

**Jonathan Cox Associates** were commissioned to undertake the following Wader and Wildfowl workshop to inform the North Solent Shoreline Management Plan policy appraisal process and Appropriate Assessment.

# North Solent Wader and Wildfowl High Water & Terrestrial Habitat Use: Workshop Outcomes

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March 2009

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**Jonathan Cox Associates**  
ecological consultancy



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## Introduction

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Planning for the future conservation of the Solent’s migrant waterfowl populations in the face of rising sea levels requires careful consideration and assessment of different coast defence scenarios. The North Solent Shoreline Management Plan (SMP) provides a strategic document in which to start this process. As sea levels rise some sections of the coast will become increasingly threatened by tidal inundation or potentially greater levels of fluvial flooding. In addition, rising sea level will result in the loss of intertidal habitat in front of coast defences due to coastal squeeze. The SMP will consider options for future management of coast defence structures taking account of these changes. In places, defences may be abandoned (no active intervention), in others, there will be a need to maintain the existing line of defences.

Some coast defences may also be deliberately retreated to an inland line. These options will need to be considered within different time scales so that some sections of coast defence may be retained on their existing line for the next 20 years but will be retreated or abandoned in the following 20 years. The SMP has divided the consideration of the future life of coast defences into four time periods or epochs; 0-19 years, 20-49 years, 50-100 years and 100 years+. In proposing options for the future of coast defences, the effects of these for the birds that use these different sections of coast need to be assessed. It is generally understood that intertidal mud, sand and mixed sediment flats all play a vital role in providing feeding habitat for many birds, particularly so at low water. However, in addition to intertidal feeding habitat, the migrant bird populations of the Solent require a range of additional habitats to be able to survive through the winter. At high water, wading birds need sites on which to roost whilst the intertidal flats are under water. These are termed high water wader roosts. Some waders also feed on terrestrial habitats inland of the coast, especially wet grassland and marshes. Although wildfowl do not form roosts in the same way as waders, many of the wintering wildfowl in the Solent move between intertidal and terrestrial habitats often on a daily cycle and utilise freshwater wetlands, wet and flooded grasslands and also drier grasslands and even young arable crops.

The location of these different habitats and their use by the wintering waterfowl populations of the Solent is not well understood, particularly as the pattern of use can vary from year to year due to changing farming practices and weather conditions. Some of the sites used are included within protected areas such as SSSI, SPA or Ramsar sites. However, many have not statutory protection yet play a significant role in the maintenance of the Solent's wintering and passage waterfowl populations.

A workshop was held on Friday 6<sup>th</sup> March 2009 to collate the views of local experts on the use of sites around the north Solent shore by wading birds and wildfowl both as roost sites at high water and as terrestrial feeding habitat. The workshop was split into two halves with the morning session considering sites in the western Solent and the afternoon the sites in the eastern Solent. The workshop was attended by the following:-

Colin Allen (Hythe Marshes WeBS counter)

Ian Watts (Itchen Estuary WeBS counter)

Peter Potts (HCC Royal Victoria CP and wider Solent)

Ivan Lang (Pagham Harbour)

Peter Durnell (HCC Lymington and Keyhaven)

Ed Rowsell (Chichester Harbour Conservancy)

Katherine Rowborough (Langstone Harbour Board)

Chris Cockburn (RSPB Langstone Harbour)

Claire Lambert

Samantha Cope

Andrew Colenutt

Tim Sykes

Jonathan Cox

Comprehensive briefing notes were also received from Mark Larter, NE North Solent NNR.

Attendants at the workshop were invited to give their views on the use of each section of the Solent's coast by waders and wildfowl. This information was recorded on maps and as notes.

This brief report reflects the discussion that took place at the workshop. It initially provides a review of the use by waterfowl of high water roost and terrestrial feeding sites. This is followed by a review of the use of high water roost and terrestrial feeding habitats within each sector of the north Solent shore from Hurst Spit in the west to Pagham Harbour in the east.

Information gathered in the workshop has been collated onto maps. These combine information made available by the Hampshire and Isle of Wight Wildlife Trust with that provided from the workshop attendants. Two sets of maps have been produced. The first of these provides information on wader use and the second on use of terrestrial habitats by dark bellied brent geese and other wildfowl.

The Wildlife Trust's maps provided an assessment of wader roost<sup>1</sup> and brent goose feeding sites<sup>2</sup> based upon observer information including numbers of birds present and frequency of occupation. Sites were graded as follows:-

Red	Major importance
Orange	High importance
Green	Low to moderate importance
Blue	No recorded use

The workshop attendants were asked to grade sites using this same grading system. However, no data was used to distinguish between importance levels. Grading of the sites was therefore based upon the contributors' experience of sites over a number of years.

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<sup>1</sup> NS\_High\_Tide\_Roost\_Wader.pdf

<sup>2</sup> NS\_High\_Tide\_Roost\_Brent.pdf

Due to the range of experience of those present at the Workshops, some parts of the Solent shore were better understood than others. For example, the shoreline between Lymington and Beaulieu was not well known by any of the contributors. This is reflected in the large number of sites with 'no recorded use' on this section of shore.

### **Policy unit assessments**

Using the information provided from the Workshops an assessment was made of potential coast defence policy options for each section of coast<sup>3</sup>. This considered a limited number of standardised options for each coast section; Hold the Line, Retreat the Line or No Active Intervention.

Many of the important waterfowl roost and feeding sites identified from the Workshop are not protected by coast defences and hence were not affected by coast defence options. Offsetting measures for the loss of these sites to sea level rise may be required in the context of site management plans.

It should be possible to provide compensation or mitigation for the loss of the smaller and less complex waterfowl roost and feeding sites that are protected by coast defences. Suggested compensation strategies have been identified in the assessment matrix for these. In most instances, compensation/mitigation would be required across all three time epochs of the Shoreline Management Plan (SMP). Maintaining the line of coast defences in front of these sites is a potential management strategy, however, this approach would be counter to objective of maintaining naturally self sustaining coastlines and it is likely to have other adverse effects on habitats of international importance through coastal squeeze.

For three large and complex sites, it was considered that compensation could not be provided and that coast defences should be maintained for the first epoch of the SMP period to maintain the function of the SPA concerned.

A final assessment for the need to maintain defences in front of individual waterfowl roosting and feeding sites can only be provided following a comprehensive appropriate assessment in which all features of the Natura 2000 sites are assessed against the proposed policy options.

### **Habitat use by waders**

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#### **Selection of roost sites and patterns of use**

As the rising tide covers the intertidal flats wading birds are confined to a smaller area of habitat and will eventually move from their feeding sites to a roost. This may be above high water mark, but often birds will first move to a sub-roost on an area of

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<sup>3</sup> North Solent SMP policy units + wader assessment V2.xls

higher level intertidal composed of shingle, mud banks or saltmarsh. These sub-roosts may be frequently used on neap tides when they can be available throughout most or all of the high tide period. If a sub-roost is covered by the rising tide, birds will move on to their preferred high tide roost. A wide range of habitats are used as high tide roosts. Different species tend to prefer different characteristics so that larger wading birds such as curlew and black tailed godwit will often move to wet coastal fields in flood plains or grazing marshes. Where available, waders such as grey plover, redshank, oystercatcher, dunlin and lapwing will use high level saltmarshes. In Southampton Water and the western Solent, banks of shell and shingle deposited on the outer edge of saltmarshes provide important wader roosts as they remain above water on most states of tide. Undisturbed shingle spits and beaches can also provide important high water roosts, particularly for species such as turnstone and ringed plover. In other parts of the Solent artificial structures provide valuable high water roost sites, for example former coast defences structures and old sea walls, moored boats and pontoons. In Portsmouth Harbour two small concrete pontoons can have up to 5000 tightly packed dunlin roosting on them. In the Hamble, dunlin and turnstone make a lot of use of pontoons for roosting.

A key feature of good roost sites is that they remain undisturbed during the high tide period. If disturbed, birds have to move to alternative roost sites. This can be energetically expensive and may result in birds moving considerable distances or just circling over the water during the high tide period.

