



Annex 3 Ecological narrative of the designated features

For the proposed Sizewell C nuclear power station

July 2022

Version 1

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1. HRAR Habitats features

1.1. Atlantic salt meadows

This is a listed feature of the following site of relevance to this HRAR:

- Alde, Ore and Butley Estuaries SAC

This feature is within the category of marine, coastal and halophytic habitats.

The following information regarding this feature was taken from the [JNCC](#) website in June 2021, from entry '1330 Atlantic salt meadows, *Glauco-Puccinellietalia maritimae*'.

1.1.1. Description and ecological characteristics

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, invertebrates and for wintering or breeding waterfowl. In the UK, this Annex I type corresponds to the following National Vegetation Community (NVC) types:

SM10 Transitional low-marsh vegetation

SM11 *Aster tripolium* var. *discoideus* saltmarsh community

SM12 Rayed *Aster tripolium* saltmarsh community

SM13 *Puccinellia maritima* saltmarsh community

SM14 *Halimione portulacoides* saltmarsh community

SM15 *Juncus maritimus* – *Triglochin maritima* saltmarsh community

SM16 *Festuca rubra* saltmarsh community (coastal examples only)

SM17 *Artemisia maritima* saltmarsh community

SM18 *Juncus maritimus* saltmarsh community

SM19 *Blysmus rufus* saltmarsh community

SM20 *Eleocharis uniglumis* saltmarsh 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*).

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.

1.1.2. UK status and distribution

Atlantic salt meadows occur on North Sea, English Channel and Atlantic shores. There are more than 29,000ha 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.

1.2. Mudflats and sandflats not covered by sea water at low tide

This is a listed feature of the following site of relevance to this HRAR:

- Alde, Ore and Butley Estuaries SAC

This feature is within the category of marine, coastal and halophytic habitats.

The following information regarding this feature was taken from the [JNCC](#) website in June 2021, from entry '1140 Mudflats and sandflats not covered by seawater at low tide'.

1.2.1. Description and ecological characteristics

Intertidal mudflats and sandflats are submerged at high tide and exposed at low tide. They form a major component of habitat type “1130 Estuaries” and “1160 Large shallow inlets and bays” in the UK, but also occur extensively along the open coast and in lagoonal inlets. The physical structure of the intertidal flats ranges from mobile, coarse-sand beaches on wave-exposed coasts to stable, fine-sediment mudflats in estuaries and other marine inlets. This habitat type can be divided into three broad categories; clean sands, muddy sands and muds, although in practice there is a continuous gradation between them. Within this range, the plant and animal communities present vary according to the type of sediment, its stability and the salinity of the water.

Clean sands. These occur particularly on open coast beaches and in bays around the UK where wave action or strong tidal currents prevent the deposition of finer silt. Owing to the mobility of the sediment and consequent abrasion, species that inhabit clean sands tend to be robust and include amphipod crustaceans, such as sandhoppers (*Bathyporeia* spp.), some polychaete worms and certain bivalve molluscs.

Muddy sands. These occur particularly on more sheltered shores of the open coast and at the mouths of estuaries or behind barrier islands, where sediment conditions are relatively stable. A wide range of species, such as lugworm (*Arenicola marina*), and other polychaete worms and bivalve molluscs, can colonise these sediments. Substantial beds of mussels (*Mytilus edulis*) may develop on the lower shore. Intertidal beds of eelgrass (*Zostera* spp.) may also occur. In estuaries, reduced salinity conditions may give rise to a variety of other communities.

Mudflats. These form in the most sheltered areas of the coast, usually where large quantities of silt derived from rivers are deposited in estuaries. The sediment is stable and communities are typically dominated by polychaete worms and bivalve molluscs and may support very high densities of the mud-snail (*Hydrobia ulvae*). The high biomass of invertebrates in such sediments often provides an important food source for waders and wildfowl, such as common shelduck (*Tadorna tadorna*), knot (*Calidris canuta*) and dunlin (*Calidris alpina*).

1.2.2. UK status and distribution

Mudflats and sandflats not covered by sea water at low tide occur widely throughout the UK.

1.3. Estuaries

This is a listed feature of the following site of relevance to this HRAR:

- Alde, Ore and Butley Estuaries SAC

This feature is within the category of marine, coastal and halophytic habitat

The following information regarding this feature was taken from the [JNCC](#) website in June 2021, from entry '1130 Estuaries'.

1.3.1. Description and ecological characteristics

Estuaries are defined as the downstream part of a river valley, subject to the tide and extending from the limit of brackish water. There is a gradient of salinity from freshwater in the river to increasingly marine conditions towards the open sea. The input of sediment from the river, the shelter of the estuary from wave action, and the often low current flows typically lead to the presence of extensive intertidal sediment flats and sediment-filled subtidal channels. There is usually only a limited extent of rocky habitat. In contrast, marine inlets where seawater is not significantly diluted by freshwater are considered as Annex I type 1160 'Large shallow inlets and bays'.

The structure of estuaries is largely determined by geomorphological and hydrographic factors. There are four main sub-types:

1. Coastal plain estuaries. These estuaries have formed where pre-existing valleys were flooded at the end of the last glaciation. They are usually less than 30m deep, with a large width-to-depth ratio. This is the main sub-type of estuary, by area, in the UK.
2. Bar-built estuaries. These characteristically have a sediment bar across their mouths and are partially drowned river valleys that have subsequently been inundated. Bar-built estuaries tend to be small but are widespread around the UK coast.
3. Complex estuaries. These have been formed by a variety of physical influences, which include glaciation, river erosion, sea-level change and geological constraints from hard rock outcrops. There are few examples of this sub-type of estuary in the UK.
4. Ria estuaries. Rias are drowned river valleys, characteristically found in south-west Britain. The estuarine part of these systems is usually restricted to the upper reaches. The outer parts of these systems are little diluted by freshwater and typically conform to Annex I type 1160 Large shallow inlets and bays.

The intertidal and subtidal sediments of estuaries support biological communities that vary according to the type of sediment and salinity gradients within the estuary, together with geographic location and the strength of tidal streams. The parts of estuaries furthest away from the open sea are usually characterised by soft sediments and the salinity is more strongly influenced by riverine freshwater input. Here the sediment-living animal communities are typically dominated by oligochaete worms, with few other invertebrates.

Where rock occurs, there may be communities characteristic of brackish flowing water, consisting of green unicellular algae, sparse furoid seaweeds, and species of barnacle and hydroid. The silt content of the sediment decreases towards the mouth of the estuary, and the water gradually becomes more saline. Here, the animal communities of the sediments are dominated by species such as ragworms, bivalves and sandhopper-like crustaceans. In the outer estuary, closer to the open sea, the substrate is often composed of fine sandy sediment, and supports more marine communities of bivalves, polychaete worms and amphipod crustaceans. Where rock occurs, a range of species more characteristic of the open coast is found. The upper reaches of estuaries often support saltmarsh at the top of the shore, while nearer the estuary mouth this may be replaced by sand dune systems.

In addition to the sedentary subtidal and intertidal communities, the water column of estuaries is an important conduit for free-living species, such as fish, and juvenile stages of benthic plants and animals. In particular, it is the means by which migratory fish species make the transition between the marine and freshwater environments.

1.3.2. UK status and distribution

The UK has over 90 estuaries. They are widely distributed around the coast but there are few examples in some areas, such as Northern Ireland and western Scotland.

1.4. Perennial vegetation of stony banks

This is a listed feature of the following sites of relevance to this HRAR:

- Minsmere-Walberswick Heaths and Marshes SAC
- Orfordness-Shingle Street SAC

This feature is within the category of marine, coastal and halophytic habitats.

The following information regarding this feature was taken from the [JNCC](#) website in June 2021, from entry '1220 Perennial vegetation of stony banks'.

1.4.1. Description and ecological characteristics

Shingle structures develop when a sequence of foreshore beaches is deposited at the limit of high tide. More permanent ridges are formed as storm waves throw pebbles high up on the beach, from where the backwash cannot remove them. Several beaches may be piled against each other and extensive structures can form. The ecological variation in this habitat type depends on stability, the amount of fine material accumulating between pebbles, climatic conditions, width of the foreshore, and past management of the site. The ridges and lows formed also influence the vegetation patterns, resulting in the characteristic zonation of vegetated and bare shingle.

Narrow, less-stable structures (spits and bars or the fringing beach associated with older, fossil beaches) are more exposed to waves or salt spray. Where wave energy causes movement of the shingle, the plant communities have affinities with type 1"210 Annual vegetation of drift lines". The presence of the yellow horned-poppy (*Glaucium flavum*) and

the rare sea-kale (*Crambe maritima*) and sea pea (*Lathyrus japonicus*), all species that can tolerate periodic movement, is significant. In more stable areas above this zone, where sea spray is blown over the shingle, plant communities with a high frequency of salt-tolerant species such as thrift (*Armeria maritima*) and sea campion (*Silene uniflora*) occur. These may exist in a matrix with abundant lichens.

