North Solent
Shoreline Management Plan

Appendix J: Appropriate Assessment

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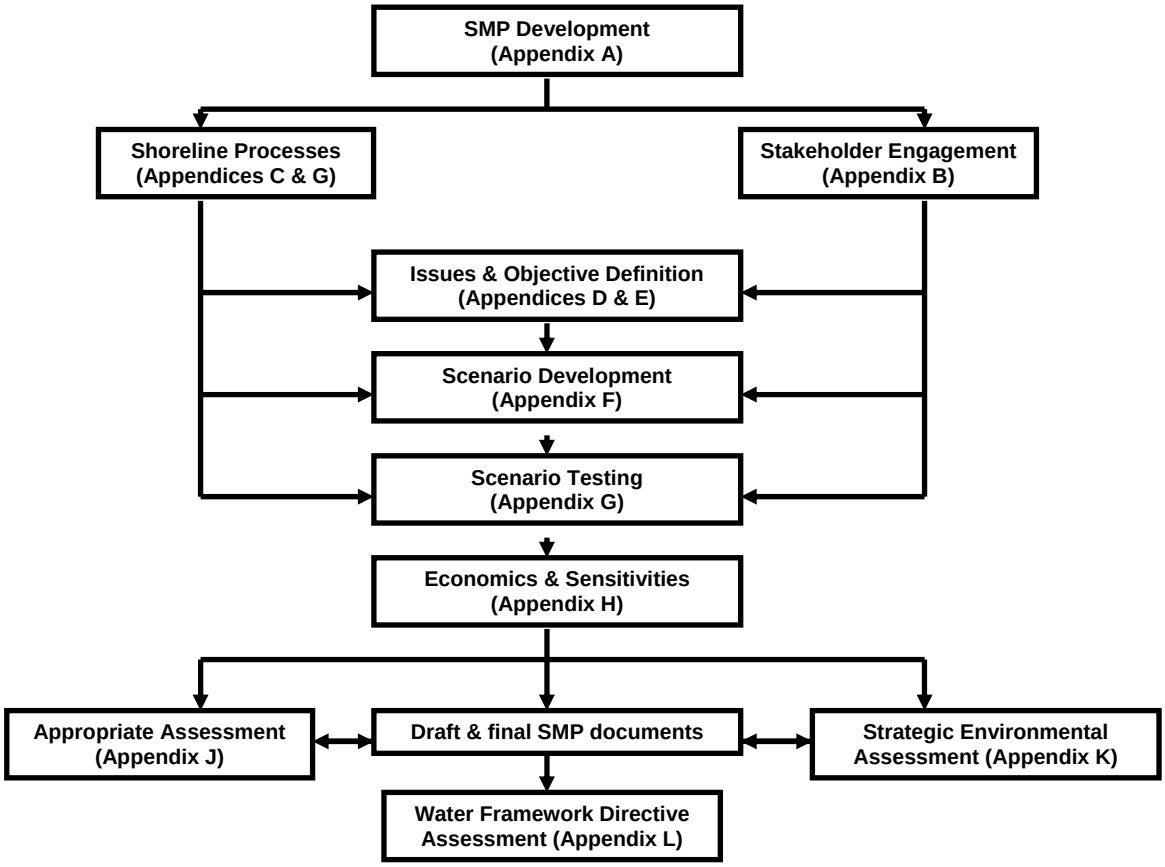
The Supporting Appendices

All information used to support the Shoreline Management Plan is contained in a series of Appendices. In this way there is clarity in the decision-making process and the rationale behind the policies being promoted is both transparent and auditable. The appendices are:

Appendix	Subject	Detail
A	SMP Development	Reports the history of development of the SMP, describing fully the plan and policy decision-making process
B	Stakeholder Engagement	All communications from the stakeholder process are provided here, together with information arising from the consultation process
C	Baseline Process Understanding	Includes a baseline process report, defence assessment, NAI and WPM assessments and summarises data used in assessments
D	Theme Review	This report identifies and evaluates the environmental features (human, natural, historical and landscape)
E	Issues & Objective Evaluation	Provides information on the issues and objectives identified as part of the Plan development, including appraisal of their importance
F	Initial Policy Appraisal & Scenario Development	Presents the consideration of generic policy options for each frontage, identifying possible acceptable policies, and their combination into 'scenarios' for testing
G	Scenario Testing	Presents the policy assessment and appraisal of objective achievement towards definition of the Preferred Plan
H	Economic Appraisal & Sensitivity Testing	Presents the economic analysis undertaken in support of the Preferred Plan
I	Metadatabase and Bibliographic database	All supporting information used to develop the SMP is referenced for future retrieval and examination
J	Appropriate Assessment	Presents an assessment of the effect the plan will have on European sites.
K	Strategic Environmental Assessment	Presents the various items undertaken in developing the Plan specifically related to the requirements of the EU Council Directive 2001/42/EC (Strategic Environmental Assessment Directive)
L	Water Framework Directive Assessment	Presents an assessment of the implications of the Water Framework Directive

The broad relationships between the appendices are as below:



J1 INTRODUCTION

J1.1 Background

The North Solent Shoreline Management Plan (SMP) covers the 386km shoreline from Selsey Bill to Hurst Spit including Southampton Water, Portsmouth, Langstone and Chichester Harbours. The study area supports a wide variety of important ecological systems, habitats and species which are protected by multiple international, national and local designations (Figure J1.1 and Section J3). Approximately 294km (76%) of the North Solent frontage is protected from tidal flooding and coastal erosion (Figure J1.2), although 74% of these defences will reach the end of their residual life in the next 20 years. In addition, approximately 60% of the North Solent shoreline frontage is privately maintained.

The vast majority of the north Solent defences are fronted and/or backed by European designated sites, therefore the North Solent SMP policies (Figures J1.3, J1.4, and J1.5) will have some form of significant effect upon these designated habitats whether defences are held or re-aligned, thereby triggering the requirement for an Appropriate Assessment. In addition, the north Solent has a highly developed residential area, is rich in heritage, and is a popular recreational and tourist attraction. The diversity of pressures on the shoreline results in an extremely difficult stretch of coastline to manage at a strategic level. All of these factors aswell as economic (Appendix H of main SMP document) and environmental considerations have been assessed in the policy appraisal process (Appendix D, E, F and G of main SMP document) to provide the most sustainable shoreline policies over the next 100 years (Figures J1.3, J1.4 and J1.5).

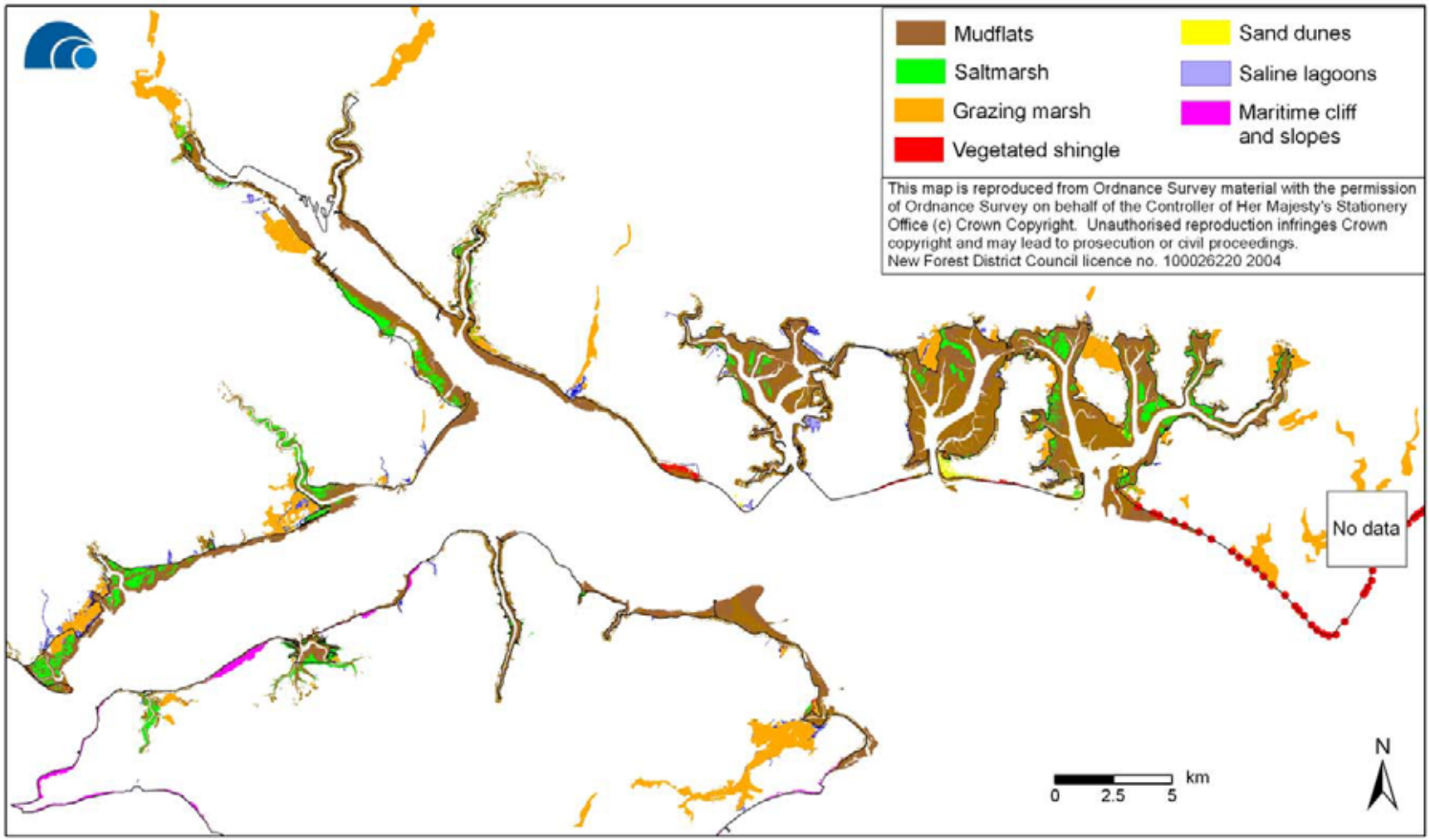


Figure J1.1 Coastal Biodiversity Action Plan habitats across the north Solent (SDCP, 2008)

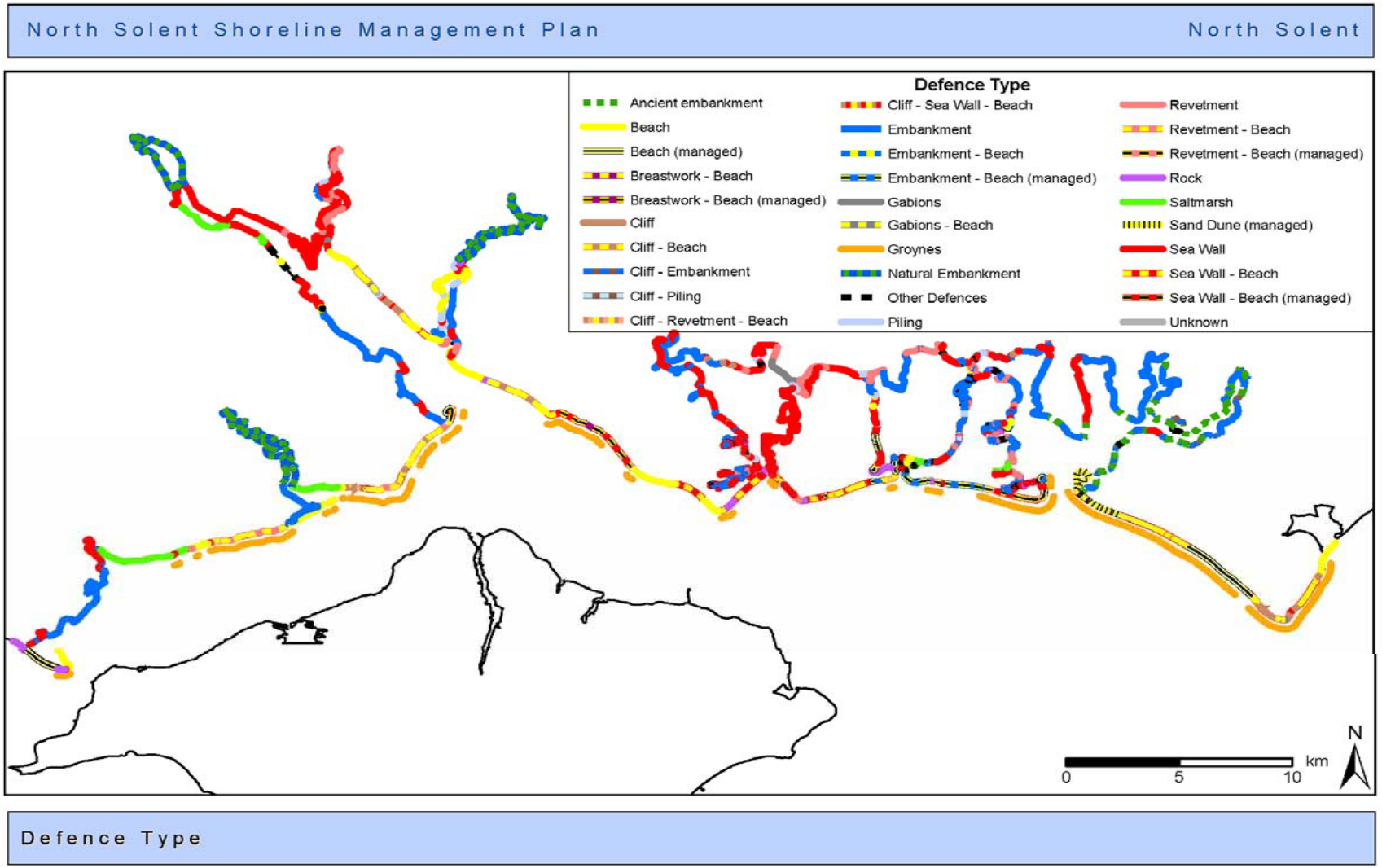


Figure J1.2 Defence types across north Solent

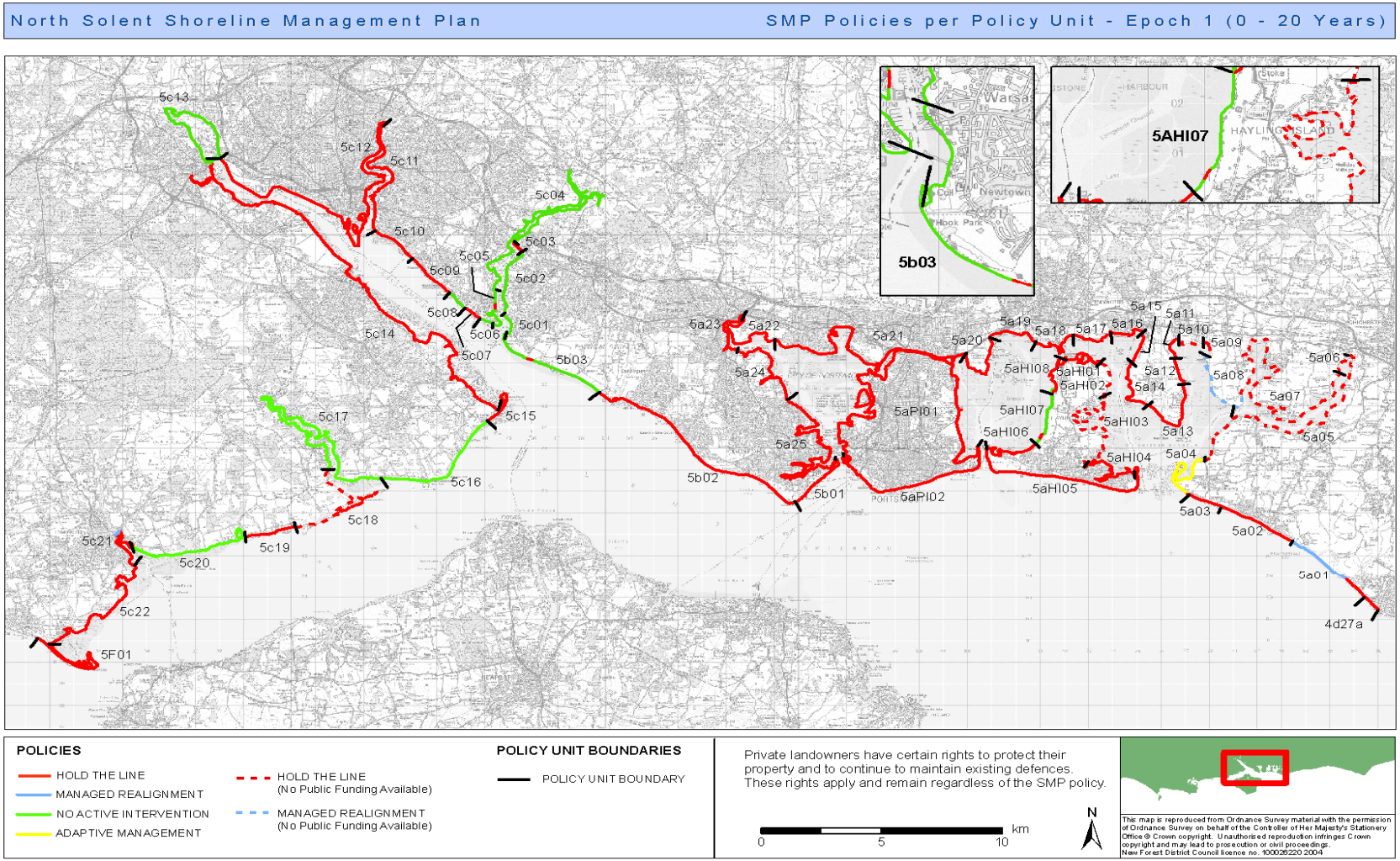


Figure J1.3 Final policies for epoch 1

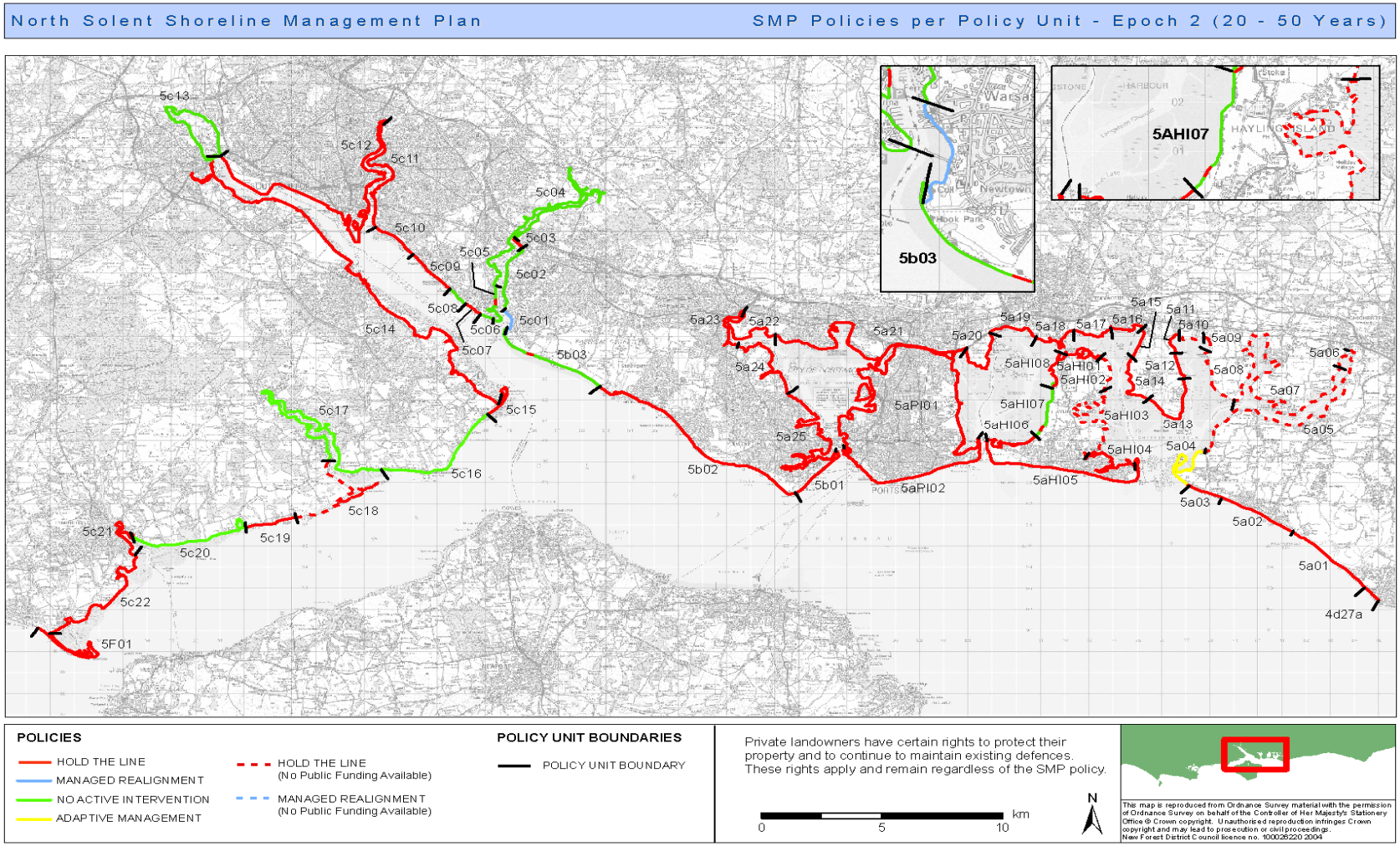


Figure J1.4 Final policies for epoch 2

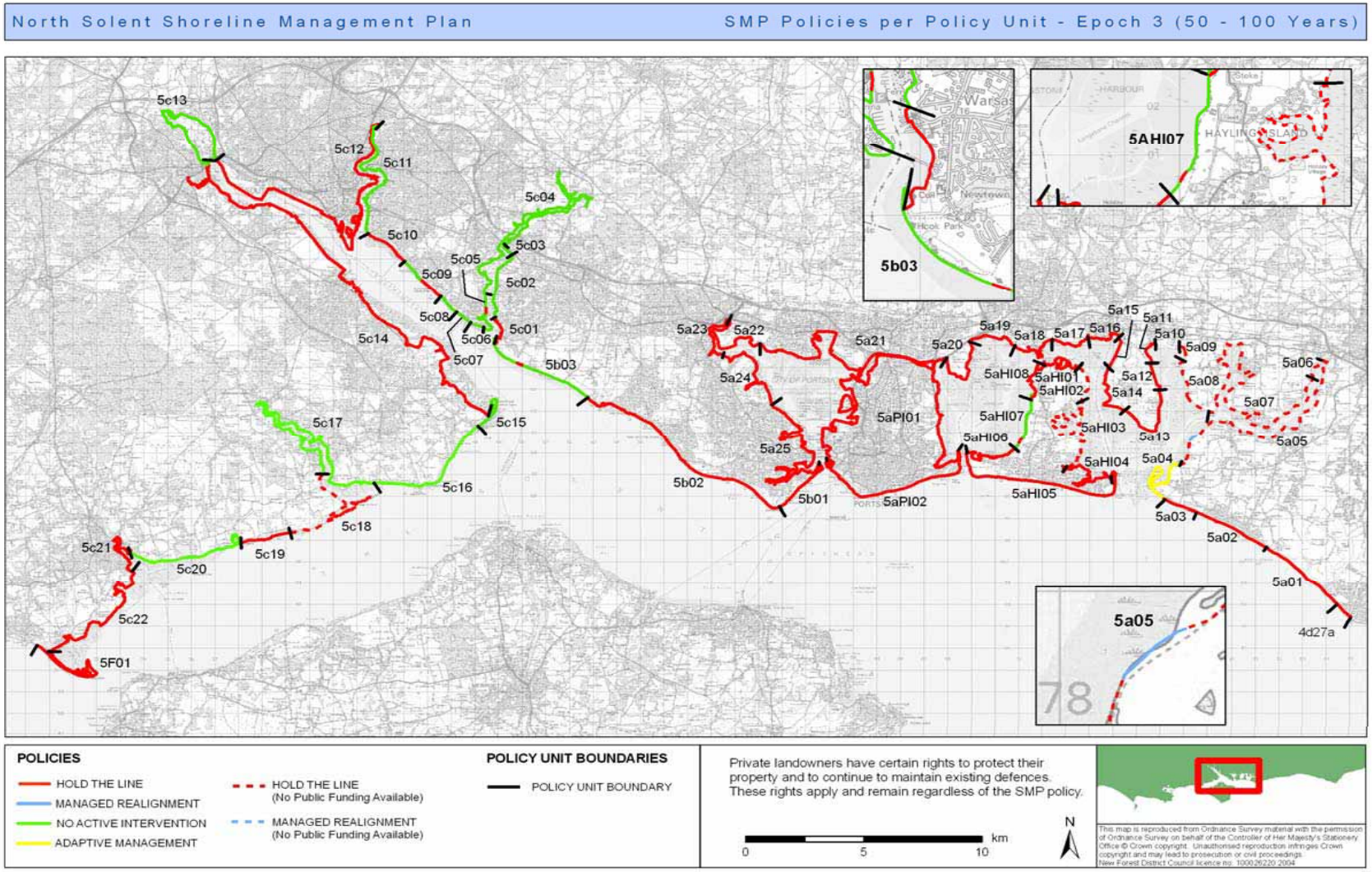


Figure J1.5 Final policies for epoch 3

An Appropriate Assessment is a decision making process in which the 'Competent Authority' (in this case New Forest District Council as lead Authority for the North Solent SMP) needs to demonstrate that a plan (in this case the Shoreline Management Plan) would not have an adverse effect on the integrity of a European site, either alone or in-combination with other plans and projects. A European site (also referred to as a *Natura 2000* site) is either a Special Area of Conservation (SACs) identified through the EU Habitats Directive (Council Directive 92/43/EEC) or Special Protection Area (SPAs) identified through the Birds Directive (Council Directive 79/409/EEC). Additionally, Ramsar sites listed under the Ramsar Convention 1976 are considered under this heading for the purposes of carrying out the Appropriate Assessment, even though they are not technically classed as European sites. This follows guidance within Planning and Policy Statement 9 (PPS9) (ODPM, 2006).

The legal requirement for an Appropriate Assessment is established in Article 6(3) of the EU Habitats Directive (Council Directive 92/43/EEC), which states:

"Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to Appropriate Assessment of its implications for the site in view of the site's conservation objectives".

Both the Habitats and Birds Directives are transposed into UK law by The Conservation of Habitats and Species Regulations 2010 (the "Habitats Regulations") (SI 2010 No. 490), which consolidate and update the Conservation (Natural Habitats, &c.) Regulations 1994 ("the 1994 Regulations"). The Habitats Regulations have recently been amended after the European Court of Justice ruled that the UK had failed to correctly transpose the provisions of Article 6 (3) and (4) of the Habitats Directive into UK Law. The amended regulations came into force in 2007; regulation 102 states the requirement of an Appropriate Assessment for land-use plans. Although SMPs are themselves not land-use plans they do have the potential to influence the development of land therefore the Department for Environment, Food and Rural Affairs (Defra) and Natural England (NE) agreed that SMPs require an Appropriate Assessment if they are likely to have a significant effect on a European site.

This Appropriate Assessment goes on to briefly consider alternative options, and imperative reasons of overridding public interest, in accordance with Regulation 103, and provision of compensation, Regulation 105, of The Conservation of Habitats and Species Regulations 2010.

J1.2 Role of Organisations in the Appropriate Assessment Process

J1.2.1 Competent Authority

The Appropriate Assessment has been produced by New Forest District Council (Lead Authority) as the Competent Authority on behalf of the North Solent SMP Client Steering Group, which comprises:- Test Valley Borough Council, Southampton City Council, Eastleigh Borough Council, Winchester City Council, Fareham Borough Council, Gosport Borough Council, Havant Borough Council, Portsmouth City Council, Environment Agency (Southern Region, and Solent & South Downs Area), New Forest National Park Authority, Chichester Harbour Conservancy, Natural England, Environment Agency, Hampshire County Council, and West Sussex County Council.

The Competent authority is responsible for:

- Making an Appropriate Assessment before deciding to undertake, or give any consent, permission or other authorisation for a plan or project likely to have a significant effect on a European site, either alone or in combination with other plans and projects
- For the purposes of the assessment, consulting the appropriate nature conservation body and having regard to its representations
- Ensuring that if there is a negative assessment of a plan or project, agreement to that plan or project is only given if there are no alternative solutions, it must be carried out for imperative reasons of overriding public interest, and any compensatory measures that may be required are secured

J1.2.2 Natural England

In England, the ‘appropriate nature conservation body’ under the Regulations is Natural England. Natural England implement, on behalf of the Government, international conventions and EC Directives on nature conservation including the Conservation (Natural Habitats etc.) Regulations 1994, as follows:

- Provide advice on whether plans and programme are likely to have a significant effect [either alone or in combination with other plans and projects] when requested to do so
- Advise competent authorities whether a plan or programme is necessary for the management of the site; Comment on Appropriate Assessments
- Provide advice on the ecological requirements of any compensatory measures
- Provide advice on the suitability of any proposed compensatory measures

J1.2.3 Secretary of State

The Secretary of State is responsible for:

- Directing the plan-making authority not to give effect to a plan that may have an adverse affect on site integrity
- Securing any necessary compensatory measures to ensure that the overall coherence of Natura 2000 Network is protected
- Confirming that any compensatory measures are sufficient to maintain the coherence of Natura 2000 Network
- Informing the Commission of the measures adopted

J1.3 Requirement of an Appropriate Assessment for the North Solent SMP

The first task in undertaking an Appropriate Assessment is to establish through consultation with Natural England whether the SMP is necessary for the management of a European site and whether an Appropriate Assessment is required.

Natural England advised that the North Solent SMP is not necessary for the management of the European sites that it will affect (see Natural England formal response in Annex J1). Still, based on the policies within the SMP and the presence of multiple European sites within the plan area it cannot be concluded that there would not be a likely significant effect of the SMP on a European site. As such, the North Solent SMP will require an Appropriate Assessment.

J1.4 Aim of this report

The aim of this report is to determine the impact of the final SMP policies where there is likelihood of a significant effect on the conservation objectives of a European site. The assessment is completed on the proposed SMP policies (Figures J1.3 - J1.5) from the final SMP (derived following Defra Procedural Guidance, 2006) and confirms their impact on the European sites.

J1.5 Structure of report

This report is structured as follows:

Section 1 – Introduction to the Appropriate Assessment
Section 2 – Overarching method and Appropriate Assessment process
Section 3 – Background to European sites (Stage 1 of process)
Section 4 – Assessment of likely significant effect (Stage 1 of process)
Section 5 – Appropriate Assessment (Stage 2 of process)
Section 6 – Approval or refusal of plan (Stage 3 of process)
Section 7 – Additional considerations
Section 8 – Limitations and future work

J2 OVERARCHING METHOD

J2.1 Introduction

The methodology for the North Solent SMP Appropriate Assessment was developed in advance of formal National guidance being available. New Forest District Council (NFDC) as the lead authority for the North Solent SMP developed a method for undertaking the North Solent SMP Appropriate Assessment together with national and local experts from Natural England and the Environment Agency. The methodology has been devised to ensure that the approach taken meets the requirements of the Habitats Regulations yet the level of detail for the assessment is appropriate to an SMP. It should be clearly understood that SMPs are large-scale, high level policy setting documents managing the shoreline over the next 100 years. It is therefore not the intent of this assessment to provide a level of detail that would duplicate a site specific, proposal based Appropriate Assessment.

J2.2 Guidance

Guidance to develop the methodology was taken from several sources including:

- Guidance for Regional Spatial Strategies and Local Development Documents (Department for Communities and Local Government, 2006)
- Habitats Regulations Assessment of Regional Strategies and Sub-Regional Strategies (Natural England, 2007)
- Assessment of plans and projects affecting *Natura* 2000 sites (European Commission, 2001)
- Appropriate Assessment methodology for the Medway and Swale SMP (Environment Agency (EA) Southern Region NCPMS)
- National, regional, and local level meetings with NE coastal and freshwater experts
- EA Regional Habitat Creation Programme
- Joint North Solent and Isle of Wight SMP Environmental Group

The Appropriate Assessment is based heavily on the Medway and Swale SMP Appropriate Assessment and the Isle of Grain to South Foreland SMP Appropriate Assessment, following sign off in 2009.

J2.3 Appropriate Assessment process

The process of undertaking an Appropriate Assessment is summarised in Figure J2.1.

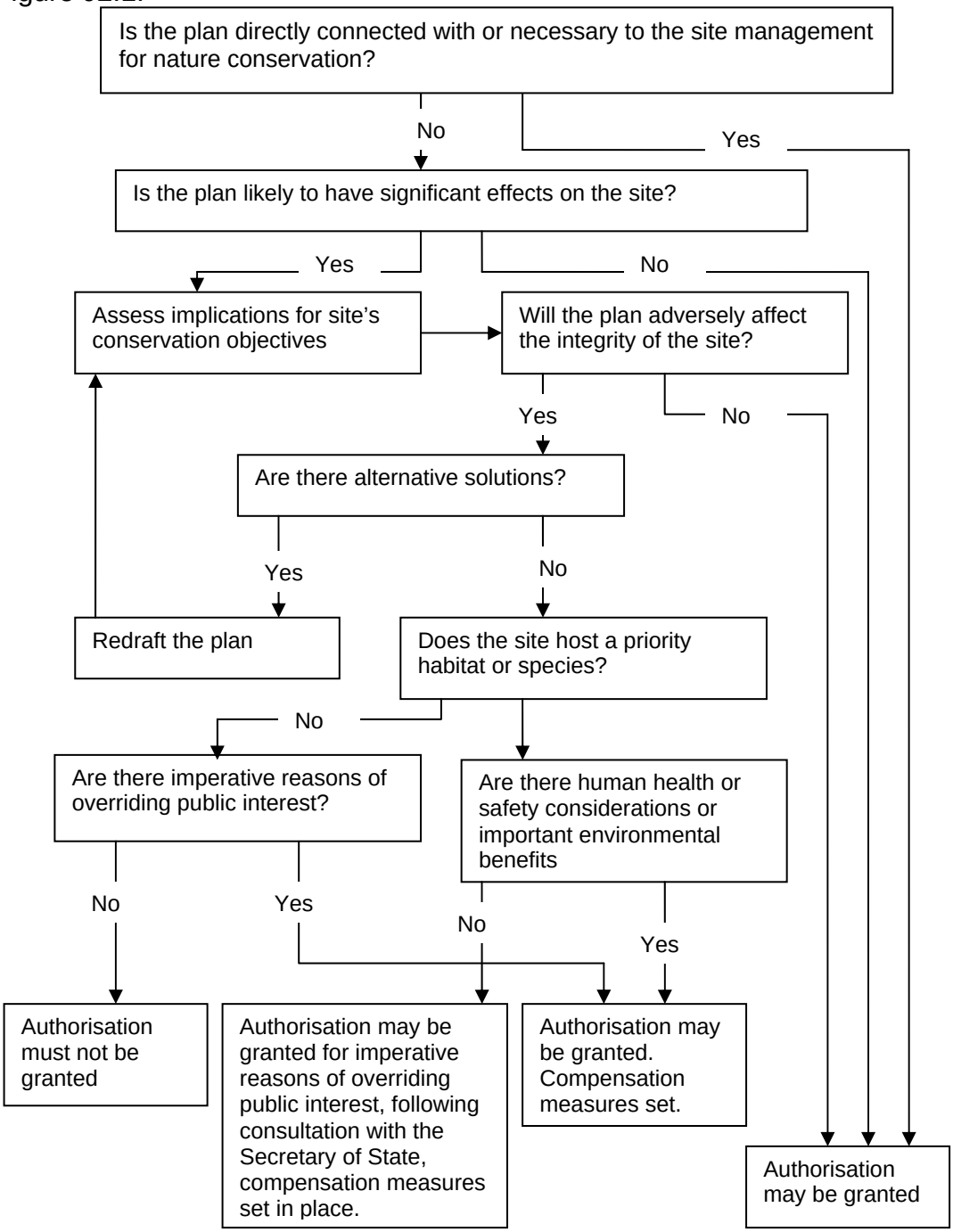


Figure J2.1: Flow Chart showing Appropriate Assessment process taken from European Commission (2001) 'Assessment of plans and projects significantly affecting *Natura* 2000 sites'

The Appropriate Assessment process has been broken down into three main stages as shown in Table J2.1.

