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MARINE AND COASTAL BIODIVERSITY: REVIEW, FURTHER ELABORATION AND REFINEMENT OF THE PROGRAMME OF WORK

Summary report of the Ad Hoc Technical Expert Group on Marine and Coastal Protected Areas

Note by the Executive Secretary

EXECUTIVE SUMMARY

An Ad Hoc Technical Expert Group on Marine and Coastal Protected Areas was established pursuant to programme element 3 of the programme of work on marine and coastal biological diversity (decision IV/5, annex). The purpose of this Group was to assist SBSTTA in its deliberations on the issue of marine and coastal protected areas. The mandate of the Group was elaborated by the Executive Secretary and endorsed by SBSTTA at its fifth meeting in recommendation V/3, as follows:

(a) Identify pilot research and monitoring projects, based on current proposals and ongoing projects aimed at assessing the value and effects of marine and coastal protected areas or similarly managed areas on sustainable use of marine and coastal living resources;

(b) Review the desk-study called for in the operational objective 3.1, activity (c), of the programme of work on marine and coastal biological diversity;

(c) Identify linkages between marine and coastal protected areas and sustainable use of marine and coastal biodiversity;

(d) Prepare recommendations on types of research to be carried out to understand the effects of marine and coastal protected or closed areas on population size and dynamics, subject to national legislation.

* UNEP/CBD/SBSTTA/8/1.

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The work of the Group relates to operational objectives 3.1 and 3.2 of the programme of work on marine and coastal biological diversity.

In deliberating the value and effects of MCPAs, the Group recognized the many benefits of that MCPAs can create, relating to both conservation and sustainable use of biological diversity. Such benefits include protecting ecosystem structure, functioning and beauty; allowing recovery from past damage; improving fishery yields; and providing social and economic benefits to local communities and nations. Therefore, MCPAs provide the best available strategy to make integrated marine and coastal area management regimes effective.

However, according to the best currently available data, the present global system of MCPAs is not effective in ensuring conservation and sustainable use of marine and coastal biological diversity. Making a comprehensive assessment of the number and extent of all MCPAs globally is not possible, given the limitations to the existing data. Therefore improving the quality of such data should be made a priority for the future. However, given that a very small portion of marine and coastal biological diversity is currently included in MCPAs, the goal for the future should be the development of an effectively managed, ecologically representative global system of MCPA networks. This goal is set forward in the recommendations to this document, and is consistent with the Plan of Implementation of the World Summit on Sustainable Development (WSSD). Both the Expert Group and WSSD agreed that marine and coastal biological diversity should be maintained both in areas within and beyond national jurisdiction. WSSD set a target date of 2012 for completion of such a global network. This target date could also be adopted for the work of the Convention.

Regarding linkages between MCPAs and sustainable use of marine and coastal biological diversity, the Expert Group identified elements for a framework that would provide for sustainable use of marine and coastal biological diversity. Sustainable use on the national level can be achieved through the area-based management of marine resources, which incorporates both areas where human uses are permitted and areas where extractive uses are prohibited. The area-based protection would be incorporated within a framework of sustainable management practices over the wider marine and coastal environment. By implementing this approach, sustainable fisheries can be ensured, and other benefits, including those relating to tourism and education accommodated for.

Regarding recommendations for future research and identification of pilot projects, the expert group set forward a number of proposals, which are presented in annex III to this document. These proposals are based on identified knowledge gaps.

SUGGESTED RECOMMENDATIONS

The Subsidiary Body on Scientific, Technical and Technological Advice may wish to:

(a) *Welcome* the report of the Ad Hoc Technical Expert Group on Marine and Coastal Protected Areas, 1/ thank the Governments of New Zealand and the United States of America, and the World Conservation Union (IUCN), for their financial, organizational and technical support for this work, and thank the Chair and members of the Ad Hoc Technical Expert Group for their work.

(b) *Note* that marine and coastal biodiversity is under rapidly increasing and locally acute human pressure, such that globally, regionally and nationally marine and coastal biodiversity is declining or being lost. One of the reasons for this level of threat is the very low level of development of marine and coastal protected areas.

(c) *Note* that marine and coastal protected areas have been proven to:

(i) Protect biodiversity;

(ii) Ensure sustainable use of resources; and

(iii) Alleviate conflict, enhance economic well-being and improve the quality of life;

(d) *Note* that there are increasing numbers of marine and coastal protected areas, but in many cases they have not been effective because of problems related to their management, size and habitat coverage;

(e) *Note also* that the data available indicate that regionally and globally, marine and coastal protected area networks are severely deficient, and probably protect a very small proportion of marine and coastal environments and make a relatively small contribution to sustainable management of marine and coastal biodiversity;

Goals

(f) *Agree* that marine and coastal protected areas are an essential element in the conservation and sustainable use of marine and coastal biodiversity;

(g) *Note* that there is an international body of evidence demonstrating that those marine and coastal protected areas where extractive uses are excluded, have benefits for fisheries in surrounding areas, for communities, and for sustainable tourism and other economic activities within and outside the marine and coastal protected area;

(h) *Agree* that the goal for work under the Convention relating to marine and coastal protected areas should be:

"The establishment and maintenance in perpetuity of an effectively managed, ecological representative global system of marine and coastal protected area

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1/ The AHTEG adopted the following definition of marine and coastal protected area (MCPA):

"'Marine and coastal protected area' means any defined area within or adjacent to the marine environment, together with its overlying waters and associated flora, fauna, and historical and cultural features, which has been reserved by legislation or other effective means, including custom, with the effect that its marine and/or coastal biodiversity enjoys a higher level of protection than its surroundings.

"Areas within the marine environment include permanent shallow marine waters; sea bays; straits; lagoon; estuary; subtidal aquatic beds (kelp beds, sea-grass beds, tropical marine meadows); coral reefs; intertidal muds, sand or salt flats and marshes; seamounts, deep water corals, deep water vents, and open ocean habitats."

networks, where human activities are managed to maintain the structure and functioning of the full range of marine and coastal ecosystems, in order to provide benefits to both present and future generations."

