The Convention on Biological Diversity

The Jakarta Mandate on the Conservation and Sustainable use of Marine and Coastal Biological Diversity

Decisions by the Conference of the Parties

Recommendations from the Subsidiary Body on Scientific, Technical and Technological Advice

and

the Programme of Work arising from the Jakarta Mandate

FIRST VERSION - October 1998
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for the CBD Roster of Experts on Marine and Coastal Biological Diversity

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BACKGROUND INFORMATION

Development of the agenda-item on the conservation and sustainable use of marine and coastal biodiversity

First Meeting of the Conference of the Parties (December 1994)

In December 1994, at its first meeting held at the Bahamas, the Conference of the Parties (COP) to the Convention requested its Subsidiary Body on Scientific Technical and Technological Advice (SBSTTA) to advise on scientific, technical and technological aspects of the conservation and sustainable use of marine and coastal biological diversity.

First Meeting of SBSTTA (September 1995)

SBSTTA considered this item at its first meeting (SBSTTA-I), held in Paris in September 1995, and produced recommendation I/8 on scientific, technical and technological aspects of the conservation and sustainable use of marine and coastal biological diversity.

see for text of Recommendation I/8, pages 7-14

Second Meeting of the Conference of the Parties (November, 1995)

At its second meeting held in Jakarta in November 1995, COP adopted decision II/10 on the conservation and sustainable use of marine and coastal biological diversity, supporting selected recommendations among the ones produced by SBSTTA-I, and subject to additional conclusions by COP on the recommendations of SBSTTA-1 on scientific, technical and technological aspects of the conservation and sustainable use of marine and coastal biological diversity (as reported in Annex I to decision II/10). At the same occasion, the Ministerial Statement on the implementation of the Convention on Biological Diversity referred to a new global consensus on the importance of marine and coastal biological diversity as the "Jakarta Mandate on Marine and Coastal Biological Diversity".

Furthermore, decision II/10 instructed the Executive Secretary of the Convention to provide, in accordance with its Annex II to the Decision, SBSTTA with advice and options for recommendations to COP in further elaborating the recommendations of SBSTTA-I. This annex also referred to annual reports to SBSTTA to be produced by the Executive Secretary to the Convention, as part of further work of the Secretariat on marine and coastal biological diversity. The first report will include a three-year work plan.

See for text of Decision II/10, pages 14-19

First Meeting of Experts (March 1997), and Third Meeting of SBSTTA (September 1997)

In accordance with decision II/10, the Executive Secretary established a Roster of Experts in Marine and Coastal Biological Diversity, on the basis of country input; and convened, drawing from the Roster, the First Meeting of the Group of Experts on Marine and Coastal Biological Diversity (Jakarta, March 1997). The outcome of this meeting provided the basis for the elaboration by the Executive Secretary of a three-year programme of work on marine and coastal biological diversity. This programme of work was considered and amended by SBSTTA at its third meeting, held in Montreal in September 1997. The Meeting produced a recommendation including consideration of a draft three-year work plan on marine and coastal biological diversity.

Fourth Meeting of the Conference of the Parties (May, 1998)

Based on the recommendations by SBSTTA, the Fourth Meeting of the Conference of the Parties, which convened in May 1998 in Bratislava, adopted decision IV/5 on the conservation and sustainable use of marine and coastal biological diversity, including the programme of work arising from decision II/10 (the Jakarta Mandate).

See for text Decision IV/5, page 19-27

The five thematic areas of the Jakarta Mandate

Within the Jakarta Mandate, five thematic issues have been identified:

A. Integrated Marine and Coastal Area Management
B. Marine and Coastal Protected Areas
C. Sustainable Use of Marine and Coastal Living Resources
D. Mariculture
E. Alien Species

Integrated Marine and Coastal Area Management

Current sectoral approaches to the management of marine and coastal resources have generally not proven capable of conserving marine and coastal biological diversity. New models are needed to move planners toward multiple-use, systems-oriented modes of management, based on precautionary approaches and ecosystem management principles. Wide adoption and implementation of integrated marine and coastal area management (IMCAM) are necessary for effective conservation and sustainable use of marine and coastal biological diversity.

IMCAM is a participatory process for decision-making to prevent, control, or mitigate adverse impacts from human activities in the marine and coastal environment, and to contribute to the restoration of degraded coastal areas. It involves all stakeholders, including: decision-makers in the public and private sectors; resource owners, managers and users; non-governmental organizations; and the general public.

Community-based management approaches have proven particularly important. Integrated management programmes have already demonstrated their potential as an effective tool in developed and developing countries around the world.

Decision II/10, as adopted by the Conference of the Parties at its second meeting in Jakarta in November 1995, encourages the use of IMCAM as the most suitable framework for addressing human impacts on marine and coastal biological diversity and for promoting its conservation and sustainable use; and encourages Parties to establish and/or strengthen, where appropriate, institutional, administrative, and legislative arrangements for the development of integrated management of marine and coastal ecosystems, plans and strategies for marine and coastal areas, and their integration within national development plans.

According to decision II/10, crucial components of IMCAM are relevant sectoral activities, such as construction and mining in coastal areas, mariculture, mangrove management, tourism, recreation, fishing practices and land-based activities, including watershed management. Where appropriate and practical, physical alteration, destruction and degradation of vital habitats should be prevented and restoration of degraded habitats pursued, including spawning areas, nurseries of stocks of living marine resources, bearing in mind the objectives of the Convention on Biological Diversity and the need to provide a balanced approach to the use and conservation of marine and coastal biological diversity.

Expected outputs of the work of the Secretariat in the IMCAM area should be, according to decision II/10, options for the conservation and sustainable use of biological diversity and its components in the implementation of marine and coastal management and planning practices, including options for the development of IMCAM at regional and national levels.

The three-year programme of work on marine and coastal biological diversity (1998-2000) contains three operational objectives related to IMCAM:

(a) to review the existing instruments relevant to IMCAM and their implication for the implementation of the Convention;
(b) to promote the development and implementation of IMCAM at the local, national and regional level;
(c) to develop guidelines for ecosystem evaluation and assessments, paying attention to the need to identify and select indicators, including social and abiotic indicators, that distinguish between natural and human-induced effects.

Marine and Coastal Protected Areas

Within the context of national and regional efforts to promote integrated marine and coastal area management (IMCAM), networks of marine and coastal protected areas, other conservation areas, and Biosphere Reserves, provide useful and important management tools for different levels of conservation, management and sustainable use of marine and coastal

biological diversity and resources, consistent with customary international law.

According to decision II/10, as adopted by the Conference of the Parties at its second meeting in Jakarta in November 1995, critical habitats for living marine resources should be an important criterion for the selection of marine and coastal protected areas, within the framework of IMCAM, taking into consideration the objectives of the Convention. Conservation measures should emphasize the protection of ecosystem functioning, in addition to protecting specific stocks.

The three-year programme of work on marine and coastal biological diversity (1998-2000) contains two operational objectives related to Marine and Coastal Protected Areas:

(a) 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;
(b) to develop criteria for the establishment of, and for management aspects of, marine and coastal protected areas.

Sustainable Use of Living Marine and Coastal Resources

Many of the world's fishery resources are in danger of depletion. In addition, other living resources, such as mangroves, coral species and species amenable to bioprospecting, are subject to, or under threat of, over-exploitation.

The principal impact of over-exploitation is unsustainable removal of living marine and coastal resources. The most significant indirect impacts on biological diversity include habitat destruction, by-catch and ancillary impacts on interacting species or ecosystems. The overall goal is to achieve conservation and long-term sustainable use of living marine and coastal resources in a manner that respects both societal interests and the integrity of ecosystems.

According to decision II/10, as adopted by the Conference of the Parties at its second meeting in Jakarta in November 1995, the present mono-species approach to modelling and assessment should be augmented by an ecosystem process-oriented approach, based on research of ecosystem processes and functions, with an emphasis on identifying ecologically critical processes that consider the spatial dimension of these processes. Models of ecosystem processes should be developed through trans-disciplinary scientific groups (ecologists, oceanographers, economists, and fisheries experts) and be applied in the development of sustainable land and coastal resource use practices.

The programme of work on marine and coastal biological diversity contains two operational objectives related to marine and coastal living resources:

(a) to promote ecosystem approaches to the sustainable use of marine and coastal living resources, including the identification of key variables or interactions, for the purpose of assessing and monitoring, first, components of biological diversity; second, the sustainable use of such components; and, third, ecosystem effects;
(b) to make available to the Parties information on marine and coastal genetic resources, including bioprospecting.

