

The turn of the tide

A self-guided walk around the Killard peninsula in County Down



Explore the contrasting landscapes of Killard National Nature Reserve
Find out how ice and water have created different landforms
Look out for a variety of flora and fauna
Discover how humans have used the coastline and its resources

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*the stories of our landscapes
discovered through walks*







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The turn of the tide

Discover the Killard peninsula where Strangford Lough opens into the Irish Sea

Sitting at the mouth of Strangford Lough, the Killard peninsula is a very special place with a unique geography.

This walk explores sandy bays and rocky foreshores, lush meadows and crumbling cliffs to discover how the forces of ice and water have created the stunning scenery that you see today.



Discover strangely-shaped rocks that were bent and contorted by powerful tectonic forces. Learn how the rounded hills scattered across the landscape were formed when an ice sheet melted rapidly. Explore a spectacular rock cleft called Gurgle Gurgle. See soft cliffs that are eroding away.

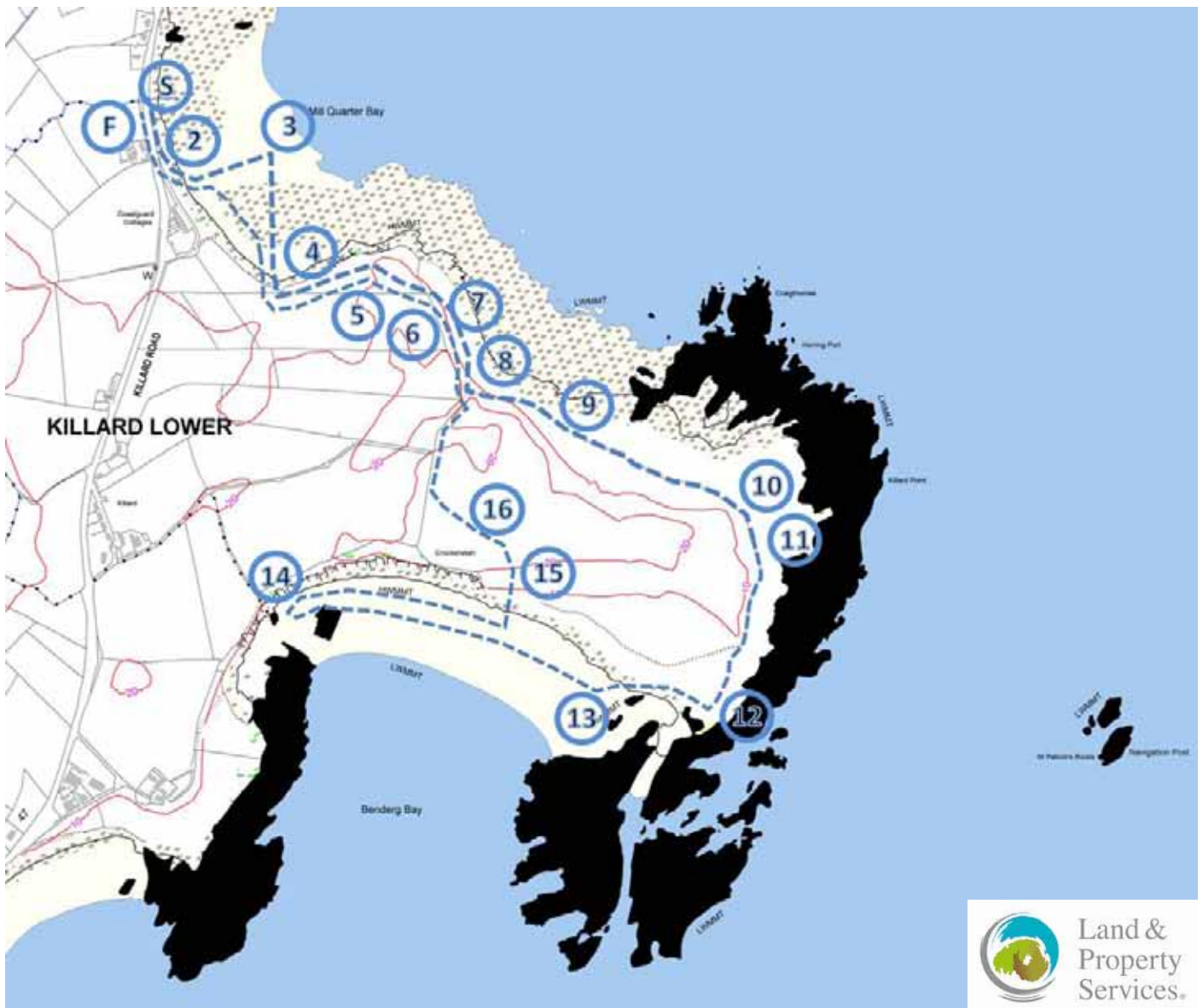


Find out what wildlife thrives at the mouth of the tidal lough. Discover how humans have used this coastline and its resources from ancient to modern times.

There is much to enjoy on this walk in a designated Area of Outstanding Natural Beauty, National Nature Reserve and Area of Special Scientific Interest, including spectacular views of the Mourne Mountains.

