

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

SITE OF SPECIAL SCIENTIFIC INTEREST CITATION

GWYNEDD

ABER MAWDDACH/MAWDDACH ESTUARY

Date of notification:

1998

National Grid Reference:

SH640160

O.S. Maps:

1:50,000 Sheet number: 124

1:10,000 Sheet numbers: SH61 SW, NW & NE
SH71 NW, SH72 SW

Site Area:

1340.3 ha

Description:

Aber Mawddach / Mawddach Estuary is of special interest for its biological features. Situated west of Dolgellau in Meirionnydd, the site includes the Mawddach estuary itself, a large shallow estuary draining south westwards into Cardigan Bay, as well as adjacent habitats. The estuary is located in a glacially excavated valley, the floor of which is underlain by a thick sequence of unconsolidated glaciofluvial sediments, flanked by Lower Palaeozoic sedimentary and volcanic rocks of Cambrian and Ordovician age. The estuary is wide with extensive sandflats throughout its length, areas of muddy sediments and large areas of saltmarsh. The mouth of the estuary is protected to the south by Fairbourne Spit, a sand and shingle spit, and on the north side is the small town of Barmouth. The special features of the site are the estuarine habitats, particularly muddy sediments and saltmarshes, reed beds and raised mire. There is also a substantial species interest, including breeding wading birds, scarce vascular plants, bryophytes and invertebrates.

The Mawddach, although a predominantly sandy estuary, has extensive areas of muddy shore. Muddy shores are rare in north west Wales, and are mostly associated with saltmarsh margins and creeks within estuaries. Such areas in the Mawddach estuary are the most natural and extensive found in the Cardigan Bay area. The channels in the Mawddach estuary in particular are considered to be the most extensive sheltered mudflats in the Cardigan Bay area. These channels have a rich polychaete worm and bivalve mollusc fauna which require such extremely sheltered conditions. Channels within the saltmarsh in the lower and middle estuary are dominated by the estuary ragworm *Hediste diversicolor* and peppery furrow shell *Scrobicularia plana*, whilst muddy channels in the upper estuary are dominated by *H. diversicolor* and other oligochaete worms.

Rock forms a narrow strip around much of the upper shore, which is dominated by lichens (yellow and grey lichens and tar lichen *Verrucaria maura* at the top and by furoid algae - (channel wrack *Pelvetia canaliculata*, egg wrack *Ascophyllum nodosum* and *Fucus ceranoides*) below. Lower rocky shore species are absent in the estuary due to the sand level, except in a few places along the river channel - here the edible mussel *Mytilus edulis* forms large dense clumps. Mid-shore sand and mudflats in much of the estuary are dominated by lugworm *Arenicola marina* and bivalves such as common cockle *Cerastoderma edule*, Baltic tellin *Macoma baltica*,

thin tellin *Angulus tenuis* and the tellin *Fabulina fabula*. On the north shore of the estuary there is an extensive area of common cockle and a large bed of edible mussel occurring on thick muddy intertidal substrates. More exposed mobile sand on the lower shore is characterised by amphipods such as *Bathyporeia* sp., *Haustorius arenarius* and the isopod *Eurydice pulchra*. This fine mobile sand continues into the upper estuary. Above Penmaenpool, the lower shore muddy sand and gravel fauna is restricted to oligochaete worms.

Saltmarsh occurs along both shores of the estuary. The Mawddach has the second largest area of saltmarsh in East Gwynedd and the third largest in the Cardigan Bay area. The saltmarsh includes a variety of plant communities, ranging from upper saltmarsh transition communities to pioneer saltmarsh (including glasswort *Salicornia* sp. and common cord grass *Spartina anglica* vegetation on the seaward edge. Although pioneer vegetation is not uncommon in Wales in this case it supports the nationally rare dwarf spike rush *Eleocharis parvula* and the nationally scarce lax-flowered sea lavender *Limonium humile* and perennial glasswort *Sarcocornia perennis*.

