

## DONEGAL - COUNTY GEOLOGICAL SITE REPORT

<b>NAME OF SITE</b>	<b>Ballymastocker Bay</b>
Other names used for site	Portsalon Beach, Portsalon, Stocker Strand
<b>IGH THEME</b>	<b>IGH13 Coastal Geomorphology, IGH10 Devonian</b>
<b>TOWNLAND(S)</b>	<b>Croaghross, Drum, Greenfort Demesne, Killavee, Carran Upper and Lower, Magherawardan</b>
<b>NEAREST TOWN/VILLAGE</b>	<b>Portsalon</b>
<b>SIX INCH MAP NUMBER</b>	<b>18</b>
<b>ITM CO-ORDINATES</b>	<b>624120E 939140N (centre of beach)</b>
<b>1:50,000 O.S. SHEET NUMBER 2</b>	<b>GS1 BEDROCK 1:100,000 SHEET NO. 1</b>
<b>GIS Code ND052</b>	

### **Outline Site Description**

Ballymastocker Bay is a wide coastal beach and dune system, flanked on either side by protruding bedrock headlands, and incorporating some unusual exposures of bedrock and cemented sand dunes.

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

The beach and dune features have been formed in the Holocene Period, since the last glaciation, and the beach and dune field host soft 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 the beach are of Devonian age (419-359 Ma).

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

The beach has formed as a result of deposition by longshore drift, which is the movement of sand along the coast by the waves. The beach is formed when the sand material - that is being carried by the waves - gets deposited due to a loss of the waves' energy, because the streams entering the bay slow it down. The beach has then been the result of wind erosion and deposition over the millennia since the Ice Age and several large dunes have formed across it. Dune slacks occur between these, which are low, narrow, marshy localities.

Ballymastocker Bay is almost perfectly symmetrical and is bordered on the north by Croaghross Hill and to the south by Saldanha Head, both well-defined protruberances of bedrock which form headlands. The beach is a highly impressive feature, approximately 3 kilometres long and 250m wide. The dune fields inland of the beach are up to 500m wide, with individual dunes up to 9m high.

The rocks exposed in the southern portion of the beach are red, Devonian-age conglomerate rocks. The size of the component clasts within the conglomerate is unusually large. Also along the southern portion of the site, 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.

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

Ballymastocker Bay is an impressive locality and the associated beach, 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 exposures of conglomerate and 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 Portsalon is a popular holiday destination. An information board at the viewing point on the R268 at the southern end of the beach may 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 NHA (001089, Ballymastocker Dunes) for biodiversity reasons and the geodiversity of the locality should be highlighted in any promotion of this.



'Portsalon Beach', at Ballymastocker Bay, viewed from the south.



View across some of the dunes, and onto the beach, at Ballymastocker Bay.



The Devonian conglomerate rocks at the southern end of the beach.



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

