

# 1.10 Broad Character: Cultural Topography

## 1.10.1 CHARACTER TYPE: PALAEOLANDSCAPE COMPONENT REGIONAL PERSPECTIVE: EAST ANGLIA

### Introduction: Defining/distinguishing Attributes

The palaeolandscape component is most commonly found within the East Anglian region as palaeochannels and prehistoric land surfaces. Such features date from the Lower Palaeolithic through to the Neolithic era in places, spanning a time period of c. 950,000 years. Elements of palaeolandscape occur in coastal land, intertidal and marine zones as a result of the complex series of processes outlined in the section below. In brief, hominin (humans and their ancestors) occupation of the region, and more generally what we now know as the British Isles, began in a period when Britain was still part of the European mainland and the North Sea was dry land. As a result the entire region has the potential to contain prehistoric remains and landscapes, many now submerged beneath the North Sea and periodically exposed in intertidal areas or stratified beneath some areas of coastal land.

Elements of palaeolandscape occur in the region in a variety of forms and locations. There is an extensive series of palaeochannels and rivers representing a number of relict river systems including the older course of the Thames, the Ancaster, Bytham and Yare. Very recently Palaeolithic sequences have also been identified in the marine zone, most significantly in the vicinity of Great Yarmouth (Wessex Archaeology 2008a) Happisburgh and Pakefield (Wessex Archaeology 2008b), reflecting continuations of the onshore deposits.

Palaeolandscape in the East Anglian region is not restricted to the Palaeolithic, although Mesolithic activity is less common. Perhaps the most renowned later land surface discovered to date is the 'Lyonesse' surface, which outcrops in places on the stretch of coast between Jaywick and Dovercourt.



*Intertidal areas are hot spots for Palaeolandscapes*

In addition to these known deposits there is considerable potential for further palaeolandscape components within the region and a series of 'hotspots' has been identified by Flemming (2002, 7). These include the fossilised river valleys and cliff coasts discussed above, as well as estuaries, wetlands, mudflats, and peat deposits, found all along the coastline of this region. These hotspots are particularly relevant to Mesolithic landscapes.

## **HISTORICAL PROCESSES; COMPONENTS, FEATURES AND VARIABILITY**

The presence of submerged and buried palaeolandscapes in offshore and coastal areas of East Anglia is the result of a complex series of past sea level changes and subsequent palaeo-geographic variations. This is intricately connected to the cycles of glacials and interglacials which characterised the period from the earliest known occupation of Britain through to the present.

The earliest known occupation of Britain is represented by discoveries at Happisburgh, Norfolk, and Pakefield, Suffolk, mentioned above. These push back the proposed earliest known date of human occupation in Britain, and consequently in Northwest Europe, some 200,000 years to 700,000 BP (Wessex Archaeology 2008b, 2). Latest excavation reports suggest that the date may be pushed even further back to c. 950,000BP (<http://www.ahobproject.org/Happisburgh.php>). At this time the southern North Sea was infilled by a massive delta created by sediment from several major rivers (Gibbard 1995) and Britain was a peninsula. The exposures comprised extensive series of fluvial and related sediments that extend beneath the North Sea.

Prior to the Anglian Glaciation the River Thames followed a different course, entering the sea via the Suffolk coast. Remnants of the channel surviving in Essex and Suffolk have high potential for palaeolithic archaeological remains (Austin 1997, 5). Other palaeochannel systems of note include the Ancaster and Bytham rivers, the exact courses of which are unknown (Wessex Archaeology 2008b). These palaeochannels and their corresponding floodplains, rich in resources, acted as foci for palaeolithic hominins resulting in the presence of occupation evidence and larger-scale palaeolandscape features. These manifest themselves in a number of ways and include sediment sequences exposed in coastal cliff locations such as was exposed at Clacton in the early 20<sup>th</sup> century containing at least three phases of Palaeolithic occupation, giving its name to the 'Clactonian' flint tool industry.

The Cromer Forest Bed and Wroxham Crag Formations are perhaps of most interest. The former is a deposit of organic detritus laid down within the channels and floodplains of rivers. This has produced significant evidence of wood and plant remains in the north of the region, as well as worked flint including a hand axe (Wessex Archaeology 2008b, 4) and butchered bone.

