

Saltmarsh and Estuarine Rivers BAP Habitat Action Plan

Summary

Saltmarsh and mudflats occur in estuarine systems throughout the plan area. Most of our outer saltmarshes have statutory protection and the upper tidal reaches are generally designated as local sites. Saltmarshes and mudflats are recognised for their biological richness of invertebrates, birds and plants. This importance is reflected in the wildlife site designations on most of the County's estuarine rivers. Sensitive grazing helps maintain this diversity, although too much or too little grazing can adversely affect the habitat. Developments and built infrastructure have resulted in a significant habitat loss in the past. Saltmarsh and estuarine rivers are considered an integrated system as far as the upper tidal limit.

Action Plan Aims

To maintain the existing biodiversity resource in saltmarshes and estuarine rivers, allowing for the natural evolution of saltmarsh and other intertidal habitats in response to prevailing coastal and riparian processes; to re-establish the full range of saltmarsh habitats in compensation for past losses and to mitigate for coastal squeeze through sea-level rise.

Habitat Description

Saltmarsh and estuarine rivers include the transitional zones from intertidal mudflats and sandflats through saltmarshes to terrestrial habitats and freshwater fens above the tidal limit.

Saltmarsh develops on a range of intertidal sediments including mud, muddy shingle and muddy sand in a dynamic estuarine system. Its distribution is subject to change as some existing areas erode whilst others develop on accreting sediments. In lower estuaries mud and sand flats may be extensive but continue well up the system

along tidal rivers, as well as occurring in creeks and pans in vegetated saltmarsh. These sediments support a rich diversity of invertebrates.

The character of saltmarsh communities is affected by height up the shore, resulting in a zonation pattern relating to the frequency of seawater inundation. At the lower limits of saltmarsh the vegetation typically comprises a thin pioneer community of glassworts (*Salicornia* spp.) and the invasive Common Cord-grass (*Spartina anglica*) growing on otherwise bare estuarine mud. A range of saltmarsh plants occurs in the middle reaches which can become extremely colourful in high summer during the peak flowering season (see Characteristic Species). In upper saltmarsh terrestrial plants that can tolerate infrequent inundation by seawater begin to predominate. These include grasses such as Red Fescue (*Festuca rubra*) and Creeping Bent (*Agrostis stolonifera*) and tall-herbs like Corn Sow-thistle (*Sonchus arvensis*) along with Sea Rush (*Juncus maritimus*), coastal varieties of Common Couch (*Elytrigia repens*) and hybrid couches. Towards the upper limit of the marshes or where they are irrigated by freshwater the flora may be diverse so long as the vegetation remains open and low growing. However, these areas may be colonized by tall vegetation to form reedbeds and other fen communities which occur alongside coastal species like Sea Club-rush (*Bolboschoenus maritimus*).

Many saltmarshes are grazed, making some of them particularly attractive to wildfowl, for which they are internationally important. Other saltmarshes, as on the Wyre, are ungrazed and are botanically rich.

Large areas of saltmarsh and mudflats enjoy protection as statutory international sites. This action plan, whilst covering these sites, places an emphasis on the estuarine rivers outside and upstream of these sites, many being recognised as of regional or county importance as Biological Heritage Sites. In this respect for the purpose of this action plan, the upper limit is taken as 1 metre above the highest astronomical tides to take in transitional zones.

The combined estuaries of the north-west, including those of Lancashire, are recognised as being one of the most important assemblies of estuaries in Europe.

Characteristic Species

Typical plant species of Lancashire saltmarshes include Glassworts (*Salicornia* spp), Oraches (*Atriplex* spp), including Spear-leaved Orache (*Atriplex prostrata*), Annual Sea-blite (*Suaeda maritima*), Sea Purslane (*Atriplex portulacoides*), English Scurvy-grass (*Cochlearia anglica*), Greater and Lesser Sea-spurrey (*Spergularia media* and *S. marina*), Sea Plantain (*Plantago maritima*), Sea Arrowgrass (*Triglochin maritimum*), Sea-milkwort (*Glaux maritima*), Sea Aster (*Aster tripolium*), Common Sea-lavender (*Limonium vulgare*), Thrift (*Armeria maritima*), Parsley Water-dropwort (*Oenanthe lachenalii*), Saltmarsh grasses (*Puccinellia* spp), Sea Rush (*Juncus maritimus*), Saltmarsh Rush (*Juncus gerardii*), Distant Sedge (*Carex distans*), Long-bracted Sedge (*Carex extensa*), Common Cord-grass (*Spartina anglica*), Sea Club-rush (*Bolboschoenus maritimus*) and Common Reed (*Phragmites communis*).

