

**CYNGOR CEFN GWLAD CYMRU
COUNTRYSIDE COUNCIL FOR WALES**

SITE OF SPECIAL SCIENTIFIC INTEREST CITATION

GWYNEDD

WIG BACH A'R GLANNAU I BORTH ALWM

Date of Notification:

2001

National Grid Reference:

SH 18452583 to SH 21352612

OS Maps:

1:50,000 Sheet number: 123

1:10,000 Sheet numbers: SH12 and SH22

Site Area:

43.3 ha

Description:

This site is of special scientific interest for its geological and marine biological features, in particular for its rockpool, bedrock overhang and surge gully communities. The site consists of about 4 km of cliffs on the southwest Llŷn coast from Wig Bach in the West to Porth Alwm in the east, with a shore of cobbles, boulders and bedrock that is exposed to strong wave action and tidal currents. A small area of sandy shore at the eastern end of Aberdaron Bay is included at the western limit of the site.

Geology:

The 160 m long section of coastal cliffs and foreshore near Trwyn y Penrhyn at the eastern end of Aberdaron Bay provides the most marked example in Llŷn of the overstep of early Ordovician (Arenig Series) marine sedimentary rocks onto Precambrian units of the Mona Complex. At Wig Bach the Cambrian succession seen farther to the east has been overstepped completely and Arenig Series sedimentary rocks belonging to the Wig Bach Formation rest unconformably on Precambrian mylonitic schists. The presence of an unconformity disproves previous proposals that the contact between Precambrian and Ordovician rocks is represented by a low-angle reverse fault or 'Boundary Thrust'. The site contains the basal stratotype of the Wig Bach Formation and is the type locality for the Wig Member. Wig Bach is an outstanding locality for studies of the tectonic and sedimentary evolution of north west Wales.

Marine Biology:

Rockpool, bedrock overhang and surge gully communities are of particular marine biological interest on the shore. These assemblages are termed 'specialised' because their constituent species are highly adapted to their particular habitat. Good examples of three specialised communities are found on the shore here. Species-rich shallow rockpools with coralline crusts and the red seaweed *Corallina officinalis* are found immediately to the east of Aberdaron beach. A large cave here also contains a diverse assemblage of sponges, sea squirts and bryozoan crusts with the anemone *Actinotheroe sphyrodeta*. Similar species are found in a surge gully below the cave, with the addition of the soft coral dead man's fingers *Alcyonium digitatum*, and at the caves of Ogof Morio and Ogof Colomennod. Surge gullies at

Porth Alwm have an encrusting community of sponges, sea squirts, anemones and the hydroid *Tubularia indivisia*. This is the only known occurrence of this community on exposed rock shores within Cardigan Bay.

Bedrock cliffs and stable boulders along the site show classic rocky shore zonation patterns. The zone above mean high water influenced by sea-spray (the splash zone) is wide because of the wave-exposed nature of the site, and supports a number of lichen species. Orange and grey lichens dominate the upper splash zone, with the black tar lichen *Verrucaria maura* covering lower rock surfaces down into the intertidal. The barnacles *Chthamalus montagui* and *Semibalanus balanoides* and limpets *Patella sp.* dominate upper to mid shore bedrock and boulders along the majority of the site.

Lower shore communities along this stretch of coast are many and varied, largely due to the wide range of variation in wave exposure, shore topography and substrate. On the shore between Aberdaron and Porth Ysgo the lower shore is dominated by a red seaweed turf, particularly caragheen *Mastocarpus stellatus*, *Palmaria palmata*, pepper dulse *Osmundea pinnatifida* and *Ceramium sp.*.

At Porth Ysgo and Porth Alwm the shore consists of large boulders on sand and bedrock. Shallow rockpools are commonly found between the boulders, and are dominated by encrusting coralline seaweed, edible periwinkles *Littorina littorea*, and the snakelocks anemone *Anemonia viridis*. Sandy pools also occur, and are colonised by laver *Porphyra purpurea*, sea lettuce *Ulva sp.*, and the beadlet anemone *Actinia equina*. The porcelain crab *Porcellana platycheles* and the encrusting worm *Spirorbis spirorbis* can be found under boulders and cobbles. The central part of Porth Ysgo is sandy and is inhabited by low numbers of small, burrowing crustaceans such as *Bathyporeia sp.*, *Haustorius arenarius* and *Eurydice pulchra*. Bladder wrack *Fucus vesiculosus* is found on midshore boulders to the west of Porth Ysgo and Porth Alwm, with serrated wrack *Fucus serratus* dominating lower shore boulders along with the sand-binding red seaweed *Audouinella floridula*. The sublittoral fringe is dominated by kelp *Laminaria digitata* and dabberlocks *Alaria esculenta*. The typically subtidal brown seaweeds *Desmarestia aculeata* and *Desmarestia ligulata* are found attached to boulders here also.

Underhangs and small caves between the boulders at Porth Alwm provide a good habitat for encrusting communities of sponges, bryozoans, hydroids and sea squirts. Shaded boulder sides are also colonised by seaweed turfs, with the red seaweed species *Mastocarpus stellatus*, *Ahnfeltia plicata*, *Gastroclonium ovatum* and *Ceramium ciliatum*, the snail *Rissoa parva* and the amphipod *Parajassa pelagica* being commonly found here. Lower shore boulders in sand support different red seaweed species including *Palmaria palmata*, *Cryptopleura ramosa*, *Membranoptera alata* and *Audouinella floridula*.

Remarks:

The site is a component of the Llyn Peninsula, Heritage Coast and Area of Outstanding Natural Beauty.

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