

9.5.6 Salt Marsh and Sandflats

Introduction: defining/distinguishing attributes and principal locations

This Type includes the following sub-types:

- Salt Marsh;
- Sandflats;
- Mudflats.

Historical processes; components, features and variability

Salt marshes are common along areas of coastal rough ground in this area. They are a type of marsh that is a transitional zone between land and salty or brackish water (eg, sloughs, bays, estuaries). It is dominated by halophytic (salt tolerant) herbaceous plants. Historically, salt marshes have been used for grazing or have sometimes been treated as ‘wastelands’, along with other wetlands. The tide is the dominating characteristic of a salt marsh. The salinity of the tide defines the plants and animals that can survive in the marsh area. They usually are developed on a sinking coastline, originating as mud flats in the shallow water of sheltered bays, lagoons, and estuaries, or behind sandbars.

The salt marsh serves as a sediment sink, a nursery habitat for fish and crustaceans, a feeding and nesting site for waterfowl and shorebirds, a habitat for numerous unique plants and animals, a nutrient source, a reservoir for storm water, an erosion control mechanism, and a site for aesthetic pleasures. Appreciation for the importance of salt marshes has led to legislation aimed at their protection.

Salt marshes are one of the most biologically productive habitats on the planet, rivaling tropical rainforests. This is partly due to the daily tidal surges that bring in nutrients, the natural chemical activity of salty (or brackish) water, the tendency of nutrients to settle in roots of the plants there, and the tendency of algae to bloom in the shallow unshaded water.

Coatham Marsh (Figure 9.57) is used by over 200 species of bird, including heron, coot and kestrel which are present throughout the year. In winter large flocks of Lapwing, Teal, Widgeon and Shoveler can be seen. Many of the old street names of nearby Warrenby echo the importance of this area for birds, names included Snipe Street, Teal Street and Widgeon Street. Skylark, lapwing and meadow pipit thrive on the insect-rich coastal grasslands.

Inter-tidal mudflats and sandflats are also encompassed in this Type. These are generally located in tidal estuaries and can contain important archaeological remains either at surface (eg quays, breakwaters, wrecks) or buried (eg old land surfaces, overwhelmed quays). Most human activities that have left remains in these areas were connected with maritime affairs but there may also be prehistoric material from when land that is now inter-tidal was dry ground.



Figure 9.57. Coatham Salt Marsh, Warrenby

Values and perceptions.

Salt marshes are highly valued ecologically with many important species of fauna and flora thrive or at least survive in them. Many are now nature reserves or have been given national or county nature conservation designations (eg Coatham Marsh). As yet, they have not been given much attention by historians or archaeologists despite contributing much to our understanding of past communities' full and varied use of their landscape.

Research, amenity and education

Survey, excavation and analysis of the well-preserved archaeological sites has already yielded valuable information and will continue to do so. Archaeological research of the coastal peat bogs has also been carried out and should continue in light of the important palaeo-environmental information these contain.

Potential for amenity and education is great. The semi-natural vegetation is itself of interest to many people, supporting insects, birds and mammals.

Relatively little research has been undertaken on the palaeo-environmental potential of studying profiles taken from salt marshes. Further historical analysis of the uses made of these marshes and wet areas can be expected to yield useful information.

Presentation of any coherent and well-preserved historical remains to the public should be made wherever possible.

Condition & forces for change

Survival is generally good as most marsh and estuarine areas have been difficult to improve agriculturally but as this is increasingly neglected except for wildfowling and some grazing; some archaeological sites are becoming obscured.

In the past, substantial areas of saltmarsh have been reclaimed as agricultural land and for urban development, but they are now accorded a high level of protection. There is growing interest in restoring salt marshes, through a process of managed retreat. Conversely, many of these areas are under threat from 'coastal squeeze', accelerated by rising sea levels and increased wave energy and storminess.

Rarity and vulnerability

This Type is subject to numerous protective designations. The Wetlands at Seaton Sands and Greatham Creek are recognised as wetlands of international importance (RAMSAR sites) for wintering wildfowl and waders and as a result are designated as Special Protection Areas (SPAs). Seal Sands are also designated as a National Nature Reserve (NNR).

Waterfowl that winter on estuaries are vulnerable to land claim and other developments that would disturb or damage the existing ecology of these sites. Other human influences, such as recreational disturbance, commercial exploitation of shellfish and worms, and oil and industrial pollution, are also potentially damaging to the conservation interest of estuaries.

Recommendations

Further agricultural improvements to salt marshes by draining, while increasingly achievable with modern machinery, should be discouraged. This would ideally be done by raising farmers' awareness of the value of the Type, but if necessary might be achieved either by designation and protection or through developing financial disincentives (eg through agri-environmental schemes).

It appears reasonable to suggest that there should be positive encouragement for re-establishing lowland marshes, where feasible, alongside the main rivers and their tributaries. This may be expected to further reduce input of nutrients into the river systems and have considerable benefits in terms of biodiversity and historic landscape character.

Continued palaeo-environmental research on the mudflats and sandflats should inform our understanding of their recent as well as medieval and earlier development. The potential existence of buried features in these areas should be considered when dealing with proposed developments.

The good maintenance of extant features should be encouraged and if they are protected statutory constraints should be enforced. More research into this Type is required and good management will be made easier through the production and implementation of integrated management plans. Both natural and historical interests should be fully considered. As well as protecting vulnerable but important remains, these plans should aim to improve the interpretation of this Type and thus increase public enjoyment of it.

Closely control further expansion of sea and riverside settlements. Identify and secure key features.

Sources

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9.5.7 Water (fresh)

Introduction: defining/distinguishing attributes and principal locations

The Type Water (fresh) includes the following sub-types:

- Watercourses (streams, non-navigable rivers);
- Springs;
- Ponds;
- Lakes.

Watercourses, running from the high moors inland, frequently dissect the coast along this shoreline. Numerous springs and ponds are also dotted along the cliffs on this stretch of coastline.

Historical processes; components, features and variability

In Yorkshire streams and brooks tend to be named 'becks' (eg Staithes Beck), a Middle English word that comes from the Old Norse *bekkr*. All tend to share similar characteristics of being fast flowing, oxygen rich, rain-fed and relatively unpolluted. These rich waters attract many kinds of flora and fauna (Figure 9.58).



Figure 9.58. Ducklings on the bank of the River Esk

Apart from shelter, a good supply of freshwater has always been a key factor in settlement patterns and this holds true along this coastline, where settlements have grown up along the rivers and streams or close to springs.

Recent evidence from dried up channels of major rivers like the Thames suggests that prehistoric burial in rivers and lakes may have been the normal funeral rite in later Bronze Age and Iron Age Britain.

A description of the River Esk, reproduced from the Yorkshire Weekly Post by Tom Bradley (1988):

'One of the most striking features of the Esk, considering that it is little over twenty miles in length from source to mouth, is its wide proportions in the lower reaches. This is not just in the estuary, but above the ordinary reach of the tides, which rarely flow beyond the weir at Ruswarp....The Esk gathers strength from the high hills and mountains which enfold it in the whole length of its course, and the high moorlands and mountainous districts which border on Eskdale all drain into the river whose estuary forms Whitby Harbour..' (Bradley 1988, 3)

Watercourses have often been utilised to facilitate industry (eg corn mills, alum works, etc). Conversely settlement and industry can have detrimental effects on freshwater supplies, such as sewage contamination or waste from ironstone mines (that has discoloured many of the streams in this area).

Rivers and streams have also long been popular for recreation activities such as boating and angling (Figure 9.59).



Figure 9.59. Boating at Ruswarp, River Esk (© Whitby Museum)

Angling on the Esk is highly regarded, with salmon, sea trout and brown trout being abundant.

'If you stand at Whitby Station any night when the freshets are on and see train after train disgorge its small contingent of anglers, each with a string of salmon thrown over his shoulder or a heavily-laden fishing bag, you will be satisfied that catches are made in actuality, and not in the corner of one's favourite smoke-room with an imaginative rod and line and a whiskey-inspired cast of flies' (Bradley 1988, 24)

The water in some parts of this study area is also renowned for being rich in beneficial minerals. In 1626 a stream of acid water was discovered running down from one of the cliffs to the south of the town of Scarborough. The medicinal benefits of the water were

soon discovered and by the 1690s the wells were famous and Scarborough had made its first steps not only as a Spa town but as the original English seaside resort. The strong mineral content of the water is readily apparent in the staining caused to the stone, the reason why the waters were originally discovered as they trickled over the rocks and stones somewhere near this site.

Values and perceptions.

Anglers will always value those rivers where they had success. Most people will appreciate the beauty and the wildlife value of the water bodies.

Research, amenity and education

They have a high recreational value.

Condition & forces for change

Water supply is for the most part a matter for inland areas, but there are particular concerns at the coast about the discharge of water and sewage, and the maintenance of water quality.

The effect of water quality (pollution) on archaeological resources may be a factor for the preservation of terrestrial, inter-tidal, and submerged archaeological sites. Pollution alters the chemical composition of water and soil, often making them more acidic and thus more likely to damage any archaeological remains they come into contact with. However, very little research has been carried out on water pollution and its effect on archaeological sites (Fulford *et al* 1997, 206).

Throughout the region, the Environment Agency (EA) has prepared a series of Local Environment Action Plans (LEAPs) for the major river catchments (i.e. Tees, Wear and Tyne). The aim of the Plans, is to identify, prioritise and cost environmentally beneficial actions which the EA and partners will work together to deliver. This will be achieved by focusing attention of interested parties in planning for the future for the environment of a specific area and establishing an integrated plan of action for managing the local environment over five years

Rarity and vulnerability

The Esk in particular is of regional importance for the quality of its salmon and trout fishing.

Recommendations

More historical work could be done on the development of freshwater fishing.

Sources

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9.5.8 Palaeo-landscapes

Unlike the other Types in this section that discuss present character, this Type is only recorded as 'Previous Character' in the HSC database, yet its archaeological importance necessitates that it is described and explained in the same level of detail.

Introduction: defining/distinguishing attributes and principal locations

The Type Palaeo-landscapes includes ancient landscapes and palaeo-environmental deposits now submerged beneath the sea or buried deep in the muds and silts of estuaries and rivers; it also includes submerged forests exposed in the study area's intertidal zone.

There is evidence for human activity across Britain and mainland Europe for the last 700,000 years. For all glacial periods there is potential for archaeological material deposited in sediments on the continental shelf, although no material much older than 100,000 years is likely to have survived the Wolstonian glaciation (c330,000BP to c135,000 BP) in the central and southern North Sea (Flemming 2002, 8). Most of the sands and gravels in the area are likely to be late Devensian in date (18000-10000BP) deposited after the melting of the ice sheets. At this time sea level was lower than at present and most of the North Sea was dry land. This submerged landscape is often known as 'Doggerland' (Figure 9.60, Coles 1998), referring to a time when Britain was still connected to the Continent (c9000-6400BC). Crudely, this palaeo-landscape might equate to the 120m bathymetric contour which marks the global lowstand during the last glacial maximum 18,000 year ago.

Across the central and southern North Sea there is submerged archaeological potential for Pleistocene flora and faunal remains. Early or Lower Palaeolithic potential is minimal but there is greater likelihood of Middle and Later or Upper Palaeolithic remains. Holocene deposits may hold Mesolithic archaeological potential, both *in situ* and in secondary contexts. The Dogger Bank was isolated and inundated by c5500BC and after that the archaeological potential is purely maritime.

'Around 10,000BC, with rising temperatures and sea-levels, Doggerland must have offered an increasingly attractive environment for human settlement. Periglacial tundra was replaced by more temperate grassland with shrubs, and this in turn was gradually colonised by trees, first by birch, willow and hazel, later pine, oak, alder and elm. As climate and fauna changed, so did the animal resources available. The big game of open grassland – mammoth, red deer, aurochs, wild horse – may have once attracted Late Palaeolithic hunters to Doggerland. But as the temperatures rose, as river systems and wetlands developed, and the trees advanced and woodlands thickened, a wide range of mammals, fish and wildfowl must have lived in the varied environments created' (Gaffney, 2006).

'Doggerland had a coastline of lagoons, marshes, mud-flats and beaches. It was probably the richest hunting and fishing grounds in the whole of Europe. Grahame Clark, the excavator of Star Carr, believed that Doggerland had been the heartland of the northern Mesolithic culture' (Mithen 2003, 150).



Figure 9.60. Doggerland in the earlier Holocene (© B.J. Coles and S.E. Rouillard)

A number of areas of the central and southern North Sea have particular archaeological potential. Generally banks that have pre-Holocene cores or are not modern marine sand bedforms could have once formed headlands, promontories, or islands. Closely spaced banks would have narrow channels between, places that would have provided both shelter and good fishing. Depending upon the precise gradients and topography, low ground adjacent to higher ground is likely to be archaeologically productive.

Areas of particular potential include those favourable for occurrence and preservation of submerged prehistoric sites. Principally these include:

- 'Fossil' estuaries and river valleys.
- The flanks of submerged banks and ridges proven to have peat layers, or which are likely to have peat layers.
- Valleys, depressions, or basins with wetland or marsh deposits.

- Wetlands, estuaries, nearshore creeks, intertidal mudflats and peat deposits.
- Low gradient beaches with constructive onshore wave action.
- 'Fossil' archipelago topographies where sites were sheltered by low-lying islands as the sea level rose.
- Deposits of sediments formed within, or washed into rocky gullies and depressions.
- Cliff coasts of unconsolidated glacial drift which may contain artefacts which are eroded onto the shore (the rocky Yorkshire coasts present such potential).
- Caves and rock shelters in re-entrant bays, fossil erosional shorelines, submerged rocky shores protected by other islands (Flemming 2004, 15).

The most recognisable named area is Dogger Bank, the large raised platform consisting of Devensian pro-glacial lake deposits and glacial moraine, mostly patches of gravel and formations of calcareous sands with peat infilling glacial depressions; all overlying Pleistocene sediments. BGS (1990) sediment maps describe Holocene sediments 5-20m thick on the south-east flank of Dogger Bank, while most of the surface of the Bank is covered by 1m thick Holocene deposits. A palaeo-environmental core recovered from the Bank records a diamicton surface overlain by a thin silt peat that grades into over 4m of sand silt. Saltmarsh foraminifera and pollen taxa have shown these sediments to have formed under predominantly inter-tidal conditions though with some freshwater influence. The top of the peat is dated to 8140 ± 50 BP at -31.06m OD (Shennan *et al* 2000, 303).

A great deal of Pleistocene faunal material (including mammoth and rhinoceros teeth) has been recovered and reported by fishermen from this area of the North Sea. Many of the bones are in a bad state of preservation, probably as a result of prolonged subaerial exposure prior to inundation. Many human artefacts, mammal remains and peat deposits have also been dredged and reported from locations reported as The Dogger Bank. However beyond the general location of these areas, little is known about their stratigraphic context or spatial patterning.

A more likely environment for the origin and preservation of archaeological materials would be the vast lagoon or sea basin which existed to the south of Dogger Bank from 8000-7000 years BP. In the Mesolithic period occupation was more likely in the lower valleys, settlements would have been in the lee or shelter of ridges and headlands, not on the tops, although hunting could have taken place on the higher ground. The lowland of marshes and coastal wetlands would have provided Mesolithic people with rich and varied resources (Flemming 2002, 18).

The shallow sea basin, about 90 nautical miles (167 km) in diameter was connected in the north-west to the open North Sea by a narrow channel, now the Outer Silver Pit. While artefacts and archaeological deposits left on the upper surface of Dogger Bank are likely to be exposed by present currents and wave action (very severe, breaking waves in 10m) it is probable that there are far more relicts originally abandoned on the shore of this shallow sea, in the area now at a depth of about 40m. The rising sea would have had very little destructive force until the water was tens of metres deep, and strong tidal currents were developing. Whitehead and Goodchild (1909) describe the recovery of peat deposits or 'moorlog' by fishermen, especially on the north side of the basin, on the flanks of Dogger Bank itself (Flemming 2002, 33).

The area close to the Yorkshire coast was subjected to ice erosion during the Devensian, and although there are few thick sediment layers which might contain archaeological materials, a submerged forest is known in the waters just south of Hartlepool. Early

Mesolithic worked flints have been excavated from the peat beds associated with the forest. It is likely that there is further potential along this stretch of coast to and within the Tees Estuary itself and further south along to Redcar. In Danish waters submerged forests are recorded down to a depth of c30m. The oldest ones date to c9000BP. Even older ones may be found much deeper in the North Sea. Such remains have been identified by seismic surveying in a filled-in river valley at a depth of 45-50m in the eastern part of the Dogger Bank (Fischer 2004, 29).

A number of Mesolithic artefact scatters and Neolithic finds are recorded along the coastline between Hartlepool and Scarborough often eroding from cliffs, beaches, dunes and the foreshore but also turned-over on the farmland on the cliff-tops. Excavations at Howick, just north of this project area, have found remains of a Mesolithic hut site and an Early Bronze Age cist cemetery located on a modern cliff edge, and have forced a rethink of the scale and nature of Mesolithic settlement in north-east England, as well as the relationship between this and other regions around the North Sea Basin. Flint scatters have also been found at Hart Warren just north of Hartlepool. The submerged forest at Hartlepool-Seaton Carew also revealed later Neolithic remains including flint artefacts, human remains and a fish trap (Tees SMR). Similar finds have been found at Redcar Beach, and on the cliffs south to Easington. A tree trunk with an oval, charcoal lined cavity was recovered from lake deposits, probably dating to the Neolithic, in the Berwick Hills area of Middlesbrough (NMR: 27607) and a presumed Neolithic cranium was dredged from a bed of peat in the River Tees at Newport (NMR: 26871). Further south at Biller Howe, west of Robin Hood's Bay, a multi-period (Mesolithic to Early Bronze Age) flint site is recorded and a Neolithic stone axe was found in the Scarborough Castle Dykes. A Palaeolithic settlement, flint scatter and hearth was discovered and excavated at Seamer Carr. This area also showed continued use or re-use during the Mesolithic with a settlement discovered at Kilerby Carr, both sites just south of Cayton. The famous Mesolithic site of Starr Carr lies only a short distance south and west in the Vale of Pickering.

There are also, however, distinct areas of the North Sea that may be considered of limited archaeological potential. The deepest ice-scour valleys and the deep valleys of the major rivers crossing the central floor of the southern North Sea are likely to have provided appealing habitation areas after the retreat of the ice, but these valleys are now usually filled with thick Holocene deposits and modern marine sands, such as the banks and sand waves of the area known as The Hills, south-west of Dogger Bank. Further archaeological and sedimentological research on this problem using sub-bottom profiling and seismic mapping might be worthwhile, but there is little chance of artefacts being exposed on or near the surface (Flemming 2002, 19).

Historical processes; components, features and variability

The Holocene period, after the last Ice Age, has seen the North Sea area transformed, but the north-east coast of England relatively little changed.

At the start of the Holocene the North Sea coastline ran from the area of the Norwegian Trough to a western embayment, inundated well before 10,000 years BP, extending south to the latitude of Flamborough Head. The coastline of north-east England was only a little further east of the present-day coast (Shennan *et al* 2000, 308). By 9000 years BP the western embayment had pushed south, to off Spurn Point, and then east to produce a shallow estuary to the south-west of Dogger Bank, the Strait of Dogger. The earliest sea-level index point from the river Tees shows the coastline of northern England very close to the present, with tidal waters extending into the estuary (Shennan *et al* 2000, 309).

The palaeo-geography of 8000 years BP indicates that the North Sea was then connected to the English Channel via a narrow strait east of Norfolk and west of Texel (now in the Netherlands). The Dogger Bank became cut off from the European mainland during high tides (Shennan *et al* 2000, 309). By 7500 BP the coast of northern Europe ran directly from eastern England to Denmark. It was deeply incised with estuaries that led into narrow-sided valleys that in turn wound their way between gently rolling hills. The channel separating north Norfolk from mainland Europe was only 5-10m deep at mid-tide and the channel between the Dogger Bank and mainland Europe was less than 5m below MSL in parts. (Shennan *et al* 2000, 309-10).

By 7000 years BP the Dogger Bank was only exposed at low tide and by 6000 BP it was submerged at all stages of the tide and the western margins of the North Sea were either close to or inland of the present coastline (Shennan *et al* 2000, 310-11). From 5000 years BP to the present relative sea-level increased gradually in the western North Sea south of the River Tyne, but rose above present levels to the north (Shennan *et al*, 2000; 311). Even during the periods of most rapid relative sea-level rise, especially during the early Holocene in the southern North Sea, coastal and saltmarsh vegetation communities formed temporarily during coastline retreat (Shennan *et al* 2000, 317).