Mariculture

Mariculture production worldwide is growing at the rate of about 5 to 7 per cent annually. Currently, the main types of marine organisms being produced through mariculture include seaweeds, mussels, oysters, shrimps, prawns, salmon and other species of fish.

Mariculture offers possibilities for sustainable protein-rich food production and for economic development of local communities. However, mariculture on an industrial scale may pose several threats to marine and coastal biological diversity due to, for example, wide-scale destruction and degradation of natural habitats, nutrients and antibiotics in mariculture wastes, accidental releases of alien or living modified organisms resulting from modern biotechnology, transmission of diseases to wild stocks, and displacement of local and indigenous communities.

According to decision II/10, as adopted by the Conference of the Parties at its second meeting in Jakarta in November 1995, because of the difficulties of complete containment, introduction of alien species, products of selective breeding, and living modified

organisms resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of marine and coastal biological diversity should be responsibly conducted using the precautionary approach. (For the purpose of decision II/10, mariculture does not require ownership of the stock being cultivated and is assumed to include culture-based fisheries and is defined to be aquaculture in marine or brackish water.)

Assessments and an appropriate monitoring programme should be put in place if introduction goes ahead. Preference should be given to the use of local species. Furthermore, development of technology to ensure a more complete containment should be encouraged.

The Parties should enhance and improve the knowledge regarding the genetic structure of the local populations of marine species subjected to stock enhancement and sea-ranching activities. Considering that the captive-bred populations are likely to interact genetically and ecologically with wild populations, this knowledge should be used in the management of breeding stocks according to sound genetic principles that take into account the use of local populations for stock selection, minimum breeding numbers and the renewal frequency of the breeding stock from the wild population.

The programme of work contains the following operational objective related to mariculture: to asses the consequences of mariculture for marine and coastal biodiversity and promote techniques which minimize adverse impacts

Alien Species

Alien invasive species represent a serious problem internationally, affecting not only biological diversity in a negative way, but also e.g. human and animal health and production in agriculture and fisheries. There are already many example of direct detrimental and often irreversible effects of alien species on terrestrial, freshwater and marine ecosystems, thus hindering the conservation and sustainable use of biological diversity. Furthermore, significant uncertainty is associated with risk assessment of problems caused by alien species invasions.

Article 8(h) of the Convention states that Contracting Parties to the Convention should, as far as possible and appropriate, prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species.

At the second meeting of Conference of the Parties (COP) to the Convention, Parties expressed their concern of the serious threats of the invasive of alien species to marine and coastal biological diversity. Paragraph (xi) to the Annex I to decision II/10 states that " (...) because of the difficulties of complete containment, introduction of alien species, products of selective breeding, and living modified organisms resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of marine and coastal biodiversity should be responsibly conducted using the precautionary approach. "

While some eradication and control technology options exist for alien species and genotypes in the marine and coastal environment, the most effective strategy for limiting their effects on biological diversity is to prevent their introduction.

Regarding alien species and genotypes, the programme of work contains the following operational objectives:

(a) to achieve a better understanding of the causes of the introduction of alien species and genotypes and the impact of such introductions on biological diversity;
(b) to identify gaps in existing or proposed legal instruments, guidelines and procedures to counteract the introduction of and the adverse effects exerted by alien species and genotypes which threaten ecosystems, habitats or species, paying particular attention to transboundary effects; and to collect information on national and international actions to address these problems, with a view to prepare for the development of a scientifically-based global strategy for dealing with the prevention, control and eradication of those alien species which threaten marine and coastal ecosystems, habitats and species;
(c) to establish an "incident list" on introductions of alien species and genotypes through the national reporting process or any other appropriate means.

SBSTTA recommendation I/8: Scientific, technical and technological aspects of the conservation and sustainable use of coastal and marine biological diversity

please note: In discussing recommendation I/8, the Conference of the Parties affirmed that it "represents a solid basis for future elaboration of the issues presented." Explicitly supported were the paragraphs 10-19 of Recommendation I/8. This support was subject to the views presented in Annex I of Decision II/10 of the Conference of the Parties.

Recalling that the Conference of the Parties decided to address, at its second meeting, advice from the SBSTTA on the scientific, technical and technological aspects of the conservation and sustainable use of coastal and marine biological diversity;

Recalling further that, in its decision I/7 taken at its first meeting, the Conference of the Parties requested the SBSTTA to advise on how the Conference of the Parties could start the process of considering those aspects;

1. In order to advance this work the SBSTTA has before it a number of papers on marine and coastal biological diversity. From these papers and a detailed discussion in plenary, a number of key areas were selected for consideration. Included in the overall aspect of integrating coastal and marine area management were the more specific issues of sustainable use of living coastal and marine resources, mariculture and the control of alien organisms. Recommendations on all these issues are included below. The rationale for these recommendations, which was based on the documentation before the SBSTTA and, in particular, document UNEP/CBD/SBSTTA/1/8, is included in the annex.

2. Although education, training and raising public awareness at the international and regional level were regarded as key delivery mechanisms, it was felt that, due to the insufficient time and complexity of issues in question, they should be comprehensively considered at the next session of the SBSTTA. The same session of the SBSTTA should also address the questions related to bio-prospecting on the deep sea bed, including access to its genetic resources.

3. The SBSTTA considers the conservation and sustainable use of marine and coastal biological diversity to be of such significance that it recommends the establishment of an ad hoc expert panel to provide advice on current issues. The expert panel shall be established for a period of three years and shall make an annual progress report. Issues which should be immediately reviewed by this panel are: the gaps in knowledge of the distribution and abundance of marine and coastal biodiversity; the particular needs for marine and coastal conservation and sustainable use of biodiversity in the context of threat alleviation, technology transfer; the linkages between the status of marine and coastal biodiversity and management of watersheds as well as pollution from marine vessels. It should also review the achievements of the scientific bodies associated with other international legal agreements, programmes and bodies dealing with aspects of marine and coastal biodiversity.

4. The SBSTTA intends to review this panel's conclusions at its fourth session in order to provide the fifth meeting of the Conference of the Parties with recommendations on this issue.

5. The following recommendations in this report for the Conference of the Parties are issues on conservation and sustainable use of marine and coastal biological diversity that the Conference of the Parties may wish to suggest to the fourth session of the Commission on Sustainable Development (CSD).

6. The SBSTTA recommends to the Conference of the Parties to forward the following statements to the next session of the CSD:

(a) The Conference of the Parties endorses integrated marine and coastal area management as the most suitable framework for addressing human impacts on marine and coastal biological diversity and for promoting conservation and sustainable use of these biological diversity. Governments are encouraged to establish and/or strengthen, as appropriate, institutional, administrative, and legislative arrangements for the development of

integrated management of marine and coastal ecosystems, plans and strategies for coastal and marine areas, and their integration within national development plans.

(b) Research and monitoring are urgently needed to assess the status and trends of marine and coastal biodiversity, evaluate the success of management and conservation actions, and develop more effective management practices. Research and monitoring programmes should include biological, physical, social, cultural and economic studies, consistent with the time-frame commensurate with their objectives. They should be supported by information management, interpretation and dissemination. Resource owners, users and managers should be involved to the maximum extent possible.

(c) Recognizing the need for global and regional action to address the loss of coastal and marine biodiversity, the Conference of the Parties recommends that the CSD call for the implementation of existing national and regional strategies to conserve coastal and marine biodiversity. The Conference of the Parties further recommends that the CSD recognize the International Coral Reef Initiative (ICRI) and other similar initiatives and endorse the ICRI Call to Action.

(d) The Conference of the Parties endorses and highlights the inclusion of representative systems of marine and coastal protected areas within integrated area management, consistent with the objectives of the Convention on Biological Diversity.

7. The SBSTTA further recommends to the Conference of the Parties that it recommend to the CSD the need for the CSD to evaluate the world-wide over-capitalization of fishing fleets and its impact on marine and coastal biodiversity, and to review the role of national government subsidies in contributing to the over-capitalization.

8. The SBSTTA further recommends to the Conference of the Parties that it recommend to the CSD to highlight and urge the need for international cooperation to stem the adverse impacts of alien species introductions.

9. The following recommendations are recommended for the consideration of the second meeting of the Conference of the Parties.

10. On integrated marine and coastal area management, the SBSTTA recommends to:

(a) Promote integrated marine and coastal area management as the framework for addressing impacts of land-based activities on marine and coastal biodiversity by, *inter alia*, minimizing or eliminating inputs of pollutants (including persistent organic and radioactive substances, excessive nutrients and sediments), in particular those arising from municipal waste, industrial effluents, deforestation, watershed degradation, unsustainable forms of agriculture and mining.