Stage		Task
1	**Screening and Scoping**	• Determine whether the SMP is necessary for site management • Identify all International and European sites that are likely to be significantly affected by the SMP and acquire conservation objectives for each site • Agree method and level of detail for Appropriate Assessment • Assess likely significant effect of SMP policies
2	**Appropriate Assessment**	• Assess and quantify the significant effects of the SMP policies • Determine whether the SMP will have an adverse effect on the integrity of a European site either alone or in combination • Assess possible adverse effects and consider mitigation measures
3	**Approval or refusal of plan**	• Determine Overriding Public Interest where there are no viable alternatives • Quantify compensation if needed and secure through EA Regional Habitat Creation Programme

Table J2.1 Stages and task of Appropriate Assessment process

J2.3.1 Stage 1 Screening and Scoping

The first task in this stage was agreed through consultation with Natural England that the North Solent SMP would require an Appropriate Assessment (Annex J1). This stage also involved the collection of information about the designated sites that were considered likely to be significantly affected by the SMP. A summary of the background to the European sites are presented in Section J3. Through consultation with Natural England and the Environmental Agency the level of detail and methodology was agreed. The likely significant impact of the SMP on the integrity of each European site was also assessed at this stage to identify those European sites to be carried through to the Appropriate Assessment phase (Section J4).

J2.3.2 Stage 2 Appropriate Assessment

The Appropriate Assessment is the main stage of the whole Appropriate Assessment process. Its objective is to ascertain that that the SMP will not have an adverse effect on the integrity of the European sites, either alone or in combination with each other and also with other plans and projects, and to quantify any adverse effect arising from the plan. The adverse effects of the North Solent SMP on the European sites affected are described in Section J5, including mitigation measures to offset adverse impacts on the sites.

An adverse effect on site integrity is likely to be one that prevents the site from reaching or maintaining favourable status for the relevant feature(s). Favourable conservation status of a European site is defined by Article 1 of the Habitats Directive and it is through this definition that the site's conservation objectives can be identified. The effects of a plan or project on the European sites concerned must be assessed against these conservation objectives.

The Habitats Regulations provide the requirement for an 'in-combination' assessment. The in-combination assessment builds on the assessment of the SMP alone and considers the impacts of the SMP policy in combination with other plans and projects.

J2.3.3 Stage 3 Approval or refusal of the plan

If the Appropriate Assessment cannot conclude, no adverse effect on the integrity of the European Site and therefore it cannot be ascertained that the plan or project will not adversely affect the integrity of the site or doubts remain as to the absence of adverse effects on the integrity of the site linked to the plan or project concerned, the provisions of Article 6(4) of the Habitats Directive apply:

1. The alternative put forward for approval, is the least damaging for habitats, for species and for the integrity of the Natura 2000 site, regardless of economic considerations, and that no other feasible alternative exists that would not affect the integrity of the site.

2. There are imperative reasons of overriding public interest, including 'those of a social or economic nature.'

    - **Alternative solutions**

If 'no adverse effect on European integrity' cannot be concluded then alternative options must be considered. An investigation into alternative solutions will consider if the objectives of the plan can be achieved in an alternative way to avoid adverse effects on the European sites.

- **Imperative Reasons of Overriding Interest**

This is the last stage in the Appropriate Assessment process and is only reached if the assessment of the SMP as a whole, results in negative impacts to the integrity of a European site and no alternative solutions or preventative measures are available. This stage will examine if there is a need to implement the plan in the interest of imperative reasons of overriding public interest (IROPI). At the time of drafting, IROPI were listed as follows: (see www.defra.gov.uk/wildlife-countryside/ewd/ewd09.htm for further details)

- A need to address a serious risk to human health and public safety;
- The interests of national security and defence;
- The provision of a clear and demonstrable direct environmental benefit on a national or international scale;
- A vital contribution to strategic economic development or regeneration;
- Where failure to proceed would have unacceptable social and/or economic consequences.

J2.4 Public consultation of SMP

The North Solent SMP went out to public consultation in February 2010 with the objective-led policies. These objective-led policies identified 19 opportunities for managed-alignment which would help to mitigate the inter-tidal coastal squeeze requirements, some being at the expense of designated grazing marsh, freshwater habitat and feeding and roost function. 9 out of 19 proposed Managed Re-alignment sites were on private land. Where the private landowner did not wish to consider a Managed Re-alignment policy and indicated their intention to continue to maintain their defences, the SMP policy reverted to HTL, with a clear statement that no public funding would be available for maintenance costs, as is currently the case (see page 46 for policy statement definitions).

In addition, 5 of potential managed re-alignment sites reverted to Hold The Line with a requirement for further studies, detailing the impacts of bird feeding and roost function loss on the integrity of the SPA and Ramsar sites.

J2.5 Scale of assessment

More specific advice was sought from Natural England regarding consistency of approach and level of detail required for the Appropriate Assessment at SMP level, in conjunction with concerns regarding the ability of the Regional Habitat Creation Programme (RHCP) to deliver compensatory habitats more specific than Biodiversity Action Plan (BAP) level to ensure compensation of the features and species populations in the designated sites and hence the coherence of Natura 2000.

J2.5.1 SMP habitat groups

Through discussions with Natural England and the Environment Agency, it was agreed that it was appropriate to assess the impact of the plan on the conservation objectives of each European site using 'SMP habitat groups'. Key considerations identified were:

- Adding additional functional habitat groupings would increase complexity and cost of the North Solent SMP and RHCP
- A sufficient range of habitat is expected to be created by the RHCP to provide for the compensation requirements of the North Solent SMP and subsequent Coastal Defence Strategy and schemes
- Later iterations of SMPs will need to be mindful that guidance and habitat creation delivery will continue to evolve

The SMP Appropriate Assessment will assess the following habitat groupings and impacts.

Special Protection Areas

For Special Protection Areas (SPAs), the bird species for which the site has been designated will be identified and the functional habitat which supports the birds will be assessed in the Appropriate Assessment. Table J2.2 lists the functional habitats of each SPA site in terms of breeding, feeding and roosting and the impacts assessed. Wader and Wildfowl feeding and high water roost sites were pulled out as a functional habitat group, because compensation requirements differ to SAC/Ramsar habitat replacement in that any necessary functional habitat compensation would have to be delivered close to the SPA/Ramsar sites if their integrity were to remain. This geographic restriction does not apply to SAC/Ramsar habitat types where compensation can be delivered some way away from existing sites, if necessary, to maintain the Natura 2000 series. Any Natura 2000 compensation should always be sought close to point of impact where possible, moving out to adjacent areas where necessary.

A workshop was held in March 2009 (attended by reserve and site managers, experienced birdwatchers and counters) to collate the views of local experts on the use of feeding and roost sites by Waders and Wildfowl in the North Solent (Cox, 2009a). Outputs from this workshop were used to identify important networks of designated and undesignated sites that support the integrity and function of the SPA/Ramsar sites (Figures J5.3 and J5.4).

SPA	Interest features	Functional habitat			SMP habitat grouping and impact to be assessed	
		Feeding	Nesting	Roosting	SMP habitat grouping	Impact
Solent & Southampton	**Annex I species** (Common tern, Little tern, Mediterranean gull, Roseate tern, Sandwich tern)		Intertidal saltmarsh	Intertidal saltmarsh	Intertidal saltmarsh	Coastal squeeze
		Intertidal mudflat & sand (at high water)			Intertidal mudflat	
			Vegetated & unvegetated shingle	Vegetated & unvegetated shingle	Vegetated & unvegetated shingle	Coastal processes
		Shallow sub-tidal			Not assessed	Not assessed
		Saline lagoons			Saline lagoons	Saline intrusion
	Migratory species (Black-tailed Godwit, Dark-bellied Brent, Teal, Ringed plover) and **Waterfowl assemblage**	Intertidal saltmarsh		Intertidal saltmarsh	Intertidal saltmarsh	Coastal squeeze
		Intertidal mudflat		Intertidal mudflat	Intertidal mudflat	
		Intertidal mixed sediment shores		Intertidal mixed sediment shores	Intertidal mixed sediment shores	
		Intertidal sand flats		Intertidal sand flats	Intertidal sand flats	
				Vegetated & unvegetated shingle	Vegetated & unvegetated shingle	Coastal processes
		Shallow sub-tidal			Not assessed	Not assessed
		Open freshwater		Freshwater habitats	Freshwater habitats	Saline intrusion
		Fresh marshes & open water				
		Coastal grazing marsh		Coastal grazing marsh	Coastal grazing marsh	
		Terrestrial grasslands (wet and dry)		Terrestrial grasslands (wet and dry)	Freshwater habitats /Coastal grazing marsh	
Portsmouth	**Migratory species** (Dark-bellied Brent, Dunlin, Black-tailed	Intertidal saltmarsh		Intertidal saltmarsh	Intertidal saltmarsh	Coastal squeeze
		Intertidal mudflat		Intertidal mudflat	Intertidal mudflat	

SPA	Interest features	Functional habitat			SMP habitat grouping and impact to be assessed	
		Feeding	Nesting	Roosting	SMP habitat grouping	Impact
	godwit, Red-breasted merganser)			Vegetated shingle	Vegetated shingle	Coastal processes
		Shallow sub-tidal			Not assessed	Not assessed
		Open freshwater		Freshwater habitats	Freshwater habitats	Saline intrusion
		Fresh marshes & open water				
		Coastal grazing marsh		Coastal grazing marsh	Coastal grazing marsh	
		Terrestrial grasslands (wet and dry)		Terrestrial grasslands (wet and dry)	Freshwater habitats /Coastal grazing marsh	
Chichester & Langstone	**Annex I species** (Common tern, Little tern, Sandwich tern)		Intertidal saltmarsh	Intertidal saltmarsh	Intertidal saltmarsh	Coastal squeeze
		Intertidal mudflat & sand (at high water)			Intertidal mudflat	
			Vegetated shingle	Vegetated & unvegetated shingle	Vegetated & unvegetated shingle	Coastal processes
		Shallow sub-tidal			Not assessed	Not assessed
		Saline lagoons			Saline lagoons	Saline intrusion
	Migratory species (Grey Plover, Sanderling, Dunlin, Bar-tailed Godwit, Redshank, Dark-bellied Brent, Shelduck, Teal, Ringed plover, Curlew, Turnstone, Wigeon, Pintail, Shoveler, Red-breasted merganser)	Intertidal saltmarsh		Intertidal saltmarsh	Intertidal saltmarsh	Coastal squeeze
		Intertidal mudflat		Intertidal mudflat	Intertidal mudflat	
		Intertidal sand flats		Intertidal sand flats		
		Intertidal mixed sediment shores		Intertidal mixed sediment shores		
				Vegetated shingle	Vegetated shingle	
		Shallow sub-tidal			Not assessed	Not assessed
		Open freshwater		Freshwater habitats	Freshwater habitats	Saline intrusion
		Fresh marshes & open water				

SPA	Interest features	Functional habitat			SMP habitat grouping and impact to be assessed	
		Feeding	**Nesting**	**Roosting**	**SMP habitat grouping**	**Impact**
	and **Waterfowl assemblage**	Coastal grazing marsh		Coastal grazing marsh	Coastal grazing marsh	
		Terrestrial grasslands (wet and dry)		Terrestrial grasslands (wet and dry)	Freshwater habitats /Coastal grazing marsh	
Pagham	**Annex I species** (Common tern, Little tern, Ruff)	Intertidal saltmarsh	Intertidal saltmarsh	Intertidal saltmarsh	Intertidal saltmarsh	Coastal squeeze
		Intertidal mudflat (at high water)		Intertidal mudflat	Intertidal mudflat	
		Intertidal mixed sediment shores		Intertidal mixed sediment shores		
		Shallow sub-tidal			Not assessed	Not assessed
		Saline lagoons			Saline lagoons	Saline intrusion
	Migratory species (Dark-bellied Brent)	Intertidal saltmarsh		Intertidal saltmarsh	Intertidal saltmarsh	Coastal squeeze
		Intertidal mudflat		Intertidal mudflat	Intertidal mudflat	
		Open freshwater		Freshwater habitats	Open freshwater	Saline intrusion
		Fresh marshes & open water				
		Coastal grazing marsh		Coastal grazing marsh	Coastal grazing marsh	
		Terrestrial grasslands (wet and dry)		Terrestrial grasslands (wet and dry)	Freshwater habitats /Coastal grazing marsh	

Table J2.2 SPA interest features, habitats and impacts to be assessed

Ramsars

For Ramsar sites Table J2.3 lists the interest features of each Ramsar site and corresponding habitats and impacts to be assessed in the Appropriate Assessment.

Ramsar	SMP Habitat Groups	Interest Features/ Conservation Objectives		Impact
		Code	Ramsar Wetland Types	
Solent & Southampton Water	Coastal saltmarsh	H	Intertidal marshes	Coastal Squeeze
	Intertidal mudflat	G	Intertidal mud, sand or salt flats	
	Saline lagoons	J	Coastal brackish/saline lagoons	Saline Intrusion
	Coastal grazing marsh	Sp	Permanent saline/brackish/alkaline marshes/pools	
	Freshwater habitat (ponds, reedbeds & woodland)	Tp	Permanent freshwater marshes/pools	
		Xf	Freshwater, tree dominated wetlands	
	Vegetated shingle	E	Sand, shingle or pebble shores	Coastal Processes
	Unvegetated shingle			
	Estuaries	F	Estuarine waters	
	Not assessed	B	Marine subtidal aquatic beds	Not assessed
		D	Rocky marine shores	
Portsmouth	Coastal saltmarsh	H	Intertidal marshes	Coastal Squeeze
	Intertidal mudflat	G	Intertidal mud, sand or salt flats	
	Saline lagoons	J	Coastal brackish/saline lagoons	Saline Intrusion
	Estuaries	F	Estuarine waters	Coastal Processes
	Vegetated shingle	E	Sand, shingle or pebble shores	
	Unvegetated shingle			
	Sand dunes			
	Not assessed	B	Marine subtidal aquatic beds	Not assessed
Chichester & Langstone	Coastal saltmarsh	H	Intertidal marshes	Coastal Squeeze
	Intertidal mudflat	G	Intertidal mud, sand or salt flats	
	Saline lagoons	J	Coastal brackish/saline lagoons	Saline Intrusion
	Coastal grazing marsh	Sp	Permanent saline/brackish/alkaline marshes/pools	
	Freshwater habitat (ponds, reedbeds & woodland)	Tp	Permanent freshwater marshes/pools	
		Ts	Seasonal/intermittent freshwater marshes/pools on inorganic soils	

		Xf	Freshwater, tree dominated wetlands	
	Rivers	M	Permanent rivers/streams/creeks	Coastal Processes
	Estuaries	F	Estuarine waters	
	Vegetated shingle	E	Sand, shingle or pebble shores	
	Unvegetated shingle			
	Sand dunes			
	Not assessed	B	Marine subtidal aquatic beds	Not assessed
Pagham	Coastal saltmarsh	H	Intertidal marshes	Coastal Squeeze
	Intertidal mudflat	G	Intertidal mud, sand or salt flats	
	Saline lagoons	J	Coastal brackish/saline lagoons	Saline Intrusion
	Coastal grazing marsh	Sp	Permanent saline/brackish/alkaline marshes/pools	
	Freshwater habitat (ponds, reedbeds & woodland)	Tp	Permanent freshwater marshes/pools	
		W	Shrub-dominated wetlands	
	Rivers	M	Permanent rivers/streams/creeks	Coastal Processes
	Estuaries	F	Estuarine waters	
	Vegetated shingle	E	Sand, shingle shores (including dune systems)	
	Unvegetated shingle			
	Sand dunes			
	Not assessed	A	Shallow marine waters	Not assessed
		B	Marine subtidal aquatic beds	

Table J2.3 Ramsar interest features, habitats and impacts to be assessed

Special Areas of Conservation

For Special Areas of Conservation (SACs) Table J2.4 lists the interest features of each SAC and corresponding habitats and impacts to be assessed in the Appropriate Assessment.

SAC	SMP Habitat Groups	Interest Features/Conservation Objective	Impacts
Solent IOW Lagoons	Saline Lagoons	Coastal lagoons	Saline Intrusion
Solent Maritime	Coastal saltmarsh	*Salicornia* and other annuals colonising mud and sand	Coastal Squeeze
		Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)	
		Spartina swards (*Spartinion maritimae*)	
	Intertidal mudflat	Mudflats and sandflats - not submerged at low tide	
	Saline lagoons	Coastal lagoons	Saline Intrusion
	Freshwater (reedbeds)	Desmoulin`s whorl snail (*Vertigo moulinsiana)*	
	Sand dunes	Shifting white dunes with *Ammophila arenaria*	Coastal Processes
	Estuaries	Estuaries (function)	
	Sand banks	Sandbanks - slightly covered by sea water all the time	
	Vegetated shingle	Annual vegetation drift lines	
		Perennial vegetation of stony banks	

Table J2.4 SAC interest features, habitats and impacts to be assessed

J2.5.2 Scale of assessment summary

As previously mentioned, SMPs are large-scale, high level policy setting documents managing the shoreline over the next 100 years; further detail on how to implement the policies will be addressed in Coastal Defence Strategies and individual schemes. These in turn will require further detailed Appropriate Assessments (Table J2.5). It is therefore not the intent of this assessment to provide a level of detail that would duplicate a site specific, proposal-based Appropriate Assessment.

The scale and stages in the government's approach for managing flood and coastal erosion risk management, and the habitats, interest features and impacts that require assessment at the different stages are summarised in Table J2.5.

Stage	SMP	CDS	Scheme
Aim	To identify policies to manage risks	To identify appropriate schemes to put policy into practice.	To identify the type of work to put preferred scheme into practice
Delivers	A wide-ranging assessment of risks, opportunities, limits and areas of uncertainty	Preferred approach including economic and environmental decisions	Compare different options for putting preferred scheme into practice
Output	Policies	Type of scheme	Design of work
Outcome	Improved management for regional area of coast over long-term (100 years)	Management measures to managing flood and coastal erosion risks for a specified area	Reduced flood and coastal erosion risks to people and assets
Level of Detail	**Interest features represented by SMP Habitat Groupings**	**Interest Features**	**Interest Features**
Impacts* ***list of impacts for strategies and schemes is indicative and not complete**	Coastal squeeze	Coastal squeeze	Coastal squeeze
	Saline intrusion impacts on Freshwater SPAs	Saline intrusion impacts on Freshwater SPAs	Saline intrusion impacts on Freshwater SPAs
	Approximation of footprint of scheme	Footprint of scheme	Footprint of scheme
		Beach recycling	Beach recycling
			Access

Table J2.5: Scale, stages and level of detail required at SMP, CDS and Scheme level (modified from Defra SMP Guidance Volume 2, March 2006)

To summarise, the impacts to be assessed per SMP habitat grouping are listed below in Table J2.6.

SMP Habitat Grouping	Impact assessed
Intertidal mudflat	Coastal Squeeze
Coastal saltmarsh	
Saline lagoons	Saline Intrusion
Coastal grazing marsh	
Freshwater habitats (including ponds, reedbeds & wet woodland)	
Sand banks	Coastal processes
Coastal sand dunes	
Coastal vegetated shingle	
Unvegetated shingle	
Estuaries (function)	
Rivers	

Table J2.6: Habitats and impacts to be assessed

J3 STAGE 1: BACKGROUND TO EUROPEAN SITES

The North Solent SMP study area and surrounding area is highly designated with several overlapping European designated sites. European sites within the vicinity of study area include:

Special Protected Areas (SPA) designated under the Birds Directive (Council Directive 79/409/EEC):

- New Forest SPA
- Solent and Southampton Water SPA
- Portsmouth Harbour SPA
- Chichester and Langstone Harbours SPA
- Pagham Harbour SPA

Wetlands of International importance designated under the Ramsar Convention:

- New Forest Ramsar site
- Solent and Southampton Water Ramsar site
- Portsmouth Harbour Ramsar site
- Chichester and Langstone Harbours Ramsar site
- Pagham Harbour Ramsar site

Special Areas of Conservation (SAC) designated under the EU Habitats Directive (Council Directive 92/43/EEC):

- Solent and Isle of Wight Lagoons SAC
- Solent Maritime SAC
- New Forest SAC
- River Itchen SAC

The following section outlines the key features, conservation objectives and vulnerabilities for the designated sites, identifying the sites that will be covered by the assessment. The information has been taken from Natural England (2001) Regulations 33, Natura *2000* standard data forms and Information sheets on Ramsar Wetlands (Joint Nature Conservation Committee website; http://www.jncc.gov.uk).

J3.1 New Forest SPA

The New Forest SPA is comprised of a complex mosaic of habitats overlying mainly nutrient-poor soils (see Figure J3.1 for extent). The major components are the extensive wet and dry heaths with their rich valley mires and associated wet and dry grasslands, ancient pasture woodlands and network of rivers, streams and ponds. The area supports important populations of breeding birds associated with these habitats.

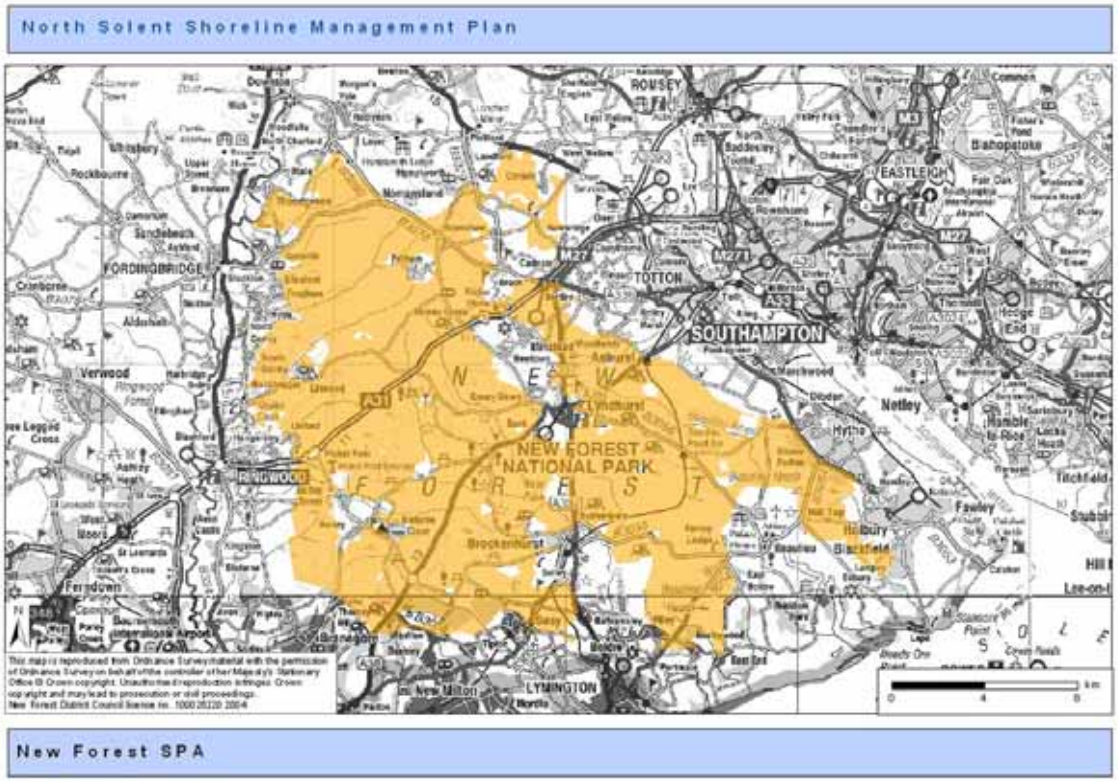


Figure J3.1 New Forest SPA

This site qualifies under Article 4.1 of the EU Birds Directive by regularly supporting Annex I species such as European nightjar *(Caprimulgus europaeus),* woodlark *(Lullula arborea),* breeding honey buzzard *(Pernis apivorus),* Dartford warbler (*Sylvia undata),* and hen harriers (*Circus cyaneu).* The site also qualifies under Article 4.2 of the EU Birds Directive by regularly supporting 1% or more of the biogeographic population of migratory species including Eurasian hobby (*Falco subbuteo)* and wood warbler (*Phylloscopus sibilatrix).*

The conservation objectives of the New Forest SPA are to maintain in favourable condition, subject to natural change, the habitats which support internationally important bird species.

The site is sensitive to recreational pressures and there has a been a decline in many bird species due to the effects of walkers particularly those with dogs, as well as low water levels affecting the wetland habitats. The valley mires are vulnerable to damage to drainage activities. The North Solent SMP is not likely to have a significant effect on the New Forest SPA. The site lies outside the inland boundary of the SMP and changes in coastal defences are not likely to have a significant effect on the conservation objectives of the site.

J3.2 Solent and Southampton Water SPA

The Solent and Southampton Water SPA extends from Hurst Spit to Hill Head along the south coast of Hampshire, within the SMP area and from Yarmouth to Whitecliff Bay along the north coast of the Isle of Wight (Figure J3.2). Due

to its extent and location the assessment of the site has been split between this SMP and the Isle of Wight SMP. A cumulative assessment combining results from both Appropriate Assessments is presented in Section J6.4.

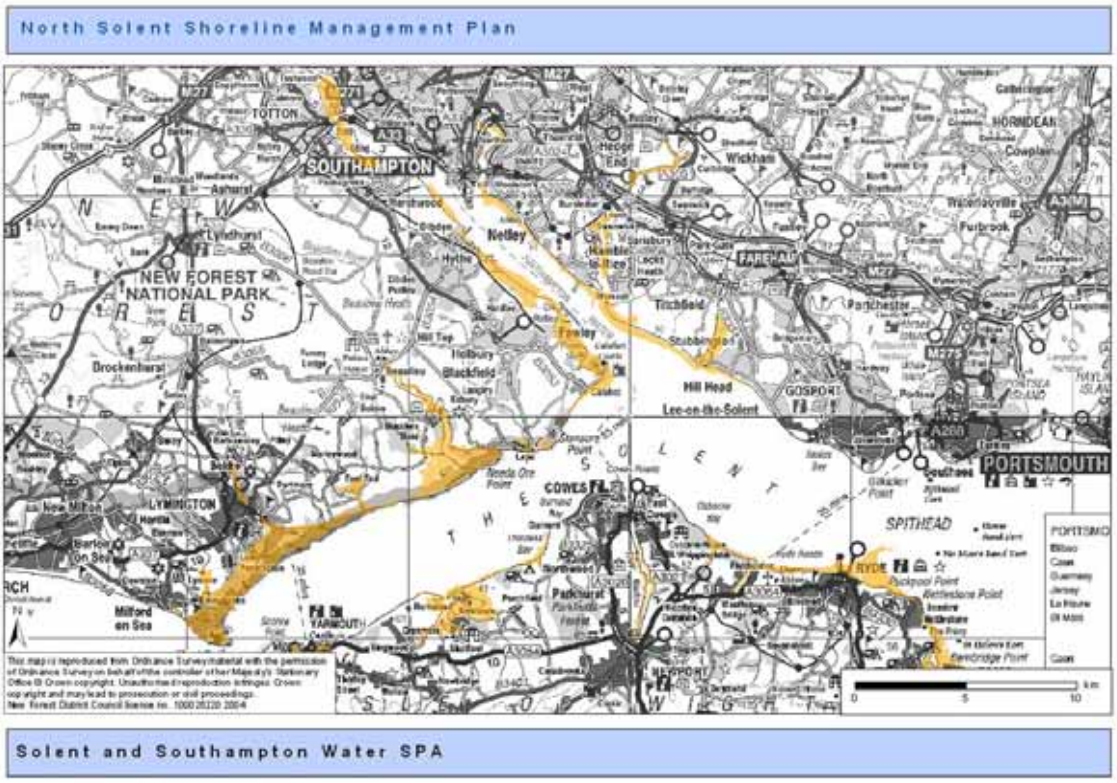


Figure J3.2 Solent and Southampton Water SPA

The site is comprised of a series of estuaries and harbours with extensive mudflats and saltmarshes together with adjacent coastal habitats including saline lagoons, shingle beaches, reedbeds, damp woodland and grazing marsh. These coastal habitats are important for breeding gulls and terns, and wintering wildfowl.

This site qualifies under Article 4.1 of the EU Birds Directive by regularly supporting 1% or more of the Great Britain breeding population of Annex I species. The Annex 1 species the site supports includes Mediterranean gull*, (Larus melcanocephalus),* little tern (*Sterna albifrons*), roseate tern (*Sterna dougallii*) common tern (*Sterna hirundo*) and Sandwich tern (*Sterna sandvicensis*). The site also qualifies under Article 4.2 of the EU Birds Directive by regularly supporting 1% or more of the biogeographic population of migratory species and 51,381 waterfowl. The migratory species the site supports include Eurasian teal (*Anas crecca*), dark bellied Brent goose, (*Branta bernicla bernicla*), ringed plover (*Charadrius hiaticula)* and black-tailed godwit (*Limosa limosa islandica*).

The conservation objectives of the Solent and Southampton Water SPA are to maintain in favourable condition, subject to natural change, the habitats which support internationally important Annex I species, internationally important migratory species and internationally important assemblages of waterfowl. These habitats include sand, shingle, saltmarsh, intertidal mudflats, intertidal sandflats, boulder and cobble shore, mixed sediment shores, shallow coastal

waters, saline lagoons, coastal grazing marsh, open water and terrestrial grasslands.

Key site sensitivities include activities or development resulting in the physical loss of the important nesting, roosting and feeding habitats for species such as little tern (*Sterna albifrons*), roseate tern (*Sterna dougallii*), common tern, Sandwich tern (*Sterna sandvicensis*) and Mediterranean gulls *(Larus melcanocephalus)*. Loss of habitat could result from maintaining coastal defences, thereby causing coastal squeeze of intertidal habitats or allowing defences protecting landward habitats to fail, thereby causing permanent inundation of these landward habitats. Disturbance is also a key sensitivity including physical disturbance through human activities and non-physical disturbance such as noise, which can have an effect by displacing birds from their feeding grounds and affect their survival.

J3.3 Portsmouth Harbour SPA

This Portsmouth Harbour SPA (Figure J3.3) qualifies under Article 4.2 of the EU Birds Directive by regularly supporting internationally and nationally important migratory bird species such as dark bellied Brent geese (*Branta bernicla bernicla)*, dunlin (*Calidris alpina alpina*), black-tailed godwit (*Limosa limosa islandica*) and red-breasted merganser (*Mergus serrator*).

The conservation objectives of the Portsmouth Harbour SPA are to maintain in favourable condition, subject to natural change, the habitats which support internationally and nationally important migratory species in particular; saltmarsh, intertidal mudflat, intertidal sandflats, shallow costal waters, coastal grazing marsh and terrestrial grassland.

Portsmouth Harbour is fringed by urban development and therefore the ability of the natural migration of intertidal habitats is restricted resulting in coastal squeeze due to sea level rise. The key sensitivities of this site are the physical loss of intertidal habitats through coastal squeeze and the loss of eelgrass (*Zostera spp*.) through erosion, which is the preferred food source for dark bellied Brent geese (*Branta bernicla bernicla)*. Disturbance from human activities can have an effect by displacing designated birds from their feeding grounds thereby adversely affecting their survival.

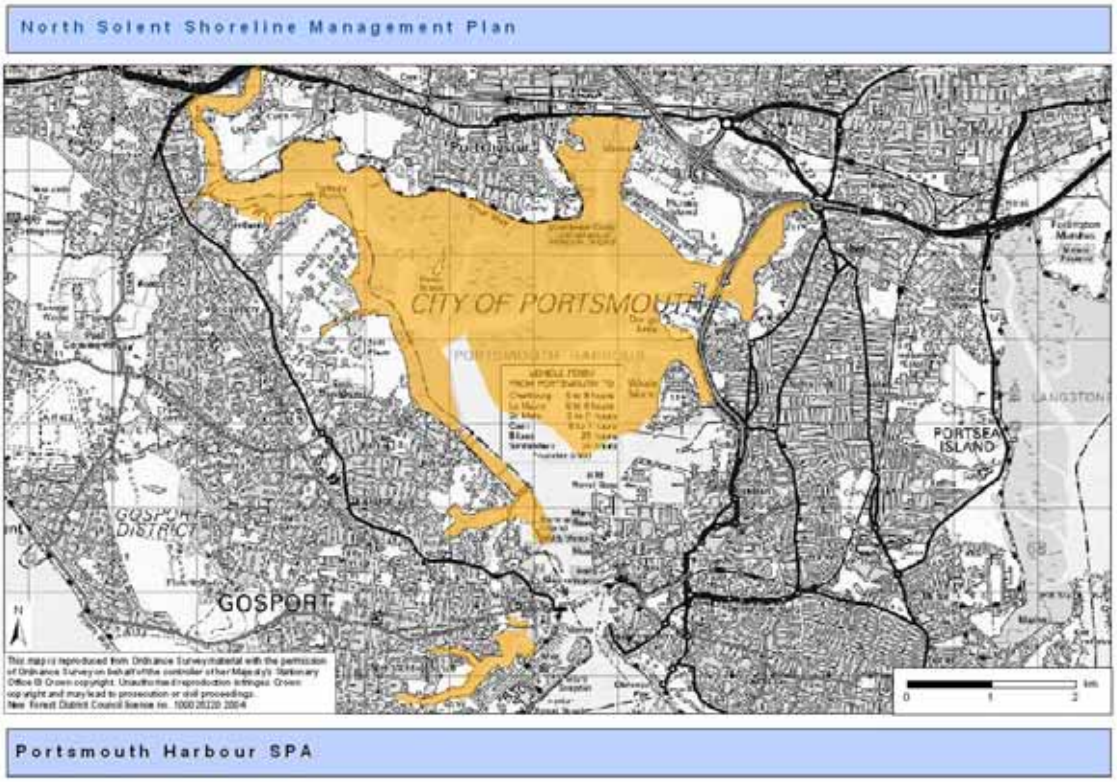


Figure J3.3 Portsmouth Harbour SPA

J3.4 Chichester and Langstone Harbours SPA

The Chichester and Langstone Harbours SPA covers two estuaries containing a wide range of coastal habitats supporting important plant and animal communities (Figure 10). The key coastal habitats are sand and shingle, shallow coastal waters, saltmarsh, intertidal mudflats, sandflats and mixed sediments. The site is of particular significance for water birds, especially in migration periods and in winter. It also supports important colonies of breeding terns.

This site qualifies under Article 4.1 of the EU Birds Directive by regularly supporting the following Annex I species; little tern (*Sterna albifrons*), common tern (*Sterna hirundo*), Sandwich tern (*Sterna sandvicensis*) and bar-tailed godwit (*Limosa lapponica).* The three tern species are present within the SPA during the summer whilst the internationally important bar-tailed godwit population is present during the winter. The site also qualifies under Article 4.2 of the EU Birds Directive by regularly supporting 1% or more of the biogeographic population of migratory species and 93,230 waterfowl. The migratory species the site supports include; northern pintail (*Anas acuta*), northern shoveler (*Anas clypeata)*, Eurasian teal (*Anas crecca*)**,** Eurasian wigeon (*Anas Penelope)*, ruddy turnstone (*Arenaria interpres)*, dark bellied Brent geese (*Branta bernicla bernicla)*, sanderling (*Calidris alba),* dunlin (*Calidris alpina alpina)*, ringed plover (*Charafrius hiaticula)*, red-breasted merganser (*Mergus serrator),* Eurasian curlew (*Numenius arquata),* Grey plover (*Pluvialis squatarola),* common shelduck (*Tadorna tadorna*) and common redshank (*Tringa tetanus)*.

