UNEP

CBD

CONVENTION ON BIOLOGICAL DIVERSITY

Distr.
GENERAL

UNEP/CBD/SBSTTA/10/8/Add.1
5 November 2004

ORIGINAL: ENGLISH

SUBSIDIARY BODY ON SCIENTIFIC, TECHNICAL AND TECHNOLOGICAL ADVICE
Tenth meeting
Bangkok, 7-11 February 2005
Item 5 of the provisional agenda*

DRAFT GLOBAL OUTCOME-ORIENTED TARGETS FOR THE PROGRAMME OF WORK ON MARINE AND COASTAL BIOLOGICAL DIVERSITY

Note by the Executive Secretary

I. INTRODUCTION

1. In decision VII/5 annex I, section C, the Conference of the Parties requested SBSTTA at its tenth or eleventh meeting to further refine the proposal for the integration of outcome-oriented targets into the programme of work on marine and coastal biodiversity, taking into account, as appropriate, the framework in annex II to decision VII/30 on the future evaluation of progress on the Strategic Plan, and taking into account that these goals and targets should be viewed as a flexible framework within which national and/or regional targets may be developed, according to national priorities and capacities. The same request to SBSTTA is also put forward in decision VII/30 paragraph 12 (c).

2. Draft outcome-oriented targets for the programme of work on marine and coastal biological diversity were originally presented to the Conference of the Parties in document UNEP/CBD/COP/7/20/Add.5, which incorporated comments from Parties, received both during the ninth meeting of SBSTTA and within two weeks thereafter, as well as the results of a scientific peer review. In response to decisions VII/5 and VII/30, the targets in document UNEP/CBD/COP/7/20/Add.5 were revised to fit the framework adopted in annex II to decision VII/30, peer reviewed, and finalized by an Expert Group.

3. Section II of this document presents for the consideration of the SBSTTA, draft global outcome-oriented targets for the elaborated programme of work on marine and coastal biological diversity, corresponding as closely as possible to the framework adopted in annex II to decision VII/30. The targets and their associated rationales have been formulated based on the work of the Expert Group on Outcome-Oriented Targets for the Programmes of Work on the Biodiversity of Inland Water Ecosystems and Marine and Coastal Ecosystems. This Expert Group met in Montreal, from 25 to 27

* UNEP/CBD/SBSTTA/10/1.

October 2004, with the generous funding of the Governments of the Netherlands and the United Kingdom. The members of the Expert Group are listed in the Appendix to the report of the Expert Group on Outcome-Oriented Targets for the Programmes of Work on the Biodiversity of Inland Water Ecosystems and Marine and Coastal Ecosystems (UNEP/CBD/SBSTTA/10/INF/6).

4. Draft recommendations are contained in document UNEP/SBSTTA/10/8.

II. DRAFT GLOBAL OUTCOME-ORIENTED 2010 TARGETS FOR THE PROGRAMME OF WORK ON MARINE AND COASTAL BIOLOGICAL DIVERSITY

5. In accordance with decision VI/9, the targets presented here should be viewed as a flexible framework within which national and/or regional targets may be developed, according to national priorities and capacities, and taking into account differences in diversity between countries. Parties and Governments are invited to develop national and/or regional targets, and, as appropriate, to incorporate them into relevant plans, programmes and initiatives, including national biodiversity strategies and action plans.

6. Actions to reach these targets should be undertaken in the context of the ecosystem approach, which is the primary framework for the implementation of the Convention. The importance of the ecosystem approach in ensuring the long-term productivity and sustainability of marine and coastal living resources and environments, as well as contributing to sustainable development and poverty alleviation, has also been highlighted by the World Summit on Sustainable Development. Of particular importance to the targets presented here is paragraph 29 (d) of the Plan of Implementation of the World Summit on Sustainable Development, which encouraged the application by 2010 of the ecosystem approach, noting the Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem and decision V/6 of the Conference of Parties to the Convention on Biological Diversity. In addition, the programme of work on marine and coastal biological diversity promotes the integration of coastal management activities with watershed management (decision VII/5, annex, Op. Obj. 1.1(b)), emphasizing the interconnectedness of marine, coastal and inland water ecosystems, and thus the linkages to the programme of work on inland water ecosystems.

7. The effective implementation of actions to reach these targets will require capacity-building and financial resources for developing country Parties, in particular the least developed and small island developing States among them. Therefore, Parties, other Governments, the financial mechanism, and funding organizations are invited to provide adequate and timely support towards work aimed at achieving these targets. In addition, there is a need for cooperation within and between regions and countries, for the provision of livelihood options for coastal communities that depend largely on fisheries resources, and for ensuring the fair and equitable sharing of benefits arising from the use of marine and coastal genetic resources.

A. Protect the components of biodiversity

Goal 1. Promote the conservation of the biological diversity of ecosystems, habitats and biomes

The World Summit on Sustainable Development, in paragraph 32 (c) of its Plan of Implementation, adopted the target of developing a representative network of marine and coastal protected areas by 2012. Subsequently, this target was also adopted in paragraph 19 of decision VII/5 and paragraph 18 of decision VII/28. The present target and target 1.2 should be viewed in the context of this 2012 target.

Overall target 1.1: At least 10 per cent of each of the world's ecological regions effectively conserved.

Application to marine and coastal ecosystems: *At least 10 per cent of each of the world's marine and coastal ecological regions effectively conserved.*

Technical rationale

Only a very small amount, less than 0.5 per cent, of the world's oceans are currently protected. This target aims to increase the protection afforded to marine ecosystems, and is consistent with paragraph 32 (c) of the Plan of Implementation of the World Summit on Sustainable Development, paragraph 19 of decision VII/5, and paragraph 18 of decision VII/28, as well as the recommendations of the World Parks Congress.

