European Community Directive
on the Conservation of Natural Habitats
and of Wild Fauna and Flora
(92/43/EEC)

Second Report by the United Kingdom under Article 17

on the implementation of the Directive from January 2001 to December 2006

Conservation status assessment for :

H1330: Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

H1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

Audit trail compiled and edited by JNCC and the UK statutory nature conservation agencies Coastal Lead Coordination Network.

This paper and accompanying appendices contain background information and data used to complete the standard EC reporting form (Annex D), following the methodology outlined in the commission document "Assessment, monitoring and reporting under Article 17 of the Habitats Directive, Explanatory Notes and Guidelines, Final Draft 5; October 2006". The superscript numbers below cross-reference to the headings in the corresponding Annex D reporting form. This supporting information should be read in conjunction with the UK approach for habitats (see 'Assessing Conservation Status: UK Approach').

1. National-biogeographic level information

1.1 General description and correspondence with National Vegetation Classification (NVC) and other habitat types

Table 1.1.1 provides a summary description of H1330 and its relations with UK classifications.

Atlantic salt meadows develop when halophytic vegetation colonises soft intertidal sediments of mud and sand in areas protected from strong wave action. This vegetation forms the middle and upper reaches of saltmarshes, where tidal inundation still occurs but with decreasing frequency and duration. A wide range of community types is represented and the saltmarshes can cover large areas, especially where there has been little or no enclosure on the landward side. The vegetation varies with climate and the frequency and duration of tidal inundation. Grazing by domestic livestock is particularly significant in determining the structure and species composition of the habitat type and in determining its relative value for plants, for invertebrates and for wintering or breeding waterfowl. In the UK this Annex I type corresponds to the following NVC types:

SM10 Transitional low-marsh vegetation
SM11 *Aster tripolium* var. *discoideus* salt-marsh community
SM12 Rayed *Aster tripolium* salt-marsh community
SM13 *Puccinellia maritima* salt-marsh community
SM14 *Halimione portulacoides* saltmarsh community
SM15 *Juncus maritimus – Triglochin maritima* salt-marsh community
SM16 *Festuca rubra* salt-marsh community (coastal examples only*)
SM17 *Artemisia maritima* salt-marsh community
SM18 *Juncus maritimus* salt-marsh community
SM19 *Blysmus rufus* salt-marsh community
SM20 *Eleocharis uniglumis* salt-marsh community.

*Inland stands of SM16 are referable to Annex I type H1340 Inland salt meadows.

At the lower reaches of the saltmarsh the vegetation is often naturally species-poor and may form an open sward of common saltmarsh-grass *Puccinellia maritima*. Further up the marsh, the vegetation becomes herb-dominated and red fescue *Festuca rubra* becomes more important. The upper saltmarsh shows considerable variation, particularly where there are transitions to other habitats. Communities present may include tussocks of sea rush *Juncus maritimus* dominating a herb-rich vegetation, and saltpans supporting patches of species-poor vegetation dominated by saltmarsh flat-sedge *Blysmus rufus* (in the north) or slender spike-rush *Eleocharis uniglumis*. Grazed saltmarsh in northern Scotland may contain frequent turf fucoid *Fucus cottonii*.

Table 1.1.1 Summary description of habitat H1330 and its relations with UK vegetation/habitat classifications

Classification	Correspondence with Annex I type	Comments
NVC (as listed in EU Interpretation Manual)	In the UK this Annex I type corresponds to the following NVC types: SM10 Transitional low-marsh vegetation. SM11 *Aster tripolium* var. *discoideus* salt-marsh community. SM12 Rayed *Aster tripolium* salt-marsh community. SM13 *Puccinellia maritima* salt-marsh community. SM14 *Halimione portulacoides* saltmarsh community. SM15 *Juncus maritimus – Triglochin maritima* salt-marsh community. SM16 *Festuca rubra* salt-marsh community (coastal examples only). SM17 *Artemisia maritima* salt-marsh community. SM18 *Juncus maritimus* salt-marsh community. SM19 *Blysmus rufus* salt-marsh community. SM20 *Eleocharis uniglumis* salt-marsh community.	Not all communities are found together on every site, and some stands may be small or rare. These communities may also be found in mosaics with other Annex I habitats all of which are dependent on the functioning of the wider estuarine or coastal system. Some communities have a distinct geographical distribution. For example, SM11 is primarily found in eastern England, and SM19 is predominantly a northern type. Note that there are regional differences between community composition, with Scottish saltmarshes being underrepresented by the NVC. These NVC types do not cover the wide range of semi-natural transitional vegetation that may be present on upper parts of salt meadows that have not been subject to reclamation. Hence the definition needs to take account of a range of other NVC types, where these are clearly natural transitions from Atlantic salt meadow and may be subject to occasional tidal inundation, including swamps, grassland, fen, dune or shingle. The distinction between the Atlantic salt meadow and Mediterranean salt meadow types in the UK was not made clear initially. Both habitats have been considered to include NVC types SM15 and SM18 (as listed in the EU Interpretation Manual), but the distinguishing features of Mediterranean salt meadows in the UK have never been clarified. It has been accepted that all forms of SM15 and SM18 can be accommodated within the Atlantic salt meadow category. This view is favoured by the majority of country agency specialists and phytosociological experts. All salt meadow vegetation in the UK is therefore referred to as the Atlantic type H1330. Inland stands of SM16 are referable to Annex I type H1340 Inland salt meadows.
BAP priority habitat type	Coastal saltmarsh.	Covers a wider zone than H1330 as it includes annual pioneer and perennial salt meadow types. Coastal saltmarshes in the UK (also known as 'merse' in Scotland) 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 the UK Coastal Saltmarsh HAP, 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.
CSM reporting categories	Littoral sediment/saltmarsh.	CSM reporting category covers the whole range of saltmarsh zones although H1330 is often the larger area. CSM category includes all annual and perennial zones of saltmarsh: pioneer; low-mid marsh; mid-upper marsh; driftline; transitions.

Saltmarsh survey of Great Britain	Saltmarsh communities have NVC equivalents, shown in brackets: 2b *Aster (SM 11,SM12)*; 3a *Puccinellia (SM10,SM13)*; 3b *Halimione (SM14)*; 4a *Limonium/Armeria (SM13)*; 4b *Puccinellia/Festuca (SM13, SM16, SM 17)*; 4c *Juncus gerardii (SM 16)*; 4d *Juncus maritimus (SM15, SM18)*	Not directly comparable with NVC, but this classification should enable comparision in broad terms. See Burd (1989) for details.

There may be transitions from upper saltmarsh to a number of habitats, including sand dune, machair, coastal shingle, freshwater marshes and woodland. This part of the saltmarsh succession has been particularly vulnerable to destruction by enclosure, usually involving the erection of a sea bank to exclude sea water, and remaining areas are regarded as particularly important for biodiversity conservation.

