

Nationally important marine seascapes,
habitats and species: A recommended approach
to their identification, conservation and protection
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English Nature Research Reports

Number 392

**Nationally important marine seascapes, habitats and species
A recommended approach to their identification,
conservation and protection**

Prepared for the DETR Working Group on the Review of Marine Nature Conservation by
English Nature and the Joint Nature Conservation Committee

June 2000

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ISSN 0967-876X

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This report should be quoted as:

Laffoley, D.d'A, Connor, D.W., Tasker, M. L. & Bines, T. 2000. Nationally important seascapes, habitats and species. A recommended approach to their identification, conservation and protection. Prepared for the DETR Working Group on the Review of Marine Nature Conservation by English Nature and the Joint Nature Conservation Committee. Peterborough, English Nature, 17 pp.

Context

The Department of the Environment, Transport and the Regions (DETR) established a working group to review marine nature conservation. This forum was set up to help Government develop possible future mechanisms to protect, conserve and manage nationally important marine wildlife in the seas around England. The original remit of the Working Group focussed on territorial waters, but this position was revised in the summer of 2000 to cover the continental shelf and superjacent waters under UK jurisdiction (usually up to 200 nautical miles from the coast). The Working Group has a wide membership drawn from statutory and non-statutory organisations, industry and user groups with a particular interest in the marine environment.

This report is one of four submitted by English Nature to the Working Group in 2000. The four documents in the series, sequentially, are:

LAFFOLEY, D. d'A. & BINES, T. 2000. Protection and management of nationally important marine habitats and species. Prepared by English Nature based on the views of a sample for the members of the DETR Working Group on the Review of Marine Nature Conservation. Peterborough: *English Nature Research Reports*, No. 390. 20 pp.

LAFFOLEY, D. d'A. 2000. Historical perspective and selective review of the literature on human impacts on the UK's marine environment. Prepared by English Nature for the DETR Working Group on the Review of Marine Nature Conservation. Peterborough: *English Nature Research Reports*, No. 391. 20 pp.

LAFFOLEY, D. d'A., CONNOR, D.W., TASKER, M.L. & BINES, T. 2000. Nationally important seascapes, habitats and species. A recommended approach to their identification, conservation and protection. Prepared for the DETR Working Group on the Review of Marine Nature Conservation by English Nature and the Joint Nature Conservation Committee. Peterborough: *English Nature Research Reports*, No. 392. 17 pp.

LAFFOLEY, D. d'A., BAXTER, J., BINES, T., BRADLEY, M., CONNOR, D.W., HILL, M., TASKER, M. & VINCENT, M. 2000. An implementation framework for conservation, protection and management of nationally important marine wildlife in the UK. Prepared by the statutory nature conservation agencies, Environment Heritage Services (Northern Ireland) and JNCC for the DETR Working Group on the Review of Marine Nature Conservation. Peterborough: *English Nature Research Reports*, No. 394. 29 pp.

Copies of these reports can be obtained from the enquiry team at English Nature in Peterborough.

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Table 1 Illustrative examples of some of the types of UK seascapes, habitats and species which could be selected for special management and protection measures by application of the criteria, set against a view on the effectiveness of existing statutory protection and management mechanisms.

Table 2 The relationship between the seascapes, habitats and species which may need special management and protection measures, and the range of national and international obligations under which they are cited.

1. Introduction

- 1.1 At the third meeting of the DETR Working Group on the Review of Marine Nature Conservation, on 27 January 2000, English Nature, the other country agencies and JNCC were charged with developing a more detailed view on the criteria and marine biodiversity to be included within any future possible national-level framework and advising on the timetable necessary to achieve this. This was to be undertaken for Great Britain, with Northern Ireland and the Republic being brought in later as appropriate.
- 1.2 This paper is provided in fulfilment of that action. It should be noted, however, that in the time available it has not been possible to place equal emphasis on seascapes (including seabed geology and earth science interests), on habitats and on species (including seabirds and fish). The paper is accordingly biased towards near-shore benthic habitats and benthic species, although the principles and criteria established in this paper are unlikely to significantly change when addressing the other remaining aspects of the marine environment.

