CORK - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	**Ballycotton Bay**		
Other names used for site	Garryvoe Beach		
IGH THEME	**IGH7 Quaternary**		
TOWNLAND(S)	**Garryvoe Lower, Ballybutler**		
NEAREST TOWN/VILLAGE	**Shannagarry**		
SIX INCH MAP NUMBER	**89**		
ITM CO-ORDINATES	**600620E 567830N**		
1:50,000 O.S. SHEET NUMBER	**81**	**GSI BEDROCK 1:100,000 SHEET NO.**	**25**
GIS CODE	**CK008**		

Outline Site Description
Sea cliffs up to 4 m high backing onto popular beach, over a length of c. 1 km.

Geological System/Age and Primary Rock Type
Two glacial tills deposited during the last Ice Age (around 20,000 years ago) on a raised beach. The lower till is Irish Sea Till and the upper till has been attributed to the Kerry-Cork Ice sheet.

Main Geological or Geomorphological Interest
The sea cliffs at Garryvoe on the northern side of Ballycotton Bay comprise glacial deposits that, in common with similar deposits elsewhere on the south coast of Cork, were the subject of significant research in the last century that has contributed to an increased understanding of the Quaternary history of Ireland. Two units are very well exposed in the cliffs. The lower unit contains erratic clasts, including chalk from Antrim and granite from Scotland, as well as fragments of sea shells, and has been interpreted as Irish Sea Till, deposited by the Irish Sea glacier. The upper unit rests directly on the Irish Sea Till, with a generally well-defined contact. The origin of this unit has been the subject of considerable debate. It has been proposed that it is the product of reworking of the lower till by an offshore ice movement during the last glaciation. Detailed petrographic analysis led to the alternative view that this unit was deposited as a separate till by the Kerry-Cork Ice sheet. A third proposal is that the upper unit is not a till but rather comprises glaciomarine sediment, deposited in shallow water. This latter idea has not gained widespread acceptance and the upper unit is generally considered to be a till, with most workers ascribing its origin to deposition from the Kerry-Cork Ice sheet.

Thus, the generally accepted view is that the sea cliffs at Garryvoe comprise a raised beach overlain by Irish Sea till that is in turn overlain by a later till. The raised beach dates from the interglacial period preceding the arrival of the Irish Sea glacier. The upper till was either deposited by the Kerry-Cork ice sheet or was formed by reworking, *in situ*, of the Irish Sea till by off-shore ice movement.

Site Importance – County Geological Site
This site contains excellent exposures of Quaternary sediment sequences on the south coast of Ireland. The sediments have been the subject of considerable research that has contributed significantly to improved understanding of Quaternary geology in the region.

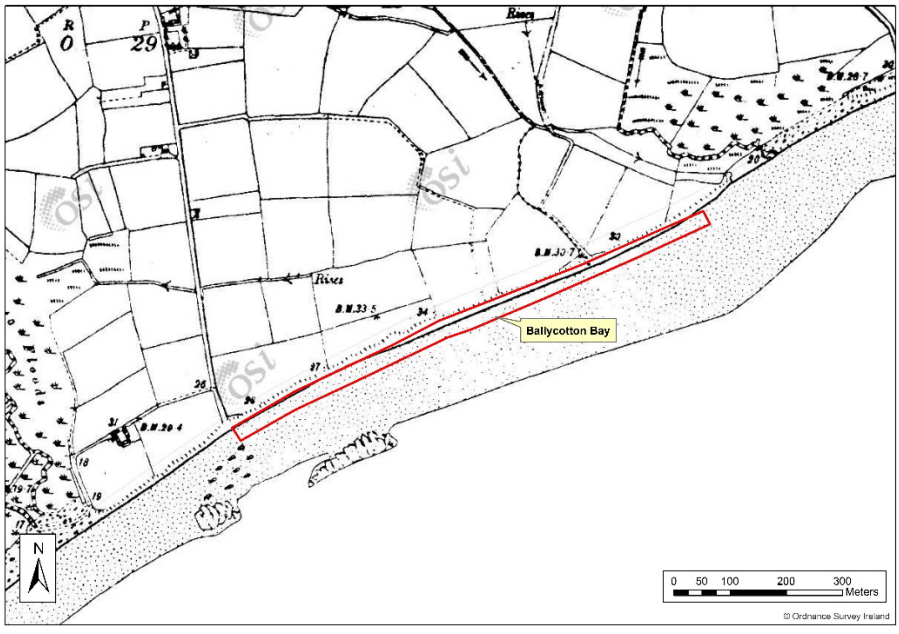
Management/promotion issues
The site is located along a popular beach and is readily accessible from the car park at Garryvoe. It is adjacent to Ballycotton SPA but is itself not within any designated area. Threats to the site are mainly from coastal erosion, which is ongoing. The cliffs are not armoured and the sites merits promotion, possibly as part of a south coast geological heritage trail.

View northeastwards along cliff section at Garryvoe. Two tills visible in cliff face with rounded boulders and pebbles visible in raised beach at base of cliff.

Two tills at Garryvoe, with a pocket of coarse rounded pebbles of glaciofluvial origin in a depression near the top of the upper till. The upper till contains discontinuous layers and pockets of coarse material.

Two tills in cliff section at Garryvoe above grey deposit (below red dog lead) formed by erosion and downward transport of overlying material.

Upper and lower tills at southwestern end of Garryvoe cliff section, with large wavy deformation patterns visible. Red dog lead marks contact between tills.



Hennessy et al., 2023. Geological Survey Ireland.