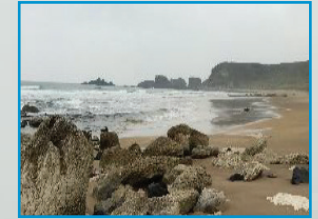


# Whitepark Bay

## Information Sheet



### Location: WHITEPARK BAY

Conservation designations: AONB, ASSI, SAC

Grid reference: 301412, 443636 (Irish Grid)

Location: 157 Whitepark Road, BT54 6NH

Parking available: Yes, small car park available above the beach (not suitable for large coaches); bus/coach stop available at main road

Personnel to be contacted prior to visit: National Trust, North Coast Office

### Useful equipment:

- Stationary
- Camera
- Metre stick
- Hand lens
- Dilute HCL

### Relevance national curriculum:

#### Key Stage 4/5 Geology

- Geological Hazards
- Petrology
- Coastal Geomorphology
- Glaciation

#### Key Stage 4/5 Geography

- Coastal Erosion
- Hazards

**Rock types and geological processes observed:** Sedimentary (Ulster White Limestone / Chalk and Lias Clay), Igneous (Basalt), Coastal Processes, intrusive and extrusive igneous activity

**Geological structures:** Dykes and sills

**Earth processes:** eg. Continental drift, coastal flooding and glaciation

**Geological periods present:** Jurassic, Cretaceous and Palaeogene

### Site specific hazards and risks:

- Tides and wave zone
- Loose and slippery rocks and paths
- Cliffs
- Livestock
- Traffic

It is advisable to carry out a dynamic risk assessment before embarking upon a study visit

### Mitigation measures:

- Stay away from the wave zone
- Wear appropriate clothing and footwear
- Avoid the base of cliffs
- Do not disturb livestock
- Embark and disembark vehicles in the designated parking area of bus / coach stops

**Did you know:** The rocks and landforms in Whitepark Bay provide a wealth of evidence of ancient Earth processes, some which continue today. The oldest rocks, Lias Clays date from the Jurassic Period (200 million years ago) and are located at the eastern end of the bay. At low tide it is possible to observe the junction between these Lias Clays and the younger Ulster White Limestone which formed during the Cretaceous (80 million years ago). The base of the Limestone layer contains many pebble and rock fragments and is referred to as Conglomerate. This abrupt change from Lias Clay to Conglomerate indicates flooding of the Jurassic landscape by the sea as North America and Europe drifted apart during the Cretaceous. This landscape was later changed completely by intrusion and extrusion of basalt rock in the Paleogene and sculpted by the action of glaciers during the Quaternary.

**Topics to cover before visit:** Rock cycle, geological time, fossils and fossil preservation, depositional environments, plate tectonics, coastal erosion features, intrusive and extrusive igneous activity.

**Keywords:** Jurassic, Cretaceous, Palaeogene, Plate Tectonics, Lias Clay, Ulster White Limestone, Belemnites, Faults, Stacks, Caves, Basalt, Marble Sand Dunes, Slumping, Glaciation, Depositional Environments, Mid Ocean Ridge, Pangaea, Continental Drift, Flint, Dyke, Sill, Magma, Metamorphic, Hornfels



Limestone with Belemnite Fossil



Extensive Sand Dune Systems at Whitepark Bay



Basalt Rock

**Geological history\*:**

The geological story at Whitepark Bay begins during the Jurassic (200 million years ago) when this part of Ireland was approximately 40°N of the equator, adjacent to a warm shallow sea created by the break up of a supercontinent known as Pangaea. The climate was humid, with monsoon-type summers leading to the deposition of Lias Clay. At Whitepark Bay there is evidence of a break in deposition towards the end of the Jurassic because younger Cretaceous (80 million years ago) Ulster White Limestone sits unconformably on top of the Lias Clay. This marks a dramatic change in the climate and depositional environment as the Jurassic landscape was flooded by a warm sea created by the opening of the North Atlantic Ocean. During the Palaeogene (beginning 65 million years ago), crustal thinning linked to plate tectonic activity generated huge volumes of basalt lava which flooded over and intruded into the Ulster White Limestone, forming the Antrim Plateau which caps most of this coastline. This plate tectonic activity continues today as North America and Europe drift apart at the Mid-Atlantic Ridge e.g. in Iceland. During the Quaternary (last 2.5 million years), a series of glaciations (ice ages), saw ice sheets expand southwards across Ireland. As the ice advanced it acted much like sandpaper, scraping and scouring the surface of the land. Upon retreat the material collected by the ice was deposited, forming thick deposits of glacial material, with sediment ranging in size from fine clays, through to sands, gravels and boulders. Over time this material has been worked and re-worked by coastal processes (wind and wave action) to form the dune system in Whitepark Bay.