On the largest and most stable structures the sequence of vegetation includes scrub, notably broom (*Cytisus scoparius*) and blackthorn (*Prunus spinosa*). Heath vegetation with heather (*Calluna vulgaris*) and/or crowberry (*Empetrum nigrum*) occurs on the more stable shingle structures, particularly in the north. This sequence of plant communities is also influenced by natural cycles of degeneration and regeneration of the shrub vegetation that occurs on some of the oldest ridges.

1.4.2. UK status and distribution

Although there are only some 4,000ha of stable or semi-stable vegetated shingle around the coast of the UK, the habitat is widely distributed and also exhibits a wide range of variation. The largest and most significant shingle structures are found in north-east Scotland and in south and south-east England.

1.5. Coastal lagoons

This is a listed feature of the following site of relevance to this HRAR:

- Orfordness-Shingle Street SAC

This feature is within the category of marine, coastal and halophytic habitats.

The following information regarding this feature was taken from the [JNCC](#) website in June 2021, from entry '1150 Coastal lagoons'.

1.5.1. Description and ecological characteristics

Coastal lagoons are areas of shallow, coastal salt water, wholly or partially separated from the sea by sandbanks, shingle or, less frequently, rocks. Lagoons show a wide range of geographical and ecological variation; five main sub-types have been identified in the UK, on the basis of their physiography, as meeting the definition of the Annex I habitat type.

Isolated lagoons. These are separated completely from the sea or estuary by a barrier of rock or sediment. Seawater enters by limited groundwater seepage or by overtopping of the sea barrier. Salinity is variable but often low. Isolated lagoons are often transient features with a limited lifespan due to natural processes of infilling and coastal erosion.

Percolation lagoons. These are normally separated from the sea by shingle banks. Seawater enters by percolating through the shingle or occasionally by overtopping the bank (e.g. in storms). The water level shows some variation with tidal changes, and salinity may vary. Since percolation lagoons are normally formed by natural processes of sediment transport, they are relatively transient features, which may be eroded and swept

away over a period of years or decades or may become infilled by movement of the shingle bank.

Silled lagoons. Water in silled lagoons is retained at all states of the tide by a barrier of rock (the 'sill'). There is usually little tidal rise and fall. Seawater input is regular (on most tides) and although salinity may be seasonally variable, it is usually high, except where the level of the sill is near to high tide level. These lagoons are restricted to the north and west of Scotland and may occur as sedimentary basins or in bedrock (where they are called 'oban').

Sluiced lagoons. Sluiced lagoons are formed where the natural movement of water between the lagoon and the sea is modified by artificial structures, such as a culvert under a road or valved sluices. Communities present in sluiced lagoons vary according to the type of substrate and salinity, but may resemble those of silled lagoons.

Lagoonal inlets. Seawater enters lagoonal inlets on each tide and salinity is usually high, particularly at the seaward part of the inlet. Larger examples of this sub-type may have a number of different basins, separated by sills, and demonstrate a complete gradient from full salinity through brackish to freshwater. This salinity gradient significantly increases the habitat and species diversity of the sites in which it occurs.

The water in lagoons can vary in salinity from brackish (owing to dilution of seawater by freshwater) to hypersaline (more salty than seawater as a result of evaporation). The plant and animal communities of lagoons vary according to the physical characteristics and salinity regime of the lagoon, and consequently there are significant differences between sites. Although, compared to other marine habitats, there is usually only a limited range of species present, they are especially adapted to the varying salinity regimes of lagoons and some are unique to lagoon habitats. The vegetation may include beds of eelgrass (*Zostera* spp.), tasselweed (*Ruppia* spp.), and pondweeds (*Potamogeton* spp.), or stoneworts such as foxtail stonewort (*Lamprothamnium papulosum*). In more rocky lagoons, communities of furoid wracks (*Fucus* spp.), sugar kelp (*Laminaria saccharina*), and red and green algae are also found. The fauna is often characterised by mysid shrimps and other small crustaceans, worms that burrow into the sediment, gastropod molluscs, and some fish species. Species that are particularly found in lagoons and consequently have restricted distributions in the UK include starlet sea anemone (*Nematostella vectensis*), lagoon sandworm (*Armandia cirrhosa*), lagoon sand-shrimp (*Gammarus insensibilis*) and foxtail stonewort (*L. papulosum*).

1.5.2. UK status and distribution

Coastal lagoons are a relatively uncommon habitat in the UK. Some of the lagoon sub-types have a very restricted distribution, for example, silled lagoons are found mainly in the Outer Hebrides (where they provide the highest density of lagoonal habitats in the UK), and soft-sediment lagoons occur mainly on the east coast of England.

1.6. Annual vegetation of drift lines

This is a listed feature of the following sites of relevance to this HRAR:

- Minsmere to Walberswick Heaths and Marshes SAC
- Orfordness-Shingle Street SAC

This feature is within the category of marine, coastal and halophytic habitats.

The following information regarding this feature was taken from the [JNCC](#) website in June 2021, from entry '1210 Annual vegetation of drift lines'.

1.6.1. Description and ecological characteristics

This habitat type occurs on deposits of shingle lying at or above mean high-water spring tides. The types of deposits involved are generally at the lower end of the size range of shingle (2 to 200mm diameter), with varying amounts of sand interspersed in the shingle matrix. 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.

The mobility of shingle foreshores is an overriding consideration, and colonising species are able to tolerate periodic disturbance, which may involve the total removal of the surface and subsequent recolonisation with vegetation. Species are also tolerant of saltwater inundation, as the beaches are often overtopped by the tide or subject to spray from waves breaking over the beach. Level or gently-sloping, high-level mobile beaches, with limited human disturbance, support the best examples of this vegetation.

1.6.2. UK status and distribution

Approximately one-third of the UK coastline is fringed by a shingle or sand/shingle beach, but much of this is too dynamic to sustain drift-line vegetation. Many of the fringing beaches with drift-line vegetation are small, and annual vegetation may exist in one location in one year but not another. Therefore, although widespread around the UK, sites where this Annex I type is persistent are rare, and even the largest sites probably support less than 10ha of this habitat. At most sites, the habitat is naturally species-poor, and there is a limited range of ecological variation.

1.7. European Dry Heaths

This is a listed feature of the following site of relevance to this HRAR:

- Minsmere to Walberswick Heaths and Marshes SAC

This feature is within the category of temperate heath and scrub.

The following information regarding this feature was taken from the [JNCC](#) website in June 2021, from entry '4030 European dry heaths'.

1.7.1. Description and ecological characteristics

European dry heaths typically occur on freely-draining, acidic to circumneutral soils with generally low nutrient content. Ericaceous dwarf shrubs dominate the vegetation. The most common is heather (*Calluna vulgaris*), which often occurs in combination with gorse (*Ulex* spp.), bilberry (*Vaccinium* spp.) or bell heather (*Erica cinerea*), although other dwarf shrubs are important locally. Nearly all dry heath is semi-natural, being derived from woodland through a long history of grazing and burning. Most dry heaths are managed as extensive grazing for livestock or, in upland areas, as grouse moors.

1.7.2. UK status and distribution

Dry heaths occur throughout the UK. They are particularly abundant in the uplands, where they may form extensive stands, which dominate the landscape. They are more localised in lowland areas, especially in south and central England, where they have declined in extent due to afforestation, agricultural improvement and other factors.

Lowland European dry heaths occupy an extensive area of the Minsmere to Walberswick Heaths and Marshes protected sites on the east coast of England, which is at the extreme easterly range of heath development in the UK. The heathland is predominantly NVC type H8 (*Calluna vulgaris* – *Ulex gallii* heath), usually more characteristic of western parts of the UK. This type is dominated by heather (*Calluna vulgaris*), western gorse (*Ulex gallii*) and bell heather (*Erica cinerea*).

2. HRAR Species features

2.1. Great crested newt (*Triturus cristatus*)

This is a listed feature of the following site of relevance to this HRAR:

- Dews Pond SAC

This feature is within the category of vertebrate species: amphibians.

The following information regarding this feature is taken from the [JNCC](#) website in June 2021, from entry '1166 Great crested newt (*Triturus cristatus*).

2.1.1. Description and ecological characteristics

The great crested newt (*Triturus cristatus*) is the largest native British newt, reaching up to around 17cm in length. It has a granular skin texture caused by glands which contain toxins making it unpalatable to predators. In the terrestrial phase it is dark grey, brown or black over most of its body, with a bright yellow/orange and black belly pattern. Adult males have jagged crests running along the body and tail. Newts require aquatic habitats for breeding. Eggs are laid singly on pond vegetation in spring, and larvae develop over summer to emerge between August and October, normally taking 2 to 4 years to reach maturity. Juveniles spend most time on land, and all terrestrial phases may range a considerable distance from breeding sites.

Breeding sites are mainly medium-sized ponds, although ditches and other waterbody types may also be used less frequently. Ponds with ample aquatic vegetation, which is used for egg-laying, seem to be favoured. Great crested newts do not require very high water quality, but are normally found in ponds with a circum-neutral pH. Broad habitat type varies greatly, the most frequent being pastoral and arable farmland, woodland, scrub, and grassland. There are also populations in coastal dunes and shingle structures. Great crested newts can be found in rural, urban and post-industrial settings, with populations less able to thrive where there are high degrees of fragmentation. The connectivity of the landscape is important, since great crested newts often occur in metapopulations that encompass a cluster of several or many ponds. This helps ensure the survival of populations even if sub-populations are affected by, for example, pond desiccation or fish introductions. Climate may influence the range edge at the north of its distribution in Scotland, but other ecological or landscape factors such as pond density are probably more important in determining distribution across the main part of its British range.

