



workshop on the governance of high-seas biodiversity conservation, cairns, australia, 16-20 june 2003

the status of natural resources on the high-seas: environmental, legal and political considerations

1. ABSTRACT

WWF and IUCN commissioned an independent study, by leading specialists in the field of high-seas habitats, resources, threats and legal status. The report identified several relevant areas and resources, reviewed their significant characteristics, assessed existing or potential threats to them, and their potential value as High-Seas Marine Protected Areas (HSMPAs): hydrothermal vents; deep-sea trenches; polymetallic nodules; gas hydrates; seabirds; transboundary fish stocks; sea-mounts; deep-sea 'coral reefs'; cold seeps and pockmarks; submarine canyons; cetaceans: Sea-mount fisheries, cold water coral reefs, sea birds and trans-boundary fish stocks were especially identified as being in critical need of protection. Major threats to the high-seas identified included sections of the petroleum and fishing industries, especially illegal, unregulated and unreported (IUU) fisheries.

The current international legal regime can best be described as a mosaic of different instruments (treaties, programmes of action, etc), including global and regional instruments, whether "legally-binding" documents or "soft law". From this disparate ensemble, a legal regime emerges that regulates who can and should do what, and where. The existing international legal regime that regulates use of the high-seas strongly encourages cooperation among States, does not prohibit the establishment of MPAs, and is furthermore susceptible to evolution and could endorse HSMPAs more explicitly.

In view of the clear international mandate and the success of MPAs as a flexible tool for managing and protecting resources including commercial fisheries, WWF urges States to facilitate, as a priority, the establishment of MPAs on the high-seas. This could take the form of one or several actions which could include an interim moratorium on sea-mount fishing under the precautionary principle until such time as adequate management plans are implemented. A pilot site at a threatened location, such as sea-mount or critically threatened fishing grounds would be another alternative. Recognising the need to ground such an initiative within an adequate and acceptable legal regime, WWF further calls on States to facilitate the determination and clarification of such a regime, preferably within existing frameworks.

The time is long overdue for States to take sound, reasoned and concrete steps to establish for the high-seas: a. an adequate governance regime; b. responsible, sensitive and sustainable resource use; c. protection for biodiversity and; d. safeguards for future generations of communities dependant on marine resources. Protected areas on the high-seas can be a means of achieving all of these, whilst there are still, albeit greatly depleted, resources to protect and manage.

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2. BACKGROUND

The WSSD, set a target date of 2012 for completion of an effectively managed, ecologically representative network of Marine and Coastal Protected Areas (MCPA) within and beyond areas of national jurisdiction. A further target from WSSD was the management and restoration of fish stocks. There is therefore a clear international mandate from the highest possible level to ensure better management of the high-seas. Indeed as 68% of the ocean's surface is currently outside of national jurisdiction it will not be possible to establish either a representative network of protected areas, or to adequately manage many fish stocks unless high-seas areas are considered.

WWF has identified high-seas management and protected areas as a key gap in the operational legal and technical management framework for conserving marine living and non-living resources, and unique deep sea habitats.

Considerable time and effort will have to be put into implementing a management and conservation framework which would have to comply with international legal instruments and agreements in order to receive recognition by the international community. This can best be done by identifying priority areas where high-seas management is most urgent, and exploring the application of available mechanisms and the opportunity to build on existing legal and technical regimes.

The value of creating Marine Protected Areas (MPAs) as a tool for conserving areas of high, valuable, sensitive or rare biodiversity that are potentially threatened is well established. WWF and IUCN have both adopted a strategy of facilitating the establishment of networks of representative MPAs. Experience from managing MPAs around the world indicates that political will, legal security and stakeholder support is necessary to establish, manage and enforce the protected area status. As a necessity, MPAs have been located close to the coasts of nations where there is sufficient political will and where they can be nested within the legislation of those States. In recent years, there has been an increasing awareness amongst States and NGOs that little protection is currently afforded to marine areas outside of 200 mile Exclusive Economic Zones (EEZs).

WWF and IUCN therefore commissioned an independent study, by leading specialists in the field, of high-seas habitats, resources, threats and legal status. A definition of the resources, either biodiversity and/or exploitable reserves, that occur beyond national jurisdiction, and potential for any threats to these resources has two main benefits: the need for, and extent of, protection can be better estimated; the types of legislation and governance that would be required to afford real protection and/or management can be determined and focused. In formulating transparent mechanisms for protection, the rights of legitimate users of the high-seas must be respected, so that the protected status has a chance of being respected. It was then expected that there will not be a single solution suitable for all potential protected areas.