There are marked regional variations in the Atlantic salt meadow communities of the UK. In east and south-east England low to mid-marsh communities predominate, owing to extensive enclosure of the upper marsh. In contrast, the salt meadows of north-west England and south-west Scotland are dominated by extensive areas of grazed upper marsh communities characterised by *Puccinellia maritima* and saltmarsh rush *Juncus gerardii*. Swamp communities are particularly common in the upper marsh in south-west England, while *Juncus maritimus* communities are characteristic of Welsh saltmarshes, and transitional common reed *Phragmites australis* communities are common in south-east Scotland. Some characteristic plant species of southern saltmarshes are absent from Scotland, while others such as sea-purslane *Atriplex portulacoides* have a restricted distribution in northern Britain.

This Annex I type is predominantly found on Atlantic coasts in western Europe. Atlantic salt meadows occur on North Sea, English Channel and Atlantic shores. There are more than 29,000 ha of the habitat type in the UK, mostly in the large, sheltered estuaries of south-east, south-west and north-west England and in south Wales. Smaller areas of saltmarsh are found in Scotland.

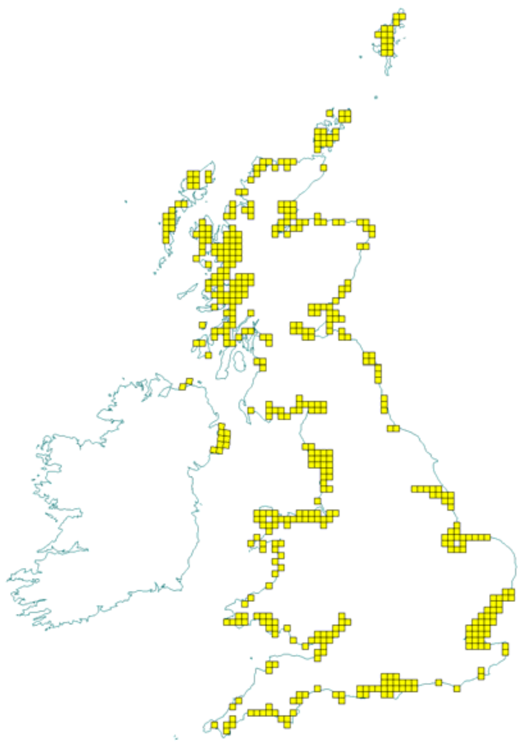
2. Range [2.3]

2.1 Current range

Range surface area [2.3.1]: **5,168 km²**
Date calculated [2.3.2]: **May 2007**
Quality of data [2.3.3]: **Moderate**

The surface area estimate was calculated within alpha hull software, using extent of occurrence as a proxy measure for range (see Map 2.1.1). The value of alpha was set at 25 km; the alpha hull software used to calculate the surface area of the range could only be clipped to a 10km strip width along the coast. The geomorphological and physical factors influencing the distribution of the habitats are likely to occur only within a far smaller distance of the coastline (at most 1km) and hence the area value has been reduced by a factor of 10 to give a more realistic value for the surface area of the range for these habitats.

Maps 2.1.1 and 2.1.2 show the range and distribution of H1330 in the UK. The map shows records for NVC communities SM10 to SM20 from NVC data and Cooper *et al*. (1992) and communities 2b *Aster*, 3a *Puccinellia*, 3b *Halimione*, 4a *Limonium/Armeria*, 4b *Puccinellia/Festuca*, 4c *Juncus gerardii*, and 4d *Juncus maritimus* saltmarsh from Burd (1989), together with Special Areas of Conservation (SACs) supporting this Annex I type.

Map 2.1.1 Habitat range map [1.1] for H1330	**Map 2.1.2** Habitat distribution map [1.2] for H1330
	
Range envelope shown in blue/grey shade in above map is a minimum convex polygon constructed using JNCC Alpha Shapes tool (see Technical note I for details of methodology).	Each yellow square represents a 10x10km square of the National Grid and shows the known and/or predicted occurrence of this habitat. 10-km square count: 483

See Section 7.1 for data sources

2.2 Trend in range since c.1994

Trend in range[2.3.4]: **Stable**
Trend magnitude[2.3.5]: **Not applicable**
Trend period[2.3.6]: **1994-2006**
Reasons for reported trend[2.3.7]: **Not applicable**
The broad range of H1330 Atlantic salt meadows has been stable since 1994.

2.3 Favourable reference range [2.5.1]

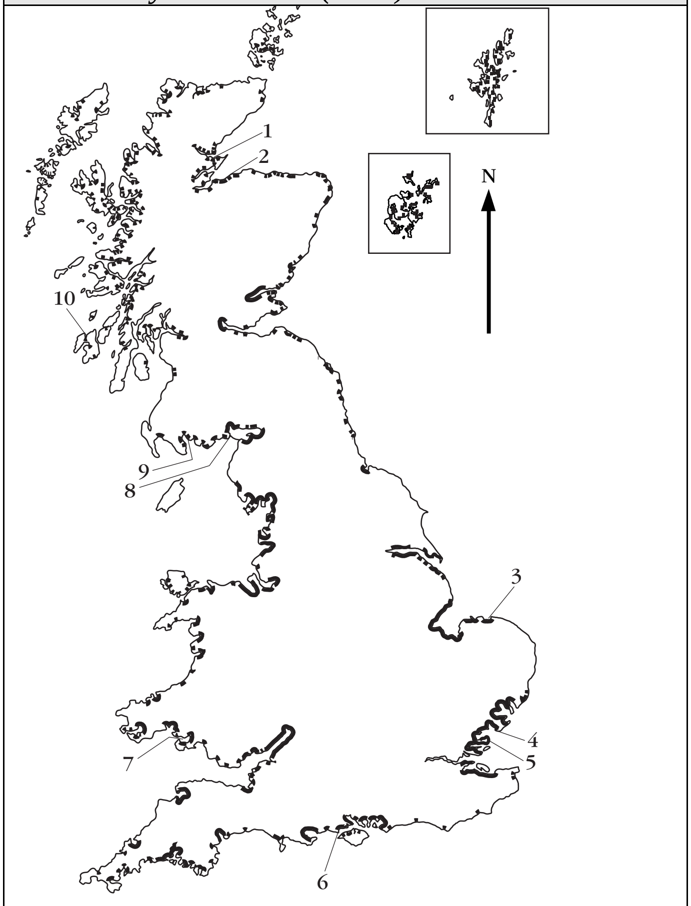
Favourable reference range: **5,168 km^2**
Section 3.2.1.3 of 'Assessing Conservation Status: UK Approach' sets out how favourable reference range estimates for habitats have been determined in the UK. Based on this approach, the current surface area, 5,168 km^2, has been set as the favourable reference area. Reasons for this are discussed below.

As the broad range of H1330 has remained stable since 1994, it is essential to assess the viability of the range of this habitat in 1994 and to determine if the current range is equal to the favourable reference range.

The loss of H1330 over the past two centuries is a concern: between 1800 and 1950 there were significant changes as large areas of land were reclaimed for agriculture or developed on (Allen & Pye 1992). In The Wash, for example, a total of 29,000 ha has been reclaimed, of which 3,000 ha was known to have been reclaimed during the 20th century (Doody 2001). However, due to the fact that reclamation affects estuary processes and often results in the accretion of intertidal sediment on which saltmarsh can develop, there can still be saltmarsh present in areas where large past losses have occurred, although to seaward of the original distribution.

