Exploration of submerged Mesolithic landscapes around the Brown Bank, southern North Sea

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Study area

During the late glacial and early Holocene, vast areas of dry land stretched from the British Isles to continental Europe over what is now the southern part of the North Sea. Whilst it is known that this landscape was inhabited, little is known about the cultures that lived there and the surrounding environment. The Brown Bank area, between the coasts of the UK and the Netherlands, has provided many Mesolithic ex-situ finds.

In the surveyed area, the seafloor lies in the depth of 25 to 35 m b.s.l., lowering towards the west. Main seafloor features visible in the bathymetry are north-south-trending ridges and troughs of which the Brown Bank is the most significant.
Aim of the study

By mapping terrestrial features, **reconstructing the palaeolandscape** and its inundation, **potential locations** from which this **archaeological material** derives, and where it may still be preserved in-situ are determined.

Methods

High-resolution Multi-transducer Parametric Echosounder (MPES) surveys in a dense survey network provided decimetre level resolution up to 12-15 m below the seafloor with a frequency of 8-10 kHz. 4-meter vibrocorer was deployed to acquire 18 cores.

Dredge sampling using a beam trawl over promising targets.

Seismic facies mapping and interpretation was carried out. In the area of interest, a peat layer was radiocarbon dated and Holocene palaeogeography was reconstructed.

![Figure 3. Marine expeditions: Parametric echosounder survey (left) and dredging (right). Images courtesy of “Europe’s Lost Frontiers” project.](image)

![Figure 4. Examples of the block of peat and wood and raw flint finds recovered by targeted dredging in the area of interest (for locations see Fig. 7).](image)
Results

A palaeolandscapes with a peat bed and channel was recovered.

In seismic images, the erosional contact between the channel and the peat bed can be seen clearly. The peat bed has been radiocarbon dated to early Holocene. The bottom of the channel is filled with fluvial sediments, marked by faint shallowly dipping reflections, and covered with modern marine sediments.

Probable channel evolution: Riverine → estuarine → tidal.
Results

Reconstruction using a glacial isostatic adjustment model and eustatic sea-level curve is in agreement with the radiocarbon age from the peat bed suggesting the final inundation of the area around 9500 cal BP. Detailed paleolandscape reconstructions indicate the shape and depth of the channel and potential source for preserved terrestrial organic material and Mesolithic finds.

Altitude of the peat surface 34.5 m b.s.l. Relative depth of the channel 2-3 m.

Conclusions

Submerged Holocene palaeolandespse are preserved in the eastern part of the area of interest under the marine sediments. It means good preservation conditions for possible Mesolithic sites and in-situ archaeological material.

The mapped outcrop of the peat bed on the seafloor is the source of the organic terrestrial finds and a potential source for Mesolithic archaeological material.

This study provides new insights into the palaeogeography and the timing of the inundation of the Brown Bank area and gives the landscape context to the potential Mesolithic habitation of this part of the southern North Sea.
More about the study in:

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