



UK Terrestrial & Freshwater Habitat Types: Coastal Habitat descriptions

The material provided in this document was previously available as a series of webpages, published and updated between 2012 and 2015. These pages can be accessed through The National Archives website:

<https://webarchive.nationalarchives.gov.uk/20190301141028/http://jncc.defra.gov.uk/page-4532>.

The descriptions include information on a habitat's characteristics, extent & distribution, pressures & threats, condition, protection, and management. Although much of the information remains of value and interest, it is historic and therefore does not necessarily reflect the most up-to-date state of knowledge of the habitat.

Please note that, given the age of the material, some of the links (particularly to external websites) may no longer work.

UK Coastal Habitats

The UK coastline is one of the longest in Europe. It is also one of the most varied and dynamic, constantly evolving and shifting over time. The coast provides a home for many highly specialised plants and animals.

The UK coast supports a range of well-known habitat types. Coastal saltmarsh and Coastal shingle habitats occur within reach of the tides and are subject to periodic saltwater inundation and wave action. Pioneer and salt- and flood-tolerant species are characteristic of this environment. Further inland, where the sea seldom reaches, Coastal sand dune, Machair and Coastal cliff habitats occur. These areas are typically windswept, arid and brackish. Dune areas, in particular, support highly specialised plants. Moving inland, habitats become increasingly terrestrial, with various types of coastal grassland, heathland and scrub types predominating.

UK coastal habitats are a priority for nature conservation. This is partly due to the variety of specialised species associated with them, but also because of their naturalness, fragility, scarcity and intrinsic appeal. Accordingly, there are seventeen coastal habitat types listed under Annex I of the EU Habitats Directive and five coastal priority habitats listed under the UK Biodiversity Action Plan.

1 UK Coastal Habitat Types & Characteristics

1.1 Shingle



Vegetation of drift lines occurs on deposits of shingle lying at or above mean high-water spring tides. These shingle deposits occur as fringing beaches that are subject to periodic displacement or overtopping by high tides and storms. The distinctive vegetation, which may form only sparse cover, is therefore ephemeral and composed of annual or short-lived perennial species. This type of habitat is found all around the UK coastline.

Vegetated shingle consists of sediment with particle sizes in the range of 2–200 mm on which plant communities develop. The vegetation occurring on shingle will depend on the hydrology of a particular site and the amount of finer sediment within the shingle. Typically, the seaward edge harbours pioneer species – more resistant to wind and exposure to sea spray – such as sea kale (*Crambe maritima*). Further from the fringe, conditions allow other plant communities to develop. Where the water table is close to the shingle surface, wetlands plant communities can develop. This habitat can be quite extensive, such as can be seen at Dungeness. Vegetated shingle is very important for some of our breeding birds such as oystercatchers and terns, as well as some gull species. The UK holds a significant part of the European resource of this habitat, which is widespread along our coasts.

1.2 Cliffs

Hard cliffs are rocky slopes fringing hard coasts, created by past or present marine erosion, and supporting a wide diversity of vegetation types with variable maritime influence. Hard cliffs, with vertical or very steep faces, are characteristic of hard igneous, metamorphic and sedimentary rocks and also of chalk, which, although a soft rock, nevertheless forms vertical cliffs.



Soft cliffs are slopes fringing soft coasts, created by past or present marine erosion, and supporting a wide diversity of vegetation types with variable maritime influence. Soft cliffs have a sloping or slumped profile, often with a distinct undercliff; they occur on a range of soft rocks, or on hard rocks interspersed with softer deposits. The more mobile soft cliffs occur where there are unstable soft deposits such as mudstones or glacial drift deposits. They may be subject to mudslides or landslips, which create complexes of pioneer and more mature vegetation.

1.3 Saltmarsh



Pioneer saltmarsh colonises intertidal mud and sandflats in areas protected from strong wave action and is an important precursor to the development of more stable saltmarsh vegetation. It develops at the lower reaches of saltmarshes where the vegetation (mainly pioneer *Salicornia* species and *Spartina maritima*) is frequently flooded by the tide, and can also colonise open creek sides, depressions or pans within saltmarshes, as well as disturbed areas of upper saltmarshes.

Lower saltmarsh is inundated at least once a day due to tidal action and so supports plant communities that are more salt tolerant than those found in the upper marsh.

Upper saltmarsh is found where halophytic vegetation colonises soft intertidal sediments of mud and sand in areas protected from strong wave action. Tidal inundation can still occur but with decreasing frequency and duration compared to lower areas in the saltmarsh. 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, invertebrates and wintering or breeding waterfowl. This habitat occurs all around our coasts, but most of the sites where it is found are in England.

Transitional saltmarsh occurs where there is a transition from saltmarsh to dunes or shingle.

1.4 Dunes

Embryo dunes are created by the aggregation of wind-blown sand trapped by debris and vegetation along the strandline. These very unstable dunes are colonised by salt tolerant

plants like sea rocket (*Cakile maritima*). As they grow and are less at risk from being washed away by high tides, more plants can colonise and it gradually evolves into a mobile dune.