Effective conservation in this context refers to area-based measures, for example marine protected areas and other means of protection, for which management plans exist. According to decision VII/5, marine protected areas are one of the essential tools and approaches in the conservation and sustainable use of marine and coastal biodiversity. Marine protected areas can be either: (i) marine and coastal protected areas where threats are managed for the purposes of biodiversity conservation and/or sustainable use and where extractive uses may be allowed; or (ii) representative areas where extractive uses are excluded and other human pressures minimized (see decision VII/5, para. 21). Such areas must be effectively managed, may be designated according to categories from The World Conservation Union (IUCN), and either by legal means or through custom, and should respect the roles and rights of indigenous and local communities. Other measures, such as fisheries management areas, well-functioning integrated marine and coastal area management regimes (which effectively manage land-based sources of marine pollution), prohibition of destructive practices (such as bottom trawling) may also contribute to effective protection. In order to be truly effective, and in accordance with decision VII/5 paragraph 21, marine and coastal protected areas should be embedded in a framework of sustainable management practices and actions to protect biodiversity over the wider marine and coastal environment.

Ecological regions (ecoregions) have been defined by the World Wide Fund For Nature (WWF) as "relatively large units of land or water containing a distinct assemblage of natural communities and species, with boundaries that approximate the original extent of natural communities prior to major land-use change". For the purposes of this target, the entire ocean can be split into two broad areas: shelf regions and open ocean regions. The shelf region has been divided into Large Marine Ecosystems (LMEs), which can be used as a classification system for the purposes of this target. Additional and complementary systems, such as the WWF ecoregional classification, can also be applied as appropriate. Therefore, the ecological regions under this target, for global and regional purposes, could be assessed using an appropriate combination of Large Marine Ecosystems, WWF ecoregions, and larger biogeographic units for pelagic and abyssal ocean areas. If a country wishes to conduct a national assessment, it may choose to use its existing ecoregional classification system.

Marine areas beyond national jurisdiction should be considered separately under this target. These areas contain a large amount of increasingly threatened biodiversity, which, in accordance with decisions VII/5 and VII/28, should be afforded urgent and increased protection through international cooperation and action. Any marine protected areas in these areas should be scientifically significant and globally representative, and established consistent with international law and based on scientific information. The World Parks Congress in recommendation 5.23 put forward a target figure of five high-seas marine protected areas by the year 2008.

The 10 per cent figure in this target is lower than the optimum 20-30 per cent figure for sustainable use of living resources quoted in most research findings 1/ and should therefore be viewed as an intermediate, policy-relevant, target, while the needs for long-term protection would be determined in the context of adaptive management, taking into account the status and unique characteristics of each ecological region. Application of area-based protection can be undertaken in the context of broader measures, such as development of ocean policies, and regional systems can be strengthened of in the context of Regional Seas conventions and programmes, and coordinated with global conventions like the Ramsar and World Heritage conventions. Activities to reach this target should be implemented together with those associated with goals 4, 5, 7 and 8, which emphasize the need for a sustainable management framework for all human activities.

Overall target 1.2: Areas of particular importance to biodiversity protected.

Application to marine and coastal ecosystems: *Particularly vulnerable marine and coastal habitats and ecosystems, such as tropical and cold water coral reefs, seamounts, mangroves, seagrasses and other vulnerable ecosystems effectively protected.*

Technical rationale

This target aims to protect particularly vulnerable and irreplaceable marine and coastal habitats and ecosystems as a matter of urgency (whereas target 1.1 focuses on effectively protecting representative ecosystems), including areas that are important to globally threatened, congregatory, and restricted range species, and that meet the criteria of annex I of the Convention on Biological Diversity. Although the target specifies habitats and ecosystems in operational objective 2.3 of the programme of work on marine and coastal biological diversity (decision VII/5, annex I), it also recognizes that there are other important vulnerable areas, in particular breeding areas, spawning aggregations and nursery areas, and that action to protect them should be taken in the context of this target. Destructive practices, including dynamite fishing, removal of coral for building purposes, bottom trawling, and other such practices, are the main threats to several of these habitats and ecosystem, and this target aims to protect 100 per cent, or as much as possible, of them from destructive practices by the year 2010.

Damage from bottom trawling is reported to be the main threat to seamounts and to fragile, slow-growing cold-water coral reefs, resulting in breakage of the reef structure. 2/ Some reefs in the east Atlantic have already been destroyed, and most others show scars from trawling. The immediate and urgent need to manage risks to biodiversity of seamounts and cold water coral reefs, through, e.g. elimination of destructive practices, has been highlighted by the seventh meeting of the Conference of the Parties (decision VII/5, paragraph 61), and by a number of other international forums, including the fifth meeting of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea (recommendation 6 (a)) and the third informal consultation of States Parties to the Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks. The importance and vulnerability of coral

---

1/ For example, Roberts, C.M., B.S. Halpern, Rr. Warner, and S. Palumbia (2002) Designing marine reserve networks: why small, isolated protected areas are not enough. Conservation Biology in Practice 2: 9-17: J.A. Bohnsack. B. Causey, M.P. Crosby, R.B. Griffis, M.A. Hixon, T.F. Hourigan, K.H. Koltes, J.E. Maragos, A. Simons and J.T. Tilmant (2000) A rationale for minimum 20-30% no-take protection. Proceedings of the 9th International Coral Reef Symposium, Bali, Indonesia, 2000; Botsford, L.W. and S.D. Gaines (2001) Dependence of sustainability on configuration of marine reserves and larval dispersal distance. Ecol,ogy Letters. 4: 144-150; Mangle. M. (2000) On the fraction of habitat allocated to marine reserves. Ecology Letters 3(1): 15-22.; Lindholm, J.P., P.J. Auster, M. Ruth, and L. Kaufman (2000) Modeling the effects of fishing and implications for the design of marine protected areas: Juvenile fish responses to variations in seafloor habitat. Conservation Biology 15: 424-437; Bohnsack, J.A. (2000) A comparison of the short term impacts of no-take marine reserves and minimum size limits. Bulletin of Marine Science 66: 615-650.

