

Forlorn Point

Location

Forlorn Point (Grid Ref: S 96 03) is the headland bordering the south-western corner of the seaside village of Kilmore Quay on the south coast of County Wexford in the extreme south-east corner of the island of Ireland.



Location map: Screenshot from https://maps.wexford.ie/imaps/. Ordnance Survey Ireland Permit No MP 004016. © Ordnance Survey Ireland/Government of Ireland.

The headland has a north-east to south-west axis, is approximately 350m long and 175m wide. A tiny grassy island is located near its tip and the highest point of that island has an altitude less than 7m^{1 & 2} Access to the tiny island is facilitated by a pathway along the top of a concrete wall.

Meaning of the placename

The placename used by Ordnance Survey Ireland for the headland is "Crossfarnoge or Forlorn Point" in English ; "Rinn Chrois Fhearnóg" in Irish^{1 & 2}. The English placename is interpreted as an anglicisation



of the Irish 'cros fearnóige' meaning 'cross of alders'. It is not clear whether the name refers to a religious symbol or simply to a crossroad3 &

headland is known as "The Forlorn". The word 'forlorn' is not understood to refer to the adjective meaning 'pitiful, sad and lonely' but to be a geographically descriptive noun, a corruption of 'furloan' a Yola word meaning 'foreland'5. Yola is a now obsolete dialect that was spoken in south Wexford in the past "amongst ye common people"6.

Heritage resource value

The natural heritage resource values of Forlorn Point are twofold: geological and biological. This leaflet introduces the geological resource values of the headland and its environs.

The big picture: crustal plates

Planet Earth's hard outer crust is not a continuous skin. Instead, it is like a cracked Easter egg. The crust is made up of seven, big, curved plates and a number of smaller ones. The plate that Ireland is located on is the large Eurasian plate that supports the continents of Europe and Asia. Crustal plates are moving about very slowly, pushing and rubbing against each other, submerging under each other and/ or pulling away from each other. As a result, over a very long period of geological time continents come together and neighbours merge to form a supercontinent before breaking up into new landmasses in an on-going cycle.

Geological time

Planet Earth is 4.6 billion years old. That immensely long span of years is divided into time units called periods. The earliest unit of geological time is the Precambrian period. The Precambrian extends from 542 million years before present back to the birth of the planet 4,567 million years ago⁸. Amazingly, rocks dating from the Precambrian period survive today and may be seen at Forlorn Point.

A divided land

During the Precambrian period, the island of Ireland as we know it was divided into two parts. The northwestern part of the present island was located on the

margin of a large continent called Laurentia while the south-eastern corner of the island was located on the margin of a micro continent called Avalonia. These two ancient landmasses were on opposite sides of the Iapetus Ocean. Subsequent movements of crustal plates over hundreds of millions of

years caused the two halves of Ireland to crash into each other in a glancing way and to be welded together. The join between the two halves is called the Iapetus suture

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and is a curved line extending approximately from the present-day Dundalk Bay to the Shannon Estuary. The basement rocks underlying the island of Ireland are, therefore, derived from three different sources: the north-western portion of the island is part of the Laurentian margin , the extreme southeastern corner is part of the Avalonian margin, and the bit in the middle is the remains of the floor of the former Iapetus Ocean^{7,}



Forlorn Point: Screenshot from http://maps.osi.ie/publicviewer/ 6,603049,11,9. Ordnance Survey Ireland Permit No MP 004016. © Ordnance Survey Ireland/Government of Ireland.

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The Rosslare Complex

The rocks that comprise the Rosslare Complex stretch diagonally cross-country from Kilmore Quay to Rosslare Harbour underlying part of Tacumshin Lake and skirting the extreme northern portion of Lady's Island Lake. The complex is composed of



Avalonia was a micro-continent located near the South Pole over 620 million years ago during the Precambrian period. Microcontinents are landmasses smaller than Australia but still big enough to be regarded as continents. The tiny portion of the Avalonian margin that survives in Ireland today is a band of rocks running cross-country from Kilmore Quay to Rosslare Harbour. The band is named after the latter coastal settlement. The band is unique in Ireland; rocks from Avalonia do not exist anywhere else on the island⁸.