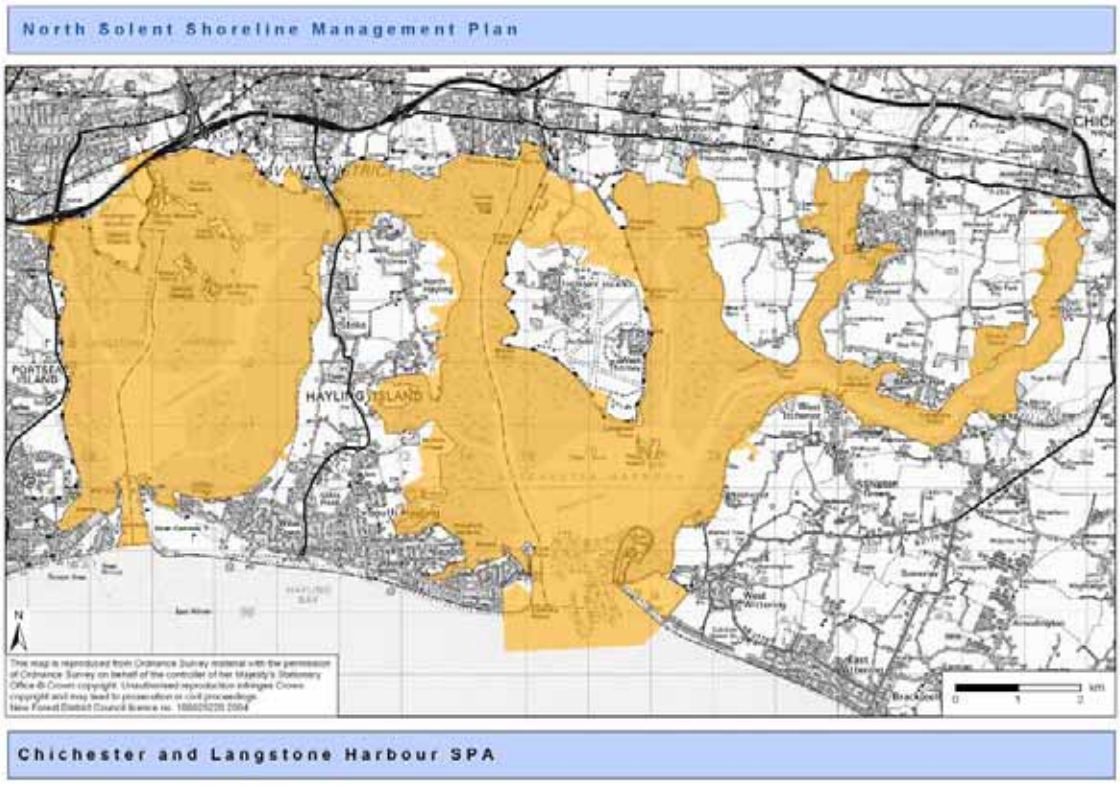


Figure J3.4 Chichester and Langstone Harbours SPA

The conservation objectives of the Chichester and Langstone SPA are to maintain in favourable condition, subject to natural change, the habitats which support internationally important Annex I species, internationally important migratory species and internationally important assemblages of waterfowl for which the site has been designated. These habitats include sand, shingle, saltmarsh, intertidal mudflats, intertidal sandflats, boulder and cobble shore, mixed sediment shores, shallow coastal waters, saline lagoons, coastal grazing marsh, open water and terrestrial grasslands.

The key sensitivities for the site include physical loss of intertidal habitats that support the migratory bird species and waterfowl, high tide nest sites being flooded which are important for Annex 1 terns and loss of eelgrass growing on muddy sand which is important for Brent geese (*Branta bernicla bernicla)*. Disturbance is also a key sensitivity including physical disturbance through human activities and non- physical disturbance such as noise, which can have an effect by displacing birds from their feeding grounds thereby adversely affecting their survival.

J3.5 Pagham Harbour SPA

Pagham Harbour is an estuarine basin with a number of key habitats including intertidal mudflat, sandflats, saltmarsh, shallow coastal waters and sparsely vegetated shingle areas (Figure J3.5).

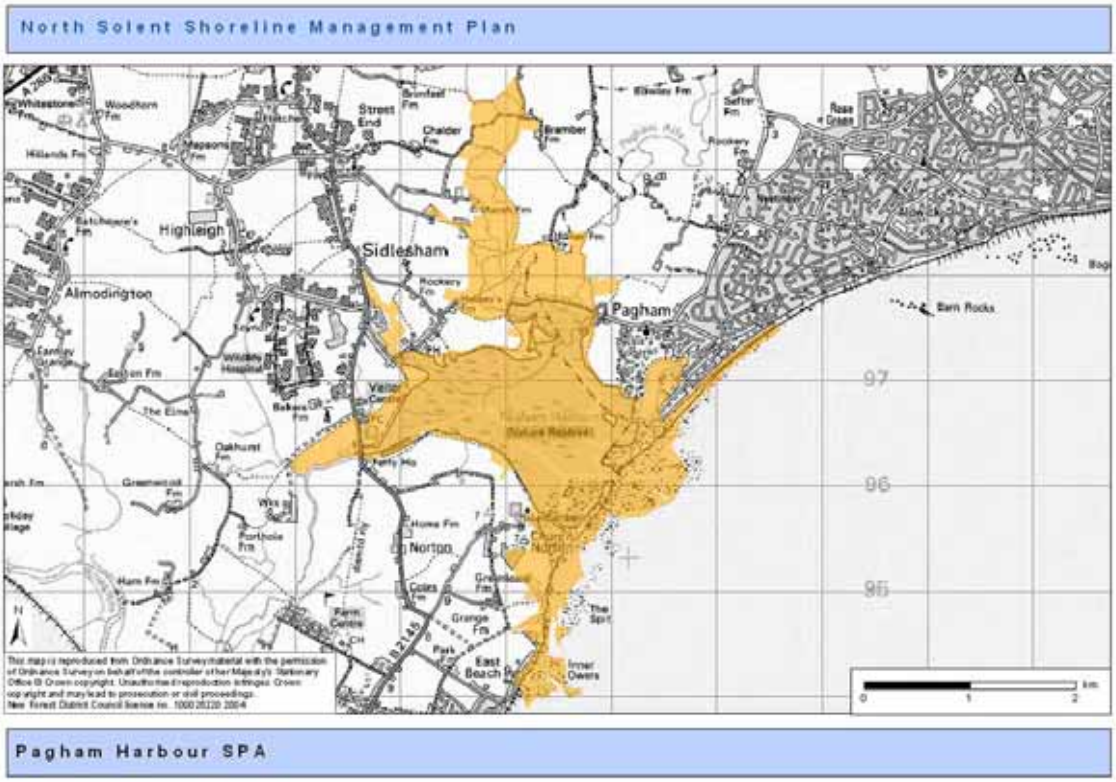


Figure J3.5 Pagham Harbour SPA

This site qualifies under Article 4.1 of the EU Birds Directive by regularly supporting 1% or more of the Great Britain population of Annex 1 species including little tern (*Sterna albifrons),* common tern (*Sterna hirundo*), ruff (*Philomachus pugnax*). The site also qualifies under Article 4.2 of the EU Birds Directive the site by regularly supporting 1% or more of the biogeographic population of migratory species of dark bellied Brent geese (*Branta bernicla bernicla).*

The conservation objectives of the Pagham Harbour SPA are to maintain in favourable condition, subject to natural change, the habitats which support internationally important Annex I species and internationally important migratory species for which the site has been designated. These habitats include sand, shingle, saltmarsh, intertidal mudflats, intertidal sandflats, shallow coastal waters, saline lagoons, coastal grazing marsh, open water and terrestrial grasslands.

Dark-bellied Brent geese (*Branta bernicla bernicla)* feed on the intertidal areas of Pagham Harbour are vulnerable to any loss through these habitats. Disturbance is also a key sensitivity including physical disturbance through human activities and non-physical disturbance such as noise which can have an effect by displacing birds from their feeding grounds thereby adversely affecting their survival. Although the site lies outside the boundaries of the North Solent SMP study area it has been included in this assessment due to the possibility that there may be an impact to the site through a NAI policy at policy unit 5A01.

J3.6 New Forest Ramsar

The New Forest Ramsar site comprises an extensive area of semi-natural vegetation including valley mires, fens and wet heath. The habitats present are of high ecological quality and diversity with undisturbed transition zones. The Ramsar site covers a similar area to the SPA site (Figure J3.6).

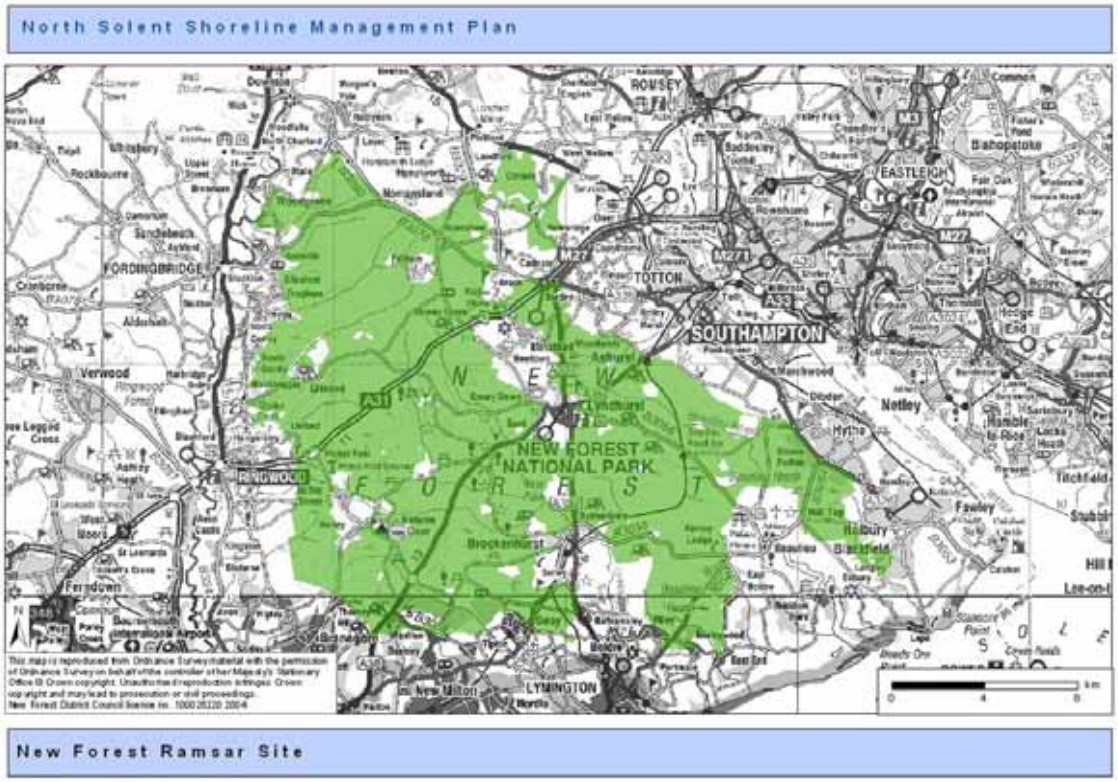


Figure J3.6 New Forest Ramsar site

The site is designated under the Ramsar criteria 1, 2, 3

Ramsar criterion 1
The site is notified for its valley mires and wet heaths which are found throughout the site and are of outstanding scientific interest. This is the largest concentration of intact valley mires of their type in Britain.

Ramsar criterion 2
The site supports a diverse assemblage of wetland plants and animals including several nationally rare species. Seven species of nationally rare plant are found on the site, as are at least 65 British Red Data Book species of invertebrate.

Ramsar criterion 3
The mire habitats are of high ecological quality and diversity and have undisturbed transition zones. The invertebrate fauna of the site is important due to the concentration of rare and scare wetland species. The whole site complex, with its examples of semi-natural habitats is essential to the genetic and ecological diversity of southern England.

The key inland wetland types are presented below:

Code	Ramsar wetland types
U	Peatlands (including peat bogs swamps, fens)
Xf	Freshwater, tree-dominated wetlands
W	Shrub-dominated wetlands
M	Rivers / streams / creeks: permanent
Xp	Forested peatland

The key sensitivities for the site include low water levels affecting the wetland habitats and valley mires. These are particularly vulnerable to damage to drainage activities. The site lies outside the inland boundary of the SMP and changes in coastal defences are not likely to have a significant effect on the conservation objectives of the site.

J3.7 Solent and Southampton Water Ramsar

The Ramsar site extends from Hurst Spit to Gilkicker Point along the south coast of Hampshire and along the north coast of the Isle of Wight (Figure J3.7). Due to its extent and location the assessment of the site has been split between this SMP and the Isle of Wight SMP. A cumulative assessment combining results from both Appropriate Assessments is presented in Section J6.4.

The site comprises estuaries and adjacent habitats including intertidal flats, saline lagoons, shingle beaches, saltmarsh, reedbeds, damp woodland and grazing marsh. The diversity of the habitats supports internationally important numbers of wintering waterfowl, important breeding gull and tern populations and an important assemblage of rare invertebrates and plants.

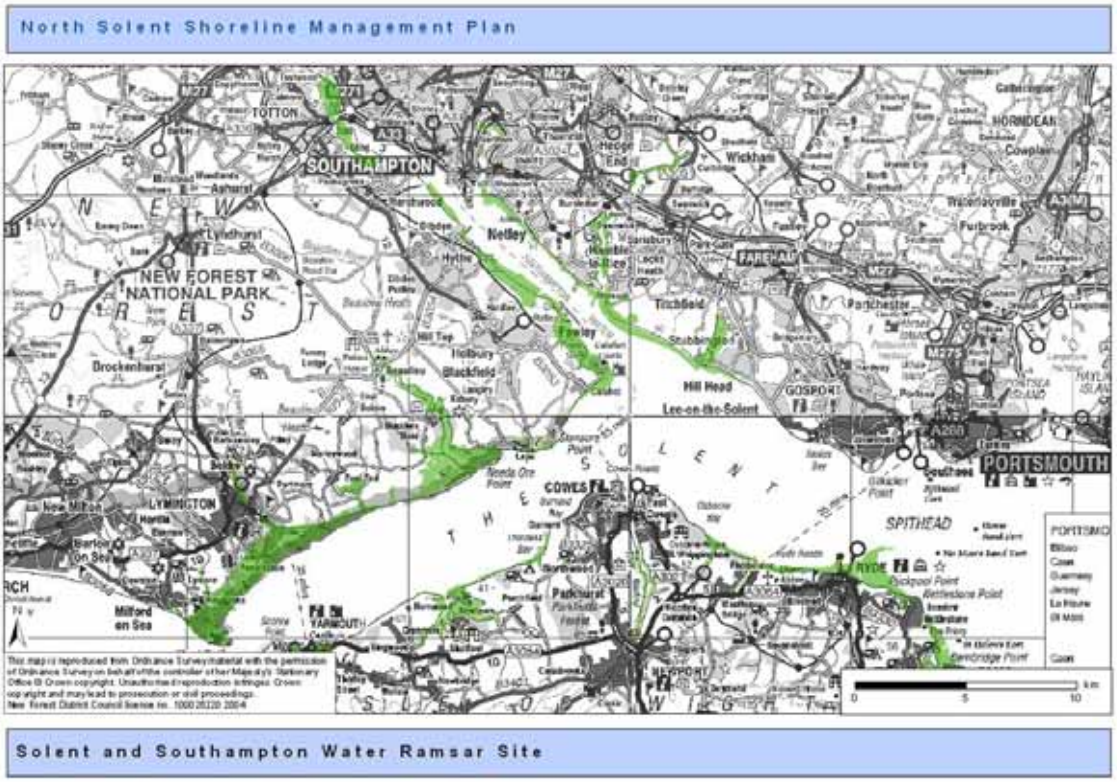


Figure J3.7 Solent and Southampton Water Ramsar site

This site is designated under the Ramsar criteria 1, 2, 5 & 6 (RIS, 2006)

Ramsar criterion 1
The site is one of the few major sheltered channels between a substantial island and mainland in European waters, exhibiting an unusual string double tide flow and has long periods of slack water at high and low tide. It includes many wetland habitats characteristic of the biogeographic region including saline lagoons, saltmarshes, estuaries, intertidal flats, shallow coastal waters, grazing marshes, reedbeds, coastal woodland and rocky boulder reefs.

Ramsar criterion 2
The site supports an important assemblage of rare plants and invertebrates; at least 39 British Red Data Book invertebrates and at least eight British red Data Book plants represented on site.

Ramsar criterion 5 –Assemblages of international importance
Species with peak counts in winter:
51343 waterfowl (5 year peak mean 1998/99-2002/2003)

Ramsar criterion 6 – sp./pop. occurring at levels of international importance

- Ringed plover, *Charadrius hiaticula* (1.2% of the pop.)
- Dark bellied Brent goose, *Branta bernicla bernicla* (3% of the pop.)
- Eurasian teal, *Anas crecca* (1.3% of the pop.)
- Black-tailed godwit, *Limosa limosa islandica* (3.5% of the pop.)

The key wetland types present are listed in below.

Code	Ramsar wetland types
D	Rocky marine shores
E	Sand/ shingle shores (including sand dunes)
G	Intertidal mud, sand or salt flats
H	Saltmarshes
J	Coastal brackish/saline lagoons
Sp	Permanent saline/brackish/alkaline marshes/pools
Tp	Permanent freshwater marshes/pools
Xf	Freshwater, tree dominated wetlands

J3.8 Portsmouth Harbour Ramsar site

Portsmouth Harbour Ramsar site covers the large, industrialized estuary and is one of the four largest expanses of mudflats and tidal creeks on the South Coast of Britain (Figure J3.8).

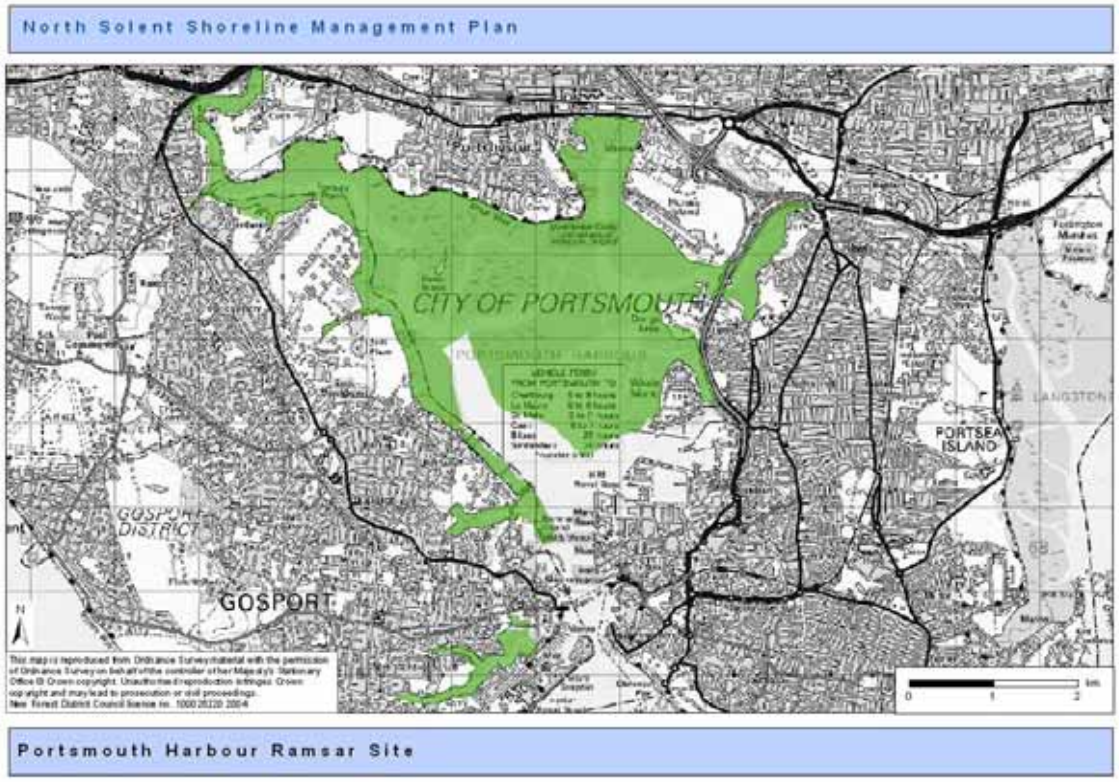


Figure J3.8 Portsmouth Harbour Ramsar

The site supports internationally important numbers of wintering dark-bellied Brent geese (*Branta bernicla bernicla)* and nationally important numbers of Grey plover, dunlin and black tailed godwit.

This site is designated under the Ramsar criteria 3 & 6 (RIS, 2006)

Ramsar criterion 3
The intertidal mudflat areas possess extensive beds of eelgrass (*Zostera angustifola* and *Zostera noltei*) which support the grazing dark-bellied Brent

geese (*Branta bernicla bernicla)* populations. The mud-snail *Hydobia ulvae* is found at extremely high densities, which helps to support the wading bird interest of the site. Common cord-grass (*Spartina anglica)* dominates large areas of saltmarsh in addition there are extensive areas of green algae (*Enteromorpha spp.)* and sea lettuce (*Ulva lactuca)*. More locally the saltmarsh is dominated by sea purslane (*Halimione portulacoides)* which gradates to more varied communities at the higher shore levels. The site also includes a number of saline lagoons hosting nationally important species.

Ramsar criterion 6 – sp./pop. occurring at levels of international importance

- Dark bellied Brent goose, *Branta bernicla bernicla* (2.1% of the pop.)

The key wetland types present are listed below:

Code	Ramsar wetland types
B	Marine beds (sea grass beds)
E	Sand/ shingle (including sand dunes)
F	Estuarine waters
G	Intertidal mud, sand or salt flats
H	Salt marshes
J	Coastal brackish/saline lagoons

J3.9 Chichester and Langstone Harbours Ramsar site

Chichester and Langstone Harbours are large, sheltered estuarine basins comprising extensive mud and sand flats exposed at low tide (Figure J3.9). The site is of particular significance for over wintering wildfowl and waders and a wide range of coastal and transitional habitats supporting important plant and animal communities.

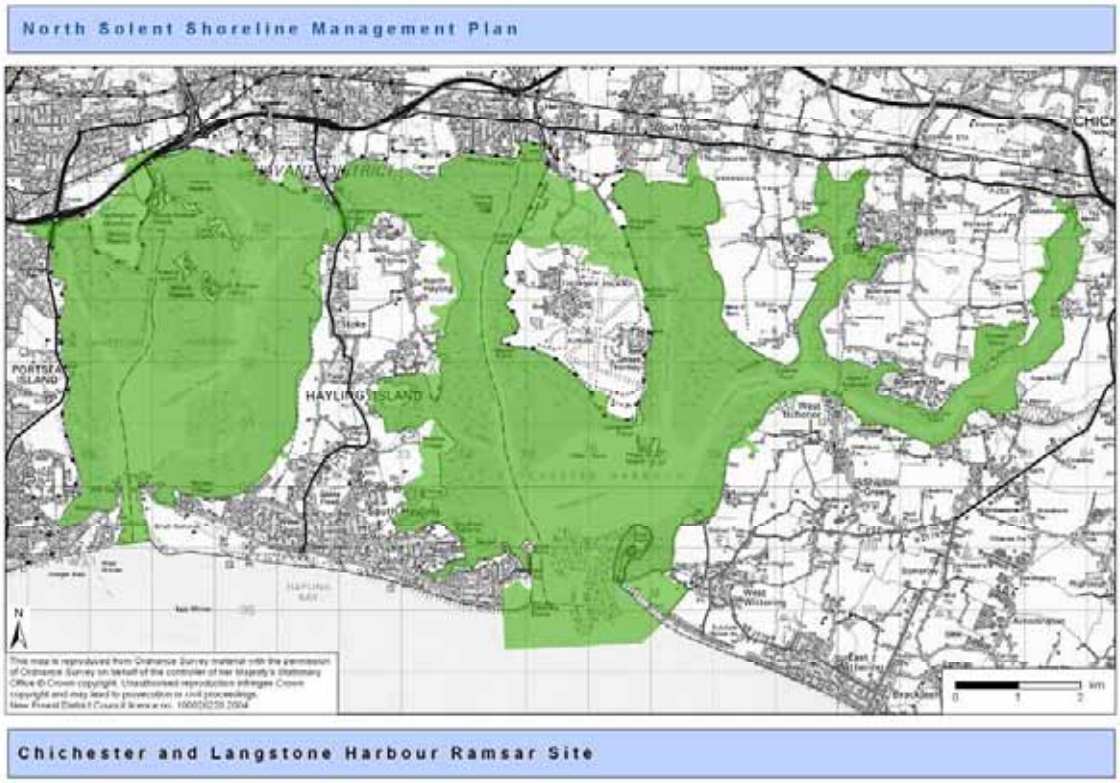


Figure J3.9 Chichester and Langstone Harbours Ramsar site

This site is designated under the Ramsar criteria 1, 5 & 6 (RIS, 2006)

Ramsar criterion 1
The site comprises of two large estuarine basins linked by a channel. The site includes intertidal mudflats, saltmarsh, sand and shingle spits and sand dunes.

Ramsar criterion 5 –Assemblages of international importance
Species with peak counts in winter:
76480 waterfowl (5 year peak mean 1998/99-2002/2003)

Ramsar criterion 6 – sp./pop. occurring at levels of international importance

- Ringed plover, *Charadrius hiaticula* (1.1% of the pop.)
- Black-tailed godwit, *Limosa limosa islandica* (2.5% of the pop.)
- Common redshank, *Tadorna tadorna* (1% of pop. in GB)
- Dark bellied brent goose, *Branta bernicla bernicla* (6% of the pop.)
- Common shelduck, *Tadorna tadorna* (1.8% of pop. in GB)
- Grey plover, *Pluvialis squatarola* (1.2% of pop.)
- Dunlin, *Calidris alpina alpina* (2.5% of the pop.)

The key wetland types present are listed below:

Code	Ramsar wetland types
B	Marine beds (sea grass beds)
E	Sand/shingle (including sand dunes)
F	Estuarine waters
G	Intertidal mud, sand or salt flats
H	Saltmarshes
J	Coastal brackish/saline lagoons
M	Permanent rivers/streams/creeks
Sp	Permanent saline/brackish/alkaline marshes/pools
Tp	Permanent freshwater marshes/pools
Ts	Seasonal/intermittent freshwater marshes/pools on inorganic soils
W	Shrub-dominated woodlands

J3.10 Pagham Harbour Ramsar site

Pagham harbour is comprised of a central area of saltmarsh and tidal mudflats with surrounding habitats including lagoons, shingle, open water, reed swamps and wet permanent grassland (Figure J3.10).

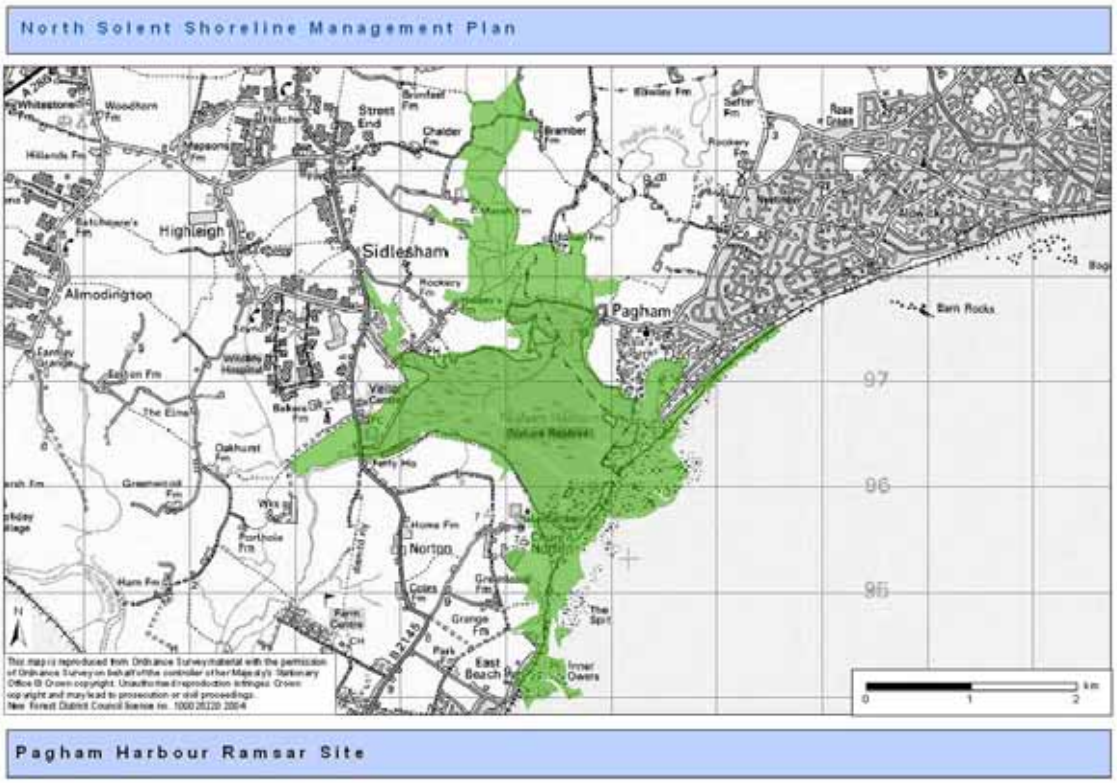


Figure J3.10 Pagham Harbour Ramsar site

The intertidal mudflats are rich in invertebrate and algae, and provide important feeding areas for birds. The lower saltmarsh is dominated by common cord grass but also includes patches of glasswort. At higher levels sea-purslane is abundant. The area supports internally important numbers of wintering pintail and nationally important numbers of dark-bellied Brent geese

(*Branta bernicla bernicla)*, Grey plover (*Pluvialis squatarola)* and black-tailed godwit (*Limosa limosa islandica)*.

This site is designated under the Ramsar criteria 3 & 6 (RIS, 2006)

Ramsar criterion 3
The intertidal mudflat areas possess extensive beds of eelgrass (*Zostera angustifolia* and *Zostera noltei)* which support dark-bellied Brent geese (*Branta bernicla bernicla)* populations. The mud snail (*Hydrobia ulvae)* is found at high densities and helps to support the wading bird interest. Common cord grass (*Spartina anglica)* dominates large areas of saltmarsh. The site also includes a number of saline lagoons hosting nationally important species.

Ramsar criterion 6 – sp./pop. occurring at levels of international importance

- Dark bellied Brent goose, *Branta bernicla bernicla* (2.1% of the pop.)

The key wetland types present are listed below:

Code	Ramsar wetland types
A	Shallow marine waters
E	Sand, shingle shores (including dune systems)
F	Estuarine waters
G	Intertidal mud, sand or salt flats
H	Saltmarshes
J	Coastal brackish/saline lagoons
M	Permanent rivers/streams/creeks
Sp	Permanent saline/brackish/alkaline marshes/pools
Tp	Permanent freshwater marshes/pools
W	Shrub-dominated wetlands
9	Canals and drainage channels

Although the site lies outside the boundaries of the North Solent SMP study area it has been included in this assessment due to the possibility that there may be an impact to the site through a NAI policy at policy unit 5A01.

J3.11 Solent and Isle of Wight Lagoons SAC

The Solent on the south coast of England encompasses a series of coastal lagoons, including percolation, isolated and sluiced lagoons. Within the North Solent SMP area, there are a number of lagoons including within in the marshes at Keyhaven – Pennington, at Farlington Marshes in Chichester Harbour, and at Gilkicker, near Gosport (Figure J3.11).

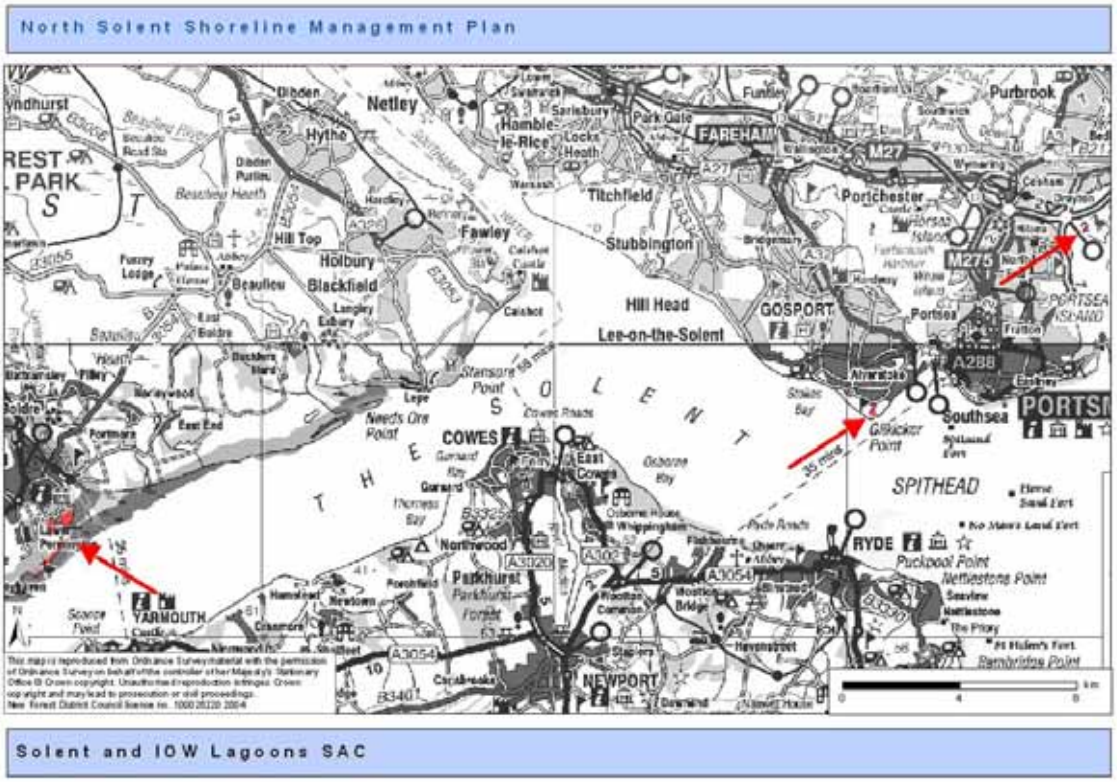


Figure J3.11 Solent and Isle of Wight Lagoons SAC

The lagoons in Keyhaven – Pennington Marshes are part of a network of ditches and ponds within the saltmarsh behind a sea wall. The saline lagoon at Farlington Marshes is isolated within the marsh pasture that, although separated from the sea by a sea wall, receives seawater during spring tides. Gilkicker Lagoon is a sluiced lagoon with marked seasonal salinity fluctuation.

The site is designated under the EU Habitats Directive for its Annex I habitat, Coastal Lagoons.

The conservation objectives of the Solent and Isle of Wight Lagoons SAC are to maintain in favourable condition, subject to natural change coastal lagoons.

The site is sensitive to activities and developments such as a change in SMP policy where saline lagoons are protected behind coastal defences.

J3.12 Solent Maritime SAC

The Solent Maritime SAC extends along the north and north-west coastal of the Isle of Wight and covers the majority of the intertidal area along the west Solent, west side of Southampton water and the Hamble (Figure 3.12). Due to its extent and location the assessment of the site has been split between this SMP and the Isle of Wight SMP. A cumulative assessment combining results from both Appropriate Assessments is presented in Section J6.4.

The designation covers the subtidal areas off the mouth of Beaulieu estuary and estuarine intertidal areas of Chichester and Langstone Harbours as well as the subtidal areas at the mouth of both Harbours.

