

## What are Saltmarshes?

Saltmarshes are the upper vegetated parts of intertidal mudflats that are exposed between tides. They are generally found in inlets, estuaries and behind barrier islands or shingle spits, where there is some shelter from wave action so that sediment can accumulate.

They are made up of a range of specialist plants and algae which are adapted to regular inundation by the sea during the tidal cycle. Different plants are adapted to tolerate different amounts of saltwater, which leads to the saltmarsh being divided into 'zones' of different types of plant species. The establishment of salt-tolerant (halophytic) plants on sheltered tidal flats is the first stage in the colonisation of this highly specialised community. Accumulations of sediment around the first colonisers allow other species to invade and the process of succession takes place, leading to complex stands of vegetation which develop out of reach of all but the highest tides.

Atlantic salt meadows develop when halophytic vegetation colonises soft intertidal sediments of mud and sand in areas protected from strong wave action. The meadows form in the middle and upper reaches of saltmarshes, where tidal inundation still occurs but with decreasing frequency and duration.

## Species Supported

The Solent is the only site for smooth cordgrass in the UK and is one of only two sites where significant amounts of small cordgrass are found. It is also one of the few remaining sites for Townsend's cordgrass and holds extensive areas of common cordgrass, all four species thus occurring in close proximity. It has additional historical and scientific interest as the site where the smooth cordgrass was first recorded in the UK (1829) and where Townsend's cordgrass and, later, common cordgrass first occurred.

The Solent contains the second-largest aggregation of Atlantic salt meadows in south and southwest England. These salt meadows are notable as being representative of the ungrazed type and support a different range of communities dominated by sea-purslane, common sea-lavender and thrift. As a whole the site is less truncated by man-made features than other parts of the south coast and shows rare and unusual transitions to freshwater reedswamp and alluvial woodland as well as coastal grassland.

Saltmarshes are an important resource for wading birds and wildfowl. They act as high tide refuges for birds feeding on adjacent mudflats, as breeding sites for waders, gulls and terns and as a source of food for passing birds particularly in autumn and winter. In winter, grazed saltmarshes are used as feeding grounds by large flocks of wild ducks and geese. Areas with high structural and plant diversity, particularly where freshwater seepages provide a transition from fresh to brackish conditions, are particularly important for invertebrates. Saltmarshes also provide sheltered nursery sites for several species of fish.

## The Value of Saltmarshes in the Solent

Saltmarshes can provide grazing for domestic stock and shelter or nursery areas for a number of commercial fish species (e.g. bass). They also provide a cleaning function by absorbing nutrients, heavy metals and oil from the estuary system.

Saltmarshes have a vitally important coastal protection role, accreting sediments to stabilise the intertidal and keep pace with sea level rise, and protecting seawalls and other coastal habitat from wave attack. It may even be cost-effective in the long term, when seawalls are at the end of their useful life, to set back lines of coastal defence and promote saltmarsh development to seaward.

Where there is safe access through them, such as coastal footpaths and boardwalks, they are an important recreational resource for walkers and bird watchers.

## Did you know?

- The Solent is of international importance as the site where hybridisation of introduced and native species of the cordgrass gave rise to the fertile common cordgrass, *Spartina anglica*.
- The Solent contains the second-largest aggregation of Atlantic salt meadows in south and southwest England.

## Where can Saltmarsh be found in the Solent?

### Mainland

Chichester Harbour  
Langstone Harbour  
Portsmouth Harbour  
River Hamble  
Titchfield Haven  
Southampton Water  
Beaulieu River  
Lymington Estuary  
Keyhaven

### Isle of Wight

Yar Estuary  
Medina Estuary  
Newtown Harbour  
Bembridge Harbour  
Wootton Creek

Much of the saltmarsh area in the Solent is of quite recent origin (less than 120 years old) though saltmarshes have been a part of the Solent ecosystem for much longer. The Solent saltmarshes are found mainly in harbours or embayments and small estuaries. They are dominated by cordgrass (*Spartina spp*), which occupies sixty five percent of the total area. This means that there is a low percentage of mid- to upper marsh vegetation types compared with other regions. Natural transitions from saltmarsh to other habitats are often of particular value, with a high diversity of plants and invertebrates. Saltmarsh vegetation is also present in several sites that are no longer tidal, but where saline influence persists.

The Solent is of particular interest as the site where hybridisation of introduced and native species of the cordgrass gave rise to the fertile *Spartina anglica*, and has been the subject of extensive scientific study.

## Conservation Designations

*Spartina* swards and Atlantic salt meadows are listed as Annex I habitat types in the EC Habitats Directive due to their European importance. These habitats provide two out of the three habitats for which the Solent has been designated a Special Area of Conservation (Solent Maritime SAC). All of the saltmarsh within the SAC is designated as a Site of Special Scientific Interest.

Much of the Solent's saltmarshes have also been designated as a Special Protection Area and a Ramsar site due to their importance for birds. Saltmarshes are an important resource for wading birds and wildfowl.

## Issues, Threats and Opportunities

**Coastal Squeeze** - as sea levels rise the natural response is for saltmarsh and other intertidal habitats to move landwards. However, due to development and coastal defences this is not possible and the saltmarsh gets squeezed between the rising sea and landward structures. Habitat losses are predicted to be unevenly distributed and be most severe along the west

Solent mainland coast and within the larger mainland harbours. Within the smaller estuaries, such as at Newtown, saltmarshes are anticipated to persist, and hence their relative importance is likely to increase over time. Managed realignment should be the main approach to accommodating saltmarshes in the face of rising sea levels. However, current flood management is failing to offset current losses thus leading to a net loss of habitat.

**Land reclamation for industrial/agricultural development** - land claim has caused loss and fragmentation of the saltmarsh in the Solent. It is currently less of a concern, due to the value of this habitat now being recognised and designations being put into place to protect it.

**Coastal defence works and dredging** - local sediment budgets may be affected by coast protection works, or by changes in estuary morphology caused by land claim, dredging of shipping channels and the impacts of flood defence works.

**Cord grass** - the small cordgrass is the only species of cordgrass native to Great Britain. The smooth cordgrass, is a naturalised alien that was introduced to the UK in the 1820s. This introduction led to its subsequent crossing with the small cordgrass resulting in a sterile hybrid, Townsend's cordgrass, and a fertile hybrid, common cordgrass. Common cordgrass often produces extensive monoculture swards of much less intrinsic value to wildlife, and in many areas is considered to be a threat to bird feeding grounds on mudflats.

**Erosion and deposition** - these can both change the structure of the habitat and can be caused by a number of activities including dredging, wash from boats (commercial and recreational), increasing wave activity and an increase in sediment input from rivers.

**Grazing** - this has a marked effect on the structure and composition of saltmarsh vegetation by reducing the height of the vegetation and the diversity of plant and invertebrate species. Intensive grazing creates a sward attractive to wintering and passage wildfowl and waders, whilst less intense grazing produces a tussocky structure which favours breeding waders. In recent decades, some grazed saltmarshes have been abandoned, leading to domination of the mid to upper marsh by rank grasses.

**Pollution** - the over-enrichment of the maritime environment, due to sewage effluent and agricultural fertiliser run-off, causes local problems of algal growth on saltmarshes and can also reduce the oxygen content of water. Oil pollution can potentially destroy saltmarsh vegetation and, whilst it usually recovers, sediment may be lost during the period of dieback.

**Recreational pressure** - visitors can cause habitat trampling and bird disturbance if they are not managed properly. Recreational activities such as wildfowling and dog walking can place additional pressures on the site.