

## Stage Two Report

Identification of activities for further consideration in the SEAMS management scheme

March 2002



# Solent European Marine Sites

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## **Solent European Marine Sites**

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Identification of activities for further consideration in the SEMS management scheme

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# Solent European Marine Sites

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# Solent European Marine Sites

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## 1.0 Introduction

Within the Solent and Southampton Water there is a candidate maritime Special Area of Conservation (SAC), 3 classified (i.e. designated) Special Protection Areas and 3 Ramsar sites which have become known collectively as the Solent European Marine Sites (SEMS).

The main aim of the Habitats Directive is to promote the maintenance of biodiversity, taking account of economic, social, cultural requirements and regional and local characteristics. The relevant authorities involved in SEMS have agreed to prepare a single management scheme to guide the exercise of their functions in order to secure compliance with the Habitats Directive. The production of the Foundation Document (February 2002) was the first stage in this process, it describes the basic information and principles on which the SEMS management scheme is to be founded.

This report represents stage 2 in the management scheme and identifies activities which will be considered further in the process. The activities were identified through an analysis of English Natures Regulation 33 advice (October 2001) on operations that may cause deterioration or damage and the relevant authority responsibilities in each cluster of the site<sup>1</sup>. Stage 2 forms the basis for the management scheme and the list of activities identified through the process will be considered further in stage 3.

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<sup>1</sup> For logistical reasons the Management Group have identified five clusters within the SEMS i.e. Chichester & Langstone Harbour, Portsmouth harbour, Southampton Water, North West Solent and North Coast of the Isle of Wight.

## 2.0 Method of Identifying Activities

One of the initial aims of the management scheme is to collect information relating to activities and their impacts. This report builds on English Nature's advice on 'operations' from the Regulation 33 package by linking 'operation' information to 'activities' that could take place in the site. The aim is to produce a matrix that provides a site-specific summary of how current local activities could interact with the interest features of the SEMS. This allows for certain activities to be discounted and identifies others to be considered further in stage 3. The method to produce these matrices is shown in figure 1 and summarised below, these stages are explained further in the following sections of this report.

- **Identification of key operations**  
The Regulation 33 advice identifies which 'operations' are likely to cause deterioration or damage to which sub features of the site. The advice differentiates between the sub features that are at low, medium, and high vulnerability to the operations. Key operations to be considered in the SEMS management scheme are those to which the site features are highly vulnerable.
- **Identification of key activities**  
In order to progress the management scheme the key operations information needs to be translated into activities. Activities are therefore identified by considering which generic types of human use may cause the operations identified above i.e. types of human use that may cause the type of deterioration or damage to which the sites features are highly vulnerable.
- **Identification of responsibilities for activities**  
The SEMS Foundation Document made an initial analysis of relevant and competent authority responsibilities, this information was used to establish which relevant authority has responsibility for which of the types of human use in each cluster. This helped identify which types of human use qualify as activities rather than plans and projects and should, therefore be included in the management scheme.
- **Matrices of activities**  
Combination of the above information resulted in a generic guide (a matrix) for each relevant authority in each cluster. The matrix identifies the activities for which each relevant authority has a responsibility and which may cause the operations to which the site features are highly vulnerable. These matrices will inform stage 3 of the management scheme.

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**Figure 1 – Identification of Key Activities for Stage 2**



In terms of implementing the Regulations and managing the European marine site, it is important to recognise the distinctions between the terms operations, plans and project and activities, these are explained in box 1.

New plans and projects may also cause the operations to which the sub features are highly vulnerable and are also the responsibility of the relevant authorities, they are listed in the management scheme to ensure that all types of human use have been considered, some plans and projects are also activities (see box 1). Separate Regulations (3(3), 3(4) and 47-85) outline a statutory framework which needs to be applied where new plans, projects, consents and permissions with the potential to affect European sites are proposed, these are listed as such in the management scheme.



## **Box 1 - Operation', 'Activity' and 'Plans and Projects'**

- **Plans and Projects**

In general any form of human use which requires an application to be made for specific statutory consent, authorisation, licence or other permission is considered as a plan or project.

*Example: 'Dumping' of capital dredging in the sea requires a FEPA licence from DEFRA and is therefore considered as a 'plan or project'.*

- **Operations which may cause deterioration or disturbance.**

The term 'operation' is used to describe the mechanism by which a given activity within, adjacent to, or remote from a European marine site may have the potential to cause deterioration to the natural habitats for which the site was designated or disturbance to the species and its habitats for which the site was designated.

*Example: 'Non –physical disturbance such as noise or visual presence' is considered as an 'operation'.*

- **Activities**

Activities are those forms of human use that are not plans or projects. They may be controlled or managed by competent or relevant authorities on a continuing basis or may fall outside of any jurisdiction.

*Example: Many 'recreational pursuits' are considered as 'activities' as no permissions are required to carry them out.*

- **Relationship between Operations and Activities**

Operations as defined in the Regulation 33 advice need to be translated into activities occurring on the site to determine whether any damage or deterioration is taking place. An activity can therefore cause the type of operations that are defined in the Regulation 33 advice.

*Example: A recreational 'activity' may cause a noise 'operation'.*

## 3.0 Identification of Key Operations that may cause Deterioration or Damage

English Nature has drawn up the following standard list of categories which may cause deterioration or disturbance to the features for which the site has been designated under the EU Birds or Habitats Directives i.e. the operations:

- Physical loss through removal and/or smothering.
- Physical damage through siltation and/or abrasion and/or selective extraction.
- Non-physical disturbance by noise and/or visual presence.
- Toxic contamination through the introduction of synthetic and/or non-synthetic compounds and/or radionuclides (this may also include re-introduction of compounds which may be buried within the sediment).
- Non-toxic contamination through changes in nutrient and/or organic loading and/or thermal regime and/or changes in turbidity and/or salinity
- Biological disturbance through the introduction of microbial pathogens and/or non-native species and/or translocation and/or selective extraction of species.