Rosslare Complex rocks are among the oldest rocks found in Ireland. The precise age of these ancient rocks has not yet been determined but they are believed to be at least 620 million years old, possibly up to one billion years old. Their age is difficult to determine as the rocks have been significantly deformed a number of times by later earth-moving events^{7, 8, 9, 10, 11, 12 & 13} moving events7,

The rocks that comprise the Rosslare Complex fall into two groups: the Kilmore Quay Group and the Greenore Point Group. The age relationship between the two groups is unknown^{8 & 10}.

Kilmore Quay Group

The Kilmore Quay Group is believed to be possibly the older of the two groups that comprise the Rosslare Complex. The group forms a band running from Kilmore Quay to St Helens. The band is of unknown thickness and varies in width from less than 450m to more than 1,200m. The parent materials of the rocks in the band were alternating beds of unsorted sands and muds that were laid down underwater in a shallow basin off the coast of Avalonia. The resulting rocks were highly altered over time and are deformed due to repeated deep burial in Earth's crust. They are particularly rich in the minerals feldspar and quartz and these minerals occur in distinct pale bands and lenses in the grey rocks. They are very well exposed on the seashore at Forlorn

Point, Nemestown, St Patrick's Bridge and the Madjeen reef off Ballygrangans. Outcrops at St Patrick's Bridge and the Madjeen reef are submerged at high water and are clothed with seaweeds at low water, so the rocks are difficult to examine^{8 & 10}.

Rosslare

Harbour

Greenore Point Group

The Greenore Point Group is the second group in the Rosslare Complex and is believed to be possibly younger than the Kilmore Quay Group. The parent materials of the group are unknown but may have been molten matter, possibly of volcanic origin. The rocks are again highly altered and deformed due to their great age. They are rich in a mineral called amphibole and are therefore known as amphibolites^{8 & 10}. These dense, dark green rocks are not exposed at Forlorn Point; they are exposed elsewhere and were quarried for building stone at Ballyteige Castle, Grange, Sarshill and Cross Scales. These quarries are long abandoned and are now either partially or wholly filled in and/or overgrown.

Gneiss



As already mentioned, Kilmore Quay Group rocks are grey in colour and are particularly rich in the minerals feldspar and quartz. Due to partial melting, these minerals occur in distinct pale bands in the grey rocks. Rock that exhibits alternating darker and lighter coloured bands is known as gneiss, a German word. The different coloured bands and lenses represent different combinations of minerals that separated out when the parent rock partially melted when it was subjected to intense heat and pressure when it was thrust down deep into Earth's crust by subsequent earth movements. Three different kinds of gneiss occur at Kilmore Quay: Grey Gneiss, Dark Gneiss and Granodiorite Gneiss.

Grey Gneiss

Grey Gneiss is gneiss rich in biotite, a black, platy mineral in the mica group. Grey Gneiss is the dominant rock type found around the drainage cutting beside the Memorial Garden north of Forlorn Point^{11 & 13}.



A pier-like arm protects the mouth of the drainage cutting from the prevailing southwest storms.

Dark Gneiss

Unlike Grey Gneiss, Dark Gneiss contains only a trace of biotite. The outcrops east of the boathouse at Olinda to the east of the village are largely composed of Dark Gneiss. Outcrops between the drainage cutting and Olinda are complexes of mixed Grey Gneiss, Dark Gneiss and Granodiorite Gneisses^{11 & 13}.

Granodiorite Gneiss

Granodiorite is an igneous rock somewhat similar to granite but differing from it in that it is darker in colour due to its different chemical composition. Feldspars are the most abundant minerals on Earth. Granodiorite is distinguished from granite by different kinds and combinations of feldspars.

Granodiorite is younger that the Grey Gneisses and Dark Gneisses into which it intruded. Molten material welled up and was injected into cracks in the older gneisses as they were deformed by earth movements subsequent to their original formation. The molten material





cooled to granodiorite, an igneous rock, but, over time, the granodiorite was mostly changed to gneiss, a metamorphic rock, by deforming high temperatures and pressures younger Granodiorite Gneiss is immediately east of the boathouse at Olinda close to the soft cliff¹¹. Granodioritic rocks also occur but are relatively rare⁸.

