread areas of lowland mosses and mires in the 19<sup>th</sup> century. There are two main areas where flood defences can be said to have a maritime character; in north and south Cumbria, in the lower reaches of the River Lyth, and the Rivers Esk and Lyne. In both areas embankments provide flood defences along the flood plains of the rivers just above the estuaries, protecting land enclosed and drained in the 19th century from the effects of flood tides.



*Concrete sea defences at Crosby beach*

Sea defences are artificial structures built to counter losses from the erosive forces of the sea either along a defined line, as for example with sea walls, or to dissipate them in the intertidal zone, as with lines of groynes or breakwaters. Along the Irish Sea coast, sea defences are found along the main estuaries of the Solway, Ribble and Mersey, around Morecambe Bay, and along the heavily developed coastline of the Fylde. They have two main types: embankments of earth or rubble/stone, and stone or concrete sea walls and breakwaters.

##### **Historical Processes; Components, Features And Variability**

Embankments were used as both flood and sea defences in rural areas, built mainly to protect farm land. The earliest known example from the Irish Sea coastline comprises the Skinburness Marsh sea defences, built after a catastrophic episode of sea inundation in the

14<sup>th</sup> century (Cumbria HER number 346). Most sea defence banks, however, are associated with late 18<sup>th</sup> century or 19<sup>th</sup> century land drainage, enclosure and improvement. Most can be found around Morecambe Bay, the Lune Estuary and the Ribble Estuary. On Hesketh Marsh, at the mouth of the River Ribble, there is more than one phase of sea defences, as more land was reclaimed from salt marsh in the 19<sup>th</sup> century. At Allithwaite in Cumbria, 19<sup>th</sup> century sea defences, built in 1817 to protect land reclaimed from salt marsh, were destroyed by sea incursions in 1828 (dates marked on the Ordnance Survey first edition map of the mid-19<sup>th</sup> century). A new embankment was built further inland, with material supplied by a tramway built along the top of the surviving sections of the original bank. Between Carnforth and Silverdale, in north Lancashire there were failed attempts in the 19<sup>th</sup> century to reclaim land from the sea, leaving a stone-based embankment protruding into the inter-tidal area.

Sea walls fronting England's Irish Sea coast were built mostly in the 19<sup>th</sup> century in coastal towns. At Silloth, in north Cumbria, groynes were used from the late 19<sup>th</sup> century to protect sand dunes and the planned seaside town beyond. These were reinforced from the early 20<sup>th</sup> century by a concrete sea wall, which also acts as an informal promenade. At Crosby, at the mouth of the Mersey, the threat from coastal erosion to sand dunes and seaside settlement has been countered by both the building of a concrete wall as well as the dumping of rubble (<http://www.sefton.gov.uk>). The most significant sea wall defences are found along the Fylde coast in Lancashire, from Cleveleys in the north to St Anne's in the south. These were built from the 19<sup>th</sup> century onwards to serve both as sea defences and as promenades for visitors to the seaside resorts. At Cleveleys and Blackpool, recent major schemes have led to the complete rebuilding of the sea front defences to provide both improved defences and the regeneration of the sea-front promenades (<http://www.bfwedc.co.uk/>).

### **Values And Perceptions**

Sea and flood defences are generally seen as essential for the preservation of many settlements along the Irish Sea coast. In areas such as Morecambe, Blackpool and Lytham St Annes, they form an integral part of the seaside experience, and from the beginning they served a dual purpose, also acting as promenades to allow visitors to enjoy the sea air. Indeed, this was deliberately built into the designs for the new sea defences along the Fylde. At both Blackpool and Cleveleys, the new defences incorporate space for events and the designs are meant to reflect the maritime heritage, evoking headlands, waves and sailing (<http://www.bfwedc.co.uk/>).

Sea defences are perceived to have a detrimental effect on the picturesque character of some parts of the area, for example in the Solway Coast Area of Outstanding Natural Beauty. Around areas of settlement, however, the need for coastal protection may outweigh any perceived negative aesthetic values.

### **Research, Amenity And Education**

The components of this Character Type could be further explored as tools in creating regional distinctiveness, developing wider education and raising public awareness of the region's links with the sea.

Historic features can be, and have been, affected by development works as well as by the indirect impact of the defences. In Blackpool, the rebuilding of the sea defences has meant the destruction of the 19<sup>th</sup> century sea defences and promenade.

Consequently, when developing future sea defences, aesthetics and historic character are considerations, as well as the effect they are likely to have on historic assets. Managed re-alignment is one favourable action which may counter the effect of sea defences on the historic environment. The benefits of managed re-alignment may include the re-submergence

of deposits which were formally periodically wet, providing an enhanced environment for preservation of fragile, organic material, and increased deposition of material on the surface of sites, providing protection against mechanical weathering (Fulford *et al* 1997: 192). However managed re-alignment is itself a cultural action which also has negative impacts on existing landscape perceptions and historic features.

### **Condition And Forces For Change**

The main forces for change in the region are the continuous change in man's relationship with the sea, intensified by the effects of climate change potentially impacting on flooding and coastal erosion. These impacts include sea level rise and the potential increase in intensity, severity, and frequency of coastal storms, and rainfall events affecting flooding in fluvial catchments and urban surface water systems (Defra 2006).

Sea defence policy is also a major force for change. Modifications in such policy have produced significant alterations in the types and locations of this Character Type, particularly arising from the recognition of the need for sustainability (Val Baker *et al* 2007).

### **Rarity And Vulnerability**

In general, coastal defences are fairly common and their associated structures are usually not designated. The vulnerability of this Character Type could be intensified if erosion rates increase.

### **Published Sources**

Defra 2006. *Flood and Coastal Defence Appraisal Guidance FCDPAG3 Economic Appraisal Supplementary Note to Operating Authorities – Climate Change Impacts*, London: Department for Environment, Food and Rural Affairs

Fulford M., Champion T. and Long A. (eds.) 1997. *England's Coastal Heritage: A Survey for English Heritage and the RCHME. RCHME/EH Archaeological Report 15*. London: EH/RCHME

Val Baker M., Tapper B., Johns C., Herring P. 2007. *England's Historic Seascapes: Scarborough to Hartlepool and Adjacent Marine Types*, Historic Environment Service Cornwall County Council on behalf of English Heritage, Cornwall

### **Websites**

<http://www.sefton.gov.uk>. Retrieved January 2011

<http://www.bfwedc.co.uk/>. Retrieved January 2011