2.1.2. UK status and distribution

The great crested newt (*Triturus cristatus*) is widespread throughout much of England and Wales, but occurs only sparsely in south-west England, mid Wales and Scotland. It is absent from Northern Ireland. The total UK population is relatively large and is distributed over sites that vary greatly in their ecological character. One estimate has put the national population at around 400,000 animals in 18,000 breeding sites. Many of the largest

populations are centred on disused mineral-extraction sites, but lowland farmland forms the majority of great crested newt habitat in the UK.

2.2. Sea lamprey (*Petromyzon marinus*)

This is a listed feature of the following UK sites of relevance to this HRAR:

- Humber Estuary SAC
- Humber Estuary Ramsar

This feature is within the category of vertebrate species: fish.

The following information regarding this feature was taken from the [JNCC](#) website in June 2021, from entry '1095 Sea Lamprey, *Petromyzon marinus*'.

2.2.1. Description and ecological characteristics

The sea lamprey (*Petromyzon marinus*) is a primitive, jawless fish resembling an eel. It is the largest of the lampreys found in the UK. It occurs in estuaries and easily accessible rivers, and is an anadromous species (spawning in freshwater but completing its life cycle in the sea). Like the other species of lamprey, sea lampreys need clean gravel for spawning, and marginal silt or sand for the burrowing juvenile ammocoetes. Sea lampreys have a preference for warm waters in which to spawn. Features such as weirs and dams, as well as polluted sections of river, may impede migration to spawning grounds. In comparison to 1099 River lamprey (*Lampetra fluviatilis*), sea lampreys seem to be relatively poor at ascending obstacles to migration and are frequently restricted to the lower reaches of rivers.

2.2.2. UK status and distribution

The sea lamprey (*Petromyzon marinus*) is reasonably widespread in UK rivers. In some places it is still common, but it has declined in parts of its range and has become extinct in a number of rivers. It appears to reach its northern limit of distribution in Scotland and does not occur north of the Great Glen.

2.3. River lamprey (*Lampetra fluviatilis*)

This is a listed feature of the following UK sites of relevance to this HRAR:

- Humber Estuary SAC
- Humber Estuary Ramsar

This feature is within the category of vertebrate species: fish.

The following information regarding this feature was taken from the [JNCC](#) website in June 2021, from entry '1099 River Lamprey, *Lampetra fluviatilis*'.

2.3.1. Description and ecological characteristics

The river lamprey (*Lampetra fluviatilis*) is found in coastal waters, estuaries and accessible rivers. The species is normally anadromous (spawning in freshwater but completing part of its life cycle in the sea), and pollution or artificial obstacles such as weirs or dams impede migration. There are a few landlocked populations, including one in Scotland, which is seen as having special European importance.

2.3.2. UK status and distribution

The river lamprey is widespread in the UK, occurring in many rivers, from the Great Glen in Scotland southwards, and populations are strong.

2.4. Twaite shad (*Alosa fallax*)

This is a listed feature for 10 continental Sites of Community Importance (Sci). Names and locations of these sites can be found in Annex 1 of this HRAR (Environment Agency 2022).

The following information regarding this feature was taken from the [JNCC](#) website in June 2021, from entry '1102 Twaite Shad *Alosa fallax*'.

This feature is within the category of vertebrate species: fish.

2.4.1. Description and distribution

Twaite shad are an anadromous member of the herring family which return home to their river of origin and are capable of spawning there for many successive years. There are no UK spawning rivers near SZC, with the nearest UK spawning taking place in tributaries of the Severn Estuary. Twaite shad in Greater Sizewell Bay are likely to originate from mainland Europe where a number of rivers, estuaries and coastal waters are designated to protect the species

2.5. Allis shad (*Alosa alosa*)

This is a listed feature of the following UK site relevant to this HRAR:

- Plymouth Sound and Estuaries SAC

This feature is within the category of vertebrate species: fish.

The following information regarding this feature was taken from the [JNCC](#) website in June 2021, from entry '1102 Allis Shad *Alosa alosa*'.

2.5.1. Description and distribution

Allis shad like twaite shad are anadromous members of the herring family which return to their home river to spawn. Although, unlike twaite shad, repeat spawning is less common for this species. The closest UK site for which allis shad are a qualifying feature is the Plymouth Sound and Estuaries SAC.

2.6. Harbour porpoise (*Phocoena phocoena*)

This is a listed feature of the following site of relevance to this HRAR:

- Southern North Seas SAC

This feature is within the category of vertebrate species: mammals.

The following information regarding this feature was taken from the [JNCC](#) website in September 2020, from entry '1351 Harbour porpoise, *Phocoena phocoena*'.

2.6.1. Description and ecological characteristics

Harbour porpoise appear to favour the continental shelf and may make seasonal movements to the coast. This inshore movement appears to be connected with the feeding of calves in shallow waters. During this time, they have a very intense 'social' life. The highest number of births occurs during June and July, although there is, as yet, limited evidence concerning where calves are actually born. The young to adult ratio is at its highest level during this period. As the end of summer approaches, young and adult individuals appear to range more widely together.

Most of the identified areas with most frequent sightings are in coastal waters. These are often areas where there is a high degree of water mixing, sometimes associated with strong tidal streams. Such areas have high biological productivity and are often associated with important concentrations of small prey fish. There may be offshore areas supporting similar concentrations. However, little is known about these, because of the lack of research effort.

2.6.2. UK status and distribution

The harbour porpoise is widespread around the UK, including the North Sea, Irish Sea, the seas west of Ireland and Scotland, and northwards to Orkney and Shetland. Since the 1990s it has become much less common around the Northern Isles, but it appears to be returning to the English Channel and southern North Sea, where it was infrequent in the late 1980s. For reasons not yet fully understood, individuals of the North and Celtic Seas population appear to concentrate in some areas close to the coast between June and September. A portion of the population remains in those regions year-round. The west of Wales, the west of Scotland and the Shetland Islands may be examples of this behaviour.

Potential supporting habitat:

- seabed
- water column

2.7. Grey seal (*Halichoerus grypus*)

This is a listed feature of the following UK sites of relevance to this HRAR:

- Humber Estuary SAC
- Humber Estuary Ramsar

This feature is within the category of vertebrate species: mammals.

The following information regarding this feature was taken from the [JNCC](#) website in June 2021, from entry '1364 Grey Seal, *Halichoerus grypus*'.

2.7.1. Description and ecological characteristics

Grey seals spend most of the year at sea and may range widely in search of prey. They come ashore in autumn to form breeding colonies on rocky shores, beaches, in caves, occasionally on sandbanks, and on small largely uninhabited islands. In such locations, they may spread some distance from the shore and ascend to considerable height.

2.7.2. UK status and distribution

At the start of the 2000 breeding season, Great Britain held some 124,000 grey seals. A further 300 to 400 in total are found around the Isle of Man and Northern Ireland. There are pupping sites on many coasts between the Isles of Scilly in the south-west, clockwise to Donna Nook in Lincolnshire. These rookeries vary greatly in size, with the largest being in the Inner and Outer Hebrides, Orkney, Isle of May, Farne Islands and Donna Nook. Less than 15% of pups are born away from the above areas, but there is an important outlying breeding population on the west Wales coast. Sources of information are cited on the [JNCC](#) website.

2.8. Harbour seal (*Phoca vitulina*)

This is a listed feature of the following UK site of relevance to this HRAR:

- The Wash and North Norfolk Coast SAC

The above site is the largest colony of harbour seals, also called common seals, in the UK, with some 7% of the total UK population. The Wash, located on the east coast of England is the largest embayment in the UK. The extensive intertidal flats here and on the North Norfolk Coast provide ideal conditions for harbour seal breeding and hauling-out.

This feature is within the category of vertebrate species: mammals.

The following information regarding this feature was taken from the [JNCC](#) website in June 2021 from entry '1365 Harbour Seal, *Phoca vitulina*'.

2.8.1. Description and ecological characteristics

Harbour seals are the characteristic seal of sandflats and estuaries, but are also found on rocky shores in Scotland. As pups swim almost immediately after birth, seals can breed on

sheltered tidal areas where banks allow access to deep water. Seals may range widely in search of prey, but individuals often return to favoured haul-out sites.

2.8.2. UK status and distribution

The harbour seal is widespread around the shores of the UK, but population density varies greatly from place to place, with low numbers at many sites. Harbour seal are found from Northern Ireland and the southern Firth of Clyde clockwise round the coast to the Thames Estuary. The vast majority of common seal haul-outs are found on the coasts of Scotland, but with an additional important concentration on The Wash, and a smaller number in Strangford Lough, Northern Ireland.