Top: Mill Quarter Bay © Jenny Lunn
Bottom: Stratified and contorted rock at Benderg Bay © Jenny Lunn

Route map



Stopping points

- Start** Killard Road, Mill Quarter Bay
- 2.** Entrance to Mill Quarter Bay
 - 3.** Mill Quarter Bay foreshore
 - 4.** Bottom of hill, end of Mill Quarter Bay
 - 5.** Cliff top, end of Mill Quarter Bay
 - 6.** Top of hill looking back across Mill Quarter Bay
 - 7.** Gate at entrance to Killard NNR
 - 8.** Edge of meadowland
 - 9.** Rock outcrop on foreshore
 - 10.** Coastal path by St Patrick's Rocks
 - 11.** Rocks with lichen
 - 12.** Deep cleft in rocks
 - 13.** On the sand, eastern end of Benderg Bay
 - 14.** Bottom of the cliffs, western end of Benderg Bay
 - 15.** Top of cliffs above Benderg Bay
 - 16.** Pill box on cliff above Benderg Bay
- Finish** Killard Road, Mill Quarter Bay

Practical information

Location	Killard National Nature Reserve, County Down, Northern Ireland
Start and finish	Mill Quarter Bay, Killard Road, Kilclief, Downpatrick BT30 7PQ
Getting there	<p>Car - The entrance to Killard National Nature Reserve is at Mill Quarter Bay on Killard Road, which is a scenic loop road off the A2 between Strangford and Ardglass. There is a long layby for parking on the road.</p> <p><u>Coming from Strangford</u> on the A2 - Take the first left when you enter the village of Kilclief (Shore Road). Drive past Kilclief beaches and straight over at a crossroads (now Killard Road). The next beach you come to, after about one mile, is Mill Quarter Bay; the layby is on the left.</p> <p><u>Coming from Downpatrick</u> via Ballyhornan Road and Lismore Road - When you reach the T-junction with the A2, turn left signposted Strangford. Then turn immediately right signposted Ballyhornan (Killard Road). Drive through the village and alongside the long Ballyhornan beach cliffs. Mill Quarter Bay is the next beach you reach; the layby is on the right.</p> <p><u>Coming from Ardglass</u> on the A2 - Turn right at the signpost to Ballyhornan (Killard Road). Drive through the village and alongside the long Ballyhornan beach cliffs. Mill Quarter Bay is the next beach you reach; the layby is on the right.</p> <p>It is not possible to reach Killard by public transport.</p>
Walk distance	3 ½ miles
Level	Moderate – A fairly easy walk with one short steep climb (which can be avoided as required with loss of cliff-top views).
Terrain	Rural coastline including foreshore, grassy paths, rocks, sand and cliff-top path.
Conditions	The foreshore is rough and meadowland can be muddy.
Best time to visit	<p>The best time to go is at low tide when more of the rock formations are visible but there is still plenty to see at any time. Check tide times at www.tidetimes.org.uk/killard-point-tide-times.</p> <p>Birds are abundant all year round, but if you want to see the incredible varieties of butterflies and orchids then visit in the summer months.</p>

Suitable for

Families – Lots to see and explore; children will enjoy roaming around the beaches, rock pools and cliffs. Not suitable for wheelchairs or buggies.

Dogs – A wonderful landscape for dogs to run free and swim although they must be on leads for small sections of the route where livestock are in fields.

Refreshments

The Cable Bar on the main road in Ballyhornan (a mile away) is the only nearby option for refreshments.

There are no tables or benches at Killard but nature kindly provides very soft meadowland and sand dunes perfect for picnicking.

Toilets

There are no public toilets on or near the route.

The nearest facilities are at the Cable Bar in Ballyhornan (1 mile from start).

Places to visit

The **coastal path** from Ballyhornan to Sheepland is recommended but is quite rocky in places. En route is **St Patrick's Well**, the ruins of **Sheepland** village and further evidence of glaciation.

Ardglass is a picturesque fishing village about 5 miles to the south. It has a castle and four medieval tower-houses.

Castle Ward is an eccentric 18th-century mansion owned by the National Trust about 5 miles to the north just outside the village of Strangford. The large estate comprises woodland, parkland and gardens with a variety of walking and cycling trails including along the shore of Strangford Lough. www.nationaltrust.org.uk/castle-ward

Strangford Lough Ferry runs across the narrowest point in the lough between the villages of Strangford and Portaferry. From mid-channel you can see the SeaGen turbine. Departures every 30 minutes. www.nidirect.gov.uk/strangford-ferry-timetable

Tourist information

Downpatrick Visitor Information Centre

Inside the St Patrick's Centre, 53a Market Street, Downpatrick

Open all year round

Tel: 028 4461 2233

Email: downpatrick.vic@downdc.gov.uk

Tel: (028) 4461 2233

Visit Strangford Lough

www.visitstrangfordlough.co.uk

1. Welcome to the Killard peninsula

Killard Road overlooking Mill Quarter Bay

Welcome to the east coast of Northern Ireland and the Killard peninsula. It sits on the southern side of the estuary where Strangford Lough opens into the Irish Sea.

Strangford Lough is the largest sea lough in the UK and Ireland, covering nearly sixty square miles. Characterised by small rounded hills that surround and rise up out of the lough as tiny islands, it also features dozens of craggy inlets that belie its ancient Irish name of Loch Cuan, meaning lough of harbours.

The lough forms part of an Area of Outstanding Natural Beauty. It is also an internationally important area for wildlife and habitats thus designated as a Marine Nature Reserve, a Special Protection Area (for birds), a Special Area of Conservation (for its mudflats, lagoons, bays and reefs), and a Ramsar Site (for wetlands of international importance).