2. Background

- 2.1 Given the nature of the discussions within the Working Group, English Nature and JNCC have used this opportunity to set out an overall framework and recommended process. This builds upon the concepts outlined by Laffoley and Bines (2000) and should be read in association with that paper. It concentrates on establishing points of principle rather than getting caught up in detail or analysis. Further detail can be added as and when required.
- 2.2 This paper accordingly:
- summarises the current policy framework for nature conservation in Great Britain;
 - sets out criteria for the identification of nationally important seascapes, habitats and species;
 - suggests a process to be trialed to identify nationally important seascapes, habitats and species; and
 - illustrates some nationally important seascapes, habitats and species and how effectively they appear to be protected and managed through existing legislation and regimes.
- 2.3 The paper also introduces the term 'seascapes'. This concept involves the development of a large scale of management unit for the marine environment that can encompass a range of different habitats and species and/or the associated seabed geological and earth science interests. Such seascapes can be visualised as encompassing:
- distinctive seashore or seabed features, such as seamounts or fronts; and
 - areas of seabed characteristic of regional or local character.

- 2.4 Although the conservation policy surrounding seascapes has yet to be developed to the same level as that for habitats and species, it is nevertheless inevitable that seascapes offer an appropriate scale and economy of effort to form a key part of any national marine conservation strategy, alongside wider sea measures and more specific and localised measures for individual habitats and species. The broad marine habitat types given under Annex 1 of the Habitats Directive and the types of sites identified as Marine Consultation Areas in Scotland or as Sensitive Marine Areas in England can be seen as fitting with the seascape concept.

3. Context and principles

- 3.1 Before considering selection criteria it is important to understand the policy context within which any process and criteria should be applied to nationally important seascapes, habitats and species. This context is admirably set out by Ratcliffe (1977) in his definitive work *A nature conservation review*:

‘A national strategy for nature conservation was formally prescribed in 1947 with the publication of the Government White Papers *Conservation of nature in England and Wales* (Cmd 7122) and *National Parks and the conservation of nature in Scotland* (Cmd 7235). These documents presented the basic philosophy that the practice of nature conservation in Britain should centre around the safeguarding of a fairly large number of key areas adequately representing all major types of natural and semi-natural vegetation, with their characteristic assemblages of plants and animals, and habitat conditions, of climate, topography, rocks and soils, and biotic influences. Geological and physiographic features were to be presented for their own intrinsic interest.’ (Ratcliffe, 1977)

- 3.2 This overall approach to protecting, conserving and managing biodiversity is reinforced or embraced in all subsequent key international and domestic policy works since then, including the World Charter for Nature Conservation (UN Resolution 37/7, 1982), Nature Conservation in Great Britain (NCC, 1984), Planning Policy Guidance: Nature Conservation (DOE, 1994), and recently in definitive terms by OSPAR, by the IUCN (Kelleher, 1999), by the Convention on Biological Diversity (Quarrie, 1992) (and subsequent Jakarta Mandate), and by the objectives of the UK Biodiversity Action Plan (Anon, 1994).

- 3.3 In relation to marine areas such principles are augmented by:

- Articles 192, 193 and 194 of the United Nations Convention on the Law of the Sea which include the fact that States are required to take necessary measures to protect and preserve areas of fragile marine ecosystems as well as the habitats of depleted, threatened or endangered species and other forms of marine life (Article 194, paragraph 5 of UNCLOS); and
- Chapter 17 of Agenda 21 (Oceans and All Seas), which requires that States should identify marine ecosystems exhibiting high levels of biodiversity and productivity and other critical habitat areas and should provide necessary

limitations on use in these areas, through inter alia designation of protected areas.