Toft and Maddrell (1995) consider that saltmarshes show a great geographical variation: “*superimposed on the value of the salt marsh and its associated plant and animal communities, is an interest which stems from the differences which characterise the geographical range of variation in the plant communities. Thus the marshes of the south and east of England provide a link with those of the warmer south including the Mediterranean. In the north the more restricted saltmarshes show affinities with those of the Arctic*.” There is a concern that disproportionate loss in England has affected the regional representation of ecological variation in saltmarsh. Favourable reference range should include most of the potential natural range (i.e. not those areas where built development would constrain opportunities for habitat creation) that will allow all of the UK and regional ecological variation of this habitat to be present (including natural transitions to landward).

Map 2.1.3 Distribution of saltmarshes in Britain
From: May & Hansom (2003)



Numbers refer to the names of site given in the full report

However, this habitat has a wide range, with many of the 10 km squares therein being at least partly occupied (see Maps 2.1.1 and 2.1.2), and is present on coast all around the UK. Gaps in range shown on maps 2.1.1, 2.1.2 and 2.1.3 are primarily where physiographic features are unsuitable for salt meadows (i.e. predominantly cliffed coasts or high energy open coasts). Estuaries that support salt meadows are widely distributed around the UK coast. Salt meadows can also be found on the open coast where conditions are suitable, e.g. the presence of a barrier beach allows sediment to accumulate to a level where halophytic vegetation can colonise. The range is considered to be sufficiently extensive and with adequate representation of the ecological variation.

2.4 Conclusions on range

Conclusion[2.6.i]: **Favourable**

In terms of geographical distribution, Atlantic salt meadow is still widely distributed along suitable stretches of coast, supporting a variety of saltmarsh types. Despite the UK range appearing to be relatively stable, within regions and within sites the full range of ecological variation has been affected. The dynamic nature of the habitat means that range has responded to significant historic losses of habitat, but it is still undergoing changes and the full equilibrium is unlikely to be achieved because of the range of current pressures. However, there is still representation of the ecological variation as no component of the saltmarsh has been totally lost, even regionally.

3. Area [2.4]

3.1 Current area

Total UK extent [2.4.1]: **<292.30km^2**
Date of estimation [2.4.2]: **May 2007**
Method [2.4.3]: **3 = ground based survey**
Quality of data [2.4.4]: **Moderate**

Table 3.1.1 provides information on the area of H1330 in the UK. Comprehensive survey data for England, Scotland and Wales are available from the Saltmarsh Survey of Great Britain (1981-1989). These data are the best available but may be inaccurate. The Saltmarsh Database holds information on communities 2b Aster, 3a *Puccinellia*/*Festuca*, 4c *Juncus gerardii*, and 4d *Juncus maritimus* saltmarsh which are synonymous with NVC communities SM10 to SM18. No information is held on NVC communities SM19 and SM20 but these are transitional communities which are restricted to the west and north coasts of the UK and only cover small areas. There are no comprehensive data available for Northern Ireland.

There is a habitat inventory for saltmarsh in England. JNCC have recently analysed a series of data sets to develop an inventory of saltmarshes. CS2000 is not considered to be accurate enough to assess the extent of saltmarsh.

Some saltmarsh areas are very extensive - for example in The Wash, there is approximately 4,162 ha of saltmarsh (Burd 1989). This will include both Atlantic salt meadow and Salicornia and other annuals colonising mud and sand. Other locations have much smaller areas of salt meadow, often more linear along a coastline, or are more fragmented. This reflects both the limiting physiographic factors, such as scale of estuary or barrier beach, as well as the impacts of past anthropogenic impacts that may have caused past losses. Where there are ongoing losses, such as in south-east England there is increasing fragmentation and loss of the normal zonation. In such cases, these areas may not be viable in the long-term.

Table 3.1.1 Area of H1330 in the UK

	Area (ha)	Method [2.4.3]	Quality of data [2.4.4]
England	<21000	3	Moderate
Scotland	<4000	3	Moderate
Wales	<4000	3	Moderate
Northern Ireland	<230	-	-
Total UK extent [2.4.1]	<29,230	3	Moderate

Method used to estimate the habitat surface area: 1 = only or mostly based on expert opinion; 2 = based on remote sensing data; 3 = ground based survey. Only the most relevant class is given if more than one applies.
Quality of habitat surface area data: ‘Good’ e.g. based on extensive surveys; ‘Moderate’ e.g. based on partial data with some extrapolation; ‘Poor’ e.g. based on very incomplete data or on expert judgement

3.2 Trend in area since c.1994

Trend in area[2.4.5]: **Decreasing**

Trend magnitude[2.4.6]: **<1%**
Trend period[2.4.7]: **1973-1998**
Reasons for reported trend[2.4.8]: **2 – Climate change**
3 – Direct human influence
4 – Indirect anthropogenic or zoogenic influence
5 – Natural processes

There has not been a UK wide assessment of change in area, but there are a number of specific studies in England and Wales that demonstrate the trends. In Essex and north Kent, for example, evaluation of erosion and vegetation change using air photos and survey data from 1973 to 1988 demonstrated losses of between 10% to 44% of saltmarsh area over that period (Burd 1992). This study also showed that there was a change in the structure of the marsh vegetation from upper saltmarsh to lower saltmarsh types. Further work in part of this area (Cooper, Cooper & Burd 2001) has confirmed the ongoing loss of saltmarsh habitat in Essex since 1988. Between 1973 and 1998, over 1,000 ha of saltmarsh in Essex was lost to coastal squeeze and development. This pattern is repeated on the south coast of England, where analysis of air photos for nine estuaries indicated that the 1970s area of saltmarsh of 17 km^2 had declined to 10.8 km^2 by 2001 (Baily & Pearson 2001).

Data on change in saltmarsh habitat area from seven English estuaries in Suffolk/North Kent from 1973-1997/8 are summarised below. The rates of change (expressed as true annual rate of loss) are somewhat in excess of 1% per year for the two periods covered (1973-1988 and 1998-1997/8) and overall (1973-1997/8). All areas are shown in hectares.

Table 3.2.1 Loss of area for H1330 in seven English estuaries.

Area at start	Area at end	Period (number of years)	True annual rate of loss % for that period
3853	3250	1973-88 (15)	1.13
3250	2879	1988-1997/8 (9.5)	1.27
3853	2879	1973-1997/8 (24.5)	1.18

These figures are indicative of the changes in area across parts of England. These are generally a result of coastal squeeze where salt meadow is eroding because it is trapped between rising sea levels relative to the land, and hard sea walls. As a result it is not able to adjust to new circumstances, especially if there is not enough sediment available to build up as sea levels rise. Studies in selected areas of English estuaries have indicated that if flood defences are maintained in their current locations, coastal squeeze will continue and significant areas of saltmarsh will be lost from many areas by 2050 (Royal Haskoning 2006).

