

Broad Character: Cultural Topography
Character Type: Cultural Topography (intertidal)
National Perspective

INTRODUCTION: DEFINING/DISTINGUISHING ATTRIBUTES

This Character Type includes the following Sub-types:

- Saltmarsh
- Sandy foreshore
- Shingle foreshore
- Rocky foreshore
- Sandflats
- Mudflats

This Character Type refers to those aspects of cultural topography whose physical expressions are predominantly in the intertidal zone, including along estuaries. For HSC, the inter-tidal zone is perceptual at least as much as a matter of technical definition: the relationship between the actual extent of the [erceived 'inter-tidal' zone and the levels of Mean High Water and Mean Low Water will vary from place to place due to many factors.

Saltmarshes are areas in the upper inter-tidal zone whose vegetation cover is dominated by salt-tolerant herbaceous plants. The tide is the dominating characteristic of a salt marsh, the cyclical inundation by salt water defining the plants and animals that can survive in these areas. The extent and distribution of saltmarsh has been strongly affected by human activity, especially land reclamation for agricultural use and urban expansion, and by the impacts of pollution. A particular issue is 'coastal squeeze', where lines of fixed sea defences prevent the inland expansion of saltmarsh in the face of rising sea levels and losses to erosion. Now seen as a valuable buffer mitigating the coastal impacts of rising sea levels and increased storminess, some areas of saltmarsh are being deliberately allowed to expand by breaching former sea defences. Economic uses of saltmarshes have included seasonal grazing and wildfowling. In some areas they supported a prolific salt-making industry, boiling off the brine to leave sea salt and leaving tangible remains include 'red hills': mounds of burnt debris and briquetage. Past and ongoing human activity has also affected the creation of deposits supporting saltmarsh in at least some areas: millennia of material washed downslope from agricultural soil disturbance and extractive industries on land have had profound geomorphological effects on many of our river valleys and contributed to the quantity and chemical composition of the silts deposited in estuaries. Large areas of saltmarsh have historically been reclaimed for agricultural use.

The foreshore is broadly equated in HSC with land sloping down through the intertidal zone from the landward coastal margin; the extent of the foreshore is defined by the perception of intertidal levels. The English foreshore remains a well-used and well-visited resource. It also contains a rich and diverse legacy of prehistoric and historic remains which are vital to enable a deeper understanding of the long-term relationship with the sea and of those maritime influences which have contributed to the forging of England as a major mercantile, industrial and imperial nation.

A foreshore surface may be covered by exposed sediments of various grain sizes, by loose rock or bedrock, or it may have a vegetation cover as in a 'Saltmarsh'. In a 'Sandy foreshore', the predominant cover is exposed fine rock sediments of a grain size generally perceived as 'sand'. It is the perception that matters more than the technical definitions of sand by particle size (eg http://www.bgs.ac.uk/planning4minerals/Resources_3.htm). Human activity has had a considerable effect on the current distribution of sandy foreshores, with deliberate retention of sand in some areas by the use of groynes, and corresponding depletions elsewhere by beach replenishment works and by quarrying of beach sand for the

construction industry to name a few. Many sandy foreshores are now visited for leisure and they form one of the principle areas by which most people engage directly with the intertidal and marine zones. Other cultural activity now or previously affecting this Type includes shellfish and bait gathering, and impromptu areas for landing and loading cargo. As easy landing places, many sandy foreshores form the focus for military coastal defence systems. Their shelving profile also makes them high risk zones at times of extreme high spring tides and storm surges, therefore many are backed by coastal sea defences. The distribution of sand on foreshores varies on long and short cycles, giving potential in some areas for the occasional exposure of buried ancient land surfaces, occupation layers and structures, and associated palaeoenvironmental deposits.

A 'shingle foreshore' has a predominant surface cover of exposed rock sediments of a grain size generally perceived as 'shingle' or 'pebbles'. Human interventions affecting the current distributions of shingle foreshores include the deliberate retention of shingle in some areas by the use of groynes, and corresponding depletions elsewhere by quarrying of shingle for beach replenishment works, and the landscaping and construction industry. Many shingle foreshores are now visited for leisure. Some shingle foreshores form banks or spits, creating sheltered marine areas which become the focus for leisure activities. Many have the potential for attracting marine and bird life, and are the focus of wildlife watching. Shingle foreshores are often aligned in ridges of differing ages, the oldest generally located furthest from the present shoreline, giving valuable time depth. Shingle foreshores can also often extend to form 'spits' of land, slightly detached from the shore such as Orfordness in Suffolk.

Rocky foreshore refers to the predominant surface of exposed bedrock outcrops and associated boulders and large pebbles. Rocky foreshores are the focus for a range of cultural activities, as they have been in previous centuries. Many form easily accessible geological exposures for quarrying and mining and, from a recreational aspect, for the collection of geological and fossil specimens. Seaweed harvesting for agricultural fertiliser and, in some areas, for soda-ash manufacture, was once widespread, and various shellfish species were gathered for food and bait. Many rocky foreshores, especially in bays along rocky coastlines, contained areas cleared as small landing places, often with rough quays built from the cleared rocks. Some coastal quarrying areas were provided with trackways cut into the foreshore bedrock to facilitate loading onto beached vessels. Recreational use of rocky foreshores also includes coastal angling and rock-pooling.