The advice on operations is set out in English Nature's Regulation 33 advice package; it provides the basis for discussion about the nature and extent of the operations taking place within or close to the site and which may have an impact on its interest features.

The management group decided to concentrate on those activities which may cause the operations to which the site features are 'highly vulnerable' (see Regulation 33 advice) in respect to each particular cluster within the SEMS. Those activities which may constitute the operations to which the site features are 'moderately or low vulnerable' may be considered at a later date. This helped to prioritise the initial work by concentrating effort on activities that are most likely to cause the most damage to the site.

Tables 1-7 list those operations to which the site features are highly vulnerable for each of the designations. The results mean that not all the generic operations need to be considered, a list of those operations that will be considered for each designation is outlined in table 8 and are summarised as follows:

- Physical loss through removal and/or smothering.
- Physical damage through abrasion
- Non-physical disturbance by noise and/or visual presence.
- Toxic contamination through the introduction of synthetic and/or non-synthetic compounds (this may also include re-introduction of compounds which may be buried within the sediment).
- Non-toxic contamination through changes in nutrient loading.

A function of a 'highly vulnerable site feature' is that they are of high or moderate sensitivity and high or medium exposure (see the Regulation 33 advice). A further ranking of 'highly vulnerable' site features can therefore follow:

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## Sensitivity & Exposure Rating

- i. high sensitivity and high exposure
- ii. high sensitivity and medium exposure
- iii. moderate sensitivity and high exposure

## Highly Vulnerable

- Priority highly vulnerable
- Highly vulnerable
- Highly vulnerable

The first of these i.e. i. high sensitivity and high exposure is of greater vulnerability than the others, ii and iii. are equally as vulnerable as each other.

Tables 1-7 highlight where a site feature is highly sensitive and at high exposure. This is only relevant in 3 instances as follows

- **Solent Maritime SAC**  
Intertidal sand flats to changes in nutrient loading (mudflats & sandflats not covered by seawater at low tide)
- **Solent and Southampton Water SPA**  
Sand and shingle to abrasion (Annex 1 birds)
- **Solent and Southampton Water Ramsar**  
Sand and shingle to abrasion (Criterion 3c)

**Table 1 Operations to which the Site Features are Highly Vulnerable in Chichester & Langstone Harbour SPA**

Operations which may cause Deterioration or Disturbance to which the Sub-Features are highly Vulnerable.	Chichester & Langstone Harbour SPA Features of Interest										
	Annex 1		Migratory				Assemblages				
	Sand & Shingle	Shallow waters	Saltmarsh	Shingle	Intertidal mud & sand	Mixed sediment	Saltmarsh	Shingle	Intertidal mud & sand	Mixed sediment	Shallow waters
<b>Physical Loss</b>											
• Removal	■		■	■	■	■	■	■	■	■	
• Smothering					■	■			■	■	
<b>Physical Damage</b>											
• Abrasion	■			■				■			
<b>Non-Physical Disturbance</b>											
• Noise	■			■				■			
• Visual presence	■			■				■			
<b>Toxic Contamination</b>											
• Introduction of synthetic compounds		■	■		■	■	■		■	■	■
<b>Non-Toxic Contamination</b>											
• Changes in nutrient loading		■			■	■			■	■	■

### Key

■ Sub-feature is highly vulnerable to this operation (i.e. high sensitivity & medium exposure or moderate sensitivity and high exposure)

Note: The operations to which the sub-features are moderate or low vulnerability are not shown and may include further types of operations in addition to those listed, refer to Regulation 33 advice

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**Table 2 Operations to which the Site Features are Highly Vulnerable in Chichester & Langstone Harbour Ramsar**

Operations which may cause Deterioration or Disturbance to which the Sub-Features are highly Vulnerable.	C1a: Wetlands defined by wetland characteristics			C3a: Wetlands regularly supporting 20 000 waterfowl				C3c: Wetlands regularly supporting 1% of the individuals in a population of one species or sub-species of waterfowl						
	Estuaries	Saltmarsh	Intertidal mud & sand flats	Saltmarsh	Shingle	Intertidal mud & sand flats	Mixed sediment shores	Shallow coastal waters	Saltmarsh	Intertidal mud & sand flats	Mixed sediment	Shingle	Sand & Shingle	Shallow coastal waters
<b>Physical Loss</b>														
• Removal	■	■	■	■	■	■	■		■	■	■	■	■	
• Smothering	■		■			■	■			■	■			
<b>Physical Damage</b>														
• Abrasion	■		■		■							■	■	
<b>Non-Physical Disturbance</b>														
• Noise					■							■	■	
• Visual presence					■							■	■	
<b>Toxic Contamination</b>														
• Introduction of synthetic	■	■	■	■		■	■	■	■	■	■			■
<b>Non-Toxic Contamination</b>														
• Changes in nutrient loading	■		■			■	■	■		■	■			■

**Key**

■ Sub-feature is highly vulnerable to this operation (i.e. high sensitivity & medium exposure or moderate sensitivity and high exposure)

Note: The operations to which the sub-features are moderate or low vulnerability are not shown and may include further types of operations in addition to those listed, refer to Regulation 33 advice

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**Table 3 Operations to which the Site Features are Highly Vulnerable in Portsmouth Harbour SPA**

Operations which may cause Deterioration or Disturbance to which the Sub-Features are highly Vulnerable.	Portsmouth Harbour SPA Features of Interest		
	Migratory Birds		
	Saltmarsh	Intertidal mud & sand	Shallow Coastal Waters
<b>Physical Loss</b>			
• Removal	■	■	
• Smothering		■	
<b>Non-physical disturbance</b>			
• Noise	■	■	
• Visual presence	■	■	
<b>Toxic contamination</b>			
• Introduction of synthetic compounds	■	■	■
<b>Non-toxic contamination</b>			
• Changes in nutrient loading			■

**Key**

■ Sub-feature is highly vulnerable to this operation (i.e. high sensitivity & medium exposure or moderate sensitivity and high exposure)

