

## NORTH DONEGAL - COUNTY GEOLOGICAL SITE REPORT

<b>NAME OF SITE</b>	<b>Bá Bhaile an Easa</b>
Other names used for site	Ballyness Bay, site comprises Binanea Strand and Ballyness Strand
<b>IGH THEME</b>	<b>IGH5 Precambrian, IGH13 Coastal Geomorphology</b>
<b>TOWNLAND(S)</b>	<b>Magheraroarty, Derryconor, Ards Beg, Ards More, Killult, Ballyness, Drumnatinny, Errarooey More</b>
<b>NEAREST TOWN/VILLAGE</b>	<b>Gort an Choirce, An Fál Carrach</b>
<b>SIX INCH MAP NUMBER</b>	<b>14, 15, 24, 25</b>
<b>ITM CO-ORDINATES</b>	<b>590500E 932400N (centre of bay)</b>
<b>1:50,000 O.S. SHEET NUMBER 1</b>	<b>GSI BEDROCK 1:100,000 SHEET NO. 1</b>
<b>GIS Code ND053</b>	

### Outline Site Description

Ballyness Bay is a large and very shallow estuarine complex, with extensive areas of sandflats which are exposed at low tide.

### Geological System/Age and Primary Rock Type

The beach, spit, dune and estuarine features have been formed in the Holocene Period, since the last glaciation, and the bay field hosts soft silt and sand sediment washed into it, or blown across the locality, during that time. It is likely that the macro-structure of the bay dates back through the Quaternary (Ice Age) to the Tertiary Period. The bedrock exposures along portions of the bay perimeter are of Precambrian age (2,500-541 Ma).

### Main Geological or Geomorphological Interest

The estuarine sediments in the bay have formed as a result of deposition by longshore drift, which is the movement of sand and silt along the coast by the waves. The estuary is formed when the silt and sand material - that is being carried by the waves - gets deposited due to a loss of the waves' energy, because the rivers entering the bay slow it down. The bay has then been the result of wind erosion and deposition over the millennia since the Ice Age and several large dunes have formed alongside it. Dune slacks occur between these, which are low, narrow, marshy localities. Ballyness Bay is enclosed by two huge sand spits, flanked by well-defined protuberances of bedrock which form headlands. The intertidal flats in the bay are highly impressive features, approximately 3.5 km long and 3.5 km wide. The dune fields on the spits are up to 1 km wide, with individual dunes up to 42 m high. Along the southern portion of the dunes at Dooey, some of the dunes have become cemented and a 'calcarenite' has formed. Dune calcarenite is a consolidated, windblown, sandy limestone formation that is unusual in Ireland, but extensive on warmer coasts throughout the world, as in the eastern and southern Mediterranean. At the Ballyness pier in the northeast part of the bay, low tide allows access to a section of Upper Falcarragh Pelite Formation (Precambrian), showing a recumbent fold.

### Site Importance - County Geological Site; may be recommended for Geological NHA

Ballyness Bay is an impressive locality and the associated estuarine flat, beach, spits, dune and slack features, as well as the surrounding headlands, make the bay a textbook locality for the recognition of coastal erosion and deposition features. The shallow depth of the bay and the huge size of the spits, as well as the presence of calcarenite, are both unusual in a regional and even national context.

### Management/promotion issues

The location of the bay means it is easily accessible, and Gort an Choirce, and An Fál Carrach are popular holiday destinations. An information board at the viewing points in each of these villages, along the southern end of the beaches there, might prove a worthy addition to the site, explaining the formation of the feature and its associated habitats, flora and fauna. The site is already a proposed SAC and NHA (001090, Ballyness Bay) for biodiversity reasons and the geodiversity of the locality should be highlighted in any promotion of this.



Some of the intertidal mud flats along the Owenawillin Estuary in Ballyness Bay.



View across the main sand spit at Dooley, which encloses Ballyness Bay.



Exposure into a 30m high sand dune at Dooley.



Exposure of calcarenite, cemented sand sculpted by wind-action, at Dooley.



