

COUNTY: DEVON      SITE NAME: MERMAID'S POOL TO ROWDEN GUT

DISTRICT: TORRIDGE

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act, 1981, (as amended).

Local Planning Authority: DEVON COUNTY COUNCIL, Torridge District Council

National Grid Reference: SS 403266      Area: 156.54 (ha.) 63.29 (ac.)

Ordnance Survey Sheet 1:50,000: 180, 190      1:10,000: SS 42 NW, SS 32 NE, SS 32 SE

Date Notified (Under 1981 Act): 1996      Date of Last Revision: –

Other Information:

A Geological Conservation Review (GCR) site. Northern boundary lies close to Westward Ho! SSSI.

Description and Reasons for Notification:

The 5.5 km long coastal section from Mermaid's Pool to Rowden Gut exposes the only complete sequence available through the Bideford Formation – a localised development of fluvio-lacustrine 'Coal Measure' type deposits. The partly coeval Crackington and Bude Formations, which represent more marine-influenced sediments of the South West England 'Culm Basin', are also exposed within the site.

The strata are extensively exposed within a series of broad and slightly asymmetrical folds, causing repetition of the sequence along the cliffs and foreshore. Further structural complications are provided by two sets of wrench faults. The sediments comprise 750--800m of alternating mudstones, siltstones and sandstones. At least nine sedimentary cycles have been recognised, each grading upwards from black mudstones into coarser beds, eventually culminating in distinctive, sharply defined sandstones which are bioturbated or include rootlet horizons. Sedimentary structures including cross-stratification and trace-fossil assemblages are locally well developed. Palaeocurrent directions indicate a provenance to the north-west.

Biostratigraphical evidence demonstrates that the Bideford Formation is laterally equivalent to the upper part of the Crackington Formation and the basal part of the Bude Formation. One marine marker band, characterised by the goniatite *Gastrioceras amaliae* (of Langsettian age) occurs within both a Crackington Formation sequence at Babbacombe Mouth and within a Bideford Formation facies west of Cornborough. In addition to marine horizons, the Bideford Formation yields important non-marine bivalve assemblages including faunas of the *Carbonicola lenisulcata* Zone. The basal part of the overlying Bude Formation (1m above the Cornborough Sandstone) includes an impure coal seam with traces of a seat earth. Close to this level, elements of a Coal Measure flora have been recorded including *Neuropteris obliqua*, *Sphenophyllum cuneiforme* and *Kariopteris acuta* which suggest the *Lyginopteris hoeninghausii* Zone.

The coastal exposures from Mermaid's Pool to Rowden Gut exhibit the best available sections through the Bideford Formation and provide detailed sedimentological and biostratigraphical information. The combination of a major lateral change from Crackington to Bideford Formation facies and the associated

biostratigraphical control makes this site of very considerable importance for regional and national palaeoenvironmental and palaeogeographical studies.

Notified to the Secretary of State on 25 January 1996