(i) *Note* that the World Summit of Sustainable Development adopted a target date of 2012 for the establishment of a global representative network of marine and coastal protected areas, and *agree* to adopt this target date for the work of the Convention on marine and coastal protected areas, and to develop a strategy to meet this goal, including indicators of progress;

National framework of marine and coastal protected areas

(i) *Recognize* that marine and coastal protected areas should be a part of a wider integrated marine and coastal area management framework and, accordingly, *urge* Parties and other Governments with jurisdiction over marine and coastal areas to establish, as a matter of high priority and urgency, an effective marine and coastal biodiversity management framework, covering all areas subject to national jurisdiction including the exclusive economic zone and continental shelf areas, incorporating the elements set out in annex II below, including by establishing new marine and coastal protected areas and by improving the effectiveness of existing marine and coastal protected areas;

(j) *Agree* that the key elements of an effective marine and coastal biodiversity management framework are:

(iv) A primary network of representative highly protected areas, i.e. where extractive uses are excluded, and other significant human pressures are removed or minimised, to enable the integrity, structure and functioning of ecosystems to be maintained or recovered;

(v) An ancillary network of marine and coastal protected areas to support the biodiversity objectives of the representative highly protected areas, where threats are managed for the purpose of biodiversity protection and/or sustainable use and thus where extractive uses may be allowed; and

(vi) A framework of sustainable management practices over the wider marine and coastal environment;

(k) *Note* that there are some benefits of the framework which can be provided with any degree of certainty only by the network of highly protected areas, and that to achieve the full benefits this network needs to be representative and contain a sufficient area of the coastal and marine environment to be effective and ecological viable;

(l) *Agree* that key factors for achieving effective management of marine and coastal protected areas include good governance, clear legal or customary frameworks to prevent damaging activities, effective compliance and enforcement, ability to control external activities that affect the marine and coastal protected area, strategic planning, and sustainable financing;

(m) *Urge* Parties to urgently address, through appropriate integrated marine and coastal management approaches, all threats, including those arising from the land (e.g. water quality and sedimentation), in order to maximize the effectiveness of marine and coastal protected areas and networks in achieving their marine and coastal biodiversity objectives;

(n) *Agree* that stakeholder participation is essential for achieving the global goal, and for the establishment and maintenance of individual marine and coastal protected areas and national and regional networks;

(o) *Note* the technical advice provided by the Ad Hoc Technical Expert Group, contained in annex III below and in its report, relating to marine and coastal protected areas within national jurisdiction, and *urge* Parties and Governments to utilize that advice in their work to establish an marine and coastal protected area network.

Marine and coastal protected areas in areas beyond national jurisdiction

(p) Note that there are increasing risks to biodiversity in areas beyond national jurisdiction and that marine and coastal protected areas are extremely deficient in purpose, numbers and coverage in these areas;

(q) Agree that there is an urgent need to establish further marine and coastal protected areas in areas beyond national jurisdiction, including in relation to areas of seamounts, hydrothermal vents, cold water corals and open ocean;

(r) Note that jurisdiction for establishing marine and coastal protected areas in these areas is in some cases uncertain;

(s) Request the Executive Secretary to work with other international bodies, particularly the United Nations Division for Ocean Affairs and the Law of the Sea, the International Seabed Authority, the International Maritime Organization and other relevant organizations, to identify appropriate mechanisms and responsibilities for addressing these gaps, and report his findings to the seventh meeting of the Conference of the Parties;

Assessment, monitoring and research priorities

(t) *Note* that the research priorities and pilot projects set out in annex III will provide important assistance to national and regional efforts to establish and maintain marine and coastal protected areas and national and regional networks;

(u) *Agree* to incorporate the research priorities and pilot projects contained in annex III below into the programme of work in marine and coastal biodiversity, and *request* the Executive Secretary to identify partners to adopt the research priorities and undertake these projects as a matter of urgency;

International Support for the creation of networks of marine and coastal protected area

(v) *Urge* Parties, other Governments and relevant organizations to provide active financial, technical and other support for the establishment of a global system of marine and coastal protected area networks and the implementation within it of relevant provisions contained in this decision, including identification and removal of barriers to the creation of marine and coastal protected areas, and removal of perverse incentives for unsustainable activities in the marine and coastal environment, pursuant to decision VI/15, on incentive measures;

(w) *Urge* the Conference of the Parties at its seventh meeting to examine the need for support through the financial mechanism to developing country Parties, in particular the least developed and small island developing States among them, for country-driven activities aimed at enhancing capabilities for activities relating to the establishment and maintenance of marine and coastal protected areas and networks of marine and coastal protected areas;

Monitoring progress toward the global goal

(x) *Invite* the World Conservation Monitoring Centre of the United Nations Environment Programme, in collaboration with relevant organizations and authorities, to provide and maintain up-to-date information on marine and coastal protected areas, in line with the proposed categories for inventory and contextual information set out in annex IV below, to provide a basis for the Convention's assessment work;

(y) *Request* the Executive Secretary to provide an assessment of progress toward the global goal, as part of reporting on the programme of work on marine and coastal biological diversity.

CONTENTS

I. BACKGROUND

1. The Ad Hoc Technical Expert Group on Marine and Coastal Protected Areas held its first meeting in Leigh, New Zealand, from 22 to 26 October 2001. Following inter-sessional work, the Group met for a second time in Marahau, New Zealand, from 20 to 24 May 2002. The decision to establish this Expert Group was taken by the Conference of the Parties to the Convention on Biological Diversity in adopting the programme of work on marine and coastal biological diversity at its fourth meeting (decision IV/5, annex), in order to assist the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) in its work on the topic of marine and coastal protected areas. Financial support for the meetings was provided by the Governments of New Zealand and the United States of America, as well as by the IUCN World Commission on Protected Areas. Logistical support was provided by the New Zealand Department of Conservation and the Marahau Beach Lodge. A list of the members of the AHTEG can be found in its report.

2. The work of the Group was intended to help implement programme element 3 (Marine and coastal protected areas) of the programme of work on marine and coastal biological diversity. In particular, the work of the Group relates to operational objectives 3.1 and 3.2 of the programme of work, which read as follows:

> "*Operational objective 3.1*: To facilitate research and monitoring activities related to the value and the effects of marine and coastal protected areas or similarly restricted management areas on sustainable use of marine and coastal living resources.
>
> "Operational objective 3.2: To develop criteria for the establishment of, and for management aspects of, marine and coastal protected areas."

3. The terms of reference for the Group were endorsed by SBSTTA at its fifth meeting (recommendation V/14) and approved by the Conference of the Parties at its fifth meeting, in paragraph 15 of its decision V/3. The terms of reference are reproduced in the executive summary to the present document on page 1 above.

4. Section II of the present note addresses item (b) of the terms of reference of the Expert Group by considering the number, extent, distribution, nature and biological representation of marine and coastal protected areas globally, as well as the value and effects of marine and coastal protected areas on marine and coastal biological diversity. The results of the Group's deliberations on item (c) of the terms of reference are presented in section III. Because both items (a) and (d) of the terms of reference relate to research projects, they are considered together in section IV below.