This study was an independent, objective, scientific and legislative review of published evidence that contributed to:

- a listing of the natural resources, primarily biodiversity related, that occur in areas outside of the jurisdiction of coastal states;
- identification of the types of threats or potential threats that are, or may, impact on those resources;
- an indication of the types of areas, if any, that would seem to be potential candidates because of location, natural resource, or biodiversity, but that would in practice be unlikely, perhaps for reasons of politics, biodiversity or legislation;
- an informed opinion as to the current legal status of various forms of protected areas on the high-seas;
- an interpretation of the potential for adapting current legal institutional arrangements to afford protection.

In short, this study objectively examined if there are any areas or resources on the high-seas that were of conservation value but were being, or expected to be threatened. If that was the case, the

study further examined if there are currently any legislative instruments that could be used in order to afford those areas the protection they deserve.

The report (WWF/IUCN/WCPA, 2001) was prepared in two parts: an environmental perspective (Baker *et al.*, 2001); legal and political considerations (de Fontaubert, 2001).

3. ENVIRONMENTAL PERSPECTIVES

Part 1 of the report - an environmental perspective - was prepared by Maria C. Baker, Brian J. Bett, David S.M. Billett and Alex D. Rogers of the Deepsea Benthic Biology Group at Southampton Oceanography Centre, UK.

The report confirmed that approximately 50 % of the Earth's surface is occupied by high-seas areas – open ocean and deep-sea environments lying beyond the 200 nautical mile limit of the EEZs of coastal states. These high-seas areas are open-access common resources, and as such may be particularly susceptible to over-exploitation. Until relatively recently there was little perceived threat to these areas. In recent years however there has been a rapid expansion in two industries (demersal fishing and oil production) that can currently operate down to water depths of at least 2,000 m. These operations pose a potential threat to the deep-sea environment of high-seas areas. There are also a number of existing threats to open ocean areas, e.g. direct and indirect impacts on fish, seabirds and cetaceans. Further, there are a number of suggested or developing technologies that could pose a threat to high-seas areas, e.g. CO₂ dumping, biotechnology, the exploitation of gas hydrates and hydrothermal vent heat energy.

The review of the status of natural resources in high-seas environments, in light of these existing or potential threats, identified a number of relatively discrete or localised geographic features / habitats / biological communities that have particular scientific, societal or economic interest.. Deep-sea and open ocean environments are continuous and highly interconnected, however, of relevance are:

- Hydrothermal vents
- Deep-sea trenches
- Polymetallic nodules
- Gas hydrates
- Seabirds
- Transboundary fish stocks
- Sea-mounts
- Deep-sea 'coral reefs'
- Cold seeps and pockmarks
- Submarine canyons
- Cetaceans

The report identified these areas of interest, reviewed their significant characteristics, assessed existing or potential threats to them, and their potential value as, or reason for establishing, HSMPAs. For each area of interest, the report reviewed habitat characteristics, global distribution, associated fauna, exploitation value, biodiversity issues and potential / actual threats. Based on these reviews, a number of recommendations were presented regarding the need for protection and potential HSMPA status. These were summarised as follows:

Hydrothermal Vents

These are highly localised sites of high temperature fluid-escape from the seabed which are typically located on mid-ocean ridges (10s known, 100s suspected). They commonly support abundant biological populations, fuelled by chemosynthesis and thus are home to a highly specialised fauna, of relatively low diversity, but high endemism. Vents and their communities are ephemeral (10s of years). They are subjects of intensive scientific study (an actual threat),

considerable biotechnology potential (a potential threat) and are of interest for commercial resource (ores and energy) exploitation (a potential threat).

- At present, the scientific community appears to pose the greatest threat, but has already initiated an 'in-house' protection plan. Such efforts should be encouraged and augmented by international governmental and NGO input.
- The ephemeral nature of hydrothermal vent communities suggests the need to 'protect' relatively large areas of mid-ocean ridge, perhaps a ridge segment at a time to ensure the long-term 'survival' of these communities within particular geographic areas.

Sea-mounts

Sea-mounts are undersea mountains of volcanic / tectonic origin that may interact with the upper water column (e.g. enhancing surface ocean productivity). They are found in all oceans (30-40,000 known). The tops and upper flanks of sea-mounts may be biological 'hot spots'. Hard substrate suspension feeding communities (sponges, corals etc) may be common. Sea-mounts potentially have a high species diversity and endemism and may act as 'stepping stones' for transoceanic dispersal of species. Fish and seabird populations have been shown to be enhanced over sea-mounts hence they are of considerable interest for commercial fishing (an actual threat) and for commercial resource (ores) exploitation (a potential threat).