2/ UNEP-WCMC (2004) Cold-water Coral Reefs: Out of Sight - No Longer Out of Mind. UNEP-WCMC publication.

reefs has been repeatedly emphasized by the Conference of the Parties (decisions VII/5, VI/3, V/3 and IV/5). Approximately 35 per cent of the world's mangrove forests have been lost to habitat conversion and other impacts, 3/ while major losses of seagrasses have taken place in many parts of the world due to land-based nutrients and sediments, 4/ as well as direct impacts due to construction and other activities. Protection of breeding, nursery and spawning areas has been identified as a priority activity in decision IV/5 and in paragraph 32 (c) of the WSSD Plan of Implementation, and is critical for creation of sustainable fisheries and development of an ecologically functional marine protected areas network (and links it with target 4.1).

Protection of seamounts and cold water coral reefs from destructive practices in areas outside of national jurisdiction requires international cooperation, consistent with international law, and on scientific basis. Action to protect seamounts within Exclusive Economic Zones can be undertaken by individual countries. In addition to elimination of destructive practices, integrated watershed and coastal management, proper land-use planning and impact assessment are key to protecting coastal mangrove, seagrass and coral reef ecosystems. This would include identification of key threats and implementation of management that is integrated across all sectors, and would involve coordinated pollution controls, development restrictions, fisheries management and scientific research to identify areas of importance to marine and coastal biodiversity. Protection of spawning, breeding and nursery areas can be accomplished by implementing time/area closures and other effective measures. The protection of coastal habitat must figure prominently in ecosystem-based fisheries-management (linking this target with target 4.1.1). Activities to reach this target are also linked to those associated with goals 4, 5, 7 and 8.

Goal 2. Promote the conservation of species diversity

Overall target 2.1: Restore, maintain, or reduce the decline of populations of species of selected taxonomic groups.

Application to marine and coastal ecosystems: *Reduce the decline of, maintain or restore populations of species of selected marine and coastal taxonomic groups.*

Technical rationale

This target aims to protect populations of species that are currently declining, but not yet threatened (threatened species are addressed under target 2.2, while threats to species from international trade is addressed under target 4.3). In particular, the target refers to reducing the decline in, and maintaining and restoring, populations of selected species for which population data exist, such as marine mammals, seabirds, fish stocks, molluscs, elasmobranchs (sharks and rays), and reptiles. It should also be noted that there is a lack of information about the status of many marine and coastal species, and that increased investment into the assessment and monitoring of such species is needed as a matter of urgency and priority. The IUCN Red List provides a framework for a comprehensive assessment of marine species.

By-catch, direct exploitation, unsustainable practices such as shark finning, habitat degradation and loss of nesting habitat, as well as pollution contribute to the decline in these species. This target relates to the target put forward in paragraph 31 (a) of the Plan of Implementation of the World Summit on Sustainable Development on maintenance or restoration of fisheries stocks (and therefore to target 4.1.1). Activities to reach this target include implementation of the FAO Code of Conduct on

---

3/ Valiela I., Bowen J.L. and J.K. York(2001) Mangrove Forests: One of the World's Threatened Major Tropical Environments. BioScience, 1 October 2001, vol. 51, no. 10, pp. 807-815(9). American Institute of Biological Sciences.

4/ M. Spalding, M. Taylor, C. Ravilious, F. Short, E. Green (2003) World Atlas of Seagrasses. UNEP-WCMC, Cambridge, UK.

Responsible Fisheries, the FAO International Plans of Action for the Conservation and Management of Sharks, for Reducing Incidental Catch of Seabirds in Longline Fisheries, and for the Management of Fishing Capacity. Application of technologies and methods for reducing by-catch are important for this target, as are the diverse tools and approaches listed in paragraph 32 (c) of the WSSD Plan of Implementation. Each of these tools and approaches together with appropriate reduction in the level of fish catches and the application of precautionary approach can contribute towards this target, though none of them alone may be enough to reach it. This target is linked to the targets under goal 1, as area-based protection applied in an ecosystem context is important for managing populations of species.

Overall target 2.2: Status of threatened species improved.

Application to marine and coastal ecosystems: *Known globally threatened and endangered marine and coastal species, with particular attention to migratory and transboundary species and populations, effectively conserved.*

Technical rationale

This target, which is consistent with World Parks Congress recommendation 5.04, aims for effective maintenance and recovery of threatened species, including those listed in the IUCN Red List of Threatened Species (currently 737 marine species), in networks of protected areas or through other appropriate and effective means. Such efforts should be undertaken in conjunction with comprehensive and urgent assessments of entire marine taxa (e.g., fishes, corals) for the IUCN Red List, which is the globally accepted measure of extinction risk.. It should be noted that as awareness of threatened and endangered marine and coastal species increases, it is likely that more of them will become listed, and current efforts, such as the Census of Marine Life, will likely increase our knowledge of existing marine species, as well as of their vulnerability. Because of this, the target refers to all *known* species. Additionally, explicit management for uncertainty in our knowledge base is essential, and methods to estimate the degree of threat to which yet unknown species are exposed should be employed where possible.