The Doggerland landscape represented a living space rather than merely a 'landbridge' connecting Britain to mainland Europe (Coles 1998; 1999). In many ways the topography of the Danish archipelago is analogous with the low relief of the central North Sea. It is possible to envisage the rising sea penetrating river valleys, inlets and creeks into marshes, and separating low islands only 30m high in places (Flemming 2004, 18). The variation in rate of sea-level rise, standstill and fall combined with local topography, meant that land loss probably occurred in fits and starts. Deeply incised Pleistocene river valleys would have gradually infilled with no perceptible change for decades or even centuries during the early Holocene. However these periods of minimal change may have occasionally been followed by periods of continual or dramatic change.

Archaeological evidence from Denmark indicates that settlements are the most numerous type of submerged site likely to be found and this may also be true for the British areas of the central and southern North Sea floor. The majority of Mesolithic sites on the South Scandinavian sea floor were originally located close to water – rivers, lakes, and especially the sea – often sited along the seashore itself right next to places where people could exploit the resources immediately available. Hunting kill sites, flint quarries, flint-knapping sites, settlements, camps, shell middens, charcoal from fires, and shelters, tend to cluster round shorelines, estuaries, lagoons, headlands and promontories (Flemming 2002, 8). Most submerged settlements along internal Danish shorelines had one or more fish weirs, structures that would have had to be repaired and replaced frequently. Fishing using wood-built weirs has been practised in the Danish archipelago until the beginning of the 20th century and almost identical constructions are known from the Mesolithic, the largest one recorded is located perpendicular to the former shore at the small island of Nekselø, extending over a distance of 250m. It consists of vertical poles up to 150mm wide to which up to 4m high wickerwork panels were tied. The panels were made of straight sticks of coppiced hazel (Fischer 2004, 27).

‘The Mesolithic coastal dwellers of Doggerland began to see their landscape change - sometimes within a single day, sometime within their lifetime, sometimes only when they recalled what parents and grandparents had told them about lagoons and marshes now permanently drowned by the sea. An early sign of change was the ground became boggy, when pools of water and then lakes appeared in hollows as the water table rose. Trees began to drown while the sea remained quite distant. Oak and lime were often the first to go, alder normally the last, surviving until sea water was splashing its roots and spraying upon its leaves. High tides became higher and then refused to retreat. Sandy beaches were washed away. Coastal grasslands and woodland became salt marsh – land washed daily by the sea which saturated the soil with salt. Only specialised plants could survive such as the edible samphire and cordgrass that provided a home for an assortment of fleas, bugs and midges. Herons, avocets and spoonbills soon came to feed where, not long before, woodland birds had flourished. The North Sea invaded Doggerland. Marine waters worked their way into valleys and around the hills; new peninsulas appeared, became off-shore islands and then disappeared for ever’ (Mithen 2003, 151).

Once sea levels rose beyond the confines of river valleys large areas of the landscape would have ‘suddenly’ flooded over distances of hundreds of metres or kilometres. Catastrophic events like this would have had a dramatic impact on individual perceptions and communal memory of the landscape during the Mesolithic (Chapman and Lillie 2004, 67). One such catastrophic episode, the Storegga slide, occurred about 6000BC when a massive submarine landslide in the Arctic Ocean midway between the coasts of Norway and Iceland caused a series of immense tidal waves, tsunamis that must have devastated the low-lying coasts of Doggerland.

‘Mesolithic people may have heard the distant rumblings ... water from the northern North Sea would have rushed into the space vacated by the landslide. People on land would have noticed that the sea receded, probably as far as the eye could see, in a matter of tens of minutes. They may have thought that the newly revealed shellfish and stranded fish represented an amazing bonanza! The seawater, piled up in the depression, then began to flow out again as a series of massive waves travelling at 20-30m per second on shallow coasts. Four or five waves would have hit the coast over two or three hours, each separated by a strong backlash as water flowed back to sea. Any coastal settlements would have been flooded without warning; indeed the water depth would have been many metres, and people and animals would have been drowned. Coastal and estuarine areas, resources and people would have been devastated’ (Edwards, 2005).

Many of the settlement sites also include organic-rich midden deposits including fragments of wickerwork, log boats, discarded tools and food remains; habitation areas with hearth remains, flint knapping workshops and graves. Votive sites from the Neolithic are also common phenomena in the Danish archipelago, usually found close to the present shore, typically in protected areas such as fjords or narrow straits. The types of finds most frequently seen are late Neolithic flint daggers, flint axes, shaft-hole axes and pottery (Fischer 2004, 27-28).

Dogger Bank was the location of a major First World War naval battle that took place on 24 January 1915, between squadrons of the British Grand Fleet and the German High Seas Fleet.

Values and perceptions.

Today the submerged landscapes of the North Sea offer tantalising glimpses of a drowned culture, lost and somewhat mysterious yet full of potential for further understanding, a link to a period before Britain became an island, but one not widely known to public perception.

In recent times this area of the central North Sea will be recognised as being covered by BBC Radio 4's Shipping Forecast, for the sea areas 'Tyne' and 'Dogger' and the Inshore Waters forecasts for 'Berwick on Tweed to Whitby' and 'Whitby to The Wash'. The Shipping Forecast is provided by the UK Meteorological Office on behalf of the Maritime and Coastguard Agency. It is broadcast four times a day and consists of reports and forecasts of weather for the seas around Britain. Its unique, distinctive name means it has a wide iconic appeal even to those not solely interested in nautical weather.

Some will always associate Dogger Bank with the First World War naval battle. Similarly Dogger Bank may be remembered as the site of the UK's strongest earthquake measuring 6.1 on the Richter scale. Taking place on 7th June 1931 its epicentre was on the Bank, about 60 miles (96.6km) from the coast of England and its effects were reported throughout Britain and even in Belgium and France.

Research, amenity and education

The palaeo-landscapes and submerged prehistoric settlements of the central North Sea are important for at least four reasons.

- The potentially rich preservation of organic materials. Peat deposits on the Dogger Bank are important as they provide both an archaeological resource of palaeo-environmental evidence and also clear evidence that marine transgression has not totally removed all traces of the former land surface(s) (Wessex Archaeology, 2002).
- They inform important parts of the settlement patterns of coastal regions and understanding their nature and extent might allow estimations of late Pleistocene and early Holocene human population size and distribution.
- They may represent a more varied array of subsistence, manufacturing, and ceremonial activities than the adjacent inland sites from the same regions. Submerged sites on the Danish sea floor are numerous, well-preserved, technically within easy reach and easily predicted topographically. In many cases they represent fundamental aspects of culture, the traces of which cannot be found above present sea level (Fischer 2004, 31).
- They inform our understanding of the timing, manner and direction of early post-glacial Mesolithic settlement of the present British Isles.

The location of Mesolithic settlement sites means there is a premium on accurately identifying the shorelines and rivers at each date, and especially those shorelines where sea-level was locally constant for hundreds or thousands of years, relative to local land (Flemming 2002, 8). The low gradients of the North Sea floor were associated with a complex indented coastline of low-lying islands and marshes during the last marine transgression. This terrain produced similar topographies to the Danish archipelago, which is proven to be the location of over 2000 submerged Mesolithic sites (Flemming 2005, 18).

Prospective sites, to be considered for high resolution geophysical survey and mapping include:

- Depressions, large lagoons, channels (eg the extensive shallow depression south of Dogger Bank, and through the Outer Silver Pit; the area SW of Dogger Bank known as The Hills).
- Palaeo-coastlines, headlands, bays, coastal lagoons (eg. Dogger Bank).
- Modern coastlines including caves and cliffs (eg. The Yorkshire cliffs, and other

cliff coasts of Northumberland and East Anglia are important erosional features with artefacts occasionally being revealed. Recent research has also mapped the presence of surviving palaeo-cliff-falls (see David Pybus pers comm, pg 135 of this report).

- Present inter-tidal mudflats and wetlands (eg Tees Estuary).
- Lee of islands and archipelagos (eg Tees Bay and Estuary).
- Estuaries, wetlands, marshes, peat (eg Tees Estuary) (after Flemming 2002, 19).

Sites that are buried to a sufficient depth of sediment have a far greater chance of surviving *in situ*. Conversely however, this reduces the possibility of their discovery compared to exposed material. Recently exposed material may also have the advantage that the spatial relationships between artefacts are not too disturbed (Westley and Dix 2006, 209).

If the archaeological deposit is buried under 5 to 10m of mud or sand, it will not be discovered, except in very unusual circumstances. Thus the final requirements for survival and discovery are:

- Low net modern sediment accumulation rate so that the artefacts are not buried too deeply.
- No fields of sand waves or megaripples over the site.
- Ideally, a slight change in oceanographic conditions so that the site is being gently eroded to expose deposits when visited by archaeologists (Flemming 2002, 12-13).

Geophysical and geotechnical survey methods can be used in combination to address prehistoric deposits. Bathymetric survey, using single beam or multibeam systems, can be used to establish the basic framework for gauging the presence of prehistoric material. The height of the seabed, in conjunction with secondary sources relating to sea-level rise, sets the broad parameters for when an area of seabed might have been exposed, and therefore inhabitable (Wessex Archaeology, 2007).

Current research, such as the 'North Sea Palaeo-landscapes' project, undertaken by the University of Birmingham, has employed high resolution marine seismic data to analyse the seabed stratigraphy of an area the size of Wales in the central North Sea. Geophysical survey may have considerable potential for reconstructing palaeogeography below the low water mark and thereby identify the locations most likely to have been occupied during prehistory. The advantage of seismic data is that it can penetrate through recent sediments to the underlying bedrock geology identifying series of superimposed original land surfaces and features such as river channels, lakes, basins and marine estuaries. The detailed results from studies like this will allow better models of archaeological potential and their attendant threats to be assessed.

British Geological Survey maps, and their associated cores, are also be an essential tool for assessing the archaeological potential and sensitivity of areas of the sea floor. They provide classification of surface sediments by grain size, thickness of active marine sediments, as well as the thickness of Holocene deposits and other information on tidal currents and marine bedforms.

Condition & forces for change

The survival or destruction of an archaeological deposit, whether originally inland or on the coast depends on the local topography within a few hundred metres or a few kilometres of the site. Although other factors apply, for example normal subaerial erosion processes, the critical period for survival of palaeo-landscapes is the time when the surf

type starts to impact, and the ensuing few hundred years as the sea level rises and shallow coastal waters break over the site. Factors favourable for survival include the following:

- Very low beach gradient and offshore gradient so that wave action is attenuated and is constructional.
- Minimum fetch so that wave amplitude is minimum, wavelength is short, and wave action on the seabed is minimum.
- Original deposit is embedded in peat or packed deposits to give resistance and cohesion during marine transgression. Modern marine sands, sand waves, and sand sheets, cloak many of the archaeological strata, but movement of these deposits, or periodic erosion can expose sites.
- Where deposits are in cave or rock shelters; roof falls, accumulated debris, concretions and conglomerations all help to secure the archaeological strata.
- Local topography comprising localised shelter from dominant currents, wind fetch and surf type at the time of transgression (Flemming 2002, 12).

Archaeological material deposits are likely to have undergone considerable taphonomic changes following initial deposition. ‘They may be covered by metres of marine sediments which protect them indefinitely, or they may be eroded by ice, worn by rivers, battered and scattered by surf action, eroded by bottom action of storm waves, eroded by tidal currents, be chemically altered, or disturbed by trawling, dredging, entrenching or drilling’ (Flemming 2002, 12).

Along the foreshores of the study area Holocene deposits are likely to be irregularly preserved and it may be difficult to achieve a clear picture of past environmental processes and human activity. Furthermore erosion will have certainly reduced the spatial extent of the sediments available for analysis and truncated many profiles so that many records of past events will have been destroyed (Waughman 2005, 127). Developmental pressures along the coastline, such as sea defences, port and harbour constructions or offshore industry related structures such as pipelines, cables or hydrocarbon drillings may all impact on the survival of such remains.

Archaeological material exposed in the inter-tidal zone (of the coastlines of the past) is likely to have been moved about by wave action and therefore is unlikely to survive in primary contexts. Secondary and tertiary assemblages are likely to be far more common occurring as patches of material sorted by size and type (Westley and Dix 2006, 209). Conversely, however, modern eroding foreshores are also the sites most likely to reveal palaeo-landscapes (eg Hartlepool submerged forest).

In many areas of coastal waters, worked flints, artefacts and other material are often directly visible on the seabed as a result of erosion. Breaking waves during the transgression of the sites in prehistoric times probably caused part of this erosion but modern erosion will have contributed too. Down to at least a depth of 10m many sites are presently being worn away by waves and currents. This erosion is probably exacerbated by pollution, which kills underwater vegetation thus further exposing the sea floor (Fischer 2004, 25).

There is potential for aggregate dredging activity to significantly impact any *in situ* assemblages of Upper Palaeolithic and Mesolithic date within the Dogger Bank palaeo-valleys and associated slopes but, due to subsequent erosion, less potential on adjacent higher ground.

Trawling and beam trawling in particular may also have detrimental impacts on buried palaeo-landscapes or artefacts revealed on the sea-bed. However a balance needs to be

struck between the advantage of discovering archaeological evidence and the disadvantage of its possible destruction.

Rarity and vulnerability

No known statutory heritage protection is currently afforded to the palaeo-landscapes of the North Sea. Submerged Palaeolithic and Mesolithic sites are relatively rare in Britain and as such they should be regarded as of national, even international importance and wherever possible left undisturbed.

Prehistoric landscapes and artefacts, however discovered represent a nationally and internationally important archaeological resource. Finds are relatively rare and often imprecisely located.

Natural erosion seems to be the biggest threat, but with increased likelihood of off-shore aggregate extraction, oil and gas drilling and the construction of offshore windfarms, there is a growing need for further research into palaeo-landscapes (Petts and Gerard 2006, 203).

Recommendations

Understanding the prehistoric archaeology of the north-west European Continental Shelf is an essential part of understanding the prehistory of Europe.

Submarine prehistoric sites can survive with sufficient integrity to provide evidence for settlement patterns, working sites, fish weirs, hearths, food remains, craft and burials. Those within 5-15m depth can be studied and excavated using scuba-diving techniques or surface supplied air diving.

Where off-shore peat deposits do exist, their potential for environmental data should be explored. The British Geological Survey and commercial cores, which have been archived, are an important though untapped resource (Petts and Gerrard 2006, 203).

Consideration should be given to the potential impacts of the hydrocarbon industry, aggregate dredging and pipeline-laying operations on submarine prehistoric archaeological remains. The role of offshore industry is also potentially beneficial, since industrial work can reveal the presence of submarine prehistoric sites. The risk of damage to the sites has to be balanced against the advantage of discovering sites. Projects and initiatives supporting the recording, voluntary or otherwise, of recovered archaeological material are imperative.

Commercial activity off-shore is likely to be the main source of information about off-shore prehistoric remains. Dialogue could profitably be initiated with the region's fishermen in order to record any archaeological material they may have recovered in order to protect the marine historic environment and increase the fishing industry's awareness of it. A protocol for reporting finds of archaeological interest already exists within the marine aggregates industry (BMAPA/English Heritage) and could be followed as an example, as indeed already exists in the Netherlands.

Cooperation with offshore industries might also lead to the sharing with archaeologists of survey results, including data from swathe bathymetry, side-scan sonar and conventional shallow sub-bottom profiling, and coring and sampling of sub-sea sediments (Petts and Gerrard 2006, 203).

The North Sea is an area that historically has brought people together, the focus of interactions between many of the countries bordering it. As such it is important that research, management and outreach be coordinated internationally. By extension the adoption of legislation, regulation and standards that can improve joint working is

desirable.

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9.6 Communication

9.6.1 Transport

Introduction: defining/distinguishing attributes and principal locations

The Type Transport includes those main communication lines that are sufficiently large in area or significant in impact to be mapped in this HSC:

- Roads (generally only A and B roads);
- Railways;
- Airfields.

Historical processes; components, features and variability

Clearly, the communications infrastructure of the study area is largely needs driven, but the locations established and routes taken are determined by a complex of factors including geographically determined ones (eg topography) and tenurial ones. Roads have largely developed over centuries, with most of the main thoroughfares having been established by at least the later medieval period. The main exceptions are the modern by-passes. In the study area the east-west valleys all along the coast have presented significant obstacles to the roads which mainly run north-south and there are important fording and bridging points across the rivers.

Railways utilising steam traction were the major transport innovation to transform the lives of the majority of people in Britain during the 19th century. Railways had been in operation for around 200 years prior to this but had utilised either horse or gravity as motive power together with stationary engines to provide the mechanical power as necessary at inclines. In the early 19th century various fundamental technical developments were made by British engineers, particularly Richard Trevithick, George Stephenson and his son Robert Stephenson, and led to the development of the steam locomotive. Expansion was rapid and led to the extension of the original Stockton & Darlington railway in 1825, the first operational steam railway to be built in the world. This was extended across the River Tees to Port Darlington (now Middlesbrough) in 1830. In 1836 the Whitby and Pickering Railway was constructed. Whilst changes were later made in sections of these railway routes they are still recognisable from Eaglescliffe across the River Tees to Middlesbrough and along the Esk Valley Line through Grosmont to Whitby.

In 1845 the York to Scarborough line was opened to a mixed reaction from the coast town, which was already a watering place and seaside resort with over 100 years of experience of receiving visitors drawn by health reinvigoration or pleasure reasons. Yet Scarborough has continued to maintain its position as a major British seaside resort throughout the railway age and into the modern era. Scarborough station remains as 'a splendid working example of a terminal station with a roof supported on a central row of iron columns' (Morfin 1991, 166-7). By the end of 1847 Scarborough one of the largest towns on the Yorkshire coast, had been connected to the expanding national railway systems with lines to both York and Hull (*ibid*, 166-7).

The railway from Whitby was extended to Saltburn in 1882. This involved massive engineering works, including cuttings and tunnels in the unstable alum shale, and steep gradients. It was extremely scenic, with views out over the cliffs and from high viaducts such as those at Sandsend (White 2004, 150) (Figure 9.61).



Figure 9.61. Building Sandsend Railway (1882) (© Whitby Museum)

The Whitby to Saltburn Railway provided access to intermediate points along the coast, such as Sandsend (Figure 9.62), Hayburn Wyke and Staithes. A short-lived scheme existed in the 1890s to lay out the high exposed cliff at Peak as a holiday resort, henceforth known as Ravenscar. The railway was the only practicable access, but was often impassable in winter. Over 1,500 plots were laid out and some sold before the scheme finally foundered with the onset of the First World War (White 2004, 150).



Figure 9.62. Locomotive train, Sandsend viaduct (1950s) (© Whitby Museum)

The main line of the Stockton & Darlington Railway is still operational but many of the ancillary lines have been abandoned and are now simple earthworks or have been reused as footpaths, some still with traces of sleepers and railbeds (Figure 9.63). Railways too are

now old enough to have evidence for time-depth. When travelling by train people can see abandoned halts and viaducts. A number of important early bridges still survive eg Whitby Bridge.



Figure 9.63. The former railway line at Ravenscar, now reused as a footpath

With motor traffic, roads previously rutted by horse-drawn carriages were resurfaced (Waters 2005, 21). Roads running along medieval and earlier lines display considerable evidence for time-depth: variously aged associated structures and furniture (toll-houses, wayside pubs and other services, bridges) alongside them. The integrated, almost organic approaches that older roads make to medieval settlements also nicely signify their age and underline the inextricable linkage between the historic and natural environments. The rapid expansion of the road network has also had a profound effect on the landscape of the 20th century. Pre-WWII motoring remains include garages, petrol stations, and road signage (Petts and Gerrard 2006, 194).

Trams were also a popular means of public and industrial transport (Waters 2005, 11). Cliff lifts were constructed to carry passengers up the face of steep cliffs (eg at Scarborough and Saltburn (Figure 9.64)) (Waters 2005, 17). They are popular with visitors who do not want to climb the alternative routes by steep steps, footpaths or roadways.



Figure 9.64. The cliff lift at Saltburn

Values and perceptions.

