

## **North Sea Palaeolandscapes Project**

The British continental shelf contains one of the most detailed and comprehensive records of the Late Quaternary and Holocene landscapes in Europe. Knowledge of the development of this landscape is also critical to our understanding of the archaeology of the larger region, the impact of climate change on palaeobathymetry and shoreline sequences. Despite this situation, this remarkable landscape had not been adequately mapped, and thus was poorly understood. The North Sea Palaeolandscapes was funded by an EH ALSF grant to utilise extensive 3D seismic data sets to generate mapping and landscape models of the inundated Mesolithic landsurfaces of the North Sea.

The North Sea Palaeolandscapes Project has utilised a variety of geophysical data sources, in conjunction with more traditional map data to provide the "missing" Mesolithic landscape information for the U.K sector of the Southern North Sea region. The primary Geophysical data set consisted of the 3D seismic 'Mega-Survey' as compiled by PGS ([www.PGS.com](http://www.PGS.com)) and kindly provided to Birmingham University to assist this research (figure 1). This is industry standard 3D data acquired using the towed streamers and a variety of seismic sources (primarily airgun) was utilised to provided extensive imagery of the landscape features in this region (figure 2). In addition to this geophysical dataset a suite of high resolution 2D Seismic lines acquired using boomer and airgun sources was utilised for data verification purposes. In addition to the geophysical data, bathymetric data, along with a variety of Geological Mapping for the area was utilised to assist in the understanding of the archaeological resource.

In total an area of 23.000km<sup>2</sup> was mapped during the life of the project – a mere 18 months. This a major undertaking was equivalent to a geophysical survey of an entire, if small, country. Table 1 quantifies the primary quantitative data from this work. The results of the mapping exercise have been astounding and demonstrate that we can reconstruct inundated landscapes accurately and extensively. The basic map, shown as figure 3, is impressive and will certainly have major implications for the interpretation of the archaeology of north west Europe more generally. In the past the region was, perhaps, relatively ignored because of the difficulties of dealing with a resource that was largely invisible and generally inaccessible. This is no longer true. How we use the data will be a challenge for archaeologists and cultural resource managers for every country around the North Sea.

Recognising the significance of the results project staff will soon publish a volume containing all the results of the research including the results of a data audit of relevant marine resources and a number of resource management maps relating to risk and uncertainty of feature detection across the whole of the mapped area. Such information will undoubtedly be of value to academic research and heritage management activities, as well as extractive industries including aggregates, oil and gas, Fishing) as planning tool. In addition to these more technical outputs, virtual reality technologies have also been utilised to produce visualisations of the landscape which are more accessible for the interested public than traditional paper mapping. The culmination of the project included an International Access Grid conference which involved participants from many European Countries and also included other

"virtual" participants from across the globe. The lectures within the conference will soon be released as streaming video from the project's website or made available as a DVD.

<b>Coastline Length Observed</b>	<b>691 km</b>
<b>Marine Area Observed</b>	<b>1791 km<sup>2</sup></b>
<b>Lakes/Wetlands Observed</b>	<b>24</b>
<b>Salt Marsh Area</b>	<b>309 km<sup>2</sup></b>
<b>Intertidal Zone area observed</b>	<b>293 km<sup>2</sup></b>
<b>Major Estuaries Observed</b>	<b>10</b>
<b>Total Fluvial Stream Length</b>	<b>1612 km</b>
<b>Fluvial Related Features Observed</b>	<b>305</b>
<b>Number of Stream Segments</b>	<b>719</b>
<b>Total Area covered by Fluvial Features</b>	<b>526 km</b>
<b>Mean Strahler Order</b>	<b>1.52</b>
<b>Mean Shreve Order</b>	<b>3.64</b>
<b>Average Angle of Stream Join</b>	<b>68 degrees</b>

