Chapter 5 Nature Conservation and Landscape

Guiding Principles:

Chapter 4 details all the guiding principles relevant to the overall management of the Harbour. Whilst all should be given some consideration the following are of particular relevance to nature conservation and landscape.

Key Guiding Principle numbers: 1, 2, 3, 4, 5, 6 and 7.

5.1 Overview

Poole Harbour and its environs has long been recognised both nationally and internationally as being of high biological importance and is one of the largest examples of an estuary with an enclosed lagoonal character in Britain.

The Harbour is mostly shallow and contains a high proportion of intertidal saltmarshes and mudflats. These give way to freshwater marshes, reed beds and wet grasslands on low, poorly drained land above the tidal level, and also transitions to heathland on higher sandy ground and heathland mires in small tributary valleys. Figure 1 shows the approximate extent of and the location of these aquatic habitats within the Harbour.

The wetland habitats fringing the Harbour support large numbers of wintering, migrating and breeding birds along with many rare and uncommon plants and invertebrates. The Harbour bed is important for marine invertebrates such as sponges, tube worms, sea squirts and sea mats, including some that are rare around Britain's shoreline. Areas of heathland support further rare and uncommon birds, invertebrates and reptiles, while pine woodland on some of the Harbour's islands are of national importance for some of England's last surviving populations of red squirrel.

This range of estuarine, wetland and heathland habitats, their large extent and the rare plants and animals they support, together with the large variety and number of birds, means Poole Harbour is recognised as being of national and international importance and the area holds a number of statutory designations which serve to protect the natural environment. Poole Harbour is designated a Site of Special Scientific Interest (SSSI) a Special Protected Area (SPA) and a Ramsar site. The heathlands surrounding the Harbour have been designated a Special Area of Conservation (SAC). SPAs along with SACs make up what are termed Natura 2000 sites, which represent a network of protected sites established under the EU Birds and Habitats Directives. The Harbour also contains a few small Sites of Nature Conservation Interest (SNCI) which although non-statutory do enjoy some planning protection. In addition it is recognised as part of the Poole Bay and Isle of Purbeck Sensitive Marine Area (SMA). Some areas of the Harbour have also been declared Local and National Nature Reserves. There are three Regionally Important Geological Sites within the Harbour: two on Brownsea Island and the third at Shipstal Point. The Harbour is also within an area recognised for its landscape value and part of the Purbeck Heritage Coast and part of an Area of Outstanding Natural Beauty (AONB). The AONB boundary follows that of Purbeck District Councils and includes all the islands of the Harbour as well as much of the water area. The AONB has a statutory management plan and it is hoped that future initiatives will draw on objectives from both this and the Aquatic Management Plan to promote a more integrated approach to the management of the Harbour and its hinterland. Definitions for the various designations are given in Appendix 4, but details of the principal designations of SSSI, Ramsar site and SPA are given below.

5.2 Local Plans and Policies

The Central Government's Planning Policy Statement Note 9: Biodiversity and Geological Conservation, states that local plans should identify relevant international, national and local nature conservation interests and ensure that the protection and enhancement of those interests is properly

Figure 1: Map showing the approximate extent and location of the intertidal habitats of Poole Harbour.

provided for in development and land-use policies. These should place particular attention on the strength of protection afforded to international designations. Local planning authorities are required to consult with Natural England over applications in consultation areas defined by Natural England around sites of national or international importance.

5.3 Site of Special Scientific Interest, (SSSI)

Poole Harbour was notified on 6th September 1991 under the Wildlife & Countryside Act 1981 as a Site of Special Scientific Interest (SSSI) and is now protected by the provisions of Part II of the Wildlife and Countryside Act 1981 as substituted by Schedule 9 to the Countryside & Rights of Way Act 2000.

The site is of importance for its range of estuarine habitats, which include intertidal mudflats, saltmarsh, swamp and fen habitats. Coastal grazing marsh and lowland heathland also form part of the suite of habitats for which the site is notified.

Protecting and managing the species and habitats for which a SSSI was designated is a shared responsibility and Natural England work closely with landowners and other statutory and non-statutory organizations to ensure they are maintained or restored to a favourable condition.

