

Vision for Essex Coastal Saltmarsh

Coastal saltmarsh has been enhanced and extended, in response to sea level rise and other threats creating a sustainable network for wildlife.

Sustainable development on all parts of the coastline has created a coastal environment that benefits people and wildlife.

The importance of coastal and marine biodiversity for tourism and the local economy has been recognised.



National Coastal Saltmarsh

National Description

Coastal saltmarshes in the UK comprise the upper, vegetated portions of intertidal mudflats, lying approximately between mean high water neap tides and mean high water spring tides. For the purposes of this action plan, however, the lower limit of saltmarsh is defined as the lower limit of pioneer saltmarsh vegetation (but excluding seagrass *Zostera* beds) and the upper limit as one metre above the level of highest astronomical tides to take in transitional zones.

Saltmarshes are usually restricted to comparatively sheltered locations in five main physiographic situations: in estuaries, in saline lagoons, behind barrier islands, at the heads of sea lochs, and on beach plains. The development of saltmarsh vegetation is dependent on the presence of intertidal mudflats.

Saltmarsh vegetation consists of a limited number of halophytic (salt tolerant) species adapted to regular immersion by the tides. A natural saltmarsh system shows a clear zonation according to the frequency of inundation. At the lowest level the pioneer glassworts *Salicornia* spp can withstand immersion by as many as 600 tides per year, while transitional species of the upper marsh can only withstand occasional inundation.

The communities of stabilised saltmarsh can be divided into species-poor low-mid marsh, and the more diverse communities of the mid-upper marsh. On traditionally grazed sites, saltmarsh vegetation is shorter and dominated by grasses. At the upper tidal limits, true saltmarsh communities are replaced by driftline, swamp or transitional communities which can only withstand occasional inundation. Saltmarsh communities are additionally affected by differences in climate, the particle size of the sediment and, within estuaries, by decreasing salinity in the upper reaches. Saltmarshes on fine sediments, which are predominant on the east coasts of Britain, tend to differ in species and community composition from those on the more sandy sediments typical of the west. The northern limits of some saltmarsh species also influence plant community variation between the north and south of Britain.

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 passerine 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.

Since medieval times, many saltmarshes have been reduced in extent by land claim. This practice continued until very recently; for instance, in the Wash 858 ha of saltmarsh were converted to agricultural use between 1970 and 1980. The land enclosed by sea walls was originally converted to grazing marsh with brackish ditches, but since the 1940s large areas of grazing marsh have been agriculturally improved to grow arable crops. As a consequence, many saltmarshes now adjoin arable land, and the upper and transitional zones of saltmarshes have become comparatively scarce in England. Sites still displaying a full range of zonation are particularly valuable for nature conservation.

The most recent saltmarsh surveys of the UK estimate the total extent of saltmarsh (including transitional communities) to be approximately 45,500 ha (England 32,500 ha, Scotland 6747 ha, Wales 6089 ha, and Northern Ireland 215 ha). This resource is concentrated in the major estuaries of low-lying land in eastern and north-west England and in Wales, with smaller areas in the estuaries of southern England, the firths of eastern and south-west Scotland and the sea loughs of Northern Ireland; north-west Scotland is characterised by a large number of very small saltmarsh sites at the heads of sea lochs, embayments and beaches. It is estimated that, at the mean high water line, 24% of the English coastline, 11% of the Welsh coastline and 3% of the Scottish coastline consists of saltmarsh vegetation.

STATUS IN ESSEX

The Essex estuaries support c.2,878ha of saltmarsh extending from the River Stour through to the north Thames.

The extent of saltmarsh in Essex was assessed by a study, 'Erosion of the saltmarshes of Essex between 1988 and 1998' commissioned by the Environment Agency from University of Newcastle (Burd et al. 2000). This is the most up-to-date information available and is presented in Table 1. The total area in 1997-8 was 2879ha. This represented about 6% of the national total.