II. VALUE AND EFFECTS OF MARINE AND COASTAL PROTECTED AREAS

A. Review of current knowledge

5. With over 6per cent of the human population living in the coastal zone, marine and coastal biodiversity is increasingly under pressure from unsustainable exploitation and damage to biodiversity from other human activities (e.g. sand extraction, effects of fishing methods, sediment run-off from land, pollution and unsustainable tourism). There are also longer-term threats, including climate change and alien species invasions.

6. As a result, at global, regional and national levels marine and coastal biodiversity is declining or being lost. Habitats are being fragmented, degraded or lost, and species are being affected at community through to the genetic level, with commercial, local or regional extinctions. Current marine and coastal management practices (e.g., controls on fishing catch levels and methods, land use regulation) are no

longer adequate to deal with the complexity and magnitude of these problems. Many of these methods also rely on their user having a good understanding of marine ecosystems. In most cases, such understanding is lacking.

7. Experience to date has shown that area-based approaches, using MCPAs, are a vital mechanism to address at least some of these threats, and one of the reasons for the loss of marine and coastal biodiversity is the very low level of development of marine and coastal protected areas.

8. There are significant limitations to our knowledge of the number and distribution of MCPAs; management performance of existing MCPAs; and level of comprehensive biodiversity protection provided by the present global MCPA system.

9. Currently available data regarding the number and extent of existing MCPAs is summarized in section III of report of the Group, and is mainly based on information available in the protected areas database of the World Conservation Monitoring Centre (WCMC) and the 1997 United Nations List of Protected Areas. There are significant limitations to these data, however, including the lack of geographic coordinates for many protected areas, which limits possibilities for a more complete analysis, affecting decision-making and priority setting. The last comprehensive global analysis of marine protected areas dates from 1995. However, these limited data indicate that twelve times more terrestrial area is protected than marine area.

10. Although the current global inventory is out of date, it is known that the number of MCPAs has grown over the past 20 years, and that most coastal countries now have at least one. However, although the numbers of MCPAs have increased, in many cases they have not been effective in meeting their objectives. Commonly recurring themes for the failure of marine protected areas to achieve their objectives include:

(a) Insufficient financial and technical resources to develop and implement management plans or lack of trained staff;

(b) Lack of scientific data and information for management decisions, including information on the impacts of resource use and on the status of biological resources;

(c) Lack of public support and unwillingness of users to follow management rules, often because users have not been involved in establishing such rules;

(d) Inadequate commitment to enforcing management rules and regulations;

(e) Unsustainable use of resources occurring within MCPAs;

(f) Impacts from activities in land and sea areas outside the boundaries of MCPAs, including pollution and overexploitation;

(g) Lack of clear organizational responsibilities for management and absence of coordination between agencies with responsibilities relevant to MCPAs;

(h) Problems related to the size and habitat coverage of MCPAs;

(i) Conflicting objectives of the MCPA;

(j) Lack of national or regional networks of MCPAs; and

(k) Lack of understanding and integration of social and economic issues into the establishment and management of MCPAs.

11. A recent comparative study of three MCPAs in the Wider Caribbean suggested that positive social and biological outcomes for those areas were correlated with clear boundaries, well-defined resource-use rights, accessible conflict-resolution mechanisms, and user self-governance rights.

12. Well-managed MCPAs provide the best available tool to make integrated marine and coastal area management (IMCAM) regimes effective. MCPAs can generate a wide range of benefits, including biodiversity conservation, sustainable use of resources, and the enhancement of economic well-being and improvement of the quality of life of communities; including conflict alleviation between resource user groups. This matches the experience with terrestrial protected areas. More specifically, some of the benefits of MCPAs include:

(a) Protecting ecosystem structure, functioning and beauty, and allowing recovery from past damage;

(b) Improving fishery yields, including through protecting spawning stocks, enhancing recruitment, reducing over-fishing of vulnerable species, and reducing conflicts between users;

(c) Providing other direct and indirect social and economic benefits, including through benefits to tourism, traditional uses of biodiversity, and other benefits of biodiversity (e.g., the wave-reduction effects of reefs or kelp forests);

(d) Increasing our understanding of marine biodiversity and systems, including by providing a baseline benchmark for identifying human-induced changes, allowing measurement of natural mortality, and providing areas for research where experiments are not affected by uncontrolled human activities; and

(e) Providing opportunities for the public to enjoy natural or relatively natural marine environments, and opportunities for public education and to allow the public to develop an understanding of the effects of humans on the marine environment.

13. A more detailed discussion, including key references, of the value and effects of marine and coastal protected areas is provided in section VIII of report of the Ad Hoc Expert Group.

14. In summary, the currently available data indicate that the present global MCPA system is severely deficient. It probably protects only a very small proportion of marine and coastal biodiversity and makes a relatively small contribution to sustainable management of marine and coastal biodiversity. However, well-managed MCPAs provide a large number of benefits to marine and coastal biological diversity, and are a vital part of any integrated marine and coastal area management strategy.

B. Future goals

15. The Ad Hoc Technical Expert Group proposed the following goal for the Convention in relation to MCPAs:

> "The establishment and maintenance in perpetuity of an effectively managed, ecologically representative global system of MCPA networks, where human activities are managed to maintain the structure and functioning of the full range of marine and coastal ecosystems, to provide benefits to both present and future generations."

16. It should be noted that this goal is in agreement with the Plan of Implementation of the World Summit on Sustainable Development, which also called for representative networks of marine protected areas. The World Summit adopted the target date of 2012 for the establishment of such networks, and this target date could also be used in the context of the Convention.

17. This goal presents the best available strategy to address current and future threats to marine and coastal biodiversity, which are increasing in magnitude and complexity. A global representative network of marine and coastal protected areas would provide rapid and significant contributions to the conservation and sustainable use of biodiversity in the face of the rapidly increasing threats. In addition, the global network will be able to provide biodiversity benefits despite our incomplete understanding of marine and coastal ecosystems, and will reduce conflicts over objectives, and increase stakeholder participation and adhesion to objectives.

C. Monitoring progress towards the global goal

18. Progress made towards the global goal can be measured only if comprehensive data on the number, extent and representativeness of marine and coastal protected areas is collected and made available. In addition, promoting and making decisions in the context of the global goal could be enhanced if more comprehensive and consistent information on MCPAs is gathered from all the regions. While some good regional databases are being developed and existing data are helpful (e.g., the European Commission's database on special areas of conservation being established under the Habitats Directive, inventories held by the IUCN World Commission on Protected Areas (WCPA), lists of wetlands protected under the Convention on Wetlands (Ramsar, Iran, 1971), and the protected areas database of UNEP-WCMC), there is nonetheless a paucity of facts to inform appropriate decisions within the Convention.