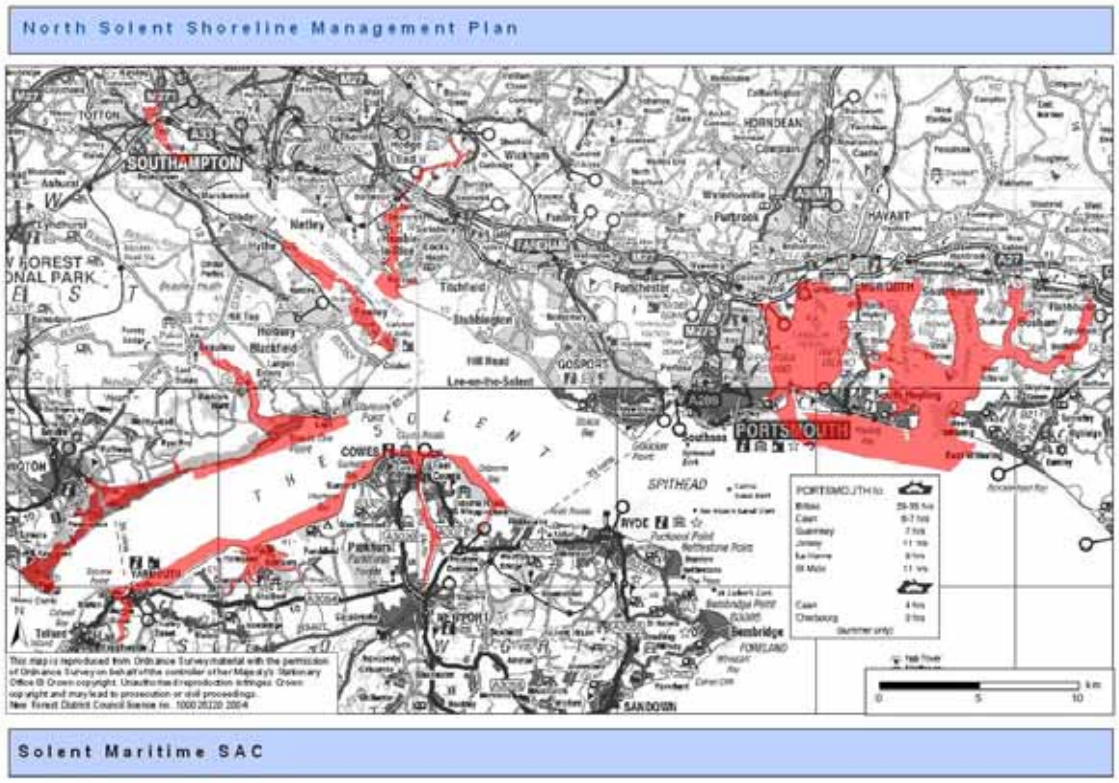


Figure J3.12 Solent Maritime SAC

The site is designated under the EU Habitats Directive for its Annex I habitats which include:

- *Salicornia* and other annuals colonising mud and sand
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- Spartina swards (*Spartinion maritimae*)
- Mudflats and sandflats - not submerged at low tide
- Annual vegetation drift lines
- Perennial vegetation of stony banks
- Coastal lagoons
- Shifting white dunes with *Ammophila arenaria*
- Estuaries
- Sandbanks - slightly covered by sea water all the time

The conservation objectives of the Solent Maritime SAC are to maintain in favourable condition, subject to natural change the Annex 1 for which the site has been designated as listed above.

The site covers a complex of estuarine systems with a wide range of estuary types and diversity of habitats. The estuary habitats support a wide variety of communities which are dependant on the ecological functioning of other communities, therefore loss of habitats/communities would be detrimental to the favourable condition of the estuaries feature. The key sensitivity is the loss

or reduction in the Annex I habitats. Annual vegetated drift lines are sensitive to physical loss as a result of coastal squeeze and changes in coastal processes may affect the sediment budget of estuaries and reduce the supply of sediment to areas of drift line vegetation. Saltmarsh (*Salicornia,* Atlantic salt meadows and Spartina swards), mudflats and sandflats are sensitive to physical loss through coastal squeeze due to sea level rise. Within Langstone and Chichester Harbours, there are areas of sand and gravel colonised by marine communities which are sensitive to siltation.

The site is also designated for it's Annex II Desmoulin's whorl snail (*Vertigo moulinsiana).* Desmoulin's whorl snail is the largest Vertigo species, with a shell height up to about 2.6 mm. It normally lives on reed-grasses and sedges, such as reed sweet-grass. The species is present in policy unit 5A06. Like all Annex II Vertigo species, it is highly dependent on maintenance of existing local hydrological conditions.

J3.13 River Itchen SAC

The River Itchen is a classic chalk river which flows through Winchester to join the Solent at Southampton (Figure J3.13).

The site hosts a number of habitats for a number of nationally and internationally important plants and animals. It's designation as a SAC reflects its importance for a number of aquatic animals including the Atlantic salmon. The estuary acts as a conduit through which migrant fish such as Atlantic salmon pass into and out of the River Itchen SAC.

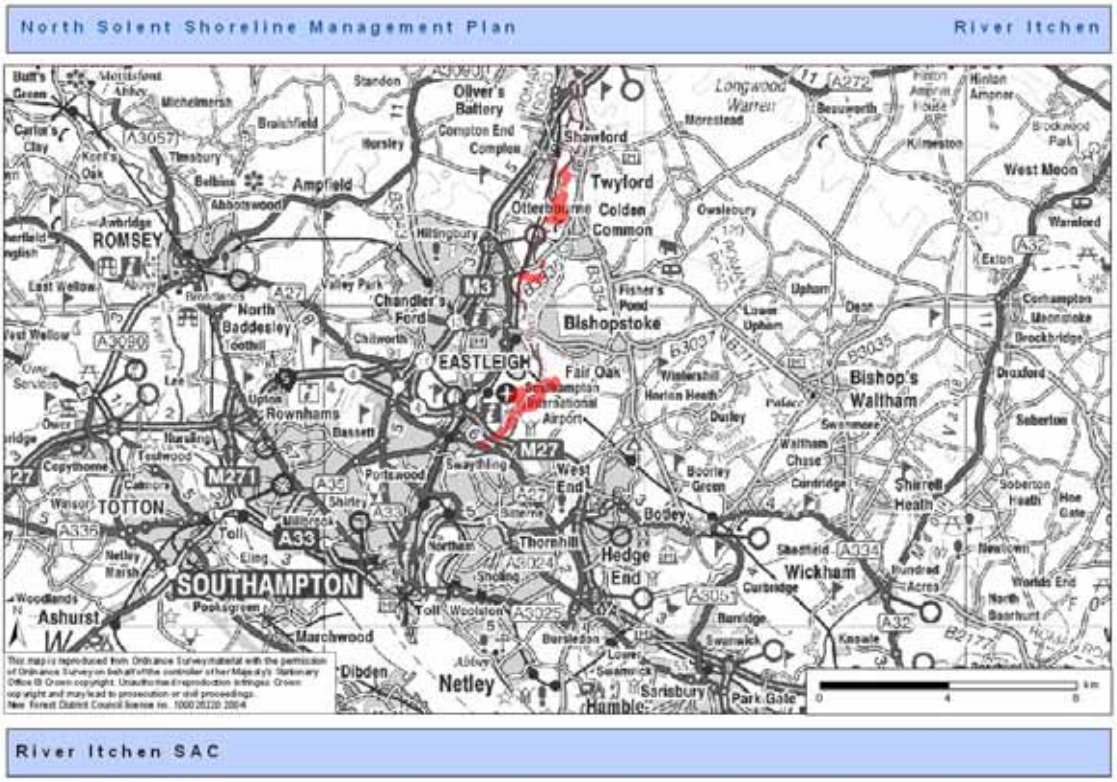


Figure J3.13 River Itchen SAC

The site is designated under the EU Habitats Directive for its Annex I habitat:

- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation

In addition, for the following Annex II species:

- Southern damselfly (*Coenagrion mercuriale)*
- Bullhead (*Cottus gobio)*
- White-clawed (or Atlantic stream) crayfish (*Austropotamobius pallipes)*
- Brook lamprey (*Lampetra planeri*)
- Atlantic salmon (*Salmo salar*)
- Otter (*Lutra lutra*)

The conservation objectives of the River Itchen SAC are to maintain in favourable condition, subject to natural change the Annex I habitats and Annex II species for which the site has been designated as listed above.

The principle threat to the habitats within the SAC is the decrease in flow velocities and increase in siltation. The quality of the river water is also important to maintaining the diversity of the river ecology. The North Solent SMP is not likely to have a significant effect on the River Itchen SAC.

J3.14 New Forest SAC

The New Forest SAC is designated under the EU Habitats Directive for its Annex I habitats (Figure J3.14):

- Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*)
- Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea*
- Northern Atlantic wet heaths with *Erica tetralix*
- European dry heaths
- Molinia meadows on calcareous, peaty or clayey-silt-laden soils
- Depressions on peat substrates of the *Rhynchosporion*
- Atlantic acidophilous beech forests
- *Asperulo-Fagetum* beech forests
- Old acidophilous oak woods
- Bog woodland
- Alluvial forests
- Transition mires and quaking bogs
- Alkaline fens

And for the following Annex II species

- Southern damselfly (*Coenagrion mercuriale)*
- Stag beetle (*Lucanus cervus)*
- Great crested newt (*Triturus cristatus)*

The conservation objectives of the New Forest SAC are to maintain in favourable condition, subject to natural change the Annex 1 for which the site has been designated as listed above.

The key sensitivities for the site include low water levels affecting the wetland habitats and valley mires are vulnerable to damage to drainage activities. The North Solent SMP is not likely to have a significant effect on the New Forest SAC. The site lies outside the inland boundary of the SMP and changes in coastal defences are not likely to have a significant effect on the conservation objectives of the site.

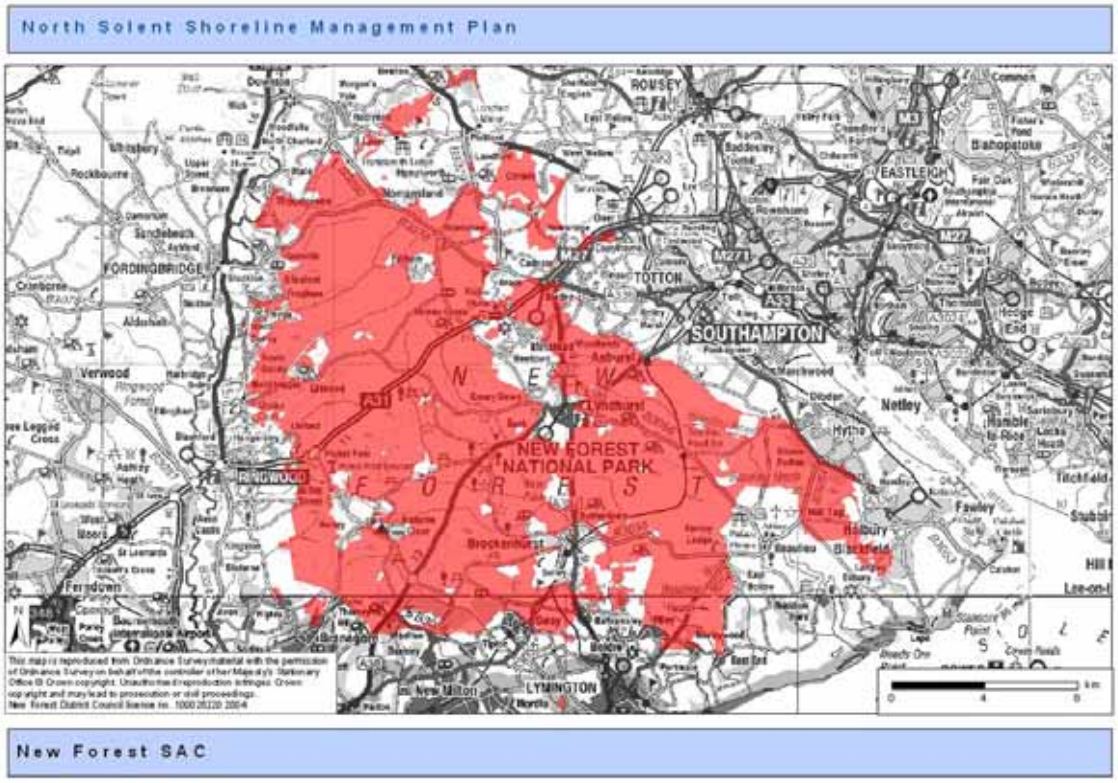


Figure J3.14 New Forest SAC

J4 STAGE 1: ASSESSMENT OF LIKELY SIGNIFICANT EFFECT

This section details the likely significant effect of the plan on the conservation objectives of each European site as a result of the potential SMP policies of Hold The Line (HTL), No Active Intervention (NAI), Advance the Line (ATL) and Managed Realignment (MR).

J4.1 Scope of assessment for SMP policies

In order to identify significant effects and actions to be taken forward to stage 2 of the Appropriate Assessment process, a generic assessment was devised (Table J4.1) to enable each of the SMP policies to be tested against the list of SMP habitat groups.

Defra SMP guidance (Defra, 2006) provides four SMP policies to be applied to the SMP policy units (PU), these are listed below:

- **Hold The defence Line (HTL)**: maintain or upgrade level of protection provided by defences
- **No Active Intervention (NAI)**: no investment in providing or maintaining defences
- **Advance The defence Line (ATL)**: construct defences seaward of existing defences / land reclamation)
- **Managed Realignment (MR)**: allowing the shoreline to move backwards or forwards, with management to control or limit movement

SMP Habitat Grouping	Policy	Potential Effect	Action
Intertidal mudflat	HTL	Negative effect due to coastal squeeze	Quantify losses due to coastal squeeze
	MR	Beneficial effect as more habitat created	Quantify gains
	NAI	Beneficial effect as more habitat created	
Coastal saltmarsh	HTL	Negative effect due to coastal squeeze	Quantify losses due to coastal squeeze
	MR	Beneficial effect as more habitat created	Quantify gains
	NAI	Beneficial effect as more habitat created	
Coastal vegetated shingle	HTL	Significant effect- site specific	Describe effects on coastal processes
	MR	Significant effect- site specific	
	NAI	Significant effect- site specific	
Unvegetated shingle	HTL	Significant effect- site specific	Describe effects on coastal processes
	MR	Significant effect- site specific	
	NAI	Significant effect- site specific	
Coastal grazing	HTL	No significant effect	None

SMP Habitat Grouping	Policy	Potential Effect	Action
marsh	MR	Potential significant effect	Quantify losses
	NAI	Potential significant effect	
Freshwater habitats (including ponds, reedbeds & wet woodland)	HTL	No significant effect	None
	MR	Potential significant effect	Quantify losses
	NAI	Potential significant effect	Quantify losses
Saline lagoons	HTL	No significant effect	None
	MR	Negative effect due to saline intrusion	Quantify losses
	NAI	Negative effect due to saline intrusion	
Sand dunes	HTL	Potential significant effect	Describe effects on coastal processes
	MR	Potential significant effect-site specific	
	NAI	Potential significant effect-site specific	
Rivers	HTL	Potential significant effect	Describe effects on coastal processes
	MR	No significant effect	None
	NAI	No significant effect	
Estuaries	HTL	Potential significant effect	Describe effects on coastal processes
	MR	No significant effect	None
	NAI	No significant effect	

Table J4.1 Potential impacts of the SMP policies on 'SMP habitat groupings'

The North Solent SMP has not applied the policy of ATL on any frontage therefore this policy has not been used in this assessment. HTL policies will result in a negative effect on mudflat and saltmarsh habitats through coastal squeeze processes but will not have a significant effect on habitats located behind defences (Table J4.1). The effects on coastal vegetated shingle and unvegetated shingle will be site specific.

The SMP states that existing defences can be maintained on a like for like basis without planning permission under a NAI policy. However, where the landowner wishes to upgrade existing defences or build new defences, this will require planning permission and will be treated on a site by site basis. Therefore the Appropriate Assessment has taken the approach that coastal squeeze on an NAI frontage will continue until the end of the residual life of

the existing defence and that any habitat creation on a NAI frontage will commence at the end of the residual life of the existing defence, thereby resulting in a beneficial effect (Table J4.1). This is purely an assumption to enable the Appropriate Assessment to be consistent when calculating habitat losses and gains. In reality, a defence may continue to be maintained beyond the residual life of the defence; future Appropriate Assessments will have to be mindful of this. For MR sites coastal squeeze was calculated until the onset of the MR policy whence habitat creation behind the defence would commence, thereby resulting in a beneficial effect (Table J4.1).

J4.2 Scoping the European Sites for the AA

The North Solent SMP study area and surrounding area is highly designated with several overlapping European designated sites. Details of the qualifying features for each designated sites are covered in Section J3. Table J4.2 below summaries the qualifying features for each European site, describing if any SMP policies are likely to have a significant effect on the site in able to define the scope of European sites to include in the Stage 2: Appropriate Assessment. The following Ramsar habitats were scoped out of this assessment as it was considered that the SMP would not have a significant effect on:

- Shallow marine waters
- Marine subtidal aquatic beds
- Rocky marine shores
- Sand banks
- Rivers

European site	Qualifying features	Potential effects of SMP policies
New Forest SPA	Bird species designated under Article 4.1 & 4.2 and supporting habitats including wet heaths, dry heaths, mires, inland water bodies, bogs, marshes, fens, woodland and grassland.	**No significant impacts** are expected on the New Forest SPA or Ramsar as the sites are outside the inland boundary for the SMP.
New Forest Ramsar	Important wetland habitats including mires and wet heaths. Supports a diverse assemblage of wetland plants and animals.	
Solent and Southampton Water SPA	Bird species designated under Article 4.1 & 4.2 and supporting habitats including saline lagoons, mudflats, saltmarsh, mixed sediment shores, vegetated shingle, grazing marsh, standing open water, terrestrial grasslands.	HTL policies are likely to have a significant **detrimental effect** on intertidal habitats and vegetated shingle backed by a seawall, causing loss through coastal squeeze. MR policies are likely to have a significant **detrimental effect** resulting in loss of designated terrestrial habitats including coastal grazing marsh, saline lagoons and grasslands. However, MR policies are **not likely to have a significant detrimental effect** on mudflat and saltmarsh but have a beneficial effect by creating new intertidal habitat. NAI policies are likely to have a significant **detrimental effect** on habitats on both sides of defences through either coastal squeeze resulting from redundant defences or saline intrusion of landward habitats previously protected by defences. However, NAI policies are **not likely to have a significant detrimental effect**
Solent and Southampton Water Ramsar	Important wetland habitats including saline lagoons, saltmarshes, estuaries, intertidal flats, shallow coastal waters, permanent freshwater marshes, grazing marshes and rocky boulder reefs. Assemblages of bird species at levels of international importance including Ringed plover, Dark bellied brent goose, Eurasian teal and Black-tailed godwit.	

European site	Qualifying features	Potential effects of SMP policies
		on mudflat and saltmarsh but have a beneficial effect by creating new intertidal habitat and delivering new sediment to sand and shingle habitats.
Portsmouth Harbour SPA	Bird species designated under Article 4.2 and supporting habitats including mudflats, saltmarsh, vegetated shingle, open freshwater, costal grazing marsh and terrestrial grasslands.	HTL policies are likely to have a significant **detrimental effect** on intertidal habitats and some vegetated shingle backed by a seawall, causing loss through coastal squeeze. MR policies are likely to have a significant **detrimental effect** resulting in loss of designated terrestrial habitats including coastal grazing marsh, saline lagoons and grasslands. However, MR policies are **not likely to have a significant detrimental effect** on mudflat and saltmarsh but have a beneficial effect by creating new intertidal habitat. NAI policies are likely to have a significant **detrimental effect** on habitats on both sides of defences through either coastal squeeze resulting from redundant defences or saline intrusion of landward habitats previously protected by defences. However, NAI policies are **not likely to have a significant detrimental effect** on mudflat and saltmarsh but have a beneficial effect by creating new intertidal habitat and delivering new sediment to sand and shingle habitats.
Portsmouth Harbour Ramsar	Important wetland habitats including: saltmarsh, mudflats, sand, shingle and pebble shores, saline lagoons, estuarine waters and subtidal aquatic beds. Assemblages of bird species at levels of international importance including dark bellied Brent goose.	
Chichester and Langstone Harbours SPA	Bird species designated under Article 4.1 & 4.2 and supporting habitats including, saline lagoons, mudflats, saltmarsh, vegetated shingle,	HTL policies are likely to have a significant **detrimental effect** on intertidal habitats and vegetated shingle backed by a seawall, causing loss through coastal

European site	Qualifying features	Potential effects of SMP policies
	mixed sediment shores, grazing marsh, standing open water, terrestrial grasslands.	squeeze. MR policies are likely to have a significant **detrimental effect** resulting in loss of designated terrestrial habitats including coastal grazing marsh, saline lagoons and grasslands. However, MR policies are **not likely to have a significant detrimental effect** on mudflat and saltmarsh but have a beneficial effect by creating new intertidal habitat. NAI policies are likely to have a significant **detrimental effect** on habitats on both sides of defences through either coastal squeeze resulting from redundant defences or saline intrusion of landward habitats previously protected by defences. However, NAI policies are **not likely to have a significant detrimental effect** on mudflat and saltmarsh but have a beneficial effect by creating new intertidal habitat and delivering new sediment to sand and shingle habitats.
Chichester and Langstone Harbours Ramsar	Important wetland habitats including saline lagoons, saltmarshes, sand, shingle and pebble shores, estuaries, intertidal flats, shallow coastal waters, permanent freshwater marshes, grazing marshes and tree dominated wetlands. Assemblages of bird species at levels of international importance including: Ringed plover, Black-tailed godwit, Common redshank, Dark bellied Brent goose, Common shelduck, Grey plover, Dunlin, Calidris.	
Pagham Harbour SPA	Bird species designated under Article 4.1 & 4.2 and supporting habitats including saline lagoons, mudflats, saltmarsh, mixed sediment shores, vegetated shingle, grazing marsh, standing open water, terrestrial grasslands.	A MR at Medmerry within the proposed secondary defence extents considered by the Pagham To East Head Coastal Defence Strategy Study are **not likely to have a significant detrimental effect** on designated habitats. NAI policy at Medmerry is likely to have a significant **detrimental effect** on terrestrial habitats surrounding Pagham harbour. However, MR and NAI policies at Medmerry are **not likely to have a significant detrimental effect**
Pagham Harbour Ramsar	Important wetland habitats including: saltmarsh, mudflats, sand, shingle and pebble shores, saline lagoons, estuarine waters and subtidal aquatic beds.	

European site	Qualifying features	Potential effects of SMP policies
	Assemblages of bird species at levels of international importance including dark bellied Brent goose.	on mudflat and saltmarsh but have a beneficial effect by recreating new habitat, albeit outside the SPA/Ramsar area
Solent and Isle of Wight Lagoons SAC	Annex I habitat: Coastal Lagoons.	MR and NAI policies are likely to have a significant **detrimental effect** on designated saline lagoons through saline intrusion.
Solent Maritime SAC	Annex I habitats including: Salicornia and other annuals colonising mud and sand, Atlantic salt meadows, Spartina swards, mudflats and sandflats – not submerged at low tide, annual vegetation drift lines, perennial vegetation of stony banks, coastal lagoons, shifting white dunes with *Ammophila arenaria,* Estuaries and Sandbanks - slightly covered by sea water all the time.	HTL policies are likely to have a significant **detrimental effect** on intertidal habitats and vegetated shingle backed by a seawall, causing loss through coastal squeeze. MR policies are likely to have a significant **detrimental effect** resulting in loss of coastal lagoons NAI policies are likely to have a significant **detrimental effect** on habitats on both sides of defences through either coastal squeeze resulting from redundant defences or saline intrusion of habitats previously protected by defences. However, NAI policies are **not likely to have a significant detrimental effect** on mudflat and saltmarsh but have a beneficial effect by creating new intertidal habitat and delivering new sediment to sand and shingle habitats.
River Itchen SAC	Annex I habitat: Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation. Annex II species including Southern damselfly, Bullhead, White-clawed (or Atlantic	The main threat to the SAC designated habitat is a decrease in flow velocities and increase in siltation. The SMP policies will **not have a likely significant effect** on the SAC.

European site	Qualifying features	Potential effects of SMP policies
	stream) crayfish , Brook lamprey, Atlantic salmon and Otter.	
New Forest SAC	Annex I habitats including: Oligotrophic waters, Northern Atlantic wet heath, European dry heaths, Molinia meadows, beech forests, oak woods, Bog woodland, mires, bogs and alkaline fens. Annex II species including: Southern damselfly, stag beetle and Great crested newt.	**No significant impacts** are expected on the New Forest SAC as the site lies outside the inland boundary for the SMP.

Table J4.2 European sites to include in the Appropriate Assessment

J5 STAGE 2: APPROPRIATE ASSESSMENT

J5.1 Introduction

Stage 1 concluded that the North Solent SMP is likely to have a significant detrimental effect on the following designated sites:

- Solent and Southampton Water SPA/Ramsar
- Portsmouth Harbour SPA/Ramsar
- Chichester and Langstone Harbours SPA/Ramsar
- Pagham Harbour SPA/Ramsar
- Solent and Isle of Wight Lagoons SAC
- Solent Maritime SAC

These sites have been taken through to the Appropriate Assessment stage where adverse effect on site integrity will be clarified.

J5.2 Methodology and data

The significant effects of the North Solent SMP on each designated site were assessed for the Appropriate Assessment using both quantitative and qualitative data. Table J5.1 summaries the method and data used for each SMP habitat group. A broad assessment of the losses to SPA and Ramsar habitat function was also undertaken.

SMP Habitat Grouping	Impact Assessed	Method and Data
Intertidal mudflat	Habitat losses & gains	Solent Dynamic Coast Project (SDCP) data used to quantify losses and gains
Coastal saltmarsh		
Saline lagoons	Habitat losses	SDCP data used to quantify losses and Cox Associates (Cox, 2009b) to identify landward habitats requiring replacement.
Coastal grazing marsh		
Freshwater habitats (including ponds, reedbeds & wet woodland)		
Coastal sand dunes	Impacts on habitats through coastal processes	Describe effects on coastal processes
Coastal vegetated shingle		
Unvegetated shingle		
Estuaries		
Rivers		
SMP Habitat function	**Impact Assessed**	**Method and Data**
Landward feeding and roost sites	Feeding and roost site losses	Brent Goose and Wader Roost Strategies courtesy of the Hampshire and Isle of Wight Wildlife Trust. Work undertaken by Jonathan Cox Associates (Cox, 2009b)
Seaward feeding and roost sites	Feeding and roost site losses	Brent Goose and Wader Roost Strategies courtesy of the Hampshire and Isle of Wight Wildlife Trust. Work undertaken by Jonathan Cox Associates (Cox, 2009b)

Table J5.1 Summary of methods and data used to assess the impact on each SMP habitat group and function

J5.2.1 Intertidal habitats

Intertidal habitat losses and gains were quantified for the Appropriate Assessment using the findings from the Solent Dynamic Coast Project (SDCP) (SDCP, 2008). The SDCP (2008) ensued the Solent Coastal Habitat Management Plan (CHaMP, 2003), adding additional historical data sets to examine saltmarsh loss (see Figure J5.1) and applying the following technique to validate predicted future mudflat and saltmarsh loss and identify potential inter-tidal habitat creation sites. The SDCP used lidar and tidal elevation interpretation (LTEI) to quantify areas of saltmarsh and mudflat for 2005 (see Figure J5.2) and predict future probable evolution for 2025, 2055 and 2105 using Defra's sea level rise allowance of 6mm per annum (prior to FCDPAG, 2006).

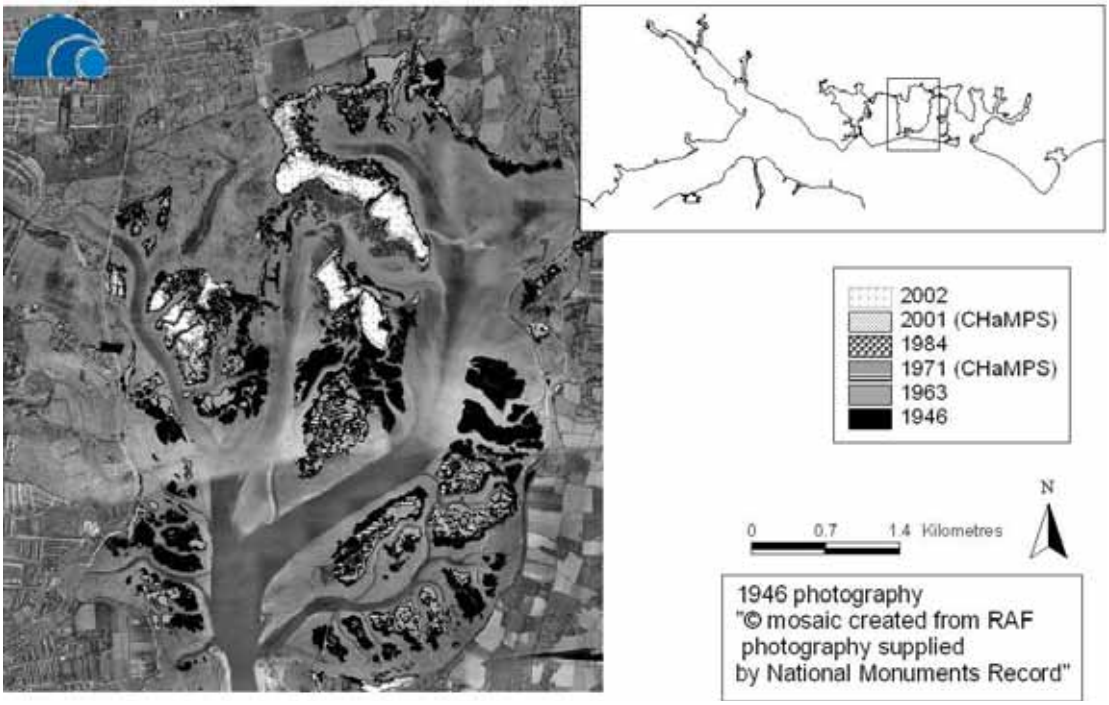


Figure J5.1: Changing saltmarsh extent in Langstone Harbour from historical aerial photography (Cope *et al*., 2007)

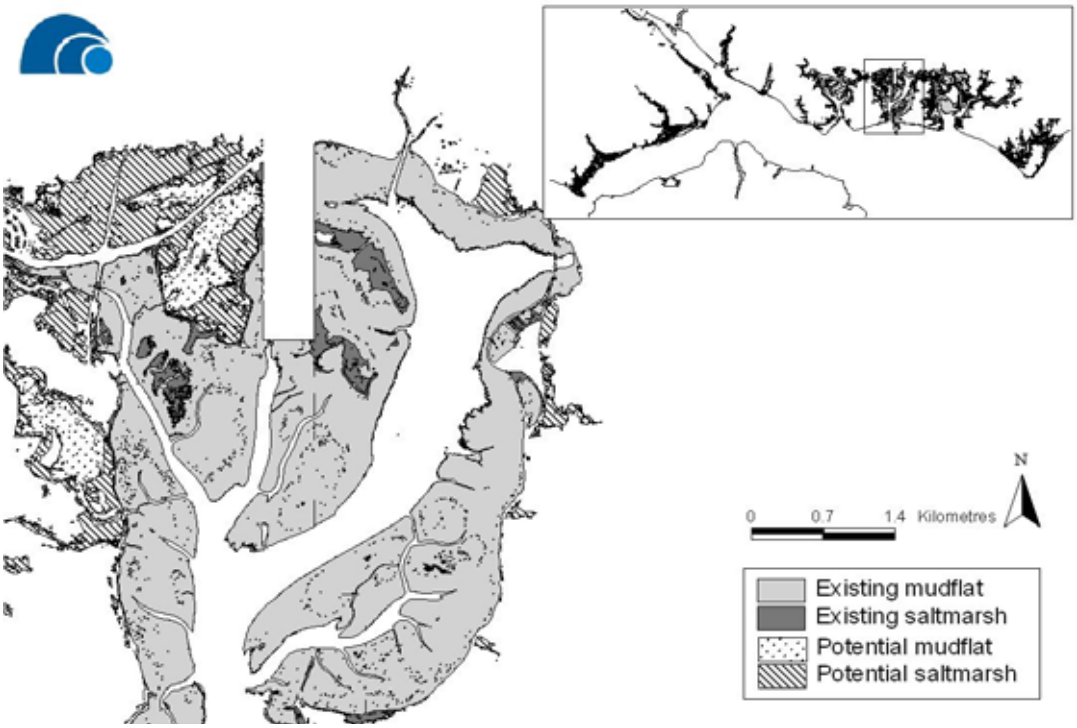


Figure J5.2: "Existing" and "potential" intertidal habitat at Langstone Harbour, 2005, using lidar and tidal elevation interpretation (Cope *et al*., 2007)

Intertidal coastal squeeze which stops the natural migration of designated inter-tidal habitat inland, was calculated using the SDCP predictions and defence information collated for the SMP Defence Assessment (Appendix C in final SMP document) for a HTL policy and a NAI policy (for the remaining residual life of the defence). In addition, intertidal gains from MR policies, localised MR opportunities and NAI policies were calculated using the 100 year potential realignment extents identified in the SDCP (2008) (Figures 5.3 and 5.4). These extents were based on areas within indicative secondary defences, taken from the SDCP or more up to date Coastal Defence Strategy Studies.

The timing of a MR policy resulting in cessation of inter-tidal coastal squeeze and the onset of new habitat creation was dependent on the epoch in which MR was set (see explanation under J5.2.2). In addition, the cessation of inter-tidal coastal squeeze and any natural habitat creation as a result of an NAI policy was dependent upon the epoch in which the defence was predicted to fail.

Figures J5.3 and J5.4 present the preferred MR and NAI options arising from the final SMP for the SPA and Ramsar sites and the Solent Maritime SAC. The MR and NAI sites are split into areas of mitigation (within the designated boundary) and compensation (outside the designated boundary).