Mobile ('white' or 'yellow') dunes are unstable dunes where there is active sand movement. They are less salty than the embryo dunes and are constantly replenished with fresh sand. They are colonised by plants like marram grass (*Ammophila arenaria*) or Lyme grass (*Leymus arenarius*). They are called 'white' or 'yellow' dune because there are bare patches of sand visible in between the vegetated areas.

Fixed ('grey') dunes occur widely around the coasts of the UK and are a major component of many sand dune systems. They are not replenished with fresh sand so that the sand is no longer accumulating. They support a greater diversity of plants that will contribute to stabilising the dunes. They develop landwards of the white dunes.

Dune slacks are low-lying areas within dune systems that are seasonally flooded and where nutrient levels are low. They occur primarily on the larger dune systems in the UK, especially in the west and north, where the wetter climate favours their development when compared with the generally warmer and/or drier dune systems of continental Europe. The range of communities found is considerable and depends on the structure of the dune system, the successional stage of the dune slack, the chemical composition of the dune sand, and the prevailing climatic conditions. Dune slacks are important features for species like the Natterjack toad (*Epidalea calamita*) as well as many scarce invertebrates.

Dunes with Juniper comprise occurrences of common juniper (*Juniperus communis*) scrub on coastal sand dunes in a variety of situations. Both prostrate and erect forms of juniper can be found. Stands are usually very small and are intimately mixed with other habitat types, including dune grassland and heath. There is complete range from discrete stands to more scattered and occasional individuals, which occur within habitat types defined as fixed dunes. In the UK, dunes with Juniper only occur in Scotland.

Dunes with sea buckthorn comprise scrub vegetation on more-or-less stable sand dunes in which sea buckthorn (*Hippophaë rhamnoides*) is abundant. Sea buckthorn may either form dense thickets, with sparse nitrophilous associates such as common nettle (*Urtica dioica*), or occur as more scattered bushes interspersed with various grasses, typically marram (*Ammophila arenaria*) and red fescue (*Festuca rubra*), and associated herbs of dune grassland. This form of dune vegetation is mainly found on Atlantic coasts in the EU. In the UK, the native distribution of *Hippophaë* is considered to be ranging patchily from Dunbar on the east coast of Scotland down to Dungeness/Camber in Sussex.

1.5 Machair



Machair is a distinctive sand dune formation formed when sand with a high shell content is blown onshore onto a low-lying coastal plain. Vegetation develops that is typical of calcareous to neutral sandy grassland. Traditionally, machair supports extensive grazing regimes and unique forms of cultivation that rely on low-intensity systems of rotational cropping. This habitat type also supports large breeding bird populations and is particularly important for waders and corncrake (*Crex crex*). Machair is found nowhere else in the world but the north and west of Scotland and western Ireland.

2 Correspondences between UK Coastal Habitats Types

The table below shows how the different coastal habitat types recognised by the mainstream habitat classifications in the UK relate to each other. The types included are those recognised under the UK Biodiversity Action Plan (UK BAP), the EU Habitats Directive, and the British National Vegetation Classification (NVC).

The table shows only how the types broadly fit together – examples of certain types may fit into other types. For more detailed information see the [habitat correspondences interactive spreadsheet](#).

Table 2.1. Correspondences between UK coastal habitat types (created 2010).

UK BAP priority habitats	EU Habitats Directive Annex I habitats	National Vegetation Classification types
Coastal vegetated shingle	H1210 Annual vegetation of drift lines	SD2 <i>Honkenya peploides-Cakile maritima</i> strandline community
		SD3 <i>Matricaria maritima-Galium aparine</i> strandline community on stony substrates community
MC6 <i>Atriplex prostrata-Beta vulgaris</i> ssp. <i>maritima</i> sea-bird cliff community (on shingle beaches only)		
	H1220 Perennial vegetation of stony banks	SD1 <i>Rumex crispus-Glaucium flavum</i> shingle community
Maritime cliff and slopes	H1230 Vegetated sea cliffs of the Atlantic and Baltic coasts	MC1 <i>Crithmum maritimum-Spergularia rupicola</i> maritime rock-crevice community
		MC2 <i>Armeria maritima-Ligusticum scoticum</i> maritime rock-crevice community
		MC3 <i>Rhodiola rosea-Armeria maritima</i> maritime cliff-ledge community
		MC4 <i>Brassica oleracea</i> maritime cliff-ledge community
		MC5 <i>Armeria maritima-Cerastium diffusum</i> ssp. <i>diffusum</i> maritime therophyte community
		MC6 <i>Atriplex prostrata-Beta vulgaris</i> ssp. <i>maritima</i> sea-bird cliff community
		MC7 <i>Stellaria media-Rumex acetosa</i> sea-bird cliff community
		MC8 <i>Festuca rubra-Armeria maritima</i> maritime grassland
		MC9 <i>Festuca rubra-Holcus lanatus</i> maritime grassland
		MC10 <i>Festuca rubra-Plantago</i> spp. maritime grassland
		MC11 <i>Festuca rubra-Daucus carota</i> ssp. <i>gummifer</i> maritime grassland
		MC12 <i>Festuca rubra-Hyacinthoides non-scripta</i> maritime bluebell community

