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# Holyhead Breakwater Country Park Geotrail

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[Welsh version](#)

**Enjoy the magnificent Holy Island coastline whilst learning all about its fascinating geology on this beautiful and spectacular walk.**

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The Holyhead Breakwater Country Park is centred on a quarry which supplied rock to build the breakwater and later became a brickworks. The geotrail starts at the Breakwater and brings you back along the coast to the Country Park through some of the oldest rocks in Wales, dating from some 522 million years ago. You can either leave a car in the Country Park and walk to the Breakwater or there is room to park at the start of the road into the park near the Bond Warehouse and walk back afterwards.

**1 The Breakwater:** [SH 23689 83669] There are some superb examples of the New Harbour schists adjacent to the breakwater itself, some of which form the surface at the start of the Breakwater giving a 3D view of the amazing folds. The road level is mainly large blocks of Holyhead Quartzite. Further along, most of the walkway is constructed of Carboniferous Limestone with a variety of sedimentary features and fossils - look for large brachiopods and corals.

**2 The buildings:** [SH 23586 83618] It is worth nipping through the small gap in the wall [the signposted route for the coastal footpath] to study blocks of New Harbour schists which show fine scale bedding contorted by metamorphism into the most amazing shapes.

**3 Breakwater Cove:** [SH 23629 83686] Note the storm beach, with very large pebbles piled up to a height of several metres above high tide level – evidence of storm waves in winter and therefore the need for such an extensive breakwater.

**4 South Stack beds:** [SH 23450 83768] These are exposed along the coast to the west, here they are yellowish-brown rocks, whose sandy nature explains why they have only a crude cleavage developed by metamorphism. Some geologists have found fossilised worm burrows in the South Stack beds.

**5 Coastal Path:** [SH 23334 83849] This heathland area has a mix of soil types. There are thin peaty soils on the rock, with dry heathland vegetation; the hollows which collect water have a wet heath vegetation on saturated peat. This is a good vantage point to look along the coast into the quarry, and back along the Breakwater - and consider just how much rock was moved! Note the smooth surfaces where the ice eroded and polished the rock.

**6 Coastline:** [SH 23259 83746] All this coastline is South Stack Beds, usually greyish green rocks which often weather to a pale colour and were originally muddy sand on the sea bed. Bedding is fairly coarse, dipping gently SE, broken by a series of fractures which eroded to form narrow inlets; some like this large gully were originally occupied by a dyke, an intrusion of igneous rock.

**7 Headland:** [SH 23055 83650] Ahead of you glacial deposits can be seen on the headlands covering a rock surface planed off by ice. They form better quality soils than the local rock and are usually covered by grassland, but where the material is clay rich, wetter soils have developed, evidenced by the patches of rushes and reeds in some of the fields.

**8 Porth Namarch:** [SH 22569 83497] walk out to the headland from where you can get a good view down into the bay [do not descend to the beach; the path is too dangerous] one can see the South Stack beds on the far side which appears to be thrust over the Holyhead Quartzite. On the near side, to your left there is an excellent example of a large dolerite dyke with spheroidal weathering which is probably the source of dolerite pebbles used in the hut circles at Ty Mawr. This dyke was intruded into a fracture at the time of the opening of the Atlantic Ocean around 65 million years ago.

**9 Breakwater Quarry:** [SH 22581 83264] The Holyhead Quartzite is a hard, massive, white, quartzite, originally a thick deposit of white sand on the seafloor, but metamorphism has fused it into a crystalline rock. There are no traces of bedding or other structural features within the quarry.

## Figures

Route map. Inset: Thrust in Porth Namarch.

Storm waves, making the point of the need for the breakwater and the existence of the storm beach in Breakwater Cove.

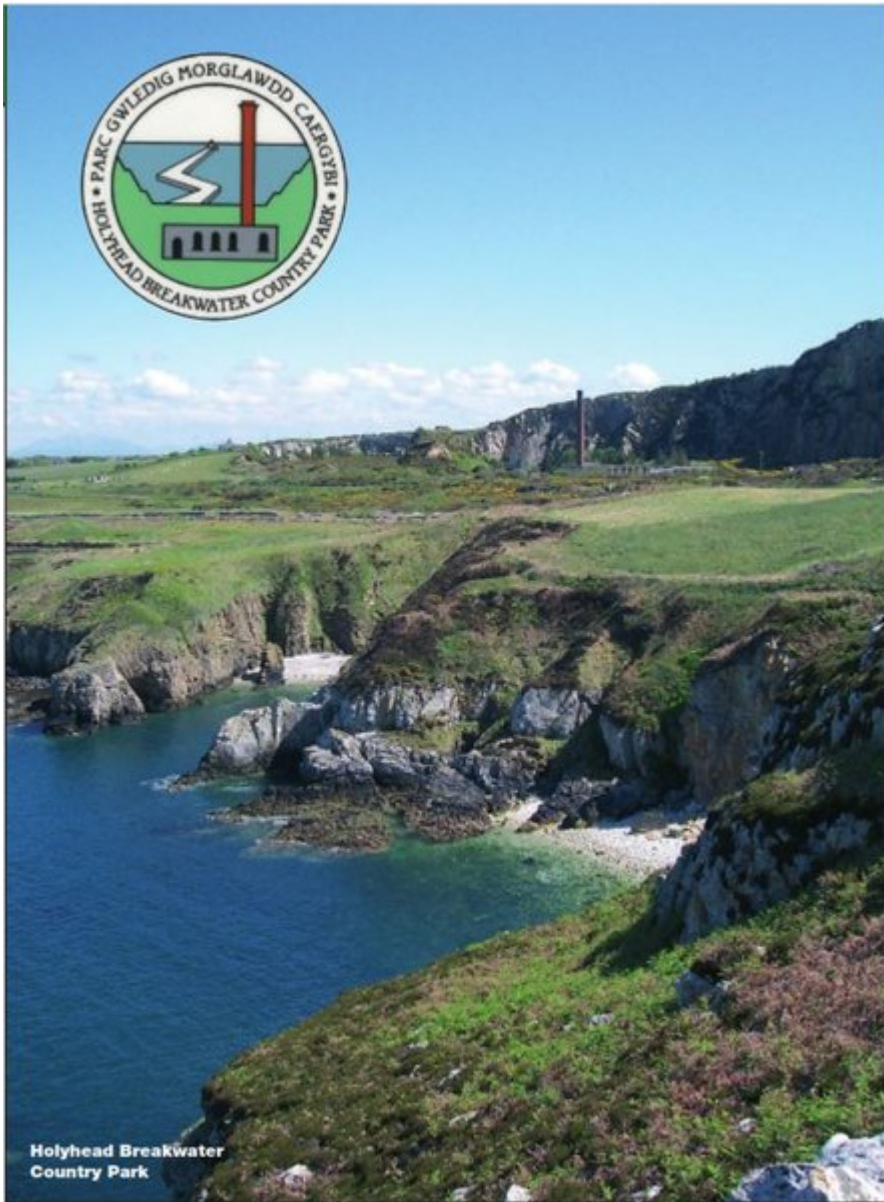
Close up of New Harbour schist.

Holyhead Breakwater Country Park.

Glacially smoothed rock surfaces.



*Holyhead breakwater route map. Inset: Thrust in Porth Namarch.*



*Holyhead Breakwater Country Park.*