Specific activities to reach this target include both species and ecosystem-based conservation efforts, such as the use of effective MCPAs covering a representative selection of habitats within each biogeographical region, while ensuring connectivity between those MCPAs. Conservation measures should fully take into account species' life cycles and life history, by ensuring that a species is protected throughout its life cycle. Other measures, such as efforts to reduce and eliminate by-catch of threatened species also contribute towards this target. Furthermore, the distribution of some species, as well as the habitats utilized by them, may change as a result of climate change, increasing the need to have MCPAs that are large and distributed. Regular assessment and monitoring of the status of these species is required to ensure that this target is being achieved, and numerous organizations under the umbrella of the Red List Partnership are committed to supporting Parties in this work. Methods for tracking changes in the aggregate extinction risk to species are available through the Red List Index. Activities should be coordinated with relevant international agreements like CITES, CMS and protocols on protected species/areas under the Regional Seas Conventions/Programmes. Activities to reach this target should be implemented together with those associated with goals 1, 4, 5, 7, and 8, in order to emphasize the need to undertake species management in an ecosystem context

Goal 3. Promote the conservation of genetic diversity

Overall target 3.1: Genetic diversity of crops, livestock, and of harvested species of trees, fish and wildlife and other valuable species conserved, and associated indigenous and local knowledge maintained.

Application to marine and coastal ecosystems: *Further losses of known genetic diversity of exploited wild fish and other wild and cultured marine and coastal species prevented.*

Technical rationale

Genetic diversity includes variation within and among populations. Genetic diversity within a population may be lost through reduction of overall population size caused by, for example, direct exploitation, habitat alteration and destruction, toxic materials, and invasive species. Small populations contain less genetic variation than large ones, reducing their adaptability to rapid environmental change, and their ability to recover from over-exploitation. Severe selective pressures may also cause loss of genetic diversity. Because most fisheries are selective in targeting the largest and oldest individuals, intensive fishing can reduce the age and size at which fish mature, potentially leading to genetic change.5/ Because genetic diversity of marine and coastal species as a whole is poorly known, the target focuses on exploited fish and other valuable species with known genetic diversity, such as salmon and sea turtles, as well as cultured species.

Activities to reach this target (including the maintenance of general habitat character, removal of severe selective pressures and prevention of escapes of alien species) should be implemented together with those associated with goals 1, 2, 4, 5, 7, and 8.

B. Promote sustainable use

Goal 4. Promote sustainable use and consumption

Overall target 4.1: Biodiversity-based products derived from sources that are sustainably managed, and production areas managed consistent with conservation of biodiversity.

Application to marine and coastal ecosystems (subtarget 4.1.1): *A minimum of 70 per cent of all exploited fisheries products derived from sources that are sustainably managed, and unsustainable uses of other marine and coastal species minimized.*

Technical rationale

Excessive fishing impacts on marine biodiversity, affecting target species, habitats, food webs and non-target species. The target in paragraph 31 (a) of the Plan of Implementation of the World Summit on Sustainable Development seeks to maintain or restore (fisheries) stocks to levels that can produce the maximum sustainable yield with the aim of achieving these goals for depleted stocks on an urgent basis and where possible not later than 2015. This would imply that 70 - 80 per cent sustainability would need to be reached by 2010, if the 2015 target is to be achieved. The long-term goal, in accordance with the WSSD Plan of Implementation, is for all fishery products to be derived from sustainable sources.

Sustainability for the context of this target has its basis in Article 7 of the Code of Conduct for Responsible Fisheries of the Food and Agriculture Organization of the United Nations. Based on the Code of Conduct, the Marine Stewardship Council has formulated principles and criteria recognizing that a sustainable fishery is based on (i) the maintenance and re-establishment of healthy populations of targeted species; (ii) the maintenance of the integrity of ecosystems; (iii) the development and maintenance of effective fisheries management systems, taking into account all relevant biological, technological, economic, social, environmental and commercial aspects; and (iv) compliance with relevant local and national laws and standards and international understandings and agreements. Paragraphs 31 (b-f) and 32 (c) of the WSSD Plan of Implementation also put forward a number of actions that will contribute to the achievement of this target, including application of marine and coastal protected areas (see target 1.1) and elimination of destructive practices (see target 1.2). In addition, appropriate economic incentives (reduction of subsidies) should be applied, and any new fisheries should be appropriately assessed for sustainable fishing levels. On a broader scale, achievement of this target would

5/ Olsen, E.M., Heino, M., Lilly, G.R., Morgan, M.J., Brattey, J., Ernande, B. and U. Dieckmann (2004) Maturation trends indicative of rapid evolution preceded the collapse of the northern cod. Nature, Vol 428: 932-935.

require development and implementation of a sustainable fisheries management framework in an ecosystem context, incorporating the protection of marine biodiversity.

Application to marine and coastal ecosystems (subtarget 4.1.2): *90 per cent of mariculture facilities operated consistent with the conservation of biodiversity.*

Technical rationale

The main biodiversity effects of mariculture include habitat degradation, disruption of trophic systems, depletion of natural seedstock, transmission of diseases, and reduction of genetic variability[6]. Pollutants, such as chemicals and drugs can also be detrimental to the marine ecosystem, while the need to feed cultured carnivorous marine fish wild caught protein leads to net loss of biodiversity, unless alternative feed sources are used. While mariculture output is still dwarfed by the tonnage of farmed freshwater organisms, it is growing worldwide, and has become an important contributor to the world's food supply.