*Table 1 Basic quantitative data relating to identified landscape features*

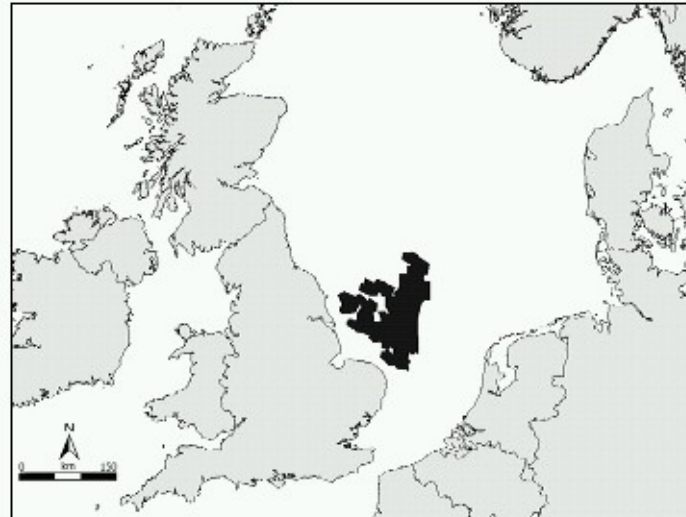
#### **Project Website –**

[http://www.iaa.bham.ac.uk/research/fieldwork\\_research\\_themes/projects/North\\_Sea\\_Palaeolandscapes/index.htm](http://www.iaa.bham.ac.uk/research/fieldwork_research_themes/projects/North_Sea_Palaeolandscapes/index.htm)

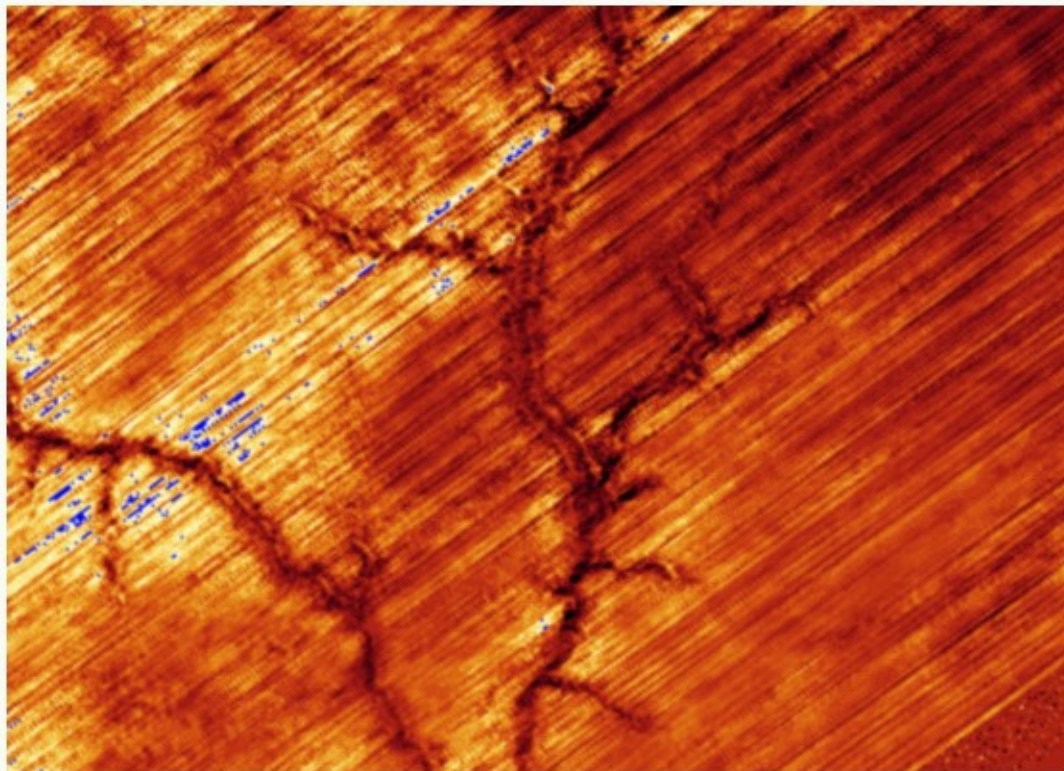
#### **Forthcoming Publications**

Fitch, S., Gaffney, V. L., and Thomson, K. (forthcoming). In Sight of Doggerland: From speculative survey to landscape exploration. *Internet Archaeology* **22**. (<http://intarch.ac.uk>).