Cars now travel where once only walkers strolled, thus roads are for many people the outdoors they see most of, and the place from which passengers in particular (but also some drivers) appreciate many other HSC Types. Regular travellers develop particular affection or dread of particular bends or views. Railways provide more leisurely and elevated views over the historic landscape.

Access to cars has fundamentally changed patterns of contemporary life, including the spread of out-of-town shopping and leisure centres, the decline of local shops and the design of housing, with varying degrees of local impact (Petts and Gerrard 2006, 194).

Research, amenity and education

There has been extensive work on the 19th century railway network in this area, but little of note so far on 20th century railways, particularly for the period following the end of steam power. Nor has the impact of the many miles of new road constructed yet been assessed, nor the recording of its related infrastructure, for example bus shelters, petrol stations and road signage. In general it is only the earliest examples of such remains that have been researched or protected (Petts and Gerrard 2006, 189).

Much more useful research can be undertaken on early long distance routeways. Considerably more work has been done on railways although much of this is very particular and related to the mechanics and organisational detail. More could be done on the social and economic impact of railways in this area.

Communications are largely facilitators for the appreciation of other parts of the historic landscape but they do possess many interesting and beautiful features themselves. Bridges and viaducts may be the most dramatic but stations, roadside services and other infrastructure are also important and interesting elements in our landscape.

The new outstation of the National Railway Museum at Shildon (Co. Durham) offers the potential for important collaborative projects on the rail system of the north east (Petts and

Gerrard 2006, 194).

Condition & forces for change

Railways are an important aspect of the more recent heritage in this area, though the 20th century saw an on-going reduction in the extent of the network and the removal of trackside infrastructure (Petts and Gerrard 2006, 189).

Long-term continuities in the communication structure of this region have been little explored, yet the basic network of roads here appear to show significant levels of consistency over history (Petts and Gerrard 2006, 225).

This Type's importance lies as much in the way it takes people into and through the wider historic landscape as in the railway and road features themselves. In addition, the disused railway lines now provide good routes for public access along the coast, complementing the coastal footpaths.

The railways survive well, whether still operational or abandoned like some of the minor branches.

Roads are regularly upgraded and early features are often removed or obscured but the routes of most in the study area have not been significantly altered and travellers still experience the historic landscape from broadly the same line (if not at the same speed in some cases) as their medieval and early modern predecessors.

Construction of communication routes at or near the coast frequently involves major engineering projects, such as the building of roads in difficult or unstable coastal environments (eg Marine Drive, Scarborough), or of bridges across river estuaries. New projects may be necessitated not only by increased traffic to the coast, but also by the changing configuration of the coastline, rising sea-levels, or coastal defence initiatives. The direct impact of such projects, as on dryland, will be the removal or disturbance of archaeological remains in the areas of coast or foreshore affected by the route, and by associated construction operations. In addition, construction may also have indirect effects as a result of alterations to existing patterns of drainage, water flow in rivers, or tidal currents, thus creating the possibility of removal or exposure of sites through erosion (Fulford *et al* 1998, 205).

A Transport and Works order-making procedure has now been introduced, administered by the Department of Transport (DoT). Applications for orders must include an environmental statement and must notify Natural England and the Department of National Heritage if the work may affect an area covered by the restriction of wrecks act, and English Heritage if the work may affect a Scheduled Monument (Fulford *et al* 1998, 205-6).

Rarity and vulnerability

The Stockton & Darlington Railway was the world's first operational steam railway and should be considered of international importance.

The mundane nature of some of the surviving communication resources, coupled with constant redevelopment mean, however, that this infrastructure is increasingly threatened.

Recommendations

Retain main-line railways. Try to retain historic lines in future road improvements so that roads retain their integrity in the landscape. Bear in mind the importance of views over the

historic landscape/seascape when designing changes to roads.

The relationship between prehistoric communications and Roman roads is poorly understood and further research into this could prove valuable (Petts and Gerrard 2006, 225).

The extent of the survival of transport-related features should be assessed in order to evaluate the threat to the resource and to direct further research and management decisions (Petts and Gerrard 2006, 192).

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9.6.2 Telecommunications

Introduction: defining/distinguishing attributes and principal locations

The Type Telecommunications includes the following sub-type:

- Submarine cables
- Submarine power cables

Modern telecommunications systems still require the use of submarine cables in addition to satellites. British Telecommunications plc is the principal body laying and operating submarine communications cables around the UK (English Heritage 1997, 204).

There are two principal cables routes that pass through the study area. One set (PANGEA1) run from the foreshore between Redcar and Marske and follow a north-easterly route to Denmark. Another set (UK-GER6 and TGNNEUROPE) run out from Filey before sweeping north into the central part of the area before separating, one continuing towards Denmark, the other veering east over the Dogger Bank to Germany. Two redundant cables are recording lying in Cayton Bay.

Historical processes; components, features and variability

The growth in Internet use and the development of e-commerce has seen a huge increase in global electronic data transmission over recent years. Cable numbers are increasing as a result of this increased traffic with many now traversing the North Sea to link the UK with mainland Europe. In general, most of the cables are trenched to a depth of 40-90cm with rock-dumping used to anchor cables as a last resort. However, older redundant cables are more likely not to be trenched (DTI 2002).



Figure 9.65. The laying of a cable in the River Esk (© Sutcliffe Gallery (www.sutcliffe-gallery.co.uk))

The cables in the study are modern impositions onto other types. However some cables in UK waters are of historic importance offering important insights into the early development of telecommunications in the 20th century.

Values and perceptions.

The presence of submarine telecommunications cables in the marine environment is likely to go largely unnoticed. However for the millions of users of the internet and phones, their importance cannot be underestimated. There is unlikely to be any direct appreciation of the potential damage, or indeed potential for discovery of archaeological features during cable laying, entrenchment and maintenance.

Research, amenity and education

Works undertaken during cable laying and or maintenance offer an invaluable opportunity to further investigate the archaeological potential of any routes. There is also the opportunity to mitigate against possible damage. Numerous archaeological projects from around UK waters have demonstrated that important palaeo-environmental evidence can be unearthed during such works, deposits rich in pollen taxa and microfossils that inform our knowledge of the evolution of past environments and landscapes and marine transgressions.

The amenity and education value of telecommunications are obvious.

Condition & forces for change

Telecommunication cables are a modern imposition on to other Types. Archaeological impacts may arise from preliminary survey work, laying and maintenance of cable, and removal of disused cables. Preparatory investigation may involve intrusive survey of the sea bed, disturbing and exposing archaeological deposits, though also providing detailed knowledge of sea bed conditions. Cables are replaced fairly regularly as technology moves on. Laying the cables involves burying them where they cross the foreshore and in shallow waters, potentially destroying archaeological remains. In deeper water submersible ploughs, running on tracks or skis and towed by surface vessels, are used for trenching, laying cable, and subsequent inspections, and the use of such machinery could damage sites on the sea bed (English Heritage 1997, 204).

Trawling and anchoring regularly, though infrequently, cause breaks in cables. Maintenance work can also disturb underlying archaeological remains. Disused cables are retrieved, though in one case Cable and Wireless were asked by the National Trust to leave a cable because of its heritage value. Recovery operations would certainly disturb archaeological sites on the line of a cable (English Heritage 1997, 204).

Rarity and vulnerability

The laying of telecommunications cables is likely to increase although the development of wireless technology will inevitably lead to the redundancy of many routes in time. Some cables of historic importance may be left for posterity.

Recommendations.

Although operators must submit plans of proposed works to the Secretary of State for approval, who in turn must be satisfied that people with proprietary interests in the waters

or land are adequately advised and compensated for any loss or damage arising from the works, environmental assessment is not required for submarine telecommunication cables (English Heritage, 1997; 204). This situation could be reconsidered to enable a form of planning process to be instituted.

Trenching and burying in inter-tidal and marine environments would benefit from archaeological mitigation or failing that, recording.

CPA (Coastal Protection Act) consent is normally needed before a cable can be laid on or under the seabed, and for its subsequent maintenance and removal, if those operations could have navigational impacts. However, certain operators of electronic communications networks can carry out a limited range of works in the waters of the UK territorial sea without such consent (DEFRA March 2007, 60). The recently published [Marine Bill White Paper: A Sea of Change \(March 2007\)](#) highlights that these tidal works powers 'provide a duplicative consenting process with no material benefit for either operators or regulators' (*ibid*). It proposes to 'repeal the provisions of the Telecommunications Act 1984 that allow for consent under that Act instead of licensing under general marine rules. The environment, marine heritage, or other legitimate uses of the sea will remain fully protected. Where an assessment of the environmental and navigational impacts of such works is needed, it will be carried out under the reformed licensing regime' (*ibid*).

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9.7 Military

9.7.1 Military Defences

Introduction: defining/distinguishing attributes and principal locations

The Type Military Defences includes the following sub-types:

- Anti-tank defences;
- Artillery;
- Fortifications;
- Anti-landing features.

Components of this Type include:

- batteries and gun emplacements
- castles and forts
- moats and dikes
- town walls and gates
- minefields
- pill boxes
- battlefields and sites of battles
- naval warships and submarines (including wrecks)

Military coastal defences can be found all along this stretch of coast, although they tend to be most densely concentrated around the main ports, in particular around the Tees and Hartlepool.

Historical processes; components, features and variability

‘The north east, perhaps more so than any other region in Britain, has a long history of violence and conflict. From the Roman period onwards it has been an important border zone, and its east-facing coast has been seen as a vulnerable flank, open to attack from both elsewhere in Britain and from across the North Sea’ (Petts and Gerrard 2006, 211).

Preventing attacks of a seaborne nature was all but impossible in a pre-industrial society. The Romans built military lookouts (signal stations) along this stretch of coast at Scarborough, Goldborough, Ravenscar and Huntcliff for this purpose. Scarborough’s military lookout was subsequently built upon and used for defensive purposes by the Saxons. The first substantial stone-built castle in this area was also built at Scarborough, founded by William le Gros around 1136 and was further strengthened and rebuilt when it was seized by Henry II in 1154.

When the Vikings began attacking the east coast in the late 8th century, there was generally no warning until their sails appeared over the horizon. Although some beacon systems did exist to alert those living inland (chains of fire beacons set on hilltops within sight of each other), it was impossible to concentrate naval forces to intercept a fleet already in sight of the shore. However destroying a fleet already known to be on its way was a possibility (Friel 2003, 35).

‘The Norman Conquest of 1066 saw the beginning of a new phase of war and conquest in the British Isles, re-orientating England toward continental Western Europe and away

from the Scandinavian world' (Friel 2003, 49). Naval expeditions mounted from England were rare in the 12th century. A rising in 1297, led by William Wallace in Scotland, severely damaged the English forces and their Scots supporters, and was followed by an invasion of Northern England and a temporary revival of a Scottish Kingdom. In 1318 the Scots and Flemish attacked the East coast of England. Sea power was of critical importance for the re-supply of English land forces. The defeat of England by the Scots in that episode was, in part, due to the failure of English Kings and commanders to secure their seaborne supply-lines (Friel 2003, 53).

'In the late 13th century the naval defence of England was divided into the Northern and Western Fleets, the Northern normally covering the coast from Thames to Scotland and the Western covering the seaboard from the Thames to Bristol. The naval expedition, the sea patrol and the coastal raid were the commonest types of naval operations that English ships undertook in the medieval period' (Friel 2003, 57).

Large-scale naval battles were very uncommon during the medieval period, however, and all of those in the Hundred Years War took place near the coast. Instead, attacking a fleet in an anchorage or a restricted waterway, or intercepting a fleet passing close to the coast was favoured. It was not until the addition of shipboard guns that sea battles became more common as a form of naval warfare. Shipboard guns were used in small numbers by the English and others from the 1330s, but they were essentially small anti-personal weapons. Even Henry V's biggest gun-armed ship only had seven cannon (Friel 2003, 58).

'Defensive castles were appearing on ships by the late 12th century. These were at first rather makeshift-looking structures. Medieval sea battles were normally resolved by boarding actions. Over the course of time castles became a normal part of the structure of some vessels, particularly warships, although many medieval merchant men may have sailed without them' (Friel 2003, 80). The numbers of guns on ships increased markedly in the second half of the 15th century, however, but these were still fairly small-calibre weapons. By the late 15th century large warships had multi-stage castles as a matter of course, a change perhaps mainly dictated by the massive increase in the number of guns carried by large combatants. However, most warships did not carry large guns until the 16th century (*ibid*).

The Dogger Bank has been the site of several naval actions. During the War of American Independence, a Royal Navy squadron fought a Dutch squadron on 5th August 1781 in the Battle of Dogger Bank. During the Russo-Japanese War, Russian naval ships opened fire on British fishing boats in the Dogger Bank incident on 21st October 1904, mistaking them for Japanese torpedo boats. In the First World War, the area saw the Battle of Dogger Bank (1915), a naval engagement between the Royal Navy and German ships which were intending to shell the Yorkshire coastal towns of Scarborough, and Whitby and the town of Hartlepool in County Durham.

By the 20th century the impact of warfare on the United Kingdom was enormous. For the fifty years prior to the First World War, Britain's defences had been concentrated on the protection of her naval bases, given that the main defence of the country was considered to rest in the Royal Navy. Military structures were confined largely within the ports and the garrison towns, although some fortification of vulnerable expanses of coastline was carried out. The army served principally overseas in the protection of the Empire.

A massive reorientation of Britain's defences occurred in the first decade of the 20th century, from seeing France as the chief enemy, to Germany. The industrial centre at Hartlepool made it a key target for Germany in World War One (WWI). The first German offensive against Britain was mounted at Hartlepool on the morning of 16th December 1914, when units of the Imperial German Navy bombarded Hartlepool, West Hartlepool,

Whitby and Scarborough with a total of 1150 shells, killing 137 people and wounding 592. Two coastal defence batteries at Hartlepool returned fire, firing 143 shells, damaging three German ships including the armoured cruiser SMS *Blücher*. Scarborough Castle received its last great assault during WWI, when two German warships bombarded the town causing a great deal of damage and destroying both the barracks and the coastguard station. Shells also damaged some of the walls and blew a large hole in the castle keep (Waters 2005, 7). There was also serious damage caused to Whitby Abbey during this episode.

Germany also attacked the Home Front with unrestricted submarine warfare, which sank many merchant ships carrying supplies to Britain. In 1917 the Germans almost succeeded in starving Britain out of the War. The existing South Gare Marine Club was a sub-marine mining establishment between 1887 and 1922, housing submariners who helped to defend the mouth of the River Tees by electrically-fired underwater mines (Figure 9.66). The establishment had a fortified boundary wall which used to house quick-fire guns. The wall and its gun slits are still visible from Paddy's Hole.



Figure 9.66. Former sub-marine mining establishment on South Gare (now South Gare Marine Club)

The stretch of water between the Humber and the Tees was also a particularly dangerous place for shipping during WWI, because at least forty-two U-boats operated in this area during this time. Between them they sank no less than 120 ships with torpedoes, over 100 by mines and many more that could not be accounted for. At least another 80 merchant ships were also lost between the Tees and the Tyne during that conflict (Young 2000, 19).

The surprise attacks on Scarborough, Whitby and Hartlepool during WWI caused outrage throughout the country. An army recruitment office set up in Scarborough did a roaring trade after posters appeared in all three towns (Figure 9.67). One proclaimed:

‘Men of Yorkshire, join the new army and help avenge the murder of innocent women and children in Scarborough, Hartlepool and Whitby. Show the enemy that Yorkshire will exact a full penalty for this cowardly slaughter. ENLIST TODAY’ (Waters 2005, 72).



Figure 9.67. Army recruitment poster for WWI (© Imperial War Museum)

At the onset of World War Two (WWII) Britain was ill-prepared to defend against an expected invasion by Germany and the fortification of the east coast on a serious level at this time stems from that, the result being a government policy that was to turn Britain into a fortress. The War Office correctly guessed that the Germans would attempt a landing in the south and south-east of England. However, major diversionary raids elsewhere could not be ruled out and, as a result, near enough the whole of Britain was fortified. Beaches were to be made impenetrable. Scaffolding was erected on most beaches

so that landing craft could not land on a beach. Behind the scaffolding were placed thousands of mines. Behind the mines was barbed wire and behind the wire were more land mines. Finally, yet still on the beach, were anti-tank blocks - 13 ton concrete blocks designed to impede the movement of the tanks. Behind the beach area, pill boxes were built to house machine guns and to create a killing field.

In order to bolster defences, earlier fortifications were reused, such as the Heugh Gun Battery at Hartlepool. In addition, large numbers of pillboxes and antitank obstacles were hastily constructed, particularly along those parts of the coastline where the threat of landings was highest. Much attention was paid to defending the broad, firm sandy beaches to the north and south of the River Tees. Pillboxes, barbed wire and minefields were erected, supported by a range of anti-tank obstacles, including ditches, iron rails, wooden posts and railway sleepers (Green 2006, 4).



Figure 9.68. Anti-tank defences now incorporated into the sea wall at Sandsend

The steelworks and the port at Teesmouth were vital during WWII for the supply of steel for war machinery. This made the South Gare once again a prime target for enemy attack. The site was heavily defended with a wide range of defensive structures including barracks, gun batteries and range-finding towers. To protect other valuable industrial complexes in the Tees Valley, a number of Night Bombing Decoy sites were also constructed. The remains of some structures are still visible here today. At the end of South Gare and near

to Fishermen's Crossing, mounds mark the location of the Pasley Battery which housed large breech loading guns and the 6-inch Battery. These guns were only ever fired once in anger at a German plane, which was seeking to mine the mouth of the Tees and were removed after the war.

Minefields were also laid in many parts of the North Sea during WWII. The vast majority of historic minefields in the North Sea have now been cleared as a result of an extensive mine clearance effort since WWII.

Values and perceptions.

Both public and official opinion has now largely turned against the idea that these military works are an eyesore and inconvenience in the landscape to be removed without consultation wherever possible. Now, they are seen as part of the overall historic legacy of the landscape, and, in the case of the Second World War, of particular significance in terms of their place in the front line of the fight for freedom.

Research, amenity and education

The military remains of World War One and World War Two have been one of the most active areas of research for special interest groups in recent years. The larger coastal defence batteries from World War One are well known, although there has been less work on the more ephemeral remains from 1914-18, such as practice trenches, early industrial sites and damage from enemy action. In general, the remains of the 1939-45 conflict have attracted the greatest interest, reflecting both the greater number of surviving features and the fact that action is still within living memory of some members of the population (Petts 2006, 190).

A result of an increased public interest in surviving military remains was the Defence of Britain Project (DOB) (1995-2002), which ran under the auspices of the Council for British Archaeology. It has sought to record what survives of the multiplicity of military structures erected during the last momentous century. The main purpose of this work is to inform the responsible heritage agencies, at both local and national level, so that the long process of decay and destruction can be halted and individual surviving structures evaluated for future preservation. There is still much information in private hands, however, that was not submitted to this project and remains to be explored.

While military structures such as pillboxes are well represented in the archaeological record, civilian defences are rare. To address this problem, and to commemorate and celebrate the 60th anniversary of the end of World War Two, Tees Archaeology joined forces with Hartlepool Arts & Museums Services and Redcar & Cleveland Museums Services, to launch 'Dig for History' Project, which was a public appeal for information on an often-overlooked archaeological aspect of World War Two – the 'Home Front'.

Although many sites are on private property, a number of military sites are accessible to the public.

Condition & forces for change

Military remains from World War One are a fast disappearing resource. Although events from this war may not have had the same impact on the region's environment as those of World War Two, there are still many surviving remains, ranging from the batteries at Hartlepool, to rifle ranges and practice trenches, but these features are often ephemeral, and in many cases their origins have been forgotten (Petts and Gerrard 2006, 190).

Along the beaches and scattered through the dune systems there are still the remains of many of the WWII pill boxes and gun emplacements. Sadly, many of these are suffering from the effects of time, neglect and vandalism, and from loss to coastal erosion. In West Coatham the gun emplacements that were located here are now only visible as an area of raised ground and a spread of rubble. Other recognisable WWII structures which survive today include reinforced concrete anti-tank cubes, eg at Hart Warren, North Gare Breakwater and at Sandsend.

The few historic minefields that remain uncleared in the North Sea are considered safe for surface navigation, although a real danger of encountering unexploded historic ordnance still exists with regard to anchoring, demersal trawling or any form of submarine or seabed operations. Conventional and chemical munitions may also still be encountered at sea. Collectively these may include buoyant mines, seabed (ground) mines, torpedoes, depth charges, bombs, missiles, artillery shells and gas cylinders. These munitions are dangerous and sensitive, particularly to shock or vibration, even if they have been in the water for many years. These weapons are sometimes picked up in trawls, or as a result of other seabed operations, particularly dredging, often in waters comparatively distant from where they were laid, fired, dropped or dumped.