(b) Promote integrated marine and coastal area management as the framework for addressing human impacts on marine and coastal biological diversity and encourage governments, communities, and users to develop and adopt integrated management measures, including:

(i) land/habitat use capability analysis and planning for multiple use;
(ii) environmentally sound land and coastal resource use practices based on precautionary ecosystem management approaches and best management practices; and
(iii) sustainable tourism planning and management.

(c) Carry out environmental impact assessment of all major coastal and marine development activities with special attention to marine and coastal biological diversity, and taking into account cumulative impacts. Undertake systematic monitoring and evaluation of project impacts during implementation.

(d) Address socio-economic needs of coastal communities in the planning and implementation of the marine and coastal area management.

(e) Promote rapid appraisal techniques to improve the conservation and management of marine and coastal biological diversity.

(f) Address impacts of land-based activities on marine and coastal biological diversity and identify methodologies and research to assess these impacts, in close cooperation with the implementation of the Global Programme of Action for the Protection of the Environment from Land-Based Activities, the major product of the UNEP Conference on Protection of the Marine Environment from Land-Based Activities.

(g) Address impacts of desludging and pollution by maritime vessels on marine and coastal biological diversity, in particular in those countries which border international waterways, and adopt measures to mitigate adverse effects.

(h) Consider the effectiveness of both area management and species management as tools to provide a balanced approach to use and conservation of marine and coastal biological diversity.

11. On marine and coastal protected areas the SBSTTA recommends to:

(a) Based on consideration of biogeography and scale, and the objectives of the Convention on Biological Diversity, establish or consolidate representative systems of marine and coastal protected areas. Enhance linkages and information exchange among the sites.

(b) Promote research and monitoring of marine and coastal protected areas to assess their value for the conservation and sustainable management of biodiversity. Apply, as appropriate, rapid assessment techniques to identify and improve the management of protected areas.

(c) Explore means to incorporate marine and coastal protected areas within a broader framework for multiple use planning, as exemplified by UNESCO MAB Biosphere Reserves.

(d) Encourage the participation of local communities concerned and of resource users in the planning, management and conservation of coastal and marine areas.

(e) Consider all three levels of biological diversity, and factors determining their structure and function, in the development and implementation of management plans.

12. On sustainable use of coastal and marine living resources, the SBSTTA recommends to the Conference of the Parties that, as far as possible and appropriate, Parties should include in their national plans and programmes the following basic management elements ensuring that:

(a) Management decisions are based on application of the precautionary approach;

(b) Management decisions are based on the best available and sound scientific knowledge, research and information, taking into account ecosystem impacts;

(c) Waste (such as waste through discard, spoilage, or mortality in the trade in living organisms) is reduced;

(d) Local communities, users and indigenous people are involved in the conservation and management of resources;

(e) National legislation ensuring the conservation and sustainable use of living marine and coastal resources in conformity with the Convention on Biological Diversity, the United Nations Convention on the Law of the Sea (UNCLOS) and Agenda 21, and that the provisions of the draft FAO Code of Conduct for Responsible Fisheries once approved, will be followed;

(f) Existing international agreements addressing over-exploitation and conservation of marine and costal resources, are acceded to, and fully implemented and enforced, especially the Agreement on Straddling and Highly Migratory Fish Stocks; and

(g) Monitoring mechanism are used or established to assist sustainable management of marine and coastal living resources.

13. Regarding the management and technology tools recommended by FAO's Code of Conduct, the SBSTTA recommends that the Conference of the Parteis support the efforts of FAO to provide advice on these tools, and request an opportunity for the input of

the Conference of the Parties into the draft Code of Practice in order to ensure that the Code becomes fully consistent with the objectives and provisions of the Convention on Biological Diversity.

14. In addition, the SBSTTA recommends to the Conference of the Parties:

(a) To identify constraints, including economic, for conversion of fishing gear and phase-out of fishing over-capacity, and the possibility of reducing subsidies for fisheries;

(b) To offer the technical expertise of the SBSTTA to offer advice on the draft FAO Code of Conduct for Responsible Fisheries in order to ensure its consistency and conformity with the objectives and provisions of the Convention on Biological Diversity;

(c) To take into account the ecosystem functions and processes identifying and targeting critical processes for the conservation and sustainable use of biodiversity;

(d) To ask the FAO, or other appropriate bodies, to collate information on the availability of selective fishing gear and methods, possibly through the convening of an ad hoc intersessional panel on marine and coastal biodiversity; and

(e) To urge the Parties not yet signatories to the Agreement on Straddling and Highly Migratory Fish Stocks to sign the Agreement.

15. On mariculture, the SBSTTA recommends to the Conference of the Parties:

I. Parties should, as far as possible and as appropriate, implement environmentally sustainable mariculture practices, including the following:

(a) mariculture should be incorporated into integrated marine and coastal zone management plans, particularly taking into account the vulnerability of areas of high biological value;

(b) mariculture should be subject to prior environmental and social impact assessments (in accordance with Article 14) and regulations (Article 10) and should incorporate the participation and needs of local and indigenous communities;

(c) use of chemicals for therapeutics and other applications, high nutrient release and freshwater diversion should be minimized. Eutrophication should be avoided. Specific steps to achieve this include use of chemicals only in a prescribed and responsible manner, improvement in waste treatment, improvement in feed technology, and in promotion of integrated farming and polyculture;

(d) mariculture operations should not result in the overexploitation of natural stocks through harvesting of wild larvae;

(e) ** because of the difficulties of complete containement, introduction of alien species, products of selected breeding and living modified organisms resulting from modern biotechnology should be treated as an introduction into the wild. Therefore, adherence to international codes of practice such as the International Commission for Exploration of the Sea and the "Organisation Internationale Epizootique" should be a minimum requirement. Because of the potentially high risks, assessments should be rigorous, must correspond with the precautionary principle, and an appropriate monitoring programme must be put in place if introduction goes ahead. Preference should be given to the use of local species. Furthermore, development of technology to ensure a more complete containment should be encouraged;

**** see alternative: Dec. II/10, Annex I: (xi)**

(f) the conservation of genetic diversity in the wild stocks which farmed populations are derived should be an objective of overall management; and

(g) in areas where unsustainable mariculture operations have already substantially reduced or destroyed natural

habitats and ecosystems, Parties should, where possible, undertake restoration programmes.

II. The clearing-house mechanism should be used to link databases and information networks to collect, share and disseminate data related to responsible mariculture measures.

III. The Conference of the Parties is invited to request the SBSTTA to monitor the development and provide input into the draft FAO Code of Conduct for Responsible Fisheries, in order to ensure that the Code is consistent with the objectives and provisions of the Convention on Biological Diveristy.

IV. National reports (Article 26) and national biodiversity strategies and action plans (Article 6) should include an examination of mariculture operations within the jurisdiction of Parties, and steps to avoid significant adverse impacts on marine and coastal biodiversity in the above ways.

16. On alien species, the SBSTTA recommends to the second meeting of the Conference of the Parties that, consistent with Articles 8(h) and 8(l) of the Convention on Biological Diversity, the Parties should, as far as possible and appropriate:

I. Include in their national plans:

(a) Means to prevent, control, or eradicate, where possible, those alien species which threaten ecosystems, habitats or species (Article 8, paragraph (h)). These means might include the implementation of international protocols and guidelines (e.g. the International Maritime Organization (IMO) ballast water guidelines or the International Council for the Exploration of the Sea (ICES) Code of Practice).

(b) Conduct of environmental impact assessments, including risk assessment, prior to the intentional introduction of alien species (Article 14.1, paragraph (a)) and consult with neighboring States before introducing alien species into shared waters. To minimize unintentional introductions, components of an assessment might include identification of primary pathways for unintentional introductions; identification of types of organisms with the greatest potential to be dangerous; mitigation techniques to minimize unintentional introductions; monitoring to identify the establishment of alien species; and development of means for elimination of hazardous alien species.

(c) Prior to intentional introduction, an assessment should be made of possible indigenous species alternatives, whether the introduced species can be adequately monitored (per Article 7, paragraph (c)), and whether adverse effects can be reversed within two human generations (as recommended by the draft FAO Code of Conduct for Responsible Fisheries). Additional assessment should include: (i) biological information on the species in its native habitat, including life stages and trophic level; (ii) results of previous introductions elsewhere; (iii) potential impact on indigenous species, through, e.g. predation and competition, or on ecosystem function; (iv) associated pathogens and parasites and ability to treat or screen for such organisms; (v) potential for habitat modification; and (vi) the potential for interbreeding with and deleterious genetic impacts on indigenous species/stocks. The assessment should take into account that organisms transferred from one ecosystem to another may not maintain the same characteristics in the new ecosystem.