There has been a decline in area since 1994, with trends over 1% per year in south-east England. While such extreme losses as a result of coastal squeeze may not be occurring in Scotland, the losses in England mean that there is a disproportionate loss of the habitat across its range of ecological variation. The overall area has declined since 1994 but at rates averaging less than 1% per year.

3.3 Favourable reference area

Favourable reference area[2.5.2]: **Unknown** (area data insufficient)

Section 3.2.2.3 of ‘Assessing Conservation Status: UK Approach’ sets out how favourable reference area estimates have been determined in the UK. Based on this approach, the favourable reference area has been identified as greater than the current extent, but not by a factor of more than 10%. Reasons for this are discussed below.

Part of the concern about long-term viability is driven by the scale of habitat decline, which has been extensive as a result of past reclamation and development and is ongoing as a result of coastal squeeze. The overall consequence of change is that the upper salt marsh zones and transitions to other semi-natural habitats have probably been affected the most. Between 1800 and 1950 there were significant changes as large areas of land were reclaimed for agriculture or developed on. (Allen & Pye 1992). In The Wash, for example, a total of 29,000 ha has been reclaimed, of which 3,000 ha was known to have been reclaimed during the 20th century (Doody 2001). However, due to the fact that reclamation affects estuary processes and often results in the accretion of intertidal sediment on which saltmarsh can develop, there can still be saltmarsh present in areas where large past losses have occurred, although to seaward of the original distribution. In Scotland, some 50% of the former intertidal area of the Forth estuary has been subject to claim over the last 400 years (May and Hansom 2003). Note that these areas may also include intertidal mudflats as well as saltmarsh, although these are functionally linked within an estuary system.

Historically, it was assumed (e.g. in The Wash) that new intertidal habitat (including salt meadow) would develop in front of a new land claim enclosure. However, the coasts in Essex and Kent have shown that this is unlikely to be the normal progression, particularly in areas where relative sea level is rising and where the natural transition between tidal waters and the land has been truncated by an artificial barrier. This misconception has led to further loss of saltmarsh. Although the habitat is not scarce, most of the losses have damaged the upper saltmarsh, diminishing habitat variability and its resilience to adverse effects. Being a coastal habitat, H1330 is especially vulnerable to edge effect and has an increased vulnerability to 'catastrophic' events. This is compounded by the fact that the upper saltmarsh being reduced, the dynamics of constituent species may be altered and recolonisation made difficult.

Furthermore, it has been estimated that approximately 100 ha of saltmarsh needs to be created annually to keep pace with losses to coastal squeeze, with an additional amount of 40 ha per annum to account for losses since the Habitats Directive came into force (UK BAP 1999). Since the publication of the *Habitat Action Plan for Coastal Saltmarsh*, however, the amount of habitat created has not met those annual targets, with the exception of 2006 when a large managed realignment in the Humber was implemented. Between 1994 and 2007, there was 1,028 ha of realignment in the UK. However, 110 ha of this at Wallasea, was compensation for intertidal area that had been developed on at Lappel Bank/Fagbury Flats, so the real figure would be 918 ha when the targets were of 140 ha per annum over eight years, thus 1,120 ha. Despite these realignments, recreation is 200 ha short of the Habitat Action Plan (HAP) target in terms of overall realignment area. There are also issues that not all of the areas will become saltmarsh, some will remain as mudflat, as well as quality aspects – the Alkborough site for example will only support upper estuary saltmarsh of a different type of saltmarsh habitat than was lost in Essex. Also there is no distinction between Atlantic saltmeadow and Salicornia in these figures.

The range is considered to be less than 10% below the favourable reference range.

3.4 Conclusions on area covered by habitat

Conclusion[2.6.ii]: Unfavourable – Inadequate and deteriorating

The area of this habitat has declined greatly over the last 100 years due to human actions; this has compounded the impacts of previous reclamations and changes in response to sea level rise and sediment availability. These recent and historic losses, coupled with the dynamic nature of this habitat, mean that the current area is below favourable reference area, but not more than 10% below it. Data from several estuaries in south-east England show the rate of loss for saltmarsh habitat from 1973-1997/8 exceeded 1% per year, which supports the conclusion for unfavourable bad as regards habitat area. Although this rate of recent loss is probably greater than on other stretches of the UK coast, this region holds a substantial part of the national total. Loss of area is continuing and is not being offset by habitat creation. The potential threat of localised losses is high.

4. Specific structures and functions (including typical species)

4.1 Main pressures [2.4.10]

The factors affecting coastal saltmarsh are covered in the *Habitat Action Plan for Coastal saltmarsh* (UKBAP website). The main pressures affecting H1330 are listed below. The related EC codes are shown in brackets.

- Land claim (**802 reclamation of land from sea, estuary or marsh**)

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. Such developments usually affect the more botanically diverse upper marsh and landward transition zones.

- Erosion and coastal squeeze (**900 erosion, 930 submersion**)

Erosion of the seaward edge of saltmarshes occurs widely in the high energy locations of the larger estuaries as a result of coastal processes. There is evidence that this process is exacerbated both by the isostatic tilting of Britain towards the south-east, and by climatic change leading to a relative rise in sea level and to increased storminess. 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, where, for example, it is estimated that 20% of the saltmarsh resource in Kent and Essex was lost between 1973 and 1988. The best available information suggests that saltmarshes in the UK are being lost to erosion at a rate of 100 ha a year. In more western and northern regions, there is recent evidence of a trend towards net sea level rise which may be causing saltmarsh erosion, although the rates of loss are not known.

Coastal squeeze will not only reduce the area of the habitat, but can result in vegetation zones being reduced in extent, with lower saltmarsh zones replacing the middle or upper zones as the low tide mark moves landward. As a consequence, the Atlantic saltmeadow is likely to be replaced by Pioneer *Salicornia* habitat. Creeks and salt pans can act as identifiable indicators of erosion, in the absence of detailed topographical monitoring. Enlargement and internal dissection of creeks can indicate erosion. Saltmarsh dynamics are closely linked to the physical factors operating, especially the role of sediment erosion/accretion. Many systems are still adjusting to past reclamation, so ongoing changes should be expected. A study for the Ministry for Agriculture, Fisheries and Food (MAFF) in the 1990s (Pye & French 1993) showed that there were regional differences in lateral and vertical accretion since the 1960s/1970s, and that systems can change from an accreting system to an eroding system, depending on factors such as wave climate and wind energy.

Accretion and development of saltmarsh is occurring on parts of the British coastline, notably in north-west England where sediments are comparatively coarse and isostatic uplift largely negates sea level rise. However, this accretion is not sufficient to offset the national net loss of saltmarsh. In many cases the newly created habitats differ from those being lost due to the regional differences in saltmarsh composition.

- Sediment dynamics (**851 modification of marine currents, 871 sea defence or coast protection works**)

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.

