INFOMAR Integrated Mapping for the Sustainable Development of Ireland's Marine Resource | An Roinn Aeráide, Fuinnimh agus Comhshaoil Department of Climate, Energy and the Environment | Geological Survey Suirbhéireacht Gheolaíochta Ireland | Éireann | Marine Institute Foras na Mara



Marine Geoscience Report 002

St. Patrick's Bridge

Overview

Off the coast of Kilmore Quay, County Wexford, St. Patrick's Bridge is a partially submerged ridge that extends from the mainland towards Little Saltee Island. According to local legend, the feature formed following a skirmish during which St. Patrick threw stones at Lucifer, which piled up forming the causeway (Hurley, 2008). The more conventional opinion suggests that St. Patrick's Bridge is the remains of an end moraine, deposited at the southern margin of the Irish Sea Ice Stream during the last glaciation (Meehan, et al., 2018).

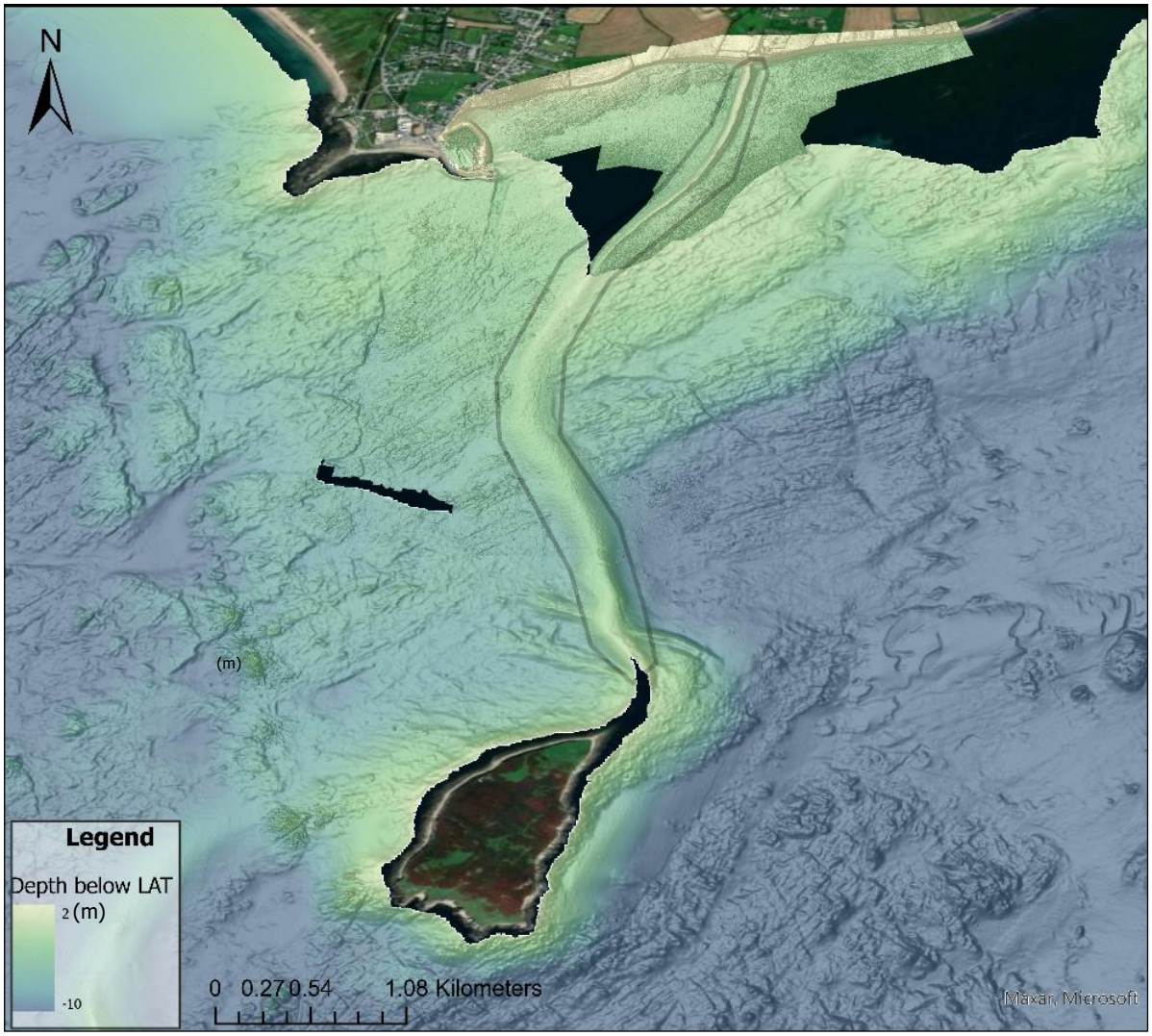