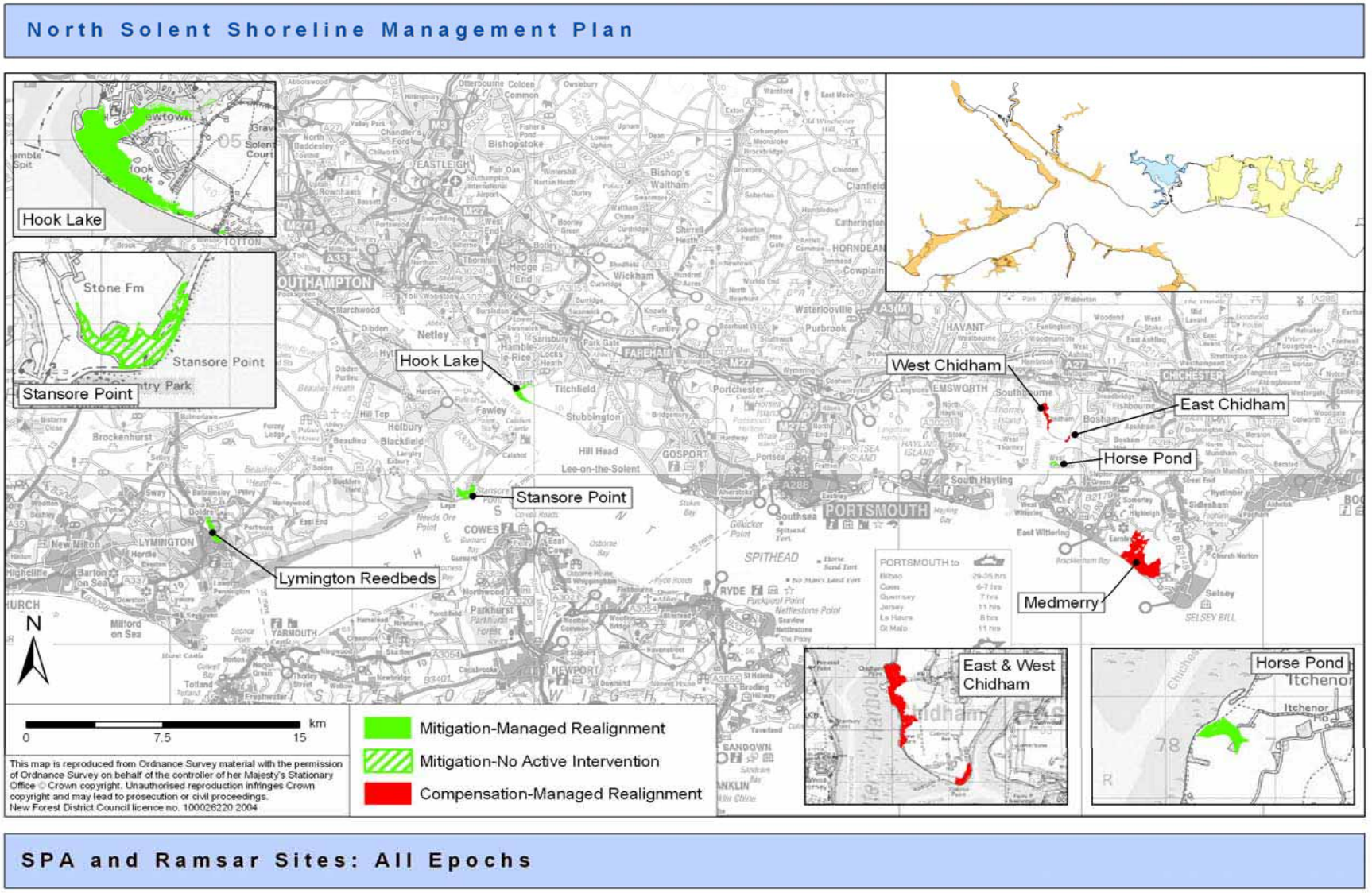


Figure J5.3: MR and NAI sites across the SPA and Ramsar sites, split into mitigation and compensation opportunities

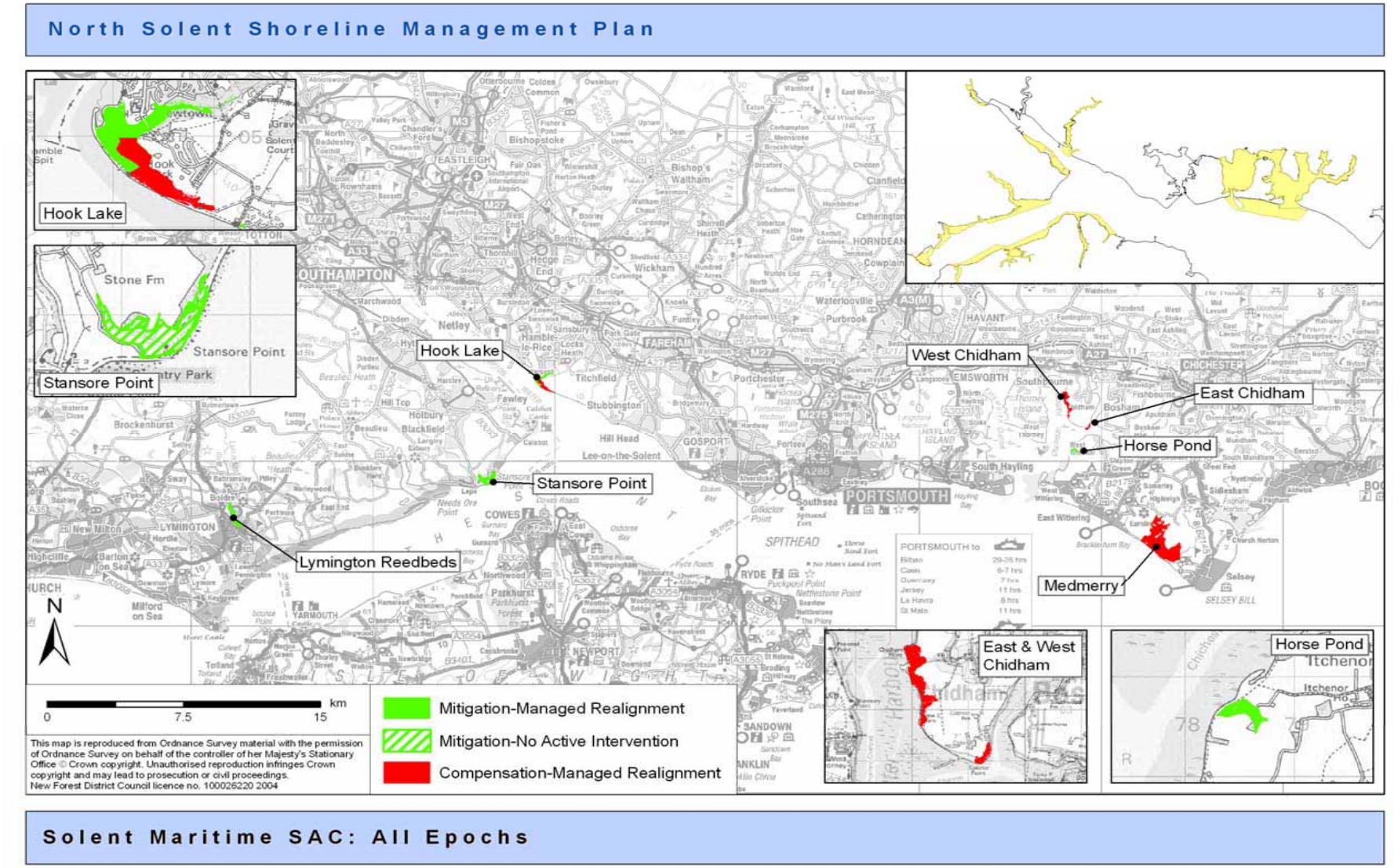


Figure J5.4: MR and NAI sites across the Solent Maritime SAC, split into mitigation and compensation opportunities

J5.2.2 Coastal grazing marsh, freshwater habitats and saline lagoons

Freshwater and transitional habitat losses (including coastal grazing marsh, saline lagoons, reedbeds and floodplain grazing marsh) as a result of a MR or NAI policy were quantified using potential inter-tidal habitat creation extents identified in the SDCP (SDCP, 2008). Habitat types were identified using Regional Monitoring Habitat Mapping and work carried out by Cox Associates (2009b), as was the assessment on whether saline intrusion on designated habitats behind current defences would result in an adverse effect and therefore require replacement habitat (see Annex J2). Where a habitat required replacement and the time taken to re-create that habitat was predicted to be 20-50 years plus*, the MR policy or NAI policy was not set until epoch 2 (50-100 years) in the SMP policy appraisal; this was to ensure that replacement habitats will be recreated before the damaging policy commences.

J5.2.3 Wader and wildfowl feeding and high water roost sites

The location of the designated and non-designated wader and wildfowl feeding and high water roost sites was obtained from the Brent Goose and Wader Roost Strategies courtesy of the Hampshire and Isle of Wight Wildlife Trust. These maps were modified following a workshop facilitated by Jonathan Cox Associates to try and obtain additional information on the usage of these sites within the designated SPA/Ramsar networks (see Figures J5.5 and J5.6). Any potential designated wader and wildfowl feeding and high water roost site loss, as a result of a HTL, MR or NAI policy, was identified as requiring replacement function in the Appropriate Assessment description for each SPA and Ramsar site. In addition, any inter-tidal wildfowl feeding site loss as a result of coastal squeeze through a HTL policy was identified as requiring replacement function for each SPA and Ramsar site. The Appropriate Assessment cannot, however, fully quantify the wader and wildfowl feeding and roost site loss as it does for habitat loss, given lack of precise information on size of the feeding and roosting areas. Future studies will be required to refine this level of detail.

It is important to note that a key finding from Cox (2009b) was that the network of feeding and roost sites within the SPA/Ramsar site is important, not necessarily individual feeding and roost sites alone. Still, there were three key feeding and roost sites identified across the north Solent as requiring HTL for epoch 1 to maintain roost function and therefore the integrity of the SPA/Ramsar in it's entirety until replacement sites are recreated in the future; these were, Farlington Marshes, Keyhaven to Lymington and Thorney Island. The Keyhaven to Lymington and the Thorney Island roost sites are not adversely impacted upon by a MR or NAI policy because they are located

* In October 2009, Natural England revised their original advice that a period of 20-50 years rather than 50 years plus would allow development of coastal grazing marsh habitat of good biological quality in the majority of situations.

within a HTL policy. As a result of the SMP objective led policy appraisal process, Farlington Marshes was identified as a MR site in epoch 3, although through public consultation this policy changed to HTL for all three epochs with the potential for MR in epoch 2 or 3 pending further studies.

5.2.4 Coastal sand dunes, coastal vegetated shingle, unvegetated shingle, estuaries and rivers

The impact of the North Solent SMP policies on the coastal processes of coastal sand dunes, coastal vegetated shingle, unvegetated shingle, estuaries and rivers will be described in the Appropriate Assessment using the coastal processes information collated in Appendix C of the SMP.

5.2.5 “At risk” habitats and function

The Appropriate Assessment was carried out on the final policies outputted from the SMP, however, given that 60% of the coastline is maintained by private landowners, there is an element of risk to designated SPA and Ramsar sites situated behind third party defences. There is also an element of risk to designated SPA and Ramsar sites where the final SMP policy is HTL with further detailed studies required to consider whether MR may occur. Consequently, a new section (J7.1) has been added to the final Appropriate Assessment, highlighting risk to the habitats and function if maintenance of third party defences ceases or a policy reverts from HTL to MR in the future. These “at risk” habitats and their function will be passed onto the Regional Habitat Creation Programme for delivery.

J5.3 Solent and Southampton Water SPA and Ramsar site

The following table depicts the habitat groupings and impacts used for the Solent and Southampton Water Ramsar.

Ramsar	SMP Habitat Groups	Interest Features/ Conservation Objectives		Impact
		Code	Ramsar Wetland Types	
Solent & Southampton Water	Coastal saltmarsh	H	Intertidal marshes	Coastal Squeeze
	Intertidal mudflat	G	Intertidal mud, sand or salt flats	
	Saline lagoons	J	Coastal brackish/saline lagoons	Saline Intrusion
	Coastal grazing marsh	Sp	Permanent saline/brackish/alkaline marshes/pools	
	Freshwater habitat (ponds, reedbeds & woodland)	Tp	Permanent freshwater marshes/pools	
		Xf	Freshwater, tree dominated wetlands	
	Vegetated shingle	E	Sand, shingle or pebble shores	Coastal Processes
	Unvegetated shingle			
	Estuaries	F	Estuarine waters	
	Not assessed	B	Marine subtidal aquatic beds	Not assessed
		D	Rocky marine shores	

Table J5.2 Solent and Southampton Water Ramsar interest features, habitats and impacts to be assessed

Table J5.3 depicts the habitat groupings and impacts used for the Solent and Southampton Water SPA.

SPA	Interest Features	Functional Habitat			SMP habitat grouping and impact to be assessed	
		Feeding	Nesting	Roosting	SMP habitat grouping	Impact
Solent & Southampton	**Annex I species** (Common tern, Little tern, Mediterranean gull, Roseate tern, Sandwich tern)		Intertidal saltmarsh	Intertidal saltmarsh	Intertidal saltmarsh	Coastal squeeze
		Intertidal mudflat & sand (at high water)			Intertidal mudflat	
			Vegetated & unvegetated shingle	Vegetated & unvegetated shingle	Vegetated & unvegetated shingle	Coastal processes
		Shallow sub-tidal			Not assessed	Not assessed
		Saline lagoons			Saline lagoons	Saline intrusion
	Migratory species (Black-tailed Godwit, Dark-bellied Brent, Teal, Ringed plover) and **Waterfowl assemblage**	Intertidal saltmarsh		Intertidal saltmarsh	Intertidal saltmarsh	Coastal squeeze
		Intertidal mudflat		Intertidal mudflat	Intertidal mudflat	
		Intertidal mixed sediment shores		Intertidal mixed sediment shores	Intertidal mixed sediment shores	
		Intertidal sand flats		Intertidal sand flats	Intertidal sand flats	
				Vegetated & unvegetated shingle	Vegetated & unvegetated shingle	Coastal processes
		Shallow sub-tidal			Not assessed	Not assessed
		Open freshwater		Freshwater habitats	Freshwater habitats	Saline intrusion
		Fresh marshes & open water				
		Coastal grazing marsh		Coastal grazing marsh	Coastal grazing marsh	
		Terrestrial grasslands (wet and dry)		Terrestrial grasslands (wet and dry)	Freshwater habitats /Coastal grazing marsh	

Table J5.3 Solent and Southampton Water SPA interest features, habitats and impacts to be assessed

To summarise, the following habitats and impacts will be assessed for the Solent and Southampton Water SPA and Ramsar.

SMP habitat grouping	Impact
Intertidal saltmarsh	Coastal Squeeze
Intertidal mudflat	
Saline lagoons	Saline intrusion
Freshwater habitats	
Coastal grazing marsh	
Vegetated shingle	Coastal Processes
Unvegetated shingle	
Estuaries (function)*	

*For Ramsar designation only

Table J5.4 SMP habitat grouping and impact to be assessed for Solent and Southampton Water SPA and Ramsar site

The Solent and Southampton Water SPA and Ramsar site are covered by the following policy units and policies listed below in Table J5.5 (see Figures J1.3-J1.5 for policy unit location).

Policy Unit	Epoch 1 (0-20)	Epoch 2 (20-50)	Epoch 3 (50-100)
HTL= Hold The Line, HTL (NPFA) = Hold The Line (No Public Funding Available), MR = Managed Realignment, NAI = No Active Intervention			
5B02	HTL	HTL	HTL
5B03	NAI (localised HTL for cross-Solent infrastructure)	NAI (localised HTL for cross-Solent infrastructure)	NAI (localised HTL for cross-Solent infrastructure)
5C01	NAI	MR	MR (HTRL)
5C02	NAI	NAI	NAI
5C03	HTL	HTL	NAI
5C04	NAI	NAI	NAI
5C05	NAI* (HTL the Quay and Rope Walk)	NAI* (HTL the Quay and Rope Walk)	NAI* (HTL the Quay and Rope Walk)
5C06	NAI	NAI	NAI
5C07	HTL	HTL	NAI
5C08	NAI	NAI	NAI
5C09	HTL	HTL* further detailed studies required for management of site	NAI (HTL for Netley Village)
5C10	HTL	HTL	HTL
5C11	HTL	HTL	NAI* Requirement for more detailed study (for management of site that recognises coastal change and investigates property

Policy Unit	Epoch 1 (0-20)	Epoch 2 (20-50)	Epoch 3 (50-100)
HTL= Hold The Line, HTL (NPFA) = Hold The Line (No Public Funding Available), MR = Managed Realignment, NAI = No Active Intervention			
			level defence options
5C12	HTL	HTL	HTL
5C13	NAI	NAI	NAI
5C14	HTL	HTL	HTL
5C15	HTL	HTL	NAI
5C16	NAI	NAI	NAI
5C17	NAI	NAI	NAI
5C18	HTL (NPFA)	HTL (NPFA)	HTL (NPFA)
5C19	HTL	HTL	HTL* further detailed studies required for management of defences
5C20	NAI	NAI	NAI
5C21	HTL	HTL	HTL (RTE Lymington Reedbeds)
5C22	HTL	HTL	HTL
5F01	HTL	HTL	HTL

Table J5.5 Final policies per policy unit, per epoch for Solent and Southampton Water SPA and Ramsar site

Habitat change

The habitats summarized in Table J5.4 will undergo the following change over the three epochs (Table J5.6) as a result of the SMP policies set in Table J5.5. With reference to Table J5.6, “Mitigation” is a landward habitat gain within the SPA/Ramsar site as a result of a MR or NAI policy. This new habitat can be used to offset any losses resulting from the “Habitat Change” column. The resulting “Total change” column is a sum of the two and represents the net change. The final column “Compensation Required” demonstrates how much compensatory habitat will be required to offset adverse impacts to the Solent and Southampton Water SPA and Ramsar site. The values in Table J5.6 have been rounded to the nearest whole number.

SMP habitat grouping	Habitat change (ha)			Mitigation (ha)			Total change (ha)	Compensation required (ha)
	epoch 1	epoch 2	epoch 3	epoch 1	epoch 2	epoch 3		
Mudflat	21	62	60	0	26	36	205	0
Saltmarsh	-34	-83	-106	0	20	15	-187	187
Saline lagoons*	0	-3	0	0	3	0	0	0
Freshwater habitats	0	-4	0	0	0	0	-4	4
Coastal grazing marsh	0	-39	0	0	0	0	-39	39
Vegetated shingle	See description							No
Unvegetated shingle	See description							No
Estuaries	See description							No
Landward feeding/high tide roost sites	Loss of Hook Lake (5C01)							further studies required
Seaward feeding/high tide roost sites	Loss of sites in following policy units: 5C14, 5C16, 5C22							further studies required

*For Ramsar designation only

Table J5.6 Habitat and bird function losses and gains in the Solent and Southampton Water SPA and Ramsar

- **Mudflat**

When summing the row for mudflat under the "Habitat Change" column in Table J5.6, there is a total increase of 143 ha of mudflat over 100 years within the SPA and Ramsar site, even with coastal squeeze processes in operation. This can be attributed to saltmarsh habitat being drowned out by sea level rise and being replaced by mudflat. In addition, there is the potential for 62 ha of new mudflat to be created over the 100 years through MR (Hook Lake and Lymington Reedbeds) and NAI (Stansore Point, depending on the intentions of the private landowner) policies within the SPA and Ramsar site. The net increase of **205 ha** is considered a benefit for the mudflat interest feature. However, this new mudflat will displace designated SPA/Ramsar saltmarsh in front of any defences and coastal grazing marsh habitats and freshwater habitats behind defences (see below).

- **Saltmarsh**

When summing the row for saltmarsh under the "Habitat Change" column in Table J5.6, there is a total deficit of 223 ha of saltmarsh over 100 years in the SPA and Ramsar site as a result of coastal squeeze processes in operation and sea level rise. In addition, there is the potential for 35 ha of new

saltmarsh to be created over the 100 years through MR and NAI policies within the SPA and Ramsar site that can be considered mitigation. However, this still results in an overall net deficit of **187 ha** which is considered an **adverse effect** on site integrity due to the displacement of the saltmarsh habitat and the resultant effect on the SPA/Ramsar Annex 1 bird species, migratory bird species and waterfowl assemblages which qualify under both Article 4.2 of the EU Birds Directive and Ramsar Criteria for the Ramsar Convention (Table J5.3) aswell as Ramsar criterion 2 assemblages of rare plants and invertebrates.

- **Saline lagoons**

At Hook Lake MR site (policy unit 5C01) 3 ha of saline lagoons will be lost in the 2nd epoch to MR (Table J5.6) however, this loss of habitat can be mitigated for within the SMP through the creation of a new saline lagoon within the Solent and Southampton Water SPA and Ramsar site. The SMP action plan has identified the requirement of a further study to provide details regarding the location of the new saline lagoon. Therefore it is considered that there will be **no adverse effect** on site integrity due to the displacement of the saline lagoon habitat and the resultant effect on the SPA/Ramsar Annex 1 bird species which qualify under both Article 4.2 of the EU Birds Directive and Ramsar Criteria for the Ramsar Convention (Table J5.3) aswell as Ramsar criterion 2 assemblages of rare plants and invertebrates.

- **Freshwater habitats**

Under a NAI policy for policy unit 5C16 (Table J5.5 and Figures J1.3 – J1.5) there will be 14 ha of freshwater habitats lost at Stansore Point. However, the change to inter-tidal habitat is not considered an adverse effect on site integrity as the site is small and consists of a degraded wetland valley with associated shingle pools and some saltmarsh habitat (Annex J2, Cox, 2009). MR at Lymington River in epoch 3 will result in a change to the existing reedbed habitat through the creation of new intertidal habitat. As advised by Natural England, the reedbed habitat is considered to be able to respond and adapt to changes in salinity levels as a consequence of the realignment and is expected to migrate up the estuary in response to the saline intrusion. Furthermore, the predicted habitat change will complement the SPA habitat that supports the SPA bird interests (migratory species and waders). Overall, the managed realignment will allow for a more natural and sustainable habitat and therefore the change to inter-tidal habitat is not considered an adverse impact on the reedbed habitat at Lymington River. MR at Hook Lake in epoch 2 will result in the loss of 4 ha of reedbeds (Table J5.6).
The SMP has not identified any potential habitat that could be used as mitigation for reedbeds at Hook Lake within the SPA and Ramsar, thereby resulting in a net deficit of **4 ha** (Table J5.6). This is considered an **adverse effect** on site integrity due to displacement of the freshwater habitats and the resultant effect on the SPA/Ramsar migratory bird species and waterfowl assemblages which qualify under both Article 4.2 of the EU Birds Directive and Ramsar Criteria for the Ramsar Convention (Table J5.3) aswell as Ramsar criterion 2 assemblages of rare plants and invertebrates.

- **Coastal grazing marsh**

When summing the row for coastal grazing marsh under the "Habitat Change" column in Table J5.6, there is a total deficit of 39 ha of coastal grazing marsh over 100 years in the SPA and Ramsar site as a result of MR at Hook Lake in the 2nd epoch (policy unit 5C01).

The SMP has not identified any potential habitat that could be used as mitigation within the SPA and Ramsar, thereby resulting in a net deficit of **39 ha** (Table J5.6). This is considered an **adverse effect** on site integrity due to the displacement of the coastal grazing marsh and the resultant effect on the SPA/Ramsar migratory bird species and waterfowl assemblages which qualify under both Article 4.2 of the EU Birds Directive and Ramsar Criteria for the Ramsar Convention (Table J5.3) aswell as Ramsar criterion 2 assemblages of rare plants and invertebrates.

- **Vegetated and unvegetated shingle**

There will be vegetated and unvegetated shingle lost through coastal squeeze processes at policy unit 5C10, 5C18 5F01 where HTL is the policy for all three epochs and at 5C09 and 5C15 where HTL is the policy in the 1st and 2nd epoch. However, HTL policy at Hurst Spit will promote stabilization of shingle and formation of vegetation providing mitigation for losses within Solent and Southampton SPA and Ramsar site together with new shingle entering the system via NAI policies . In addition the NAI policy at policy unit 5B03 will result in continued vegetated shingle stabilisation at Hook spit. Therefore the assessment can conclude that there would **no adverse effect** to site integrity due to the displacement of the vegetated and unvegetated shingle and the resultant effect on the SPA/Ramsar Annex 1 bird species, migratory bird species and waterfowl assemblages which qualify under both Article 4.2 of the EU Birds Directive and Ramsar Criteria for the Ramsar Convention (Table J5.3) aswell as Ramsar criterion 2 assemblages of rare plants and invertebrates.

- **Feeding and high tide roost sites**

The following Annex 1 bird species, migratory bird species and waterfowl assemblages feeding and roost function will be lost through the SMP policies detailed in Table J5.7 below. Habitats seaward of the coastal defences will be lost through HTL coastal squeeze processes whilst habitats landward of the coastal defences will be lost through MR.

Location	Policy unit	Policy	Habitat supporting function	Function
Hook Lake	5C01	MR in epoch 2	Coastal grazing marsh, reedbeds and saline lagoons	Wader and wildfowl feeding and roost site
Hythe and Fawley	5C14	HTL for all three epochs	Saltmarsh, unvegetated shingle (cheniers)	Wader and wildfowl feeding and roost site
Stansore Point	5C16	NAI in epoch 1	Saltmarsh and saline lagoons	Wader feeding and roost site
Lymington and Hurst Spit	5C22	HTL for all three epochs	Saltmarsh, unvegetated shingle (cheniers)	Wader and wildfowl feeding and roost site

Table J5.7 Feeding and roost site losses in the Solent and Southampton Water SPA and Ramsar

The habitat losses presented in Table J5.7 are included in Table J5.6 as requiring mitigation or compensation as appropriate. However, the losses presented in Table J5.7 cannot be quantified as part of this broad scale assessment given lack of precise information on size of the feeding and roosting areas. Future studies will be required to refine this level of detail. The location of these feeding and roost site losses are depicted in Figure J5.5 and J5.6 in Section J5.9.1. Any future mitigation or compensation for the function of the habitat will need to be re-created as close to the SPA and Ramsar site in order to maintain integrity.

The loss of habitat function can be mitigated through habitat management, for example, creating new shingle islands within the estuaries or removing scrub and woodland to create new areas for roosting. In addition, artificial roost and breeding sites can be substituted by use of pontoons, although it is questionable whether these artificial sites are of the same ecological value (Cox, 2009). Only mudflat and saltmarsh mitigation can be identified through the SMP policies; other mitigation will be dealt with more specifically through Coastal Defence Strategy Studies and Schemes.

Overall, there is an **adverse effect** on site integrity due to the displacement of saltmarsh habitat, vegetated shingle, unvegetated shingle, freshwater habitat (reedbeds) and grazing marsh habitat which the Annex 1 bird species, migratory bird species and waterfowl assemblages use as feeding and roost sites. On the contrary, there will be a net increase of **205 ha** of mudflat within the site boundary which is due to saltmarsh loss. This increase in mudflat is considered a benefit, providing an important feeding habitat for the Annex 1 bird species and both feeding and roosting habitat for the migratory bird species and waterfowl assemblages.

- **Estuaries** (for Ramsar site only)

The NAI and MR policies for the Beaulieu and Hamble rivers will not have a detrimental affect on salinity or sediment input. MR and NAI policies will result in a loss of habitats listed above; still these policies will allow the estuaries to achieve a more unconstrained and natural estuary shape. The tidal prism will increase due to the MR and NAI policies, which will result in a

larger cross-sectional area at the mouth of the rivers. In addition, sediment input will increase from eroding shorelines as a result of the NAI and MR policies, thereby feeding the inter-tidal habitats and allowing saltmarsh to keep pace with sea level rise.

Over the estuaries as a whole, it can be concluded that there will be **no adverse effect** on Solent and Southampton Water Ramsar site as the SMP policies will allow the estuaries to expand and naturally evolve.

J5.4 Portsmouth SPA and Ramsar site

The following table depicts the habitat groupings and impacts used for the Portsmouth Harbour Ramsar.

Ramsar	SMP Habitat Groups	Interest Features/ Conservation Objectives		Impact
		Code	Ramsar Wetland Types	
Portsmouth	Coastal saltmarsh	H	Intertidal marshes	Coastal Squeeze Saline Intrusion
	Intertidal mudflat	G	Intertidal mud, sand or salt flats	
	Saline lagoons	J	Coastal brackish/saline lagoons	
	Estuaries (function)	F	Estuarine waters	Coastal Processes
	Vegetated shingle	E	Sand, shingle or pebble shores	
	Unvegetated shingle			
	Not assessed	B	Marine subtidal aquatic beds	Not assessed

Table J5.8 Portsmouth Harbour Ramsar interest features, habitats and impacts to be assessed

The following table depicts the habitat groupings and impacts used for the Portsmouth Harbour SPA.

SPA	Interest Features	Functional Habitat			SMP habitat grouping and impact to be assessed	
		Feeding	**Nesting**	**Roosting**	**SMP habitat grouping**	**Impact**
Portsmouth	**Migratory species** (Dark-bellied Brent, Dunlin, Black-tailed godwit, Red-breasted merganser)	Intertidal saltmarsh		Intertidal saltmarsh	Intertidal saltmarsh	Coastal Squeeze
		Intertidal mudflat		Intertidal mudflat	Intertidal mudflat	
				Vegetated shingle	Vegetated shingle	Coastal processes
		Shallow sub-tidal			Not assessed	Not assessed
		Open freshwater		Freshwater habitats	Freshwater habitats	Saline intrusion
		Fresh marshes & open water				
		Coastal grazing marsh		Coastal grazing marsh	Coastal grazing marsh	
		Terrestrial grasslands (wet and dry)		Terrestrial grasslands (wet and dry)	Freshwater habitats /Coastal grazing marsh	

Table J5.9 Interest features, habitats and impacts to be assessed for Portsmouth Harbour SPA

To summarise, the following habitats and impacts will be assessed for the Portsmouth Harbour SPA and Ramsar.

SMP habitat grouping	Impact
Intertidal saltmarsh	Coastal Squeeze
Intertidal mudflat	
Saline lagoons	Saline intrusion
Freshwater habitats	
Coastal grazing marsh	
Vegetated shingle	Coastal Processes
Unvegetated shingle	
Estuaries (function)*	

*For Ramsar designation only

Table J5.10 SMP habitat grouping and impact to be assessed for Portsmouth Harbour SPA and Ramsar site

The Portsmouth Harbour SPA and Ramsar site is covered by the following policy units and policies listed below in Table J5.11 (see Figures J1.3 – J1.5 for policy unit location).

Policy Unit	Epoch 1 (0-20)	Epoch 2 (20-50)	Epoch 3 (50-100)
HTL= Hold The Line			
5A25	HTL	HTL	HTL
5A24	HTL	HTL	HTL
5A23	HTL	HTL	HTL
5A22	HTL	HTL	HTL
5A21	HTL	HTL	HTL
5API01	HTL	HTL	HTL

Table J5.11 Final policies per policy unit, per epoch for Portsmouth Harbour SPA and Ramsar site

The harbour has been recommended for a long-term HTL policy which will cause narrowing of intertidal areas as sea levels rise.

Habitat change

The habitats listed in Table J5.10 will undergo the following change over the three epochs as a result of the SMP policies set in Table J5.11. With reference to Table J5.12, “Mitigation” is a landward habitat gain within the SPA/Ramsar site as a result of a MR or a NAI policy. This new habitat can be used to offset any losses resulting from the “Habitat Change” column. The resulting “Total change” column is a sum of the two and represents the net change. The final column “Compensation Required” demonstrates how much compensatory habitat will be required to offset adverse impacts to Portsmouth SPA and Ramsar site. The values in Table J5.12 have been rounded to the nearest whole number.

MP habitat grouping	Habitat change (ha)			Mitigation (ha)			Total change (ha)	Compensation required (ha)
	epoch 1	epoch 2	epoch 3	epoch 1	epoch 2	epoch 3		
Mudflat	-12	-43	-105	0	0	0	-160	160
Saltmarsh	-16	-11	-7	0	0	0	-34	34
Saline lagoons	0	0	0	0	0	0	0	0
Freshwater habitats	0	0	0	0	0	0	0	0
Coastal grazing marsh	0	0	0	0	0	0	0	0
Vegetated shingle	See description							No
Unvegetated shingle	See description							No
Estuaries (function)*	See description							Yes
Landward feeding/high tide roost sites	No loss							No
Seaward feeding/high tide roost sites	Loss of sites in following policy units: 5A25, 5A24, 5A23, 5A22, 5A21, 5API01 (see description)							Further studies required to quantify area

*For Ramsar designation only

Table J5.12 Habitat and bird function losses and gains in the Portsmouth Harbour SPA and Ramsar

- **Mudflat**

When summing the row for mudflat under the "Habitat Change" column in Table J5.12, there is a total decrease of 160 ha of mudflat over 100 years in the SPA and Ramsar. There are no opportunities for creation of new mudflat (mitigation) within the SPA and Ramsar site as MR and NAI policies are not possible in the vicinity of the designated sites due to the highly populated shoreline. This loss is considered an **adverse effect** on site integrity resulting in an overall deficit of **160 ha** of mudflat and a displacement of migratory bird species and waterfowl assemblages which qualify under both Article 4.2 of the EU Birds Directive and Ramsar Criteria for the Ramsar Convention (Table J5.9).

- **Saltmarsh**

When summing the row for mudflat under the "Habitat Change" column in Table J5.12, there is a total deficit of 34 ha of saltmarsh over 100 years in the SPA and Ramsar site as a result of coastal squeeze processes in operation and sea level rise. There is no opportunity for creation of new saltmarsh habitat (mitigation) within the SPA and Ramsar as MR and NAI policies are not possible in the vicinity of the designated sites due to the highly populated shoreline. This is considered an **adverse effect** on site integrity resulting in an overall deficit of **34 ha** of mudflat and a displacement of migratory bird

species and waterfowl assemblages which qualify under both Article 4.2 of the EU Birds Directive and Ramsar Criteria for the Ramsar Convention (Table J5.9).

- **Saline lagoons, coastal grazing marsh and freshwater habitats**

There is **no adverse effect** on saline lagoons, freshwater habitats or coastal grazing marsh within the SPA and Ramsar as MR and NAI policies are not possible in the vicinity due to the highly populated shoreline.

- **Vegetated and unvegetated shingle**

There is **no adverse effect** on the designated islets, sand bars and spits within the SPA and Ramsar site as they are not connected to the shoreline and are therefore not influenced by the presence of the hard defences.

- **Feeding and high tide roost sites**

There is **no adverse effect** on feeding and high tide roost sites landward of the defences as MR and NAI policies are not possible in the vicinity due to the highly populated shoreline. HTL policies around the harbour will protect significant high tide roost sites provided by grasslands within RNAD Gosport, Tipner Island and Cams Estate. Even though these sites are not within the boundaries of either Portsmouth SPA or Ramsar site, they provide important high tide roosts for internationally and nationally important migratory bird species qualifying under Article 4.2 of the EU Birds Directive. These areas of grasslands surrounding Portsmouth Harbour also provide important feeding areas for Dark bellied Brent geese which qualify under both Article 4.2 of the EU Birds Directive and Ramsar Criteria for the Ramsar Convention. In addition, there is **no adverse effect** to vegetated shingle feeding and high tide roost sites as they are not connected to the shoreline and are therefore not influenced by the presence of the hard defences.

Still, the following Annex 1 bird species, migratory bird species and waterfowl assemblages feeding and roost function will be lost through the process of coastal squeeze as a result of the SMP policies detailed in Table J5.13 below.

Location	Policy unit	Policy	Habitat supporting function	Function
Portsmouth Harbour	5A25, 5A24, 5A23, 5A22, 5A21, 5API01	HTL for all three epochs	Saltmarsh	Wildfowl feeding and roost site

Table J5.13 Feeding and roost site losses in Portsmouth Harbour SPA and Ramsar

The habitat losses presented in Table J5.13 are included in Table J5.12 as requiring mitigation or compensation as appropriate. However, the losses presented in Table J5.7 cannot be quantified as part of this broad scale assessment given lack of precise information on size of the feeding and roosting areas. Future studies will be required to refine this level of detail. The location of these feeding and roost site losses are depicted in Figure J5.5 and J5.6 in Section J5.9.1. Any future mitigation or compensation for the function of the habitat will need to be re-created as close to the SPA and Ramsar site in order to maintain integrity.

The loss of habitat function can be mitigated through habitat management, for example, creating new shingle islands within the estuaries or removing scrub and woodland to create new areas for roosting. In addition, artificial roost and breeding sites can be substituted by use of pontoons, although it is questionable whether these artificial sites are of the same ecological value (Cox, 2009). Only mudflat and saltmarsh mitigation can be identified through the SMP policies; other mitigation will be dealt with more specifically through Coastal Defence Strategy Studies and Schemes. Overall, there is an **adverse effect** on site integrity due to the displacement of saltmarsh habitat, which the Annex 1 bird species, migratory bird species and waterfowl assemblages use as feeding and roost sites.

- **Estuaries** (for Ramsar site only)

The SMP policies will not have a detrimental affect on salinity or sediment input to Portsmouth Harbour. Still, over the estuary as a whole, there will be an **adverse effect** on site integrity as the harbour continues to be constrained around the majority of it's perimeter by hard defences, thereby restricting natural evolution of the estuary function and ability to adapt to sea level rise.

J5.5 Chichester and Langstone Harbours SPA and Ramsar site

The following table depicts the habitat groupings and impacts used for the Chichester and Langstone Ramsar.