Few wader roosts are perfect in all states of the tide and throughout all the year. In storm conditions, birds will seek more sheltered roosts often provided by inland fields and grazing marshes such as at Farlington. On neap tides sub-roosts near to feeding sites can be exploited so reducing commuting time and energy, but on high spring tides higher roosts may be needed. These may be some distance from feeding habitat or subject to more frequent disturbance. For example, on week days, up to 20,000 dunlin may roost at Black Point on Hayling Island, but on weekends, when the sailing club is active and there a more people about, there may be none. Birds disturbed from this site may have to move to Pilsey Island or to Gutner and Verner Common. The oysterbeds on the north west corner of Hayling Island may once have provided a roost for this large flock of waders but increasing levels of disturbance is thought to have had a significant effect on the use of this site.

One of the most significant conclusions arising from the Workshop discussion was that birds need a network of roost sites to over winter in the Solent. The size of individual roosts may not therefore be as important as the maintenance of this network. The network as a whole is very much more valuable than the sum of its individual parts.

### **Roost behaviour in the western Solent**

The comparatively narrow inter-tidal zone in the western Solent limits the area of low water intertidal feeding habitat. It may be that terrestrial wet grassland habitats

are comparatively more important in this part of the Solent as a consequence. Wading birds can generally find sufficient sub-roost and high water roost sites in the vicinity of intertidal feeding sites. In the Lymington to Keyhaven coast, important wader roosts include the chenier banks and saltmarshes between Lymington and Hurst Spit, the undisturbed grazing marshes at Pennington Marsh and the islands and marshes within Normandy Marsh. An important sub-roost is provided by the shingle island that has developed off shore from Oxey Marsh as a result of saltmarsh erosion. The section of coast between Lymington and Thorns Beach has apparently few high water roost sites and further research is needed to determine if the fields along this section are used at high water by roosting waders. It is recommended that further information on this section of the coast be obtained. It is known that chenier banks on the outer edges of the saltmarshes in front of Tanners Lane provide good wader roosts.

In the Beaulieu river there is a largely self contained wader population with birds roosting both on the grazing marshes and shingle spits at the entrance to the estuary and the saltmarshes up the estuary including those upstream of Bucklers Hard. Sub-roosts develop on the outer edge of the marshes at Exbury and by Gins Farm with birds moving inland to the grazing marshes and adjacent fields on both sides of the estuary on spring tides, during storm conditions and when disturbed.

East of the Beaulieu estuary, the Darkwater is used by small numbers of waders as a roost site and small numbers also roost on the shingle banks at Stansore Point.

### **Roosts behaviour within Southampton Water**

Most waders in Southampton Water tend to stay within the estuary, however, there is evidence of grey plover making the significant flight from feeding sites at Dibden Bay to roost at Inchmery at the entrance of the Beaulieu estuary and even as far as the marshes at Pitts Deep east of the Lymington River. Within Southampton Water there is considerable inter-change of birds between feeding sites on Weston Shore, sub-roosts at Hamble Point and in front of the Hamble Oil terminal and high water roosts on the shingle banks and saltmarshes between Hythe and Fawley. There is also a movement of redshank from Weston shore to roost sites in the Itchen Estuary where pontoons, moored barges, jetties and other artificial structures are used. In the Hamble Estuary, waders move to saltmarsh roosts at Hacketts Marsh and adjacent to Bunny Meadows on the east side of the estuary. The grazing marshes and shingle features at the entrance to the estuary such as those at Hook Links also important.

### **Roost behaviour in Portsmouth Harbour**

In Portsmouth Harbour, the lack of good high water roost sites may be limiting the numbers of intertidal feeding birds. Significant roost sites are provided by the saltmarshes and grasslands within RNAD Gosport, the firing range at Tipner Island, Peewit Island (Hampshire Wildlife Trust reserve) the sea wall at the entrance to the harbour at HMS Dolphin and pontoons and other artificial structures in Fareham



Creek. Several of these roosts are regularly disturbed and there is thought to be a significant movement of birds from Portsmouth to Langstone Harbour when roosts in Portsmouth are disturbed or unavailable.

### **Roost behaviour in Langstone Harbour**

Wader roosts in Langstone Harbour have changed in recent years. The old sea walls around the Oyster Beds on Hayling Island were once a very important site, but these have declined in value, probably due to excessive disturbance. Farlington Marshes still provides a valuable roost site, particularly during storm conditions. Islands in the Harbour, particularly the more mature saltmarsh islands such as Baker's Island, are also valuable roost sites. The Kench at the entrance of the Harbour is a very significant sub-roost and high tide roost with birds congregating on the intertidal moving to the adjoining shingle beaches, although these are very vulnerable to disturbance. Elsewhere harbour edge fields on the western side of Hayling Island and some amenity grass areas on the eastern side of Portsea Island are also used.

### **Roost behaviour in Chichester Harbour**

Chichester Harbour is the largest and most complex estuary in the Solent system. Waders can remain within the Harbour but there is also thought to be regular interchange of birds with Langstone Harbour and with Pagham Harbour. Large and important roosts occur at Black Point, the Gutner Point/Verner Common area, Pilsey Sands and Island, Thorney Island and small shingle spits along the eastern shore of the Harbour such as at Ella Nore Point. Other significant grassland and terrestrial roosts occur at Tournembury Marsh and at West Wittering. Saltmarsh roosts occur at Northney and along the fringes of the Bosham channel.

### **Roost behaviour in Pagham Harbour**

The relatively high level saltmarshes in Pagham Harbour provide good wader roost sites, especially artificially raised areas in the marshes which have 60-70 curlew, 100 Black-tailed godwit, lapwing and all the avocet in harbour (up to 15). Old concrete war-time structures also provide roost sites.

Saltmarshes at Bremere in the north of the Harbour are used by roosting waders in particular increasing numbers of knot (up to 900). These may move inland to fields at Bremere Rife where lapwing numbers in February to March reach 3-5000 and golden plover 2000. The shingle spit on the south side of harbour entrance is growing. As well as providing tern nest sites, this spit provides a wader roost for knot, 4-500 dunlin, grey plover, ringed plover and 300-400 turnstone. This site is especially important on big tides when birds cannot use the saltmarsh roosts. Other important big tide roosts are provided by the fields at Bremere where lapwing, golden plover, black tailed godwit and curlew move.

At Broad Rife flows from the sewage works create good summer pools by Ferry Field used by about 70 black tailed godwit. Fields inland of the sea wall at Sidlesham are also very good for wigeon and wintering curlew. These were

maintained wet by a breach in the old sea wall, but loss of the public right of way has resulted in the repair of the breach so limiting the potential for saltmarsh creation.

### **Terrestrial feeding sites**

Coastal grasslands occur as coastal grazing marshes, as flood plain grasslands along river valleys and as terrestrial fields by the coast. These three different types of grassland habitat provide different habitats for wintering waterfowl.

Coastal grazing marshes have developed on former saltmarshes that have been reclaimed for agricultural use. They are frequently flooded in winter by a mix of fresh and saline water. Their value for wintering waterfowl is very dependent upon the vegetation they support. This can be excellent for waders and wildfowl if the grassland is grazed to maintain a low even sward and scrub development is limited. However, many grazing marshes have a rather tall rushy pasture and frequent scattered scrub. Whereas these diversify the habitat they also reduce their attractiveness for waders and wildfowl that prefer a more open habitat structure. Grazing marshes are frequently crossed and fringed by open water areas, either as ditches or dykes or more frequently as saline lagoons or ponds inland of sea walls. These can provide very important wader and wildfowl roosts and feeding sites, especially during high tide and storm conditions. Important coastal grazing marshes occur throughout the north Solent shore from Lymington and Keyhaven in the west, the Beaulieu Estuary, Farlington Marshes, Northney Marsh, Tournerbury Marsh, Thorney Island and around Pagham Harbour. All grazing marshes are dependent upon coast defences to protect them from tidal inundation and all are threatened by sea level rise.

A number of streams and rivers flow into the Solent. The flood plain of these forms wet grassland habitats ranging from fresh to saline in influence depending upon proximity to the sea and the effect of coast defence structures at the outfall of the stream or river. In places, the flood plain of these rivers and streams has developed into reed beds or tall fen habitats that do not attract significant numbers of wintering waterfowl and few waders. However, where the flood plain has been maintained as grassland they can attract significant numbers of both roosting and feeding waders and wildfowl. Important river valley wet grasslands occur along the Avon Water at Keyhaven, the Darkwater Valley, Lower Test, Titchfield Haven and the upper reaches of Chichester and Pagham Harbours.

