

### Action Plan Scope:

This Action Plan covers the UK BAP priority habitat<sup>1</sup> Mudflats; sedimentary intertidal habitats created by deposition in low energy coastal environments, particularly estuaries. Areas of intertidal soft mud, sandy mud and gravelly mud are included within the context of this plan.

## 1. CURRENT STATUS

### 1.1 Legislation and priority status

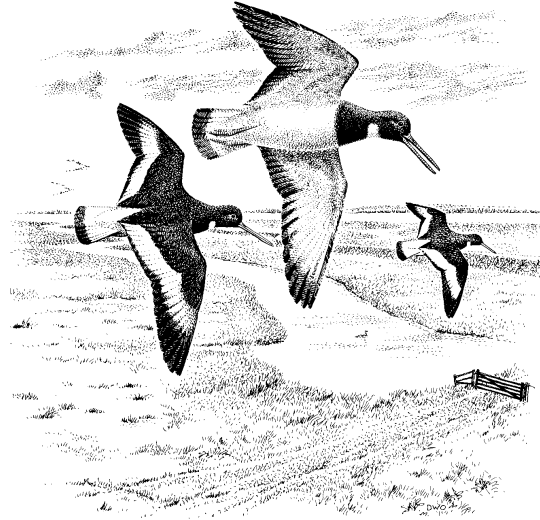
International	Habitats Directive <sup>a</sup> (Annex I) Birds Directive <sup>b</sup> Ramsar Wetland sites <sup>c</sup> Biosphere reserves
UK and Wales	SSSI legislation <sup>d</sup> (some mudflats) UK BAP priority Welsh S74 list <sup>e</sup>
Gwynedd	Llyn AONB Heritage Coast

### 1.2 Status in Wales and beyond

The total UK estuarine resource has been estimated at about 588,000ha of which 55% is intertidal area, mostly mud and sandflats<sup>2</sup>. Intertidal flats cover about 270,000ha<sup>2</sup>. The UK has approximately 15% of the north-west European estuarine habitat. In many parts of the UK mudflats have been much reduced in width by land claim.

Mudflats are one of the most wildlife-rich coastal habitats in Wales, and unfortunately, are also the habitat most lost to development in the past. Mudflats are still perceived today as dirty, smelly areas, prime for redevelopment projects such as marinas, barrages and land claim for agricultural, commercial and industrial purposes.

Mudflats are not uncommon in Wales, but the area of mudflats is reducing and their quality (productivity and species richness) is also declining in many areas.




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<sup>a</sup> Mudflats are listed on Annex I of the "Habitats Directive"- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.  
<sup>b</sup> Specific areas of mudflat may be designated as SPA under the "Birds Directive"- Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds  
<sup>c</sup> May cover specific areas of mudflats  
<sup>d</sup> Wildlife and Countryside Act 1981, Countryside and Rights of Way Act 2000  
<sup>e</sup> Welsh Assembly Government, Going Wild in Wales - List of Species and Habitats of Principal Importance for the Conservation of Biological Diversity. Crown Copyright 2003.

### 1.3 Status in Gwynedd<sup>f</sup>

Significant areas of mudflats in Gwynedd (outside Snowdonia National Park Authority) include Traeth Lafan, Bangor Flats, Foryd Bay, Pwllheli harbour, Glaslyn / Dwyryd estuary, Mawddach estuary and Broadwater. There are also discrete areas of mud within the Menai Strait.

Estuaries in Gwynedd are relatively unpolluted. In 2000 all estuaries in Gwynedd were given the highest classification (A/good), by the Environment Agency Wales on their biological quality (presence of certain species of fish), aesthetic quality (evidence of aesthetic pollution) and water quality (levels of dissolved oxygen).

Whilst there is no specific data to suggest a reduction in extent of mudflats in Gwynedd, it is possible that there has been a reduction in extent due to establishment of railway embankments in the Mawddach estuary.

## 2. FACTORS AFFECTING THIS HABITAT IN GWYNEDD

- Coastal developments and maintenance dredging: physical destruction or disturbance; alteration of tidal flow patterns; changes in sediment transport patterns or substratum type.
- Bait digging; physical disturbance in areas where king rag *Neanthes virens*, estuary rag *Hediste diversicolor* and lugworm *Arenicola marina* are common.
- Fisheries: collection or dredging for cockles, peeler crabs and other shellfish; the edible mussel *Mytilus edulis* is particularly important in the Menai Strait.
- Sewage and agricultural run-off: organic enrichment leading to anoxic conditions and a decrease in species diversity and productivity.
- Non-native species: the spread of cord-grass *Spartina anglica* has vegetated some upper-shore mudflat areas.
- Human activity: disturbance of wader and wildfowl populations in roosting and feeding areas.
- Changes in coastal processes also have an impact on this habitat.