All public bodies are required to take reasonable steps, consistent with the proper exercise of their functions, to further the conservation and enhancement of the features for which an SSSI has been notified. The legislation also places legal obligations on owners and occupiers of land within the SSSI and on any person in relation to activities that may cause damage to the special interest features of the SSSI, or recklessly disturb any animal which is notified as being of special interest. Section 28 of the Countryside and Rights of Way Act 2000 outlines the responsibilities and obligations of public and statutory bodies when carrying out activities or authorizing works within an SSSI. There is a list of operations and activities likely to damage the features of special interest of Poole Harbour SSSI, which can be obtained from Natural England. The owner or occupier of a SSSI can only allow these activities to occur on their land with the consent of Natural England.

5.4 Ramsar Site

Under the Convention on Wetlands of International Importance, (signed at Ramsar in Iran, in 1971) the UK Government is committed to the conservation and wise use of wetlands of international importance. The UK ratified the Convention in 1976 and has generally chosen to underpin the designation of its Ramsar sites through prior notification of these areas as Sites of Special Scientific Interest (SSSIs) which receive statutory protection as discussed above. Many Ramsar sites in the UK, including Poole Harbour, are also SPAs and are therefore afforded protection under the Conservation (Natural Habitats etc) Regulations 1994. These are the Regulations which translate The European Union Habitats and Birds Directives into law in Great Britain, (hereafter also referred to as the Habitats Regulations in this plan). However, for the purposes of considering development proposals or other uses of land affecting them, the Government applies the same procedures to Ramsar sites as it does to SPAs, even if the Ramsar site was not also a designated Natura 2000 site.

Poole Harbour was designated as a Ramsar site because it:

- regularly supports 20,000 waterfowl
- regularly supports over 1% of the Great Britain population of avocet, black tailed godwit, common tern, Mediterranean gull and shelduck
- supports an appreciable assemblage of rare, vulnerable or endangered species including a nationally scarce hydroid species *Hartlaubella gelatinosa* and nationally rare sponge *Suberites massa*

- is of special value for maintaining the genetic and ecological diversity of a region because of the quality and peculiarities of its flora and fauna including supporting the nationally scarce plants, narrow leaved eelgrass *Zostera augustifolia* and dwarf eelgrass *Zostera noltii.*

5.5 Special Protection Area, (SPA)

The European Birds Directive requires member states to designate SPAs where an area supports significant numbers of wild birds and their habitats. Poole Harbour was designated a SPA in 1999 due to the nationally and internationally important numbers of waterfowl and waders that its habitats support.

Poole Harbour SPA includes both marine areas and land which is not subject to tidal influence. The marine part of the SPA, the intertidal zone, between mean low water and highest astronomical tide, is termed the European Marine Site (EMS).

Poole Harbour was designated a SPA as it supports:

- Internationally important populations of regularly occurring species classified as Annex 1 under the Birds Directive. These are birds that are in danger of extinction, rare or vulnerable and are the subject of special conservation measures concerning their habitat. Annex 1 species in Poole Harbour are the Avocet *(Recurvirostra avosetta),* Mediterranean Gull *(Larus melanocephalus)* and the Common Tern *(Sterna hirundo).*

- Internationally important populations of regularly occurring migratory Black-tailed Godwit *(Limosa limosa),* and Shelduck *(Tadorna tadorna).*

- An internationally important assemblage of waterfowl. The Harbour regularly supports over 20,000 birds.

5.6 Management of SPAs

Under UK legislation the Habitats Regulations form the basis for establishing, protecting and managing SPAs.

Relevant authorities (i.e. those with powers or functions that have or could have an impact on a SPA) must, within their jurisdiction, have regard to both direct and indirect effects of their statutory functions on the nature conservation interests of Poole Harbour SPA as well as cumulative effects. They may need to modify the way in which they exercise their functions so as to maintain the favourable condition of interest features concerned in the long term. There is no requirement for relevant authorities to take any actions outside their statutory functions.

Regulation 48 – Appropriate Assessment

Under Regulation 48 of the Habitat Regulations a competent authority needs to undertake an Appropriate Assessment before proceeding with, or give any consent, permission or other authorisation for, a plan or project which:

a) either alone or in combination with other plans or projects would be likely to have a significant effect on a European site, and

b) is not directly connected with the management of the site for nature conservation

5.7 Management of the European Marine Site

In terms of Poole Harbour, Regulation 33 and 34 of the Habitats Regulations are important as they relate specifically to European Marine Sites.