19. There is accordingly an immediate need to establish and continually update an effective global inventory of information, in order to make informed decisions to underpin this activity within the framework of the Convention on Biological Diversity, building upon and learning from the successes and failures of previous endeavours.

20. Annex IV sets out a proposed set of simple categories that could be used in a global inventory. Collection of these basic data would be affordable, and provide sufficient information for the key assessments needed at a global level. Such data could be collected by UNEP-WCMC in the context of the United Nations List of Protected Areas and the associated database. Many other organizations have data that could contribute to this.

D. Definitions

21. The Group recognized that there is no currently existing definition for MCPA, and considered that having a clear definition would facilitate work in this area. They also considered that a broad definition, encompassing the full range of protected areas, was desirable. The definition developed by the group is based on the IUCN definition of marine protected area, and is cited in the footnote to the suggested recommendations on page 2 above.

III. LINKAGES BETWEEN MARINE AND COASTAL PROTECTED AREAS AND SUSTAINABLE USE OF MARINE AND COASTAL BIOLOGICAL DIVERSITY

22. As indicated in the previous section, MCPAs can generate significant benefits directly related to the sustainable use of marine and coastal biodiversity. This is particularly the case in ensuring sustainable fisheries, and, as a result, the livelihoods of coastal communities. The demonstrated values of MCPAs to sustainable tourism are also well known, and can provide tremendous economic benefits locally and nationally. A well managed system of MCPAs can accommodate a number of uses, including sustainable fisheries, recreational uses (including tourism), and education. Such as system can provide an improvement to quality of life of local communities, including food security and poverty alleviation. The following section discusses how MCPAs can be applied, in the context of integrated marine and coastal area management (IMCAM), to achieve this goal.

A. National framework for sustainable management of marine and coastal biological diversity

23. Sustainable use on the national level can be achieved through the area-based management of marine resources, which incorporates both areas where human uses area permitted, and areas where extractive uses are prohibited. Both types of MCPAs are required to ensure the sustainable use of resources.

24. There is an international body of evidence demonstrating that areas where extractive uses are excluded have benefits for fisheries in surrounding areas, for communities, and for sustainable tourism and other economic activities within and outside the highly protected area. The ecological value of non-extractive use areas in fisheries management is through the provision of refuges in which commercially important stocks grow and reproduce without interference. There is evidence that such areas can conserve some commercially important species through the preservation of reproductive populations, with marked increases in average size and density of individuals. The concept is based on the idea that areas where extractive uses are prohibited act as a natural hatchery and nursery in which reproduction and growth are not impeded. Populations that develop in these areas supplement surrounding fisheries through export of larvae, as well as adults.

25. The AHTEG recognized that there are some benefits to marine and coastal biological diversity, which can only be provided with any degree of certainty by highly protected areas. These include:

(a) Restoring natural population structures of exploited species (age, size, gender and gene pools);

(b) Protecting biodiversity at all levels, and protecting all taxa;

(c) Eliminating fishing gear impacts and by-catch;

(d) Providing undisturbed spawning conditions, habitats and settling sites;

(e) Providing some essential fisheries management data (particularly natural mortality);

(f) Providing opportunities to enjoy undisturbed/unmodified areas, and to have a truly wilderness experience;

(g) Allowing the public to see and understand the effects humans have, and the benefits of management; and

(h) Providing long term monitoring, benchmarks, control areas, and places where research can be undertaken unaffected by human activities.

26. Such highly protected MCPAs are also unique in allowing benefits to be provided with certainty where there is a poor understanding of the marine environment. As such, they provide insurance against the effects of management mistakes arising from ignorance or uncertainty. In this respect, a highly protected area provides the only available response to the need to take a precautionary approach. Compliance and management are simplified in comparison to other types of management regimes.

27. However, a national system of MCPAs should also contain areas that permit a variety of sustainable human uses. The AHTEG called these areas “ancillary” MCPAs, to distinguish them from the highly protected areas. Such ancillary MCPAs can allow extractive uses, though restrictions on fishing methods may exist. Ancillary MCPA can also provide a large number of benefits, such as the protection of important cultural sites; conservation of some aspects of biodiversity, for example through restriction

of destructive activities, such as bottom trawling; maintenance of habitats to meet the requirements of specific species; and providing for traditional interaction with the marine and coastal environment.

28. The benefits provided by these two types of MCPAs may be negated, however, if they are not applied as part of wider integrated marine and coastal area management practices. For example, sedimentation or pollution from a source some distance away from an MCPA can have serious adverse effects to biodiversity contained within the MCPA.

29. In many cases, individual MCPAs can provide significant benefits, but in other cases a network is needed to optimally protect whole ecosystems. The AHTEG defined a network as an appropriate mix of highly protected areas and ancillary areas, which interact collectively to provide benefits greater than the sum of their individual benefits. The AHTEG also recognized that to achieve the full benefits, this network needs to be representative (meaning that the entire network should include the full range of marine and coastal ecosystems, and that individual MCPAs in the network should reflect the biotic diversity of the ecosystems from which they derive). The network should also contain sufficient area to fulfil its functions and be ecologically viable.

30. In view of the foregoing, a national framework for ensuring sustainable use of marine and coastal biological diversity should contain the following components, each of which is needed to achieve the desired results:

(a) A primary network of representative highly protected areas, i.e. areas where extractive uses are excluded, and other significant human pressures are removed or minimised, to enable the integrity, structure and functioning of ecosystems to be maintained or recovered;

(b) An ancillary network of MCPAs to contribute to the biodiversity objectives of the representative highly protected areas, where threats are managed for the purpose of biodiversity conservation and/or sustainable use and thus where extractive uses are allowed; and

(c) A framework of sustainable management practices over the wider marine and coastal environment.

31. A more detailed discussion of the three components of this framework, including a diagram, is presented in annex I below.

32. The AHTEG recommended that the Conference of the Parties should urge relevant Parties and other Governments to establish effective marine and coastal biodiversity management frameworks, as a matter of high priority and urgency, incorporating these elements, including by establishing new MCPAs and by improving the effectiveness of existing MCPAs.