## 3. ASSOCIATED GWYNEDD SAPS / HAPS

Coastal saltmarsh, Coastal and floodplain grazing marsh, Maritime cliff and slopes, Saline lagoons, Seagrass beds, Sheltered muddy gravels, Strandlines

Otter

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<sup>f</sup> Within this document the term "Gwynedd" refers to areas outside the Snowdonia National Park area, except where specified otherwise

## 4. CURRENT ACTION IN GWYNEDD

### 4.1 Site and habitat protection

- All of the estuaries in Gwynedd have some form of statutory designation such as Ramsar Site, SPA, Candidate SAC, SSSI, NNR or LNR.
- In Gwynedd (outside Snowdonia National Park Authority) mudflats are included within Traeth Lafan SPA, Menai Strait and Conwy Bay candidate SAC and Pen Llŷn a'r Sarnau candidate SAC (to which "Mudflats and sandflats not covered by seawater at low tide" has been added as a feature).
- Areas of mudflats are included within SSSIs, e.g. Foryd Bay, and also within areas identified as potential Wildlife Sites.
- Traeth Lafan, Foryd Bay and Lôn Cob Bach are designated as LNRs.
- Much of the coast of the Llŷn Peninsula is designated as Heritage Coast and is also included within the Llŷn AONB

### 4.2 Management and programmes of action

- A management plan has been produced for Pen Llŷn a'r Sarnau candidate SAC which to date has only addressed reefs and estuaries but will be expanded to include other features including Intertidal mudflats and sandflats.
- A booklet on the conservation value of mud and mudflats was published in 2000 by Countryside Council for Wales.
- An independent partnership of coastal practitioners has been established in Wales called Arfordir.
- A North Wales Marine and Freshwater Biodiversity group has been set up which meets biannually.

### 4.3 Survey, research and monitoring

- As part of an on-going Wales-wide Phase One intertidal survey, estuaries and areas of intertidal sediments in Gwynedd have been mapped by Countryside Council for Wales.
- A project was undertaken by the North West and North Wales Sea Fisheries Committee and CCW in 2001, looking at the effects of peeler crab collection tiles on intertidal mudflats. CCW contract science report number 511.
- As part of a PhD project carried out by University of Wales Bangor Ocean sciences department (Kirsty Dernie and Dr M. J Kaiser) entitled 'Recovery of benthic communities in response to physical disturbance' research was carried out at various muddy habitats within the Menai Strait and published in The Journal of Animal Ecology 2003.
- As part on an on-going three year Biotechnology and Biological Sciences Research Council funded project entitled 'Sustainable mussel cultivation', University of Wales Bangor Ocean sciences department (Dr M. J Kaiser) are looking at the carrying capacity of mussel cultivation in the Menai Strait.
- Research was carried out in the Menai Strait in 2001 as part of an Ecology MSc at the University of Wales Bangor Department of Biological Sciences by Amanda Lockley entitled 'Assessment of the level of recovery from bait-collection by an intertidal mudflat community'

- As part of a Countryside Council for Wales funded technical support project David Jones of Hebog Environmental produced a report entitled 'Marine mud and muddy gravel characterisation in the Menai Strait'<sup>3</sup> in March 2003.
- Section 13; "UK priority sediment habitats: Mudflats, North Wales" in 'Guidance for the production of local Marine Habitat and Species Action Plans in Wales', is in press.

## 5. ACTION PLAN OBJECTIVES

1. Where natural processes allow, maintain the present extent of mudflats in Gwynedd.
2. Restore intertidal mudflat habitat where feasible in Gwynedd.
3. Maintain and restore (where necessary) estuarine water quality in Gwynedd to ensure that existing mudflats fulfil their important ecological and conservation role.
4. Raise community awareness of the value of mudflats for biodiversity, as a local amenity and as an economic resource.