There are several extensive stands, some brackish, of common reed *Phragmites australis* occurring along the edges of the estuary; collectively they represent a significant proportion of the remaining Welsh resource of this declining habitat. In some areas the gradation from saltmarsh, through poor fen reedbed to incipient raised mire, sedge meadow and pasture (a feature that has been destroyed at most British sites) is relatively intact. Penmaenpool reedbed, the largest single stand, has additional plant species including common scurvy grass *Cochlearia officinalis* and the locally rare narrow-leaved reedmace *Typha angustifolia*. The well developed adjacent sedge meadow is dominated by sea and glaucous club-rush *Scirpus maritimus* and *Schoenoplectus tabernaemontani* while the mire, dominated by sharp flowered rush *Juncus acutiflorus* and purple moor grass *Molinia caerulea* has species such as bog pimpernel *Anagallis tenella*.

Reed warbler breeds in the reedbeds here at the western edge of its British range, there is also a good breeding population of reed bunting, grasshopper and sedge warblers among other bird species. A large number of swallows roost during the autumn period whilst pied wagtails also use the reedbeds as a roost in the late winter and spring. Water rails are common in winter.

Arthog Bog is the only example of an estuarine raised mire in North Wales, a rare peatland type which is otherwise confined in Wales to the flanks of the Dyfi estuary. Although reduced in extent and affected by drainage ditches, occasional burning and successional changes such as scrub encroachment, it is still floristically and entomologically rich. Two nationally scarce vascular plants occur, brown beak-sedge *Rhynchospora fusca* and wavy St. John's wort *Hypericum undulatum*, occurring at the northern limit of its known world range, and one nationally scarce liverwort, *Pallavicinia lyellii*. Much of the bog is dominated by purple moor grass *Molinia caerulea* and cross-leaved heath *Erica tetralix*, with white beak-sedge *Rhynchospora alba* and bog myrtle *Myrica gale*. Several locally scarce plants also occur, including bog rosemary *Andromeda polifolia*, blunt flowered rush *Juncus subnodulosus*, and greater spearwort *Ranunculus lingua*. At the southern end there is some carr development with tall bog myrtle, alder *Alnus glutinosa*, sallow *Salix cinerea* and birch *Betula* spp. In addition, eight nationally scarce or rare invertebrate species have been recorded at Arthog Bog, including the tipulid *Tipula holoptera* and the dung fly *Scathophaga scybalaria*.

The grazing marsh surrounding most of the Mawddach Estuary supports the second largest breeding redshank (six pairs) and snipe (twenty pairs) population in East Gwynedd. Other

breeding birds supported by these coastal grazing marsh habitats include grasshopper warbler, reed bunting, lapwing, sedge warbler, whinchat, red-breasted merganser, common sandpiper and shelduck. Some of these birds also make use of adjoining areas of scrub and carr where the transition to completely terrestrial habitats is largely intact. Grazing marsh and rush dominated pasture surrounding the estuary also provides an important food resource and shelter for overwintering waterfowl, especially wigeon and shelduck.

As a largely intact estuarine system, the Mawddach Estuary contains good examples of transitions from intertidal to terrestrial habitats, principally saltmarsh to grazing marsh, reedbed, woodland and rock exposure. Natural transitions to non-agricultural habitats, particularly woodland, as the end-point to succession are rare, and even small examples are important.

The Mawddach Estuary and the Afon Mawddach both contain good examples of river sediments with an important specialised invertebrate assemblage including one RDB species, the beetle *Scopaeus gracilis*. Eight other species occur that are either nationally scarce or rare, including the spider *Caviphantes saxetorum* and the beetle *Perileptus areolatus*. This assemblage is thought to be the best example in East Gwynedd and the site boundary extends upstream of the tidal limit to include this feature. The estuary and river also have a notable fish fauna. Amongst the species recorded are the allis and twaite shad, both scarce species which spend most of their lives at sea, but travel far upstream into freshwater to spawn. Sea Lamprey also occur, and there is a good spawning population of Atlantic salmon.

Grimmia arenaria, a RDB moss, is found on the Llanelltyd Bridge, which crosses the Afon Mawddach within the site boundary. Otters use the reedbeds and other parts of the estuary and the habitat is ideal for their breeding.

Remarks:

There is one plant, *Eleocharis parvula* listed under Schedule 8 species under the Wildlife & Countryside Act as amended. There are two Wildlife & Countryside Act Schedule 5 animal species occurring within the SSSI, otter and allis shad (non-spawning populations of the latter). Both are also listed under Annex II of the European Habitat & Species Directive. Three other Annex II species also occur, twaite shad, sea lamprey and Atlantic salmon.

Part of this site lies within the Snowdonia National Park.

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