Sandflats are relatively mobile, thick sand deposits, submerged at high tide and exposed at low tide, and often expressed as areas of sandbanks detached from the shore by tidal channels. Their form results from the complex interaction between hydrodynamic and sediment transport processes. Where sediment deposition results in deposition of finer particle sizes - clays and silts - the outcome is 'Mudflats', which can also be differentiated from sandflats in the ecological communities they support and, for HSC, their cultural implications. The processes giving rise to sandflats vary in their outcomes through time, producing shifting positions and sizes of sandbanks within an overall area of sandflats. Sandflats are common features of estuaries and shallow bays but can also occur on the open coast where prevailing currents and marine topography regularly produce appropriate depositional conditions. Common cultural activities on sandflats include shellfish harvesting for food and bait while some support areas of shellfish farming. Activities on many areas of sandflats are now controlled by various wildlife conservation designations, themselves a cultural intervention. More obviously destructive intervention derives from the impact on sandflats of dredging navigation channels to coastal ports. Pollution from coastal industries and nitrogen run-off are also identified as affecting sandflat ecology.

Mudflats are relatively mobile, thick deposits of clays, silts, organic detritus and some very fine sand content, submerged at high tide and exposed at low tide, and often

expressed as areas of muddy banks in sheltered areas along estuary sides, to seaward of saltmarsh and along the fringes of sandflats. The processes giving rise to mudflats vary in their outcomes through time although the conditions producing mudflats lead to greater stability in their position and extent than is the case with sandbanks in sandflats. Culturally, in many estuaries, past and ongoing human activity has contributed to the deposits now evident as mudflats: millennia of material washed downslope from agricultural soil disturbance and extractive industries on land have had profound geomorphological effects on river valleys and contributed to the amounts and chemical composition of the silts deposited in our estuaries. In some areas, for instance the rias of Cornwall, past mining activity has introduced so much extra silt that tidal limits have retreated seawards, often for considerable distances, leaving former ports (e.g. Tregony on the Fal) cut off from the sea. Mudflats also contribute hazards to estuarine shipping. Common cultural activities on mudflats include shellfish harvesting for food and bait while some support areas of shellfish farming. Activities on many areas of mudflats are now controlled by various wildlife conservation designations, themselves a cultural intervention. More obviously destructive intervention derives from the impact on mudflats of dredging navigation channels to coastal ports, while the bow-wave wash from passing shipping has been invoked as a cause of mudflat erosion on some cases. Pollution from coastal industries and nitrogen run-off are also identified as affecting mudflat ecology.

HISTORICAL PROCESSES; COMPONENTS, FEATURES AND VARIABILITY

This Character Type contains abundant traces of past and present maritime human activities. Palaeolandscape components, often in the form of peat deposits, can also be found within this Character Type. The Lower Palaeolithic sites on the East Anglian coast (specifically at Happisburgh and Pakefield) are some examples. These sites lie within sediment units exposed on beaches and the bases of cliff sections. Recent marine geophysical and geoarchaeological work has demonstrated that some sediment units have been traced offshore, specifically off Pakefield (Murphy 2007; Wessex Archaeology 2008). Intertidal peat deposits in the Isles of Scilly, formed in a saltmarsh environment, have been dated to the Middle Bronze Age and Late Iron Age while subtidal deposits from a freshwater, wooded environment have been dated to the Late Mesolithic (Camidge *et al* 2010). Buried prehistoric land surfaces are inherently fragile and can contain unique palaeoenvironmental evidence (as well as artefacts and ecofacts) that can be enormously informative about past human activities. Furthermore, palaeoenvironmental evidence can relate those activities to an area's vegetational history or to the processes of submergence and coastal or estuarine change. These are examples illustrating the time-depth that this Character Type contains in some areas of England.

Intertidal areas often formed convenient routes of travel for people and/or animals and early evidence for this has been found in several intertidal contexts. For example, the Neolithic trackways on the Isle of Wight at Wootton Quarr (Waller 2006); a Hightown Neolithic trackway near the mouth of the Mersey River with radiocarbon dating of 3960-3690BC (Gonzalez and Cowell 2007); the Post Track and Sweet Track in Somerset, dated, dendrochronologically, to 3838 BC and 3807/3806 BC respectively (Pollard and Healy (eds) 2008, 75); and the Formby prehistoric footprints (Merseyside) (Huddart *et al* 1999).