(d) Conduct of environmental impact assessments prior to constructing canals linking coastal water bodies.

(e) Education of the general public to the possible dangers to the ecosystem that could result from the release of ornamental species and unauthorized releases of species for sport fisheries.

II. Be encouraged to conduct research (Article 12) where additional targeted studies would

further the understanding of the impacts of alien species on *in-situ* conservation, including, for example:

(a) undertake ecological surveys and ballast discharge water surveys to help establish baseline data and level of risk associated with introductions through ballast water, including on the effects of introduction of harmful algal species through ballast water;

(b) undertake research on the long-term effects of species replacements due to introductions on ecosystem functioning.

17. Furthermore, the SBSTTA recommends that, consistent with Article 18 (Technical and scientific cooperation), the Conference of the Parties:

(a) Establish under the Clearing-house mechanism (CHM), or other data exchange mechanism, information on normal or pathogenic flora and parasites of aquatic species being introduced for mariculture or stocking programmes. Information to be included in the clearing-house would be on infectious agents detected in indigenous, wild or alien cultured stocks, parasitic life-cycles, pathogen-specific methods of detection, and information on disease outbreaks and immune status in commercially shipped stocks. An existing mechanism for epizootics has been established in France (Organisation Internationale Epizootique);

(b) Establish, under the CHM, information from results of environmental impact assessments or similar assessments on introduced species to provide a means of evaluating effective and ineffective methodologies for preventing the introduction of, controlling, and eradicating alien species and minimizing their adverse effects.

18. Additional recommendations for future action by the Conference of the Parties:

(a) The SBSTTA suggests that the Conference of the Parties support efforts of the IMO to draft ballast water guidelines and request an opportunity for the input of the Conference of the Parties into those guidelines. The Conference of the Parties should ensure that the guidelines are consistent with the objectives and provisions of the Convention on Biological Diversity;

(b) The Conference of the Parties should contact relevant international bodies and instruments (for example, FAO) with a view to ensuring adequate controls of intentional introductions of alien or living modified organisms that have adverse effects on marine biodiversity.

19. Recommendations for the second meting of the Conference of the Parties to consider for the medium-term work programme:

(a) Review the draft IMO ballast water guidelines to ensure that the guidelines are consistent with the objectives and provisions of the Convention on Biological Diversity;

(b) Review information provided by Parties and other sources on the assessment of alien species introduction to gain from past experience

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Annex to Recommendation I/8

Please note: As SBSTTA explained in paragraph 1 of recommendation I/8, it added this Annex to elaborate on the rationale for its recommendations.

I. INTEGRATED MARINE AND COASTAL AREA MANAGEMENT

Introduction

1. Coastal and marine areas contain some of the world's most diverse and productive systems. They include extensive areas of complex and specialized ecosystems, such as enclosed seas and tidal systems, estuaries, salt marshes, coral reefs, seagrass beds and mangroves that are sensitive to human activities, impacts and interventions.

2. Pressures on these systems are growing more intense. As rapid development and population growth continue in coastal areas, increasingly heavy demands will be placed on the natural resources and remaining natural habitats along the coasts. Unless corrective measures are taken, environmental degradation and

over-exploitation will erode marine and coastal biological diversity, undermine productivity, and intensify conflicts over the increasingly scarce resources of the coastal zone.

3. The most important present and potential threats to marine and coastal biological diversity are well known:

(a) alteration and loss of habitat, including destruction of watersheds;
(b) chemical pollution and eutrophication, including from land-based activities;
(c) global climate change;
(d) invasions of alien species; and
(e) over-exploitation of living marine and coastal resources.

4. These threats cannot be treated separately, as ecosystem functions and processes are connected over wide distances. Singly, or in combination, these human perturbations can lead to structural and functional transformations of ecosystems.

5. Since threats will vary between regions and countries, depending on differences in ecological processes, level of availability of funding and economic and social activities, the Parties will need to tailor management regimes to the specific needs of each area.

Integrated Marine and Coastal Area Management

6. Current sectoral approaches to the management of marine and coastal resources have generally not proven capable of conserving marine and coastal biological diversity. New models are needed to move planners toward multiple-use, systems-oriented modes of management, based on precautionary approaches and ecosystem management principles. Wide adoption and implementation of integrated marine and coastal area management are necessary for effective conservation and sustainable use of marine and coastal biological diversity.

7. Integrated marine and coastal area management is a participatory process for decision-making to prevent, control, or mitigate adverse impacts from human activities in the marine and coastal environment, and to contribute to the restoration of degraded coastal areas. It involves all stakeholders, including: decision makers in the public and private sectors; resource owners, managers and users; nongovernmental organizations; and the general public. Community-based management approaches have proven particularly important. Integrated management programmes have already demonstrated their potential as an effective tool in developed and developing countries around the world.

8. On the regional level, integrated management of marine and coastal ecosystems could be promoted through the Large Marine Ecosystem approach to monitor and evaluate ecosystem health. Through ensuring the integrity and productivity of large-scale ecosystems, continuous benefits can be derived from the vast array of biological resources they contain.

Marine and Coastal Protected Areas

9. Within the context of national and regional efforts to promote integrated marine and coastal area management, networks of marine and coastal protected areas, other conservation areas, and biosphere reserves, provide useful and important management tools for different levels of conservation, management and sustainable use of marine and coastal biological diversity and resources, consistent with customary international law.

II. SUSTAINABLE USE OF LIVING MARINE AND COASTAL RESOURCES

10. Many of the world's fishery resources are in danger of depletion. The impacts of these activities can be direct and indirect. In addition, other living resources, for example mangroves, coral species and species amenable to bio-prospecting, are subject to or under threat of over-exploitation. The principal impact of over-exploitation is unsustainable removal of living marine and coastal resources. The most significant indirect impacts on biodiversity include habitat destruction, bycatch and ancillary impacts on interacting species or ecosystems. The overall goal is to achieve conservation and long-term sustainable use of living marine and coastal resources in a manner that respects both societal interests and the integrity of ecosystems.

III. MARICULTURE

11. Mariculture production worldwide is growing at the rate of about 5 to 7 per cent annually. Currently, the main types of marine organisms being produced through mariculture include seaweeds, mussels, oysters, shrimps, prawns, salmon and other species of fish. Mariculture offers possibilities for sustainable protein-rich food production and for economic development of local communities. However, mariculture on an industrial scale may pose several threats to marine and coastal biodiversity due to, for example, wide-scale destruction and degradation of natural habitats, nutrients and antibiotics in mariculture wastes, accidental releases of alien or living modified organism resulting from modern biotechnology, transmission of diseases to wild stocks, and displacement of local and indigenous communities. Noting this situation, a precautionary approach should be applied to any mariculture development, in accordance with the preamble of the Convention on Biological Diversity.

IV. ALIEN SPECIES

12. Alien components of biodiversity, including species, genetic strains, mixed genetic stock and living modified organisms, have the potential for significant, non-reversible, adverse impacts on marine and coastal biodiversity. Such impacts generally tend to be unpredictable. When they are adverse, they tend to homogenize and simplify biotic communities. Eradication of established alien species is difficult, if not impossible. One means to mitigate damage due to these components is to make introductions subject to rigorous prior environmental impact assessments.

13. Alien species can be introduced inadvertently and intentionally. Non-intentional introductions primarily result from the discharge of ballast water, escapees from mariculture, organisms associated with species introduced intentionally, and unauthorized releases by the public. Furthermore, it should be recognized that introductions result from the engineering of waterways connecting previously separate bodies of water.

14. Intentional introductions occur primarily for mariculture production, including marine ranching, although an additional significant pathway is by release of hatchery-spawned organisms into the wild for the purpose of augmenting wild populations, generally for future capture in fisheries or in an attempt to enhance a population that is under threat. Particularly in the case of intentional introductions, alien species may include those resulting from the interbreeding of different genetic stocks or that have been genetically modified.