- 3.4 The UK Biodiversity Action plan is helpful in that it also defines biodiversity as going *'...beyond multiplicity of species. It includes the genetic and morphological variability within a species and the assemblages of plants, animals and micro-organisms which together form their ecosystems and natural habitats.'*
- 3.5 In considering how to apply such principles, a key lesson for the Working Group to reflect on stems from the conclusion of the Nature Conservancy Council in 1984 that too little, too late was achieved proactively for nature conservation on land to stem the post-war losses of biodiversity (NCC, 1984). Whilst some may challenge the extent of human impact on the marine environment, the opportunity now is to put in place comprehensive and effective mechanisms to protect and manage nationally important seascapes, habitats and species, and not repeat the error of waiting too long and doing too little. With such effective management and protection, the marine environment can continue to flourish in support of industries, fisheries and recreation.
- 3.6 It seems illogical that comprehensive efforts to safeguard the UK's biodiversity should end at the low water mark. Sadly, however, over twenty years have passed since Roger Mitchell, the then advisor on marine conservation for the Nature Conservancy Council, first made such comments on UK marine wildlife conservation policy (Mitchell, 1979). Changes in general policy emphasis, however, since 1947 have been to heighten the need for conservation of biodiversity in the wider environment as well as through protected site networks, underpinned by increasingly stronger legislation, partnerships and sectoral approaches.
- 3.7 The implications of the general policy to deliver nature conservation in Great Britain for the current Review of Marine Nature Conservation are that conservation and management of seascapes, habitats and species needs to focus on :
- best examples: taking a comprehensive and consistent approach towards protecting and managing all the best examples of seascapes, habitats and species throughout the wider sea; and
 - special measures: taking special conservation, protection or management measures to maintain or restore the conservation status of those seascapes, habitats and species which by virtue of their ecological characteristics or situation require such additional actions.
- 3.8 In both cases appropriate conservation, protection and management may be achieved through a combination of:
- a network of designated national marine protected areas for seascapes, habitats and species, where nature conservation features may be localised and subject to pressures arising from comparatively localised activities;
 - a suite of wider measures for more wide ranging species and more widely distributed seascapes and habitats subject to the consequences of more widespread human impacts; and

- wider environment protection and management to maintain overall ecosystem health and productivity of the sea, through initiatives such as pollution control and integrated approaches to planning and management, such as EIAs.
- 3.9 No evidence has ever been produced to substantiate the notion that the balance in the sea between sites and wider measures should be any different from that already in operation on land. The only difference is the difficulty of enforcing such actions at sea, but this does not excuse the need to put in place an appropriate framework and measures.
- 3.10 Such a twin-track approach would need to be supported by agreed standards of responsibility and stewardship, strong partnerships and effective coordination of efforts. Reliance on just the voluntary approach, in the absence of any supporting legal enforcement framework, is inappropriate as, at some point, it invariably fails allowing no redress for the resultant loss or damage to biodiversity.
- 3.11 The twin-track approach set out above serves as a benchmark against which the success or failure of any national marine conservation framework will be judged. This approach differs from the process recently undertaken for the UK Biodiversity Action Plan in that it is a strategy to deal with representativity and the special needs of marine biodiversity, rather than a strategy to deal directly with threat or decline. It also differs from the OSPAR initiative in that it would be undertaken at national level and not at the scale of the north-east Atlantic.

4. Criteria to identify nationally important seascapes, habitats and species

- 4.1 The criteria given below draw on those set out for government 21 years ago by the then Nature Conservancy Council and The Natural Environmental Research Council (1979) in the publication *Nature Conservation in the Marine Environment*. They mirror the criteria being developed under Annex V of OSPAR to identify habitats and species requiring conservation, protection and management in the north-east Atlantic (including those proposed in 1999 and 2000 by the IMPACT working group for formal adoption by OSPAR contracting parties), and also largely follow the criteria published by the IUCN's World Commission on Protected Areas in 1999.
- 4.2 Such links are very important as the protection, conservation and management of UK seascapes, habitats and species should mesh with the outputs of the OSPAR process and any other relevant international initiatives, in so far as is practical. This may maximise consistency of approach through the UK Territorial Waters, continental shelf and superjacent waters where initiatives may overlap. The criteria are given below and the process through which the selection criteria could be applied is outlined in section 5.
- 4.3 A seascape, habitat or species is selected for inclusion within a national marine conservation framework when it satisfies one or more criteria given below.

