

REVIEW OF MARINE NATURE CONSERVATION

INTERIM REPORT

STATEMENT OF ENDORSEMENT

This Review of Marine Nature Conservation (RMNC) was established in 1999 in fulfilment of the Government's pledge to accompany the strengthening of protection for terrestrial wildlife sites with an examination of how effectively the system for protecting nature conservation in the marine environment, including inter-tidal and coastal waters, was working. The Review was conducted by officials in the Department of the Environment, Transport and the Regions' (DETR) supported by a Working Group drawing upon a wide range of interests.

This Interim Report presents the conclusions of the Review to date. It was prepared by the Secretariat and was subject to detailed consideration by members of the Working Group. The Report was presented to the eighth meeting of the Working Group on 23 March 2001.

This Report does not pretend to fully reflect the detailed views of all members of the Working Group, some of whom may have reservations about specific aspects. It does, however, have the support of the Group as a whole and reflects the consensus opinion which has emerged from the Group's deliberations. The Group has also given its general agreement to the next steps proposed as a way forward under (see paragraph 147).

The Working Group concluded that to meet the broad aims of achieving sustainable use and maintaining biodiversity in the marine and coastal environments eight key principles should be borne in mind:

- i. Action is required to address nature conservation in the marine environment. Retention of the status quo is not an option.
- ii. Government should make a clear statement of policy highlighting the key strategic objectives for marine nature conservation in the light of the need to ensure sustainable use and maintain biodiversity in the marine environment.
- iii. Consideration should be given to promoting a pilot scheme at the regional sea scale to demonstrate both the application of new concepts and examine how far the conservation management needed within the pilot area could be delivered through existing systems.
- iv. The separate consideration of marine nature conservation from the wider management of the marine environment, its ecosystems and resources is difficult, especially in offshore waters. Consideration of wider marine management is therefore crucial.
- v. The nature of the marine environment makes it difficult to consider in isolation issues within or outwith territorial waters. It is important therefore to adopt, as far as possible, a single common approach from the high water mark to the limits of UK jurisdiction, whilst recognising complications produced by jurisdictional boundaries.

- vi. Any new framework for marine nature conservation should be compatible both nationally and internationally with existing frameworks, with other developing proposals such as Integrated Coastal Zone Management, and with a wider approach to marine management.
- vii. In developing any new system for marine nature conservation existing frameworks should be used where possible with a key aim being the rationalisation and simplification of the current regulatory system whilst still ensuring proper regard is paid to conservation and environmental protection.
- viii. Conservation measures must as far as possible co-exist with and support other legitimate uses of the marine environment. National objectives need to be balanced against local needs and practicalities.

The Working Group also recommends that it should continue to play a role in the development of any new initiatives to ensure collective ownership of Review's final recommendations.

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I. Preface

1. The United Kingdom is exceptionally fortunate to have some of the most diverse marine habitats and species of any country in Europe. Some have estimated that up to half our biodiversity may be found in the seas around the British Isles. Sensible and sustainable management of marine habitats and species is essential to maintain their value. The marine environment also supports many jobs, is a source of renewable and non-renewable resources and is a place of enjoyment for many millions of people every year. Its conservation is bound up with the continued prosperity of the UK, transcending boundaries of conservation, industry, tourism, fisheries, recreation and leisure.
2. The more we have learnt about marine environment around the UK, the more we have come to appreciate that it is under considerable and increasing pressure from the effects of human activities, as manifested by demonstrable threats to the continued existence and health of marine habitats and species. There is debate about the precise scale of these impacts, though the major causes are well-evidenced. They include changes to long-term species composition through the effects of fishing; alterations to the overall quality and health of the seas from run-off, discharges or dumping; the impact of changes in water quality; more insidious effects on species and the food chain from factors such as endocrine disrupters; the impact of the exploitation of oil and gas reserves; and rising pressures throughout the coastal zone because of more leisure.
3. Many consider these pressures and threats have not been matched by an adequate response. They claim we lack effective measures either to protect nationally important marine sites, or habitats and species in the marine environment more generally. This claim has been reinforced recently by the perception of a growing inequality in conservation policies on land compared to at sea, as demonstrated by the substantial strengthening to the protection and management of terrestrial nature conservation afforded by the Countryside and Rights of Way Act 2000.
4. The Government acknowledged the need to address these matters in its decision to set up a Review of Marine Nature Conservation. This was in fulfilment of its pledge to accompany the strengthening of protection for terrestrial wildlife sites with an examination of how effectively the system for protecting nature conservation in the marine environment was working. This report presents the interim conclusions of that Review.

II. Introduction

5. The immediate genesis of this Review was the commitment given in the Government's September 1998 consultation document, "*Sites of Special Scientific Interest: Better Protection and Management*".¹ Those proposals to strengthen the protection and improve the management of terrestrial Sites of Special Scientific Interest (SSSIs) have now been carried forward in the amendments to the Wildlife & Countryside Act 1981 provided by Pt III of the Countryside and Rights of Way Act 2000.
6. Paragraphs B:14 – B:16 of the consultation document discussed the special issues associated with marine nature conservation sites, i.e. those areas below the low water mark generally considered to be beyond the jurisdiction of local authorities and outside the seaward boundary of SSSIs. The consultation document recognised that the creation of a network of Marine Nature Reserves (MNRs), as established under the 1981 Act, had not been as successful as hoped. It also acknowledged that other developments, especially the designation of marine sites under the European Union's Birds² and Habitats³ Directives, had focused attention on these matters. The time was ripe to consider whether further changes were necessary.
7. This report presents the interim conclusions of the subsequent Review of Marine Nature Conservation set up in 1999 to examine how effectively the system for protecting nature conservation in the marine environment was working. The Review has been conducted by officials in the Department of the Environment, Transport and the Regions' (DETR) European Wildlife Division (EWD). It is supported and advised by a Working Group, which draws upon a wide range of interests.
8. This report has been drafted by DETR officials. It has been substantially informed by the discussions of the Working Group. It draws together the wide range of expertise and opinion represented on the Group and is shaped to inform and influence decisions as to the future direction of marine conservation policy but in no way represents the Group's collective or individual views nor commits the organisations represented to its conclusions.
9. The report seeks to reflect consensus wherever achieved but does not gloss over disagreement. In fact, the Working Group revealed a considerable degree of agreement as to the problems faced by nature conservation in the marine environment and a widespread view that there was a need to revise and reform the present arrangements. Unsurprisingly, perhaps, there was less agreement as to what form any changes should take.
10. The Working Group was specifically charged to consider and report back on the options for improving protection for marine sites and species. It has interpreted that remit widely both in considering the geography of marine nature conservation out to the limits of the UK's Continental Shelf (UKCS) but also in looking at the interactions between nature conservation and the general protection of the marine environment.

