

WICKLOW - COUNTY GEOLOGICAL SITE REPORT

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| NAME OF SITE | Glaciofluvial Meltwater Landforms – East and West Wicklow - Overview |
| Other names used for site | East and West Wicklow Meltwater Channels, Glacial Lake Deltas |
| IGH THEME | IGH7 Quaternary |
| TOWNLAND(S) | Many townlands throughout East and West Wicklow |
| NEAREST TOWN/VILLAGE | Blessington, Hollywood, Donard, Stratford, Baltinglass, Bray, Enniskerry, Delgany, Newtown Mount Kennedy, Ashford |
| SIX INCH MAP NUMBER | 3, 5, 6, 7, 8, 9, 10, 13, 15, 16, 18, 19, 21, 24 |
| NATIONAL GRID REFERENCE | centred on 701300E 706000N |
| 1:50,000 O.S. SHEET NUMBER | 56, 62 GSI Bedrock 1:100,000 Sheet No. 16 |

Introduction

The glacial and glaciofluvial deposits in County Wicklow are very variable. Although Wicklow is only one of thirty-two counties on the Irish landmass not to have any underlying limestone bedrock, the glacial and glaciofluvial deposits over large areas of both east and west Wicklow are composed of limestone debris. In west Wicklow, most of the direct glacial deposits were carried by, and deposited from, ice that spread in from the Midlands of Ireland, as were the meltwater deposits. The result of this is that much of the area of west Wicklow underlain by Lower Palaeozoic shale, slate and greywacke rocks is covered by glacial and meltwater sediments derived from the Carboniferous limestone of the Irish Midlands. Only occasionally are Lower Palaeozoic shale, greywacke and slate rocks, or granite, dominant in these sediments. With limestone and chert derived from limestone common well into the Liffey and Kings River valley (both underlain by granite in their upper reaches) this suggests that there was a general ice movement from the Midlands pushing up into the foothills of the mountains.

Limestone dominated tills and glaciofluvial sand and gravel deposits are also seen along the northern foothills of the mountains resting on Lower Palaeozoic and granite rock along the boundary with south County Dublin. These too have their ultimate source in the Midlands. In east Wicklow, limestone dominated till extends as far south as Kilcoole, while meltwater gravels containing large amounts of limestone continue southwards to south of Newtown Mount Kennedy. Patches of limestone dominated gravels extend as far south as just south of Wicklow town. All of this limestone ultimately had its source in the Midlands and the Irish Sea Basin. The most striking glacial deposit of the coastal strip of east Wicklow is, however, a clayey till usually containing marine shell fragments and flints as well as other erratics from the northern Irish Sea basin. These are the deposits that were laid down by the ice sheet that filled the Irish Sea Basin flowing southwards from southwestern Scotland and northeastern Ireland. They are termed 'Irish Sea Tills'.