Regulation 33(2) – English Nature's (Natural England) Advice

Under Regulation 33(2)(a) of The Habitats Regulations 1994, Natural England has a duty to advise other relevant authorities as to:

a) the conservation objectives for the European Marine Site, and

b) any operations which may cause deterioration of natural habitats, the habitats of the species, or disturbance of species, for which the site has been designated.

SPA Nature Conservation Objectives

- Subject to natural change, maintain in favourable condition the habitats for the **internationally important populations of regularly occurring Annex 1 bird species**, under the European Birds Directive, in particular:
  - Shallow inshore waters
  - Intertidal sediment communities
  - Saltmarsh

- Subject to natural change, maintain in favourable condition the habitats for the **Internationally important populations of regularly occurring migratory bird species**, under the European Birds Directive, in particular:
  - Shallow inshore waters
  - Intertidal sediment communities
  - Saltmarsh
  - Reedbed

- Subject to natural change, maintain in favourable condition the habitats for the **internationally important assemblage of waterfowl**, under the Europen Birds Directive, in particular:
  - Shallow inshore waters
  - Intertidal sediment communities
  - Saltmarsh
  - Reedbed

The SPA conservation objectives focus on habitat condition in recognition that bird populations may change as a reflection of national or international trends or events. The conservation objectives refer to maintaining habitats in a favourable condition and the Regulation 33(2) advice document, issued by English Nature, contains a table providing information on how to recognise favourable condition for the features and acts as a basis for the development of a monitoring programme.

Advice on Operations

In pursuit of the conservation objective for the 'habitats supporting internationally important populations of regularly occurring Annex 1 species', the relevant and competent authorities for the Poole Harbour European Marine Site are advised to manage their remit such that they do not result in the deterioration of the habitat of species or significant disturbance to habitats or species for which the site has been selected, through any of the following:

- Physical loss resulting from the removal and smothering of habitats.
- Physical damage resulting from the siltation or abrasion of habitats

- Non physical visual disturbance
- Non physical noise disturbance
- Toxic contamination caused by the introduction of synthetic compounds (e.g. pesticides, TBT etc)
- Toxic contamination caused by the introduction of non - synthetic compounds (e.g. heavy metals)
- Non toxic contamination caused by changes in nutrient loading
- Non toxic contamination caused by changes in organic loading
- Non toxic contamination caused by changes in salinity
- Non toxic contamination caused by changes in turbidity
- Biological disturbance resulting from the selective extraction of species

The regulation 33 advice package issued by English Nature provides examples of the activities that may result in this type of damage or disturbance to the Poole Harbour European Marine Site.

Regulation 34 – Management Scheme

Regulation 34 provides for the establishment of an agreed management scheme for the **European Marine Site** component of Poole Harbour SPA. The management scheme needs to provide the framework through which relevant authorities exercise their functions so as to secure compliance with the Habitats Directive and must be based on English Nature's advice given under Regulation 33 (2) of the Conservation Regulations 1994. It should provide a mechanism for resolving management issues and to set a framework in which activities that occur within a site are managed either voluntarily or through regulation, in order to achieve the conservation objectives of the European Marine Site. Section 2 of this plan contains a matrix, which identifies the interest features of the EMS, issues concerning them and ongoing or proposed management initiatives. As such the Poole Harbour Aquatic Management Plan fulfils the requirements of a Management Scheme for the European Marine Site under Regulation 34.

5.8 Birds of the Harbour

5.8.1 Importance of the Harbour

The Harbour supports a very large number of wintering birds, including many individual species of duck, grebe and wading bird which occur in numbers of national or international importance. The site is also important as a feeding stop for birds on migration in spring and autumn. Additionally, there is a large assemblage of breeding birds, and these include some with small breeding populations in Britain and some which breed in large colonies. The designation of the Harbour as a Ramsar site and SPA demonstrates its importance as a site for wildfowl and wading birds.

5.8.2 Some Notable Species

Annually the Harbour supports over 20,000 wildfowl and waders of around 60 different species, 17 of which are considered to be of national or international importance. The Avocet, Mediterranean Gull and the Common Tern along with the Black-tailed Godwit and Shelduck were recognised as important through the SPA designation.