The lough is connected to the Irish Sea by a narrow strait just 700 metres wide. Look at a map of this area, known as the Lecale coast, to appreciate this.



Strangford Lough and the Killard peninsula
Google Maps



View across Mill Quarter Bay to Ballyquintin Point
© Verity Peet

If you look out to sea and across to the left you can see the northern side of Strangford Lough. The highest point on the horizon is known as Windmill Hill and the end of the peninsula is Ballyquintin Point.

The tidal water, rushing through the narrow straits, contrasts sharply with the quieter waters inside the lough.

The strong currents caused by the narrows led to the Viking name – Strangford – or strong fjords.

Killard's position at the mouth of the lough gives it a unique geography because it is subject to the influences and impacts of both the lough and the sea.

On this walk, we will explore the peninsula which includes Killard National Nature Reserve and an Area of Special Scientific Interest. It's a place of contrasts with sweeping sandy beaches and fascinating rock formations, charming meadowland and crumbling cliffs.

Along the way we will discover how this landscape has been shaped by ice and water, appreciate different types of erosion, see the variety of wildlife that thrives here, and find out how humans have used this landscape over the centuries.

This walk has been created by Verity Peet who moved to the area a few years ago and loves exploring.



Explore contrasting landscapes including rocky foreshores and crumbling cliffs
© Verity Peet

Directions 1

From the layby, walk along the roadside with the beach on your left to a break in the fence gives access to Mill Quarter Bay and Killard National Nature Reserve.

This is opposite a bungalow and a sign clearly marks the entrance. Stay on the grass above the beach and look at the sweep of Mill Quarter Bay.



But much grander plans are being considered. In 2012, a Russian company put forward proposals to build a tidal power barrier from Ballyquintin Point to Killard Point.

Imagine a long barrier right across the horizon from the end of the peninsula on your far left to the tip of Killard, far right.

While its economic appeal might be great, its environmental impact raises many concerns and is the subject of much continuing debate.



Could Strangford soon have a tidal barrage such as the one across the Rance estuary in France?
Remi Jouan, Wikimedia Commons (CCL)

Attempting to capture the power of natural forces here is actually nothing new. This bay is called Mill Quarter Bay because this coastline was once home to dozens of mills, which harnessed the power of wind and water for grinding corn or making linen.

Nearly all are gone now but you can still see a derelict windmill and the ruins of a corn watermill a couple of miles south of Killard, in the deserted village of Sheepland.



Ruins of Sheepland mill
© Verity Peet

Later in the walk we will find out some of the other ways in which local people have made a living from the land and sea.

Directions 2

Carefully clamber down the grassy slope onto the beach. If it is low tide, wander onto the foreshore and straight out towards the sea. If it is high tide, turn right (as you face the sea) along the pebbly remains of an eroded grass path and stop part way along.

3. Flying pick-its

Mill Quarter Bay foreshore

The first thing to strike many visitors to this area is the plentiful and diverse birdlife. If you stand still for a few moments, or, better still, watch with binoculars from afar, you will see a variety of birds feasting on the shoreline.

Oystercatchers, dunlin and curlew all feed and roost here. In the autumn, flocks of pale-bellied brent geese arrive from Canada and swirl and knot in their feeding cycles all around the lough shores.



Oystercatcher with cockle shell
Ian Kirk, Wikimedia Commons (CCL)

There would need to be something fairly special about a place to fly thousands of miles to visit it, and there is. For the brent geese, it's the abundance of *Zostera* (eel-grass) which grows in the extensive mudflats around the lough.



Small flock of pale-bellied brent geese on the intertidal mud
at the Cloghy Rocks in Strangford Lough
Albert Bridge, Geograph (CCL)

For the other birds, the attraction is the exceptional tidal action. The constantly turbulent tide breaks up the layers on the seabed resulting in even temperatures and an equitable distribution of nutrients.

As the tide comes in, wind-dried weeds swing in the water, microscopic life forms become animated and the food chain for thousands of creatures kicks into action.

The results provide a bountiful picnic of sea creatures of all shapes and sizes for birds (and humans) to feast upon. At low tide you can see the shellfish clinging to the rocks. At high tide empty shells dot the shoreline.

Directions 3

Walk towards the far end of Mill Quarter Bay. At the end is a wooden kissing gate. Go through and follow the stony path that runs alongside the fence. Stop when you reach the base of a small hill and look at the beach.

4. Boulders, pebbles, gravel and sand

Bottom of hill, end of Mill Quarter Bay

The array of material on this beach provides evidence of how this landscape was shaped by the Ice Ages.

During periods of global cooling, ice sheets spread across the British Isles including the Irish Sea. The mass of ice moving across the landscape scraped away the underlying rock. We can see the result: in places the bedrock is planed and polished; in other places it is rugged or channelled, as we will see shortly.



A landscape shaped by glaciation and de-glaciation
© Verity Peet

During relatively warmer periods the ice sheets melted and retreated. Solid material that had been carried within or on top of the ice was dumped; some remained in situ and some was transported away by meltwater and deposited downstream. Here the material was dumped from the melting ice directly into a tidal marine environment.