4.4 **Criteria for identifying the best examples**

4.4.1 The criteria to be applied to identify the best examples of seascapes, habitats and species are:

- i. **Representivity**: the area contains examples of habitats/biotope types, habitat complexes, species, ecological processes or other natural characteristics that are typical and representative;
- ii. **High natural biological diversity**: the area has a naturally high variety of habitats or species, or includes highly varied habitats or communities (compared to other similar areas);
- iii. **Naturalness**: the area has a high degree of naturalness and ecosystems, habitats and species are still in a very natural state as a result of the lack of human-induced disturbance or degradation. Those that are more natural would be chosen in preference to other equally good examples but which subject to higher degrees of human impacts.

4.5 **Criteria to identify those seascapes, habitats and species requiring special measures**

4.5.1 It is well established conservation and policy practice that there are a number of situations which may require special measure to be taken for biodiversity. These include situations where a seascape, habitat or species is not just representative but also:

- rare;
- sensitive;
- ecologically significant;
- declining;
- is of regional/global importance; and/or
- has the potential for restoration or recreation

4.5.2 The criteria to identify those seascapes, habitats and species that may require special measures are, accordingly:

- i. **Rarity**: A habitat is assessed as being rare if it is restricted to a limited number of locations or to small, few and scattered locations in UK waters. A species that is sessile or of restricted mobility at any time of its life cycle is assessed as being rare if it occurs in a limited number of locations in UK waters, and in relatively low numbers. In the case of a highly mobile species, the total population size will determine rarity.
- ii. **Sensitivity**: A very sensitive habitat or species is one that is very easily adversely affected by external factors arising from human activities, and is expected to recover only over a very long period, or not at all. A 'sensitive'

habitat or species is one that is easily adversely affected by a human activity, and is expected to only recover over a long period.

- iii. **Ecological significance:** An ecologically significant habitat is very important for the wider significance of the ecological processes, functions and species it supports. A species is of high ecological significance if it has a controlling influence on a community (i.e. a keystone species).
- iv. **Decline:** an observed or indicated significant decline in numbers, extent or quality of a species or habitat (for species, quality refers to life history parameters). The decline may be historic, recent or current and may be throughout UK waters or at a more regional level.
- v. **Proportional importance of the UK:** A high proportion of the habitat, or population of a species (at any time of its life cycle) occurs within the UK. This may be related to either the global or north-east Atlantic extent/population of the habitats/species. Where the UK holds a high proportion of the total European extent of a habitat or population of a species, we have at least moral obligations to the international community to protect and, where relevant, manage the habitats and species in an appropriate manner.
- vi. **Potential value:** concerns the potential for rehabilitation or re-creation of habitats

5. Implementing a national marine conservation framework

- 5.1 The proposal 2, '*Implementing any national marine conservation framework*', in Laffoley and Bines (2000), suggested that:

'The application of the statutory purpose of the legislation, to identify habitats and species, and sites and wider species measures, could be undertaken through a specially constituted Marine Conservation Advisory Group reporting to DETR.'

- 5.2 Such a Marine Conservation Advisory Group would need to consist of marine conservationists and scientists drawn, for example, from the conservation agencies, JNCC, the NGOs and fisheries scientists. As a group they would need to cover the full range of marine conservation interests, ranging from benthic habitats and species, pelagic species such as fish, cetaceans and seabirds, as well as seabed topography, geology and earth science interests.
- 5.3 If the Marine Conservation Advisory Group become the chosen route for implementation, it would be this group that would need to:
- apply the criteria to identify the best examples of seascapes, habitats and species and their locations;