The UK holds at least 33,400 common seals. This is a minimum figure, counted at coastal haul-outs during the moulting period in August. The relationship between this number and total population size has not yet been fully established. Studies in Scotland and the Netherlands suggest that this number represents 60 to 70% of animals aged one year or older. Applying this correction factor indicates that the total population lies between 48,000 and 56,000.

3. HRAR Bird features

3.1. Red-throated diver (*Gavia stellata*)

This is a listed feature of the following site of relevance to this HRAR:

- Outer Thames Estuary SPA

The following information regarding this feature was taken from the [JNCC](#) website in October 2021.

3.1.1. Outer Thames Estuary SPA site-specific species information

When the site was originally classified in 2010, the Outer Thames Estuary SPA supported an estimated 6,446 wintering individuals (1989 to 2006/07, peak mean estimate), representing 38% of the GB overwintering population. Recent surveys have estimated the current SPA population at 18,079 overwintering individuals (peak mean 2012/3 to 2017/18). It should be noted that this increase may be due to improved survey techniques, such as digital aerial imagery, and that previous counts may have been underestimates. However, it is considered that the SPA supports the same proportion of red-throated diver in the UK and is considered of international importance.

3.1.2. Description and ecological characteristics

The red-throated diver is the smallest of UK diver species, also known as loons. The species is grey-brown in winter but develops a red-throat during the breeding season. Red-throated diver do not return to land during the non-breeding season, spending time rafting and fishing in shallow coastal waters throughout the Outer Thames Estuary. Red-throated diver are highly mobile, and may move between sandy bays, sandbanks and the mouths of estuaries, where water of different salinity mixes.

Red-throated diver are opportunistic feeders, diving below the surface to catch small fish at shallow depths. Their diet varies depending on prey availability, but is likely to include herring, the cod family, various flatfish, sand eels and sprat. The many sandbanks within the SPA are important foraging grounds, as they provide suitable hunting depths and support many of the prey species and their nursery grounds.

Sources of information are cited on the [JNCC](#) website.

Potential supporting habitats:

- circalittoral rock
- intertidal sand and muddy sand
- subtidal coarse sediment
- subtidal mixed sediments
- subtidal mud
- subtidal sand

- water column

3.2. Common tern (*Sterna hirundo*)

This is a listed feature of the following site of relevance to this HRAR:

- Outer Thames Estuary SPA

3.2.1. Description and ecological characteristics

The following information was taken from the [JNCC](#) website in the June 2021:

“Common terns are not the most abundant UK tern species but are probably the most familiar because their breeding range extends around much of the British Isles coastline plus inland on lakes, reservoirs and gravel pits along the large river valleys of SE and Central England, notably the Thames, Ouse, Humber and Trent, and along rivers in SE Scotland. They are absent from most of Wales and SW England and are largely replaced in the Northern and Western Isles by Arctic terns.

All tern populations in NW Europe were brought to the brink of extirpation at the end of the 19th century by hunting of adults for the millinery trade but recovered in response to protective legislation in the early 20th century. However, over the last three decades, the UK common tern population has remained broadly stable.”

3.2.2. Outer Thames Estuary SPA site-specific information

The following information is taken from the supplementary advice package [Outer Thames Estuary SPA](#) :

“The Outer Thames Estuary SPA supports 532 breeding adult common tern individuals (2011 to 2015), which constitutes 2.66% of the GB breeding population and is considered of international importance.

Common tern use the coastal waters within the Outer Thames Estuary SPA for foraging, usually within 15km of their breeding colony. Common tern are generalist and opportunistic feeders, feeding primarily on small fish and crustaceans in shallow coastal or estuarine waters. Common tern use a broad range of methods to catch prey, including dipping, kleptoparasitism (stealing from others) and plunge diving to a depth of one to 2 metres. While common tern will feed upon a variety of prey species, sprat, herring and sand eels are particularly important. Common tern also use the SPA for a wide range of maintenance activities, such as bathing and loafing.

The principal common tern breeding colonies supported by the Outer Thames Estuary SPA are located on the intertidal Scroby Sands sandbank situated within the SPA, and at the adjacent breeding sites of Foulness SPA and Breydon Water SPA. Common tern form nests on flat surfaces close to water in areas with little or no vegetation, such as shingle beaches or artificial structures. Breeding common tern are vulnerable to disturbance and predation at nesting colonies, which are also vulnerable to coastal erosion and tidal inundation.

Sources of information are cited on [Outer Thames Estuary SPA](#) website.

Potential supporting habitats:

- intertidal sand and muddy sand
- water column

3.3. Sandwich tern (*Sterna sandvicensis*)

This is a listed feature of the following site of relevance to this HRAR:

- Alde-Ore Estuary SPA

The following information regarding this feature was taken from the [JNCC](#) website in June 2021.

3.3.1. Description and distribution

Sandwich terns exhibit the most erratic population trends and distribution of any seabird breeding in the UK. The population fluctuates dramatically among years due to large variations in the proportion of mature birds attempting to breed, and distribution varies owing to mass movements between colonies. The species is distributed widely but patchily around the coasts of the British Isles, broadly reflecting the availability of favoured nesting habitat: low-lying offshore islands, islets in bays or brackish lagoons, spits or remote mainland dunes. Despite frequent changes in the sites used, the broad distribution in the UK has changed little over the last 30 years. Sandwich terns are among the most gregarious of all seabirds, with the population confined to a small number of relatively large colonies in which birds nest at very high densities.

Potential supporting habitats

- intertidal sand and muddy sand
- water column

3.4. Lesser black-backed gull (*Larus fuscus*)

This is a listed feature of the following sites of relevance to this HRAR:

- Alde Ore Ramsar
- Alde-Ore Estuary SPA

The following information regarding this feature was taken from the [JNCC](#) website in June 2021 and from the NE [Site Search \(naturalengland.org.uk\)](#), also accessed in June 2021.

3.4.1. Description and distribution

The lesser black-backed gull breeds in north and west Europe and has increased in numbers throughout its range during much of the 20th century. During this time, they have

become less migratory and can now be found within much of their breeding range throughout the year. The species nests colonially, often with other gulls, especially the herring gull. Colonies are found on islands offshore and within inland freshwater bodies, coastal cliffs, sand dunes, saltmarshes, moorland and on the rooftops of buildings. Seemingly, many sites that are either inaccessible to ground predators (for example, islands and urban rooftops) or where ground predators are particularly scarce (for example, narrow peninsulas or on moorland managed as sporting estate) can prove attractive for nesting. Though often sharing breeding areas with herring gulls, their nest sites and feeding strategies generally differ; lesser black-backed gulls can forage over larger distances and they tend to nest within more vegetated areas.

At classification, the breeding population of lesser black-backed gull was 14,070 pairs (derived from the JNCC Seabird Monitoring Programme database; agreed by NE's Chief Scientist in 2012). After a peak of 23,400 pairs in 2000, numbers reduced significantly below the target; the 5-year peak mean (2011 to 2015) was 1,940 breeding pairs.

Since classification, nesting birds are now predominantly found on Havergate Island, with decreased nesting on Orford Ness.

Outside the breeding season, often fewer than 10 birds are seen. In February, the breeding population starts to return. Laying stops by the end of May and most individuals have left the SPA by July.

The gulls prefer to nest on islands in large colonies, with many nesting on Lantern Marshes on Orford Ness. A small colony exists on the southern end of the Ness and on Havergate Island at Dovey's Lagoon. In 2012, all ground nesting failed on Orford Ness, the only successful pairs nested on the roofs of the Pagodas and the Cobra Mist building.

Lesser black-backed gull are omnivorous and opportunistic feeders; at Havergate and Orford Ness some have learnt to predate chicks of breeding wader and tern colonies.

Sources of information are cited on the [JNCC](http://jncc.gov.uk) website and the NE [Site Search \(naturalengland.org.uk\)](http://naturalengland.org.uk).

Potential supporting habitats:

- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- coastal lagoons
- freshwater and coastal grazing marsh
- intertidal biogenic reef: mussel beds
- intertidal coarse sediment
- intertidal mixed sediments
- intertidal mud
- intertidal rock
- intertidal sand and muddy sand
- salicornia and other annuals colonising mud and sand
- spartina swards (*Spartinetalia maritima*)

- water column

3.5. Avocet (*Recurvirostra avosetta*)

This is a listed feature of the following sites:

- Alde- Ore Estuary Ramsar
- Alde-Ore Estuary SPA
- Minsmere-Walberswick SPA

The following information regarding this feature was taken from the NE [Site Search \(naturalengland.org.uk\)](https://naturalengland.org.uk) which was accessed in January 2021.

3.5.1. Description and site-specific information

The avocet is a distinctively patterned black and white wader with a long up-curved beak.

Avocet primarily feed on crustaceans, worms and insects. They favour bare conditions or sparse, low vegetation for nesting since this affords a clear view of any predators. The breeding population of avocet on Minsmere-Walberswick has dramatically increased since the 1960s, with Minsmere being a particularly important site. Breeding starts in April and by June most of the chicks have fledged.

The Alde-Ore Estuary SPA had a 5-year peak mean (2009 to 2013) of 46 breeding avocet pairs, while the latest 5-year peak mean (2015/6 to 2019/20) for non-breeding avocet was 1,378 which represents an increase in the population.