¹ "*Sites of Special Scientific Interest : Better Protection and Management: A consultation document for England & Wales*", DETR, September 1998

² Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds

³ Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora

11. It was originally intended to conduct the Review in two phases, reflecting the somewhat different issues associated with coastal waters and the deeper seas offshore.⁴ In practice, the Group found that much with which it was concerned, straddled that indistinct boundary. There are important questions associated with the differing jurisdictions found in the marine environment, but the Group concluded that these had to be set against a continuum of ecological and environmental problems. This report therefore draws together conclusions applicable throughout the UK's marine geography whilst acknowledging where differences of approach in detail may be appropriate.
12. Nevertheless, this report is described as "interim" because it does not present definitive recommendations as to a preferred approach. Rather it seeks to establish the widest degree of support for general principles for taking forward marine nature conservation and then sets out possible means as to how these might be implemented. In some cases, these options could involve fundamentally different ways of delivering marine conservation policy. Early decisions on these strategic questions are needed but the report also concludes that, irrespective of the answers given, progress can continue to be made in the interim.
13. The structure of the report:
 - i. sketches out the Review's methods of working, including the papers and research it commissioned;
 - ii. summarises the major elements associated with the conservation value of the UK's marine environment;
 - iii. examines critically the development of conservation regulation and policy instruments in the marine area;
 - iv. postulates a series of broad principles which might govern future policy;
 - v. puts forward a series of strategic options, consideration of which should determine the direction of policy development: and finally
 - vi. suggests some opportunities for further work, research and policy testing which might better inform long-term choices, especially if these were to lead to legislation.
14. Because the Review has felt the necessity to range more widely than initially intended, any action that results from its conclusions will have to be applied at a number of different administrative and political scales. In coastal waters, it will predominantly be for the devolved administrations in Northern Ireland, Scotland and Wales (as well of course for the UK Government with regard to England) to decide if and how to take these matters forward. Outside the limit of territorial jurisdiction (i.e. broadly beyond 12 nautical miles), responsibility will primarily fall to the UK Government. However, here many issues can only be effectively taken forward either in the context of the European Union, to whom competence has been ceded

⁴ For the purposes of this paper, offshore waters are generally taken to be more than 3 nautical miles out to sea, and 'coastal waters' to be the area inshore of this point. This distinction is based solely on the general availability of biological information, a key consideration in the overall construction and functioning of a marine conservation framework. Inshore of 3 nm generally far more is known about the marine environment, with detailed information available for habitats and species and able to support equally detailed management measures.

in a number of important areas, especially perhaps fishing, or of wider international obligations and agreements to which the UK is party.

15. Whatever decisions are taken as to how to carry forward the Review's conclusions, it is the report's recommendation that the Working Group be kept in existence. The Group has proved an effective forum to discuss these issues and could continue to have an important role both to oversee any initiatives that are commissioned, and to monitor whatever long-term options may be preferred. It can also advise as to the way forward, debate alternatives and give ownership to issues and their solution.

III. Working Methods

16. It was concluded from the outset that the Review had to be informed by the widest range of interests. Marine conservation is not restricted to the concerns of those directly interested in the recording and protection of marine species and habitats, but affects, and is affected by, a wide range of other sea users. In order to ensure that all these interests should be as effectively represented as possible in the development of the Review's proposals, a Working Group was set up to inform and consider issues as they emerged.
17. The Working Group operated in an open manner, encouraging views from a wide range of opinion, and commissioning papers that were deliberately intended to stimulate debate. It also took a flexible view of the Review's terms of reference, as originally established, and amended these during the passage of its work better to reflect the issues that emerged. The current terms of reference of the Review and membership of the Working Group are given in Annex A.
18. The Review's aims were to:
 - i. evaluate the success of previous statutory and voluntary marine nature conservation measures;
 - ii. identify examples of both current best practice and existing barriers to the successful delivery of marine conservation objectives; and
 - iii. put forward practical and proportionate proposals for the improvement of marine nature conservation.
19. The Review was charged to take into account, but not to duplicate:
 - i. international, European and national marine conservation initiatives;
 - ii. current protection mechanisms in the inter-tidal zone and proposed changes to the SSSI regime;
 - iii. the implications of its recommendations for maritime users and other regulatory regimes both beyond territorial waters and in the inter-tidal area;
 - iv. other developing Government policies in the marine environment; and
 - v. recent developments in marine nature conservation thinking, including in other parts of the world.
20. The Review's initial focus was on marine nature conservation between the mean low water mark and the 12 nautical mile limit of UK territorial waters. However, the Working Group concluded that this geographic focus should be interpreted widely and found itself drawn into considering marine nature conservation across the whole continuum from the high watermark to the edge of the UK Continental Shelf. As a result, the initial remit to look at matters in England expanded, firstly to draw in Wales, and then subsequently to involve the other devolved administrations in Northern Ireland and Scotland.

21. The Working Group first met on 10 September 1999 and has, so far, met on a further seven occasions. The Review's original target was to complete its work by the end of 2000. However, the widening of the Review's remit led to this timetable being extended, with the prospect of a second phase of work in 2001. The Group has now concluded, however, that this interim report should cover all the major strategic aspects of the issues into which it was asked to look. Future tasks should then concentrate on developing whichever strategic options are preferred and/or overseeing any further programme of work.
22. The Review has benefited greatly from the presence on the Working Group of a wide range of expertise. In particular, the Review's work has been informed by a series of major papers commissioned from the statutory conservation agencies and led by Drs Tim Bines and Dan Laffoley of English Nature.⁵ This report draws on those papers extensively, though not uncritically. All were subject to consultation and discussion within the Group. A number of major issues for the Review were thereby highlighted on which there are different viewpoints, especially as to the way forward. This report tries to reflect that range of opinion.
23. The Review commissioned other supporting work. This included an exercise to draw together the range of the UK's obligations under international conventions and European directives relevant to the marine environment. It also involved commissioning two specific pieces of work from consultants, David Tyldesley and Associates. The first was to look at the specific question of the extent of local authority jurisdictions at the interface between terrestrial and marine administrations. Annex B is a brief summary of the conclusions to this work.⁶
24. Of more general importance was a second study from Tyldesley commissioned to look at the effectiveness of existing regulatory regimes which either delivered environmental controls in the marine environment or which were operating, at least in part, within an environmental framework. This was a substantial task and was carried forward both through a workshop, held in October 2000, where statutory regulators were brought together to discuss common problems, and follow-up work in which the regulators' assessments were tested against the views of marine users and 'customers'. Annex C is a summary of the workshop findings.⁷
25. This report reflects the process which the Working Group followed in discussing the issues raised by the Review. It begins by looking at why the marine environment is important from the standpoint of nature conservation, and highlighting priority elements and the pressures upon them. It then assesses the manner in which policy and regulation have evolved, especially in the last two decades, and attempts a broad-brush analysis of the successes and failures of that

⁵ See for example, Laffoley, D. d'A, and Bines T. 2000. "*Protection and management of nationally important marine habitats and species*". Prepared by English Nature based on the views of a sample of the members of the DETR Working Group on the Review of Marine Nature Conservation. Peterborough, English Nature. 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, 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. 29 pp.

⁶ A fuller report of the findings of this project is available as "*Extent of Local Authority Jurisdiction in the Marine Environment*", David Tyldesley & Associates for DETR, December 2000.

⁷ See D Tyldesley & Associates in association with Browne Jacobson Solicitors: "*Report on a Workshop to Review the Effectiveness of Statutory Regimes for Marine Nature Conservation*". A supplementary report on consultations with marine users is also available: "*A Review of the Effectiveness of Statutory Regimes for Marine Nature Conservation – Supplementary Report*".

process. Taken together, these analyses of the importance of marine nature conservation and the effectiveness of the manner in which it is protected and managed, lead to summary conclusions as to the need for action.

26. The report then draws together some general principles which its analysis suggests should govern marine nature conservation policy and practice and develops these into the presentation of strategic options for policy development. By way of conclusion, the report suggests a number of issues that could be advanced in the interim, for instance pending any legislation which it might be decided to promote.