Numbers of Black-tailed Godwit have steadily increased in recent years with annual peaks of over 2000 being recorded representing around 14% of the UK wintering population. Avocet number have also dramatically increased over the last decade reaching a peak of 1862 birds during the winter of 2001/2002, which represents the largest ever gathering at one site in the UK. Populations of the Mediterranean Gull and also the Black-headed gull are thought to be stable or slightly increasing, as are populations of Common and Sandwich Terns. The Dorset Wildlife Trust in partnership with wildfowling members of the Dorset Wildfowlers Association for Shooting and Conservation, have attracted terns to the Brownsea Island Lagoon by the construction of special breeding islands and continue to manage the Brownsea reserve for the benefit of birds and other wildlife. One relative newcomer to the Harbour is the Little Egret, which has an increasing wintering population and over 40 pairs also now breed on the Brownsea Island reserve.

Shelduck populations however have declined significantly since the late 1990s to a point where the Harbour no longer holds internationally important numbers. Reasons for the decline are not known but follow a national trend. A decline in the numbers of Redshank however, is thought to be linked to habitat change and disturbance during nesting, due to grazing and trampling by Sika Deer.

5.8.3 Monitoring

Populations of birds species within the harbour are closely monitored and good historical records are available which allow trends over several decades to be established. Every month from September to March, Wetland Birds Survey (WeBS) counts are carried out at several locations around the Harbour. These are supported by the RSPB and the Dorset Wildlife Trust, who closely monitor bird numbers on their reserves at Arne and Brownsea Island respectively. Overall trends in all bird populations need to be monitored and reasons for changes understood.

Further information on populations is detailed in various reports published by the Poole Harbour Study Group.

5.8.4 Potential Threats

Populations of some bird species vary significantly over time and have even been seen to fluctuate dramatically from year to year. Variations in abundance are likely to be mainly attributed to changes in habitat, prey availability, or disturbance.

Recreational activities such as windsurfing, water-skiing, wildfowling, the use of personal watercraft and wider access to the foreshore from the land may cause disturbance especially when carried out during the winter months. During the breeding season disturbance to nesting common terns and Mediterranean gulls increases the risk of eggs or chicks to be abandoned and increases the risk of predation. It is possible that the use of the personal watercraft zone to the north of Brownsea Island may be disturbing birds feeding and nesting on the lagoon and beach, as may the illegal landing of craft on the island. Watercraft going close to the breeding gull colony at to the west of Rockley may also cause significant disturbance. Windsurfing at Whitley Lake in the winter may also displace some bird species to other feeding grounds to the south of the Harbour. There is also potential disturbance caused by the use of hovercraft and the overflying of military, coastguard and private helicopters but the latters flight paths are controlled for safety reasons and to minimise noise pollution over populated urban areas. Proposals for increasing coastal access to Poole Harbour from the landward side are also of concern as increased access to important bird roosting and breeding sites could result in significant disturbance. Recreation and tourism are discussed further in Chapter 10.

The activities of shellfishermen and bait collectors may also affect birds, by resulting in a reduction in prey items, a physical change to the substrate that interfers with the foraging behaviour of birds and through direct noise and visual disturbance. A particular concern is when these activities occur in areas of the Harbour that are in or adjacent to prime feeding and roosting sites for overwintering wildfowl and waders. Such activities reduce the available feeding time for birds, which could be critical during periods of severe winter weather. Fisheries and bait collecting is discussed further in Chapter 8.

Both seabirds and wildfowl have the potential to become entangled in litter or fishing gear and a fuller assessment of the significance of this threat is required.

Another concern is the impact of unlawful egg collecting on all species but especially on Black-headed and Mediterranean Gull colonies.

Another potential threat to the bird life in the Harbour is the gradual encroachment of the foreshore by small developments such as jetties and slipways. Small developments not only cause a direct

habitat loss where they have been placed, but the area close to these structures also becomes unavailable for bird feeding because birds usually only feed where they have clear viewlines.

There is concern that people and dogs could cause significant disturbance to birds (such as brent geese and oystercatchers) roosting at high tide in urban greenspaces.