The UK breeding population is estimated at 1,500 pairs.

Sources of information cited are on the [Site Search \(naturalengland.org.uk\)](https://naturalengland.org.uk) website.

Potential supporting habitats:

- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- coastal lagoons
- freshwater and coastal grazing marsh
- intertidal coarse sediment
- intertidal mixed sediments
- intertidal mud
- intertidal sand and muddy sand

3.6. Bittern (*Botaurus stellaris*)

This is a listed feature of the following sites or relevance to this HRAR:

- Minsmere-Walberswick SPA
- Benacre to Easton Bavents SPA

The following information regarding this feature was taken from the NE [Site Search \(naturalengland.org.uk\)](https://naturalengland.org.uk) which was accessed in June 2021.

3.6.1. Description and ecological characteristics

The bittern is a thickset heron with all-over bright, pale, buffy-brown plumage covered with dark streaks and bars. It flies on broad, rounded, bowed wings. A secretive bird, very difficult to see, as it moves silently through reeds at water's edge, looking for fish. The males make a remarkable far-carrying, booming sound in spring.

Breeding bitterns are highly localised, requiring reedbeds as their breeding habitat. They also utilise fresh water and coastal grazing marsh and coastal lagoons. They have benefitted as a breeding species in recent years from substantial habitat restoration and creation around the UK. Fresh water fish are the main food source for bittern.

The UK breeding population is estimated at 80 pairs.

Source of information cited is the [Site Search \(naturalengland.org.uk\)](https://naturalengland.org.uk) website.

Potential supporting habitats:

- coastal lagoons
- coastal reedbeds
- freshwater and coastal grazing marsh
- water column

3.7. Gadwall (*Mareca strepera*)

This is a listed feature of the following site of relevance to this HRAR:

Minsmere-Walberswick SPA

The following information regarding this feature is taken from the NE [Site Search \(naturalengland.org.uk\)](https://naturalengland.org.uk) which was accessed in June 2021.

3.7.1. Description and distribution

The gadwall is a very grey-coloured dabbling duck, a little smaller than the mallard, and with an obvious black rear end. It shows a white wing patch in flight. When seen close up the grey colour is made up of exquisitely fine barring and speckling. It nests in low numbers in the UK and is an Amber List species.

In the UK, the breeding gadwall population is spread throughout south-east England, East Anglia and the Midlands, with the breeding stronghold in Norfolk. Gadwall inhabit inland, eutrophic, still waters in lowland areas, including reservoirs and flooded gravel pits, as well as marshy grassland and flood meadows. The species is predominantly herbivorous feeding on the stems, seeds and leaves of many aquatic plants. However overwintering birds may also feed on grasses, cereals, grains, molluscs and insects.

Wintering gadwall around the North Sea derive from breeding birds in northern Germany, Poland, southern Sweden, and west-central Russia. In addition, some of the birds in Britain and The Netherlands are resident or partial migrants. Most non-breeding gadwall in the UK occur in south-east England, the Midlands and East Anglia (Joint Nature Conservation Committee). The species is predominantly herbivorous, feeding on the stems, seeds and leaves of many aquatic plants. However, overwintering birds may also feed on grasses, cereals, grains, molluscs and insects.

The overall population trend of gadwall is increasing, with the UK population estimated between 690 and 1,730 breeding pairs and 25,000 overwintering.

Sources of information are cited on [Site Search \(naturalengland.org.uk\)](https://naturalengland.org.uk).

Potential supporting habitats:

- coastal lagoons
- coastal reedbeds
- freshwater and coastal grazing marsh
- water column

3.8. Greater white-fronted goose (*Anser albifrons albifrons*)

This is a listed feature of the following site of relevance to this HRAR:

Minsmere-Walberswick SPA

The following information regarding this feature is taken from the NE [Site Search \(naturalengland.org.uk\)](https://naturalengland.org.uk), which was accessed in June 2021.

3.8.1. Description and ecological characteristics

Greater white-fronted geese are grey. Adults have a large white patch at the front of the head around the beak and bold black bars on the belly. The legs are orange and Siberian birds have pink bills, while Greenland birds have orange bills.

This species does not breed in the UK. Two races visit the UK in winter - birds which breed in Greenland and birds which breed in Siberia. White-fronted geese use parts of the SPA as roosts sites, they will spend most of the day feeding on nearby farmland returning to roost after dark. They tend to forage on coastal grasslands, saltmarshes and floodplains, where they graze on grass and clover.

The UK overwintering population is estimated at 16,000 birds.

Sources of information are cited on [Site Search \(naturalengland.org.uk\) website](https://naturalengland.org.uk).

Potential supporting habitats:

- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- freshwater and coastal grazing marsh

- intertidal mixed sediments
- intertidal mud
- intertidal sand and muddy sand
- salicornia and other annuals colonising mud and sand
- spartina swards (*Spartinion maritimae*)
- water column

3.9. Hen harrier (*Circus cyaneus*)

This is a listed feature of the following site:

Minsmere-Walberswick SPA

The following information regarding this feature was taken from the NE [Site Search \(naturalengland.org.uk\)](https://naturalengland.org.uk) which was accessed in June 2021.

3.9.1. Description and distribution

While males are a pale grey colour, females and immatures are brown with a white rump and a long, barred tail which give them the name 'ringtail'. They fly with wings held in a shallow 'V', gliding low in search of food, which mainly consists of meadow pipits and voles.

During winter, hen harriers gather at communal roost sites and there are significant concentrations on the south and east coast of England, especially within the East Anglia estuaries, the Greater Thames Estuary and Solent area. These can hold significant numbers of individuals and are usually located in wetlands, although they sometimes occur on heather moorland, lowland heath and conifer plantations.

The UK breeding population is estimated at 630 pairs.

Sources of information are cited on NE [Site Search \(naturalengland.org.uk\) website](https://naturalengland.org.uk).

Potential supporting habitats:

- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- coastal lagoons
- coastal reedbeds
- freshwater and coastal grazing marsh
- intertidal coarse sediment
- intertidal mixed sediments
- intertidal rock
- intertidal sand and muddy sand
- salicornia and other annuals colonising mud and sand
- spartina swards (*Spartinion maritimae*)

3.10. Little tern (*Sternula albifrons*)

This is a listed feature of the following sites of relevance to this HRAR:

- Alde-Ore Estuary SPA
- Benacre to Easton Bavents SPA
- Minsmere-Walberswick SPA
- Outer Thames Estuary SPA

The following information regarding this feature was taken from the NE [Site Search \(naturalengland.org.uk\)](https://naturalengland.org.uk) which was accessed in June 2021.

3.10.1. Description and ecological characteristics

Little tern is the smallest of the tern family found in the UK. It is short-tailed and has a fast flight. Its bill is a distinctive yellow with a black tip. It is noisy at its breeding colony where courtship starts with an aerial display involving the male calling and carrying a fish to attract a mate, which chases him up high before he descends, gliding with wings in a 'V'.

Little tern adults and chicks consume a relatively wide variety of prey types, although diet consists predominantly of small fish such as clupeids (herring and sprat in the UK), sand eels, crustaceans, annelid worms and even insects. Little tern chicks in the UK are generally fed on small (30 to 70 mm) often young-of-the-year (YOY) clupeids and sand eels. Little terns have the smallest foraging range of all the terns, with most studies reporting a foraging radius of less than 4km from the colony. Although there is some variation between colonies, thought to be due to differences in offshore foraging habitat. However, if prey species offshore are not available they will likely travel further to forage. They are almost exclusively coastal, preferring areas with abundant food such as channels and lagoons where stronger currents may increase prey availability, rather than deeper marine habitats.

This is a strongly migratory coastal seabird which usually fishes in very shallow water only a few centimetres deep, often over the advancing tideline or in brackish lagoons and saltmarsh creeks. The overall global population trend is decreasing, although some populations have unknown or increasing trends. In Europe, the population size trend is unknown.

3.10.2. Site-specific information

Alde-Ore Estuary SPA

At the time of site classification, there were 48 pairs of breeding little tern*. In 2013, just 4 breeding pairs attempted to breed at the site.

Little tern can however be seen roosting on the shingle ridges at Shingle Street, Orford Ness and Havergate Island. As a summer visitor, they start to arrive from the West African wintering grounds at the beginning of May. On arrival, they explore the SPA and wider

Suffolk coast looking for suitable shingle nesting sites before settling and breeding. The last known nesting colony was at Sudbourne Beach, south of Slaughden on Orford Ness in 2013. In the same year, 40 birds were recorded on Shingle Street but due to disturbance they moved to the Deben Knolls of Deben Estuary SPA, where a breeding colony was established.

* In the absence of an abundance value from the SPA citation, for information, the JNCC standard data form states there were 48 pairs of breeding little tern.