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COP Decision II/10: CONSERVATION AND SUSTAINABLE USE OF MARINE AND COASTAL BIOLOGICAL DIVERSITY

please note: Annexes I and II (reprinted below) form an integral part of decision II/10. Annex I provides additional conclusions to the supported paragraphs 10-19, of SBSTTA recommendation I/8. Annex II provides for a draft programme for further work on marine and coastal biological diversity

The Conference of the Parties,

Recalling that the Conference of the Parties decided to address, at its second meeting, advice from the Subsidiary Body on Scientific, Technical and Technological Advice on the scientific, technical and technological aspects of the conservation and sustainable use of marine and coastal biological diversity,

Being deeply concerned at the serious threats to marine and coastal biological diversity caused by factors including physical alteration, destruction and degradation of habitats, pollution, invasion of alien species, and over-exploitation of living marine and coastal resources,

1. *Takes note* of recommendation I/8 on scientific, technical and technological aspects of the conservation and sustainable use of marine and coastal biological diversity, adopted by the first meeting of the Subsidiary Body on Scientific, Technical and Technological Advice, held in Paris at the headquarters of the United Nations Educational, Scientific and Cultural Organization, from 4 to 8 September 1995, and;

(a) *Affirms* that it represents a solid basis for future elaboration of the issues presented;

(b) *Supports* the recommendations in paragraphs 10-19 of recommendation I/8, subject to Annex I of the present decision and its further elaboration by the Subsidiary Body on Scientific, Technical and Technological Advice and the Conference of the Parties;

(c) *Reaffirms* the importance of future work by the Subsidiary Body on Scientific, Technical and Technological Advice to provide a balanced perspective on the remaining issues presented by the recommendations in I/8 and Annex I of the present decision relevant to the conservation and sustainable use of marine and coastal biodiversity;

2. *Encourages the use of* integrated marine and coastal area management as the most suitable framework for addressing human impacts on marine and coastal biological diversity and for promoting conservation and sustainable use of this biodiversity;

3. *Encourages* Parties to establish and/or strengthen, where appropriate, institutional, administrative, and legislative arrangements for the development of integrated management of marine and coastal ecosystems, plans and strategies for marine and coastal areas, and their integration within national development plans;

4. *Takes note* of the recently finalized Food and Agriculture Organization of the United Nations Code of Conduct for Responsible Fisheries, the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and the Washington Declaration and Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, and supports their implementation, including that by Parties, in ways that are consistent with, and conform to, the objectives of the Convention on Biological Diversity;

5. *Welcomes* the International Coral Reef Initiative as a means to address threats to coral reefs and related ecosystems and encourages participation in International Coral Reef Initiative activities to implement its Framework for Action;

6. *Reaffirms* that under Article 25 the Subsidiary Body on Scientific, Technical and Technological Advice is the only scientific, technical and technological authority under the Convention to provide advice to the Conference of the Parties;

7. *Instructs* the Executive Secretary to provide, in accordance with Annex II, the Subsidiary Body on Scientific, Technical and Technological Advice with scientific, technical, and technological advice and options for recommendations to the Conference of the Parties in further elaborating the recommendations contained in recommendation I/8, with the exception of paragraphs 3 and 4;

8. *Offers* the Executive Secretary the following guidance for conducting the work described in paragraph 7:

(a) Solicit input from all Parties and, as appropriate, from other countries and relevant bodies;

(b) Establish, on the basis of country input, a roster of experts with specialization appropriate to the work described in paragraph 7;

(c) The roster will draw upon expertise from scientific, technical, technological, social, management, economic, policy, legal, and indigenous and traditional knowledge;

(d) Convene, as appropriate, meetings of experts, drawn from the roster to support the Secretariat in advancing the work described in paragraph 7. Each meeting shall be for a duration of no longer than five days, and shall be comprised of no more than 15 experts with due regard to geographical representation and to the special conditions of least-developed countries and small island developing States;

9. *Welcomes* the offer from Indonesia to be host country for the first such meeting of Experts on Marine and Coastal Biological Diversity;

10. *Decides* to forward this decision and its annexes to the next session of the Commission on Sustainable Development for its information when considering its review of Agenda 21, chapter 17, on oceans;

11. *Decides* to forward this decision and annexes to the Global Environment Facility, other funding agencies and other relevant international bodies, to be taken into account in considering activities related to the conservation and sustainable use of marine and coastal biological diversity;

12. *Requests* the Executive Secretary, in consultation with the United Nations Office for Ocean Affairs and the Law of the Sea, to undertake a study of the relationship between the Convention on Biological Diversity and the United Nations Convention on the Law of the Sea with regard to the conservation and sustainable use of genetic resources on the deep seabed, with a view to enabling the Subsidiary Body on Scientific, Technical and Technological Advice to address at future meetings, as appropriate, the scientific, technical, and technological issues relating to bio-prospecting of genetic resources on the deep seabed;

13. *Invites* international and regional bodies responsible for legal instruments, agreements and programmes which address activities relevant to the conservation and sustainable use of marine and coastal biodiversity, including the United Nations General Assembly, the Food and Agriculture Organization of the United Nations, the United Nations Environment Programme, the International Maritime Organization, the United Nations Office for Ocean Affairs and the Law of the Sea, the United Nations Educational, Scientific and Cultural Organization including its Intergovernmental Oceanographic Commission, the World Conservation Union (IUCN), the Commission on Sustainable Development, the International Coral Reef Initiative, regional fisheries bodies, migratory species agreements, secretariats of regional agreements for the conservation of the marine environment and other relevant international and regional organizations and institutions, to review their programmes with a view to improving existing measures and developing new actions which promote conservation and sustainable use of marine biological diversity, taking into account the recommendations for action by the Parties to the Convention on Biological Diversity adopted by the Conference of the Parties at its second meeting, and provide information on their actions on a regular basis to the Conference of the Parties and, in a first instance, as soon as possible through the Executive Secretary. Furthermore, these various institutions are invited to cooperate with the Conference of the Parties through

the Subsidiary Body on Scientific, Technical and Technological Advice in planning and implementation of programmes affecting marine and coastal biological diversity, so as to reduce any unnecessary duplication or gaps in coverage;

14. *Decides* to request the Subsidiary Body on Scientific, Technical and Technological Advice to carry out a summary review at its next meeting of the first report from the Executive Secretary and to submit in its report to the Conference of the Parties its recommendation on the work of the Executive Secretary.

Annex I to decision II/10

ADDITIONAL CONCLUSIONS ON RECOMMENDATION I/8 ADOPTED BY THE SUBSIDIARY BODY ON SCIENTIFIC, TECHNICAL AND TECHNOLOGICAL ADVICE AT ITS FIRST MEETING (UNEP/CBD/COP/2/5)

(i) Some delegations indicated their concern that paragraphs 10-19 were unbalanced in that they over-emphasized fishery issues, rather than some other issues such as pollution. Other delegations had an interest in highlighting the impacts of unsustainable fishing activities on marine and coastal biodiversity.

(ii) In relation to paragraph 10, crucial components of integrated marine and coastal area management are relevant sectoral activities, such as construction and mining in coastal areas, mariculture, mangrove management, tourism, recreation, fishing practices and land-based activities, including watershed management. Parties should, where appropriate and practical, prevent physical alteration, destruction and degradation of vital habitats and pursue restoration of degraded habitats, including spawning areas, nurseries of stocks of living marine resources, bearing in mind the objectives of the Convention on Biological Diversity and the need to provide a balanced approach to the use and conservation of marine and coastal biological diversity.

(iii) Parties are encouraged to undertake and exchange information on demonstration projects as practical examples of integrated marine and coastal area management.

(iv) In relation to paragraph 11, critical habitats for living marine resources should be an important criterion for the selection of marine and coastal protected areas, within the framework of integrated marine and coastal area management, taking into consideration the objectives of the Convention on Biological Diversity. Conservation measures should emphasize the protection of ecosystem functioning, in addition to protecting specific stocks.

(v) In reference to paragraph 12, the present mono-species approach to modelling and assessment should be augmented by an ecosystem process-oriented approach, based on research of ecosystem processes and functions, with an emphasis on identifying ecologically critical processes that consider the spatial dimension of these processes. Models of ecosystem processes should be developed through trans-disciplinary scientific groups (ecologists, oceanographers, economists, and fisheries experts) and be applied in the development of sustainable land and coastal resource use practices.

(vi) Paragraph 13 refers to the draft Food and Agriculture Organization of the United Nations Code of Conduct for Responsible Fisheries. The Code was adopted by the 28th session of the Conference of the Food and Agriculture Organization of the United Nations, in October 1995. The Food and Agriculture Organization of the United Nations is now undertaking the development of technical guidelines for the implementation of the Code. The Conference of the Parties can offer the technical expertise of the Subsidiary Body on Scientific, Technical and Technological Advice in the elaboration and implementation of these guidelines, in line with the objectives and provisions of the Convention on Biological Diversity.