Because mariculture can be controlled, and national, regional and international guidelines and mechanisms are in place, the percentage in the target is higher than for capture fisheries, and a 90 per cent target should be achievable by 2010. Article 9 of the Code of Conduct for Responsible Fisheries of the Food and Agriculture Organization provides a set of voluntary principles and standards that, if applied, ensure that potential social and environmental problems associated with aquaculture development are duly addressed and that aquaculture develops in a sustainable manner. Effective site selection, including keeping some areas free of mariculture in the context of integrated marine and coastal area management approaches, is an important precautionary measure. Management plans and measures will need to be applied to the transfer of broodstock to prevent potential impacts on genetic diversity. This target acknowledges the contribution of mariculture to food security while seeking to ensure that mariculture operations are undertaken in a sustainable manner. In accordance with paragraph 31(h) of the WSSD Plan of Implementation, this target acknowledges the contribution of mariculture to food security, while seeking to ensure that mariculture operations are undertaken in a sustainable manner.

Overall target 4.2: Unsustainable consumption, of biological resources, or that impacts upon biodiversity, reduced

Application of overall targets 4.1 and 4.2 to marine and coastal ecosystems have been combined. Therefore subtargets 4.1.1 and 4.1.2 also address aspects of this overall target.

Overall Target 4.3: No species of wild flora and fauna endangered by international trade

Application to marine and coastal ecosystems: *No species of wild marine and coastal flora and fauna endangered by international trade.*

Technical rationale

Trade in marine species continues to increase and includes food trade (for example fish and lobsters), ornamental trade (for example aquarium fish, corals and other invertebrates), and curio trade (for example shells, such as triton). Unsustainable marine ornamental species trade may have a number of biodiversity effects resulting from destructive collection practices, the introduction of alien species, over-harvesting and the lack of scientific information for many species collected, and the threat of extinction of target species. However, aquarium trade undertaken in a sustainable manner can bring benefits to local communities in predominately rural, low-income coastal areas.

Sustainable ornamental fisheries would be managed in such a way that they are biologically sustainable (harvested species are replenished in their natural habitat at the same or greater rate than they

---

6/ Report of the Ad Hoc Technical Expert Group on Mariculture (2003) CBD Technical Series No. 12.

are collected), do not conflict with other resource users and keep post-harvest mortalities to a minimum. In addition, habitat damage and impacts to other species are minimized, species unsuitable for aquaria are not collected, and trade is conducted in an equitable manner. 7/ The use of certification schemes, such as that of the Marine Aquarium Council, can be an important tool to reach this target as it relates to ornamentals. On a broader scale, the Convention on International Trade of Endangered Species of Fauna and Flora (CITES) is an important international mechanism for regulating trade, and provides a way for importing countries, which are often creating the demand for products, to share responsibility with the source countries for ensuring that trade is sustainable. CITES listings have a potential role in promoting management and sustainable use of marine species and products. The protection of additional species threatened by international trade through listing or strengthened protection, based on the precautionary approach and scientific information, presents an important tool for reaching this target. As indicated under targets 2.1 and 3.1, there is a need for increased investment in the assessment of status of marine and coastal species in order to determine the threats to them.

Goal 5. Pressures from habitat loss, land use change and degradation, and unsustainable water use, reduced

Overall Target 5.1: Rate of loss and degradation of natural habitats decreased.

Application to marine and coastal ecosystems: *Rate of loss and degradation of natural marine and coastal habitats, in particular mangroves, seagrasses and other important coastal habitats, decreased.*

Technical rationale

The increase in coastal populations and economic activities is leading to an expansion of the direct use of coastal resources and negative human-induced changes to ecosystems. As a result, habitat degradation is a major cause of biodiversity loss in the marine and coastal environment. All marine and coastal habitats can be affected; however, loss and degradation of mangrove, seagrass and coral reef habitats have been documented worldwide, as have been the detrimental effects of destructive practices on vulnerable seabed habitats. Other important marine and coastal habitats addressed in this target include breeding, spawning and nesting areas, migratory routes, and other such areas important to different stages of the life history of species. Degradation and destruction of natural habitats, along with the cumulative impact of unsustainable practices (extraction, pollution, nutrient enrichment, etc.) and climate change may lead to changes in community structure, for example phase shifts from coral dominated to algal dominated communities. In this context, maintaining the structure and functions of natural ecosystems is important for the resilience of those ecosystems, linking this target with target 7.1.

Activities to reach this target include the implementation of effective integrated marine and coastal area management, in conjunction with watershed management, and environmentally sound coastal planning (linking this target with targets 1.1 and 1.2). Protection of breeding, nursery and spawning areas can be accomplished in accordance with paragraph 32(c) of the WSSD Plan of Implementation by implementing time/area closures and other effective protection measures, including elimination of destructive fishing practices and gear, and is vital for sustainable fisheries. For wide-ranging migratory species, national and regional systems may be necessary, linking this target with target 2.2. Marine protected areas implemented in an ecosystem context and in parallel with initiatives to reduce the destructive capacity of fishing gear, for example through introduction of low-impact gear designs and establishment of areas where use of destructive gear is prohibited, could be significant measures for seabed habitat protection.

8/ Wabnitz, C., Taylor, M., Green, E., and T. Razak (2003) From Ocean to Aquarium. UNEP-WCMC, Cambridge, UK

Goal 6. Control threats from invasive alien species

Overall target 6.1: Pathways for major potential alien invasive species controlled.