Figure 1: Bathymetry of St. Patricks Bridge, with the ridge outlined in black. Depths are referenced to Lowest Astronomical Tide (LAT), with values below LAT shown as negative and values above LAT shown as positive.

Glacial Moraines

A moraine is a ridge or mound of sediment deposited, pushed or squeezed by glacial ice (Bendle, 2020). Moraines can form in several ways, depending on sediment type, ice dynamics and position within the glacier system. End moraines form at the front of a glacier, while lateral moraines form along its margins.

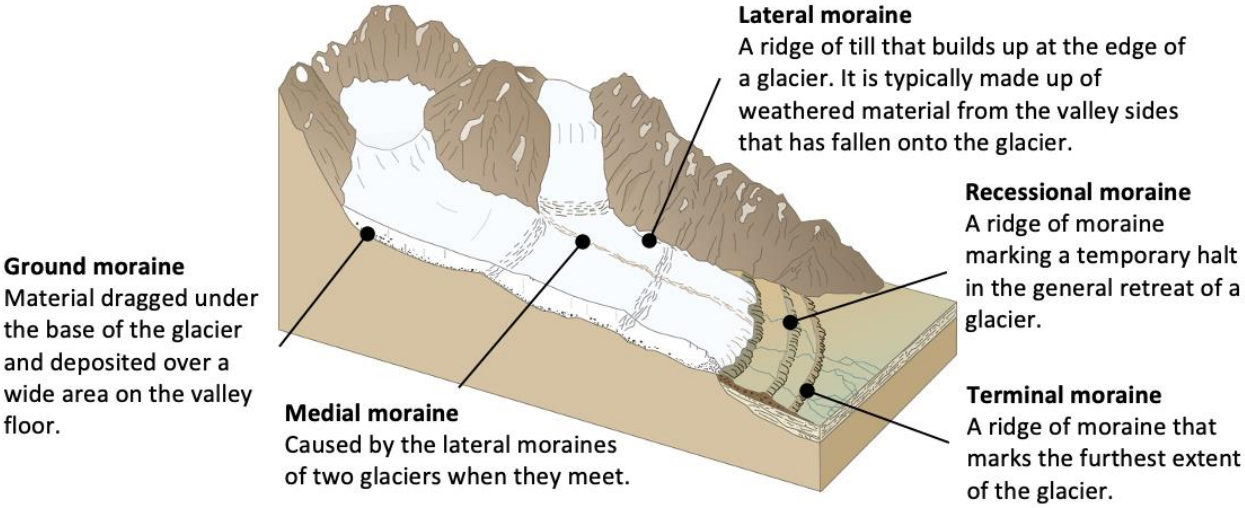


Figure 2: Schematic illustration of terminal, recessional and lateral moraines after (Internet Geography, 2025).

As a glacier advances, it erodes the ground beneath it and transports rock and sediment. Where this material accumulates at the ice front, it can form an end moraine that remains after the ice retreats. An end moraine marking the glacier's furthest advance is known as a terminal moraine.

