

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: Bristol Channel Palaeolandscapes Holocene Channel
NPRN: 515096

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West Coast Palaeolandscapes Project

Bristol Channel 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. This involves 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 2D seismic profile (a river channel) and an interpretation of the path that that river is likely to have taken to reach the sea.

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Description: A drowned river channel located near to the seabed surface and which cuts into the earlier landscape. The channel runs northwards towards Freshwater East Bay where the present river exits to the sea fed by numerous freshwater springs around Kingston and Maiden Wells. The river channel joins a much longer channel running east-west approximately 9km offshore.

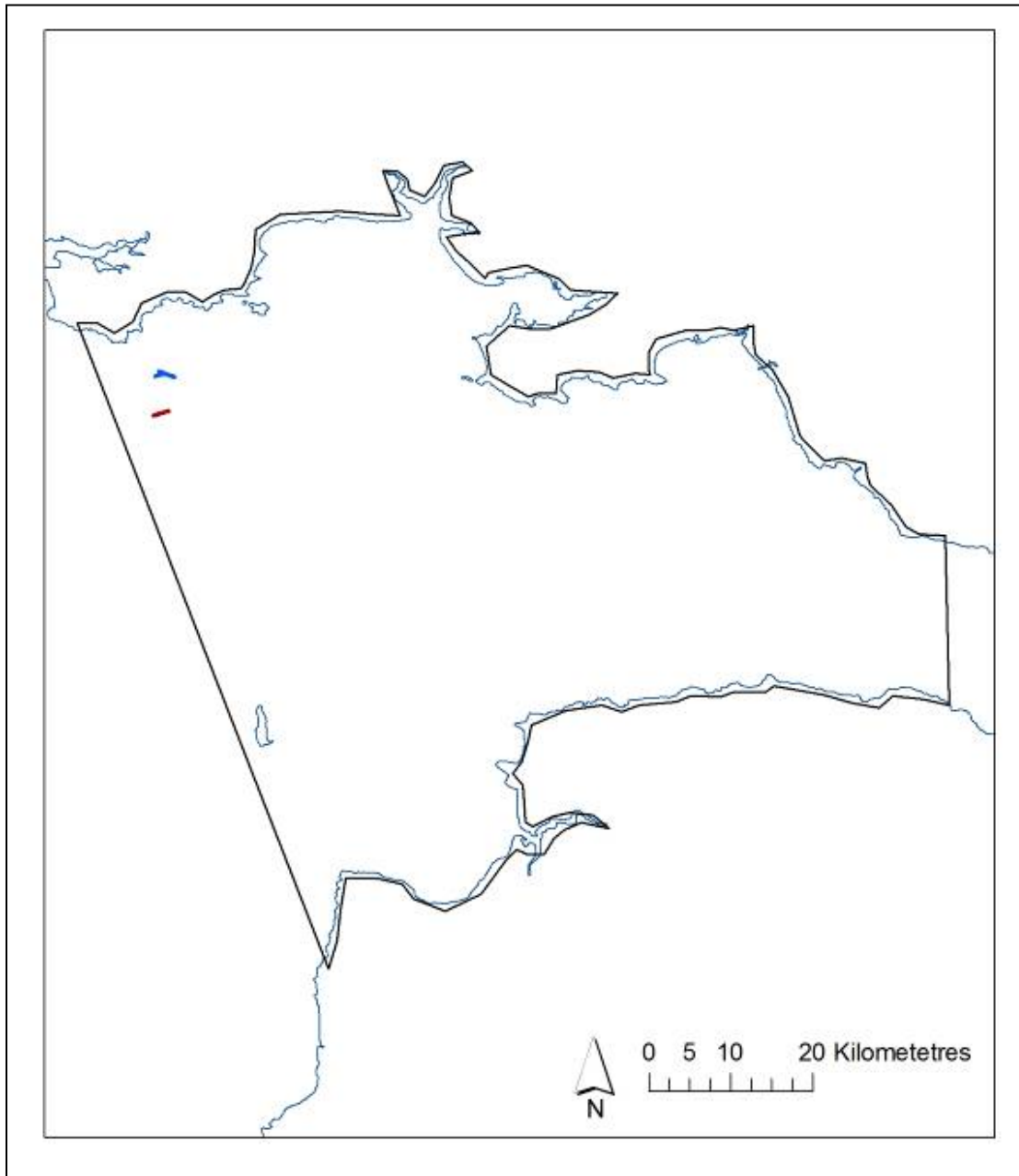


Figure 1: A map of the Bristol Channel Study area of the West Coast Palaeolandscapes Project showing the locations where the river channel was detected in 2D seismic data.