IV. Nature Conservation in the Marine Environment

27. It is now over thirty years since the Nature Conservancy carried out the first formal consideration of a marine conservation policy for Great Britain. Its 1969 paper, "*Conservation policy in the shallow seas*",⁸ recommended that a scientific committee be established to:
- i. review the state of knowledge on inter-tidal Britain;
 - ii. recommend measures for safeguarding, as nature reserves, areas of key importance as representative samples of major shore types or as research and educational sites; and,
 - iii. consider whether conservation measures were desirable for areas below the low water mark.
28. Over the past three decades, a wide range of interests, including the academic community, the conservation agencies and voluntary groups, has focused on the collection of evidence both as to the conservation value of the seas around Britain and the pressures and threats acting upon it. As long ago as 1971, the Natural Environment Research Council (NERC) established a Working Party on Marine Wildlife Conservation which prepared a report on "*Marine wildlife conservation: an assessment of evidence of a threat to marine wildlife and the need for conservation measures*".⁹ That report led to further work to identify the impacts arising from activities that were increasingly affecting marine habitats around the coast and to make recommendations to identify and safeguard outstanding sites before it was too late. These concerns led to an inter-departmental working party on marine nature reserves in 1979, which eventually resulted in the inclusion of legislation to support statutory Marine Nature Reserves in the Wildlife and Countryside Act 1981.
29. Following the 1981 Act, a series of steps was taken to collect basic habitat information in the marine context. The results include volunteer projects, such as Coastwatch and Seasearch assembling data for coastal and sublittoral habitats respectively; major inventories of species such as the Seabirds at Sea surveys; and reviews of the potential impact of specific activities, such as oil and gas exploration and exploitation. 1987 saw the Nature Conservancy Council (NCC) launch the Marine Nature Conservation Review (MNCR), taken forward after 1991 by the Joint Nature Conservation Committee (JNCC). In the same year a programme was established to record seabird numbers and breeding success throughout Britain and Ireland.
30. Although it is recognised that our knowledge about marine habitats and species remains substantially more limited than on land, the results of these extensive efforts have been to provide the UK with a greater knowledge of its marine environment and its conservation values than most other countries in the world. However, that knowledge has also heightened concerns about the impact of human activities on the marine environment.

⁸ Natural Environment Research Council and Nature Conservancy, 1969. *Conservation policy in the shallow seas*. Joint action meeting with the Committee for Wales, Scottish Committee, the Scientific Policy Committee, Committee for England.

⁹ Natural Environment Research Council, 1973. *Marine wildlife conservation: an assessment of evidence of a threat to marine wildlife and the need for conservation measures*. London, Natural Environment Research Council (Publication Series 'B', No. 5).

31. The publication of the Marine Conservation Handbook¹⁰ in 1991 documented the scientific evidence for effects on the marine environment arising from major categories of human activities.¹¹ Information on the coastal margin was published in a more detailed fashion in the Coastal Directories,¹² prepared by JNCC, and the publications of the Irish Sea Study Group¹³. The JNCC has also since 1996 published fifteen volumes on the outcome of the MNCR¹⁴ begun in the late 1980s. The Estuaries Review¹⁵ synthesised what was known about the UK's estuaries and the threats facing them; determining that loss and damage to estuarine SSSIs was running at about twice the then national average for terrestrial sites. The Review resulted in the development of programmes to put in place multi-sectoral, voluntary estuary management plans. The 1990s saw further work on impacts in offshore and deeper continental shelf waters. At the international level, concern for the state of the North Sea led to a series of Ministerial conferences which stimulated the production of an atlas of the North Sea coastal margin and the Quality Status Reports for the North Sea. Wider concerns led to the amalgamation of the Oslo and Paris Commissions into the OSPAR process, concerned with the health of the waters throughout the north-east Atlantic.
32. One aspect where pressures have directly led to the gathering of information is the stimulus provided by oil and gas exploration. Over the last twenty years, more than 500 environmental surveys have been carried out in UK waters by the oil industry. Furthermore, since 1996, four wide area surveys of offshore waters have been conducted at a cost of some £6m. A series of strategic environmental assessments are now planned by the Department of Trade and Industry (DTI) with the eventual aim of covering the entire UKCS. The marine aggregate industry has also generated a significant amount of information about the marine environment. Since the early 1990s they have commissioned over 35 environmental surveys. There have also been several major research projects on the effect of marine aggregate extraction, habitat mapping and sediment transport commissioned by DETR, MAFF, The Crown Estate, the country agencies, the Marine Biological Association and the National Assembly for Wales.
33. Taken together, these initiatives have stimulated a greater concern for coastal and marine matters and a better understanding of how man interacts with the marine environment. This has been reflected in the progressive incorporation of conservation concerns in the policies of a number of economic sectors, and through such mechanisms has produced some effect on practical conservation.
34. As example, heightened awareness of the impact of fishing on marine ecosystems caused the International Council for the Exploration of the Sea (ICES - the main scientific advisors on fisheries to the European Commission) to found the Study Group on Ecosystem Effects of Fishing Activities. Its membership was expanded specifically to include someone working full time on nature conservation issues. Within the UK, a range of legislation has been introduced, such as the Water Resources Act 1991, the Water Industry Act 1991, the Transport and Works Act 1992 and the Sea Fisheries (Wildlife Conservation) Act 1992, all of which place varying degrees of environmental responsibility on relevant bodies to take account of nature

¹⁰ Eno, C. 1991. Marine Conservation Handbook. English Nature, Peterborough.

¹¹ The categories identified were - exploitation and cultivation of living and non-living resources, use of coastal land and water space, waste disposal, natural processes, coastal protection and sea defences, and scientific studies.

¹² JNCC coastal directories. Set of 17 regions: ISBN 1 873701 91 8. Peterborough, Joint Nature Conservation Committee. (Coastal Directories Series).

¹³ Irish Sea Study Group and Irish Sea Forum reports (Seminar reports produced since 1990). Liverpool University Press.

¹⁴ MNCR Area Summary Reports. Peterborough, Joint Nature Conservation Committee. (Coasts and seas of the United Kingdom. MNCR series.)

¹⁵ Estuaries Review (Set of 7 volumes: ISBN 1 873701 35 7). Peterborough, Joint Nature Conservation Committee.

conservation when carrying out their functions. Sea Fisheries Committees have, for example, moved during the 1990s from no formal environmental responsibilities, to having a duty to take account of the effects of fishing on the marine environment, to the position where an environmental advisor now sits as a member on each Committee.

35. By the mid-1990s, concerns about the impact of specific sectoral activities on marine nature conservation had evolved to a broader concern with the ecology of habitats and species. This perspective provided the basis from which advice was developed to underpin the implementation of Special Areas of Conservation (SACs) in the marine environment (European marine sites), under the EU Habitats Directive. The implementation of European marine sites has perhaps been most recently the key driver in influencing the understanding of impacts and their relationship to the ecology of habitats and species and stimulated the UK Marine SAC LIFE project. This involved synthesising knowledge on the conservation requirements of particular key habitats and species. The project was linked to the publication of the Marine Habitat Reviews prepared to support the OSPAR process addressing the management of the marine biodiversity of the north-east Atlantic. Each Habitat Review examines the sensitivity of habitats or species to human activities and natural events.¹⁶ The UK Marine SAC LIFE project also produced a series of best practice reports. These document the impact of various operations on features of international conservation importance and illustrate how such effects can be ameliorated or avoided.¹⁷
36. At the same time, more evidence has become available on wider, more insidious effects that might be arising in the marine environment, for example from the discharge of endocrine disrupters or through the serious and widespread impact of TBT contamination. Water quality issues, which had, on the whole, previously focussed on direct and obvious effects arising from sewage and nutrient contamination and the discharge of heavy metals and toxic waste, now began to be seen in a much wider context.
37. Finally, the growing concern with climate change and its possible effects has paid special attention to the coast and the effects of natural processes both here and in the wider marine environment. These include both the effects of sea level change on coastal habitats and the consequences of changes in mean sea temperatures which could have substantial impacts on marine species and habitats. The last point brings into focus another issue of growing concern – the impact of alien and invasive species. An example of the last which has demonstrated the extreme practical difficulties of dealing with these matters is the problem of marine micro-organisms introduced through the dumping of ballast water in UK waters originally taken on board in another part of the world.
38. The drawing up of the UK Biodiversity Action Plan (UKBAP) provided an opportunity to draw together this growth in information and understanding. A key route to implement the UKBAP is through targeted Habitats and Species Action Plans. Publication of the volume on maritime species and habitats¹⁸ illustrates not just a wider, multi-sectoral understanding of the impact of

¹⁶ The key habitats and species on which the Marine Habitats Review focus are - *Zostera*, intertidal sandbanks and mudflats & subtidal mobile sandbanks, sea pens and burrowing megafauna, brittlestar beds, *Maerl*, intertidal reef biotopes, infralittoral reef biotopes with kelp species, circalittoral faunal tuft biotopes and biogenic reef biotopes. (Jones LA, Hiscock K, & Connor D. W, “*Marine Habitats Review*”, JNCC, Peterborough, 2000.