Rarity and vulnerability

Some of the historic structures are protected through being Listed Buildings or Scheduled Monuments.

Recommendations

The DOB project highlights the value of selecting significant examples that survive in good condition, and preserving them for their historic importance and their potential educational value. In the latter regard, many defence structures that have good public access could undoubtedly be set out with information boards, and become part of 'heritage walks', so that their place in our history, and in our landscape, can be more readily understood. This would also raise consciousness about 20th century archaeology generally.

Further local studies would also prove valuable, using documentary resources together with detailed field work that might also build in a programme of oral testimony - elderly inhabitants of an area may well have many memories of the defence works and the soldiers manning them, particular in towns and villages that were nodal points and anti-tank islands, and if so these need to be collected before the WW2 generation dies out completely (Petts and Gerrard 2006, 211).

A more detailed analysis for the setting of fortified sites would prove beneficial, as would a survey of the re-use of earlier sites by later defences and an analysis of the impact of changing military technology on the design and location of fortifications (Petts and Gerrard 2006, 211). The recovery, analysis and conservation of navel vessel wrecks are also of great importance (Petts and Gerrard 2006, 211).

Detailed modelling of networks of signal stations and beacons for all periods is also likely to be a productive line of research, both for exploring the inter-visibility between known sites and as a predictive tool to locate gaps in the distribution of known sites (Petts and Gerrard 2006, 211).

There is now a growing business in 'heritage tours' looking at military sites of WWII. At present it is mainly confined to places associated with the British and American air forces, but important points of the defended landscape such as groups of pillboxes, anti-tank

obstacles and coastal forts would also be valuable additions to itineraries (Foot 2000).

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9.7.2 Military Facilities

Introduction: defining/distinguishing attributes and principal locations

The Type Military Facilities includes the following sub-types:

- Military practice areas;
- Military bases;
- Military dumps;
- Military airfields;

Components of this Type include:

- army bases and barracks;
- radar bases and listening posts;
- firing/rifle ranges;
- naval docks and bases
- submarine bases and exercise areas
- RAF bases.

Historical processes; components, features and variability

During WWI the Defence of the Realm Act enabled vast tracts of land to be requisitioned for camps, airfields, munitions production, and storage. Half a million men were stationed in Britain as a home defence force, and coastal defences were greatly extended. Although much of the training of the army took place across the Channel, or on the other battle fronts, some troops practised the construction of fieldworks for trench warfare, the distinctive scars of which can still be found today.

At the outbreak of WWII, under the Defence Regulations, the power to requisition and make use of land was given to service and civil departments alike, and, in 1944 at the peak period of the militarisation of the landscape, some 11½ million acres (4.6 million hectares) was under some form of military control.

The closest large-scale military base to the study area is RAF Fylingdales in the North York Moors National Park. There are several designated military Practice and Exercise Areas (PEXAs) at sea within this study area which are in use or available for use by the Ministry of Defence for practice and exercises with or without the use of live ammunition. These include RAF practice areas, submarine exercise areas and firing danger areas.

On land in the past musketry and artillery practice took place at designated firing ranges. Ranges once existed at Thornaby, Saltholm and at Scarborough Castle. Today, however, such practice areas tend to be located within military bases themselves.

Within this study area barracks (military houses) were formally located at Scarborough Castle and at Scalby Mills, and there is still the remains of a Zeppelin listening post at Boulby (Figure 9.69) and a radar base at Ravenscar. A WWII radar station was also located at Kettleness while it was superseded by a Rotor Type radar at East Barnby in 1950s, but closed after a fire in the 1960s.



Figure 9.69. Remains of a Zeppelin listening post at Boulby

The existing South Gare Marine Club is the site of a former WWII submarine base. This was a sub-marine mining establishment between 1887 and 1922, housing submarine mariners who helped to defend the mouth of the River Tees by electrically-fired underwater mines.

Values and perceptions.

Although consisting of fairly small pockets of land, the Type dominates the areas where it exists, both physically and, through security devices like fences, psychologically.

Research, amenity and education

As defence installations, active modern components are generally secret, but military features from earlier periods have received considerable attention from military historians. As an instance of the nation state impact at local level, military installations have considerable historical importance. The inherently competitive nature of warfare means that features change more rapidly in this sphere of human activity than most others and there is scope for much detailed archaeological research. While operational, there will be little or no potential for amenity use but once decommissioned, military sites have considerable potential, being dramatic, exotic and disturbing sites.

Condition & forces for change

Military installations are normally impositions by the State on a landscape for national strategic reasons and interaction with other Types is minimal beyond service relationships (victualling, recreation, some accommodation). Some of these features form well-known landmarks.

The modern components, being in use, will be well maintained but, as these are active installations, the condition of earlier features may be impaired. As noted above, earlier

features are vulnerable to alteration or removal by changes in current installations. The armed forces do take their responsibilities to historic buildings seriously. Defence cuts at government level threaten the existence of current installations. Decommissioning may involve the removal of dangerous or sensitive features.

Unless re-using earlier military sites (eg Scarborough Castle) the evidence for time-depth is confined to features (eg hedges and tracks) captured within secure fencing and not obliterated.

The impact of military activity on archaeological sites is linked to the level of use of those sites. Direct impacts are a product of construction, and operations such as the use of tracked vehicles, trench digging, and explosions. All of these activities can bring about the removal, disturbance or exposure of archaeological remains, and the artillery and bombing ranges could also have a significant impact on the inter-tidal and sub-tidal zones. A special problem identified by the Ministry of Defence (MOD) is the disposal of litter, rubble, spoil, and military equipment. The excavation of pits to dispose of rubbish may result in intrusion into, and extraction and exposure of archaeological material (Fulford *et al* 1997, 199).

Rarity and vulnerability

This Type contributes to landscape character disproportionately to its scale and has considerable research and amenity potential once installations are decommissioned.

As military installations have become more centralised, they have become rarer.

Recommendations

MoD landscape managers should be informed of the historic importance of the bases and there should be close consultations on decommissioning to ensure the best possible re-use of these important complexes.

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9.8 Settlement

Introduction: defining/distinguishing attributes and principal locations

The Type Settlement includes the following sub-types:

- Cities;
- Towns;
- Villages;
- Hamlets.

Built-up areas from larger hamlets upwards; includes urban industrial estates and also small areas of open land if surrounded by built-up land.

The coastal region of this study area is predominantly rural along much of its length and contains sparsely populated areas with scattered small towns and villages. Areas of dense population are associated with the industrial centre of Teesside, as well as the ports of Whitby and Scarborough.

Historical processes; components, features and variability

A complex Type with numerous historical trajectories contributing to its present form.

The locations of the villages along this coast, with their concern for shelter from the storm and a safe haven for boats, leave little doubt that the first settlers here were seafarers. Staithes, Runswick, Robin Hood's Bay (Figure 9.70) and Scarborough all hug the northern end of their bays to huddle in the lee of the headlands. Freshwater was another prime consideration and several fishing settlements grew up where becks and rivers entered the sea (Frank 2002, 43).



Figure 9.70. Robin Hood's Bay (© Sutcliffe Gallery (www.sutcliffe-gallery.co.uk))

In the fishing villages houses tend to be built as close as possible to the waterside, Staithes

being an extreme example (Figure 9.71). This was largely so that the fisherfolk could be constantly near to their boats, the principal wherewithal of their livelihood. At Whitby the fishing community lived in the narrow streets by the harbour (Frank 2002, 44).



Figure 9.71. Staithes (© Sutcliffe Gallery (www.sutcliffe-gallery.co.uk))

The fishing village of Runswick is ‘a singular rookery of cottages built with only walking space between them, one above another in the cliff side, clinging to the face of the treacherous cliff like a colony of martins’ (Frank 2002, 47) (Figure 9.72). This close proximity to the sea and cliffs meant that these settlements were often prone to disasters. At Runswick portions of the cliff are noted to have been occasionally ‘shooting’ and houses were often dislocated or wholly demolished, and instances are said to have occurred of houses slipping down entirely, together with their bases, and taking up a fresh position below (Frank 2002, 48).



Figure 9.72. Runswick Bay (© Sutcliffe Gallery (www.sutcliffe-gallery.co.uk))

Runswick and Staithes were predominantly fishing villages, but elsewhere, as at Whitby and Scarborough, the fishing community was only part of a larger population. Fisherfolks' homes were working places as well as dwellings. It was there that most of the gear was made, mussels and limpets were shelled, and lines cleaned and baited (Frank 2002, 54)

Until the end of the WWII many settlements lacked basic, modern, sanitary amenities. A great many, too, were tenement buildings erected in the second half of the 18th century to accommodate the influx of labour to work in the shipyards, graving docks and ironstone mines (Frank 2002, 47).

Many rural settlements will have their origins in the Early Medieval period, or even earlier, but most extant buildings (except churches) are post-medieval or modern. Virtually all rural settlements large enough to be included in this Type have extensive later 20th century housing estates at their edges.

The long and complex histories of these settlements have produced a wealth of historical and archaeological features. Clearly some settlements will be simpler than others, notably the post-medieval industrial and harbour villages but all will have a variety of building types, ages and styles, different sectors for residence, commerce, industry, storage, recreation, burial and ceremonial. Some will also have military remains (from medieval castles to 20th century pillboxes). Most settlements will have rich subsurface remains with the footings of buildings and features of medieval or even earlier date.

Medieval coastal towns and villages tended to have had harbours and fishing populations, while others on tidal rivers (often now silted) were trading centres. These medieval settlements were small, with towns of just three or four main streets and small resident populations.

In the post-medieval period, settlements grew slowly until the 18th century when increased mining activity led many to expand more rapidly and the growing commercial activity caused some others to follow. Several new towns and industrial villages also grew up along the coast as a result. Without the development of ironstone mining many of the small villages we see today in East Cleveland would not have been formed. The housing in these small communities was normally provided by the mine owners who also built schools, hospitals, chapels and occasionally Working Men's Clubs. The houses were often built in terraces and were usually two up, two down with an allotment to the rear of the house. The closeness of the houses created a special bond between the families who would all make their living out of the pits. A number of terraced houses can still be seen in many of the villages today.

The alum works also needed local workers and by the 18th century the original coast road running from Staithes to Skinningrove was dotted with hamlets for these workers, at Boulby, Streethouses, Upton and Micklow (Chapman 2002, 74). It has also been suggested that the development of the alum industry in the Whitby district was the catalyst which began the conversion of Whitby from a minor fishing station with a modest hinterland into the major Georgian port that it became (Pybus 1991, 54).

By as late as 1801 Middlesbrough was still only a small farm of twenty five people. In 1830 Stockton and Darlington Railway line was extended to Middlesbrough, making the rapid expansion of the surrounding towns and ports inevitable. By 1851 Middlesbrough's population had grown from 40 people in 1829 to 7,600 and it was rapidly replacing Stockton as the main port on the Tees. Today Middlesbrough has a population of over 150,000 and is undoubtedly the heart of the Teesside conurbation and the modern 'Capital' of the area. An old Teesside proverb had proven true;

‘Yarm was, Stockton is, Middlesbrough will be’ (*).

More recently, from at least the late 19th century (or earlier in the case of Scarborough (Figure 9.73)), some coastal settlements have developed to serve the tourism industry. Most were extant harbour or fishing settlements. Some however, such as Ravenscar, represent a failed attempt to turn such settlements into coastal resorts. From the 1960s onwards the increasing cheapness and more attractive climatic conditions offered by the package holiday to the Mediterranean and beyond appeared to spell the demise for many seaside towns, although many are now beginning to reinvent and re-launch themselves.

In the 20th century, virtually all settlements in this Type expanded through the provision of housing estates for local families and new residences for a growing population of retired people and people wanting second or holiday homes. Many settlements are largely residential now, most of their original industrial, harbour and commercial functions having died, their original cores now dwarfed by 20th century expansion.

There is an abundance of material remains of the last three hundred years in most towns and the street plans, market places, and surviving medieval buildings (eg castles and churches) take people back a further four or five centuries. Street names may also reveal now lost features or activities (eg Far Jetticks, Friarage Field, Iron Scar, Whale Hill) and the steady trickle of discoveries of artefacts and features encountered during developments and roadworks in towns reminds observant dwellers of the richness of their town’s past.



Figure 9.73. Scarborough, South Bay, overlooked by Scarborough Castle on the headland

Values and perceptions.

The majority of settlements along this stretch of coast are hamlets, villages and towns, the city of Middlesbrough being an exception. There is little that is cosmopolitan (except,

perhaps in Scarborough and Whitby) and much that is strictly functional. The hamlets and rural settlements along this coastline are highly valued by both local people and visitors. Their organic layouts are interesting and satisfying to either live in or pass through, and the numerous 17th century or older buildings add beauty and antiquity to the places.

The mining and fishing communities are remembered nostalgically as having been special kinds of places, where it was safe to leave the door unlocked for your friends just to pop in and say hello. Everybody knew everybody and it made the community a safe place to live in.

To many of the painters, writers and photographers who, from the 1880s onwards, flocked to the Yorkshire coast the jumble of houses, red pantiled roofs one atop another, and the maze of courts, steps and yards of the fishing *quartiers* were merely picturesque, although some had a proper appreciation of the problems of living in such cramped and often overcrowded dwellings (Frank 2002, 50).

In his novel *The Nagars of Runswick Bay*, J.S. Johnson (1973) has left a detailed impression of fisherman's cottages at Runswick Bay:

'As most of these cottages were built on the steep hillside, they consequently only had windows which looked towards the bay, and many of these were very small. Being built in these positions and having open coal fireplaces many of them smoked when the wind was in a certain quarter, further adding to the family's discomfort. One or two I often went into during the day were so dark I had to stand still when I first entered until my eyes became accustomed to the gloomy darkness'

The decline of the commercial centres of many towns, as out-of-town superstores take their toll, is perceived by most people as a negative force for change, removing traditional businesses and gradually removing the meaning from these places.

Research, amenity and education

The extent to which wider patterns of settlement have been studied varies immensely. Whereas sociologists and historical geographers have researched patterns of urban regeneration, there has been less exploration of the architecture and landscapes destroyed and created as part of this process. Many smaller settlements have also seen tremendous change over the course of the 20th century, although not on the scale of urban centres. Lack of work on villages reflects an absence of research on the 20th century rural landscape generally (Petts and Gerrard 2006, 190).

In rural settlements, extant buildings and the layout of surviving features will repay close study and, in addition, there will inevitably be a wealth of sub-surface settlement remains, some dating back into later prehistory. The study of various kinds of documents will also shed considerable light on settlements.

These coastal towns and villages are important elements of North Yorkshire's tourist industry, often as seaside resorts or refuges on rainy days. Many have historical features (eg churches, castles and bridges) which are displayed to visitors and some have interpretative leaflets or booklets to guide people around. There is, however, still considerable potential for a discreet, unobtrusive presentation of the past in most towns. This can be aimed as much at towns' inhabitants, particularly children, as at visitors and will have the benign effect of increasing peoples' awareness of the historical value of their homes.

Condition & forces for change

Although settlements have continued to change right into the late 20th century, as places which are hubs of human activity are bound to do, the layouts and historic fabrics of most are relatively well-preserved. There was minimal bombing damage in World War Two, except at Hartlepool, and most towns' main streets have essentially 19th century or earlier frontages with relatively few disfiguring, modern, standardised shop windows and signs. Towns like Scarborough and Whitby are particularly well-preserved.

Where layouts have suffered little change, there is a good likelihood that subsurface remains are also well preserved. Rural settlements are also generally well preserved, with modern developments usually lateral expansions from an historic core rather than replacements.

The good survival of street plans in most towns allows earlier organisations to be easily understood. Clearly over the centuries since most towns were established foci of activities have shifted but it is usually possible to work out sequences of relationships of features. At Scarborough, for example, the medieval castle still dominates the town but other, later features, built or created in relation to it, have formed nuclei for other streets and buildings.

In towns, the condition of historic buildings, streets and layouts is generally good. Subsurface features can also be expected to survive well. Rural settlements are also fairly well-preserved where modern developments have avoided their historic cores.

Being the places where people live and carry out much of their business, settlements have always changed more rapidly than most other elements of the landscape and will no doubt continue to do so. The accommodation of new means of transport (road, rail) is a key area for large scale, often damaging change, both within towns and also in their immediate surroundings.

Town centres are vulnerable to piecemeal facelifts by competitive businesses keen to attract customers, and residential districts are most at risk from certain forms of home improvement, most notably at present by the replacement of windows, doors and roofs by standardised plastic and asbestos materials.

The character of towns is being most fundamentally changed by the construction of new housing, often in the form of estates of virtually identical houses whose architecture does not always appear to have its roots in Yorkshire traditions.

Rural settlements are most vulnerable to insensitive conversions from agricultural or industrial to purely residential accommodation; the creation of mini-suburbs in the countryside and the draining of historical meaning and distinctiveness.

Rarity and vulnerability

Many settlements contain historically and architecturally important structures which are registered Listed Buildings and receive statutory protection. Conservation Areas also exist in most towns, usually in the historic cores. Local Plans reinforce these planning controls. The Sites and Monuments Record for towns is being gradually improved but requires a systematic reassessment of urban archaeological remains. Some settlements will fall within areas covered by broader designations.

Towns and villages are of high importance as features of the landscape, having a wealth and great variety of historical and archaeological components, demonstrating considerable time-depth and contributing much to the areas appearance and character. There is also enormous potential for further historical research and educational amenity use.

Recommendations

The use of Conservation Areas to control planning in towns and rural settlements should be retained and extended.

Regulations concerning replacement elements such as windows, doors and roofs should be enforced.

The loss of historic landscape at the edge of towns and rural settlements should be carefully considered when dealing with plans for edge developments (housing/industrial estates, bypasses etc).

Historic layouts and features, for example buildings relating to commercial, social and religious concerns, are very important for maintaining links with settlements' origins and development and for enhancing local distinctiveness. They should be explicitly identified and preserved.

Development in towns should respect traditional layout of streets, open areas and burgage plots. Large developments, such as in-town car parks, which over-ride and obliterate historic town/village features should be discouraged and careful consideration given to alternative proposals and sites. Full Extensive Urban Survey (EUS) of the area's larger settlements should be carried out in conjunction with the completion of the HLC in this region.

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9.9 Recreation

Introduction: defining/distinguishing attributes and principal locations

The Type Recreation includes the following sub-types:

- Holiday Parks;
- Parks & Gardens;
- Dive Sites;
- Angling Sites;
- Seaside Entertainment;
- Sports Facilities;
- Coastal Heritage;
- Marinas.

Tourism is an important source of income and employment for the coastal region within this study area, and includes Scarborough – ‘Britain’s first seaside resort’ (Waters 2005, 51). The coastline, with its small villages and fascinating and beautiful range of scenery – from high cliffs and deep clear water to sandy coves and pretty fishing harbours, attracts many tourists in pursuit of open-air leisure activities. These include walking, bird watching, sunbathing, golfing, climbing, camping and wildfowling, as well as popular water sport activities such as sea bathing, sailing, diving, windsurfing, angling, water and jet-skiing. Visiting coastal heritage sites is also becoming increasingly popular, with Scarborough and Mulgrave castles and the Abbey at Whitby attracting many tourists (DTI, 2002).

Historical processes; components, features and variability

Dr Robert Wittie is said to have unintentionally launched Scarborough as Britain’s’ first real seaside resort after he published a booklet called *Scarborough Spaw* in 1660 and advocated its medicinal ‘cistern’ waters as a cure for virtually everything. An impressive spa building was eventually erected to cater for the mass influx of people who visited the springs here. In 1737 the spa was attracting around a thousand visitors per annum (Waters 2005, 51).

The spa water did not impress everyone, however. The following conversation between Samuel Weller and John Smauker is recorded in a local guidebook of 1880:

‘Have you drunk the waters Mr Wellers?’

‘Yes’ replied Sam.

‘What did you think of ‘em sir?’

‘I thought they was particularly unpleasant’.

‘Ah! You disliked the Killybeate taste perhaps?’

‘I don’t know about that – I though they had a very strong flavour o’ warm flat irons!’

(Waters 2005, 51).