UK BAP priority habitats	EU Habitats Directive Annex I habitats	National Vegetation Classification types
Coastal saltmarsh	H1310 <i>Salicornia</i> and other annuals colonising mud and sand	SM7 <i>Arthrocnemum perenne</i> stands
		SM8 Annual <i>Salicornia</i> salt-marsh community
		SM9 <i>Suaeda maritima</i> salt-marsh community
		SM27 Ephemeral salt-marsh vegetation with <i>Sagina maritima</i>
	H1320 <i>Spartina</i> swards (<i>Spartinion maritimae</i>)	SM4 <i>Spartina maritima</i> salt-marsh community
		SM5 <i>Spartina alterniflora</i> salt-marsh community
		SM13f <i>Puccinellia maritima</i> salt-marsh community, <i>Puccinellia maritima</i> sub-community
	H1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)	SM10 Transitional low-marsh vegetation with <i>Puccinellia maritima</i> , annual <i>Salicornia</i> species and <i>Suaeda maritima</i>
		SM11 <i>Aster tripolium</i> var. <i>discoideus</i> salt-marsh community
		SM12 Rayed <i>Aster tripolium</i> salt-marsh community
		SM13 <i>Puccinellia maritima</i> salt-marsh community
		SM14 <i>Halimione portulacoides</i> salt-marsh community
		SM15 <i>Juncus maritimus</i> - <i>Triglochin maritima</i> salt-marsh community
		SM16 <i>Festuca rubra</i> salt-marsh community (coastal examples only)
		SM17 <i>Artemisia maritima</i> salt-marsh community
		SM18 <i>Juncus maritimus</i> salt-marsh community
		SM19 <i>Blysmus rufus</i> salt-marsh community
	H1420 Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>)	SM7 <i>Arthrocnemum perenne</i> stands
		SM21 <i>Suaeda vera</i> - <i>Limonium binervosum</i> salt-marsh community
		SM25 <i>Suaeda vera</i> drift-line community
Coastal sand dunes	H2110 Embryonic shifting dunes	SD4 <i>Elymus farctus</i> ssp. <i>boreali-atlanticus</i> foredune community
	H2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes')	SD6 <i>Ammophila arenaria</i> mobile dune community
		SD5 <i>Leymus arenarius</i> mobile dune community
	H2130 Fixed dunes with herbaceous vegetation ('grey dunes')	SD7 <i>Ammophila arenaria</i> - <i>Festuca rubra</i> semi-fixed dune community
		SD8 <i>Festuca rubra</i> - <i>Galium verum</i> fixed dune grassland community
		SD9a <i>Ammophila arenaria</i> - <i>Arrhenatherum elatius</i> dune grassland, typical sub-community
		SD9b <i>Ammophila arenaria</i> - <i>Arrhenatherum elatius</i> dune grassland, <i>Geranium sanguineum</i> sub-community

UK BAP priority habitats	EU Habitats Directive Annex I habitats	National Vegetation Classification types
[Continued] Coastal sand dunes	[Continued] H2130 Fixed dunes with herbaceous vegetation ('grey dunes')	SD11 <i>Carex arenaria-Cornicularia aculeate</i> dune community
		SD12 <i>Carex arenaria-Festuca ovina-Agrostis capillaris</i> dune grassland
		CG10 <i>Festuca ovina-Agrostis capillaris-Thymus praecox</i> grassland
		CG13 <i>Dryas octopetala-Carex flacca</i> heath
	H2140 Decalcified fixed dunes with <i>Empetrum nigrum</i>	H11b <i>Calluna vulgaris-Carex arenaria</i> heath, <i>Empetrum nigrum</i> ssp. <i>nigrum</i> sub-community
	H2150 Coastal dunes with <i>Juniperus</i> spp.	H1d <i>Calluna vulgaris-Festuca ovina</i> heath, <i>Carex arenaria</i> sub-community
		H11a <i>Calluna vulgaris-Carex arenaria</i> heath, <i>Erica cinereal</i> sub-community
		H11c <i>Calluna vulgaris-Carex arenaria</i> heath, species-poor sub-community
		H10 <i>Calluna vulgaris-Erica cinereal</i> heath
	H2160 Dunes with <i>Hippophaë rhamnoides</i>	SD18 <i>Hippophaë rhamnoides</i> dune scrub
	H2170 Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>)	SD16 <i>Salix repens-Holcus lanatus</i> dune slack community
	H2190 Humid dune slacks	SD13 <i>Sagina nodosa-Bryum pseudotriquetrum</i> dune slack community
		SD14 <i>Salix repens-Campylium stellatum</i> dune slack community
SD15 <i>Salix repens-Calliergon cuspidatum</i> dune slack community		
SD17 <i>Potentilla anserina-Carex nigra</i> dune slack community		
H2250 Coastal dunes with <i>Juniperus</i> spp.	None	
Machair	H21A0 Machair	SD8a <i>Festuca rubra-Galium verum</i> fixed dune community, typical sub-community
		SD8c <i>Tortula ruralis</i> ssp. <i>ruraliformis</i> sub-community
		SD8d <i>Festuca rubra-Galium verum</i> fixed dune grassland, <i>Ranunculus acris-Bellis perennis</i> sub-community
		SD8e <i>Festuca rubra-Galium verum</i> grassland, <i>Prunella vulgaris</i> sub-community
		MG11 inundation grassland
		SD17 <i>Potentilla anserina-Carex nigra</i> dune slack, <i>Agrostis stolonifera</i> sub-community