¹⁷ The guidelines are for recreational user interactions, port and harbour related operations, the effects of fishing, managing the collection of bait and other shoreline animals, managing and investigating water quality in lagoons, managing and monitoring aggregate extraction and managing water quality impacts.

¹⁸ UK Biodiversity Action Group: *Tranche 2 Action Plans: Volume V – maritime species and habitats*: English Nature for the UK Biodiversity Group, 1999

human activities on marine biodiversity but also proposes practical measures to recover some of those populations and habitats that have been particularly badly affected.

39. This process mirrors similar initiatives in other countries and has led to the development of further thinking and information on the sensitivity of marine habitats and species to human impacts. For example, the development of the MarLIN project¹⁹ aims to capture the scale of possible and potential interactions between human activities and environmental effects. At the same time, world wide web-based systems being developed by both MarLIN and the National Biodiversity Network will make such scientific knowledge and evaluation more easily available.
40. Parallel to such environmentally generated initiatives, marine and coastal managers have also sought better to integrate their activities with environmental concerns. Good examples may be drawn from the ports industry who have developed, with English Nature, guidelines on the application of the EU Habitats Directive, as well as laying much greater stress on information exchange and environmental assessment through projects such as 'Ecoinformation' and, the soon to be launched, 'Ecoports'.
41. In summary, over the last thirty years a considerable weight of evidence has been gathered, both to demonstrate the importance of marine habitats and species in the seas around the UK and better to understand the impacts that human developments and activities may have, have had, and continue to have, on those marine ecosystems. The consequence has been to see considerable development in approaches to managing marine biodiversity in relation to the effects of human impact.
42. The overall conclusion, however, is not only that the marine environment is exceptionally valuable in terms of the habitats and species of which it is comprised, but also that this environment is under increasing pressure from a wide range of human activities. This is part of a broader, emerging international picture where it is now widely acknowledged in scientific circles that no oceans or seas in the world remain unaffected by human use. The next section of this report considers in broad terms, the policy and regulatory responses to these threats as they have been undertaken in the UK.

¹⁹ MarLIN, 1999, The Marine Life Information Network for Britain and Ireland. Plymouth: Marine Biological Association for the United Kingdom. www.marlin.ac.uk

V. The Effectiveness of Marine Environmental Regulation

43. Marine conservation in the UK has traditionally relied on both statutory and voluntary measures, some designed specifically for nature conservation, others, like environmental duties, giving indirect support to conservation objectives. However, below low water mark there is no equivalent to the Town and Country Planning system of development control that brings together much of the regulation over a wide range of activities in a common framework. (Nor is there any regulator who carries the breadth of duties and powers possessed by local authorities on land.) The management and consenting regimes for activities potentially damaging to the marine environment are largely sectoral, and environmental considerations are predominantly incidental to the main purposes and powers of the bodies which operate them.
44. The pattern of marine environmental regulation is further complicated by the differential impact of international, European and domestic obligations. As example, one can cite at the different levels:
 - i. **International conventions and agreements**, e.g. the United Nations Convention on the Law of the Sea, MARPOL for the control of discharges from shipping, CITES, the Bern and Bonn Conventions, Ramsar, the Biodiversity Convention, and OSPAR;
 - ii. **European Directives**, e.g. the Environmental Assessment Directive, the Habitats and Birds Directives and in due course, the marine applications of the Water Framework Directive; and
 - iii. **Domestic legislation and policies**, including the Marine Nature Reserve and species provisions of the Wildlife and Countryside Act 1981, the Food and Environment Protection Act 1985, and ‘whole sea’ policies such as those prohibiting incineration at sea or sewage sludge dumping.
45. Internationally, the UK has made many clear commitments to advancing marine nature conservation both within and beyond its territorial waters. For example, Articles 192, 193 and 194 of the United Nations Convention on the Law of the Sea include the requirement for States 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. In the same vein, the 1992 Convention on Biological Diversity (CBD), subsequently supported by the 1995 Jakarta Mandate, commits governments to protect the functioning of their marine ecosystems as well as establishing (or consolidating) representative systems of marine and coastal protected areas.²⁰ Chapter 17 of Agenda 21 (Oceans and All Seas) equally 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, including through their designation of protected areas.

²⁰ Recommendations for a programme of actions to implement this CBD with respect to marine and coastal biodiversity were subsequently made by the Subsidiary Body on Scientific, Technical and Technical Advice (SBSTTA) around the five thematic areas of - integrated marine and coastal area management, marine and coastal protected areas, sustainable use of marine and coastal living resources, mariculture, and alien species.

46. International obligations also exist at the regional level. One such commitment applying throughout UK waters is OSPAR,²¹ especially following the adoption in 1998 of the new Annex V relating to the conservation of marine biodiversity. The UK along with other Contracting Parties to OSPAR is helping to develop an approach to the conservation of habitats and species of importance in the north-east Atlantic including the identification of threatened habitats and species. These will require protection both through site-based and wider measures and will lead to the same situation now faced with the Biodiversity Action Plan where national mechanisms will be needed to fulfil international obligations and be reflected in maritime Biodiversity Action Plans.
47. However, international regulation of the marine environment is also strictly circumscribed. Not only are the above obligations applied much more widely than within UK waters but there are no powers for coastal States to adopt measures outside its territorial jurisdiction other than in exercising powers conferred by agreements such as UNCLOS.
48. These issues of jurisdiction are further complicated by the increasing importance of European Directives applying over both territorial waters and the wider seas where Member States exercise some jurisdiction.
49. The 1997 EC Directive on the environmental assessment of major projects introduced the need for full Environmental Impact Assessment (EIA) statements to be provided prior to consent for projects likely to have a significant effect on the environment. In recognition of the impacts that a range of activities have on the marine environment, the UK introduced new regulations to require EIA for sectors including oil and gas developments (including pipelines), marine fish farming, marine aggregate extraction and harbour works.
50. More specific to nature conservation, the European Union adopted the Birds Directive in 1979 and the Habitats Directive in 1992. Central to the implementation of the two Directives is the establishment of the *Natura 2000* network across Europe, comprising Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) respectively, to tackle the continuing losses to human activities of European biodiversity on land, at the coast and in the sea. (Any doubts as to the application of the Directives beyond territorial waters were removed by the judgement in the *Greenpeace* case in 1999.²²)
51. Mechanisms are available to assess development in relation to European sites (SACs and SPAs) and species on the continental shelf and territorial seabed, through the EIA Directive, and in future through the family of Marine Habitats Regulations which are being developed to implement the EU nature conservation directives beyond 12 nautical miles. These provisions reinforce existing national legislation such as the Food and Environment Protection Act 1985 (FEPA) which controls dumping and discharges from vessels, marine structures etc for disposal and construction purposes and the Environment Agency's powers to control discharges from pipelines under the Water Resources Act 1991, as well as other provisions scattered through legislation that can be used in support of marine conservation. However, these last are for the most part subsidiary to the principal economic-related duties of regulators and can be difficult to use.

