

# Submerged Archaeological Landscapes

## Evidence of human migrations

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**Studying the prehistory of the UK continental shelf and North Sea basin is the key to understanding how advanced cultures evolved.**

**D**uring the last million years, there have been six to eight major glaciations, during which ice several kilometres thick covered Scandinavia, most of the British Isles, the whole of Canada and part of the USA, and mountain glaciers expanded on high ranges around the globe. Each glaciation lasted for about 120,000 years, and the ice accumulated in a series of growth phases (stadials), interspersed with partial meltings (interstadials). The final maximum ice sheet then melted more or less continuously and completely over a period of about 20,000 years to the present time, where large ice sheets remain only on Greenland and Antarctica.

In addition to the big climatic swings of tens of thousands of years, there were shorter bursts of activity, such as the melting phases or 'Heinrich Events', which released masses of icebergs and fresh water into the Atlantic over periods of about 250–500 years (Roche *et al* 2004), and the 'Dansgaard/Oschegeer (D/O)' oscillations during the middle of the last glaciation (60–20ka BP), when the temperature swung through a range of 7°C or more about 15–20 times. The impact of this variability on the prehistoric archaeology of Europe is described by Van Andel and Davies (2003).

### Early flora and fauna

The snow which precipitated to build up the ice sheets was extracted as vapour from the sea by evaporation, and the volume of the ice was so great that the global sea level at the peak of each glaciation dropped about 120–150m lower than at present. At the times of lowest sea level, the continental shelf of the world was exposed to the atmosphere and covered in vegetation and fauna adapted to the local climate. During

the last half million years, Britain was an island for only a few tens of thousands. When northern Europe was covered by ice, the climate on the exposed UK continental shelf was periglacial tundra, but in the interstadials such as Oxygen Isotope Stage 3, and after the melting of the last ice sheet, the shelf around the UK was colonised by grasses, forests, an extensive fauna of reindeer, bears, ox, mammoths and wolves, and scattered bands of people. Lambeck (1995) provides a useful set of maps of the coastline at different dates during the last 22,000 years.

### Earliest hominids

The earliest hominid occupation in the UK is at Boxgrove (Pitts and Roberts 1997), dating from about 700,000 years ago, and sites in East Anglia are almost as old, whereas Pontnewydd Cave near the coast of North Wales has Neanderthal remains from 225,000 years ago. From these and other data, we can see that people occupied the British Isles most of the time between ice ages, when climate was mild, and were driven out again when the ice extended southwards. The Ancient Human Occupation of Britain project, led by Chris Stringer, has clearly identified the periods when hominids and modern humans could have easily occupied the British Isles. Although boats may have been used for crossings during the Mesolithic period, and just possibly as early as 50ka BP, any earlier access to Britain must have been by walking across the dry shelf. Since there would have been little attraction in trying to live on the present land-mass of Britain at the time of maximum ice extent, the phases of migration into or out of Britain would generally have taken place at intermediate stages, when

large parts of the shelf were dry, and the ice cap did not extend too far south.

### Submerged evidence

There is much debate as to how close to the ice people chose to live. Pitulko *et al* (2004) have shown that people were living in the Arctic, north of what is now Russia, before the peak of the last glaciation. Thus it is possible that throughout the glaciation there were some people who had been forced away from ice caps but chose to exploit sea mammals and live close to the sea ice, rather than retreating as far as southern Europe. Evidence for this

would inevitably be below sea level now. The excavation of the Paviland cave in southern Wales shows that people were living there very close to the ice edge at the time of the glacial maximum (Lynch *et al* 2000, 19). Findings of worked mammal bones in the central North Sea (Louwe Kooijmans 1970/71; Verhart 2004) show that people were living and hunting there during periods of low sea level. The submerged Palaeolithic site at Fermanville, near Cherbourg, shows that people were living 20m below the present sea level 45ka BP (Scuvée and Verague 1978). Momber (2001) shows that Mesolithic people were occupying sites on the bed of the Solent at a depth of 11m.

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For thousands of years following the last ice age, Britain was a peninsula of the European continent. Extensive lowlands existed beyond most of today's shores, and much of the English Channel and Southern North Sea were land. It is likely that our predecessors, re-inhabiting Britain as the climate improved, made extensive use of these areas, possibly concentrating on the river valleys that once traversed these lands. Source: *Marine Aggregate Dredging and the Historic Environment: Guidance Note* (Russell, 19).

The continental shelf – the floor of the North Sea, the English Channel, Irish Sea, Celtic Sea, and the northern shelf around Scotland and the Western Isles – was thus much more than a land-bridge to Europe. When not actually covered by ice, it was probably a reservoir or refuge where tribes lived and hunted the megafauna and marine mammals at the ice edge. As the ice was melting between 20,000 and 10,000 years ago, people who had been living on the continental shelf, and in northern France and western Europe, moved northwards, and by 12,000 BP they had moved across the North Sea basin into what is now Denmark, Norway and Britain. The Danish data (Pedersen *et al* 1997; Fischer 1995; Lubke 2002) show the rapid Mesolithic growth settlement in the Baltic by people who combined coastal living, seafaring and hunting excursions inland. The general implications of these processes are discussed in the conference volume on the North Sea edited by Flemming (2004).

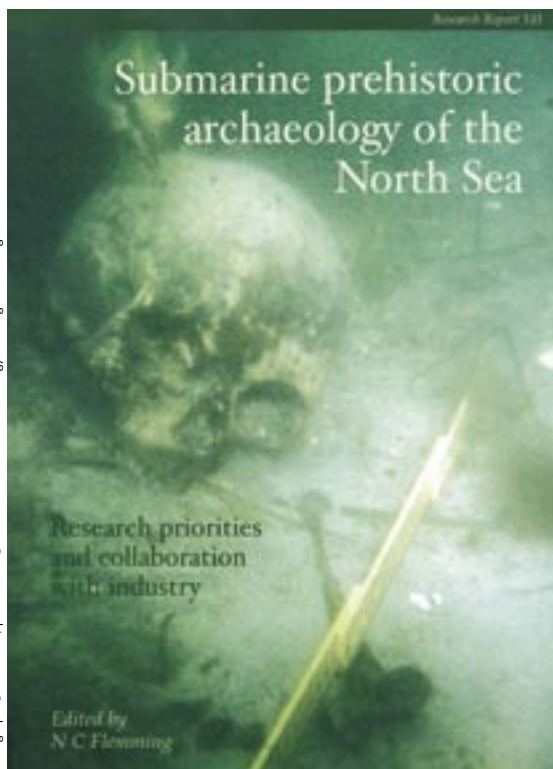
### Importance of the prehistory of the seabed

The study of the prehistory of the seabed is thus an integral part of understanding how humans occupied Britain and northern Europe, how they responded to each expansion and contraction of the ice sheets, and how these islands were finally occupied in the late Palaeolithic period. Ignorance of the detailed prehistoric archaeology of the British continental shelf is an obstacle to understanding how advanced cultures developed in northern Europe. The transition to the Mesolithic period with boats, fishing, fish traps and constructed huts, and then to the Neolithic period with the domestication of animals and agriculture, took place before the sea reached its present level, and much of the evidence is still below the sea.

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The cranium of a young woman at the Tybrind Vig submerged Mesolithic site, Denmark. This volume – a collection of papers presented at an English Heritage workshop on the subject of North Sea submarine prehistory and relations with industry – recommends ways to cooperate on future research and protection of prehistoric sites on the sea floor.