The recent project undertaken off the coast of Great Yarmouth (Wessex Archaeology 2008a) in Dredging Area 254 targeted peat and clay deposits close to the seabed thought to be infill deposits within the Yare Palaeovalley. This has added to the growing body of evidence for submerged palaeolandscape survivals accrued through marine industrial processes such as aggregate dredging and commercial trawling (Wessex Archaeology 2009).

The region is also unique in having extensive deposits of Lowestoft Till, deposited during the later Anglian Glaciation. This is regarded as the single most important stratigraphic marker in Pleistocene Britain (Austin 1997, 5). East Anglia was at the maximum limit of the ice sheets during the Anglian glaciation, allowing Lowestoft Till to be directly related to Thames gravel terraces. These provide the longest record of Quaternary events in Britain and are rich in Paleolithic sites (ibid). Excavated sites can be related to this record and given a relative date,

making East Anglia pivotal to understanding the Palaeolithic in Britain (ibid). The series of glacial and interglacial periods which followed resulted in periodic abandonment and re-occupation of Britain. This was partly a result of the extreme cold and partly of the enormous changes which accompanied the climatic upheaval. The melting and freezing cycles resulted in sometime large and rapid fluctuations in sea level resulting in varying exposure of land in what is now the North Sea basin. The release and storage of water in glaciers (glacio-eustasy) was further complicated by the rise and fall of the earth's surface with the weight and release of the ice sheets (isostasy), leading to complex geological changes.

By the time of the Last Glacial Maximum (LGM; c. 20,000 BP) an ice sheet extended across the British Isles as far south as Norfolk, resulting in large-scale exposure of the continental shelf. As the ice sheet melted the study area underwent a long period of sea-level rise, steady at first but leading to a rapid rise from c15,000 BP.

Overall, the transformation of the North Sea area was complex during this period. Research indicates that areas of the southern North Sea or 'Doggerland' (Coles 1998) was exposed and inhabitable at different times, reaching a situation similar to the current day by 6000 BP (Shennan et al 2000). As a result of the preference for estuarine and marine locations during the Mesolithic the potential for submerged landscapes of this period beneath the current sea bed and around the present coastline is likely to be high. This is reinforced by the finds from fishing on the Dogger and Brown Banks (mentioned above), as well as the recent work off Great Yarmouth (Wessex Archaeology 2008a). The former would have been islands, periodically cut off from the mainland but rich in resources at various times in the Mesolithic. Following this period of transgression and maritime exploitation settlement generally moved away from the coastline. A number of artefacts and features dating to the Neolithic and Bronze Age have been found at Clacton, in association with the 'Lyonese Surface', including pottery and flintwork. However evidence suggests the surface was inundated in the Neolithic period, shortly after 3800-3700 BP (Wilkinson and Murphy 1995, 101).

The Lyonese was discovered and named by Samuel Hazzledean Warren and contained a series of settlements dating from the Mesolithic to the early Bronze Age placed to exploit coastal and estuarine resources. Hazzledean Warren wrote that sites could be divided into campsites, pit dwellings, cooking holes, hearths and wooden structures (Wilkinson and Murphy 1995, 101), indicating a good degree of preservation across the landscape. Today the surface is depleted due to coastal erosion and development, though patches are present at the Walton end of the Naze (ibid, 100). A significant assemblage of microliths has been



*Stone Point, a significant prehistoric site*

found at Stone Point in the Naze and on Dovercourt beach. The assemblage from Stone Point included a tanged point which may place the origin of the settlement in the area as early as the Upper Palaeolithic (Jacobi 1980a). A logboat was also observed on Walton beach in 1936: although its date was unknown it may have belonged to this surface too. Mesolithic implements have also been recovered offshore; numerous artefacts have been dredged up by

fishermen north of the region, particularly around Dogger Bank and Brown Bank. The latter feature is in the far north-east of the current study area and has produced thousands of bones, some of which have been identified as worked aurochs bones and dated to the early Mesolithic (Louwe Kooijmans 1970-1). It is thought that these represent the remains of coastal settlement in this area, possibly sheltered behind a coastal barrier (now Brown Bank) (*ibid*). A Mesolithic perforated mace head was also recovered from the coast near Great Yarmouth (Wymer 1977).