Potential supporting habitats:

- coastal lagoons
- intertidal coarse sediment
- intertidal mixed sediments
- intertidal sand and muddy sand
- water column

Benacre to Easton Bavents SPA

Benacre to Easton Bavents SPA is a site comprised of a series of percolation lagoons. The lagoons have formed behind shingle barriers and are a feature of a geomorphologically dynamic system. Sea water enters the lagoons by percolation through the barriers or by overtopping them during storms and high spring tides. The 3 southern lagoons receive freshwater inputs from the local ditch and channel networks. The site supports internationally important populations of little tern and has seen a significant increase in numbers of breeding little terns in recent years.

Minsmere-Walberswick SPA

Minsmere-Walberswick SPA supports internationally important numbers of breeding little tern. At classification in 1991, the SPAs breeding population was 32 breeding pairs. Since classification, the numbers of little tern using Minsmere-Walberswick SPA has decreased by 95% to 1.6 breeding pairs (5-year mean peak count 2014 to 2018).

The little tern colonies found breeding along the Suffolk and Norfolk coastline are functionally linked and all make up a larger meta-population of little tern. They are interlinked populations and will move up and down the coast between colonies. Little tern follow their prey species and will nest where their food source is most abundant or nesting habitat is most suitable. Little terns are notoriously transitory in their nesting habits and may move between different colonies in response to factors, including disturbance and predation.

The little tern population on Minsmere-Walberswick SPA fluctuates greatly between years, with some years having a high number of nesting pairs and then the next year having none at all, making it difficult to establish a meaningful population trend. The last 6 years have seen particularly low numbers, with no pairs on Minsmere in that time and small numbers at Walberswick NNR.

Potential supporting habitats:

- coastal lagoons
- intertidal coarse sediment
- intertidal mixed sediments
- intertidal sand and muddy sand
- water column

Outer Thames Estuary SPA

The Outer Thames Estuary SPA supports 746 breeding adult little tern individuals (2011 to 2015), which constitutes 19.64% of the GB breeding population, and is considered of international importance.

Little tern use the shallow coastal waters within the Outer Thames Estuary SPA for foraging. They feed singly, in small parties or in widely scattered flocks in shallow water, often very close to the shoreline. Little tern plunge dive to feed upon small fish, such as sand eels, sprat and young herring, but may also feed upon crustaceans and insects. The principal foraging areas for little terns are shallow subtidal coastal waters, generally within 6km of their breeding colony. Little tern also use the SPA for a wide range of maintenance activities, such as bathing and loafing.

Little tern nest in loose colonies, excavating scrapes on sand or shingle beaches. There is a large little tern colony which breeds on the Scroby Sands intertidal sandbank, situated within the SPA. The little tern which forage within the Outer Thames Estuary SPA also breed at the adjacent Great Yarmouth North Denes, Benacre to Easton Bavents, Minsmere-Walberswick, Alde-Ore Estuary, Thanet Coast and Sandwich Bay, and Foulness SPAs. Breeding little tern are vulnerable to disturbance and predation at nesting colonies, which are also vulnerable to coastal erosion and tidal inundation.

Potential supporting habitats:

- intertidal sand and muddy sand
- water column

Sources of information are cited in [Site Search \(naturalengland.org.uk\) website](https://www.naturalengland.org.uk).

3.11. Marsh harrier (*Circus aeruginosus*)

This is a listed feature of the following sites of relevance to this HRAR:

- Alde-Ore Estuary SPA
- Minsmere-Walberswick SPA

The following information regarding this feature is taken from the NE [Site Search \(naturalengland.org.uk\)](https://www.naturalengland.org.uk) which was accessed in June 2021.

3.11.1. Description and ecological characteristics

The largest of the harriers, the marsh harrier can be recognised by its long tail and light flight with wings held in a shallow 'V'. It is distinguishable from other harriers by its larger size, heavier build, broader wings and absence of white on the rump. Females are larger than males and have obvious creamy heads.

3.11.2. Site-specific information

Alde-Ore Estuary SPA

There were 3 pairs of breeding marsh harrier at the time of site classification*. The most recent SSSI site assessment, completed in 2013, recorded 2 breeding pairs on Orford Ness Lantern Marshes and one breeding pair on Hazelwood Marshes. Spring brings considerable bird movement in the estuary as northern breeding marsh harrier pass through. In the autumn, the returning migratory marsh harriers are seen moving south.

Breeding habitats are located in the upper estuary at Iken, Sudbourne, Boyton and on Orford Ness. Prey includes small mammals (voles, rats and rabbits) and birds pipit (*Anthus* species), bearded reedling (*Panurus biarmicus*), and moorhen (*Gallinula chloropus*), which are found in reedbeds and saltmarshes throughout the SPA and in nearby extensive dry arable farmland. Males can be bigamous or trigamous and require home ranges of up to 1,407ha, depending on the breeding cycle stage. It is therefore unlikely that the site would hold more than 2 to 3 males with 4 to 5 breeding females. With 8 females recorded breeding just outside the SPA in 2012 and 2013, the Alde-Ore Estuary SPA likely can't support a larger population than recently recorded.

* In the absence of an abundance value from the SPA citation, for information, the JNCC standard data form states there were 3 pairs of breeding marsh harrier at the time of classification.

Potential supporting habitats include all of those listed for Minsmere-Walberswick SPA plus:

- intertidal sand and muddy sand
- aalicornia and other annuals colonising mud and sand
- spartina swards (*Spartinion maritimae*)

Minsmere-Walberswick SPA

Favoured hunting habitats within the Minsmere-Walberswick SPA are areas of freshwater and coastal grazing marsh and Atlantic salt meadows. In the UK, most breeding marsh harriers occur in England, with the main concentrations in the coastal areas of Norfolk and Suffolk, as well as the Broads and north Kent. Smaller numbers are present in Lincolnshire, Humberside, and Lancashire. Nationally, the marsh harrier population has significantly increased in recent years. Minsmere-Walberswick SPA supports the largest

continuous stand of common reed in England and Wales (Westwood Marshes) and this habitat is of major importance for breeding marsh harrier.

The UK breeding population is estimated to be between 320 and 380 pairs.

Potential supporting habitats:

- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- coastal lagoons
- coastal reedbeds
- freshwater and coastal grazing marsh
- intertidal coarse sediment
- intertidal mixed sediments
- intertidal rock

Sources of information cited NE [Site Search \(naturalengland.org.uk\)](https://naturalengland.org.uk).

3.12. Nightjar (*Caprimulgus europaeus*)

This is a listed feature of the following sites of relevance to this HRAR:

- Minsmere-Walberswick SPA
- Sandlings SPA

The following information regarding this feature is taken from the NE [Site Search \(naturalengland.org.uk\)](https://naturalengland.org.uk) which was accessed in June 2021.

3.12.1. Description and ecological characteristics

Nightjars are nocturnal birds and can be seen hawking for food at dusk and dawn. With pointed wings and long tails their shape is similar to a kestrel or cuckoo. Their cryptic, grey-brown, mottled, streaked and barred plumage provides ideal camouflage in the daytime.

3.12.2. Site-specific information

Minsmere-Walberswick SPA

At the SPA, nightjar utilise the lowland heath and coniferous woodland as supporting habitat for breeding and foraging, primarily feeding on moths and beetles. Nightjars are highly migratory and birds leave temperate breeding areas to overwinter in Africa, where they are widely distributed south of the Sahara. Nightjars breeding in the UK are concentrated in southern and south-eastern England and East Anglia, with much smaller numbers and lower densities occurring in Wales, the Midlands, north-east England and south-west Scotland.

The UK breeding population is estimated at 4,600 males.

Sources of information cited are from NE [Site Search \(naturalengland.org.uk\)](https://naturalengland.org.uk).

Potential supporting habitats:

- European dry heaths

Sandlings SPA

The Sandlings SPA lies near the Suffolk Coast between the Deben Estuary and Leiston. In the 19th century, the area was dominated by heathland developed on glacial sandy soils. During the 20th century, large areas of heath were planted with blocks of commercial conifer forest and others were converted to arable agriculture. Lack of traditional management has resulted in the remnant areas of heath being subject to successional changes, with the consequent spread of bracken, shrubs and trees, although recent conservation management work is resulting in their restoration. The heaths support both acid grassland and heather-dominated plant communities, with dependant invertebrate and bird communities of conservation value. Nightjar have adapted to breeding in the large conifer forest blocks using areas that have been felled as well as areas managed as open ground.

3.13. Shoveler (*Spatula clypeata*)

This is a listed feature of the following site:

- Minsmere-Walberswick SPA

The following information regarding this feature is taken from the NE [Site Search \(naturalengland.org.uk\)](https://naturalengland.org.uk) which was accessed in June 2021.

3.13.1. Description and distribution

Shovelers are so called, due to their long, wide, shovel-shaped bill. Shovelers are surface feeders, and use their large, spatula-shaped, flat bills to filter out small molluscs, crustaceans, insects and plant matter.

Within Britain the breeding strongholds are the Norfolk Broads, the north Kent Marshes and the East Anglian fens, with birds widely scattered elsewhere in eastern and central England, becoming scarcer in upland areas and the south-west. They inhabit freshwater wetlands, typically nesting in sparse cover near to shallow eutrophic still waters.