Notable plant species (UK BAP Priority, Nationally Rare, Nationally Scarce, Species of NW Nature Conservation Importance) include; Rock Sea-lavender (*Limonium britannicum*), Lax-flowered Sea-lavender (*L. humile*), Long-stalked Orache (*Atriplex longipes*), Brackish Water-crowfoot (*Ranunculus baudotii*), Saltmarsh Flat-sedge (*Blysmus rufus*), Sea Wormwood (*Seriphidium maritimum*), Brookweed (*Samolus*

valerandi), Frog Rush (*Juncus ambiguus*), Wild Celery (*Apium graveolens*), Lesser Centaury (*Centaureum pulchellum*), Divided Sedge (*Carex divisa*), Shiny Glasswort (*Salicornia nitens*), Glaucous Glasswort (*Salicornia obscura*), Yellow Glasswort (*Salicornia fragilis*), Round-fruited Rush (*Juncus compressus*) Common Meadow-rue (*Thalictrum flavum*), Sand Leek (*Allium scorodoprasum*), Strawberry Clover (*Trifolium fragiferum*) and Hard-grass (*Parapholis strigosa*).

Henediella heimii is a characteristic saltmarsh moss, requiring sea spray or inundation, occurring right round the North Lancashire coast whilst *Bryum marratii* is a very local species with old records from the Lune and Keer estuaries.

Lancashire saltmarshes are internationally important for wading birds and wildfowl. Wading birds roost on saltmarshes when tides cover their mudflat feeding areas. Wigeon (*Anas penelope*), Pink-footed Geese (*Anser brachyrhynchus*), Bewick's (*Cygnus columbianus*) and Whooper Swans (*Cygnus cygnus*) all feed on saltmarsh grasses on grazed saltmarsh. Teal (*Anas crecca*) and Wigeon (*Anas penelope*) feed on the seeds of saltmarsh plants such as *Atriplex* spp and *Salicornia* spp.

Redshanks (*Tringa totanus*), Lapwings (*Vanellus vanellus*) and Skylarks (*Alauda arvensis*) all nest on upper saltmarsh which is usually only inundated by the high equinoctial tides in spring and autumn.

During the winter, these saltmarshes are used by birds of prey such as Hen Harrier (*Circus cyaneus*), Merlin (*Falco columbarius*) and Short-eared Owl (*Asio flammeus*). Populations of moorland breeding Twite (*Carduelis flavirostris*) also winter on saltmarsh habitats.

Intertidal flats of estuaries in Lancashire are also an enormously important habitat for wading birds and some species of wildfowl. These flats are teeming with invertebrates (molluscs, worms and crustaceans) which provide food for the wading birds. The invertebrate fauna will vary, depending upon the sediment type, which will reflect the distribution of birds. For example Bar-tailed Godwits (*Limosa limosa*) feed on Lugworms (*Arenicola marina*) and Knots (*Calidris canutus*) feed largely on Baltic Tellin (*Macoma baltica*). These invertebrates are found in more sandy sediments and so the birds' distribution will reflect this. Dunlins (*Calidris alpina*) feed on a variety of invertebrates that are found in muddy substrates, such as Ragworms (*Nereis* spp) and Laver Spire Snails (*Hydrobia ulvae*). The latter are also the main prey of Pintail (*Anas acuta*), so both this species and Dunlin will be found in areas with muddier sediments.

Rocky intertidal habitats are rare in Lancashire, although the cobbled skears of Morecambe Bay provide habitat for Edible Mussel (*Mytilus edulis*) and rocky shore specialist birds such as Turnstone (*Arenaria interpres*) and Curlew (*Numenius arquata*).

Redshanks (*Tringa totanus*) feed on a variety of invertebrates, but a small amphipod crustacean (*Corophium volutator*) is particularly important. They specialise in the upper shore feeding areas unlike, for example, Bar-tailed Godwits and Grey Plovers (*Pluvialis squatarola*), which follow the tide as it recedes. Redshanks feed in upper shore areas throughout the intertidal areas, even in the upper tidal reaches.

Oystercatchers (*Haematopus ostralegus*) specialise in either Common Cockles (*Cerastoderma edule*) or Edible Mussels (*Mytilus edulis*), and their distribution moves in relation to prey abundance. If estuarine feeding is poor, they will feed at high tides on earthworms in nearby fields.

