

## CORK - COUNTY GEOLOGICAL SITE REPORT

<b>NAME OF SITE</b>	Barley Cove		
Other names used for site			
<b>IGH THEME</b>	IGH13 Coastal Geomorphology, IGH10 Devonian		
<b>TOWNLAND(S)</b>	Dough, Cannawee		
<b>NEAREST TOWN/VILLAGE</b>	Crookhaven		
<b>SIX INCH MAP NUMBER</b>	147		
<b>ITM CO-ORDINATES</b>	476800E 525750N		
<b>1:50,000 O.S. SHEET NUMBER</b>	88	<b>GSI BEDROCK 1:100,000 SHEET NO.</b>	24
<b>GIS CODE</b>	CK019		

### Outline Site Description

A wide sandy beach backed by large dunes, tidal lagoon and low grassy terrain.

### Geological System/Age and Primary Rock Type

The bedrock comprises red sandstone and mudstone of the Upper Devonian Toe Head Formation. The beach and dunes are modern (Holocene) deposits, probably formed and reworked over the last few hundred years.

### Main Geological or Geomorphological Interest

The Barley Cove beach and dune system is at the head of a 1 km-wide and 2.5 km-long inlet that faces south into the ocean. The 600 m-wide beach is backed by low marram dunes that are topped by a grassed area, formerly the site of a golf course, behind which is a tidal channel. The channel is, in turn, backed by a dune system ("fore dunes"), 400 m long and up to 13 m high. Behind this is extensive fixed dune grassland that merges into a salt marsh. The proposed Natural Heritage Area status of the site reflects the presence of largely intact examples of various coastal habitats, particularly the fixed dunes.

Recent research has added significantly to the geological interest of the Barley Cove site. Two sedimentary units have been recognized in the main dune system flanking the tidal channel, with the lower unit comprising a calcarenite mound that forms the core of the dunes. The calcarenite textures - repeated sequences of sand beds in which soft sediment structures are overlain by horizontal laminations - suggest it was deposited in water. These have been interpreted as the products of turbid flow followed by settling in relatively quiet water. This process has been cited as evidence for formation of the dunes following a tsunami generated by the Lisbon earthquake of 1755, something that is consistent with oral traditions to the effect that the dunes "came up" suddenly overnight.

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

This site is an important coastal site with a well-preserved dune system, associated grassland and salt marsh. Recent research has suggested that the dunes developed rapidly in 1755 in response to a tsunami generated by the Lisbon earthquake of that year. As such, the Barley Cove site would be one of the few or even only examples in northwest Europe of sedimentary units generated by the earthquake.

### Management/promotion issues

The site is within the Barley Cove to Ballyrisode Point pNHA and Sheep's Head to Toe Head SPA. The site is a very popular leisure area. There are two signboards in the car park, one a map of the site classified by habitat and the other a Wild Atlantic Way signboard that describes the dunes as having formed as a consequence of a tsunami. No further promotion is required.



Beach and dune system at Barley Cove, view towards northwest.



View northwards of fore dunes. The boundary between the basal sand layer and upper part of dunes is visible as a near-horizontal line above the “outcrops” of layered sand.



General view of calcarenite unit comprising basal part of fore dunes.



Complex sedimentary structures in calcarenite unit comprising basal part of fore dunes. The lower part appears to consist of slumped beds.



Close-up of layering in calcarenite unit comprising basal part of fore dunes. Cross-bedding clearly visible to left of hammer head.

