

## MAYO - COUNTY GEOLOGICAL SITE REPORT

<b>NAME OF SITE</b>	<b>Belderg Pier and Harbour</b>
Other names used for site	Belderrig, Belderg Pier
<b>IGH THEME</b>	<b>IGH7 Quaternary</b>
<b>TOWNLAND(S)</b>	<b>Beldergmore, Beldergbeg, Glenglassera, Geevraun</b>
<b>NEAREST TOWN/VILLAGE</b>	<b>Ballycastle</b>
<b>SIX INCH MAP NUMBER</b>	<b>5, 6</b>
<b>ITM CO-ORDINATES</b>	<b>498970E 841350N (centre of feature)</b>
<b>1:50,000 O.S. SHEET No. 23</b>	<b>GSi BEDROCK 1:100,000 SHEET NO. 6</b>
<b>GIS Code MO010</b>	

### Outline Site Description

The site comprises low cliffs, exposing muds on the coast of the small bay at Belderg.

### Geological System/Age and Primary Rock Type

The features are late Quaternary in age, dated at between 17,000 to 16,000 years ago. The glaciomarine sediments comprise mud, diamictic mud, sand, and cobble gravels that overlie glacially moulded and smoothed Dalradian schist (striated by northwesterly ice flow onto the continental shelf).

### Main Geological or Geomorphological Interest

The greater extent of the sediments at Belderg Pier was deposited in a nearshore iceberg zone marine environment. Up to 13m of mud, diamictic mud, sand and cobble gravels have been described in detail by researchers at the site. The sediments are exposed in low cliffs that slope seawards where cliff collapse has occurred. The upper, mud-dominated (with occasional cobbles and boulders) layers are interpreted as having formed from the near-continuous rain-out of sediment from the melting of drifting icebergs (iceberg rafting) and from sediment plumes. Marine fauna, mostly foraminifera (plankton) and the bivalve *Macoma calcaria*, have been identified within the sediments. These fauna are typical of Arctic region, cold-water environments, and in particular indicative of waters of lower salinity, adjacent to snouts of glaciers. Radiocarbon (accelerator mass spectrometer AMS<sup>14</sup>C and conventional <sup>14</sup>C) dating of the *Macoma calcaria* shell valves indicates glaciomarine sedimentation between 16,580±120 and 15,928±70 <sup>14</sup>C years ago. Relative sea levels at this time were greater than 10m (and probably in the region of 20m-30m) above current sea-level OD. The sediments at Belderg Pier postdate the last major ice sheet advance onto the continental shelf and record subsequent glaciomarine conditions along the southern margin of Donegal Bay. This glaciomarine event is known only at this site. The shelly material at Belderg records a much later glacial deposition event than the pre-Last Glacial maximum shelly deposits identified at Glenulra 5km east of Belderg.

### Site Importance – County Geological Site; recommended for Geological NHA

Shelly tills have been studied at Belderg since the late 1800's. The site is of national importance and requires designation as a geological NHA. The site is not currently within a designated SAC or NHA. The Belderg glaciogenic deposits extend (discontinuously) eastwards as far as Glenloss Point and Port.

### Management/promotion issues

Whilst this coastal site is not considered to be under any immediate threat of any development, any sea defence/coastal erosion development may damage the site. The significance of the complex folding in the schist bedrock (covered in another site report) at the site could also be included in any future promotion/information initiatives relating to the nearby Mesolithic archaeological site at Belderg.



Glaciomarine deposits by Belderg Pier, viewed from the east side of the harbour.



Glaciomarine deposits to the west of the Coastguard house at Belderg Pier.



Muds and pebbles exposed in the stream gully ~20m west of Belderg Coastguard house.



Upper layer muds and cobbles below the peat/soil layer at Belderg Pier.



Shell fragment of *Macoma calcarea* (bivalve) in muds at Belderg Pier.



Glacially moulded and striated Dalradian schists to the northwest of Belderg Pier.