Ramsar	SMP Habitat Groups	Interest Features/ Conservation Objectives		Impact
		Code	Ramsar Wetland Types	
Chichester & Langstone	Coastal saltmarsh	H	Intertidal marshes	Coastal Squeeze
	Intertidal mudflat	G	Intertidal mud, sand or salt flats	
	Saline lagoons	J	Coastal brackish/saline lagoons	Saline Intrusion
	Coastal grazing marsh	Sp	Permanent saline/brackish/alkaline marshes/pools	
	Freshwater habitat (ponds, reedbeds & woodland)	Tp	Permanent freshwater marshes/pools	
		Ts	Seasonal/intermittent freshwater marshes/pools on inorganic soils	
		Xf	Freshwater, tree dominated wetlands	
	Rivers	M	Permanent rivers/streams/creeks	Coastal Processes
	Estuaries (function)	F	Estuarine waters	
	Vegetated shingle	E	Sand, shingle or pebble shores	
	Unvegetated shingle			
	Sand dunes			
	Not assessed	B	Marine subtidal aquatic beds	Not assessed

Table J5.14 Chichester and Langstone Ramsar interest features, habitats and impacts to be assessed

The following table depicts the habitat groupings and impacts used for the Chichester and Langstone Harbours SPA.

SPA	Interest Features	Functional Habitat			SMP habitat grouping and impact to be assessed	
		Feeding	Nesting	Roosting	SMP habitat grouping	Impact
Chichester & Langstone	**Annex I species** (Common tern, Little tern, Sandwich tern)		Intertidal saltmarsh	Intertidal saltmarsh	Intertidal saltmarsh	Coastal Squeeze
		Intertidal mudflat & sand (at high water)			Intertidal mudflat	
			Vegetated shingle	Vegetated shingle	Vegetated shingle	Coastal Processes
				Unvegetated shingle	Sand dunes	
		Shallow sub-tidal			Not assessed	Not assessed
		Saline lagoons			Saline lagoons	Saline intrusion
	Migratory species (Grey Plover, Sanderling, Dunlin, Bar-tailed Godwit, Redshank, Dark-bellied Brent, Shelduck, Teal, Ringed plover, Curlew, Turnstone, Wigeon, Pintail, Shoveler, Red-breasted merganser) and **Waterfowl assemblage**	Intertidal saltmarsh		Intertidal saltmarsh	Intertidal saltmarsh	Coastal Squeeze
		Intertidal mudflat		Intertidal mudflat	Intertidal mudflat	
		Intertidal sand flats		Intertidal sand flats		
		Intertidal mixed sediment shores		Intertidal mixed sediment shores		
				Vegetated shingle	Vegetated shingle	Coastal Processes
		Shallow sub-tidal			Not assessed	Not assessed
		Open freshwater		Freshwater habitats	Freshwater habitats	Saline intrusion
		Fresh marshes & open water				
		Coastal grazing marsh		Coastal grazing marsh	Coastal grazing marsh	
		Terrestrial grasslands (wet and dry)		Terrestrial grasslands (wet and dry)	Freshwater habitats /Coastal grazing marsh	

Table J5.15 Chichester and Langstone Harbours SPA interest features, habitats and impacts to be assessed

To summarise, the following habitats and impacts will be assessed for the Chichester and Langstone SPA and Ramsar.

SMP habitat grouping	Impact
Intertidal saltmarsh	Coastal Squeeze
Intertidal mudflat	
Saline lagoons	Saline intrusion
Freshwater habitats	
Coastal grazing marsh	
Vegetated shingle	Coastal Processes
Unvegetated shingle	
Sand Dunes	
Estuaries (function)*	
Rivers	

*For Ramsar designation only

Table J5.16 SMP habitat grouping and impact to be assessed for Chichester and Langstone Harbours SPA and Ramsar

The Chichester and Langstone SPA and Ramsar site are covered by the following policy units and policies listed below in Table J5.17 (see Figures J1.3 – J1.5 for policy unit location and a visual summary of final policies and Figure J5.3 for location and name of inter-tidal habitat creation sites).

Policy Unit	Epoch 1 (0-20)	Epoch 2 (20-50)	Epoch 3 (50-100)
HTL= Hold The Line, HTL (NPFA) = Hold The Line (No Public Funding Available), MR = Managed Realignment, NAI = No Active Intervention			
5A04	AM	AM	AM
5A05	HTL (NPFA)	HTL (NPFA)	HTL (NPFA) (localised MR Horse Pond)
5A06	HTL (NPFA)	HTL (NPFA)	HTL (NPFA)
5A07	HTL (NPFA) (localised MR East Chidham)	HTL (NPFA)	HTL (NPFA)
5A08	MR	HTL (NPFA)	HTL (NPFA)
5A09	HTL (NPFA)	HTL (NPFA)	HTL (NPFA)
5A10	HTL (NPFA)	HTL (NPFA)	HTL (NPFA)
5A11	HTL	HTL	HTL
5A12	HTL	HTL	HTL
5A13	HTL	HTL	HTL
5A14	HTL	HTL	HTL
5A15	HTL	HTL	HTL
5A16	HTL	HTL	HTL
5A17	HTL	HTL* further detailed studies are required which consider whether MR may occur at Conigar & Warblington	
5A18	HTL	HTL* further detailed studies are required which consider whether MR may occur at Southmoor	
5A19	HTL	HTL	HTL
5A20	HTL	HTL* In addition to a study looking across the context of	

Policy Unit	Epoch 1 (0-20)	Epoch 2 (20-50)	Epoch 3 (50-100)
HTL= Hold The Line, HTL (NPFA) = Hold The Line (No Public Funding Available), MR = Managed Realignment, NAI = No Active Intervention			
		the wider strategic network of sites, a study is required to confirm the future management of the site. This is likely to be a range of options from HTL to MR. This is likely to result in doing something different, to recognise coastal change. The study will address the economic, environmental and social implications and flood management issues of the site. To be reflected in the implementation plan of strategy and Action plan of the SMP. SMP, Strategy and Sustainability study are to have clear engagement plans. The SMP and Strategy will be advising the Regional Habitat Creation Plan of the likelihood of the need to provide compensatory habitat for the features and amenities of Farlington Marshes, and given the uncertain timescales this needs to be taken account of now.	
5API01	HTL	HTL	HTL
5AHI01	HTL	HTL	HTL
5AHI02	HTL (NPFA)	HTL (NPFA)	HTL (NPFA)* * further detailed studies are required which consider whether MR may occur at Northney Farm
5AHI03	HTL (NPFA)	HTL (NPFA)	HTL (NPFA)
5AHI04	HTL	HTL	HTL
5AHI05	HTL	HTL	HTL
5AHI06	HTL	HTL	HTL
5AHI07	NAI (HTL Newtown)	NAI (HTL Newtown)	NAI (HTL Newtown)
5AHI08	HTL* further detailed studies are required which may consider regulated tidal exchange at Stoke and West Northney		

Table J5.17 Final policies per policy unit, per epoch for Chichester and Langstone Harbours SPA and Ramsar site

Habitat change

The habitats summarized in Table J5.16 will undergo the following change over the three epochs as a result of the SMP policies set in Table J5.17. With reference to Table J5.18, “Mitigation” is a landward habitat gain within the SPA/Ramsar site as a result of a MR or a NAI policy. This new habitat can be used to offset any losses resulting from the “Habitat Change” column. The resulting “Total change” column is a sum of the two and represents the net change. The final column “Compensation Required” demonstrates how much compensatory habitat will be required to offset adverse impacts to Chichester and Langstone SPA and Ramsar site. The values in Table J5.18 have been rounded to the nearest whole number.

SMP habitat grouping	Habitat change (ha)			Mitigation (ha)			Total change (ha)	Compensation required (ha)
	epoch 1	epoch 2	epoch 3	epoch 1	epoch 2	epoch 3		
Mudflat	35	15	-64	0	0	0	-14	14
Saltmarsh	-74	-76	-56	0	2	6	-199	199
Saline lagoons	0	0	0	0	0	0	0	0
Freshwater habitats	0	0	0	0	0	0	0	0
Coastal grazing marsh	0	0	-6	0	0	0	-6	6
Vegetated shingle	See description							No
Unvegetated shingle	See description							No
Sand Dunes	See description							No
Estuaries (function)*	Langstone Harbour- see description							Yes
	Chichester Harbour- see description							Yes
Landward feeding/high tide roost sites	Loss of sites in following policy units: 5A07, 5A08 (see description)							Further studies required to quantify area

*For Ramsar designation only

Table J5.18 Habitat and bird function losses and gains in the Chichester and Langstone Harbours SPA and Ramsar

- **Mudflat**

When summing the row for mudflat under the "Habitat Change" column in Table J5.18, there is a decrease of 14 ha of mudflat over 100 years in the SPA and Ramsar site. There is no mitigation for mudflat within the SPA or Ramsar site therefore, the net change in habitat is a decrease of **14 ha**. This loss is considered an **adverse effect** on site integrity resulting in a deficit in mudflat and a displacement of migratory bird species and waterfowl assemblages which qualify under both Article 4.2 of the EU Birds Directive and Ramsar Criteria for the Ramsar Convention (Table J5.15).

- **Saltmarsh**

When summing the row for saltmarsh under the "Habitat Change" column in Table J5.18, there is a total deficit of 207 ha of saltmarsh over 100 years in the SPA and Ramsar site as a result of coastal squeeze processes in operation and sea level rise.

There are 8 ha of new saltmarsh available over the 100 years through MR and NAI policies within the SPA and Ramsar that can be considered as mitigation; however, this still results in an overall deficit of **199 ha**. This is considered an **adverse effect** on site integrity due to the displacement of the saltmarsh habitat and the resultant effect on the SPA/Ramsar Annex 1 bird species,

migratory bird species and waterfowl assemblages which qualify under both Article 4.2 of the EU Birds Directive and Ramsar Criteria for the Ramsar Convention (Table J5.15).

- **Saline lagoons and Freshwater habitats**

There is **no adverse effect** on saline lagoons or freshwater habitats within the SPA and Ramsar as there are no MR and NAI policies over these habitats within the designated site.

- **Coastal grazing marsh**

When summing the row for coastal grazing marsh under the "Habitat Change" column in Table J5.18, there is a total deficit of 6 ha of coastal grazing marsh habitat over 100 years in the SPA and Ramsar site as a result of MR at Horse Pond (5A05) in epoch 3. The SMP has not identified any potential habitat that could be used as mitigation within the SPA and Ramsar, thereby resulting in a net deficit of **6 ha** (Table J5.18). This is considered an **adverse effect** on site integrity due to the displacement of the coastal grazing marsh and the resultant effect on the SPA/Ramsar migratory bird species and waterfowl assemblages which qualify under both Article 4.2 of the EU Birds Directive and Ramsar Criteria for the Ramsar Convention (Table J5.15) aswell as Ramsar criterion 2 assemblages of rare plants and invertebrates.

- **Vegetated and unvegetated shingle**

There will be vegetated and unvegetated shingle lost through coastal squeeze processes where HTL is the policy. However, new shingle will enter the system via the NAI policy at 5AHI07. Overall, the assessment can conclude that there will be **no adverse effect** Chichester and Langstone SPA and Ramsar site.

- **Sand dunes**

The sand dune habitat at Eastoke (policy unit 5AHI05) is not predicted to suffer any losses over the next 100 years under a HTL policy for the three epochs. In addition, the sand dune habitat at East Head Spit (policy unit 5A04) is not predicted to suffer any great losses over the next 100 years under an Adaptive Management policy (Figures J1.3 – J1.5). Sediment will be recycled from the spit tip to the Hinge and Neck area according to the Pagham to East Head Strategy (2008). Consequently, there **would not be an adverse effect** to site integrity. In addition, new sand and shingle will enter the system via the NAI policy at 5AHI07 which is considered a benefit for the sand dune habitat.

- **Feeding and High tide roost sites**

The following Annex 1 bird species, migratory bird species and waterfowl assemblages feeding and roost function will be lost through the SMP policies detailed in Table J5.19. Habitats seaward of the coastal defences will be lost

through HTL coastal squeeze processes whilst habitats landward of the coastal defences will be lost through MR.

The habitat losses presented in Table J5.19 are included in Table J5.18 as requiring mitigation or compensation as appropriate. However, the losses presented in Table J5.19 cannot be quantified as part of this broad scale assessment and will require further detailed studies. The location of these feeding and roost site losses are depicted in Figure J5.5 and J5.6 in Section J5.9.1. Any future mitigation or compensation for the function of the habitat will need to be re-created as close to the SPA and Ramsar site in order to maintain integrity. The loss of habitat function can be mitigated through habitat management, for example, creating new shingle islands within the estuaries or removing scrub and woodland to create new areas for roosting. In addition, artificial roost and breeding sites can be substituted by use of pontoons, although it is questionable whether these artificial sites are of the same ecological value (Cox, 2009). Only mudflat and saltmarsh mitigation can be identified through the SMP policies; other mitigation will be dealt with more specifically through Coastal Defence Strategy Studies and Schemes.

Overall, there is an **adverse effect** on site integrity due to the displacement of saltmarsh habitat, mudflat, vegetated shingle, unvegetated shingle, and grazing marsh habitat which the Annex 1 bird species, migratory bird species and waterfowl assemblages use as feeding and roost sites.

Location	Policy unit	Policy	Habitat supporting function	Function
Stanbury Point to Marker Point	5A13	HTL all three epochs	Saltmarsh	Wader and wildfowl feeding and roost site
Langstone Bridge to Northney Farm	5AHI01	HTL all three epochs	Saltmarsh	Wader and wildfowl feeding and roost site
Fishbourne to west of Cobnor Point	5A07	HTL (NPFA) (localised MR East Chidham)	Coastal grazing marsh and wet grassland	Wader and wildfowl feeding and roost site
Chidham within west of Cobnor Point to Chidham Point	5A08	MR in epoch 1	Arable	Wildfowl feeding site
Farlington Marshes	5A20	HTL for all epochs	Saltmarsh	Wader and wildfowl feeding and roost site
Northney Farm to Mengham	5AHI03	HTLfor all epochs	Saltmarsh	Wader feeding and roost site

Table J5.19 Feeding and roost losses in the Chichester and Langstone Harbours SPA and Ramsar

- **Estuaries** (for Ramsar site only)

The SMP policies will not have a detrimental affect on salinity or sediment input. Moreover, there are no new defences proposed for the harbours and there are three managed re-alignment sites proposed over the next 100 years, thereby not constraining the estuaries anymore than they are at present. Still, in relation to the extent of the existing defences, the proportion of managed re-alignment sites is small. Therefore, over the estuaries as a whole, there will be an **adverse effect** on site integrity as the harbours continue to be constrained around the majority of their perimeter by hard defences, thereby restricting natural evolution of the estuary function.

J5.6 Pagham SPA and Ramsar site

The Pagham Harbour SPA and Ramsar site is outside of the North Solent SMP boundary. However, the site was brought through to the Appropriate Assessment stage because of the risk that an NAI policy at Medmerry could result in an adverse effect on grazing marsh habitats and roost sites through saline intrusion. The policy for Medmerry (5A01) is in fact MR in the first epoch with secondary defences proposed in the Pagham to East Head Strategy Study (2008) that will contain floodwaters and therefore not cause an adverse effect to the Pagham Harbour SPA and Ramsar site.

J5.7 Solent and Isle of Wight Lagoons SAC

The following table summarises the habitat groupings and impacts used for the Solent and Isle of Wight Lagoons SAC as part of this AA.

SAC	SMP Habitat Groups	Interest Features/Conservation Objective	Impacts
Solent IOW Lagoons	Saline lagoons	Coastal lagoons	Saline Intrusion

Table J5.20 Solent and Isle of Wight Lagoons SAC interest features, habitats and impacts to be assessed

The Solent and Isle of Wight Lagoons SAC is covered by the policy units and policies illustrated in Figures J1.3 –J1.5. Saline lagoons designated as part of the SAC are located within the marshes at Keyhaven and Pennington (5C22), Farlington Marshes (5A20) and at Gilkicker (5B01). These policy units all have a HTL policy which will provide protection to these lagoons from saline intrusion. Consequently, this assessment can conclude that there will be **no adverse effect** to site integrity.

J5.8 Solent Maritime SAC

The following table depicts the habitat groupings and impacts used for the Solent Maritime SAC.

SAC	SMP Habitat Groups	Interest Features/Conservation Objective	Impacts
Solent Maritime	Coastal saltmarsh	*Salicornia* and other annuals colonising mud and sand	Coastal Squeeze
		Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)	
		Spartina swards (*Spartinion maritimae*)	
	Intertidal mudflat	Mudflats and sandflats - not submerged at low tide	
	Saline lagoons	Coastal lagoons	Saline Intrusion
	Freshwater (reedbeds)	Desmoulin`s whorl snail (*Vertigo moulinsiana)*	
	Sand dunes	Shifting white dunes with *Ammophila arenaria*	Coastal Processes
	Estuaries (function)	Estuaries (function)	
	Vegetated shingle	Annual vegetation drift lines	
		Perennial vegetation of stony banks	

Table J5.21 Solent Maritime SAC interest features, habitats and impacts to be assessed

To summarise, the following habitats and impacts will be assessed for the Solent Maritime SAC.

SMP habitat grouping	Impact
Intertidal saltmarsh	Coastal Squeeze
Intertidal mudflat	
Saline lagoons	Saline intrusion
Freshwater habitats	
Vegetated shingle	Coastal Processes
Sand Dunes	
Estuaries (function)	

Table J5.22 Solent Maritime SAC SMP habitat grouping and impact to be assessed

The Solent Maritime SAC is covered by the policy units and policies illustrated in Figures J1.3- J1.5. Figures J.4 illustrate the location and name of the inter-tidal habitat creation sites.

Habitat change

The habitats summarized in Table J5.23 will undergo the following change over the three epochs as a result of the SMP policies presented in Figures J1.3 –J1.5. With reference to Table J5.23, "Mitigation" is a landward habitat gain within the SPA/Ramsar site as a result of a MR or a NAI policy. This new habitat can be used to offset any losses resulting from the "Habitat Change" column. The resulting "Total change" column is a sum of the two and represents the net change. The final column "Compensation required" demonstrates how much compensatory habitat will be required to offset adverse impacts to Solent Maritime SAC. The values in Table J5.23 have been rounded to the nearest whole number.

SMP habitat grouping	Habitat change (ha)			Mitigation (ha)			Total change (ha)	Compensation required (ha)
	epoch 1	epoch 2	epoch 3	epoch 1	epoch 2	epoch 3		
Mudflat	55	77	-3	0	13	0	142	0
Saltmarsh	-108	-159	-163	0	10	0	-419	419
Saline lagoons	0	-3	0	0	3	0	0	0
Vegetated shingle	See description							No
Sand Dunes	See description							No
Estuaries (function)*	Hamble River-see description							No
	Beaulieu River- see description							No
	Langstone Harbour – see description							Yes
	Chichester Harbour- see description							Yes

*For Ramsar designation only

Table J5.23 Habitat change in the Solent Maritime SAC

- **Mudflat**

When summing the row for mudflat under the "Habitat Change" column in Table J5.23, there is an increase of 129 ha of mudflat over 100 years in the Solent Maritime SAC as saltmarsh is drowned out by sea level rise and replaced with mudflat. In addition there are 13 ha of new mudflat creation available from a MR policy at Hook Lake (policy unit 5C01) within the SAC that can be considered as mitigation, resulting in a net increase of **142 ha** of mudflat. This is considered a benefit for the mudflat interest feature.

- **Saltmarsh**

Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) and Spartina swards (*Spartinion maritimae*) are priority saltmarsh habitats. When summing the rows for saltmarsh under the "Habitat Change" column in Table J5.23, there is a total deficit of 429 ha of saltmarsh over 100 years in the Solent Maritime SAC as saltmarsh is drowned out by sea level rise and undergoes the process of coastal squeeze.

There is 10 ha of new saltmarsh available through the MR policy at Hook Lake (policy unit 5C01) within the SAC that can be considered as mitigation. The total net deficit of saltmarsh is **419 ha** over 100 years. This is considered an **adverse effect** on site integrity due to the displacement of the saltmarsh habitat listed in Table J5.21.

- **Saline lagoons**

At Hook Lake MR site (policy unit 5C01) 3 ha of saline lagoons will be lost in the 2nd epoch to MR however, this loss of habitat can be mitigated for within the SMP through the creation of a new saline lagoon within the Solent Martime SAC. The SMP action plan has identified the requirement of a further study to provide details regarding the location of the new saline lagoon. Therefore, it is considered that there will be **no adverse effect** on site integrity.

- **Freshwater habitat**

Desmoulin`s whorl snail (*Vertigo moulinsiana)* is an Annex II species present as a qualifying feature for Solent Maritime SAC. Freshwater habitats which support the Desmoulin`s whorl snail are located around Chichester Harbour and the location of the snail has been identified within policy unit 5A06. The policy at 5A06 is HTL therefore there will be no risk of saline intrusion to the freshwater habitat. Consequently, there will be **no adverse effect** to site integrity.

- **Vegetated shingle**

There will be vegetated shingle lost through coastal squeeze processes at policy unit 5F01 where HTL is the policy for all three epochs and at 5C18 and 5C15 in the 1st and 2nd epoch. However, NAI policy at policy unit 5B03 will result in continued vegetated shingle stabilisation at Hook spit. In conclusion, the assessment considers that there **would not be an adverse effect** to site integrity.

- **Sand dunes**

The sand dune habitat at East Head Spit (policy unit 5A04) is not predicted to suffer any great losses over the next 100 years under an Adaptive Management policy. Sediment will be recycled from the spit tip to the Hinge and Neck area according to the Pagham to East Head Strategy (2008). Consequently, there **would not be an adverse effect** to site integrity. In addition, new sand will enter the system via the NAI policy at 5AHI07 which may have a beneficial effect on the sand dune habitat.

- **Estuaries** (for Ramsar site only)

The north Solent encompasses a major estuarine system on the south coast of England with one coastal plain estuary (River Hamble) and three bar-built estuaries (River Beaulieu, Langstone Harbour and Chichester Harbour).

For all of the estuaries, the NAI and MR policies will not have a detrimental affect on salinity or sediment input. MR and NAI policies will result in loss of saline lagoons and vegetated shingle (see above); still these policies will allow the estuaries to achieve a more unconstrained and natural estuary shape. The tidal prism will increase due to the MR and NAI policies, which will result in a larger cross-sectional area at the mouth of the rivers. In addition, sediment input will increase from eroding shorelines as a result of the NAI and MR policies, thereby feeding the inter-tidal habitats and allowing saltmarsh to keep pace with sea level rise.

With regard to Langstone and Chichester Harbours, the SMP policies will not have a detrimental affect on salinity or sediment input. Moreover, there are no new defences proposed for the harbours and there are three managed re-alignment sites proposed over the next 100 years, thereby not constraining the estuaries anymore than they are at present. Still, in relation to the extent of the existing defences, the proportion of managed re-alignment sites is small.

Therefore, over the estuaries as a whole, there will be an **adverse effect** on site integrity as Langstone and Chichester Harbours continue to be constrained around the majority of their perimeter by hard defences, thereby restricting natural evolution of the estuary function.

J5.9 Summary of habitat change for the whole plan

The following table summarises the habitat change for each SMP habitat grouping, for each SPA/Ramsar and SAC. The total habitat change includes any known mitigation and values have been rounded to the nearest whole number.

SMP habitat grouping	Solent & Southampton Water SPA/Ramsar	Portsmouth SPA/Ramsar	Chichester & Langstone SPA/Ramsar	Solent Maritime SAC	Solent & IOW Lagoons SAC
Mudflat (ha)	205	-160	-14	142	
Saltmarsh (ha)	-187	-34	-199	-419	
Saline lagoons (ha)	0	0	0	0	0
Freshwater habitats (ha)	-4	0	0		
Coastal grazing marsh (ha)	-39	0	-6		
Vegetated shingle	No	No	No	No	
Unvegetated shingle	No	No	No		
Sand dunes			No	No	
Landward feeding/high tide roost sites	-1	0	-2		
Seaward feeding/high tide roost sites	-3	-6	-4		
Estuaries (function)*					
• Beaulieu River	No			No	
• Hamble River	No			No	
• Portsmouth		Yes			
• Langstone			Yes	Yes	
• Chichester			Yes	Yes	

*For Ramsar designation only

Table J5.24 Total habitat and bird function change for SMP habitat groupings across the SMP

The total impact of the SMP policies (Figures J1.3-J1.5) on the designated habitats are summed for the SPA/Ramsar sites in Section J5.9.1. Given that there is no adverse effect on the Solent and IOW Lagoons SAC, the SAC's have not been totalled (see Section J5.7 and J5.8).

J5.9.1 Total SPA and Ramsar habitat change

The following table summarises the impact of the SMP policies on the Solent and Southampton Water SPA/Ramsar, Portsmouth Harbour SPA/Ramsar and the Chichester and Langstone Harbour SPA/Ramsar sites. The values in table have been rounded to the nearest whole number. With reference to Table J5.25, "Mitigation" is a landward habitat gain within the SPA/Ramsar site as a result of a MR or a NAI policy. This new habitat can be used to offset any losses resulting from the "Habitat Change" column. The resulting "Total change" column is a sum of the two and represents the net change. The final column "total change requiring compensation" demonstrates how much compensatory habitat will be required to offset adverse impacts. The table contains four rows for mudflat one for each SPA/Ramsar site and a row which combines all the sites. This is only necessary for mudflat to clearly demonstrate the mitigation available within each designated site which has an impact on the final habitat change for each designated site and thus the compensation requirements. This is however not required for saltmarsh as the mitigation available for each designated site does not alter the final compensation requirements for all sites combined.

SMP habitat grouping	Habitat change (ha)			Mitigation (ha)			Total change (ha)	Total change (ha) requiring compensation
	epoch 1	epoch 2	epoch 3	epoch 1	epoch 2	epoch 3		
Mudflat (Solent & Southampton Water SPA/Ramsar)	21	62	60	0	26	36	205	0
Mudflat (Portsmouth SPA/Ramsar)	-12	-43	-105	0	0	0	-160	160
Mudflat (Chichester & Langstone SPA/Ramsar)	35	15	-64	0	0	0	-14	14
Mudflat (all SPA/Ramsar)				0	26	36		173
Saltmarsh (all SPA/Ramsar	-124	-170	-170	0	22	21	-421	421
Saline lagoons	0	-3	0	0	3	0	0	0
Freshwater habitats	0	-4	0	0	0	0	-4	4
Coastal grazing marsh	0	-39	-6	0	0	0	-45	45
Vegetated shingle	See description							No
Unvegetated shingle	See description							No
Sand dunes	See description							No

Landward feeding/high tide roost sites	Loss of sites in following policy units: 5A07, 5A08, 5C01	further studies required
Seaward feeding/high tide roost sites	Loss of sites in following policy units: 5A13, 5A20, 5A21, 5A22, 5A23, 5A24, 5A25, 5C14, 5C16, 5C22, 5API0, 5AHI01, 5AHI03	further studies required
Estuaries (function)*	River Hamble -see description	No
	Beaulieu River- see description	No
	Portsmouth- see description	Yes
	Langstone- see description	Yes
	Chichester- see description	Yes

*For Ramsar designation only

Table J5.25 Total SPA and Ramsar change across the SMP

- **Mudflat**

When summing the rows for mudflat under the "Habitat Change" column in Table J5.25, there is a total deficit of 160 ha of mudflat over 100 years in the Portsmouth Harbour SPA and Ramsar sites and 14 ha in the Chichester and Langstone Harbours SPA and Ramsar sites, as a result of HTL coastal squeeze processes in operation and sea level rise. This results in an overall net deficit of **173 ha** which is considered an **adverse effect** on site integrity due to the displacement of the mudflat habitat and the resultant effect on the SPA/Ramsar Annex 1 bird species, migratory bird species and waterfowl assemblages which qualify under both Article 4.2 of the EU Birds Directive and Ramsar Criteria for the Ramsar Convention aswell as Ramsar criterion 2 assemblages of rare plants and invertebrates. Both sets of combined losses require compensation, totalling 169 ha.

In addition, there is 205 ha of mudflat creation predicted in the Solent and Southampton Water SPA and Ramsar as a result of saltmarsh reverting to mudflat with sea level rise (143 ha) and re-creation of mudflat at Lymington Reedbeds (32 ha) and Hook Lake (26 ha) under a MR policy and potentially at Stansore Point under a NAI policy (4 ha), depending on the intentions of the private landowner. It is considered that there will be **no adverse effect** on site integrity for this designated site

- **Saltmarsh**

When summing the row for saltmarsh under the "Habitat Change" column in Table J2.25, there is a total deficit of 463 ha of saltmarsh over 100 years in the SPA and Ramsar sites, as a result of HTL coastal squeeze processes in operation and sea level rise. In addition, there is the potential for 43 ha of new saltmarsh to be created over the 100 years through MR and NAI policies within the SPA and Ramsar site that can be considered mitigation. However, this still results in an overall net deficit of **421 ha** which is considered an **adverse effect** on site integrity due to the displacement of the saltmarsh habitat and the resultant effect on the SPA/Ramsar Annex 1 bird species, migratory bird species and waterfowl assemblages which qualify under both

Article 4.2 of the EU Birds Directive and Ramsar Criteria for the Ramsar Convention aswell as Ramsar criterion 2 assemblages of rare plants and invertebrates.

- **Saline lagoons**

At Hook Lake MR site (policy unit 5C01) 3 ha of saline lagoons which will be lost in the 2nd epoch to MR however, this loss of habitat can be mitigated for within the SMP through the creation of a new saline lagoon within the Solent and Southampton Water SPA and Ramsar site. The SMP action plan has identified the requirement of a further study to provide details regarding the location of the new saline lagoon. Therefore, it is considered that there will be **no adverse effect** on site integrity.

- **Freshwater habitats**

When summing the "Habitat Change" row in Table J5.25, there is a total deficit of 4 ha of freshwater habitats over 100 years in the SPA and Ramsar sites, as a result of MR policy at Hook Lake (5C01).

The SMP has not identified any potential habitat that could be used as mitigation within the SPA and Ramsar, thereby resulting in a net deficit of **4 ha** (Table J5.25). This is considered an **adverse effect** on site integrity due to displacement of the freshwater habitats and the resultant effect on the SPA/Ramsar migratory bird species and waterfowl assemblages which qualify under both Article 4.2 of the EU Birds Directive and Ramsar Criteria for the Ramsar Convention aswell as Ramsar criterion 2 assemblages of rare plants and invertebrates.

- **Coastal grazing marsh**

When summing the row for coastal grazing marsh under the "Habitat Change" column in Table J5.25, there is a total deficit of 45 ha of coastal grazing marsh over 100 years in the SPA and Ramsar sites as a result of MR policies: Hook Lake (5C01) in epoch and Horse Pond (5A05) in epoch 3.

The SMP has not identified any potential habitat that could be used as mitigation within the SPA and Ramsar, thereby resulting in a net deficit of **45 ha** (Table J2.25). This is considered an **adverse effect** on site integrity due to the displacement of the coastal grazing marsh and the resultant effect on the SPA/Ramsar migratory bird species and waterfowl assemblages which qualify under both Article 4.2 of the EU Birds Directive and Ramsar Criteria for the Ramsar Convention aswell as Ramsar criterion 2 assemblages of rare plants and invertebrates.

- **Vegetated and unvegetated shingle**

There will be vegetated and unvegetated shingle lost at policy unit 5C10 and 5F01 where HTL is the policy for all three epochs and at 5C09, 5C18 and 5C15 where HTL is the policy in the 1st and 2nd epoch. The NAI policy at

policy unit 5B03 will result in continued unvegetated shingle stabilisation at Hook spit (see Figures J1.3 - J1.5).

In conclusion, the assessment considers that there **would not be an adverse effect** to site integrity.

- **Feeding and high tide roost sites**

The following Annex 1 bird species, migratory bird species and waterfowl assemblages feeding and roost function will be lost through the SMP policies detailed in Table J2.26 below. Habitats seaward of the coastal defences will be lost through HTL coastal squeeze processes whilst habitats landward of the coastal defences will be lost through MR.

The habitat losses presented in Table J2.26 are included in Table J5.25 as requiring mitigation or compensation as appropriate. However, the potential losses presented in Table J2.26 cannot be quantified as part of this broad scale assessment and will require further detailed studies. The location of these feeding and roost site losses are depicted in Figure J5.5 and J5.6. Any future mitigation or compensation for the function of the habitat will need to be re-created as close to the SPA and Ramsar site in order to maintain integrity.

The loss of habitat function can be mitigated through habitat management, for example, creating new shingle islands within the estuaries or removing scrub and woodland to create new areas for roosting. In addition, artificial roost and breeding sites can be substituted by use of pontoons, although it is questionable whether these artificial sites are of the same ecological value (Cox, 2009). Only mudflat and saltmarsh mitigation can be identified through the SMP policies; other mitigation will be dealt with more specifically through Coastal Defence Strategy Studies and Schemes.

Overall, there is an **adverse effect** on site integrity due to the displacement of saltmarsh habitat, vegetated shingle, unvegetated shingle, freshwater habitat (reedbeds) and grazing marsh habitat which the Annex 1 bird species, migratory bird species and waterfowl assemblages use as feeding and roost sites.