Note: The operations to which the sub-features are moderate or low vulnerability are not shown and may include further types of operations in addition to those listed, refer to Regulation 33 advice

**Table 4 Operations to which the Site Features are Highly Vulnerable in Portsmouth Harbour Ramsar**

Operations which may cause Deterioration or Disturbance to which the Sub-Features are highly Vulnerable.	C1a: Wetlands defined by wetland characteristics				C2b: Wetlands defined by their genetic and ecological diversity			C3c: Wetlands regularly supporting 1% of the individuals in a population of one species or sub-species of		
	Estuaries	Cordgrass swards	Saltmarsh	Intertidal mud & sand flats	Saltmarsh	Cordgrass swards	Mudflats	Saltmarsh	Intertidal mud & sand flats	Shallow coastal waters
<b>Physical Loss</b>										
• Removal	■	■	■	■	■	■	■	■	■	
• Smothering	■			■					■	
<b>Physical Damage</b>										
• Abrasion	■									
<b>Non-Physical Disturbance</b>										
• Noise								■	■	■
• Visual presence								■	■	■
<b>Toxic Contamination</b>										
• Introduction of synthetic	■	■	■		■	■	■	■	■	■
<b>Non-Toxic Contamination</b>										
• Changes in nutrient loading	■						■		■	■

**Key**

■ Sub-feature is highly vulnerable to this operation (i.e. high sensitivity & medium exposure or moderate sensitivity and high exposure)

Note: The operations to which the sub-features are moderate or low vulnerability are not shown and may include further types of operations in addition to those listed, refer to Regulation 33 advice

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**Table 5 Operations to which the Site Features are Highly Vulnerable in Solent & Southampton Water SPA**

Operations which may cause Deterioration or Disturbance to which the Sub-Features are highly Vulnerable.	Solent & Southampton Water SPA Features of Interest											
	Annex 1				Migratory				Assemblage			
	Sand & Shingle	Saltmarsh	Intertidal mud & sand	Shallow waters	Saltmarsh	Intertidal mud & sand	Boulder and cobble	Mixed sediment	Saltmarsh	Intertidal mud & sand	Bouldnor & Cobble	Mixed sediment
<b>Physical Loss</b>												
• Removal	■	■	■		■	■		■	■	■		■
• Smothering			■			■		■		■		■
<b>Physical Damage</b>												
• Abrasion	■*											
<b>Non-physical Disturbance</b>												
• Noise	■	■	■		■	■	■	■	■	■	■	■
• Visual presence	■	■	■		■	■	■	■	■	■	■	■
<b>Toxic Contamination</b>												
• Introduction of synthetic compounds		■	■	■	■	■	■	■	■	■	■	■
<b>Non-Toxic Contamination</b>												
• Changes in nutrient loading			■	■		■	■	■		■	■	■

**Key**

■ Sub-feature is highly vulnerable to this operation (i.e. high sensitivity & medium exposure or moderate sensitivity and high exposure)

■\* Sub-feature is priority highly vulnerable to this operation (i.e. high sensitivity and high exposure)

Note: The operations to which the sub-features are moderate or low vulnerability are not shown and may include further types of operations in addition to those listed, refer to Regulation 33 advice

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**Table 6 Operations to which the Site Features are Highly Vulnerable in Solent & Southampton Water Ramsar**

Operations which may cause Deterioration or Disturbance to which the Sub-Features are highly Vulnerable.	C1a: Wetlands defined by wetland characteristics				C2a: Wetlands defined by assemblages of rare, vulnerable or endangered species			C3a: Wetlands regularly supporting 20 000 waterfowl				C3c: Wetlands regularly supporting 1% of the individuals in a population of one species or sub-species of waterfowl					
	Estuaries	Saline Lagoons	Saltmarsh	Intertidal reefs	Saline Lagoons	Saltmarsh	Cordgrass swards	Saltmarsh	Intertidal mud & sand flats	Boulder & cobble shores	Mixed sediment shores	Saltmarsh	Sand & Shingle	Shallow coastal waters	Intertidal mud & sand flats	Boulder & cobble shores	Mixed sediment
<b>Physical Loss</b>																	
• Removal	■	■	■	■	■	■	■	■	■		■	■	■		■		■
• Smothering	■			■					■		■				■		■
<b>Physical Damage</b>																	
• Abrasion	■								■		■		■*		■		■
<b>Non-Physical Disturbance</b>																	
• Noise								■	■	■	■	■	■		■	■	■
• Visual presence								■	■	■	■	■	■		■	■	■
<b>Toxic Contamination</b>																	
• Introduction of synthetic	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■
<b>Non-Toxic Contamination</b>																	
• Changes in nutrient loading	■	■			■				■	■	■			■	■	■	■

**Key**

- Sub-feature is highly vulnerable to this operation (i.e. high sensitivity & medium exposure or moderate sensitivity and high exposure)
- \* Sub-feature is priority highly vulnerable to this operation (i.e. high sensitivity and high exposure)

Note: The operations to which the sub-features are moderate or low vulnerability are not shown and may include further types of operations in addition to those listed, refer to Regulation 33 advice

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**Table 7 Operations to which the Site Features are Highly Vulnerable in Solent Maritime SAC**

Operations which may cause Deterioration or Disturbance to which the Sub-Features are highly Vulnerable.	Estuaries		Drift lines	Atlantic Saltmeadows				<i>Salicornia</i> and other annuals		Cordgrass swards			Mudflats & Sandflats not covered by seawater at low tide				Sandbanks slightly covered by seawater all the time		
	Pioneer marsh	Subtidal sediment		Low marsh	mid marsh	Upper marsh	Transitional high	<i>Salicornia</i>	<i>Suaeda maritima</i>	small	smooth	Townsend's	Intertidal mud	Intertidal muddy sand	Intertidal sand	Intertidal mixed	Subtidal gravel & sand	Subtidal muddy sand	Eelgrass
<b>Physical Loss</b>																			
• Removal	■	■	■	■	■	■		■	■	■	■	■	■	■	■	■	■	■	■
• Smothering		■											■	■					
<b>Physical Damage</b>																			
• Abrasion		■	■										■	■	■	■	■	■	■
<b>Toxic Contamination</b>																			
• Introduction of synthetic compounds	■	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
• Introduction of non-synthetic compounds			■																
<b>Non-Toxic Contamination</b>																			
• Changes in nutrient loading	■	■	■	■				■	■				■	■	■*	■*	■	■	■