- Sea-mount biological communities and fisheries are already under considerable threat and should be seen as an urgent and appropriate case for HSMPA designation.
- The widely distributed nature of sea-mounts, and their role as 'biological islands' and 'stepping stones' requires special attention, and particularly suggests the need for an HSMPA network in this case.

Deep-Sea Trenches

These are a feature of subduction zones and hence are the deepest areas on the planet. They are few in number (37), but up to 1,000s of kilometres in length. Most lie within EEZs with largely endemic fauna, adapted to extreme hydrostatic pressure. There is interest in their biotechnology potential (a potential threat) and as use as waste disposal sites (a potential threat). There is a significant potential for direct influence from terrestrial pollutants (a potential threat)

- Trenches are presently at relatively minimal threat and have comparatively low levels of 'interest'; consequently there is little HSMPA need / potential at present.
- This conclusion should be kept under review, particularly with regard to their potential as dumpsites.

Deep-sea 'coral reefs'

Several species (e.g. *Lophelia pertusa*) of deep-sea coral are capable of forming 'reefs'. They are widely distributed in the world's oceans, from 10s to 1,000s m water depth, occurring in a wide variety of environmental settings. They vary in size from individual colonies (10s cm) to extended patch-reefs of 10 km in extent. They provide habitat for high diversity of associated species (few or no obligate associates known), but have been extensively damaged by commercial trawling (an actual threat). Deep-water oil exploitation within areas of known occurrence is an actual threat and interest in their biotechnology potential is a potential threat

- Extensive destruction of deep-sea coral communities is already evident, and has probably occurred for the last 100 years; protection of these important habitats is therefore urgently needed.

- Any protected area designation should be co-ordinated with existing inshore legislation / protected areas (e.g. European Union Habitats Directive, and Norwegian trawling exclusion areas).

Polymetallic nodules

'Manganese' nodules may occur in vast fields on the deep-ocean floor. They provide a hard substratum for epifaunal species, increasing local / regional diversity. There is a considerable potential for commercial exploitation (a potential threat). Pilot-scale mining and environmental impact studies have been undertaken.

- Deep-sea manganese nodule mining has been long suggested, but is not economically viable and unlikely to become so for decades, threat is consequently minimal at present.
- The need for HSMPA designation is questionable, and certainly of a low priority only; any HSMPA action should be co-ordinated with the International Seabed Authority.

Cold seeps and pockmarks

These are highly localised sites of low temperature fluid escape from the seabed. They occur in a wide variety of physiographic and geological settings which typically support abundant biological populations, fuelled by chemosynthesis. The highly specialised fauna, of relatively low diversity, but high endemism may be ephemeral. There is an interest in biotechnology potential (a potential threat) and connection with deep-water oil exploitation (a potential threat).

- Though less 'publicised', cold seep communities should certainly warrant the same conservation value as hydrothermal vent communities. However, their occurrence in the deep sea is less well known and less 'predictable' than is the case with hydrothermal vents, consequently the selection of appropriate sites / areas may be problematic.
- Cold seeps and pockmarks are of common occurrence in shallow water (e.g. North Sea), any HSMPA action should be linked with related shallow seas initiatives.

Gas hydrates

Gas hydrates are composed of frozen methane gas which is probably abundant and widespread in deep-sea environments. The associated fauna is little known, but there is interest in biotechnology potential (a potential threat). There is also considerable interest in direct exploitation.

- There is currently insufficient information on biological communities that may be associated with gas hydrates to warrant their separate consideration as HSMPAs at this time.
- For the present, gas hydrates should be considered jointly with cold seep communities (particularly those fuelled by hydrocarbon escapes).

Submarine canyons

These are common deep-sea features that cut across continental slopes. They influence local bottom water flows and may act as traps for organic matter. They may be biological 'hot spots' with enhanced benthic populations. Fish (and possibly cetacean) populations may also be enhanced hence commercial fishing (trap and long-line) can be important (actual threat). There is also a significant potential for direct influence from terrestrial pollutants (a potential threat).

- Deep-sea canyons are common and widespread but do have distinct biological significance. The greatest threats to these environments probably lie within EEZs; canyons are nevertheless clear candidates for HSMPA status.
- Given their intimate linkage with the 'inshore' environment, successful HSMPA designation will depend on matching 'inshore' initiatives.

Seabirds, cetacean & trans-boundary fish stocks

About 22 % of the world's seabird species are "threatened" species. Many seabirds have low reproductive rates and so are sensitive to additional sources of mortality. Pelagic and demersal long-lining fisheries are the greatest threats to seabirds, though changes in long-lining methods and better regulation may reduce seabird casualties.

