

## DONEGAL - COUNTY GEOLOGICAL SITE REPORT

<b>NAME OF SITE</b>	<b>Bá Mhálanna</b>
Other names used for site	Malin Bay
<b>IGH THEME</b>	<b>IGH 5 Precambrian</b>
<b>TOWNLAND(S)</b>	<b>Malin More, Malin Beg</b>
<b>NEAREST TOWN/VILLAGE</b>	<b>Malin Beg</b>
<b>SIX INCH MAP NUMBER</b>	<b>89</b>
<b>ITM CO-ORDINATES</b>	<b>549140E, 881913N</b>
<b>1:50,000 O.S. SHEET NUMBER: 10</b>	<b>GSI BEDROCK 1:100,000 SHEET NOS: 3, 4</b>
<b>GIS Code DL028</b>	

### **Outline Site Description**

This is a c. 4km-long coastal section comprising a wave-cut platform and beach with excellent exposures of Dalradian rocks. Scattered inland outcrops are also present.

### **Geological System/Age and Primary Rock Type**

The rocks are part of the Kilmacrenan Succession within the Appin and Argyll Groups of the Dalradian Supergroup. Almost the full succession for this part of Donegal is exposed here, from the lowermost Malin Schist Formation, through the overlying Glencolumbkille Limestone Formation and Port Askaig Formations to the top-most Slieve Tooley Quartzite Formation. Only the Glencolumbkille Pelite Formation is not present within the site.

### **Main Geological or Geomorphological Interest**

The Dalradian sequences exposed along this entire coastal section underwent intense deformation during the Caledonian orogeny. They record an extremely complex sequence of deformation (compression) involving multiple episodes of folding, schistosity, cleavage formation and thrusting that has juxtaposed rocks of very different ages together. These exceptional exposures through the orogenic root zone show detailed fold and fabric geometries clearly preserved on a variety of scales. Two slides (thrusts) are present in the site. The Slieve Tooley slide is marked by a distinct stratigraphical cut-out juxtaposing the Glencolumbkille Limestone and Port Askaig Formations with the Slieve Tooley Quartzite Formation. The Glencolumbkille Slide brings the younger, upper-Argyll Group Slieve League Formation into contact with the Malin Schist Formation at the northern end of the site.

Additional interest is provided at this site by the presence of post-tectonic lamprophyres that clearly cross-cut folds in "text book" fashion.

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

The rock exposures in Malin Bay demonstrate the complex sequence of deformation that affected the Dalradian lithologies in the root zone of the Caledonian orogeny. The exceptional exposures make this site of national importance.

### **Management/promotion issues**

This site is of considerable scientific importance in the interpretation of the complex geological history of the area. The steep cliffs along the exposed Atlantic coast can be hazardous and general promotion of this site is therefore not recommended. The entire site is within the Slieve League SAC and proposed NHA (00189).



Malin Bay.