- Cord grass *Spartina anglica* (**954 invasion by a species, 971 competition**)

The small cord-grass, *S. maritima*, is the only species of cord-grass native to Great Britain. The smooth cord-grass, *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 cord-grass *S. townsendii*, and a fertile hybrid, common cord-grass *S. anglica*. The latter readily colonises mudflats and has spread around the coast. It has also been extensively planted to aid stabilisation of mudflats and as a prelude to land-claim. Common cord-grass 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. As a result, attempts have been made to control it at several locations, although in some areas it is undergoing dieback for reasons not fully understood.

- Grazing (**140 Grazing**, **141 abandonment of pastoral systems**)

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. In recent decades, some grazed saltmarshes have been abandoned, leading to domination of the mid to upper marsh by rank grasses. Intensive grazing is considered to be a problem in some areas. Those saltmarshes that are traditionally ungrazed should remain so.

- Other human influences (**420 Discharges, 701 water pollution, 703 soil pollution, 730 Military manoeuvres, 810 Drainage, 840 Flooding**)

Saltmarshes are affected by a range of other human influences including waste tipping, pollution, drowning by barrage construction, and military activity. Turf cutting is a traditional activity in some areas. Oil pollution can potentially destroy saltmarsh vegetation and whilst it usually recovers, sediment may be lost during the period of die-back as there are no plant stems to trap sediment. The effects of recreational pressure are not well understood but may be locally significant. Agricultural improvement (re-seeding and draining) has affected the upper edge and transition zones of some saltmarshes in the past and may still occur on a small scale. Eutrophication due to sewage effluent and agricultural fertiliser run-off has caused local problems of algal growth on saltmarshes. Other negative indicators include surface disturbance by vehicles and people or turf-cutting.

- Air pollution (**702 air pollution**)

Based on an assessment of relevant literature, this habitat is potentially sensitive to air pollution, but it has not been possible to undertake an assessment of potential impact based on critical loads because of the poor equivalence between this habitat and those for which critical loads are set (see Technical note III).

4.2 Current condition

4.2.1 Common Standards Monitoring (CSM) condition assessments

Condition assessments based on CSM (see http://www.jncc.gov.uk/page-2199) provide a means to assess the structure and functioning of H1330 in the UK. The following attributes were examined for all CSM assessments relevant to the habitat:

- Physical structure: creeks and pans.
- Vegetation structure: zonation of vegetation.
- Vegetation structure: Sward height.
- Vegetation composition: characteristic species (including transitions to other habitats).
- Vegetation composition: negative indicator species.
- Other negative indicators.

Saltmarshes are part of wider coastal and estuarine systems, and play a key role in the storing and release of sediment and nutrient cycling (Boorman 2003). In addition they provide a vital natural role in flood risk management as well as nursery areas for fish and other aquatic species (Colclough *et al.* 2005).

Vegetation patterns and composition are important aspects when assessing condition, as they reflect any major changes in saltmarsh dynamics. This habitat is made up of a series of zones dominated by species that can tolerate different levels of tidal inundation. Changes in dominance of species able to withstand different levels of inundation can indicate changes in condition. Replacement of higher zones with lower zones can indicate. These dominant species can vary throughout the UK, and the type of management, if any, of the sward can influence community composition. Vegetation structure can vary from short swards of uniform height where there is heavier grazing, to a more diverse tussocky structure where there is less grazing. Although zones are typically described as shore parallel 'bands' reflecting tidal levels, in reality these are more varied due to patterns of creeks resulting in smaller scale zonation within the saltmarsh system. The vegetation structure is important for associated species such as breeding birds and invertebrates. In many locations, transitions to other habitats are truncated by a sea wall, thus compromising the structure and function.

The sites selected as SACs are for the most part the largest examples of this habitat type, representing the range of variation of the habitat, with good structure and function, and which support a well-developed zonation of plant communities within the saltmarsh. Some have transitions to other high-quality habitat and may represent the most complete sequences of saltmarsh vegetation zones and transitions to other habitats, such as sand dunes or terrestrial/wetland habitats. Note that three of the larger sites (Dee, Severn and Humber) are still possible (p)SACs.

SAC condition assessments

Table 4.2.1 and Map 4.2.1 summarise the CSM condition assessments for UK SACs supporting habitat H1330. These data were collated in January 2007. The maps give an impression of the overall spread of where unfavourable and favourable sites exist (summary statistics for the map are given in Section 7.2). The combined assessments show that of the SACs assessed:

- 60% of the area and 60% of the number of assessments was unfavourable; and
- at least 41% of the total UK habitat area was in unfavourable condition.

Table 4.2.1 CSM condition assessment results for UK SACs supporting H1330. See notes below table for details. Information on the coverage of these results is given in Section 7.2

Condition	Condition sub-categories	Area (ha)	Number of site features
Unfavourable	Declining	6,075	5
	No change		
	Unclassified	3,931	5
	Recovering	2,000	2
	Total	12,006	12
	% of all assessments	***60%***	***60%***
	% of total UK resource	***41%***	***unknown***
Favourable	Maintained	613	2
	Recovered		
	Unclassified	7,333	6
	Total	7,946	8
	% of all assessments	***40%***	***40%***
	% of total UK resource	***27%***	***unknown***

Notes

1. Data on features that have been partly-destroyed have been excluded from this table because they are not relevant to the consideration of present condition.

2. The data included are from CSM assessments carried out between April 1998 and December 2006. NB: these include additional and some up-date data form those used in the six year report produced by JNCC. (Williams, J.M., ed. 2006. *Common Standards Monitoring for Designated Sites: First Six Year Report*. Peterborough, JNCC).
3. Only assessments made for qualifying interest features on SAC have been included in this analysis.
4. Area figures for CSM assessments have been calculated using the data presented on the standard Natura 2000 data forms submitted to the EU.

Site of Special Scientific Interest (SSSI)/Area of Special Scientific Interest (ASSI) condition assessments

Table 4.2.2 and Maps 4.2.2 and 4.2.3 summarise the CSM condition assessments that were judged to be either strongly or weakly indicative of the condition of the Annex I habitat on SSSI/ASSIs (see Technical note II for details of methodology behind this). These data were collated in January 2007. The maps give an impression of the overall spread of where unfavourable and favourable sites exist (summary statistics for the maps are given in Section 7.2). The combined condition assessments show that of the SSSI/ASSI assessments considered:

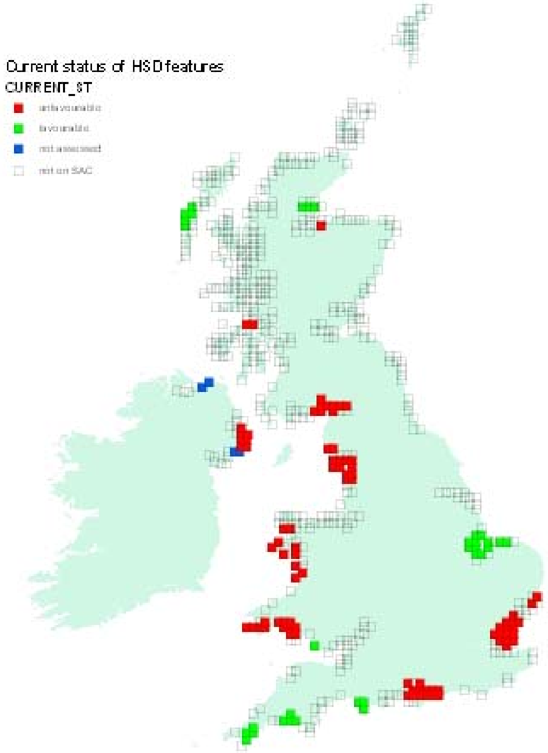
- 28% of strongly indicative assessments were unfavourable.