33. Given the importance of national networks of MCPAs for sustainable use of marine and coastal biological diversity, and in the context of operational objective 3.2, the AHTEG developed advice on the creation and management of the national framework described in this section. This guidance will also allow Parties and other Governments to make progress towards the achievement of the global goal defined in section II of this document. A summary of the guidance is available in annex II below, while a full version can be found in the full report of the Expert Group.

B. Marine and coastal protected areas in areas beyond national jurisdiction – achieving sustainable use in the high seas

34. The proposed global goal is for an ecologically representative and connected global system of MCPA networks, and many ecosystems are located in areas beyond national jurisdiction (i.e., in areas outside the exclusive economic zone or continental shelf). There are currently no MCPAs outside of

national jurisdiction that provide effective protection to a wide range of biodiversity, although there are a few areas which protect specific species or control a particular impacting activity. However, a number of studies have demonstrated that biodiversity in these areas is increasingly threatened. It is therefore necessary for MCPAs to be established in those areas. In addition, in view of the current uncertainty as to the state of the living resources of the high seas, and the extent of uses, a precautionary approach to the exploitation of these resources is critical.

35. The marine environment beyond national jurisdiction is subject to a number of international and regional instruments and processes, which are discussed in more detail in the note by the Executive Secretary on the conservation and sustainable use of the deep seabed genetic resources beyond national jurisdiction (UNEP/CBD/SBTTA/8/9/Add.3). Both this study and the AHTEG agree in that there are currently no clear instruments or experience, and no one body with clear responsibility for addressing this issue. Consultations with relevant bodies could be initiated to identify appropriate mechanisms and responsibilities for this work, as a matter of urgency.

IV. PILOT RESEARCH AND MONITORING PROJECTS

36. The Group identified key knowledge gaps and other impediments to the achievement of the proposed global goal, and designed a small number of priority research areas, including potential pilot projects to address these. These projects are set out in annex III below. They are focused on work related to areas within national jurisdiction, including the establishment of national and regional networks.

Annex I

ELEMENTS OF A MARINE AND COASTAL BIODIVERSITY MANAGEMENT FRAMEWORK

A. Purpose of the framework

1. The overall marine and coastal biodiversity management framework should fulfil the three objectives of the Convention, namely conservation of biodiversity, sustainable use of biodiversity, and the equitable sharing of the benefits derived from use of genetic resources.

2. The framework would perform an insurance/precautionary role to help halt losses in biodiversity and encourage recovery, notwithstanding our imperfect knowledge of the marine environment.

3. The framework should address all elements of biodiversity, as reflected in Annex I of the Convention, including on the genetic, species and ecosystem levels.

4. Marine ecosystems include both benthic and pelagic elements. Most species have a mobile stage in their life cycle. As a consequence marine systems are considered open and dispersing larvae can link distant marine habitats. This means that connectivity issues are significant in designing a marine biodiversity management framework, and one MCPA will not be able to protect all the biodiversity within the area. A network approach is therefore essential. The network should be at an appropriate scale, which may in some cases require a regional approach. That regional approach should address proportionality issues on a regional rather than a national scale, for example when one or a handful of countries possess most or all of a particular habitat type or the world populations of a particular species.

B. Elements of the framework

5. The national or regional framework should comprise:

(a) A primary network of representative highly protected areas, i.e. where extractive uses are excluded, and other significant human pressures are removed or minimised, to enable the integrity, structure and functioning of ecosystems to be maintained or recovered;

(b) An ancillary network of MCPAs to support the biodiversity objectives of the representative highly protected areas, where threats are managed for the purpose of biodiversity protection and/or sustainable use and thus where extractive uses may be allowed; and

(c) A framework of sustainable management practices over the wider marine and coastal environment.

C. The primary MCPA network

6. The primary network of areas would be managed to maintain their integrity, structure, functioning, resilience, persistence and beauty, or to take restorative or rehabilitative steps for biodiversity, and would correspond to IUCN category I or II. They would encompass a full range of marine and coastal ecosystems (including both representative areas and those that are unique or special), and be protected from human impacts and the effects of alien species. The key purpose of this primary network would be to provide for intrinsic values, to allow us to better understand the marine and coastal environment, to contribute towards marine environmental recovery, and to act as insurance against failures in our management. But they will also contribute to other objectives, including socio-economic well-being, sustainable use of fisheries in adjacent areas, and public enjoyment.

7. The primary network should represent all ecosystems and contain examples of all marine biodiversity. It should contain sufficient area and duplicates to ensure that it can fulfil the objectives and be ecologically viable over time. The Group was unable to identify any simple formula for identifying whether a network is representative, as this will depend on local circumstances (e.g., variability in habitats). Nevertheless, experience in terrestrial protected area work, the work on MCPAs to date, and the literature all indicate that a viable and representative network will not be provided by a few small MCPAs. Some research publications cited during the meeting suggest a figure of 20-30 per cent of the area as the likely extent.

8. Protection from human impacts would mean that any removal of indigenous biota would be prevented except to the extent necessary to allow essential scientific research and education (i.e., these would be no-take reserves), but also that other practices which significantly impact on biodiversity (e.g. substrate alteration, changes in sediment movements, pollution, visitor disturbance of sensitive species) would be prevented or controlled.

9. The primary network would need to be viable in perpetuity, in the face of changing threats and long-term environmental change (e.g. climate change). These MCPAs would be permanent. Viability might depend on matters such as the nature of the legal protection, the presence of replicates, the design of the individual MCPAs, and the connectivity between MCPAs (directly or using the ancillary network as stepping stones).

10. Although public access may be encouraged in order to generate educational and enjoyment benefits, these benefits would be treated as secondary to the primary purposes listed above. Public access may need to be controlled to prevent unacceptable impacts.

11. Networks would need to be geographically dispersed across biogeographic regions and would need to be ecosystem-based, rather than a focus on single species.

D. The ancillary MCPA network

12. The ancillary MCPA network would contain areas that are subject to site-specific controls that have an explicit biodiversity objective or recognized biodiversity effect, and would correspond to IUCN categories III, IV, V, or VI. Those controls may also have other objectives (e.g., economic or social objectives). Examples of such controls include controls on fishing methods (e.g., restricting bottom trawling), controls on the removal of certain species (e.g., habitat forming species), rotational closures, and controls on pollution and sedimentation.

13. Important roles for these areas are to maintain connectivity across the overall network, protect life cycle stages which are spent outside a primary network MCPA (e.g. as a result of spawning behaviour), and buffer the core areas from threats.

E. Sustainable management of the wider environment

14. The MCPA network would be sitting within a framework of sustainable management practices over the wider marine and coastal environment.

