A Geological Trail from St Bees to Whitehaven

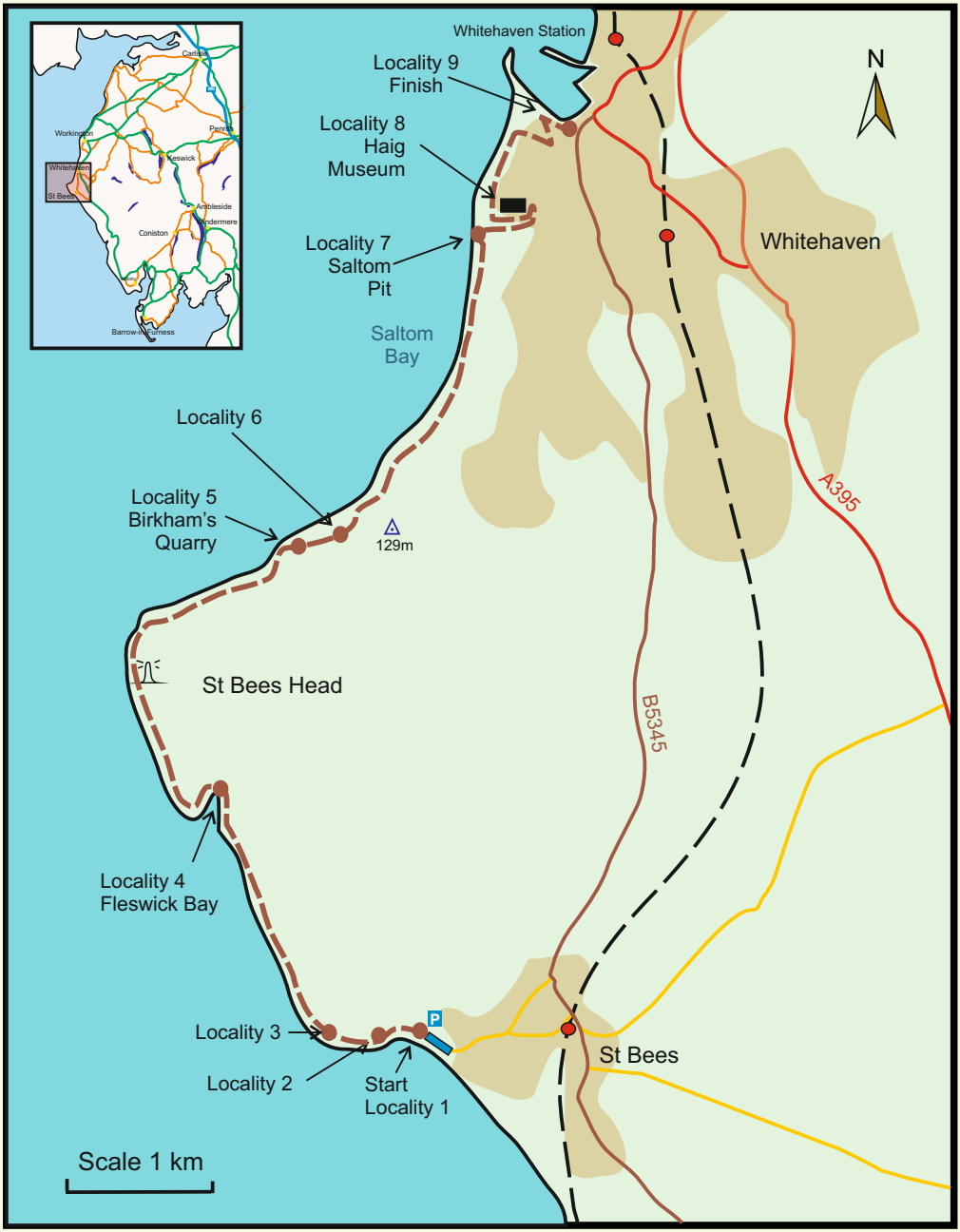

Fleswick Bay

Cumbria GeoConservation

MERSEYSIDE LANCASHIRE CUMBRIA GREATER MANCHESTER CHESHIRE

Cumbria GeoConservation

Conserving Important Geological & Geomorphological Sites in Cumbria



The route starts at the coastal car park in St Bees The distance of the walk is 6 miles (9.5 kilometres). Allow 4 to 5 hours to complete the route. The route is entirely on tracks and footpaths. Walking boots and suitable clothing are required. OS Explorer Map 303 shows further topographic details of the area.

Glacial moraine to the south of the promenade

Locality 1: St Bees village and car park area lies at the southern end of the Whitehaven-St.Bees valley which separates the St. Bees headland and adjacent uplands from high ground lying to the east. Regional rail and road links follow this low lying area. At the southern end of the promenade low level topography backs the shore line. This area is in glacial moraine deposits which are exposed at the back of the beach to the south of St. Bees. Looking to the north the prominent red coloured cliffs are in the Triassic St. Bees Sandstone, a water laid sedimentary rock deposited some 200 million years ago. Several exposures in the St. Bees Sandstone will be visited later in the Trail. The beach material seen here (care should be taken here walking on slippery rocks) includes pebbles and boulders of both local and of Scottish origin. The deposit is interpreted to be the result of the last landward advance of late Ice Age glaciers (Pleistocene) from the Irish Sea area. It is known as the Scottish Readvance, which took place about 19,000 years ago.