Many visitors still use the spa and frequent the surrounding area with its hillside walks and

gardens. Others now choose to sample the delights to be found further along the bay where funfair rides, amusement arcades, public houses and other enjoyments of a modern seaside resort attract the majority of today's crowds (Waters 2005, 56) (Figure 9.74).



Figure 9.74. Luna Park fairground South Bay, Scarborough

Numerous hotels were also erected and form a familiar component of these seaside towns. Holbeck Hall Hotel at Scarborough achieved world-wide fame in 1993, when the unstable cliffs upon which it was built gave way, taking with them the hotel and much of the garden area below. Today the site is just a green slope where the mudslide has become grassed over (Waters 2005, 45).

The Promenade Pier in Scarborough's North Bay, constructed between 1866-8, was another recreational facility intended to cash in on the lucrative tourist trade in this area. By 1889 this iron-built pier had become rusty and unsightly and was refurbished with shops, a café, ladies cloakrooms and retiring rooms. In the winter of 1905, however, a destructive storm caused irreparable damage to it and the pier was dismantled (Waters 2005, 34).

Outdoor swimming pools were another, once familiar, sight at both Scarborough and Hartlepool (Figure 9.75) in the early 1900s. Scarborough had outdoor pools at both the North and South Bays. Today most of these pools have become derelict, either having been grassed over or left to ruin and barely distinguishable from the rocky foreshore. One pool still remains in use at Scarborough, and is one of the few remaining outdoor pools left in the country (Waters 2005, 87).



Figure 9.75. Hartlepool outdoor swimming pool (©Hartlepool Arts & Museum Service)

Such pools were seen as a modern-day replacement for the ‘health-giving’ dips in the sea which first became popular with the aristocracy, but later with everyone, after doctors advised that sea bathing was a health-giving pastime. Males were advised to bathe for five minutes before breakfast while women, children and invalids should bathe more often but only for two minutes each time. It was common, even in the 1800s for men to bath without clothing, while women wore specially adapted frocks. The invention of ‘bathing costumes’ developed from crude alterations to ordinary clothing whose design progressed to specially designed gowns and swimwear (Waters 2005, 36).

Other well-loved coastal amenities include beach donkeys (Figure 9.76), aquariums, pleasure gardens and parks. The cliff gardens and parks, with their picturesque walkways, boating lakes, fountains, flowerbeds and bowling greens, were appreciated for their peace and tranquillity. The Valley gardens at Scarborough were described in 1928 as ‘one of the beauty spots’ and were, before modern traffic, a quiet place of solitude where families would gather to feed the swans and to picnic on the benches provided nearby. These gardens were often based on foreign themes, such as the Italian Gardens that were built close to the spa or the oriental garden at Peasholm Park. Today these parks and woodlands continue to be maintained by the local council authorities, with dedicated staff to care for all the flora and fauna to be found there (Waters 2005, 80).



Figure 9.76. Beach Donkeys at Sandsend (© Whitby Museum)

In 1845 the York to Scarborough line was opened. Scarborough was already a watering place and seaside resort with over 150 years of experience of receiving visitors drawn by health reinvigoration or pleasure reasons and has continued to maintain its position as a major British seaside resort throughout the railway age and into the modern era. Various tourist visitor markets are attracted and catered for here, from the family day trip visitor to those moving to the Yorkshire coast on retirement as well as the business conference delegate and the overseas student (Morfin 1991, 167).

Another popular pastime is the collection of fossils, in particular in the 18th and 19th centuries. The alum measures are rich in fossils and ammonites have been turned up in profusion. From the mid-18th century larger marine fossils were also recognised, including teleosaurs, ichthyosaurs and plesiosaurs. These were in great demand by collectors, and the fears for the loss of some of the best specimens led to the founding of Whitby museum in 1823 (Pickles 2002, 17).

Change has been continuous over the years at these seaside towns, as the taste of their visitors have changed. Just after the Second World War, however, Scarborough began to develop itself as a major 'modern' leisure resort. The North Bay became popular for those wishing to avoid the crowds of South Bay, who were disparagingly termed the 'candy-floss and lollypop brigade' (Waters 2005, 90-1).

The 20th century also saw the development of the heritage industry. A 'heritage coast' classification scheme was initiated in 1972 to protect coastline of special scenic and environmental value from undesirable development and the whole of this stretch of coastline is designated as a Heritage Coast. Coastal heritage sites and facilities, such as the abbeys (eg Whitby Abbey), castles (eg Scarborough, Figure 9.77), cathedrals and churches, the countryside (eg North York Moors National Park), historic houses, Roman remains and museums, are increasingly being used to promote tourism in this region.



Figure 9.77. Scarborough Castle (© Dave Hooley)

Local people also developed their own recreational activities such as keeping racing pigeons, whippet racing, horse racing, cricket and football (Waters 2005, 96).

The chalet and caravan parks mainly comprise late 20th century standard structures served by simple concrete-block ancillary buildings and tarmac or concrete drives. Theme Parks vary in form and extent but most have late 20th century concrete-block buildings and many essentially temporary features. Some golf courses also were established in the 19th century, but most are relatively modern. They are usually landscaped, with many earlier historical features removed or damaged (eg field boundaries). Clubhouses and ancillary buildings are usually modern concrete-block structures. All recreation sites have extensive car parks.

Until the later 20th century recreation in this area has had a seaside bias. The more recent trend toward 'quality' tourism has encouraged more visitors to visit 'heritage' sites and explore inland landscapes.

The increasing popularity of sailing and other water-sports has led to a recent proliferation of marina developments along this stretch of coast. Most of the ports and docks now serve as mooring areas for private yachts and pleasure boats, indicative of this new leisure industry (Waters 2005, 65). Marinas exist at Scarborough (Figure 9.78), Whitby, Hartlepool, and along South Gare.

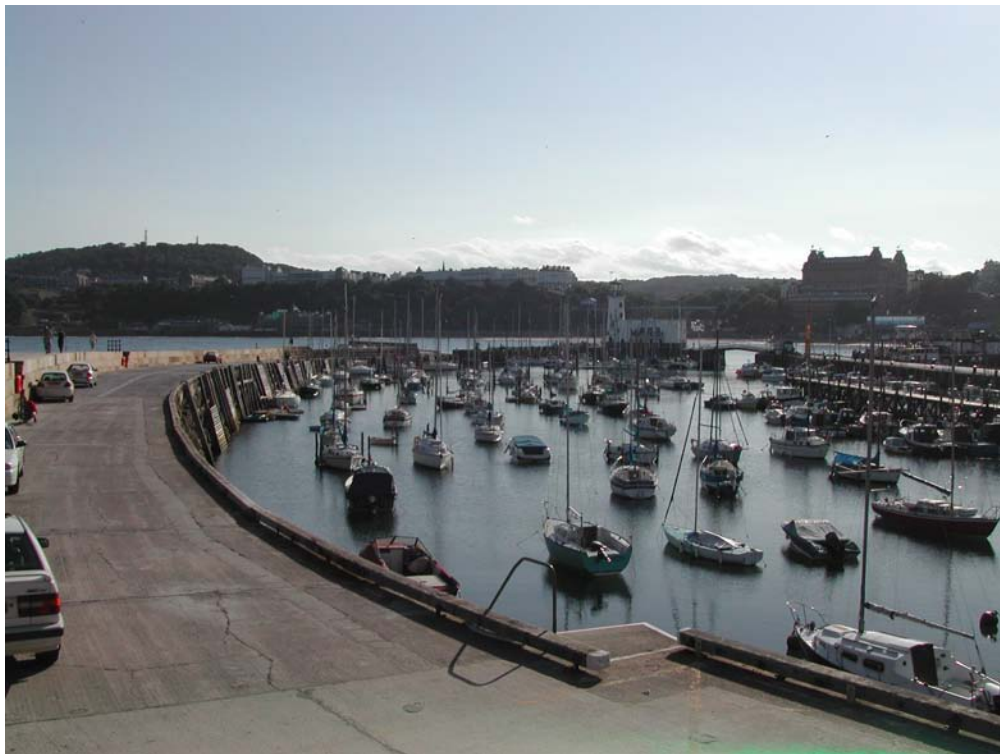


Figure 9.78. The marina at East Harbour, Scarborough

Other valued recreational activities include angling and diving. Recreational sea angling ranks as 'one of the most popular leisure activities in the British Isles' (North Eastern Sea Fisheries Committee 2006, 5). Important centres for charter boat fishing include the ports of Whitby and Scarborough. Since the early 1990s, however, the charter angling industry has gone through a period of slow decline, attributed mainly to falling North Sea fish stocks, in particular cod species, as well as an increase in the number of private vessel

owners. Nevertheless, alternative species such as sea bass, tope and pollack are increasing in abundance throughout the region and may provide new opportunities for the charter angling industry and anglers alike (North Eastern Sea Fisheries Committee 2006, 5).

Popular foreshore angling venues include Staithes (famous for its cod and its lobsters which thrive in this rocky, kelp filled area), Port Mulgrave (with its deep gully within casting distance of the pier at high tide and the scar beyond the breakwater at low tide) and Runswick Bay (a good venue for winter cod). Sandsend has good fishing from the beach, the car park, the scar or the cliffs; Uppang is a snag free and productive area for fishing, especially during summer and Whitby is renowned for its pier fishing and its cod, with one of the largest cod ever landed on rod and line around the British coast caught here in 1992 (56lbs 6ozs). Saltwick Bay is a sandy beach which gives way to rock and slate scar at either end; Robin Hood's Bay is also renowned for its cod, which are attracted by its impressive scar and many kelp filled gullies; and Hayburn and Cloughton Wykes both known for their ability to throw up some very good cod fishing, and Cayton Bay is a large sea fishing venue good on either the rocks or the clean sand.

With regards to diving, the North Sea is one of the world's best areas for wrecks as there are hundreds if not thousands and many of them are unknown and little dived. As a result there are many diving clubs along the north east coast. Founded in 1960, Scarborough Sub Aqua Club is one of the longest established scuba diving clubs in England. Other Sub Aqua Clubs exist at Whitby and Hartlepool.

Values and perceptions.

Much of the charm of this coast lies in the wide variety of pursuits suited to those who prefer leisure and pleasure rather than the more hectic and mainstream attractions of some other seaside resorts. This applies to both locals and visitors alike.

Ambivalence is perhaps more pronounced here than in any other Type. Some people loathe recreation sites, not just because they are seen as blots on the landscape but also because they are the physical manifestations of the annual invasion of tourists bringing unwanted values, cars and noise to the county. For many people, recreation sites represent Yorkshire's real economy, and security for the future. Visitors who have enjoyed glorious summer holidays develop deep affection for these sites.

A description from *Seas & Shores of England*, Edmund Vale, 1936:

The individuality of the North Sea is striking. The tide is peculiar. The atmosphere, both in the actual and the poetic sense, is very different from that on the other coasts. The north-easter is the prevailing wind. It is a land of perishing winters, bracing springs, torrid summers, and amazingly colourful autumns. And you can see a rainbow over the sea at sunset which you cannot do on the other coasts.

As to the poetic kind of atmosphere, it is conveyed through many subtle hints to the eye and ear – the red tiled roofs, the distinctive fishing-craft, the churches, the ubiquitous fig tree, and the local accent.

And the folklore of this part is augmented equally and oppositely by the losses suffered through coastal erosion, and also by the amazing finds to be had on the seashore, amber, jet, cornelian, agate, bones of primeval elephants, stone coffins. These losses and finds have fostered a tradition of church bells heard ringing under the waves, of cities seen in the deeps on still days, with dim figures moving in their seaweed tangled streets, of bearded, hairy mermen caught by fishermen in their nets' (Vale 1936, 85).

Other attractions to this area come from the legends that have come to be associated with certain places, such as the famous monkey-hanging legend that is connected with Hartlepool:

*In former times, when war and strife
The French invasion threaten'd life
An' all was armed to the knife
The Fisherman hung the monkey O !
The Fishermen with courage high,
Siezed on the monkey for a French spy;
"Hang him !" says one; "he's to die"
They did and they hung the monkey Oh!
They tried every means to make him speak
And tortured the monkey till loud he did
speak;
Says yen "thats french" says another "its
Greek"
For the fishermen had got druncky ob!*

<http://www.thisishartlepool.co.uk/history/thehartlepoolmonkey.asp>

Whether it is true or not, people in Hartlepool love the story. Even the local rugby team bears the proud nickname, the Monkeyhangers. Which is strange, because, for a long, long time after the supposed event, people from neighbouring towns used the tale to mock Hartlepool and its inhabitants, and Hartlepudlians were often on the receiving end of the jibe: 'Who hung the monkey?'. In 2002 H'Angus the Monkey, the mascot of the town's football team, was also elected mayor of Hartlepool after a victory by the team.

The use of some of these places as settings in fictional literature also attracts many visitors, such as Bram Stoker's most famous novel, the vampire tale *Dracula* published in 1897, which had many parts of it set around the town of Whitby, where he was living at the time.

Mina Murray's Journal

24 July. Whitby.--Lucy met me at the station, looking sweeter and lovelier than ever, and we drove up to the house at the Crescent in which they have rooms. This is a lovely place. The little river, the Esk, runs through a deep valley, which broadens out as it comes near the harbour. A great viaduct runs across, with high piers, through which the view seems somehow further away than it really is. The valley is beautifully green, and it is so steep that when you are on the high land on either side you look right across it, unless you are near enough to see down. The houses of the old town-- the side away from us, are all red-roofed, and seem piled up one over the other anyhow, like the pictures we see of Nuremberg. Right over the town is the ruin of Whitby Abbey, which was sacked by the Danes, and which is the scene of part of "Marmion," where the girl was built up in the wall. It is a most noble ruin, of immense size, and full of beautiful and romantic bits. There is a legend that a white lady is seen in one of the windows. Between it and the town there is another church, the parish one, round which is a big graveyard, all full of tombstones. This is to my mind the nicest spot in Whitby, for it lies right over the town, and has a full view of the harbour and all up the bay to where the headland called Kettleness stretches out into the sea. It descends so steeply over the harbour that part of the bank has fallen away, and some of the graves have been destroyed.

In one place part of the stonework of the graves stretches out over the sandy pathway far below. There are walks, with seats beside them, through the churchyard, and people go and sit there all day long looking at the beautiful view and enjoying the breeze.

I shall come and sit here often myself and work. Indeed, I am writing now, with my book on my knee, and listening to the talk of three old men who are sitting beside me. They seem to do nothing all day but sit here and talk (Stoker 1897, 69).

Research, amenity and education

Although the tourism industry has had a profound impact on the area's recent economy, infrastructure and social structure, the potential for meaningful and relevant research of the Recreation Type itself is limited. Nevertheless, work on this aspect of North Yorkshire's history should be encouraged, not least because future developments may be better predicted and planned for with the benefit of a fuller understanding of tourism's history. The Type is, of course, an amenity for many people; although it also reduces the amenity value of certain stretches of coastline for others.

The Dig, Dive and Discover project which took place at Hartlepool from April to September 2006, funded by the Heritage Lottery Fund's 'Young Roots' initiative, aimed to make young people more aware of their local heritage and enable them to share it with the community. In this project, Hartlepool Sea Cadets were encouraged to explore Hartlepool's rich maritime heritage, in particular looking at shipwrecks. The Cadets worked together with Hartlepool Diving Club, Hartlepool Reference Library and The Nautical Archaeology Society (north east). They also attended a web design workshop at Hartlepool College of Further Education where they learnt how to publish the story of their project on the web. The story appeared in the local press and on local radio and television.

The north east Nautical Archaeology Society (NAS) recently carried out a pilot study looking at material recovered from wrecks by sports divers and recorded hundreds of objects from only three or four dive clubs (Petts and Gerrard 2006, 201).

Another initiative by the NAS is the 'Adopt a Wreck' programme and awards scheme, which is part of a wider 'Dive with a purpose' scheme to encourage divers and others to

appreciate and preserve our underwater heritage. The hope is that groups will look at a site more closely, and take on a minimum level of stewardship, monitoring how the site changes over time.

There is also a clear opportunity for substantial community involvement in the recording of sports and leisure sites.

Condition & forces for change

Recreation at the coast is an increasingly significant and varied element of leisure activity, whether for tourists or for local residents. Tourism is now one of England's most important industries. Increasing cheapness and more attractive climatic conditions offered by the package holiday to the Mediterranean and beyond has increasingly spelled the demise for some of these seaside towns, however, although many are now beginning to reinvent and re-launch themselves.

With the rise in available leisure time and the active promotion of the tourist industry in recent years, pressure for access to the coast has grown. The leisure industry also requires development to provide appropriate facilities such as roads, footpaths, car parks and hotels. The effects of tourism on archaeological remains derive partly from such development, and partly from the activities of tourists, and may have a damaging impact on archaeological remains, resulting in the physical removal or disturbance of sites (Fulford *et al* 1997: 188).

Leisure activities themselves have varied impacts on archaeology. Activities such as walking, riding, cycling, biking or off-road vehicles all create increased erosion, threatening archaeological remains through exposure, disturbance or removal. Attempts to manage them through the provision of defined areas such as marked footpaths may have a mitigating effect, but the attraction of many of these activities is the free use of open country. Many of the most attractive locations are the most vulnerable, such as sand dunes, and these are also likely to be archaeologically important. At the other extreme, some activities will have little or no impact. Swimming, surfing or windsurfing will have little effect beyond human pressure on the foreshore. Jet-skiing and the use of power boats will generate wash which could cause erosion in more confined locations. Diving itself may be archaeologically harmless, but provides the opportunity for interference with archaeologically important remains (Fulford *et al* 1997, 188).

Recreation facilities along this stretch of coast receive no specific protection, although being generally found on the coast they do often fall within designations such as SSSIs, SPAs, SACs, RAMSARs, Heritage Coasts and National Parks and Nature Reserves. Recreation itself, however, is regulated by local and harbour authorities and by recreational groups.

Ranks of chalets and caravans, masses of parked cars, the startlingly neatly trimmed fairways and greens of golf courses, together with their visitors make these prominent features of the landscape today, particularly in the summer months of the main tourism season. Some caravan parks and camping grounds, however, can almost vanish in the winter. Most chalet/caravan and theme parks obliterate earlier historical features but golf courses often retain fragments of field systems or ancient woodlands in their landscaping, although the coherence and legibility of these features is reduced by their fragmentation. Golf courses are still being created and chalet/caravan parks expanded. Theme parks are also still being established.

Sites which would once have been ignored, such as World War II defensive structures and post-war industrial remains, are now being carefully recorded and are increasingly being

seen as an important part of the region's heritage, enjoyed by visitors and locals alike.

Rarity and vulnerability

Within the Type, gradual refurbishment and updating threatens some early features. Constraints on conspicuous development along this coast are beginning to exert control on the locations and forms of Recreation complexes

Recommendations

The continued expansion of the Type should be controlled as a principal concern is that other more important Types are imposed upon and either damaged or destroyed by it. At present, the greatest threats are from golf courses and caravan parks. Their construction usually involves the dismantling of existing landscape features in the creation of new ones. Screening (trees or shrubs) around camping and caravan parks will lessen their impact on neighbouring historic seascape character Types.

Diving clubs dive many of the unknown wrecks and could potentially provide local archaeologists and historians with a wealth of new and valuable information on these sites. Such collaboration is on the increase and further detection, registration and research of objects from the submarine cultural heritage should be encouraged. Continued awareness among sport divers as to the historical and archaeological value of the regions wrecks must be promoted. Such initiatives as the Dig, Dive and Discover project at Hartlepool and the NAS 'Adopt a Wreck' scheme should also be encouraged elsewhere, serving as a valuable way in which to build peoples awareness of their local heritage and enable them to share it with the community.

Public presentation and interpretation of the heritage encountered when pursuing recreational activities should be provided where appropriate.

Petts and Gerrard (2006) point out that 'there are whole classes of sites relating to sports and leisure in the 20th century which have remained relatively little researched in this region, including public houses, cinemas, and bingo halls....It is particularly important to ensure that remains related to regionally distinctive leisure activities, such as quoits (the throwing of horseshoes at a pin in the ground), pigeon racing and greyhound racing, are preserved. There is also a need for a better understanding of nationally popular sports, such as football, cricket and tennis' (Petts and Gerrard 2006, 195).

The rise of foreign travel has had an adverse affect on this region's coastal resorts, such as Redcar, Saltburn and Seaton Carew. Further work could usefully define and describe the novel elements of their landscape (Petts and Gerrard 2006, 196).