A mixture of materials found on the beach
© Verity Peet

The variety of pebbles and boulders found on the beach today are testimony to this. Look for different colours, shapes and types of rock. There are also muds and sands, with varying degrees of coarseness of grain and colour. Particularly notable are the red clays that contrast against the grey rocks and gravels. These clays are evidence of the periods of relative quiet in the ice flowing and melting, when finer particles had time to settle and form a layer of mud. Another group of materials visible from here is the gritty layers of different gravels that fill the channels created by the rocks and lie in strands of graded textures across the shoreline.

We will find out more about the processes of glaciation and de-glaciation – and the landforms they left behind – later in the walk.

Directions 4

Walk up the small hill past the spiky gorse bushes (which are yellow when in flower). Follow the cliff edge, being very careful not to get too close to the crumbling edge. Do not let children run ahead here! Stop where you can see a section of the cliff that has broken away and is sliding down onto the foreshore.

5. The hand that feeds also bites!

Cliff top, end of Mill Quarter Bay

The tide may bring food and nutrients to sustain wildlife, as we discovered earlier, but it is also a destructive force. At this cliff edge we can see an example of active erosion.

With every storm and tidal surge the soft cliffs are relentlessly battered and bashed by the wind and waves and the landscape is slowly transformed.

Local residents say parts of the Lecale coast have lost ten feet in the last four decades. Here, you can see for yourself how fences fall into the sea one after another.



Crumbling cliffs
© Verity Peet



One of many fence posts
that have succumbed to cliff erosion
© Verity Peet

Some people have called for new defences against erosion to protect land and property from further damage. But building defences against natural processes such as flooding or erosion is usually costly as well as contentious.

It can also have an environmental impact as barriers simply displace the problem elsewhere; in the case of barriers against sea erosion, the wave energy is deflected and can cause erosion further along the coastline. It can also limit or even cut off the sediment supply which maintain the popular beaches in the area.

Perhaps that is why there do not appear to be any plans for new defences, although the existing sea walls are being maintained.

Directions 5

Move away from the edge and walk to the top of the hill. If there are cows in the field, walk slowly around them being careful not to scare them. When you reach the highest point, turn and look back at the way you have come across Mill Quarter Bay.

6. Rolling hills

Top of hill looking back across Mill Quarter Bay

From the highest point here there is a good view of the mouth of Strangford Lough. After the sweep of Mill Quarter Bay you can see the village of Kilclief with its scattering of houses and the fifteenth-century castle. Beyond is the other side of Strangford Lough.

Look across the water to the lighthouse and behind it you will see a small rounded hill; in fact there are a number spread across this landscape. They are called 'drumlins' and are further evidence of glaciation.

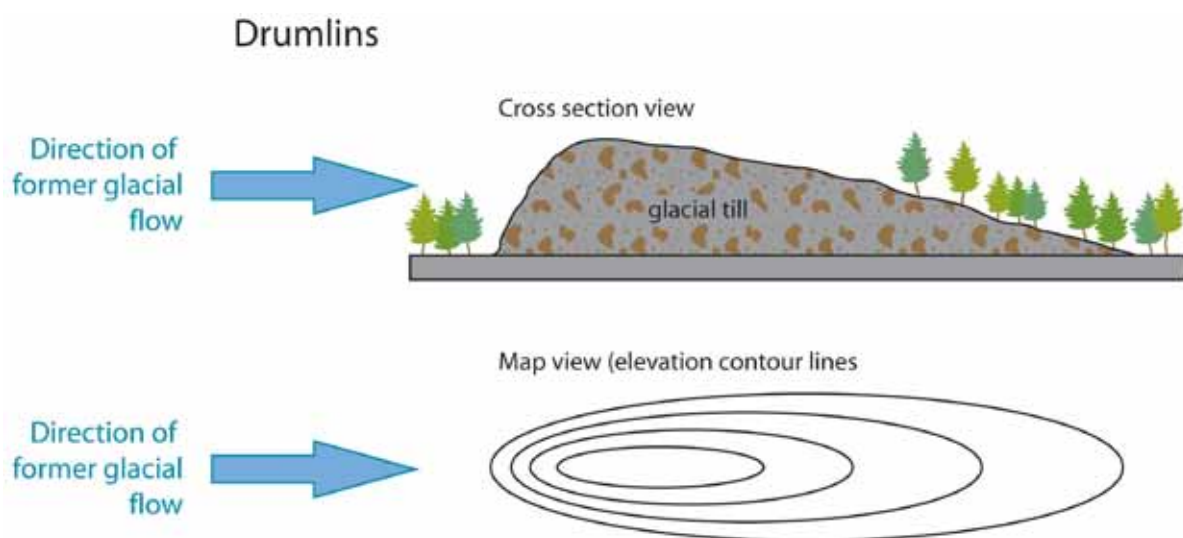


View across Strangford Lough to Windmill Hill
© Jenny Lunn

The many islands in Strangford Lough are also drumlins although, being partly submerged by water are known as drowned drumlins. They are also subject to the tides, thus have been eroded more than those on land.

Drumlins are small elongated hills, sometimes described as having the shape of an up-turned spoon or, if there is a cluster of them, a basket of eggs. Some drumlins have a solid rock core but most of the mound is made up of loose and unconsolidated material called 'glacial till'.

Glacial till is an unsorted mixture of sediments – ranging from clays and sand to gravel and boulders – that has been carried along by ice. Scientists have different theories about how drumlins form.