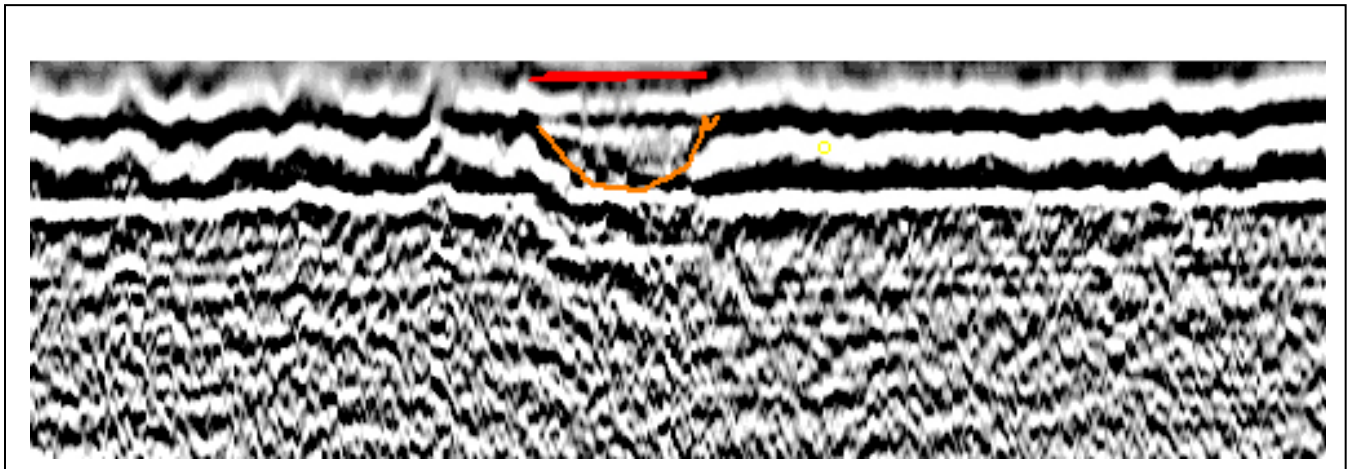
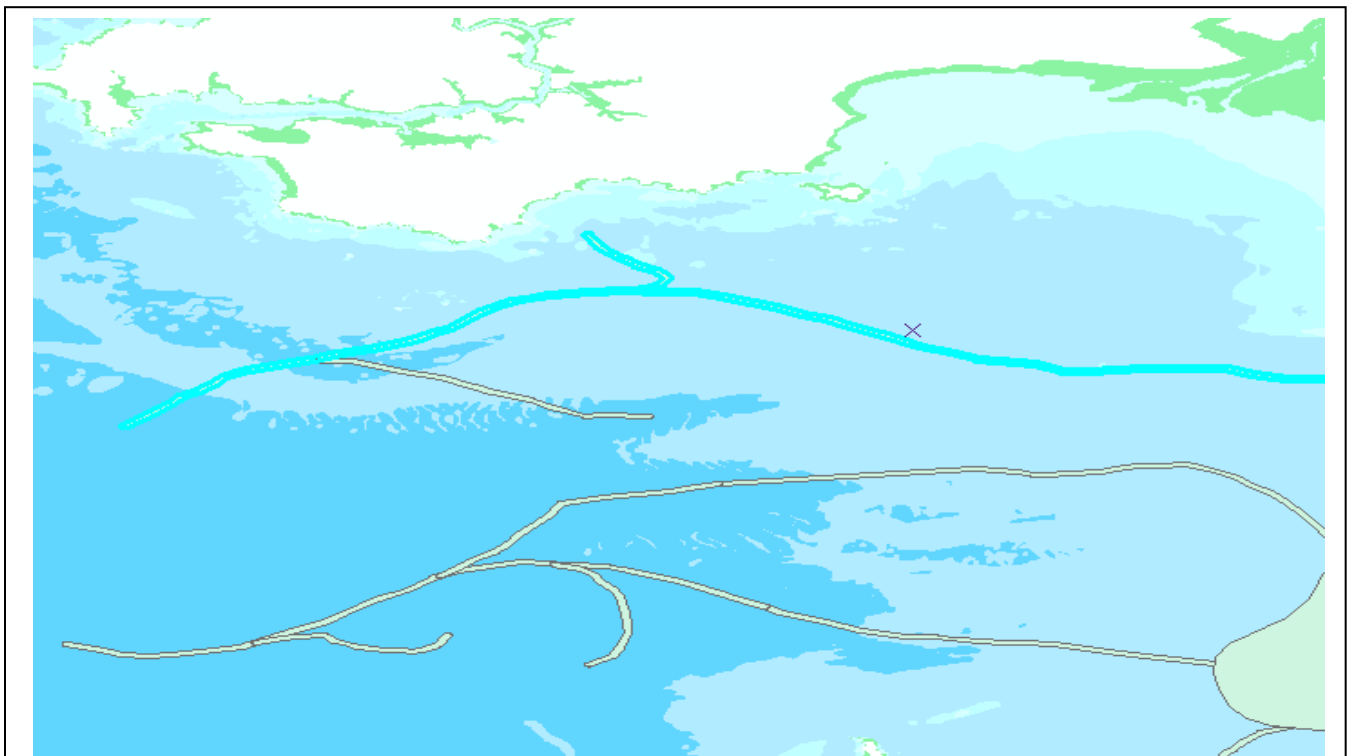


Figure 2: The former channel as seen in cross- section in the one of the paper rolls of 2D seismic data. The orange line indicates the depth of the channel and the red line suggests the level of the present seabed.

Figure 3: An interpretation of the path that that river is likely to have taken across the landscape to reach the sea. The river's possible relationship to other river systems off the Pembrokeshire coast is also shown.



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