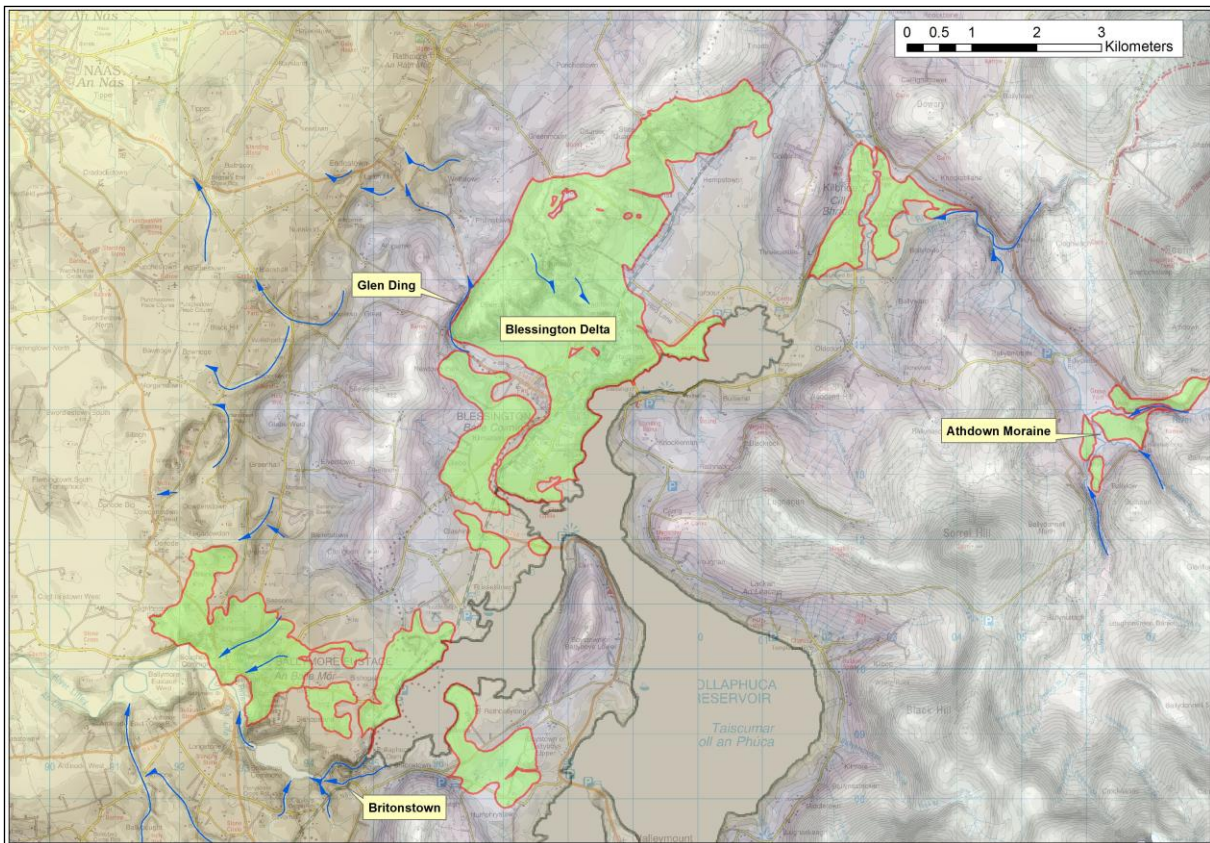
Main Geological or Geomorphological Interest - ice flow patterns, meltwater channels and glacial lakes

At the glacial maximum most of Wicklow was covered by ice, and in the early stages of glaciation preceding this, local mountain ice probably covered most of the county. As the large ice sheet covering the country (which was composed of domes with sources in the Irish Midlands and the Irish Sea Basin) expanded, the local mountain ice became confined to the central mountain area. The mountain ice merged with the general ice and flowed with it towards the south.

After the ice sheets began to melt they began to separate. The Midland ice front retreated to the ridge running northeast-southwest from Saggart Hill to Ballymore Eustace, and from Ballymore Eustace ran southwards close to Hollywood, Church mountain and Donard. Mountain ice had by then retreated into the Upper Liffey Valley, Kings River Valley and the