Drumlin shape and formation
Trista L Thornberry-Ehrlich, Colorado State University (CCL)

Geologists believe that the drumlins in this area were created when an ice sheet melted very rapidly. The velocity of the ice fed vast volumes of meltwater towards the ice base, lubricating it and enabling these landforms to be created.

The rapid de-glaciation here was not due to general climatic conditions but rather geographical positioning. Here at Killard, at the intersection of one of Europe's largest loughs and the Irish Sea, the ice had direct access to the sea. The sea had an accelerating effect on the rates of ice flow, called 'draw-down', which sped up the de-glaciation process.

This is the only site in Ireland to show this process of 'de-glacial sedimentation' into a tidal marine environment and why Killard has been designated as an Area of Special Scientific Interest.



Drumlins in Strangford Lough
Clockwise from top left: Ballywallon Island and Dorn Hill, Hen Island, Conly Island, Gores Island
© Albert Bridge, Geograph (CCL)

Directions 6

Continue following the grassy path down the hill to the wooden kissing gate into the Nature Reserve. Go through the gate and stop on the other side.

7. Sing for your supper!

Gate at entrance to Killard National Nature Reserve

This is a good spot to scan for animals in the sea. The turbulent tidal action may be a draw for birds but it also attracts larger predators.

The mammals you are most likely to see are seals, often swimming in pairs or small groups. It's easy to mistake their black noses for rocks – until they move!

The common seals have the shorter muzzles and V-shaped nostrils and the grey seals have elongated muzzles and parallel nostrils.



Grey seals sunbathing on rocks
Yummifruitbat, Wikimedia Commons (CCL)

Often curious, they frequently swim close to the shore or sunbathe within easy visual reach on outlying rocks. The sheltered bays, rich pickings of fish and rocky sun loungers are ideal for seals. They are also said to love music and respond to human singing. Feel free to try!



Rocky foreshores offer rich pickings for otters
© Verity Peet

Meanwhile, porpoises – small whales about 1½ to 1¾ metres long that usually swim in schools – love making the most of the fast currents that flow in the straits over near the lighthouse on Angus Rock. Less often spotted visitors are bottle-nosed dolphins and even killer whales.

If you are very lucky you may see otters. These shy creatures are sometimes seen at dawn or dusk, quietly slipping in and out of the water. Foreshores with boulders like Mill Quarter Bay, where they can hide and be camouflaged, are their favourite hunting ground.

Directions 7

Follow the path ahead which leads gently down. Stop when you get close to the shore.

8. Paradise on earth?

Edge of meadowland

Far ahead, jutting out into the sea is the headland known as Killard Point. The short, steep slopes here behind the beach are richly fertile grassland sheltered by the headland from both wind and water.

Protected from the forces of nature by its physical location, and protected from human interference through its status as a National Nature Reserve, the grassland here is truly unspoiled.

Essential to the fragile ecosystem is the centuries-old tradition of grazing cattle.



Coastal grassland towards Killard Point
© Jenny Lunn

Once this was common land, where anyone could take animals to graze, but since the 1960s this activity has been very carefully regulated and monitored. The cattle give the land natural fertilisation while ensuring that grass does not become dominant and suppress the wild flowers. In spring, the banks are scattered with primroses and in summer thousands of tiny orchids.



Abundant wildflowers on the grassy slopes
© Jenny Lunn

So unique are the conditions here that this is the only place in Northern Ireland that you can find many rare species of flowers which is why it is a designated Nature Reserve.

Perhaps the best time of year is in July and August when skylarks sing overhead and clouds of butterflies shimmer in the sunlight.

Sheltered by the headland, common blues, clouded yellows, graylings, meadow browns and painted ladies flit freely in this peaceful sanctuary, oblivious to the harsh winds and tides just a few yards away.

Directions 8

Continue along the grassy path between the beach and sloping grassland. At the end of the first curve of the beach is a large gorse bush on the left. Immediately after, look just off the path onto the foreshore for large, flat grey rocks that have a series of parallel grooves.

9. How to bend rock

Rock outcrop on foreshore

This grey-coloured rock is believed to be around 450 million years old. It has been dated to what is known as the Silurian period of geological time when plant and animal life forms on Earth were just beginning (marine life was fairly well-established by this stage).

These Silurian rocks were formed by sedimentation within an ancient ocean called the Iapetus Ocean. They were moved and shaped into their current position by a major event in geological history known as the Caledonian orogeny. 'Orogeny' means the process of mountain building; Caledonian refers to the geographic region where this happened.



Contorted slate
© Verity Peet

To simplify, what occurred was the collision of three of the Earth's tectonic plates (the red lines on the map below show the plate boundaries). The collision resulted in the creation of a string of mountain ranges that can be traced across what is now northern Europe, from Norway through northern

England to here in Northern Ireland (the yellow area indicates the zone of mountain formation in the Early Devonian epoch).



Location of the Caledonian-Acadian mountain chains in the Early Devonian epoch with present day coastlines shown for reference
Wouldloper, Wikimedia Commons (CCL)

The northern part of Ireland and Scotland were at the edge of the Laurentian plate while the southern part of Ireland with England and Wales were on the Avalonian plate; the red line between them represents the lost Iapetus Ocean.