(vii) In relation to paragraph 14(a), the inclusion of subsidies was contentious. Some delegates stressed that the issue of subsidies was politically sensitive, with potential trade implications. It was noted

that these issues address one of the underlying causes of biological diversity loss, *viz*, the result of over-fishing, and this consideration remained an important recommendation from the report of the Subsidiary Body on Scientific, Technical and Technological Advice. It was also noted that there were a variety of other subsidies which had impacts on the conservation and sustainable use of marine and coastal biological diversity. The Executive Secretary is entitled to evaluate these aspects using a meeting of experts. Some delegations argued that the phrase "subsidies for fisheries" appeared ambiguous. Government subsidies related to fishing activities have a great variety in their modalities. In addition, subsidies should not be evaluated alone. Evaluation of subsidies for fisheries should be conducted in relation to, or in conjunction with, considerations of fisheries management. It would be most appropriate to examine the various existing subsidies in the light of Article 11, which refers to economically and socially sound incentive measures.

(viii) Also, in relation to paragraph 14, cooperation between regional fisheries bodies and regional organizations for protection and conservation of the marine environment should be promoted.

(ix) In relation to paragraph 15, the Parties should enhance and improve the knowledge regarding the genetic structure of the local populations of marine species subjected to stock enhancement and sea-ranching activities. Considering that the captive-bred populations are likely to interact genetically and ecologically with wild populations, this knowledge should be used in the management of breeding stocks according to sound genetic principles that take into account the use of local populations for stock selection, minimum breeding numbers and the renewal frequency of the breeding stock from the wild population.

(x) Mariculture (paragraph 15) is assumed to include culture-based fisheries and is defined here to be aquaculture in marine or brackish water. According to the Food and Agriculture Organization of the United Nations, "aquaculture is the farming of aquatic organisms including fish, molluscs, crustaceans and aquatic plants. Farming implies some form of intervention in the rearing process to enhance production, such as regular stocking, feeding, protection from predators, etc. Farming also implies individual or corporate ownership of the stock being cultivated". Although the Food and Agriculture Organization of the United Nations requires "ownership of the stock being cultivated" in its definition, no such restriction is adopted here for the purpose of this document.

(xi) Some Parties thought paragraph 15(I)(e) would be better expressed as "because of the difficulties of complete containment, introduction of alien species, products of selective breeding, and living modified organisms resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of marine and coastal biodiversity should be responsibly conducted using the precautionary approach. Therefore, adherence to international codes of practice such as the Food and Agriculture Organization of the United Nations Code of Conduct for Responsible Fisheries, the International Commission for the Exploration of the Sea, and the Organisation Internationale Epizootique should be a minimum requirement. Assessments and an appropriate monitoring programme should be put in place if introduction goes ahead. Preference should be given to the use of local species. Furthermore, development of technology to ensure a more complete containment should be encouraged."

Annex II to decision II/10

DRAFT PROGRAMME FOR FURTHER WORK ON MARINE AND COASTAL BIOLOGICAL DIVERSITY

1. The Executive Secretary will use as the basis of work recommendation I/8 of the Subsidiary Body on Scientific, Technical and Technological Advice (contained in document UNEP/CBD/COP/2/5), this decision and further inputs, if any, from the Conference of the Parties.

2. The Executive Secretary should use the roster of experts on Marine and Coastal Biodiversity to address the following topics:

(a) Identify options for a pragmatic but comprehensive approach in addressing marine and coastal biological diversity on the basis of an ecosystems approach, including its components at the levels of species and genetic resources, distinguishing regions at relevant scales. Use the results from this activity in identifying the gaps in knowledge of the distribution and abundance of marine and coastal biodiversity;

(b) Identify the particular needs for conservation and sustainable use of marine and coastal biological diversity in the context of activities which will impact on marine resources;

(c) Review the mandates and activities under international agreements that affect marine and coastal biological diversity, and develop analyses that can be offered by the Conference of the Parties to the relevant institutions as to the implications of the Convention on Biological Diversity for these activities.

3. In addressing these issues, the following approaches should be applied:

(a) The work should not be impeded by the lack of full scientific information and will incorporate explicitly the precautionary approach in addressing conservation and sustainable use issues;

(b) The Executive Secretary may interact with a wide range of agencies and organizations competent in the aspects of marine and coastal biodiversity under deliberation to avoid unnecessary duplication and ensure effectiveness and cost-effectiveness;

(c) Recommendations should be made for scientific, technical and technological needs for capacity-building and technology transfer for the conservation and sustainable use of marine and coastal resources at the national, regional, and international levels in the context of the issue being addressed;

(d) The scientific, technical, and technological knowledge of local and indigenous communities should be incorporated, as appropriate, as well as community and user-based approaches, in the conservation and sustainable use of marine and coastal biodiversity;

(e) Use should be made, as appropriate, of the clearing-house mechanism and national reports of Parties.

4. The Executive Secretary shall produce, among other relevant documents, the following outputs:

(a) Options for the conservation and sustainable use of biological diversity and its components in the implementation of marine and coastal management and planning practices, including options for the development of integrated marine and coastal area management at regional and national levels;

(b) Annual reports to the Subsidiary Body on Scientific, Technical and Technological Advice, submitted 90 days prior to each meeting of that body. The first annual report will include a three-year work plan.

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COP Decisions IV/5: Conservation and sustainable use of marine and coastal biological diversity, including a programme of work

The Conference of the Parties,

I. PROGRAMME OF WORK ARISING FROM DECISION II/10 (JAKARTA MANDATE ON MARINE AND COASTAL BIOLOGICAL DIVERSITY)

Reaffirming its decision II/10 on the conservation and sustainable use of marine and coastal biological diversity,

Having considered recommendation III/2 of its Subsidiary Body on Scientific, Technical and Technological Advice,

1. *Adopts* the programme of work on marine and coastal biological diversity, as contained in the annex to the present decision;

2. *Urges* Parties, countries, relevant organizations and donor agencies to contribute to the implementation of specific elements of the programme of work;

3. *Urges* Parties, when requesting for assistance through the financial mechanism of the Convention, to propose projects which, while being fully consistent with previous guidance of the Conferences of the Parties, promote the implementation of the programme of work;

4. *Urges* the Executive Secretary to cooperate with the Convention on Wetlands of International Importance, especially as Waterfowl Habitat, where appropriate, in relation to the implementation of the joint work plan having regard to linkages with the programme of work on inland water biological diversity adopted by decision IV/4;

II. CORAL REEFS

Being deeply concerned at the recent extensive and severe coral bleaching, such as that reported by the African countries, caused by abnormally high water temperatures experienced since January 1998,

Recognizing the potentially severe loss of biological diversity and consequent socio-economic impacts, and

Noting this occurrence as a possible consequence of global warming and in light of the precautionary approach,

1. *Requests* the Subsidiary Body on Scientific, Technical and Technological Advice to make an analysis of this phenomenon and provide relevant information to the fifth meeting of the Conference of the Parties for its consideration;

2. *Instructs* the Executive Secretary to express its concern to the Executive Secretary of the United Nations Framework Convention on Climate Change and the Secretary-General of the Convention on Wetlands and convey it to the conferences of the Parties to the United Nations Framework Convention on Climate Change and the Convention on Wetlands at their next meetings;

3. *Invites* the United Nations Framework Convention on Climate Change to urgently address this issue in its deliberations; and

4. *Urges* Parties, with reference to programme element 1.3 (c) of the programme of work, to take appropriate actions to mitigate impacts upon marine and coastal biological diversity and consequent socio-economic effects.

III. SMALL ISLAND DEVELOPING STATES

Recognizing the uniqueness and extreme fragility of marine and coastal biological diversity of small island developing States (SIDS), the disproportionate responsibility facing small island developing States in the conservation of these biological resources and the limited capacity of small island developing States to implement the Jakarta Mandate on Marine and Coastal Biological Diversity,

Strongly recommends to Parties, countries, relevant organizations and donor agencies that the special needs and considerations of small island developing States be a focus for implementing each of the elements of the programme of work, as appropriate.

Decision IV/5: Annex
Programme of Work on Marine and Coastal Biological Diversity

A. Introduction

1. The aim of this programme of work is to assist the implementation of the Jakarta Mandate on Marine and Coastal Biological Diversity at the national, regional and global levels. It identifies key operational objectives and priority activities within the five key programme elements: integrated marine and coastal area management, marine and coastal living resources, marine and coastal protected areas, mariculture and alien species and genotypes. It also provides a general programme element to encompass the coordination role of the Secretariat, the collaborative linkages required and the effective use of experts.

B. Basic principles

Ecosystem approach

2. The ecosystem approach should be promoted at global, regional, national and local levels taking into account the report of the Malawi workshop (document UNEP/CBD/COP/4/Inf.9) and in accordance with decision IV/1B.