Milder winters due to climate change may have the effect of attracting different species to the Harbour and may also affect the numbers and types of prey species. Rising sea levels can result in changes or loss of the habitat that the birds use to feed and roost. Managing the shoreline in the face of sea level rise is discussed further in Chapter 7. Loss of saltmarsh, which is an important nesting habitat for some species, may be as a result of higher sea level but there is also evidence that Sika deer are causing considerable damage through over grazing and trampling of nests. However there is also evidence that bare mud exposed through over grazing supports increased numbers of some snail species, which in turn attract higher numbers of birds such as Shelduck. Algal mats which can result in a depletion of prey items and interfere with bird foraging behaviour can spread and be more persistent where there is an increase in organic or nutrient loading and may be expected to increase with warmer water temperatures. However in some cases increases in nutrient loading can result in an increase in prey abundance and biomass. Toxic contaminants such as heavy metals could also affect palatability and the abundance of prey items while seabirds are subject to the accumulation of toxins through the food chain.

Overall more research needs to be carried out to help better establish the impacts of human activities, sea level rise and climate change on the bird populations and their habitats and prey. Through better understanding it will be possible to regulate and manage potentially detrimental activities and balance human interests with the need to protect the ornithology of the Harbour.

5.8.5 Bird Sensitive Areas and Anchorage Sensitive Zones

The first Aquatic Management Plan focussed on conflicts between users and birds over the summer, however there is concern that some of these activities are now occurring all year. There is the potential for cumulative impacts on overwintering birds from disturbance from recreational and commercial activities of the Harbour. For example, there is nothing to prevent potentially disturbing activities such as bait digging, wildfowling and sailing occurring in all of the southern bays at the same time. The Quiet Zone to the south of Brownsea Island is already seen as an important area for birds who feed and roost in and around the secluded bays and inlets where speed limits are restricted.

Although the whole Harbour should be recognised as important for its overwintering and breeding bird populations, Figure 2 shows the Bird Sensitive Areas, which have been identified as being of particular importance for resident and migrating birds. During the winter, principally between 1st November and 31st March, it is essential that disturbance in these areas is kept to a minimum in order to give the birds every opportunity to feed and rest. By highlighting these Bird Sensitive Areas it is hoped Harbour users will modify their activities in these areas in the winter (between 1st November and 31st March) and where possible avoid these areas to help alleviate disturbance pressure on the birds. Appendix 5 gives more information as to why these areas are considered as Bird Sensitive Areas.

The recognition of these bays as winter Bird Sensitive Areas is a positive and proactive step to further protecting the important bird life of the Harbour against increasing levels of human activities throughout the winter months. There are however still other potential conflicts between users and the birdlife at other times of the year and in other parts of the Harbour which will need to be addressed through other measures e.g. codes of conduct and other management initiatives.

Figure 2 also shows the shellfish leasebeds, and Anchorage Sensitive Zones which correspond to known areas of eelgrass. There is a public right of navigation within these areas and initiatives need to focus on raising awareness of the importance and location of them and the potential to cause damage by anchoring within them. Shellfish lease beds are areas where mussels and oysters are commercially farmed, while the ecological importance of eel grass beds is discussed below.

5.9 Saltmarsh

5.9.1 The Habitat

Saltmarsh currently covers around 300ha within the Harbour but the extent of this habitat has been in decline for several years. The enclosed nature of the Harbour and its low tidal range, have lead in the past to rapid colonisation by *Spartina anglica.* Saltmarsh is generally considered to be a species poor habitat, being dominated by one or two specialised halophytic species. It is also generally split into three distinct zones of differing species, depending on their tolerance to inundation, but these zones are less apparent within the Harbour due to the low tidal regime. The lower zone, which is made up of mainly *Spartina anglica* and a few other locally dominant species, makes up around 84% of saltmarsh within the Harbour. Saltmarsh acts as a sediment trap and in the past has been used to stabilise mudflats and halt erosion of the foreshore but its current decline has seen the release of substantial quantities of sediment back into the aquatic system.

Natural gulleys and creeks enable the marsh to maintain wet, saline conditions and also provide preferred nesting and feeding sites for breeding waders and wildfowl. The creek systems also play an important role in absorbing tidal energy and reducing pressure on sea defences and any management needs to ensure the natural drainage system of the marsh is maintained.