[created May 2010]

3 Extent & Distribution of UK Coastal Habitats

The tables below give information on the extent (area covered) and distribution of coastal habitats around the UK. The most extensive coastal habitats are sand dunes and saltmarsh. Much of the sand dune resource is located around the Scottish coast, and most is fixed 'grey dune' covered with herbaceous vegetation. A range of other, less extensive, sand dune sub-types are recognised under the EU Habitats Directive. Saltmarsh is concentrated around the English coastline, as is vegetated shingle. Much of the saltmarsh vegetation belongs to the Atlantic salt meadows type. Most of the coastal cliff and slope habitat occurs in Scotland, which is also home to machair, a specialised habitat of Scottish coastlines.

3.1 UK BAP habitats

The table below shows the estimated extent of the five coastal priority habitat types recognised by the UK Biodiversity Action Plan. Values given are the overall total extent and percentage in each country (where available), based on information extracted from the [Biodiversity Action Reporting System \(BARS\)](#).

Table 3.1. Estimated extent (in 2008) of the five coastal priority habitats recognised by the UK Biodiversity Action Plan.

UK BAP priority habitats	England	Scotland	Wales	Northern Ireland	UK
Coastal sand dunes	11,897 ha	50,000 ha	8,145 ha	1,500 ha	70,000 ha
Coastal saltmarsh	32,462 ha	6,000 ha	5,800 ha	250 ha	45,820 ha
Coastal vegetated shingle	3,596 ha	2,045 ha (700km)	109 ha	50 ha	5,800 ha
Maritime cliff and slopes	1,100 km	2,372 km	600 ha	unknown	4,059 km
Machair	not present	unknown	not present	not present	unknown

3.2 EU Habitats Directive Annex I types

The table below shows the estimated extent of coastal habitat types listed under Annex I of the EU Habitats Directive.

Table 3.2. Estimated extent (in 2013) of the coastal habitat types listed under Annex 1 of the EU Habitats Directive (derived from the 2013 UK Report on Implementation of the Habitats Directive).

EU Habitats Directive Annex I types	England (ha)	Scotland (ha)	Wales (ha)	Northern Ireland (ha)	UK (ha)
Dune habitats					
H2130 Fixed dunes with herbaceous vegetation ('grey dunes')	3,900	14,800	2,700	1,000	22,400
H2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes')	780	910	480	15	2,185
H2190 Humid dune slacks	200	1,184	390	22	1,796
H2150 Decalcified fixed dunes with <i>Empetrum nigrum</i>	190	550	40	120	900

EU Habitats Directive Annex I types	England (ha)	Scotland (ha)	Wales (ha)	Northern Ireland (ha)	UK (ha)
H2170 Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>)	230	170	230	12	642
H2140 Decalcified fixed dunes with <i>Empetrum nigrum</i>	–	322	–	–	322
H2110 Embryonic shifting dunes	100	90	100	5	295
H2160 Dunes with <i>Hippophaë rhamnoides</i>	235	–	–	–	235
H2250 Coastal dunes with <i>Juniperus</i> spp.	–	8	–	–	8
Saltmarsh habitats					
H1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)	21,000	2,105	7,128	230	30,463
H1310 <i>Salicornia</i> and other annuals colonising mud and sand	1,620	300	210	10	2,140 ^[1]
H1420 Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>)	100	–	7	–	107
H1320 <i>Spartina</i> swards (<i>Spartinion maritimae</i>)	100	–	–	–	100
Cliff habitats					
H1230 Vegetated sea cliffs of the Atlantic and Baltic coasts	6,000	12,000	3,838	300	22,138
Shingle habitats					
H1220 Perennial vegetation of stony banks	4,350	1,081	93	40	5,564
H1210 Annual vegetation of drift lines	100	66	16	20	202
Machair					
H21A0 Machairs	–	14,500	–	–	14,500

^[1] corrected value

4 Threats to UK Coastal Habitats

UK coastal habitats and their associated species are threatened by a range of factors. The coastline has been subject to urban development, land-claim for agriculture and industry, recreational pressure, and changing agricultural use. Conservation designations, improved site management and planning policies have reduced some of these threats, but port and other transport developments remain issues. An increasingly important issue, especially on soft coasts, is 'coastal squeeze' (i.e. where the extent of saltmarsh is diminishing as it is 'squeezed' between flood defences and rising relative sea levels).