**Key**

■ Sub-feature is highly vulnerable to this operation (i.e. high sensitivity & medium exposure or moderate sensitivity and high exposure)

■\* Sub-feature is priority highly vulnerable to this operation (i.e. high sensitivity and high exposure)

Note: The operations to which the sub-features are moderate or low vulnerability are not shown and may include further types of operations in addition to those listed, refer to Regulation 33 advice



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**Table 8 – Operations to which the Site Features are Highly Vulnerable in each Designation**

Operations which may cause Deterioration or Disturbance to which the Sub-Features are highly Vulnerable.	Chichester & Langstone Harbour SPA	Chichester & Langstone Harbour Ramsar	Portsmouth Harbour SPA	Portsmouth Harbour Ramsar	Solent & Southampton Water SPA	Solent & Southampton Water Ramsar	Solent Maritime SAC
<b>Physical Loss</b>							
• Removal	■	■	■	■	■	■	■
• Smothering	■	■	■	■	■	■	■
<b>Physical Damage</b>							
• Siltation							
• Abrasion	■	■		■	■	■	■
• Selective Extraction							
<b>Non-Physical Disturbance</b>							
• Noise	■	■	■	■	■	■	
• Visual presence	■	■	■	■	■	■	
<b>Toxic Contamination</b>							
• Introduction of Synthetic compounds	■	■	■	■	■	■	■
• Introduction of non-synthetic compounds							■
• Introduction of radionuclides							
<b>Non-Toxic contamination</b>							
• Changes in nutrient loading	■	■	■	■	■	■	■
• Changes in organic Loading							
• Changes in thermal regime							
• Changes in Turbidity							
• Changes in salinity							
<b>Biological Disturbance</b>							
• Introduction of microbial pathogens							
• Introduction of non-native species							
• Selective extraction of species							

**Key**

■ A sub features/feature for which the site is designated is highly vulnerable to this operation (i.e. high sensitivity & medium exposure or moderate sensitivity and high exposure)

Note: The operations to which the sub-features are moderate or low vulnerability are not shown and may include further types of operations in addition to those listed, refer to Regulation 33 advice

## 4.0 Identification of Activities that may cause the Operations

In order to progress the management scheme the key operations information from section 3 was translated into activities. Activities that may cause the operations identified above i.e. activities that may cause the type of deterioration or damage to which the sites features are highly vulnerable were identified.

Cluster meetings were held with all the relevant authorities with responsibilities in each cluster. The meetings considered whether types of human use (including plans and projects and activities) could cause the operations to which the site features are highly vulnerable (see box 2 for a general list of types of human use). This linked the operations advice to generic types of human use that could occur in the site. Further detail to identify whether these types of human use are a risk to the site will be provided in later stages of the management scheme.

### Box 2 – Types of Human Use (\* those that may also constitute a plan or project)

Access*	Holiday camps*
Aggregate dredging*	House boats*
Agricultural runoff	Industrial outfall*
Airborne sports*	Land based recreational activity (informal)*
Anchoring	Land reclamation*
Angling*	Maintenance dredging*
Bait collection*	Mariculture*
Barrage/slucice operation*	MOD and other aircraft
Beach cleaning*	Moorings (new)*
Beneficial disposal of dredgings*	Moorings (ongoing management)*
Boat repair / maintenance*	Navigation
Capital dredging*	Oil and gas exploration*
Coastal development*	Oil spills/oil spill clean up*
Coast protection*	Other water sports
Commercial shipping ( inc cargo/pass vessels)	Outfall maintenance*
Constructn/alteratn of slipways, jetties, marinas, pontoons*	Pipeline construction/alteration*
Disposal of dredged spoil*	Recreational boating, power
Domestic outfall*	Recreational boating, sail
Educational field trips*	Sea water abstraction*
Egg harvesting*	Shell fish collection (intertidal)*
Fishing*	Shellfish dredging*
Flood defence*	Shellfish laying*
Foreshore recharge*	Slipway cleaning and maintenance*
Freshwater abstraction*	Wildfowling*
Grazing*	

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Table 9 summarises the results of the cluster meetings and outlines the generic types of human use that may cause the operations to which the site features are highly vulnerable. The types of human use include activities and plans or projects (see box 1).

**Table 9 – Types of Human Use which may cause the Operations to which the Site Features are Highly Vulnerable.**

<b>Operations to which the Site Features are highly Vulnerable</b>	<b>Types of Human Use which may cause an ‘Operation’</b> (Includes activities and ‘plans and projects’)
<b>Physical Loss</b>	
Removal	Aggregate dredging, barrage/sluice operation, capital dredging, coast protection, construction/alteration slipways etc , flood defence, holiday camps, land reclamation, maintenance dredging, moorings (new), moorings (ongoing management), outfall maintenance/ replacement, pipeline construction.
Smothering	Beneficial disposal of dredging, capital dredging, coast protection, construction/alteration slipways etc, disposal of dredged spoil, flood defence, foreshore recharge, holiday camps, maintenance dredging, mariculture, moorings (new), moorings (ongoing management), outfall maintenance/replacement, pipeline construction.
<b>Physical damage</b>	
Abrasion	Access, aggregate dredging, anchoring , angling, bait collection, barrage/sluice operation, beach cleaning, capital dredging, coast protection, commercial shipping (inc cargo/pass vessels), construction/alteration slipways etc., educational fieldtrips, egg harvesting, fishing, flood defence, grazing, land-based recreational activity, maintenance dredging, mooring (new), moorings (ongoing management), navigation, oil and gas exploration, oil spill & oil spill clean up, outfall maintenance/replacement, pipeline construction, recreational boating – power, shell fish collection (intertidal), shell fish dredging, shell fish laying, wildfowling.
<b>Non-physical disturbance</b>	
Noise	Access, airborne sports, beach cleaning, beneficial disposal of dredging, coast protection, commercial shipping (inc cargo/ pass vessels), construction/alteration slipways etc., educational field trips, flood defence, foreshore recharge, holiday camps, house boats, land based recreational activity, land reclamation, MOD aircraft, moorings (new), moorings (ongoing management), navigation, outfall maintenance/replacement, pipeline construction, recreational boating – power, recreational boating – sailing, slipway cleaning and maintenance, wildfowling