Coastal grassland fields can be wet after heavy rain when they may attract appreciable numbers of feeding wading and roosting birds, particularly curlew, black tailed godwit, lapwing, golden plover and oystercatcher. Other coastal fields tend to be much better draining but can also be valuable to waders as roost sites. Important groups of coastal grassland fields occur inland of the Lymington to Keyhaven marshes, at the entrance to the Beaulieu estuary along the shore between the Hamble and Gosport, in several places within the urban matrix of Fareham and

Portsmouth, the west side of Hayling Island and in many places around Chichester and Pagham Harbours. Many of these fields are also used by feeding dark bellied brent geese.

### **Habitat use by Dark bellied brent goose and other wildfowl**

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Dark bellied brent geese have adapted to feed extensively on grasslands and winter cereal crops. These tend to be close to the intertidal but can be several kilometres inland from the coast. Selection of fields in which to feed is based upon a number of characteristics including openness of the landscape, frequency of disturbance and most importantly, nutritional value of the grassland or cereal crop. Flocks of brent geese will tend to select fields with grasses of highest nutritional value. They tend to avoid flooded or very wet fields. Decisions on coast defence options will not generally have a very significant impact on brent goose feeding fields as these tend to be at a relatively high level above normal tidal inundation. Due to the type of grassland preferred by brent geese these sort of fields are often of little intrinsic nature conservation value, although there are a few exceptions to this.

By contrast, fields used by other species of wintering wildfowl tend to consist of wet grassland in close association with areas of open water. These can occur within coastal grazing marshes and river flood plains but tend not to be found in other terrestrial fields. These wet grassland fields can be heavily used by wigeon and teal together with pintail, shelduck and shoveler. Important sites include Pennington Marshes, Normandy Marsh, Beaulieu grazing marshes, Lower Test marshes, Dibden Reclaim, Titchfield Haven, Fields inland of Hook with Warsash, Farlington Marsh, Thorney Island and wet fields at West Wittering and around Pagham Harbour. Many of these wet grasslands are used by wildfowl feeding at night when they presumably feel safe from predation and are free from disturbance. The classic example of this is the Dibden Reclaim although others occur for example fields inland of Hook Links. During the day, birds fly out from these wet grasslands to roost on nearby saltmarshes. Wildfowl feeding at night at Dibden Reclaim leave at dawn to move north to Eling and Bury marshes and south to the Hythe to Calshot saltmarshes. A similar pattern of movement has been recorded around the Hamble entrance where wildfowl feeding at night on fields inland of Hook and Warsash move to Hook Links and the Hamble estuary during the day. Coast defence options can have a very significant effect on the use of these wet grazing marshes by large numbers of wintering waterfowl as well as waders.

### **Potential for roost and feeding site recreation**

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The most important wader roost and waterfowl feeding sites in the Solent are those that are large and have a diversity of habitat including extensive areas of open wet and drier grassland, permanent and temporary open water, reed bed and swamp and transitions from fresh to saline conditions. These large and complex sites are

difficult or impossible to compensate for within the Solent region due to the wide range of factors needed to make them function. Many of these large and complex terrestrial (non-intertidal) waterfowl roosting and feeding sites are protected behind sea walls as coastal grazing marshes. There is a need to protect the most important of these from coastal inundation in the short term. In the medium to long term, it will become increasingly unsustainable to protect these sites.

Sites with the greatest potential for providing replacement for these large sites are within the flood plains of the many tributaries to the Solent. Tidal inundation of these river valleys is often controlled through the installation of sluice structures but removal or modification of these can provide opportunities to create replacement habitat.

Smaller wader roost sites can be compensated for more easily is part of the process of coastal re-alignment. Old sea walls for example can be managed to provide good high water roosting habitat as well as breeding sites for Annex 1 and other coastal birds.

In some cases, habitat management can be used to create alternative roost sites. This might take the form of vegetation management through the removal of scrub and woodland to create open habitat conditions, mowing or grazing or tall grassland or the control of visitor access to remove disturbance. These management measures will improve the quality of the habitat as well as its function as a wader roost or nesting site.

Artificial roost and breeding sites can be created by mooring pontoons and floating platforms within estuaries. These will be used by birds but it is questionable whether such artificial sites are of the same ecological value as sites that are natural components of an estuary ecosystem.

Habitat modification has also been suggested as an alternative method of providing replacement wader roosts; for example, placing shingle on saltmarsh islands to raise their profile. As with the use of pontoons and floating rafts the deposition of shingle will result in the damage or loss of internationally important habitats within designated sites and may be considered a last resort if other more sustainable and less damaging alternatives are not available.

## **Summary and conclusions**

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As the tide rises, wading birds are forced to move from their intertidal feeding habitat to roost through the high water period. A wide range of habitats are used as high water wader roosts ranging from natural saltmarshes and shingle deposits to coastal grazing marshes and wet grasslands and artificial features such as old sea walls and pontoons. Different species of waders prefer different types of roost site and will move between roosts depending on a range of environmental factors including weather conditions, tide state and disturbance. Few wader roosts provide

perfect conditions for roosting at all times. To ensure waders can maintain their population and distribution within the Solent, a network of roost sites is required to meet these varying conditions. The maintenance of this network is therefore more important than the conservation of individual roost sites; the whole is of greater value than the sum of its individual parts.

Some wader roosts are also used by waterfowl (waders and wildfowl) for feeding. These tend to be wet grasslands either within coastal grazing marshes, flood plains or other poorly draining fields. These terrestrial feeding sites (as opposed to intertidal sites) can be used by birds at all states of the tide. Their use is related to soils wetness and extent of surface water flooding as well as weather conditions and tidal state. The most important and most difficult to compensate wader roosts also provide feeding habitat for waterfowl. Where there are transitions from fresh to saline conditions and mosaics open grassland open water, marsh and swamp the greater habitat diversity is reflected in a greater diversity of species that are able to use the site and greater numbers of birds. Some waterfowl, for example wigeon, require a combination of open water and short open grassland to feed upon whilst others such as teal and pintail are dabbling ducks and tend to feed on flooded areas of grazing marshes and other wet grasslands.

Dark-bellied brent geese are unusual in the context of the Solent's waterfowl populations in that they will commonly feed on terrestrial grasslands and arable crops that are not attractive to other species. These brent goose feeding sites are selected for the nutritional value of the grass so that agriculturally improved grasslands, leys and arable crops are often preferred. Wetness and the provision of open water is not important. However, access to fresh water is required for drinking and preening and flocks of brent geese will fly to freshwater for these purposes, for example, the small freshwater stream that outfalls across the intertidal on the Brownwich shore.

When considering the functioning of wader roosts and terrestrial feeding sites in the Solent it is important to understand the inter-relationship between the bird populations in its constituent SPAs. The classification of these sites was undertaken to meet administrative necessities and do not reflect individual ecological units. This is particularly apparent in relationship to Portsmouth Harbour SPA. This site provides an important habitat in the conservation of the wider Solent migrant waterfowl populations although it only qualifies for selection as a SPA for a few species. Assessment of the effects of any development on the Solent's SPA therefore need to consider affects both 'on site' and 'off-site' to take account of this wider functionality.

## Summary of wader roosts within the North Solent SMP

Policy Units		SMP Management Unit		Wader roosts and wildfowl feeding sites identified from workshops <sup>4</sup>
		From	To	
Hurst Spit		Hurst Beach	Hurst Spit Castle Point	Important wader roosts associated with saltmarshes in particular chernier banks on outer saltmarsh edge
		Hurst Spit Castle Point	Hurst Spit North Point	
		Hurst Spit North Point	Saltgrass lane	
Saltgrass Lane	Lymington Yacht Haven	Saltgrass lane	Lymington Yacht Haven	Grazing marshes and saline lagoons provide important wader/wildfowl roosts and feeding sites  Important wader roosts associated with saltmarshes in particular chernier banks on outer saltmarsh edge
Lymington Yacht Haven	Elmers Court	Lymington River	Lymington River	Important wader roosts associated with saltmarshes in particular chernier banks on outer saltmarsh edge

<sup>4</sup> This column provides a brief summary of the habitats and use of these by waterfowl from the SPAs. It makes no reference to the relationship between the use of sites as roosts or for terrestrial feeding by waterfowl and the threat to these from sea level rise and marine inundation as a consequence of any coast defence policy option. It includes 'natural' sites on saltmarshes and shingle structures as well as artificial sites on sea walls and pontoons as well as sites such as grazing marshes that are dependent upon the maintenance of sea defences. Sites that are likely to need protection through maintenance of coast defences are identified as 'red' sites in SMP policy units + wader assessment V2.xls. The loss of these sites through coastal inundation would be likely to have adverse effects on the integrity of the SPA and would be difficult or impossible to compensate for. 'orange' sites are also important and their loss through coastal inundation would need to be compensated for but this is likely to be possible. 'yellow' sites are also important to the functioning of the SPA, but they are located on natural features such as chenier banks and saltmarshes whose conservation is not related to the management of coast defences.