The table below provides a summary of major pressures and threats to UK coastal habitats – details are given beneath. These are based on information in the 3rd UK Report on Implementation of the Habitats Directive, the UK Biodiversity Habitat Action Plans, and Common Standards Monitoring for Designated Sites: First Six Year Report.

Table 4.1. Summary of major pressures and threats to coastal habitats.

	Sand dunes	Salt-marsh	Vegetated shingle	Maritime cliff and slopes	Machair
Changing agricultural practice, including grazing	*	*	*	*	*
Sediment supply/dynamics	*	*	*		
Recreation	*		*		
Coastal protection, including afforestation	*			*	
Infestation by <i>Phomopsis juniperovora</i>	*				
Air pollution	*				
Falling water tables	*				
Erosion and 'coastal squeeze'		*		*	
Development, extraction and other land claim		*	*		
Cord grass <i>Spartina anglica</i> invasion		*			
Social change in crofting					*

4.1 Sand Dunes

Sediment supply: Unless artificially constrained, the seaward edges of sand dunes can be a highly mobile feature, though there is a natural trend to greater stability further inland. Very few dune systems are in overall equilibrium, and a majority of those in the UK demonstrate net erosion rather than net progradation; insufficient sand supply is frequently the underlying cause.

Coastal protection/afforestation: Many dune systems are affected by sea defence works or artificial stabilisation measures, such as sand fencing, marram planting or afforestation to conifers. Such defence systems usually reduce the biodiversity inherent in the natural dynamism of dune systems, and may cause sediment starvation down-drift. UK dunes as a whole suffer from over-stabilisation and poor representation of the mobile phases. A few dune systems have been largely transformed to conifer plantations, beneath which the dune vegetation is suppressed and the water table lowered.

Recreation and beach management: Sand dunes are used heavily for recreational purposes. Moderate pressure by pedestrians may cause little damage, and may even help to counteract the effects of abandonment of grazing, but excessive use, and vehicular use in particular, causes unacceptable erosion. On some heavily used beaches the formation of embryo dunes is inhibited by beach cleaning using mechanical methods, which impedes the seaward accretion of dune systems.

Changes to agricultural practice – grazing: Grazing is normally necessary to maintain the typical fixed dune communities, but over-grazing, particularly when combined with the provision of imported feedstuffs, can have damaging effects. A more widespread problem is under-grazing, leading to invasion by coarse grasses and scrub, though rabbits are locally effective in maintaining a short turf.

Air pollution: Atmospheric nutrient deposition is considered to be a factor adversely affecting sand dunes. It is also suspected that nutrient deposition on many sand dunes is already above their critical threshold for impacts on vegetation. For dune slacks, this could lead to a speeded up succession away from dune slack vegetation. For further info: [UK Air Pollution Information System \(APIS\)](#).

Falling water tables: Dune slacks support characteristic communities dependent on a seasonally high water table, including the formation of temporary or even permanent ponds. In some dune systems with important slacks, a long-term fall in the water table has led to loss of the specialist slack flora and invasion by coarse vegetation and scrub. The causes are believed to be local extraction of water and/or drainage of adjacent land used for agriculture or housing.

Infestation by *Phomopsis juniperovora*: Dunes with Juniper is a habitat found only on two sites in Scotland. Junipers are vulnerable to infestation by pathogenic fungi, especially juniper blight (*Phomopsis juniperovora*), which infect the new growth, which gradually dies, leading to the loss of the habitat.

4.2 Saltmarsh

Erosion and 'coastal squeeze': Erosion of the seaward edge of saltmarsh 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 areas of saltmarsh are being 'squeezed' between an eroding seaward edge and fixed flood defence walls.

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.

Common Cord-Grass invasion: The common cord-grass, *Spartina anglica*, readily colonises mudflats and has spread around the coast. The development and spread of *Spartina anglica* has had most impact on the pioneer communities of saltmarsh, especially on *Salicornia* communities. 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.

Land claim: Large-scale saltmarsh land claim schemes for agriculture are now rare. However, 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.

Changes to agricultural practice – grazing: 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: grazing has a marked effect on the structure and composition of the vegetation by reducing the height of the vegetation and the diversity of plant and invertebrate species, but creates a sward attractive to wintering and passage wildfowl and waders. Less intense grazing produces a tussocky structure which favours breeding waders. Traditionally ungrazed saltmarshes should remain so.