5.9.2 Potential Threats

The decline of saltmarsh within the Harbour is not unique and follows a national trend. Colonisation of mudflats by *Spartina anglica* generally reached its peak in the early part of the 20th century and it is possible that die-back of *Spartina anglica* is simply a result of the plant reaching the end of its natural life. Many plants within the Harbour are also infected by the ergot fungus which may also be affecting its spread. However retreat has also been linked to sea level rise causing excessive inundation of the marsh and loss may be further exacerbated by invasion of other species from the land. Rates of natural decline may also be accelerated by increased wash from passing vessels, eroding the substrate. More recently the impact of Sika deer on saltmarsh habitat has been investigated. Studies have shown that over grazing and trampling can have a severe detrimental effect on the marsh habitat and the other fauna and flora it supports. However controlled grazing may in fact have some conservation benefits by modifying marsh vegetation to attract different species.

Overall saltmarsh is a valuable habitat both in its own right and also as a habitat for roosting and nesting birds, invertebrates and rare flora. Management initiatives need to protect this declining habitat and further work needs to be carried out to investigate reasons for its decline.

5.10 Reedbed

5.10.1 The Habitat

The reedbeds of the Harbour cover around 174ha, which is about 30% of the total reedbed coverage for the south-west of England. All are designated as SSSIs and are noted for their importance to a range of specialised species, several limited solely to reedbeds. The Harbour reedbeds are used by Marsh Harrier, Cetti's Warbler and the Bearded Tit, while other threatened species such as the Bittern and Water Vole are also occasionally seen and the habitat is important for several species of Wainscot Moth. The reedbed habitat is dominated by the common reed *Phragmites australis* which