St. Patrick's Bridge: The Remnant of an End Moraine

During the Last Glacial Maximum, around 24 ka, much of Ireland, including the seas around Kilmore Quay, was covered by the British-Irish Ice Sheet (Ó Cofaigh, et al., 2012). As the climate warmed, the ice retreated and left glacial debris across the seabed and coastline. St. Patrick's Bridge is interpreted to have formed at the southern margin of the grounded Irish Sea Ice Stream as an end moraine.

The bridge lies on the axis of the Southern Irish End Moraine, a long, discontinuous moraine belt extending from Kilmore Quay to the Wicklow Mountains (Hurley, 2022). The ridge is composed of Quaternary glacial sediments deposited during the last glaciation. These include laminated muds with layers of sand, gravel and granite boulders (Meehan, et al., 2018). Mud and shell fragments in the lowermost sediments indicate an Irish Sea origin for the moraine (Meehan, et al., 2018). The ridge probably formed an exposed land bridge towards the Saltee Islands before rising sea levels submerged much of it. Subsequent wave and tidal action reworked the ridge, eroding softer material and producing the causeway-like form seen today.

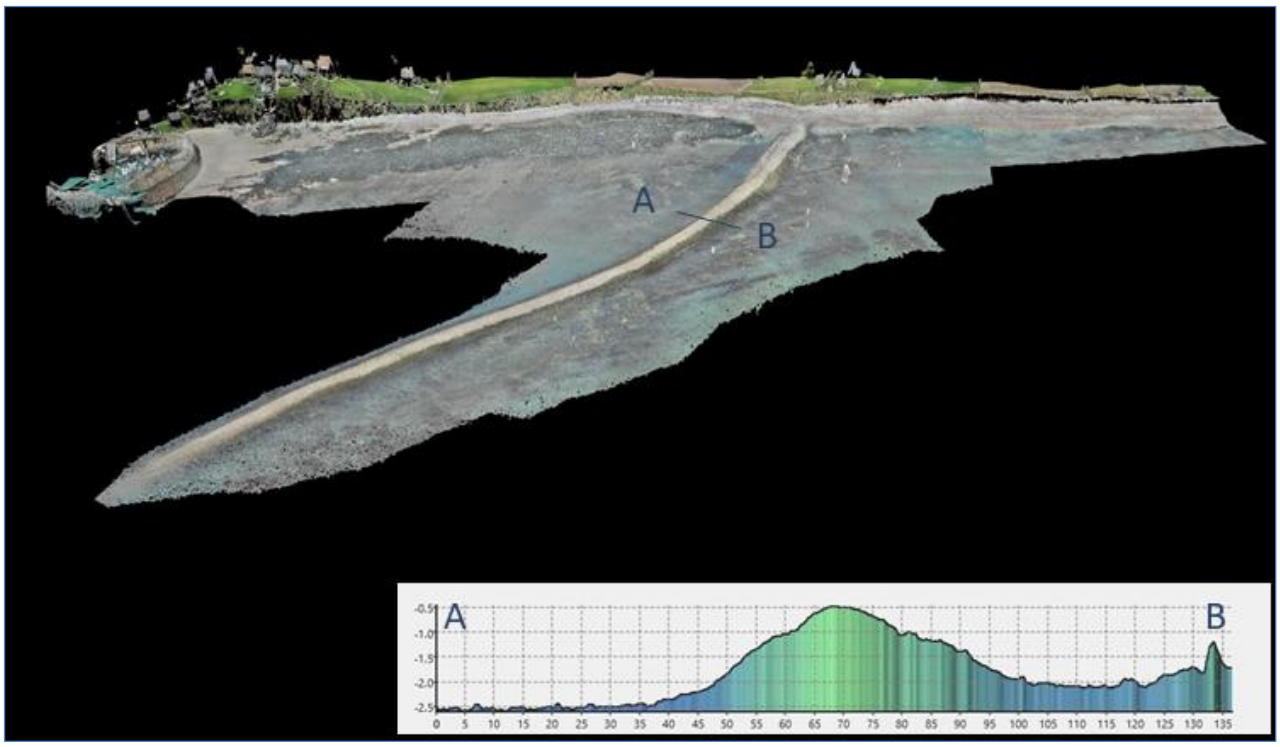


Figure 3: 3D representation of St. Patrick's Bridge, using data acquired from UAVs by the CHERISH Project, with elevation profile inset showing that the ridge reaches about 2 m above the surrounding seabed.