²¹ OSPAR is the acronym for the Convention for the Protection of the Marine Environment of the North East Atlantic. It came into force in 1998 and replaced the former Oslo and Paris Commissions which had a more limited focus on marine pollution from ships and land-based sources respectively

²² *The Queen -v- The Secretary of State for Trade and Industry ex parte Greenpeace Limited* (Case no: CO/1336/1999)

52. Furthermore, the provisions of the Habitats Directive do not provide a comprehensive nature conservation framework in the marine environment. Analysis by the statutory conservation agencies has shown that whilst the *Natura 2000* network will play a valuable role in the marine environment, only around 60% of specified site-based actions for habitats and species can be delivered through the existing framework. For the remaining 40% there is no effective delivery mechanism. This arises due to significant gaps in coverage of marine habitats and species by the Habitats Directive, reinforced by shortcomings and gaps in existing measures for species conservation and for management of the wider sea. The evolution of Annex V to OSPAR seems likely to reveal the dimensions of this ‘gap’ to a greater degree.
53. Other concerns over the framework to implement the Habitats Directive are also becoming apparent. These relate to alleged weaknesses in supporting legislation, how wide to cast the net to assess ‘in combination’ effects, difficulties in dealing with habitats on mobile coasts, and the general lack of information on which to base decision making, and the development of a level playing-field across Europe. Finally, uncertainties remain as to how the implementation of the Directive in the marine environment will interact with other areas of European competence, especially the operation of the Common Fisheries Policy (CFP).
54. It may well be significant that so much of the policy and regulation governing the marine environment and introduced in the past decade has been generated by international or European obligations. By contrast, domestically there are currently relatively few statutory measures available that have been designed in whole or part specifically to deliver marine conservation in UK waters. (Though there are a number of environmental protection measures which indirectly contribute to marine nature conservation objectives.) Principal amongst those available are:
- i. Marine Nature Reserves (MNRs), which offer limited protection to habitats and species in just a few small scattered areas; and
 - ii. Schedule 5 of the Wildlife and Countryside Act 1981, which provides a mechanism to afford protection to specified marine species and which was enacted to add to the provisions of Protection of Birds Acts 1954 and 1967 and the Conservation of Wild Creatures and Wild Plants Act 1975, following the UK’s signature of the Bern Convention.²³
55. The ambition to create a comprehensive network of MNRs is widely perceived to have failed, as evidenced by the very small number of areas declared in the past twenty years²⁴, through the extreme difficulties of securing agreement to take these forward. Failure may relate not so much to the inadequacy of the legislation, as to the policy position that total agreement between all relevant interests is needed before any MNR can be put in place. Where established, however, MNRs have proved useful test beds for marine conservation management. Legislation for marine species is also limited and has been criticised, principally due to the inability to give any real effect to measures through effective enforcement.
56. The Countryside and Rights of Way Act 2000 substantially strengthens the provisions for the protection and management of nationally important terrestrial wildlife sites (SSSIs) in England and Wales. However, it makes virtually no specific reference to the marine environment, except

²³ Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention)

²⁴ Currently, only 3 Marine Nature Reserves have been formally established – at Lundy Island, off the Pembrokeshire coast, and in Strangford Lough in Northern Ireland. A fourth in the Menai Straits has been under discussion for many years.

to amend the provisions for protecting species to include a new offence of recklessly disturbing marine mammals. Nevertheless, the new duties on DETR and NAW will apply throughout the territorial waters of England and Wales, and changes to the SSSI legislation, especially with regard to new duties on public bodies and requirements for them to consult the statutory conservation agencies before carrying out works or granting consents, open the possibility of exploring the use of further amended SSSI powers in a wider geography within coastal waters.

57. Running through all these matters is another thread – the difficulty of enforcing environmental regulation in the marine context. Some of the problems are organisational; a lack of bodies with appropriate powers or a reliance on those whose major concerns are with other matters, such as navigation, or whose priorities tend to be terrestrial, such as many local authorities or the Police. But there are also perceived to be basic problems in enforcing in an environment which is fluid and where most users are transient in time and space.
58. The history of environmental legislation over the marine area in the last twenty years is mixed. It is certainly untrue to describe the marine environment as unregulated. However, until now measures and proposals put forward for marine nature conservation have usually been developed in an *ad hoc* manner, responding to specific events, new legal obligations, often at the European and international level, and public pressure. Sometimes this may have been an understandable response to particular circumstances but there has not been a systematic and co-ordinated approach to the subject nor the emergence of any overall vision and objectives for marine nature conservation in the UK.
59. The lack of an overall framework for marine conservation has produced a number of consequences. Among the most significant are –
 - i. The failure to develop a comprehensive inventory of nationally important marine habitats and species as a basis for consistent decision making across the wide range of regulators;
 - ii. Variations in the interpretation of environmental powers and duties, leading to inconsistencies in the application of conservation objectives between regulators;
 - iii. Duplication of powers and confusion over what consents may be required for particular activities or developments. (This is especially true in coastal waters where the number of regulators is far greater, but developers offshore have also claimed that there are confusions over what consents may be needed.); and
 - iv. At the same time, gaps in regulation, which if recognised, have generally been filled in an *ad hoc* manner without reference to any overall framework.
60. The conclusion is that the present system draws criticism from regulators, the regulated and conservation interests. No one believes that it is satisfactory and everyone concedes that there is a need for rationalisation, many believing that this should be in the context of a root and branch reform.

VI. Summary of the Current Position

61. The marine environment contains some of the most important elements in the UK's biodiversity. Yet, even after half a century of research effort, its components remain relatively unknown and unmapped. Research into marine habitats and species has been extensive but we still lack a comprehensive picture of the incidence and distribution throughout the territorial seas over which the UK has jurisdiction of those elements of marine nature conservation to which the greatest priority ought to be afforded. At the same time, we have become more and more aware of the pressures acting upon the marine environment. Whilst some may challenge the extent of human impacts, few seriously doubt that these are considerable and that evidence strongly suggests that their effects are growing.
62. However, the relationship between the growing realisation of the value of the marine environment and the accelerating pressures upon it has not produced a coherent response. The marine environment certainly does not lack environmental policies and regulation but these can be characterised as generally being haphazard responses to specific issues or particular stimuli (often deriving from outside the UK). Despite the considerable number of measures promoted in the last two decades, the general approach to marine conservation has been one of non-intervention in comparison to the active management framework for conservation increasingly promoted on land.
63. There is little to warrant this difference. Both terrestrial and marine conservation require legal and policy frameworks in which to work, involving a mix of site-based habitat and species protection and wider measures. This could be achieved by a combination of stronger legislation, partnerships and placing existing sectoral approaches in a clearer common context. A particular priority is the development of a common approach to the identification of vulnerable and/or nationally important, marine habitats and species.
64. But perhaps the key is the need for an integrating framework for national marine conservation measures within UK waters. The benefits of such an approach relate to consistency, co-ordination of action, application at the most appropriate scale and previous experience. There are also international obligations that may be better delivered through such an integrated approach. Many elements that could contribute to an integrated approach to marine nature conservation already exist, or are in the course of development. However, they lack an overall coherence which can provide an effective implementation framework to carry them out.
65. Nor would such an approach be solely for the benefit of the conservation interest. The present piecemeal approach to policy and regulation provides duplication, wasted effort and, sometimes, contradictory signals to those who legitimately operate within the marine environment. Frequently it has failed to promote either effective conservation or any guarantee of the sustainable continuation of other activities. Only with more effective management and protection, can the marine environment continue to flourish in support of marine industries, fisheries and recreation.
66. There is therefore a demonstrable case for a strategic, marine nature conservation framework. The current reactive approach, with its lack of any effective, cohesive supporting legislative or policy base, could be developed into a strategic, co-ordinated, proactive approach that provides practical mechanisms to manage marine biodiversity. Such challenges, particularly as applied to implementation in offshore areas, have already been encountered elsewhere in the world, notably

in Canada and the United States, and similar issues are now starting to be considered in a European context by OSPAR, ICES and the European Environment Agency.