Mesolithic sites were often adjacent to wetlands and estuaries (*ibid*), therefore, the potential for such archaeological sites is high around the shorelines and rivers at each date, especially where shorelines were constant for hundreds or thousands of years (*ibid*). The coastline was at its present line by around 8000 BP (Williamson 2006, 19). Although it has been subject to gradual coastal erosion, the potential for prehistoric remains as far back as the Mesolithic in this zone is high eg the Naze in Essex, which once formed the northern side of the major river valley and the bed of the River Orwell from which an Acheulian handaxe was found.

### VALUES AND PERCEPTIONS

At present the public perception of submerged landscapes in the region is minimal and little value is placed on this remarkable resource from a wider perspective, although some relevant work was carried out by Natural England in their 'Undersea Landscapes' campaign of 2008-9. This is currently changing due to growing interest in submerged landscapes fuelled by the media and popular culture. A 'Time Team' special screened in 2007 entitled 'Britain's drowned world' presented a popular overview of current knowledge on submerged landscapes beneath the North Sea receiving high viewing figures.

There is also a developing interest in palaeolandscapes within certain sectors of society who have come into contact with the resource. In particular fishermen and aggregate dredgers who often recover artefacts such as stone tools and bone. The *Marine Aggregate Industry Protocol for the Reporting of Finds of Archaeological Interest* funded by the ALSF is a clear expression of interest and support from the marine aggregates industry. This is reflected in publications such as Wessex Archaeology's 'Dredged Up from the Past' Newsletter which reports on the finds from the reporting protocol.

Submerged landscapes are becoming ever more recognised and valued within the archaeological community. However, despite this concerning submerged terrestrial landscapes, this mainly remains the preserve of maritime archaeologists and a handful of prehistoric specialists. The wealth of the evidence within this region is however well recognised within this community and it is anticipated that results of ongoing work will help to raise the profile of this resource.

### RESEARCH, AMENITY AND EDUCATION

The palaeolandscapes of the southern North Sea may be crucial to our understanding of human development and periods of prehistory for which we have little evidence. Buried landscapes have a high potential for making strong contributions to our knowledge as a result of being protected from erosion or human intervention.



Historically, submerged landscapes have had a very low profile within both the wider population and the archaeological community. However, their possible extents and significance have increasingly been recognised and work has begun to address this. Nationally important projects and publications include Southampton University's 'Reassessment of the Archaeological Potential of Continental Shelves' (Dix et al 2004) and Birmingham University's 'North Sea Palaeolandscape Project,' now being extended to other areas.

In the East Anglian region the discovery of internationally important deposits has led to strong interest and the establishment of a number of research projects, many funded through the auspices of the ALSF including the work undertaken by Wessex Archaeology off Happisburgh, Pakefield and Great Yarmouth (Wessex Archaeology 2008a and b, 2009). A large-scale ALSF project (*The Relic Palaeolandscapes of the Thames Estuary: Site of the earliest hominid occupation of the British Isles*) is currently being conducted by the University of Southampton. The aim of this is to investigate the extensive, well preserved, submerged palaeo-landscape from Clacton to the south and Pakefield to north in order to enhance understanding of the earliest occupation of British isles (University of Southampton, in progress).

Such geophysical and geotechnical methods have been established as excellent techniques to investigate this resource which is often inaccessible, although they can be expensive. However, a great deal of work still needs to be undertaken in this field: accurate maps of past shoreline locations and a definitive reconstruction of past sea level change and palaeo geography are not currently available. The reasons for this are numerous, complicated by the fact that sea level curves often differ. The lack of knowledge about past land surfaces mean that modern bathymetry has to be used in reconstructions, despite many pitfalls and potential flaws in attempts to relate marine bathymetry to past topography. It is anticipated that ongoing work will help to rectify this situation.