- apply the criteria to identify the examples and locations of seascapes, habitats or species which by virtue of their ecological characteristics or situation may require special conservation, protection or management measures to be taken;
- advise on the timetable and most appropriate mechanisms to deliver the necessary level of conservation, protection and management for the selected examples of nationally important seascapes, habitats and species. A ‘fast-track’ approach should be adopted by the Advisory group and government for those examples where cases are well established and accepted, and/or for those examples which are under immediate threat or subject to rapid decline;
- advise on timetables for reviewing particular habitats, species or groups. It may be that certain seascapes, habitats or species could not be selected on the first attempt due to a lack of information or where further information has been received since the initial selection process that could lead to a more refined view being taken; and
- recommend the scope and nature of research required to underpin the national marine conservation framework. This should be at a strategic level and the outputs should be used by government to inform on the research programmes of relevant organisations and authorities eg NERC, CEFAS, CCMS etc.

5.4 Although it would need to be trialled, the subsequent work programme for such a group is likely to involve the following stages (in possible sequential order):

- Application of the criteria:** each of the criteria should be applied to the full range of seascapes habitats and species occurring in UK waters, including biological, geological and earth science interests. To ensure that this process is comprehensive, established classification systems should be used as a guide but expanded to cover offshore areas and poorly represented habitats (such an approach is now being undertaken by JNCC to extend the scope of the MNCR classification for use by OSPAR). The application of the criteria should be undertaken in an open and rigorous manner. Work undertaken by NOAA in the USA (Crosby *et al* 1997) is particularly relevant here.
- Assessing the adequacy of existing measures.** The priority for this work is not whether a particular seascape, habitat or species is covered by an existing initiative but whether that existing initiative is providing the level of protection and conservation it was set up to deliver. To undertake this work it may be helpful to categorise seascapes, habitats and species into the following groups where the existing framework of measures are considered to be:
 - **fully effective**, with no further measures being required within a comprehensive approach;
 - **partially effective**, with some additional measures needed within a comprehensive approach; or
 - **absent**, all protection and management action needing to be achieved through new measures.

- iii. **advising on the appropriate delivery mechanisms:** once any duplication in effort with existing initiatives has been removed it is important that selected seascapes, habitat or species are carefully considered in relation to the most appropriate implementation mechanisms. Such mechanisms will need to address the particular ecological requirements of the habitats or species concerned and will result in a combination of:
- designating nationally important marine protected areas at a variety of scales, from seascapes down to small local areas specific to a particular habitat or species; and
 - introducing wider measures, which may involve a wide range of different management responses, from fisheries regulations and other management responses, through to pollution control and/or discharge condition.
- iv. **Setting priorities and time scales for action:** each selected example of seascape, habitat or species should be assessed against degree of threat (actual or potential) it faces. Those that are exposed to a high degree of threat from human activities, ie high vulnerability, should be a high priority for application of measures within any comprehensive national framework.

5.5 As stated elsewhere, any such work by the group must take into account the experiences and practises adopted elsewhere in undertaking such a selection and advisory process. The work of NOAA in the USA, and that by IMPACT and its working groups to implement OSPAR Annex V in the north-east Atlantic, are particularly relevant in this respect and could avoid duplicating effort with associated savings on time and money.

6. An initial view of some seascapes, habitats and species that may require special measures

6.1 An **indication** of some of the types of UK seascapes, habitats and species that application of the criteria could identify as requiring special measures is given in table 1 (a definitive answer is only possible once the process given above is undertaken in earnest). This illustration is set against a view of the effectiveness of existing statutory protection and management mechanisms, made using the three criteria set out earlier in this document. The overall presentation framework is closely based on that developed to underpin the delivery of marine habitat and species action plans in the UK Biodiversity Action Plan.