The effect of the Caledonian orogeny here in Killard was to push up, bend and contort the layers of Silurian rock until they were almost vertical. Thus the parallel grooves that you can see were once the horizontal beds of rock stacked on top of each other.

Here on the northern side of the headland, the first ones you come to are only raised slightly above the foreshore and easily hidden by drifting sand or a high tide. Further towards the headland the phenomenon becomes easier to spot. On the headland itself, the raised twisted beds of rock dominate the landscape.



Look out for the characteristic parallel grooves on rock outcrops all around the peninsula (top) although some have been smoothed by the passage of ice (bottom)
© Verity Peet

Directions 9

Continue to follow the coastal path (or the foreshore if you prefer) until you come to the furthest point on the rocky headland of Killard Point. A short distance out to sea, you should be able to see a tall warning marker and, depending on the tide, the jagged rocks below. If it is at all wet, climbing the rocks on the shore is not advisable as they will be slippery.

10. Shipwrecked!

Coastal path by St Patrick's Rocks

The cluster of jagged rocks just offshore which are indicated by a warning marker are known as St Patrick's Rocks. According to legend, St Patrick was shipwrecked here but he is also said to have preached to the fishes here too!

There are several sites across this Lecale region that lay claim to links with St Patrick. The nearest, St Patrick's Well, is about two miles south along the coast at the ruins of the village of Sheepland.

St Patrick was not the first or last person to fight the forces of nature here. Countless sailors have lost their lives on these rocks and all along the Lecale coast.



St Patrick's Rocks just offshore
© Jenny Lunn

With tidal surges in and out of the lough's narrow straits, and wind and waves from the open sea, the currents can be incredibly strong. Combined with the contorted rocks above and below the waterline, those currents become unpredictable and dangerous.



The lighthouse on Angus Rock
Ardfern, Wikimedia Commons (CCL)

These days the rocks are marked on marine charts and physically with tall warning markers as you can see, but every few years another fatality is reported.

Two lighthouses remain in operation, both built in the late nineteenth century. At dusk, you can see the lighthouse to the left flashing a warning about Angus Rock in the middle of the straits into Strangford Lough.

In the opposite direction, a few miles south down the coast, every night you can see the beam from the lighthouse at St John's Point sweeping the horizon.

Directions 10

Move towards some of the rocks with yellow growths on their surface. If it is windy you might want to move further inland or shelter behind a rock.

11. That yellow stuff

Rocks with lichen

On exposed rocky shores like this one there is not much opportunity for plant or animal life to thrive.

The bare rock is not an easy place to put down roots. Add to that the regular bombardment of salty water and it is easy to understand why little grows. But a few things do.

The yellow stuff is lichen, an organism consisting of a fungus and a photosynthetic partner (usually either a green alga or cyanobacterium) growing together in a symbiotic relationship.



Lichen on rock
© Verity Peet

Lichens occur in some of the most extreme environments on earth from arctic tundra to hot deserts and from rocky coasts to toxic slag heaps.

You will be familiar with seeing them on various kinds of stone surfaces such as gravestones and dry stone walls. An estimated six per cent of the earth's land surface is covered by lichen.

Look carefully on the rocks here and you should be able to see several varieties of lichen in shades from black, brown and grey to red, orange and yellow. Sometimes you see what look like stripes of colour on the rocks, reflecting the different sea levels each variety prefers.

Lichens may not seem significant to you but they are actually a vital part of the ecosystem, providing shelter or food for creatures near the bottom of the food chain such as molluscs.

Lichens are useful for another reason too. They are widely distributed and also long-lived, but they are also vulnerable to environmental disturbance. Scientists study them in order to measure the effects of air pollution, ozone depletion and metal contamination.

As you can see from the profusion of lichen around you, Killard scores highly in terms of air quality, environmental management and ecological health.

Directions 11

Continue along the coast path by the rocky coastline for a few hundred metres. Just after the next bay comes into view, and before the path and coastline bears right, is a large and deep crack (or cleft) in the rocks on the left known as Gurgle Gurgle.

12. Gurgle Gurgle

Deep cleft in rocks

Earlier we discovered how dramatic movements of the earth (the Caledonian orogeny) lifted and bent horizontal beds of rock into vertical layers and various contorted shapes.

In other places, though, there was a different result: the earth movements cracked and fractured the bedrock.

Large fractures are known as 'faults' and smaller ones are known as 'joints'. There is a network of them criss-crossing the Lecale region and under Strangford Lough.



Gurgle Gurgle
© Verity Peet



Gurgle Gurgle
© Verity Peet

Over the millions of years since, the joints and faults have been eroded by other natural forces including ice, water and wind.

The deep cleft here at the tip of Killard Point is called Gurgle Gurgle (or Burney's Hole to locals). This is one example of a fault that has been eroded by waves. As the tide turns, water rushes in and out producing a gurgling sound, hence the name.

If it is dry, you can climb up the right hand side and very carefully peer down into the cleft. However, if it is a damp day walking on slippery rocks is not advisable.

Also, if it is windy please be very careful and just stay on shore to admire waves crashing into the rocks and the wave patterns refracting in all directions.

Directions 12

Continue to follow the coast path as it bears right towards the large sweep of beach ahead which is called Benderg Bay. When you reach the beach carefully step down the rocks on to the sand.

13. On the rebound

Eastern end of Benderg Bay

This spectacular curving beach is Benderg Bay and at this end is another landform that gives clues to the processes of glaciation and de-glaciation. Behind the current beach is a dune platform covered with marram grass. This is a 'raised beach'.