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<b>Operations to which the Site Features are highly Vulnerable</b>	<b>Types of Human Use which may cause an ‘Operation’</b> (Includes activities and ‘plans and projects’)
Visual presence	Access, airborne sports, anchoring, angling, bait collection, barrage/sluice operation, beach cleaning, beneficial disposal of dredgings, coast protection, commercial shipping (inc cargo/pass vessels), construction/alteration slipways etc, educational field trips, egg harvesting, fishing, flood defence, foreshore recharge, grazing, holiday camps, houseboats, land based recreational activity, land reclamation, MOD aircraft, moorings (new), moorings (ongoing management), navigation, oil and gas exploration, other water sports, outfall maintenance/replacement, pipeline construction, recreational boating – power, recreational boating – sailing, shell fish collection (intertidal), shell fish dredging, slipway cleaning and maintenance, wildfowling.
<b>Toxic contamination</b>	
Introduction of synthetic compounds	Access, aggregate dredging, agricultural runoff, bait collection, beneficial disposal of dredgings, boat repair maintenance, capital dredging, commercial shipping (inc cargo/pass vessels), construction/alteration slipways etc, disposal of dredged spoil, domestic outfall (operation), foreshore recharge, holiday camps, house boats, industrial outfalls (operation), maintenance dredging, navigation, oil spill & oil spill cleanup, shell fish dredging, slipway cleaning and maintenance
Introduction of non-synthetic compounds	Access, agricultural runoff, bait collection, beneficial disposal of dredging, boat repair/maintenance, capital dredging, commercial shipping, construction/alteration slipways etc, disposal of dredged spoil, domestic outfall (operation), foreshore recharge, holiday camps, house boats, industrial outfall (operation), maintenance dredging, navigation, oil spill & oil spill cleanup, shell fish dredging, slipway cleaning and maintenance
<b>Non-toxic contamination</b>	
Changes in nutrient loading	Agricultural run off, domestic outfall (operation), houseboats, industrial outfalls (operation), recreational boating – power, recreational boating- sail

## 5.0 Responsibility for Activities that may cause Deterioration or Damage

By identifying the operations to which the site features are highly vulnerable and by then identifying which types of human use may cause those operations, the analysis has provided a generic list of types of human use which may cause deterioration or damage to the site.

Establishment of the responsibility that each relevant authority has for these types of human use will determine which qualify as activities and should therefore be considered in more detail in the management scheme.

The SEMS Foundation Document made an initial analysis of relevant and competent authority responsibilities (see table 4 in Section 11 of the Foundation Document). This distinguished between the following:



plan or project (Note: all plans & projects are also statutory functions)

Activities:

- SF relevant authority has a statutory function (only those that do not also qualify as a 'plan or project')
- ◆ relevant authority has some other form of control/management of the activity

This information was used to identify which relevant authority has responsibility for each type of human use identified above. The analysis established the activities for which each relevant authority has a statutory function or some other form of control or management.

This analysis was carried out at the cluster level and resulted in a generic guide for each relevant authority which identified the activities for which they have a responsibility which may cause operations to which the site features are highly vulnerable. This information is summarised in table 10.



# Solent European Marine Sites

Activities & Plans and Project	Chichester/Langstone							Portsmouth					Southampton Water								NW Solent					N Coast IOW						Whole SEMS													
	CHC	LHB	CDC	HBC	PCC	HCC	WSCC	QHM	PCP	GBC	HCC	PCC	FBC	RHHA	ABP	SCC	FBC	EBC	NFDC	WCC	TVBC	HCC	LHC	BRM	Wightlink	NFDC	HCC	CHC	YHC	BHIC	NHA	QHM	Wightlink	IoWC	EN	EA	Trinity House	S Water	Sea FC	Other					
Educational field trips	■	■			■	■	■					■	■	■		■							■		■						■	■						■	■						■
Egg harvesting																								■	■		■												■						■
Fishing														■											■														■	■					■
Flood defence																									■														■	■					
Foreshore recharge				■												■			■								■										■		■	■					
Grazing	■				■		■										■	■																					■						■
Holiday camps																																							■						
Houseboats	■	■						■	■																■							■	■	■	■				■	■					
Industrial outfall																																							■	■					
Land based recreation			■	■	■	■	■			■	■	■	■	■		■	■	■	■	■	■	■	■				■	■						■		■	■					■			
Land reclamation																																							■						
Maintenance dredging	■	■						■	■	■				■	■									■	■	■			■	■	■	■	■	■		■	■								
Mariculture																									■											■	■					■			
MOD aircraft																																										■			
Moorings (new)		■		■	■			■	■			■												■	■		■		■	■	■	■	■	■	■	■	■								
Moorings (ongoing)	■	■						■	■					■	■									■	■	■	■	■	■	■	■	■	■	■		■	■								
Navigation	■	■						■	■					■	■									■	■	■			■	■	■	■	■	■					■						
Oil spill & oil spill clean up	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		■	■	■	■	■	■	■		■	■	■								
Other water sports	■	■	■	■	■			■	■	■		■	■	■	■	■	■	■			■			■	■		■		■	■	■	■	■		■	■						■			
Outfall maintenance/replacement			■	■	■	■	■			■	■	■				■		■			■	■			■			■							■	■	■		■						