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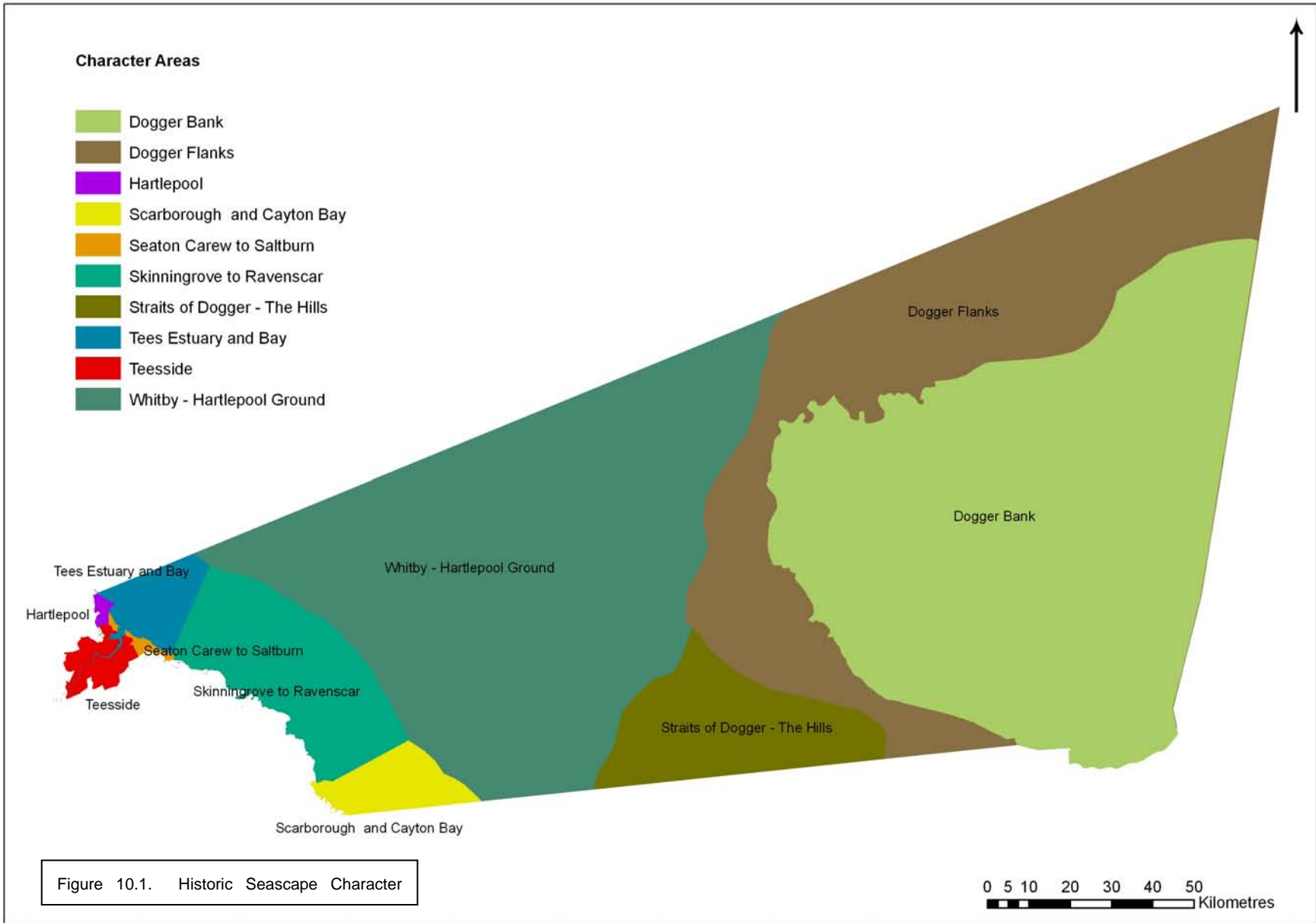
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10 Character Areas

Character Areas have been identified as another tier of the HSC, these are unique areas that local people may recognise and readily identify with (Figure 10.1). Apart from those that are offshore, they have generally not been developed directly from the HSC mapping. Consequently they contain a range of HSC Types. Each Character Area is briefly described below, with short statements on geography, principal character types included and a range of values and perceptions noted, although these are necessarily limited (due to lack of research and unfamiliarity with local opinions and feelings. These can and should be elaborated on by those with greater knowledge and understanding. Further information about the Character Areas can be found by correlating these areas against the Character Types mapping and identifying the particular Character Types covered and their attendant explanatory texts (Section 9).



10.1 Hartlepool

The Hartlepool Character Area extends from the rocky limestone headland known as the Heugh southwards towards the seaside resort of Seaton Carew. It is principally urban, dominated on its seaward side by industrial docks and processing areas. Recreational facilities are becoming important, with many of the docks and harbours now adopting new roles as marinas or as coastal and maritime heritage centres (eg Hartlepool's Historic Quay, Figure 10.2).



Figure 10.2. The *Trincomalee* on display at Hartlepool's Historic Quay, Jackson Dry Dock

Early Mesolithic archaeological finds, as well as a possible Bronze Age sewn-plank boat, have been recovered from the submerged forest beds in Hartlepool Bay. Prehistoric flint scatters have also been found at Hart Warren, as well as flints, animal bones, and wooden stakes from the foreshore.

Hartlepool was an important medieval fishing port and large scale salt exploitation took place here in the 15th, 16th and 19th centuries. Local magnesium limestone was exploited for magnesite and for use as building stone and lime mortar in the 19th and early 20th centuries. Milling was also important, with windmills documented at Hart from 1314. The iron industry did not develop as fully in Hartlepool as it did nearby in Middlesbrough, Stockton and East Cleveland.

Hartlepool's importance as a port increased with the industrial revolution at the end of the 18th century, when there was an increased demand for coal; a new harbour was built here in 1835. During the 19th century shipbuilding yards and dockyards were built, establishing Hartlepool as a major port and shipbuilding centre (Figure 10.3), alongside that of the Tees Ports.



Figure 10.3. Hartlepool Docks (1960s) (©Hartlepool Arts & Museum Service)

The industrial centre made Hartlepool a key target for Germany in World War One. By the onset of World War Two major military defences, such as batteries, pillboxes and anti-tank obstacles had been established along the headland and foreshore. Nevertheless Hartlepool town still suffered extensive bombing damage.

Lighthouses stand on the Heugh headland and at the entrance to Hartlepool's harbour (Figure 10.4), where there is also a lifeboat station. St Hilda's Church also serves as a conspicuous landmark aid for navigation.



Figure 10.4. Hartlepool Lighthouse (©Hartlepool Arts & Museum Service)

Among the myths associated with Hartlepool is the famous one in which the people of the town hanged a monkey during the Napoleonic Wars, believing it to be a French spy. Whether true or not, people in Hartlepool love the story. Even the local rugby team bears the proud nickname, the Monkeyhangers. This is strange because for a long time after the supposed event, people from neighbouring towns used the tale to mock Hartlepool and its inhabitants, and Hartlepudlians were often on the receiving end of the jibe: 'Who hung the monkey?'. In 2002 H'Angus the Monkey, the mascot of the town's football team, was also elected mayor of Hartlepool.

For more information see the detailed HSC Character Types Texts (Section 9) for:

- Coastal Rough Ground
- Dunes
- Foreshore
- Maritime Safety
- Military Defences
- Navigation Area
- Port
- Processing Industry
- Recreation
- Saltmarsh and Sandflats
- Sea Defences
- Settlement
- Shipping Industry
- Transport

10.2 Tees Estuary and Bay

The name of the River Tees is thought to originate from the time of the Celtic speaking Ancient Britons whose language was similar to present day Welsh. Its name may be related to the ancient Welsh '*Tes*' meaning 'sunshine and heat' and is likely to mean 'the boiling, surging water'. 'Boiling' is perhaps a description of the many waterfalls and rapids found in the upper part of Teesdale (www.northeastengland.talktalk.net).

The River Tees, rising on the eastern slope of Cross Fell in the Pennines, is a major landscape feature, historically dividing the counties of Durham to the north and Yorkshire to the south. It enters the North Sea between Hartlepool and Redcar where the coast is low and flat. Formerly extensive tidal sand flats have now been reclaimed to create a vast industrial complex (Waughman 2005, 1).

From east to west we find Anglo-Saxon places of settlement, betrayed by names ending in 'ton' or 'ham' as at Billingham and Norton. In 1984 archaeologists unearthed Anglo-Saxon remains at Norton on Tees. To the Anglo-Saxons, the Tees was a dividing line between their sub-kingdoms of Bernicia and Deira, but also unified the two as the Kingdom of Northumbria. The Vikings settled the whole Tees valley naming their streams 'becks', their waterfalls 'forces' and gave their settlements names ending in 'by' like Thornaby and Stainsby (www.northeastengland.talktalk.net)

The Normans also made the Tees a boundary and William the Conqueror's Domesday Book of 1086, did not survey the north side of the Tees. Throughout the early Middle Ages the Scots were a constant threat to the peace of the Tees. Hartlepool was usually their ultimate goal, a busy port and a rich source of plunder. In 1139 the north side of the Tees was given to the Scots by King Stephen and for eighteen years the river formed the border between England and Scotland (www.northeastengland.talktalk.net)

The River was an important trade route from the 11th century onwards; before the

development of metalled roads and railways it provided the easiest means of transport. Medieval and post-medieval river traffic brought life and busy activity to the river banks; quays and wharves fronted the riverside villages, with warehouses, industrial furnaces, processing factories etc serving industrial and agricultural hinterlands. Ferries criss-crossed the river, linking banks, prior to the Transporter Bridge being built in 1907 (Figure 10.5).

There were, however, at least three different main channels, each pursuing an erratic course to the sea. Navigation from Stockton to Yarm was possible only for vessels of 60 tons or less and even then four tides were often necessary to complete the journey (Le Guillou 1975, 2-3). The river, in particular the estuary itself, has undergone the most radical dredging, realignment and maintenance. In the mid-1820s the Tees Navigation Company extended its dredging activities; forced by developments which had resulted in the opening of the Stockton to Darlington Railway and the gradual growth in coal shipments from the Railway Company's staithes at Stockton. In 1828 the Tees Navigation Company made the 'navigable cut from the east side of the Tees near Portrack into the said river near Newport' (Le Guillou 1975, 17). Many of the Tees former navigable river channels are now lost, buried beneath industrial development. As dredging cleared the river and estuary for navigation so the focus of trade and industry moved gradually downstream, from early centres like Yarm and Stockton to Middlesbrough today.



Figure 10.5. Middlesbrough Wharf (©Hartlepool Arts & Museum Service)

Increased trade along the north-east coast, particularly from the 19th century, saw greater volumes and larger vessels seeking access to what had traditionally been hazardous and restricted river and estuary channels. By the mid-19th century Tees trade reflected the industries on its banks. As coal exports fell after 1850, those for iron, and later steel, increased rapidly.

By the First World War, the River Tees ports were handling considerable volumes of trade; large quantities of pig iron and steel, coal and coke, and engines of all varieties were exported. Pipes, heavy forgings and castings, wire, salt, and chemicals were all manufactured products that benefited from the sound navigational channel provided by the Tees. In came large quantities of foreign ores (iron, manganese and chrome), iron and steel, chemicals and chemical products, timber and various building materials. Very few UK ports did not have vessels involved in coasting trade with the Tees, and an extensive

foreign trade was also carried on with places as far afield as India, Japan, South America, Australia and Africa (Le Guillou 1975, 90). The Tees Estuary is ideally suited for the iron and steel industries: proximity to the rich iron ores of the North York Moors and fuel from Durham's coalfields; its ports allowed easy export of the products.

This industrialisation forced port authorities to improve and maintain navigation access by dredging (Figure 10.6), the spoil often dumped at sea. Creating channels also involved reclamation of adjacent land, sand banks and saltmarsh, and the construction of retaining walls.



Figure 10.6. Bucket dredger, Tees Estuary (©Hartlepool Arts & Museum Service)

Tees Bay was a particularly dangerous place for shipping during WWI, with up to 42 U-boats operating between the Humber and the Tees. Between them they sank no less than 120 ships with torpedoes, over 100 by mines and many more that are suspected. At least another 80 merchant ships were also lost between the Tees and the Tyne (Young 2000, 19).

Today oil and shuttle tankers run between the Teesside oil terminal and other ports in the UK and continental Europe. Tees Bay is now dominated by huge tankers and ships associated with the hydrocarbon, steel and chemical industries. A restricted navigation area and harbour administration areas guide the shipping in and out of the estuary (Figure 10.7).



Figure 10.7. An oil tanker being piloted into Teesmouth by tugs

Wrecks are also numerous. Most derive from the early-modern period (1750-1900) of coastal trade and fishing. The Tees Estuary has been notoriously dangerous to navigate. Submerged scours and awash-rocks along the foreshore and in inter-tidal areas, and the shoals, sandbanks and drying areas associated with the estuary are all exacerbated by the tempestuous nature of the North Sea itself.

Even after Trinity House had marked the approaches of the Tees with wooden buoys in the early 16th century, it was very difficult to establish the correct deep water channel to navigate. At least three navigable channels are known from historic UKHO charts and it was the changing nature and locations of these that presented sailors with their greatest problems. The situation was compounded by an extensive bar, seven miles long, running from Hartlepool to Redcar, two miles (3.2km) out into Tees Bay. The extent of this bar varied considerably according to weather conditions and dramatic changes to the very course of the channel both up to and over the bar, took place throughout the centuries (Le Guillou 1975, 1). Being an actively managed navigable river channel, Tees Estuary and Bay continue to be frequently dredged in order to maintain their accessibility and safe passage.

To the north of Redcar, the entrance to the Tees estuary is clearly marked on the coast by the pier breakwaters on either side of the river estuary. These are the half mile long North Gare and the two and a half mile long South Gare (Figure 10.8). The Gares were built following a great storm in 1861 in which 50 vessels were wrecked on the sand bars between Redcar and Hartlepool. Both Gares are under the management of the Tees and Hartlepool Port Authority and the South Gare is the site of a Coastguard station which monitors the busy shipping activity of the estuary.

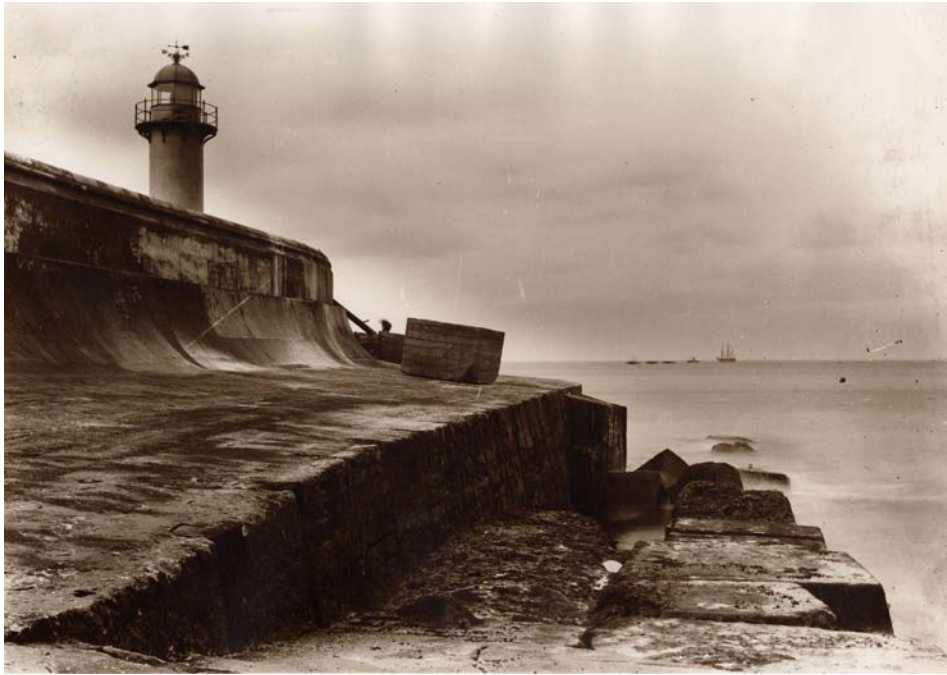


Figure 10.8. South Gare Lighthouse (© Hartlepool Arts & Museum Service)

Telecommunication cables are another characteristic of Tees Bay, extending from Redcar and Marske and following a north-easterly route across this area to Denmark

Despite being one of Britain's most industrialised river estuaries, the Tees is surprisingly important for its wildlife. Seal Sands, now only half its original size due to land reclamation, is still the winter home to thousands of wildfowl and waders. The Wetlands at Greatham Creek are recognised as wetlands of international importance (a RAMSAR site) for wintering wildfowl and waders and as a result is designated as a Special Protection Area (SPA). Seal Sands are also designated as a National Nature Reserve (NNR).

For more information see the detailed HSC Character Types Texts (Section 9) for:

- Extractive Industry (hydrocarbon)
- Extractive Industry (minerals)
- Fishery (netting, lining, potting and trunking)
- Maritime Safety
- Navigation Area and Route
- Navigation Channel
- Navigation Hazard
- Ports
- Telecommunications

10.3 Teesside

Teesside is essentially industrial and urban in character, with sprawling hydrocarbon and steel complexes and a nuclear power station dominating the riverside at Tees Mouth, and the sprawling and now seemingly interconnected settlements of Middlesbrough, Stockton-on-Tees, Thornaby-on-Tees, Billingham and Yarm.

The banks of the River Tees have a long history of human occupation. A log-boat of possible prehistoric date was found in c1852 during construction of the railway at Yarm (NMR: 874047) and a possible prehistoric dugout canoe was also found in the 19th century in Middlesbrough (NMR: 874059).

The settlements of Middlesbrough, Yarm and Stockton date back to at least the medieval period. As late as 1801 Middlesbrough was still only a small farm of twenty five people, but in 1830 the Stockton and Darlington Railway line was extended to here, making the rapid expansion of the surrounding towns and ports inevitable. By 1851 Middlesbrough's population had grown from 40 people in 1829 to 7,600 and it rapidly replaced Stockton as the main port on the Tees.

Stockton, Billingham and Norton all have Anglo-Saxon names, with the typical Anglo-Saxon place name endings 'ton' and 'ham' meaning farm, or homestead. The three places along with Thornaby on the opposite side of the Tees are all part of the Borough of Stockton-on-Tees. Thornaby's name, ending in 'by', indicates a Viking settlement and is one of a number of 'by' names on the south side of the river, which are virtually absent from the north bank. Of the three Anglo-Saxon settlements on the north side, Stockton is now the most substantial, but Billingham and Norton were once the main centres, especially in Saxon times (www.northeastengland.talktalk.net).

As at Hartlepool, extraction of salt from seawater has taken place in this area from at least the medieval period. In Billingham an ancient salter's track ran through this area, north to Wearmouth and south to Whitby. Cowpen near Billingham is known to have been an important salt making centre in the 14th century (Rowe 2000, 26) and in the 15th and 16th centuries Greatham was too. By 1650 the centre of British salt making had moved to South Shields and large scale exploitation did not return to Greatham until 1887 when salt in the form of brine was extracted from 1000 feet below the earth (Rowe 2000, 26).

Development of industry and commerce on the River Tees was still in its early stages in the 17th and 18th centuries and was concentrated in little market towns like Yarm, a place later succeeded by Stockton as the main port on the Tees. Industry boomed in the Victorian age and gave Teesside a common industrial heritage, unifying the north and south banks of the river with a single identity. Middlesbrough's pig iron exports easily surpassed those of any other UK port, averaging over 100,000 tons per month during the early 20th century. Scotland remained Tees-side's best British customer, whilst the leading foreign markets were Germany and Holland, Belgium, France, Italy, North America, Scandinavia and the Far East (Le Guillou 1975, 91).

Port Clarence at the northern terminus of the famous Transporter Bridge of 1907 (Figure 10.9) owes its origin to the development of the Clarence Railway here between 1828 and 1833. This linked coal mines in south Durham with coal staithes on the River Tees. Port Clarence then rivalled the newly born port at Middlesbrough on the opposite side of the Tees (www.northeastengland.talktalk.net).