6.2 The results of this brief and illustrative evaluation show that many seascapes, habitats and species that are likely to feature in a national approach are already afforded partial protection and management through existing statutory mechanisms. Such mechanisms include SSSIs, Schedule 5 of the Wildlife and Countryside Act, MNRs, or SACs, SPAs and other measures being established under the Habitats Directive. In virtually no cases, however, is it considered that the existing mechanisms can provide fully effective protection and management. This is usually because:

- even if a significant amount of the national resource comes intentionally within the SSSI framework, deficiencies in this framework, particularly in intertidal areas mean that measures are unable to be fully effective;
- the occurrence of seascapes, habitats and species within the existing statutory framework has mostly been incidental and not from any planned and coordinated comprehensive process. Invariably for these very reasons, nationally important examples also lie outside any existing statutory areas and thus existing measures are considered to be only partially effective;
- whilst species may be listed on Schedule 5 of the Wildlife and Countryside Act, established weaknesses in the legislation make enforcement of such measures difficult or impossible, thus only partial effectiveness is once again achieved; or
- there is no match between nationally important seascapes, habitats and species and other commitments, eg Habitats Directive, so there is no ability, to include them within existing measures. Measures are therefore considered to be absent.

6.3 The relationship between the seascapes, habitats and species which may need special management and protection measures, and the range of national and international obligations under which they are cited, is given in Table 2. From the analysis above where a particular habitat or species is identified under an existing initiative it is not automatically the case that the necessary domestic measure have either:

- been taken in full or part; or
- deliver the required level of protection expected from the initiative.

The insufficiency of existing measures has to a large degree already been identified in Laffoley and Bines (2000).

6.4 Despite these comments, however, there is little surprise that the bulk of the habitats and species requiring special measures at a national level are already priorities under a range of existing obligations, particularly BAP. There are, however, some notable exceptions which reflect the different strategic approach between BPA and national measures set out here, the growth in scientific knowledge which has occurred since the BAP process was initiated and associated habitats and species selected, and the increasing knowledge and awareness of the biology and ecology of more offshore areas.

7. Timetable to apply the criteria and make recommendations

7.1 At this stage it is only possible to give an indication of the time needed to undertake a representative approach and the special measures selection process and advise on actions required, accepting that the process should be done in a consistent, scientifically robust and open manner.

- 7.2 An initial consideration of the issues outlined above suggests that the complete exercise would take about three years to complete. This estimate can be used as a general guide but will need to be refined as the Working Group or DETR reach conclusions on the scope and scale of work required.

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Table 1 Illustrative examples of some of the types of UK seascapes, habitats and species which could be selected for special management and protection measures by application of the criteria, set against a view on the effectiveness of existing statutory protection and management mechanisms. **Emboldened text** indicates the seascape, habitat or species is considered to be particularly threatened by human activity. Application of criteria is made using best available information and would be undertaken in a consistent and robust manner should this exercise be undertaken for real.