During the glacial period, ice weighed down the earth's crust, compressing it. When the ice melted the crust effectively bounced back up. Imagine a sponge, which you can easily squash but which soon reverts to its original shape on release.

This post-glacial rebound is known as 'isostatic uplift'. This is the process that created raised beaches like this one that are left high-and-dry, not in synchronisation with the current sea level.



The sandy platform is a raised beach
© Verity Peet



Raised beach viewed from cliffs above
© Jenny Lunn

The sand dunes located on top of the raised beach were formed subsequently by the actions of the wind in shifting deposits of sand that the ice had left behind.

It is so unusual to see such clear evidence of this process of de-glaciation that Killard has won a place in scientific literature, with this period referred to as the Killard Point Event.

In a little while we'll go to the top of the cliffs ahead and be able to look down on the extent of a raised beach which will give you a better sense of its dimensions.

Directions 13

Walk around the curve of the beach but not too close to the base of the cliffs or you may find yourself subject to bird droppings or cliff crumbles. Stop near the far end where the sand gives way to rocks and look at the cliffs.

14. Crumbling cliffs

Bottom of the cliffs, western end of Benderg Bay

The erosion of hard rock such as that we saw at Gurgle Gurgle takes place over hundreds of years or even millennia. But cliffs made of loose sandy material like these (and the ones we saw in Mill Quarter Bay at the start of this walk) can erode very quickly.

In fact the cliffs here are so soft they can crumble before your very eyes, so please do not stand too close and do not attempt to climb them, however enticing they may be.

On the reefs you can see the remnants of a nearby RAF radar station (more on that shortly). After demolition its rubble was dumped here in an effort to help prevent erosion.



Soft crumbling cliffs at Benderg Bay
© Verity Peet



Sand martin holes in the sandy cliffs
© Verity Peet

For some, though, the eroding cliff makes a perfect home. If you stand still for a few moments you may see the birds going about their business in the side of the cliffs. Killard Point is one of the first landfall points for birds flying in from the Irish Sea and its rich marine and wildlife make for an appealing holiday home.

Sand martins, jackdaws and starlings make the most of the soft cliff walls by creating purpose-built residences. You can see many holes pecked out by the birds all along the sandy cliff side as the birds add their own little contribution to the erosion. Higher up, fulmars make their nests on the grassy ledges.

Directions 14

Retrace your steps back part way round the bay – if the tide is out you can cut across the sand. At the end of the higher section of cliff clamber up onto the grassy sand dunes. Turn left and follow the steep grassy path up to the top of the cliffs. Please be wary of the soft edges on these cliffs and do not let children wander off unsupervised.

15. A working relationship

Top of cliffs above Benderg Bay

Do pause here to enjoy the extensive views. The rounded island in the bay is Gunns Island (another example of a drumlin); to the right in the distance are the Mourne Mountains; out to sea on the left (if it is a very clear day) you can see the mountains of the Isle of Man.

The sea was once one of the main sources of work for thousands of people in this area. Earlier we found out about the mills using the power of wind and water for grinding corn and making linen. Today, the mills are nearly all gone and the linen making industry is over.



View from Benderg Bay towards Gunns Island
© Verity Peet

Other significant economic activities along the coast were ports and fishing. There were once many small ports along the coast each of which exported locally-produced agricultural goods. These days, the bigger ports such as Belfast and Kilkeel have taken over the exporting of farm produce.



Small fishing trawler approaching Ardglass harbour
Albert Bridge, Geograph (CCL)

There is still one working fishing port along this stretch of coastline: Ardglass (in the distance to your right as you look out to sea).

It was once Ulster's busiest port and boasts more medieval tower-houses than any other town in Ireland, reflecting its once-great status.

Sadly it is now a shadow of its former glory. Today it is mostly a commuter town, showing the transformation of work practices over the last century.

Across the county, few people make a living from the land or sea now. Far more commute to jobs in Downpatrick or Belfast and work in the service or tourism industries.

Directions 15

With your back to the bay, head across the grassy plateau towards the nearest small square concrete building about 25 metres away, which is a former military pill box. Mind out for spiky gorse bushes on the way.

16. Run rabbit, run

Pill box on cliff above Benderg Bay

Here you can see the remains of the RAF occupation of Killard Point. From 1952 to 1978, this plateau was a radar station. Its strategic location and elevation made it the perfect vantage point for looking out for visitors other than birds.

Today the 'pill boxes' in which the military once kept their radar equipment provide colourful shelter (courtesy of local young artists) for walkers and cows alike.

This flat land has had a variety of uses by humans through the ages. For long periods it was used mostly for common grazing although at one point it was a managed rabbit warren!



Concrete pillboxes on the elevated plateau
© Jenny Lunn



Pyramidal orchid
(*Anacamptis pyramidalis*)
Mike Pennington, Geograph
(CCL)

Up until 1932 a hurling pitch made use of the soft meadow (hurling is an ancient but still very popular game a little like hockey). Now, its geological and ecological value has been recognised and it is a protected Area of Special Scientific Interest. This means that the meadow cannot be altered in any way, and that the environmental factors that can be controlled are controlled.