4.3 Vegetated shingle

Sediment supply and dynamics: The health and ongoing development of a shingle feature depend on a continuing supply of shingle. This may occur sporadically as a response to

storm events rather than continuously. It is frequently lacking owing to interruption of coastal processes by coast defence structures, by offshore aggregate extraction, or by artificial re-distribution of material within the site. Attempts have been made to rectify the situation by beach recharge or by mechanical re-profiling – which is likely to fail in the long run because it does not address the lack of new material. Shingle features are rarely stable in the long term. Many structures exhibit continuous longshore drift and ridges lying parallel to the shoreline tend to be rolled over towards the land by wave action in storm events. This movement has a knock-on effect on low-lying habitats behind the shingle. Movement is likely to be accelerated by climate change resulting in sea level rise and increased storminess.

Extraction and development: Shingle structures have been subject to varying degrees of extraction resulting in severe alteration of morphology and vegetation or almost total destruction of major parts of the feature. Industrial plant, defence infrastructure and even housing have been built on shingle structures, destroying vegetation and ridge morphology.

Recreation: Shingle vegetation is fragile and the wear and tear caused by access on foot, and particularly by vehicles, has damaged many sites. The causes include military use, vehicle access to beaches by fishermen, and recreational use. Such disturbance can also affect breeding birds.

Changes to agricultural practice – grazing: In a few cases areas of shingle were traditionally grazed, but this management has now largely ceased, leading to domination by willow carr on wetlands and changes to vegetation structure. The impacts of removal of grazing on breeding birds and other shingle species are not fully understood.

4.4 Maritime cliff and slopes

Erosion: This is a highly significant factor in soft cliffs. High rates of erosion do not imply a loss of the cliff resource, either in geological or biological terms. Cliff face communities are able to retreat with the cliff line, and erosion is vital for constantly renewing geological exposures and recycling the botanical succession on soft cliffs. However, cliff-top vegetation may be destroyed where it is squeezed between a receding cliff face and cultivated land.

Coastal protection: Protective systems have been built on many soft cliff coasts in order to slow or stop the rate of erosion and thus protect capital assets behind the cliff line. Such works have the effect of stabilising the cliff face, resulting in geological exposures being obscured, bare soil and early pioneer stages being progressively overgrown, and wet flushes drying out. Soft cliffs require a certain amount of natural erosion to maintain their interest, but unprotected soft cliff is now a relatively scarce habitat.

Changes to agricultural practice: Post-war intensification of agriculture has led to maritime grassland on more level terrain being ploughed out, while that on sloping ground has been abandoned and, where not maintained by exposure, is frequently overgrown by scrub. In traditional low-intensity grazing systems, livestock were grazed on cliff grasslands where they maintained open maritime grassland vegetation.

4.5 Machair

Changes to agricultural practices: This has resulted in an overall loss of arable biodiversity through loss of species number and abundance, with apparent similar declines in the associated fallow that is a feature of the normal machair rotational management system. The practice of cutting grass for silage rather than hay reduces seeding by flowering plants and destroys the nests of characteristic birds such as the corncrake. Improvement of machair grassland – usually done by re-seeding, drainage and stock feeding – reduces sward species diversity as well as habitat diversity over a wider area. The application of

herbicides on crops and the use of modern ploughs both appear to be direct causes of species loss. Under-grazing and more generally poor management of seasonal grazing allow species-poor grassland to develop. Over-grazing is a problem on some areas of machair, preventing plants from setting seed. On some sites it has disrupted geomorphological processes, such as blowouts.

Social change in crofting: Such change has resulted in heavy, all-year grazing of machair grasslands as part of a switch from arable to stock grazing, and from cattle to sheep as predominant stock. This has reduced sward species diversity and the ability of plants to flower and set seed. It has also reduced cover for breeding birds.

5 Condition of UK Coastal Habitats

The condition of UK coastal habitats has been assessed using Common Standards Monitoring Guidance for Coastal Habitats. This involves making an assessment of individual sites using a series of habitat characteristics or attributes and standardised condition categories.

Sites are judged to be in favourable condition when the objectives for the habitat are being met. Sites with habitat that is in an unsatisfactory state are classed as in unfavourable condition. Where this is the case, a judgement is made as to whether the habitat is: (i) recovering – moving towards the desired state; (ii) declining – moving away from the desired state; or (iii) no-change – neither improving nor declining. Sites are classed as destroyed (partially or completely) when the habitat is no longer present and there is no prospect of being able to restore it.

5.1 Condition on designated sites

The tables below summarise information on the condition of coastal habitats at a UK-level as reported in 2006-07. On sites designated as SSSI/ASSIs, the condition of the majority of the three main coastal habitat types was either favourable or unfavourable recovering. Nevertheless, a sizeable percentage of each was unfavourable and did not show signs of recovery. The condition of these habitats on SACs was generally poorer and the majority of saltmarsh was in unfavourable condition with no signs of recovery.

Information from SACs on coastal habitats recognised under the EU Habitats Directive showed that the condition of these types varied greatly. Although in some cases most of the habitat was in favourable or unfavourable recovering condition, for others a large part was unfavourable with no signs of recovery.

Since 2006-07 the condition of some coastal habitats has improved (e.g. see [The State of the Natural Environment 2008](#)).