67. However, it is equally important that the development of such a national marine conservation framework be aware of, and integrate with, wider environmental concerns. It must be squarely placed within the wider agenda of sustainable development. Within the marine environment, conservation issues are often impossible to isolate from wider environmental concerns and their protection and management requires the co-operation of other sea users. Any new framework for marine conservation must have at its heart, a clear understanding of its relationship to the strategic environmental management of the sea, and the active participation and co-operation of other marine regulators and sea users.
68. The remainder of this report therefore considers the principles which might underlie an integrated marine conservation framework for the UK, outlines the elements which such a framework would need to include, the major problems it would have to resolve, and discusses how it could be developed.

VII. Principles for an Integrated Framework

69. There is general agreement that any framework for marine nature conservation should have the following aims :
- i. To safeguard the overall quality of our seas, its natural processes and its biodiversity;
 - ii. To promote effectively in the public interest the sustainable use of its resources; and
 - iii. To provide protection to those species and habitats which are of particular conservation concern and/or are nationally important, both through the identification of special areas and wider measures.
70. The delivery of these aims could adopt five general principles. First, that the success of any marine conservation programme is dependent on establishing, from the outset, an overall approach encompassing clear criteria for the identification of nationally important marine wildlife. Second, that effort needs to be invested at the most appropriate spatial scales if national marine conservation measures are to succeed. Third, that conservation measures need to be developed. Fourth, that the interests of other marine users are recognised. And fifth, and finally, that there is a need to minimise the potential plethora of offshore designation types, terms and regulation to those which are essential to deliver the primary aims.
71. Any framework will need to include a balance between:
- i. a network of marine protected areas;
 - ii. the conservation of marine species; and
 - iii. measures which support marine conservation in the wider seas.
72. A key component of any framework must, therefore, be the ability to identify and give statutory protection to sites for the conservation and management of nationally important wildlife and habitats, as well as to confer adequate protection to wide ranging species in UK waters. The framework should:
- i. complement approaches already established on land for the conservation and management of nationally important wildlife and those more recently introduced on land and sea for internationally important habitats and species;
 - ii. recognise where the achievement of common conservation purposes on land and at sea require the adoption of different delivery mechanisms;
 - iii. increase understanding, co-operation and common approaches amongst regulators and users, thereby encouraging their willingness to act in ways appropriate to the sustainable conservation of the marine environment; and
 - iv. be based on the best available scientific knowledge about the ecological requirements of marine habitats and species.

73. Developing a framework within which to apply national marine conservation measures is, however, a challenging process. Its overall design is crucial to the benefits arising from, or the failures of, the ensuing actions to conserve and manage marine wildlife. Many factors must be considered and balanced in deciding on the approach to be recommended including:
- i. securing clear objectives which command the widest consensus and which build, where relevant, on existing UK nature conservation policy and procedures, as well as experience from overseas;
 - ii. the cost and effort required to implement the framework, and how this can be reasonably balanced to achieve the maximum benefit for marine conservation while involving an acceptable regulatory burden;
 - iii. the level of information available, or that could reasonably be made available, to support the framework – requiring too much information would result in higher costs and slow or patchy progress, whilst requiring too little would lead to an increased reliance on a precautionary approach based on shallow or patchy knowledge and commanding little confidence amongst users;
 - iv. the ecological constraints shaping the marine environment, the processes responsible for its patterns, and the dominant scales of physical and biological variability involved, reflecting the fact that marine habitats and species tend to be more mobile and seasonal than those on land;
 - v. the need to rationalise and minimise the different designation types and terms, with the objective of looking for single site-based solutions that are sufficiently flexible so as to support conservation and management action arising from a variety of legal and policy sources;
 - vi. an understanding of the nature and structure of a framework which will integrate with, but neither duplicate nor conflict with, established policy and procedures in other sea use sectors e.g. oil and gas, aggregates, fisheries, shipping etc; and
 - vii. how well any framework fits with existing domestic and European legislation and international obligations.
74. In effect, there is a need to balance these issues so that whatever framework may be put in place is practical, achieves maximum conservation benefit but is well understood by, and integrates with, other marine users, and incurs the least necessary regulatory burden. Many of the elements needed to build this framework already exist in the UK's waters, albeit often in a fragmentary or rudimentary state. The aim should be harmonisation and consistency, including with other UK wildlife policy and legislation, mindful of the need to fulfil existing UK obligations in a manner that is comprehensive but also simple and straightforward in approach.
75. It will also be essential to ensure that whatever framework is put in place for marine nature conservation, meshes within the wider principles of sustainable development which the Government has espoused as the cornerstone of its environmental policy. The exceptional importance of working with 'sea-users' makes that relationship an especially crucial one.

76. A final issue is how any principles should be formally promulgated. There would be advantage in ensuring that all interests were aware of the common basis upon which policy was to be taken forward. The means could vary. Statutory duties would, of course, require legislation and might raise issues of competence both at the UK and international levels. An alternative could be a formal policy declaration by which Government committed itself to an agreed set of principles which might then serve as an overarching framework for future action.

VIII. Towards a Marine Nature Conservation Strategy

77. In considering the components of a framework for marine conservation, this section develops a possible approach in more detail, taking the general principles sketched out in the previous section, i.e. clear criteria, appropriate scale of actions, concern for the interests of other users, and economy of effort in relation to existing and potential measures. The detailed nature of any framework adopted will, of course, depend to a great extent on the objectives adopted, possibilities for which were discussed earlier.
78. At a broad level, an overall balance must be achieved between species protection and ecosystem conservation throughout the wider seas, and area-based measures. Too few area-based measures may produce further damage to sensitive marine landscapes, habitats and species. Too many, and the benefit of such measures as a conservation tool may be eroded by overly complex enforcement and monitoring, or confusion due to the number of conservation initiatives in any given area.
79. Any effective approach to national marine conservation must therefore address the ecological requirements of marine wildlife at an appropriate spatial, and, for species, temporal scale. These may range from tackling diffuse issues such as shipping and pollution throughout the seas, to the management requirements of habitats or species at specific localities. At the heart of such issues are the practicalities of management and monitoring at sea and their associated costs and difficulty. Marine protected areas must remain an important component of any approach but only as part of the overall framework that will be required to conserve and manage nationally important marine landscapes, habitats and species.
80. However, before discussing the elements that might make up this framework, there are two important, initial considerations, the treatment of which will greatly influence the approach adopted, irrespective perhaps of the objectives sought. The first is how far the different jurisdictions that apply to the marine environment should influence any framework which is developed. The second is the degree to which the delivery of marine nature conservation can be separated from wider environmental issues. The two are connected.
81. There are three broad jurisdictional zones with which any framework for marine conservation has to be concerned. The first is the interface between the existing terrestrial conservation system and coastal waters, including the inter-tidal area between high and low water marks. The study commissioned from David Tyldesley and Associates demonstrated how complicated relationships at this boundary have become, at least so far as local authority jurisdiction is concerned. The second is administration between low water mark and the limit of territorial jurisdiction, i.e. normally 12 nautical miles. For these waters, the devolved administrations have responsibility to the same degree as they do for other functions on land with respect to primary and secondary legislative powers and policy and administrative responsibilities. The third is beyond 12 nautical miles, out into the wider sea to the limits of UKCS. Here, any jurisdiction exercised by the UK Government will be heavily tempered by European and international considerations.²⁵