# Solent European Marine Sites

Activities & Plans and Project	Chichester/Langstone						Portsmouth					Southampton Water							NW Solent					N Coast IOW						Whole SEMS									
	CHC	LHB	CDC	HBC	PCC	HCC	WSCC	QHM	PCP	GBC	HCC	PCC	FBC	RHHA	ABP	SCC	FBC	EBC	NFDC	WCC	TVBC	HCC	LHC	BRM	Wightlink	NFDC	HCC	CHC	YHC	BHIC	NHA	QHM	Wightlink	IoWC	EN	EA	Trinity House	S Water	Sea FC
Pipeline construction																																							
Recreational boating – power	■	■	■	■	■		■	■	■			■	■	■	■	■	■	■	■		■		■	■		■	■	■	■	■	■		■	■	■				
Recreational boating – sail	■	■	■	■	■		■	■	■			■	■	■	■	■	■	■	■		■		■			■	■	■	■	■	■		■	■	■				
Shellfish collection			■	■	■					■		■	■			■	■	■		■		■			■				■			■	■	■				■	
Shellfish dredging													■									■											■	■				■	
Shellfish laying			■	■	■				■			■	■			■	■	■		■		■							■		■	■	■				■		
Slipway cleaning and maintenance		■	■	■	■				■			■	■			■	■	■	■		■	■	■	■		■					■	■	■	■				■	
Wildfowling	■			■	■		■					■	■				■	■				■				■					■	■	■						

## Key

- Activity identified in stage 2 which will be considered within the cluster in stage 3



## 6.0 The Matrices

### 6.1 Introduction

Analysis of the Regulation 33 advice, identification of the types of human use that may cause the operations to which the features of interest are highly vulnerable and the establishment of relevant authorities responsibilities has resulted in the production of generic matrices of activities for each relevant authority to consider in each cluster.

The matrices represent a first coarse filter to identify which activities should be considered further in the management scheme, it is not a prohibited list. It is important to note that the list of activities in the matrix are not those that are damaging but merely lists those which may cause deterioration or damage. Further investigation will need to be carried out to determine whether the activities do cause the operations listed in the matrix and also whether the activity occurs in the vicinity of the features of interest (however it should be noted that this does not necessarily indicate that damage is occurring). This will be carried out in stage three and four of the process, where the relevant authorities will use their local knowledge to complete proformas for each activity listed in the matrix. The proformas will include greater detail on specific activities in relation to the sub-features and will identify where activities actually occur i.e. are they in the vicinity of the sub-features which are highly vulnerable to the operations that the activity can cause. This will then further refine the list of activities to those which may cause damage and which do occur in the vicinity of the sub-features.

### 6.2 Layout of Matrix

A matrix has been produced for each relevant authority in every cluster in which they have responsibilities.

SEMS includes a number of designated areas (SPAs, Ramsar and SACs), each designated area is sensitive to different types of operations. Separate matrices have been produced to take this into account wherever necessary, therefore a relevant authority who has responsibilities in several clusters may have a number of different matrices.

A theoretical example of a matrix is listed in appendix 1.

Each matrix outlines the following:

- Activities

Key activities which may cause deterioration or damage for which the relevant authority are responsible for in their cluster. These activities will be considered further in the management scheme process through stage 3 and includes the following:

- Activities for which a relevant authority has a statutory function. This may include activities which also qualify as a plan and project, for instance maintenance dredging is an ongoing activity and as such should be included in the management scheme, however it also qualifies as a plan and project as a consent is needed in order to carry out the activity.
- Activities for which a relevant authority some other form of management or regulatory control such as byelaws or land ownership powers.

## Solent European Marine Sites

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- **Operations**  
Type of impacts (operations) which should be considered in relation to the key activities.
- **Features at Risk**  
The sub features which need to be considered (i.e. have been identified as highly vulnerable to the types of operations) further in the process in relation to the activities and operations. This provides information on the sensitivity of the interest features of the site to activities occurring within it. The matrix indicates where a sub feature is highly vulnerable to the operation caused by the activity i.e. the activity may cause damage or deterioration to the sub feature through the operation listed and will be considered further in stage 3 of the management scheme process. Blank areas indicate where a sub-feature is not highly vulnerable to the operation which may be caused by the activity, therefore these will not be considered further in stage 3 of the management scheme process, however the sub-features may be moderate or low vulnerability to the operation listed and may therefore be considered at later stages in the management scheme.

### **7.0 Stage 3 Inventory of Activities that May Cause Deterioration or Damage**

The matrices provide a site specific summary of how current local activities could interact with the interest features of the SEMS and allows for certain activities to be discounted. Each relevant authority will complete a proforma for each activity in their matrix. Some of the activities occurring and their effect may be very localised and it will be possible in some instances to rule out impacts e.g. where the geographical distance between vulnerable features and the activity is too great for there to be an impact. All the proformas will then be used to produce an inventory of activities. This will be carried out in stage 4 of the process.

# Solent European Marine Sites

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## References

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# Solent European Marine Sites

## Appendix 1 - Example Matrix for Individual Relevant Authority in a Cluster.

Stage 2 resulted in the identification of activities which may cause deterioration or damage to the sub-features of the SAC, SPA/Ramsar sites. These were identified through an analysis of the Regulation 33 advice in relation to relevant authority responsibilities in each cluster. Stage 2 forms the basis for the management scheme and the list of activities identified through the process will be considered further in stage 3. A summary of the activities and the types of operations that will be considered by the relevant authority is outlined in table 1a and table 1b. More detailed matrices (table 2a, 2b, 2c & 2d) link the activities and operations to the SEMS features of interest and provides a matrix to be considered in stage 3.