Figure 10.9. Middlesbrough's Transporter Bridge (©Hartlepool Arts & Museum Service)

Discovery of iron ore in the Cleveland Hills prompted the building of Teesside's first blast furnace in 1851. As demand grew more blast furnaces were opened in the vicinity of Middlesbrough and by the end of the 19th century Teesside was producing about a third of the nation's iron output. By the 1870s, steel, stronger and more resilient, was in greater demand and the Tees rapidly became known as 'the Steel River'. The expanding iron and steel industries spurred on the growth of Middlesbrough with a population of 19,000 in 1861 increasing to 40,000 only ten years later. The residents of this early town came mainly from neighbouring Yorkshire and the North East, but later from Cheshire, Ireland, Scotland, Wales and some European countries.

At the turn of the century Middlesbrough's population had risen to 90,000 and it must have been hard to believe that only seventy years earlier the town did not exist. Today Middlesbrough has a population of over 150,000 and is undoubtedly the heart of the Teesside conurbation and the modern 'Capital' of the area.

The steelworks and the port at Teesmouth were vital during WWII for the supply of steel for war machinery. This made them a prime target for enemy attack. The area was heavily defended with a wide range of defensive structures including barracks, gun batteries and range-finding towers. To protect other valuable industrial complexes in the Tees Valley, a number of Night Bombing Decoy sites were also constructed.

The Tees estuary is now dominated on either side by the large areas of reclaimed land called Seal Sands on the northern bank and Bran Sands on the southern bank, both now largely used for industry. Seal Sands is the site of an Oil Refinery and a Chemical Works. The area is traversed by pylons, wires and undulating pipelines, and is populated with oil tanks and gantries, cooling towers and chemical storage globes, behind security fences (Argyle *et al* 1985, 167). The two hundred and twenty mile long EKOFISK oil pipeline has its terminus at Seal Sands by which oil and gas liquids are piped ashore from the Ekofisk oilfield for processing at one of the largest plants of its kind in the world. Today oil

exporting is one of Teesside's most important industries.

For more information see the detailed HSC Character Types Texts (Section 9) for:

- Coastal Rough Ground
- Dunes
- Energy Industry
- Extractive Industry (minerals)
- Foreshore
- Maritime Safety
- Navigation Area
- Navigation Channel
- Navigation Hazard
- Port
- Processing Industry
- Recreation
- Saltmarsh and Sandflats
- Settlement
- Shipping Industry
- Transport
- Water (fresh)
- Woodland

10.4 Seaton Carew to Saltburn

The coast to the south of Seaton Carew is mostly masked by dunes and sheets of sand. Submerged forest peat beds can be found in deposits here, often exposed after storms and episodes of tidal scouring. There are also palaeo-channels representing earlier postglacial drainage overtaken by sea-level rise and also filled with fine-grained organic and clastic sediments. The coastline from Redcar to Staithes has some outstanding rock exposures and breathtaking scenery such as the cliffs at Huntcliff and Redcar.

Seaton Carew, Redcar, Marsk-by-the-Sea and Saltburn-by-the-Sea are typical seaside resorts, with their long stretches of sandy beaches and dunes, golf courses, caravan parks and recreational piers, promenades and seaside amusements. To the west of these towns and their beaches the industrial complexes at Middlesbrough and Teesside dominate their skylines (Figure 10.9), as does the passage of shipping in and out of the Tees on their seaward sides.



Figure 10.9. Redcar Sands with Teesside Works in the background

Seaton Carew is sandwiched between the industrial complex of Seal Sands and urban Hartlepool and is the coastal resort for Stockton and Hartlepool and is named after a Norman French family called Carou (Figure 10.10). Like many coastal places on this coast it was a small fishing town that grew in the eighteenth and nineteenth centuries with the rising popularity of health resorts. Seaton was especially popular in the bathing season with members of the Quaker fraternity from Darlington. The nearby nuclear power station and the neighbouring chemical industries of Seal Sands do not seem to harm the sea-side resort atmosphere of the town (www.northeastengland.talktalk.net)



Figure 10.10. Seaton Carew promenade (©Hartlepool Arts & Museum Service)

Situated between Seaton Carew and Redcar is the South Gare Breakwater. 'Like the still centre of a whirlpool, South Gare is a place of peace and solitude at the tip of a huge industrial area. Oil tankers and cargo ships pass on their way into the Tees estuary, factories belch smoke all around, but the desolate dunes of South Gare are a haven to

many shore birds. Towards the tip of the promontory is a harbour for fishing vessels, and near it, in a dell among the dunes, there is a collection of green-painted fisherman's huts. A yacht club, the South Gare lifeboat station and the Tees coastguard tower complete the scene' (Argyle *et al* 1985, 167).

Redcar is situated at the mouth of the River Tees. The place-name element 'car' derives from the Viking *Kjar*, marshland. Described as a 'poore fishing toune' in 1510, Redcar was for many centuries overshadowed by its neighbour Coatham which held a market and fair from 1257. The extension of the railway to Redcar from Teesside in 1846 brought industry and tourists to Redcar's doorstep and the town quickly expanded and soon absorbed Coatham. Like nearby Saltburn, Redcar is still frequented by day trippers in search of the scent of the sea but the biggest attraction is undoubtedly the Race Course which the town has grown around. Redcar is also the home of the world's oldest lifeboat, *The Zetland*, displayed in the museum of that name in King Street. It had worked at Spurn Head until it was bought by Redcar fishermen in 1802. Although fishing vessels and tractors (for hauling the boats down to the sea) line Redcar promenade (Figure 10.11), notices warn against eating polluted shellfish from the foreshore (www.northeastengland.talktalk.net).



Figure 10.11. Redcar Sands and promenade

Marske-by-the-Sea was once a small fishing village consisting of one street of thatched white wash cottages. The place-name is a Scandinavian pronunciation of the English word marsh. In 657 AD Abbess Hilda came to Marske, or 'Mersc', and settled where Spoutbeck joined the sea at Spoutbeck Chine, now the Valley Gardens. The Stockton and Darlington Railway was extended to here in 1865 to transport the iron ore from Marske and New Marske to the new town of Middlesbrough. In the First World War Marske-by-the-Sea's population greatly increased due to the army camps and Marske Aerodrome which was built as a training camp for the Royal Flying Corps. The main Hangers have just been demolished to make way for a new housing estate. In the Second World War Marske was once again invaded by the Royal Artillery and many more who were camped in the area. Today Marske-by-the-Sea is slowly losing its identity, becoming an urban District of Redcar (www.marskebythesea.co.uk/).

Saltburn can trace its history to at least 369 AD, when the Romans built a signal station at Huntcliff in the later days of the Empire, when there was danger of barbarian coastal raids. It was one of a series of signal stations protecting the Yorkshire coast. The Anglo-Saxons settled in the 5th century, naming a local stream '*Sealt-Burna*' meaning the salty stream, perhaps from its salty water or because of the salt-like alum found in the neighbourhood. Vikings three centuries later changed the names of all local burns to becks. The settlement on the Salt Burn retained its name, but the stream became the Skelton Beck. The little fishing village of Saltburn was famed for smuggling and fishing until 1860, when the Stockton and Darlington Railway was extended to the site and Henry Pease of Darlington set about the development of the Victorian coastal resort of Saltburn-by-the-Sea. Today Saltburn-by-the-Sea remains a quiet fishing haven and resort which retains an air of faded Victorian grandeur (www.northeastengland.talktalk.net) (Figure 10.12).



Figure 10.12. Saltburn's seafront and pier

Competition from package holidays to the Mediterranean and beyond has increasingly spelt the end of seaside towns, although numerous redevelopment works suggest they are now beginning to reinvent and re-launch themselves.

For more information see the detailed HSC Character Types Texts (Section 9) for:

- Cliff
- Coastal Rough Ground
- Dunes
- Extractive Industry (minerals)

- Fish Processing
- Foreshore
- Maritime Safety
- Navigation Area
- Navigation Hazard
- Port
- Processing Industry
- Recreation
- Saltmarsh and Sandflats
- Sea Defences
- Settlement
- Transport
- Water (fresh)
- Woodland

10.5 Skinninggrove to Ravenscar

To the south-east of Saltburn the coast changes rapidly to high irregular cliffs, cleft at intervals by narrow defiles and small valleys (Myerscough 1991, 7). From the crumbling shale cliffs of Staithes to the 200m high cliffs at Boulby (the highest cliffs on England's east coast), the coastline exhibits a wide variety of rock types and coastal features associated with them. The River Esk, entering the sea at Whitby, has the only estuary between the Humber and the Tees, and is one of only a few breaks along this stretch of coast that offers scope for landings where fishing boats can be drawn up the beach.

A number of Mesolithic artefact scatters and Neolithic finds are recorded along the coastline here, often eroding from cliffs, beaches, dunes and the foreshore but also turned-over on the farmland on the cliff-tops.

The locations of the villages along this coast, with their concern for shelter from the storm and providing a safe haven for boats, leave little doubt that the first settlers here were seafarers. Staithes, Runswick and Robin Hood's Bay all hug the northern end of their bays to huddle in the lee of the headlands.

Fishing has been an important element of the economy here since at least the medieval period. The fishing ports of Staithes, Robin Hood's Bay and Runswick Bay deployed fleets of three-masted luggers, which were fitted out to follow the long-line fishery for cod and ling off the Dogger Bank, as well as smaller cobbles for inshore fishing.

In the fishing villages houses tend to be built as close as possible to the waterside, Staithes being an extreme example (Figure 10.13). This was largely so that the fisherfolk could be constantly near their boats, the principal wherewithal of their livelihood. At Whitby the fishing community lived in the narrow streets by the harbour (Frank 2002, 44). Runswick and Staithes were predominantly fishing villages, but elsewhere, as at Whitby, the fishing community was only part of a larger population.



Figure 10.13. Staithe (© Sutcliffe Gallery (www.sutcliffe-gallery.co.uk))

Whaling from Whitby began in 1753 and drew to a close in 1837. In the late 18th century Whitby had between ten and twenty vessels involved in whaling at any one time (Figure 10.14) and more people involved in the trade than any other place in Britain, including Hull.



Figure 10.14. Whitby whaling ships (© Sutcliffe Gallery (www.sutcliffe-gallery.co.uk))

Between 1840 and 1860, trawling expanded dramatically, rapidly overhauling lining as the principal means of capturing white fish and by the mid-1870s, the expansion of the smack trawl fishery was nearing its peak. In summer, they visited grounds off the Danish, German, Dutch and Belgian coasts. In winter, they mainly worked banks adjacent to the Dogger, including the Silver Pits and Botney Gut.

From about 1880 onwards the fishing industry was rapidly assuming its present-day character. Around Britain's coastline there were still thousands of small craft propelled by sail and oar; but in the Irish Sea, the Channel, and the North Sea, fleets of steam-powered trawlers were operating. By the outbreak of World War One, the last of Staithe's yawls had stopped fishing, and a tradition which can be traced back, through documentary sources, nearly 1300 years came to an end (Frank 2002, 37).

The character of this area has been shaped by these fishing ports and activities that take place along this stretch of coast, as well as by the alum, ironstone and jet industries that have been established here over the centuries.

From at least the 17th century the shale in these cliffs was worked for alum, as can be seen at Sandsend (Figure 10.15), Boulby, Loftus, Peak, Stoup Brow, Saltwick Bay and Kettleless. The upper part of the alum shales was exploited to make cement and so are often called the Cement Shales. The effect of this heavy industrialisation was often so great that in some cases whole cliffs have been changed beyond recognition. Access ways to the shore and landing places have also altered the shape of the coastline. With increased competition from new works elsewhere in the country from 1766, the alum industry in Yorkshire began to decline, the last two remaining works, at Kettleless and Boulby, ceasing production in 1871.



Figure 10.15. Former site of Sandsend Alum House

Shipyards and dockyards are evident from at least the medieval period and from the 15th century onwards, the north east shipping industry flourished with the rise of the coal and, later, the alum trades. Alum production required large quantities of fuel and every year vast fleets of colliers sailed from the Tyne and Wear to the Thames bearing the produce of the coalfields of Northumberland and County Durham. Much of this collier fleet was owned at Whitby. Whitby's share grew steadily through the 18th century due mainly to the fact that at high tide it possessed one of the best harbours of refuge on the East Coast (Figure 10.16). The emergence of Whitby as a highly skilled shipbuilding town was another factor which contributed to its dominance of the shipping industry in this area. But Whitby's shipbuilding days eventually became numbered because of the size limitations placed on it by the bridge. A dramatic reduction in the number of shipyards took place in the 1830s with a downturn in trade and again in the 1860s when the market for wooden vessels dried up.



Figure 10.16. Dock End, Whitby (1880s) (© Whitby Museum)

From Staithes to Port Mulgrave the Cleveland Ironstone Formation has been extensively mined, at Skinningrove, Staithes, Port Mulgrave (Figure 10.17) and Kettlewell. The village of Skinningrove was built to house the men who worked the iron mines at the head of the valley. Though the mines have closed, steel works have taken their place and the stream is permanently stained with the rusty colour of iron ore waste (Argyle *et al* 1985, 162). Specialised industrial port facilities to transport the ironstone were built at Skinningrove and Port Mulgrave.



Figure 10.17. Port Mulgrave, now disused

Although jet had been used since the Bronze Age, jet mining was another important local industry which flourished during the 19th century, in particular at Whitby, Port Mulgrave, Sandsend and Saltwick Bay. Adits were cut into cliffs and hillsides and where the Jet Rock sank below the shoreline at high tide traces can also be seen where miners have dug away at the bases of the cliffs.

Another of North Yorkshire's most significant exports was stone for building, in particular sandstones. As well as being workable this stone had the virtue of hardening as it weathered and of resisting the effects of immersion, so it was useful in harbour works. It is mainly found in and around Whitby and was used to construct most of Whitby Abbey. Stone was also sent from Whitby to build Margate and Ramsgate piers, the foundations of London and Waterloo Bridges, Covent Garden Market and London Docks, to quote just a few examples.

Potash was discovered in north east England in 1939. A potash mine was opened at Boulby by Cleveland Potash Ltd in 1973 and is currently Britain's deepest mine, as well as also being used for research into neutrino impacts on the earth.

The more indirect effects of extractive industry include the development of certain towns, and the generation of wealth. In the post-medieval period, settlements grew slowly until the 18th century when increased mining activity led many to expand more rapidly and the growing commercial activity caused some others to follow. Several new towns and industrial villages also grew up along the coast as a result. Without the development of ironstone mining many of the small villages we see today in East Cleveland would not have been formed. The alum works also needed local workers and by the 18th century the original coast road running from Staithes to Skinningrove was dotted with hamlets for these workers.

Many of the relict industries in this area, such as alum quarries, ironstone and jet mines, are still visible in the landscape today, although most are now either overgrown by scrub and woodland or are barely distinguishable from the natural areas of the rocky foreshore.

Military facilities include a zeppelin listening post at Boulby and a radar base at Ravenscar. A WWII radar station was also located at Kettleness while it was superseded by a rotor type radar at East Barnby in 1950s, but closed after a fire in the 1960s.

Navigation aids and maritime safety contribute significantly to the character of this area. Lighthouses are situated at Whitby Harbour, coastguard and lifeboat stations at Robin Hood's Bay, Staithes (Figure 10.18), Runswick Bay and Whitby.



Figure 10.18. Staithes lifeboat station

All the coastal settlements along this inhospitable stretch of coast are protected by various sea defences, including sea walls and breakwaters.

The use of some of these places as settings in fictional literature also attracts many visitors, such as Bram Stoker's most famous novel, the vampire tale *Dracula* published in 1897, which had many parts of it set around the town of Whitby, where he was living at the time.

Tourism is now the dominant industry in this area, with its rich fishing and industrial heritage, as well as Whitby Abbey and the Cleveland Way (Figure 10.19), attracting many visitors each year. Foreshore angling is another popular recreational activity and particularly favoured venues include Staithes, Port Mulgrave, Runswick Bay, Sandsend, Saltwick Bay, Robin Hood's Bay and Whitby. Whitby is renowned for its pier fishing and its cod, with one of the largest cod ever landed on rod and line around the British coast caught here in 1992 (56lbs 6ozs).



Figure 10.19. The Cleveland Way, a popular coastal walk that runs through this area

A 'heritage coast' classification scheme was initiated in 1972 to protect coastline of special scenic and environmental value from undesirable development and the whole of this stretch of coastline (with the exception of Whitby) is designated as a Heritage Coast.

For more information see the detailed HSC Character Types Texts (Section 9) for:

- Cliff
- Coastal Infrastructure
- Coastal Rough Ground
- Extractive Industry (minerals)
- Fishery
- Foreshore
- Maritime Safety
- Military Defences
- Military Facility
- Navigation Area
- Navigation Channel
- Navigation Hazard
- Port
- Processing Industry

- Recreation
- Saltmarsh and Sandflats
- Sea Defences
- Settlement
- Transport
- Water (fresh)
- Woodland

10.6 Scarborough to Cayton Bay

Scarborough is dominated by Castle Hill, a promontory rising to nearly 100m above sea level. On either side the cliffs are relatively low; sandy beaches run north and south. Much of the cliff section from Scarborough to Cayton Bay is composed of glacial drift choking a pre-glacial channel. At the southern end of the Scarborough Bay the cliffs contain plentiful fossils, especially oysters and ammonites. Further south, from High Red Cliff, marine beds rise out from the beach and yield a rich marine fauna. Overlying deltaic rocks, well displayed on the shores of Yons Nab, contain the nationally and internationally important Gristhorpe Member Plant Beds containing many drifted plant remains, including ferns, cycads and fruits, many of which are unique to this area.

Although Scarborough is now predominantly recreational in character, it also has a long history of military activity and as a principal east coast fishing port.

Scarborough is a place name mentioned in Viking sagas. The word 'borough' derives from the Viking word 'Borg' meaning 'stronghold' and so Scarborough is thought to mean Skarthi's stronghold. According to the 'Kormaksaga' two Viking brothers called Thorgils and Kormak went harrying in Ireland, England and Wales and established a stronghold called Scarborough on the English east coast. Thorgils was known to his brother by the nickname 'Hare Lip', or in the Viking language 'Skarthi'. The brothers Kormak and Thorgills were in the service of King Harald Grafeld, who was king of Norway from 960-965AD. This suggests the Viking foundation of Scarborough dates to around the mid tenth century.

The Vikings were not the first to settle at Scarborough, however. There may already have been an Anglo-Saxon settlement on the site and there was certainly a Roman signal station here. Scarborough's military lookout was subsequently built upon and used for defensive purposes by the Saxons. The first substantial stone-built castle in this area was also built at Scarborough, founded by William le Gros around 1136 and was further strengthened and rebuilt when it was seized by Henry II in 1154. Scarborough Castle received its last great assault during WWI, when two German warships bombarded the town causing a great deal of damage and destroying both the barracks and the coastguard station. Shells also damaged some of the walls and blew a large hole in the castle keep (Waters 2005, 7). The castle still dominates the town today, but other, later features, built or created in relation to it, have formed nuclei for other streets and buildings (Figure 10.20).



Figure 10.20. Scarborough Castle

Scarborough also played an important role as one of England's major east coast fishing ports. In winter, 'deep sea' herring were sought, as were inshore species from boats and cobbles, and lobster, which were taken in Lent and summer. By the summer, skate, cod, and coastal herring fishing took place, the latter beginning in late summer and extending through autumn. In the early 14th century hundreds of ships are recorded as landing herring at Scarborough during each year's season. In Scarborough's peak year 1304-5, 237 foreign landings brought 355 lasts of herrings – 810 tonnes or 3,550,000 fish – worth £444. Herring and cod fairs took place during the autumn, the busiest at Scarborough (Scarborough Fair), lasting 98 days, from 24 June to 29 September (Starkey *et al* 2000, 19).

Scarborough maintained its primacy as the chief Yorkshire herring port up to the outbreak of war in 1914. Between the wars, herring fishing on any scale virtually disappeared. There was a boom again in the 1940s and 1950s as Scottish boats fished off Yorkshire, but this was short-lived (Frank 2002, 147-9). The change to round-the-year trawling and seine-netting contributed to the serious depletion of herring stocks in the North Sea (Frank 2002, 88). Modern perceptions of fishing are often that it is now destructive of fish stocks and the sea-bed. But it is also still seen as an important element in the local economy and culture at Scarborough (Figure 10.21).



