

## CORK - COUNTY GEOLOGICAL SITE REPORT

<b>NAME OF SITE</b>	<b>Dunmanus Bay</b>
Other names used for site	Dunbeacon Castle-Dunmanus Bay, Dunmanus Castle Northwards
<b>IGH THEME</b>	<b>IGH8 Lower Carboniferous, IGH10 Devonian, IGH13 Coastal Geomorphology</b>
<b>TOWNLAND(S)</b>	<b>Dunmanus West, Knockeens, Ballyvonane, Kilcomane, Cashelfean, Drishane, Dunbeacon</b>
<b>NEAREST TOWN/VILLAGE</b>	<b>Durrus</b>
<b>SIX INCH MAP NUMBER</b>	<b>139</b>
<b>ITM CO-ORDINATES</b>	<b>484210E 533660N (Dunmanus Point)</b>
<b>1:50,000 O.S. SHEET NUMBER</b>	<b>88</b> <b>GSI BEDROCK 1:100,000 SHEET NO. 24</b>
<b>GIS CODE</b>	<b>CK045</b>

### **Outline Site Description**

Coastal outcrops on the south side of Dunmanus Bay, extending from Dunmanus Point northeast to Dunbeacon Castle.

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

Bedrock comprises a conformable stratigraphical sequence of Old Red Sandstone Upper Devonian Castlehaven Formation (purple siltstone and mudstone), Toe Head Formation (grey-green sandstone and grey-purple mudstone) and Old Head Sandstone Formation (grey sandstone and mudstone) beds through to Lower Carboniferous (Mississippian) Kinsale Formation (Narrow Cover Member sandstone, Pigs Cove Member mudstone) and Reenydonagan Formation (black calcareous mudrock).

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

The coastal section from Dunmanus Point northeastward to Dunbeacon Castle exhibits a conformable stratigraphical sequence ranging in age from Upper Devonian through the Devonian-Carboniferous transition and into the Lower Carboniferous. The lithologies record changing depositional environments, from alluvial fan-associated braided river systems (Castlehaven Formation) to near-coastal fluvial plain settings (Toe Head Formation), to shallow tidally influenced nearshore conditions (Old Head Sandstone Formation), to shallow offshore marine conditions (Narrow Cove Member), to deeper offshore settings (Pig's Cove Member), to a deep marine shelf environment (Reenydonagan Formation). Castlehaven Formation rocks are well exposed on both sides of Dunmanus Harbour where wave action has stripped away surficial deposits. A vertical spray from a blowhole is sometime visible on the east side of Dunmanus Harbour. Toe Head Formation rocks are best seen at Dunmanus Point and at the accessible coastal section at Ballyvonane. Access to Old Head Sandstone Formation sections is very limited at Ballyvonane. Narrow Cove Member rocks are easily accessible at Kilcomane (Carrigduff) Pier and at the cove at Drishane. The sandy cove near Dunbeacon Cross (Drishane Bridge) affords good access to Pig's Cove Member beds, and a short walk along the shore gives access to Reenydonagan Formation beds at Dunbeacon Castle. The hinge of the U-shaped fold (Dunmanus Bay Syncline) is visible at the beach beside Dunbeacon Castle. A natural arch, recorded on the first edition Ordnance Survey 6" sheets, can be seen at Coosnabraud.

### **Site Importance – County Geological Site**

This is an important site because it provides evidence of the transition from terrestrial Old Red Sandstone red-beds to tidal and marine sediments. The sequence plays a key role in understanding of depositional environments in the South Munster Basin during the Upper Devonian and Lower Carboniferous, around c. 380 to 345 million years ago.

### **Management/promotion issues**

Accessible sections along this coastal section are of geological heritage interest and may be suitable for public promotion. The entire site is of interest to the geological and coastal geomorphology research community.



Castlehaven Formation (purple)-Toe Head Formation (grey) contact on Dunmanus Point. View southwest towards hill overlooking Dhurode Mine.



Anticline fold (Narrow Cove Member) at Kilcomane (Carrigduff) Pier. View to east.



Toe Head Formation at Ballyvonane. View northwest to Furze Island and Sheep's Head.



Reenydonagan Formation mudrock and the Dunmanus Bay Syncline hinge at Dunbeacon Castle.