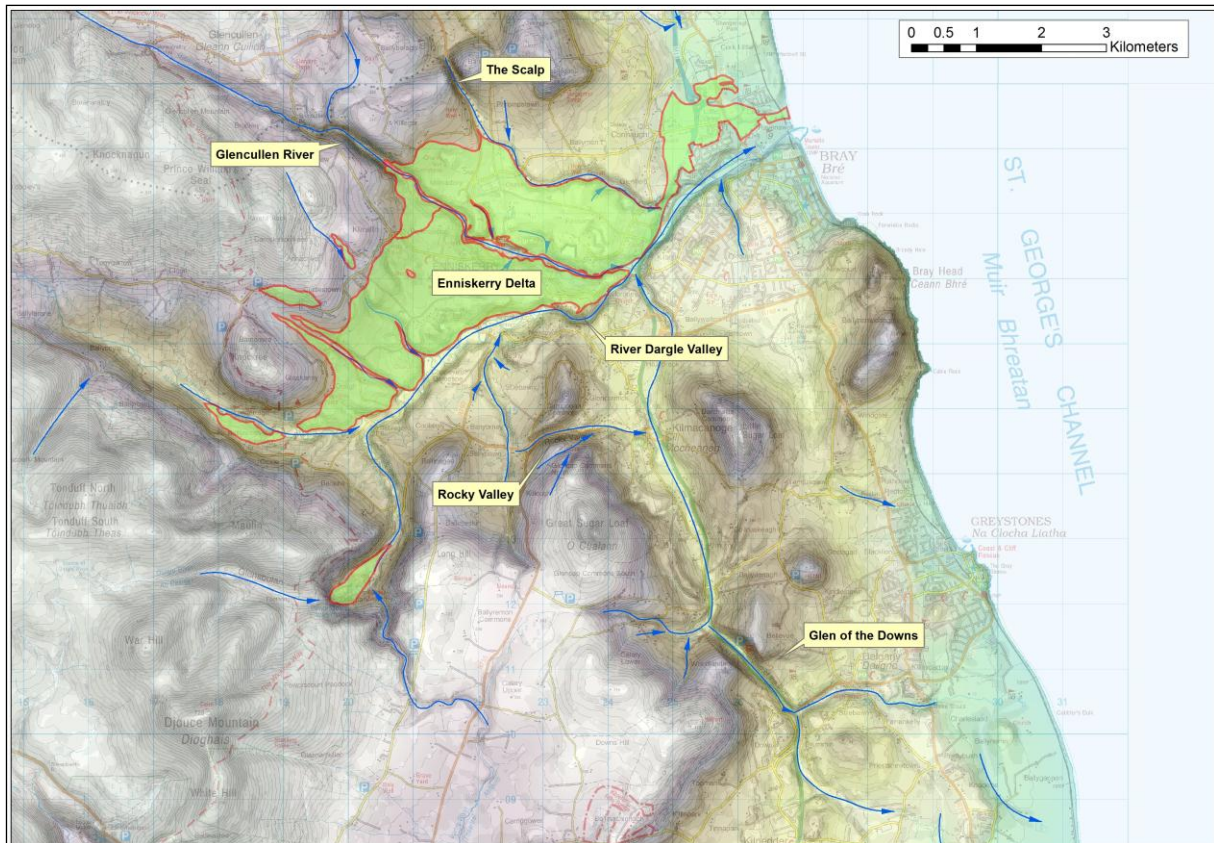
Glen of Imaal. The terminus of the Irish Sea glacier may have retreated north of the Wicklow district by this time.

Just as the hydroelectric dam at Pollaphuca now creates the Pollaphuca Reservoir, the margin of the Midland ice dome created a large, temporary ice dammed lake. And, as the ice was thicker than the present dam, it created a much bigger and deeper lake. The present 270m (900 feet) contour marks the approximate extent of the ice dammed lake. The lake was called Glacial Lake Blessington and the level was controlled by the lowest col which allowed the lake water to spill out and flow southwards along the ice margin. The lake water tumbled over the col at Toor to form the Toor Channel and then along, and under, the ice margin to form the Hollywood Glen meltwater complex. Meltwaters also deposited massive amounts of limestone debris into the lake around this time, in the form of the Blessington Delta. The Upper Lockstown Delta and Athdown Moraine record later, lower delta inflows to the lake.



The Blessington Delta and the suite of associated meltwater channels around Blessington.

Glacial events in east Wicklow mirrored somewhat those of west Wicklow. Here the extraneous ice was from the Irish Sea Basin, and the major lake which dammed between the mountain ice and the Irish Sea ice was called Glacial Lake Enniskerry. The Enniskerry Delta was deposited into this, and deep channels at The Scalp, in the Dargle River Valley and at the Glen of the Downs were cut by meltwater along the lake margin. Other impressive channels in east Wicklow occur at Dunran and the Devil's Glen. Most of the channels were formed subglacially, but close to the ice margin, and subsequently used as glacial lake outlet channels. Thus the channels and deltas form an integrated suite through which the marginal drainage of the Irish Sea and Midlands ice sheets passed, as the meltwater flowed generally southwards during ice retreat.