Figure 10.21. Fishing vessels moored in Scarborough's Old Harbour

Dr Robert Wittie is said to have unintentionally launched Scarborough as Britain's first real seaside resort after he published a booklet called *Scarborough Spaw* in 1660 and advocated its medicinal 'cistern' waters as a cure for virtually everything. An impressive spa building was eventually erected to cater for the mass influx of people who visited the springs here. In 1737 the spa was attracting around a thousand visitors per annum (Waters 2005, 51).

Scarborough also had outdoor pools at both the North and South Bays in the early 1900s. The northern one still remains in use and is one of the few remaining outdoor pools left in the country (Waters 2005, 87). Other well-loved coastal amenities include aquariums, pleasure gardens and parks. The cliff gardens and parks, with their picturesque walkways, boating lakes, fountains, flowerbeds and bowling greens, were appreciated for their peace and tranquillity. These gardens were often based on foreign themes, such as the Italian Gardens that were built close to the spa or the oriental garden at Peasholm Park. These parks and woodlands continue to be maintained by local council authorities, with dedicated staff caring for the flora and fauna (Waters 2005, 80) (Figure 10.22).



Figure 10.22. St Nicholas Gardens, Scarborough

In 1845 the York to Scarborough railway line was opened, encouraging further growth of the tourism industry here. Just after the Second World War Scarborough began to develop itself as a major 'modern' leisure resort. The 20th century also saw the development of the heritage industry.

Some golf courses were established in the 19th century, but most are also relatively modern. Recreation in this area has tended to have a seaside bias until the later 20th century, where a more recent trend has been toward 'quality' tourism and has encouraged more visitors to visit 'heritage' sites and explore inland landscapes. Many visitors still use the spa and frequent the surrounding area with its hillside walks and gardens. Others now choose to sample the delights to be found further along the bay where funfair rides, amusement arcades, public houses and other enjoyments of a modern seaside resort attract the majority of today's crowds (Waters 2005, 56) (Figure 10.23). Chalet and caravan parks were developed at Cayton Bay in the late 20th century.



Figure 10.23. Scarborough sea front, South Bay

Other valued recreational activities include angling and diving. The numerous wrecks in this area make it a popular spot for diving and Scarborough Sub Aqua Club is one of the longest established scuba diving clubs in England, founded in 1960.

As at Redcar, Saltburn and Seaton Carew, the rise of foreign travel has had an adverse affect on this area's coastal resorts, but with the increasing popularity of sailing and other water-sports, harbours are beginning to adapt to these changes and adopt new roles as marinas (Figure 10.24) and maritime heritage centres.



Figure 10.24. East Harbour Marina, Scarborough

For more information, see the detailed HSC Character Types Texts (Section 9) for:

- Cliff
- Coastal Rough Ground
- Extractive Industry (hydrocarbon)
- Extractive Industry (minerals)
- Fishery (netting, lining, potting and trunking)
- Fish Processing
- Foreshore
- Maritime Safety
- Navigation Area and Route
- Navigation Hazard
- Port
- Processing Industry
- Recreation
- Saltmarsh and Sandflats
- Sea Defences
- Settlement
- Telecommunications
- Transport
- Water (fresh)

10.7 Whitby and Hartlepool Grounds

This character area covers the deeper offshore waters between the coast and the Dogger Bank, the area of deepest water in the HSC study area.

During the medieval period the area comprised internationally important fishing grounds particularly for herring and cod, respectively caught by nets and long lines. The fishing communities perched and tucked away on this coast traditionally farmed inshore waters: trapping for salmon, potting for shellfish and crustacea, and netting for seasonal herring in distinctive local craft such as cobbles, yawls and mules, with Scarborough, Whitby, Staithes and Hartlepool the leading towns.

The following extract comes from Albert Close's *Fisherman's Chart* of 1953, compiled from first hand evidence from fishermen of the North Sea. It provides a good indication of how these grounds were perceived by the men who worked them:

Area 67: The NW of Area 67 is good for Dabs, Haddock, and Cod in July; catchy for Seine-Nets, and in the north boulders are picked up. Whitby Fine Ground is fairly good and clean. It is rough as a rule for 10 miles offshore, and strewn with wrecks. For 15 miles off shore from Scarborough to Hartlepool is stony ground.

Area 68. All of Area 68 is good for all kinds of fish. The south half of Brucey's Garden is good for Seine-Nets. Off it's South end, from about Lat. 54.47 to 54.33 for about 14 miles West of the southern Rough of Dogger-Bank, is catchy, but trawlers, and some Seine-Nets work it. On its west edge it is catchy in 35-40 fathoms. The ST Huxley found Jan, Mar, May, June, July and Oct good months. The Western half of this area, as far north as Lat 54.45 is reported stony ground, and smaller stones in the middle of the Eastern half, extending right across to Lon 2 and from then about NE by N for another 80 miles. It averages about 120 miles in width.

However, offshore fisheries were also farmed, but it was not until the advent of trawling methods and the late 19th century adoption of steamers that heralded the era of extensive and intensive exploitation of both pelagic and demersal fisheries. The worst affected stretch of coastline in England was that between Berwick and the Humber, which includes the Hartlepool to Scarborough stretch (Frank 2002, 21-22).

'In the 19th century Staithes yawls ventured as far north as Aberdeen and vessels from Scarborough and Filey continued fishing down to Yarmouth. Off the Yorkshire coast the main herring season was in August and September, harvest months in the agricultural calendar. By the 1870s Yorkshire harbours were packed in the late summer months with vessels come to share in the herring harvest. Zulus and fifies from the Moray Firth lay alongside stately East Anglians, together with boats from Cornwall's Mount's Bay and from the Isle of Man, and the local fleets too. By 1880 more than two hundred boats were fishing for herring off Whitby; and in 1885 it was reported that over 80 boats came from Cornwall alone (Figure 10.25), their home ports being mainly Penzance, Mousehole, Fowey, St Ives and Newlyn. A few fished the off-ground with the bigger Staithes yawls, venturing as far as 60 miles from land, but usually the fishing ground was three to seven miles off Whitby.' (Frank 2002: 122)

Once internationally important fishing grounds are today in a state of remittance as strategies for conservation of fish-stocks limit seasons and catch size.



Figure 10.25. Cornish Herring Luggers leaving Whitby (© Whitby Musum)

The coastal and offshore waters of Britain have been navigated since prehistory although it is likely that early mariners circulated round the periphery of the North Sea, 'coasting', by hugging the coastlines rather than sailing directly across it. Linear routes are essentially an early-modern invention. Nevertheless the whole area can be considered to comprise 'navigation areas and routes', both historic and modern, to a greater or lesser degree.

Wrecks are numerous in the waters off the River Tees and North Yorkshire coasts. Most derive from the early-modern period (1750-1900) of coastal trade and fishing.

For more information see the detailed HSC Character Types Texts (Section 9) for:

- Extractive Industry (hydrocarbon)
- Fishery (trawling, netting and lining)
- Military Facility
- Navigation Area and Route
- Navigation Hazard
- Palaeo-landscapes
- Telecommunications

10.8 Straits of Dogger (The Hills)

The Hills are a series of sand banks, topped with extensive sand waves, and deep narrow channels, orientated north-west south-east, lying on the south-west edge of Dogger Bank. The area constituted part of the submerged 'Doggerland' and was probably inundated sometime around 7000BC, before which it may have formed a series of promontories and headlands with deeply incised channels often favoured by Mesolithic hunters and gatherers. The banks themselves are likely to have limited archaeological potential although the channels may offer more despite being filled with thick Holocene deposits and modern marine sands. Submarine prehistoric sites may survive with sufficient integrity to provide evidence for settlement patterns, working sites, fish weirs, hearths, food remains, craft and burials although they are likely to be deeply buried or survive in secondary and tertiary contexts.

The area has been extensively fished, historically by long lines and nets but in recent times by extensive and intensive beam trawling. The area is also used as a Military Practice Area by submarines exercising in the deep channels.

For more information see the detailed HSC Character Types Texts (Section 9) for:

- Extractive Industry (hydrocarbon)
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- Navigation Area and Route
- Navigation Hazard
- Palaeo-landscapes
- Telecommunication

10.9 Dogger Flanks

The Dogger Flanks skirt the Dogger Bank, encompassing the area between the 20-50m contours. This area is likely to offer considerable archaeological potential, relative to the top of the Bank itself, and prehistoric sites may survive with sufficient integrity to provide evidence for settlement patterns, flint working sites and fish weirs together with palaeo-environmental evidence such as peat deposits and submerged forests remains.



Figure 10.26. Fishing over the Dogger Flanks

While artefacts and archaeological deposits left on the upper surface of Dogger Bank are likely to be exposed by present currents and wave action (very severe, breaking waves in 10m) it is probable that there are far more relicts originally abandoned on the shore of this shallow sea in the area now at a depth of about 40m. The rising sea would have had very little destructive force until the water was tens of metres deep, and strong tidal currents were developing. Whitehead and Goodchild (1909) describe the recovery of peat deposits or ‘moorlog’ by fishermen, especially on the north side of the basin, on the flanks of Dogger Bank itself (Flemming 2002, 33).

‘The Mesolithic coastal dwellers of Doggerland began to see their landscape change - sometimes within a single day, sometime within their lifetime, sometimes only when they recalled what parents and grandparents had told them about lagoons and marshes now permanently drowned by the sea. An early sign of change was the ground became boggy, when pools of water and then lakes appeared in hollows as the water table rose. Trees began to drown while the sea remained quite distant. Oak and lime were often the first to go, alder normally the last, surviving until sea water was splashing its roots and spraying upon its leaves. High tides became higher and then refused to retreat. Sandy beaches were washed away. Coastal grasslands and woodland became salt marsh – land washed daily by the sea which saturated the soil with salt. Only specialised plants could survive such as the edible samphire and cordgrass that provided a home for an assortment of fleas, bugs and midges. Herons, avocets and spoonbills soon came to feed where, not long before, woodland birds had flourished. The North Sea invaded Doggerland. Marine waters worked their way into valleys and around the hills; new peninsulas appeared, became off-shore islands and then disappeared for ever’ (Mithen 2003, 151).

For more information see the detailed HSC Character Types Texts (Section 9) for:

- Extractive Industry (hydrocarbon)
- Fishery (trawling, netting and lining)
- Navigation Area and Route
- Navigation Hazard
- Palaeo-landscapes

10.10 Dogger Bank

The Dogger Bank is a very large shoal area in the central southern North Sea, with water depths less than 30m. It is shallowest in the south-west where depths are only 10-15m and areas of natural swell are common.

From at least the medieval period long line demersal fisheries have centred on and around the Dogger Bank with craft sailing from Scarborough, Staithes, Robin Hood’s Bay, Flamborough and Runswick taking cod, ling and haddock. From the late 19th century the area has been extensive trawled, for demersals and flat fish.

Modern fishing methods have greatly reduced many fish stocks to the point of extinction. Herring is no longer abundant in the North Sea; massive catches in the 1940s and 1950s took their toll and depleted stocks fell to a dangerously low level. If, as a result of bans and restrictions on fishing, the North Sea herring does recover it would require strict international legislation and the reintroduction of traditional methods of fishing to prevent them being decimated again. Restrictions on cod and plaice have caused the displacement of fishing activity away from traditional grounds and towards the oil and gas fields of the North Sea.

Further offshore wrecks become increasingly dispersed although clusters occur in some areas over foul grounds and off the Dogger Bank in particular.

The Bank comprises Devensian pro-glacial lake deposits and glacial moraine, mostly patches of gravel and formations of calcareous sands with peat infilling glacial depressions; all overlying Pleistocene sediments. The top of the peat is dated to 8140 ± 50 BP at -31.06m OD (Shennan *et al* 2000, 303).

Across the central and southern North Sea there is submerged archaeological potential for Pleistocene flora and faunal remains. Early or Lower Palaeolithic potential is minimal but there is greater likelihood of Middle and Later or Upper Palaeolithic remains (including mammoth and rhinoceros teeth). Holocene deposits may hold Mesolithic archaeological potential, both *in situ* and in secondary contexts (Figure 10.27). Many human artefacts, mammal remains and peat deposits have also been dredged and reported from locations reported as The Dogger Bank. However beyond the general location of these areas, little is known about their stratigraphic context or spatial patterning. The Dogger Bank was isolated and inundated by ≈ 5500 BC and after that the archaeological potential is purely maritime.

The Doggerland landscape represented a living space rather than merely a 'landbridge' connecting Britain to mainland Europe (Coles 1998; 1999). In many ways the topography of the Danish archipelago is analogous with the low relief of the central North Sea. It is possible to envisage the rising sea penetrating river valleys, inlets and creeks into marshes, and separating low islands only 30m high in places (Flemming 2004, 18). The variation in rate of sea-level rise, standstill and fall combined with local topography, meant that land loss probably occurred in fits and starts. Deeply incised Pleistocene river valleys would have gradually infilled with no perceptible change for decades or even centuries during the early Holocene. However these periods of minimal change may have occasionally been followed by periods of continual change, or dramatic change.

'Around 10,000BC, with rising temperatures and sea-levels, Doggerland must have offered an increasingly attractive environment for human settlement. Periglacial tundra was replaced by more temperate grassland with shrubs, and this in turn was gradually colonised by trees, first by birch, willow and hazel, later pine, oak, alder and elm. As climate and fauna changed, so did the animal resources available. The big game of open grassland – mammoth, red deer, aurochs, wild horse – may have once attracted Late Palaeolithic hunters to Doggerland. But as the temperatures rose, as river systems and wetlands developed, and the trees advanced and woodlands thickened, a wide range of mammals, fish and wildfowl must have lived in the varied environments created' (Gaffney, 2006)

'Doggerland had a coastline of lagoons, marshes, mud-flats and beaches. It was probably the richest hunting and fishing grounds in the whole of Europe. Grahame Clark, the excavator of Star Carr, believed that Doggerland had been the heartland of the northern Mesolithic culture' (Mithen 2003, 150).



Figure 10.27. Doggerland in the Late Holocene (© B.J. Coles and S.E. Rouillard)

Today the submerged landscapes of the North Sea offer tantalising glimpses of a drowned culture, lost and somewhat mysterious yet full of potential for further understanding, a link to a period before Britain became an island, but one not widely known to public perception.

In recent times this area of the central North Sea will be recognised as being covered by BBC Radio 4's Shipping Forecast, for the sea areas 'Tyne' and 'Dogger' and the Inshore Waters forecasts for 'Berwick on Tweed to Whitby' and 'Whitby to The Wash'. The Shipping Forecast is provided by the UK Meteorological Office on behalf of the Maritime and Coastguard Agency. It is broadcast four times a day and consists of reports and forecasts of weather for the seas around Britain. Its unique, distinctive name means it has a wide iconic appeal even to those not solely interested in nautical weather.

Some will always associate Dogger Bank with the First World War naval battle. Similarly Dogger Bank may be remembered as the site of the UK's strongest earthquake measuring 6.1 on the Richter scale. Taking place on 7th June 1931 its epicentre was on the Bank,

about 60 miles (96.6km) from the coast of England and its effects were reported throughout Britain and even in Belgium and France.

There are two principal cables routes that pass through the study area. One set (PANGEA1) run from the foreshore between Redcar and Marske and follow a north-easterly route to Denmark. Another set (UK-GER6 and TGNNEUROPE) run out from Filey before sweeping north into the central part of the area before separating, one continuing towards Denmark, the other veering east over the Dogger Bank to Germany. Two redundant cables are recording lying in Cayton Bay.

For more information see the detailed HSC Character Types Texts (Section 9) for:

- Extractive Industry (hydrocarbon)
- Fishery (trawling, netting and lining)
- Military Facility
- Navigation Area and Route
- Navigation Hazard
- Palaeo-landscapes
- Telecommunications

11 References

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11.1.1 Modern UKHO Admiralty Charts

Chart 1612-5, Scarborough Bay, 1:10,000.

Chart 1612-6, Scarborough Harbour, 1:5000.

Chart 129, Whitby to Flamborough Head, 1:75,000.

Chart 134. River Tees to Scarborough, 1:75,000.

Chart 152, River Tyne to River Tees, 1:75,000.

Chart 266, North Sea Offshore Charts, Sheet 11: Dogger Bank, 1:200,000.

Chart 268, North Sea Offshore Charts, Sheet 9. 1:200,000.

Chart 1191-0, River Tyne to Flamborough Head, 1:200,000.

Chart 1612-1, Runswick Bay, 1:25,000.

Chart 1612-4, Whitby Harbour, 1:7500

Chart 1612-9, Approaches to Whitby, 1:25,000.

Chart 2566-1, Tees Bay, 1:25,000

Chart 2566-2, Continuation of the River Tees, 1:20,000.

Chart 2566-3, Hartlepool Bay, 1:10,000.

Chart 2567, Approaches to Tees Bay, 1:200,000.

11.1.2 Historic UKHO Charts

Date	Title	Surveyor	UKHO Chart Ref.	UKHO Shelf ref.
1762	River Teese	Dobson	A50	Qf
1791	Yorkshire Coast, Robin Hood's Bay to Runswick Bay	Pickernell	i73/1&2	Pu41
1802	River Tees (1762 corrected 1802)	Dobson	D611	Qf
1815	Hartlepool to Redcliff	Thompson	F11	Df
1824	River Tees	Edgeworth	H274	Og*
1830	Flamborough Head to Robin Hood's Bay		H23, H24	15c
1839	Tees Bay	Hewett/Brooks	L1704	3a
1839	Staithes	Calver	L4151	Qf
1843	Scarborough	Calver	L6160	Oi*
1847	Scarborough (Same as L6160 but with an 1847 update)		L3803	DI
1851	Plan for Navel Station & Asylum Harbour at Redcar		L4587	

	Longitudinal section of engineering of Tees River.			
1852	Chapman's Cut 1808 to Bamblett's Bight (Cockel's Gat)	Beaufort	L8801	35c
1852	River Tees Plan		L8802	15c
1853	Seaton Carew to Redcar to Stockton		L9763	13e
1854	Plans for improvements to Scarborough Harbour		L262	
1858	Tees Bay	Calver	L9526	
1874	Tees Bay		A3918	40l
1875	East Coast	Imray	A5594	
		Tees		
1885	Tees Estuary	Conservancy	A9275	49a
1891	Hartlepool to Redcar (Tees Bay)		B400	at TNA
1891	Tees to Redcar	Maxwell	B3636	Dn
1894	Whitby	Triton	B4784	Qi
1897	Skinningrove to Marske	Triton	B6288	7d
1901	Scarborough	Triton	B8195	Dn
1914	Whitby		C5589	
1914	Whitby	Triton	C5588	Oa
1929	Tees Bay (from 2567)	HMS Fitzroy	n	Ou
1930	Tees Bay	HMS Fitzroy	E3390	8a
1931	Scarborough		H23	
			H24 10	
1931	Runswick Bay to Robin Hood's Bay		f2	15c
				England Folio
1932	England East Coast. Whitby	HMS Fitzroy	E3972	18
1932	Hartlepool Bay	HMS Fitzroy	E3970	
1932	Whitby	HMS Fitzroy	E3971	Oh
1955	England East Coast. River Tees and Tees Bay		E9862	31m
			K4023/1-	
1963	Tees Bay to Whitby		2	Kn
1967	Whitby Harbour		K5171	Folio 61
1974	Whitby		K6962	Folio 67
?	East Coast: Scarborough to Hartlepool	D&E Steel	B605/1	
1838/1853	Tees Bay	Slater/Calver	D9526	
1849 and				
1857	Stockton to the Sea	Johnston	D3198	Ag1
	Burlington Bay (Scarborough & Hartlepool) - use for illustrating report	Grenville Collins	B900	Historical Press
			H24 10	
	Huntcliff to Sandsendness		f2	15c

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12 Project archive

The HES project number is **2006022**

The project's documentary, photographic and drawn archive is housed at the offices of the Historic Environment Service, Cornwall County Council, Kennall Building, Old County Hall, Station Road, Truro, TR1 3AY. The contents of this archive are as listed below:

1. A project file containing site records and notes, project correspondence and administration and copies of documentary/cartographic source material (file no 2006022).
2. Digital photographs stored in the directory `..\Images\Sites\Seascapes Scarborough to Hartlepool 2006022`
3. This report held in digital form as: `G:\CAU\HE PROJECTS\SITES\MARITIME\SEASCAPES SCARBOROUGH TO HARTLEPOOL 2006A6022\REPORT\FINAL REPORT\SCARBOROUGH_HARTLEPOOL_HSC_FINAL_REPORT.DOC`