Some cetacean species migrate thousands of miles during their lifetime. Many whale populations have failed to recover despite many years of protection. Whale mortalities arise mainly from commercial whaling and as a by-catch of fishing. Molecular genetic methods indicate significant illegal sales of whale products.

Fish do not respect national EEZ boundaries. Over-fishing on the high-seas has become particularly acute in recent years. Some deep-sea species have life histories that make them very susceptible to exploitation and over-fishing. High-seas fishing fleets typically use non-selective equipment producing high by-catch mortalities

- Many species of oceanic seabirds, cetaceans and fish are already under considerable threat, both from direct exploitation and as a by-catch. HSMPAs could usefully contribute to the protection and re-establishment of these species.
- HSMPA action, however, must be co-ordinated with and matched by (other) legislation and actions within national jurisdictions if the full value of the HSMPA is to be realised.

4. LEGAL AND POLITICAL CONSIDERATIONS

Part 2 of the report - legal and political considerations - was prepared by Dr. A. Charlotte de Fontaubert and may be summarised as follows.

The current international legal regime can best be described as a mosaic of different instruments (treaties, programmes of action, etc), including global and regional instruments, whether "legally-binding" documents or "soft law". From this disparate ensemble, a legal regime emerges that regulates who can and should do what, and where. The existing international legal regime that regulates use of the high-seas strongly encourages cooperation among States, does not prohibit the establishment of MPAs, and is furthermore susceptible to evolution and could endorse HSMPAs more explicitly.

The main points of this section of the report were:

- In view of the current uncertainty as to the state of exploitation of the living resources of the high-seas and the extent of uses (both current and potential), a precautionary approach to the exploitation of these resources is critical.
- High-seas marine protected areas may be one of the tools available that are called for to address this uncertainty.
- International law should not necessarily be an obstacle or impediment to the establishment of HSMPAs. Rather, in its present form the international legal regime imposes a duty on States to cooperate in managing resources of the high-seas and does not prohibit or preclude the establishment of marine protected areas on the high-seas.

- As the present regime evolves, historical precedent suggests that MPAs will eventually be formally recognised as an instrument applicable on the high-seas.
- States and other entities with an interest in HSMPAs will need to anticipate and overcome a number of political, legal and institutional obstacles that may arise as MPAs are established on the high-seas.
- In view of this uncertainty it might be sensible to launch an experimental MPA around a seamount where fishing has not yet taken place, building on the existing international legal regime, and through intense cooperation and collaboration among all the States with an interest in high-seas resources.

5. ESTABLISHMENT OF HIGH SEAS MPAS UNDER THE EXISTING INTERNATIONAL LEGAL REGIME

HSMPAs are not a single replacement for sustainable ocean management but are a suite of tools to assist in achieving a balance between conservation and use. They can form effective management measures to protect marine species and habitats without prohibiting resource use. HSMPAs protect critical ecosystems and species, comprise a comprehensive management regime and help raise awareness of the importance of, and threats to, marine biodiversity. HSMPAs can also bring together relevant government institutions, industry sectors, NGOs and maritime communities to build workable solutions to resource use conflicts.

Threats to the high-seas include illegal, unregulated and unreported fishing, habitat damage from trawling, bioprospectivity, mining, shipping, marine pollution, exploration and exploitation of deep sea bed resources. These threats could be addressed by an arrangement of zoning agreements.

A HSMPA regime or high-seas management regime has to be tailor-made to meet the objectives, circumstances, existing legal principles and requirements of the identified geographical area. In addition, a demarcation exercise has to be undertaken in order to establish the outer limits of the HSMPA and to facilitate for adequate management, monitoring, control, surveillance and enforcement measures.

The current international legal regimes applicable to high-seas management and HSMPAs provides a basis for, and indeed a responsibility to further develop international legal instruments and agreements.

The United Nations Convention on the Law of the Sea (UNCLOS), sets out rights and obligations of States regarding the use of the oceans, regulates the use of the high-seas, and encourages co-operation among States. Particular attention should be paid to Parts VII and Part XII which address fisheries and the protection of the marine environment.

States fishing on the high-seas have the right to engage in fishing, subject to treaty obligations and the rights of other States. In practice, fishing on the high-seas is to a large extent regulated by Regional Fisheries Management Organisations (RFMOs) and related agreements.

States have the obligation to protect the marine environment, and moreover, States shall take measures to ensure that activities under their jurisdiction or control are carried out in such a manner that it does not cause damage by pollution "beyond the areas where they exercise sovereign rights". There is also a duty to protect "rare and fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life".