15. Sustainable management practices over the wider marine and coastal environment could include general restrictions that would apply to the entire area (e.g., bans on certain destructive fishing methods), and site-specific restrictions imposed for non-biodiversity purposes (e.g., trawling restrictions to protect cables, restricted areas for defence purposes). These practices can contribute to biodiversity protection in a number of ways, including:

(a) The management of more widespread issues that pose a threat to the effectiveness of individual MCPAs, and ultimately, the aim of regional networks. These threats usually arise from land-based sources, and include issues such as water quality and sedimentation;

(b) Providing direct benefits to biodiversity (e.g. restrictions on trawling to prevent cable damage can also protect sensitive biodiversity such as corals and sponges);

(c) Protecting wide-ranging marine and coastal biodiversity species which are difficult to address through site-specific measures (e.g. restrictions on fishing practices that cause a by-catch of species such as albatross, marine mammals and turtles); and

(d) Reducing impacts on the connections between MCPAs, e.g., by allowing the movement of larvae between MCPAs.

F. International support for creation and management of MCPA networks

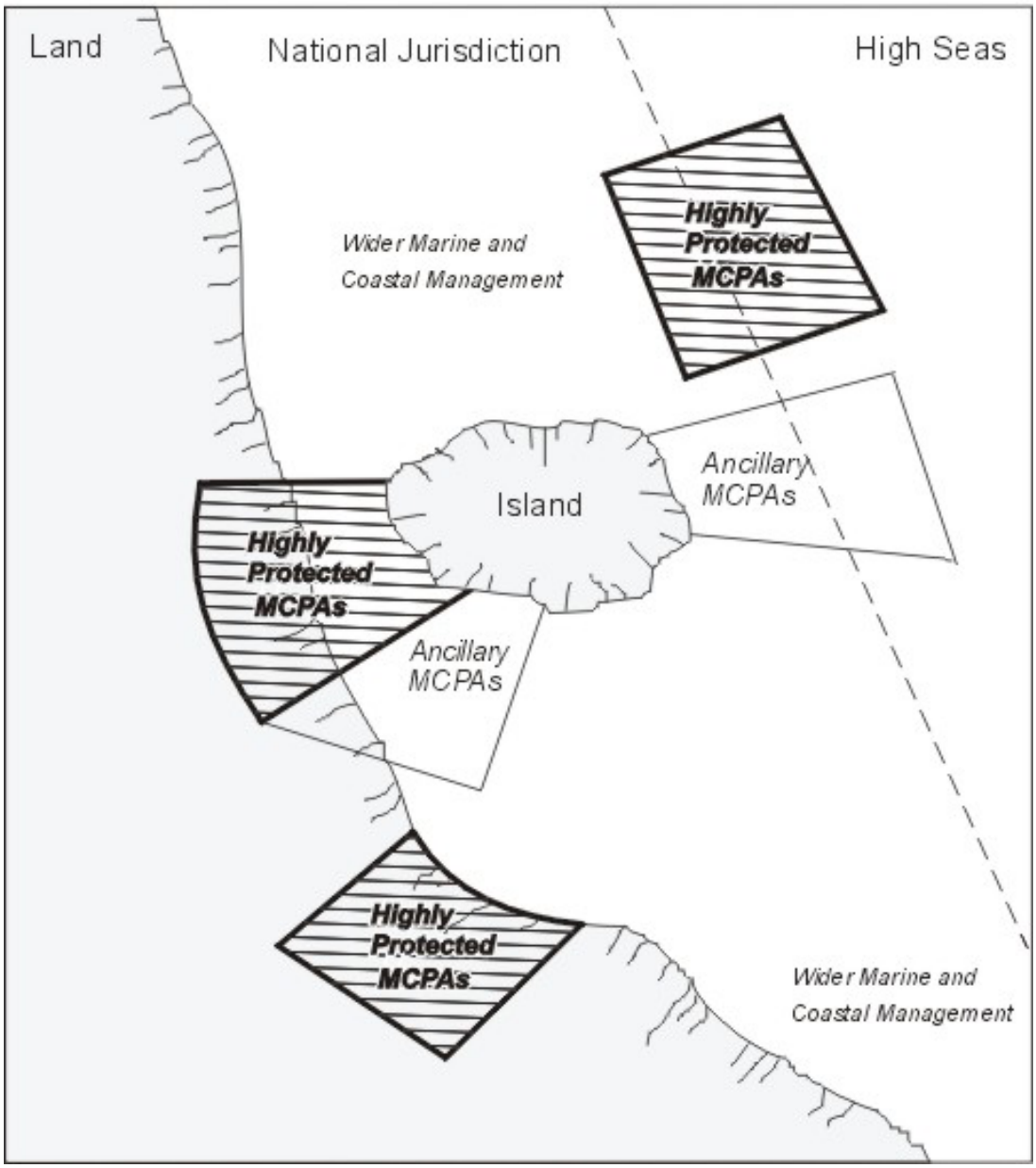
The Group identified a large number of impediments to the creation and management of MCPAs at the national level. There are a number of ways in which the international community can help to overcome these impediments. In particular, it can:

(a) Provide active financial, technical and other support for MCPA work; and

(b) Help to identify and remove both the barriers to the creation of MCPAs, and perverse incentives for unsustainable activities in the marine and coastal environment.

ELEMENTS OF THE MARINE AND COASTAL

BIODIVERSITY MANAGEMENT FRAMEWORK



Annex II

GUIDANCE FOR THE DEVELOPMENT OF A NATIONAL MARINE AND COASTAL BIODIVERSITY MANAGEMENT FRAMEWORK

1. For countries with no MCPAs or no highly protected MCPAs, the first step should be to develop the first few MCPAs, and the necessary mechanisms to allow future MCPAs and networks to be developed. The goals and objectives of each MCPA should be clearly established when they are created.

2. A strategic planning approach should be adopted at the national and regional levels when developing an ecologically viable framework for MCPA development. This should be based on past experiences in effective management, large-scale factors affecting MCPA viability and long-term goals.

3. Management should focus on ensuring that each MCPA, and the networks, are fulfilling the identified goals and objectives. This will require evaluation of effectiveness, and adaptive management over time.

4. Key factors for achieving effective management of MCPAs include good governance, clear legal or customary frameworks to prevent damaging activities, effective compliance and enforcement, ability to control external activities that affect the MCPA, strategic planning, and sustainable financing.

5. Good governance will depend on having one or more bodies, each with the authority and capacity to undertake their responsibilities. When there is more than one body, including, in the case of transboundary areas, bodies in different countries, mechanisms for co-ordinating and integrating management will be vital.