Policy Units		SMP Management Unit		Wader roosts and wildfowl feeding sites identified from workshops <sup>4</sup>
Elmers Court	Lepe	Elmers Court	Pitts Deep	High importance roost on saltmarshes subject to erosion
		Pitts Deep	Warren Beach Cottage	High importance roost on saltmarshes subject to erosion
		Warren Beach Cottage	Gull Island	<p>Grazing marshes provide important wader and wildfowl roost and feeding sites.</p> <p>Major roosts on intertidal saltmarsh and associated shingle spits subject to erosion and coastal processes</p>
		Gull Island	Beaulieu River	<p>Grazing marshes provide important wader and wildfowl roost and feeding sites.</p> <p>Major roosts on intertidal saltmarsh and associated shingle spits subject to erosion and coastal processes</p>
		Inchmery	Lepe	<p>Major roosts on intertidal saltmarsh subject to erosion and coastal processes.</p> <p>Fields inland of coast provide important high tide roosts and wildfowl feeding habitat</p>

Policy Units		SMP Management Unit		Wader roosts and wildfowl feeding sites identified from workshops <sup>4</sup>
Lepe	Bourne Gap	Lepe	Stone Point	Major roost at Inchmery on shingle bank.  High importance roosts in Darkwater Valley
		Stone Point	Bourne Gap	No significant roosts known
Bourne Gap	Hillhead, Calshot	Bourne Gap	Hillhead	No significant roosts known
		Hillhead	Calshot Spit	Part of Major roost on shingle spit
Calshot Spit		Calshot Spit	Calshot Spit (jetty)	Part of Major roost on shingle spit
Calshot Spit	Fawley Power station	Calshot Spit (jetty)	Lee Of Calshot Spit	Major roost associated with chenier banks on outer edge of eroding saltmarshes
		Lee of Calshot Spit	Fawley Power station	Major roost associated with chenier banks on outer edge of eroding saltmarshes
Fawley Power station	Fawley Oil Refinery	Fawley Power station	Fawley Power station	Major roost associated with chenier banks on outer edge of eroding saltmarshes
		Fawley Power station	Fawley Oil Refinery	Major roost associated with chenier banks on outer edge of eroding saltmarshes
		Fawley Oil Refinery	Fawley Oil Refinery	Major roost associated with chenier banks on outer edge of eroding saltmarshes
Fawley Oil Refinery	Hythe Sailing Club	Fawley Oil Refinery	Hythe Sailing Club	Major roost associated with chenier banks on outer edge of eroding saltmarshes



Policy Units		SMP Management Unit		Wader roosts and wildfowl feeding sites identified from workshops <sup>4</sup>
Hythe Sailing Club	Hythe Marina	Hythe Sailing Club	Hythe Marina	No Roosts need protection or compensation
Hythe Marina	Marchwood Military Port (Dibden Bay)	Hythe Marina	Marchwood Military Port	Wader roost and major wildfowl feeding site on Dibden Reclaim
Marchwood Military Port	Marchwood Power Station	Marchwood Military Port	Cracknore Hard	No major roosts although small numbers of birds on structures and moored boats
		Cracknore Hard	Royal Navy Armaments Depot	No major roosts although small numbers of birds on structures and moored boats
Marchwood Power Station	Eling Creek	Royal Navy Armaments Depot	Eling Creek	Major roost on eroding saltmarshes at Bury Marshes
Eling Creek	Redbridge	Eling Creek	Redbridge	Major roost on saltmarshes at Eling Marsh
Lower Test Valley		Redbridge	Southampton Port	Lower Test marshes provides important roosts and feeding site for waterfowl subject to natural coastal processes
Redbridge	Ocean Village	Southampton Port	Ocean Village	No Roosts need protection or compensation
Ocean Village	Woodmill Lane	Ocean Village	Woodmill Lane Bridge	No Roosts need protection or compensation
		Woodmill Lane Bridge	Cobden Bridge	Important roosts on structures in River Itchen not protected by coast defences

<b>Policy Units</b>		<b>SMP Management Unit</b>		<b>Wader roosts and wildfowl feeding sites identified from workshops<sup>4</sup></b>
Woodmill Lane	Weston Point	Cobden Bridge	Weston Point	Important roosts on structures in River Itchen not protected by coast defences
Weston Point	Netley Castle	Weston Point	Netley Castle	High-Medium roosts on shingle beaches and inland fields
Netley Castle	Netley Hard	Netley Castle	Netley Hard	High-Medium roosts on shingle beaches and inland fields
Netley Hard	Cliff House	Netley Hard	Cliff House	High-Medium roosts on shingle beaches and inland fields.
Cliff House	Ensign Industrial Park	Cliff House	Ensign Industrial Park	High-Medium roosts on shingle beaches and inland fields.
Ensign Industrial Park/Hamble Oil Terminal	Hamble Common Point	Ensign Industrial Park	Hamble Oil Terminal	High-Medium roosts on shingle beaches and inland fields.
		Hamble Oil Terminal	Hamble Common Point	Major-High important roosts on intertidal shingle and saltmarsh
Hamble Common Point	Satchell Marshes	Hamble Common Point	Satchell Marshes	Major-High important roosts on intertidal saltmarsh
Satchell Marshes	Crableck Marina	Satchell Marshes	Badnam Creek	Major-High important roosts on intertidal saltmarsh
		Badnam Creek	Lands End Lane	Major-High important roosts on intertidal saltmarsh

Policy Units		SMP Management Unit		Wader roosts and wildfowl feeding sites identified from workshops <sup>4</sup>
		Lands End Lane	Swanwick Shore Road	Major-High important roosts on intertidal saltmarsh
		Swanwick Shore Road	Crableck Marina	Major-High important roosts on intertidal saltmarsh
Crableck Marina		Crableck Marina	Crableck Marina	Major-High important roosts on intertidal saltmarsh
Crableck Marina	Warsash North	Crableck Marina	Warsash North	Major-High importance roosts on old sea wall and saltmarshes
Warsash North	Hook Park	Warsash North	Hook Park	High importance roost inside Hook Spit on Hook Links
Hook Park	Meon Road, Titchfield Haven	Hook Park	Solent Breezes	High importance roost inside Hook Spit on Hook Links
		Solent Breezes	Hill Head Harbour	No roosts
Meon Road, Titchfield Haven	Lee-on-the Solent	Hill Head Harbour	Lee-on-the Solent	High importance roosts and waterfowl feeding site in Titchfield Haven
Lee-on-the Solent	No 2 Battery	Browndown Ranges	Fort Gilkicker	No important roosts
No 2 Battery	Alver Lane	Fort Gilkicker	Portsmouth Harbour Entrance	No important roosts
Alver Lane	Gilkicker Point			No important roosts

Policy Units		SMP Management Unit		Wader roosts and wildfowl feeding sites identified from workshops <sup>4</sup>
Gilkicker Point	Portsmouth Harbour entrance			Major roost on sea wall at Harbour entrance
Portsmouth Harbour entrance (west)	Quay Lane (MOD boundary)	Entrance to Portsmouth Harbour (west)	Quay Lane (MOD boundary)	Roosts at Cockle Point. Others on shingle islands and saltmarsh in the Harbour
Quay Lane (MOD boundary)	Fleetlands (MOD Boundary)	Quay Lane (MOD boundary)	Fleetlands (MOD Boundary)	Major roosts on structures and within RNAD Gosport
Fleetlands (MOD boundary)	A27	Fleetlands (MOD boundary)	A27	No important roosts
A27	Cador Drive	A27	Cador Drive	High importance roosts on terrestrial grasslands at Cams Hall
Cador Drive	Horsea Island (MOD boundary)	Cador Drive	Horsea Island (MOD boundary)	High importance roosts on foreshore and edge fields
Horsea Island	M275	Horsea Island	M275	High importance roost on waste site
M275	Farlington Marshes (west)	M275	Farlington Marshes (west)	No important roosts
Farlington Marshes (west)	Farlington Marshes (east)	Farlington Marshes (west)	Farlington Marshes (east)	Major importance roost and waterfowl feeding site on Farlington Marshes and associated islands