Not only must cows continue to graze on the meadow every winter as they have done for decades, but it also must be the same type of cows. Furthermore, they cannot be allowed any supplementary feed to ensure that their appetite remains unchanged, as does the chemical composition of their dung. In other words, every effort is being made to ensure that the beauty of Killard is preserved.

Directions 16

Continue following the path across the grassy plateau in almost a straight line, crossing an old tarmac road and passing another pill box. This will take you back to the northern side of the peninsula. When you reach the top of the cliff, bear diagonally left down a path. This brings you back to the kissing gate where you entered the Nature Reserve. From here, retrace your steps over the small hill, along the stony path and through the gate onto Mill Quarter Bay. Follow the beach around to the parking area.

17. Time and tide

Killard Road overlooking Mill Quarter Bay

We have now come full circle around the Killard peninsula. Hopefully you've enjoyed the simple contrasts of water, rock, sand and meadow and come to appreciate what an amazing place Killard is.

This walk has told the story of the dramatic natural forces that have shaped this area, the wildlife that thrives here, and the human use of this landscape.

We saw 450 million year old rocks showing evidence of continents colliding and the results of the deep fractures eroded away into gurgling clefts.



Stratified rocks at Benderg Bay
© Jenny Lunn

We saw drumlin hills scattered across the landscape and a raised beach that gave evidence of deglaciation. We saw beaches composed of pebbles deposited from upstream and cliffs crumbling away due to erosion. The common thread was water in the form of ice, meltwater, waves, tides and currents. It is water, and the twin processes of erosion and deposition, that has been the story of the creation of Killard.

It is this physical landscape and its special location that has shaped its ecology and the wildlife drawn here from butterflies and birds to orchids and otters. The geography of Killard is special because it is influenced by both Strangford Lough and the open sea.



Coastal grassland on the north side of Killard peninsula
© Jenny Lunn

We've also experienced the contrasts between the beaches and cliffs exposed to wind and tide and the tranquil grassland creating the perfect conditions for rare species of wildlife to flourish.

Humans have interacted with this coastline over the centuries, from harnessing the power of the wind and tide to making a living from the sea, and from using the elevated position as a lookout to the grassland for grazing and games. More recently, the natural beauty, scientific significance and delicate ecosystem of Killard has been recognised and protected through designated status and conservation measures.

Credits

The RGS-IBG would like to thank the following people for their assistance in producing this Discovering Britain walk:

Verity Peet for creating the walk, taking photographs and providing the audio commentary

Cathal (Verity's son) for checking the walk's suitability for curious children!

Jenny Lunn for editing the walk resources, providing photographs and acting as narrator

Howard Lunn for testing the walk route and taking photographs

Ian Enlander for helpful feedback about the scientific aspects of the walk commentary

Caroline Millar for editing the audio files

Albert Bridge, Ardfern, Fundy, Ian Kirk, Mike Pennington, Remi Jouan, Trista L Thornberry-Ehrlich, Wouldloper and **Yummifruitbat** for additional images reproduced under the Creative Commons License



View from the Killard peninsula towards the Mourne Mountains
© Verity Peet

Further information

Visit Strangford Lough

www.visitstrangfordlough.co.uk

Discover Northern Ireland – Strangford Lough

www.discovernorthernireland.com/strangford

Killard Point Tide Times

www.tidetimes.org.uk/killard-point-tide-times

Strangford Lough and Lecale Partnership

www.strangfordlough.org

Strangford and Lecale AONB

www.doeni.gov.uk/niea/protected_areas_home/aonb/strangford_and_lecale_aonb-2.htm

Killard Nature Reserve

www.doeni.gov.uk/niea/places_to_visit_home/nature_resintro/nature_reserves_killard.htm

Killard Area of Special Scientific Interest

www.doeni.gov.uk/niea/protected_areas_home/new_assi_landing_page/county_down-2/killard_assi.htm

Sheepland Coast Area of Special Scientific Interest

www.doeni.gov.uk/niea/protected_areas_home/new_assi_landing_page/county_down-2/sheepland_coast_assi.htm

Geological Sites in Northern Ireland - Killard Point

www.habitas.org.uk/escr/site.asp?Item=9

Sea Generation

www.seageneration.co.uk/

Sheeplands Village

www.oracleireland.com/Ireland/Countys/down/sheeplands.htm

Try other walks in the Discovering Britain series in County Down

Nature's bounty

Discover a wealth of natural resources in the Mourne Mountains

<http://www.discoveringbritain.org/walks/region/northern-ireland/mournes.html>



If riverbanks could talk

Discover how the River Quoile has shaped the landscape around Downpatrick

<http://www.discoveringbritain.org/walks/region/northern-ireland/downpatrick.html>



Try other walks in the Discovering Britain series that explore landscapes shaped by ice and water

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Discover the dramatic impact of glaciers in Ludlow

<http://www.discoveringbritain.org/walks/region/west-midlands/ludlow.html>



The missing river

Discover why one of Durham's rivers completely changed its course

<http://www.discoveringbritain.org/walks/region/north-east-england/durham-flass-vale.html>



Natural beauty and human endeavour

Explore the picturesque valley of Glen Cornaa on the Isle of Man

<http://www.discoveringbritain.org/walks/region/isle-of-man/glen-cornaa.html>



A walk of art

Discover three centuries of landscape art in the Borrowdale Valley

<http://www.discoveringbritain.org/walks/region/north-west-england/borrowdale.html>





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