Tables of condition of UK coastal habitats:

The tables are based on data from the Common Standards Monitoring for Designated Sites: First Six Year Report (2006) and the 2nd UK Report on Implementation of the Habitats Directive (2007)

Table 5.1. Condition of sites designated as SSSI/ASSIs (data from 2006).

	Favourable	Unfavourable recovering	Unfavourable not recovering	Destroyed or part destroyed
Sea cliffs	71%	4%	25%	–
Saltmarsh	62%	6%	31%	1%
Dunes, shingle and machair	51%	13%	35%	1%

Table 5.2. Condition of sites designated as Special Areas of Conservation (SAC) (data from 2007).

	Favourable	Unfavourable recovering	Unfavourable not recovering	Destroyed or part destroyed
Sea cliffs	66%	14%	17%	3%
Dunes, shingle and machair	46%	18%	36%	–
Saltmarsh	43%	–	57%	–

Table 5.3. Sites designated as Special Areas of Conservation (SAC) – broken down into EU Habitats Directive Annex I types (data from 2007).

	Favourable	Unfavourable recovering	Unfavourable not recovering
Dune habitats			
H2160 Dunes with <i>Hippophaë rhamnoides</i>	100%	–	–
H2140 Decalcified fixed dunes with <i>Empetrum nigrum</i>	86%	–	14%
H2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes')	61%	19%	20%
H2110 Embryonic shifting dunes	49%	39%	12%
H2130 Fixed dunes with herbaceous vegetation ('grey dunes')	31%	17%	53%
H2190 Humid dune slacks	27%	26%	47%
H2250 Coastal dunes with <i>Juniperus</i> spp.	15%	–	85%
H2170 Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>)	1%	35%	64%
H2150 Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>)	–	8%	92%
Saltmarsh habitats			
H1420 Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>)	85%	–	15%
H1310 <i>Salicornia</i> and other annuals colonising mud and sand	70%	3%	27%
H1330 Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</i>)	40%	10%	50%
H1320 <i>Spartina</i> swards (<i>Spartinion maritimae</i>)	–	–	100%
Cliff habitats			
H1230 Vegetated sea cliffs of the Atlantic and Baltic coasts	50%	39%	11%

	Favourable	Unfavourable recovering	Unfavourable not recovering
Machair			
H21A0 Machairs	30%	–	70%
Shingle habitats			
H1210 Annual vegetation of drift lines	24%	1%	75%
H1220 Perennial vegetation of stony banks	24%	68%	8%

[all tables created May 2010]

6 Protective Measures for UK Coastal Habitats

6.1 Conventions and legislation

A number of International Conventions, European Directives and pieces of National Legislation apply to UK coastal habitats. Amongst the most important are:

- [The Convention on Biological Diversity](#)
- [The Convention on the Conservation of European Wildlife and Natural Habitats \(Bern Convention\)](#)
- [The European Commission Habitats Directive](#)
- [The European Commission Birds Directive](#)
- [The EU Water Framework Directive](#)
- [The Wildlife and Countryside Act](#) (plus amendments & supplements)

These have been instrumental in the design of the following biodiversity strategies, priority habitat lists, and site-based designations.

6.2 Biodiversity Strategies

The UK Post-2010 Biodiversity Framework sets out priorities for biodiversity conservation activities at a UK-level. Additional priorities are set out in the Country Biodiversity Strategies for England, Northern Ireland, Scotland and Wales. The main objectives of these strategies are to:

- halt and reverse previous biodiversity loss through targeted actions;
- increase awareness, understanding, enjoyment and engagement with biodiversity conservation;
- restore and enhance biodiversity through better planning, design and practice;
- ensure biodiversity is taken into account in wider decision-making;
- ensure knowledge on biodiversity is available to policy makers and practitioners.

These high-level strategies largely succeeded the [UK Biodiversity Action Plan](#) (UK BAP), which operated from 1992–2012.

6.3 Priority habitats

Statutory lists of habitats of priority or principal importance for biodiversity conservation exist for [England](#), [Scotland](#), [Wales](#) and [Northern Ireland](#). These are largely based on the list of [UK BAP priority habitats](#), which includes five coastal habitats: Coastal sand dunes; Coastal saltmarsh; Coastal vegetated shingle; Machair; Maritime cliff and slopes.

6.4 Site-based designations

Special Areas of Conservation: Special Areas of Conservation (SACs) are strictly protected sites designated under the EU Habitats Directive. They contribute to the [Natura 2000 Network](#), which consists of a series of high-quality nature reserves spread across the European Union. A total of 95 SACs, covering an area of around 57,300 ha, have been designated to represent the 17 UK coastal habitat types listed under Annex I of the EU Habitats Directive. Information on individual UK SACs can be found in the [UK SAC information](#) spreadsheet. These were selected according to various [SAC selection criteria and principles](#).