Generally speaking, the outer estuaries hold the greatest concentrations of birds, and the statutory designations reflect this. However, many species, including Redshank, Teal and Wigeon, will feed in the upper reaches of the estuaries right up to the tidal limit. These upper reaches frequently have no statutory protection, yet they are an integral part of the estuarine ecosystem and support important populations of birds. Development of the upper reaches would have an adverse impact on the estuary as a whole.

Natterjack Toads (*Bufo calamita*) formerly occurred on upper saltmarsh at Cockerham, their only Lancashire site. Attempts have been made to reintroduce the species in the last few years.

Otters (*Lutra lutra*) frequent estuaries and tidal stretches of rivers in the area whilst Grey Seals (*Halichoerus grypus*) occasionally enter tidal rivers.

Typical saltmarsh invertebrates include the local money spiders: *Silometopus ambiguous*, *Halorates reprobus*, *Walckeneria kochi*, *Erigone arctica* and *E longipalpis*, and the wolf spider *Pardosa purbeckensis*, several ground beetles such as *Dicheirotichus gustavi*, *Bembidion minimum* and *Pogonum chalceus*, with *Bembidion maritimum* on estuarine mud. Various predatory bugs of the family Saldidae inhabit the mud and short saltmarsh vegetation, withstanding periods of inundation. The larvae of several micro-moths feed on saltmarsh plants and the following occur in Lancashire: *Bucculatrix maritima*, *Coleophora virgaureae*, *Coleophora atriplicis*, *Coleophora maritimella*, *Chrysoesthia sexguttella* *Aristotelia brizella*, *Scrobipalpa samadensis*, *Scrobipalpa instabilella*, *Scrobipalpa salinella*, *Scrobipalpa nitentella*, *Phalonidia affinitana*, *Agriphila selasella*. The 16-Spot Ladybird (*Tytthaspis 16-punctata*), and the bush-cricket, Short-winged Cone-head (*Conocephalus dorsalis*) are widespread in southern England but are confined to saltmarshes this far north. The Cone-head is found in the taller vegetation of the upper saltmarsh, where the following spiders typically build their webs or retreats: *Lariniodes cornutus*, *Araneus quadratus*, *Theridion impressum*, *Clubiona stagnatilis*.

Nationally rare invertebrates of Lancashire saltmarshes include a thriving colony of the UK BAP priority species Belted Beauty Moth (*Nyssia zonaria*), and the proposed UK BAP priority species mesh-webbed spider (*Argenna patula*). Nationally notable species include Crescent Striped Moth (*Apamea oblonga*), the micro-moth *Pediasia aridella*, the ground beetles *Dyschirius nitidus*, *Bembidion laterale* and *Agonum nigrum* and the spider *Satlatlas britteni*. Regionally notable species include the very local woodlouse *Trichoniscoides saeroeensis*, which was first recorded from Britain at Warton near Carnforth, and the micro-moth *Eucosma tripoliana*.

Typical saltmarsh marine animals include Sand Goby (*Pomatoschistus minutus*), juvenile flatfish such as Flounder (*Platichthys flesus*), and juvenile Shore Crab (*Carcinus maenas*). Mudflats are dominated by the Laver Spire Snail (*Hydrobia ulvae*), ragworms (*Nereis* spp), catworms (*Nephtys* spp), Baltic Tellin (*Macoma baltica*) and Peppery Furrow Shell (*Scrobicularia plana*) and burrowing amphipod crustaceans (*Corophium* spp), with occasional colonies of the Sand Mason (*Lanice conchilega*) and the reef-forming Honeycomb Worm (*Sabellaria alveolata*).

Salmon (*Salmo salar*) and Sea Trout (*Salmo trutta trutta*) use estuary areas throughout the year to varying degrees as well as the marine fish species such as Sea Bass (*Dicentrarchus labrax*) and Flounder (*Platichthys flesus*).

National Status

There is an estimated 45,500 ha of saltmarsh in the UK. Coastal saltmarsh is listed in Annex 1 of the European Habitats Directive 1994 (as Atlantic Salt Meadows), indicative of their importance at a European scale. Coastal Saltmarsh is also listed in Annex C of ODPM Circular 06/2005 (Habitat types of principal importance in England) where Local Authorities have special duties to further their conservation under Section 74 of the Countryside and Rights of Way Act (2000). These habitats are included in Planning Policy Statement 9: Biodiversity and Geological Conservation.

Regional Status

The North West Region has an estimated 11,650 hectares, over 25% of the UK estimate. Just ten estuaries account for 60% of the total UK resource of this habitat. Four of these estuaries are in the north-west, Solway Firth, Morecambe Bay, Ribble and Dee.