Location	Policy unit	Policy	Habitat	Function
Hook Lake	5C01	MR in epoch 2	Coastal grazing marsh, reedbeds and saline lagoons	Wader and wildfowl feeding and roost site
Hythe and Fawley	5C14	HTL for all three epochs	Saltmarsh, unvegetated shingle (cheniers)	Wader and wildfowl feeding and roost site
Stansore Point	5C16	NAI in epoch 1	Saltmarsh and saline lagoons	Wader feeding and roost site
Lymington and Hurst Spit	5C22	HTL for all three epochs	Saltmarsh, unvegetated shingle (cheniers)	Wader and wildfowl feeding and roost site
Portsmouth Harbour	5A25, 5A24, 5A23, 5A22, 5A21, 5API01	HTL for all three epochs	Saltmarsh	Wildfowl feeding and roost site
Stanbury Point to Marker Point	5A13	HTL all three epochs	Saltmarsh	Wader and wildfowl feeding and roost site
Langstone Bridge to Northney Farm	5AHI01	HTL all three epochs	Saltmarsh	Wader and wildfowl feeding and roost site
Fishbourne to west of Cobnor Point	5A07	HTL (NPFA) (localised MR East Chidham)	Coastal grazing marsh and wet grassland	Wader and wildfowl feeding and roost site
Chidham within west of Cobnor Point to Chidham Point	5A08	MR in epoch 1	Arable	Wildfowl feeding site
Farlington Marshes	5A20	HTL in all three epochs	Saltmarsh	Wader and wildfowl feeding and roost site
Northney Farm to Mengham	5AHI03	HTL in all three epochs	Saltmarsh	Wader feeding and roost site

Table J2.26 Feeding and roost site losses in the Solent and Southampton Water SPA and Ramsar, Portsmouth Harbour SPA/Ramsar and Chichester and Langstone SPA/Ramsar

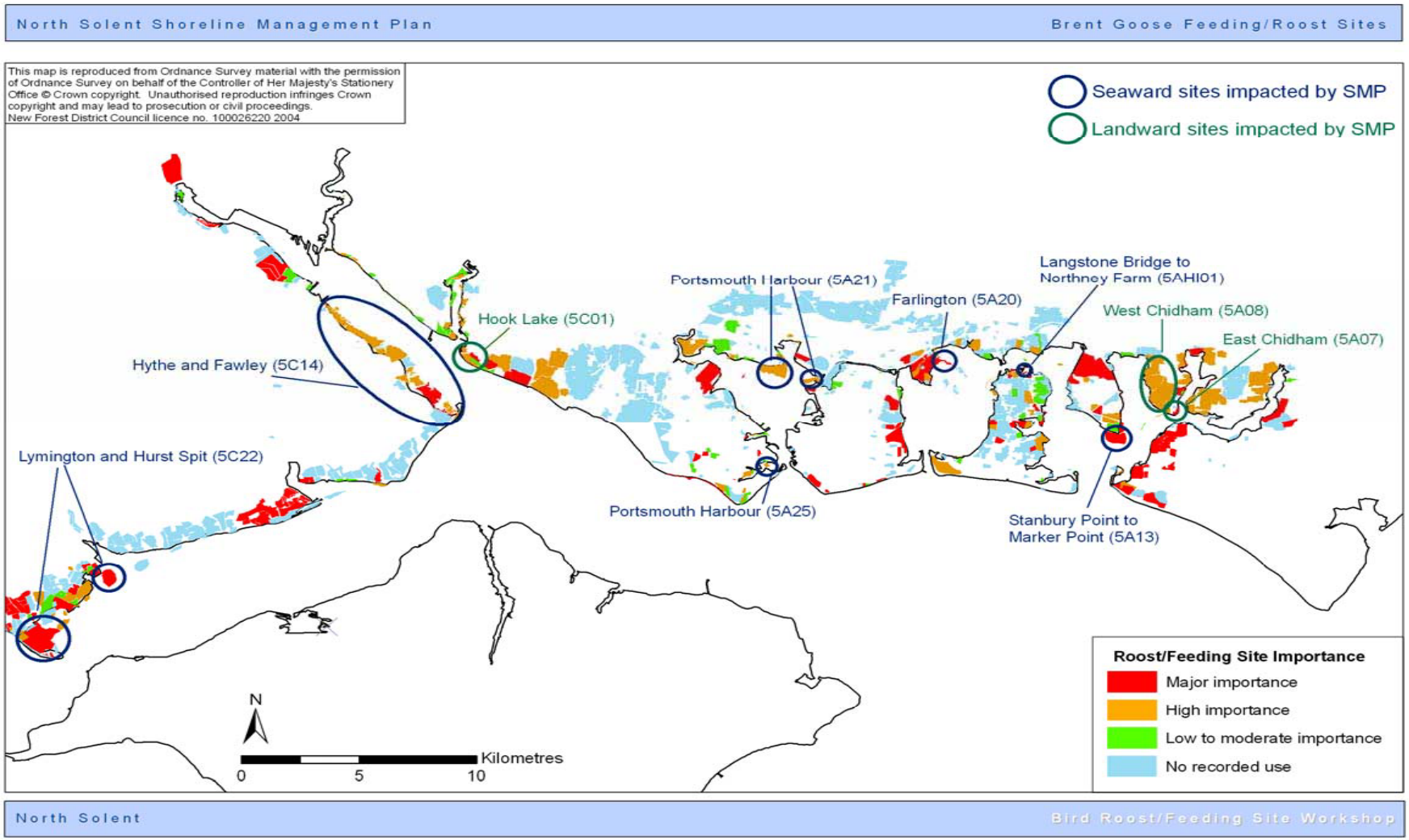


Figure J5.5 Brent geese and wildfowl feeding and high tide roost sites within the North Solent SMP study area

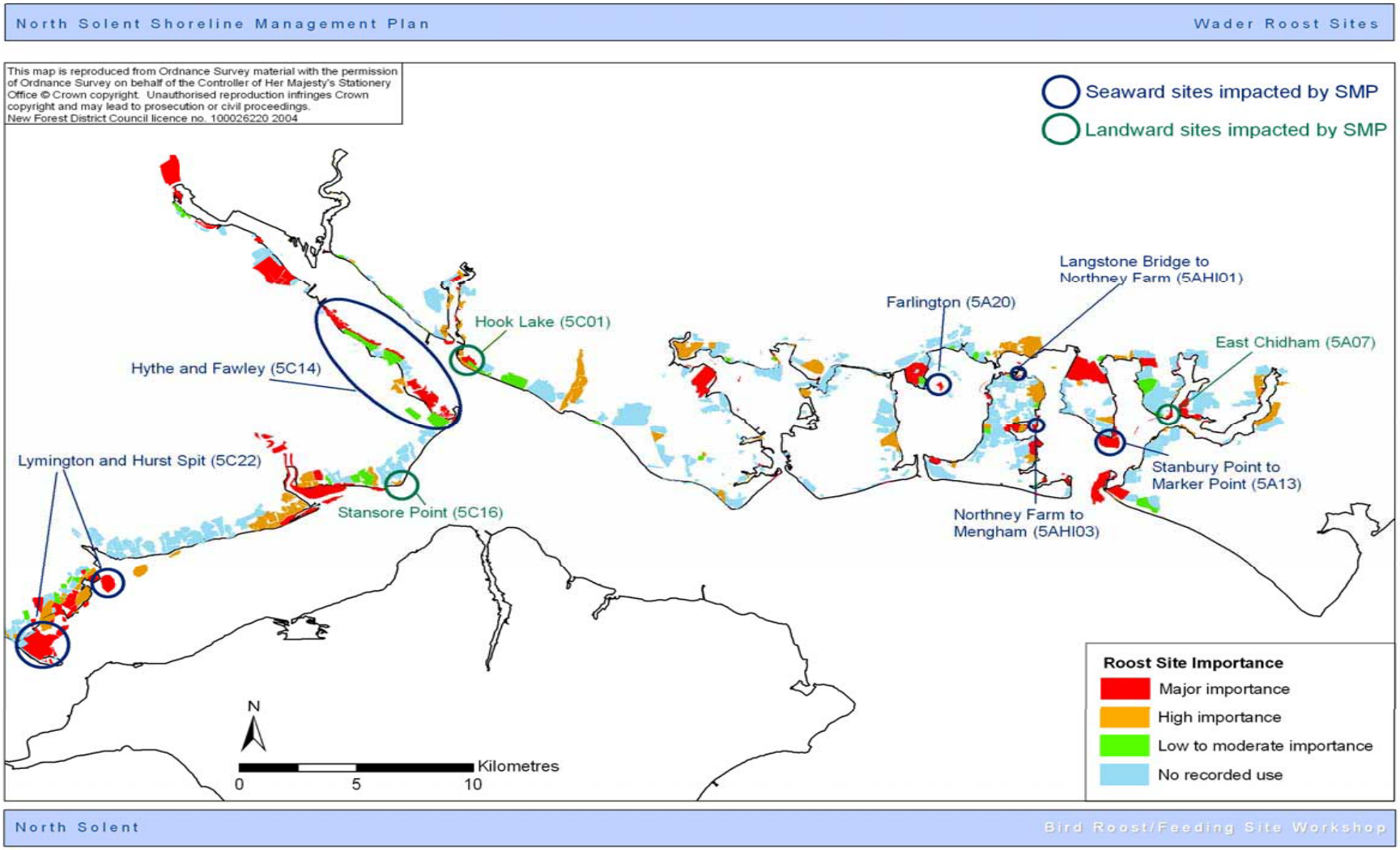


Figure J5.6 Wader high tide roost sites within the North Solent SMP study area

- **Estuaries** (for Ramsar site only)

The north Solent encompasses a major estuarine system on the south coast of England with one coastal plain estuary (River Hamble) and three bar-built estuaries (River Beaulieu, Langstone Harbour and Chichester Harbour).

For all of the estuaries, the NAI and MR policies will not have a detrimental affect on salinity or sediment input. The MR and NAI policies in the River Hamble and River Beaulieu will allow the estuaries to achieve a more unconstrained and natural estuary shape. The tidal prism will increase due to the MR and NAI policies, which will result in a larger cross-sectional area at the mouth of the rivers. In addition, sediment input will increase from eroding shorelines as a result of the NAI and MR policies, thereby feeding the inter-tidal habitats and allowing saltmarsh to keep pace with sea level rise.

With regard to Portsmouth Harbour and Langstone and Chichester Harbours, the SMP policies will not have a detrimental affect on salinity or sediment input. Moreover, there are no new defences proposed for the harbours and there are three managed re-alignment sites proposed over the next 100 years for Langstone and Chichester Harbours, thereby not constraining the estuaries anymore than they are at present. Still, in relation to the extent of the existing defences, the proportion of managed re-alignment sites is small.

Therefore, over the estuaries as a whole, there will be an **adverse effect** on site integrity as Portsmouth Harbour and Langstone and Chichester Harbours continue to be constrained around the majority of their perimeter by hard defences, thereby restricting natural evolution of the estuary function.

J5.10 Final summary for the whole plan

The following table summarises whether adverse effect was concluded for each SMP habitat grouping and function, for each SPA/Ramsar and SAC.

SMP habitat grouping	Solent & Southampton Water SPA/Ramsar	Portsmouth SPA/Ramsar	Chichester & Langstone SPA/Ramsar	Solent Maritime SAC	Solent & IOW Lagoons SAC
Mudflat	No	Yes	Yes	No	
Saltmarsh	Yes	Yes	Yes	Yes	
Saline lagoons	No	No	No	No	No
Freshwater habitats	Yes	No	No		
Coastal grazing marsh	Yes	No	Yes		
Vegetated shingle	No	No	No	No	
Unvegetated shingle	No	No	No		
Sand dunes			No	No	
Landward feeding/high tide roost sites	Yes	No	Yes		
Seaward feeding/high tide roost sites	Yes	Yes	Yes		
Estuaries (function)*					
• Beaulieu River	No			No	
• Hamble River	No			No	
• Portsmouth		Yes			
• Langstone			Yes	Yes	
• Chichester			Yes	Yes	

*For Ramsar designations and Solent Maritime SAC

Table J5.27 Adverse effect for SMP habitat groupings and function for the whole plan

J5.10.1 Mitigation

- **Habitats**

Within the North Solent SMP there are opportunities for intertidal habitat creation as a result of MR policies (sites shown in red in a Table J5.28) and NAI policies (shown as green in Table J5.28). These sites will provide new intertidal habitat within European designated sites that can be used to mitigate intertidal losses occurring within the same designated site. The location of these sites is shown in Figures J5.3 and J5.4. The total areas for intertidal mitigation and the net habitat change for each European site are detailed in Sections; J5.3 Solent and Southampton Water SPA and Ramsar, J5.5 Chichester and Langstone Harbours SPA and Ramsar and J5.8 Solent Maritime SAC.

Site Name	Habitat (ha)			
	Epoch 2		Epoch 3	
	Saltmarsh	Mudflat	Saltmarsh	Mudflat
Solent and Southampton Water SPA/Ramsar				
Hook Lake	20	26		
Lymington reedbeds			4	32
Stansore Point			12	4
Total	**20**	**26**	**15**	**36**
Chichester Langstone SPA/Ramsar				
Newtown	2	0		
Horse Pond			6	0
Total	**2**	**0**	**33**	**3**
Solent Maritime SAC				
Hook Lake	10	13		
Total for SMP	**22**	**26**	**21**	**36**

Table J5.28: Intertidal habitat available for mitigation within each designated site

Table J5.28 shows the mitigation available for epoch 2 and 3 but not epoch 1 as there are no intertidal mitigation opportunities within epoch 1 in the SMP. Hook Lake is covered by the Solent and Southampton Water SPA and Ramsar sites in addition to Solent Maritime SAC. As a result, Hook Lake appears twice under each designated site in Table J5.28 however, for intertidal mitigation across the whole SMP, intertidal gains at Hook Lake has only been included once. In total there are 43 ha of saltmarsh and 62 ha of mudflat available as mitigation for intertidal habitats within the SMP over 100 years. Although this intertidal mitigation does not alter the conclusion on whether there is an adverse effect for each designated site (see Table J5.27 for summary), this intertidal mitigation does reduce the total amount of intertidal compensation habitat (subject to approval to Imperative Reasons of Overriding Public Importance (IROPI)), which will be required to maintain the integrity of the European sites.

In addition to intertidal habitat mitigation this assessment identifies mitigation for saline lagoons (3 ha) at Hook Lake designated as Solent Maritime SAC and Solent and Southampton Water SPA and Ramsar sites. The possibility of creating a new saline lagoon within the designated site boundaries has been agreed with Natural England (see Annex J1). The SMP action plan has identified the requirement for a further study to provide details for the exact location.

- **Feeding and high tide roost sites**

The SMP will result in the loss of bird feeding and high tide roost sites across the north Solent as identified in Figures J5.5 and J5.6. The creation of new intertidal habitat resulting from MR and NAI sites identified in Table J5.28 will provide some mitigation for intertidal wader and wildfowl feeding and roost

sites. Additional mitigation for intertidal high tide roost and breeding sites can be provided by creating new shingle islands and raising saltmarsh islands within the estuaries or removing scrub and woodland to create new areas for roosting. In addition, artificial roost and breeding sites can be substituted by use of mooring pontoons and floating platforms within estuaries.

Current defences within HTL frontages protect the majority of terrestrial wader roost and wildfowl feeding sites. However, there are likely to be some losses resulting from MR policies around Chichester Harbour and Southampton Water (see Figures J5.5 and J5.6). There are limited opportunities for mitigation for terrestrial wader roost and wildfowl feeding sites within the SMP although there is potential within the floodplains of the tributaries to the Solent to create replacement habitat. This replacement habitat is being investigated by the Regional Habitat Creation Programme.

J5.11 “In combination” assessment

The Habitats Regulations provide the requirement for an ‘in-combination’ assessment. The in-combination assessment builds on the assessment of the SMP alone and considers the impacts of the SMP policy in combination with other policies and approved projects yet to be implemented.

Natural England have advised that the North Solent SMP Appropriate Assessment would not be required to carry out an in-combination test because alone the North Solent SMP will have an adverse effect on the integrity of the European sites (see Natural England letter in Annex J1). Still, due to the extent and location of the Solent Maritime SAC, Solent and IOW Lagoons SAC and Solent and Southampton Water SPA and Ramsar sites, there is a requirement to assess cross-Solent implications at a strategic SMP level. A cumulative assessment of the North Solent SMP and Isle of Wight SMP is covered in Section J6.4.

J6 STAGE 3: APPROVAL OR REFUSAL OF PLAN

J6.1 Alternatives

Based on the predicted inter-tidal coastal squeeze estimates and managed re-alignment extents, the SMP has an **adverse effect** on the habitats and function within the **Solent and Southampton Water SPA and Ramsar**, **Portsmouth Harbour SPA and Ramsar, Chichester and Langstone SPA and Ramsar and the Solent Maritime SAC** (see Section J5.10 for summary). These losses cannot be mitigated or countered "in combination" with other plans. When combined with the Isle of Wight SMP, the amount of compensation for the overlapping designations (Solent and Southampton Water SPA and Ramsar, Solent Maritime SAC and Solent and IOW Lagoons SAC) increases for coastal grazing marsh (from 39 ha to 58 ha), freshwater habitats (4 ha to 7 ha) and estuary function. There is a 9 ha gain of saltmarsh habitat reducing the compensation requirement from 187 ha to 178 ha (see Section J6.4).

The North Solent SMP assessed alternative solutions by incorporating environmental factors into the policy appraisal process, therefore the final policies being suggested by the SMP were fully assessed against other potential policy options which were not considered further for social, economic, coastal processes or environmental reasons (See Main SMP, Appendix F, G and H). It is hoped that through the SMP policy appraisal process and the Appropriate Assessment, the most sustainable solutions were found.

It is important to note that the North Solent SMP area is unique in that seaward habitats are designated as SAC, SPA and Ramsar, whilst adjacent landward habitats that have suitable topography for compensatory habitat creation are designated SPA and Ramsar. This results in a challenge when adapting to climate change and rolling back habitats as there will be an adverse effect on seaward habitats if defences are held or an adverse effect on landward habitats if defences are re-aligned. The choice over what policy to assign in this situation was fully considered in the SMP policy appraisal process and the most sustainable draft policies were proposed at public consultation.

This was also the case on privately owned land, where the SMP went to public consultation recommending MR or environmental enhancement behind privately managed defences if that was considered the most sustainable approach. Throughout the development of the SMP and during public consultation, discussions with the landowners sought their intentions regarding the future management of their defences. Where the landowners objected to a MR policy and they stated that their intention is to continue to maintain their defences, the final SMP policy reverted to a HTL policy, with a clear statement that no public funding would be available for maintenance costs, as is currently the case.

In addition, a number of potential MR sites reverted to HTL with a requirement for further studies detailing the impacts of bird feeding and roost function loss on the integrity of the SPA and Ramsar sites (prior to any re-alignment taking place).

As a result of this approach, 10 Managed Re-alignment sites out of the 19 proposed MR sites reverted to HTL (no public funding available) and 6 out of the 19 proposed reverted to HTL (further studies required prior to managed re-alignment). Thus, there is an increase in the predicted impact of inter-tidal coastal squeeze across the plan but a decrease in risk of saline intrusion to coastal grazing marsh, freshwater habitats and roost function sites, protected behind hard defences compared to the pre-consultation draft Appropriate Assessment.

All HTL policies are justified for wider social, economic or environmental objectives and to protect nationally or regionally important infrastructure, property, people and / or environmental assets.

The lead competent authority has been in discussion with Natural England regarding the draft, final policies and alternatives throughout the SMP process. Natural England have written a letter of support for the final policies, highlighting the difficulty in deriving the most sustainable policy for sites across the north Solent where there is such a complex plethora of features and issues (Annex J1).

J6.2 Imperative Reasons of Overriding Public Interest

The preferred policies from this plan are likely to cause adverse effect either through displacement of mudflat, saltmarsh, freshwater and coastal grazing marsh habitats aswell as, estuary function and landward and seaward feeding and roost sites. As such, the competent authority need to consider whether the plan is necessary and needs to be implemented for 'Imperative Reasons of Overriding Public Importance'.

As mentioned in Section J6.1, the preferred SMP policies identify the best way of managing the coastline over the next 100 years in the least damaging way. For these reasons the lead authority considers that the Shoreline Management Plan is necessary and has the following 'Imperative Reasons of Overriding Public Importance:'

- A need to address a serious risk to human health and public safety (un-coordinated and un-controlled flood and erosion risks to large residential populations and major infrastructure);

- Where failure to proceed would have unacceptable social and/or economic consequences (loss of economic infrastructure, commercial property and community areas) through coastal flood and erosion damage;

- Whilst this is a damaging plan, the plan will always result in adverse effect given that a large percentage of the coastline is designated on the seaward and landward side of existing defence structures.

- In addition, 60% of the shoreline is privately owned and the landowner's wishes have been taken into consideration during public consultation. In the majority of cases this has resulted in a HTL (no public funding available) policy where the draft policy was MR. Rather than cause adverse effect to the landward SPA and Ramsar sites, there is adverse effect to the seaward SPA, Ramsar and SAC sites.

- Moreover, six potential managed re-alignment sites have reverted from MR to HTL (further detailed studies required which consider whether MR or Regulated Tidal Exchange may occur) following public consultation. Rather than cause adverse effect to the landward SPA and Ramsar sites, there is adverse effect to the seaward SPA, Ramsar and SAC sites.

- As a consequence of the 15 proposed managed realignment sites reverting to HTL following public consultation there is no longer an adverse effect to the landward SPA and Ramsar sites.

The Competent Authority (New Forest District Council) and Natural England will develop a joint case to accompany the Appropriate Assessment for submission to the Secretary of State with the knowledge that, if implemented, the plan would adversely affect Natura 2000 site integrity.

J6.3 Compensation requirements for the plan

This Appropriate Assessment (Stage 2) concluded that the North Solent SMP will have an adverse effect on the following designated sites:

- Solent and Southampton Water SPA/Ramsar
- Portsmouth Harbour SPA/Ramsar
- Chichester and Langstone Harbours SPA/Ramsar
- Solent Maritime SAC

Subject to approval to IROPI the North Solent SMP will need to secure compensation to maintain the integrity of the European sites listed above. The compensation requirements for each designated site over 100 years of the plan are shown in Table J6.1.

SMP habitat grouping	Solent & Southampton Water SPA/Ramsar	Portsmouth SPA/Ramsar	Chichester & Langstone SPA/Ramsar	Solent Maritime SAC	Solent & IOW Lagoons SAC
Mudflat (ha)	-	160	14	-	
Saltmarsh (ha)	187	34	199	419	
Saline lagoons (ha)	-	-	-	-	-
Freshwater habitats (ha)	4	-	-		
Coastal grazing marsh (ha)	39	-	6		
Vegetated shingle	-	-	-	-	
Unvegetated shingle	-	-	-		
Sand dunes			-	-	
Landward feeding/high tide roost sites[1]	1site	-	2 sites		
Seaward feeding/high tide roost sites[1]	3 sites	6 sites	4 sites		
Estuaries (function)[2]					
• Beaulieu River	No			No	
• Hamble River	No			No	
• Portsmouth		Yes			
• Langstone			Yes	Yes	
• Chichester			Yes	Yes	

[1]Further detailed studies required to calculate compensation habitat requirements for bird roost and feeding areas
[2]Only applies to Ramsar sites and Solent Maritime SAC

Table J6.1 Compensation requirements for each European site over 100 years

Compensation requirements for the North Solent SMP will form part of the Southern Regional Habitat Creation Programme (RHCP). Compensation habitat requirements combined for all designated sites are shown in Table J6.2 and represent the compensation habitat requirements to be passed on to the RHCP.

SMP habitat grouping	Area (ha)			Total (ha)
	epoch 1	epoch 2	epoch 3	
Saltmarsh (SPA/Ramsar)	124	148	149	421
Saltmarsh (additional SAC)	0	0	14	14
Mudflat (SPA/Ramsar)	12	43	118	173
Freshwater habitats	0	4	0	4
Coastal grazing marsh	0	39	6	45

Table J6.2 Habitat compensation requirements for the North Solent SMP

In addition to habitat compensation requirements the North Solent SMP will require compensation for SPA and Ramsar bird feeding and high tide roost sites. Opportunities for mitigation are discussed in Section J.5.1.1 and will reduce the impact on the network of wader roost and wildfowl feeding sites within the Solent. It is not possible at this strategic level to quantify the proportion of habitat compensation required to support the Annex 1 bird species, migratory bird species and waterfowl assemblages which qualify under both Article 4.2 of the EU Birds Directive and Ramsar Criteria for the Ramsar Convention. Until further studies refine the area of feeding and roost function required, the Appropriate Assessment must conclude that intertidal habitat required as compensation for SPA and Ramsar sites (594 ha) and coastal grazing marsh (45ha) will need to be recreated as close to the European sites as possible to maintain the integrity of the sites.

Further compensation will be required to ensure that the estuary function provided by Portsmouth, Langstone and Chichester estuaries designated as part of Portsmouth Harbour Ramsar, Chichester and Langstone Harbours Ramsar and Solent Maritime SAC are maintained. Compensation opportunities available within the SMP are covered in Section J6.3.1 below.

J6.3.1 Compensation opportunities

Within the North Solent SMP there are opportunities for intertidal habitat creation as a result of MR policies. These sites can provide compensation for losses to intertidal habitats due to coastal squeeze as a result of HTL policies elsewhere within the plan. Table J6.3 provides details of the intertidal habitat which will be created in epoch 1 as a result of MR policies. A significant proportion of intertidal habitat compensation can be provided by the realignment at Medmerry. Losses to both saltmarsh (124 ha) and mudflat (12 ha) in epoch 1 can be covered by predicted intertidal gains at Medmerry.

		Habitat (ha)	
Epoch	**Site Name**	**Saltmarsh**	**Mudflat**
1	Chidham	37	0
	East Chidham	3	1
	Medmerry	122	99
	Total	**163**	**100**

Table J6.3 Intertidal compensation opportunities within North Solent SMP

In addition to compensation for intertidal habitats, Natural England is satisfied that through the habitat creation at Medmerry a new and sustainable estuary function will be created in the region. As each estuary is different with its own ecological and physiological characteristics it would be unrealistic to attempt to replicate each estuary in a like for like basis. The new estuary at Medmerry will provide its own ecological and physiological characteristics to support Ramsar and SPA bird interests and contribute to ensuring a sustainably functioning coast.

J6.4 Cumulative assessment with Isle of Wight SMP

The North Solent SMP and Isle of Wight SMP are both covered by the Solent Maritime SAC, Solent and IOW Lagoons SAC and Solent and Southampton Water SPA and Ramsar sites. Therefore there is a requirement to assess the cumulative cross-Solent implications at a strategic SMP level. The Isle of Wight SMP Appropriate Assessment scoped out the Solent and IOW Lagoons SAC as there was deemed to be no adverse effect to integrity (see Table J5.20 for the NS SMP losses). Therefore, Table J6.4 summarises the cumulative Isle of Wight SMP and North Solent SMP losses and gains to the Solent and Southampton Water SPA and Ramsar and the Solent Maritime SAC.

SMP habitat grouping	North Solent SMP	Isle of Wight SMP*	Total Habitat Change (Ha)	Compensation Required (ha)
	Habitat Change (ha)			
Solent and Southampton SPA /Ramsar				
Mudflat	205	8	213	0
Saltmarsh	-187	9	-178	178
Saline lagoons	0	0	0	0
Freshwater habitats	-4	-3	-7	7
Coastal grazing marsh	-39	-19	-58	58
Vegetated shingle	No	No	No	No
Unvegetated shingle	No	No	No	No
Feeding/high tide roost sites	Yes	No	Yes	Further studies required
Estuaries	Yes	17	17	Yes
Solent Maritime SAC				
Mudflat	142	-2	140	0
Saltmarsh	-419	-2	-421	421
Saline lagoons	0	0	0	0
Vegetated shingle	No	No	No	No
Sand Dunes	No	No	No	No
Estuaries	Yes	-4	-4	Yes

* Figures taken from the draft IOW SMP before public consultation

Table J6.4 North Solent SMP and Isle of Wight SMP cumulative losses and gains for the Solent and Southampton Water SPA and Ramsar and the Solent Maritime SAC.

The cumulative losses and gains from the two SMPs result in there still **being an adverse impact** on Solent Maritime SAC, Solent and Southampton Water SPA and Ramsar site. On the whole, the amount of compensation required by the North Solent SMP has increased with the addition of the Isle of Wight SMP requirements. In particular, there is an increased requirement for coastal grazing marsh and freshwater compensation habitats for Solent and Southampton Water SPA and Ramsar site. However, within the Solent and Southampton Water SPA and Ramsar sites there is an opportunity for

mitigation. The gain of 9 ha of saltmarsh from the Isle of Wight SMP has reduced the amount of compensation required for the North Solent from 187 ha to 178 ha. Within the Solent Maritime SAC the loss of 2 ha of mudflat habitat can be mitigated for by the gain of 143 ha from the North Solent SMP. Alone the North Solent SMP will have an adverse impact on Solent and Southampton Water SPA and Ramsar bird feeding and high tide roost sites. Further detailed studies will be required to calculate the amount and location of compensation. The requirement for further detailed studies has been identified in the North Solent SMP Action Plan.

In conclusion, the cumulative compensation requirements for **saltmarsh**, **freshwater habitats**, **coastal grazing marsh**, **estuaries** (function) and **bird roost and feeding sites** for Solent and Southampton Water SPA and Ramsar, and for **saltmarsh** and **estuaries** for Solent Maritime SAC will be passed onto the Regional Habitat Creation Programme for delivery.

J7 ADDITIONAL CONSIDERATIONS

J7.1 Potential managed re-alignment sites considered in draft SMP and Appropriate Assessment

All potential inter-tidal habitat creation sites presented in Figure J7.1 were considered in the draft SMP and Appropriate Assessment for MR or NAI policies. Sites changed from a MR policy to a HTL (No public funding available) policy, following public consultation, where the private landowner's intentions were to continue maintaining defences. In addition, a number of potential managed re-alignment sites reverted to HTL with a requirement for further studies, detailing the impacts of bird feeding and roost function loss on the integrity of the SPA and Ramsar sites.

Sites which changed from a MR to a HTL (No public funding available) policy are outlined in Table J7.1 and those sites which changed to a HTL policy, requiring further studies prior to re-alignment, are presented in Table J7.2.

Site Name	Total Area (ha)		Mitigation (ha)		Compensation (ha)	
	Saltmarsh	Mudflat	Saltmarsh	Mudflat	Saltmarsh	Mudflat
Southampton SPA/Ramsar						
Beaulieu River	83	154	83	154	0	0
Chichester and Langstone SPA/Ramsar						
Marker Point	54	9	54	9	0	0
The Deeps West	9	182	9	182	0	0
Nutbourne	22	4	4	1	18	3
Bosham	4.8	0.0	0.0	0.0	4.8	0.0
Fishbourne	20	1	2	0	18	1
Ella Nore	5	0	0	0	5	0
Verner Common	8	0	6	0	2	0
Tournerbury Marsh	24	31	16	28	8	3
Total	229	381	174	374	55	7

Table J7.1 Potential private intertidal creation sites

Site Name	Total Area (ha)		Mitigation (ha)		Compensation (ha)	
	Saltmarsh	Mudflat	Saltmarsh	Mudflat	Saltmarsh	Mudflat
Chichester and Langstone SPA/Ramsar						
Farlington	34	40	34	40	0	0
Southmoor	13	1	13	1	0	0
Warblington	5	0	0	0	5	0
Conigar	4	0	0	0	4	0
Stoke Common	25	26	0	0	25	26
Northney Farm	41	5	27	3	14	2
Total	122	72	74	44	47	28

Table J7.2 Potential intertidal creation sites which require further detailed studies

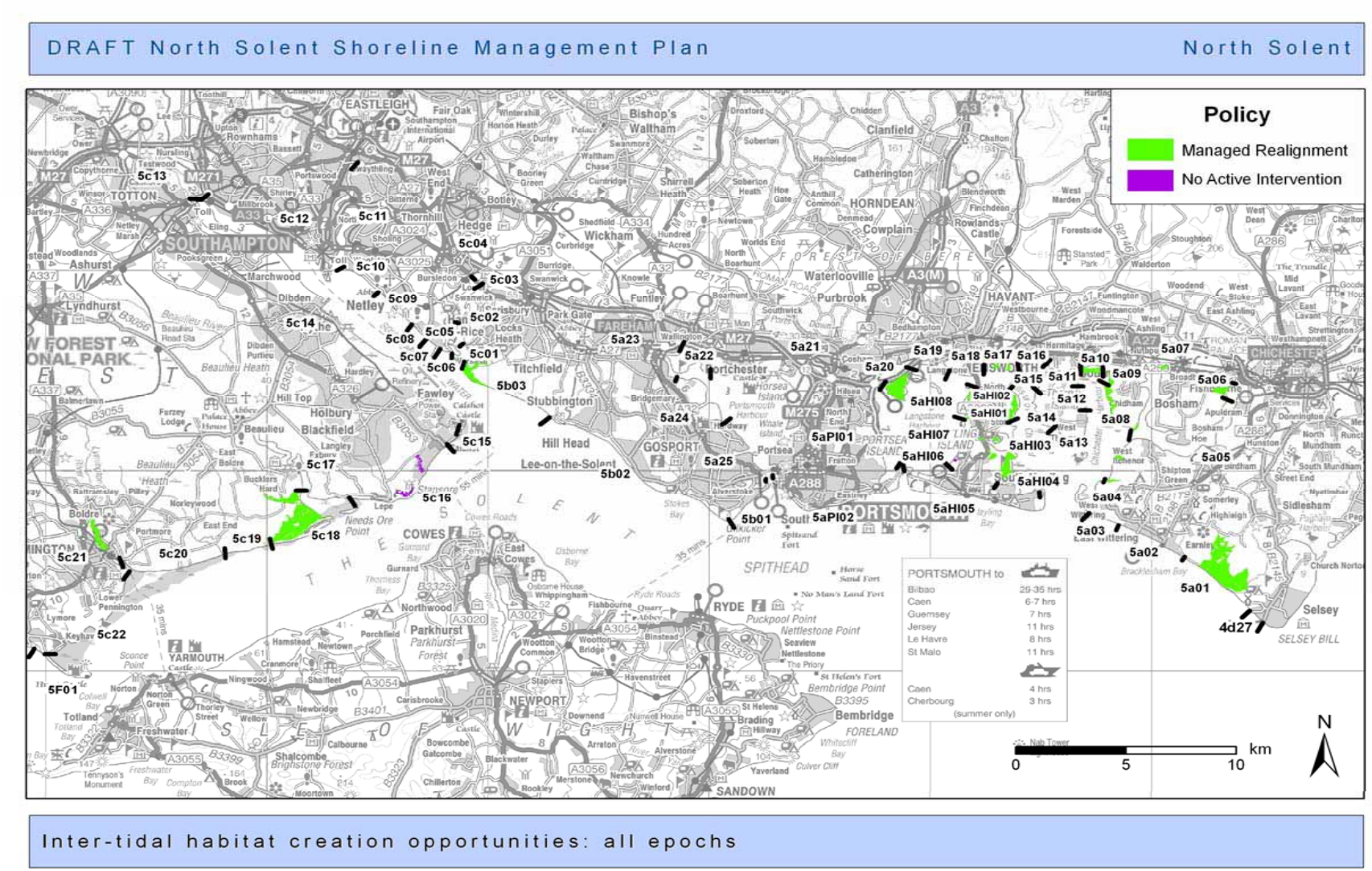


Figure J7.1 Inter-tidal habitat creation opportunities from the DRAFT SMP and Appropriate Assessment

J7.2 Potential risk to the plan

J7.2.1 Habitat change

Given the uncertainty of inundation to designated SPA and Ramsar European habitats situated behind privately maintained defences, the following sites in Table J7.3 have been identified as being 'at risk'. There is an estimated 479 ha of habitats behind current sea defences designated as part of Solent and Southampton Water SPA and Ramsar and the Chichester and Langstone Harbours SPA and Ramsar. These habitats would require compensation if maintenance of defences ceased.

Sites	Coastal grazing marsh (ha)	Saline lagoons (ha)	Reedbeds (ha)	Total Area (ha)
Southampton SPA/Ramsar				
Beaulieu River	214	23	0	237
Chichester and Langstone SPA/Ramsar				
Fishbourne	1	1	0	3
The Deeps west	95	0	95	190
Verner Common	6	0	0	6
Tournerbury Marsh	44	0	0	44
Total	360	25	95	479

Table J7.3 Losses to designated habitats behind privately maintained defences

In addition, there are three potential MR sites located at Farlington (5A22) ,Southmoor (5A18) and Northney Farm (5AHI02) identified in the final SMP where further studies are required to conclude if and in which epoch MR should be the policy. If further studies do conclude MR for these sites the following habitats listed in Table J7.4 designated as part of Chichester and Langstone Harbours SPA and Ramsar will require compensation.

Sites	Coastal grazing marsh (ha)	Saline lagoons (ha)	Reedbeds (ha)	Total Area (ha)
Chichester and Langstone SPA/Ramsar				
Farlington	33	33	7	74
Southmoor	14	14	0	28
Northney Farm	30	0	0	0
Total	78	47	7	102

Table J7.4 Losses to designated habitats behind frontages where further studies are required to determine a MR policy

J7.2.2 Feeding and High tide roost sites

Given the uncertainty of inundation to designated SPA and Ramsar European features situated behind privately maintained defences, the following sites in Table J7.5 for the Solent and Southampton Water SPA and Ramsar and the Chichester and Langstone Harbours SPA and Ramsar are flagged up as being at risk and would require compensation if maintenance of defences ceased (see Figure J7.1 for location). Portsmouth Harbour only has publically maintained defences and does not, therefore, fall into this category.

Location	Policy unit	Policy	Habitat at risk behind defence	Function
Beaulieu River	5C18	HTL (NPFA) for all three epochs	Coastal grazing marsh and saline lagoons	Wader and wildfowl feeding and roost site
Fishbourne	5A06	HTL (NPFA)	Fresh pasture grazing marsh	Wader and wildfowl feeding and roost site
Northney Farm	5AHI02	HTL (NPFA) epoch 2 & 3 HTL * (NPFA) *further studies required which may consider MR at Northney Farm	Coastal grazing marsh	Wader feeding and roost site
Verner Common	5AHI03	HTL (NPFA)	Coastal grazing marsh	Wader and wildfowl feeding and roost site
Tournerbury				
The Deeps West	5A15	HTL (MOD)	Coastal grazing marsh and reedbeds	Wader and wildfowl feeding and roost site

Table J7.5 Feeding and roost site losses in the Solent and Southampton Water SPA and Ramsar and Chichester and Langstone Harbours SPA and Ramsar

In addition, the following wader and wildfowl feeding and roost sites are flagged up as being at risk and would require compensation if further studies conclude MR to be the policy (see Figure J7.1 for location). Risk to wader and wildfowl feeding and roost sites were identified from Jon Cox's (2009) recommendations where sites were graded as major or high usage. Those with low usage are not listed in Table J7.6. There are no sites at risk in the Solent and Southampton Water SPA and Ramsar or the Portsmouth Harbour SPA and Ramsar.

