

Appendix 1:

Section 5 of the Solent European Marine Site

English Nature's advice given under Regulation 33(2) of the Conservation (Natural Habitats &c.) Regulations 1994



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SOLENT EUROPEAN MARINE SITE

comprising:

**Solent Maritime candidate Special Area of Conservation
Solent and Southampton Water Special Protection Area & Ramsar Site
Chichester and Langstone Harbours Special Protection Area & Ramsar Site
Portsmouth Harbour Special Protection Area & Ramsar Site**

**English Nature's advice given under Regulation 33(2) of the
Conservation (Natural Habitats &c.) Regulations 1994**

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5. Background to favourable condition tables

The favourable condition table is supplied as an integral part of English Nature's Regulation 33 advice package. It is intended to supplement the conservation objectives only in relation to management of activities and requirements on monitoring the condition of the site and its features. The table **does not by itself** provide a comprehensive basis on which to assess plans and projects as required under Regulations 20 and 48-50, but it does provide a basis to inform the scope and nature of any 'appropriate assessment' that may be needed. It should be noted that appropriate assessments are, by contrast, a separate activity to condition monitoring, requiring consideration of issues specific to individual plans or projects. English Nature will provide more detailed advice to competent and relevant authorities to assess the implications of any given plan or project under the Regulations, where appropriate, at the time a plan or project is being considered.

The favourable condition table is the principle source of information that English Nature will use to assess the condition of an interest feature and as such comprises indicators of condition. On many terrestrial European sites, we know sufficient about the preferred or target condition of qualifying habitats to be able to define measures and associated targets for all attributes to be assessed in condition monitoring. Assessments as to whether individual interest features are in favourable condition will be made against these targets. In European marine sites we know less about habitat condition and find it difficult to specify favourable condition. Individual sites within a single marine habitat category are also all very different, further hampering the identification of generic indicators of condition. Accordingly, in the absence of such information, condition of interest features in European marine sites will be assessed against targets based on the existing conditions, which may need to be established through baseline surveys in many cases.

The assumption that existing interest features on European marine sites are in favourable condition will be tested in the 2000 - 2006 reporting period and the results subsequently fed back into our advice and site management. Where there is more than one year's observations on the condition of marine habitats, all available information will need to be used to set the site within long-term trends in order to form a view on favourable condition. Where it may become clear that certain attributes are a cause for concern, and if detailed studies prove this correct, restorative management actions will need to be taken to return the interest feature from unfavourable to favourable condition. It is the intention of English Nature to provide quantification of targets in the favourable condition table during the 2000 - 2006 reporting period.

This advice also provides the basis for discussions with management and advisory groups, and as such the attributes and associated measures and targets may be modified over time. The aim is to produce a single agreed set of attributes that will then be monitored in order to report on the condition of features. Monitoring of the attributes may be of fairly coarse methodology, underpinned by more rigorous methods on specific areas within the site. To meet UK agreed common standards, English Nature will be committed to reporting on each of the attributes subsequently listed in the final version of the table, although the information to be used may be collected by other organisations through agreements.

The table will be an important, but not the only, driver of the site monitoring programme. Other data, such as results from compliance monitoring and appropriate assessments, will also have an important role in assessing condition. The monitoring programme will be developed as part of the management scheme process through discussion with the relevant authorities and other interested parties. English Nature will be responsible for collating the information required to assess condition and will form a judgement on the condition of each feature within the site, taking into account all available information and using the favourable condition table as a guide.

Box 1

Glossary of terms used in the favourable condition table

Interest Feature	The habitat or species for which the site has been selected.
Sub-feature	An ecologically important sub-division of the interest feature.
Attribute	Selected characteristic of an interest feature/sub-feature which provides an indication of the condition of the feature to which it applies.
Measure	What will be measured in terms of the units of measurement, arithmetic nature and frequency at which the measurement is taken. This measure will be attained using a range of methods from broad scale to more specific across the site.
Target	This defines the desired condition of an attribute, taking into account fluctuations due to natural change. Changes that are significantly different from the target will serve as a trigger mechanism through which some further investigation or remedial action is taken.
Comments	The rationale for selection of the attribute.