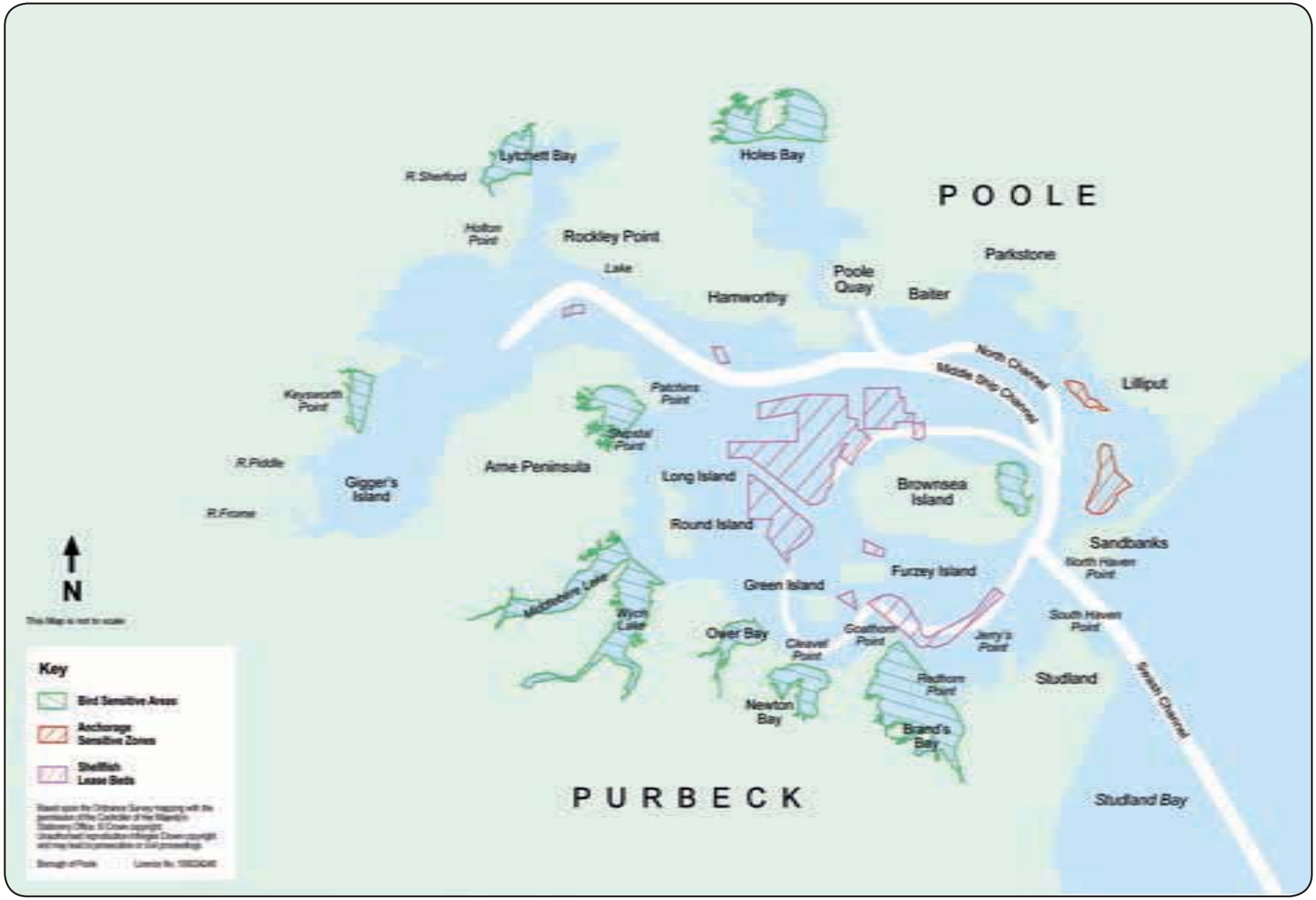

Figure 2: Map showing Bird Sensitive Areas, shellfish leasebeds and zones sensitive to anchorage.

can exists on freshwater or tidal land which is either permanently wet of frequently inundated.

In 2000 a survey of the most significant reedbeds in the Harbour was commissioned by the Purbeck Biodiversity Reedbed Working Group. The study concluded that for the most part they were in good condition and maintained a high biodiversity, however some potential threats to their long-term existence were identified.

5.10.2 Potential Threats

As with saltmarsh, increasing damage due to overgrazing and trampling by deer is seen as a major concern and was evident throughout most of the Harbour. Locally uncontrolled grazing by cattle has also been shown to have a detrimental effect on the habitat. Sea level rise is also expected to change the size and quality of the beds and it is important that reedbeds are given space to migrate landwards as the existing habitat becomes inundated.

Other potential threats include the general drying out of reedbeds and scrub encroachment in freshwater beds.

While some of the reedbed areas, such as at Brownsea Island and Holtons Heath, have management and wildlife monitoring plans in place, many do not. The work for the Purbeck Biodiversity Reedbed Working Group recommends that management plans be drawn up for all reedbeds within the Harbour with more detailed surveying and ongoing monitoring to take place. Future work should seek to increase area of reedbed whilst gaining a better understanding of activities likely to cause it to decline. Initiatives by the RSPB have already seen the expansion of reedbeds in some areas and other landowners need to be made aware of and encouraged to protect this valuable habitat.

5.11 Inter & Subtidal Mudflats

5.11.1 Habitat

The intertidal and subtidal mudflats of the Harbour support rich populations of invertebrate species, which in turn provide a food source for the abundant waders and wildfowl. The different shellfish and bait species are discussed in Chapter 8, while associated with subtidal fine sands of the central Harbour are species-rich communities dominated by beds of the tube worm *Sabella pavonina.* While species diversity is generally low across the whole Harbour it is notable in supporting several rare and restricted marine invertebrates. The sponge *Suberites massa* which is rarely recorded in British waters is locally abundant on suitable substrates, together with an interesting community of Sea Squirts, Ascidians and Sea Mats. Historically the Starlet Sea Anemone, has been recorded in the Blue Lagoon and is a rare species found only in a few similar lagoonal situations, while the mollusc *Aeolidiella sanguinea* is otherwise only recorded in western Ireland.

5.11.2 Potential Threats

The fauna and flora of mudflats within the Harbour are likely to be influenced by environmental change, such as variations in water temperature and salinity. Pollution incidents and turbidity from dredging would also have a direct impact on resident species, while physical disturbance and loss due to shellfish dredging and bait collecting are currently seen as the greatest threat to this habitat.

5.12 Shallow Inshore Water

5.12.1 Habitats

Deepwater channels and open water only comprise approximately 20% of the Harbour area and are generally given less environmental importance than the surrounding bed, intertidal and fringe habitats. However they do support some important fish and crustacean species which play a vital role in maintaining the balanced ecosystem of the Harbour. Many bird species such as ducks, grebes and cormorants also rely on open water as roosting and feeding areas.

5.12.2 Potential Threats

Overwintering wildfowl such as mergansers and grebes feed and roost over the water column in Poole Harbour, while breeding terns hunt over the water column for fish species and there is potential for these birds to be disturbed by human activities (eg watercraft, wind powered craft etc). Brownsea lagoon supports the majority of the Poole Harbour avocet population in the winter and breeding terns in the summer, however the location of the lagoon is unsustainable and is likely to be lost with predicted rises in sea level.