**Table 1a** Activities for which an example Harbour Conservancy have a statutory function in an example cluster which may cause deterioration or damage to the features of interest

Activities over which the RA has a statutory function (SF)	Operations which may be caused by the activity							
	Removal	Smothering	Abrasion	Noise	Visual	Introduction synthetic	Introduction non-synthetic	Changes in Nutrients
Anchoring			■		■			
Commercial shipping			■	■	■	■	■	
Maintenance dredging	■		■			■	■	
Navigation			■	■	■	■	■	
Oil spill & oil spill clean up			■			■	■	
Other water sports					■			
Recreational boating - power			■	■	■			■
Recreational boating - sail				■	■			■

**Key**

■ Activity to be considered in Stage 3 in relation to the operations

**Table 1b** Activities for which an example Harbour Conservancy have some other form of control or management in an example cluster which may cause deterioration or damage to the features of interest

Activities over which the RA has some form of management or control (◆)	Operations which may be caused by the activity							
	Removal	Smothering	Abrasion	Noise	Visual	Introduction synthetic	Introduction non-synthetic	Changes in Nutrients
Access			■	■	■	■	■	
Educational field trips			■	■	■			
Moorings (ongoing management)	■	■	■	■	■			
Wildfowling			■	■	■			

**Key**

■ Activity to be considered in Stage 3 in relation to the operations

# Solent European Marine Sites

**Table 2a – Matrix of Activities for which an example Harbour Authority have a statutory function which may cause the operations to which the site features in an example SPA/Ramsar site are highly vulnerable**

Activities for which the RA has a statutory function (SF), which may cause deterioration or damage	Operations which may cause deterioration or disturbance to which the sub-features are highly vulnerable.	SPA									Ramsar															
		Annex		Migratory			Assemblages				C1a			C3a					C3c							
		Sand & Shingle	Shallow waters	Saltmarsh	Shingle	Intertidal mud & sand	Mixed sediment	Saltmarsh	Shingle	Intertidal mud & sand	Mixed sediment	Shallow waters	Estuaries	Saltmarsh	Intertidal mud & sand flats	Saltmarsh	Shingle	Intertidal mud & sand flats	Mixed sediment shores	Shallow coastal waters	Saltmarsh	Intertidal mud & sand flats	Mixed sediment	Shingle	Sand & Shingle	Shallow coastal waters
Anchoring	Abrasion	■			■				■			■		■		■								■	■	
	Visual presence	X			■				■					■		■								■	■	
Commercial shipping	Abrasion	X			■				■			■		■		■								■	■	
	Noise	X			■				■					■		■								■	■	
	Visual presence	■			■				■					■		■								■	■	
	Intro synthetic		■	■		■	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			■
	Changes in nutrient		■			■	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			■
Maintenance dredging	Removal	■		■	X	■	■	■	■	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Smothering				■				■			■		■		■		■		■		■	■	■	■	
	Abrasion	■			■				■			■		■		■		■		■		■	■	■	■	
Navigation	Intro synthetic		■	■		■	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			■
	Abrasion	■			■				■			■		■		■		■		■		■	■	■	■	
	Noise	■			■				■					■		■		■		■		■	■	■	■	
	Visual presence	■			■				■					■		■		■		■		■	■	■	■	
Oil spill & oil spill clean up	Intro synthetic		■	■		■	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			■
	Abrasion	■			■				■			■		■		■		■		■		■	■	■	■	
Other water sports	Visual presence	■			■				■					■		■		■		■		■	■	■	■	
	Abrasion	■			■				■					■		■		■		■		■	■	■	■	
Recreational boating -power	Noise	■			■				■					■		■		■		■		■	■	■	■	
	Visual presence	■			■				■					■		■		■		■		■	■	■	■	
	Changes in nutrient		■			■	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Noise	■			■				■					■		■		■		■		■	■	■	■	
Recreational boating - sail	Visual presence	■			■				■					■		■		■		■		■	■	■	■	
	Changes in nutrient		■			■	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Noise	■			■				■					■		■		■		■		■	■	■	■	

**Key**  
 ■ Sub Feature is highly vulnerable to the operation caused by the activity i.e. the activity may cause damage or deterioration to the sub feature through operation listed.  
 Note: The operations to which the sub-features are moderate or low vulnerability are not shown and may include further types of operations in addition to those listed, refer to Regulation 33 advice

# Solent European Marine Sites

**Table 2b – Matrix of Activities for which an example Harbour Authority have a statutory function which may cause the operations to which the site features in an example SAC site are highly vulnerable**

Activities for which the RA has a statutory function (SF), which may cause deterioration or damage	Operations which may cause deterioration or disturbance to which the sub-features are highly vulnerable	SAC																		
		Estuaries		Drift lines	Atlantic Saltmeadows				Salicornia and other annuals		Cordgrass swards			Mudflats & Sandflats not covered by seawater at low tide				Sandbanks slightly covered by seawater all the time		
		Open salt marsh	Subtidal sediment		Low marsh	mid marsh	Upper marsh	Transitional high	Salicornia	Suaeda maritima	small	smooth	Townsend	Intertidal mud	Intertidal muddy sand	Intertidal sand	Intertidal mixed	Subtidal gravel & sand	Subtidal muddy sand	Eelgrass
<b>Anchoring</b>	Abrasion	X	■	■										■	■	■	■	■	■	■
<b>Commercial shipping</b>	Abrasion		■	■										■	■	■	■	■	■	■
	Intro synthetic	■	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
<b>Maintenance dredging</b>	Intro non- synthetic			A	■	■	■													
	Removal	■	■		■	■	■		■	■	■	■	■	■	■	■	■	■	■	■
	Smothering		■										■	■						
	Abrasion		■	■									■	■	■	■	■	■	■	■
<b>Navigation</b>	Intro synthetic	■	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Intro non- synthetic				■								■	■	■	■	■	■	■	■
	Abrasion		■	■									■	■	■	■	■	■	■	■
<b>Oil spill &amp; oil spill clean up</b>	Abrasion		■	■					P					■	■	■	■	■	■	■
	Intro synthetic	■	■		■	■	■	■		■	■	■	■	■	■	■	■	■	■	■
	Intro non- synthetic				■															
<b>Recreational boating – power</b>	Abrasion		■	■										■	■	■	■	■	■	■
	Changes in nutrient	■	■	■	■					■	■	■	■	■	■	■*	■*	■	■	■
<b>Recreational boating – sail</b>	Changes in nutrient	■	■	■	■					■	■	■	■	■	■	■*	■*	■	■	■