Policy Units		SMP Management Unit		Wader roosts and wildfowl feeding sites identified from workshops <sup>4</sup>
Farlington Marshes (east)	Southmoor Lane	Farlington Marshes (east)	Wade Lane	Medium roosts along shore
Southmoor Lane	Wade Lane			Medium roosts
Wade Lane	Maisemore Gardens	Wade Lane	Maisemore Gardens	High importance roosts
Maisemore Gardens	Emsworth Yacht Haven	Maisemore Gardens	Emsworth Yacht Haven	No important roosts
Emsworth Yacht Haven	Chidham Point	Emsworth Yacht Haven	Wickor Point (MOD boundary)	Major importance roosts and waterfowl feeding site on Thorney Island
Chidham Point	west of Cobnor Point	Wickor Point (MOD boundary)	Prinsted Point (MOD boundary)	No important roosts
west of Cobnor Point	Bosham	Prinsted Point (MOD boundary)	Prinsted	Major roosts on sea wall
		Prinsted	Bosham	Major roosts on sea wall

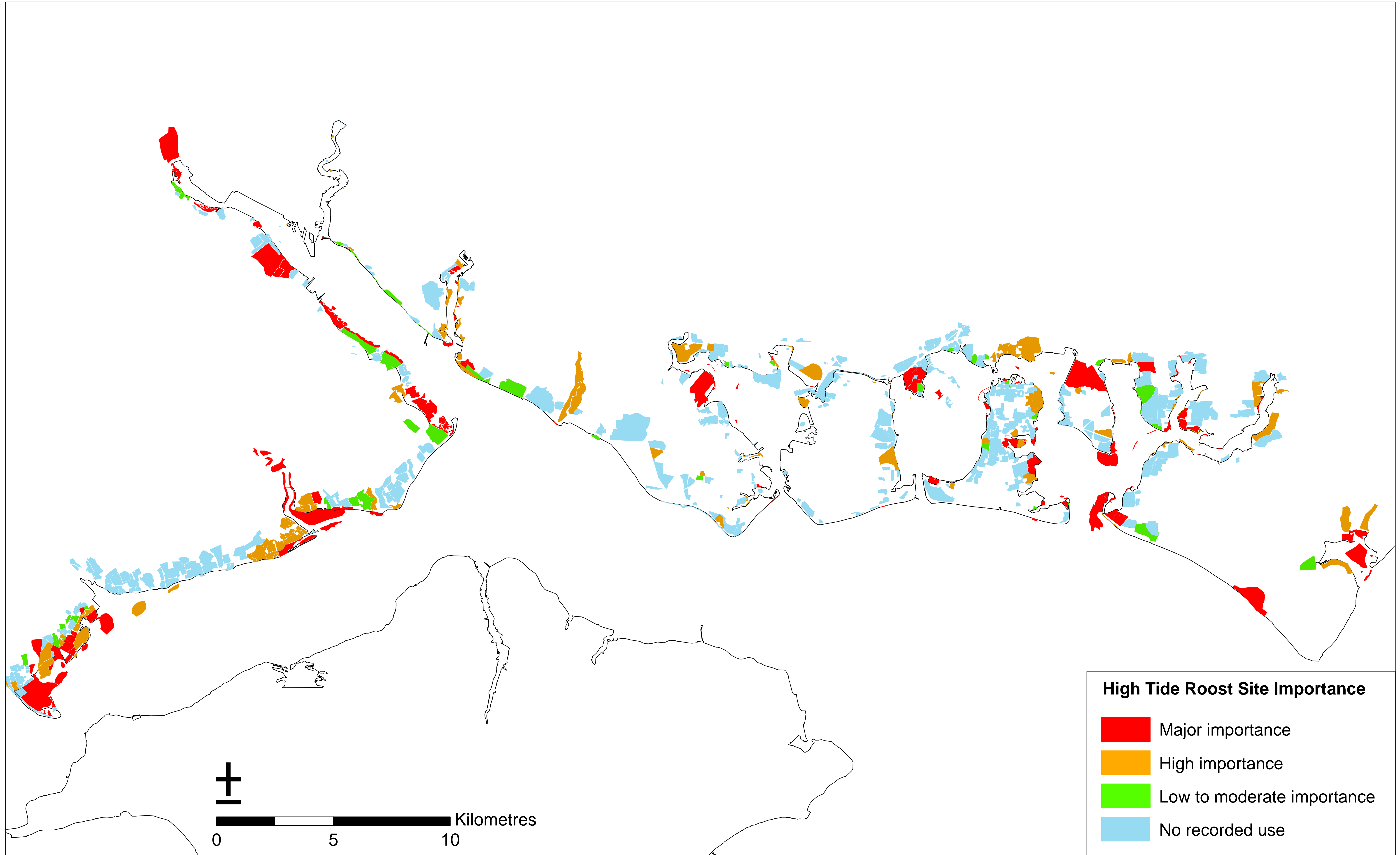
Policy Units		SMP Management Unit		Wader roosts and wildfowl feeding sites identified from workshops <sup>4</sup>
Bosham	Lowerhone Farm	Bosham	Lowerhone Farm	No important roosts
Lowerhone Farm	Fishbourne Mill Pond	Lowerhone Farm	Fishbourne Mill Pond	Major roosts at head of Fishbourne channel
Fishbourne Mill Pond	Apuldram Manor Farm	Fishbourne Mill Pond	Dell Quay	Roosts on wet grassland
Apuldram Manor Farm	Ella Nore Lane	Dell Quay	Birdham Pool Marina	High importance roosts
		Birdham Pool Marina	West Itchenor	Natural shingle and saltmarsh roosts
		West Itchenor	Ella Nore Lane	Natural shingle and saltmarsh roosts
Ella Nore	Cakeham	Ella Nore Lane	Cakeham Estate	Major roosts at Ella Nore point
Cakeham	East Wittering	Cakeham Estate	East Wittering	Medium roosts
East Wittering	Bracklesham	East Wittering	Bracklesham	No important roosts
Bracklesham (Medmerry)	Selsey West Beach	Bracklesham	Selsey West Beach	Major roost on grazing marshes inland of coast