Table 4.2.2 CSM condition assessment results for UK SSSI/ASSIs that were judged to be either strongly or weakly indicative of the condition of H1330 on SSSI/ASSIs. See notes below table and Technical note II for further details.

Condition	**Condition sub-categories**	**Number of assessments**	
		Strongly indicative assessments (Category 1)	**Weakly indicative assessments (Category 2)**
Unfavourable	Declining	19	
	No change	14	
	Unclassified	3	
	Recovering	27	
	Total	63	
	% of all assessments	***28%***	***%***
Favourable	Maintained	39	
	Recovered		
	Unclassified	127	
	Total	166	
	% of all assessments	***72%***	***%***

Notes
1. Data on features that have been partly-destroyed have been excluded from this table because they are not relevant to the consideration of present condition.
2. The data included are from CSM assessments carried out between April 1998 and December 2006.

Current Condition of H1330 based on CSM condition assessments (See Sections 4.2 and 7.2 for further information)

Map 4.2.1 SAC assessments	**Map 4.2.2** Assessments strongly indicative of the condition on SSSI/ASSIs	**Map 4.2.3** Assessments weakly indicative of the condition on SSSI/ASSIs
		Not applicable
Key <u>Red = unfavourable</u>, i.e. the square contains at least one SAC where this habitat feature is present and has been judged to be unfavourable <u>Green = favourable</u>, i.e. the square contains at least one SAC where this habitat feature is present and has been assessed as favourable but there are no unfavourable SAC features <u>Blue = SAC not assessed</u>, i.e. the square contains at least one SAC supporting this habitat feature but no assessment has been reported <u>Transparent = SAC feature not present</u>, i.e. the square does not contain any SAC features of this habitat type	Key* <u>Green</u> – 80 – 100% of assessed features on 10km square are favourable <u>Yellow</u> - 50 – 80% of assessed features on 10km square are favourable <u>Orange</u> - 20 – 50% of assessed features on 10km square are favourable <u>Red</u> - 0 – 20% of assessed features on 10km square are favourable *This is the same key as was used for JNCC CSM Report 2006	

4.3 Typical species

Typical species[2.5.3]: ***Blysmus rufus, Carex extensa, Hordeum marinum, Limonium humile, Aster tripolium* (rayed), *Juncus maritimus, Aster tripolium* (unrayed)**

Typical species assessment[2.5.4]: **Change in 10 km square occupancy across UK over last 25 years**

Several species show a medium degree of faithfulness to this habitat or at least to the main related saltmarsh community types (SM10, SM11, SM12, SM13, SM14, SM15, SM16, SM17, SM18, and SM20) within the NVC. Trends in the occurrence of these species across the UK during the last 25 years are set out in the table below. All but two showed significant increases, mostly of less than 25%. These data suggest that at least some species associated with H1330 have increased in occurrence, though not necessarily within this saltmarsh type.

Table 4.3.1 Trends and faithfulness of selected typical species for H1330

Typical species [2.5.3]	**Faithfulness to habitat H1330 (based on analysis of NVC synoptic tables)**	**Trend over last 25 years from BSBI atlas – based on change in 10 km square occupancy across UK (see http://www.jncc.gov.uk/page-3254)**
Blysmus rufus	Very high	Significant decline, but <25% in 25 years
Carex extensa	Very high	Significant increase, but <25% in 25 years
Hordeum marinum	Very high	Significant decline, but <25% in 25 years
Limonium humile	Very high	Significant increase, but <25% in 25 years
Aster tripolium (rayed)	High	Significant increase, but <25% in 25 years
Juncus maritimus	Medium	Significant increase, but <25% in 25 years
Aster tripolium (unrayed)	Medium	Significant increase, but <25% in 25 years

4.4 Conclusions on specific structures and functions (including typical species)

Conclusion[2.6.iii]: **Unfavourable – Bad and deteriorating**

The EC Guidance states that where "more than 25% of the area of the habitat is unfavourable as regards its specific structures and functions", the conclusion should be Unfavourable – Bad. In the UK this was generally taken to mean that more than 25% of the habitat area in unfavourable condition.

The data for assessed SACs (and which excludes three large pSACs) show that 41% of the total resource is unfavourable, and that 60% of the SAC habitat area is unfavourable. For SSSI/ASSIs, 35% of the assessments were unfavourable. The existing data does show that more than 25% of the habitat is unfavourable, that the necessary structures and functions for the habitat are not in place and that significant deteriorations and pressures exist, and that at least 20% of the UK resource is declining.

5. Future prospects

5.1 Main factors affecting the habitat

5.1.1 Conservation measures

- Protection within designated sites

Around 68% of the resource of H1330 lies within SACs with management measures specifically aimed at maintaining and enhancing the features for which they are designated, and to address some of the pressures listed within section 4.1 and the future threats listed in section 5.1.2. A significant proportion of the resource of this habitat also lies within the SSSI/ ASSI series where similar management measures are in place.

- UK BAP

The habitat is covered by the *Coastal saltmarsh action plan* under the UK Biodiversity Action Plan (see http://www.ukbap.org.uk), as well as under country and local biodiversity action plans and strategies, with targets to maintain, improve, restore and expand the resource.

The main method of re-creating saltmarsh would rely on the flooding of low-lying land by tidal water; some of it previously reclaimed saltmarsh. To re-create or restore habitat area would require the right combination of topography, sediments and intertidal flooding. The areas with the highest potential are low-lying parts of the coastal flood plain, these could be equivalent to the land that has been mapped by the Environment Agency at risk of being flooded 1 in 200 year flooding, and are approximately similar to the 5 m contour. A potential area could be modelled by identifying coastal land of suitable elevation, as has been done in the Living with the sea CHaMPs studies (English Nature 2002). However, where the estuary system is more constrained by steeply rising ground (e.g. Ria type estuaries in Devon or Cornwall) the transgression of habitat is more limited. In these latter cases, saltmarsh development can only keep pace with sea level rise if there is adequate sediment in the system to allow vertical accretion. Although there have been attempts in the past to use sediment trapping by use of 'sedimentation fences' (known as Polders in The Netherlands) to create saltmarsh, this relies on the presence of adequate sediment, and is only suitable as a small-scale method in accreting systems (Colenutt 2001).