Seascape, habitat or species		Qualifying criteria	Effectiveness of current mechanisms
Littoral rock	littoral chalk communities	p, r	Partial (SSSIs, H&S)
	<i>Sabellaria alveolata</i> reefs	?e, s	Partial (SSSIs)
	<i>Fucus disticus</i> a brown alga	r, ?p	Absent
	<i>Ascophyllum nodosum</i> ead <i>mackaii</i> a brown algae	r,	?Partial (SSSIs)
Littoral sediment	Mudflats	e, p, d	Partial (SSSIs, H&S)
	Seagrass beds (<i>Zostera noltii</i>)	e, s, d	Partial (SSSIs, H&S)
	Sheltered muddy gravels	r	?Partial (SSSIs, H&S)
	Clean coarse sand - <i>Pectinogammarus</i> community	r, d	Absent
Inshore sublittoral rock	Sublittoral chalk communities	p, r	Partial (H&S)
	<i>Sabellaria spinulosa</i> reefs	e, s, r, d	Partial (H&S)
	Tidal rapid communities	p, r	?Partial (SSSIs, H&S)
	<i>Modiolus modiolus</i> beds	d, e, s, r	Partial (MNR, H&S)
	Very sheltered circalittoral rock communities (sea lochs)	p, ?s	Partial (H&S)
	<i>Amphianthus dohmii</i> sea-fan anemone	r	??Partial (indirect S5 & H&S)
	<i>Anotrichium barbatum</i> a red algae	r	?Partial (H&S)
Inshore sublittoral sediment	<i>Eunicella verrucosa</i> pink sea-fan	s	Partial (S5, H&S)
	<i>Leptosammia pruvoti</i> sunset cup coral	r, s	Partial (H&S)
	Seagrass beds (<i>Zostera marina</i>)	e, s, ?d	Partial (H&S)
	Maerl beds	e, s	Partial (H&S)
	Saline lagoons (+ SAPs)	p, r, s	?Full (S5, SSSIs, H&S)
	Deep water mud communities	s	Absent
	<i>Serpulid</i> reefs	p, r, s	Full (H&S)
	Flame shell (<i>Limaria</i>) beds	p, r, s	Absent
	Native oyster beds	p, s, d	??Partial (H&S)
	<i>Atrina fragilis</i> a fan shell	r, s,	??Partial (S5)
<i>Thyasira gouldi</i> northern hatchet shell	r	??Partial (S5)	
<i>Melanitta nigra</i> Common scoter	?	???	
<i>Funiculina quadrangularis</i> a sea pen	r, ?s, ?d	??Partial (H&S)	
<i>Styela gelatinosa</i> a sea squirt	r	??Absent	
Offshore shelf rock	Sea mounts & communities	e, s	Absent
Offshore shelf sediments	Sublittoral sands and gravels	e, s	Absent
	Carbonate mounds	p, r, s	Absent
Continental shelf slope	<i>Lophelia pertusa</i> reefs	r, s	Absent
	Glass sponge communities	r, s	Absent
	Blue whiting		???

Seascape, habitat or species

		Qualifying criteria	Effectiveness of current mechanisms
Oceanic seas	Baleen whales	d, s	Partial
	Toothed whales	d, s	Partial
	Dolphins	?d, s	Partial
	Turtles	r	Partial
	Basking shark	d	?Partial
	Commercial fish species	d, e	Partial
	Common skate	d	Partial
	Deep-water fishes	e	?Absent
	Harbour porpoise	d, s	Partial

Key

Qualifying criteria:

- d - decline
- e - ecological significance
- p - proportionality
- r - rarity
- s - sensitivity

Table 2 The relationship between the seascapes, habitats and species which may need special management and protection measures, and the range of national and international obligations under which they are cited. A tick does not mean that the required measures have actually been taken in part or are proving practically effective.

Seascape, habitat or species		BAP	HSD	W&C	CITES	BERN	BONN	ASC
Littoral rock	Littoral chalk communities	✓	✓	✓	-	-	-	-
	• <i>Sabellaria alveolata</i> reefs	✓	-	-	-	-	-	-
	• <i>Fucus disticus</i> a brown algae	-	-	-	-	-	-	-
	• <i>Ascophyllum nodosum</i> ecad <i>mackaii</i> a brown algae	-	-	-	-	-	-	-
Littoral sediment	• Mudflats	✓	✓	✓	-	-	-	-
	• Seagrass beds (<i>Zostera noltii</i>)	✓	✓	✓	-	-	-	-
	• Sheltered muddy gravels	✓	(✓)	-	-	-	-	-
	• Clean coarse sand - <i>Pectinogammarus</i> community	-	-	-	-	-	-	-
Inshore sublittoral rock	• Sublittoral chalk communities	✓	✓	-	-	-	-	-
	• <i>Sabellaria spinulosa</i> reefs	✓	✓	-	-	-	-	-
	• Tidal rapid communities	✓	✓	(✓)	-	-	-	-
	• <i>Modiolus modiolus</i> beds	✓	✓	(✓)	-	-	-	-
	• Very sheltered circalittoral rock communities (sea lochs) rock communities (sea lochs)	-	✓	-	-	-	-	-
	• <i>Amphianthus dohmii</i> sea-fan anemone	✓	-	-	-	-	-	-
	• <i>Anotrichium barbatum</i> a red algae	✓	-	-	-	-	-	-
	• <i>Eunicella verrucosa</i> pink sea-fan	✓	✓	-	-	-	-	-
	• <i>Eunicella verrucosa</i> pink sea-fan	✓	✓	-	-	-	-	-
	• <i>Leptopsammia pruvoti</i> sunset cup coral	✓	✓	-	-	-	-	-