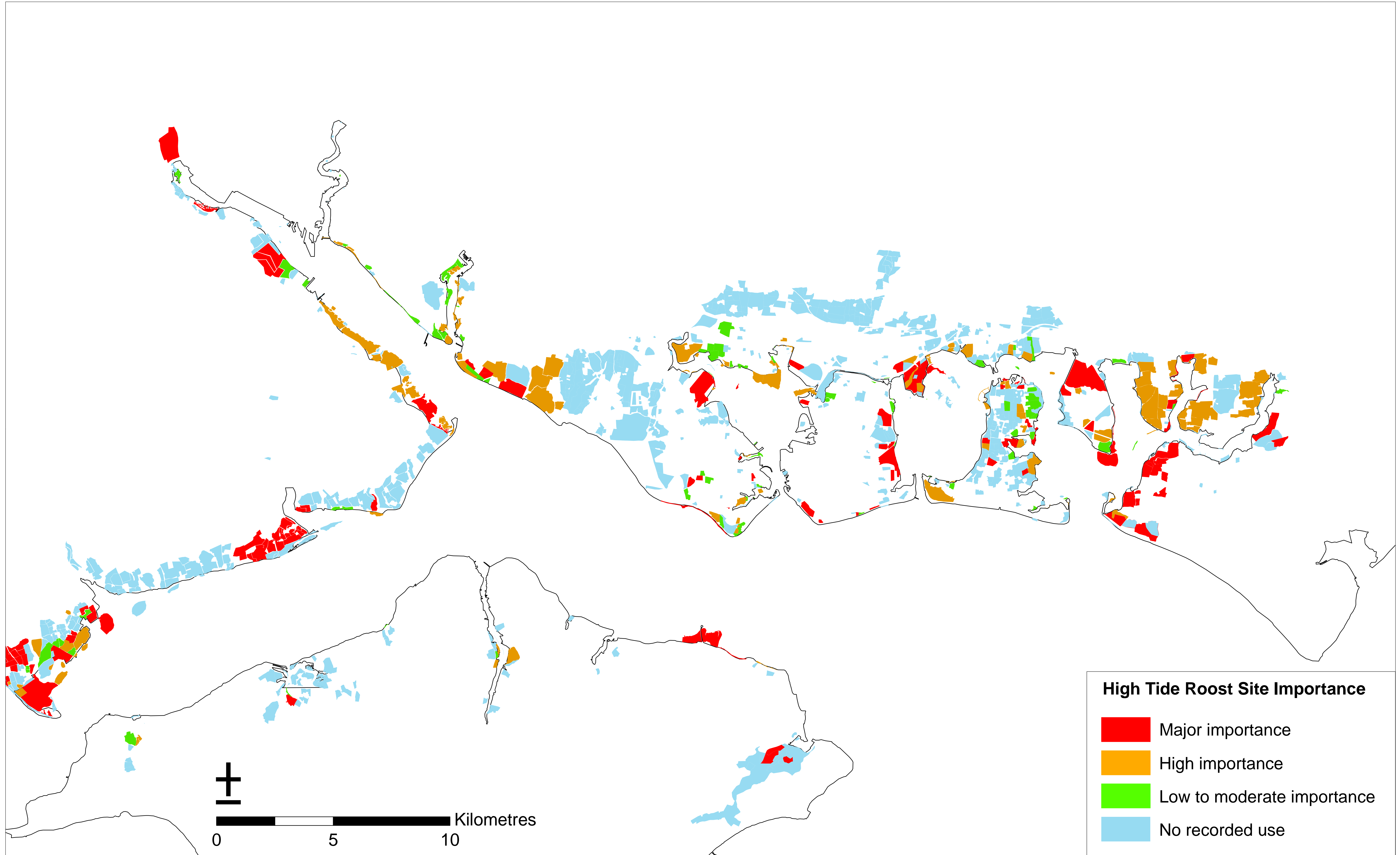
Policy Units		SMP Management Unit		Wader roosts and wildfowl feeding sites identified from workshops <sup>4</sup>
Selsey West Beach	Selsey East Beach (Selsey Bill)	Selsey West Beach	Selsey East Beach	No important roosts
		Selsey East Beach	Pagham entrance	No important roosts
Pagham Harbour				Major roosts on spits, saltmarshes and structures in Harbour
Langstone Harbour entrance (west)	Portsmouth Harbour entrance (east) (harbour)	Entrance to Langstone Harbour (west)	M275	High importance roost
		Tipner		High importance
		M275 Stamshaw	Whale Island (MOD)	No important roosts
		Whale Island (MOD)	Whale Island (MOD)	No important roosts
		Whale Island (MOD)	HM Naval Base	No important roosts
		HM Naval Base	HMS Warrior	No important roosts
		HMS Warrior	Entrance to Portsmouth Harbour (east)	No important roosts
Langstone Harbour entrance	Portsmouth Harbour	Entrance to Langstone Harbour (west)	Southsea Castle	No important roosts

Policy Units		SMP Management Unit		Wader roosts and wildfowl feeding sites identified from workshops <sup>4</sup>
(west)	entrance (east) open coast	Southsea Castle	Portsmouth Harbour Entrance	No important roosts
Langstone Bridge	Mengham	Langstone Bridge	Northney Marina	Major roosts on saltmarshes subject to erosion.
		Northney Marina	Gutner Farm	High importance roosts and wildfowl feeding site at Northney Farm on grazing marshes and arable fields
		Gutner Farm	Mill Rythe Holiday Village	Major roosts on Gutner Point and Verner Common
		Mill Rythe Holiday Village	Mengham	Major roost at on grazing marshes at Tournerbury
Mengham	Chichester Harbour entrance (west)	Mengham	Black Point	Major roost at Selsemore
Chichester Harbour entrance (west)	A3023	Black Point	Inn On Beach, Hayling Island	Major roost between groynes on Solent side of Sandy Point. Major roost at Black Point on shingle and saltmarsh.
A3023	Langstone Harbour entrance (east)	Inn On The Beach	Langstone Harbour entrance	No important roosts



Policy Units	SMP Management Unit			Wader roosts and wildfowl feeding sites identified from workshops <sup>4</sup>
Langstone Harbour entrance (east)	North Shore Road (West Town)	Entrance to Langstone Harbour (east)	North Shore Lane	Major and high importance roosts at Kench and Sinah Holiday Camp
North Shore Road (West Town)	West Lane (Stoke)	North Shore Lane	West Lane (Stoke)	No important roosts
West Lane (Stoke)	Langstone Bridge	West Lane (Stoke)	Langstone Bridge	Major roosts on old oyster beds





## **North Solent SMP policy units + wader assessment V2 table**

### **An explanation on why the summary table in the Wader and Wildfowl report (see above) and the following North Solent SMP policy units + wader assessment V2.xls table are different**

The last column in the Summary Table provides a brief summary of the habitats and use of these by waterfowl from the SPAs derived from the Workshops. It makes no reference to the relationship between the use of sites as roosts or for terrestrial feeding by waterfowl and the threat to these from sea level rise and marine inundation as a consequence of any coast defence policy option. It includes 'natural' sites on saltmarshes and shingle structures as well as artificial sites on sea walls and pontoons as well as sites such as grazing marshes that are dependent upon the maintenance of sea defences. Sites that are likely to need protection through maintenance of coast defences are identified as 'red' sites in SMP policy units + wader assessment V2.xls. The loss of these sites through coastal inundation would be likely to have adverse effects on the integrity of the SPA and would be difficult or impossible to compensate for. 'orange' sites are also important and their loss through coastal inundation would need to be compensated for but this is likely to be possible. 'yellow' sites are also important to the functioning of the SPA, but they are located on natural features such as chenier banks and saltmarshes whose conservation is not related to the management of coast defences.

### **An explanation on the criteria used to identify the 3 sites to HTL for 1<sup>st</sup> epoch in the North Solent SMP policy units + wader assessment V2.xls table**

The three sites identified for Hold the Line were; Saltgrass Lane to Lymington Yacht Haven, Farlington Marshes and Thorney Island. These are all large grazing marsh complexes used by large numbers of waterfowl both for roosting and feeding. They appear to be central to the functioning of the SPA in maintaining the range and population of a number of species within the two SPA involved. It is considered difficult or impossible to compensate for the loss of these large and complex sites and maintain the integrity of the SPAs and hence they have been singled out for protection through HTL. By contrast the large number of sites identified as being 'orange' are also important but they provide more closely defined function to the SPA, either as a wader roost or as a wet grassland feeding site and generally in a relatively small area of number of birds. It is felt that these functions can be compensated and hence, if compensation can be provided, there is no need to HTL. For these sites the network of sites is more important than the value of any individual site.

**Key to colour coding**

	Important roost that should be protected behind coast defences
	Important roosts that would need to be compensated for if lost to tidal inundation
	No roosts or roosts on natural habitats not protected by coast defence structures

Policy Units		SMP1 Management Unit			Wader roosts protected by coast defences			Compensation/Mitigation Options
					Epoch 1	Epoch 2	Epoch 3	
Hurst Spit		CBY7	Hurst Beach	Hurst Spit Castle Point	All on saltmarshes subject to natural processes			
		LYM1	Hurst Spit Castle Point	Hurst Spit North Point				
		LYM2	Hurst Spit North Point	Saltgrass lane				
Saltgrass Lane	Lymington Yacht Haven	LYM3	Saltgrass lane	Lymington Yacht Haven	Protect	Compensation needed		Create fresh/brackish wet grassland with areas of standing open water within western Solent
Lymington Yacht Haven	Elmers Court	LYM4	Lymington River	Lymington River	No Roosts			
Elmers Court	Lepe	LYM5	Elmers Court	Pitts Deep	High importance roost on saltmarshes subject to erosion			Create fresh/brackish wet grassland with areas of standing open water within western Solent. Monitor development of chenier banks and protect from disturbance.
		LYM6	Pitts Deep	Warren Beach Cottage	High importance roost on saltmarshes subject to erosion			
		LYM7	Warren Beach Cottage	Gull Island	Compensation needed for grazing marshes. Major roosts subject to saltmarsh erosion			
		LYM8	Gull Island	Beaulieu River	Compensation needed for grazing marshes. Major roosts subject to saltmarsh erosion			
		LYM9	Inchmery	Lepe	Major saltmarsh roosts subject to erosion. Inland roosts not in need of protection.			
Lepe	Bourne Gap	LYM10	Lepe	Stone Point	Major roost at Inchmery on shingle bank. High importance roosts in Darkwater Valley may need compensation.			Create new shingle roost habitat at entrance to Darkwater Valley (in association with estuary re-creation) and increase protection of natural roosts from disturbance.
		LYM11	Stone Point	Bourne Gap	No Roosts need protection or compensation			
Bourne Gap	Hillhead, Calshot	LYM12	Bourne Gap	Hillhead	No Roosts need protection or compensation			
		LYM13	Hillhead	Calshot Spit	Part of Major roost on shingle spit			
Calshot Spit		LYM14	Calshot Spit	Calshot Spit (jetty)	Part of Major roost on shingle spit			
Calshot Spit	Fawley Power station	FAW1	Calshot Spit (jetty)	Lee Of Calshot Spit	Major roost on eroding saltmarshes			
		FAW2	Lee of Calshot Spit	Fawley Power station	Major roost on eroding saltmarshes			
Fawley Power station	Fawley Oil Refinery	FAW3	Fawley Power station	Fawley Power station	Major roost on eroding saltmarshes			
		FAW4	Fawley Power station	Fawley Oil Refinery	Major roost on eroding saltmarshes			
		FAW5	Fawley Oil Refinery	Fawley Oil Refinery	Major roost on eroding saltmarshes			
Fawley Oil Refinery	Hythe Sailing Club	FAW6	Fawley Oil Refinery	Hythe Sailing Club	Major roost on eroding saltmarshes			
Hythe Sailing Club	Hythe Marina	FAW7	Hythe Sailing Club	Hythe Marina	No Roosts need protection or compensation			