Application to marine and coastal ecosystems: *Pathways for major potential invasive alien species in marine and coastal ecosystems controlled.*

Technical rationale

The control of pathways is regarded as the most effective way to address the problem of invasive alien species in the marine environment. The main sources of introductions are considered to be ballast water from ships, fouling of ships, escapes from mariculture operations and hatcheries, intentional and unintentional release of live organisms, and migration through canals. Controlling these vectors is likely to have the greatest effect in reducing the number and severity of invasions. However, this target also recognizes that other sources of introductions exist and that controlling all pathways through effective regulation is important.

Pathways need to be identified, evaluated and managed to reduce risk of invasion using best practices. Significant advances have been made in management of ballast water, and the rapid entry into force and effective implementation of the International Convention on the Control and Management of Ships' Ballast Water and Sediments by IMO member States is a priority activity to reach this target. Development and effective implementation of new ballast water treatment technologies to eliminate the need for open-ocean exchange will also be necessary. Priority activities addressing non-ballast water pathways include further development of regulations, programmes and measures to control the introduction of alien species through fouling of ships, mariculture, intentional and unintentional release, canals and other vectors. Controlling the mariculture pathway would require national and regional approaches based on scientifically accepted environmental criteria (linking this target with target 4.1.2). This target is also related to target 3.1 because accidental introduction of cultured organisms may have an impact on genetic diversity of wild species.

Overall target 6.2 Management plans in place for major alien species that threaten ecosystems and habitats and species.

Application to marine and coastal ecosystems: *Management plans in place for major alien species that threaten marine and coastal ecosystems, habitats or species.*

Technical rationale

Despite improved control of pathways (target 6.1), invasive alien species still pose significant threats to marine and coastal habitats and species. The development and implementation of management plans (covering prevention, containment, eradication and control) is an important priority.

The control of alien species in coastal and marine areas is difficult, but some success stories exist, and new techniques are being developed. Prevention remains the priority, but containment (particularly preventing human-facilitated spread from the point of first arrival to other areas), eradication and control are also of critical importance. Containing and eradicating new invasions in coastal ecosystems is facilitated by these ecosystems being generally small and surrounded by water or other inhospitable areas. Development and implementation of management plans for those alien species potentially amenable to some level of control is essential, and should guide immediate management actions. Plans should be adaptive to enable learning from management, leading to increased capacity to manage invasive alien species over time. Island ecosystems with high endemism are extremely vulnerable to invasive alien species, and can suffer catastrophic loss of biodiversity as a result. However, they are also more likely to respond to eradication and control attempts. Management plans should be developed at appropriate scales by relevant authorities for all detected invasive or potentially invasive alien marine and coastal species. Strategic responses include building of management and research capacity; sharing of information; development of economic policies and tools; strengthening national, regional and international legal and

institutional frameworks; instituting systems of environmental science-based risk analysis; building public awareness and engagement; preparation of national strategies and plans; building invasive alien species issues into global change initiatives; and promoting international cooperation. Inspection and treatment of vessels and other marine equipment is particularly important in preventing invasive species from entering and spreading. Management plans relating to the transfer of live organisms used in mariculture (target 4.1.2) and trade (target 4.3) should also be in place as a prevention mechanism.

Goal 7. Address challenges to biodiversity from climate change and pollution

Overall target 7.1: Maintain and enhance resilience of the components of biodiversity to adapt to climate change

Application to marine and coastal ecosystems: *Maintain and enhance resilience of the components of marine and coastal biodiversity to adapt to climate change.*

Technical rationale

Ecosystems and species that are healthy have a significant capacity to both resist and recover from periodic disturbances, such as coral-bleaching events or population collapses due to shifts in currents and changes in sea temperature. Ecosystems and species in a compromised state have limited capacity to do so. This target seeks to maintain ecosystem resistance and resilience to climate change through controlling and minimizing other major human-induced impacts on marine and coastal ecosystems and species resulting from a variety of causes including overexploitation, coastal development, destructive fishing practices, land-based pollution, coral mining, marine-based pollution, and recreational misuse. It also aims to minimize the impact of climatic events, such as coral bleaching, on coastal communities dependent on marine and coastal resources for their livelihoods. Even minor declines in productivity could have dramatic socio-economic consequences for many poor communities.

Relevant activities include the application of sound management practices in an ecosystem context. Representative networks of marine and coastal protected areas should be designed to offer resilience in the face of climate-induced threats, including through maintaining connectivity between more highly protected areas and providing for replication of habitat and ecosystem types. It may also be appropriate to institute specific recovery programmes to assist some affected species using best practices. The updated coral bleaching workplan (decision VII/5 appendix 1) provides activities that can be undertaken to reach this target for coral reefs. Relevant activities may also include identification and institution of additional and alternative measures for securing the livelihoods of people who directly depend on the affected ecosystems and species. The activities discussed here are related to those under goals 1, 2, 3, 4, 5, 6 and 8.

Overall target 7.2: Reduce pollution and its impacts on biodiversity

Application to marine and coastal ecosystems: *Reduce land-based and seabased sources of marine pollution and their impacts of biodiversity*

Technical rationale

Land-based activities are a major source of threats to the resilience, productivity and biodiversity of the marine environment. Threats from land-based activities include pollution (municipal, industrial and agricultural wastes and run-off, as well as atmospheric deposition), nutrient enrichment (particularly increases in dissolved nitrogen and phosphorus) and physical alteration and destruction of habitats. According to United Nations Environment Programme GEO Yearbook 2003, land-based sources of marine pollution have lead to a substantial worldwide increase in hypoxic events and areas, highlighting the urgent need to address this issue. Pollution from seabased sources includes oil spills and ocean dumping. Although major oil spills are infrequent, their impacts are severe and widespread when they do occur, affecting various components of the ecosystem and ultimately human well-being. Marine debris is another pervasive pollution problem adversely impacting species and habitats.