Seascape, habitat or species		BAP	HSD	W&C	CITES	BERN	BONN	ASC
Inshore sublittoral sediment	• Seagrass beds (<i>Zostera marina</i>)	✓	✓	-	-	-	-	-
	• Maerl beds	✓	✓	-	-	-	-	-
	• Saline lagoons (+ SAPs)	✓	✓	✓	-	-	-	-
	• Mud in deep water communities	✓	-	-	-	-	-	-
	• <i>Serpulid</i> reefs	✓	✓	-	-	-	-	-
	• Flame shell beds	-	-	-	-	-	-	-
	• Native oyster beds	✓	-	-	-	-	-	-
	• <i>Atrina fragilis</i> fan shell	✓	✓	-	-	-	-	-
	• <i>Thyasira gouldi</i> northern hatchet shell	✓	✓	-	-	-	-	-
	• <i>Melanitta nigra</i> Common scoter	✓	✓	✓	-	-	-	-
	• <i>Funiculina quadrangularis</i> a sea pen	✓	-	-	-	-	-	-
• <i>Styela gelatinosa</i> a sea squirt	✓	-	-	-	-	-	-	
Offshore shelf rock	• Sea mounts & communities		-	✓	-	-	-	-
Offshore shelf sediment	• Sublittoral sands and gravels	-	(✓)	-	-	-	-	-
	• Carbonate mounds	-	-	-	-	-	-	-
Continental shelf slope	• <i>Lophelia pertusa</i> reefs	✓	✓	-	✓	-	-	-
	• Glass sponge communities	-	-	-	-	-	-	-
	• Blue whiting	-	-	-	-	-	-	-

Seascape, habitat or species		BAP	HSD	W&C	CITES	BERN	BONN	ASC
Oceanic seas	• Baleen whales	✓	✓	✓	(✓)	✓	-	-
	• Toothed whales	✓	✓	✓	(✓)	-	-	-
	• Dolphins	✓	✓	✓	(✓)			✓
	• Turtles	✓	✓	✓	✓	✓	✓	-
	• Basking shark	✓	-	✓	-	✓	-	-
	• Commercial fish species	✓	-	-	-	-	-	-
	• Common skate	✓	-	-	-	-	-	-
	• Deep-water fishes	✓	-	-	-	-	-	-
	• Harbour porpoise	✓	-	✓	✓	✓	✓	-

Key

BAP species or habitat has a plan prepared under the UK Biodiversity Action Plan

HSD species or habitat listed under an annex I, II, IV or V of the Habitats Directive, meets habitat definition or can be protected via SACs or SPAs

W&C species or habitat afforded protection under Schedule 1 or Schedule 5 of the Wildlife and Countryside Act 1981 and/or occurs within SSSIs

CITES listed under the Convention on the international Trade in Endangered Species of Flora and Fauna (CITES), Appendix 1 or II

BERN listed under Appendix II of the Bern Convention 1979

BONN listed under Appendix I or II of the Bonn Convention 1979

ASC covered by terms of the Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas (ASCOBANS), a regional agreement of the Bonn Convention

✓ direct reference.

(✓) reference implied or indirectly achieved.



English Nature is the Government agency that champions the conservation of wildlife and geology throughout England.

This is one of a range of publications published by:
External Relations Team
English Nature
Northminster House
Peterborough PE1 1UA

www.english-nature.org.uk

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Cover printed on Character Express, post consumer waste paper, ECF.

ISSN 0967-876X

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Middle left: CO₂ experiment at Roudsea Wood and Mosses NNR, Lancashire.
Peter Wakely/English Nature 21,792
Bottom left: Radio tracking a hare on Pawlett Hams, Somerset.
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