Much of the potential area for H1330 has been developed on and now lies behind artificial flood banks that reduce the risk of flooding. Any managed realignment would need to take account of this and also the dynamics of the estuary, therefore potential area of Atlantic salt meadow may be less than the extent of the flood plain overall. It has been estimated that approximately 100 ha of saltmarsh needs to be created annually to keep pace with losses to coastal squeeze, with an additional amount to account for losses since the Habitats Directive came into force (UK BAP 1999). Since the publication of the *Habitat Action Plan for Coastal Saltmarsh*, however, the amount of habitat created has not met those annual targets, with the exception of 2006 when a large managed realignment in the Humber was implemented.

A study to evaluate success of de-embankment has shown that of 48 accidental or deliberate breaches in the UK since 1897, only 2007 ha of habitat were flooded (Wolters *et al.* 2005). Studies from monitoring of one of the first managed realignment projects in England indicate that the rate of accretion determines the rate of habitat development (Boorman 2003). Although 'warping up' by depositing sediment onto realignment areas, can help to promote this process, it can also generate other impacts such as smothering, pollution or affecting sediment pathways (Nottage & Robertson 2005).

5.1.2 Main future threats[2.4.11]

The most obvious major future threats to H1330 are listed below, several of which are referred to in Section 4.1. The related EC codes are shown in brackets.

- Land claim (**802 reclamation of land from sea, estuary or marsh**)
- Erosion and coastal squeeze (**900 erosion, 930 submersion**)
- Sediment dynamics (**851 modification of marine currents, 871 sea defence or coast protection works**)
- Cord grass *Spartina anglica* (**954 invasion by a species, 971 competition**)
- Grazing (**140 Grazing**, **141 abandonment of pastoral systems**)
- Other human influences (**420 Discharges, 701 water pollution, 703 soil pollution, 730 Military manoeuvres, 810 Drainage, 840 Flooding**)
- Climate change (**900 erosion, 930 submersion, 950 Biocenotic evolution**)

Based on the literature review (Technical note IV) climate change is considered a major threat to the future condition of this habitat especially in the long term. However, there is a high degree of uncertainty in defining future climate threats on habitats and species due to uncertainty in: future greenhouse gas emissions; the consequential changes in climatic features (for instance temperature, precipitation CO_2

concentrations); the responses of habitats and species to these changes (for instance location, phenology, community structure) and the role of other socio-economic drivers of environmental change. The scale of change in habitats and species as a result of climate change will vary across ecosystems. Small changes in the climate are more likely to have a substantial impact on habitats and species which exist within a narrow range of environmental conditions. The future impacts of climate change on UK biodiversity will be exacerbated when coupled with other drivers of environmental change.

- Air pollution (**702 air pollution**)

Based on an assessment of relevant literature, this habitat is potentially sensitive to air pollution, but it has not been possible to undertake an assessment of its potential future impact based on critical loads because of the poor equivalence between this habitat and those for which critical loads are set (see Technical note III).

5.2 Future condition (as regards range, area covered and specific structures and functions)

5.2.1 CSM condition assessments

The CSM condition assessments reported in Sections 4.2.1-2 provide a basis to predict the potential future condition of H1330 in the UK. This involved treating all assessments currently identified as either favourable or unfavourable recovering as future-favourable: remaining categories were treated as future-unfavourable – see Table 5.2.1. There are a number of caveats to this approach, which are set out beneath this table.

SAC condition assessments

Table 5.2.1 and Map 5.2.1 summarise the predicted potential future condition of H1330 on UK SACs. This is based on the approach described above. The maps give an impression of the overall spread of where future-unfavourable and future-favourable sites are predicted to occur (summary statistics for the map are given in Section 7.2). The combined assessments show that of the SACs assessed:

- 50% of the area and 50% of the number of assessments fall within the future-favourable category; and
- at least 34% of the total UK habitat area falls within the future-favourable category.

Table 5.2.1 Predicted future condition of UK SACs supporting H1330 based on current CSM condition assessments. See notes below table for details. Information on the coverage of these results is given in Section 7.2

Future condition	Present condition	Area (ha)	Number of site features
Future-unfavourable	Unfavourable declining	6,075	5
	Unfavourable no change		
	Unfavourable unclassified	3,931	5
	Total	10,006	10
	% of assessments	***50%***	***50%***
	% of total UK extent	***34%***	***Unknown***
Future-favourable	Favourable maintained	613	2
	Favourable recovered		
	Unfavourable recovering	2,000	2
	Favourable unclassified	7,333	6
	Total	9,946	10
	% of assessments	***50%***	***50%***
	% of total extent	***34%***	***Unknown***

Note that the scenario presented above is based on the same information as used to construct the Table in section 4.1. It is based on the following premises:
(i) the unfavourable-recovering condition assessments will at some point in the future become favourable;
(ii) all unfavourable-unclassified sites will remain unfavourable, which is probably overly pessimistic;

(iii) sympathetic management will be sustained on sites already classified as favourable and these will not be seriously damaged by any unforeseen events.
IMPORTANT NOTE: We do not have information on the timescale of the predicted recovery, which may be influenced by many past, natural and human related factors. A sustained, sympathetic management regime is more likely to result in 'favourable' condition being attained.

SSSI/ASSI condition assessments

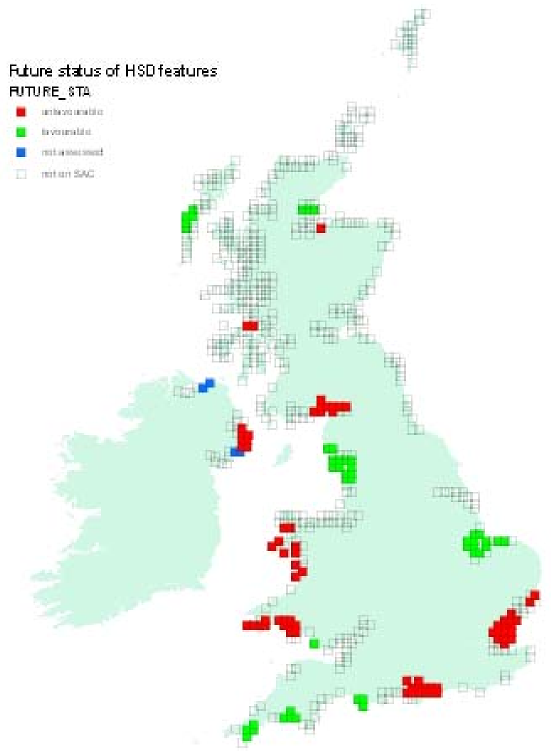
Table 5.2.2 and Maps 5.2.2 and 5.2.3 summarise the predicted potential future condition of H1330 on UK SSSI/ASSIs. This is based on the approach described above and utilises condition assessments that were judged to be either strongly or weakly indicative of the condition of the Annex I habitat on SSSI/ASSIs (see Technical note II for details of methodology behind this). The maps give an impression of the overall spread of where unfavourable and favourable sites exist (summary statistics for the maps are given in Section 7.2). The combined condition assessments show that of the SSSI/ASSI assessments considered:

- 84% of strongly indicative assessments fall within the future-favourable category.