Schist is a shiny rock type

Schist, a French word, is a medium-grade metamorphic rock type that has its minerals flattened, elongated and aligned parallel to

each other. The resulting sheetlike structure causes the rock to appear shiny and to split easily into thin, irregular, platy flakes. Layers of schists may be seen alternating with

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the layers of Grey Gneiss at the drainage cutting beside the Memorial Garden north of Forlorn Point. The mudstones that existed between the beds of sandstones in the parent sediments of the Kilmore Quay Group were metamorphosed to produce the shiny schist. Some of the schists were also produced from extreme deformation of the gneisses. However, like the gneisses, the different origins of the schists cannot be determined by simple observation in the field¹¹.

Outcrops. Outcrops of Kilmore Quay Group rock (green colour) extend over an area of some 35ha. Forlorn Point, also known as Crossfarnoge Point, is on the extreme left, St Patrick's Bridge is at the centre and the nearshore Madjeen reef is on the extreme right between Nemestown and Ballygrangans. The distance along the shore from Forlorn Point to the Madjeen reef is about 2.5km. Screenshot from http://dcenr.maps.arcgis.com/apps/webappviewer/ index.html?

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Basic dykes

Point

A dyke is a younger intrusion of igneous rock cutting across existing older rocks. 'Basic' refers to the fact that the parent molten material was not acidic. Dykes are vertical sheets formed as a result of molten material welling up into and cooling in cracks in the pre-existing rocks.

The Kilmore Quay Group was subjected to five major deformations over more than two hundred million years and as a result has dykes of two different ages running through it. The older dykes date from the Cambrian or Ordovician periods while the younger dykes date from the Silurian period¹². The original igneous rocks that formed in cracks in the gneisses from the intruding molten materials were subsequently changed to metamorphic rocks.

Many of the dykes at Kilmore Quay are more resistant to weathering than the rocks they intruded into. As a result, many of them tend to stand up above the level of the surrounding rocks and to appear like low walls. Dykes at Forlorn Point can be identified by their elevated nature, their dark colour, their lack of banding and their fine texture. Most follow the dominant ENE-WSW fold trend of the gneisses and run more or less parallel to the concrete wall leading to the small island near the tip of the headland.



A number of dark, older and younger basic dykes fused together and running into the sea at the tip of Forlorn Point with gneisses on the right and the Saltee Islands on the distant skyline.

Geological time

Nearly all of the rock types found at Kilmore Quay are metamorphic rocks. The main examples are Grey Gneiss, Dark Gneiss, Schist, younger Granodiorite Gneiss and younger and older Basic Dykes. These rocks were formed over a span of geological time lasting more than 200 million years and the following four periods.

Period Age	
Silurian:	444-416
Ordovician:	488-444
Cambrian:	542-488
Precambrian:	Before 542

Ages are approximate and are in millions of years before present⁸.

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Visiting Kilmore Quay

To see the maximum area of exposed rock on the foreshore, it is best to visit Kilmore Quay at low water. Seven-day tidal predictions for Saltee Island Great can be accessed online at http://www.ukho.gov.uk/ easytide/EasyTide/ ShowPrediction.aspx? PortID=0765&PredictionLength = 7 or in the village by buying a local tide table in Kehoe's hardware and marine supplies store (http:// www.kehoemarine.ie/).



Information about visiting Kilmore Quay can be accessed at http://visitkilmorequay.com/

The Geological Survey of Ireland can be contacted at http://gsi.ie/ or LoCall 1890 449900.

Concerns regarding nature conservation should be addressed to Tony Murray, the local National Parks and Wildlife Service (NPWS) Conservation Ranger, e-mail Tony.Murray@ahg.gov.ie, telephone (076) 100 2662.



The harbour at Kilmore Quay was deepened in 1995 by removing rock from the basin floor. The parent sediments of the Kilmore Quay Group were laid down underwater horizontally. Note how the resulting rocks have been tilted, twisted, intruded and deformed over time.