Table 2 Favourable Condition Table for SAC interest features for the Solent European marine site. NB - Many of the attributes will be able to be monitored at the same time or during the same survey. The frequency of sampling for many attributes may need to be greater during the first reporting cycle in order to characterise the site and establish the baseline. Where relevant, National Vegetation Classification codes (NVCs) and marine biotope codes are provided and then referenced in Appendices XI and XII

SOLENT MARITIME SAC INTEREST FEATURES

Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
Estuaries		Extent	Area (ha) of the estuaries measured periodically during the reporting cycle (frequency to be determined).	No decrease in extent from an established baseline ¹⁰ , subject to natural change.	Extent is an attribute on which reporting is required by the Habitats Directive.
		Morphological equilibrium.	Intra and inter-estuarine Tidal Prism/Cross Section ratio (TP/CS ratio) measured during the reporting cycle (frequency to be determined).	The intra- and inter-estuarine TP/CS relationship should not deviate significantly from an established baseline subject to natural change.	TP = Tidal Prism = total volume of water crossing a given cross section during the flood tide (m ³). CS = Area of a given cross section at high water springs (m ²). The relationship between TP & CS provides a measure of the way the estuary has adjusted to tidal energy. Substantial departures from this characteristic relationship (determined on a regional basis) may indicate the influence of anthropogenic factors and this would trigger more detailed evaluation of potential problems.
		Water density - temperature and salinity	Water temperature and salinity measured periodically during the reporting cycle (frequency to be determined).	Average temperature and salinity should not deviate significantly from an established baseline, subject to natural change.	Temperature and salinity are characteristic of the overall hydrography of the area. Changes in temperature and salinity influence the presence and distribution of species (along with recruitment processes and spawning behaviour) including those at the edge of their geographic ranges and non-natives.
		Nutrient status	Average phytoplankton concentration in summer, measured periodically during the reporting cycle (frequency to be determined).	Average phytoplankton concentration should not deviate significantly from an established baseline, subject to natural change.	Nutrient enrichment stimulating excessive growth of phytoplankton is a common factor contributing to a reduction in water clarity. Single species-dominated phytoplankton blooms can also have harmful effects on shellfish.

Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
			determined).		
Estuaries (contd.)	Saltmarsh communities	<i>For information on the attributes of the saltmarsh communities sub-feature see the sections of this table which relate to the following interest features: cordgrass swards and Atlantic salt meadows, pages 29 -32</i>			
	Intertidal mudflat and sandflat communities	<i>For information on the attributes of the intertidal mudflat & sandflat communities sub-feature see the sections of this table which relate to the following interest features: intertidal mudflats and sandflats pages 33 - 35</i>			
	Intertidal mixed sediment communities	<i>For information on the attributes of the intertidal mixed sediment communities sub-feature see the sections of this table which relate to the following interest features: intertidal mudflats and sandflats, pages 33 - 35</i>			
Annual vegetation of drift lines	Subtidal sediment communities	Extent	Area (ha) of subtidal sediments, measured periodically during the reporting cycle (frequency to be determined).	No decrease in extent from an established baseline, subject to natural change.	Extent is an attribute on which reporting is required by the Habitats Directive. Loss of subtidal sediment communities is likely to be detrimental to the structure of the interest feature, e.g. associated with a change in sediment budget or geomorphological regime, and may indicate long term changes in the physical conditions of the estuaries interest feature.
		Range and distribution of characteristic subtidal sediment biotopes, for example: IMU biotopes (see Appendix VII)	Range and distribution of biotopes measured during reporting cycle (frequency to be determined).	Range and distribution should not deviate significantly from an established baseline, subject to natural change	The variety and location of subtidal biotopes is an important structural and functional aspect of the interest feature. Specific biotopes such as IMU.AphTub and IMU.NhomTub are typical of subtidal areas within Solent European marine site such as Southampton Water and in some areas support a high number of species as well as large amounts of particular species such as cockles. Subtidal Eelgrass beds (e.g. IMS.Zmar) contribute to sediment structure and stabilise foreshore sediments by reducing wave energy, they provide an important food source for birds, and are important habitats for other organisms such as fish. The subtidal biotopes demonstrate biological assemblages representative of a range of salinity conditions.
		Extent	Linear extent of annual vegetation of drift lines and the geomorphological structures that support	No decrease in linear extent of vegetation from an established baseline ¹⁰ , subject to natural change.	This attribute is dependent on there being sufficient shingle available through coastal processes to maintain the form of the shingle bank in its short and long-term development . Judgements in changes to linear extent will have to take particular care to

Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
Annual vegetation of drift lines (contd.)			this feature, measured once per reporting cycle in late summer (July - September)	Extent must take account of natural variation of this habitat as a result of dynamic coastal processes (storm events etc.). Indicative target is for 10% of vegetation maintained seasonally over structure that could support it.	distinguish changes as a result of natural functions vs. anthropogenic actions because of the highly variable nature of this habitat. As there are likely to be significant seasonal variations in the area covered, assessment of the average width may be valuable. Where there are abrupt truncations of the feature as a result of known anthropogenic activities, these will need to be carefully assessed. The 10% is an initial estimate which may be modified as a result of monitoring.
		Mobility	Percentage of extent of substrate suitable for colonisation by annual vegetation of drift lines not immediately constrained by introduced structures, landforms or operations measured once per reporting cycle.	No increase in extent constrained by introduced structures, landforms or operations. These areas to be identified whilst undertaking baseline monitoring.	An important aspect of this habitat is its ability to modify its distribution in response to natural dynamic coastal processes. Physical constraints or operations can reduce the extent and quality of this community and affect the overall structure of the drift line communities.
		Coastal processes	Number and location of coastal defence operations within sediment cell influencing coastal processes. Measured once per reporting cycle.	Maintain sediment supply to and within the site through coastal processes to allow a balance of accretion and erosion. A net balanced sediment budget should prevail, subject to natural variation.	The gravel sediments that support many of the features of interest are mobile as a result of dynamic coastal processes and are subject to variation over time. This results in both erosion and accretion within the site and redistribution of sediments over relatively rapid timescales. Coast defence works involving shingle recycling within or outside of the site can reduce the extent of this vegetation and have the potential to disrupt the patterns of erosion and accretion that underpin the site's structure and function.
		Substrate composition	Presence of sand/shingle in combination with surface or buried organic material	Maintain substrate composition with sufficiently low levels of human-induced disturbance to allow drift	The combination of inorganic and organic substrate is an important precursor to development of annual vegetation of drift lines. Substrate (i.e. sediment) supply should be regulated by natural coastal processes. Drift line organic materials (tidal-derived seaweed, driftwood etc.) on the surface of and in combination with the shingle matrix are important

Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
Annual vegetation of drift lines (contd.)				line vegetation to complete its vegetation cycle. As an indicative target, drift line organic materials should be present along at least 10% of length surveyed, with artificial (non-organic) debris not restricting or suppressing vegetation establishment and growth. Targets appropriate to site should not deviate significantly from an established baseline ¹⁰ , subject to natural change.	sources of nutrients and anchoring points essential for vegetation development and survival and may play a part in maintaining a seed bank.
		Characteristic species of annual vegetation of drift lines	Presence of characteristic species of the annual vegetation of drift lines, particularly <i>Atriplex prostrata</i>, <i>Atriplex littoralis</i>, <i>Beta vulgaris maritima</i> and <i>Honkenya peploides</i>. Assessments will need to be made during late summer (July - September) at least once per reporting cycle.	Maintain the presence and broad distribution of stands of <i>Atriplex prostrata</i>/<i>Beta vulgaris maritima</i> - dominated community and other local variants of drift line vegetation across the feature, allowing for natural variation. As these communities can be very variable, local baselines¹⁰ will need to be established, but should not be lower than 10% of the area that could be colonised. Targets appropriate to site should not deviate	This community is found in a narrow strip at the extreme high water mark. Changes in the frequency and abundance of <i>Atriplex</i> spp. should be expected to occur seasonally as a result of natural disturbance by storm events, but the community is sensitive to disturbance by human activities. Some of these communities do not fit well into the NVC classification for strand line vegetation, but this is currently under review.

Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
Atlantic salt meadows Atlantic salt meadows (contd)	Low marsh communities			significantly from an established baseline ¹⁰ , subject to natural change.	
		Distribution and extent of low marsh communities.	Distribution and extent of low marsh communities, measured once during the reporting cycle.	Distribution and extent of low marsh communities should not deviate significantly from an established baseline, subject to natural change.	The extent of vegetation cover of the low marsh community can have a seasonal variability and may have up to 50 per cent of bare mud or algal mat cover.
		Species composition of characteristic low marsh communities, for example: - SM10 - SM11	Presence and abundance of constant species, measured once during the reporting cycle	Presence and abundance of constant species of characteristic low marsh communities should not deviate significantly from an established baseline, subject to natural change.	In the Solent European marine site low marsh communities can be relatively simple communities or more complex associations of species, and species composition will vary depending on geographical location and other physical factors.
	Mid-marsh communities	Distribution and extent of mid-marsh communities.	Distribution and extent of mid-marsh communities, measured once during the reporting cycle.	Distribution and extent of mid marsh communities should not deviate significantly from an established baseline, subject to natural change.	Vegetation cover of the mid-marsh community can be quite variable and may comprise a number of NVC communities, these will be determined by future surveys.

Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
Atlantic salt meadows (contd)	Mid-marsh communities	Species composition of characteristic mid-marsh communities, for example: - SM10 - SM 13 - SM14	Presence and abundance of constant species, measured once during the reporting cycle	Presence and abundance of constant species of characteristic mid marsh communities should not deviate significantly from an established baseline, subject to natural change	In the Solent European marine site mid marsh communities can be simple communities or complex associations of specie. Species composition will vary depending on geographical location and other physical factors.
	Upper Marsh	Distribution and extent of upper marsh communities.	Distribution and extent of upper marsh communities, measured once during the reporting cycle.	Distribution and extent of upper marsh communities should not deviate significantly from an established baseline, subject to natural change.	The relative distribution of the upper marsh communities is an important structural aspect of the saltmarsh zonation.
		Species composition of characteristic upper marsh communities, for example: - SM15 - SM16	Presence and abundance of constant species, measured once during the reporting cycle	Presence and abundance of constant species of characteristic upper marsh communities should not deviate significantly from an established baseline, subject to natural change	In the Solent European marine site upper marsh communities can be relatively simple communities or more complex associations of species, and species composition will vary depending on geographical location and other physical factors (e.g. less frequent tidal inundation).
	Transitional high marsh communities	Distribution and extent of upper transitional marsh communities.	Distribution and extent of upper transitional marsh communities, measured once during the reporting cycle.	Distribution and extent of upper transitional marsh communities should not deviate significantly from an established baseline,	There are limited locations within the Solent European marine site where upper transitional communities occur. Elsewhere high marsh transitional vegetation is truncated by sea walls and sea level rise may result in habitat loss through coastal squeeze. The extent of this habitat which can migrate inland as sea levels rise is likely to be especially valuable in redressing

Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
<i>Salicornia</i> and other annuals colonising mud and sand	Transitional high marsh communities	Species composition of characteristic transitional marsh communities	Presence and abundance of constant species, measured once during the reporting cycle.	Presence and abundance of constant species of characteristic transitional marsh communities should not deviate significantly from an established baseline, subject to natural change.	losses incurred to the feature. Sites with a complete sequence of habitats from salt meadow to coastal, terrestrial or freshwater/brackish habitats are the most valuable for nature conservation. In the Solent European marine site such habitats include sand dunes, shingle, reedbeds and woodland.
	Annual <i>Salicornia/Suaeda maritima</i> saltmarsh communities (SM8 and SM9)	Algal mat cover.	Area (and thickness) of algal mat, measured periodically (frequency to be determined).	No increase in algal mat cover from an established baseline.	Algal mats (<i>e.g. Enteromorpha</i> and <i>Ulva</i> spp.) are often associated with pioneer and low marsh communities and are important primary producers, but can be affected by changes to water quality - eutrophication may lead to expansion and smothering of vegetation, or pollution can cause a decline which can lead to destabilisation of sediment surfaces and initiate erosion. An increase in algal cover can also indicate a decline in grazing invertebrates. <i>NB</i> a reduction in algal mat cover can indicate active erosion
	<i>Salicornia</i> and other annuals colonising mud and sand (contd)	Common cordgrass (<i>Spartina anglica</i>) community (SM6)	Distribution and extent of Common cordgrass, measured once during the reporting cycle.	No increase in extent from an established baseline, subject to natural change	Not of conservation importance in the UK but an invasive pioneer species. Could impact on intertidal pioneer and low-mid marsh communities but may be a precursor to the development of other saltmarsh communities in some circumstances.
	Annual <i>Salicornia/Suaeda maritima</i> saltmarsh communities (SM8 and SM9)	Distribution and extent	Distribution and extent of annual <i>Salicornia/Suaeda maritima</i> saltmarsh communities measured once during reporting cycle	No change in distribution and extent of annual <i>Salicornia</i> saltmarsh communities from an established baseline, subject to natural change	Annual <i>Salicornia</i> saltmarsh communities must be carefully defined for the purpose of monitoring. Species within the <i>Salicornia</i> genus have different niches and are not necessarily spatially connected.

Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
Cordgrass swards	Small cordgrass communities	Distribution and extent of small cordgrass communities, for example: - SM4	Distribution and extent of small cordgrass communities, measured once during the reporting cycle.	Distribution and extent of small cordgrass communities should not deviate significantly from an established baseline, subject to natural change.	The extent and distribution of this community are important structural aspects of the saltmarsh zonation. They are associated with different levels of the intertidal region and the turbidity of the water column.
	Smooth cordgrass communities	Distribution and extent of smooth cordgrass communities, for example: - SM5	Distribution and extent of smooth cordgrass communities, measured once during the reporting cycle.	Distribution and extent of smooth cordgrass communities should not deviate significantly from an established baseline, subject to natural change.	The extent and distribution of this community are important structural aspects of the saltmarsh zonation. They are associated with different levels of the intertidal region and the turbidity of the water column.
	Townsend's cordgrass communities	Distribution and extent of Townsend's cordgrass communities, for example: - SM6	Distribution and extent of Townsend's cordgrass communities, measured once during the reporting cycle.	Distribution and extent of smooth cordgrass communities should not deviate significantly from an established baseline, subject to natural change.	The extent and distribution of this community are important structural aspects of the saltmarsh zonation. They are associated with different levels of the intertidal region and the turbidity of the water column.
Intertidal mudflats and sandflats		Extent	Area (ha) of intertidal mudflats, measured periodically during the reporting cycle(frequency to be determined).	No decrease in extent from an established baseline, subject to natural change.	Extent is an attribute on which reporting is required by the Habitats Directive. Loss of intertidal mudflat communities is likely to be detrimental to the structure of the interest feature, e.g. associated with a change in sediment budget or geomorphological regime, and may indicate long term changes in the physical conditions of the estuaries interest feature.
		Topography	Tidal elevation and shore	Shore profile should not	In the intertidal, topography reflects the energy conditions and stability

Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
Intertidal mudflats and sandflats (contd)			slope, measured periodically during the reporting cycle (frequency to be determined).	deviate significantly from an established baseline, subject to natural change.	of the sediment, which is key to the structure of the interest feature. Topography is a major influence on the distribution of communities throughout the mudflats. Measuring topography may also indicate the position of channels through the interest feature, which is another important indicator of the processes influencing the site.
		Nutrient enrichment - macroalgal mats	Extent and cover of macroalgal mats, measured in the summer during the reporting cycle (frequency to be determined).	Average abundance of macroalgal mats should not increase from an established baseline, subject to natural change.	Nutrient status is a key functional factor that influences biota associated with sediments, including fauna as well as plants/algae at the surface. Certain macroalgae (<i>e.g. Enteromorpha</i> and <i>Ulva</i> spp.) can act as indicators of elevated nutrient levels which can reduce the quality of the sediments and their communities, primarily through smothering and deoxygenation. The duration of the algal mats on the surface of the sediments is also important.
		Sediment character	1. Particle size analysis (PSA). Parameters include percentage sand/silt/gravel, mean and median grain size, and sorting coefficient, used to characterise sediment type. Measured in summer, once during the reporting cycle.	Average PSA parameters should not deviate significantly from the baseline, subject to natural change.	Sediment character defined by particle size analysis is key to the structure of the feature, and reflects all of the physical processes acting on it. Particle size composition varies across the feature and can be used to indicate spatial distribution of sediment types thus reflecting the stability of the feature and the processes supporting it.
			2. Sediment penetrability - degree of sinking	Average measure should not deviate significantly from an established baseline, subject to natural change.	Penetrability is an indicator of sediment stability, degree of compaction indicates the shear strength of the sediment and thus the susceptibility of that sediment type to erosion. Compaction of the sediment influences the biological community within the sediment. Penetrability of the sediment is determined by a combination of grain size and water content, which may provide a surrogate index of the penetrability of the sediments.
		Sediment character (contd.)	3. Organic content - % carbon from sediment sample measured periodically (frequency	Average organic carbon content should not deviate significantly from an established baseline,	Organic content critically influences the infaunal community and can cause deoxygenation of the feature which can be detrimental to the biota. However, a balance needs to be struck as organic content provides a measure of the material available to detritivores. A reduction in organic

Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
			to be determined)	subject to natural change.	content could lead to a reduction in detritovores, with subsequent knock on effects throughout the food chain.
			4. Oxidation - reduction potential. Depth of black anoxic layer. Measured periodically during the reporting cycle (frequency to be determined).	Average black layer depth should not deviate significantly from an established baseline, subject to natural change.	Degree of oxidation / reduction, reflecting oxygen availability within the sediment, critically influences the infaunal community and the mobility of chemical compounds. It is an indicator of the structure of the feature.
	Intertidal mud communities	Range and distribution of characteristic mud biotopes, for example: LMU biotopes (see Appendix XI)	Range and distribution of characteristic mud biotopes measured during late summer / early autumn, periodically during the reporting cycle (frequency to be determined).	Range and distribution should not deviate significantly from an established baseline, subject to natural change.	The variety and location of biotopes is an important structural and functional aspect of the feature. Littoral mud biotopes such as LMU.HedScr, LMU.HedStr and LMU.HedMac often support a high number of polychaete worms and bivalve molluscs, which form an important food source for birds and marine predators such as fish.
Intertidal mudflats and sandflats (contd)	Intertidal muddy sand communities	Range and distribution of characteristic sand and gravel biotopes, for example: LMS biotopes (see Appendix XI)	Range and distribution of biotopes measured during reporting cycle (frequency to be determined).	Range and distribution should not deviate significantly from an established baseline, subject to natural change	The variety and location of biotopes is an important structural and functional aspect of the feature. Shellfish beds (e.g. LMS.Pcer), play an important role in the marine food chain. They also reduce tidal flow and encourage sedimentation in their lee, and are therefore important in indicating changes in coastal processes. Eelgrass beds (e.g. LMS.ZnoI) contribute to sediment structure and stabilise foreshore sediments by reducing wave energy, they provide an important food source for birds, and are important habitats for other organisms such as fish. Muddy sands dominated by the worm <i>Arenicola marina</i> (e.g. LMS.MacAre) are found throughout this sub-feature. The invertebrates within the sediment play an important structural and functional role as well as providing an important source of food for marine predators and birds.

Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
Sandbanks which are slightly covered by seawater all the time		Extent of <i>Zostera</i> beds	Extent (m ²) of the <i>Zostera</i> beds measured during the peak growth period (May to Aug) every three years during the reporting cycle	No decrease in extent from an established baseline subject to natural change	The extent of <i>Zostera</i> (Eelgrass) beds is a key structural component of the sediments and provides a long term integrated measure of environmental conditions across the feature, and is also particularly important in being an internationally scarce and declining habitat. The eelgrass beds provide a rich source of food for wintering wildfowl and provide an important nursery area for fish.
	Intertidal mixed sediment communities	Range and distribution of characteristic intertidal mixed sediment biotopes, for example: LMX biotopes (see Appendix XI)	Range and distribution of characteristic biotopes measured during reporting cycle (frequency to be determined).	Range and distribution should not deviate significantly from an established baseline, subject to natural change	The variety and location of biotopes is an important structural and functional aspect of the feature. Characteristic intertidal mixed sediment communities such as LMX.Mare are typical of reduced salinity sheltered marine inlets. The substratum generally consists of sand, gravel and cobbles in varying degrees, usually with mud and silt. The presence of larger stones and cobbles on the surface often leads to the growth of fucoids and other seaweeds. The infauna, characterised by polychaetes, amphipods and snails and bivalves provide a food source for marine predators and birds.
		Extent	Area (ha) of the subtidal sandbanks measured periodically (frequency to be determined).	No decrease in extent from an established baseline, subject to natural change.	Monitoring will need to take into account the dynamic nature of the feature, but reduction in extent may indicate long term changes in the physical conditions influencing the feature.
		Sediment character	Grain size analysis. Parameters include percentage sand/silt/gravel, mean and median grain size, and sorting coefficient, used to characterise sediment type. Sediment type to be	Average grain size parameters should not deviate significantly from an established baseline, subject to natural change.	Sediment character defined by grain size is key to the structure of the feature, and reflects all of the physical processes acting on it. Particle size composition varies across the feature and can be used to indicate spatial distribution of sediment types, thus reflecting the stability of the feature and the processes supporting it.

Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
Sandbanks which are slightly covered by seawater all the time (contd)			measured during summer once during the reporting cycle.		
		Topography	Depth distribution of sandbanks from selected sites, measured periodically (frequency to be determined).	Depth should not deviate significantly from an established baseline, subject to natural change	Depth and distribution of the sandbanks reflects the energy conditions and stability of the sediment, which is key to the structure of the feature. Depth of the feature is of a major influence on the distribution of communities throughout.
	Subtidal muddy sand communities	Extent	Area (ha) of subtidal sediments, measured periodically during the reporting cycle (frequency to be determined).	No decrease in extent from an established baseline, subject to natural change.	Extent is an attribute on which reporting is required by the Habitats Directive. Loss of subtidal sediment communities is likely to be detrimental to the structure of the interest feature, e.g. associated with a change in sediment budget or geomorphological regime, and may indicate long term changes in the physical conditions of the estuaries interest feature.
		Range and distribution of characteristic subtidal muddy sand biotopes, for example: IMU biotopes (see Appendix XI)	Range and distribution of biotopes measured during reporting cycle (frequency to be determined).	Range and distribution should not deviate significantly from an established baseline, subject to natural change	The variety and location of subtidal biotopes is an important structural and functional aspect of the interest feature. Specific biotopes such as IMU.AphTub and IMU.NhomTub are typical of subtidal areas within Solent European marine site such as Southampton Water and in some areas support a high number of species as well as large amounts of particular species such as cockles. Subtidal Eelgrass beds (e.g. IMS.Zmar) contribute to sediment structure and stabilise foreshore sediments by reducing wave energy, they provide an important food source for birds, and are important habitats for other organisms such as fish. The subtidal biotopes demonstrate biological assemblages representative of a range of salinity conditions.
	Subtidal gravelly sand and sand	Distribution and extent of characteristic range of biotopes	Distribution and extent of biotopes measured by extent once during the reporting cycle	Distribution and extent of characteristic biotopes should not deviate from an established baseline subject to natural	The distribution and extent of the biotopes listed under this sub-feature in Appendix XI, is an important structural aspect of the site. Changes in extent and distribution may indicate long term changes in the physical conditions of the subtidal sand interest feature.