²⁵ None of these divisions is absolute. Local authority jurisdictions vary greatly, sometimes being influenced by historic rights or charters, e.g. the City of Bristol's jurisdiction over parts of the Severn Estuary. By the same token, between 6 and 12 nautical miles from baseline, a number of European States have customary, bilateral fishing rights which continue to be recognised within the CFP

82. As illustration of the last, the UK has given over competency outside 12 miles, and in specific ways between 6 and 12 miles, to the EU through the Common Fisheries Policy. Thus any measures that are desirable to put in place for conservation outside 6 miles and that may interact with fisheries measures need to be agreed through an appropriate European route. However, the High Court judgement in the 1999 *Greenpeace* case established that the Habitats Directive applies to both territorial waters and the UK Continental Shelf and superjacent waters. Contracting parties to OSPAR who are also Members of the European Community will face the same issue over implementing any proposals for marine wildlife under Annex V.
83. However, in addition to formal jurisdictions, there are questions of practical ability to deliver any marine conservation action out to the limits of UKCS. Measures and approaches which may be appropriate for coastal waters may prove more difficult to deliver operationally further out to sea. As example:
- i. broadly, information on habitats and species decreases with increasing distance from the coast, with c.3 nautical miles from the shore representing something of an ‘information watershed’ in UK waters;
 - ii. the cost of gathering data, and monitoring habitats and species, generally shows the reverse trend and increases significantly with increasing distance out to sea, due to greater transportation and equipment costs;²⁶
 - iii. the offshore environment is generally more uniform than the coast, dominated by larger scales of time and space, with changes occurring over seasons or decades and large distances. Recognisable seabed features may extend or be distributed over larger areas than nearer the coast providing a greater scale of conservation interest; and
 - iv. the scope of regulation of human activities to support conservation, protection and management becomes increasingly focussed further offshore with a marked reduction in the range of key players, largely concentrated within Government, e.g. oil and gas extraction, fisheries and shipping.
84. The same considerations may influence the second preliminary consideration - the degree to which nature conservation can be distinguished from wider environmental issues. In broad terms, there seems less effectiveness in concentrating separately on nature conservation matters the further offshore one goes. In the deeper water, the interactions with other aspects of natural heritage (MEHRAs, fisheries’ closed areas), enjoyment (tourism, leisure, education), non-nature heritage values (marine archaeology) and general issues of marine pollution or the wider environmental health of the seas grow greater. Any approach thereby requires a wider grasp of the interactions between nature conservation and other environmental issues.
85. The resolution of this matter may go somewhat beyond the initial scope of this Review, though it is clear that such a resolution is needed, and will exert a considerable influence over any framework adopted. Although not all members of the Working Group agreed, there was a strong majority which took the view that a wider approach to the protection and management of the marine environment, going beyond specific issues of nature conservation, had obvious advantages in offshore waters and related better to the jurisdictional issues discussed above.

²⁶ It is worth noting, however, that technological developments are increasingly providing the potential through means such as remote sensing to gather data in deeper waters more efficiently.

86. It is therefore concluded that the implementation of any framework for marine nature conservation must incorporate significant variations in implementation – though not in underlying objectives and principles - to reflect the very different legal and other contexts that distinguish coastal waters and the offshore seas. For the latter, a broader environmental framework looks sensible and better related to the dominance of Government as regulator and key relationships to European and international obligations. For the former, it looks more practical to promote an approach which recognises the continuing relevance of sectoral interests and seeks to build common principles and a common approach to conservation objectives within these.
87. However, where there was unanimous agreement was that it was essential to develop an overall approach that acknowledges and is generally complimentary between the different geographies of the coast, inshore and offshore waters. A robust bridge has to be built between the levels of information available, and jurisdictional issues associated with, offshore areas, and the more detailed regulatory framework and associated implementation mechanisms more prevalent closer inshore.

The Criteria to Construct Any New System

88. Within the principles sketched out in the previous section, any new framework ought to work within clearly defined criteria for the identification of nationally important marine wildlife. At the simplest level, the purpose of the system should be so as to achieve the delivery of measures for nationally important marine habitats and species. Such must include issues of ecological coherence and the role of site protection and should ideally be consistent with long-standing criteria that have been adopted for the conservation of wildlife on land. The implications are that conservation and management of marine habitats and species needs to focus on taking both :
- i. a comprehensive and consistent approach towards protecting and managing all the best examples of habitats and species throughout the wider sea; and
 - ii. particular conservation, protection or management measures to maintain or restore the conservation status of those habitats and species which by virtue of their ecological characteristics or situation require such additional actions.
89. Well-established criteria are already available from terrestrial experience to enable the identification of both the best examples of habitats and species and the case for special measures. Application of these criteria in the marine environment might need some amendment. The paucity of information on some habitats and species might lead subsequently to discovery that some are not as rare as currently limited searches for them suggests. But in seeking to identify the best examples, the areas selected might:
- i. contain examples of habitats/biotope types, habitat complexes, species, ecological processes or other natural characteristics that are typical and representative;
 - ii. have a naturally high diversity of habitats or species, or include highly varied habitats or communities; and
 - iii. have a high degree of naturalness where habitats and species are still in a very natural state as a result of the lack of human-induced disturbance or degradation.

90. It is well-established practice that there are situations which justify special measures including where:
- i. a habitat is assessed as being rare because it is restricted to a limited number of locations in UK waters or 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 and in relatively low numbers. In the case of a highly mobile species, the total population size may determine rarity;
 - ii. a sensitive habitat or species is one that is easily adversely affected by human activities, and is expected to recover only over a very long period, or not at all;
 - iii. 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 is a keystone species with a controlling influence on a community;
 - iv. a habitat or species has experienced a significant decline in numbers, extent or quality;
 - v. a globally significant proportion of the habitat or species occurs within the UK; and
 - vi. there is potential for the rehabilitation or re-creation of habitats.
91. There is already a great deal of work within coastal waters upon which the application of these criteria could be founded. A comprehensive appraisal of important marine habitats and species and their scale and distribution within UK waters, will require the drawing together of that work, incorporating the processes currently in train to deliver the EU Habitats Directive in offshore waters, the on-going OSPAR Annex V process and the now extensive material available through the JNCC-led Marine Nature Conservation Review, and work on European marine sites. It will be essential both to build on this work and ensure that any criteria adopted are compatible with those emerging elsewhere.

The Importance of Scale

92. The second major issue any effective framework faces is to direct policies at the most appropriate and effective scale. The simplest approach may be to consider the application of policies at three ecological levels:
- i. a wider sea focus which includes all territorial waters, the continental shelf and superjacent waters under UK jurisdiction;
 - ii. a regional seas approach based on ecologically meaningful subdivisions of the wider sea and incorporating within it a classification of marine landscapes; and
 - iii. localised protection, based on site designations.
93. The aim of this ‘nested approach’ would be to deliver conservation action throughout UK waters within an ecologically meaningful framework, supported by appropriate conservation mechanisms applied, where needed, to conserve, protect and manage nationally important examples of marine landscapes, habitats and species. It would also be essential to relate any differences which emerged from the scales of ecological issues addressed to the different scale

for the implementation of any policy framework, for example site protection vs. wider measures. In all cases, there might be a case for some form of marine protected area but the characteristics and means of application could vary significantly depending on the scale to which they are applied.