Local Status

Much of the coastal saltmarsh in Lancashire falls within statutory protected sites. Their international importance is recognised by Special Protection Area (SPA) designation, which encompasses additional SSSI and Ramsar status. Both Morecambe Bay (including the Wyre Estuary) and the Ribble Estuary are SPAs, with the Morecambe Bay also designated as a Special Area for Conservation (SAC). The SPA designations reflect the habitats importance for internationally important populations of bird and large areas of the Ribble Estuary are managed as a National Nature Reserve. The upper reaches of estuaries, because they are of less importance for birds, have no statutory protection. However, most of these are identified as Biological Heritage Sites and are of importance for both flora and fauna. The upper reaches and transition zones of estuarine systems are now rare habitats.

Current factors affecting the habitat

Development and physical structures such as barrages and bridges can disrupt the natural estuarine and coastal processes and have an adverse effect upon the habitat. For example the reconstruction of the Shard Bridge and the building of sea walls between Knot End and Pilling caused the destruction of colonies of the endemic Rock Sea Lavender (*Limonium britannicum*), and the footpath constructed at the top of the marsh at Stannah destroyed upper marsh communities.

Sea-level rise against hard sea-defences will squeeze saltmarsh out of the estuarine system due to increased inundation and prevent the natural migration of saltmarsh inland. A recent desktop study by the Environment Agency predicts the resultant loss of 450 hectares over the next 50 years.

Increased temperature as a result of climate change may affect species composition in these habitats.

Inappropriate grazing levels, either overgrazing of traditionally ungrazed saltmarsh or undergrazing of traditionally grazed saltmarsh, can destroy communities.

Built developments near the coast may reduce opportunities for saltmarsh creation.

Dredging navigational channels disrupts estuarine processes and affects saltmarshes.

Coastal defence and flood protection work can directly impact upon saltmarsh, and disrupt the natural coastal processes which maintain this habitat.

Turf cutting directly impacts upon saltmarsh.

Interference with sediments can disrupt the natural coastal processes which maintain the habitats. Sandwinning and estuarine river dredging can impact on sedimentation patterns, e.g. the cessation of dredging in the Ribble is probably responsible for the developing marshes at Lytham and St Annes.

Oil pollution is a potential threat to north-west saltmarshes.

Unrestricted access and certain recreational activities can lead to disturbance of habitats and species within estuaries.

Important Sites

In addition to the statutory sites the following are also important

- Lytham Foreshore Dunes and Saltmarsh BHS
- River Douglas Estuary BHS
- River Ribble, Lower Tidal Section BHS
- Warton Brows
- Freckleton Naze BHS
- Lea Marsh BHS
- Savick Bridge BHS
- River Ribble, Upper Tidal Section BHS
- River Wyre, Upper Tidal Section BHS
- Skippool Marsh and Thornton Bank BHS
- Jameson Road Saltmarsh
- Fleetwood Marsh BHS
- Conder Green Saltmarsh BHS
- Oxcliffe Marsh BHS
- Outflow from Leighton Moss BHS
- River Lune (*below Skerton Bridge*)
- Burglars Alley Field

Current Action / Mechanisms

- *Policy*

Policies within the following protect designated saltmarsh and estuarine habitat-

Habitats Regulations (internationally designated saltmarshes)

Water Framework Directive

Wildlife and Countryside Act as amended (nationally designated sites)

Planning Policy Statement 9 (international, national and local sites)

Joint Lancashire Structure Plan and relevant Local Plans (international, national and local sites), to be replaced by Local Development Frameworks and the Regional Spatial Strategy

Shoreline Management Plans

English Nature CHAMPs (Coastal Habitat Management Plans), now Natural England

Estuary Management Plan/Strategies

- *Site Safeguard*

Many sites are protected by statute, see Local Status.

Some sites are notified as Biodiversity Heritage Sites (BHS), see Important Sites.

- *Land Management*

Agri-environment schemes for sensitive management of existing saltmarsh, and creation of new areas of saltmarsh through managed realignment.

Existing Wildlife Enhancement Scheme agreements.

Management schemes for European Marine Sites.

- *Advisory*

Lancashire Rural Futures, FWAG, Natural England and RSPB provide advice on land management and agri-environment schemes to land owners.

The north-west Coastal Forum provides a mechanism for coastal users and managers to communicate.

- *Research and Monitoring*

Natural England undertake condition monitoring on nationally important sites.

Currently no monitoring occurs on Biological Heritage Sites due to a lack of funds.

