

Comisiwn Brenhinol Henebion Cymru

Royal Commission on the Ancient and Historical Monuments of Wales

West Coast Palaeolandscapes Project

Partnership Project

University of Birmingham, Dyfed Archaeological Trust and RCAHMW

County: Maritime
Community: Martime
Site Name: Liverpool Bay Palaeolandscapes Glacial Outwash Channels
NPRN: 516105

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West Coast Palaeolandscapes Project

Liverpool Bay Study Area

Introduction:

In 2010, Dyfed Archaeological Trust, the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW) and The University of Birmingham undertook a project to use seismic data gathered by oil and gas companies to explore prehistoric landscapes beneath the Bristol Channel and Liverpool Bay.

Much of the two proposed study areas have been covered by older 2D paper-role-based and more modern 3D digitally-based seismic reflection surveys gathered by commercial companies searching for oil and gas reserves or planning mineral extraction. These surveys involve sending sound waves into the seabed and then recording the echoes that are reflected back, depending on the various qualities of the sediments below. The time taken to record a reflection can be converted into an approximate depth. 2D data is collected through a single cable towed behind a vessel and displays a vertical slice through the seabed. 3D surveys utilize multiple, closely spaced cables to provide data that can be viewed in section or in plan.

Archaeologically 3D data is most useful for exploring large submerged landscapes but used alongside 2D data a better picture of the submerged landscape can be constructed. Effectively, these surveys allow the viewer access to a vertical profile through the geology of the seabed in which the relative depths positions of different sediment types and bedrocks can be differentiated. 3D data allows the data to also be viewed in plan view (from above). It can be sliced along a horizontal axis at any depth as well as in vertical profile at any point. In addition to the basic geological make up of the seabed, the profiles reveal the paths of former rivers where they have eroded deep channels through the layers; where bedrock rises through more modern marine sediment to form small hillocks, and where large scale remodeling of plains (multiple channels) was caused by melt water from glaciers.

After the last great Ice Age, global warming raised sea levels to such an extent that vast areas of lower lying land between Britain, Ireland and Continental Europe became flooded and the British Isles, as we now know them, were eventually created. For thousands of years, these now lost lands formed the living landscape of our ancestors. Indeed, these areas were the heartland for Mesolithic communities, providing fertile land with rich, diverse resources, until flooding forced them back onto the higher lands we live on today.

Overleaf, you will find a description of one of the features seen in a horizontal slice through the 3D seismic reflection data.

NPRN 516105

Description: A very large floodplain with thin, ephemeral channels created by glacial melt water. The channels are roughly aligned northwest-southeast over most of the area with channels to the east having a more north-south alignment.

