

KERRY - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	Ballybunnion Bay
Other names used for site	Ballybunnion, Ladies Strand (Northern end of beach), Mens Strand (Southern end)
IGH THEME	IGH3 Carboniferous to Pliocene Palaeontology, IGH6 Mineralogy, IGH8 Lower Carboniferous, IGH7 Quaternary
TOWNLAND(S)	Ballybunnion, Doon West
NEAREST TOWN/VILLAGE	Ballybunnion
SIX INCH MAP NUMBER	4
ITM CO-ORDINATES	486160E 641672N (centre of main face at north of beach)
1:50,000 O.S. SHEET NUMBER	63
GSi BEDROCK 1:100,000 SHEET NO.	17
GIS CODE	KY011

Outline Site Description

This site comprises a coastal section around Ballybunnion Bay.

Geological System/Age and Primary Rock Type

The rocks exposed along this coastal section are mainly mudstones of the Clare Shale Formation, which are of mid-Carboniferous age (Pennsylvanian or Namurian, 326-315 million years old). They overlie rocks of the Lower Carboniferous (Mississippian, 359-323 million years old) Golf Course Formation along the southern side of the beach. The soft sediments overlying the rocks are of Quaternary age, deposited in the last 100,000 years during the last Ice Age in Ireland.

Main Geological or Geomorphological Interest

The cliffs at Ballybunnion Bay expose a succession of Carboniferous lithologies, which are mainly marine, basinal (slope and shelf) sedimentary lithologies. Several lithostratigraphic formations and members are defined here. These mappable units may also be identified using characteristics such as fossil content and sedimentological features, and there are particularly fossil-rich rocks containing bivalves, brachiopods, gastropods and crinoids in the limestone on the southern side of the beach.

The cliffs along the northern side of the bay are dominated by rocks of the Bromore Shale Formation, which is organic- and sulphide-rich, and most likely represents quiet, low energy sedimentation in an oxygen deprived environment. The cliffs are richly encrusted with crystalline, grey gypsum and yellow-brown limonitic material. Pyrite is pervasive here, and the cliffs also contain disseminated sulphides, which have given rise to numerous efflorescences of hydrous sulphates. There is also some phosphatic present, and the first identified Irish jarosite locality was recorded below the castle.

A series of east-west-orientated synclinal and anticlinal folds are seen at Ballybunnion, as well as at Doon Point and Bay to the north, and brittle deformation in the form of thrust faults both east-west and north-south, with orthogonal fracture sets, as well as east-west striking cleavage, helps to establish a deformational history of the area. This consists of one major compressional event associated with the Variscan Orogeny, which gave rise to the major mountain-building event in Kerry and Cork. Though heavily slumped today, the glacial deposits extending south along the south side of the beach have been long-studied, and have made this a type-site for Irish Quaternary stratigraphy.

Site Importance – County Geological Site; recommended for Geological NHA

This is a very important site for a variety of reasons. The rocks exposed at Ballybunnion Bay are important stratigraphically in a regional context, and they have abundant fossil and somewhat rare mineralogical interests. Quaternary history studies of the site have been important in constraining the glacial history of the Munster region.

Management/promotion issues

The site is located at a public beach and is readily accessible, but caution is required as the majority of the exposure is inaccessible at high tide, and with the tide encroaching rapidly one can get stranded. Care should also be taken close to the cliffs as there may be occasional falls of rock or debris. The site merits promotion, ideally as part of a north Kerry coastal geoheritage trail. The site is partially within Lower River Shannon SAC (site code 002165) and the Cashen River Estuary pNHA.



The beach at Ballybunnion, looking into the cliffs along the north face of the bay at Ladies Strand.



Slumped Quaternary sediments at the southern end of the bay at Mens Strand.



Crinoids in the Golf Course limestone formation at the base of the northern cliffs.



Fine-grained, planar bedded mudstones of the Clare Shales beneath the castle at the southern end of Ladies Strand.



Thinly bedded to laminated, well oxidised iron-rich shale, with pyrite veins and crystals along the northern cliffs.