Location	Policy unit	Policy	Habitat at risk behind defence	Function
Conigar and Warblington	5A17	HTL* further detailed studies are required which consider whether MR may occur at Conigar & Warblington	Coastal grazing marsh and wet grassland	Wader feeding and roost sites
Farlington Marshes	5A20	HTL* further detailed studies are required which consider whether MR may occur at Farlington	Coastal grazing marsh, fresh pasture grazing marsh and saline lagoons	Wader and wildfowl feeding and roost site

Table J7.6 Feeding and roost site losses in the Chichester and Langstone Harbours SPA and Ramsar

The potential losses presented in Table J7.5 and J7.6 cannot be quantified as part of this broad scale assessment and will require further detailed studies. Any future mitigation or compensation for the function of the habitat will need to be re-created as close to the SPA and Ramsar site in order to maintain integrity.

J8 LIMITATIONS AND FURTHER WORK

J8.1.1 Assumptions and limitations

- ***Sea level rise rates***

The Appropriate Assessment used the Lidar flooding outputs from the Solent Dynamic Coast Project (SDCP) to quantify the impacts of inter-tidal coastal squeeze and the extent of potential inter-tidal realignment sites. The SDCP results were calculated based on Defra's sea level rise allowance of 6mm per annum. DEFRA subsequently modified these sea level rise allowances in 2006, in response to research and improved predictive climate modelling, and advice from the Intergovernmental Panel on Climate Change (IPCC) and UK Climate Impacts Programme (UKCIP) (FCDPAG, 2006).

It should be noted that all mudflat and saltmarsh loss and gain accounts are based on best available data from the SDCP. Still, these are estimates for which there is a degree of error involved when predicting habitat change 100 years into the future, particularly for mudflat (i.e. Portsmouth Harbour) where often the Lidar data used for the predictive modelling did not reach MLWS (seaward edge of the mudflat habitat) (Cope *et al.,* 2007).

In addition, there is no way of predicting exactly where saltmarsh regeneration will form within MR or NAI sites on a Solent wide scale, due to the uncertainty over sediment deposition and redistribution predictions within these areas (Cox, J., *personal communication* 2010).

J8.1.2 Further studies

This Appropriate Assessment has identified the need for further detailed studies to understand the location, features and function of the Solent-wide network of feeding and high tide roost sites, and the likely consequences on the ability of the network to continue to function if one or more sites are damaged or lost due to SMP policies. In addition further detailed work is required to enable compensation habitat requirements for these sites to be quantified. These recommendations will be included in the SMP Action Plan.

J8 REFERENCES

CHaMP (2003) The Solent Coastal Habitat Management Plan. Royal Haskoning.

Cox, J. (2009a) North Solent Wader and Wildfowl High Water & Terrestrial Habitat Use: Workshop Outcomes

Cox, J. (2009b) North Solent Habitat Assessment Matrix

Defra (2006) Shoreline Management Plan Guidance Volume 1: Aims and Requirements. Department of Environment, Food and Rural Affairs.

European Commission (2001) Assessment of plans and projects significantly affecting *Natura* 2000 sites'

FCDPAG (2006) Flood and Coastal Defence Appraisal Guidance. Department of Environment, Food and Rural Affairs.

SDCP (2008) Solent Dynamic Coast Project – A tool for SMP2. Cope, S.N., Bradbury, A.P. and Gorczynska, M.

ANNEX J1: LETTERS FROM NATURAL ENGLAND

Date: 25 February 2008
Our ref:
Your ref:

Andrew Colenutt
New Forest District Council

1 Southampton Road
Lyndhurst
Hampshire
SO43 7BU

T 02380 286410
F 02380 283834

Dear Andrew

North Solent SMP review: requirement for appropriate assessment

The North Solent SMP review is now required to undergo consideration as a strategic plan under the Habitat Regulations. An initial step in this process is the consideration of whether the plan is required for the management of the European sites in question. This step is to filter out plans whose purpose is the nature conservation management of habitats and species to further their conservation, and such plans then do not require further assessment.

The North Solent SMP is multifunctional in purpose but its primary purpose is the appropriate protection of people and property from coastal erosion and flooding.

I would advise, therefore, that the North Solent SMP review is not necessary for the management of the European sites that it will affect. As such it will require appropriate assessment under the Habitat Regulations.

Yours sincerely

Claire Lambert
Coastal Advisor
02380 286431

Date: 20 October 2008
Our ref:
Your ref:

Andrew Colenutt
New Forest District Council

1 Southampton Road
Lyndhurst
Hampshire
SO43 7BU

T 02380 286410
F 02380 283834

Dear Andrew

Hants SMP review appropriate assessment method

Thank you for your recent consultation which included a method statement document and an outline of the steps to be undertaken. We have also discussed this over the phone. Natural England endorses the Habitat Regulations Approach which the North Solent SMP is proposing.

In addition the following notes record our verbal discussions:

1. The method statement for the North Solent SMP sets out the accepted standard procedure used for other recent SMP's such as Medway Swayle.

2. Within this procedure the work required will vary from one SMP location to another depending on the number and complexity of issues.

3. The North Solent SMP covers one of the most complex areas of coast in terms of the number of Natura 2000 sites and the number of coastal authorities and coastal strategies.

4. In the Solent Coastal strategies typically cover small lengths of coast and will need to rely on the policies of the SMP for strategic direction.

5. You have confirmed that the bid for Habitat Regulations Assessment funding from the EA will include all the Natura

2000 site work that occurs through the policy selection process. The appropriate assessment itself is the culmination, or final output, of this larger body of HRA work.

6. Legally an appropriate assessment will need to make a conclusion for each Natura 2000 site judging impacts according to the conservation objectives for the site features. It has been agreed that for the strategic SMP the site features and objectives can be represented by BAP habitats. I would recommend expanding the table in the method statement to show which N2K features are associated with which BAP habitat for each N2K site to demonstrate this approach. The conservation objectives could be presented in an Appendix.

7. The work of the Solent Dynamic Coast Project will be of great help in supporting the SMP. However some of the N2k work will need to be revisited more robustly for the SMP. This will include
    a. Factoring in more realistic costs of designated grazing marsh compensation to support policy decisions, particularly how long to 'hold the line'.
    b. Reviewing where and when re-alignment over designated sites will require grazing marsh compensation, according to the effects of changing levels of defence.
    c. Moving on from the 'least cost to operating authority' rule of SDCP re-alignment sites to the most appropriate re-alignment decisions for the Natura 2000 sites. This will include inputs from recent Strategy Study work, RHCP work, and importantly input from the SMP 'environmental sub-group'. There will be a need to balance strategic and local views.
    d. Where Strategies/feasibility studies are being developed at the same time as the SMP there will be iteration between these processes.
    e. Where N2K sites span both the IOW and North Solent SMP, each SMP will need to be aware of the implications of policy decisions of both SMPs.

8. The SMP group will lead on this work with advice from Natural England. For the SDCP it worked well to run this work as a series of workshops where we sit around the table and work through the sites.

9. There will be no need to undertake a formal ‘in combination’ assessment because it is already known that the NSSMP will have an adverse effect.

We look forward to working with you through this process.

Yours sincerely

Dr Claire Lambert
Coastal Advisor

Date: 20 July 2010
Our ref: North Solent SMP AA
Your ref: HRA Alternatives Request

1 Southampton Road
Lyndhurst
Hampshire
SO43 7BU

Andrew Colenutt
North Solent SMP Project Manager
Channel Coastal Observatory
National Oceanography Centre
European Way
Southampton
SO14 3ZH

Dear Andrew

NORTH SOLENT SHORELINE MANAGEMENT PLAN
HABITATS REGULATIONS ASSESSMENT: DETERMINATION OF LEAST DAMAGING ALTERNATIVE

Solent and Southampton Water Special Protection Area/Ramsar (SPA/Ramsar)
Chichester and Langstone Harbour Special Protection Area/Ramsar (SPA/Ramsar)
Portsmouth Harbour Special Protection Area/Ramsar (SPA/Ramsar)
Solent Maritime Special Area of Conservation (SAC)

In response to your request for our formal advice on the least damaging alternative for the North Solent Shoreline Management Plan (SMP), we advise the following:

Preferred Policies of Managed Realignment

1. We have previously agreed that the SMP constitutes an Adverse Effect on the Integrity of the sites listed above as we cannot guarantee that the Managed Realignment policies will not damage coastal grazing marsh and freshwater habitats. Exceptions being for Portsmouth Harbour SPA/Ramsar, as there are no Managed Realignment policies affecting this section of the SMP coastline.

2. Having reviewed the SMP policies within and outside the designated areas plus their respective timing, we agree with your identification of less damaging alternatives.

3. According to the habitat loss predictions in the North Solent SMP Appropriate Assessment, loss of intertidal saltmarsh habitat through coastal squeeze in the first epoch can be compensated for by the smaller managed realignments within the plan together with the Medmerry site realignment.

4. We consider it necessary to retain Managed Realignment policies affecting the designated sites where and when possible, irrespective of sites being privately owned or not, to manage this habitat loss. However, we accept and respect private land owner's stated intentions to continue to maintain their defences and defend their property (further details below).

Preferred Policies of Hold The Line

1. We have previously agreed that the SMP constitutes an Adverse Effect on the Integrity of the sites listed above as the Hold the Line policies will result in loss and damage to the intertidal saltmarsh habitat as a result of coastal squeeze.

2. Based on the best available information as produced in North Solent SMP Appropriate Assessment, Hold the Line is considered a damaging policy within all epochs due to the plan's predicted loss of intertidal saltmarsh habitat through coastal squeeze. As a general principle, we do not consider Hold the Line to be the least damaging alternative for any epoch of the plan based on this information, except where habitat behind a sea wall has been identified as of importance for SPA birds and is required to be maintained for the first epoch, until the appropriate compensation is recreated and thereby maintaining functionality and coherence of the Natura 2000 network.

3. We agree with your identification of less damaging alternatives, namely Managed Realignment and No Active Intervention policy options. We also except that private land owner's have rights to maintain their existing defences and to protect their property.

4. 60% of the North Solent SMP's coast line is under private ownership.

5. i) Private owners and SMP policy of Managed Realignment

   For sites where the draft SMP proposed an objective-led policy of Managed Realignment on privately owned land or landward of privately managed defences, discussions and consultation with the landowners sought their intentions regarding the future management of their defences. Where there were no overriding policy drivers necessitating a specific policy, the landowner's intentions were reflected in the final SMP policies for these sites, with a policy of Hold The Line, with a clear statement that no public funding would be available for maintenance costs. This approach was agreed and confirmed by Jim Hutchinson (Environment Agency QRG).

   ii) Private owners and SMP policy of No Active Intervention

   For sites where the SMP proposed a policy of No Active Intervention on privately owned land or covers a frontage that includes privately managed defences, the private owner's right to maintain their existing defences continues. Discussions and consultation with landowners indicated that the majority intend to continue to maintain their defences.

6. Consequently as an outcome of the public consultation and the land owner's intentions to continue to maintain their defences and protect their land, many of the initial potential Managed Realignment sites have reverted to Hold the Line, with no public funding available.

In the best interests of managing this coast in line with the Habitats Regulations and other SMP drivers, in particular landowner's intentions for future management of their defences, Natural England does not consider it necessary or beneficial to alter the epochs to which the SMP policies are currently assigned.

Natural England lends its full support to the policies in the North Solent SMP as the best way forward for managing the coast across the next 100 years.

Based on this advice and, assuming the SMP passes the tests of Imperative Reasons of Overriding Public Interest, we recommend that we work together at the earliest opportunity to determine and secure appropriate compensation measures.

Yours sincerely

Dr Chris McMullon
SE Senior Coastal Specialist
Ph: 0300 060 4085
chris.mcmullon@naturalengland.org.uk

Date: 20 July 2010
Our ref: North Solent SMP AA
Your ref: Saline lagoons letter request

1 Southampton Road
Lyndhurst
Hampshire
SO43 7BU

Andrew Colenutt
North Solent SMP Project Manager
Channel Coastal Observatory
National Oceanography Centre
European Way
Southampton
SO14 3ZH

Dear Andrew

NORTH SOLENT SHORELINE MANAGEMENT PLAN
HABITATS REGULATIONS ASSESSMENT: DETERMINATION OF NO ADVERSE IMPACT FOR SALINE LAGOONS

Solent Maritime Special Area of Conservation (SAC)
Solent and Southampton Water Special Protection Area/Ramsar (SPA/Ramsar)

In response to your request for our formal advice regarding potential impact to saline lagoons as a consequence of the policies in the North Solent Shoreline Management Plan (SMP), we advise the following:

Natural England agrees with the North Solent SMP AA of no adverse effect on saline lagoon habitat in the Solent Maritime SAC and no adverse effect on the integrity of the Solent and Southampton Water SPA/Ramsar site. At the joint Isle of Wight SMP and North Solent SMP meeting on the 8 June 2010, the following was agreed:

1. We agree that the SMP constitutes No Adverse Effect on the SPA feature(s) directly associated with the saline lagoon;

2. Saline lagoons are listed as apriority habitat on Annex 1 of the EC Habitats Directive. Their loss would require compensation and approval from Europe.

3. It is considered possible to mitigate for any loss of saline lagoon habitat through creating new saline lagoons within the SAC boundary;

4. That the SMP Action Plan will identify the requirement for future studies to investigate appropriate locations for new saline lagoons.

In the best interests of managing this coast in line with the Habitats Regulations and other SMP drivers, Natural England lends its full support to the policies in the North Solent SMP as the best way forward for managing the coast across the next 100 years.

Based on this advice and, assuming the SMP passes the tests of Imperative Reasons of Overriding Public Interest, we recommend that we work together at the earliest opportunity to determine and secure appropriate compensation measures.

Yours sincerely

Dr Chris McMullon
SE Senior Coastal Specialist
Ph: 0300 060 4085
chris.mcmullon@naturalengland.org.uk

Date: 20 July 2010
Our ref: North Solent SMP support letter
Your ref: Support letter request

1 Southampton Road
Lyndhurst
Hampshire
SO43 7BU

Andrew Colenutt
North Solent SMP Project Manager
Channel Coastal Observatory
National Oceanography Centre
European Way
Southampton
SO14 3ZH

Dear Andrew

NORTH SOLENT SHORELINE MANAGEMENT PLAN 2010

Solent and Southampton Water Special Protection Area/Ramsar (SPA/Ramsar)
Chichester and Langstone Harbour Special Protection Area/Ramsar (SPA/Ramsar)
Portsmouth Harbour Special Protection Area/Ramsar (SPA/Ramsar)
Solent Maritime Special Area of Conservation (SAC)

Following the information received from the New Forest District Council as the lead authority for the Shoreline Management Plan, we write to confirm that it is Natural England's view that **the proposals <u>are likely</u> to lead to environmentally acceptable solutions.**

Whilst an Appropriate Assessment, concluding an adverse effect on integrity of the SMP has been completed, it is worth noting that this does not preclude carrying out an Appropriate Assessment at individual strategy and scheme level. The strategies and schemes will need to be reviewed under The Conservation of Habitats and Species Regulations 2010 when more detailed options and designs are available because the works (including the maintenance works) are within or adjacent to the European and international sites listed above.

Natural England welcomes the opportunities presented within the SMP to work towards a more naturally functioning coastline, however, we would like to emphasise the importance of compensating for any internationally designated freshwater, grazing marsh or intertidal habitat, which may be lost through this process. Natural England would expect this loss of habitat to be addressed through the Regional Habitat Creation Programme.

We stress that this letter does not constitute Natural England's assent or advice for the purposes of s28H of the Wildlife and Countryside Act 1981 (as amended). When more details of the proposed operations become available and before carrying them out, the operating authority, having considered its general duty under section 28G(2) of The Wildlife and Countryside Act 1981 (as amended), is required to give notice to Natural England. The operating authority is required to carry out the works in accordance with the provisions of section 28H of the Wildlife and Countryside Act 1981 (as amended) as the proposed works are within or adjacent to the SSSIs found within the designated sites listed above.

Yours sincerely

Dr Chris McMullon
SE Senior Coastal Specialist
Ph: 0300 060 4085
chris.mcmullon@naturalengland.org.uk

ANNEX J2: JONATHAN COX ASSOCIATES ASSESSMENT

Table 1: North Solent Habitat Assessment Matrix

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Habitat Assessment: Designated wildlife sites (SPA/SAC/Ramsar) behind existing past defence structures

Landward of the coast defences, the habitat along much of the coastline is designated not only as SPA, but also Ramsar site and in a few instances SAC. These designations reflect the value of these habitats as wetlands of international importance and are most comprehensively described using the Ramsar habitat classification. This provides a convenient method for describing the range of wetland habitats present within a Ramsar site. The assessment table has columns for each of the Ramsar habitats likely to be present. The appropriate columns have been ticked for each site to reflect the habitats that dominate in each section of the shoreline. An appropriate assessment of possible coast defence policy options should be made against these habitat types. These habitat types can also be related to the UK Biodiversity Action Plan (BAP) habitats present within each section of the coast. The predominant BAP habitats present in each section of coast have been provided in the habitat assessment table. The presence of rare species is a further qualifying criterion for Ramsar site designation. Information on the presence of rare species has not been collated in any comprehensive way and should be undertaken to make a comprehensive assessment of policy options, however, where presence of important species is known, information on these has been provided in the table.

For each coastal section, the question is asked whether the conservation objectives of the site would be met if the defence fails? In most instances, the answer to this is 'no'. In these cases compensation would be required to offset the lost habitat. The next column of the table considers what habitats would require compensation. The final column of the table considers the time frame in which it would be possible to recreate lost habitats. These time estimates would need to be subject to further research to verify and are based on best judgement. It is clear that new or recreated habitats will accrue increased nature conservation value over time. The rate at which this develops will change over time so that there might be rapid increase in value over an initial period of years followed by a much more gradual accrual over a longer period of time. The compensatory habitat is unlikely to reach the full diversity of the lost habitat for many years but there is likely to be a point at which sufficient structure and function has been developed for it to have met the requirements of compensation. The time assessments have been set at levels where functional habitats will have developed even if they are not full replacements to those that have been lost.

Designated wildlife sites (SPA/Ramsar) behind existing coast defence structures

	M -- Permanent rivers/ streams/ creeks	Xf- Freshwater tree dominated wetlands	J- Coastal brackish/ saline lagoons	Ss -- Seasonal/ intermittent saline/ brackish/ alkaline marshes/ pools	Sp- Permanent saline/ brackish marshes/ pools	Tp- Permanent freshwater marshes/ pools	4 -- Seasonally flooded agricultural land	9 -- Canals and drainage channels, ditches	BAP habitat	Saline/ Fresh influence	Rare plant score and species (where known)	Will conservation objectives be met if defence fails		Time scale to re-create (years)
												Yes/No	Comments	
Hurst Spit and Keyhaven														
Saltgrass Lane				✓	✓				Coastal grazing marsh	Saline	?	Yes	Derelict grazing marsh in area where very difficult to manage. Change to intertidal may improve habitat.	
Avon Water	✓				✓	✓			Reed bed	Saline to Fresh	3 Alop. bulb	No	Displaced reed beds and fresh/brackish pasture may need to be compensated	5-20 yrs
Keyhaven_ Pennington_a			✓	✓	✓		✓	✓	Coastal grazing marsh/ Lagoons	Saline to Fresh	3 Carex punct/ C. divisa	No	Saline lagoons, Brackish pasture/Atlantic saltmeadow	50 yrs +
Keyhaven_ Pennington_b			✓	✓	✓		✓	✓	Coastal grazing marsh/ Lagoons	Saline to Fresh	3 Carex punct/C. divisa	No	Saline lagoons, Brackish pasture/Atlantic saltmeadow	50 yrs +
Lymington and Pitts Deep and Sowley														
Lymington Reedbed	✓				✓	✓			Reed bed	Fresh + some saline	??	No	Reed beds and freshwater grazing marshes	5-20 yrs
Beaulieu														
Warren Needs Ore a				✓	✓		✓	✓	Coastal grazing marsh	Saline	??	No	Brackish pasture, pools and reed bed changed to intertidal flats and saltmarsh. NAI may not require compensation.	50 yrs +
Beaulieu Warren			✓	✓	✓		✓	✓	Coastal grazing marsh/ Lagoons	Saline- Fresh	3 C. divisa	No	Brackish pasture, pools and reed bed changed to intertidal flats and saltmarsh. NAI may not require compensation.	50 yrs +
Warren Needs Ore b				✓	✓		✓	✓	Coastal grazing marsh	Saline- Fresh	3 C. divisa/Blup. ten	Yes	Brackish pasture, pools and reed bed changed to intertidal flats and saltmarsh. NAI may not require compensation.	
Beaulieu River_b	✓	✓	✓		✓	✓			Reed bed	Fresh + some saline	4 Eleo. parv	No	reed beds and brackish open water. Hydrological model needed to assess likely changes to Beaulieu Mill Pond and sluices.	50 yrs +

Designated wildlife sites (SPA/Ramsar) behind existing coast defence structures

	M -- Permanent rivers/ streams/ creeks	Xf- Freshwater tree dominated wetlands	J- Coastal brackish/ saline lagoons	Ss -- Seasonal/ intermittent saline/ brackish/ alkaline marshes/ pools	Sp- Permanent saline/ brackish marshes/ pools	Tp- Permanent freshwater marshes/ pools	4 -- Seasonally flooded agricultural land	9 -- Canals and drainage channels, ditches	BAP habitat	Saline/ Fresh influence	Rare plant score and species (where known)	Will conservation objectives be met if defence fails		Time scale to re-create (years)
												Yes/No	Comments	
Calshot														
Darkwater	✓			✓	✓	✓			Coastal grazing marsh	Saline – Fresh	??	No	Partly designated, Brackish and freshwater fen, grassland and reed bed would be replaced by intertidal and should be replaced within Natura 2K/Ramsar	5-20 yrs
Stansore Point			✓		✓				Saltmarsh	Saline + some fresh	1	Yes	Small and rather degraded wetland valley and associated shingle pools and saltmarshes. Change to interitdal habitats may not be an adverse effect.	
Stanswood Valley				✓		✓		✓	FP grazing marsh	Fresh + some saline	1	N/A	Not covered by European designation. Freshwater marshes and pastures with scrub invasion. Change to intertidal may not be an adverse effect.	5-20 yrs
Southampton Water														
Titchfield Haven	✓				✓	✓	✓	✓	FP grazing marsh/ Reed bed	Fresh + some saline	1	No	Extensive area of fresh flood plain wet grassland, reed beds and open water. Change to intertidal should be compensated within new N2k/Ramsar	5-20 yrs
Hamble														
Hook Lake	✓	✓			✓	✓			Coastal grazing marsh/ Reed bed	Fresh + saline	3 Blup. ten	No	Brackish pastures and saline lagoons. Would need compensation within new N2K/Ramsar	5-20 yrs
Langstone Harbour														
Farlington Marshes			✓	✓	✓	✓	✓	✓	FP grazing marsh/ Reed bed	Fresh – saline	4	No	Epoch 1: retain for wader roost and allow time to develop compensation options brackish to fresh grazing marsh with reed beds and saline lagoons.	50 yrs +
Southmoor						✓	✓	✓	Coastal grazing marsh	Fresh + saline	??	No	Fresh and brackish marshes and open water	50 yrs +

Designated wildlife sites (SPA/Ramsar) behind existing coast defence structures

	M -- Permanent rivers/ streams/ creeks	Xf- Freshwater tree dominated wetlands	J- Coastal brackish/ saline lagoons	Ss -- Seasonal/ intermittent saline/ brackish/ alkaline marshes/ pools	Sp- Permanent saline/ brackish marshes/ pools	Tp- Permanent freshwater marshes/ pools	4 -- Seasonally flooded agricultural land	9 -- Canals and drainage channels, ditches	BAP habitat	Saline/ Fresh influence	Rare plant score and species (where known)	Will conservation objectives be met if defence fails		Time scale to re-create (years)
												Yes/No	Comments	
Chichester Harbour														
Warblington							✓	✓	Coastal grazing marsh	Fresh + saline	4 – rich flora	No	Fresh to slightly saline marshes need compensation	50 yrs +
Northney Farm							✓	✓	Coastal grazing marsh	Saline - Fresh	3 C. divisa	No	Extensive coastal grazing marsh (brackish to fresh coastal grassland with ditches).	50 yrs +
Verner Common a				✓	✓		✓	✓	Coastal grassland and grazing marsh with saltmarsh on eastern tip	Saline - terrestrial	3. C. divisa	No	Extensive coastal grassland/grazing marsh and Atlantic saltmeadow needs compensation	50 yrs +
Tournebury				✓	✓		✓	✓	Coastal grazing marsh	Saline - fresh	3. C. divisa	No	Extensive coastal grazing marsh (brackish to fresh coastal grassland with ditches) and Atlantic saltmeadow needs compensation.	50 yrs +
Thorney Island a				✓	✓		✓	✓	Coastal grazing marsh	Fresh - saline	?	N/A	Not covered by European desigation. Coastal grazing marsh area only, not for arable	
Thorney Island b			✓	✓	✓		✓	✓	Coastal grazing marsh and Reed bed	Saline - Fresh	3. Salicornia pusilla; signigicant flora interest on eastern sea wall; Coleophora vibicella (UK BAP Priority micro-moth)	No	Complex of reed beds, fresh to brackish grazing marsh and open water (similar to Farlington)	50 yrs +

Designated wildlife sites (SPA/Ramsar) behind existing coast defence structures

	M -- Permanent rivers/ streams/ creeks	Xf- Freshwater tree dominated wetlands	J- Coastal brackish/ saline lagoons	Ss -- Seasonal/ intermittent saline/ brackish/ alkaline marshes/ pools	Sp- Permanent saline/ brackish marshes/ pools	Tp- Permanent freshwater marshes/ pools	4 -- Seasonally flooded agricultural land	9 -- Canals and drainage channels, ditches	BAP habitat	Saline/ Fresh influence	Rare plant score and species (where known)	Will conservation objectives be met if defence fails		Time scale to re-create (years)
												Yes/No	Comments	
Thorney Island c				✓	✓		✓	✓	Coastal grazing marsh	?	?	N/A	Not covered by European desigation. Complex of reed beds, fresh to brackish grazing marsh and open water (similar to Farlington)	
Nutbourne				✓	✓		✓	✓	coastal grazing marsh; wet grassland	fresh-saline	low botanical interest in fields along harbours edge, but high value in Nutbourne Marsh SSSI	Yes	Only part of the area is SSSI/ SPA/Ramsar. (This area is coastal grazing marsh and wet grassland.)	
West Chidham a+b							✓	✓	arable now to temporary grass ley	Fresh - saline	?	N/A	Not covered by European designation. Arable now to temporary grass ley	
West Wittering				✓	✓			✓	reedbed; coastal grazing marsh	saline	?	No	Reedbed and coastal grazing marsh	50 yrs +
Horse Pond				✓	✓			✓	coastal grazing marsh; open channels	saline	Existing tidal exchange - valuable habitat already in existance	No	Site is very low lying if tidal exchange is increased existing habitats will be lost and likely to revert to mudflat	50 yrs +
Fishbourne a							✓	✓	reedbed; coastal grazing marsh	mainly freshwater	?	No	Part of site is covered by European Designation. Coastal grazing marsh and reedbed	50 yrs +
Pagham Harbour														
Medmerry						✓		✓	None	Fresh-Saline	?	N/A	Not covered by European designation	
Pagham South		✓							None	Terrestrial	?	N/A	Not covered by European designation	
Church Norton			✓	✓	✓			✓	None	Fresh-Saline	?	Yes		

Designated wildlife sites (SPA/Ramsar) behind existing coast defence structures

	M -- Permanent rivers/ streams/ creeks	Xf- Freshwater tree dominated wetlands	J- Coastal brackish/ saline lagoons	Ss -- Seasonal/ intermittent saline/ brackish/ alkaline marshes/ pools	Sp- Permanent saline/ brackish marshes/ pools	Tp- Permanent freshwater marshes/ pools	4 -- Seasonally flooded agricultural land	9 -- Canals and drainage channels, ditches	BAP habitat	Saline/ Fresh influence	Rare plant score and species (where known)	Will conservation objectives be met if defence fails		Time scale to re-create (years)
												Yes/No	Comments	
Keynor Rife						✓		✓	None	Fresh-Saline	?	Yes		
Bremere and Pagham Rife				✓	✓	✓		✓	Coastal grazing marsh	Fresh-Saline	?	Yes for Ramsar habitats/ No for bird interest	Compensation not required for Ramsar habitats but bird interests will need compensation	50 yrs +

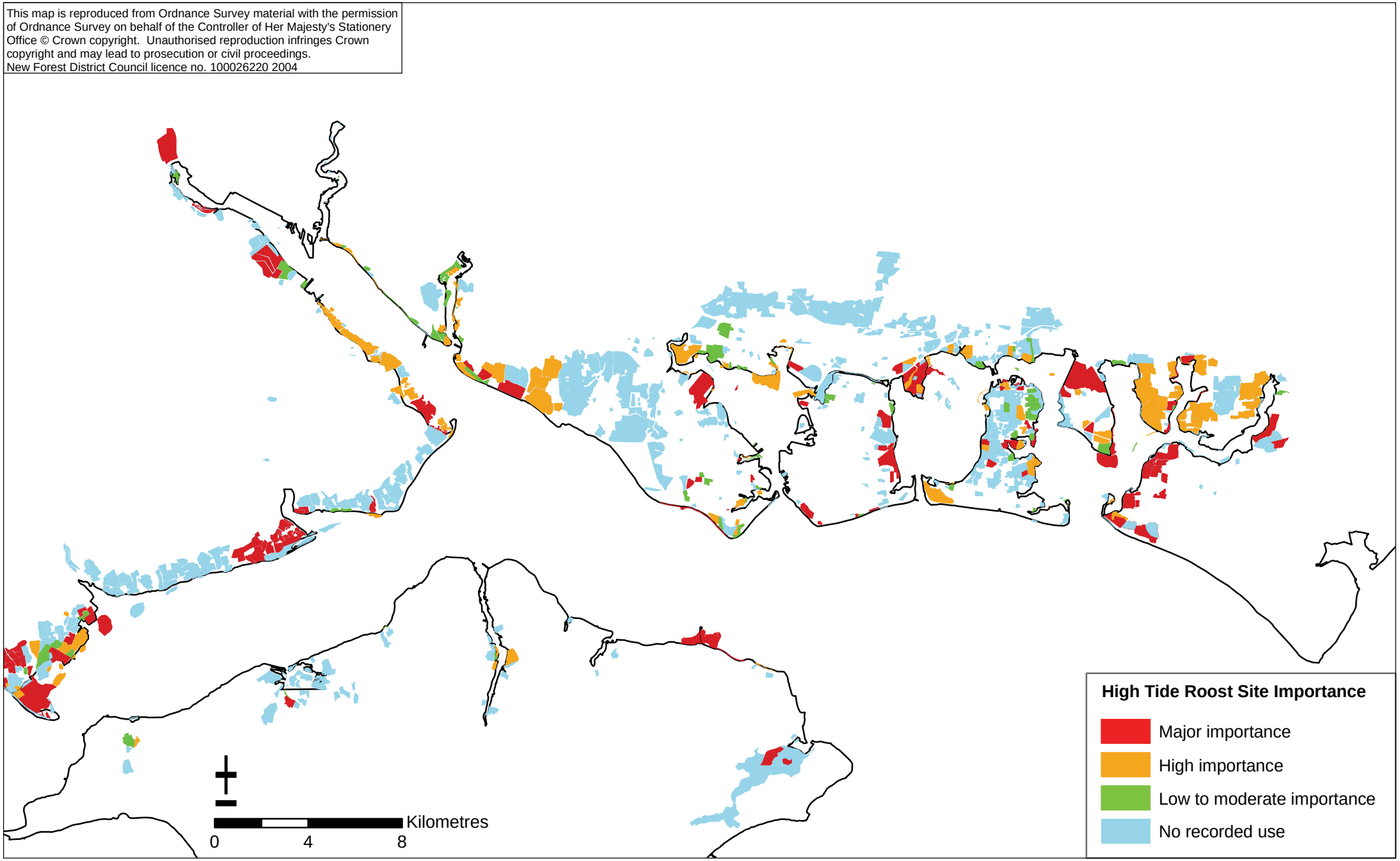

Figure 1

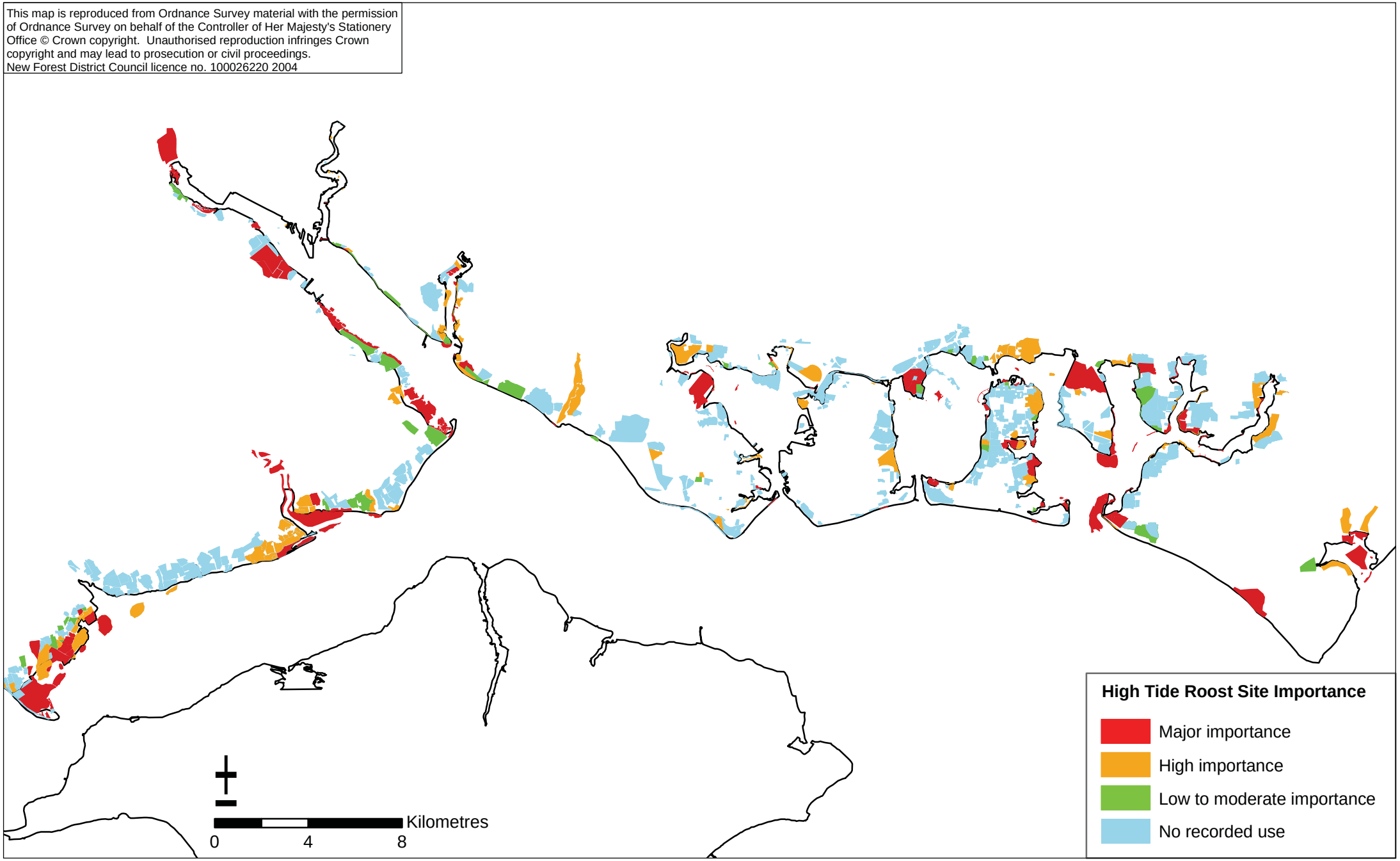

Figure 2