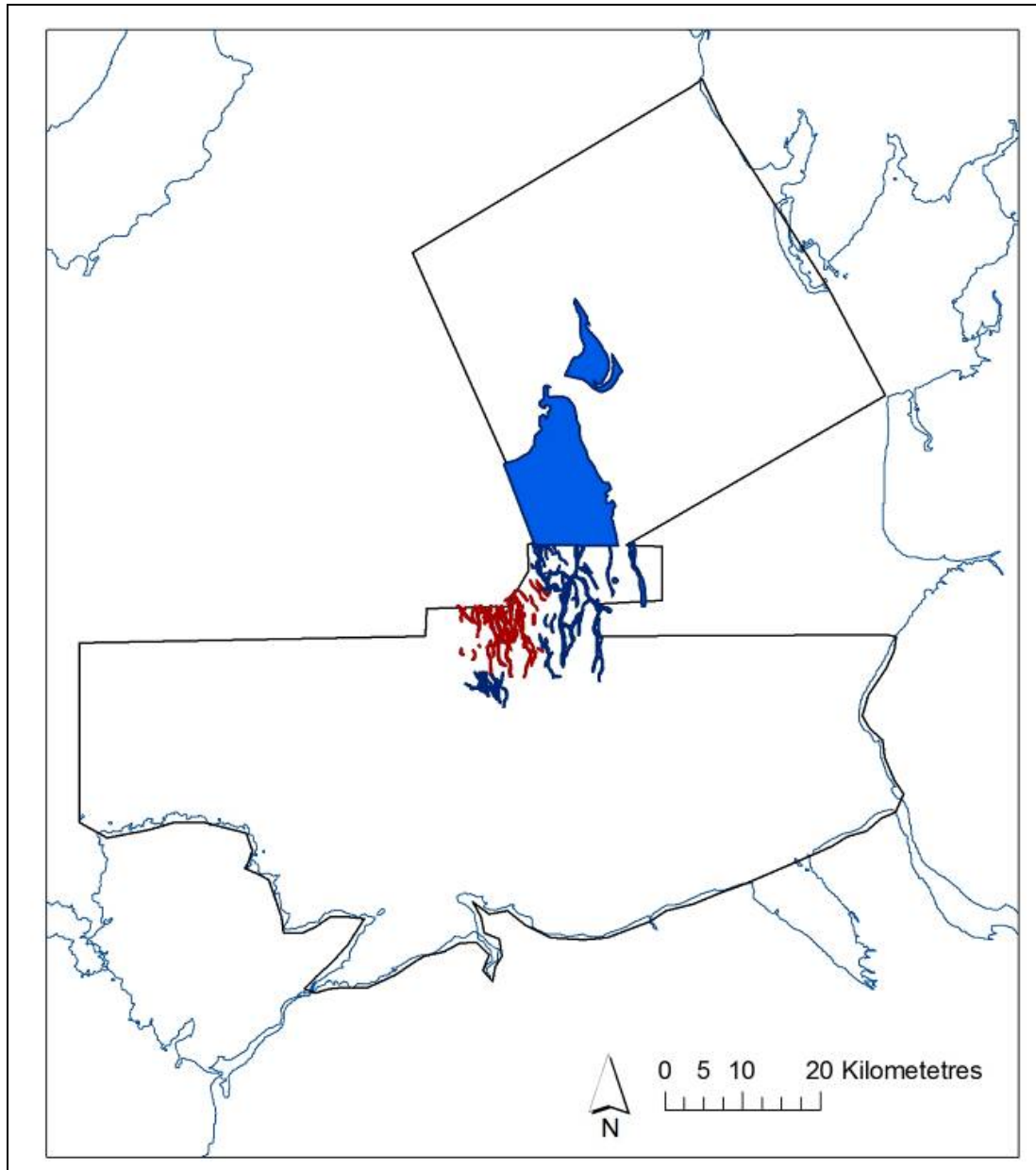


Figure 1: A map of the Liverpool Bay Study Area of the West Coast Palaeolandscapes Project showing the location of the features recorded as NPRN 516105 (in the centre in red).

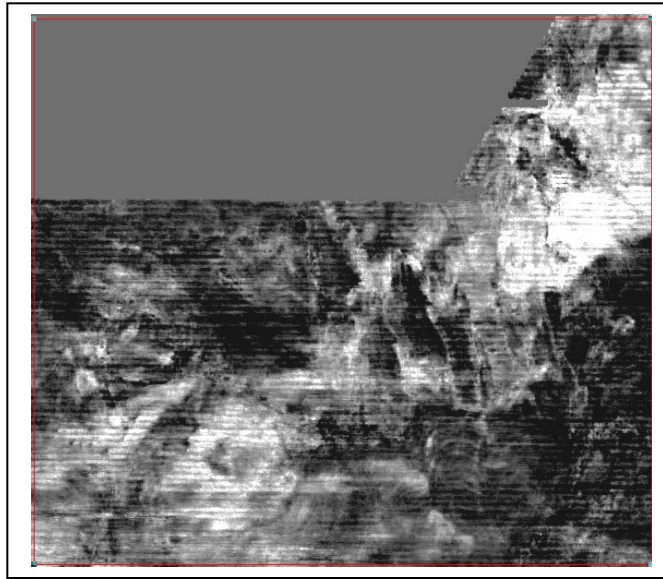


Figure 2: The features as seen in a horizontal slice
Through the 3D seismic reflection data,
HILBERT 0.064.

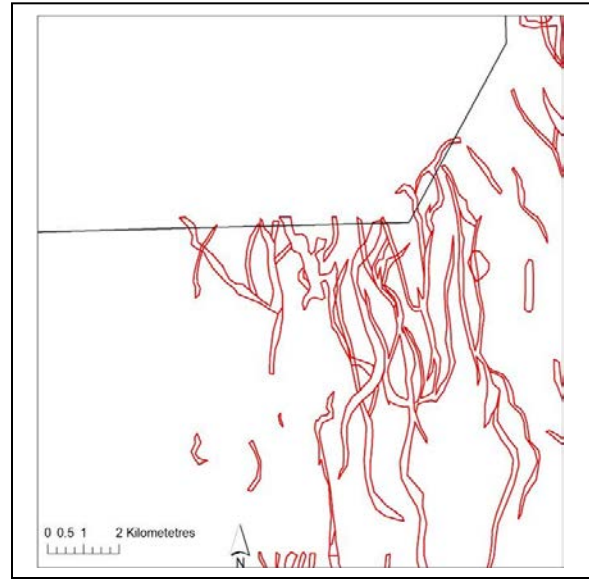


Figure 3: The outline of the features as mapped
in the project's GIS (Geographical
Information System).