Wintering shoveler are widespread across mainly lowland England, using both freshwater and intertidal areas. The birds present in the UK during the winter are derived from both UK breeding birds and large numbers of birds arriving from breeding populations in Scandinavia, central Europe and Russia.

The European population trend is estimated to be stable (Birdlife International, 2018) and the UK population is estimated to be between 310 and 1,020 breeding pairs and up to 18,000 overwintering birds.

Sources of information cited NE [Site Search \(naturalengland.org.uk\)](https://naturalengland.org.uk).

Potential supporting habitats:

- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- coastal lagoons
- coastal reedbeds
- freshwater and coastal grazing marsh
- intertidal coarse sediment
- intertidal mixed sediments
- intertidal mud
- intertidal rock
- intertidal sand and muddy sand
- salicornia and other annuals colonising mud and sand
- spartina swards (*Spartinion maritimae*)
- water column

3.14. Teal (*Anas crecca*)

This is a listed feature of the following site:

- Minsmere-Walberswick SPA

The following information regarding this feature is taken from the NE [Site Search \(naturalengland.org.uk\)](https://naturalengland.org.uk) which was accessed in June 2021.

3.14.1. Description and ecological characteristics

Teals are small dabbling ducks. Males have chestnut coloured heads with broad green eye-patches, a spotted chest, grey flanks and a black edged yellow tail. Females are mottled brown. Both show bright green wing patches (speculum) in flight (Royal Society for the Protection of Birds).

Food sources vary during the year, but invertebrates usually form the main constituent of the teal's diet during spring and summer. Teal have access to a wide range of supporting habitats at the SPA for feeding, including shallow open water, grazing marsh and saltmarsh. Teal typically nest in well-hidden depressions along slow moving water bodies. The nests are lined with leaves and local plant material and the female characteristically plucks down feathers from her breast to surround the eggs and cover them when leaving the nest unattended.

The UK breeding population is estimated to be between 1,600 and 2,800 pairs.

Source of information cited NE [Site Search \(naturalengland.org.uk\)](https://naturalengland.org.uk).

Potential supporting habitats:

- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- coastal lagoons
- coastal reedbeds
- freshwater and coastal grazing marsh
- intertidal coarse sediment
- intertidal mixed sediments
- intertidal mud
- intertidal rock
- intertidal sand and muddy sand
- salicornia and other annuals colonising mud and sand
- spartina swards (*Spartinion maritimae*)
- water column

3.15. Woodlark (*Lullula arborea*)

This is a listed feature of the following site:

- Sandlings SPA

The following information regarding this feature is taken from the NE [Site Search \(naturalengland.org.uk\)](https://naturalengland.org.uk) which was accessed in June 2021.

3.15.1. Description and ecological characteristics

Woodlark and nightjar utilise the open grassland and heather heaths for breeding. In recent times, they have taken to nesting within open habitat associated with the system of rotational clear-felling within the conifer plantations, where areas of clear-fell and restocked plantation also provides ideal breeding conditions. Outside the confines of the forest nightjar and woodlark use both grasslands, arable land and other habitats for feeding.

3.16. Ruff (*Calidris pugnax*)

This is a listed feature of the following site:

- Alde-Ore Estuary SPA

The following information regarding this feature is taken from the NE [Site Search \(naturalengland.org.uk\)](https://naturalengland.org.uk) which was accessed in June 2021.

3.16.1. Description and Alde-Ore Estuary SPA site-specific information

At the time of classification, records of non-breeding ruff using the site ranged from 3 individuals to 13 individuals (Joint Nature Conservation Committee *. The 5-year peak mean (2009/10 to 2013/14) figure was 6 individuals.

Great Britain is at the northern limit of the ruff's overwintering range and southern limit of their breeding range. Therefore, more birds pass through during migration, with numbers peaking twice annually; in autumn, during their southern migration to wintering grounds as far as southern Africa and in spring when they head north to breed in Scandinavia, Iceland and Russia. Wintering ruff also aggregate outside this SPA at Trimley and Minsmere. Presence during migration is dependent on food availability and prevailing weather conditions. In bad weather ruff tends to move swiftly south.

Main feeding habitats are intertidal mudflats and non-tidal marshes. At high tide, they move onto the grazing marshes and scrapes of Havergate, Orford Ness and Hazelwood. Their wide food range includes small terrestrial invertebrates (beetles and flies) when on the marshes. On the extensive mudflats and scrapes they feed on aquatic estuarine invertebrates, for example, caddis flies, worms, frogs and molluscs.

* In the absence of an abundance value from the SPA citation, for information, the JNCC standard data form states there were 3 non-breeding ruff (while the Wetland Bird Survey (WeBs) gives a figure of 13 non-breeding ruff (5-year mean 1989/90 to 1993/94).

Source of information cited NE [Site Search \(naturalengland.org.uk\)](http://naturalengland.org.uk).

Potential supporting habitats:

- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- coastal lagoons
- freshwater and coastal grazing marsh
- intertidal coarse sediment
- intertidal mixed sediments
- intertidal mud
- intertidal rock
- intertidal sand and muddy sand
- salicornia and other annuals colonising mud and sand
- spartina swards (*Spartinion maritimae*)

3.17. Redshank (*Tringa totanus*)

This is a listed feature of the following sites of relevance to this HRAR:

- Alde-Ore Estuary Ramsar
- Alde-Ore Estuary SPA

The following information regarding this feature is taken from the NE [Site Search \(naturalengland.org.uk\)](https://naturalengland.org.uk) which was accessed in June 2021.

3.17.1. Description and Alde-Ore Estuary SPA site-specific information

When the Alde-Ore Estuary SPA site was classified, the number of overwintering redshank was 1,919*. Since classification, the population has fluctuated widely in response to weather severity, with the most recent 5-year peak mean (2009/10 to 2013/14) being 2,178 individuals.

Numbers of wintering birds in the estuary vary greatly depending on weather conditions, with far fewer present during extreme cold snaps. There were 5,268 redshank present in 1997, which was an unusually warm winter across Suffolk.

Across the site, redshank are found frequenting the saltmarshes, mudflats and coastal lagoons. At high tide, they roost on the upper saltmarshes at Snape, on Orford Ness and on Havergate Island, with smaller numbers at Butley Creek.

The saltmarsh and intertidal mudflats and sandflats of the SPA are the main feeding habitat for redshank. On the mudflats, they feed on annelid worms (*Nereis*) species, molluscs (*Peringa ulvae*) and amphipods (*Corophium*) species. They occasionally feed on small fish from shallow waters on Orford Ness and Havergate Island. At high tides, they move onto the grazing marshes and scrapes of Havergate, Orford Ness, Hazelwood marshes and the upper saltmarshes at Iken.

* In the absence of an abundance value from the SPA citation, for information, the JNCC standard data form states there were 1,919 non-breeding redshank.

Source of Information cited NE [Site Search \(naturalengland.org.uk\)](https://naturalengland.org.uk).

Potential supporting habitats:

- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- coastal lagoons
- freshwater and coastal grazing marsh
- intertidal biogenic reef: mussel beds
- intertidal coarse sediment
- intertidal mixed sediments
- intertidal mud
- intertidal rock
- intertidal sand and muddy sand
- salicornia and other annuals colonising mud and sand
- spartina swards (*Spartinion maritimae*)

3.18. Fulmar (*Fulmaris glacialis*)

This is a listed feature of the following sites of relevance to this HRAR:

- Coquet Island SPA
- Flamborough and Filey Coast SPA

It should be noted that the Northern fulmar is not listed as a feature in its own right, but comes under the 'Seabird assemblage, breeding' feature.

The following information regarding this feature is taken from the NE [Site Search \(naturalengland.org.uk\)](https://naturalengland.org.uk) which was accessed in January 2022.

3.18.1. Description and ecological characteristics

Northern fulmars are one of the commonest seabirds in northern Britain and are present year-round, with no pronounced migration after becoming adult. They usually nest on wide ledges near the top of cliffs, but will also nest on more gently sloping land, under boulders and in puffin burrows on islands free from mammalian predators. They feed at sea on a variety of foods ranging from zooplankton and small fish to offal and discards produced by commercial fishing. Consequently, they are ubiquitous companions of fishing vessels in northern waters.

An increase in food discarded by commercial fishing has been suggested as a contributing factor to the spectacular growth in numbers and distribution of northern fulmars in Britain and Ireland and the North Atlantic. Prior to the mid-18th century, they bred in only one or two colonies in Iceland and in St Kilda (Western Isles). They then expanded their breeding range around the coast of Iceland and onto the Faroe Islands and in 1878, formed a second British colony on Foula (Shetland). Subsequently, they have spread around Britain and Ireland and NW Europe and across the Atlantic to Canada. Throughout most of the 20th century numbers rapidly increased, but during the last 15 years of the century this rise ceased, with declines recorded in some areas. The environmental change, which is most likely to have affected northern fulmars since the 1970s, has come from a decline in the North Sea whitefish industry and a corresponding decline in the amount of offal discharged from its fleets – a trend which is likely to continue. Declines in the abundance of natural prey such as sandeels in the North Sea and of certain species of zooplankton in the North Atlantic, are also likely to have had a detrimental effect on the population. Climate change is likely to have contributed to these declines. Large numbers of northern fulmars may also still be caught and killed accidentally by the long-lining fleets in the Norwegian Sea and in the North Atlantic.

