



Potential glacial origin of the seabed geomorphology of the Porcupine Bank, west of Ireland

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The Porcupine Bank lies west of Ireland between 51–54N and 11-15 W, located approximately between 150 km and 250 km from the Irish western coastline. The topography of the bank is gently sloping from the Porcupine Ridge contained within the 200m depth contour to the edge at the 500m depth contour. From then on, sharp escarpments occur to the north and west while the slope is gentler toward the Porcupine Seabight to the southeast. The Bank is linked to the Irish western shelf through a low ridge roughly 100km wide to the northeast. This region's geomorphology and shallow stratigraphy is still widely unexplored although it is located critically for our understanding of the last glaciation inception and termination of the British Irish Ice Sheet. The north-eastern Atlantic shelf region West of Ireland contains a relatively pristine record of glacial ice extension from Ireland and Scotland onto the shelf, probably during the last cold period (Late Midlandian glaciation in Ireland). Furthermore, national economic interest in the region is rising with long term investment being put forward for the Irish Marine Economy.

Using multibeam and subbottom data collected more than a decade ago, the seabed surface of the region has been interpreted and mapped. Bedrock outcrop, sand ridges, erosional channels, iceberg scours and ridges of various forms have been recognised. These features show some clear influence of the proximal ice sheets as illustrated by the extensive coverage of iceberg scours. Similarly, the northern edge of the Porcupine Bank and the Porcupine Ridge in particular is characterised by large elongated ridges for which the origin is obscure. These appear roughly parallel to a W-E direction with some displaying a levelling effect on one of their sides. This paper will introduce the results of the mapping effort and argue for the interpretation of the above mentioned ridges as glacial in origin. Various scenarios of the consequences of that statement will then be discussed, in particular the possibility of an independent ice centre on the Porcupine Bank during the last glaciation.