In accordance with paragraphs 33 and 34 of the WSSD Plan of Implementation, effective application of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, and the conventions, protocols and other relevant instruments of the International Maritime Organization (IMO), provide effective means for reaching this target. In addition, provisions under regional instruments, programmes and processes, and other appropriate measures, such as the relevant components of UNCLOS and the London and POPs Conventions contribute towards it. More specifically, the WSSD Plan of Implementation lists a number of related actions, which include proper coastal land use, watershed planning, and integration of integrated marine and coastal area management into key sectors. In this context, there is a need for effective strategies for waste reduction and management in order to reduce land-based pollution and offshore dumping, and a need for adequate port reception facilities for wastes from ships. IMO's Particularly Sensitive Sea Areas (PSSAs) provide a measure to reduce the likelihood of accidents, such as oil spills. Activities to reduce land-based and seabased pollution are also included under operational objective 1.2 in decision VII/5 annex I.

C. Maintain goods and services from biodiversity to support human well-being

Goal 8. Maintain capacity of ecosystems to deliver goods and services and support livelihoods

Overall target 8.1: Capacity of ecosystems to deliver goods and services maintained.

Application to marine and coastal ecosystems: *Capacity of marine and coastal ecosystems to deliver goods and services maintained*

Technical rationale

Marine and coastal ecosystems deliver a range of goods and services. These include: (i) provision of protein supply through fish to 6.2 billion people globally as well as other food sources like seaweed; (ii) provision of livelihood and employment for at least 150 million people, particularly in the developing world; (iii) functionality of healthy marine ecosystems that cycle nutrients, including from land run-off into food chains that ultimately supply fish and other products for human consumption; (iv) generation of significant tourism income and support to international commerce; (v) provision of effective barriers to mitigate/protect against severe storms and erosion; and (vi) acting as the major component of global climate regulation.

This target can be seen in the context of the target set forward in paragraph 29 (d) of the Plan of Implementation of the World Summit on Sustainable Development, which encourages the application of the ecosystem approach by the year 2010. Management of marine and coastal resources on a broad ecosystem scale and in a precautionary context can best maintain ecosystem capacity to deliver goods and services. Given the substantial economic values provided by marine biodiversity, and the high level of threat worldwide to marine and coastal ecosystems, the costs involved in its conservation and sustainable use are negligible. For example, a recent study estimated that a global network of marine protected areas meeting the World parks Congress target of conserving 20-30 per cent of the world's seas might cost between $5 billion and $19 billion annually to run and would probably create around one million jobs. 8/ The costs could also be offset by likely social gains from increasing sustainability of fisheries and securing vital ecosystem services, if such measures are taken in partnership with indigenous and local communities and contribute directly to poverty alleviation and local food security. The ecosystem approach takes into consideration the societal needs of communities dependent on biodiversity resources, and promotes the fair and equitable sharing of the tangible and intangible benefits of biodiversity. It recognizes that humans with their cultural diversity are an integral component of many ecosystems, linking this target to all the other targets.

9/ Balmford, A., Gravestock, P, Hockley, N., McClean, C. and C. Roberts (2004) The worldwide costs of marine protected areas. PNAS, Vol. 101, No. 26.

Overall target 8.2: Biological resources that support sustainable livelihoods, local food security and health care, especially for poor people maintained.

Application to marine and coastal ecosystems: *Marine and coastal biological resources that support sustainable livelihoods, local food security and health care, especially for poor people maintained.*

Technical rationale

According to Agenda 21, "marine living resources provide an important source of protein in many countries and their use is often of major importance to local communities and indigenous people. Such resources provide food and livelihoods to millions of people and, if sustainably utilized, offer increased potential to meet nutritional and societal needs, particularly in developing countries." Sustainable use of living resources can directly contribute to poverty alleviation, and can be in conformity with the Millennium Development Goals (MDGs) as noted in annex I to decision VII/5 (basic principles). Marine and coastal resources contribute to local livelihoods through subsistence, artisanal, traditional, customary, commercial and recreational fishing; mining and construction material; harvesting for aquarium and ornamental trades; and harvesting for pharmaceutical trades. In addition, non-extractive activities, such as tourism and aquaculture, enhance the livelihoods of coastal people, when undertaken in sustainable and participatory ways.

Globally, the bulk of the people employed in fisheries are poor and many are without alternative sources of work and sustenance. In addition, fish and fishing are important to the cultural life of many coastal communities. The maintenance of healthy marine and coastal ecosystems is therefore directly linked to the well-being of coastal communities. The rationales for targets under goals 1, 2, 4, 5 and 7 provide activities that can also be applied to reach this target, and community participation in such activities is important for their success. Sustainability of local livelihoods and biodiversity are linked to the consumption of local products at the local level. Incorporating information relevant to local livelihoods into economic indices could help guide overall decisions concerning advantages of keeping the benefits of biodiversity at the local level, as opposed to, for example, favouring initiatives that may be positive to the economy but not necessarily to the quality of life of local people. This target is also related to the targets under goals 9 and 10.

D. Protect traditional knowledge, innovations and practices

Goal 9. Maintain socio-cultural diversity of indigenous and local communities

Overall target 9.1: Protect traditional knowledge, innovations and practices.

Application to marine and coastal ecosystems: *Protect traditional knowledge, innovations and practices associated with marine and coastal biological diversity.*

Overall target 9.2: Protect the rights of indigenous and local communities over their traditional knowledge, innovations and practices, including their rights to benefit-sharing.