3.19. Gannet (*Morus bassanus*)

This is a listed feature of the following site of relevance to this HRAR:

- Flamborough and Filey Coast SPA

The following information regarding this feature is taken from the NE [Site Search \(naturalengland.org.uk\)](https://naturalengland.org.uk) which was accessed in January 2022.

3.19.1. Description and ecological characteristics

The northern gannet is the largest seabird in the North Atlantic. Gannets often perform dramatic plunge dives from high in the sky to catch fish up to depths of 20m and can stay submerged for over half a minute. They also feed from the surface on small shoaling fish like sandeels and on discards from fishing vessels, where their large size helps them outcompete most other scavenging species. The northern gannet is endemic to the North Atlantic and most breed in Britain and Ireland. There are 21 gannetries around Britain and Ireland, with most being on remote offshore islands and stacks, and 2 on mainland cliffs. Some colonies have been occupied for centuries and are large and conspicuous.

3.19.2. Site-specific information

The Flamborough and Filey Coast SPA supports the only mainland breeding colony of gannet in the UK. Bempton Cliffs, which forms part of the SPA, was first colonised in the 1960s, and there has been a steady rate of increase since that time. This increase in breeding numbers has become rapid since 2000, with 3,940 “Apparently Occupied Nests” (AONs) counted in 2004, rising to 7,859 AONs in 2009, and 11,061 AONs in 2012. This contrasts with the situation across Britain and Ireland as a whole, where the rate of population growth has dropped in recent years, consistent with the expectation that the rate of increase would plateau. The potential for further growth of the Bempton Cliffs colony is considerable in view of the large number of non-breeding immature birds associated with the colony; 1,470 in 2009, and 798 in 2012. The average (mean) number of nesting pairs from counts taken between 2008 and 2012 was 8,469, representing 2.6% of the North Atlantic biogeographic population.

The breeding season for gannet at Flamborough Head and Filey Coast SPA is typically March to September. Nesting gannet are currently restricted along a 5km stretch at Bempton Cliffs. A single egg is laid in a shallow nest of seaweed on a cliff ledge or on the flat cliff top, and chicks usually begin to hatch in early May.

Many adult birds remain at Bempton Cliffs for a while after their chicks have fledged; tracking studies have indicated that most adults depart during the latter half of September, and all adults leave by early October. Gannet start to return to Bempton in mid-January, with these earlier arrivals likely to be birds that stayed in the North Sea over winter, and most birds are back at their nests during March.

Gannet feed exclusively on fish and, during the breeding season, tend to dive for herring, mackerel and sand eels in waters relatively close to the Bempton colony, sometimes seen from their breeding cliffs diving for fish only a mile offshore. However, gannet have also been seen foraging significant distances from the colony during the summer and, as the Bempton colony grows in size, it might be expected that foraging ranges will increase owing to increased intraspecific competition. As well as foraging, at sea activity includes a mix of loafing, preening, bathing and flight activity, all important maintenance behaviours. During the hours of darkness off-duty gannet are thought to be resting on the surface.

Sources of information are cited on NE [Site Search \(naturalengland.org.uk\)](http://naturalengland.org.uk).

Potential supporting habitats:

- vegetated sea cliffs of the Atlantic and Baltic coasts
- water column

3.20. Puffin (*Fratercula arctica*)

This is a listed feature of the following site of relevance to this HRAR:

- Flamborough and Filey Coast SPA

It should be noted that the puffin is not listed as a feature in its own right for this site, but comes under the 'Seabird assemblage, breeding' feature.

The following information regarding this feature is taken from the NE [Site Search \(naturalengland.org.uk\)](https://naturalengland.org.uk) which was accessed in January 2022.

3.20.1. Description and ecological characteristics

The Atlantic puffin is the most instantly recognisable and popular of all North Atlantic seabirds. It breeds in the North Atlantic and the adjacent Arctic Ocean, with strongholds in Iceland and Norway. Around 10% of the population breed around Britain and Ireland, where it is the second most abundant breeding seabird. Atlantic puffins are pelagic and we are still largely ignorant of where they spend their time away from the colony. Those from north-western Britain disperse widely outside the breeding season, as far as Newfoundland in the west and the Canary Islands to the south and even into the Mediterranean as far east as Italy. In contrast, most of those from colonies in eastern Britain remain within the North Sea, although in recent decades some have dispersed as far as the Bay of Biscay.

Atlantic puffins typically nest underground in burrows dug in the soil of offshore islands, but where such habitat is sparse, they nest among boulder screes or at low densities in cracks in sheer cliffs. The species is highly colonial and most colonies occur where the nesting birds are safe from mammalian predators. However, during the breeding season, a colony can appear deserted during the middle of the day since most birds are either in their burrows or out at sea feeding. At other times, awe-inspiring numbers can be seen standing on the slopes, bobbing around on the sea or flying in vast wheels over the colony. Chicks are fed on small fish that the adult carries cross-wise in its beak. In the UK, the commonest prey is the lesser sandeel, followed by sprat, herring and a wide range of small juvenile gadoid fish. Fish are caught by underwater pursuit, usually several at a time.

3.21. Kittiwake (*Rissa tridactyla*)

This is a listed feature of the following site:

- Flamborough and Filey Coast SPA

The following information regarding this feature is taken from the NE [Site Search \(naturalengland.org.uk\)](https://naturalengland.org.uk) which was accessed in January 2022.

3.21.1. Description and ecological characteristics

As well as being the most numerous species of gull in the world, the black-legged kittiwake is the most oceanic in its habits and most adapted to nesting on vertical rocky sea-cliffs. In Britain and Ireland, the largest and most numerous colonies are found along the North Sea coasts of Britain, around Orkney and Shetland, and off north-west Scotland. Colony size varies from less than 10 pairs to tens of thousands, but the locations of colonies tend to be traditional over many decades. Although most colonies are on sheer cliffs, in a few instances man-made structures such as buildings, bridges, sea walls and even offshore oil installations have been utilised. During the breeding season, black-legged kittiwakes feed mainly on small pelagic shoaling fish; around the British Isles these consist of energy-rich species such as sandeels, sprats and young herring. However, kittiwakes will also scavenge for offal and discards around fishing boats, which can be an important food source in years when their preferred prey species are less abundant. Outside the breeding season the species is essentially oceanic, and it is probable that populations from many different breeding localities mix together in the North Atlantic and North Sea during winter, with some birds from British and Irish colonies (especially first-winter and immature birds) spending time off the eastern seaboard of North America.

3.21.2. Site-specific information

The Flamborough and Filey Coast SPA supports internationally important populations of migratory kittiwake and contains the largest kittiwake colony in the UK. The first complete census of kittiwake was made in 1969 to 1970 and the results showed that the Bempton-Flamborough colonies held 30,800 pairs. The original Flamborough Head and Bempton Cliffs SPA was designated with 83,700 breeding pairs, based on a count carried out in 1987. The number of nesting pairs during the Seabird 2000 census was recorded as 42,380, representing around 10% of the UK population. The population then fell by a further 11% to 37,617 in 2008, representing an overall decline of 55% over a period of 21 years. Between 2008 and 2011, the site supported an average of 44,520 pairs of kittiwake and, despite the overall decline, the site still holds 2% of the North Atlantic biogeographic population. This decline in kittiwake numbers reflects declines at a national level.

The breeding season for kittiwake at Flamborough Head and Filey Coast SPA starts in March. Kittiwake nest throughout the SPA, with the main concentrations around Bempton Cliffs and Breil Newk. The kittiwake utilises the sheerest of cliff faces for nesting, exploiting the tiniest of outcrops to build their small platform nests formed from mud, grass and seaweed. Eggs are usually laid in May, with clutch size generally 2 eggs. Chicks hatch in June, with most young fully fledged by the end of July/early August and the kittiwake usually leaves the site by the end of August.

When not attending the nesting platform, kittiwake use the sea below the cliffs for loafing, preening, bathing and other important maintenance behaviours. The highest densities of birds at sea can be found within 1km of the colony during the breeding season. However, kittiwake will forage significant distances offshore; studies at other colonies recorded single trips of 150km and an average (mean) foraging range of 24.8 ± 12.1 km has been reported. During the breeding season, kittiwakes feed mainly on small shoaling fish near

the sea surface, such as sandeels, sprats and young herring, as well as invertebrates on the sea surface. Scavenging for offal and discards around fishing boats can also be an important food source in years when their preferred prey species are less abundant.

Sources of information are cited on NE [Site Search \(naturalengland.org.uk\)](https://naturalengland.org.uk).

Potential supporting habitats:

- intertidal rock
- vegetated sea cliffs of the Atlantic and Baltic coasts
- water column

References

ENVIRONMENT AGENCY, 2022.

Environment Agency, 2022. Annex 1 Relevant Site Plans for Proposed Sizewell C Nuclear Power Station. Bristol: Environment Agency.

Find [information regarding three new environmental permit applications for the proposed Sizewell C power station site](#) on the Citizen Space website.

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