Table 5.2.2 Predicted future condition of H1330 on SSSI/ASSIs based on CSM assessments that were judged to be either strongly or weakly indicative of the condition. See notes below table and Technical note II for further details

Future condition	Present condition	Number of assessments	
		Strongly indicative assessments (Category 1)	**Weakly indicative assessments (Category 2)**
Future-unfavourable	Unfavourable declining	19	
	Unfavourable no change	14	
	Unfavourable unclassified	3	
	Total	36	
	% of assessments	***16%***	***%***
Future-favourable	Favourable maintained	39	
	Favourable recovered		
	Unfavourable recovering	27	
	Favourable unclassified	127	
	Total	193	
	% of assessments	***84%***	***%***

Note that the scenario presented above is based on the same information as used to construct the Table 4.2.2. It is based on the following premises:
(i) the unfavourable-recovering condition assessments will at some point in the future become favourable;
(ii) all unfavourable-unclassified sites will remain unfavourable, which is probably overly pessimistic;
(iii) sympathetic management will be sustained on sites already classified as favourable and these will not be seriously damaged by any unforeseen events.
IMPORTANT NOTE: We do not have information on the timescale of the predicted recovery, which may be influenced by many past, natural and human related factors. A sustained, sympathetic management regime is more likely to result in 'favourable' condition being attained.

Predicted Future Condition of H1330 based on CSM condition assessments (See Sections 5.2 and 7.2 for further information on these maps)		
Map 5.2.1 SAC assessments	**Map 5.2.2** Assessments strongly indicative of the condition on SSSI/ASSIs	**Map 5.2.3** Assessments weakly indicative of the condition on SSSI/ASSIs
		Not applicable
Key Red = future-unfavourable, i.e. the square contains one or more SACs where this habitat feature is present and has been predicted to be future-unfavourable Green = future-favourable, i.e. the square contains at least one SAC where this habitat feature is present and has been predicted to be future-favourable Blue = SAC not assessed, i.e. the square contains at least one SAC supporting this habitat feature but no assessment has been reported Transparent = SAC feature not present, i.e. the square does not contain any SAC features of this habitat type	Key* Green – 80 – 100% of assessed features on 10km square are favourable Yellow - 50 – 80% of assessed features on 10km square are favourable Orange - 20 – 50% of assessed features on 10km square are favourable Red - 0 – 20% of assessed features on 10km square are favourable *This is the same key as was used for JNCC CSM Report 2006	

5.3 Conclusions on future prospects (as regards range, area covered and specific structures and functions)

Conclusion[2.6.iv]: Unfavourable – Bad and deteriorating

The EC Guidance states that where "habitat prospects are bad, with severe impacts from threats expected and long-term viability not assured", the judgement should be Unfavourable – Bad. In the UK, this was generally taken to mean that habitat range and/or area are in decline, and/or less than 75% of the habitat area is likely to be in favourable condition in 12-15 years.

There are a number of factors such as climate change that may be beyond the ability to influence directly by management. The habitat is at risk from flooding during storms and due to sea-level rise. Coastal squeeze is likely to continue, especially in the south-east of England, leading to substantial area loss and the reduction of the upper saltmarsh component of the habitat and compromising its viability. A key issue is to ensure that managed retreat and realignment will help to mitigate against this. In some areas, at least, the area is expected to decline. The analysis of data from SACs suggests that 50% of SACs and 34% of the total UK habitat area may be unfavourable in future and that up 20% of the overall resource (6,000 ha) is expected to be unfavourable and still declining. It should be noted that a number of positive conservation measures – notably the agreed BAP target for creating of 350 ha of saltmarsh per annum – have been put into place to improve the status of this habitat, although the BAP habitat also includes H1310, H1320 and H1420. However, it is considered that recreation will take time for the new intertidal habitat to be colonised and for the habitat to reach maturity. Furthermore, it may not compensate loss of ecological variation as some components of saltmarsh may fail to develop and as northerly sites will differ from more southerly ones. Despite progress already made and some additional recovery once further conservation measures are put into place, the expectation is that more than 25% of the habitat will be in unfavourable condition in the next 10-15 years.

6. Overall conclusions and judgements on conservation status

Conclusion[2.6]: Unfavourable – Bad and deteriorating

On the basis of the structure and function and future prospects assessments, the overall conclusion for this habitat feature is Unfavourable – Bad.

Table 6.1 Summary of overall conclusions and judgements

Parameter	Judgement	Grounds for Judgement	Confidence in judgement*
Range	Favourable	Current range is stable and not less than the favourable reference range.	2
Area covered by habitat type within range	Unfavourable – Inadequate and deteriorating	Current extent is declining, and less than the favourable reference area, but not by more than 10%.	2
Specific structures and functions (including typical species)	Unfavourable – Bad and deteriorating	More than 25% of the habitat area is considered to be unfavourable as regards its specific structures and functions. Significantly more of the resource in unfavourable condition is declining than improving.	1
Future prospects (as regards range, area covered and specific structures and functions)	Unfavourable – Bad and deteriorating	Habitat prospects over the next 12-15 years is considered to be bad, with severe impact from threats expected and long term viability not assured. Further measures are required to address threats to future extent and structure and function for the overall UK resource.	1

Overall assessment of conservation status	Unfavourable – Bad and deteriorating	On the basis of the structure and function and future prospects assessments, the overall conclusion for this habitat feature is Unfavourable – Bad.	2

Key to confidence in judgement: 1 = High; 2 = Medium; 3 = Low

7. Annexed material (including information sources used 2.2)

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7.2 Further information on CSM data as presented in Sections 4.2 and 5.2

Table 7.2.1 Summary of the coverage of the data shown in Tables 4.2.1 and 5.2.1

Data	Value
Number of SACs supporting feature (a)	23
Number of SACs with CSM assessments (b)	20
% of SACs assessed (b/a)	87
Extent of feature in the UK – hectares (c)	29,230
Extent of feature on SACs – hectares (d)	19,986
Extent of features assessed – hectares (e)	19,953
% of total UK hectarage on SACs (d/c)	68
% of SAC total hectarage that has been assessed (e/d)	100
% of total UK hectarage that has been assessed (e/c)	68

Notes

1. Extent of features on SACs (d) includes only those features that have been submitted on the official Natura 2000 data form as qualifying features. This figure is based on the habitat extent figures presented on standard Natura 2000 data forms.
2. The data included are from CSM assessments carried out between April 1998 and December 2006. NB: these include additional and some up-date data form those used in the six year report produced by JNCC (Williams, J.M., ed. 2006. *Common Standards Monitoring for Designated Sites: First Six Year Report*. Peterborough, JNCC)

Table 7.2.2 Summary of grid square map data shown in Maps 4.2.1-3 and 5.2.1-3

Status	Number of squares	Proportion of all squares
Current – Unfavourable (red)	76	13%
Current – Favourable (green)	41	7%
On SAC but not assessed (blue)	4	1%
Not on SAC (transparent)	476	80%
Total Number of 10km squares (any colour)	597	100%
Future – Unfavourable (red)	63	11%
Future – Favourable (green)	54	9%