6. The legal or customary framework should clearly identify:

(a) Prohibited activities that will be contrary to the objectives of the MCPA;

(b) Those activities which will be allowed with clear restrictions or conditions to ensure that they will not be contrary to the objectives; and

(c) A decision making process for all other activities.

7. Minimizing the number of discretionary activities is desirable in order to minimize potential harmful impacts in the MCPA.

8. Effective enforcement will depend on:

(a) Adequate enforcement capacity including clear responsibilities, inter-agency co-ordination, trained and equipped personnel and the necessary legal or customary powers;

(b) Appropriate penalties and associated legal provisions; and

(c) Integration between enforcement, voluntary compliance and management.

9. Governments should be encouraged to urgently address, through appropriate integrated marine and coastal management approaches, all threats, including those arising from the land (e.g., water quality and sedimentation), in order to maximize the effectiveness of MCPAs and networks in achieving their objectives for marine and coastal biodiversity.

10. The AHTEG identified stakeholder participation as essential for achieving the global goal and for the establishment and maintenance of individual MCPAs and regional networks. Stakeholder participation would be particularly important in establishing equitable sharing of benefits accruing from creation of MCPAs. In addition stakeholder participation would:

(a) Allow decisions to be made in an inclusive and transparent way;

(b) Facilitate the involvement in decision-making and management of a wide range of players, increasing the likelihood of success;

(c) Recognize traditional rights and customs, and other interests of stakeholders; and

(d) Allow decisions and management to be undertaken at the appropriate level (e.g., through decentralization).

11. It was recognized that the type and extent of participation will depend on local circumstances, including issues such as custom and tradition, available mechanisms and governance approaches, and the degree of interest of stakeholders.

12. The Group is preparing detailed technical advice to Parties to assist them in developing their systems. This advice will be presented to SBSTTA as an information document.

Annex III

RESEARCH PRIORITIES, INCLUDING PILOT RESEARCH AND MONITORING PROJECTS

The following research priorities and pilot projects were identified by the AHTEG in response to paragraphs (a) and (d) of the terms of reference. Each is designed to both explore and enhance the linkages between marine and coastal protected areas and the sustainable use of marine and coastal living resources. Achieving the goal of sustainable use of living resources is dependent on the social, economic and cultural context of each MCPA, and therefore a number of the research priorities focus on this aspect of MCPAs. The effects of MCPAs on population size and dynamics (paragraph (d) of the terms of reference) are investigated through priority 2.1 (connectivity and proportionality), priority 2.3 (d) (climate change), priority 3.1 (MCPA size and location vs. species & habitat dynamics), and priority 3.6 (b) (percentage of protection required vs. size and dynamics of local population).

A. Establishing a global network of MCPAs

Priority 1.1: Developing and implementing national, regional and global strategies towards establishing networks of MCPAs.

Pilot project:

(a) Draft action-oriented strategies for establishing MCPA networks, and implement those strategies, for example by holding regional workshops.

B. Inventory and assessment of MCPAs and the global system

Priority 2.1: Assessing the representativeness, connectivity and proportionality of the existing MCPA system.

Pilot projects:

(a) Undertake initiatives to map ecosystems and habitats within regions and biogeographic areas, and determine the minimum level of broad habitat categories required for assessing representativeness of MCPA networks. Use this as basis for assessing representativenes of the existing MCPA network. This work should use a high level framework that is compatible with the basis for global inventory work. One possible approach to this work is to hold regional workshops.

(b) Assess connectivity to determine bioregions, and apply this information for evaluation of the existing MCPA network as well as for identifying priority areas for the future.

(c) Assess the effectiveness of the current MCPA network regionally and globally for the conservation and sustainable use of migratory species

Priority 2.2: Developing appropriate databases at the national level to allow for an assessment of MCPA frameworks at a larger (regional/global) scale. Using these data to identify patterns among MCPAs to generate priority needs for future research and approaches for adaptive management.

Pilot projects:

(a) Develop the high level framework for the global inventory (see annex IV below), and related advice to national managers on national inventories.

(b) Develop national databases for assessment of selected existing national/regional networks, selecting examples from the range of political, economic and biogeographic situations.

(c) Undertake a global review of the current state of knowledge of MCPAs by region. Provide output in a format understandable for managers and policy-makers.

Priority 2.3: Identifying the best indicators for assessing management effectiveness at various scales within an overall system.

Pilot projects:

(a) Develop and test a suite of effective assessment measures, including indicators, on a number of existing sites (biological, socio-economic and governance – based indicators). Selected pilot sites must cover the range of cold, temperate and tropical regions.

(b) Develop methods for evaluating effectiveness of entire MCPA networks.

(c) Develop methods for adapting MCPA management in response to possible changing species and habitat distribution patterns, which may result from climate change.

C. Improving MCPA networks

Priority 3.1: Generating consensus and support for adequate protection of biodiversity through area-specific approaches.

Pilot project:

(a) Demonstrate the long-term benefits (for example species changes, habitat changes and ecosystem changes) of protecting large- enough/significant – enough critical habitats and ecosystems, by developing case studies.

Priority 3.2: Establishing criteria for choosing MCPAs in countries that lack such criteria.

Pilot project:

(a) Provide a conceptual model and best practice examples of criteria for selecting MCPAs, by undertaking linked work in a small number of selected countries.

Priority 3.3: Enhancing social and economic effects of MCPAs, particularly in terms of poverty alleviation.

Pilot projects:

(a) Develop of culturally sensitive MCPA development/management approaches to achieve effective involvement of stakeholders.

(b) Develop adaptive approaches to MCPA establishment and management. This could be done by collection and dissemination of case studies of both best and worst-case examples of the degree to which an understanding of how target communities operate (socially/culturally) and "do business" can affect the success of MCPA establishment and management.

Priority 3.4: Developing effective "learning networks"—networking among MCPAs at the national/international level. Develop and test such networks in a range of test countries / regions.

Pilot projects:

(a) Develop networks of communities/stakeholders of MCPAs to enable them to share and learn from experiences.

(b) Compile information on existing learning networks, and develop guidance for the operation of such networks based on these experiences.

Priority 3.5: Developing effective methods for integrating traditional knowledge into MCPA establishment and management.

Pilot project:

(a) Develop guidelines for integration of traditional knowledge into MCPA establishment and management, and support these by compiling and disseminating case studies on a wide range of examples from places where such initiatives have been undertaken (for example, New Zealand, Chile, the Wider Caribbean).