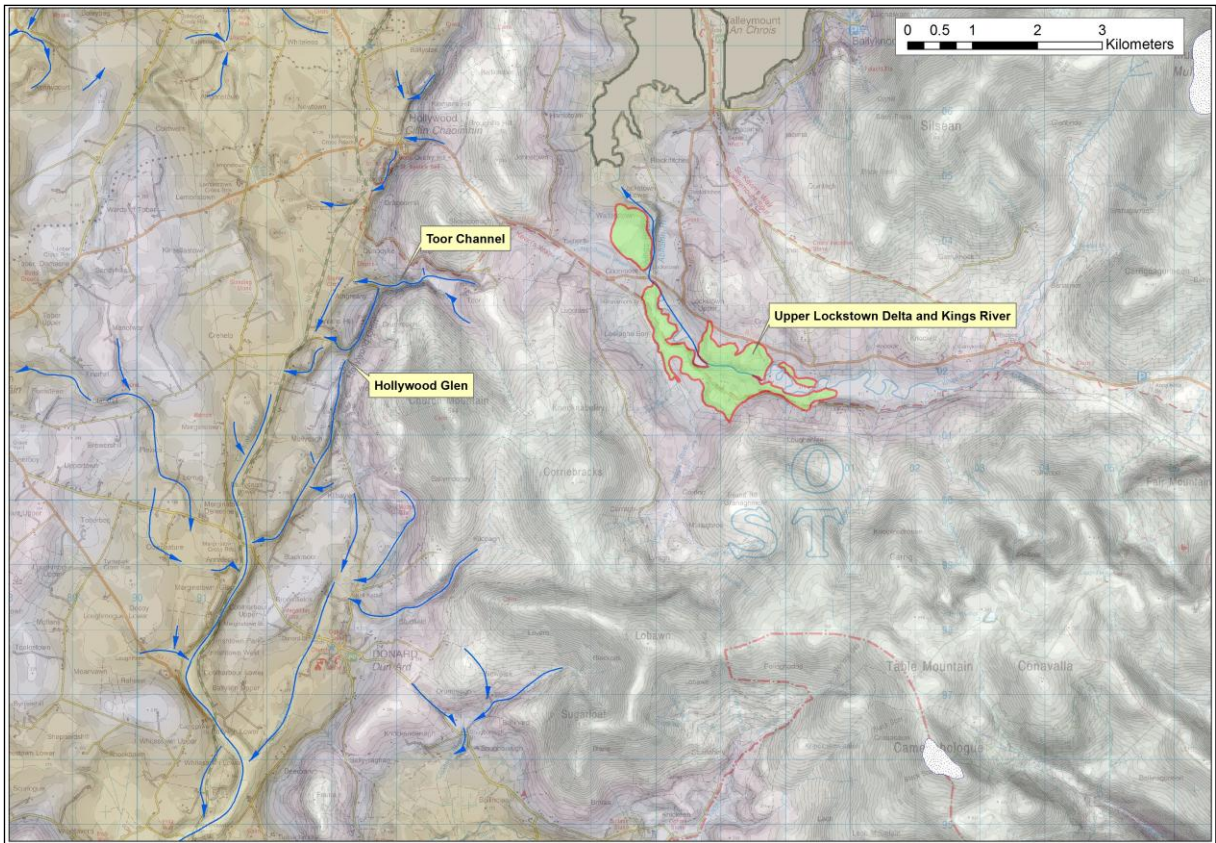
The Enniskerry Delta and the suite of associated meltwater channels in east Wicklow.

Site Importance – County Geological Site

Depending on the importance of the individual features, the sites vary from those recommended as Geological NHAs and some which may be recommended, to those recognised simply as County Geological Sites. The exact importance of each site is assessed within each separate, individual site report.

Management/promotion issues

Much of this district is within the Wicklow Mountains SAC, SPA, pNHA and National Park, and is very popular with visitors and walkers. Many of the features have a long-studied history, and the sequence of events is well understood. Signboards at some of the features, such as the Devil’s Glen and Hollywood Glen, where good walking trails are established, would prove useful. Promotional leaflets or a booklet on the glacial history of the Wicklow Mountains area would be useful additions to the overall experience of the area for the tourist.



The Upper Lockstown Delta and the suite of associated meltwater channels in west Wicklow.