Most features within this Character Type are by-products of the use of the coasts and estuaries for fishing, shipping and industry, such as quays, piers or fish-traps, commonly now abandoned and visible only as low footings of walls or lines of decaying or fragile timbers or stakes. Wrecks or hulks of ships and boats can survive on sandy foreshores and rocky headlands but, in the latter, they will mainly be fragmented. The wreck of the Amsterdam sunk in 1749, for example, is located on the foreshore near Hastings. At low

tide, remains of the hull are exposed with local people walking around the area almost oblivious to its presence.

VALUES AND PERCEPTIONS

In England, this Character Type remains highly valued as a place for inspiration and recreational activities including a variety of beach and watersports, fishing and sunbathing. The liminality and bleak, often hazardous nature of this character type has led to its use as a backdrop for literary works such as M R James' ghost stories, many of which were set on the isolated Suffolk coast. The bio-diversity of these areas also makes them popular places for botanical rambles and wildlife watching.

Culturally, some of these inter-tidal areas, such as sandflats, have long been perceived as severe hazards to coastal and estuarine shipping from their mobility and the resulting difficulties in maintaining accurate charts. But even if their expression may be dynamic, many areas of sandflats have a distinct presence through time and are specifically named. Their notoriety to ship's pilots may be matched by dangers of stranding, or as quicksands for walkers using sandflats at low tide to short-cut otherwise long coastal journeys.

Intertidal studies have been viewed as extremely valuable from a maritime archaeological perspective due to their often rich survivals of organic material and closely-associated palaeoenvironmental evidence (Fulford et al 1997 and Flemming 2002).

RESEARCH, AMENITY AND EDUCATION

This Character Type is relatively poorly researched; a deeper and more comprehensive understanding of the historic character it encompasses is needed to inform Shoreline Management Planning. Ongoing programmes of work such as the Rapid Coastal Zone Assessment Surveys (RCZAS) and the National Mapping Programme (NMP) are already contributing to this, establishing a wealth of knowledge about the extant cultural survivals in our coastal zone.

A more comprehensive understanding of the intertidal zone will also allow the development of fit-for-purpose management strategies as well as their implementation through integrated management plans. The provisions for an English coastal access route, contained in the Marine and Coastal Access Act 2009, offer an excellent opportunity to combine this with raising public awareness and understanding of the many differing cultural perceptions that bear on the coast.

CONDITION AND FORCES FOR CHANGE

This Character Type will continue experiencing the gradual erosion by coastal processes, enhanced by the long-term implications of sea level rise and increased wave height and storm events along the English coast. Cultural forces for change include the construction of new sewerage schemes and coastal defences, harbour dredging, and many others. The material effects of these processes as well as the movement of water and sediments often occur far from the actual site of the cultural activity itself. The potential existence of buried archaeological features within the foreshore is also a consideration when dealing with coastal developments. Human activities such as salvage, the random recovery of archaeological 'souvenirs' and some fishing activities could be extremely damaging to the non-renewable and fragile nature of prehistoric and historic remains.

Unwanted effects from cultural activities, such as oil and other toxic pollution, also affect intertidal ecosystems, often to their severe detriment: these too may be affected by events far upstream, which may concentrate pollutants and toxic sediments.

Contaminants can be introduced which do not disintegrate rapidly in the marine environment, such as plastics, pesticides, furans, dioxins, and heavy metals.

The Marine and Coastal Access Act 2009 makes provision to improve access, creating a right to walk around England's coast; to address uncertainty arising from lack of consistency, security and clarity in rights of public access to foreshore, beaches and coastal land (HM Government 2009). This will contribute clarify, simplify and extend access through the creation of a coastal access corridor to which the public has right of access on foot for outdoor recreation. It is also stated that access will be made resilient to coastal change. As noted above, the information resource created for this route offers an excellent opportunity for raising public awareness and understanding of the marine, intertidal and landward perspectives that combine uniquely along the coast.

RARITY AND VULNERABILITY

Relatively little-disturbed intertidal areas are relatively rare, fragile and valuable maritime archaeological resources with often rich survivals of organic material and closely-associated palaeoenvironmental evidence. They are also perceived as offering rare opportunities for peace, solitude and inspiration with little obvious intrusion from other people either materially or intangibly through noise for example. Where located close to existing centres of population and commerce, their lack of development both enhances those perceived cultural qualities and their vulnerability as prime areas for residential and commercial expansion.

These areas also represent typically important zones for wildlife. They are often of particular importance to migratory birds. For example, in England mudflats have been classified as a Biodiversity Action Plan priority habitat. A Biodiversity Action Plan (BAP) is an internationally recognized program addressing threatened species and habitats and is designed to protect and restore biological systems. Their cultural value may also be recognised by the creation of a Historic Environment Action Plan (HEAP) to work in conjunction with the BAP, as for example on the Isle of Wight (http://www.iwight.com/living_here/archaeology/heap.asp).

Along the English coasts some intertidal areas fall within Sites of Specific Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar Sites (which are wetlands of international importance designated under the Ramsar Convention), and in some occasions they are designated as a Heritage Coast.

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