**Key to colour coding**

	Important roost that should be protected behind coast defences
	Important roosts that would need to be compensated for if lost to tidal inundation
	No roosts or roosts on natural habitats not protected by coast defence structures

Policy Units		SMP1 Management Unit			Wader roosts protected by coast defences	Compensation/Mitigation Options
					Epoch 1   Epoch 2   Epoch 3	
Hythe Marina	Marchwood Military Port (Dibden Bay)	TEST1	Hythe Marina	Marchwood Military Port	Major roosts on Dibden Reclaim- remove defences to encourage	
Marchwood Military Port	Marchwood Power Station	TEST2	Marchwood Military Port	Cracknore Hard	No Roosts need protection or compensation	
		TEST3	Cracknore Hard	Royal Navy Armaments Depot	No Roosts need protection or compensation	
Marchwood Power Station	Eling Creek	TEST4	Royal Navy Armaments Depot	Eling Creek	Major roost on eroding saltmarshes	
Eling Creek	Redbridge	TEST5	Eling Creek	Redbridge	Major roost on eroding saltmarshes	
Lower Test Valley		TEST6	Redbridge	Southampton Port	No Roosts need protection or compensation	
Redbridge	Ocean Village	ITCH1	Southampton Port	Ocean Village	No Roosts need protection or compensation	
Ocean Village	Woodmill Lane	ITCH2	Ocean Village	Woodmill Lane Bridge	No Roosts need protection or compensation	
		ITCH3	Woodmill Lane Bridge	Cobden Bridge	Important roosts on structures in River Itchen not protected by coast defences	
Woodmill Lane	Weston Point	ITCH4	Cobden Bridge	Weston Point	Important roosts on structures in River Itchen not protected by coast defences	
Weston Point	Netley Castle	NET1	Weston Point	Netley Castle	High-Medium roosts on shingle beaches and inland fields no need for compensation	
Netley Castle	Netley Hard	NET2	Netley Castle	Netley Hard	High-Medium roosts on shingle beaches and inland fields no need for compensation	
Netley Hard	Cliff House	NET3	Netley Hard	Cliff House	High-Medium roosts on shingle beaches and inland fields no need for compensation	
Cliff House	Ensign Industrial Park	NET4	Cliff House	Ensign Industrial Park	High-Medium roosts on shingle beaches and inland fields no need for compensation	
Ensign Industrial Park/Hamble Oil Terminal	Hamble Common Point	NET5	Ensign Industrial Park	Hamble Oil Terminal	High-Medium roosts on shingle beaches and inland fields no need for compensation	
		NET6	Hamble Oil Terminal	Hamble Common Point	Major-High important roosts on intertidal shingle and saltmarsh	
Hamble Common Point	Satchell Marshes	HAM1	Hamble Common Point	Satchell Marshes	Major-High important roosts on intertidal saltmarsh	
Satchell Marshes	Crableck Marina	HAM2	Satchell Marshes	Badnam Creek	Major-High important roosts on intertidal saltmarsh	
		HAM3	Badnam Creek	Lands End Lane	Major-High important roosts on intertidal saltmarsh	



**Key to colour coding**

	Important roost that should be protected behind coast defences
	Important roosts that would need to be compensated for if lost to tidal inundation
	No roosts or roosts on natural habitats not protected by coast defence structures

Policy Units		SMP1 Management Unit			Wader roosts protected by coast defences	Compensation/Mitigation Options
					Epoch 1   Epoch 2   Epoch 3	
		HAM4	Lands End Lane	Swanwick Shore Road	Major-High important roosts on intertidal saltmarsh	
		HAM5	Swanwick Shore Road	Crableck Marina	Major-High important roosts on intertidal saltmarsh	
Crableck Marina		HAM6	Crableck Marina	Crableck Marina	Major-High important roosts on intertidal saltmarsh	
Crableck Marina	Warsash North	HAM7	Crableck Marina	Warsash North	Major-High importance roosts on old sea wall and saltmarshes	
Warsash North	Hook Park	HAM8	Warsash North	Hook Park	High importance roost inside Hook Spit needs compensation	Create fresh/brackish wet grassland habitats and associated open water in vicinity of central Solent and maintain disturbance free
Hook Park	Meon Road, Titchfield Haven	CPU14	Hook Park	Solent Breezes	Major roost in need of compensation	Create fresh/brackish wet grassland habitats and associated open water in vicinity of central Solent and maintain disturbance free
		CPU13	Solent Breezes	Hill Head Harbour	No roosts in need of compensation	
Meon Road, Titchfield Haven	Lee-on-the -Solent	CPU12	Hill Head Harbour	Lee-on-the Solent	High importance roosts in Titchfield Haven in need of compensation	Create fresh/brackish wet grassland habitats and associated open water in vicinity of central Solent and maintain disturbance free
Lee-on-the -Solent	No 2 Battery	CPU11	Browndown Ranges	Fort Gilkicker	No roosts in need of compensation	
No 2 Battery	Alver Lane	CPU10	Fort Gilkicker	Portsmouth Harbour Entrance	No roosts in need of compensation	
Alver Lane	Gilkicker Point				No roosts in need of compensation	
Gilkicker Point	Portsmouth Harbour entrance				Major roost at Harbour entrance in need of compensation	Create new wader roosts through land purchase/lease of coastal fringe, habitat management and control of disturbance/access within Portsmouth Harbour.
Portsmouth Harbour entrance (west)	Quay Lane (MOD boundary)	PH1	Entrance to Portsmouth Harbour (west)	Quay Lane (MOD boundary)	Roosts at Cackle Point in need of compensation. Others on shingle islands and saltmarsh subject of erosion	Create new wader roosts through land purchase/lease of coastal fringe, habitat management and control of disturbance/access within Portsmouth Harbour.
Quay Lane (MOD boundary)	Fleetlands (MOD Boundary)	PH2	Quay Lane (MOD boundary)	Fleetlands (MOD Boundary)	Major roosts on structures and within RNAD Gosport no need for compensation	
Fleetlands (MOD boundary)	A27	PH3	Fleetlands (MOD boundary)	A27	No roosts in need of compensation	
A27	Cador Drive	PH4	A27	Cador Drive	High importance roosts on Cams Hall no need for compensation	
Cador Drive	Horsea Island (MOD boundary)	PH5	Cador Drive	Horsea Island (MOD boundary)	High importance roosts on foreshore and edge fields no need for compensation	
Horsea Island	M275	PH6	Horsea Island	M275	High importance roost on waste site no need for compensation	
M275	Farlington Marshes (west)	PH7	M275	Farlington Marshes (west)	No roosts in need of compensation	

**Key to colour coding**

	Important roost that should be protected behind coast defences
	Important roosts that would need to be compensated for if lost to tidal inundation
	No roosts or roosts on natural habitats not protected by coast defence structures