5.13 Eel Grass Beds

5.13.1 The Habitat

The extent of Eel Grass beds within the Harbour is restricted to two main swaths in the Whitley Lake area, although anecdotal evidence suggests that other areas may have been colonised in the past. The beds are made up of *Zostera marina,* which in itself is recognised as being nationally scarce, while the habitat it creates is of international importance and is listed as a UKBAP Priority Habitat. Eel Grass beds are an important resource for a variety of marine, aquatic and bird species. They are used as nursery areas for spawning and juvenile fish, providing protection for these and a large number of invertebrates. They also provide a valuable food resource for grazing invertebrates and wildfowl such as Brent Geese which overwinter in the Harbour. Eel Grass is also an important habitat for seahorses which have recently been recorded at several sites around the Harbour. Both the Spiny Seahorse *(Hippocampus guttulatus)* and the Short Snouted Seahorse *(Hippocampus hippocampus)* have been identified and evidence suggests that the populations are stable and possibly breeding.

5.13.2 Potential Threats

Eel Grass beds are fragile habitats and are susceptible to environmental change. Factors such as increasing water temperatures as a result of climate change and fluctuations in salinity may act to alter growth patterns. Change in water chemistry from pollution and increased turbidity from dredging activity and storm events may also have a detrimental effect on the beds, as could smothering by macro-algal blooms as a result of eutrophication. Currently the main threat is from physical disturbance, with potential damage occurring from anchoring by vessels and by shellfish fishermen running their dredgers through the beds.

The existence and importance of these beds is little known by those outside the conservation community and future management needs to focus on education of Harbour users. Marking their boundary may lead to greater awareness of beds by recreational users and fishermen and may help to protect this valuable habitat. Overall an in depth survey of the Eel Grass within the Harbour is required to better understand the extent and health of this important habitat and to ensure that it is appropriately managed in the future.

5.14 Mammals of the Harbour

The Harbour is considered as an ideal habitat for otters, which were once a common sight. Today however sightings are rare and although there is some evidence to suggest that numbers are once again increasing more work needs to be done to establish the extent of the population in the Harbour. Potential problems for otters include pollution, loss of reedbed habitat and disturbance from increased boat traffic. Otters have also been killed recently in the Harbour, after being caught in illegal fyke nets used to trap eels. Overall more regular surveys need to be carried out and habitat needs to be managed to restore the otters to a viable breeding population in Poole Harbour.

The impact of Sika Deer *(Cervus nippon)* on the saltmarsh habitat has already been discussed and despite culling initiatives to control their numbers, populations have increased significantly over the past few years. It is thought that the deer, which are native to Japan and East Asia, were first released on Brownsea Island around 1900 and further animals escaped from private estates around Wareham. The Isle of Purbeck is now believed to have the largest population of wild Sika Deer in England and it is important that an effective deer management strategy is established in order to protect the delicate intertidal habitats of the Harbour.

Grey Seals are occasionally observed in the Harbour and cetaceans such as Bottle Nosed Dolphins and Harbour Porpoises are also seen infrequently in or just outside the Harbour.

Management Objectives:

The following is a list of the principle management objectives identified. Whilst some are specific to the management of nature conservation and landscape, others may relate to activities and issues discussed in other chapters of this plan. All management objectives can be found in the matrix contained within Section 2, which also lists proposed management actions.

- To ensure that any development can demonstrate no adverse impact on the designated site and fully complies with the Habitat Regulations.
- To investigate appropriate measures to ensure that harvesting activities e.g. bait collecting and shellfishing, do not adversely effect the nature conservation interests of the Harbour.
- To continue deer management initiatives to alleviate damage to saltmarsh and reedbed habitats.
- To ensure appropriate controls are in place that prevent illegal egg collection.
- To ensure litter does not affect the bird interest features of the Harbour.
- To improve communication with all user groups & organisations to explain their potential impacts on the interest features of the EMS.
- To understand the extent and health of eel grass beds within the Harbour and raise awareness of them.
- To monitor the habitats in Poole Harbour and implement management initiatives to ensure their protection and enhancement.
- To promote more research into the impact of human activity and climate change on the bird populations and habitats of Poole Harbour.