

## NORTH DONEGAL - COUNTY GEOLOGICAL SITE REPORT

<b>NAME OF SITE</b>	<b>Loch Súilí</b>
Other names used for site	Lough Swilly (meaning the "Lake of Eyes" or "Lake of Shadows")
<b>IGH THEME</b>	<b>IGH13 Coastal Geomorphology</b>
<b>TOWNLAND(S)</b>	<b><i>Numerous townlands border the coast</i></b>
<b>NEAREST TOWN/VILLAGE</b>	<b>Buncrana, Rathmullan, Rathmelton, Letterkenny</b>
<b>SIX INCH MAP NUMBER</b>	<b>9, 18, 28, 29, 37, 38, 46, 47, 53, 54</b>
<b>ITM CO-ORDINATES</b>	<b>631500E 932000N (centre of lough)</b>
<b>1:50,000 O.S. SHEET Nos. 2, 3, 6</b>	<b>GSI BEDROCK 1:100,000 SHEET NO. 1</b>
<b>GIS Code ND015</b>	

### Outline Site Description

Lough Swilly is a long, wide fjord, bordered by high, bold cliffs in the north, passing to gentler coastal slopes and shallow flats along its southern reaches.

### Geological System/Age and Primary Rock Type

The only fjord on Ireland's north coast, Lough Swilly was shaped by successive glacial scouring and excavation during the last major Pleistocene glaciation. Rising sea levels (since the end of the last glaciation) have partially drowned the fjord. The fjord is predominantly bounded by, and cut into, Dalradian metasedimentary bedrock with some Late Caledonian granite in northern parts.

### Main Geological or Geomorphological Interest

Lough Swilly is c. 7km wide at its mouth and c. 38km in length, with a surface area of c. 150km<sup>2</sup>. The fjord (drowned glacial valley) tapers gradually to the SSE and turns SSW near Rathmullan, shallowing to extensive intertidal mud flats proximal to Letterkenny. The bedrock morphology of Lough Swilly, with an overdeepened floor (up to 19m deep in the centre of the inner stretch) and a bedrock sill at the mouth, is typical of a fjord. The orientation of the fjord is controlled by faults in the underlying bedrock. These structural weaknesses (e.g. Leenane Fault) were exploited by ice that moved northwards from the Donegal Mountains carving out the fjord channel. The bed of Lough Swilly comprises gravelly sand at the mouth (between Dunaff Head and Fanad Head), sand between the mouth and north of Buncrana, and muddy sand near the fjord head. Sand washed in from the sea has formed a series of beaches at e.g. Portsalon, Rathmullan and south of Buncrana. The site is estuarine in character, with shallow water and extensive intertidal sand and mudflats and salt marsh in the inner sheltered areas of the lough. (This sediment transition occurs, with variations, in most of the inlets on the north-west coast of Ireland.) Reclamation of parts of the inner lough area has transformed intertidal and salt marsh areas to pasture and arable polders (Inch, Big Isle, Blanket Nook). Inch Lough is one of the largest and best examples of a shallow lagoon in the country. The main rivers flowing into the lough include the Swilly, Lennan and Crana.

### Site Importance – County Geological Site

As well as being one of Ireland's few glacial fjords, the cliffs, beaches, mudflats, salt marshes, polders and headlands at Lough Swilly make this County Geological Site a classic textbook locality for coastal erosion and deposition features. Parts of the site include Lough Swilly SAC (002287) and pNHA (000166), the North Inishowen Coast SAC and pNHA (002012), and Ballyhoorisky Point to Fanad Head SAC and pNHA (001975).

### Management/promotion issues

Coastal areas on both sides of this scenic lough are popular recreational and touristic areas. The geological formation of the fjord and the development of the polders could be highlighted on information boards at e.g. Portsalon, Rathmullan and Buncrana, and on any future literature produced on the fjord.



View south from Fahan Pier towards the SE finger of Lough Swilly and Quigley's Point embankment.



View eastwards from near Knockalla Fort across Lough Swilly to Urris Hills (left), Dunree Head and Slieve Snaght (middle distance).



View south from R268 junction to Knockalla Fort track towards Scraggy Bay, Lough Swilly.