## 6. PROPOSED ACTIONS

Code	Action	Partner(s) <sup>9</sup>
<b>Policy and legislation</b>		
1	Use planning conditions to ensure developments in sensitive locations are compatible with conservation of mudflats, and do not affect their integrity TARGET/TIMESCALE: Ongoing	<b>GC</b> , NW & NWSFC, Relevant partners
2	Ensure that all mudflats which meet the relevant criteria are designated as Wildlife Sites TARGET/TIMESCALE: Start process of designation, by 2005	<b>GC</b> , CCW, EAW, NWWT
<b>Species / habitat management and protection</b>		
3	Include and implement conservation requirements for mudflats in all relevant site management plans, and in marine SAC management plans TARGET/TIMESCALE: Ongoing	<b>CCW</b> , EAW, <b>GC</b>
4	Ensure that the conservation requirements of mudflats are accommodated in relevant shoreline management plans (by Cardigan Bay Coastal Group, Ynys Enlli to Llandudno Coastal Group) TARGET/TIMESCALE: Ongoing	<b>GC</b> , Arfordir, <b>CCW</b> , EAW, NWWT, NW & NWSFC, RSPB Cymru
5	Ensure that oil pollution contingency plans include generic guidelines for oil spill response for mudflats TARGET/TIMESCALE: Ongoing	<b>EAW</b> , <b>CCW</b>
6	Identify and reduce point and diffuse sources of pollutants TARGET/TIMESCALE: Ongoing	<b>EAW</b> , <b>DC</b>
<b>Advisory</b>		
7	Produce and implement codes of conduct for mudflats or entire estuaries, such as a code of good practice for bait harvesters, possibly as a joint North Wales / All Wales project. TARGET/TIMESCALE: To be set	Arfordir, <b>GC</b>

<sup>9</sup> Lead partner for this action is indicated by bold typeface, see section 7.2 for explanation of abbreviations

<b>Survey, research and monitoring</b>		
8	Establish and implement a programme to monitor extent and quality of mudflats in Gwynedd, including studies to establish the intensity and potential ecological effects of bait harvesting. TARGET/TIMESCALE: To be set	EAW, CCW, CCBC, GC, NWWT, NW & NWSFC, RSPB Cymru, UWB
9	Assist with research into and development of techniques for the restoration and creation of mudflats where appropriate and feasible. TARGET / TIMESCALE: Ongoing	EAW, CCW, UWB, RSPB Cymru
<b>Communications and publicity</b>		
10	Raise awareness among planners and developers of the important functions of mudflats in estuarine systems by the preparation and dissemination of a pamphlet, possibly as a joint North Wales / All Wales project TARGET/TIMESCALE: To be set	GC, CCW, EAW, NW & NWSFC, MANW, RSPB Cymru
11	Circulate the leaflet "Conservation code for sea anglers" at relevant events and to relevant groups, to encourage sustainable sea fishing and bait digging TARGET/TIMESCALE: Ongoing	CCW, GC, MANW
12	Raise public awareness of ecological and socio-economic value of mudflats, and ways of reducing impacts arising from bait harvesting, through articles in local press and specialist publications, talks to angling clubs, interpretation and events, and by using Y Foryd and Traeth Lafan LNRs as flagship sites TARGET/TIMESCALE: Ongoing	GC, CCW, EAW, NW & NWSFC, MANW, RSPB Cymru

## 7. PARTNERS & OPPORTUNITIES

### 7.1 Overall lead partner for HAP

Environment Agency Wales (EAW)

### 7.2 Key partners

Arfordir

Conwy County Borough Council (CCBC)

Countryside Council for Wales (CCW)

Dŵr Cymru (DC)

Gwynedd Council (GC)

Marine Awareness North Wales (MANW)

North Wales and North West Sea Fisheries Committee (NW & NWSFC)

North Wales Wildlife Trust (NWWT)

RSPB Cymru

University of Wales Bangor (UWB)

## 7.3 Opportunities

Sea fishermen, recreational users of the coast

## 8. ACKNOWLEDGEMENTS

Principal author: Kate Williamson (GC)

Consultation: Gabrielle Wyn (CCW), Aethne Cooke (CCW), David Thorpe (EAW), Emily Dicks (CCW, MANW)

Line drawings: English Nature

## 9. ABBREVIATIONS

AONB: Area of Outstanding Natural Beauty, BAP: Biodiversity Action Plan, HAP: Habitat Action Plan, JNCC: Joint Nature Conservation Committee, LBAP: Local Biodiversity Action Plan, LNR: Local Nature Reserve, NNR: National Nature Reserve, SAC: Special Area of Conservation, SAP: Species Action Plan, SPA: Special Protection Area, SSSI: Site of Special Scientific Interest

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<sup>1</sup> UK Biodiversity Group classification - Jackson, D.L. 2000. Guidance on the interpretation of the Biodiversity Broad Habitat Classification (terrestrial and freshwater types): Definitions and the relationship with other habitat classifications. JNCC Report No. 307.

<sup>2</sup> UK BAP for Mudflats

<sup>3</sup> CCW contract science report number 564.