St. Patrick's Bridge is approximately 3.5 km long, extending from Nemestown Beach to the northern tip of Little Saltee. The moraine rises to approximately 2 m above the surrounding seabed, as shown in Figure 3.

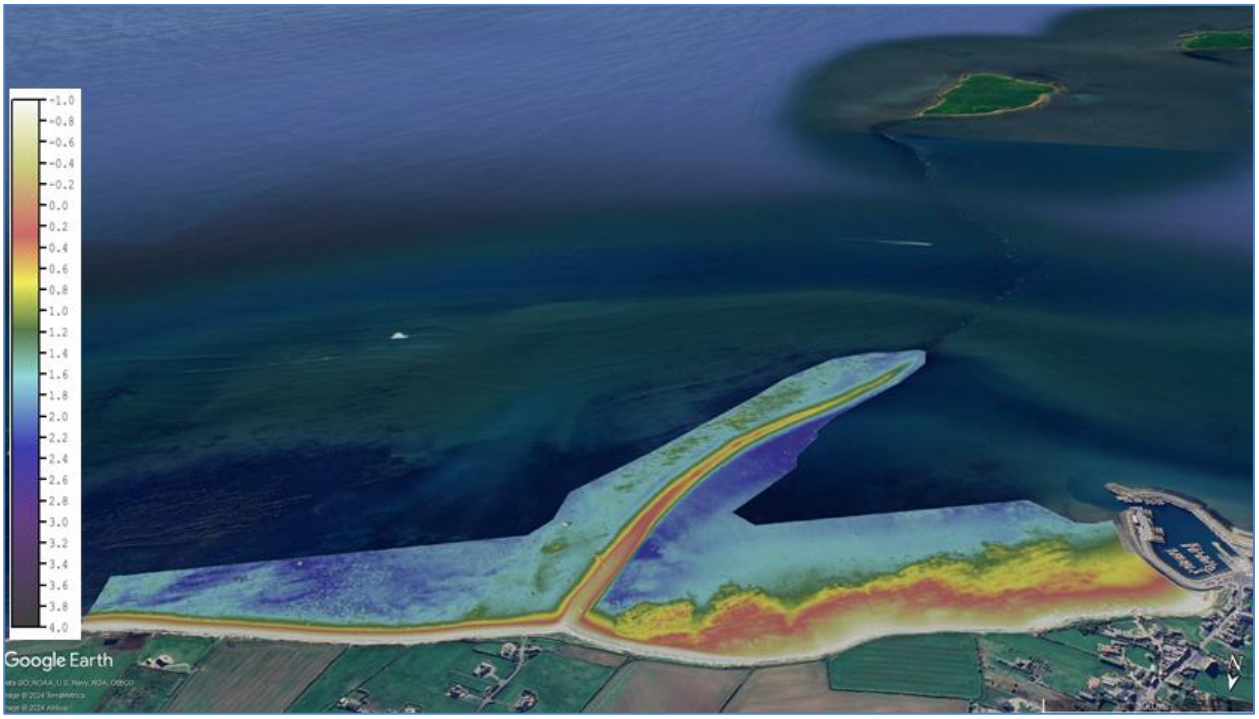


Figure 4: 3D Bathymetry of a section of St. Patrick's Bridge in Google Earth, with Little Saltee in the background

Conclusion

St. Patrick's Bridge records an end-moraine segment associated with the southern margin of the Irish Sea Ice Stream. Its ridge form, sediment composition and position on the Southern Irish End Moraine show that grounded ice extended across this part of the south Wexford coast during the last glaciation. Later wave and tidal reworking smoothed and partly eroded the ridge, producing the causeway-like form visible today. Mapping features such as St. Patrick's Bridge helps reconstruct former ice limits, retreat patterns and post-glacial sea-level change along the Celtic Sea coast.

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