Slumped glacial till

Locality 2: At the foot of the cliff and in the beach area at the north end of the promenade is a conspicuous area of slumped glacial till. The boulder content is different to that seen at Locality 1 in that it constitutes only local material (St. Bees Sandstone debris), and is regarded as a different phase of glacial deposition. To the north west the high cliffs of the St. Bees Sandstones form the dominant topographic feature. Retrace your steps to join the coastal path and proceed on to the headland and to the next locality.

Current-bedding in St Bees Sandstone

Locality 3: Several features of the St. Bees Sandstones can be seen here. Note the current bedding caused by sediments deposited in increasingly shallow water (upper photograph).

Differential weathering is also evident where weaker less well cemented layers occupy notches in the cliff face and the better cemented and hence stronger layers occur as ridges and are resistant to erosion (lower photograph).

Locality 4 Fleshwick Bay: An attractive coastal locality. The beach is backed by cliffs in red St. Bees Sandstone. The area comprises of scattered outcrops of shingle and boulder deposits of St. Bees Sandstone. The prominent red colour of the sandstones results from a fine coating of iron oxide on constituent grains of the sandstone. A south-westerly shallow dip of the strata is evident and clearly seen in the area. When you examine the cliff section it is apparent that the spacing between bedding planes (which defines the sedimentary layering) are seen to be generally widely spaced. Likewise, the joint system (the nearly vertical planes which divide the sandstone layers into blocks) are again generally widely spaced. The strata and the joint spacing give the cliff section a somewhat blocky appearance. The sandstone grain size can be studied with a hand lens on clean surfaces on the rocks and are of fine to medium grain size. Several pale green layers can be observed in the exposure which co-incide with both bedding planes and joints. The green colour results from the chemical oxidisation of the iron oxide coating on sandstone grains by circulating ground waters over a prolonged period.

Locality 5 Birkhams Quarry: This is a working quarry in St. Bees Sandstone and therefore entry into the site is not permitted but can be clearly viewed from the footpath. High quality sandstone products are exported widely and principally comprise very large sandstone blocks. This large block character results from very widely spaced bedding planes and joints which can be seen in the quarry face. The lower photograph reveals there are several thinly bedded sequences interspaced with the thickly bedded units.

Locality 6: Looking to the north from this viewpoint on the high ground of the St. Bees Sandstone, a marked contrast in topography is evident. This lower elevation is due to the softer rocks of the St. Bees Shales and Coal Measure strata extending northwards to Whitehaven. The colour contrast from the red sandstone and soils of the St. Bees sandstone outcrop to the generally grey landscape of the Coal Measures and the industrial wastes is obvious. In Barrowmouth Bay at the foot of steep cliffs remnants of drift mining and anhydrite extraction were once evident. However, little is to be seen now of this aspect of the industrial heritage of the region, and access to Barrowmouth Bay is difficult and the risk not justified.

Locality 7 Saltom Pit: The plaque on the shaft head buildings dates the pit at 1725. It also records that the shaft was hand dug and was the first attempt to extract undersea coals in the area. The shaft head building is constructed of local sandstones. Return to the coastal path and proceed to the next locality.

Made ground

Locality 8 Haig Pit Buildings ,Whitehaven: The excellent museum illustrating the mining history of the region is open on scheduled times. Visitors should check availability. One important exhibit is the diagram and explanation of the development and history of Haig Pit, including undersea working until it closed in 1986.

Progressing northwards along the coastal path much evidence of man-made ground and of industrial waste tipping can be seen. This is the remains of coal mining activity and of anhydrite abstraction once used in sulphuric acid manufacture.

Locality 9 The Candlestick: The ventilation shaft for the Wellington Pit is all that remains of that pit at the present day. It is reached just before Whitehaven Docks and which is the conclusion of the Trail.

Whitehaven Harbour

Cumbria GeoConservation

Conserving Geological Sites

Cumbria GeoConservation was formed in 1992 to identify and record important places for geology and geomorphology. Cumbria GeoConservation are supported and funded by Cumbria County Council. The group consists of voluntary professional and amateur geologists. Once conservation sites are approved and recorded they need to be conserved, they are visited periodically and if funds are available clearance work is carried out.

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For more information and ways to explore Cumbria's geology, visit:

www.cumberland-geol-soc.org.uk

www.westmorlandgeolsoc.co.uk

www.cumbriarigs.co.uk

www.bgs.ac.uk/opengeoscience

www.geoconservationuk.org.uk

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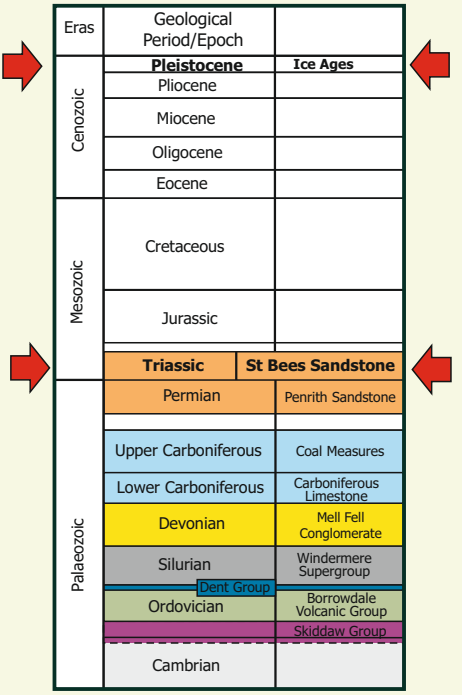

Timescale of rocks deposited in Cumbria

This booklet was funded by the Northwest GeoDiversity Partnership.

The Cumberland Geological Society

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