Interest Feature	Sub-feature	Attribute	Measure	Target	Comments
				change	
	Subtidal eelgrass <i>Zostera marina</i> beds	Extent	Area (ha) of eelgrass bed communities measured during peak growth period twice during reporting cycle.	No decrease in extent from an established baseline, subject to natural change	The extent and distribution of seagrass beds provides a long-term integrated measure of environmental conditions.

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Baselines to be determined during the first reporting cycle

NB: Extreme events (such as storms reducing or increasing salinities or warm summers) also need to be recorded as they may be critical in influencing ecological issues in the Solent European marine site and may well be missed by routine monitoring

16. Glossary

Abrasion	The process of scraping or wearing down by friction
Advisory Group	The body of representatives from local interests, user groups and conservation groups, formed to advise the management group
Algal bloom	A massive reproduction and growth of algae, often free-floating, in response to the presence of higher than normal levels of nutrients.
Annex 1 birds	Birds species listed on Annex 1 of the Birds Directive. These are in danger of extinction, are rare, or are considered vulnerable within the European Union. Those that regularly occur at levels over 1% of the national population meet the SPA qualifying criteria.
Annex I habitat type(s)	A natural habitat(s) listed in Annex I of the Habitats Directive for which Special Areas of Conservation can be selected.
Annex II species	A species listed in Annex II of the Habitats Directive for which Special Areas of Conservation can be selected.
Annex V	The listing, in the Habitats Directive, of the animal and plant species whose taking in the wild and exploitation may be subject to management measures.
Anthropogenic	Produced by human activity.
Assemblage	A collection of plants and/or animals characteristically associated with a particular environment but not necessarily interdependent.
Attribute	Characteristic of an interest feature/sub-feature which provides an indication of the condition of the feature or sub-feature to which it applies.
BAP	Biodiversity Action Plan.
Baseline	A standard or value from which it is possible to determine any deviation in the integrity of the interest features for which the site has been designated.
Benthos	Those organisms attached to, or living on, in or near, the seabed, including that part which is exposed by tides.
Bioaccumulation	The ability of organisms to retain and concentrate substances from their environment. The gradual build-up of substances in living tissue, usually used in referring to toxic substances, may result from direct absorption from the environment or through the food chain.
Biodegradation	Breakdown or decomposition by bacteria or other biological means.

Biodiversity	The total variety of life on earth. This includes diversity within species, between species and of ecosystems.
Biogeographic region	A region which is separated from adjacent regions by barriers or a change in environmental conditions which limits the movement of species or prevents their establishment outside their natural geographical range.
Biomagnification	Increasing concentrations of a substance in successive trophic levels of a food chain.
Biomass	The total quantity of living organisms in a given area.
Biotope	The physical habitat with its biological community; a term which refers to the combination of physical environment and its distinctive assemblage of conspicuous species.
Bioturbation	The mixing of a sediment by the burrowing, feeding or other activity of living organisms.
Characteristic	Special to, or especially abundant in, a particular situation or biotope. Characteristic species should be immediately conspicuous and easily identified.
Chenier banks	Chenier banks are formed by the deposition of broken shells by wave action on the saltmarsh edge.
Circalittoral	The rocky subtidal zone dominated by animals and below that which is dominated by algae (Animal dominated subtidal zone).
Community	A group of organisms occurring in a particular environment, presumably interacting with each other and with the environment, and identifiable by means of ecological survey from other groups.
Competent authority	Any Minister, government department, public or statutory undertaker, public body or person holding a public office that exercises legislative powers.
Conservation objective	A statement of the nature conservation aspirations for a site, expressed in terms of the favourable condition that we wish to see the species and/or habitats for which the site has been selected to attain. Conservation objectives for European marine sites relate to the aims of the Habitats Directive.
Crustaceans	A class of invertebrates which include crabs, shrimps and barnacles.
Diversity	The richness of different types in a location, including the number of different biotopes and numbers of species.

Epifauna	Animals living on the surface of sediments or hard substrates
Eulittoral	The main part of the intertidal zone characterised by limpets, barnacles, mussels, fucoid algae and with red algae often abundant on the lower part.
European marine site	A European site (SAC or SPA) which consists of, or in so far as it consists of, marine areas.
Eutrophication	The over-enrichment of an aquatic environment with inorganic nutrients, especially nitrates and phosphates, often anthropogenic (e.g. sewage, fertiliser run-off), which may result in stimulation of growth of algae and bacteria, and can reduce the oxygen content of water.
Exposure	The relative extent and intensity of the effects of broad categories of human activities currently occurring on the site to which the interest features or their component sub-features on the site are subject.
Fauna	Animal life in an area.
Favourable conservation status	A range of conditions for a natural habitat or species at which the sum of the influences acting upon that habitat or species are not adversely affecting its distribution, abundance, structure or function throughout the biogeographic region in the long term. The condition in which the habitat or species is capable of sustaining itself on a long-term basis.
Favourable condition	A range of conditions for a natural habitat or species at which the sum of the influences acting upon that habitat or species are not adversely affecting its distribution, abundance, structure or function within an individual Natura 2000 site in the long term. The condition in which the habitat or species is capable of sustaining itself on a long-term basis.
Geomorphology	The description and interpretation of the structure, origin and development of land forms.
Habitat	The place in which a plant or animal lives.
Habitats Directive	The abbreviated term for <i>Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora</i> . It is the aim of this Directive to promote the conservation of certain habitats and species within the European Union.
Halophytic	Plants which thrive in, or tolerate the presence of saline conditions.
Highest Astronomical Tide	The highest tidal level which can be predicted to occur under average meteorological conditions and in any combination of astronomical conditions

