

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

SITE OF SPECIAL SCIENTIFIC INTEREST CITATION

ANGLESEY

GLANNAU PENMON - BIWMARES

Date of Notification: 2003

National Grid Reference: SH 609762 to SH 642810

OS Maps: 1:50,000 Sheet number: 115
1:10,000 Sheet number: SH67NW & SH68SW

Site Area: 170.7 ha

Description:

The site extends along 6km of the Anglesey shore of the Menai Strait, from the Coastguard Station at Penmon in the north to the old swimming pool at Beaumaris in the south, and is selected for its geological and marine biological features. The south-east facing shore is sheltered from wave-action and consists of a complex mixture of boulders, cobbles, gravels, sands and muds. The solid geology of the site consists of Ordovician shales in the southern part of the site and Carboniferous Limestone towards the north. The coastal cliffs consist of boulder clay and glacial sands and gravels.

The site is of special interest for its intertidal communities of animals and plants typical of mixed sediment and of muddy gravel shores; four intertidal communities of restricted national distribution; two species-rich intertidal communities of marine plants and animals; a succession of ice-age sediments, exposed in the soft coastal cliffs and foreshore at Lleiniog.

Geology

Lleiniog provides one of the finest exposures through Late Pleistocene deposits of Irish Sea origin in North Wales. The succession comprises a series of current-bedded sands and gravels which reach thicknesses of 8-9m, overlain by massively bedded, pink-grey Irish Sea till. The coastal cliffs also reveal a 'submerged forest' and marine sediments which may prove valuable in elaborating post-glacial coastal changes in North Wales. Rock fragments in the glacial deposits include local cherts and limestones and also farther-travelled rocks, notably Shap Granite and Ailsa Craig microgranite which demonstrate clearly the northern origin of the sediments. The deposits also contain fragments of coal which may have been derived from an as yet unidentified submarine outcrop. The exact nature of the depositional conditions responsible for the sands and gravels at Lleiniog, in addition to the precise dating of the deposits, remains to be established. The sections provide some of the clearest evidence in North Wales for an incursion of Irish Sea ice during the Late Pleistocene, and a combination of fine stratigraphical detail and the quality of the exposure make Lleiniog an important site for Quaternary studies.

Marine Biology

The shore comprises the best example of marine communities typical of mixed substrata shores and muddy gravel shores between Bardsey Island and Great Orme's Head, and is one of the most extensive examples of both shore types in this area. The shore is also of marine biological interest due to the presence of four marine communities of restricted national distribution and for two diverse under-boulder and bedrock overhang communities.

Sea walls subject to sea-spray support a zone of yellow and grey lichens, including the orange sea lichen *Caloplaca marina*, with a distinct band of the black tar lichen *Verrucaria maura* found beneath. Shingle is found frequently at the back of the shore, and the strandline seaweed left here by the receding tide supports a population of talitrid amphipods known as sandhoppers. Where sea walls or other artificial substrata extend below the level of mean high water, the seaweeds channel wrack *Pelvetia canaliculata* and spiral wrack *Fucus spiralis* occur.

The gently sloping mid- to lower-shore region alternates between areas of cobbles in muddy gravels, colonised by barnacles or brown seaweeds, and areas of muddy gravel and muddy sand. The brown seaweed bladder wrack *Fucus vesiculosus* and the barnacle *Semibalanus balanoides* are found attached to cobbles in this region. Muddy gravels in the mid- to lower-shore regions support a characteristically diverse community of marine worms, ranging from sedentary species such as the peacock worm *Sabella pavonina*, to more mobile species including *capitellid* and *cirratulid* worms and a species of *Notomastus*.

The shores of the Menai Strait are sheltered from strong wave action but are subject to strong tidal currents, and this unusual combination gives rise to a number of marine communities of restricted national distribution. Elsewhere within Wales these conditions, and hence communities, only occur within Milford Haven, and on the sheltered sides of islands in strong tidal streams. The strong tidal currents here allow filter-feeding animals to proliferate within areas dominated by serrated wrack *Fucus serratus* on lower shore bedrock and on cobbles in muddy gravel. Communities of filter-feeding animals such as the bryozoans *Bowerbankia citrina*, *Membranipora membranacea* and *Bugula turbinata*, and the sea-squirt *Morchellium argus* occur on seaweeds and rock surfaces in these areas. In places, burrowing animals such as piddocks, wrinkled rock borers *Hiatella arctica* and the boring sponge *Cliona celata* occur in limestone boulders in the serrated wrack zone, whilst a diverse community comprising the sea-squirts *Aplidium proliferum*, *Ciona intestinalis* and lightbulb sea-squirt *Clavelina lepadiformis*, and the sponges *Hymeniacidon perleve*, breadcrumb sponge *Halichondria panicea*, purse sponge *Grantia compressa* occurs on the surface of these boulders. Another unusual species-rich community, sheltered muddy gravel dominated by species of small marine worms, is found in patches along the length of the shore. Worms such as lugworm *Arenicola marina*, ragworm *Hediste diversicolor*, sand mason *Lanice conchilega*, peacock worm *Sabella pavonina*, and *Scoloplos armiger* are all found in this assemblage.

Certain under-boulder and bedrock overhang communities are particularly diverse on this shore, because of the wide variety of micro-habitats provided by the varied material making up the shore. Numerous small animals inhabit under-boulder surfaces and the underlying sediment, including the porcelain crabs *Porcellana platycheles* and *Pisidia longicornis*, plumose anemones *Metridium senile*, the anemone *Sagartia elegans*, sponges such as the breadcrumb sponge and purse sponge *Scypha ciliata*, and *Morchellium argus* and other sea-squirts. Lower-shore bedrock overhangs support a similarly rich community, also comprising anemones, sea-squirts, bryozoans, sponges and worms.

Terrestrial Biology

The cliffs of glacial till to the east of Beaumaris are of local significance for invertebrates, supporting one of few populations of the ground beetle *Bembidion saxatile* in north Wales.

Owing to its close proximity to Traeth Lafan, an internationally important site for wading birds and wildfowl, this shore provides an important high tide roosting area for waders that feed on Traeth Lafan, including oystercatchers.

Remarks:

Certain areas of the site below mean high water form part of Y Fenai a Bae Conwy/Menai Strait and Conwy Bay Special Area of Conservation (cSAC), under the EC Habitats Directive (Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora 1992). The site contains areas of Shallow Inlets and Bays; Intertidal Mudflats and Sandflats; and Reefs, habitats listed on Annex I of the Directive which are important features of the cSAC.

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