3. Protected areas should be integrated into wider strategies for preventing adverse effects to marine and coastal ecosystems from external activities and take into consideration, inter alia, the provisions of Article 8 of the Convention.

Precautionary approach

4. The precautionary approach, as set out in decision II/10, annex II, paragraph 3 (a), should be used as a guidance for all activities affecting marine and coastal biological diversity, being also relevant to many other international agreements, inter alia, the United Nations Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks and the Code of Conduct for Responsible Fisheries of the Food and Agriculture Organization of the United Nations, the Washington Global Programme of Action for the Protection of the Marine Environment from Land-based Activities and regional agreements such as OSPAR.

The importance of science

5. Science should, inter alia, provide knowledge on key processes and influences in the marine and coastal ecosystems which are critical for structure, function and productivity of biological diversity. Research should focus on understanding the natural factors outside human influence, including intrinsic factors influencing ecosystems themselves, as well as on human interference with ecosystems.

6. Special efforts should be undertaken to support the Global Taxonomy Initiative in the marine and coastal environment in view of the importance of basic taxonomic work for the implementation of the objectives of the work programme, in accordance with decision IV/1 D.

7. It is important to draw upon regional scientific organizations, such as the International Council for the Exploration of the Sea (ICES). The creation and strengthening of regional scientific centres of excellence on the marine and coastal ecosystems, that provide guidance to regional and national managers, should be given priority.

Roster of experts

8. The Executive Secretary should make full use of the roster of experts on marine and coastal biological diversity. The use and administration of the roster by the Executive Secretary should be efficient, effective and transparent. Upon request of the Executive Secretary, Parties or other countries and relevant bodies, the experts on the roster are invited to make available their specific expertise in order to contribute to the further development of the scientific, technical, technological and socio-economic issues. Such requests could entail, inter alia, peer reviews, questionnaires, clarifications or examinations of scientific, technical, technological and socio-economic issues, specific contributions to the compilation of documents, participation in the global and regional workshops, and assisting in connecting the Jakarta Mandate and the present programme of work to international, regional, national and local scientific, technical and technological processes.

Local and indigenous communities

9. The programme of work will use and draw upon scientific, technical and technological knowledge of local and indigenous communities in keeping with the contents of Article 8(j) of the Convention as well as community and user-based approaches; in the execution of the programme of work, the involvement of relevant stakeholders including indigenous and local people should be promoted.

Levels of implementation

10. National and local. The primary basis for this programme of work is action at national and local levels. The Parties should, in accordance with Article 6 of the Convention, develop national strategies, plans and programmes in order to promote the conservation and

sustainable use of marine and coastal biological diversity.

11. Regional. At the regional level, organizations, arrangements and bodies should be invited to coordinate activities of and/or relevant to the programme of work. These organizations should as appropriate and according to their own rules of procedure report to the Convention on their activities. Where regional organizations have not been established, the Parties and other institutions should examine the need for new regional organizations or other mechanisms for regional integration. Cooperation and information flow between the economic sectors involved should be promoted. Regional scientific and technical centres of excellence should be promoted.

12. Global. At the global level, UNEP (including the Global International Water Assessment), FAO, the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization (UNESCO), the International Maritime Organization, the United Nations and other relevant bodies should be encouraged to implement the programme of work. These organizations should be invited to inform the Convention on their efforts to implement the Convention.

13. Implementation modalities. This programme of work is the programme of work of the Parties and of the Secretariat. The main function of the Secretariat is to promote the implementation of specific activities and to perform an overall coordination role.

14. Activities associated with the programme of work should be cost-effective and efficient. Duplication of efforts will be avoided, and harmonization of respective programmes of work will be pursued through strong coordination between the Convention and other relevant bodies, with a particular view to the list of partner organizations mentioned in decision II/10, paragraph 13, and the Convention on Wetlands.

C. Programme elements

Programme element 1
Implementation of integrated marine and coastal area management (IMCAM)

Operational objective 1.1: To review the existing instruments relevant to IMCAM and their implication for the implementation of the Convention.

Activities:

(a) To identify existing mechanisms and instruments relevant to IMCAM;

(b) To identify focal points for the implementation of IMCAM at different levels (national, regional and global);

(c) Secretariat to gather, compare and analyse information provided by the focal points;

(d) To convene meetings involving representatives of stakeholders at different levels.

Time schedule: 1998-2000 (minimum three-year period)

Ways and means: The activities will be carried out by the Executive Secretary, with the collaboration of an informal inter-agency task force.

Budgetary implications: Costs related to communications and staff travel to inter-agency meetings and to service meetings. Costs related to convening of meeting of stakeholders on the integration of marine and coastal biological diversity into sectoral policies.

Operational objective 1.2: To promote the development and implementation of IMCAM at the local, national and regional level.

Activities:

(a) To promote, within the framework of IMCAM, the integration of biological diversity concerns in all socio-economic sectors adversely impacting the marine and coastal environment;

(b) To promote the identification or establishment of subregional, regional or global processes for developing advice on the application of IMCAM and issues identified under the operational objective;

(c) To promote adequate protection of areas important for reproduction such as spawning and nursery areas and restoration of such areas and other important habitats for marine living resources;

(d) To promote action to reduce and control sea-based sources of pollution.

(e) To assist the development of national and regional capacity-building;

(f) To provide information on relevant legal and institutional issues, having regard to the United Nations Convention on the Law of the Sea (UNCLOS) and other related international and regional agreements;

(g) To assist the development of appropriate education and public awareness programmes at all levels;

(h) To provide guidance on maintenance and wider application of local and traditional knowledge.

Time schedule: 1998-2000 (minimum three-year period)

Ways and means: The activities should be carried out by the Executive Secretary in collaboration with relevant organizations.

Budgetary implications: No significant budgetary implications.

Operational objective 1.3: To develop guidelines for ecosystem evaluation and assessment, paying attention to the need to identify and select indicators, including social and abiotic indicators, that distinguish between natural and human-induced effects.

Activities:

(a) To promote the development of sets of indicators on which to base decision making; and convene regional workshops to help select key indicators;
(b) To identify existing organizations and initiatives;

(c) To promote the identification of key habitats for marine living resources on a regional basis, with a view to further develop policies for action to prevent physical alteration and destruction of these habitats, and pursue restoration of degraded habitats, including, inter alia, coral reef systems;

(d) To promote the establishment or strengthening of mechanisms for research, monitoring and assessment of marine and coastal ecosystems and their living resources;

(e) To promote exchange of information and experience using the clearing-house mechanism and other appropriate mechanisms;

(f) To collaborate with relevant organizations in the preparation of guidelines;

Time schedule: 1998-2000 (minimum three-year programme)

Ways and means: The activities should be carried out by the Executive Secretary and the Subsidiary Body on Scientific, Technical and Technological Advice, as part of the work programme on indicators, monitoring and assessment and in collaboration with relevant organizations.

Budgetary implications: Budgetary implications will be covered under the programmes of work on indicators, monitoring and assessment and public education, training and awareness. Voluntary contributions for regional workshops on indicators and public education, training and awareness activities are needed.

Programme element 2. Marine and coastal living resources

Operational objective 2.1: To promote ecosystem approaches to the sustainable use of marine and coastal living resources, including the identification of key variables or interactions, for the purpose of assessing and monitoring, first, components of biological diversity; second, the sustainable use of such components; and, third, ecosystem effects.

Activities:

(a) To develop collaborative links with relevant organizations and institutions;

(b) To promote the exchange of information and experience using appropriate mechanisms;

(c) To promote the identification and development of ecosystem approaches compatible with the sustainable use of marine and coastal living resources;
(d) To promote the identification both of components of the ecosystems which are critical to the functioning of the ecosystem and of key threats;

(e) To promote capacity-building at local, national and regional levels, including local and traditional knowledge;

(f) To carry out a study on the effects of stock enhancement on marine and coastal biological diversity at the species and genetic levels.

Time schedule: 1998-2000 (minimum three-year period)

Ways and means: The Executive Secretary shall promote the undertaking of the activities by relevant organizations and institutions. The information dissemination aspects should be included in the work plan of the clearing-house mechanism unit. The Executive Secretary shall attempt to establish an informal inter-agency task force for this work.

Budgetary implications: Costs related to communications and travel to inter-agency meetings. Relevant organizations are invited to conduct the study, within the framework of existing cooperative arrangements. Additional contributions from Parties, countries and organizations in the organization of capacity building activities are expected.

Operational objective 2.2: To make available to the Parties information on marine and coastal genetic resources, including bioprospecting.