Sites/Areas of Special Scientific Interest: SSSI/ASSIs are the fundamental statutory mechanism for protecting sites of ecological and geological interest in the UK. Sites of Special Scientific Interest (SSSIs) apply in England, Scotland and Wales, whilst Areas of Special Scientific Interest (ASSIs) apply in Northern Ireland. Legal responsibility for notifying and protecting such sites lies with the relevant statutory nature conservation agency in each country. The SSSI/ASSI series is intended to form a representative network covering the full range of wild flora and fauna, and especially those types and individual sites that are of greatest value to nature conservation. Detailed [Guidelines for the selection of biological SSSIs](#) for coastal habitats are available.

The tables below shows the extent of coastal habitats in SSSIs in England and Wales only. Comparable data were not available for Northern Ireland or Scotland.

Table 6.1. SSSIs in England

	Area of habitat within SSSIs (ha)	Total area of habitat (ha)	% of habitat within SSSIs
Saltmarsh	23,592	24,498	96%
Mudflats	71,684	77,978	92%
Coastal vegetated shingle	3,697	4,124	90%
Coastal and dunes	8,652	10,584	82%
Maritime cliffs and slopes	7,619	11,461	66%

(created Dec 2015 from data in Biodiversity 2020 England Indicators December 2014 Report)

Table 6.2. SSSIs in Wales

	Area of habitat within SSSIs (ha)	Total area of habitat (ha)	% of habitat within SSSIs
Maritime cliff & associated ledges & crevices	757	970	78%
Sand dunes	3,630	6,200	59%
Coastal grassland	798	1,600	50%
Coastal heathland	407	950	43%
Saltmarsh and intertidal habitats	13,233	62,656	21%
Shingle/boulders above high water mark	129	1,300	10%

(created May 2010 from: (i) SSSI area data from CCW's Features Database April 2010; (ii) total habitat area data from Blackstock, T.H. et al. (2010) Habitats of Wales: A Comprehensive Field Survey 1979-1997, University of Wales Press; and (iii) inter-tidal habitat area data from Brazier, P. et al. (2007) When the tide goes out – the biodiversity and conservation of the shore of Wales, results from a 10 year intertidal survey of Wales, Countryside Council for Wales, Bangor)

7 Management of UK Coastal Habitats

Given the threats to coastal habitats, it is often necessary to undertake some form of management to improve or maintain their condition. There are a number of sources of information to guide such action, examples of which are outlined below.

7.1 JNCC Habitat Management Search Engine

JNCC developed a customised search engine, [Habitat Management on the Web](#) which was designed to direct users to information about how to manage UK terrestrial and freshwater habitats for biodiversity conservation.

7.2 Annex I Management Models

The European Commission has published [Management Models for Annex I Habitats](#), including some coastal examples. Each document includes information on the distribution, ecological requirements of the habitat, main trends and threats. Relevant management actions and prescriptions are described in detail. Main constraints, risks and modifiers of the proposed management have been also included. Finally, relevant parameters for cost estimates, cost estimate examples and potential sources of EU financing are illustrated.

7.3 Living with the Sea: Coastal Habitat Restoration

As part of the *Living with the Sea* project, Natural England (then English Nature) published a [Coastal Habitat Restoration Guide](#) in 2003, specifically designed to provide information to help deliver coastal habitat restoration, re-creation and creation.

7.4 Saltmarsh Management Manual

Defra and the Environment Agency published a [Saltmarsh Management Manual](#) in 2007, which is intended to be the first point of reference for all those involved in the management, maintenance and restoration of saltmarshes, especially saltmarshes which form an integral component of flood and coastal defence systems.

7.5 Coastal Guide

The [Coastal and Marine Union](#) (EUCC) published a Coastal Guide, aimed at professionals in coastal management, planning, conservation and research in Europe.

7.6 Coastal Habitat Management for Invertebrates

[Buglife](#) has produced guidance for the management of BAP Priority Habitats for invertebrates, including on [Coastal Saltmarsh](#), [Coastal Sand Dunes](#), [Coastal Vegetated Shingle](#) and [Maritime Cliffs and Slopes](#).

8 Resources for UK Coastal Habitats

This page lists additional sources of information on coastal issues, partnerships and initiatives.

8.1 Coastal observatories

- [Channel Coastal Observatory](#)
- [North East Coast Coastal Observatory](#)
- [Irish Sea Coastal Observatory](#)

8.2 Statutory Agencies

- [Natural England](#)
- [Scottish Natural Heritage](#)
- [Natural Resources Wales](#) (formerly Countryside Council for Wales)
- [Northern Ireland Environment Agency](#)

8.3 Datasets

- [Catalogue of Coastal Information Sources](#)
- [National Biodiversity Network Gateway](#)
- [Atlas of the British and Irish flora](#)
- [Nature on the Map](#)
- [Natural England GIS Digital Boundary Datasets](#)
- [CCW Phase 1 habitat survey](#)

8.4 Partnerships

- [EUCC – the Coastal Union](#)
- [Solent Forum](#)
- [South East Coastal Group](#)
- [South Downs Coastal Group](#)

8.5 Policy

- [Integrated Coastal Management](#)

8.6 Portals

- [European Commission LIFE Programme](#)