Hydrodynamic regime	The particular conditions of water movement at one particular site, including wave action, tidal streams and residual currents.
Infauna	Benthic animals which live within the seabed.
Infralittoral	The subtidal zone in which upward facing rocks are dominated by erect algae, typically kelps.
Interest feature	A natural or semi-natural feature for which a European site has been selected. This includes any Habitats Directive Annex I habitat, or any Annex II species and any population of a bird species for which an SPA has been designated under the Birds Directive.
Littoral	The area of the shore that is occupied by marine organisms which are adapted to or need alternating exposure to air and wetting by submersion, splash or spray. Also called intertidal.
Macrofauna/macrobenthos	Animals/plants which are retained by a 2.0 - 0.5 mm sieve
Maintain	The action required for an interest feature when it is considered to be in favourable condition.
Management group	The body of relevant authorities formed to manage the European marine site.
Management scheme	The framework established by the relevant authorities at a European marine site under which their functions are exercised to secure, in relation to that site, compliance with the requirements of the Habitats Directive.
Meiofauna/meiofauna	Animals/plants which are not retained in a 2.0 - 0.5 mm sieve, but are retained in a 0.04 - 0.1 mm sieve when the sediment is sieved through.
Microfauna/microfauna	Animals/plants which pass through a 0.04 - 0.1 mm sieve.
Molluscs	Soft-bodied unsegmented invertebrate animals usually with shells which include cockles, whelks, limpets, oysters and snails.
Nationally scarce/rare	For marine purposes, these are regarded as species of limited national occurrence
Natura 2000	The European network of protected sites established under the Birds Directive and the Habitats Directive
Natural change	Changes in the condition of features that result wholly from natural causes.
Non-synthetic contamination	Non-synthetic compounds are those materials that occur naturally. They may have to be refined before they are useful to man and could occur in many

slightly different forms. Examples of non-synthetic materials are; heavy metals and hydrocarbons (oil and petrol).

Notable species	A species that is considered to be notable due to its importance as an indicator, and may also be of nature conservation importance, and which is unlikely to be a 'characteristic species'.
Operations which may cause deterioration or disturbance	Any activity or operation taking place within, adjacent to, or remote from a European marine site that has the potential to cause deterioration to the natural habitats for which the site has been designated, or disturbance to the species and its habitats for which the site was designated
Opportunistic species	A species which is able to rapidly exploit changes in habitat conditions or circumstances to its own advantage.
Plan or project	Any proposed development that is within a relevant authority's function to control, or over which a competent authority has a statutory function to decide on applications for consents, authorisations, licences or permissions.
Ramsar site	A site listed under the Convention on Wetlands of International Importance especially as Waterfowl Habitat, which was agreed at Ramsar, Iran.
Relevant authority	The specific competent authority which has powers or functions which have, or could have, an impact on the marine environment, or adjacent to, a European marine site.
Restore	The action required for an interest feature when it is not considered to be in a favourable condition.
Sensitivity	The intolerance of a habitat, community or individual species to damage, or death, from an external force.
Sub-feature	An ecologically important sub-division of an interest feature.
Sublittoral	The zone of the shore below low water exposed to air only at its upper limit by the lowest spring tides.
Synthetic contamination	Synthetic compounds are those materials that have been manufactured artificially by chemical reaction. Examples of some synthetic compounds are; antifoulant paints, detergents, pesticides (Polychlorinatedbiphenyls or PCBs) and biocides (tributyltin or TBT).
Turbidity	This is a measure of the attenuation of light in the water column and can be caused by the light adsorption properties of the water, plankton, suspended particulate organic and inorganic matter and dissolved colour.
Typical species	A species that is considered to be a typical component of a feature or sub-feature.

Vulnerability	The exposure of a habitat, community or individual of a species to an external factor to which it is sensitive.
WeBs	Wetland Bird Survey a collaborative national surveillance scheme of the UK's waterfowl based on counts undertaken once per month outside of the breeding season.