**Key**

- Sub Feature is highly vulnerable to the operation caused by the activity i.e. the activity may cause damage or deterioration to the sub feature through operation listed.
- \* Sub-feature is priority highly vulnerable to this operation (i.e. high sensitivity and high exposure)

Note: The operations to which the sub-features are moderate or low vulnerability are not shown and may include further types of operations in addition to those listed, refer to Regulation 33 advice

# Solent European Marine Sites

**Table 2c –Matrix of activities for which an example Harbour Authority have some other form of control or management which may cause the operations to which the site features in an example SPA/Ramsar site are highly vulnerable**

Activities for which the RA has some form of management or control (◆), which may cause deterioration or damage	Operations which may cause deterioration or disturbance to which the sub-features are highly vulnerable.	SPA										Ramsar														
		Annex		Migratory			Assemblages					C1a			C3a				C3c							
		Sand & Shingle	Shallow waters	Saltmarsh	Shingle	Intertidal mud & sand	Mixed sediment	Saltmarsh	Shingle	Intertidal mud & sand	Mixed sediment	Shallow waters	Estuaries	Saltmarsh	Intertidal mud & sand flats	Saltmarsh	Shingle	Intertidal mud & sand flats	Mixed sediment shores	Shallow coastal waters	Saltmarsh	Intertidal mud & sand flats	Mixed sediment	Shingle	Sand & Shingle	Shallow coastal waters
Access	Abrasion	■			■			■				■		■		■								■	■	
	Noise				■			■								■								■	■	
	Visual presence	■			■			■							■									■	■	
	Intro synthetic		■	■	■	■	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			■
Educational field trips	Abrasion	■			■			■				■		■		■								■	■	
	Noise	■			■			■								■								■	■	
	Visual presence	■			■			■							■									■	■	
	Removal	■		■	■	■	■	■		■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Moorings (ongoing management )	Smothering				■	■		■			■		■		■		■	■		■	■	■				
	Abrasion	■			■			■				■		■		■								■	■	
	Noise	■			■			■							■									■	■	
	Visual presence	■			■			■							■									■	■	
	Abrasion	■			■			■					■		■		■							■	■	
Wildfowling	Noise	■			■			■							■									■	■	
	Visual presence	■			■			■							■									■	■	

**Key**

■ Sub Feature is highly vulnerable to the operation caused by the activity i.e. the activity may cause damage or deterioration to the sub feature through operation listed.  
 Note: The operations to which the sub-features are moderate or low vulnerability are not shown and may include further types of operations in addition to those listed, refer to Regulation 33 advice

E



# Solent European Marine Sites

**Table 2d – Matrix of activities for which an example Harbour Authority have some other form of control or management which may cause the operations to which the site features in an example SAC site are highly vulnerable**

Activities for which the RA has some other form of management or control (◆), which may cause deterioration or damage	Operations which may cause deterioration or disturbance to which the sub-features are highly vulnerable	SAC																		
		Mudflats		Drift lines		Atlantic Saltmeadows			Salicornia and other annuals		Cordgrass swards			Mudflats & Sandflats not covered by seawater at low tide				Sandbanks slightly covered by seawater all the time		
		Pioneer marsh	Subtidal sediment		Low marsh	mid marsh	Upper marsh	Transitional high	Salicornia	Suaeda maritima	small	smooth	Townsend's	Intertidal mud	Intertidal muddy sand	Intertidal sand	Intertidal mixed	Subtidal gravel & sand	Subtidal muddy sand	Eelgrass
Access	Abrasion		■	■									■	■	■	■	■	■	■	
	Intro synthetic	■	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
	Intro non- synthetic			■																
Educational field trips	Abrasion		■	■									■	■	■	■	■	■	■	
Mooring (ongoing management)	Removal	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
	Smothering		■										■	■						
	Abrasion		■	■									■	■	■	■	■	■	■	
Wildfowling	Abrasion		■	■									■	■	■	■	■	■	■	

**Key**

■ Sub Feature is highly vulnerable to the operation caused by the activity i.e. the activity may cause damage or deterioration to the sub feature through operation listed.  
 Note: The operations to which the sub-features are moderate or low vulnerability are not shown and may include further types of operations in addition to those listed, refer to Regulation 33 advice.

The Solent European Marine Sites (SEMS) project has been set up to produce the SEMS Management Scheme. A Management Group of Relevant Authorities has been set up to oversee the production of the Management Scheme, the members are listed below.

This report represents stage two towards the final management scheme and it identifies the activities that will be considered further in the process.

### SEMS Management Group Members

#### Associated British Ports

Beaulieu River Management

Hamble Harbour Improvements Co. Ltd

Chair SEMS Strategic Advisory Group (observatory status)

Chichester District Council

Chichester Harbour Conservancy

Coyles Harbour Commissioners

Dockyard Port of Portsmouth (QHM)

Eastleigh Borough Council

English Nature

Environment Agency

Fareham Borough Council

Gosport Borough Council

Hamshire County Council

Hayat Borough Council

Isle of Wight Council

Lymington Harbour Board

#### Lymington Harbour Commissioners

Newport Harbour Authority (Isle of Wight Council)

New Forest District Council

Portsmouth City Council

Portsmouth Commercial Port (Portsmouth City Council)

River Hamble Harbour Authority

Solent Forum (observatory status)

Southampton City Council

Southern Sea Fisheries Committee

Southern Water Services Ltd

Sussex Sea Fisheries committee

Tant Valley Borough Council

Trinity House Lighthouse Services

West Sussex County Council

Wightlink

Witchester City Council

Yarmouth Harbour Commissioners

For further information about SEMS contact the SEMS Project Officer:

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