The potential data which may be obtained through further research is likely to be of national and international significance, both for the archaeological community and the wider population. Detailed reconstructions may help us to understand our past and provide an excellent multi-purpose educational tool.

## **CONDITION AND FORCES FOR CHANGE**

The overall condition and extent of palaeolandscape within the region will never be fully known, however, current research indicates a remarkable state of preservation in places. In the coastal zone survival has been shown to be irregular and this may be exacerbated by ongoing erosion and wave action. Continuing research into this includes the Regional Environmental Characterisation (REC) projects, the aim of which is to 'acquire data of the highest quality and detail possible; to enable broadscale characterisation of the seabed habitats, their biological communities and potential historic environment assets within the regions' (<http://www.alsf-mepf.org.uk/projects/rec-projects.aspx>). The region is covered by both the Outer Thames Estuary REC and the East Coast REC.

The condition of the resource is affected by conflicting influences. This area of coastline and offshore seabed is under increasing pressure from development and industry. This includes potentially damaging activities such as aggregate dredging, trawling and large developments both onshore and offshore such as recreation and harbour improvements. The Stour and Orwell estuaries, which can both be identified as hotspots for surviving palaeolandscapes, are both regularly dredged, possibly impacting on their survival. This is further compounded by the considerable erosion along the coastline. This is particularly evident at Happisburgh and further south at Dunwich where large chunks of cliff are regularly lost to the sea.



*Naze Cliffs*

In contrast a number of other influences are changing our understanding of the resource in a positive manner. This is most clearly exemplified by the large amount of research being funded by the ALSF. The study area is a crucial resource for aggregates, both nationally and internationally with large licensed areas and this is being offset by ongoing funding. Overarching academic research is also adding to this. Research includes the REC projects as outlined above and the current HSC projects.

Erosion is a distinct problem along stretches of the Norfolk and Suffolk coastline and work to prevent the loss of any further land, particularly in cliff areas, may also prevent the exposure and loss of any further deposits. DEFRA and the Environment Agency are taking steps to deal with these issues as outlined in 'Adapting to Coastal Change: Developing a Policy Framework' published in March 2010. However, prevention of erosion is only one of the many complex issues considered in the Framework, which also considers allowing defences to be breached in places and the more effective management of coastal change. The Framework introduces 15 Pathfinder projects which explore in specific locations, a range of solutions to erosion and flooding and includes the views of the local community in the decision making process.

## **RARITY AND VULNERABILITY**

Palaeolandscapes are rare survivals, both in the UK further afield. The palaeolandscape components in this region have a national and international significance for a number of reasons.

The exposures at Happisburgh and Pakefield and their offshore components constitute the oldest hominin occupation evidence north of the Alps, and have the potential to significantly aid our understanding of Europe's earliest populations. Similarly the presence of good stratified sequences throughout much of the Palaeolithic and the proximity to the edge of the ice sheet during the last glaciation means that the region is crucial to understanding of parts of the Palaeolithic. This is exemplified by the recent finds off the Great Yarmouth coastline which may indicate occupation

during a period of supposed abandonment. In addition Clacton is an important Lower Palaeolithic type site, giving its name to a form of flint tool manufacture which dates to 300-200 kiloannum and has been identified across Northern Europe.

While the Mesolithic component may not be as prominent, this also has the potential to be internationally significant as a result of the location of the region. The current research on the North Sea basin indicate that this area would have been rich in estuarine and maritime resources and therefore appealing to Mesolithic communities. Excavation over a number of years in Denmark has revealed some remarkably preserved Mesolithic settlement sites (eg Tybrind Vig; Andersen, 1987) in a landscape which Doggerland would have resembled. In Holland, work at their ports has lead to the recording of over 10 tonnes of bone trawled from palaeolithic surface deposits each year.

The vulnerability of the resource is amply demonstrated by the destruction of the Lyonesse surface since it was first recorded in the early 20<sup>th</sup> century. The advent of sea wall construction, coastal erosion and resort development have strongly impinged upon its survival leaving only fragmented layers of the sequence (Wilkinson and Murphy 1995, 1)

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