Activity

To explore ways to expand the knowledge base on which to make informed and appropriate decisions about how this area might be managed in accordance with the objectives of the Convention.

Time schedule: 1998/ongoing

Ways and means: The activity should be implemented by the Executive Secretary, making full use of the roster of experts.

Budgetary implications: No significant budgetary implications.

Programme element 3
Marine and Coastal Protected Areas

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.

Activities:

(a) To collaborate with relevant organizations in the preparation of project proposals;

(b) To work with relevant organizations to identify pilot projects;

(c) To conduct a desk study to gather and assimilate information;

(d) To identify the linkages between conservation and sustainable use;

(e) To facilitate Parties, countries or international/regional organizations in conducting research on the effects of marine and coastal protected or closed areas on population size and dynamics, subject to national legislation.

Time schedule: 1998-onwards (three to five-year period)

Ways and means: The Executive Secretary, in collaboration with relevant organizations and agencies, involving also funding agencies or donor countries, will facilitate and assist in the preparation of project documents and identify pilot projects for research and monitoring, as well as conduct the desk study. The projects should be undertaken by Parties and countries or competent organizations. The Executive Secretary, starting from the roster of experts, will select the names

of an ad hoc technical expert group and elaborate the terms of reference for it, both to be endorsed by the Subsidiary Body on Scientific, Technical and Technological Advice. The expert group will carry out its activities under the Subsidiary Body on Scientific, Technical and Technological Advice and will work through electronic correspondence and teleconferences.

Budgetary implications: Costs related to communications. Additional voluntary contributions are needed from Parties or donor countries or funding agencies to fund the projects, the amount depending on the number, nature and scale of the projects.

Operational objective 3.2: To develop criteria for the establishment of, and for management aspects of, marine and coastal protected areas.

Activities:

(a) To compile research findings on aspects of marine and coastal protected areas relevant to their selection, design, establishment and management;

(b) To assist in developing criteria for selection of marine and coastal protected areas, where critical habitats for marine living resources should be one important criterion;

(c) Using the clearing-house mechanism, to assist the exchange of information on research, management issues and problems (including incentive measures) between marine protected area managers, to facilitate continuous improvement in management effectiveness across the global network of marine protected areas;
(d) To implement activities as in subparagraphs (e) to (h) under operational objective 1.2.

Time schedule: 1998-2000 (minimum three-year programme)

Ways and means: The basis for undertaking these activities should be collaboration between the Executive Secratary, under the guidance of the Subsidiary Body on Scientific, Technical and Technological Advice, and relevant international, national and non-governmental organizations. The creation of an informal task force may be an appropriate mechanism, conducting its work through regular communication and through periodic meetings as required.

Budgetary implications: Costs related to communications and to staff travel to inter-agency meetings and to service meetings.

Programme element 4
Mariculture

Operational objectives: To assess the consequences of mariculture for marine and coastal biological diversity and promote techniques which minimize adverse impact.

Activities:

(a) To provide guidance on criteria, methods and techniques which avoid the adverse effects of mariculture and also subsequent stock enhancement on marine and coastal biological diversity and enhance the positive effects of mariculture on marine and coastal productivity;

(b) To collect and disseminate information, data, literature and bibliography relevant to the operational objective and best practice of successful sustainable mariculture, including the use of local species where appropriate;

(c) To evaluate the current state of scientific and technological knowledge on the effects of mariculture on marine and coastal biological diversity.
Time schedule: 1999-onwards (minimum three-year period)

Ways and means: Coordination of this programme of activities within the Secretariat creates the need for a professional with specific high-level expertise. This need could probably best be met through the secondment by a Party or specialized institution of an appropriate professional. To be successful and cost-effective, the work would need to draw upon specialist scientific knowledge world-wide. It would thus need to be supported by the establishment of an ad hoc technical expert group under the Subsidiary Body on Scientific, Technical and Technological Advice, taking into consideration the roster of experts. Operational aspects

thus suggest that this work be undertaken from 1999 onwards.

Budgetary implications: Voluntary contribution by a Party or institution to cover the costs of the secondee. Costs for communications and travel to service meetings. Costs related to the convening of expert meeting(s).

Programme element 5
Alien species and genotypes

Operational objective 5.1: To achieve better understanding of the causes of the introduction of alien species and genotypes and the impact of such introductions on biological diversity.

Activities:

(a) To analyse and disseminate information, data and case-studies on the subject;

(b) To develop collaboration with relevant organizations;

(c) To ensure exchange of information and experience, using appropriate mechanisms.

Time schedule: 1998-2000 (minimum three-year period)

Ways and means: The Executive Secretary, under the guidance of the Subsidiary Body on Scientific, Technical and Technological Advice, will seek the assistance of relevant organizations through an informal inter-agency task force. In particular, the options will be investigated for collaboration with UNEP, the Scientific Committee on Problems of the Environment (SCOPE), the International Council for the Exploration of the Sea (ICES) and the World Conservation Union (IUCN) Invasive Species Specialist Group and the Global Invasive Species Programme in the development of a global strategy and action plan. In carrying out this work, it is expected that Parties or specialized institutions will second a specialist.

Budgetary implications: Voluntary contribution by a Party or institution to cover the costs of the secondee. Costs for communications.

Operational objective 5.2: To identify gaps in existing or proposed legal instruments, guidelines and procedures to counteract the introduction of and the adverse effects exerted by alien species and genotypes which threaten ecosystems, habitats or species, paying particular attention to transboundary effects; and to collect information on national and international actions to address these problems, with a view to prepare for the development of a scientifically-based global strategy for dealing with the prevention, control and eradication of those alien species which threaten marine and coastal ecosystems, habitats and species.

Activities:

(a) To request views and information from Parties, countries and other bodies;

(b) To analyse the information for the purpose of identifying gaps in legal instruments, guidelines and procedures;

(c) To evaluate the information on the effectiveness of efforts to prevent the introduction of, and to control or eradicate, those alien species which may threaten ecosystems, habitats or species;

(d) To identify means to support capacity-building in developing countries to strengthen their ability to conduct work related to alien species.

Time schedule: 1998-2000 (minimum three-year period)
Ways and means: The activities will be carried out by the Executive Secretary, in collaboration with Parties, countries and other relevant bodies and in cooperation with UNEP, IOC and IMO. It is proposed that a conference with global participation be held and that a Party or specialized institution will be able to host the conference. It is anticipated that the peer review process will be followed for the output of this programme activity.

Budgetary implications: Costs related to communications and staff travel servicing the conference. Voluntary contributions for holding the conference are needed.

Operational objective 5.3: To establish an "incident list" on introductions of alien species and genotypes through the national reporting process or any other appropriate means.

Activities:

(a) To distil references of incidents from the national reports and other appropriate sources;

(b) To make the information available through the clearing-house mechanism or other appropriate mechanisms.

Time schedule: Such information gathering can begin immediately and be informed by national reports as they are provided.

Ways and means: Secretariat

Budgetary implications: Costs related to additional staff time within the national reports unit and the clearing-house mechanism unit.

Programme element 6. General

Operational objective 6.1: To assemble a database of initiatives on programme elements through a cooperative approach with relevant organizations and bodies, with special emphasis on integrated marine and coastal areas management.

Activities:

(a) To identify sources of relevant information and to make this readily available;

(b) To request inputs from Parties, countries and relevant organizations and bodies;

(c) To carry out desk evaluations with the assistance of the roster of experts of available information and to disseminate the findings through the clearing-house mechanism.

Time schedule: 1998-2000 (minimum three-year programme)

Ways and means: Secretariat.

Budgetary implications: Costs related to additional staff time within the clearing-house mechanism unit associated with the design of appropriate databases and posting information.

Operational objective 6.2: To develop a database of experts from the roster and other sources, to be available for the development and implementation of specific elements of national policies on marine and coastal biological diversity, giving full recognition to the importance of taxonomy and following closely the development of the Global Taxonomy Initiative and in accordance with decision IV/1 D. Special consideration should be given to regional perspectives and the setting up of regional centres of taxonomic expertise, as well as to the taxonomy efforts of other intergovernmental programmes, agencies and relevant institutions.

Activities:

(a) To maintain and update regularly a database of experts on marine and coastal biological diversity;

(b) To make the information available through the clearing-house mechanism;

(c) To promote the strengthening of taxonomic expertise at regional and national levels.

Time schedule: Ongoing

Ways and means: Secretariat, also through relevant organizations, in particular those that deal with taxonomic issues.

Budgetary implications: Costs related to additional staff time within the clearing-house mechanism unit associated with the design of the database and of the Jakarta Mandate on Marine and Coastal Biological Diversity home page.

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