Data on birds are gathered on the Ribble and Morecambe Bay estuaries.

The Environment Agency is engaged in two research projects on coastal flood management.

From summer 2007 the Environment Agency will also start routine monitoring of saltmarsh as part of its implementation of the EU's Water Framework Directive.

- *Public Relations*

The RSPB undertake numerous activities to promote the habitat at their sites.

Interpretation boards have been installed by The Wildlife Trust at Barnaby Sands & Burrow's Marsh Nature Reserves.

The Wildlife Trust's website and publication "The Wildlife of Lancashire" promotes the importance of Lancashire's saltmarsh and estuarine habitat.

Marine Week provides a mechanism for the promotion of saltmarsh and estuarine habitat.

The Ribble Coast & Wetlands Regional Park will launch its dedicated website in 2007 highlighting some of the key sites for saltmarsh and estuarine habitats.

Indicators of Habitat Quality

Natural England has a condition assessment for saltmarsh and estuarine habitat. WEBs counts for birds can provide a baseline indication of habitat quality. Estuarine systems are ecologically complex. The mosaic of habitat and species assemblages and their interactions will often need to be considered to assess overall quality. This may need to be done on a site-by-site basis.

Habitat Targets

Target	Area	Measure	Timescale
No loss of estuarine habitat due to development.	Lancashire	No loss	Ongoing
Restoration of 300ha of saltmarsh through managed retreat.	Lancashire	Direct measurement of new saltmarsh created.	2015
Achieve condition of 800ha of poor quality saltmarsh	Lancashire	Hectarage of restored saltmarsh	2015

Proposed Actions

Action (priority: H, M, L)	Area	Measure / Milestone	Partners	Timescale
Research and monitoring				
Carry out habitat & species surveys to inform policy & management decisions eg. SMP	Lancashire	Surveys carried out	NE, TWT, RSPB, LA's, BSBI	2015
Collect information on changes in extent & quality of saltmarsh & associated habitats	Lancashire	Information collected	NE, EA	Ongoing
Site safeguard and monitoring				
Ensure that coastal defence works do not directly damage estuarine	Lancashire	No areas affected by coastal	EA, NE, LA's, competent and relevant	Ongoing

habitats		defence works	authorities	
Ensure that saltmarshes of importance are granted appropriate conservation designations.	Lancashire	% area designated	NE, LCC, TWT, RSPB, LA's.	2015
Ensure that LDFs include policies for statutory sites, BHS's & other local sites involving estuarine habitats.	Lancashire	All 8 coastal LDFs to contain suitable policies	LA's, NE, EA, TWT, RSPB, BHS Partnership	Ongoing
Review SMPs to deliver BAP targets	Lancashire	Review completed & target included	LA's, EA, NE,	2010
Habitat protection and management				
Ensure saltmarsh and associated habitats managed by conservation bodies have active management plans	Lancashire	Percentage of habitat covered by active management plans	NE, LCC, TWT, RSPB, LA's, BHS Partnership	2015
Use available mechanisms for the restoration of new saltmarsh & associated habitat through managed realignment of sea defences.	Lancashire	Ha of new saltmarsh & associated habitats restored	EA, NE, LA's, competent and relevant authorities, RSPB, TWT	Ongoing
Ensure the appropriate management of saltmarsh and associated habitats not already in conservation management	Lancashire	Ha of area under conservation management	NE, LRF RSPB, TWT, FWAG, LA's, BHS Partnership	Ongoing
Advisory				
Encourage appropriate management of saltmarsh by disseminating guidance material & advice eg, agri-environment schemes	Lancashire	Material produced & disseminated Number of landowners and managers advised	EA, NE, TWT, RSPB, FWAG, LA's, LBAP Partnership	2015
Publicity				
Raise awareness of importance of estuarine habitats & coastal processes & their value for a variety of social, economic and environmental interests	Lancashire	Media output	All	2010

Abbreviations

BHS = Biological Heritage Site

BHS Partnership = The Biological Heritage Site Partnership

BSBI = Botanical Society of the British Isles
EA = Environment Agency
FWAG = Farming and Wildlife Advisory Group
LA's = Local Authorities
LBAP Partnership = Lancashire Biodiversity Action Plan Partnership
LDF = Local Development Framework
NE = Natural England
ODPM = Office of the Deputy Prime Minister (now CLG, Communities and Local Government)
RSPB = Royal Society for the Protection of Birds
SMP = Shoreline Management Plan
TWT = Lancashire Wildlife Trust

Related Action Plans

Rock Sea Lavender, Natterjack Toad

References and additional reading

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