Application to marine and coastal ecosystems: *Protect the rights of indigenous and local communities over their traditional knowledge, innovations and practices, including their rights to benefit-sharing, regarding marine and coastal biological diversity.*

Combined technical rationale for targets 9.1 and 9.2

Indigenous, traditional and local communities have a wealth of knowledge about biodiversity and its sustainable management, and in many countries marine and coastal biodiversity underpins livelihoods and food security. Application of sustainable local and traditional knowledge in the management of biological resources may also promote the maintenance of local and traditional knowledge systems. This target is consistent with target 9 of the Millennium Development Goals (to integrate principles of sustainable development into country policies and programmes and to reverse the loss of environmental resources) and Agenda 21.

Measures to address the decline in associated indigenous and local knowledge should be implemented consistent with the Convention's programme of work on Article 8(j) and related provisions. Fair and equitable sharing of benefits also plays a potentially important role in poverty eradication and environmental sustainability, consistent with the goals and targets of the Millennium Development Goals. World-wide experience has shown that local and indigenous communities must be empowered to ensure that their knowledge is applied in marine and coastal biodiversity management, highlighting the need for both bottom-up and top-down approaches to management. Traditional knowledge, particularly oral knowledge, on practices such as use of traditional fishing gear, is easily lost, and documenting local knowledge is important for its protection. Access to information helps enable indigenous and local communities to effectively participate as stakeholders in biodiversity management processes, for example in the establishment and management of marine and coastal protected areas, and to benefit from the goods and services of biodiversity. In addition, communities should be guaranteed the right of access to resources, linking this target to the targets under goal 10.

E. Ensure the fair and equitable sharing of benefits arising out of the use of genetic resources

Goal 10. Ensure the fair and equitable sharing of benefits arising out of the use of genetic resources

Overall target 10.1: All transfers of genetic resources are in line with the Convention on Biological Diversity, International Treaty on Plant Genetic Resources for Food and Agriculture and other applicable agreements.

Application to marine and coastal ecosystems: *All transfers of genetic resources derived from marine and coastal biological diversity are in line with the Convention on Biological Diversity, the International Treaty on Plant Genetic Resources for Food and Agriculture and other applicable agreements.*

Overall target 10.2: Benefits arising from the commercial and other utilization of genetic resources shared with countries providing such resources.

Application to marine and coastal ecosystems: *Benefits arising from the commercial and other utilization of genetic resources derived from marine and coastal biological diversity shared with the countries providing such resource.s*

Combined technical rationale for targets 10.1 and 10.2

Many marine organisms, such as sponges, corals, seaweeds, sea cucumbers and sea anemones have potential pharmaceutical and other commercial uses. In addition, poorly known marine ecosystems, such as hydrothermal vents, may contain novel genetic resources with potential commercial value.

In order to assist Parties, Governments and relevant stakeholders with the implementation of the access and benefit-sharing provisions of the Convention, the Conference of the Parties adopted at its sixth meeting the Bonn Guidelines on Access to Genetic Resources and the Fair and Equitable Sharing of the Benefits arising from their Utilization. These voluntary guidelines are meant to assist Parties and relevant stakeholders when establishing legislative, administrative and policy measures on access to genetic resources and benefit-sharing and/or when negotiating contractual arrangements for access and benefit-sharing. Additionally, in accordance with decision VII/19, an international regime on access and benefit-sharing is to be negotiated by the Ad Hoc Open-ended Working Group on Access and Benefit-Sharing. Against this background, this target aims to ensure that national systems established to implement the access and benefit-sharing provisions of the Convention also cover access to marine and coastal genetic resources and the fair and equitable sharing of benefits arising out of the utilization of these resources, in accordance with the Convention. It should be noted however that genetic resources in the deep seabed in areas beyond national jurisdiction are not covered by the access and benefit-sharing provisions of the Convention. Issues related to genetic resources in the deep seabed will be further considered in accordance with decision VII/5, taking into account the legal framework established by UNCLOS.

F. Ensure provision of adequate resources

Goal 11.1. Parties have improved financial, human, scientific, technical and technological capacity to implement the Convention.

Overall target 11.1: New and additional financial resources are transferred to developing country Parties, to allow for the effective implementation of their commitments under the Convention, in accordance with Article 20.

Application to marine and coastal ecosystems: *New and additional financial resources are transferred to developing country Parties, to allow for the effective implementation of their commitments for the programme of work on marine and coastal biological diversity under the Convention, in accordance with Article 20.*

Overall target 11.2: Technology is transferred to developing country Parties, to allow for the effective implementation of their commitments under the Convention, in accordance with Article 20, paragraph 4.

Application to marine and coastal ecosystems: *Technology is transferred to developing country Parties, to allow for the effective implementation of their commitments for the programme of work on marine and coastal biological diversity under the Convention, in accordance with its Article 20, paragraph 4.*

Combined technical rationale for targets 11.1 and 11.2

The lack of financial resources, capacity, and sustainable technological resources are consistently cited by Parties as the main impediments for the effective implementation of the Convention and its provisions. In addition, development of improved economic instruments and institutions is needed. The effective implementation of actions to reach these targets will require the availability of new financial and technological resources, as well as capacity-building. In addition, best use should be made of existing resources in both developing and developed countries, and developed countries may also need to refocus additional resources towards the conservation and sustainable use of biodiversity. Transfer of knowledge is an important component of this target and may occur both from developed countries to developing countries, and vice versa. Increased communication and the formation of partnerships and regional networks are vital for the achievement of these targets, as are education, public awareness and access to information.