The table shows considerable, long-term loss of saltmarsh in all estuaries and coastal areas. The Stour estuary has suffered greatest loss at nearly 60% and the Colne least at 12%. Overall the net area lost (for the areas we have figures for) between 1973 and 1998 is 25%. This represents a loss of nearly 1000ha at an average rate of approximately 40ha per year. Analysis of the cause of loss is available for the 1973 to 1988 period. This showed 7% of loss was due to land

reclamation and 93% due to erosion. The majority of reclamation occurred in the North Thames, Crouch and Stour estuaries.

Estuaries are dynamic places and these net figures hide areas of increase in saltmarsh through accretion and restoration (mainly managed retreat) as well as loss. The total gain in saltmarsh area over the whole period was 440ha (excluding Roach/Foulness and N. Thames), i.e. total loss was 1368ha and net loss 928ha. There was no obvious pattern between percentage losses and gains between the different estuaries.

Table 1 Saltmarsh area in Essex by estuary/coastal area

	1973	1988	1997 or 8	Resources (ha) % net loss 1973-97or 8
Stour ¹	264	148	107	59
Hamford Water	876	765	621	29
Colne	792	744	695	12
Blackwater	880	739	684	22
Dengie	474	437	410	14
Crouch	467	347	308	34
Roach/Foulness	No data	No data	218	-
North Thames	No data	197	181	(34) ²
Total (exc. Roach/Foulness & N. Thames)	3753	3180	2825	25

¹Part of the Stour estuary is in Suffolk, but whole area quoted here. ²1988-98 loss.

In Essex saltmarsh continues to be subject to a number of factors; -

Land claim. Large-scale saltmarsh land claim schemes for agriculture are now rare. Piecemeal smaller scale land claim for industry, port facilities, transport infrastructure and waste disposal is still comparatively common, and marina development on saltmarsh sites occurs occasionally.

Erosion and 'coastal squeeze'. Erosion of the seaward edge of saltmarshes occurs widely in the high energy locations of the larger estuaries as a result of coastal processes. Many saltmarshes are being 'squeezed' between an eroding seaward edge and fixed flood defence walls. The erosional process is exacerbated in some locations by a reduced supply of sediment. 'Coastal squeeze' is most pronounced in south-east England. The best available information suggests that saltmarshes in the UK are being lost to erosion at a rate of 100 ha a year.

Sediment dynamics. 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 over the years.

The small **cordgrass**, *Spartina maritima*, is the only species of cordgrass native to Great Britain. The smooth cordgrass, *S. alterniflora*, is a naturalised alien that was introduced to the UK in the 1820s. This introduction led to its subsequent crossing with *S. maritima* resulting in both a sterile hybrid, Townsend's cordgrass *S. townsendii*, and a fertile hybrid, common cordgrass *S. anglica*. The latter is vigorous and readily colonises mudflats/saltmarsh and has spread around the coast to the detriment of these habitats.

Grazing 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.

Saltmarshes are affected by a range of other **human influences** including waste tipping, pollution, drowning by barrage construction, and military activity. Turf cutting, oil pollution, recreational pressure, agricultural improvement (re-seeding and draining) and eutrophication.

Targets

National Targets	Coastal Saltmarsh	target date
1	No net loss of area (currently est at 100ha pa). There are 45820ha in the UK.	ongoing
2	Create 40ha pa	ongoing

East of England Targets	Coastal Saltmarsh	target date
1	There are no specific East of England region targets	-

Essex Targets	Coastal Saltmarsh	target date
1	No net loss of saltmarsh area in Essex. There is currently c.2878 ha in Essex (Environment Agency 2000*)	2020
2	Create 25 ha per annum (on average) of saltmarsh in Essex = 250ha	2020
3	Achieve optimum biodiversity condition for 75% of existing habitat resource = 2158ha	2020

* Environment Agency report. May 2000 *Erosion of the saltmarshes of Essex between 1988 and 1998*. Report prepared by the Geomorphological partnership at the Department of Marine Sciences and Coastal Management, University of Newcastle for the Environment Agency Anglian region eastern area. Authors: F. Burd, N.J. Cooper, T. Skrzypczak