Gaffney V. Thomson K. and Fitch S. (Forthcoming) Mapping Doggerland: Mesolithic Landscapes of the Southern North sea. Archaeopress.



*Figure 1 - North Sea Palaeolandscape Project Study area.*



*Figure 2 - A Holocene palaeochannel visualised within the 3D Seismic data..*

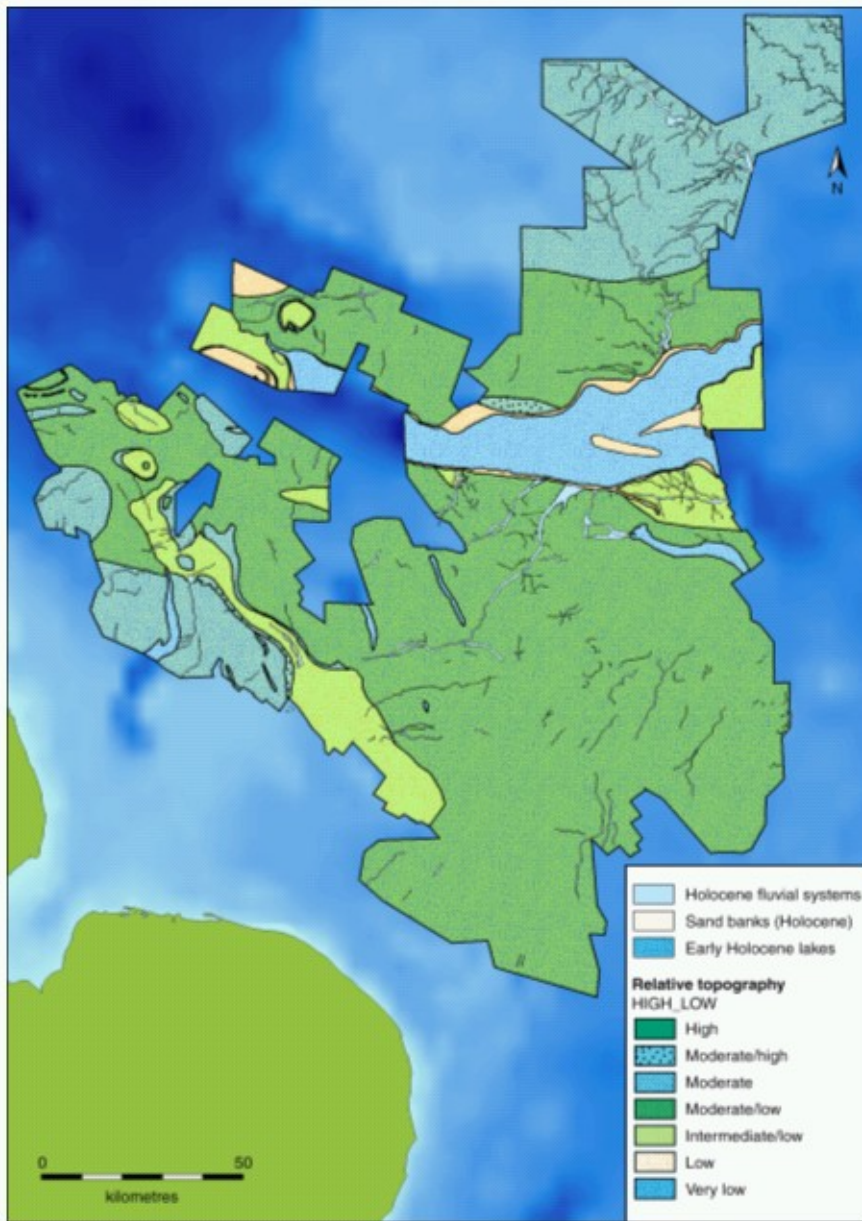


Figure 3 General map of all recorded Holocene Landscape features and including general topographic interpretation