A wider sea focus

94. There is general agreement that a wider sea focus, covering all waters under UK jurisdiction, is necessary to address factors affecting overall marine ecosystem health and functioning, as well as the conservation, protection and management of wide ranging marine species which may use UK waters.
95. Much effort is already focussed at this level, including the implementation of international conventions and agreements, European Directives and policies, and domestic 'whole sea' policies. At the wider sea scale, priorities must be a better understanding of:
 - i. how to maintain or enhance marine environment ecosystem health through, for example, more detailed considerations of the links between marine wildlife and diffuse pollution issues;
 - ii. how to recognise when environmental change is occurring, its cause and effect, and how this can influence the overall health of marine ecosystems and the distribution of habitats and species;
 - iii. how to secure integration of sea-use management across sectors, through well structured and effectively targeted communication within (and between) the various management levels, supported by appropriate planning and management frameworks; and
 - iv. how to report more effectively on marine ecosystem health through the development of appropriate indicators.²⁷
96. At the wider sea level, it will readily be recognised that policies will be broad-brush and based on their relationship to the general state of the marine environment. Delivery will need to be in the context of the limits on UK competence and will frequently require European or international agreement to take forward. It is at this scale that the arguments are strongest for a strategic environmental approach, in which conservation objectives are included within a more general context. One idea that has been promoted to reflect this is that Government might seek to introduce a general 'duty of care' for the marine environment.

A regional seas focus

97. This is the scale that has excited growing interest, especially in the context of implementing marine nature conservation around the UK in a manner that is meaningful and structured, but also ensures that marine conservation can be consistently expressed at a scale relevant to other sea users. As example, OSPAR has agreed that such a framework, based on biogeographical

²⁷ Despite the considerable interest currently in environmental indicators, especially as reflected in the Government's publication of its *Quality of Life* indicators, marine indicators remain very poorly represented in the published material. DETR is currently pursuing work on how to determine appropriate marine indicators as is the Centre for Environment, Fisheries and Aquaculture (CEFAS), an executive agency of MAFF, in conjunction with the Marine Pollution Monitoring Management Group.

units across the north-east Atlantic, would be an essential component of any approach to establish and implement its recommendations on marine habitats and species. A similar approach has been promoted to deliver an ecosystem-based solution to European fisheries problems and to provide the context for the implementation of national and international commitments, such as the Biodiversity Action Plan and the Habitats and Birds Directives, throughout UK waters.

98. The adoption of a regional seas approach could aid understanding of the marine environment by enabling marine biodiversity to be described at a scale that more readily relates to how the sea is used. In particular this approach would provide a framework:
- i. to support an ecologically meaningful approach to the identification of nationally important marine landscapes, habitats and species for conservation action;
 - ii. to implement OSPAR recommendations on marine biodiversity;
 - iii. to break down Biodiversity Action Plan targets to a more deliverable level;
 - iv. to express marine biodiversity objectives at an equivalent scale to that within other sectors, such as inshore fisheries management, Regional Development Agencies, and any possible, future regionalisation of the Common Fisheries Policy; and
 - v. to provide a basis for regional assessments of the marine resource to implement specified regional-based initiatives, such as Particularly Sensitive Sea Areas.
99. A regional seas approach could be defined on the basis of administrative or ecological boundaries. The opportunities for the former are limited, 'sea areas' used in shipping forecasts are a possibility, but a system based on ecologically meaningful biogeographical provinces may be the most logical way through which to articulate and implement marine biodiversity initiatives.²⁸
100. Much work has already been carried out by the conservation agencies as preliminary to adopting the criteria for a regional seas approach. An example is the approach discussed by the OSPAR workshops held at Oban and Brest in 1999 and Vilm in 2000, which is based on a synthesis of existing biogeographical classifications, combined with research on biological distribution patterns, and oceanographical, climatological, geological and geographical information. Although still under discussion, the OSPAR framework provides a structure within which to consider what would be needed to provide an effective and meaningful framework for UK waters.
101. The UK is located within two of the biogeographical units proposed by OSPAR – the Boreal - covering Shetland, Orkney, the east coast of Scotland, the east and south coast of England and the Irish Sea; and the Boreal- Lusitanian - covering the southwest approaches, the west coast of Ireland, the west of Scotland and the Outer Hebrides. Such a framework, consisting of only two distinct areas, would provide too coarse a scale within which to implement national marine conservation initiatives. Further subdivisions would be required but could be based on factors

²⁸ Such an approach is already a commonly used basis on which to select marine protected areas e.g. IMO criteria for Particularly Sensitive Sea Areas, IUCN guidelines for establishing marine protected areas, Natura 2000, Baltic Sea Protected Areas, Nordic Council of Ministers, OSPAR Annex V: Strategy on the Protection and Conservation of the Ecosystems and Biological Diversity of the Maritime Area 1998.

that are known to influence our marine ecosystems.²⁹ Overlaying these factors on the OSPAR framework could result in a total of 10 - 14 regional areas for the waters around the UK.

102. The regional seas approach has the potential to articulate and implement national marine conservation policy and programmes at a meaningful scale. There are, however, issues that need to be resolved before any such framework can be established and implemented. These include the definition of boundaries in a three dimensional environment and any relationship to the sediment cell approach taken in inter-tidal habitats. Nevertheless, a regional seas approach ought to facilitate meaningful comparative assessment of marine protected areas and other measures to be made in a consistent manner similar to that used on land.
103. The development of a regional seas focus could also provide a context within which to implement a new approach to resolve how best to conserve and manage marine wildlife, using site-based mechanisms, in offshore waters. This will need to operate on the lower levels of environmental information which may be all that is available offshore and in a manner that can be applied, if necessary, over larger areas of sea in the least burdensome manner.
104. One approach that has found favour in some parts of the world is that based on geophysical features recognising, as on land, that landscape controls, can be used as a surrogate for, the biological communities it supports.³⁰ This approach draws on the realisation that policy should have as a priority the conservation of representative *spaces* or *landscapes*, rather than the preservation of individual species. In the UK, DETR has recently funded the British Geological Survey and CEFAS to consider the usefulness of existing geological data for habitat mapping. This exercise is already throwing up some of the complications that can arise when information collected for geological purposes is put to use by biologists. Nevertheless, there is widespread agreement that moving towards an ecosystem approach (using landscape types as a surrogate) may often be more effective than those based on single species.
105. The marine landscapes approach could form a useful context for more local, site-based delivery within any national marine conservation framework, allowing the identification of convenient and recognisable management units within the wider context of the regional seas approach. If implemented in a structured and comprehensive manner, marine landscapes might:
 - i. resolve the problem of how to implement site-based measures in offshore areas, where knowledge is generally less, and the costs of gathering information, even if practical, high;
 - ii. provide an appropriate scale in relation to other area-based sea uses such as aggregate extraction, dump sites, pipeline and cable laying, oil and gas licensing, and area-based fisheries management; and
 - iii. demonstrate ecologically meaningful units on which to base environmental assessments to gauge the likely effects arising from possible developments.

²⁹ Examples of the factors which could be called into play are water depth and temperature, geology, turbidity and salinity, frontal systems, wave height and currents.

³⁰ Such approaches are being developed in Canada which has the longest coastline in the world, bordering three oceans. An approach, using geophysical features within a defined hierarchical classification system, has been put forward as the only feasible way to tackle marine conservation in Canadian waters due to the difficulty of obtaining sufficient biological data for widespread direct mapping of community types. Similar considerations are influencing developments in the United States where suggestions have been made that hydrographical features should form the basis for conservation of pelagic ecosystems.