Priority 3.6: Developing strategies for integrating MCPAs and network development into long-term national and regional planning.

Pilot projects:

(a) Develop strategies based on past experience and future needs for the range of geographical regions.

(b) Develop methods for estimating the percentage of non-extractive protection required, in conjunction with national monitoring programmes, depending on the size and dynamics of local populations.

(c) Incorporate considerations of sedimentation and water quality into planning and management processes.

Annex IV

IMPROVEMENT OF AVAILABLE DATA FOR ASSESSMENT OF PROGRESS TOWARDS THE GLOBAL GOAL

1. Since 1981, UNEP-WCMC has developed and maintained a global database on protected areas. The importance of this database, which is managed in collaboration with the IUCN World Commission on Protected Areas, has been broadly recognised. Within the database is a subset of clearly identified marine and coastal protected areas.

2. The AHTEG examined available information, consulted UNEP-WCMC (and indirectly WWF-International), and concluded that global data on MCPAs should be improved and/or gathered in the following critical categories:

(a) **Location** (physical co-ordinates and country or political unit, including the names of neighbouring country/countries where the MCPA is trans-boundary).

(b) **Total size** of the protected area, the relative size of the marine and coastal component and, where trans-boundary, the total area under country jurisdiction.

(c) **Temporal aspects** e.g. permanency or seasonality of protection or management.

(d) **Type of protection and management** proposed or being implemented, using a simple three-tier system:

(i) Part of the primary network of representative highly protected areas

(ii) Part of the ancillary network of MCPAs

(iii) Sustainable management practice in the wider coastal and marine environment

(e) **Effectiveness of protection and management** gauged against the regime being proposed or being implemented, using a simple three-tier system

(i) Currently fully effective – no significant problems known

(ii) Currently partially effective – some deficiencies

(iii) Currently ineffective – significant implementation problems

(f) **Nationally designated names** for type of protection and management e.g. Marine Park, marine and coastal nature reserve, etc.

(g) **Habitats protected and managed** (3D not just benthic**).**

(h) **Species protected and managed** (3D not just benthic)**.**

(i) **Habitats and species specifically excluded from protection/management within the MCPA** (i.e. that have no legal protection).

(j) **Nature of threats to habitats/species –** see table 1**.**

(k) **Name and contact details** of person(s) providing the above information and date on which this was done.

3. These data categories are a core set, which would provide the key information needed to evaluate progress, and success. They consist of sufficiently few categories to make data collection rapid, easy and hopefully achievable. They would not only underpin the actions of the Convention in the marine and coastal environments but are also considered to be of value to the wider conservation community at global, regional and national levels.

4. The collection of information on habitats being protected and managed would need to be structured from a standard list. This would speed up and standardize data collection. This would need to consist of no more than 15 categories and would need to take a very high level approach. Such an approach needs to be developed but could use terms such as "coral, sea grass, mangrove, estuary, seamounts, etc.". A similar approach would need to be taken over high-level categories to collect information on threats. Some first thoughts on such categories are provided in table 1. In both cases a decision at the time of data collection would need to be made on which categories were relevant. Whilst this may cause difficulty on occasions 'fitting' a site into this proposed management framework, any errors would be insignificant at the network, regional and global scale.

5. Data in other fields currently held within the world database on protected area of proven value to a wider audience, such as the IUCN management categories and GIS boundary data, could also be gathered but are not considered to be as important. IUCN category information will be collected for all sites on the United Nations list and so could be integrated into the above 'global' categories.

6. It is also important, in the context of the Convention on Biological Diversity that additional contextual information be gathered for each signatory country on the nature of their marine and coastal environment. This would provide benchmarks against which data return would be analysed, progress tracked and future Convention policy determined. This information should include:

(a) *Total area of seas under country jurisdiction in km^2* (e.g., the area of the exclusive economic zone or area of territorial waters, etc.) and the criteria against which this measurement was made (e.g. high water to seaward limit of jurisdiction, low water to seaward limit); and

(b) *Habitat and species inventories*. In order to assess whether adequate action is being taken, habitat and species inventories to establish global extent and distribution will be required.

7. The former would enable coverage of the marine and coastal protected area network being established under the Convention on Biological Diversity at local, regional and global scales to be tracked, whilst the latter would provide a reference point against which to set future priorities for action under the Convention to address deficiencies. Both are essential for assessing achievement of the proposed global goal.

8. UNEP-WCMC and the IUCN World Commission on Protected Areas (WCPA), working in collaboration with UNEP regional seas offices and other relevant bodies, provides a vehicle by which such a consolidation and updating of global data on MCPAs could be achieved. The United States National Oceanographic and Atmospheric Administration currently hosts the chair of WCPA marine programme, and is interested in using its resources and experience of marine and coastal issues to help develop the information base for making decisions on MCPAs.

9. The advent of Internet-based tools will greatly ease data-gathering and increase the accessibility of the information and its analysis to advise on local, regional and global progress and trends. Internet-based initiatives, and the predominate use of drop-down menus when gathering data from managers and practitioners, will also reduce data entry time and provide major advantages over the consistency and coherency, and ultimately reliability, of the dataset that needs to be gathered.

Table 1.

*Examples of six possible high-level categories that could be used globally to structure collection of information on the nature of the principal threats to habitats/species within MCPAs**

High level category	***Sub-categories***
Physical loss	• Removal (e.g. harvesting, draining to create dry land) • Smothering (e.g. by artificial structures, disposal of dredge spoil)
Physical damage	• Siltation (e.g. run-off, dredging, outfalls) • Abrasion (e.g. boating, anchoring, trampling) • Selective extraction (e.g. aggregate dredging, entanglement, turf cutting)
Non-physical disturbance	• Noise (e.g. boat activity) • Visual (e.g. recreational activity)
Toxic contamination	• Introduction of synthetic compounds (e.g. pesticides, antifoulants, PCBs) • Introduction of non-synthetic compounds (e.g. heavy metals, hydrocarbons) • Introduction of radio nuclides
Non-toxic contamination	• Nutrient enrichment (e.g. agricultural run-off, outfalls) • Organic enrichment (e.g. mariculture, outfalls) • Changes in thermal regime (e.g. outfalls, power stations) • Changes in turbidity (e.g. run-off, dredging) • Changes in salinity (e.g. water abstraction, outfalls)
Biological disturbance	• Introduction of microbial pathogens • Introduction of non-native species and translocations • Selective extraction of species (e.g. bait collection, wildfowling, commercial & recreational fishing)

Note: one MCPA could qualify for a number of high-level categories.