UNCLOS was negotiated by consensus, reflecting interests of all states Parties, and is intended to be a flexible, adaptive instrument designed to be built upon, as illustrated by the recent adoption of 1994 Mining Act, the implementation of Part XI and the 1995 United Nations Fish Stocks Agreement, which reflects the developing views of the negotiating Parties.

During the 1995 Conference of the Parties in Jakarta, a Programme of Action was agreed for implementing the Convention on Biological Diversity (CBD) with respect to marine and coastal biodiversity, including MCPAs, which could also extend beyond national jurisdiction. Under the CBD, Parties are responsible for actions of their nationals that may impact biodiversity on the high-seas, and are invited to establish protected areas to conserve biodiversity. There is also a requirement for States to cooperate for the conservation and sustainable use of the high-seas.

Other examples of high-seas management tools include the UN Fish Stocks Agreement (UNFA 1995); the International Convention for the Regulation of Whaling, (ICRW 1946) ; UNCED Agenda 21 and, the Particularly Sensitive Sea Areas (PSSAs) designated under the regime of the International Maritime Organisation (IMO). The UNEP Regional Seas Programmes provide further opportunities for the establishment of HSMPAs as does the World Heritage framework by declaring a site to be of globally outstanding universal value, such as a zone of unique richness. Furthermore States could enter into the process of modifying international customary law.

6. EXISTING PRECEDENTS AND CURRENT OPPORTUNITIES

Two large MPAs were recently established in Australia and Malaysia. WWF Australia worked closely with the Australian government and the fishing industry to create the largest fully protected MPA in the world: the Heard and Macdonald Islands (HIMI), 65,000 km². The HIMI MPA will protect spawning grounds of a number of commercial fish species and is a step towards achieving sustainable fisheries and combating IUU fishing in Australia's Antarctic waters. The Tun Mustapha Marine Park is a 1,028,00 hectare marine area that includes the biologically rich Marudu Bay, nearly 50 surrounding islands, and the waters in the seas off northern Sabah, Malaysia.

The Grand Banks, off the Newfoundland coast of Canada, is a good example where adaptive management such as a "zoning" or a comprehensive system of high-seas management regimes and HSMPAs would be one solution to the multiple resources and threats involved. The geographical area of the Grand Banks, including the Nose, Tail and Flemish Cap covers waters within Canada's EEZ and adjacent high-seas. This area has undergone dramatic declines in cod, plaice and other groundfish in the past century and stock recovery has not been successful, despite successive management measures. There are continuing concerns with illegal fishing, underreporting of catch, and bilge-oil dumping. The situation is interesting in that Canada has not ratified UNCLOS, and could be considering a future submission of a extended continental shelf claim.

Active discussions are underway between the federal and provincial governments, the industry, and WWF on a range of solutions that might be available. WWF has introduced the concept of a zoned high-seas management regime that would build on existing legal instruments and agreements and could include HSMPAs. Such a system would be a move away from existing traditional single stock management regimes that have been shown to have failed, hence the recent continued collapse of the cod fishery on the Grand Banks. Other areas that have been identified as priorities for increased high-seas management include the Kerguelen Islands and the Tasman Sea-mounts.

7. CALL TO ACTION

In view of the clear international mandate and the success of MPAs as a flexible tool for managing and protecting resources, WWF urges States to facilitate as a priority the establishment of MPAs on the high-seas. This could take the form of one or several actions which could include an interim moratorium on sea-mount fishing under the precautionary principle until such time as adequate management plans are implemented. A pilot site at a threatened location, such as sea-mount or critically threatened fishing grounds would be another alternative. Recognising the need to ground such an initiative within an adequate and acceptable legal regime, WWF further calls on States to

facilitate the determination and clarification of such a regime, preferably within existing frameworks. HSMPAs need not be a threat to legal access, an attack on sovereignty, or a risk of conflict.

The highest level mandate from WSSD has been set by world leaders to establish MPAs on the high-seas and to protect and restore the world's fish stocks. MPAs have been shown beyond any reasonable doubt to be flexible, valuable tools for managing a range of resources and protecting both biodiversity and livelihoods, including those from commercial fishing. The World Parks Congress will further elucidate this. The time is long overdue for States to take sound, reasoned and concrete steps to establish: a. an adequate governance regime; b. responsible, sensitive and sustainable resource use; c. protection for biodiversity and; d. safeguards for future generations of communities dependant on marine resources. Protected areas on the high-seas can be a means of achieving all of these, whilst there are still resources to protect and manage.

8. REFERENCES

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