Policy Units		SMP1 Management Unit			Wader roosts protected by coast defences			Compensation/Mitigation Options
					Epoch 1	Epoch 2	Epoch 3	
Farlington Marshes (west)	Farlington Marshes (east)	LH2	Farlington Marshes (west)	Farlington Marshes (east)	Protect	Compensation needed		Compensation/Mitigation within Langstone difficult. Need to conserve remaining roost sites and increase protection from disturbance e.g. Oyster beds. Create significant area of wet grassland/open water within context of wider east Solent harbours
Farlington Marshes (east)	Southmoor Lane	LH3	Farlington Marshes (east)	Wade Lane	Medium roosts may need compensation			Compensation/Mitigation within Langstone difficult. Need to conserve remaining roost sites and increase protection from disturbance e.g. Oyster beds. Create significant area of wet grassland/open water within context of wider east Solent harbours
Southmoor Lane	Wade Lane				Medium roosts may need compensation			Compensation/Mitigation within Langstone difficult. Need to conserve remaining roost sites and increase protection from disturbance e.g. Oyster beds. Create significant area of wet grassland/open water within context of wider east Solent harbours
Wade Lane	Maisemore Gardens	CH1	Wade Lane	Maisemore Gardens	High importance roosts in need of compensation			Compensation/Mitigation within Langstone difficult. Need to conserve remaining roost sites and increase protection from disturbance e.g. Oyster beds. Create significant area of wet grassland/open water within context of wider east Solent harbours
Maisemore Gardens	Emsworth Yacht Haven	CH2	Maisemore Gardens	Emsworth Yacht Haven	No roosts in need of compensation			
Emsworth Yacht Haven	Chidham Point	CH3	Emsworth Yacht Haven	Wickor Point (MOD boundary)	Protect roosts on Thorney Island	Compensation needed		Create sufficient area of fresh/brackish wet grassland habitats and associated open water in vicinity of east Solent Harbours and maintain disturbance free
Chidham Point	west of Cobnor Point	CH4	Wickor Point (MOD boundary)	Prinsted Point (MOD boundary)	No roosts in need of compensation			
west of Cobnor Point	Bosham	CH5	Prinsted Point (MOD boundary)	Prinsted	Major roosts on sea wall in need of compensation			Create sufficient area of fresh/brackish wet grassland habitats and associated open water in vicinity of east Solent Harbours and maintain disturbance free
		CH6	Prinsted	Bosham	Major roosts on sea wall in need of compensation			Create sufficient area of fresh/brackish wet grassland habitats and associated open water in vicinity of east Solent Harbours and maintain disturbance free
Bosham	Lowerhone Farm	CH7	Bosham	Lowerhone Farm	No roosts in need of compensation			
Lowerhone Farm	Fishbourne Mill Pond	CH8	Lowerhone Farm	Fishbourne Mill Pond	Major roosts in need of compensation			Create sufficient area of fresh/brackish wet grassland habitats and associated open water in vicinity of east Solent Harbours and maintain disturbance free
Fishbourne Mill Pond	Apuldram Manor Farm	CH9	Fishbourne Mill Pond	Dell Quay	Roosts on wet grassland not in need of compensation			
Apuldram Manor Farm	Ella Nore Lane	CH10	Dell Quay	Birdham Pool Marina	High importance roosts in need of compensation			Create sufficient area of fresh/brackish wet grassland habitats and associated open water in vicinity of east Solent Harbours and maintain disturbance free
		CH11	Birdham Pool Marina	West Itchenor	Natural shingle and saltmarsh roosts not in need of compensation			
		CH12	West Itchenor	Ella Nore Lane	Natural shingle and saltmarsh roosts not in need of compensation			



**Key to colour coding**

	Important roost that should be protected behind coast defences
	Important roosts that would need to be compensated for if lost to tidal inundation
	No roosts or roosts on natural habitats not protected by coast defence structures

Policy Units		SMP1 Management Unit			Wader roosts protected by coast defences	Compensation/Mitigation Options
					Epoch 1   Epoch 2   Epoch 3	
Ella Nore	Cakeham	CPU5b	Ella Nore Lane	Cakeham Estate	Major roosts in need of compensation	Create new wader roosts through land purchase/lease of coastal fringe, habitat management and control of disturbance/access within Chichester Harbour.
Cakeham	East Wittering	CPU5a	Cakeham Estate	East Wittering	Medium roosts may need compensation	
East Wittering	Bracklesham	CPU4	East Wittering	Bracklesham	No roosts in need of compensation	
Bracklesham (Medmerry)	Selsey West Beach	CPU3	Bracklesham	Selsey West Beach	Major roost may need compensation	Create new wader roosts through land purchase/lease of coastal fringe, habitat management and control of disturbance/access within Chichester Harbour.
Selsey West Beach	Selsey East Beach (Selsey Bill)	CPU2	Selsey West Beach	Selsey East Beach	No roosts in need of compensation	
		CPU1	Selsey East Beach	Pagham entrance	No roosts in need of compensation	
Pagham Harbour					Major roosts in need of compensation	Create sufficient area of fresh/brackish wet grassland habitats and associated open water in vicinity of east Solent Harbours and maintain disturbance free
Langstone Harbour entrance (west)	Portsmouth Harbour entrance (east) (harbour)	LH1	Entrance to Langstone Harbour (west)	M275	High importance roost in need of compensation	
		PH8	Tipner		High importance roost in need of compensation	Create new wader roosts through land purchase/lease of coastal fringe, habitat management and control of disturbance/access within Portsmouth Harbour.
		PH9	M275 Stamshaw	Whale Island (MOD)	No roosts in need of compensation	
		PH10	Whale Island (MOD)	Whale Island (MOD)	No roosts in need of compensation	
		PH11	Whale Island (MOD)	HM Naval Base	No roosts in need of compensation	
		PH12	HM Naval Base	HMS Warrior	No roosts in need of compensation	
		PH13	HMS Warrior	Entrance to Portsmouth Harbour (east)	No roosts in need of compensation	
<b>Portsea Island</b>						
Langstone Harbour entrance (west)	Portsmouth Harbour entrance (east) open coast	CPU8	Entrance to Langstone Harbour (west)	Southsea Castle	No roosts in need of compensation	
		CPU9	Southsea Castle	Portsmouth Harbour Entrance	No roosts in need of compensation	
<b>Hayling Island</b>						
Langstone Bridge	Mengham	CH17	Langstone Bridge	Northney Marina	Major roosts on saltmarshes subject to erosion. No need for compensation	

**Key to colour coding**

	Important roost that should be protected behind coast defences
	Important roosts that would need to be compensated for if lost to tidal inundation
	No roosts or roosts on natural habitats not protected by coast defence structures

Policy Units		SMP1 Management Unit			Wader roosts protected by coast defences	Compensation/Mitigation Options
					Epoch 1   Epoch 2   Epoch 3	
		CH16	Northney Marina	Gutner Farm	High importance roosts at Northney Farm in need of compensation	Create sufficient area of fresh/brackish wet grassland habitats and associated open water in vicinity of east Solent Harbours and maintain disturbance free
		CH15	Gutner Farm	Mill Rythe Holiday Village	Major roosts on Gutner Point and Verner Common subject to natural sea level rise - no need for compensation	
		CH14	Mill Rythe Holiday Village	Mengham	Major roost at Tournerbury in need of compensation	
Mengham	Chichester Harbour entrance (west)	CH13	Mengham	Black Point	Major roost at Selsemore may require compensation	Create sufficient area of fresh/brackish wet grassland habitats and associated open water in vicinity of east Solent Harbours and maintain disturbance free
Chichester Harbour entrance (west)	A3023	CPU6	Black Point	Inn On Beach, Hayling Island	Major roost between groynes in need of compensation. Major roost at Black Point on shingle and saltmarsh subject to natural processes.	Create new wader roosts through land purchase/lease of coastal fringe, habitat management and control of disturbance/access within Chichester Harbour.
A3023	Langstone Harbour entrance (east)	CPU7	Inn On The Beach	Langstone Harbour entrance	No roosts in need of compensation	
Langstone Harbour entrance (east)	North Shore Road (West Town)	LH6	Entrance to Langstone Harbour (east)	North Shore Lane	Major and high importance roosts at Kentch and Sinah Holiday Camp subject to natural processes	
North Shore Road (West Town)	West Lane (Stoke)	LH5	North Shore Lane	West Lane (Stoke)	No roosts in need of compensation	
West Lane (Stoke)	Langstone Bridge	LH4	West Lane (Stoke)	Langstone Bridge	Major roosts on old oyster beds subject to natural processes	